```
>MmORX.1.5
YSRTMHQGNQT--AISGFILLGLTVGSEQQLLLFTLFLCMYLVTMVGNSLIILAIISDTHLYSPMYFFLA
NLSFTDICFTTTTVPKILADIQSQNPTISFVGCFTQMYFFMFLVDLDNFLLAAMAYDRYIAICHPLHYAA
LLNPKRCALLVVVPWVISNLVSVLHLSLLSRLPFCDQRVIPHFFCDLEPVLRLACSDTQINNLLILIVGG
TVIFVPFVFILVSYALIGTAVLNVPSVKGKWKTFSTCGSHLSAVSLFYGSIVGVYF-LPASSY-SAERDK
VAAIMYTVVTPMMNPFIYSLRNKDMKRALRRLLSQKSLICSW*----

>MmORX.1.6
YSRTMHQGNQT--AISGFILLGLTVGSEQQLLLFTLFLCMYLVTMVGNSLIILAIISDTHLYSPMYFFLA
NLSFTDICFTTTTVPKILADIQSQNPTISFVGCFTQMYFFMFLVDLDNFLLAAMAYDRYIAICHPLHYAA
LLNPKRCALLVVVPWVISNLVSVLHLSLLSRLPFCDQRVIPHFFCDLEPVLRLACSDTQINNLLILIVGG
TVIFVPFVFILVSYALIGTAVLNVPSVKGKWKTFSTCGSHLSAVSLFYGSIVGVYF-LPASSY-SAERDK
VAAIMYTVVTPMMNPFIYSLRNKDMKRALRRLLSQKSLICSW*----

>SMOR128-2
YSRTMHQGNQT--AISGFILLGLTVGSEQQLLLFTLFLCMYLVTMVGNSLIILAIISDTHLYSPMYFFLA
NLSFTDICFTTTTVPKILADIQSQNPTISFVGCFTQMYFFMFLVDLDNFLLAAMAYDRYIAICHPLHYAA
LLNPKRCALLVVVPWVISNLVSVLHLSLLSRLPFCDQRVIPHFFCDLEPVLRLACSDTQINNLLILIVGG
TVIFVPFVFILVSYALIGTAVLNVPSVKGKWKTFSTCGSHLSAVSLFYGSIVGVYF-LPASSY-SAERDK
VAAIMYTVVTPMMNPFIYSLRNKDMKRALRRLLSQKSLICSW-----

>HsOR11.12.10
----MHQGNQT--TITEFILLGFFKQDEHQNLLFVLFLGMYLVTVIGNGLIIVAISLDTYLHTPMYLFLA
NLSFADISSISNSVPKMLVNIQTKSQSISYESCITQMYFSIVFVVIDNLLLGTMAYDHFVAICHPLNYTI
LMRPRFGILLTVISWFLSNIIALTHTLLLIQLLFCNHNTLPHFFCDLAPLLKLSCSDTLINELVLFIVGL
SVIIFPFTLSFFSYVCIIRAVLRVSSTQGKWKAFSTCGSHLTVVLLFYGTIVGVYF-FPSSTH-PEDTDK
IGAVLFTVVTPMINPFIYSLRNKDMKGALRKLINRKISSL*------

>SOR1S1
IGRNMHQGNQT--TITEFILLGFFKQDEHQNLLFVLFLGMYLVTVIGNGLIIVAISLDTYLHTPMYLFLA
NLSFADISSISNSVPKMLVNIQTKSQSISYESCITQMYFSIVFVVIDNLLLGTMAYDHFVAICHPLNYTI
LMRPRFGILLTVISWFLSNIIALTHTLLLIQLLFCNHNTLPHFFCDLAPLLKLSCSDTLINELVLFIVGL
SVIIFPFTLSFFSYVCIIRAVLRVSSTQGKWKAFSTCGSHLTVVLLFYGTIVGVYF-FPSSTH-PEDTDK
IGAVLFTVVTPMINPFIYSLRNKDMKGALRKLINRKISSL-------

>HsOR11.12.9
----MHQENQT--TITEFILLGLSNQAEHQNLLFVLFLSMYVVTVVGNGLIIVAISLDIYLHTPMYLFLA
YLSFADISSISNSVPKMLVNIQTNSQSISYESCITQMYFSIVFVVTDNLLLGTMAFDHFVAICHPLNYTT
FMRARFGTLLTVISWFLSNIIALTHTLLLIQLLFCDHNTLPHFFCDLAPLLKLSCSDTMINELVLFIVGL
SVIIFPFVLIFFSYVCIIRAVLGVSSTQGKWKAFSTCGSHLTIALLFYGTTVGVYF-FPSSTH-PEDTDK
IGAVLFTVVTPMMNPFIYSLRNKDMKGALRKLINRKISSL*------

>SOR1S2b
ISRNMHQENQT--TITEFILLGLSNQAEHQNLLFVLFLSMYVVTVVGNGLITVAISLDIYLHTPMYLFLA
YLSFADISSISNSVPKMLVNIQTNSQSISYESCITQMYFSIVFVVTDNLLLGTMAFDHFVAICHPLNYTT
FMRARFGTLLTVISWFLSNIIALTHTLLLIQLLFCDHNTLPHFFCDLAPLLKLSCSDTMINELVLFIVGL
SVIIFPFVLIFFSYVCIIRAVLGVSSTQGKWKAFSTCGSHLTIALLFYGTTVGVYF-FPSSTH-PEDTDK
IGAVLFTVVTPMMNPFIYSLRNKDMKGALRKLINRKISSL-------
```

Table S1. Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>SMOR127-1
--MNMDQGNQT--SISEFILLGLSNQAEKQKLIFVIFLSMYLVTVIGNSLIILAIGLDIHLHTPMYLFLA
NLSFADISSSSTSVPKMLMNIQTNSQSISYEGCITQMYFSIVFVVIDNFLLGVMAYDRYVAICHPLNYTN
IMHPRFCLLLSFCPWALSNIVALTHTLLANQLIFCNHNTIQHFFCDLAPLIKLSCSDAMINELVKFVVGL
SVITFPFALILFSYVCIIRDVLRISSTEGKWKAFSTCGSHLTIVFLFYGTIVGVYF-FPSSTH-PEDTDK
IGAVLFTVVTPMLNPFIYSLRNKDMKGALRKLINKSHLLPLMS----

>MmOR19.1.74
--MNMDQENQT--SISEFILLGLSNQAEKQKLIFVIFLSMYLVTVIGNSLIILAIGLDIHLHTPMYLFLA
NLSFADISSSSTSVPKMLMNIQTNSQSISYEGCITQMYFSIVFVVIDNFLLGVMAYDRYVAICHPLNYTN
IMHPRFCLLLSFCPWALSNIVALTHTLLANQLIFCNHNTIQHFFCDLAPLIKLSCSDAMINELVKFVVGL
SVITFPFALILFSYVCIIRDVLRISSTEGKWKAFSTCGSHLTIVFLFYGTIVGVYF-FPSSTH-PEDTDK
IGAVLFTVVTPMLNPFIYSLRNKDMKGALRKLINKSHLLPLMS*---

>SMOR129-1
----MDGDNET--MVAEFLLLGLSGKSEQEEVVFGMFLGMYLVTISGNLLIILAISCDPHLHTPMYFFLA
NLSSVDICFSSVTVPKALVNHVLGSKSISYTECMIQIYFFITFINMDGFLLSVMAYDRYVAICHPLHYTM
MMRSRLCVLLVAISWVITNLHALLHTLLMVRLTFCSHNAVHHFFCDPYPILKLSCSDTFINDLMVFTVGG
VIFLTPFSCIVVSYVYIFSKVLKIPSARGIRKALSTCGSHLTVVSLFYGAILGVYM-RPSSSY-SLQ-DT
VATVIFTVVTPLVNPFIYSLRNQDMKGALRKIMLR-S----------

>MmOR11.2.3
----MDGDNET--MVAEFLLLGLSGKSEQEEVVFGMFLGMYLVTISGNLLIILAISCDPHLHTPMYFFLA
NLSSVDICFSSVTVPKALVNHVLGSKSISYTECMIQIYFFITFINMDGFLLSVMAYDRYVAICHPLHYTM
MMRSRLCVLLVAISWVITNLHALLHTLLMVRLTFCSHNAVHHFFCDPYPILKLSCSDTFINDLMVFTVGG
VIFLTPFSCIVVSYVYIFSKVLKIPSARGIRKALSTCGSHLTVVSLFYGAILGVYM-RPSSSY-SLQ-DT
VATVIFTVVTPLVNPFIYSLRNQDMKGALRKIMLR-S*---------

>MmOR11.2.5
----MDGDNQT--IVTEFILLGLTRQSEKEEVVFGLFLWMYLVTISGNLLIILAISCDPHLHTPMYFFLA
NLSSVDISAPSVIVPKALVNHMLGSKSISYTGCMTQIYFFITFSNMDGFLLSVMAYDRYVAICHPLHYTM
MMRPRLCVLLVAISWAITNLHALLHTLLMVRLTFCSHNAVHHFFCDPYPILKLSCSDTFINDLMVFTIGG
LVFMTPFTCIIVSYAYIFSKVLKLKSAHGIRKALSTCGSHLTVVSLFYGAILGIYM-HPSSTY-TVQ-DT
VATVIFTVVTPMVNPFIYSLRNRDIKGALRKIILR-S*---------

>MmOR11.2.2
----MVRENQS--TAIEFLLLGIAGQSKEEEVIFGMFLWMYLVTVCGNLLIILAISCDPHLHTPMYFFLA
NLSSVDICFSSVTVPKALVNYMLGIKTISYTECMTQIYFFITFINMDGFLLSVMAYDRYVAICHPLHYTM
MMRPRLCVLLVAISWAITNLHALLHTLLMVRLTFCSHNAMHHFFCDPYPILKLSCSDTFINDITAFTVGG
LTSITPFTCITVSYGYILSNVLKFPSIQGIRKALSTCGSHLTVVSLFYGAILGVYM-HPSSTY-SVQ-DM
VATAFFTVVTPMVNPFIYSLRNRDVKGALRKLMCRRLTSSRFYN*--

>HsOR16.1.1
----MSGTNQS--SVSEFLLLGLSRQPQQQHLLFVFFLSMYLATVLGNLLIILSVSIDSCLHTPMYFFLS
NLSFVDICFSFTTVPKMLANHILETQTISFCGCLTQMYFVFMFVDMDNFLLAVMAYDHFVAVCHPLHYTA
KMTHQLCALLVAGLWVVANLNVLLHTLLMAPLSFCADNAITHFFCDVTPLLKLSCSDTHLNEVIILSEGA
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LVMITPFLCILASYMHITCTVLKVPSTKGRWKAFSTCGSHLAVVLLFYSTIIAVYF-NPLSSH-SAEKDT
MATVLYTVVTPMLNPFIYSLRNRYLKGALKKVVGRVVFSV*------

>MmOR16.1.1
----MGGTNQS--SVSEFLLLGLSRQPQQQQLIFLLFLIMYLATVLGNLLIILAISTDSRLHTPMYFFLS
NLSFVDVCFSSTTVPKVLAIHILRNQAISFSGCLTQLYFLCVFADMDNFLLAVMAYDRFVAICHPLHYTT
KMTHQLCAFLVVGSWMVASLNALLHTLLVAQLYFCGDNVIPHFFCEVTPLLKLSCSDTHLNELMILAVAG
LIMLAPFVCILLSYILIACAILKISST-GRWKAFSTCGSHLAVVCLFYGTIISLYF-NPSSSH-SAGRDM
AAAMMYTVVTPMMKPFIYSLRNRDMKGALRKVLTM-RFISTQ*----

>SMOR131-1
----MGGTNQS--SVSEFLLLGLSRQPQQQQLIFLLFLIMYLATVLGNLLIILAISTDSRLHTPMYFFLS
NLSFVDVCFSSTTVPKVLAIHILRNQAISFSGCLTQLYFLCVFADMDNFLLAVMAYDRFVAICHPLHYTT
KMTHQLCAFLVVGSWMVASLNALLHTLLVAQLYFCGDNVIPHFFCEVTPLLKLSCSDTHLNELMILAVAG
LIMLAPFVCILLSYILIACAILKISST-GRWKAFSTCGSHLAVVCLFYGTIISLYF-NPSSSH-SAGRDM
AAAMMYTVVTPMMKPFIYSLRNRDMKGALRKVLTM-RFISTQ-----

>SMOR130-1
----MEGANLS--GVSEFLLLGLSQDPRQQQLLFSAFLSMYLLTGLGNLLIILAIAADPRLHTPMYFFLA
NLAFVDVCFTSTTIPKMLANHVSGHKGISYSGCLTQMFFFIWFAGIDSFLLTAMAYDRFVAICHPLHYTT
SITPRLCGFLVTASWASAFANALTHTVLLTRLLFCGHNQVPHFFCDLSPLLKLACLDTSLNDIMVYTVGA
LPIITPFVGILTSYTRIFTAVLRIPSTGGKWKAFSTCGSHLSVVSLFYGTLIGVYF-SPTSSH-TAQKDT
AAAVMYTVVTPMMNPFIYTLRNKDMKGALMTFVRRTAVLVR------

>MmOR8.1.3
----MEGANLS--GVSEFLLLGLSQDPRQQQLLFSAFLSMYLLTGLGNLLIILAIAADPRLHTPMYFFLA
NLAFVDVCFTSTTIPKMLANHVSGHKGISYSGCLTQMFFFIWFAGIDSFLLTAMAYDRFVAICHPLHYTT
SITPRLCGFLVTASWASAFANALTHTVLLTRLLFCGHNQVPHFFCDLSPLLKLACSDTSLNDIMVYTVGA
LPIITPFVGILTSYTRIFTAVLRIPSTGGKWKAFSTCGSHLSVVSLFYGTLIGVYF-SPTSSH-TAQKDT
AAAVMYTVVTPMMNPFIYTLRNKDMKGALMTFVRRTAVLVR*-----

>HsOR6.2.8
----MEGKNQT--NISEFLLLGFSSWQQQQVLLFALFLCLYLTGLFGNLLILLAIGSDHCLHTPMYFFLA
NLSLVDLCLPSATVPKMLLNIQTQTQTISYPGCLAQMYFCMMFANMDNFLLTVMAYDRYVAICHPLHYST
IMALRLCASLVAAPWVIAILNPLLHTLMMAHLHFCSDNVIHHFFCDINSLLPLSCSDTSLNQLSVLATVG
LIFVVPSVCILVSYILIVSAVMKVPSAQGKLKAFSTCGSHLALVILFYGAITGVYM-SPLSNH-STEKDS
AASVIFMVVAPVLNPFIYSLRNNELKGTLKKTLSR-PGAVAHACNPS

>MmOR13.1.6
----MEKENQT--SLSEFLLLGFSSWPGHQGLLFALFLCLYLTGLFGNLLILLAIGSNNHLHTPMYFFLA
NLSLVDLCLPSATVPKMLLNIQTKSQSISYPGCLAQMYFCMMFANMDNFLLTVMAYDRFVAICHPLHYTT
IMTPCLCTSLVAFSWVIATFNPLLHTLMMARLHFCSENIIHHFFCDINSLLPLSCSDTSLNQLMVLSVVG
LIFVVPSVCILASYGRIVSAVMKITSMEGKLKAFSTCGSHLALVILFYGAIAGIYM-SPSSNH-STEKDS
AASVIFMVVAPVLNPFIYSLRNNELKGTLKKTLGQSKICSK*-----

>HsOR19.2.3
----MEPRNQT--SASQFILLGLSEKPEQETLLFSLFFCMYLVMVVGNLLIILAISIDSHLHTPMYFFLA
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
NLSLVDFCLATNTIPKMLVSLQTGSKAISYPCCLIQMYFFHFFGIVDSVIIAMMAYDRFVAICHPLHYAK
IMSLRLCRLLVGALWAFSCFISLTHILLMARLVFCGSHEVPHYFCDLTPILRLSCTDTSVNRIFILIVAG
MVIATPFVCILASYARILVAIMKVPSAGGRKKAFSTCSSHLSVVALFYGTTIGVYL-CPSSVL-TTVKEK
ASAVMYTAVTPMLNPFIYSLRNRDLKGALRKLVNRKITSSS*-----

>SOR1M1
----MEPRNQT--SASQFILLGLSEKPEQETLLFSLFFCMYLVMVVGNLLIILAISIDSHLHTPMYFFLA
NLSLVDFCLATNTIPKMLVSLQTGSKAISYPCCLIQMYFFHFFGIVDSVIIAMMAYDRFVAICHPLHYAK
IMSLRLCRLLVGALWAFSCFISLTHILLMARLVFCGSHEVPHYFCDLTPILRLSCTDTSVNRIFILIVAG
MVIATPFVCILASYARILVAIMKVPSAGGRKKAFSTCSSHLSVVALFYGTTIGVYL-CPSSVL-TTVKEK
ASAVMYTAVTPMLNPFIYSLRNRDLKGALRKLVNRKITSSYL-----

>SMOR132-1
----MEPQNHT--SASEFILLGLSEKPDHDPVLFSLFLCMYMITVVGNLLIILAISFDSHLHTPMYFFLA
NLSLVDFCLATNTVPKMLVNIQTRNKSISYPCCLTQMYFFHFFGIMDSVLIAVMAYDRFVAICHPLHYST
IMSPRLCGLLVGVPWVYSCFISLTHILLMARLVFCGKNELPHYFCDLTPLLRLSCTDTTVNKIFVLIVAG
MVIATPFVCILASYARIIVAIMKVPSAGGRKKAFSTCSSHLSVVALFYGTTIGVYL-CPSSVR-TAVKEK
ASAVMYTAVTPMLNPFIYSLRNRDLKGALKKIINRKISTSS------

>MmOR9.2.1
----MEPQNHT--SASEFILLGLSEKPDHDPVLFSLFLCMYMITVVGNLLIILAISFDSHLHTPMYFFLA
NLSLVDFCLATNTVPKMLVNIQTRNKSISYPCCLTQMYFFHFFGIMDSVLIAVMAYDRFVAICHPLHYST
IMSPRLCGLLVGVPWVYSCFISLTHILLMARLVFCGKNELPHYFCDLTPLLRLSCTDTTVNKIFVLIVAG
MVIATPFVCILASYARIIVAIMKVPSAGGRKKAFSTCSSHLSVVALFYGTTIGVYL-CPSSVR-TAVKEK
ASAVMYTAVTPMLNPFIYSLRNRDLKGALKKIINRKISTSS*-----

>MmOR2.1.24
-MGKISRVNQS--VASDFLLLGLSEQPGEQPLLFGIFLGMYLVTMVGNLLIIFVISSDAHLHTPMYFFLA
NLSLTDACFTSASVPKMLANIYTQSQTISYSGCLTQLYFLLMFGGLDNCLLAVMAYDRYVAICQPLHYST
AMSPQLCALMLCTCWVLTNCPALMHTLLLTRVAFCAHTAIPHFYCDPSALLKLACSDTHINELMIITMGL
VFLAVPLMLIVFSYVCISWAVLGIPSSGGRWKAFSTCGSHLTVVLLFYGSLMGVYL-LPPSTH-STERES
RAAVLYMIVIPMLNPFIYSLRNRDMKEAMGKLFGG-GKTVFLL*---

>SOR1N2
GMGKPGRVNQT--TVSDFLLLGLSERPEEQPLLFGIFLGMYLVTMVGNLLIILAISSDPHLHTPMYFFLA
NLSLTDACFTSASIPKMLANIHTQSQIISYSGCLAQLYFLLMFGGLDNCLLAVMAYDRYVAICQPLHYST
SMSPQLCALMLGVCWVLTNCPALMHTLLLTRVAFCAQKAIPHFYCDPSALLKLACSDTHVNELMIITMGL
LFLTVPLLLIVFSYVRIFWAVFGISSPGGRWKAFSTCGSHLTVVLLFYGSLMGVYL-LPPSTY-STERES
RAAVLYMVIIPMLNPFIYSLRNRDMKEALGKLFVS-GKTFFL-----

>HsOR9.6.5
-MGKPGRVNQT--TVSDFLLLGLSEWPEEQPLLFGIFLGMYLVTMVGNLLIILAISSDPHLHTPMYFFLA
NLSLTDACFTSASIPKMLANIHTQSQIISYSGCLAQLYFLLMFGGLDNCLLAVMAYDRYVAICQPLHYST
SMSPQLCALMLGVCWVLTNCPALMHTLLLTRVAFCAQKAIPHFYCDPSALLKLACSDTHVNELMIITMGL
LFLTVPLLLIVFSYVRIFWAVFVISSPGGRWKAFSTCGSHLTVVLLFYGSLMGVYL-LPPSTY-STERES
RAAVLYMVIIPTLNPFIYSLRNRDMKEALGKLFVS-GKTFFL*----
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR2.1.21
--------NES--SVSEFFLQGISGFSEQQQLLYGLFLCMYLVTLTGNVLIILAIGSDPHLHTPMYFFLA
NLSFADMGLISSTVTKMLFNVQTRCHTISYTGCLTQMYFFLMFGDLDSFLLAVMAYDRYVAICHPLHYST
IMSARVCALMLALCWVLTNIVALTHTLLMARLSFCVVGEIAHFFCDITPVLKLSCSDTHVNELMVFALGG
TVLMVPFVCIVISYIHIVFAILKVRTPGGGTKAFSTCSSHLCVVCVFYGTLFSAYL-CPPSVV-STEKDV
AAAAMYTVVTPMLNPFIYSLRNKDMKGALKRLLCHRKFLS*------

>MmOR2.1.23
--------NQS--SVSEFFLRGISGFPEQQQLLYGLFLCMYLVTLTGNVLIILAISCDPHLHTPMYFFLA
NLSFADMGLISSAVTKMLFNVQTQRHTISYTGCLTQMYLFMMFGDLDSFFLAVMAYDRYVAICHPLHYST
IMSARVCALMLALCWVLTNIVALTHTLLMTRLSFCVVGEIAHFFCDITSVMKLSCSDTHVNELVLSGFGG
TVLMVPFVSIVISYVRIVFAVLRVQTSGGSSKAFSTCSSHLCVVCVFYGTLFSVYL-FPSSGE-TTEKDV
VAAAMYTVVTPMLNPFIYSLRNKDMKGALKRLLCHRRKFSP*-----

>HsOR9.6.4
------MENQS--SISEFFLRGISAPPEQQQSLFGIFLCMYLVTLTGNLLIILAIGSDLHLHTPMYFFLA
NLSFVDMGLTSSTVTKMLVNIQTRHHTISYTGCLTQMYFFLMFGDLDSFFLAAMAYDRYVAICHPLCYST
VMRPQVCALMLALCWVLTNIVALTHTFLMARLSFCVTGEIAHFFCDITPVLKLSCSDTHINEMMVFVLGG
TVLIVPFLCIVTSYIHIVPAILRVRTRGGVGKAFSTCSSHLCVVCVFYGTLFSAYL-CPPSIA-SEEKDI
AAAAMYTIVTPMLNPFIYSLRNKDMKGALKRLFSHRSIVSS*-----

>SMOR133-1
----MARGNQT--STFEFLLWGLSEQPQQQHILFLIFLGMYLVTVAGNLLIVLAISTDVRLHTPMYFFLA
SLSCDDILLVSTIVPKALVNIHTQSRTISYAGCLVQLYFFLTFGDMDIFLLATMAYDRFVAICHPLHYRM
IMSFQRCSLLVTACWTLTNLVAMTHTFLIFRLSFCSQKVIPDFFCDLGPLMKIACSETRINELVLLFLGG
AVILIPLLLILVSYIRIVSAIIRVPSAQGRRKAFSTCGSHISVVALFFGTVIRAYL-CPSSSN-SVVEDT
AAVVMYTVVTPLLNPFIYSLRNKDMKGALVRIL-KGKVSFSWAQGLL

>MmOR11.6.41
----MARGNQT--STFEFLLWGLSEQPQQQHILFLIFLGMYLVTVAGNLLIVLAISTDVRLHTPMYFFLA
SLSCDDILLVSTIVPKALVNIHTQSRTISYAGCLVQLYFFLTFGDMDIFLLATMAYDRFVAICHPLHYRM
IMSFQRCSLLVTACWTLTNLVAMTHTFLIFRLSFCSQKVIPDFFCDLGPLMKIACSETRINELVLLFLGG
AVILIPLLLILVSYIRIVSAIIRVPSAQGRRKAFSTCGSHISVVALFFGTVIRAYL-CPSSSN-SVVEDT
AAVVMYTVVTPLLNPFIYSLRNKDMKGALVRILKGKVSFSWAQGLLQ

>MmOR11.6.44
----MARGNQT--STFEFLLWGLSEKPQQQHILFLVFLWMYLVTVAGNLLIVLAISTDVRLHTPMYFFLA
TLSCVDILFTSTTVPKALVNIHTQSRTISYAGCLVQLYFFLTFGDMDIFLLATMAYDRFVAICHPLHYRM
IMSFQRCSLLVTACWTLTTVVAMTHTFLIFRLSFCSQKVIPDFFCDLGPLMKIACSETRINELVLLFLGG
AVILIPFLLILMSYIRIVSAILRVPSAQGRRKAFSTCGSHLSVVALFFGTVIRAYL-CPSSSN-SVVEDT
AAAVMYTVVTPLLNPFIYSLRNKDMKGALVRIL-KGKVSFSWAQGLL

>MmOR11.6.39
----MGRENQT--STFEFLLWGLSEQLQQQHILFLIFLWMYLVTVVGNLLIVLAISTDVRLHTPMYFLLA
NLSCDDILFTSTTIPKALVNIHTQSRTISYAGCLVQLYFFLTFGDMDIFLLATMAYDRFVAICHPLHYRM
IMSFQRCSFLVTACWILTTFVAMTHTLLIFRLSFCSKKVIPDFFCDLGPLMKIACSETRINELVLLFLGG
AVILIPFLLILVSYIRIVSAILRLPSAQGRRKAFSTCGSHLSVVALCFGTVIKAYL-CPSSSN-SVVEDT
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
AAVVMYTVVTPLLNPFIYSL*-------------------------

>HsOR19.3.12
----MEPEKQT--EISEFFLQGLSEKPEHQTLLFTMFLSTYLVTIIGNALIILAIITDSHLHTPMYFFLF
NLSLVDTLLSSTTVPKMLANIQAQSRAIPFVGCLTQMYAFHLFGTMDSFLLAVMAIDRFVAIVHPQRYLV
LMCSPVCGLLLGASWMITNLQSLIHTCLMAQLTFCAGSEISHFFCDLMPLLKLSGSDTHTNELVIFAFGI
VVGTSPFSCILLSYIRIFWTVFKIPSTRGKWKAFSTCGLHLTVVSLSYGTIFAVYL-QPTSPS-SSQKDK
AAALMCGVFIPMLNPFIYSIRNKDMKAALGKLIGK-VAVPCPRPEQL

>MmOR10.2.1
----MAPENQT--TVLEFHLMGLSEDPDLQTILFGLFLSMYLVTVFGNLLIILAIISDSHLHTPMYFFLC
NLSLVDIFFCSTTVPKMLVNIQTQSRAISFTGCLVQMYAFHLFGTIDSFLLAVMAIDRLVAIAYPLRYSV
LMSPHVCALLVGGTWVITNLQSLVHTCLMAQLTFCARSEIPHFFCDLMPLLKLSCSDTHINELVIFAFGI
VMGLSPLSCILVSYICIFRAVFRIPSAQGKWKAFSTCGSHLTVVSLFYGTIFTGYL-LPASPS-SSQKDK
AAALMFGVVIPTLNPFIYSLRNKDMKAALRKLGSKAVSFQS*-----

>HsOR17.1.4
----MEGKNLT--SISECFLLGFSEQLEEQKPLFGSFLFMYLVTVAGNLLIILVIITDTQLHTPMYFFLA
NLSLADACFVSTTVPKMLANIQIQSQAISYSGCLLQLYFFMLFVMLEAFLLAVMAYDCYVAICHPLHYIL
IMSPGLCIFLVSASWIMNALHSLLHTLLMNSLSFCANHEIPHFFCDINPLLSLSCTDPFTNELVIFITGG
LTGLICVLCLIISYTNVFSTILKIPSAQGKRKAFSTCSSHLSVVSLFFGTSFCVDF-SSPSTH-SAQKDT
VASVMYTVVTPMLNPFIYSLRNQEIKSSLRKLIWV-RKIHSP*----

>SOR1E5a
----MMGQNQT--SISDFLLLGLPIQPEQQNLCYALFLAMYLTTLLGNLLIIVLIRLDSHLHTPMYLFLS
NLSFSDLCFSSVTIPKLLQNMQNQDPSIPYADCLTQMYFFLLFGDLESFLLVAMAYDRYVAICFPLHYTA
IMSPMLCLALVALSWVLTTFHAMLHTLLMARLCFCADNVIPHFFCDMSALLKLAFSDTRVNEWVIFIMGG
LILVIPFLLILGSYARIVSSILKVPSSKGICKAFSTCGSHLSVVSLFYGTVIGLYL-CSSANS-STLKDT
VMAMMYTVVTPMLNPFIYSLRNRDMKGALSRVIHQKKTFF-------

>SOR1E5b
-----MGQNQT--SISDFLLLGLPIQPEQQNLCYALFLAMYLTTLLGNLLIIVLIRLDSHLHTPMYLFLS
NLSFSDLCFSSVTIPKLLQNMQNQDPSIPYADCLTQMYFFLLFGDLESFLLVAMAYDRYVAICFPLHYTA
IMSPMLCLALVALSWVLTTFHAMLHTLLMARLCFCADNVIPHFFCDMSALLKLAFSDTRVNEWVIFIMGG
LILVIPFLLILGSYARIVSSILKVPSSKGICKAFSTCGSHLSVVSLFYGTVIGLYL-CSSANS-STLKDT
VMAMMYTVVTPMLNPFIYSLRNRDMKGALSRVIHQKKTFFSL-----

>HsOR17.1.14
----MMGQNQT--SISDFLLLGLPIQPEQQNLCYALFLAMYLTTLLGNLLIIVLIRLDSHLHTPMYLFLS
NLSFSDLCFSSVTIPKLLQNMQNQDPSIPYADCLTQMYFFLLFGDLESFLLVAMAYDRYVAICFPLHYTA
IMSPMLCLALVALSWVLTTFHAMLHTLLMARLCFCADNVIPHFFCDMSALLKLAFSDTRVNEWVIFIMGG
LILVIPFLLILGSYARIVSSILKVPSSKGICKAFSTCGSHLSVVSLFYGTVIGLYL-CSSANS-STLKDT
VMAMMYTVVTPMLNPFIYSLRNRDMKGALSRVIHQ-KKTFFSL*---

>HsOR17.1.16
----MMGQNQT--SISDFLLLGLPIQPEQQNLCYALFLAMYLTTLLGNLLIIVLIRLDSHLHTPVYLFLS
NLSFSDLCFSSVTMPKLLQNMQNQDPSIPYADCLTQMYFFLYFSDLESFLLVAMAYDRYVAICFPLHYTA
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMSPMLCLSVVALSWVLTTFHAMLHTLLMARLCFCADNVIPHFFCDMSALLKLACSDTRVNEWVIFIMGG
LILVIPFLLILGSYARIVSSILKVPSSKGICKAFSTCGSHLSVVSLFYGTVIGLYL-CPSANS-STLKDT
VMAMMYTVVTPMLTPFIYSLRNRDMKGALERVICKRKNPFLL*----

>MmOR11.6.1
----MAEGNQT--VIFQFLLLGLPIPTEHQQLYYALFLLMYLTTVLGNLIIIILIRLDSHLHTPMYLFLS
NLSFSDLCFSSVTMPKLLQNMQSQDSSITYAGCLTQMYFFLLFGDLESFLLVAMAYDRYVAICFPLHYMS
IMSPSLCVSLVLLSWVLTTFHAMLHTLLMARLSFCEDNVIPHFFCDMSALLKLSCSDTHVNELVIFVTGG
LILVIPFVLILVSYAQIVSSILKVPSARGIRKAFSTCGSHLSVVSLFYGTIIGLYL-CPSADN-STVKET
VMAMMYTVVTPMLNPFIYSLRNRDMKGALARVICKKKVFFCL*----

>MmOR11.6.2
-MQGTTERNQT--AISQFLLLGLPIPTEHQHLFYALFLAMYLTTVLGNLIIIILIHLDSHLHTPMYSFLS
NLSFSDLCFSSVTMPKLLQNMQSQDPSIPYAGCLAQMYFFLFFADLESFLLVAMAYDRYVAICFPLHYMS
IMSPRLCVSLVLLSWVLTTFHAMLHTLLMARLSFCEDNVIPHFFCDMSALLKLSCSDTYVNELVIFVMGS
LILVIPFVLILVSYARIVSSILKVPSARGIRKAFSTCGSHLSVVSLFYGTVIGLYL-CPSADN-STVKET
VMAMMYTVVTPMLNPFIYSLRNRDMKGALISVLCKKKILFCL*----

>MmOR11.6.6
----MTRRNQT--VISQFLLLGLPIPPEHQQLYYALLLSMYLTTVLGNLIIIILILLDSHLHTPMYLFLS
NLSFADLCFSSVTMPKLLQNMQSKVPSIPYAGCLAQIYFFLYFGDLGNFLLVAMAYDRYVAICFPLHYMS
IMSPRLCVSLVLLSWVLTTFHAMLHTLLMARLSFCEDNVIPHYFCDMSTLLKVACSDTHDNELAIFILGG
PIVVLPFLLIIVSYARIVSSIFKFPSFQGIRKAFSTCGSHLSVVSLFYGTVIGLYL-CPSANN-TYVKET
IMSLMYTMVTPMLNPFIYSLSNRDIKDALEKIMCKRQIPFFL*----

>MmOR11.6.4
----MTERNKT--VISQFLLLGLPIPPEHQQLFYALFLVMYLTTVLGNLIIIILIILDSHLHTPMYLFLS
NLSFSDLCFSSVTMPKLLQNMQSQVPSIPYAGCLAQIYFFLFFGDLGNFLLVAMAYDRYVAICYPLHYTT
IMSPRLCVSLVVLSWVLTTFHAMLHTLLMARLSFCEDNVIPHYFCDMSALLKLACSDTRVNEVVIFIVAS
IFLVLPFALITMSYVRIVSSILKVPSSQGIYKAFSTCGSHLSVVSLFYGTVIGLYL-SPSSNN-STVKDT
VMSLMYTVVTPMLNPFIYSLRNRDIKGALERVFCKRKIQLNL*----

>MmOR11.6.27
----MPGKNQT--VISRFILLGLPIPPEHQHLFYALFLAMYLTTVLGNLVIIVLIHLDSHLHTPMYLFLS
NLSFTDLCFSTVTMPNFLQNMQSQVSSIPYAGCLAQMYFFLFFGDVESLLLVAMAYDRYVAICFPLHYTR
IMSPNLCVSMVLLSWALTTLCAMLHTLLLTRLSFCKNNVIPHFFCDLSALLKLACSDIHINELMIMIIGA
LVVILPFLLIIVSYAHIVSSILKVPSTRGIHKVFSTCGSHLSVVSLFYGSVIVLYL-CPSSNN-STVKDT
VMSMMYTVVTPMLNPFIYSLRNRDMKEALKRVLQKKIKLSSNYGNYI

>MmOR11.6.20
----MPGNNQT--IISQFLLLGLPIAPEYEHLFYALFLAMYLTTVLGNLIIIILIILDSHLHTPMYLFLS
NLSFSDLCFSSVTMPKLLQNMQSQDTSIPYAGCLTQVYFFLFFAALENFLLVAMAYDRYVAICFPLHYAS
IMSPKLCVSLVLLIWVLTTLYAMLHTLLLTRLSFCENNVIPHFFCDLSALLKLACSDIHINELVILIIGG
LVVLLPFLLIIVSYARIISSILKVPSTRGIHKLFSTCGSHLSVVSLFYGTIIGIYL-GPSANN-STLKDI
VMSMMYTVVTPMLNPFIYSLRNRDIKGALKKVFQKKSLL*-------

>MmOR11.6.29
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MERGNQT--VVSEFLLLGLPIEPHQQDLFYALFLSMYLTTALGNLIIIILIHLDSHLHTPMYLFLS
NLSFSDFCFSSVTIPKLLQNMQSQVPSIPYAGCLAQMYFFLLFADLESFLLVAMAYDRYVAICFPLHYTS
IMSPKLCLCLVALSWLLTTVISLSHTLLMARLSFCANNVIPHFFCDMSALLKLACSDIQINKLMIFILGG
LVIIVPFLLIFSSYARIVSSILKVPSSRSIRKAFSTCGSHLSVVSLFYGTIIGLYL-CPSANN-STIKET
VMAVMYTVVTPMLNPFIYSFRNQDIKGAFKKVFSKQMANFSLR*---

>MmOR11.6.22
----MTGNNQT--FILEFLLLGLPIPSEYQLLFNALFLAMYLTTLLGNLLIILLVRLDSHLHMPMYLFLS
NLSFSDLCFSSVTIPKLLQNMHSQVPTISYAGCLTQLYFFMVFGDMESFLLVAMAYDRYVAICFPLHYTS
IMSTKLCVSLVLLLWMLTIFHALLHTLLTARLSFCEKNVILHFFCDLPALLKLSCSDTFVNELMIFILGG
IIIIIPFLLIGMSYVRIFFSILKVPSTQGIHKVFSTCGSHLSVVSLFYGTIIGLYL-CPSSNN-STLKKT
AMALMYTLVTPMLNPFIYSLRNRDIKRALIRVISSKKISL*------

>MmOR11.6.25
----MAGKNQT--LILEFLLLGLPISSEYHLLFYALLLAMYLTTLLGNLLIILLVRLDSHLHTPMYLFLS
NLSFSDLCFSSVTIPKLLQNMQSQVPTISYADCLTQLYFFMVFGDMESFLLVVMAYDRYVAICFPLHYTS
IMSTKFCALLVLLLWMLTISHALLHTLLMARLSFCEKNVILHFFCDISALLKLSCSDTYVNELMIFIMGG
IISIIPFLLIVMSYVRIFFSILKVPSSQDIHKVFSTCGSHLSVVTLFYGTIIGLYL-CPSGNN-STVNEI
SMAMMYTVVTPMLNPFIYRLRNRDMKRALIRVIFS-KKISL*-----

>MmOR11.6.19
----MTGNNQT--LISKFLLLGLPILSEYHFLFYALFLAMYLTTILGNLLIIALVRLDSHLHTPMYLFLS
NLSFSDLCFSSVTIPKLLQNMQSQVPSISYVGCLTQLYFFMVFGDMESFLLVVMAYDRYVAICFPLHYTS
IMSTKFCTSLVLLLWMLTTSNALMHTLLMARLSFCEKNVILRFFCDISALLKLSCSDTFVNELMIFIMGG
IIIIIPFLLIVMSYVRIFFSILKVPSTQGIHKVFSTCGSHLSVVSLFYGTIIGLYL-CPSSNN-STVKES
AMAMMYTVVTPMLNPFIYSLRNRDMKRALIRVICSKKISL*------

>MmOR11.6.23
----MKMNNKT--VITQFLLLGLPISLEYKHLFYALFLAMYLTTVLGNLLIIVLIKLDSHLHTPMYLFLS
NLSFSDLCFSSVTMPKMLHNMQSQDPSIPYGGCLAQIYFLMAFGDMESFLLVVMAYDRYVAICFPLHYTS
IMSPKLCTCLMLLLWILTTSHAMMHTLLAARLSFCENNVILNFFCDLFAVLKLSCSDTYINDLMILIFGG
LIFIIPFLLIVISYARIISSILKVPSTQGIYKVFSTCGSHLSVVSLFYGTIIGLYL-CPSGNN-STVKEI
AMAMMYTVVTPMLNPFIYSLRNRDMKKALIRVICSKKISL*------

>MmOR11.6.24
----MN--NKT--VITQFLLLGLPIPPEYQHLFYALFLAMYLTTILGNLLIIVLIQLDSHLHTPMYLFLS
NLSFSDLCFSSVTMPKLLQNMQSQDPSIPYGGCLAQIFFFMLFGDMESFLLVAMAYDRYVAICFPLHYTS
IMSPKVCTFLVLLLWILTTSHATMQILLTVRLSFCENNVLLNFFCDIFVLLKLACSDTYVNDLMILIMGG
LIIVIPFLLIVISYARIISSTLKVPSTQGIHKVFSTCGSHLSVVSLFYGTIIGLYL-CPSGNN-FSLKGS
AMAMMYTVVTPMLNPFIYSLRNRDMKRALIRIIGSKKISL*------

>MmOR11.6.21
----MIMKNQT--VITQFLLLGLPILPEHQHLFYALFLAMYLTTALGNLLIIVLVQLDSHLHTPMYLFLS
NLSFSDLCFSSVTMPKLLQNIQSQDPSIPYAGCLAQTYFFMVFGDMESFLLVAMAYDRYVAICFPLHYTS
IMSPKLCGCLMLLLWMLTTSHAMMHTLLAARLSFCENNVILNFFCDLFVLLKLACSDTYVNELMIFIMSS
LLIVIPFFLIVMSYARIIASILKVPSIQGIYKVFSTCGSHLSVVTLFYGTIIGLYL-CPSGNN-STVKGT
VMAMMYTVVTPMLNPFIYSLRNRDMKRALIRVICSKKISL*------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>SMOR135-1
----MIKNNQT--LFNQFLLLGLPIPAEHQQLFFALFLSMYLTTILGNLIIIILIRLDSHLHTPMYLFLS
NLSFSDLCFSSVTMPKLLQNMQSQDTSITYAGCLTQMYFFVLFGGLEIFLLVVMAYDRYVAICLPLHYTS
IMSLKLCVCLVLLSWVISILNSMLHTLLLARLSFCEDNMIRHFFCDMSALLKLACSDIYINELMIFILGG
PLMVIPFLLIVMSYVQIIFSILKASSTRAIYKVFSTCGSHLTVVSLFYGTIIGLYL-CPSANN-FTAKEA
SIAIMYTVVTPMLNPFIYSLRNRDIKEALINVLIKKIPL--------

>MmOR11.6.8
----MIKNNQT--LFNQFLLLGLPIPAEHQQLFFALFLSMYLTTILGNLIIIILIRLDSHLHTPMYLFLS
NLSFSDLCFSSVTMPKLLQNMQSQDTSITYAGCLTQMYFFVLFGGLEIFLLVVMAYDRYVAICLPLHYTS
IMSLKLCVCLVLLSWVISILNSMLHTLLLARLSFCEDNMIRHFFCDMSALLKLACSDIYINELMIFILGG
PLMVIPFLLIVMSYVQIIFSILKASSTRAIYKVFSTCGSHLTVVSLFYGTIIGLYL-CPSANN-FTAKEA
SIAIMYTVVTPMLNPFIYSLRNRDIKEALINVLIKKIPL*-------

>MmOR11.6.9
----MIMNNKT--VITQFILLGLPILPEYQHLFYALFLSMYLTTILGNLIIIILIQLDSHLHTPMYLFLS
NLSFSDLCFSSVTMPKLLLNMQSQDTSIPYAGCLTQMYFSNLFGSLEIFLLVIMAYDRYAAICLPLHYTS
IMSPKLCVCLVLLSWVISMLYSMLHTLLLARLSFCEDNVIPHFFCDISALLKLACSDIHINELMIFFLGG
PLTVIPFLLIVVSYIQIVFSILKISSTRAIHKVFSTCGSHLSVVSLFYGTIIGLYL-CPSANN-FSVKKA
SITMMYTVVTPMLNPFIYSLRNRDIKEALVRVLIKKISL*-------

>MmOR11.6.16
----MIINNQT--AIPQFILLGLPILPEQQQMFYALFLAMYLTTVLGNLIIIILIRLDSHLHTPMYLFLS
NLSFSDLCFSSVTMPKLLQNIQSQDPSISYAGCLTQMYFFMVFANTENVLLVVMAYDRYVAICFPLHYTS
IMSPKLCVSLVVLTWVFTVLYSMLHTLLLARLSFCEDNVITHFFCDISALLKLACSDTYINELMIFILGT
LDTVVPFLLIVVSYVQIVCSILKFSTKQGIAKVFSTCGSHLSVVSLFYGTIIGVYL-CPSANN-STVKEI
VMALMYTVVTPMLNPFIYSLRNRDIKEALIRVLCKKQIPL*------

>MmOR11.6.13
----MIMNNKT--VISQFILLGLPIPQEYQHLYYALFLAMYLTTVLGNLIIIILIILDSHLHTPMYLFLS
NLSFSDLCFSSVTMPKLLQNMQSQDTSISYAGCLTQMYFLLVFGDLESILLLVMAYDRYVAVCFPLHYMS
IMSPTLCVCLLVLSWVFTVLYSMLHTLLLSRLSFCEDNLIHHFFCDISALLKLACSDIHINELMIFIMGG
LVSIIPFLLIVVSYIQIVYSILKISSAHVLHKIFSTCGSHLSVVSLFYGTIFALYL-CPSANN-STVKEI
SMAMMCTVVTPMLNPFIYSLRNRDMRDALFGVLGKKKISL*------

>MmOR11.6.12
----MIKNNQT--VISQFLLLGLPIPPEHQHLFYALFLAMYLTTVLGNLIIIILIILDFHLHTPIYLFLS
NLSFSDLCFSSVTMPKLLQNMQSQDTTISYVGCLTQMYFPNVFANLENFLLMFMAYDRYVAICYPLRYTS
IMSPILCVCMVFMSWLLTMLNSTLHTVLIVKLSFCEDNVIPHFFCDISAVLKLACSDIYINELTIFITGA
FIIVIPFLLIVVSYVQIVCSILKFSSTRGIAKIFSTCGSHLSVVSLFYGTIIGLYL-CPSTNN-STVKDT
AMAMMYTVVTPMLNPFIYSLRNKDMKEALIRVLCKKEISL*------

>MmOR11.6.15
----MIKNNQT--VISQFLLLGLPIPPEHQHLFYALFLAMYLTTVLGNLIIIILIILDFHLHTPIYLFLS
NLSFSDLCFSSVTMPKLLQNMQSQDTTISYVGCLTQMYFPNVFANLENFLLMFMAYDRYVAICYPLRYTS
IMSPILCVCMVFMSWLLTMLNSTLHTVLIVKLSFCEDNVIPHFFCDISAVLKLACSDIYINELTIFITGA
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
FIIVIPFLLIVVSYVQIVCSILKFSSTRGIAKIFSTCGSHLSVVSLFYGTIIGLYL-CPSTNN-STVKDT
AMAMMYTVVTPMLNPFIYSLRNKDMKEALIRVLCKKEISL*------

>HsOR9.6.3
----MKRENQS--SVSEFLLLDLPIWPEQQAVFFTLFLGMYLITVLGNLLIILLIRLDSHLHTPMFFFLS
HLALTDISLSSVTVPKMLLSMQTQDQSILYAGCVTQMYFFIFFTDLDNFLLTSMAYDRYVAICHPLRYTT
IMKEGLCNLLVTVSWILSCTNALSHTLLLAQLSFCADNTIPHFFCDLVALLKLSCSDISLNELVIFTVGQ
AVITLPLICILISYGHIGVTILKAPSTKGIFKALSTCGSHLSVVSLYYGTIIGLYF-LPSSSA-SSDKDV
IASVMYTVITPLLNPFIYSLRNRDIKGALERLFNRATVLSQ*-----

>MmOR2.1.20
----MKRDNQS--MVSEFILLGLPIRPEEQGMYYALFLTMYLTTVLGNLLIILLIRLDSHLHTPMYFFLS
HLAFTDISFSSVTVPKMLRNMHIHDPSIPYAECIAQMYFFILFTDLDNFLLTSMAYDRYVAICHPLHYTT
IMREELCILLVAISWILSCVSALSHTLLLARLSFCADNTISHFFCDLAALLKLSCSDISLNELVIFTVGT
TVITLPLICILISYGHIVATILKVSSNKGICKALSTCGSHLSVVSLYYGTIIGVYF-IPSSFT-STDKGI
VASVMYTVVTPLLNPFIYSIRNRDMKEALKKLFNRASIST*------

>HsOR9.6.2
----MSPENQS--SVSEFLLLGLPIRPEQQAVFFTLFLGMYLTTVLGNLLIMLLIQLDSHLHTPMYFFLS
HLALTDISFSSVTVPKMLMDMRTKYKSILYEECISQMYFFIFFTDLDSFLITSMAYDRYVAICHPLHYTV
IMREELCVFLVAVSWILSCASSLSHTLLLTRLSFCAANTIPHVFCDLAALLKLSCSDIFLNELVMFTVGV
VVITLPFMCILVSYGYIGATILRVPSTKGIHKALSTCGSHLSVVSLYYGSIFGQYL-FPTVSS-SIDKDV
IVALMYTVVTPMLNPFIYSLRNRDMKEALGKLFSRATFFSW*-----

>HsOR9.6.1
----MSPENQS--SVSEFLLLGLPIRPEQQAVFFALFLGMYLTTVLGNLLIMLLIQLDSHLHTPMYFFLS
HLALTDISFSSVTVPKMLMNMQTQHLAVFYKGCISQTYFFIFFADLDSFLITSMAYDRYVAICHPLHYAT
IMTQSQCVMLVAGSWVIACACALLHTLLLAQLSFCADHIIPHYFCDLGALLKLSCSDTSLNQLAIFTAAL
TAIMLPFLCILVSYGHIGVTILQIPSTKGICKALSTCGSHLSVVTIYYRTIIGLYF-LPPSSN-TNDKNI
IASVIYTAVTPMLNPFIYSLRNKDIKGALRKLLSRSGAVAHACNLNT

>MmOR2.1.19
----MRLKNHS--SVSEFLLLGFPIRPEQGGIFFSLFLAMYLITVLGNLLIILLIRLDSHLHTPMYFFLS
HLAFTDISFSSVTVPKMLTKVQNQPIPITYEECVSQTYFFIFFADLDSFLITSMAYDRYMAICHPLHYIT
IMSQSRCAMLVAVSWVIASACALLHSLLLDQLSFCADHTVPHFFCDLGALLKLSCSDTSLNQLVIFTAGL
AAIMLPFLCILISYGRIGFTILQVPTTKGICKALSTCGSHLSVVALYYGSIIGLYF-LPPSNS-KINNNI
VASVMYTVVTPMLNPFIYSLRNKDMKGALKKLLSKKTEFSK*-----

>MmOR2.1.10
----MRRDNES--TVSEFILLGLPIQPEDQGLYSALFLAMYLTTVLGNLLIILLIRLDSHLHTPMYFFLS
HLAFTDVSFSSVTAPKMLMNMLTHSQSISYAGCVSQVYFFSTFTDLDSFLLTSMAYDRYVAICHPLHYTT
IMSQNLCVLLVVMSWVLSSANALVHTLLLARLSHFRNNTIPHYFCEPSALLSLSSSDTTINEMVILPLGT
LVITLPFICILVSYGRIGVTILRTPSIKGICKALSTCGSHLSVVCLYYGAIIGLYL-VPSSNN-TNDKDV
IVAVIYSLVTPMVNPFIYSLRNRDIKGALRNILNRRLCPQW*-----

>MmOR2.1.11
----MKRDNES--TVSEFILLGLPIRAEDQGLYSALFLAMYLTTMLGNLLIILLIRLDSHLHTPMYFFLS
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
HLAFTDISFSSVTAPKMLMNMLTHSQSISYAGCVSQMYFYIVFADLENFLLTSMAYDRYVAICHPLHYTT
IMSQSLCLFLVVVSWALSSGNALVHTLLLAKLSHFRNNTVPHYFCDLSAMLKLSSSDTTINELLILTLGT
MVTIPPFICILVSYVRIGVTILRTPSIKGICKALSTCGSHLCVVSLYYGAIIALYF-VPSSNN-TNDKDV
IVALMYTVVTPMLNPFIYSLRNRDMKGALRNVLSRRLCSQ*------

>SMOR136-1
----MRRDNES--TVSEFILLGLPIRAEDQGLYSALFLAMYLTTVLGNLLIILLIRLDSHLHTPMYFFLS
HLAFTDISFSSVASPKMVINMLTHSQSISYAGCVSQVYFFSFFADLESFLLTSMAYDRYVAICHPLHYSQ
IMSENLCVLLIVVSWTLSTANSLVHTLLLVQLSYFRNNTIPHYFCDLSTLLKLSSSDTTINELVILVLGN
MVITLPFICILVSYGHIGVTIMKIPSIKGICKALSTCGSHLCVVSLYYGAIIGLYF-VPSSNN-TSDKDA
IVAMMYTMVIPMLNPFIYSLRNRDMKGALRNILSGRLWSQ-------

>MmOR2.1.9
----MRRDNES--TVSEFILLGLPIRAEDQGLYSALFLAMYLTTVLGNLLIILLIRLDSHLHTPMYFFLS
HLAFTDISFSSVASPKMVINMLTHSQSISYAGCVSQVYFFSFFADLESFLLTSMAYDRYVAICHPLHYSQ
IMSENLCVLLIVVSWTLSTANSLVHTLLLVQLSYFRNNTIPHYFCDLSTLLKLSSSDTTINELVILVLGN
MVITLPFICILVSYGHIGVTIMKIPSIKGICKALSTCGSHLCVVSLYYGAIIGLYF-VPSSNN-TSDKDA
IVAMMYTMVIPMLNPFIYSLRNRDMKGALRNILSGRLWSQ*------

>MmOR2.1.14
----MRRDNES--TVSEFILLGLPIRAEEQGMYFALFLAMYLTTVLGNLLIILLIRLDSHLHIPMYFFLS
HLAFTDISFSSVTAPKMLVNMLTHSQSISYTGCVSQVYFFAIFADLDSFLLTSMAYDRYVAICHPLHYSQ
TMSQTLCVLLVLVSWALSIANALVRTLLLAHLSHFRDNTIPHYFCDLSDWLKLSSSDTTINELVILVLGN
VVITLPFICILVSYGHIGVTILKTPSIKGICKALSTCGSHLCVVSLYYGAIIGLYF-VPSSNN-TNDKDA
IVAVMYTVVTPMLNPFIYSLRNRDMKGALRNILGRRLCS*-------

>MmOR2.1.16
----MTEGNES--IVSEFILLGLPIQPEDQDLYSALFLAMYLTTVLGNLLIILLIRLDSHLHTPMYFFLS
HLAFTDISFSSVTAPKMLMNMLTHSQSISYAGCVFQVYFFLFFADLDNFLLTSMAYDRYVAICHPLHYTT
MMSQNLCVLLVVVSWTLSTANALVHTLLLARLTHFRDNTISHYFCDLSTLLKLSSSDTTTNKLVILLLGN
VIITLPFICILVSYGLIAVTILKIPSMKGICKALSTCGSHLCVVSLYYGAIIGLYF-VPSSNN-TNVQDA
IVAVMYNVVTPMLNPFIYSLRNQDMKGALRNILSRRLCLQ*------

>MmOR2.1.15
----MRMDNES--TVSEFILLGLPIRAKDQAVYSALILAMYLTTVLGNLLIILLIRLDPHLHTPMYFFLS
HLALTDISFSSVTVPRMLVNMLTQSQSISYTGCISQVYFFIVFGSIDSFLLPSMAYDRYVAICHPLHYTL
IMNLNLCVLLVVVSWALSLVNALVHTLLLARLSHFRNNIIPHYFCDLSALLKLSSSDTSINELVILVLGN
VVITLPFICILVSYGYIGVTILKTPSTKGIRKALSTCGSHLCVVSLYYGSVIGLYC-VPSSNN-TNDKDA
IVAMMYTVVTPMLNPFIYSLRNRDMKRALRNILSRKK*---------

>MmOR2.1.8
----MRMDNDS--ALSEFILLGLPIRAEDQALYSVLILAMYLTTVLGNLLIILLIRLDSHLHTPMYFFLS
HLAFTDISFSSVTAPKMLVNMLTHSKSIPYTGCVSQVYFFTVFASIDSFLLTSMAYDRYVAICHPLHYNI
IMNLRLCVLLVVISWALSLTNALAHTLLLARLSHFRNNTIPHYFCDLSTLLKLSSSDTTINELVIFVLGN
VVITLPFICILVSYGYIGVTILKTPSIKGIHKALSTCGSHLCVVSLYYGAIIGLYF-VPSSNN-TNDKDV
IVAVMYTVVIPMLNPFIYSLRNRDMKRTLRNILSRTK*---------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR2.1.13
----MRMDNKS--TVSEFILLGLPIRPENQVIYSSLILTMYLTTVLGNLLIILLIRLDPHLHTPMYFFLS
HLALTDISFSSVTVPKMLVNMLTHSQSISYDGCVSQVYFFIVFGSIDSFLLTSMAYDRYVAFCHPLHYTI
IMNLSLCVLLVGMFWVLSSANALVQTLLLARLSHFRNNTIPYYFCDLSTLLKLSSSDTTINDLIILVLGN
AVITLPFICILVSYGYIGVTILKTPSIKGIRKALSTCGSHLCVVSLYYGSIIGLYC-VPSSNN-TSEKNA
IVAVMYTVVTPMLNPFIYSLRNQDMKGALRNILSR-TQ*--------

>MmOR2.1.3
------MDNES--TVSEFILLGLPIRAEDQAVYSALFLVLYLTTVLGNLLIILLIRLDSHLHTPMYFFLS
HLAFTDISFSSVTAPKMLVNMLTHSQSISYAGCISQEYFFTVFAGIDSFLLTSMAYDRYVAICHPLHYIT
IMNQNLCVLLVVVSWALSSANCLVHTLLLACLSHFRNNTIPHYFCDLSTLLKLSSSDTTINQLVILVLGN
VVISLPFICILVSYGRIGVTIMKAPSIKGICKALSTCGSHLCVVSLYFGSIIGLYC-VPSSNN-INENNA
IVSVMYTMVTPMLNPFIYSLRNRDIKRALKNILSR-K*---------

>MmOR2.1.7
------MDNES--TVSEFILLGLPIRAEDQAVYSALFLVLYLTTVLGNLLIILLIRLDSHLHTPMYFFLS
HLAFTDISFSSVTAPKMLVNMLTHSQSISYAGCISQEYFFTVFAGIDSFLLTSMAYDRYVAICHPLHYIT
IMNQNLCVLLVVVSWALSSANCLVHTLLLACLSHFRNNTIPHYFCDLSTLLKLSSSDTTINQLVILVLGN
VVISLPFICILVSYGRIGVTIMKAPSIKGICKALSTCGSHLCVVSLYFGSIIGLYC-VPSSNN-INENNA
IVSVMYTMVTPMLNPFIYSLRNRDIKRALKNILSR-K*---------

>MmOR2.1.18
----MMKSNQS--TVSEFILLGLPIQPEDQAVYFALFLAMYLTTVLGNLLIILLIRLDSHLHTPMYFFLS
HLAFTDISFSSVTAPKMLMNMLTHSQSISHAGCVSQIYFFLLFGCIDNFLLTSMAYDRYVAICHPLHYTT
IMSQSLCVLLVMVSWAFSSSNGLVHTLLFARLSLFRDNTVHHFFCDLSALLKLSSSDTTINELVILTLAV
VVITVPFICILVSYGHIGATILRTPSIKGICKALSTCGSHLCVVSLYYGAIIGLYF-FPSSNN-TNDKDV
IVAVLYTVVTPMLNPFIYSLRNRDINGALRKTLSRRLCSH*------

>MmOR2.1.17
---MKSTRNQS--SASEFILLGLPIQPEEQGMYYALFLATYLTTVLGNLLIILLIRLDSHLHTPMYFFLS
HLAFTDISFSSVTAPKMLMNMLIHSQSISYAGCISQVYFFLFFADLDSFLLTSMAYDRYVAICHPLHYTR
IMSQSICILLVIESWFLSFAGALVHTILLARLSFFRGNTVHHFFCDLSALIKLSSSDTSINELVILVVGS
LVITVPFVCILVSYGRIGATILKTPSIKGICKALSTCGSHLSVVSLYYGAIIGLYF-VPSSND-TNDKDV
IVAVMYTMVTPMLNPFIYSLRNRDMKGALRNMLARATSSM*------

>MmOR2.1.22
-MSCIIRNNHS--ITSEFILLGLPINPELNGMYSALFLAMYLTTVLGNLLIILLIRLDPHLHTPMYFFLS
HLAFTDISFSSVTAPKMLVNMLTHSQSISYTGCISQVYFFLFFADLDSFLLTSMAYDRYVAICHPLHYTT
IMSQSLCVLLLIVSWVLSFASAILHTLLLAHLSFSGGNTLPHFFCDLSALLKLSSSDTTINELVIFTVGV
VIITVPLICILVSYGYIGATILRTPSIKGIYKALSTCGSHLSVVSLYYGAIIGLYS-FPSPNN-SNNKDV
IVAVMYTMVTPMLNPFIYSLRNRDIKGALRNILGRKASSQ*------

>SOR1C1
----MEKRNLT--VVREFVLLGLPSSAEQQHLLSVLFLCMYLATTLGNMLIIATIGFDSHLHSPMYFFLS
NLAFVDICFTSTTVPQMVVNILTGTKTISFAGCLTQLFFFVSFVNMDSLLLCVMAYDRYVAICHPLHYTA
RMNLCLCVQLVAGLWLVTYLHALLHTVLIAQLSFCASNIIHHFFCDLNPLLQLSCSDVSFNVMIIFAVGG
LLALTPLVCILVSYGLIFSTVLKITSTQGKQRAVSTCSCHLSVVVLFYGTAIAVYF-SPSSPH-MPESDT
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LSTIMYSMVAPMLNPFIYTLRNRDMKRGLQKMLLKCTVFQQQ-----

>HsOR1.5.10
----MEKRNLT--VVREFVLLGLPSSAEQQHLLSVLFLCMYLATTLGNMLIIATIGFDSHLHSPMYFFLS
NLAFVDICFTSTTVPQMVVNILTGTKTISFAGCLTQLFFFVSFVNMDSLLLCVMAYDRYVAICHPLHYTA
RMNLCLCVQLVAGLWLVTYLHALLHTVLIAQLSFCASNIIHHFFCDLNPLLQLSCSDVSFNVMIIFAVGG
LLALTPLVCILVSYGLIFSTVLKITSTQGKQRAVSTCSCHLSVVVLFYGTAIAVYF-SPSSPH-MPESDT
LSTIMYSMVAPMLNPFIYTLRNRDMKRGLQKMLLKCTVFQQQ*----

>HsOR9.6.10
----MGRNNLT--RPSEFILLGLSSRPEDQKPLFAVFLPIYLITVIGNLLIILAIRSDTRLQTPMYFFLS
ILSFVDICYVTVIIPKMLVNFLSETKTISYSECLTQMYFFLAFGNTDSYLLAAMAIDRYVAICNPFHYIT
IMSHRCCVLLLVLSFCIPHFHSLLHILLTNQLIFCASNVIHHFFCDDQPVLKLSCSSHFVKEITVMTEGL
AVIMTPFSCIIISYLRILITVLKIPSAAGKRKAFSTCGSHLTVVTLFYGSISYLYF-QPLSNY-TV-KDQ
IATIIYTVLTPMLNPFIYSLRNKDMKQGLAKLMHRMKCQ*-------

>HsOR9.6.11
----MGMSNLT--RLSEFILLGLSSRSEDQRPLFALFLIIYLVTLMGNLLIILAIHSDPRLQNPMYFFLS
ILSFADICYTTVIVPKMLVNFLSEKKTISYAECLAQMYFFLVFGNIDSYLLAAMAINRCVAICNPFHYVT
VMNRRCCVLLLAFPITFSYFHSLLHVLLVNRLTFCTSNVIHHFFCDVNPVLKLSCSSTFVNEIVAMTEGL
ASVMAPFVCIIISYLRILIAVLKIPSAAGKHKAFSTCSSHLTVVILFYGSISYVYL-QPLSSY-TV-KDR
IATINYTVLTSVLNPFIYSLRNKDMKRGLQKLINKIKSQMSRFSTKT

>SOR1L3
----MGMSNLT--RLSEFILLGLSSRSEDQRPLFALFLIIYLVTLMGNLLIILAIHSDPRLQNPMYFFLS
ILSFADICYTTVIVPKMLVNFLSEKKTISYAECLAQMYFFLVFGNIDSYLLAAMAINRCVAICNPFHYVT
VMNRRCCVLLLAFPITFSYFHSLLHVLLVNRLTFCTSNVIHHFFCDVNPVLKLSCSSTFVNEIVAMTEGL
ASVMAPFVCIIISYLRILIAVLKIPSAAGKHKAFSTCSSHLTVVILFYGSISYVYL-QPLSSY-TV-KDR
IATINYTVLTSVLNPFIYSLRNKDMKRGLQKLINKIKSQMSRFSTKT

>HsOR9.6.6
----MERINHT-SSVSEFILLGLSSRPEDQKTLFVLFLIVYLVTITGNLLIILAIRFNPHLQTPMYFFLS
FLSLTDICFTTSVVPKMLMNFLSEKKTISYAGCLTQMYFLYALGNSDSCLLAVMAFDRYVAVCDPFHYVT
TMSHHHCVLLVAFSCSFPHLHSLLHTLLLNRLTFCDSNVIHHFLCDLSPVLKLSCSSIFVNEIVQMTEAP
IVLVTRFLCIAFSYIRILTTVLKIPSTSGKRKAFSTCGFYLTVVTLFYGSIFCVYL-QPPSTY-AV-KDH
VATIVYTVLSSMLNPFIYSLRNKDLKQGLRKLMSK-RS*--------

>SOR1L8
----MERINHT-SSVSEFILLGLSSRPEDQKTLFVLFLIVYLVTITGNLLIILAIRFNPHLQTPMYFFLS
FLSLTDICFTTSVVPKMLMNFLSEKKTISYAGCLTQMYFLYALGNSDSCLLAVMAFDRYVAVCDPFHYVT
TMSHHHCVLLVAFSCSFPHLHSLLHTLLLNRLTFCDSNVIHHFLCDLSPVLKLSCSSIFVNEIVQMTEAP
IVLVTRFLCIAFSYIRILTTVLKIPSTSGKRKAFSTCGFYLTVVTLFYGSIFCVYL-QPPSTY-AV-KDH
VATIVYTVLSSMLNPFIYSLRNKDLKQGLRKLMSK-RS---------

>MmOR2.1.25
----MEGVNQT-RFVSEFILLGLSPRPEDQKPLFILFLTIYLVTLTGNLLIILAIRSDPHLHTPMYFFLS
FLSLTDICFTTTIVPKMLVNFLSEKKTISYAGCLTQMYFLYALGNSDSCLLAVMAFDRYVAICNPFHYVT
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMNHHRCALLVTFSCSFPHFHSLLHTLLLNLLTFCDSNVIHHFLCDLSPLLKLSCSSTFVNEIVIVTEGA
LVLVTPFLCIAFSYIRILVTVLKIPSAAGKRKAFSTCGSHFTVVTLFYGSIFYVYL-QPVSTY-TVKDH-
IATIVYTVLSSMLNPFIYSLRNKDLKQGLRKLISR-RHI*-------

>MmOR2.1.35
--MNNHSSSSS--STSDFILLGLSTNPWMQKPLFGIFIIMYLVTVMGNVLIILVIRSDSRLHTPMYFFLS
NLSFMDICFTTVIVPKMLVNFLSETKTISYVGCLVQMYFFMALGNTDSYLLASMAIDRLVAICNPLHYDV
VMRPQRCLLMLLGSCTISHLHALFRVLLMSRLSFCASHVIKHFFCDTQPVLKLSCSDTSSSQIVVMTETL
AVIVTPFLCILFSYMRIIVTVLRIPSAAGKWKAFSTCGSHLTVVVLFYGSIIYVYF-RPLSMY-SVVKDR
VATVMYTVVTPMMNPFIYSLRNKDMKRGLRKLMGK-VHL*-------

>MmOR2.1.34
--------NSS--STSDFILLGLSTNPWMQKPLFGIFIIMYLVTVMGNVLIILVIRSDSRLHTPMYFFLS
NLSFMDICFTTVIVPKMLVNFLSETKTISYVGCLVQMYFFIALANTDSYLLASMAIDRLVAICNPLHYDV
VMRSQRCLLMLLGSCTISHLHALFRVLLMSRLSFCASHVIKHFFCDTQPVLKLSCSDTSSSQIVVMTETL
AVIVTPFLCILFSYMKIIVTVLRIPSAAGKWKAFSTCGSHLTVVALFYGSVIYVYF-RPLSMY-SVVKDR
IATVMYTVVTPMMNPFIYSLRNKDMKRGLRKLRDR-LHS*-------

>SOR1L4
----METKNYS-SSTSGFILLGLSSNPKLQKPLFAIFLIMYLLTAVGNVLIILAIYSDPRLHTPMYFFLS
NLSFMDICFTTVIVPKMLVNFLSETKIISYVGCLIQMYFFMAFGNTDSYLLASMAIDRLVAICNPLHYDV
VMKPWHCLLMLLGSCSISHLHSLFRVLLMSRLSFCASHIIKHFFCDTQPVLKLSCSDTSSSQMVVMTETL
AVIVTPFLCTIFSYLQIIVTVLRIPSAARKWKAFSTCGSHLTVVVLFYGSVIYVYF-RPLSMY-SVMKGR
VATVMYTVVTPMLNPFIYSLRNKDMKRGLKKLRHR-IYS--------

>HsOR9.6.12
----METKNYS-SSTSGFILLGLSSNPKLQKPLFAIFLIMYLLTAVGNVLIILAIYSDPRLHTPMYFFLS
NLSFMDICFTTVIVPKMLVNFLSETKIISYVGCLIQMYFFMAFGNTDSYLLASMAIDRLVAICNPLHYDV
VMKPWHCLLMLLGSCSISHLHSLFRVLLMSRLSFCASHIIKHFFCDTQPVLKLSCSDTSSSQMVVMTETL
AVIVTPFLCTIFSYLQIIVTVLRIPSAAGKWKAFSTCGSHLTVVVLFYGSVIYVYF-RPLSMY-SVMKGR
VATVMYTVVTPMLNPFIYSLRNKDMKRGLKKLRHR-IYS*-------

>HsOR9.6.13
----MEIKNYS-SSTSGFILLGLSSNPQLQKPLFAIFLIMYLLAAVGNVLIIPAIYSDPRLHTPMYFFLS
NLSFMDICFTTVIVPKMLVNFLSETKVISYVGCLAQMYFFMAFGNTDSYLLASMAIDRLVAICNPLHYDV
VMKPRHCLLMLLGSCSISHLHSLFRVLLMSRLSFCASHIIKHFFCDTQPVLKLSCSDTSSSQMVVMTETL
AVIVTPFLCIIFSYLRIMVTVLRIPSAAGKWKAFSTCGSHLTAVALFYGSIIYVYF-RPLSMY-SVVRDR
VATVMYTVVTPMLNPFIYSLRNKDMKRGLKKLQDR-IYR*-------

>SOR1K1b
KSRDMEIKNYS-SSTSGFILLGLSSNPQLQKPLFAIFLIMYLLAAVGNVLIIPAIYSDPRLHTPMYFFLS
NLSFMDICFTTVIVPKMLVNFLSETKVISYVGCLAQMYFFMAFGNTDSYLLASMAIDRLVAICNPLHYDV
VMKPRHCLLMLLGSCSISHLHSLFRVLLMSRLSFCASHIIKHFFCDTQPVLKLSCSDTSSSQMVVMTETL
AVIVTPFLCIIFSYLRIMVTVLRIPSAAGKWKAFSTCGSHLTAVALFYGSIIYVYF-RPLSMY-SVVRDR
VATVMYTVVTPMLNPFIYSLRNKDMKRGLKKLQDR-IYR--------

>MmORUn.20.1
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MLRENQS--HMTEFLLLGLTSNPKQQVWLFASFLAMYLVNVIGNSVIIASIQRDARLHTPMYFFLS
NLSLVDICFTTVIVPQMLVNLLTQRKTILFAQCLTQMYFFVAFGITDSFLLAAMAIDRYVAICNPLHYNT
VMSPRRCRLLVVASWAVSHLHSLTHTILMGRLSFCGPNVIHHFFCDVQPLLTLSCSDTSINELLAFTEGS
VVIMSPFIFIVVSYIYITRTVLRVPSGEGRYKVFSTCGSHLTVVALFYGTIISVYI-RPSSTY-SVTKDR
VVTVIYTVVTPMLNPFIYSLRNKDMKQALRKLAKR-TE*--------

>SMOR134-1
----MMTRNHS--SVSEFLLLGLSEHWEQEPLLFGIFLVIYLVTVVGNTLIILAIVSDPHLHSPMYFFLA
NLSLTDMCLSSTTVPRMLVNIQTQRHSIPYAGCLSQIYFFLWFIGLDVFLLAVMAYDRLVAICYPLHYTL
VMSPRCCILLVTTSLFLAHSYALTHIILLSQLSFCMDNIILHFFCELLPMLKLSCSNTYANQCVLLYWGG
ALTVLIPLLIIVSYVRIVATIVRVPSASGKWKTFSTCGSHLSAVCLFYVSAIGVYF-IPYAAD-SASRDR
IASVMYAVVTPMLNPFIYSLRNKDMTSALRRFLNKILLQPPQS----

>MmOR2.1.26
----MMTRNHS--SVSEFLLLGLSEHWEQEPLLFGIFLVIYLVTVVGNTLIILAIVSDPHLHSPMYFFLA
NLSLTDMCLSSTTVPRMLVNIQTQRHSIPYAGCLSQIYFFLWFIGLDVFLLAVMAYDRLVAICYPLHYTL
VMSPRCCILLVTTSLFLAHSYALTHIILLSQLSFCMDNIILHFFCELLPMLKLSCSNTYANQCVLLYWGG
ALTVLIPLLIIVSYVRIVATIVRVPSASGKWKTFSTCGSHLSAVCLFYVSAIGVYF-IPYAAD-SASRDR
IASVMYAVVTPMLNPFIYSLRNKDMTSALRRFLNKILLQPPQS*---

>HsOR9.6.15
----MEAANES-SEGISFVLLGLTTSPGQQRPLFVLFLLLYVASLLGNGLIVAAIQASPALHAPMYFLLA
HLSFADLCFASVTVPKMLANLLAHDHSISLAGCLTQMYFFFALGVTDSCLLAAMAYDCYVAIRHPLPYAT
RMSRAMCAALVGMAWLVSHVHSLLYILLMARLSFCASHQVPHFFCDHQPLLRLSCSDTHHIQLLIFTEGA
AVVVTPFLLILASYGAIAAAVLQLPSASGRLRAVSTCGSHLAVVSLFYGTVIAVYF-QATSRR-EAEWGR
VATVMYTVVTPMLNPIIYSLWNRDVQGALRALLIG-RRISASDS*--

>SOR1K1a
----MEAANES-SEGISFVLLGLTTSPGQQRPLFVLFLLLYVASLLGNGLIVAAIQASPALHAPMYFLLA
HLSFADLCFASVTVPKMLANLLAHDHSISLAGCLTQMYFFFALGVTDSCLLAAMAYDCYVAIRHPLPYAT
RMSRAMCAALVGMAWLVSHVHSLLYILLMARLSFCASHQVPHFFCDHQPLLRLSCSDTHHIQLLIFTEGA
AVVVTPFLLILASYGAIAAAVLQLPSASGRLRAVSTCGSHLAVVSLFYGTVIAVYF-QATSRR-EAEWGR
VATVMYTVVTPMLNPIIYSLWNRDVQGALRALLIG-RRISASDS*A-

>SOR1A1
----MRENNQS--STLEFILLGVTGQQEQEDFFYILFLFIYPITLIGNLLIVLAICSDVRLHNPMYFLLA
NLSLVDIFFSSVTIPKMLANHLLGSKSISFGGCLTQMYFMIALGNTDSYILAAMAYDRAVAISRPLHYTT
IMSPRSCIWLIAGSWVIGNANALPHTLLTASLSFCGNQEVANFYCDITPLLKLSCSDIH-FHVKMMYLGV
GIFSVPLLCIIVSYIRVFSTVFQVPSTKGMLKAFSTCGSHLTVVSLYYGTVMGTYF-RP-LTN-YSLKDA
VITVMYTAVTPMLNPFIYSLRNRDMKAALRKLFNK-RISS-------

>HsOR17.1.7
----MRENNQS--STLEFILLGVTGQQEQEDFFYILFLFIYPITLIGNLLIVLAICSDVRLHNPMYFLLA
NLSLVDIFFSSVTIPKMLANHLLGSKSISFGGCLTQMYFMIALGNTDSYILAAMAYDRAVAISRPLHYTT
IMSPRSCIWLIAGSWVIGNANALPHTLLTASLSFCGNQEVANFYCDITPLLKLSCSDIH-FHVKMMYLGV
GIFSVPLLCIIVSYIRVFSTVFQVPSTKGVLKAFSTCGSHLTVVSLYYGTVMGTYF-RPLTNY-SLKD-A
VITVMYTAVTPMLNPFIYSLRNRDMKAALRKLFNKRISS*-------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>SMOR125-1
----MREENES--STIDFTLLGVTRQREQEYFFFILFLFIYPITVFGNMLIILAIHSDTRLHNPMYFFLA
NLSLVDIFFSSVTIPKMLANHLLGSKAISFGGCMAQMYFMIGLGNTDSYILAAMAYDRAVAISRPLHYAT
IMSPQLCVLLVAGSWVIANANALPHTLLTARLSFCGNKDVANFYCDITPLLQLSCSDIRFNVKM-MYLGV
GVFSVPLLCIIISYVRVFSTVLRVPSTKGFLKALSTCGSHLTVVSLYYGTVMGMYF-RPLTSY-SLKH-A
LITVMYTAVTPMLNPFIYSLRNRDMKAALKKLFHC-PSSSSSLM---

>MmOR11.6.38
----MREENES--STTDFTLLGVTRQREQEYFFFILFLFIYPITVFGNMLIILAIHSDTRLHNPMYFFLA
NLSLVDIFFSSVTIPKMLANHLLGSKAISFGGCMAQMYFMIGLANTDSYILAAMAYDRAVAISRPLHYAT
IMSPQLCVLLVAGSWVIANANALPHTLLTARLSFCGNKDVANFYCDITPLLQLSCSDIRFNVKM-MYLGV
GVFSVPLLCIIISYVRVFSTVLRVPSTKGFLKALSTCGSHLTVVSLYYGTVMGMYF-RPLTSY-SLKH-A
LITVMYTAVTPMLNPFIYSLRNRDMKAALKKLFHCPSSSSSLM*---

>MmOR11.6.37
----MREENES--STIDFTLLGVTRQREQEYFFFILFLFIYPITVFGNMLIILAIHSDTRLHNPMYFFLA
NLSLVDIFFSSVTIPKMLANHLLGSKAISFGGCMAQMYFMISLGNTDSYILAAMAYDRAVAISRPLHYAT
IMSPQLCVLLVAGSWVIANANALPHTLLTARLSFCGNKDVANFYCDITPLLQLSCSDIRFNVKM-MYLGV
GVFSVPLLCIIISYVRVFSTVLRVPSTKGFLKALSTCGSHLTVVSLYYGTVMGMYF-RPLTSY-SLKH-A
LITVMYTAVTPMLNPFIYSLRNRDMKAALKKLFHC-HSSSSSLM*--

>SOR1A2
----MKKENQS--FNLDFILLGVTSQQEQNNVFFVIFLCIYPITLTGNLLIILAICADIRLHNPMYFLLA
NLSLVDIIFSSVTIPKVLANHLLGSKFISFGGCLMQMYFMIALAKADSYTLAAMAYDRAVAISCPLHYTT
IMSPRSCILLIAGSWVIGNTSALPHTLLTASLSFCGNQEVANFYCDIMPLLKLSCSDVHFNVKMMYLGVG
VFSL-PLLCIIVSYVQVFSTVFQVPSTKSLFKAFCTCGSHLTVVFLYYGTTMGMYF-RP-LTS-YSPKDA
VITVMYVAVTPALNPFIYSLRNWDMKAALQKLFSK-RISS-------

>HsOR17.1.6
----MKKENQS--FNLDFILLGVTSQQEQNNVFFVIFLCIYPITLTGNLLIILAICADIRLHNPMYFLLA
NLSLVDIIFSSVTIPKVLANHLLGSKFISFGGCLMQMYFMIALAKADSYTLAAMAYDRAVAISCPLHYTT
IMSPRSCILLIAGSWVIGNTSALPHTLLTASLSFCGNQEVANFYCDIMPLLKLSCSDVHFNVKMMYLGVG
VFSL-PLLCIIVSYVQVFSTVFQVPSTKSLFKAFCTCGSHLTVVFLYYGTTMGMYF-RP-LTS-YSPKDA
VITVMYVAVTPALNPFIYSLRNWDMKAALQKLFSKRISS*-------

>HsOR17.1.1
----MDGDNQS--ENSQFLLLGISESPEQQRILFWMFLSMYLVTVLGNVLIILAISSDSHLHTPMYFFLA
NLSFTDLFFVTNTIPKMLVNFQSQNKAISYAGCLTQLYFLVSLVTLDNLILAVMAYDRYVATCCPLHYVT
AMSPGLCVLLLSLCWGLSVLYGLLLTFLLTRVTFCGPREIHYLFCDMYILLWLACSNTHIIHTALIATGC
FIFLTPLGFMTTSYVRIVRTILQMPSASKKYKTFSTCASHLGVVSLFYGTLAMVYL-QP-LHT-YSMKDS
VATVMYAVLTPMMNPFIYRLRNKDMHGAPGRVLWRPFQRPK*-----

>SOR1D4
----MDGDNQS--ENSQFLLLGISESPEQQQILFWMFLSMYLVTVLGNVLIILAISSDSHLHTPMYFFLA
NLSFTDLFFVTNTIPKMLVNFQSQNKAISYAGCLTQLYFLVSLVTLDNLILAVMAYDRYVAICCPLHYVT
AMSPGLCVLLLSLCWGLSVLYGLLLTFLLTRVTFCGPREIHYLFCDMYILLWLACSNTHIIHTALIATGC
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
FIFLTLLGFMTTSYVRIVRTILQMPSASKKYKTFSTCASHLGVVSLFYGTLAMVYL-QPLHTY-SMKDS-
VATVMYAVLTPMMNPFIYSLRNKDMHGAPGRVLWRPFQRPK------

>HsOR17.1.2
----MDGGNQS--EGSEFLLLGMSESPEQQRILFWMFLSMYLVTVVGNVLIILAISSDSRLHTPVYFFLA
NLSFTDLFFVTNTIPKMLVNLQSHNKAISYAGCLTQLYFLVSLVALDNLILAVMAYDRYVAICCPLHYTT
AMSPKLCILLLSLCWVLSVLYGLIHTLLMTRVTFCGSRKIHYIFCEMYVLLRMACSNIQINHTVLIATGC
FIFLIPFGFVIISYVLIIRAILRIPSVSKKYKAFSTCASHLGAVSLFYGTLCMVYL-KP-LHT-YSVKDS
VATVMYAVVTPMMNPFIYSLRNKDMHGALGRLLDKHFKRLT*-----

>MmOR11.6.49
----MDGGNQS--GDSEFLLLGLSEVPEHQRILFWTFLSMYLVTVVGNVLIILAIGSDSHLHTPMYFFLA
NLSFTDLFFVTNTIPKMLVSLQSQNKAISYPGCLTQLFFLVSLVALDNLILAVMAYDRYVAICHPLHYTT
AMSPKLCILLLILCWALSILYGLIHTLLMTRVTFCGSRKIHYIFCEMYVLLRLACSNTHINHMMLIATGC
FVFLVPFGFMIMSYICIVRAILKIPSASNKYKAFSTCASHLAVVALFYGTLCMVYL-KP-LHT-YSMKDS
VATVMYAVVTPMMNPFIYSLRNKDMHGALGRLL-RKPLQKLT*----

>MmOR11.2.6
--MSKGRENET--GVSEFLLLGITNDPQQQQILFWAFLCMYLVTVAGNTLIFLAIISDPRLHTPMYFFLA
NLSFVDVCFTTNLIPRLLAGHVAGTRTISYVHCLTQTYFLISFANVDTFLLAAMALDRFVAICYPLQYHT
IITPQLCVGLAAVVWMCSALISLMHTLLMSRLSFCSSPEISHFYCDAYLLMKLACSDTRVNQLV-FLGAV
VLFVAPCILIVVSYVRITMVVLQIPSAKGRHKTFSTCSSHLSVVTLFYGTVLGIYI-RP-PDS-FSTQDT
VATIMYTVVTPMLNPFIYSLRNKDMKESVTRLLNRGSKSS*------

>SMOR126-1
--MSKGRENET--GVSEFLLLGITNDPQQQQILFWAFLCMYLVTVAGNTLIFLAIISDPRLHTPMYFFLA
NLSFVDVCFTTNLIPRLLAGHVAGTRTISYVHCLTQTYFLISFANVDTFLLAAMALDRFVAICYPLQYHT
IITPQLCVGLAAVVWMCSALISLMHTLLMSRLSFCSSPEISHFYCDAYLLMKLACSDTRVNQLV-FLGAV
VLFVAPCILIVVSYVRITMVVLQIPSAKGRHKTFSTCSSHLSVVTLFYGTVLGIYI-RP-PDS-FSTQDT
VATIMYTVVTPMLNPFIYSLRNKDMKESVTRLLNRGSKSS-------

>MmOR11.2.7
--MSKGRENET--GVSEFLLLGITNDPQQQQILFWAFLCMYLVTVAGNTLIFLAIISDPCLHTPMYFFLA
NLSFVDVCFTTNLIPRLLAGHVAGTRTISYAQCLTQMFFMISFAHVDTLLLAAMALDRFVAICYPLQYHT
IITPQLCVGLAAVVWMCSALISLMHTLLMSRLRFCSSPEISHFYCDAYLLMKLACSDTRVNQL-ASLGTL
FLFVAPCILIVVSYVRITMAVFQIPSAKGRHKAFSTCSSHLSVVILFYGTILGIYI-RPPGSF-SIQVS-
VATIMYTVVTPMLNPFIYSLRNKDMKETVTRILNRDSKPS*------

>HsOR19.3.6
----MEPENDT--GISEFVLLGLSEEPELQPFLFGLFLSMYLVTVLGNLLIILATISDSHLHTPMYFFLS
NLSFADICFISTTIPKMLINIQTQSRVITYAGCITQMCFFVLFGGLDSLLLAVMAYDRFVAICHPLHYTV
IMNPRLCGLLVLASWMIAALNSLSQSLMVLWLSFCTDLEIPHFFCELNQVIHLACSDTFLNDMGMYFAAG
LLAGGPLVGILCSYSKIVSSIRAISSAQGKYKAFSTCASHLSVVSLFCCTGLGVYL-TSAATH-NSHTSA
TASVMYTVATPMLNPFIYSLRNKDIKRALKMSF-RGKQ*--------

>SOR7A17
----MEPENDT--GISEFVLLGLSEEPELQPFLFGLFLSMYLVTVLGNLLIILATISDSHLHTPMYFFLS
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
NLSFADICFISTTIPKMLINIQTQSRVITYAGCITQMCFFVLFGGLDSLLLAVMAYDRFVAICHPLHYTV
IMNPRLCGLLVLASWMIAALNSLSQSLMVLWLSFCTDLEIPHFFCELNQVIHLACSDTFLNDMGMYFAAG
LLAGGPLVGILCSYSKIVSSIRAISSAQGKYKAFSTCASHLSVVSLFCCTGLGVYL-TSAATH-NSHTSA
TASVMYTVATPMLNPFIYSLRNKDIKRALKMSF-RGKQ---------

>SOR7A10
----MKSWNNT--IILEFLLLGISEEPELQAFLFGLFLSMYLVTVLGNLLIILATISDSHLHTPMYFFLS
NLSFVDICFVSTTVPKMLVNIQTHNKVITYAGCITQMCFFLLFVGLDNFLLTVMAYDRFVAICHPLHYMV
IMNPQLCGLLVLASWIMSVLNSMLQSLMVLPLPFCTHMEIPHFFCEINQVVHLACSDTFLNDIVMYFAVA
LLGGGPLTGILYSYSKIVSSIRAISSAQGKYKAFSTCASHLSVVSLFYGTCLGVYL-SSAATH-NSHTGA
AASVMYTVVTPMLNPFIYSLRNKHIKGAMKTFF-RGKQ---------

>HsOR19.3.3
----MKSWNNT--IILEFLLLGISEEPELQAFLFGLFLSMYLVTVLGNLLIILATISDSHLHTPMYFFLS
NLSFVDICFVSTTVPKMLVNIQTHNKVITYAGCITQMCFFLLFVGLDNFLLTVMAYDRFVAICHPLHYMV
IMNPQLCGLLVLASWIMSVLNSMLQSLMVLPLPFCTHMEIPHFFCEINQVVHLACSDTFLNDIVMYFAVA
LLGGGPLTGILYSYSKIVSSIRAISSAQGKYKAFSTCASHLSVVSLFYGTCLGVYL-SSAATH-NSHTGA
AASVMYTVVTPMLNPFIYSLRNKHIKGAMKTFF-RGKQ*--------

>HsOR19.3.2
----MEPGNDT--QISEFLLLGFSQEPGLQPFLFGLFLSMYLVTVLGNLLIILATISDSHLHTPMYFFLS
NLSFADICVTSTTIPKMLMNIQTQNKVITYIACLMQMYFFILFAGFENFLLSVMAYDRFVAICHPLHYMV
IMNPHLCGLLVLASWTMSALYSLLQILMVVRLSFCTALEIPHFFCELNQVIQLACSDSFLNHMVIYFTVA
LLGGGPLTGILYSYSKIISSIHAISSAQGKYKAFSTCASHLSVVSLFYGAILGVYL-SSAATR-NSHSSA
TASVMYTVVTPMLNPFIYSLRNKDIKRALGIHLLW-GTMKGQFFKKC

>SMOR140-1
----MELKNDT--QISKFILLGISEDPLWQPFLFGLFLFMYLVTLLGNLLIIIATITDSHLHTPMYFFLS
NLSFADICFTSASIPKMLVNIQTKNKVITYEGCISQVFFFILFGVLDNFLLAVMAYDRYVAICHPLHYMV
IMNCRLCGFLVLGSWVTTALNSLLQSSMALRLSFCTDLKIPHFVCELNQLVLLACNDTFPNDMVMYFAAI
LLGGGPLAGILYSYSKIVSSIRAISSSQGKYKAFSTCASHLSVVSLFYSTLLGVYL-SSSFTQ-NSHSTA
RASVMYSVVTPMLNPFIYSLRNKDLMGALRRLLRR-KS---------

>MmOR16.2.1
----MELKNDT--QISKFILLGISEDPLWQPFLFGLFLFMYLVTLLGNLLIIIATITDSHLHTPMYFFLS
NLSFADICFTSASIPKMLVNIQTKNKVITYEGCISQVFFFILFGVLDNFLLAVMAYDRYVAICHPLHYMV
IMNCRLCGFLVLGSWVTTALNSLLQSSMALRLSFCTDLKIPHFVCELNQLVLLACNDTFPNDMVMYFAAI
LLGGGPLAGILYSYSKIVSSIRAISSSQGKYKAFSTCASHLSVVSLFYSTLLGVYL-SSSFTQ-NSHSTA
RASVMYSVVTPMLNPFIYSLRNKDLMGALRRLLRR-KS*--------

>SMOR139-1
----MEPRNNT--HILEFFLLGFSQDPNLQPVICGLFLSMYLITVVGNLLIILTIISDANLHTPMYFFLS
NLSFVDICFVSTTVPKMLVNIQTKRKSISYADCITQMYFFLIFVELDNFLLAVMAYDRYVAICHPLHYTG
IMNRRLCGFLVLVCWIVSVLHALLQSMMVLRLSFCTDLEIPHFFCELNQVAQLTCSDTFLNDVVMYFALV
LLAIVPLFGILYSYSKIVSSIRAMSTVQGKYKAFSTCASHLSVVSLFYFTGLGVYL-SSAVSH-SSQASA
TASVMYTVVTPMLNPFIYSLRNKDVKGALKRLLGV-KL---------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR10.2.7
----MEPRNNT--HILEFFLLGFSQDPNLQPVICGLFLSMYLITVVGNLLIILTIISDANLHTPMYFFLS
NLSFVDICFVSTTVPKMLVNIQTKRKSISYADCITQMYFFLIFVELDNFLLAVMAYDRYVAICHPLHYTG
IMNRRLCGFLVLVCWIVSVLHALLQSMMVLRLSFCTDLEIPHFFCELNQVAQLTCSDTFLNDVVMYFALV
LLAIVPLFGILYSYSKIVSSIRAMSTVQGKYKAFSTCASHLSVVSLFYFTGLGVYL-SSAVSH-SSQASA
TASVMYTVVTPMLNPFIYSLRNKDVKGALKRLLGV-KL*--------

>MmOR10.2.6
----MDSSNRT--RVAEFLLLGFLENKDLQPIIYGLFLSMYLVTVVGNMLIIVAIISGPRLHTPMYFFLS
NLSFVDICFISTTIPKMLVNIQTQNKVITYAGCITQIYFFLLFVELDNFLLTIMAYDRYVAICHPMRYTV
IMNYQLCGFLVLVSWIVSVLHALFQSLMMLELPFCTQPEIPHFFCEPNQVIQLTCSDAFLNDMVIYFTLV
LLAIVPLAGVFYSYFKIVSSIRAMSSVHGKYKAFSTCASHLLVVSLFYCTGLGVYL-SSAANH-GSQTSA
TASVTYTVVTPMMNPFIYSLRNKDVKSALKRLFVRKL*---------

>MmOR10.2.9
----METGNDT--QLSEFFLLGFSENPQIQPVIFGLFLFMYILTFTGNLLIIMAIIVDSHLHTPMYLFLS
NLSFVDICFTSTTVPQMLVNIHTQSKAITYAGCIIQMYFLLLFSGLDIFLLTVMAYDRYVAICHPLHYMI
IMSTRRCGLMILACWIIGVINSLLHTFLVLRLSFCTNLEIPHFFCELNQVVHQACSDTFLNDMVIYITAM
LLAVGPFSGILYSYSRIVSSICAISSVQGKYKAFSTCASHLSVVSLFYCTLLGVYL-SSAVTQ-NSHATA
TASLMYTVVTPMLNPFIYSLRNKDIKTALKILLGSVTRSRSMDSPS*

>MmOR10.2.8
----MEPGNDT--QLSEFFLLELSENPQIQPLIFGLFLSMYLVTVTGNLLIIMAITADSHLHTPMYIFLS
NLSFVDICFTSTTVPQMLVTIHTQSKAITYANCITQVYFLLLFSVLDIFLLTVMAYDHYVAICHPLHYMI
IMNTRRCGLMILACWIIGVINSLLHTFLALRLSFCTDLEIPHFYCELNQVVHHACSDISLNDMVIYIAAM
LLVVGPLSGILYSYSKIVSSICAISSVQGKYKAFSTCASHLSVVSLFYCTLLGVYL-SSAVTQ-NAQATA
LASLMYTVVTPMLNPFIYSLRNNDMKKALKIVLGRVTRNRLTDLPS*

>MmOR10.2.3
----MESGNRT-RRISSFFLLGFSENPHLQFLIFVLFLSMYLVTVLGNLLIIMVTITQSPLHTPMYFFLA
NLSFVDICFTSTTVPKMLVNIQTQSKAITYADCISQMSVFLVFGELDNFLLAVMAYDRYVAICHPLYYTV
IVNQQLCMLMVLLSWVVSILHAFLQSSIVLQLTFCGDVKIPHFFCELNQLSQLTCSDSLSSHLIMHLVPV
LLGAISFSSILYSYFKIVSSICSISSVQGKYKAFSTCVSHLSIVSLFYSTGLGVYV-SSAVVQ-SSHSAA
RASVMYTVVTPMLNPFIYSLRNKDVKKAVERLLEG-KL*--------

>MmOR10.2.5
----MESGNST-RRIPSFFLLGFSENPHLQFLIFVLFLSMYLVTVLGNLLIIMVIITQSPLHTPMYFFLA
NLSFVDICFTSTTVPKMLVNIQTQSKAITYADCISQMSVFLVFAELDNFLLAVMAYDRYVAICHPLYYTF
IVNQHLCILMVLLSWVVSILHAFLQSSIVLQLTFCGDVKIPHFFCELNQLSQLTCLDSLSSHLIMNLVPV
LLAVISFSSILYSYFKIVSSICSISSVQGKYTAFSTCVSHLSIVFLFYSTGLGVYV-SSAVVQ-SSHSAA
RASVMYTVVTPMLNPFIYSLRNKDVKKALERLLEG-KL*--------

>SOR7C2
----MERGNQT--EVGNFLLLGFAEDSDMQLLLHGLFLSMYLVTIIGNLLIILTISSDSHLHTPMYFFLS
NLSFADICFTSTTVPKMLVNIQTQSKMITFAGCLTQIFFFIAFGCLDNLLLTMTAYDRFVAICYPLHYTV
IMNPRLCGLLVLGSWCISVMGSLLETLTILRLSFCTNMEIPHFFCDPSEVLKLACSDTFINNIVMYFVTI
VLGVFPLCGILFSYSQIFSSVLRVSSARGQHKAFSTCGSHLSVVSLFYGTGLGVYL-SSAVTP-PSRTSL
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
AASVMYTMVTPMLNPFIYSLRNKDMKGSLGRLLLRATSLKEGTIAKL

>HsOR19.3.11
----MERGNQT--EVGNFLLLGFAEDSDMQLLLHGLFLSMYLVTIIGNLLIILTISSDSHLHTPMYFFLS
NLSFADICFTSTTVPKMLVNIQTQSKMITFAGCLTQIFFFIAFGCLDNLLLTMTAYDRFVAICYPLHYTV
IMNPRLCGLLVLGSWCISVMGSLLETLTILRLSFCTNMEIPHFFCDPSEVLKLACSDTFINNIVMYFVTI
VLGVFPLCGILFSYSQIFSSVLRV-SARGQHKAFSTCGSHLSVVSLFYGTGLGVYL-SSAVTP-PSRTSL
AASVMYTMVTPMLNPFIYSLRNKDMKGSLGRLLLRATSLKEGTIAKL

>HsOR19.3.1
----METGNQT--HAQEFLLLGFSATSEIQFILFGLFLSMYLVTFTGNLLIILAICSDSHLHTPMYFFLS
NLSFADLCFTSTTVPKMLLNILTQNKFITYAGCLSQIFFFTSFGCLDNLLLTVMAYDRFVAVCHPLHYTV
IMNPQLCGLLVLGSWCISVMGSLLETLTVLRLSFCTEMEIPHFFCDLLEVLKLACSDTFINNVVIYFATG
VLGVISFTGIFFSYYKIVFSILRISSAGRKHKAFSTCGSHLSVVTLFYGTGFGVYL-SSAATP-SSRTSL
VASVMYTMVTPMLNPFIYSLRNTDMKRALGRLLSRATFFNGDITAGL

>SOR7C1
----METGNQT--HAQEFLLLGFSATSEIQFILFGLFLSMYLVTFTGNLLIILAICSDSHLHTPMYFFLS
NLSFADLCFTSTTVPKMLLNILTQNKFITYAGCLGQIFFFTSFGCLDNLLLTVMAYDRFVAICHPLHYTV
IMNPQLCGLLVLGSWCISVMGSLLETLTVLRLSFCTKMEIPHFFCDLLEVLKLACSDTFINNVVIYFATG
VLGVIPFTGIFFSYYKIVFSILRISSAGRKHKAFSTCGSHLSLVTLFYGTGFGVYL-SSAATP-SSRTSL
VASVMYTMVTPMLNPFIYSLRNTDMKRALGRLLSRATFFNGDNTAGL

>SMOR142-1
----MERENQT--GERNFLLLGFTEDSDLQSFFFGLLLSMYLVTITGNLLIIVAIISDPHLHMPMYLFLS
NLSIADIGFTSTTIPKVLQNIRTQSKFISFSGCITQIFFFIVFGCLDNLLLSVMAYDRFVAICHPLHYVV
IMNSCFCAMLALGSWIVSVMSSLPETLTVLRLSFCTNMEIPHFFCDLPEVLKLACSDTLVNNIVTYSITI
VIAGFPFSGILLSYSKIFSSILRIPSAGGKYKAFSTCGSHLLVVFLFYSNGLGVYL-SSAATS-SSRMSL
VASLMYSIVTPMLNPFIYSLRNKDMQKALGKLL-RKIMLLGEGTMVG

>MmOR10.2.2
----MERENQT--GERNFLLLGFTEDSDLQSFFFGLLLSMYLVTITGNLLIIVAIISDPHLHMPMYLFLS
NLSIADIGFTSTTIPKVLQNIRTQSKFISFSGCITQIFFFIVFGCLDNLLLSVMAYDRFVAICHPLHYVV
IMNSCFCAMLALGSWIVSVMSSLPETLTVLRLSFCTNMEIPHFFCDLPEVLKLACSDTLVNNIVTYSITI
VIAGFPFSGILLSYSKIFSSILRIPSAGGKYKAFSTCGSHLLVVFLFYSNGLGVYL-SSAATS-SSRMSL
VASLMYSIVTPMLNPFIYSLRNKDMQKALGKLLRKIMLLGEGTMVGL

>MmOR8.3.1
----MEPENHT--GIPEFYLLGLSENPEIQSVLFGLFLSLYLVTVFGNLLIILAIVSDPKLHTPMYLFLS
NLSFSDICFTSTTVPKMLLGIQTQSKLITYAGCITQMYFFTVFGLLDNLLLTVMAYDRFVAICHPLHYTV
LMNPKLCSQLLLLAWLISILGALPESLTALRLSFCAVVEIPHYFCELPEVLKLACSDTFINNVVLYIVTG
IMGFFPLAGILFSYSQIVTSVLRISTVGGKYKAFSTCGSHLSVVSLFYGTCLGVYL-SSIWTQ-ASWAGV
FASVLYTVVTPMMNPFIYSLRNRDMKRALNTLLCSVPSSS*------

>SMOR141-1
----MKPENQT--NILEFLLLGFSQYPEHQPMLFGLFLLMFVVAVLGNLLIILAVSIDSHLHTPMYFFLS
NLSFSDIGFISTTVPKMLVNIQTQSKSISYAECITQIYFFMLFGGMDTLLLTVMAYDRFVAICHPLHYSV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMNPQLSGLLVLVSWFISFSYSLIQSLLMLRLSFCTNQIIKHFYCEYAKALTIACSDTLINHILLYIVIW
VLGFIPFSGILYSYYKIFSSILRIPSTDGKYKAFSTCGSHLSVVSLFYGTGLSVYL-SSDATS-SSGKGV
VASVMYTVVTPMLNPFIYSLRNKDIKKALKTLG-RILLLK-------

>MmOR9.2.43
----MKPENQT--NILEFLLLGFSQYPEHQPMLFGLFLLMFVVAVLGNLLIILAVSIDSHLHTPMYFFLS
NLSFSDIGFISTTVPKMLVNIQTQSKSISYAECITQIYFFMLFGGMDTLLLTVMAYDRFVAICHPLHYSV
IMNPQLSGLLVLVSWFISFSYSLIQSLLMLRLSFCTNQIIKHFYCEYAKALTIACSDTLINHILLYIVIW
VLGFIPFSGILYSYYKIFSSILRIPSTDGKYKAFSTCGSHLSVVSLFYGTGLSVYL-SSDATS-SSGKGV
VASVMYTVVTPMLNPFIYSLRNKDIKKALKTLG-RILLLK*------

>MmOR9.2.44
----MKPENQT--NILEFLLLGFSQYPEHQPMLFGLFLLMFVVAVFGNLLIILAVSIDSHLHTPMYFFLS
NLSFSDIGFISTTIPKMLVNIQTQSKSISYAECITQIYFFMLFGGMDILLLTVMAYDRFVAICHPLHYSV
IMNPQLSGLLVLVSWFISFSYSLIQSLLMLRLSFCTNQIIKHFYCEYSRALTIACSDTLINHILLYILIC
VLGFIPFSGILYSYCKIVSSILRIPSTDGKYKAFSTCGSHLSVVSLFYGTGLGVYL-SSDVTS-SSGKDV
VASVMYTVVTPMLNPFIYSLRNKDIKKALKTLG-RILLLK*------

>MmOR9.2.40
----MEIENHT--LITKFLILGLSDDPELQPILFGLFLSMYLVTLLGNLLIILAVSSDSHLHKPMYFLLS
NLSFIDICFISTTIPKMLVNMQSQIKDISYIECLTQVFFFNIFAGMDNFLLTLMAYDRFVAICHPLNYTV
IMNPRLCALLILMFWIIMFWVSLIHVLLMNELNFSRGTEIPHFFCELAQVLKVSNSDNHVNNVFMYVVTS
LLGVIPMTGILMSYSQIFSSLFRMSSTVSKYKAFSTCGSHLCVVTLFYGSGFGVYF-SSSVVH-STQRRK
VASLMYTVISPMLNPFIYTLRNKDVKGALGKLFNR-VASSPSCINDI

>SMOR144-1
----MGKENHT--ELSQFLLLGLSDDPKLQPILFGIFLFMYLVTVLGNLLIILAVSSDSHLHNPMYFFLS
NLSFVDMCFTSTTVPKMLVNIQTKNKNISYMQCLTQVYFFMVFAGMDNFLLTVMAFDRFVAICHPLNYTV
IMNPHFCCFLVLMCWIIILSVSLFHSLLMKQLTFSMGTEIPHFFCELAQILRVASSDILINNIALYVATA
LLCVFPVTGILFSYSQIVSSLLNMSSVVSKYRAFSTCGSHLCVVCLFYGTALGVYL-SSAGTD-VSQGST
IASVMYTVVTPMLNPFIYSLRNKDVKGALVRIL-KVYSCP-------

>MmOR9.2.46
----MGKENHT--ELSQFLLLGLSDDPKLQPILFGIFLFMYLVTVLGNLLIILAVSSDSHLHNPMYFFLS
NLSFVDMCFTSTTVPKMLVNIQTKNKNISYMQCLTQVYFFMVFAGMDNFLLTVMAFDRFVAICHPLNYTV
IMNPHFCCFLVLMCWIIILSVSLFHSLLMKQLTFSMGTEIPHFFCELAQILRVASSDILINNIALYVATA
LLCVFPVTGILFSYSQIVSSLLNMSSVVSKYRAFSTCGSHLCVVCLFYGTALGVYL-SSAGTD-VSQGST
IASVMYTVVTPMLNPFIYSLRNKDVKGALVRIL-KVYSCP*------

>HsOR19.2.11
----MEAENLT--ELSKFLLLGLSDDPELQPVLFGLFLSMYLVTVLGNLLIILAVSSDSHLHTPMYFFLS
NLSFVDICFISTTVPKMLVSIQARSKDISYMGCLTQVYFLMMFAGMDTFLLAVMAYDRFVAICHPLHYTV
IMNPCLCGLLVLASWFIIFWFSLVHILLMKRLTFSTGTEIPHFFCEPAQVLKVACSNTLLNNIVLYVATA
LLGVFPVAGILFSYSQIVSSLMGMSSTKGKYKAFSTCGSHLCVVSLFYGTGLGVYL-SSAVTH-SSQSSS
TASVMYAMVTPMLNPFIYSLRNKDVKGALERLLSRADSCP*------

>SMOR143-1
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MEAENHT--AIVHFLLIGLSEDPKIQSVLFGLFLSMFLITMLGNFLIVLVTSCDSHLHTPMYFFLC
NLSFVDICLTSTTIPKMLVNIYMHTMKISYTECLTQVYFFNNFLGMDNFLLTIMAYDRFVAICHPLNYTV
IMNPRICGLLVLLSWIIMFWVSLIHMLLMKQLNFSTSTEIPHFFCELTELLRVARSDTHINNIFLYLVTA
VLGMFPVIGIAFSYFHIVSALMKMSSIKNKYKAFSTCGSHLCVVSMFYGTGFVVHL-SSAVAH-SSKRNT
ITSIMYTVVTPMLNPFIYSLRNKDVKGALVRLLRRVKFCP-------

>MmOR9.2.36
----MEAENHT--AIVHFLLIGLSEDPKIQSVLFGLFLSMFLITMLGNFLIVLVTSCDSHLHTPMYFFLC
NLSFVDICLTSTTIPKMLVNIYMHTMKISYTECLTQVYFFNNFLGMDNFLLTIMAYDRFVAICHPLNYTV
IMNPRICGLLVLLSWIIMFWVSLIHMLLMKQLNFSTSTEIPHFFCELTELLRVARSDTHINNIFLYLVTA
VLGMFPVIGIAFSYFHIVSALMKMSSIKNKYKAFSTCGSHLCVVSMFYGTGFVVHL-SSAVAH-SSKRNT
ITSIMYTVVTPMLNPFIYSLRNKDVKGALVRLLRRVKFCP*------

>HsOR19.2.8
----MEAGNQT--GFLEFILLGLSEDPELQPFIFGLFLSMYLVTVLGNLLIILAISSDSHLHTPMYFFLS
NLSWVDICFSTCIVPKMLVNIQTENKAISYMDCLTQVYFSMFFPILDTLLLTVMAYDRFVAVCHPLHYMI
IMNPHLCGLLVFVTWLIGVMTSLLHISLMMHLIFCKDFEIPHFFCELTYILQLACSDTFLNSTLIYFMTG
VLGVFPLLGIIFSYSRIASSIRKMSSSGGKQKALSTCGSHLSVVSLFYGTGIGVHF-TSAVTH-SSQKIS
VASVMYTVVTPMLNPFIYSLRNKDVKGALGSLLSRAASCL*------

>SMOR145-1
--------------------MGLSDDLQLQPILFGLFLSMYLVTLLGNLLIILTVSSDSHLHSPMYFFLS
NLSLADVSFTSTTLPKMIVDIQTHNRAISYSGCLTQMSFFMLFGCLDSLLLTAMAYDRFVAICHPLHYQF
IMNPRLCGLLVFLSVLISLFVSQLHNSVVLQLTYFKSVDISHFFCDPSQLLNLACSDTFTNNIVMYFVGA
ISGFLPISGIFFSYYKIVSSILRMPSPGGKYKAFSTCGSHLSVVCLFYGTGLGVYL-SSAVSL-SPRKGA
VASIVYTVVTPMLNPFIYSLRNQDIKRAMWRLL-RKTV---------

>MmOR9.2.48
--------------------MGLSDDLQLQPILFGLFLSMYLVTLLGNLLIILTVSSDSHLHSPMYFFLS
NLSLADVSFTSTTLPKMIVDIQTHNRAISYSGCLTQMSFFMLFGCLDSLLLTAMAYDRFVAICHPLHYQF
IMNPRLCGLLVFLSVLISLFVSQLHNSVVLQLTYFKSVDISHFFCDPSQLLNLACSDTFTNNIVMYFVGA
ISGFLPISGIFFSYYKIVSSILRMPSPGGKYKAFSTCGSHLSVVCLFYGTGLGVYL-SSAVSL-SPRKGA
VASIVYTVVTPMLNPFIYSLRNQDIKRAMWRLL-RKTV*--------

>MmOR9.2.47
CSNNIELQNLT--LVSEFHLMRISDDPELQPILFGLFLSMYLVTVLGNLIIILAVNSDSDNLHTPMYFFLC
NLSLADICFISTTVPKMIVNIQTHSKEIIYVGCLTQMSFLILFGCMDGLLLTVMAYDRFVAVCHPLHYSL
IMNPRLCGSLVCLSLLISLVDSQAHNLIALQIIYFKDVKISNFFCDPAQLLNLACFNTFINNIVMYFVGA
ISGLLPISGIFFSYYKIVFSILKIPSKGGRYKAFSTCGSHLSVVCLFYGTAIGVYL-GSAVSH-SPRSTA
VASLIYTVVTPMLNPFIYSLRNKDIKRAVKRLHRR-ML*--------

>SOR7E24
CPSYTEPQNLT--GVSEFLLLGLSEDPELQPVLAGLFLSMYLVTVLGNLLIILAVSSDSHLHTPMYFFLS
NLSLADIGFTSTTVPKMIVDMQTHSRVISYEGCLTQMSFFVLFACMDDMLLSVMAYDRFVAICHPLHYRI
IMNPRLCGFLILLSFFISLLDSQLHNLIMLQLTCFKDVDISNFFCDPSQLLHLRCSDTFINEMVIYFMGA
IFGCLPISGILFSYYKIVSSILRVPTSDGKYKAFSTCGSHLAVVCLFYGTGLVGYL-SSAVLP-SPRKSM
VASVMYTVVTPMLNPFIYSLRNKDIQSALCRLHGRIIKSHHLHPFCY
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>HsOR19.2.14
CPSYTEPQNLT--GVSEFLLLGLSEDPELQPVLAGLFLSMYLVTVLGNLLIILAVSSDSHLHTPMYFFLS
NLSLADIGFTSTTVPKMIVDMQTHSRVISYEGCLTQMSFFVLFACMDDMLLSVMAYDRFVAICHPLHYRI
IMNPRLCGFLILLSFFISLLDSQLHNLIMLQLTCFKDVDISNFFCDPSQLLHLRCSDTFINEMVIYFMGA
IFGCLPISGILFSYYKIVSPILRVPTSDGKYKAFSTCGSHLAVVCLFYGTGLVGYL-SSAVLP-SPRKSM
VASVMYTVVTPMLNPFIYSLRNKDIQSALCRLHGRIIKSHHLHPFCY

>MmOR9.2.39
-MINNDVENLK--DVLEFHLMALSEDPELQLLLFGLFLSVYLVTVLGNLLIILIIIFDSNLHNPMYFFLS
NLSLIDILFISTTIPKMIVGIKMHSRVISYAGCLTQMSLFLFFVCMDDMILNVMAYDRFVAICHPLHYTV
LMNPQVCVILILLSFSVSVFDSQLHNLIALQDTCFRDVEIANFFCHPSQLLNLACTNTLSSNIVIYFIGV
ILGIFPVLGIILSYCKIVFSILKIPSSSGKYKAFSTCGSHLLVVCLFYGTGIGVYL-GSAVSH-SPRKNA
VASLMYTAVSPMLNPFIYTLRNRDISNALKRFHSR-FS*--------

>MmOR9.2.41
-MMKLKMENIT--YVSQFYLLRVSDDPELQPFLSGLFLSMYLISVLGNLIIILIVSSFSHLHTPMYFFLS
ILSLADIGFISTTVPNMIAELQIHSPVISYVGCLTQMSLFIIFACMDSMLLAVMAYDRFVAICHPLRYAI
IMNPCRCGILVLMSFSASLFESLLHNLVALQLKCFKDVAIANFFCHPSQLLNLSCNNTFNNNILMYVIGV
ILGVFPLSGILISYFKIISSILRITSSSGRYKAFSTCGSHLAVVCLFYGTGLGEYF-GSLLSH-SSGNNV
VASLMYTVVTPMLNPFIYSLRNQDISDSLKRLHF*------------

>MmOR9.2.45
--------------------MSLSENVELQPFLLVLFLSFYMVTVLGNLLIILAVCSDFHLHTPMYFFLS
NLSWSDICLISTIVPRMIWDIGTQSRVISYVSCLTQMSMFIVFGCMDSMLLTVMAYDRFVAICHPLHYKI
IMNPNLCAFLLLASVLASLVDSQVHNLIVLQFTYFNDMEISNFFCDPSQLLNHNCSEMFTKNIVIHFIGV
FFGLFSTTGIIFSYYKIISSILRIPTKDGKYKAFSTCGSHLSVVCLFYGTSIGVYI-GSTASN-SPKNCA
IASLMYTVVTPMLNPFIYSLRNRDIKTALWQLQRRAM*---------

>MmOR9.2.42
--------------------MSLSENVEVQPFLLVLFLSFYMVTVLGNLLIILAVCSDFHLHTPMYFFLS
NLSWSDICLISTIVPRMIWDIGTQSRVISYVSCLTQMSMFILFACMDSMLLTVMAYDRFVAICHPLHYKI
IMNPNLCAFLLLASVLASLVDSQVHNLIVLQFTHFSGMEISNFYCDPSQLLNLNCSEMFTKSIVIHFIGV
FFGLFSTTGIISSYYKIISSILRIPSKDGKYKAFSTCGSHLSVVCLFYGTATAVYI-GSTSSY-SPENCA
VASLMYTVVIPMLNPFIYSLRNRDIKIALRKLQRRAI*---------

>MmOR9.2.31
----MEPYNLT--GTLEFILLGLSEDPELQLILFALFLLIYLLTMLGNVLIILAISCDSHLHSPMYFFLY
NLSLSDMGFSSTTIPKMLINLHAHKRSTTYAECLTQVSFFILFGCMDSFLLAVMAYDRWVAICHPLHYQV
ILNPCRCRYLVVMSFCISLIDSQVHCFMVSQLTFCTNIEIPHFFCDVPELVKLACSNTTINDIAMFLSSI
IVGFLPASGIFYSYYKITSSIFRVPSLLGKYKAFSTCGSHLSVVCLFYGTGIGVYL-SSTVSG-SSRESM
VASVMYTMVVPMMNPFIYSLRNRDIKKALWKIVCK-IT*--------

>MmOR9.2.29
----MEPYNLT--GTLEFILLGLSEDPELQLILFALFLLIYMLTVLGNVLIILAISSDSHLHSPMYFFLY
NLSLSDMGFSSTTIPKMLINLHAHNRSITYAECLTQVSFFFLFGGMDSLLLAVMAYDRWVAICHPLYYQV
ILSPCLCRCLVIVSLFISLVSSQVHCLLVSQLTFCINVEIPHFFCDVPELVKLACSNTTISDIVIFLLGI
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
ILGFLPASGIFYSYYKITSSIFRVPSLLGKYKAFSTCGSHLSVVCLFYGTGIGVYL-SSTVSS-SSRESM
VASVMYTMVVPMMNPFIYSLRNRDIKKALWKIV-RQIT*--------

>MmOR9.2.34
----MELYNLT--SNLEFLLLGLSEDPELQPVLFALFLLIYLLTVLGNVLIILAISCDSHLHSPMYFFLY
NLSLSDMGFSSTTIPKMLINLHAHNRTITYAECLTQVSFFFLFGCMDSVLLAVMAYDRWVAICHPLHYQV
ILNPRLCRYLVVMSFCISLIDSQVHCFMVSQLKFCTNIKIPHFFCDVPELLKLACSDTSINSIVIFLVSI
IVGFLPASGIFYSYYKIISSIVRVPSSGGKCKAFSTCGSHLSVVCLFYGTGLGVYL-SSSISS-SSKESV
VTSVMYTMVVPMINPFIYSLRNKDIKKALQKIFSQIIMLPTYIIP*-

>SMOR146-1
----MEPYNLT--GALEFLLLGLSEDPELQPVLFALFLLIYLLTVLGNVLIILAISSDSHLHSPMYFFLY
NLSLSDMGFSSTTIPKMLINMQTHNKSITYAACLTQVSFFTLFGCMDSLLLTVMAYDRWVAICRPLYYQV
ILNPGLCRRLVLMLFFISYMNSLVHYFIVSQLKFCTNMEIPHFFCDIPELLKLACSDTSINNLFRFLLSI
IFGFLPVSGIFYSYYKIISSIIRVPSLLGKYKAFSTCGSHLSVVCLFYGTGLEAYL-SSTISR-STRENM
LASVIYTMRVPMINPFIYSLRNRAMKKALQKIF-S------------

>MmOR9.2.35
----MEPYNLT--GALEFLLLGLSEDPELQPVLFALFLLIYLLTVLGNVLIILAISSDSHLHSPMYFFLY
NLSLSDMGFSSTTIPKMLINMQTHNKSITYAACLTQVSFFTLFGCMDSLLLTVMAYDRWVAICRPLYYQV
ILNPGLCRRLVLMLFFISYMNSLVHYFIVSQLKFCTNMEIPHFFCDIPELLKLACSDTSINNLFRFLLSI
IFGFLPVSGIFYSYYKIISSIIRVPSLLGKYKAFSTCGSHLSVVCLFYGTGLEAYL-SSTISR-STRENM
LASVIYTMRVPMINPFIYSLRNRAMKKALQKIFS*------------

>SMOR153-1
----MKRGNVS--ESTEFHLMGLSDNQELQPVLFGVFLTIYLITLFGNLLIILATIFDSNLHTPRYFFIS
NLSFIDICFTTTTIPKMLVNIQAQVNSISYTGCLTQICFVLAFAGLENEILVMMAYDRFVAICHPLRYTV
IMNPKLCGVMVLLSFLLSILDALLHTLMALRLSFCTKLEIPHFFCELAHILKLACSNILINNILVYLVTS
LFGILPLSGIIYSYTKIISSVLKIPSAAGKYKVFSTCVSHLVVVILFYGTGFGVYL-SSAGTH-SSRMSA
IASVMYTVVTPTMNPFIYSLRNKDMVNAFKKLISRITTSL-------

>MmOR9.2.5
IINIMKRGNVS--ESTEFHLMGLSDNQELQPVLFGVFLTIYLITLFGNLLIILATIFDSNLHTPRYFFIS
NLSFIDICFTTTTIPKMLVNIQAQVNSISYTGCLTQICFVLAFAGLENEILVMMAYDRFVAICHPLRYTV
IMNPKLCGVMVLLSFLLSILDALLHTLMALRLSFCTKLEIPHFFCELAHILKLACSNILINNILVYLVTS
LFGILPLSGIIYSYTKIISSVLKIPSAAGKYKVFSTCVSHLVVVILFYGTGFGVYL-SSAGTH-SSRMSA
IASVMYTVVTPTMNPFIYSLRNKDMVNAFKKLISRITTSL*------

>HsOR19.2.7
----MKAGNFS--DTPEFFLLGLSGDPELQPILFMLFLSMYLATMLGNLLIILAVNSDSHLHTPMYFLLS
ILSLVDICFTSTTMPKMLVNIQAQAQSINYTGCLTQICFVLVFVGLENGILVMMAYDRFVAICHPLRYNV
IMNPKLCGLLLLLSFIVSVLDALLHTLMVLQLTFCIDLEIPHFFCELAHILKLACSDVLINNILVYLVTS
LLGVVPLSGIIFSYTRIVSSVMKIPSAGGKYKAFSICGSHLIVVSLFYGTGFGVYL-SSGATH-SSRKGA
IASVMYTVVTPMLNPLIYSLRNKDMLKALRKLISRIPSFH*------

>SMOR151-1
----METVNQT--IISEFILLGLSDDPTLQPFIFTLFLTIYLITTLGNLLIILAVSSDSQLHTPMYFFLC
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
NLSFNDICLINTTIPKMLVNIQREDHTITYTACLSQVYLILNFAGIENCLLAVMAYDRYVAICHPLKYTV
IMNQYVCAMLLLFSLFLSIVHALFHTLMILLLSFCTEIEIPHFFCELAQIIRLACSDNFINYLLVYTVSV
LFFGVPVFGIILSYIHIISSVLKMSSLGGKYKAFSTCGSHLSVVSLFYGTGFGVHI-SSAFTD-SPKKTV
VASVMYTIITQMLNPFIYSLRNKEMKKAFRKITSKIPFLL-------

>MmOR9.2.21
----METVNQT--IISEFILLGLSDDPTLQPFIFTLFLTIYLITTLGNLLIILAVSSDSQLHTPMYFFLC
NLSFNDICLINTTIPKMLVNIQREDHTITYTACLSQVYLILNFAGIENCLLAVMAYDRYVAICHPLKYTV
IMNQYVCAMLLLFSLFLSIVHALFHTLMILLLSFCTEIEIPHFFCELAQIIRLACSDNFINYLLVYTVSV
LFFGVPVFGIILSYIHIISSVLKMSSLGGKYKAFSTCGSHLSVVSLFYGTGFGVHI-SSAFTD-SPKKTV
VASVMYTIITQMLNPFIYSLRNKEMKKAFRKITSKIPFLL*------

>HsOR19.2.5
----MGPRNQT--AVSEFLLMKVTEDPELKLIPFSLFLSMYLVTILGNLLILLAVISDSHLHTPMYFLLF
NLSFTDICLTTTTVPKILVNIQAQNQSITYTGCLTQICLVLVFAGLESCFLAVMAYDRYVAICHPLRYTV
LMNVHFWGLLILLSMFMSTMDALVQSLMVLQLSFCKNVEIPLFFCEVVQVIKLACSDTLINNILIYFASS
VFGAIPLSGIIFSYSQIVTSVLRMPSARGKYKAFSTCGCHLSVFSLFYGTAFGVYI-SSAVAE-SSRITA
VASVMYTVVPQMMNPFIYSLRNKEMKKALRKLIGRLFPF*-------

>SOR7G1
----MGPRNQT--AVSEFLLMKVTEDPELKLIPFSLFLSMYLVTILGNLLILLAVISDSHLHTPMYFLLF
NLSFTDICLTTTTVPKILVNIQAQNQSITYTGCLTQICLVLVFAGLESCFLAVMAYDRYVAICHPLRYTV
LMNVHFWGLLILLSMFMSTMDALVQSLMVLQLSFCKNVEIPLFFCEVVQVIKLACSDTLINNILIYFASS
VFGAIPLSGIIFSYSQIVTSVLRMPSARGKYKAFSTCGCHLSVFSLFYGTAFGVYI-SSAVAE-SSRITA
VASVMYTVVPQMMNPFIYSLRNKEMKKALRKLIGRLFPF--------

>HsOR19.2.4
----MEARNQT--AISKFLLLGLIEDPELQPVLFSLFLSMYLVTILGNLLILLAVISDSHLHTPMYFFLS
NLSFLDICLSTTTIPKMLVNIQAQNRSITYSGCLTQICFVLFFAGLENCLLAAMAYDRYVAICHPLRYTV
IMNPRLCGLLILLSLLTSVVNALLLSLMVLRLSFCTDLEIPLFFCELAQVIQLTCSDTLINNILIYFAAC
IFGGVPLSGIILSYTQITSCVLRMPSASGKHKAVSTCGSHLSIVLLFYGAGLGVYI-SSVVTD-SPRKTA
VASVMYSVFPQMVNPFIYSLRNKDMKGTLRKLWCAICFGFRFLE*--

>SOR7G2
IINSMEARNQT--AISKFLLLGLIEDPELQPVLFSLFLSMYLVTILGNLLILLAVISDSHLHTPMYFFLS
NLSFLDICLSTTTIPKMLVNIQAQNRSITYSGCLTQICFVLFFAGLENCLLAAMAYDRYVAICHPLRYTV
IMNPRLCGLLILLSLLTSVVNALLLSLMVLRLSFCTDLEIPLFFCELAQVIQLTCSDTLINNILIYFAAC
IFGGVPLSGIILSYTQITSCVLRMPSASGKHKAVSTCGSHLSIVLLFYGAGLGVYI-SSAVTD-SPRKTA
VASVMYSVVPQMVNPFIYSLRNKDMKGTLRKFIGRCAICFGFRFLE-

>SMOR154-1
----MELENQT--RVIEFFLLGLSEDPELQPILFGLFLLMYLVTVSGNLLIILAIVSDAHLHTPMYFFLS
NLSFTDICFSTTTVPKMLTNLQKQSKSISYTGCITQLSFVLLFAGMENFLLAAMAYDRYVAICNPLRYTD
IMKLHLCFVMIFLSLYISIVDALLHGLMTLRLSFCTFLEIPHFFCELYQVIKIACSDTLINNILIYVMSS
ALGGMPLVGIIFSYYKIISSILRMPSPGGRHKAFSTCGSHLSVVSLFYGTAFGVYI-SSAFTE-SYRRTS
VASLMYTVFPPMLNPFIYSLRNKDMKKALRKIV--------------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR9.2.24
----MELENQT--RVIEFFLLGLSEDPELQPILFGLFLLMYLVTVSGNLLIILAIVSDAHLHTPMYFFLS
NLSFTDICFSTTTVPKMLTNLQKQSKSISYTGCITQLSFVLLFAGMENFLLAAMAYDRYVAICNPLRYTD
IMKLHLCFVMIFLSLYISIVDALLHGLMTLRLSFCTFLEIPHFFCELYQVIKIACSDTLINNILIYVMSS
ALGGMPLVGIIFSYYKIISSILRMPSPGGRHKAFSTCGSHLSVVSLFYGTAFGVYI-SSAFTE-SYRRTS
VASLMYTVFPPMLNPFIYSLRNKDMKKALRKIV-*------------

>SMOR150-1
----MESTNQT--DAIEFLLLGLSDDPELQPIIFGLFLFMYLVTFLGNLIITLTISAECHLHTPMYFFLS
NLSVADICISSTTVPKMLLNIQTPDHRITYSGCLTQACFVLLFAGLENCLLAAMAYDRYVAICHPLRYTV
IMNSCFCSILIVVSLAISAVNALLLSLMVLHLNFCTEVEIPHFFCELAQIIKLACSDTLINNILIYISAF
MFGGIPFFGIFLSYTEIVSSVLKIPSRQGRHKAFSTCGSHLSVVSLFYGTGLGVYI-SSAVTE-SPRKTA
VASVMYSIVTQMLNPFIYSLRNRDMKEALRKHVGRIASIV-------

>MmOR9.2.17
----MESTNQT--DAIEFLLLGLSDDPELQPIIFGLFLFMYLVTFLGNLIITLTISAECHLHTPMYFFLS
NLSVADICISSTTVPKMLLNIQTPDHRITYSGCLTQACFVLLFAGLENCLLAAMAYDRYVAICHPLRYTV
IMNSCFCSILIVVSLAISAVNALLLSLMVLHLNFCTEVEIPHFFCELAQIIKLACSDTLINNILIYISAF
MFGGIPFFGIFLSYTEIVSSVLKIPSRQGRHKAFSTCGSHLSVVSLFYGTGLGVYI-SSAVTE-SPRKTA
VASVMYSIVTQMLNPFIYSLRNRDMKEALRKHVGRIASIV*------

>MmOR9.2.22
-MNNMEKRNQT--TFPGFLLLGLTEDPKLQPVFVSLFFSIYLITILGNLLIILISISDAHLHTPMYLFLS
NLSLNDICLSTSTIPKMLVNIKENSQSITYKGCLTQMSFVLIFCGMENCLLAVMAYDRYIAICHPLRYTV
IMEPCFCVLLILLSLLISVVDTLMHSLMVLRLSFCTHLEISNFICELPQILKLACSDTLIDNILIYLSAC
IFTGIPISGIVFSYVHIISSILRMSSLEGKHKAFTTCGSHLSVVSLFYGTAFGVYI-TSIIMD-SSRNTA
VASVMYSVVPQMLNPFIYSLRNRDMKEAMGKFFSRMASFL*------

>MmOR9.2.25
-MNNMEKRNQT--AFPGFLLLGLTEDPKLQPVLVSLFFSIYLVTIFGNMLIVLISISDSHLHTPMYLLLS
NLSLNDICLSTSTIPKMLVNIQENIQSITYKGCLTQMNFVLIFGGMENCLLAVMAYDRYVAICHPLRYTV
IMEPCFCILLILLSLLISIVDSLMHSLMVLRLPFCTHLEIPSFFCELPKMLKLACSDTLIDNILIYISSC
IFAGIPLSGIVFSYIHIMSSILRMSSSEGKHKAFTTCGSHLSVVFLFYGTGFGVYI-TSIIMD-SSRKTA
VASVMYSVVPQMLNPFIYSLRNRDMKDTMRKFFSRIASVL*------

>MmOR9.2.3
FTMNMKYINQT--VVSGFILLGLTDDTKLQLIIFSVFLSMYLATVIGNLLIILATNFDSHLHTPMYFFLS
VLSFNDIFLVTCTIPKMLVNIQTGNQNITYGGCLTQVCFVLVSVGMENCLLAAMAYDRYVAICHPLRYRI
IMNPYLCILMVAFSMIGSMANALVNGLMVLHLSFCTELIIPHFFCELTQITKLACSNTLIDNILIYISSC
IFGGVPLSGIILSYCQIATTVLRMSSSEGRYKAFSTCGSHLSVVFLFYGTGFGVYI-SSTITE-SSRKSA
VASVLYSVVPQMINPFIYSLRNRDMKEALKKLISRILFPL*------

>SMOR147-1
----MYSINQT--VVSGFILLGLTDDTKLQLIIFSVFLSMYLATVIGNLLIILATNFDSHLHTPMYFFLS
VLSFNDIFLVTCTIPKMLVNIQTGNQNITYGGCLTQVCFVLVSVGMENCLLAAMAYDRYVAICHPLRYRI
IMNPYLCILMVAFSMIGSMANALVNGLMVLHLSFCTELIIPHFFCELTQITKLACSNTLIDNILIYISSC
IFGGVPLSGIILSYCQIATTVLRMSSSEGRYKAFSTCGSHLSVVFLFYGTGFGVYI-SSTITE-SSRKSA
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
VASVLYSVVPQMINPFIYSLRNRDMKEALKKLISRILFPL-------

>MmOR9.2.11
----MELKNQT--AVSEFHLLGLTDNHRMLPLVFIMFLFMYLITVFGNLIIIMAISSGSQLHTPMYLFLS
ILSINDICYSTVTIPKMLVNIQAHDDSISYIECLSQICFVSIFGGMENFLLAVMAYDRYVAICKPLRYTV
IMNPICCVLMVLFSLFFSIMDALLHSLMVLRLSFCTDLEIPHFFCELAQIIKLACSDTFLNNFLIFVAAF
VFGGGPVCGIIFSYIYIVSSVLRMPSSGGKHRAFSTCASHLSVVSLFYGTGFGVYI-SSAVTD-SLRNTA
MASMMYSVVPPLLNPFIYSLRNREMKEALRKLVGRLIYLI*------

>SMOR148-1
----MEPQNKT--FVLQFLLLGFTDDAELQCLIFSLFLFIYLVTILGNLLIILCISSESHLQTPMYFFLS
NLSFNDIGLSTATVIKMLVNIQANDQSITYTDCLTQLFFVLAFAYFENFLLTVMAYDRYAAICHPLRYNI
IMNPNLCVLLSLNSLFISVMDSLIHTLMVQRLSFCTDLEIPHFFCELDQVIKLSCSDTRIDNIVLFVATC
VFGGVPLCGIIYSYYHIMSTILKITSLEGKYKAFSTCGTHLSVVSLFYGAGSMVYI-SSAISA-SPGKSA
VASVMYSVLPQMMNPFIYSLRNKDMKVAIRNLFSRTISLE-------

>MmOR9.2.26
----MEPQNKT--FVLQFLLLGFTDDAELQCLIFSLFLFIYLVTILGNLLIILCISSESHLQTPMYFFLS
NLSFNDIGLSTATVIKMLVNIQANDQSITYTDCLTQLFFVLAFAYFENFLLTVMAYDRYAAICHPLRYNI
IMNPNLCVLLSLNSLFISVMDSLIHTLMVQRLSFCTDLEIPHFFCELDQVIKLSCSDTRIDNIVLFVATC
VFGGVPLCGIIYSYYHIMSTILKIASLEGKYKAFSTCGTHLSVVSLFYGAGSMVYI-SSAISA-SPGKSA
VASVMYSVLPQMMNPFIYSLRNKDMKVAIRNLFSRTISLE*------

>SMOR149-1
----MESKNQT--DVSEFFLMGITDDIALKPLIFSMFTSMYLITILGNLLIILTVCSDSHLQTPMYIFLS
NLSFNDICLSTTIIPKTLVNIHAQDQSITYTSCLTQICFTLLFCSFESCLLSVMAYDRYVAICHPLNYTT
IMNPQTCGLLILLSLIISLVNSGLLGLMVLRLSFCTNLEIPLFFCELAQVIKLACSDTLVNYILIYLATI
ILNGIPISGIIFSYTQIASSVLRMSSVKGKYKAISTCGSHLSVVSLFYGTALGVYI-SSSFTT-SVTNTA
FAYVMCTLVPQMLNPFIYSLRNRDMEVALRKHINRAMCLL-------

>MmOR9.2.2
----MESKNQT--DVSEFFLMGITDDIALKPLIFSMFTSMYLITILGNLLIILTVCSDSHLQTPMYIFLS
NLSFNDICLSTTIIPKTLVNIHAQDQSITYTSCLTQICFTLLFCSFESCLLSVMAYDRYVAICHPLNYTT
IMNPQTCGLLILLSLIISLVNSGLLGLMVLRLSFCTNLEIPLFFCELAQVIKLACSDTLVNYILIYLATI
ILNGIPISGIIFSYTQIASSVLRMSSVKGKYKAISTCGSHLSVVSLFYGTALGVYI-SSSFTT-SVTNTA
FAYVMCTLVPQMLNPFIYSLRNRDMEVALRKHINRAMCLL*------

>MmOR9.2.8
----MGGKNQT--DVSHFFLLGLTDDPTVKPVIFCIFLLMYMVTILGNLLIILAVCSYSHLQTPMYFFIS
NLSINDICLSTTVIPNMLRTTQTQDQSISYAGCLTQLCFVLLFAGFESCLLAAMAYDRYVAICYPLSYTV
MMNFHSCALLILFSVLISVLNMGLLGLMVLRLSFCTNLEIPLFFCELSQVMKLACSDTLINDILIYLATF
IFGGIPISGIIFSYVQIASSVLRISSVKGRCKAFSTCGSHLSVTSLSYGSGLWVYI-TSSVAI-LPKKTS
VACIMYTVVPQMLNPFIFSLRNKDMKGTMKKFISKVASL*-------

>MmOR9.2.19
----MEPGNQT--GTSYFILMRLNYDPTVEPLIFGFFMFTYLVTIVGNLLIIIAVSSDSHLQTPMYLFLS
KLSFTDICLSTTTVPNMLKNIHTQDHSISYTGCLTQACFVLSFAVLESSVLAAMAYDRYAAICHPLNYTV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMNPQFCGLLILLSLIISTANSLLQCLMILRLSFCTNNELPLFFCELAQVIKLACSDTLINYILIYLATF
IFGGIPISGIIFSYTRIVSSILKISSLRGRYKAFSTCGSHFVVVSLFYGAAVGVYI-CSAITV-SPQITT
VSYMMYTVLPQMLNPFIYSLRNRDMKKALGKLITKVSCFL*------

>MmOR9.2.18
----MEPGNQT--GAYYFYLTELTSDPTMELLIFSLFLFIYLVTILGNLLIIIAVSSDSHLQTPMYHFLS
KLSFADICLSTTTIPNMLKNIHTQDQSISYTGCLIQACFVLNFALVESCILAAMAYDRYAAICHPLNYTV
IMNPHFCDLLILLSLIISIVNSLLQCLMILRLSFCTNNELPLFFCELAQVIKLACSDTLINYILIYLATF
IFGGIPIFGIIFSYTRIVSSILKISSLRGKYKAFSTCGSHLSVVSLFYGAGVGVYI-SSSIAV-FPQTTT
VSYIMYTVLPQMLNPFIYSLRNKDMKEALRKLIAKESRLP*------

>SMOR155-1
----MESANQT--GISEFFLIGLIYVPELQPLFFDLFLSMYLITIIGNLLIILAVSKDSRLHTPMYFFLC
NLSFTDICTSTTTVPKLLLNIQVHDQSITYIGCLSQVCFILTFCVLERCLLTVMAYDRYVAICQPLRYTI
IMNPFLCICLVLLSLIISTINALLHTLLVLPLSFCTEQNVPNFFCELGQITKLSCSDTFINILFIYTATI
VFSVIPLSGIIFSYIQIVSSILKIPSVGGRHKAFSTCGSHLSVVSLFYGTGLGVYM-NASVSN-SSISNV
ITSMMYSVVPQMLNPFIYSLRSKEIKGSLRQLIIGIICFP-------

>MmOR9.2.23
----MESANQT--GISEFFLIGLIYVPELQPLFFDLFLSMYLITIIGNLLIILAVSKDSRLHTPMYFFLC
NLSFTDICTSTTTVPKLLLNIQVHDQSITYIGCLSQVCFILTFCVLESCLLTVMAYDRYVAICQPLRYTI
IMNPFLCICLVLLSLIISTINALLHTLLVLPLSFCTEQNVPNFFCELGQITKLSCSDTFINILFIYTATI
VFSVIPLSGIIFSYIQIVSSILKIPSVGGRHKAFSTCGSHLSVVSLFYGTGLGVYM-NASVSN-SSISNV
ITSMMYSVVPQMLNPFIYSLRSKEIKGSLRQLIIGIICFP*------

>MmOR9.2.15
----MEISNQS--GISEFFLTGLTYSPAIESFIFSLFLSIYFVTIFGNILIILAVRLDYHLHTPMYFFIA
NLSFTDICISTTIIPKMLLNIETQNQSITYTGCLSQVCFVLIFGGLESCLLAVMAYDRYLAIVHPLRYTV
IMNPCLCVLLVLLSLFISTINALLHSLMLLKLSFCKDQNILHFFCELVQVIKHACSDTFINTLLIYTVTS
VFAGFPLAGIIFSYIQIVSSILKISSVQGRNKAFSTCGSHLSVVSLFYGTAFGVYM-SSAVSD-SSVKNI
VFSMMYTVVPQMLNPFIYSLRNREMKQAMRHLLFPVVLSSP*-----

>MmOR9.2.10
----MEVKNKS--VVLDIFLHGLTDDIELQPFIFGFFLCMYLITIFGNLLIMLAIICDSHLHKPMYFFLC
HLAFNDMYLISITVPKLLVNVQTQDQRITLAGCLSQGCFVAVCFIFECFLLGIMAYDRYIAICFPLRYTV
LINPFFCVIVVLISLFISIVNGLLHSLMVLHLSFCTDLEILHFFCEIAQILKLACSDNLINNILIFVTAS
SFAGVPLCGIIFSYVHIVSTVLKMPSSEGKYKAFSTCGSHLSVVSLFYGTGFGVYI-TSVVID-SPKEIA
IASVMYSIVPPMLNPFVYSLKNRDMKEALKKVIGRTVSLP*------

>MmOR9.2.9
-MCKMEVENKS--VVFDIFLHGLTDDTELQPFIFGLFLCMYLITIFGNLLIILAIICDSHLHTPMYFFLC
HLAFNDMYLISITVPKMLVNIQTQDQRITFAGCLSQGCFVAVCTIFECFLLGIMAYDRFIAICYPLRYTV
LMNPCFCVILTLISLFFSIVNGLLHSLMVLHLSFCTDLEILHFFCEIAQILKLACSDSLINNILIFVTSS
IFAGVPLCGIIFSYVHIVSTVLKMPSLEGKYKAFSTCGSHLSVVSLFYGTGFGVYI-SSNVID-SPKKIA
MASVMYSIVPPMMNPFIYSMRNRNMKEALKKVIGRKLLFSDV*----

>MmOR9.2.4
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
-MSNMEVENKS--VVLDIFLHGLTNDPELQPFIFVLFLSIYLITVSGNLLIMLAIKCDFHLHNPMYFFLC
HLSFNDMYLISITVPKMLMNIQTKDQRITFAGCLSQACFVVVCTIFECFLLGVMAYDRYIAICYPLRYTV
LMNPSFCVILVLFSLFFSIVNGLLHSLMVLYLSFCTDLEILHFFCEIAQILKLACSDSLINNILIFVTAS
IFAGLPLFAIIFSYTHIVSTVLKMPSSEGKYKAFSTCGSHLSVVSLFYGTGFGVYI-TSKVID-SPKKIA
VASVMYSVVPPMLNPFVYCLRNRDMKEALKKVIGRTASLL*------

>SMOR152-1
-MSNMEVENKS--VVLDIFLHGLTNDPELQPFIFVLFLSIYLITVSGNLLIMLAIKCDFHLHNPMYFFLC
HLSFNDMYLISITVPKMLMNIQTKDQRITFAGCLSQACFVVVCTIFECFLLGVMAYDRYIAICYPLRYTV
LMNPSFCVILVLFSLFFSIVNGLLHSLMVLYLSFCTDLEILHFFCEIAQILKLACSDSLINNILIFVTAS
IFAGLPLFAIIFSYTHIVSTVLKMPSSEGKYKAFSTCGSHLSVVSLFYGTGFGVYI-TSKVID-SPKKIA
VASVMYSVVPPMLNPFVYCLRNRDMKEALKKVIGRTASLL-------

>SMOR156-1
--------NCS--QAPTLILLGLSSDAEKWQPLFSIFLVIYLLGLLGNLLLLLAIGTDVHLHTPMYFFLS
QLSFVDLCFITTTAPKMLEALWTGDGSISFSGCLTQLYFFAVFADMDNLLLAVMAIDRYAAICHPLRYSA
LMTPFRCGVLVSGSWGVTNCVSLTHTLLLSKLYFHTNQEIPHFFCEFGPLLLLSCSDTHLNKILVIILVG
ILGISAVLCIVSSYGCIFYAVAKVPSAQGKRKALSTCSSHLSVVLLFYSTVFATYL-KPPSSS-RSSEEV
VAAVMYSLVTPTLNPFIYSLRNKDVKSSLRRILNM-E----------

>MmOR17.2.13
--------NCS--QAPTLILLGLSSDAEKWQPLFSIFLVIYLLGLLGNLLLLLAIGTDVHLHTPMYFFLS
QLSFVDLCFITTTAPKMLEALWTGDGSISFSGCLTQLYFFAVFADMDNLLLAVMAIDRYAAICHPLRYSA
LMTPFRCGVLVSGSWGVTNCVSLTHTLLLSKLYFHTNQEIPHFFCEFGPLLLLSCSDTHLNKILVIILVG
ILGISAVLCIVSSYGCIFYAVAKVPSAQGKRKALSTCSSHLSVVLLFYSTVFATYL-KPPSSS-RSSEEV
VAAVMYSLVTPTLNPFIYSLRNKDVKSSLRRILNM-E*---------

>MmOR17.2.22
SSIISPRMNCS--QAPGFILLGLPREPEKWQHFFIIFLGLYLLGLLGNLLLLLAIGSDVHLHTPMYFFLS
QLSLVDLCFITTTAPKTLETWWTGDGSISFSGCLTQLYFFGVFADMDNLLLAVMAIDRYAAICHPLLYPL
LMTPCRCEVLVSGSWGIAHCVSLMYTLLLSQLYFHTNQEIPHFFCDCRPLLLLSCSDTHLNEVLMMALAG
VLGVSAVLCIVSSYGCIFYAVARVPSAQGKRKALTTCSSHLSVVLLFYSTVFATYL-KPPSTS-HSSGEV
VAAVMYTLVTPTLNPFIYSLRNKDVKSSLRRVLNI-EKSQD*-----

>MmOR17.2.20
--------NCS--KTPGFILLGLSSDPEKWQPLFNIFLCLYLLGLLGNLLLLLAIGTDVHLHTPMYFFLS
QLSLVDLCFITTTAPKMLEALWTGDGSISFSGCLTQFYFFAVFADMDNLLLAVMAIDRYAAICHPLFYPF
LMTPCRCEVLASGSWGIAHCVSLFYTLLLSQFYYHTNQGIPHFFCDSRPLLLLSCSDTHLSEGLMMALSG
VLGMSSVLCLVSSYGCIFYAVARVPSAQGKRKALATCSSHLSVVLLFYSTVFATYL-KPPSTS-HSSAEV
VAAVMYTLVTPTLNPFIYSLRNKDVKSSLRKILNMDKFQG*------

>MmOR2.1.27
----MDNSSWT--SVSHFVLLGISTNPVEQIPLFLLFLLMYIINISGNFFIVTLIISTSHLHTPMYIFLS
NLALADICFTSTTVPKMLQNIFSSTKVISYVGCLAQTYFFICFAAMENFLLAVMAYDRYIAICHPLRYSS
ILTGMLCAQMVALCHVLSHLHALLHTFLMGRLIFCADNRIPHFFCDLYPLMKISCSSTQLNTLMIHTEGV
IVINGALAFIIASYAFIISAVLRIPSANGKWRSFSTCGSHLTVVAIFYGTLTWVYF-RPLSSY-SVVKGR
IVTVMYTVVTPMLNPFIYSLRNGDVKEAFRKWVRR-V*---------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>HsOR9.6.8
----MDNSNWT--SVSHFVLLGISTHPEEQIPLFLVFSLMYAINISGNLAIITLILSAPRLHIPMYIFLS
NLALTDICFTSTTVPKMLQIIFSPTKVISYTGCLAQTYFFICFAVMENFILAVMAYDRYIAICHPFHYTM
ILTRMLCVKMVVMCHALSHLHAMLHTFLIGQLIFCADNRIPHFFCDLYALMKISCTSTYLNTLMIHTEGA
VVISGALAFITASYACIILVVLRIPSAKGRWKTFSTCGSHLTVVAIFYGTLSWVYF-RPLSSY-SVTKGR
IITVVYTVVTPMLNPFIYSLRNGDVKGGFMKWMSRMQTFFFR*----

>SOR1Q1
----MDNSNWT--SVSHFVLLGISTHPEERIPLFLVFSLMYAINISGNLAIITLILSAPRLHIPMYIFLS
NLALTDICFTSTTVPKMLQIIFSPTKVISYTGCLAQTYFFICFAVMENFILAVMAYDRYIAICHPFHYTM
ILTRMLCVKMVVMCHALSHLHAMLHTFLMGQLIFCADNRIPHFFCDLYALMKISCTSTYLNTLMIHTEGA
VVISGALAFITASYACIILVVLRIPSAKGRWKTFSTCGSHLTVVAIFYGTLSWVYF-RPLSSY-SVTKGR
IITVVYTVVTPMLNPFIYSLRNGDVKGGFMKWMSRMQTFFFR-----

>MmOR15.1.4
------MRNFS--VVSEFILLGLSDDAQVQALLFVAFLVIYVLTLTGNTMILLVIRVDAHLRSPMYFFLG
HLSFLDLLYSSVSTPKMLENLVSETKTIPVKGCLAQAFFVFAIGGTEALLLAVMAYDRYAAICHPLLYGQ
MMNDWFCQVLVWGSWILAILNSLINTLLAVSLDFCHYGTIHNYNCEFPSLFPLSCSDVSTNATAIVCTFV
IHASGTFLLVVCSYGCIFSTILNMSSTRGRSKAFSTCSSHLTIVTLYFGSACLRYV-MPTS---GSPMET
FFSLQYSVITPMLNPFVYSLKNKEVKMAMRKLLARQHFGEVDQRHRV

>MmOR15.1.7
----MAWSNHS--VITEFVLTGLSDDPLIPALLFALFLGIYVLTMTGNLTMLLVITADSHLHTPMYFFLS
NLSFVDLCFSSVTIPKLLKDLLSAKKTISIEGCLAQVFFVFFSSGTEACLLSVMAYDRYAAICHPLLYGQ
VMRNELCVRLVVISWGVASLNATIIVLLAVNLDFCGAQTIHHYTCELPALFPLSCSDISITVVVLLCSSL
LHGLGTFIPIFFSYARIVSAILSISSTTGRSKAFSTCSSHLAAVTLFFGSGFLCYL-MPPS---GSSLDL
LLSLQYSAVTPMLNPLIYSLKNQEVKAAVQRTL-RKYLL*-------

>MmOR15.1.8
----MAWSNHS--VITEFVLTGLSDDPLIQALLFALFLGIYVLTMTGNLTMLLVITADSHLHTPMYFFLS
NLSFLDLCFSSVTVPKLLKDLLSAKKTISVEGCLAQVFFVFITAGTEAFLLSMMAYDRYAAVCHPLLYGQ
MMSNELCLKLVLLSWGLASLSSVVIVLLAVNLDFCEAYTIHHYTCELPSLFPLSCSDISINVDILICSTL
LHGLGTFLPIFFSYARIVSTVLSMESTTGRSKAFNTCSSHLIAVVLFFGSGLIRYL-MPTS---GSSLDL
LSSLQYSAVTPMLNPLIYSLKNQEVKAAVRRTLGKCLRYLE*-----

>SOR8S1
----MALGNHS--TITEFLLLGLSADPNIRALLFVLFLGIYLLTIMENLMLLLVIRADSCLHKPMYFFLS
HLSFVDLCFSSVIVPKMPENLLSQRKTISVEGCLAQVFFVFVTAGTEACLLSGMAYDRHAAICCPLLYGQ
IMGKQLYMHLVWGSWGLGFLDALINVLLAVNMVFCEAKIIHHYSYEMPSLLPLSCSDISRSLITLLCSTL
LHGLGNFLLVFLSYTRIISTILSISSTSGRSKAFSTCSAHLTAVTLYYGSGLLRHL-MPNS---GSPIEL
IFSVQYTVVTPMLNSLIYSLKNKEVKVALKRTLEKYLQYTRR-----

>HsOR12.3.6
----MALGNHS--TITEFLLLGLSADPNIRALLFVLFLGIYLLTIMENLMLLLMIRADSCLHKPMYFFLS
HLSFVDLCFSSVIVPKMLENLLSQRKTISVEGCLAQVFFVFVTAGTEACLLSGMAYDRHAAICRPLLYGQ
IMGKQLYMHLVWGSWGLGFLDALINVLLAVNMVFCEAKIIHHYSYEMPSLLPLSCSDISRSLIALLCSTL
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LHGLGNFLLVFLSYTRIISTILSISSTSGRSKAFSTCSAHLTAVTLYYGSGLLRHL-MPNS---GSPIEL
IFSVQYTVVTPMLNSLIYSLKNKEVKVALKRTLEKYLQYTRR*----

>SMOR160-1
------MRNHS--TVPEFILLGLSADAQVQALLFVLFLVIYLLTLMGNLMLLLVVKVDRHLHTPMYFFLG
QLSFLDLCHSSVSVPKLLENLLSVKKTISVEGCLAQVFFVFATGGTESCLLAVMAYDRYVAISSPLLYGQ
VMSRQLCAGLVWGSWSLAFLDAFINILVALNLDFCEAQNIHHFICELPSLYPLSCSDVSASFTTLLCSSF
IHFFGNFLLILLSYIRILLTILGISSASGRSKAFSTCSSHLTAVSFFYGSGLLRYL-MPNS---GSTQEL
IFSLQYSVITPMLNPLIYSLKNKEVKAAVRRTVTKYLQCFK------

>MmOR15.1.6
----MR--NHS--TVPEFILLGLSADAQVQALLFVLFLVIYLLTLMGNLMLLLVVKVDRHLHTPMYFFLG
QLSFLDLCHSSVSVPKLLENLLSVKKTISVEGCLAQVFFVFATGGTESCLLAVMAYDRYVAISSPLLYGQ
VMSRQLCAGLVWGSWSLAFLDAFINILVALNLDFCEAQNIHHFICELPSLYPLSCSDVSASFTTLLCSSF
IHFFGNFLLILLSYIRILLTILGISSASGRSKAFSTCSSHLTAVSFFYGSGLLRYL-MPNS---GSTQEL
IFSLQYSVITPMLNPLIYSLKNKEVKAAVRRTVTKYLQCFK*-----

>MmOR15.1.5
----MR--NHS--AVHEFVLLGLSTDPHIQPALFVLFLLVYLLTVVGNSLMLLVIVADSHLHTPMYFFLR
QLSFLDLCHSSVTAPKMLENLLSEEKTILVESCLAQAFFVFATGGTEACLLAAMAYDRYVAIGSPLLYSQ
VMSSQLCVGLVWLSWCLAVVDALLNTLPAVSLDFCEDQTISHFSCELSSLFPLSCSDTAANFTLLLCSSV
VHFFGTLVMIVCSYGRIVTTVLRVSSSTGRSKAFSTCLSHLTTVILFYGSGFISYL-LPAS---GSPLEK
VFSLQYSVITPMLNPLIYSLKNKEVKAALGRMI-RKHF*--------

>MmOR19.1.21
MEAMIKGKNIT--EITEFILLGFSDFPQITALLFVIFLTLYITALTWNLSLVVLIRMDSYLHTPMYFFLS
NLSFIDICYISSTVPKMLFNFFQKRQTISFVGCIVQYFMFSTMGLSESCLMTAMAYDRYAAICNPLLYSS
VMSPTLCAQMVMGSYTAGFIGSVSQVFAMLQLHFCGPNVIRHFFCDIPQLLNLSCTDTFFAHVELLILTM
LFCISNALVIIISYGYIVLSILKITSAKGRSKAFNTCASHLTAVSLFYTSTAFVYF-SSSSGG-SSSFDR
FVSVFYTVLITMLNPLVYSLRNKEIKDAGKRLQKK-LGCC*------

>MmOR19.1.20
---MIGGRNIT--KITQFILLGFSDFPQITALLFVMFLTLYITALTWNLSLVVLIRMDSYLHTPMYFFLS
NLSFIDFCYISSTVPKMLSNLFQEKQTISFVGCIVQYFIFSTMGLSESCLMTAMAYDRYAAICNPLLYSS
VMSPTLCAQMVMGSYTAGLVSSLSQICVLLQLHFCGSNVIRHFFCDMPQLLNLSCNDTFFAHVLLVILTM
FFGLINALAIMVSYGYIASSIMKITSANGRSKAFNTCASHLTAVSLFYSSGIFVYL-SSSSGG-SSSFDR
FASVFYSVVIPMLNPLIYSLRNKEIKDAMNRLQKKVICS*-------

>MmOR19.1.19
---MIGERNIT--KITQFILLGFSDFPRITVPLFVMFLMIYTLAVTWNFSLIALIRLDSHLHTPMYFFLS
NLSIIDICYITSTAPKMLSNFFQENQTISFVGCIVQYFILSTMGLTESCLMTAMAYDRYAAICNPLLYSS
VMSPTLCAQMVMGSYTAGLTGSVSQICALLQLYFCGPNVIRHFFCDISQLLNLSCSDAFFVQVLLAILTM
CFGIANALATMLSYGFIVLSILKITSAKGRSKAFNTCASHLTAVSLFYSTAIFVYL-RSSSGG-SSSFDR
FASVFYTVVIPMLNPLIYSLRNKEIKDAMKRLQKKKICS*-------

>MmOR19.1.15
---MIGERNIT--TITQFILLGFSDFPRITVLLFVIFLMIYIMTMTWNLSLIALIRMDSHLHTPMYFFLS
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
NLSFIDLCFVTSTAPKMLSNFFQENQTISFVGCIVQYFILSTMGLTECCLMTAMAYDRYAAICNPLLYSS
VMSPTLCAQMVMGSYTAGLTGSVSQICALLQLYFCGPNVIRHFFCDISQLLNLSCSDAFFVQVLLAILTM
CFGIANALATMLSYGFIVLSILKITSAKGRSKAFNTCASHLTAVSLFYSTGIFVYL-RSSSGS-SSSFDR
FTSVFYTVVIPMLNPLIYSLRNKEIKDAMKRLQKKKICN*-------

>SMOR214-1
---MIARGNST--EITQFILLGFTDLPIIIILLFVTFLLIYITTLTWNLSLIVLIRMDSHLHTPMYFFLC
NLSIIDLCYVTSTVPKMLSNFFQERQTNSFVGCIVQNFIFSTMGLSESCLMAAMAYDRYAAICNPLLYAS
IMSPTLCVLMVLASYLSGLTASLLQLFALLRLHFCGTNVIKHFFCDMPQLLVLSCTDTFFVQVLTAILTM
IFGFVNMLVIMISYVYIVLSILKITSAKGRSKAFNTCASHLTAVSLFYTSSIFVYL-SSSSGG-SSSFDR
FVSVFYTVVIPMLNPLIYSLKNREIKDAMKRLQKKTICN--------

>SOR5AN1
---MTGGGNIT--EITYFILLGFSDFPRIIKVLFTIFLVIYITSLAWNLSLIVLIRMDSHLHTPMYFFLS
NLSFIDVCYISSTVPKMLSNLLQEQQTITFVGCIIQYFIFSTMGLSESCLMTAMAYDRYAAICNPLLYSS
IMSPTLCVWMVLGAYMTGLTASLFQIGALLQLHFCGSNVIRHFFCDMPQLLILSCTDTFFVQVMTAILTM
FFGIASALVIMISYGYIGISIMKITSAKGRSKAFNTCASHLTAVSLFYTSGIFVYL-SSSSGG-SSSFDR
FASVFYTVVIPMLNPLIYSLRNKEIKDALKRLQKRKCC---------

>HsOR11.13.3
---MTGGGNIT--EITYFILLGFSDFPRIIKVLFTIFLVIYITSLAWNLSLIVLIRMDSHLHTPMYFFLS
NLSFIDVCYISSTVPKMLSNLLQEQQTITFVGCIIQYFIFSTMGLSESCLMTAMAYDRYAAICNPLLYSS
IMSPTLCVWMVLGAYMTGLTASLFQIGALLQLHFCGSNVIRHFFCDMPQLLILSCTDTFFVQVMTAILTM
FFGIASALVIMISYGYIGISIMKITSAKGRSKAFNTCASHLTAVSLFYTSGIFVYL-SSSSGG-SSSFDR
FASVFYTVVIPMLNPLIYSLRNKEIKDALKRLQKRKCC*--------

>MmOR19.1.25
---MPGGRNST--VITKFILVGFSDFPKLKLVLFVIFLGSYLSTVVWNLGLIILIRIDPYLHTPMYFFLS
NLSFLDFCYISSTTPKMLSGFFQKSKSISFVGCTMQYFIFSSLGLSECCLLAAMAYDRYAAICNPLLYTA
IMSPSLCVHMVVGAYSTGLLGSLIQLCAILQLHFCGPNIINHFFCDLPQLLVLSCSETFPLQVLKFVIAV
IFGVASVIVILISYGYIIGTILNISSVEGRSKAFNTCASHLTAVTLFFGSGLFVYM-RPSSNS-SQGYDK
MASVFYTVVIPMLNPLIYSLRNKEIKDALQRCKNKSQCHC*------

>SMOR215-1
---MPGGRNST--VITKFILVGFSDFPKLKLVLFVIFLGSYLSTVVWNLGLIILIRIDPYLHTPMYFFLS
NLSFLDFCYISSTTPKMLSGFFQKSKSISFVGCTMQYFIFSSLGLSECCLLAAMAYDRYAAICNPLLYTA
IMSPSLCVHMVVGAYSTGLLGSLIQLCAILQLHFCGPNIINHFFCDLPQLLVLSCSETFPLQVLKFVIAV
IFGVASVIVILISYGYIIGTILNISSVEGRSKAFNTCASHLTAVTLFFGSGLFVYM-RPSSNS-SQGYDK
MASVFYTVVIPMLNPLIYSLRNKEIKDALQRCKNKSQCHC-------

>HsOR11.13.6
-MSITKAWNSS--SVTMFILLGFTDHPELQALLFVTFLGIYLTTLAWNLALIFLIRGDTHLHTPMYFFLS
NLSFIDICYSSAVAPNMLTDFFWEQKTISFVGCAAQFFFFVGMGLSECLLLTAMAYDRYAAISSPLLYPT
IMTQGLCTRMVVGAYVGGFLSSLIQASSIFRLHFCGPNIINHFFCDLPPVLALSCSDTFLSQVVNFLVVV
TVGGTSFLQLLISYGYIVSAVLKIPSAEGRWKACNTCASHLMVVTLLFGTALFVYL-RPSSSY-LLGRDK
VVSVFYSLVIPMLNPLIYSLRNKEIKDALWKVLERKKVFS*------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>SOR5A1
-MSITKAWNSS--SVTMFILLGFTDHPELQALLFVTFLGIYLTTLAWNLALIFLVRGDTHLHTPMYFFLS
NLSFIDICYSSAVAPNMLTDFFWEQKTISFVGCAAQFFFFVGMGLSECLLLTAMAYDRYAAISSPLLYPT
IMTQGLCTRMVVGAYVGGFLSSLIQASSIFRLHFCGPNIINHFFCDLPPVLALSCSDTFLSQVVNFLVVV
TVGGTSFLQLLISYGYIVSAVLKIPSAEGRWKACNTCASHLMVVTLLFGTALFVYL-RPSSSY-LLGRDK
VVSVFYSLVIPMLNPLIYSLRNKEIKDALWKVL-E------------

>MmOR19.1.12
-MALTNTWNSS--SVTMFIFLGFSDHPELRIFLFLTFLSIYLVTLTWNLALIFLIRGDIHLHTPMYFFLS
NLSFVDICYSSSVAPKMLSDFFREQKTISFLGCGAQFFFFVGLGLTECFLLTAMAYDRYAAISNPLLYTT
IMPQGLCMRMVAGAYLGGFLSSFIQASSIFQLHFCGPNVINHFFCDLPPILALSCSNTFLSQVVNFLIVI
TVGGTSFLILLLISYSYIVSAVLKIHSVRGRWKAFNTCASHLMAVTMLFGTALFMYL-RPSSSY-SFSRDK
VVSVFYSLVIPMLNPLIYSLRNKEIKDALWKVMERKKVFPNL*----

>SOR5A2
---MAVGRNNT--IVTKFILLGLSDHPQMKIFLFMLFLGLYLLTLAWNLSLIALIKMDSHLHMPMYFFLS
NLSFLDICYVSSTAPKMLSDIITEQKTISFVGCATQYFVFCGMGLTECFLLAAMAYDRYAAICNPLLYTV
LISHTLCLKMVVGAYVGGFLSSFIETYSVYQHDFCGPYMINHFFCDLPPVLALSCSDTFTSEVVTFIVSV
VVGIVSVLVVLISYGYIVAAVVKISSATGRTKAFSTCASHLTAVTLFYGSGFFMYM-RPSSSY-SLNRDK
VVSIFYALVIPVVNPIIYSFRNKEIKNAMRKAMERGISHGGPFIFMT

>HsOR11.13.5
---MAVGRNNT--IVTKFILLGLSDHPQMKIFLFMLFLGLYLLTLAWNLSLIALIKMDSHLHMPMYFFLS
NLSFLDICYVSSTAPKMLSDIITEQKTISFVGCATQYFVFCGMGLTECFLLAAMAYDRYAAICNPLLYTV
LISHTLCLKMVVGAYVGGFLSSFIETYSVYQHDFCGPYMINHFFCDLPPVLALSCSDTFTSEVVTFIVSV
VVGIVSVLVVLISYGYIVAAVVKISSATGRTKAFSTCASHLTAVTLFYGSGFFMYM-RPSSSY-SLNRDK
VVSIFYALVIPVVNPIIYSFRNKEIKNAMRKAMERGISHGGPFIFMT

>MmOR19.1.23
---MAGGRNST--VVTRFILLGFSDQPQMKIFLFMLFLGIYILTLAWNLSLITLIRMDSHLHTPMYFFLS
NLSFLDICYSSSTAPKMLSDIVTDKNTISFLGCATQYFVFCGMGLTECLLLAAMAYDRYTAVCNPLLYMA
LMSHTLCLKLVAGAYMGGFLSSLIATCSIYQHDFCGPNIINHFFCDLPPVLALACSDIFTSQVVTFILGV
IVGVMSVLVVLISYGYIIAAVLRINSAKGRTKAFSTSASHLTAVTLFYGSGLFMYM-RPNSSY-SLGQDK
VASVFYAVVVPMMNPIIYSLRNKDIKNAVRKAVERDSMLSHGYSFF*

>MmOR19.1.26
---MAVGRNIS--VVTNFILLGFLERPQLQIVLFVLFLGIYLVTLAGNLGLIVLIRMDSHLHSPMYFFLS
NLSFVDVSYTSSIAPKMLCDFFREQKSITFIGCAIQLFFFVGMGGTECCLLAAMAYDRYVAISNPLLYPS
LMSPTICVGMAITVYTGGFLTGLIQTSSIFRLHFCGPRVINHFFCDLPPLMSLSCSSTFFSQVVNFLVVC
VVGGASALVVLVSYGYIIAAVMRIHSTHGQMKAFNTCASYLTTVILFYGSGLFSYL-HSNAGY-SQDKNK
VVSMFYGAVIPMLNPIIYSLRNKEIKEALKKLKKRKKQMSCLCAM*-

>MmOR19.1.13
SISVLGDGNHT--SVAMFVLLGLLDQAELQLILFPVFLGTYLITLIWNLGLIILIRMDSHLQTPMYFFLS
FLSFIDICYSSSISPRMLSDFLKTEKTISFIACATQNFVLDWMGTSECCLLAAMAYDRYVAIGSPLQYSA
IMAPSLCWRMVAGVYGSGFFISFVHTVACFNLYYCGPNVIRHFFCDIPQIIPLSCSDPFISQLVLFLAAL
FVGFGSFLVILLSYVFIAVSILKVASFKGRVKAFKTCGSHLAAVTLFYGTVFSVYM-HHSSQH-STKQDK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
VLSVVYTILIPMVNPLIYSLRNTEIKEALKRVLKKAAHLPQKA*---

>MmOR19.1.16
SRSVLGDGNHT--SVAMFVLLGLLDQAELQLILFPVFLGTYLITLIWNLGLIILIRMDSHLQTPMYFFLS
FLSFIDICYSSSISPRILSDFLKTEKTISFIACATQNFVLAWMGASECCLLTAMAYDRYVAIGSPLQYSA
IMAPSLCWRMVAGVYGSGFFISFVQTVACFNLYYCGPNVIRHFFCDIPQIIPLSCSDPFISQLVLFLAAL
FVGFGSFLVIIFSYVFIAVSILKVASFEGCVKAFKTCGSHLAAVTLFYGTVFSVYM-HHSSQH-STKQDK
VLSVVYTILIPMVNPLIYSLRNTEIKEALKRVLKKHLPQKHSIWAGS

>MmOR2.2.23
----MERGNHT---VTGFILLGFSTDPVMQKILFVMFLGVYSLTLLGNTTLIILICNDSRLHTPMYFFIG
NLSFLDLWYSSVYTPKILVTCISEDKSISFAGCLSQFFFSAGLAYSECYLLAAMAYDRYTAISNPLLYAQ
AMSRRLCVCLVVYSYTGGFVNAIILTSNTFTLDFCGDNVIDDFFCDVPPLVKLACDVRESYQSVLYFLLA
SNVISPTLLILTSYLFIIAAILRIRSTQGRLKAFSTCSSHLISVTLYYGSILYIYS-RPSSSY-SLERDK
MVSTFYTVLFPMLNPMIYSLRNKDVKEALRKLF-KLAPSEV*-----

>SOR9G9
----MQRSNHT---VTEFILLGFTTDPGMQLGLFVVFLGVYCLTVVGSSTLIVLICNDSRLHTPMYFVIG
NLSFLDLWYSSVHTPKILVTCISEDKSISFAGCLCQ-FFSARLAYSECYLLAAMAYDHYVAISKPLLYAQ
TMPRRLCICLVLYSYTGGFVNAIILTSNTFTLDFCGDNVIDDFFCDVPPLVKLACSVRESYQAVLHFLLA
SNVISPTVLILASYLSIITTILRIHSTQGRIKVFSTCSSHLISVTLYYGSILYNYS-RPSSSY-SLKRDK
MVSTFYTMLFPMLNPMIYSLRNKDMKDALKKFFKS------------

>HsOR11.11.87
----MQRSNHT---VTEFILLGFTTDPGMQLGLFVVFLGVYSLTVVGNSTLIVLICNDSCLHTPMYFFTG
NLSFLDLWYSSVYTPKILVTCISEDKSISFAGCLCQFFFSAGLAYSECYLLAAVAYDRYVAISKPLLYAQ
AMSIKLCALLVAVSYCGGFINSSIITKKTFSFNFCRENIIDDFFCDLLPLVELACGEKGGYKIMMYFLLA
SNVICPAVLILASYLFIITSVLRISSSKGYLKAFSTCSSHLTSVTLYYGSILYIYA-LPRSSY-SFDMDK
IVSTFYTVVFPMLNLMIYSLRNKDVKEALKKLLP*------------

>SOR9G5
----MQRSNHT---VTEFILLGFTTDPGMQLGLFVVFLGVYSLTVVGNSTLIVLICNDSHLHTPMYFVVG
NLSFLDLWYSSVYTPKILVICISEDKSISFAGCLCQFFFSAGLAYSECCLLAAMAYDRYVAISKPLLYAQ
AMSIKLCALLVAVSYCGGFINSSIITKKTFSFNFCCENIIDDFFCDLLPLVKLACGEKGGYKFLMYFLLA
SNVICPAVLILASYLFIITSVLRISSSQGRLKAFSTCSSHLTSVTLYYGSILYIYA-LPRSSY-SFDMDK
IVSTFYTEVLPMLNPMIYSLRNKDVKEALKKLL-P------------

>SMOR213-2
----MDQNNNT---VSEFIMLGFTTDPVIQKVLFAVFLVVYTLTLMGNSSLIMLICNDSRLHTPMYFFIG
NLSFLDLGLSSVYTPKILETCISEDKSISFAGCVAQFFFSAALDYTECYLLAAMAYDRYVAISKPLLYSQ
AMSLKLCVCFVAASYVGGFINSVIITKDTFALTFCNDNVIDDFFCDIPPLVKLACGKKKSFQSVLFFLLT
SNVIIPIVFILATYLFIIATILRIRSTQGRLKAFSTCSSHLISVTLYYGSILYIYA-RPRSSY-SLDRDK
IVSTFYTVVFPMLNPLIYSLRNKDVKEALNKLL-K------------

>MmOR2.2.24
----MDQNNNT---VSEFIMLGFTTDPVIQKVLFAVFLVVYTLTLMGNSSLIMLICNDSRLHTPMYFFIG
NLSFLDLGLSSVYTPKILETCISEDKSISFAGCVAQFFFSAALDYTECYLLAAMAYDRYVAISKPLLYSQ
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
AMSLKLCVCFVVASYVGGFINSVIITKDTFALTFCNDNVIDDFFCDIPPLVKLACGKKKSFQSVLFFLLT
SNVIIPIVFILATYLFIIATILRIRSTQGRLKAFSTCSSHLISVTLYYGSILYIYA-RPRSSY-SLDRDK
IVSTFYTVVFPMLNPLIYSLRNKDVKEALNKLLK*------------

>MmOR2.2.25
----MEQYNDT---VTEFILVGFTTNPVMQLVLLVIFLAVYALTVLGNSTLIVLICNDSRLHTPMYFFIG
NLSFLDLGLSTVYTPKILVTCISEDKSISFSGCVAQFFFSAGLGYTECYLLAAMAYDRYVAISKPLLYSQ
AMSLKLCAFLVGVSYLGGLINSFIITKDTFALTFCNDNVIDDFFCDIPPLVKLSCGKKKSFQSVLFFLLT
SNVIIPIVFILATYLFIIATILRIRSTQGRLKAFSTCSSHLISVTLYYGSILYIYA-RPRSSY-SLDRDK
IVSTFYTVVFPMLNPLIYSLRNKDVKEALSKLFK*------------

>MmOR2.2.27
----MERGNHT---VSEFILLGFTSDPTTQLVLFVMFLIMYTLSVLGNITLIVLICNDSRLHTPMYFFIG
NLSFLDLWLSNVYTPKILAICISENKSISFASCVAQFFFSAGLDYSECYLLAAMAYDRYVAISKPLIYSQ
AISMKLCAFFVAASYMGGFINSSIITKKTFTFDFCNDNVIDDFFCDLLPLVNLACGGKEGYQTLMYFLLT
SNVMIPIALILASYIFIIATILRIRSTQGRMKAFSTCSSHLISVTLYYGSILYIYS-RPRTRY-SLDSDK
VVSTFYTVVFPMLNPFIYSLRNKDVKEAMNKLF-KIIPL*-------

>HsOR11.11.89
----MEVGNCT--ILTEFILLGFSADSQWQPILFGVFLMLYLITLSGNMTLVILIRTDSHLHTPMYFFIG
NLSFLDFWYTSVYTPKILASCVSEDKRISLAGCGAQLFFSCVVAYTECYLLAAMAYDRHAAICNPLLYSG
TMSTALCTGLVAGSYIGGFLNAIAHTANTFRLHFCGKNIIDHFFCDAPPLVKMSCTNTRVYEKVLLGVVG
FTVLSSILAILISYVNILLAILRIHSASGRHKAFSTCASHLISVMLFYGSLLFMYS-RPSSTY-SLERDK
VAALFYTVINPLLNPLIYSLRNKDIKEAFRKAT-QTIQPQT*-----

>SOR9G4
TSVDMEVGNCT--ILTEFILLGFSADSQWQPILFGVFLMLYLITLSGNMTLVILIRTDSHLHTPMYFFIG
NLSFLDFWYTSVYTPKILASCVSEDKRISLAGCGAQLFFSCVVAYTECYLLAAMAYDRHAAICNPLLYSG
TMSTALCTGLVAGSYIGGFLNAIAHTANTFRLHFCGKNIIDHFFCDAPPLVKMSCTDTRVYEKVLLGVVG
FTVLSSILAILISYVNILLAILRIHSASGRHKAFSTCASHLISVMLFYGSLLFMYS-RPSSTY-SLERDK
VAALFYTVINPLLNPLIYSLRNKDIKEAFRKAT-QTIQPQT------

>MmOR2.2.19
SSVDMELDNRT--ILTEFILVGFSADPHWQLTLFGIFLTIYLLTLSGNMLLVVLIRIDSRLHTPMYFFIS
NLSFLDFWYTSVYTPKILATCISEDKRISLAGCGAQLFFSCVVAYTECYLLAAMAYDRHSAICSPLIYSS
IMSSSLCTGLVAGCYIGGVLNAIAHTANTFRLTFCGKNIIDHFFCDAPPLVKMSCTDTRVYEKVLLGVVG
FTVLSSILAILISYFNILLAILRIRSASGRRKAFSTCASHLVSVMLFYGSLLFMYS-RPSSTY-SLEKDK
VAALFYTVVNPLLNPLIYSLRNKDVKDAFRKAT-QTIRPHT*-----

>MmOR2.2.26
----MDVDNRT--ILTEFILLGFSADPHWQLILFGIFLTIYLMTLLGNMTLIILIRIDSRLHTPMYFFIG
GLSFLDFWYNSVYIPKILVNCVSEDKRISLAGCGAQFFFSCVAAYTECYLLAAMAYDRHAAICSPLLYSS
IMSTSLCAGLVGASYVGGFLNAIAHTANTFRLRFCGKNIIDHFFCDVLPLVKMSCTDTRVYVKILSSMVG
FTVLSSILAILISYLNILLAILRIRSASGRRKAFSTCASHLVSVTLFYGSLLFMYS-RPSSNY-SLERDK
VAAMFYTIINPLLNPFIYSLRNKDVKEAFKKLM-QTIKQQT*-----

>SMOR209-1
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
--------NFT--HVSEFILLGFKGGPGIQMLLFLIFLFLYVIAVVGNFGMIIIIRMDAHLHTPMYAFLQ
SLSFLDICYSSTIAPRALINCMKQDHTISFSGCATQFFFLSLFGTTEAFLLAAMAYDRFIAICNPLLYSV
SMSHWVCGLLVSGSYSWGAVNAVTQTTMTFTLTFCGSNEINDFFCDVPPLLSLSCSDTFINQLVLLALCG
SIIVSTFLTVFVSYIYIISTILKIRTVQGRQKAFSTCASHLIGVCLFFGTVFFMYA-QPSAVS-SMEQSK
VVSIFYTIVIPMLNPLIYSLRNKDVKQALKR--SKQRFCS-------

