



NtTOGT1	1	-----MGQLHIFFFP-VM-AHGHIIP
BvUGT73A4	1	-----MDDKSQQLHIVLFP-FM-AHGHIIP
Db5-GT	1	-----MGTHSTAPDLHVVFPP-FL-AHGHIIP
AtUGT86A1	1	-----MERAKSRKPHIMMIP-YP-LQGHVIP
ZmUFGT1	1	-----MAPADGESSPPP HVAVVA-FP-FSSHAAV
CteUGT78K6	1	-----MKNKQHVAIFP-FP-FGSHLPP
AtUGT78D1	1	-----MTKFSEPIRDSHVAVLAFPP-VGAHAGP
CoUGT78B3	1	-----MGQSKSESEAHVAVIA-FP-FGSHAAQ
MtUGT78G1	1	-----MSTFKNEMNGNLLHVAVLA-FP-FGTHAAP
LgUGT78J1	1	-----MVFESHIGVVA-FP-FGTHAAP
CpPGT11	1	-----MSSPHVVVIP-NP-EQGHVIP
AtUGT83A1	1	-----MDNNSNKRMRPHVVVIP-YP-AQGHVLP
FaUGT75T1	1	-----MESRNHHFLVIS-CA-AQGHVLP
AtUGT75C1	1	-----MATSVNGSHRRPHYLLVT-FP-AQGHVLP
AtUGT75B1	1	-----MAPPHFLVLT-FP-AQGHVLP
AtUGT75D1	1	-----MANNNSNSPTGPHFLVFT-FP-AQGHVLP
ZmUGT74A1	1	-----MAPHVLLVP-FP-GQGHMNP
AsUGT74H5	1	-----MGAWEHVSDIHVLLLP-YP-VQGHVLP
BdUGT74J7	1	-----METNSPSSAEEGSGTGGAHVLLLA-FPGAQGHVLP
SrUGT74G1	1	-----MAEQQKIKKSPHVLLIP-FP-LQGHVLP
AtUGT74B1	1	-----MAETTPKVKGHVVLIP-YP-VQGHVLP
RsUGT74R1	1	-----MATKKTQILIP-YP-IQGHVLP
LuUGT74S1	1	-----MAGDEREKAHCLVVP-AA-AQGHVLP
AtUGT74F1	1	-----MEKMRGHVLAVP-FP-SQGHVLP
SgUGT74AC1	1	-----MEKGDTHILVFP-FP-SQGHVLP
AtUGT74C1	1	-----MSEAKKGHVLFPP-YP-LQGHVLP
AtUGT74D1	1	-----MGEKAKANLVVFS-FP-IQGHVLP
AtUGT74E2	1	-----MREGSHLIVLP-FP-GQGHVLP
AtUGT84B1	1	-----MGSSEGEETHVLMVT-LP-FQGHVLP
DgphBAGT	1	-----MGSDQTLHHHVLLVS-FP-SQGHVLP
MtUGT84F1	1	-----MASEASHILLVS-FP-AQGHVLP
GtUF6CGT1	1	-----MGSLTNNNDNLHIFLVC-FI-GQGHVLP
PgUGT84A23	1	-----MGSESLVHVFLVS-FP-GQGHVLP
PgUGT84A24	1	-----MGSESLVHVFLVS-FP-GQGHVLP
AtUGT76E1	1	-----MEELGVKRRIVLVP-VP-AQGHVLP
AtUGT76D1	1	-----MAEIRQRRVLMVP-AP-FQGHVLP
SrUGT76G1	1	-----MENKTETTIVRRRRRIILFP-VP-FQGHVLP
VvGT15	1	MGFHTRSSLRKSIPSMIVMLRERTGQVKESHLSTLPRREMPRRVLP-CP-FQGHVLP
AtUGT76C1	1	-----MEKRNERQVILFP-LP-LQGHVLP
AtUGT76B1	1	-----METRETKPVIFLFP-FP-LQGHVLP
CsUGT76F1	1	-----MDQRKGRRLVLP-LP-LQGHVLP
OsUGT709A4	1	-----MGAAAHVLVFP-MP-LQGHVLP
SrUGT85C2	1	-----MDAMATTEKKPHVIFIP-FP-AQGHVLP
CoUGT85N1	1	-----MASSSPKTPHIVCVP-AP-AQGHVLP
MeUGT85K4	1	-----MGSISPQKPPHAILVP-YP-AQGHVLP
AtUGT85A1	1	-----MGSQIIHNSQKPHVVCVP-YP-AQGHVLP
MtUGT85H2	1	-----MGNFANRKP HVVMIP-YP-VQGHVLP
MtUGT71G1	1	-----MSMSDINKNSELIFIP-AP-GIGHVLP
MdUGT71K1	1	-----MKKVELVFIIP-SP-GAGHLP
AtUGT89A2	1	-----MTEVLLLPGTKSENSKPPHIVVFP-FP-AQGHVLP
AtUGT89C1	1	-----MTTTTTKPHVLP-FP-QSGHMVP
AtUGT89B1	1	-----MKVNEENKPKTHVLIIP-FP-AQGHVLP
NmUGT89P1	1	-----MPSILSNSAHILLFP-FP-TSGHIIP
AtUGT92A1	1	-----MAEAKPRNLRIVMFP-FM-GQGHVLP
GbUGT92K1	1	-----MAAGSQETVRMHVLMFP-YP-AQGHVLP
GmUGT92G4	1	-----MAETPNKGHIVMVP-LM-AQGHVLP
PoUGT90A7	1	-----MASLLPDNSTHRPHFVLP-FM-SKGHVLP
AtUGT90A1	1	-----MSVSTHHHVVLFP-FM-SKGHVLP
AcUGT73J1	1	-----MAFDKKQLHILFFP-LM-SPGHVLP
MtUGT73P1	1	-----MESFGVKVEEETMLKAVFLP-FI-SKSHVLP
SrUGT73E1	1	-----MSPKMVAPPTNLHFVLP-LM-AQGHVLP
CpPGT4	1	-----MASEASQVHFLLLP-YL-APGHVLP
AtUGT73C1	1	-----MASEFRPPLHFVLP-FM-AQGHVLP
CpPGT2	1	-----MDTQANQLHFVLP-FL-AQGHVLP
PjGAT	1	-----MSQSPAMSKMQNQLHFVLP-LL-AQGHVLP
CtiUGT73AE1	1	-----MAPESASRIHFLLIIP-LL-APGHVLP
CaUGT73AH1	1	-----MDSQFQQLHFVMIIP-LM-CPGHVLP
PzGAT2	1	-----MDSPSDQLHIVMIIP-LM-CPGHVLP
AcUGT73G1	1	-----MNSNHPLHVIFIP-FL-AQGHVLP
MtUGT73K1	1	-----MGTESKPLKIYMLP-FF-AQGHVLP
GeUGT73F1	1	-----MDLEREGTEKPLKLYFIH-YL-AAGHMIP
AtUGT73B1	1	-----MGTPVEVSKLHFLFP-FM-AHGHIIP
GuUGAT	1	-----MTMGNENRELIIFFP-FL-ANGHIIP
NmUGT73BD1	1	-----MTAQFHVVFP-LM-AQGHVLP

AtUGT81A1	29	NRSPCSNSDGYALSSSNALYFNGFRTL	--PSRRMG	-KTLASLSFN	-TKS	----	SAG	--SS
AtUGT80A2	41	SGVVIV-SEELE	-----T	-----	NPKTVV	-ASIADETVA	-ESS	----GTG
AtUGT80B1	20	VKSKA-S--LE	-----E	-----	-TS	-GSVDTTPED	-SGH	----RSS
OsZOGT3	27	VLHLSL-Q--LA	-----S	-----	SSHGLA	-VHYAAPAQ	-LRQ	----ARA
OsZOGT1	25	LMHLSL----	LL	-----	ASRGLD	-VHYAAPAH	-LRQ	-----
ZmcisZOG1	25	LHLSL----	LL	-----	ASRGLS	-VHYAAPPH	-VRQ	-----
GmUGT79A6	28	FVQLSNKL--FS	-----H	-----	G--VH	-VTFLSAASN	-IPR	-----
AtUGT79B6	21	FLHLANKL----		-----	AEKDHK	-ITFLLPKA	-RKQ	-----
GmUGT91H9	19	YLELSK----	IL	-----	AQKGFH	-VTFISTPKNIDGM		-----
ZmUGT91L1	25	GLEFAERL----		-----	AEHGQR	-VSFVSTQGI	-LRR	-----
PoUGT95A1	39	AMELCKNI----		-----	SAHNYN	-VTLIIPSHL	-SSS	-----
MtUGT95B4	19	CFQLCNHL----		-----	TSTNFH	-VTLLISSTL	-ATS	-----
PgUGT95B2	19	SMELCK-H--FA	-----S	-R	-N--FR	-AVLVISSNL	-SSS	-----
VvUGT95B6	19	CIELCRHL----		-----	ASRTFN	-TLLIISNL	-SSS	-----
AtUGT82A1	23	MLHLASAF--LS	-----R	-----	G--FS	-PVVMTPEI	-HRR	----ISA
VpUGT94F1	25	FLELAKTL----		-----	SKRNFT	-IHFCSTAIN	-LDS	-----
AtUGT87A1	12	MLNLCKSL--VR	-----	-----	RDPNLT	-VTFVVT	TEEW	-----
AtUGT72C1	19	ILELKG-H--LL	-----	-----	NHHGFDR	-VTVFLVTD	-VSR	----SKS--LI
AtUGT72D1	20	ILELGN-R--LS	-----	-----	SVLNH	-VTILAVTSG	-SSS	-----PT
LjUGT72AD1	23	LLEFCR-R--LA	-----H	-----	LHQDIH	-ITCINPTFE	-SPC	----SYV
AtUGT72B1	23	LIEFAK-R--LV	-----	-----	HLHGLT	-VTFVIAGE	-PPS	-----KA
VvUGT1	22	LIEFAR-R--LV	-----	-----	LHHNFS	-VTFLIPTDG	-SPV	-----TP
LjUGT72AH1	21	LIEFAK-R--LV	-----H	-L	-HQDNFQ	-VTCIPTLS	-NSP	----TIA
LjUGT72Z2	21	IIIEFCKKL--LH	-----	-----	LHHHYH	-VTCIFPTID	-APV	-----AA
GmUGT72X4	21	IIIEFSKRL--IK	-----	-----	HHQNFH	-VTCIVPSLG	-PPP	-----ES
MtUGT72L1	28	ILHFSKLL--IQ	-----	-----	LHPDIH	-VTCIPTLG	-SPP	-----SS
PgUGT72BD1	24	VLQIGE-R--FV	-----	-----	SRHNFV	-VTVFVVTD	-AAT	----AES--Q
AtUGT72E1	13	VIELGK-R--LA	-----	-----	GSHGFD	-VTIFVLETD	-AAS	----AQS--QF
OsUGT706C1	22	MVQLAEAL--VR	-----	-----	RGVSVT	-LAVADPPDK	-GAV	----LAG--A
OsUGT706D1	23	MVELAKLF--LT	-----	-----	RGLDVT	-IAVPATPGS	-GTT	----GSP--T
MtUGT88E1	19	MVELGKLI--LT	-----	-----	HHPSFS	-IKILILTTP	-NQDTNTINV	STSQY
VpUGT88D8	17	VLVIK----	FI	-----	NKHHP	-ISIIILSNAP	DSA	-----
NmUGT88P1	20	MVELAKLI--LN	-----	-----	REPSYS	-IIIFISSAP	-YST	----GSSAPY
AtUGT88A1	20	MVELGKTI--LS	-----	-----	KNPSLS	-IHIIIVPPP	-YQP	----ESTATY
VvGT7	18	MVELGKLI--LK	-----	-----	HHPSFS	-ITIFIVTTP	-YNT	----GSTAPY
MdUGT88F1	19	MVELGKFI--VH	-----RY	-----	GPHKFS	-ITILYTCGS	-IVD	----TASIPVY
ScUGT5	19	TVELGK-L--IL	-----	-----	RHHHFT	-IHVLIITGF	-DDS	----PHTATY
OsUGT707A2	26	MLEVGRM--LR	-----SRCCGDDDD	GRPAMS	-LTVLLAQLP	-ESHRAPEIDEI	IRR	-----
AtUGT71B1	19	TTALAK-L--LV	-----A	-----	SDNRLS	-VTLIVIPSR	-VSD	----DAS
MdUGT71A15	21	TVEAK-Q--LA	-----A	-----	RDDQLF	-ITVIVMKLP	-YAQ	-----
BvUGT71F1	30	AVELAKLI--IQ	-----	-----	RNHRIS	-IVILINIPT	TTTS	----LINDFVH
Db6-GT	20	AVELSK-L--II	-----R	-RE	-NRISVL	-ILILSFPFD	-SGL	----VNA
AtUGT71C1	23	TIELAKRL--IS	-----Q	-----	DNPRIHT	-ITILYWGLP	FIQ	----ADTIAF
AtUGT71C4	21	HIEFAK-R--LI	-----N	-----	LDHRIHT	-ITILNLSSP	-SSP	----HAS--VF
AtUGT71D1	20	FIEFAR-R--LI	-----E	-----	QDDRIR	-ITILLMKLG	-GQS	----HLD--TY
FaUGT71W2	20	TIEFSK-R--LL	-----D	-----	RCDQFS	-VTILLMKSP	-FGV	----AAD
MtUGT71G1	26	ALEFAK-L--LT	-----N	-----	HDKNLY	-ITVFCIKFP	-GMP	----FAD--SY
MdUGT71K1	20	TLQFVK-R--LI	-----D	-----	RNDRIS	-ITILAIQSY	-FPT	----TLS
AtUGT89A2	34	LLDLTHQL--CL	-----R	-----	G--FN	-VSVIVTPGN	-LTY	-----
AtUGT89C1	25	HLDLTHQI--LL	-----	-----	RGAT	-VTVLVTPKN	-SSY	-----LD
AtUGT89B1	29	LDFTH-R--LA	-----L	-R	-GGAALK	-ITVLVTPKN	-LPF	-----
NmUGT89P1	25	ILDLANQL--LA	-----R	-----	G--LT	-ITILITPAN	-LTL	----LST
AtUGT92A1	25	FVALAL-R--LE	-----	-----	KIMIMNRANK	TTISMINTPSN	-IPK	-----
GbUGT92K1	27	FIELSK-L--LA	-----	-----	SRGGFT	-ITIVNTPLN	-IQR	----LQSKIAL
GmUGT92G4	24	FLALAR-Q--IQ	-----	-----	QNTSFT	-ITIANTPQN	-IQH	----LRS
PoUGT90A7	29	LLHLAK----	LL	-----	ATRGIN	-VTVFTKAN	-RPF	-----
AtUGT90A1	24	LQFGR-L--LL	-----R	-HHR	-KEPTIT	-VTVFTPKN	-QPF	----ISD
AcUGT73J1	24	MIDMAC----	IF	-----	ASHNVR	-STVVA	TPSD	-ASK
MtUGT73P1	30	VVDIAR----	LF	-----	AMHNVD	-VTIITPAN	-AAI	----FQT
SrUGT73E1	28	MVDIAR-I--LA	-----Q	-R	-G--AT	-VTIITPYH	-ANR	----VRP--VI
CpPGT4	24	MFDIAR-L--LA	-----Q	-H	-G--AI	-VTIVTTPVN	-VAR	----FKT--VI
AtUGT73C1	25	MVDIAR----	LL	-----	AQRGVT	-ITIVTTPQ	NAGRF	----KNVL
CpPGT2	24	MIDIAR----	LL	-----	AQRGVI	-ITIVTTPVN	-AAR	----FNG--IL
PjGAT	30	MIDMAR----	LL	-----	AQHGTV	-VSLVTPHN	-ASR	----FAS
CtiUGT73AE1	25	MIDIAR-L--LA	-----	-----	QRPNVV	-VTIVTTPVN	-AAR	----YGP--NL
CaUGT73AH1	24	LVDMAK----	LL	-----	AQRAVT	-VTIVTTPRN	-AIR	----FGA--AT
PzGAT2	24	MVDMAK----	LL	-----	AQRAVT	-VTIVTTPRN	-AIR	----FGA--VI
AcUGT73G1	24	TIDLCK----	LF	-----	ASHGVK	-VTVLT	TKGN	-LSR
MtUGT73K1	24	LVNLAR----	LV	-----	ASKNOH	-VTIITTPSN	-AQL	----FDK
GeUGT73F1	28	LCDIAT-L--FA	-----S	-R	-G--HH	-VTIITTPSN	-AQT	----LRR
AtUGT73B1	26	LDMAR----	LF	-----	ATKGAK	-STILT	TPLNAKLF	----FEKPIKS
GuUGAT	26	CVDLAR----	VF	-----	AARGIR	-ATIVT	THLN	-VPY
NmUGT73BD1	21	LLEIVK----	LF	-----	SSRGLK	-TTIVT	TKLH	-VPV
NmUGT73BD1	1					-MTAQFHV	VVFFP	-LM-AQGHLP

NtTOGT1	20	TLDMAK	---	LF	-----	ASRGVK	-AT	IIT	TPLNEFVF	-----
BvUGT73A4	24	TLDIAR	---	LF	-----	AARGVK	-T	LIT	TPRN-APT	---FLT---AI
Db5-GT	26	SLDIAK	---	LF	-----	AARGVK	-T	IIT	TPLN-ASM	---FTKAIEK
AtUGT86A1	25	FVHLAIKL	---		-----	ASHGFT	-I	TFVN	TDSI-HHH	ISTAHQDDAGD
ZmUGFT1	28	LLSIARALAAA	---		-----	APSGAT	-L	SFLS	TASS-LAQ	---LRK---AS
CteUGT78K6	21	LLNLVL-K	---	LA	-----H	IAPNTS	-F	SFIG	THSS-NAF	-----
AtUGT78D1	28	LLAVTR-R	---	LA	-----	AASPSTI	-F	SFFN	TARS-NAS	-----
CoUGT78B3	26	LLNLTR-R	---	LA	-----A	SAPEVT	-F	SFFS	TAKS-NKA	-----
MtUGT78G1	30	LLSLVKKI	---	AT	-----	EAPKVT	-F	SFFC	TTTT-NDT	-----L
LgUGT78J1	21	LLDVVQ-R	---	IA	-----A	SAPGTL	-F	SFFN	TADS-NRK	---LFN---
CpPGT11	20	LELSONL	---		-----	AKHGLR	-I	TFVN	SEYN-HNR	-----
AtUGT83A1	28	LISFSR	---	YL	-----	AKQGIQ	-I	TFIN	TEFN-HNR	-----
FaUGT75T1	22	SLQLAK	-R-	LI	-----	DIGSSH	-V	TFVT	NIHG-LTQ	-----
AtUGT75C1	28	ALQLANRL	---		-----	IHHGAT	-V	YSTAVSA	-HRR	-----
AtUGT75B1	20	SLRFAR-R	---	LI	-----	KRTGAR	-V	TFVTCVSV	-FHN	-----
AtUGT75D1	28	SLELAK	-R-	LA	-----	GTISGARV	-T	FAASISA	-YNR	-----
ZmUGT74A1	19	MVQFAK-R	---	LA	-----S--K	G--VA	-T	LVT	TRFI-QRT	-----
AsUGT74H5	27	MLQFGK-R	---	LA	-----H--I	GGVGR	-C	LAI	TPYL-LRQ	-----
BdUGT74J7	36	LLQFGRRL	---		-----	AYHGLR	-P	TFVT	TRYL-LST	-----
SrUGT74G1	27	FIQFGK-R	---	LI	-----S--K	G--VK	-T	LVT	TIHT-LNS	-----
AtUGT74B1	26	MVQFAKRL	---		-----	VSKNVK	-V	TIAT	TYT-ASS	-----
RsUGT74R1	22	MLQFAKRL	---	AS	-----	KSRHLI	-L	TL	LLPTSH	-----
LuUGT74S1	25	LLQFSK-R	---	LI	-----P--K	R--IR	-V	LAL	TRFI-HST	-----
AtUGT74F1	22	IRQFCK-R	---	LH	-----S--K	G--FK	-T	HTL	TTFI-FNT	-----
SgUGT74AC1	22	LLQLSKRL	---	IA	-----	KGIK	-V	SLVT	TLHV-SNH	-----
AtUGT74C1	23	MIQLAKRL	---		-----	SKKGIT	-S	TLI	IASKD-HRE	-----
AtUGT74D1	23	LLQFSKRL	---	LS	-----	KNVN	-V	FLT	TSST-HNS	-----IL
AtUGT74E2	21	MSQFCKRL	---		-----	ASKGLK	-L	TLV	LVSDK-PSP	-----
AtUGT84B1	25	MLKLAK-H	---	LS	-----L	SSKNLH	-I	NLATIESA	-RDL	-----
DgphBAGT	26	LLRLAKHL	---		-----	ASKGLL	-A	TSS	THHIIHKI	-----
MtUGT84F1	23	LLRLGKCL	---		-----	AAKGAS	-V	IFIT	TEKG-GKN	---MRITNKL
GtUF6CGT1	26	MLRLGKAF	---		-----	ASKGLL	-V	LSAPEIVGTEI	-----	---RK
PgUGT84A23	24	LLRLGKRL	---		-----	ASKGLL	-V	TFTPE	SI-GKQ	-----MR
PgUGT84A24	23	LLRLGKRL	---		-----	ASKGLL	-V	TFTPE	SI-GKQ	-----MR
AtUGT76E1	24	IMQLGKAL	---		-----	YSKGF	-I	TVVL	TQYN	-----
AtUGT76D1	23	MMNLASYL	---		-----	SSQGF	-I	TIVR	NEFN	-----
SrUGT76G1	29	ILQLAN	---	VL	-----	YSKGF	-I	TFH	TNFN-KPK	-----
VvGT15	59	MLQLGA	---	IL	-----	HSRGFS	-I	VAH	TQYN-SPD	-----
AtUGT76C1	23	MLQLAK	---	IL	-----	YSRGFS	-I	TIH	TRFN-APK	-----
AtUGT76B1	24	MFQLAN	---	IF	-----	FNRGFS	-I	TVIH	TKFN-SPN	-----
CsUGT76F1	23	MLQLAN	---	IL	-----	HSQGFT	-I	TIH	TSFN-SPN	-----
OsUGT709A4	22	MLHLAT-A	---	LA	-----	AAAGVH	-V	TLH	TDHN-LHR	---LGNA
SrUGT85C2	27	MLKLAQ	---	IL	-----	HHKGLQ	-I	TFVN	TDFI-HNQ	---FLE---SS
CoUGT85N1	25	MFKLAK-L	---	FH	-----S--R	G--FY	-I	TFVHSEFS	-YQR	---LLQ---AS
MeUGT85K4	26	LMQLGK	---	LL	-----	HARGFY	-I	TFVN	TEHN-HRR	---LIR---SR
AtUGT85A1	28	MMRVAK	---	LL	-----	HARGFY	-V	TFVN	TVYN-HNR	---FLR---SR
MtUGT85H2	25	LFKLAK	---	LL	-----	HLRGFH	-I	TFVN	TEYN-HKR	---LLK---
MdUGT71K1	20	TLQFVK-R	---	LI	-----D	RNDRIS	-I	TLAI	QSY-FPT	---TLS---
AtUGT89A2	34	LLDLTHQL	---	CL	-----R	G--FN	-V	SVIV	TPGN-LTY	-----
AtUGT89C1	25	HLDLTHQI	---	LL	-----	RGAT	-V	TLV	TPKN-SSY	---LD
AtUGT89B1	29	LLDFTH-R	---	LA	-----L--R	GGAALK	-I	TLV	TPKN-LPF	-----
NmUGT89P1	25	ILDLANQL	---	LA	-----R	G--LT	-I	TLI	TPAN-LTL	---LST---
AtUGT92A1	25	FVALAL-R	---	LE	-----	KIMIMNRANKTT	-I	SMIN	TPSN-IPK	-----
GbUGT92K1	27	FIELSK-L	---	LA	-----	SRGGFT	-I	TIVN	TPLN-IQR	---LQSKIAL
GmUGT92G4	24	FLALAR-Q	---	IQ	-----	QNTSFT	-I	TIAN	TPQN-IQH	---LRS---