>MmOR13.2.2
------MTNFT--RVSEFILLGFRGGPGIQMLLFLIFLFLYVIAVVGNFGMIIIIRMDAHLHTPMYAFLQ
SLSFLDICYSSTIAPRALINCLKQDHTISFSGCATQFFFLSLFGTTEAFLLAAMAYDRFIAICNPLLYSV
SMSHWVCGLLVSGSYSWGAVNAVTQTTMTFTLTFCGSNEINDFFCDVPPLLSLSCSDTFINQLVLLALCG
SIIVSTFLTVFVSYIYIISTILKIRTVQGRQKAFSTCASHLIGVCLFFGTVFFMYA-QPSAVS-SMEQSK
VVSIFYTIVIPMLNPLIYSLRNKDVKQALKR--SKQRFCS*------

>MmOR1.1.6
-MAIAVYRNGSAVSLQGFVLVGFGGGAETQALLFAVFLVLYVVTILGNLTMIVVITLDARLHSPMYFFLK
NLSFVDLCYSSAIAPNALANFLSTSKVISFEACATQLFFFSLLATTEAFLLAVMAYDRFMAICSPLRYPV
TMCPTTCTRLVLGTYCGGCLNSIVQTSLTFQLPFCSSNRIDHFYCDVPPLLQLACASTALNELFLFGLCG
FIIVSTTLAVLVSYGYITVTILRMHSGSGRHKVFSTCGSHMMAVSLFYGTVFVMYA-QPGAVA-SMAQGK
VISVFYTLVIPMLNPLIYSLRNKDVKDALRRLGQRHSLVKKGGK*--

>MmOR1.1.8
-MATAVHRNGSPVSLRVFVLVGFGGGALTQALLFAVFLVLYVVTVLGNLTMIVVITLDARLHSPMYFFLK
NLSFVDLCYSSAIAPNALANFLSTSKVISFEACATQFFFFSLLATTETFLLAVMAYDRFMAICSPLRYPV
TMCPTTCTRLVLGTFCVGCLNSIVQTSLTFQLPFCSSNRIDHFYCDVPPLLQLACASTALNELFLFGLCG
FIIVSTTLAVLVSYGYITVTILRMHSGSGRHKVFSTCGSHLTAVSLFYGTLFVMYA-QPGALT-SMEQGK
VVSIFYTLVIPMLNPLIYSLRNKDVKDALQRLGQRHSLVKAVRGCPA

>MmOR1.1.4
-MATQVHRNGSAVSLQGFVLVGFGGGAKTQALLFAVFLTLYVVTVLGNLTMIVVITLDARLHSPMYFFLK
NLSFVDFCYSSVIAPKAMTIFLSSSKVISFAGCATQFFFFSLLVTTEGFLLAVMAYDRFMAICSPLRYPV
TMCPMACARLVLGTYCGGCLNSIVQTSLTFQLPFCSSNRIDHFYCDVPPLLQLACADTTLNEFVMFGICG
LIIVSTTLVVLISYGYITMTILRMRSGSGRHKVFSTCGSHMTAVSLFYGTVFVMYA-QPGALT-SMEQGK
VVSVFYTLVIPMLNPLIYSLRNKDVKDAPRRLGQRHSLVKEDVQ*--

>SMOR208-1
-MATQVHRNGSAVSLQGFVLVGFGGGAKTQALLFAVFLTLYVVTVLGNLTMIVVITLDARLHSPMYFFLK
NLSFVDFCYSSVIAPKAMTIFLSSSKVISFAGCATQFFFFSLLVTTEGFLLAVMAYDRFMAICSPLRYPV
TMCPMACARLVLGTYCGGCLNSIVQTSLTFQLPFCSSNRIDHFYCDVPPLLQLACADTTLNEFVMFGICG
LIIVSTTLVVLISYGYITMTILRMRSGSGRHKVFSTCGSHMTAVSLFYGTVFVMYA-QPGALT-SMEQGK
VVSVFYTLVIPMLNPLIYSLRNKDVKDAPRRLGQRHSLVKEDVQ---

>MmOR1.1.7
-MATSVHRNGSPVSLQGFVLVGFGGSAETQALLFAVFLVLYVVTILGNLTMIMVITLDARLHSPMYFFLK
NLSFVDLCLSSVIIPNALANIFSSSKTISFAGCATQFFFFSLLAATEAVLLAVMAYDRFMAICSPLRYPV
TMCPMTCARLVLGTFCVACLNSIVQTSLTFQLPFCSSNYIDYFFCDVPPLLQLACASTAINELVMFGICG
FIIVCAVFVVIISYGYITVTILRMRSGSGRHKVFSTCGSHMTAVSLFYGTGFVIYG-QPGGVA-SMEQGK
VVSTIYTLVIPMLNPLIYSLRNKDVKDALRRLGQRHSLVKESG*---
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR10.4.71
-MKLEQSRNYT--ELTDFILLGFWTSPEAQVPLFLLFLFIYLVILLGNLSMLTVIKIDSRLHTPMYFFLQ
NLSFLDLCYSTVIAPKTLATIFSKEKKISYNECATQFFFFALFVGTEGFLLAVMAYDRFSAICSPFLYTV
HMSQPACIRLVAGSYICGCINSMIQTGFTFSLRFCGENRLDHFFCDVPALIKISCVDTFVNEIVLFILSA
LIIISTITIILVSYAYILSTVLKIPSTHGRSKTFSTCGSHIAVVSLFYGTVFFMYA-QPGSIS-SPEKSK
IVAVFYTLIIPMLNPLIYSLRNTEVKSALKKTLLRKISWQ*------

>MmOR10.4.70
-MKLEQSRNYT--ELTDFILLGFWTSPEARVPLFLLFLFIYLVIVLGNLSMLTVIKIDSRLHTPMYFFLQ
NLSFLDLCYSTVIAPKALATFFSKEKKISYNECATQFFFFALFVGTEGFFLAVMAYDRFSAICSPFLYTV
HMSQPACIRLVAGSYICGCINSMIQTGFTFSLRFCGENRLDHFFCDVPALIKISCVDTFVNEIVLFILSA
LIIISTITIILVSYAYILSTVLKIPSTHGRSKTFSTCGSHIAVVSLFYGTVFFMYA-QPGSIS-SPEKSK
IVAVFYTLIIPMLNPLIYSLRNTEVKSALKKTLLRKIPWH*------

>MmOR10.4.72
-MGDRETSNHS--DMTDFILVGFRVSPELHILLFLLFLLVYAMILLGNLGMMAIIMTDPRLNTPMYFFLG
NLSFIDLFYSSVIAPKAMSNFWTESKSISFAGCVAQIFLFALFIVAEGFLLAAMAYDRFIAICNPLLYSV
HMSTRLCTQLVAGSYFCGCISSVLQTSMTFTLSFCASRAIDHFYCDSRPLQRLSCSDIFIHKIVSFSLSG
IIILPTITVIIVSYMYIVSTVLKIRSVEGRKKAFSTCSSHLGVVSVLYGAVFFMYL-TPDR---FPELSK
LASLCYSLVTPMLNPLIYSLRNKDVRDALSKLLEKKKCSGSFFPFYK

>SMOR210-1
-MGDRETSNHS--DMTDFILVGFRVSPELHILLFLLFLLVYAMILLGNLGMMAIIMTDPRLNTPMYFFLG
NLSFIDLFYSSVIAPKAMSNFWTESKSISFAGCVAQIFLFALFIVAEGFLLAAMAYDRFIAICNPLLYSV
HMSTRLCTQLVAGSYFCGCISSVLQTSMTFTLSFCASRAIDHFYCDSRPLQRLSCSDIFIHKIVSFSLSG
IIILPTITVIIVSYMYIVSTVLKIRSVEGRKKAFSTCSSHLGVVSVLYGAVFFMYL-TPDR---FPELSK
LASLCYSLVTPMLNPLIYSLRNKDVRDALSKLLEKKKCSGSFFPFYK

>MmOR10.4.73
-MGDRETSNHS--DMTDFILVGFRVSPELHILLFLLFLLVYAMILLGNLGMMAIIMTDPRLNTPMYFFLG
NLSFIDLFYSSVIAPKAMSNFWTESKSISFAGCVAQLFLFALFIVAEGFLLAAMAYDRFIAICNPLLYSV
HMSTRLCTQLVAGSYFCGCISSVLQTSMTFTLSFCASRAIDHFYCDTRPVQRLSCNNLFVHKIVSFSLSS
IIILPTVIVIIVSYMYIVSTVLKIRSVEGRKKAFSTCSSHLGVVSVLYGAVFFMYL-TPDR---FPELSK
LASLCFSLVTPMLNPLIYSLRNKDVRDALSKLLEKKKFIL*------

>HsOR12.5.2
-MGDRGTSNHS--EMTDFILAGFRVRPELHILLFLLFLFVYAMILLGNVGMMTIIMTDPRLNTPMYFFLG
NLSFIDLFYSSVIEPKAMINFWSENKSISFAGCVAQLFLFALLIVTEGFLLAAMAYDRFIAICNPLLYSV
QMSTRLCTQLVAGSYFCGCISSVIQTSMTFTLSFCASRAVDHFYCDSRPLQRLSCSDLFIHRMISFSLSC
IIILPTIIVIIVSYMYIVSTVLKIHSTEGHKKAFSTCSSHLGVVSVLYGAVFFMYL-TPDR---FPELSK
VASLCYSLVTPMLNPLIYSLRNKDVQEALKKFLEKKNIIL*------

>SMOR211-1
----MAKNNIT--TVTEFILIGFNDHPKWEIPLLLVFLSFYLVTMLGNLGMVILIHVDVQLHIPMYFFLS
HLSVLDACYTSVITPQILATLATGKTVISYRCCAAQFFFFTICAATECFLLSVMAYDRYVAISNPLLYTV
AMGPRKCWSLVVGAYICGVCGAILRTTCTFSLSFCENNQINFFFCDLPPLLKLACSDTTNIEIIIVFFGN
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
FVILANALVILISYLLIIKAVMRMKSSGRRAKTFSTCVSHLTAVALLFGTLIFMYI-RSGSKK-SLDEDK
VVSVFYTVVIPMLNPLIYSLRNKDVKAAFKKVTGKCQVSQCTQH---

>MmOR19.1.84
----MAKNNIT--TVTEFILIGFNDHPKWEIPLFLVFLSFYLVTMLGNLGMVILIHVDVQLHIPMYFFLS
HLSVLDACYTSVITPQILATLATGKTVVSYGRCAAQFFFFTICAATECFLLSVMAYDRYVAISNPLLYTV
AMGPRKCWSLVVGAYVCGMCGAILRTTCTFSLSFCENNQINFFFCDLPPLLKLACSDTTNIEIIIVFFGN
FVISANALVILISYLLIIKAVMRMKSSGRRAKTFSTCVSHLTAVALLFGTLIFMYI-RSGSKK-SLEEDK
VVSVFYTVVIPMLNPLVYSLRNKDVKAAFKKVTGKWQVSHSIQY*--

>MmOR19.1.77
----MDNNNLT--TVTEFILVGFTDHPEWEVPLFLVFLCFYLVTILGNLGMVILIQMDVQLQSPMYFFLS
HLSVLDACYTSVITPQILAMLATGKTVISYNHCAAQFFFFTFCASTECFLLAVMSYDRYVAISNPLLYTV
AMSPKKCWSLVLVAYVCGLSGSIQRTTCTFSLSFCEDNKINFFFCDLPPLLKLACSDTTNAEIIIVLFGN
FVILVNALVILTSYLLIIKTVMRIKSSGGRGKTFSTCVSHLTAVALFFGTLTFMYI-RSGSGK-SPEEDK
VVSVFYTVIIPMLNPLIYSLRNKDVKAGFRKLTSRLQVSQSV*----

>HsOR11.12.5
----MAKNNLT--RVTEFILMGFMDHPKLEIPLFLVFLSFYLVTLLGNVGMIMLIQVDVKLYTPMYFFLS
HLSLLDACYTSVITPQILATLATGKTVISYGHCAAQFFLFTICAGTECFLLAVMAYDRYAAIRNPLLYTV
AMNPRLCWSLVVGAYVCGVSGAILRTTCTFTLSFCKDNQINFFFCDLPPLLKLACSDTANIEIVIIFFGN
FVILANASVILISYLLIIKTILKVKSSGGRAKTFSTCASHITAVALFFGALIFMYL-QSGSGK-SLEEDK
VVSVFYTVVIPMLNPLIYSLRNKDVKDAFRKVARRLQVSLSM*----

>SOR9I1
----MAKNNLT--RVTEFILMGFMDHPKLEIPLFLVFLSFYLVTLLGNVGMIMLIQVDVKLYTPMYFFLS
HLSLLDACYTSVITPQILATLATGKTVISYGHCAAQFFLFTICAGTECFLLAVMAYDRYAAIRNPLLYTV
AMNPRLCWSLVVGAYVCGVSGAILRTTCTFTLSFCKDNQINFFFCDLPPLLKLACSDTANIEIVIIFFGN
FVILANASVILISYLLIIKTILKVKSSGGRAKTFSTCASHITAVALFFGALIFMYL-QSGSGK-SLEEDK
VVSVFYTVVIPMLNPLIYSLRNKDVKDAFRKVARRLQVSLSM-----

>MmOR19.1.83
-----MADNGT--RLTEFILMGFQLQAELQLGLFFTFLTFYLITIAGNLGMIMLIQSDPRLQTPMYFFLS
HLSFLDICYSSVIVPQLLEILGNNKMVITYEHCATQFFFFTFYASTECFLLAVMAYDRYVAVCNPLLYAM
AMTPQTRLGLVAAAYSGAMVNTVVRTGCTFSISFCKSNQVDFLFCDLPPLMKLACSETKLQEQVIFLFAF
LVIITSVSVILVSYLFIIWAILKIRTAGAKAKTFSTCASHMIAVALFFGTIIFMYL-KGNMGK-SLWEDK
IVSVFYTVVIPMLNPMIYSLRNKEVKEALKKAFKRIKSSQESKT*--

>MmOR19.1.79
-----MADNGT--RLTEFILIGFQLQAELQLCLFFIFLAFYLITIVGNLGMIMLIQSDPRLQTPMYFFLS
HLSFLDVCYSSVIVPQLLETLGSNKMVITYERCATQFFFFTLYASTECFLLAVMAYDRYVAVCNPLLYAM
AMTPQTRLGLVAAAYSGAMVNTVVRTGCTFSISFCKSNQVDFFFCDLPPLLKLSCSETKLREQVIFLFAF
LVITTSVSVILVSYLFIIWAILKIRTAGAKAKTFSTCASHMIAVALFFGTLIFMYL-KGNMGK-SLWQDK
IVSVFYTVVIPMLNPMIYSLRNKEVKEALKKAFKRIKASQESKT*--

>SOR9Q1
----MAEMNLT--LVTEFLLIAFTEYPEWALPLFLLFLFMYLITVLGNLEMIILILMDHQLHAPMYFLLS
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
HLAFMDVCYSSITVPQMLAVLLEHGAALSYTRCAAQFFLFTFFGSIDCYLLALMAYDRYLAVCQPLLYVT
ILTQQARLSLVAGAYVAGLISALVRTVSAFTLSFCGTSEIDFIFCDLPPLLKLTCGESYTQEVLIIMFAI
FVIPASMVVILVSYLFIIVAIMGIP-AGSQAKTFSTCTSHLTAVSLFFGTLIFMYL-RGNSDQ-SSEKNR
VVSVLYTEVIPMLNPLIYSLRNKEVKEALRKILNRAKLS--------

>HsOR11.12.7
----MAEMNLT--LVTEFLLIAFTEYPEWALPLFLLFLFMYLITVLGNLEMIILILMDHQLHAPMYFLLS
HLAFMDVCYSSITVPQMLAVLLEHGAALSYTRCAAQFFLFTFFGSIDCYLLALMAYDRYLAVCQPLLYVT
ILTQQARLSLVAGAYVAGLISALVRTVSAFTLSFCGTSEIDFIFCDLPPLLKLTCGESYTQEVLIIMFAI
FVIPASMVVILVSYLFIIVAIMGIP-AGSQAKTFSTCTSHLTAVSLFFGTLIFMYL-RGNSDQ-SSEKNR
VVSVLYTEVIPMLNPLIYSLRNKEVKEALRKILNRAKLS*-------

>MmOR19.1.78
----MAKVNLT--LVTEFLLIAFTEHPEWGLPLFHLFLFIYLFTLLGNSGMIVLIRMDRRLHTPMYFLLS
HLSFMDICYSSVTVPQTMAVLLEHGAALSYARCVAQFFLFTFFGSIDCYLLALMAYDRYVAVCQPLLYVT
IMTQKALLSFVAGAYIAGLLSALVRTISAFTLSFCGNNEIDFIFCDLPPLLKLTCGESYIQELVIIVFAI
FVIPACMVVIVVSYLFIIVAILRIPSAGGRAKTFSTCASHLTAVSLFFGTLIFMYL-RDNSGQ-ASEKDR
VVSVFYTTVIPMLNPLIYSLRNKEVKEALKNFLNRVKTF*-------

>MmOR19.1.75
----MAGRNYT--FVTEFFLTAFTEHPEWGLPLFLLFLSFYLATLLGNTGMIILIQKNRRLQTPMYFFLS
HLSFVDICYSSVIIPQMLAVLWEHGSTISQVRCAVQFFLFTFFASIDCYLLAIMAYDRYVAVCQPLLYVT
IMTEKARVGLVTGAYVAGFSSGFIRTVTAFTLSFCGNNEINFIFCDLPPLLKLVCGDSYIQEVVIIVFAI
FVMPACIVVISVSYLFIIVAIMQIRSAGGRAKTFSTCTSHLTAVALFFGTLIFMYL-RDNTDQ-FSERDR
VVSVFYTVVTPLLNPLIYSLRNKEVKEAITKSLRRSKISRAP*----

>SMOR212-1
----MAGRNYT--FVTEFFLTAFTEHPEWGLPLFLLFLSFYLATLLGNTGMIILIQKNRRLQTPMYFFLS
HLSFVDICYSSVIIPQMLAVLWEHGSTISQVRCAVQFFLFTFFASIDCYLLAIMAYDRYVAVCQPLLYVT
IMTEKARVGLVTGAYVAGFSSGFIRTVTAFTLSFCGNNEINFIFCDLPPLLKLVCGDSYIQEVVIIVFAI
FVMPACIVVISVSYLFIIVAIMQIRSAGGRAKTFSTCTSHLTAVALFFGTLIFMYL-RDNTDQ-FSERDR
VVSVFYTVVTPLLNPLIYSLRNKEVKEAITKSLRRSKISRAP-----

>SOR9Q2a
-------------------------M-----------------------ILLIRGDRRLHTPMYFFLS
HLSLVDICYSSAIIPQMLAVLWEHGTTISQARCAAQFFLFTFFASIDCYLLAIMAYDRYTAVCQPLLYVT
IITEKARWGLVTGAYVAGFFSAFVRTVTAFTLSFCGNNEINFIFRDLPPLLKLSCGDSYTQEVVIIVFAL
FVMPACILVILVSYLFIIVAILQIHSAGGRAKTFSTCASHLTAVALFFGTLIFMYL-RDNTGQ-SSEGDR
VVSVLYTVVTPMLNPLIYSLRNKEVKEATRKALSKSKPARRP-----

>HsOR11.12.8
----MAERNYT--VVTEFFLTAFTEHLQWRVPLFLIFLSFYLATMLGNTGMILLIRGDRRLHTPMYFFLS
HLSLVDICYSSAIIPQMLAVLWEHGTTISQARCAAQFFLFTFFASIDCYLLAIMAYDRYTAVCQPLLYVT
IITEKARWGLVTGAYVAGFFSAFVRTVTAFTLSFCGNNEINFIFCDLPPLLKLSCGDSYTQEVVIIVFAL
FVMPACILVILVSYLFIIVAILQIHSAGGRAKTFSTCASHLTAVALFFGTLIFMYL-RDNTGQ-SSEGDR
VVSVLYTVVTPMLNPLIYSLRNKEVKEATRKALSKSKPARRP*----
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR2.2.105
----MADVNFT--FVTEFILLGLTDRDELKVFLFILFLLIYVISLVGNLGMFMLIHITPKLHTPMYHFLR
SLSFVDACYSSVFAPTLLLNFFVERETISFSACILQYFLFASLLTTEGFLLAAMAFDRYVAIVNPLTYTV
VMTKLICVLLVLGSCLGGTITSLTHTIGLIKLSFCGPNVISHFFCDLPPLLKLSCSDTSMNELLLLVFSG
VIAITTLLTVVLSYIFIVAAILRIRSAAGRHKAFSTCASHLTAVTLFYGSISFSYI-QPSSQY-SLEQEK
VVSVFYTLVIPMLNPLIYSLRNKEVKDAVKRVMEIKHSLH*------

>SMOR172-1
----MATENCT--VVTEFILLGLTDRAELKMMLFVLFLVIYAVTLLGNLGMILLIRITPKLHTPMYFFLS
CLSFVDACYSSVIAPKMLISFLVVTETISFSACIMQHLFFGVLVTTEGFLLSVMAYDRYVAVVNPLLYTV
SMSKQKCIMMVTGSVIGGTINSLTHTISLSKLSFCGPNIVGHFFCDIPSLLILSCSDTSMNEFLLLIFSG
VIAIGTLLIVFISYLFIALAILRIRSASGRQKAFSTCASHLTAVTIFYGTLSFNYI-QPSSQY-SVEQEK
VVSVFYTLVIPMLNPMIYSLRNKEVKEAAKRAIEMKSFSC-------

>MmOR2.2.62
----MATENCT--VVTEFILLGLTDRAELKMMLFVLFLVIYAVTLLGNLGMILLIRITPKLHTPMYFFLS
CLSFVDACYSSVIAPKMLISFLVVTETISFSACIMQHLFFGVLVTTEGFLLSVMAYDRYVAVVNPLLYTV
SMSKQKCIMMVTGSVIGGTINSLTHTISLSKLSFCGPNIVGHFFCDIPSLLILSCSDTSMNEFLLLIFSG
VIAIGTLLIVFISYLLIALAILRIRSASGRQKAFSTCASHLTAVTIFYGTLSFNYI-QPSSQY-SVEQEK
VVSVFYTLVIPMLNPMIYSLRNKEVKEAAKRAIEMKSFSC*------

>SOR5J2
----MADDNFT--VVTEFILLGLTDHAELKAVLFVVFLVIYAITLLRNLGMILLIQITSKLHTPMYFLLS
CLSFVDACYSSAIAPKMLVNLLVVKATISFSACMVQHLCFGVFITTEGFLLSVMAYDRYVAIVSPLLYTV
AMSDRKCVELVTGSWIGGIVNTLIHTISLRRLSFCRLNAVSHFFCDIPSLLKLSCSDTSMNELLLLTFSG
VIAMATFLTVIISYIFIAFASLRIHSASGRQQAFSTCASHLTAVTIFYGTLIFSYI-QPSSQY-FVEQEK
VVSMFYTLGIPMLNLLIHSLRNKDVKEAVKRAIEMKHFLC-------

>HsOR11.11.51
----MADDNFT--VVTEFILLGLTDHAELKAVLFVVFLVIYAITLLRNLGMILLIQITSKLHTPMYFLLS
CLSFVDACYSSAIAPKMLVNLLVVKATISFSACMVQHLCFGVFITTEGFLLSVMAYDRYVAIVSPLLYTV
AMSDRKCVELVTGSWIGGIVNTLIHTISLRRLSFCRLNAVSHFFCDIPSLLKLSCSDTSMNELLLLTFSG
VIAMATFLTVIISYIFIAFASLRIHSASGRQQAFSTCASHLTAVTIFYGTLIFSYI-QPSSQY-FVEQEK
VVSMFYTLGIPMLNLLIHSLRNKDVKEAVKRAIEMKHFLC*------

>MmOR2.2.108
----MGIRNHT--SVKEFILIGLTENPNWQVPLFFLFCIVYFIILVGNWGMIILIWLNAQLHTPMYFFLS
NLSFCDICYSTIIAPKMLINFLSEHKSTRLFACILQSFFFAVYVTTEVILLSMMAYDRYVAIANPLMYTV
IMTNNICTQMVLASYLGGLINSMIHTIGLLKLDFCGPNIVNHFFCDVPPLLKLACSDAHINEMLLLVFSG
VFAISTFIIVMVSYIHIIIAILRIRSAEGRRKAFSTCASHLTAVALFYGSLTFNYI-QPSSQY-SMEQEK
LSAVFYTLVIPMLNPLIYSLRNKDVKEAAKKLICGERNAP*------

>MmOR2.2.109
----MAIWNHT--GVSEFILVGLTENPNWQVPLFLLFSVVYFIILVGNWGMIILIWLNAQLHTPMYFFLS
NLSFCDICYSTIIAPKMLLNFLSEHKSSTFFACILQSFFFAVYVTTEVILLSMMAYDRYVAIANPLMYTV
IMTHNICTQMVLASYLGGLINSMIHTIGLLKLDFCGPNIVNHFFCDVPPLLKLACSDAHINEMLLLVFSG
MIAIFTFIIIMVSYIHIIIAILRIRSAEGRRKAFSTCASHLTAVTLFYGSLTFNYI-QPSSQY-SMEQEK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LSAMFYTLVIPMLNPLIYSLRNKDVKEAAKRLICRESSTS*------

>MmOR2.2.106
----MRVWNHT--GVKEFMLLGLTENPNCQVPLFLLFSIVYLIILVGNWGMIILIWLNAHLHTPMYFFLS
NLSFCDICYSTVIAPKMLIDFLSEHKSSTFFGCVLQSFFFAVYITTEGILLSMMAYDRYVAIANPLMYTV
IMTHRICSQMVLACYLGGLINSLTHTIGLLRLDFCGPNIVNHFFCDIPPLLKLACSDAHNNEMLLLVFSG
VIAIFTFIIVMVSYIHIIIAILRIRSAEGRRKAFSTCASHLTAVILFYGSVTFSYI-QPSSQY-SMEQEK
VSAVFYTLVIPMLNPLIYSLRNKDVKEAAKKFIGRERRTS*------

>MmOR2.2.107
----MDPGNHT--VVKEFILLGLTENPDWQIPLFLLFSIIYLIIFVGNWGMIFLIWLNAHLHTPMYFFLS
NLSFCDICYSTVIAPKMLINIVSEHKSSRLLSCVLQSFFFMVYATTEVILLSMMAYDRYVAIVNPLMYTV
IMTFSICISMVLACYLCGIINSLTHTISLLRLDFCGPNVVNHFFCDVPPLLKLSCSDAHINEMLLLVFSG
VIAIFTFIIVMVSYIHIIIAILKIRSTEGRRKAFSTCASHLTAVTLFYGSGTFSYI-QPSSQY-SMEQEK
VSAVFYTLVIPMLNPLIYSLRNKDVKEAAKKLICGWSNTS*------

>SOR9Q2b
----MRGWNHT--GAKEFLLVGLTENPNLQIPLFLLVTLIYFITLLDNLGIIILIWLNAQLHTPMYFFLG
NLSFCDICYSTVFAPKMLVNFLSKHKSSTFSGCVLQSFPFAVYVTTKDILLSMMAYDHYVAIANPLLYTV
IMAQKVCIQMVLASYLGGLINSLTHTIGLLKLDFCGPNIVNHYFCDVPPLLRLSCSDAHINEMLPLVFSG
LIAMFTFIVIMVSYICIIIAIQRIHAAEGRYKAFSTCVSHLTTVTLFYGSVSFSYI-QPSSQY-SLEQEK
VLAVFYTLVIPMLNPLIYSLRNKDVKDAAKRLI-WWGKNPT------

>MmOR2.2.10
----MEEKNQT--IVMEFFFLGLTDHLYQKIALFITILFVYLVTLGGNLGMITLIWADPRLHTPMYFFLS
HLSFVDMCSSSSIAPKMLCDIFAEEKRISFMGCAAQMWFFGFFVGTECFLLASMAYDRYTAICKPLLYTL
LMSQRVCVHLVVGPYVFAIINITTHTTLAFCLPFCGSNTINHFFCDVSPLLSLACADSWVNKVVLFVLSG
AIGVFSGLIIIVSYVSILMTIFKIQTADGKQKAFSTCSSHLSAVSILYGTLFFIYV-RPSASF-SLNINK
MISLFYTVVIPMLNPLIYSLRNKEVKGAFRRKVQKKHFPAGR*----

>MmOR2.2.8
----MEEKNQT--VMPEFLFLGITDNFHQKIVIFIIFFFVYLVTLGGNVGMIALIWLDPRLHTPMYFFLS
QLSFVDVSSSSSIAPKMLCDIFARNKAISFVGCAAQMWFFGLFVATECFLLAAMAYDRYAAICKPLLYTL
IMSPHLSVLLVIGPYAIALISTTTHTTLTFCLPFCGPYIINHFFCDISPLLSLACSDTHINKLVLFVLAG
TVGVLSGLIILVSYVCILKAILKIQTANGRRKAFSTCSSHLATVSILYGTLFFIYV-RPNVSS-SLNINK
VISLFYTMVIPMLNPLIYSLRNQEVKNAFRRTLEKKHFLTGA*----

>MmOR2.2.12
----MEEKNQT--VMPEFLFRGITDNLHQKIVIFIIFFFVYLVTLGGNVGMITLIWLDPRLHTPMYFFLS
QLSFVDVSSSSSIAPKMLCDIFARNKAISFVGCATQMWFFGLFVATECFLLAAMAYDRYAAICKPLLYTL
IMSPHLCMLLVVGIYFIALISTMIHTTLTFCLPFCGPYIINHFFCDVSPLLSLACTDTQMIKLVFFVLAG
TVGMFTGLIILGSYVCILKAILKIQTANGRQKAFSTCSSHLVTVAILYGTLFFIYV-RPNASS-SLNINK
VISLFYTVVIPMLNPLIYSLRNQEVKNAFRRTLKKKHFLIGV*----

>SMOR175-1
----MMHRNQT--VVTEFFFTGLTSSFHLQIVLFLTFLCVYLATLLGNLGMIILIHLDTRLHIPMYFFLS
HLSFVDACSSSVISPKMLSDMFVDKKVISFLGCAIQLCLFSQFVVTECFLLASMAYDRYVAICKPLLYTL
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMSQRVCVQLVIGPYSIGFISTMVHIISAFVLPYCGPNLINHFFCDLLPVLSLACANTQMNKRLLFIVAG
ILGVFSGIIILVSYVYIAITILKISSADGRRKAFSTCSSHLTAVSILYGTLFFIYV-RPSSSF-SLDINK
VVSLFYTTVIPMLNPFIYSLRNKEVKDALIRTFEKQFCYSLQDKIL-

>MmOR2.2.17
----MMHRNQT--VVTEFFFTGLTSSFHLQIVLFLTFLCVYLATLLGNLGMIILIHLDTRLHIPMYFFLS
HLSFVDACSSSVISPKMLSDMFVDKKVISFLGCAIQLCLFSQFVVTECFLLASMAYDRYVAICKPLLYTL
IMSQRVCVQLVIGPYSIGFVSTMVHIISAFVLPYCGPNLINHFFCDLLPVLSLACANTQMKKRLLFIVAG
ILGVFSGIIILVSYVYIAITILKISSADGRRKAFSTCSSHLTAVSILYGTLFFIYV-RPSSSF-SLDINK
VVSLFYTTVIPMLNPFIYSLRNKEVKDALIRTFEKQFCYSFQDKIL*

>MmOR2.2.14
----MMHRNQT--VVTEFFFTGLTSSFHLQIVLFLTFLCVYLATLLGNLGMIILIHQDTRLHIPMYFFLS
HLSFVDACSSSVISPKMLSDIFVDKKVISFLGCAIQFCLFSQFVVTECFLLASMAYDRYVAICKPLLYTL
IMSQRVCVQLVIGPYSIGLISTVVHTTSAFILPYCGPNLINHFFCDLLPVLSLACADTQMNKHLLFIMAG
ILGVFSGIIILVSYVYIAITILKINSADGRRKAFSTCSSHLTAVSILYGTLFFIYV-RPSSSF-SLDINK
VVSLFYTAVIPMLNPFIYSLRNKEVKDALIRTFEKKFCYSLQDKIL*

>MmOR2.2.21
----MADENYT--RITEFIFIGLRYHPNLQVFLFLLFLLFYLVTMTGNLGMIILIRVDSRLHTPMYFFLS
HLSFVDICFSSVVAPKMLTDFFADKKAISFLGCVLQQWFFGFFVAIECLLLASMAYDRYVAICNPLLYSV
AMSQRLCIQLVIGPYAVGFFNTMTHTTAAFRLPFCGSNIINHFFCDMSPILSLICADIRINKLLVFIVAG
AVLIVSSTTIIVSYFHILIAILRIRSAEGRRKAFSTCSSHVTAVSILYGTLFFIYV-RPSAIS-SLDLNK
VVSVFYTAVIPMLNPLIYSLRNKEVKSAMGRTVAKAKVFLKN*----

>SOR5AR1
----MDKENSS--MVTEFIFMGITQDPQMEIIFFVVFLIVYLVNVVGNIGMIILITTDTQLHTPMYFFLC
NLSFVDLGYSSAIAPRMLADFLTNHKVISFSSCATQFAFFVGFVDAECYVLAAMAYGRFVAICRPLHYST
FMSKQVCLALMLGSYLAGLVSLVAHTTLTFSLSYCGSNIINHFFCEIPPLLALSCSDTYISEILLFSLCG
FIEFSTILIIFISYTFILVAIIRMRSAEGRLKAFSTCGSHLTGITLFYGTVMFMYL-RPTSSY-SLDQDK
WASVFYTVIIPMLNPLIYSLRNKDVKAAFKKLIGKKSQ---------

>HsOR11.11.85
----MDKENSS--MVTEFIFMGITQDPQMEIIFFVVFLIVYLVNVVGNIGMIILITTDTQLHTPMYFFLC
NLSFVDLGYSSAIAPRMLADFLTNHKVISFSSCATQFAFFVGFVDAECYVLAAMAYGRFVAICRPLHYST
FMSKQVCLALMLGSYLAGLVSLVAHTTLTFSLSYCGSNIINHFFCEIPPLLALSCSDTYISEILLFSLCG
FIEFSTILIIFISYTFILVAIIRMRSAEGRLKAFSTCGSHLTGITLFYGTVMFMYL-RPTSSY-SLDQDK
WASVFYTVIIPMLNPLIYSLRNKDVKAAFKKLIGKKSQ*--------

>SMOR180-1
----MDKENHS--VVTEFVFMGITQDPQLQIIFFVVFLLVYLVNVIGNVGMIILIITDSQLHTPMYFFLC
NLSFVDLGYSSAIAPRMLADFLTKHKVISFSSCATQFAFFVGFVDAECYVLAAMAYDRFVAICRPLHYST
LMSKKVCLVLMLGSYFAGLVSLVAHTSLTFSLSYCGSNIINHFFCEIPPLLALSCSDTYISEILLFSLCG
FIEFSTILIIFISYAFILIAIIRIRSAEGRLKAFSTCGSHLTGVTLFYGTVMFMYL-RPTSSY-SLDQDK
WASVFYTIIIPMLNPLIYSLRNKDVKAAFKKLIGKKPQ---------

>MmOR2.2.29
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MDKENHS--VVTEFVFMGITQDPQLQIIFFVVFLLVYLVNVIGNVGMIILIITDSQLHTPMYFFLC
NLSFVDLGYSSAIAPRMLADFLTKHKVISFSSCATQFAFFVGFVDAECYVLAAMAYDRFVAICRPLHYST
LMSKKVCLVLMLGSYFAGLVSLVAHTSLTFSLSYCGSNIINHFFCEIPPLLALSCSDTYISEILLFSLCG
FIEFSTILIIFISYAFILIAIIRIRSAEGRLKAFSTCGSHLTGVTLFYGTVMFMYL-RPTSSY-SLDQDK
WASVFYTIIIPMLNPLIYSLRNKDVKAAFKKLIGKKPQ*--------

>HsOR11.11.41
----MLESNYT--MPTEFLFVGFTDYLPLRVTLFLVFLLVYTLTMVGNILLIILVNINSSLQIPMYYFLS
NLSFLDISCSTAITPKMLANFLASRKSISPYGCALQMFFFASFADAECLILAAMAYDRYAAICNPLLYTT
LMSRRVCVCFIVLAYFSGSTTSLVHVCLTFRLSFCGSNIVNHFFCDIPPLLALSCTDTQINQLLLFALCS
FIQTSTFVVIFISYFCILITVLSIKSSGGRSKTFSTCASHLIAVTLFYGALLFMYL-QPTTSY-SLDTDK
VVAVFYTVVFPMFNPIIYSFRNKDVKNALKKLLERIGYSNEWYLNRL

>SOR4A5
----MLESNYT--MPTEFLFVGFTDYLPLRVTLFLVFLLVYTLTMVGNILLIILVNINSSLQIPMYYFLS
NLSFLDISCSTAITPKMLANFLASRKSISPYGCALQMFFFASFADAECLILAAMAYDRYAAICNPLLYTT
LMSRRVCVCFIVLAYFSGSTTSLVHVCLTFRLSFCGSNIVNHFFCDIPPLLALSCTDTQINQLLLFALCS
FIQTSTFVVIFISYFCILITVLSIKSSGGRSKTFSTCASHLIAVTLFYGALLFMYL-QPTTSY-SLDTDK
VVAVFYTVVFPMFNPIIYSFRNKDVKNALKKLLERIGYSNEWYLNRL

>MmOR2.2.110
----MQYTNYT--KPTEFIFIGFTDYQPLRLMLFLVFFIVYTLTLVGNIGLIILVNIDLSLQTPMYHFLS
NLSFLDISYSTAIAPKMLVDFLASKKSISFCGCAIQMFFFACFADAECLILAAMAYDRYAAICNPLLYST
LVSRRVCFSFVVLAYFSGSVTSLVHVSLAFMLPYCRSNIVNHFFCDIPPLLALSCADTHINELLLFALCG
TIQTSTFMVILISYSCILITVLSIKSTGGRSKTFSTCASHLIAVTLFYGTLLFMYL-RPTTSY-SPDTDK
VVALFYTVVFPMLNPIIYSFRNKDVKNALKKLFDRLGIFR*------

>HsOR9.6.14
----MNSENLTAVAPAEFVLLGITNRWDLRVALFLTCLPVYLVSLLGNMGMALLIRMDARLHTPMYFFLA
NLSLLDACYSSAIGPKMLVDLLLPRATIPYTACALQMFVFAGLADTECCLLAAMAYDRYVAIRNPLLYTT
AMSQRLCLALLGASGLGGAVSAFVHTTLTFRLSFCRSRKINSFFCDIPPLLAISCSDTSLNELLLFAICG
FIQTATVLAITVSYGFIAGAVIHMRSVEGSRRAASTGGSHLTAVAMMYGTLIFMYL-RPSSSY-ALDTDK
MASVFYTLVIPSLNPLIYSLRNKEVKEALRQTWSRFHCPGQGSQ*--

>MmOR2.1.37
----MNSENFTRVMPAEFILLGITNRWDMRVTLFLIFLPIYLVSLLGNVGMVLLIRIDARLHTPMYFFLA
NLSLLDAFYSSAIGPKMLVDLLLSRATIPYVACALQMFVFAGLADAECCLLAVMAYDRYVAIGNPLLYTT
VMSPRLCLALLGASGLGGAVSAFVHTTFTFRLSFCGSLEVNSFFCDIPPLLAISCNDTSLNELLLFAVCG
FIQTTTVLAIAVSYGFIAVAVIRMQSAEGRRRAASTCGSHLTAVSILYGTLIFMYL-RPSSSY-ALDTDK
MASVFYTLVIPALNPLIYSLRNKEVKEAFQRTWHRFCCPGRSTRDWP

>SMOR178-1
----MNSENFTRVMPAEFILLGITNRWDMRVTLFLIFLPIYLVSLLGNVGMVLLIRIDARLHTPMYFFLA
NLSLLDAFYSSAIGPKMLVDLLLSRATIPYVACALQMFVFAGLADAECCLLAVMAYDRYVAIGNPLLYTT
VMSPRLCLALLGASGLGGAVSAFVHTTFTFRLSFCGSLEVNSFFCDIPPLLAISCNDTSLNELLLFAVCG
FIQTTTVLAIAVSYGFIAVAVIRMQSAEGRRRAASTCGSHLTAVSILYGTLIFMYL-RPSSSY-ALDTDK
MASVFYTLVIPALNPLIYSLRNKEVKEAFQRTWHRFCCPGRSTRDWP
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR2.2.132
----MDEGNCS--SNTEFVLLGITNNPSMKVGLFIVFLIIYLIILVANIGMIVLIKLDPQLHTPMYFFLS
HLSFSDLCYSTAVGPKMLVDLMVKQKIIPFVGCALQFFFTCIFVDAECMLLAVMAFDRYKAISNPLMYVV
GMSSKFCYQLLAGVYLVGMIDTVIHTIMTFGLCFCGSNEINHFFCDIPPILLLSCSDTQTNELITFVIFG
FIELSTISGVLVSYCYIISSVLKIRSTDGRFKAFSTCASHLTAVAIFQGTLLFMYF-RPASAY-SLDQDK
ITSLFYTLVIPMLNPLIYSLRNKDVQEALQK-LKKKIFF*-------

>MmOR2.2.136
----MDEGNCS--SITEFILLGITDDPSMKVVLFISFLIIYLIILVANIGIIVLIRIDPQLHTPMYFFLS
HLSFSDLCYSTAVGPKMLVDLLAKHKSLSFLGCALQFFFTCVFIDVECVLLAVMAFDRYKAISNPLMYVV
DMSSRFCYQLLAGVYVLAMIDTLMQTIITFGLCFCRSNEINHFFCDLPPILLLSCSDIYVNELALFVFSG
FVELCTISGLLVSYSYIIASVLKISCDEGRFKAFSTCASHLTAVAIFQGTLLFMYF-RPSSSY-SLDQDK
TTSLFYTLVIPMLNPLIYSLRNKDVKEALYKLRNKRSFK*-------

>MmOR2.2.149
KQRRMEVGNCS---ATEFLLLGITNNPVIKVILFTTFLIVYLIILIENLGMIILIRMNSQLHTPMYFFLS
HLSFSDICYSTAVGPKMLVGLIFKNNSIPFIDCAVQFFIFCIFTDAECVLLAVMAFDRYKAISNPLMYAV
DMSRVVCYQLLAVVYLVGMVDALTHTTLTFHLCFCQSKEINHFFCDVPPLLLLSCSDTEVNELVIFTLFG
FIELSTISGVLVSYCYIISSVLKIRSAEGRFKAFSTCTSHLTVVAIFQGTMLFMYF-RPSSAY-SLDQDK
MTSLFYTLVIPMLNPLIYSLRNKDVKASVKRSLKSRISF*-------

>MmOR2.2.148
----MEVGNCS---ATEFLFLGITNNPVIKVILFTTFLIVYLIILIENLGMIILIRMDHQLHIPMYFFLS
HLSFSDVCYSSAVGPKMLLDLLAKSNSITFLGCVLQFFIFCIFTDVECMLLAMMAFDRYKAISNPLLYAV
DMSSKVCYQLLAVVYTVAIVDAVVHTTLTFRLCFCGSKEINHFFCDLPPLYMLSCSDIQVNELALFTVFG
FIELSTISGVLVSYCYIILSVLKIRSAEGRFKAFSTCTSHLTAVAIFQGTMLFMYF-RPSSSY-SLDQDK
MTSLFYTLVIPVLNPLIYSLRNKDVKEALQKLKTKTWF*--------

>MmOR2.2.135
----MDKGNCS--TLTEFLLLGITSNPEVKVFLFTMFLVVYLTNLLTNLGMIILIRMDPQLHTPMYFFLS
HLSFSDLCYSTAVGPKMLVDLLSKNTSIPFLGCAMQFFTFCIFIDAECVLLAVMAFDRYKAISNPLLYAV
DMSRKVCFQLLTGVYSVALADALIHTTLTFHLCFCGSNEINHFFCDIPPVLVLSCSDTQVNVLVIFTVFG
FIELSTISGVLISYCYIISSVLKISSAAGRLKAFSTCTSHLTAVAIFQGTMLFMYF-RPSSSY-SLDQDK
VTSLFYTLVIPMLNPLIYSLRNKDVKEALQRIRSKMCLK*-------

>MmOR2.2.128
----MDIGNCS---LNEFIFVGVTNNPEMKGTLFTIFLLIYLINLLGNIGMIILIRMDPQLHTPMYFFLS
HLSFCDLCYSTAIGPKMLLDMFGKNKSIPFWGCALQLFIFCVFADSECVLLAVMAFDRYQAISNPLLYTA
NMSSRKCFMFMAGVYLVGTSDALIHTTLAFRLCFCGSNEINHFFCDLPPLYLLSCLDTQVNYLALFTIYG
FLELSTISGVLVSYCYIISSILKIRSAEGRFKAFSTCTSHLTAVAIFQGTLLFTYF-RPSSSY-SLDQDK
MTSLFYTLVIPMLNPLIYSLRNKDVKEALKK-IKRKRWF*-------

>MmOR2.2.124
----MNIGNCS---LNEFIFVGVTNNPEMKGTLFTIFLLIYLINLLGNIGMIILIRMDPQLHTPMYFFLS
HLSFCDLCYSTAIGPKMLVDMFGKNKSIPFWGCAVQFFISCTFADSECVLLAVMAFDRYQAISNPLLYTA
NMSSRKCFMFMAGVYLVGTSDALIHTTLAFRLCFCGSNEINHFFCDLPPIYLLSCSDTQVNYLALFTIYG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
FLELSTISGVLVSYCYIISSVLKIRSTEGRFKAFSTCTSHLTAVAIFQGTLLFTYF-RPSSSY-SLDQDK
MTSLFYTLVIPMLNPLIYSLRNKDVKEALGK-MKRKR*---------

>SMOR177-1
----MEKKNCS--SVDEFIFLGITKNPDMRVTFFTTLLLVYLINLLANLGMIILIRVNTQLHTPMYFFLS
HLSFCDLCYSTAIGPKMLVDLLVEEKSIPIVGCALQFFTFCIFADSECLLLAVMAYDRYQAISNPLLYTV
NMSSRLCSLLMAGVYLVGTADALIHTTLTFRLCFCGSNEINHFFCDVPPLLLISCSDTEVNELAIFTIFG
FIELSTISGVLVSYCYIISSVLKIGSAEGRFKAFSTCASHLTAVAVFQGTMLFMYF-RPSSAY-SLDQDK
MTSLFYTLVIPMLNPLIYSLRNKDVKEAVVK-LKNKW----------

>MmOR2.2.129
----MEKKNCS--SVDEFIFLGITKNPDMRVTFFTTLLLVYLINLLANLGMIILIRVNTQLHTPMYFFLS
HLSFCDLCYSTAIGPKMLVDLLVEEKSIPIVGCALQFFTFCIFADSECLLLAVMAYDRYQAISNPLLYTV
NMSSRLCSLLMAGVYLVGTADALIHTTLTFRLCFCGSNEINHFFCDVPPLLLISCSDTEVNELAIFTIFG
FIELSTISGVLVSYCYIISSVLKIGSAEGRFKAFSTCASHLTAVAVFQGTMLFMYF-RPSSAY-SLDQDK
MTSLFYTLVIPMLNPLIYSLRNKDVKEAVVK-LKNKW*---------

>MmOR2.2.147
----MDRGNCS--SVDEFIFLGITNNPVKKVALFTTFLVVYLITLLANLGIIILIRMNTQLHTPMYFFLS
NLSFCDFCYSTAIGPKMLVDLLAAEKSIPFFGCAVQFLIFCVFADSECLLLAVMAFDRYQAISNPLLYTV
NMSSMVCFMLMTGVYLVATTDGLIHTILAFRLCFCGSNEINHFFCDLPPLYLLSCSEIQVNELALFTVFG
FIELSTISGVLVSYCYIILSVLKIRSAEGRFKAFSTCTSHLTTVAIFQGTMLFMYF-RPSSSY-SLDQDK
MTSLFYTLVIPMLNPLIYSLRNKDVKEALQR-LKMKM*---------

>HsOR11.11.34
----MDWENCS--SLTDFFLLGITNNPEMKVTLFAVFLAVYIINFSANLGMIVLIRMDYQLHTPMYFFLS
HLSFCDLCYSTATGPKMLVDLLAKNKSIPFYGCALQFLVFCIFADSECLLLSVMAFDRYKAIINPLLYTV
NMSSRVCYLLLTGVYLVGIADALIHMTLAFRLCFCGSNEINHFFCDIPPLLLLSRSDTQVNELVLFTVFG
FIELSTISGVFISYCYIILSVLEIHSAEGRFKALSTCTSHLSAVAIFQGTLLFMYF-RPSSSY-SLDQDK
MTSLFYTLVVPMLNPLIYSLRNKDVKEALKKLKNKILF*--------

>MmOR2.2.140
MQRRMEGENCS--SFTEFILMGITNNSEVKVVLFTIFLLVYLINLIGNLGMILLIKVDPQLQTPMYFFLS
NLSFCDLCYSTAVGPKMLMDIFGNDKSIQFFGCALQFFISCTFVDSECILLAVMAFDRYQAISNPLLYTT
NMSNRLCSLLVAGVYFVGVADSLIHTTLTFHLCFCGSNEIDHFFCDIPPILLLSCSDTQVNELAIFTIFG
FIELSTISGVLVSYCYIISSVLKISSAGGRFKAFSTCASHLTAVAIFQGTVLFMYF-RPSSSY-SLDQDK
MSSLFYILVIPMLNPLIYSLRNKDVKEALKNLKNKRCC*--------

>MmOR2.2.133
----MDKRNCS--SVPEFLLLGITNKPEMKVALFIVFLIVYPTILLTNVGMITLIRMDPQLHIPMYFFLS
HLSFSDLCYSTAVGPKMLLDLLEDNNPISFVGCFLQLLIVSIFIDVECMLLAVMAFDRYKAISNPLMYAV
DMSSRVCYQFLTAIYVFGTIDGFIHTSLAFSLCFCHSTQINHLFCDLPPVLLLSCSDTHINELVLFMLFG
FIELSTISGVLVSYCYIISSVLKISSTGGWFKAFSTCASHLTAVGIFQGTMLFMYF-RPSSAY-SLDQDK
MTSIFYLLVIPMINPLIYSLRNKDVKEALVRLRSKWWF*--------

>MmOR2.2.134
----MDKENCS--SLPEFFLLGISSKYGVKVVLFVVFLLVYLTTLLENIGMIALIRMDPQLHTPMYFFLS
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
HLSFSDLCYSTAVGPRMLVDLVAEKHSIPFTGCFLQLLFVYVFIDVECMLLAVMAFDRYKAISKPLLYSV
DMSSKVCYQFLTLIYLTSTIDGLIHTTLAFNLCFCGSTQINHFFCDLPPLYLLSCSDTQANELVVFTLFG
FIELSTISSVLVSYCYIISSVLKISSAGGRFKAFSTCASHLTAVGIFQGTMLFMYF-RPSSAY-SLDQDK
MTSVFYLLIIPMINPLIYSLRNKDVKEALVRLRNKRLF*--------

>MmOR2.2.137
----MDKENCS--SLPELLLLEITNNPDMKVLILTVFLAINLIVLIINIGMIIFIKMNPQLQTPMYFFLS
HLFFSDLSYSSAIGSKMLIDIFSKYKTIPLLFVPFDSFFVCIFIDVECVLPAVMAFDQYKAISHPVIYAI
DMSNRVCYQFLAGVYLVGMTDALIHRTLTFCLCFCESHEINHFFCDIPPILLLSCLNTQFNELMIFTIFG
FIQLSTISEVLVSYCSIILSVLKIHSAKGRFKAFSTCTLHLTAVAIFQGTLLFTYF-QPSTSY-SLDQDK
MTSLFYTLMIPMLNPLIYSLRYKDVKETLQNLENKRWCK*-------

>MmOR2.2.150
----MSVENST--VKTEFYLLGFSDHPELQSLLFAVFFFIYSITLMGNIGMILLITVSPNLHIPMYFFLC
MLSFIDACYSSVIAPKLLVDLISDKKVISYNGCATQLYFFCSLVDTESFLLAAMAYDRYIAICNPLLYTV
IMSKRVCTHLAFGAFLGGTMSSIIHTTNTFQLSFCS-KVINHFFCDISPLFSLSCTDTYTHDIILVVFAS
LVEAVSLLAVLLSYMYIIVAILKTGSAEGRKKGFSTCASHLTVVTIYHGTLIFIYL-RPSTGH-SMDIDK
MTSVFYTLIIPMLNPLIYSLRNKDVKFAFRKIMSKKSFS*-------

>SMOR173-1
FLQIMSVENST--VKTEFYLLGFSDHPELQSLLFAVFFSIYSITLMGNIGMIVLITVSPNLHIPMYFFLC
MLSFIDACYSSVIAPKLLVDLISDKKVISYNGCATQLYFFCSLVDTESFLLAAMAYDRYIAICNPLLYTV
IMSKRVCIQLAFGAFLGGTMSSIIHTTNTFQLSFCS-KVINHFFCDVSPLFSLSCFDTYTHDIILVVFAS
LVEALSLLTVLLSYMYIIVAICKIGSAEGRKKGFSTCASHLAVITIYHGTLIFIYL-RPSTGH-SMNIDK
MTSVFYTLIIPMLNPLIYSLRNKDVKFAFRKIISKKLFT--------

>MmOR2.2.157
FLQIMSVENST--VKTEFYLLGFSDHPELQSLLFAVFFSIYSITLMGNIGMILLITVSPNLHIPMYFFLC
MLSFIDACYSSVIAPKLLVDLISDKKVISYNGCATQLYFFCSLVDTESFLLAAMAYDRYIAICNPLLYTV
IMSKRVCIQLAFGAFLGGTMSSIIHTTNTFQLSFCS-KVINHFFCDVSPLFSLSCFDTYTHDIILVVFAS
LVEALSLLTVLLSYMYIIVAICKIGSAEGRKKGFSTCASHLAVITIYHGTLIFIYL-RPSTGH-SMNIDK
MTSVFYTLIIPMLNPLIYSLRNKDVKFAFRKIISKKLFT*-------

>MmOR2.2.155
----MSVENST--VKTEFYLLGFSDHPELQSLLFAVFFSIYSITLMGNIGMIVLITVSPNLHIPMYFFLW
MLSFIDACSSSVIAPKLLVDLISDKKVISYNGCATQFYFCCSLVDTESFLLAAMAYDRYIAICNPLLYTV
IMSKRVCTQLAFEAFLGGTMSSIIHTTNTFQLSFCS-KEINHFFCDMTPLFSLSCFDTYTHDIILVFFTS
LVEAVCLLAVLLSYMYIIVAILKTGSAEGRKKGFSTCASHLAVITIYHGTLIFIYL-CPSTGH-SMDIDK
MTSVFYTLIIPMLNPLIYSLRNKNVKFAFRKIISKKLFFLVI*----

>HsOR11.11.35
--MEFTDRNYT--LVTEFILLGFPTRPELQIVLFLMFLTLYAIILIGNIGLMLLIRIDPHLQTPMYFFLS
NLSFVDLCYFSDIVPKMLVNFLSENKSISYYGCALQFYFFCTFADTESFILAAMAYDRYVAICNPLLYTV
VMSRGICMRLIVLSYLGGNMSSLVHTSFAFILKYCDKNVINHFFCDLPPLLKLSCTDTTINEWLLSTYGS
SVEIICFIIIIISYFFILLSVLKIRSFSGRKKTFSTCASHLTSVTIYQGTLLFIYS-RPSYLY-SPNTDK
IISVFYTIFIPVLNPLIYSLRNKDVKDAAEKVL-RSKVDSS*-----
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>SOR5I1
--MEFTDRNYT--LVTEFILLGFPTRPELQIVLFLMFLTLYAIILIGNIGLMLLIRIDPHLQTPMYFFLS
NLSFVDLCYFSDIVPKMLVNFLSENKSISYYGCALQFYFFCTFADTESFILAAMAYDRYVAICNPLLYTV
VMSRGICMRLIVLSYLGGNMSSLVHTSFAFILKYCDKNVINHFFCDLPPLLKLSCTDTTINEWLLSTYGS
SVEIICFIIIIISYFFILLSVLKIRSFSGRKKTFSTCASHLTSVTIYQGTLLFIYS-RPSYLY-SPNTDK
IISVFYTIFIPVLNPLIYSLRNKDVKDAAEKVL-RSKVDSS------

>SMOR181-1
MIMEFTSGNYT--LVTEFILLGFPTRPELQIILFLVFLTLYGMILIGNIGLMLLIRTDPHLQTPMYFFLS
NLSFVDLCYSSVIVPNMLVNFLSAKKSISYLGCALQFYFFCTFADTESFILAAMAYDRYVAICNPLLYTV
AMSRSLCIWLIVLSYVGGNMSSLVHTSFAFILKYCDKNIINHFFCDLPPLLKLSCTDTSINEWLLSTYGS
SVEIICFFIIIISYFFILLSVLKIRSTSGRKKTFSTCASHLTSVAIYQGTLLFIYS-RPSSLY-SPNTDK
IISVFYTIIIPVLNPLIYSLRNKDVKDAAKKALRSKIQSP-------

>SMOR176-1
----MTFENFT--MLTEFVFLGLSGRQDVQQGLFALFFLVYGITVIANLGMVILIKLDSRLHTPMYYFLS
NLSFCDICYSSTVSPKMLADFLSKEKRIPYNLCAVQMYFFGAFADVECLMLAVMAYDRYVAICNPLLYTI
VMSKKLCIQLVAVAYAIGLVDSAIHTSCTFRLSFCNSNVINHFFCDIPPLLALSCSDTSINEIVMFTFIG
CVVGISIVTVLLSYCYIIATICRMNSAEGRHKAFSTCASHLMAVAIFHGTLLFMYF-RPSSSY-SMDTDK
MASVFYTVVIPMLNPLIYSLRNKDVKGALKKAININLWPG-------

>MmOR2.2.131
----MTFENFT--MLTEFVFLGLSGRQDVQQGLFALFFLVYGITVIANLGMVILIKLDSRLHTPMYYFLS
NLSFCDICYSSTVSPKMLADFLSKEKRIPYNLCAVQMYFFGAFADVECLMLAVMAYDRYVAICNPLLYTI
AMSKKLCIQLVAVAYAIGLVDSAIHTSCTFRLSFCNSNVINHFFCDIPPLLALSCSDTSINEIVMFTFIG
CVVGISIVTVLLSYCYIIATICRMNSAEGRHKAFSTCASHLMAVAIFHGTLLFMYF-RPSSSY-SMDTDK
MASVFYTVVIPMLNPLIYSLRNKDVKGALKKAININLWPG*------

>MmOR2.2.130
----MQFENFT-TVFTEFVLLGLSGRQDVQQGLFALFFLVYGITVIANLGMILLIKLDSRLHTPMYYFLS
NLSFCDICYSTIISPKMLADFLSTEKRIPYNLCAIQLYFFGAFADVECLMLAVMAYDHYVAICNPLLYTI
KMSKKLCIQLVAVAYAIGLVDSTIHTSCAFRLSFCNSNVINHFFCDLPPLLALSCSDTSINEIVMFTLIG
CVVGCSIVTVLLSYCYIIATICRMNSAEGRHKAFSTCASHLMAVAIFYGTLLFMYF-RPSSSY-SMDTDK
MASVFYTVVIPMLNPLIYSLRNKDVKGALKKAININLWPG*------

>MmOR2.2.125
----MTFEIIT--VFTDFVLLGLSGRQDVQQGLFALFFLVYGITVIANLGMILLIKLDSRLHTPMYYFMS
NLSFCDICYSTIISPKMLADFLLKEKRIPCNLCALQMYFLGVFGDTECLILAVMAYDCYVAICNPLLYTT
TMSTKLYIQLVAVAYAVGLVDSAVHTSCTFQLSFCNSNVINHFSCDLPPLLALSCSDTSINEILLFIFST
LVIGCSIFHILLSYCYIIATICRMNSAEGRRKAFSTCTSHLMAVAIFHGT-LFMYF-QPSSLY-SMDTDK
MASVFYTVVIPMLNPLIYSLRNKDVKGALKKVININLWPG*------

>SOR5AP2
LMKEVRGRNQT--EVTEFLLLGLSDNPDLQGVLFALFLLIYMANMVGNLGMIVLIKIDLCLHTPMYFFLS
SLSFVDASYSSSVTPKMLVNLMAENKAISFHGCAAQFYFFGSFLGTECFLLAMMAYDRYAAIWNPLLYPV
LVSGRICFLLIATSFLAGCGNAAIHTGMTFRLSFCGSNRINHFYCDTPPLLKLSCSDTHFNGIVIMAFSS
FIVISCVMIVLISYLCIFIAVLKMPSLEGRHKAFSTCASYLMAVTIFFGTILFMYL-RPTSSY-SMEQDK
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

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VVSVFYTVIIPVLNPLIYSLKNKDVKKALKKILWKHIL---------

>HsOR11.11.84
-MKEVRGRNQT--EVTEFLLLGLSDNPDLQGVLFALFLLIYMANMVGNLGMIVLIKIDLCLHTPMYFFLS
SLSFVDASYSSSVTPKMLVNLMAENKAISFHGCAAQFYFFGSFLGTECFLLAMMAYDRYAAIWNPLLYPV
LVSGRICFLLIATSFLAGCGNAAIHTGMTFRLSFCGSNRINHFYCDTPPLLKLSCSDTHFNGIVIMAFSS
FIVISCVMIVLISYLCIFIAVLKMPSLEGRHKAFSTCASYLMAVTIFFGTILFMYL-RPTSSY-SMEQDK
VVSVFYTVIIPVLNPLIYSLKNKDVKKALKKILWKHIL*--------

>SMOR201-1
TMKGIQDKNAT--EVTEFILLGLSENPDLQGVLFALFLIIYTMTLVGNLGMMALIKIDRSLHTPMYFFLS
SLSFVDASSSSTVTPKMLLNLVAEDKSISFNGCATQFFFFGSFLGTECFLLAMMAYDRYAAIWNPLLYPV
LMSGSICFMLVSTSFLAGFGNAAIHTGMTFRLSFCGSNKINHFYCDTPPLLKLSCSDIHINGIVIMAFSS
FTVLICVLIVLISYLCILIAILKMPSAEGRHKAFSTCASHLMAVTIFFGSILFMYL-RPTTSY-SMEQDK
IVSVFYTVVIPMLNPLIYSLKNRDVKEAVKKILQKHIL---------

>MmOR2.2.30
SGKGIQNKNAT--EVTEFILLGLSDNPDLQGVLFALFLIIYTMTLVGNLGMMALIKIDRSLHTPMYFFLS
SLSFVDASYSSSVTPKMLVNLMAEDKSISFNGCATQFFFFGSFLGTECFLLAMMAYDRYAAIWNPLLYPV
LMSGRICFMLVSTSFLAGFGNAAIHTGMTFRLSFCGSNKINHFYCDTPPLLKLSCSDTHINGIVIMAFSS
FNVISCVLIVLISYLCILIAILKMPSAEGRHKAFSTCASHLMAVTIFFGTILFMYL-RPTSSY-SMEQDK
VVSVFYTVVIPMLNPLIYSLKNKDVKKAVKKILHNYVV*--------

>SOR5T2
FVLDFNMKNVT--EVTLFVLKGFTDNLELQTIFFFLFLAIYLFTLMGNLGLILVVIRDSQLHKPMYYFLS
MLSSVDACYSSVITPNMLVDFTTKNKVISFLGCVAQVFLACSFGTTECFLLAAMAYDRYVAIYNPLLYSV
SMSPRVYMPLINASYVAGILHATIHTVATFSLSFCGANEIRRVFCDIPPLLAISYSDTHTNQLLLFYFVG
SIELVTILIVLISYGLILLAILKMYSAEGRRKVFSTCGAHLTGVSIYYGTILFMYV-RPSSSY-ASDHDM
IVSIFYTIVIPLLNPVIYSLR------------------------

>HsOR11.11.54
FVLDFNMKNVT--EVTLFVLKGFTDNLELQTIFFFLFLAIYLFTLMGNLGLILVVIRDSQLHKPMYYFLS
MLSSVDACYSSVITPNMLVDFTTKNKVISFLGCVAQVFLACSFGTTECFLLAAMAYDRYVAIYNPLLYSV
SMSPRVYMPLINASYVAGILHATIHTVATFSLSFCGANEIRRVFCDIPPLLAISYSDTHTNQLLLFYFVG
SIELVTILIVLISYGLILLAILKMYSAEGRRKVFSTCGAHLTGVSIYYGTILFMYV-RPSSSY-ASDHDM
IVSIFYTIVIPLLNPVIYSLRNKDVKDSMKKMFGKNQVINKVYFHTK

>MmOR2.2.100
------MENVT--V-SLFILRGLTDNAELQISLFFLFLMIYLFTLMGNIGLISVVIGDSQLHNPMYYFLG
VLSFIDTCFSTIITPKMLIDFMSKRKVISFLGCVAQMFLAVSCGTTECFLLAAMAYDRYVAIYNPLLYAV
NMSPRVYMSLIIASNVGGILHASIHTAATASLSFCDSNEIKHFFCDIPPLLAISCSDTKMNELLLFIFVS
SIEVVTILIIIVSYSFILFAILKMHSAEGRQKVFSTCGSHLTGVSIYYGTIFFMYM-RPSSSY-TLEHDM
IVSTFYAVVIPMLNPIIYSLRNKDVKKAMKRLLAKVFMSIR*-----

>MmOR2.2.88
----ME--NIT--EVTEFILMGFTDNADLEILSFFLFLAIYLFTLMGNLGLITLVIGDSRLHNPMYYFLS
VLSSVDACYSTVITPQMVVDFVSEKKVISFIGCATQMFLAVTFGTTECFLLAAMAYDRYVAIHNPLMYVV
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
SMSPRVYVPLIIASYAGGILHAVIHTVATFRLSFCGSNKISHIFCDIPPLLAISCSDTHFNQLLLFYCAG
FIEVVTILIVLLSYGFILSVILKTRSTEGKRKVFSTCGSHLMAVSTFHGTVLFMYV-RPSDSY-ALEHDM
MVSIFYSIVIPMLNPLIYSLRNKDVKEAIKKVFGKRILCG*------

>SMOR179-1
------MKNIT--EATFFVLKGLTDNNELQIILFFLFLAIYLFTLIGNVGLIILVVGDPQLHNPMYCFLS
ALSFVDACYSSDITPNMLVGFMSKSKIISFYGCATQMFLAVTFGTTECFLLAAMAYDRYVAIHDPLLYAV
SMSPRVYLPLIIASYAGGIVHAIIHTVATFSLSFCQSNEVKHIFCDIPPLLAISCSETYVNELLLFFFVS
FIELVTILIILFSYAFILLSILKMNSAEGRRKVFSTCGSHLTAVSICYGTSLFMYV-RPSSNY-SLEHDM
IVSTFYTIGIPMLNPIIYSLRNKDVKEAIKRVL-RKNFI--------

>MmOR2.2.93
------MRNIT--EATFFVLKGLTDNNELQIILFLLFLAIYIFTLIGNVGLIILVVGDSQLHNPMYCFLS
VLSSVDACYSTDITPNMLVGFMSKSKIISFYGCATQMFLAVTFGTTECFLLAAMAYDRYVAIHDPLLYAV
SMSPRVYIPLIIASYAGGIVHAIIHTVATFSLSFCRSNEVKHIFCDIPPLLAISCSETYVNELLLFFFVS
FIELVTILIVLVSYAFILLSILKMNSSEGRRKVFSTCGAHLTAVSIYYGTILFMYV-RPSSNY-SLEHDM
IVSTFYTIGIPMLNPIIYSLRNKDVKEAMKRVLRKKLILNIELKN*-

>HsOR11.11.55
-MDKLSSGNKT--EVTMFILTGFTDDFELQVFLFLLFFAIYLFTLIGNLGLVVLVIEDSWLHNPMYYFLS
VLSFLDACYSTVVTPKMLVNFLAKNKSISFIGCATQMLLFVTFGTTECFLLAAMAYDHYVAIYNPLLYSV
SMSPRVYVPLITASYVAGILHATIHIVATFSLSFCGSNEIRHVFCDMPPLLAISCSDTHTNQLLLFYFVG
SIEIVTILIVLISCDFILLSILKMHSAKGRQKAFSTCGSHLTGVTIYHGTILVSYM-RPSSSY-ASDHDI
IVSIFYTIVIPKLNPIIYSLRNKEVKKAVKKML-KLVYK*-------

>SOR5T3
EMDKLSSGNKT--EVTMFILTGFTDDFELQVFLFLLFFAIYLFTLIGNLGLVVLVIEDSWLHNPMYYFLS
VLSFLDACYSTVVTPKMLVNFLAKNKSISFIGCATQMLLFVTFGTTECFLLAAMAYDHYVAIYNPLLYSV
SMSPRVYVPLITASYVAGILHATIHIVATFSLSFCGSNEIRHVFCDMPPLLAISCSDTHTNQLLLFYFVG
SIEIVTILIVLISCDFILLSILKMHSAKGRQKAFSTCGSHLTGVTIYHGTILVSYM-RPSSSY-ASDHDI
IVSIFYTIVIPKLNPIIYSLRNKEVKKAVKKML-KLVYKERPLEQTD

>SOR5T1
-MSGLPSDNFT--EVTMFILISFTEEFDVQVFLFLLFLAIYLFTLIGNLGLVVPIIGDFWLHSPMYYFLG
VLSFLDVCYSTVVTPKMLVNFLAKNKSISFLGCATQMFLACTFGTTECFLLAAMAYDRYVAIYNPLLYSV
SMSPRVYVPLITASYVASILHATIHTVATFSLSFCGSNEIRHVFCNMPPLLAISCSDTHVIQLLFFYFVG
SIEIVTILIVLISYGFILLAILKMQSAEGRRKVFSTCGAHLTGVTIYHGTILFMYV-RPSSSY-TSDNDM
IVSIFYTIVIPMLNPIIYSLRNKDVKEAIKRLLVRNWFINKL-----

>HsOR11.11.56
-MSGLPSDNFT--EVTMFILISFTEEFDVQVFLFLLFLAIYLFTLIGNLGLVVPIIGDFWLHSPMYYFLG
VLSFLDVCYSTVVTPKMLVNFLAKNKSISFLGCATQMFLACTFGTTECFLLAAMAYDRYVAIYNPLLYSV
SMSPRVYVPLITASYVASILHATIHTVATFSLSFCGSNEIRHVFCNMPPLLAISCSDTHVIQLLFFYFVG
SIEIVTILIVLISYGFILLAILKMQSAEGRRKVFSTCGAHLTGVTIYHGTILFMYV-RPSSSY-TSDNDM
IVSIFYTIVIPMLNPIIYSLRNKDVKEAIKRLLVRNWFINKL*----

>MmOR2.2.92
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
-MEKITSANMT--EATMFILLGFTDDFELQVFLFLLFLAIYLFTLVGNFGLVVLVIGDCRLHNPMYYFLS
VLSFLDACYSTVVTPKMLVNFLSENKSISFLACATQMLLFVSLGTTECFLLAAMAYDRYVAIYNPLLYTV
AMSPRVYLPLIIASYAGGVVHGAIHTVATFSLSFCGSNEIKHVFCDIPALLALSCSDTHTNELLVLYLVG
LIEIVTILIVLVSYGFILFAILNMHSAEGRRKVFSTCGSHLTGVSIYHGTILFTYM-RPSSSY-ASNHDM
VVSIFYTIVIPMLNPIIYSLRNKDVKVAFNKLW-RKCDS*-------

>MmOR2.2.94
TVRRIPVNNVT--DTTMFILTGFTDDADLQVLLFLLFFVIYLFTLIGNLGLVLLVIGDSRLHNPMYYFLS
VLSFLDACYSTVVTPKMLVNFISNDKSISYPGCVTEMFLFVTFGTTECFLLAAMAYDRFVAIYNPLLYAV
KMSPRVYIPLIIACYSGGIMHATIHTVATFSLSFCASNEIRHVFCDIPPLLAISCSNTNINQLLLFYCVG
SIEIITILIVLVSYSFILFAILKMNSAEGRRKIFSTCGSHLTGVSIYHGTILFMYV-RPSSNY-ALEHDM
IVSTFYTIVIPMLNPIIYSLRNKDVKEAMKKIFERNFFMNKVHFKL*

>MmOR2.2.101
NTKTTQVNNVT--EITVFILLGFTDDVDMNIFLFILFLAIYVVTLIGNLGLVVLVIEDSRLHNPMYYFLT
VLSSLDACFSSVLTPKMLVNFLSKNKSISFAGCATQMLLFVTFGTTECFLLAAMAYDRYLAIYSPLLYAV
RMSPRVYVPLIIASYTGGILHATIHTVATFSLSFCGSNEIRHVFCDIPPLLALSCSDTHLNQLLLFYCAG
SIELITILIVLVSYGFVLLAILKINSAEGRRKIFSTCGAHLTGVSIFHGTILFMYV-RPSSNY-TLEQDM
VVSTFYTIVIPMLNPIIYSLRNKDVKEAMRKLLKRKLVHE*------

>HsOR14.2.1
----MKGANLS--QGMEFELLGLTTDPQLQRLLFVVFLGMYTATLLGNLVMFLLIHVSATLHTPMYSLLK
SLSFLDFCYSSTVVPQTLVNFLAKRKVISYFGCMTQMFFYAGFATSECYLIAAMAYDRYAAICNPLLYST
IMSPEVCASLIVGSYSAGFLNSLIHTGCIFSLKFCGAHVVTHFFCDGPPILSLSCVDTSLCEILLFIFAG
FNLLSCTLTILISYFLILNTILKMSSAQGRFKAFSTCASHLTAICLFFGTTLFMYL-RPRSSY-SLTQDR
TVAVIYTVVIPVLNPLMYSLRNKDVKKALIKVWGRKTME*-------

>SMOR205-1
----MERTNVS--HEMEFELLGLTSDPQLQKLLFVVFLVMYAITVLGNLVMFFLIHVSTTLHTPMYSLLK
SLSLLDFCYSSTVVPQTLINFLVERKVISYFGCMAQMFFFAGFATSECYLIAAMAYDRYVAVCSPLLYPT
IVSPNVCASLIGGSYGAGFLNSLIHTSCIFSLNFCGAHVVTHFFCDGPPILSLSCVDTSLCEILLFIFAG
FNLLSCTLTILISYLLIFIAILQIRSNQGRFKAFSTCSSHLTAVCFFFGTTLFMYL-RPKSSY-SLTQDR
TVAVIYTAVIPMLNPLIYSLRNKDVKEALRKVWGWKSMG--------

>MmOR14.3.1
----MERTNLS--HEMEFELLGLTSDPQLQKLLFVVFLVMYAITVLGNLVMFFLIHVSTTLHTPMYSLLK
SLSLLDFCYSSTVVPQTLLNFLVERKVISYFGCMAQMFFFAGFATSECYLIAAMAYDRYVAVCSPLLYPT
IVSPNVCASLIGGSYGAGFLNSLIHTSCIFSLNFCGAHVVTHFFCDGPPILSLSCVDTSLCEILLFIFAG
FNLLSCTLTILISYLLIFIAILQMRSNQGRFKAFSTCSSHLTAVCFFFGTTLFMYL-RPKSSY-SLTQDR
TVAVIYTAVIPMLNPLIYSLRNKDVKEALRRVWGWKAMG*-------

>MmOR19.1.29
---MTSMENIT--EVTEFILLGLTDDPNLQVPLLLIFLFIYLVTLIGNGGMMVIIFSDSHLHTPMYFFLS
NLSFVDLGYSSAVAPKMVAALQSGNKVISYNGCAAQFFFFVGFATVECYLLASMAYDRHAAVCRPLHYTT
TMTTGVCTILTIGSYTCGFLNASIHAADTFKLSFCGSNKINHFFCDIPPLLALACSSTHISKLVVFFVVG
FNVFFTLLVIIISYFFIYIAIQNMKSSEGRKKAFSTCASHLTAVSIFYGTIIFMYL-QPSSGQ-SMDTDK
IASVFYTVVIPMLNPLIYSLRNREVKSALWKILNRFYPASFSVSRK*
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>HsOR11.12.23
----ME--NST--EVTEFILLGLTDDPNLQIPLLLAFLFIYLITLLGNGGMMVIIHSDSHLHTPMYFFLS
NLSLVDLGYSSAVAPKTVAALRSGDKAISYDGCAAQFFFFVGFATVECYLLASMAYDRHAAVCRPLHYTT
TMTAGVCALLATGSYVSGFLNASIHAAGTFRLSFCGSNEINHFFCDIPPLLALSCSDTRISKLV-VFVAG
FNVFFTLLVILISYFFICITIQRMHSAEGQKKVFSTCASHLTALSIFYGTIIFMYL-QPNSSQ-SVDTDK
IASVFYTVVIPMLNPLIYSLRNKEVKSALWKILNKLYPQY*------

>MmOR19.1.33
----ME--NST--EVTEFILAGLTDDPKLQIPLFIVFLLIYLSTVLGNLGMVGLILLDSHLHTPMYLFLS
HLSLVDFGYSSAVTPKVMSGLLSIDKTISHNTCGTQFFFFVGFITTESFLLAAMAYDRYAAVCKPLHYTT
TMTTNTCACLTIGSYVCGFLNSSIHTGNIFRLSFCKFNVIDHFFCDAPPLLALSCSDTYISETVIFFVVG
FNALFSIVVITISYLLIFITILRMRSSEGRHKAFSTCASHLTAVSIFYGTVIFMYL-QPSSSH-TMGTDK
MASVFYTMVIPMLNPLVYSLRNKEVKGAFKKAVGNAKSALTFLF*--

>MmOR19.1.30
------MENST--EVTEFILTGLTDNPELQIPLFIVFLLIYLSTVLGNLGMVGLILLDSHLHTPMYLFLS
HLSLVDFGYSSAVTPKVMPGLLSIDKTITHNACGTQFFFFVSFITTESFLLAAMAYDRYAAVCKPLQYTT
TMTTNTCACLTIGSYVCGVLNSSIHTGNIFRLSFCKFNVIDHFFCDAPPLLALSCSDTSVSEMVILFVVG
FNDIFSIVVIPISYLFIFITILRMRSSEGRQKAFSTCASHLTVVFIFYGSGIFMYL-QPSSSH-TMGTDK
MASVFYTMIIPMLNPLVYSLRNKEVKSAFKKAVEKAKISLAFTF*--

>HsOR11.12.22
----ME--NNT--EVTEFILVGLTDDPELQIPLFIVFLFIYLITLVGNLGMIELILLDSCLHTPMYFFLS
NLSLVDFGYSSAVTPKVMVGFLTGDKFILYNACATQFFFFVAFITAESFLLASMAYDRYAALCKPLHYTT
TMTTNVCACLAIGSYICGFLNASIHTGNTFRLSFCRSNVVEHFFCDAPPLLTLSCSDNYISEMVIFFVVG
FNDLFSILVILISYLFIFITIMKMRSPEGRQKAFSTCASHLTAVSIFYGTGIFMYL-RPNSSH-FMGTDK
MASVFYAIVIPMLNPLVYSLRNKEVKSAFKKTVGKAKASIGFIF*--

>SOR5B13
------MENKT--EVTQFILLGLTNDSELQVPLFITFPFIYIITLVGNLGIIVLIFWDSCLHNPMYFFLS
NLSLVDFCYSSAVTPIVMAGFLIEDKVISYNACAAQMYIFVAFATVENYLLASMAYDRYAAVCKPLHYTT
TMTTTVCARLAIGSYLCGFLNASIHTGDTFSLSFCKSNEVHHFFCDIPAVMVLSCSDRHISELVLIYVVS
FNIFIALLVILISYTFIFITILKMHSASVYQKPLSTCASHFIAVGIFYGTIIFMYL-QPSSSH-SMDTDK
MAPVFYTMVIPMLNPLVYSLRNKEVKSAFKKVVEKAKLSVGWSV---

>HsOR11.12.20
----ME--NKT--EVTQFILLGLTNDSELQVPLFITFPFIYIITLVGNLGIIVLIFWDSCLHNPMYFFLS
NLSLVDFCYSSAVTPIVMAGFLIEDKVISYNACAAQMYIFVAFATVENYLLASMAYDRYAAVCKPLHYTT
TMTTTVCARLAIGSYLCGFLNASIHTGDTFSLSFCKSNEVHHFFCDIPAVMVLSCSDRHISELVLIYVVS
FNIFIALLVILISYTFIFITILKMHSASVYQKPLSTCASHFIAVGIFYGTIIFMYL-QPSSSH-SMDTDK
MAPVFYTMVIPMLNPLVYSLRNKEVKSAFKKVVEKAKLSVGWSV*--

>MmOR19.1.56
---MSLMENNT--DVTQFLLLGLTDDPGLQFPLFITFLLIYTITLVGNLGMILLIVLDSRLHTPMYFFLG
NLSLVDFCYSSAVTPTVMTGLIGE-KIISYNDCAAQMFFFVAFATVENYLLASMAYDRYAAVCKPLHYAT
TMTANVCICLCIGSYTCGFLNASIHIGDTFSLSFCRSNVVHHFFCDIPAVMVLSCSDRHVSELVLVYVVS
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
FNIFFALSVIWISYIFIFITICKMHSSSGYRKAISTCASHFIAVSIFYGTIIFMYL-QPSSSH-SMDTDK
IASVFYTMIIPMLNPLVYSMRNKEVKSAFTKVLQVAK*---------

>MmOR19.1.43
---MSLMENNT--KVTEFLLLGLTNDPELQLPLFLIFLLIYTITLVGNLGLILLIVLDSCLHTPMYIFLG
NLSLVDFCYSSAVTPSVMTELLIGKKVISYNDCAAQTFFFVAFCTVENYLLASMAYDRYAAVCKPLHYAS
TMTTRVCIYLSIGSYVCGFLNASINTGNTFSLFFCRYNMIHHFFCDIPAVMVLSCSDRYFSELLLVYVVS
FSIFFALLVICISYIFIFITIAKMHSSAGYGKAAPTCASHFTAVSIFYGTVIFMYL-LPSSSH-SMDTDQ
IASVFYTMIIPMLNPLVYSLRNKEVKSAFTKIFQVAKQSVMLYF*--

>MmOR19.1.52
------MENNT--EVTHFLLLGLTDDPELQLPLFMILLIIYTITLVGNLGKILLIFLDSCLHTPMYFFLG
NLSLVDFCYSSDVTPKVMSGLLKGDKVISYNGCAAQMFFFVAFATVENFLLASMAYDRYAAVCKPLHYAT
TMTSGVCVCLSIGSYACGFLIASIHIGDTFNLSFCRSNVVHHFFCDIPAVMILSCSDRHVSELVLFYVGS
FSIFFSVLVICISYIFIFITIFKMHSDAGYGKAVSTCAAHFTAVSIFYGTGIFMYL-QPSSSH-SMDTDK
ITSVFYTMIIPMLNPLVYSMRNKEVKRAFTNVFHKAK*---------

>MmOR19.1.53
---MTSLNNLT--EVTHFLLLGLTDDPGLQLPLFIIFLLIYIITLVGNLGMILLILLDSRLHIPMYFFLA
NLSLVDVIYSSAVTPKVMAGLIIGDNLISYNECAAQMFFFAAFATVENYLLTSMACDRYAAVCKPLYYAT
TMTPSVCMCFIMGCYALGFLNASVYLGNTFSLSFCKSNVVHHFFCDMPAIMALSCSDRHVNELVLIYQAS
FIIFFALIIILISYIIIFITILKMHSEAGVQKALSTCASHFTAVFIFYGTTIFMYL-QPSSRH-AMDTDK
IVSVFYTMVIPMLNPLVYSLRNKEVKSAFMKVVLKEK*---------

>MmOR19.1.50
---MTPLKNWT--EVTHFLLLGLTDDPGLQLPLFIIFLLIYIFTLVGNLGLILLILLDSRLHTPMYFFLG
NLSLVDVFYSSAITPKVMAGLLLGDKIISYNSCAAQMFVFATFATVENYLLASMAYDRYAAVCKPLHYAT
TMTPSVCMCLIMGCYVLGFLSVSVYLGDTFSLSFCKSNVVHHFFCDMPALMALSCSDRHINELVLIYLAS
FTLFFALIIILVSYTIIFITILNMHTGAGLQKAISTCASHFIAVFIFYGTTIFMYL-QPSSRH-SMDTDK
IVSVFYTMVIPMLNPLVYSLRNKEVKSAFMKWILKEK*---------

>MmOR19.1.48
---MTLVKNWT--YVTEFILLGLTDDPGLQLPLFVIFLLIYIITLVGNLGMILLIFLDSQLHIPMYFFLG
NLSLVDVCYSSAVTPKVIAGLLIGDKFISYNDCAAQMFFFAAFATVENYLLASMAYDRYVAVCKPLHYTT
TMTSNVCICLIMGCYGFSFLNVSVYLGDTFSLSFCNSNVVHHFFCDMPAIMALSCSDKHVNELVLIYLAS
FNIFVAFIMIIVSYLIIFITILNMRSRAGVQKALSTCVSHLTAVFIFYGTIIFMYL-QPSSRH-AMDTDK
IVSVFYTMVIPMLNPLVYSLRNKEVKSAFMKIVLKEKSL*-------

>MmOR19.1.31
---MTIMKNRT--EVTEFILLGLTNDPGMQLPLFITFLLIYTITVVGNLGMILLIVLDSRLHTPMYIFLG
NLSLVDFCYSSAVTPTVMTELLIGKKVISYNDCAAQMFFFGAFATVENYLLASMAYDRYAAVCKPLHYAT
IMTKSVYTRIITASYGISFMSASIHIADIFTLSFCKSNVIHHFFCDVPAIMALTCFDNQVRELVLLYIES
LDVFFALIVICTSYMLIFVTILKMHSASGHHKAISTCASHFTAVSIFYGTVIFMYL-QPSSNH-SMDIDK
VTSVFYTMVIPMLNPLVYSMRNKEVKNAFIKLILH*-----------

>MmOR19.1.32
---MTIMKNRT--EVTEFILLGLTNDPGLQLPLFITFLLIYTITVVGNLGMILLIVLDSRLHTPMYIFLG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
NLSLVDFCYSTAVTPTVMNGLLIGNKVISYNDCAAQMFFFGAFATVENYLLASMAYDRYAAVCKPLHYAT
IMTKSMYTWLITGSYVISFTNSSIHIADIFTLSFCKSNVIHHFFCDVPAIMALTCFDNQVREHVLLYIES
LNVFFALIVICTSYMLIFVTILKMHSASGHHKAISTCASHFTAVSIFYGTVIFMYL-QPSSNH-SMDTDK
VTSVFYTMVIPMLNPLVYSLRNKEVKNAFIKLILHY*----------

>MmOR19.1.38
----ME--NRT--EVRCFILVGLTNDPSLQLPLSITFLLIYIITLIGNLGLILMILLDSRLHTPMYIFLG
NLSLVDFCYSSTVTPKVIAGFLTGDKIMSYNACASQMFFFANFGDVENYLLASMAYDRYVAVCKPLHYAT
TMTTHMCASLVIGCYICGFLSASIYTMDALSLSFCESNVIHHFFCDVLAVMIVSCSDSHVNELILIYVVS
FNMFFALIIILISYMFIFTNILKIHSSAGYHKAVSTCASHFTAVSIFYGTIIFMYL-QPSSSH-TMDTDK
IASVFYTMVICMLNPLVYSLRSKDVKSAFTKIVLRSK*---------

>MmOR19.1.39
----ME--NRT--EVRCFILVGLTNDPSLQLPLSITFLLIYIITLIGNLGLILMILLDSRLHTPMYIFLG
NLSLVDFCYSSTVTPKVIAGFLTGDKIMSYNACASQMFFFANFGDVENYLLASMAYDRYVAVCKPLHYAT
TMTTHMCASLVIGCYICGFLSASIYTMDALSLSFCESNVIHHFFCDVLAVMIVSCSDSHVNELILIYVVS
FNMFFALIIILISYMFIFTNILKIHSSAGYHKAVSTCASHFTAVSIFYGTIIFMYL-QPSSSH-TMDTDK
IASVFYTMVICMLNPLVYSLRSKDVKSAFTKIVLRSK*---------

>MmOR19.1.40
------MENRT--EVRCFILVGLTNDPGLQLPLFITFLLIYIITLIGNLGLILLILLDSRLHTPMYIFLG
NLSLVDFCYSSTVTPKVIAGFLMGDKIMSYNACASQMFFFANFADVENYLLVSMAYDRYVAVCKPLHYAT
TMTTHMCVCLLIGCYICGFLNASIYTVDALSLSFCESNVVHHFFCDVLAVMIISCSDRHVNELIFVYVAS
FNIFFALILIIISYTFIFTNILKLQSAAGYRKAFFTCASHFTAVSIFYGTIIFMYL-QPSSSH-SMDTDK
IASVFYTMVIPMLNPLVYSLRNKDVKSAFTKIILRSG*---------

>MmOR19.1.45
----ME--NRT--EVTWFILVGLTNDSQLQLPLFITFLLIYTVTFVGNLGLILLILLDSRLHTPMYIFLS
NLSLVDFCYSSTITPKVIAGILTGDKIMSYNACASQMFFFANFANVENYLLVSMAYDRYAAVCKPLHYAT
TMTKRVCASLVIGCYICGLLNASIYTMDALSLSFCESNVVHHFFCDVLAIMTTSCSDRHVNELILVYLAS
FNVFFALILILISYMFIFTNILKMHSASGYCKAISTCASHLTAVFIFYGTIIFMYL-QPSSHH-SMDTDK
IASVFYTMIIPMLNPLVYSLRNKDVKSAFTKIVLRSG*---------

>MmOR19.1.49
----ME--NTT--EVTWFVLLGLTNDPQLQLPLFITFLLIYIITLVGNLGIILLILLDSRLHTPMYIFLS
NLSLVDFCYSSTITPKVMAGFLTGDRIISYNACASQMFFFAHFADVESYLLVSMAYDHYVAVCKPLHYAT
TMTTHLCVFLVIGCYICGFLNASIYTVDVFSLSFCESNVIHHFFCDVLAVMIISRSDKYINELVLISVAS
FNIIFSLILILISYMFIFTNILKINSSEGYRKALSTCTSHFTAVFIYYGTVIFMYL-QPTSSH-SMDTDK
IVSVFYSIVIPMLNPLVYSMRNKEVKNAFTKVVLRSR*---------

>MmOR19.1.28
----ME--NRT--EVTEFILLGVTNAPALQTPLFILFTLIYFINMTGNLGMLVLILWDSRLHTPMYIFLG
NLSLVDIFYSSAVTPTVVAGLLVGNQAISYNACAAQMFLFVVFATAENFLLAAMAYDRYAAVCKPLHYTT
TMTPTTCACLTMACYAGGFLNSSIHTGDTFRLYFCKSNVVHHFFCDVPAVMVLSCSDRHISEMVLLYGAS
FVICSALLVILISYIFIFITIFKMRSAAGYQKAMSTCVSHFTAVSIFYGTLIFMYL-QPSSSH-SMDTDK
IVSVFYTMVIPMLNPVVYSLRNKEVKSAFKKVVEKAKYTLGF*----
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR19.1.27
------MENRT--EMTGFILLGLTNAPELRAPLFIIISFIYFTNVIGNLGMIVLILWDSRLHTPMYCFLA
NLSLVDIFYSSAVAPTILAGLLVGNIVVSYNACVAQMISFSAFVTTEDLLLAAMAYDRYAAVCKPLHYTT
IMTPTVCICLIMACYTGGFLNSSIHTGDTFRLSFCGSNAVHHFFCDVPAVMTLSCSDRHVSEIVLIYGAG
FIICSALLVILISYTFIFITIFRMRSAAGYQKAMSTCVSHFTAVSIFYGTVIFMYL-QPTSSH-SMDTDK
TVSVFYTMVIPMLNPMVYSLRNKEVKSAFKKVVEKAKYSLGF*----

>SOR5B2
------MENCT--EVTKFILLGLTSVPELQIPLFILFTFIYLLTLCGNLGMMLLILMDSCLHTPMYFFLS
NLSLVDFGYSSAVTPKVMAGFLRGDKVISYNACAVQMFFFVALATVENYLLASMAYDRYAAVCKPLHYTT
TMTASVGACLALGSYVCGFLNASFHIGGIFSLSFCKSNLVHHFFCDVPAVMALSCSDKHTSEVILVFTSS
FNIFFVLLVIFISYLFIFITILKMHSAKGHQKALSTCASHFTAVSVFYGTVIFIYL-QPSSSH-SMDTDK
MASVFYAMIIPMLNPVVYSLRNREVQNAFKKVLRRQKFL--------

>HsOR11.12.21
----ME--NCT--EVTKFILLGLTSVPELQIPLFILFTFIYLLTLCGNLGMMLLILMDSCLHTPMYFFLS
NLSLVDFGYSSAVTPKVMAGFLRGDKVISYNACAVQMFFFVALATVENYLLASMAYDRYAAVCKPLHYTT
TMTASVGACLALGSYVCGFLNASFHIGGIFSLSFCKSNLVHHFFCDVPAVMALSCSDKHTSEVILVFMSS
FNIFFVLLVIFISYLFIFITILKMHSAKGHQKALSTCASHFTAVSVFYGTVIFIYL-QPSSSH-SMDTDK
MASVFYAMIIPMLNPVVYSLRNREVQNAFKKVLRRQKFL*-------

>SMOR202-1
------MENCT--KVREFILLGLTDDPGLQVSLCIMFTLIYLIDVVGNTGLIMLVLMDSHLHTPMYFFLC
NLSFVDLGYSSAVTPMVISEFFIVSKVVSYNACAAQMFFFVGFATGENYLLASMAYDRYVAVCKPLHYST
RMTTSVCICLNIVSYICGFLNAIFHVGDIFSLSFCKSNVVHHFFCDVPAVLALSCSDIHLSEVILVFLST
FNVFFALLIISVSYLFIFITVLKMKSDQGHQKALSTCASHLTVVSIFYSTVIFMYL-QPSSSH-SMDADK
VASMFYTMIIPTLNPLVYSLRNKEVNNAFKKVVERAKIFM-------

>MmOR19.1.36
----ME--NCT--KVREFILLGLTDDPGLQVSLCIMFTLIYLIDVVGNTGLIMLVLMDSHLHTPMYFFLC
NLSFVDLGYSSAVTPMVISEFFIVSKVVSYNACAAQMFFFVGFATGENYLLASMAYDRYVAVCKPLHYST
RMTTSVCICLNIVSYICGFLNAIFHVGDIFSLSFCKSNVVHHFFCDVPAVLALSCSDIHLSEVILVFLST
FNVFFALLIISVSYLFIFITVLKMKSDQGHQKALSTCASHLTVVSIFYSTVIFMYL-QPSSSH-SMDADK
VASMFYTMIIPTLNPLVYSLRNKEVNNAFKKVVERAKIFM*------

>SOR5B17
------MENNT--EVSEFILLGLTNAPELQVPLFIMFTLIYLITLTGNLGMIILILLDSHLHTPMYFFLS
NLSLAGIGYSSAVTPKVLTGLLIEDKAISYSACAAQMFFCAVFATVENYLLSSMAYDRYAAVCNPLHYTT
TMTTRVCACLAIGCYVIGFLNASIQIGDTFRLSFCMSNVIHHFFCDKPAVITLTCSEKHISELILVLISS
FNVFFALLVTLISYLFILITILKRHTGKGYQKPLSTCGSHLIAIFLFYITVIIMYI-RPSSSH-SMDTDK
IASVFYTMIIPMLSPIVYTLRNKDVKNAFMKVVEKAKYSLDSVF---

>HsOR11.12.17
----ME--NNT--EVSEFILLGLTNAPELQVPLFIMFTLIYLITLTGNLGMIILILLDSHLHTPMYFFLS
NLSLAGIGYSSAVTPKVLTGLLIEDKAISYSACAAQMFFCAVFATVENYLLSSMAYDRYAAVCNPLHYTT
TMTTRVCACLAIGCYVIGFLNASIQIGDTFRLSFCMSNVIHHFFCDKPAVITLTCSEKHISELILVLISS
FNVFFALLVTLISYLFILITILKRHTGKGYQKPLSTCGSHLIAIFLFYITVIIMYI-RPSSSH-SMDTDK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IASVFYTMIIPMLSPIVYTLRNKDVKNAFMKVVEKAKYSLDSVF*--

>MmOR19.1.59
------MENIS--EVTEFILMGITDAPELQIPLFIIFTLIYLIALFGNLGMIMLILLDSRLHTPMYFFLC
NLSLVDCVYASAVTPKVMEGFLTGNKIISYNACAAQMFFFVAFIAIESLILASMAYDRHAAVCNPLHYTT
IMTSTTCILIVTCCYMCGILQSSIHVALAFCLSFCNSNVINHFFCDIPPLLEISCSDTYTNEITVLILGT
CDGILTLLVILNTYLLIFIAILRMRSVEAQRKAFSTCASHLITVSIFFGSTLFMYL-QPSSNH-SMNTDK
IASVFYTMVIPMLNPVVYSLRNKEVKNAFKKVVGKLMTSLQLVN*--

>MmOR19.1.60
------MENIS--EVTEFILVGITDAPELQIPLFIIFTLIYLIALFGNLGMIMLILLDSRLHTPMYFFLC
NLSLVDCVYASAVTPKVMEGFLTGNKIISYNACAAQMFFFVAFIAIESLILASMAYDRHAAVCNPLHYTT
IMTSTTCILIVTCCYMCGILQSSIHVALAFCLSFCNSNVINHFFCDIPPLLEISCSDTYTNEITVLILGT
CDGILTLLVILNTYLLIFIAILRMRSVEAQRKAFSTCASHLITVSIFFGSTLFMYL-QPSSNH-SMNTDK
IASVFYTMVIPMLNPVVYSLRNKEVKNAFKKVVGKLMTSLQLVN*--

>MmOR19.1.62
----ME--NIS--EVTEFILVGLTDAPELQIPLFIIFTLIYLIALFGNLGMIILILLDSRLHTPMYFFLC
NLSVVDCVYASAITPKVIEGFLTGSKTISLNGCAAQMFFFVAFGAIESLILASMAYDRHAAVCKPLHYTT
IMTSTTCILIVTWCYTCGILQSSVHVALAFSLSFCHSNVINHFFCDIPPLLDISCSDTHTNEITLLVLAT
LDLVFTLLVILNTYLLIFIAILRMRSAEAQRKAFSTCASHLITVSIFFGSLIFMYL-QPSSNH-SMDTDK
IASVFYTMVIPMLNPVVYSLRNKEVKNAFKKVVERLMSSFHLVH*--

>MmOR19.1.64
-----MMQNIS--ELSEFILVGLTDAPFLQTPLFIIFTLIYLTTLFGNLGMIMLILLDSRLHTPMYFFLS
NLSLVDCVYASAVTPKVMEGFLTGNKIISYNACAAQMFFFVAFAITENFILASMAYDRHAAVCKPLHYST
TMTTTICVLLLVGSYLSGLLHSSIHVSFTFHLSFCRSNVVNHFFCDIPPLLAVSCSSIRTNEIILFMLAG
FDVAFSLLVILTSYLLISVAIVRMRSAESRKKAISTCASHLTTVSIFYGTIIFMYL-QPSSNH-SMDTDK
MASVFYTMVIPMLNPLVYSLRNKEVKNAFKKVAGKAVLSLGLIN*--

>MmOR19.1.66
----MMQ-NIS--ELSEFILLGLTDAPFLQTPLFIIFTLIYLTTLFGNLGMILLILLDSRLHTPMYFFLS
NLSLVDCVYASAVTPKVIEGFLTENKIISYNACAAQMFFFVAFAITECFILASMAYDRHAAVCKPLHYST
TMTTTICVLLLAGSYLSGLLQSSIHVSFTFHLSFCRSNVVNHFFCDIPPLLALSCSSIHINEIILFMLAG
FNVVFSLLVILTSYLLISVAIVRMRSAESRKKAISTCASHLTTVSIFYGTIIFMYL-QPSSNH-SMDTDK
MASVFYTMVIPMLNPLVYSLRNKEVKNAVRKVAGKALFSLGLVN*--

>MmOR19.1.67
-----MIQNIS--ELSEFILVGLTDAPFLQIPLFIIFTLIYLTTLFGNLGMILLILLDSRLHTPMYFFLS
NLSLVDCVYASAVTPKVMEGFLTGNKIISYNACAAQMFFFAAFATVESFMLASMAYDRHAAVCKPLHYST
TMTTTICVLLLAGSYVSGLLQSSIHVSFTFQLSFCHSNVVNHFFCDIPPLLALSCSSIHTNEIILFMLAA
FNVAFTLLVILSSYLLIFVAILRMRSAESRKKAISTCASHLTTVSIFYGTIIFMYL-QPSSNH-SMDTDK
MASVFYTMVIPMLNPLVYSLRNKEVKNAFKKVAGKAVLSLGLVN*--

>MmOR19.1.65
----MIQ-NIS--ELSEFILVGLTDAPLLQTPLFIIFTLTYLTTLFGNLGMILLILLDSRLHTPMYFFLS
NLSLVDCVYASAVTPKVMEGFLIENKIISYNACAAQMFFFVAFVITESFILASMAYDRYAAVCKPLHYST
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
TMTTMICVLLLAGSYVSGLLQSSIHVSFTFQLSFCHSNVVNHFFCDIPPLLALSCSSIYTNEIILFMLAA
FNVAFTLLVILSSYLLIFVAILKMRSAESRKKTISTCASHLTTVSIFYGTIIFMYL-QPSSNH-SMDTDK
LASVFYTMVIPMLNPLVYSLRNKEVKNAFKKVAGKAVLSLGLVN*--

>MmOR19.1.68
----MH--NIS--EVTEFILVGLTDAPGLQVPLFIIFTFIYLTTLFGNLGMIVLILLDSSLHTPMYFFLS
NLSLVDCVYASAVTPKVIEGFLTEKKIISYNACATQMFFLIGFAIIEGFLLASMAYDRHAAVCKPLYYST
SMTTTICTLLIVGSYISGLLQSSIHVAFTFHLSFCHSNVVNHFFCDIPPLLALSCSSVYINEIVLFILAA
LNIALTILVIVNSYVLIFVAILRMRSTDGQKKAISTCASHLTTVSIFYGTIIFMYL-QPSSTH-SMDTDK
VASVFYTMIIPMLNPLVYSLRNKEVKNAFKKVTRKVLFSLGLV*---

>MmOR19.1.35
----MYVANSS--RMNAFILLGLTDNPDLEAPLFIIFNLIYLITLIGNLGMIVLIWFDSHLHTPMYIFLS
HLSLADCVYSSAVTPKVMVGLLTGDKVISYGGCVAQMFFFVTFASVDCFLLAVMAFDRHAAVCKPLHYTT
NMTTSVCACMVIACYVFSLAESSVYTGFIFDLSFCHSNVIHHFFCDIPPILNLSCSDIYTNEIVLFIITS
FNVFFSLIVILTSYAFIFIAILRMHSAEGRKKASSTCASHLTAVTIFYGTIIFMYL-QPSSSH-SMDNDQ
MASVFYTTVVPMLNPVVYSLRNKEVHSAFKKAIEKLKSAQHQVLIRD

>MmOR19.1.34
---MSYLENST--KVTTFILLGLTDIPELQVPLFVTFSLIYLITLIGNLGIIVLIWLDFRLHTPMYIFLS
HLSLADCVYSSAVTPKVMVGFLTGDKVISYGGCVAQMFFFVAFASVDCFLLAVMAFDRHAAVCKPLHYTT
TMTTSVCARMVIACYSWGLFESAIHTGFTFSLPYCA-NVVHHFFCDIPPILALSCSDIYVNEIVLFILAS
FNVFFALIVILTSYAFIFIAILRMHSAEGRKKAFSTCASHLTAVTIFYGTVIFMYL-QPSSSH-SMDNDQ
MASVFYTTIVPMLNPVVYSLRNKEVHNAFKKVVEKMNTLLNS*----

>MmOR2.2.49
----MAEGNSS--TVFQFILEGLTDDPELEVTLFAVFLVIYLTTVLGNLGLIMLIQVSPQLHTPMYFFLC
HLAFVDFCYTSSVTPNTIINFLREIKSITFYACATQVCCFITFAVCEMYLLSVMAYDRYVAIWNPLLYVV
LMPKKLCLQVITSTYIYGFTVGLAQAVATFRLSFCGSNVINHFYCDDVPLVALACSDTHVKELMLLIIAG
FNTLCSLVIVVISYICILFAILRIHSAEGRRKAFSTCASHLTSITIFYGTIIFMYL-QPKSSH-SLNTDK
FVSVFYVVVIPMLNPLIYSLRNKEVKNALKRFTEKLSLTIHDSRKSE

>MmOR2.2.50
----MDEDNNS--TVHQFILVGLTDDPELEVILFAVFLVIYLTTVLGNLGLIMLIQVSPQLHTPMYFFLC
HLAFVDFCYTSSVTPSTIINFLREIKSITFYACATQVCCFITFVVCEMYLLSVMAYDRYVAIWNPLLYVV
LMPKKLCLQVIASTYIYGFTVGLVQAVATFHFSFCGSNVINHFYCDDVPLIALACSDTHVKELMLLIIAG
FNTLCSLVIVVISYICILFAILRIRSVEGRRKAFSTCASHLTSITIFYGTVSFMYL-QPKSSH-SLNTDK
FASVSYVVVIPMLNPLIYSLRNQEVKSALKRITDKLSLTIH*-----

>MmOR2.2.51
----MANSNHS--AVSEFILVGLTDDSELQVSLFGVFLVIYLTSVVGNVGLIVLIQVSPQLHTPMYFFLT
HLAFIDFCFTSSVTPNTLVNFLREVKSITFYACATQLCCFVTFVVCELYLLSIMAYDRYVAIWNPLLYAV
RMPRELCLQVITSTYIYGFTVGLAQAVATFRLSFCGSNVINHFYCDDVPLVALACSDTHVKELMLLIIAG
FNTLCSLVIVVISYICILFAILRIHSAEGRRKAFSTCASHLTSITIFYGTVSFMYL-QPKSSH-SLNTDK
FASVFYVVVIPMLNPLIYSLRNQEVKSALKRIVEKLSSAIK*-----

>MmOR2.2.52
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MAKSNHS--VVTEFILLGLTEDPELQIILFVILLIIYLFSVMSNLGLVVLIQISPQLQSPMYFFLS
HLAFVDFCYTSCVTPNALVNFLREIKSISFYGCAAQVCFFTTFSVCEVFLLSVMAYDRYVAICNPLLYVI
LMPRRLCIQIAITTYIYAFVTALIQTVTTFILSFCDSNLVNHFFCEDIPLMALACSNTQVKELLLLSMAG
FNVCCSLLIVLISYLFIVSAILKKHSGEGRQKVFSTCASHLSSIAIYYGTIIFMYL-QPESSH-SLNTDK
FAAVFYVVVIPMLNPLIYSLRNTEVKNALKKSIDNIPINISK*----

>HsOR11.11.67
----MAEVNII--YVTVFILKGITNRPELQAPCFGVFLVIYLVTVLGNLGLITLIKIDTRLHTPMYYFLS
HLAFVDLCYSSAITPKMMVNFVVERNTIPFHACATQLGCFLTFMITECFLLASMAYDCYVAICSPLHYST
LMSRRVCIQLVAVPYIYSFLVALFHTVITFRLTYCGPNLINHFYCDDLPFLALSCSDTHMKEILIFAFAG
FDMISSSSIVLTSYIFIIAAILRIRSTQGQHKAISTCGSHMVTVTIFYGTLIFMYL-QPKSNH-SLDTDK
MASVFYTVVIPMLNPLIYSLRNKEVKDASKKALDKGCENLQILTFLK

>MmOR2.2.53
----MAQINCT--QVTEFILVGLTDREELKMPLFVVFLSIYLFTTLGNLGLILVIRTDARLHTPMYFFLS
NLAFVDFCYSSVITPKMLGNFLYKQNMISFNACAAQLGCFLAFMTAECLLLASMAYDRYVAICNPLLYMV
LMSPGICFQLVAAPYSYSFLVALFHAILTFRLCYCHSNAINHFYCDDMPLLRLTCSDTHSKQLWIFVCAG
IMFISSLLIVFISYTFIISAILRMRSAEGRRKAFSTCGSHMLAVTIFYGTLIFMYL-QPSSNH-SLDTDK
MASVFYTVIIPMLNPLIYSLRNKEVKDALKKLIASKNQMLSS*----

>SOR8U1
ARKDMAHINCT--QATEFILVGLTDHQELKMPLFVLFLSIYLFTVVGNLGLILLLIRADTSLNTPMYFFLS
NLAFVDFCYSSVITPKMLGNFLYKQNVISFDACATQLGCFLTFMISESLLLASMAYDRYVAICNPLLYMV
VMTPGICIQLVAVPYSYSFLMALFHTILTFRLSYCHSNIVNHFYCDDMPLLRLTCSDTRFKQLWIFACAG
IMFISSLLIVFVSYMFIISAILRMHSAEGRQKAFSTCGSHMLAVTIFYGTLIFMYL-QPSSSH-ALDTDK
MASVFYTVIIPMLNPLIYSLQNKEVKEALKKIIINKN----------

>HsOR11.11.63
----MAHINCT--QATEFILVGLTDHQELKMPLFVLFLSIYLFTVVGNLGLILLLIRADTSLNTPMYFFLS
NLAFVDFCYSSVITPKMLGNFLYKQNVISFDACATQLGCFLTFMISESLLLASMAYDRYVAICNPLLYMV
VMTPGICIQLVAVPYSYSFLMALFHTILTFRLSYCHSNIVNHFYCDDMPLLRLTCSDTRFKQLWIFACAG
IMFISSLLIVFVSYMFIISAILRMHSAEGRQKAFSTCGSHMLAVTIFYGTLIFMYL-QPSSSH-ALDTDK
MASVFYTVIIPMLNPLIYSLQNKEVKEALKKIIINKN*---------

>MmOR2.2.54
----MAQINCT--QVTEFILVGLTDRKELKMPLFVVFLFIYLFTAIGNLGLILVIRTDARLNTPMYFFLS
NLAFVDFCYSSVITPKMLGNFLYSKNAISFNACAAQLGCFLTFMVSECLLLASMAYDRYAAICNPLLYMV
TMSPGICIQLVVVPYSYSFLMALIHTLLTFRLSYCHSNIINHFYCDDMPLLRLTCSDTHYKQLSILACAG
ITFISSVLIVSVSYMFIISAILRMRSAEGRRKAFSTCSSHMMAVSIFYGTLIFMYL-QPSSDH-SLDTDK
MASVFYTVIIPMLNPLIYSLRNKDVKDALKRVMDNRNQTSIFRELRK

>MmOR2.2.47
----MAGSNAT--GVTEFILLGFAVQREVEIILFLLILVVYSLTLVGNVGMISLIRMDSRLHTPMYFFLS
NLAFVDLCYSSSVAPKFLETLLSNRRSISFYACATQLGFFLNFLISEMFLLAVMAYDRYVAICNPLLYMV
VMSQKVCLRLVMGPYFYSFAVALLHTVVTFKLIYCGPNIINHFYCDDVPLMALACSDTSLKEILIFIFAG
FNMISSLTTVLISYLYIVAAILRIQSTEGRCKAFSTCASHLTAVTIFYGTLIFMYL-QPKSSH-SLDTDK
MASVFYTIVIPMLNPMIYSLRNQEVKSALRKALEKCYLLPLMHLKKG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR7.7.40
----MGRGNRT--TVTEFVLMGFTDRPELQLPLFVVFLI--LITLVGNLGMILLIKADSRLHTPMYYFLS
HLAFIDLCYSSSIGPKMLQNLLVKKKTISFSGCFAQLYFSSAFVTTECFLLATMAYDRYMAICNPLTYTA
IMTQRVCKELVIGVYTYGFLNSVIQTVLTFQLSFCNSNVIHHFYCADPPLLALSCSDTHNKERQLLIFSA
VNLTGSLMTVLISYICILVSIIKIEPSQGKCKAFSTCASHLTVVTIFYGTLFFMYMRQPKTGS-SWKYSK
VISVFYSLVIPMLNPLIYSLRNTEVKDTLKKMLEGKTS*--------

>HsOR11.11.62
----MAPENFT--RVTEFILTGVSSCPELQIPLFLVFLVLYGLTMAGNLGIITLTSVDSRLQTPMYFFLQ
HLALINLGNSTVIAPKMLINFLVKKKTTSFYECATQLGGFLFFIVSEVIMLALMAYDRYVAICNPLLYMV
VVSRRLCLLLVSLTYLYGFSTAIVVSSYVFSVSYCSSNIINHFYCDNVPLLALSCSDTYLPETVVFISAA
TNVVGSLIIVLVSYFNIVLSILKICSSEGRKKAFSTCASHMMAVTIFYGTLLFMYV-QPRSNH-SLDTDK
MASVFYTLVIPMLNPLIYSLRNKDVKTALQRFMTNLCYSFKTM*---

>SOR8J3
----MAPENFT--RVTEFILTGVSSCPELQIPLFLVFLVLYVLTMAGNLGIITLTSVDSRLQNPMYFFLR
HLAIINLGNSTVIAPKMLMNFLVKKKTTSFYECATQLGGFLFFIVSEVMMLAVMAYDRYVAICNPLLYMV
VVSRRLCLLLVSLTYLYGFSTAIVVSPCIFSVSYCSSNIINHFYCDIAPLLALSCSDTYIPETIVFISAA
TNLVFSMITVLVSYFNIVLSILRIRSPEGRKKAFSTCASHMIAVTVFYGTMLFMYL-QPQTNH-SLDTDK
MASVFYTLVIPMLNPLIYSLRNNDVNVALKKFMENPCYSFKSM----

>HsOR11.11.48
----MAPENFT--RVTEFILTGVSSCPELQIPLFLVFLVLYVLTMAGNLGIITLTSVDSRLQNPMYFFLR
HLAIINLGNSTVIAPKMLMNFLVKKKTTSFYECATQLGGFLFFIVSEVMMLAVMAYDRYVAICNPLLYMV
VVSRRLCLLLVSLTYLYGFSTAIVVSPCIFSVSYCSSNIINHFYCDIAPLLALSCSDTYIPETIVFISAA
TNLVFSMITVLVSYFNIVLSILRIRSPEGRKKAFSTCASHMIAVTVFYGTMLFMYL-QPQTNH-SLDTDK
MASVFYTLVIPMLNPLIYSLRNNDVNVALKKFMENPCYSFKSM*---

>SMOR185-1
----MATGNLT--HVTEFILMGVTDRPELQVPLFFLFLVIYLLTAAGNLGIITLTSVDSRLQTPMYFFLR
HLAVINFGNSTVIAPKMLVNFLVSKKTTLYYECATQLGGFLVFMVSEIFMLAVMAYDRYVAICNPLLYMV
VVSRRVCLLLVFLTYLFSFVTAIVVTPCVFSVSYCSSNVINHFYCDNVPLLALSCSDTHLPETVVFFFSA
TNLFFSMIIVLISYFNIVLAILRIRSSEGRKKAFSTCASHMMAVTVFYGTLLFMYL-QPRTNH-SLDTDK
IASVFYTLIIPMLNPVIYSLRNKDVKCALKEFLKNPMQKIQSYMNL-

>MmOR2.2.71
----MATGNLT--HVTEFILMGVTDRPELQVPLFFLFLVIYLLTAAGNLGIITLTSVDSRLQTPMYFFLR
HLAVINFGNSTVIAPKMLVNFLVSKKTTLYYECATQLGGFLVFMVSEIFMLAVMAYDRYVAICNPLLYMV
VVSRRVCLLLVFLTYLFSFVTAIVVTPCVFSVSYCSSNVINHFYCDNVPLLALSCSDTHLPETVVFFFSA
TNLFFSMIIVLISYFNIVLAILRIRSSEGRKKAFSTCASHMMAVTVFYGTLLFMYL-QPRTNH-SLDTDK
IASVFYTLIIPMLNPVIYSLRNKDVKCALKEFLKNPCKKFNLI*---

>MmOR2.2.67
----MATGNLT--HVTEFILMGVSDRPELQVPLFFLFLVIYLLTAAGNLGIITLTSVDSRLQTPMYFFLR
HLAIINFGNSTVIAPKMLVNFLVSKKTTLYYECATQLGGFLVFIVAEIFMLAVMAYDRYVAICNPLLYMV
VVSRRVCLLLVFLTYLFSFVTAIVVTPCVFSVSYCSSNVINHFYCDNVPLLALSCSDTHLPETVVFFFSA
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
TNLFFSMIIVLISYFNIILAILRIRSSEGRKKAFSTCASHMMAVTVFYGTLLFMYL-QPRTNH-SLDTDK
MASVFYTLIIPMLNPVIYSLRNKDVKCALKEFLKNPCKRFNLI*---

>MmOR2.2.55
----MAPRNLS--HVTEFILVGVSDLPELQVPLFFVFLVIYLLTAAGNLGIITLTSVDSRLQTPMYFFLR
HLAVINFGNSTVIAPKMLVNFLVSKKTTLYYECATQLGGFLVFIVAEIFMLAVMAYDRYVAICNPLLYMV
VVSRRVCLLLVSLTYFYGFCTAIVVSSCVFSVSYCSSKKINHFYCDNVPLLALSCSDTYLPETVVFISAA
TNLFFSMSIVLVSYFNIVLSILRIRSAEGRKKAFSTCASHVMAVTVFYGTLLFMYL-QPQTNH-SLDTDK
MASVFYTLVIPMLNPMIYSLRNKDVKAALKRFMTSPCDSFKSL*---

>HsOR11.11.61
-MNHVVKHNHTVTKVTEFILMGITDNPGLQAPLFGLFLIIYLVTVIGNLGMVILTYLDSKLHTPMYFFLR
HLSITDLGYSTVIAPKMLVNFIVHKNTISYNWYATQLAFFEIFIISELFILSAMAYDRYVAICKPLLYVI
IMAEKVLWVLVIVPYLYSTFVSLFLTIKLFKLSFCGSNIISYFYCDCIPLMSILCSDTNELELIILIFSG
CNLLFSLSIVLISYMFILVAILRMNSRKGRYKAFSTCSSHLTVVIMFYGTLLFIYL-QPKSSH-TLAIDK
MASVFYTLLIPMLNPLIYSLRNKEVKDALKRTLTNRFKIPI*-----

>SMOR194-1
----MEKSNHSRIQVTEFILLGLTNNPGLKAPLFVIFLIIYLVTLMGNLGMVILTHVDSKLHTPMYFFLR
HLSITDLGYSTVIGPKMMVNFVMQQNIISYTGCAVQLTFFEIFIITELFILSAMAYDRYVAICKPLLYVI
IMAGKVRWGLVLVPYLYSLFVSLLLTVKLFTLSFCGSNTISYFYCDCVPLISLLCSDTHELELIILIFSG
CNLLSSLLIVLVSYMFIFVAILRMNSKEGRSKAFSTCSSHLTVVVVFYGTLLFIYL-QPKSSH-TFEIDK
MASVFYTLVIPMLNPLIYSLRNKEVKEALKRTLTQGLRIHT------

>MmOR2.2.56
----MEKSNHSRIQVTEFILLGLTNNPGLKAPLFVIFLIIYLVTLMGNLGMVILTHVDSKLHTPMYFFLR
HLSITDLGYSTVIGPKMMVNFVMQQNIISYTGCAVQLTFFEIFIITELFILSAMAYDRYVAICKPLLYVI
IMAGKVRWGLVLVPYLYSLFVSLLLTVKLFTLSFCGSNIISYFYCDCVPLISLLCSDTHELELIILIFSG
CNLLSSLLIVLVSYMFIFVAILRMNSKEGRSKAFSTCSSHLTVVVVFYGTLLFIYL-QPKSSH-TFEIDK
MASVFYTLVIPMLNPLIYSLRNKEVKEALKRTLTQGLRIHT*-----

>SMOR191-1
----MEKQNLT--VLSEFILKGITDRPELQAPLFGLLFIIYLISAVGNLGIIIITNVDSRLHTPMYFFLK
HLAFTDLGYSTAIGPKMLVNFVAEHNSVSYYLCATQLACFLLFITCELFILSSMSYDRYVAICNPLLYTV
IMSQRICWVLVAVPYIYSVFVSLIVTIRLFTLSFCGYNIINHFFCDCIPLISLLCSNTHEVEVIIRFFAT
FDLISSLLVVLVSYLFILITILRMKSAAGRRKAFSTCGSHLTVVIVFYGTLIFMYV-QPKSSQ-TFETDK
VSSIFYTLVIPMLNPLIYTLRNKDVKDAIERTWEKIVTSFS------

>MmOR2.2.87
----MEKQNLT--VLSEFILKGITDRPELQAPLFGLLFIIYLISAVGNLGIIIITNVDSSLHTPMYFFLK
HLAFTDLGYSTAIGPKMLVNFVAEHNSVSYYLCATQLACFLLFITCELFILSSMSYDRYVAICNPLLYTV
IMSQRICWVLVAVPYIYSVFVSLIVTIRLFTLSFCGYNIINHFFCDCIPLISLLCSNTHEVEVIIRFFAT
FDLISSLLVVLLSYLFILITILRMKSAAGRCKAFSTCGSHLTVVIVFYGTLIFMYV-QPKSSQ-TFETDK
VSSIFYTLVIPMLNPLIYTLRNKDVKDAIERTWEKIVTSFS*-----

>MmOR2.2.79
----MENHNLT--MVTEFILVGITDRPELQAPLFGLFLIIYLITLVGNLGMIILTMVDSRLQTPMYFFLR
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
HLATTDLGYSTAVGPKMLRNFLVEQNTISIYFCAVQLSFFSMFIVSEFFILSAMSYDWYVAICKPLLYNV
IMSKRVCWLLVAIPYLYSIFVALIVTINIFSSSFCGHNIISHFYCDGLPLISLLCSNKKESEMIILILST
INLISSPVVILVSYLLILRAILKMNSAEGRQKAFSTCGSHLTVVTVFYGTLIFMYV-QPKSNH-TLNTDK
VASIFYTLIIPMLNPLIYSLRNKDVKYALRKTGKSIQNIFS*-----

>MmOR2.2.77
----MKKQNFT--MVTEFILVGITDCPELQAPLFGLFLIIYLITLVGNLGMIILTMVDSRLQTPMYFFLR
HLATTDLGYSTAVGPKMLRNFLVEQNTISFYICAVQLTFFNMFIVSEFFILSAMSYDRYVAICKPLLYNV
IMSQRVCWVLVAIPYIYSIFVALLISINIFSSSFCGHNIISHFYCDGLPLISLLCSYRKENEMITFILSI
INLITSPLVILASYLLILRAILRMNSAEGRQKAFSTCGSHLTVVTVFYGTLIFMYV-QPKSSD-SLKTDK
VASIFYALIIPMLNPLIYSLRNKDVKSALRKTGKTIQNIFS*-----

>MmOR2.2.81
--MQMESQNLT--VVTEFILRGITDRPELQVPLFGLFFMIYLISLFGNLGMIILTIVESRLQTPMYFFLR
HLAITDLGYSTAIGPKMLANFVVSKNTISFHLCATQLAFFLLFIACELFILSVMSYDRYVAICNPLLYNV
IMSQTVCWVLVAIPYLYSVFISLIVTINIFSSSFCGYNVIPHFYCDGLPLISLLCTNTDKIGLIILILSA
INLISSLLIILGSYLLIFRAILRMNSAEGRRKAFSTCGSHLTVVSVFYGTLIFMYV-QPKTSH-SFDTDK
VASIFYTLVIPMLNPLIYSLRNKDVKYALRKII-QNNFS*-------

>SMOR189-1
--MQMESQNLT--VVTEFILRGITDRPELQVPLFGLFFMIYLISLFGNLGMIILTIVESRLQTPMYFFLR
HLAITDLGYSTAIGPKMLANFVVSKNTISFHLCATQLAFFLLFIACELFILSVMSYDRYVAICNPLLYNV
IMSQTVCWVLVAIPYLYSVFISLIVTINIFSSSFCGYNVIPHFYCDGLPLISLLCTNTDKIGLIILILSA
INLISSLLIILGSYLLIFRAILRMNSAEGRRKAFSTCGSHLTVVSVFYGTLIFMYV-QPKTSH-SFDTDK
VASIFYTLVIPMLNPLIYSLRNKDVKYALRKTGKIIQNNFS------

>MmOR2.2.64
----MEKRNLT--VVTEFILMGITDRPELQAPLFGLFLIIYLISLLGNMGMIILTMVDSRLQTPMYFFLR
HLAITDLGYSTAVGPKMLENFVVNQNTISNHLCAIQLTFFLVFIICELFILSAMSYDRYVAICKPLLYTV
IMSHRVCWVLVAVPYFYSVIISLLITIKIFALPFCDYRIVSHF-CDSLPLISLLCSNTHDIEIIILISAG
FNLVSSLVVLLFSYLLILIAIFRMNSAEGRQKALSTCGSHLTVVIVFYGTLIFMYV-QPKSSH-SFDTDK
VASIFYTLIIPMLNPLIYSLRNKDVKYALERLWKMLGNIFS*-----

>MmOR2.2.57
----MGRHNLT--VVTEFVLMGITDRPELQAPLFGLFLIIYLISLIGNLGMIILTTVDSKLQTPMYFFLK
HLAITDLGYSTSVGPKMLVNFVVDQNTISFKLCATQLSFFLVFIVSELFILSAMSYDRYVAICKPLLYTV
IMSQKLCWVLVAIPYLYCTFVSLLVTVKIFTLSFCGYNVISHFYCDSLPLLPLLCSDTHDIELIILILAA
FDLISSLLVVLVSYLLILIAIVRMNSAEGRRKAFSTCGSHLTVVIVFYGTLIFMYV-QPNSSH-SFETDK
VASIFYTLVIPMLNPLIYSLRNKDVKYALKRTLNNLCKLFSLAFHKI

>HsOR11.11.59
----MEQHNLT--TVNEFILTGITDIAELQAPLFALFLMIYVISVMGNLGMIVLTKLDSRLQTPMYFFLR
HLAFMDLGYSTTVGPKMLVNFVVDKNIISYYFCATQLAFFLVFIGSELFILSAMSYDLYVAICNPLLYTV
IMSRRVCQVLVAIPYLYCTFISLLVTIKIFTLSFCGYNVISHFYCDSLPLLPLLCSNTHEIELIILIFAA
IDLISSLLIVLLSYLLILVAILRMNSA-GRQKAFSTCGAHLTVVIVFYGTLLFMYV-QPKSSH-SFDTDK
VASIFYTLVIPMLNPLIYSLRNKDVKYALRRTWNNLCNIFV*-----
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>SOR8K3
----MEQHNLT--TVNEFILTGITDIAELQAPLFALFLMIYVISVMGNLGMIVLTKLDSRLQTPMYFFLR
HLAFMDLGYSTTVGPKMLVNFVVDKNIISYYFCATQLAFFLVFIGSELFILSAMSYDRYVAICNPLLYTV
IMSRRVCQVLVAIPYLYCTFISLLVTIKIFTLSFCGYNVISHFYCDSLPLLPLLCSNTHEIELIILIFAA
IDLISSLLIVLLSYLLILVAILRMNSA-GRQKAFSTCGAHLTVVIVFYGTLLFMYV-QPKSSH-SFDTDK
VASIFYTLVIPMLNPLIYSLRNKDVKYALRRTWNNLCNIFV------

>MmOR2.2.68
----MENHNLT--MVTEFILMGITACPELQPPLFVLFLIIYLISLIGNLGMIILTLVDSRLQTPMYFFLR
HLSTTDLGYTTAVGPKMLQNFLVDQNTISFHLCAIQLSFFSMFIACEIYILSAMSYDRYVAICKPLFYMV
IMSKRLCLVLVVIPYVYCTIVALLITIKIFTLSFCGSNVISHFYCDSLPLLSLVCSNTQEIEVILLYLSA
FNLISSLLLVLVSYLLILIAIIRMHSAEGRRKAFSTCGSHLTMVTVFYGTLIFMYM-QPKSSH-SFDTDK
VASIFYTMVIPMLNPLIYSLRNKDVKDALHRTLKKIHGFLLKLT*--

>SMOR190-1
----MENQNRT--VVTEFILMGITDHPELQSSLFGLFLLIYLISLVGNLGMIVLTMVDSRLQTPMYFFLR
HLATTDLGYSTTVGPKMLTNFIVDQNRISFNLCATQLAFFLLFIACELFILSAMSYDRYVAICKPLFYMV
IMSKRLCWVLVVIPYVYCTIVALLITIKIFTLSFCGSNVISHFYCDSLPLLSLVCSNTQEIEVIMLFLSA
FNLISSLLLVLVSYLLILIAILRMNSAEGRRKAFSTCGSHLTVDTVFYGTLIFMYM-QPKSSH-SFDTDK
LASVFYTLIIPMLNPLIYSLRNKDVKDALHRTGKKLHSVCF------

>MmOR2.2.74
----MENQNRT--VVTEFILMGITDHPELQSSLFGLFLLIYLISLVGNLGMIVLTMVDSRLQTPMYFFLR
HLATTDLGYSTTVGPKMLTNFIVDQNRISFNLCATQLAFFLLFIACELFILSAMSYDRYVAICKPLFYMV
IMSKRLCWVLVVIPYVYCTIVALLITIKIFTLSFCGSNVISHFYCDSLPLLSLVCSNTQEIEVIMLFLSA
FNLISSLLLVLVSYLLILIAILRMNSAEGRRKAFSTCGSHLTVVTVFYGTLIFMYM-QPKSSH-SFDTDK
LASVFYTLIIPMLNPLIYSLRNKDVKDALHRTGKKLHSVCF*-----

>MmOR2.2.69
--------------------MGITDHPDLQPSLFGLFLLIYLISLVGNLGMIILTMVDSRLQTPMYFFLR
QLATTDLGYSTAVGPKMLTNFIVDQNRIFFNLCTTQLAFFLLFIACELFILSAMSYDRYVAICKPLFYMV
IMSKRLCWVLVVIPYVYCTIVALLITIKIFTLSFCGSNVISHFYCDSLPLLSLVCSNTQEIEVIMLFLSA
FNLISSLLLVLVSYLLILIAILRMNSAEGRRKAFSTCGSHLTVDTVFYGTLIFMYM-QPKSSH-SFDTDK
LASAFYTLIIPMLNPLIYSLRNKDVKDALHRIGKKLHSVSF*-----

>SMOR192-1
----MDKHNLT--VVTEFILMGITENPELQAPLFGLFLVIYLTSVIGNLGIIILTNVDAKLQTPMYFFLR
HLAFTDFVYSTTVGPKMLVNFVVDQNAISYSLCATQLAFFLLFIGSDLFILSAMSYDRYVAICKPLLYTV
IMSHKVCWVLVTMTYLYCTFMSLVVTINIFSLSFCGYNVINHFFCDCIPLISLLCSNTQEVELIVMIFAA
FDLISSLVVVLMSYLLILIAVLRMNSAEGRRKAFSTCGSHLTVVTVFYGTLIFMYV-QPESSH-SIDTDK
ISSIFYTLIIPLLNPLIYSLRNKDVKEALQRTWQKIFNTFS------

>MmOR2.2.82
----MDKHNLT--VVTEFILMGITENPELQAPLFGLFLVIYLTSVIGNLGIIILTNVDAKLQTPMYFFLR
HLAFTDFVYSTTVGPKMLVNFVVDQNAISYSLCATQLAFFLLFIGSELFILSAMSYDRYVAICKPLLYTV
IMSHKVCWVLVTMTYLYCTFMSLVVTINIFSLSFCGYNVINHFFCDCIPLISLLCSNTQEVELIVMIFAA
FDLISSLVVVLMSYLLILIAVLRMNSAEGRRKAFSTCGSHLTVVTVFYGTLIFMYV-QPESSH-SIDTDK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
ISSIFYTLIIPLLNPLIYSLRNKDVKEALQRTWQKIFNTFS*-----

>MmOR2.2.84
----MDKHNLT--VVTEFILMGITENPELQAPLFGLFLVIYLTSVIGNLGIIILTNVDAKLQTPMYFFLR
HLAFTDFVYSTTVGPKMLVNFVVDQNAISYSLCATQLAFFLLFIGSELFILSAMSYDRYVAICKPLLYTV
IMSHKVCWVLVTMTYLYYTFMSLVVTINIFSLSFCGYNVINHFFCDCIPLISLLCSNTQKVELIVMIFAG
FDLISSLVVVLMSYLLILIAVLRMNSAEGRRKAFSTCGSHLTVVTIFYGTLIFMYV-KPVSSH-SIDTDK
ISSILYTLIIPLLNPLIYSLRNKDVKDALQRTWQKIFNTFP*-----

>MmOR2.2.86
----MDKHNLT--VVTEFILMGITENPELQAPLFGLFLVIYLTSVVGNLGIIILTNVDAKLQTPMYFFLR
HLAFTDFVYSTTVGPKMLVNFVVDQNAISYSLCATPLAFFLLFIGSDHFILSAMSYDRYVAICKPLLYTV
IVSHKVCWLLVTMTYLYCTFMSLVVTINIFSLSFCGYNVINHFFCDCIPLISLLCSNTQEVELIVMFFAA
FDLISSLVVVLMSYLLILIAVLRMNSAEGRRKAFSTCGSHLTVVTIFYGTLIFMYV-KPVSSH-SIDTEK
ISSILYTLIIPLLNPLIYSLRNKDVKEALQRTWQKIFNTFS*-----

>MmOR2.2.91
----MKEHNLT--VMTEFILMGISDHSELQAPLFGLFLAIYMTSMVGNLGIIVLTTVDSRLQTPMYFFLR
HLAITDLGYSTAVGPKMLENFVVDQNTISFNLCATQLAFFLVFIGSELFILSAMSYDRYVAICKPLLYTV
LMSQKLCWVLMSMPYLYCTFVSLLITVKIFTSSFCGYNVINHFYCDCIPLLSLLCSHAEEIAFIVMIFAA
FDLIVSLLIVLVSYMFILIAVLRMNSAEGRYKAFSTCGSHLTVVTVFYGTLIFMYV-QPQSSH-SDDNDK
VSSIFYTLVIPMLNPLIYSLRNKDVKFALHRTWRNICKIFP*-----

>SMOR188-1
----MEKYNLT--IVTEFILVGITNHHEFQVPLFGLYLIIYLTSLVDNLGMIILTIVDSRLQTPMYFFLR
HLATTDLGYSTAVGPKMLRNFLVDQNIISFYACAIQSSFFGMFIVCEFFILSAMSYDRYVAICKPLLYTV
IMSQKACWILVTIPYLYSIIVSLLVNIKIFTLSFCGYNVISHFYCDALPLLTLACSNTHEIEAIILIFSA
FNLLSSLLIVIGSYLLILMAILRINSTEGKWKAFSTCGSHLTVVIVFYGTLICMYL-QPTSTH-SIDTGK
GTSIFYTQVIPMLNPLIYSLRNKDVTDVLKKTKEKVYNLVS------

>MmOR2.2.70
----MEKYNLT--IVTEFILVGITNHHEFQVPLFGLYLIIYLTSLVDNLGMIILTIVDSRLQTPMYFFLR
HLATTDLGYSTAVGPKMLRNFLVDQNIISFYACAIQSSFFGMFIVCEFFILSAMSYDRYVAICKPLLYTV
IMSQKACWILVTIPYLYSIIVSLLVNIKIFTLSFCGYNVISHFYCDALPLLTLACSNTHEIEAIILIFSA
FNLLSSLLIVIGSYLLILMAILRINSAEGKWKAFSTCGSHLTVVIVFYGTLIFMYL-QPTFTH-SIDTGK
VISIFYTQVIPMLNPLTYSLRNKDVKDVLKKPMEKVHNLFS*-----

>MmOR2.2.75
----MEKYNLT--MVTEFILVGITYHPEFQVPLFGLFLIIYLTSLFGNLGMIILTMVDSGLQTPMYFFLR
HLATTDLGYSTAVGPKMLRNFLVDQNTISFNACDIQSSFFSMFIVCEFFILSALSYDCYVAICKPLLYTV
IMSQKVCWILVTIPYLYSIIVSLIINIKIFTLSFCGYNVISHFYCDALPLLTLACSNTHEIEAIILIFSA
FNLLSSLLIVIGSYLLILMAILRINSTEGKWKAFSTCGSHLTVVIVFYGTLICMYL-QPTSTH-SIDTGK
GTSIFYTQVIPMLNPLIYSLRNKDVTDVLKKTKEKVYNLVS*-----

>SMOR193-1
----MERQNFT--VVKDFILIGITNRPELKGPLFGLFLIIYLISLMGNMGMIILTIVDPRLQTPMYFFLK
HLAVTDLGYSTAVGPKMLENFVVNQNTISYYLCALQLACFLLFITCELFILSAMSYDRYVAICNPLLYNV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMSKKKCWLLIVIAYLYGLFLSLIITLKMFRLSFCSYNIINHFFCDCIPLIPLLCSNTHEIQLIILVFAI
FDSICSLLVVLVSYLLILITILRMNSTEGRHKAFANCGSHITVVTVFYGTLISMYL-QPNYSH-SFDTDK
LASIFYTMIIPMLNPLIYSLRNKDVKNAGQRIWKKLCKI--------

>MmOR2.2.90
----MERQNFT--VVKDFILIGITNRPELKGPLFGLFLIIYLISLMGNMGMIILTIVDPRLQTPMYFFLK
HLAVTDLGYSTAVGPKMLENFVVNQNTISYYLCALQLACFLLFITCELFILSAMSYDHYVAICNPLLYNV
IMSKKKCWLLIVIAYLYGLFLSLIITLKMFRLSFCSYNIINHFFCDCIPLIPLLCSNTHEIQLIILVFAI
FDLICSLLVVLVSYLLILITILRMNSTEGRHKAFATCGSHITVVTVFYGTLISMYL-QPNYSH-SFDTDK
LASIFYTMIIPMLNPLIYSLRNKDVKNAGQRIWKKLCKI*-------

>SMOR186-1
----MDTYNLT--VLKYFILTGITDLPELQAPLFGLFLIIYMISVVGNLGLIILTKIDSRLQTPMYFFLR
QLSLTDLGYSTAVGPKMLINFVADQPTISYNWCSVQLTFFSIFITTEVFILSAMAYDRYVAICHPLLYTI
IMSQRLCHVLVAIPYLYSVFISLWTIIKIFTSSFCGHNIIRYFYCDSLPLILMLCSDTHEIKLIILIFAT
FNLISSLLVVSISYILILVSILRMNSSEGRHKAFSTCGSHLTVIVIFYGTLFFMYA-QPKSIH-SFETGQ
VASLFYTLVIPMLNPMIYSLRNQEVKQALNRKWKMCVNILFKL----

>MmOR2.2.65
----MDTYNLT--VLKYFILTGITDLPELQAPLFGLFLIIYMISVVGNLGLIILTKIDSRLQTPMYFFLR
QLSLTDLGYSTAVGPKMLINFVADQPTISYIWCSVQLTFFSIFITTEVFILSAMAYDRYVAICHPLLYTI
IMSQRLCHVLVAIPYLYSVFISLWTIIKIFTSSFCGHNIIRHFYCDSLPLILMLCSDTHEIKLIILIFAT
FNLISSLLVVSISYILILVSILRMNSSEGRHKAFSTCGSHLTVIVIFYGTLFFMYA-QPKSIH-SFETGQ
VASLFYTLVIPMLNPMIYSLRNQEVKQALNRKWKMCVNILFCWEPRP

>MmOR2.2.66
----MENQNLS--VLNEFILVGITDRPELQAPFFVLFFLIYVASVVGNLGMIVLTKLDERLQTPMYFFLR
HLAFIDFGYSTAVGPKTLVSFVTNKNTIPYNWCAFQLSLFIFFIISELFVLSAMAYDRYVAICNPLLYTV
IMSQKVCWVLVTIPYLFSAFLSLITTIKIFISSFCGYNVISHFYCDSLPLLTLICSGTRDIELIILIFSA
FNLISSLSVVLVSYTFILVAILRMNSAEGRHKAFSTCGSHLTVVVILYGTLSFMYI-QPKSSH-SFENDK
MASVFYTLVIPVLNPIIYSLRNKEVKGALQKLWKNVCKVCI*-----

>MmOR2.2.20
----MGQQNTT--SLPGFILMGITQSTELQLPLFGVFFIIYAVTVMGNLGMIILTKLDSRLQTPMYFFIR
HLAFIDLGNSTVICPKMLMDFVMDEKNISFYACATQMSFFVLFIISELFILSSMAYDCYVAICNPLLYSV
IMSQRLCHVLVDIPYLYSTFQALLFTSKIFTLTFCGSNIISHFYCDAVYLLPTLCSNAEEIQLLIILFSA
LNLLSSLLIVLGLYVLILIAICRMHSAEGRRKAFSTCGSHLTVVVVFYGTLLFMYL-QPKSTD-SLENDK
ITSVFYTLVIPMINPLIYSLRNKEVKNAFNRALKNPFKINT*-----

>MmOR2.2.63
----MGQQNTT--SLPGFILMGITQRTELQLPLFGAFFIIYAVTVMGNLGMIILTKLDSHLETPMYFFIR
HLAFIDLGNSTVICPKMLVDFVMNDKTISFCECATQLSFFLMFIITEFFILSAMAYDRYVAICNPLLYSV
IMSQRLCHVLVGIPYLYSTVQALLVTSRIFTSTFCGSNIISHFYCDGIFLLPILCSNAEEIQLVIISFSA
LNLISSFLVVLGSYVLILIAICRMHSAEGRRKAFSTCGSHLTVVVVFYGTLFFMYL-QPKSTD-SLENDK
IASVFYTLVIPMLNPLIYSLRNKEVKNAFYRVLKGQFKINT*-----

>HsOR11.11.49
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MGQHNLT--VLTEFILMELTRRPELQIPLFGVFLVIYLITVVGNLTMIILTKLDSHLHTPMYFSIR
HLAFVDLGNSTVICPKVLANFVVDRNTISYYACAAQLAFFLMFIISEFFILSAMAYDRYVAICNPLLYYV
IMSQRLCHVLVGIQYLYSTFQALMFTIKIFTLTFCGSNVISHFYCDDVPLLPMLCSNAQEIELLSILFSV
FNLISSFLIVLVSYMLILLAICQMHSAEGRKKAFSTCGSHLTVVVVFYGSLLFMYM-QPNSTH-FFDTDK
MASVFYTLVIPMLNPLIYSLRNEEVKNAFYKLFEN*----------

>SOR8K5
----MGQHNLT--VLTEFILMELTRRPELQIPLFGVFLVIYLITVVGNLTMIILAKLDSHLHTPMYFSIR
HLAFVDLGNSTVICPKVLANFVVDRNTISYYACAAQLAFFLMFIISEFFILSAVAYDRYVAICNPLLYYV
IMSQRLCHVLVGIQYLYSTFQALMFTIKIFTLTFCGSNVISHFYCDDVPLLPMLCSNAQEIELLSILFSV
FNLISSFLIVLVSYMLILLAICQMHSAEGRKKAFSTCGSHLTVVVVFYGSLLFMYM-QPNSTH-FFDTDK
MASVFYTLVIPMLNPLIYSLRNEEVKNAFYKLFEN----------

>SMOR187-1
----MGQPNIT--MPTEFILMGVTQTAELKLPLFAVFLTIYAITVVGNLGMIILTKLDSRLQTPMYFFIR
HLAFIDLGNSTAICPKMLVNFVVDKNNITYYACATQMACFILFIVSEFSILSSMAYDRYVAICNPLLYSA
IMSQRRCQVLIGIPYLYSIFQALLFPIRYFTLSFCGANVISHFYCDVVPLLPLICSHVEETELLTILFSA
FNLISSLLVVLLSYMLILLTIFRMRSAEGRKKAFSTCGSHLTVVVVFYGSLLFMYV-QPKSAH-SFEYDK
AASVFYTLVIPMLNPLIYSLRNKEVKNAFHRVF-KNL----------

>MmOR2.2.59
----MGQPNIT--MPTEFILMGVTQTAELKLPLFAVFLTIYAITVVGNLGMIILTKLDSRLQTPMYFFIR
HLAFIDLGNSTAICPKMLVNFVVDKNNITYYACATQMACFILFIVSELSILSSMAYDRYVAICNPLLYSA
IMSQRRCQVLIGIPYLYSIFQALLFPIRYFTLSFCGANIISHFYCDVVPLLPLICSHVEETELLTILFSA
FNLISSLVVVLLSYMLILLTIFQMRSAEGRKKAFSTCGSHLTVVVVFYGSLLFMYV-QPKSAH-SFEYDK
AASVFYTLVIPMLNPLIYSLRNKEVKNAFHRVF-KNL*---------

>MmOR2.2.61
----MGQPNIT--MPTEFILMGVTQSAELKLPLFAVFLAIYAITVVGNLGMIILTKLDSRLQTPMYFFIR
HLAFIDLGNSTAICPKMLVNFVVDKNTITYYACATQMACFILFIVSELSILSSMAYDRYVAICNPLLYSA
IMSQRRCQVLIGIPYLYSIFQALLFPIRYFTLSFCGANVISHFYCDVVPLLPLICSHVEETELLTILFSA
FNLISSLVVVLLSYMLILLTIFRMRSAEGRKKAFSTCGSHLTVVVVFYGSLLFMYV-QPKSAH-SFEYDK
AASVFYTLVIPMLNPLIYSLRNKEVKNAFHRVF-KNL*---------

>MmOR2.2.58
QKVEMSHRNST--VPDEFILTRITHRPELQLLLLGVFIVIYGVAMIGNMSMIILTKLDSRLHTPMYYFIR
HLAFIDLGNCTVIYPKMMVNFVVEQNVISYYACAVQMAFYIAFIISELFILSAMAYDRYVAICNPLLYSA
IMSQRRCHVLVGIPYLYSVFQAVMITSKIFTLTFCDSNVISHFYCDNVPMLLLLCSNARDIELLIILFSA
LNLISSLFVVLVSYLLILLAIYRMHSADGRKKAFSTCGSHLTVVVVFYGTLLFMYL-QPKSTH-SFETDK
IASVFYTLVIPMLNPLIYSFRNKEVKNAVLRVF-RYQCKLCT*----

>SMOR199-1
------MLNFT--DVTEFILLGLTSRKELQVLFFVIFLMVYIVTMVGNIGMMILIKISPQLSSPMYFFLS
HLSFVDVWFSSNVTPKMLENLLSKTKTISYAGCLVQCFFFIALVHVEIFILAVMAFDRYMAIGKPLLYGS
KMSRVVCIRLISFPYIYGFLTSLAATLWTYGLYFCGKTEINHFYCADPPLIKMACAGTFVKEYTMIILAG
INFTYSLSVVIISYLFILIAILRMRSAEGRRKAFSTCGSHLTAVVIFYGTLIFMYL-RRPTEE-SVEKGK
MVAVFYTTVIPMLNPMIYSLRNKDVKEAMDKVISRKGLTK-------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR2.2.42
--------NFT--DVTEFILLGLTSRKELQVLFFVIFLMVYIVTMVGNIGMMILIKISPQLSSPMYFFLS
HLSFVDVWFSSNVTPKMLENLLSKTKTISYAGCLVQCFFFIALVHVEIFILAVMAFDRYMAIGKPLLYGS
KMSRVVCIRLISFPYIYGFLTSLAATLWTYGLYFCGKTEINHFYCADPPLIKMACAGTFVKEYTMIILAG
INFTYSLSVVIISYLFILIAILRMRSAEGRRKAFSTCGSHLTAVVIFYGTLIFMYL-RRPTEE-SVEQGK
MVAVFYTTVIPMLNPMIYSLRNKDVKEAMDKVISRKGLTK*------

>MmOR2.2.43
----ML--NFT--DVTEFVLLGLTRRKELQVLFFVIFLMVYIVTMVGNIGMMILIKISPQLSSPMYFFLS
HLSFIDVWFSSNVTPKMLENLLSKTKTISYAGCLVQCFFFIALVHVEIFILSVMAFDRYMAIGKPLLYGS
KMSRVVCIRLISFPYIYGFLTSLAATLWTYGLYFCGKTEINHFYCADPPLIKMACAGTFVKEYTMLFLAG
INFTYSLIVVIISYLFILIAILRMRSAEGRRKAFSTCGSHLTAVGIFYGTLIFMYL-RRPTEE-SVEQGK
MVAVFYTTVIPMLNPMIYSLRNKDVKEAMDKVIAKKFLTK*------

>HsOR11.11.70
----ML--NFT--DVTEFILLGLTSRREWQVLFFIIFLVVYIITMVGNIGMMVLIKVSPQLNNPMYFFLS
HLSFVDVWFSSNVTPKMLENLLSDKKTITYAGCLVQCFFFIALVHVEIFILAAMAFDRYMAIGNPLLYGS
KMSRVVCIRLITFPYIYGFLTSLAATLWTYGLYFCGKIEINHFYCADPPLIKMACAGTFVKEYTMIILAG
INFTYSLTVIIISYLFILIAILRMRSAEGRQKAFSTCGSHLTAVIIFYGTLIFMYL-RRPTEE-SVEQGK
MVAVFYTTVIPMLNPMIYSLRNKDVKKAMMKVISRSC*---------

>SOR5M9
------MPNFT--DVTEFTLLGLTCRQELQVLFFVVFLAVYMITLLGNIGMIILISISPQLQSPMYFFLS
HLSFADVCFSSNVTPKMLENLLSETKTISYVGCLVQCYFFIAVVHVEVYILAVMAFDRYMAGCNPLLYGS
KMSRTVCVRLISVPYVYGFSVSLICTLWTYGLYFCGNFEINHFYCADPPLIQIACGRVHIKEITMIVIAG
INFTYSLSVVLISYTLIVVAVLRMRSADGRRKAFSTCGSHLTAVSMFYGTPIFMYL-RRPTEE-SVEQGK
MVAVFYTTVIPMLNPMIYSLRNKDVKEAVNKAITKTYVRQ-------

>HsOR11.11.69
----MP--NFT--DVTEFTLLGLTCRQELQVLFFVVFLAVYMITLLGNIGMIILISISPQLQSPMYFFLS
HLSFADVCFSSNVTPKMLENLLSETKTISYVGCLVQCYFFIAVVHVEVYILAVMAFDRYMAGCNPLLYGS
KMSRTVCVRLISVPYVYGFSVSLICTLWTYGLYFCGNFEINHFYCADPPLIQIACGRVHIKEITMIVIAG
INFTYSLSVVLISYTLIVVAVLRMRSADGRRKAFSTCGSHLTAVSMFYGTPIFMYL-RRPTEE-SVEQGK
MVAVFYTTVIPMLNPMIYSLRNKDVKEAVNKAITKTYVRQ*------

>MmOR2.2.44
--------NFT--DVTEFLLVGLTRRQELRVLFFVVFLVVYMVTLLGNIGMIILISISPQLQSPMYFFLS
HLSFVDVLFSSNVTPKMLENLISETKTISYVGCLVQCYFFIALVHVEVYILAVMAFDRYMAICNPLLYSS
KMSRVVCIRLISVPYVYGFSVSLICTLWTYGLYFCGNIKINHFYCADPPLIKIACGGVHIKEYTMIVIAG
INFTYSLSVVLISYVLIVVAVLRMHSADGRRKAFSTCGSHLTAVSMFYGTLIFMYL-RRPTEE-SVEQGK
MVAVFYTSVIPMLNPMIYSLRNKDVKEAVYKIVAKANLRK*------

>MmOR2.2.46
--------NFT--DVTEFLLVGLTRRQELRVLFFVVFLVVYMVTLLGNIGMIILISISLQLQSPMYFFLS
HLSFVDVLFSSNVTPKMLENLLSESKTISYVGCLVQCYFFIALVLVEVFILAVMAFDRYVAICNPLLYSS
KMSRVVCIRLISVPYVYGFSVSLICTLWTYGLYFCGNVKINHFYCADPPLIKIACGGVHIKEYTMIVIAG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
INFTYSLSVVLISYVLIVVAVLRMHSADGRRKAFSTCGSHLTAVSMFYGTLIFMYL-RRPTEE-SVEQGK
MVAVFYTSVIPMLNPMIYSLRNKDVKEAVCKIVAKANLRK*------

>HsOR11.11.72
-----MRRNCT--LVTEFILLGLTSRRELQILLFTLFLAIYMVTVAGNLGMIVLIQANAWLHMPMYFFLS
HLSFVDLCFSSNVTPKMLEIFLSEKKSISYPACLVQCYLFIALVHVEIYILAVMAFDRYMAICNPLLYGS
RMSKSVCSFLITVPYVYGALTGLMETMWTYNLAFCGPNEINHFYCADPPLIKLACSDTYNKELSMFIVAG
WNLSFSLFIICISYLYIFPAILKIRSTEGRQKAFSTCGSHLTAVTIFYATLFFMYL-RPPSKE-SVEQGK
MVAVFYTTVIPMLNLIIYSLRNKNVKEALIKELS-MKIYFS*-----

>MmOR2.2.41
-----MTRNFT--SVTEFILLGLTSHVELQILFFVLFLVVYVVTVAGNLGMILLIKANARLHTPMYFFLS
HLSFVDMCFSSNVTPKMLQIFLSERKTISYSACLVQCYLFIALVHVEFYILALMAFDRYMAICNPLLYGS
KMSQSVCTSLITVPYVYGALTGLMETMWTYNLAFCGHNEINHFYCADPPLIKLACSDTYHKETSMLVVAG
FNLSFSLLIILTSYLYIFPAILRISSTEGKRKAFSTCGSHLTAVIIFYATLFFMYL-RPTSRE-SVEQGK
MVAVFYTTVIPMLNPMIYSLRNKDVKEAISKELSHKKMYFSEKRNSI

>SMOR200-1
-----MTRNFT--SVTEFILLGLTSHVELQILFFVLFLVVYVVTVAGNLGMILLIKANARLHTPMYFFLS
HLSFVDMCFSSNVTPKMLQIFLSERKTISYSACLVQCYLFIALVHVEFYILALMAFDRYMAICNPLLYGS
KMSQSVCTSLITVPYVYGALTGLMETMWTYNLAFCGHNEINHFYCADPPLIKLACSDTYHKETSMLVVAG
FNLSFSLLIILTSYLYIFPAILRISSTEGKRKAFSTCGSHLTAVIIFYATLFFMYL-RPTSRE-SVEQGK
MVAVFYTTVIPMLNPMIYSLRNKDVKEAISKELSHKKMYFSEKRNSI

>SMOR197-1
KAYSEAKHNGT--EATEFILLGLSTRSELQPILFLVFLTIYLITLTGNFGMILLIRFTPQLQTPMYFFLT
HLACVDIFYSTNVSPQMLVNFLSEKKTISYIGCLTQCFVFVTLLLTEYYMLGAMAYDRYMAICKPLHYST
KLSRPVCICLVTFPYFWGSMVGTMQVILTSRLSFCGPNTINHFYCADPPLLMLTCSDTYIKQTALFVSAG
INLTGSLLIILISYIFIFITIMRIRSSEGQRKALSTCGSHLTAVTMFYGSLFCMYL-RPANER-SVEQGK
IIAVFCIFVSPMVNPFIYSLRNKDVKQALRRVFIRNLCKVEKSSVPM

>MmOR2.2.34
KAYSEAKRNGT--EATEFILLGLSTRPELQPILFLVFLTIYLITLTGNFGMILLIRFTPQLQTPMYFFLT
HLACVDIFYSTNVSPQMLVNFLSEKKTISYIGCLTQCFVFVTLLLTEYYMLGAMAYDRYMAICKPLHYST
KLSRPVCICLVTFPYFWGSMVGTMQVILTSRLSFCGPNTINHFYCADPPLLMLTCSDTYIKQTALFVSAG
INLTGSLLIILISYIFIFITIMRIRSSEGQRKALSTCGSHLTAVTMFYGSLFCMYL-RPANER-SVEQGK
IIAVFCIFVSPMVNPFIYSLRNKDVKQALRRVFIRNLCKVEKSSVPM

>MmOR2.2.36
----MLKKNFT--TVTEFIFLGLTDRAELQPVLFVVFLLIYLITVTGNVSMIFLIRSDSKLHTPMYFFLS
HLSFVDLCYATTVAPQMLVNFLSKRKNISFIGCIIQFHFFIALVITDYYMLAVMAYDRYVAICKPLLYTS
KMSRRVCLSLVATQYIYGFVNGLIQTILMLRLTFCGPNEINHFYCADPPLMVLACSDTYVKKTAMFVVAG
SNLTCSLTIILISYIFIFTAILRIRSAEGRQKAFSTCGSHLTAVTIFYGTLFCMHL-RPPSET-SVEQGK
IVAVFYIFVSPMLNPFIYSLRNKDVKNAIRKVIQK*-----------

>MmOR2.2.35
----MLRKNYT--AVTEFVLLGLTDQAELQPVLFVVFLLIYLITVIGNVSMIFLIRSDSKLHTPMYFFLS
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
HLSFVDLCYATNVTPQMLVNFLSKRKTISFIGCFIQFHFFIALVITDYYMLTVMAYDRYMAICKPLLYTS
KMSRSVCLSLVAAPYIYGFANGLAQTILMLRLTFCGPNEINHFYCADPPLMVLACSDTYVKETAMFVVAG
SNLTCSLTIILISYIFIFTAILRIRSAEGRRKAFSTCGSHLIAVTVFYGTLFCMYL-RPPSEK-SVEQGK
IVAVFYIFVSPMLNPLIYSLRNKDVKNAIRKVVKKEVFLK*------

>MmOR2.2.40
APKKMVRGNYS--MVTEFILLGLTDRPELQPLLFVLFLVIYLITVGGNLGMMVLIRIDSRLHTPMYYFLA
SLSCLDLCYSTNVTPKMLVNFLSEKKTISYAACLVQCYFFIAMVITEYYMLAVMAYDRYMAICNPLLYSS
KMSKGVCVRLIAGPYIYGFLSGLMETMWTYRLTFCGSNIINHFYCADPPLIRLSCSDTFIKETSMFVVAG
FNLSNSLFIILISYLFILIAILRMRSAEGRRKAFSTCGSHLVAVTVFYGTLFCMYV-RPPTDK-SVEQSK
IIAVFYTFVSPMLNPIIYSLRNKDVKHAFWKLVRRNVLSK*------

>SOR5M11
----MSNTNGS--AITEFILLGLTDCPELQSLLFVLFLVVYLVTLLGNLGMIMLMRLDSRLHTPMYFFLT
NLAFVDLCYTSNATPQMSTNIVSE-KTISFAGCFTQCYIFIALLLTEFYMLAAMAYDRYVAIYDPLRYSV
KTSRRVCICLATFPYVYGFSDGLFQAILTFRLTFCRSSVINHFYCADPPLIKLSCSDTYVKEHAMFISAG
FNLSSSLTIVLVSYAFILAAILRIKSAEGRHKAFSTCGSHMMAVTLFYGTLFCMYI-RPPTDK-TVEESK
IIAVFYTFVSPVLNPLIYSLRNKDVKQALKNVL-R------------

>HsOR11.11.76
----MSNTNGS--AITEFILLGLTDCPELQSLLFVLFLVVYLVTLLGNLGMIMLMRLDSRLHTPMYFFLT
NLAFVDLCYTSNATPQMSTNIVSE-KTISFAGCFTQCYIFIALLLTEFYMLAAMAYDRYVAIYDPLRYSV
KTSRRVCICLATFPYVYGFSDGLFQAILTFRLTFCRSSVINHFYCADPPLIKLSCSDTYVKEHAMFISAG
FNLSSSLTIVLVSYAFILAAILRIKSAEGRHKAFSTCGSHMMAVTLFYGTLFCMYI-RPPTDK-TVEESK
IIAVFYTFVSPVLNPLIYSLRNKDVKQALKNVLR*------------

>MmOR2.2.39
----MPHTNST--KITEFILLGLTDRPELQPLLFVLFLFIYLVTVLGNMGLMALIRLDSRLHKPMYFFLS
NLAFVDLCYTSTATPQMLTNFLSEKKTISFIGCFIQCYLFIALLLTEFYMLAAMAYDRYVAICNPLRYSV
KMSRRVCICLAMCPYIYGFSDGLFQAILTFSMTFCKSNVINHFYCADPPLIKLSCSDTYKKEHAMLISAG
FNLSNSLTIILVSYAFIIAAILRIKSAEGRRKAFSTCGSHMMAVTLFYGTLFCMYV-RPPTDK-TVEESK
IIAVFYTFVSPLLNPLIYSLRNKDVKQALKTILRQNVIRTALMRPPS

>MmOR2.2.38
----MPLTNST--KITEFILLGLTDRPELQPLLFVLFLFVYIVTVLGNMGMVALIRLDSRLHKPMYFFLS
NLAFVDLCYTSTATPQMLTNFLSEKKTISFIGCFIQCYLFIALLLTEFYMLAAMAYDRYVAICNPLRYSV
KMSRRVCICLAMCPYIYGFSDGLFQAILTFSMTFCKSNVINHFYCADPPLIKLSCSDTYKKEHAMLISAS
FNLSSSLTIILVSYAFIIAAILRIKSAEGRHKAFSTCGSHMMAVTLFYGTLFCMYV-RPPTDK-TVEESK
IIAVFYTFVSPLLNPLIYSLRNKDVKQALKTILRQNVIRTALMRPPS

>HsOR11.11.77
----MLSPNHT--IVTEFILLGLTDDPVLEKILFGVFLAIYLITLAGNLCMILLIRTNSQLQTPMYFFLG
HLSFVDICYSSNVTPNMLHNFLSEQKTISYAGCFTQCLLFIALVITEFYFLASMALDRYVAICSPLHYSS
RMSKNICISLVTVPYMYGFLNGLSQTLLTFHLSFCGSLEINHFYCADPPLIMLACSDTRVKKMAMFVVAG
FTLSSSLFIILLSYLFIFAAIFRIRSAEGRHKAFSTCASHLTIVTLFYGTLFCMYV-RPPSEK-SVEESK
IIAVFYTFLSPMLNPLIYSLRNRDVILAIQQMIRGKSFCKIAV*---
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>SOR5M10
----MLSPNHT--IVTEFILLGLTDDPVLEKILFGVFLAIYLITLAGNLCMILLIRTNSQLQTPMYFFLG
HLSFLDICYSSNVTPNMLHNFLSEQKTISYAGCFTQCLLFIALVITEFYFLASMALDRYVAICSPLHYSS
RMSKNICISLVTVPYMYGFLNGLSQTLLTFHLSFCGSLEINHFYCADPPLIMLACSDTRVKKMAMFVVAG
FTLSSSLFIILLSYLFIFAAIFRIRSAEGRHKAFSTCASHLTIVTLFYGTLFCMYV-RPPSEK-SVEESK
IIAVFYTFLSPMLNPLIYSLRNRDVILAIQQMIRGKSFCKIAV----

>HsOR11.11.79
----MFSPNHT--IVTEFILLGLTDDPVLEKILFGVFLAIYLITLAGNLCMILLIRTNSHLQTPMYFFLG
HLSFVDICYSSNVTPNMLHNFLSEQKTISYAGCFTQCLLFIALVITEFYILASMALDRYVAICSPLHYSS
RMSKNICVCLVTIPYMYGFLSGFSQSLLTFHLSFCGSLEINHFYCADPPLIMLACSDTRVKKMAMFVVAG
FNLSSSLFIILLSYLFIFAAIFRIRSAEGRHKAFSTCASHLTIVTLFYGTLFCMYV-RPPSEK-SVEESK
ITAVFYTFLSPMLNPLIYSLRNTDVILAMQQMIRGKSFHKIAV*---

>SOR5M1
----MFSPNHT--IVTEFILLGLTDDPVLEKILFGVFLAIYLITLAGNLCMILLIRTNSHLQTPMYFFLG
HLSFVDICYSSNVTPNMLHNFLSEQKTISYAGCFTQCLLFIALVITEFYILASMALDRYVAICSPLHYSS
RMSKNICVCLVTIPYMYGFLSGFSQSLLTFHLSFCGSLEINHFYCADPPLIMLACSDTRVKKMAMFVVAG
FNLSSSLFIILLSYLFIFAAIFRIRSAEGRHKAFSTCASHLTIVTLFYGTLFCMYV-RPPSEK-SVEESK
ITAVFYTFLTPMLNPLIYSLRNTDVILAMQQMIRGKSFHKIAV----

>SMOR196-1
----MPSLNNT--AVMDFILVGLTDSPVLGRILFVVFLVIYLITLTGNLCMIVLIRTNSHLQTPMYFFLG
HLSFVDICYSSNVTPNMLHGFISDQKIISYAGCFTQCLLFIALVITEFYLLASMALDRYVAICSPLHYST
RMSKNVCFSLVSFSYVFGFLNGLSQTLLTFHLSFCGSHEINHFYCADPPLIMLACSDTHVKKMAMFVVAG
FTLISSLSIILFSYLYIFAAIMRIRSAEGRQKAFSTCGSHLTTVTIFYGTLFCMYL-KPPSER-SIEESK
VIAVFYTFLSPFLNPLIYSLRNKDVINAMKQVI-KGNFCQKILV---

>MmOR2.2.32
----MPSLNNT--AVMDFILVGLTDSPVLGRILFVVFLVIYLITLTGNLCMIVLIRTNSHLQTPMYFFLG
HLSFVDICYSSNVTPNMLHGFISDQKIISYAGCFTQCLLFIALVITEFYLLASMALDHYVAICSPLHYST
RMSKNVCFSLVSFSYVFGFLNGLSQTLLTFHLSFCGSHEINHFYCADPPLIMLACSDTHVKKMAMFVVAG
FTLISSLSIILFSYLYIFAAIMRIRSAEGRQKAFSTCGSHLTTVTIFYETLFCMYL-KPPSER-SIEESK
VIAVFYTFLSPFLNPLIYSLRNKDVINAMKQVIKGNFCQKILV*---

>MmOR2.2.33
----MTFLNHT--AMMDFILVGLTDSPVLGRILFVVFLVIFVITLAGNLFMIVLIRTNSHLQTPMYFFLG
HLSFVDICYSSNVTPNMLHGFISDQKTISYAGCFTQCLLFIALVITEFYLLASMALDRYVAICSPLHYST
RMSKNVCVSLVAFPYVFGFLNGLSQTLLTFHLSFCGSHEINHFYCADPPLIMLACSDTHVKKMAMFVVAG
FTLSSSLAIILLSYLFIFIAILRIRSAKGRQKAFSTCGSHMTTVTIFYGTLFCMYL-RPPSEK-SVEESK
VIAVFYTFLSPMLNPLIYSLRNKDVINAMKQVV-KGKLLH*------

>HsOR11.11.39
----MTRKNYT--SLTEFVLLGLADTLELQIILFLFFLVIYTLTVLGNLGMILLIRIDSQLHTPMYFFLA
NLSFVDVCNSTTITPKMLADLLSEKKTISFAGCFLQMYFFISLATTECILFGLMAYDRYAAICRPLLYSL
IMSRTVYLKMAAGAFAAGLLNFMVNTSHVSSLSFCDSNVIHHFFCDSPPLFKLSCSDTILKESISSILAG
VNIVGTLLVILSSYSYVLFSIFSMHSGEGRHRAFSTCASHLTAIILFYATCIYTYL-RPSSSY-SLNQDK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
VASVFYTVVIPMLNPLIYSLRSKEVKKALANVISRKRTSSFL*----

>SOR5F1
----MTRKNYT--SLTEFVLLGLADTLELQIILFLFFLVIYTLTVLGNLGMILLIRIDSQLHTPMYFFLA
NLSFVDVCNSTTITPKMLADLLSEKKTISFAGCFLQMYFFISLATTECILFGLMAYDRYAAICRPLLYSL
IMSRTVYLKMAAGAFAAGLLNFMVNTSHVSSLSFCDSNVIHHFFCDSPPLFKLSCSDTILKESISSILAG
VNIVGTLLVILSSYSYVLFSIFSMHSGEGRHRAFSTCASHLTAIILFYATCIYTYL-RPSSSY-SLNQDK
VASVFYTVVIPMLNPLIYSLRNKEVKKALANVISRKRTSSFL-----

>HsOR11.11.46
----MGRRNNT--NVADFILMGLTLSEEIQMALFMLFLLIYLITMLGNVGMILIIRLDLQLHTPMYFFLT
HLSFIDLSYSTVVTPKTLANLLT-SNYISFTGCFAQMFFFAFLGTAECYLLSSMAHDRYAAICSPLHYTV
IMSKRLCLALITGPYVIGFIDSFVNVVSMSRLHFYDSNVIHHFFCDTSPILALSCTDTYNTEILIFIIVG
STLMVSLFTISASYVFILFTILKINSTSGKQKAFSTCVSHLLGVTIFYSTLIFTYL-KPRKSY-SLGRDQ
VASVFYTIVIPVLNPLIYSLRNKEVKNAVIRVMQRRQDSR*------

>SOR8H2
---MMGRRNNT--NVADFILMGLTLSEEIQMALFMLFLLIYLITMLGNVGMILIIRLDLQLHTPMYFFLT
HLSFIDLSYSTVVTPKTLANLLT-SNYISFTGCFAQMFFFVFLGTAECYLLSSMAHDRYAAICSPLHYTV
IMSKRLCLALITGPYVIGFMDSFLNVVSMSRLHFCYSNVIHHFFCDTSPILALSCTDTYNTEILIFIIVG
STLMVSLFTISASYVFILFTILKINSTSGKQKAFSTCVSHLLGVTIFYSTLIFTHL-KPRKSY-SLGRDQ
VASVFYTIVIPMLNPLIYSLRNKEVKNAVIRVMQRRQDSR-------

>HsOR11.11.47
----MGRRNDT--NVADFILTGLSDSEEVQMALFMLFLLIYLITMLGNVGMLLIIRLDLQLHTPMYFFLT
HLSFIDLSYSTVVTPKTLANLLT-SNYISFTGCFAQMFCFVFLGTAECYLLSSMAYDRYAAICSPLHYTV
IMPKRLCLALITGPYVIGFMDSFVNVVSMSRLHFCDSNIIHHFFCDTSPILALSCTDTDNTEMLIFIIAG
STLMVSLITISASYVSILSTILKINSTSGKQKAFSTCVSHLLGVTIFYGTMIFTYL-KPRKSY-SLGRDQ
VAPVFYTIVIPMLNPLIYSLRNREVKNALIRVMQRRQDSR*------

>SOR8H3
---MMGRRNDT--NVADFILTGLSDSEEVQMALFMLFLLIYLITMLGNVGMLLIIRLDLQLHTPMYFFLT
HLSFIDLSYSTVVTPKTLANLLT-SNYISFTGCFAQMFCFVFLGTAECYLLSSMAYDRYAAICSPLHYTV
IMSKRLCLALITGPYVIGFMDSFVNVVSMSRLHFCDSNIIHHFFCDTSPILALSCTDTDNTEMLIFIIAG
STLMVSLITISASYVSILSTILKINSTSGKQKAFSTCVSHLLGVTIFYGTMIFTYL-KPRKSY-SLGRDQ
VAPVFYTIVIPMLNPLIYSLRNREVKNALIRVMQRRQDSR-------

>HsOR11.11.57
----MGRRNNT--NVPDFILTGLSDSEEVQMALFILFLLIYLITMLGNVGMILIIRLDLQLHTPMYFFLT
HLSFIDLSYSTVITPKTLANLLT-SNYISFMGCFAQMFFFVFLGAAECFLLSSMAYDRYVAICSPLRYPV
IMSKRLCCALVTGPYVISFINSFVNVVWMSRLHFCDSNVVRHFFCDTSPILALSCMDTYDIEIMIHILAG
STLMVSLITISASYVSILSTILKINSTSGKQKALSTCASHLLGVTIFYGTMIFTYL-KPRKSY-SLGRDQ
VASVFYTIVIPMLNPLIYSLRNKEVKNALIRVMQRRQDSR*------

>MmOR2.2.98
----MNTLNYT--FKPDFILMGLTDSKEVQLVLSVLFLLIYLVTVLGNIGMILIIRLDVQLHTPMYFFLT
HLSFLDLSYSTVITPKTLENLLTSTKNISFMGCFTQMYFFVLLAATECFLLSSMAYDRYVAICKPLHYSV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMSKRFCSALLTGSYVFGAVDSTVNMLCMGTLDFCNSNVIHDFFCDTSPLIALSCSNTHDIEFIIFIFAG
STLLLSLITISASYLSILSTILKISSTSGKQKAFSTCASHILAVTIFYGTMIFTHL-KSNKSF-SLGKDQ
VASVFYTIVIPMLNPLIYSLRNKEVKCAIDRIIKKREKGL*------

>MmOR2.2.99
----MNTWNYT--KESDFILMGLTDSKEIQLVLTVLFVLIYLVTVLGNAGMMLIIRLDAQLHTPMYFFLS
HLSFLDLSYSTVITPKTLQNLLTSTKVISFIGCFTQMYAFVLLAAAECFLLASMAYDRYVAICNPLQYPV
IMSTRFCSTLLTGSYMIGTMDSTVNIFCMNTLYFCRTKVIHHFFCDTSPILALSCSDTRNIQIIIFIFAG
STLVVSLITISASYVSILSTILKINSTSGKHKAFSTCASHLLGVTVFYGTLIFTYL-KPSNSY-YSGKEQ
VASVFYTIVIPMLNPLIYSLRNKEVKSAIHRVIKKQKGSRLKFRVAL

>SMOR206-1
-------------MNPEFMLVGLTDSKEIQLVLSVLFLLIYMLTVLGNIGIILIIHLDVQLHTPMYFFLT
HLSFLDLSYSTVITPKTLQNTLTSIKNISFMGCFTQLYFFAFLAGSECFILSSMAYDRYVAICNPLHYPV
IMSPRRSYILITVSYIVGAIDSSATVFWLSTLDFCNSTVIHHFFCDTFPILALSCSDTYNAEATIFVLAG
STLLLSLITISASYVSILSTILKINSSSGKHKAFSTCASHLIGVTVFYGTTIFTYL-KPSTSY-SLGKDQ
VAPVFYTIVIPMLNPLIYSLRNKEVKSAVVRVMKKRECIQKLK----

>MmOR2.2.97
----MSACNPT--NEPEFMLVGLTDSKEIQLVLSVLFLLIYMLTVLGNIGIILIIHLDVQLHTPMYFFLT
HLSFLDLSYSTVITPKTLQNTLTSIKNISFMGCFTQLYFFAFLAGSECFILSSMAYDRYVAICNPLHYPV
IMSPRRSYILITVSYIVGAIDSSATVFWLSTLDFCNSTVIHHFFCDTFPILALSCSDTYNAEATIFVLAG
STLLLSLITISASYVSILSTILKINSSSGKHKAFSTCASHLIGVTVFYGTMIFTYL-KPSTSY-SLGKDQ
VASVFYTIVIPMLNPLIYSLRNKEVKSAVVRVMKKRECIQKLK*---

>MmOR2.2.96
----MSACNDT--NEPEFTLVGLTDSKEIQLVLSVLFLLIYMLTVLGNIGMILIIHLDVQLHTPMYFFLT
HLSFLDLSYSTVITPKTLQNTLTSIKNISFMGCFTQLYFFVLLAASECFILSSMAYDRYVAICNPLHYPV
IMSPRRSYTLITVSYMIGVLDSSVTVFCLSTLDFCNSKVIHHFFCDTFPILALSCSDTYNAEATIFVLAG
STLLLSLITISSSYVSILSTILKINSSSGKHKAFSTCASHLIGVTVFYGTMIFTYL-KPSTSY-SLGKDQ
VASVFYTIVIPMLNPLIYSLRNKEVKSAVVRVMKKRECTQKLK*---

>MmOR2.2.95
----MYTWNHT--NMPDFILMGLTDSKEIQLILSVLFLLIYLVTVLGNIGMILIIYIDTQLHTPMYFFLT
HLSVVDLSYSTAITPKTLENMLTTNKSISYTNCFAQLYIFILLAATECFLLSSMAYDRYIAICNPLHYPV
IMSPRCCLALLTGSYVIGAVDSTLTVFSMITLHFCKSNVIRHFYCDTSPLLSLSCSDTHVVEIIIFIFAG
STILGSLITISGSYVSILSTILNINSTSGKQKAFSTCASHLLGVTVFYSTLIFTYL-KPTKSY-SLGKEE
VASVFYTIVIPMLNPLIYSLRNKEVKSAVVRLVKKRQGSRKLI*---

>HsOR11.11.45
----MAGNNFT--EVTVFILSGFANHPELQVSLFLMFLFIYLFTVLGNLGLITLIRMDSQLHTPMYFFLS
NLAFIDIFYSSTVTPKALVNFQSNRRSISFVGCFVQMYFFVGLVCCECFLLGSMAYNRYIAICNPLLYSV
VMSQKVSNWLGVMPYVIGFTSSLISVWVISSLAFCDSS-INHFFCDTTALLALSCVDTFGTEMVSFVLAG
FTLLSSLLIITVTYIIIISAILRIQSAAGRQKAFSTCASHLMAVTIFYGSLIFTYL-QPDNTS-SLTQAQ
VASVFYTIVIPMLNPLIYSLRNKDVKNALLRVIHRKLFP*-------

>SOR8I2
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MAGNNFT--EVTVFILSGFANHPELQVSLFLMFLFIYLFTVLGNLGLITLIRMDSQLHTPMYFFLS
NLAFIDIFYSSTVTPKALVNFQSNRRSISFVGCFVQMYFFVGLVCCECFLLGSMAYNRYIAICNPLLYSV
VMSQKVSNWLGVMPYVIGFTSSLISVWVISSLAFCDSS-INHFFCDTTALLALSCVDTFGTEMVSFVLAG
FTLLSSLLIITVTYIIIISAILRIQSAAGRQKAFSTCASHLMAVTIFYGSLIFTYL-QPDNTS-SLTQAQ
VASVFYTIVIPMLNPLIYSLRNKDVKNALLRVIHRKLFPERPLEQTD

>SMOR207-1
----MTENNFT--KVTVFMFSGFSDHPELQVSLFLIFLFIYLFTVWGNIGLILLIRIDSQLHTPMYFFLS
NLAFIDIFYSSTVTPKALVDFQSTQKSISFVGCFVQMYFFVGLVCSECFLLGSMAYDRYVAICNPLLYSV
IMSQKVCNWLAVIPYMIGFTNSLISICVISSLPLCDPY-INHFFCDTTALLALSCVDAFSTELVIFVLAG
FTLLSSLLIITFTYVTIISAILRIQSAAGRWKAFSTCASHLTGVTVFYGSLIFTYL-QPDNTS-SLTQAQ
VASVFYTIVIPMLNPLIYSLRNKDVKNALLRVIHRKHLL--------