PoUGT90A7	29	LLHLAK	---	LL	-----	ATRGIN	-V	TFVT	TKAN-RPF	-----
AtUGT90A1	24	LLQFGR-L	---	LL	-----R--HHR	KEPTIT	-V	TFVT	TPKN-QPF	---ISD---
AcUGT73J1	24	MIDMAC	---	IF	-----	ASHNVR	-S	TVA	TPSD-ASK	-----
MtUGT73P1	30	VVDIAR	---	LF	-----	AMHNVD	-V	IIT	TPAN-AAI	---FQT---
SrUGT73E1	28	MVDIAR-I	---	LA	-----Q--R	G--AT	-V	IIT	TPYH-ANR	---VRP---VI
CpPGT4	24	MFDIAR-L	---	LA	-----Q--H	G--AI	-V	IVT	TPVN-VAR	---FKT---VI
AtUGT73C1	25	MVDIAR	---	LL	-----	AQRGVT	-I	IVT	TPQNA	GRF---KNVL
CpPGT2	24	MIDIAR	---	LL	-----	AQRGVI	-I	IVT	TPVN-AAR	---FNG---IL
PjGAT	30	MIDMAR	---	LL	-----	AQHGVV	-V	SLVT	TPHN-ASR	---FAS---
CtiUGT73AE1	25	MIDIAR-L	---	LA	-----	QRPNVV	-V	IVT	TPVN-AAR	---YGP---NL
CaUGT73AH1	24	LVDMAK	---	LL	-----	AQRAVT	-V	IVT	TPRN-AIR	---FGA---AT
PzGAT2	24	MVDMAK	---	LL	-----	AQRAVT	-V	IVA	TPRN-AIR	---FGA---VI
AcUGT73G1	24	TIDLCK	---	LF	-----	ASHGVK	-V	TLT	TKGN-LSR	---FHSPLTR
MtUGT73K1	24	LVNLAR	---	LV	-----	ASKNOH	-V	IIT	TPSN-AQL	---FDK---
GeUGT73F1	28	LCDIAT-L	---	FA	-----S--R	G--HH	-V	IIT	TPSN-AQT	---LRR---
AtUGT73B1	26	TLDMAK	---	LF	-----	ATKGAK	-S	ILT	TPLNAKLF	---FEKPIKS
GuUGAT	26	CVDLAR	---	VF	-----	AARGIR	-A	IVT	THLN-VPY	-----
NmUGT73BD1	21	TLLEIVK	---	LF	-----	SSRGLK	-T	IVT	TKLH-VPV	---ITKS
NmUGT73BD1	1		---		-----		-M	TAQFHVVF	FP-LM-AQGH	LIP

AtUGT81A1	79	LRRFISDFNSF	IRFHCDKVVPE	SFASVGGVGLSSDENGIREN
AtUGT80A2	74	NKSFSRVWVTMP	SESSSTNQPRLDK	SKT-ERQKQVTH
AtUGT80B1	47	DGHRGLDHCETAPVGLYGDMLIND	SEIQYSRSLTE	KSPAIHNLKLDRLRSEQE
OsZOGT3	58	RVHGWDKALLS	VQFHDL-GISTYVSPDP	TADTPFPShLMPL
OsZOGT1	51	ARLRLHGWDPDALRS	IRFHDL-DVPA	YESPPDPPTAPFPShLMPL
ZmcisZOG1	51	ARARVHGWDPRALGS	IRFHDL-DVPP	YDSPAPDLAAPSFPFNHLMPL
GmUGT79A6	54	IRSTLNLNPA	INVISL-KFPN	GITNTAELPPH
AtUGT79B6	47	LESNLNLPDC	IVFQTL-TIPS	VDGLP-DGAETTS DIPIS
GmUGT91H9	46	PKIPETLQPS	IKLVRL-PLPHTDHHHHL	EDAESTMDIPSN
ZmUGT91L1	51	LRPVAPALASL	IDLVAL-PFPR	IDGLP-DGAEATSDLPPG
PoUGT95A1	65	IPSTFSNHSSF	IHVTEISVAAS	PPPEAADEPGSGTEV
MtUGT95B4	45	IPSSLHQHPL	FQVTLI	PSQPPPPSPEHH
PgUGT95B2	45	VPSSLRSLPL	VEVVEI-PSSP	TP-PPPPPSQPGSGD
VvUGT95B6	45	IPSDLRRIP	FHFH-EISS	SLP-PPPPPSPSPSD
AtUGT82A1	52	TNED	LGITFL-ALSD	EQD-RPDAPSD
VpUGT94F1	51	IKSNLANDPSVLD	IKLLEL-EIES	PELP-PELHTTKNLPPH
AtUGT87A1	37	LGFIGSDPKP	NRIHFA-TLPN	IIP-SELVRANDFIAF
AtUGT72C1	52	GKTLMEEDPK	FVIRFI-PLDV	SGQDLSGSLLTK
AtUGT72D1	49	ETEAIHAAA	RTICQITEIPS	VDVDNLVEPDAT
LjUGT72AD1	54	VKALFENLPSN	IECMFLPPVNL	DDMAQTS DPAIL
AtUGT72B1	52	QRTVLDLSPSS	ISSVFLPPVDL	TDLSSSTRIESR
VvUGT1	51	QKSVLKALPTS	INVFLPPVAF	DDLPELVRIETR
LjUGT72AH1	53	SKPFFNALPTS	IQCIFL-PPVN	VK-NGNDPLETQ
LjUGT72Z2	51	TLKLLQSLPST	IDFKFLPPVNK	QDLPQDVSPAVQ
GmUGT72X4	51	SKAYLKTLPSN	IDTILLPPISK	EQLPQGVHPAIL
MtUGT72L1	58	SETILQTLPSN	IDYMFL-PEVQ	PSDLPQGLPMEIQ
PgUGT72BD1	55	LKQSYKKNL	LNVLVLPVVDL	TSLTNKPLAISQ
AtUGT72E1	45	LNSPGCDAAL	VDIVGL-PTPD	ISGLVDPSAFFGIK
OsUGT706C1	54	IARIAAVCP	IGVRLP-PIPS	CEGKTYSHVPMW
OsUGT706D1	55	IAGIAASNPS	ITFHHL-PPPP	SCADDPNPLLL
MtUGT88E1	58	ISSVSNKFP	INFHYI	PSISFTFTLPPHLQ
VpUGT88D8	44	ASSITSEASS	ITYHRL-PTPD	IPPNIITNPVEL
NmUGT88P1	54	ISHVSATTSG	ISFHHL-PVLV	LP-PNTFSSFEIAYK
AtUGT88A1	54	ISSVSSFP	ITFHHL-PAVT	PYSSSTSRHHHESL
VvGT7	52	LARVSSTIPS	ITFHHL-PTIS	LP-LDSFSSPNHETL
MdUGT88F1	56	IRRISHSHPF	ISFRQF-PRVT	NNITRNI SVPAI
ScUGT5	53	IDQISKTNPS	ITFHRL-PFLP	LNLSP TVSSIAT
OsUGT707A2	74	EAAGASEHSG	FDVRFH-CLPA	EELPDFRGGEDF
AtUGT71B1	50	SSVYTNSEDR	LRYILL	PARDQTTD
MdUGT71A15	49	PFTNTDSSIS	HRINFV-NLPE	AQP-DKQDIVNPGSF
BvUGT71F1	66	SQSRNNPYPTH	LTFMTLPPLSN	PPERSSPDF
Db6-GT	53	YVDFQSRDPPDNS	GSLTFI-TLPP	LSNIPDCTSSTF
AtUGT71C1	60	LRSLVKNEPR	IRLVTLPEVQD	P-PPMELFVEFAESY
AtUGT71C4	55	ARSLIASQPK	IRLHDLPPIQD	P-PPFDLYQRAPEAY
AtUGT71D1	53	VKSIASSQPF	VRFDVPELEE	K-PTLGSTQSEAY
FaUGT71W2	51	--QSLPAASN	TNIKLI-HLPN	I-NPPIKLD SVEKF
MtUGT71G1	59	IKSVLASQPQ	IQLIDL-PEVE	P-PPQELLKSPEFY
MdUGT71K1	51	SYTKSIAASEPR	IRFIDV-PQPQ	DRPP-QEMYKSRAQI
AtUGT89A2	60	LSPLLSAHPS	VTSVVF-PFPP	HPSLS-PGVENVKDVGNS
AtUGT89C1	53	ALRSLHSPEH	FKTLIL-PFPP	HPCIP-SGVESLQQLPLE
AtUGT89B1	58	LSPLLSAVNV	IEKTLIL-PFPP	HPSIP-SGVENVQDLPPS
NmUGT89P1	54	QLIELDRLGS	LHTLVL-PFPN	PPNPSETS
AtUGT92A1	58	IRSNLPPESS	ISLIEL-PFNS	SDHGLP-HDGENFDSL PYS
GbUGT92K1	61	LRLQAENLD	IRLAEL-PFDG	TSHGLP-PNTESTESLPHS
GmUGT92G4	54	ALSSSTSPNHQ	IHLAELVPFNS	TQHSNK-DN-NTQKAPLT
PoUGT90A7	55	IAQFLHRHSNS	VSIIDL-PFPR	DVEGIP-QGIESTDKLPSMS
AtUGT90A1	58	FLSDTPE	IKVISL-PFPE	NITGIP-PGVENTEKLPSMS
AcUGT73J1	50	IPLSKSKY	ISVVTI-PFPP	PSLTNLP-PDHENLATIRSS
MtUGT73P1	59	SIDHDSRRGRS	IRTHIV-KFPQ	VPGLP-QGMESFNADTPKD
SrUGT73E1	59	SRAIATN	LKIQLL-ELQLRSTEAG	GLP-EGCESFDQLPSFE
CpPGT4	55	ARAIKSGLQ	IRLIEI-QFPW	QEAGIP-EGCENC DLLPTT
AtUGT73C1	56	SRAIQSGLP	INLVQV-KFPP	QESGSP-EGQENLDDLDSL
CpPGT2	55	SRAIESGLQ	IKIVQF-QLPC	EEAGLP-EGCENLDMVASLG
PjGAT	59	TIHRARDSGLK	IQLIQI-PFPC	QEVGLP-EGCENLDSVPSRD
CtiUGT73AE1	57	QPHIDSGLP	VRFLEL-PFPA	AEAGLP-AGIESADSLPGLH
CaUGT73AH1	55	SRAIQSGLP	IRLLEL-RFPT	LEAGLP-EGCENVDQLSSFD
PzGAT2	55	GRAIESGLP	IRLLEL-RFPA	LEAGLP-EGCESVDDLPSLA
AcUGT73G1	57	ANELSTFLHP	IQISLI-PFPP	VSGLP-ENCENMATVPPH
MtUGT73K1	53	TIEEKAAGHH	IRVHII-KFPP	AQLGLP-TGVENLFAASDNQ
GeUGT73F1	57	SIPFNDYHQ	LCLHTV-PFPP	QEVGLP-DGVESLSSVTDLD
AtUGT73B1	60	FNQDNPGLED	ITIQLI-NFPC	TEGLP-DGCENTDFIFSTPDL
GuUGAT	52	ISRTIGKAN	INIRTI-KFPP	TEDSGLP-EGCENTESALAPD
NmUGT73BD1	51	IEKTNHSGNQ	INISII-KFPC	KEVGLP-EGSESLDTLKQPD
NmUGT73BD1	1			MTAQFHVVFFP-LM-AQGHLP

NtTOGT1	47	SKAIQRNKHLGIE	TEIRLI	-KFFA	-VEN	GLP	-EECERLDQIP	PSDE	--			
BvUGT73A4	55	EKGNKSGAPT	INVEVF	-NFQA	-QSF	GLP	-EGCENLEQAL	GP	GP			
Db5-GT	59	TRKNTETQ	MEIEVF	-SFPS	-EEA	GLP	-LGCENLEQAMA	IG	--			
AtUGT86A1	62	IFSAARSSGQ	HDIRYT	-TVSD	---	GFP	-LDFDRSLNHD	QF	---			
ZmUFGT1	63	SASAGHGLP	GNLRFV	-EVPD	---	GAPAAEESV	PVPRQMQLF	--	--			
CteUGT78K6	49	--LFTKRHIP	NNIRVF	-TISD	---	GIP	-EGHVPANNPIEK	---	---			
AtUGT78D1	56	--LFSSDHPE	IKVHDV	---	SD	---	GVP	-EGTMLGNPLEM	---			
CoUGT78B3	54	--VSGSTGGA	ENIKFY	-DVHH	---	GVP	-ENHSFSGNPLEE	---	---			
MtUGT78G1	59	FRSVNEFLPN	TKYYNV	---	HD	---	GLP	-KGYVSSGNPREP	---			
LgUGT78J1	52	--TC---AN	IRIHEV	---	WD	---	GTP	-RDQVFTGSF	FEA			
CpPGT11	46	VLESLEGKNYIG	EQIHLV	-SIPD	---	GIEPWDDR	RSDMRKL	---	---			