>MmOR2.2.103
----MTENNFT--KVTVFMFSGFSDHPELQVSLFLIFLFIYLFTVWGNIGLILLIRIDSQLHTPMYFFLS
NLAFIDIFYSSTVTPKAVVDFQSTQKSISFVGCFVQMYFFVGLVCSECFLLGSMAYDRYVAICNPLLYSV
IMSQKVCNWLAVIPYMIGFTNSLISICVISSLPLCDPY-INHFFCDTTALLALSCVDAFSTELVIFVLAG
FTLLSSLLIITFTYVTIISAILRIQSAAGRWKAFSTCASHLTGVTVFYGSLIFTYL-QPDNTS-SLTQAQ
VASVFYTIVIPMLNPLIYSLRNKDVKNALLRVIHRKHLL*-------

>MmOR7.7.35
-MGILKDGNHT--AVTEFILLGLTDDPVLKVVLFTIILCIYLVTVSGNLSTILLIRVSSQLHHPMYFFLS
HLASVDIGISSSVTPNMLVNFLLERSTISYLGCGIQLGSGAFFGSTESFLLAAMAYDHFMAICNPLLYST
KMSTQVCIQLLVGSYIGGFLNASSFILSFFSFLFCGPNKVNHFFCDFTPLVELSCSDNSVLLILDSFSAG
SIIVITVLVIAISYTYILITILKMHSTEGRHKAFSTCTSHLTAVTVFYGTVTFIYV-MPKSSY-STDQNK
VLSVFYAIAIPMLNPLIYSLRNNEIKNALKRQLSKKTFS*-------

>MmOR7.7.38
-MAFLEDGNHT--VVTEFILLGLTDDPVLRVILFIIILCIYLVTVSGNLSTILLIRVSSQLHHPMYFFLS
HLASIDIAISSSVTPNMVVNFLVERSSISYIGCGIQLGSAVFFGAIECFLLAVMAYDRFVAICNPLLYST
KMSKQVCIQLLVGSYIGGFIHASFFTLSFVSFLFCGPNRINHFFCDFTPLVELSCSDNSVLIILDSFSTG
TIIVITVFVIAISYTCILITILKMHSTEGRHKAFSTCTSHLTVVTLLYGTVTFIYV-MPKSSY-STDQNK
VISVFYMVVIPMLNPIIYSLRNNEIKGALKKQLGEKNIF*-------

>MmOR7.7.34
-MAFLEDGNHT--ALTEFILLGLTDEPVLRVVLFTIILCIYLVTVSGNLSTILLIRVSSQLHHPMYFFLS
HLASADIGYSSSVTPNMLVNFLVEKNTITYLGCGIQLGSGAFFGTVECFVLAAMAYDRFVAICSPLLYST
KMSIQVCIQLLVVAYISGFLNASSFTLSFFTFFFCGPNIINHFFCDFTPLVELSCSDDRVSIILATISVG
TVIFITVLIIVVSYIYILITILKMHSTEGRHKAFSTCTSHLTAVTLFYGTVTFIYV-MPKSNY-STDQNK
VVSVFYMVVIPMLNPLIYSLRNNEIKGALKRQLGRKIFS*-------

>MmOR7.7.25
-MAFLEVGNHT--AVTEFILLGLTDDPVLRVVLFTIILCIYLVTVMGNLSTILLIRVSSQLHHPMYFFLS
HLASVDMGLSSSVTPNMLLNFLIERNTISYLGCGIQQSLADFFGSVECFLLAAMAYDRFMAICNPLLYST
KMSTKVCVQLVVGSYIGGFLNASLIMFYFFSFLFCGPNRVDHFFCDFAPLVELSCSDVSVSVIVISFSAG
SVTMITVFVIAVSYSYILITILKMHSIEGRHKAFSTCTSHLTAVTLYYGTITFIYV-MPKSSF-STDQNK
VVSVFYMVMIPMLNPLIYSLRNNEIKGAIKRQLGKKMSC*-------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR7.7.11
-MAFLQDGNHT--AVTEFILLGLTDDPVLRVVLFTIILCIYLVTVFGNLSTILLIRVSSQLHHPMYFFLS
HLASVDIGISSSVTPSMLVNFLLERSTISYLGCGIQLGSADFIASVECFLLAAMAYDRFMAVCNPLLYST
KMSTQVCVQLVVGSYIGGFLNSLIVTVYFFSFLFCGPNRIDHFFCDFAPLAELSCSDVSVSVLIISFSAG
SVTMITVFVIVISYSYILITILKMHSTEGRHKAFSTCTSHLTAVTLYYGTITFIYV-MPKSSF-STDQNK
VVSVFYMVMIPMLNPLIYSLSNNEIKGALKRQLGMKTLS*-------

>MmOR7.7.22
-MAFLQDGNHT--AVTEFILLGLTDGPILRVILFTIILCIYLVTVSGNLSTILLIRVSSQLHHPMYFFLS
HLASVDMGLSSSVTPNMLVNFLVKQNTISYIACSIQFGLAAFFGTVECFLLAAMAYDRFVAICNPLLYST
KISTESCIQLVVGSYIGGFLNASSFILSFFSFIFCGPNRINHFYCDLAPLVELSCSDVSVSVVVTSFSAG
SVTVITVFVIAVSYSYILITILKMHSTEGRHKAFSTCTSHLTAVTLYYGTITFIYV-MPKSSY-STDQNK
VVSVFYMVVIPMLNPLIYSLRNNEIKGAIKRQLGKKMFC*-------

>MmOR7.7.21
-MAFLHNGNHT--AVTEFILLGLTDDPVFRVILFTIILCIYLVTVSGNLSTILLIRVSSQLHHPMYFFLS
HLASVDIGYSSSVTPNMLANFLVEKNTISYLGCTIQLSLAAFCGTVECFLLATMAYDRFMAICSPLLYST
KMSTQVCIQLIVGSYIGGFLNASSFTLFFLSFLFCGPNRINHFYCDFAPLVALSCSDVSVSEVVTSFFSG
SVTMITMLVIAISYTYILITILKMRSTEGRHKAFSTCTSHLTAVTLFYGTITFIYV-MPKSSF-STDQNK
VVSVFYMVVIPMLNPLIYSLRNNEIKDALKRHLGKKIFS*-------

>MmOR7.7.10
-MAFLEDGNHT--AVTEFILVGLTDDPVLKVILFTIILCIYLVTVSGNLSTILLIRVSSQLHHPMYFFLS
HLASVDLGYSSSVTPNMLINFLAENNTISYIGCSIQFGSATFFGVLECFLLAVMAYDRFVAICNPLLYSI
KMSTQVCVKLVVGSYIGSSLNASFVTVSIFNLLFCGPNKINHFFCDFDPLIELSCSDVSVPVAVTSCSAG
LITMITVFVIAVSYTYILITVLKMRSTEGRHKAFSTCTSHLTAVTLFYGTVTFIYV-MPKSNY-STDQNK
VVSVFYMVVIPMLNPLIYSLRNNEIKGALKRQLGKKIFSQSNILFCK

>MmOR7.7.12
-MAFLHNGNHT--AVTEFILLGLTDDPVLRIVLFTIILCIYLVTVSGNLSTILLIRVSSQLHHPMYFFLS
HLASADIGYSSSVTPNMLVNFLVKQNTISYIGCSIQFGSAAFFGGLECFLLAVMAYDRFVAICNPLLYST
KMSTQVCVQLVVGSYIGGFLNASFATVSFLFLFFCGPNIINHFFCDFAPLIELSCSDVRISVLVTSFSAG
TVTMLTVLVIAISYTYILITILKMRSTEGRHKAFSTCTSHLTAVSLFYGTITFIYV-MPKSRY-STDQNK
VVSVFYMVVIPMLNPLIYSLRNNEIKGALRRHLGKKIFSQSNILFY*

>MmOR7.7.18
-MAFLENGNHT--AVSEFILLGLTDDPVLRIVLFTIILCIYLVTVSGNLSTILLIRVSSQLHHPMYFFLS
HLASADIGLSSSVTPNMLVNFLVERSTISYLGCGIQLSSAALFGATECFLLAAMAYDRFMAICNPLLYST
KMSTKVCVQLIVGSYIAGFLNASSFLLSFFSLLFCGQNIINDFFCDFAPLAELSCSDVSVFVVVISFSAG
TVTMLTVFVIAISYSYILITILKMRSTEGRQKAFSTCTSHLTAVTLFYGTVTFIYV-MPKSSY-SMDQNK
IISVFYMVVVPMLNPLIYSLRNNEIKGALKRHFDRKTFS*-------

>MmOR7.7.30
-MAFLEDGNHT--AVTGFILLGLTDDPVLRVVLFVIILCIYLVTVSGNLSTILLIRVSSQLHHPMYFFLS
HLASADIGYSSSVTPNMLVNFLVERNTISYLGCGIQLGSAVFFGTVECFLLAAMAYDRFIAICSPLLYSN
KMSTQVCVQLLVGSYIGGFLNASSFTLSFFSLVFCGPNRVNHFFCDFAPLVKLSCSDVSVPAVVPSFTAG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
SIIIVTIFVIAVSYIYILITILKMRSTEGRQKAFSTCTSHLTAVTLFYGTITFIYV-MPKSSY-STDQNK
VVSVFYMVVVPMLNPLIYSLRNKEIKGALKRQLAKNTFS*-------

>MmOR7.7.6
-MAFQEDGNHT--AVTEFVLFGLTDDPVLRVILFIIFLCIYLVTVSGNLSTILLIRVSSQLHHPMYFFLS
HLAFADIGYSSSVTPNMLVNFLVERHTISYIGCAIQLGSVVFFGSSECFILAAMAYDRFMAICNPLLYST
KMSTQVCVQLLLIAYIGGFLNTWSFTICFYSLVFCGPNGVNHFFCDFAPLIELSCSDVSVPATVPSFTAG
SIIVVTVIVIAISYIYILITILKMHSTEGRQKAFSTCTSHLTAVTLFYGTITFIYV-MPKSSF-STDQNK
VVSVFYMVVIPMLNPLIYSLRNNEIKGALKRQIGRKIFS*-------

>MmORUn.16.1
-MAFLEDGNHT--AVTEFVLFGLTDDPVLRVILFIIFLCIYLVNVSGNLSTILLIRVSSQLHHPMYFFLS
HLASVDVGYSSTVTPKMLANFLLERSTISYLGCTIQLFSGAFVGTLECFLLATMAYDRFIAICNPLLYST
KMSTQVCIQLLVGSYIGGFLNASSFLLSFFPLLFCGPNRVNHYSCDLTPLIELSCSGSNVPIVPASFCSA
FVIIVTVSVIAISYTYILITILKMRSTEGRQKAFSTCTSHLTAVTLYYGTVTFIYV-MPKSSY-STDQNK
VVSVFYTVVIPMLNPIIYSLRNNEIKGALKRQLARKIFS*-------

>MmOR7.7.26
-MAFLEDGNHT--TVTEFFLLGLTDDPVLRDILFIIILCIYLVTVSGNLSTILLIRVSSQLHHPMYFILS
HLASVDIGISSSVTPNMLATFLVKQNTISYIGCSIQFTSAAFFGTVECFLLATMAYDRFVAICNPLLYST
KMSTEACIQLVVGSYIQGFLNASFFTLSFFSLFFCGPNRINDFYCDFAPLLELSCSDVTVAVVITSISAG
FITLTTVFVIAISYSCIFITIMKMHSTESRCKAFSTCTSHLTAVILFYGTAIFIYV-MPKSSY-STDQNK
VLSIFYTVVIPMLNPLIYSLRNNEIKEALKRHLGKKVFSYGNLFCKT

>MmOR7.7.14
-MAFIYNGSQT--TVTEFILLGLTDDPVLKVILFCIILCIYLVTVFGNLSTILLIGVSSKLHHPMYFFLS
HLASVDMGLSSSVTPNMLVNFLTEKNTISYLGCGIQLSSAAFFGAVEFFLLAAMAYDRLVAICNPLLYST
KMSSQVCIQLVAGSYVGGFLNASFVTHFFFSFLFCGPNRVNHFFCDLSPMMELSCSDVSISEIVISFSAG
SFTMTTLFVIVIPYFYIFITILKIRSTEGRQKAFSTCTSHLTAVTLYYGTIIFIYV-MPKSTY-SRDQNK
VVSLFYMLVIPVLNPLIYSLRNNEIKDALKRQFYRKTLL*-------

>MmOR7.7.15
-MAFIYNGSQT--TVTEFILLGLTDDPVLKVILFSIILCIYLVTVFGNLSTILLIGVSSKLHHPMYFFLS
HLASVDMGLSSSVTPNMLVNFLTEKNTISYLGCGIQLSSAAFFGAVEFFLLAAMAYDRLVAICNPLLYST
KMSTQVCIQLVVGTYVGGFLNASFVTHFFFSFLFCGPNRVNHFFCDLSPMMELSCSDVSISEIVISFSAG
SFTMTTLFVIVISYFYIVITILKMHSTEGRQKAFSTCMSHLTAVTLYYGTTIFIYV-MPKSIY-SRDQNK
VVSLFYVVVIPVLNPLIYSLRNNEIKDALKRQFYRKTLL*-------

>MmOR7.7.13
SYGFPGQWNHT--AVTEFILLGLTDDPVLRVILFSIILCIYLVTVSGNLSTFLLIRVSSQLHHPMYFFLS
HLASVDMGLSSSVTPNMLVNFLTERHSISYLGCGIQLSSAAFFGAVEFFLLAVMAYDRFIAICNPLLYST
KLSTQVCIQLVVGSYVGGFLNASFVTHFFFSFFFCGPNRVNYFFCDFPPMMELSCSDVSVSGIVISFTAG
SISMTTLFVIVISYFYILITILKMHSTEGRQKAFSTCTSHLTAVTLSYGTATFIYV-MPKSTY-SGDQNK
VVSVFYTVAIPMLNPLIYSLRNNEIKDALKRQFYRKTLL*-------

>MmOR7.7.16
-MAFLDNGNHT--AVTEFILLGLTDDPFLRIVLFSIILCIYLVTVFGNLSTILLIRVSSQLHHPMYFFLS
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
HLATVDLGISSSVTPSMLVNFLAERSTISYLGCGIQLSSAALFGTLECFLLAVMAYDRFMAICNPLLYST
KLSTRFCIQLVVGSYIGAFLNDSCYISFAF-FLFCGPNKVDHFFCDLSPMMELSCSDASVSGVVISFTAG
SITMTTLIVIVISYFYILITILKMRSTEGRQKAFSTCTSHLTAVTLYYGTIIFIYV-MPKSTY-SRDQNK
VVSLFYMVVIPMLNPLIYSLRNNEIKGALKKQFYRKTLL*-------

>SOR5P2
-MNSLKDGNHT--ALTGFILLGLTDDP-------ILRVILFMIILSGNLSIIILIRISSQLHHPMYFFLS
HLAFADMAYSSSVTPNMLVNFLVERNTVSYLGCAIQLGSAAFFATVECVLLAAMAYDRFVAICSPLLYST
KMSTQVSVQLLLVVYIAGFLIAVSYTTSFYFLLFCGPNQVNHFFCDFAPLLELSCSDISVSTVVLSFSSG
SIIVVTVCVIAVCYIYILITILKMRSTEGHHKAFSTCTSHLTVVTLFYGTITFIYV-MPNFSY-STDQNK
VVSVLYTVVIPMLNPLIYSLRNKEIKGALKRELVRKILSHDACYFSR

>MmOR7.7.19
----MEPGNHT--AVTKFILLGLTDDPTLCVIFFVFFLGIYIVTLVGNISIINLVRSCPQLQTPMYMFLS
HLAFVDIGYSTSVTPIMLIGFIVHETGLPVHACEAQLCSVVTFGTAECFLLAAMAYDRYVAICSPLLYST
HMSSQICLLLVGASYVGGCVNAWTFTGCLLSLSFCGPNKIDHFFCDFSPLLKLSCSDVSIIGIIPSISAG
SIIVVTVFVISVSYIYILITILKMRSTEGRHKAFSTCTSHLTAVTLYYGTITFIYV-MPKSSY-STKQNR
VVSLFYTVVIPMLNPLIYSLRNRDVKEALRKATLRIYS*--------

>SMOR204-1
----MEAQNHT--TVKEFILLGLTENSTLRVILFMIFLGIYTVTLVGNFSIISLIRSCPQLHTPMYLFLS
HLALVDIGFSTSITPIMLTGFLGHTVTLSVAACVAQFCIAVTFGTVECFLLAVMAYDRYVAICSPLLYST
HMSPRICFLLVGASYVGGCVNSGTFTSCLLILSFCGPNQIDHFFCDFPAVLKLSCSDVSIIGIIPSISAG
SIIVITVFVIAVSYTYILITILNMRSTEGRHKAFSTCTSHLTAVTLYYGTITFIYV-MPKSNY-STAQNK
ILSVFYTVVIPMLNPLIYSLRNRDVKEALRKAIIRIFP---------

>MmOR7.7.5
----METQNHT--TVTEFILLGLTESSTLRVILFMVFLGIYTVTLVGNFSIISLIRSCPQLHTPMYLFLS
HLAFVDIGFSTSITPTMFKGFLGNRLVLSVAACIAQFCITVTFGTVECFLLAVMAYDRYVAICSPLLYST
HMSPRICFLLVGASYVGGCVNSGAFTSCLSILSFCGPNQIDHFFCDFPAVLKLSCSDVSIIGIIPSISAG
SIIVITVFVIAVSYAYILITILKMRSTEGRQKAFSTCTSHLTAVTLYYGTITFIYV-MPKSNY-STAQNK
ILSVFYTVVIPMLNPLIYSLRNRDVKEALRKAIIRIFP*--------

>MmOR7.7.3
----MEAENHT--TVAELIILGLTEDPKLCIVFFVIFLGVYIVTLVGNISIITLIRISSQLHTPMYLFLS
HLAFVDILYSTSVSVIMHMELLGHGLALPVAACAAQLCITVSFGSAECFLLAAMAYDRYVAICSPLLYST
LMSPRVCFLLLGMSYVGGCMNGWTFTGCLLSLSFCGPNQIDHFFCDFSPLLKLSCSDVSIIGIIPSISSG
SIIVVTVFVIAVSYIYILITILNMRSTEGRHKAFSTCTSHLTAVTLYYGTITFIYV-MPKSNY-STEQNK
VLSVFYTVVIPMLNPLIYSLRNRDVKEALRKATVRVYS*--------

>MmORUn.13.1
----MEAENHT--TVAELIILGLTEDPKLCIVFFVIFLGVYIITLVGNISIITLIRISSQLHTPMYLFLS
HLAFVDIVFSTSVSVIMLMELLGHGLVLSVATCAAQLCMTVSFGSAECFLLAAMAYDRYVAICSPLLYST
LMSSRVCFLLLGISYVGGFVNGWTFTGCVLSLSFCGPTQINHFFCDFSPLLKVSCSDVSIIGIIPSISSG
SIIVVTVFVIAVSYIYILITILKMRSTEGRHKAFSTCTSHLTAVTLFYGTITVIYV-MPKSSY-STEQNK
VISLFYTVVIPMLNPLIYSLRNRDVKDALRKAIVRVYS*--------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR7.7.4
----MNGGNHT--SMTELFILGPTEDPTFCIAFFVIFLGVYMVTLVGNISIITLIRISSQLHTPVYLFLN
HLAFVDILYSTLVSVIMLMELLEHELALPVAACAAELCITVLFGSSECFLLAAMAYDCYVAICSPLLYST
LMSSRVCFLLLGMSYVGGCMNGWIFTGCLLNLSFYGPYQIDHFFCDFSPLLKLSCSDVSIIGIIPSISSG
SIIVVTVLVIAVFYICILMTILKMHSTDGCHKAFSTCNSYLTAVTLYYGTITFIYV-MPKSNY-STEKNK
VLSEFYTVVIPMLNHLIYSLKNRDVKDALRKAIVRVYT*--------

>SMOR204-6
----MEPGNYT--VVTEVILLGFTEDAIIRAILFIVFLIIYSVTLMGNASIIMLIRRSPQLHTPMYLLLS
HLAFVDIGYSSSVTPIMLKGFLRKETFILVSGCVAQLCSVVTFGSTECFLLAAMAYDRYVAICSPLLYAT
QMSSTVCILLVGASYLGGCVNAWTFTGCLLNLSFCRPNKVNHFFCDYSPLLKISCSHDFSSEVIPAISSG
SIIVVTVFIIALSYVYILVSILKMRSTEGRQKAFSTCTSHLTAVTLFYGTITFIYV-MPKSSY-STDQNK
VVSVFYTVVIPMLNPIIYSLRNKDVKEAMKKLMANTHH---------

>MmOR7.7.36
----MEPGNYT--VVTEVILLGFTEDAIIRAILFIVFLIIYSVTLMGNASIIMLIRRSPQLHTPMYLLLS
HLAFVDIGYSSSVTPIMLKGFLRKETFILVSGCVAQLCSVVTFGSTECFLLAAMAYDRYVAICSPLLYAT
QMSSTVCILLVGASYLGGCVNAWTFTGCLLNLSFCRPNKVNHFFCDYSPLLKISCSHDFSSEVIPAISSG
SIIVVTVFIIALSYVYILVSILKMRSTEGRQKAFSTCTSHLTAVTLFYGTITFIYV-MPKSSY-STDQNK
VVSVFYTVVIPMLNPIIYSLRNKDVKEAMKKLMANTHH*--------

>MmOR7.7.8
----MEPGNYT--VVTEFILLGLTDDITVSVILFVMFLIVYSVTLMGNLNIIVLIRTSPQLHTPMYLFLS
HLAFLDIGYSSSVTPIMLRGFLRKGTFIPVAGCVAQLCIVVAFGTSESFLLASMAYDRYVAICSPLLYST
QMSSTVCILLVGTSYLGGWVNAWIFTGCSLNLSFCGPNKINHFFCDYSPLLKLSCSHDFSFEVIPAISSG
SIIVVTVFIIALSYVYILVSILKMRSTEGRQKAFSTCTSHLTAVTLFFGTITFIYV-MPQSSY-STDQNK
VVSVFYTVVIPMLNPLIYSFRNKEVKEAMKKLIAKTHWWS*------

>SOR5P3
----MGTGNDT--TVVEFTLLGLSEDTTVCAILFLVFLGIYVVTLMGNISIIVLIRRSHHLHTPMYIFLC
HLAFVDIGYSSSVTPVMLMSFLRKETSLPVAGCVAQLCSVVTFGTAECFLLAAMAYDRYVAICSPLLYST
CMSPGVCIILVGMSYLGGCVNAWTFIGCLLRLSFCGPNKVNHFFCDYSPLLKLACSHDFTFEIIPAISSG
SIIVATVCVIAISYIYILITILKMHSTKGRHKAFSTCTSHLTAVTLFYGTITFIYV-MPKSSY-STDQNK
VVSVFYTVVIPMLNPLIYSLRNKEIKGALKREL-RIKIFS-------

>HsOR11.5.5
----MGTGNDT--TVVEFTLLGLSEDTTVCAILFLVFLGIYVVTLMGNISIIVLIRRSHHLHTPMYIFLC
HLAFVDIGYSSSVTPVMLMSFLRKETSLPVAGCVAQLCSVVTFGTAECFLLAAMAYDRYVAICSPLLYST
CMSPGVCIILVGMSYLGGCVNAWTFIGCLLRLSFCGPNKVNHFFCDYSPLLKLACSHDFTFEIIPAISSG
SIIVATVCVIAISYIYILITILKMHSTKGRHKAFSTCTSHLTAVTLFYGTITFIYV-MPKSSY-STDQNK
VVSVFYTVVIPMLNPLIYSLRNKEIKGALKREL-RIKIFS*------

>MmOR7.7.1
----MEPGNHT--MVTEFIILGLTENPTLCCIFFVLFLGVYLTTILGNVSIIMLIRRSPQLHTPMYLFLS
HLAFVDIGYSSSVTPVMIVSFLRERTAIPVAGCIVQLGSDVVFGTAECFLLAAMAYDRYVAICSPLLYST
LMSPKVCLILLVISYVGGCVNSSSFTSCLLSLTFCGPNKVNHFFCDLPPLVELSCTHVYVAEMSPAISAG
SIIVITLFVIIISYVYILHSILRMRSTEGRHKAFSTCTSHLTAVTLFYGTVTFVYV-IPESSH-SPNKIK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
VVSVFYTVVIPMLNPLIYSLRNKEVKEAMRKLMA*------------

>MmORUn.15.1
-------------MVTEFIILGLTEVPTLCCIFFVLFLGVYITTILGNVSIIMLIRRSPQLHTPMYLFLS
HLAFVDIGYSSSVTPVMIVSLLRERTAIPVAGCIVQLGSDVVFGTAEFFLLAAMDYDRYVAICSPLLYST
LMSPKVCLILLVISYMGGCVNSSSCTSCLLSLTFCGPNKVNHFFCDLPPLVELSCTHVYVAEMSPAISAG
SIIVITLFVIIISYVYILHSILRMHSTEGRHKAFSTCTSHLTAVTLFYGTVTFVYV-IPKSSH-SPNQIK
VVSVFYTVVIPMLNPLIYSLRYKEVKEAMRKLMAKTHSSF*------

>HsOR11.11.96
----MTLGNST--EVTEFYLLGFGAQHEFWCILFIVFLLIYVTSIMGNSGIILLINTDSRFQTLTYFFLQ
HLAFVDICYTSAITPKMLQSFTEEKNLMLFQGCVIQFLVYATFATSDCYLLAMMAVDPYVAICKPLHYTV
IMSRTVCIRLVAGSYIMGSINASVQTGFTCSLSFCKSNSINHFFCDVPPILALSCSNVDINIMLLVVFVG
SNLIFTGLVVIFSYIYIMATILKMSSSAGRKKSFSTCASHLTAVTIFYGTLSYMYL-QSHSNN-SQENMK
VAFIFYGTVIPMLNPLIYSLRNKEVKEAL-KVIGK--KLF*------

>SOR5AK2
LLLAMTLGNST--EVTEFYLLGFGAQHEFWCILFIVFLLIYVTSIMGNSGIILLINTDSRFQTLTYFFLQ
HLAFVDICYTSAITPKMLQSFTEEKNLILFQGCVIQFLVYATFATSDCYLLAMMAVDPYVAICKPLHYTV
IMSRTVCIRLVAGSYIMGSINASVQTGFTCSLSFCKSNSINHFFCDVPPILALSCSNVDINIMLLVVFVG
SNLIFTGLVVIFSYIYIMATILKMSSSAGRKKSFSTCASHLTAVTIFYGTLSYMYL-QSHSNN-SQENMK
VAFIFYGTVIPMLNPLIYSLRNKEVKEAL-KVIGKKLF---------

>HsOR11.11.95
----MGRGNST--EVTEFHLLGFGVQHEFQHVLFIVLLLIYVTSLIGNIGMILLIKTDSRLQTPMYFFPQ
HLAFVDICYTSAITPKMLQSFTEENNLITFRGCVIQFLVYATFATSDCYLLAIMAMDCYVAICKPLRYPM
IMSQTVYIQLVAGSYIIGSINASVHTGFTFSLSFCKSNKINHFFCDGLPILALSCSNIDINIILDVVFVG
FDLMFTELVIIFSYIYIMVTILKMSSTAGRKKSFSTCASHLTAVTIFYGTLSYMYL-QPQSNN-SQENMK
VASIFYGTVIPMLNPLIYSLRNKEGK*--------------------

>SOR5AK3
LLVVMGRGNST--EVTEFHLLGFGVQHEFQHVLFIVLLLIYVTSLIGNIGMILLIKTDSRLQTPMYFFPQ
HLAFVDICYTSAITPKMLQSFTEENNLITFRGCVIQFLVYATFATSDCYLLAIMAMDCYVAICKPLRYPM
IMSQTVYIQLVAGSYIIGSINASVHTGFTFSLSFCKSNKINHFFCDGLPILALSCSNIDINIILDVVFVG
FDLMFTELVIIFSYIYIMVTILKMSSTAGRKKSFSTCASHLTAVTIFYGTLSYMYL-QPQSNN-SQENMK
VASIFYGTVIPMLNPLIYSLRN-------KE--GK------------

>MmOR2.2.6
----MTQGNGT--EVTDFYLLGFGVERDIQCVLFIVFLVIYVTSMVGNTGMILLINTDSRLQTPMYFFLQ
HLAFVDICYTSAITPKMLQNFMVEDKSITFKGCVIQLFIYAVFATSDCYLLAVMAVDRYVAICKPLRYPI
IMSRQVCVQLVAVSYLMGSINSSVHTGFTFSLSFCASK-INHFFCDIPPIVTLSCYNNDINFMLILIFVG
FNLTFTVSVVILSYIYIMAAILKMSSTAGRKKTFSTCASHLTAVTIFYGTLAYMYL-QPPSDN-SEENMK
VASVFYGIVIPMLNPLIYSLRNKEVKDAIKATGKKKLDLNY*-----

>MmOR2.2.5
----MIQYNET--EVKGFYLLGFGVQHDIQCFLFIVFLIIYMTSMVGNTGMILLIHTDSRLQTPMYFFLQ
HLAFVDICYTSAITPKMLQTFVVEDRYISFGGCVVQLLIYAIFATCDCYLLAAMAVDRYVAICKPLRYPI
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LMSRKVCIQMVAGSYLIGSINSSVHTGFTFSLSYCKSNHINHFFCDVPPIISLSCSNIETNIKILVIFVG
FNLIFTVLVVIFSYMYIMAAILKMSSTAGRKKTFSTCASHLTAVTIFYGTLAYMYL-QPHSDN-SEENMK
VASVFYGIVIPMLNPLIYSLRNKEVKDAI-KLTKKKLFRFDTQ*---

>SMOR203-1
----MKHSNDS--KVTEFILLGFAGQNESWHILFVVFLVIYIATLVGNIGMILLIKLHSSLHTPMYFFLQ
HLAFVDLCYSSAITPRTLQNFVSTKPSISFTGCLAQLLVYGIFVTSDCFILAAMAVDRYVAICNPLRYPI
IMSQRLCILLLLGSYTMGFLNATVNTGFTFLSNFCKSNVINHFFCDVPPILALSCSSIDLNIMVLTIFVG
FNLTFTVSVVILSYTFILAAILRMSSASGRRKAFSTCASHMTAVTIFYGTLSYMYV-LHGTNR-SQEQEK
VASVFYGIMIPMLNPLIYSLRNQDVIEALRHIGNKCF----------

>MmOR2.2.4
----MKHSNDS--KVTEFILLGFAGQNESWHILFVVFLVIYIATLVGNIGMILLIKLHSSLHTPMYFFLQ
HLAFVDLCYSSAITPRTLQNFVSTKPSISFTGCLAQLLVYGIFVTSDCFILAAMAVDRYVAICNPLRYPI
IMSQRLCILLLLGSYTMGFLNATVNTGFTFLSNFCKSNVINHFFCDVPPILALSCSSIDLNIMVLTIFVG
FNLTFTVSVVILSYTFILAAILRMSSASGRRKAFSTCASHMTAVTIFYGTLSYMYV-LHGTNR-SQEQEK
VASVFYGIMIPMLNPLIYSLRNQDVIEALRHIGNK--CF*-------

>MmOR2.2.1
----MEQSNDT--KVTEFILLGFAGQHKSWHILFIIFLMIYVVTLMGNIGMIVLIKIDSSLHTPMYFFLQ
HLAFVDLCYTSAITPKMLKNFTETKASISFIGCMLQLLAYGTFATIDCFILAAMAVDRYVAICNPLRYPI
VMSQRLCILLLVGSYTMGFLNASVNTSFTFSLKFCKSNAINHFFCDEPPILALSCSSIDFSIMLLTVFVG
FNLLSTVLVVIFSYIYILSAILRMSSAAGRKKAFSTCASHLTAVTIFYGTLAYMYL-HPHTND-SQEQEK
AASVFYGIIIPMLNPLIF-------------IV-*------------

>MmOR9.3.30
VMKQMVTESNS--SVTEFILMGLTVQKELQLPLFILFLLNYTATVVGNLSLMNLICLNSHLHTPMYFFIF
NLSCIDFCYSFVSNPTMLRSFVTEQNTISYEGCMSQLFFFCFFVNSECYVLTAMAYDRYVAICHPLKYTT
VMSPKICCLLVFGSYLMGFAGALTHTGFMIRLSFCNSNIINHYMCDIFPLLQLSCTSTYVNELVSSAVVG
TIIILSSIIILVSYAMILSNILHMSSSKGWSKALGTCGSHIITVSLFYGSGLLAYI-KPTSAE-TVDQGK
FLSIFYTLVVPMLNPLIYSLRNKDVKLALKRTMKR-VTT*-------

>MmORUn.11.1
MKQMVSESNYS---VTEFIFMGLTVQREFQLPLFVLFLLNYTATVVGNLSLMNLICLNSHLHTPMYFFIF
NLSCIDFCYSFVSNPTMLRSFVTEQNTISYEGCMSQLFFFCFFVNSECYVLTAMAYDRYVAICHPLKYTT
VMSPKICCLLVFGSYLMGFAGALTHTGFMIRLSFCNSNIINHYMCDIFPLLQLSCTSTYVNELVSSAVVG
TIIILSSIIILVSYAMILSNILHMSSSKGWSKALGTCGSHIITVSLFYGSGLLAYI-KPTSAE-TVDQGK
FLSIFYTLVVPMLNPLIYSLRNKDVKLALKR--Q*------------

>MmOR9.3.28
MKQMVSESNYS---VTEFIFMGLTVQREFQLPLFVLFLLNYTATVVGNLSLMNLICLNSHLHTPMYFFIF
NLSCIDFCYSLVCNPTMLMSFVSEHNTISYAGCMSQLFLFCFFANSECYVLTAMAYDRYVAICHPLKYTT
VMSPKICSLLVFGSYLMGFAGAMTHTGFMIRLSFCNSNIINHYMCDIFPLLQLSCTSTYVNELVSSAVVG
TIIILSSLIILVSYAMILSNILHMSSSKGWSKALGTCGSHIITVSLFYGSGLLAYV-KPSSAE-TVGQGK
IFSVFYTLVVPMLNPLIYSLRNKDVKLAVKRTMKR-VTS*-------

>MmOR9.3.22
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
-MMQMTMENKS--SVSEFILMGLTDQPELQLPLFVLFLMNYTATVMGNLSLMNLICLNSNLHTPMYFFIF
NLSFIDFCYSMVFTPKMLMSFVVEKNTISFRGCMTQLFFFCVFINAESYVLTAMAYDRYVAIGQPLMYQV
VMSPKICCLLIFGSYLMGFISATAHTGCMVRLRFCDSNIINHYMCDIFPLLQLSCSSTYVNELMSYIAVG
TAIILCSLIILVSYAMILFNIIHISSGKGWSKALGTCGSHIITVSLFYGSGLLAYV-NPSSAE-TVGQAK
FFSVFYTLLVPMLNPLIYSLRNKDVKLAMKKSWKR-ITS*-------

>MmOR9.3.23
-MMQMTMENKS--SVSEFILMGLTDQPELQLPLFVLFLMNYTATVMGNLTLMNLICLNSNLHTPMYFFLF
NLSFIDFCYSMVFTPKMLMSFILEKNTISFGGCMAQLFFFLFFVNSESYVLTAMAYDRYVAICKPLTYKV
IMSPKICCLLIFSSYLMGFASAMAHTGCMIRLSFCDSNIINHYMCDIFPLLPLSCSSTYVNELMSSVVVG
SAIILCCLIILISYAMILFNIIHMSSGKGWSKALGTCGSHIITVSLFYGSGLLAYV-KPSSAK-TVGQGK
FFSVFYTLLVPMLNPLIYSLRNKDVKLAVKKTWKR-ITS*-------

>SMOR170-1
LNAQKTMENDS--SVSEFILMGLTDQPELQLPLFVLFLVNYTVTVMGNLSLMNLICLNSNLHTPMYFFIF
NLSFIDFCYSMVFTPKMLMGFVVEKNIISFRGCMTQLFFFLFFVNSESYVLTAMAYDRYVAICQPLLYKA
VMSPGICFLLIFCTYLMGLVSALFHTGFMIRLNFCDSNVINHYMCDIFPLFRLSCSSTYLTELVSSAVVG
TAIILCCLIILISYGMILYNIIHMSSGKGWSKALGTCGSHIITVSLFYVTGMLAYV-KPSSAE-TVGQGK
IFSVFYTFLVPMLNPLIYSLRNKDVKLAVKKTWKR-LTC--------

>MmOR9.3.24
LNAQKTMENDS--SVSEFILMGLTDQPELQLPLFVLFLVNYTVTVMGNLSLMNLICLNSNLHTPMYFFIF
NLSFIDFCYSMVFTPKMLMGFVVEKNIISFRGCMTQLFFFLFFVNSESYVLTAMAYDRYVAICQPLLYKA
VMSPGICFLLIFCTYLMGLVSALFHTGFMIRLNFCDSNVINHYMCDIFPLFRLSCSSTYLTELVSSAVVG
TAIILCCLIILISYGMILYNIIHMSSGKGWSKALGTCGSHIITVSLFYVTGMLAYV-KPSSAE-TVGQGK
IFSVFYTFLVPMLNPLIYSLRNKDVKLAVKKTWKR-LTC*-------

>MmOR9.3.25
------MENDS--FVSEFILMGLTDHPELQLSLFVLFLMNYTAIVMGNLSLMILIFLNSNLHTPMYFFIF
NLSFIDFCYSFVFTPKMLMSFFLEKNTISFRGCMTQLFFFCFFVNSESYVLTAMAYDRYVAICKPLLYKT
IMVPRICCLLMFVSYLIGFTSAMILTGLMFRLNFCNNHIINHYMCDIFPVIQISCSDTYLNELVSTAVVG
TGIILCSLLILMSYALILFNILNMSSGKGWSKAMGTCGSHIITVSLFYGSGLLAYV-KPSSAE-TVGQGK
FFSLFYTFLVPMLNPLIYSLQNKDVKVAVKKTLKR-ISN*-------

>MmOR9.3.27
-MKQMATKNDS--SVSEFILMGLTDQPELQLPLFFLFLLLNHTVIVVGNLSLMSLIILNSNLHTPMYFFLF
NLSFIDFCYSFVFTPKMLMSFVSEKNIIPFTGCMTQLFFFCFFAHSESWVLTVMAYDRYVAICKPLLYKA
IMLPRICCLLMFVSYLIGFASAMVLAGLMIRLNFCNNNIINHYMCDIFPVLRISCSNTYLNELVSTAVVG
TAIILCSLIIFISYAMILFNIVHMSSGKGWSKALGTCGSHIITVSFFYGSGLLAYV-KPSSAE-TVGQGK
FFSVFYTFLVPMLNPLIYSLRNKDVKVAVKKTIKR-ITS*-------

>MmOR9.3.21
--MHMAMENDS--SVTEFVFMGLTEQPELRLPLFFVFLLNYTATVMGNLSLMVLICLNSHLHNPMYFFLF
NLSLVDFCYSFVCTPKMLMGFVSEKSIISYTGCMTQLFFFCFFVNSECYVLTAMAYDRYVAICKPLVYAI
LMSPRMCSLLMIGSYLMGFASAMAHTGCMIRLKFCDSNIINHYMCEIFPLLQLSCSSTYANELVSSLIAC
IVVIVSGLVILMSYASILLNVVQMSSATGWSKAMGTCGSHIITVSLFYGSGLLTYV-KPASAE-SVDQGK
FFSVFYTLMVPMLNPLIYSLRNKDVKLAAKRTMNR-ITI*-------
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR9.3.29
HMKQMIMENDS--SVSEFILMGLTYQPELWWPLFVLFLVNYTATVMGNLSLMTLICLNSHLHTPMYFFIL
NLSFIDFCYSFVFTPKMLMGFVSEHNTISFTGCMTQLFFFCLFVNSECYVLTAMAYDRYVAICRPLLYTV
VMSPRACSLLMLAAHLMGVSSAVVHTGCIIQLRFCGSKVINHYMCDTFPLLELSCGSSHVNELVSSVSVA
VVVVISSLIIVSSYALILVNVIHLSSSKGWSKAVSTCSSHIITVALFYGFGLLAHI-KPSSAE-SVVQRK
FFSVVYTFVLPLLNPLIYSLRNKDVKLALKRTLKT-VTIQGKCLCCS

>MmOR9.3.19
----MATGNHY--SVTEFILTGLTEQPELQMPLFFLFLVNCLITVVGNLSLMSLICCNSNLQTPMHFFLF
NLSFIDLCYSFAFTPKTLMSFVLEKNIIYFTGCMTQLFFMCLFANSECYLVTAMDYDHYVAICQPLLYMI
ITSPMTCSLMMFGSYLMGGIGAIVHTGCMIRLNFCGSNIINHYMYDIFPLLQLSCSSIYANELVSSVFVS
TVVLASSFLILTSYALILFNITQL-SGKGLSKAMSTCSSHIMTVVLFYGFAMLTHV-KTSSDE-SVNQGN
FFCLFCTFLVPLLNPFIYSLKNKEVKLALKRTLRRLTVSESLGLP*-

>HsOR11.18.35
----MTLRNSS--SVTEFILVGLSEQPELQLPLFLLFLGIYVFTVVGNLGLITLIGINPSLHTPMYFFLF
NLSFIDLCYSCVFTPKMLNDFVSES-IISYVGCMTQLFFFCFFVNSECYVLVSMAYDRYVAICNPLLYMV
TMSPRVCFLLMFGSYVVGFAGAMAHTGSMLRLTFCDSNVIDHYLCDVLPLLQLSCTSTHVSELVFFIVVG
VITMLSSISIVISYALILSNILCIPSAEGRSKAFSTWGSHIIAVALFFGSGTFTYL-TTSFPG-SMNHGR
FASVFYTNVVPMLNPSIYSLRNKDDKLALGKTLKRVLF*--------

>SOR8B4
----MTLRNSS--SVTEFILVGLSEQPGLQLPLFLLFLGIYVFTVVGNLGLITLIGINPSLHTPMYFFLF
NLSFIDLCYSCVFTPKMLNDFVSES-IISYVGCMTQLFFFCFFVNSECYVLVSMAYDRYVAICNPLLYMV
TMSPRVCFLLMFGSYVVGFAGAMAHTGSMLRLTFCDSNVIDHYLCDVLPLLQLSCTSTHVSELVFFIVVG
VITMLSSISIVISYALILSNILCIPSAEGRSKAFSTWGSHIIAVALFFGSGTFTYL-TTSFPG-SMNHGR
FASVFYTNVVPMLNPSIYSLRNKDDKLALGKTLKRVLF---------

>MmOR9.3.8
SQKRMAPRNSS--SVTEFILVGFSNQPALQLPLFFVFLGIYVLTVIGNLGLITLIGLNSSLHTPMYFFLF
NLSFIDFCYSCVFTPKMLSDFVSE-NIISYMGCMTQLFFFCFFVNSECYVLVSMAYDRYVAICNPLLYTV
TMSPQVCTLLMFCSYVIGFAGAMAHTGSMLTLTFCDSNMIHHYLCEVLPLLQLSCTSTYANELVFFIVVG
VVITASSISIFISYALILSNILKIPSAEGRSKAFGTCGSHVVAVALFFGSGAFTYL-TTSFPG-SMEEGR
FASVFYTNVVPMLNPLIYSLRNKDVKLALNKTLKR-VLF*-------

>SMOR163-1
SQKRMAPRNSS--SVTEFILVGFSNQPALQLPLFFVFLGIYVLTVIGNLGLITLIGLNSSLHTPMYFFLF
NLSFIDFCYSCVFTPKMLSDFVSE-NIISYMGCMTQLFFFCFFVNSECYVLVSMAYDRYVAICNPLLYTV
TMSPQVCTLLMFCSYVIGFAGAMAHTGSMLTLTFCDSNMIHHYLCEVLPLLQLSCTSTYANELVFFIVVG
VVITASSISIFISYALILSNILKIPSAEGRSKAFGTCGSHVVAVALFFGSGAFTYL-TTSFPG-SMEEGR
FASVFYTNVVPMLNPLIYSLRNKDVKLALNKTLKRVLF---------

>HsOR11.18.34
----MLARNNS--LVTEFILAGLTDHPEFQQPLFFLFLVVYIVTMVGNLGLIILFGLNSHLHTPMYYFLF
NLSFIDLCYSSVFTPKMLMNFVSKKNIISYVGCMTQLFFFLFFVISECYMLTSMAYDRYVAICNPLLYKV
TMSHQVCSMLTFAAYIMGLAGATAHTGCMLRLTFCSANIINHYLCDILPLLQLSCTSTYVNEVVVLIVVG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
INIMVPSCTILISYVFIVTSILHIKSTQGRSKAFSTCSSHVIALSLFFGSAAFMYI-KYSS-G-SMEQGK
VSSVFYTNVVPMLNPLIYSLRNKDVKVALRKALIKIQRRNIF*----

>SOR8B2
----MLARNNS--LVTEFILAGLTDHPEFRQPLFFLFLVIYIVTMVGNLGLITLFGLNSHLHTPMYYFLF
NLSFIDLCYSSVFTPKMLMNFVSKKNIISNVGCMTRLFFFLFFVISECYMLTSMAYDRYVAICNPLLYKV
TMSHQVCSMLTFAAYIMGLAGATAHTGCMLRLTFCSANIINHYLCDILPLLQLSCTSTYVNEVVVLIVVG
TNITVPSCTILISYVFIVTSILHIKSTQGRSKAFSTCSSHVIALSLFFGSAAFMYI-KYSS-G-SMEQGK
VSSVFYTNVVPMLNPLIYSLRNKDVKVALRKALIKIQRRNIF*L---

>HsOR11.18.33
----MLARNNS--LVTEFILAGLTDHPEFRQPLFFLFLVIYIVTMVGNLGLITLFGLNSHLHTPMYYFLF
NLSFIDLCYSSVFTPKMLMNFVSKKNIISNVGCMTRLFFFLFFVISECYMLTSMAYDRYVAICNPLLYKV
TMSHQVCSMLTFAAYIMGLAGATAHTGCMLRLTFCSANIINHYLCDILPLLQLSCTSTYVNEVVVLIVVG
TNITVPSCTILISYVFIVTSILHIKSTQGRSKAFSTCSSHVIALSLFFGSAAFMYI-KYSS-G-SMEQGK
VSSVFYTNVVPMLNPLIYSLRNKDVKVALRKALIKIQRRNIF*----

>MmOR9.3.31
-MISMLAGNGS--SVTEFVLAGLTDRPELQLPLFYLFLIIYIITVVGNLGLIILIGLNPHLHTPMYYFLF
NLSFIDLCYSSVFSPKMLINFVSEKNSISYAGCMTQLFLFLFFVISECYMLTSMAYDRYVAICNPLLYKV
TMSPQICSVISFAAYGMGFAGSSAHTGCMLRLTFCNVNVINHYLCDILPLLQLSCTSTYVNEVVVLIVVG
INITVPSFTILISYVFILANILNIKSTQGRAKAFSTCSSHIMAISLFFGSAAFMYL-KYSS-G-SMEQGK
ISSVFYTNVGPMLNPLIYSLRNKDVKVALRKSLIKFREKTDFN*---

>MmOR9.3.48
SIISMLTGNGS--FVTEFVLAGLTDRPELQLPLFYLFLIIYTVTVVGNLGLIILIGLNPHLYTPMYYFLF
NLSFIDLCYSSVSSPKMLMNFVFEKNSISYEGCMTQLFFFLFFVISECYMLTSMAYDRYVAICNPLLYKV
TMSPQVCSMLSFASYGMAFAGASAHTGCMLRLIFCNANVINFYLCDILPLLQLSCTSTYVNEVVVLIVVG
INITVPSFTILISYVFILANILNIKSTQGRSKAFSTCSSHIMAISLFFGSGAFMYL-NHSG---SMNQGK
ISSVFYTNVVPMFNPLIYSLRNKDVKIALKKVMMRVHSRFIS*----

>MmOR9.3.53
IYRRMTHGNYS--LVTEFILEGLTNRPELQMPLFFLFLGIYVVTIVANLGLITLISLNTHLHTPMYYFLF
NLSFVDICYSSVFTPKMLINFVVEKNTISYTGCLTQLYFFCFFVITECYLLTAMAYDRYVAICKPLLYNV
ILSPRICAVFVFGAYVMGCWGSLAHTLCMARLTFCDANLVNHYLCDILPVLQLSCTSTYNNEVVVFVLVG
MNIVVSTSTTFISYGFIIANILRISSTQGRAKAFNTCSSHIMTVSLFFGAAAFMYM-QPSDVE-SMDKGK
VASVFYTNVGPMLNPLIYSLRNKDVKVALKKTLKRKLFS*-------

>MmOR9.3.6
----MAAANTS--SVAEFILVGLTDQPQLQIPLFFLFLGFYIVTMVGNLGLITLIGLNSHLHIPMYFFLF
NLSFIDFSYSTTLTPKMLVGFVLRKNIISYAGCMTQFFFFCFFVFSESYILSAMAYDRYVAICKPLLYSV
TMSPQVCSYLLSGVYGMGVFGAVAHMGNLQFISFCADNIINHYMCDIIPLLELSCNSSYINLLVVFIVVT
IGIGVPIVTIFISYGFILSSILHISSKEGRSKAFSTCTSHIIVVSLFFGSGAFMYL-KPPSSL-PLDQGK
VSSVFYTAVVPMFNPLIYSLRNKDVKIALKKTLSRKNFS*-------

>MmOR9.3.3
----MTAKNSS---VIEFILAGLTDQPGLRMPLFFLFLGFYMVTVVGNLGLISLIGLNSHLHTPMYFFLF
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
NLSVIDFCYSSTIIPKMLMNFISRKNIISHSGCMTQLFFFCFFVVSESFILSAMAYDRYVAICNPLMYTV
TMSPQVYLLLLLGVYVMGFSGAMAHTGNLMNLTFCADNLINHFMCDILPLLELSCNSTFINELVIFIVVA
FDIGVPIVTIFISYALILSSILRMHSTEGRSKAFSTCSSHLIVVCLFFGSGAFMYL-KPPSIL-PLDQGK
VSSLFYMIVVPMLNPLIYSLRNKDVKVALRKTLGKRILS*-------

>MmOR9.3.4
----MTAKNSS---VTEFILAGLTNQPGLRMPLFFLFLGFYMVTVVGNLGLISLIGLNSHLHTPMYFFIF
NLSVIDFCYSSTIIPKMLTSFISKTNIISHSGCMTQLFFFCFFVFSESFILSAMAYDRYVAICNPLMYTV
TMSPQVCLLLLLGVYVMGFSGGIAHTGNLMNLTFCADNLINHFMCDILPLLELSCSNTFTNELVVFIVVA
FGIGVPIVTIFISYALILSSILHMHSTEGRSKAFSTCSSHLIVVCLFFGSGAFMYL-KPPSIL-PLDQGK
VSSLFYTIVVPMLNPLIYSLRNKDVKVALRKTLGKRILS*-------

>SMOR161-1
----MTAKNSS---VTEFILAGLTDQPGLRMPLFFLFLGFYMVTVVGNLGLISLIGLNSHLHTPMYFFLF
NLSLIDFCYSSTISPKMLMSFISKKNIISHPGCMAQLFFFCFFVISESFILSAMAYDRYVAICNPLMYMV
TMSPQVCLLLLFGVYLMGFVGAMAHTISMARLTFCADNIVNHYMCDILPLLEHSCTSTYVNELVVFIFVS
FDIGVPIVTIFISYALILSSILHMHSTEGRSKAFSTCSSHMIVVCLFFGSGAFMYL-QPPSVL-SLDQGK
VSSLFYTIVVPMLNPLIYSLRNKDVKVAVRKTLDRRIFS--------

>MmOR9.3.5
----MTAKNSS---VTEFILAGLTDQPGLRMPLFFLFLGFYMVTVVGNLGLISLIGLNSHLHTPMYFFLF
NLSLIDFCYSSTISPKMLMSFISKKNIISHPGCMAQLFFFCFFVISESFILSAMAYDRYVAICNPLMYMV
TMSPQVCLLLLFGVYLMGFVGAMAHTISMARLTFCADNIVNHYMCDILPLLEHSCTSTYVNELVVFIFVS
FDIGVPIVTIFISYALILSSILHMHSTEGRSKAFSTCSSHMIVVCLFFGSGAFMYL-QPPSVL-SLDQGK
VSSLFYTIVVPMLNPLIYSLRNKDVKVTVRKTLDRRIFS*-------

>SOR8B12
----MAAKNSS---VTEFILEGLTHQPGLRIPLFFLFLGFYTVTVVGNLGLITLIGLNSHLHTPMYFFLF
NLSLIDFCFSTTITPKMLMSFVSRKNIISFTGCMTQLFFFCFFVVSESFILSAMAYDRYVAICNPLLYTV
TMSCQVCLLLLLGAYGMGFAGAMAHTGSIMNLTFCADNLVNHFMCDILPLLELSCNSSYMNELVVFIVVA
VDVGMPIVTVFISYALILSSILHNSSTEGRSKAFSTCSSHIIVVSLFFGSGAFMYL-KPLSIL-PLEQGK
VSSLFYTIIVPVLNPLIYSLRNKDVKVALRRTLGRKIFS--------

>HsOR11.18.41
----MAAKNSS---VTEFILEGLTHQPGLRIPLFFLFLGFYTVTVVGNLGLITLIGLNSHLHTPMYFFLF
NLSLIDFCFSTTITPKMLMSFVSRKNIISFTGCMTQLFFFCFFVVSESFILSAMAYDRYVAICNPLLYTV
TMSCQVCLLLLLGAYGMGFAGAMAHTGSIMNLTFCADNLVNHFMCDILPLLELSCNSSYMNELVVFIVVA
VDVGMPIVTVFISYALILSSILHNSSTEGRSKAFSTCSSHIIVVSLFFGSGAFMYL-KPLSIL-PLEQGK
VSSLFYTIIVPVLNPLIYSLRNKDVKVALRRTLGRKIFS*-------

>HsOR11.18.36
----MAAENSS--FVTQFILAGLTDQPGVQIPLFFLFLGFYVVTVVGNLGLITLIRLNSHLHTPMYFFLY
NLSFIDFCYSSVITPKMLMSFVLKKNSISYAGCMTQLFFFLFFVVSESFILSAMAYDRYVAICNPLLYMV
TMSPQVCFLLLLGVYGMGFAGAMAHTACMMGVTFCANNLVNHYMCDILPLLECACTSTYVNELVVFVVVG
IDIGVPTVTIFISYALILSSIFHIDSTEGRSKAFSTCSSHIIAVSLFFGSGAFMYL-KPFSLL-AMNQGK
VSSLFYTTVVPMLNPLIYSLRNKDVKVALKKILNKNAFS*-------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>SOR8B8
--MTMAAENSS--FVTQFILAGLTDQPGVQIPLFFLFLGFYVVTVVGNLGLITLIRLNSHLHTPMYFFLY
NLSFIDFCYSSVITPKMLMSFVLKKNSISYAGCMTQLFFFLFFVVSESFILSAMAYDRYVAICNPLLYMV
TMSPQVCFLLLLGVYGMGFAGAMAHTACMMGVTFCANNLVNHYMCDILPLLECACTSTYVNELVVFVVVG
IDIGVPTVTIFISYALILSSIFHIDSTEGRSKAFSTCSSHIIAVSLFFGSGAFMYL-KPFSLL-AMNQGK
VSSLFYTTVVPMLNPLIYSLRNKDVKVALKKILNKNAFS--------

>MmOR9.3.7
----MATENAS---VPEFILAGLTDQPGLRMPLFFLFLGFYMVTMVGNLGLITLIGLNSHLHTPMYFFLF
NLSLIDFCYSTVITPKMLVSFVSKKNIISYSGCMTQLFFFLFFVVSESFILSAMAYDRYVAICNPLMYTV
TMSPQVCLLLLLGVYVMGFAGAMAHTAFMVKLTFCADKLVNHYMCDILPLLERSCTSTYVNELVVFIVVG
IDIGVPTVTIFISYALILSSILRISSTEGRSKAFSTCSSHIIAVSLFFGSGAFMYL-KPSSLL-PMNQGK
VSSLFYTIVVPMLNPLIYSLRNKDVKVALRKTLSRSSFS*-------

>MmOR9.3.52
----MDTKNIS--FITEFILVGLTEYTETHFPFFFLFLGIYAITVAGNLGLLTLIGMNSPLHTPMYYFLF
NLSFIDLCYSTVITPKLLVNFVSERNTISYEGCMTQLYFYCFFVSAECYVLTVMAYDRYVAICKPLLYTV
TMSPQVCSLLTLIVYVGAFIGAWAHTGCMMRLTFCKDNTVNHYMCDILPLLELSCSSTYINELVVFIVVG
FDVGVPSITIVVSYTFILSSILHIRSTEGRSKAFSTCSSHIIVVSVFFGSGAFMYL-HPSSVL-SMDQGK
VSTVFYTIVVPMLNPLIYSFRNKEVKIALRKTL-RMKISS*------

>SMOR168-1
----MDSVNIS--LVTEFILVGLTDKPYLQIPLFFIFLAMYLVTALGNLSLIILTVLNSHLHTPMYFFLF
NLSFVDFCYSSVFTPQMLMNFITRKNTISYMECMSQLYFFCFFVISECYVLTSMAYDRYVAICKPLLYNL
VMSSKLCLNLMLVSYFIAFSESVAHTVCIMRLNFCDANKINHYFCDIPPLLQLSCTTTYINKLVVFVASS
INIIVPISTIFISYGFILSSIFHIHSSEGRSKAFSTCSSHIIAAFLFFGSGAFMYF-QPSSAE-SMDEGK
ISSVFYTNVIPMMNPLLYSLRNKDIKVALRKTLSKRNI---------

>MmOR9.3.46
----MDSVNIS--LVTEFILVGLTDKPYLQIPLFFIFLAMYLVTALGNLSLIILTVLNSHLHTPMYFFLF
NLSFVDFCYSSVFTPQMLMNFITRKNTISYMECMSQLYFFCFFVISECYVLTSMAYDRYVAICKPLLYNL
VMSSKLCLNLMLVSYFIAFSESVAHTVCIMRLNFCDANKINHYFCDIPPLLQLSCTTTYINKLVVFVASS
INIIVPISTIFISYGFILSSIFHIHSSEGRSKAFSTCSSHIIAAFLFFGSGAFMYF-QPSSAE-SMDEGK
ISSVFYTNVIPMMNPLLYSLRNKDIKVALRKTLSK-RNI*-------

>MmOR9.3.47
----MDSVNVS--LVAEFILVGLTDKPYLQIPLFFVFLAMYLVTALGNLSLIILTVLNSYLHTPMYFFLF
NLSFVDLCYSSVFTPQMLMNFIR-KNTTSYMECMAQLYFSCFFVISECYVLTSMAYDRYVAICKPLLYNL
VMSSKLCLNLMLVSYFIAFSESVAHTACMLRLTFCDANTINYYFCDIPPLLQLSCTTTRVNEVVIFVVGS
INIIIPTSTIFVSYGFILSSIFRISSSEGRSKAFSTCSSHIIAAFLFFGSGAIRYF-KPSSDG-SMDEGK
ISSVFYTNVIPMINPLLYSLRNKDIKVALRRTL-RKRNF*-------

>SMOR167-1
----MGFENGS--SVTEFILVGLTKESDLQCPLFILFLMMYVVTVLGNQGLISLIGLNSHLHTPMYFFLF
NLSFVDLWYSSVFTPKMLESFISEKNTISYRGCMAQLFFFCFFSISECYILTSMAYDRYVAICNPLLYNI
VMSPKLCLILMFSSYMMAFSGAMAHTGCMLRLTFCDANTINHYFCDILPVMQLSCTSTYVNELEVFVVVG
INIIVPTITIFISYGFIISSIFRISSKEGRSKAFSTCSSHIIAVSLFFGSGAFMYL-KPSSAE-SMNEGK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
ISSIFYTNTVPLLNPLIYSLRNKDVKDALIKTLSKRKR---------

>MmOR9.3.36
----MGFENGS--SVTEFILVGLTKESDLQCPLFILFLMMYVVTVLGNQGLISLIGLNSHLHTPMYFFLF
NLSFVDLWYSSVFTPKMLESFISEKNTISYRGCMAQLFFFCFFSISECYILTSMAYDRYVAICNPLLYNI
VMSPKQCLILMFSSYMMAFSGAMAHTGCMLRLTFCDANTINHYFCDILPLLQLSCTSTYVNELEVFVVVG
INIIVPTITIFISYGFIIASIFRISSKEDRSKAFSTCSSHIIAVSLFFGSGAFMYL-KPSSAE-SMNEGK
ISSIFYTNTVPLLNPLIYSLRNKDVKDALIKTLSKRKR*--------

>MmOR9.3.37
----MAFGNRS--FVTEFILIGLTDQPNLQLPLFFLFLVMYIVTMTGNLGLVILIGLNSHLHTPMYFFLF
NLSLIDLCYSSVFTPKMLLNFILNKNIISYTGCMTQLYFYSFFVISECYVLMSMAYDRYVAICNPLLYNI
AMTPKICSYLMLGSYLMAFSGAMAHTGCMLRLTFCDANTINHYFCDILPVMQLSCTSTYVNELEVFIVVG
INILVPSITIFISYGFILSSIFHINSNEGRSKAFSTCSSHIIAVSLFFGSGAFMYL-KPSSVG-SMDEGK
ISSVFYTNVVPMMNPLIYSLRNKDVKVALRITLSRWKLW*-------

>MmOR9.3.35
----MASANVS--LVTEFILVGLTNQPDLQIPLFFVFLIMYIVTALGNLCLIILIVLNSHLHTPMYFFLF
NLSFIDLCYSTVFTPKMLMNFILSKNAISYMGCLTQLYFFCFFVISECYVLTSMAYDRYVAICNPLLYTV
AMSPKLCLNLMLGTYAMAFSGAMAHTGCMLRLTFCDANTINHYFCDILPVMQLSCTSTYVNELVVFIVVG
INIIVPSITIFISYGFILSSIFHIKSNEGRSKAFSTCSSHIIAVCLFFGSGAFMYL-KPSSSS-SMDQGK
TSSVFYTNVVPMMNPLIYSLRNKDVKIALRKTLSRWKF*--------

>SMOR169-1
----MDSVNVS--LVTEFLLVGLTHQPDLQIPLFLLFLAMYLVTALGNLGLIILVLLNSHLHTPMYFFLF
NLSFIDFCYSSVFAPKMLMNFILRQNAISYMQCMTQLYFFFFFVVSECFVLTSMAYDRYVAICNPFLYNV
MISPQVCLNLMIGSYLMAFSEAVVLTVCMLTLTFCDGN-INHYFCDILALFQLSCSSTYVNKLVAYVIVV
INILFSTPAIFISYGFILSSIFRISSSKGRSKAFSTCSSHIIAVSLFFGSRAFVYF-KPSSPG-SMEWAK
ISSVFYTNVVPMMNPLIYSLKNKDVKIALRKSLARWKI---------

>MmOR9.3.33
----MDSVNVS--LVTEFLLVGLTHQPDRQIPLFLLFLAMYLVTALGNLGLIILVLLNSHLHTPMYFFLF
NLSFIDFCYSSVFTPKMLMNFILRQNAISYMQCMTQLYFFCFFVVSECFVLTSMAYDRYVAICNPLLYNV
MISPQVCLNLMIGSYLMAFSEAVALTVCMLTLTFCDGN-INHYFCDILALFQLSCSSTYVNKLVAYVIVV
INILFSTPTIFISYGFILSSIFRISSSKGRSKAFSTCSSHIIAVSLFFGSGAFVYF-KPSSPG-SMEWAK
ISSVFYTNVVPMMNPLIYSLKNKDVKIALRKSLARWKI*--------

>MmOR9.3.42
----MVLTNHS--LVTEFILLGLTDNPDLQIPLFLVFLVMYMITAFGNLTLIFLTVLNSHLHTPMYFFLF
NLSFIDLCYSSVVTPKLLMNFVLKKNIIGFAGCMTQLYFFCFFVISECYVLTAMAYDRYVAICNPLMYNV
TMSPKVCSYLMLGSYLMGFSDAMIHTGCILRLTFCDGNTINHYFCDLLPLMQLSCTSTYINEVEIFIVGG
KDITVPSIVVFISYGFILSNILQIKSTRGRYKAFNTCSSHIIAVSLFYGSCAFMYL-KPSSVG-SLNEGK
VSSVFYTIVVPMMNPLIYSLRNKDVKLALRKTLSRKKF*--------

>MmOR9.3.51
----MALVNGS--TVTEFILLGLTDQPGLQMPLFLLFLLMYMITVFGNLTLIFLILLNSHLHTPMYFFLL
NLSFVDLCYSSVITPKMLMNFILKKNLISYMGCMSQLYFFCFFIISECYVLVSMAYDRYVAICNPLLYNT
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
AMSPRVCSYLMLGTYLMGFFDAMIHTGCMLRLSFCDGNIINHYFCDVLPLLQLSCTSTYVNETEIFIVGG
KDIILPSAIIFFSYGFILSNIFQIRSTLGRSKAFSTCSSHIIAVSLFFGSCGFMYL-KPSSAV-SIDQGK
ISSIFYTIVVPMMNPLIYSLRNKDVKVALRKTLSRRKFLKV*-----

>MmOR9.3.44
----MALANGS--FVTEFILLGLTDQPDLQMPLFLIFLIIYLITAFGNLTLIILIVLNSHLHTPMYFFLF
NLSFIDLCYSSLITPKMLMNFVLEKNIISYMGCMTQFYFFGFFAISECYVLTAMAYDRYVAICNPLLYSV
AMSPKMCSYFILGSYFMGFSGAMIHTGCVMRLTFCDGNTINHYFCDLLPLLQLSCTSTYVNEIELFIVTG
KDIIVPTVIIFASYGFILSNILKIRSTSGRSKAFSTCSSHIIAVSMFFGSSAFMYL-KPSSAV-SMNEAK
FSSIFYSIVVPMMNPLIYSLRNKDVKVGLKKTLSRMFSHNLISL*--

>MmOR9.3.50
----MALINGS--VVTEFILLGLTDQPDLQVPLFLVFLLMYMITALGNLTLIILIVLNSHLHTPMYFFLF
NLSFVDFCYSSVIIPKMLMNFILKKNFISYVGCMTQFYLFGFCVILECYILTSMAYDRYVAICNPLLYNI
VMSPKMCSYLMLGSYLMGFSGAMIHTGCVLRLSFCDGNIINHYFCDLLPLLQLSCTSTYVNEIEVLIVAG
KDIIVPTVIIFISYGFILSSIFQMKSTKGMSKAFSTCSSHIIAVSLFFGSGAFMYL-KPNSTG-TMNNGK
IPSIIYTILIPMMNPLIYSLRNKDVKVALRKTL-RKKIL*-------

>MmOR9.3.43
----MTFENAS--MVIEFILLGITDQPDLKIPFFLLFFVGYMITVLGNLTLIILIGLNSHLHTPMYFLLF
NLSFIDLCYSSVITPKMLMSFIQKKNIISYTGCMIQLYFFCFFVISECYVLTSMAYDRYVAICNPLLYNV
TLSSKVCCYLMLGSYFMGFSGAMIHTGCILRLTFCDGNTINHYFCDLLPLLQISCTSTYINEIELFIVAG
KDIIVPTIIIFISYGFILFSVLKIKSTESRSKAFSTCSSHMLAVSLFFGSGAFMYL-KPTSAL-SINKGK
FSSLFYTIVVPMMNPLIYSLRNKDVKAALRKTLNRRIFSS*------

>MmOR9.3.38
----MALENAS--LVTEFILMGLTNRPDLQIPLFLLFLVMYVIATLGNLALIMLIILNSHLHTPMYFFLL
NLSCIDLFYCSVITPKMLMNFVLKKNVISYEGCMAQFYFFAFFAISECYVLTTMAYDRYVAICNPLLYNI
VMSPKLCSYLMMGTYLMGFSGAMIHTGCILRLTFCDKNTINHYFCDILPLLQISCTSTYVNEIELFIVAG
KDIIVPTVIIFTSYGFILSSILKISSTAGMSKAFSTCSSHIIALCLFFGSCTFMYL-KPSSVE-SMDQGK
ISSVFYNIVVPLMNPLIYSLRNKDVKIAIKKTITKGKF*--------

>SMOR165-1
----MGLENGS--LVTEFILLGLTNDPDLQLPLFLLFLLIYTTTAVGNLALITLIALNSHLHTPMYFFLL
NLSCIDLCYSSVITPKMLMNFLVRKNIISYMGCMTQLYFFCFFAICECCVLTSMAYDRYVAICNPLLYNI
TMSPKVCSYLMLGSYIMGFSGAMIHTGCILRLTFCDRNIINHYFCDLFPLLQLSCTSTYANEIEILIVGG
KDIIVPSVIIFTSYGFILSNILQMRSTAGMSKAFSTCSSHILAVSLFFGSCAFMYL-QPSSPG-SMDQGK
VSSVFYTIVVPMMNPLIYSFRNKDVKIALRKIFGQRRFS--------

>MmOR9.3.40
----MGLENGS--LVTEFILLGLTNDPDLQLPLFLLFLLIYTTTAVGNLALITLIALNSHLHTPMYFFLL
NLSCIDLCYSSVITPKMLMNFLVRKNIISYMGCMTQLYFFCFFAICECCVLTSMAYDRYVAICNPLLYNI
TMSPKVCSYLMLGSYIMGFSGAMIHTGCILRLTFCDRNIINHYFCDLFPLLQLSCTSTYANEIEILIVGG
KDIIVPSVIIFTSYGFILSNILQMRSTAGMSKAFSTCSSHILAVSLFFGSCAFMYL-QPSSPG-SMDQGK
VSSVFYTIVVPMMNPLIYSFRNKDVKIALRKIFGKRRFS*-------

>MmOR9.3.17
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MAVGNSS--SVKEFILLGLTQEPELQLPLFFLFLGIYVVSVMGNLGLIVLIVLNPPLHTPMYYFLF
NLSFTDLCYSTVITPRMLVGFVKQ-NTISHAECMTQLFFFCFFVIDECYILTAMAYDRYAAICKPLLYQV
TMSHQVCLLMTVGMYVMGLVGAIAHIVCMLRLTFCEGHIINHYMCDIPPLLKLSCTSTYINELVVFIVVG
VNVIVPTLTIFITYTLILSNILSIHSAEGRSKAFSTCGSHVIAVSLFFGAAAFMYL-KPSSA--SVDEEK
LSTIFYTIVGPMLNPFIYSIRNKDVHIALRKTLKKSMFT*-------

>MmOR9.3.18
TLERMAFSNDS--SVKEFILLGLTQQPELQMPLFFLFLGIYVVSMVGNLGLIVLIVLNPHLHTPMYYFLF
NLSFIDFCYSSVITPKMLVGFVKQ-NIISHAECMTQLFFFSFFVIDECYILTAMAYDRYAAICKPLLYQV
TMSYQVCLLMTGGMYVMGLVGAIAHIVCMLRLTFCEGYIINHYMCDIPPLLKLSCTSTYINELVVFIVVG
VNVIVPTLTIFISYTLILSNILSIHSAEGRSKAFRTCGSHFIAVSLFYGASAFMYL-KPSSA--SVDDDK
ISTIFYTIVGPMLNPFIYSLRNKDVHIALRKTLKKSTFI*-------

>MmOR9.3.16
MLGRMAFSNDS--SVKEFILLGLTQQPELQMPLFFLFLGIYVVSMVGNLGLIVLIVLNPHLHTPMYYFLF
NLSFIDLCYSSVITPRMLVGFVKQ-NIISHAECMTQLFFFCFFVIDECYILTAMAYDRYAAICKPLLYQV
TMSHQVCHLMMVGVYVMGLVGAMAHTGSMLSLTFCDGNIINHYMCDIPPLQKLSCTSTSINELVVFIVVG
VNVIIPSLTVFISYTLILSNILSIQSAEGRSKAFSTCGSHVIAVSLFFGASAFMYL-KPSSA--SVDDDK
ISTIFYTIVGPMLNPFIYSLRNKDVHIALRKTLKKSMFI*-------

>MmOR9.3.15
----MGFGNDS--SVKEFILLGLTQQPELQLPLFFLFLGIYVVSIVGNLGLIVLIVLNPHLHTPMYYFLF
NLSFVDFCYSSVITPKMLVSFVTQ-NIISHAECMTQLFFFAFFVIDECYILTAMAYDRYAAICKPLLYQV
TMSHQVCHFMMMGVVVMGSVGAVAHIICMLRLTFCDGNIINHYMCDIPPLLKLSCTSTYINELVVFIIVG
FNVTVPILTIFISYTLILSNILSIHSAEGRSKAFSTCGSHVIAVSIFFGSLAFMYL-KPSSA--SVDDDK
ISTIFYTIVGPMLNPFIYSLRNKDVHIAMRKTLKKGMFA*-------

>MmOR9.3.14
----MALANVS--SVKEFILLGLTQQPELQLPLFFLFLGIYVVSVMGNLGLIVLIVLNPHLHTPMYYFLF
NLSFTDLCYSSAITPRMLVGFVKQ-NIISHAECLTQLFFFAFFVIDECYILTAMAYDRYAAICKPLLYQV
TMSHQVCLLMTMGVYVMGFAGALSHIVCMLRLTFCDGNIINNYVCDVHPLLKLSCSSTSINELVLFIVVG
VNITVPSLTLFVSYTLILSNILSIHSGEGRSKAFSTCGSHVIAVSFFFGAAAFMYL-KPSSA--SVDEDK
VSTIFYTILGPMLNPFIYSIRNKDVHIALKKTLKKKILT*-------

>MmOR9.3.13
----MALRNAS--SVKEFILLGLTQQPGLQLPLFFLFLGIYVVSMLGNLGLIVLIVLNPHLHTPMYYFLF
NLSFIDLCYSSVITPRMLVGFVKQ-NIISHAECLTQLFFFAFFVIDECYILTAMAYDRYAAICKPLLYQV
TMSHQVCLLMTMGVYVMGFAGALSHIVCMLRLTFCDGNIINHYVCDVLPLLKLSCTSTSINEMVVFIVVG
VNVIVPSLTLFVSYTLILSNILSIHSAEGRSKAFSTCGSHVMAVSFFFGAAAFMYL-KPSS-A-SVDEEK
LSTIFYTILGPMLNPFIYSIRNKDVHLALRKTLMKLRFS*-------

>MmOR9.3.12
----MVLENSS--SVKEFILLGLTQQPELQMPLFFLFLGIYIVSMVGNLGLTVLIVLNPHLHNPMYYFLF
NLSFTDLCYSTVITPRMLVGFVKQ-NTISHAECMTQHFFFCFFVIDECYILTAVAYDRYAAICKPLLYQV
TMSHQVCLLMTVGVYVMGFLEAIAHTGSMVSLTFCDGNIINHYACDILPLLKLSCTSTTINELVVFIVVG
VNVIVPTLTIFISYTLILSNILSIHSAEGRSKAFSTCGSHVIAVSLFFGAAAFMYL-KPSSA--SEDDDK
VSTIFYTIVGPMLNPFIYSLRNKDVYLALRKTLMKRSFT*-------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR9.3.10
NWGRMALGNDS--SVKEFILLGLTQQPELQLPLFFFFLGVYIFSVVGNLGLIVLIVLNPHLQTPMYYFLF
NLSFTDLCYSSVITPKMLVSFVKQ-NIISHAECMTQLFFFCFFVIDECYILTAMAYDRYAAICKPLLYQV
TMSHRVCLLMTVGVYVMGFVEAMAHTASMVHLIFCDSNIINHYMCEINALLKLSCTSTSINELVVYIVVG
FNVIVPTLTIFITYTLILFNILSIHSAEGRSKAFSTCGSHMIAVSLFFGAAAFMYL-KPSSA--SEDEDK
VSTIFYTIMGPMLNPFIYSIRNKDVHIALKKTLKRSIFI*-------

>MmOR9.3.32
----MASGNDS-TTVKEFILLGLTQQPELQLPFFFLFLGIYVVSIVGNLGLIVLIVLNPHLHTPMYYFLF
NLSFIDFCYSSVITPKMLVGFVKQ-NIISHAECMTQLFFFAFFVIDECCILTAMSYDRYVAICKPLLYKV
TMSYQVCFMMTVSVYMMGFVGAIAHTICMLRLTFCDGNIINHYMCDIPPLLKLSCTNTSVNELVVFIVVG
VNVIGPTLIIFTSYTLIIFNISHIRSTEGRSKAISTCSSHIIAVSIFFGASAFMYL-KPSPVG-SVGEDK
VSTVFYTIVGPMLNPFIYSLRNKDVHIALHKTLKKSMLI*-------

>SMOR162-1
MTPGMVSENNS--SVKEFILLGLTQLPELQLPLFFLFLGIYVFSMVGNLGLIVLIVLNPPLHTPMYYFLF
NLSFTDLCYSSVITPKMLVGFVKQ-NIISHAECMTQLFFFAFFVIDECCILTAMAYDRYAAICKPLLYKV
IMSHQVCFVLMVGGYTVGFVGATAHTVCMLRLTFCDGNIINHYMCDIPPLLKLSCTSTSINELVVFIVVG
VSIIVPSLTVFISYTLILSNILRIHSAKGRSKALSTCSSHMIAVSLFFGSSSFIYF-KSSPVG-SVDKDK
ISTVFYTVVVPMMNPFIYSLRNKDVQIALRKTLKKNCSLK-------

>HsOR11.18.5
----MGVKNHS--TVTEFLLSGLTEQAELQLPLFCLFLGIYTVTVVGNLSMISIIRLNRQLHTPMYYFLS
SLSFLDFCYSSVITPKMLSGFLCRDRSISYSGCMIQLFFFCVCVISECYMLAAMACDRYVAICSPLLYRV
IMSPRVCSLLVAAVFSVGFTDAVIHGGCILRLSFCGSNIIKHYFCDIVPLIKLSCSSTYIDELLIFVIGG
FNMVATSLTIIISYAFILTSILRIHSKKGRCKAFSTCSSHLTAVLMFYGSLMSMYL-KPASSS-SLTQEK
VSSVFYTTVILMLNPLIYSLRNNEVRNALMKLLRRKISLSPG*----

>SOR8D4
----MGVKNHS--TVTEFLLSGLTEQAELQLPLFCLFLGIYTVTVVGNLSMISIIRLNRQLHTPMYYFLS
SLSFLDFCYSSVITPKMLSGFLCRDRSISYSGCMIQLFFFCVCVISECYMLAAMAYDRYVAICSPLLYKV
IMSPRVCSLLVAAVFSVGFTDAVIHGGCILRLSFCGSNIIKHYFCDIVPLIKLSCSSTYIDELLILVIGG
FNMVATSLTIIISYAFILTSILRIHSKKGRCKAFSTCSSHLTAVLMFYGSLMSMYL-KPASSS-SLTQEK
VSSVFYTTVIPMLNPLIYSLRNNEVKNALMKLLRRKISLSPG-----

>MmOR9.3.117
----MSIRNHS--TVTEFLLLGLTEEPALQLPLFCLFLGIYIVTMVGNLGMIAVIKLNSQLHTPMYYFLS
SLSFLDFCYSSVVTPKMLVGFLSRDKAISYSDCMAQLFFFCIFVISECYMLAAMAYDRYVAICSPLLYAV
IMSPRVCSLLVAAVFSVGFTDAVIHGGCILRLSFCKSNIIKHYFCDIVPLIQLSCSSTYIDELLIFVIGG
FNMIATSLTIVISYGFILSSILRIHSKEGRSKAFSTCSSHLTAVLIFYGSLMSMYL-KPASNG-SVIHEK
VTSVFYTTVIPMLNPLIYSLRNKEVKHALVKLVRRKISS*-------

>MmOR9.3.2
----MTAENQS--TVTEFILGGLTNRPELQLPLFLLFLGILVVTMVGNLGMITLIGLNSQLHTPMYFFLS
NLSLVDLCYSSVITPKMLINFVAQRNLISYVGCMSQLYFFLVFVIAECYMLTVMAYDRYVAICQPLLYNI
IMSPALCSLLVAFVYAVGLIGSAIETSLMLKLNYCE-DLISHYFCDILPLMKLSCSSTYDIEMAVFFLAG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
FNIIVTSLTVLISYAFILSSILRISSNEGRSKAFSTCSSHFAAVGLFYGSTAFMYL-KPSTAS-SLAREN
VASVFYTTVIPMLNPLIYSLRNKEVKTALDKTLRRKVF*--------

>HsOR11.18.42
----MAAGNHS--TVTEFILKGLTKRADLQLPLFLLFLGIYLVTIVGNLGMITLICLNSQLHTPMYYFLS
NLSLMDLCYSSVITPKMLVNFVSEKNIISYAGCMSQLYFFLVFVIAECYMLTVMAYDRYVAICHPLLYNI
IMSHHTCLLLVAVVYAIGLIGSTIETGLMLKLPYCE-HLISHYFCDILPLMKLSCSSTYDVEMTVFFSAG
FNIIVTSLTVLVSYTFILSSILGISTTEGRSKAFSTCSSHLAAVGMFYGSTAFMYL-KPSTIS-SLTQEN
VASVFYTTVIPMLNPLIYSLRNKEVKAAVQKTL-RGKLF*-------

>SOR8A1
TQRRMAAGNHS--TVTEFILKGLTKRADLQLPLFLLFLGIYLVTIVGNLGMITLICLNSQLHTPMYYFLS
NLSLMDLCYSSVITPKMLVNFVSEKNIISYAGCMSQLYFFLVFVIAECYMLRVMAYDRYVAICHPLLYNI
IMSHHTCLLLVAVVYAIGLIGSTIETGLMLKLPYCE-HLISHYFCDILPLMKLSCSSTYDVEMTVFFLAG
FNIIVTSLTVLVSYTFILSSILGISTTEGRSKAFSTCSSHLAAVGMFYGSTAFMYL-KPSTIS-SLTQEN
VASVFYTTVIPMLNPLIYSLRNKEVKAAVQKTL-RGKLF--------

>SOR8D2
----MATSNHS--SGAEFILAGLTQRPELQLPLFLLFLGIYVVTVVGNLGMIFLIALSSQLYPPVYYFLS
HLSFIDLCYSSVITPKMLVNFVPEENIISFLECITQLYFFLIFVIAEGYLLTAMEYDRYVAICRPLLYNI
VMSHRVCSIMMAVVYSLGFLWATVHTTRMSVLSFCRSHTVSHYFCDILPLLTLSCSSTHINEILLFIIGG
VNTLATTLAVLISYAFIFSSILGIHSTEGQSKAFGTCSSHLLAVGIFFGSITFMYF-KPPSST-TMEKEK
VSSVFYITIIPMLNPLIYSLRNKDVKNALKKMT-RGRQSS-------

>HsOR11.18.27
----MATSNHS--SGAEFILAGLTQRPELQLPLFLLFLGIYVVTVVGNLGMIFLIALSSQLYPPVYYFLS
HLSFIDLCYSSVITPKMLVNFVPEENIISFLECITQLYFFLIFVIAEGYLLTAMEYDRYVAICRPLLYNI
VMSHRVCSIMMAVVYSLGFLWATVHTTRMSVLSFCRSHTVSHYFCDILPLLTLSCSSTHINEILLFIIGG
VNTLATTLAVLISYAFIFSSILGIHSTEGQSKAFGTCSSHLLAVGIFFGSITFMYF-KPPSST-TMEKEK
VSSVFYITIIPMLNPLIYSLRNKDVKNALKKMT-RGRQSS*------

>MmOR9.3.57
--------NHS--SVTDFILEGLTKRPELQLPLFLLFLGIHVITVVGNLGMILLINISSQLHSPMYYFLS
HLSFIDLCYSSVITPKMLVNFVCAKNTISFKECMTQLYFFLLLAISEGYLLTAMAYDRYVAICSPLLYNT
VMSHKVCSIMMAVVYSLGFFGATVHTTRMTMLSFCGSHIIRHYFCDILPLLTLSCSSTHINEVLLFIIGG
VNTLAPTLAVIISYAFILTSILRIRSNEGRSKAFGTCSSHIMAVGIFFGSITFMYF-KPPSSN-NMEQEK
VSSVFYTTVIPMLNPLIYSLRNKDVKTALKKMVGRRQLS*-------

>MmOR9.3.54
--------NHS--SVIDFILEGLTKRPELQLPLFLLFLAIYVITVVGNLGMILLITISSQLHSPMYYFLS
HLSFIDLCYSSVITPKMLVNFVCEKNTISFLECMTQLYFFLIFVIAEGYLLTAMAYDRYVAICSPLLYNI
VMSHKVCSIMMAVVYSLGFFGATVHTTRMTMLSFCGSHIVSHYFCDILPLLTLSCSSTHINEVLLFIIGG
VNTLAPTLAVIISYAFILTSILRIRSNEGRSKAFGTCSSHIMAVGIFFGSITFMYF-KPPSSN-NMEQEK
VSSVFYTTVIPMLNPLIYSLRNKDVKNALKKMVGGRQLS*-------

>MmOR9.3.55
----MGTGNHS--AAVVFVLVELTQQPELLLPLFILFLGIYVVTAVGNLGMILLITVSPLLHTPMYYFLS
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
SLSCVDLCYSTVITPKMLVNFLGKKNVIVYSECMAQLFFFVIFVVAEGYLLTAMAYDRYVAICRPLLYNV
IMSSRLCSLLVLVAFILGFVSALAHTSAMMNLSFCKSHIISHYFCDVLPLLNLSCSNTHLNELLLFIIGG
FNTLVPTLAVAISYVFIFCSILHIKSSKGRSKSFGTCSSHLMAVGIFFGSITFMYF-KPSSSN-SLEQEK
VSSVFYTTVIPMLNPLIYSLRNKDVKKALGRFFVG-R*---------

>MmOR9.3.61
----MGTGNHS--VTVVFVLVGLTQQPELLLPLFILFLGIYVVTAVGNLGMILLITVSPLLHTPMYYFLS
SLSCVDLCYSTVITPKMLVNFLGKKNLIVYSECMAQLFFFVIFVVAEGYLLTAMAYDRYVAICRPLLYNV
IMSSRLCSLLVLVAFILGFVSALAHTSAMMNLSFCKSHVISHYFCDVLPLLNLSCSDIKLNELLLFIIAG
FNTLVPTLAVAISYVFIFCSILHIKSSKGRSKAFGTCSSHLMAVGIFFGSITFMYF-KPPSSN-SLEQEK
VSSVFYTTVIPMLNPLIYSLRNKDVKKALGKCLAG-R*---------

>MmOR9.3.60
----MATGNHS--AAVVFVLVGLTQQPELLLPLFILFLGIYVVTAVGNLGMILLITVSPLLHTPMYYFLS
SLSFVDLSYSTVITPKMLVNFLGKKNFITYSECMAQFFFFAVFVVTEGYLLTVMAYDHYVAICRPLLYNV
MMSSKHCLLLVLVAFTLGLFSAVVHTSAMMSLNFCKTYIISHYFCDALPLLKLSCSNTHLNELLIFIIGG
INTLVPTLAVAISYVFIFCSIRHIKSSKSRSKAFGTCSSHLMAVGIFFGSITFMYL-KPSSSN-SLEQEK
VSSVFYTTVIPMLNPLIYSLRNKDVKKALGRFSVR-R*---------

>SOR8D1
----MTMENYS--MAAQFVLDGLTQQAELQLPLFLLFLGIYVVTVVGNLGMILLIAVSPLLHTPMYYFLS
SLSFVDFCYSSVITPKMLVNFLGKKNTILYSECMVQLFFFVVFVVAEGYLLTAMAYDRYVAICSPLLYNA
IMSSWVCSLLVLAAFFLGFLSALTHTSAMMKLSFCKSHIINHYFCDVLPLLNLSCSNTHLNELLLFIIAG
FNTLVPTLAVAVSYAFILYSILHIRSSEGRSKAFGTCSSHLMAVVIFFGSITFMYF-KPPSSN-SLDQEK
VSSVFYTTVIPMLNPLIYSLRNKDVKKALRKVLVG-K----------

>HsOR11.18.26
----MTMENYS--MAAQFVLDGLTQQAELQLPLFLLFLGIYVVTVVGNLGMILLIAVSPLLHTPMYYFLS
SLSFVDFCYSSVITPKMLVNFLGKKNTILYSECMVQLFFFVVFVVAEGYLLTAMAYDRYVAICSPLLYNA
IMSSWVCSLLVLAAFFLGFLSALTHTSAMMKLSFCKSHIINHYFCDVLPLLNLSCSNTHLNELLLFIIAG
FNTLVPTLAVAVSYAFILYSILHIRSSEGRSKAFGTCSSHLMAVVIFFGSITFMYF-KPPSSN-SLDQEK
VSSVFYTTVIPMLNPLIYSLRNKDVKKALRKVLVG-K*---------

>SMOR171-1
----MSPGNHS--EASLFVLEGLTDQPGLQIPLFSLFLLIYLVSMAGNLGLVFLIRISSQLHTPMYHFLS
NLSFIDLCYSSVIIPKMLVNFVSEKNFTAFPECMVQLFLFSFFGIDDSYMLTAMAYDRYVAICNPLLYNV
TMSHRVCMLLSTAVYAMGAFGATVHTSYISSRSFCGTNVIHHYFCDILPLINIACSRDYTKEFWVMILVG
FNVFASVFSIFISYAFILASILRIRSADGRSKAFSTCSSHLAAVGVFYGSIIFMYF-KPST-G-NTTQEK
VASVFYTTVIPMLNPLIYSLRNKDVKEAIKKALNSGLFS--------

>MmOR9.3.106
----MSPGNHS--EASLFVLEGLTDQPGLQIPLFSLFLLIYLVSMAGNLGLVFLIRISSQLHTPMYHFLS
NLSFIDLCYSSVIIPKMLVNFVSEKNFTAFPECMVQLFLFSFFGIDDSYMLTAMAYDRYVAICNPLLYNV
TMSHRVCMLLSTAVYAMGAFGATVHTSYISSRSFCGTNVIHHYFCDILPLINIACSRDYTKEFWVMILVG
FNVFASVFSIFISYAFILASILRIRSADGRSKAFSTCSSHLAAVGVFYGSIIFMYF-KPST-G-NTTQEK
VASVFYTTVIPMLNPLIYSLRNKDVKEAIKKALNSGLFS*-------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR9.3.100
----MFQGNLS--GVTEFNLAGLTDKPGLQLPLFLLFLGIYVVTVVGNLSMITLILFSSQLHTPMYYFLS
SLSFIDLCQSIVIIPKMLVNFVTVQNIISYPECMTQFCIFATFTIAECHMLAVMAYDRYVAICKPLLYNA
VMSYQVCSWMIFGVYIMAFVGATTQTVFMLKVHFCKANVINHYFCDLSPLLELSCSDTFINEVLALCFSV
FNIFIPTLTILSSYIFIIASILRIKSTEGRSKAFSTCSSHISAVAIFFGSLAFMYL-QPSSIN-SMDQRK
VSSVFYTIVVPMLNPLIYSLR--------Q*----------------

>MmOR9.3.104
----MFQGNLS--GVTEFNLAGLTDKPGLQVPLFLLFLGIYVVTVVGNLSMITLILFSSQLHTPMYYFLS
SLSFIDLCQSNVIIPKMLVNFLAVKNIISYPECLTQLCFFATFGIAECQMLAVMAYDRYVAICKPLLYNA
VMSFQVCSWMIFGVFSMALIGATTQTVCMLRVDFCNANVINHYFCDLSPLLKLSCSDTFINEVLALCFSV
FNIFIPTLTILSSYIFIIASILQIKSTEGRSKAFSTCSSHISAVAIFFGSLAFMYL-QPSSVS-SMDQGK
VSSVFYTIVVPMLNPLIYSLRNKDVKVALNKFLERIFSCKQN*----

>MmOR9.3.101
----MLKGNLS--EVTEFILAGLTNKPELQLPLFFLFLAIYVVTVVGNLGMITLILFSSQLHTPMYFFLS
SLSFIDLCQSTVIIPKMLVNFVTVKNIISYPECMTQLYFFVTFAIAECHMLAVMAYDRYVAIGNPLLYNI
MMSYRVCSWMIFGVYIMAFIGATSHTVCMLRVHFCKTDVINHYFCDIYPLLELSCSDTFINEVVLLCFSV
FNFLIPTLTILSSYIFIIASILRIKSTEGRYKAFSTCSSHISAVAIFFGSTAFMYL-QPSSVN-SMDQGK
VSSVFYSIVVPMLNPLIYSLRNKDVKVALNKFFERKFFL*-------

>MmOR9.3.102
----MLKGNLS--EVTEFILAGLTNKPELQLPLFLLFLAIYVVTVVGNLGMIILILLSSHLHTPMYYFLS
SLSFIDLCQSTVIIPKMLVNFVTVKNIISYPECMTQLYFFVTFAIAECHMLAVMAYDRYVAICNPLLYNA
VMSFQVCSSMIFGVYSIALIGATTHTVCMLRVNFCKANVINHYFCDLFPLLELPCSDTFINEVVVLCFSV
FNIFIPTLTILTSYIFIIASILRIKSTEGRSKAFSTCSSHISAVAIFFGSLAFMYL-QPSSVS-SMDQGK
VSSVFYTIVVPMLNPLIYSLRNKDVKVALNKFFERKFFL*-------

>MmOR9.3.99
----MIAGNYS--MVTEFILAGLTSTPELQLPLFFLFLGIYAVTMVGNLGMITLILLSSHLHTPMYFFLS
SLSFIDLCHSTVITPKMLVNFVTVKNIISYPECMTQLYFFLVFVISECHMLAAMAYDRYVAICNPLLYNA
MMSYQVCTWMIFGVYSMGFIGATAHTVCMLRVHFCKVDVINHYFCDLFPLLELSCSPTFINEVVVLCFSA
FNILFPTLSILSSYIFIIASILRIKSTEGRSKAFSTCSSHISAVAVFFGSAAFMYL-QPSSVS-SMDQGK
VSSVFYTIVVPMLNPLIYSLRNKDVKVALTKFYEK-SFS*-------

>MmOR9.3.98
----MAYSNQS--RVTEFIISGLTNKPELQLPLFLLFLGIYLFTVLGNLGMIILILLSSHLHTPMYFFLS
SLSFIDLCYSTIITPKMLVNFVTTKNVISYQECMTQLYFFIAFVISECHMLAAMAYDRYVAICNPLLYNV
TMSYQVCSWMVGGVYGMGFIGAAIHTFCMLRVVFCKDNIINHYFCDLFPLMELACSSTYVNEVVLLSLSA
FNIFIPTLTILGSYIFIIISILRIKSTEGRFKAFSTCSSHFSAVSVFFGSLAFMYL-QPFSVS-SKDKGK
VSSVFYTTIVPMLNPMIYSLRNRDVKLALNKLFQKKKFHV*------

>MmOR9.3.49
MQVQMADTNHS--TVTEFILAGLTDKPELQLPLFLLFLGIYLLTVLGNLGMIILILLSSHLHTPMYFFLS
SLSFIDLCYSTVITPKMLVNFVAKKNVISYEECMTQLYFFLAFVISECHMLAAMAYDRYVAICNPLLYNV
TMSYQICSWMVGGVYGMGLIGAAVHTLCMLRVVFCKANIINHYFCDLFPLMELACSSTYVNEVVLLCLSA
FNIFIPTLTILGSYIFIIISILRIKSTEGRFKAFSTCSSHFSAVSVFFGSLAFMYL-QPFSVS-SKDKGK
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
VSSVFYTTIVPMLNPMIYSLRNRDVKLALNKLFQKKFHV*-------

>MmOR9.3.97
----MAEGNQS--TVTEFILTGLTNKPELQLPLFLLFLGIYLFTELGNLGMVILISISSHLHTPMYFFLS
SLSFIDLCYSTVIIPKMLVNFVTEKNIISYPECMTQLYCFLVLVISECYMLSAMAYDRYVAICNPLRYNV
TMSYQVCLWMIGGVYCIGLIEATLHTVCMLRVLFCKANVVNHFFCDLLPLLQLACSSTFVNEVVLLCFST
FNFCVPMLTILSSYSFIIARILRIKSTESRFKAFSTCSSHFTSVAVFFGSLGFMYF-QPSSVS-SEDQGK
VSSVFYTTVVPMLNPLIYSLRNKDVKVALNKLLRKKTFHM*------

>MmOR9.3.87
----MAEGNFS--IVTEFILTGLTEKPALQLPLLFLFLGIYVVTVIGNLGMVMLILFSSHLHTPMYFFLS
NLSFVDLCQSSVIMPKMLEKFVMVKSVISYAECMAQFYLFDVFAVSECHMLAVMAYDRYVAICNPLLYNV
TMSYKVCSWMVVGVYSVGLICATGETVCLLRLLFCKAGDINHYFCDLLPLLEQSCSNTFINEILGLSFSS
FNITVPALTILSSYIFIIASILRIPSTEGRSKAFSTCSSHILAVAVFFGSLAFMYL-QPSSVS-SMDQGK
VSSVFYTIVVPMLNPLIYSLRNKDVKVAFYKVVGRREFM*-------

>MmOR9.3.103
------------MIMEFILTGFPTKPELQLPLFLLFLGIYLVTVLGNLGMIILIVLSSGLHTPMYFFLS
SLSFIDLCHSTVITPKMLLNFLLEENIISYPECMTQLYFFSLFAIAECHMLAVMAYDRYVAICNPLLYKV
VMSHHVCFWFTVGVYTLGILGSSVHTGLMLKLFFCKTNKINHYFCDLFPLLELSCSSIYINELLVLFLSA
LNILTPALTILMSYILIIVSILRIRSTEGRSKAFSTCSSHISAVALFYGSAAFTYL-QPSSVS-SMNQGK
VSSVFYTTVVPMLNPLIYSLRNKDVKSSIKKILNR-*----------

>MmOR9.3.105
----MGTGNHS--MVTEFILAGFSTKPELHLPLFLLFLGIYLLTVLGNLGMIILILLSSHLHTPMYFFLS
SLSFIDLCHSTVITPKMLVNFVTEKNIISYPECMTQLYCFLVFAIAECHMLAVMAYDRYVAICNPLLYNV
VMSHHLCFWLTVGVYSLGIVGSSVHTGFMLKLNFCKINVINHYFCDLFPLLELSCSSIYINELLVLFLSA
LNILTPALTILMSYIFIIVSILRIRSTEGRSKAFSTCSSHISAVAIFYGSAAFMYL-QPSSVS-SMDQGK
VSSVFYTTVVPMLNPLIYSLRNKDVKSAVKKILNR-*----------

>HsOR11.18.22
----MSAGNHS--SVTEFILAGLSEQPELQLRLFLLFLGIYVVTVVGNLSMITLIGLSSHLHTPMYYFLS
GLSFIDICHSTIITPKMLVNFVTEKNIISYPECMTQLYFFLIFAIAECHMLAVTAYDRYVAICSPLLYNV
IMSYHHCFWLTVGVYILGILGSTIHTGFMLRLFLCKTNVINHYFCDLFPLLGLSCSSTYINELLVLVLSA
FNILTPALTILASYIFIIASILRIRSTEGRSKAFSTCSSHILAVAVFFGSAAFMYL-QPSSVS-SMDQGK
VSSVFYTIVVPMLNP-------QSIA*--------------------

>MmOR9.3.81
----MEELNHT--PVAEFILAGLTENPELQLPLFLIFLSVYLFTVVGNLGMIVLILISSQLHTPMYYLLS
SLSFIDCCQSTVIVPKMLLNFVTEKNVILYPECIAQFYFFCTFVVAKCHMLAAMAYDRYVAISNPLLYKV
TMSYQVCLLMVAVVYGIGLISATAHTVFLLRLFFCKADKINHYFCDLFPLLELSCSSTFINEILALSFSA
FNIIVPAMTIIGSYIFIIISILHIKSSGGRVKAFSTYSSHILAVAIFFGSTTFMYL-QPSSVS-SMDQWK
VSSVFYTIVVPVLNLMIYSLRNKDVKVALKMLLQKMFPQNKE*----

>MmOR9.3.84
----MEELNHT--SVTEFILAGLTENPELQLPLFLTFLSVYLFTVVGNLGMIVLILISSQLHTPMYYLLS
SLSFIDCCQSTVIVPKMLLNFVTEKNVILYPECIAQFYFFCTFVVAECHMLAAMAYDRYVAISNPLLYKV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
TMSYQVCLLMVAVVYGIGLISATAHTVFLLRLFFCKADKINHYFCDLFPLLELSCSSTFINEILALSFSA
FNIIVPAMTIIGSYIFIIISILHIKSSGGRVKAFRTCSSHILAVAIFFGSTTFMYL-QPSSVS-SMDQGK
VSSVFYTIVVPMLNPMIYSLRNKDVKVALKKLL-QKMFPQNKE*---

>MmOR9.3.67
----MEEINDT--SVAEFILTGLTENPELQLPLFLIFLAVYLVTVVGNLGMIVLILISSQLHTPMYYLLR
SLSFIDCCQSTVIIPKMLLNFVTEMNIISYPQCIAQFYFFCAFAVSECHMLAAMAYDRYVAISNPLLYNV
TMSYQVCSLMVAVVYGIGLISATAHTVFLLRVLFCKSDIINHYFCDLFPLLELSCSSTYINEVLALSFSA
FNIIVPALTILSSYIFIIVSVLHIQSTGGRVKAFRTCSSHIMAVAIFFGSTVFMYL-QPSSVS-SMDQGK
VSSVFYTIVVPMLNPLIYSLRNKDVRVSLKKLLQKISFLKTKN*---

>MmOR9.3.64
----MEKGNQS--TVNKFFLSGLTEQPELQLPLFLLFLGIYLLTVLGNLGMIILILLSSYLHTPMYFFLS
SLSFIDFCQSTVITPKMLVKFVREKNEISYPECITQLCFFVIFAVSESYMLAAMAYDRYVAICSPLLYSS
IMSQHKCLSLVLGVYILGIVCASAHVGCIFRIDFCKSDLINHYFCDLISILNLSCSNIFVNDLVILIFSL
INTIFPTLTILSSYAFIIISILRIKSTEGRSKAFSTCSSHISAVAIFYISAGFTYL-NPSSSH-SMDEGK
VSSIFYTIIVPMLNPLIYSLRNKDVKIALKKMIE*------------

>MmOR9.3.63
----MEQGNHS--TVKKFFLSGLTEQPELQLPLFLLFLGIYLLTVLGNLGMIILILLSSHLHTPMYFFLS
SLSFIDLCQSTVITPKMLVNFVREKNEISYPECITQLYFFLLFAISECYMLAAMAYDRYVAICSPLLYSS
IMSQHKCLSIVLGVYIIGIVCASAHVGCMFRIDFCRYDVINHYFCDLISILKLSCSDAFVNELMILIFSG
VNIIAPTLTILSSYVFIIMSILRIKSTEGRSKTFSTCSSHISAVAVFYGSAAFMYL-NPSSSN-SMDEGK
VSSIFYTIIVPMLNPLIYSLRNKDVNIALKKMIQR-R*---------

>SOR8G5
TMFFLSPANHS--FVTKFILVGLTEKSELQLPLFLVFLGIYVVTVLGNLGMITLIGLSSHLHTPMYCFLS
SLSFIDFCHSTVITPKMLVNFVTEKNIISYPECMTQLYFFLVFAIAECHMLAAMAYDGYVAICSPLLYSI
IISNKACFSLILVVYVIGLICASAHIGCMFRVQFCKFDVINHYFCDLISILKLSCSSTYINELLILIFSG
INILVPSLTILSSYIFIIASILRIRYTEGRSKAFSTCSSHISAVSVFFGSAAFMYL-QPSSVS-SMDQGK
VSSVFYTIVVPMLNPLIYSLRNKDVHVALKKTLGKRTFL--------

>HsOR11.18.25
----MAAENHS--FVTKFILVGLTEKSELQLPLFLVFLGIYVVTVLGNLGMITLIGLSSHLHTPMYCFLS
SLSFIDFCHSTVITPKMLVNFVTEKNIISYPECMTQLYFFLVFAIAECHMLAAMAYDGYVAICSPLLYSI
IISNKACFSLILVVYVIGLICASAHIGCMFRVQFCKFDVINHYFCDLISILKLSCSSTYINELLILIFSG
INILVPSLTILSSYIFIIASILRIRYTEGRSKAFSTCSSHISAVSVFFGSAAFMYL-QPSSVS-SMDQGK
VSSVFYTIVVPMLNPLIYSLRNKDVHVALKKTLGKRTFL*-------

>MmOR9.3.83
-MEDMPAGNHC--TVTVFFLAGLSEQSELQLPLFLFFTGIYLITVSGNLGMIILIGLSSNLHTPMYYFLS
SLSFIDFGQSTVVTPKMLVSFLTEKNLITYPECLAQLYFAIIFGTAESYTLAAMAYDRYVAICNPLVYNI
AMSSQIYCSLISGVYIFAVFCASVNMGFMFRIQFCKSDVINHYFCDFLPLLKLACSNTYVSEMLILFFGT
LNIFVPMLTIITSYISIISSILRISSSEGRSKAFSTCSSHISAVAVFYGSTAFVYL-QPSRVS-SIDQGK
VSSVFYTTVVPMLNPLIYSLRNKDVSVAMKKILERKRFM*-------

>MmOR9.3.80
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
-MEDMTAGNHC--TVTVFFLAGLSEQSELQLPLFLFFTGIYLITVSGNLGMIILIGLSSNLHTPMYYFLS
SLSFIDFGQSTVVTPKMLVSFLTEKNFITYPGCMTQLYFVIIFGTAESYTLAAMAYDHYVAICNTLVYNI
AMSSQIYCSLISGVYIFAVFCASVNMGFMFRIQFCKSDVINHYFCDFLPLLKLACSNTYVSEMLILFFGT
LNIFVPMLTIITSYISIISSILRIHSREGRSKAFSTCSSHISAVAIFYGSGVFVYL-QPSQVS-SMDQGK
VSSVFYTTVVPMLNPLIYSLRNKDVSDALKKILERKTFM*-------

>MmOR9.3.71
-MEDMTSGNNC--TVTEFFLAGLSEEPELQLPLFLLFTGIYLITVAGNLGMITLIGISSHLHTPMYYFLS
SLSLIDFCQSTVVIPKMLMSFLMEKNLISYPGCMAQLYFFITFGIAECYTLAAMAYDRYVAICNPLLYNA
TMSSQIYTSLILGVYIFAVICASVNTGFMSRIKFCKSDVISHYFCDFLPLLKLACSDIYINEMLILSFGT
VNICVPLLTVITSYIFIIASILRIRSSEGRSKAFSTCSSHISAVAVFYGSAAFTYL-QPSSVS-LIDQGK
VSSVFYTTVVPMLNPLIYSLRNKDVTVALKTILERKKFM*-------

>MmOR9.3.74
-MEDMTSGNNC--TVSEFFLAGLSEEPELQLPLFLLFTGIYLITVVGNLGMITLIGISSHLHTAMYFFLS
SLSFIDFCQSTVVTPKMLVSFLTEKNIISYLGCMAQLYFFIIFGAAECYTLAAMAYDRYVAICNPLLYTV
VMSYQVYSSLISGVYIYAVFCASVHTGVLTRIQFCKLDVINHYFCDILPLLKLACSNTYIDEMLILFFGT
LNIFAPTLIIITSYIFIIASIFHIRSREGRSKAFSTCSSHISAVAIFYGSAAFMYL-QPSRVN-SMDQGK
VSSVFYTTVVPMLNPLIYSLRNKDVTVALKKILERKNFMWSEVT*--

>MmOR9.3.77
----MAAANHC--IVTEFFLAGLSENQKVQLPLFLLFVAIYLITVAGNLGMIALIGISSHLHTPMYYFLS
SLSFIDFCQSTVVTPKMLVSLLTKKNIISYSGCMVQLYFFISFGTAECYTLAVMAYDRYVAICNPLRYNV
TMSYQIYSSLISGVYIYAVFCASVNTGFIIRIQFCKLNVINHYFCDLLPLLKLACSNTYINEILILFFGS
VNICVPMLTVITSYIFIIASILRIRSSEGKFKAFSTCSSHISAVAILYGSTAFTYL-QPSSVS-LVDQGK
VSSVFYTTVVPMLNPLIYSLRNKDVTLALKRILEQ-KRLYVSRSRVK

>MmOR9.3.73
-MEDMAAGNHC--TVTEFFLAGLSEKPELQLPLFLLFTGIYLITMAGNLGMITLIGLSSHLHTPMYYFLS
SLSFIDFCQSTVVIPKMLVSFLTEMNIISYSECMAQLYFFLTFGIAECYTLAAMAYDRYVAICNPLLYNV
TMSYQIYSSLISGVYIFAVICSSFNTGFMLRTQFCNLDVINHYFCDLLPLLNLASSNTYINEILILFFAT
LNSFVPVLTIITSYIFIIVTILSIHSREGKFKAFSTCSTHISAVAIFYGSGAFTYL-QPSSLN-SMGQAK
VSSVFYTTVVPMLNPLIYSLRNKDVSIALKKILERKKFM*-------

>MmOR9.3.72
----MAAGNHC--TVTEFFLVGLSEKPEFQLPLFLLFLGIYLITVTGNVGMITLIGLSSHLHTPMYFFVR
SLSFIDFCQSTVVIPKMLMSFLTEKNIISYSGCMVQLYFFFIFGIAECYTLAAMAYDRYVAICNPLLYNV
TMSYQIYNSLISGSYIFAVVCSSLITGFMFRIQFCNLDVINHYFCDLLPLLNLASSNIYINEILILVIAT
LNVFIPVMTIITSYIFIIATILYIHSSEGKFKGFSTCSTHISAVAIFYGSGAFTYL-QPSLLN-SMGQAK
VSSVFCTTVVPMLNPFIYSLRNKDVSFALKKIFERKKFM*-------

>MmOR9.3.86
-MNDMTSGNYC--TVTEFFLAGLSEKPELQLPLFFLFIGIYMITVAGNLGMIILIGLSSHLHTPMYYFLS
SLSFIDFCQSTVVTPKMLVNFVTEKNIISYPGCMTQLYFFLIFAIAECYILAAMAYDRYVAICNPLLYNV
TMSYQIYIFLISGVYIIGVICASAHTGFMVRIRFCKLDVINHYFCDLLPLLKLACSNTYINEMLILFFGT
LNIFVPILTIITSYIFIIASILRIRSTEGRSKAFSTCSSHILAVAVFFGSLAFMYL-QPSSVS-SMDQGK
VSSVFYTIVVPMLNPLIYSLRNKDVAVALKKIIERKTFM*-------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR9.3.66
----MATGNYC--MLPEFILTGLSKKPQLQMPLFLLFLGIYVVTVVGNLGMITLIKLSSHLHTPMYYFLS
SLSFIDLCHSTVITPKMLVNFVIEKNIISYTGCMAQLYFFLIFAIAECHMLAAMAYDRYVAICNPLLYNV
TMSYQIYTSLIFGVYIIGVVCASAHTGFMIRIQFCNLEVINHYFCDLLPLLELAHSSTYVNELLVLCFGT
FNIVVPTMTILTSYIFIIANILRIRSTGGRSKAFSTCSSHILAVAVFFGSAAFMYL-QPSSVS-SMDQGK
VSSVFYTIVVPMLNPLIYSLRNKDVSVALKKILERKLFM*-------

>SMOR216-1
----MSMENSS--TGTKFILLGMTDNYQLAVLLFGLFFIIYFITVLGNLGLVVLIQVSHRLHTPMYFFLS
NLSFLDVCFSSITTPKTLVNLLSQLQEVSFFGCMAQMGLFIVFASAECNILASMAYDRYTAICRPLLYHI
TMSKVRCLLLVAGCYLGGLLNMVAVTTSITQLSFCQPQVISHFFCDIPPLLALACSDPWVTQVLVVGCGG
FTLVTSVMVILVSYLSIFMTIMGIPSVSGKQKAFSTCASHLTAVALYYGTTMYTYL-QPSRHG-SQAGNR
MISVFYTMLIPMLNPLIYSLRNQEVKVALQKILRHSQ----------

>MmORX.1.4
----MSMENSS--TGTKFILLGMTDNYQLAVLLFGLFFIIYFITVLGNLGLVVLIQVSHRLHTPMYFFLS
NLSFLDVCFSSITTPKTLVNLLSQLQEVSFFGCMAQMGLFIVFASAECNILASMAYDRYTAICRPLLYHI
TMSKVRCLLLVAGCYLGGLLNMVAVTTSITQLSFCQPQVISHFFCDIPPLLALACSDPWVTQVLVVGCGG
FTLVTSVMVILVSYLSIFMTIMGIPSVSGKQKAFSTCASHLTAVALYYGTTMYTYL-QPSRHG-SQAGNR
MISVFYTMLIPMLNPLIYSLRNQEVKVALQKIL-RHSQ*--------

>SOR2M5
GELALASGNHT--PVTKFILQGFSNYPDLQELLFGAILLIYAITVVGNLGMMALIFTDSHLQSPMYFFLN
VLSFLDICYSSVVTPKLLVNFLVSDKSISFEGCVVQLAFFVVHVTAESFLLASMAYDRFLAICQPLHYGS
IMTRGTCLQLVAVSYAFGGANSAIQTGNVFALPFCGPNQLTHYYCDIPPLLHLACANTATARVVLYVFSA
LVTLLPAAVILTSYCLVLVAIGRMRSVAGREKDLSTCASHFLAIAIFYGTVVFTYV-QPHGST-NNTNGQ
VVSVFYTIIIPMLNPFIYSLRNKEVKGALQRKLQVNIFPG-------

>HsOR11.11.30
----MGKENCT--TVAEFILLGLSDVPELRVCLFLLFLLIYGVTLLANLGMTALIQVSSRLHTPVYFFLS
HLSFVDFCYSSIIVPKMLANIFNKDKAISFLGCMVQFYLFCTCGVTEVFLLAVMAYDRFVAICNPLLYMV
TMSQKLRVELTSCCYFCGTVCSLIHSSLALRILFYRSNVINHFFCDLPPLLSLACSDVTVNETLLFLVAT
LNESVTIMIILTSYLLILTTILKIHSAESRHKAFSTCASHLTAITVSHGTILYIYC-RPSSGN-SGDVDK
VATVFYTVVIPMLNPLIYSLRNKDVNKALRKVMGSKIHS*-------

>HsOR11.11.28
----MGKENCT--TVAEFILLGLSDVPELRVCLFLLFLLIYGVTLLANLGMIALIQVSSRLHTPMYFFLS
HLSSVDFCYSSIIVPKMLANIFNKDKAISFLGCMVQFYLFCTCVVTEVFLLAVMAYDRFVAICNPLLYTV
TMSWKVRVELASCCYFCGTVCSLIHLCLALRIPFYRSNVINHFFCDLPPVLSLACSDITVNETLLFLVAT
LNESVTIMIILTSYLLILTTILKMGSAEGRHKAFSTCASHLTAITVFHGTVLSIYC-RPSSGN-SGDADK
VATVFYTVVIPMLNSVIYSLRNKDVKEALRKVMGSKIHS*-------

>SOR5L1
----MGKENCT--TVAEFILLGLSDVPELRVCLFLLFLLIYGVTLLANLGMIALIQVSSRLHTPMYFFLS
HLSSVDFCYSSIIVPKMLANIFNKDKAISFLGCMVQFYLFCTCVVTEVFLLAVMAYDRFVAICNPLLYTV
TMSWKVRVELASCCYFCGTVCSLIHLCLALRIPFYRSNVINHFFCDLPPVLSLACSDITVNETLLFLVAT
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LNESVTIMIILTSYLLILTTILKMGSAEGRHKAFSTCASHLTAITVFHGTVLSIYC-RPSSGN-SGDADK
VATVFYTVVIPMLNSVIYSLRNKDVKEALRKVMGCQNSLL-------

>SMOR174-1
----MDEENCS--TVAQFILLGFSDVPELRGVLSLLFLLIYGVTALANLGMTALIQVSSQLHTPMYFFLS
HLSFVDFCYSSVIVPKMLANIFNKDKAISFLACMVQFYLFCTCVVTEVFLLAVMAYDRFVAICNPLLYTA
TMSSDLRMILVSGCYLCASMCSLIHLCLALEIPSFKSNVINHFFCDLPPLLSLACSDVTVNKVLLFVVAT
FNESFSIVVIFTSYLFILITILRMRSVEGRRKAFSTCASHLTVIIVFHGTILSIYC-SSTSDN-SGDADK
VATVFYTVVIPMLNPLIYSLRNKDVKGALRKVVNSKIYSQ-------

>MmOR2.2.153
----MDEENCS--TVAQFILLGFSDVPELSGVLSLLFLLIYGVTALANLGMTALIQVSSQLHTPMYFFLS
HLSFVDFCYSSVIVPKMLANIFNKDKAISSLACMVQFYLFCTCVVTEVFLLAVMAYDRFVAICNPLLYTA
IMSSNLRMILVSGCYLCASMCSLIHLCLALEIPSFKSNVINHFFCDLPPLLSLACSDVTVNKVLLFVVAT
FNESFSIVVIFTSYLFILITILRMRSVEGRRKAFSTCASHLTVIIVFHGTILSIYC-SSTSDN-SGDADK
VATVFYTVVIPMLNPLIYSLRNKDVKGALRKVVNSKIYSQ*------

>MmOR2.2.152
----MEEVNCT--FMAEFILLGFSDVPELAIFLFLVFLVIYGVTVIANLGMTVLIQVSSQLHTPMYFFLS
HLSFVDFCYASIIVPKMFTDIINQDQVISYLECMLQFYLFCTFAITEVFLLAVMAYDRFVAICNPLLYTV
IMSPKLRLVLVSCCYLYASVCSLIHLCLALEITSFKSNVINHFFCDLPPLLSLACSDVSTNEFFLFIIVN
FNEILTIVIIFTSYLFILITILKMRSAEGRRKAFSTCASHLTVIMVFHGTILFIYC-QPNSGN-SLDVDK
VTTVFYTVIIPMLNPLIYSLRNKDVKEALRKMLGSKKNSLLDFFFFV

>HsOR11.11.25
--MMASERNQS--STPTFILLGFSEYPEIQVPLFLVFLFVYTVTVVGNLGMIIIIRLNSKLHTIMCFFLS
HLSLTDFCFSTVVTPKLLENLVVEYRTISFSGCIMQFCFACIFGVTETFMLAAMAYDRFVAVCKPLLYTT
IMSQKLCALLVAGSYTWGIVCSLILTYFLLDLSFCESTFINNFICDHSVIVSASYSDPYISQRLCFIIAI
FNEVSSLIIILTSYMLIFTTIMKMRSASGRQKTFSTCASHLTAITIFHGTILFLYC-VPNPKT-SSLIVT
VASVFYTVAIPMLNPLIYSLRNKDINNMFEKLVVTKLIYH*------

>SOR5D13
--MMASERNQS--STPTFILLGFSEYPEIQVPLFLVFLFVYTVTVVGNLGMIIIIRLNSKLHTIMYFFLS
HLSLTDFCFSTVVTPKLLENLVVEYRTISFSGCIMQFCFACIFGVTETFMLAAMAYDRFVAVCKPLLYTT
IMSQKLCALLVAGSYTWGIVCSLILTYFLLDLSFCESTFINNFICDHSVIVSASYSDPYISQRLCFIIAI
FNEVSSLIIILTSYMLIFTTIMKMRSASGLQKTFSTCASHLTAITIFHGTILFLYC-VPNPKT-SSLIVT
VASVFYTVAIPMLNPLIYSLRNKDINNMFEKLVVTKLIYH*I-----

>MmOR2.2.158
--MLLTYGNNS---GAMFILLSFSDYPEIEMPLFLVFLAIYSITVVGNIGMIVIIRINPKLHTPMYFFLS
HLSFVDFCYSSVIAPKMLVNLFIKDRAISFLECIVQYFFFAIFVVTETILLVVMAYDRFVAICRPLLYTV
AMSQKLCISLVVGSYAWGLICSLTMTCSIIQLSFVGINTIDHFFCEFSSLLVLSCSDTHVNQILLFSLST
VNALSTLLIILLSYMFILVTILKMQSSRGRQKAFYTCASHLTTITIFYGTILFLYS-VPNSKN-SQLTFK
VASLFYTLVIPMLNPLIYSLRNKDVKDTIRQIMKIKFIALPHLSSKV

>MmOR2.2.154
--MILSEKNNS---GIIFTLLVFSDYPDLKVPLFLVFLVIYSITVVGNIGMILVIRINPQLHSPMYFFLS
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
HLSFVDFCYSSIIAPKMLVNLVAKDITISFVECIVQYFLFCVFVVTEAFLLVVMAYDRFVAICNPLLYTV
AMSQKLCITLVVGSYAWGFTCSLTLTCSTVQLSFHGVNRIDHFFCELSSLLALSSSDTLISQLLLFVFAT
FNAVSTLLLILLSYLFIVVTVLKMRSASGRRKAFSTCASHLAAITIFHGTILFLFC-VPNSKN-SRLTVK
VGSVFYTVVIPMLNPIIYSLRNKDVQDTIRKIMTLISCVKNDRHN*-

>MmOR2.2.159
--MTLSDGNHS---GAVFTLLGFSDYPELTIPLFLIFLTIYSITVVGNIGMIVIIRINPKLHIPMYFFLS
HLSFVDFCYSSIVAPKMLVNLVTMNRGISFVGCLVQFFFFCTFVVTESFLLGVMAYDRFVAIRNPLLYTV
AMSQRLCAMLVLGSYAWGVVCSLILTCSALNLSFYGFNMINHFFCEFSSLLSLSRSDTSVSQLLLFVFAT
FNEISTLLIILLSYVLIVVTILKMKSASGRRKAFSTCASHLTAITIFHGTILFLYC-VPNSKN-SRHTVK
VASVFYTVVIPMLNPLIYSLRNKDVKDTVKKIIGTKVYSS*------

>SOR5D18
---MLLTDRNT--SGTTFTLLGFSDYPELQVPLFLVFLAIYNVTVLGNIGLIVIIKINPKLHTPMYFFLS
QLSFVDFCYSSIIAPKMLVNLVVKDRTISFLGCVVQFFFFCTFVVTESFLLAVMAYDRFVAICNPLLYTV
DMSQKLCVLLVVGSYAWGVSCSLELTCSALKLCFHGFNTINHFFCEFSSLLSLSCSDTYINQWLLFFLAT
FNEISTLLIVLTSYAFIVVTILKMRSVSGRRKAFSTCASHLTAITIFHGTILFLYC-VPNSKN-SRHTVK
VASVFYTVVIPMLNPLIYSLRNKDVKDTVTEILDTKVFSY-------

>HsOR11.11.29
---MLLTDRNT--SGTTFTLLGFSDYPELQVPLFLVFLAIYNVTVLGNIGLIVIIKINPKLHTPMYFFLS
QLSFVDFCYSSIIAPKMLVNLVVKDRTISFLGCVVQFFFFCTFVVTESFLLAVMAYDRFVAICNPLLYTV
NMSQKLCVLLVVGSYAWGVSCSLELTCSALKLCFHGFNTINHFFCEFSSLLSLSCSDTYINQWLLFFLAT
FNEISTLLIVLTSYAFIVVTILKMRSVSGRRKAFSTCASHLTAITIFHGTILFLYC-VPNSKN-SRHTVK
VASVFYTVVIPMLNPLIYSLRNKDVKDTVTEILDTKVFSY*------

>HsOR11.11.31
--MFLTERNTT--SEATFTLLGFSDYLELQIPLFFVFLAVYGFSVVGNLGMIVIIKINPKLHTPMYFFLN
HLSFVDFCYSSIIAPMMLVNLVVEDRTISFSGCLVQFFFFCTFVVTELILFAVMAYDHFVAICNPLLYTV
AISQKLCAMLVVVLYAWGVACSLTLACSALKLSFHGFNTINHFFCELSSLISLSYPDSYLSQLLLFTVAT
FNEISTLLIILTSYAFIIVTTLKMPSASGHRKVFSTCASHLTAITIFHGTILFLYC-VPNSKN-SRHTVK
VASVFYTVVIPLLNPLIYSLRNKDVKDAIRKIINTKYFHIKHRHWYP

>MmOR2.2.151
--MILTDINLT--SEVTFALLGFSDYPELQVPLFLLFLAIYSFSVVGNIGMMIIIKINPKLHTPMYFFLS
HLSFADFCYSSIIAPKMLVNLVVEDRTISFLGCIMQFFFFCTFVVTELILFAVMAYDRFVAVCNPLLYTV
VMSQRLCALLVLGSYAWGVVCSLTLTCSALNLYFRGFNTINHFFCELSSLIALSCSDSHLTQLLLFIVAT
FNEISTLLIILTSYLFIVVTALKMHSSSGHRKVFSTCASHMTAITIFHGTILFLYC-VPNSKN-SRHTVK
VASLFYTVVIPMLNPLIYSLRNKDVKDTVSKLMNVRKFSQ*------

>MmOR2.2.161
--MVPLEINVS--VEINFVLLGFTDYPNLQIPLFLIFLFMYIITVVGNLGMTVLINIDHKFHTPMYFFLS
HLSFVDFCYSTIITPKLLENLVLADKTILYFSCMLQYFLSCVALVSESYLLAVMAYDRFVAICNPLLYTV
AMSPRLCILLVTGSYIWSTFETLILLCYALQLKFSRFNVINHFFCEYTALIVVSSSDIHIPSLLLFCFAT
FNEVSTLLIILTSYVLIFVTVLKIKSASGRRKAFSTCASHLTAITIFHGTILSLYC-VPNSKN-SRNAVK
VASVFYAVVNPLLNPLIYSLRNKDVKEVFQKLVSTSLKFQLH*----
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR2.2.160
--MVPMERNVS--VEIIFSLLGFTDYPELQIPLFLIFLFMYVITVVGNLGMIALININPKFHTPMYFFLS
HLSFVDFCYSTIITPKLLENLVLADKTILYFSCMFQYFLSCVAVVSESYLLAVMAYDRFVAICNPLLYTV
AMSPRLCILLVTGSYIWSIFAPLILLCYALQLKFSRFNVINHFFCEYTALIAVSSSDIHIPSLLLFCFAT
FNEVSTLLIILTSYVFIFVTVLKIKSASGRRKAFSTCASHLTAITIFHGTILSLYC-IPNSKN-SRQVVK
VASVFYTVVNPMLNPLIYSLRNKDVKDAFQKLVSTKIPLQ*------

>HsOR11.11.27
--MMMVLRNLS--MEPTFALLGFTDYPKLQIPLFLVFLLMYVITVVGNLGMIIIIKINPKFHTPMYFFLS
HLSFVDFCYSSIVTPKLLENLVMADKSIFYFSCMMQYFLSCTAVVTESFLLAVMAYDRFVAICNPLLYTV
AMSQRLCALLVAGSYLWGMFGPLVLLCYALRLNFSGPNVINHFFCEYTALISVSGSDILIPHLLLFSFAT
FNEMCTLLIILTSYVFIFVTVLKIRSVSGRHKAFSTWASHLTSITIFHGTILFLYC-VPNSKN-SRQTVK
VASVFYTVVNPMLNPLIYSLRNKDVKDAFWKLIHTQVPFH*------

>SOR5D14
--MMMVLRNLS--MEPTFALLGFTDYPKLQIPLFLVFLLMYVITVVGNLGMIIIIKINPKFHTPMYFFLS
HLSFVDFCYSSIVTPKLLENLVMADKSIFYFSCMMQYFLSCTAVVTESFLLAVMAYDRFVAICNPLLYTV
AMSQRLCALLVAGSYLWGMFGPLVLLCYALRLNFSGPNVINHFFCEYTALISVSGSDILIPHLLLFSFAT
FNEMCTLLIILTSYVFIFVTVLKIRSVSGRHKAFSTWTSHLTAITIFHGTILFLYC-VPNSKN-SRQTVK
VASVFYTVVNPMLNPLIYSLRNKDVKDAFWK---L------------

>MmOR2.2.174
---MQHQVNQS--TGVVFVFVGFSEYPNLQVPLFLIFLIIYTITVLENLGMILVIRINAKLHTPMYFFLS
HLSIVDLCYTTVIAPKLLDLLITEDRSMSLKGCIIQFYFGCACVVTQNFMLAVMAYDRFVAICNPLLYTV
AMSQKLCALLVTGTYLWGGLCATTLTYFLLALSYCRSSIINHFCCEYSAIISAACSDSSISQIACLLICM
FNEICSLLIIIVSYVVIFTTVIKIPTKGALQKALSTCAPHLTAISFCHGIILLLYC-VLKSKS-SLLLVK
IVTVFYSMVIPMLNPLIYSLRNKDVKETVRKLIHMKILSQSL*----

>MmOR2.2.162
RSQVWNEGNRS--MVASFILLAFSEFPNLQLPLFLVFLIMYMVTVLENLGMIFIIRMNPKLHTPMYFFLS
HLSFVDFCYTSVIAPKLLDLLIVEDKSISFEGCMAQYFLGCTFVIIEMFMLAVMAYDRFVAVCNPLLYTV
AMSHELCSLLVVITYIWAGIFSSTLTYILLQLSYCGPNVIDHFCCEYSALLSVSCSDTSFSQMACLVISM
FNEACCLLIIITSYVFIVVTVIKIPTKGAFRKAFSTCASHLKAIGVCHGIVLLLYC-VLKSKS-SLFLVK
VATVFHSMVIPMLNPLIYSLRNKDVKETVRKLIYLKCIFHSI*----

>MmOR2.2.164
--MAYEVMNQT--SATTFILVGFSEYPQLQKPLFLLFLAIYSVTLVGNLGILVVIKVNPKLHTPMYFFLS
HLSFLDICYSSVFTPKLLQILIMEDRTVSFKACMVQFFFICTFVITEMFMLAVMAYDRFVAVCNPLLYTV
VMPFQFCALLVAGTYMIGGLCTVILLYTLLQLSYCEYGIINHFGCEYSAVISVSCSDSSFSQLTSLVIAI
VSESSSVLITLASYVFIVVTIIKMPSKGGLRKAFSTCTSHLTAISIFHGIILLLYC-VPNSNS-SRLFVK
VATALYTIMIPMLNPLIYSLRNKDVKDTVRRLISSKLHSHLT*----

>MmOR2.2.168
--MAYEVMNQT--SATTFILVGFSEYPQLQIPLFLLFLTIYSVTLMGNLGILVVIKGNPKLHTPMYFFLS
HLSFLDICYSSVFTPKLLQILIMEDRTISFIGCMIQFFFICTFVITEMFMLAVMAYDRFVAVCNPLLYTV
VMPFQFCALLVAGTYMIGGLCAVILIYTLLQLSYCEYGIINHFGCEYSAVISVSCSDSSFSQLACLVISI
FSESSSVLITLASYVFIVVTIIKMPSKGGLRKAFSTCTSHLTAISIFHGIILLLYC-VPNSNS-SRLFVK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
VATALYTVMIPMLNPLIYSLRNKDVKDTVRRLISSKLHSHLT*----

>MmOR2.2.165
--MAYEVVNQS--SATTFILVGFSEYPQLQIPLFLLFLTIYSVTLMGNLGILVVIKVNPKLHTPMYFFLS
HLSFLDICYSSVFTPKLLQILIMEDRTISFIGCMIQFFFICTFVITEMFMLAVMAYDRFVAVCNPLLYTV
VMPIQFCALLVAGTYMIGGLCTLIILYTLLQLCYFEYGIINHFGCEYSAVISVSCSDSSFSQLICLVISI
ASEFSSVLITLASYVFIVVTIIKMPSKGGLRKAFSTCTSHLTAITIFHGILLLLYC-IPNSNS-SRLFVK
VATALYTIMIPMLNPLIYSLRNKDVKDTVRRLISSKLHSHLT*----

>MmOR2.2.166
--------NQS--SVTTFILVGFSEYPHLQPPLFLMIMTIYTVTLVGNVGIILVRRINPKLHTPMYFFLS
HLSFLDICYSSVFTPKLLEILIVEHRTISLNGCMTQFFFGCACVITEMFMLAVMAYDRFVAVCNPLLYTV
AMSHQLCALLVAGSYMWGGLCAVIITYTLVELSYCEPGIIDHFGCEYSAIVSVSCSDPSFSQMVCLVISI
LSEGSSLLITMASYVFIVVTIIKMPSKDGLRKAFSTCTSHLTAISIFHGIILLLYC-IPNAKS-SKLLVK
VATVLYTVLIPMLNPLIYSLRNKDVKETVKRLISSKLHSQTI*----

>MmOR2.2.171
--------NQS--SVTTFILVGFSEYPHLQPPLFLMVMTIYTVTLVGNVGIILVRRINPKLHTPMYFFLS
HLSFLDLCYSSVVPPKLLEILIVEHRTISLKGCMTQFFFGCACVIIEMFMLAVMAYDRFVAVCKPLLYTV
AMSHKFCALLVAGSYMWGGLGAAIITYTLVQLSYCEPGIIDHFSCEYSAIVSVSCSDPSFSQMVCLVISM
LNEVSSLLITMTSYVFLIVTIIKMPSKGGLRKAFSTCTSHLTAISIFHGTILLLYC-IPNAKS-SKLVVK
VATVLYTVLIPMLNPLIYSLRNKDVKETVKRLISSKLHSQTI*----

>HsOR3.3.11
----MEEENAT--LLTEFVLTGFLHQPDCKIPLFLAFLVIYLITIMGNLGLIVLIWKDPHLHIPMYLFLG
SLAFVDASLSSTVTPKMLINFLAKSKMISLSECMVQFFSLVTTVTTECFLLATMAYDRYVAICKALLYPV
IMTNELCIQLLVLSFIGGLLHALIHEAFSFRLTFCNSNIIQHFYCDIIPLLKISCTDSSINFLMVFIFAG
SVQVFTIGTILISYTIILFTILEKKSIKGIRKAVSTCGAHLLSVSLYYGPLTFKYL-GSASPQ-ADDQDM
MESLFYTVIVPLLNPMIYSLRNKQVIASFTKMF-KSNV*--------

>SOR5H6
CSEEMEEENAT--LLTEFVLTGFLHQPDCKIPLFLAFLVIYLITIMGNLGLIVLIWKDPHLHIPMYLFLG
SLAFVDALLSSTVTPKMLINFLAKSKMISLSECMVQFF---SLVTTECFLLATMAYDRYVAICKPLLYPV
IMTNELCIQLLVLSFIGGLLHALIHEAFSFRLTFCNSNIIQHFYRDIIPLLKISCTDSSINFLMVFIFAG
SVQVFTIGTILISYTIILFTILEKKSIKGIRKAVSTCGAHLLSVSLYYGPLAFKYL-GSASPQ-ADNQDM
MESLFYTVIVPLLNPMIYSLRNKQVIASFTKMF-KSNV---------

>HsOR3.3.5
----MEEENAT--LLTEFVLTGFLYQPQWKIPLFLAFLVIYLITIMGNLGLIAVIWKDPHLHIPMYLLLG
NLAFVDALLSSSVTLKMLINFLAKSKMISLSECKIQLFSFAISVTTECFLLATMAYDRYVAICKPLLYPA
IMTNGLCIRLLILSYVGGLLHALIHEGFLFRLTFCNSNIIQHFYCDIIPLLKISYTDSSINFLMVFIFAG
SIQVFTIGTVLISYIFVLYTILKKKSVKGMRKAFSTCGAHLLSVSLYYGPLAFMYM-GSASPQ-ADDQDM
MESLFYTVIVPLLNPMIYSLRNKQVIASFTKMF-KRNDV*-------

>HsOR3.3.4
----MEEENAT--LLTEFVLTGFLYQPQWKIPLFLAFLVIYLITIMGNLGLIAVIWKDPHLHIPMYLLLG
NLAFVDAWISSTVTPKMLNNFLAKSKMISLSECKIQFFSFAISVTTECFLLATMAYDRYVAICKPLLYPA
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMTNGLCIRLLILSYVGGILHALIHEGFLFRLTFCNSNIVHHIYCDTIPLSKISCTDSSINFLMVFIFSG
SIQVFSIVTILVSYTFVLFAILKKKSDKGVRKAFSTCGAHLFSVSLYYGPLLFIYV-GPASPQ-ADDQDM
VEPLFYTVIIPLLNPIIYSLRNKQVTVSFTKMLKKHVKVSY*-----

>HsOR3.3.6
----MEEENAT--LLTEFVLTGFLYQPQWKIPLFLAFLVIYLITIMGNLGLIAVIWKDPHLHIPMYLLLG
NLAFVDAWISSTVTPKMLNNFLAKSKMISLSECKIQFFSIAIGVTTECFLLATMAYDRYVAICKPLLYPA
IMTNGLCIRLLILSYIAGILHALIHEGFLFRLTFCNSNIVHHIYCDTIPLSKISCTDSSINFLMVFIFSG
SIQVFSIVTILISYTFVLFTVLEKKSDKGVRKAFSTCGAHLFSVCLYYGPLLLMYV-GPASPQ-ADGQNM
VEPLFYTVIIPLLNPIIYSLRNKQVIVSFIKMLKRNVKVSY*-----

>HsOR3.3.12
----MEQDNTT--LLTEFVLTGLTYQPEWKMPLFLVFLVIYLITIVWNLGLIALIWNDPQLHIPMYFFLG
SLAFVDAWISSTVTPKMLVNFLAKNRMISLSECMIQFFSFAFGGTTECFLLATMAYDRYVAICKPLLYPV
IMNNSLCIRLLAFSFLGGFLHALIHEVLIFRLTFCNSNIIHHFYCDIIPLFMISCTDPSINFLMVFILSG
SIQVFTIVTVLNSYTFALFTILKKKSVRGVRKAFSTCGAHLLSVSLYYGPLIFMYL-RPASPQ-ADDQDM
IDSVFYTIIIPLLNPIIYSLRNKQVIDSFTKMVKR--NV*-------

>SOR5H2
SNEDMEQDNTT--LLTQFVLTGLTYQPEWKMPLFLVFLVIYLITIVWNLGLIALIWNDPQLHIPMYFFLG
SLAFVDAWISSTVTPKMLVNFLAKNRMISLSECMIQFFSFAFGGTTECFLLATMAYDRYVAICKPLLYPV
IMNNSLCIRLLAFSFLGGFLHALIHEVLIFRLTFCNSNIIHHFYCDIIPLFMISCTDPSINFLMVFILSG
SIQVFTIVTVLNSYTFALFTILKKKSVRGVRKAFSTCGAHLLSVSLYYGPLIFMYL-RPASPQ-ADDQDM
IDSVFYTIVIPLLNPIIYSLRNKQVIDSFTKMVKR-N----------

>SMOR183-1
----MGIENTT--LLTEFVLTGLSHLPQWKIPLFLLFLVIYLITIVGNLGLITLIWNDPHLHIPMYFFLG
SLAFVDTWLSSTVTPKMLLDIFSKSKLISFSECMIQFFSFGISATTECFLLASMAYDRYVAICKPLLYPV
IMTNRLCVRLLTLSFVGGFIHVLIHESFLFRLTFCNSNIIHHFYCDVMPLLKISCNDPSLNYLMLFIFSG
SIQVFSILTILISYTLVLFSILKQKSLKSIKKAFSTCGAHLLSVSLYYGSLLFMYV-RPASPQ-VDDQDM
MDSIFYTVIIPVLNPIIYSLRNKQVKNSLEKFLKR----NT------

>MmOR16.4.20
----MGIENTT--LLTEFVLTGLSHLPQWKIPLFLLFLVIYLITIVGNLGLITLIWNDPHLHIPMYLFLG
SLAFVDTWLSSTVTPKMLLDFFSKSKLISFSECMIQFFSFGISATTECFLLAAMAYDRYVAICKPLLYPV
IMTNRLCVLLLTLSFVGGFIHVLIHESFLFRLTFCNSNIIHHFYCDVMPLLKISCNDPSLNYLMLFIFSG
SIQVFSILTILISYTLVLFSILKQKSIKSIKKAFSTCGAHLLSVSLYYGSLLFMYV-RPASPQ-VDDQDM
MDSIFYTVIIPVLNPIIYSLRNKQVKNSLEKFLKR-----NT*----

>MmOR16.4.15
----METDNTT--LLIQFVLSGLVHLPQWKIPLFLLFLVIYLITIVGNLGLIILIWNDPHLHIPMYLFLG
SLAFVDTWLSSTVTPKMLQDIFSKSKLISFSECMIQFFSFVVSATTECFLLAAMAYDRYVAICKPLLYPV
IMTNRLCVSLLTLSFLGGFIHALIHEGFLFRLIFCRSHIINHFYCDVMPLLKISCNDPSINYLMLFIFSG
SIQVFTITTILVSYTLVLFSILKKKSLKSIKKAFSTCGAHLLSVSLYYGPLLFMYV-RPASPQ-VNDEDM
MDSVFYTIIIPVLNPIIYSLRNEQVKKSLAKCLRR---NT*------

>MmOR16.4.11
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
-----MEKNAT--LLTEFVLTGLSHQPLWNIPLFLVFLVIYLITIVGNVSLITLIWTDPHLHIPMYLFLG
SLAFVDTSISSIVVPKMLLNFFGKSKVITLSECMAQFFLFNISATTECFLLAAMAYDRYVAICKPLLYPV
VMTNGLCVWLIALSFVAGIIHALIHEGFLLRLTFCNSNMIHHFYCDIISLLKISCTDTSLNYLIVFIFSG
SIQVFTISTILVSYTIILFTILKKKSAKGIKKAFSTCGAHLLSVSLYYGPLLFMYV-HPASSE-VDDQDM
IDSLFYTVIIPVLNPIIYSLRNKQVIDSLAKFLKR--NV*-------

>MmOR16.4.8
----MEKKNET--LWTEFVLTGLTCLPQWKPLLFLVFLVIYFMTIVGNLGLITLIWNDPHLHIPMYLFLS
NLAFVDTWLSSTVTPRMLFNLLDKGKVISVAECKTQFFSFAISVTTECFLLAAMAYDRYAAICNPLLYPV
IMTNRLCVRLLALSFIGGFLHAVIHESFLSRLTFCNSNIIYHFYCDVIPLLKISCTDPSLNYLIIFIFSG
SIQVFTIMTVLISYTFVLFTILKKKSDKGIRKAFSTCGSHLLSVSLYYGPLLFMYV-HPASSE-VDDQDM
ILSLFYTVIIPVLNPIIYSLRNKQVIDSLKKML-K-MMV*-------

>MmOR16.4.10
----MEDGNTT--LLTEFVLTGLTDHQGLQVPLFLLFLMIYLITVVGNLGLIALIWSDPHLHIPMYLFLG
SLAFVDAWISSAVTPNMLFDLLSKNKMISLSECMIQFFAFAFGGTTECFLLGTMAYDRYVAICKPLLYPV
IMTNRLCIRLLVSVFIGGFLHSLFHVLFLLRLTFCNSNIIHHFYCDIIPLYNISCTDPTLNLLLVFILSG
SIQVFTIMTVLVSYTLVLFTILKMKSLQGIRKAFSTCGAHLLSVSLYYGPLLFMYV-LPASQQ-TDGQGM
MDSLFYTVIIPVLNPIIYSLRNKQVTDSLKKRLER--HV*-------

>MmOR16.4.14
------MKNST--VLTEFVLTGLTESPELQVPLFLFFLVIYLITIVGNLGLIALIWNDPHLHIPMYFFLG
HLAFVDASLSSTVAPKMLLDFLQMNKMISYSECMTQFFIFAICATTECFLLGAMAYDRYVAICKPLLYPM
IMTKRLCICLLVLSFVGGILHSSIHEGFLLLLNFCNSNIVHHFFCDIVPLLKISCTDTTLNFQLIFVLAG
IIQVLTVVIVLVSYTLVLLTILQRKSVQSMKKAFSTCGAHLLSVSLYYGPLLIMYI-FPVSQE-ADGQDI
IDSLFYTVIIPVLNPIIYSLRNKQVMDSLKKVL-KKKA*--------

>MmOR16.4.25
----MAEGNRT--LVTEFILMGLTDHPTLKAALFPLFLVIYLITMVGNLGLIALIWKDSHLHTPMYLFLS
SLAFADSCTTSSVTPRMILNFLSTNHEITLVECFAQFYFMGSSATTECFLLSVMAYDRYLAICNPLLYPV
LMSNRLCTQFIAVTYLLGVLHLAIHVGLLLRLTFCRSNIIQYYYCEILQLFNISCTDPTINVFVLLIFSI
SIQAFTFVTILVSYIRVLFAILRKKSEKGRSKAFSTCSAHLLSVSLFYGTLFLIYV-CPGSGP-VGDKEK
MLSLFYTVIIPLLNPFVYSLRNKEVISAFRRVMKN*-----------

>MmOR16.4.23
----MAEGNRT--LITEFIFMGLTDHPKLKAALFPLFLVIYLITMVGNLGLIALIWKDSHLHTPMYLFLS
SLAFADSCTTSSVTPKMLLNFLSTNHEITLAECFVQFYFMGSSATTECFLLSVMAYDRYLAICNPLLYRV
LMSNRLCTQFIAVAYLLGALHLAIHVGLLLRLTFCRSNIIQYYYCEILQLFNISCTDPTINVFVLLIFSI
SIQAFTFVTVLVSYIRVLFAILRKKSDKGRSKAFSTCSAHLLSVSLFYGTLFLIYV-CPGSGP-VGDKEK
MLSLFYTVIIPLLNPFVYSLRNKEVIGAFRRVM-KNT*---------

>SMOR182-1
----MAERNWT--LVTEFVLTGLTERPELQVPLFLVFLIIYLTTMVGNLGLIALIWKDPHLHTPMYVFLS
SLAFADVCTSSSVTPRMLVNFLSTDHEISLVECFTQFYFFCSSATTECFLLLVMAYDRYVAICNPLLYPV
VMSNKLCTQFIVVTYFIGVLNSTIHVGLLIRLTFCRSNVIDYFYCEIVKLLTISCTDPSINMLVVFICSI
FIQASTLANIVVSYTRVLFAILRKKSEKGRSKAFSTCSAHLLSVSLFYGTLFLIYI-LPGSEP-AEDKEQ
LLSIVYTIIIPLLNPFIYSLRNKEVLGALRRLIKK------------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR16.4.26
----MAERNWT--LVTEFVLTGLTERPELQVPLFLVFLIIYLTTMVGNLGLIALIWKDPHLHTPMYVFLS
SLAFADVCTSSSVTPRMLVNFLSTDHEISLVECFTQFYFFCSSATTECFLLLVMAYDRYVAICNPLLYPV
VMSNKLCTQFIVVTYFIGVLNSTIHVGLLIRLTFCRSNVIDYFYCEIVKLLTISCTDPSINMLVVFICSI
FIQASTLANIVVSYTRVLFAILRKKSEKGRSKAFSTCSAHLLSVSLFYGTLFLIYI-LPGSEP-AEDKEQ
LLSIVYTIIIPLLNPFIYSLRNKEVLGALRRLIKK------------

>MmOR16.4.22
----MTVENQT--VVAVFVLTGLTERPELQVPLFLVFFTIYLITMVGNLGLIALIWKDPHLHTPMYLFLG
SLAFADACASSSVTPKMLVNFLSKDHRTFLVECFTQFYFFGSSATTECFLLSVMAYDRYVAICNPLLYPV
MMSNSLCMKFIHVSYIVGFLHSAIHVGLLVRLNFCKSNIIHYFYCEILQLFKISCTDPTMNVLLVLIFSA
LIQGLTFMTIIVSYFSVLLAILKTKSERGRRKAFSTCSAHLLSVSLFYGTLFLMYV-RPGSGS-GEDKDR
MYSLFYTIIIPFLNPFIYSLRNKEVTAALRRKMK*------------

>MmOR16.4.27
-----MEVNRT--LVTAFILRGITDLPELQVPMFLVFFFIYVTTMVGNLGLIVLIWKDPRLHTPMYFFLG
SLAFADACTSSSVTPRMLVNILDNGKMISLSECMAQYYVFGSSATTECFLLVAMAYDRYVAICNPLLYLV
VMSNRVCTCLISGSYIIGFLHPLIHVGLLFRLTFCKSNIIDHFYCEILPLYTISCTDPSINAFVVFIFAA
VIQAVTFMSIAVSYAHVLFSILKTKSERGRRKAFSTCSAHLLSVSLFYGTLFFMYV-SPGSGP-SKYKNK
MYSLFYTIVIPLLNPFIYSLRNKEVLGALRKIMKP------------

>MmOR16.4.18
----MEV-NRS--QVSDFVLKGITDHTELQVPLFLLFFFIYVTTMVGNLGLIFLIWKDPHLHTPMYYFLG
SLAFADACTSSSVTPRMLVNILDNGKMISLSECMAQYYVFGSSATTECFLLVAMAYDRYVAICNPLLYLV
VMSNRVCTCLISGSYIIGFLHPLIHVGLLFRLTFCKSNIIDHFYCEILPLYTISCTDPSINAFVVFIFSA
VIQAVTFMSIAVSYAHVLFSILKTKSERGRRKAFSTCSAHLLSVSLFYGTLFFMYV-SPGSGP-SKYKNK
MYSLFYTIVIPLLNPFIYSLRNKEVLGALRKIIKS------------

>MmOR16.4.31
-----MELNRT--QLTEFVLRGITDRSELQVPLFLVFFLIYVITMVGNLGLIFLIWKDPHLHTPMYLFLG
NLAFADACTSSSVTPKMLMKFSNKNDMISMGECFAQFYFFCLSATAECFILVAMAYDRYVAICKPLLYVV
VMSNRLCIQFIGVSYLIGLLHGLLHVGLLFRLTFCSSNVIDHFYCEILPLYRISCTDPSINVLVAFIMAI
LIQVSTFMSIIVSYILILFAILRTKSERGRNKAFSTCSSHLSSVSLFYGTLFIIYV-LSGSDK-DNYQGK
MYSLFYTIIIPLLNPFIYSLRNKEVIGALRKLRE*------------

>HsOR3.3.2
--MDISEGNKT--LVTEFVLTGLTDRPWLHVLFFVVFLVVYLITMVGNLGLIVLIWNDPHLHMPMYLFLG
GLAFSDACTSTSITPRMLVNFLDKTAMISLAECITQFYFFASSATTECFLLVMMAYDRYVAICNPLLYPV
MMSNKLSAQLLSISYVIGFLHPLVHVSLLLRLTFCRFNIIHYFYCEILQLFKISCNGPSINALMIFIFGA
FIQIPTLMTIIISYTRVLFDILKKKSEKGRSKAFSTCGAHLLSVSLYYGTLIFMYV-RPASGL-AEDQDK
VYSLFYTIIIPLLNPFIYSLRNKKVMHALRRVIRK------------

>MmOR16.4.4
----MTEDNYS--LATEFILIGFSDHPDLKTLLFLVFSAIYLVTMVGNLGLVTLIYIEPRLHTPMYIFLG
NLALMDSCCSCAITPKMLENFFSVDRRISLYECMAQFYFLCLAETTDCFLLAAMAYDRYVAICNPLQYHS
MMSKKLCLQMTTGAYIAGNLHSMIHIGFLFRLTFCRSHVIKHFFCDVLPLYRLSCVDPYINELMILIFSG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
SLQTFTITIVLISYICILFTIFTMKSREGRSKALSTCASHFLSVSIFYGSLLYMYI-RPSSLN-EGYKDI
PVAIFYTLVIPLLNPFIYSLRNKEVINVMKRAM-KKRL*--------

>SMOR184-1
----MTEDNYS--LTTEFILIGFSDHPDLKILLFLVFSTIYLVTMVGNLGLVALIYMEPRLHTPMYIFLG
NLALMDSCCSCAITPKMLENFFSVNKRISLYECMAQFYFLCLAETADCFLLAAMAYDRYVAICNPLQYHT
MMSKKLCLQMTTGAYIAGNLHSMIHIGFLFRLTFCRSHVIKHFFCDVLPLYRLSCVDPYINELMILIFSG
SVQTFSIIIVLISYFCIIFTIFTMKSREGRSKALSTCASHFLSVSIFYGSLLYTYI-RPSSIN-EGNEDI
PVAIFYTLVIPLLNPFIYSLRNKEVINAIKRTMN----KG-------

>MmOR16.4.3
----MTEDNYS--LTTEFILIGFSDHPDLKILLFLVLSTIYLVTMVGNLGLVALIYMEPRLHTPMYIFLG
NLALMDSCCSCAITPKMLENFFSVNRRISLYECMAQFYFLCLAETADCFLLAAMAYDRYVAICNPLQYHT
MMSKKLCLQMTTGAYIAGNLHSMIHIGFLFRLIFCRSHVIKHFFCDVLPLYRLSCVDPYINELMILIFSG
SVQTFSIIIVLISYFCILFTIFTMKSREGRSKALSTCASHFLSVSIFYGSLLYTYI-RPSSIN-EGNEDI
PVAIFYTLVIPLLNPFIYSLRNKEVINAIKRTMN----KG*------

>MmOR16.4.19
----MAENNYS--VTNEFILVGFSDHPDLKTPLFLVFSAIYLVTMVGNLGLVALIYMEPRLHTPMYIFLG
NLALMDSCCSCAITPKMLENFFSVDRRISLYECMVQFYFLCLAETTDCFLLAAMAYDRYVAICNPLQYHS
MMSKKLCLQMTMGSYIAGNLHPMIEVGLLLRLTFCRSHVIKHFFCDVLPLYRISCTDPNINELILLVLAG
SIQVFTISIVLVSYSCILFTIFTMKSKEGRGKALSTCASHFLSVSIFYGSLLFMYA-QPHSAN-EGDKDM
PVAIFYTLIIPLLNPFIYSLRNKEVINVMKKTM-KRR*---------

>HsOR3.3.15
----MNKENHS--LIAEFILTGFTYHPKLKTVLFVVFFAIYLITMVGNIGLVALIYIEQRLHTPMYIFLG
NLVLMDSCCSSAITPKMLENFFSEDKRITLYECMAQFYFLCLAETTDCFLLAAMAYDCYVAICNPLQYHT
MMSKTLCIQMTAGAYLAGNLHPMIEVEFLLRLTFCGSHQINHFFCDVLPLYRLSCINPYINELVLFILAG
SIQI--FTIVLVSYFYILFTIFTMKSKEGRGKALSTCASHFLSVSIFCDSLLFMYA-RPGAVN-EGDKDI
PVAIFYTLVIPLLNPFIYSLRNKEVINIMKKIMKKRKFCHILKQMSS

>HsOR3.3.14
----MARENHS--LAAEFILIGFTNYPELKTLLFVVFSAIYLVTMVGNLGLVALIYVERRLLTPMYIFLG
NLALMDSCCSCAVTPKMLENFFSEDRIISLYECMAQFYFLCLAETTDCFLLATMAYDRYVAICHPLQYHT
MMSKTLCIRMTTGAFKAGNLHSMIHVGLLLRLTFCRSNKIHHFFCDILPLYRLSCTDPSINELMIYIFSI
PIQIFTIATVLISYLCILLTVFKMKSKEGRGKAFSTCASHFLSVSIFYICLL-MYI-GPSE---EGDKDT
PVAIFYAIVIPLLNPFIYSLRNKEVINVLKKIMRNILKQTCSIANLF

>MmOR16.4.5
--MRLEKTNHS--LTTQFILVGFSDHPDLKTPLFLLFSVIYLVTMVGNLGLVALIYMEPRLHTPMYIFLG
NLALMDSCCSCAITPKMLENFFSIDRRISLYECMAQFYFLCLAETSDCFLLAAMAYDRYVAICNPLQYHS
MMSKKLSIQMSIGTFIASNLISILHVGCLLRLTFCKSNRIDHFFCDILPLYRLSCTDPFINELMIYIFSM
PIQFLTITTVLVSYFCILLTIFKMKSKDGRGKALSTCASHFFSVSIFYACLL-MYI-RPFD---DSNKDI
PVAIFYTIIIPLLNPFIYSLRNTEVVNAVKKVM-KIYTIFKRSSASA

>MmOR16.4.7
----MMKANHS--LTVEFILIGFSDHTDLKTLLFLLFSAIYLVTIVGNLGLVALIYMEPRLHTPMYIFLG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
NLALMDSCCSCAITPKMLENFFSVDRRISLYECMVQFYFLCLAETADCFLLAAMAYDRYVAICNPLQYHT
MMSKKLSIQMSIGTFIASNLHSLIHTGCLLRLNFCKSRRIDHFFCDILPLYKLSCTDPFINELMLYIFSM
PIQVFTITTVLVSYSCILLTVFKMKSKDGRGKAFSTCASHFFSVSIFYICLL-MYI-GPSK---NSNKDI
PVGVFYTIVIPLLNPFIYSLRNKEVVNAVKKVMKTIFKNSSASIAH*

>SOR5K2
----MVEENHT--MKNEFILTGFTDHPELKTLLFVVFFAIYLITVVGNISLVALIFTHCRLHTPMYIFLG
NLALVDSCCACAITPKMLENFFSEGKRISLYECAVQFYFLCTVETADCFLLAAVAYDRYVAICNPLQYHI
MMSKKLCIQMTTGAFIAGNLHSMIHVGLVFRLVFCGLNHINHFYCDTLPLYRLSCVDPFINELVLFIFSG
SVQVFTIGSVLISYLYILLTIFRMKSKEGRAKAFSTCASHFSSVSLFYGSIFFLYI-RPNLLE-EGGNDI
PAAILFTIVVPLLNPFIYSLRNKEVISVLRKILLKIKSQGSVNK---

>HsOR3.3.17
----MVEENHT--MKNEFILTGFTDHPELKTLLFVVFFAIYLITVVGNISLVALIFTHCRLHTPMYIFLG
NLALVDSCCACAITPKMLENFFSEGKRISLYECAVQFYFLCTVETADCFLLAAVAYDRYVAICNPLQYHI
MMSKKLCIQMTTGAFIAGNLHSMIHVGLVFRLVFCGLNHINHFYCDTLPLYRLSCVDPFINELVLFIFSG
SVQVFTIGSVLISYLYILLTIFRMKSKEGRAKAFSTCASHFSSVSLFYGSIFFLYI-RPNLLE-EGGNDI
PAAILFTIVVPLLNPFIYSLRNKEVISVLRKILLKIKSQGSVNK*--

>HsOR3.3.16
----MAEENHT--MKNEFILTGFTDHPELKTLLFVVFFAIYLITVVGNISLVALIFTHRRLHTPMYIFLG
NLALVDSCCACAITPKMLENFFSENKRISLYECAVQFYFLCTVETADCFLLAAMAYDRYVAICNPLQYHI
MMSKKLCIQMTTGAFIAGNLHSMIHVGLVFRLVFCGSNHINHFYCDILPLYRLSCVDPYINELVLFIFSG
SVQVFTIGSVLISYLYILLTIFKMKSKEGRAKAFSTCASHFLSVSLFYGSLFFMYV-RPNLLE-EGDKDI
PAAILFTIVVPLLNPFIYSLRNREVISVLRKILMK------------

>MmOR16.4.2
----MVEENHT--MKREFVLTGFTDHPEMKGLLFAVFFFIYLITMIGNMGLVILISKERSLHTPMYIFLG
NLAFIDSCCACAITPKMLENFFSEDRIISLYECMAQFYFLCTVETADCFLLSAMAYDRYVAICNPLQYHT
TMSKKLCLQMTTGAFIAGNLHSMVHVGLLFRLAFCGSNQINHFYCDILPLYRLSCVDPYINELVLFVFSG
SIQVFTIGCVLISYLFIVYTIFQMKSKEGRIKAFSTCASHFLSVSLFYGSLFFMYI-RPNLLE-EGDKDM
PAAILFTIVVPLLNPFIYSLRNKEVKNVLQKILQKKIISKNFKQASI

>MmOR2.1.30
----MATKNKT--EVTEFVLLGLSSRPEIQPVIFGVVLIMYLMAVLGNTLLILVACSDPRLQTPMYFLLS
QLSLIDISLTTITIPQMLVHTLSVNRSISYNRCMTQLFFFMAVGSMEVYLLGAMAYDRYVAICDPLRYSA
IVSYSLCLQITLTSWMVVSLNSLLYSVLVTRLTFCG-NKVTHFFCDITPLLKLSCTRPVLNEMLIFTEGV
AVVGSPFFFIWGSYVRIGIAMAHMHSFAALKKALSTCSSHILVVLLLFGTLARMYL-KPSSSY-DLGQDR
QVAIFYTLISPMLNPLIYSLRNQDVKGALWRLFRKLHTSDWLSDKE*

>SMOR159-1
----MATKNKT--EVTEFVLLGLSSRPEIQPVIFGVVLIMYLMAVLGNTLLILVACSDPRLQTPMYFLLS
QLSLIDISLTTITIPQMLVHTLSVNRSISYNRCMTQLFFFMAVGSMEVYLLGAMAYDRYVAICDPLRYSA
IVSYSLCLQITLTSWMVVSLNSLLYSVLVTRLTFCG-NKVTHFFCDITPLLKLSCTRPVLNEMLIFTEGV
AVVGSPFFFIWGSYVRIGIAMAHMHSFAALKKALSTCSSHILVVLLLFGTLARMYL-KPSSSY-DLGQDR
QVAIFYTLISPMLNPLIYSLRNQDVKGALWRLFRKLHTSDWLSDKE-
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR2.1.31
----MATKNRT--EVTEFVLLGLSSQPEMQPVIFGVVLIMYLMAVLGNTLLVLVACSDPKLHTPMYFLLS
QLSLIDISLTTIIVPQMLVHTLSVNRTISYNCCMTQLFSFMTVGSMEVHLLGAMAYDRYVAICDPLRYSS
IVSHSLCLRITLTSWVVVSLNSLLYSVLVTRLTFCG-NKVTHFFCDITPLLKLSCTRPVVNEMLIFTEGV
AVVVSPIFFIFGSYVRIGIVIAHMHSVAALQKALSTCSSHVLVVMFLFGSLVHMYL-KPSSSY-NLEQDR
QVAIFYTLISPMLNPLIYSLRNQEVKGALWRLFRKLYLRQCPAWISH

>MmOR2.1.28
----MATKNKT--EVTEFVLLGLSSRPEMQPVIFGVVLIMYLAAVLGNTLLVLVACSDPRLQTPMYFLLS
QLSLIDICLTTITVPQMLVHTLSVVRSISYNCCMTQLFFFMAVGSMEGHLLAAMAYDRYVAICDPLRYSA
IVSHSLCLRITLTSWVVVSLNSLLYSVLVTRLTFCG-NQVTHFFCDITPLLKLSCTRPVVNEMLIFTEGV
AVVVSPFFFILGSYIRIGFVIAHMHSTAALSKALSTCGSHIMVVLLLYGSVIRMYL-KPSSTY-DLNQDR
QIAIFYTLVTPMLNPLIYSLRNQEVKGALTRLL-RKLCISGSFQVGS

>HsOR6.3.19
----ML--NTT--SVTEFLLLGVTDIQELQPFLFVVFLTIYFISVTGNGAVLMIVISDPRLHSLMYFFLG
NLSYLDICYSTVTLPKMLQNFLSTHKAISFLGCISQLHFFHFLGSTESMLFAVMAFDLSVAICKPLRYTV
IMNPQLCTQMAITIWVIGFFHALLHSVMTSRLNFCGSNRIHHFLCDIKPLLKLACGNTELNQWLLSTVTG
TIAMGPFFLTLLSYFYIITYLFKTRSCSMLCKALSTCASHFMVVILFYAPVLFTYI-HPALES-FMDQDR
IVAIMYTVVTPVLNPLIYTLRNKEVKGALGRVI-RRL*---------

>SOR12D2b
------MLNTT--SVTEFLLLGVTDIQELQPFLFVVFLTIYFISVTGNGAVLMIVISDPRLHSLMYFFLG
NLSYLDICYSTVTLPKMLQNFLSTHKAISFLGCISQLHFFHSLGSTESMLFAVMAFDLSVAICKPLRYTV
IMNPQLCTQMAITIWVIGFFHALLHSVMTSRLNFCGSNRIHHFLCDIKPLLKLACGNTELNQWLLSTVTG
TIAMGPFFLTLLSYFYIITYLFKTRSCSMLCKALSTCASHFMVVILFYAPVLFTYI-HPALES-FMDQDR
IVAIMYTVVTPVLNPLIYTLRNKEVKGALGRVI-RRL----------

>SOR12D2a
--------NTT--SVTEFLLLGVTDIQELQPFLFVVFLTIYFISVTGNGAVLMIFISDPRLHSPMYFFLG
NLSYLDICYSTVTLPKMLQNFLSTHKAISFLGCISQLHFFHFLGSTESMLLAVMAFDRSVAICKPLRYTV
IMNPQLCTQMAITIWVIGFFHALLHSIMTSRLNFCGSNRIHHFLCDIKPLLKLACGNTELNQWLLSTVTG
TIAMGPFFLTLLSYFYIITYLFKTRSCSMLCKALSTCASHFMVVILFYAPVLFTYI-HPALES-FMDQDR
IVAIMYTVVTPVLNPLIYTLRNKEVKGALGRVI-RRL----------

>MmOR17.2.15
------MSNQT--SVTEFLLLGVTDIQELNPILFVVFFTIYFVNITGNGAILMIVILDPRLHSPMYFFLG
NLACLDICFSTVTLPKMLQNLLSTSKAISFLGCITQLHFFHFLGSTEAMLLPVMAFDRFVAICRPLHYSV
IMNHQLCIHMTVTIWTLGFFHALLHSVMTSRLSFCGPNHVHHFFCDIKPLLDLACGNTELNLWLLNTVTG
TIALTPFFLTFLSYFYIITYLLKTRSCSMLHKALSTCASHFMVVILLYVPVLFTYI-RPASGS-SLDQDR
IIAIMYSVVTPALNPLIYTLRNKEVRSALNRKV-RRWL*--------

>HsOR6.3.18
------MENVT--TMNEFLLLGLTGVQELQPFFFGIFLIIYLINLIGNGSILVMVVLEPQLHSPMYFFLG
NLSCLDISYSSVTLPKLLVNLVCSRRAISFLGCITQLHFFHFLGSTEAILLAIMAFDRFVAICNPLRYTV
IMNPQVCILLAAAAWLISFFYALMHSVMTAHLSFCGSQKLNHFFYDVKPLLELACSDTLLNQWLLSIVTG
SISMGAFFLTLLSCFYVIGFLFKNRSCRILHKALSTCASHFMVVCLFYGPVGFTYI-RPASAT-SMIQDR
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMAIMYSAVTPVLNPLIYTLRNKEVMMALKKIFGRKLFKDWQQHH*-

>MmOR17.2.24
------MENST--SVDEFLLLGLTSVQKLQPIIFVMFLTIYLLNLVGNGVILMIVTLERRLHSPMYFFLG
NLSCLDICYSSVTLPKVLINLLSRRRAISFLGCITQLYFFHFLGSTEAILLAVMAFDRFVAICSPLRYTA
IMNPQLCILLAATAWFTSFFYALLHSVMTAHLNFCHSHKLSHFFCDVKPLLEVACGNTVLNQWLLSVVTG
SISMGAFLLILLSYFYIIAFLFKNRSCRMLKKALSTCTSHFMVVCLFYGPVGFTYI-RPASAS-SMSEDR
VVAIIYSAVTPVLNPLIYTLRNKEVMLALKKNFGKKLFKGN*-----

>SMOR250-1
------MENST--SVDEFLLLGLTSVQKLQPIIFVMFLTIYLLNLVGNGVILMIVTLERRLHSPMYFFLG
NLSCLDICYSSVTLPKVLINLLSRRRAISFLGCITQLYFFHFLGSTEAILLAVMAFDRFVAICSPLRYTA
IMNPQLCILLAATAWFTSFFYALLHSVMTAHLNFCHSHKLSHFFCDVKPLLEVACGNTVLNQWLLSVVTG
SISMGAFLLILLSYFYIIAFLFKNRSCRMLKKALSTCTSHFMVVCLFYGPVGFTYI-RPASAS-SMSEDR
VVAIIYSAVTPVLNPLIYTLRNKEVMLALKKNFGKKLFKGN------

>HsOR6.3.17
----MERKNQT--AITEFIILGFSNLNELQFLLFTIFFLTYFCTLGGNILIILTTVTDPHLHTPMYYFLG
NLAFIDICYTTSNVPQMMVHLLSKKKSISYVGCVVQLFAFVFFVGSECLLLAAMAYDRYIAICNPLRYSV
ILSKVLCNQLAASCWAAGFLNSVVHTVLTFCLPFCGNNQINYFFCDIPPLLILSCGNTSVNELALLSTGV
FIGWTPFLCIVLSYICIISTILRIQSSEGRRKAFSTCASHLAIVFLFYGSAIFTYV-RPISTY-SLKKDR
LVSVLYSVVTPMLNPIIYTLRNKDIKEAVKTIGSKWQPPISSLDSKL

>SOR5V1
----MERKNQT--AITEFIILGFSNLNELQFLLFTIFFLTYFCTLGGNILIILTTVTDPHLHTPMYYFLG
NLAFIDICYTTSNVPQMMVHLLSKKKSISYVGCVVQLFAFVFFVGSECLLLAAMAYDRYIAICNPLRYSV
ILSKVLCNQLAASCWAAGFLNSVVHTVLTFCLPFCGNNQINYFFCDIPPLLILSCGNTSVNELALLSTGV
FIGWTPFLCIVLSYICIISTILRIQSSEGRRKAFSTCASHLAIVFLFYGSAIFTYV-RPISTY-SLKKDR
LVSVLYSVVTPMLNPIIYTLRNKDIKEAVKTIGSKWQPPISSLDSKL

>SMOR249-2
----MEGKNQT--APSEFIILGFDHLNELQYLLFTIFFLTYICTLGGNVFIIVVTIADSHLHTPMYYFLG
NLALIDICYTTTNVPQMMVHLLSEKKIISYGGCVTQLFAFIFFVGSECLLLAAMAYDRYIAICKPLRYSF
IMNKALCSWLAASCWTGGFLNSVLHTVLTFHLPFCGNNQINYFFCDIPPLLILSCGDTSLNELALLSIGI
LIGWTPFLCIILSYLYIISTILRIRSSEGRHKAFSTCASHLLIVILYYGSAIFTYV-RPISSY-SLEKDR
LISVLYSVVTPMLNPVIYTLRNKDIKEAMKAIGRKWKPPVFSSDI--

>MmOR17.2.25
----MEGKNQT--APSEFIILGFDHLNELQYLLFTIFFLTYICTLGGNVFIIVVTIADSHLHTPMYYFLG
NLALIDICYTTTNVPQMMVHLLSEKKIISYGGCVTQLFAFIFFVGSECLLLAAMAYDRYIAICKPLRYSF
IMNKALCSWLAASCWTGGFLNSVLHTVLTFHLPFCGNNQINYFFCDIPPLLILSCGDTSLNELALLSIGI
LIGWTPFLCVILSYLYIISTILRIRSSEGRHKAFSTCASHLLIVILYYGSAIFTYV-RPISSY-SLEKDR
LISVLYSVVTPMLNPVIYTLRNKDIKEAIGRKWQPPVFSSDI*----

>MmOR3.2.1
-MTPFEMTNHT--RVTEFIFLGFSNHPNLQGVFFLAFLAIYLTTLLGNTLMIVATRVSPALHTPMYYFLS
NLSFLDICYTSTSIPVMLVNFFREKKTISFEGCLSQIFFFVSCAGTECVLLAAMAYDRYVAVCHPLRYPV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LMSTRVCISLVTGSWLCGLVNSVTHTVLTSTLTLCGPNQISHFLCDVPLLLKLSCSDTSVNESVLHVSSA
TVGLSPCLFTAGSYILIISAILRIPSTQGKRKAFSTCASHLTVVVVFFGTANFNYV-RPKEGY-SLDMGI
LVSVLYCVVTPLFNPIIYSLRNKEVKGALRKLTGVPSLTIAVARE*-

>SMOR217-1
-MTPFEMTNHT--RVTEFIFLGFSNHPNLQGVFFLAFLAIYLTTLLGNTLMIVATRVSPALHTPMYYFLS
NLSFLDICYTSTSIPVMLVNFFREKKTISFEGCLSQIFFFVSCAGTECVLLAAMAYDRYVAVCHPLRYPV
LMSTRVCISLVTGSWLCGLVNSVTHTVLTSTLTLCGPNQISHFLCDVPLLLKLSCSDTSVNESVLHVSSA
TVGLSPCLFTAGSYILIISAILRIPSTQGKRKAFSTCASHLTVVVVFFGTANFNYV-RPKEGY-SLDMGI
LVSVLYCVVTPLFNPIIYSLRNKEVKGALRKLTGVPSLTIAVARE--

>SMOR254-1
----MDVYNLT--TVTQFILIGLSDLPEVRYPLFVAFVIIYQITLLGNGLILLAIVTEKKLQTPMYYLLA
NLSLLDIFCPSATVPKMLKNLLTEDHSISFVGCALQLYFLVALAGTEVFLLAVMAYDRYVAICFPLRYSL
IMTKVRCVQLLFGTWAAGFLNSFVHTMSTFSLSFCKSNRVNQYYCDIPPVVALSCSSTYMAEMLVLVIGG
ICGVGAFLITLISYIYIVSTILKIRSAEGKRKAFSTCASHLLVVFLFYGTTIFTYI-RPTSSQHSPGRDR
LISMLYGVITPMLNPIIYSLRNTEVKGALRKVLHLRICSQRE-----

>MmOR7.2.2
----MDVYNLT--TVTQFILIGLSDLPEVRYPLFVAFVIIYQITLLGNGLILLAIVTEKKLQTPMYYLLA
NLSLLDIFCPSATVPKMLKNLLTEDHSISFVGCALQLYFLVALAGTEVFLLAVMAYDRYVAICFPLRYSL
IMTKVRCVQLLFGTWAAGFLNSFVHTMSTFSLSFCNSNRVNQYYCDIPPVVALSCSSTYMAEMLVLVIGG
ICGVGAFLITLISYIYIVSTILKIRSAEGKRKAFSTCASHLLVVFLFYGTTIFTYI-RPTSSQHSPGRDR
LISMLYGVITPMLNPIIYSLRNTEVKGALRKVLHLRICSQRE*----

>MmOR7.2.1
--MEMDVYNLT--TVTQFILIGLSDLPEVRYPLFVAFVIIYQITLLGNGLILLAIVTEKKLQTPMYYLLA
NLSLLDIFCPSATVPKMLKNLLTEDHSISFVGCALQLYFLVALAGTEVFLLAVMAYDRYVAICFPLRYSL
IMTKVRCVQLLFGTWAAGFLNSFVHTMSTFSLSFCKSNRVNQYYCDIPPVVALSCSSTYMAEVLLLVIAS
IFGVGAFLITLISYIYIVSTILKIRSAEGKRKAFSTCASHLLVVFLFYGTTIFTYM-RPTSSQHSPGRDR
LISMLYGVITPMLNPIIYSLRNTEVKGALRKVL-HLRICSQTA*---

>HsOR10.2.2
------MSNQT--LVTEFILQGFSEHPEYRVFLFSCFLFLYSGALTGNVLITLAITFNPGLHAPMYFFLL
NLATMDIICTSSIMPKALASLVSEESSISYGGCMAQLYFLTWAASSELLLLTVMAYDRYAAICHPLHYSS
MMSKVFCSGLATAVWLLCAVNTAIHTGLMLRLDFCGPNVIIHFFCEVPPLLLLSCSSTYVNGVMIVLADA
FYGIVNFLMTIASYGFIVSSILKVKTAWGRQKAFSTCSSHLTVVCMYYTAVFYAYI-SPVSGY-SAGKSK
LAGLLYTVLSPTLNPLIYTLRNKEVKAALRKLF--PFFRN*------

>SOR13A1
RPSPRMMSNQT--LVTEFILQGFSEHPEYRVFLFSCFLFLYSGALTGNVLITLAITFNPGLHAPMYFFLL
NLATMDIICTSSIMPKALASLVSEESSISYGGCMAQLYFLTWAASSELLLLTVMAYDRYAAICHPLHYSS
MMSKVFCSGLATAVWLLCAVNTAIHTGLMLRLDFCGPNVIIHFFCEVPPLLLLSCSSTYVNGVMIVLADA
FYGIVNFLMTIASYGFIVSSILKVKTAWGRQKAFSTCSSHLTVVCMYYTAVFYAYI-SPVSGY-SAGKSK
LAGLLYTVLSPTLNPLIYTLRNKEVKAALRKLF--PFFRN-------

>MmOR6.5.1
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
-----MMRNQT--LVTEFILQGFSEHPQYQLPLFFCFLSLYCVALTGNVLIILAITCNPGLHTPMYFFLF
NLATMDIICTSSIMPKALRGLVSKRNPISYGGCMAQLYFLTWSASSELLLLTVMAYDRYAAICHPLHYST
MMSKAFCSMLAAGVWALCAFNTAIHTGLMTRLSFCGPNVITHFFCEVPPLLLLSCSSTYVNSVMIVLADA
FYGILNFLMTIVSYGFIISSILKMRTSEGKQKAFSTCSSHLIVVCMYYTAVFYAYI-SPVSSY-NAEKSK
LAGVLYTMLSPTLNPLIYTLRNKEVKAALRKFF--PFLRN*------

>MmOR7.8.20
---MMLRLNQT--EVTEFVLEGFSEHPDLRLFLIGCFLTLYIMALMGNILIIALVTSSTGLHNPMYFFLC
NLATTDILCTSSVIPKALVGLVSEENTISFKECMSQLFFLAWSASSELLLLTVMAYDRYVAICCPLHYSS
RMSPQMCGALAMGVWSISAVNASVHTGLMTRLSFCGPKVITHFFCEIPPLLLLSCSPTYVNTIMTLLGDS
FFGGVNFVLTLLSYGCIIASILRMRSAEGKRKAFSTCSSHLIVVSVYYSSVFCAYV-SPASSY-SPERSK
VTSVLYSIVSPTLNPLIYTLRNKDVKLALGRIL--ASFSH*------

>MmOR7.8.18
LSMMMLNLNQT--EVTEFVLEGFSEHPGLRLFLTGCFLSLYMMALMGNILIIALVTFSTGLHNPMYFFLC
NLATMDIICTSSVIPKALVGLVSEENTISFKGCMSQLFFLTWSASSELLLLTVMAYDRYVAICFPLHYSS
RMSPQLCGALAMVVWFIGLVNACVHTGLMTRLSFCGPKVITHFFCEIPPLLLLSCSPTYVNSILTLVADA
FFVGINFMLTLLSYGCIIASILRMRSAEGKRKAFSTCSSHLIVVSVYYSSMFCAYI-SPASSY-SPERSK
VTSVLYSILSPTLNPLIYTLRNKDVKLALGRIL--ASFSH*------