AtUGT83A1	54	IISLPLNSPH	EDYVVG	---	---	GLE	-DSPEERNIP	PKL	---			
FaUGT75T1	49	----IKSLPS	---	---	---	GFD	-DGVHPAND	PEHI	---			
AtUGT75C1	54	---MGEP	PS	---	---	GFD	-DGLKSFED	QKIY	---			
AtUGT75B1	47	--SMIANHNKV	---	---	---	GFD	-DGGISTYED	RQKR	---			
AtUGT75D1	56	RMFSTENVP	---	---	---	GHD	-DGFKSSAYS	DKSRQD	---			
ZmUGT74A1	45	--ADVDAHPA	---	---	MVEAISD	---	GHD	-EGGFASAAG	VAEY			
AsUGT74H5	56	----CQDPCP	---	---	GAVHLV	-EISD	---	GFD	-SAGFEEVGD	VAAAY		
BdUGT74J7	62	----VPPPA	---	---	GPFRVA	-AISD	---	GFDAGGMAAC	STFGDY	---		
SrUGT74G1	53	--TLNHSNTT	---	---	TTSIEIQ	AISD	---	GCD	-EGGFMSAGESY	---		
AtUGT74B1	52	----ITTPS	---	---	LSVE	---	PISD	---	GDFFIPIGIP	PGFSVDTY		
RsUGT74R1	47	ARSISSHIGS	---	---	INVQ	---	PISD	---	GAD	-QQGQQFTAETY	---	
LuUGT74S1	51	--MTVTAQSG	---	---	IHIDTI	---	SD	---	GFD	-HSGLILQD	PEHY	
AtUGT74F1	48	-----	IHLDPSS	PISIA	TISD	G	YD	-QGGFSSAGS	VPEY	---		
SgUGT74AC1	48	LQLQGAYSNS	---	---	VKIEVI	-SDGS	---	---	EDRLET	DTMRQT	---	
AtUGT74C1	49	--PYTSDDYS	---	---	ITVHTI	---	HD	---	GFF	-PHEHPHAK	FVD	
AtUGT74D1	51	RRAITGGATA	---	---	LPLSFV	-PIDD	---	GFE	-EDHPSTDT	SPDY	---	
AtUGT74E2	47	--PYKTEH	---	---	DSITVF	-PISN	---	Gfq	-EGEPLQD	LDDY	---	
AtUGT84B1	53	LSTVEKPRYP	---	---	VDLVFF	---	SD	---	GLP	-KEDPKAPETL	---	
DgphBAGT	53	HKSTGHVQPID	IGG	---	GRLRFE	-SFTD	---	GWE	-DHDDPRR	SDLN	VY	
MtUGT84F1	56	ATPIGDGS	---	---	LMFQFF	---	D	---	---	DGLPDYAH	PLDH	
GtUF6CGT1	55	ANNLNDDQPI	KVGS	GM	---	IRFEFF	---	DD	---	GWESVNGS	KPF	DVWVY
PgUGT84A23	52	KASNISDQ	PAPV	GDGF	---	IRFEFF	---	ED	---	GWD	-EDEPRRQD	LDOY
PgUGT84A24	51	KASNIGEEP	SPIG	GDGF	---	IRFEFF	---	ED	---	GWD	-EDEPRRQD	LDOY
AtUGT76E1	47	--RVSSSKDF	---	---	SDFHFL	-TIPG	---	SLT	-ESDLKNL	GP	PKF	
AtUGT76D1	46	FKDISHNFP	PG	---	IKFFTI	---	KD	---	GLS	-ESDVKSL	GLLEF	---
SrUGT76G1	55	----TSNYPH	---	---	FTFRFI	-LDND	---	---	---	PQDERIS	NLPTH	GPL
VvGT15	85	----PSNHPD	---	---	FSFL	-PIPD	---	GL	---	SDGQNFAS	LLNL	---
AtUGT76C1	49	----SSDHP	L	---	FTFL	-QIRD	---	GLS	-ESQTQSRD	LL	LQ	---
AtUGT76B1	50	----SSNFP	H	---	FSFV	-SIPD	---	GL	---	SEPE	SPDVIEI	---
CsUGT76F1	49	----PSSH	PH	---	LTFHFI	QENLS	---	---	---	ASEAST	DDLVAF	---
OsUGT709A4	53	AAATTAGSP	---	---	RRLRFL	-SVPD	---	GLP	-DDHPRSAS	DVP	PVM	---
SrUGT85C2	58	GPHCLDGAP	---	---	FRFETI	---	PD	---	GVS	-HSPEASIP	IRESL	---
CoUGT85N1	56	ALDHLKGL	---	---	NNFRFE	-TIPD	---	GLP	-PENKRGV	SDV	PEL	---
MeUGT85K4	57	GQEFIDGLP	---	---	FKFEAI	---	PD	---	GLPY	-TDRDATQ	HVPSL	---
AtUGT85A1	59	GSNALDGLPS	---	---	FRFESI	---	AD	---	GLP	-ETDMDAT	QDITAL	---
MtUGT85H2	54	SRGPKAFDGF	---	---	TDFNFE	-SIPD	---	GLTPMEGD	GDV	SQDV	PTL	---
MdUGT71K1	51	SYTKSIAASEPR	---	---	IRFIDV	-PQPQ	---	DRPP	-QEMYKSRA	QI	---	---
AtUGT89A2	60	LSPLLSAHP	SS	---	VTSVVF	-PFPP	---	HPSLS	-PGVENVK	DV	GN	---
AtUGT89C1	53	ALRSLHSP	EPH	---	FKTLIL	-PFPS	---	HPCIP	-SGVESLQ	QLPLE	---	---
AtUGT89B1	58	LSPLLSAV	VN	---	TEPLIL	-PFPS	---	HPSIP	-SGVENQD	LPPS	---	---
NmUGT89P1	54	QLIELDRLGS	---	---	LHTLVL	-PFPP	---	---	---	PPNP	SETS	---
AtUGT92A1	58	IRSNLPP	ESS	---	ISLIEL	-PFNS	---	SDHGLP	-HDGENF	D	SLPYS	---
GbUGT92K1	61	LRLQAENLD	---	---	IRLAEL	-PFDG	---	TSHGLP	-PNTTESTE	SLPHS	---	---
GmUGT92G4	54	ALSSSTSP	NHQ	---	IHLAEL	VPFNS	---	TQHSNK	-DN	-NTQ	KAPLT	---
PoUGT90A7	55	IAQFLHRHSNS	---	---	VSIIDL	-PFPR	---	DVEGIP	-QGIESTD	KLPSMS	---	---
AtUGT90A1	58	FLSDTPE	---	---	IKVISL	-PFPE	---	NITGIP	-PGVENTE	KLPSMS	---	---
AcUGT73J1	50	IPLSKSKY	---	---	ISVVTI	-PFPS	---	PSLTNLP	-PDHENLAT	IRSS	---	---
MtUGT73P1	59	SIDHDSSRGRS	---	---	IRTHIV	-KFPQ	---	VPGLP	-QGMESFN	ADTP	PKD	---
SrUGT73E1	59	SRAIATN	---	---	LKIQLL	-ELQLR	STEAGLP	---	EGCESFD	QLPS	F	---
CpPGT4	55	ARAIKSG	LQ	---	IRLIEI	-QFPW	---	QEAGIP	-EGCENCD	LLPT	---	---
AtUGT73C1	56	SRAIQSGLP	---	---	INLVQV	-KFPS	---	QESGSP	-EGCENLD	LLD	SLG	---
CpPGT2	55	SRAIESGLQ	---	---	IKIVQF	-QLPC	---	EEAGLP	-EGCENLDM	VASL	LG	---
PjGAT	59	TIHRARDSGLK	---	---	IQLIQI	-PFPC	---	QEVGLP	-PGCENLDS	VPSRD	---	---
CtiUGT73AE1	57	QPHIDSGLP	---	---	VRFLEL	-PFPA	---	AEAGLP	-AGIESAD	SLP	GLH	---
CaUGT73AH1	55	SRAIQSGLP	---	---	IRLLEL	-RFPT	---	LEAGLP	-EGCENVD	QLSS	FD	---
PzGAT2	55	GRAIESGLP	---	---	IRLLEV	-RFPA	---	LEAGLP	-EGCESVDD	LPSLA	---	---
AcUGT73G1	57	ANELSTFLHP	---	---	IQISLI	-PFPS	---	VSGLP	-ENCENMA	TAPP	PH	---
MtUGT73K1	53	TIEEKAAGHH	---	---	IRVHII	-KFPS	---	AQLGLP	-TGVENLFA	ASDN	Q	---
GeUGT73F1	57	SIPFNDYHQ	---	---	LCLHTV	-PFPS	---	QEVGLP	-DGVESL	SSVTD	L	---
AtUGT73B1	60	FNQDNPGLED	---	---	ITIQIL	-NFPC	---	TEGLP	-DGCENTD	FIFST	PD	---
GuUGAT	52	ISRTIGKAN	---	---	INIRTI	-KFPS	---	TEDSGLP	-EGCENTE	SALAP	---	---
NmUGT73BD1	51	IEKTNHSGNQ	---	---	INISII	-KFPC	---	KEVGLP	-EGSESLD	TLKQ	PD	---
NmUGT73BD1	1	-----	-----	-----	-----	-----	-----	MTAQFHVVFFP	-LM	-AQGH	LIP	---

AtUGT81A1	121	GTGGV	LGEEGLPLNGVEADRPKKVLILMSDTGGGHRASAEAIRAAAFNOEFGDEYQVFITD
AtUGT80A2	118	----	ILAEDAAKIFDDKISAGKKLKLNLNRIATVKHDGTVEFEVFPADAI----PQPIVVD
AtUGT80B1	100	----	KQKL-----IVELVRIQNDGTVEVIDNGTVPVSELWEFEPTKG----QSTITYE
OsZOGT3	101	----	WEAY-----TADARAPLSALLDEL-----SASHR-----RVVVVCD
OsZOGT1	96	----	LESF-----AVAARVPLAALLERL-----SASYSR-----RVVVVVD
ZmcisZOG1	97	----	FEAF-----AAAARAPLAALLQRL-----STSYR-----RVAVVVD
GmUGT79A6	85	----	LAGN-----LIHALDLTQDQVKS-----LLELK-----PHYVFFD
AtUGT79B6	84	----	LGSF-----LASAMDRTRIQVKEA-----VSVGK-----PDLIFFD
GmUGT91H9	86	----	KSYF-----LKLAYEALQGPVSEL-----LKTSK-----PDWFVVD
ZmUGT91L1	89	----	TAEL-----HVQAMDR LAPAFSAFLGAACAD-----GSDRK-----VDWVLLD
PoUGT95A1	102	RSSGP	PRGNP-----LQDQNLQMGKGIKSFSA-----RSGTR-----PTCVVID
MtUGT95B4	73	----	-----HDELTKGLQNIIFSNY-----PRPTR-----PVCAIVD
PgUGT95B2	80	----	LMAQ-----HRNHHSQMAQRLESVLSARASA-----PNSIP-----IACAVID
VvUGT95B6	79	----	PMSH-----HHPHHQMGTAIESLLSS-----RSTSPDYVPPLCAIID
AtUGT82A1	77	----	FFSI-----ENSMENIMPPQLERLL-----EEDLD-----VACVVVD
VpUGT94F1	92	----	QFPL-----LIKDFENSKSFFSI-----FDTLK-----PDMLIYD
AtUGT87A1	72	----	-----IDAVLTRLEEPFEQLLD-----RLNSP-----PTAIIAD
AtUGT72C1	84	----	LAEM-----MRKALPEIKSSVMEL-----EPR-----PRVFFVD
AtUGT72D1	82	----	IFTK-----MVVKMRAMKPAVRDAVK-----LMKRK-----PTVMIVD
LjUGT72AD1	88	----	IQAT-----IIRSLPSIYNVNLTLHCS-----SNSRG-----LASIVVD