>MmOR7.8.17
--MMLLSLNQT--GVTEFVLEGFSEHPGLRLFLTGCFLTLYMMALMGNIVIIALVTSSTGLHNPMYFFLC
NLATTDIVCTSSVIPKALIGLVSEENIITFKGCMAQLFFLAWATSAELLLLTVMAYDRYVAICFPLHYSS
RMSPQLCGALAVGVWSISAVNASVHTGLMTRLSFCGPKVITHFFCEIPPLLLLSCSSTYINSVMTLVADV
FLGGINFMLTLLSYGFIIASILRMRSAEGKRKAFSTCSSHLIVVSVYYSSVFCAYI-SPASSY-SPERSK
FTSVLYSVVSPTLNPLIYTLRNKDVKLALGRML--ASFSH*------

>MmOR7.8.21
--MMMLRLNQT--EVTEFVLEGFSEHPDLRLFLIGCFLSLYMMALMGNIVIIALVTSSTGLHSPMYFFLC
NLATMDIVCTSSVIPKALVGLVSGENTISFKGCMAQLFFLVWSASSELLLLTVMAYDRYVAICFPLHYSS
RMSPQLCGALAVGVWSICALNASVHTGLMTRLSFCGPKIITHFFCEIPPLLLLSCSPTYINSVMTLVADA
FYGGINFVLTLLSYGYIIGSILRMRSAEGKRKAFSTCSSHLIVVSVYYSSVFCAYV-SPASSY-SPERSK
VSSVLYSVLSPTLNPLIYTLRNKDVKLALGRIL--PSFSH*------

>MmOR7.8.12
--MTMLSPNQT--VVTEFVLEGFSEHPSLRLFLMGCFLSLYTVALMGNILIIALVTSSTGLHSPMYFFLC
NLATMDIVCTSSVIPKALIGLVFEENTISFKGCMAQLFFLVWSASSELLLLTVMAYDRYVAICYPLHYSS
RMSPQLCGVLAMSVWSVCALNASINTGLMTRLSFCGPKVITHFFCEIPPLLLLSCSPTYVNSVMTLVADA
FYGGINFMLTLLSYGYIIASILRMRSAEGRRKAFSTCSSHLIVVSVYYSSVFCAYV-SPASSY-SPERSK
VSSVLYSVLSPTLNPLIYTLRNKDVKLALGRRLPSH*----------

>MmOR7.8.7
---MMSRLNQT--VVTEFILQGFSEHPSLRLFLTGCFLSLYVMALMGNILIIALVTFSTGLHSPMYFFLC
NLATMDIICTSSVLPKALVGLLSEENTISFKGCMAQLFFLVWSLSSELLLLTVMAYDRYVAICFPLHYSS
RMSPQLCGALAMGVWSICALNASINTGLMTRLSFCGPKVITHFFCEIPPLLLLSCSPTYVNSIMTLIADV
FYGGINFVLTLLSYGCIIASILRMRSAEGKRKAFSTCSSHLIVVSVYYSSVFCAYV-SPASSY-SPERSK
VTSVLYSFLSPTLNPLIYTLRNKDVKLAIGRLL--PSFSH*------
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR7.8.16
---MMFSPNQT--EVTEFILEGFSEHATLRLLLTGCFLSLYTIALMGNIVIIALVTSSTGLHSPMYFFLC
NLATMDIVCTSSVIPKALIGLVSEENTISFKGCMAQLFFLLWSLSSELLLLTVMAYDRYVAICFPLHYSS
RMSPQLCGALAVGVWSICAVNASVHTGLMTRLSFCGPKVITHFFCEIPPLLLLSCSPTYINSVMTLVADA
FYGCINFVLTLLSYGCIIASVLRMRSAEGKRKAFSTCSSHLIVVSVYYSSVFCAYV-SPASSY-SPERSK
VTSVLYSILSPTLNPLIYTLRNKDVKLALGRLL--PFFPK*------

>SMOR253-1
---MMFSPNQT--EVTEFILEGFSEHATLRLLLTGCFLSLYTIALMGNIVIIALVTSSTGLHSPMYFFLC
NLATMDIVCTSSVIPKALIGLVSEENTISFKGCMAQLFFLLWSLSSELLLLTVMAYDRYVAICFPLHYSS
RMSPQLCGALAVGVWSICAVNASVHTGLMTRLSFCGPKVITHFFCEIPPLLLLSCSPTYINSVMTLVADA
FYGCINFVLTLLSYGCIIASVLRMRSAEGKRKAFSTCSSHLIVVSVYYSSVFCAYV-SPASSY-SPERSK
VTSVLYSILSPTLNPLIYTLRNKDVKLALGRLL--PFFPK-------

>MmORUn.1.1
LHSTMVSPNQT--VVTEFVLQGFSEHPSLRLFLMGCFLSLYTVALMGNMVIIALITSSTGLHSPMYFFLC
NLATMDIICTSSVLPKALVGLLSEENTISFKGCMTQLFFLVWSGSSELLLLTVMAYDRYVAICLPLHYSS
RMSPQLCGTFAVGVWSICALNASINTGLMTRLSFCGPKVITHFFCEIPPLLLLSCSPTYINSVMTLVADA
FYGGINFLLTLLSYGCIIASILRMRSAEGKRKAFSTCSSHLIVVSVYYSSVFCAYI-SPGSSY-SPERSK
FTSVLYSVLSPTLNPLIYTLRNKDVKLALRRLF--PSFSN*------

>MmOR7.8.15
LHTTMVSPNQT--VVTEFVLQGFSEHPSLRLFLMGCFLSLYTVALMGNMVIIALITSSTGLHSPMYFFLC
NLATMDIICTSSVLPKALVGLLYEENTISFKGCMAQLFFLLWSGSSEVLLLTVMAYDRYVAICCPLSYSS
RMSPQLCAALAVAVWSICAVNASVHTGLMTQLSFCGPKVITHFFCEIPPLLLLSCSPTYVNSVMTLVADA
FYGGINFLLTLLSYGCIIASILHMRSAEGKRKAFSTCSSHLIVVSVYYSSLFCAYI-SPASSY-SPERSK
FTSFFYSVLSPTLNPLIYTLRNKDVKLALRRLL--PSLSN*------

>SMOR251-1
----MAINNST--TVVEFVLQGLSEDPGLQALFLAFFLLLYILALAGNTLIIIAISLNPRLHTPMYFFLA
NLALLDIICTSTVVPKLLEGLVGKSSHISYKGCMTQVFFLIWVLGAELLLLTAMAYDRYVAICRPLHYNT
LMSWPICVLLAGFVWVIGIANTSVHIGLLVRLNFCGSNQIRHFLCEVPTLLLLSCSPTTLNNIMLVIADV
YFGVLNFLLTMISYSFIISSILRIRSAEGKKRAFSTCSAHLVVVTLYYSTIIYTYL-QPGSGS-SFQNSK
VVTLLYTAVSPTLNPIIYSLRNKDVKVALKRLF--PCFH--------

>MmOR7.8.10
----MAINNST--TVVEFVLQGLSEDPGLQALFLAFFLLLYILALAGNTLIIIAISLNPRLHTPMYFFLA
NLALLDIICTSTVVPKLLEGLVGKSSHISYKGCMTQVFFLIWVLGAELLLLTAMAYDRYVAICRPLHYNT
LMSWPICVLLAGFVWVIGIANTSVHIGLLVRLNFCGSNQIRHFLCEVPTLLLLSCSPTTLNNIMLVIADV
YFGVLNFLLTMISYSFIISSILRIRSAEGKKRAFSTCSAHLVVVTLYYSTIIYTYL-QPGSGS-SFQNSK
VVTLLYTAVSPTLNPIIYSLRNKDVKVALKRLF--PCFH*-------

>MmOR7.8.4
----MEINNYT--TVVEFVLQGLSEDPGLQALFLAFFLLLYILALAGNTLIIIAISLNSSLHTPMYFFLA
NLALLDIVCTSTVLPKLLEGLVGKSSHISYKGCMTQLFFLTWFLGAELLLLTAMAYDRYVAICRPLHYSM
LMSWPICVLLAGSVWVISAASTSVHTGLMARLNFCGPNQIRHFLCEVPTLLLLSCSPTTLNNIMIVIADV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
YFGVVNFLLTMISYSFIITSILRIRSTEGKKRAFSTCSAHLVVVVLYYSTVIYTYL-QPGSGS-SLENGK
VVALLYTAVSPTLNPAIYSLRNKDVKVALKKLF--PCFQ*-------

>MmOR7.8.9
--------NGT--LVTEFLILGFSDMPHLRILLFLSFLCLYMAAVSGNLLIMVTISASPTLHTPMYFFLV
NLAVVDILCTSTILPKLLDTMVGG-RTISYGGCMAQLFFFTWSLGVELLLFSAMAYDRFVAICCPLHYST
WMGPRVCAFLAGIVWAISLTNTSINSSLVLRLPFCSSNVVEHFFCEIPPLLKLSCAPTQLNEAMAFAADV
FLAVGNFSVIILSYGFIVASILKIRSAEGKQRAFSTCSAHLIVVTMYYSTVIYTYI-RPSSSY-SLNKDK
VVSIIYTSVAPTLNPLIYTLRNKDVKVALRRLFSC------------

>MmOR7.8.5
------MMNGT--LVTEFLILGFSEMPHLRVPLLFSFLCLYMAAISGNLLIMVTISASPALHTPMYFFLV
NLAIVDILCTSTILPKLLDSMMTG-RTISYGGCMAQLFFFTWSLGAELLLFSAMAYDRFVAICCPLHYSA
WMGPRVCAFLAGIVWTISLTNTSVHTGLMLRLPFCSSNVIEHFFCEIPPLLKLSCAPTQLNEAMAFAADV
FLAVGNFSVTILSYGFIVASILKIRSAEGKRRAFSTCSAHLIVVTMYYSTVIYTYI-RPSSSY-SLNKDK
VVSIIYTSVAPTLNPLIYTLRNKDVKVALRRLLSC------------

>MmOR7.8.8
----MALVNQS--VVTMFILQRFVDDPWIQDVLFCLFFALFMAAIAGNGLIIATIHSSPNLHTPMYFFLV
NLSLMDVICTVTVLPKVLQSLVAENS-ISYGGCLTQMFVFSWVLGSELLLFSAMAYDRYLAICRPLHYGT
LMSGKVCVALATFVWFTGALNSLVLTCLMLPLSFCGPNLITHFFCEIPSVLILSCSPTFINDIMTVITDM
FLTGLNFLLTMTSYVFIIASILRIRSAEGKKRAFSTCSAHLVVVTLYYSTVLYTYV-RPALGT-AGFLDK
LIAVLYTTVTPSLNPLIYTLRNKEFKISFKKLLFP------------

>MmOR7.8.11
----MAPVNQS--VVTMFILQRFVDDPRVQDVLFCLFFALFVAAIAGNGLIIATIHSSPNLHTPMYFFLV
NLALMDVICTVTVLPKVLQSLVAENS-ISYGGCLTQMFVFSWVLGSELLLFSAMAYDRYLAICRPLHYGT
LMSGRVCVALATFVWFTGAFNSLVLTCLMLPLSFCGPNLITHFFCEIPSVLILSCSPTFINDIMTVIADM
FLTGLNFLLTMTSYGFIISSILRIRSAEGKKRAFSTCSAHLVVVTLYYSTVLYTYV-RPALGT-AGFLDK
LIAVLYTTVTPSLNPLIYTLRNKEFKTSFKKLISLTLSLEMNSKSNG

>SMOR252-1
----MAPVNQS--AITMFILQNFVDDPWIQDVLFCLLFALFMAAIAGNGLIIATIHSSPNLHTPMYFFLV
NLALMDMICTVTVLPKVLQSLVAENS-ISYGGCLIQMFVFSWVLGSELLLFSAMAYDRYLAICRPLHYGT
LMSGRVCVALATFVWFIGALNSLVLTCLVLPLSFCGSNLIAHFFCEIPSVLILSCSPTFINNVMTVIADM
FLTGLNFLLTMTSYVFIISSILRIRSAEGKKRAFSTCSAHLVVVTLYYSTALYTYV-RPALGT-AGLLDK
VIAIPYTTVTPSLNPLIYTLRNKEFKTSFKKLLFP------------

>SOR13G1
-------MNHS--VVTEFIILGLTKKPELQGIIFLFFLIVYLVAFLGNMLIIIAKIYNNTLHTPMYVFLL
TLAVVDIICTTSIIPKMLGTMLTSENTISYAGCMSQLFLFTWSLGAEMVLFTTMAYDRYVAICFPLHYST
VMNHHMCVALLSMVMAIAVTNSWVHTALIMRLTFCGPNTIDHFFCEIPPLLALSCSPVRINEVMVYVADI
TLAIGDFILTCISYGFIIVAILRIRTVEGKRKAFSTCSSHLTVVTLYYSPVIYTYI-RPASSY-TFERDK
VVAALYTLVTPTLNPMVYSFQNREMQAGIRKVF--AFLKH-------

>MmOR7.3.2
------MMNFS--IVSEFMILGLTQKSELQGILFIVFLFIYLVALLGNMLIVVAIIYNTTLHTPMYILLL
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
ALAVVDIICTTSIIPKMLGTMLTSKNSISYGGCMSQLFFFTWSLGAEMVLFTTMAYDRYVAICFPLRYST
IMNHYTCVGLLSIVMAIAVTNSWVHTGLILRLTFCGPNIIDHFFCEIPPLLALSCSPVRVNEVMVYVADI
TLAVGDFTLTCISYGFIIAAILRIRTTEGKKKAFSTCSSHLMVVSLYYSPVIYTYI-RPASSY-TFDKDK
VVAALYTLVTPTLNPIVYSFRNKEMQSGIKKVF--AFLKG*------

>HsOR17.1.15
-MEPEAGTNRT--AVAEFILLGLVQTEEMQPVVFVLLLFAYLVTTGGNLSILAAVLVEPKLHAPMYFFLG
NLSVLDVGCITVTVPAMLGRLLSHKSTISYDACLSQLFFFHLLAGMDCFLLTAMAYDRLLAICQPLTYST
RMSQTVQRMLVAASWACAFTNALTHTVAMSTLNFCGPNEVNHFYCDLPQLFQLSCSSTQLNELLLFVAAA
FMAVAPLVFISVSYAHVVAAVLQIRSAEGRKKAFSTCGSHLTVVGIFYGTGVFSYM-RLGSVE-SSDKDK
GVGVFMTVINPMLNPLIYSLRNTDVQGALCQLLVG-KRSLT*-----

>HsOR17.1.10
-MEPEAGTNRT--AVAEFILLGLVQTEEMQPVVFVLLLFAYLVTTGGNLSILAAVLVEPKLHAPMYFFLG
NLSVLDVGCITVTVPAMLGRLLSHKSTISYDACLSQLFFFHLLAGMDCFLLTAMAYDRLLAICQPLTYST
RMSQTVQRMLVAASLACAFTNALTHTVAMSTLNFCGPNEVNHFYCDLPQLFQLSCSSTQLNELLLFAVGF
IMAGTPLVLIITAYSHVAAAVLRIRSVEGRKKAFSTCGSHLTVVCLFFGRGIFNYM-RLGSEE-ASDKDK
GVGVFNTVINPMLNPLIYSLRNPDVQGALWQIFLGRRSLT*------

>SOR3A2
----MSLQNRT--AVAEFILLGLVQTEEMQPVVFVLLLFAYLVTTGGNLSILAAVLVEPKLHAPMYFFLG
NLSVLDVGCITVTVPAMLGRLLSHKSTISYDACLSQLFFFHLLAGMDCFLLTAMAYDRLLAICQPLTYST
RMSQTVQRMLVAASLACAFTNALTHTVAMSTLNFCGPNEVNHFYCDLPQLFQLSCSSTQLNELLLFAVGF
IMAGTPLVLIITAYSHVAAAVLRIRSVEGRKKAFSTCGSHLTVVCLFFGRGIFNYM-RLGSEE-ASDKDK
GVGVFNTVINPMLNPLIYSLRNPDVQGALWQIFLGRRSLT-------

>MmOR11.6.36
-MQTKPRINGT--TITEFILLGLVETPELWPLVFILFLLAYMTTVGGNLSILAAVLVEPKLHTPMYFFLG
NLSVMDVGCISVTIPSMLVRLLVQKHTIPYGDCLTQLFFFHLLAGVDCFLLTAMAYDRFLAICQPLTYST
RMNYTIQRILVAMSWACAFSNALTHTVAISTLHFCGPNVINHFYCDLPQLFQLSCSSTQLNELLLFGVGF
IMAGTPMALIFISYIHVAAAVLRIRSAEGRKKAFSTCSSHLTVVAMFYGTGMFNYM-RLGSTK-FSDKDK
AIGIFNTVINPMLNPLIYSLRNPDVQAALWRVLTGRRPAA*------

>MmOR11.6.47
-MQPKPRANGT--TITEFILLGLVETPELWPLVFILFLLAYMTTVGGNLSILAAVLVEPKLHTPMYFFLG
NLSVMDVGCISVTIPSMLVRLLVHKRTIPYGDCLTQLFFFHLLVGVDCFLLTAMAYDRFLAICRPLTYST
RMNHTIQRILVATSWACAFSNALTHTVAISTLHFCGPNVINHFYCDLPQLFQLSCSSTQLNELLLFGVGF
IMAGTPMALIFTSYMHVAAAVLRIRSAEGRKKAFSTCSSHLTVVAIFYGAGIFNYM-RLGSTK-LSDKDK
AIGIFNTVINPMLNPLIYSLRNPDVQAALWRVLTGRRPAA*------

>MmOR11.6.35
-MQPKPRANGT--TVTEFILLGLVETPELWPLVFILFLLAYMTTVGGNLSILAAVLVEPKLHTHMYFFLG
NLSVMDVGCISVTIPSMLGRLLAHRLTVPYGACLTQLFFFHLLAGVDCFLLTAMAYDRFLAICQPLTYST
RMNHSVQRILVASSWACSFSNALTHTVATSTLRFCGPNVIDNFYCDLPQLFQLSCSSTQINELLLFALSF
IMAGTPMALIFTSYINVAAAVLRIRSAEGRKKAFSTCSSHLTVVAMFYGTGMFNYM-RLGSTK-LSDKDK
AIGIFNTVINPMLNPLIYSLRNPDVQAALWRVLTGRRPAA*------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>HsOR17.1.11
-MQPESGANGT--VIAEFILLGLLEAPGLQPVVFVLFLFAYLVTVRGNLSILAAVLVEPKLHTPMYFFLG
NLSVLDVGCISVTVPSMLSRLLSRKRAVPCGACLTQLFFFHLFVGVDCFLLTAMAYDRFLAICRPLTYST
RMSQTVQRMLVAASWACAFTNALTHTVAMSTLNFCGPNVINHFYCDLPQLFQLSCSSTQLNELLLFAVGF
IMAGTPMALIVISYIHVAAAVLRIRSVEGRKKAFSTCGSHLTVVAIFYGSGIFNYM-RLGSTK-LSDKDK
AVGIFNTVINPMLNPIIYSFRNPDVQSAIWRMLTGRRSLA*------

>SOR3A1b
-MQPESGANGT--VIAEFILLGLLEAPGLQPVVFVLFLFAYLVTVRGNLSILAAVLVEPKLHTPMYFFLG
NLSVLDVGCISVTVPSMLSRLLSRKRAVPCGACLTQLFFFHLFVGVDCFLLTAMAYDRFLAICRPLTYST
RMSQTVQRMLVAASWACAFTNALTHTVAMSTLNFCGPNVINHFYCDLPQLFQLSCSSTQLNELLLFAVGF
IMAGTPMALIVISYIHVAAAVLRIRSVEGRKKAFSTCGSHLTVVAIFYGSGIFNYM-RLGSTK-LSDKDK
AVGIFNTVINPMLNPIIYSFRNPDVQSAIWRMLTG-RRSRL------

>MmOR11.6.48
-MESKFESNGT--AVTEFILLGLVETAGLQPVIFVVFLFAYLLTVGGNLSILAAVFVEPKLHTPMYFFLG
NLSMLDVGCISVTVPSMLGRLLSHKRTVPYGACLTQLFFFHQLAGVDCFLLTAMAYDRFLAICRPLTYST
RMNHTVQRILVATSWACAFSNALTHTVAISTLNFCGPNVINHFYCDLPQLFQLSCSSTQLNELLLFGLGV
LMAGAPVILIVTSYIHVAAAVLRIQSSEGRKKAFSTCSSHLTVVGIFYGTGVFSYM-RLGSVE-ASDKDK
GIGILNTVISPMLNPLIYSLRNPDVQGALRRVLTGKRDLA*------

>MmOR11.6.31
-MEPGAWGNRT--AVTDFILLGLTGNVRLQPILFVVFFFAYIVTVGGNLSILAAIFVEPKLHTPMYYFLG
NLSLLDIGCISVTVPPMLVCLLAHECRVPYAACISQLFFFHLLAGVDCHLLTAMAYDRYLAICQPLTYST
RMSREVQGTLVGICCTVSFINALTHTVAVSVLDFCGPNVVNHFYCDLPPLFQLSCSSIYLNGQLLFVGAT
FMGVVPMILISVSYAHVAAAVLRIRSTEGRKKAFSTCGSHLTVVCIFYGTGFFSYM-RLGSVS-ASDKDK
GIGILNTILSPMLNPLIYSLRNPDVQGALKRVLTGKRYPV*------

>HsOR17.1.12
-MDLGNSGNDS--VVTKFVLLGLTETAALQPILFVIFLLAYVTTIGGTLSILAAILMETKLHSPMYFFLG
NLSLPDVGCVSVTVPAMLSHFISNDRSIPYKACLSELFFFHLLAGADCFLLTIMAYDRYLAICQSLTYSS
RMSWGIQQALVGMSCVFSFTNALTQTVALSPLNFCGPNVINHFYCDLPQPFQLSCSSVHLNGQLLFVAAA
FMGVAPLVLITVSYAHVAAAVLRIRSAEGRKKAFSTCSSHLTVVGIFYGTGVFSYT-RLGSVE-SSDKDK
GIGILNTVISPMLNPLIYCISHPPVQSCLQFGWGGLSPLNSHGL*--

>SMOR255-1
-MDLGTLGNDS--CVSTFVLLGLTETPVLRPILFVIFLLAYVATLGGNFSILAAIIIEPKLHTPMYFFLG
NLSMLDVGCISVTVPAMLKHFLSNDRHIPYGACLSQLFFFHLLAGADCFLLTVMAYDRYLAICHPLTYNT
HMSWRIQKASVCLSCVFSFSNALTQTVALSTLKFCGPNTINHFYCDLPQLFQLSCSSIQLNEQLLFVAAA
FMGVVPLVLITVSYGHVAAAVLRIRSAEGRKKAFSTCSSHLTVVGIFYGTGVFSYM-RLGSVE-SSDKDK
GIGILNTVISPMLNPLIYSLRNPDVQGALWKVLGR------------

>MmOR11.6.32
-MDLGTLGNDS--CVSTFVLLGLTETPVLRPILFVIFLLAYVATLGGNFSILAAIIIEPKLHTPMYFFLG
NLSMLDVGCISVTVPAMLKHFLSNDRHIPYGACLSQLFFFHLLAGADCFLLTVMAYDRYLAICHPLTYNT
HMSWRIQKASVCLSCVFSFSNALTQTVALSTLKFCGPNTINHFYCDLPQLFQLSCSSIQLNEQLLFVAAA
FMGVVPLVLITVSYGHVAAAVLRIRSAEGRKKAFSTCSSHLTVVGIFYGTGVFSYM-RLGSVE-SSDKDK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
GIGILNTVISPMLNPLIYSLRNPDVQGALRKVLTG-R*---------

>MmOR4.4.6
-MQGSSYENHS--SVSEFILLGFSSNFQLNIILFNVFFFLYLSTLVGNGLIVTLIHLDSRLHTPMYFFLS
VLSMLDMSYVTTTVPQMLVHLLCQKKTISYSGCVAQMYIFLVLGITEGWLFSVMAYDRYVAICHPLRYKV
IMRPWLCGAMVVFCGLWGVSCSLIYTVFTMRLPYCGPNEINHFFCEVPAVLKLACADTSLNDRIDFILGF
ILLLVPLSFILASYVCIFATILRIRSAQGRLKAFSTCASHITVVTMFCGPAMFMYM-NPGANA-SPERDK
KLALFYNVISAFLNPIIYSLRNKDVKRAFLKVTGWGGATE*------

>MmOR4.4.1
-MQDFLWRNRS--SLTEFVLLGFSSNTQINGILFGIFLLLYLTTLLGNGLIITLIHMDSRLHTPMYFFLS
VLSILDMGYVTTTVPQMLVHLVCKKKTISYVGCVAQMYIFLMLGITESWLFAIMAYDRYVAICHPLRYKV
IMSPLLRGSLVAFCGFWGITCALIYTVSAMILPYCGPNEINHFFCEVPAVLKLACADTSLNDQVDFILGF
ILLLVPLSLIIVVYINIFAAILRIRSTQGRIKAFSTCVSHIIVVTMFSIPCMVMYM-RPGSES-SPEEDK
KLALFYNVISAFLNPIIYSLRNKDVKRAFLKVVGSRKGSE*------

>MmOR4.4.5
-MHSRGWRNHS--SVTEFILLGFSRNPRTNWILFFLFLFLYLFTVLGNGLIVTLIRIDARLHTPMYFFLS
ILSLLDLSYATTTVPQMLAHLVSKTKTISYTGCVIQMYIFLTLGITETWIFAAMAYDRYVAICYPLHYGV
KMSQTLCIALVVSSALCGLICALVYTVFAMNLPYCGPNEINHFFCEIPAVLKLACADTSLNDQVDFILGF
ILLLIPLSLILASYVRIFIAILRICSTQGRMKAFSTCASHITVVTMFCVPCMVMYM-RPGSEA-SPEDDK
KLALFYNVISAFLNPIIYSLRNKDVKKAFFKLIGRGEDTQ*------

>SMOR258-1
----MQGPNQT--FVTEFILLGFSLSPRTTPLLFSAFLIIYLLIILGNGLIFILICLDSHLHTPMYFFIG
VLSMLDLGYTTTTVPQMLAHLASQKKTISYSNCVAQMYIFLVLGVTESWLFAIMSIDRYVAICHPLRYKV
IMSPCLCGVMAIFCGLCGVTAALVYTIFAMRLPYCGPNKINHFFCEVPAVLKLACADTSVNDHVDFILGF
SVILIPLSLILVIYINIFTSILKIRSAQGRLKAFSTCASHITVVTMFCVPAMVMYM-KPGSKA-SPEEDK
KLALFYNVISAFLNPVIYSLRNKECEEQGNRLW--------------

>MmOR4.4.4
----MQGPNQT--FVTEFILLGFSLSPRTTPLLFSAFLIIYLLIILGNGLIFILICLDSHLHTPMYFFIG
VLSMLDLGYTTTTVPQMLAHLASQKKTISYSNCVAQMYIFLVLGVTESWLFAIMSIDRYVAICHPLRYKV
IMSPCLCGVMAIFCGLCGVTAALVYTIFAMRLPYCGPNKINHFFCEVPAVLKLACADTSVNDHVDFILGF
SVILIPLSLILVIYINIFTSILKIRSAQGRLKAFSTCASHITVVTMFCVPAMVMYM-KPGSKA-SPEEDK
KLALFYNVISAFLNPVIYSLRNKDVKRAFLKVTGCGRPPE*------

>MmOR4.4.3
-MQTLRKDNCS--SVSEFLLLGFSSESQVRVALFIFFLLLYMITLLGNGLIITLIYLDSRLHTPMYFFLS
ILSLVDMSYVTTTVPQMLVNMVCPRRTISWGACVAQMFIFLLLGIAECVLYAIMAYDRYVAICFPLHYSV
LMSRLVCIKMVTVCWSISITGALIYTVFTMRLPYCGPYKINHFFCEVPAVLKLACADTSFNDRLDFILGF
IFLLVPLSLILASYACIFASILRIRSSQGRLKSFSTCASHITVVTMFYGPAMIMYM-RPGSWY-DPERDK
KLALFYNVVSAFLNPIIYSLRNKDVKGAFLKVLGDRGAAK*------

>SMOR259-1
---MIPGQNQS--WVSEFILIGFSSDPTTNSILFIVFLLIYLSSVLGNGLIIMLVCLDTQLHTPMYFFLS
TLSLLDMSFVTTTMPQMLVHLLAHSQTISFASCCLQMFVFGALGITECTFFVVMAYDRYVAICYPLRYTV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
ILNWGLCIRLAAGSWICGFFSSLLHTFFTMSLPYCGPNRVNHYFCEGPSVRSLACMDTHLIEMVDFVLSV
FVVVIPISLIVASYIRIAMAILKIKSTQGRCKAFSTCASHLTVVTFFYAPATYIYL-RPNSSY-SPERDK
QVSLFYNAFTALLNPVVYSLRNKDIKRAFLKVMGHSRLDQ-------

>MmOR4.4.15
-MWMIPEQNQS--WVSEFILIGFSSDPTTNSILFIVFLLIYLSSVLGNGLIILLVCLDTQLHTPMYFFLC
TLSLLDMSYVTTTMPQMLVHLLAHSQTISFAGCWLQMYVFGALGITECTFFVVMAYDRYVAICYPLRYTV
ILNWGLCIRLAAGSWICGFFSSLLHTFFTMSLPYCGPNRVNHYFCEGPSVRSLACMDTHLIEMVDFVLSV
FVVVIPISLIVASYIRIAMAILKIKSTQGRCKAFSTCASHLTVVTFFYAPATYIYL-RPNSSY-SPERDK
QVSLFYNAFTALLNPVVYSLRNKDIKRAFLKVMGHSRLDQ*------

>MmOR4.4.8
-MWMIPGQNQS--WVSEFILIGFSSDPTTNSILFIVFLLMYLSSVLGNGLIIMLVCLDTQLHTPMYFFLC
TISLLDMGYVTTTMPQMLVHLLAHSQTISFAGCWLQMYVFGALGMTECTFFVVMAYDQYVAICYPLRYTV
ILNWGLCIRLAGGSWICGLFSSLLHTFFTMSLPYCGPNRINHYFCEGPSVRSLACMDTHVIEMVDFVLSV
FVVVIPISLIVASYIGIAMAILKIKSNQGRCKAFSTCASHLTVVTFFYAPASYIYM-RPNSSY-SPERDK
QISLFYNVFTALLNPVVYSLRNKDIKRAFLKVMGHGRLAW*------

>MmOR4.4.13
-MWVVLGQNQS--WVSEFILIGFSSDPTTNSILFIVFLLIYLSSVLGNGLIIMLVCLDTQLHTPMYFFLS
TLSLLDMSYVTTTMPQMLVHLLAHSQTISFVGCWLQMFVFSALGITECTFFVVMAYDRYVAICYPLRYTV
ILNWGLCIHLTAGSWVCGLFSSLLHTFFTMSLPYCGPNRVNHYFCEGPSVRSLACMDTHVIEMVDFVLSV
FVIVIPISLIVASYIGIAKAILKIKSTEGRCKAFSTCASHLTVVTFFYAPATYIYM-RPNSSY-SPERDK
QISLFYNTFTALLNPVVYSLRNKDIKRAFFKVMGH--GRMDY*----

>MmOR4.4.10
---MIPGQNQS--WVSEFILIGFSSDPTTNSILFIVFLLIYLSSVLGNGLIIMLVCLDTQLHTPMYFFLS
TLSLLDMSFVTTTMPQMLVHLLAHSQTISFASCCLQMFVFGALGITECTFFVVMAYDRYVAICYPLRYTV
ILNWGLCMRLAAGSWICGFFSSLLHTFFTMSLPYCGPNRVNHYLCEGPSVRSLACMDTHIIEMVDLVLSV
FLVVTPISLIVASYIRIAMAILKIKSTEGRCKAFSTCASHLTVVTFFYAPASYIYM-RPNSSY-SPEQDK
QISLFYSAFTPLLNPVVYSLRNKDIKRAFFKVMGYDRCASGPGW*--

>MmOR4.4.12
---MIPGQNQS--WVSEFILIGFSSDPTTNSILFIVFLLIYLSSVLGNGLIIMLVCLDTQLHTPMYFFLS
TLSLLDMTFVTTTMPQMLVHLLAHSQTISFTGCWLQMFMFGGLGITECTFFVVMAYDRYVAICYPLSYTV
ILNWGLCIRLAAGSCICGFFSSLLHTFFTMSLPYCGPNRVNHYLCEGPSVRSLACMDTHIIEMVDLVLSV
FLVVTPISLIVASYIRIAMAILKIKSTEGRCKAFSTCASHLTVVTFFYAPATYTYL-RPNSSY-SPERDK
QISLFYSAFTPLLNPVVYSLRNKDIKRAFLKVMGYGRCASGPGW*--

>MmOR4.4.14
-MWMIPGQNQS--WVSEFILLGFSSVPTTNSILFIVFLLIYLSSVLGNGLIIMLVCLDTQLHTPMYFFLC
TLSLLDMSFVTTTVPQMLVHLLAHSQTISFAGCWLQMFVFGALGMTECTFFVVMAYDRYVAICYPLRYTV
ILNWGLCIRLAGGTWISGFFSSLLHTFFTMSLPYCGPNRVNHYFCEGPSVRSLACMDTHVIEMVDSVLIV
ILVIVPISLIVASYIRIVMAILKIKSTQGRCKAFSTCASHLTVVTLFYVPASYIYL-RPNSSY-SPERDK
QVSLFYNVFTALLNPVVYSLRNKDIKRAFLKVMGHARVDS*------

>MmOR4.4.7
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
-MWMFPRQNQS--WVSEFILIGFSSDPTTNSILFIVFLLIYLNSVLGNGLIIMLVCLDTQLHTPMYFFLC
TLSLLDMSYVTTTMPQMLVHLLAHSQTISFAGCWLQMYMFSALGIAESILFVVMAYDRYVAICYPLRYTV
ILNWGLCIRLAAGTWICGSFSSLLHTFFTMSLPYCGPKRVDHYFCEGPSVRSLACMDTHLIEMVDLVLSV
FVVVTPISLIVASYIHITKAILKIKSTQARCKAFSTCASHLTVVTFFYIPAIYIYI-RPNSSY-SPERDK
QISLFYNVFTALLNPVVYSLRNKDIKRAFLKVMGRMDW*--------

>MmOR4.4.9
-MWRMSGQNQS--WVSEFILLGFSSDSTTNSILFIVFLLIYLSSVLGNGLIIMLVCLDTQLHTPMYFFLS
TLSLLDMGYVTTTMPQMLVHLLAHSQTISFASCWLQMYVFGALGMTESILFVVMAYDRYVAICYPLRYTV
ILNWDLCIRLAAGTWICGFFSSLLNTFFTMSLPYCGPNRVNHYLCEGPSVRSLACMDTHFVEMVDLVLSV
FVVVTPISLIVASYIHIAKAILKIKSTQGRCKAFSTCASHLTVVTLFYLPATYIYM-RPNSSS-SSERDK
QISLFYTAFTPLLNPVVYSLRNKDIKRAFLKVMFYWTRGPQW*----

>MmOR6.3.10
--MGQEFINQT--WVNEFILLGLSSDRNTQVFLFVLVLAMYVVTVVGNTLILFLIRLDIRLHTPMYFFLS
VLSIVDLCYGNSIAPQMLAHLVSAQKLIPFHSCVFQLYISLALGGSEFFLLGAMSYDRYVAVCHPLHYTV
IMDGGVCLGLAASCLMAGFFNSLMETVITFRLPLCH-NVINHFACETLAVLRLACVDISFNKVMVAISGF
LVIMLPCCLVLFSYTRIVIAILRIRSTQGRHKAFGTCASHLTVVCMCFGATIFTYL-GPRSAS-SEDKEK
MVALFYAVVAPTLNPVIYSLRNKEVMAALTKLVEKLR*---------

>HsOR7.6.7
----MGTDNQT--WVSEFILLGLSSDWDTRVSLFVLFLVMYVVTVLGNCLIVLLIRLDSRLHTPMYFFLT
NLSLVDVSYATSVVPQLLAHFLAEHKAIPFQSCAAQLFFSLALGGIEFVLLAVMAYDRYVAVCDALRYSA
IMHGGLCARLAITSWVSGFISSPVQTAITFQLPMCRNKFIDHISCELLAVVRLACVDTSSNEVTIMVSSI
VLLMTPFCLVLLSYIQIISTILKIQSREGRKKAFHTCASHLTVVALCYGVAIFTYI-QPHSSP-SVLQEK
LFSVFYAILTPMLNPMIYSLRNKEVKGAWQKLLWKFSGLTSKLAT*-

>SOR2F1
----MGTDNQT--WVSEFILLGLSSDWDTRVSLFVLFLVMYVVTVLGNCLIVLLIRLDSRLHTPMYFFLT
NLSLVDVSYATSVVPQLLAHFLAEHKAIPFQSCAAQLFFSLALGGIEFVLLAVMAYDRYVAVCDALRYSA
IMHGGLCARLAITSWVSGFISSPVQTAITFQLPMCRNKFIDHISCELLAVVRLACVDTSSNEVTIMVSSI
VLLMTPFCLVLLSYIQIISTILKIQSREGRKKAFHTCASHLTVVALCYGVAIFTYI-QPHSSP-SVLQEK
LFSVFYAILTPMLNPMIYSLRNKEVKGAWQKLLWKFSGLTSKLAT--

>HsOR7.6.6
----MEIDNQT--WVREFILLGLSSDWCTQISLFSLFLVTYLMTVLGNCLIVLLIRLDSRLHTPMYFFLT
NLSLVDVSYATSVVPQLLAHFLAEHKAIPFQSCAAQLFFSLALGGIEFVLLAVMAYDRHVAVSDRLRYSA
IMHGGLCARLAITSWVSGSINSLVQTAITFQLPMCTNKFIDHISCELLAVVRLACVDTSSNEAAIMVSSI
VLLMTPFCLVLLSYIRIISTILKIQSREGRKKAFHTCASHLTVVALCYGTTIFTYI-QPHSGP-SVLQEK
LISVFYAIVMPLLNPVIYSLRNKEVKGAWHKLLEKFSGLTSKLGT*-

>SOR2F2
----MEIDNQT--WVREFILLGLSSDWCTQISLFSLFLVTYLMTVLGNCLIVLLIRLDSRLHTPMYFFLT
NLSLVDVSYATSVVPQLLAHFLAEHKAIPFQSCVAQLFFSLALGGIEFVLLAVMAYDRHVAVSDRLRYSA
IMHGGLCARLAITSWVSGSINSLVQTAITFQLPMCTNKFIDHISCELLAVVRLACVDTSSNEAAIMVSSI
VLLMTPFCLVLLSYIRIISTILKIQSREGRKKAFHTCASHLTVVALCYGTTIFTYI-QPHSGP-SVLQEK
LISVFYAIVMPLLNPVIYSLRNKEVKGAWHKLLEKFSGLTSKLGT--
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR6.3.8
----MEQDNQT--WVHEFILLGLSNDWGTQVSLFVLFLLMYLVTVLGNFLIIVLIRLDSRLHTPMYFFLT
NLSLVDASYATSIVPQLLAHFLATHKAIPFLSCAAQLFFSLGLGGIEFLLLAVMAYDRYVAVCDPLRYSV
IMHTGLCTRLVITSWVSGSINSLVHTAITFQLPMCTNKYIDHISCEILAVVRLACVDISSNEIVIMVSSI
VLLMTPFFLVLLSYIQIISTILKIQSTEGRRKAFHTCASHLTVVTLCYGTTIFTYI-QPHSSP-SVLQEK
LISLFYAVLMPMLNPMIYSLRNKEVKGAWQKLLGKFSVFTSKLTS*-

>MmOR6.3.6
----MGKDNQT--WIHEFILLGLSSDWNTEVSLFVLFLLMYLVTVLGNFLIIVLIRLDSRLHTPMYFFLT
NLSLVDVSYATSIVPQLLAHFLATHKTIPFLSCAAQLFFSLGLGGIEFVLLAMMAYDRYVAVCNPLRYSA
IMHTGLCSRMAIVSWVGGSINSVMQTAITFQLPMCTNVYIDHISCELLAVVRLACVDTSANEVAIMVSSI
ILLMTPFCLVLLSYIQIISTILKIQSKEGRRKAFHTCASHLTVVALCYGMAIFTYI-QPHSSP-SVLQEK
LISLFYAILTPMLNPMIYSLRNKEVKGAWQKLLGQFSEFTSKLKT*-

>SMOR257-1
----MKRDNAT--WVSEFILMGLSSDKHIQAGLFVLFGVIYLLTLLGNGLIVLLIALDPRLHLPMYFFLC
HLSVVDICYTSSGVPQMLAHFLMEKKTISFALCGTQLFFALTLGGTEFLLLAAMAYDRYVAVCNPLRYTV
VMNPRLCMGLAGVSWFVGVVNSAVETAVTMSLPTCGHNVLNHVACETLALVRLACVDITLNQVVILASSV
VVLLVPCSLVSLSYAHIVAAIMKIRSTQGRRKAFETCASHLTVVSMSYGMALFTYM-QPRSTA-SAEQDK
LVVLFYAVVTPMLNPLIYSLRNKDVKAAFSRVLMKNIESKN------

>MmOR6.3.1
----MKRDNAT--WVSEFILMGLSSDKHIQAGLFVLFGVTYLLTLLGNGLIVLLIALDPRLHLPMYFFLC
HLSVVDICYTSSGVPQMLAHFLMEKKTISFALCGTQHFFALALGGTEFLLLAAMAYDRYVAVCNPLRYTV
VMNPRLCMGLAGVSWFVGVVNSAVETAVTMRLPTCGHNVLNHVACETLALVRLACVDITLNQVVILASSV
VVLLVPCCLVSLSYAYIVTAILKIRSTQGRRKAFGTCASHLTVVSMSYGMALFTHM-EPTSTA-SVEQDK
VVVVFYAVVTPMLNPLVYSLRNKDVKAAFSRVLMKIFESKN*-----

>MmOR6.3.3
----MRE-NMT--WVSEFILMGLTSDKNIQAGLFVLFGVTYLLTLLGNGLIVLLIALDPRLHLPMYFFLC
HLSVVDICYTSSGVPQMLAHFLMEKKTISFALCGTQLLFALTLGGTEFLLLAAMAYDRSVAVCNPLRYTV
VMNPRLCMGLAGVSWFVGVVNSAVETAVTMCLPTCGHNVLNHVACETLTLVRLACVDITLNQVVILASSV
VVLMIPCSLVSLSYAHIVAAIMKIHSTQGRRKAFETCASHLTVVSMSYGMALFTYL-QPASTA-SAEQDK
VVVIFYALVTPMMNPLIYSLRNKDVKAAFRRVLMKNIESKN*-----

>SOR2D2
----MRQINQT--QVTEFLLLGLSDGPHTEQLLFIVLLGVYLVTVLGNLLLISLVHVDSQLHTPMYFFLC
NLSLADLCFSTNIVPQALVHLLSRKKVIAFTLCAARLLFFLIFGCTQCALLAVMSYDRYVAICNPLRYPN
IMTWKVCVQLATGSWTSGILVSVVDTTFILRLPYRGSNSIAHFFCEAPALLILASTDTHASEMAIFLMGV
VILLIPVFLILVSYGRIIVTVVKMKSTVGSLKAFSTCGSHLMVVILFYGSAIITYM-TPKS---SKQQEK
SVSVFYAIVTPMLNPLIYSLRNKDVKAALRKVATRNFP---------

>HsOR11.4.7
----MRQINQT--QVTEFLLLGLSDGPHTEQLLFIVLLGVYLVTVLGNLLLISLVHVDSQLHTPMYFFLC
NLSLADLCFSTNIVPQALVHLLSRKKVIAFTLCAARLLFFLIFGCTQCALLAVMSYDRYVAICNPLRYPN
IMTWKVCVQLATGSWTSGILVSVVDTTFILRLPYRGSNSIAHFFCEAPALLILASTDTHASEMAIFLMGV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
VILLIPVFLILVSYGRIIVTVVKMKSTVGSLKAFSTCGSHLMVVILFYGSAIITYM-TPKS---SKQQEK
SVSVFYAIVTPMLNPLIYSLRNKDVKAALRKVATR--NFP*------

>MmOR7.6.27
----MMQANQT--QVTEFILLGLSDDPHTQKLLFILFLGIYMVTVLGNLLLMFLVRADSRLHTPMYFFLC
NLSLADLCFSTNIVPQALIHLLSRKKTISFRRCAAQLLLFLIFGCTQCALLAVMSYDRYVAICNPLHYSS
IMTWRVCIQLATVSWTSGILVSVVDTTFTLRLPYRGSNSIAHFFCEAPALLALASTDTQTSEMAIFLMGV
VILLIPVSLILVSYGHIIVTVVKMKSAAGRFKAFSTCGSHLMVVILFYGSAIITYM-TPKS---SKEQEK
LVSVFYAMVTPMLNPLIYSLRNKDVKGALWKVAMKNFSSRLRITH*-

>SMOR260-1
----MMQANQT--QVTEFILLGLSDDPHTQKLLFILFLGIYMVTVLGNLLLMFLVRADSRLHTPMYFFLC
NLSLADLCFSTNIVPQALIHLLSRKKTISFRRCAAQLLLFLIFGCTQCALLAVMSYDRYVAICNPLHYSS
IMTWRVCIQLATVSWTSGILVSVVDTTFTLRLPYRGSNSIAHFFCEAPALLALASTDTQTSEMAIFLMGV
VILLIPVSLILVSYGHIIVTVVKMKSAAGRFKAFSTCGSHLMVVILFYGSAIITYM-TPKS---SKEQEK
LVSVFYAMVTPMLNPLIYSLRNKDVKGALWKVAMKNFSSRLRITH--

>MmOR7.6.26
----MMQANQT--QVTEFILLGLSDDPHTQKLLFILFLGIYMVTVLGNLFLMFLVRADSRLHTPMYFFLC
NLSLADLCFSTNIVPQALIHLLSRKKTISFRRCAAQLLLFLIFGCTQCALLAVMSYDRYVAICNPLHYSS
TMTWRVCIQLATVSWTSGILVSVVDTTFTLRLPYRGSNSIAHFFCEAPALLALASTDTQTSEMAIFLMGV
VILLIPVSLILVSYGHIIVTVVKMKSAAGRFKAFSTCGSHLMVVILFYGSGIITYM-TPKS---SKEQEK
LVSVFYAMVTPMLNPLIYSLRNKDVKGALWKVATRLRITH*------

>HsOR11.4.8
----MGEENQT--FVSKFIFLGLSQDLQTQILLFILFLIIYLLTVLGNQLIIILIFLDSRLHTPMYFFLR
NLSFADLCFSTSIVPQVLVHFLVKRKTISFYGCMTQIIVFLLVGCTECALLAVMSYDRYVAVCKPLYYST
IMTQRVCLWLSFRSWASGALVSLVDTSFTFHLPYWGQNIINHYFCEPPALLKLASIDTYSTEMAIFSMGV
VILLAPVSLILGSYWNIISTVIQMQSGEGRLKAFSTCGSHLIVVVLFYGSGIFTYM-RPNSKT-TKELDK
MISVFYTAVTPMLNPIIYSLRNKDVKGALRKLVGRKCFSHRQ*----

>MmOR7.6.17
----MGEDNRT--SVTEFIFLGLSQDPQTQVLLFFLFLFIYLLTVLGNLLIIVLIHSDPRLHTPMYFFLR
NLSFADLCFSTTTVPQVLVHFLVKRKTISFTGCSIQLVVLLLVGCTDCALLAVMSYDRYVAVCKPLHYST
IMTHWVCLQLAAGSWASGAFVSLVDATFTLRLPYRGDNVINHFFCEPPALLKLASADTYSTEMAIFAMGV
VILLAPVSLILISYWNIICTVIQMQSGEGRLKVFSTCGSHLIVVGLFYGSAIFAYM-RPNSKI-MNERDK
MISVFYSAVTPMLNPIIYSLRNKDVKGALRRITSR------------

>MmOR7.6.16
----MGEDNRT--SVTEFIFLGLSQDPQTQVLLFFLFLFIYLLTVLGNLLIIVLIHSDPRLHTPMYFFLR
NLSFADLCFSTTTVPQVLVHFLVKRKTISFAGCSTQIVVLLLVGCTECALLAVMSYDRYVAVCKPLHYST
IMTHWVCVQLAAGSWASGALVSLVDTTFTLRLPYRGNNVINHFFCEPPALLKLASADTYSTEMAIFAMGV
VILLAPVSLILTSYWNIVSTVIQMQSGEGRLKVFSTCGSHLIVVVLFYGSGIFAYM-RPNSKI-MNEKDK
MISVFYSAVTPMLNPIIYSLRNKDVKGALKRITT-------------

>MmOR7.6.28
----MGRENQS--FVDEFVLLGLSQDAQTQILLFVLFFIVYILTVLGNLLIIVLILMDSRLHTPMYFFLR
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
NLSFADLCFSNSIVPQVLSHFLVKRKTISFWGCVTQVIVSLQIGCTECALLAVMSYDRYVAVCKPLHYST
IMTQQLCLQLALGSWASGLLVCLVDIAVAFHLPYRGQNIVSHYFCELPALLKVASADTYSTEMAIFAMGV
VILLAPVSLILISYWNIISTVIQMQSGEGRLKVFSTCGSHLIVVVLFYGSAIFNYM-QPNTKT-RKKQDK
IMSVFYTVVTPMLNPIIYSLRNKDVKSAFRKLAARVVFFRKQ*----

>MmOR7.6.10
----MGGGNQT--YIVEFILLGLSENPKVQILLFCIFLIIYFLSVFGNLVIIILIQIDSRLHTPMYFFLK
NLSFADLCFSTSIVPQMLVHFLSKRKTISFIGCSIQIVVFLLAGCTECALLAVMSYDRYVAVCKPLHYST
IMTQRVCCQLAIVSWISGAFACSVDSAFTLCIPYQGQNVINHYFCEPPALLKLASADTYNAEMALFLVGV
IILLAPVSLILVSYGNIISTVIRMQSREGRLKVFSTCGSHLTVVVLYYGSGIFAYM-RPNSKT-MSEKDK
VVSVFYSVMTSMLNPIIYSLRNKDVKGALGKLVGRLSTVKGGAAEM*

>MmOR7.6.18
----MGKLNHT--YLTEFILLGLSSDHQTQILLFVVFLIIYLITVFGNLLIILLIHVDSRLHTPMYFFLK
ILSFNDLCFSTTIVPKMLVHFLGVRKTISFAGCSVQMFSFLIMGCTESSLLAVMSYDRYIAVCKPLHYST
IMTHKVCVLLVVGSWTSGIFVSVVDTSFTLCLTYRGPNIINHYFCEPPALLKLASEETYTAEMVIFAMGI
IILLGPVSLILFSYWNIISTVVQIQSGEGRLKVFSTCSSHFIVVIFFYGSTIFTYM-QPNSKK-MNEKDK
VISVFYSIVTSMMNPFIYSLRNKDVKGALKKVLKREIR*--------

>MmOR2.2.28
--MDHMKTNFT---VTEFVFLGLSSDPKVQLVLFFVFLFFYMLSVVGNIIIITIIQIEPRLKTPMYFFLA
NLSFLDICYTSTNVPQMLSNMVGSKKTIPFASCATQMYFSLSFGMIECVLLGVMAYDRYVAICHPLHYTV
IMDQNTCIQLAAISWSSSFLSSMVINVLTLSLPYCGPNVLNHFFCEVPSVLRLACTDTSLTELVVFVFSI
IIVFIPFLLIIVSYARILLSVLRMRSASGRHKALSTCASHLTVVTLFYGTAIFMYM-RPQSKS-SRAGGK
VIAVFYTVVTPMLNPLIYSLRNQDVKGSLRRAITKQKT*--------

>MmOR6.3.21
--------NQT--WVTDFILVGLQLSAGIEMFLFWIFSLLYIFSLLANGIILVVICLDPKLHTPMYFFLS
HLAILDISYASNNVPKMLSNLINQKRTISFAPCITQTFLYLAFAASECLILAAMSYDRFVAICHPLHYTV
IMSWKVCVALAVTSWSCGFSLSVAHTILLLRLPFCGPQEINHLFCEILAVLKLACADTLINQIVILAACV
FVLVGPLCSMLVSYTHILWTILKMQSKEGRRKAFSTCSSHLCVVGLFFGIAMLVYM-VPDSDQ-REEQEK
ILSLFHSLFNPMLNPLIYSLRNTQVKEAFHRALQKKRSV*-------

>HsOR7.6.13
----MEG-NQT--WITDITLLGFQVGPALAILLCGLFSVFYTLTLLGNGVIFGIICLDSKLHTPMYFFLS
HLAIIDMSYASNNVPKMLANLMNQKRTISFVPCIMQTFLYLAFAVTECLILVVMSYDRYVAICHPFQYTV
IMSWRVCTILVLTSWSCGFALSLVHEILLLRLPFCGPRDVNHLFCEILSVLKLACADTWVNQVVIFATCV
FVLVGPLSLILVSYMHILGAILKIQTKEGRIKAFSTCSSHLCVVGLFFGIAMVVYM-VPDSNQ-REEQEK
MLSLFHSVFNPMLNPLIYSLRNAQLKGALHRALQRKRSMRTVYGLCL

>MmOR6.3.15
-----MRANQT--WITEVTLLGFQADLSVECFLFGLFSLFYSFTLLGNGIILVVICLDNRLHIPMYFFLS
HLAIVDMSYASNNVPKMLANLVTQRRTISFILCIMQTFLYLAFACTECLILVVMSYDRFVAICHPLHYTV
IMSWKVCTILAAVSWIAGFLLALVHLVLILKLPFCGPHEINHFFCEILSVLKLACADTTLNQVVILAACV
FILVGPLCLVLVSYTRILVTILRIQSGEGRRKAFITCSSHLCVVGLFFGSAIVMYM-APKSQH-PELQQK
ILSLFYSLFNPMLNP-------PDLLP--EE--C*------------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>SOR2A6
-----MEGNKT--WITDITLPRFQVGPALEILLCGLFSAFYTLTLLGNGVIFGIICLDCKLHTPMYFFLS
HLAIVDISYASNYVPKMLTNLMNQESTISFFPCIMQTFLYLAFAHVECLILVVMSYDRYADICHPLRYNS
LMSWRVCTVLAVASWVFSFLLALVPLVLILSLPFCGPHEINHFFCEILSVLKLACADTWLNQVVIFAACV
FILVGPLCLVLVSYLRILAAILRIQSGEGRRKAFSTCSSHLCVVGLFFGSAIVTYM-APKSRH-PEEQQK
VLSLFYSLFNPMLNPLIYSLRNAEVKGALRRAL-RKERLT-------

>HsOR7.6.15
-----MEGNKT--WITDITLPRFQVGPALEILLCGLFSAFYTLTLLGNGVIFGIICLDCKLHTPMYFFLS
HLAIVDISYASNYVPKMLTNLMNQESTISFFPCIMQTFLYLAFAHVECLILVVMSYDRYADICHPLRYNS
LMSWRVCTVLAVASWVFSFLLALVPLVLILSLPFCGPHEINHFFCEILSVLKLACADTWLNQVVIFAACV
FILVGPLCLVLVSYLRILAAILRIQSGEGRRKAFSTCSSHLCVVGLFFGSAIVTYM-APKSRH-PEEQQK
VLSLFYSLFNPMLNPLIYSLRNAEVKGALRRALRKERLT*-------

>MmOR6.3.12
-----MTENQT--WIPEFTLQGFLLSPRMQMLLCGLFSLLYTFTLLGNGVILGLIWLDCRLHTPMYFFLS
HLAIVDISYATNNVPKMLANLLAKKKSISFAPCIMQTFLYMAFAHTECLILVMMSYDRYAAICQPLQYSV
IMSWKVCTIMAVASWACGSLLALVHVVLILRLPFCGLHEINHFFCEILSVLKLVCADTTLNQIVIFAGSV
FILVGPLCFVLVSYTRILIAILKIQSGEGRRKAFSTCSSHLCVVGLFFGSAIVMYM-APKSQH-PETQQK
VLSLFYSLFNPMLNPLIYSLRNAEVKGAVKRVLWKQRSR*-------

>HsOR7.6.10
----MTK-NQT--WVTEFILLGFPLSLRIQMLLSGLFSLLYVFTLLGNGAILGLIWLDSRLHTPMYFFLS
HLAIIDISYASNNVPKMLTNLLNKRKTISFVPCTMQTFLYMAFAHTECLILVMMSYDRYMAICHPLQYSV
IMRWGVCTVLAVTSWACGSLLALVHVVLILRLPFCGPHEINHFFCEILSVLKLACADTWLNQVVIFAASV
FILVGPLCLVLVSYSRILAAILRIQSGEGRRKAFSTCSSHLCMVGLFFGSAIVMYM-APKSRH-PEEQQK
VLSLFYSLFNPMLNPLIYSLRNAEVKGALKRVLWKQRSK*-------

>MmOR6.3.25
-----MEENQT--TVTEFILLGFCLGPRIHLVLFLLFSLFYTLTILGNGTILAMICLDSRLHTPMYFFLS
HLAIVDMAYACNTVPQTLINLLDETRPITFAGCMTQTYLFLTFAITECLLLVVMSYDRYVAICHPLHYTV
IMNWRVCTIMAAVSWIVSFLLSLVHLLLILRLPFCGPHEINHFFCEILSVLKLACADTTLNQVVIFAACV
FTLVGPLCFVLVSYTRILVAILRIQSGERRRKAFSTCSSHLCVVGLFFGSAIVMYM-APKSQH-PEEQQK
ILFLFYSFFNPMLNPLIYSLRNAEVKGALRRALCKHSCLVWCSHHKP

>MmOR6.3.24
-----MEENQT--MVTEFVLLGFCLGPRIHLVLFLLFSLFYTLTILGNGTILAMICLDSRLHTPMYFFLS
HLAIVDMAYACNTVPQTLINLLDETRPITFAGCMTQTFLFLAFAHTECVLLVVMSYDRYVAICHPLHYTV
IMNWRVCTILAAVSWIFSFLLALVHLVLILRLPFCGPHEINHFFCEILSVLKLACADTTLNQVVIFAACV
FILVAPLCFVLVSYTRILVAILRIQSGEGRRKAFSTCSSHLCVVGLFFGSAIVMYM-APKSQH-PEEQQK
VLFLFYSFFNPMLNPLIYSLRNAEVKGALKRSLCKESHSWLVWCSDH

>MmOR6.3.23
-----MKENQT--MVTEFILLGFCLGPRIHVILFALFSVCYIFTLLGNGFTLGLICLEPRLHSPMYFFLS
NLATVDIAYACNTVPQTLVNLLDETKPISFAGCMMQTYLFLTFGSTECVLLVVMSYDRYVAICHPLHYTV
IMNWRVCTIMAAVSWIFSFLLALVHLVLILRLPFCGPHEVNHFFCEILSVLKLACADTTLNQVVIFAACV
FALVGPLCLVLVSYTRILVTILRIQSGEGRRKAFSTCSSHLCVVGLFFGSAIVMYI-APKSQH-PEELQK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
ILFLFYSFFNPMLNPLIYSLRNAEVKGALRRSLCNENHSQLV*----

>HsOR7.6.19
-----MGENQT--MVTEFLLLGFLLGPRIQMLLFGLFSLFYIFTLLGNGAILGLISLDSRLHTPMYFFLS
HLAVVDIAYTRNTVPQMLANLLHPAKPISFAGCMTQTFLCLSFGHSECLLLVLMSYDRYVAICHPLRYSV
IMTWRVCITLAVTSWTCGSLLALAHVVLILRLPFSGPHEINHFFCEILSVLRLACADTWLNQVVIFAACV
FFLVGPPSLVLVSYSHILAAILRIQSGEGRRKAFSTCSSHLCVVGLFFGSAIIMYM-APKSRH-PEEQQK
VFFLFYSFFNPTLNPLIYSLRNGEVKGALRRALGKESHS*-------

>HsOR7.6.23
-----MGENQT--MVTEFLLLGFLLGPRIQMLLFGLFSLFYIFTLLGNGAILGLISLDSRLHTPMYFFLS
HLAVVDIAYTRNTVPQMLANLLHPAKPISFAGCMTQTFLCLSFGHSECLLLVLMSYDRYVAICHPLRYSV
IMTWRVCITLAVTSWTCGSLLALAHVVLILRLPFSGPHEINHFFCEILSVLRLACADTWLNQVVIFAACV
FFLVGPPSLVLVSYSHILAAILRIQSGEGRRKAFSTCSSHLCVVGLFFGSAIIMYM-APKSRH-PEEQQK
VFFLFYSFFNPTLNPLIYSLRNGEVKGALRRALGKESHS*-------

>SOR2A1
-----MGENQT--MVTEFLLLGFLLGPRIQMLLFGLFSLFYIFTLLGNGAILGLISLDSRLHTPMYFFLS
HLAVVDIAYTRNTVPQMLANLLHPAKPISFAGCMTQTFLCLSFGHSECLLLVLMSYDRYVAICHPLRYSV
IMTWRVCITLAVTSWTCGSLLALVHVVLILRLPFCGPHEINHFFCEILSVLRLACADTWLNQVVIFAACM
FILVGPLCLVLVSYSHILAAILRIQSGEGRRKAFSTCSSHLCVVGLFFGSAIVMYM-APKSRH-PEEQQK
VLFLFYSSFNPMLNPLIYNLRNVEVKGALRRALCKESHS--------

>HsOR7.6.12
--------NQT--WITEVILLGFQVDPALELFLFGFFLLFYSLTLMGNGIILGLIYLDSRLHTPMYVFLS
HLAIVDMSYASSTVPKMLANLVMHKKVISFAPCILQTFLYLAFAITECLILVMMCYDRYVAICHPLQYTL
IMNWRVCTVLASTCWIFSFLLALVHITLILRLPFCGPQKINHFFCQIMSVFKLACADTRLNQVVLFAGSA
FILVGPLCLVLVSYLHILVAILRIQSGEGRRKAFSTCSSHLCVVGLFFGSAIVMYM-APKSSH-SQERRK
ILSLFYSLFNPILNPLIYSLRNAEVKGALKRVLWKQRSM*-------

>MmOR6.3.14
--------NQT--WITEVILLGFQVDPSLEMLLFGLFLLFYCLTLMGNGIILGLICLDARLHTPMYFFLS
HLAIVDMSYASSTAPKMLTNMVMHQKSISFASCILQTFLYLAFAVTECLILVVMSYDRFVAICHPLKYTL
IMSWRVCSILAATCWVFSFLLASLHITLILRLPFCGPQKVNHFFCQIMSVFRLACADTRLNQVVLFAGSV
MVLLGPLCLVLVSYTRILVAILGIHSGEGRRKAFSTCSSHLCVVGLFFGCAIAMYM-APKSKH-SQEQRK
ILSLFYSLFNPMLNPLIYSLRNTEVKGALRRVLWKQRSL*-------

>HsOR6.4.1
-----MGDNIT--SIREFLLLGFPVGPRIQMLLFGLFSLFYVFTLLGNGTILGLISLDSRLHAPMYFFLS
HLAVVDIAYACNTVPRMLVNLLHPAKPISFAGRMMQTFLFSTFAVTECLLLVVMSYDLYVAICHPLRYLA
IMTWRVCITLAVTSWTTGVLLSLIHLVLLLPLPFCRPQKIYHFFCEILAVLKLACADTHINENMVLAGAI
SGLVGPLSTIVVSYMCILCAILQIQSREVQRKAFRTCFSHLCVIGLVYGTAIIMYV-GPRYGN-PKEQKK
YLLLFHSLFNPMLNPLICSLRNSEVKNTLKRVLGVERAL*-------

>SOR2A10
----MGD-NIT--SIREFLLLGFPVGPRIQMLLFGLFSLFYVFTLLGNGTILGLISLDSRLHAPMYFFLS
HLAVVDIAYACNTVPRMLVNLLHPAKPISFAGRMMQTFLFSTFAVTECLLLVVMSYDLYVAICHPLRYLA
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

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IMTWRVCITLAVTSWTTGVLLSLIHLVLLLPLPFCRPQKIYHFFCEILAVLKLACADTHINENMVLAGAI
SGLVGPLSTIVVSYMCILCAILQIQSREVQRKAFCTCFSHLCVIGLFYGTAIIMYV-GPRYGN-PKEQKK
YLLLFHSLFNPMLNPLICSLRNSEVKNTLKRVLG-VERAL-------

>HsOR7.6.21
-----MGDNIT--SITEFLLLGFPVGPRIQMLLFGLFSLFYVFTLLGNGTILGLISLDSRLHAPMYFFLS
HLAVVDIAYACNTVPRMLVNLLHPAKPISFAGRMMQTFLFSTFAVTECLLLVVMSYDLYVAICHPLRYLA
IMTWRVCITLAVTSWTTGVLLSLIHLVLLLPLPFCRPQKIYHFFCEILAVLKLACADTHINENMVLAGAI
SGLVGPLSTIVVSYMCILCAILQIQSREVQRKAFCTCFSHLCVIGLFYGTAIIMYV-GPRYGN-PKEQKK
YLLLFHSLFNPMLNPLICSLRNSEVKNTLKRVLGVERAL*-------

>MmOR6.3.22
--------NMT--LITEFILLGFPLSPRMQMLLFALFSLFYAFTLLGNGTIVGLICLDSRLHTPMYFFLS
HLAIVDIAYACNTVPQMLVNLLDPVKPISYAGCMTQTFLFLTFAITECLLLVVMSYDRYVAICHPLRYSA
IMSWRVCSTMAVTSWIIGVLLSLIHLVLLLPLPFCVSQKVNHFFCEITAILKLACADTHLNETMVLAGAV
SVLVGPFSSIVVSYACILGAILKIQSEEGQRKAFSTCSSHLCVVGLFYGTAIVMYV-GPRHGS-PKEQKK
YLLLFHSLFNPMLNPLIYSLRNSDVKNTLKRVL-RTQRAL*------

>SMOR261-1
-----MGGNQT--LITQFILLGFPLSPRMQMLLFALFSLFYAFTLLGNGTILGLICLDSRLHTPMYFFLS
HLAIVDIAYACNTVPQMLVNLMDPAKPISFAGCMTQTFLFLTFAHTECLLLVVMSYDRYVAICHPLRYTA
IMSWRVCVILVLTSWILGVLLALVHLVLLLPLPFCGSQKVNHFFCEIIAVLKLACSDTRINELMVLAGAV
SVLVGPFSSIVVSYAHILCAILKIKSQQGRQKAFSTCSSHLCVVGLFYGTAIVMYI-GPQHGK-SNEQKK
YLLLFHSLFNPMLNPLIYSLRNKEVKSALKRTLLKEDTS--------

>MmOR6.3.13
-----MGGNQT--LITQFILLGFPLSPRMQMLLFALFSLFYAFTLLGNGTILGLICLDSRLHTPMYFFLS
HLAIVDIAYACNTVPQMLVNLMDPAKPISFAGCMTQTFLFLTFAHTECLLLVVMSYDRYVAICHPLRYTA
IMSWRVCVILVLTSWILGVLLALVHLVLLLPLPFCGSQKVNHFFCEIIAVLKLACSDTRINELMVLAGAV
SVLVGPFSSIVVSYAHILCAILKIKSQQGRQKAFSTCSSHLCVVGLFYGTAIVMYI-GPQHGK-SNEQKK
YLLLFHSLFNPMLNPLIYSLRNKEVKSALKRTLLKEDTS*-------

>HsOR7.6.11
----MGG-NQT--SITEFLLLGFPIGPRIQMLLFGLFSLFYIFILLGNGTILGLISLDSRLHTPMYFFLS
HLAVVDIACACSTVPQMLVNLLHPAKPISFAGCMTQMFLFLSFAHTECLLLVVMSYDRYVAICHPLRYST
IMTWKVCITLALTSWILGVLLALVHLVLLLPLSFCGPQKLNHFFCEIMAVLKLACADTHINEVMVLAGAV
SVLVGAFFSTVISYVHILCAILKIQSGEGCQKAFSICSSHLCVVGLFYGTAIIMYV-EPQYES-PKEQKK
YLLLFHSLFNPMLNPLIYSLRNKEVQGTLKRMLEKKRTS*-------

>HsOR9.5.1
----MQGENFT--IWSIFFLEGFSQYPGLEVVLFVFSLVMYLTTLLGNSTLILITILDSRLKTPMYLFLG
NLSFMDICYTSASVPTLLVNLLSSQKTIIFSGCAVQMYLSLAMGSTECVLLAVMAYDRYVAICNPLRYSI
IMNRCVCARMATVSWVTGCLTALLETSFALQIPLCG-NLIDHFTCEILAVLKLACTSSLLMNTIMLVVSI
LLLPIPMLLVCISYIFILSTILRITSAEGRNKAFSTCGAHLTVVILYYGAALSMYL-KPSSSN-AQKIDK
IISLLYGVLTPMLNPIIYSLRNKEVKDAMKKLLGKITLHQTHEHL*-

>SOR2K2
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MQGENFT--IWSIFFLEGFSQYPGLEVVLFVFSLVMYLTTLLGNSTLILITILDSRLKTPMYLFLG
NLSFMDICYTSASVPTLLVNLLSSQKTIIFSGCAVQMYLSLAMGSTECVLLAVMAYDRYVAICNPLRYSI
IMNRCVCARMATVSWVTGCLTALLETSFALQIPLCG-NLIDHFTCEILAVLKLACTSSLLMNTIMLVVSI
LLLPIPMLLVCISYIFILSTILRITSAEGRNKAFSTCGAHLTVVILYYGAALSMYL-KPSSSN-AQKIDK
IISLLYGVLTPMLNPIIYSLRNKEVKDAMKKLLGKITLHQTHEHL--

>SMOR262-1
----MPGENVT--VWSLFFLEGFSRYPRLEIVLFVFSLVMYLVTILGNCTLILITVLDSRLQTPMYLFLG
NLSFMDICYTSASIPTLLVNLLSSKKTIIFSGCAVQMYLSLSMGSTECILLAVMAYDRYVAICNPLRYPI
IMNRQVCVQMATISWVTGCLTALLETSFALQIPLCG-NIINHFTCEILAVLKLACVSSLLMDLVMLVVSI
LLLPIPMLLICISYGFILSTILRISSTEGRNKAFSTCGAHLTVVILYYGAALSMYL-KPSSSN-SQEIDK
IISLLYGVLTPMLNPIIYSLRNKEVKDAVIKLLGKVPLAPSV-----

>MmOR4.3.1
----MPGENVT--VWSLFFLEGFSRYPRLEIVLFVFSLVMYLVTILGNCTLILITVLDSRLQTPMYLFLG
NLSFMDICYTSASIPTLLVNLLSSKKTIIFSGCAVQMYLSLSMGSTECILLAVMAYDRYVAICNPLRYPI
IMNRQVCVQMATISWVTGCLTALLETSFALQIPLCG-NIINHFTCEILAVLKLACVSSLLMDLVMLVVSI
LLLPIPMLLICISYGFILSTILRISSTEGRNKAFSTCGAHLTVVILYYGAALSMYL-KPSSSN-SQEIDK
IISLLYGVLTPMLNPIIYSLRNKEVKDAMIKLLGKVPLAPSV*----

>HsOR9.4.1
----MFPANWT--SVKVFFFLGFFHYPKVQVIIFAVCLLMYLITLLGNIFLISITILDSHLHTPMYLFLS
NLSFLDIWYSSSALSPMLANFVSGRNTISFSGCATQMYLSLAMGSTECVLLPMMAYDRYVAICNPLRYPV
IMNRRTCVQIAAGSWMTGCLTAMVEMMSVLPLSLCGNSIINHFTCEILAILKLVCVDTSLVQLIMLVISV
LLLPMPMLLICISYAFILASILRISSVEGRSKAFSTCTAHLMVVVLFYGTALSMHL-KPSAVD-SQEIDK
FMALVYAGQTPMLNPIIYSLRNKEVKVALKKLLIRNHFNTAFISILK

>SOR13F1
----MFPANWT--SVKVFFFLGFSHYPKVQVIIFAVCLLMYLITLLGNIFLISITILDSHLHTPMYLFLS
NLSFLDIWYSSSALSPMLANFVSGRNTISFSGCATQVYLSLAMGSTECVLLPMMAYDRYVAICNPLRYPI
IMNRRTCVQIAAGSWMTGCLTAMVEMMSVLPLSLCGNSIINHFTCEILAILKLVCVDTSLVQLIMLVISV
LLLPMPMLLICISYAFILASILRISSVEGRSKAFSTCTAHLMVVVLFYGTALSMHL-KPSAVD-SQETDK
FMALVYAGQTPMLNPIIYSLRNKEVKVALKKLLIRNHFNTAFISILK

>MmOR4.2.1
----MVQGNWT--SVTVFVFLGFSHYPRIEVTVFVLCLLMYLITLLGNTILISITILDSHLHTPMYFFLS
NLSFLDIWYTSSALTPMLANFVSGKNTISFSGCASQMYFSLAMGSTECVLLSMMAYDRYVAICNPLRYPI
IMNRRVCVQIAGSSWVTGCLTALVETGPVIHLSLCGNSIINHFTCEILALLKLACGDTSMVQLIMLVISI
LLLPLPMLLICVSYASILSNILRISSMDGRSKAFSTCAAHLTVVVLFYGTALSMYL-KPSSVN-SQEIDK
FMALIYTGLTPMLNPIIYSLRNKEVKMAVKKLLMKNPFSAILTSVLK

>HsOR9.4.11
----METRNYS--AMTEFFLVGLSQYPELQLFLFLLCLIMYMIILLGNSLLIIITILDSRLHTPMYFFLG
NLSFLDICYTSSSIPPMLIIFMSERKSISFIGCALQMVVSLGLGSTECVLLAVMAYDHYVAICNPLRYSI
IMNGVLYVQMAAWSWIIGCLTSLLQTVLTMMLPFCGNNVIDHITCEILALLKLVCSDITINVLIMTVTNI
VSLVILLLLIFISYVFILSSILRINCAEGRKKAFSTCSAHSIVVILFYGSALFMYM-KPKSKN-TNTSDE
IIGLSYGVVSPMLNPIIYSLRNKEVKEAVKKVLSRHLHLLKM*----
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>SOR13D1
DLEHMETRNYS--AMTEFFLVGLSQYPELQLFLFLLCLIMYMIILLGNSLLIIITILDSRLHTPMYFFLG
NLSFLDICYTSSSIPPMLIIFMSERKSISFIGCALQMVVSLGLGSTECVLLAVMAYDHYVAICNPLRYSI
IMNGVLYVQMAAWSWIIGCLTSLLHTVLTMMLPFCGNNVIDHITCEILALLKLVCSDITINVLIMTVTNI
VSLVILLLLIFISYVFILSSILRINCAEGRKKAFSTCSAHLIVVILFYGSALFMYM-KPKSKN-TNTSDE
IIGLSYGVVSPMLNPIIYSLRNKEVKEAVKKVLSRHLHLLKMERPLE

>MmOR4.2.5
----MKMGNYS--AVTEFFLVGLSQYPELQLFLFVLCLIMYLIILLGNSLLIIISILDSRLHTPMYFFLG
NLSFLDICYTSSSIPQMLIMFMSARKSISFLGCALQMVISLGLGSTECVLLAVMAYDRYAAICNPLRYPI
IMNKVLYVHMAVWSWVIGCLNSLVQTVLTMVLPFCGNNVIDHLTCEILALLKLVCSDITMNVLIMTVASI
VLLMIPLMLIFVSYIFILSSILRINSAEGRKKAFSTCSAHLTVVILFYGSALFMYM-KPKSKY-TKASDE
IIGLSYGVVTPMLNPIIYSLRNKEVKEAVKKILSKRLYLRKI*----

>HsOR9.1.3
----MEKANET-SPVMGFVLLRLSAHPELEKTFFVLILLMYLVILLGNGVLILVTILDSRLHTPMYFFLG
NLSFLDICFTTSSVPLVLDSFLTPQETISFSACAVQMALSFAMAGTECLLLSMMAFDRYVAICNPLRYSV
IMSKAAYMPMAASSWAIGGAASVVHTSLAIQLPFCGDNVINHFTCEILAVLKLACADISINVISMEVTNV
IFLGVPVLFISFSYVFIITTILRIPSAEGRKKVFSTCSAHLTVVIVFYGTLFFMYG-KPKSKD-SMGADK
LIPLFYGVVTPMLNPIIYSLRNKDVKAAVRRLL-RPKGFTQ*-----

>SOR13C7
----MVSANQT-ASVTEFILLGLSAHPKLEKTFFVLILLMYLVILLGNGVLILVTVSNSHLHMPMYFFLG
NLSFLDICYTTYSVPLILDSFLTPRKTISFSACAVQMFLSFAMGATECVLLSMMAFDRYVAICNPLRYPV
VMSKAAYMPMAVGSWVAGSTASMVQTSLAMRLPFCGDNIINHFTCEILAVQKLACADISVNVISMGVTNV
IFLGVPVLFISFSYVFIIATILRIPSAEGRKKAFSTCSAHLTVVVIFYGTILFMYG-KPKSKD-PLGADK
LISLFYGVVTPMLNPIIYSLRNKDVKAAVRDLAFQKCFA--------

>MmOR4.1.4
----MERSNKT-TPVSSFILLGLSAHPKLEKTFFVLILLMYLVILLGNVVLILVSILDSHLHTPMYFFLG
NLSFLDICYTTSSVPLILDSFLTPRKTISFSGCAVQMFLSFAMGATECVLLGMMAFDRYVAICNPLRYPV
VMSKAAYVPMAAGSWVSGSITATVQISLAMTLPFCGDNVINHFTCEILAVLKLACADISINVISMAVANA
MFLGVPVLFIFVSYIFILSTILRIPSAEGRKKAFSTCSAHLTVVLVFYGTILFMYG-KPKSKD-PLGADK
LISLFYGVVTPMLNPIIYSLRNKDVKAAVTNLVGQKHFKW*------

>MmOR4.1.8
----MDRSNET-APLSGFILLGLSAHPKLEKTFFVLILMMYLVILLGNGVLILVSILDSHLHTPMYFFLG
NLSFLDICYTTSSVPLILDSFLTPRKTISFSGCAVQMFLSFAMGATECVLLSMMAFDRYVAICNPLRYPV
VMNKAAYVPMAASSWAGGITNSVVQTSLAMRLPFCGDNVINHFTCEILAVLKLACADISINVISMVVANM
IFLAVPVLFIFVSYVFILVTILRIPSAEGRKKAFSTCSAHLTVVLVFYGTILFMYG-KPKSKD-PLGADK
LISLFYGVVTPMLNPIIYSLRNKDVRAAVRNLVGQKHLTE*------

>MmOR4.1.6
----MEGANQS--TVAEFVLLGLSDHPKLEKTFFVLILLMYLVILLGNGVLILVSILDSHLHTPMYFFLG
NLSFLDICYTTSSIPLVLDGFLTPRKTISFSGCAVQMFLSFAMGATECVLLGMMAFDRYVAICNPLRYPV
VMNKSAYVPMAVSSWVAGGANSLVQISLAVQLPFCGDNVINHFTCEILAVLKLACADISINVISMGVANV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IFLGVPVLFIFVSYIFILSTILRIPSAEGRKKAFSTCSAHLTVVLVFYGTILFMYG-KPKSKD-PLGADK
LISLFYGVLTPMLNPIIYSLRNKDVKAAVRNLVGQKCLIQ*------

>MmOR4.1.7
----MDVSNQT--TVTEFVLLGLSAHPKLEKTFFVLILSMYLVILLGNGVLILVSILDSHLHTPMYFFLG
NLSFLDICYTTSSVPLVLDGFLTPRKTISFSGCAVQMFLSFAMGATECVLLGMMAFDRYVAICNPLRYPV
VMNKAAYVPMAVSSWVAGGANSLVQISLAVQLPFCGDNVINHFICEILAVLKLACADISINVISMGVANV
IFLGVPVLFIFVSYIFILSTILRIPSAEGRKKAFSTCSAHLTVVIIFYGTILFMYG-KPKSKD-PLGADK
LISLFYGLLTPMLNPIIYSLRNKDVKAAVRNLASHRCLTF*------

>HsOR9.4.4
----MERTNDS--TSTEFFLVGLSAHPKLQTVFFVLILWMYLMILLGNGVLISVIIFDSHLHTPMYFFLC
NLSFLDVCYTSSSVPLILASFLAVKKKVSFSGCMVQMFISFAMGATECMILGTMALDRYVAICYPLRYPV
IMSKGAYVAMAAGSWVTGLVDSVVQTAFAMQLPFCANNVIKHFVCEILAILKLACADISINVISMTGSNL
IVLVIPLLVISISYIFIVATILRIPSTEGKHKAFSTCSAHLTVVIIFYGTIFFMYA-KPESKA-SVDSGN
LISLFYGVMTPMLNPLIYSLRNKDVKAAVKNILCRKNFSDGK*----

>MmOR4.2.3
----MEMTNDS--MLTEFLLVGLSDHPKLQTVLFVLVLCMYLMILLGNGVLIAVVIHDIRLHTPMYFFLC
NLSFLDICYTSSSVPLILSSFLTVRKRVSFSECMIQMFFSFAMGATECVLLGTMALDRFMAICYPLRYPV
IMSKDTYVPMAAGCWVAGLVDSVVQTSLAVQLPFCTNNVIHHFVCEILGILELACADISINVISLTGSNL
LFLAVPLLVIAVSYMFIIATILRIPSAEGKRKAFSTCSAHLTVVIIFYGTIFSMYA-KPKSKD-TAGAGH
LISLFYGVMTPMLNPLIYSLRNKDVKAAVQNMLGRKTLSKM*-----

>HsOR9.4.3
----MGEINQT--LVSEFLLLGLSGYPKIEIVYFALILVMYLVILIGNGVLIIASIFDSHFHTPMYFFLG
NLSFLDICYTSSSVPSTLVSLISKKRNISFSGCAVQMFFGFAMGSTECLLLGMMAFDRYVAICNPLRYPI
ILSKVAYVLMASVSWLSGGINSAVQTLLAMRLPFCGNNIINHFACEILAVLKLACADISLNIITMVISNM
AFLVLPLMVIFFSYMFILYTILQMNSATGRRKAFSTCSAHLTVVIIFYGTIFFMYA-KPKSQD-LIGEEK
LISLFYGVVTPMLNPILYSLRNKDVKAAVKYLLNKKPIH*-------

>SOR13C3
HVRSSFDFNQT--LVSEFLLLGLSGYPKIEIVYFALILVMYLVILIGNGVLIIASIFDSHFHTPMYFFLG
NLSFLDICYTSSSVPSTLVSLISKKRNISFSGCAVQMFFGFAMGSTECLLLGMMAFDRYVAICNPLRYPI
ILSKVAYVLMASVSWLSGGINSAVQTLLAMRLPFCGNNIINHFACEILAVLKLACADISLNIITMVISNM
AFLVLPLMVIFFSYMFILYTILQMNSATGRRKAFSTCSAHLTVVIIFYGTIFFMYA-KPKSQD-LIGEEK
LISLFYGVVTPMLNPILYSLRNKDVKAAVKYLLNKKPIH--------

>MmOR4.2.2
----MDKNNQT--FVSEFLLLGLAGYPKTEIIYFVIVLVMYLVILTGNGVLIIASIFDSRLHTPMYFFLG
NLSFLDICYTTSSVPSTLVSLISKKRNISFSGCAVQMFFGFAMGSTECLLLGMMAFDRYVAICNPLRYSI
IMSKEVYVFMASASWFSGSINSVVQTSLAMRLPFCGNNVINHFTCEVLAVLKLACADISLNIITMVISNM
AFLVLPLLVIFFSYLFILHTILRMNSATGRRKAFSTCSAHLTVVIIFYGTIFSMYA-KPKSQD-LTGQDK
IISLFYGVVTPMLNPIIYSLRNKDVKAAVKYIL-KQKYVP*------

>HsOR9.4.2
----MDKINQT--FVREFILLGLSGYPKLEIIFFALILVMYVVILIGNGVLIIASILDSRLHMPMYFFLG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
NLSFLDICYTTSSIPSTLVSLISKKRNISFSGCAVQMFFGFAMGSTECFLLGMMAFDRYVAICNPLRYPI
IMNKVVYVLLTSVSWLSGGINSTVQTSLAMRWPFCGNNIINHFLCEILAVLKLACSDISVNIVTLAVSNI
AFLVLPLLVIFFSYMFILYTILRTNSATGRHKAFSTCSAHLTVVIIFYGTIFFMYA-KPKSQD-LLGKDN
LVSMFYGVVTPMLNPIIYSLRNKDVKAAIKYLLSRKAINQ*------

>SOR13C4
----MDKINQT--FVREFILLGLSGYPKLEIIFFALILVMYVVILIGNGVLIIASILDSRLHMPMYFFLG
NLSFLDICYTTSSIPSTLVSLISKKRNISFSGCAVQMFFGFAMGSTECFLLGMMAFDRYVAICNPLRYPI
IMNKVVYVLLTSVSWLSGGINSTVQTSLAMRWPFCGNNIINHFLCEILAVLKLACSDISVNIVTLAVSNI
AFLVLPLLVIFFSYMFILYTILRTNSATGRHKAFSTCSAHLTVVIIFYGTIFFMYA-KPKSQD-LLGKDN
LVSMFYGVVTPMLNPIIYSLRNKDVKAAIKYLLSRKAINQ-------

>HsOR9.4.7
----MEWENHT--ILVEFFLKGLSGHPRLELLFFVLIFIMYVVILLGNGTLILISILDPHLHTPMYFFLG
NLSFLDICYTTTSIPSTLVSFLSERKTISLSGCAVQMFLGLAMGTTECVLLGMMAFDRYVAICNPLRYPI
IMSKDAYVPMAAGSWIIGAVNSAVQSVFVVQLPFCRNNIINHFTCEILAVMKLACADISDNEFIMLVATT
LFILTPLLLIIVSYTLIIVSIFKISSSEGRSKASSTCSAHLTVVIIFYGTILFMYM-KPKSKE-TLNSDD
IISMFYGVMTPMMNPLIYSLRNKDVKEAVKHLLNRRFFSK*------

>HsOR9.4.6
----MEWENHT--ILVEFFLKGLSGHPRLELLFFVLIFIMYVVILLGNGTLILISILDPHLHTPMYFFLG
NLSFLDICYTTTSIPSTLVSFLSERKTISLSGCAVQMFLSLAMGTTECVLLGVMAFDRYVAICNPLRYPI
IMSKDAYVPMAAGSWIIGAVNSAVQTVFVVQLPFCRNNIINHFTCEILAVMKLACADISGNEFILLVTTT
LFLLTPLLLIIVSYTLIILSIFKISSSEGRSKPSSTCSARLTVVITFCGTIFLMYM-KPKSQE-TLNSDD
LIFIFYRVMTPMMNPLIYSLRNKDVKEAVKHLLRRKNFNK*------

>HsOR9.4.8
----MEWENQT--ILVEFFLKGHSVHPRLELLFFVLIFIMYVVILLGNGTLILISILDPHLHTPMYFFLG
NLSFLDICYTTTSIPSTLVSFLSERKTISFSGCAVQMFLGLAMGTTECVLLGMMAFDRYVAICNPLRYPI
IMSKNAYVPMAVGSWFAGIVNSAVQTTFVVQLPFCRKNVINHFSCEILAVMKLACADISGNEFLMLVATI
LFTLMPLLLIVISYSLIISSILKIHSSEGRSKAFSTCSAHLTVVIIFYGTILFMYM-KPKSKE-TLNSDD
IISMFYGVMTPMMNPLIYSLRNKDVKEAVKHLPNRRFFSK*------

>SOR13C9
----MEWENQT--ILVEFFLKGHSVHPRLELLFFVLIFIMYVVILLGNGTLILISILDPHLHTPMYFFLG
NLSFLDICYTTTSIPSTLVSFLSERKTISFSGCAVQMFLGLAMGTTECVLLGMMAFDRYVAICNPLRYPI
IMSKNAYVPMAVGSWFAGIVNSAVQTTFVVQLPFCRKNVINHFSCEILAVMKLACADISGNELLMLVATI
LFTLMPLLLIVISYSLIISSILKIHSSEGRSKAFSTCSAHLTVVIIFYGTILFMYM-KPKSKE-TLNSDD
IISMFYGVMTPMMNPLIYSLRNKDVKEAVKHLPNRRFFSK-------

>MmOR4.1.1
----MAGTNHT--EVIEYVLLGLQDHHGLEIALFVLCLGIYCMTLLGNSFLVGLIVLDTHLHSPMYFFIS
NLSLIDICGTSSFTPMMLLNFLDVQRTISFPSCALQMYLTLALGTTECLLLAVMAYDRYVAICQPLRYPE
LVNGPLCIQMAGISWGTGFANSLLHSILVWHLPFCGHYIINHFFCEILAVLKLACGDISLNALILTVATA
VLTMTPLLLICLSYIFILAAILRVPSAAGRSKAFSTCSAHLTVVVIFYGTITFMYL-KP--KDQDPSVGK
IITLLYAIVAPSLNAFIYSLRNSEVKAAVTALLW-LLTRKMSHF*--
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>HsOR9.1.2
----MEPLNRT--EVSEFFLKGFSGYPALEHLLFPLCSAMYLVTLLGNTAIMAVSVLDIHLHTPVYFFLG
NLSTLDICYTPTFVPLMLVHLLSSRKTISFAVCAIQMCLSLSTGSTECLLLAITAYDRYLAICQPLRYHV
LMSHRLCVLLMGAAWVLCLLKSVTEMVISMRLPFCGHHVVSHFTCKILAVLKLACGNTSVSEDFLLAGSI
LLLPVPLAFICLSYLLILATILRVPSAARCCKAFSTCLAHLAVVLLFYGTIIFMYL-KPKSKE-AHISDE
VFTVLYAMVTTMLNPTIYSLRNKEVKEAARKVWGRSRASR*------

>SOR13J1
----MEPLNRT--EVSEFFLKGFSGYPALEHLLFPLCSAMYLVTLLGNTAIMAVSVLDIHLHTPVYFFLG
NLSTLDICYTPTFVPLMLVHLLSSRKTISFAVCAIQMCLSLSTGSTECLLLAITAYDRYLAICQPLRYRV
LMSHRLCVLLMGAAWVLCLLKSVTEMVISMRLPFCGHHVVSHFTCKILAVLKLACGNTSVSEDFLLAGSI
LLLPVPLAFICLSYLLILATILRVPSAARCCKAFSTCLAHLAVVLLFYGTIIFMYL-KPKSKE-AHISDE
VFTVLYAMVTTMLNPTIYSLRNKEVKEAARKVWGRSRASR-------

>MmOR4.1.2
----MEPSNRT--AVSEFVLKGFSGYPALERLLFPLCSVMYLVTLLGNTAIVAVSMLDARLHTPMYFFLG
NLSILDICYTSTFVPLMLVHLLSSRKTISFTGCAVQMCLSLSTGSTECLLLAVMAYDRYLAICQPLRYPV
LMSHRLCLMLAGASWVLCLFKSVAETVIAMRLPFCGHHVIRHFTCEILAVLKLTCGDTSVSDAFLLVGAI
LLLPIPLTLICLSYMLILATILRVPSATGRSKAFSTCSAHLAVVLLFYSTIIFMYM-KPKSKE-ARISDQ
VFTVLYAVVTPMLNPIIYSLRNKEVKEAARKAWGSRWACR*------

>HsOR6.2.1
----MNWVNKS--VPQEFILLVFSDQPWLEIPPFVMFLFSYILTIFGNLTIILVSHVDFKLHTPMYFFLS
NLSLLDLCYTTSTVPQMLVNICNTRKVISYGGCVAQLFIFLALGSTECLLLAVMCFDRFVAICRPLHYSI
IMHQRLCFQLAAASWISGFSNSVLQSTWTLKMPLCGHKEVDHFFCEVPALLKLSCVDTTANEAELFFISV
LFLLIPVTLILISYAFIVQAVLRIQSAEGQRKAFGTCGSHLIVVSLFYGTAISMYL-QPPSPS-SKDRGK
MVSLFCGIIAPMLNPLIYTLRNKEVKEAFKRLVAK-LNQEIRNMQMI

>SOR2B9
----MNWVNKS--VPQEFILLVFSDQPWLEIPPFVMFLFSYILTIFGNLTIILVSHVDFKLHTPMYFFLS
NLSLLDLCYTTSTVPQMLVNICNTRKVISYGGCVAQLFIFLALGSTECLLLAVMCFDRFVAICRPLHYSI
IMHQRLCFQLAAASWISGFSNSVLQSTWTLKMPLCGHKEVDHFFCEVPALLKLSCVDTTANEAELFFISV
LFLLIPVTLILISYAFIVQAVLRIQSAEGQRKAFGTCGSHLIVVSLFYGTAISMYL-QPPSPS-SKDRGK
MVSLFCGIIAPMLNPLIYTLRNKEVKEAFKRLVAKSLLNQEIRNMQM

>MmOR13.1.13
----MSVANES--ISREFILLGFSDRPWLELPLFVVFLVSYILTIFGNMMIILVSRLDSKLHTPMYFFLT
NLSLLDLCYTTSTVPQMLINICSTRKVISYGGCVAQLFIFLALGSTECFLLGVMSFDRFVAICRPLHYSV
IMHQRRCLQLAAACWISGFSNSVLQSTWTLQMPLCGHKEVDHFFCEVPALLKLSCVDTTANEAELFFISV
LFLLIPVTLILISYAFIVQAVLRIRSAEGRRKAFGTCGSHLIVVVLFYGTAIYMYL-QPPSPT-SKDRGK
MVSLFYGIITPMLNPLIYTLRNKEVKGAFKRLVTRIILSRK*-----

>MmOR13.1.12
----MSVANES--ISREFILLGFSDRPWLELPLFVVFLVSYILTIFGNMMIILVSRLDSKLHTPMYFFLT
NLSLLDLCYTTSTVPQMLINICSTRKVISYGGCVAQLFIFLALGCTECFLLGVMSFDRFVAICRPLHYSV
IMHQRRCLQLAAACWISGFSNSVLQSTWTLQMPLCGHKEVDHFFCEVPALLKLSCVDTTANEAELFFISV
LFLLIPVTLILISYAFIVQAVLRIRSAEGRRKAFGTCGSHLIVVVLFYGTAIYMYL-QPPSPT-SKDRGK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
MVSLFYGIITPMLNPLIYTLRNKEVKGAFKRLVTRIILSRK*-----

>HsOR6.2.3
----MNWVNDS--IIQEFILLGFSDRPWLEFPLLVVFLISYTVTIFGNLTIILVSRLDTKLHTPMYFFLT
NLSLLDLCYTTCTVPQMLVNLCSIRKVISYRGCVAQLFIFLALGATEYLLLAVMSFDRFVAICRPLHYSV
IMHQRLCLQLAAASWVTGFSNSVWLSTLTLQLPLCDPYVIDHFLCEVPALLKLSCVETTANEAELFLVSE
LFHLIPLTLILISYAFIVRAVLRIQSAEGRQKAFGTCGSHLIVVSLFYSTAVSVYL-QPPSPS-SKDQGK
MVSLFYGIIAPMLNPLIYTLRNKEVKEGFKRLVARVFLIKK*-----

>MmOR13.1.10
----MSWANES--ITGEFVLLGFSDQPWLEFPLFVVFLTSYIVTIFGNLNIILVSHLDPKLHTPMYFFLT
NLSVIDLCYITCTVPQMLVNLRSIRKVISFGGCVVQLFMFLALGATECVLLPVMSFDRFVAICRPLHYSV
IMHQRLCLQLAAVSWIIGFGNSVWLSILTLQLPRCGHYVIDHFLCEVPALLKLSCVDVTANEAELFFVSV
FFHLTPLSLILTSYAFIARAILKIQSAEGRQKAFGTCSSHLIVVSLFYGTALSVYF-LPPSPH-SKNRRK
MVPLFYGIIAPMLNPLIYTLRNKEVKDAFKRLIKRVFLSKN*-----

>SOR2B3
----MNWENES--SPKEFILLGFSDRAWLQMPLFVVLLISYTITIFGNVSIMMVCILDPKLHTPMYFFLT
NLSILDLCYTTTTVPHMLVNIGCNKKTISYAGCVAHLIIFLALGATECLLLAVMSFDRYVAVCRPLHYVV
IMNYWFCLRMAAFSWLIGFGNSVLQSSLTLNMPRCGHQEVDHFFCEVPALLKLSCADTKPIEAELFFFSV
LILLIPVTLILISYGFIAQAVLKIRSAEGRQKAFGTCGSHMIVVSLFYGTAIYMYL-QPPSST-SKDWGK
MVSLFYGIITSMLNSLIYSLRNKDMKEAFKRLMPRIFFCKK------

>HsOR6.3.4
----MNWENES--SPKEFILLGFSDRAWLQMPLFVVLLISYTITIFGNVSIMMVCILDPKLHTPMYFFLT
NLSILDLCYTTTTVPHMLVNIGCNKKTISYAGCVAHLIIFLALGATECLLLAVMSFDRYVAVCRPLHYVV
IMNYWFCLRMAAFSWLIGFGNSVLQSSLTLNMPRCGHQEVDHFFCEVPALLKLSCADTKPIEAELFFFSV
LILLIPVTLILISYGFIAQAVLKIRSAEGRQKAFGTCGSHMIVVSLFYGTAIYMYL-QPPSST-SKDWGK
MVSLFYGIITSMLNSLIYSLRNKDMKEAFKRLMPRIFFCKK*-----

>MmOR17.2.39
----MWINNQS--SVDDFILLGFSDRPWLETPLFVIFLVAYIFALFGNISIILVSRLDPQLDSPMYFFVS
NLSLLDLCYTTSTVPQMLVNLRGPEKTISYGGCVAQLYIFLALGSTECILLAIMAFDRFAAICRPLHYPI
IMNQKRCIHMATGTWISGFANSLVQSTLTVVAPRCGQRVIDHFFCEVPALLKLACTDTSVNEAELNVLGA
LLLLVPLSLILGTYVFIAQAVLKLRSAESRRKAFNTCASHLLVVSLFYFTAISMYV-QPPSSY-SHERGK
IMALFYGIVTPTLNPFIYTLRNKDVKAALRRALTKEFWVKARQ*---

>HsOR6.3.6
-MNDDGKVNAS--SEGYFILVGFSNWPHLEVVIFVVVLIFYLMTLIGNLFIIILSYLDSHLHTPMYFFLS
NLSFLDLCYTTSSIPQLLVNLWGPEKTISYAGCMIQLYFVLALGTTECVLLVVMSYDRYAAVCRPLHYTV
LMHPRFCHLLAVASWVSGFTNSALHSSFTFWVPLCGHRQVDHFFCEVPALLRLSCVDTHVNELTLMITSS
IFVLIPLILILTSYGAIVRAVLRMQSTTGLQKVFGTCGAHLMAVSLFFIPAMCIYL-QPPSGN-SQDQGK
FIALFYTVVTPSLNPLIYTLRNKVVRGAVKRLMGW-----------

>HsOR6.3.8
---MMIKKNAS--SEDFFILLGFSNWPQLEVVLFVVILIFYLMTLTGNLFIIILSYVDSHLHTPMYFFLS
NLSFLDLCHTTSSIPQLLVNLRGPEKTISYAGCMVQLYFVLALGIAECVLLVVMSYDRYVAVCRPLHYTV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LMHPRFCHLLAAASWVIGFTISALHSSFTFWVPLCGHRLVDHFFCEVPALLRLSCVDTHANELTLMVMSS
IFVLIPLILILTAYGAIARAVLSMQSTTGLQKVFRTCGAHLMVVSLFFIPVMCMYL-QPPSEN-SPDQGK
FIALFYTVVTPSLNPLIYTLRNKHVKGAAKRLLG-WEWGK*------

>SOR2J2
---MMIKKNAS--SEDFFILLGFSNWPQLEVVLFVVILIFYLMTLTGNLFIIILSYVDSHLHTPMYFFLS
NLSFLDLCYTTSSIPQLLVNLRGPEKTISYAGCMVQLYFVLALGIAECVLLVVMSYDRYVAVCRPLHYTV
LMHPRFCHLLVAASWVIGFTISALHSSFTFWVPLCGHRLVDHFFCEVPALLRLSCVDTHANELTLMVMSS
IFVLIPLILILTTYGAIARAVLSMQSTTGLQKVFRTCGAHLMVVSLFFIPVMCMYL-QPPSEN-SPDQGK
FIALFYTVVTPSLNPLIYTLRNKHVKGAAKRLLG-WEWGK-------

>MmOR17.2.53
---MVENFNAS--WEGYFIFLGFSKWPHLEVVLFVVILIFYMMTLMGNLFIIILSHLDSHLHTPMYFFLS
NLSALDLCYTTSSVPQLLFNLWGPKKTISYAGCMLQLYFVLALGTTECVLLVVMSYDRYVAVCKPLHYSV
LMNPRFCQLLAAASWVCGFTTSALHSSFTFWVPLCGHRKVDHFFCEVPALLQLSCVDIHANEMTLMVMSA
IFVVIPLILILSSYAAIAWTVLEMQSTTRLQKVFGTCGAHLTVVSLFFIPIMCIYL-QPSTKS-SQDHAK
FIALFYTVVTPSLNPLIYTLRNKDVRGAIRRLS-RYEREK*------

>MmOR11.1.5
----MGTFNTS--LGGGFILVGFSDWPALELIFFIHILIFYSITLFGNTAIIALSRTDLRLHTPMYFFLS
HLSFLDLCFTTSTVPQLLINLHGQDRTISYGGCVAQLFIFLALGSTESVLLVVMAFDRYVAVCRPLHYTT
IMHPVLCQALAIASWVGGFLNSLIQTGLMMAMPLCG-HRLNHFFCEMPVFLKLACQDTGGTEAKMFVARV
VIVAVPAMLILGSYAQIARAVLKVKSVAARRKAAGTCGSHLLVVSLFYGSATYTYL-QPKDSY-SESKGK
FVALFYTIITPMFNPLIYTLRNKDMKGALWKVLGRAAATG*------

>MmOR11.1.7
----MGTFNIS--LGGGFILVGFSDWPALELIFFIHILIFYSITLFGNTAIIALSRTDLRLHTPMYFFLS
HLSFLDLCFTTSTVPQLLINLHGQDRTISYGGCVAQVFIFLALGSTESVLLVVMAFDRYAAVCRPLHYTT
IMHPVLCQALAIASWVGGFLNSLIQTGLMMAMPLCG-HRLNHFFCEMPVFLKLVCEDTGGTEAKMFVARA
VIVAVPTMLILGSYAQIARAVLKVKSVTARRKAAGTCGSHLLVVSLFYGSAIYTYL-QPKDSY-SESKGK
FVALFYTIITPMLNPLIYTLRNKDMKGALWKVLGRATVTG*------

>MmOR11.1.6
----MESFNIS--LGKGFILVGFSDWPALELIFFIYILIFYSLTLFGNTAIIALSRMDLQLHTPMYYFLC
HLSFLDLCFTTSTVPQLLINLHGQDRTISYGGCVSQLFITLALGSTESVLLVVMAFDRYAAVCRPLHYMN
IMHPVLCQALAIASWVGGFLNSLIQTGLMMAMPLCG-HRLNHFFCEMPVFLKLACQDTGGTEAKMFVARA
VIVAVPAMLILGSYAQIARAVLKVKSVAARRKAAGTCGSHLLVVSLFYGSATYTYL-QPKDSY-SESKGK
FVALFYTIITPMFNPLIYTLRNKDMKGALWKVLGRAAATG*------

>MmOR11.1.13
----MDSFNAT--LEERFFLVGFSDWPQLELILFVFISIVYSLTIFGNTTIIALSRIDLRLHTPMYFFLS
NLSFLDLCFTTSTVPQLLINLYGQDRTISYGGCVAQLFIYLALGSTECVLLVVMAFDRYAAVCRPLHYTT
IMHPLLCQALALASWVGGFLNSLIQTGLMMTMPLCG-HRLNHFFCEMPVFLKLACQDTGGTEAKMFVARA
IILVFPATLILGSYGHIAKAVLKVKSTAGRRKAFGTCGSHLLVVSLFYGSAIYTYL-QPKSSY-SESKGK
FVALFYTIVTPMLNPLIYTLRNKDVKGALWKVLGRGTD*--------

>MmOR11.1.14
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MDSFNAT--LEERFFLVGFLDWPQLELILFVFISIFYSLTIFGNTAIIALSQMDLRLHTPMYYFLS
HLSFLDLCYTTSTVPQLLINLHGLDRTISYGGCVAQLFISLALGSTECVLLVVMAFDRYAAVCRPLHYMT
IMHPLLCQALALASWVGGFLNSLIQTGLMMAMPLCG-HRLNHFFCEMPVFLKLACQDTGGTEAKMFVARA
IILVFPATLILGSYGHIAKAVLKVKSTAGRRKAFGTCGSHLLVVSLFYGSAIYTYL-QPKSSY-SESDGK
FVALFYTIVTPMLNPLIYTLRNKDVKGALWKVLGR--GTD*------

>MmOR11.1.8
----MGSFNAS--LGKGFILVGFSDWPQLELILFIYVLIFYSLTLFGNTTIIALSQLDIRLHTPMYFFLS
HLSFLDLCYTTSTVPQLLINIAAQDHTITYGRCVAQLFSVLALGSTESMLLVVMAFDRYAAVCRPLHYTT
IMHPLLCQALAISSWVAGLVNSLIQTGLMMAMPLCR-YRLNHFFCEMPVFLKLACKDTAGTEAKMFVARA
IILVFPATLILGSYAHIARAVLKVKSTSGRRKAFGTCGSHLLVVSMFYGSTIYTYL-QPNDSY-SENEGK
FVALFYTIVTPMLNPLIYTLRNKDVKGALWKVLGRGTDSR*------

>HsOR5.4.2
----MGSFNTS--FEDGFILVGFSDWPQLEPILFVFIFIFYSLTLFGNTIIIALSWLDLRLHTPMYFFLS
HLSLLDLCFTTSTVPQLLINLCGVDRTITRGGCVAQLFIYLALGSTECVLLVVMAFDRYAAVCRPLHYMA
IMHPHLCQTLAIASWGAGFVNSLIQTGLAMAMPLCG-HRLNHFFCEMPVFLKLACADTEGTEAKMFVARV
IVVAVPAALILGSYVHIAHAVLRVKSTAGRRKAFGTCGSHLLVVFLFYGSAIYTYL-QSIHNY-SEREGK
FVALFYTIITPILNPLIYTLRNKDVKGALWKVLWRGRDSG*------

>SOR2Y1
----MGSFNTS--FEDGFILVGFSDWPQLEPILFVFIFIFYSLTLFGNTIIIALSWLDLRLHTPMYFFLS
HLSLLDLCFTTSTVPQLLINLCGVDRTITRGGCVAQLFIYLALGSTECVLLVVMAFDRYAAVCRPLHYMA
IMHPHLCQTLAIASWGAGFVNSLIQTGLAMAMPLCG-HRLNHFFCEMPVFLKLACADTEGTEAKMFLARV
IVVAVPAALILGSYVHIAHAVLRVKSTAGRRKAFGTCGSHLLVVFLFYGSAIYTYL-QSIHNY-SEREGK
FVALFYTIITPILNPLIYTLRNKDVKGALWKVLWRGRDSG-------

>SMOR256-1
----MGTFNAS--LGKGFILVGFSDFPQLEVFLFVFILVFYLLTLLGNTTIIALSRLDVRLHTPMYFFLS
HLSFLDLCYTTSTVPQLLINLCGLDRTISYGGCVAQLLIFLALVSTECLLLGVMAFDRYAAVCRPLHYTT
IMHPQLCQGLAISSWVSGLVNSVIQTGLVMAMPLCS-HRLNHFFCEMPIFLKLACEDTNGTEVKMFVART
IILIFPAALILGSYGHIARAILRIKSMAGRRKAFGTCGSHLIVVSLFYGSGIYTYL-QPIHRY-SENEGK
FVAVFYTILTPILNPLIYTLRNKDVKGALWKVLGKGTDLV-------

>MmOR11.1.10
----MGTFNAS--LGKGFILVGFSDFPQLEVFLFVFILVFYLLTLLGNTTIIALSRLDVRLHTPMYFFLS
HLSFLDLCYTTSTVPQLLINLCGLDRTISYGGCVAQLLIFLALVSTECLLLGVMAFDRYAAVCRPLHYTT
IMHPQLCQGLAISSWVSGLVNSVIQTGLVMAMPLCS-HRLNHFFCEMPIFLKLACEDTNGTEVKMFVART
IILIFPAALILGSYGHIARAILRIKSMAGRRKAFGTCGSHLIVVSLFYGSGIYTYL-QPIHRY-SENEGK
FVAVFYTILTPILNPLIYTLRNKDVKGALWKVLGKGTDLV*------

>MmOR11.1.12
----MGNFNTS--TQESFILVGFSDWPQLQAFLFVIILIFYSLTIFGNTTIIVLARLDLRLHKPMYFFLS
HLSFLDLCYTTSTVPQLLINLRGLDRTISYGGCVAQLFIFLALASTECLILVAMAFDRYAAVCHPLHYTS
IMNPILCRALAISSWVGGLVNSLIQTGLVMAMRLCG-HQINHFFCEMPIFLKLACEDTEGTEAKMFVART
IVLVCPAVLILGSYVHIAKAVLKVKSMAGRRKAFGTCGSHLMVVSLFYGSGIYTYL-QPVHRY-SESKGK
FVALFYTIVTPMFNPLIYTLRNKDVKGALWKLLGRGTDSG*------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR11.1.11
----MGTFNFS--SDRAFFLVGFSDWPHLELVFFVAISIFYSLTLFGNSSIIALSRLDLRLQTPMYFFLC
HLSFLDLCYTTSTVPQLLINLHGQDRTISYERCVAQLLIFLALASTECVLLGVMAFDRYAAVCRPLHYTT
IMHPQLCHTLAISSWVGGLVNSLTQTGLMMVMPLCG-YRLNHFFCEMPIFLKLACEETKRTEAKMFVART
IVLVCPAALILGSYAHITRAVLKVKSTAGRRKAFGTCGSHILVVSLFYGSAIYTYL-QPTHTY-SESEGK
FVALFYTIITPMLNPLIYTLRNKDVKGALWKVLGRGTDSE*------

>MmOR11.1.9
----MGSFNTS--FRQGFFLVGFSDFPQLELLLSVLISIFYSLTLFGNSTIIILSQLDARLQMPMYFFLC
HLSFLDLCYTTSIVPQLLINLQGYDRTISYGGCVAQLFLFLALATTESVLLVVMAFDRYVAVCRPLHYTT
IMHPVLCLSLAIVSWVGGFMNSLIQTSLMMAVPLCG-HRLNHFFCEIPSLLKLACEDTEGTGAKMFVVRV
VFLIFPITLILSSYANIAQAVLKTKSMAGCKKALGTCGSHLVVVSMFYGAAMYTYL-QPKGTY-SESKGK
FVALFYIIVTPMLNPLIYTLRNKDVKGALWKVLGRATDLG*------

>MmOR11.1.18
----MEYLNTS--SEEGFILVGFSDWPHLEPTLFAFISIFYSLTLFGNTVIIILSRLDLRLHTPMYYFLC
HLSFLDLCYTTSTVPQLLVNLSGLDRTISFGRCVAQLCIVLSLGGTECVLLVTMAIDRYAAVCRPLHYTT
IMHPVLCRALVVFSWVGGLVNSLIQTSLVMAMPLCG-HQLNHFFCELPVLLKMACEDTGGTEVNLFVARV
IILVCPLLLILGSYAHIARAVLNIRSMAGRRKAFGTCASHLIVVAMFYGSAISTYL-QPVHRY-SEKEGK
FLALFYTIITPMLNPLIYTLRNKDVKGALWKVLGRGTDSR*------

>MmOR11.3.1
----MDYLNTS--SEEGFILVGFSDWPHLEPTLFAFISIFYSLTLFGNTVIIILSRLDLRLHTLMYYFLC
HLSFLDLCYTASTVPQLLVNLSGLDRTISFGRCVAQLCIVLSLGGTECVLLVTMAIDRYAAVCRPLHYTT
IMHPVLCRALVVFSWVGGLVNSLIQTSLVMAMPLCG-HQLNHFFCELPVLLKMACEDTGGTEVNLFVARV
IILVCPLLLILGSYAHIARAVLNIRSVAGRRKAFGTCASHLIVVAMFYGSAISTYL-QPVHRY-SEKEGK
FLALFYTVITPMLNPLIYTLRNKDVKGALWKVLGRGTDSR*------

>MmOR11.1.19
----MEYLNTS--SEEGFILVGFSDWPHVVPILFAFISIFYSLTLFGNTVIIILSQLDLRLHTPMYYFLC
HLSFLDLCYTASTVPQLLVNLSGLDRTISFGRCVAQLCIVLSLGGTECVLLVTMAIDRYAAVCHPLHYTT
IMHPVLCRALVVFSWVGGLVNSLIQTSFVMAMPLCG-HQLNHFFCELPVLLKMACEDTGGTEVNLFVARV
IILVCPLLLILGSYAHIARAVLNIRSMAGRRKAFGTCASHLIVVAMFYGSAISTYL-QPVHRY-SEKEGK
FLALFYTIITPMLNPLIYTLRNKDVKGALWKVLGRGTDSA*------

>MmOR11.3.3
----MENLNTS--SEEGFILVVFSDWPHLEPILFAFISIFYSLTLFGNTVIIILSQLDLCLHTPMYYFLC
HLSFLDLCYTASTVPQLLVNLSGLDRTISFGRCVAQLCIVLSLGGTECVLLVAMAIDRYAAVCRPLHYTT
IMHPVLCRALVVFSWVGGLVNSLIQTSLVMAMPLCG-HQLNHFFCELPVLLKMACEDTGGTEVNLFVARV
IILVCPLLLILGSYAHIARAVLNIRSMAGRRKAFGTCASHLIVVAMFYGSGISTYL-QPVHRY-SEKEGK
FLALFYTIITPMLNPLIYTLRNKDVKGALWKVLGRSTDSA*------

>MmOR11.1.17
----MDYLNTS--SEEGFILVGFSDWPHLEPILFAFISMFYSLTLFGNTVIIILSQLDLRLHTPMYYFLC
HLSFLDLCYTASTVPQLLVNLSGLDRTISFGRCVAQLFIMLSLGGIECVLLVAMAIDRYAAVCRPLHYTT
IMHPVLCRALVVFSWVGGLVNSLIQTSLVMTMPLCG-HQLNHFFCELPVLLKMACEDTGGTEVNLFVARV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IILVCPLLLILGSYAHIARAVLNIRSMAGRRKAFGTCASHLIVVAMFYGSAISTYL-QPVHRY-SDSEGK
FVALFYTVITPMLNPLIYTLRNKDVKGALWKVLGRGTDSR*------

>MmOR11.1.15
----MGSFNLS---LEGFLLVGFSDWPQLELILLVFISIFYSLTLCGNITIIVLTQQDLHLHTPMYFFLA
HLSFLDLCFTSSTVPKLLISLSRGDQTISYAGCMTQFFIALLLGGTECVLLVVMAFDRYVAVCRPLHYTS
IMHPLLCHALAISSWVGGLVNSLTQTSLIMTIPLCG-HHLNHFFCEMLVLLKLACEDTVGTETYLFWAGA
VILVCPVALILGTYAHIAHAVLKIKSRSGRRKALGTCGSHLTVVFLFYGSAMYTYL-QPIHTY-SGSEGK
FAALFYTIITPMLNPLIYTLRNKDVKGALCKVLVKKETKTRRKMVE*

>MmOR11.1.16
----MSSFNTT--LKGGFILMGFSDWPQLEHIFFVFISMFYILTIFGNFTIITISRMDQRLQTPMYFFLN
NLSFLDLCYTTSIVPQLLVNISGIDKTMSYAGCMTQFFIVLLLGGTECMLLVVMAFDRYVAVCHPLHYTS
IMHPLLCHALAISSWVGGLVNSLTQTSLIMTIPLCG-HHLNHFFCEMLVLLKLACEDTGGTEANLFVAGA
VILVCPVALILGTYAHIAHAVLKIKSRSGRRKALGTCGSHLTVVFLFYGSAMYTYL-QPVHVY-SGSEGK
FAALFYTIITPMLNPLIYTLRNKDVKGALCKVLGRDTSTT*------

>MmOR11.3.2
----MSSFNTA--LEGGFILMGFSDWPHLEHIFFVFISMFYFLTIFGNFTIITISRMDRRLQTPMYFFLN
NLSFLDLCYNTSIVPQLLVNISGIDKTMSYAGCMTQFFIVLLLGGTECMLLVVMAFDRYVAVCHPLHYTS
IMHPLLCHALAISSWVGGLVNSLTQTSLIMTIPLCG-HHLNHFFCEMLVLLKLACEDTVGTEANLFVAGA
IILVCPVALILGTYAHIAHAVLKIKSRSGRRKALGTCGSHLTVVFLFYGSAMYMYL-QPVHVY-SGSEGK
FAALFYTIITPMMNPDLYP-KKQECEGGFVQNIGREQNFIQILSNIS

>SOR2W5
----MDQKNGS--SFTGFILLGFSDRPQLELVLFVVLLIFYIFTLLGNKTIIVLSHLDPHLHNPMYFFFS
NLSFLDLCYTTGIVPQLLVNLRGADKSISYGGCVVQLYISLGLGSTECVLLGVMAFDRYAAVCRPLHYTV
VMHPCLYVLMASTSWVIGFANSLLQTVLILLLTLCGRNKLEHFLCEVPPLLKLACVDTTMNESELFFVSV
IILLVPVALIIFSYSQIVRAVVRIKSATGQRKVFGTCGSHLTVVSLFYGTAIYAYL-QPGNNY-SQDQGK
FISLFYTIITPMINPLIYTLRNKDVKGALKKVL--WKNY--------

>MmOR17.2.47
----MRRLNTTPHHTNGFILVGFSEWPRLEMALLVVISIFYILTLLGNSAIIILSRLDPKLHTPMYFFLA
NLSFLDLCYTTSTVPQMLKNIQSHERSITYVGCIAQLFIFLSLGSTECVLLSVMAFDRYVAICQPLRYTV
IMHPQLCQQLAAVAWITGFSNSLVQTVLTSLLPRCGQYQIENFFCEVPAMLQLSCVDTWVNEVEMYAAVV
VIKVIPLGLILFSYINIVRAVIKIQSSEGRKKAFNTCGSHLLVVIMFYGSAIYAYM-APKSSS-AKLKGK
LLALFYGLITPMLNPLIYTLRNKDVKAAVKKVLGREQE*--------

>HsOR1.5.3
----MEIANVS--SPEVFVLLGFSTRPSLETVLFIVVLSFYMVSILGNGIIILVSHTDVHLHTPMYFFLA
NLPFLDMSFTTSIVPQLLANLWGPQKTISYGGCVVQFYISHWLGATECVLLATMSYDRYAAICRPLHYTV
IMHPQLCLGLALASWLGGLTTSMVGSTLTMLLPLCGNNCIDHFFCEMPLIMQLACVDTSLNEMEMYLASF
VFVVLPLGLILVSYGHIARAVLKIRSAEGRRKAFNTCSSHVAVVSLFYGSIIFMYL-QPAKST-SHEQGK
FIALFYTVVTPALNPLIYTLRNTEVKSALRHVLENGSAGKLAQI*--

>MmOR13.1.11
WLQVMEKENTS--SFEGFILVGFSDRPHLELILFVVVLSFYLLTLLGNMTIILLSALDSRLHTPMYFFLA
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
NLSFLDMCFTTGSIPQMLYNLWGPDKTISYVGCAIQLYFVLALGGVECVLLAVMAYDRYAAVCKPLHYTV
IMHPRLCGQLASVAWLSGFGNSLIMAPQTLMLPRCGHRRVDHFLCEMPALIGMACVDTMALEALAFALAI
FIILAPLILILISYGYIARAVFRIKSAAGRRKAFNTCSSHLIVVSLFYGTIIYMYL-QPANTY-SQDQGK
FLTLFYTIVTPSVNPLIYTLRNKDVKEAVKKVLGKGSIEV*------

>MmOR13.1.9
----MEKSNDS--SEYGFILEGFSDRPRLEMVLFIVNFTLYSVAVLGNITIILVCILDPRLHTPMYFFLA
NLSFLDLCFSTSCIPQMLVNLWGPDKTISYAGCVVQLFSFLSIGSVECILLAVMAYDRYAAVCKPLHYMV
IMHPQLCVRLMAVAWGVGLANAIIMSPLAMTLPRCGRRRINHFLCELPALIKMACVDARPVEMLSFTLAI
LIVLLPLTLILVSYGYIAAAVLRIKSAAGRWKAFNTCSSHLTVVSLFYGSIIYMYM-QPGNSS-SQDQGK
FLTLFYNLVTPMLNPLIYTLRNKEMKGALKKVCGR--H*--------

>MmOR11.4.17
GAVEMGATNDS--TFSHFILTGFSDRPELERVLFAILLPAYLLTLLGNSTIILVSRLDPHLHTPMYFFLT
HLSFLDLSFTSSSIPQLLYNLSGPDKTISYVGCALQLVLFLGLGGVECLLLAVMAYDRFVAICKPLHYMV
IMSPRLCVGLVSVAWSCGVANSLAMSPATLSLPRCGHHRVDHFLCEMPALIRMACVNTAVVEGIAFILAI
GIVLSPLVFILVSYGYIVRAVLRISSAAGRQKAFNTCGSHLTVVSLFYGNIIYMYM-QPGNSS-SQDQGK
FLTLFYNIVTPLLNPLIYTLRNKEVKGALRRLLLGSRETGKVRASSR

>MmOR11.4.13
GAVEMGATNDS--TFSHFILIGFSDRPELERVLFAIILPAYLLTLLGNSIIILVSRLDPHLHTPMYFFLT
HLSFLDLSFTSSSIPQLLYNLSGPDKTISYVGCALQLVLFLGLGGVECLLLAVMAYDRFVAVCKPLHYMV
IMSPRLCVGLVSVAWSCGVANSLAMSPVTLSLPRCGHRRVDHFLCEMPALIRTACVNTAAVEGTVFVLAI
GIVLSPLVFILVSYGYIVRAVLQIRSAAGRQKAFNTCGSHLTVVSLFYGNIIYMYM-QPGNSS-SQDQGK
FLTLFYNIVTPLLNPLIYTLRNKEVKGALRRLLLGSRETGKVRAGSI

>HsOR1.5.15
----MDGTNGS--TQTHFILLGFSDRPHLERILFVVILIAYLLTLVGNTTIILVSRLDPHLHTPMYFFLA
HLSFLDLSFTTSSIPQLLYNLNGCDKTISYMGCAIQLFLFLGLGGVECLLLAVMAYDRCVAICKPLHYMV
IMNPRLCRGLVSVTWGCGVANSLAMSPVTLRLPRCGHHEVDHFLREMPALIRMACVSTVAIEGTVFVLAV
GVVLSPLVFILLSYSYIVRAVLQIRSASGRQKAFGTCGSHLTVVSLFYGNIIYMYM-QPGASS-SQDQGM
FLMLFYNIVTPLLNPLIYTLRNREVKGALGRLLLGKRELGKE*----

>MmOR13.1.8
ALTINAMINQS--CQEQFILLGFSDRPRLESILFVFVLIFYLVTLVGNIIIILVSYLDPCLHTPMYFFLT
NLSFLDLCFTTSSIPQLLFNLGGQDKSISYIGCAVQLFMFLGLGGTECVLLAVMAYDRFTAICKPLHYSV
IMHSQLCWTLVSVAWSVGLLNSLVMSPVTMKLPRCGRCQVRHFLCEMPALIKIACVDTVAVESTVFILSV
IIVLVPLTLILISYSYIALAVMRIKSASGRRKAFNTCGSHLTVVSLFYGNIIYMYM-QPGHKA-SQDQGK
FLTLFYNLVTPMLNPVIYTLRNKDVKGALKRLVTTK*----------

>HsOR6.3.2
----MDQSNYS--SLHGFILLGFSNHPKMEMILSGVVAIFYLITLVGNTAIILASLLDSQLHTPMYFFLR
NLSFLDLCFTTSIIPQMLVNLWGPDKTISYVGCIIQLYVYMWLGSVECLLLAVMSYDRFTAICKPLHYFV
VMNPHLCLKMIIMIWSISLANSVVLCTLTLNLPTCGNNILDHFLCELPALVKIACVDTTTVEMSVFALGI
IIVLTPLILILISYGYIAKAVLRTKSKASQRKAMNTCGSHLTVVSMFYGTIIYMYL-QPGNRA-SKDQGK
FLTLFYTVITPSLNPLIYTLRNKDMKDALKKLM-RFHHKSTKIKRNC
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>SOR2W1
----MDQSNYS--SLHGFILLGFSNHPKMEMILSGVVAIFYLITLVGNTAIILASLLDSQLHTPMYFFLR
NLSFLDLCFTTSIIPQMLVNLWGPDKTISYVGCIIQLYVYMWLGSVECLLLAVMSYDRFTAICKPLHYFV
VMNPHLCLKMIIMIWSISLANSVVLCTLTLNLPTCGNNILDHFLCELPALVKIACVDTTTVEMSVFALGI
IIVLTPLILILISYGYIAKAVLRTKSKASQRKAMNTCGSHLTVVSMFYGTIIYMYL-QPGNRA-SKDQGK
FLTLFYTVITPSLNPLIYTLRNKDMKDALKKLM-RFHHKSTKIKRNC

>MmOR13.1.2
----MDPSNYS--TLHVFILLGFSDHPHLEMILSGVVTFFYIITLVGNTAIILASLLDPHLHTPMYFFLR
NLSFLDLCYTTSIVPQMLVNLWGPEKTISSVGCIVQLYVYMWLGSIECLLLAVMSYDRFTAICKPLHYLV
IMNPRLCVKMIVMVWGISLANSVILCTLTVNLPRCGHNILDHFLCELPAMVRIACVDTTKVELSVFALGI
VIVLTPLILILISYGYIAKTVLNMKSKAGQQKAMNTCGSHLTVVSIFYGSIIYLYL-QPGNRA-SKDQGK
FLTLFYTIITPSLNPLIYTLRNRDMKDALKKLMMFYHRFAKIRRN*-

>MmOR13.1.3
----MDPSNYS--TLHVFILLGFSDHPHLEMILSGVVTFFYIITLVGNTAIILASLLDPHLHTPMYFFLR
NLSFLDLCFTTSIVPQMLVNLWGPEKTISSVGCIVQLYVYMWLGSIECLLLAVMSYDRFTAICKPLHYFV
IMNPRLCVKMIVMVWGISLANSVILCTLTVNLPRCGHNILDHFLCELPAMVRIACVDTTTVELSVFALGI
VIVLTPLILILISYGYIAKTVLNMKSKAGQQKAMNTCGSHLTVVSIFYGTIIYMYL-QPGNRA-SKDQGK
FLTLFYTIITPSLNPLIYTLRNRDMKDALKKLM-RFYHRFAEVRRN*

>MmOR13.1.4
----MEINNKS--SETDFILLGFSSRPQLEHIISAVVFVFYIVTLVGNTTIILVSYLDSQLHTPMYFFLS
NLSFVDLCYTTSIVPQMLVNLWGPKKSITYGGCVLQFFFALDLGATECLLLAVMAYDRYAAVCQPLHYTV
IMHPVLCQKMVLSAWLGGLGSALILCSLTLKLPRCGHREVDNFFCEMPALIKMACVYSRVIEIVVFTLGV
IFLLVPLSLILISYAVITQAVMKIKSATRWRKVLNTCGSHLTVVTLFYGTLIYMYM-KPQNTI-SHEEGQ
FFTLFYTIVTPSLNPLIYTLRNKDVKNAVKRILGMDKHSGKV*----

>SOR2G2
CLSLGEHTNES--NLAGFILLGFSDYAQLQKVLFVLILILYLLTILGNTTIILVSRLEPKLHMPMYFFLS
HLSFLYRCFTSSVIPQLLVNLWEPMKTIAYGGCLVHLYNSHALGSTECVLPALMSCDRYVAVCRPLHYTV
LMHIHLCMALASMAWLSGIATTLVQSTLTLQLPFCGHRQVDHFICEVPVLIKLACVGTTFNEAELFVASI
LFLIVPVSFILVSSGYIAHAVLRIKSATGRQKAFGTCFSHLTVVTIFYGTIIFMYL-QPAKSR-SRDQGK
FVSLFYTVVTRMLNPLIYTLRIKEVKGALKKVLAKALGVNIL-----

>HsOR1.5.4
---MVRHTNES--NLAGFILLGFSDYPQLQKVLFVLILILYLLTILGNTTIILVSRLEPKLHMPMYFFLS
HLSFLYRCFTSSVIPQLLVNLWEPMKTIAYGGCLVHLYNSHALGSTECVLPAVMSCDRYVAVCRPLHYTV
LMHIHLCMALASMAWLSGIATTLVQSTLTLQLPFCGHRQVDHFICEVPVLIKLACVGTTFNEAELFVASI
LFLIVPVSFILVSSGYIAHAVLRIKSATRRQKAFGTCFSHLTVVTIFYGTIIFMYL-QPAKSR-SRDQGK
FVSLFYTVVTRMLNPLIYTLRIKEVKGALKKVLAKALGVNIL*----

>HsOR1.5.5
----MGLGNES--SLMDFILLGFSDHPRLEAVLFVFVLFFYLLTLVGNFTIIIISYLDPPLHTPMYFFLS
NLSLLDICFTTSLAPQTLVNLQRPKKTITYGGCVAQLYISLALGSTECILLADMALDRYIAVCKPLHYVV
IMNPRLCQQLASISWLSGLASSLIHATFTLQLPLCGNHRLDHFICEVPALLKLACVDTTVNELVLFVVSV
LFVVIPPALISISYGFITQAVLRIKSVEARHKAFSTCSSHLTVVIIFYGTIIYVYL-QPSDSY-AQDQGK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
FISLFYTMVTPTLNPIIYTLRNKDMKEALRKLLSG--KL*-------

>SOR2G3
PPGGMGLGNES--SLMDFILLGFSYHPRLEAVLFVFVLFFYLLTLVGNFTIIIISYLDPPLHTPMYFFLS
NLSLLDICFTTSLAPQTLVNLQRPKKTITYGGCVAQLYISLALGSTECILLADMALDRYIAVCKPLHYVV
IMNPRLCQQLASISWLSGLASSLIHATFTLQLPLCGNHRLDHFICEVPALLKLACVDTTVNELVLFVVSV
LFVVIPPALISISYGFITQAVLRIKSVEARHKAFSTCSSHLTVVIIFYGTIIYVYL-QPSDSY-AQDQGK
FISLFYTMVTPTLNPIIYTLRNKDMKEALRKLLSGKLV---------

>MmOR17.2.46
-----MTINKS--SGGDFILVGFSDQPQLEKILFVLVLISYLLTLVGNTAIILVSCLDSALQTPMYYFLT
NLSFVDICFSTSIVPQLLWNLHGPAKTITATGCAIQLYVSLALGSTECVLLAVMAFDRYAAVCRPLHYAT
VMHPRLCQSLAGVAWLSGVGNTLIQGTITLRLPRCGNHKIYHFICEVPAMIKLACVDIHANEVQLFMASL
VLLLLPLTLILVSYGYIAQALMRLRSALTWGKALGTCGSHMLVVVLFYGTITAIYI-QPNSSY-AHSQGK
FITLLYTVVIPTLNPLIYTLRNKDVKGALKRLVRKNNSTGKKILSR*

>MmOR17.2.32
----MTI-NKS--SGGDFILVGFSDQPQLEKILFVLVLISYLLTLVGNTAIILVSCLDSALQTPMYYFLT
NLSFVDICFSTSIVPQLLWNLHGPAKTITATGCAIQLYVSLALGSTECVLLAVMAFDRYAAVCRPLHYAT
VMHPRLCQSLAGVAWLSGVGNTLIQGTITLRLPRCGNHKIYHFICEVPAMIKLACVDIHANEVQLFMASL
VLLLLPLTLILVSYGYIAQALMRLRSALTWGKALGTCGSHLIVVVLFYGTSTAVYI-HPNSSY-AQSQGK
FITLLYTVVIPTLNPLIYTLRNKDVKGALKRLVRKSTGKKILSR*--

>MmOR17.2.38
------MINSS--VSSDFILVGFSDQPQLERRLFIVVLISYLLTLVGNTIIILISSIDSKLKTPMYFFLT
HLSFVDICFTTSIVPQLLWNLKGPAKTITAVGCAVQLYVSLTLGSTECILLAVMAFDRYAAVCKPLHYVA
VMNPQLCRALAGISWLSGIGNALIQGTITLWLPRCGHLWLHHFFCEVPSMIKLACVDIHANEVQLFVASL
VLLLLPLALILTSYGHIAKAVIRIKSSQAWRRALGTCGSHLMVVSLFYGSITAIYI-QPNSSY-AHTHGK
FISLFYTVMTPTLNPLIYTLRNKEVKGALGRLFNRASGV*-------

>HsOR6.3.26
--------NQS--STPGFLLLGFSEHPGLERTLFVVVFTSYLLTLVGNTLIILLSALDPKLHSPMYFFLS
NLSFLDLCFTTSCVPQMLVNLWGPKKTISFLDCSVQIFIFLSLGTTECILLTVMAFDRYVAVCQPLHYAT
IIHPRLCWQLASVAWVIGLVESVVQTPSTLHLPFCPDRQVDDFVCEVPALIRLSCEDTSYNEIQVAVASV
FILVVPLSLILVSYGAITWAVLRINSAKGRRKAFGTCSSHLTVVTLFYSSVIAVYL-QPKNPY-AQERGK
FFGLFYAVGTPSLNPLIYTLRNKEVTRAFRRLLGKEMGLTQS*----

>SOR2H2
--------NQS--STPGFLLLGFSEHPGLERTLFVVVFTSYLLTLVGNTLIILLSVLDPKLHSPMYFFLS
NLSFLDLCFTTSCVPQMLVNLWGPKKTISFLDCSVQIFIFLSLGTTECILLTVMAFDRYVAVCQPLHYAT
IIHPRLCWQLASVAWVIGLVESVVQTPSTLHLPFCPDRQVDDFVCEVPALIRLSCEDTSYNEIQVAVASV
FILVVPLSLILVSYGAITWAVLRINSAKGRRKAFGTCSSHLTVVTLFYSSVIAVYL-QPKNPY-AQERGK
FFGLFYAVGTPSLNPLIYTLRNKEVTRAFRRLLGKEMGLTQS-----

>SOR2H3
--------NQS--STPGFLLLGFSEHPGLERTLFVVVFTSYLLTLVGNTLIILLSALDPKLHSPMYFFLS
NLSFLDLCFTTSCVPQMLVNLWGPKKTISFLDCSVQIFIFLSLGTTECILLTVMAFDRYVAVCQPLHYAT
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IIHPRLCWQLASVAWVIGLVESVVQTPSTLHLPFCPDRQVDDFVCEVPALIRLSCEDTSYNEIQVAVASV
FILVVPLSLILVSYGAITWAVLRINSAKGRRKAFGTCSSHLTVVTLFYSSVIAVYL-QPKNPY-AQERGK
FFGLFYAVGTPSLNPLIYTLRNKEVTRAFRRLLGKGLTQSGELL---

>HsOR6.3.23
--------NQS--SPMGFLLLGFSEHPALERTLFVVVFTSYLLTLVGNTLIILLSVLYPRLHSPMYFFLS
DLSFLDLCFTTSCVPQMLVNLWGPKKTISFLGCSVQLFIFLSLGTTECILLTVMAFDRYVAVCQPLHYAT
IIHPRLCWQLASVAWVMSLVQSIVQTPSTLHLPFCPHQQIDDFLCEVPSLIRLSCGDTSYNEIQLAVSSV
IFVVVPLSLILASYGATAQAVLRINSATAWRKAFGTCSSHLTVVTLFYSSVIAVYL-QPKNPY-AQGRGK
FFGLFYAVGTPSLNPLVYTLRNKEIKRALRRLLGKERDSRESWRAA*

>MmOR17.2.3
--------NQS--SPVVFFLLGFSDNPQLEKVLFVVVLCSYLLTLLGNTLILLLSTLDPRLHSPMYFFLS
NLSFLDLCFTTTCVPQMLFNLWGPAKTISFLGCFVQLFIFMSLGTTECILLTVMAFDRYVAVCQPLHYAT
KINPHLCRQLAGIAWAIGLVQSIVQTPPTLKLPFCSHRQIDNFLCEVPSLIQLSCGDTTYNEIQMAVASI
FIVVVPLSLILVSYGAIARAVLKISSAKGRRKAFGTCSSHLIVVTLFYSSVIAVYL-QPKNLY-ARERGK
FFGLFYAVGTPTLNPLVYTLRNKEVKRAFWKLL-RKDEDSEES*---

>MmOR17.2.2
--------NQS--SPVGFLLLGFSEHPQLEKVLFVVVLCSYLLTLLGNTLILLLSTLDPRLHSPMYFFLS
NLSFLDLCFTTTCVPQMLFNLWGPAKTISFLGCSVQLFIFLSLGTTECILLTVMSFDRYVAVCQPLHYAT
VIHPRLCWKLAAVAWMMGLLQSIVQTPPTLKLPFCPHRQIDDFLCEVPSLIRLSCGDTTFNEIQLAVSSV
ILVVVPLSLILVSYGAIARAVMRINSTEAWKKALRTCSSHLIVVTLFYSSVIAVYL-QPKNPY-AQERGK
FFGLFYAVGTPTLNPLIYTLRNKEVKRAFWRLLGKDGDSKNT*----

>MmOR17.2.4
--------NQS--TPVGFLLLGFSEHPQLEKVLFVVVLCSYLLTLLGNTLILLLSTLDPRLHSPMYFFLS
NLSFLDLCFTTTCVPQMLFNLWGPTKTISFLGCSVQLFIFMLLGTTECILLTVMAFDRYVAVCQPLHYAT
IIHPRLCRQLAGVAWAIGLVQSIVQIPPTLTLPFCSHRQIDDFLCEVPSLIRLSCGDTTFNEIQLSVAGV
IFLLVPLSLIIVSYGVIARAVLKTNSSKGRRKAFGTCSSHLIVVTLFYSSVIAVYL-QPKNPY-AQERSK
FFGLFYAVGTPTLNPLVYTLRNKEVKRAFWRLLGKDAASGRN*----

>SOR2C1
----MDGVNDS--SLQGFVLMGISDHPQLEMIFFIAILFSYLLTLLGNSTIILLSRLEARLHTPMYFFLS
NLSSLDLAFATSSVPQMLINLWGPGKTISYGGCITQLYVFLWLGATECILLVVMAFDRYVAVCRPLRYTA
IMNPQLCWLLAVIAWLGGLGNSVIQSTFTLQLPLCGHRRVEGFLCEVPAMIKLACGDTSLNQAVLNGVCT
FFTAVPLSIIVISYCLIAQAVLKIRSAEGRRKAFNTCLSHLLVVFLFYGSASYGYL-LPAKNS-KQDQGK
FISLFYSLVTPMVNPLIYTLRNMEVKGALRRLLGKGREVG-------

>HsOR16.1.3
----MDGVNDS--SLQGFVLMGISDHPQLEMIFFIAILFSYLLTLLGNSTIILLSRLEARLHTPMYFFLS
NLSSLDLAFATSSVPQMLINLWGPGKTISYGGCITQLYVFLWLGATECILLVVMAFDRYVAVCRPLRYTA
IMNPQLCWLLAVIACLGGLGNSVIQSTFTLQLPLCGHRRVEGFLCEVPAMIKLACGDTSLNQAVLNGVCT
FFTAVPLSIIVISYCLIAQAVLKIRSAEGRRKAFNTCLSHLLVVFLFYGSASYGYL-LPAKNS-KQDQGK
FISLFYSLVTPMVNPLIYTLRNMEVKGALRRLLGKGREVG*------

>MmOR16.1.4
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MEVDSNS--SSGSFILMGVSDHPHLEIIFFAVILASYLLTLVGNLTIILLSRLDARLHTPMYFFLS
NLSSLDLAFTTSSVPQMLKNLWGPDKTISYGGCVTQLYVFLWLGATECILLVVMAFDRYVAVCRPLHYMT
VMNPRLCWGLAAISWLGGLGNSVIQSTFTLQLPFCGHRKVDNFLCEVPAMIKLACGDTSLNEAVLNGVCT
FFTVVPVSVILVSYCFIAQAVMKIRSVEGRRKAFNTCVSHLVVVFLFYGSAIYGYL-LPAKSS-NQSQGK
FISLFYSVVTPMVNPLIYTLRNKEVKGALGRLLGKGRGAS*------

>SMOR256-17
----MEVDSNS--SSGSFILMGVSDHPHLEIIFFAVILASYLLTLVGNLTIILLSRLDARLHTPMYFFLS
NLSSLDLAFTTSSVPQMLKNLWGPDKTISYGGCVTQLYVFLWLGATECILLVVMAFDRYVAVCRPLHYMT
VMNPRLCWGLAAISWLGGLGNSVIQSTFTLQLPFCGHRKVDNFLCEVPAMIKLACGDTSLNEAVLNGVCT
FFTVVPVSVILVSYCFIAQAVMKIRSVEGRRKAFNTCVSHLVVVFLFYGSAIYGYL-LPAKSS-NQSQGK
FISLFYSVVTPMVNPLIYTLRNKEVKGALGRLLGKGRGAS-------

>MmOR17.2.48
----MGTVCND--THGDFILRGFSDKPYLEKVLFGVILVFYCLTLAGNTIIIFVSLKDPKLQIPMYFFLS
NLSLLDICFTSSCVPQMLVNLRSPKKTITYSGCATQLYIFLWLGATECVLLVVMAVDRYVAVCHPLRYVT
VMHPKVCLQLAVLAWGSGLIQSLIQSTATLRLPFCSQRVVDNIVCEVPALIQLSSADTTYNEVQMSIASV
ILLVLPLAIILSSYGAIVKSVLKIKSPAGQKKAFGTCTSHLLVVSLFYGTVTGVYL-QPKTHY-AHEWGK
FLTLFYTVITPTLNPLIYTLKNKEVKEAVIRLWWKTWISQR*-----

>MmOR17.2.51
----MILVNKS--HPEEFILLGFADRPWLELPLFIILLVTYPTAMIGNIAIILMSILDPCLHSPMYFFLT
NLSFLDMCYTTSIVPQMLINLWGSTKTISYLRCVVQLYFFHTMGGTECVLLALMSFDRYVAICKPLHYTL
IMNRRNCLLLVSTVWLTGISYAVSEATVTLQLPLCGHNKMDHLVCEIPILIKTACGEKETNELALSVICI
FLLAVPLCLILASYASIGHAVFKIKSIEGRKKAFGTCSSHLIVVLLFYGPGISMYL-QPPSSI-TKDQPK
FMALFYGVVTPTLNPFIYTLRNKDVKGALGNLF-RNIFIPK*-----

>MmOR17.2.50
----MALINKS--HPEEFILLGFADRPWLELPLFIILLVTYPTAMIGNIAIILVSILDPCLHSPMYFFLT
NLSFLDMCYTTSIVPQMLTNLGSSTKTISYMRCVVQLYFFHIMGGTECVLLALMSFDRYVAICKPLHYTL
IMNQRNCILLVSTVWLTGISYAVSEATVTLQLPLCGHNKLDHLVCEIPILIKTACGEKETNELALSVVCI
FLLAVPLCLILASYASIGHAVFKIKSSEGRKKAFGTCSSHLIVVLLFYGPAISMYL-QPPSSI-TKDQPK
FMALFYGVVTPTLNPFIYTLRNKDVKGALGNLF-KNIFMSK*-----

>MmOR17.2.55
----MAVTNES--HPKEFILLGFANHPWLELPLFVTLLITYPMALMGNIAIILVSTLDPRLHSPMYFFLT
NLSFLDMCYTTSIVPQMLFNLGSSRKTITYIGCVVQLYVFHIMGGTECLLLAIMSFDRYVAICKPLHYTL
IMNQRVCILLVSIMWLTGVIFAFSEATLTLQLPLCGIHKLDHLLCEIPVLIKTACGEKESNELALSVVCI
FILAVPLCLILASYVNIGCAVLRIKSSEGRKKAFGTCSSHLVVVSLFYGPAISMYL-QPSSSI-TRDQPK
FMALFYAVITPTLNPFIYTLRNKDVKGALKKLL-RSIFSSK*-----

>MmOR17.2.52
----MAVTNES--HPKEFILLGFANHPWLELPLFVTLLITYPMALMGNIAIILVSTLDPRLYSPMYFFLK
NLSFLDMCYTTSIVPQMLFNLGSSRKTITYIGCVVQLYVFHIMGGTECLLLAIMSFDRYVAICKPLHYTL
IMNQRVCILSVSIMWLTGVIFGFSEATLTLQLPLCGTNKLDHLLCEIPVLIKTACGEKEFNELALSVVCI
FILIVPLCLILASYVNIGCAVLRIKSSEGRRKAFGTCSSHLIVVSLFYGPGISMYL-QPSSSI-TRDQPK
FMALFYAVITPTLNPFIYTLRNKDVKGAFKKLL-RSIFSSK*-----
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR13.1.1
----MNLGNES--APKIFILLGFSSHPWLEMPLFIMVLVAYVCTVLGNISIIVVSRRDPQLDSPMYFFLS
NLSFLDLCFTTTTIPQLLRNLWGPDKSISYGGCVTQFYIFHFLGATECILLAVMSLDRYIAICKPLRYPA
IMHQQLCILLVSMAWLSGLANSLLQSTLTVKLPFCGNNKVDNFLCEVPVMIKMSCANTAFNIAMLSIVGT
FYSLVPLSLILISYGFIVATVLRIRSSEGKKKAFNTCGSHVVVVTLFYGPVISMYV-QPSSSN-SQDKNK
LLSLFYSLVTPMLNPFIYTLRNKDMKGAMKRLLVSLYHKGAEQT*--

>HsOR1.5.1
----MKSDNHSGDSPKAFILLGVSDRPWLELPLFVVLLLSYVLAMLGNVAIILASRVDPQLHSPMYIFLS
HLSFLDLCYTTTTVPQMLVNMGSSQKTISYGGCTVQYAVFHWLGCTECIVLAAMALDRYVAICKPLHYAV
LMHRALCQQLVALAWLSGFGNSFVQVVLTVQLPFCGRQVLNNFFCEVPAVIKLSCADTAVNDTILAVLVA
FFVLVPLALILLSYGFIARAVLRIQSSKGRHKAFGTCSSHLMIVSLFYLPAIYMYL-QPPSSY-SQEQGK
FISLFYSIITPTLNPFTYTLRNKDMKGALRRLLARIWRLCG*-----

>MmOR11.5.1
----MRGDNHSWDTPKDFILLGISDRPWLELPVFAVLLVFYILAMLGNISIILVSQLDPQLHSPMYIFLS
HLSFLDLCYTTTTVPQMLFNMGSSQKTISYGGCTVQYAIFHWLGCTECVVLAAMALDRYVAICEPLRYAI
IMHRPLCQQLVAMAWLSGFGNSLVQVILTVQLPFCGRQVLNNFFCEVPAMIKLSCADTTANDATLAVLVA
FFVLVPLALILLSYGFIARAVMRIQSSRGRHKAFGTCSSHLLVVSLFYLPAIYMYL-QPPSSY-SQEQGK
FISLFYSIITPTLNPFIYTLRNKDVKGALRRLLARRLCGR*------

>MmOR13.1.5
----MSVNRISADFPEDFILMGFTKYPWLDLPLFFVLLTSYMFTLLGNIAIILVSQLDSQLQSPMYFFLT
SLSFLDLCFTTTTVPQMLFNLQGPNKNITYIGCMAQAYVFHWLGCTECVLLGIMALDRYVAVCKPLRYSV
IMDHRLCLQLSGAAWLTGLANSLLQSTLTIQLPLCGNRMLDHFFCELPGLIKMSCGDTTVNEVTLAVVAT
FFIMGPLSMILVSYSYIAQTVFRMPSAAGRLKAFNTCSSHLLVVSLFYGPGIYIYM-QPSEDG-SQDLIK
VLTLFYCVITPMANPFIYTLRNKDVIGALKRLL-RKAISTKGI*---

>MmOR11.5.2
MQVTTERQNVS--FPDTFVLVGFSDHPWLEMPLFGVLLISYIFTMIGNSSIIVLSLVEPRLQTPMYFFLD
NLSLLDLCVTCTIVPQLLVNLWGPEKTIASWSCIAQAYLFHWTSCTESALLAVMAFDRYVAICCPLRYVL
IMHLWACVWLAAVCWASGLANSLVQATLTLYLTLCAKNTLDHFFCEVPALIKLACSDTTTNDLSLALGAI
PFGIVSPLTVLISYIFIARAVLKLPSAEGRRKALSTCTSHLLVVTMYFGPGMYTYL-QPPG---NNTQSE
FLSLFYCVFTPLLNPLIYTLRNKDVKEAWKKVLTSKGISLKGQ*---

>MmOR19.1.71
FVVSMTWENHS--VLMEFVFLAYPNRLELRMFCFLGISLAYALIISGNILIMVSIQTETRLHSPMYYFLG
SLSGIELCYTAVVVPHILANTLKSEKNITLLSCATQMVFFIGLGSADCFLLASMAYDRYVAICHPLQYPL
IMTVTLCVRLVLASVVIGLVLSLQLVVFIFCLPFCQDRGIEHFFCDVPPVMRLVCATSHIHELSVLVAAA
LAIAVPFFFIATTYALIVAAVLKLHSAAGRHRAFNTCSSHLTVVLLQYGCCAFMYL-RPNSSY-HPKKDQ
FISLVYTLGTPFLNPLIYTLRNNEMKGAIEKVLTRNYFSQKNIQ*--

>MmOR19.1.69
AVDSMTWKNHS--LFMEFVFLAYPKRPELRMLCFFGVSLAYGLIISGNILIVVSIQTETRLHTPMYYFLG
SLSGIELCYTAVVVPHILANNFQSEKTISLLSCATQMVFLIGLGSADCFLLAIMAYDRYVAICHPLQYPL
IMTITLCVRLVVASVVIGLFLSLQLVVFIFCLPFCQDRGIEHFFCDAPPLMRLVCATSHIHELSVLMAAT
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LAIAVPFFFIATTYALIVAAVLKLHSAAGRHRAFNTCSSHLTVVLLQYGCCAFMYL-RPVSSY-HPKQDQ
FVSLVYTLGTPFLNPLIYTLRNSEMKGAIGKVLTRKYLSWKMIG*--

>SOR10W1
---------------MEFVFLAYPSCPELHILSFLGVSLVYGLIITGNILIVVSIHTETCLCTSMYYFLG
SLSGIEICYTAVVVPHILANTLQSEKTITLLGCATQMAFFIALGSADCFLLAAMAYDRYVAICHPLQYPL
LMTLTLCVHLVVASVISGLFLSLQLVAFIFSLPFCQAQGIEHFFCDVPPVMHVVCAQSHIHEQSVLVAAI
LAIAVPFFLITTSYTFIVAALLKIHSAAGRHRAFSTCSSHLTVVLLQYGCCAFMYL-CPSSSY-NPKQDQ
FISLVYTLGTPLLNPLIYALRNSEMKGAVGRVLTRNCLSQNS-----

>HsOR11.12.12
---------------MEFVFLAYPSCPELHILSFLGVSLVYGLIITGNILIVVSIHTETCLCTSMYYFLG
SLSGIEICYTAVVVPHILANTLQSEKTITLLGCATQMAFFIALGSADCFLLAAMAYDRYVAICHPLQYPL
LMTLTLCVHLVVASVISGLFLSLQLVAFIFSLPFCQAQGIEHFFCDVPPVMHVVCAQSHIHEQSVLVAAI
LAIAVPFFLITTSYTFIVAALLKIHSAAGRHRAFSTCSSHLTVVLLQYGCCAFMYL-CPSSSY-NPKQDR
FISLVYTLGTPLLNPLIYALRNSEMKGAVGRVLTRNCLSQNS*----

>HsOR11.13.13
----MEGINKT--AKMQFFFRPFSPDPEVQMLIFVVFLMMYLTSLGGNATIAVIVQINHSLHTPMYFFLA
NLAVLEIFYTSSITPLALANLLSGKTPVSITGCGTQMFFFVFLGGADCVLLVVMAYDQFIAICHPLRYRL
IMSWSLCVELLVGSLVLGFLLSLPLTILIFHLPFCHNDEIYHFYCDMPAVMRLACADTRVHKTALYIISF
IVLSIPLSLISISYVFIVVAILRIRSAEGRQQAYSTCSSHILVVLLQYGCTSFIYL-SPSSSY-SPEMGR
VVSVAYTFITPILNPLIYSLRNKELKDALRKAL-RKF*---------

>MmOR19.1.4
----MEIINKT--AKVQFFFRPFSPDPGVQMVIFVTFLVMYLTSLSGNATIAVIVHINHSLHTPMYFFLA
NLAVLEIFYTSSIAPLALANLLSGKTPVSITGCGTQMFFFVFLGGADCVLLAVMAYDRFVAICYPLRYTL
IMSWSLCVEMMVGSLVLGFLLSLPLTILIFHLPFCHNNEIYHFYCDMPAVIRLACGDTHVHRTALYIISF
IVLSIPLTLISISYVFIITAILRIRSAEGRHRAFSTCSSHIVVVLLQYGCTSFIYL-SPSSSY-SPEMGR
MVSVVYTFITPILNPLIYSMRNKELKDALRKAL-RKF*---------

>MmOR19.1.2
----MEEGNQT--GMVLFHFRPFSKLPEVQMLIFVLFLMMYLVSIGGNMSIVLTIWTNRCLHTPMYFFLA
NLASLEIFYSSTIAPLTLASILSTERVVSLAGCGAQMFFFIFLGSADCILLAVMAYDRFVAICHPLRYTL
IMSWHLCVQLALGSLLLGFILAMQLTVLIFQLPFCSSKEISLFYCDVLPVMRLACADTHVHEATLFVVSV
IVLTIPFLLITLSYVFIVDAILKIRSAEGRHKAFSTCSSHLTVVLLQYGCTSLIYL-CPSSSY-SPERGQ
VVSVVYTFITPVLNPLIYSMRNRELKDALRRVIMKLVLIQTQEAL*-

>MmOR19.1.3
----MEEENQT--GVVYFHFRPFSTNSTVASLVFVGFLLLYLGSLIGNLTIGLTVWQDHSLHTPMYFFLF
VLATLELGYSTNIAPLTLASILSMGKLISLPSCGAQMFFFILLGGSDCVLLAIMAYDRYVAICHPLHYSL
IMSWQLCGQMALGSLGLGFLLSLPLTILICHLPFCGHNEIYHFFCDMPAVMRLACTDTHIHQAALFAISV
AAVAIPFLLICLSYGCIVATILRMTSAEGKRRAFSTCSSHLLVVVLQYGCCTLIYL-RPSSSY-SPEEGR
AVSVVYTFFSPLLNPLIYSLRNQEVTDAVKRLLTRMFWFRKPERFLP

>MmOR19.1.72
MLTGKSVLNQS--GTTEFVFRVFTTVPEFQALLFLLFLLLYLMILCGNAAIIWVVCTHSALHTPMYFFLS
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
SLSVLEIFYTTDVVPLMLSNIFGAQKPISLAGCGTQMFFFVTLGSTDCFLLAVMAYDRYVAICHPLHYSL
IMTKKLCVQMVMGSWSLALFLSLQLTALIFTLPFCGHQEINHFLCDVPPVLRLACADIHVHQAVLYVVGI
LVLTVPFLLICISYVFIASTILRMRSAEGRQRAFSTCSSHLTVVLLQYGCCSLVYL-RPRSST-SEDEDR
QIALVYTFVTPLLNPLIYTLRNKDVKGALKNSIFHKAV*--------

>SMOR266-1
MLTGKSVLNQS--GTTEFVFRVFTTVPEFQALLFLLFLLLYLMILCGNAAIIWVVCTHSALHTPMYFFLS
SLSVLEIFYTTDVVPLMLSNIFGAQKPISLAGCGTQMFFFVTLGSTDCFLLAVMAYDRYVAICHPLHYSL
IMTKKLCVQMVMGSWSLALFLSLQLTALIFTLPFCGHQEINHFLCDVPPVLRLACADIHVHQAVLYVVGI
LVLTVPFLLICISYVFIASTILRMRSAEGRQRAFSTCSSHLTVVLLQYGCCSLVYL-RPRSST-SEDEDR
QIALVYTFVTPLLNPLIYTLRNKDVKGALKNSIFHKAV---------

>MmOR19.1.70
MLTGKLVLNQS--GTPEFVFRVFTNAPEFQALLFTLFLLLYLMIFCGNTAIIWVVCTHTSLHTPMYFFLS
SLSFLEICYTTDVVPLMLSNIFGTQKPISLAGCGTQMFFFLTLGGTDCFLLAIMAYDRYVAICHPLHYNL
IMTKKLCVQMVMGSLSLALFLSLQLTALIFTLPFCGHLEINHFLCDVPPVLRLACADIHVHQAVLYVVGI
LVLTVPFLLIFISYVFIVSTILRMRSAEGRQRAFSTCSSHLTVVLLQYGGCSLVYL-RPRSSS-SDDEDR
QIALVYTFVTPLLNPLIYTLRNKDVKGALRNSIFCKSASHCS*----

>MmOR19.1.73
MVDRNPFFNKS--GPPEFVFRVLTNVPEFQAILFTLFFLLYLMILCGNTTIIWVVCNHSSLHTPMYFFLG
SLSFVEICYITDVVPLILSNIFGDQKPISLAGCGTQMFFFSVFGCTDCFLLTVMAYDRYVAICHPLHYNL
IMTQKLCVQMVIGSLSLALLLSLELTAFTFTLPFCRHLEINHFLCDVAPIMRLACADIHVNQAVLYVVSI
LVLTVPFLLIFISYVFIASTILRMHSAEGRQRAFSTCSSHLTVVLLQYGCCSLVYL-RPRSST-SEDEDR
QIALVYIFGTPLLNPLIYTLRNKDIKDALRNSFFHVPASDTS*----

>HsOR11.12.11
MPVGKLVFNQS--EPTEFVFRAFTTATEFQVLLFLLFLLLYLMILCGNTAIIWVVCTHSTLRTPMYFFLS
NLSFLELCYTTVVVPLMLSNILGAQKPISLAGCGAQMFFFVTLGSTDCFLLAIMAYDRYVAICHPLHYTL
IMTRELCTQMLGGALGLALFPSLQLTALIFTLPFCGHQEINHFLCDVPPVLRLACADIRVHQAVLYVVSI
LVLTIPFLLICVSYVFITCAILSIRSAEGRRRAFSTCSFHLTVVLLQYGCCSLVYL-RPRSST-SEDEDS
QIALVYTFVTPLLNPLLYSLRNKDVKGALRSAIIRKAASDAN*----

>SOR10Q1
MPVGKLVFNQS--DPTEFVFRAFTTATEFQVLLFLLFLLLYLMILCGNTAIIWVVCTHSTLRTPMYFFLS
NLSFLELCHTTVVVPLMLSNILGAQKPISLAGCGAQMFFFVTLGSTDCFLLAIMAYDRYVAICHPLHYTL
IMTRELCTQMLGGALGLALFPSLQLTALIFTLPFCGHQEINHFLCDVPPVLCLACADIRVHQAVLYVVSI
LVLTIPFLLICVSYVFITCAILSIRSAEGRRRAFSTCSFHLTVVLLQYGCCSLVYL-RPRSST-SEDEDS
QIALVYTFVTPLLNPLLYSLRNKDVKGALRSAIIRKAASDAN-----

>MmORX.2.1
--MTPLKKNHT--LSSEFIILGFGDLAELQFLFFGLFLIMHLITLAGHTTIVLITLIDTCLQTPMYFFLR
NLSAIEICYILVIVPNMLANFLSRNQRMPFLGCALQMHLFIALGGAECFLLAAMAYDRFVAICNPLRYTL
IITRALCLQMLALACISGFTLSLTLTTLIFLLPFCQSHVINHFFCDIPAVLFLACSDTQANEIAVFLVCM
LILLIPFLLILFSYGFIIAAILRIHSAEGRSKAFSTCAGHLLVSVMHYGCAIFIYI-RPKSCY-TPEQDK
IVSLIYTNVTPMLYPMIYSLRNKEVKGALRRLL--VNHN*-------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>HsOR6.3.22
--------NTS--MVTEFLLLGFSHLADLQGLLFSVFLTIYLLTVAGNFLIVVLVSTDAALQSPMYFFLR
TLSALEIGYTSVTVPLLLHHLLTGRRHISRSGCALQMFFFLFFGATECCLLAAMAYDRYAAICEPLRYPL
LLSHRVCLQLAGSAWACGVLVGLGHTPFIFSLPFCGPNTIPQFFCEIQPVLQLVCGDTSLNELQIILATA
LLILCPFGLILGSYGRILVTIFRIPSVAGRRKAFSTCSSHLIVVSLFYGTALFIYI-RPKASY-DPATDP
LVSLFYAVVTPILNPIIYSLRNTEVKAALKRTIQKTVPMEI*-----

>SOR10C1a
-----MSANTS--MVTEFLLLGFSHLADLQGLLFSVFLTIYLLTVAGNFLIVVLVSTDAALQSPMYFFLR
TLSALEIGYTSVTVPLLLHHLLTGRRHISRSGCALQMFFFLFFGATECCLLAAMAYDRYAAICEPLRYPL
LLSHRVCLQLAGSAWACGVLVGLGHTPFIFSLPFCGPNTIPQFFCEIQPVLQLVCGDTSLNELQIILATA
LLILCPFGLILGSYGRILVTIFRIPSVAGRRKAFSTCSSHLIMVSLFYGTALFIYI-RPKASY-DPATDP
LVSLFYAVVTPILNPIIYSLRNTEVKAALKRTIQKTVPMEI------

>SOR10C1b
------------MVTEFLLLGFSHLADLQGLLFSVFLTIYLLTVAGNFLIVVLVSTDAALQSPMYLFLR
TLSALEIGYTSVTVPLLLHHLLTGRRHISRSGCALQMFFFLFFGATECCLLAAMAYDRYAAICEPLRYPL
LLSHRVCLQLAGSAWACGVLVGLGHTPFIFSLPFCGPNTIQQFFCEIQPVLQLVCGDTSLNELQIILATA
LLILCPFGLILGSYGRILVTIFRIPSVAGRRKAFSTCSSHLIVVSLFYGTALFIYI-RPKASY-DPATDP
LVSLFYAVVTPILNPIIYSLRNTEVKAALKRTIQKTVPMEI------

>HsOR11.4.4
----MAIGNWT--EISEFILMSFSSLPEIQSLLFLTFLTIYLVTLKGNSLIILVTLADPMLHSPMYFFLR
NLSFLEIGFNLVIVPKMLGTLLAQDTTISFLGCATQMYFFFFFGVAECFLLATMAYDRYVAICSPLHYPV
IMNQRTRAKLAAASWFPGFPVATVQTTWLFSFPFCGTNKVNHFFCDSPPVLKLVCADTALFEIYAIVGTI
LVVMIPCLLILCSYTRIAAAILKIPSAKGKHKAFSTCSSHLLVVSLFYISSSLTYF-WPKSNN-SPESKK
LLSLSYTVVTPMLNPIIYSLRNSEVKNALSRTFHKVLALRNCIP*--

>HsOR11.4.5
--------------------MSFSSLPEIQSLLFLTFLTIYLVTLMGNCLIILVTLADPMLHSPMYFFLR
NLSFLEIGFNLVIVPKMLGTLLAQDTTISFLGCATQMYFFFFFGVAECFLLATMAYDRYVAICSPLHYPV
IMNQRTRAKLAAASWFPGFPVATVQTTWLFSFPFCGTNKVNHFFCDSPPVLRLVCADTALFEIYAIVGTI
LVVMIPCLLILCSYTHIAAAILKIPSAKGKNKAFSTCSSHLLVVSLFYISLSLTYF-RPKSNN-SPEGKK
LLSLSYTVMTPMLNPIIYSLRNNEVKNALSRTVSKALALRNCIP*--

>SMOR263-1
MLIPMATGNQT--RITEFILMSFSSLPEIQTLLFLAFLTIYLVTLLGNSLIILVTLADPMLQSPMYFFLR
NLSFLEIGFNLVIVPKMLGTLIAQDTSISFLGCATQMYFFFFFGVAECFLLATMAYDRYVAICSPLHYPV
IMNQETRVKLAAASWFPGFPVATVQTTWLFSFPFCATNKVNHFFCDSPPVLRLVCADTAQFEVYAIVGTI
LVVMIPCLLILCSYTLIAASILKIPSAKGKHKAFSTCSSHLLVVSLFYVSSSLTYF-RPKSNN-SPESKK
LLSLSYTVVTPMLNPIIYSLRNNEVKSALSRTFHKALALRNHIT---

>SOR10A4
----MPSENWT--IVSEFVLVSFSALSELQALLFLLFLTIYLVTLMGNVLIILVTIADSALQSPMYFFLR
NLSFLEIGFNLVIVPKMLGTLIIQDTTISFLGCATQMYFFFFFGAAECCLLATMAYDRYVAICDPLHYPV
IMGHISCAQLAAASWFSGFSVATVQTTWIFSFPFCGPNRVNHFFCDSPPVIALVCADTSVFELEALTATV
LFILFPFLLILGSYVRILSTIFRMPSAEGKHQAFSTCSAHLLVVSLFYSTAILTYF-RPQSSA-SSESKK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LLSLSSTVVTPMLNPIIYSSRNKEVKAALKRLIHRTLGSQKLRL---

>HsOR11.4.6
----MMWENWT--IVSEFVLVSFSALSELQALLFLLFLTIYLVTLMGNVLIILVTIADSALQSPMYFFLR
NLSFLEIGFNLVIVPKMLGTLIIQDTTISFLGCATQMYFFFFFGAAECCLLATMAYDRYVAICDPLHYPV
IMGHISCAQLAAASWFSGFSVATVQTTWIFSFPFCGPNRVNHFFCDSPPVIALVCADTSVFELEALTATV
LFILFPFLLILGSYVRILSTIFRMPSAEGKHQAFSTCSAHLLVVSLFYSTAILTYF-RPQSSA-SSESKK
LLSLSSTVVTPMLNPIIYSSRNKEVKAALKRLIHRTLGSQKL*----

>MmOR7.6.25
SCKRMTWGNWT--TVREFILMSFSSLSEVQALLFLLFLIIYLVTLMGNVLIILVTTADSALQSPMYFFLR
NLSFLEIGFNLVIVPKMLSTLILQDKTISFLGCATQMYFFFFFGAAECCLLATMAYDRYMAICDPLHYPI
IMSRRSCAQLAAASWFSGFPVATVQTTWIFSFPFCGPNMVNHFFCDSPPVIALVCADTSLFELEALTATV
LFILFPFLLILGSYVRILSTIFRMPSAEGKRKAFSTCSSHLLVVSLFYSTAILTYF-RPRSNT-SPENKK
MLSLSYTVVTPMLNPIIYSLRNNEVKAALRRIIHRTLGPQKL*----

>HsOR12.5.5
----MICENHT--RVTEFILLGFTNNPEMQVSLFIFFLAIYTVTLLGNFLIVTVTSVDLALQTPMYFFLQ
NLSLLEVCFTLVMVPKMLVDLVSPRKIISFVGCGTQMYFFFFFGSSECFLLSMMAYDRFVAICNPLHYSV
IMNRSLCLWMAIGSWMSGVPVSMLQTAWMMALPFCGPNAVDHFFCDGPPVLKLVTVDTTMYEMQALASTL
LFIMFPFCLILVSYTRIIITILRMSSATGRQKAFSTCSSHLIVVSLFYGTASLTYL-RPKSNQ-SPESKK
LVSLSYTVITPMLNPIIYGLRNNEVKGAVKRTITQKVLQKLDVF*--

>SOR10A7
----MICENHT--RVTEFILLGFTNNPEMQVSLFIFFLAIYTVTLLGNFLIVTVTSVDLALQTPMYFFLQ
NLSLLEVCFTLVMVPKMLVDLVSPRKIISFVGCGTQMYFFFFFGSSECFLLSMMAYDRFVAICNPLHYSV
IMNRSLCLWMAIGSWMSGVPVSMLQTAWMMALPFCGPNAVDHFFCDGPPVLKLVTVDTTMYEMQALASTL
LFIMFPFCLILVSYTRIIITILRMSSATGRQKAFSTCSSHLIVVSLFYGTASLTYL-RPKSNQ-SPESKK
LVSLSYTVITPMLNPIIYGLRNNEVKGAVKRTITQKVLQKLDVF---

>SMOR265-1
MSNSELMKNGSLSLCTEFTLVAFSSLAELQLVLFVVFLVLYLFTVGGNLTIICVIWTTPSLHTPMYFFLA
NLSFLEMCYISSVVPQMLVHLLVQLKTISVAGCAAQMYVFTILGLTECCLLATMAYDRFVAICYPLHYTL
WMDPSVCLKLAGASWMTGILVESAQTTWIFTLPFCGAGTIQHFFCDIMPVVKLACVDTSQNEMVIFIISL
IFIMSPCLFILCSYVRIILTILKMPSAAGRHKAFSTCSSHILVVSLFYGTALFTYL-QPKSSH-TPDTDK
VTALMYTVVTPALNPVIYTLRNKEVKEAFQKVTQKETS---------

>MmOR10.4.66
----MEACPSA----LNSTLVAFSSLAELQLVLFVVFLVLYLFTVGGNLTIICVIWTTPSLHTPMYFFLA
NLSFLEMCYISSVVPQMLVHLLVQLKTISVAGCAAQMYVFTILGLTECCLLATMAYDRFVAICYPLHYTL
WMDPSVCLKLAGASWMTGILVESAQTTWIFTLPFCGAGTIQHFFCDIMPVVKLACVDTSQNEMVIFIISL
IFIMSPCLFILCSYVRIILTILKMPSAAGRHKAFSTCSSHILVVSLFYGTALFTYL-QPKSSH-TPDTDK
VTALMYTVVTPALNPVIYTLRNKEVKEAFQKVTQRKLHRQID*----

>MmOR17.2.45
VNCSLWQENSL--SVKRFAFAKFSEVPGECFLLFTLILLMFLVSLTGNALITLAICTSPALHTPMYFFLA
NLSLLEIGYTCTVIPKMLQSLVSEARGISREGCATQMFFFTLFGITECCLLAAMAFDRCMAICSPLHYTT
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
RMNRGVCAHLAIVSWGTGCIVGLGQTNFIFSLNFCGPCEIDHFFCDLPPVLALACGDTSQNEAAIFVVAI
LCISSPFLLIIYSYVRILVAVLVMPSPEGRHKAFSTCSSHLLVVTLFFGSGSINYL-RPKSSH-SPGMDK
LLALFYTAVTSMLNPIIYSLRNKEVKAALRRTLGLVLTMNR*-----

>MmOR17.2.37
CCPFFQEMNSL--SVKRFAFAKFSEVPGECFLLFTLILLMFLVSLTGNSLIALAICTSAALHTPMYFFLA
NLSLLEIGYTCSVIPKMLQSLVSEARGISREGCATQMFFFIFFGITECCLLAAMAFDRYMAICSPLHYAT
RMSRGVCAHLAIVSWGMGCIVGLGQTNFIFSLNFCGPCEIDHFFCDLPPVLALACGDTSQNEAAIFVAAV
LCIFSPFLLIISSYVRILIAVLVMPSREGRHKALSICSSHLLVVTLFYGSTSATYL-RPKSDH-SPEVDK
LLALFYTAVTSMLNPIIYSLRNKEVKAALRKTLSLVLIMNR*-----

>MmOR2.2.127
FTEIRAEDNAS--TVTEFLLLGFSDLPNLQGILFGMFSIIYLIILVGNSFIIVITRIDPALQKPMYFFLA
NFSSLEICYVSVTLPRILFSIATQERKISVLSCATQLCFFLMLAATECFLLAVMSYDRYVAICNPLHYPL
VMNPTKCTQLAAASWLGGIPVQIGQTCQIFSLHFCNSNQINHFLCDIPPILKLACGDTSINELSVYLVAI
LFAAVPFMLILASYGKIIATILKLPTATGRAKAFSTCSSHLLVVFLFFGSATITYL-RPKSTH-SPGTDK
LFSLFYSIVTPMLNPLIYSLRNKEVIAALRKLL-RIK*---------

>MmOR2.2.126
FTEIRAEDNAS--TVTEFLLLGFSDLPNLQGILFGMFSIIYLIILVGNSFIIVITRIDPALQKPMYFFLA
NFSSLEICYVSVTLPRILFSIAAQERKISVLSCATQLCFFLMLGATECFLLAVMSYDRYVAICNPLHYPL
VMNPTKCTQLAAASWLGGIPVQIGQTCQIFSLHFCNSNQINHFFCDIPPFLKLACGDTSINELSVYLVAI
LFAAVPFMLILASYSKIIATILKLPTATGRAKAFSTCSSHLLVVFLFFGSATITYL-RPKSTH-SPGTDK
LFSLFYTIVTPMLNPLIYSLRNKEVIAALRKLL-RIK*---------

>MmOR2.2.122
FTEIRAEDNAS--TVTEFLLLGFSDLPNLQGILFGLFSIIYLIILIGNSFIIVITRIDPALQKPMYFFLA
NFSSLEICYVSVTLPRILFNIATQDRSISVVSCATQMCFFLMLGATECFLLAVMSYDRYVAICNPLHYPL
VMNPTKCTQLAAASWLGGIPVQIGQTCQIFSLHFCNSNQIDHFFCDLPPILKLACGDTSIHELSVYLVAM
LFVAFPFLLILASYTKIIATILKLPTATGRAKAFSTCSSHLLVVFLFFGSATITYL-RPKSTH-SPGTDK
LLSLFYTIVTPMFNPLIYSLRNKEVIAALRKLL-HIK*---------

>MmOR2.2.117
HSENSAMDNAT--SVTQFLLLGFSGVPNLQTFLFGMFSIMYVVILIGNTSILVIARIDPALQKPMYYFLA
NFSFLEICYVSVTLPRILYNLWTQDRGICLLACAIQMFFFLILAATECFLLAVMSYDRYVAICNPLHYPL
VMNPTKCTQLAVGSWLGGIPVQIGQTCRIFSLHFCNSNIIEHFFCDVPPILKLACGDTSMHELSVYLVAM
FFVASPFMLILASYSKIIATILKLPTATGRAKAFSTCSSHLVVVLLFFGSATINYL-RPKSIH-SVGTDE
LLSLFYTIVTPMFNPLIYSLRNKDVIAALRRLLLK-----------

>MmOR2.2.144
HEELESINNVS--TVIQFVLIGFSDLPNLQGFLFAVFSVVYIIILIGNFLIIIIISTDQALQKPMYFFLA
NFSSLEICYVSVTVPRILFNIGTQNRSISLMSCATQLCFFLVFGTTECLLLAVMSYDRYVAICNPLHYPL
VMNPTKCTQLAAVSWLGGIPVQIGQTCQIFSMNFCNSYKINHFFCDIPPILTLACGNTSVHELSVYVVVM
VVAAFPFILVLTSYSKIIATILRLPTAKGRGKAFSTCSSHLLVVLLFYGSATVTYL-RPKSMH-SPGTDK
LLSLFYTIVTPMFNPLIYSLRNKEVIAALRKLILK-----------

>MmOR2.2.146
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
HEELESIDNVS--TVIQFVLIGFSDLPNLQGFLFAVFSVVYIIILIGNFLIIIIISMDQALQKPMYFFLA
NFSSLEICYVSVTVPRILFNIGTQNRSISLMSCATQMSFFLVFGTTESLLLAVMSYDRYVAICHPLLYPL
IMNPTKCKQLAAVSWLGGMPVQIGQTCQIFSMNFCNSYKINHFFCDIPPILKLACGDTSVHELSVYVVVM
VVAAFPFIPVLASYSKIIATILRLPTAKVRAKAFSTCSSHLMVVLLFYGSATVTYL-RPKSMH-SPGTDK
LLSLFYTVVTPMFNPLIYSLRNKEVISALRKLLFKTYY*--------

>MmOR2.2.141
HDEIEAEVNIS--TVIQFVLLGFSALPNLQGILSALFSIIYRIILTGNCLIILITRLDHTLHKPMYFFLA
NFSSLEICYVSVTVPRILFNIWTQDRNISVLACAVQMCFFLMLGTDECFLLAVMSYDRYVAICNPLHYPL
IMNSKKCTQLAAGSWLSGIPIQIGQTCWIFSMHFCDSNEIDHFFCDIPPILKLACGDTSVHELSVYVVVM
VVAAFPFILVLTSYSKIIATILRLPTAKGRAKAFSTCSSHLLVVVLFYGSGTITYL-RPKSTH-SPGIDK
LLSLFYTIVTPMFNPLIYSLRNKEVVVALRKLILQ------------

>MmOR2.2.118
HTDIREEDNAS--AVTQFLLLGFSDLPNLQSFLFGVFSIMYLIMLIANSFIIVITKLDPTLQKPMYFFLV
NFSFLEICYVSVILPRVLYSIWTQDRNISLLACATQMCFFLMLAATESIFLAVMSYDRYVAICSPLHYPL
VMSPRKCRQLAAGSWLGGMPFQVGQTCQIFSLHFCNSNQIEHFFCDIPPVLKLACGDTSVIEMYVYVVAI
LLAAIPFILILTSYSKIIATILRLPTAEGRSKAFFTCSSHLVVVVLFFAPASITYL-MPKSSH-SAVSDK
FLSLFYTIITPVFNPMIYSLRNKEVIAALRRLLLT------------

>MmOR2.2.111
STLQSPQQNHS--TFVAFILLGFSDVPNLQEFLFGLFLMVYLIILMGNSLIIIIIRADPSLQTPMYFFLG
NFSFLEMCYVSVTLPRLLTDLYRQDRIISFMACATQMYFFLIFGATECFILTAMAYDRYVAICNPLLYPL
IMNNSLCIQLAAGCWISGVPVHIGFTYWIFSLPFCGSNQLNHFFCDIPPVLTLACGDTFMIEMLIYVIAL
LVVTIPFMLILASYVKIISSILKLPSATGRAKAFSTCSSHLIVVALFFGSGIITYL-RPKSSH-SAGVDK
FLSLFYTVVTPLFNPMIYCLRNKDVMIALKKIFLRCFML*-------