AtUGT72B1	86	----	ISLT-----VTRSNPELRKVFDSFV-----EGGRL-----PTALVVD
VvUGT1	85	----	ISLS-----MTRSVPALRDSLRTL-----ESTR-----LVALVVD
LjUGT72AH1	85	----	LQIA-----ISDAMPSVREALRSL-----ASSSK-----VVALVVD
LjUGT72Z2	85	----	IQLA-----VSQSMPSFRDTMRS LH-----STTPH-----LTALIID
GmUGT72X4	85	----	IQLT-----ITLSLPSIHEALKSL-----CSKAP-----LTALVVD
MtUGT72L1	92	----	IQLT-----VTNSLPYLHEALKSL-----ALRIP-----LVALVVD
PgUGT72BD1	89	----	LVLI-----VROSLPDLRSAIASM-----KSR-----PTALIVD
AtUGT72E1	79	----	LLVM-----MRETIPTIRSKIEM-----QHK-----PTALIVD
OsUGT706C1	86	----	IVDA-----LRLANPVLRELLRSF-----PAA-----VDALVVD
OsUGT706D1	87	----	MLDV-----LRRSVPSLASLLRSI-----PS-----VAALVLD
MtUGT88E1	88	----	TLEL-----SPRSNHVHHLQSI-----AKTSN-----LKAVMLD
VpUGT88D8	76	----	LFEV-----PRLNNPNVKQYLEQI-----SQKTN-----VKAFIID
NmUGT88P1	89	----	IPQL-----NNPNLKLALQTIS-----KESD-----LKAFIID
AtUGT88A1	89	----	LLEI-----LCFSNPSVHRTLFSL-----SRNFN-----VRAMIID
VvGT7	86	----	AFEL-----LRLNNPNIHQALVSI-----SNNSS-----VRALIVD
MdUGT88F1	88	----	TFDF-----IRQNDPHVRSALQEI-----SKSAT-----VRAFIID
ScUGT5	85	----	LFEF-----IRLNATSVLHTLQKI-----LQTSK-----VRALIID
OsUGT707A2	106	----	ISRF-----MQQHASHAREAIAGL-----ESR-----VAAVVLD
AtUGT71B1	74	----	LVSY-----IDSQKQVRAVSVKVGADVST-----RSDSR-----LAGIVVD
MdUGT71A15	84	----	FRMF-----VENHKSHVRDAVINVLPESDQSES-----TSKPR-----LAGFVLD
BvUGT71F1	97	----	MRIL-----IELHEPLVKQAVEERIR-----AGSSK-----LAGFVLD
Db6-GT	87	----	FTTV-----IELHKPNVKQVVEERV-----SGSPK-----PAGFVID
AtUGT71C1	95	----	ILEY-----VKKMVP IREALSTLLSSRDE-----SGSVR-----VAGLVLD
AtUGT71C4	90	----	IVKL-----IKKNTPLIKDAVSSIVASRRGG-----SDSVQ-----VAGLVLD
AtUGT71D1	87	----	YVDV-----IERNIPLVRNIVMDILTSLA-----LDGVK-----VAGLVVD
FaUGT71W2	82	----	LSDY-----IETYKHHVKDTILNQVL-----PNSSR-----IAGVVID
MtUGT71G1	92	----	ILTF-----LESLIPHVKATIKTILSNK-----VGLVLD
MdUGT71K1	87	----	FSLY-----IESHVPSVKKIITNLVSSSANS-----SDSIR-----VAALVVD
AtUGT89A2	98	----	GNLP-----IMASLRQLREPIINWFQ-----SHPNP-----PIALISD
AtUGT89C1	90	----	AIVH-----MFDALSRLHDPLVDF-----LSRQPPSDLPDAILGS
AtUGT89B1	95	----	GFPL-----MIHALGNLHAPLISWIT-----SHTSP-----PVAIVSD
NmUGT89P1	82	----	LAAR-----VHASSQ-LSNTIIQWFQ-----SHTSP-----PVAIVSD
AtUGT92A1	96	----	LVIS-----LLEASRSLREPFRDFMTKILK-----EEGQS-----SVIVIGD
GbUGT92K1	98	----	LFLP-----LLQASQQLQEPFQQLVQDIVR-----KEGRL-----PACIISD
GmUGT92G4	92	----	DLLK-----LGYASLTLEPPFRSLISQITE-----EDGHP-----PLCIISD
PoUGT90A7	95	----	FFPK-----FATATKLMQPDFEQAL-----EKIPD-----VTCIVSD
AtUGT90A1	94	----	LFVP-----FTRATKLLQPFEEETL-----KTLPK-----VSCFMVSD
AcUGT73J1	87	----	MFDL-----FVSALSFLQPPQLNL-----IHDLK-----PDCLISD
MtUGT73P1	98	----	IISK-----IYQGLAILQEQFTQL-----FRDMK-----PDFIVTD
SrUGT73E1	97	----	YWKN-----ISTAIDL LQQPAEDLLR-----ELSP-----PDCIISD
CpPGT4	92	----	DFAR-----FMKSLHMLQPPFENLFK-----EKTLK-----PCCIISD
AtUGT73C1	94	----	ASLT-----FFKAASLLEEPVEKLLK-----EIQPR-----PNCIISD
CpPGT2	93	----	LAFD-----FFTAADMLQEPVENVFA-----QLKPR-----PNCIISD
PjGAT	99	----	LIGN-----FFSALNKLQPPLEQHLQ-----ELMPP-----PSCIISD
CtiUGT73AE1	95	----	LLQN-----FSLAVDMLQQRLEQRFE-----SLEPR-----PSCIISD
CaUGT73AH1	93	----	FSKN-----FIDASKMQQGLEKIFG-----DIKPS-----PSCIISD
PzGAT2	93	----	MSIN-----FFAATKMLQEPVEKMLK-----DIKPS-----PSCIISD
AcUGT73G1	94	----	LKSL-----FFDAVAMLQPPFAF-----LKETN-----PDCVVAS
MtUGT73K1	93	----	TAGK-----IHMAAHFVKADIEEF-----MKENP-----PDCFIVSD
GeUGT73F1	95	----	NLAK-----VFQATTLRRTPIEHF-----VEENP-----PDCIVAD
AtUGT73B1	101	NVGD-	LSQK-----FLLAMKYFEEPLEEL-----LVTMR-----PDCLVGN
GuUGAT	91	----	KFIK-----FMKATLLLRDPLEHV-----LQEEQ-----PHCLVAD
NmUGT73BD1	90	----	MFMK-----FFRGLSL LQEPFEQI-----LQELS-----PDCLVAD
NmUGT73BD1	1	----	-----MTAQFHVVVFFP-LM-AQGHILP





AtUGT81A1 181 L---WTD-HTPWPFNQLPRSYNFLVKHGTLWKMTYYGTSPRIVHQSNFAATSTFI----  
 AtUGT80A2 169 RGESKNGV-CADESIDGVDL-QYIPPMQIVMLIVGTRGDVQPFVAIAKRLQDYGHRVRLA  
 AtUGT80B1 144 KSLT----EFSRSIPRLKIALIVVGTGCDVQVFLA--MAKRLQAEFGHRVRLATHANFRS  
 OsZOGT3 132 TINS-FAV-EFAARL---PNGEAFVGVSCVAVSALAL--HIDTGRH-----  
 OsZOGT1 127 RLNS-FAA-AQAARL---PNGEAF---GLQCVAMSY--NIGWLDPEHR-----  
 ZmcisZOG1 128 RLNP-FAA-TEAARL-----ANADAFGLQCVAISY--NVGWLDPGHRLSDYG-----  
 GmUGT79A6 116 FAQH-WLP-KLASEV-GIKS--VHFSVYSAISDAYI--TVPSRFADVEGRNITFEDLKKP  
 AtUGT79B6 115 FAH-WIP-EIAREY-GVKS-VNFITISAACVAISF---VPGRSQDDLST-----  
 GmUGT91H9 117 FATE-WLP-PIAKSL-NIPC-AHYNLTAAWNKFVID--PPKDYQLNNSITLQDMCLP--  
 ZmUGT91L1 127 NEHA-SMA-DVASEH-KVPC-ILNMPYSAATTE-----  
 PoUGT95A1 141 VMMS-WSK-EIFVDH-EIPV-VSFTSGATASAVGY--GMWKAIEVGNMKPGEIRE----  
 MtUGT95B4 100 VMMS-WSN-NVFKKF-EIPT-VAFFTSGACSAAMEL--AAWKAQPLDLKYGEICF-----  
 PgUGT95B2 118 VMMS-WTA-EIFQKF-RIPL-VGFFTSGACSAAMEF--AQWKAGVDGLK-PGETRLLPGL  
 VvUGT95B6 117 VMMS-WSK-DIFHKF-NIPV-VSFFTSGACSAAMEY--ASWKAGAFNIKPSQGEVLP----  
 AtUGT82A1 110 LLAS-WAI-KHADRC-GVPV-AGFWPVMFAAYRLIQ--AIPELVRTGLVSKQKGCPRQLEK  
 VpUGT94F1 123 VFNP-WAA-GHALSH-GSPS-VWFMASGATICSFHYHQHLHKTGSLVPYEGVDFGEIK--  
 AtUGT87A1 101 TYII-WAV-RVGTKR-NIPV-ASFWTTSATILSLFINSDLLASHGHFPIEPSESKLDEI-  
 AtUGT72C1 113 LLGT-EAL-EVAKEL-GIMRKHVLVTTSAWFLAFTV--YMASLDKQELYKQLSSIG----  
 AtUGT72D1 115 FLGT-ELM-SVADDV-GMTAKYVYVPTHAWFLAVMV--YLPVLDTVVEGEYVDIKE----  
 LjUGT72AD1 122 GLIT-QVL-PMANEL-NVLS-YAYFPSTAMLLSLCL--YPSTFDKTFPCE-----  
 AtUGT72B1 118 LFGT-DAF-DVAVEF-HVPP-YIFYPPTANVLELLE-----  
 VvUGT1 116 LFGT-DAF-DVANEF-GIPP-YIFFPTTAMVLSLIF--HVPELDQKFSCEYRDLPE----  
 LjUGT72AH1 116 AFAH-EAM-EFGKEL-NMLS-YIYFPCSIMMLSLGL--HSSKLDET---VSCYERDHPQ  
 LjUGT72Z2 117 PFAN-EAL-EIGKEF-NLLS-YIYFPPSAMTSLSLFL--HLPKLHEEVSCYERDLTE----  
 GmUGT72X4 116 VFAF-QAL-EYAKEF-NALS-YFYFPPSAMILSLLM--HAPKLDEEVSGEYKDLTE----  
 MtUGT72L1 123 AFAV-EAL-NFAKEF-NMLS-YIYFCAAASLAWSF--YLPKLDEEETTCYERDLPE----  
 PgUGT72BD1 118 LFGT-EAF-AIADEF-HMLK-YEFFTTNAWFLALTL--YAPHVDEETHCEDDHLRHM----  
 AtUGT72E1 108 LFGT-DAI-PLGGEF-NMLT-YIFIASNARFLAVAL--FFPTLDKDMEEHIIKKQ----  
 OsUGT706C1 115 MFCI-DAL-DVAAEL-AVPA-YMFYPSAASDLAIYL--QVPHVARSAPSSFKDMADT---  
 OsUGT706D1 115 IFCA-EAV-DAAAAL-HVPA-YIYFTSAAGAFASL--GLMHYSTTTTTLNRDMGKA---  
 MtUGT88E1 119 FLNY-SAS-QVTNNL-EIPT-YFYYSAGASLLCLFL--NFPTFHKNATIPIKDYNMHT--  