>MmOR2.2.121
HQQKPQEGNLT--NLKEFVLLGFSDVPDLQWVLFGLLIAMYCFILLGNGTIVLITNVDSALQTPMYFFLG
NFSFLEICYVSITLPRMVFNLGTQRRTISFIACATQMCCILILGATECFLLAVMAYDRYVAICNPLHYPL
VMNQKVCSQLVIGSWISGIPIQIGQTSHIFSLSFCGSNQINHFFCDIPPILHLACGDIFINEMMVFLGAF
LFVLFPFLLIVFSYSKIIFTVLKLSSTKSRAKAFSTCSSHLAVVILFFGSGMITYF-RSNSSH-SGETDK
VLSLFYTVVTPMFNPMVYSLRNKDVTIALRKFLCKQFVKI*------

>MmOR2.2.113
SKYVNLQRNLS--VPIEFVLLGFSDIPQLHWFLFGIFFFIYMSILLGNGLIILITRVEPTLQTPMYFFIS
NLSFLEICYVSVTLPRMLMDLFTLKGNISFLACATQMCLFLILGGTECFLLAVMSYDRYVAICNPLHYPI
VMSSKVCTQLVVGSWVIGVPIQVGQTYQILSLPFCESNQINHFFCDMPPLLRLACGNIFVNELVVFIFVV
LIVTIPFMLILASYSRIISTILKLPSKTGRTKAFSTCSSHLIVVFLFYGSASITYL-KPKSNK-YEETDK
LLSVFYTILTPMFNPLIYSLRNKDVTGALKKLFTRLLAL*-------

>MmOR2.2.112
SKYVNLQRNLT--VPIEFVLLGFSDIPQLHWFLFGIFLFIYMIILLGNGIIILITKVEPTLQTPMYFFIS
NFSFLEICYVSVTLPRMLMDLFTLKGNISFLACATQMCLFLILGATECFLLAVMSYDRYVAICNPLLYPV
VMSSKVCTQLVVGSWVIGVPIQVGQTYQILSLPFCESNQINHFFCDIPPLLKLACGNIFVNELVVFIFAV
LIVTIPFMLILASYSRIISTILKLPSNTGRTKAFSTCSSHLIVVFLFYGSASITYL-KPKSNK-FEGTDK
LLSLFYTILTPMFNPLIYSLRNKDVTGALKKLFTRLLAL*-------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR2.2.119
DKKEIKSKNLN-ISITEFVLLGFSDVPQLQWMLFGIFLFMYLSILISNSIIMLITRTDSALQTPMYFFLS
NFSFVEICYVTVTIPRMLMDLCTQKGTISLLSCAVQLCFVIMLGGMEFLLLTVMAYDRYVAICNPLHYPL
VMNNKVCVQLVAACWICIIPVVTGQTYQIFSLPYCGSNKIHHFFCDIPPLLKLACGDTFVNNLAIYIASV
VFIMVPFLLILVSYGKIICNVLKLATSGGRSKAFSTCSSHLIVVVLFYGTATITYA-QPKAYQ-SETLGK
LLSLFYTILIPLLNPIIYTLRNKDIMVALRKLQTKLSTYGNT*----

>SMOR264-1
DKKEIKSKNLN-ISITEFVLLGFSDVPQLQWMLFGIFLFMYLSILISNSIIMLITRTDSALQTPMYFFLS
NFSFVEICYVTVTIPRMLMDLCTQKGTISLLSCAVQLCFVIMLGGMEFLLLTVMAYDRYVAICNPLHYPL
VMNNKVCVQLVAACWICIIPVVTGQTYQIFSLPYCGSNKIHHFFCDIPPLLKLACGDTFVNNLAIYIASV
VFIMVPFLLILVSYGKIICNVLKLATSGGRSKAFSTCSSHLIVVVLFYGTATITYA-QPKAYQ-SETLGK
LLSLFYTILIPLLNPIIYTLRNKDIMVALRKLQTKLSTYGNT-----

>MmOR2.2.120
EKIKAEKSNAS--SLIEFILLGFSDVPNLQWILFGIFLIMYLTILMCNSTIVLITRTDPALQTPMYFFLS
NFSFVEICYVTVTIPRMLVDLCTQKGNISILACATQMCFILMLGGTECLLLTAMAYDRYVAICNPLHYSL
VMNHRICTQLVAACWISVIPVVIGQTYQIFSLPFCGSNRINHFICDIPPVLKLACGDTFVNEIAVYVVAM
VFVMVPFMLIIFSYCKIICSILKLSSAKGRTKAFSTCSSHLIVVVLFYGTAGITYL-QPKPNQ-SEITGK
LLSLFYTILIPTLNPIIYTLRNKDIMAALRKLLSKILV*--------

>MmOR2.2.114
---------------MEFILLGFSNVPHLQWVLFMVFLFMYMTILLCNSIIIVLAKTDPALQTPMYFFLS
NFSFLEICYVTATIPRMLMDLYTLKGNISVFACATQMYFVLTLGGTECLLLAAMAYDRYVAICHPLQYSL
LMKNKVCLQLVAASWISGIPVEIGQTYQIFSLHFCASNRIDHFFCDIPPLLKLACGDTFMNTVAVYVVAV
LFVMVPFLLIIVSYIKIICNIMKLSSAKGMAKAFSTCSSHLIVVILFYGTASITYL-QPKQSQ-SEGMGK
MLSLFYTILIPALNPIIYSLRNKDIMMALRKLHSKLLIWWENLK*--

>MmOR2.2.116
---------------MEFILLGFSNVPHLQWVLFMVFLFMYMTILLCNSIIIVLAKTDPALHTPMYFFLS
NFSFLEICYVTATIPRMLMDLYTLKGNISVFACATQMYFVLMLGATECLLLAAMAYDRYVAICHPLQYSL
LMKNKVCLQLVAASWISGIPVQIGQTYQIFSLHFCASNKIDHFFCDIPPLLKLACGDIFMNTVAVYVVAV
VFVMVPFLLIIVSYIKIICNIMKLSSAKGMAKAFSTCSSHLIVVVLFYGTASITYL-QPKQSQ-SEGMGK
LLSLFYTILIPALNPIIYTLRNKDIMMALRKLHSKLLIWWKNVK*--

>SOR10AG1
---------------MEFVLLGFSDIPNLHWMLFSIFLLMYLMILMCNGIIILLIKIHPALQTPMYFFLS
NFSLLEICYVTIIIPRMLMDIWTQKGNISLFACATQMCFFLMLGGTECLLLTVMAYDRYVAICKPLQYPL
VMNHKVCIQLIIASWTITIPVVIGETCQIFLLPFCGTNTINHFFCDIPPILKLACGNIFVNEITVHVVAV
VFITVPFLLIVVSYGKIISNILKLSSARGKAKAFSTCSSHLIVVILFFGAGTITYL-QPKPHQ-FQRMGK
LISLFYTILIPTLNPIIYTLRNKDIMVALRKLLAKLLT---------

>HsOR11.11.37
---------------MEFVLLGFSDIPNLHWMLFSIFLLMYLMILMCNGIIILLIKIHPALQTPMYFFLS
NFSLLEICYVTIIIPRMLMDIWTQKGNISLFACATQMCFFLMLGGTECLLLTVMAYDRYVAICKPLQYPL
VMNHKVCIQLIIASWTITIPVVIGETCQIFLLPFCGTNTINHFFCDIPPILKLACGNIFVNEITVHVVAV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
VFITVPFLLIVVSYGKIISNILKLSSARGKAKAFSTCSSHLIVVILFFGAGTITYL-QPKPHQ-FQRMGK
LISLFYTILIPTLNPIIYTLRNKDIMVALRKLLAKLLT*--------

>MmOR7.7.42
----MRRQNHN--STVEFILLGFSNYPELQGQMFGAFLVIYLVTVLGNAIIITIIFLDQSLHIPMYLFLQ
NLSLVDLCFSTVITPEILVVLTSEKATISFGGCFVQMYFILLFGGTECFLLGAMAYDRFAAICHPLSYPV
IMNKSVFVKLVMFSWVSGTMMTTLQTTWVFSFPYCDHKEINHLFCETPPVLELACADTFLFEVYAFTGTI
LIVMVPFLLILLSYTRILFSILRMPSTTGRQKAFSTCASHLTSVTLFYGTASITYL-QPKSRY-SPDTKK
LMSLAYTLLTPLLNPLIYSLRNKEMKRAVVKLWQRKVTLHTG*----

>MmOR7.7.39
-MSLRQTQNHS--STVEFILLRFSNYPELQDQMFGTFLVIYLVTVMGNAIIITIIFLDQSLHIPMYLFLQ
NLSLVDLCFSTVITPKMLVVLTSKKATISFGGCFAQMYFILFFGVTECFLLGAMAYDRFAAICHPLSYPM
IMNKRVFMKLVMFSWVSGTMMSTLQTTWVFSFPYCDHKEINHLFCETPPVLELACADTFLFEVYAFTGTI
FIVMVPFLLILLSYTRILFTILRMPSTTGRQKAFSTCASHLTSVTLFYGTASIIYL-QPKSRY-SPDTKK
LMSLAYILLTPLLNPLIYSLRNKEMKRAVLKLWQRKVAFHTA*----

>MmOR7.7.45
----MRRQNHS--STVEFILLGFSNYPELQGQMFGAFLVIYLVTVLGNAIIITIIFLDQSLHIPMYLFLQ
NLSLVDFCFSTVITPEILVILTSEKATISFGGCFVQMYFILLFGATECFLLGAMAYDRFAAICHPLTYPV
IMSKRTFVKLVMCPWVLSIMTAVLSVTWVASFPYCDHKEINHLFCEIPPVLELACADTFLFEVYAFTSTI
LIVMVPFLLILLSYTRILFSILKMPSTTGRQKAFSTCASHLTSVILFYGTASITYL-QPKSGY-SPDTKK
LMSLAYTLLTPLLNPLIYSLRNKEMKRAVVKLWQRKVTLHTG*----

>MmOR7.7.44
FAPLRAARNDS--SVAEFILLGFSAFPELQGQMFGAFLVIYLVTLMGNATIVAVILLDQSLHIPMYLFLQ
NLSVVEMSFSAAITPEMLVVLTSEKATISFGGCFAQMYFILLFGGTECFLLGAMAYDRFAAICHPLSYPM
IMNKRVFVKLVIFSWVSGIMVATVQTTWVFSFPYCDHKEINHLFCETPPVLELACADTFLFEVYAFTGTI
LIVMVPFLLILLSYTRILFSILRMPSTTGRQKAFSTCASHLTSVTLFYGTASITYL-QPKSRY-SPDTKK
LMSLAYTLLTPLLNPLIYSLRNKEMKRAVLKLWQRKVALHRG*----

>MmOR7.7.43
STTAMRGQNDS--SVAEFILLGFSNYPELQRQMFGAFLVIYLVTLTGNALIMSVILLDRSLHIPMYLFLQ
NLSVVETGFSTTVMPEMLVVLTSEKATISFGGCFAQMYFILLFGGTECFLLGAMAYDRFAAICHPLSYPV
IMNKRVFMTLVTCSWLSGTMMTTLQTIWVFSFPYCGSNEINHISCETPAVLELACTDIFFFEIYAFTGTV
LIILTPFVLILLSYIRILFSILKMPSTTGRQKAFSTCASHLTSVTLFYGTASMTYL-QPKSKY-SPDTKK
LMSLAYSLLTPLLNPLIYSLRNKEMKRAVVKLWERKVALHTT*----

>MmOR7.7.41
-----MGQNDS--SVVEFILLGFSHFPELQVHMFGAFLVIYLVTLTGNATIVTVIFLDHSLHIPMYLFLQ
NLSVVEASFSTTVMPEMLVVLTSEKATISFGGCFAQTYFILLFGGTECFLLGAMAYDRFAAICYPLTYPM
IMSKRIFVKLVVCSWVLGIMTATVSVTWVFSFPFCGPSKINHISCEVPAVLELACADTFLFEVYSFTGTI
LLVLVPFLLILLSYTQILFTVLRMPSTTGRQKAFSTCASHLTSVTLFYSTACMTYL-QPKSKY-SPDTKK
LMSLAYSLLTPLLNPLIYSLRNKEMKRAVVKLC-QIKVVF*------

>SMOR268-1
-----MGQNDS--SVVEFILLGFSHFPELQVHMFGAFLVIYLVTLTGNATIVTVIFLDHSLHIPMYLFLQ
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
NLSVVEASFSTTVMPEMLVVLTSEKATISFGGCFAQTYFILLFGGTECFLLGAMAYDRFAAICYPLTYPM
IMSKRIFVKLVVCSWVLGIMTATVSVTWVFSFPFCGPSKINHISCEVPAVLELACADTFLFEVYSFTGTI
LLVLVPFLLILLSYTQILFTVLRMPSTTGRQKAFSTCASHLTSVTLFYSTACMTYL-QPKSKY-SPDTKK
LMSLAYSLLTPLLNPLIYSLRNKEMKRAVVKLC-QIKVVF-------

>SOR10A6
----MERQNQS--CVVEFILLGFSNYPELQGQLFVAFLVIYLVTLIGNAIIIVIVSLDQSLHVPMYLFLL
NLSVVDLSFSAVIMPEMLVVLSTEKTTISFGGCFAQMYFILLFGGAECFLLGAMAYDRFAAICHPLNYQM
IMNKGVFMKLIIFSWALGFMLGTVQTSWVSSFPFCGLNEINHISCETPAVLELACADTFLFEIYAFTGTF
LIILVPFLLILLSYIRVLFAILKMPSTTGRQKAFSTCAAHLTSVTLFYGTASMTYL-QPKSGY-SPETKK
VMSLSYSLLTPLLNLLIYSLRNSEMKRALMKLWRRRVVLHTI-----

>HsOR11.5.7
----MERQNQS--CVVEFILLGFSNYPELQGQLFVAFLVIYLVTLIGNAIIIVIVSLDQSLHVPMYLFLL
NLSVVDLSFSAVIMPEMLVVLSTEKTTISFGGCFAQMYFILLFGGAECFLLGAMAYDRFAAICHPLNYQM
IMNKGVFMKLIIFSWALGFMLGTVQTSWVSSFPFCGLNEINHISCETPAVLELACADTFLFEIYAFTGTF
LIILVPFLLILLSYIRVLFAILKMPSTTGRQKAFSTCAAHLTSVTLFYGTASMTYL-QPKSGY-SPETKK
VMSLSYSLLTPLLNLLIYSLRNSEMKRALMKLWRRRVVLHTI*----

>HsOR11.5.8
----MKRQNQS--CVVEFILLGFSNFPELQVQLFGVFLVIYVVTLMGNAIITVIISLNQSLHVPMYLFLL
NLSVVEVSFSAVITPEMLVVLSTEKTMISFVGCFAQMYFILLFGGTECFLLGAMAYDRFAAICHPLNYPV
IMNRGVFMKLVIFSWISGIMVATVQTTWVFSFPFCGPNEINHLFCETPPVLELVCADTFLFEIYAFTGTI
LIVMVPFLLILLSYIRVLFAILKMPSTTGRQKAFSTCASHLTSVTLFYGTANMTYL-QPKSGY-SPETKK
LISLAYTLLTPLLNPLIYSLRNSEMKRTLIKLWRRKVILHTF*----

>SMOR269-1
----MDEENQT--TTTEFLLLGFSDLRALQGPLFWLVLLVYLITFLGNSLIIFLTQTSPVLHSPMYFFLR
HLSMVELLYTTDIVPRVLADLTSHPQAISFRSCAAQMYFFIVLGISECCLLTAMAYDRYAAICQPLHYST
LMNHRACIAMVGTSWIMGIITATTHSSLIFTLPFPSRPIIPHFLCDILPVLRLASAGKHRSEISVMTATV
VFIMIPFSLIVTSYARILGAILAIASSQSRRKVFSTCSSHLLVVSLFFGTASITYI-RPRAGS-SVTTDR
ILSLFYTVVTPMLNPIIYTLRNKEVIGALKHMK-R--QVP-------

>MmOR10.4.43
----MDEENQT--TTTEFLLLGFSDLRALQGPLFWLVLLVYLITFLGNSLIIFLTQTSPVLHSPMYFFLR
HLSMVELLYTTDIVPRVLADLTSHPQAISFRSCAAQMYFFIVLGISECCLLTAMAYDRYAAICQPLHYST
LMNHRACIAMVGTSWIMGIITATTHSSLIFTLPFPSRPIIPHFLCDILPVLRLASAGKHRSEISVMTATV
VFIMIPFSLIVTSYARILGAILAIASSQSRRKVFSTCSSHLLVVSLFFGTASITYI-RPRAGS-SVTTDR
ILSLFYTVVTPMLNPIIYTLRNKEVIGALKHMK-RQVP*--------

>HsOR12.5.26
----MAGENHT--TLPEFLLLGFSDLKALQGPLFWVVLLVYLVTLLGNSLIILLTQVSPALHSPMYFFLR
QLSVVELFYTTDIVPRTLANLGSHPQAISFQGCAAQMYVFIVLGISECCLLTAMAYDRYVAICQPLRYST
LLSPRACMAMVGTSWLTGIITATTHASLIFSLPFRSHPIIPHFLCDILPVLRLASAGKHRSEISVMTATI
VFIMIPFSLIVTSYIRILGAILAMASTQSRRKVFSTCSSHLLVVSLFFGTASITYI-RPQAGS-SVTTDR
VLSLFYTVITPMLNPIIYTLRNKDVRRALRHLVKRQRPSP*------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR10.4.2
----MGDDNDT--DITEFILLGFSGYGFLQGHLFWGVLCIYVVTLLGNSLIVLLTLADSALHSPMYFFLR
HFSVVEILYTTTIVPRMLADLRSSCPTIPLASCFTQLYFFALFGIAECCLLTAMAYDRYAAICCPLHYTT
LMSQGTYTGLVGASYLAGVISGTTHSIFIFTLPFRGAKTIHHFLCDILPVLRLATASTFWGEVGNLFVTI
TFIFAPFLLIVASYACILATILGVATSQGRQKLFSTCSSHLFVVILFFGTGTVAYM-RPQADS-FGDTDQ
IITLFYTVVTPMCNPFVYTLRNKEVTGAMRRLV-KRYF*--------

>MmOR7.1.7
FWEAPPWANQSRARELEFVLLGFAHVPSLRPMLAALFLAAFLLTMSGNSLIVLLTSLDFGLRTPMYFFLR
QLALVEICFSLDVAPRLLVTLLQPGRGVSPTSCALQLLLVLSCVTSECFLLMVMAWDRFLAICRPLRYGA
IMSPQLCYLLATTCWLAGIPVALVFTIWLFNFPFCGPRGIRHFFCDIAPLLSLVCADTRVFEANVFVATV
LVIMVPFCLIATSYVMILVAVLRMPSASGRHKALSTCASHLIVVILFYGTTGVIHL-RPKASY-SPESKQ
VVSLSYTMVTPMLNPLIYSLRNKEVKAAFGRVCCG------------

>SOR10K1
----MEQVNKT--VVREFVVLGFSSLARLQQLLFVIFLLLYLFTLGTNAIIISTIVLDRALHTPMYFFLA
ILSCSEICYTFVIVPKMLVDLLSQKKTISFLGCAIQMFSFLFFGSSHSFLLAAMGYDRYMAICNPLRYSV
LMGHGVCMGLMAAACACGFTVSLVTTSLVFHLPFHSSNQLHHFFCDISPVLKLASQHSGFSQLVIFMLGV
FALVIPLLLILVSYIRIISAILKIPSSVGRYKTFSTCASHLIVVTVHYSCASFIYL-RPKTNY-TSSQDT
LISVSYTILTPLFNPMIYSLRNKEFKSALRRTIGQTFYPLS------

>HsOR1.4.4
----MEQVNKT--VVREFVVLGFSSLARLQQLLFVIFLLLYLFTLGTNAIIISTIVLDRALHTPMYFFLA
ILSCSEICYTFVIVPKMLVDLLSQKKTISFLGCAIQMFSFLFFGSSHSFLLAAMGYDRYMAICNPLRYSV
LMGHGVCMGLMAAACACGFTVSLVTTSLVFHLPFHSSNQLHHFFCDISPVLKLASQHSGFSQLVIFMLGV
FALVIPLLLILVSYIRIISAILKIPSSVGRYKTFSTCASHLIVVTVHYSCASFIYL-RPKTNY-TSSQDT
LISVSYTILTPLFNPMIYSLRNKEFKSALRRTIGQTFYPLS*-----

>SOR10K2
----MERVNET--VVREVIFLGFSSLARLQQLLFVIFLLLYLFTLGTNAIIISTIVLDRALHIPMYFFLA
ILSCSEICYTFIIVPKMLVDLLSQKKTISFLGCAIQMFSFLFLGCSHSFLLAVMGYDRYIAICNPLRYSV
LMGHGVCMGLVAAACACGFTVAQIITSLVFHLPFYSSNQLHHFFCDIAPVLKLASHHNHFSQIVIFMLCT
LVLAIPLLLILVSYVHILSAILQFPSTLGRCKAFSTCVSHLIIVTVHYGCASFIYL-RPQSNY-SSSQDA
LISVSYTIITPLFNPMIYSLRNKEFKSALCKIVRRTISLL-------

>HsOR1.4.2
----MERVNET--VVREVIFLGFSSLARLQQLLFVIFLLLYLFTLGTNAIIISTIVLDRALHIPMYFFLA
ILSCSEICYTFIIVPKMLVDLLSQKKTISFLGCAIQMFSFLFLGCSHSFLLAVMGYDRYIAICNPLRYSV
LMGHGVCMGLVAAACACGFTVAQIITSLVFHLPFYSSNQLHHFFCDIAPVLKLASHHNHFSQIVIFMLCT
LVLAIPLLLILVSYVHILSAILQFPSTLGRCKAFSTCVSHLIIVTVHYGCASFIYL-RPQSNY-SSSQDA
LISVSYTIITPLFNPMIYSLRNKEFKSALCKIV-RRTISLL*-----

>MmOR8.2.1
----MECVNDT--VVREFVFLGFSSLAELQLLLFAIFLSLYLFTLSTNAVIVSTIVLDRALHTPMYFFLS
VLSCSETCYTFVIVPKMLVDLLARKKSISFLGCAIQMFTFLFLGCSHSFLLAAMGYDRYVAICHPLRYTV
LMGHRVCVGLVAAACVCGFTVAQVITSLVFRLPFRSSNQLHHFFCDISPVLQLASHHPHSTQITIFLLCA
LVLVIPLFLILVSYIHIISTILQFPSTLGRYKAFSTCASHLIVVIVHYGCASFIYL-RPKSSY-SSSQDA
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LISVSYTILTPLFNPVIYSLRNKDFKSALHRVIGRTVTLRQH*----

>HsOR1.4.1
----MRGFNKT-TVVTQFILVGFSSLGELQLLLFVIFLLLYLTILVANVTIMAVIRFSWTLHTPMYGFLF
ILSFSESCYTFVIIPQLLVHLLSDTKTISFMACATQLFFFLGFACTNCLLIAVMGYDRYVAICHPLRYTL
IINKRLGLELISLSGATGFFIALVATNLICDMRFCGPNRVNHYFCDMAPVIKLACTDTHVKELALFSLSI
LVIMVPFLLILISYGFIVNTILKIPSAEGK-KAFVTCASHLTVVFVHYGCASIIYL-RPKSKS-ASDKDQ
LVAVTYTVVTPLLNPLVYSLRNKEVKTALKRVLGMATKMS*------

>SOR10T2
----MRGFNKT-TVVTQFILVGFSSLGELQLLLFVIFLLLYLTILVANVTIMAVIRFSWTLHTPMYGFLF
ILSFSESCYTFVIIPQLLVHLLSDTKTISFMACATQLFFFLGFACTNCLLIAVMGYDRYVAICHPLRYTL
IINKRLGLELISLSGATGFFIALVATNLICDMRFCGPNRVNHYFCDMAPVIKLACTDTHVKELALFSLSI
LVIMVPFLLILISYGFIVNTILKIPSAEGK-KAFVTCASHLTVVFVHYGCASIIYL-RPKSKS-ASDKDQ
LVAVTYTVVTPLLNPLVYSLRNKEVKTALKRVLGMATKMS-------

>HsOR1.4.5
PPLQILAENLT--MVTEFLLLGFSSLGEIQLALFVVFLFLYLVILSGNVTIISVIHLDKSLHTPMYFFLG
ILSTSETFYTFVILPKMLINLLSVARTISFNCCALQMFFFLGFAITNCLLLGVMGYDRYAAICHPLHYPT
LMSWQVCGKLAAACAIGGFLASLTVVNLVFSLPFCSANKVNHYFCDISAVILLACTNTDVNEFVIFICGV
LVLVVPFLFICVSYLCILRTILKIPSAEGRRKAFSTCASHLSVVIVHYGCASFIYL-RPTANY-VSNKDR
LVTVTYTIVTPLLNPMVYSLRNKDVQLAIRKVLGKKGSLKLYN*---

>SOR10R2
PPLQILAENLT--MVTEFLLLGFSSLGEIQLALFVVFLFLYLVILSGNVTIISVIHLDKSLHTPMYFFLG
ILSTSETFYTFVILPKMLINLLSVARTISFNCCALQMFFFLGFAITNCLLLGVMGYDRYAAICHPLHYPT
LMSWQVCGKLAAACAIGGFLASLTVVNLVFSLPFCSTNKVNHYFCDISAVILLACTNTDVNGFVIFICGV
LVLVVPFLFICVSYFCILRTILKIPSAEGRRKAFSTCASHLSVVIVHYGCASFIYL-RPTANY-VSNKDR
LVTVTYTIVTPLLNPMVYSLRNKDVQLAIRKVLGKKGSLKLYN----

>SOR10J5
----MKRKNFT--EVSEFIFLGFSSFGKHQITLFVVFLTVYILTLVANIIIVTIICIDHHLHTPMYFFLS
MLASSETVYTLVIVPRMLLSLIFHNQPISLAGCATQMFFFVILATNNCFLLTAMGYDRYVAICRPLRYTV
IMSKGLCAQLVCGSFGIGLTMAVLHVTAMFNLPFCGT-VVDHFFCDIYPVMKLSCIDTTINEIINYGVSS
FVIFVPIGLIFISYVLVISSILQIASAEGRKKTFATCVSHLTVVIVHCGCASIAYL-KPKSES-SIEKDL
VLSVTYTIITPLLNPVVYSLRNKEVKDALCRVVGRNIS---------

>HsOR1.4.27
----MKRKNFT--EVSEFIFLGFSSFGKHQITLFVVFLTVYILTLVANIIIVTIICIDHHLHTPMYFFLS
MLASSETVYTLVIVPRMLLSLIFHNQPISLAGCATQMFFFVILATNNCFLLTAMGYDRYVAICRPLRYTV
IMSKGLCAQLVCGSFGIGLTMAVLHVTAMFNLPFCGT-VVDHFFCDIYPVMKLSCIDTTINEIINYGVSS
FVIFVPIGLIFISYVLVISSILQIASAEGRKKTFATCVSHLTVVIVHCGCASIAYL-KPKSES-SIEKDL
VLSVTYTIITPLLNPVVYSLRNKEVKDALCRVVGRNIS*--------

>MmOR1.3.1
----MQRNNFT--EVIEFVFLGFSSFGKHQITLFVVFLTIYILTLAGNIIIVTITHIDHHLHTPMYFFLS
MLASSETVYTLVIVPRMLSSLIFYNLPISLAGCATQMFFFVTLATNNCFLLTAMGYDRYVAICNPLRYTI
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMSKGMCALLVCGSLGTGLVMAVLHVPAMFHLPFCGT-VVEHFFCDIYPVMKLSCVDTTVNEIINYGVSS
FVILVPIGLIFISYVLIVSSILKIVSTEGQKKAFATCASHLTVVIVHYGCASIAYL-KPKSES-SVEKDL
LLSVTYTIITPLLNPVVYSLRNKEVKDALCRAVGRNTS*--------

>HsOR1.4.26
----MKRENFT--LITDFVFQGFSSFHEQQITLFGVFLALYILTLAGNIIIVTIIRMDLHLHTPMYFFLS
MLSTSETVYTLVILPRMLSSLVGMSQPISLAGCATQMFFFVTFGITNCFLLTAMGYDRYVAICNPLRYMV
IMNKRLRIQLVLGACSIGLIVAITQVTSVFRLPFCA-RKVPHFFCDIRPVMKLSCIDTTVNEILTLIISV
LVLVVPMGLVFISYVLIISTILKIASVEGRKKAFATCASHLTVVIVHYSCASIAYL-KPKSEN-TREHDQ
LISVTYTVITPLLNPVVYTLRNKEVKDALCRAVG-GKFS*-------

>MmOR1.3.7
----MMRRNHT--VISEFVFQGFSSFQEYKFTLFMVFLTLYLLTLTGNAIIMIIIGIDRHLHTPMYFFLS
MLSTSETVYTLVIVPRMLASLVGSSQPISLAGCATQMFFFITLAINNCFLLTAMGYDRYVAICNPLRYSV
IMNKRVCAQLVWGSCNIGLLVAIIQIASVFRAPFCD-REVAHYFCDIRPVMKLSCADTTLHDIVNFIISS
LVIVVPMGLVFISYILIISTILKIASAEGRKKAFATCASHLTVVIIHYGCASIAYL-KPKSEN-TRDQDQ
LISVTYTVFTPLLNPVVYTLRNKEVKDAIYRAIGKNPLA*-------

>MmOR1.3.6
----MLKSNTT--FVTEFLFEGFSGFWQHRLAFFAIFLALYFLTLSGNVIIVSIIHLDHHLHTPMYFFLA
ILSISDTCYTVTIIPRMLSDLLNPYHTIAFRDCVVQIFFYLTFGINNCFLLMVMGYDRYVAICNPLRYSV
IMGRKACVHLASGSLGIGLGMAIVQVTSVFSLPFCDRFVIPHFFCDVRPLLKLACTDTTINEIINFVVSV
FVLILPMGVVFISYVVIISTILKIASAEGRKKAFATCASHLTVVIIHYGCTAIIYM-KPKSQS-LLGQER
LISVTYTLITPLLNPLVYTLRNKEVKDALRRAMWQKPLSS*------

>MmOR1.3.5
----MPKKNST--VVAEFLFEGFSSFWQHRLGFFIVFLTLYLLTLSGNMIIVTIIRLDRHLHTPMYFFLS
MLSISETFYTIAIIPRMLAGLLNPYQAIDIQGCATQLFFYLTFGINNCFLLTAMGYDRYVAICNPLRYSV
IMGKKACILLASGSLGIGLSMAIVQVTSVFGLPFCDGFVIAHFFCDVRPLLKLACTDTTINEIINFIVSV
CVLVLPMSLVFISYVVIISTILKIASAEGRKKAFATCASHLTVVIIHYGCASIIYL-KPKSQT-SLGQDR
LISVTYTVITPLLNPVVYSLRNKEVKEALRKAIGRRPLSS*------

>MmOR1.3.3
----MKRANCT--EVREFVFQGFSNFQEHQLTLFIIFFALYILTLTGNVIIVTIIRIDHHLHTPMYFFLS
VLSTSETFYSLVIIPRMLGSLVGLSQTISLECCGTQLFFFLGFGITNCFLLAVMGYDRYVAICNPLRYSV
IMNWRVCVILASSVCATGFLLSLVQALAIFRLPFCNT-LIKHFFCDVRPILDLACTVPVINQVLTLVLTL
MVLTAPAIFLFVSYALIISTILKIASSDGWKKTFATCSSHLTVVVIHYGCASIVYF-KPKSEN-SKDQDQ
LLSVTYTVITPLLNPVVYSLRNKEVQDALRKVLCRKSLS*-------

>MmOR1.3.4
----MKKTNCT--HVREFVFQGFSNFQEHQLTLFVVFFVLYILTLAGNVIIVTIIRIDHHLHTPMYFFLS
VLSTSETFYSLVIIPRMLGSLVGLSQTISLECCGTQLFFFLGFAITNCLLLAVMGYDRYVAICNPLRYSV
IMNWRVCVILASSVGATGFLLSLIQAVAIFRLPFCNT-LIEHFFCDVRPILDLACTVPVINDILTLALSL
MVITAPATFLFVSYVLIISTILKIASAEGRRKTFATCASHLTVVVIHYGCASIAYF-KPKSEN-TRDQDQ
LISVTYTVITPLLNPVVYSLRNKEVQDALRKVLGKKSLS*-------

>SOR10Z1
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MGQTNVT--SWRDFVFLGFSSSGELQLLLFALFLSLYLVTLTSNVFIIIAIRLDSHLHTPMYLFLS
FLSFSETCYTLGIIPRMLSGLAGGDQAISYVGCAAQMFFSASWACTNCFLLAAMGFDRYVAICAPLHYAS
HMNPTLCAQLVITSFLTGYLFGLGMTLVIFHLSFCSSHEIQHFFCDTPPVLSLACGDTGPSELRIFILSL
LVLLVSFFFITISYAYILAAILRIPSAEGQKKAFSTCASHLTVVIIHYGCASFVYL-RPKASY-SLERDQ
LIAMTYTVVTPLLNPIVYSLRNRAIQTALRNAF-RGRLLGKG-----

>HsOR1.4.10
----MGQTNVT--SWRDFVFLGFSSSGELQLLLFALFLSLYLVTLTSNVFIIIAIRLDSHLHTPMYLFLS
FLSFSETCYTLGIIPRMLSGLAGGDQAISYVGCAAQMFFSASWACTNCFLLAAMGFDRYVAICAPLHYAS
HMNPTLCAQLVITSFLTGYLFGLGMTLVIFHLSFCSSHEIQHFFCDTPPVLSLACGDTGPSELRIFILSL
LVLLVSFFFITISYAYILAAILRIPSAEGQKKAFSTCASHLTVVIIHYGCASFVYL-RPKASY-SLERDQ
LIAMTYTVVTPLLNPIVYSLRNRAIQTALRNAF-RGRLLGKG*----

>MmOR1.4.13
----MVESNVT--CWQGFVFLGFSSFGELQLLLFVLFLSLYLVTITSNVFIIIVIRLDSHLHTPMYLFLS
FLSFSETCYTLGIIPRMLSGLVMGGQAISFMGCATQMFFSASWACTNCFLLSVMGFDRYVAICAPLHYAS
RMNPTVCAQLVGTSFLSGYLFGLGMTLVIFRLSFCSSHEIQHFFCDTPPVLSLACGDTRLSELGILILSL
LVLLVSFFLISVSYAYILVAILRIPSAEGRRKAFSTCASHLTVVVIHYGCASFMYL-RPKASY-SLERDQ
LIAVTYTVATPLLNPIVYSLRNRAVQTALRNAF-RGSLLGKG*----

>MmOR7.7.37
------MGNHT--TVNMFLLWGFSSFPELHNLLFVVVLLSHVTIILANAFIMVAIKLNHNLHAPMYFFLF
ALSFSETCTTMVILPRLLVDLISKNKAISLPECATQMFFFFGLGGNNCFILSAMSYDRYTAIHNPLHYPI
LMTQKICLHLIVASGVLGFSISLCIVITIFNLSFCNSNIIQHFFCDIDPVVSLACNLTFYHKVILFALTA
FVLVGSFIFIMVSYVFIVTVVIKMPSAKGRYKTFSTCSSHFTVVFIHYGFASFVYL-RPKNSY-SFRDAT
LLAVTYTILTPLLNPIIYSLRNKGIQTALKKDIGNRFFSKMVNKKAQ

>MmOR7.7.7
------MGNHS--TVTTFLLWGFSSFPELHNLLFVVILLSHVTILLANASIMVAIKLNHNLHTPMYFFLF
ALSFSETCTTMVILPRMLVDLLSESKAISLPECATQMFFFFGLAANNCFIMAAMSYDRYTAIHSPLHYHI
FMTPKVCSQLVIASCVVGFLCSLSITFTIFNLSFCDSKTIQHFFCDISPLVHLACDYTAHHAMIIFMVSA
FVLVGSFVLIMISYAFIVFLVVKMPSVQGRHKAFSTCSSHLTVVSMHYGFACFVYL-IPKNSD-SFREDM
LMAVTYTVLTPLLNPIVYSLRNKEMQTALRKVLSSINKMLPCLAIKK

>SOR10H4
----MPSQNYS--IISEFNLFGFSAFPHLLPILFLLYLLMFLFTLLGNLLIMATIWIEHRLHTPMYLFLC
TLSVSEILFTVAITPRMLADLLSTHHSITFVACANQMFFSFMFGFTHSFLLLVMGYDRYVAICHPLRYNV
LMSPRDCAHLVACTWAGGSVMGMMVTTIVFHLTFCGSNVIHHFFCHVLSLLKLACENKTSSVIMVMLVCV
TALIGCLFLIILSYVFIVAAILRIPSAEGRHKTFSTCVSHLTVVVTHYSFASFIYL-KPKGLH-SMYSDA
LMATTYTVFTPFLSPIIFSLRNKELKNAINKNFYRKFCPPSS*A---

>HsOR19.4.5
----MPSQNYS--IISEFNLFGFSAFPHLLPILFLLYLLMFLFTLLGNLLIMATIWIEHRLHTPMYLFLC
TLSVSEILFTVAITPRMLADLLSTHHSITFVACANQMFFSFMFGFTHSFLLLVMGYDRYVAICHPLRYNV
LMSPRDCAHLVACTWAGGSVMGMMVTTIVFHLTFCGSNVIHHFFCHVLSLLKLACENKTSSVIMVMLVCV
TALIGCLFLIILSYVFIVAAILRIPSAEGRHKTFSTCVSHLTVVVTHYSFASFIYL-KPKGLH-SMYSDA
LMATTYTVFTPFLSPIIFSLRNKELKNAINKNFYRKFCPPSS*----
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>HsOR19.4.2
----MPGQNYR--TISEFILSGFSAFPQLLPVLFLLYLLMFLFTLLGNLLIMATVWIERRLHTPMYLFLC
ALSISEILFTVAITPRMLADLLFTHRSITFVACAIQMFFSFMFGFTHSFLLMVMGYDHYVTICHPLHYNM
LMSPRGCAHLVAWTWAGGSVMGMMVTMMVFHLTFCGSNVIHHFLCHVLSLLKLACGSKTSSVIMVMLVCV
TALIGCLFLIILSFVFIVAAILRIPSAEGRHKTFSTCVSHLTVVVMHYSFASLIYL-KPKGLH-SMYSDA
LMATTYTVFTPFLSPIIFSLRNKELKNAINKNFCRRFCPLSS*----

>MmORUn.2.1
----MPGQNYS--TISEFILFGFSAFPQMLPALFLLYLLMYLFTLLGNLVIMAAIWTEHRLHTPMYLFLC
ALSISEILFTVVITPRMLSDMLSTHRSITFIACANQLFFSFTFGYTHSFLLVVMGYDRYVAICRPLHYHA
LMSLQGCARLVAWSWAGGSLIGMALTIIIFHLTFCESNVIHHILCHVFSLLKLACGERTFVTIAVILVCV
TPLIGCLVFIILSYIFIVAAILRIPSTEGRHKTFSTCASHLTVVIVHYGFASIIYL-KSRGLY-SQYTDT
LMSTTYTVFTPFLSPIIFSLRNKELKNAIIKSFHRNVCQQSI*----

>SMOR267-1
----MPGQNYS--TISEFILFGFSAFPQMLPALFLLYLLMYLFTLLGNLVIMAAIWTEHRLHTPMYLFLC
ALSISEILFTVVITPRMLSDMLSTHRSITFIACANQLFFSFTFGYTHSFLLVVMGYDRYVAICRPLHYHA
LMSLQGCARLVAWSWAGGSLIGMALTIIIFHLTFCESNVIHHILCHVFSLLKLACGERTFVTIAVILVCV
TPLIGCLVFIILSYIFIVAAILRIPSTEGRHKTFSTCASHLTVVIVHYGFASIIYL-KSRGLY-SQYTDT
LMSTTYTVFTPFLSPIIFSLRNKELKNAIIKSFHRNVCQQSI-----

>HsOR19.4.3
----MQGLNHT--SVSEFILVGFSAFPHLQLMLFLLFLLMYLFTLLGNLLIMATVWSERSLHMPMYLFLC
ALSITEILYTVAIIPRMLADLLSTQRSIAFLACASQMFFSFSFGFTHSFLLTVMGYDRYVAICHPLRYNV
LMSLRGCTCRVGCSWAGGLVMGMVVTSAIFHLAFCGHKEIHHFFCHVPPLLKLACGDDVVVAKGVGLVCI
TALLGCFLLILLSYAFIVAAILKIPSAEGRNKAFSTCASHLTVVVVHYGFASVIYL-KPKGPQ-SPEGDT
LMGITYTVLTPFLSPIIFSLRNKELKVAMKKTCFTKLFPQNC*----

>SOR10H5
----MQGLNHT--SVSEFILVGFSAFPHLQLMLFLLFLLMYLFTLLGNLLIMATVWSERSLHMPMYLFLC
ALSITEILYTVAIIPRMLADLLSTQRSIAFLACASQMFFSFSFGFTHSFLLTVMGYDRYVAICHPLRYNV
LMSLRGCTCRVGCSWAGGLVMGMVVTSAIFHLAFCGHKEIHHFFCHVPPLLKLACGDDVVVAKGVGLVCI
TALLGCFLLILLSYAFIVDAILKIPSAEGRNKAFSTCASHLTVVVVHYGFASVIYL-KPKGPQ-SPEGDT
LMGITYTVLTPFLSPIIFSLRNKELKVAMKKTCFTKLFPQNC-----

>HsOR19.4.4
----MQRANHS--TVTQFILVGFSVFPHLQLMLFLLFLLMYLFTLLGNLLIMATVWSERSLHTPMYLFLC
ALSVSEILYTVAIIPRMLADLLSTQRSIAFLACASQMFFSFSFGFTHSFLLTVMGYDRYVAICHPLRYNV
LMSPRGCACLVGCSWAGGLVMGMVVTSAIFHLAFCGHKEIHHFACHVPPLLKLACGDDVVVAKGVGLVCI
TALLGCFLLILLSYAFIVAAILKIPSAEGRNKAFSTCASHLTVVVVHYGFASVIYL-KPKSPQ-SLEGDT
LMGITYTVLTPFLSPIIFSLRNKELKVAMKKTFFSKLYPEKNVMM*-

>SOR10H1
----MQRANHS--TVTQFILVGFSVFPHLQLMLFLLFLLMYLFTLLGNLLIMATVWSERSLHTPMYLFLC
ALSVSEILYTVAIIPRMLADLLSTQRSIAFLACASQMFFSFSFGFTHSFLLTVMGYDRYVAICHPLRYNV
LMSPRGCACLVGCSWAGGLVMGMVVTSAIFHLAFCGHKEIHHFACHVPPLLKLACGDDVVVAKGVGLVCI
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
TALLGCFLLILLSYAFIVAAILKIPSAEGRNKAFSTCASHLTVVVVHYGFASVIYL-KPKSPQ-SLEGDT
LMGITYTVLTPFLSPIIFSLRNKELKVAMKKTFFSKLYPEKNVMM--

>HsOR19.4.1
----MLGLNHT--SMSEFILVGFSAFPHLQLMLFLLFLLMYLFTLLGNLLIMATVWSERSLHTPMYLFLC
VLSVSEILYTVAIIPRMLADLLSTQRSIAFLACASQMFFSFSFGFTHSFLLTVMGYDRYVAICHPLRYNV
LMSPRGCACLVGCSWAGGSVMGMVVTSAIFQLTFCGSHEIQHFLCHVPPLLKLACGNNVAVALGVGLVCI
MALLGCFLLILLSYAFIVADILKIPSAEGRNKAFSTCASHLIVVIVHYGFASVIYL-KPKGPH-SQEGDT
LMATTYAVLTPFLSPIIFSLRNKELKVAMKRTFLSTLYSSGT*----

>MmORUn.6.1
-MAVMLGLNYT--FVSEFILIGFSTFPHLQLMFFLLFLLMYLFTLLGNLLIMTTIWSEHSLHTPMYLFLC
ALSISEIFYTFAIIPRMLADLLTTLHSIAFLACASQMFFSFTFGFTHSFLLTVMGYDRYVAICHPLRYNV
LMSPRGCACLVAWSWVGGSFMGTVVTTAIFNLTFCGPNEIHHFTCHVPPLLKLACGENVEVAKGVEIVCI
TALLGCFLLILLSYAFIVVTILKIPSAEGRHKAFSTCASHLTVVVVHYGFASVIYL-KPKGPK-SLEGDT
LMGITYTVLTPFLSPIIFSLRNKELKNAMKKIFLSKLYPEKI*----

>MmORUn.14.1
-MAVMLGLNYT--FVSEFILIGFSTFPHLQLMFFLLFLLMYLFTLLGNLLIMTTIWSEHSLHTPMYLFLC
ALSISEIFYTFAIIPRMLADLLSTLHSIAFLACASQMFFSFTFGFTHSFLLTVMGYDRYVAICHPLRYNV
LMSPRGCACLVAWSWVGGSFMGTVVTTAIFNLTFCGPNEIHHFTCHVPPLLKLACGEN-VLEVAVEIVCI
TALLGCFLLILLSYAFIVVTILKIPSAEGRHKAFSTCASHLTVVVVHYGFASVIYL-KPKGPK-SLEGDT
LMGITYTVLTPFLSPIIFSLRNKELKNAMKKIFLSKLYPEKI*----

>MmOR1.4.15
------MINQT--ILQEFILIGFSAYPLVQTCLFVVFLCLYMVALASNLTIMGLTWADRYLHTPMYYFLS
ALSFSETCYTLTIIPKMLVDLLDKDNRISDIGCGLQMCFFLGLGGTNCILLTVMGYDRFLAICNALKYPL
LMTNVACGQHVATAWVGGFLISLIETTLIFRVSFCIPNLIRHFFCHMRAVLRLSCTDSNFTEFIVTLMSV
SGLLGTFLLILLTYVFILSSVLKTPSAEGKQKAFTPCASHLTVAIIHFVFAPVVYL-KPEN---SGGDDT
LIAVPYTVITPFLSPIIFTLRNKDIKNAFRKIMRKTVVLKK*-----

>HsOR1.4.9
----MKI-NQT--ILKEFILVGFSVYPHVQTFLFVVFFCLYLLTLAGNLIIMGLTWVDRSLHTPMYLFLS
ALSFSETCYTLTIVPKMLEDLLAKDRSISVTGCSLQMCFFLGLGGTNCIILTLMGYDRFLAICNPLRYPL
LMTNIVCGQLVASACTAGFFISLTETALIFRDSFCRPNLVKHFFCHMLAVIRLSCIDSNHTEFIITLISV
SGLLGTLLLIILTDVFIISTVLRIPSAEGKQKAFTTCASHLTVVIIHFGFASIVYL-KPEA---SGDD-T
LIAVPYTVITPFLSPIIFSLRNKDMKNAFRRMMGNTVALKK*-----

>SMOR222-1
------MSNHT--RVTHFILRGFSDVPQLRLVLIPFFLLFYTFGILGNFSIITAVIRDSRLHSPMYFFLK
NLSFLDICYTSATIPKAVVISLTGSGVISYQECVAQLYMFITLCGTECFLLTAMAYDRCLAILRPLIYGT
IMSHKYCSALVVTAWVGGAIYSAFHTFNTFSLPYCGPNVVDHFFCDMPPVMRLSCTDYHLNEEVGFAVIG
CIIMSSFALTVVSYIGIVATVLRIPSVEGRWKAFSTCSSHLTTVILFYGTGSFVYL-RPASQY-SPTLDP
LASIFYSVVTPSLNPVIYCLRNKDMKFALQKLYCGRKY---------

>MmOR11.4.23
------MANHT--RVTHFILRGFSDVPQLRLVLIPFFLLFYTFGILGNFSIITAVIRDSRLHSPMYFFLK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
NLSFLDICYTSATIPKAVVISLTGSGVISYQECVAQLYMFITLCGTECFLLTAMAYDRCLAILRPLIYGT
IMSHKYCSALVVTAWVGGAIYSAFHTFNTFSLPYCGPNVVDHFFCDMPPVMRLSCTDYHLNEEVGFAVIG
CIIMSSFALTVVSYIGIVATVLHIPSVEGRWKAFSTCSSHLTTVILFYGTGSFVYL-RPASQY-SPTLDP
LASIFYSVVTPSLNPVIYCLRNKDMKFALQKLYCGRKY*--------

>MmOR11.4.21
------MSNHT--RVTHFILRGFSDIPQLRLMAIPVFLLIYTFGLLGNLSIITAVTRDSRLHSPMYFFLK
NLSFLDICYTSATIPKAVVISLTGSGVISYQECVAQLYIFLTFSSSECFLLTAMAYDRCLAILRPLIYGT
IMSHKYCSALVVTAWVGGAIYSAFHTFNTFSLPYCGPNVIDHFFCDIPPVMRLSCTDYHLSEEVGFAVSS
CIVMSSFALTVVSYIGIVATVLCIPSVEGRWKAFSTCSSHLTTVILFYGTGSFVYL-RPASQY-SPTLGP
LASIFYSVVTPSLNPVVYCLRNKDMKFALQKLYCGRKY*--------

>MmOR11.4.22
------MSNHT--RVTHFILRGFSDVPQLRLVLIPFFLFFYTFGILGNFSIITAVTRDSRLHSPMYFFLK
NLSFLDICYTSATIPKAVVISLTGSGVISYQECAAQLYIIFTFACTECFLLTAMAYDRCLAILRPLIYGT
IMSQKYCSALVVTAWVGGAIYSAFHTFNTFSLPYCGPNVIDHFFCDMPPVMRLSCTDYHLTEEVGFAVSS
CIVMSSFVLTVVSYIGIVATVLRIPSVEGRWKAFSTCSSHLTTVILFYGTGSFVYL-RPASQY-SPTLGR
LASIFYSVVTPSLNPVVYCLRNKDMKFALQKLYCGRKY*--------

>MmOR7.1.8
----MA--NLS--TVSVFILQGFSAVPALQLLSMAIFLLIYLAAVLGNVSIMIAVTLDSHLHTPMYFFIK
HLSLVDLCSTSTTLPRALVATMADTKEISLPACASQLFAFVCFGSLECFLITAMAFDRCLAIYRPLTYGV
TMSSQTCVSLVVVAWVSGLLFSTFHMVNTFSLPFCGPNMIDHFFCDIPPLMHLACGDTQGHEAAGFIVSG
CVIMTCFALTCLSYVLIVYTVVHIRSAAGRWKAFSTCSSHLATVLLFYGTGSSAYM-QPTAHY-SPLQGR
MAAIFYSILMPTLNPLIYSLRNKDMKAALRKLYPQVPS*--------

>HsOR11.18.14
----MS--NAT--LLTAFILTGLPHAPGLDAPLFGIFLVVYVLTVLGNLLILLVIRVDSHLHTPMYYFLT
NLSFIDMWFSTVTVPKMLMTLVSSGRTISFHSCVAQLYFFHFLGSTECFLYTVMSYDRYLAISYPLRYTN
MMTGRSCALLATGTWLSGSLHSAVQTILTFHLPYCGPNQIQHYFCDAPPILKLACADTSANEMVIFVNIG
LVASGCFVLIVLSYVSIVCSILRIRTSEGRHRAFQTCASHCIVVLCFFGPGLFIYL-RPGS---RDALHG
VVAVFYTTLTPLFNPVVYTLRNKEVKKALLKLKNGSVFAQGE*----

>SOR10G7
------MSNAT--LLTAFILTGLPHAPGLDAPLFGVFLVVYVLTVLGNLLILLVIRVDSHLHTPMYYFLT
NLSFIDMWFSTVTVPKMLMTLVSPGRTISFHSCVAQLYFFHFLGSTECFLYTVMSYDRYLAISYPLRYTN
MMTGRSCALLATGTWLSGSLHSAVQTILTFHLPYCGPNQIQHYFCDAPPILKLACADTSANEMVIFVNIG
IVASGCFVLIVLSYVSIVCSILRIRTSEGRHRAFQTCASHCIVVLCFFGPGLFIYL-RPGS---RDALHG
VVAVFYTTLTPLFNPVVYTLRNKEVKKALLKLKNGSVFAQG------

>HsOR11.18.11
------MSNAS--LVTAFILTGLPHAPGLDALLFGIFLVVYVLTVLGNLLILLVIRVDSHLHTPMYYFLT
NLSFIDMWFSTVTVPKMLMTLVSSGRAISFHSCVAQLYFFHFLGSTECFLYTVMSYDRYLAISYPLRYTS
MMSGSRCALLATGTWLSGSLHSAVQTILTFHLPYCGPNQIQHYFCDAPPILKLACADTSANVMVIFVDIG
IVASGCFVLIVLSYVSIVCSILRIRTSDGRRRAFQTCASHCIVVLCFFVPCVVIYL-RPGS---MDAMDG
VVAIFYTVLTPLLNPVVYTLRNKEVKKAVLKLRDKVAHPQRK*----
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>HsOR11.18.12
------MSKTS--LVTAFILTGLPHAPGLDAPLFGIFLVVYVLTVLGNLLILLVIRVDSHLHTPMYYFLT
NLSFIDMWFSTVTVPKMLMTLVSSGRAISFHSCVAQLYFFHFLGSTECFLYTVMSYDRYLAISYPLRYTS
MMSGSRCALLATSTWLSGSLHSAVQTILTFHLPYCGPNQIQHYLCDAPPILKLACADTSANEMVIFVDIG
LVASGCFLLIVLSYVSIVCSILRIHTSEGRHRAFQTCASHCIVVLCFFVPCVFIYL-RPGS---RDVVDG
VVAIFYTVLTPLLNPVVYTLRNKEVKKAVLKLRDKVAHSQGE*----

>HsOR11.18.13
----MS--NAS--LLTAFILMGLPHAPALDAPLFGVFLVVYVLTVLGNLLILLVIRVDSHLHTTMYYFLT
NLSFIDMWFSTVTVPKLLMTLVFSGRAISFHSCMAQLYFFHFLGGTECFLYRVMSCDRYLAISYPLRYTS
MMTGRSCTLLATSTWLSGSLHSAVQAILTFHLPYCGPNWIQHYLCDAPPILKLACADTSAIETVIFVTVG
IVASGCFVLIVLSYVSIVCSILRIRTSEGKHRAFQTCASHCIVVLCFFGPGLFIYL-RPGS---RKAVDG
VVAVFYTVLTPLLNPVVYTLRNKEVKKALLKLKDKVAHSQSK*----

>MmOR9.3.111
------MSNVT--LVTTFFLSGIPHPPALDTMLFVAFLVIYILTVLGNFLILMVIRVDSHLHTPMYYFLT
NLSFIDMWFSTVTVPKMLMTLVSPRGAISFHSCVAQLYCFHFLGSTECFLYTVMSYDRYLAISYPLRYSS
MMSGRVCALLAAGTWITGSLHSAVQTTLTFRLPYCGPNQIQHYFCDAPPILKLACADTSANEMVIFVNIG
VVASGCFLLISLSYVSIVCSILRIRTSEGRHRAFQTCASHCIVVLCFFVPCVFIYL-RPGS---RDAVDG
VVAVFYTVLTPLLNPVVYTLRNKEVKKALVKLKDKVAYSQSQ*----

>SMOR223-1
------MSNVT--LVTTFFLSGIPHPPALDTMLFVAFLVIYILTVLGNFLILMVIRVDSHLHTPMYYFLT
NLSFIDMWFSTVTVPKMLMTLVSPRGAISFHSCVAQLYCFHFLGSTECFLYTVMSYDRYLAISYPLRYSS
MMSGRVCALLAAGTWITGSLHSAVQTTLTFRLPYCGPNQIQHYFCDAPPILKLACADTSANEMVIFVNIG
VVASGCFLLISLSYVSIVCSILRIRTSEGRHRAFQTCASHCIVVLCFFVPCVFIYL-RPGS---RDAVDG
VVAVFYTVLTPLLNPVVYTLRNKEVKKALVKLKDKVAYSQSQ-----

>MmOR9.3.110
----MS--NTS--IVTTFFLSGLPHPPVLDSMLFGIFLVIYILTVLGNLLILTVIRVDSHLHTPMYYFLT
NLSFIDMWFSTVTVPKMLMTLVSGGGAISFHSCVAQLYCFHFLGSTECFLYTVMSYDRYLAISYPLRYSS
MMGGRMCALLAAGTWFTGSLHSAVQTTLTFHLPYCGPNQIQHYFCDAPPILKLACADTSANEMVIFVNIG
VVASGCFFLISLSYVSIVCSILRIRTSEGRHRAFQTCASHCIVVLCFFGPGLFIYL-RPGS---RDAVDG
IVAVFYTVLTPLLNPVVYTLRNKEVKKALLKIKYGSVLPQDK*----

>MmOR9.3.112
----ML--NGS--VVTTFFLSGLPHPPVLDSMLFGIFLVIYILTVLGNLLILMVIRVDSHLHTPMYYFLT
NLSFIDMWFSTVTVPKMLMTLVSGGGAISFHSCVAQLYCFHFLGSTECFLYTVMSYDRYLAISYPLRYSS
MMSGRVCALLAAGTWITGSLHSAVQTTLIFHLPYCGPNEIQHYFCDGPPILKLACADTSAIEMVIFVNIG
VVASGCFFLISLSYVSIVCSILRIRTSEGRHRAFQTCASHCIVVLCFFVPCVFIYL-RPGS---RDAVDS
GDSFLHCVDTPTQ-PC--CVHPEEQRGEESTV*--------------

>HsOR14.2.2
----MERINST--LLTAFILTGIPYPLRLRTLFFVFFFLIYILTQLGNLLILITVWADPRLHRPMYIFLG
VLSVIDMSISSIIVPRLMMNFTLGVKPIPFGGCVAQLYFYHFLGSTQCFLYTLMAYDRYLAICQPLRYPV
LMTAKLSALLVAGAWMAGSIHGALQAILTFRLPYCGPNQVDYFFCDIPAVLRLACADTTVNELVTFVDIG
VVVASCFSLILLSYIQIIQAILRIHTADGRRRAFSTCGAHVTVVTVYYVPCAFIYL-RPET---NSPLDG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
AAALVPTAITPFLNPLIYTLRNQEVKLALKRML-RSPRTPSEV*---

>SOR10G3b
----MERINST--LLTAFILTGIPYPLRLRTLFFVFFFLIYILTQLGNLLILITVWADPRLHRPMYIFLG
VLSVIDMGISSIIVPRLMMNFTLGVKPIPFGGCVAQLYFYHFLGSTQCFLYTLMAYDRYLAICQPLRYPV
LMTAKLSALLVAGAWMAGSIHGALQAILTFRLPYCGPNQVDYFFCDIPAVLRLACADTTVNELVTFVDIG
VVVASCFSLILLSYIQIIQAILRIHTADGRRRAFSTCGAHVTVVTVYYVPCAFIYL-RPET---NSPLDG
AAALVPTAITPFLNPLIYTLRNQEVKLALKRML-RSPRTPSEV----

>MmOR14.3.3
----MERINYT--VLTEFILTGVPHPPRLRTFLFVFFLLIYILTQLGNALILITVCADTQLHRPMYIFLG
ALSVIDMGISTIIVPRLMMNFTPGIKPIPFGGCVAQLYFYHFLGSSQCFLYTTMAYDRYLAICQPLRYPV
LMSAKLSILLVAGAWVAGSIHGAIQAILTFRLPYCGPNQVDYFFCDIPAVLKLACADTTVNELVTFVDIG
VVVASCFSLILLSYIYIIRAILRIRTADGRRRAFSTCGAHVTIVTVYYVPCAFIYL-RPDS---HSILDG
AAALFPTAITPFLNPLIYTLRNQEVKLALRRMVGSQSTKSEV*----

>MmOR14.3.5
---MRRTRNTSDAVVTDFLLLGLAHPPNLRAFLFLVFFLIYILTQLGNLLILLTVWADPKLHRPMYILLG
VLSFLDMWLSSVIVPRLILNFTPASKAIPFGGCAAQLYFFHFLGSTQCFLYTLMAYDRYLAICQPLRYPV
LMNGKLCTILVAGAWVAGSIHGSIQTTLTFRLPYCGPNQIDYFICDIPAVLRLACADTTVNELVTFVDIG
VVAASCFMLILLSYANIVHAILKIRTADGRKRAFSTCGSHLTVVTVYYVPCIFIYL-RAGSKS-PFDG--
AVAVFYTVVTPLLNPLIYTLRNQEVKSALKRLTAGRRDVGGEK*---

>MmOR14.3.4
---MRRNRNTSDTVVTDFLLLGLAHPPNLRAFLFLVFFLIYILTQLGNLLILLTVWADPKLHRPMYILLG
VLSFLDMWLSSVIVPRIILNFTPASKVIAFGGCAAQLYFFHFLGSTQCFLYTLMAYDRYLAICQPLRYPV
LMNGKLCTILVAGAWVAGSIHGSIQATLTFRLPYCGPKEVDYFFCDIPAVLRLACADTTVNELVTFVDIG
VVAASCFMLILLSYANIVHAILKIRTADGRKRAFSTCGSHLTVVTVYYVPCIFIYL-RAGS---KSPFDG
AVAVFYTVVTPLLNPLIYTLRNQEVKSALKRLRAGRRDVDGEK*---

>HsOR14.2.4
---MGKTKNTSDAVVTDFILLGLSHPPNLRSLLFLVFFIIYILTQLGNLLILLTMWADPKLCRPMYILLG
VLSFLDMWLSSVTVPRLILDFTPSIKAIPFGGCVAQLYFFHFLGSTQCFLYTLMAYDRYLAICQPLHYPV
LMNGRLCTVLVAGAWVAGSMHGSIQATLTFRLPYCGPNQVDYFICDIRAVLRLACADTTVNELVTFVDVR
VVAASCFMLILLSYANIVHAILKIRTADGRRRAFSTCGSHLIVVTVYYVPCIFIYL-RAGS---KDPLDG
AAAVFYTVVTPLLNPLIYTLRNQEVKSALKRITAG*-----------

>MmOR9.3.113
----MQSGNQT--SVSHFILVGLHHPPQLGVPLFLAFLVIYLLTVSGNGLIILTVLVDIRLHRPMYWFLC
HLSFLDLTISSAIVPKMLSGFLLDSRIISFGGCVIQLFSFHFLGCTECFLYTLMAYDRFLAICKPLHYAT
IMTRSVCNYLALGTWIGGTIHSLFQTSFIFRLPFCGPNRVDYFFCDIPAVLRLVCADTTINELVTFVDIG
FLALTCFMLILTSYGYIVAAILRIRSADGRRNAFSTCAAHLTVVIVYYVPCTFIYL-RPGS---QEPLDG
VVAVFYTVITPLLNPIIYTLRNKQMKAALRRLGG-LREVHP*-----

>HsOR11.18.9
NSKELQSGNQT--SVSHFILVGLHHPPQLGAPLFLAFLVIYLLTVSGNGLIILTVLVDIRLHRPMCLFLC
HLSFLDMTISCAIVPKMLAGFLLGSRIISFGGCVIQLFSFHFLGCTECFLYTLMAYDRFLAICKPLHYAT
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMTHRVCNSLALGTWLGGTIHSLFQTSFVFRLPFCGPNRVDYIFCDIPAMLRLACADTAINELVTFADIG
FLALTCFMLILTSYGYIVAAILRIPSADGRRNAFSTCAAHLTVVIVYYVPCTFIYL-RPCS---QEPLDG
VVAVFYTVITPLLNSIIYTLCNKEMKAALQRLGGHKEVQPH*-----

>HsOR11.18.8
--MTTENPNQT--VVSHFFLEGLRYTAKHSSLFFLLFLLIYSITVAGNLLILLTVGSDSHLSLPMYHFLG
HLSFLDACLSTVTVPKVMAGLLTDGKVISFEGCAVQLYCFHFLASTECFLYTVMAYDRYLAICQPLHYPV
AMNRRMCAEMAGITWAIGATHAAIHTSLTFRLLYCGPCHIAYFFCDIPPVLKLACTDTTINELVMLASIG
IVAAGCLILIVISYIFIVAAVLRIRTAQGRQRAFSPCTAQLTGVLLYYVPPVCIYL-QPRSSE-AGAG--
APAVFYTIVTPMLNPFIYTLRNKEVKHALQRLLCSRESTAGSPPP*-

>MmOR9.3.114
MVERMQYLNQS--VVSQFFLEGLMYTAEHPGLFFLLFLLIYSITVSGNLLILLTVGSDPHLRSPMYHFLG
HLSFLDACLSTVTVPKVMAGLLTDGKVISFQGCALQLYCFHFLASTECFLYTVMAYDRYLAICQPLHYPV
VMNKRVCAGLAGSTWAIGAMHSAIHTSLTFRLLYCGPQHIAYFFCDIPPVLKLACADTTINELVMLANIG
VVAAGCLILIIISYAFIVAAVLRIRTAEGRQRAFSTCTAHLTVVLLYYMPPVCIYL-QPSS---TGAGAG
APAVFYTIVTPMLNPFIYTLRNKEVKRALRRLVCSSQESPASSPAP*

>SMOR224-1
----ME--NHT--LLDEFILLGIPQTQGLETLLFVVFLFIYIFTLLGNLLIFTAIVSSSTLHTPMYFFLG
LLSIFDMLFPSVTCPKMLLYLSGKSPAISYRGCIAQLFFYHFLGSTEGCLYSVMAYDRYVAICHPLRYML
IMKPGVCLGLVIVSWLIGCLQSGILTFFTFQLTYCGPNHVHHFFCDIPAVLPLACTDNKLARKVGSINVG
FLALMLLFSVCVSYVHIGVAILRIRSAEGRQKAFFTCSAHLTAILCAYGPVIIIYL-QRTP---NPLLGA
VVQILNNIVSPMLNSLIYSLRNKEVKRALRRVF--HSLA--------

>MmOR9.3.90
------MDNYT--LLNEFRGSGIPQTQGLETLLFVVFLFIYFFTLLGNSLIFTAIISSSTLHTPMYFFLG
LLSVFDMLFPSVTCPKMLFYLSVRSPAISYKGCAAQLFFYHLLGSTEGCLYSVMAYDRYVAICHPLRYML
IMKPGVCVSLVIIAWLVGCLHATILTSLTFQLVYCASNQVDYFFCDLPAVLPLACTDSKLARKVGSINVG
FLALMLLFSVCVSYVHIGVAILRIRSAEGRQKAFSTCSAHLTAILCAYGPVIIIYL-QRTP---NPLLGA
VVQILNNIVSPMLNSLIYSLRNKEVKRSLRRVFQNITFHGQK*----

>MmOR9.3.92
------MTNHT--MVTEFTLLGIPETEGLENALLFLFSTMYACALLGNFLILTAITTSPRLHTPMYFFLG
NLSIFDLGFCSTTAPKMLSYLSGWGGGISFQGCVVQHFFYHCLGCTLCFLYTVMAYDRFVAICFPLRYTI
IMNHRVCCVLATGTWMSGCVHATILTSLTFQLPYCGPSEVSYYFCDMPAVLLLACEDSSLAQRVGFTNVG
LLSLICFFLIIVSYTRIGISISKIRSTEGRQRAFSTCSAHLTAIMCVYGPVIVIYL-QPNP---SPLLSA
IIQILHNLVTPTINPLIYSLRNKDVKAALRHVFLKRCLSLEVNENS*

>MmOR9.3.91
----MNMTNNT--MVTEFTLLGIPETEGLENVLLFLFSTLYACALLGNLLLLTAVTSSPRLHTPMYFFLS
NLSISDMGFCSTTAPKMLSYLSGRGGGISFQGCVVQHFFYHCIGCVLCFLYTVMAYDRFVAICFPLRYTI
IMNHRVCCVLATGTWMSGCVHATILTCLTFQLPYCGPSEVSYYFCDMPAVLLLACEDSSLAQRVGFTNVG
LLSLICFFLIVVSYTRIGISISKIRSTEGRQRAFSTCSAHLTAIMCVYGPVIVIYL-QPNP---SPLLSA
IIQIFNNLVTPTINPLIYSLRNKDVKAALRHVFLKRCLSLEVNENI*

>MmOR9.3.94
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
------MTNHT--MVTEFTLLGIPETEGLENVLLFLFSTLYACALLGNLLLLTAVISSPQLHTPMYFFLG
NLSIFDMGFCSTTAPKMLSYLSGQGGGISFQGCVVQHFFYHCLGCTECFLYTVMAYDRFVAICFPLRYTI
IMNHRVCCVLATGTWMSGCVHATILTCLTFQLPYCGPSNVGYYFCDMPAVLPLACEDHSLAQRVGFTNVG
LLSLICFFLILVSYTRIGISISKIRSTEGRQRAFSTCSAHLTAIICAYGPVIVIYL-QPNP---SPLLGA
VIQILNNLVTPTINPLIYSLRNKDVKAALRHVFLKRSLSLESK*---

>HsOR11.18.16
----MR--NHT--MVTEFILLGIPETEGLETALLFLFSSFYLCTLLGNVLILTAIISSTRLHTPMYFFLG
NLSIFDLGFSSTTVPKMLFYLSGNSHAISYAGCVSQLFFYHFLGCTECFLYTVMACDRFVAICFPLRYTV
IMNHRVCFMLATGTWMIGCVHAMILTPLTFQLPYCGPNKVGYYFCDIPAVLPLACKDTSLAQRVGFTNVG
LLSLICFFLILVSYTCIGISISKIRSAEGRQRAFSTCSAHLTAILCAYGPVIVIYL-QPNP---SALLGS
IIQILNNLVTPMLNPLIYSLRNKDVKS--DQP*--------------

>MmOR9.3.88
----MEIKNCS--VVTEFILLGIPHTEGFETLLFVLFLPFYACTLVGNVSILVAVISSTRLHTPMYFFLG
NLSVFDMGFSSVTCPKMLFYLMGLSRLISYQDCVSQLFFFHFLGSIECFLYTVMAYDRFAAICHPLRYSV
IMNSKICVALAVGTWLLGCFHSSVLTSLTFTLPYCGPNEVDHFFCDIPAILPLASADTSLAQRVSFTNVG
LVSLVCFLLILLSYTRITISILSIQSTEGRQRAFSTCSAHLIAILCAYGPIITIYL-QPTP---NPMLGT
VVQILMNLVGPMLNPLIYTLRNKEVKIALKKILHGSVSEG*------

>SOR10G3a
----MEVKNCC--MVTEFILLGIPHTEGLEMTLFVLFLPFYACTLLGNVSILVAVMSSARLHTPMYFFLG
NLSVFDMGFSSVTCPKMLLYLMGLSRLISYKDCVCQLFFFHFLGSIECFLFTVMAYDRFTAICYPLRYTV
IMNPRICVALAVGTWLLGCIHSSILTSLTFTLPYCGPNEVDHFFCDIPALLPLACADTSLAQKVSFTNVG
LISLVCFLLILLSYTRITISILSIRTTEGRRRAFSTCSAHLIAILCA*GPIITVYL-QPTP---NPMLGT
MVQILMNLVGPMLNPLIYTLRNKEVKTALKTILHRTGHVPES-----

>HsOR11.18.19
----MEVKNCC--MVTEFILLGIPHTEGLEMTLFVLFLPFYACTLLGNVSILVAVMSSARLHTPMYFFLG
NLSVFDMGFSSVTCPKMLLYLMGLSRLISYKDCVCQLFFFHFLGSIECFLFTVMAYDRFTAICYPLRYTV
IMNPRICVALAVGTWLLGCIHSSILTSLTFTLPYCGPNEVDHFFCDIPALLPLACADTSLAQRVSFTNVG
LISLVCFLLILLSYTRITISILSIRTTEGRRRAFSTCSAHLIAILCAYGPIITVYL-QPTP---NPMLGT
VVQILMNLVGPMLNPLIYTLRNKEVKTALKTILHRTGHVPES*----

>MmOR9.3.89
----MR--NRS--VVTQFILLGIPNTEGLETMLFVLFLSFYIFTLMGNLLILLAIISSSRLHTPMYFFLC
KLSIFDIFFPSVSSPKMLFYLSGNSRAISYAGCVSQLFFYHFLGCTECFLYTVMAYDRFVAICYPLRYSI
IMSHRVCAILATGTSFFGCIQATFLTTLTFQLPYCGPNEVDYYFCDIPVMLKLACADTSALEMVGFISVG
LMPLSCFLLILTSYSCIVCSILQIRSAEGRRRAFSTCSAHLTAILLFYMPVVLIYL-RPTP---SPWLDA
TVQVLNNLVTPMLNPLIYSLRNKEVKASLWKVLRKPAFAPEQL*---

>MmOR9.3.62
------MRNFS--VVTQFILLGIPHTEGVEIMLFVLFLSFYIFTLVGNLLILFAIVSSSRLHTPMYFFLC
QLSVCDIFFPSVSSPKMLFYLSGNSRAISYTGCVCQLFFYHFLGCTECFLYTVMAYDRFIAICFPLRYSI
IMNHKVCAIMAVGTSFFGCIQATFLTTLTFQLPYCGPNEVDYYFCDIPVMLKLACADTSTLEMVGLISVG
LMPLSCFLLILTSYSFILCSILQIRSTEGRHRAFSTCSAHLTAILLAFMPVVLIYL-QPTP---NPWLNA
AVQVLNNLVTPMLNPLIYSLRNKEVKCSLKKMLQQGPILSKK*----
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR9.3.96
----MK--NLS--VVTQFILLGIPHTEGVETMLFVLFFSFYIFTLVGNLLILLAIVSSSRLHTPMYFFLC
QLSVCDIFFPSVSSPKMLFYLSGNTPAISYAGCVSQLFFYHFLGGTECFLYTVMAYDRFVAICYPLRYSV
IMSHRICAFLAMGTAVFGCIHSTFLTTLTFQLPYCGPKDVNYYFCDIPVVMKLACADTSTLEMVGFISVG
LMPLSCFFFILTSYSCIVRSILQIRSTEGRHRAFSTCSAHFTAILLFYMPVIFIYL-RPTP---SPWLDA
TVQILNNLVTPMLNPLIYSLRNKEVKSSLWTVLHLLCFLPKHL*---

>MmOR9.3.107
----MR--NCT--LVTEFILVGIPYTAGLERMLFVLFLSFYLLTLPGNLLILMAILTSASLHTPMYFFLG
NLSVLDIFFPSVSSPKMMLSLTGHSHTISYQGCASQLFFYHFLGCAECFLYTVMAYDRFAAICHPLRYTV
IMSSWVCGSMAVATWMGSCLHASVLTFLIFKLPYCGPNEVDNFFCDIPVVLPLACADTSLAQAVSFINVG
LVALVCFLLILISYSRIVISILKIRSSEGRRRAFSTCSAHLTSILLFYGPVVLIYL-RPAS---SPWLDS
VVQVLNNIVTPSLNPLIYSLRNKEVKVALRKALTQRVPGE*------

>MmOR9.3.108
AACAMSMRNHT--SVTEFILLGISNTEGLESMLFALFLVFYVFALLGNLLIFLTILASPNLHTPMYFFLG
NLAVFDIFFPSVNSPKMMDYLVRQGRTISYQGCASQIFFYHTLGCTECFLYTVMAYDRFVAICYPMRYTV
IMNPRVCTCFTVGTWLGGFVHGSILTFLIFKLPYCGPNEVDSFFCDIPVVLSLACADTSLAQTVSFTNVG
VVALTCFLLVLTSYTRIVISILKIRSSEGRRRAFSTCSAHFTSILLFYGPVILVYL-RPAS---SPWLDS
VVQVFNNVVTPSLNPLIYSLRNKEVKLALRKMLSQAMQPLGYKE*--

>MmORX.2.2
KMNYQEIGNYT--KVTEFILVGLSRHPTSQSVVFWTLMFLYIVTLAGNSLIIFLVGGNSQLHTPMYFFLG
NLSLLDLLFSTSVVPLIMVNSLYNS-TISYSSCFTQLAFRAFLALAECFLLAIMAYDRFVAISNPLRYNL
VMSSRVCIFMALLAWMAALLLTVLPI-LIFPISFCGQNVVNHFSCEVQAIFKLLCSNTISLQIMMIACAV
ISMPVPLMFILFSYLCILKAVLRIHPTKARLKAFSTCASHLIVVTIYFGTLIYIYM-RPQSKI-SHNGDK
IVSIFYAAVTPMLNPLIYTLRNKDVKAVLRRVNCGVKS*--------

>SMOR102-1
KMNYQEIGNYT--KVTEFILVGLSRHPTSQSVVFWTLMFLYIVTLAGNSLIIFLVGGNSQLHTPMYFFLG
NLSLLDLLFSTSVVPLIMVNSLYNS-TISYSSCFTQLAFRAFLALAECFLLAIMAYDRFVAISNPLRYNL
VMSSRVCIFMALLAWMAALLLTVLPI-LIFPISFCGQNVVNHFSCEVQAIFKLLCSNTISLQIMMIACAV
ISMPVPLMFILFSYLCILKAVLRIHPTKARLKAFSTCASHLIVVTIYFGTLIYIYM-RPQSKI-SHNGDK
IVSIFYAAVTPMLNPLIYTLRNKDVKAVLRRVNCGVKS---------

>MmOR7.3.8
----MDVKNQT--AVTEFIFLGFPGSSSLQLPLFMMFLTVYLLSLMGNTLIIFLILVDSTLQTPMYIFLG
NLSFLEIWYTTATVPKLLATCVTKVVTIPVAGCITQYYFFFSLGATECILLAVMAYDRHVAVCRPLHYSL
LMSVHICLRFSAASWVGGFLAPLLPTILISQLNFCGPQKINHFFCDSDPIFKLSCSDTFLVEALGYTCSS
VVILSSFLLTMSSYGNIVVTIIRLSSREARKKTFSTCASHLTVVTIYYGTIIFAYV-RPPAKY-NFTIGK
VVSVFYCVITPLVNPLIYTLRNKDVMKAFQKFLSQKKFLMGKNMHGL

>MmOR7.8.1
---MSNCSNNA--LVTEFILLGFPELCHLQGLLFGFFLIIYVVTVLENLVIVGTISASRQLHTPMYFFLA
NLSVLETLYTTVTVPKLLADLLAGAKTISFSGCLTQLFLFLSLGSSECFLLSTMACDRYLAICRPLHYPA
IMDSKLCLHLALSAWLGGFLASFVSTALISRLRFCGPNALNHFFCDISPLLQLSCTDTTAIEMLDFVAAL
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
AVLATSLIVTSVSYVHIIATVLRIPGGAGRRKAFSTCASHLVVVLIFYTTTTFMYA-RPHAIS-SFDLNK
LVSVIYSVVTPLLNPIIYCLRNRDIREAFTKFLQPLRFP*-------

>HsOR1.5.7
----MDTGNKT--LPQDFLLLGFPGSQTLQLSLFMLFLVMYILTVSGNVAILMLVSTSHQLHTPMYFFLS
NLSFLEIWYTTAAVPKALAILLGRSQTISFTSCLLQMYFVFSLGCTEYFLLAAMAYDRCLAICYPLHYGA
IMSSLLSAQLALGSWVCGFVAIAVPTALISGLSFCGPRAINHFFCDIAPWIALACTNTQAVELVAFVIAV
VVILSSCLITFVSYVYIISTILRIPSASGRSKAFSTCSSHLTVVLIWYGSTVFLHV-RTSIKD-ALDLIK
AVHVLNTVVTPVLNPFIYTLRNKEVRETLLKKW-KGK*---------

>SOR6F1
----MDTGNKT--LPQDFLLLGFPGSQTLQLSLFMLFLVMYILTVSGNVAILMLVSTSHQLHTPMYFFLS
NLSFLEIWYTTAAVPKALAILLGRSQTISFTSCLLQMYFVFSLGCTEYFLLAAMAYDRCLAICYPLHYGA
IMSSLLSAQLALGSWVCGFVAIAVPTALISGLSFCGPRAINHFFCDIAPWIALACTNTQAVELVAFVIAV
VVILSSCLITFVSYVYIISTILRIPSASGRSKAFSTCSSHLTVVLIWYGSTVFLHV-RTSIKD-ALDLIK
AVHVLNTVVTPVLNPFIYTLRNKEVRETLLKKWKG-----------

>SMOR104-1
----MITENWT--LAQDFLLLGFPGSQVLQFSLFLFFLVMYLLTIGGNMAILLLVSTSHQLQTPMYFFLS
NLSFLEIWYTTAAVPKALAILVGKSQSISFLGCLFQMYLVFSLGCTEYFLLAAMAYDRYLAICFPLHYQT
IMNSLLSAQLALSSWICGFLAISVPAALISTLSFCGTHAINHFFCDIAPWIALACTSTQGVETVAFVIAF
VVILSSCLITLISYAYIIRTILRIPSTSGRRKAFSTCSSHLTVVLIWYGSTIFLHV-RTSIKD-DLQLTK
AVHVLNTVVTPALNPFIYTLRNKEVREILGKKWKR-----------

>MmOR7.3.3
----MITENWT--LAQDFLLLGFPGSQVLQFSLFLFFLVMYLLTIGGNMAILLLVSTSHQLQTPMYFFLS
NLSFLEIWYTTAAVPKALAILVGKSQSISFLGCLFQMYLVFSLGCTEYFLLAAMAYDRYLAICFPLHYQT
IMNSLLSAQLALSSWICGFLAISVPAALISTLSFCGTHAINHFFCDIAPWIALACTSTQGVETVAFVIAF
VVILSSCLITLISYAYIIRTILRIPSTSGRRKAFSTCSSHLTVVLIWYGSTIFLHV-RTSIKD-DLQLTK
AVHVLNTVVTPALNPFIYTLRNKEVREILGKKW-KRK*---------

>MmOR7.8.2
LMAWSTGQNLS--TPGPFILLGFPGPRSMRIGLFLLFLVMYLLTVAGNLAIISLVGAHRCLQTPMYFFLC
NLSFLEIWFTTACVPKTLATFAPRGGAISLAGCATQMYFVFSLGCTEYFLLAVMAYDRYLAICLPLRYGG
IMTPGLATRLALGSWLCGFSAIIVPAALIARLSFCGSRVINHFFCDISPWIVLSCTDTQVVELVSFGIAF
CVILGSCGITLVSYAYIITTIIKIPSAQGRHRAFSTCSSHLTVVLIWYGSTIFLHV-RTSVES-SLDLTK
AVTVLNTIVTPVLNPFIYTLRNKDVKEALRRTM-KGK*---------

>HsOR1.5.14
----MEPQNTS--TVTNFQLLGFQNLLEWQALLFVIFLLIYCLTIIGNVVIITVVSQGLRLHSPMYMFLQ
HLSFLEVWYTSTTVPLLLANLLSWGQAISFSACMAQLYFFVFLGATECFLLAFMAYDRYLAICSPLRYPF
LMHRGLCARLVVVSWCTGVSTGFLPSLMISRLDFCGRNQINHFFCDLPPLMQLSCSRVYITEVTIFILSI
AVLCICFFLTLGPYVFIVSSILRIPSTSGRRKTFSTCGSHLAVVTLYYGTMISMYV-CP-SPHLLPEINK
IISVFYTVVTPLLNPVIYSLRNKDFKEAVRKVMRRKCGILWSTSKRK

>SOR11L1
----MEPQNTS--TVTNFQLLGFQNLLEWQALLFVIFLLIYCLTIIGNVVIITVVSQGLRLHSPMYMFLQ
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
HLSFLEVWYTSTTVPLLLANLLSWGQAISFSACMAQLYFFVFLSATECFLLALMAYDRYLAICSPLRYPF
LMHRGLCTRLVVVSWCTGVSTGFLPSLMISRLDFCGPNQINHFFCDLPPLMQLSCSRVYITEVTIFILSI
AVLCICFFLTLGPYVFIVSSILRIPSTSGRRKTFSTCGSHLAVVTLYYGTMISMYV-CP-SPHLLPEINK
IISVFYTVVTPLLNPVIYSLRNKDFKEAVRKVMRRGILWSTSKRKFL

>SMOR107-1
----MEPQNLS--KVTEFQLLGFQNLLEWQSLLFAIFLCFYLLTITGNMVIIGVVSEDPRLRAPMYTFLQ
HLSFLEIWYTSTTVPLLLSNLASWGHMLSFSACMAQLYFFVFFGATECFLLAAMAYDRYLAICHPLHYSL
LMSPDNCAALVTVSWVTGVGTGFLPSLLISKLDFCGPNRINHFFCDLPPLIQLSCSSVYVTEMAIFVLSI
AVLCICFLLTLVSYVFIVSSILRIPSTSGRMKTFSTCGSHLAVVTIYYGTMISMYV-RPNAHL-SPELNK
VISVFYTVVTPLLNPVIYSLRNKDFKEAVRKIVRTGVYRARVKGSAL

>MmOR11.4.12
----MEPQNLS--KVTEFQLLGFQNLLEWQSLLFAIFLCFYLLTITGNMVIICVVSEDPRLRAPMYTFLQ
HLSFLEIWYTSTTVPLLLSKLASWGHMLSFPACMAQLYFFVFFGATECFLLAAMAYDRYLAICHPLHYSL
LMSPDNCAALVTVSWVTGVGTGFLPSLLISKLDFCGPNRINHFFCDLPPLIQLSCSSVYVTEMAIFVLSI
AVLCICFLLTLVSYVFIVSSILRIPSTSGRMKTFSTCGSHLAVVTIYYGTMISMYV-RPNA-HLSPELNK
VISVFYTVVTPLLNPVIYSLRNKDFKEAVRKIVRTGVYRARVKGSAL

>SOR6Q1
--MQPYTKNWT--QVTEFVMMGFAGIHEAHLLFFILFLTMYLFTLVENLAIILVVGLDHRLRRPMYFFLT
HLSCLEIWYTSVTVPKMLAGFIGGGKNISYADCLSQLFIFTFLGATECFLLAAMAYDRYVAICMPLHYGA
FVSWGTCIRLAAACWLVGFLTPILPIYLLSQLTFYGPNVIDHFSCDASPLLALSCSDVTWKETVDFLVSL
AVLLASSMVIAVSYGNIVWTLLHIRSAAERWKAFSTCAAHLTVVSLFYGTLFFMYV-QT-KVTSSINFNK
VVSVFYSVVTPMLNPLIYSLRNKEVKGALGRVF-SLNFWKGQ-----

>HsOR11.12.3
--MQPYTKNWT--QVTEFVMMGFAGIHEAHLLFFILFLTMYLFTLVENLAIILVVGLDHRLRRPMYFFLT
HLSCLEIWYTSVTVPKMLAGFIGGGKNISYADCLSQLFIFTFLGATECFLLAAMAYDRYVAICMPLHYGA
FVSWGTCIRLAAACWLVGFLTPILPIYLLSQLTFYGPNVIDHFSCDASPLLALSCSDVTWKETVDFLVSL
AVLLASSMVIAVSYGNIVWTLLHIRSAAERWKAFSTCAAHLTVVSLFYGTLFFMYV-QTKVTS-SINFNK
VVSVFYSVVTPMLNPLIYSLRNKEVKGALGRVF-SLNFWKGQ*----

>HsOR7.6.9
----MELENQT--RVTKFILVGFPGSLSMRAAMFLIFLVAYILTVAENVIIILLVLQNRPLHKPMYFFLA
NLSFLETWYISVTVPKLLFSFWSVNNSISFTLCMIQLYFFIALMCTECVLLAAMAYDRYVAICRPLHYPT
IMSHGLCFRLALGSWAIGFGISLAKIYFISCLSFCGPNVINHFFCDISPVLNLSCTDMSITELVDFILAL
VIFLFPLFITVLSYGCILATILCMPT--GKQKAFSTCASHLVVVTIFYSAIIFMYA-RPRVIH-AFNMNK
IISIFYAIVTPSLNPFIYCLRNREVKEALKKLA-YCQASRSD*----

>SOR6B1
----MELENQT--RVTKFILVGFPGSLSMRAAMFLIFLVAYILTVAENVIIILLVLQNRPLHKPMYFFLA
NLSFLETWYISVTVPKLLFSFWSVNNSISFTLCMIQLYFFIALMCTECVLLAAMAYDRYVAICRPLHYPT
IMSHGLCFCLALGSWAIGFGISLAKIYFISCLSFCGPNVINHFFCDISPVLNLSCTDMSITELVDFILAL
VIFLFPLFITVLSYGCILATILCMPT--GKQKAFSTCASHLVVVTIFYSAIIFMYA-RPRVIH-AFNMNK
IISIFYAIVTPSLNPFIYCLRNREVKEALKKLA--YCQAS-------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR6.3.11
----MDVDNQT--RVTKFILVGFPGSLSMRAAVFLMFLVAYILTVAENVIIILLVQQNRPLHKPMYFFLA
NLSFLETWYISVTVPKLLFSFWSMSNSISFTHCMIQLYFFIALMCTECVLLAAMAYDRYVAICRPLHYPT
IMSHGLCFRLALGSWVIGFGISLAKIYFISRLSFCGPNVINHFFCDISPVLNLSCTDMSIAELVDFVLAL
VIFLFPLSITVLSYGCILATVLRMPT--GKQKAFSTCASHLVVVTIFYSATIFMYA-RPRAIH-AFNMNK
VISIFYAIVTPALNPFIYCLRNREVKEALKKLI-YCQVIRSD*----

>SMOR103-1
----MDVDNQT--RVTKFILVGFPGSLSMRAAVFLMFLVAYILTVAENVIIILLVQQNRPLHKPMYFFLA
NLSFLETWYISVTVPKLLFSFWSMSNSISFTHCMIQLYFFIALMCTECVLLAAMAYDRYVAICRPLHYPT
IMSHGLCFRLALGSWVIGFGISLAKIYFISRLSFCGPNVINHFFCDISPVLNLSCTDMSIAELVDFVLAL
VIFLFPLSITVLSYGCILATVLRMPT--GKQKAFSTCASHLVVVTIFYSATIFMYA-RPRAIH-AFNMNK
VISIFYAIVTPALNPFIYCLRNREVKEALKKLI-YCQVIRSD-----

>MmOR7.8.3
---MFARRNSS--DVTEFILVGFSGSLGLHLSLLGLFLLAYMLTVTENLVIITVIRASPSLHKPMYLFLS
NLSFLEIWYISVTVPKMLLSLVSPFQHISFTGCMAQLYFFLALACTECALLGVMAYDRYVAVCNPLRYPV
IMSPGLCSLLAGGSWLSGFTISLGKVFFISRLGYCGPNVMNHFFCDVSPLLNLACSDMSVAELVDFLLAL
LILLGPLLLTVFSYTAILSTVLRMPSAGGRQKAFSTCASHLAVVVIFYSASLFIYA-RPRALY-SFDYNK
LVSVVYTVLTPLINPIIYCLRNQEVKQALHKVQQRAAQVLGASS*--

>MmOR7.6.22
----MERRNHT-GRVSEFVLLGFPAPAPLRALLFFLSLLAYVLVLTENILIITAIRNHPTLHKPMYFFLA
NMSFLEIWYVTVTIPKMLAGFIGENQLISFEACMTQLYFFLGLGCTECVLLAVMAYDRYVAICHPLHYPV
IVSSRLCVQMAAGSWAGGFGISMVKVFLISRLSYCGPNTINHFFCDVSPLLNLSCTDMSTAELTDFILAI
FILLGPLSVTGASYMAITGAVMRIPSAAGRHKAFSTCASHLTVVIIFYAASIFIYA-RPKALS-AFDTNK
LVSVLYAVIVPLLNPIIYCLRNQEVKKALRRTLHLGQDANTKKSSRD

>HsOR11.4.3
----MEWRNHS-GRVSEFVLLGFPAPAPLQVLLFALLLLAYVLVLTENTLIIMAIRNHSTLHKPMYFFLA
NMSFLEIWYVTVTIPKMLAGFVGQDQLISFEGCMTQLYFFLGLGCTECVLLAVMAYDRYMAICYPLHYPV
IVSGRLCVQMAAGSWAGGFGISMVKVFLISGLSYCGPNIINHFFCDVSPLLNLSCTDMSTAELTDFILAI
FILLGPLSVTGASYVAITGAVMHIPSAAGRYKAFSTCASHLTVVIIFYAASIFIYA-RPKALS-AFDTNK
LVSVLYAVIVPLLNPIIYCLRNQEVKRALCCTL-HQDPDPKKASRNV

>MmOR1.1.3
----MRGENIT--KVSTFILLGFPTAPELQYLLFLLFLLAYLFVLVENLAIILTVWSSASLHRPMYYFLG
IMSTLEIWYVCDIIPKMLDGFLLQRKRISFIGCMTQLYFFSSLVCTECVLLASMAYDRYVAICHPLRYQV
IMTTGLCVQLVAFSFASGFSISVIKVYFISSATFCGSNVLNHFFCDISPILKLACTDFSTAELVDFILAF
IILVFPLLATVLSYGHITLAVLRIPSATGRWRAFSTCASHLTVVTIFYTALLFMYV-RPQAID-TRSSNK
LISVLYTVLTPILNPLIYCLRNKEFKDALRKALGLGQAPL*------

>HsOR2.4.1
----MSGENVT--KVSTFILVGLPTAPGLQYLLFLLFLLTYLFVLVENLAIILIVWSSTSLHRPMYYFLS
SMSFLEIWYVSDITPKMLEGFLLQQKRISFVGCMTQLYFFSSLVCTECVLLASMAYDRYVAICHPLRYHV
LVTPGLCLQLVGFSFVSGFTISMIKVCFISSVTFCGSNVLNHFFCDISPILKLACTDFSTAELVDFILAF
IILVFPLLATILSYWHITLAVLRIPSATGCWRAFSTCASHLTVVTVFYTALLFMYV-RPQAID-SQSSNK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LISAVYTVVTPIINPLIYCLRNKEFKDALKKALGLGQTSH*------

>HsOR2.4.2
----MSGENVT--RVGTFILVGFPTAPGLQYLLFLLFLLTYLFVLVENLAIILTVWSSTSLHRPMYYFLS
SMSFLEIWYVSDITPKMLEGFLLQQKRISFVGCMTQLYFFSSLVCTECVLLASMAYDRYVAICHPLRYHV
LVTPGLCLQLVGFSFVSGFTISMIKVCFISSVTFCGSNVLNHFFCDISPILKLACTDFSTAELVDFILAF
IILVFPLLATMLSYAHITLAVLRIPSATGCWRAFFTCASHLTVVTVFYTALLFMYV-RPQAID-SRSSNK
LISVLYTVITPILNPLIYCLRNKEFKNALKKAFGLGRLSSLLELHLQ

>MmOR7.6.20
----MLDMNIT--LVSEFILVGFPTAPWLQILLFFIFLVVYMLIIAENLVIIFTVWSTGSLHKPMYYFLS
SMSFLEIWYVSVTVPKMLDGFLLQRRHISFTGCMTQLYFFISLACTECVLLAAMAYDRYVAICHPLRYPV
IMTTVYCMQLMALSYFSGFMVSVVKVYFISHVAFCGSNVMNHFFCDISPILKLACKDMSTAELVDFALAI
VILVFPLITTVLSYVYIVSTILRIPSTQGRKKAFSTCASHLTVVIIYYTAMIFMYV-RPRAIA-SFNSNK
LISAVYAVLTPMLNPFIYCLRNREVKDAIKKTLGGLLC*--------

>MmOR7.6.19
------MENIT--NISEFILMGFPTAPWLQILLFSIFFITYVFVLLENLVIILTVWVTGSLHKPMYYFLS
TMSFLEAWYISVTVPKMLAGFLFHPNTISFLGCMTQLYFFMSLACTECVLLAAMAYDRYVAICWPLRYPV
MMTTGFCVQLTISSWVSGFTISMAKVYFLSRVAFCGNNVLNHFFCDVSPILKLACMNLSMAETVDFALAI
VILIFPLSATVLSYGFIVSTVLQIPSATGQRKAFSTCASHLTVVVIFYTAVIFMYV-RPRAIA-SFNSNK
LISAIYAVFTPMLNPIIYCLRNKEVKDAIRKTIGRAPALGESIS*--

>SOR6P1
----MRNLSGG--HVEEFVLVGFPTTPPLQLLLFVLFFAIYLLTLLENALIVFTIWLAPSLHRPMYFFLG
HLSFLELWYINVTIPRLLAAFLTQDGRVSYVGCMTQLYFFIALACTECVLLAVMAYDRYLAICGPLLYPS
LMPSSLATRLAAASWGSGFFSSMMKLLFISQLSYCGPNIINHFFCDISPLLNLTCSDKEQAELVDFLLAL
VMILLPLLAVVSSYTAIIAAILRIPTSRGRHKAFSTCAAHLAVVVIYYSSTLFTYA-RPRAMY-TFNHNK
IISVLYTIIVPFFNPAIYCLRNKEVKEAFRKTVMGRCHYPRDVQD--

>HsOR1.4.8
----MRNLSGG--HVEEFVLVGFPTTPPLQLLLFVLFFAIYLLTLLENALIVFTIWLAPSLHRPMYFFLG
HLSFLELWYINVTIPRLLAAFLTQDGRVSYVGCMTQLYFFIALACTECVLLAVMAYDRYLAICGPLLYPS
LMPSSLATRLAAASWGSGFFSSMMKLLFISQLSYCGPNIINHFFCDISPLLNLTCSDKEQAELVDFLLAL
VMILLPLLAVVSSYTAIIAAILRIPTSRGRHKAFSTCAAHLAVVVIYYSSTLFTYA-RPRAMY-TFNHNK
IISVLYTIIVPFFNPAIYCLRNKEVKEAFRKTVMGRCHYPRDVQD*-

>MmOR1.4.16
----MRNLSGS--HVEEFVLVGFPTSRPFQALLFVFFFAIYLLTLLENVLIVSTIWLTPSLHRPMYFFLG
HLSFLELWYINVTIPRLLGAFLTQDGRVSYGGCMTQLYFFIALACTECVLLAVMAYDRYLAICEPLRYPS
LMPPRLATRLAAASWGSGFFSSMMKLLFISRLSYCGPNIINHFFCDISPLLNLTCSDKEQAELVDFLLAL
VMILLPLVAVVSSYAAIIVAILRIPTAQGRHKAFSTCTSHLAVVVIYYSSTLFTYA-RPRAMY-TFNYNK
IISVLYTVIVPFLNPAIYCLRNKEVKDAFKTVLGR-CHHPREGPD*-

>HsOR1.4.7
TTIILEVDNHT--VTTRFILLGFPTRPAFQLLFFSIFLATYLLTLLENLLIILAIHSDGQLHKPMYFFLS
HLSFLEMWYVTVISPKMLVDFLSHDKSISFNGCMTQLYFFVTFVCTEYILLAIMAFDRYVAICNPLRYPV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMTNQLCGTLAGGCWFCGLMTAMIKMVFIAQLHYCGMPQINHYFCDISPLLNVSCEDASQAEMVDFFLAL
MVIAIPLCVVVASYAAILATILRIPSAQGRQKAFSTCASHLTVVILFYSMTLFTYA-RPKLMY-AYNSNK
VVSVLYTVIVPLLNPIIYCLRNHEVKAALRKTI-HCRGSGPQGNGAF

>SOR6Y1
TTIILEVDNHT--VTTRFILLGFPTRPAFQLLFFSIFLATYLLTLLENLLIILAIHSDGQLHKPMYFFLS
HLSFLEMWYVTVISPKMLVDFLSHDKSISFNGCMTQLYFFVTFVCTEYILLAIMAFDRYVAICNPLRYPV
IMTNQLCGTLAGGCWFCGLMTAMIKMVFIAQLHYCGMPQINHYFCDISPLLNVSCEDASQAEMVDFFLAL
MVIAIPLCVVVASYAAILATILRIPSAQGRQKAFSTCASHLTIVILFYSMTLFTYA-RPKLMY-AYNSNK
VVSVLYTVIVPLLNPIIYCLRNHEVKAALRKTI-HCRGSGPQGNGAF

>MmOR1.4.17
VIKGLQVDNWT--ETTHFVLLGFPSRPAFQFLLFSVFLVTYLLTLAENLLIILAIRSDGQLHKPMYFFLS
HLSFLEMWYVTVISPKMLVDFLSKDKSISFNGCMTQLYFFVTFVCTEYILLAVMAFDRYVAICNPLRYPV
IMTNQLCGVMAGGCWFCGLMTAMIKMVFIARLRYCGTPHINHYFCDISPLLNVSCEDSSQAELVDFFLAL
MVIAVPLCVVVTSYAIILVTILKIPSAQGRQKAFSTCASHLTVVTLFYSTTLFTYA-RPKLMY-AYNSNK
VVSVLYTVVVPLLNPIIYCLRNRDVKMALKKTILCRSGSGGDGDFSS

>MmOR7.1.2
MEKSLELGNVT--RVQEFVLLGLSTRLGIRDALFVIFLTLYLLTLLENTLIIYLICSHSELHKPMYFFLG
NLSCLEMCYVSVTMPTLLMGLWTGPCHVPFTGCMTQLFFFISLICTECTLLASMAYDRYVAICRPLHYPL
LMRPQVCLGLALSSWLGGLLVSVIKTACIASLSYCGPNVLNHFFCDVSPLLNLSCTHVALTELVDFISAI
VILWGSLLVAMASYVAIGRTVLGMPSAAARHKAFSTCASHLVVVGIFYSATIFIYA-RPSRIE-AMDLNK
VLSVIYTVVTPMCNPVIYCLRNREVQSAFHRTM-RWSSV*-------

>MmOR7.1.4
MERSLALANMT--RVQQFILLGLSTRLDIRDALFAVFLTLYLLTLLENTLIIYLICSHKELHKPMYFFLG
NLSCLEMCYVSVTMPTLLMGLWNGLYHIPFIACMTQLFFFIVLVGTECILLASMAYDRYVAICRPLHYPV
LMRPQVCLGLAMISWLGGLLVSMIKTTCIATLSYCGPNVLNHFFCDVSPLLNLSCTHVALTELVDFISAI
VILWGCFLTTMASYVAIGRAVLRMPSTTARYKAFSTCASHLVVVGIFYSVTIFIYA-RPKRIE-AMDLNK
VLSVIYTVVTPMCNPVIYCLRNKEVQVALHRTMHW----S*------

>MmOR7.1.6
MARSLELANMT--RVQKFLLLGLSTRLDIRDALFAVFLTLYLLTLVENTLIIYLIFSHKELHKPMYFFLG
NLSCLEMCYVSVTMPTLLVGLWTGPYHIPFTLCMTQLFFFIVLICTECTLLASMAYDRYVAICRPLHYPL
LMRPQVCLGLALSSWLGGLIVSVAKTTCIASLSYCGPNVLNQFFCDVSPLLNLSCTHVALTELVDFISAI
VIFCGTLLVSLASYSAIGMAVLRMPSAAARRKAFSTCASHLVVVGIFYSAALFIYC-RPSRIK-SMDLNK
VLSVIYTVVTPLCNPIIYCLRNKEVHTVLKKTLHW----P*------

>MmOR7.1.3
MERSLQLANRS--DDQDFILLGLSASKDIKDGLFVIFLTLYLLIFLENMLVIYLISHHELLHKPMYFFLG
NLSCLEMCYVSVTMPTLLVGLRSSPYHVSFSFCMAQLFLFMSLIGTKCTLLASMAYDRYVAICCPLHYSV
IMRPQVCWGLALSSWVGGLLVSAIKTTCIASLSYCGPNVLNHFFCDVSPLLNLSCTHVALTELIDFISAI
IIFCGSLLVALASYVAIGRVLIKMPSAAASHKALSTCASHLLVMGLFYSVVLFMYS-RPSHVK-STDLNK
VLSVIYTVATPMCSPIIYCLRNREVHAVLRRTPCL----C*------

>HsOR14.1.30
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
---MSPDGNHS-SDPTEFVLAGLPNLNSARVELFSVFLLVYLLNLTGNVLIVGVVRADTRLQTPMYFFLG
NLSCLEILLTSVIIPKMLSNFLSRQHTISFAACITQFYFYFFLGASEFLLLAVMSADRYLAICHPLRYPL
LMSGAVCFRVALACWVGGLVPVLGPTVAVALLPFCKQAVVQHFFCDSGPLLRLACTNTKKLEETDFVLAS
LVIVSSLLITAVSYGLIVLAVLSIPSASGRQKAFSTCTSHLIVVTLFYGSAIFLYV-RP-SQSGSVDTNW
AVTVITTFVTPLLNPFIYALRNEQVKEALKDMFRKGNLLLDKCLSEK

>SOR6S1
---MSPDGNHS-SDPTEFVLAGLPNLNSARVELFSVFLLVYLLNLIGNVLIVGVVRADTRLQTPMYFFLG
NLSCLEILLTSVIIPKMLSNFLSRQHTISFAACITQFYFYFFLGASEFLLLAVMSADRYLAICHPLRYPL
LMSGAVCFRVALACWVGGLIPVLGPTVAVALLPFCKQAVVQHFFCDSGPLLRLACTNTKKLEETDFVLAS
LVIVSSLLITAVSYGLIVLAVLSIPSASGHQKAFSTCTSHLIVVTLFYGSAIFLYV-RPSQSG-SVDTNW
AVTVITTFVTPLLNPFIYALRNEQVKEALKDMFRKGNLLLDKCLSEK

>MmOR14.2.28
---MAPRANQS-VGTTEFVLAGFPNLNSTGAEVFSVFLFVYLLTLTGNTLIVVLVGADHRLQTPMYFFLA
NLSCLEILITSVIIPKMLSNFLSRRHTISFAACITQFYFYFFLGASEFLLLAVMSVDRYLAICRPLHYPL
LMNGAVCFRVALACWMGGLLPVLGPTVAVALLPFCKQAVVQHFFCDSGPLLHLACTNTTRLEEADFVLAF
LVIMSSLTITGASYGHIVLAVLRIPSASGRQKAFSTCTSHLMVVTLFYGSAIFLYV-RP-SQSGSVDTNW
SVTVITTFVTPLLNPFIYALRNDQVKEALKEMFRKEQSLLGDSLRKK

>HsOR11.18.2
------MGNWS--TVTEITLIAFPALLEIRISLFVVLVVTYTLTATGNITIISLIWIDHRLQTPMYFFLS
NLSFLDILYTTVITPKLLACLLGEEKTISFAGCMIQTYFYFFLGTVEFILLAVMSFDRYMAICDPLHYTV
IMNSRACLLLVLGCWVGAFLSVLFPTIVVTRLPYCRKE-INHFFCDIAPLLQVACINTHLIEKINFLLSA
LVILSSLAFTTGSYVYIISTILRIPSTQGRQKAFSTCASHITVVSIAHGSNIFVYV-RPNQNS-SLDYDK
VAAVLITVVTPLLNPFIYSLRNEKVQEVLRETVNRIMTLIQRKT*--

>HsOR14.3.1
------MGNWT-AAVTEFVLLGFSLSREVELLLLVLLLPTFLLTLLGNLLIISTVLSCSRLHTPMYFFLC
NLSILDILFTSVISPKVLANLGSRDKTISFAGCITQCYFYFFLGTVEFLLLTVMSYDRYATICCPLRYTT
IMRPSVCIGTVVFSWVGGFLSVLFPTILISQLPFCGSNIINHFFCDSGPLLALACADTTAIELMDFMLSS
MVILCCIVLVAYSYTYIILTIVRIPSASGRKKAFNTCASHLTIVIIPSGITVFIYV-TPSQKE-YLEINK
IPLVLSSVVTPFLNPFIYTLRNDTVQGVLRDVWVRVRGVFEKRMRAV

>SOR6T1
----MNPENWT--QVTSFVLLGFPSSHLIQFLVFLGLMVTYIVTATGKLLIIVLSWIDQRLHIQMYFFLR
NFSFLELLLVTVVVPKMLVVILTGDHTISFVSCIIQSYLYFFLGTTDFFLLAVMSLDRYLAICRPLRYET
LMNGHVCSQLVLASWLAGFLWVLCPTVLMASLPFCGPNGIDHFFRDSWPLLRLSCGDTHLLKLVAFMLST
LVLLGSLALTSVSYACILATVLRAPTAAERRKAFSTCASHLTVVVIIYGSSIFLYI-RMSEAQ-SKLLNK
GASVLSCIITPLLNPFIFTLRNDKVQQALREALGWLTAVMKL-----

>HsOR11.18.7
----MNPENWT--QVTSFVLLGFPSSHLIQFLVFLGLMVTYIVTATGKLLIIVLSWIDQRLHIQMYFFLR
NFSFLELLLVTVVVPKMLVVILTGDHTISFVSCIIQSYLYFFLGTTDFFLLAVMSLDRYLAICRPLRYET
LMNGHVCSQLVLASWLAGFLWVLCPTVLMASLPFCGPNGIDHFFRDSWPLLRLSCGDTHLLKLVAFMLST
LVLLGSLALTSVSYACILATVLRAPTAAERRKAFSTCASHLTVVVIIYGSSIFLYI-RMSEAQ-SKLLNK
GASVLSCIITPLLNPFIFTLRNDKVQQALREALGWLTAVMKLRVTSQ
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>SOR6X1
------MRNGT--VITEFILLGFPVIQGLQTPLFIAIFLTYILTLAGNGLIIATVWAEPRLQIPMYFFLC
NLSFLEIWYTTTVIPKLLGTFVVARTVICMSCCLLQAFFHFFVGTTEFLILTIMSFDRYLTICNPLHHPT
IMTSKLCLQLALSSWVVGFTIVFCQTMLLIQLPFCGNNVISHFYCDVGPSLKAACIDTSILELLGVIATI
LVIPGSLLFNMISYIYILSAILRIPSATGHQKTFSTCASHLTVVSLLYGAVLFMYL-RPTAHS-SFKINK
VVSVLNTILTPLLNPFIYTIRNKEVKGALRKAMTCPKTGHAK-----

>HsOR11.18.1
------MRNGT--VITEFILLGFPVIQGLQTPLFIAIFLTYILTLAGNGLIIATVWAEPRLQIPMYFFLC
NLSFLEIWYTTTVIPKLLGTFVVARTVICMSCCLLQAFFHFFVGTTEFLILTIMSFDRYLTICNPLHHPT
IMTSKLCLQLALSSWVVGFTIVFCQTMLLIQLPFCGNNVISHFYCDVGPSLKAACIDTSILELLGVIATI
LVIPGSLLFNMISYIYILSAILRIPSATGHQKTFSTCASHLTVVSLLYGAVLFMYL-RPTAHS-SFKINK
VVSVLNTILTPLLNPFIYTIRNKEVKGALRKAMTCPKTGHAK*----

>MmOR14.2.15
---MTSARNAS-HTVSHFILLGFPCRREIQIFLFSIFFMIYILTLLGNMAIVYAVYWDHRLHTPMYILLA
NFSFLEICYVNSDVPNMLVNFLSTTKTISFTRCLLQLYFFFSLGTTECLFLSIMAYDRFLAICRPLHYPT
VMTTMFCGNLVIFCWVYGFLWFLIPVILITQLPFCGPNVIDDFLCDLGPLLALACVPIPGTVLICGTMSS
LLIFGTFFYIIGSYTLVLRAVIRMPSSAGSKKAFSTCSSHLAVVFLFYGSVMITYV-SPGSGQ-AKGMQK
FTTLFYSVMTPFFNPMIYSLRNKEMKDALKKVVGG------------

>HsOR22.1.1
--MNVSEPNSSFAFVNEFILQGFSCEWTIQIFLFSLFTTTYALTITGNGAIAFVLWCDRRLHTPMYMFLG
NFSFLEIWYVSSTVPKMLVNFLSEKKNISFAGCFLQFYFFFSLGTSECLLLTVMAFDQYLAICRPLLYPN
IMTGHLYAKLVILCWVCGFLWFLIPIVLISQMPFCGPNIIDHVVCDPGPRFALDCVSAPRIQLFCYTLSS
LVIFGNFLFIIGSYTLVLKAMLGMPSSTGRHKAFSTCGSHLAVVSLCYSSLMVMYV-SPGLGH-STGMQK
IETLFYAMVTPLFNPLIYSLQNKEIKAALRKVLGSSNII*-------

>HsOR14.1.1
--MNVSEPNSSFAFVNEFILQGFSCEWTIQIFLFSLFTTIYALTITGNGAIAFVLWCDRRLHTPMYMFLG
NFSFLEIWYVSSTVPKMLVNFLSEKKNISFAGCFLQFYFFFSLGTSECLLLTVMAFDQYLAICRPLLYPN
IMTGHLYAKLVILCWVCGFLWFLIPIVLISQKPFCGPNIIDHVVCDPGPLFALDCVSAPRIQLFCYTLSS
LVIFGNFLFIIGSYTLVLKAVLGMPSSTGRHKAFSTCGSHLAVVSLCYSPLMVMYV-SPGLGH-STGMQK
IETLFYAMVTPLFNPLIYSLQNKEIKAALRKVLGSSNII*-------

>SOR11H1
GLMNVSEPNSSFAFVNEFILQGFSCEWTIQIFLFSLFTTIYALTITGNGAIAFALWCDRRLHTPMYMFLG
DFSFLEIWYVFSTVPKMLVNFLSEKTNISFAGCFLQFYFFFSLGTSECLLLTVMAFDQYLAICRPLHYPN
IMTGHLCAKLVILCWVCGFLWFLIPIVLISQMPFCGPNIIDHVVCDPGPLFALDCVSAPRIQLFCYTLNS
LVIFGNFLFIIGSYTIVLKAVLGTPSSTGRHKAFSTCGSHLAVVSLCYGSLMVMYV-SPGLGH-STGMQK
IVTLFYAMVTPLFNPLIYSLQNKEIKAALRKVLGSSNII--------

>MmOR14.2.24
----MNVSEGS--TVTYFVLLGFPGPWKIQIILFSLILLLYMITLTGNMAIICAVRWNQQLHTPMYMFLA
NFSFLEIWYVTCTVPNMLVNSLSKTKTISFTGCFTQFYFFFSLGTTECFFLCAMAYDRYLAICYPLHYPS
IMTRQFCSILMSLCWIIGFSAHLIPIFFISQLSFCGPNIIDHFLCDVDPLIALSCTPTHIIRHVFYSIST
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LIIILTGLYILGSYALELRAVLQVPSSDGRQKAFSTCGSHLLVVSLFYGTIMVMYV-SPTSGN-SVDMNK
IITLIYSVVTPALNPFIYSLRNKDMKYALHHVFFGNSIMQNL*----

>MmOR14.2.26
----MNVSEGS--TVTYFVLLGFPGPWKIQITLFSLILLLYMITLTGNMAIICAVRWNQQLHTPMYMFLA
NFSFLEIWYVTCTVPNMLVNSLSKTKTISFTGCFTQFYFFFSLGTTECFFLCAMAYDRYLAICYPLHYPS
IMTRQFCSILMSLCWIIGFSAHLIPIFFISQLSFCGPNIIDHFLCDVDPLMVLSCTPTPIIRHVFYSIST
IFIVLTCLYILGSYTLVLRAVLQVSSSDGRQKAFSTCGSHLLVVSLFYGTIMVMYV-TPKSSN-SVAMHK
IITLIYSVVTPALNPFIYSLRNKDMKYALHNVFFG------------

>SMOR106-1
PQRNLDAMNRSAAHVTEFVLLGFPGSWKIQIFLFVLFLVFYVLTLLGNGAIICAVRCDSRLHTPMYFLLG
NFSFLEIWYVSSTIPNILANILSKTKAISFSGCFLQFYFFFSLGTTECLFLAVMAYDRYLAICRPLHYPT
IMTRRLCCILVSSCWLIGFLGYPIPIFSISQLPFCGSNIIDHFLCDMDPLMALSCAPAPITEFIFYAQSS
FVLFFTIAYILRSYILLLRAVFQVPSAAGRRKAFSTCGSHLVVVSLFYGTVMVMYV-SPTYGI-PILMQK
ILTLVYSVMTPLFNPLIYSLRNKDMKLALRNVLLGMRIVKNM-----

>MmOR14.2.27
----MNR-SAA--HVTEFVLLGFPGSWKIQIFLFVLFLVFYVLTLLGNGAIICAVRCDSRLHTPMYFLLG
NFAFLEIWYVSSTIPNILANILSKTKAISFSGCFLQFYFFFSLGTTECLFLAVMAYDRYLAICRPLHYPT
IMTRRLCCILVSSCWLIGFLGYPIPIFSISQLPFCGSNIIDHFLCDMDPLMALSCAPAPITEFIFYAQSS
FVLFFTIAYILRSYILLLRAVFQVPSAAGRRKAFSTCGSHLVVVSLFYGTVMVMYV-SP-TYGIPILMQK
ILTLVYSVMTPLFNPLIYSLRNKDMKLALRNVLLGMRIVKNM*----

>MmOR14.2.25
PFRYLDAMNRSVAHVTEFVLLGFPGSWKIQIFLFVLFLVFYVLTLLGNGAIICAVRCDSRLHTPMYFLLG
NFAFLEIWYVSSTIPNILANILSKTKAISFSGCFLQFYFFFSLGTTECLFLAVMAYDRYLAICRPLHYPT
IMTRRLCCILVSSCWLIGFLGYPIPIFSISQLPFCGSNIIDHFLCDMDPLMALSCAPAPITEFIFYAQSS
FVLFFTIAYILRSYILLLKAIFQVPSAAGRRKAFSTCGSHLVVVSLFYGTVMIMYM-SP-TYGISTLMQK
ILTLVYSVMTPLFNPLIYSLRNKDMKLALRKVLLGMRIVKNI*----

>SOR11H4
FFVDLRPMNRSTHIMTEFILLGFPGCWKIQIFLFSLFLVIYVLTLLGNGAIIYAVRCNPLLHTPMYFLLG
NFAFLEIWYVSSTIPNMLVNILSKTKAISFSGCFLQFYFFFSLGTTECLFLAVMAYDRYLAICHPLQYPA
IMTVRFCGKLVSFCWLIGFLGYPIPIFYISQLPFCGPNIIDHFLCDMDPLMALSCAPAPITECIFYTQSS
LVLFFTSMYILRSYILLLTAVFQVPSAAGRRKAFSTCGSHLVVVSLFYGTVMVMYV-SP-TYGIPTLLQK
ILTLVYSVTTPLFNPLIYTLRNKDMKLALRNVLFGMRIRQNS-----

>HsOR14.1.29
----MNRSATH--IVTEFILLGFPGCWKIQIFLFSLFLVIYVLTLLGNGAIIYAVRCNPLLHTPMYFLLG
NFAFLEIWYVSSTIPNMLVNILSKTKAISFSGCFLQFYFFFSLGTTECLFLAVMAYDRYLAICHPLQYPA
IMTVRFCGKLVSFCWLIGFLGYPIPIFYISQLPFCGPNIIDHFLCDMDPLMALSCAPAPITECIFYTQSS
LVLFFTSMYILRSYILLLTAVFQVPSAAGRRKAFSTCGSHLVVVSLFYGTVMVMYV-SP-TYGIPTLLQK
ILTLVYSVTTPLFNPLIYTLRNKDMKLALRNVLFGMRIRQNS*----

>SOR11H6
FLTALGPQNRTMHFVTEFVLLGFHGQREMQSCFFSFILVLYLLTLLGNGAIVCAVKLDRRLHTPMYILLG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
NFAFLEIWYISSTVPNMLVNILSEIKTISFSGCFLQFYFFFSLGTTECFFLSVMAYDRYLAICRPLHYPS
IMTGKFCIILVCVCWVGGFLCYPVPIVLISQLPFCGPNIIDHLVCDPGPLFALACISAPSTELICYTFNS
MIIFGPFLSILGSYTLVIRAVLCIPSGAGRTKAFSTCGSHLMVVSLFYGTLMVMYV-SPTSGN-PAGMQK
IITLVYTAMTPFLNPLIYSLRNKDMKDALKRVLG-LTVSQN------

>HsOR14.1.27
FLTALGPQNRTMHFVTEFVLLGFHGQREMQSCFFSFILVLYLLTLLGNGAIVCAVKLDRRLHTPMYILLG
NFAFLEIWYISSTVPNMLVNILSEIKTISFSGCFLQFYFFFSLGTTECFFLSVMAYDRYLAICRPLHYPS
IMTGKFCIILVCVCWVGGFLCYPVPIVLISQLPFCGPNIIDHLVCDPGPLFALACISAPSTELICYTFNS
MIIFGPFLSILGSYTLVIRAVLCIPSGAGRTKAFSTCGSHLMVVSLFYGTLMVMYV-SPTSGN-PAGMQK
IITLVYTAMTPFLNPLIYSLRNKDMKDALKRVLG-LTVSQN*-----

>MmOR14.2.23
FLTAFGSKNSSIHFVTEFILLGFSNQGEMQSFFFCSILILYLLTLLGNGTIVCAVRWDQRLHTPMYIFLG
NFAFLEIWYVSSTIPNMLVNILSENKTISFSACFLQFYFFFSLGTTECFFLSAMAYDRYLAICRPLHYPS
IMTRKFCVILICICWVSGFLCYPVPIVLISQLPFCGPNIIDHFVCDPGPLFALSCVPAPSTELLCYTFNS
MIIFGPFFCILGSYTLVLRAVFRVPSGAGRTKAFSTCGSHLVVVSLFYGTLMVMYV-SPTSGN-PAGMQK
IVTLIYSALTPLLNPLIYTLRNKEMKNALKKLL-KLTTIQN*-----

>MmOR14.2.21
MKTLSSPSNSS--TITGFILLGFPCPREGQILLFVTFFIVYILILMGNASIICAVYCDQSLHTPMYFLLA
NFSFLEIWYVTSTVPNMLANFLSDTKVISFSGCFLQFYFFFSFGSTECFFLAVMAFDRYLAICRPLHYSS
LMTGRLRNTLVTSCWVLGFLWFPVPIIIISQMSFCGSRIIDHFLCDPGPLLALACSRVPLIEVFWSIIMS
MLLVIPFLFIMGTYILVLRAVFRLPSRDGQKKAFSTCGSHLTVVSLFYCSVMKMYL-SPTSEHEAGMQ-K
LVTLFYSVGTPLLNPVIYSLRNKDMKNALQKILRT------------

>MmOR14.2.20
MKTLSSPSNSS--TITGFILLGFAYPREGQILLFVIFFIVYILILMGNASIICAVYCDQRLHTPMYLLLA
NFSFMEIGYVTSTVPNMLANFLSDTKVISFSGCFLQFYFFFSFGSTECFFLAVMAFDRYLAICRPLHYSS
LMTGRLRNTLVTSCWVLGFLWFPVPIIIISQMSFCGSRIIDHFLCDPGPLLALACSRVPLIEVFWSIIMS
MLLVIPFLFIMGTYILVLRAVFRLPSREGQKKAFSTCGSHLTVVSLFYCSVMIMYL-SPTSEH-EAGMQK
LVTLFYSVGTPLLNPMIYSLRNKDMKNALQKILRT------------

>MmOR14.2.22
MKTLSSPSNSS--TITGFILLGFPCPREGQILLFVIFFVVYLLILMGNASIICAVYCDQRLHTPMYLLLA
NFSFLEIWYVTSTVPNMLANFLSDNKIISFAGCFLQFYFFFSFGSTECFFLAVMAFDRYLAICRPLHYPS
LMTRRLCNILVISCWVLGFLWFPVPIIIISQMSFCGSRIIDHFLCDPGPLLALACSRAPLMEVFWTIIMS
ILLVIPFLFIMGSYILVLRTVFRLPSRDGQKKAFSTCGSHVTVVSLFYGSVMIMYM-SPSSGH-EAGMQK
IVTLFYSVGTPLLNPVIYSLRNKDMKNALQKILRT------------

>MmOR14.2.18
-MKTLSSSNNT---ITGFILLGFPCPREGQILLFVLFFIVYLLTLMGNASIICAVCCDQKLHTPMYLLLA
NFSFLEICYVTSTVPNMLANFLSENKVISFAGCFLQFYFFFSLGSTECFFLAVMAFDRYLAICRPLHYPA
LMTGHLCNILVISCWVLGFLWFPVPIIIISQMSFCGSRIIDHFLCDPGPLLALTCSRAPLMEVFWAILGS
MLLFIPFFCIMGSYILVLRAVFRVPSRDGQKKAFSTCGSHLTVVSLFYGSVMIMYL-SPTSEH-EAGMQK
LVTLFYSVVTPLINPVIYSLRNKDMKNALQKILKT------------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR14.2.17
MKAFSSPSNSS--IITGFILLGFPCPKEGQILLFVLFFIIYILTLMGNASIICAVCYDKKLHSPMYLLLA
NFSFLEIWYVTSTVPNMLANFLSDTKVISFSGCFLQFYFFFSLGSTECFFLAVMAFDRYLAICRPLHYPS
LMTGRLCNILVISCWVLGFLWFPVPIIIISQMSFCGSRIIDHFLCDPGPLLALTCVRNSLIEMTSSTLSS
LLLFVPFFFIMGSYALVMRAVLRVPSAAGRRKAFSTCGSHLTVVSLFYGSVMVMYV-SPTSEH-AAGVQK
LVTLFYSVVTPLLNPVIYSLRNRDMKHAMKKLLKM------------

>MmORUn.8.1
MKIFSSPSNSS--TITGFILLGFPCPREGQILLFVLFSIVYLLTLMGNASIICAVYCDQKLHIPMYLLLA
NFSFLEIWYVTSTVPNMLANFLSDTKVISFSGCFLQFYFFFSLGSTECFFLAVMAFDRYLAICRPLHYPA
LMTGRLCNILVISCWILGFLWFPVPIIIISQVSFCGSRIIDHFLCDPGPLLALTCKKSPLIELVFSILSP
LPLIIPFVFIMGSYTLVLAAVLKVPSASGKRKAFSTCGSHLAVVALFYGSVLVMYG-SPTSEH-EAGMQK
IVTLFYSVLTPLLNPVIYSLRNKHMKIALKEILRKNWSTKKALGN*-

>HsOR14.1.25
MKIFNSPSNSS--TFTGFILLGFPCPREGQILLFVLFTVVYLLTLMGNGSIICAVHWDQRLHAPMYILLA
NFSFLEICYVTSTVPSMLANFLSDTKIISFSGCFLQFYFFFSLGSTECFFLAVMAFDRYLAICRPLRYPT
IMTRRLCTNLVVNCWVLGFIWFLIPIVNISQMSFCGSRIIDHFLCDPAPLLTLTCKKGPVIELVFSVLSP
LPVFMLFLFIVGSYALVVRAVLRVPSAAGRRKAFSTCGSHLAVVSLFYGSVLVMYG-SPPSKNEAGKQ-K
TVTLFYSVVTPLLNPVIYSLRNKDMRKALKKFWGT------------

>MmOR3.3.1
-MMTLSWENQT--VIVEFVLRGFSSILQLNISLFIMFCIFYILTISGNILIVFLVLCNHALHTPMYFFLV
NLSFLEVCYTSNIVPKMLLIIIADQKTISVVGCLAQFYFFGSLAATECLLLAVMSYDRYLAICQPLRYPI
LMTGSLCFRLAIGSWFCCFFLTAITMVLLCRQNFCGPNEIDHFFCDFAPLIHLSCMDTSLIETVAFATSS
AVTLVPFFLITISYSCILIAILRIPSGTGRKKAFSTCSSHLTVVTVFYGTLIATYL-VPSANS-SQYLRK
GFSLLYTILTPMFNPIIYSLRNRDIHEALKKCLSKKSDFLI*-----

>MmORX.1.1
-MPAVGPENAT-MVVTEFFLLGFGDLKELNALLFLVFGIVYLLTVSANLLLVVLVCTQQGLQTPMYFFLA
NLSCLEVCYTSNIVPRMLVDLLREHRMISMLGCITQLYFFGALGSTECYLLAVMSYDRYLAICRPLHYST
LLHGTLCVELAIGSWLCGFSVAAFQAAMLSSLNFCGGNEVDHFFCDLKPLQKLSCSDPHLVNLVCMSLTS
LVTLVPFGLTLVSYWKILAVVLCIPSIIGRQKAFSTCSSHLVVVTLFYGTLILVYA-VPLAGQ-YPVLNK
TFSLFYTVITPMCNPLIYSLKNRDVKEALKKIWF-CNFSFT*-----

>SMOR122-1
--MSGVSENQT----TWLTLVGFGKLKHLGFLPFALFLAIYVATVGGNILIVLAVASSRTLHTPMYFFLC
HFSLLEIGYTSNIVPRLLQSFLEGGDLISLVGCLAQFYVFASLAAAECLMLSAMSYDRYLAICHPLHYPV
LMSTWCCVRLATGAWFSGFFFSAFTLALAAPLSLCPGRVIDHYFCDFAPVVGLFCGEVWVMWGAGVSISG
CLTLAPFLLIVASYVFILRAVLRIPSSHGRQKAFSTCSSHLSVVAVFYGTLIVVYV-APTEHM-PALLRK
AFSVFYTVLTPMFNPIIYSLKNQEVKWALRRLC-R-QLL--------

>MmOR15.1.10
----MSGVSEN--QTTWLTLVGFGKLKHLGFLPFALFLAIYVATVGGNILIVLAVASSRTLHTPMYFFLC
HFSLLEIGYTSNIVPRLLQSFLEGGDLISLVGCLAQFYVFASLAAAECLMLSAMSYDRYLAICHPLHYPV
LMSTWCCVRLATGAWFSGFFFSAFTLALAAPLSLCPGRVIDHYFCDFAPVVGLFCGEVWVMWGAGLSISG
CLTLSPFLLIVASYVFILRAVLRIPSSQGRQKAFSTCSSHLSVVALFYGTLIVVYV-APTEHM-PALLRK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
AFSVFYTVLTPMFNPIIYSLKNQEVKWALRRLC-RQLL*--------

>SOR11A1
-MEIVSTGNET---ITEFVLLGFYDIPELHFLFFIVFTAVYVFIIIGNMLIIVAVVSSQRLHKPMYIFLA
NLSFLDILYTSAVMPKMLEGFLQEA-TISVAGCLLQFFIFGSLATAECLLLAVMAYDRYLAICYPLHYPL
LMGPRRYMGLVVTTWLSGFVVDGLVVALVAQLRFCGPNHIDQFYCDFMLFVGLACSDPRVAQVTTLILSV
FCLTIPFGLILTSYARIVVAVLRVPAGASRRRAFSTCSSHLAVVTTFYGTLMIFYV-APSAVH-SQLLSK
VFSLLYTVVTPLFNPVIYTMRNKEVHQALRKILCITETLD-------

>HsOR6.3.21
-MEIVSTGNET---ITEFVLLGFYDIPELHFLFFIVFTAVYVFIIIGNMLIIVAVVSSQRLHKPMYIFLA
NLSFLDILYTSAVMPKMLEGFLQEA-TISVAGCLLQFFIFGSLATAECLLLAVMAYDRYLAICYPLHYPL
LMGPRRYMGLVVTTWLSGFVVDGLVVALVAQLRFCGPNHIDQFYCDFMLFVGLACSDPRVAQVTTLILSV
FCLTIPFGLILTSYARIVVAVLRVPAGASRRRAFSTCSSHLAVVTTFYGTLMIFYV-APSAVH-SQLLSK
VFSLLYTVVTPLFNPVIYTMRNKEVHQALRKILCITETLD*------

>SMOR121-1
-MGILSTGNQT---VTEFVLLGFHEVPGLHLLFFSVFTILYASIITGNMLIAVVVVSSQRLHTPMYFFLV
NLSFIEIVYTSTVVPKMLEGFLQEA-TISVAGCLLQFFVFGSLATDECFLLAVMAYDRYLAICHPLRYPH
LMGPQWCLGLVLTVWLSGFMVDGLVVALMAQLRFCGPNLVDHFYCDFSPLMVLACSDTQVAQVTTFVLSV
VFLTVPFGLVLISYAQIVVTVLRVPSGTRRTKAFSTCSSHLAVVSTFYGTLMVLYI-VPSAVH-SQLLSK
VIALLYTVVTPIFNPVIYTLRNQEVQQALRRLL--YCKPTEM-----

>MmOR17.2.8
-MGILSTGNQT---VTEFVLLGFHEVPGLHLLFFSVFTILYASIITGNMLIAVVVVSSQRLHTPMYFFLV
NLSFIEIVYTSTVVPKMLEGFLQEA-TISVAGCLLQFFVFGSLATDECFLLAVMAYDRYLAICHPLRYPH
LMGPQWCLGLVLTVWLSGFMVDGLVVALMAQLRFCGPNLVDHFYCDFSPLMVLACSDTQVAQVTTFVLSV
VFLTVPFGLVLISYAQIVVTVLRVPSGTRRTKAFSTCSSHLAVVSTFYGTLMVLYI-VPSAVH-SQLLSK
VIALLYTVVTPIFNPVIYTLRNQEVQQALRRLLYCKPTEM*------

>MmORX.1.2
SPNLIDMGNLT--AIKEFLLLGFGSLHGLQFFLFGMFLGIYIMTLMGNILILTVTSSDHSLQTPMYFFLS
NFSFLEIWYTTSIAPKMLKTLLSGPEAISFTGCVAQFYFFGSMAVVECFLLASMSYDRYLAICSPLRYPS
LMNFHTCFLLAGGSWVGGFLTPVVTVTMTFQLQFCASNEIDHFFCDLAPVLKLACSDPTEVKRTTFLMAS
FVTMGPFLLTVASYINIVVAVFRMPSAAGKQRAFSTCSSHLIVVSLYYGTLGTVYA-IPTATQ-ATALNK
VFSLLYTVVTPMVNPIVYSLRNKDVKKAVQKLLSKWKHPMKT*----

>MmORX.1.3
-MAIIGEENMT--QISEIILLGFGDLHGLQFLLFGLFLAIYVMTLLGNIVILTVVSTDCSLHTPMYFFLG
HFSFLEISYTTTIEPVMLWTLLSAHVPISLPACACQFYFFASLVATECFLLAVMSYDRYIAICNPLHYSS
IMDSWGCFQLALASWLAGFLAPILLMILIFRLTFCSANEIDHFFCDLKPIMKLACTNTQVAEMTSFICTS
LFALGPFILTLASYIHIICTILRIPSTTGKQRAFSTCSSHLIVVSLYYGTLGIVYG-FPSMPQ-YESILK
LLSLLYTVFTPAANPIIYTLRNKDVKVALRKLTQWHTYLVKEG*---

>SOR6K2
----MESPNRT--TIQEFIFSAFPYSWVKSVVCFVPLLFIYAFIVVGNLVIITVVQLNTHLHTPMYTFIS
ALSFLEIWYTTATIPKMLSSLLSE-RSISFNGCLLQMYFFHSTGICEVCLLTVMAFDHYLAICSPLHYPS
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMTPKLCTQLTLSCCVCGFITPLPEIAWISTLPFCGSNHLEHIFCDFLPVLRLACTDTRAIVMIVDVIHA
VEIITAVMLIFMSYDGIVAVILRIHSAGGRRTAFSTCVSHFIVFSLFFGSVTLMYL-RFSATY-SLFWDI
AIALAFAVLSPFFNPIIYSLRNKEIKEAIKKHIGQAKIFFSVRPGTS

>HsOR1.4.12
----MESPNRT--TIQEFIFSAFPYSWVKSVVCFVPLLFIYAFIVVGNLVIITVVQLNTHLHTPMYTFIS
ALSFLEIWYTTATIPKMLSSLLSE-RSISFNGCLLQMYFFHSTGICEVCLLTVMAFDHYLAICSPLHYPS
IMTPKLCTQLTLSCCVCGFITPLPEIAWISTLPFCGSNHLEHIFCDFLPVLRLACTDTRVMIQVVDVIHA
VEIITAVMLIFMSYDGIVAVILRIHSAGGRRTAFSTCVSHFIVFSLFFGSVTLMYL-RFSATY-SLFWDI
AIALAFAVLSPFFNPIIYSLRNKEIKEAIKKHIGQAKIFFSVRPGTS

>MmOR1.4.12
----MGFSNWT--TAQEFIFSAFPCSWGDSVICFIPLLFIYAFIIVGNLVIITVVQLNAHLHTPMYFFIS
ALSFLEIWYTTATIPKMLSSLLSERRSITLNGCVLQMYFFHSTGISEVCLLTAMAFDRYLAICSPLHYPT
IMTSRLCAQLTLGCCVCGFLTPLPEIAWISTLPFCGSNHLEHIFCDFLPVLRLACTDTHTIVMIVDIVHA
VEIITAVMLIFMSYVGIVAVILRIRSAEGRRKAFSTCVSHLTVFLLFFGSVALMYL-RFSATY-SLFWDT
AIALAFAVLFPFFNPIIYSLRNKEIKEAIKKHIGQILIGKSRNLP*-

>HsOR1.4.13
----MESGNQS--TVTEFIFTGFPQLQDGSLLYFFPLLFIYTFIIIDNLLIFSAVRLDTHLHNPMYNFIS
IFSFLEIWYTTATIPKMLSNLISEKKAISMTGCILQMYFFHSLENSEGILLTTMAIDRYVAICNPLRYQM
IMTPRLCAQLSAGSCLFGFLILLPEIVMISTLPFCGPNQIHQIFCDLVPVLSLACTDTS-MILIEDVIHA
VTIIITFLIIALSYVRIVTVILRIPSSEGRQKAFSTCAGHLMVFPIFFGSVSLMYL-RFSDTY-PPVLDT
AIALMFTVLAPFFNPIIYSLRNKDMNNAIKKLFCLQKVLNKPGG*--

>SOR6K3
STRNMESGNQS--TVTEFIFTGFPQLQDGSLLYFFPLLFIYTFIIIDNLLIFSAVRLDTHLHNPMYNFIS
IFSFLEIWYTTATIPKMLSNLISEKKAISMTGCILQMYFFHSLENSEGILLTTMAIDRYVAICNPLRYQM
IMTPRLCAQLSAGSCLFGFLILLPEIVMISTLPFCGPNQIHQIFCDLVPVLSLACTDTS-MILIEDVIHA
VTIIITFLIIALSYVRIVTVILRISSSEGRQKAFSTCAGHLMVFLIFFGSVSLMYL-RFSDTY-PPVLDT
AIALMFTVLAPFFNPIIYSLRNKDMNNAIKKLFCLQKVLNKPGG---

>MmOR1.4.10
-------------MCILFFCRKLQDGS---LLYFFPLLFIYTFIVIGNLLIFFAVRLDSHLHNPMYNFIN
IFSFLEIWYTTATIPKMLSNLVNEKKSITITGCLLQMYFFHSLGNPEGILLISMAVDRYIAICNPLRYQM
TMTPRLCVQLSAASCIFGFLILLPESVMISTLPFCGPNQIHQIFCDLVPVLSLACTDTS-VIVIEDVIHA
VAIIITVLTIALSYVRIVIMILRIPSAEGRKKAFSTCAGHLMVFLIFFGSVSLMHL-RFNATYLPVLE-T
AIALMFIVLAPFFNPIIYSLRNKDMENAIKRLFCLHKVLNTSES*--

>MmOR1.4.9
----MRINRTT--SVTEFLFSGFPQFEDGSFLFFIPLFFIYIFIVIGNLIVFFAVRMDTRLHNPMYNFIS
IFSFLEIWYTTATIPKMLSNLISKQRTISLIGCLLQMYFFHSLGNSEGILLTTMAIDRYVAICNPLRYPT
IMTPRLCAHLSAGSCIFGFLVLLPEIAWISTLPFCGPNQIHQIFCDFEPVLRLACTDTS-MILVEDVVHA
VAIIFSVLVIAISYMRIITVILRIPSGEGRRKAFSTCAAHLGVFLMFYGSVSLMYL-RFSATF-PPILDT
AIALMFAVLAPFFNPIIYSLRNKDMKIAIKKLLCSQKMLPTSAS*--

>MmOR1.4.6
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MDKKNQT--KVTEFYFSDFPQFEDGGLLLFILLLCVYLFIVVGDAVIFLDVQLDVRLHNPMYSFIS
IFSFLEICYTTVTIPQMLYNLVSKEKTISFIGCLLQMYFFHSFGVTESLVLTIMAIDRYVAICNPLRYAI
IITPKLCTQLSTGSFTLGFLMLLPEIVWISTLPFCGPNQIHQLFCDLEPVLLLACTDTS-MILVEDVIHA
ISILSCVSIISLSYLRIITVVLKIPSGESRQKAFSTCTAHITIFVLFFGSVALMYL-RFSVTF-QPLLEK
VIALMFAVLAPFVNPIIYSLRNKDMKDAIKKMFGSILTVSGS*----

>HsOR1.4.16
MTQLTASGNQT--MVTEFLFSMFPHAHRGGLLFFIPLLLIYGFILTGNLIMFIVIQVGMALHTPLYFFIS
VLSFLEICYTTTTIPKMLSCLISEQKSISVAGCLLQMYFFHSLGITESCVLTAMAIDRYIAICNPLRYPT
IMIPKLCIQLTVGSCFCGFLLVLPEIAWISTLPFCGSNQIHQIFCDFTPVLSLACTDTFLVVIV-DAIHA
AEIVASFLVIALSYIRIIIVILGMHSAEGHHKAFSTCAAHLAVFLLFFGSVAVMYL-RFSATY-SVFWDT
AIAVTFVILAPFFNPIIYSLKNKDMKEAIGRLFHYRAGWAGK*----

>SOR6K6
MTQLTASGNQT--MVTEFLFSMFPHAHRGGLLFFIPLLLIYGFILTGNLIMFIVIQVGMALHTPLYFFIS
VLSFLEICYTTTTIPKMLSCLISEQKSISVAGCLLQMYFFHSLGITESCVLTAMAIDRYIAICNPLCYPT
IMIPKLCIQLTVGSCFCGFLLVLPEIAWISTLPFCGSNQIHQIFCDFTPVLSLACTDTFLVVIV-DAIHA
AEIVASFLVIALSYIRIIIVILGMHSAEGHHKAFSTCAAHLAVFLLFFGSVAVMYL-RFSATY-SVFWDT
AIAVTFVILAPFFNPIIYSLKNKDMKEAIGRLFHYRAGWAGN-----

>MmOR1.4.8
MTQLVASQNQT--MVIEFLFSVFPPLYEGGLLFFILLILVYAFIISGNLVIFVAVQLDMALHTPMYFFIS
VLSFLEIWYTTTTIPKMLSSLVSEKKTISLGGCLMQMYFFHSLGITEGCVLTAMSIDRYIAICYPLRYPT
IMTSKLCIQLTAGSCFCGFLLVLPEIAWIATLPFCGSNKIHQIFCDFTPVLSLACTDTSLVVIV-DAIHA
VEILASFLVIALSYIRIIMVILGMPSAEGRHKAFSTCAAHLAVFLLFFGSVAVMYL-RFSATY-SVFWDT
VIAVTFVILAPFLNPIIYSLRNKEMKDAIGRLFHQKRDVRAQK*---

>SOR6N1
----MDTGNWS--QVAEFIILGFPHLQGVQIYLFLLLLLIYLMTVLGNLLIFLVVCLDSRLHTPMYHFVS
ILSFSELGYTAATIPKMLANLLSEKKTISFSGCLLQIYFFHSLGATECYLLTAMAYDRYLAICRPLHYPT
LMTPTLCAEIAIGCWLGGLAGPVVEISLISRLPFCGPNRIQHVFCDFPPVLSLACTDTSTNVLVDFVINS
CKILATFLLILCSYVQIICTVLRIPSAAGKRKAISTCASHLTVVLIFYGSILSMYV-RLKKSY-SLDYDQ
ALAVVYSVLTPFLNPFIYSLHNKEIKEAVRRQLKRIGILA-------

>HsOR1.4.17
----MDTGNWS--QVAEFIILGFPHLQGVQIYLFLLLLLIYLMTVLGNLLIFLVVCLDSRLHTPMYHFVS
ILSFSELGYTAATIPKMLANLLSEKKTISFSGCLLQIYFFHSLGATECYLLTAMAYDRYLAICRPLHYPT
LMTPTLCAEIAIGCWLGGLAGPVVEISLISRLPFCGPNRIQHVFCDFPPVLSLACTDTSINVLVDFVINS
CKILATFLLILCSYVQIICTVLRIPSAAGKRKAISTCASHFTVVLIFYGSILSMYV-QLKKSY-SLDYDQ
ALAVVYSVLTPFLNPFIYSLRNKEIKEAVRRQLKRIGILA*------

>SMOR105-1
----MGTGNWS--QVIEFIILGFPHFQGVQIYLFFLLLSIYLTTILGNLLIFLVVYLDSRLHTPMYRFVS
ILSFLELGYTAATIPKMLANLLSEKKTISFSGCLLQIYFFHSLGATECYLLTAMAYDRYLAICRPLHYPT
LMTQSLCIKIAIGCWLGGLAGPVVEISLVSRLPFCGPNHIQHIFCDFPPVLSLACTDTSVNVLVDFIINS
CKILATFLLILSSYLQIIRTVLKIPSAAGKKKAFSTCASHLTVVLIFYGSILFMYV-RLKKSY-SLDYDR
ALAVVYSVITPFLNPFIYSLRNKEIKEALKRQLMRTGILR-------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR1.4.5
----MGTGNWS--QVIEFIILGFPHFQGVQIYLFFLLLSIYFTTILGNLLIFLVVYLDSRLHTPMYRFVS
ILSFLELGYTAATIPKMLANLLSEKKTISFSGCLLQIYFFHSLGATECYLLTAMAYDRYLAICRPLHYPT
LMTQSLCIKIAIGCWLGGLAGPVVEISLVSRLPFCGPNHIQHIFCDFPPVLSLACTDTSVNVLVDFIINS
CKILATFLLILSSYLQIIRTVLKIPSAAGKKKAFSTCASHLTVVLIFYGSILFMYV-RLKKSY-SLDYDR
ALAVVYSVITPFLNPFIYSLRNKEIKEALKRQLMRTGILR*------

>SOR6N2
----MDQYNHS--SLAEFVFLGFASVGYVRGWLFVLLLLAYLFTICGNMLIFSVIRLDAALHTPMYHFVS
VLSFLELWYTATTIPKMLSNILSEKKTISFAGCLLQTYFFHSLGASECYLLTAMAYDRYLAICRPLHYPI
IMTTTLCAKMAAACWTCGFLCPISEVILASQLPFCAYNEIQHIFCDFPPLLSLACKDTSANILVDFAINA
FIILITFFFIMISYARIIGAVLKIKTASGRKKAFSTCASHLAVVLIFFGSIIFMYV-RLKKSY-SLTLDR
TLAIVYSVLTPMVNPIIYSLRNKEIIKAIKRTIFQKGDKASLAHL--

>HsOR1.4.18
----MDQYNHS--SLAEFVFLGFASVGYVRGWLFVLLLLAYLFTICGNMLIFSVIRLDAALHTPMYHFVS
VLSFLELWYTATTIPKMLSNILSEKKTISFAGCLLQTYFFHSLGASECYLLTAMAYDRYLAICRPLHYPI
IMTTTLCAKMAAACWTCGFLCPISEVILASQLPFCAYNEIQHIFCDFPPLLSLACKDTSANILVDFAINA
FIILITFFFIMISYARIIGAVLKIKTASGRKKAFSTCASHLAVVLIFFGSIIFMYV-RLKKSY-SLTLDR
TLAIVYSVLTPMVNPIIYSLRNKEIIKAIKRTIFQKGDKASLAHL*-

>MmOR1.4.4
----MDQHNFS--SLTEFVLLGFPNVEHIRSCLFVLLLLVYLFTIGGNMLIFLVIRLDAALHKPMYHFVS
VLSFLELWYTATTIPKMLANLLSEKKTISFAGCLLQTYFFHSLGASECYLLTAMAYDRYLAICRPLHYPS
IMTTALCVKMAAGCWTCGFLCPISEVILVSQLPFCNYNEIPHIFCDFPPLLSLACKDTSTNVLVDFAVNA
FIILITFLFIMASYGRIIGAVLKIKTAAGRRKAFSTCASHLIVVLIFFGSIIFMYV-RLKKSY-SLTLDR
TLAVVYSVLTPLANPIIYSLRNKELIQAIKRTFFKKVEKASPTHH*-

>SMOR123-1
----MDHVNYT--WTRTFILAGFTTSGALRPLAFLGTLCIYLLTLAGNLFIIVLVQADSGLSTPMYFFIS
VLSFLELWYVSTTVPTLLHTLLHGHSPIPSSACFVQLYVFHSLGMTECYLLGVMALDRYLAICRPLHYHA
LMSKQVQLWLAGATWVAGFSAALVPACLTASLPYCL-KEIAHYFCDLAPLMRLACVSTRWHARVHGAVIG
VATGCNFVLILGLYGGILTAVLKLPSAASRAKAFSTCSSHMTVVALFYASAFTVYV-GSPQSR-PEGTDK
RIALVYALLTPFLNPIIYSLRNKEVKEAVKRVSEKIRTLLRDT----

>MmOR1.4.1
----MDHVNYT--WTRTFILAGFTTSGALRPLAFLGTLCIYLLTLAGNLFIIVLVQADSGLSTPMYFFIS
VLSFLELWYVSTTVPTLLHTLLHGHSPIPSSACFVQLYVFHSLGMTECYLLGVMALDRYLAICRPLHYHA
LMSRQVQLWLAGATWVAGFSAALVPACLTASLPYCL-KEIAHYFCDLAPLMRLACVSTRWHARVHGAVIG
VATGCNFVLILGLYGGILTAVLKLPSAASRAKAFSTCSSHMTVVALFYASAFTVYV-GSPQSR-PEGTDK
LIALVYALLTPFLNPIIYSLRNKEVKEAVKRVSEKIRTLLRDT*---

>MmOR1.4.2
----MDHVNYT--WTRTFILAGFTTSGTLQHLAVFGTLCIYLLTLAGNLFIIVLIQADSGLSTPMYFFIS
VLSFLELWYVSTTVPTLLHTLLHGPSPIPSSACFVQLYVFHSLGMTECYLLGVMALDRYLAICRPLHYHA
LMSRQVQKQLVGVTWLAGFSAALVPAGLTASLPYCL-KEVAHYFCDLAPVMQLACVDTSWHARLYIAVIG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
MINTCNLTFILGLYGGIVRAVLKLPSAASRAKAFSTCSSHITVVTLFFGSAFIVYV-GPPEIR-AEGRDK
LIALVYTLLTPFFNPIIYTLRNKEVKEAFKRVTQRINAVLK*-----

>HsOR7.6.2
--------NLS--QPSEFVLLGFSSFGELQALLYGPFLMLYLLAFMGNTIIIVMVIADTHLHTPMYFFLG
NFSLLEILVTMTAVPRMLSDLLVPHKVITFTGCMVQFYFHFSLGSTSFLILTDMALDRFVAICHPLRYGT
LMSRAMCVQLAGAAWAAPFL-AMVPTVLSRHLDYCHGDVINHFFCDNEPLLQLSCSDTRLLEFWDFLMAL
TFVLSSFLVTLISYGYIVTTVLRIPSASSCQKAFSTCGSHLTLVFIGYSSTIFLYV-RPGKAH-SVQVRK
VVALVTSVLTPFLNPFILTFCNQTVKTVLQGQMQRLKGLCKAQ*---

>SOR9A2
-----MMDNHS--SATEFHLLGFPGSQGLHHILFAIFFFFYLVTLMGNTVIIVIVCVDKRLQSPMYFFLS
HLSTLEILVTTIIVPMMLWGLLFGRQYLSL-----HVSLNFSCGTMEFALLGVMAVDRYVAVCNPLRYNI
IMNSSTCIWVVIVSWVFGFLSEIWPIYATFQFTFRKSNSLDHFYCDRGQLLKLSCDNTLLTEFILFLMAV
FILIGSLIPTIVSYTYIISTILKIPSASGRRKAFSTFASHFTCVVIGYGSCLFLYV-KPKQTQ-GVEYNK
IVSLLVSVLTPFLNPFIFTLRNDKVKEALQDGMKRCCQLLKD-----

>SMOR120-1
-----MMDNLS--SATEFCLLGFPGSQELHYILFAIFFFFYSVTLLGNMVIIIIVCVDKRLQSPMYFFLG
NLSLLEILVTTTIVPLMLWGLLLGKQTISLNGCIAQLFLYLALGTTEFAVLGAMAVDRYVAVCNPLRYSV
IMNSRTCIWVVMVSWMFGFLSEIWPVYATFQFTFCKSNLLDHFYCDRGQLLKLSCNETFLTEFILFIMAI
FIIVGSLIPTIVSYTYIISTILKIPSASGRKKAFSTCASHFTFVVIGYGTCLFLYV-KPKQTQ-AAEYNR
VASLLVSVVTPFLNPFIFTLRNDKVKEALRDGVKRCCLLLRD-----

>MmOR6.2.1
-----MMDNLS--SATEFCLLGFPGSQELHYILFAIFFFFYSVTLLGNMVIIIIVCVDKRLQSPMYFFLG
NLSLLEILVTTTIVPLMLWGLLLGKQTISLNGCIAQLFLYLALGTTEFAVLGAMAVDRYVAVCNPLRYSV
IMNSRTCIWVVMVSWMFGFLSEIWPVYATFQFTFCKSNLLDHFYCDRGQLLKLSCNETFLTEFILFIMAI
FIIVGSLIPTIVSYTYIISTILKIPSASGRKKAFSTCASHFTFVVIGYGTCLFLYV-KPKQTQ-AAEYNR
VASLLVSVVTPFLNPFIFTLRNDKVKEALRDGVKRCCLLLRD*----

>SOR9A4
-----MLMNYS--SATEFYLLGFPGSEELHHILFAIFFFFYLVTLMGNTVIIMIVCVDKRLQSPMYFFLG
HLSALEILVTTIIVPVMLWGLLLGMQTIYLSACVVQLFLYLAVGTTEFALLGAMAVDRYVAVCNPLRYNI
IMNRHTCNFVVLVSWVFGFLFQIWPVYVMFQLTYCKSNVVNNFFCDRGQLLKLSCNNTLFTEFILFLMAV
FVLFGSLIPTIVSNAYIISTILKIPSSSGRRKSFSTCASHFTCVVIGYGSCLFLYV-KPKQTQ-AADYNW
VVSLMVSVVTPFLNPFIFTLRNDKVIEALRDGVKRCCQLFRN-----

>HsOR7.5.3
-----MLMNYS--SATEFYLLGFPGSEELHHILFAIFFFFYLVTLMGNTVIIMIVCVDKRLQSPMYFFLG
HLSALEILVTTIIVPVMLWGLLLGMQTIYLSACVVQLFLYLAVGTTEFALLGAMAVDRYVAVCNPLRYNI
IMNRHTCNFVVLVSWVFGFLFQIWPVYVMFQLTYCKSNVVNNFFCDRGQLLKLSCNNTLFTEFILFLMAV
FVLFGSLIPTIVSNAYIISTILKIPSSSGRRKSFSTCASHFTCVVIGYGSCLFLYV-KPKQTQ-AADYNW
VVSLMVSVVTPFLNPFIFTLRNDKVIEALRDGVKRCCQLFRN*----

>MmOR6.1.1
-----MLGNHT--SATEFYLVGFPGSVNLRHILFATFCFFYLVTLVGNTVIIVIVCVDKRLQSPMYFFLV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
HLSILEILVTTVIVPVMLWGLLLGMQSISLAGCVAQLFLQLALGTTEFSLLGAMAVDRYVAVCNPLRYSV
IMNSRTCNSVVIVSWVFGFLFQIWPVYATFHLNYCKSNVVDNFFCDRGQLLKLSCNNTIFIEFILFLMAV
FVLFGSLIPTIVSYTYIIATILKIPSASGRRKAFSTCASHFTCVVIGYGCCLFLYV-KPKQTQ-AADYNR
VVSLMISIVTPFLNPFIFTLRNDKVIEALRDGVKRCYHFFKS*----

>SMOR119-1
VEVRMKAWNET--TVLEFVLEGFLVAQHLGKVLFLVHLLVYLASVTGNTLIIAITWSDPRLQTPMYFFLR
SFSFCECCFISTVIPKLLAIFLFGDRTIHFTPCIIQAFSFLFLGSTIFFHMAVMSLDRYLAICKPLRYPA
IMNPRVCFLLVFFSYVLSFILVTGVILRLSRLSFCGSNVIPHFFCDLGSLIHLSCSDTKSLESMAFGVAV
VVLFTSVLAAIFAYSNILISIMRLPLAKDRQKAFSTCSSHLIVLSLMYGSCVFIYV-KPKQVS-RLESNR
EAALVNTVVTPLLNPVIYTLRNKQVHQALRDALSRVNLQK-------

>MmOR6.5.4
VEVRMKAWNET--TVLEFVLEGFLVAQHLGKVLFLVHLLVYLASVTGNTLIIAITWSDPRLQTPMYFFLR
SFSFCECCFISTVIPKLLAIFLFGDRTIHFTPCIIQAFSFLFLGSTIFFHMAVMSLDRYLAICKPLRYPA
IMNPRVCFLLVFFSYVLSFILVTGVILRLSRLSFCGSNVIPHFFCDLGSLIHLSCSDTKSLESMAFGVAV
VVLFTSVLAAIFAYSNILISIMRLPLAKDRQKAFSTCSSHLIVLSLMYGSCVFIYV-KPKQVS-RLESNR
EAALVNTVVTPLLNPVIYTLRNKQVHQALRDALSRVNLQK*------

>MmOR6.5.5
------MGNGT--TVQEFTLEGFPAVQHLGRLLFSLNLLAYLASITGNVVIVSIICTSTRLKSPMYFFLG
VFSFGESCFTSAVIPKLLAIFLLGKQTISFVACFIQTFVTLFIGAFGFFLIAVMSVDRCVAICKPLHYPT
IMDLRTCILLIMACLALTFTLITWLVVTVSRLSFCGPHVIPHFFCDISPLIHLSCSDTSSAEALTFALAL
IILFSSLIITTIAYSNIVITIVRLPSAKERQRAFSTCSSHLIVLSLMYGSCVFIYV-KPKQMS-RLESNR
EAALVNTVVTPLLNPVIYTLRNKQVHQALRETLSRIKISG*------

>SMOR118-1
------MANST--TVTEFILLGLSDACELQVLIFLGFLLTYFLILLGNFLIIFITLADRRLYTPMYYFLR
NFAMLEIWFTSVIFPKMLTNIITGHKTISLLGCFLQAFLYFFLGTTEFFLLAVMSFDRYVAICNPLRYAT
IMSKRVCVQLVFCSWMSGLLLIIVPSSIVFQQPFCGPNIINHFFCDNFPLMELICADTSLVEFLGFVIAN
FSLLGTLAVTATCYGHILYTILHIPSAKERKKAFSTCSSHIIVVSLFYGSCIFMYV-RSGKNGQGEDHNK
VVALLNTVVTPTLNPFIYTLRNKQVKQVFREHVSKFQKFSQT-----

>MmOR14.4.1
------MANST--TVTEFILLGLSDACELQVLIFLGFLLTYFLILLGNFLIIFITLVDRRLYTPMYYFLR
NFAMLEIWFTSVIFPKMLTNIITGHKTISLLGCFLQAFLYFFLGTTEFFLLAVMSFDRYVAICNPLRYAT
IMSKRVCVQLVFCSWMSGLLLIIVPSSIVFQQPFCGPNIINHFFCDNFPLMELICADTSLVEFLGFVIAN
FSLLGTLAVTATCYGHILYTILHIPSAKERKKAFSTCSSHIIVVSLFYGSCIFMYV-RSGKNGQGEDHNK
VVALLNTVVTPTLNPFIYTLRNKQVKQVFREHVSKFQKFSQT*----

>SMOR115-1
------MKNKT--SLTEFILLGLTDVPELQVAVFTFLFLAYVFSMIGNLTILILTLLDSHLHTPMYFFLR
NFSFLEISFTNIFIPRVLVSITTGNKSISFAGCFAQYFFAIFLGATEFYLLAAMSYDRYVAICKPLHYMA
IMSNRVCTHLVLCSWLGGLMAIIPPITLMSQQNFCASNRLNHYFCDFEPLLELSCSDTSLIEKVVFLVAS
VTLVVTLMLVTLSYTFIIKTILKLPSAQQRTKAFSTCSSHMIVISLSYGSCFFMYV-KP-SAKVGGTFDK
GVALLITSVAPLLNPFIYTLRNQQVKQAFKDTV-KKLVNL-------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR10.4.5
------MKNKT--SLTEFILLGLTDVPELQVAVFTFLFLAYVFSMIGNLTILILTLLDSHLHTPMYFFLR
NFSFLEISFTNIFIPRVLVSITTGNKSISFAGCFAQYFFAIFLGATEFYLLAAMSYDRYVAICKPLHYMA
IMSNRVCTHLVLCSWLGGLMAIIPPITLMSQQNFCASNRLNHYFCDFEPLLELSCSDTSLIEKVVFLVAS
VTLVVTLMLVTLSYTFIIKTILKLPSAQQRTKAFSTCSSHMIVISLSYGSCFFMYV-KPSAKV-GGTFDK
GVALLITSVAPLLNPFIYTLRNQQVKQAFKDTVKKLVNL*-------

>MmORUn.21.1
------MKNKT--SLTEFILLGLTDVPELQVAVFTFLLLAYVFSMIGNLTILVLTLLDSHLHTPMYFFLR
NFSFLEISFTNIFIPRVLVSITTGNKSISFAGCFAQYFFAIFLGATEFYLLAAMSYDRYVAICKPLHYMA
IMSNRVCTHLVLCSWLAGLMVIIPPITLMSQQNFCASNRLNHYFCDFEPLRKLSCSDTSLIEKVVFLVAS
VTLVVTLMLVTLSYTFIIKTILKLPSAQQRTKAFSTCSSHMIVISLSYGSCFFIYV-KP-SAKVGGTFDK
GVALFITSVAPLLNPFIYTLRNQQVKQAFKDTI-KKLVNL*------

>SOR6C4
------MKNKT--VLTEFILLGLTDVPELQVAVFTFLFLAYLLSILGNLTILILTLLDSHLQTPMYFFLR
NFSFLEISFTNIFIPRVLISITTGNKSISFAGCFTQYFFAMFLGATEFYLLAAMSYDRYVAICKPLHYTT
IMSSRICIQLIFCSWLGGLMAIIPTITLMSQQDFCASNRLNHYFCDYEPLLELSCSDTSLIEKVVFLVAS
VTLVVTLVLVILSYAFIIKTILKLPSAQQRTKAFSTCSSHMIVISLSYGSCMFMYI-NPSAKE-GDTFNK
GVALLITSVAPLLNPFIYTLRNQQVKQPFKDMV-KKLLNL-------

>HsOR12.5.24
------MKNKT--VLTEFILLGLTDVPELQVAVFTFLFLAYLLSILGNLTILILTLLDSHLQTPMYFFLR
NFSFLEISFTNIFIPRVLISITTGNKSISFAGCFTQYFFAMFLGATEFYLLAAMSYDRYVAICKPLHYTT
IMSSRICIQLIFCSWLGGLMAIIPTITLMSQQDFCASNRLNHYFCDYEPLLELSCSDTSLIEKVVFLVAS
VTLVVTLVLVILSYAFIIKTILKLPSAQQRTKAFSTCSSHMIVISLSYGSCMFMYI-NPSAKE-GDTFNK
GVALLITSVAPLLNPFIYTLRNQQVKQPFKDMVKKLLNL*-------

>HsOR12.5.23
----MK--NRT--MFGEFILLGLTNQPELQVMIFIFLFLTYMLSILGNLTIITLTLLDPHLQTPMYFFLR
NFSFLEISFTSIFIPRFLTSMTTGNKVISFAGCLTQYFFAIFLGATEFYLLASMSYDRYVAICKPLHYLT
IMSSRVCIQLVFCSWLGGFLAILPPIILMTQVDFCVSNILNHYYCDYGPLVELACSDTSLLELMVILLAV
VTLMVTLVLVTLSYTYIIRTILRIPSAQQRTKAFSTCSSHMIVISLSYGSCMFMYI-NPSAKE-GGAFNK
GIAVLITSVTPLLNPFIYTLRNQQVKQAFKDSV-KKIVKL*------

>SMOR116-1
----MA--NHS--SVTKFILLGLTNDINLQAVLFLFLILTYILSVMGNSAIILLTLLDHRLQTPMYFFLR
NFAFLEISFTSVFVPKMLINIGTGDKTISFAGCFTQYFFAILLGATEFYLLAVMSYDRYVAICRPLHYTT
IMSRRLCFQLVLSSWLSGFIVVAVPHAMTLQLPFCASNIINHYCCDYTILLHLSCSDTHFIEVIQFLLAA
VTLILTLLLVILSYTHIIKTILRIPSAQQRKKAFSTCSSHMIVVSLSYGSCIFMYI-NPSFKD-AANFNK
RVAVLNTSVAPLLNPFIYTLRNKQVKIAFKDMLSKTISFFKK-----

>MmOR10.4.67
----MA--NHS--SVTKFILLGLTNDINLQAVLFLFLILTYILSVMGNSAIILLTLLDHRLQTPMYFFLR
NFAFLEISFTSVFVPKMLINIGTGDKTISFAGCFTQYFFAILLGATEFYLLAVMSYDRYVAICRPLHYTT
IMSRRLCFQLVLSSWLSGFIVVAVPHAMTLQLPFCASNIINHYCCDYTILLHLSCSDTHFIEVIQFLLAA
VTLILTLLLVILSYTHIIKTILRIPSAQQRKKAFSTCSSHMIVVSLSYGSCIFMYI-NPSFKD-AANFNK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
RVAVLNTSVAPLLNPFIYTLRNKQVKIAFKDMLSKTISFFKK*----

>MmOR10.4.20
------MKNKS--MELDFILLGLTDDPQLQIVVFLFLFLNYVMSLVGNLIIVLLTLLDPRLKTPMYFFLR
NFSFLEIMFTTVCIPRFLTTIVTGDKTITYNNCAAQLFFILLLGVTEFYLLAAMSYDRYVAICRPLHYPI
IMNSKVCHQLVLSSWVTGFLIIFPPLAMGLKLDFCDSRIIDHFMCETSPILQISCTDTHVLEMMSFVLAV
VTLVVTLVLVSLSYSFIIKTIMSFPSAQQRTKAFSTCTSHMIVVSITYGSCIFMYT-KPSARE-RVSVSK
GVALLYTSIAPLLNPFIYTLRNQQVKEVFWDVLQKTLGFSKHKV*--

>MmOR10.4.50
----MRMKNQS--MELDFILLGLTDDPQLQIVVFLFLFLNYMMSLVGNLIIVLLTLLDPRLKTPMYFFLR
NFSYLEIMFTTVCIPKFLTAIVTGDKTVSYNNCATQLFFYLLLGVTEFYLLAAMSYDRYVAICRPLHYPI
IMNSKVCHQLVLSSWVTGFLIIFPPLAMGLKLDFCDSRIIDHFMCETSPILQISCTDTHVIEMMSFVLAV
VTLVVTLVLVSLSYSFIIKTIMSFPSAQQRTKAFSTCTSHMIVVSITYGSCIFMYI-KPSARE-RVSVSK
GVALLYTSIAPLLNPFIYTLRNQQVKEVFWDILRKTLGFLKNKV*--

>HsOR12.5.9
------MKNKS--MEIEFILLGLTDDPQLQIVIFLFLFLNYTLSLMGNLIIIILTLLDPRLKTPMYFFLR
NFSFLEVIFTTVCIPRFLITIVTRDKTISYNNCATQLFFILLPGVTEFYLLAAMSYDRYVAICKPLHYPI
IMSSKVCYQLVLSSWVTGFLIIFPPLVMGLKLDFCASKTIDHFMCETSPILQISCTDTHVLELMSFTLAV
VTLVVTLVLVILSYTCIIKTILKFSSAQQRNKAFSTCTSHMIVVSMTYGSCIFMYI-KPSAKE-RVTVSK
GVALLYTSIAPLLNPFIYTLRNQQVKEVFWDVLQKNLCFSKRPF*--

>MmOR10.4.32
------MKNQS--VEIIFILLGLTDDPQLQIPIFLFLFFNYILSLMGNLVIILLTLLDPRLKTPMYFFLR
NFSFLEIAFTTACIPRFLMSILTGDRTISYNACAAQLFFFFLSLITEFYLLAAMSYDRFVAICRPLHYPI
IMNSKVCHLLVLSSWVTGFFVIFPPLLLGLKLDFCASKTIDHFLCDTSPVLQLSCTDTRFIELMAFALAV
MTLIITLILVILSYTLIIKTILKFPSAQQRKKAFSTCSSHMVVVSITYGSCIFMYM-KTSAKE-RVSLNK
GVAVLNTSVAPLLNPFIYTLRNQQVKDAFKQVLHRMCYSQNSELRFR

>MmOR10.4.47
------MKNQS--VEIIFILLGLTDDPQLQILIFLFLFFNYILSLMGNLVIILLTLLDPRLKTPMYFFLR
NFSFLEIAFTTACIPRFLMSILTGDRTISYNACAAQFFFFSLLLVTEFYLLAAMSYDRYVAICRPLHYPI
IMNNRMCHLLVLSCWVTGFLIILPPLVLGLKLDFCASKTIDHFLCDTSPLLQLSCTDTHFMELMAFVIAL
MTLVITLILVILSYTLIIKTILKFPSAQQRKKAFSTCSSHMVVVSITYGSCIFMYM-KTSAKE-RVALNK
GVSVLNTSVAPLLNPFIYTLRNQQVKDAFKQVLHRLYSHNSELRFRP

>MmOR10.4.51
------MKNQS--VEIVFILLGLTDDPQLQILIFLFMFFNYILSLIGNLIIIFLTLLDLRLKTPMYFFLR
NFSFLEMAFTSSCIPRFLMSILTGDKTISYGSCLTQLFFFFLLLITEFYLLAAMSYDRYVAICRPLHYPI
IMNSKVCHLLVLSSWVTGFLSIFPPLMLGLKLDFCASKLIDHFLCDTSPVLQLSCTDTRFIEWMAFVIAI
MTLIITLILVILSYTLIIKTILKFPSAQQRKKAFSTCSSHMVVVSITYGSCIFMYI-KTSAKE-RVSLNK
GVAVLNTSVAPLLNPFIYTLRNQQVKCGASKIV--SFSKQ*------

>MmOR10.4.64
------MKNQS--LEVVFVLLGLTGDPQLQILIFLFLFFNYILSLMGNLVIILLTLLDPHLKTPMYFFLR
NFSFLEIAFTTVCIPRFLTSILLGEKMILYNACVAQLFFFFLLGATEFYLLAAMSYDRYVAICRPLHYPI
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMNSKVCHLLVLSSWVTGFFVILPPLLLGLKLDFCASKTVDHFLCD-TSVLQLSCTDTRLIELMAFALAI
MTLIITLILVLFSYTLIIKTILKFPSAQQRKKAFSTCSSHMVVVSITYGSCIFMYV-KTSAKE-RVTLNK
GIAVLNTSVAPLLNPFIYTLRNQQVKEAFKNVIHRFCSFKNHETRFR

>MmOR10.4.57
------MKNQS--LKIEFILLGLTDDPQLQIPIFLFLFFNYILSLMGNYMIIFLTLLDPHLKTPMYFFLR
NFSFLEIAFTTVCIPRFLISILSGDRTISYNACAAQLFFFFLLGSTEFYLLAAMSYDRYVAICRPLHYPI
IMNSKVCHQLVLSSWVTGFLVVFPGLLLGLKLDFCASKTIDHFLCDSSPLLQLSCTDTHFIELLDFALAV
MTLVITLILVILSYTLIIKTILKFPSAQQRRKAFSTCTSHMVVVSITYGSCIFMYM-KTSAKE-RVTLNK
GVAVLNTSVAPLLNPFIYTLRNQQVKEAFKHVLHRFCSLQNSETRFR

>SMOR110-1
------MKNQS--GELEFILLGLTDDPQLQILIFLFLFFNYILSMMGNLTIILLTLLDPHLKTPMYFFLR
NFSFIEIAFTTVCIPRFLISILSGDRTISYNACAAQLFFVFLLGSTEFYLLAAMSYDRYVAICRPLHYPI
IMNSKVCHLLVLSSWVTGFLIIFPPLLLGLKLDFCTSGAMDHFLCDPSPVLQLSCTDTQLIELMTFVLAI
MTLIITLILVILSYTLIIKTILKFPSAQQRRKAFSTCSSHMVVVSITYGSCIFMYV-KTSAKE-RVTLNK
GVAVLNTSVAPLLNPFIYTLRNQQVKDAFKHMLHRFCTKQ-------

>MmOR10.4.58
------MKNQS--GELEFILLGLTDDPQLQILIFLFLFFNYILSMMGNLTIILLTLLDPHLKTPMYFFLR
NFSFIEIAFTTVCIPRFLISILSGDRTISYNACAAQLFFVFLLGSTEFYLLAAMSYDRYVAICRPLHYPI
IMNSKVCHLLVLSSWVTGFLIIFPPLLLGLKLDFCTSGAMDHFLCDPSPVLQLSCTDTQLIELMTFVLAI
MTLIITLILVILSYTLIIKTILKFPSAQQRRKAFSTCSSHMVVVSITYGSCIFMYV-KTSAKE-RVTLNK
GVAVLNTSVAPLLNPFIYTLRNQQVKDAFKHMLHRFCTKQ*------

>MmOR10.4.61
MISQREMKNHT--RQIEFILLGLTDNPQLQTLIFVSLLLNYLLSMLGNLAIIALTLLDPILKTPMYFFLR
NFSFLEILFTTTCIPRFLISIVTQEKTISYNGCVCQLFFYIFLGATEFFFLATMSYDRYIAICKPLHYAS
IMNSKVCHQLVLGSWVTGFLVIFPPLIIGLDLDFCASNVIDHFLCDVSPLLQLSCSNTNLLDLMAFILAL
MTLIVTLVIVIFSYAHIAKTIMKFPSVQQKKKAFSTCSSHMIVVSLTYGSCIFIYI-KPSANE-RVTLSK
GIAVLNTSVAPLLNPFIYTLRNKQVKQACGVVL-RKIFSAS*-----

>MmOR10.4.60
MISQREMKNHT--RQIEFILLGLTDNPQLQTLIFVSLLLNYLLSMLGNLSIIALTLLDPILKTPMYFFLR
NFSFLEILFTTTCIPRFLITIVTQEKTISYNGCFCQLFFYIFLGATEFFFLATMSYDRYIAICKPLHYAS
IMNSKVCHQLVLGSWVTGFLVIFPPLIIGLDLDFCASNVIDHFLCDVSPLLQLSCSDTSLLEVMAFILAL
MTLIVTLIIVILSYAHIVKTIIKFPSAQQKKKAFSTCSSHMIVVSLTYGSCIFIYI-KP-SANERVTLSK
GIAVLNTSVAPLLNPFIYTLRNKQVKQACGAILRK-FSAS*------

>HsOR12.5.20
----MK--NHT--RQIEFILLGLTDNSQLQIVIFLFLLLNCVLSMIGNFTIIALILLDSQLKTPMYFFLR
NFSFLEISFTTACIPRFLITIVTREKTISCNGCISQLFFYIFLGVTEFFLLAALSYDRYVAICKPLRYMS
IMSNKVCYQLVFSSWVTGFLIIFTPLILGLNLDFCASNIIDHFICDISLILQLSCSDTHLLELIAFLLAV
MTLIVTLFLVILSYSYIIKTILKFPSAQQKKKAFSTCSSHMIVVSITYGSCMFIYI-KP-SANERVALSK
GVTVLNTSVAPLLNPFIYTLRNQQVKQAFKAVF-RKIFSASDK*---

>SMOR109-1
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
------MRNHT--TVTVFILLGLTDDLQLQVVVFVLLFLTYMLSVTGNLTIITLTLLDSHLKTPMYFFLR
NFSFLEISFTTVCIPKFLVSMATGDKTISYNECAAQLFFTILLGATEFFLLAAMSYDRYVAICKPLHYMT
IMSSKICNLLVFVSWLSGFLIIFPPLLMGLQLDFCAANTVDHFFCDVSPILQLSCTDTHIIELMMLLSAI
LTLLVTLVLVSLSYTNIIRTILRIPSSQQRRKAFSTCSSHMVVVSISYGSCIFMYV-KPSAKE-RVALNK
GIALLSTSVAPMLNPFIYTLRNKQVKDAFKNMTKRWSFYQ-------

>MmOR10.4.68
------MRNHT--TVTVFILLGLTDDLQLQVVVFVLLFLTYMLSVTGNLTIITLTLLDSHLKTPMYFFLR
NFSFLEISFTTVCIPKFLVSMATGDKTISYNECAAQLFFTILLGATEFFLLAAMSYDRYVAICKPLHYMT
IMSSKICNLLVFVSWLSGFLIIFPPLLMGLQLDFCAANTVDHFFCDVSPILQLSCTDTHIIELMMLLSAI
LTLLVTLVLVSLSYTNIIRTILRIPSSQQRRKAFSTCSSHMVVVSISYGSCIFMYV-KPSAKE-RVALNK
GIALLSTSVAPMLNPFIYTLRNKQVKDAFKNMTKRWSFYQ*------

>HsOR12.5.6
------MRNHT--TVANFILLGLTDDPQLQVIIFLLLFFTYMLSITGNLTIITLTLLDLHLKTPMYFFLR
NFSFLEVSFTTVYIPKFLVSMATGDKTISYNDCAAQLFFTILLGATEFFLLAAMSYERYVAICKPLHYTT
IMSSRVCSLLVFASWMAGFLIIFPPLLMGLQLDFCAANTVDHFFCDVSPILQLSCTDTDIIELMMLLSAI
LTLLVTLVLVILSYTNIIRTILKIPSSQQRKKAFSTCSSHMVVVSISYGSCIFMYV-KPSAKE-RVSLNK
GIALLSTSVAPMLNPFIYTLRNKQVKDVFKHTVKKIELFSMK*----

>SMOR112-1
LEAESIMRNST--AVTDFILLGLTDDPLWQIVVFTFLLVTYMLSVTGNLIIIILTLSDAHLMTPMYFFLR
NFSLLEISFTSVCIPRFLVTIVTGDRTISYNGCVAQLFFFIFLGVTEFYLLAAMSYDRYVAICKPLHYTT
IMSNRVCILLVFSSWFAGFMIIFPPIILLLQLDFCASNIIDHFICDSSPILQLSCSNTHFLELMAFSLAV
VTLMVTLTLIILSYTNIIRTILRIPSTNQRKKAFSTCSSHMIVVSLSYGSCIFMYI-KP-SARERVTLSK
GVAVLNTSVAPLLNPFIYTLRNQQVKQAFKNMIQRIFFSSKNLP---

>MmOR10.4.38
LEAESIMRNST--AVTDFILLGLTDDPLWQIVVFTFLLVTYMLSVTGNLIIIILTLSDAHLMTPMYFFLR
NFSLLEISFTSVCIPRFLVTIVTGDRTISYNGCVAQLFFFIFLGVTEFYLLAAMSYDRYVAICKPLHYTT
IMSNRVCILLVFSSWFAGFMIIFPPIILLLQLDFCASNIIDHFICDSSPILQLSCSNTHFLELMAFSLAV
VTLMVTLTLIILSYTNIIRTILRIPSTNQRKKAFSTCSSHMIVVSLSYGSCIFMYI-KPSARE-RVTLSK
GVAVLNTSVAPLLNPFIYTLRNQQVKQAFKNMIQRIFFSSKNLP*--

>HsOR12.5.14
------MRNST--AVTDFILLGLTSDPQWQVVLFIFLLVTYMLSVTGNLIIITLTLSDPHLQTPMYFFLR
NFSFLEISFTSVCIPRFLVTVVTGNRTISYNGCVAQLFFFIFLGVTEFYLLAAMSYDRCMAICKPLHYTI
IMSTRVCTLLVFSSWLAGFLIIFPPVMLLLQLDFCASNVIDHFICDSSPMLQLSCTNTHFLELMAFFLAV
VTLMVTLTLVILSYTNIIRTILKIPSMSQRKKAFSTCSSHMIVVSISYSSCIFMYI-KT-SARERVTLSK
GVAVLNTSVAPLLNPFIYTLRNKQVKQAFKSMVQKMIFSLNK*----

>MmOR10.4.55
VDKPSEMRNRT--SVTYFILLGLTDDPELQVVIFFFLFLTYLLSITGNLTIITLTLLDSHLKTPMYFFLR
NFSFLEISFTSVCNPRFLVSILTKDKSISYNACAAQLFFFIFLGSTEFFLLASMSYDRYVAICKPLHYTT
IISNKICHQLIISSWLAGFLVVFPPLAMGLDLDFCDSNTIDHFTCDSAPLLQISCTDTSTLELMSFILAL
ITLMTTLMLIILSYTCILRTILKFPSAKQREKAFSTCSSHMIVVSISYGSCIFMYV-KTSAKA-GVALTK
GVAMLNTSVAPMLNPFIYTLRNQQVKQAFKDLVRKKLASKLLI*---
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR10.4.59
------MRNRT--SVTYFILLGLTDDPELEVVIFFFLFLTYLLSITGNLTIITLTLLDSHLKTPMYFFLR
NFSFLEISFTSVCNPRFLVSILTKDKSISYNACVAQLFFFIFLGSTEFFLLASMSYDRYVAICKPLHYTT
IISNKICHQLIISSWLAGFLVIFPPLAMGLELDFCDSNIIDHFTCDSAPLLQISCTDTSTLELMSFILAL
ITLMTTLMLIILSYICILRTILKFPSAKQREKAFSTCSSHMIVISISYGSCIFMYV-KTSAKA-GVALTK
GVAMLNTSVAPMLNPFIYTLRNQQVKQAFKDLVRRKLASK*------

>HsOR12.5.18
------MKNRT--SVTDFILLGLTDNPQLQVVIFSFLFLTYVLSVTGNLTIISLTLLDSHLKTPMYFFLR
NFS-LEISFTSVCNPRFLISILTGDKSISYNACAAQLFFFIFLGSTEFFLLASMSYDCYVAICKPLHYTT
IMSDRICYQLIISSWLAGFLVIFPPLAMGLQLDFCDSNVIDHFTCDSAPLLQISCTDTSTLELMSFILAL
FTLISTLILVILSYTYIIRTILRIPSAQQRKKAFSTCSSHVIVVSISYGSCIFMYV-KTSAKE-GVALTK
GVAILNTSVAPMLNPFIYTLRNQQVKQAFKDVL-RKISHKKKKH*--

>MmOR10.4.54
------MPNKT--SITEFILLGLTDDPELQIVIFFFLLATYLLSVSGNMTIITLTLSNVHLKTPMYFFLR
NFSFLEILFTTVCIPRFLISIITGNTAISYNACMAQVFFLIFLGATEFFLLAAMSYDRYVAICKPLHYTA
IINNKVCNQLVIASWSAGFLIVFPPVIMGLQLEFCDSNIIDHFTCDSSPMLQIACTDTKILELMAFFLAV
FTLIVTLALVILSYTLILRTILKIPSAEQRKKAFSTCSSHMIVVSISYGSCIFMYV-KTSARE-GVVLSK
GVAMLNTSVAPMLNPFIYTLRNQQVKQAFKDFTRKLLASKKH*----

>HsOR12.5.17
----MP--NMT--SIREFILLGFTDNPELQVVIFFFMLITYLLSVSGNMIIIMLTLSNIHLKTPMYFFLR
NFSFLEISFTTVFIPRFLINIATGDTTISYNASMAQVFFLILLGSTEFFLLAVMSYDRYVAICKPLHYTT
IMSNKVCNWLVISSWLAGFLIIFPPVIMGLQLDFCDSSTIDHFICDSSPMLLIACTDTQFLELMAFLLAV
FTLMVTLALVVLSYTLILKTILKIPSAQQRKKAFSTCSSHMIVVSVSYGSCIFMCV-KTSAKE-GMALSK
GVAVLNTSVAPMLNPFIYTLRNQQVKQALREFTKKILSLNKQ*----

>SMOR108-1
------MKNRT--SVSEFILLGLTSDPKLNILIFIFLFITYILSITGNLTIITLTLIDSHLKTPMYFFLR
NFSFLEISFTTVSIPRFLVSIVTGDMTISYNSCMAQVFFFILLGSTEFFLLTAMSYDRYVAICKPLHYTT
IMNSRVCMQLIVSSWLAGFLIIFPPVIMGLQLDFCDSNIIDHFTCDSSPLLLISCTDTAFLELLAFFLAV
FTLMVTLTLVILSYSFILRTILRIPSAEQRKKAFSTCSSHMIVVSISYGSCIFMYV-KTSAKE-GVALTK
GIAVLNTSVAPMLNPFIYSLRNKQVKESFRNLIKKCISNKI------

>MmOR10.4.44
------MKNRT--SVSEFILLGLTSDPKLNILIFIFLFITYILSITGNLTIITLTLIDSHLKTPMYFFLR
NFSFLEISFTTVSIPRFLVSIVTGDMTISYNSCMAQVFFFILLGSTEFFLLTAMSYDRYVAICKPLHYTT
IMNSRVCMQLIVSSWLAGFLIIFPPVIMGLQLDFCDSNIIDHFTCDSSPMLLISCTDTAFLELLAFFLAV
FTLMVTLTLVILSYSFILRTILRIPSAEQRKKAFSTCSSHMIVVSISYGSCIFMYV-KTSAKE-GVALTK
GIAVLNTSVAPMLNPFIYSLRNKQVKESFRNLI-KKCISNKI*----

>HsOR12.5.16
------MKNYA--SVKQFILLGLTDDPKLNVLIFIFLFFTYILSITGNLTIITLTLIDVHLKTPMYFFLR
NFSFLEISFTTVCIPRFLVSIVTGDKTISYNSCMAQVFFFILLGSTEFFLLTAMSYDCYVAICKPLHYTT
IMNSRVCIQLVISSWLAGFLIIFPPVIMGLQLDFCDSNIIDHFTCDSSPMLLISCTDTAFLEFMGFFLAI
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
FTLMVTLTLVILSYVFILKTILRIPSAEQRKKAFSTCSSHMIVVSISYGSCIFMYV-KTSAKE-GVALTK
GIAVLNTSVAPVLNPFTYSLRN-------Q*----------------

>SMOR113-1
----MK--NHT--EVTVFILAGLTDDPQWKVVLFIFLLLTYLLSVTGNLTIITLTLVDTHLKTPMYFFLR
NFSFLEFSYTTTCIPKLLVTMATGDKTISYGNCVTQVFFAFLFGASEFYLLAAMSYDRYVAICKPLHYMT
IMNNKVCVQLVLSCWLAGFFVIFPPLVLGLNLEFCASNIVDHFYCDTTPLLQISCTDTQLLETMGFVSAL
VTLLLTLVMVIISYTYIAITILKIPSTEQRKKAFSTCSSHMIVISISYGSCIFMYV-KPSVKQ-RISISK
GISVLNTSVAPLLNPFIYTLRNQQVKKAFITTVHRIASSSKK-----

>MmOR10.4.62
----MK--NHT--EVTVFILAGLTDDPQWKVVLFIFLLLTYLLSVTGNLTIITLTLVDTHLKTPMYFFLR
NFSFLEFSYTTTCIPKLLVTMATGDKTISYGNCVTQVFFAFLFGASEFYLLAAMSYDRYVAICKPLHYMT
IMNNKVCVQLVLSCWLAGFFVIFPPLVLGLNLEFCASNIVDHFYCDTTPLLQISCTDTQLLETMGFVSAL
VTLLLTLVMVIISYTYIAITILKIPSTEQRKKAFSTCSSHMIVISISYGSCIFMYV-KPSVKQ-RISISK
GISVLNTSVAPLLNPFIYTLRNQQVKKAFITTVHRIASSSKK*----

>MmOR10.4.56
------MKNHT--RVTVFIIAGLTDDPQWKVVLFIFLLLTYLLSITGNLAIITLTLVDTHLKTPMYFFLR
NFSFLEFSYTTTCIPKLLVTMATGDKTISYGNCLTQVFFAFLFGASEFYLLAAMSYDRYVAICKPLHYMT
IMNNKVCVQLVLSCWLAGFFVIFPPLLLGLNLDFCASNIVDHFYCDTTPLLQLSCTDTQLLETMGFVSAL
VTLLLTLVMVIVSYIYIAITILKIPSASQRKKAFSTCSSHMIVISLSYGSCIFMYV-KPSVKQ-RVSISK
GISVLNTSVAPLLNPFIYTLRNQQVKKAFINTVHRIVSFSKK*----

>MmOR10.4.69
----MK--NHT--RVTIFIIAGLTDDPQWKVVLFIFLLLTYLLSITGNLTIITLTLVDTHLKTPMYFFLR
NFSFLEISYTTTCIPKLLVTMATGDKTISYNNCAAQVFFAFLLGASEFYLLAAMSYDRYVAICKPLHYMT
IMSNKVCVQLVLSCWLISFLIIFPPLVLGLNLDFCASNIIDHFYCDTTPLLQISCTDTQLIETIAFISAL
VTLLLTLVMVIISYTYIAMTILKIPSTSQRKKAFSTCSSHMIVISISYGSCIFMYV-KPSVKQ-RVSISK
GISVLNTSVAPLLNPFIYTLRNQQVKRAFINTVHRIVSFSKK*----

>SMOR111-1
----MS--NHT--ETTEFILLGLSDDPKLQVVIFVFLFITYTLSITGNLTIITLTLLDSHLQTPMYFFLR
NFSVLEVSFTTVTIPKFLGTIISGDKTISFNNCIAQLFFFILLGVTEFYLLAAMSYDRYVAICKPLHYLT
IMSQKVCTMLVFASWLTSFLIIFPALMLLLQLDYCGSNIIDHYTCDYFPLLQLSCSDTKFLERMGFSCAV
FTLMLTLVLIFLSYTYIIKTIVKIPSASQRSKAFSTCSSHMIVISISYGSCIFMYI-KP-SATDRASLTK
GVAILNTSVAPMLNPFIYSLRNQQVKQAFMNMTRKIVFSTSK-----

>MmOR10.4.48
----MS--NHT--ETTEFILLGLSDDPKLQVVIFVFLFITYTLSITGNLTIITLTLLDSHLQTPMYFFLR
NFSVLEVSFTTVTIPKFLGTIISGDKTISFNNCIAQLFFFILLGVTEFYLLAAMSYDRYVAICKPLHYLT
IMSQKVCTMLVFASWLTSFLIIFPALMLLLQLDYCGSNIIDHYTCDYFPLLQLSCSDTKFLERMGFSCAV
FTLMLTLVLIFLSYTYIIKTIVKIPSASQRSKAFSTCSSHMIVISISYGSCIFMYI-KP-SATDRASLTK
GVAILNTSVAPMLNPFIYSLRNQQVKQAFMNMTRKIVFSTSK*----

>MmOR10.4.34
------MRNHT--ETTEFILLGLSDDPKLQVVIFVFLFITYTLSITGNLTIITLTLLDSHLQTPMYFFLR
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
NFATLEVSFTTVCIPRFLGTIISGDKTISFNNCIAQLFFLILFGVTEFYLLAAMSYDRYIAICKPLHYLT
IMSQKVCKMLVFASWLVSFLIIFPALMLLLQLDYCVSNIIDHYTCDYFPLLQLSCSDTKFLEKMGFSCAV
FTLMFTLALVFWSYTYIIRTIVKIPSASQRSKAFSTCSSHMIVISISYGSCIFMYI-KP-SAADRASLTK
GVAILNTSVAPMLNPFIYSLRNQQVRQAFMNMARKMVFFTSK*----

>HsOR12.5.11
------MRNHT--EITEFILLGLTDDPNFQVVIFVFLLITYMLSITGNLTLITITLLDSHLQTPMYFFLR
NFSILEISFTTVSIPKFLGNIISGDKTISFNNCIVQLFFFILLGVTEFYLLAAMSYDRYVAICKPLHCLS
IMNRRVCTLLVFTSWLVSFLIIFPALMLLLKLHYCRSNIIDHFTCDYFPLLQLACSDTKFLEVMGFSCAA
FTLMFTLALIFLSYIYIIRTILRIPSTSQRTKAFSTCSSHMVVVSISYGSCIFMYI-KP-SAKDRVSLSK
GVAILNTSVAPMMNPFIYSLRNQQVKQAFINMARKTVFFTST*----

>MmOR10.4.12
------MKNHS--VITEFLLLGISDTPELQFVIFIFLFIAYILSVTGNLTIIILTLLDSQLKTPMYFFLR
NFSFLEIIFTSVSIPRFLESIITKVKTISYNNCLAQLFFFISMGVSEFFLLTAMSYDRYVAICKPLHYTL
IMNQKVCTLLVLTSWLGGFLTIFPLLMLFLKLDFCASNVIDHFCCDYFPILQLSCSDTWFLETIGFYFAF
ITLLFTLALVILSYICIINTILRFPSASQRKKAFSTCSSHMIVISISYGSCIFMYV-KP-SANERASLTK
GVALLNTSIAPMLNPFIYTLRNQQVKQAFKDLINKLMFNRNK*----

>MmOR10.4.23
------MKNHS--VITEFLLLGISDTPELQFVIFIFLFIAYILSVTGNLTIIILTLLDSQLKTPMYFFLR
NFSFLEIIFTSVSIPRFLESIITKVKTISYNNCLAQLFFFISMGVSEFFLLTAMSYDRYVAICKPLHYTL
IMNQKVCTLLVLTSWLGGFLTIFPLLMLFLKLDFCASNVIDHFCCDYFPILQLSCSDTWFLETIGFYFAF
ITLLFTLALVILSYICIINTILRFPSASQRKKAFSTCSSHMIVISISYGSCIFMYV-KP-SANERASLTK
GVALLNTSIAPMLNPFIYTLRNQQVKQAFKDLINKLMFNRNK*----

>MmOR10.4.35
------MKNHS--VITEFVLLGISDDPEVQVVIFILLFIAYILSVTGNLTIIILTLLDSQLKTPMYFFLQ
NFSFLEIIFTSVSIPRFLESIITKVKTISYNNCLAQLYFFISMGVSEFFLLTAMSYDRYVAICKPLHYTL
IMNQKVCTLLVLASWLAGFLTIFPPLMLVLKLDFCASNVIDHFSCDYFPILQLSCSDTRSLEMIGFYFAF
ITLLFTLALVILSYISIISTILRFPSASQRKKAFSTCSSHMIVISISYGSCIFMYV-KP-SANERASLTK
GVAVLNTSIAPMLNPFIYSLRNEQVKQAFKDLINKVVLYRSK*----

>MmOR10.4.13
------MRNHS--MVTEFLLSGISDTPEVQVVIFILLFIAYILSVTGNLTIITLTLLDSQLKTPMYFFLQ
NFSFLEIIFTSVSVPRFLGSIITEVKTISYNNCLTQLYFFLSLGVSEFFLLTAMSYDRYVAICKPLHYVI
IMNQKVCTLLVLTSWLIGFLSIFPLIMLIHKLDFCASNTIDHFCCDYFPILQLSCSDTRLLEAFGLYCAS
ITLLFTLALVILSYICIINTILRFPSASQRKKAFSTCSSHMIVISISYGSCIFMYV-KP-SANERASLTK
GVAVLNTSIAPMLNPFIYTLRNQQVKQAFKDFINKVMFNRNK*----

>MmOR10.4.14
------MRNHS--MVTEFVLLGISDTPEVQVVIFILLFIAYILSVTGNLTIITLTLLDSQLKTPMYFFLQ
NFSFLEIIFTSVSIPRFLESIITKVKTISYNNCLAQLYFFLSLGVSEFFLLTAMSYDRYVAICKPLHYVI
IMNQKVCTLLVLTSWLAGFLSIFPLIMLILKLDFCALNIIDHFSCDYFPILQLSCSDTRLLEAFGFYCAS
ITLLFTLALVILSYICIINTILRFPSASQRKKAFSTCSSHMIVISISYGSCIFMYV-KP-SANERASLTK
GVAVLNTSIAPMLNPFIYTLRNQQVKQAFKDLINKLMFNRNK*----
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR10.4.25
------MRNHS--MVTEFVLLGISDTPEVQVVIFILLFIAYILSVTGNLTIITLTLLDSQLKTPMYFFLQ
NFSFLEIIFTSVSIPRFLESIITKVKTISYNNCLAQLYFFLSLGVSEFFLLTAMSYDRYVAICKPLHYVI
IMNQKVCTLLVLTSWLAGFLSIFPLIMLILKLDFCALNIIDHFSCDYFPILQLSCSDTRLLEAFGFYCAS
ITLLFTLALVILSYICIINTILRFPSASQRKKAFSTCSSHMIVISISYGSCIFMYV-KP-SANERASLTK
GVAVLNTSIAPMLNPFIYTLRNQQVKQAFKDLINKLMFNRNK*----

>MmOR10.4.49
------MKNYT--IITEFVLLGISGNRELQVVIFVFLLITYIVSITGNLTIILLTLLDSHLKTPMYYFLR
NFSFLEIMFTSVSIPRFLASIITQVKTISYNNCFAQLFFFIFMGVTEFFLLTAMSYDRYVAICKPLHYTL
IMNQKVCTLLVLTSWLAGFLTIFPPLMLVLKLDFCASNVIDHFCCDYFPLLQLSCSDTWLLEVIGFYVAL
VTLLFTLALVILSYMYIFRTILRIPSANQRKKAFSTCSSHMIVISMSYGSCIFIYV-KP-SANERASLTK
TVAILSTSVAPMLNPFIYTLRNQQVKQAFKDLIHKVVF*--------

>MmOR10.4.36
--------NHT--EITEFILLGLSDDPDLQIVIFLFLLITYMLSVIGNLTIIVLTFIDTHLQTPMYFFLR
NFAFLEVSFTSVCIPRFLGSIVTRNKTISYNNCAAQLFFFIFMGVCEFYILTAMSYDRYVAICKPLHYTT
IMNRKLCTLFVLCAWLAGFLTVFPPLMLLLQQDYCASNVIDHFACDFFPLLQLSCSDTLFLEVIGFYVAL
VALLFTLALVILSYMYIIRTILRIPSTSQRKKAFSTCSSHMIVISLSYGSCIFMYA-NP-SAKEKASLTK
GVAILNTSVVPMLNPFIYTLRNQQVKQAFKGAVHKLVFSVSK*----

>HsOR12.5.12
--------NHT--MVTEFVLLGLSDDPDLQIVIFLFLFITYILSVTGNLTIITLTFVDSHLQTPMYFFLR
NFSFLEISFTTVCIPRFLGAIITRNKTISYNNCAAQLFFFIFMGVTEFYILTAMSYDRYVAICKPLHYTS
IMNRKLCTLLVLCAWLSGFLTIFPPLMLLLQLDYCASNVIDHFACDYFPLLQLSCSDTWLLEVIGFYFAL
VTLLFTLALVILSYMYIIRTILRIPSASQRKKAFSTCSSHMIVISISYGSCIFMYA-NP-SAKEKASLTK
GIAILNTSVAPMLNPFIYTLRNQQVKQAFKNVVHKVVFYANQ*----

>MmOR10.4.37
----ME--NRT--VPTEFILLGLSDDPGLQIVIFLFLILMYILSITGNLTIITLTLVDPHLQTPMYFFLR
NFSVLEITFTTVCIPRFLSTIVTRDKTISYNSCTAQLFFFIFLGITEFYLLTAMSYDRYVAICKPLHYTT
IMNRRVCILLVFSAWLAGFLNIFPPVILFLQLDYCGSNVIDHFACDYFPLLQLSCSDTWLLEIIGFYSAI
VILLFTLALIILSYMFIVKTILKLPSVSQRKKAFSTCSSHMIVISISYGSCIFMYA-NP-SAKEKASLTK
GVAILNTSVAPMMNPFIYTLRNQQVKQAFKDAIQKVVLFSGK*----

>SMOR114-1
------MRNHS--SITTFILLGLTDDPQLQVLLFIFLFLTYMLSVTGNLIIIILTLVDPHLKTPMYFFLR
NFSFLEVSFTTVCIPRFLYSISSGDNTITYNACASQIFFVILFGATEFFLLAAMSYDRYVAICKPLHYMT
IMNPRVCILLVITCWVSGLMIITPPLILGLQLDFCDSNAIDHFSCDAGPLLKISCSDTWVIEQMVILVAV
FALIITLICVILSYTYIIRTILRFPSAQQRKKAFSTCSSHMIVVSITYGSCIFIYI-KPSAKD-EVAINK
GVSVLTTSVAPLLNPFIYTLRNKQVKQAFSDSVKRITFISKS-----

>MmOR10.4.39
------MRNHS--SITTFILLGLTDDPQLQVLLFIFLFLTYMLSVTGNLIIIILTLVDPHLKTPMYFFLR
NFSFLEVSFTTVCIPRFLYSISSGDNTITYNACASQIFFVILFGATEFFLLAAMSYDRYVAICKPLHYMT
IMNPRVCILLVITCWVSGLMIITPPLILGLQLDFCDSNAIDHFSCDAGPLLKISCSDTWVIEQMVILVAV
FALIITLICVILSYTYIIRTILRFPSAQQRKKAFSTCSSHMIVVSITYGSCIFIYI-KPSAKD-EVAINK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
GVSVLTTSVAPLLNPFIYTLRNKQVKQAFSDSVKRITFISKS*----

>HsOR12.5.19
------MKNHT--VIRTFILLGLTGDPHLQVLLFIFLFLTYMLSVTGNLTIITLTLVDHHLKTPMYFFLR
NFSFLEVSFTTVCIPRFLYNISMGDNTITYNACASQIFFVILFGATEFFLLAAMSYDRYVAICKPLHYVV
IMNNRVCTLLVLCCWVAGLMIIVPPLSLGLQLEFCDSNAIDHFSCDAGPLLKISCSDTWVIEQMVILMAV
FALIITLVCVILSYLYIVRTILKFPSVQQRKKAFSTCSSHMIVVSIAYGSCIFIYI-KPSAKD-EVAINK
GVSVLTTSVAPLLNPFIYTLRNKQVKQAFSDSIKRIAFLSKK*----

>MmOR10.4.7
----MT--NHT--AITTFILLGLTDDPKLQVLIFLFLFLTYILSVTGNLTIITLTLLDPHLKTPMYFFLR
NFSFLEVSFTTVCIPRFLYMMATGDNTVTYNACATQLFFVVLFGATEFFLLAAMSYDRYVAICKPLHYTT
IMNNRVCTVLVLSCWCAGLLIILPPLGLGLQLEFCDSNVIDHFGCDASPILQITCSDTAFIEKIVLAFAI
LTLIITLVCVVLSYTYIIKTILKFPSAQQRKKAFSTCSSHMIVVSITYGSCIFIYI-KPSAKE-GVAINK
VVSVLTTSVAPLLNPFIYTLRNKQVKEAFKDTVKRIVFLTKK*----

>MmOR10.4.41
------MRNHT--VMTTFILLGLTDDPGLQLLFFVILFLTYILSIMGNLTIIILTLMDSHLNTPMYFFLR
NFSFLEISFTTVCIPRFLYSISTGVNTITYNACASQIFFVGLFGATEFFLLAAMSYDRYVAICKPLHYMT
IMDNKVCAILVLCCWTSGLLVIIIPLGMILQLEFCDSNTIDHFFCDASPLIKISCSDTWFLEQTVIVCAV
LTFIITLIVVILSYIYIIRTILRFPSAHQRKKAFSTCSSHMIVVSIMYGSCIFIYV-TPSAKE-QVDINK
GVSMLNTSVAPLLNPFIYTLRNKQVKQAFNDTVKKTSYTNKNMLDLS

>MmOR10.4.18
------MRNHT--SITTFILLGLTDDPQLQVLLFIFLFITYLLSVTGNLTIITLTTVDPYLKTPMYFFLQ
NFSFLEISFTSACVPRFLYSISTGDRTITYNACATQLFFTDLFGVTEFFLLAIMSYDRYVAICKPLHYMT
IMNNKVCRIMVISCWMAAFMIILPPLSLGFHLEFCDSNIIDHFGCDANPILKISCSDTWLIEQMVIGSAV
LTFIITLLCVVFSYMYIIRTVLKFPSAQQKRKAFSTCSSHMIVVSITYGSCIFIYV-KPSAKE-AVTINK
GVSVLISSISPMLNPFIYTLRNKQVKQASQDLIKKIAFLLKK*----

>MmOR10.4.28
------MRNHT--SITTFILLGLTDDPQLQVLLFIFLFITYLLSVTGNLTIITLTTVDPYLKTPMYFFLQ
NFSFLEISFTSACVPRFLYSISTGDRTITYNACATQLFFTDLFGVTEFFLLAIMSYDRYVAICKPLHYMT
IMNNKVCRIMVISCWMAAFMIILPPLSLGFHLEFCDSNIIDHFGCDANPILKISCSDTWLIEQMVIGSAV
LTFIITLLCVVFSYMYIIRTVLKFPSAQQKRKAFSTCSSHMIVVSITYGSCIFIYV-KPSAKE-AVTINK
GVSVLISSISPMLNPFIYTLRNKQVKQASQDLIKKIAFLLKK*----

>HsOR12.5.21
------MRKHT--AITTFILLGLTEDPQLQVLLFMFLFITYMLSVTGKLTIIALTMLDPHLKTPMYFFLQ
NLSFLEISFTATCVPRFLYSISTGNKIITYNACVIQLFFADLFGVTEFFLLATMSYDRYVAICKPLHYMA
IMSNKVCKTMVICCWMAALMIILPPLSLGFHLEFCDSNVINHFGCDALPILKIPCSDTSLIEQMVVASAV
LTFIITLVCVVLSYTYIIRTILKFPSVQQKKKAFSTCSSHITVVSITYGSCIFIYI-KPSAKE-EVNINK
GVSVLISSISPMLNSFIYTLRNEQVKQAFHDSLKKIAFRLKK*----

>MmOR10.4.46
------MRNHT--I-TTFILLGLTDDPQLKTLIFIFLFLSYVLSMTGNLTIISLTFIDPHLKTAMYFFLQ
NFSFLEISFTTACIPRYLYNISTGDKTITYNNCAIQIFCVDLFGVTEFFLLAIMSYDRYVAICKPLHYST
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMSSRICTRLILCCWAAGLFVILPPLSLGLKLEFCDSNVIDHFVCDANPLLKISCTETWLIEQIVIVCAV
FTFIMTLVCVSLSYIYIIRTILRFPSAQQRKKAFSTCSSHMIVVSITYGSCIFIYI-KPSAKD-SVTINK
GVTILTTSIAPMLNPFIYTLRNKQVKQAFNDSVKRIVLFFQK*----

>MmOR10.4.15
------MRNHT--V-TTFILLGLTDDPQLKTLIFIFLFLSYMLSMTGNLTIISLTFIDSHLKTAMYFFLQ
NFSFLEISFTTACIPRYLYNISTGDKTITYNNCVIQIFCTDLFGVTEFFLLAIMSYDRYVAICKPLHYST
IMSSRICARLILSCWAAGLFVILPPLSLGLKLKFCDSNVIDHFVCDANPLLKISCTETWLIEQIVIVSAV
LTFITTLLCVSLSYIYIIRTILRFPSAQQRKKAFSTCSSHMIVVSITYGSCIFIYI-KPSAKD-SVTINK
GVMVLTTSIAPMLNPFIYTLRNKQVKQAFNDSVKRIALFFQK*----

>MmOR10.4.26
------MRNHT--V-TTFILLGLTDDPQLKTLIFIFLFLSYMLSMTGNLTIISLTFIDSHLKTAMYFFLQ
NFSFLEISFTTACIPRYLYNISTGDKTITYNNCVIQIFCTDLFGVTEFFLLAIMSYDRYVAICKPLHYST
IMSSRICARLILSCWAAGLFVILPPLSLGLKLKFCDSNVIDHFVCDANPLLKISCTETWLIEQIVIVSAV
LTFITTLLCVSLSYIYIIRTILRFPSAQQRKKAFSTCSSHMIVVSITYGSCIFIYI-KPSAKD-SVTINK
GVMVLTTSIAPMLNPFIYTLRNKQVKQAFNDSVKRIALFFQK*----

>MmOR10.4.9
------MKNNT--I-TTFILLGLTDDPQLQIPIFVFLFFAYMLSITGNLTIISLTILDSHLKTPMYFFLQ
NFSILEISFTSACIPRYLYNIATGDRSITYNVCVIQVFFTDVFGVIEFFLLAIMSYDRYVAICKPLHYVT
IMSSKVCQTLVLCCWSAGLLIILPPLTLFLNLRFCDSNVIDYFFCDASPILKISCSDTWLIEQLVIVCAV
LTFILTLVCVTLSYVHIIKTILRFPSAQQRKKAFSTCSSHMIVVSITYGSCIFIYI-NPSAKE-SVAINK
GVAVLMTSIAPMLNPFIYTLRNKQVRQAFSDSFKKIAIISMKKENVQ

>MmOR10.4.8
------MRNHT--V-TTFILLGLTEDPQIQSLLLIFLLLTYLLNITGNLTIILLTLIDPHLKTPMYFFLQ
NFSFLEILFTSACIPRYLYNLATGDKTITYGACASQAFFTDLFGVTEFFLLATMSYDRYVAICKPLHYTT
IMS-TACRRLLLCCWVAGVIIILPPFSLSQNLQFCDSNIIDSFLCDVSPFLKISCSDTWVIEQMVIGCAV
LTFITTLFCVVLSYVYIIKTILKFPSAQQRKKAFSTCSSHMIVVSITYGSCIFIYV-KPSAKD-SVAINK
GVIVLTTSIAPMLNPFIYTLRNKQVKQAFNDSIKKIALECQNG*---

>MmOR10.4.10
------MRNHT--V-TTFILLGLTDDQQLQVLIFIILFFTYSLSISGNLAIISLILVDPHLKTAMYYFLK
NFAVLEISFTSASIPRYLYNIATGDKMITYNACVAQVFFTDLFGVTEFFLLAAMSYDRYVAICRPLHYLT
IMSTTVCRRLVFCSWVAGLFILIPPLSLGLNLQFCDSNIIDHFICDASPLLKISCSDTWFMEQTVLICAV
LTLIITLVCVVLSYVNIIKTVLRFPSAQQKKKAFSTCSSHMIVVSITYGSCIFIYI-KPSAKD-EVAINK
GVTVLTTSIAPMLNPFIYTLRNRQVKQAFWDSIKRIIAFSKQ*----

>MmOR10.4.11
------MRNHT---VTTFILLGLTDDQQLQVLIFIILFFTYSLSISGNLAIISLILVDPHLKTAMYYFLK
NFAVLEISFTSASIPRYLYNIATGDKMITYNACVAQVFFTDLFGVTEFFLLAAMSYDRYVAICRPLHYLT
IMSTTVCRRLVFCSWVAGLFILIPPLSLGLNLQFCDSNIIDHFVCDASPLLKISCSDTWFMEQTVLICAV
LTLIITLVCVVLSYVNIIKTVLRFPSAQQKKKAFSTCSSHMIVVSITYGSCIFIYI-KPSAKD-EVAINK
GVMILTTSIAPMLNPFIYTLRNRQVKQAFWDSIKRTIAFSKQ*----

>MmOR10.4.45
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
------MKNRT--V-TTFILLGLTDDIRLQTLLFIFLLFSYMLSLSGNLTIITLTLIDPHLKTPMYIFLK
NFSFLEISLTTACIPRFLYSLSSGDKSIAYAACISQLLFIDIFAVTEFFLLAIMSYDRYVAICKPLHYMT
IMNSRVCKNFIFFCWVAALIIVLPPISLGLGLEFCDSDIVDHFCCDAAPLLKISCSDTWLIEQMVIAGAV
LTFIITFVCVVLSYGYIIKTILRFPSAKQRKKAFSTCSSHMIVVSITYGSCIFIYV-KPSSKD-NVAINK
GISLIIVSISPMLNPFIYALRNKQVKQAFNYSIKKVAFLSKM*----

>MmOR10.4.19
------MRNRT--V-TTFILLGLTDDIRLQILLFIFLLSSYMLSLSGNLTIITLTLIDPHLKTPMYIFLK
NFSFLEISLTTACIPRFLYSISSGDKSITYIACASQLLFIDLFAVTEFFLLAIMSYDRYVAICKPLHYMT
IMNSRVCKNFIFSCWVAALIIILPPIGLGLGLEFCDSDIIDHFCCDAAPLLKISCSDTWLIEQMVIAGAV
LTFIITFVCVVLSYVYIIKTILRFPSAKQRKKAFSTCSSHMIVVSITYGSCIFIYV-KPSSKD-DVAINK
GISLLIISISPMMNPFIYALRNKQVKQAFNYSIKKIAFLSKM*----

>MmOR10.4.29
------MRNRT--V-TTFILLGLTDDIRLQILLFIFLLSSYMLSLSGNLTIITLTLIDPHLKTPMYIFLK
NFSFLEISLTTACIPRFLYSISSGDKSITYIACASQLLFIDLFAVTEFFLLAIMSYDRYVAICKPLHYMT
IMNSRVCKNFIFSCWVAALIIILPPIGLGLGLEFCDSDIIDHFCCDAAPLLKISCSDTWLIEQMVIAGAV
LTFIITFVCVVLSYVYIIKTILRFPSAKQRKKAFSTCSSHMIVVSITYGSCIFIYV-KPSSKD-DVAINK
GISLLIISISPMMNPFIYALRNKQVKQAFNYSIKKIAFLSKM*----

>SMOR117-1
------MRNHT--LVTTFILLGLTEDPKWQIVIFLFLFMTYVLSITGNLTIILLTLLDSNLKTPMYFFLQ
KFSFLEISLTSTCIPRFLVSIVTMDKTISVEACFTQLFAAFIFGIAQFFLLAVMSYDRYVAICRPLHYTT
IMNNRVCTLLFVSCCLIAVFAICPGVIVSLSLEFCDT-IIEHFFCDYSPILKLSCNDTRFMQLLNFIFAI
FILLMTLALVMFSYGKIISTILRFPSAQQQKKAFSTCSSHMIVVSISYGSCIFMYI-KPSAEE-RIYLNK
GIAILTLALAPVLNPFIYTLRNKQVKEALKDIIKKCTSATSK-----

>MmOR10.4.53
------MRNHT--LVTTFILLGLTEDPKWQIVIFLFLFMTYVLSITGNLTIILLTLLDSNLKTPMYFFLQ
KFSFLEISLTSTCIPRFLVSIVTMDKTISVEACFTQLFAAFIFGIAQFFLLAVMSYDRYVAICRPLHYTT
IMNNRVCTLLFVSCCLIAVFAICPGVIVSLSLEFCDT-IIEHFFCDYSPILKLSCNDTRFMQLLNFIFAI
FILLMTLALVMFSYGKIISTILRFPSAQQQKKAFSTCSSHMIVVSISYGSCIFMYI-KPSAEE-RIYLNK
GIAILTLALAPVLNPFIYTLRNKQVKEALKDIIKKCTSATSK*----

>SOR4P4
LHWTMEKSNNS----TLFILLGFSQNKNIEVLCFVLFLFCYIAIWMGNLLIMISITCTQLIHQPMYFFLN
YLSLSDLCYTSTVTPKLMVDLLAERKTISYNNCMIQLFTTHFFGGIEIFILTGMAYDRYVAICKPLHYTI
IMSRQKCNTIIIVCCTGGFIHSASQFLLTIFVPFCGPNEIDHYFCDVYPLLKLACSNIHMIGLLVIANSG
LIALVTFVVLLLSYVFILYTI-RAYSAERRSKALATCSSHVIVVVLFFAPALFIYI-RPVT---TFSEDK
VFALFYTIIAPMFNPLIYTLRNTEMKNAMRKVWCCQILLKRNQLF--

>HsOR11.11.18
----MEKSNNS----TLFILLGFSQNKNIEVLCFVLFLFCYIAIWMGNLLIMISITCTQLIHQPMYFFLN
YLSLSDLCYTSTVTPKLMVDLLAERKTISYNNCMIQLFTTHFFGGIEIFILTGMAYDRYVAICKPLHYTI
IMSRQKCNTIIIVCCTGGFIHSASQFLLTIFVPFCGPNEIDHYFCDVYPLLKLACSNIHMIGLLVIANSG
LIALVTFVVLLLSYVFILYTI-RAYSAERRSKALATCSSHVIVVVLFFAPALFIYI-RPVT---TFSEDK
VFALFYTIIAPMFNPLIYTLRNTEMKNAMRKVWCCQILLKRNQLF*-
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR2.2.189
------MEKSS--NITVFILLGLSQNKNTEILCFVFFLFCYIAIWMGNVLIMVSITCTHLVEQPMYFFLN
YLSLSDLCYTSTVTPKLMTDLLAERKVISYNNCMIQLFTTHLFGGIEIFILTGMAYDRYVAICRPLHYTI
IMSRHRCNLIIMTCCTGGFVHSASQLLLTIFLPFCGPNEIDHYFCDVYPLLKLACSNTHIIGLLVIANSG
LIALVTFVVLMTSYFFILYTI-RAYSAESRSKALSTCSSHLTVVVLFFAPALFIYI-RPAT---TFPEDK
VFALFYTIIAPMFNPLIYTLRNTEMKNALRKVWGHQGLLKGR*----

>SMOR225-1
--------MGN--V-TVFILLGLSDNQNIEVLCFVLFLFCYIAIWMGNVLIMVSITCTQLMDQPMYFFLH
YLSLCDLCYTSTVTPKLLTDLLAERKIISYNNCMTQLFVLHFLGAIEIFILTAMAYDRYVAICRPLHYTV
IMSRQRCNEILAACCTGGFVHSASQSLLIACLSFCHHNEIDHYFCDVYPLLKLACTDTHRIGLFVIVDSG
LIALVTFVVLMVSYFLIAYTI-SVYPAESRSKALSTCSSHITIVVLFFVPVFFIYI-RPNI---TFPEDK
VFALFYTIIAPMFNPLIYTLRNIEMKRAIKKMWYHQIPSYKKQIP--

>MmOR2.2.178
--------MGN---VTVFILLGLSDNQNIEVLCFVLFLFCYIAIWMGNVLIMVSITCTQLMDQPMYFFLH
YLSLCDLCYTSTVTPKLLTDLLAERKIISYNNCMTQLFVLHFLGAIEIFILTAMAYDRYVAICRPLHYTV
IMSRQRCNEILAACCTGGFVHSASQSLLIACLSFCHHNEIDHYFCDVYPLLKLACTDTHRIGLFVIVDSG
LIALVTFVVLMVSYFLIAYTI-SVYPAESRSKALSTCSSHITIVVLFFVPVFFIYI-RPNI---TFPEDK
VFALFYTIIAPMFNPLIYTLRNLEMKRAIKKMWYHQIPSYKKQIP*-

>MmOR2.2.177
----MESTNNI----TEFILLGLSQNKKIKALCFLMFLFCYIAILGGNMIILISITCSQLIEQPMYFFLN
YLALSDLCYTSTVTPKFLTDLLVERNKISYTSCMAQLFTMHFFGGIEILILTVMAYDRYVAICKPLHYSI
IMSRGRCHAMVTACCAGAFIHSFLQSLLAISLPFCGHNEMDHYFCDIYPLLTLSCTNTHRVGLLVVANSG
MMGLVTFVVLMWSYYFILYTI-RAYPAESRSKALSTCSSHVTVVIFFFVPVLFIYI-RPAT---TYPEDK
VFALFYTILAPMFNPLIYTLRNTEMKNALRKVWCHKLFFI*------

>MmOR2.2.176
----MDYR--T--NITEFILLGLSQTKEIEVICFVLFLLCYIAILFGNLLIMISVTWSHLINQPMYFFLS
YLALSDLCYTSTVTPKLIINLVTTKKSISYNGCMTQLFTMHFFGGIEVFILTGMAYDRYVAICKPLHYTI
LMSRQKCDAVIAASCAGGFLHSFGQFLLAVFLPYCGPNEIDHYFCDVYPLLKLACTDTRKIGFLVIANSG
LMGLVTFVVLLISYGVILYTV-RSYSAENRRKALSTCSSHITVVVLFFAPLLFIYI-RPAT---TLPEDK
VFALFYTIIAPMLNPLIYTLRNKEMKNAIKRLCYEVTVFHHHTVS*-

>MmOR2.2.182
------MECKR--NISEFLLMGLSSKRNIEVFCFLFFSFCYLAILCGNLLILISIRCSSLFNQPMYYFLS
HLSSMDIFYTSCVTPKLIGDLLVRRKTISYTNCMLQVFAMHFFGMIEILILTAMAFDRCVAICKPLHYMV
IMSRSRCHILIWASWVGGAAHSLSQFCLLICLPFCGPNEIDHYYCDIFPLLKVACTDTTITGVLVVANSG
LIALVTFVVLFGSYVVILFT-LRNYSAEGRHKALSTCASHITVVILFFGPSIFAYL-RPPT---TFPEDK
IFALFYTIIAPMFNPLIYTLRNTEMKKAMKKVWCQNMFSEEKHS*--

>MmOR2.2.179
----MECKRNV----SEFLLMGLSSKQNTEVFCFIFFLFCYFTILSWNLLILFSIRCSSLFNQPMYYFLS
HLASMDICYTSCVTPKLIGDLLAERKTISYTNCMLQVFAMHFFGMIEILILTVMAFDRCVAICKPLYYMV
IMSRNRCHVFIWASWVGGVAHSFPQVMMLVCLPFCGPNEIDHYYCDVFPLLKVACTDTYIIGVLMVANSG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
MVAFVIFVLLFGSYVVILFT-LRNYSAEGRRKALSTCGSHISVVILFFGPSIFVYL-RPPT---TFPEDK
IFALFYTIIAPMFNPLIYTLRNTEMKSAIKKVWCQVTFLGEKHN*--

>MmOR2.2.202
------MG-YG-NL-TEFILLGLFHNEDVKAICAVLFLLCYLAILCGNLVVLLTIKGSQLSEQPMYFFLS
YLSFMDVCFTSTVAPKFIIGLLVQCNTISYNGCIAQMFYAHFFGATEIFILVVMAYDRYVAICRPLYYMI
TMSRQVCYILVIGSVFGAFIHSLVHVLVIIRLPFCGSNEIDHYFCDIFPLLKLACTDTRLLVIVIITTTG
VMSILTFVALVISYIIIL-SILRTRSSESRRKALSTCGSHITVVFMFFLPLIFTYV--P--MGDSVGDDK
VFALFYTMIAPLFNPLIYTLRNTDMKNAMRKVWCQDKLFEGK*----

>MmOR2.2.194
----MGFG-----NLTEFIFLGLFHNENVKEMCAVLFLLCYLAILCGNLVVLITIRG-SHLSQPMYYFLT
YLSFMDVCFTSTVAPKLIIDLFVQCNTISYNGCIAQMFYAHFFGATEIFILVAMAYDRYVAICRPLYYMI
TMSRQVCYMLVIASAIGAFIHSLVHVFIIIRLPFCGTNEIDHYFCDIFPLLKLACTDTRLMVIVIITTTG
VLSILTFLALVISYIIILSI-LRTRSSEGRRKALSTCGSHITVVFMFFLPLIFTYV--P--VGDSVGDDK
VFALFYTMIAPLFNPLIYTLRNTDMKNAMRKVWCQDKLFEGK*----

>MmOR2.2.192
WIHLEFMENHK--NVTEFIFMGLWQNRQIELLFFLLFLLCYLAILMGNSVILFTITCSHLIEQPMYYFLC
HLSLMDLCYTSTVIPRLIRDLATTRKNISYNECMTQLFTSHLLAGVEIFILVSMALDRYVAIVKPLHYMV
IMSRKRCDMLIVTAWILGFWHSIALLLMVLSLPFCGPNHINHYLCDIKPLLKLVCKDVHVVSILAIANSG
MVLFAIFIVLLASYILILYS-LRTRSSAGKRKALSTCSSHIMVVVLFFGPCIYIYI-LPAG---SENKDK
EISVFYTVIAPMLNPLIYTLRNSEMKSAMHKVWSRLSLRVEVSERIL

>MmOR2.2.193
WIHLEFMENHK--NVTEFIFMGLWQNRQIELLFFFLFLLCYLAVLMGNSVILLTITCSHLIEQPMYYFLC
HLSLMDLCYTSTVIPRLIRDLAATRKNISYNECMTQLFTAHLLAGVEIFILVSMALDRYVAIVKPLHYMV
IMSRKRCDMLIVTAWILGFWHSIALLLMVLSLPFCGPNHINHYLCDIKPLLKLVCKDLHVVSILTIANSG
MVVVAIFIVLLVSYILILYS-LRTRSSAGKRKALSTCSSHIMVVVLFFGPCIYTYV-LPVG---SENKDK
EISVFYTVIAPMLNPLIYTLRNSEMKSAMHKVWSRLSLRVEVSERIL

>MmOR2.2.196
WIQLEFMENHK--NITEFIFMGLWENRQIELLFFFLFLLCYLAVLMGNSVIFLTITCSHLIEQPMYYFLC
HLSLMDLCYPSTVIPRLIRDLAATRKNISYNECMTQLFTAHLLAGVEIFILVSMALDRYVAIVKPLHYMV
IMSRKRCDMLIVTAWILGFWHSIALLLMVLSLPFCGPNHINHYFCDIKPLLKLVCKDVHVVSILAIVNSG
MVLFAIFIVLLASYILILYS-LRTRSSAGKRKALSTCSSHIMVVVLFFGPCIYTYV-LPAG---SENKDK
EISVFYTVIAPILNPVIYTLRNSEMKSAMHKVWSRNLGLKYVKPSCN

>MmOR2.2.265
------MANKN--NITELIFTGLFQDPEVQKVCFVLFLPVYLATLLGNSLIVVAVSISKTLHSPMYFFLS
SLSLVEICYSSTIVPKFITDLLVKVKTISLKGCLAQIFFSHFLGVAEILLLVVMAYDRYVAICKPLHYMN
IMSRQVCHMLVGGSWLGGLIHSIIQIIITIPLPFCGPNVIDHYFCDLQPLFKLACTDTFMEGVVVMANSG
LISIISLFILVSSYAIILIS-LRKHSAEGRRKALSTCASHITVVILFFGPATFLYL-RPSS---SFTEDK
LVAVFYTVITPMLNPIIYTLRNAEVKNAMKKLWGKRNPETE*-----

>SMOR227-1
----MARENNV----TELIITGLFQDPNVQKVCFVLFLPVYLATVLGNGLIVAMVIVSKSLHSPMYIFLS
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
SLSLVEICYSSTVVPKFITDLLAKVKTISLKGCLAQIFFFHFLGVAEIFLLVVMAYDRYVAICKPLHYMN
IMSRQVCHVLVAVSWLGGFLHSIIQVLISIQLPFCGPNVIDHYFCDLQPLFKLACTDTFVESVIVMANSG
LIALCSFLVLVSSYVIILVN-LRKHSAEGRRKALSTCASHITVVVLFFGPAIFLYM-RPSS---TFTEDK
LVAVFYTVITPMLNPIIYTLRNAEVKNAVRKLWGKRI----------

>MmOR2.2.263
----MARENNV----TELIITGLFQDPNVQKVCFVLFLPVYLATVLGNGLIVAMVIVSKSLHSPMYIFLS
SLSLVEICYSSTVVPKFITDLLAKVKTISLKGCLAQIFFFHFLGVAEIFLLVVMAYDRYVAICKPLHYMN
IMSRQVCHVLVAVSWLGGFLHSIIQVLISIQLPFCGPNVIDHYFCDLQPLFKLACTDTFVESVIVMANSG
LIALCSFLVLVSSYVIILVN-LRKHSAEGRRKALSTCASHITVVVLFFGPAIFLYM-RPSS---TFTEDK
LVAVFYTVITPMLNPIIYTLRNAEVKNAVRKLWGKRI*---------

>MmOR2.2.264
----MVHENNV----TELIFTGLFQDPEVQKVCFVLFLPVYLATLLGNGLIFVTVSISKTLHSPMYFFLS
SLSLVEICYSSTVAPKFITDLLAKVKTISLKGCLTQIFFFHFFGVVEIILLVMMAYDRYVAICKPLHYMI
IMSRQVCHMLVAGSWLGGLIHSIIQIIITIPLPFCGPNVIDHYFCDLHPLLKLACSDTFMERFIVMANSG
LFSIISLFILVSSYAVILIS-LRKRSAEGRRKALSTCASHITVVILYFGPGAFIYM-RPSS---AFTEDK
LVSVFYTVITPMLNPIVYTLRNTEMKNAIRMFWSQ--KDK*------

>HsOR11.8.1
------MASTS--NVTELIFTGLFQDPAVQSVCFVVFLPVYLATVVGNGLIVLTVSISKSLDSPMYFFLS
CLSLVEISYSSTIAPKFIIDLLAKIKTISLEGCLTQIFFFHFFGVAEILLIVVMAYDCYVAICKPLHYMN
IISRQLCHLLVAGSWLGGFCHSIIQILVIIQLPFCGPNVIDHYFCDLQPLFKLACTDTFMEGVIVLANSG
LFSVFSFLILVSSYIVILVN-LRNHSAEGRHKALSTCASHITVVILFFGPAIFLYM-RPSS---TFTEDK
LVAVFYTVITPMLNPIIYTLRNAEVKIAIRRLWSKKENPGRE*----

>SMOR226-1
----MASRTYSVNNVTEFIFLGLSQNPEVEKVCFVVFSFFYMVILLGNLLIMLTVCSGNLFKFPMYFFLN
FLSFVDICYSSVTAPKMIIDLLVKKKTISYVGCMLQLFVVHFFGCTEIFILTVMAYDRYVAICKPLHYMT
IMDRERCNKMLLGTWIGGFLHSIIQVALVVQLPFCGPNEIDHYFCDVHPVLKLACTDTYIVGIFVTANSG
TIALGSFVILLISYTVILMS-LRKQSSEGRRKALSTCGSHIAVVIIFFGPCTFMYM-RPDT---TFSEDK
MVATFYTIITPMLNPLIYTLRNAEVKNAMRKLWARKFSWETTGK---

>MmOR2.2.190
----MASRTYSVNNVTEFIFLGLSQNPEVEKVCFVVFSFFYMVILLGNLLIMLTVCSGNLFKFPMYFFLN
FLSFVDICYSSVTAPKMIIDLLVKKKTISYVGCMLQLFVVHFFGCTEIFILTVMAYDRYVAICKPLHYMT
MMDRERCNKMLLGTWIGGFLHSIIQVALVVQLPFCGPNEIDHYFCDVHPVLKLACTDTYIVGIFVTANSG
TIALGSFVILLISYTVILMS-LRKQSSEGRRKALSTCGSHIAVVIIFFGPCTFMYM-RPDT---TFSEDK
MVAIFYTIITPMLNPLIYTLRNAEVKNAMRKLWARKFSWETTGK*--

>MmOR2.2.188
----MASRTYSVNNVTEFIFWGLSQNPEVEEVCFVVFSFFYMVILLGNLLIMLTVCSGNLFKSPMYFFLN
FLSFVDICYSSVTAPKMIVDLLVKKKTISYVGCMLQLFGVHFFGCTEIFILTVMAYDRYVAICKPLHYMT
IMDRERCNKMLLGTWISGFLHSIIQVALVVQLPFCGPNEIDHYFCDVHPVLKLACTDTYIVGVVVTANSG
TIALGSFVILLISYTVILIS-LRKQSSEGRRKALSTCGSHIAVVIIFFGPCTFMYM-RPDT---TFSEDK
MVAIFYTIITPMLNPLIYTLRNAEVKNAMRKLWARKVSWETTGK*--
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>SOR4S2
----MEKINNV----TEFIFWGLSQSPEIEKVCFVVFSFFYIIILLGNLLIMLTVCLSNLFKSPMYFFLS
FLSFVDICYSSVTAPKMIVDLLAKDKTISYVGCMLQLFGVHFFGCTEIFILTVMAYDRYVAICKPLHYMT
IMNRETCNKMLLGTWVGGFLHSIIQVALVVQLPFCGPNEIDHYFCDVHPVLKLACTETYIVGVVVTANSG
TIALGSFVILLISYSIILVS-LRKQSAEGRRKALSTCGSHIAMVVIFFGPCTFMYM-RPDT---TFSEDK
MVAVFYTIITPMLNPLIYTLRNAEVKNAMKKLWGRNVFLEAKGK---

>HsOR11.11.19
----MEKINNV----TEFIFWGLSQSPEIEKVCFVVFSFFYIIILLGNLLIMLTVCLSNLFKSPMYFFLS
FLSFVDICYSSVTAPKMIVDLLAKDKTISYVGCMLQLLGVHFFGCTEIFILTVMAYDRYVAICKPLHYMT
IMNRETCNKMLLGTWVGGFLHSIIQVALVVQLPFCGPNEIDHYFCDVHPVLKLACTETYIVGVVVTANSG
TIALGSFVILLISYSIILVS-LRKQSAEGRRKALSTCGSHIAMVVIFFGPCTFMYM-RPDT---TFSEDK
MVAVFYTIITPMLNPLIYTLRNAEVKNAMKKLWGRNVFLEAKGK*--

>HsOR11.8.4
----MVATNNV----TEIIFVGFSQNWSEQRVISVMFLLMYTAVVLGNGLIVVTILASKVLTSPMYFFLS
YLSFVEICYCSVMAPKLIFDSFIKRKVISLKGCLTQMFSLHFFGGTEAFLLMVMAYDRYVAICKPLHYMA
IMNQRMCGLLVRIAWGGGLLHSVGQTFLIFQLPFCGPNIMDHYFCDVHPVLELACADTFFISLLIITNGG
SISVVSFFVLMASYLIILHF-LRSHNLEGQHKALSTCASHVTVVDLFFIPCSLVYI-RPCV---TLPADK
IVAVFYTVVTPLLNPVIYSFRNAEVKNAMRRFIGGKVI*--------

>SMOR229-1
----MAAA--S--NVTEIIFLGLSQYQHVQKVIFVMFLLMYTAIVLGNGLIVVTIVASKGLSSPMYFFLG
YLSFVEVCYCSVTAPKLIFDSLLQRKAISLQGCITQIFFLHFFGGTEIFLLTVMAYDRYVAICKPLHYVT
IMNRRVCGLLVGAAWSGGLLHSAGQTFLIFQLPFCGPNIINHYFCDVHPVLKLACSDTFLISLLVIINGG
SISVISFAVLLASYVVILNS-LRSHTAEGRHKALSTCASHLAVVGLFFIPCSFVYM-RPCI---TFPVDK
VVAVFYTVVTPLLNPIIYSFRNTEVKNAMKRLVGRKVTWEEK-----

>SMOR228-2
------MADIH--NVTEFLFLGLSSNKEVEIVCFVIFLLLYMAIVLGNLLMVVTVVASRSLGSPMYFFLG
YLSFVEICYSSTTAPKLILDLLAEKKSISVWGCMTQLFFMHFFGGAEIFLLTVMAYDRYVAICKPLHYTS
IMNRNVCAVLVGTAWIGGFVHSFAQILLIFPLPFCGPNIIDHYFCDLLPLLKLACSDTFLIGLLIVANAG
TLSVISFVVLLASYVVILFH-LRTQSAEGRRKALSTCGSHVTVVILFFGPCVFIYL-RPSD---TLPVDK
MIAVFYTVITPLLNPLIYSLRNAKVKKTMKSLWFRTMKVDEK-----

>MmOR2.2.257
------MADIH--NVTEFLFLGLSSNKEVEIVCFVIFLLLYMAIVLGNLLMVVTVVASRSLGSPMYFFLG
YLSFVEICYSSTTAPKLILDLLAEKKSISVWGCMTQLFFMHFFGGAEIFLLTVMAYDRYVAICKPLHYTS
IMNRNVCAVLVGTAWIGGFVHSFAQILLIFPLPFCGPNIIDHYFCDLLPLLKLACSDTFLIGLLIVANAG
TLSVISFVVLLASYVVILFH-LRTQSAEGRRKALSTCGSHVTVVILFFGPCVFIYL-RPSD---TLPVDK
MIAVFYTVITPLLNPLIYSLRNAKVKKTMKSLWFRTMKVDEK*----

>MmOR2.2.261
------MADIH--NVTEFIFLGLSSNQEVQKVCFVIFLLLYMAIVLGNLLMVVTVVASRSLGSPMYFFLG
YLSFVEICYSSTTAPKLILDLLAEKKSISVWGCMTQLFFMHFFGGTEIFLLTMMAYDRYVAICKPLHYTS
IMNQSVCAVLMGTAWIGGFVHSFAQILLIFPLPFCGPNIIDHYFCDVLPVLKLACSDTFLIGLLIVVNGG
TLSVISFVVLLASYGVILFH-LRTQSAEGRRKALSTCGSHVTVVILFFGPCVFIYL-RPSD---TLPVDK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
MIAVFYTVITPLLNPLIYSLRNAEVKKAMKSLWFRTMKVDEK*----

>MmOR2.2.267
------MADIH--NVTEFFFLGLSSNQEVQRVCFVIFLFLYMAIVLGNLLMVVIVAVSRNLGSPMYFFLS
SLSFVEICYSSTTAPKLIVDLLAEKKSISVWGCMAQLFFMHFFGGIEMFLLMMMAYDRYVAICKPLHYTS
IMNRQVCTVLVGMAWMGGFVHSLAQVLLIFRLPFCGPNIIDHYFCDVLPVLKLVCSDTFLIGLLIVVNGG
TLTVISFVVLLSSYAVILFH-LRTQSAEGRRKALSTCGSHVTVVVIFFAPCVFIYL-RPTA---TLPIDK
MVTVFYTVITPLLNPIIYSLRNAEVKKVIKILCTRATKVDKK*----

>SOR4X2
--------------MTEFIFLVLSPNQEVQRVCFVIFLFLYTAIVLGNFLIVLTVMTSRSLGSPMYFFLS
YLSFMEICYSSATAPKLISDLLAERKVISWWGCMAQLFFLHFFGGTEIFLLTVMAYDHYVAICKPLSYTT
IMNWQVCTVLVGIAWVGGFMHSFAQILLIFHLLFCGPNVINHYFCDLVPLLKLACSDTFLIGLLIVANGG
TLSVISFGVLLASYMVILLH-LRTWSSEGWCKALSTCGSHFAVVILFFGPCVFNSL-RPST---TLPIDK
MVAVFYTVITAILNPVIYSLRNAEMRKAMKRLWIRTLRLNEK-----

>HsOR11.8.3
--------------MTEFIFLVLSPNQEVQRVCFVIFLFLYTAIVLGNFLIVLTVMTSRSLGSPMYFFLS
YLSFMEICYSSATAPKLISDLLAERKVISWWGCMAQLFFLHFFGGTEIFLLTVMAYDHYVAICKPLSYTT
IMNWQVCTVLVGIAWVGGFMHSFAQILLIFHLLFCGPNVINHYFCDLVPLLKLACSDTFLIGLLIVANGG
TLSVISFGVLLASYMVILLH-LRTWSSEGWCKALSTCGSHFAVVILFFGPCVFNSL-RPST---TLPIDK
MVAVFYTVITAILNPVIYSLRNAEMRKAMKRLWIRTLRLNEK*----

>SMOR230-1
-----MQQNST---VTEFILLGLTQDPLKQKMVFIIFLVFYMGTVVGNTLIIVTIKFSRTLGGPMYFFLF
YLSFADSCFSTSTAPRLIVDALSKKNIISYNECMTQVFALHLFGCMEVFVLIFMAVDRYVAICKPLHYPV
IMRRQVCVILIIVAWIGSFLHSTTQIVLALRLPFCGPNLIDHYCCDLQPLLELACMDTHMINLLLVFNSG
AICSSSFLIFIISYFVILYS-LRNHSAEGRKKALSTCTSHIIVVVLSFGPCIFIYA-RPPT---TFSMDK
MVTVFFTIGSPFLNPIIYTLRNAEVKNAMKKLWHVKIMTE-------

>MmOR2.2.199
-----MQQNST---VTEFILLGLTQDPLKQKMVFIIFLVFYMGTVVGNTLIIVTIKFSRTLGGPMYFFLF
YLSFADSCFSTSTAPRLIVDALSKKNIISYNECMTQVFALHLFGCMEVFVLIFMAVDRYVAICKPLHYPV
IMRRQVCVILIIVAWIGSFLHSTTQIVLALRLPFCGPNLIDHYCCDLQPLLELACMDTHMINLLLVFNSG
AICSSSFLILIISYFVILYS-LRNHSAEGRKKALSTCTSHIIVVVLSFGPCIFIYA-RPPT---TFSMDK
MVTVFFTIGSPFLNPIIYTLRNAEVKNAMKKLW-HVKIMTE*-----

>MmOR2.2.197
----MQQ-NST---VTEFILLGLTQDPLKQKMVFIIFLVFYLGTVVGNTLIIVTIKFSRTLGSPMYFFLF
YLSFSDSCFSTSTAPRLIVDALSKKNIISYNECMTQVFALHLFGCMDVFILIFMAVDRYVAICKPLRYSV
IMRRQVCVILIIVAWIGSFLHSTTQIVLALRLPFCGPNLIDHYCCDLQPLLKLACMDTYMINLLLVFNSG
AICSSSFVILIISYFVILHS-LRNHSAEGRKKALSTCTSHIIVVILSFVPCIFIYA-RPPT---TFPMDK
MVTVFYTIGTPFLNPIIYTLRNAEVKNAMKKLW-HVKFIMK*-----

>MmOR2.2.201
-----MQHNST---VTKFILLGLTQDPLKQKMVFIIFLVFYLGTVVGNTLIIMTIKFSRTLGSPMYFFLF
YLSFADSCFSTSTAPRLIVDALSKKNIISYNECMTQVFALHLFGCMEIFVLILMAVDRYVAICKPLRYPV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMSRQVCVILIILAWIGSFIHSTAQIVLALRLPFCGPNLIDHYCCDLQPLLKLACMDTYMINLLLVSNSG
AICSSSFVILIISYFVILHS-LRNHSAEGRKKALSTCTSHIIVVILFFGPCIFIYA-RPPT---TFSMDK
MVAVFYTIGTPFLNPIIYTLRNAEVKNAMKKLW-HVKIMTE*-----

>SOR4C11
----MQQNNSV----PEFILLGLTQDPLRQKIVFVIFLIFYMGTVVGNMLIIVTIKSSRTLGSPMYFFLF
YLSFADSCFSTSTAPRLIVDALSEKKIITYNECMTQVFALHLFGCMEIFVLILMAVDRYVAICKPLRYPT
IMSQQVCIILIVLAWIGSLIHSTAQIILALRLPFCGPYLIDHYCCDLQPLLKLACMDTYMINLLLVSNSG
AICSSSFMILIISYIVILHS-LRNHSAKGKKKALSACTSHIIVVILFFGPCIFIYT-RPPT---TFPMDK
MVAVFYTIGTPFLNPLIYTLRNAEVKNAMRKLWHGKIISENKG----

>HsOR11.11.17
----MQQNNSV----TEFILLGLTQDPLRQKIVFVIFLIFYMGTVVGNMLIIVTIKSSRTLGSPMYFFLF
YLSFADSCFSTSTAPRLIVDALSEKKIITYNECMTQVFALHLFGCMEIFVLILMAVDRYVAICKPLRYPT
IMSQQVCIILIVLAWIGSLIHSTAQIILALRLPFCGPYLIDHYCCDLQPLLKLACMDTYMINLLLVSNSG
AICSSSFMILIISYIVILHS-LRNHSAKGKKKALSACTSHIIVVILFFGPCIFIYT-RPPT---TFPMDK
MVAVFYTIGPPFLNPLIYTLRNAEVKNAMRKLWHGKIISENKG*---

>MmOR2.2.181
------MHNYS--V-TEFILFGLTQDPEKQKAIFGVFLILYLMTLIGNFLIVMTIKMSQTLGSPMYFFLF
YLSFADACFSTTTAPRLIIDALSQKKIITYNECMTQVFAAHFFGCMEIFVLILMAIDRYVAICKPLRYTT
IMSQRICGILVILAWVGSCIHSSAQIFLALRLPFCGPNVIDHYFCDLQPLLKLACMDTYVINLLVVSNSG
AICMVSFTLLLISYIFILYS-LRNHSVEGRRKALSTCTSHFIVVVIFFGPCIFIYT-RPPT---TFPIDK
MVSVFYTIGTPLLNPLIYTLRNAEVKIAMKKLWCGKV*---------

>MmOR2.2.183
----MHNN-----SMTEFILLGLTQDPEQQKAIFGVFLILYLMTLIGNFLIMVTIKMSQTLGSPMYVFLF
YLSFADACFSTTTAPRLIVNALSQKKIISYNECMTQVFAAHFFGCMEIFVLILMAIDRYVAICKPLRYTT
IMNQNICDILVIIAWIGSCIHSSAQIFLALRLPFCGPNVIDHYFCDLQPLMKLACMDTYVINLLVVSNSG
AICMISFIVLFISYIFILYC-LRNHSAEGRRKALSTCTSHFIVVVIFFGPCIFIYT-RPLI---TLPIDK
MVSVFYTIGTPLLNPLIYTLRNSEVKYAMKKLWCGKV*---------

>MmOR2.2.184
--------NHT---MTEFILFGLTQDPEQQKAIFGVFLILYLMTLMGNFLIMVTIKMSQTLGSPMYFFLF
YLSFADACFSTTTAPRLIADALLQKKIITYNECMTQVFAVHFFGCMEIFVLILMAFDRYVAICKPLRYTA
IMSQHICGVLVILAWIGSCIHSSAQIFLALRLPFCGPNVIDHYFCDLQPLLKLACMDTYVINLLVVSNSG
AICTVSFIVLLISYIVILYS-LRSHSAEGRRKALSTCTSHIIVVILFFGPCIFIYT-WPPT---TFPIDK
MVSLFYTIGTPVLNPLIYTLRNAEVKHAMKKLWGNKV*---------

>MmOR2.2.203
----MWLNNNV----TEFILLGLTQDPFRKKILFVVFLLFYMGTLLGNLLIIATIKTSQTLGSPMYFFLF
YLSLSDTCFSTTIAPRTIVDSLLKEASISFTECIIQVFTFHFFGCLEIFILILMAVDRYVAICKPLHYMT
IMSRRVCGVLVAIAWVGSCVHSLVQIFLALSLPFCGPNEIDHYFCDLQPLLKLACSDTYLINLLLVSNSG
AICTVSFLMLMVSYVIILRS-LRNHSAEGRRKALSTCISHIIVVILFFGPCIFIYT-RPAT---TFPMDK
MIAIFYSIGTPLLNPLIYTLRNAEVKNAMKKLWRKKVVSDDRK*---

>MmOR2.2.195
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MQL-NIN---VTEVILLGLTQDPSRKNIVFAIFLLFYMGTLLGNLLIIVTVKTSQALGSPMYFFLF
YLSLSDTCFSTTVAPRTIVDSLQKEASISFTECIIQIFTFHFFGCLEIFILILMAVDRYVAICKPLHYMT
IMSRRVCGVLVAIAWMGSCVHSLVQIFLALSLPFCGPNVIDHYFCDLQPLLKLACSDTYLINLLLVSNSG
AICTVSFLVLMFSYVIILHS-LRNHSAEGRRKALSTCISHIIVVILFFGPCIFIYT-RPAT---TFPMDK
MISIFYSIGTPLLNPLIYTLRNAEVKNAMKKLW-RKKIVSDDKK*--

>MmOR2.2.191
----MQL-NIN---VTEFILLGLTQDPSRKNIVFAIFLFFYMGTLLGNFLIIVTIKTSPALGSPMYFFLF
YLSLSDTCFSTTVAPRTIVDSLLKEASISFNECIIQVFTFHLFGSLEIFILILMAVDRYVAICKPLHYMT
IMNRQVCGMLVATVCVGSCIHSSVQIILALSLPFCGPNEIDHYFCDLQPLLKLACSDTYVINLLLVSNSG
TLCTVSFLMLMVSYIIILYS-LRNHSAEGRRKALFTCVSHIIVVILFFVPCIFIYT-RPAT---TFPMDK
MISVFYTICTPFLNPLIYTLRNAEVKNAMRKLWSKKISDDI*-----

>HsOR11.11.16
----MQLNNNV----TEFILLGLTQDPFWKKIVFVIFLRLYLGTLLGNLLIIISVKASQALKNPMFFFLF
YLSLSDTCLSTSIAPRMIVDALLKKTTISFSECMIQVFSSHVFGCLEIFILILTAVDRYVDICKPLHYMT
IISQWVCGVLMAVAWVGSCVHSLVQIFLALSLPFCGPNVINHCFCDLQPLLKQACSETYVVNLLLVSNSG
AICAVSYVMLIFSYVIFLHS-LRNHSAEVIKKALSTCVSHIIVVILFFGPCIFMYT-CPAT---VFPMDK
MIAVFYTVGTSFLNPVIYTLKNTEVKSAMRKLWSKKLITDDKR*---

>HsOR11.11.4
----MK--NKN--NVTEFILLGLTQNPEGQKVLFVTFLLIYMVTIMGNLLIIVTIMASQSLGSPMYFFLA
SLSFIDTVYSTAFAPKMIVDLLSEKKTISFQGCMAQLFMDHLFAGAEVILLVVMAYDRYMAICKPLHELI
TMNRRVCVLMLLAAWIGGFLHSLVQFLFIYQLPFCGPNVIDNFLCDLYPLLKLACTNTYVTGLSMIANGG
AICAVTFFTILLSYGVILHS-LKTQSLEGKRKAFYTCASHVTVVILFFVPCIFLYA-RPNS---TFPIDK
SMTVVLTFITPMLNPLIYTLKNAEMKSAMRKLWSKKVSLAGKWLYHS

>SOR4A15
------MKNKN--NVTEFILLGLTQNPEGQKVLFVTFLLIYMVTIMGNLLIIVTIMASQSLGSPMYFFLA
SLSFIDTVYSTAFAPKMIVDLLSEKKTISFQGCMAQLFMDHLFAGAEVILLVVMAYDRYMAICKPLHELI
TMNRRVCVLMLLAAWIGGFLHSLVQFLFIYQLPFCGPNVIDNFLCDLYPLLKLACTNTYVTGLSMIANGG
AICAVTFFTILLSYGVILHS-LKTQSLEGKRKAFYTCASHVTVVILFFVPCIFLYV-RPNS---TFPIDK
SMTVVLTFITPMLNPLIYTLKNAEMKSAMRKLWSKKVSLAGKWLYHS

>MmOR2.2.226
------MENRN--NVTEFILLGLTQNPEGQKVLFVTFLLIYIVTVMGNLLIMVTIMASHSLGSPMYFFLA
YLSFIDTVYSTSIAPKMIIDLLYETKTISFRACMTQVFIDHLFAGAEVILLVVMAYDRYVAICKPLHYLT
IMNRRVCVLMLLGAWIGGFLHSLIQFIFIYQLPFCGPNIIDSFVCDMYPLLKLACTNTYLIGLCMIANGG
AICTVTFLILLVSYGVILHS-LKAHSLEGKRKALYTCASHITVVVLFFVPCIFLYA-RPTS---TFPIDK
SVTVVLTFITPMLNPLIYTLRNAEMKNAMKRLWSKKSSSIVSGLYHS

>MmOR2.2.229
----MEQRNNV----TEFVLLGLTQSPEGQKILFVVFLVIYVVTMAGNLLIVVTVVVSPSLDAPMYFFLG
YLSFMDAVYSTTVTPNMIIDLLYEKKTISFKACMSQLFIGHLFGGAEILLLVVMAYDRYVAICKPLHYLT
IMNQRVCVLLLLLAWFGGFLHAVVQLLFVYNLPFCGPNIIDHFICDMYPLLKLACTDTYVIGLTVVANDG
AICVVIFMLLVISYGVILHS-LKNLSQEGRRKALSTCGSHITVVVLFFVPCIFMYV-RPPS---TLPIDK
SLTVFYTVVTPMLNPLIYTLRNAEMKNAMRKLWA-SKGK*-------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR2.2.241
----MGQNNNV----TEFILLGLTQDPAGQKVLFIMFLLIYIVTIVGNLLIVGTVIASPSLGSPMYFFLA
FLSLMDAVYSTAILPKLLTDLLCDKKTISFTACLVQLFVEHLFGGSEVFILVVMAYDRYVAICKPLHYLT
IMNRQVCILLLVVSWAGGFAHALLQVISVYLLPFCGPNVIDHFACDMYPLLGLACTDTYFLGLTVVGNNG
AMSIVVFILLLVSYGIILNS-LKTHSQEGRRKALSTCSSHIMVVVLFFVPCIFMYV-RPVS---NFPIDK
YITVFYTVFTPMLNPLIYTLRNMEIKNCMAKLWCKMFTKDIKRDSHH

>MmOR2.2.243
----MGQKNNV----TEFILLGLTQDPAGQKALFVMFLLIYIVTIVGNLLIVGTVIASPSLGSPMYFFLA
FLSLMDAVYSTAILPKLLTDLLCDKKTISFTACLVQLFVEHLFGGSEVFILVVMAYDRYVAICKPLHYLT
IMNRQVCILLLVVSWAGGFAHALLQVISVYILPFCGPNVIDHFGCDMYPLLGLACTDTYFLGLTVVGNNG
AMSIVVFVLLLVSYGIILNS-LKTHSQEGRRKALSTCSSHIMVVVCFFVPCIFMYV-RPVS---NFPIDK
YITVFYTIFTPMLNPLIYTLRNMEIKICMAKLWSKTKDIKRD-SHH*

>MmOR2.2.239
----MGQNNNV----TEFILLGLTQDPAGQKVLFVMFLLIYIVKIVGNLLIVGTVIASPSLGSPMYFFLA
FLSLMDAVYSTAILPKLLTDLLCDKKTISFTACLVQLFVEHLFGGSEVFILVVMAYDHYVAICKPLHYLT
IMKRQVCILLVVVSWAGGFAHALLQVISVYLLPFCGPNVIDHFACDIYPLLGLACTDTYFLGLTVVSSYG
AMSIVAFILLLVSYGIILNS-LKTDSQEGRRKALSTCSSHIMVVVLFFVPCIFMYV-RPIS---NFPIDK
YITVFYTIFTPMLNPLIYTLRNMEIKNCMAKLWSKMFTKA*------

>MmOR2.2.238
----MGETNNV----TEFVLLGLTQDPTGQKALFVMFLLMYIVTIVGNLLIVGTVIASPSLNSPMYFFLA
FLSLMDAVYSTAILPKLLKDLVCDKKTISFTACLVQLFVEHLFGGAEVFLLVVMAYDRYVAICKPLHYLT
VMNQQVCISLLVVAWVGGFAHALVQVLSVYKLPFCGPNVIDHFGCDMYPLLALVCTDTYFIGLTVVANNG
AMCMVVFVLLLFSYGIILSS-LKTHSQEGRRKALSTCSSHIMVVVLFFVPCIFMYV-RPVS---NFPIDK
SISVFYTAITPMLNPLIYTLRNSEIKNSMGKLWSKMISIDRVRIFAY

>MmOR2.2.230
----MGKSNNV----TEFILLGLTQDPAGRKALFVMFLLIYIVTMVGNLLIVETVISSPSLDSPMYFFLA
SLSLMDAVYSTAFSPKLIMDLLCNRRTISVSACIGQLFVEHLFGGAEVFLLVFMAYDRYVAICKPLHYMT
IMNRQVCILLLVAACAGGFGHSLVQVIVVCYLPFCGPNTIDHFICDMYPLLGLACTDTYLIGLTVVANGG
AICMTVFILLLVSYGIILNS-LKSHSEEGRRKALSTCSSHIIVVVLFFVPCIFMYV-RPVS---NFPIDK
SLTVVYTVITPMLNPLIYTLRNAEMKNSMKKLWCERLTMERLRMFPH

>MmOR2.2.228
----MGQRNNV----TEFILLGLTQDPAGQKALFVMFLLIYIVTMVGNLLIVATVIASPSLGSPMYFFLA
YLSIMDAVYSTSTSPKLIMDLLSDKKTISFSACMGQLFIEHLFGGAEVFLLVVMAYDRYVAICKPLHYLT
IMNRQICILLLVIAWVGGFVHSVIQLAFVSTLPFCGPNVIDHFICDMYPLLTLACSDTYFIGLTVVANGG
AICMVILILLLLISYVFILNS-LKNYSQEGRRKALSTCSSHITVVVLFFVPCIFIYV-RPVS---NFPIDK
SISVVFTVITPMLNPLIYTLRNSEMKIAMQKLWCKTATTGRVRVHSP

>MmOR2.2.245
----MGKNNNV----TEFILLGLTQDPVGQKALFVLFLLMYIVTMAGNLIIVVTIIASPSLSSPMYFFLA
YLSLMDAIYSTAISPKLIMDLLCNKKTISFRACMGQLFVEHLFGATEIFLLVAMAYDRYVAICKPLHYLT
IMNHRVCILLVMATWVGGFAHSMAQVLFVYDLPFCGPNVIDHFACDMYPLLVLVCSDTYFLGLTVIANDG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
AICMVVFVILLASYGIILNS-LKTHSQEGRRKALSTCSSHIMVVILFFVPCIFMYV-RPVS---NFPVDK
SVTIFYTVVTPMLNPLIYTLRNSEIKHSMLKLWSKILHSDRLRKSCC

>MmOR2.2.231
----MGQRSNV----TEFILLGLTQDHVGQRALFVMFLLIYIVTIVGNLLIVGTVIASPSLGTPMYFFLA
YLSLLDAVYSTAISPKLMVDLLCDRKTISFSACMTQLFLEHLLGGAEVFLLMVMAYDRYVAICKPLHYLI
IMNRRVCFLLLVVSWAGGLAHSVAQLLFVYNLPFCGPNVIDHFICDMYPLLGLACTDTHIIGLTVVANGG
AICMLVFIILIISYGIILRS-LKTHSQEGRQKALSTCSSHIMVVVLFFVPCIFMYV-RP--VH-NFPIDK
SITVFYTIVTPILNPLIYALRNSEMKRSMENLLYKVFPRDKITMSFH

>MmOR2.2.233
----MGQRSNV----TEFILLGLTQDHVGQRALFVMFLLIYIVTIVGNLLIVGTVIASPSLGTPMYFFLA
YLSLLDAVYSTAISPKLMVDLLCDRKTISFSACMTQLFLEHLLGGAEVFLLMVMAYDRYVAICKPLHYLI
IMNRRVCFLLLVVSWAGGLAHSVAQLLFVYNLPFCGPNVIDHFICDMYPLLGLACTDTHIIGLTVVANGG
AICMLVFIILIISYGIILRS-LKTHSQEGRQKALSTCSSHIMVVVLFFVPCIFMYV-RP--VH-NFPIDK
SITVFYTIVTPILNPLIYALRNSEMKRSMENLLYKVFPRDKITMSFH

>MmOR2.2.237
----MGERNNV----TEFVLLGLTQDPAGQKVLFVMFLLIYIVTMVGNLLIVLMVIASPSLGSPMYFFLA
CLSFLDIVYSTSISPKLIMDLLCDEKSISFTACMSQLFIEHLFGGTEIVILVAMAYDRYVAICKPLHYLT
IMNRKVCIILLGFSWVGGFTHSMIQILFVFNLPFCGPNIIDHFMCDMSPLLGLVCTDTYFIGLTLIANGG
AMCIVVFILLIVSYGIILKS-LKNYSQEGRRKALSTCSSHIMVVTLFFVPCIFMYA-RP--VY-NFSSDK
YITVFYTVFTPMLNPLIYTLRNSEMKNSMQKLWCTTMDRIRLSCY*-

>MmOR2.2.236
------MGEKS--NITEFILLGLTQDPAGRKILFFIFLLIYIVTMVGNLLIVVTVITSPSLGSPMYFFLA
SLSLLDALFSTAISPKLIVDLFCDQKTISFTACMSQLFIEHLFGGVDIVILVAMAYDRYVAICKPLHYLA
IMNRRVCITLLIIAWTGGFTHSLIQIVFVYNLPFCGPNVIDHFICDMSPLLVLACTDTYFIGLTVIANGG
AMCIVIFTLLLGSYGIILRS-LKTHSQEGRRKALSTCSSHILVVILFFVPCIFMYA-RP--VY-NFPIDK
CITVFYTIITPMLNPLIYTLRNSEMKTCMKKLWCKILSAD*------

>MmOR2.2.244
----MGQSNNV----TEFVLLGFTQDPAGQKALFVMFSLMYIATMVGNLLIVGTVIASPSLGSPMYFFLA
SLSLMDAVYSTAISPKLIVDLLREKKTISFRACISQLFIEHLFGGVDIVILVAMAYDRYVAICKPLHYLI
IMNRRVCILFLVMAWVGGFVHSLFQVLAVYNLPFCGPNIIDHFGCDIYPLLLLACTDTYFLGLTIIANGG
AMCIVIFILLLLSYAIILRS-LQNHSKEGRRKALSTCISHITVVFLFFVPCIFMYV-RPVS---SFPIDK
SITVIYTIVTPMLNPLIYTLRNSEMKNSMEKLLQKSPNRIKLSSCCS

>MmOR2.2.240
----MGQSNNV----TEFVLLGFTQDPAGQKALSVMFSLIYIVTMVGNLLIVGTVIASPSLGSPMYFFLA
SLSLMDAIYSTAITPKLIVDLLCEKKTISFRACISQLFIDHLFGGVDIVILLAMAYDRYVAICKPLHYLI
IMNRRVCILFLVMAWAGGLAHALFQVLAVYNFPFCGPNIIDHFGCDIYPLLLLACTDTYFLGLSIIGNNG
AMCIVIFTLLLLSYGIILRF-LKNHSQEGRRKALSTCGSHITVVFLFFVPCIFMYV-RPVS---SFPIDK
FITVIYTIVTPMLNPLIYTLRNSEMKNSMEKLLQKSPSRIRLSSCCL

>MmOR2.2.242
----MGQSNNV----TEFVLLGFTQDPAGQKALFVMFSLMYIATMVGNLLIVGTVIASPSLGSPMYFFLA
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
SLSLMDAVYSTAISPKLIVDLLREKKTISFRACISQLFIEHLFGGVDIVILVAMAYDRYVAICKPLHYLI
IMNRRVCILFLVMAWAGGFAHALFQVLAVYNLPFCGPNIIDHFGCDIYPLLLLACTDTYFIGLSVIGNNG
AMCIVIFILLLLSYGIILRS-LKNHSQEGRRKALSTCGSHITVVFLFFVPCIFMYV-RPVS---SFPIDK
SITVIYTIVTPMLNPLIYTLRNSEMKISMEKLLQKSPCRIRLSSCCL

>MmOR2.2.235
----MGQS----YNVTEFIFVDLTQDPAGKKALFVLFSLTYIVTMLGNLLIAVTVIASPSLNSPMYFFLA
CLSVLDAFYCNTISPNLIIGLLKDKNNISFRACMLQLFVEHLFGGVEVFLLVFMAYDRYVAICKPLHYLT
IMNQRVCILLLLVAGVGGILHSLIQVLTVYKLPFCGPNVIDHFMCDMNPLLGLACTDTYFLGITVIANGG
VICVGIFTFLLVSYGIILNS-LKTHSQEGRRKALSTCSSHIMVVVCFFAPCIFIYA-RPVS---NFSIDK
YIAVFYTVVSPMLNPLIYTLRNSEMKNSIKKLWCKTLA*--------

>MmOR2.2.232
----MGQ-NHN---VTEFIFVGLSQDPAGQKVLFVLFSLTYIVTMFGNLLIALTVIASPSLNSPMYFFLA
CLSVLDALYCNTISPNLIIDLLYNKKNISFRACMLQLFVEHLFGGVEVFLLVFMAYDRYVAICKPLHYLT
IMNQRVCILLLLIAGVGGILHSLIQVLTVYKLPFCGPNVIDHFMCDMNQLLGLACTDTYFLGITVMANGG
VICVGIFTFLLVSYGIILNS-LKTHSREGRHKALFTCSSHIMVVVCFFAPCSFIYA-RPVS---NFPVDK
YIAVFYTVVSPMLNPLIYTLRNSEMKNSIKKLWCKTLTT*-------

>MmOR2.2.234
----MGQ-NHN---VTEFIFVGLSQDPAGQKVLFVLFSLTYIVTMFGNLLIALTVIASPSLNSPMYFFLA
CLSVLDALYCNTISPNLIIDLLYNKKNISFRACMLQLFVEHLFGGVEVFLLVFMAYDRYVAICKPLHYLT
IMNQRVCILLLLIAGVGGILHSLIQVLTVYKLPFCGPNVIDHFMCDMNQLLGLACTDTYFLGITVMANGG
VICVGIFTFLLVSYGIILNS-LKTHSREGRHKALFTCSSHIMVVVCFFAPCSFIYA-RPVS---NFPVDK
YIAVFYTVVSPMLNPLIYTLRNSEMKNSIKKLWCKTLTT*-------

>HsOR11.10.2
----MRQNNNI----TEFVLLGFSQDPGVQKALFVMFLLTYLVTVVGNLLIVVDIIASPSLGSPMYFFLA
CLSFIDAAYSTTISPKLIVGLFCDKKTISFQGCMGQLFIDHFFGGAEVFLLVVMACDRYVAICKPLHYLT
IMNRQVCFLLLVVAMIGGFVHSAFQIV-VYSLPFCGPNVIVHFSCDMHPLLELACTDTYFIGLTVVVNSG
AICMVIFNLLLISYGVILSS-LKTYSQEKRGKALSTCSSGSTVVVLFFVPCIFIYV-RPVS---NFPTDK
FMTVFYTIITHMLSPLIYTLRNSEMRNAIEKLLGKTIFIIGGVSVLM

>HsOR11.11.3
----MRPS--S--NVTEFVLLGLTQDPDVKKTLFVMFLLIYIVTMVGNLLIWVTTIGSPSLGSLMYFFLA
YLSLMDAIYSTAMSPKLMIDLLCDKIAISLSACMGQLFIEHLLGGAEVFLLVVMAYDRYVAISKPLHYLN
IMNRLVCILLLVVAMIGGFVHSVVQIVFLYSLPICGPNVIDHSVCDMYPLLELLCLDTYFIGLTVVANGG
IICMVIFTFLLISCGVILNF-LKTYSQEERHKALPTCISHIIVVALVFVPCIFMYV-RPVS---NFPFDK
LMTVFYSIITLMLNPLIYSLRQSEMKNAMKNLWCESIVRKRVSPTLN

>SOR4A4
----MEPRKNV----TDFVLLGFTQNPKEQKVLFVMFLLFYILTMVGNLLIVVTVTVSETLGSPMSFFLA
GLTFIDIIYSSSISPRLISDLFFGNNSISFQSFMAQLFIEHLFGGSEVFLLLVMAYDRYVAICKPLHYLV
IMRQWVCVLLLVVSWVGGFLQSVFQLSIIYGLPFCGPNVIDHFFCDMYPLLKLACTDTHVIGLLVVANGG
LSCTIAFLLLLISYGVILHSLKKL-SQKGRQKAHSTCSSHITVVVFFFVPCIFMCA-RPAR---TFSIDK
SVSVFYTVITPMLNPLIYTLRNSEMTSAMKK---L------------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>HsOR11.10.6
----MEPRKNV----TDFVLLGFTQNPKEQKVLFVMFLLFYILTMVGNLLIVVTVTVSETLGSPMSFFLA
GLTFIDIIYSSSISPRLISDLFFGNNSISFQSFMAQLFIEHLFGGSEVFLLLVMAYDRYVAICKPLHYLV
IMRQWVCVLLLVVSWVGGFLQSVFQLSIIYGLPFCGPNVIDHFFCDMYPLLKLACTDTHVIGLLVVANGG
LSCTIAFLLLLISYGVILHSLKKL-SQKGRQKAHSTCSSHITVVVFFFVPCIFMCA-RPAR---TFSIDK
SVSVFYTVITPMLNPLIYTLRNSEMTSAMKKL*--------------

>HsOR11.8.13
----MEPRKNV----TDFVLLGFTQNPKEQKVLFVMFLLFYILTMVGNLLIVVTVTVSETLGSPMYFFLA
GLSFIDIIYSSSISPRLISGLFFGNNSISFQSCMAQLFIEHIFGGSEVFLLLVMAYDCYVAICKPLHYLV
IMRQWVCVVLLVVSWVGGFLHSVFQLSIIYGLPFCGPNVIDHFFCDMYPLLKLVCTDTHAIGLLVVANGG
LACTIVFLLLLISYGVILHS-LKNLSQKGRQKALSTCSSHMTVVVFFFVPCIFMYA-RPAR---TFPIDK
SVSVFYTVITPMLNPLIYTLRNSEMTSAMKKLWRRDLISSST*----

>SMOR231-1
----MEPRNNV----TYFVLLGLSENPKVQKGLFVLFLLSYVLTMVGNLLIVMTVTTSNSLGSPMYFFLA
SLSFVDIIYSSAISPKLISDLFFGQNTISFKFCMTQLFTEHFFGGSEVFLLLVMAYDRYVAICKPLHYST
IMKQWVCVVLLILSWIGGFLHSVIQLSTIYGLPFCGPNIIDHFMCDMYPLLKLVCIDTYVIGLLVMANGG
LICTVVFILLLISYGVILYS-LKNLNQEGRWKALSTCGSHITVVVSFFVPCIFMYA-RPAK---TFPIDK
MLSVFYTVITPMMNPLIYTLRNSEMTNAMKKLW-RRKIIS-------

>MmOR2.2.247
----MEPRNNV----TYFVLLGLSENPKVQKGLFVLFLLSYVLTMVGNLLIVMTVTTSNSLGSPMYFFLA
SLSFVDIIYSSAISPKLISDLFFGQNTISFKFCMTQLFTEHFFGGSEVFLLLVMAYDRYVAICKPLHYST
IMKQWVCVVLLILSWIGGFLHSVIQLSTIYGLPFCGPNIIDHFMCDMYPLLKLVCIDTYVIGLLVMANGG
LICTVVFILLLISYGVILYS-LKNLNQEGRWKALSTCGSHITVVVSFFVPCIFMYA-RPAK---TFPIDK
MLSVFYTVITPMMNPLIYTLRNSEMTNAMKKLWRRKIIS*-------

>HsOR11.8.6
----MDIPQNI----TEFFMLGLSQNSEVQRVLFVVFLLIYVVTVCGNMLIVVTITSSPTLASPVYFFLA
NLSFIDTFYSSSMAPKLIADSLYEGRTISYECCMAQLFGAHFLGGVEIILLTVMAYDRYVAICKPLHNTT
IMTRHLCAMLVGVAWLGGFLHSLVQLLLVLWLPFCGPNVINHFACDLYPLLEVACTNTYVIGLLVVANSG
LICLLNFLMLAASYIVILYS-LRSHSADGRCKALSTCGAHFIVVALFFVPCIFTYV-HPFS---TLPIDK
NMALFYGILTPMLNPLIYTLRNEEVKNAMRKLFTW------------

>SOR4C3
SVTLESMDIPQ--NITEFFMLGLSQNSEVQRVLFVVFLLIYVVTVCGNMLIVVTITSSPTLASPVYFFLA
NLSFIDTFYSSSMAPKLIADSLYEGRTISYECCMAQLFGAHFLGGVEIILLTVMAYDRYVAICKPLHNTT
IMTRHLCAMLVGVAWLGGFLHSLVQLLLVLWLPFCGPNVINHFACDLYPLLEVACTNTYVIGLLVVANSG
LICLLNFLMLAASYIVILYS-LRSHSADGRCKALSTCGAHFIVVALFFVPCIFTYV-HPFS---TLPIDK
NMALFYGILTPMLNPLIYTLRNEEVKNAMRKLFTG------------

>SMOR236-1
----MEIPHNI----TEFFMLGLSQRPEIQRLLFVVFLVIYAVTVCGNMLIVVTVTFSSSLASPMYFFLS
NLSFIDTCYSSSLAPKLIADSLYEGTTLSYEGCMAQLFGAHFLGGVEIILLTVMAYDRYVAICKPLHYTT
TMTRHLCVVLVAVAWLGGFLHSLVQILLIFQLPFCGPNVINHFVCDLYPLLELACTNTYVIGLLVVANSG
VICLLNFLMLAASYIVILHS-LRSHSAEGRRKALSTCGAHFTVVTMFFVPCIFSYM-RPST---TLPIDK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
NMAVFYGILTPMLNPLIYTLRNEEVKDAMRKLFTRSEVVGA------

>MmOR2.2.256
----MEIPHNI----TEFFMLGLSQRPEIQRLLFVVFLVIYAVTVCGNMLIVVTVTFSSSLASPMYFFLS
NLSFIDTCYSSSLAPKLIADSLYEGTTLSYEGCMAQLFGAHFLGGVEIILLTVMAYDRYVAICKPLHYTT
TMTRHLCVVLVAVAWLGGFLHSLVQILLIFQLPFCGPNVINHFVCDLYPLLELACTNTYVIGLLVVANSG
VICLLNFLMLAASYIVILHS-LRSHSAEGRRKALSTCGAHFTVVTMFFVPCIFSYM-RPST---TLPIDK
NMAVFYGILTPMLNPLIYTLRNEEVKDAMRKLFTRSEVVGA*-----

>SMOR235-1
---MDSPR-----NVTEFFMLGLSQNPQVQRMLFGLFLLVFLVSVGGNMLIIITITFSPTLGSPMYFFLS
YLSFIDTCYSSCMTPKLIADSLHEGRAISFEGCLAQFFVAHLLGGTEIILLTVMAYDRYVAICKPLHYTT
TMTRHVCIVLVAVAWLGGILHSTAQLFLVLQLPFCGPNVINHFVCDLYPLLELACTDTYVIGLLVVANSG
VICLLNFLMLAASYIVILRT-LRSHSAEGRRKALSTCGAHFTVVALFFVPCIFIYM-RPSS---TLSIDK
IVAVFYCILTPMFNPLIYTLRNAEVKNAMKNLWRK------------

>MmOR2.2.258
---MDSPR-----NVTEFFMLGLSQNPQVQRMLFGLFLLVFLVSVGGNMLIIITITFSPTLGSPMYFFLS
YLSFIDTCYSSCMTPKLIADSLHEGRAISFEGCLAQFFVAHLLGGTEIILLTVMAYDRYVAICKPLHYTT
TMTRHVCIVLVAVAWLGGILHSTAQLFLVLQLPFCGPNVINHFVCDLYPLLELACTDTYVIGLLVVANSG
VICLLNFLMLAASYIVILRT-LRSHSAEGRRKALSTCGAHFTVVALFFVPCIFIYM-RPSS---TLSIDK
IVAVFYCILTPMFNPLIYTLRNAEVKNAMKNLWRK------------

>MmOR2.2.223
----MELHSPP-SNVTEFVLLGLTQNPRLQKILFIVFLFVFLFTVLANLLIVLTISFSPTLSAPMYFFLT
YLSFIDAFYTSVTTPKMIIDLLYQRRTISLAGCLTQLFVEHFLGGSEIILLIVMAYDRYVAICKPLHYMT
IMRQGLCRLLVVVAWIGGILHATMQIFFMINLPFCGPNVIDHFMCDLFPLLKLACRDTHKLGIIVAANSG
AMCFLIFTMLLISYIVILRS-LKSHSSEGRRKALSTCGSHCTVVVLFFVPCIFTYM-RPVT---TYPVDK
LVTVFFAILTPMLNPIIYTARNTEVKNAMRNLLKRQVTYPVLK*---

>HsOR11.9.4
----MANRNNV----TEFILLGLTENPKMQKIIFVVFSVIYINAMIGNVLIVVTITASPSLRSPMYFFLA
YLSFIDACYSSVNTPKLITDSLYENKTILFNGCMTQVFGEHFFRGVEVILLTVMAYDHYVAICKPLHYTT
IMKQHVCSLLVGVSWVGGFLHATIQILFICQLPFCGPNVIDHFMCDLYTLINLACTNTHTLGLFIAANSG
FICLLNCLLLLVSCVVILYS-LKTHSLEARHEALSTCVSHITVVILSFIPCIFVYM-RPPA---TLPIDK
AVAVFYTMITSMLNPLIYTLRNAQMKNAIRKLCSRKAISSVK*----

>HsOR11.10.8
------MENRN--NMTEFVLLGLTENPKMQKIIFVVFFVIYIITVVGYVLIVVTITASPSLGSPMYLSLA
YLSFIDACYSSVNTPNLITHSLYGKKAILFNGCMTQVFGEHFFGGAEGILLTVMAYDHYVAICKPLHYMT
IMNQCVCALLMGVVWMGGFLHATIQILFIFQLPFCGPNVIDHFMCDLNPLLNLACTDTHMLELFIAANSG
FICLLNFALLLVSYVVILCS-LRTHSLEARHKALSTCVSHITVVILFFVPCIFVYM-RPAA---TLPIDK
AVAIFYTMITPMLNPLIYTLKNAQMKNAIRKLCSRKDISGDK*----

>MmOR2.2.250
----MEIR--S--NVTEFVLLGLTRNPSMQKIVFAVFVVIYIISMVGNVLIVVTITASPSLGSPMYFFLA
YLSFIDACYSSVNTPKLIIDSLHEKKTILFNGCMTQVFGEHFFGGAEGILLTVMAYDRYVAICKPLHYTT
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMSRRVCGLLVGVVWVGGFLHATIQILFIFKLPFCGPNVIDHFMCDLNPLLNLACTDTHILGLFVAANSG
FICLLNFLLLLVSYVVILRS-LRNHSAEGRRKALSTCVSHITVVVLFFVPCIFVYM-RPSA---TLSIDK
AVAVFYTMITPLLNPLIYTLRNAQMKDAIKKLC-RWKDDVISINK*-

>SMOR232-1
------MENQN--NVTEFILLGLTENPKMQKIVFIMFFLIYIISITGNVLIVVTITSTSLLESPMYFFLA
YLSFIDACYSSVSTPKLIADSLCEKKTIPFNGCMTQIFGEHLFGGAEIILLTVMAYDRYVAICKPLHYAT
IMSRRLCSLLVGVSWLGGFLHATIQILFIFQLPFCGPNIIDHFMCDLNPLLNLVCTDTHTLGIFVAANSG
FICLLNFLLLLVSYVAILRS-LKNHSAEGRRKALSTCISHITVVVLFFVPCIFVYM-RPVA---TLPIDK
AVAMFYTMITPMLNPLIYTLRNAQMKDAIKKLGSTKILSSNK-----

>MmOR2.2.249
------MENQN--NVTEFILLGLTENPKMQKIVFIMFFLIYIISITGNVLIVVTITSTSLLESPMYFFLA
YLSFIDACYSSVSTPKLIADSLCEKKTIPFNGCMTQIFGEHLFGGAEIILLTVMAYDRYVAICKPLHYAT
IMSRRLCSLLVGVSWLGGFLHATIQILFIFQLPFCGPNIIDHFMCDLNPLLNLVCTDTHTLGIFVAANSG
FICLLNFLLLLVSYVAILRS-LKNHSAEGRRKALSTCISHITVVVLFFVPCIFVYM-RPVA---TLPIDK
AVAMFYTMITPMLNPLIYTLRNAQMKDAIKKLGSTKILSSNK*----

>MmOR2.2.200
----MEIKNNV----TEFVLLGLTQNPQLQKILFVVFLVIYVFSVAGNLLILITITNSQLLGYPMYYFLA
YLSFIDACYSSVNTPKLLADTFHKRKSIKFNGCMTQVFAEHFIGGTEVILLTVMAYDRYVAICKPLHYAT
IMNRRLCNILVGVSWVGGFLHGGIQILFIIELPFCGPNVIDHFMCDLNPLLDLACIDTHILGLFVAANSG
FICLLNFLLLLVSYLVILNS-LRTHSAEGRRKALSTCVSHITVVVLFFVPCIFVYM-RPAA---TLPIDK
AVALFYTMITPMLNPLIYTLRNAQMKNAIWKLFSVKVQSDDK*----

>MmOR2.2.198
----MEIKNNV----TEFVLLGLTQNLHLQKIVFVVFLVIYVFSVVGNLLIVITITNSQLLGYPMYYFLA
YLSFIDACYSSVNTPKVIADSLHKRKSIKFNGCMTQVFAEHFIGGTEVILLTVMAYDRYVAICKPLHYAT
IMNRQLCNILVGVSWVGGFLHGGIQILFIIGLPFCGPNVIDHFMCDLNPLLDLACIDTHILGLFVAANSG
FICLLNFLLLLVSYLVILNS-LRSHSAEGRRKALSTCVSHITVVVLFFVPCIFVYM-RPVA---TLPIDK
AVTLFYTMITPMLNPLIYTLRNAQMKNAIWKLFSVKVQSDDK*----

>MmOR2.2.246
MNDTEHMENKR--NVTEFILIGLTQNPQMQKVVFVTFLLLYMITISGNLLIVVTVINSQALNSPMYFFLS
HLSLIDTIYTSSSAPKLIADSLQENKVISFNGCMAQVYAEHIFGATEIILLTVMAYDRYVAICKPLHYMT
IMSHKLCILLVGVAWTGGFLHATIQILFTVWLPFCGPNIIDHFMCDLYPLLELVCMDTHTLGLFVAANSG
FICLFNFLLLMGSYVIILRS-LKNYSLEGRRKALSTCVSHITVVVLSFIPCIFVYL-RPVT---TLPIDK
AVAVFYTLVAPLLNPLIYTLRNSEVKNAIKKLW-RKKI*--------

>MmOR2.2.251
----ME--NKR--NVTEFILIGLTQNPQMQKVVFVTFLVLYMTTISGNLLIVVTIINSQALNSPMYFFLS
HLSLIDTIYTSSSAPKLIADSLQENKVISFNGCMAQVYAEHIFGATEIILLTVMAYDRYVAICKPLHYMT
IMSHKLCILLVGVAWTGGFLHATIQILFTVWLPFCGPNIIDHFMCDLYPLLELVCMDTHILGLFVAANSG
FICLFNFLLLMGSYVIILRS-LKNYSLEGRRKALSTCVSHITVVVLFFIPCIFVYL-RPVT---TLPLDK
GVAVFYTMVAPMLNPLIYTLRNAEVKNAIKKLWRKKVTSDSN*----

>HsOR11.9.5
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
------MEKKK--NVTEFILIGLTQNPIMEKVTFVVFLVLYMITLSGNLLIVVTITTSQALSSPMYFFLT
HLSLIDTVYSSSSAPKLIVDSFQEKKIISFNGCMAQAYAEHIFGATEIILLTVMACDCYVAICKPLNYTT
IMSHSLCILLVAVAWVGGFLHATIQILFTVWLPFCGPNVIGHFMCDLYPLLKLVCIDTHTLGLFVAVNSG
FICLLNFLILVVSYVIILRS-LKNNSLEGRCKALSTCISHIIVVVLFFVPCIFVYL-RSVT---TLPIDK
AVAVFYTMVVPMLNPVVYTLRNAEVKSAIRKLWRKKVTSDND*----

>SOR4C12
----MEKKKNV----TEFILIGLTQNPIMEKVTFVVFLVLYMITLSGNLLIVVTITTSQALSSPMYFFLT
HLSLIDTVYSSSSAPKLIVDSFQEKKIISFNGCMAQAYAEHIFGATEIILLTVMACDCYVAICKPLNYTT
IMSHSLCILLVAVAWVGGFLHATIQILFTVWLPFCGPNVIGHFMCDLYPLLKLVCIDTHTLGLFVAVNSG
FICLLNFLILVVSYVIILRS-LKNNSLEGRCKALSTCISHIIVVVLFFVPCIFVYL-RSVT---TLPIDK
AVAVFYTMVVPMLNPLVYTLRNAEVKSAIRKLWRKKVTSDND-----

>MmOR2.2.248
--------NNI----TEFILVGLTQNMELQIFSFVVFFIVYLLTLAGNLLIMVTISSSKALGSPMYFFLS
FLSLIDGCCSSSMTPKMLADSLSVRKTISFSGCMTQVFAEHFFGAAEIILLTVMAYDRYVAICKPLRYTI
IMNRFVCGLLVGVAWAGGFIHATIQILFTVWLPFCGPNVIDHFMCDLTPLLKLVCMDTHNLGLFVAANSG
FICLLNFLLLMISYIVILDA-LKSHSKEGRCKALSTCVSHITVVILFFVPCIFVYL-RPVI---TFSIDK
AVAVFYTMITPMLNPLIYTLRNTEVKNAMKKLC--IKVD*-------

>MmOR2.2.252
----MKQINNV----TEFILLGLTQNPDVQKLLLVIFALIYSLTLIGNLLIIVTVISSPTLGSPMYFFLS
FLSFVDGCCSSTMAPKMIFDLLAERKTISFNGCMTQIFAEHFFGGVEIILLTAMAYDRYVAICKPLHYMI
TMNRRVCGFLVSTAWAGGFLHALIQILFMVWLPFCGPNIIDHFICDLFPLLKLSCTDNHIFGLFVAANSG
LMCMLIFSILLTSYVLIFCS-LKTHSTEEQLKALSTCASHITVVLLFFVPCIFVYL-RPMV---IFPFDK
AVAVFYTVITPMLNPLIYTLRNTEVKNAMRKLWNQRKPGKRFT*---

>HsOR11.8.9
PNTKLDFEQVN--NITEFILLGLTQNAEAQKLLFAVFTLIYFLTMVDNLIIVVTITTSPALDSPVYFFLS
FFSFIDGCSSSTMAPKMIFDLLTEKKTISFSGCMTQLFVEHFFGGVEIILLVVMAYDCYVAICKPLYYLI
TMNRQVCGLLVAMAWVGGFLHALIQMLLIVWLPFCGPNVIDHFICDLFPLLKLSCTDTHVFGLFVAANSG
LMCMLIFSILITSYVLILCSQ---------RKALSTCAFHITVVVLFFVPCILVYL-RPMI---TFPIDK
AVSVFYTVVTPMLNPLIYTLRNTEVKNAMKQLWSQIIWGNNLCD*--

>MmOR2.2.253
--------MSN---VTEFILLGLTQDPDLQKFLFIVCLIIYLITLAGNMLISVTIFISPALATPMYFFLS
YLSVIDGFYSSSIAPKMIYDLISEKSTISFNGCMTQLFVEHFFAAAEIILLMSMAYDRYVAICKPLHYMT
IMNRPLCVFLVGAAVILGFIHGGIQILFMAQLPFCGPNIIDHFMCDLIPLLELACTDTHTLGPLIAANSG
SLCLLIFSMLVASYVVILRS-LRNHSAEGRRKALSTCASHVTVVVLFFVPCSYLYL-RPMT---SFPTDK
AVTVFCTLVTPMLNPLIYTLRNEEVKRVMKKLWGRMRKAGDM*----

>SMOR234-1
---------MS--NVTEFILLGLTQDPDLQKLLFIVCLIIYLITLAGNMLISVTIFISPALATPMYFFLS
YLSIIDGFYSSSITPKMIYDLISEKSTISFNGCMTQLFAEHFFAAAEIILLISMAYDRYVAICKPLHYMT
IMNRHVCIFLVVAAGIVGFVHGMIQTTFIAQLPFCGPNIINHFICDLIPLLELACTDTHTLGPLIAANSG
SMCLLIFSMLVASYVVILRS-LRNHSAEGRRKALSTCASHVTVVVLFFVPCSYLYV-RPVI---SFHIDK
IVSVFYTLVTPLLNPLIYTLRNEEVKRVMKKLLGSNHVKH-------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR2.2.254
--------MSN---VTEFILLGLTQDPDLQKLLFIVCLIIYLITLAGNMLISVTIFISPALATPMYFFLS
YLSIIDGFYSSSITPKMIYDLISEKSTISFNGCMTQLFAEHFFAAAEIILLISMAYDRYVAICKPLHYMT
IMNRHVCIFLVVAAGIVGFVHGMIQTTFIAQLPFCGPNIINHFICDLIPLLELACTDTHTLGPLIAANSG
SMCLLIFSMLVASYVVILRS-LRNHSAEGRRKALSTCASHVTVVVLFFVPCSYLYV-RPVI---SFHIDK
IVSVFYTLVTPLLNPLIYTLRNEEVKRVMKKLLGSNHVKH*------

>HsOR11.9.7
--------MNN---VTEFILLGLTHNPELQKFLFVMFLITYLITLAGNLLISVIIFISPALGSPMYLFLS
YLSIIDIFYSSSIAPKMIFDLISENNTISFNGCMTQLFTEHFFAAAETILLSVMAYDCYVAICKPLHYAT
IMTQSMCGFLMVVAGILGFVHGGIQTLFIAQLPFCGPNVIDHFMCDLVPLLELACTDTHTLGPLIAANSG
SLCFLIFSILDASYVIILCS-LRSHSSEGHLKALSSCASHIFTVILFFVPCSYLYL-RPLT---SFPTDK
AVTVFCTLFTPMLNPLIYTVKNKAVKNVIKKLW-KQIMTTDDK*---

>SMOR237-1
------MENAN--NVTEFILVSITKIPELRILFSALFLIMYVATLLGNLLIIVTVTVSPNLRSPMYFFLI
SLSLLDVIYSSVTAPKLIVDSLSENTTISLEGCMTQLFAEHFFGGVEIILLIVMAYDSYVAICKPLHYTT
IVSPRVCWLMVGGAWVGGFAHGTIQLLFMYQIPFCGPNVIDHVICDLFPLLQLACMDTHILALLVILNSG
VMCVTIFLILITSYVVILCS-LKSSSSEGRRKALSTCSSHFTVVVLFFVPCIILYM-RPVV---TYPIDN
AMALCATIFEPMLNPLIYSLRNAEVKHALRKLWMKRGP---------

>MmOR2.2.222
------MENAN--NVTEFILVSITKIPELRILFSALFLIMYVATLLGNLLIIVTVTVSPNLRSPMYFFLI
SLSLLDVIYSSVTAPKLIVDSLSENTTISLEGCMTQLFAEHFFGGVEIILLIVMAYDSYVAICKPLHYTT
IVSPRVCWLMVGGAWVGGFAHGTIQLLFMYQIPFCGPNVIDHVICDLFPLLQLACMDTHILALLVILNSG
VMCVTIFLILITSYVVILCS-LKSSSSEGRRKALSTCSSHFTVVVLFFVPCIILYM-RPVV---TYPIDN
AMALCATIFEPMLNPLIYSLRNAEVKHALRKLWMK--RGP*------

>MmOR2.2.186
----MMNKNNV----TEFILLGVTRDPELRKILSVLFLIMYMATVFGNLLIVVTITRSPSLRSPMYFFLL
SLSLMDVTYSSVIAPKLIMDSLSERTIVSFERCMTQLFAEHFFGGVGIILLIVMAYDRYVAICKPLHYVK
MMTPRVCCLMVGGAWVGGSMHATIQLLFMYQIPFCSSNIIDHFMCDLFPLLKLACMDTHILGLLVILNSG
VMCVSIFLILIASYMVILCS-LKSYSSEGRRKALSTCSSHFTVVVLFFVPCIFLYM-RPVV---TFPIDK
AMAVSFTIVEPMLNPLIYTLRNTEVKYAIKNMC-RKQGSH*------

>SOR4C6
----MENQNNV----TEFILLGLTENLELWKIFSAVFLVMYVATVLENLLIVVTIITSQSLRSPMYFFLT
FLSLLDVMFSSVVAPKVIVDTLSKSTTISLKGCLTQLFVEHFFGGVGIILLTVMAYDRYVAICKPLHYTI
IMSPRVCCLMVGGAWVGGFMHAMIQLLFMYQIPFCGPNIIDHFICDLFQLLTLACTDTHILGLLVTLNSG
MMCVAIFLILIASYTVILCS-LKSYSSKGRHKALSTCSSHLTVVVLFFVPCIFLYM-RPVV---THPIDK
AMAVSDSIITPMLNPLIYTLRNAEVKSAMKKLWMKWEALAGK*LQC-

>HsOR11.11.20
----MENQNNV----TEFILLGLTENLELWKIFSAVFLVMYVATVLENLLIVVTIITSQSLRSPMYFFLT
FLSLLDVMFSSVVAPKVIVDTLSKSTTISLKGCLTQLFVEHFFGGVGIILLTVMAYDRYVAICKPLHYTI
IMSPRVCCLMVGGAWVGGFMHAMIQLLFMYQIPFCGPNIIDHFICDLFQLLTLACTDTHILGLLVTLNSG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
MMCVAIFLILIASYTVILCS-LKSYSSKGRHKALSTCSSHLTVVVLFFVPCIFLYM-RPVV---THPIDK
AMAVSDSIITPMLNPLIYTLRNAEVKSAMKKLWMKWEALAGK*----

>SMOR238-1
--------MNV----TEFILMGLTQNPQLQRILLLMLLIIYIVTVTGNLLIVGTIVCSQTLNSPMYFFLA
FLSLIDACYSSSIIPKMLADLMSERKTISFHGCMIQLFVEHFLGASEIVLLVVMAYDRYVAICRPLHYVT
RMNHHNCCVLVGVCWIMGFLHSFGQILVTLWIPFCGPNVMDHFCCDIFPLLQLACADTFLLGLLIAANGG
VIPVITFTMLLMSYAVILFS-LRTHSTAGRKKALSTCSSHITVVVLFFVPCIYTYM-RPVT---TFHTDK
AIAVFYTLVTPMLNPIIYTVRNAEVKNAIRMILKKNSILDNK-----

>MmOR2.2.225
--------MNV----TEFILMGLTQNPQLQRILLLMLLIIYIVTVTGNLLIVGTIVCSQTLNSPMYFFLA
FLSLIDACYSSSIIPKMLADLMSERKTISFHGCMIQLFVEHFLGASEIVLLVVMAYDRYVAICRPLHYVT
RMNHHNCCVLVGVCWIMGFLHSFGQILVTLWIPFCGPNVMDHFCCDIFPLLQLACADTFLLGLLIAANGG
VIPVITFTMLLMSYAVILFS-LRTHSTAGRKKALSTCSSHITVVVLFFVPCIYTYM-RPVT---TFHTDK
AIAVFYTLVTPMLNPIIYTVRNAEVKNAIRMILKKNSILDNK*----

>MmOR2.2.185
PNSIQLREKRM--NVTEFILMGLTQNPQLQRILFFVLLITYIITVTGNLLIVGTIVCSQSLNSPMYFFLT
FLSLIDACYSSCTIPKMLVDLLSETKTISFNGCILQLFVEHFLGASEIVLLVVMAYDRYVAICRPLHYAS
RMNHHMCCLLVGICWIVGFLHSFGQILVTLWIPSCGPNILDHFFCDIFPLLQLACTDTFLLGLLVACNGG
VIPVITFTMLLMSYAVILYS-LRTHSTAGRKKALSTCGSHITVVVLFFVPCIFMYM-RPVA---TFPMDK
AIAVFYIIITPLLNPVIYTVRNAEVKSAIRMLLKR--MHL*------

>MmOR2.2.214
----MQ--NQS--LVNEFILLGLSQNTKVEKILFLLFLLIYLATIGGNMIIVATIIYSPALLSPMYFFLV
FLSLLDACTSTVVTPKMIVGFFYERKIISFEGCMTQLFAIHFFTAVEVIVLSAMAYDRYVAICKPLHYLS
IMSKRVCGVLVGIAWAGGFLHSIIQIVFTLQLPFCGPNVIDHYMCDLFPLLKLACTDTQIFVILVFANSS
SICIIIFSLLLVSYGVILFS-LRAHSSEGRYKALSTCGSHITVVVLFFVPCILIYA-RPSS---PFSFEK
NTLIFANVLTPLLNPMVYTFRNKEMKSAIRKMWKRLVVVSDKY*---

>MmOR2.2.213
------MENQS--IVNEFILLGLSQNPKIENILFVVFLLVYLATIGGNMMIIATIIYSPALLSPMYFFLI
FLSLLDTCTSTVVTPKLILDFFYERKTISFEGCMTQLFAFHFFTGAEVIVLAAMAYDRYVAICKPLHYSS
IMTWRVCGVLLGVAWTGGFLHSIIQIIFTLQLPFCGPNVIDNYICDLFPLLKLACTDTHIFVFLVFANSG
SICIIIFSLLLVSYGVILFS-LRGHSSEGRLKALSTCGSHITVVVLFFVPCILIYA-RTTS---PFPYEK
YVAIFVNVITPLLNPMVYTFRNKEMKNAIQKMCRRSKVVSDNY*---

>SMOR233-1
NISLKTMQNQS--FVTEFILLGLSQNPNVENILCVVFLFIYLATIGGNIMIVVTIIYSPALLSPMYFFLI
FLSLLDACTSSTVTPKMMVDLFYERKTISFECCMTQLFAIHFFTGIEVIILSAMAYDRYVAICKPLHYSS
IMTRRLCGILVMVSWTGGFLHSLIQIIFTLQLPFCGPNVIDHYLCDLFPLLKLACTDTHIFVILVFSNSG
SISIIIFSILLVSYGVILFS-LRAHSSEGRRKALSTCGSHITVVLLFFVPCFLIYA-RPPS---AFSSEK
NAFVFATIITPLLNPMVYTFRNKEMKNAIRKMWKKLIVVSHDF----

>MmOR2.2.220
NISLKTMQNQS--FVTEFILLGLSQNPNVENILCVVFLFIYLATIGGNIMIVVTIIYSPALLSPMYFFLI
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
FLSLLDACTSSTVTPKMMVDLFYERKTISFECCMTQLFAIHFFTGIEVIILSAMAYDRYVAICKPLHYSS
IMTRRLCGILVMVSWTGGFLHSLIQIIFTLQLPFCGPNVIDHYLCDLFPLLKLACTDTHIFVILVFSNSG
SISIIIFSILLVSYGVILFS-LRAHSSEGRRKALSTCGSHITVVLLFFVPCFLIYA-RPPS---AFSSEK
NAFVFATIITPLLNPMVYTFRNKEMKNAIRKMWKKLIVVSHDF*---

>MmOR2.2.219
----ML--NHS--SVTEFILLGLSQNSKVEKVLFVIFLLIYLATIGGNMIIVVTIIYSPALLSPMYFFLI
FLSFLDACTSSTVTPKMIVDFFYEKKTISFECCMTQLFAVHFFTGMEVIVLSAMAYDRYVAICKPLHYSS
IMTRRLCGILVMLSWAGGFLHSIIQIIFTLQLPFCGPNVIDHYMCDLFPLLKLACTDTHIFVILVFANSG
SICIIIFSILLVSYSVILFS-LRAHSSEGRRKALSTCGSHITVVLLFFVSCILIYA-RP----AAFSSEK
NALVFATIITPLLNPMVYTFRNREMKNAIRKLWKRWKVVSGDI*---

>MmOR2.2.218
----MN--NQS--CVTEFIFLGLSQNSKVEKILFFIFLLIYLATIGGNMIIVVTIIYSPALLSPMYFFLI
FLSLLDACTSSTVTPKMIVDFFYDRKTISFECCMTQLFAVHFFTGMEVIVLSAMAYDRYVAICKPLHYSS
IMNRRLCGNLVMVSWAGGFLHSIIQIIFMLQLPFCGPNVIDHYMCDLFPLLKLACTDTYIFVILVFANSG
SICIIIFSILLVSYGVILYS-LRAHSSEGKFKALSTCGSHIIVVVLFFVPCILTYA-RPIS---AFSFEK
NAVVFTTVLTPLLNSVVYTFRNKEMKNAIRKMWKKAVSDKH*-----

>MmOR2.2.210
----MQ--NQS--FVTEFILLGLSQNLNVEKMLFVLFLFIYIATIGGNMMIVVTIIYSPALLSPMYFFLA
FLSFLDACTSSTVTPKIIVDCFYERKTISFECCMTQLFTVHFFTGAEVIVLASMAYDRYVAICKPLHYSS
IMTQRLCGILVVVSWAGGFLHSIIQIIFTLQLPLCGPNVIDHYMCDLFPLLKLACTDTHIYVLLIFANSG
AICIIIFSLLIVSYGVILFS-LRAQSSEGRRKALSTCGSHITVVLLFFVPCILIYA-RPTS---AFSFEK
NMLIFVNVLTPLLNPMVYTFRNKEMINAIKKIWKR------------

>MmOR2.2.212
----MQ--NQS--FVTEFILLGLSQNLYVEKILFVLFLLIYLATIGGNMIIVVTIIYSPALLSPMYFFLI
FLSLLDALTSSTVTPKIIVDCFYERKTISFECCMTQLFTVHFFTGAEVIVLASMAYDRYVAICKPLHYSS
IMTRRLCGILVVVSWAGGFLHSIIQIIFTLQLPFCGPNVIDHYMCDLFPLLKLACTDTHIYVLLIFANSG
AICIIIFSLLLVSYGIILFS-LRAHSSEGRRKALSTCGSHIIVVLLCFVPCLLIYA-RPTS---AFSFEK
NMLIFINVLTPLLNPMVYTFRNKEMKNAIGKMWKRLIVVSDKF*---

>MmOR2.2.215
----MQ--NQS--FVTEFILLGLSQNPKVEKILFVVFLLVYIATIGGNMIIVVTIIYSPALLSPMYFFLI
FLSFLDACTSSTVTPKMIVDFFYERKTISFECCITQLFTSHFFAGVEVIILTSMAYDRYVAICKPLHYSS
IMTRRLCGTLVMVAWTGGFLHSITQVIFTLQLPFCGPNFIDHFICDLFPLLQLACTDTHIFVILVFANSG
SFCIIIFSLLIVSYGVILFS-LRGHSSEGRRKALSTCGSHITVMILFFVPCMLIYA-RPSS---AFSFEK
NTLIFASVLTPLFNPMVYTFRNKEMKNAIRKMC-RKLLVDSDNF*--

>MmOR2.2.216
----ML--NQS--FVTEFILLGLSQNPKVEKILFVLFFLVYLATIGGNIVIVVTILFSPALFSPMYFFLS
FLSFLDACISSVITPKMIVDFFYETKTISFECCMVQLFAVHFFTGVEVIVLSAMAYDRYVAICKPLHYSS
IMNQRLCVILVGIAWAGGFLHSITQIIFTLQLPFCGPNVIEHFICDLFPLLKLACTNTHIFVILVFANSG
SICIIIFSLLLVSYGVILFS-LRSHSSEGRSKALSTCGSHITVVLLFFVPCILIYA-RNTS---AFSFEK
NVFIFADVLTPLLNPMVYTFRNKEMKNAIKKIWRRLFNISDKH*---
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR2.2.217
------MQNQS--IVTEFILLGLSQNPKVEKILSVLFFLVYLATIGGNIIIVVTIVFSPALSSPMYFFLS
FLSFLDACVSSVITPKMIVDFFYERKTISFECCMIQLFAVHFFTGVEVIVLSAMAYDRYVAICKPLHYSS
IMTQRLCGILVGIAWAGGFLHSIIQIIFTLQLPFCGPNVIDHFICDLFPLLKLACTNTHIFVILVFANSG
SICIIIFSILLVSYGVILFS-LRNHSSEGRRKALSTCGSHITVVLLFFVPCILIYA-RNNS---EFSFEK
NVFIFDDVLTPMLNPLAYTFRNKEMKNAIKKMWRRLFNISDKH*---

>MmOR2.2.208
----MQ--NQT--IVTEFVLLGLSQNPKVEKLLFVIFLLLYLATIGGNMTIVVTIASSPVLLSPMYFFLA
FLSLLDACVSSIVTPTMIIDLFYKRKTISFECCMTQVFSVHFFSAVEVIILAAMAYDRYVAICKPLHYSS
IMNRRLCGILVGIAFAGGFLHSIIQIIFTLQLPFCGPNFIDHFICDLFPLLKLACTDTHIFVILVFANSG
SICIIIFSFLLVSYVVILFS-LRTHSSEGRRKALSTCGSHITVVVLFFVPCILIYA-RPTS---PFSLEK
NVFIFADVLTPLLNPVVYTFRNKEMKNAIRKMWRSLLVAPDILK*--

>MmOR2.2.207
----MH--NQS--YVNEFILLGLSQNPQIVKISFVIFLLVYLATLVGNMIIVVTIVYSPALLSPMYFFLA
FLSFLDACVSSVVTPKMIVDMTYERKIISFECCMTQVFAVHFLTAVEVIVLAAMAYDRYVAICKPLHYSF
IMNRRLCGTLVGVAWAGGFLHSIIQIAFILKLPFCGPNVIDHFICDLFPLLKLACTDIHIFIILVFANSG
SICIIIFSFLLISYGVILFS-LRAHSSEGRRKALSTCGSHITVVVFFFVSCILIYA-RPTS---AFSFEK
NVFVFTDVLTPLLNPMVYTFRNKEMINAIRKMRKRLIMVPDKY*---

>MmOR2.2.209
----MQ--NQS--SVTEFIILGLSQNPKIEKILFVVFLLVYMATVGGNMIIVVTIIYSPALLSPMYFFLA
FLSFLDACVSSTVTPKMVVDFLHEKKTISFGCCMTQLFSVHFFSGAEMIVLAAMAYDRYVAICKPLHYSS
ILTRRLCSILVAISWAGGFLHAIVQVIFTLQLPLCGPNVIDHYMCDLFPLLKLACTDTHIFVLLVFANSG
AICIIIFSLLLVSYGVILFS-LRAHSSEGRRKALSTCGAHVTVVVLFLVPCILIYA-RDTS---AFSYEK
DTLIFVNVLTPLLNPMVYTFRNKEMINAIRKMWKRVIFVRY*-----

>MmOR2.2.211
----MQ--NQS--FVTEFIILGLSQNPIVEKILFFVLLLVYLATIGGNIIIVVTIMYSPALLSPMYFFLA
FLSFLDLCVSSTVIPKMIVDFFYEKKTISFGCCMMQLFSVHFFSGTEMIVLAAMAYDRYVAICKPLHYFS
ILTRRLCSILVAISWAGGFLHSIIQVIFTLQLPLCGPNVIDHYTCDLFPLLKLACTDTHIFVLLVFANSG
AICIIIFSLLLVSYGVILFS-LRAHSSEGRRKALSTCGAHVTVVVLFLVPCILIYA-RDTS---AFSFEK
HTLLFVNVLTPLLNPTVYTFRNKEMINAIRKMCKRMIFVRF*-----

>MmOR2.2.206
----MQ--NQT--LVTEFLLLGLSQNPKVQKIVFVVFLFIYIATVGGNMIIVVTIICSRALLSPMYFFLA
CLSFLDACISSVITPKVTVDLLYEKRTISFEGCMAQVFAVHFFTGVEVIVLISMAYDRYVAICKPLYYSS
IMNRRLCGILMGMAWTGGFLHSTIQIVFILCLPFCGPNVIDHFLCDLFPLLKLACTDTYIFVILVFANSG
SFCIIIFSLLLISYGVILFS-LRTHSTEGRRKALSTCGSHITVVVLFFVPCIIIYA-RPTS---AFFSEK
NMFLFATILTPLLNPMIYTFRNKEMKNAIRKIWKKLDYGIS*-----

>HsOR11.11.15
----MQ--NQS--FVTEFVLLGLSQNPNVQEIVFVVFLFVYIATVGGNMLIVVTILSSPALLSPMYFFLG
FLSFLDACFSSVITPKMIVDSLYVTKTISFEGCMMQLFAEHFFAGVEVIVLTAMAYDRYVAICKPLHYSS
IMNRRLCGILMGVAWTGGLLHSMIQILFTFQLPFCGPNVINHFMCDLYPLLELACTDTHIFGLMVVINSG
FICIINFSLLLVSYAVILLS-LRTHSSEGRWKALSTCGSHIAVVILFFVPCIFVYT-RPPS---AFSLDK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
MAAIFYIILNPLLNPLIYTFRNKEVKQAMRRIWNRLMVVSDEKENIK

>SOR4C15
LYMIPVGANQS--FVTEFVLLGLSQNPNVQEIVFVVFLFVYIATVGGNMLIVVTILSSPALLSPMYFFLG
FLSFLDACFSSVITPKMIVDSLYVTKTISFEGCMMQLFAEHFFAGVEVIVLTAMAYDRYVAICKPLHYSS
IMNRRLCGILMGVAWTGGLLHSMIQILFTFQLPFCGPNVINHFMCDLYPLLELACTDTHIFGLMVIINSG
FICIINFSLLLVSYAVILLS-LRTHSSEGCWKALSTCGSHIAVVILFFVPCIFVYT-RPPS---AFSLDK
MAAIFYIILNPLLNPLIYTFRNKEVKQAMRRIWNRLMVVSERKKILN

>MmOR2.2.204
----MMQ-NQS--FVTEFIFLGLSQNPKVQKIVFIVFLFVYIATVGGNMIIVVTIVCSPALICPMYFFLA
FLSLLDACFSSVITPKMVVDSLYEKKTISFEGCMMQLFAEHFLAAVEVIVLTAMAYDRYVAICKPLHYSS
IMNWRLCGTLMGIAWTGGFLHSIIQIIFTLQLPFCGPNVIDHFMCDLFPLLELACTDTHIFGLLVVANSG
SICIIIFSILLVSYGVILFS-LKAHSSEGRWKALSTCGSHIAVVVLFFVPCIFIYA-RPPS---AFSFDK
MVAIFYTILTPLLNPVIYTFRNKDMKNAMKKVWKRLAVVSDGK*---

>MmOR2.2.224
------MQNQS--FVTEFVFLGLSQNPNLQKLIFIICLVVYIATMGSNMMIVVTVVCSPTLLSPMYFFLA
FLSLLDASFSSAMTPKMILDSLYKRKTISFEGCMIQLFVEHFLGGAEMILLTAMAYDRYVAICKPLHYSS
IMTRKVCGTLVGVAWAGGLLHSTVQIIFTLQLPFCGPNVINHFMCDLFPLLELACTDTHIFGLFVVANSG
LICIIVFVLLLVSYGFILLS-LRSQSSEGRWKALSTCGSHVAVVVLFFVPCIFIYA-RPHS---AFSFDK
MVALFYTMLSPLLNPIIYTFRNKDMKNAIRKLWKKLVMVSDER*---

>MmOR2.2.221
------MQNQS--FITEFVFLGLSQNPNVQKIIFVICLLVYIATIGGNMMIVVTVVSTPALLSPMYFFLA
FLSLLDASFSSAMTPKMIVDSLYERKTISFEGCMIQLFAEHFFGGAEVIVLSAMAYDRYVAICKPLHYSS
IMTLRLCGTLVGVAWTGGFLHSIIQIIFTLQLPFCGPNIIDHFICDLYPLLELACTDTHIFGLLVVANSG
FICIIIFTLLLVSYGFILLS-LRSHSSEGRWKALSTCGSHIAVVVLFFVPCIFTYA-RPPT---AFSFDK
MVAIFYTMLSPLLNPMIYTFRNKDMKNAIRKMWTRLIVHSDKK*---

>MmOR2.2.205
----MP--NQT--IVTEFILLGLSENPTVQKIVFVVFSFVYMATIGGNIIIAVTILCTPALLSPMYFFLA
FLSFLDACITSVITPKMIVDSVNESKTISFEGCMTQIFAEHFFAAVEVIVLISMAYDRYVAICKPLHYSS
IMNWRLCGTLVGIAWAGGFLHSIIQIIFTLQLPFCGPNVIDHFMCDLFPLLELACTNTYVYGLLVFANSG
SICIIIFSMLLISYGVILFS-LRSHSSEGRWKALSTCGSHIAVVVSFFVPCIFIYA-RSTS---ASSFEK
KVAVFDGIMTPLLNPLIYTFRNKEMKNAIRKMWNRFRMVSDKF*---

>SOR4S1
----MGAKNNV----TEFVLFGLFESREMQHTCFVVFFLFHVLTVLGNLLVIITINARKTLKSPMYFFLS
QLSFADICYPSTTIPKMIADTFVEHKIISFNGCMTQLFSAHFFGGTEIFLLTAMAYDRYVAICRPLHYTA
IMDCRKCGLLAGASWLAGFLHSILQTLLTVQLPFCGPNEIDNFFCDVHPLLKLACADTYMVGLIVVANSG
MISLASFFILIISYVIILLN-LRSQSSEDRRKAVSTCGSHVITVLLVLMPPMFMYI-RPST---TLAADK
LIILFNIVMPPLLNPLIYTLRNNDVKNAMRKLF-RVKRSLGEK----

>HsOR11.8.5
----MGAKNNV----TEFVLFGLFESREMQHTCFVVFFLFHVLTVLGNLLVIITINARKTLKSPMYFFLS
QLSFADICYPSTTIPKMIADTFVEHKIISFNGCMTQLFSAHFFGGTEIFLLTAMAYDRYVAICRPLHYTA
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMDCRKCGLLAGASWLAGFLHSILQTLLTVQLPFCGPNEIDNFFCDVHPLLKLACADTYMVGLIVVANSG
MISLASFFILIISYVIILLN-LRSQSSEDRRKAVSTCGSHVITVLLVLMPPMFMYI-RPST---TLAADK
LIILFNIVMPPLLNPLIYTLRNNDVKNAMRKLF-RVKRSLGEK*---

>SMOR244-1
----MEKANQT--SVMSFRLTGLSTNPKVQMAIFFIFLIFYVLTLVGNILIVVTIIHDHRLHTPMYFFLS
NLSFIDVCHSTVTVPKMLSDTFSEEKLISFDDCVVQIFFLHLFACTEIFLLTVMAYDRYVAICKPLRYMT
IMNWKVCMVLGGAMWTAGTIHSISFTSLTIKLPYCGPNELDSFFCDVPQVIELACTDTRITEILVVSNSG
MISMVCFVIIVVSYAVILVS-LRQQISDGKRKALSTCAAHLTVVTLFLGHCIFIYS-RPAI---SLPEDK
IVSAFFTAITPLLNPIIYTFRNEDMKSALKKLIRRKEGKEK------

>MmOR14.3.8
-MEKAVLINQT--SVMSFRLTGLSTNPKVQMAIFFIFLIFYVLTLVGNILIVITIIHDHRLHTPMYFFLS
NLSFIDVCHSTVTVPKMLSDTFSEEKLISFDDCVVQIFFLHLFACTEIFLLTVMAYDRYVAICKPLRYMT
IMNWKVCMVLGGAMWTAGTIHSISFTSLTIKLPYCGPNELDSFFCDVPQVIELACTDTRITEILVVSNSG
MISMVCFVIIVVSYAVILVS-LRQQISDGKRKALSTCAAHLTVVTLFLGHCIFIYS-RPAI---SLPEDK
IVSAFFTAITPLLNPIIYTFRNEDMKSALKKLIRRKEGKEK*-----

>MmOR14.3.7
-MEKAVLINET--SVMSFRLTGLSTNPLVQMAVFFIFLIFYVLTLVGNILIVITIIYDRRLHTPMYFFLS
NLSFIDVCHSTVTVPKMLSDTFSEEKLISFDACVVQMFFLHLFACTEIFLLTVMAYDRYVAICKPLQYMT
IMNWKVCMMLAAALWTGGTIHSISLTSLTIKLPYCGPDEIDNFFCDVPQVIKLACTDTHIIEILIVSNSG
LISVVCFVVLVVSYAVILVS-LRQQISDGKRKALSTCAAHLTVVTLFLGHCIFIYS-RPST---SLPEDK
VVSVFFTAVTPLLNPIIYTLRNEDMKSALNKLIKRREK*--------

>HsOR14.2.5
----MDSLNQT--RVTEFVFLGLTDNRVLEMLFFMAFSAIYMLTLSGNILIIIATVFTPSLHTPMYFFLS
NLSFIDICHSSVTVPKMLEGLLLERKTISFDNCITQLFFLHLFACAEIFLLIIVAYDRYVAICTPLHYPN
VMNMRVCIQLVFALWLGGTVHSLGQTFLTIRLPYCGPNIIDSYFCDVPLVIKLACTDTYLTGILIVTNSG
TISLSCFLAVVTSYMVILVS-LRKHSAEGRQKALSTCSAHFMVVALFFGPCIFIYT-RPDT---SFSIDK
VVSVFYTVVTPLLNPFIYTLRNEEVKSAMKQLRQRQVFFTKSYT*--

>SOR4E2
----MDSLNQT--RVTEFVFLGLTDNRVLEMLFFMAFSAIYMLTLSGNILIIIATVFTPSLHTPMYFFLS
NLSFIDICHSSVTVPKMLEGLLLERKTISFDNCITQLFFLHLFACAEIFLLIIMAYDRYVAICTPLHYPN
VMNMRVCIQLVFALWLGGTVHSLGQTFLTIRLPYCGPNIIDSYFCDVPLVIKLACTDTYLTGILIVTNSG
TISLSCFLAVVTSYMVILVS-LRKHSAEGRRKALSTCSAHFMVVALFFGPCIFIYT-RPDT---SFSIDK
VVSVFYTVVTPLLNPFIYTLRNEEVKSAMKQLRQRQVFFTKSYT---

>MmOR14.3.6
----MGALNQT--RVTEFIFLGLTDNWVLEILFFVPFTVTYMLTLLGNFLIVVTIVFTPRLHNPMYFFLS
NLSFIDICHSSVTVPKMLEGLLLERKTISFDNCIAQLFFLHLFACSEIFLLTIMAYDRYVAICIPLHYSN
VMNMKVCVQLVFALWLGGTIHSLVQTFLTIRLPYCGPNIIDSYFCDVPPVIKLACTDTYLTGILIVSNSG
TISLVCFLALVTSYTVILFS-LRKQSAEGRRKALSTCSAHFMVVALFFGPCIFLYT-RPDS---SFSIDK
VVSVFYTVVTPLLNPLIYTLRNEEVKTAMKHLRQRRICS*-------

>SMOR243-1
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
TLGLEKNKNSS--DVSRFVLLGLSSSWELQLFLFFTFLLIYLVIVLGNLLIVMVVQADAHLFSPMYYFLS
HLSFIDLCLSCVAVPKMLGDFLQKEKTISFSGCLAQVFFLHFLGASEMFLLTVMAYDRYVAICNPLHYLT
VMNNHLRLRLVFGCWCGGFIHSITQVMIVIQLPFCGPNELDNFYCDVPQVVKLACMDTYLVEVLMVSNSG
ILSLVCFLVLLFSYALILIT-LRTHLHRGQSKALSTCASHLTVVSLIFVPCVFIYL-RPFC---TFSVDK
VVSVFYTVITPMLNPLIYTLRNADMKQAIEKLRKKQVASHCFAKG--

>MmOR14.2.14
TLGLEKNKNSS--DVSRFVLLGLSSSWELQLFLFFTFLLIYLVIVLGNLLIVMVVQADAHLFSPMYYFLS
HLSFIDLCLSCVAVPKMLGDFLQKEKTISFSGCLAQVFFLHFLGASEMFLLTVMAYDRYVAICNPLHYLT
VMNNHLRLRLVFGCWCGGFIHSITQVMIVIQLPFCGPNELDNFYCDVPQVVKLACMDTYLVEVLMVSNSG
ILSLVCFLVLLFSYALILIT-LRTHLHRGQSKALSTCASHLTVVSLIFVPCVFIYL-RPFC---TFSVDK
VVSVFYTVITPMLNPLIYTLRNADMKQAIEKLRKKQVASHCFAKG*-

>HsOR14.1.3
----MKKEQDS--NVTEFVLLGLSSSWELQLFLFLLFLFFYIAIVLGNLLIVVTVQAHAHLLSPMYYFLG
HLSFIDLCLSCVTVPKMLGDFLQQGKSISFSGCLAQIYFLHFLGASEMFLLTVMAYDRYVAICNPLRYLT
VMNPQLCLWLVLACWCGGFIHSIMQVILVIQLPFCGPNELDNFYCDVPQVIKLACMDTYVVEVLVIANSG
LLSLVCFLVLLFSYAIILIT-LRTHFCQGQNKVFSTCASHLTVVSLIFVPCVFIYL-RPFC---SFSVDK
IFSLFYTVITPMLNPLIYTLRNTDMKTAMKKLRIKPCGIPLPC*---

>HsOR14.1.5
----METANYT--KVTEFVLTGLSQTREVQLVLFVIFLSFYLFILPGNILIICTIRLDPHLTSPMYFLLA
NLALLDIWYSSITAPKMLIDFFVERKIISFGGCIAQLFFLHFVGASEMFLLTVMAYDRYAAICRPLHYAT
IMNRRLCCILVALSWMGGFIHSIIQVALIVRLPFCGPNELDSYFCDITQVVRIACANTFPEELVMICSSG
LISVVCFIALLMSYAFLLAL-LKKHSGSGENRAMSTCYSHITIVVLMFGPSIYIYA-RPFD---SFSLDK
VVSVFHTVIFPLLNPIIYTLRNKEVKAAMRKVVTKYILCEEK*----

>HsOR15.1.8
----METANYT--KVTEFVLTGLSQTPEVQLVLFVIFLSFYLFILPGNILIICTISLDPHLTSPMYFLLA
NLAFLDIWYSSITAPEMLIDFFVERKIISFDGCIAQLFFLHFAGASEMFLLTVMAFDLYTAICRPLHYAT
IMNQRLCCILVALSWRGGFIHSIIQVALIVRLPFCGPNELDSYFCDITQVVRIACANTFPEELVMICSSG
LISVVCLIALLMSYAFLLALFKKL-SGSGENRAMSTCYSHITIVVLMFGPSIYIYA-RPFD---SFSLDK
VVSVFNTLIFPLRNPIIYTLRNKEVKAAMRKLVTKYILCKEK*----

>SOR4M2
----METANYT--KVTEFVLTGLSQTPEVQLVLFVIFLSFYLFILPGNILIICTISLDPHLTSPMYFLLA
NLAFLDIWYSSITAPEMLIDFFVERKIISFDECIAQLFFLHFAGASEMFLLTVMAFDLYTAICRPLHYAT
IMNQRLCCILVALSWRGGFIHSIIQVALIVRLPFCGPNELDSYFCDITQVVRIACANTFPEELVMICSSG
LISVVCLIALLMSYAFLLALLKKL-SGSGENRAMSTCYSHITIVVLMFGPSIYIYA-RPFD---SFSLDK
VVSVFHTVIFPLLNPIIYTLRNKEVKAAMRKVVTKYILCKEK-----

>SMOR242-1
----MEPANDT--TVTEFILTGLSQTREVQLVLFVIFLSFYLFILPVNILIICTIRLDSHLSSPMYFLLA
NLAFLDIWYSSITAPKMLVDFFVERKIISFGGCIAQLFFLHFVGASEMFLLTVMAFDRYAAICRPLHYAT
IMNRRLCCILVALSWTGGFVHSIIQVALIVRLPFCGPNELDNYFCDITQVVRIACANTFLEEMVMIFSSG
LISVVCFIALLMSYAFLLTM-LKKHSSSGESRAISTCYSHITIVVLMFGPSIYIYA-RPFD---SFSLDK
VVSVFHTVIFPLLNPIIYTLRNKEVKAAMRKLVNRYIFCKEK-----
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR14.2.13
----MEPANDT--TVTEFILTGLSQTREVQLVLFVIFLSFYLFILPVNILIICTIRLDSHLSSPMYFLLA
NLAFLDIWYSSITAPKMLVDFFVERKIISFGGCIAQLFFLHFVGASEMFLLTVMAFDRYAAICRPLHYAT
IMNRRLCCILVALSWTGGFVHSIIQVALIVRLPFCGPNELDNYFCDITQVVRIACANTFLEEMVMIFSSG
LISVVCFIALLMSYAFLLTM-LKKHSSSGESRAISTCYSHITIVVLMFGPSIYIYA-RPFD---SFSLDK
VVSVFHTVIFPLLNPIIYTLRNKEVKAAMRKLVNRYIFCKEK*----

>SMOR241-1
----METENRT--VVTEFILIGLTQSHDIQRLVFVLSLIFYIIILPGNILIILTIRSDPGLTAPLYFFLG
NLAFLDASYSFIVAPRMLVDFFSEKKIISYKACITQLFFLHFLGGGEGLLLVVMAFDRYIAICRPLHYST
VMSPRACYVMLLALWLGGFIHSIIQVVLILRLPFCGPNHLDNFFCDVPQVIKLACTDTFAVELLMIFNSG
LLTLLCFLGLLTSYAVILCHV-HRSASEGKNKAISTCTTHVIIIFIMFGPAIFIYT-RPFT---ALSADK
VVSFFHTVIFPLMNPVIYTLRNQEVKTSMKKLIIRHIIC--------

>MmOR14.2.11
----METENRT--VVTEFILIGLTQSHDIQRLVFVLSLIFYIIILPGNILIILTIRSDPGLTAPLYFFLG
NLAFLDASYSFIVAPRMLVDFFSEKKIISYKACITQLFFLHFLGGGEGLLLVVMAFDRYIAICRPLHYST
VMSPRACYVMLLALWLGGFIHSIIQVVLILRLPFCGPNHLDNFFCDVPQVIKLACTDTFAVELLMIFNSG
LLTLLCFLGLLTSYAVILCHV-HRSASEGKNKAISTCTTHVIIIFIMFGPAIFIYT-RPFT---ALSADK
VVSFFHTVIFPLMNPVIYTLRNQEVKTSMKKLIIRHIIC*-------

>MmOR14.2.12
----METENRT--VVTEFIFTGLTESLDIQRLVFVLSLIFYIIILPGNVFIILTIISDPGLTAPLYLFLG
NLAFLDASYSFIVAPRMLIDIFSEKKIISYKACITQLFFLHFLGGGEFLLLVVMAFDRYIAICRPLYYST
VMNPRVCYVMLLAPWLGGFIHSIIQVVLILRLPFCGPNHLDNFFCDVPQVIKLACTDTFAVEILMIFNSG
LLTLVCFLGLLTSYAVILCHV-HRSASEGKNKAISTCTTHVIIIFLMFGPAIFIYT-RPFT---ALSADK
VVSFFHTVIFPLLNPVIYTLRNQEVKTSMKKLFIRQVIC*-------

>SOR4N4
----MKIANNT--VVTEFILLGLTQSQDIQLLVFVLILIFYLIILPGNFLIIFTIRSDPGLTAPLYLFLG
NLAFLDASYSFIVAPRMLVDFLSEKKVISYRGCITQLFFLHFLGGGEGLLLVVMAFDRYIAICRPLHCST
VMNPRACYAMMLALWLGGFVHSIIQVVLILRLPFCGPNQLDNFFCDVRQVIKLACTDMFVVELLMVFNSG
LMTLLCFLGLLASYAVILCHV-RRAASEGKNKAMSTCTTRVIIILLMFGPAIFIYM-CPFR---ALPADK
MVSLFHTVIFPLMNPMIYTLRNQEVKTSMKRLLSRHVVCQVDFIIRN

>HsOR15.1.9
----MKIANNT--VVTEFILLGLTQSQDIQLLVFVLILIFYLIILPGNFLIIFTIRSDPGLTAPLYLFLG
NLAFLDASYSFIVAPRMLVDFLSEKKVISYRGCITQLFFLHFLGGGEGLLLVVMAFDRYIAICRPLHCST
VMNPRACYAMMLALWLGGFVHSIIQVVLILRLPFCGPNQLDNFFCDVRQVIKLACTDMFVVELLMVFNSG
LMTLLCFLGLLASYAVILCHV-RRAASEGKNKAMSTCTTRVIIILLMFGPAIFIYM-CPFR---ALPADK
MVSLFHTVIFPLMNPMIYTLRNQEVKTSMKRLLSRHVVCQVDFIIRN

>SOR4N2
----MESENRT--VIREFILLGLTQSQDIQLLVFVLVLIFYFIILPGNFLIIFTIKSDPGLTAPLYFFLG
NLAFLDASYSFIVAPRMLVDFLSAKKIISYRGCITQLFFLHFLGGGEGLLLVVMAFDRYIAICRPLHYPT
VMNPRTCYAMMLALWLGGFVHSIIQVVLILRLPFCGPNQLDNFFCDVPQVIKLACTDTFVVELLMVFNSG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LMTLLCFLGLLASYAVILCRI-RGSSSEAKNKAMSTCITHIIVIFFMFGPGIFIYT-RPFR---AFPADK
VVSLFHTVIFPLLNPVIYTLRNQEVKASMKKVFNKHIA---------

>HsOR14.1.7
----MESENRT--VIREFILLGLTQSQDIQLLVFVLVLIFYFIILPGNFLIIFTIKSDPGLTAPLYFFLG
NLAFLDASYSFIVAPRMLVDFLSAKKIISYRGCITQLFFLHFLGGGEGLLLVVMAFDRYIAICRPLHYPT
VMNPRTCYAMMLALWLGGFVHSIIQVVLILRLPFCGPNQLDNFFCDVPQVIKLACTDTFVVELLMVFNSG
LMTLLCFLGLLASYAVILCRI-RGSSSEAKNKAMSTCITHIIVIFFMFGPGIFIYT-RPFR---AFPADK
VVSLFHTVIFPLLNPVIYTLRNQEVKASMKKVFNK--HIA*------

>SOR4N5
----METQNLT--VVTEFILLGLTQSQDAQLLVFVLVLIFYLIILPGNFLIIFTIKSDPGLTAPLYFFLG
NLALLDASYSFIVVPRMLVDFLSEKKVISYRSCITQLFFLHFLGAGEMFLLVVMAFDRYIAICRPLHYST
IMNPRACYALSLVLWLGGFIHSIVQVALILHLPFCGPNQLDNFFCDVPQVIKLACTNTFVVELLMVSNSG
LLSLLCFLGLLASYAVILCRI-REHSSEGKSKAISTCTTHIIIIFLMFGPAIFIYT-CPFQ---AFPADK
VVSLFHTVIFPLMNPVIYTLRNQEVKASMRKLLSQHMFC--------

>HsOR14.1.23
----METQNLT--VVTEFILLGLTQSQDAQLLVFVLVLIFYLIILPGNFLIIFTIKSDPGLTAPLYFFLG
NLALLDASYSFIVVPRMLVDFLSEKKVISYRSCITQLFFLHFLGAGEMFLLVVMAFDRYIAICRPLHYST
IMNPRACYALSLVLWLGGFIHSIVQVALILHLPFCGPNQLDNFFCDVPQVIKLACTNTFVVELLMVSNSG
LLSLLCFLGLLASYAVILCRI-REHSSEGKSKAISTCTTHIIIIFLMFGPAIFIYT-CPFQ---AFPADK
VVSLFHTVIFPLMNPVIYTLRNQEVKASMRKLLSQHMFC*-------

>MmOR14.2.1
----MEIKNSS--VVTEFILLGLTQSQEAQLLVFALISVFYLIILPGNFLIIFTIRSDSGLTAPLYFFLG
NLAFLDASYSFIVAPRMLVDFFCEKKVISYKACITQLFFLHFLGAGEMFLLVVMAVDRYIAICRPLYYST
LMNPRVCYALLLALWLGGFAHSIVQVALILNLPFCGPNQLDNFFCDVPQVVKLACTDTFAVELLMVSNSG
LLTLLCFLGLLASYAVILYHV-KGHSSEGKSKAISTCTTHIIIVFLMFGPAIFIYT-RPFQ---ALQADK
VVSLFHTVIFPLMNPVIYTLRNQEVKTSMRKLLSQYVIC*-------

>SOR4D1
GEDPMEPQNTT--QVSMFVLLGFSQTQELQKFLFLLFLLVYVTTIVGNLLIMVTVTFDCRLHTPMYFLLR
NLALIDLCYSTVTSPKMLVDFLHETKTISYQGCMAQIFFFHLLGGGTVFFLSVMAYDRYIAISQPLRYVT
IMNTQLCVGLVVAAWVGGFVHSIVQLALILPLPFCGPNILDNFYCDVPQVLRLACTDTSLLEFLMISNSG
LLVIIWFLLLLISYTVILVM-LRSHSGKARRKAASTCTTHIIVVSMIFIPCIYIYT-WPFT---PFLMDK
AVSISYTVMTPMLNPMIYTLRNQDMKAAMRRLG-KCLVICRE-----

>HsOR17.2.1
----MEPQNTT--QVSMFVLLGFSQTQELQKFLFLLFLLVYVTTIVGNLLIMVTVTFDCRLHTPMYFLLR
NLALIDLCYSTVTSPKMLVDFLHETKTISYQGCMAQIFFFHLLGGGTVFFLSVMAYDRYIAISQPLRYVT
IMNTQLCVGLVVAAWVGGFVHSIVQLALILPLPFCGPNILDNFYCDVPQVLRLACTDTSLLEFLMISNSG
LLVIIWFLLLLISYTVILVM-LRSHSGKARRKAASTCTTHIIVVSMIFIPCIYIYT-WPFT---PFLMDK
AVSISYTVMTPMLNPMIYTLRNQDMKAAMRRLG-KCLVICRE*----

>MmOR11.7.3
----MEPQNIT--WVSEFILLGFSQTQELQKLLFVVFLCVYITTVVGNILIMITVTFDPRLDMPMYFLLR
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
NLAVIDLSYSTVTSPKMLVDFFHKTKTISYQGCMAQIFFFHLLGGGTVFFLSVMAYDRYIAISQPLHYVT
IMNTKLCVGLVVASWVGGFAHSIVQLSLMLPLPFCGPNVLDNFYCDVPQVLRLACTDTSLLEFLMISNSG
MLVLIWFLLLLISYTVILVM-LRSHSGQARRKAASTCTTHIIVVSMIFIPCIYIYS-RPFT---PFPLDK
AVSISYTVLTPMLNPMIYTLRNQEMQAAMKRLAEHLVLTKRNEL*--

>SMOR240-1
----MEPGNLT--WVSEFIFLGFSEIWELQVFLFVVFLCVYSTTVVGNLLIIVTVSSDPRLHTPMYFLLR
NLAVLDLCFSSVTAPKMLVDFLSEKKTISYRGCMVQIFFFHFLGGAMVFFLSVMAYDRLVAISRPLHYVT
IMNSQLCMGLVVASWVGGFAHSIVQLSLMLPLPFCGPNVLDNFYCDVPQVLRLACMDTSLLEFLMISNSG
MLDVIWFFLLLISYLVILVM-LRSHSGEARRKAASTCTTHIIVVSMIFIPSIYLYA-RPFT---PFTMDK
AVSISHTVLTPMLNPMIYTLRNQEMQAAMKRLAKRLALCNRE-----

>MmOR11.7.2
----MEPGNLT--WVSEFVFLGFSEIWELQVFLFVVFLCVYSTTVVGNLLIIVTVSSDPRLHTPMYFLLR
NLAVLDLCFSSVTAPKMLVDFLSEKKTISYRGCMVQIFFFHFLGGAMVFFLSVMAYDRLVAISRPLHYVT
IMNSQLCMGLVVASWVGGFAHSIVQLSLMLPLPFCGPNVLDNFYCDVPQVLRLACMDTSLLEFLMISNSG
MLDVIWFFLLLISYLVILVM-LRSHSGEARRKAASTCTTHIIVVSMIFIPSIYLYA-RPFT---PFTMDK
AVSISHTVMTPMLNPMIYTLRNQEMQAAMKRLAKRLALCNRE*----

>MmOR11.7.1
----MEPGNRT--WVSEFVFLGFSEIWELQVFLFVVFLCVYSTTVVGNLLIIVTVSSDPRLHTPMYFLLR
NLAVLDLCFSSVTAPKMLVDFLSEKKTISYRGCMAQVFFFHFLGGAMVFFLSVMAYDRLVAISRPLHYVT
IMNTQHCVVLVVTAWIVGFVHSIVQLSLMLPLPFCGPNVLDNFYCDVPQVLRLACTDTSLLEFLMISNSG
MLDVIWFFLLLISYLVILVM-LRSHSGEARRKAASTCTTHIIVVSMIFIPSIYLYA-RPFT---PFTMDK
AVSISHTVMTPMLNPMIYTLRNQEMQAALKRLGMHLLVCRKE*----

>HsOR17.2.2
----METGNLT--WVSDFVFLGLSQTRELQRFLFLMFLFVYITTVMGNILIIITVTSDSQLHTPMYFLLR
NLAVLDLCFSSVTAPKMLVDLLSEKKTISYQGCMGQIFFFHFLGGAMVFFLSVMAFDRLIAISRPLRYVT
VMNTQLWVGLVVATWVGGFVHSIVQLALMLPLPFCGPNILDNFYCDVPQVLRLACTDTSLLEFLKISNSG
LLDVVWFFLLLMSYLFILVM-LRSHPGEARRKAASTCTTHIIVVSMIFVPSIYLYA-RPFT---PFPMDK
LVSIGHTVMTPMLNPMIYTLRNQDMQAAVRRLG-RHRLV*-------

>SOR4D2
----METGNLT--WVSDFVFLGLSQTRELQRFLFLMFLFVYITTVMGNILIIITVTSDSQLHTPMYFLLR
NLAVLDLCFSSVTAPKMLVDLLSEKKTISYQGSMGQIFFFHFLGGAMVFFLSVMAFDRLIAISRPLRYVT
VMNTQLWVGLVVATWVGGFVHSIVQLALMLPLPFCGPNILDNFYCDVPQVLRFACTDTSLLEFLKISNSG
LLDVVWFFLLLMSYLFILVM-LRSHPGEARRKAASTCTTHIIVVSMIFVPSIYLYA-RPFT---PFPMDK
LVSIGHTVMTPMLNPMIYTLRNQDMQAAVRRLG-RHRLV--------

>MmOR19.1.7
----MEMENYT--RIKELIFLGLTQSQQVSAVLFLFLLLVYVTTLLGNLLIMVTVTCESRLHTPMYFLLR
NLSVADICFSSITAPKVLVDLTSNRKTISFNGCLTQMFFFHLIGGVDAFSLSVMALDRYVAISKPLHYVT
IMSRGRCIGLIVASWVGGFAHSIVQISLLLTLPFCGPNVLDTFYCDVPQVIKLACTDIVVLELLMISNNG
MLTTLWFFLLLVSYMVILLL-LKSQSGEGKKKAISTCTTHITVVTLHFVPCIYVYA-RPFT---ALPTDK
VISVTFTVISPLLNPLIYTLRNQEMKSAMRRLRKKFRFSHWIEK*--
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR19.1.8
------MENYT--RVKELIFLGLTQSQEVSMVLFLFLLLVYVTTLLGNLLIMVTVTCESRLHTPMYFLLR
NLSVADICFSSITAPKVLVDLLSDRKTISFNGCLTQMFFFHLIGGVDVFSLSVMALDRYVAISKPLHYVT
IMSRGRCIGLIVASWVGGFAHSIVQISLLLTLPFCGPNVLDTFYCDVPQVIKLACTDIFVLELLMISNNG
MLTTLWFFLLLVSYMVILLL-LKSQSGEGKKKAISTCTSHITVITLHFVPCIYVYA-RPFT---ALPTDK
AISVTFTVISPLLNPLIYTLRNQEMKSAMRRLRKRLGPSYWIER*--

>SMOR239-1
------MENYT--RVKELIFLGLTQSQEVSMVLFLFLLLVYVTTLLGNLLIMVTVTCESRLHTPMYFLLR
NLSVADICFSSITAPKVLVDLLSDRKTISFNGCLTQMFFFHLIGGVDVFSLSVMALDRYVAISKPLHYVT
IMSRGRCIGLIVASWVGGFAHSIVQISLLLTLPFCGPNVLDTFYCDVPQVIKLACTDIFVLELLMISNNG
LVATLWFVLLVVSYTVILMM-LRSHSGEGRKKAISTCTSHITVVTLHFVPCIYVYA-RPFT---ALPTDK
AISVTFTVISPLLNPLIYTLRNQEMKSAMRRLRKRLEPFDREEQ---

>MmOR19.1.9
------MENYT--RVKELIFLGLTQSQEVSMVLFLFLLLVYVTTLLGNLLIMVTVTCESRLHTPMYFLLR
NLSVADICFSSITAPKVLVDLLSDRKTISFNGCLTQMFFFHLIGGVDVFSLSVMALDRYVAISKPLHYVT
IMSRGRCIGLIVASWVGGFAHSIVQISLLLTLPFCGPNVLDTFYCDVPQVIKLACTDIFVLELLMISNNG
LVATLWFVLLVVSYTVILMM-LRSHSGEGRKKAISTCTSHITVVTLHFVPCIYVYA-RPFT---ALPTDK
AISVTFTVISPLLNPLIYTLRNQEMKSAMRRLRKRLEPFDREEQ*--

>SOR4D10
----MEMENCT--RVKEFIFLGLTQNREVSLVLFLFLLLVYVTTLLGNLLIMVTVTCESRLHTPMYFLLH
NLSIADICFSSITVPKVLVDLLSERKTISFNHCFTQMFLFHLIGGVDVFSLSVMALDRYVAISKPLHYAT
IMSRDHCIGLTVAAWLGGFVHSIVQISLLLPLPFCGPNVLDTFYCDVHRVLKLAHTDIFILELLMISNNG
LLTTLWFFLLLVSYIVILSL-PKSQAGEGRRKAISTCTSHITVVTLHFVPCIYVYA-RPFT---ALPMDK
AISVTFTVISPLLNPLIYTLRNHEMKSAMRRLKRRLVPSDRK-----

>HsOR11.13.8
----MEMENCT--RVKEFIFLGLTQNREVSLVLFLFLLLVYVTTLLGNLLIMVTVTCESRLHTPMYFLLH
NLSIADICFSSITVPKVLVDLLSERKTISFNHCFTQMFLFHLIGGVDVFSLSVMALDRYVAISKPLHYAT
IMSRDHCIGLTVAAWLGGFVHSIVQISLLLPLPFCGPNVLDTFYCDVHRVLKLAHTDIFILELLMISNNG
LLTTLWFFLLLVSYIVILSL-PKSQAGEGRRKAISTCTSHITVVTLHFVPCIYVYA-RPFT---ALPMDK
AISVTFTVISPLLNPLIYTLRNHEMKSAMRRLKRRLVPSDRK*----

>MmOR19.1.6
----MELRNDT--RVKEFIFLGLTQSQHLSLVLCLVLCFVYVTTLLGNLLIMIIVTFESRLHTPMYFLLR
NLAVLDICFSSITAPKVLVDLLAKKKTISYAKCMTQMFFFHLLGGADIFSLSVMAFDRYMAISKPLHYVT
IMSSKRCTALIAASWVGGFVHSIVQISLLLPLPFCGPNVLDTFYCDVPQVLKLACTDTFVLELLMISNNG
LVTTLWFIFLLVSYMVILMM-LRSQAGEDRRKAISTCTSHITVVTLHFVPCIYVYA-RPFT---ALPTDK
AISVTFTVISPLLNPLIYTLRNQEMKSAIRRLKRKLTPLEK*-----

>SOR4D11
----MELGNVT--RVKEFIFLGLTQSQDQSLVLFLFLCLVYMTTLLGNLLIMVTVTCESRLHTPMYFLLR
NLAILDICFSSTTAPKVLLDLLSKKKTISYTSCMTQIFLFHLLGGADIFSLSVMAFDCYMAISKPLHYVT
IMSRGQCTALISASWMGGFVHSIVQISLLLPLPFCGPNVLDTFYCDVPQVLKLTCTDTFALEFLMISNNG
LVTTLWFIFLLVSYTVILMT-LRSQAGGGRRKAISTCTSHITVVTLHFVPCIYVYA-RPFT---ALPTEK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
AISVTFTVISPLLNPLIYTLRNQEMKSAMRRLKRRLVPSERE-----

>HsOR11.13.10
----MELGNVT--RVKEFIFLGLTQSQDQSLVLFLFLCLVYMTTLLGNLLIMVTVTCESRLHTPMYFLLR
NLAILDICFSSTTAPKVLLDLLSKKKTISYTSCMTQIFLFHLLGGADIFSLSVMAFDCYMAISKPLHYVT
IMSRGQCTALISASWMGGFVHSIVQISLLLPLPFCGPNVLDTFYCDVPQVLKLTCTDTFALEFLMISNNG
LVTTLWFIFLLVSYTVILMT-LRSQAGGGRRKAISTCTSHITVVTLHFVPCIYVYA-RPFT---ALPTEK
AISVTFTVISPLLNPLIYTLRNQEMKSAMRRLKRRLVPSERE*----

>SOR4D9
----MDQRNYT--RVKEFTFLGITQSRELSQVLFTFLFLVYMTTLMGNFLIMVTVTCESHLHTPMYFLLR
NLSILDICFSSITAPKVLIDLLSETKTISFSGCVTQMFFFHLLGGADVFSLSVMAFDRYIAISKPLHYMT
IMSRGRCTGLIVASWVGGFVHSIAQISLLLPLPFCGPNVLDTFYCDVPQVLKLACTDTFTLELLMISNNG
LVSWFVFFFLLISYTVILMM-LRSHTGEGRRKAISTCTSHITVVTLHFVPCIYVYA-RPFT---ALPTDT
AISVTFTVISPLLNPIIYTLRNQEMKLAMRKLKRRLGQSERILIQ--

>HsOR11.13.11
----MDQRNYT--RVKEFTFLGITQSRELSQVLFTFLFLVYMTTLMGNFLIMVTVTCESHLHTPMYFLLR
NLSILDICFSSITAPKVLIDLLSETKTISFSGCVTQMFFFHLLGGADVFSLSVMAFDRYIAISKPLHYMT
IMSRGRCTGLIVASWVGGFVHSIAQISLLLPLPFCGPNVLDTFYCDVPQVLKLACTDTFTLELLMISNNG
LVSWFVFFFLLISYTVILMM-LRSHTGEGRRKAISTCTSHITVVTLHFVPCIYVYA-RPFT---ALPTDT
AISVTFTVISPLLNPIIYTLRNQEMKLAMRKLKRRLGQSERILIQ*-

>MmOR19.1.10
----MELGNHT--KVTEFIFCGLTQSQELSLLLFFFLSIVYITTVLVNVTIMVTVTWESRLHTPMYFLLR
NLSVLDICFSSITVPKVLVDLLSRRKTISFNGCFTQIFFFHLLGGADIFSLSVMAFDRYMAIFRPLHYVT
IMSRGRCTALIAASWVGGFVHSIVQIFLLLPLPFCGPNVVDSFYCDVPQVLKLACTDTFVLELLMISNNG
LITTLWFVLLLVSYTVILTM-LRSHTGEGRKKAISTCTSHITVVTLHFVPCIYVYA-RPFT---ALPMDR
AVSITLNIIVPVLNPMIYTLRNQEMKSAMKRLRKRLILSEVE*----

>HsOR11.13.7
----MDQINHT--NVKEFFFLELTRSRELEFFLFVVFFAVYVATVLGNALIVVTITCESRLHTPMYFLLR
NKSVLDIVFSSITVPKFLVDLLSDRKTISYNDCMAQIFFFHFAGGADIFFLSVMAYDRYLAIAKPLHYVT
MMRKEVWVALVVASWVSGGLHSIIQVILMLPFPFCGPNTLDAFYCYVLQVVKLACTDTFALELFMISNNG
LVTLLWFLLLLGSYTVILVM-LRSHSGEGRNKALSTCTSHMLVVTLHFVPCVYIYC-RPFM---TLPMDT
TISINNTVITPMLNPIIYSLRNQEMKSAMQRLQRRPSESRKWG*---

>SOR4D6
----MDQINHT--NVKEFFFLELTRSRELEFFLFVVFFAVYVATVLGNALIVVTITCESRLHTPMYFLLR
NKSVLDIVFSSITVPKFLVDLLSDRKTISYNGCMAQIFFFHFAGGADIFFLSVMAYDRYLAIAKPLHYVT
MMRKEVWVALVVASWVSGGLHSIIQVILMLPFPFCGPNTLDAFYCYVLQVVKLACTDTFALELFMISNNG
LVTLLWFLLLLGSYTVILVM-LRSHSGEGRNKALSTCTSHMLVVTLHFVPCVYIYC-RPFM---TLPMDT
TISINNTVITPMLNPIIYSLRNQEMKSAMQRLQRRPSESRKWG----

>MmOR19.1.11
----MSQINHT--NVKEFVFLALTRIRELEFFLFSVFFLVYVTTVLGNTLIVVTITAESRLHTPMYFLLR
NKSILDIVFSSITVPKFLVDLLSERKAISYNGCLTQIFFFHFAGGADIFFLSVMAYDRYLAIAKPLHYVT
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMRREVWLALVVASWVGGGLHSIVQIILMLPLPFCGPNTLDAFYCDVPQVVKLACTDTFALELLMISNNG
LVTLLWFFLLLGSYTIILVM-LRFHSGEGRNKALSTCTSHIMVVTLHFVPCVYIYC-RPFT---TLPMDT
AISINNTVITPMLNPMIYTLRNQEMKSAMKRLQRRPSESNKLG*---

>SOR4D5
----MNPANHS--QVAGFVLLGLSQVWELRFVFFTVFSAVYFMTVVGNLLIVVIVTSDPHLHTTMYFLLG
NLSFLDFCYSSITAPRMLVDLLSGNPTISFGGCLTQLFFFHFIGGIKIFLLTVMAYDRYIAISQPLHYTL
IMNQTVCALLMAASWVGGFIHSIVQIALTIQLPFCGPDKLDNFYCDVPQLIKLACTDTFVLELLMVSNNG
LVTLMCFLVLLGSYTALLVM-LRSHSREGRSKALSTCASHIAVVTLIFVPCIYVYT-RPFR---TFPMDK
AVSVLYTIVTPMLNPAIYTLRNKEVIMAMKKLWRRKKDPIGPLEHRP

>HsOR11.18.6
----MNPANHS--QVAGFVLLGLSQVWELRFVFFTVFSAVYFMTVVGNLLIVVIVTSDPHLHTTMYFLLG
NLSFLDFCYSSITAPRMLVDLLSGNPTISFGGCLTQLFFFHFIGGIKIFLLTVMAYDRYIAISQPLHYTL
IMNQTVCALLMAASWVGGFIHSIVQIALTIQLPFCGPDKLDNFYCDVPQLIKLACTDTFVLELLMVSNNG
LVTLMCFLVLLGSYTALLVM-LRSHSREGRSKALSTCASHIAVVTLIFVPCIYVYT-RPFR---TFPMDK
AVSVLYTIVTPMLNPAIYTLRNKEVIMAMKKLWRRKKDPIGPLEHRP

>MmOR9.3.116
----MNPANHS--QVATFFLLGLSQVWELRFLFFTVFSAVYLLTVTGNLLIVAIVTSDPRLHTTMYFLLG
NLSFLDFCYSSITAPRMLVDLLSHSPTISFGACLTQLFFFHFIGGIKIFLLTVMAYDRYIAISQPLRYTL
IMNQTVCGIFMAASWVGGFIHSIVQVGLTIHLPFCGPDKLDNFYCDVPQLIKLACTDTFVLELLMVSNNG
LVTLMCFLVLLGSYTALLVM-LRSHSKEGRSKALSTCASHITVVTIIFVPCIYIYA-RPFR---TFPMDK
AVSVLYTMVTPMLNPAIYTLRNKEVIVAMKKLWRRKKDFLGSSDH*-

>HsOR14.1.20
----MDLKNGS--LVTEFILLGFFGRWELQIFFFVTFSLIYGATVMGNILIMVTVTCRSTLHSPLYFLLG
NLSFLDMCLSTATTPKMIIDLLTDHKTISVWGCVTQMFFMHFFGGAEMTLLIIMAFDRYVAICKPLHYRT
IMSHKLLKGFAILSWIIGFLHSISQIVLTMNLPFCGHNVINNIFCDLPLVIKLACIETYTLELFVIADSG
LLSFTCFILLLVSYIVILVSV-PKKSSHGLSKALSTLSAHIIVVTLFFGPCIFIYV-WPFS---SLASNK
TLAVFYTVITPLLNPSIYTLRNKKMQEAIRKLRFQYVSSAQNF*---

>SOR4L1
----MDLKNGS--LVTEFILLGFFGRWELQIFFFVTFSLIYGATVMGNILIMVTVTCSSTLHSPLYFLLG
NLSFLDMCLSTATTPKMIIDLLTDHKTISVWGCVTQMFFMHFFGGAEMTLLIIMAFDRYVAICKPLHYRT
IMSHKLLKGFAILSWIIGFLHSISQIVLTMNLPFCGHNVINNIFCDLPLVIKLACIETYTLELFVIADSG
LLSFTCFILLLVSYIVILVSV-PKKSSHGLSKALSTLSAHIIVVTLFFGPCIFIYV-WPFS---SLASNK
TLAVFYTVITPLLNPSIYTLRNKKMQEAIRKLRFQYVSSAQNF----

>SMOR247-2
----MDYENGS--AVTEFILVGFSRDWQLQIFFFVTFTLIYGATVVGNILIIVTVAANSALHSPMYFLLG
NLSFLDMCLSTVTTPKMITDLLAAHKSISFQGCMVQMFFSHFFGGAEMTLLIVMAFDRYVAICKPLHYRI
IMSHRLLNRFIILSWTIGFIHTMSQMALTVNLPFCGHNIINNIFCDLPLVIKLACIETYTLELFVIADSG
LLSFISFFLLLVSYTVILLIV-KHKSPGSLSKALSTLSAHIIVVTLFFGPCIFIYA-WPFG---SFASNT
TLAVFYTVITPLLNPIIYTLRNQEMKKAMRKLWNQQVSCR-------

>MmOR14.2.2
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MDYENGS--AVTEFILVGFSGNWQLQIFFFVTFTLIYGATVVGNILIIVTVAANSALHSPMYFLLG
NLSFLDMCLSTVTTPKMISDLLAAHKSISFQGCMVQMFFMHFLGGAEMTLLIVMAFDRYVAICKPLHYRI
IMSHKLLNRFIILSWTIGFIHTMSQMALTVNLPFCGHNIINNIFCDLPLVIKLACIETYTLELFVIADSG
LLSFISFFLLLVSYTVILLIV-KHKSPGSLSKALSTLSAHIIVVTLFFGPCIFIYA-WPFG---SFASNT
TLAVFYTVITPLLNPIIYTLRNQEMKKAMRKLWIQQVSCT*------

>MmOR14.2.3
----MDYKNGS--AVTEFILVGFSGNWQLQIFFFVTFTLIYGATVVGNILIIVTVAANSALHSPMYFLLG
NLSFLDMCLSTVTTPKMISDLLAAHKSISFQGCMVQMFFSHFLGGAEMTLLIVMAFDRYVAICKPLHYRI
IMSHRLLNRFIILSWTIGFIHTMSQMALTVNLPFCGHNIINNIFCDLPLVIKLACIETYTLELFVIADSG
LLSFISFFLLLVSYTVILLIV-KHKSPGSLSKALSTLSAHIIVVTLFFGPCIFIYA-WPFG---SFASNT
TLAVFYTVITPLLNPIIYTLRNQEMKKAMRKLWNQQVSCR*------

>SOR4K13
----MERANHS--VVSEFILLGLSKSQNLQILFFLGFSVVFVGIVLGNLLILVTVTFDSLLHTPMYFLLS
NLSCIDMILASFATPKMIVDFLRERKTISWWGCYSQMFFMHLLGGSEMMLLVAMAIDRYVAICKPLHYMT
IMSPRVLTGLLLSSYAVGFVHSSSQMAFMLTLPFCGPNVIDSFFCDLPLVIKLACKDTYILQLLVIADSG
LLSLVCFLLLLVSYGVIIFSV-RYRAASRSSKAFSTLSAHITVVTLFFAPCVFIYV-WPFS---RYSVDK
ILSVFYTIFTPLLNPIIYTLRNQEVKAAIKKRLCI------------

>HsOR14.1.18
----MERANHS--VVSEFILLGLSKSQNLQILFFLGFSVVFVGIVLGNLLILVTVTFDSLLHTPMYFLLS
NLSCIDMILASFATPKMIVDFLRERKTISWWGCYSQMFFMHLLGGSEMMLLVAMAIDRYVAICKPLHYMT
IMSPRVLTGLLLSSYAVGFVHSSSQMAFMLTLPFCGPNVIDSFFCDLPLVIKLACKDTYILQLLVIADSG
LLSLVCFLLLLVSYGVIIFSV-RYRAASRSSKAFSTLSAHITVVTLFFAPCVFIYV-WPFS---RYSVDK
ILSVFYTIFTPLLNPIIYTLRNQEVKAAIKRLCI*------------

>SOR4K14
----MDPQNYS--LVSEFVLHGLCTSRHLQNFFFIFFFGVYVAIMLGNLLILVTVISDPCLHSPMYFLLG
NLAFLDMWLASFATPKMIRDFLSDQKLISFGGCMAQIFFLHFTGGAEMVLLVSMAYDRYVAICKPLHYMT
LMSWQTCIRLVLASWVVGFVHSISQVAFTVNLPYCGPNEVDSFFCDLPLVIKLACMDTYVLGIIMISDSG
LLSLSCFLLLLISYTVILLAI-RQRAAGSTSKALSTCSAHIMVVTLFFGPCIFVYV-RPFS---RFSVDK
LLSVFYTIFTPLLNPIIYTLRNEEMKAAMKKLQNRRVTFQ-------

>HsOR14.1.17
----MDPQNYS--LVSEFVLHGLCTSRHLQNFFFIFFFGVYVAIMLGNLLILVTVISDPCLHSPMYFLLG
NLAFLDMWLASFATPKMIRDFLSDQKLISFGGCMAQIFFLHFTGGAEMVLLVSMAYDRYVAICKPLHYMT
LMSWQTCIRLVLASWVVGFVHSISQVAFTVNLPYCGPNEVDSFFCDLPLVIKLACMDTYVLGIIMISDSG
LLSLSCFLLLLISYTVILLAI-RQRAAGSTSKALSTCSAHIMVVTLFFGPCIFVYV-RPFS---RFSVDK
LLSVFYTIFTPLLNPIIYTLRNEEMKAAMKKLQNRRVTFQ*------