 VpUGT88D8 107 FFCN-SAF-EVSTSL-NIPT-YFYVSSGGFGLCAFL--HFPTTDEIIPQDIDGLND----  
 NmUGT88P1 118 FFCT-AAV-EVSSNL-EIPT-YFFYFSSGSSAMCQFL--YLP TLHETITQKDLQDPNT---  
 AtUGT88A1 120 FFCT-AVL-DITADF-TFPV-YFFYTSGAACLAFSF--YLP TLIDETITPGKNLKDIP----  
 VvGT7 117 CFCT-AAL-SVAAQL-NIPF-YFFYFSSGACCLASFL--YLPFIHQQTTSFKDLNT---  
 MdUGT88F1 119 LFCCT-SAL-PIGKEF-NIPT-YFFCTSGAAILAAFL--YLPKIDEQTKTTESFKDLRDT-  
 ScUGT5 116 FFCT-SAF-PISESL-GIPV-YFFYFSSGLAAVAAYL--YFP TIDKQVDQSFKDLVDT---  
 OsUGT707A2 135 WFCT-TLL-DVTRDL-GLPG-YVFFYTSAAASLSSLL--RLPALDKEVAVDFEEMGG----  
 AtUGT71B1 111 MFCT-SMI-DIADEF-NLSA-YIFYTASNAYLGLQF--HVQSLYDEKELDVSEFKDTEM--  
 MdUGT71A15 124 MESA-SLI-DVANEF-KVPS-YLFFYTSNASALALMS--HFQSLRDEGGIDITELTSSSTA-  
 BvUGT71F1 130 MFCT-NMI-DIATNL-NVPA-YIFFYTSGANMLSLMF--HFQSMNDEGVFDLTKDHISPNA  
 Db6-GT 120 MLCF-AMM-DVAEEL-EVPS-YILFTSGANLLNVVF--HFLSLADNGV--DIATEVNDPD  
 AtUGT71C1 132 FFCV-PMI-DVGNEF-NLPS-YIFLTCAGFLGMMK--YLP ERHREIKSEFNRSFNEE--  
 AtUGT71C4 128 LFCN-SLVKDVGNEL-NLPS-YIYLTTCNARYLGMK--YIPDRHRKIASFVLDLSSGDE--  
 AtUGT71D1 123 FFCV-PMI-DVAKDI-SLPF-YVFLTTNSGFLAMMQ--YLADRHSDRTSVFVNSSE--  
 FaUGT71W2 115 MFCT-TMI-DIANEL-KVPS-FLFFYTSGA AFLGLLL--CLPERYDVGKEFVHSDP----  
 MtUGT71G1 122 FFCV-SMI-DVGNEF-GIPS-YLFLTSNVGFLSLML--SLKNRQIEEVFDDSDRDHQ--  
 MdUGT71K1 125 LFCV-SMI-DVAKEL-NIPS-YLFLTSNAGYLAFML--HLPILHE----KNQIAVEESD  
 AtUGT89A2 131 FFLG-WTH-DLCNQI-GIPR-FAFFSISFFLVSVLQ--FCFENIDLIKSTDPH-----  
 AtUGT89C1 125 SFLSPWIN-KVADAF-SIKS-ISFLPINAHSISVMW-----  
 AtUGT89B1 128 FFLG-WTK-----NL-GIPR-FDFSPSAAITCCILN--TLWIEMPTKINEDDDNEILH--  
 NmUGT89P1 114 FFLG-WTN-SLASQL-GIPR-LVFWPSPQVQRSSLVD--YIWQNDQLSDSDHQIQDNSVIS  
 AtUGT92A1 133 FFLG-WIG-KVCKEV-GVYS-VIFSASGAFGLGCRY--SIWLNLPHKETKQDQFL----  
 GbUGT92K1 135 IFLG-WTL-DVANRL-GIPR-IMFCTCGAYSTSIYY--SLWAHLPHRQTDSDTFC----  
 GmUGT92G4 129 MFLG-WVN-NVAKSL-GTRN-LTFTTCGAYGILAYI--SIWSNLPHRKTDSDDEFH----  
 PoUGT90A7 127 GFLS-WTL-ASANKF-RIPR-LAFYGMNMYVGAUSR--DVALNRLLSGPESSDELST--  
 AtUGT90A1 126 GFLW-WTS-ESA AKF-NIPR-FVSYGMNSYSAVSI--SVFKHLLF--TEPEKSDTE  
 AcUGT73J1 118 SLFP-WTA-DIALQF-KIPR-IIFHGAGVFPMPYVSA--NIFSHFPLDESKEEFF-----  
 MtUGT73P1 129 MFYP-WSV-DVADEL-GIPR-LICIGGSYFAHSAMN--SIEQFEPHAKVKSNSVSFL--  
 SrUGT73E1 130 FLFP-WTT-DVARRL-NIPR-LVFNNGPGCFYLLCIH--VAITSNILGENEPVSSNTE---  
 CpPGT4 125 MCFP-WTV-DTAAKF-NVPR-IIFHGFSCFCLFCHH--LLGVSKVHENVTSDE-----  
 AtUGT73C1 127 MCLP-YTN-RIAKNL-GIPK-IIFHGMCCFNLLCTH--IMHQNHFELETIESDKEYFP--  
 CpPGT2 126 MCLP-YTA-HIAGKF-NIPR-ITLHGTCFCFLVCYN--NLFTSKVFEVSSESEYLV--  
 PjGAT 132 KYLS-WTT-KTAEKI-HVPR-LVFHGMCCFSLSSH--NIRLYNAHLSVTSDSQPFV--  
 CtiUGT73AE1 128 RYML-WTA-DTAVKH-GLPR-IIFDGMNCFKQLCTH--NMYSNVLDG-----LSDSD  
 CaUGT73AH1 126 KHIM-WTA-KTAKKF-QIPW-IVFDGMSCFNQLCTE--ILHTTKVHENVSESEPFV---  
 PzGAT2 126 KHVF-WTS-DTAKKL-QIPW-IMFDGMSCFTQLCTE--NIYNSKVHESVSSSESFV---  
 AcUGT73G1 125 LFLA-WIH-NVAKEL-NIPS-LDFHGSNFSSKCMSh--TVEHNNLLDNSTAETVL----  
 MtUGT73K1 124 IIFT-WSE-STAKNL-QIPR-LVFNPISIFDVCMIQ--AIQSHNPESVSDSGPYQ----  
 GeUGT73F1 126 FIYQ-WVD-ELANKL-NIPR-LAFHNGFSLFAICAIESVKAHSLYASG-----  
 AtUGT73B1 136 MFFP-WST-KVAEKF-GVPR-LVFHGTGYFSLCASHCIRLPKNVATSSSEPFV----  
 GuUGAT 122 MFFP-WAT-DSA AKF-GIPR-IVFHGLGYFPLCVLA--CTRQYKPKQDKVSSYTEPFV--  
 NmUGT73BD1 121 MFFP-WTT-NVA AKY-NIPR-FV FHGFCLFALCVSE--NIRSYKPKFDVESDSEPIV--  
 NmUGT73BD1 1 -----MTAQFHVVFFP-LM-AQGHILIP

NtTOGT1 120 MFLP-WTT-DTAAKF-NIPR-IVFHGTSFFALCVEN--SVRLNKPFPKNVSSDSETFV---  
 BvUGT73A4 125 MFFP-WAT-DSAAKF-NIPR-LVFGHGFALCALCALE--IIRLHYPYNNASSDEEPLF---  
 Db5-GT 127 MFFT-WAA-DSTAKF-NIPT-LVFGHGFSAQAQCAKE--VMWRHEKPYKAVSSDTEVFS---  
 AtUGT86A1 130 TFYV-WSS-MICDKH-NLVN-VSFWTEPALVLNLYY--HMDLLISNGHFKSLDNRKDV--  
 ZmUGFT1 131 AFV--WPAADAASA-GAPW-VPVWTAASCALLAHI--RTDALREDVGDQAANRVDEP--  
 CteUGT78K6 115 AFVT-SSL-LVAQTL-NVPW-IAFWPWNVCSLSLYF--NIDLIRDKCKSKDAKNAT-----  
 AtUGT78D1 120 AFF--WFAADIAAEL-NATW-VAFWAGGANSLCAHL--YTDLIRETIGLKDVSMEEET---  
 CoUGT78B3 120 SFM--WMGVDAQTL-QVPC-VSVWAPGASSLCAHL--YTDILRQNTIGVGANAKYDEY--  
 MtUGT78G1 125 AFF--WFGADLAQEM-HAKW-VPLWTAGHPSLLTHV--YTDLIREKQTSKEVHVDVKS---  
 LgUGT78J1 112 AFL--WFSCDLAEKR-GVPW-VALWTSASCSLSAHM--YTHEILQALES-GVAERDEHDK  
 CpPGT11 115 GAAG-WAI-EVAEKM-KLRR-AVVVITSAATVALTF--SIPKLIEDGVINSNGTPIKEQM  
 AtUGT83A1 129 QSLG-WAI-EVAAKF-GIRR-TAFCPAAAASMVLGf--SIQKLIDDGLIDSdGTvrVnkt  
 FaUGT75T1 115 VLLP-WAA-EVASSF-GIASAFLCITSATSFAICGH--YFKDYKYSQSSSLPFPs-----  
 AtUGT75C1 121 VLVP-WVS-TVAREF-HLPT-TLLWIEPATVLDIYY--YYFNTSYKHLFDVE-----  
 AtUGT75B1 114 ILLN-WAP-KVAREF-QLPS-ALLWIQPALVFNIIY--THFMGNKS-----  
 AtUGT75D1 130 ILLT-WVA-ELAREF-HLPS-ALLWVQPVTVFSIFY--HYFNGYEDAISEMANTPSS---  
 ZmUGT74A1 108 SYED-WVL-PVARRM-GLPA-VPFSTQSCAVSAVYY--HFSQGR LAVPPGAAAADGSDGGA  
 AsUGT74H5 120 AFLQPWVP-RVARLH-GAAC-VSFFTQAAAVNVAYS-----RRVGKI-----  
 BdUGT74J7 126 PHLP-WAA-RVARAA-GVRT-AAFFSQPCAVDLIYG--EVWSGRVGLPIKDGSA-----  
 SrUGT74G1 118 SMTE-WVL-DVAIEF-GIDG-GSFFTQACVNSLYY--HVHKGLISLPLGE-----  
 AtUGT74B1 114 SFLP-WGL-EVARSM-ELSA-ASFFTNNLTVCSVLR--KFSNGDFSLPADNSAPFR---  
 RsUGT74R1 113 SFFP-WAL-DVAHSN-GLAA-APFFTQTCSSVSYF--LFKEGRLSDEMEL-----  
 LuUGT74S1 114 ASMP-WFL-DVAKRF-GIVG-AAFLTQSCAVNAIYY--HLREGTIKRPVVSdPAAG---  
 AtUGT74F1 112 SFMP-WAL-DLAMDF-GLAA-APFFTQSCAVNYINLYSYINNGSLTLP-----  
 SgUGT74AC1 112 STMP-WVL-EVAKEF-GLDR-APFYTQSCALNSINY--HVLHGQLKLPPEtP-----  
 AtUGT74C1 111 PFMP-FAL-DIAKDL-DLYV-VAYFTQPWLASLVYY--HINEGTYDVPVDRHENPT-----  
 AtUGT74D1 115 SCLP-YVL-DVCRKHGVA-ASFFTQSSSTVNATYI--HFLRGFEKFEFQN-----  
 AtUGT74E2 110 STMP-WLL-DVAHSY-GLSG-AVFFTQPWLVTAIYY--HVFKGSFSVSTKYGHST---  
 AtUGT84B1 111 PFTP-WVP-AVAASH-NISC-AILWIQACGAYSVYYRYMKTNSFPDLEDLNQTVe---  
 DgPHBAGT 125 PFIP-WVS-DVAEEL-GIPC-ALLWVQSCFVYSVYY--HYFHNLASFPtVDQPNK-----  
 MtUGT84F1 115 PFFP-WVS-DIAFEH-NIPS-ALLWNTSSAVFTICY---DYVHKLLPFPsNEEPYI---  
 GtUF6CGT1 127 PLVP-WVA-DVADSL-QIPC-ATLWVQSCASFSAYY--HYHHGLVFPFTESEPEI-----  
 PgUGT84A23 123 PFIP-WVS-DVAETL-GLPS-AMLWVQSCACFLAYY--HYHGLVFPFSENAMEI-----  
 PgUGT84A24 122 PFIP-WVS-DVAESL-GLPS-AMLWVQSCACFAAYY--HYHGLVFPFSESAMEI-----  
 AtUGT76E1 113 EYMY-FSQ-AAVKEF-QLPS-VLFTTTSATAFVCRS--VLSRVNAESFLLDMKDPKVS--  
 AtUGT76D1 108 EFVY-FPR-RVAEDM-NLPK-MVFSPPSAATSISRC--VLMENQSNGLLPPQDARSQL--  
 SrUGT76G1 125 ALWY-FAQ-SVADSL-NLRR-LVLMTSSLFNFHAHV--SLPQFDELGYLDPDDKTRLEEQ  
 VvGT15 145 ITMY-FAE-AVANHL-KVPS-INLVTSNVSTTIAHN--AFPSLLEKGHIPLQGSTL-----  
 AtUGT76C1 117 SGWV-FTQ-SVAESF-NLPR-FVLCAKYGFSFFLGHF--LVPQIRREGFLPVGDSE-----  
 AtUGT76B1 110 ALWY-FTH-DLTEKF-NFPR-IVLRTVNLSAFVAFS--KFHVLREKGYLSLQETKADSP-  
 CsUGT76F1 112 AMLP-FTQ-AVADSL-KLPR-IVLRTGGASSFVVF--AFPLLKERGFYPIQDSKGQEP-  
 OsUGT709A4 126 ALLT-FAI-DVAEEL-GVPA-LAFRTASASSLLAYM--SVPRLFELGELPFPFGDLDDEP  
 SrUGT85C2 121 GFLSVFTI-DAAKKL-GIPV-MMYWTLAACGFMGFY--HIHSLIEKGFAPLKDASYLTNG  
 CoUGT85N1 124 VAMD-FTL-QVSEEL-GPPV-VLFTTSLGCGVLGYM--HYGELLERGFYPLREESFLSNG  
 MeUGT85K4 125 GVMA-FAI-DAARHF-GILE-IOFWTTSCAGFMAYL--HHIELVRGIVPFKDESFLHDG  
 AtUGT85A1 127 GCMS-FTL-DVAEEL-GVPE-VLFWTTSGCAFLAYL--HFYLFIEKGLCPLKDESyltke  
 MtUGT85H2 126 CCMS-FTI-QAAEEF-ELPN-VLYFSSSACSLNVM--HFRSFVERGIIPFKDESyltng  
 MdUGT71K1 125 LFCV-SMI-DVAKEL-NIPS-YLFLTSNAGYLAFML--HLPIlHE-----KNQIAVEESD  
 AtUGT89A2 131 FFLG-WTH-DLCNQI-GIPR-FAFFSISFFLVSVLQ--FCFENIDLIKSTDPiH-----  
 AtUGT89C1 125 SFLSPWIN-KVADAF-SIKS-ISFLPINAHSISVMW-----  
 AtUGT89B1 128 FFLG-WTK-----NL-GIPR-FDFSPSAITCCILN--TLWIEMPTKINEDDDNEILH--  
 NmUGT89P1 114 FFLG-WTN-SLASQL-GIPR-LVFWPSPQVQRSSLVD--YIWQNDQLSDSDHQIQDNSVIS  
 AtUGT92A1 133 FFLG-WIG-KVCKEV-GVYS-VIFSASGAFGLGCRY--SIWLNLPHKETKQDQFL-----  
 GbUGT92K1 135 IFLG-WTL-DVANRL-GIPR-IMFCTCGAYSTSIYY--SLWAHLPHRQTDSDTFC-----  
 GmUGT92G4 129 MFLG-WVN-NVAKSL-GTRN-LTFTTCGAYGILAYI--SIWSNLPHRKTDSDEFH-----  
 PoUGT90A7 127 GFLS-WTL-ASANKF-RIPR-LAFYGMNMYVGAUSR--DVALNRLLSGPESDDELT---  
 AtUGT90A1 126 GFLW-WTS-ESAAKF-NIPR-FVSYGMNSYSAVSI--SVFKHLLF--TEPEKSDTE  
 AcUGT73J1 118 SLFP-WTA-DIALQF-KIPR-IFHGMAGVFPMYVSA--NIFSHFPLDESKEEFF-----  
 MtUGT73P1 129 MFYP-WSV-DVADEL-GIPR-LICIGGSYFAHSAMN--SIEQFEPHAKVKSNSVSFL---  
 SrUGT73E1 130 FLFP-WTT-DVARRL-NIPR-LVFNNGPGCFYLLCIH--VAITSNILGENEPVSSNTE---  
 CpPGT4 125 MCFP-WTV-DTAAKF-NVPR-IIFHGFSCFCLFCHH--LLGVSKVHENVTSdSE-----  
 AtUGT73C1 127 MCLP-YTN-RIAKNL-GIPK-IIFHGMCCFNLLCTH--IMHQNHEFLETIESDKEYFP---  
 CpPGT2 126 MCLP-YTA-HIAGKF-NIPR-ITLHGTCFCLVCYN--NLFTSKVFSVSSSESEYLV---  
 PjGAT 132 KYLS-WTT-KTAEKI-HVPR-LVFGHGMCCFSLSSH--NIRLYNAHLSVTSdSQPFV---  
 CtiUGT73AE1 128 RYML-WTA-DTAVKH-GLPR-IFDGMNCFKQLCTH--NMYSNLVLDG-----LSDSD  
 CaUGT73AH1 126 KHIM-WTA-KTAKKF-QIPW-IVFDGMSCFNQLCTE--ILHTTKVHENVSESEPFV---  
 PzGAT2 126 KHVF-WTS-DTAKKL-QIPW-IMFDGMSCFTQLCTE--NIYNSKVHESVSSSESSEFV---  
 AcUGT73G1 125 LFLA-WIH-NVAKEL-NIPS-LDFHGSNFSSKCMSh--TVEHNNLLDNSTAEtVL-----  
 MtUGT73K1 124 IIFT-WSE-STAKNL-QIPR-LVFNPISIFDVCMIQ--AIQSHNPESVSDSGPYQ-----  
 GeUGT73F1 126 FIYQ-WVD-ELANKL-NIPR-LAFNGFSLFAICAIESVKAHSLYASG-----  
 AtUGT73B1 136 MFFP-WST-KVAEKf-GVPR-LVFGHGTGYFSLCASHCIRLPKNVATSSEPFV-----  
 GuUGAT 122 MFFP-WAT-DSAAKF-GIPR-IVFHGLGYFPLCVLA--CTRQYKPKQDKVSSYTEPFV---  
 NmUGT73BD1 121 MFFP-WTT-NVAAKY-NIPR-FVFGHGFCLFALCVSE--NIRSYKPKFDVESDSEPIV---  
 NmUGT73BD1 1 -----MTAQFHVVFFP-LM-AQGHILIP

AtUGT81A1	232	-----AREIAQG-----LMKYQ <b>P</b> DI I I-----	-----
AtUGT80A2	227	THANFK <b>E</b> FVLTAGLEFY--PLGG-DPKV <b>L</b> AGYMV-----	-----KNKGFLP
AtUGT80B1	197	FVR-----AAGVEFY--PLGG-DPRE <b>L</b> AAYMA-----	-----RNKGLIP
OsZOGT3	170	-----LLRENGL-----NHAP <b>E</b> TYMT-----	-----QE-----
OsZOGT1	165	-----LVREHGL-----QFHP <b>V</b> EACMT-----	-----
ZmcisZOG1	172	-----LQFL <b>P</b> ----- <b>P</b> DACM-----	-----
GmUGT79A6	169	-----PPGY <b>P</b> QON-SN <b>I</b> SLKAFEAMDFMFL-----	-----FTRFG--
AtUGT79B6	158	-----PPGY <b>P</b> SSKVL <b>L</b> ---RGHE <b>T</b> NSLSF-----	-----LSYFP <b>G</b>
GmUGT91H9	168	-----PTW <b>L</b> PFT-----TTV <b>H</b> L <b>R</b> PH <b>E</b> I-----	-----RRAT <b>S</b> S <b>I</b>
ZmUGT91L1	156	-----DFG <b>I</b> P-----DPS <b>V</b> L <b>P</b> MF <b>R</b> P-----	-----
PoUGT95A1	190	-----IPGL <b>P</b> KE-MAV <b>T</b> FADLSR <b>G</b> P <b>Q</b> RRIRPPGG <b>P</b> GKSDGRAGPPN <b>R</b> M <b>R</b> SGSR <b>H</b> G	-----
MtUGT95B4	149	-----LPGL <b>P</b> YD-MAL---TYS <b>D</b> L <b>K</b> QHL <b>H</b> -----	-----DPPPPPP <b>P</b> QH <b>G</b> IPPP <b>P</b> HE
PgUGT95B2	171	PEEMALTEFDL <b>K</b> K <b>R</b> PH <b>G</b> --P <b>P</b> HL <b>R</b> NGGG <b>G</b> P <b>G</b> GGG-----	-----APGGGG <b>F</b> PFAP <b>P</b> GR <b>P</b> GP
VvUGT95B6	166	-----LPGL <b>P</b> ED-MAL---TYS <b>D</b> L <b>R</b> GR <b>P</b> H <b>G</b> PPGG <b>P</b> PPGG <b>P</b> SGGG <b>P</b> PPG <b>P</b> ARG <b>P</b> PR	-----
AtUGT82A1	164	-----TIV <b>Q</b> PE <b>Q</b> --P <b>L</b> -L-SAED <b>L</b> P <b>W</b> L <b>I</b> G-----	-----TPKA <b>Q</b> - <b>K</b>
VpUGT94F1	177	-----RHIS <b>P</b> NT-----K <b>G</b> AD <b>F</b> GG <b>F</b> IL-----	-----
AtUGT87A1	156	-----VDY <b>I</b> P <b>G</b> L-S <b>P</b> T---RLSD <b>L</b> <b>Q</b> IL <b>H</b> G-----	-----Y <b>S</b> H <b>Q</b> ---
AtUGT72C1	164	-----ALL <b>I</b> P <b>G</b> C-SP <b>V</b> K <b>F</b> ERA <b>Q</b> D <b>P</b> R <b>K</b> Y <b>I</b> R-----	-----
AtUGT72D1	166	-----PL <b>K</b> I <b>P</b> G <b>C</b> -K <b>P</b> V---G <b>P</b> KE <b>T</b> ME <b>T</b> M <b>L</b> -----	-----DR <b>S</b> G <b>Q</b> Q-
LjUGT72AD1	166	-----TIE <b>I</b> P <b>G</b> C-I <b>P</b> I---HIT <b>D</b> L <b>P</b> N <b>Q</b> I <b>Q</b> -----	-----N <b>R</b> Y <b>N</b> E--
AtUGT72B1	150	-----PL <b>M</b> L <b>P</b> G <b>C</b> -V <b>P</b> V---AG <b>K</b> DF <b>L</b> DP <b>A</b> Q-----	-----DR <b>K</b> DD--
VvUGT1	166	-----P <b>V</b> K <b>F</b> P <b>G</b> C-V <b>P</b> V---Q <b>G</b> R <b>D</b> L <b>I</b> D <b>P</b> L <b>Q</b> -----	-----DR <b>K</b> N <b>E</b> --
LjUGT72AH1	166	P-----IE <b>I</b> P <b>G</b> C-I <b>S</b> V---H <b>G</b> K <b>D</b> L <b>P</b> NS <b>I</b> Q-----	-----N <b>R</b> SS <b>P</b> --
LjUGT72Z2	167	-----PI <b>Q</b> I <b>P</b> G <b>C</b> -I <b>P</b> I---Q <b>G</b> Q <b>D</b> L <b>P</b> EH <b>F</b> Q-----	-----DR <b>S</b> SL--
GmUGT72X4	166	-----PI <b>R</b> L <b>P</b> G <b>C</b> -V <b>P</b> V---M <b>G</b> V <b>D</b> L <b>P</b> DP <b>A</b> Q-----	-----DR <b>S</b> SE--