>HsOR14.1.15
----MNETNHS--RVTEFVLLGLSSSRELQPFLFLTFSLLYLAILLGNFLIILTVTSDSRLHTPMYFLLA
NLSFIDVCVASFATPKMIADFLVERKTISFDACLAQIFFVHLFTGSEMVLLVSMAYDRYVAICKPLHYMT
VMSRRVCVVLVLISWFVGFIHTTSQLAFTVNLPFCGPNKVDSFFCDLPLVTKLACIDTYVVSLLIVADSG
FLSLSSFLLLVVSYTVILVTV-RNRSSASMAKARSTLTAHITVVTLFFGPCIFIYV-WPFS---SYSVDK
VLAVFYTIFTLILNPVIYTLRNKEVKAAMSKLKSRKPSQVSVVIRNV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>SMOR246-2
----MNETNYS--RVTEFVLLGLSSSKELQPFLFLIFSLLYLAILLGNFLIILTVTSDPRLHTPMYFLLA
NLSFIDMCVASFATPKMLADFLVERKTISFEACLAQIFFVHLFTGGEMVLLVSMAYDRYVAICKPLHYMT
IMSRRVCIILVCISWFVGFIHTTSQLAFTVNLPFCGPNKVDSFFCDLLLVTKLACIDTYVVSLLIVADSG
FLSMSSFLLLVVSYTVILITV-RNRSSASMAKARSTLTAHITVVVLFFGPCIFIYV-WPFS---SYSVDK
VLAVFYTIFTPILNPVIYTLRNKEVKAAMSKLRGRYLKPGQVSALIR

>MmOR14.2.6
----MNETNYS--RVTEFVLLGLSSSKELQPFLFLIFSLLYLAILLGNFLIILTVTSDSRLHTPMYFLLA
NLSFIDMCVASFATPKMLADFLVERKTISFEACLAQIFFVHLFTGGEMVLLVSMAYDRYVAICKPLHYMT
IMSRRVCIILVCISWFVGFIHTTSQLAFTVNLPFCGPNKVDSFFCDLPLVTKLACIDTYVVSLLIVADSG
FLSMSSFLLLVVSYTVILITV-RNRSSASMAKARSTLTAHITVVVLFFGPCIFIYV-WPFS---SYSVDK
VLAVFYTIFTPILNPVIYTLRNKEVKAAMSKLRGRKPGQVSALIRNV

>MmOR14.2.5
----MNERNYS--RVTEFVLLGLSSSKELQPFLFLIFSLLYLAILLGNFLIILTVTSDSRLHTPMYFLLA
NLSFIDMCVASFATPKMLADFLVERKTISFEACLAQIFCVHQFAGGEMVLLVSMAYDRYVAICKPLHYMT
IMSRRVCITLVIIPWFVGFIHTMSQLAFTVNLPFCGPNQVDSFFCDLPLVTKLACTDTYFVSLLIVADSG
VLTLSTFVFLVISYTVILITV-RNRSSASMAKARSTLTAHITVVVLFFGPCIFIYA-WPFN---GYSVDK
VLAVFYTIFTPILNPLIYTLRNKEVKAAMSKLRGR--YLKPGQVSEL

>SOR4K5
----MDKSNSS--VVSEFVLLGLCSSQKLQLFYFCFFSVLYTVIVLGNLLIILTVTSDTSLHSPMYFLLG
NLSFVDICQASFATPKMIADFLSAHETISFSGCIAQIFFIHLFTGGEMVLLVSMAYDRYVAICKPLYYVV
IMSRRTCTVLVMISWAVSLVHTLSQLSFTVNLPFCGPNVVDSFFCDLPRVTKLACLDSYIIEILIVVNSG
ILSLSTFSLLVSSYIIILVTVLKSSAAMAK--AFSTLASHIAVVILFFGPCIFIYV-WPFT---ISPLDK
FLAIFYTVFTPVLNPIIYTLRNRDMKAAVRKIVNHYLRPRRISEMSL

>HsOR14.1.12
----MDKSNSS--VVSEFVLLGLCSSQKLQLFYFCFFSVLYTVIVLGNLLIILTVTSDTSLHSPMYFLLG
NLSFVDICQASFATPKMIADFLSAHETISFSGCIAQIFFIHLFTGGEMVLLVSMAYDRYVAICKPLYYVV
IMSRRTCTVLVMISWAVSLVHTLSQLSFTVNLPFCGPNVVDSFFCDLPRVTKLACLDSYIIEILIVVNSG
ILSLSTFSLLVSSYIIILVTVLKSSAAMAK--AFSTLASHIAVVILFFGPCIFIYV-WPFT---ISPLDK
FLAIFYTVFTPVLNPIIYTLRNRDMKAAVRKIVNHYLRPRRISEMSL

>MmOR14.2.8
----MDNTNYS--VVSEFVLLGLSSSRELQIFYFVFFSMLYIVIILGNLLIIIAVTSDSSLHSPMYFLLG
NLSFFDICQASFATPKMIVDFLSEHKTISFSGCIAQIFFIHLFTGGEMVILVSMAYDRYVAICKPLHYMT
IMNQTTCTALVVISWAVGLVHTLSQLSFTVKLSFCGPNEVDSFFCDLPRVVKLACIDSYITEILIVVNSG
ILSLSTFSLLVSSYVIILVTVFKSSAAMAK--AFSTLAAHIMVVVLFFGPCIFIYV-WPFT---TYPVDK
ILAIFYTVFTPILNPIIYTLRNRDMKAVMGKIAAHYLRPPKVAEMSF

>HsOR14.1.13
----MAHTNES--MVSEFVLLGLSNSWGLQLFFFAIFSIVYVTSVLGNVLIIVIISFDSHLNSPMYFLLS
NLSFIDICQSNFATPKMLVDFFIERKTISFEGCMAQIFVLHSFVGSEMMLLVAMAYDRFIAICKPLHYST
IMNRRLCVIFVSISWAVGVLHSVSHLAFTVDLPFCGPNEVDSFFCDLPLVIELACMDTYEMEIMTLTNSG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LISLSCFLALIISYTIILIGV-RCRSSSGSSKALSTLTAHITVVILFFGPCIYFYI-WPFS---RLPVDK
FLSVFYTVCTPLLNPIIYSLRNEDVKAAMWKLRNRHVNSWKN*----

>MmOR14.2.7
----MAHNNES--TVSEFVLLGLSKSWGLQLVLFTIFFVIYVTSVLGNIMIIVIIFSDSHLNSPMYFLLS
NLSFIDICQSNFATPKMLVDFFVEYKTISFEGCMAQIFLLHSFVGSEMMLLVAMGYDRFVAICKPLHYNL
IMNRRVCIIFVSISWAVGILHSVSHLAFTVNLPFCGPNEVDSFFCDLPLVIKLACMDTYRMEILTLANSG
MISLSCFLALIISYIIILVSV-QRQSSSGSSKALSTLTAHITVVILFFGPCIYFYI-WPFS---RLSVDK
FLSVFYTICTPLLNPIIYSLRNEDVKSALRKLRNSHINPGKN*----

>SOR4K17
RMEAMKLLNQS--QVSEFILLGLTSSQDVEFLLFALFSVIYVVTVLGNLLIIVTVFNTPNLNTPMYFLLG
NLSFVDMTLASFATPKVILNLLKKQKVISFAGCFTQIFLLHLLGGVEMVLLVSMAFDRYVAICKPLHYMT
IMNKKVCVLLVVTSWLLGLLHSGFQIPFAVNLPFCGPNVVDSIFCDLPLVTKLACIDIYFVQVVIVANSG
IISLSCFIILLISYSLILITI-KNHSPTGQSKARSTLTAHITVVILFFGPCIFIYI-WPFG---NHSVDK
FLAVFYTIITPILNPIIYTLRNKEMKISMKKLW-RAFVNSREDT---

>HsOR14.1.22
----MKLLNQS--QVSEFILLGLTSSQDVEFLLFALFSVIYVVTVLGNLLIIVTVFNTPNLNTPMYFLLG
NLSFVDMTLASFATPKVILNLLKKQKVISFAGCFTQIFLLHLLGGVEMVLLVSMAFDRYVAICKPLHYMT
IMNKKVCVLLVVTSWLLGLLHSGFQIPFAVNLPFCGPNVVDSIFCDLPLVTKLACIDIYFVQVVIVANSG
IISLSCFIILLISYSLILITI-KNHSPTGQSKARSTLTAHITVVILFFGPCIFIYI-WPFG---NHSVDK
FLAVFYTIITPILNPIIYTLRNKEMKISMKKLW-RAFVNSREDT*--

>MmOR14.2.10
----MERLNHS--RVPEFVLLGLTDSPELQIFFFVAFSIFYLMTMLGNCLILFTVLSTSHLHSPMFFLLS
NLSLIDICLSSFATPKMIMDFFAHHKTISFEGCISQIFLLHLFTGTEIVLLISMSFDRYIAICKPLYYST
IMSQKVCVGLVIASWTVGFLHTMSQLVFILYLPFCGPNVVDSFFCDLPLVIQLACIDTYVLGVFMVATSG
VIALISFLLLLISYIVVLVTI-RGHSSIGSSKALSTCTSHFTVVLMFFGPCILIYV-WPFT---NFLMDK
ILSVFYTIFTPFLNPLIYTLRNQEVRTAVKKISNQSFGKINPHYTVK

>SOR4K3
KSEQMAWSNQS--AVTEFILRGLSSSLELQIFYFLFFSIVYAATVLGNLLIVVTIASEPHLHSPTYFLLG
NLSFIDMSLASFATPKMIADFLREHKAISFEGCMTQMFFLHLLGGAEIVLLISMSFDRYVAICKPLHYLT
IMSRRMCVGLVILSWIVGIFHALSQLAFTVNLPFCGPNEVDSFFCDLPLVIKLACVDTYILGVFMISTSG
MIALVCFILLVISYTIILVTV-RQRSSGGSSKALSTCSAHFTVVTLFFGPCTFIYV-WPFT---NFPIDK
VLSVFYTIYTPLLNPVIYTVRNKDVKYSMRKLSSHIFKSRKTDHTP-

>SOR4K2
----MDVGNKS--TMSEFVLLGLSNSWELQMFFFMVFSLLYVATMVGNSLIVITVIVDPHLHSPMYFLLT
NLSIIDMSLASFATPKMITDYLTGHKTISFDGCLTQIFFLHLFTGTEIILLMAMSFDRYIAICKPLHYAS
VISPQVCVALVVASWIMGVMHSMSQVIFALTLPFCGPYEVDSFFCDLPVVFQLACVDTYVLGLFMISTSG
IIALSCFIVLFNSYVIVLVTV-KHHSSRGSSKALSTCTAHFIVVFLFFGPCIFIYM-WPLS---SFLTDK
ILSVFYTIFTPTLNPIIYTLRNQEVKIAMRKLKNRFLNFNKAMPS--

>HsOR14.1.10
----MDVGNKS--TMSEFVLLGLSNSWELQMFFFMVFSLLYVATMVGNSLIVITVIVDPHLHSPMYFLLT
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

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NLSIIDMSLASFATPKMITDYLTGHKTISFDGCLTQIFFLHLFTGTEIILLMAMSFDRYIAICKPLHYAS
VISPQVCVALVVASWIMGVMHSMSQVIFALTLPFCGPYEVDSFFCDLPVVFQLACVDTYVLGLFMISTSG
IIALSCFIVLFNSYVIVLVTV-KHHSSRGSSKALSTCTAHFIVVFLFFGPCIFIYM-WPLS---SFLTDK
ILSVFYTIFTPTLNPIIYTLRNQEVKIAMRKLKNRFLNFNKAMPS*-

>MmOR14.2.9
---MMNVANKS--VVTEFVLLGLSNSWELQIFFFIVFSLFYVATMVSNSMIVLIVISDSHLHSAMYFLLT
NLSIIDMSLASFATPKMIIDYLTDHKTISFDGCIAQIFFLHLFTGTEIILLMAMSFDRYIAICKPLRYAS
IISPQVCIAFVVSSWVVGTMHSMSQVIFALTLPFCGPNKIDSFFCDLPVVFQLSCVDTYVLGLFMISTSG
IIALSCFILLFNSYIIVLVTI-KHHSSKGSSKALSTCTAHFIVVFMFFGPCIFIYM-WPQN---SFVIEK
ILSVFYTIFTPIMNPVIYTLRNHEVNSAMRKLRSKFLNFSTETPSHS

>MmOR2.3.21
----MDGGNRS--VVSEFILQGLSHSKNIQVLLFVIFLMLYLFIVSGNIVILTLITTDPHLHSPMYFLLA
NLSFVDMCLSSNITPKMITDFLRENKTISFAGCMSQVFFTHCIAGGEMILLVVMAYDRYVAICKPLHYFT
IMNLKRCTGLVLTSWTIGFIHGISYLVVFVHLPFCGPKEIDSFFCDMPLIIKLACMDSHNLNTLMNAECG
VVVVTCFSLLLISYTYILVTV-SKSSKAGASKALSTCSAHITVVMIFFVPCIFIYV-WPLS---ITWFDK
FLAVFYSVITPLLNPTIYTLRNKEIKNAMKRFIGKFLGPKRNS*---

>MmOR2.3.20
----MDGDNQT--VVSEFILWGLAHSKNIQVLLFVIFLMLYLLIMSGNIVILTLITTDTHLHSPMYFLLA
NLSFVDMWLSTNTTPKMITDFLREIKIISFAGCMSQVFFSHCIAAGEMVLLVAMAYDRYVAICKPLHYFT
IMNLKRCSSLVLTSWTIGFIHGIIYIVVIVHLPFCGPNEIDSFFCDMPLVIKLACMDYHYLNTLMNADCG
LVAITCFILLLTSYTYILMTV-CKSSKAGASKAMNTCTAHITVVLIFFVPCIFIYV-WPLN---ITWLDK
FFAVFYSVFTPLLNPAIYTLRNKEMKNAMKRFIGNFLGPKVNL*---

>MmOR2.3.23
----MDGDNQT--VVSEFVLLGLSNSKNLQVLLFLIFLLLYLLIMSGNIVIQILITTDPHLHSPMYFLLA
NLSFVDMLLSSNTTPRMIIDFFREKKTISFAGCMSQIFFSHCIASGEVVLLALMAYDRYVAICKPLHYFT
IMNLKRCTGLVLTSWTIGFLHGISHVVVLLQLPFCGPNKIDSFFCDMPLVIKLACMDSQDLNTLMNGECG
ILAVTCFILLLISYTYILITV-HQNSKTGASKALSTCTAHITVVMIFFLPCFFIYV-FPLN---ITWLDK
FLAVFYSVITPLLNPVIYTLRNKEMKNAMKRFIGKFLRAKGNS*---

>MmOR2.3.24
----MDRDNQT--VLSEFVLLGLSNSKNLQVLLFLIFLLLYLLIMSGNIIIQILITTDPHLHSPMYFLLA
NLSFVDMWLSSNTTPKMIIDFLSENKTISFAGCMSQVFLSHCIAGGEMVLLVVMAYDRYVAICKPLHYFT
IMNLKRCTGLVLTSWTIGFIHGISYFLVVVQLPFCGPNKIDSFFCDMPLVIKLACMDSHDLNTLMNAECG
VVAVTCFMLLLFSYTYILITV-RQTSKNGASKALSTCTAHITVVMIFFLPCMFIYV-WPLS---ITWLDK
FLAVFYSVFTPLLNPAIYTLRNKEMKNAMKRFIGKFLCPKGNS*---

>MmOR2.3.28
-MSKMDGGNHS--LVSEFVLLGLAHSQNIQALLFMIFLMLYLLIVSGNIVIMVLITTDPHLHSPMYFLLA
NLSFVDMWLSSVTTPKMITDFFRENKTISFSGCMSQVFFAHCIAAGEMVLLVVMAYDRYVAICKPLHYFT
IMNLKRCTGLVLTSWTIGFVHALSHLVVIVELPFCSAKEIDSFFCDMPLVIKLACMDSHNLDILMYADCG
VVGVTCFILLLISYTYILITV-RRSSKAGASKALSTCTAHITVVMIFFVPCIFIYV-WPLN---ITWLDK
FLAVFYSVFTPLLNPAIYTLRNKEMKNAMRRFINNYMDSQGKS*---
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR2.3.16
----MDEGNHT--MVSEFILWGLSSSQRIEVLLFMVFSMLYLLIVSGNIVILVLITTDPHLHSPMYFLLA
NLSFIDMWLSSVTTPKMITDFLRENKTISFAGCMSQVFFAHCIAAGEMVLLVIMAYDRYVAICKPLHYFT
IMNMKRCTGLVFTSWTTGFVHALSHLVVIVELPFCGPKEIDSFFCDMPLVIKLACIDSRDLDVLMNADCG
LVAVTCFILLLISYTYILITV-CQSSKAGASKAMNTCTAHITVVLIFFVPCIFIYV-WPLN---ITWLDK
FLAVFYSVFTPLLNPAIYTLRNKEMKNAMKRFISNYLSHKGNL*---

>MmOR2.3.25
----MNGVNES--TVSEFVLLGLSRSQNLQVLLFVIFLILYLLIISGNIVIMILITIDRHLHSPMYFLLA
NLSFVDIWLSSVTTPKMVIDFLREHKTISFEGCMSQVFFAHCIAAGEMVLLLVMAYDRYVAICKPLHYFT
IMNLKRCTGLVLTSWTVGFVHALSQLVAVLQLPLCGPLEIDSFFCDMPLVIKLACTDSHDLDILMNADCG
IVVVSCFIMLLISYTYILITV-RRSSKAGASKALSTCTAHITVVMLLFLPCIFIYV-WPLN---ITWLDK
FLAVFYSVVTPLLNPAIYTLRNKEIKNALKRFKSYNHKVNT*-----

>MmOR2.3.27
----MDGSNRS--LVSEFVLLGLARSQNLQVLLFIIFLVVYLLILSGNTIVMFLIITDKNLHSPMYFFLA
NLSFVDMWLSSATTPKMITDFLKEPKIISFAGCMSQVFFDHCVGAVEMLLLVVMAYDRYVAICKPLHYFT
IMSLKRCAGLVLTSWAIAFVHAMSQLLAVVQLPLCGHMEIDSFFCDIPLIIKLACMDSHILDIYMNVDCG
FVVVTCFILLLISYTYILLTV-RQSSKAGASKALSTCTAHITVVMIFFVPCIFIYV-WPLS---ITWLDK
FLAVFYTVFAPLLNPAIYTLRNKEMRNAVKKLKNHFMDYKGNT*---

>SMOR248-1
----MEEANQT--VVSEFIFQGLCASKELQILLLLPFSTLYMMTVVGNLFVVILIIIDHHLHSPMYFLLA
NLSFIDFCLSSVTTPKLITDLLKDNKTISFGGCMSQILCVHFFGGGEMVLLVTMAYDRYVAICRPLHYSS
IMDRQKCIWLVVISWTIGFIHAMSQLILILDLPFCGPRVIDSFFCDIPLVMKLACMNTDTLGIVINADSG
VLATTCFILLLISYTYILLTV-QLHSKDGSSKALSTCTSHIIVVVLFFGPCIFIYL-WPVS---ITWVDK
FLAVFYTVITPLLNPAIYTLRNKDIKNAIKKLKNH------------

>MmOR2.3.6
----MEEANQT--VVSEFIFQGLCASKELQILLLLPFSTLYMMTVVGNLFVVILIIIDHHLHSPMYFLLA
NLSFIDFCLSSVTTPKLITDLLKDNKTISFGGCMSQILCVHFFGGGEMVLLVTMAYDRYVAICRPLHYSS
IMDRQKCIWLVVISWTIGFIHAMSQLILILDLPFCGPRVIDSFFCDIPLVMKLACMNTDTLGIVINADSG
VLATTCFILLLISYTYILLTV-QLHSKDGSSKALSTCTSHIIVVVLFFGPCIFIYL-WPVS---ITWVDK
FLAVFYTVITPLLNPAIYTLRNKDIKNAIKKLKNH------------

>MmOR2.3.13
----MEETNQT--VVSEFIFQGICASKELQLFLLLPFSILYLMAVVGNLFVVILIIIDHHLHSTMYFLLA
NLSFIDFCLSSVTTPKLITDLLKDNKTISFGGCMSQILCVYFFGGSEMVLLVTMAYDRYVAICRPLHYSS
IMGRQKCIWLVVISWTIGFIHAMSQLILILDLPFCGPRVIDSFFCDISLVMKLACMNTDTLEILINADSG
VLATTCFILLLISYTNILLTV-QLHSKDGSSKALSTCTSHIIVVLLFFGPVIFIYL-CPVS---ITWVDN
FLAVFYSVITPLLNPAIYTLRNKDIKNAIKKLINH------------

>MmOR2.3.9
----MEEGNQT--VVSEFIFQGLCASKELQLFLLLPFSILYLMAVVGNLFVVILIIIDHHLHSPMYFLLA
NLSFIDFCLSSVTTPKLITDLLKDNKTISFGGCMSQILCVHFFGGGEMVLLVTMAYDRYVAICRPLHYSS
IMDRQKCIWLVVISWTIGFIHAMSQLILVLELPFCGPRVIDSFFCDIPLVMKLACMNTDTLEILINADSG
VLATTCFILLLISYTYILLTV-QLHSKDGSSKALSTCTSHIIVVLLFFGPVIFIYL-WPVS---ITWVDK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
FLAVFYSVITPLLNPAIYTLRNKDIKNAIKKLINH----------

>MmOR2.3.8
----MEDSNRT--VSSEFIFQGLCSSRQLEIFLLLPFSILYLMAVVGNLFVVILIIIDHHLHSPMYFLLA
NLSFIDFCLSSVTTPKLTIDLLKENKTISFVGYMRQIVCVHFFAGGEMVLLVTMAYDRYVAICRPLHYSS
IMDRQKCIWLVVISWIVGFVHAISQMLLILDLPFCGPRVIDSFFCDIPLVMKLACMNTDTLEILINADSG
ILATTCFILLLISYTYIILLTV-QHRSKDGSSKALSTCTSHIIVVLLFFGPIIFIYL-WPVS---ITWVDK
FLAVFYSVITPLLNPAIYTLRNKDIKNAIKKLISH----------

>MmOR2.3.12
----MEDSNHT--VASEFIFQGLCSSRQLEIFLLLPFSILYLMAVVGNLFVVILIIIDHHLHSPMYFLLA
NLSFIDFCLCSVTTPKLTIDLLKENKTISFVGCMSQIVCVHFFAGGEMVLLVTMAYDRYVAICRPLHYSS
IMDRQKCIWFLVIPWIVGFVHAISQMLLILDLPFCGPRVIDSFFCDIPLVMKLACMNTDTLEILINADSG
ILATTCFILLLVSYTYIILLTV-QHRSKDGSSKALSTCTSHIIVVLLFFGPIIFIYL-WPVS---ITWVDK
FLAVFYSVITPLLNPAIYTLRNKDIKNAIKKLISH----------

>MmOR2.3.7
----MEDSNQT--VVSEFIFQGLCTSRQLEIFLLLPFSVLYLVTLVGNLFVVILIIIDHHLHSPMYFLLA
NLSFVDFCLSSVNTPKLTIDLLKENKTISFGGCMSQILCVHFFGGSEMVLLVTMAYDRYVAICRPLHYSS
IMDRQKCIWLVVISWIVGFVHAISQLLLILDLPFCGPRVIDSFFCDIPLVMKLACMNTDTLEILINADSG
ILATSCFTLLLISYTYIILLTV-QHRSKDGSSKALSTCTSHIIVVLLFFGPIIFIYL-WPVN---ITWVDK
FLAVFYTVITPLLNPAIYTLRNKDIKNAIKKLTNH----------

>MmOR2.3.3
----MEKINHS--EISEFIILGLCDSWELQAFFLVIFTSLYLITIFGNIFIVVLIITDLHLHTPMYFLLA
NLSFIDFCLSSVTTPKMIIDFLKEIKTISFGGCMCQIFFGHFFGGGEMVLLVSMAYDRYVAICKPLHYSN
IMSRHMCIGLVMASWMIGFVHSISQLVIIVNLPFCGSRVLDSFFCDIPLVIKLACLDIYVLEILINADSG
VLAAICFVLLLVSYFHILTTV-CLHSKDGASKALSTCTAHITVVVLFFGPCIFIYL-WPVS---ITWVDK
FLAVFYAVITPLLNPAIYTLRNKEIKTAMKRLQC*----------

>HsOR1.1.3
----------MVTEFIFLGLSDSQELQTFLFMLFFVFYGGIVFGNLLIVITVVSDSHLHSPMYFLLA
NLSLIDLSLSSVTAPKMITDFFSQRKVISFKGCLVQIFLLHFFGGSEMVILIAMGFDRYIAICKPLHYTT
IMCGNACVGIMAVTWGIGFLHSVSQLAFAVHLLFCGPNEVDSFYCDLPRVIKLACTDTYRLDIMVIANSG
VLTVCSFVLLIISYTIILMTI-QHRPLDKSSKALSTLTAHITVVLLFFGPCVFIYA-WPFP---IKSLDK
FLAVFYSVITPLLNPIIYTLRNKDMKTAIRQLRKWDAHSSVKF*---

>HsOR15.2.6
----------MVTEFIFLGLSDSQELQTFLFMLFFVFYGGIVFGNLLIVITVVSDSHLHSPMYFLLA
NLSLIDLSLSSVTAPKMITDFFSQRKVISFKGCLVQIFLLHFFGGSEMVILIAMGFDRYIAICKPLHYTT
IMCGNACVGIMAVAWGIGFLHSVSQLAFAVHLPFCGPNEVDSFYCDLPRVIKLACTDTYRLDIMVIANSG
VLTVCSFVLLIISYTIILMTIQHCPLDKS-SKALSTLTAHITVVLLFFGPCVFIYA-WPFP---IKSLDK
FLAVFYSVITPLLNPIIYTLRNKDMKTAIRRLRKWDAHSSVKF*---

>SOR4F17
----------MVTEFIFLGLSDSQELQTFLFMLFFVFYGGIVFGNLLIVITVVSDSHLHSPMYFLLA
NLSLIDLSLSSVTAPKMITDFFSQRKVISFKGCLVQIFLLHFFGGSEMVILIAMGFDRYIAICKPLHYTT
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IMCGNACVGIMAVAWGIGFLHSVSQLAFAVHLPFCGPNEVDSFYCDLPRVIKLACTDTYRLDIMVIANSG
VLTVCSFVLLIISYTIILMTI-QHRPLDKSSKALSTLTAHITVVLLFFGPCVFIYA-WPFP---IKSLDK
FLAVFYSVITPLLNPIIYTLRNKDMKTAIRQLRKWDAHSSVKF----

>HsOR19.1.3
-------------MVTEFIFLGLSDSQGLQTFLFMLFFVFYGGIVFGNLLIVITVVSDSHLHSPMYFLLA
NLSLIDLSLSSVTAPKMITDFFSQRKVISFKGCLVQIFLLHFFGGSEMVILIAMGFDRYIAICKPLHYTT
IMCGNACVGIMAVAWGIGFLHSVSQLAFAVHLPFCGPNEVDSFYCDLPRVIKLACTDTYRLDIMVIANSG
VLTVCSFVLLIISYTIILMTI-QHRPLDKSSKALSTLTAHITVVLLFFGPCVFIYA-WPFP---IKSLDK
FLAVFYSVITPLLNPIIYTLRNKDMKTAIRQLRKWDAHSSVKF*---

>MmOR2.3.15
--------------------MGLSNSRELQIFLFAFFFVFYVGIVFGNLLIVITVTNDSHLHSPMYFLLA
NLSFIDLCVSSVTAPKTIADFFYKRKVISVKGCFTQIFLLHFFGGSEMVTLVAMAFDRYVAICKPLSYTT
VMRGNVCVSIVATAWAIGFLHSVSQLAFAISLPFCGPNRVDSFYCDLPRVIKLACAETYRLDIMVIANSG
VLSVCSFVLLIISYGIILMTIQRRPSDRS-SKALSTLTAHITVVLLFFGPCIFIYA-WPFP---IKSLDK
FLAVFYSVVTPLLNPIIYTLRNTEMKTAMRRLRQWSFWVKS*-----

>MmOR2.3.2
----MNEINYT--EVSEFVFLGLSTSKHIQHFFLAFSVVFYVTIVLGNTLVVFTLAFDPHLHSPMYFLLG
NLSFIDLCLSTLTVPKMISDLSSGHNTISFQGCVFQIFVLHVLGASEMVLLVAMAWDRYVAICKPLHYLT
IMSPRMCLLLLSGAWIIGFLHSVAQLGFVVHLRFCGPNKIDSFYCDLPRFIKLACIDNYRMEFMVAANSG
IISIGTFFLLIISYIVILFNV-RKHSSGDLSKALSTLSAHISVVVLFFGPCIFVYM-WPFP---TVPVDK
FLAILDFMITPILNPAIYTLRNKDMKVAMRKLSYQFLNFRKMS*---

>MmOR2.3.4
----MFKKNYT--KVSEFVFLGLSSSRKIRPFLLAFSMVLYVAIVLGNTLVVFTLAFDPHLHSPMYFLLG
NLAFIDLCLSTLTVPKMISDLSSGHNAISFQGCVFQIFVLHVLGATEMVLLVAMAWDRYVAICKPLHYLT
IMSPRMCLMLLSGAWVIGFLHSVTQLAFIIKLNFCGPNEIDSFYCDLPQFIKLACIDPKKMQFMVTANSG
FISMGTFLLLIISYIVILFIVRKHSSSGDLSKALSTLSAHISVVVLFFGPCIFVYM-WPFP---TVPVDK
FLAILDFMVTPILNPAIYTLRNKDMKVAMRRLITQLFNLRKSP*---

>MmOR2.3.1
----MNEANYS--EVSEFIFLGLSTYRPTQYFLFAFAIISYAATFLGNFSVVFIVIFDPHLHSPMYFLLA
NLSFVDFCFSTSTVPKLISDLYSGHSIISIQSCIFQMFVLHLLGGCEMVLLVAMAWDRYVAICKPLYYLT
IMNPRMCLLLLISAWIIGLIHSVAQLAFVVHLPFCASNEIDSFYCDLPRFIKMACINTYRMEFLVTADSG
FISLSTFFLLIISYIFILFIV-RKQSLGSLSKAFSTLSAHICVVVLFFGPCIFVYI-WPFP---TVPVDK
FLAILDFMIIPILNPAIYTLRNKDMKVAMRRLLSRKSIC*-------

>SOR4F16
----MDGENHS--VVSEFLFLGLTHSWEIQLLLLVFSSVLYVASITGNILIVFSVTTDPHLHSPMYFLLA
SLSFIDLGACSVTSPKMIYDLFRKRKVISFGGCIAQIFFIHVVGGVEMVLLIAMAFDRYVALCKPLHYLT
IMSPRMCLSFLAVAWTLGVSHSLFQLAFLVNLAFCGPNVLDSFYCDLPRLLRLACTDTYRLQFMVTVNSG
FICVGTFFILLISYVFILFTVWK-HSSGGSSKALSTLSAHSTVVLLFFGPPMFVYT-RPHP---NSQMDK
FLAIFDAVLTPFLNPVVYTFRNKEMKAAIKRVCKQLVIYKRIS----

>HsOR1.1.4
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MDGENHS--VVSEFLFLGLTHSWEIQLLLLVFSSVLYVASITGNILIVFSVTTDPHLHSPMYFLLA
SLSFIDLGACSVTSPKMIYDLFRKRKVISFGGCIAQIFFIHVVGGVEMVLLIAMAFDRYVALCKPLHYLT
IMSPRMCLSFLAVAWTLGVSHSLFQLAFLVNLAFCGPNVLDSFYCDLPRLLRLACTDTYRLQFMVTVNSG
FICVGTFFILLISYVFILFTVWK-HSSGGSSKALSTLSAHSTVVLLFFGPPMFVYT-RPHP---NSQMDK
FLAIFDAVLTPFLNPVVYTFRNKEMKAAIKRVCKQIYKRIS*-----

>HsOR1.1.5
----MDGENHS--VVSEFLFLGLTHSWEIQLLLLVFSSVLYVASITGNILIVFSVTTDPHLHSPMYFLLA
SLSFIDLGACSVTSPKMIYDLFRKRKVISFGGCIAQIFFIHVVGGVEMVLLIAMAFDRYVALCKPLHYLT
IMSPRMCLSFLAVAWTLGVSHSLFQLAFLVNLAFCGPNVLDSFYCDLPRLLRLACTDTYRLQFMVTVNSG
FICVGTFFILLISYVFILFTVWK-HSSGGSSKALSTLSAHSTVVLLFFGPPMFVYT-RPHP---NSQMDK
FLAIFDAVLTPFLNPVVYTFRNKEMKAAIKRVCKQIYKRIS*-----

>HsOR5.4.5
----MDGENHS--VVSEFLFLGLTHSWEIQLLLLVFSSVLYVASITGNILIVFSVTTDPHLHSPMYFLLA
SLSFIDLGACSVTSPKMIYDLFRKRKVISFGGCIAQIFFIHVVGGVEMVLLIAMAFDRYVALCKPLHYLT
IMSPRMCLSFLAVAWTLGVSHSLFQLAFLVNLAFCGPNVLDSFYCDLPRLLRLACTDTYRLQFMVTVNSG
FICVGTFFILLISYVFILFTVWK-HSSGGSSKALSTLSAHSTVVLLFFGPPMFVYT-RPHP---NSQMDK
FLAIFDAVLTPFLNPVVYTFRNKEMKAAIKRVCKQIYKRIS*-----

>HsOR8.1.1
----MDGENHS--VVSEFLFLGLTHSWEIQLLLLVFSSVLYVASITGNIFIVFSVTTDPHLHSPMYFLLA
SLSFIDLGACSVTSPKMIYDLFRKRKVISFGGCIAQIFFIHVIGGVEMVLLIAMAFDRYVALCKPLHYLT
IMSPRMCLSFLAVAWTLGVSHSLFQLAFLVNLAFCGPNVLDSFYCDLPRLLRLACTDTYRLQFMVTVNSG
FICVGTFFILLISYVFILFTVWK-HSSGGSSKALSTLSAHSTVVLLFFGPPMFVYT-RPHP---NSQMDK
FLAIFDAVLTPFLNPVVYTFRNKEMKAAIKRVCKQLVIYKKIS*---

>MmOR2.3.29
----MDGENHT--VVSEFVFLGLTHSWEIQLLLLVLSSVLYILSMAGNILIVFSVTIDPHLHSPMYFLLA
CLSFIDLVACSVTSPKMVYDLFRKHKVISFGGCITQIFFIHLVGGVEMVLLVAMAFDRYIAICKPLHYLT
IMSPRVCVLFLGAAWGLGISHSLFQLAFLIDLPFCGPNILDSFYCDLPKLLRLACKDTYKLQFMVTINSG
FICVGSFLLLLISYIFILFSVWK-HSSGGSSKALSTLSAHITVVFLFFGPTLFIYT-WPHP---NSQIDK
FLALFDAVLTPFLNPVIYTFRNKEMKVVIRRVF-KTLLTFRGIS*--

>SMOR245-1
--MLMGGANLS--VVSEFVFLGLTNSWDIQLLLFVFSSVFYVASMMGNSLIIFTVASDPHLHTPMYFLLA
NLSFIDLGVSSVTSPKMIYDLFRKHKVISFTGCVIQIFSIHVIGGVEMVLLIAMAFDRYVAICKPLHYLT
ILSPRMCLFFVVIAWIVGLIHSLAQLVFVINLPFCGPNVLDSFYCDLPRFIKLACVDTHKLEFMVTANSG
FISVGSFFILIVSYIVIIISV-QKHSSGGFSKALSTLSAHISVVVLFFGPLIFVYT-WPTP---SVHLDK
FLAIFDAVITPFLNPVIYTFRNQEMKMAMKRVFKQLLSYRKIS----

>MmOR2.3.43
--MLMGGANLS--VVSEFVFLGLTNSWDIQLLLFVFSSVFYVASMMGNSLIIFTVASDPHLHTPMYFLLA
NLSFIDLGVSSVTSPKMIYDLFRKHKVISFTGCVIQIFSIHVIGGVEMVLLIAMAFDRYVAICKPLHYLT
ILSPRMCLFFVVIAWIVGLIHSLAQLVFVINLPFCGPNVLDSFYCDLPRFIKLACVDTHKLEFMVTANSG
FISVGSFFILIVSYIVIIISV-QKHSSGGFSKALSTLSAHISVVVLFFGPLIFVYT-WPTP---SVHLDK
FLAIFDAVITPFLNPVIYTFRNQEMKMAMKRVFKQLLSYRKIS*---
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR2.3.42
--MLMGGANLS--VVSEFVFLGLTNSWDIQLLLFVFSSVFYVASMMGNSLIIFTVASDPHLHTPMYFLLA
NLSFIDLGVSSVTSPKMIYDLFRKHKVISFTGCVIQIFSIHVIGGVEMVLLIAMAFDRYVAICKPLHYLT
ILSPRMCLFFVVIAWIVGLIHSLAQLVFVINLPFCGPNVLDSFYCDLPRFIKLACVDTHKLEFMVTANSG
FISVGSFFILIVSYIVIIISV-QKHSSGGFSKALSTLSAHISVVVLFFGPLIFVYT-WTSP---SVHLDK
FLAIFDTVITPFLNPVIYTFRNQEMKMAMKRVFKHLMSYGKIS*---

>SOR4F14
----MVGANHS--VVSEFVFLGLTNSWEIRLLLLVFSSMFYMASMMGNSLILLTVTSDPHLHSPMYFLLA
NLSFIDLGVSSVTSPKMIYDLFRKHEVISFGGCIAQIFFIHVIGGVEMVLLIAMAFDRYVAICKPLQYLT
IMSPRMCMFFLVAAWVTGLIHSVVQLVFVVNLPFCGPNVSDSFYCDLPRFIKLACTDSYRLEFMVTANSG
FISLGSFFILIISYVVIILTVLK-HSSAGLSKALSTLSAHVSVVVLFFGPLIFVYT-WPSP---STHLDK
FLAIFDAVLTPVLNPIIYTFRN------------------------

>HsOR15.2.3
----MVGANHS--VVSEFVFLGLTNSWEIRLLLLVFSSMFYMASMMGNSLILLTVTSDPHLHSPMYFLLA
NLSFIDLGVSSVTSPKMIYDLFRKHEVISFGGCIAQIFFIHVIGGVEMVLLIAMAFDRYVAICKPLQYLT
IMSPRMCMFFLVAAWVTGLIHSVVQLVFVVNLPFCGPNVSDSFYCDLPRFIKLACTDSYRLEFMVTANSG
FISLGSFFILIISYVVIILTVLK-HSSAGLSKALSTLSAHVSVVVLFFGPLIFVYT-WPSP---STHLDK
FLAIFDAVLTPVLNPIIYTFRN------------*------------

>MmOR2.3.39
--------NQS--VVSEFVFLGLTNSWNIQLFLFVFSSIFYVASMMGNSLIVFTVVSDSHLHSPMYFLLA
NLSFIDLGISSVTSPKMICDLFRKHKVISFRGCVTQIFFIHVIGGVEMVLLIAMAFDRYVAICKPLHYLT
IMSPRVCILFSVASWVVGFMHSLVQLAFVVNLPFCGPNVLDSFYCDFPRFIKLACTDTYKLELLVSINSG
FMSVGSFFILIISYIVIIFTV-QKHSSSGSSKALSTLSAHVTVVVLFFGPVMFFYT-WPSS---YTHLDK
FLAIFDAIVTPFLNPVIYTLRNQEMKIAMMRVFSKLMGCRQIFKHLN

>MmOR2.3.35
----MEGMNQS--MVSEFVFLGLTNSWDIQLFLFVFSSMFYVASMTGNSLIVFTVASDPHLHSPMYFLLA
NLSFIDLGVSSVIAPKMIYDLFRKHKVISFRGCVTQIFFIHFIGGVEMVLLIAMAFDRYVAICKPLHYLI
IMSPRMCILFIVASWVVGFMHSLVQLAFVVNLPFCGPNVLDSFYCDFPRFIKLACIDTYRLKLLVLVNSG
FMSVGSFFILIISYVVIIFIV-HKHSSSGSSKALSTLSAHVMVVVLFFGPVMFIYT-WPSS---FTHLDK
FLPIFDAIVTPFLNPVIYTFRNQEMKMAMMRVLRQIMGYRQIIKHLH

>MmOR2.3.41
----MEGTNRS--VVSEFMFVGLTNSWKMQVLLFVFASVFYMASMMGNSLIIFTVASDPHLHSLMYFLLA
NLSFIDLGVSCVTCPKMIYDLFRKHKVISFRGCITQIFFIHVIGGVEVVLLIGMAYDRYVAICKPLHYLT
IMNAKMCIFILVSAWVVGLMHSLVQFVYIVNLPFCGPNILDSFYCDLPRFIRLACVDTNQLELMVSANSG
FISVGSFFILVISYIVIIVTV-QKHSSSGSSKALSTLSAHISVVVLFFGPLIFVYT-WPSP---STHLDK
YLAIFDAVGTPFLNPVIYTLRNQDMKTAMKRVCRQLLKYGKIS*---

>MmOR2.3.40
----MKRVNHS--VTSEFVFLGLTNSWNIQLLLFLLSSVLYVASMMGNCLIIFTVASDPQLHSPMYFLLS
NLSFIDIGISSATSPKMIYDLFKKNKVISFRGCIIQIFFIHAIGGVEMVLLIAMAFDRYVAICKPLHYLT
MMSPQMCIFFLITAWVVGLMHSVIQLVFIVNLPLCG-QLLDSFYCDLPQFIKLACMDTYRLELMVSISSG
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
FMSVAFFFILIISYVVIIFTVLK-HSSSGSYKALSTLSAHVTVVVLFFGPAIFFYT-WPSS---STHLDK
FLALFDAVVTPFLNPVIYTLRNQEMKMAMRRVF-RHLMGYRQIS*--

>SOR4F6
----MDEANHS--VVSEFVFLGLSDSRKIQLLLFLFFSVFYVSSLMGNLLIVLTVTSDPRLQSPMYFLLA
NLSIINLVFCSSTAPKMIYDLFRKHKTISFGGCVVQIFFIHAVGGTEMVLLIAMAFDRYVAICKPLHYLT
IMNPQRCILFLVISWIIGIIHSVIQLAFVVDLLFCGPNELDSFFCDLPRFIKLACIETYTLGFMVTANSG
FISLASFLILIISYIFILVTV-QKKSSGGIFKAFSMLSAHVIVVVLVFGPLIFFYI-FPFP---TSHLDK
FLAIFDAVITPVLNPVIYTFRNKEMMVAMRRRCSQFVNYSKIF----

>HsOR15.2.1
----MDEANHS--VVSEFVFLGLSDSRKIQLLLFLFFSVFYVSSLMGNLLIVLTVTSDPRLQSPMYFLLA
NLSIINLVFCSSTAPKMIYDLFRKHKTISFGGCVVQIFFIHAVGGTEMVLLIAMAFDRYVAICKPLHYLT
IMNPQRCILFLVISWIIGIIHSVIQLAFVVDLLFCGPNELDSFFCDLPRFIKLACIETYTLGFMVTANSG
FISLASFLILIISYIFILVTV-QKKSSGGIFKAFSMLSAHVIVVVLVFGPLIFFYI-FPFP---TSHLDK
FLAIFDAVITPVLNPVIYTFRNKEMMVAMRRRCSQFVNYSKIF*---

>MmOR2.3.37
----MGEANCS--VVSEFVFLGLSNSWAIQLFLFFFSCIFYVASLLGNFLIVLTVTSDPQLQSPMYFLLG
NLSIIDLIFCSSTTPKMIYDLFRRHKTISFGGCITQIFFIHAVGGTEMVLLIAMAFDRYVAICKPLHYLT
IMSPQKCILILVASWIIGFIHSVTQLSFVVDLPFCGPNELDSFFCDLPRFIKLACVDTYTLGFMVTANSG
FISVASFLILIISYIFILVTV-QKKSLGSLGKALSTLSAHVIVVVLFFGPLIFFYT-WPFP---TSHLDK
FLAIFDAVITPFLNPVIYTLRNKEMKVAMRRLCSQFVNYNKIS*---

>MmOR2.3.38
----MDKANHS--VVSEFVFLGLSNRWGIQLLLFLFSSMFYIASVMGNLLIVFSVTADSNLHSPMYFLLA
NLSFLDLGVCSIAAPKMIFDLFRKHKAISFGGCITQIFFIHAIGGTEMVLLIAMAFDRYVAICKPLHYLT
IMRPQICILILAVSWVLGLIHSVAQLAFVVDLPFCGPNILDSFYCDLPQLIKLACTETSKLVFMVTANSG
LISVGSFFILIISYIFILVTV-RKHSSGSIAKALSTLSAHVTVVVLFFGPLIFFYT-WPFP---SSHLDK
FLAIFDAVLTPFLNPVIYTFRNKEMKAAMRKLCSQLVNYRKVS*---

>SOR4F15
----MNGMNHS--VVSEFVFMGLTNSREIQLLLFVFSLLFYFASMMGNLVIVFTVTMDAHLHSPMYFLLA
NLSIIDMAFCSITAPKMICDIFKKHKAISFRGCITQIFFSHALGGTEMVLLIAMAFDRYMAICKPLHYLT
IMSPRMCLYFLATSSIIGLIHSLVQLVFVVDLPFCGPNIFDSFYCDLPRLLRLACTNTQELEFMVTVNSG
LISVGSFVLLVISYIFILFTVWK-HSSGGLAKALSTLSAHVTVVILFFGPLMFFYT-WPSP---TSHLDK
YLAIFDAFITPFLNPVIYTFRNKDMKVAMRRLCSRLAHFTKIL----

>HsOR15.2.2
----MNGMNHS--VVSEFVFMGLTNSREIQLLLFVFSLLFYFASMMGNLVIVFTVTMDAHLHSPMYFLLA
NLSIIDMAFCSITAPKMICDIFKKHKAISFRGCITQIFFSHALGGTEMVLLIAMAFDRYMAICKPLHYLT
IMSPRMCLYFLATSSIIGLIHSLVQLVFVVDLPFCGPNIFDSFYCDLPRLLRLACTNTQELEFMVTVNSG
LISVGSFVLLVISYIFILFTVWK-HSSGGLAKALSTLSAHVTVVILFFGPLMFFYT-WPSP---TSHLDK
YLAIFDAFITPFLNPVIYTFRNKDMKVAMRRLCSRLAHFTKIL*---

>MmOR2.3.36
MSEAMYGMNCS--VVSEFVFLGITNIWEVQFLLFFFTLLFYFASMIGNLVIVLTVTLDPHLNSPLYFLLA
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
NLSVIDMIFCSITAPKMICDIFKKHKTISFWGCITQIFFSHAVGGTEMVLLIAMAFDRYVAICKPLHYLI
IMSPRVCLFFLITSWVIGLIHSVVQLVFVVDLPFCGPNTLDSFYCDLPRLLRLACTNTQELELMVTVNSG
LISVGSFLLLVISYIFILFTVWK-HSSCGLSKALSTLSAHITVVILFFGPLMFFYT-WPSP---TSHLDK
YLAIFDAFITPFLNPVIYTFRNKDMKVAMGRLWGYLRHYRKMS*---

>MmOR2.3.32
----MIRANYS--AVSEFVLLGLSNSWEIQVFIFFFTCLFYVSSLTGNFIIVVTVTSDPYLHSPMYFLLA
NLSVIDLIFCSIAAPKMICDLFRKQKVISFGGCISQIFFSHAVGGTEMVLLIAMAFDRYVAICKPLRYLT
IMSPRMCLLILVAAWIIGLIHSSAQLAFVINLPFCGPNILDSFYCDIPRLVKLACTDTYKLELMITANSG
FISLIAFFLLIISYVFLLTTV-QKQSSGCSSKALSTLLAHITVVVLFFGPLIFFYV-CPSP---STHVDK
FLAIFDAVLTPFLNPIIYTLRNRDMKIAIRKVFCQCLAFRKSM*---

>MmOR2.3.44
----MDGGNHS--VVSEFLLLGLTNSWRIQILLFLFFTVFYVASMLGNLLIVLTIISDHHLHSPMYFLLA
NLSFIDTGVSSIATPKMIYDLFRKHKVISLNGCITQMFFIHTVGGTEMVLLIVMAYDRYIAICKPLHYLT
IMSLRMCIVLLALAWIIGLIHSVAQLAFVVNLPFCGANKMDSFYCDFPRFIKLACTDTYRLEFLVTANSG
FISMATFFILIVSYIFILVTV-RKHSSGASSKALSTLSAHITVVVFFFGPCIIVYV-WPFP---TLPIDK
FLAIFDAIITPSMNPVIYTLRNKEMKVAMRRLFARALSFIDSLRDSN

>MmOR2.3.45
----MDGGNHS--MVSEFLLLGLTNSWRIQILLFLFFTVFYVASMLGNLLIVLTIISDHHLHSPMYFLLA
NLSFIDTGVSSIATPKMIYDLFRKHKVISLNGCITQMFFIHTVGGTEMVLLIVMAYDRYIAICKPLHYLT
IMSLRMCIVLLALAWIIGLIHSVAQLAFVVNLPFCGANKMDSFYCDFPRFIKLACTDTYRLEFLVAANSG
FISMATFFILIVSYIFILVTV-RKHSSGASSKALSTLSAHITVVVFFFGPCIIVYV-WPFP---TLPIDK
FLAIFDVIITPFMNPLIYTLRNNEMKVAMRRLFIRHFKNFFISSLRD

>MmOR2.3.14
----MDQVNAS--ALPEFVLLGLAQSFGTQIFFGLFFSLFYVGILFGNLFIVFIVIVDSHLHFPMYILLA
NLSLIDLGLSSTTIPRTISDLFTGCKVISFHSCMTQMFFIHVMGGVEMVLLIAMAYDRYIAICKPLHYLM
IMNPKKCIILVIAAWVIGMIHAVSQFLFVVNLPFCGPYNVGSFYCDFPRVIKLACMDTYKLEFVVSANSG
FISMCTFFFLITSYIFILASV-RQHSSTDLSKAFVTLSAHITVVVLFFIPCMFLYV-WPFP---TKSLDN
FFAIVDFVLTPVLNPTIYTLRNKDMRLAIRRLS-RQVLSSREFI*--

>MmOR2.3.5
--MPMDQLNDS--RVSEFVLLGLSSSWETKVFLMVTFSMLYIGIILGNLFIVILVIADSHLHSPMYFLLA
NLSLNDVWVSSTTVPKMISDLLKEHKVISFHNCMTQICFIHIMGGVEMVLLIAMAFDRYTAICKPLRYLS
IMSPRICISFVIAGWVTGVVHAMSQFSFVVSLPFCGPNKVDSFYCDFPRIIQLACTDGDKFEFVVAANSG
FMSMGTFFLLLLSYVFILVTVWQR-SSGDLSKALVTLSAHITVVVLFFTPCMFLYV-WPFP---TSSIDK
YLFIADFAITPALNPVIYTFRNKDIRIAIGRLSKRAVCSRFC*----

>MmOR2.3.10
----MDQINET--VAFEFVLLGLSSSWKNTIFLMSTFSLLYVSIIVGNLFIVFLVINDSRLQSPMYFLLA
NLSLIDVGLSSTTVPKMISDLLKEHKVISFHSCMTQICSIHIMGGVEMVLLIAMAFDRYTAICKPLHYMS
IMSPRICISFVIAGWVTGVVHAMSQFSFVVNLPFCGPNKVDSFYCDFPRIIQLACTDRDTFEFVVAANSG
FMTLGTFFLLLLSYVFILVTVWQR-SSGDLSKALVTLSAHITVVVLFFTPCMFLYV-WPFP---TSSTDK
YLFIVDFAVTPALNPVIYTLRNKDMKEAIKKLSKQRCYIRIF*----
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR11.4.11
SAAGLSPENSS--TITELVLVGFSDQPQTEIPLFIFFSLVYLASCLGNTAVVILVALDVSLQTPMYFFLC
HLAFLNGFFSTVVTPKMLFNFLASRKVISYPFCLAQTYLTLFLESTECFLLAVMAIDRYVAICYPLRYLL
IMSWAVCIALAVAVWVTGFCASVLPLCFMI-LPLCSPYVVDYLFCELPILLHLFCADTSLQEAMMAVGGA
GTVLVPFLLIALSYLRILVTVIRIDSAEGRKKAFSTCASHLAVVTIYYGTGLIRYL-RPKSLY-SAEGDK
LISVFYAVIGPALNPFIYSLRNKEVQGAVRRVVERYRKSPRIAF*--

>MmOR2.2.104
----MADRNLT--VITEFILLGLTEDPVLNTVLSVLCLLIYVITVAGNLWIIVIILATDQLHSPKYFFLT
HLAFLDFCYSSVFLPKMLINYLVGQNSISYHGCLLQYSFVNMFLTAECFLLAAMAYDRYLAICSPLYYRC
LMTPTFCIYLVSASYLLGCANSLTHLRSLLNLTFCGPNVIDHYFCDIPLLFQLSCSDTHDSEVLFIVLSG
ATSITTFLIVVSSYLGILITVLKIHSARGSYKALSTCASHLTVVTLFYGTVISTYL-GTSSSF-PQDTEK
ILSVFYTLLLPVLNLFIYSVRNKEAKEAMRRMIKRKIFAQ*------

>SMOR124-1
--MGPGTLNDS--GTTEFLLLGLWAPPSLRPLLWASLLLAYLTTVLGNGALVGLIALDRRLHRPMYRLLT
HLALLDTAYVSTTLPQALAHMTMRSARLSLVRCGTQLYVGISLGSCEAILLAAMALDRCLAVCRPLHYAT
LVTAPRCAALAGASWTLGFALSVPNAVAALRLPFCPGAAVDHFFCELPAVLRTACADTTANYRLVYGLGV
PILLVPLVLILASYTWILAAVRKLPSAGSRHKALSTCSSHLAVVGLFYGTVSAMYL-RPKASDLPARHHK
LVAVFYLVVTPVLNPLIYSLRNREVHMAARYALARLRGTRIVLH---

>MmOR7.1.1
--MGPGTLNDS--GTTEFLLLGLWAPPSLRPLLWASLLLAYLTTVLGNGALVGLIALDRRLHRPMYRLLT
HLALLDTAYVSTTLPQALAHMTMRSARLSLVRCGTQLYVGISLGSCEAILLAAMALDRCLAVCRPLHYAT
LVTAPRCAALAGASWTLGFALSVPNAVAALRLPFCPGAAVDHFFCELPAVLRTACADTTANYRLVYGLGV
PILLVPLVLILASYTWILAAVRKLPSAGSRHKALSTCSSHLAVVGLFYGTVSAMYL-RPKASDLPARHHK
LVAVFYLVVTPVLNPLIYSLRNREVHMAARYALARLRGTRIVLH*--

>MmOR7.6.2
----MEVCNST--LGSGFILVGILDDSGFPELLCATITALYFLAITSNGLLLLVITMDARLHVTMYLLLW
QLSLMDLLLTSVITPKAILDYLLKDNTISFGGCALQMFLELTLGSAEDLLLAFMAYDRYVAICHPLNYTI
LMSQKVCCLMIATSWILASLSALGYSIYTMQYPFCKSRQIRHLFCEIPPLLKLACADTSTYELMVYVMGV
TLLIPPLAAILASYSLILFTVLHMPSNEGRKKALVTCSSHLTVVGMWYGGAIVMYV-LPSSFH-SPKQDN
ISSVFYTIFTPALNPLIYSLRNKEVTGALRRVLGKRFSVQSTF*---

>MmOR7.6.6
----MELWNST--VGSGFILVGILDGSGSPELLCAAITALYFLALTSNGLLLLVITMDARLHVPMYLLLG
QLSLMDLLLTSVITPKAVVDFLLKDNTISFGGCALQMFLELALGSAEDLLLAFMAYDRYVAICQPLNYTI
LMSHKVCWLMIATSWILASLSALGYSIYTMQYSFCKNRQINHLFCEIPPLLKLACADTSTYELMVYLMGV
IVLILPLTAILASYSLILFTVLNMPSNEGRKKALVTCSSHLTVVGMWYGGASFMYV-LPSPFH-SPKQDN
ISSVFYTIVTPALNPLIYSLRNKEVTGALKRVLGKRLSA*-------

>MmOR7.6.3
----MEVFNST--LGSGFILVGILNDSGFPEMLCAIIIALYFLALTSNGLLLLVITMDARLHMPMYLLLW
QLSLMDLLQPSVIIPKAVLDFLLKDNTISFGGCAFQMFLALTLGSAEDLLLSFMAYDRYVAICHPLNYTI
LMSQKVCYLMIATSWILASLSALGYSMYTMQYPFCKSRQIRHLFCEIPPLLKLACGDTSTYELMVYLMGV
TLLFPALAAILTSYSLILLTVLHMPSNEGRKKALVTCSSHLTVVGMWYGGAIFMYI-LPSSFH-SPKQDN
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
ISSVFYMIVTPALNPLIYSLRNNEVIEALKRVLGKKFSVHSTF*---

>MmOR7.6.13
----MEPWNST--LGTDFNLVGILDDSGSPELLCATFTALYMLALISNGLLILVITMDARLHVPMYFLLG
QLSLMDLLFTSVVTPKAVIDFLLRDNTISFEGCSLQMFLALTLGGAEDLLLAFMAYDRYVAICHPLNYMI
FMRPSICWLMVATSWVLASLMALGYTTYTMQYSYCKSRKIRHLLCEIPPLLKLACADTSKYELMVYVMGV
TFLIPPLAAILASYSLILFTVLHMPSNEGRKKALVTCSSHLTVVGMFYGAATFMYV-LPNSFH-SPRQDN
IISVFYTIVTPALNPLIYSLRNKEVTGALIRVLGRYIVPAHPTL*--

>MmOR7.6.8
----MELWNST--LGSGFILVGILDDSGSPEILCATFTALYMLAMISNGILLLVITMDARLHVPMYLLLW
QLSLMDLLLTSVITPKAVIDFLLKDNTISFGGCALQMFLELTLGGAEDLLLAFMAYGRYVAICHPLNYMT
FMKPRICWLGVFISWTLASLSAVGYTIYTMQYPFCKSRKIRHLFCEIPPLLKLACADTSKYELMVYVMGV
IFLLLPLAAILSSYTLILLTVLHMPSHEGRKKALVTCSSHLTVVGMWYGGASFMYV-LPSSFH-TPKQDN
IFSVFYTIVTPALNPLIYSLRNKEVTGALRRVLGGRLLPEHSTF*--

>MmOR7.6.1
----MEPWNST--LGSGFILVGILDGSGSPELLCATIAALYMLALISNGMLILVITMDIYLHVPMYLLLE
QLSLMDLLLASVISPKAVMDFLLKDNTITFGGCALQMFLELALGSAEDLLLAFMAYDRYVAICHPLNYMI
FMRPSICWLMVAISWIPASLSALGYTIYTMQYPFCKSREIRHLFCEIPPLLKLACADTSRYQLMVYLMGV
TLLIPPLAAILASYSLILFTVLKMPSNEGRKKALVTCSSHLTVVGMYYGPLTVMYI-LPSSYH-SSKQEN
ILSFLYTIVTPALNPLIYSLRNKEVSGALKRVLGKRLLSTHPNF*--

>MmOR7.6.11
----MEFRNST--MGNGFILVGILDDSGAPDLLCATITALYMLALTSNGVLLLVITMDARLRVPMYLLLG
QLSLMDLLLTSVITPKAVIDFLLKDNTISFGGCALQMFLELVLGSAEDLLLAFMAYDRYVAICHPLNYMI
FMRPSVCWFIVGTIWILASVIALGFTIYTMNYPFCKSRQIRHLFCEIPPLLKLACEDTSTYELMVYLAGV
SVLILPLAVILASYVRILFTVLHMPSNEGRKKALVTCSSHLIVVGMWYGGSSLMYV-LPSQFH-SPKQDN
ILSIFYTIVTPALNPLIYSLRNKEVTGALRRIFGKWLGPAHFLGSSF

>MmOR7.6.7
----MESWNST--LGGTFILVGILDDSGSPDLLCAVITALYMLAMISNGLLLLVITMDAQLHVPMYLLLG
QLSLIDFFLTSIIIPKAVMDFLLKDNTISLEGCALQMFLALTLGGAEDLLLAFMAYDRYVAICHPLNYMI
FMRPSICWLGVATSWILGLLSALGYTIHTMQYPFCKSRKIRDLYCEIPPLLKLACADTSKYELMVYVMGV
AFLIPPLAAILASYILILFTVLNKPSNEGRKKALVTCFSHLTVVGLYYGALTVMYV-LPSSYL-SPKQEN
LLSVFYTVVTPALNPLIYSLRNKEVTGALRRVLGKWFLPTQSTF*--

>SOR2Ag1
----MELWNFT--LGSGFILVGILNDSGSPELLCATITILYLLALISNGLLLLAITMEARLHMPMYLLLG
QLSLMDLLFTSVVTPKALADFLRRENTISFGGCALQMFLALTMGGAEDLLLAFMAYDRYVAICHPLTYMT
LMSSRACWLMVATSWILASLSALIYTVYTMHYPFCRAQEIRHLLCEIPHLLKVACADTSRYELMVYVMGV
TFLIPSLAAILASYTQILLTVLHMPSNEGRKKALVTCSSHLTVVGMFYGAATFMYV-LPSSFH-STRQDN
IISVFYTIVTPALNPLIYSLRNKEVMRALRRVLGKYMLPAHSTL---

>HsOR11.4.2
----MELWNFT--LGSGFILVGILNDSGSPELLCATITILYLLALISNGLLLLAITMEARLHMPMYLLLG
QLSLMDLLFTSVVTPKALADFLRRENTISFGGCALQMFLALTMGGAEDLLLAFMAYDRYVAICHPLTYMT
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LMSSRACWLMVATSWILASLSALIYTVYTMHYPFCRAQEIRHLLCEIPHLLKVACADTSRYELMVYVMGV
TFLIPSLAAILASYTQILLTVLHMPSNEGRKKALVTCSSHLTVVGMFYGAATFMYV-LPSSFH-STRQDN
IISVFYTIVTPALNPLIYSLRNKEVMRALRRVLGKYMLPAHSTL*--

>HsOR11.4.1
----MELRNST--LGSGFILVGILNDSGSPELLYATFTILYMLALTSNGLLLLAITIEARLHMPMYLLLG
QLSLMDLLFTSVVTPKALADFLRRENTISFGGCALQMFLALTMGSAEDLLLAFMAYDRYVAICHPLKYMT
LMSPRVCWIMVATSWILASLIAIGHTMYTMHLPFCVSWEIRHLLCEIPPLLKLACADTSRYELIIYVTGV
TFLLLPISAIVASYTLVLFTVLRMPSNEGRKKALVTCSSHLIVVGMFYGAATFMYV-LPSSFH-SPKQDN
IISVFYTIVTPALNPLIYSLRNKEVMRALRRVLGKYILLAHSTL*--

>SMOR283-1
----MEPWNST--LESGFILVGILDGSGSPELLCATVTTLYMLALISNGLLLLVITVDARLHVPMYLLLR
QLSLIDLLFTSVVTPNTVVDFLLRDNTISFEGCALQLFSAMTLGGAEDLLLAFMAYDRYVAICHPLNYMI
FMSPKACRLMVAISWILASLSALGHTVYTMHFPFCMSQEIRHLLCEVPPLLKLACADTSQYELMVYVTGV
IFLLLPLSAIITSYSLILFTVLHMPSNEGRKKALVTCSSHLTVVGMFYGGATFMYV-LPSSFH-SPKQDN
IISVFYTIVTPALNPLIYSLRNKEVIGAVRRVLGRHILPAHATV---

>MmOR7.6.9
----MEPWNST--LESGFILVGILDGSGSPELLCATVTTLYMLALISNGLLLLVITVDARLHVPMYLLLR
QLSLIDLLFTSVVTPNTVVDFLLRDNTISFEGCALQLFSAMTLGGAEDLLLAFMAYDRYVAICHPLNYMI
FMSPKACRLMVAISWILASLSALGHTVYTMHFPFCMSQEIRHLLCEVPPLLKLACADTSQYELMVYVTGV
IFLLLPLSAIITSYSLILFTVLHMPSNEGRKKALVTCSSHLTVVGMFYGGATFMYV-LPSSFH-SPKQDN
IISVFYTIVTPALNPLIYSLRNKEVIGAVRRVLGRHILPAHATV*--

>MmOR7.6.14
----MELWNST--LESGFILVGILNGSSSPELLCAIVTALYMLALISNGLLLLVITVDARLHVPMYLLLR
QLSLIDLLFTSVVTPKAVMDFLLRDNTISFGGCALQMALALMLGSAEDLLLAFMAYDRYVAICHPLNYMV
FMSPTVCWLIVSTSWILASLTAVGHTVYTMHFPFCMSQEIRHLLCEILPLLKLSCVDTSQYELMVYVTGV
TFLLLPLSAIVTSYTLILSTVLHMPSNEGKKKALVTCLSHLMVVGMFYGAATFMYV-LPSSLH-SAKQDN
IISVFYTIVTPALNPLIYSLRNKEVIGALRRVLGRYILPAHLTL*--

>MmOR7.6.5
----MEFRNST--LGSGFILVGILNGSDSPELLCATITFLYTLALTSNGLLLLVITVDTRLHVPMYLLLG
QLSLIDLLLTSVITPKAVMDFLLRDNTISFGGCALQMFIELVLGGAEDLLLAFMAYDRYVAICHPLNYMI
LMSPRVCWLMVTASWILSIQMALGFTINTMHYSFCKSRHIRHLFCEIPPLLDLACADTSSYKLVVYLVGV
FMLILPLTAIFFSYARILFTVLHMPSNESRKKALVTCSSHMTVVGMYYGALTVMYF-LPSSYH-NPKQDN
ILSVFYTIVTPALNPLIHSLRNKEVTGALRKVLGNTCCHHPIHLR*-

>SMOR284-2
----MDLKNKT---TSSFILLGLFPSCRYPNLLISFILLIYTLASAGNSLLILLIWLDPRLHTPMYFLLS
QLSVIDLAYISCTVPKAAINYFTGRRNISFFACATQMFSFLTLGLAECILLTLMAYDRYVAVCNPLRYTI
LMSPKVCLMMAASTWIGAVTAALVHTVYPMNFPICGSREINHYFCEMPAILRMSCVDTSVYEMVKFVSTI
IFLLTPFTLILTSYTLIFLTVLRMNSPKGRNKALATCSSHLTVVSLYFGQAIFIYM-TPTSSH-TPDQDQ
VGAVLGTIVTPMLNPLIYSLRNKEVIGALQKCTGRCCSRDRVGSLRC

>MmOR11.4.3
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MDLKNKT---TSSFILLGLFPSCRYPNLLISFILLIYTLASAGNSLLILLIWLDPRLHTPMYFLLS
QLSVIDLAYISCTVPKAAINYFTGRQNISFFACATQMFSFLTLGLAECILLTLMAYDRYVAVCNPLRYTI
LMSPKVCLMMAASTWIGAVAAALVHTVYPMNFPICGSREINHYFCEMPAILRMSCVDTSVYEMVKFVSTI
IFLLTPFTLILTSYTLIFLTVLRMNSPKGRNKALATCSSHLTVVSLYFGQAIFIYM-TPTSSH-TPDQDQ
VGAVLGTIVTPMLNPLIYSLRNKEVIGALQKCTGRSRDRVGSLRCCT

>SOR2Z1
----MGDVNQS--VASDFILVGLFSHSGSRQLLFSLVAVMFVIGLLGNTVLLFLIRVDSRLHTPMYFLLS
QLSLFDIGCPMVTIPKMASDFLRGEGATSYGGGAAQIFFLTLMGVAEGVLLVLMSYDRYVAVCQPLQYPV
LMRRQVCLLMMGSSWVVGVLNASIQTSITLHFPYCASRIVDHFFCEVPALLKLSCADTCAYEMALSTSGV
LILMLPLSLIATSYGHVLQAVLSMRSEEARHKAVTTCSSHITVVGLFYGAAVFMYM-VPCAYH-SPQQDN
VVSLFYSLVTPTLNPLIYSLRNPEVWMALVKVLSRLRQMC-------

>HsOR19.2.1
----MGDVNQS--VASDFILVGLFSHSGSRQLLFSLVAVMFVIGLLGNTVLLFLIRVDSRLHTPMYFLLS
QLSLFDIGCPMVTIPKMASDFLRGEGATSYGGGAAQIFFLTLMGVAEGVLLVLMSYDRYVAVCQPLQYPV
LMRRQVCLLMMGSSWVVGVLNASIQTSITLHFPYCASRIVDHFFCEVPALLKLSCADTCAYEMALSTSGV
LILMLPLSLIATSYGHVLQAVLSMRSEEARHKAVTTCSSHITVVGLFYGAAVFMYM-VPCAYH-SPQQDN
VVSLFYSLVTPTLNPLIYSLRNPEVWMALVKVLSRLRQMC*------

>SMOR282-1
----MGTSNVS--SNSDFILMGLLSYTGPHLVLFFLMATVFIIGLLGNTTLLFLIATDSRLHTPMYFLLS
QLSLLDVGFPLVTIPKVVAEFLQGQNVISFGGCATQMFFLMLMGVSEGVLLSLMSYDRYVAVCHPLHYQV
LMRNQVCLVMVGASWFSGALVASIQTSITLQFPYCASHTVDHFFCELPALLKLSCADTSAYELALSISGV
LILLLPLSLIFISYGHVLGAVLLMRSAEARHKAFTTCSSHVTVVGLFFGAAVFIYM-VPGSYH-SPKQDN
VVSLFYSLITPTLNPLIYSLRNREVRMSLGQGYGQ------------

>MmOR8.1.1
----MGTSNVS--SNSDFILMGLFSYTGPHLVLFFLMATVFIIGLLGNTTLLFLIATDSRLHTPMYFLLS
QLSLLDVGFPLVTIPKVVAEFLQGQNVISFGGCATQMFFLMLMGVSEGVLLSLMSYDRYVAVCHPLHYQV
LMRNQVCLVMVGASWFSGALVASIQTSITLQFPYCASHTVDHFFCELPALLKLSCADTSAYELALSISGV
LILLLPLSLIFISYGHVLGAVLHMRSAEARHKAFTTCSSHVTVVGLFYGAAVFMYM-VPGSYH-SPKQDN
VVSLFYSLITPTLNPLIYSLRNREVRMSLVKVMGRSDFRVKR*----

>MmOR8.1.2
----MGTSNVS--SNSDFILMGLFSYTGPHLVLFFLMATVFIIGLLGNTTLLFLIATDSRLHTPMYFLLS
QLSLLDVGFPLVTIPKVVAEFLQGQNVISFGGCATQMFFLMLMGVSEGVLLSLMSYDRYVAVCHPLHYQV
LMRNQVCLVMVGASWFSGALVASILTSITLQFPYCASHTVDHFFCEMPALLKLSCADTSAYELALSISGV
LILLLPLSLIFISYGHVLGAVLLMRSAEARHKAFTTCSSHVTVVGLFFGAAVFIYM-VPGSYH-SPKQDN
VVSLFYSLITPTLNPLIYSLRNREVRMSLVKFMGRSDFKVKG*----

>SMOR281-1
--MGSEHWNYS---TAGFVLTSLFNNSQTHLFLFSMVMLVYILAMAGNTAMVLLIWMDTRLHTPMYFLLS
QLSFLDIFFTSVTVPKMIVGFLFGWTSISFGGCGAQMFFFMFLGAAECLLLALMAYDRYVAICNPLRYPV
LMSRRVCLLMVVASWLGGSLNASIQTSLTLQFPYCGSRKISHFFCEVPSLLMLACADTEAYKQVLFVTGV
VVLLVPITFITASYALILAAVLRMHSVEGRQKALATCSSHLTVVNLFYGPLVYTYM-LPASYH-SPGQDD
VVSVFYTVLTPMLNPVIYSLRNKEVTGAMKKAM-RRCGVNRNA----
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR11.4.1
--MGSEHWNYS---TAGFVLTSLFNNSQTHLFLFSMVMLVYILAMAGNTAMVLLIWMDTRLHTPMYFLLS
QLSFLDIFFTSVTVPKMIVGFLFGWTSISFGGCGAQMFFFMFLGAAECLLLALMAYDRYVAICNPLRYPV
LMSRRVCLLMVVASWLGGSLNASIQTSLTLQFPYCGSRKISHFFCEVPSLLMLACADTEAYKQVLFVTGV
VVLLVPITFITASYALILAAVLRMHSVEGRQKALATCSSHLTVVNLFYGPLVYTYM-LPASYH-SPGQDD
VVSVFYTVLTPMLNPVIYSLRNKEVTGAMKKAM-RRCGVNRNA*---

>SMOR279-1
---MMQWNNWT--RNSDFILLGFFDHSPLHTFFFSLILAIFFMALIGNSVMVILIYLDAQLHTPMYILLS
QLSLMDLMLISTTVPQTAFNFLSGNKSISMAGCGVQIFFYVSLLGAECFLLAAMAYDRYVAICYPLRYPI
LMSHKICSLMAAFSWILGSLDGIIDVAAVLSFSYCGTREIPHFFCDIPALLTISCSDTLIFEKIIFFCCV
IMLIFPVVIVIASYICVILAVIKMASAESRHKAFATCSSHVMVVVIYYGAAMFIYM-QPSSSR-SPNQDK
LVSAFYTILTPLLNPLIYSLRNKEVARAFMKVL-RMDKAAG------

>MmOR16.3.2
---MMQWNNWT--RNSDFILLGFFDHSPLHTFFFSLILAIFFMALIGNSVMVILIYLDAQLHTPMYILLS
QLSLMDLMLISTTVPQTAFNFLSGNKSISMAGCGVQIFFYVSLLGAECFLLAAMAYDRYVAICYPLRYPI
LMSHKICSLMAAFSWILGSLDGIIDVAAVLSFSYCGTREIPHFFCDIPALLTISCSDTLIFEKIIFFCCV
IMLIFPVVIVIASYICVILAVIKMASAESRHKAFATCSSHVMVVVIYYGAAMFIYM-QPSSSR-SPNQDK
LVSAFYTILTPLLNPLIYSLRNKEVARAFMKVL-RMDKAAG*-----

>MmOR16.3.1
-MLMIQWNNWT--RNSDFILLGLFDHSPLHTFFFSLILGIFFMAFIGNSIMVILIYLDAHLHTPMYILLS
QLSLMDLMLICTTVPQMAFNFLSGNKSISMVGCGIQIFFYVSLLGAECFLLAAMAYDRYVAICYPLRYPI
LMSDKICGLMAASSWVLGSLDGIIEVAAALSFSYCGAREIPHFFCDVPALLTLSCSNTLIFERIIFFCCV
IMLTLPVAIIIASYTRVILTVLHMSSAESRHKAFATCSSHLMVVGMYYGAAMFIYM-RPSSGR-SPTQDK
IVSAFYTILTPMLNPLIYSLRNKEVARAFMKVLG-IDKAAA*-----

>HsOR1.5.35
----MAWENQT--FNSDFLLLGIFNHSPTHTFLFFLVLAIFSVAFMGNSIMVLLIYLDTQLHTPMYFLLS
QLSLMDLMLICTTVPKMAFNYLSGSKSISMAGCATQIFFYISLLGSECFLLAVMSYDRYTAICHPLRYTN
LMRPKICGLMTAFSWILGSTDGIIDAVATFSFSYCGSREIAHFCCDFPSLLILSCNDTSIFEEVIFICCI
VMLVFPVAIIITSYARVILAVIHMGSGEGRRKAFTTCSSHLMVVGMYYGAGLFMCI-QPTSHH-SPMQDK
MVSVFYTIVTPMLNPLIYSLRNKEVTRALMKILGKGKSGD*------

>SOR2M7
----MAWENQT--FNSGFILLGIFNHSPTRTFLFFLVLCIF*VAFMGNSLMVLLIYLDTQLHTPMYFLLS
QLSPMDVRLICTTVPKMAFNYLSGSKSISMAGCATQIFFYISLLGSECFLLAVMSYDRYTAICHPLRYTN
LMRPKICGLMTAFSWILGSTDGIIDAVATFSFSYCGSREIAHFCCDFPSLLILSCNDTSIFEEVIFICCI
VMLVFPVAIIITSYARVILAVIHMGSGEGRRKAFTTCSSHLMVVGMYYGAGLFMCI-QPTSHH-SPMQDK
MVSVFYTIVTPMLNPLIYSLRNKEVTRALMKILGKGKSGD-------

>SOR2M3
----MARENST--FNSDFILLGIFNHSPTHTFLFFLVLAIFSVAFMGNSVMVLLIYLDTQLHTPMYLLLS
QLSLMDLMLICTTVPKMAFNYLSGSKSISMAGCATQIFFYTSLLGSECFLLAVMAYDRYTAICHPLRYTN
LMSPKICGLMTAFSWILGSTDGIIDVVATFSFSYCGSREIAHFFCDFPSLLILSCSDTSIFEKILFICCI
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
VMIVFPVAIIIASYARVILAVIHMGSGEGRRKAFTTCSSHLLVVGMYYGAALFMYI-RPTSDR-SPTQDK
MVSVFYTILTPMLNPLIYSLRNKEVTRAFMKILGKGKSGE-------

>HsOR1.5.31
----MARENST--FNSDFILLGIFNHSPTHTFLFFLVLAIFSVAFMGNSVMVLLIYLDTQLHTPMYLLLS
QLSLMDLMLICTTVPKMAFNYLSGSKSISMAGCATQIFFYTSLLGSECFLLAVMAYDRYTAICHPLRYTN
LMSPKICGLMTAFSWILGSTDGIIDVVATFSFSYCGSREIAHFFCDFPSLLILSCSDTSIFEKILFICCI
VMIVFPVAIIIASYARVILAVIHMGSGEGRRKAFTTCSSHLLVVGMYYGAALFMYI-RPTSDR-SPTQDK
MVSVFYTILTPMLNPLIYSLRNKEVTRAFMKILGKGKSGE*------

>HsOR1.5.29
----MAWENQT--FNSDFILLGIFNHSPTHTFLFFLVLAIFSVAFMGNSVMVLLIYLDTQLHTPMYFLLS
QLFLMDLMLICSTVPKMAFNYLSGSKSISMAGCATQIFFYVSLLGSECFLLAVMSYDRYIAICHPLRYTN
LMRPKICGLMTAFSWILGSMDAIIDAVATFSFSYCGSREIAHFFCDFPSLLILSCNDTSIFEKVLFICCI
VMIVFPVAIIIASYARVILAVIHMGSGEGRRKAFTTCSSHLMVVGMYYGAGLFMYI-RPTSDR-SPMQDK
LVSVFYTILTPMLNPLIYSLRNKEVTRALRKVLGKGKCGE*------

>HsOR1.5.30
----MAWENQT--FNSDFILLGIFNHSPPHTFLFFLVLGIFLVAFMGNSVMVLLIYLDTQLHTPMYFLLS
QLSLMDLMLICTTVPKMAFNYLSGSKSISMAGCVTQIFFYISLSGSECFLLAVMAYDRYIAICHPLRYTN
LMNPKICGLMATFSWILGSTDGIIDAVATFSFSFCGSREIAHFFCEFPSLLILSCNDTSIFEEVIFICCI
VMLVFPVAIIIASYARVILAVIHMGSGEGRCKAFTTCSSHLMVVGMYYGAALFMYI-RPTSDH-SPTQDK
MVSVFYTILTPMLNPLIYSLRNKEVTRAFMKILGKSESELPHKLYVL

>SOR2M4
----MVWENQT--FNSIFILLGIFNHSPTHTFLFSLVLGIFSLALMENISMVLLIYIEKQLHTPMYFLLS
QLSLMDLMLICTTLPKMIFSYLSGKKSISLAGCGTQIFFYVSLLGAECFLLAVMAYDRYVAICHPLQYTI
LMNPKLCVFMTVASWTLGSLDGIIVLAAVLSFSYCSSLEIHHFFCDVAALLPLSCTETSAFERLLVICCV
VMLIFPVSVIILSYSHVLRAVIHMGSGESRRKAFTTCSSHLSVVGLYYGAAMFMYM-RPASKH-TPDQDK
MVSAFYTILTPMLNPLIYSLRNKEVFRALQKVR-RKES---------

>HsOR1.5.32
----MVWENQT--FNSIFILLGIFNHSPTHTFLFSLVLGIFSLALMENISMVLLIYIEKQLHTPMYFLLS
QLSLMDLMLICTTLPKMIFSYLSGKKSISLAGCGTQIFFYVSLLGAECFLLAVMAYDRYVAICHPLQYTI
LMNPKLCVFMTVASWTLGSLDGIIVLAAVLSFSYCSSLEIHHFFCDVAALLPLSCTETSAFERLLVICCV
VMLIFPVSVIILSYSHVLRAVIHMGSGESRRKAFTTCSSHLSVVGLYYGAAMFMYM-RPASKH-TPDQDK
MVSAFYTILTPMLNPLIYSLRNKEVFRALQKVLKKRKLI*-------

>MmOR11.1.4
--MAEELWNHS--SLSSFILAGLFGHSPYDSFFFSLVLLAFGAAVVGNILLLMVIQVDRRLHTPMYFFLS
QLSIMDLTMTCTVVPKMATNFLSGGKLISLGGCASQIFFVVTVGGAECFLLAVMAYDRYMAVCYPLRYPV
LMNWKACSFLATASWMGGMADSVIDVGVVFSFPYCGSLEVDHFFCEVPALLRLSCADTSLFEDLIYACCV
VMLLLPLGVIVASYARVLTTVMRMPSTEGKQKALTTCSSHLAVVGLYYGGAIFSYM-QRASAR-TPLGDR
ATSIFYTIVTPMFNPLIYSLRNREVTSALKKMLERWGM*--------

>SOR2V3
---METWVNQS--YTDGFFLLGIFSHSTADLVLFSVVMAVFTVALCGNVLLIFLIYMDPHLHTPMYFFLS
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
QLSLMDLMLVCTNVPKMAANFLSGRKSISFVGCGIQIGLFVCLVGSEGLLLGLMAYDRYVAISHPLHYPI
LMNQRVCLQITGSSWAFGIIDGLIQMVVVMNFPYCGLRKVNHFFCEMLSLLKLACVDTSLFEKVIFACCV
FMLLFPFSIIVASYARILGTVLQMHSAQAWKKALATCSSHLTAVTLFYGAAMFIYL-RPRHYR-APSHDK
VASIFYTVLTPMLNPLIYSLRNREVMGALRKGLDRCRIGSQH-----

>HsOR5.4.4
---METWVNQS--YTDGFFLLGIFSHSTADLVLFSVVMAVFTVALCGNVLLIFLIYMDPHLHTPMYFFLS
QLSLMDLMLVCTNVPKMAANFLSGRKSISFVGCGIQIGLFVCLVGSEGLLLGLMAYDRYVAISHPLHYPI
LMNQRVCLQITGSSWAFGIIDGLIQMVVVMNFPYCGLRKVNHFFCEMLSLLKLACVDTSLFEKVIFACCV
FMLLFPFSIIVASYAHILGTVLQMHSAQAWKKALATCSSHLTAVTLFYGAAMFIYL-RPRHYR-APSHDK
VASIFYTVLTPMLNPLIYSLRNREVMGALRKGLDRCRIGSQH*----

>SMOR276-1
---MGIWLNES--SVDGFILLGIFSQSQTDLLLFSTVMLVFTVALCGNVLLILLIYTDPRLHTPMYFFLS
QLSLMDLMLVCNIVPKMAVNFLSGRKSISFAGCGIQIGFFVSLVGSEGLLLGLMAYDRYVAISHPLHYPI
LMSQKVCLQIAGSSWAFGILDGIIQMVAAMSLPYCGSRYIDHFFCEVPALLKLACADTSLFDTLLFACCV
FMLLLPFSIIVTSYARILGAVLRMHSAQSRKKALATCSSHLTAVSLFYGAAMFIYL-RPRRYR-APSHDK
VVSIFYTVLTPMLNPLIYSLRNREVMGALRKGLDRCRVGSQH-----

>MmOR11.1.2
---MGIWLNES--SVDGFILLGIFSQSQTDLLLFSTVMLVFTVALCGNVLLILLIYTDPRLHTPMYFFLS
QLSLMDLMLVCNIVPKMAVNFLSGRKSISFAGCGIQIGFFVSLVGSEGLLLGLMAYDRYVAISHPLHYPI
LMSQKVCLQIAGSSWAFGILDGIIQMVAAMSLPYCGSRYIDHFFCEVPALLKLACADTSLFDTLLFACCV
FMLLLPFSIIVTSYARILGAVLRMHSAQSRKKALATCSSHLTAVSLFYGAAMFIYL-RPRRYR-APSHDK
VVSIFYTVLTPMLNPLIYSLRNREVMGALRKGLDRCRVGSQH*----

>HsOR5.4.3
---MGRWVNQS--YTDGFFLLGIFSHSQTDLVLFSAVMVVFTVALCGNVLLIFLIYLDAGLHTPMYFFLS
QLSLMDLMLVCNIVPKMAANFLSGRKSISFVGCGIQIGFFVSLVGSEGLLLGLMAYDRYVAVSHPLHYPI
LMNQRVCLQITGSSWAFGIIDGVIQMVAAMGLPYCGSRSVDHFFCEVQALLKLACADTSLFDTLLFACCV
FMLLLPFSIIMASYACILGAVLRIRSAQAWKKALATCSSHLTAVTLFYGAAMFMYL-RPRRYR-APSHDK
VASIFYTVLTPMLNPLIYSLRNGEVMGALRKGLDRCRIGSQH*----

>MmOR11.1.1
---MAMWLNQS--STDDFILLGIFSYSPRDLLLFSVVMLVFTAALFGNALLILLICTDPRLHTPMYFFLS
QLSLMDIMLVCTNVPKMAVNFLSGKKSISFVGCGIQIGLFVCLVGSEGLLLGLMAYDRYVAISHPLRYPV
LMNQKVCLQIIGSSWAFGIADGLVQMVVVMTFPYCSLREVDHFFCEMLSLLKLACVDTSLFEKIVFFCCI
FMLLFPFSIIVASYTRILGTVLHMHSAKSQKKALATCSSHMAAVSFFYGAAMFIYL-RPRQYR-TPSQDK
MVSIFYTVLTPMLNPLIYSLRNRDVIGALQKGLDRCRVGSQP*----

>SMOR277-1
---MAWAGNQT--LISHFVLLGLFTHSPLHLFLFSIIMVMFLVALSGNGLMILLILMDSRLHTPMYFFLS
WLSLMDLMLISTIVPRMAADFLLGRGSISFAGCGLQILFFLTLLGDECFLLAFMAYDRYVAISNPLRYSV
IMSRRVCWLMVAGSWLFGLVDGLIQAVFTLRFPYCGSQEIDHFFCEVPAVLKLACADTSLYETMIYVCCV
LMLLLPFSVISASYLRILVAVLRMRSAEGRRKAFATCSSHMIVVSLFYGAAMITYM-RPQAYH-SSKQDK
VVSAFYTMITPMLNPLIYSLRNKEVTGALRKLLGKCPCGGGTLG---
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR11.1.3
---MAWAGNQT--LISHFVLLGLFTHSPLHLFLFSIIMVMFLVALSGNGLMILLILMDSRLHTPMYFFLS
WLSLMDLMLISTIVPRMAADFLLGRGSISFAGCGLQILFFLTLLGDECFLLAFMAYDRYVAISNPLRYSV
IMSRRVCWLMVAGSWLFGLVDGLIQAVFTLRFPYCGSQEIDHFFCEVPAVLKLACADTSLYETMIYVCCV
LMLLLPFSVISASYLRILVAVLRMRSAEGRRKAFATCSSHMIVVSLFYGAAMITYM-RPQAYH-SSKQDK
VVSAFYTMITPMLNPLIYSLRNKEVTGALRKLLGKCPCGGGTLG*--

>SMOR278-1
----MKTPSNS--TEADFILLGLFSHTHAHSLLLSVVLVIFTASLMGNTLMILLICRDPRLHTPMYFLLS
QLSLMDMMLVSTIVPKMAANYLTSTRSISPAGCGSQIFLFLTLAGGECFLLAAMSYDRYVAICFPLRYHV
LMNPKLCAYLTVGSWLLGAADGLMQAGTILSFPFCHSRTINHFFCEAPSLVRLACADTKVFEFFMYICCI
LMLLIPLSLVLASYSLILATVLRMRSSAARKKAFTTCSSHLAVVGLFYGAIIFIYM-RPKSHQ-PGKSDK
VVSAFYTIFTPVLNPLIYSVRNKEVKGALRKWL-Q--KTV-------

>MmOR11.4.19
----MKTPSNS--TEADFILLGLFSHTHAHSLLLSVVLVIFTASLMGNTLMILLICRDPRLHTPMYFLLS
QLSLMDMMLVSTIVPKMAANYLTSTRSISPAGCGSQIFLFLTLAGGECFLLAAMSYDRYVAICFPLRYHV
LMNPKLCAYLTVGSWLLGAADGLMQAGTILSFPFCHSRTINHFFCEAPSLVRLACADTKVFEFFMYICCI
LMLLIPLSLVLASYSLILATVLRMRSSAARKKAFTTCSSHLAVVGLFYGAIIFIYM-RPKSHQ-PGKSDK
VVSAFYTIFTPVLNPLIYSVRNKEVKGALRKWLQK--TV*-------

>MmOR11.4.20
----MDRGNTT----AGFVLLGLFNHTRAHLFLFVLVLTVAFNSVVGNALLLLLIHQDRRLHTPMYFLLS
QLSLMDMMLVSTVVPQMAAGYLMGKKFISAAGCGFQIFFFLTLGGGECFLLAAMSYDRYVAICHPLRYPV
LMSWQLCLRLTVASWLLGAADGAMQAAATLSFQFCSRNEIDHFFCEAPVLLRLACGDTSAFEFFMYICCV
LMLLIPFSLILMSYGLILAAVLRMRSTEARKKAFATCSSHLAVVGLFYGAATFSYM-RPTSSR-SANHDK
VVSAFYTIVTPMLNPLIYSLRNSEVKGSLRKCVTRALTSKDALAGLD

>SOR2T12
----MEMRNTT----PDFILLGLFNHTRAHQVLFMMLLATVLTSLFSNALMILLIHWDHRLHRPMYFLLS
QLSLMDVMLVSTTVPKMAADYLTGNKAISRAGCGVQIFFLPTLGGGECFLLAAMAYDRYAAVCHPLRYPT
LMGWQLCLRMTMSSWLLGAADGLLQAVATLSFPYCGAHEIDHFFCEAPVLVRLACADTSVFENAMYICCV
LMLLVPFSLILSSYGLILAAVLLMRSTEARKKAFATCSSHVAVVGLFYGAGIFTYM-RPKSHR-STNHDK
VVSAFYTMFTPLLNPLIYSVRNSEVKEALKLWLGTCVNLKHQQNEAH

>HsOR1.5.34
----MEMRNTT----PDFILLGLFNHTRAHQVLFMMLLATVLTSLFSNALMILLIHWDHRLHRPMYFLLS
QLSLMDMMLVSTTVPKMAADYLTGNKAISRAGCGVQIFFLPTLGGGECFLLAAMAYDRYAAVCHPLRYPT
LMSWQLCLRMTMSSWLLGAADGLLQAVATLSFPYCGAHEIDHFFCEAPVLVRLACADTSVFENAMYICCV
LMLLVPFSLILSSYGLILAAVLLMRSTEARKKAFATCSSHVAVVGLFYGAGIFTYM-RPKSHR-STNHDK
VVSAFYTMFTPLLNPLIYSVRNSEVKEALKRWLGTCVNLKHQQNEAH

>HsOR1.5.33
----MEMRNTT----PDFILLGLFNHTRAHQVLFMMVLSIVLTSLFGNSLMILLIHWDHRLHTPMYFLLS
QLSLMDMMLVSTTVPKMAADYLTGSKAISRAGCGVQIFFLPTLGGGECFLLAAMAYDRYAAVCHPLRYPT
LMSWQLCLRMTMSCWLLGAADGLLQAVVTLSFPYCGAHEIDHFFCETPVLVRLACADTSVFENAMYICCV
LMLLVPFSLILSSYGLILAAVLHMRSTEARKKAFATCSSHVAVVGLFYGAAIFTYM-RPKSHR-STNHDK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
VVSAFYTMFTPLLNPLIYSVKNSEVKGALKRWLGTCVNIKHQQNEAH

>HsOR1.5.16
----MENGSYT----SYFILLGLFNHTRAHQVLFMMVLSIVLTSLFGNSLMILLIHWDHRLHTPMYFLLS
QLSLMDVMLVSTTVPKMAADYLTGSKAISRAGCGAQIFFLPTLGGGECFLLAAMAYDRYAAVCHPLRYPT
LMSWQLCLRMNLSCWLLGAADGLLQAVATLSFPYCGAHEIDHFFCETPVLVRLACADTSVFENAMYICCV
LMLLVPFSLILSSYGLILAAVLHMRSTEARKKAFATCSSHVAVVGLFYGAAIFTYM-RPKSHR-STNHDK
VVSAFYTMFTPLLNPLIYSVKNSEVKGALTRCMGRCVALSRE*----

>MmOR11.4.7
------MSNYT-GQFSDFTLVGFFSQSKHPALLAVVIFVVFLMALSGNALLILLLILSDTHLHTPMYFFIS
QLSLMDMMYISVTVPKMLMDQVLGSHKISAAACGMQMFLYLSIGGSEFLLLAAMSYDRYVAICHPLRYPV
LMNHRICLLLLSVCWLLGSLDGFMLTPVTMTFPICGSREIHHFFCEVPAVTKLSCSDTWLYETLMYVCCV
LMILIPVTVISGSYSSILLTVLKMNSAEGRKKALATCSSHMTVVTLFYGAAVYTYM-LPASLH-TPEKDM
VVSVFYTIVTPLLNPLIYSFRNKNVTEAMKKLLG-VSIPH*------

>SMOR275-1
MDLTTWMNNYT--TQSDFTLVGFFSQSKHSALLAVVIFVVFLMALSGNALLILLVLSDTHLHTPMYFFIS
QLSLMDMMYISVTVPKMLMDQVLGSHKISAAACGMQMFLYVTLAGSEFFLLAAMSYDRYVAICHPLRYPV
LMNYRVCLLLMSVCWILGSLDGFMFTPVTMTFPFCGSREIHHFFCEVPAVTKLSCSDTWLYETLMYVCCV
LMLLIPVTVISGSYTSILLTVLRMNSAEGRKKALATCSSHMTVVTLFYGAAIYTYI-FPASLH-TPEKDM
VVSVFYTILTPLLNPLIYSFRNKNVTEAMKKLLVVSTLF--------

>MmOR11.4.5
MDLTTWMNNYT--TQSDFTLVGFFSQSKHSALLAVVIFVVFLMALSGNALLILLVLSDTHLHTPMYFFIS
QLSLMDMMYISVTVPKMLMDQVLGSHKISAAACGMQMFLYVTLAGSEFFLLAAMSYDRYVAICHPLRYPV
LMNYRVCLLLMSVCWILGSLDGFMFTPVTMTFPFCGSREIHHFFCEVPAVTKLSCSDTWLYETLMYVCCV
LMLLIPVTVISGSYTSILLTVLRMNSAEGRKKALATCSSHMTVVTLFYGAAIYTYI-FPASLH-TPEKDM
VVSVFYTILTPLLNPLIYSFRNKNVTEAMKKLLVVSTLF*-------

>MmOR11.4.4
MDLTTWMNNYT--TQSDFTLVGFFSQSKHPALLAVVIFVVFLMALSGNALLILLILSDIHLHIPMYFFIS
QLSLMDMMYISVTVPKMLMDQVLGSHKISAAACGMQMFLYLTLAGSEYFLLAAMSYDHYVAICHPLQYPV
LMNHRVCLLLMSVCWILGSLDGFMFTPVTMTFPFCGSREIHHFFCEVPAVTKLSCSDTWLYETLMYVCCV
LMLLIPVTVISGSYTSILLTVLRMNSAEGRKKALATCSSHMTVVTLYYGAAIYTYI-FPASLH-TPEKDM
VVSMFYTILTPLLNPLIYSFRNKNVTEAMKKLLGVSTLFQETVK*--

>MmOR11.4.10
MDLTTWMNNYT--TQSDFTLVGFFSQSKHPVLLAVVIFVVFLMALSGNALLILLVLSDTHLHTPMYFFIS
QLSLMDMMYISVTVPKMLMDQVLGSHKISAAACGMQMFLYLTLAGSEYLLLAAMSYDRYVAICHPLRYPV
LMNHRVCLLLMSLCWILGSLDGFMLTPITMTFPFCGSREIHHFFCEVPAVTKLSCSDTWLYETLMYVCCV
LMLLIPVTVISGSYTSILLTVLRMNSAEGRKKALATCSSHMTVVTLFYGAAVYTYI-FPASLH-SPEKDM
VVSVFYTILTPLLNPLIYSFRNKNVTEAMKKLLGVKPFFQESLKEVI

>MmOR11.4.6
MDLTTWMNNST--GQSDFTLVGLFSQSKHPALLAVVIFVVFLMALSGNALLILLILSDTHLHTPMYFFIS
QLSLMDMMYISVTVPKMLMDQVLGSHKISAAACGMQMFLYLTLVGSEFFLLAAMSYDRYVAICYPLRYPV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LMNYRVCLLLMSVCWVLGSLDGFMLTPVTMTFPFCGSREIHHFFCEVPAVTKLSCSDTWLYETLMYVCCV
LMLLIPVTVISGSYTSILLTVLRMNSAEGRKKALATCSSHMTVVTLFYGAAVYTYM-LPASLH-TPEKDM
VVSVFYTILTPLLNPLIYSLRNKNVTEAMKKLLGENPSFQKQ*----

>MmOR11.4.8
----MS--NYT--GQSYFTLVGLFSQSKHPALLAVVIFVVFLMSLSGNALLILLILSDTHLHTPMYFFIS
QLSLMDMMYISVTVPKMLMDRVLGNHKISAAACGMQMFLYMSLGGSEFLLLAAMSYDRYVAICHPLRYPV
LMNHRVCLLLISTCWILGSLDGFMFTPVTMTFPFCGSREIHHFFCEAPAVTKLSCSDTWLYETLMYVCCV
LMILIPVTVISGSYSSILLTVLRMNSAEGRKKALATCSSHMTVVTLFYGAAIYTYI-FPASLH-SPEKDM
VVSVFYTILTPLLNPLIYSLRNKNVTEAMKKLLGIRLHFPETVK*--

>SOR2T4
GLFRQSKHNHT--GWSDFILLGLFRQSKHPALLCVVIFVVFLMALSGNAVLILLIHCDAHLHTPMYFFIS
QLSLMDMAYISVTVPKMLLDQVMGVNKISAPECGMQMFFYVTLAGSEFFLLATMAYDRYVAICHPLRYPV
LMNHRVCLFLSSGCWFLGSVDGFTFTPITMTFPFRGSREIHHFFCEVPAVLNLSCSDTSLYEIFMYLCCV
LMLLIPVVIISSSYLLILLTIHGMNSAEGRKKAFATCSSHLTVVILFYGAAIYTYM-LPSSYH-TPEKDM
MVSVFYTILTPVVNPLIYSLRNKDVMGALKKMLTVPAFQKA------

>HsOR1.5.37
MANITWMANHT--GWSDFILLGLFRQSKHPALLCVVIFVVFLMALSGNAVLILLIHCDAHLHTPMYFFIS
QLSLMDMAYISVTVPKMLLDQVMGVNKISAPECGMQMFFYVTLAGSEFFLLATMAYDRYVAICHPLRYPV
LMNHRVCLFLSSGCWFLGSVDGFTFTPITMTFPFRGSREIHHFFCEVPAVLNLSCSDTSLYEIFMYLCCV
LMLLIPVVIISSSYLLILLTIHGMNSAEGRKKAFATCSSHLTVVILFYGAAIYTYM-LPSSYH-TPEKDM
MVSVFYTILTPVVNPLIYSLRNKDVMGALKKMLTVPAFQKAME*---

>HsOR1.5.43
MANITRMANHT--GKLDFILMGLFRRSKHPALLSVVIFVVFLKALSGNAVLILLIHCDAHLHSPMYFFIS
QLSLMDMAYISVTVPKMLLDQVMGVNKVSAPECGMQMFLYLTLAGSEFFLLATMAYDRYVAICHPLRYPV
LMNHRVCLFLASGCWFLGSVDGFMLTPITMSFPFCRSWEIHHFFCEVPAVTILSCSDTSLYETLMYLCCV
LMLLIPVTIISSSYLLILLTVHRMNSAEGRKKAFATCSSHLTVVILFYGAAVYTYM-LPSSYH-TPEKDM
MVSVFYTILTPVLNPLIYSLRNKDVMGALKKML-TVRFVL*------

>HsOR1.5.44
MANITRMANHT--GRLDFILMGLFRQSKHPALLSVVIFVVFLKALSGNAVLILLIHCDAHLHSPMYFFIS
QLSLMDMAYISVTVPKMLLDQVMGVNKVSAPECGMQMFLYLTLAGSEFFLLATMAYDRYVAICHPLRYPV
LMNHRVCLFLASGCWFLGSVDGFMLTPITMSFPFCRSWEIHHFFCEVPAVTILSCSDTSLYETLMYLCCV
LMLLIPVTIISSSYLLILLTVHRMNSAEGRKKAFATCSSHLTVVILFYGAAVYTYM-LPSSYH-TPEKDM
MVSVFYTILTPVLNPLIYSLRNKDVMGALKKML-TVRFVL*------

>SOR2T5
MANITRMANHT--GRLDFILMGLFRRSKHPALLSVVIFVVFLKALSGNAVLILLIHCDAHLHSPMYFFIS
QLSLMDMAYISVTVPKMLLDQVMGVNKVSAPECGMQMFLYLTLAGSEFFLLATMAYDRYVAICHPLRYPV
LMNHRVCLFLASGCWSLGSVDGFMLTPITMSFPFCRSWEIHHFFCEVPAVTILSCSDTSLYETLMYLCCV
LMLLIPVTIISSSYLLILLTIHRMNSAAGRKKAFATCSSHLTVVILFYGAAVYTYM-LPSSYH-TPEKDM
MVSVFYTILTPVLNPLIYSLRNKDVMGALKKML-TVRFVL-------

>SOR2T10
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MRLANQT--LGGDFFLLGIFSQISHPGRLCLLIFSIFLMAVSWNITLILLIHIDSSLHTPMYFFIN
QLSLIDLTYISVTVPKMLVNQLAKDKTISVLGCGTQMYFYLQLGGAECCLLAAMAYDRYVAICHPLRYSV
LMSHRVCLLLASGCWFVGSVDGFMLTPIAMSFPFCRSHEIQHFFCEVPAVLKLSCSDTSLYKIFMYLCCV
IMLLIPVTVISVSYYYIILTIHKMNSVEGRKKAFTTCSSHITVVSLFYGAAIYNYM-LPSSYQ-TPEKDM
MSSFFYTILTPVLNPIIYSFRNKDVTRALKKML-SVQKPPY------

>HsOR1.5.46
----MRLANQT--LGGDFFLLGIFSQISHPGRLCLLIFSIFLMAVSWNITLILLIHIDSSLHTPMYFFIN
QLSLIDLTYISVTVPKMLVNQLAKDKTISVLGCGTQMYFYLQLGGAECCLLAAMAYDRYVAICHPLRYSV
LMSHRVCLLLASGCWFVGSVDGFMLTPIAMSFPFCRSHEIQHFFCEVPAVLKLSCSDTSLYKIFMYLCCV
IMLLIPVTVISVSYYYIILTIHKMNSVEGRKKAFTTCSSHITVVSLFYGAAIYNYM-LPSSYQ-TPEKDM
MSSFFYTILTPVLNPIIYSFRNKDVTRALKKML-SVQKPPY*-----

>HsOR1.5.45
CSGNQTSQNQT--ASTDFTLTGLFAESKHAALLYTVTFLLFLMALTGNALLILLLIHSEPRLHTPMYFFIS
QLALMDLMYLCVTVPKMLVGQVTGDDTISPSGCGIQMFFHLTLAGAEVFLLAAMAYDRYAAVCRPLHYPL
LMNQRVCQLLVSACWVLGMVDGLLLTPITMSFPFCQSRKILSFFCETPALLKLSCSDVSLYKMLTYLCCI
LMLLTPIMVISSSYTLILHLIHRMNSAAGRRKALATCSSHMIIVLLLFGASFYTYM-LRSSYH-TAEQDM
MVSAFYTIFTPVLNPLIYSLRNKDVTRALRSMMQSRMNQEK*-----

>HsOR1.5.42
CSGNQTSQNQT--ASTDFTLTGLFAESKHAALLYTVTFLLFLMALTGNALLILLLIHSEPRLHTPMYFFIS
QLALMDLMYLCVTVPKMLVGQVTGDDTISPSGCGIQMFFYLTLAGAEVFLLAAMAYDRYAAVCRPLHYPL
LMNQRVCQLLVSACWVLGMVDGLLLTPITMSFPFCQSRKILSFFCETPALLKLSCSDVSLYKTLMYLCCI
LMLLAPIMVISSSYTLILHLIHRMNSAAGHRKALATCSSHMIIVLLLFGASFYTYM-LPSSYH-TAEQDM
MVSAFYTIFTPVLNPLIYSLRNKDVTRALRSMM-QSRMNQEK*----

>SOR2T1
TTVGSMEEYNT-SS-TDFTFMGLFNRKETSGLIFAIISIIFFTALMANGVMIFLIQTDLRLHTPMYFLLS
HLSLIDMMYISTIVPKMLVNYLLDQRTISFVGCTAQHFLYLTLVGAEFFLLGLMAYDRYVAICNPLRYPV
LMSRRVCWMIIAGSWFGGSLDGFLLTPITMSFPFCNSREINHFFCEAPAVLKLACADTALYETVMYVCCV
LMLLIPFSVVLASYARILTTVQCMSSVEGRKKAFATCSSHMTVVSLFYGAAMYTYM-LPHSYH-KPAQDK
VLSVFYTILTPMLNPLIYSLRNKDVTGALKRALGRFKGPQRVSGGVF

>HsOR1.5.39
----MEEYNTS---STDFTFMGLFNRKETSGLIFAIISIIFFTALMANGVMIFLIQTDLRLHTPMYFLLS
HLSLIDMMYISTIVPKMLVNYLLDQRTISFVGCTAQHFLYLTLVGAEFFLLGLMAYDRYVAICNPLRYPV
LMSRRVCWMIIAGSWFGGSLDGFLLTPITMSFPFCNSREINHFFCEAPAVLKLACADTALYETVMYVCCV
LMLLIPFSVVLASYARILTTVQCMSSVEGRKKAFATCSSHMTVVSLFYGAAMYTYM-LPHSYH-KPAQDK
VLSVFYTILTPMLNPLIYSLRNKDVTGALKRALGRFKGPQRVSGGVF

>SMOR274-1
----MEGDNTS---STDFTFMGLFNTEETSGLVFATISVIFLTALVANGIMIFLIHTDAHLHTPMYFLLS
HLSFIDMMYISTIVPKMLVDYLLGQRTISFVGCTAQHFLYLTLVGAEFFLLGLMAYDRYVAICNPLRYPV
LMSRRICWIIIAGSWFGGSLDGFLLTPITMSFPFCRSREINHFFCEAPAVLKLACADTALYETVMYVCCV
LMLLIPFSVVISSYARILATVYHMSSVEGRKKAFATCSSHMTVVTLFYGAAIYTYM-VPHSYH-SPSQDK
IFSVFYTILTPMLNPLIYSMRNKDVSGGLRRALGKIRSSQRVSKDY-
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR14.1.2
----MEGDNTS---STDFTFMGLFNTEETSGLVFATISVIFLTALVANGIMIFLIHTDAHLHTPMYFLLS
HLSFIDMMYISTIVPKMLVDYLLGQRTISFVGCTAQHFLYLTLVGAEFFLLGLMAYDRYVAICNPLRYPV
LMSRRICWIIIAGSWFGGSLDGFLLTPITMSFPFCRSREINHFFCEAPAVLKLACADTALYETVMYVCCV
LMLLIPFSVVISSYARILATVYHMSSVEGRKKAFATCSSHMTVVTLFYGAAIYTYM-VPHSYH-SPSQDK
IFSVFYTILTPMLNPLIYSMRNKDVSGGLRRALGKIGSSQRVSKDF*

>MmOR14.1.1
----MDG-NKT--FPSDFTFVGLFTHNKASGFLFSVICATFFMAILANGVMIFLIHIDPHLHTPMYFLLS
HLSFIDMMYISTIVPKILVDYIVGKGIISFAACTAQYFLYMGFVGAEFFLLGLMAYDRYVAICNPLRYPV
LMSRRVCWFILASSWFGGALDSFLLTPITMSLPFCASHKINHFFCEAPTMLRLACGDKAIYEMVMYICCV
VMLLVPFSVVITSYAQILVTVHHIKSEEGRKKAFATCSSHVIVVTLFYGAALYTYM-LPQAYH-TPLKDK
IFSAFYTILTPLLNPVIYSLRNRDVAGALKRVIARHRGACSVERK*-

>HsOR1.5.38
----MNENNET--LTRGFTLMGLFTHNKCSGFFFGVICAVFFMAMIANGVMIFLINIDPHLHTPMYFLLS
HLSVIDTLYISTIVPKMLVDYLMGEGTISFIACTAQCFLYMGFMGAEFFLLGLMAYDRYVAICNPLRYPV
LISWRVCWMILASSWFGGALDSFLLTPITMSLPFCASHQINHFFCEAPTMLRLACGDKTTYETVMYVCCV
AMLLIPFSVVTASYTRILITVHQMTSAEGRKKAFATCSSHMMVVTLFYGAALYTYT-LPQSYH-TPIKDK
VFSAFYTILTPLLNPLIYSLRNRDVMGALKRVVAR----C*------

>HsOR1.5.49
----MEQSNYS--VYADFILLGLFSNARFPWLLFALILLVFLTSIASNVVKIILIHIDSRLHTPMYFLLS
QLSLRDILYISTIVPKMLVDQVMSQRAISFAGCTAQHFLYLTLAGAEFFLLGLMSYDRYVAICNPLHYPV
LMSRKICWLIVAAAWLGGSIDGFLLTPVTMQFPFCASREINHFFCEVPALLKLSCTDTSAYETAMYVCCI
MMLLIPFSVISGSYTRILITVYRMSEAEGRGKAVATCSSHMVVVSLFYGAAMYTYV-LPHSYH-TPEQDK
AVSAFYTILTPMLNPLIYSLRNKDVTGALQKVVGRCVSSGKVTTF*-

>SOR2T11
--------TNT--SSSDFTLLGLLVNSEAAGIVFTVILAVFLGAVTANLVMIFLIQVDSRLHTPMYFLLS
QLSIMDTLFICTTVPKLLADMVSKEKIISFVACGIQIFLYLTMIGSEFFLLGLMAYDRYVAVCNPLRYPV
LMNRKKCLLLAAGAWFGGSLDGFLLTPITMNVPYCGSRSINHFFCEIPAVLKLACADTSLYETLMYICCV
LMLLIPISIISTSYSLILLTIHRMPSAEGRKKAFTTCSSHLTVVSIFYGAAFYTYV-LPQSFH-TPEQDK
VVSAFYTIVTPMLNPLIYSLRNKDVIGAFKKVFACCSSARKVATSDA

>HsOR1.5.47
--------TNT--SSSDFTLLGLLVNSEAAGIVFTVILAVFLGAVTANLVMIFLIQVDSRLHTPMYFLLS
QLSIMDTLFICTTVPKLLADMVSKEKIISFVACGIQIFLYLTMIGSEFFLLGLMAYDCYVAVCNPLRYPV
LMNRKKCLLLAAGAWFGGSLDGFLLTPITMNVPYCGSRSINHFFCEIPAVLKLACADTSLYETLMYICCV
LMLLIPISIISTSYSLILLTIHRMPSAEGRKKAFTTCSSHLTVVSIFYGAAFYTYV-LPQSFH-TPEQDK
VVSAFYTIVTPMLNPLIYSLRNKDVIGAFKKVFACCSSAQKVATSDA

>HsOR1.5.41
----MGMEGLL-QNSTNFVLTGLITHPAFPGLLFAIVFSIFVVAITANLVMILLIHMDSRLHTPMYFLLS
QLSIMDTIYICITVPKMLQDLLSKDKTISFLGCAVQIFLYLTLIGGEFFLLGLMAYDRYVAVCNPLRYPL
LMNRRVCLFMVVGSWVGGSLDGFMLTPVTMSFPFCRSREINHFFCEIPAVLKLSCTDTSLYETLMYACCV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LMLLIPLSVISVSYTHILLTVHRMNSAEGRRKAFATCSSHIMVVSVFYGAAFYTNV-LPHSYH-TPEKDK
VVSAFYTILTPMLNPLIYSLRNKDVAAALRKVLGRCGSSQSIRVATV

>HsOR1.5.48
----MGMEGLL-QNSTNFVLTGLITHPAFPGLLFAVVFSIFVVAITANLVMILLIHMDSRLHTPMYFLLS
QLSIMDTIYICITVPKMLQDLLSKDKTISFLGCAVQIFYLTLIGG-EFFLLGLMAYDRYVAVCNPLRYPL
LMNRRVCLFMVVGSWVGGSLDGFMLTPVTMSFPFCRSREINHFFCEIPAVLKLSCTDTSLYETLMYACCV
LMLLIPLSVISVSYTHILLTVHRMNSAEGRRKAFATCSSHIMVVSVFYGAAFYTNV-LPHSYH-TPEKDK
VVSAFYTILTPMLNPLIYSLRNKDVAAALRKVLGRCGSSQSIRVATV

>SMOR273-1
---MMERENYT--FNSDFILLGLFSSSKISLTFFSVIFFIFIMTITENALMILLIHRDSRLHTPMYFLLS
HLSFMDILHISNIVPKMIADFLSGSRTISFAGCAFQIFLSLTLLGGECLLLAVMSYDRYVAICHPLRYPV
LMRDNFSRLLAAGSWLVGILNSIVHTAFVLHFPFCHSRAIDHFFCEVPAMLKLSCIDTTHYERGVYVSGI
IFLLIPFSMISISYVQILLTVFQMHSSGARQKSFSTCLFHMVVVIMYYGPFIFTYM-RPRSYH-TPGQDK
FLAIFYTILTPTLNPIIYSFRNKDVLMALKNIV-QSNILNKE-----

>MmOR16.3.8
---MMEYENYT---FNDFILLGLFSSSKTSLTFFSVIFFIFIMAITENALMILLIHRDSRLHTPMYFLLS
HLSFMDILHISNIVPKMIADFLSGSRTISFAGCAFQIFLSLTLLGGECLLLAAMSYDRYVAICHPLCYPV
LMRDNFSRLLAAGSWLVGILNSIVHTAFVLHFPFCHSRAIDHFFCEVPAMLKLSCIDTTHYEQGVYVSGI
IFLMVPFSMISISYVQILLTVFQMHSSGARQKSFSTCLFHMVVVIMYYGPVIFTYM-RPRSYH-TPGQDK
FLAIFYTILTPKLNPIIYSFRNKDVLRALKNIV-QSNILNKK*----

>MmOR16.3.6
---MMEYENYT--FNSDFILLGLFSSSKTSLTFFSFIFFIFIMAITENALMILLIHRDSRLHTPMYFLLS
HLSFMDILHISNIVPKMIADFLSGSRTISFAGCAFQIFLSLTLLGGECLLLAAMSYDRYVAICHPLRYPV
LMRDNSSRLLAAGSWLVGILNSIVHTVFALHFPFCHSRAIDHFFCEVPAMLKLSCIDTTHYERGVYVSGI
IFLLIPFSMISISYVQILLTVFQMQSSGARQKSFSTCSFHMVVVIMYYGPFIFTYM-RPRSYH-TPGQDK
FLAIFYTILTPTLNPIIYSFRNKDVLMAVKNIVQSNFLNKK*-----

>HsOR1.5.17
---MMGHQNHT--FSSDFILLGLFSSSPTSVVFFLVLFVIFIMSVTENTLMILLIRSDSRLHTPMYFLLS
HLSLMDILHVSNIVPKMVTNFLSGSRTISFAGCGFQVFLSLTLLGGECLLLAAMSCDRYVAICHPLRYPI
LMKEYASALMAGGSWLIGVFNSTVHTAYALQFPFCGSRAIDHFFCEVPAMLKLSCADTTRYERGVCVSAV
IFLLIPFSLISASYGQIILTVLQMKSSEARKKSFSTCSFHMIVVTMYYGPFIFTYM-RPKSYH-TPGQDK
FLAIFYTILTPTLNPFIYSFRNKDVLAVMKNMLKSLHKKMNRKIPEC

>HsOR7.4.1
----MWQKNQT--SLADFILEGLFDDSLTHLFLFSLTMVVFLIAVSGNTLTILLICIDPQLHTPMYFLLS
QLSLMDLMHVSTIILKMATNYLSGKKSISFVGCATQHFLYLCLGGAECFLLAVMSYDRYVAICHPLRYAV
LMNKKVGLMMAVMSWLGASVNSLIHMAILMHFPFCGPRKVYHFYCEFPAVVKLVCGDITVYETT-VYISS
ILLLLPIFLISTSYVFILQSVIQMRSSGSKRNAFATCGSHLTVVSLWFGACIFSYM-RPRSQC-TLLQNK
VGSVFYSIITPTLNSLIYTLRNKDVAKALRRVLRRDVITQCIQRLQL

>SOR2AE1
----MWQKNQT--SLADFILEGLFDDSLTHLFLFSLTMVVFLIAVSGNTLTILLICIDPQLHTPMYFLLS
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
QLSLMDLMHVSTTILKMATNYLSGKKSISFVGCATQHFLYLCLGGAECFLLAVMSYDRYVAICHPLRYAV
LMNKKVGLMMAVMSWLGASVNSLIHMAILMHFPFCGPRKVYHFYCEFPAVVKLVCGDITVYETT-VYISS
ILLLLPIFLISTSYVFILQSVIQMRSSGSKRNAFATCGSHLTVVSLWFGACIFSYM-RPRSQC-TLLQNK
VGSVFYSIITPTLNSLIYTLRNKDVAKALRRVLRRITQCIQRLQLWL

>SMOR285-1
----MESGNHS--CGTEFTLVGLFQYGHMDTFLFTLIAILFAVALMGNITLVLLIRLDRRLHTPMYFFLS
QLSIIDMMYISTTVPKMAANFLSDTKAISFLGCAVQTFVFLTLGGSEALLLGFMSYDRYIAICQPLHYPV
LMSRKICCSMVAGAWSSSSINAFMHTVYVFQLPFCGSRMVNHFFCEVPSLLPLVCEDTSQYEHTVLVSGL
VILLLPFLAILASYARVLVVVLQMGSGKGQSRAVSTCSSHLTVASLFYVTTLSTYT-QPHSLH-SPGRDK
VVAVLYSIVTPVLNPFIYSLRNKEVMGALRRQRG----------

>MmOR11.4.16
----MESGNHS--CGTEFTLVGLFQYGHMDTFLFTLIAILFAVALMGNITLVLLIRLDRRLHTPMYFFLS
QLSIIDMMYISTTVPKMAANFLSDTKAISFLGCAVQTFVFLTLGGSEALLLGFMSYDRYIAICQPLHYPV
LMSRKICCSMVAGAWSSSSINAFMHTVYVFQLPFCGSRMVNHFFCEVPSLLPLVCEDTSQYEHTVLVSGL
VILLLPFLAILASYARVLVVVIQMGSGKGQSRAVSTCSSHLTVASLFYVTTLSTYT-QPHSLH-SPGRDK
VVAVLYSIVTPVLNPFIYSLRNKEVMGALRRQRG*----------

>MmOR11.4.14
----METGNRS--CGTDFSLVGLFQDGHMDTFLFTLIAILFAVAFIGNITLVLLIRLDCRLHTPMYFLLS
QLSIIDMMYISTTVPKVAANFLSDTKAISFLGCAVQAFVFLTLGGSEALLLGFMSYDRYIAICRPLHYPV
LMSRKICCSMVAGAWSSSSINAFMHTVYVFQLPFCGSRMVNHFFCEVPSLLPLVCEDTSQYEHTVLVSGL
VILLLPFLAILASYARVLVVVLQMGSGKGQSRAVSTCSSHLTVASLFYVTGLSTYT-QPHSLH-SPGRDK
VVAVLYSIVTLVLNPFIYSLRNKEVMGALRRQMG*----------

>MmOR11.4.18
----MESGNRS--CGTDFTLVGLFQDGHMDTFLFTVISILFAVALIGNITLVILIRLDQRLHTPMYFLLS
QLSIMDMMYISTTVPKMAANFLSDTKAISFLGCVIQAFVFLTLGGSEALLLGFMSYDRYIAICRPLHYPV
LMSRKICCSMVASAWSSSSITASVHTVYVFQLPFCGSRMVNHFFCEVPSLLPLVCEDTSQYEHTVLVSGL
VILLLPFLAILASYARVLVVVIQMGSGKGQSRAVSTCSSHLTVASLFYVTTLSTYT-QPHTLH-SPGRDK
VVAVLYSIVTPVLNPFIYSLRNKEVMGALRRQMK*----------

>MmOR11.4.15
----METGNHS--CGTDFTLVGLFQYGHMDTFLFTVISILFAVALIGNITLVLLIRLDRRLHTPMYFFLS
QLSIIDMMCISTTVPKMGANFISDTKAISVLGCEIQVFMFMSLAGCEALLLGFMSYDRYIAICQPLHYPV
LMSRKICCSMVASAWSSSSINALAHTVYVFQLPFCGSRMVNHFFCEVPSLLPLVCEDTSQYEHMIVMSVL
VLVLLPFLAILASYARVLVVVFQMGSGQGQSRAVSTCSSHLTVASLFYVTGLCTYT-QPHSLH-SPGRDK
VVAVLYSIVTPVLNPFIYSLRNKEVIGALRRQMG*----------

>HsOR1.5.19
----MKTGNQS--FGTDFLLVGLFQYGWINSLLFVVIATLFTVALTGNIMLIHLIRLNTRLHTPMYFLLS
QLSIVDLMYISTTVPKMAVSFLSQSKTIRFLGCEIQTYVFLALGGTEALLLGFMSYDRYVAICHPLHYPM
LMSKKICCLMVACAWASGSINAFIHTLYVFQLPFCRSRLINHFFCEVPALLSLVCQDTSQYEYTVLLSGL
IILLLPFLAILASYARVLIVVFQMSSGKGQAKAVSTCSSHLIVASLFYATTLFTYT-RPHSLR-SPSRDK
AVAVFYTIVTPLLNPFIYSLRNKEVTGAVRRLLGYWICCRKYDFRSL
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>HsOR1.5.18
----MENYNQT---STDFILLGLFPPSRIDLFFFILIVFIFLMALIGNLSMILLIFLDTHLHTPMYFLLS
QLSLIDLNYISTIVPKMASDFLHGNKSISFTGCGIQSFFFLALGGAEALLLASMAYDRYIAICFPLHYLI
RMSKRVCVLMITGSWIIGSINACAHTVYVLHIPYCRSRAINHFFCDVPAMVTLACMDTWVYEGTVFLSAT
IFLVFPFIGISCSYGQVLFAVYHMKSAEGRKKAYLTCSTHLTVVTFYYAPFVYTYL-RPRSLR-SPTEDK
VLAVFYTILTPMLNPIIYSLRNKEVMGALTRVSQRICSVKM*-----

>SOR2L8
----MENYNQT---STDFILLGLFPPSRIDLFFFILIVFIFLMALIGNLSMILLIFLDTHLHTPMYFLLS
QLSLIDLNYISTIVPKMASDFLHGNKSISFTGCGIQSFFFLALGGAEALLLASMAYDRYIAICFPLHYLI
RMSKRVCVLMITGSWIIGSINACAHTVYVLHIPYCRSRAINHFFCDVPAMVTLACMDTWVYECTVFLSTT
IFLVFPFIGISCSCGQVLFAVYRMKSAEGRKKAYLTCSTHLTVVTFYYAPFVYTYL-RPRSLR-SPTEDK
VLAVFYTILTPMLNPII*SLRNREVMGALTRVSQRICSVKM------

>HsOR1.5.25
----MENYNQT---STDFILLGFFPPSRIGLFLFILIVFIFLMALIGNLSMILLIFLDTHLHTPMYFLLS
QLSLIDLNYISTIVPKMASDFLSGNKSISFTGCGIQSFFFSALGGAEALLLASMAYDRYIAICFPLHYPI
RMSKRMCVLMITGSWIIGSINACAHTVYVLHIPYCQSRAINHFFCDVPAMVTLACMDTWVYEGTVFLSTT
IFLVFPFIAISCSYGRVLLAVYHMKSAEGRKKAYLTCSTHLTVVTFYYAPFVYTYL-RPRSLR-SPTEDK
VLAVFYTTLTPMLNPIIYSLRNKEVMGALTRVSQRICSGKM*-----

>HsOR1.5.23
----MENYNQT---STDFILLGLFPPSKIGLFLFILFVLIFLMALIGNLSMILLIFLDTHLHTPMYFLLS
QLSLIDLNYISTIVPKMASDFLYGNKSISFIGCGIQSFFFMTFAGAEALLLTSMAYDRYVAICFPLHYPI
RMSKRMYVLMITGSWMIGSINSCAHTVYAFRIPYCKSRAINHFFCDVPAMLTLACTDTWVYEYTVFLSST
IFLVFPFTGIACSYGWVLLAVYRMHSAEGRKKAYSTCSTHLTVVTFYYAPFAYTYL-CPRSLR-SLTEDK
VLAVFYTILTPMLNPIIYSLRNKEVMGALTRVI-QNIFSVKM*----

>HsOR1.5.24
----MENYNQT---STDFILLGLFPQSRIGLFVFTLIFLIFLMALIGNLSMILLIFLDIHLHTPMYFLLS
QLSLIDLNYISTIVPKMVYDFLYGNKSISFTGCGIQSFFFLTLAVAEGLLLTSMAYDRYVAICFPLHYPI
RISKRVCVMMITGSWMISSINSCAHTVYALCIPYCKSRAINHFFCDVPAMLTLACTDTWVYESTVFLSST
IFLVLPFTGIACSYGRVLLAVYRMHSAEGRKKAYSTCSTHLTVVSFYYAPFAYTYV-RPRSLR-SPTEDK
ILAVFYTILTPMLNPIIYSLRNKEVMGALTQVIQKIFSVKM*-----

>SMOR272-1
----MDSYNQT---FTGFILLGLFPPSKIGLFLFILIVLIFLTAWIGNLSMILLILLDSHLHTPMYFLLS
QLSLIDLNYISTIVPKMVSDFMLGNKYISFIGCGFQIFLFLTFGGAETLLLASMAYDRYVAICFPLHYAT
HMNKRVCVMMITGAWILGSINSCAHTGYALQIPYCRSRAINHFFCDVPAMLTLACTDTWVYEYTVFVSTI
LFLVFPFIGIVCSYGRVFLAIYRMHSRAGKKKAYSTCSTHLTVVTFYYAPFAYTYL-RPRSLR-SPEEDK
ILAVFYTVLTPMLNPIIYSLRNKEVIGALRRMTHRICFAKI------

>MmOR16.3.4
----MDSYNQT---FTGFILLGLFPPSKIGLFLFILIVLIFLTAWIGNLSMILLILLDSHLHTPMYFLLS
QLSLIDLNYISTIVPKMVSDFMLGNKYISFIGCGFQIFLFLTFGGAETLLLASMAYDRYVAICFPLHYAT
HMNKRVCVMMITGAWILGSINSCAHTGYALQIPYCRSRAINHFFCDVPAMLTLACTDTWVYEYTVFVSTI
LFLVFPFIGIVCSYGRVFLAIYRMHSRAGKKKAYSTCSTHLTVVTFYYAPFAYTYL-RPRSLR-SPEEDK
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
ILAVFYTVLTPMLNPIIYSLRNKEVIGALRRMTHRICFAKI*-----

>SMOR270-1
----MEKWNQS---SSDFTLLGLLPQNQTGLLLLMLIIFVFSLALCGNSGMIHLIRVDPRLHTPMYFLLS
QLSLMDLMYISTTVPKMAFNFLSGQKSISFLGCGVQSFFFLTMACSEGLLLASMAYDRFVAICHPLHYPI
RMSKIMCLKMIIGSWILGSINSLAHTVYALHIPYCHSRSINHFFCDVPAMLPLACMDTWVYEYMVFVSTS
LFLLLPFLGITASYGRVLFAVFHMRSKEGKKKAFTTCSTHLTVVTFYYAPFVYTYL-RPRSLR-SPTEDK
ILAVFYTILTPMLNPIIYSLRNKEVLGAMTRVLGTFPSTKP------

>MmOR16.3.3
----MEKWNQS---SSDFTLLGLLPQNQTGLLLLMLIIFVFSLALCGNSGMIHLIRVDPRLHTPMYFLLS
QLSLMDLMYISTTVPKMAFNFLSGQKSISFLGCGVQSFFFLTMACSEGLLLASMAYDRFVAICHPLHYPI
RMSKIMCLKMIIGSWILGSINSLAHTVYALHIPYCHSRSINHFFCDVPAMLPLACMDTWVYEYMVFVSTS
LFLLLPFLGITASYGRVLFAVFHMRSKEGKKKAFTTCSTHLTVVTFYYAPFVYTYL-RPRSLR-SPTEDK
ILAVFYTILTPMLNPIIYSLRNKEVLGAMTRVLGTFPSTKP*-----

>SMOR271-1
----MEKWNQS---SSDFILLGLLPQNQTGLLLMMLIILVFFLALFGNSAMIHLIRVDPRLHTPMYFLLS
QLSLMDLMYISTTVPKMAFNFLSGQKNISFLGCGVQSFFFLTMAGSEGLLLASMAYDRFVAICHPLHYPI
RMSKIMCLKMIIGSWILGSINSLAHSIYALHIPYCHSRSINHFFCDVPAMLPLACMDTWVYEYMVFVSTS
LFLLLPFLGITASYGRVLFAVFHMRSKEGKKKAFTTCSTHLTVVTFYYAPFVYTYL-RPRSLR-SPTEDK
ILTVFYTILTPMLNPIIYSLRNKEVLGAMTRVLGTFSSMKP------

>MmOR16.3.5
----MEKWNQS---SSDFILLGLLPQNQTGLLLMMLIILVFFLALFGNSAMIHLIRVDPRLHTPMYFLLS
QLSLMDLMYISTTVPKMAFNFLSGQKNISFLGCGVQSFFFLTMAGSEGLLLASMAYDRFVAICHPLHYPI
RMSKIMCLKMIIGSWILGSINSLAHSIYALHIPYCHSRSINHFFCDVPAMLPLACMDTWVYEYMVFVSTS
LFLLLPFLGITASYGRVLFAVFHMRSKEGKKKAFTTCSTHLTVVTFYYAPFVYTYL-RPRSLR-SPTEDK
ILTVFYTILTPMLNPIIYSLRNKEVLGAMTRVLGTFSSMKP*-----

>HsOR1.5.27
----MEKWNHT---SNDFILLGLLPPNQTGIFLLCLIILIFFLASVGNSAMIHLIHVDPRLHTPMYFLLS
QLSLMDLMYISTTVPKMAYNFLSGQKGISFLGCGVQSFFFLTMACSEGLLLTSMAYDRYLAICHSLYYPI
RMSKMMCVKMIGGSWTLGSINSLAHTVFALHIPYCRSRAIDHFFCDVPAMLLLACTDTWVYEYMVFVSTS
LFLLFPFIGITSSCGRVLFAVYHMHSKEGRKKAFTTISTHLTVVIFYYAPFVYTYL-RPRNLR-SPAEDK
ILAVFYTILTPMLNPIIYSLRNKEVLGAMRRVFG-IFSFLKE*----

>HsOR12.3.1
-----MLRNGS--IVTEFILVGFQQSSSTRALLFALFLALYSLTMAMNGLIIFITWTDPKLNSPMYFFLG
HLSLLDVCFITTTIPQMLIHLVVRDHIVSFVCCMTQMYFVFCVGVAECILLAFMAYDRYVAICYPLNYVP
IISQKVCVRLVGTAWFFGLINGIFLEYISFREPFRRDNHIESFFCEAPIVIGLSCGDPQFSLWAIFADAI
VVILSPMVLTVTSYVHILATILSKASSSGRGKTFSTCASHLTVVIFLYTSAMFSYM-NPHSTH-GPDKDK
PFSLLYTIITPMCNPIIYSFRNKEIKEAMVRALGRTRLAQPQSV*--

>HsOR1.5.9
------MTNQT--QMMEFLLVRFTENWVLLRLHALLFSLIYLTAVLMNLVIILLMILDHRLHMAMYFFLR
HLSFLDLCLISATVPKSILNSVASTDSISFLGCVLQLFLVVLLAGSEIGILTAMSYDRYAAICCPLHCEA
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
VMSRGLCVQLMALSWLNRGALGLLYTAGTFSLNFYGSDELHQFFCDVPALLKLTCSKEHAIISVSVAIGV
CYAFSCLVCIVVSYVYIFSAVLRISQRQRQSKAFSNCVPHLIVVTVFLVTGAVAYL-KPGSDA-PSILDL
LVSVFYSVAPPTLNPVIYCLKNKDIKSALSKVLWNVRSSGVMKR*--

>SOR5AY1
------MTNQT--QMMEFLLVRFTENWVLLRLHALLFSLIYLTAVLMNLVIILLMILDHRLHMAMYFFLR
HLSFLDLCLISATVPKSILNSVASTDSISFLGCVLQLFLVVLLAGSEIGILTAMSYDRYAAICCPLHCEA
VMSRGLCVQLMALSWLNRGALGLLYTAGTFSLNFYGSDELHQFFCDVPALLKLTCSKEHAIISVSVAIGV
CYAFSCLVCIVVSYVYIFSAVLRISQRQRQSKAFSNCVPHLIVVTVFLVTGAVAYL-KPGSDA-PSILDL
LVSVFYSVAPPTLNPVIYCLKNKDIKSALSKVLWNVRSSGVRKRL--

>SOR5AV1
--------------------MGFSNSWDIQIVHAALFFLVYLAAVIGNLLIIILTTLDVHLQTPMYFFLR
NLSFLDFCYISVTIPKSIVSSLTHDTSISFFGCALQAFFFMDLATTEVAILTVMSYDRYMAICRPLHYEV
IINQGVCLRMMAMSWLSGVICGFMHVIATFSLPFCGRNRIRQFFCNIPQLLSLLDPKVITIEIGVMVFGT
SLVIISFVVITLSYMYIFSVIMRIPSKEGRSKTFSTCIPHLVVVTLFMISGSIAYV-KPISNS-PPVLDV
FLSAFYTVVPPTLNPVIYSLRNRDMKAALRRQCGP------------

>HsOR1.5.6
--------------------MGFSNSWDIQIVHAALFFLVYLAAVIGNLLIIILTTLDVHLQTPMYFFLR
NLSFLDFCYISVTIPKSIVSSLTHDTSISFFGCALQAFFFMDLATTEVAILTVMSYDRYMAICRPLHYEV
IINQGVCLRMMAMSWLSGVICGFMHVIATFSLPFCGRNRIRQFFCNIPQLLSLLDPKVITIEIGVMVFGT
SLVIISFVVITLSYMYIFSVIMRIPSKEGRSKTFSTCIPHLVVVTLFMISGSIAYV-KPISNS-PPVLDV
FLSAFYTVVPPTLNPVIYSLRNRDMKAALRRQCGP*-----------

>MmOR13.2.1
--MTDTITNTT--EYMEFLLMGYPDEQVLQTLCATLFFLIYLGALVGNFLIITITTIDQHLQSPMYFFLK
NLSLIDICYISVTVPKSIMNSVTNTHSISFLGCVLQVFCVIFLAGTEFALLLVMSYDRYAAICFPLHYEA
IMNKEACVQMVAAAWLSGCVYGSVHATGTFSVHFCGPNVVYQFFCDIPSLLRLACFGDQILEYVFIITSC
CFAFMCFILMVISYVHIFTIILRIPSIQGRFKIFSTCIPHLTVVTLFLSSGFVAYL-GSAVKS-PSSLNL
FMSVFYSLLPPSLNPGIYSFRNSDVKVALHNIFGEKMTTRF*-----

>HsOR1.5.12
--------NLT--IVTEFILMGFSTNKNMCILHSILFLLIYLCALMGNVLIIMITTLDHHLHTPVYFFLK
NLSFLDLCLISVTAPKSIANSLIHNNSISFLGCVSQVFLLLSSASAELLLLTVMSFDRYTAICHPLHYDV
IMDRSTCVQRATVSWLYGGLIAVMHTAGTFSLSYCGSNMVHQFFCDIPQLLAISCSENLIREIALILINV
VLDFCCFIVIIITYVHVFSTVKKIPSTEGQSKAYSICLPHL-LVVLFLSTGFIAYL-KPASES-PSILDA
VISVFYTMLPPTFNPIIYSLRNKAIKVALGMLI-KGKLTKK*-----

>SOR5AT1
------MANLT--IVTEFILMGFSTNKNMCILHSILFLLIYLCALMGNVLIIMITTLDHHLHTPVYFFLK
NLSFLDLCLISVTAPKSIANSLIHNNSISFLGCVSQVFLLLSSASAELLLLTVMSFDRYTAICHPLHYDV
IMDRSTCVQRATVSWLYGGLIAVMHTAGTF-LSYCGSNMVHQFFCDIPQLLAISCSENLIREIALILINV
VLDFCCFIVIIITYVHVFSTVKKIPSTEGQSKAYSTCLPHL-LVVLFLSTGFIAYL-KPASES-PSILDA
VISVFYTMLPPTFNPIIYSLRNKAIKVALGMLIKGKLTKK-------

>HsOR1.5.50
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
--------NLT--KVTEFLLMEFSGIWELQVLHAGLFLLIYLAVLVGNLLIIAVITLDQHLHTPMYFFLK
NLSVLDLCYISVTVPKSIRNSLTRRSSISYLGCVAQVYFFSAFASAELAFLTVMSYDRYVAICHPLQYRA
VMTSGGCYQMAVTTWLSCFSYAAVHTGNMFREHVCRSSVIHQFFRDIPHVLALVSCEVFFVEFLTLALSS
CLVLGCFILMMISYFQIFSTVLRIPSGQSRAKAFSTCSPQLIVIMLFLTTGLFAAL-GPIAKA-LSIQDL
VIALTYTVLPPFLNPIIYSLRNKEIKTAMWRLFVKIYFLQK*-----

>MmOR7.3.12
-MEDSSMSNDT--RITGFILMGFSAAPELQTVCGLFFLVMYVAVIMSNLLLITLITLDLKLQTPMYFFLK
NLSLLDIFFISVPIPNFFINSITHNNSISILGCALQVFLMTSFASGDVFVLTAMSYDHYVAICCPLHYET
IMSSGNCVLMVGVSWAIGVLFGALYTAGTFSMPFCGSIVIPQFFCDVPSLLRISCSDILVVIYTSLGMGV
CLGMSCFICVVISYFYIFSTVLKIPTTKGQSKAFATCLPHLTVFSVFIVTACFVYL-KPPSVV-PSISDR
LFSVLHTVLPPALNPVIYSLRNSDVKRALKRLQQNLCPSGSLHVTIQ

>MmOR7.3.16
--------NAT--RITGFILMGFSVAPELQTVCGLFLLVMYLAVIMSNLLLITLITLDLKLQTPMYFFLK
NLSLLDVFFISVPIPNFFINSITHNNSISILGCALQLFLMTSFGAGDVFVLTAMSYDRYVAICCPLHYET
IMSSRNCMLMVGVSWATGILFGALYTAGTFSMPFCGSMVIPQFFCDVPSLLRISCSDTLVVIYISLGIGF
CLGMVCIICVVLSYFYIFSTVLKIPTTKGQYKAFGTCIPHLTVFSVFIATACFVNL-KPPSRS-ASIADS
LFSVLYTVLPPALNPVIYSLRNTDVKCALRSLQ-KILCPRDSLHLRV

>MmOR7.3.7
--------NDT--RVTGFILMGFSAAPELQTVCGLFFLVMYLAVIMSNLLIITVITLDLKLQTPMYFFLK
NLSLLDVFLVSIPIPKFIINNLTHNNYISILGCAFQILLMTSFSAGEIFVLTAMSYDRYVAICSPLCYEA
IMSSGNCVLMVGVSWATGILFGALYTAGTFSMPFCGSMVIPQFFCDVPSLLRISCSGSLMIIYISLGIGM
CLCMSCFYCVMISYFYIISTVLKIPTTRGQSKAFATCIPHLTVFSVFIATACFVYL-KPPSDI-PSITDR
LFSVLYTVLPPALNPVIYSLRNSDVKCSLRRLQQNLCPRDSYYLTVQ

>SMOR219-1
------MPNIT--AFTGFLLTAFFDSQELQTLWGVFFLGIYLEALMSNLIIITLITLDLQLQTPMYFFLK
NLSLLDVFFVSVPIPKFVVNSLIHNNSISVLACAFQVFLMTSFSSGEVFVLTAMSYDRYVAICFPLNYGA
IMNNHTCVLMMGVSWATGMLFGAIYTAGTFSMPFCGSNVIPQFFCDVPSLLRISCSETLVAIYSCLGIGV
CLGMSCFICVVISYFYIFSTVLKIPTTKGQSKAFATCIPHLTVFTVFLVTACFVYL-KPFTNT-LSISER
LFSVLYTVLPPALNPLIYSLRNTDVKSALRRLQQNLCLRRLLI----

>MmOR7.3.4
--------NIT--AFTGFLLTAFFDSQELQTLWGVFFLGIYLEALMSNLIIITLITLDLQLQTPMYFFLK
NLSLLDVFFVSVPIPKFVVNSLIHNNSISVLACAFQVFLMTSFSSGEVFVLTAMSYDRYVAICFPLNYGA
IMNNHTCVLMMGVSWATGMLFGAIYTAGTFSMPFCGSNVIPQFFCDVPSLLRISCSETLVAIYSCLGIGV
CLGMSCFICVVISYFYIFSTVLKIPTTKGQSKAFATCIPHLTVFTVFLVTACFVYL-KPFTNT-LSISER
LFSVLYTVLPPALNPLIYSLRNTDVKSALRRLQQNLCLRRLLI*---

>MmOR7.3.6
--------NVT--AVTGFILMGFSDIHELQILCGVLFLVLYLGILMSNLLIIILITVDLKLQTPMYFFLK
NLSLLDVFLVSVTIPNFFVNSLMHKNSISILGCAFQVFFMALLGSGEVFVLTTMSYDRYVAICSPLHYEV
IMNSVTCVVMMSVSWGTGLFFGVMYTAGTFSMTFCGSNVIPQIFCDVPSLLRISCSGSLMIIYISLGIGV
CLGMSCFICVVISYIYIFSTVLKIPTTKGQSKAFGTCIPHLTVFSVFIATACFVYL-KPPSNS-ASLTDR
LFSVLYTVLPPALNPVIYSLRNNDVDSALKRLLQNLYSRDFLHVIHQ
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>HsOR1.5.8
------MANVT--LVTGFLLMGFSNIQKLRILYGVLFLLIYLAALMSNLLIITLITLDVKLQTPMYFFLK
NLSFLDVFLVSVPIPKFIVNNLTHNNSISILGCAFQLLLMTSFSAGEIFILTAMSYDRYVAICCPLNYEV
IMNTGVCVLMASVSWAIGGLFGTAYTAGTFSMPFCGSSVIPQFFCDVPSLLRISCSETLMVIYAGIGVGA
CLSISCFICIVISYIYIFSTVLKIPTTKGQSKAFSTCFPHLTVFTVFIITAYFVYL-KPPSNS-PSVIDR
LLSVIYTVMPPVFNPVTYSLRNNDMKCALIRLLQKTYGQEAYFI*--

>MmOR17.2.28
----MIVENIT--TMRGFLLMGFSDNHELQILQALLFLVTYLLGSAGNVIIITITTLDPQLQSPMYYFLK
HLSILDLSSLSVTVPQYVDICLTQSGYISYAQCMLQIFFFTGFAWGEVAILTVMSYDRYVAVCLPLHYEV
IMGPSKCRWAVTAVWLSSVIPGTLYIASIFSIRFCGDRIIHQFFCDVPQVLKFSCSDDYLVTVGVADFLS
AVAFACFIGIVNSYVHIFSTVLRMPSAESRSKVFSTCLPHLFVVLLFLSTGIFAYL-NPTSDS-PTALQF
LVSIFYTVLPPTLNPVIYSLRNETIKSVIRKLLLSSKFTG*------

>MmOR17.2.29
----MIMENIT--TMSGFLLMGFSDNHELQILQAVLFLVTYLVGSAGNVIIITITTLDPQLQSPMYYFLK
QLSILDLSSLSVTVPQYVDSSLARSGYISYGQCMLQIFFFTWFAWGEMAILTVMSYDRYIAVCLPLHYEI
IMCPRKCRWAVTAVWLSSSIPGTLYLATIFSIRICRAKIIHQFFCDVPQLLKLSCSNDYLVIMGVADFLS
VIGFACFVGIVISYVHIFSTVLRMPSAESRSKVFSTCLPHLFVVSLFLSTGIFAYL-NPTSDF-PTALEF
LFSVFYTVLPPTLNPVIYSLRNDAIKSVVRKLLLSRKFTS*------

>MmOR17.2.31
----MTVKNIT--TMSGFLLMGFSDNRELQILYALLFLLTYLLGSAGNFIIITITTLDPQLQSPMYYFLK
HLSILDLSSLSVTVPQYVDSSLAGSGYISYGQCMLQIFFFAAFAWGEVAILTVMSYDRYVAICLPLHYEV
IMSPRKCTWAVTSVWLSSVIPGTLYIASIFSIRFCRAKIIHQLFCDVPQLLKLSCSNDHLVVIGMVSFMT
AVAFACFVGIVISYVHIFSTVLRMPSAESRSKVFSTCLPHLFVVSLFLSTGSCAYL-NTSSDS-PTALEF
LFSIFYTVLPPTLNPVIYSLRNETIKSVVRKLLLSSKFTVRIICPVA

>MmOR17.2.30
----MIMENIT--TMSGFLLMGFSDNRELQILQALLFLVTYLVGSAGNCIIITITTLDPQLKSPMYYFLK
HLSILDLSSLSVTVPQYVDSSLARSGYISYEQCMLQILFFTCFAWDEMAILTVMSYDRYVAVCLPLHYEV
IMSPRKCTWALAAVWLSGGVSGTLYTASTLSIRFCGDRIIHQFFCDVPQVLKLSCSNDYLVTIGVANILS
AVAFACFIGIVISYVHIFSTVLRMPSAESRYKVFSTCLPHLFVVSLFLSTSTFAYL-NPTADS-PTALEF
LFSILYTVLPPTINPVIYSLRNETIKRVVRKLLSSTKFTV*------

>MmOR17.2.43
----MTPRNMT--TMSGFLLMGFSDNHELQILQALLFLLTYLLGSAGNFIIITITTLDPQLQSPMYYFLK
HLSILDLSSLSVTVPQYVDSSLARSGYISYGQCMLQIFFFTGLAWSEVALLTVMSYDRYVAICLPLHYEV
IMSPRKCTWAVAAVWLSGGISGTLFTASTLSIRFCGHKIIHQFFCDIPQLLKLSCSNDDFGLLKVSTFIA
VMGFACFMGIAFSYGQIFSTVLRMPSAEGRSKVFSTCLPHLFVVSFFLSTGICAYL-KPTSDS-PTTLDF
MLSIFYTVLPPTLNPVIYSLRNQSLKRAIKKLLLSE*----------

>SMOR218-1
----MTARNMT--TMSGFLLMGFSDNHELQILQALLFLLTYLLGSAGNFIIITITTLDPQLQSPMYYFLK
QLSTLDLSSLSVTVPQYVASSLARSGYISYGQCMLQIFFFTGLAWSEMATLTVMSYDRYVAICLPLHYEV
IMSPRKCTWAVAAVWLSGGISGTLFTASTLSIRFCGDKIIHQFFCDIPQLLKLSCSNDYFGVLEVSTFMS
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
VMAFACFVGIAFSYGQIFSTVLRMPSAEGRSKVFSTCLPHLFVVSFFLSTGICAYL-KPTSDS-PTALDL
MLSIFYTLLPPTLNPVIYSLRNESLKRALKKLLLSEEFIRKKCLFYF

>MmOR17.2.41
----MTARNMT--TMSGFLLMGFSDNHELQILQALLFLLTYLLGSAGNFIIITITTLDPQLQSPMYYFLK
QLSTLDLSSLSVTVPQYVASSLARSGYISYGQCMLQIFFFTGLAWSEMATLTVMSYDRYVAICLPLHYEV
IMSPRKCTWAVAAVWLSGGISGTLFTASTLSIRFCGDKIIHQFFCDIPQLLKLSCSNDYFGVLEVSTFMS
VMAFACFVGIAFSYGQIFSTVLRMPSAEGRSKVFSTCLPHLFVVSFFLSTGICAYL-KPTSDS-PTALDL
MLSIFYTLLPPTLNPVIYSLRNESLKRALKKLLLSEEFIRKKCLFYF

>MmOR17.2.44
----MTARNMT--TMSGFLLVGFSDNHELQILQALLFLVTYLLGSAGNFIIITITTLDPQLQSPMYYFLK
HLSILDLSSLSVTIPQYVDSSLARSGYISYAQCMLQIFFFASFAWGELGTLTVMSYDRYVAICLPLHYEV
IMSPRKCTWAVAAVWLSGGISGTLFTASTLSIRFCGDKIIHQFFCDIPQLLKLSCSNDDFGVLEVSIFMA
VMAFACFMGIAFSYGQIFSTVLRMPSAEGRSKVFSTCLPHLFVVSFFLSTGSCAYL-KPTSDS-PTASDL
MLSIFYTVLPPTLNPFIYSLRNKSLKEAVKKLLLSEELVGKIYVCSV

>SOR5U1
GIFRETMVNLT--SMSGFLLMGFSDERKLQILHALVFLVTYLLALTGNLLIITIITVDRRLHSPMYYFLK
HLSLLDLCFISVTVPQSIANSLMGNGYISLVQCILQVFFFIALASSEVAILTVMSYDRYAAICQPLHYET
IMDPRACRHAVIAVWIAGGLSGLMHAAINFSIPLCGKRVIHQFFCDVPQMLKLACSYEFINEIALAAFTT
SAAFICLISIVLSYIRIFSTVLRIPSAEGRTKVFSTCLPHLFVATFFLSAAGFEFL-RLPSDS-SSTVDL
VFSVFYTVIPPTLNPVIYSLRNDSMKAALRKMLSKEELPQRKMCLKA

>HsOR6.3.16
------MVNLT--SMSGFLLMGFSDERKLQILHALVFLVTYLLALTGNLLIITIITVDRRLHSPMYYFLK
HLSLLDLCFISVTVPQSIANSLMGNGYISLVQCILQVFFFIALASSEVAILTVMSYDRYAAICQPLHYET
IMDPRACRHAVIAVWIAGGLSGLMHAAINFSIPLCGKRVIHQFFCDVPQMLKLACSYEFINEIALAAFTT
SAAFICLISIVLSYIRIFSTVLRIPSAEGRTKVFSTCLPHLFVATFFLSAAGFEFL-RLPSDS-SSTVDL
VFSVFYTVIPPTLNPVIYSLRNDSMKAALRKMLSKEELPQRKMCLKA

>MmOR17.2.40
-------MNVS--FKTGFLLMGFSDERNLQILHSVLFLITYLLAIMGNLLIITIITLDQRLHSPMYYFLK
HLSFLDLCFISVTVPQSIANSLMDNGFISLGQCMLQVFFFIALASSEVAILTVMSYDRYVAICRPLQYET
IMDPHACKCAVIAVWMAGGLSGLLHTGVNFSIPLCGKRIIHQFFCDIPQMLKLACSYEFINEIAVAAFTT
STAFVCLIAIVFSYTQIFSTVMRIPSADSRTKVFSTCLPHLFVVMFFLSAAGFEFL-RPPSDS-LSAMDL
IFSIFYTVIPPTLNPLIYSLRNEAMKAALRKVLSKEEFSRRMVYVKA

>SMOR220-1
------MANST--LVPEFLLEVFAETWELRILLTVLFLLMYLGSLLGNLIIIIATTVDHILNTPMYFFLR
NLSILDMGYVSVTVPNACINSLTDHRSISLAGCAGQIFLVFFSACVEIQFLTIMAQDRYVAICKPLLYAM
IMNHQFCVQMTLASLLTSLILASVHTSKTFQLSFCHSNVVSQFFCDIPSLLRLSCTDTFINKLLLLLTAI
VFSGSCFTFIAISYVRILSTVLKVPVKGERGKAFSTCVPHIIVVSVFLSSGAYVYL-KPSAIS-EIVEDM
TLSVFYTIVPPFLNPIIYSLRNKQIKKAVKKVIFRFFIV--------

>MmOR7.3.15
------MANST--LVPEFFLEVFAETWELRILLTVLFLLMYLGSLLGNLIIIIATTVDQTLNTPMYFFLR
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
NLSILDMGYVSVTVPNACINSLTDHRSISLAGCAGQIFLVFFSACVEIQFLTIMAQDRYVAICKPLLYAM
IMNHQFCVQMTLASLLTSLILASVHTSKTFQLSFCHSNVVSQFFCDIPSLLRLSCTDTFINKLLLLLTAI
VFSGSCFTFIAISYVRILSTVLKVPVKGERGKAFSTCVPHIIVVSVFLSSGAYVYL-KPSAIS-EIVEDM
TLSVFYTIVPPFLNPIIYSLRNKQIKKAVKKVIFRFFIV*-------

>MmOR7.3.18
------MMNST--MVTEFLLEVFAESWELRILLSVLFLLVYLGSLFGNLIIIIVTTVDQTLNTPMYFFLR
NLSILDMGFVSVTVPNACINSLTDHRNISVAGCAAQIFLVFFCSCVEIQFLTTMAQDRYVAICKPLMYPV
IMTHQFCVQMTLASLLTSLILASVHTSKTFQLSFCHSNIVPQFFCDIPSLLRLSCSDTFNNKLLLLLSAI
GLSGSCFTFIAVSYVRILSTVLKVPVKGERGKAFSTCVPHIIVVSVFLSSGAYVYL-KPPAIP-EIIEDM
TLSVFYTIVPPFLNPIIYSLRNKQIKEAVKKVIFRFLS*--------

>MmOR7.3.9
------MSNST--LVTEFMLEDFAENWELRILLSVLFLLVYLYSLIGNLIIIIATTVDQTLNTPMYFFLR
NLSILDICYVSVTVPNACINSLTDHRNISVGGCAAQIFFVYICACVEILFLTIMAQDRYVAICKPLLYPV
IMNHWFCVQMTLASLLSSLVLASVHTFKTFQLSFCHSNVVPQFFCDIPSLLRLSCSDTFNNKLLILLSAI
LVSGSCFVFIVISYVRILSTVLKVPVKGERGKAFSTCVPHIIVVSVFLSSAAYIYL-KPPVVTLEVAKEM
TLSVFYTIVPPFLNPIIYSLRNRQIKKAVSKLISRIFFLI*------

>SMOR221-2
--------NST--LVTEFLLEVFAESCELRILLSVLFLLVYLGSLFGNLIIIIVTTVDQTLNTPMYFFLR
NLSIVDMCYVSVTVPNACFNSLTGQRNISVTGCAAQIFFVFFCACVEMFFLTIMAQDRYVAICKPLLYPV
IMNHQFCVQMTLASLHSSLIIASVHTFKTFQLSFCHSNVVPQFFCDIPSLLKLSCSDTFNNKLLMLISAI
IIGCSCFTFIAVSYFRILSTVLKVPVKGERGKAFSTCVPHIVVVSVFLSSSTYVYL-RPPVPTLEVVKEM
ALSVSYTIVPPFLNPIIYSLRNRQIKEAVKKVILRISLVFEYKRNEY

>MmOR7.3.11
--------NST--LVTEFLLEVFAESCELRILLSVLFLLVYLGSLFGNLIIIIVTTVDQTLNTPMYFFLR
NLSIVDMCYVSVTVPNACFNSLTGQRNISVTGCAAQIFFVFFCACVEMFFLTIMAQDRYVAICKPLLYPV
IMNHQFCVQMTLASLHSSLIIASVHTFKTFQLSFCHSNVVPQFFCDIPSLLKLSCSDTFNNKLLMLISAI
IIGCSCFTFIAVSYFRILSTVLKVPVKGERGKAFSTCVPHIVVVSVFLSSSTYVYL-RPPVPTLEVVKEM
ALSVSYTIVPPFLNPIIYSLRNRQIKEAVKKVILRISLVFEYKRNEY

>MmOR7.3.13
--------NST--MVTEFLLEVFAETWELRVLLSVLFLLVYLGSLFGNLTIIIVTTVDQTLNTPMYFFLR
NLSILDMCYVSITVPNACINSLTDHRNISVTGCAAQIFLFFFCACVEVQFLTIMAQDRYVAICKPLLYPM
IMNHQFCVQMTLASLLTSLILSGMNTFKTFQLSFCHSNVVPQFFCELPALLRLTCSDTFNNKIILLLTAI
GLSGTCFTFIAISYVHILSTVLKVPVKGERGKAFSTCVPHIIVAYLFLCSGAYAYL-RPPAIS-EVVEDM
TLSVFYTTVPPFLNPIIYSLRNKQIKKAVKKVIFRFFIVE*------

>MmOR7.3.1
--------NST--LVTEFFLEVFAEIWELRILITVLFLLVYLCSLLGNLTIIIVTTVDQTLNTPMYFFLR
NLSILDMGYISITVPSTCINSLTNHRNMSVAGCAAQIFSFLFCACVEILVFSIMAQDRYVAICKPLLYPV
IMNHQFCVQMTLASLLSSLVIASVHTFKTFQLSFCHSNVVPQFFCDLPALLRLSCSDTFSNKLLILLTVI
GVSGSCFVFIAISYIHILSTVLKIPVKGERGKAFSTCVPHIIVVSVFVSSAAFVYL-RPPVITFEVVQEM
VISVFYTMVPPFLNPIVYSLRNKQIKEAVRKVILRVFPIFEYKRNIY
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>SOR5BF1
------MPNST--TVMEFLLMRFSDVWTLQILHSASFFMLYLVTLMGNILIVTVTTCDSSLHMPMYFFLR
NLSILDACYISVTVPTSCVNSLLDSTTISKAGCVAQVFLVVFFVYVELLFLTIMAHDRYVAVCQPLHYPV
IVNSRICIQMTLASLLSGLVYAGMHTGSTFQLPFCRSNVIHQFFCDIPSLLKLSCSDTFSNEVMIVVSAL
GVGGGCFIFIIRSYIHIFSTVLRFPRGAYRTKAFSTCIPHILVVSVFLSSCSSVYL-RPPAIP-AATQDL
ILSGFYSIMPPLFNPIIYSLRNKQIKVAIKKIMKRIFYSENV-----

>HsOR1.5.36
------MPNST--TVMEFLLMRFSDVWTLQILHSASFFMLYLVTLMGNILIVTVTTCDSSLHMPMYFFLR
NLSILDACYISVTVPTSCVNSLLDSTTISKAGCVAQVFLVVFFVYVELLFLTIMAHDRYVAVCQPLHYPV
IVNSRICIQMTLASLLSGLVYAGMHTGSTFQLPFCRSNVIHQFFCDIPSLLKLSCSDTFSNEVMIVVSAL
GVGGGCFIFIIRSYIHIFSTVLGFPRGADRTKAFSTCIPHILVVSVFLSSCSSVYL-RPPAIP-AATQDL
ILSGFYSIMPPLFNPIIYSLRNKQIKVAIKKIMKRIFYSENV*----

>HsOR9.6.9
--MMSFAPNAS--HSPVFLLLGFSRANISYTLLFFLFLAIYLTTILGNVTLVLLISWDSRLHSPMYYLLR
GLSVIDMGLSTVTLPQLLAHLVSHYPTIPAARCLAQFFFFYAFGVTDTLVIAVMALDRYVAICDPLHYAL
VMNHQRCACLLALSWVVSILHTMLRVGLVLPLCWTGDANLPHFFCDHRPLLRASCSDIHSNELAIFFEGG
FLMLGPCALIVLSYVRIGAAILRLPSAAGRRRAVSTCGSHLTMVGFLYGTIICVYF-QPPFQN-SQYQDM
VASVMYTAITPLANPFVYSLHNKDVKGALCRLLEWVKVDP*------

>SMOR158-1
---MSCAPNAS--HSPIFLLLGFSRAGVPHTFLFLLFLFIYLTTILGNVTLVLLISWDSRLHSPMYYLLR
GLSMIDLGLSTVTLPQLLVHLSSDSPAIPAARCLTQFFFFYAFGVTDTLVIAVMALDRYVAICDPLHYAL
VMNRQICARLLALSWVVSIVHTMLHVGLILPLCWAGDAKLPHFFCDHRPLLRASCSDTHSNELAIFLEGG
FLMLGPCSLIVLSYARIGITILRLPSAAGRRRAVSTCGSHLTMVGFLYGTIIWVYF-QPPSQN-SRNQDM
VASVMYTAITPLANPFVYSLRNKDVKGALHRLL-RQGRVDS------

>MmOR2.1.32
---MSCAPNAS--HSPIFLLLGFSRAGVPHTFLFLLFLFIYLTTILGNVTLVLLISWDSRLHSPMYYLLR
GLSMIDLGLSTVTLPQLLVHLSSDSPAIPAARCLTQFFFFYAFGVTDTLVIAVMALDRYVAICDPLHYAL
VMNRQICARLLALSWVVSIVHTMLHVGLILPLCWAGDAKLPHFFCDHRPLLRASCSDTHSNELAIFLEGG
FLMLGPCSLIVLSYARIGITILRLPSAAGRRRAVSTCGSHLTMVGFLYGTIIWVYF-QPPSQN-SRNQDM
VASVMYTAITPLANPFVYSLRNKDVKGALHRLLRQGRVDS*------

>MmOR11.6.30
----MAVTNLT--YKPQFQLLGLMDGTDPHPLLFLLFLSIYLLNALGNLSMVVLVRSDGALCSPMYYFLG
HLSLVDVCFTTVTVPRLLATLLHPGQAISFQACFAQMYFFVALGITESYLLAAMSYDRAVAVCRPLHYGA
VMTPWRCFLLVAASWAVAHLHSLLHTLLISALTYPPSAPVRHFFCDMTVMLSLATSDTSAAETAIFSEGL
TVVLTPLLLVSLSYARILVAVLGIRTTGGRHRVFSTCGAHLVVVSLFFGSVLSVYF-RPSSAY-SARYDR
MASVVYAVVTPTLNPFIYSLRNKEVKSALKRGF-RWRAAPQDE*---

>HsOR17.1.13
----MAPTNLT--SAPVFLLLGLVDGTDAHPLLFLLCLGIYLLNALSNLSMVALVRSDGALRSPMYYFLG
HLSLVDVCFTTVTVPRLLAGLLHPGQAISFQACFAEMYFFVALGITESYLLAAMSYDRPTAACRPLRYGA
LVTPWRCASLVRASWAVTHLHSLLHTLLLSALSYPYPTPVRPFFCDMTVMLSLATSDTSAAETAIFSEGL
AVVLAPLLLVFL-FLRAHPG-RGARLAGGRRRAFSTCGAHLVAVALFFGSVLSVYF-PPSSAY-SARYDR
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LASVVYAVITPTLNPFINSLRNKEVKGALKRGL-RWRAAPQEA*---

>SMOR101-1
--MEATTCNGSVDGSTVFYLVGIPSLPPFYLPVFFLFLLFYLLILVGNALILVAVVAERSLHKPMYFFLI
NLSALDILFTTTTVPKMLSLLLLGDRFLSFPACLLQMYLFQSFTCSEAFILVVMAYDRYVAICRPLHYPV
HMTPQTNTALAASAWITALLLPVPAVIKTSQMVYNDA-YIYHCFCDHLALVQSSCSDTTPQTLMGFCIAM
VVSFLPLLLVLLSYVRILTSVLQINSKEGRSKAFSTCSSHLLVVGTYYSSIAIAYV-AYRADL-PLDFHI
MGNVVYSILTPILNPLIYTLRNKDVKAAITKIV-YLKGMM-------

>MmOR7.4.1
--MEATTCNGSVDGSTVFYLVGIPSLPPFYLPVFFLFLLFYLLILVGNALILVAVVAERSLHKPMYFFLI
NLSALDILFTTTTVPKMLSLLLLGDRFLSFPACLLQMYLFQSFTCSEAFILVVMAYDRYVAICRPLHYPV
HMTPQTNTALAASAWITALLLPVPAVVKTSQMVYNDA-YIYHCFCDHLALVQSSCSDTTPQTLMGFCIAM
VVSFLPLLLVLLSYVRILTSVLRINSKEGRSKAFSTCSSHLLVVGTYYSSIAIAYV-AYRANL-PLDFHI
MGNVVYSILTPILNPLIYTLRNKDVKVAITKIV-YLKGMM*------

>MmOR7.4.2
NIACNGSGNSQ----TSFYLTGIPSLQSLFLPVFLIFLLLYLLILVGNALILVAVVTERSLHKPMYFFLI
NLSALDILFTTTTVPKMLSLLLLGDRFLSFPACFLQMYLFHSFSCSEAFILVVMAYDRYVAICRPLHYPV
HMTPQTNTALAASAWITALLLPIPAVIQTSQMAFDNA-YIYHCFCDHLAVVQASCSDTTPQTLMGFCIAM
VVSFLPLLLVLLSYARILSSVLRINSKEGRSKAFSTCSSHLLVVGTYYSSIAIAYV-AYRADL-PLDFHI
MGNVVYAILTPVLNPLIYTLRNKDVKSAITKMMCHQDPKSIGKP*--

>HsOR11.16.2
--MDATACNESVDGSPVFYLLGIPSLPTFFLPVFFIFLLFYLLILMGNALILVAVVAEPSLHKPMYFFLI
NLSTLDILFTTTTVPKMLSLFLLGDRFLSFSSCLLQMYLFQSFTCSEAFILVVMAYDRYVAICHPLHYPV
LMNPQTNATLAASAWLTALLLPIPAVVRTSQMAYNSA-YIYHCFCDHLAVVQASCSDTTPQTLMGFCIAM
VVSFLPLLLVLLSYVHILASVLRISSLEGRAKAFSTCSSHLLVVGTYYSSIAIAYV-AYRADL-PLDFHI
MGNVVYAILTPILNPLIYTLRNRDVKAAITKIMSQDPGCDRSI*---

>SMOR42-1
---MLGWSNGTNESYTSFLLMGFPGMQEARALLVLPFLSLYLVILFTNALVIHTVASQRSLHQPMYLLIA
LLLAVNICAATTVLPPMLFSFSTRFNRISLPRCLGQMFCIYFLVSMDCNILLVMALDRYVAICYPLRYPE
IVTGQLLAGLVVLAVTRSTSIVAPVVVLASRVRFCRSDVIRHFACEHMALMKLSCGDISLNKTAGLIIRT
FNRVLDMLLLGTSYSRIIHAAFRISSGGARSKALNTCGSHLLVIFTVYSSTMSVYRVARTA---SQDVHN
LLSAFYLLLPCLVNPIIYGARTKEIRQHLVRSFLSAG-P--------

>MmOR7.5.3
---MLGWSNGTNESYTSFLLMGFPGMQEARALLVLPFLSLYLVILFTNALVIHTVASQRSLHQPMYLLIA
LLLAVNICAATTVLPPMLFSFSTRFNRISLPRCLGQMFCIYFLVSMDCNILLVMALDRYVAICYPLRYPE
IVTGQLLAGLVVLAVTRSTSIVAPVVVLASRVRFCRSDVIRHFACEHMALMKLSCGDISLNKTAGLIIRT
FNRVLDMLLLGTSYSRIIHAAFRISSGGARSKALNTCGSHLLVIFTVYSSTMSVYRVARTA---SQDVHN
LLSAFYLLLPCLVNPIIYGARTKEIRQHLVRSFLSAG-P*-------

>MmOR7.5.2
---MSGWSNGTNESYTSFLLMGFPGMQEARALLVLPFLSLYLVILFTNALVIHTVASQRSLHQPMYLLIA
LLLAVNICAATTVVPPMLFSFSTRFNRISLPRCLGQMFCIYFLIVFDCNILLVMALDRYVAICYPLRYPE
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IVTGQLLAGLVVLAVTRSTCIVAPVVVLASRVRFCRSDVIRHFACEHMALMKLSCGDISLNKTVGLTVRI
FNRVLDMLLLGASYSRIIHAAFRISSGGARSKALNTCGSHLLVIFTVYSSTMSVYRVARTA---SQDVHN
LLSAFYLLLPCLVNPIIYGARTKEIRQHLVALFQRTQQQVFTEKPQS

>MmOR7.5.1
---MGEDGNTSNLSYSSFLLVGFPGLQEGRPLLVLPLTFLYVSIVSANALVIHTVVAQRSLHQPMYVLIA
LLLAVNICASTAVRPKMLEGFVHYANPISLRGCLTQMFFIYFTLLLDYNLLLAMALDRYVAICHPLRYTD
LMTSHLLGLMATFAITRSLGVAVPLVVLTAKAQFCKTSVIRHFTCEYIALLSIACGDLTFNNRLGLAMRL
VTVTFDLALLGTSYTRIIYAAFRISSGGARAKALHTCGSHLLVILTIYLSGLSTSIVFRVAKTVSQDVQN
LLSAIYLLLPGALNPLIYGVRTKEIRQHIEKMLCGMQSPQDSREKSQ

>HsOR11.3.60
----MGLNKSA----STFQLTGFPGMEKAHHWIFIPLLAAYISILLGNGTLLFLIRNDHNLHEPMYYFLA
MLAATDLGVTLTTMPTVLGVLWLDHREIGHGACFSQAYFIHTLSVMESGVLLAMAYDCFITIRSPLRYTS
ILTNTQVMKIGVRVLTRAGLSIMPIVVRLHWFPYCRSHVLSHAFCLHQDVIKLACADITFNRLYPVVVLF
AMVLLDFLIIFFSYILILKTVMGIGSGGERAKALNTCVSHICCILVFYVTVVCTFI-HRFGKHVPHVVHI
TMSYIHFLFPPFMNPFIYSIKTKQIQSGILRLFSLPHSRA*------

>HsOR11.3.59
----MSSSGSS----HPFLLTGFPGLEEAHHWISVFFLFMYISILFGNGTLLLLIKEDHNLHEPMYFFLA
MLAATDLGLALTTMPTVLGVLWLDHREIGSAACFSQAYFIHSLSFLESGILLAMAYDRFIAICNPLRYTS
VLTNTRVVKIGLGVLMRGFVSVVPPIRPLYFFLYCHSHVLSHAFCLHQDVIKLACADTTFNRLYPAVLVV
FIFVLDYLIIFISYVLILKTVLSIASREERAKALITCVSHICCVLVFYVTVIGLSLIHRFGKQVPHIVHL
IMSYAYFLFPPLMNPITYSVKTKQIQNAILHLFTTHRIGT*------

>SMOR1-1
-----MWSNIS---AAPFLLTGFPGLEAAHHWISIPFFAIYISVLLGNGTLLYLIKDDHNLHEPMYYFLA
MLAGTDLTVTLTTMPTVMAVLWVNHREIRHGACFLQAYIIHSLSIVESGVLLAMSYDRFVAICTPLHYNS
ILTNSRVIAIGLGVVLRGFLSLVPPILPLFWFSYCRSHVLSHAFCLHQDVMKLACADITFNRIYPVVLVA
LTFFLDALIIVFSYVLILKTVMGIASGEERAKALNTCVSHISCVLVFYITVIGTFI-HRFGKNAPHVVHI
TMSYVYFLFPPFMNPIIYSIKTKQIQRSVLHLLSV------------

>MmOR7.5.93
---MWSNI-----SAAPFLLTGFPGLEAAHHWISIPFFAIYISVLLGNGTLLYLIKDDHNLHEPMYYFLA
MLAGTDLTVTLTTMPTVMAVLWVNHREIRHGACFLQAYIIHSLSIVESGVLLAMSYDRFVAICTPLHYNS
ILTNSRVIAIGLGVLLRGFLSLVPPILPLFWFSYCRSHVLSHAFCLHQDVMKLACADITFNRIYPVVLVA
LTFFLDALIIVFSYVLILKTVMGIASGEERKKSLNTCVSHISCVLVFYITVIGTFI-HRFGKHAPHVVHI
TMSYVYFLFPPFMNPIIYSIKTKQIQRSVLRLLSV*-----------

>MmOR7.5.92
----MWPNSSD----APFLLTGFLGLEMIHHWISIPFFVIYFSIILGNGTLLFIIWSDHSLHEPMYYFLA
VLASMDLGMTLTTMPTVLGVLVLNQREIAQGACFIQSYFIHSLAIVESGVLLAMSYDRFVAICTPLHYNS
ILTNSRVMKMALGALLRGFVSIVPPIMPLFWFPYCHSHVLSHAFCLHQDVMKLACADITFNLIYPVVLVA
LTFFLDALIIIFSYVLILKTVMGIASGEERKKSLNTCVSHISCVLVFYITVIGTFI-HRFGKHAPHVVHI
TMSYVYFLFPPFMNPIIYSIKTKQIQRSVLRLLSKHSRT*-------

>HsOR11.3.55
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MWYNNSA----GPFLLTGFLGSEAVHYRISMSFFVIYFSVLFGNGTLLVLIWNDHSLHEPMYYFLA
MLADTDLGMTFTTMPTVLGVLLLDQREIAHAACFTQSF-IHSLAIVESGILLVLAYDCFIAIRTPLRYNC
ILTNSRVMNIGLGVLMRGFMSILPIILSLYCYPYCGSRALLHTFCLHQDVIKLACADITFNHIYPIIQTS
LTVFLDALIIIFSYILILKTVMGIASGQEEAKSLNTCVSHISCVLVFHITVMGSFI-HRFGKH-APHV-V
PITMSYFLFPPFVNPIIYSIKTKQIQRSIIRLFSGQSRA*-------

>SOR51B2
----MWP-NIT---AAPFLLTGFPGLEAAHHWISIPFFAVYVCILLGNGMLLYLIKHDHSLHEPMYYFLT
MLAGTDLMVTLTTMPTVMGILWVNHREISSVGCFLQAYFIHSLSVVESGSLLAMAYDRFIAIRNPLRYAS
IFTNTRVIALGVGVFLRGFVSILPVILRLFSFSYCKSHVITRAFCLHQEIMRLACADITFNRLYPVILIS
LTIFLDSLIILFSYILILNTVIGIASGEERAKALNTCISHISCVLIFYVTVMGTFI-YRFGKNVPEVVHI
IMSYIYFLFPPLMNPVIYSIKTKQIQYGIIRLLSKHR----------

>HsOR11.3.57
----MWP-NIT---AAPFLLTGFPGLEAAHHWISIPFFAVYVCILLGNGMLLYLIKHDHSLHEPMYYFLT
MLAGTDLMVTLTTMPTVMGILWVNHREISSVGCFLQAYFIHSLSVVESGSLLAMAYDCFIAIRNPLRYAS
ILTNTRVIALGVGVFLRGFVSILPVILRLFSFSYCKSHVITRAFCLHQEIMRLACADITFNRLYPVILIS
LTIFLDCLIILFSYILILNTVIGIASGEERAKALNTCISHISCVLIFYVTVMGTFI-YRFGKNVPEVVHI
IMSYIYFLFPPLMNPVIYSIKTKQIQYGIIRLLSKHRFSS*------

>SMOR2-1
KVSIPPRANFS---YAIFLLTGFPGLEWAHHWISLPIFMGYFVAIMGNATILHLVRTDPSLHQPMYYFLA
ILAVTDLGLCMSTLPSVLGVLWFDARMVGLVPCVLQQHFLHSFSFMESAVLFAMALDRLIAIRFPLRYAS
VLTGPRVALIGTVLGMRSAAITAAPSLHLLTFDYCHPGALSHAYCLHQDMIRLACSDTRFNRLYGLCIIM
LAMGSDVLFILLSYAVILRTVLAIASAGERLKALNTCVSHILAVLCFYVPVLGLSIVHRFGQHTSPLVHI
LMGTVSVLFPPVMNPVIYSIKTQQIRRAIVKVISLGKIQ--------

>MmOR7.5.97
KVSIPPRANFS---YAIFLLTGFPGLEWAHHWISLPIFMGYFVAIMGNATILHLVRTDPSLHQPMYYFLA
ILAVTDLGLCMSTLPSVLGVLWFDARMVGLVPCVLQQHFLHSFSFMESAVLFAMALDRLIAIRFPLRYAS
VLTGPRVALIGTVLGMRSAAITAAPSLHLLTFDYCHPGALSHAYCLHQDMIRLACSDTRFNRLYGLCIIM
LAMGSDVLFILLSYAVILRTVLAIASAGERLKALNTCVSHILAVLCFYVPVLGLSIVHRFGQHTSPLVHI
LMGTVSVLFPPVMNPVIYSIKTQQIRRAIVKVISLGKIQ*-------

>SMOR17-1
--------MATTIVSSTFYLTGIPGYEEFHHWISIPFCFLYLVGITGNCMILHIVRTDPRLHEPMYYFLA
MLSLTDMAMSLPTMMSLFRVLWSISREIQFNICVVQMFLIHTFSFTESSVLLAMALDRYVAICHPLRYAT
ILTPKLIAKIGTAALLRSSILIIPLIARLAFFPFCGSHVLSHSYCLHQDMIRLACADIRFNVIYGLVLIT
LLWGMDSLGIFVSYVLILHSVLKIASREGRLKALNTCASHICAVLILYVPMIGLSIVHRFAKHSSPLIHI
FMAHIYLLVPPVLNPIIYSVKTKQIREGILHLLCSPKISSITM----

>MmOR7.5.88
----MATSNSSTIVSSTFYLTGIPGYEEFHHWISIPFCFLYLVGITGNCMILHIVRTDPRLHEPMYYFLA
MLSLTDMAMSLPTMMSLFRVLWSISREIQFNICVVQMFLIHTFSFTESSVLLAMALDRYVAICHPLRYAT
ILTPKLIAKIGTAALLRSSILIIPLIARLAFFPFCGSHVLSHSYCLHQDMIRLACADIRFNVIYGLVLIT
LLWGMDSLGIFVSYVLILHSVLKIASREGRLKALNTCASHICAVLILYVPMIGLSIVHRFAKHSSPLIHI
FMAHIYLLVPPVLNPIIYSVKTKQIREGILHLLCSPKISSITM*---
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR7.5.64
----MAPSNSSVSVSSTFYLTGIPGYEEFHHWISIPFCLIYIIGVTGNCSILHIVRTDPKLHEPMYYFLA
MLSLTDMAMSLPAMVSLFRVLWSISREIQFNICVVQMFLIHTFSFTESSVLLAMALDRYVAICHPLRYAT
ILTPKLIAKIGIAALLRSAIPLIPLLVRLAFFSFCRSHVLSHSYCLHQDIIRLACADIRFNVIYGMVVIL
MLWGMDSLGILITYVFILHSVLRIASREGRLKALNTCASHICAVLILYVPMIGLSIVHRFAKHSSPFVHI
FMAHIYLMVPPVLNPIIYSVKTKQIRQGIFHLICPHKINSSAM*---

>SMOR4-1
-MTALSVTNYT---SSRFALTGFPGLEIYYFWISVPFFIIYVTVFLGNCMVLHVIRTELSLHQPMFYFLA
MLALTDLCMGLSTVHTVMGILWGFLQEISLDACIAQSYFIHGLSFMESSVLLTMSFDRYIAICNPLRYSS
ILTNDRILKIGVAILCRSSMLIPPVIIRLKFLNYCRPHFLSHSFCLHQDLIRMACGDIRFNSIYGLALVI
SNLLVDSVLILISYIMILYTVLSIASREERIKSLQTCVSHISAVLVFYIPIIGLTMVHRFGKHLSPLVHV
LMGNVYILFPPLMNPIIYSIKTQQIRVRIQRLF-LKGT---------

>MmOR7.5.77
-MTALSVTNYT---SSRFALTGFPGLEIYYFWISVPFFIIYVTVFLGNCMVLHVIRTELSLHQPMFYFLA
MLALTDLCMGLSTVHTVMGILWGFLQEISLDACIAQSYFIHGLSFMESSVLLAMSFDRYIAICNPLRYSS
ILTNDRILKIGVAILCRSSMLIPPVIIRLKFLNYCRPHFLSHSFCLHQDLIRMACGDIRFNSIYGLALVI
SNLLVDSVLILISYIMILYTVLSIASREERIKSLQTCVSHISAVLVFYIPIIGLTMVHRFGKHLSPLVHV
LMGNVYILFPPLMNPIIYSIKTQQIRVRIQRLF-LKGT*--------

>MmOR7.5.81
----MSNL-----STSRFVLTGFPGL-EVYYFFAIPFSTIYAMVFLGNCMILHVIRTESSLHQPMFYFLA
MLALTDLCMGLSTVHTVLGILWGFLQEISLDACIAQSYFIHGLSFMESSVLLAMSFDRYIAICNPLRYSS
ILTNDRILKIGVAILCRSSMLIPPVIIRLKFLNYCRPHFLSHSFCLHQDLIRMACSDIRFNSFYALSLVI
CTLLLDAVLILASYVMILHTVLSIASREERIKSLQTCVSHISAVLVFYIPIIGLTMVHRFGKHLSPLVQV
LMGNIYILFPPLMNPIIYSIKTQQIRVRIQRLFSLNGI*--------

>HsOR11.3.54
-MITSVSPSTS--TNSSFLLTGFSGMEQQYPWLSIPFSSIYAMVLLGNCMVLHVIWTEPSLHQPMFYFLS
MLALTDLCMGLSTVYTVLGILWGIIREISLDSCIAQSYFIHGLSFMESSVLLTMAFDRYIAICNPLRYSS
ILTNSRIIKIGLTIIGRSFFFITPPIICLKFFNYCHFHILSHSFCLHQDLLRLACSDIRFNSYYALMLVI
CILLLDAILILFSYILILKSVLAVASQEERHKLFQTCISHICAVLVFYIPIISLTMVHRFGKHLSPVAHV
LIGNIYILFPPLMNPIIYSVKTQQIHTRMLRLFSLKRY*--------

>SMOR5-1
PSSMSEVTNTT-HGPFYFILTGIPGFEDIHLWISIPFFCLYTISIMGNTTILTVIRTEPSLHEPMYLFLS
MLALTDLGLTLTTLPTVMQVLWFNIREISFEACFAQVFFLHGFSFMESSVLLAMSFDRYVAICRPLHYAS
ILTSEVIARIGLAIICRCVLAVLPSLFLLKRLPFCHSHLLSHSYCLHQDMIHLVCADIRVNRWYGFALVL
LIIVLDPLLIVLSYALILKSVLNTATWTERLRALNNCLSHMLAVLVLYVPMVGVSMTHRFAKHASPLVHV
LMANIYLLAPPVMNPIIYSVKTKQIRQGITRLLLQRKVH--------

>MmOR7.5.103
PSSMSEVTNTT-HGPFYFILTGIPGFEDIHLWISIPFFCLYTISIMGNTTILTVIRTEPSLHEPMYLFLS
MLALTDLGLTLTTLPTVMQVLWFNIREISFEACFAQVFFLHGFSFMESSVLLAMSFDRYVAICRPLHYAS
ILTSEVIARIGLAIICRCVLAVLPSLFLLKRLPFCHSHLLSHSYCLHQDMIHLVCADIRVNRWYGFALVL
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LIIVLDPLLIVLSYALILKSVLNTATWTERLRALNNCLSHMLAVLVLYVPMVGVSMTHRFAKHASPLVHV
LMANIYLLAPPVMNPIIYSVKTKQIRQGITRLLLQRKVH*-------

>MmOR7.5.100
PSSMSEVTNTT-HDPFYFILTGIPGFEDIHLWISIPLFCLYTISIMGNTTILTVIRTEPSLHQPMYLFLS
MLALTDLGLTLTTLPTVMQLLWFNIREISFEACFAQFFFLHGFSFMESSVLLAMSFDRYVAICRPLHYAS
ILTSEVIARIGLAIICRCVLAVLPSLFLLKRLPFCHSHLLSHSYCLHQDMIHLVCADIRVNSWYGFALVL
LIIVLDPLLIVLSYALILKSVLNTATWTERLRALNNCLSHMLAVLVLYVPMVGVSMTHRFAKHASPLVHV
LMANIYLLAPPVMNPIIYSVKTKQIRQGITRLLLQRKVH*-------

>HsOR11.3.63
---MSQVTNTT-QEGIYFILTDIPGFEASHIWISIPVCCLYTISIMGNTTILTVIRTEPSVHQRMYLFLS
MLALTDLGLTLTTLPTVMQLLWFNVRRISSEACFAQFFFLHGFSFMESSVLLAMSVDCYVAICCPLHYAS
ILTNEVIGRTGLAIICCCVLAVLPSLFLLKRLPFCHSHLLSRSYCLHQDMIRLVCADIRLNSWYGFALAL
LIIIVDPLLIVISYTLILKNILGTATWAERLRALNNCLSHILAVLVLYIPMVGVSMTHRFAKHASPLVHV
IMANIYLLAPPVMNPIIYSVKNKQIQWGMLNFLSLKNMHSR*-----

>SOR51Q1
---MSQVTNTT-QEGIYFILTDIPGFEASHIWISIPVCCLYTISIMGNTTILTVIRTEPSVHQRMYLFLS
MLALTDLGLTLTTLPTVMQLLWFNVRRISSEACFAQFFFLHGFSFMESSVLLAMSVDCYVAICCPLHYAS
ILTNEVIGRTGLAIICCCVLAVLPSLFLLKRLPFCHSHLLSRSYCLHQDMIRLVCADIRLNSWYGFALAL
LIIIVDPLLIVISYTLILKNILGTATWAERLRALNNCLSHILAVLVLYIPMVGVSMTHRFAKHASPLVHV
IMANIYLLAPPVMNPIIYSVKNKQIQWGMLNFLSLKNMHSRR-----

>SMOR11-1
MIPSGPFINISFFQPQSFLMIGIPGLEFAHGWISIPFSFMYTVALTGNCLILLAVRRTHSLHQPMYYFLS
MLALSDVGLSLSTLPSTLAVLWFDYRSIDFNACLVQMFFLHSFSVVESSVLLAMSFDRFVAISNPLRYAS
VLTNNVIIRIGVAIVARATLSLFPVPFLLKRLNYCPGKILLHSFCFHADVMKLACADITVNILYGLYVVL
STVGVDSLLIVMSYSLILHTVMGLASPRERVRTLNTCVSHILAVLVFYIPVIGVSMIHRFGKHLPHIVHA
LVAYVYLVVPPVLNPIIYSVKSKPIRGAMFKVL-RGKD---------

>MmOR7.5.17
MIPSGPFINISFFQPQSFLMIGIPGLEFAHGWISIPFSFMYTVALTGNCLILLAVRRTHSLHQPMYYFLS
MLALSDVGLSLSTLPSTLAVLWFDYRSIDFNACLVQMFFLHSFSVVESSVLLAMSFDRFVAISNPLRYAS
VLTNNVIIRIGVAIVARATLSLFPVPFLLKRLNYCPGKILLHSFCFHADVMKLACADITVNILYGLYVVL
STVGVDSLLIVMSYSLILHTVMGLASPRERVRTLNTCVSHILAVLVFYIPVIGVSMIHRFGKHLPHIVHA
LVAYVYLVVPPVLNPIIYSVKSKPIRGAMFKVL-RGKD*--------

>MmOR7.5.16
MISSKAFVNITFFQPQSFLMTGIPGLEFAHGWISIPFSSMYTVALTGNCLILLAVRRTHSLHQPMYYFLS
MLALSDVGLSLSTLPSTLAVLWFDYRFIDFNACLIQMFFLHFFSVVESSVLLAMSFDRFVAISNPLRYAS
VLTNNVIIRIGVAITTRATLSLLPLPFLLKRLNYCPGKILLHSFCFHADVMKLACADITVNILYGLYVVL
STVGIDSLLIVMSYSLILHTVMGLASPRERVRTLNTCVSHILAVLVFYIPVIGVSMIHRFGKHLPHIVHA
LVAYVYLVVPPVLNPIIYSVKSKPIRGAMFRVLSRKG*---------

>SOR51H1
----MTNLNASQANHRNFILTGIPGTPDKNPWLAFPLGFLYTLTLLGNGTILAVIKVEPSLHEPTYYFLS
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
ILALTDVSLSMSTLPSMLSIYWFNAPQIVFDACIMQMFFIHVFGIVESGVLVSMAFDRFVAIRNPLHYVS
ILTHDVIRKTGIAVLTRAVCVVFPVPFLIKCLPFCHSNVLSHSYCLHQNMMRLACASTRINSLYGLIVVI
FTLGLDVLLTLLSYVLTLKTVLGIVSRGERLKTLSTCLSHMSTVLLFYVPFMGASMIHRFWEHLSPVVHM
VMADIYLLLPPVLNPIVYSVKTKQI----------------------

>HsOR11.3.28
----MTNLNASQANHRNFILTGIPGTPDKNPWLAFPLGFLYTLTLLGNGTILAVIKVEPSLHEPTYYFLS
ILALTDVSLSMSTLPSMLSIYWFNAPQIVFDACIMQMFFIHVFGIVESGVLVSMAFDRFVAIRNPLHYVS
ILTHDVIRKTGIAVLTRAVCVVFPVPFLIKCLPFCHSNVLSHSYCLHQNMMRLACASTRINSLYGLIVVI
FTLGLDVLLTLLSYVLTLKTVLGIVSRGERLKTLSTCLSHMSTVLLFYVPFMGASMIHRFWEHLSPVVHM
VMADIYLLLPPVLNPIVYSVKT---KQ----I*--------------

>SMOR10-1
---MNSNASQT--NHHSFILTGIPGMPDKNPWMAFPLGFLYTLTLLGNGTILAVVKVEQSLHEPMYYFLC
ILALTDVSLSMSTLPSMLSIFWFNAPEIPFDACITQMFFIHGFGVVESGVLVSMAFDRFVAIRDPLRYAS
ILTHGLIGKIGLVVLARAVCVVFPVPFLIKRLPFCRSNVLSHSYCLHQDAMRLACASTRVNSLYGLIVVI
LTLGLDALIILFSYVLILKTVLGIASRAERLKALNTCLSHICAVLLFYIPLIGATMIHRFGKHLSPVVHM
FMANIYLLLPPVLNPIVYSVKTKQIRRRIIQVFRGRKNMS-------

>MmOR7.5.12
---MNSNASQT--NHHSFILTGIPGMPDKNPWMAFPLGFLYTLTLLGNGTILAVGEVEQSLHEPMYYFLC
ILALTDVSLSMSTLPSMLSIFWFNAPEIPFDACITQMFFIHGFGVVESGVLVSMAFDRFVAIRDPLRYAS
ILTHGLIGKIGLVVLARAVCVVFPVPFLIKRLPFCRPNILSHSYCLHQDAMRLACASTRVNSLYGLIVVI
LTLGLDALIILFSYVLILKTVLGIASRAERLKALNTCLSHICAVLLFYIPFIGATMIHRFGKHLSPVVHM
FMANIYLLLPPVLNPIVYSVKTKQIRRRIIQVFRGRKNMS*------

>MmOR7.5.31
--MINLNGSLT--SHPVFILTGIPGMPDKSLWMVFPLGFLYTLTLLGNGTILAVGEVEQSLHEPMYYFLC
MLALIDISLSMSTLPSM------P-PEIPFEACVAQMFFIHVFGLVDSVLLSIIAFDRFVAIQNPLHYAS
ILTHGVIGKIGLVVLDRAVCVVFPVPFLIKRLPFCHPNILSHSYCLHQDMMRLACASTRVNSLYGLIIVI
LILGLDAFIILFSYILILKTVLGISSRAERLKALNTCLSHICTVLLFYIPFIGATMIHRFGKHLSPIVHM
LMANIYLLLPPLLNPIVYSVKNKQIRG-------*------------

>MmOR7.5.30
----MADHNHSQSQHLYFILTGIPGLEQKYYWMAFPLGAIYVIALFGNGVIISTIKSESSLHIPMYYFLC
MLAFADMGLTLCTLPSMLGIFWFNYKFITFDGCLVQMYFIHTFSAIESGVLVAMAIDRVIAIWSPLRYGT
ILTNGVVCKIGMLILSRAVCVVFPVPFLIKRLPFYRSNILSHSFCLHQDVMRLACASTRVNSLYGLIAVI
FTKGSDSLSILISYVFILRTVMAIASGEGRLKALNTCVSHICAVLIFYVPLIGVSVIHRFGKHLSPLTHA
LMANAYLLVPPVLNPIVYTVKTKEIRKKIIQIFIRTKITTEG*----

>SOR51L1
----MGDWNNSDAVEPIFILRGFPGLEYVHSWLSILFCLAYLVAFMGNVTILSVIWIESSLHQPMYYFIS
ILAVNDLGMSLSTLPTMLAVLWLDAPEIQASACYAQLFFIHTFTFLESSVLLAMAFDRFVAICHPLHYPT
ILTNSVIGKIGLACLLRSLGVVLPTPLLLRHYHYCHGNALSHAFCLHQDVLRLSCTDARTNSIYGLCVVI
ATLGVDSIFILLSYVLILNTVLDIASREEQLKALNTCVSHICVVLIFFVPVIGVSMVHRFGKHLSPIVHI
LMADIYLLLPPVLNPIVYSVRTKQIRLGILHKFVLRRRF--------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>HsOR11.3.40
----MGDWNNSDAVEPIFILRGFPGLEYVHSWLSILFCLAYLVAFMGNVTILSVIWIESSLHQPMYYFIS
ILAVNDLGMSLSTLPTMLAVLWLDAPEIQASACYAQLFFIHTFTFLESSVLLAMAFDRFVAICHPLHYPT
ILTNSVIGKIGLACLLRSLGVVLPTPLLLRHYHYCHGNALSHAFCLHQDVLRLSCTDARTNSIYGLCVVI
ATLGVDSIFILLSYVLILNTVLDIASREEQLKALNTCVSHICVVLIFFVPVIGVSMVHRFGKHLSPIVHI
LMADIYLLLPPVLNPIVYSVRTKQIRLGILHKFVLRRRF*-------

>SMOR6-1
----MSVINDS-SLYPRFLLTGFPGLETRYGLISIPIFLVYVTSIAGNITILFIIRTESSLHQPMYYFLS
MLALTDLGLSTTTLPTMFSVFWFQAREIPFNACLVQMYFIHVFSIIESAVLLAMAFDRFVAIREPLRYAA
ILTNTVIVGIGLAIAGRALALVFPASFLLKRLQYRVINILSYPFCLHQDLIKTTVSSRWVSSIYGLMVVI
FSMGLDSLLLLLSYILILGTVLSIASKAERIKALNTCISHICAVLTFYTPMIGLSMIRRYGQNASPIVHV
IMANVYLLVPPLMNPIVYSVKTKQIRDRILRKLKKQKV---------

>MmOR7.5.47
----MSVINDS-SLYPRFLLTGFPGLETRYGLISIPIFLVYVTSIAGNITILFIIRTESSLHQPMYYFLS
MLALTDLGLSTTTLPTMFSVFWFQAREIPFNACLVQMYFIHVFSIIESAVLLAMAFDRFVAIREPLRYAA
ILTNTVIVGIGLAIAGRALALVFPASFLLKRLQYRVINILSYPFCLHQDLIKTTVSSRWVSSIYGLMVVI
FSMGLDSLLLLLSYILILGTVLSIASKAERIKALNTCISHICAVLTFYTPMIGLSMIRRYGQNASPIVHV
IMANVYLLVPPLMNPIVYSVKTKQIRDRILRKLKKQKV*--------

>SOR51G1a
---MTILLNSS-LQRATFFLTGFQGLEGLHGWISIPFCFIYLTVILGNLTILHVICTDATLHGPMYYFLG
MLAVTDLGLCLSTLPTVLGIFWFDTREIGIPACFTQLFFIHTLSSMESSVLLSMSIDRYVAVCNPLHDST
VLTPACIVKMGLSSVLRSALLILPLPFLLKRFQYCHSHVLAHAYCLHLEIMKLACSSIIVNHIYGLFVVA
CTVGVDSLLIFLSYALILRTVLSIASHQERLRALNTCVSHICAVLLFYIPMIGLSLVHRFGEHLPRVVHL
FMSYVYLLVPPLMNPIIYSIKTKQIRQRIIKKF-QFIKSLRCFWKD-

>HsOR11.3.35
---MTILLNSS-LQRATFFLTGFQGLEGLHGWISIPFCFIYLTVILGNLTILHVICTDATLHGPMYYFLG
MLAVTDLGLCLSTLPTVLGIFWFDTREIGIPACFTQLFFIHTLSSMESSVLLSMSIDRYVAVCNPLHDST
VLTPACIVKMGLSSVLRSALLILPLPFLLKRFQYCHSHVLAHAYCLHLEIMKLACSSIIVNHIYGLFVVA
CTVGVDSLLIFLSYALILRTVLSIASHQERLRALNTCVSHICAVLLFYIPMIGLSLVHRFGEHLPRVVHL
FMSYVYLLVPPLMNPIIYSIKTKQIRQRIIKKFQ-FIKSLRCFWKD*

>SOR51G1b
---MTILLNSS-LQRATFFLTGFQGLEGLHGWISIPFCFIYLTVILGNLTILHVICTDATLHGPMYYFLG
MLAVTDLGLCLSTLPTVLGIFWFDTREIGIPACFTQLFFIHTLSSMESSVLLSMSIDRSVAVCNPLHDST
VLTPACIVKMGLSSVLRSALLILPLPFLLKRFQYCHSHVLAHAYCLHLEIMKLACSSIIVNHIYGLFVVA
CTVGVDSLLIFLSYALILRTVLSIASHQERLRALNTCVSHICAVLLFYIPMIGLSLVHRFGEHLPRVVHL
FMSYVYLLVPPLMNPIIYSIKTKQIRQRIIKKFQ-FIKSLRCFWKD*

>SMOR7-1
---MAILYNSS-LQKATFFLTGFQGLEEFHGWISIPFCSIYLIVILGNLTILHVIRTDATLHEPMYYFLA
MLALTDLGLCLSTLPTVLGIFWFDAREIGIPACFTQLFFIHTLSLVESSVLLSMSFDRYVAICNPLRYST
ILTPRRIVKMGLSSVLRSALLILPLPFLLKRFHYCRSHVLAHAYCLHLEIMKLACSSIIVNHIYGLFVVA
CTVGVDSLLIFLSYTLILHAVLGKASRQERLRALNTCISHICAVLLFYIPMIGLSLVHRFGEHLPRIVHL
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LMSYVYLLVPPLMNPIVYSIKTKQIRQRIIKKFE-FIK---------

>MmOR7.5.36
---MAILYNSS-LQKATFFLTGFQGLEEFHGWISIPFCSIYLIVILGNLTILHVIRTDATLHEPMYYFLA
MLALTDLGLCLSTLPTVLGIFWFDAREIGIPACFTQLFFIHTLSLVESSVLLSMSFDRYVAICNPLRYST
ILTPRRIVKMGLSSVLRSALLILPLPFLLKRFHYCRSHVLAHAYCLHLEIMKLACSSIIVNHIYGLFVVA
CTVGVDSLLIFLSYTLILHAVLGKASRQERLRALNTCISHICAVLLFYIPMIGLSLVHRFGEHLPRIVHL
LMSYVYLLVPPLMNPIVYSIKTKQIRQRIIKKFE-FIK*--------

>HsOR11.3.34
-MTLGSLGNSSSSVSATFLLSGIPGLERMHIWISIPLCFMYLVSIPGNCTILFIIKTERSLHEPMYLFLS
MLALIDLGLSLCTLPTVLGIFWVGAREISHDACFAQLFFIHCFSFLESSVLLSMAFDRFVAICHPLHYVS
ILTNTVIGRIGLVSLGRSVALIFPLPFMLKRFPYCGSPVLSHSYCLHQEVMKLACADMKANSIYGMFVIV
STVGIDSLLILFSYALILRTVLSIASRAERFKALNTCVSHICAVLLFYTPMIGLSVIHRFGKQAPHLVQV
VMGFMYLLFPPVMNPIVYSVKTKQIRDRVTHAFC-Y*----------

>SOR51G2
-MTLRSLGNSSSSVSATFLLSGIPGLERMHIWISIPLCFMYLVSIPGNCTILFIIKTERSLHEPMYLFLS
MLALIDLGLSLCTLPTVLGIFWVGAREISHDACFAQLFFIHCFSFLESSVLLSMAFDRFVAICHPLHYVS
ILTNTVIGRIGLVSLGRSVALIFPLPFMLKRFPYCGSPVLSHSYCLHQEVMKLACADMKANSIYGMFVIV
STVGIDSLLILFSYALILRTVLSIASRAERFKALNTCVSHICAVLLFYTPMIGLSVIHRFGKQAPHLVQV
VMGFMYLLFPPVMNPIVYSVKTKQIRDRVTHAFCY-----------

>MmOR7.5.35
-MTPGPLGNGS--MSSTFLLSGIPGLEHMHIWISLPLCLMYLVSILGNCTILFIIKTEPSLHEPMYLFLS
MLALTDLGLSLCTLPTVLGIFWVGARDISHDACFTQLFFIHCLSFLESSVLLSMAFDRFVAICRPLHYAS
ILTHTVIVRIGLASLGRSVALIFPLPFMLKRFPYCGSLVLSHSYCLHQEVMKLACADIKANSIYGMFVIV
STVGVDSLLILFSYALILRTVLSIASRAERLKALNTCVSHISAVLLFYTPMIGLSVIHRFGKQAPHLVQV
VMGFVYLLFPPVMNPIVYSVKTKQIRDRVAHAFC-N*----------

>SMOR8-1
KSSIMSVLNSSEIEITTFFLIGIPGLEYAHAWISIPICLMYLVAILGNCTILFVIRTEPSLHAPMYYFLS
MLAISDLGLSLSSLPTMLRIFVFNATGISPNACFAQEFFIHGFTDMESSVLLIMSFDRFLAIRNPLRYSS
ILTSARVAKMGLVFLIKSMLLVLPFPFTLKRLAYCQKSLLSHSYCLHQDVMKLACSDNTVNFFYGFFVA-
LCMMSDSMFIAVSYIFILKTVMGIGSHKERLKALNTCVSHICAVLIFYVPIIAASM-HRFGKHKSPMAMI
LIADIFLLVPPLMNPIVYCVKTRQIREKVGKLGLK-----------

>MmOR7.5.33
KSSIMSVLNSSEIEITTFFLIGIPGLEYAHAWISIPICLMYLVAILGNCTILFVIRTEPSLHAPMYYFLS
MLAISDLGLSLSSLPTMLRIFVFNATGISPNACFAQEFFIHGFTDMESSVLLIMSFDRFLAIRNPLRYSS
ILTSARVAKMGLVFLIKSMLLVLPFPFTLKRLAYCQKSLLSHSYCLHQDVMKLACSDNTVNFFYGFFVA-
LCMMSDSMFIAVSYIFILKTVMGIGSHKERLKALNTCVSHICAVLIFYVPIIAASM-HRFGKHKSPMAMI
LIADIFLLVPPLMNPIVYCVKTRQIREKVLGKL--GLK*--------

>MmOR7.5.28
--------NTSEVEISSFLLIGIPGFEHMHIWISIPICLMYLTAILGNCTILCVIRTEPSLHEPMYYFLS
MLAFSDLGLSFSSIPTMLRIFLFNAMGISTDACIAQEFFIHGFTDMESSVLLIMSFDRFVAIRHPLRYSA
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
ILTSSRVVQIGLAFSVKSILLVLPLPFTLKRLRYCNKRLLSHSYCLHQDVMKLACSDNRVNFYYGLFVA-
LCMMSDSVFIAVSYVFILKTVLGIASHGERLKALNTCVSHICAVLIFYVPIITLATMHRFAKHKSPLAMI
LIADAFLLVPPLMNPIVYCVKTRQIRVKVLEKLG-LHSK*-------

>HsOR11.3.33
----MSVLNNS--EVKLFLLIGIPGLEHAHIWFSIPICLMYLLAIMGNCTILFIIKTEPSLHEPMYYFLA
MLAVSDMGLSLSSLPTMLRVFLFNAMGISPNACFAQEFFIHGFTVMESSVLLIMSLDRFLAIHNPLRYSS
ILTSNRVAKMGLILAIRSILLVIPFPFTLRRLKYCQKNLLSHSYCLHQDTMKLACSDNKTNVIYGFFIAL
CTML-DLALIVLSYVLILKTILSIASLAERLKALNTCVSHICAVLTFYVPIITLAAMHHFAKHKSPLVVI
LIADMFLLVPPLMNPIVYCVKTRQIWEKILGKL-LNVCGR*------

>MmOR7.5.34
----MSVFNNS--EVMYFLLIGIPGLEYAHEWISIPIFLMYLIAIMGNCIIIFVIKTEPSLHEPMYYFLT
MLAVSDMGLSFSSLPTMLKIFFFNAMAISPNACFAQEFFIHGFTVMESSVLLIMSLDRFLAIHNPLRYSS
ILNGRRVAKIGLILAFRSTVLVLPFPFTLRKLKYCHKNLLSHSYCLHQDVMKLACSDNKINFIYGFFVAL
CTML-DFALILMSYVLILKTVLSIASLAERLKALNTCVSHICAVLIFYVPIITLAAIHRFAKHKSPLLVI
LIADMFLLVPPLMNPIVYCIKTRQIREKVLGKL-VNLCVR*------

>HsOR11.3.38
----MSIINTSYVEITTFFLVGMPGLEYAHIWISIPICSMYLIAILGNGTILFIIKTEPSLHGPMYYFLS
MLAMSDLGLSLSSLPTVLSIFLFNAPETSSSACFAQEFFIHGFSVLESSVLLIMSFDRFLAIHNPLRYTS
ILTTVRVAQIGIVFSFKSMLLVLPFPFTLRSLRYCKKNQLSHSYCLHQDVMKLACSDNRIDVIYGFF-GA
LCLMVDFILIAVSYTLILKTVPGIASKKEELKALNTCVSHICAVIIFYLPIINLAVVHRFAGHVSPLINV
LMANVLLLVPPLMKPIVYCVKTKQIRVRVVAKL-CQWKI*-------

>HsOR11.3.37
----MSIINTSYVEITTFFLVGMPGLEYAHIWISIPICSMYLIAILGNGTILFIIKTEPSLHEPMYYFLS
MLAMSDLGLSLSSLPTVLSIFLFNAPEISSNACFAQEFFIHGFSVLESSVLLIMSFDRFLAIHNPLRYTS
ILTTVRVAQIGIVFSFKSMLLVLPFPFTLRNLRYCKKNQLSHSYCLHQDVMKLACSDNRIDVIYGFF-GA
LCLMVDFILIAVSYTLILKTVLGIASKKEQLKALNTCVSHICAVIIFYLPIINLAVVHRFARHVSPLINV
LMANVLLLVPPLTNPIVYCVKTKQIRVRVVAKL-CQRKI*-------

>SOR51A4
----MSIINTSYVEITTFFLVGMPGLEYAHIWISIPICSMYLIAILGNCTILFIIKTEPSLHEPMYYFLS
MLAMSDLGLSLSSLPTVLSIFLFNAPEISSNACFAQEFFIHGFSVLESSVLLIMSFDRFLAIHNPLRYTS
ILTTVRVAQIGIVFSFKSMLLVLPFPFTLRNLRYCKKNQLSHSYCLHQDVMKLACSDNRIDVIYGFF-GA
LCLMVDFILIAVSYTLILKTVPGIASKKEQLKALNTCVSHICAVIIFYLPIINLAVVHRFAGHVSPLINV
LMANVLLLVPPLTNPIVYCVKTKQIRVRVVAKL-CQRKI--------

>SMOR9-1
----MSYSNHS---STSFFLTGLPGLETVYLWLSIPLCTMYIASLAGNGLILWVVKSEPSLHQPMYYFLS
MLAVTDLGLSVSTLPTMLTIYMMGVSEVALDMCLAQLFFIHTFSIMESSVLLTMAFDRVVAISSPLHYAT
ILTNPRVASLGMVILVRSIGLHIPAPIMLKKLPYCQKRHLSHSYCLHPDVMKLACTDTRINSAYGLFVVL
STLGVDSVLIVLSYGLILYTVLSIASKTERLKALNTCVSHICSVLLFYTPMIGLSMIHRFGKWASPCSRV
LLSYLHFLTPPVLNPVVYTIKTKQIRQRIWCIF-RCGGRSIGHIQGH

>MmOR7.5.67
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MSYSNHS---STSFFLTGLPGLETVYLWLSIPLCTMYIASLAGNGLILWVVKSEPSLHQPMYYFLS
MLAVTDLGLSVSTLPTMLTIYMMGVSEVALDMCLAQLFFIHTFSIMESSVLLTMAFDRVVAISSPLHYAT
ILTNPRVASLGMVILVRSIGLHIPAPIMLKKLPYCQKRHLSHSYCLHPDVMKLACTDTRINSAYGLFVVL
STLGVDSVLIVLSYGLILYTVLSIASKTERLKALNTCVSHICSVLLFYTPMIGLSMIHRFGKWASPCSRV
LLSYLHFLTPPVLNPVVYTIKTKQIRQRIWRIFRCGGRSIGHIQGH*

>MmOR7.5.68
----MAISKHSNASSFFFILMDLPGLETSHCWTAIPICLIYVLSVLGNITIMHIVKSVPSLHTPMYLFLS
MLSMADLGLSASTLPSMVAVFLLGQRMIGAVACFMQLFFIHTFSVIESAVLLAMAFDRCVAIREPLRYAT
ILTTRRIGAIGLAVVIRSAALHLPLPVLLGRLTFQPVSALSHSYCVHPDVLRLSCSSTLVNSGFGLFVML
STLGMDAVLILLSYVLILKTVLSIASNAERLKAFNTCISHICAVLLFYTPLVSLSMIHRFGKKLPAQVYM
FLSYLHFLMPPMLNPIVYSVKTKEIRVRILKMLHPKKH*--------

>SOR51I2
----MGLFNVT--HPAFFLLTGIPGLESSHSWLSGPLCVMYAVALGGNTVILQAVRVEPSLHEPMYYFLS
MLSFSDVAISMATLPTVLRTFCLNARNITFDACLIQMFLIHFFSMMESGILLAMSFDRYVAICDPLRYAT
VLTTEVIAAMGLGAAARSFITLFPLPFLIKRLPICRSNVLSHSYCLHPDMMRLACADISINSIYGLFVLV
STFGMDLFFIFLSYVLILRSVMATASREERLKALNTCVSHILAVLAFYVPMIGVSTVHRFGKHVPCYIHV
LMSNVYLFVPPVLNPLIYSAKTKEIRRAIFRMFHHIKI---------

>HsOR11.3.66
----MGLFNVT--HPAFFLLTGIPGLESSHSWLSGPLCVMYAVALGGNTVILQAVRVEPSLHEPMYYFLS
MLSFSDVAISMATLPTVLRTFCLNARNITFDACLIQMFLIHFFSMMESGILLAMSFDRYVAICDPLRYAT
VLTTEVIAAMGLGAAARSFITLFPLPFLIKRLPICRSNVLSHSYCLHPDMMRLACADISINSIYGLFVLV
STFGMDLFFIFLSYVLILRSVMATASREERLKALNTCVSHILAVLAFYVPMIGVSTVHRFGKHVPCYIHV
LMSNVYLFVPPVLNPLIYSAKTKEIRRAIFRMFHHIKI*--------

>MmOR7.5.106
----MALFNVT--HPASFLLTGIPGLESLHPWLAGPLCVMYAVALGANTVILQAVRVEPILHAPMYYFLS
MLSFSDVAMSMATLPTVLRTFCFDARSIAFDACLVQMFLIHSFSMMESGILLAMSFDRYVAICNPLHYAT
VLTNEFIAGMGLAVTARSFITLFPLPFLIKRLPICKSNVLSHSYCLHPDMMKLACADITINSIYGLFVLV
STFGMDLLFIFLSYVLILRSVMAIASHEERLKALNTCVSHILAVLAFYVPMIGVSTVHRFGKHAPRYIHV
LMSNVYLFVPPVLNPLIYSAKTKEIRRAIFRMFRRIKL*--------

>HsOR11.3.65
----MLGLNGTPFQPATLQLTGIPGIQTGLTWVALIFCILYMISIVGNLSILTLVFWEPALHQPMYYFLS
MLALNDLGVSFSTLPTVISTFCFNYNHVAFNACLVQMFFIHTFSFMESGILLAMSLDRFVAICYPLRYVT
VLTHNRILAMGLGILTKSFTTLFPFPFVVKRLPFCKGNVLHHSYCLHPDLMKVACGDIHVNNIYGLLVII
FTYGMDSTFILLSYALILRAMLVIISQEQRLKALNTCMSHICAVLAFYVPIIAVSMIHRFWKSAPPVVHV
MMSNVYLFVPPMLNPIIYSVKTKEIRKGILKFFHKSQA*--------

>SOR51I1
----MLGLNGTPFQPATLQLTGIPGIQTGLTWVALIFCILYMISIVGNLSILTLVFWEPALHQPMYYFLS
MLALNDLGVSFSTLPTVISTFCFNYNHVAFNACLVQMFFIHTFSFMESGILLAMSLDRFVAICYPLRYVT
VLTHNRILAMGLGILTKSFTTLFPFPFVVKRLPFCKGNVLHHSYCLHPDLMKVACGDIHVNNIYGLLVII
FTYGMDSTFILLSYALILRAMLVIISQEQRLKALNTCMSHICAVLSFYVPIIAVSMIHRFWKSAPPVVHV
MMSNVYLFVPPMLNPIIYSVKTKEIRKGILKFFHKSQA---------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR7.5.105
----MLGLNGTPFQPATLQLTGIPGMNTGQAWIALIFCFLYFISIAGNLSILALVIREPPLHQPMYYFLS
MLSLNDLGVSLSTLPTVLATFCFNYRHVDFDACLVQMFFIHTFSFMESGILLAMSFDRFVAICDPLRYST
VLTNSRILAMGLGILAKSFTTLFPFPFLVKRLPFCKGNVLHHSYCLHPDLMKVACGDIHVNNIYGLFVVI
FTYGVDSVFILLSYALILRAVLVIASHEQRLKALNTCISHICAVLAFYVPIIAVSMIHR-FKSAPAVVHV
MMSNVYLFVPPMLNPIIYSVKTKEIRKGMLKVFHKSQT*--------

>SMOR13-1
--MGGEAHNSS--GLPPFILTGLPGMETSQHWLFLLLGVLYSVSIVGNALILFIIKEEESLHQPMYYFLS
LLSGNDLGVSFSTLPTVLGVFCFHLREISFNSCMSQMFFIHLFSFMESGILLAMSFDRYVAICNPLRYST
VLTDARVMWMGVCVFLRSFCMIFPLPFLLKRLPFCKANVLSHAYCLHPDLIRLPCGDTSINNIFGLSIVI
STFGLDSALIFLSYVLILRSVLAIASREERMKTLNTCVSHLCAVLIFYVPKVGVSMFARYGRHAPHYVHT
LLSLIYLFVPPMLNPVIYSIKTKEIRRRFCKILLGNKF---------

>MmOR7.5.109
--MGGEAHNSS--GLPPFILTGLPGMETSQHWLFLLLGVLYSVSIVGNALILFIIKEEESLHQPMYYFLS
LLSGNDLGVSFSTLPTVLGVFCFHLREISFNSCMSQMFFIHLFSFMESGILLAMSFDRYVAICNPLRYST
VLTDARVMWMGVCVFLRSFCMIFPLPFLLKRLPFCKANVLSHAYCLHPDLIRLPCGDTSINNIFGLSIVI
STFGLDSALIFLSYVLILRSVLAIASREERMKTLNTCVSHLCAVLIFYVPKVGVSMFARYGRHAPHYVHT
LLSLIYLFVPPMLNPVIYSIKTKEIRRRFCKILLGNKF*--------

>MmOR7.5.108
--MGGEAHNSS--GLPPFILTGLPGMETSQHWLFLLLGVLYTVSIVGNALILFIIKEEESLHQPMYYFLS
LLSLNDLGVSFSTLTTVLGVFCFLLREISFNSCMSQMFFIHLFSFMESGILLAMSFDRYVAICNPLHYST
VLTDARVMWMGVCVFFRSFCMIFPLPFLLKRLPFCKANVLSHAYCLHPDMIRLPCGDITINNIFGLFIVI
STFGLDSALILLSYVLILRSVLAIASREERLKTLNTCVSHLCAVLIFYVPMVGVSMAARYGRHAPRYVHT
LLSLVYLFVPPMLNPVIYSIKTKEIRRRLHKILLGTKI*--------

>MmOR7.5.107
--MRTLYSNTS--STLSFMLTGFPEMQSLEHWLAALLLLLYVISIVGNALILFIIKEEQSLHHPMYYFLS
LLSVNDLGVSFSTLPTVLASMCFHIPETAFDACLAQMFFIHFFSWTESGILLAMSFDRYVAICNPLHYSS
VLTDARVAHMGMSIIIRSFCMVFPLPFLLKRLPFCKANVLTHSYCLHPDLIRLPCGDTTINSMYGLFIVI
SAFGVDSVLILLSYVLILRSVLAIASREERLKTLNTCVSHISAVLIFYVPMISVSMVHRFVKHAPEYVHK
FTSLVYLFVPPMLNPIIYSIKTKEIRRRLHKMLLGTKF*--------

>MmOR7.5.110
--MGNFRINAS--QVPSFILTGFPGMEAMEPWLSLPFLLFYAISIIGNSLILLIIKEEQSLHQPMYYFLS
LLSVNDLGVSFSTLPTVLTTLCFHARVINFNACLAQMFFIHLFSWTESGILLAMSFDHYVAICNPLRYAT
VLTNARIVAMGLGTVLRSFVLIVVFPVLLHRLPFCHPNILSHAYCLHVDMIKLACTDVSLNSHYGLSIVL
LTFGLDSALILISYVLILRSVLAIASREERLKTLNTCVSHILAVLIFYVPMVSVSIVHRFGAGLPHAVHI
LMSILYLFVPPMLNPIIYSIKTKEIRRRLLKMLFRVKL*--------

>MmOR7.5.99
----MKNYNSSGFLPTTFILVGIPGLETEHIWISIPFCLMYFIIFLGNGTILHVIRTDASLHQPMYLFLA
MLALAEVGVSASTLPTVLGIFLFDTSEITFEACLLQMFFIHSFSIMESAVLLAMSVDRFVAIYSPLRYTT
ILTLPRIFGTGAVIGLKSVILMAPLPILLRRLPFCGHNALSHSYCLHPNLIHLPCGDISIDNIYGLFIVT
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
STFGLDSLLIVVSYGLILHTVLGIATGDGRRKALNTCGSHVCAVLAYYVPMIGLSMVHRFAHHVSPLLQT
MMANAYLFFPPSHQPHCLQHQSNAVREEVQSLVEDVKIGGCLVGFYH

>SMOR12-1
----MGAENNESLDLLSIFLTGIPGLEAQHGWLSIPFFIMYIVAIVGNSLIMIAVQQESALHEPMYLFLS
MLAITEVGVSVSTLPTVMGILWFNAYRIDFDGCLAQMFFIHTFSGMESGVLLAMSYDRFVAIYNPLRYTA
ILTLPRIISMGLGITLKSVALMAPLPILLKQLPYCHINILSHSYCLHSDLIQLPCADTRLNSILGLAIVL
ATFGLDSLLIVVSYGLILYTVMGIASGEGRKKTLNTCVSHICAVLIYYVPMIGVSVMHRVAKHASPVVHT
LMSSIYLFVPPVLNPIIYSVKTRPIQQGIANLFSCKKGSI-------

>MmOR7.5.104
---MGAENNES-LDLLSIFLTGIPGLEAQHGWLSIPFFIMYIVAIVGNSLIMIAVQQESALHEPMYLFLS
MLAITEVGVSVSTLPTVMGILWFNAYRIDFDGCLAQMFFIHTFSGMESGVLLAMSYDRFVAIYNPLRYTA
ILTLPRIISMGLGITLKSVALMAPLPILLKQLPYCHINILSHSYCLHSDLIQLPCADTRLNSILGLAIVL
ATFGLDSLLIVVSYGLILYTVMGIASGEGRKKTLNTCVSHICAVLIYYVPMIGVSVMHRVAKHASPVVHT
LMSSIYLFVPPVLNPIIYSVKTRPIQQGIANLFSCKKGSI*------

>SOR51F2
-MTETSLSNNTIAEPLIFLLMGIPGLKATQYWISIPFCLLYVVAVSGNSMILFVVLCERSLHKPMYYFLS
MLSATDLSLSLCTLSTTLGVFWFEAREINLNACIAQMFFLHGFTFMESGVLLAMAFDRFVAICYPLRYTT
ILTNARIAKIGMSMLIRNVAVMLPVMLFVKRLSFCSSMVLSHSYCYHVDLIQLSCTDNRINSILGLFALL
STTGFDCPCILLSYILIIRSVLSIASSEERRKAFNTCTSHISAVSIFYLPLISLSLVHRYGHSAPPFVHI
IMANVFLLIPPVLNPIIYSVKIKQIQKAIIKVLIQKHSKSNHQLFLI

>HsOR11.3.25
----MSVLNNTIAEPLIFLLMGIPGLKATQYWISIPFCLLYVVAVSGNSMILFVVLCERSLHKPMYYFLS
MLSATDLSLSLCTLSTTLGVFWFEAREINLNACIAQMFFLHGFTFMESGVLLAMAFDRFVAICYPLRYTT
ILTNARIAKIGMSMLIRNVAVMLPVMLFVKRLSFCSSMVLSHSYCYHVDLIQLSCTDNRINSILGLFALL
STTGFDCPCILLSYILIIRSVLSIASSEERRKAFNTCTSHISAVSIFYLPLISLSLVHRYGHSAPPFVHI
IMANVFLLIPPVLNPIIYSVKIKQIQKAIIKVLIQKHSKSNHQLFLI

>MmOR7.5.26
----MLILNNTHSQLPTFLLTGIPGLRAAQVWISIPFCLLY---LSGNSMILLVIVREQSLHEPMYYFLS
MLSITDLSLSLCTLSTTLGVLWFEAREINLNACIAQMFFLHGFTFMESGVLLAMAFDRFVAICDPLRYTT
ILTNARIAQIGTIVLIRNVAVMLPVVLFVKRLSFCSSLVLSHSYCYHVDVIQLSCTDNRINSVLGLFALF
STTGFDCPCILLSYVLIIRSVLSIASSDERQKAFNTCISHISAVAIFYIPLISLSLVHRYGHSAPAFVHT
VMANVFLLIPPVLNPIIYSVKTKQIRKAILKVLNQKQNQL*------

>MmOR7.5.44
QDNTEFLSNFT-SKLSTFLLTGIPGLESAHGWISIPFCCLYATALSGNSMILFIIVTQHSLHEPMYYFLS
VLSATDLGLTFSTMSTTLRILWFQANEISLDLCIVQMFFLHGFTCTESGVLVAMAFDRYVAICKPLRYTM
ILTNSRIIQIGFLVIMRTLLLIIPLLLLLKPVSFCKRNTLSHSYC-YPDVIKLACSDTRANNICGLVDLI
LTTGLDIPCIVLSYILIIRSVLNIASSEERHKAFSTCVSHIAAVAVFYIPMFSLSLVHRYGRSVPKVVHT
MMANVYLLLPPVLNPIIYSVKTKQIRKAILSLLFAK*----------

>MmOR7.5.42
QDNTEFLSNFT-SKLPTFLLTGIPGLESAHGWISIPFCCLYATALSGNSMILFIIVTQHSLHEPMYYFLS
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
VLSATDLGLTFSTMSTTLRILWFQANEISLDFCIVQMFFLHGFTCTESGVLVAMAFDRYVAIYKPLRYTM
ILMNSRIIQIGFLVIMHTLLLTVPLLLLLKPVSFCKRNTLSHSYCYHPDVIKLACSDTRANSICGLVDLI
LTTGVDIPCIVLSYILIIRSVLNIAFSEERHKAFSTCVSHIAAVAVFYIPTFSLSLVHRYGRSVPKVVHT
MMANVYLLLPPVLNPIIYSVKTKQIRKAILSLLFAK*----------

>MmOR7.5.24
QDNTEFLSNFT-SQLPTFLLTGIPGLESAHSWISIPFCCLYATALSGNSMILFIIVTQHSLHEPMYYFLS
VLSATDLGLTFSTMSTTLRILWFQANEISLDFCIVQMFFLHGFTFIESGVLVAMAFDRYVAICNPLRYTM
ILTNSRIIQMGFLVIMRALLLIVPLLLLLKPVSFCKRNTLSHSYCYHPDVIKLACSDTRANSICGLVDLI
LTTGIDTPCIVLSYILIIRSVLSIASSEERHKTFSTCVSHIGAVAVFYIPMFSLSLVHRYGRSAPKVVHT
MMANVYLLLPPVLNPIIYSVKTKQIRKAILSLLFAK*----------

>HsOR11.3.22
---MEILSNST-SKFPTFLLTGIPGLESAHVWISIPFCCFYAIALSGNSVILFVIITQQSLHEPMYYFLF
RLSATDLGLTVSSLSTTLGILWFEAREISLYSCIVQMFFLHGFTFMESGVLVATAFDRYVAICDPLRYTT
ILTNSRIIQMGLLMITRAIVLILPLLLLLKPLYFCRMNALSHSYCYHPDVIQLACSDIRANSICGLIDLI
LTTGIDTPCIVLSYILIIHSVLRIASPEEWHKVFSTCVSHVGAVAFFYIHMLSLSLVYRYGRSAPRVVHS
VMANVYLLLPPVLNPIIDSVKTKQIRKAMLSLLLTK*----------

>SMOR14-1
---MPTFQNTT-ASSIIFLLTGVPGLEAFHTWISIPFCFLYATALSGNSLILFVIITQPSLHEPMYYFLS
MLSTTDLGLSISTLATMLGIFWFNAREISFNACLSLMFFIKLFTVMESSVLLAMAYDRYVAISNPLRYAT
ILTDSRIAQIGVTIVIRGTVMLTPMVALLKRLTFCSSRVLHHSYCFHPDVMKLSCTDTRINNAVGLTAMI
STVGVDSVLILLSYILIIRTVLSIASPEERKKAFSTCISHIGAVAIFYIPLISSFV-HRFGKRAPPYVHT
MIANTYLLIPPVMNPIIYSVKTKQIRKAVIKVFQSKEI---------

>MmOR7.5.19
---MPTFQNTT-ASSIIFLLTGVPGLEAFHTWISIPFCFLYATALSGNSLILFVIITQPSLHEPMYYFLS
MLSTTDLGLSISTLATMLGIFWFNAREISFNACLSQMFFIKLFTVMESSVLLAMAYDRYVAISNPLRYAT
ILTDSRIAQIGVTIVIRGTVMLTPMVALLKRLTFCSSRVLHHSYCFHPDVMKLSCTDTRINNAVGLTAMI
STVGVDSVLILLSYILIIRTVLSIASPEERKKAFSTCISHIGAVAIFYIPLISSFV-HRFGKRAPPYVHT
MIANTYLLIPPVMNPIIYSVKTKQIRKAVIKVFQSKEI*--------

>MmOR7.5.20
----MPSFNESTAYPPVFFLTGIPGLETSHTWISIPFCCLYAIAISGNSMILFVIITESSLHEPMYYFLS
MLSFTDLGLCLSTLVTVLGIFWFNVREISFDACIGQMFFIHGFTFMESSVLLVMAFDRFIAICNPLRYAM
ILTNSRIIAVGFAIIIRGTTALVPLLLLLKRLSFCRSHVLHHSYCFHPDVMKLSCSDTRINSAFGLAIVI
STAGLDSVLILLSYVLIIHSVLCIASKEERKKAFGTCVSHLSAVAIFYIPMISLSLVHRFGKHAPPFVHT
LIANVYLLIPPVMNPIIYSVKTKQIRKAMLKVFFVKPS*--------

>HsOR11.3.18
----MPSFNQSIFHPAVFFLTGIPGLETRQIWTSIPFCCLYVIAISGNGMILFVIITESSLHEPMYHFLS
MLSFMDLGLCLSTLTTMLGIFWFNAREISFDACIGQMFFIHGFTFMESSVLLAMAFDRFIAVCNPLRYAT
ILTNSRIIKVGFAIVLRGTTALVPLLLLLKRLSFCRSHVLHHSYCFHPDAMKLSCTDTWINSAFGLAIVI
STAGLDSVLILISYVLIVRSVLCIASPEEQKKAFGTCVSHISAVAIFYIPMISLSPVHRFGKHAPPLVHM
LIANVYLLIPPVMNPIIYSVKT-------K*----------------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>HsOR11.3.30
----MAIFNNTTSSSSNFLLTAFPGLECAHVWISIPVCCLYTIALLGNSMIFLVIITKRRLHKPMYYFLS
MLAAVDLCLTITTLPTVLGVLWFHAREISFKACFIQMFFVHAFSLLESSVLVAMAFDRFVAICNPLNYAT
ILTDRMVLVIGLVICIRPAVFLLPLLVAINTVSFHGGHELSHPFCYHPEVIKYTYSKPWISSFWGLFLQL
YLNGTDVLFILFSYVLILRTVLGIVARKKQQKALSTCVCHICAVTIFYVPLISLSLAHRLFHSTPRVLS-
TLANIYLLLPPVLNPIIYSLKTKTIRQAMFQLLQSKGSWGFNVRGLR

>SOR51T1
YFSFLIVQNNTTSSSSNFLLTAFPGLECAHVWISIPVRCLYTIALLGNSMIFLVIITKRRLHKPMYYFLS
MLAAVDLCLTITTLPTVLGVLWFHAREISFKACFIQMFFVHAFSLLESSVLVAMAFDRFVAICNPLNYAT
ILTDRMVLVIGLVICIRPAVFLLPLLVAINTVSFHGGHELSHPFCYHPEVIKYTYSKPWISSFWGLFLQL
YLNGTDVLFILFSYVLILRTVLGIVARKKQQKALSTCVCHICAVTIFYVPLISLSLAHRHS---TPRVCS
TLANIYLLLPPVLNPIIYSLKTKTIRQAMFQLLQSKGSWGFNVRGLR

>SOR51M1
SPQFMLLSNIT-QFSPIFYLTSFPGLEGIKHWIFIPFFFMYMVAISGNCFILIIIKTNPRLHTPMYYLLS
LLALTDLGLCVSTLPTTMGIFWFNSQSIYFGACQIQMFCIHSFSFMESSVLLMMSFDRFVAICHPLRYSV
IITGQQVVRAGLIVIFRGPVATIPIVLLLKAFPYCGSVVLSHSFCLHQEVIQLACTDTTFNNLYGLMVVV
FTVMLDLVLIALSYGLILHTVAGLASQEEQRRAFQTCTAHLCAVLVFFVPMMGLSLVHRFGKHAPPAIHL
LMANVYLFVPPMLNPIIYSIKTKEIHRAIIKLLGLKKASK-------

>HsOR11.3.61
----MLLSNIT-QFSPIFYLTSFPGLEGIKHWIFIPFFFMYMVAISGNCFILIIIKTNPRLHTPMYYLLS
LLALTDLGLCVSTLPTTMGIFWFNSHSIYFGACQIQMFCIHSFSFMESSVLLMMSFDRLVAICHPLRYSV
IITGQQVVRAGLIVIFRGPVATIPIVLLLKAFPYCGSVVLSHSFCLHQEVIQLACTDITFNNLYGLMVVV
FTVMLDLVLIALSYGLILHTVAGLASQEEQRRAFQTCTAPLCAVLVFFVPMMGLSLVHRFGKHAPPAIHL
LMANVYLFVPPMLNPIIYSIKTKEIHRAIIKFLGLKKASK*------

>SMOR3-1
----MVLSNIT-HFSPMFYLSGFPGLEAIEHWIFIPFFLMYLVAISGNCLILIIIKTSPRLHTPMYYLLS
LLALTDLGLSVSTLPTMVGIFWFNYHGIYFGACQIQMFCIHSFSFMESAVLLVMSFDRFVAICHPLRYSS
IITVQRVMRAGLCVILRGPVALIPIVLLLKDFPYCGPLVLSHSFCLHQEVIHLACVDTTFNNLYGLSLVV
FTVMLDLVLIALSYGFILYTVAGLASQEEQIRAFQTCTSHLCAVLVFFVPMMGLSLVHRFGKHAPPAVHL
LMANIYLFVPPMLNPVIYSIKTKEIRKAIIRFLGFRKVNSESWG---

>MmOR7.5.96
----MVLSNIT-HFSPMFYLSGFPGLEAFEHWIFIPFFLMYLVAISGNCLILIIIKTNPRLHTPMYYLLS
LLALTDLGLSVSTLPTMVGIFWFNYHGIYFGACQIQMFCIHSFSFMESAVLLVMSFDRFVAICHPLRYSS
IITVQRVMRAGLCVILRGPVALIPIVLLLKDFPYCGPLVLSHSFCLHQEVIHLACVDTTFNNLYGLSLVV
FTVMLDLVLIALSYGFILYTVAGLASQEEQIRAFQTCTSHLCAVLVFFVPMMGLSLVHRFGKHAPPAVHL
LMANIYLFVPPMLNPVIYSIKTKEIRKAIIRFLGFRKVNSESWG*--

>SMOR15-1
----MLHVNITNPIFSTFLVTGIPGLEAVYIWIAIPFCAMFLITMVGNMTIIIVIWHEQTLHVPMYLFLA
MLASSDLGLSLFTFPTLLRIFLLNDRELTTTACFTQMFFIHTFQLLESAIILAMAFDWYVAISHPLHYHS
ILTDTVIGKIGLTIVGRTLTLQVPAPILLRRLYFCSSNVLSHSYCLHPDIIKLSCSSTTVNSIFGLFVVL
STLGLDFLLILLSYALILKTVLNMASHSGRLKALNTCISHLCAVVLFFTPMICLSMLHRFGPRLPSHVYV
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
TLANMHFLIPPVMNPIVYVVKTKQIRDKIQKLFIRKATKKAQAASIT

>MmOR7.5.69
----MLHVNITNSIFSTFLVTGIPGLEAVYIWIAIPFCAMFLITMVGNMTIIIVIWHEQTLHVPMYLFLA
MLASSDLGLSLFTFPTLLRIFLLNDRELTTTACFTQMFFIHTFQDLESAIILAMAFDRYVAISHPLHYHS
ILTDTVIAKIGLAIVVRTLTLQVPAPILLRRLYFCRSNVLSHSYCLHPDIIKLSCSSTTVNSIFGLFVVL
STLGLDFLLILLSYALILKTVLSMASHSGRLKALNTCISHLCAVVLFFTPMICLSMLHRFGPRLPSHVYV
TLANMHFLIPPVMNPIVYVVKTKQIRDKIQKLFIRKATKKAQAASIT

>SMOR16-1
----MFCNTST-PGHSTFLLTGFPGLEASHHWVSIPINLICVVSILGNSVILFLIRTDPALHEPMFIFLS
MLAASDLGLCASTFPTMVRLFWLGTRELPFDFCAAQMFFIHAFTYVESGVLLAMAFDRFIAIRNPLHYAT
ILPHSAVAKVGAAVLVRAILLNLPGPILLRRLIFPQISTLSHCYCLHCDLVGLACSDTRINSLVGLVSIL
LSLGLDSSLIMLSYALILRTVLGIASPGERLKALNTCVSHLCIVLIFYLPKLGLSVLHRVEKHSYPALAV
LMANLHFLVPPFMNPVVYCIKSKQIRQGFLRRFQQKRVDIS------

>MmOR7.5.7
----MFCNTST-PGHSTFLLTGFPGLEASHHWVSIPINLICVVSILGNSVILFLIRTDPALHEPMFIFLS
MLAASDLGLCASTFPTMVRLFWLGTRELPFDFCAAQMFFIHAFTYVESGVLLAMAFDRFIAIRDPLHYAT
ILPHSAVAKVGAAVLVRAILLNLPGPILLRRLIFPQISTLSHCYCLHCDLVGLACSDTRINSLVGLVSIL
LSLGLDSSLIMLSYALILRTVLGIASPGERLKALNTCVSHLCIVLIFYLPKLGLSVLHRVEKHSYPALAV
LMANLHFLVPPFMNPVVYCIKSKQIRQGFLRRFQQKRVDIS*-----

>SMOR19-1
----MEITNSSWFQPPTLLLTGIPGLEDVQIWFCIPLCVMYLIALLGNCTILFVIRTTSSLHEPQYIFLS
MLAATDVGLSVSTLPTVLNVFLLNHRDIEFHSCLTQMFFIHTFSSMESAILLAMAFDRFVAIRNSLHYTA
VLTPTRIIKIGLAAVVRGVMLMIPLPILLKRLPFCKGVILSHCYCYHPDIMKLACGPVRVNIIYGLSLVL
CSFGVDSVFIVISYILILKTVLGIASGDGKLKALNTCVSHIFTVFIFYVPLIVLALIHRFGTFASPLLHV
TMANLFLFLTPVLNPLVYSLKTKQIRSAVCKIFKVWGNLLK------

>MmOR7.5.73
----MEITNSSWFQPPTLLLTGIPGLEDVQIWFCIPLCVMYLIALLGNCTILFVIKTTSSLHEPQYIFLS
MLAATDVGLSVSTLPTVLNVFLLNHRDIEFHSCLTQMFFIHTFSSMESAILLAMAFDRFVAIRNPLHYTA
VLTPTRIIKIGLAAVVRGVMLMIPLPILLKRLPFCKGVILSHCYCYHPDIMKLACGPVRVNIIYGLSLVL
CSFGVDSVFIVISYILILKTVLGIASGDGKLKALNTCVSHIFTVFIFYVPLIVLALIHRFGTFASPLLHV
TMANLFLFLTPVLNPLVYSLKTKQIRSAVCKIFKVWGNLLK*-----

>MmOR7.5.72
----MSEFNTT-FQPSVFILTGLRGLVGARLWLGPLLSLMYITTLAGNCTVIYLVRTERSLQEPQYQFLS
MLAGADIVLSVSTLFSVLKVFIFDLYEIAFDSCLAQLFFIHTSSSMGSGILLAMAFDRFVAISHPLQYTT
ILTNSRVTRMGLAAFLRGVALMMPLPILLKRLPFCKGQLLSYSYCIHPNVMKLACGQVKINIFYGLVLVI
FSFGVDFLLIAISYALIFQAVMGIASREGQMKALNTCLSHIFIVFIYYGPLLAITVMHRISRRSSPIAHA
VLGNIYLFMPPMLNPIVYSLKTKQIRSALRKSL-KIQRR*-------

>SOR51E2
----MSSCNFT---HATFVLIGIPGLEKAHFWVGFPLLSMYVVAMFGNCIVVFIVRTERSLHAPMYLFLC
MLAAIDLALSTSTMPKILALFWFDSREISFEACLTQMFFIHALSAIESTILLAMAFDRYVAICHPLRHAA
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
VLNNTVTAQIGIVAVVRGSLFFFPLPLLIKRLAFCHSNVLSHSYCVHQDVMKLAYADTLPNVVYGLTAIL
LVMGVDVMFISLSYFLIIRTVLQLPSKSERAKAFGTCVSHIGVVLAFYVPLIGLSVVHRFGNSLHPIVRV
VMGDIYLLLPPVINPIIYGAKTKQIRTRVLAMF-KISCDKDLQAVGG

>HsOR11.3.16
----MSSCNFT---HATFVLIGIPGLEKAHFWVGFPLLSMYVVAMFGNCIVVFIVRTERSLHAPMYLFLC
MLAAIDLALSTSTMPKILALFWFDSREISFEACLTQMFFIHALSAIESTILLAMAFDRYVAICHPLRHAA
VLNNTVTAQIGIVAVVRGSLFFFPLPLLIKRLAFCHSNVLSHSYCVHQDVMKLAYADTLPNVVYGLTAIL
LVMGVDVMFISLSYFLIIRTVLQLPSKSERAKAFGTCVSHIGVVLAFYVPLIGLSVVHRFGNSLHPIVRV
VMGDIYLLLPPVINPIIYGAKTKQIRTRVLAMF-KISCDKDLQAVGG

>MmOR7.5.18
----MSSCNFT---HATFLLIGIPGLEEAHFWFGFPLLSMYAVALFGNCIVVFIVRTERSLHAPMYLFLC
MLAAIDLALSTSTMPKILALFWFDSREITFDACLAQMFFIHTLSAIESTILLAMAFDRYVAICHPLRHAA
VLNNTVTVQIGMVALVRGSLFFFPLPLLIKRLAFCHSNVLSHSYCVHQDVMKLAYTDTLPNVVYGLTAIL
LVMGVDVMFISLSYFLIIRTVLQLPSKSERAKAFGTCVSHISVVLAFYVPLIGLSVVHRFGNSLDPIVHV
LMGDVYLLLPPVINPIIYGAKTKQIRTRVLAMF-KISCDKDIEAGGN

>MmOR7.5.14
LVPLIATPNGSLAHPAYFLLVGIPGLSKIHFWLAFPLCFMYAVATLGNLAIIFIIRVERRLHEPMYLFLA
MLSTIDLVLSSVTMPKMASLFLTGIQEIEFNICLTQMFLIHALSAMESAVLLAMAFDRFVAICYPLRHAS
VLTGTTVAKIGLASLARGFVFFFPLPFLLKRLSYCQTHTVTHSFCLHQDIMKLSCTDTKVNVVYGLFIIL
SVMGVDSLFIGFSYILILRAVLELSTRGAALKAFNTCISHLCAVLVFYVPLIGLSVVHRLGGPTSLVH-V
VMANIYLLLPPVVNPIVYGAKTKEIRSRVIRMFSQDGR*--------

>SOR51D1
PIIATSNGNLV--HAAYFLLVGIPGLPTIHFWLAFPLCFMYALATLGNLTIVLIIRVERRLHEPMYLFLA
MLSTIDLVLSSITMPKMASLFLMGIQEIEFNICLAQMFLIHALSAVESAVLLAMAFDRFVAICHPLRHAS
VLTGCTVAKIGLSALTRGFVFFFPLPFILKWLSYCQTHTVTHSFCLHQDIMKLSCTDTRVNVVYGLFIIL
SVMGVDSLFIGFSYILILWAVLELSSRRAALKAFNTCISHLCAVLVFYVPLIGLSVVHRLGGPTSLLH-V
VMANTYLLLPPVVNPLVYGAKTKEICSRVLCMF--SQGGK-------

>HsOR11.3.13
PIIATSNGNLV--HAAYFLLVGIPGLPTIHFWLAFPLCFMYALATLGNLTIVLIIRVERRLHEPMYLFLA
MLSTIDLVLSSITMPKMASLFLMGIQEIEFNICLAQMFLIHALSAVESAVLLAMAFDRFVAICHPLRHAS
VLTGCTVAKIGLSALTRGFVFFFPLPFILKWLSYCQTHTVTHSFCLHQDIMKLSCTDTRVNVVYGLFIIL
SVMGVDSLFIGFSYILILWAVLELSSRRAALKAFNTCISHLCAVLVFYVPLIGLSVVHRLGGPTSLLH-V
VMANTYLLLPPVVNPLVYGAKTKEICSRVLCMFSQGGK*--------

>SOR51E1
-MMVDPNGNES--SATYFILIGLPGLEEAQFWLAFPLCSLYLIAVLGNLTIIYIVRTEHSLHEPMYIFLC
MLSGIDILISTSSMPKMLAIFWFNSTTIQFDACLLQMFAIHSLSGMESTVLLAMAFDRYVAICHPLRHAT
VLTLPRVTKIGVAAVVRGAALMAPLPVFIKQLPFCRSNILSHSYCLHQDVMKLACDDIRVNVVYGLIVII
SAIGLDSLLISFSYLLILKTVLGL-TREAQAKAFGTCVSHVCAVFIFYVPFIGLSMVHRFSRRDSPLP-V
ILANIYLLVPPVLNPIVYGVKTKEIRQRILRLF-HVATHASEP----

>HsOR11.3.14
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
-MMVDPNGNES--SATYFILIGLPGLEEAQFWLAFPLCSLYLIAVLGNLTIIYIVRTEHSLHEPMYIFLC
MLSGIDILISTSSMPKMLAIFWFNSTTIQFDACLLQMFAIHSLSGMESTVLLAMAFDRYVAICHPLRHAT
VLTLPRVTKIGVAAVVRGAALMAPLPVFIKQLPFCRSNILSHSYCLHQDVMKLACDDIRVNVVYGLIVII
SAIGLDSLLISFSYLLILKTVLGL-TREAQAKAFGTCVSHVCAVFIFYVPFIGLSMVHRFSRRDSPLP-V
ILANIYLLVPPVLNPIVYGVKTKEIRQRILRLF-HVATHASEP*---

>SMOR18-1
--MVGFNSNES--SATYFILIGLPGLEEVQFWLAFPLCSLYLIAVLGNLTIIYIVRTEHSLHEPMYIFLC
MLSGLDILISTSSMPKMMAIFWFNSTTIQFDACLVQMFAIHSLSGMESTVLLAMAFDRYVAICHPLRHAT
VLTLPRVAKIGMAAVVRGAVLMAPLPVFIKRLPFCRSNILSHSYCLHQDVMKLACADIRVNIIYGLIVII
SAIGLDSLLISFSYLLILKTVLGL-TREAQAKAFGTCVSHVCAVFIFYVPFIGLSMVHRFSKRRDSLLPV
IMANIYLLVPPVLNPIVYGVKTKEIRQRILRLF--LVTTHTSDH---

>MmOR7.5.15
--MVGFNSNES--SATYFILIGLPGLEEVQFWLAFPLCSLYLIAVLGNLTIIYIVRTEHSLHEPMYIFLC
MLSGLDILISTSSMPKMMAIFWFNSTTIQFDACLVQMFAIHSLSGMESTVLLAMAFDRYVAICHPLRHAT
VLTLPRVAKIGMAAVVRGAVLMAPLPVFIKRLPFCRSNILSHSYCLHQDVMKLACADIRVNIIYGLIVII
SAIGLDSLLISFSYLLILKTVLGL-TREAQAKAFGTCVSHVCAVFIFYVPFIGLSMVHRFSKRRDSLLPV
IMANIYLLVPPVLNPIVYGVKTKEIRQRILRLF--LVTTHTSDH*--

>SMOR39-1
----MPSCNNSIPQPLIFILAGIPGLESSHGWFSISFFLIFVVTIIGNVTILHIIWIEKTLHEPMFLLLA
TLSVVDLCLVTVTVPRMLGIFWLNAKEISLEACLTQMFFIPSFYVMESGILLAMAFDRFAAIWYPLRYTT
ILDSNMLVKMALAILARAVAVVTPAPILTKRLERFQTQVISYSYCAYMAVVMIACGDISNHIVYGLMVIV
ASVGIDLFLVILSYTLILRAVFHIPSWQARSKALSTCGSHLCVIGLFYSPVVFSVLSQILGYHMAPYLQI
IIDNLYFLVPPMVNPLIYAVRTKQIRERVLRILNCERK---------

>MmOR7.5.59
----MPSCNNSIPQPLIFILAGIPDLESSHGWFSISFFLIFVVTIIGNVTILHIIWIEKTLHEPMFLLLA
TLSVVDLCLVTVTVPRMLGIFWLNAKEISLEACLTQMFFIPSFYVMESGILLAMAFDRFAAIWYPLRYTT
ILDSNMLVKMALAILARAVAVVTPAPILTKRLERFQTQVISYSYCAYMAVVMIACGDISNHIVYGLMVIV
ASVGIDLLLVILSYTLILRAVFHIPSWQARSKALSTCGSHLCVIGLFYSPVVFSVLSQILGYHMAPYLQI
IIDNLYFLVPPMVNPLIYAVRTKQIRERVLRILNCERK*--------

>SOR52E6
----MPIANDTQFHTSSFLLLGIPGLEDVHIWIGFPFFSVYLIALLGNAAIFFVIQTEQSLHEPMYYCLA
MLDSIDLSLSTATIPKMLGIFWFNIKEISFGGYLSQMFFIHFFTVMESIVLVAMAFDRYIAICKPLWYTM
ILTSKIISLIAGIAVLRSLYMVIPLVFLLLRLPFCGHRIIPHTYCEHMGIARLACASIKVNIMF-GLGSI
SLLLLDVLLIILSHIRILYAVFCLPSWEARLKALNTCGSHIGVILAFSTPAFFSFFTHCFGHDIPQYIHI
FLANLYVVVPPTLNPVIYGVRTKHIRETVLRIFFKTDH---------

>HsOR11.3.84
----MPIANDTQFHTSSFLLLGIPGLEDVHIWIGFPFFSVYLIALLGNAAIFFVIQTEQSLHEPMYYCLA
MLDSIDLSLSTATIPKMLGIFWFNIKEISFGGYLSQMFFIHFFTVMESIVLVAMAFDRYIAICKPLWYTM
ILTSKIISLIAGIAVLRSLYMVIPLVFLLLRLPFCGHRIIPHTYCEHMGIARLACASIKVNIMF-GLGSI
SLLLLDVLLIILSHIRILYAVFCLPSWEARLKALNTCGSHIGVILAFSTPAFFSFFTHCFGHDIPQYIHI
FLANLYVVVPPTLNPVIYGVRTKHIRETVLRIFFKTDH*--------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>SOR52E8
MAGRMSTSNHTQFHPSSFLLLGIPGLEDVHIWIGVPFFFVYLVALLGNTALLFVIQTEQSLHEPMYYFLA
MLDSIDLGLSTATIPKMLGIFWFNTKEISFGGCLSHMFFIHFFTAMESIVLVAMAFDRYIAICKPLRYTM
ILTSKIISLIAGIAVLRSLYMVVPLVFLLLRLPFCGHRIIPHTYCEHMGIARLACASIKVNIRF-GLGNI
SLLLLDVILIILSYVRILYAVFCLPSWEARLKALNTCGSHIGVILAFFTPAFFSFLTHRFGHNIPQYIHI
ILANLYVVVPPALNPVIYGVRTKQIRERVLRIFLKTNH---------

>HsOR11.3.85
----MSTSNHTQFHPSSFLLLGIPGLEDVHIWIGVPFFFVYLVALLGNTALLFVIQTEQSLHEPMYYFLA
MLDSIDLGLSTATIPKMLGIFWFNTKEISFGGCLSHMFFIHFFTAMESIVLVAMAFDRYIAICKPLRYTM
ILTSKIISLIAGIAVLRSLYMVVPLVFLLLRLPFCGHRIIPHTYCEHMGIARLACASIKVNIRF-GLGNI
SLLLLDVILIILSYVRILYAVFCLPSWEARLKALNTCGSHIGVILAFFTPAFFSFLTHRFGHNIPQYIHI
ILANLYVVVPPALNPVIYGVRTKQIRERVLRIFLKTNH*--------

>SMOR32-1
NLLQNAPSNITEAHPLSFLLLGIPGLEATQFWLGFPFCVVYLTALVGNLIILFVIWTDRTFHQPMFYFLA
MLSVIDLSLSTATIPKMLGIFWFSLQELCFACCVAQVFFIHFFTVMESIVLLAMGFDRYVAICNPLRYTT
ILTNRIIVVIAVLVVIRSLCMIVPIIFLLLRLPYCGHRIIPHTYCEHMGVARLACASIR-ANIYFGLGNI
SILFLDVFLIIVSYARILYAVFHLPSQDARLKALNTCSSHICVILAFFGPALFSFLTHRFGHNIPQYIHI
LLANLYVVIPPALNPVIYGIRTKQIQQRVKNLF-V------------

>MmOR7.5.140
NLLQNAPSNITEAHPLSFLLLGIPGLEATQFWLGFPFCVVYLTALVGNLIILFVIWTDRTFHQPMFYFLA
MLSVIDLSLSTATIPKMLGIFWFSLQELCFACCVAQVFFIHFFTVMESIVLLAMGFDRYVAICNPLRYTT
ILTNRIIVVIAVLVVIRSLCMIVPIIFLLLRLPYCGHRIIPHTYCEHMGVARLACASIR-ANIYFGLGNI
SILFLDVFLIIVSYARILYAVFHLPSQDARLKALNTCSSHICVILAFFGPALFSFLTHRFGHNIPQYIHI
LLANLYVVIPPALNPVIYGIRTKQIQQRVKNLFV*------------

>MmOR7.5.136
----MSPGNSSWIHPSSFLLLGIPGLEELQFWLGLPFGTVYLIAVLGNVIILFVIYLEHSLHQPMFYLLA
ILAVTDLGLSTATVPRALGIFWFGFHKIAFRDCVAQMFFIHLFTGIETFMLVAMAFDRYIAICNPLRYNT
ILTNRTICIIVGVGLFKNFILVFPLIFLILRLSFCGHNIIPHTYCEHMGIARLACVSIKVNVLFGLIL-I
SMILLDVVLIALSYAKILHAVFKLPSWEARLKALNTCGSHVCVILAFFTPAFFSFLTHRFGHNIPRYIHI
LLANLYVIIPPALNPLIYGVRTKQIRDRVVIFFCKEV*---------

>SOR52E2
----MFLPNDTQFHPSSFLLLGIPGLETLHIWIGFPFCAVYMIALIGNFTILLVIKTDSSLHQPMFYFLA
MLATTDVGLSTATIPKMLGIFWINLRGIIFEACLTQMFFIHNFTLMESAVLVAMAYDSYVAICNPLQYSA
ILTNKVVSVIGLGVFVRALIFVIPSILLILRLPFCGNRVIPHTYCEHMGLAHLSCASIKINIIY-GLCAI
CNLVFDITVIALSYVHILCAVFRLPTHEARLKSLSTCGSHVCVILAFYTPALFSFMTHCFGRNVPRYIHI
LLANLYVVVPPMLNPVIYGVRTKQIYKCVKKILLQEQGMEKEEYLIH

>HsOR11.3.44
----MFLPNDTQFHPSSFLLLGIPGLETLHIWIGFPFCAVYMIALIGNFTILLVIKTDSSLHQPMFYFLA
MLATTDVGLSTATIPKMLGIFWINLRGIIFEACLTQMFFIHNFTLMESAVLVAMAYDSYVAICNPLQYSA
ILTNKVVSVIGLGVFVRALIFVIPSILLILRLPFCGNHVIPHTYCEHMGLAHLSCASIKINIIY-GLCAI
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
CNLVFDITVIALSYVHILCAVFRLPTHEARLKSLSTCGSHVCVILAFYTPALFSFMTHRFGRNVPRYIHI
LLANLYVVVPPMLNPVIYGVRTKQIYKCVKKILLQEQGMEKEEYLIH

>MmOR7.5.48
----MILPNDTQFHPSTFLLLGIPGLESLHIWIGFPFCVVYMIALLGNLTILFVIKTESSLHQPMFYFLA
MLATIDLGLSTATIPKMLGIFWINLREILFEDCLIQMFFIHKFTLMESTVLLAMAYDHYVAICIPLRYST
ILTNKVVSMIGIAVLVRAIIFVIPFIFLILRLPFCGHHIIPHTYCEHMGLARLSCASVKANVIY-GLCAI
CNLLFDIVAIVLSYIQILRVVFHLPSREARLKSLNTCGSHVCVILAFYTPALFSFMTHRFGRNVPRYIHI
LLANLYVVVPPMLNPVIYGVRTKQIYDRVKKILLQVRGKEKE*----

>MmOR7.5.53
----MLLSNDTQFHPSSFLLLGIPGLESHHTWIGFPFCAVYLIALLGNFTILLVIKTESSLHQPMFYFLA
MLATIDLGLSTATIPKMLGIFWFSFRVILFGACLTQMFFIHNFTGMESAVLLAMAYDRYVAICNPLRYST
ILTNKAVFMIGLGVLVRSFLSVIPFVFLILRLPFCGNNVIPHTYCEHMGLARLSCANIKVNIIY-GLGAI
SILFFDIIAIALSYAQILRAVFRLPSREARIKSLSTCGSHVCVILAFYTPALFSFMTHRFGRNVPRYIHI
LLANLYVVVPPMLNPVIYGVRTKQIYDRVKKIFLQK*----------

>SOR52E1
----M---NTTLFHPYSFLLLGIPGLESMHLWVGFPFFAVFLTAVLGNITILFVIQTDSSLHHPMFYFLA
ILSSIDPGLSTSTIPKMLGTFWFTLREISFEGCLTQMFFIHLCTGMESAVIVAMAYDCYVAICDPLCYTL
VLTNKVVSVMALAIFLRPLVFVIPFVLFILRLPFCGHQIIPHTYGEHMGIARLSCASIRVNIIY-GLCAI
SILVFDIIAIVISYVQILCAVFLLSSHDARLKAFSTCGSHVCVMLTFYMPAFFSFMTHRFGRNIPHFIHI
LLANFCVVIPPALNSVIYGVRTKQIRAQVLKMFFNK----------

>HsOR11.3.87
----MPSINDTHFYPPFFLLLGIPGLDTLHIWISFPFCIVYLIAIVGNMTILFVIKTEHSLHQPMFYFLA
MLSMIDLGLSTSTIPKMLGIFWFNLQEISFGGCLLQMFFIHMFTGMETVLLVVMAYDRFVAICNPLQYTM
ILTNKTISILASVVVGRNLVLVTPFVFLILRLPFCGHNIVPHTYCEHRGLAGLACAPIKINIIYGLMVIS
YI-IVDVILIASSYVLILRAVFRLPSQDVRLKAFNTCGSHVCVMLCFYTPAFFSFMTHRFGQNIPHYIHI
LLANLYVVVPPALNPVIYGVRTKQIREQIVKIFVQKE*---------

>SOR52E4
----MPSINDTHFYPPFFLLLGIPGLDTLHIWISFPFCIVYLIAIVGNMTILFVIKTEHSLHQPMFYFLA
MLSMIDLGLSTSTIPKMLGIFWFNLQEISFGGCLLQMFFIHMFTGMETVLLVVMAYDRFVAICNPLQYTM
ILTNKTISILASVVVGRNLVLVTPFVFLILRLPFCGHNIIPHTYCEHMGLAGLACAPIKINIIYGLMVIS
YI-IVDVILIASSYVLILRAVFHLPSQDVRLKAFNTCGSHVCVMLCFYTPAFFSFMTHRFGQNIPHYIHI
LLANLYVVVPPALNPVIYGVRTKQIREQIVKIFVQKE----------

>MmOR7.5.141
----MSSINSTQFHPSFFILVGIPGLEIFHIWIAFPFCLVYLTSLVGNITILFVIKTEHSLHQPMFYFLA
TLSIIDLCLSTSTIPKMLGIFWFNLREISFGGCLAQMFFIHVFTGMETVLLVVMAYDRFVAICKPLQYTT
ILTNKTISLLLSVVIGRNLILVTPFVFLILRLPFCGHHIMPHTYCEHMGLARLACAPIKINIIYGLVV-I
SHILVDMILIASSYVLILRAVFRIPSQDARLKALNTCGSHVCIMLCFYTPALFSFMTHRFGQNIPHYIHI
LLANLYVVIPPALNPVIYGVRTKQIREKIIKIVVQKE*---------

>MmOR7.5.134
----MSSSNGTEFHPSFFLLLGVPGLEKLHVWIGFPFCFVYLIALVGNIIILFVIKSEHSLHQPMFYFLA
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
MLGSIDLGLSTSTIPKMLGIFWFNLREISFGGCVTQMFFIHIFTAMETVVLVAMAFDRYVAICNPLRYSQ
ILTNRTIGLILVVVFGVNFILLIPLVFLILRLPFCGHHIIPHTYCEHMGIARLACANIKVNMIFGLIL-I
SMVLADVLLIAISYMRILRAVFCLPSRDARLKALNTCGSHICVILAFFTPAFFSFMTHRFGRNVPAYIHI
LLANLYVVVPPALNPVIYGVRTKQIRDQVLSIFWKKT*---------

>MmOR7.5.62
----MPSNNETASHPSLFHLLGIPGLEAFHIWIAFPFFVVYPIALVGNFTILCVIKNEQSLHQPMFYFLA
LLSFIDLGLSTSTIPKMLGIFWFNLREISFEGCLIQMFFIHTYTGMESVVLLAMAIDRFVAICYPLRYTS
VLTNKVVAVMASVVIGRPVLLVIPFCPLLKRLPFCGHYIIPHTYCEHMGIARLACANIRINIIY-GLFTI
AALIFDLILIAFSYAWILQAVFRLPSRDARHKALSTCGSHVCVILAFYTPAFFSFMTHRFGRNVPRYIHI
LLANLYVVVPPCLNPVIYGVRTKQIREGVLKIFVKKE*---------

>SOR52E5
----MLHTNNTQFHPSTFLVVGVPGLEDVHVWIGFPFFAVYLTALLGNIIILFVIQTEQSLHQPMFYFLA
MLAGTDLGLSTATIPKMLGIFWFNLGEIAFGACITQMYTIHICTGLESVVLTVTGIDRYIAICNPLRYSM
ILTNKVIAILGIVIIVRTLVFVTPFTFLILRLPFCGVRIIPHTYCEHMGLAKLACASIN---VIYGLIAF
SVGYIDISVIGFSYVQILRAVFHLPAWDARLKALSTCGSHVCVMLAFYLPALFSFMTHRFGHNIPHYIHI
LLANLYVVFPPALNSVIYGVKTKQIREQVLRILNPKSFWHFDPKRIF

>HsOR11.3.88
----MLHTNNTQFHPSTFLVVGVPGLEDVHVWIGFPFFAVYLTALLGNIIILFVIQTEQSLHQPMFYFLA
MLAGTDLGLSTATIPKMLGIFWFNLGEIAFGACITQMYTIHICTGLESVVLTVTGIDRYIAICNPLRYSM
ILTNKVIAILGIVIIVRTLVFVTPFTFLILRLPFCGVRIIPHTYCEHMGLAKLACASIN---VIYGLIAF
SVGYIDISVIGFSYVQILRAVFHLPAWDARPKALSTCGSHVCVMLAFYLPALFSFMTHRFGHNIPHYIHI
LLANLYVVFPPALNSVIYGVKTKQIREQVLRILNPKSFWHFDPKRIF

>MmOR7.5.142
----MLHSNKTQFHPSSFLLIGIPGLEELHLWIGFPFFAVYLIAVLGNIIILFVIQTERSLHQPMFYFLA
MLACTDLGLSTATIPKMLGIFWFNLREIAFGACITQMYIIHTCTGLESVVLTIMAIDRYIAICYPLRYSM
ILTNKVIAILGIIIIVRTLIFVTPFIFLILRLPFCGVRIIPHTYCEHMGLAKLACANIKVNVIY-GLVAF
SVGYIDLSVIGFSYIRILQAVFRLPSWDARLKALSTCGSHVSVMLAFYLPALFSFMTHRFGHNIPHYIHI
LLANLYVVVPPALNPVIYGVRTKQIRERVLRMLNPKMH*--------

>SOR52J3
----MFYHNKSIFHPVTFFLIGIPGLEDFHMWISGPFCSVYLVALLGNATILLVIKVEQTLREPMFYFLA
ILSTIDLALSATSVPRMLGIFWFDAHEINYGACVAQMFLIHAFTGMEAEVLLAMAFDRYVAICAPLHYAT
ILTSLVLVGISMCIVIRPVLLTLPMVYLIYRLPFCQAHIIAHSYCEHMGIAKLSCGNIRINGIYGLFVVS
FFVL-NLVLIGISYVYILRAIFRLPSHDAQLKALSTCGAHVGVICVFYIPSVFSFLTHRFGHQIPGYIHI
LVANLYLIIPPSLNPIIYGVRTKQIRE*VLYVFTKK----------

>HsOR11.3.43
----MFYHNKSIFHPVTFFLIGIPGLEDFHMWISGPFCSVYLVALLGNATILLVIKVEQTLREPMFYFLA
ILSTIDLALSTTSVPRMLGIFWFDAHEINYGACVAQMFLIHAFTGMEAEVLLAMAFDRYVAVCAPLHYAT
ILTSQVLVGISMCIVIRPVLLTLPMVYLIYRLPFCQAHIIAHSYCEHMGIAKLSCGNIRINGIYGLFVVS
FFVL-NLVLIGISYVYILRAVFRLPSHDAQLKALSTCGAHVGVICVFYIPSVFSFLTHRFGHQIPGYIHI
LVANLYLIIPPSLNPIIYGVRTKQIRERVLYVFTKK*----------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR7.5.51
-MTIHNNRSVS--HPDTFFLIGIPGLEEIHAWISLPFCCIYLVALMGNTMILVVIKTERSLREPMFYFLA
ILSSVDLALSTTSVPRMLGIFWFDAHEINFGGCVAQMFLIHAFTGMEAEVLMAMAFDRYVAICAPLHYTT
ILTSRVLMGISICVVIRPALFICPMVYLIYRLPFCQAHVIAHSYCEHMGIAKLSCGDIHINAVYGLFVVS
LFLL-NLVLIGISYGYILRAVFRLPSQDARLKALSTCGSHVAVLCVFYIPSVFSFLTHRFGHNIPHYIHI
LVANLYLVIPPSLNPIIYSVRTKQIREHVLHIFTKR*----------

>HsOR11.3.68
----MSDSNLSNHLPDTFFLTGIPGLEAAHFWIAIPFCAMYLVALVGNAALILVIAMDNALHAPMYLFLC
LLSLTDLALSSTTVPKMLAILWLHAGEISFGGCLAQMFCVHSIYALESSILLAMAFDRYVAICNPLRYTT
ILNHAVIGRIGFVGLFRSVAIVSPFIFLLRRLPYCGHRVMTHTYCEHMGIARLACANITVNIVYGLTVAL
LAMGLDSILIAISYGFILHAVFHLPSHDAQHKALSTCGSHIGIILVFYIPAFFSFLTHRFGHHEVPKHHI
FLANLYVLVPPVLNPILYGARTKEIRSRLLKLLHLGKTSI*------

>MmORUn.18.1
--------SES--LPVTLFLTGIPGLEFAHLWIAIPFCVMYVVALLGNAALILIIGTESVLHTPMYLFLC
LLSLTDLALSSTTVPKMLAILWLHSNEISFGGCLAQMFCVHSIYALESSVLLAMAFDRYVAICNPLRYTT
ILNHTVIAQIIFAGIVRSVAIVSPFIFLLRRLPYCGHRVMTHTYCEHMGIARLACANITVNIVYGLTVAL
LAMGLDSILIAISYGFILRAVFRLPSRDAQHKALSTCGSHLGVILVFYIPAFFSFLTHRFGNRVPKHVHI
FLANLYVLVPPVLNPIIYGARTKEIRSRLLKLLHLGKDLV*------

>SMOR33-1
MMLSAAIPNGTAFHPPTFVLLGIPGMQDQHVWIAIPFCSMYILALVGNGTILYIIITDRALHEPMYLFLC
LLSITDLVLCSTTLPKMLAIFWLRSHVISYHGCLTQMFFVHAVFATESAVLLAMAFDRYVAICRPLHYTS
ILNAVVIGKIGLACVTRGLLFVFPFVILIERLPFCGHHIIPHTYCEHMGIAKLACASIKPNTIYGLTVAL
SVTGMDVVLIATSYILILQAVLRLPSKDAQFRAFSTCGAHICVILVFYIPAFFSFFTHRFGHHVPPQVHI
ILANLYLLVPPVLNPLVYGINTKQIRLRILDFFVKRR----------

>MmOR7.5.117
MMLSAAIPNETAFHPPTFVLLGIPGMQDQHVWIAIPFCSMYILALVGNGTILYIIITDRALHEPMYLFLC
LLSITDLVLCSTTLPKMLAIFWLRSHVISYHGCLTQMFFVHAVFATESAVLLAMAFDRYVAICRPLHYTS
ILNAVVIGKIGLACVTRGLLFVFPFVILIERLPFCGHHIIPHTYCEHMGIAKLACASIKPNTIYGLTVAL
SVTGMDVVLIATSYILILQAVLRLPSKDAQFRAFSTCGAHICVILVFYIPAFFSFFTHRFGHHVPPQVHI
ILANLYLLVPPVLNPLVYGINTKQIRLRILDFFVKRR*---------

>SOR52H1
SASAMIIFNLSSYNPGPFILVGIPGLEQFHVWIGIPFCIIYIVAVVGNCILLYLIVVEHSLHEPMFFFLS
MLAMTDLILSTAGVPKALSIFWLGAREITFPGCLTQMFFLHYNFVLDSAILMAMAFDRYVAICSPLRYTT
ILTPKTIIKSAMGISFRSFCIILPDVFLLTCLPFCRTRIIPHTYCEHIGVAQLACADISINFWYGFCVPI
MTVISDVILIAVSYAHILCAVFCLPSQDARQKALGTCGSHVCVILMFYTPAFFSILAHRFGHNVSRTFHI
MFANLYIVIPPALNPMVYGVKTKQIRDKVILLFSKGT--G-------

>HsOR11.3.70
----MIIFNLSSYNPGPFILVGIPGLEQFHVWIGIPFCIIYIVAVVGNCILLYLIVVEHSLHEPMFFFLS
MLAMTDLILSTAGVPKALSIFWLGAREITFPGCLTQMFFLHYNFVLDSAILMAMAFDHYVAICSPLRYTT
ILTPKTIIKSAMGISFRSFCIILPDVFLLTCLPFCRTRIIPHTYCEHIGVAQLACADISINFWYGFCVPI
MTVISDVILIAVSYAHILCAVFGLPSQDACQKALGTCGSHVCVILMFYTPAFFSILAHRFGHNVSRTFHI
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
MFANLYIVIPPALNPMVYGVKTKQIRDKVILLFSKGTG*--------

>MmOR7.5.112
----MITSNVSSYNPGPFLLVGIPGLEHFHVWIGIPFCVIYIIAVVGNCILLYLITVERSLHEPMFFFLS
MLAMTDLILSTDGVPKTLSIFWMGAREITFPGCLTQMFFLHYSFVLDSAILMAMAFDRYVAICSPLRYAT
ILTPKTIVKIAVGISFRSFCIILPVVFLLTRLPFCRTRIIPHTYCEHIGVARLACADISINIWYGFCVPI
MTVISDVVLIAVSYTLILCAVFRLPSRDARQKALGTCGSHVCVILMFYTPAFFSILAHRFGHNVSLTFHI
MFANLYIVIPPAMNPIVYGVKTKQIREKVILLFSVKSIDG*------

>MmOR7.5.113
----MVMHNVSSYNTGPFTLSGIPGLEQYHVWISIPFCFIYLVAILGNSILLYLIAVEHSLHSPMFFFLS
MLAMTDLILSTTCVPKTLSIFWFGPQEISFPGCLTQLFFLHYSFVLDSAILLAMAFDRYVAICSPLRYTT
ILTPKTIVKIAVGISFRSFCVFVPCVFLVNRLPFCRTHIIAHTYCEHIGVARLACADISINIWYGFCVPI
MTVIIDVILIAISYTLILCAVFRLPSRDARQKALSTCGSHVCVILMFYIPAFFSILAHRFGRNVPRTFHI
MFANLYVIIPPALNPIVYGVKTKQIRD--KAIL--LLFPK*------

>MmOR7.5.115
----MYNLSCY--NPASFTLVGIPGLEKFHIWIGIPFCVIYVVAIVGNCILLYLIAVEQSLHEPMFIFLS
MLASTDLILSTATVPKLLSNLWFGSQEITFSGCLTQMFFLHFSFVVDSAILLAMAFDRYVAICLPLRYST
ILTPQVIVKIMVSIIVRSFSVILPDVFLLRRLPFCKTRVIPHTYCEHIGVARLSSADISINIWYGFSVPL
MTVISDVILIAVSYIFILRAVFLLSSQGARQKALSTCGSHICVILMFYTPAFFSILAHRFGHSVPRNVLI
LFANFYVAIPPALNPVVYGVKTKQIQDKFLLFFSLRKTQ*-------

>MmOR7.5.116
-MTIMATFNLSSFNPGFFILLGIPGLEQFHVWIGIPFFIIYLVAFAGNSILLYLIFMERSLHEPMFFFLS
LLAGTDLILCNTCVPKTFSIFWLGPQHITFPGCLTQMFFLHFSFAMDSAILLSMAFDRYVAICFPLRYTT
ILTHQIVIKIVVAIISRSFCIIFPCVFLLKRLPFCRELVIPHTYCEHIGIARLACADISINIWYGFAVPI
MTVMSDLILIGISYTVILRAVFNLPSQDARKKALSTCGSHVCVILIFYTPAIFVLV-HRFGHNIPHSFHI
LFANLYVSIPPAINPVIYGVKTKQIRDKINLLFFPKDNH*-------

>HsOR11.3.101
----MSHTNVTIFHPAVFVLPGIPGLEAYHIWLSIPLCLIYITAVLGNSILIVVIVMERNLHVPMYFFLS
MLAVMDILLSTTTVPKALAIFWLQAHNIAFDACVTQGFFVHMMFVGESAILLAMAFDRFVAICAPLRYTT
VLTWPVVGRIALAVITRSFCIIFPVIFLLKRLPFCLTNIVPHSYCEHIGVARLACADITVNIWYGFSVPI
VMVILDVILIAVSYSLILRAVFRLPSQDARHKALSTCGSHLCVILMFYVPSFFTLLTHHFGRNIPQHVHI
LLANLYVAVPPMLNPIVYGVKTKQIREGVAHRFFDIKTWCCTSPLGS

>SOR52B2
----MSHTNVTIFHPAVFVLPGIPGLEAYHIWLSIPLCLIYITAVLGNSILIVVIVMERNLHVPMYFFLS
MLAVMDILLSTTTVPKALAIFWLQAHNIAFDACVTQGFFVHMMFVGESAILLAMAFDRFVAICAPLRYTT
VLTWPVVGRIALAVITRSFCIIFPVIFLLKRLPFCLTNIVPHSYCEHIGVARLACADITVNIWYGFSVPI
VMVILDVILIAVSYSLILRAVFRLPSQDARHKALSTCGSHLCVILMFYVPSFFTLLTHHFGRNIPQHVHI
LLANLYVAVPPMLNPIVYGVKTKQIREGVAHRFFDIKTWCCTSPLGS

>MmOR7.5.157
----MIHSNITPIHPAFFVLVGIPGLEAYHTWLSIPLCLMYVTAVLGNSILIMVIITERNLHEPMYFFLS
MLAITDILLSTTTVPKALTIFWLHAHNIAFDACVTQVFFVHTMFVGESAILLAMAFDRFIAICAPLRYAT
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
VLTWSTVGRIALAIVIRSICIIFPVIFLLKRLPFCRTNIVPHSYCEHIGVARLACADITVNIWYGFSVPI
VMVIVDVILIAVSYSLILRAVFRLPSQDARHKALSTCGSHLCVILMFYVPSFFTLLTHRFGRNIPRHVHI
LLANLYVVVPPMLNPIVYGVKTKQIREGVVHWFLDIKTLCCSSPLG*

>MmOR7.5.156
----MLGTNFTIIHPTVFILLGIPGLEQYHTWLSIPFCLMYIAAVLGNGALILVVLSERTLHEPMYVFLS
MLAGTDILLSTTTVPKTLAIFWFHAGEIPFDACIAQMFFIHVAFVAESGILLAMAFDRYVAICTPLRYSA
VLTPMAIGKMTLAIWGRSIGTIFPIIFLLKRLSYCRTNVIPHSYCEHIGVARLACADITVNIWYGFSVPM
ASVLVDVALIGISYTLILQAVFRLPSQDARHKALNTCGSHIGVILLFFIPSFFTFLTHRFGKNIPHHVHI
LLANLYVLVPPMLNPIIYGAKTKQIRDSMTRMLSVVWKS*-------

>SOR52B6
NSIGAMNNSDT--RIAGCFLTGIPGLEQLHIWLSIPFCIMYIAALEGNGILICVILSQAILHEPMYIFLS
MLASADVLLSTTTMPKALANLWLGYSHISFDGCLTQMFFIHFLFIHSA-VLLAMAFDRYVAICSPLRYVT
ILTSKVIGKIVTATLSRSFIIMFPSIFLLEHLHYCQINIIAHTFCEHMGIAHLSCSDISINVWYGLAAAL
LSTGLDIMLITVSYIHILQAVFRLLSQDARSKALSTCGSHICVILLFYVPALFVFA-YRFGRSIPCYVHI
LLASLYVVIPPMLNPVIYGVRTKPILEGAKQMFSNLAKGSK------

>HsOR11.3.74
SANSIGAMNNSDTRIAGCFLTGIPGLEQLHIWLSIPFCIMYITALEGNGILICVILSQAILHEPMYIFLS
MLASADVLLSTTTMPKALANLWLGYSLISFDGCLTQMFFIHFLFIHSA-VLLAMAFDRYVAICSPLRYVT
ILTSKVIGKIVTAALSHSFIIMFPSIFLLEHLHYCQINIIAHTFCEHMGIAHLSCSDISINVWYGLAAAL
LSTGLDIMLITVSYIHILQAVFRLLSQDARSKALSTCGSHICVILLFYVPALFVFAYRFGGRSVPCYVHI
LLASLYVVIPPMLNPVIYGVRTKPILEGAKQMFSNLAKGSK*-----

>MmOR7.5.74
MATSSTTLNYTNVRDIWYTMIGIPGLEYAHIWISIPICSMYIVAIAGNALLLFLIITERSLHEPMYLFLS
MLALADIFLSTVTTPKMLAIFWFRAGGISFASCVSQMFFLHFIFVAESAILLAMAFDRYVAICYPLRYTT
ILTTSVIIKMGIAAVIRSFFICFPLIFLVYRLTYCGKSTIRHSYCEHMGIARLACDSIKVNIYYGVIVAL
FSTCLDAVLIIVSYALILCAVFRIPSRDARLKALGTCGSHVCVILLFYTPAFFSFFAHRFGHSIPLHVHI
LLANLYVVVPPSVNPIIYGVKTKQIQERVIQVFSLGK*---------

>MmOR7.5.76
-MTSSTYLNHTILRDIWYTMIGIPGLEDAHIWLSIPIFSMYIVAVIGNTFLILLISIEHSLHEPMYFFLT
MLALADIFLSTVTIPKVLAIFWFQDRSISFASCVSQMFFLHFIFVTESGILLSMAFDRYVAICYPLRYTT
ILTPSVIIKMGIAAVTRSFFICFPLIFLVYRLTYCGKSIIRHSYCEHMGIARLACDSIKVNIYYGLIVAL
FSIFLDVVLIIVSYARILCAVYRIPSQDTRLKALSTCGSHVCVILLFYMPVFFSSLGHRFGDSIPLHVHI
LLANLYVVLPPSLNPIIYGVKTKQIQERVVQLFSLNKVIC*------

>MmOR7.5.75
---MTMSSNHTNLRDIWYTMIGIPGLEDAHVWLSIPICSMYIVALIGNTLLIFLIFTEHSLHEPMYLFLS
MLALADIILSTVTTPKVLAIFWFQAGGISFASCVSQMFFLHFMFVTESAILLAMAIDRYIAICFPLRYTT
ILTPSVICRMGIASVTRSFLIIFPLVFLVYRLNYCGRNIIRHSYCEHMGIARLACDSIKVNIYYGMTVPL
FSIGLDIMLIIISYTLILNTVFRIPSQNARRKALGTCGSHVCVILLFYTPSLFTFFAHRFGGHTIPRHHI
LFANLYVVVPPALNPIIYGVKTKQIQDRFFQLFSFTKACF*------

>SMOR31-1
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
MKVASSFHNDTNPQDVWYVLIGIPGLEDLHSWIAIPICSMYIVAVIGNVLLIFLIVTERSLHEPMYFFLS
MLALADLLLSTATAPKMLAIFWFHSRGISFGSCVSQMFFIHFIFVAESAILLAMAFDRYVAICYPLRYTT
ILTSSVIGKIGTAAVVRSFLICFPFIFLVYRLLYCGKHIIPHSYCEHMGIARLACDNITVNIIYGLTMAL
LSTGLDILLIIISYTMILRTVFQIPSWAARYKALNTCGSHICVILLFYTPAFFSFFAHRFGKTVPRHIHI
LVANLYVVVPPMLNPIIYGVKTKQIQDRVVFLFSSVSTCQHDSRC--

>HsOR11.3.2
----MPTVNHSGTSHTVFHLLGIPGLQDQHMWISIPFFISYVTALLGNSLLIFIILTKRSLHEPMYLFLC
MLAGADIVLSTCTIPQALAIFWFRAGDISLDRCITQLFFIHSTFISESGILLVMAFDHYIAICYPLRYTT
ILTNALIKKICVTVSLRSYGTIFPIIFLLKRLTFCQNNIIPHTFCEHIGLAKYACNDIRINIWYGFSILM
STVVLDVVLIFISYMLILHAVFHMPSPDACHKALNTFGSHVCIIILFYGSGIFTILTQRFGRHIPPCIHI
PLANVCILAPPMLNPIIYGIKTKQIQEQVVQFLFIKQK*--------

>MmOR7.5.4
----MTTLNYTVVSHTVFHLLGIPGLEDQHMWISIPFFISYITALLGNSLLIFIILTRPSLHGPMYLFLC
MLVGADIVLSTSTVPQALSIFWFHAGEISLDRCITQLFFIHSTFISESGILLVMAFDRYIAICYPLRYTT
VLTNSLIGKIRVGIFLRSYGTIFPIIFLLKRLTFCKNNIIPHTYCEHIGLAKYACNSIRVNIWYGFSVLI
LTVVLDVVLIFVSYVLILRAVFRMPSQDARHKALNTCGSHVCIIILFYGPGIFTTLTQRFGRHIPPHIHI
LLANVCILAPPMLNPIIYGIKTKQIQEQMVHVLFT*----------

>MmOR7.5.5
----MGTVNHTDISHTVFHLLGIPGLEDQHMWISIPFFISYITALLGNSLLIFIILTRPSLHEPMYLFLC
MLAGADIVLSTSTVPQALSIFWFHAGEISLDRCITQLFFIHSTFISESGILLVMAFDRYIAICYPLRYIT
VLTKSLIGKIGVGIFLRSYGTIFPIIFLLKRLTFCRTNILPHTACEHAGLSKYACNDLQVHIWYGFFVLM
STVNLDVVLIFVSYVLILRAVFHMPSQDARHKALNTCGSHVCVIILFYGPGIFSTLNHQFGYKISTGVHV
LLANVCILAPPMLNPIIYGVKTKQIRDQVTHVLFLKVI*--------

>SOR52L1
KPLIMLLSNSSRLSQPSFLLVGIPGLEESQHWIALPLGILYLLALVGNVTILFIIWMDPSLHQSMYLFLS
MLAAINLVLASSTAPKALAVLLVHAHEIGYIVCLIQMFFIHAFSSMESGVLVAMALDRYVAICHPLHHST
ILHPGVIGRIGMVVLVRGLLLLIPFPILLGTLIFCQATIIGHAYCEHMAVVKLACSETTVNRAYGLTMAL
LVIGLDVLAIGVSYAHILQAVLKVPGSEARLKAFSTCGSHICVILVFYVPGIFSFLTHRFGHHVPHHVHV
LLATRYLLMPPALNPLVYGVKTQQIRQRVLRVFTQKD----------

>HsOR11.3.92
----MLLSNSSRLSQPSFLLVGIPGLEESQHWIALPLGILYLLALVGNVTILFIIWMDPSLHQSMYLFLS
MLAAIDLVLASSTAPKALAVLLVHAHEIGYIVCLIQMFFIHAFSSMESGVLVAMALDCYVAICHPLHHST
ILHPGVIGCIGMVVLVRGLLLLIPFPILLGKLIFCQATIIGHAYCEHMAVVKLACSETTVNRAYGLTMAL
LVIGLDVLAIGVSYAHILQAVLKVPGSEARLKAFSTCGSHICVILVFYVPGIFSFLTHRFGHHVPHHVHV
LLATWYLLMPPALNPLVYGVKTQQIRQRVLRVFTQKD*---------

>SOR52L2
KSLIMALSNSSRLPQPSFFLVGIPGLEESQHWIALPLGILYLLALVGNVTILFIIWMDPSLHQPMYLFLS
MLAAIDLVVASSTAPKALAVLLVRAQEIGYTVCLIQMFFTHAFSSMESGVLVAMALDRYVAICHPLHHST
ILHPGVIGHIGMVVLVWGLLLLIPFLILLRKLIFCQATIIGHAYCEHMAVVKLACSETTVNRAYGLTVAL
LVVGLDVLAIGVSYAHILQAVLKVPGNEARLKAFSTCGSHVCVILVFYIPGMFSFLTHRFGHHVPHHVHV
LLAILYRLVPPALNPLVYGVKTQKIHQ--------------------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>HsOR11.3.96
----MALSNSSRLPQPSFFLVGIPGLEESQHWIALPLGILYLLALVGNVTILFIIWMDPSLHQPMYLFLS
MLAAIDLVVASSTAPKALAVLLVRAQEIGYTVCLIQMFFTHAFSSMESGVLVAMALDRYVAICHPLHHST
ILHPGVIGHIGMVVLVRGLLLLIPFLILLRKLIFCQATIIGHAYCEHMAVVKLACSETTVNRAYGLTVAL
LVVGLDVLAIGVSYAHILQAVLKVPGNEARLKAFSTCGSHVCVILVFYIPGMFSFLTHRFGHHVPHHVHV
LLAILYRLVPPALNPLVYGVKTQKIHQ-------*------------

>SMOR37-1
----MALSNSSRQPQPPFFLVGVPGLEESQHWIALPLGILYLFALVGNVTIIFIIWTDSSLHQPMYLFLA
MLAAIDLVLASSTAPKALTVLLAHAHEIGYIVCLTQMFFIHAFSSMESGILVAMALDRYVAICHPLRHST
ILHPGIIGRIGLVVLVRGLVLLFPFPILLQNVVFCRATVISHAYCEHMAVVKLACSETTVNRAYGLSVAL
LVVGLDVLAIGISYALILQAVLKVPGGEARLKAFSTCGSHVCVILIFYVPGMFSFLTHRFGHHVPHHVHV
LLATLYLLVPPALNPLVYGVKTRQIRQRVLRVFYTKASI--------

>MmOR7.5.151
----MALSNSSRQPQPPFFLVGVPGLEESQHWIALPLGILYLFALVGNVTIIFIIWTDSSLHQPMYLFLA
MLAAIDLVLASSTAPKALTVLLAHAHEIGYIVCLTQMFFIHAFSSMESGILVAMALDRYVAICHPLRHST
ILHPGIIGRIGLVVLVRGLVLLFPFPILLQNVVFCRATVISHAYCEHMAVVKLACSETTVNRAYGLSVAL
LVVGLDVLAIGISYALILQAVLKVPGGEARLKAFSTCGSHVCVILIFYVPGMFSFLTHRFGHHVPHHVHV
LLATLYLLVPPALNPLVYGVKTRQIRQRVLRVFYTKASI*-------

>MmOR7.5.43
YSLMLASRNSS-SHSTFFILLGIPGLENYQFWVAFPFCVMYIVAVTGNITILHIIRIDHTLHEPMYLFLA
MLATTDLVLSSSTQPKMLAILWFHDHKIEYHACLIQVFFIHAFSSVESGVLMTMALDRYVAICFPLRHSS
ILTTSAVIKLGAVVMVRGLLWVSPFCFMVSRMPFCPNKIIPQSYCEHMAVLKLVCADTRVNRGYGLFVAF
SVVGFDIIVISVSYVMILRAVLRLPSGEARLKAFGTCASHIGVILTLYIPALFTFLTHRFGHHVPRVVHI
MFANVYLLVPPMLNPIIYGVRTKQIRDRVTRGFC-VKGS*-------

>SMOR30-1
---MVASSNSS-SHPLFFMLLGIPGLENYQFWIAFPFCVMYIVALTGNITILYIIRIDHTLHEPMYLFLA
LLAITDLVLSSSTQPKMLAILWFHSHEIEYNACLIQVFFIHAFSSVESGVLMTMALDRYVAICFPLRHSS
ILTTSVVIKLGAAVMVRGLLWVSPFCFMVSRMPFCPNKVIPQSYCEHMAVLKLVCADTRVNRGYGLFVAF
SVVGFDIIVISVSYVMILRAVLRLPSGEARLKAFGTCASHVCVILAFYIPALFTFLTHRFGHHVPRVVHI
MFANFYLLVPPMLNPIIYGVRTKQIRDRVIRGFRRKDP---------

>MmOR7.5.27
---MVASSNSS-SHPLFFMLLGIPGLENYQFWIAFPFCVMYIVALTGNITILYIIRIDHTLHEPMYLFLA
LLAITDLVLSSSTQPKMLAILWFHSHEIEYNACLIQVFFIHAFSSVESGVLMTMALDRYVAICFPLRHSS
ILTTSVVIKLGAAVMVRGLLWVSPFCFMVSRMPFCPNKVIPQSYCEHMAVLKLVCADTRVNRGYGLFVAF
SVVGFDIIVISVSYVMILRAVLRLPSGEARLKAFGTCASHVCVILAFYIPALFTFLTHRFGHHVPRVVHI
MFANFYLLVPPMLNPIIYGVRTKQIRDRVIRGFRRKDP*--------

>HsOR11.3.24
--MVLASGNSS-SHPVSFILLGIPGLESFQLWIAFPFCATYAVAVVGNITLLHVIRIDHTLHEPMYLFLA
MLAITDLVLSSSTQPKMLAIFWFHAHEIQYHACLIQVFFIHAFSSVESGVLMAMALDCYVAICFPLRHSS
ILTPSVVIKLGTIVMLRGLLWVSPFCFMVSRMPFCQHQAIPQSYCEHMAVLKLVCADTSISRGNGLFVAF
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
SVAGFDMIVIGMSYVMILRAVLQLPSGEARLKAFSTRSSHICVILALYIPALFSFLTYRFGHDVPRVVHI
LFANLYLLIPPMLNPIIYGVRTKQIGDRVIQGCCGNIP*--------

>SOR52P1
LGHNMESPHHTDVDPSVFFLLGIPGLEQFHLWLSLPVCGLGTATIVGNITILVVVATEPVLHKPVYLFLC
MLSTIDLAASVSTVPKLLAIFWCGAGHISASACLAHMFFIHAFCMMESTVLLAMAFDRYVAICHPLRYAT
ILTDTIIAHIGVAAVVRGSLLMLPCPFFIGRLNFCQSHVILHTYCEHMAVVKLACGDTRPNRVYGLTAAL
LVIGVDLFCIGLSYALIAQAVLRLSSHEARSKALGTCGSHVCVILISYTPALFSFFTHRFGHHVPVHIHI
LLANVYLLLPPALNPVVYGVKTKQIRKRVVRVFQSGQGMGIKASE--

>SMOR27-1
ISQTMESPNHTDLDPSIFFLLGIPGLEQFHMWLSLPVCCLGTATIVGNITILVVVATEPTLHRPVYLFLC
MLSTIDLAASFSTVPKLLAILWCGAGHISASACLTQMFFIHAFCMMESTVLLAMAFDRYVAICHPLRYST
ILTDTIIARIGVVAMMRGSLLMLPCPFLIGRLSFCQSHVIPHTYCEHMAVVKLACGDTRPNRVYGLTAAL
LVIGVDLFCIGLSYALIAQAVFRLSSQEARSKALGTCGSHVCVILISYTPALFSFFTHRFGHHVPLHIHI
LLANVYLLFPPALNPVVYGVKTREIRERVAKVFQWGQGTRLKISK--

>MmOR7.5.120
ISQTMESPNHTDLDPSIFFLLGIPGLEQFHMWLSLPVCCLGTATIVGNITILVVVATEPTLHRPVYLFLC
MLSTIDLAASFSTVPKLLAILWCGAGHISASACLTQMFFIHAFCMMESTVLLAMAFDRYVAICHPLRYST
ILTDTIIARIGVVAMMRGSLLMLPCPFLIGRLSFCQSHVIPHTYCEHMAVVKLACGDTRPNRVYGLTAAL
LVIGVDLFCIGLSYALIAQAVFRLSSQEARSKALGTCGSHVCVILISYTPALFSFFTHRFGHHVPLHIHI
LLANVYLLFPPALNPVVYGVKTREIRERVAKVFQWGQGTRLKISK*-

>MmOR7.5.8
----MQHTNHSHQNPSSFLLMGIPGLEASHFWIAFPFCSMYALAVLGNMAVLLVVRSEPSLHQPMYLFLC
MLSTIDLILCTSTVPKLLALFWANAAEIAFGACATQMFFIHGFSAVESGILLSMAFDRYLAICRPLHYGS
LLSSESVSKLGAAALLRGLGLMTPLTCLLARLSYCG-RVVAHSYCEHMAVVKLACGGTQPNNIYGITAAT
LVVGTDSICIAISYALILRAVLGLSSKEARAKTFGTCGSHLGVILLFYTPGLFFYT-QRFGQHVPRHVHI
LLADLYLVVPPMLNPIIYGMKTKQIRDGALRLLKRGPAQS*------

>SMOR25-1
---MSTFHNVC-SVPSSLWLTGIPGLETLHIWLSIPFGSMYLVAVVGNITILAVVRVERSLHQPMYFFLC
MLAVIDLVLSTSTMPKLLAIFWFGAGHIGLDACLCQMFLIHCFATVESGIFLAMAFDRYVAICNPLRHSM
VLTHTLVGRLGLAAVLRGVLYIGPLPLMIRRLPLYKTRVISHSYCEHMAVVALTCGDSRVNNVYGLSIGF
LVLILDSAAIAASYVMIFRAVMGLATPEARLKALGTCGSHICAILIFYVPIAVSSLIHRFGHQVPPPIHT
LLANFYLLIPPILNPIVYAVRTKQIRDRLLQILKTGTKIR-------

>MmOR7.5.11
---MSTFHNVC-SVPSSLWLTGIPGLETLHIWLSIPFGSMYLVAVVGNITILAVVRVERSLHQPMYFFLC
MLAVIDLVLSTSTMPKLLAIFWFGAGHIGLDACLCQMFLIHCFATVESGIFLAMAFDRYVAICNPLRHSM
VLTHTVVGRLGLAAVLRGVLYIGPLPLMIRRLPLYKTRVISHSYCEHMAVVALTCGDSRVNNVYGLSIGF
LVLILDSAAIAASYVMIFRAVMGLATPEARLKTLGTCGSHICAILIFYVPIAVSSLIHRFGHQVPPPIHT
LLANFYLLIPPILNPIVYAVRTKQIRDRLLQILKTGTKIR*------

>HsOR11.3.10
---MLTFHNVC-SVPSSFWLTGIPGLESLHVWLSIPFGSMYLVAVVGNVTILAVVKIERSLHQPMYFFLC
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
MLAAIDLVLSTSTIPKLLGIFWFGACDIGLDACLGQMFLIHCFATVESGIFLAMAFDRYVAICNPLRHSM
VLTYTVVGRLGLVSLLRGVLYIGPLPLMIRRLPLYKTHVISHSYCEHMAVVALTCGDSRVNNVYGLSIGF
LVLILDSVAIAASYVMIFRAVMGLATPEARLKTLGTCASHLCAILIFYVPIAVSSLIHRFGQCVPPPVHT
LLANFYLLIPPILNPIVYAVRTKQIRESLLQIP-RIEMKIR*-----

>MmOR7.5.10
----MYPTACS--VPSSFWLTGIPGLESLHMWLSIPFGSMYLVAVVGNITILAVVKTERSLHQPMYFFLC
MLAVIDLVLSTSTMPKLLAIFWFGACSIGLDACLVQMFFVHCFATVESGIFLAMAFDRYVAICDPLHHTS
VLTHAVVGRLGLAALLRGVFYIGPLPLLIRRLPFFRTQIIAHSYCEHMAVVTLACGDTKVNNLYGMGIGF
LVLILDSIAITASYIMIFRAVLGLSTSDARFKTLGTCGSHICAILVFYIPIAVSSLTHRFGHNVPSHIHI
LLANFYLLIPPILNPVVYAVRTKQIRERLLHIIKSGTQHKDM*----

>SMOR24-2
--MKRKLRNKSDVHPSTFILIGIPGLEAAHMWISIPFCMVYVLALMGNSSLLFIIKTDSSLHEPMYLFLC
MLAVADLVVCTTAVPKLLSLFWFHDGEIRFEACLTQIFLIHSCSTMESGFFLAMAFDRYVAICNPLRHSA
ILTHTVTGGIGLAVVIRGIALLSPHPFLLRWLPYCKTNIISHTYCEFMALIKIACAETSIRRAYSLIVAF
LTGGVDFILIICSYVLILNTVFHLPTKDARLKTLGTCGSHVCVILVSYTPAFFSFLTHRFGHKVAPQVHI
FVANIYLLVPPMVNPIIYGVRTKKIRNRFLKVF-RFSKHTN------

>MmOR7.5.52
--MKRKLRNKSDVHPSTFILIGIPGLEAAHMWISIPFCMVYVLALMGNSSLLFIIKTDSSLHEPMYLFLC
MLAVADLVVCTTAVPKLLSLFWFHDGEIRFEACLTQIFLIHSCSTMESGFFLAMAFDRYVAICNPLRHSA
ILTHTVTGGIGLAVVIRGIALLSPHPFLLRWLPYCKTNIISHTYCEFMALIKIACAETSIRRAYSLIVAF
LTGGVDFILIICSYVLILNTVFHLPTKDARLKTLGTCGSHVCVILVSYTPAFFSFLTHRFGHKVAPQVHI
FVANIYLLVPPMVNPIIYGVRTKKIRNRFLKVF-RFSKHTN*-----

>MmOR7.5.50
----MLTYNKTNVHPSTFILIGIPGLEAAHMWISIPFCMGYILALVGNSSLLFIIKTDSSLHEPMYLFLC
MLAVADLVVCTTAVPKLLSLFWFHDGEIRFEACLTQVFLIHSCSTMESGFLVGMAFDRYVAICNPLRHSA
ILTRTVTGAMGLAIVLRGAAFLSLHPFLLRWLPYCKTNIISHTYCEFMALIKIACAETSIRRAYSLIVAF
LTGGVDFILIICSYVLILNTVFHLPSKDARLKTLGTCGSHVCVILVFYTPAFFSFLTHRFGHKVAPHVHI
LVANMYLLVPPMLDPIIYGVRTKKIRDRFLKLFLFQRV*--------

>MmOR7.5.60
----MGPANKSQLSPSTFWLMGIPGLEHLHVWIGIPFCSMYMVALMGNVTILAVVRAERTLHEPMFLFLC
MLSVTDLVLSTSTLPRMLCLFWMAAHDITFDACLAQMFFIHSFTAMESGFFLAMAIDRYVAICDPLRHAT
ILTHSRIAVMGAVVVLRGVGFFSPHPVLLKQLPYCRTRIIAHTYCEFMAVVKLACLEIGATKRYSLGVAF
GIGSCDCFFIAISYVLILRAVFRLPSREASLKALGTCGSHVCVIVVFYSTAGFTFLTHRFGHNVAPRTHI
LIANMYLLVPPFLNPIVYGVRTKKIRDYVLNTL-KVKGS*-------

>MmOR7.5.63
----MGPANKSQLSPSTFWLMGIPGLEHLHVWIGIPFCSMYMVALMGNVTILAVVRAERTLHEPMFLFLC
MLSVTDLVLSTSTLPRMLCLFWMEAHDITFDACLAQMFFIHSFTAMESGFFLAMAIDRYVAICDPLRHTT
ILTNSRIAKMGAVVVLRGVGFFSPHPILLKQLPYCRTRIIAHTYCEFMAVVKLACVDTGATKRYSLSVAS
VIGSCDGFFIALSYVLILRAVFRLPSREASLKALGTCGSHVCVILVFYSTAVFTFLTHRFGHNVAPQIHI
FIANMYLLVPPFLNPIVYGIRTKKIREYVLSFL-RVKFS*-------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>SOR52K1
----MLPSNITSTHPAVFLLVGIPGLEHLHAWISIPFCFAYTLALLGNCTLLFIIQADAALHEPMYLFLA
MLATIDLVLSSTTLPKMLAIFWFRDQEINFFACLVQMFFLHSFSIMESAVLLAMAFDRYVAICKPLHYTT
VLTGSLITKIGMAAVARAVTLMTPLPFLLRRFHYCRGPVIAHCYCEHMAVVRLACGDTSFNNIYGIAVAM
FIVVLDLLFVILSYVFILQAVLQLASQEARYKAFGTCVSHIGAILSTYTPVVISSVMHRVARHAAPRVHI
LLAIFYLLFPPMVNPIIYGVKTKQIREYVLSLFQRKNM---------

>HsOR11.3.8
----MLPSNITSTHPAVFLLVGIPGLEHLHAWISIPFCFAYTLALLGNCTLLFIIQADAALHEPMYLFLA
MLATIDLVLSSTTLPKMLAIFWFRDQEINFFACLVQMFFLHSFSIMESAVLLAMAFDRYVAICKPLHYTT
VLTGSLITKIGMAAVARAVTLMTPLPFLLRRFHYCRGPVIAHCYCEHMAVVRLACGDTSFNNIYGIAVAM
FIVVLDLLFVILSYVFILQAVLQLASQEARYKAFGTCVSHIGAILSTYTPVVISSVMHRVARHAAPRVHI
LLAIFYLLFPPMVNPIIYGVKTKQIREYVLSLFQRKNM*--------

>SOR52K2
----MSASNITLTHPTAFLLVGIPGLEHLHIWISIPFCLAYTLALLGNCTLLLIIQADAALHEPMYLFLA
MLAAIDLVLSSSALPKMLAIFWFRDREINFFACLAQMFFLHSFSIMESAVLLAMAFDRYVAICKPLHYTK
VLTGSLITKIGMAAVARAVTLMTPLPFLLRCFHYCRGPVIAHCYCEHMAVVRLACGDTSFNNIYGIAVAM
FIVVLDLLLVILSYIFILQAVLLLASQEARYKAFGTCVSHIGAILAFYTTVVISSVMHRVARHAAPHVHI
LLANFYLLFPPMVNPIIYGVKTKQIRESILGVFPRKDM---------

>HsOR11.3.6
----MSASNITLTHPTAFLLVGIPGLEHLHIWISIPFCLAYTLALLGNCTLLLIIQADAALHEPMYLFLA
MLAAIDLVLSSSALPKMLAIFWFRDREINFFACLAQMFFLHSFSIMESAVLLAMAFDRYVAICKPLHYTK
VLTGSLITKIGMAAVARAVTLMTPLPFLLRCFHYCRGPVIAHCYCEHMAVVRLACGDTSFNNIYGIAVAM
FIVVLDLLLVILSYIFILQAVLLLASQEARYKAFGTCVSHIGAILAFYTTVVISSVMHRVARHAAPHVHI
LLANFYLLFPPMVNPIIYGVKTKQIRESILGVFPRKDM*--------

>SMOR28-1
----MLVNNITSTHPVAFLLMGIPGLEHLHIWISIPFCSAYTLAVLGNCTLLFIIRVDAALHETMYLFLA
MLAAIDLVLSSSTLPKMLSLFWFRDREINFHACLIQMFFLHSFAIMESAMLLAMAFDRYVAICKPLHYTT
ILTKPLIIKIGLAAVTRAVTLMTPLPFLLRRFHYCRGTVIAHCYCEHMAVVRLACGDTRFNNIYGIAVAM
FIVVLDLLFVILSYIFILRAVLQLASQEARYKAFGTCVSHIGAILAFYTPVVISSVMHRVARRAAPHVHI
LLANFYLLFPPMVNPIIYGVKTKQIRERVLGLFLRKDLKGE------

>MmOR7.5.9
----MLVNNITSTHPVAFLLMGIPGLEHLHIWISIPFCSAYTLAVLGNCTLLFIIRVDAALHEPMYLFLA
MLAAIDLVLSSSTLPKMLSLFWFRDREINFHACLIQMFFLHSFAIMESAMLLAMAFDRYVAICKPLHYTT
ILTKPLIIKIGLAAVTRAVTLMTPLPFLLRRFHYCRGTVIAHCYCEHMAVVRLACGDTRFNNIYGIAVAM
FIVVLDLLFVILSYIFILRAVLQLASQEARYKAFGTCVSHIGAILAFYTPVVISSVMHRVARRAAPHVHI
LLANFYLLFPPMVNPIIYGVKTKQIRERVLGLFLRKDLKGE*-----

>SOR52N5
-----MPLNSLPP---SFILNGIPGLERVHVWISLPLCTMYIIFLVGNLGLVYLIYYEESLHHPMYFFFH
ALSLIDLLTCTTTLPNALCIFWFSLKEINFNACLAQMFFVHGFTGVESGVLMLMALDRYVAICYPLRYAT
TLTNPIIAKAELATFLRGVLLMIPFPFLVKRLPFCQSNIISHTYCDHMSVVKLSCASIKVNVIYGLMVAL
LIGVFDICCISLSYTLILKAAISLSSSDARQKAFSTCTAHISAIIITYVPAFFTFFAHRFGHTIPPSLHI
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IVANLYLLLPPTLNPIVYGVKTKQIRKSVIKFFQGDKGAG-------

>HsOR11.3.80
NSLCWFPTIHV--TPPSFILNGIPGLERVHVWISLPLCTMYIIFLVGNLGLVYLIYYEESLHHPMYFFFH
ALSLIDLLTCTTTLPNALCIFWFSLKEINFNACLAQMFFVHGFTGVESGVLMLMALDRYVAICYPLRYAT
TLTNPIIAKAELATFLRGVLLMIPFPFLVKRLPFCQSNIISHTYCDHMSVVKLSCASIKVNVIYGLMVAL
LIGVFDICCISLSYTLILKAAISLSSSDARQKAFSTCTAHISAIIITYVPAFFTFFAHRFGHTIPPSLHI
IVANLYLLLPPTLNPIVYGVKTKQIRKSVIKFFQGDKGAG*------

>MmOR7.5.133
----MLISNNSYEAPQSFILNGIPGLEAVHIWISLPLCTMYIISLVGNLGLVYLIYYEESLHRPMYFFLA
MLSLIDLFTCTTTVPNALFIFWFKLKEINFTACLVQMFFVHGFTGVESGVLMLMALDRYVAICYPLRYAT
ILTNPVIAKAGLATFLRGVLLMIPFPFLVKRLPFCRSNVISHTYCDHMSVVKLSCASIKINVIYGLMVAL
LIGVFDICCISVSYTMILRAVVSLSSADARQKAFSTCTAHISAIIITYVPAFFTFFTHRFGHTIPPSLHI
IVANLYLLLPPTLNPIVYGMKTKQIRDSIIKFFHGEKGSR*------

>HsOR11.3.81
----MSFLNGTSLTPASFILNGIPGLEDVHLWISFPLCTMYSIAITGNFGLMYLIYCDEALHRPMYVFLA
LLSFTDVLMCTSTLPNTLFILWFNLKEIDFKACLAQMFFVHTFTGMESGVLMLMALDHCVAICFPLRYAT
ILTNSVIAKAGFLTFLRGVMLVIPSTFLTKRLPYCKGNVIPHTYCDHMSVAKISCGNVRVNAIYGLIVAL
LIGGFDILCITISYTMILQAVVSLSSADARQKAFSTCTAHFCAIVLTYVPAFFTFF-THGGHTIPLHIHI
IMANLYLLMPPTMNPIVYGVKTRQVRESVIRFFLKGKDNSHNF*---

>SOR52N1
----MSFLNGTSLTPASFILNGIPGLEDVHLWISFPLCTMYSIAITGNFGLMYLIYCDEALHRPMYVFLA
LLSFTDVLMCTSTLPNTLFILWFNLKEIDFKACLAQMFFVHTFTGMESGVLMLMALDHCVAICFPLRYAT
ILTNSVIAKAGFLTFLRGVMLVIPSTFLTKCLPYCKGNVIPHTYCDHMSVAKISCGNVRVNAIYGLIVAL
LIGGFDILCITISYTMILQAVVSLSSADARQKAFSTCTAHICAIVLTYVPAFFTFFTHHFGHTIPLHIHI
IMANLYLLMPPTMNPIVYGVKTRQVRESVIRFFLKGKDNSHNY----

>SMOR34-1
----MSGANSSSLTPEFFILNGVPGLEDAHVWISLPFCFMYMIAVVGNCGLIYLIGHEEALHRPMYYFLA
LLSFTDVTLCTTTVPNMLCIFWFNFKKIGFNSCLVQMFFVHMLTGMESGVLMLMALDRYVAICYPLRYTT
ILTNPVIAKAGLATFLRSVMLIFPFTLLTKRLPYCRGSLIPHTYCDHMSVAKVSCGNAKVNAIYGLMVAL
LIGVFDICCISVSYTMILRAVVSLSSADARHKAFSTCTSHICAIVITYVPAFFTFFTHRFGHTIPHHVHI
IVANLYLLLPPTMNPIVYGVKTKQIRESVIKFLLGDKMGIT------

>MmOR7.5.132
----MSGANSSSLTPEFFILNGVPGLEDAHVWISLPFCFMYMIAVVGNCGLIYLIGHEEALHRPMFYFLA
LLSFTDVTWCTTTVPNMLCIFWFNFKKIGFNSCLAQMFFVHMLTGMESGVLMLMALDRYVAICNPLRYTT
ILTNPVIAKACLATFLRSVMLIFPFTLLTKRLPYCRSILIPHTYCDHMSVAKVSCGNAKVNAIYGLMVAL
LIGVFDICCISVSYTMILRAVVSLSSADARHKAFSTCTSHICAIVITYVPAFFTFFTHRFGHTIPHHVHI
IVANLYLLLPPTMNPIVYGVKTKQIRESVIKFLLGDKMGFT*-----

>HsOR11.3.83
----MSGDNSSSLTPGFFILNGVPGLEATHIWISLPFCFMYIIAVVGNCGLICLISHEEALHRPMYYFLA
LLSFTDVTLCTTMVPNMLCIFWFNLKEIDFNACLAQMFFVHMLTGMESGVLMLMALDRYVAICYPLRYAT
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
ILTNPVIAKAGLATFLRNVMLIIPFTLLTKRLPYCRGNFIPHTYCDHMSVAKVSCGNFKVNAIYGLMVAL
LIGVFDICCISVSYTMILQAVMSLSSADARHKAFSTCTSHMCSIVITYVAAFFTFFTHRFVGHNIPNHHI
IVANLYLLLPPTMNPIVYGVKTKQIQEGVIKFLLGDKVSFTYDK*--

>MmOR7.5.131
-----------------MVFRGL---EDAHVWISLPFCFMYMIAVVGNCGLIYLIGHEEALHRPMYYFLT
LLSFTDITLCTTTVPNMLCIFWFNLKKIGFKACLAQMFFVHTFTATESGMLMLMALDRYVAICYPLRYGT
ILTNPVIAKASLATFLRSVAFILPFTFLTKRLPYCRGNLIPHAYCDHMSVAKISCGNVKINAVYGLLVAL
VVCAFDIFCITVSYTMILRAVMNLSSADARHKAFSTCTSHICAIVITYVPAFFNFFTHRFGHTIPHHIHI
IVANLYLLLPATMNPIVYGVKTKQIRESVIKFFSGDKSDIVDIKGLK

>MmOR7.5.129
----MPGVNTSSLTPRYFILNGIPGLEAAHIWISLPFFIMYLIAVTGNCGLIYLISHEEALHRPMYYFLA
MLSATDISGCNTIVPSMLCIFWFSVKEIDFNACLVQMFFIHMLTGMESGVLMLMALDRYVAICYPLRYTT
ILTNTMITKIGLAALVRSVLLMVPFAFLIKRLPYCRGNLIQHTYCDHMAVAKLSCGNIKINAIYGLIIAI
FIGGFDIFCISMSYAMIIHAVVKLSSADARHKAFSTCTSHICAIVITYVPAFFNFFTHRRTTI-PHHIHI
IIANLYLLLPPTLNPIVYGVKTKQIREGVIKLFARQKVV*-------

>SOR52N4
----MLTLNKTDLIPASFILNGVPGLEDTQLWISFPFCSMYVVAMVGNCGLLYLIHYEDALHKPMYYFLA
MLSFTDLVMCSSTIPKALCIFWFHLKDIGFDECLVQMFFIHTFTGMESGVLMLMALDRYVAICYPLRYST
ILTNPVIAKVGTATFLRGVLLIIPFTFLTKRLPYCRGNILPHTYCDHMSVAKLSCGNVKVNAIYGLMVAL
LIWGFDILCITISYTMILRAVVSLSSADARQKAFNTCTAHICAIVFSYTPAFFSFFSHRFGEHIIPPSHI
IVANIYLLLPPTMNPIVYGVKTKQIRDCVIRILSGSKDTKSYSM---

>HsOR11.3.78
----MLTLNKTDLIPASFILNGVPGLEDTQLWISFPFCSMYVVAMVGNCGLLYLIHYEDALHKPMYYFLA
MLSFTDLVMCSSTIPKALCIFWFHLKDIGFDECLVQMFFTHTFTGMESGVLMLMALDRYVAICYPLRYST
ILTNPVIAKVGTATFLRGVLLIIPFTFLTKLLPYCRGNILPHTYCDHMSVAKLSCGNVKVNAIYGLMVAL
LIWGFDILCITNSYTMILRAVVSLSSADARQKAFNTCTAHICAIVFSYTPAFFSFFSHRFGEHIIPPSHI
IVANIYLLLPPTMNPIVYGVKTKQIRDCVIRILSGSKDTKSYSM*--

>MmOR7.5.122
--MVMSVQNSTDLTPASFVLNGIPGLEDMHIWISFPFCSMYAVAMMGNCGLLYLIFFEDSLHRPMYYFLA
MLSLTDLVMCSSTIPKTLCIFWFHLKEIGFDDCLVQMFFIHTFTGMESGVLMLMALDRYVAICYPLRYST
ILTNPIIAKIGLATFLRGVLLIIPFTFLTKRLPYCRGNIINHTYCDHMSVAKLSCGNVKVNAIYGLMVAL
LIGGFDILCITISYTMILRAVVSLSSADARQKAFSTCTAHICAIVFSYSPAFFSFFSHRFGHTIPPSCHI
IVANIYLLLPPTMNPVVYGVKTKQIRDCVIRILSGSKDSKAHGI*--

>MmOR7.7.31
--MVMSARNNPDLTPASFVLNGIPGLEHMHIWISFPFCSMYAVAMMGNCGLLYLIFFEDSLHRPMYYFLA
MLSLTDLVMCSSTIPKALCIFWFHLKEIGFDDCLVQMFFIHTFMGMESGVLMLMALDHYVAICYPLHYST
ILTNPIIAKIGLATFLRGVLLIIPFIFLSKCLPYFRGNIINHTYCDHMSVAKLPCGNVKVNAIYGLMVAL
LIGGFDILCITISYIMILRAVVSLSSADARQKAFSTCTAHICAIVFSYSPTFLSFFSHHFGHTIPPSCHI
IVANIYLLLPPTMNPVVYGVKTKQIQDCVIRIFSESKDSKAHGI*--

>MmOR7.5.123
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
----MLLLNQTEVTPVSFILNGIPGLEEMHIWISFPFCSMYVIAVVGNCGLLYLIFFEDSLHRSMYYFLA
MLSLTDLVMCSASIPKTLCIFWFYIKEISFTDCLVQMFFIHTFTAMESGVLMLMALDRYVAICYPLHYST
ILTNPVIAKAGLATFLRAVVLIIPLIFITKHLPFCRSNILIHTYCDQLSVAKVSCGNIKVNIVYGLMIAL
FIGGFDILCITVSYTMILKAVVSLSSADARQKAFSTCTAHICAIVFSYSPAFFCFFSHRFGGHIIPPSCI
IVANLYLLLPPTMNPVVYGVKTKQIRDCVIRIFSGSKDIKSHSI*--

>SMOR26-1
-----MVGNITHQQIASFFLVGIPGLENVHCWIGISVCLLFVLTLLGNSIVIATIKLEPSLHQPMYFFLC
MLAMNDMCLSSSAALKMLGIFWFDAHWINFDACLTQMYFIHTLCIMESAILVAMAFDRFVAICIPLHYAS
ILTTSMVIKLGLVGLMRCVLMVLPCPILIKRLPYYTKYVIPHTYCEHMAVVKLASANTLINRAYGISVAL
SVITVDLGLIATSYVKILQSVFRLSSQNARSKALGTCAAHVCTILVSYIPALFSFLSHRIGKKVPPSVHI
IFASMYLLVPSAVNPVVYGVKTKQIRDRVIDLFHKKFSEK-------

>MmOR7.5.79
-----MVGNITHQQIASFFLVGIPGLENVHCWIGISVCLLFVLTLLGNSIVIATIKLEPSLHQPMYFFLC
MLAMNDMCLSSSAALKMLGIFWFDAHWINFDACLTQMYFIHTLCIMESAILVAMAFDRFVAICIPLHYAS
ILTTSMVIKLGLVGLMRCVLMVLPCPILIKRLPYYTKYVIPHTYCEHMAVVKLASANTLINRAYGISVAL
SVITVDLGLIATSYVKILQSVFRLSSQNARSKALGTCAAHVCTILVSYIPALFSFLSHRIGKKVPPSVHI
IFASMYLLVPSAVNPVVYGVKTKQIRDRVIDLFHKKFSEK*------

>MmOR7.5.66
---MVNDTTHH--YISFFYLVGIPGFENFHYLISIPVCLLFVLTLLGNSIVIATIKLEPSLHQPMYFFLC
MLAMNDILLTCSTSLKMLGIFWFNEHWIEFDVCLTQMYFIHTLCIFESAILVAMAFDRFVAICIPLHYAT
ILTTAMVIKLGVVGLSRALLMVLPCPLLIKRLPYYTGYIIPHTYCEHMAVVKLASANTFINRAYGISAAL
SVITLDVWLIAASYIKILQAVFRLSSQNARSKALGTCAAHVCTILAFYTPALFSFLTHRIGKNVPPSVHI
ILASMYLLVPPTVNPLVYGVKTKQIRDRVLSLFSHLKIAEY*-----

>MmOR7.5.87
-----MAGNAT-HHIASFFLVGIPGLENFHCWIGIPVCLLFALTLLGNSIILTTVKLEPSLHQPMYFFLC
MLAMNDMCLTCSTALKMLGIFWFDEHWINFDACLTQMFFIHTLCIMESAILVAMAFDRFVAICIPLHYTS
ILTTPMVIKIGLVGLSRAILMIMPCPLLIKRLLYYTKYVIHHAYCEHMAVVKMASGNTQVNRIYGILVAL
SVTIFDLGLIVTSYIKILQAVFRLSSQNARSKALGTCVAHVCTILAFYTPALFSFLTHRFGKNVPASIHI
IFAILYLLVSPTVNPLVYGAKTKQIRDRVVSLLFSQKQKF*------

>SOR52A1
----MSISNITVYMPSVLTLVGIPGLESVQCWIGIPFCAIYLIAMIGNSLLLSIIKSERSLHEPLYIFLG
MLGATDIALASSIMPKMLGIFWFNVPEIYFDSCLLQMWFIHTLQGIESGILVAMALDRYVAICYPLRHAN
IFTHQLVIQIGTMVVLRAAILVAPCLVLIKRFQFYHTTVISHSYCEHMAIVKLAAANVQVNKIYGLFVAF
TVAGFDLTFITLSYIQIFITVFRLPQKEARFKAFNTCIAHICVFLQFYLLAFFSFFTHRFGSHIPPYIHI
LFSSIYLLVPPFLNPLVYGAKTTQIRIHVVKMFCS------------

>HsOR11.3.51
----MSISNITVYMPSVLTLVGIPGLESVQCWIGIPFCAIYLIAMIGNSLLLSIIKSERSLHEPLYIFLG
MLGATDIALASSIMPKMLGIFWFNVPEIYFDSCLLQMWFIHTLQGIESGILVAMALDRYVAICYPLRHAN
IFTHQLVIQIGTMVVLRAAILVAPCLVLIKRFQFYHTTVISHSYCEHMAIVKLAAANVQVNKIYGLFVAF
TVAGFDLTFITLSYIQIFITVFRLPQKEARFKAFNTCIAHICVFLQFYLLAFFSFFTHRFGSHISPYIHI
LFSSIYLLVPPFLNPLVYGAKTTQIRIHVVKMFCS*-----------
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>SMOR22-1
----MPHLNSTIFRPSVLTLTGIPGLESVQFWIGIPFCIMYIIALLGNSLLLVVIKVERSLHEPMYLFLA
MLGATDISLSTSILPKMLGIFWFHLSTIYFDACLLQMWLIHTFQGIESGILFAMAMDRYVAICDPLRHAS
IFTQRLLTQIGVGVTLRAALFVAPCLFLIKRLKFYWTTVVSHSYCEHMAIVKLAAEDVHVNKIYGLFVAF
SILGLDIIFITLSYIRIFITVFKLPQKEARLKAFNTCVAHICVFLEFYLLAFFSFFTHRFGYHVPSYIHI
LLSNLYLLVPPLLNPIVYGVKTKQIRDQVSKILYCNYSY--------

>MmOR7.5.86
----MPHLNSTIFRPSVLTLTGIPGLESVQFWIGIPFCIMYIIALLGNSLLLVVIKVERSLHEPMYLFLA
MLGATDISLSTSILPKMLGIFWFHLPTIYFDACLLQMWLIHTFQGIESGILFAMAMDRYVAICYPLRHAS
IFTQRLLTQIGVGVTLRAALFVAPCLFLIKRLKFYWTTVVSHSYCEHMAIVKLAAEDVHVNKIYGLFVAF
SILGLDIIFITLSYIRIFITVFKLPQKEARLKAFNTCVAHICVFLEFYLLAFFSFFTHRFGYHVPSYIHI
LLSNLYLLVPPLLNPIVYGVKTKQIRDQVSKILYCNYSY*-------

>MmOR7.5.85
----MPHLNSTIFRPSVLTLTGIPGLESVQFWIGIPFCIMYIIALLGNSLLLVVIKVERSLHEPMYLFLA
MLGATDIAISTCILPKMLGIFWFHLPTIYFDVCLLQMWLIHTFQCIESGILFAMAMDRYVAICDPLRHAS
IFTQRLLTQIGVGVTLRAALFVAPCLILIKRLKFYWTTVVSHSYCEHMAIVKLAAEDVHVNKIYGLFVAF
SILGLDIIFITLSYIRIFITVFKLPQKEARLKAFNTCIAHICVFLEFYLLAFFSFFTHRFGYHVPSYIHI
LLSNLYLLVPPLLNPIVYGVKTKQIRDQVSKILYCNYSY*-------

>MmOR7.5.89
----MIKFNGSVFMPSVLTLVGIPGLESVQCWIGIPFCVMYIIAMIGNSLILVIIKSEKSLHIPMYIFLA
ILAVTDIALSTCILPKMLGIFWFHMPQISFDACLLQMELIHSFQATESGILLAMALDRYVAICNPLRHAT
IFSPQLTTCLGAGALLRSLITTFPLILLIKRLKYFRTTIISHSYCEHMAIVKLAAQDIRINKICGLLVAF
AILGFDIVFITFSYVRIFITVFQLPQKEARFKAFNTCIAHICVFLQFYLLAFFSFFTHRFGAHIPPYVHI
LLSDLYLLVPPFLNPIVYGVKTKQIRDQVLKMLFSKKPL*-------

>HsOR11.3.50
----MPTFNGSVFMPSAFILIGIPGLESVQCWIGIPFSAMYLIGVIGNSLILVIIKYENSLHIPMYIFLA
MLAATDIALNTCILPKMLGIFWFHLPEISFDACLFQMWLIHSFQAIESGILLAMALDRYVAICIPLRHAT
IFSQQFLTHIGLGVTLRAAILIIPSLGLIKCLKHYRTTVISHSYCEHMAIVKLATEDIRVNKIYGLFVAF
AILGFDIIFITLSYVQIFITVFQLPQKEARFKAFNTCIAHICVFLQFYLLAFFSFFTHRFGSHIPPYIHI
LLSNLYLLVPPFLNPIVYGVKTKQIRDHIVKVFFFKKVT*-------

>SMOR23-1
----MGYTNLSYLNPGTVILIGIPGLEHVQFWIGFPFFVVCLVALLGNLFLLIIIPTERSLHQPMYIFLA
VLAATDLGLCLAIAPKMLAIFWFGSCSMAFDACLTQLFFIHALQGMESGVLLAMAFDRYVAICDPLRHTA
VLTPLFLLRVVLVVAIRATVLVGVLPILLKRLQWFHSVVIVHSYCEHMAVVKLAAEDVRINKSYGLFVAF
AILGFDMIFVFISYILIFRAVFRLPQKEARSKAFNTCTAHIVVFLEFYILAFFSFFSHRFG-HVSPYVHI
LLSTIYLLLPPALNPIVYGVKTKEIRKWVVQIFVLKSNTQ-------

>MmOR7.5.58
----MGYTNLSYLNPGTVILIGIPGLEHVQFWIGFPFFVVCLVALLGNLFLLIIIPTERSLHQPMYIFLA
VLAATDLGLCLAIAPKMLAIFWFGSCSMAFDACLTQLFFIHALQGMESGVLLAMAFDRYVAICDPLRHTA
VLTPLFLLRVVLVVAIRATVLVGVLPILLKRLQWFHSVVIVHSYCEHMAVVKLAAEDVRINKSYGLFVAF
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
AILGFDMIFVFISYILIFRAVFRLPQKEARSKAFNTCTAHIVVFLEFYILAFFSFF-SHRFGHVSPYVHI
LLSTIYLLLPPALNPIVYGVKTKEIRKWVVQIFVLKSNTQ*------

>MmOR7.5.56
----MNTNNVTYLNPGTVILIGIPGLEHVQFWIGFPFFTVCLVALLGNIILLIIIPAERSLHQPMYIFLA
VLAGTDIGLCAAIAPKMLAIFWFRAYSMAFDACLAQLFFIHTLQCMESGILLAMAFDRYIAICDPLRHTS
ILTPSILGRMIVVVVIRAVVLVGLLPILIKRLHHFWSIQIAHSYCEHMAVVKLAADDVQVNKICGLFVGF
SILGFDMVFIIISYALIFQAVFRLKQKEARLKAFNTCTAHIFVFLEFYILAFFSFFSHRFG-HVVPSTHI
LLSTIYLLLPPALNPIVYGVKNMVIRKRVAQIFFLDHAHQ*------

>MmOR7.5.57
MLSSLKTNNVTYLNPGTVILIGIPGLEHVQFWIGFPFFTVCLVALLGNIILLIIIPAEHSLHQPMYIFLA
VLAATDIGLCAAIAPKMLAIFWFRAYSMAFDACLAQLFFIHTLQGMESGILLAMAFDRYIAICDPLRHTS
ILTPSILGRMIVVVVIRAVVLVGLLPILIKRLHHFRSIQIAHSYCEHMAVVKLAADDVQVNKICGLFVGF
SVLGFDMVFIIISYALIFQAVFRLKQKEARLKAFNTCTAHIFVFLEFYILAFFSFF-SH-RGHVVPSTHI
LLSTIYLLLPPALNPIVYGVKNMVIRKRVAQIFFLDHAHQ*------

>SMOR38-1
----MLIFNHS--SFMTFTLLGVPGLESQHLWLSVPFTSMLLAILIGNGAILFLVITEPTLHTPMYLLLA
LLMVADLISTLALVPKVLCLFWFDDRVIAIYACFTQMFFIHGASVVRSALLVAMAFDRFVAVCEPLRYNT
ILSHSLVGRLGLVALAKGVILILPMPLLLQRLTFCH-RVIPHTYCDHMAVVKMACSNTRPNRIYGLFVIL
LVVGLNLLLIGFSYVFILQSVVRLNSRDATFKALNTCSAHLFVILITYVPALFSSITHRIGHHIPPHAHI
ILANLYLLIPSVFNPIIYGIKMKEIRDRVAKCLCR------------

>MmOR7.5.119
----MLIFNHS--SFMTFTLLGVPGLESQHLWLSVPFTSMLLAILIGNGAILFLVITEPTLHTPMYLLLA
LLMVADLISTLALVPKVLCLFWFDDRVIAIYACFTQMFFIHGASVVRSALLVAMAFDRFVAVCEPLRYNT
ILSHSLVGRLGLVALAKGVILILPMPLLLQRLTFCH-RVIPHTYCDHMAVVKMACSNTRPNRIYGLFVIL
LVVGLDLLLIGFSYVFILQSVVRLNSRDATFKALNTCSAHLFVILITYVPALFSSITHRIGHHIPPHAHI
ILANLYLLIPSVFNPIIYGIKMKEIRDRVAKCLCR*-----------

>MmOR7.5.118
SLLLPSGTNST-SHPSFFILQGIPGMEDKHKWISIPFSSMYFITVMGNCTILLTISMERSLHKPMFLLLF
FLALTDLGMSTTTIPKVLCIFWFGQSQISYEGCLVQLFFIHSISAMQSSVLMTMAFDRYVAICKPLRYST
ILSNSRIGLIGLASLVRAILFILPMPILLQRMPFHANRVIPTTYCEHMAVVKMVCVDTTFNRIYGLVVAM
LVVGVDISAIASSYALILRAIMHLSSKEAHHKAVNTCTTHICVMLVSYTPSLFSFLTHRFGRGIPPHVHT
ILGNLYFLVPPMLNPIIYGVKTKEFRDKITKYLYRRKEPIIFSHNQK

>SMOR35-1
----MIFSNNSHLLPHTFFLTGIPGLTAAHVWISLPFCFMFVLSLTGNAVLLSLIWIEHRLHQPMFLFLA
MLSFVDLVLSLSTLPKMLAIFWFGATAISSYACLSQMFLIHAFSAMESGVLVAMALDRFVAICNPLHYAT
ILTPEVVAKIGGLVALRGVGLTIFFPSLACRLSYCGSHTIAYTYCEHMSVVKLACGAITVDSLYAFAVAI
FLGVGDMAFIAYSYGQIVKTVMRFPSPEARGKAGSTCTAHVCVILFFYGPGFLVVM-QRFGSTASAAK-V
ILANLYLLFPPALDPIVYGVKTKQIRECLFTIIGSKKIEPT------

>MmOR7.5.152
----MIFSNNSHLLPHTFFLTGIPGLTAAHVWISLPFCFMFVLSLTGNAVLLSLIWIEHRLHQPMFLFLA
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
MLSFVDLVLSLSTLPKMLAIFWFGATAISSYACLSQMFLIHAFSAMESGVLVAMALDRFVAICNPLHYAT
ILTPEVVAKIGGLVALRGVGLTIFFPSLACRLSYCGSHTIAYTYCEHMSVVKLACGAITVDSLYAFAVAI
FLGVGDMAFIAYSYGQIVKTVMRFPSPEARGKAGSTCTAHVCVILFFYGPGFLVVM-QRFGSTASAAK-V
ILANLYLLFPPALDPIVYGVKTKQIRECLFTIIGSKKIEPT*-----

>SMOR36-1
RMAESSQSNSTFQHPAFFILTGIPALGDGQAWLSLVFGLMYLLALLGNATLLTVIRIDSTLHQPMFLLLA
TLAATDLGLATSIAPELLAVLWLGPQPVQYTACLIQMFFVHALTAMESGVLLAMACDRAVAVGRPLHYPI
LVTKARVGYAVLALTLKVLAVIVPFPLLVVRFKHFHAKIIHHAYCAHMAVVELVVGNTWVNNMYGLALSL
AVSGVDILGIAGSYGLIAHAVLRLPTQEARVKAFGTCSSHICVILAFYVPGLFSFLTHRFGHTVPKPVHI
LLSIIYLLLPPALNPLIYGVRTKQIRDRFLEMFKFRKKQF-------

>MmOR7.5.158
RMAESSQSNSTFQHPAFFILTGIPALGDGQAWLSLVFGLMYLLALLGNATLLTVIRIDSTLHQPMFLLLA
TLAATDLGLATSIAPELLAVLWLGPQPVQYTACLIQMFFVHALTAMESGVLLAMACDRAVAVGRPLHYPI
LVTKARVGYAVLALTLKVLAVIVPFPLLVVRFKHFHAKIIHHAYCAHMAVVELVVGNTWVNNMYGLALSL
AVSGVDILGIAGSYGLIAHAVLRLPTQDARVKAFGTCSSHICVILAFYVPGLFSFLTHRFGHTVPKPVHI
LLSIIYLLLPPALNPLIYGVRTKQIRDRFLEMFKFRKKQF*------

>HsOR11.3.102
-MAETLQLNSTFLHPNFFILTGFPGLGSAQTWLTLVFGPIYLLALLGNGALPAVVWIDSTLHQPMFLLLA
ILAATDLGLATSIAPGLLAVLWLGPRSVPYAVCLVQMFFVHALTAMESGVLLAMACDRAAAIGRPLHYPV
LVTKACVGYAALALALKAVAIVVPFPLLVAKFEHFQAKTIGHTYCAHMAVVELVVGNTQATNLYGLALSL
AISGMDILGITGSYGLIAHAVLQLPTREAHAKAFGTCSSHICVILAFYIPGLFSYLTHRFGHTVPKPVHI
LLSNIYLLLPPALNPLIYGARTKQIRDRLLETFTFRKSPL*------

>SMOR20-1
----MSDVNTT-SNWPTFSFIGIPGLEAAHMWISIPFCLLYLVALGGNVLLLLLVRAEQNLHEPQFYFLA
MLALTDLGLSLSTMPSVLAIFWFDVHNVGLDACLTQMFFIHTLSSVESGVLVAMAFDRLVAICAPLTYTR
ILNHQTVLCLSGAALIRGATLLAPLPFFLRTFPFCGANILSHSYCYYPDMLNLACGDVTFSSVYGLVCVL
CTFAVDVIFILVSYMKILGTVMKLGIQDRNWKSLQTCVCHLCTVLVFYLPLISLAVLHRYTQETSPILYT
TMSNAYLLMTPLLNPLVYSLKSRQIQAALRKRFGVQRVVAGE-----

>MmOR7.5.71
----MSDVNTT-SNWPTFSFIGIPGLEAAHMWISIPFCLLYLVALGGNFLLLLLVRAEQNLHEPQFYFLA
MLALTDLGLSLSTMPSVLAIFWFDVHDVGLDACLTQMFFIHTLSSVESGVLVAMAFDRLVAICAPLTYTR
ILNHQTVLCLSGAALIRGATLLAPLPFFLRTFPFCGANILSHSYCYYPDMLNLACGDVTFSSVYGLVCVL
CTFAVDVIFILVSYMKILGTVMKLGIQDRNWKSLQTCVCHLCTVLVFYLPLISLAVLHRYTQETSPILYT
TMSNAYLLMTPLLNPLVYSLKSRQIQAALHKRFGVQRVVAGE*----

>HsOR11.3.27
PTQIAPNSSTS--MAPTFLLVGMPGLSGAPSWWTLPLIAVYLLSALGNGTILWIIALQPALHRPMHFFLF
LLSVSDIGLVTALMPTLLGIALAGAHTVPASACLLQMVFIHVFSVMESSVLLAMSIDRALAICRPLHYPA
LLTNGVISKISLAISFRCLGLHLPLPFLLAYMPYCLPQVLTHSYCLHPDVARLACPEAW-GAAYSLFVVL
SAMGLDPLLIFFSYGLIGKVLQGVESREDRWKAGQTCAAHLSAVLLFYIPMILALINHPELPI-TQHTHT
LLSYVHFLLPPLINPILYSVKMKEIRKRILNRLQPRKVGGAQ*----
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
>MmOR7.5.29
PLSAQDTSNISSLMAPTFLLVGLPGLEAAPSWWSVPLITIYLLSAFGNGTILWIIALEPTLHRPMYFFLF
LLSVSDVGLATVLMPTLLGLAFADAHTVPASACLLQMFFIHVFSVMESSVLLAMAFDRAVAICRPLHYPV
ILTNGVISKIAVAIAFRCLSLHLPLPILLARMPYCRPQVLTHSYCLHPDMARLACPEAW-GAVYSLVVVL
SAMVLDPLLIFFSYGLIGRALQGVGSAEDRWKAGQTCAAHLSAVLLFYIPMILLALIDRFKLPLPPPAHT
LLSYVHFLLPPLMNPVLYSVKMKEIREKILKRLLPTKVGCA*-----

>HsOR11.3.12
--MLGPAYNHTMETPASFLLVGIPGLQSSHLWLAISLSAMYITALLGNTLIVTAIWMDSTRHEPMYCFLC
VLAAVDIVMASSVVPKMVSIFCSGDSSISFSACFTQMFFVHLATAVETGLLLTMAFDRYVAICKPLHYKR
ILTPQVMLGMSMAVTIRAVTFMTPLSWMMNHLPFCGSNVVVHSYCKHIALARLACADPVPSSLYSLIGSS
LMVGSDVAFIAASYILILRAVFDLSSKTAQLKALSTCGSHVGVMALYYLPGMAIYAAWLGQDIVPLHTQV
LLADLYVIIPATLNPIIYGMRTKQLLEGIWSYLMHFLFDHSNLGS*-

>HsOR11.3.11
--MLGPAYNHTMETPASFLLVGIPGLQSSHLWLAISLSAMYIIALLGNTIIVTAIWMDSTRHEPMYCFLC
VLAAVDIVMASSVVPKMVSIFCSGDSSISFSACFTQMFFVHLATAVETGLLLTMAFDRYVAICKPLHYKR
ILTPQVMLGMSMAITIRAIIAITPLSWMVSHLPFCGSNVVVHSYCEHIALARLACADPVPSSLYSLIGSS
LMVGSDVAFIAASYILILKAVFGLSSKTAQLKALSTCGSHVGVMALYYLPGMAIYAAWLGQDVVPLHTQV
LLADLYVIIPATLNPIIYGMRTKQLRERIWSYLMHVLFDHSNLGS*-

>SOR52I2
LCINRKKVNHTMETPASFLLVGIPGLQSSHLWLAISLSAMYIIALLGNTIIVTAIWMDSTRHEPMYCFLC
VLAAVDIVMASSVVPKMVSIFCSGDSSISFSACFTQMFFVHLATAVETGLLLTMAFDRYVAICKPLHYKR
ILMPQVMLGMSMAITIRAIIAITPLSWMVSHLPFCGSNVVVHSYCEHIALARLACADPVPSSLYSLIGSS
LMVGSDVAFIAASYILILKAVFGLSSKTAQLKALSTCGSHVGVMALYYLPGMAIYAAWLGQDVVPLHTQV
LLADLYVIIPATLNPIIYGMRTKQLRERIWSYLMHVLFDHSNLGS--

>SMOR41-1
--MLGPSYNHTMESPGTFFLLGIPGFQSSYLWLAISLSTMYSIALLGNMLIIIVICMDSTLQEPMYFFLC
VLAAVDIVMASSVVPKMVSIFSSGDSSISFNACFTQMYFVHAATAVETGLLLAMAFDRYVAICKPLHYMR
ILTRHVMLGISVTITVRAVIFMTPLSWMLSHLPFCASNVVPHSYCEHMAVAKLACADPMPSSLYSLIFSS
IIVGSDVAFISASYSLILKAVFGLSSRNAQWKALSTCGSHVGVMALYYLPGMAIYVAWLGQDRVPLHTQV
LLADLYLIIPPTLNPIIYGIRTRQIRERIWSLLTHCFFSQCTQGS--

>MmOR7.5.13
--MLGPSYNHTMESPGTFFLLGIPGFQSSYLWLAISLSTMYSIAVLGNMLIIIVICMDSTLQEPMYFFLC
VLAAVDIVMASSVVPKMVSIFSSGDSSISFNACFTQMYFVHAATAVETGLLLAMAFDRYVAICKPLHYMR
ILTRHVMLGISVTITVRAVIFMTPLSWMLSHLPFCASNVVPHSYCEHMAVAKLACADPMPSSLYSLIFSS
IIVGSDVAFISASYSLILKAVFGLSSRNAQWKALSTCGSHVGVMALYYLPGMAIYVAWLGQDRVPLHTQV
LLADLYLIIPPTLNPIIYGIRTRQIRERIWSLLTHCFFSQCTQGS*-

>MmOR7.5.154
MGTALHETNSSEVHVSEFILLGFPGIHEFQIWLSLPMALLYIVALGANLLILITIYLEPTLHQPMYQFLG
ILAAVDIGLATTSMPKILAILWFDAKTISLPECFAQIYAIHTFMCMESGVFLCMAIDRYVAICYPLQYPS
IVTEAFVIKATLSMLLRNGLLTIPVPVLAAQRQYCSRNEIDHCLCSNLGVISLACDDITVNRFYQLALAW
LVVGSDMILVYASYALIIRSVLRLNSTEAASKALSTCSSHLILIMFYYTAIVIVSVTHLAGRRVPLIP-V
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
LLNVMHIVIPPSLNPVVYALRTQELKVGFRKVFSLSEFVSRK*----

>MmOR7.5.155
-MGTKHATNSSEFQVSEFILLGFPGIHEFQIWLSLPMALLYIIALGANFLILITIYLEPNLHQSMYQFLG
ILAVVDIGLATTSMPKILAILWFDAKTISLPECFAQIYAIHTFMSMESGVFLCMAIDRYVAICYPLQYPS
IVTEAFVIKATLSMMLRSGLLTIPVPVLAAQRQYCSRNEIDHCLCSNLGVISLACDDITVNRNCQLTLAW
LILGIDMILVCVSYALIIRSVLRLNSTEAVSKALSTCSSHLILIMFYYTAIVILSVTHLAGRRVPLIP-V
LLNVMHIVIPPSLNPMVYALRTQELKVGFRKVF-DLSHYVSRK*---

>HsOR11.3.98
DTSTSVTYDSS-LQISQFILMGLPGIHEWQHWLSLPLTLLYLLALGANLLIIITIQHETVLHEPMYHLLG
ILAVVDIGLATTIMPKILAIFWFDAKAISLPMCFAQIYAIHCFFCIESGIFLCMAVDRYIAICRPLQYPS
IVTKAFVFKATGFIMLRNGLLTIPVPILAAQRHYCSRNEIEHCLCSNLGVISLACDDITVNKFYQLMLAW
VLVGSDMALVFSSYAVILHSVLRLNSAEAMSKALSTCSSHL-ILILFHTGIIVLSVTHLAEKKIPLIP-V
FLNVLHNVIPPALNPLACALRMHKLRLGFQRLL-GLGQDVSK*----

>SOR56B4
TSTSVTYDSSL--QISQFILMGLPGIHEWQHWLSLPLTLLYLLALGANLLIIITIQHETVLHEPMYHLLG
ILAVVDIGLATTIMPKILAIFWFDAKAISLPMCFAQIYAIHCFFCIESGIFLCMAVDRYIAICRPLQYPS
IVTKAFVFKATGFIMLRNGLLTIPVPILAAQRHYCSRNEIEHCLCSNLGVISLACDDITVNKFYQLMLAW
VLVGSDMALVFSSYAVILHSVLRLNSAEAMSKALSTCSSHL-ILILFHTGIIVLSVTHLAEKKIPLIS-V
FLNVLHNVIPPALNPLACALRMHKLRLGFQRLL-GLGQDVSK-----

>MmOR7.5.121
MSASLKAFNSSKSQVSEFILLGFPGIHSWQHWLSLPFTLLYLSAIGTNVLILIIICQDPSLKQPMYLFLG
ILSVVDMGLATTIMPKILAIFWFDAKVISLPECFAQIYAIHCFVGMESGIFLCMAFDRYVAICYPLRYSS
IITNSLILKATLFMVLRNGLCVIPVPVLAAQRNYCSRNEIDHCLCSNLGVTSLACDDRRPNSICQLILAW
VGMGSDLGLIILSYTLILRSVLRLNSAEAVSKALNTCSSHLILILFFYTVVVVISVTHLAETKATLIP-V
LLNVMHNIIPPSLNPIVYALRTRELRRGFQKVFCRSLQEK*------

>MmOR7.7.32
MSASLKDFNSSKFLVSEFILLGFPGIHSWQHWLSLPLTLLYLSAIGTNVLILIIICQDPSLKQPMYLFLG
ILSLVDMGLATTIMPKILAIFWFDAKVISLPECFAQIYAIHCFVSMESGICLCMAFDRYVAICYPLHYSS
IITNSLIFKATLFMVLRNGFCVISVPVLASQWNYCSRNEIDHCLCSNLGITSLACDDRRPNSIFQLILAW
VGMGSELGLIILSYTLLLRSVLRLNSAEAVSKALNTCSSHL-ILTLFYTVIVVISVTHLSETKATLIP-V
LLNVMHNITPPSLNPIVYALRTRQLRQGFQKVLCRSLQEK*------

>SOR56B1
MSASLKISNSSKFQVSEFILLGFPGIHSWQHWLSLPLALLYLSALAANTLILIIIWQNPSLQQPMYIFLG
ILCMVDMGLATTIIPKILAIFWFDAKVISLPERFAQIYAIHFFVGMESGILLCMAFDRYVAICHPLRYPS
IVTSSLILKATLFMVLRNGLFVTPVPVLAAQRDYCSKNEIEHCLCSNLGVTSLACDDRRPNSICQLVLAW
LGMGSDLSLIILSYILILYSVLRLNSAEAAAKALSTCSSHLTLILFFYTIVVVISVTHLTEMKATLIP-V
LLNVLHNIIPPSLNPTVYALQTKELRAAFQKVL-FALTKEIR-----

>HsOR11.3.77
MSASLKISNSSKFQVSEFILLGFPGIHSWQHWLSLPLALLYLSALAANTLILIIIWQNPSLQQPMYIFLG
ILCMVDMGLATTIIPKILAIFWFDAKVISLPECFAQIYAIHFFVGMESGILLCMAFDRYVAICHPLRYPS
```

Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
IVTSSLILKATLFMVLRNGLFVTPVPVLAAQRDYCSKNEIEHCLCSNLGVTSLACDDRRPNSICQLVLAW
LGMGSDLSLIILSYILILYSVLRLNSAEAAAKALSTCSSHLTLILFFYTIVVVISVTHLTEMKATLIP-V
LLNVLHNIIPPSLNPTVYALQTKELRAAFQKVLFALTKEIRS*----

>MmOR7.5.125
MFQILRDSNSSRFQVSEFILMGFPGIHSWQHWLSLPLALLYVLALIANILIVTVIYQEASLHQPMYHFLG
ILAIVDVGLATTIMPKILAILWFNDNNISLPECFAQMYAIHCFVAMESGIFVCMAIDRYVAICKPLRYSS
IVTESFVVKATVIMAIRNFVAPMSVPVLAAQRNYCFQNKIEHCLCSNLGVTSLACDDRKINSINQLFLAW
TLMGSDLALIMISYALILRSVLRLNSAEAASKALSTCTSHLILIFFFYTVIVVISITHSVGIKIPLIP-V
LLNVLHNVIPPALNPMVYALKNKELKQGLYKVL-RLDVKEG*-----

>MmOR7.5.127
MFQILRDSSSSRFQVSEFILMGFPGIHSWQHWLSLPLALLYVLALIANILIVTFIYQEASLHQPMYHFLG
ILAIVDMGLATTIMPKILAILWFNAKAISFNECFAQMYAIHCFVAMESDIFVCMAIDRYVAIRRPLRYSS
IVTESFVVKATVIMAFRNFVAPMSVPVLAAQRNYCSRNQINHCFCPNPGVTSLACDDRKIDSINQLFLAW
AVMGSDLGLIIVSYALILPSVLRLNSPKAASQTLSTCTSHLILIFFFYTVIIVMPITHSAKMTVPVIL-L
LLNVPHNVIPPALNPMVYALKNKELKEGFYLCS-GWMPKEPKKGENS

>HsOR11.3.79
--------------------MGFPGIHSWQHWLSLPLALLYLLALSANILILIIINKEAALHQPMYYFLG
ILAMADIGLATTIMPKILAILWFNAKTISLLECFAQMYAIHCFVAMESSTFVCMAIDRYVAICRPLRYPS
IITESFVFKANGFMALRNSLCLISVPLLAAQRHYCSQNQIEHCLCSNLGVTSLSCDDRRINSINQVLLAW
TLMGSDLGLIILSYALILYSVLKLNSPEAASKALSTCTSHLILILFFYTVIIVISITRSTGMRVPLIP-V
LLNVLHNVIPPALNPMVYALKNKELRQGLYKVL-RLE*---------

>HsOR11.3.93
---MASPSNDSTAPVSEFLLICFPNFQSWQHWLSLPLSLLFLLAMGANTTLLITIQLEASLHQPLYYLLS
LLSLLDIVLCLTVIPKVLAIFWFDLRSISFPACFLQMFIMNSFLTMESCTFMVMAYDRYVAICHPLRYPS
IITDQFVARAVVFVIARNAFVSLPVPMLSARLRYCAGNIIKNCICSNLSVSKLSCDDITFNQLYQFVAGW
TLLGSDLILIVISYSFILKVVLRIKAEGAVAKALSTCGSHFILILFFSTVLLVLVITNL-AKRIPPDVPI
LLNILHHLIPPALNPIVYGVRTKEIKQGIQNLLKRL*----------

>HsOR11.3.91
--MTLPSNNST-SPVFEFFLICFPSFQSWQHWLSLPLSLLFLLAMGANATLLITIYLEASLHQPLYYLLS
LLSLLDIVLCLTVIPKVLAIFWFDLRSISFPACFLQVFIMNSFLTMESCTFMIMAYDRYVAICKPLQYSS
IITDQFVARAAIFVVARNGLLTMPIPILSSRLRYCAGHIIKNCICTNVSVSKLSCDDITLNQSYQFVIGW
TLLGSDLILIVLSYFFILKTVLRIKGEGDMAKALGTCGSHFILILFFTTVLL-VLVITNLAKRIPPDVPI
LLNILHHLIPPALNPIVYGVRTKEIKQGIQNLL-RRL*---------

>SMOR40-1
RQHMEAQSNTSSILAPDFLLICFPNYQTWQHWLSLPLSLLFLLAMGANATLLITIRMEASLHEPMYYLLS
LLSLLDIVLCLTVIPKVLAIFWFDNKSIGFSSCFLQMFVMNSFLTMESCTFMVMAYDRYVAICKPLQYPS
IITDQFVVRAAIFVAARNGILTMPIPILSSQLRYCA-RIIRNCICTNMSVSKLSCDDITFNKLYQFVIGW
TLLGSDLILIVLSYSFILKAVLRIKAEGAVAKALSTCGSHFILILFFSTVLLVLVITNLARERIPPDVPI
LLNILHHLIPPALNPIVYGVRTREIKQGIRNLLRRRL----------

>MmOR7.5.149
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

```
RQHMEAQSNTSSILAPDFLLICFPNYQTWQHWLSLPLSLLFLLAMGANATLLITIRMEASLHEPMYYLLS
LLSLLDIVLCLTVIPKVLAIFWFDNKSIGFSSCFLQMFVMNSFLTMESCTFMVMAYDRYVAICKPLQYPS
IITDQFVVRAAIFVAARNGILTMPIPILSSQLRYCA-RIIRNCICTNMSVSKLSCDDITFNKLYQFVIGW
TLLGSDLILIVLSYSFILKAVLRIKAEGAVAKALSTCGSHFILILFFSTVLLVLVITNL-AERIPPDVPI
LLNILHHLIPPALNPIVYGVRTREIKQGIRNLLRRRL*---------

>MmOR7.5.150
----MALSNDSEAPISEFLLICFPNYQTWQHWLSLPLSLLFLLAMGANATLLITIRLEASLHEPMYYLLS
LLSLLDIVLCLTVIPKVLAIFWFDNKSIGFSSCFLQMFVMNSFLTMESCTFMVMAYDRYVAICKPLQYPT
VITDQFVVRAAIFIISRNALISLPVPILSARLKYCAQNIIKNCICTNLSVSRLSCDDITLNKLYQLVAGW
TLLGSDLILIVLSYSFIFRVVLRIKAEGAVAKALSTCGSHFILILFFSTVLL-VLVITNLAERIPPDIPI
LLNILHHLIPPALNPIVYGVRTREIKQGIQNLL-RRL*---------

>SOR56A1
IQPMASPSNSSTVPVSEFLLICFPNFQSWQHWLSLPLSLLFLLAMGANTTLLITIQLEASLHQPLYYLLS
LLSLLDIVLCLTVIPKVLAIFWYDLRSISFPACFLQMFIMNSFLPMESCTFMVMAYDRYVAICHPLRYPS
IITNQFVAKASVFIVVRNALLTAPIPILTSLLHYCGENVIENCICANLSVSRLSCDNFTLNRIYQFVAGW
TLLGSDLFLIFLSYTFILRAVLRFKAEGAAVKALSTCGSHFILILFFSTILLVVVLTNVARKKVPMDILI
LLNVLHHLIPPALNPIVYGVRTKEIKQGIQKLLQRGR----------

>HsOR11.3.94
---MASPSNSSTVPVSEFLLICFPNFQSWQHWLSLPLSLLFLLAMGANTTLLITIQLEASLHQPLYYLLS
LLSLLDIVLCLTVIPKVLAIFWYDLRSISFPACFLQMFIMNSFLPMESCTFMVMAYDRYVAICHPLRYPS
IITNQFVAKASVFIVVRNALLTAPIPILTSLLHYCGENVIENCICANLSVSRLSCDNFTLNRIYQFVAGW
TLLGSDLFLIFLSYTFILRAVLRFKAEGAAVKALSTCGSHFILILFFSTILLVVVL-TNVAKKVPMDILI
LLNVLHHLIPPALNPIVYGVRTKEIKQGIQKLLQRGR*---------

>HsOR11.3.90
---MTTHRNDTSTEASDFLLNCFVRSPSWQHWLSLPLSLLFLLAVGANTTLLMTIWLEASLHQPLYYLLS
LLSLLDIVLCLTVIPKVLTIFWFDLRPISFPACFLQMYIMNCFLAMESCTFMVMAYDRYVAICHPLRYPS
IITDHFVVKAAMFILTRNVLMTLPIPILSAQLRYCGRNVIENCICANMSVSRLSCDDVTINHLYQFAGGW
TLLGSDLILIFLSYTFILRAVLRLKAEGAVAKALSTCGSHFMLILFFSTILL-VFV-LTAKKKVSPDVPV
LLNVLHHVIPAALNPIIYGVRTQEIKQGMQRLLKKGC*---------

>SOR56A6
---MTTHRNDTSTEASDFLLNCFVRSPSWQHWLSLPLSLLFLLAVGANTTLLTTIWLEASLHQPLYYLLS
LLSLLDIVLCLTVIPKVLTIFWFDLRPISFPACFLQMYIMNCFLAMESCTFMVMAYDRYVAICHPLRYPS
IITDHFVVKAAMFILTRNVLMTLPIPILSAQLRYCGRNVIENCICANMSVSRLSCDDVTINHLYQFAGGW
TLLGSDLILIFLSYTFILRAVLRLKAEGAVAKALSTCGSHFMLILFFSTILL-VFVLTHVAKKVSPDVPV
LLNVLHHVIPAALNPIIYGVRTQEIKQGMQRLLKKGC----------

>MmOR7.5.143
MTAHKNDTNPT--GVSDFLLNCFVRSPSWQLWLSLPLSLLFLLAMGANAILLITIRMEASLHEPMYYLLS
LLSMLDIILCLTVIPKVLAIFWFDLRAIGFPACFLQMYIMNSFLAMESCTFMIMAFDRYIAICHPLRYPS
IITDQFVVKAATFILVRNVLITLPIPILSARLHYCGRNVIENCICANMSVSRLSCNDVNVNRLYQFAIGW
TLLGSDLFLIFLSYTLILRAVLRLKAEGAVAKALSTCGSHFILILFFSTILL-VFILTHVARKVSSDVPI
LLNVLHHVIPAALNPIVYGVRTQEIKQGIKKLLKKGW*---------
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.

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>MmOR7.5.146
MTAHKNDTNPT--GVSDFLLNCFVRSPSWQLWLSLPLSLLFLLAMGANAILLITIRMEASLHEPMYYLLS
LLSMLDIILCLTVIPKVLAIFWFDLRAIGFPACFLQMYIMNSFLAMESCTFMIMAFDRYIAICHPLRYPS
IITDQFVVKAATFILVRNVLIPLPIPILSGRLHYCGRNVIENCICANMSVSRLSCDDVTVNRLYQFAGGW
TLLGSDLVLIFLSYTLILRAVLRLKAEGAVAKALSTCGSHFILILFFSTILL-VFI-LTAKRKVSSDVPI
LLNVLHHVIPAALNPIVYGVRTQEIKQGIKKLLKRGW*---------

>HsORX.1.5
----MAMDNVT--AVFQFLLIGISNYPQWRDTFFTLVLIIYLSTLLGNGFMIFLIHFDPNLHTPIYFFLS
NLSFLDLCYGTASMPQALVHCFSTHPYLSYPRCLAQTSVSLALATAECLLLAAMAYDRVVAISNPLRYSV
VMNGPVCVCLVATSWGTSLVLAML--ILSLRLHFCGANVINHFACEILSLIKLTCSDTSLNEFMILITSI
FTLLLPFGFVLLSYIRIAMAIIRIRSLQGRLKAFTTCGSHLTVVTIFYGSAISMYM-KTQSKS-YPDQDK
FISVFYGALTPMLNPLIYSLRKKDVKRAIRKVMLK------------
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Table S1 (continued). Multiple alignment of all 464 receptors in the screening library as well as 1425 intact mouse and human ORs from (Niimura et al., 2005, Gene, 346, 23-8) in FASTA format. Receptors in the screening library follow the naming convention of (Glusman et al., 2001, Genome Res, 11, 685-702), but are prefixed with an 'S'.