MtUGT72L1	173	-----PI <b>K</b> V <b>P</b> G <b>C</b> -V <b>P</b> L---H <b>G</b> R <b>D</b> L <b>T</b> I <b>V</b> Q-----	-----DR <b>S</b> S <b>Q</b> --
PgUGT72BD1	168	-----PL <b>H</b> I <b>P</b> G <b>C</b> -A <b>S</b> I---LYED <b>T</b> VD <b>V</b> Y <b>T</b> -----	-----DR <b>N</b> D <b>K</b> L <b>L</b>
AtUGT72E1	158	-----P <b>M</b> V <b>M</b> P <b>G</b> C-E <b>P</b> V---R <b>F</b> ED <b>T</b> L <b>E</b> T <b>F</b> L-----	-----DR <b>P</b> NS <b>Q</b> L
OsUGT706C1	166	-----VLS <b>F</b> S <b>G</b> V <b>P</b> T <b>I</b> ---R <b>A</b> LD <b>M</b> P <b>D</b> T <b>M</b> Q-----	-----DR <b>E</b> S <b>D</b> --
OsUGT706D1	166	-----LLR <b>F</b> P <b>G</b> V-P <b>P</b> I---PAS <b>D</b> M <b>P</b> SL <b>V</b> Q-----	-----DR <b>E</b> GR--
MtUGT88E1	171	-----PI <b>E</b> L <b>P</b> G <b>L</b> -P <b>R</b> L---SK <b>E</b> D <b>Y</b> P <b>D</b> E <b>G</b> K-----	-----DP <b>S</b> SS--
VpUGT88D8	157	-----Y <b>L</b> E <b>I</b> P <b>G</b> C-P <b>P</b> V---H <b>S</b> L <b>D</b> F <b>P</b> K <b>G</b> M <b>F</b> -----	-----FR <b>H</b> T <b>N</b> --
NmUGT88P1	169	-----Y <b>V</b> H <b>I</b> P <b>G</b> I-P <b>P</b> I---H <b>S</b> L <b>D</b> L <b>P</b> K <b>V</b> L <b>S</b> -----	-----N <b>R</b> ST <b>V</b> --
AtUGT88A1	170	-----T <b>V</b> H <b>I</b> P <b>G</b> V-P <b>P</b> M---K <b>G</b> S <b>D</b> M <b>P</b> K <b>A</b> V <b>L</b> -----	-----ER <b>D</b> D <b>E</b> --
VvGT7	167	-----H <b>L</b> H <b>I</b> P <b>G</b> L-P <b>P</b> V---PAS <b>D</b> M <b>A</b> K <b>P</b> I <b>L</b> -----	-----DR <b>E</b> D <b>K</b> --
MdUGT88F1	172	-----V <b>F</b> E <b>F</b> P <b>G</b> W <b>K</b> S <b>P</b> L---K <b>A</b> TH <b>M</b> V <b>Q</b> L <b>V</b> L-----	-----DR <b>N</b> D <b>P</b> A
ScUGT5	167	-----K <b>F</b> H <b>I</b> P <b>G</b> L-P <b>P</b> L---P <b>S</b> R <b>H</b> M <b>P</b> Q <b>P</b> V <b>L</b> -----	-----N <b>R</b> N <b>D</b> P--
OsUGT707A2	185	-----A <b>V</b> D <b>L</b> P <b>G</b> L-P <b>P</b> V---P <b>A</b> AL <b>L</b> P <b>T</b> P <b>V</b> M-----	-----K <b>K</b> G <b>C</b> --
AtUGT71B1	164	-----K <b>F</b> D <b>V</b> P <b>T</b> L-T <b>Q</b> P-F-P <b>A</b> K <b>C</b> L <b>P</b> S <b>V</b> M <b>L</b> -----	-----N <b>K</b> K--
MdUGT71A15	177	-----E <b>L</b> A <b>V</b> P <b>S</b> F <b>I</b> N <b>P</b> Y---P <b>A</b> AV <b>L</b> P <b>G</b> S <b>L</b> L-----	-----
BvUGT71F1	184	-----E <b>F</b> D <b>V</b> P <b>G</b> F <b>V</b> N <b>R</b> V---P <b>E</b> K <b>V</b> L <b>P</b> AV <b>L</b> I-----	-----D <b>K</b> E <b>S</b> --
Db6-GT	172	K-----E <b>V</b> D <b>V</b> P <b>G</b> F-R <b>N</b> R-V-P <b>C</b> K <b>V</b> L <b>P</b> L <b>P</b> F <b>L</b> -----	-----
AtUGT71C1	184	-----L <b>N</b> L <b>I</b> P <b>G</b> Y <b>V</b> NS <b>V</b> ---P <b>T</b> K <b>V</b> L <b>P</b> S <b>G</b> L <b>F</b> -----	-----M <b>K</b> E--
AtUGT71C4	181	-----E <b>L</b> P <b>V</b> P <b>G</b> F <b>I</b> NA <b>I</b> ---P <b>T</b> K <b>F</b> M <b>P</b> P <b>G</b> L <b>F</b> -----	-----
AtUGT71D1	174	-----M <b>L</b> S <b>I</b> P <b>G</b> F <b>V</b> NP <b>V</b> ---P <b>A</b> N <b>V</b> L <b>P</b> S <b>A</b> L <b>F</b> -----	-----V <b>E</b> D <b>G</b> --
FaUGT71W2	165	-----D <b>S</b> I <b>V</b> P <b>S</b> Y <b>V</b> NP <b>V</b> ---P <b>T</b> N <b>V</b> L <b>P</b> G <b>F</b> V <b>F</b> -----	-----N <b>N</b> G <b>G</b> --
MtUGT71G1	173	-----L <b>L</b> N <b>I</b> P <b>G</b> I <b>S</b> N <b>Q</b> V---P <b>S</b> N <b>V</b> L <b>P</b> DA <b>C</b> F-----	-----N <b>K</b> D <b>G</b> G--
MdUGT71K1	174	P-----D <b>W</b> S <b>I</b> P <b>G</b> I <b>V</b> HP <b>V</b> ---P <b>P</b> R <b>V</b> L <b>P</b> AA <b>L</b> T-----	-----D <b>G</b> R--
AtUGT89A2	179	-----L <b>L</b> D <b>L</b> P <b>R</b> A-P <b>I</b> F---K <b>E</b> E <b>H</b> L <b>P</b> S <b>I</b> V <b>R</b> -----	-----R <b>S</b> L <b>Q</b> T <b>P</b> S <b>P</b>
AtUGT89C1	158	-----A <b>Q</b> ED <b>R</b> S <b>F</b> F <b>N</b> D-----	-----
AtUGT89B1	176	-----F <b>P</b> K <b>I</b> P <b>N</b> C-P <b>K</b> Y---R <b>F</b> D <b>Q</b> I <b>S</b> S <b>L</b> Y <b>R</b> -----	-----S <b>Y</b> V <b>H</b> G <b>D</b> P--
NmUGT89P1	168	F <b>P</b> D-----V <b>P</b> NS <b>P</b> A <b>Y</b> --P <b>K</b> -W-Q <b>A</b> C <b>G</b> T <b>S</b> T <b>Q</b> Y-----	-----K <b>K</b> G <b>D</b> P--
AtUGT92A1	182	-----L <b>D</b> D <b>F</b> P <b>E</b> A-G <b>E</b> I---E <b>K</b> T <b>Q</b> L <b>N</b> S <b>F</b> M <b>L</b> -----	-----E <b>A</b> D <b>G</b> T <b>D</b> D
GbUGT92K1	184	-----V <b>P</b> D <b>L</b> P <b>H</b> I--R <b>L</b> ---H <b>R</b> S <b>Q</b> L <b>S</b> Q <b>I</b> L <b>A</b> -----	-----V <b>S</b> E <b>A</b> S <b>D</b> P--
GmUGT92G4	178	-----V <b>P</b> G <b>F</b> P <b>Q</b> N-Y <b>R</b> F---H <b>K</b> T <b>Q</b> L <b>H</b> R <b>F</b> L <b>Q</b> -----	-----A <b>A</b> D <b>G</b> T <b>D</b> D
PoUGT90A7	178	-----V <b>P</b> T <b>F</b> P <b>W</b> I <b>K</b> I <b>T</b> R---N <b>D</b> F <b>D</b> F <b>P</b> L <b>N</b> Q <b>R</b> -----	-----D <b>P</b> S <b>G</b> P--
AtUGT90A1	176	P <b>V</b> T-----V <b>P</b> D <b>F</b> P <b>W</b> I--K <b>V</b> ---K <b>K</b> C <b>D</b> F <b>D</b> H <b>G</b> T <b>T</b> -----	-----E <b>P</b> E <b>E</b> S-G
AcUGT73J1	166	-----M <b>D</b> G <b>L</b> A <b>E</b> K-I <b>K</b> L---Y <b>R</b> K <b>G</b> L <b>P</b> D <b>M</b> F <b>S</b> -----	-----
MtUGT73P1	180	-----L <b>P</b> G <b>L</b> P <b>H</b> N-V <b>E</b> M---T <b>R</b> L <b>Q</b> L <b>P</b> D <b>W</b> L <b>R</b> -----	-----A <b>P</b> N---
SrUGT73E1	181	-----R <b>V</b> V <b>L</b> P <b>G</b> L--P <b>D</b> R <b>I</b> -E <b>V</b> T <b>K</b> L <b>Q</b> I <b>V</b> G <b>S</b> -----	-----S <b>R</b> P <b>A</b> N <b>V</b> D
CpPGT4	173	-----Y <b>F</b> N <b>I</b> P <b>G</b> L--P <b>D</b> H <b>I</b> -Q <b>F</b> T <b>K</b> V <b>Q</b> L <b>L</b> I <b>S</b> -----	-----K <b>R</b> D <b>D</b> D--
AtUGT73C1	179	-----I <b>P</b> N <b>F</b> P <b>D</b> R-V <b>E</b> F---T <b>K</b> S <b>Q</b> L <b>P</b> M <b>V</b> L <b>V</b> -----	-----A <b>G</b> D--
CpPGT2	177	-----V <b>P</b> C <b>L</b> P <b>D</b> K-I <b>E</b> F---T <b>T</b> Q <b>Q</b> V <b>D</b> S <b>S</b> L <b>G</b> -----	-----
PjGAT	183	-----V <b>P</b> G <b>M</b> P <b>Q</b> R-V <b>E</b> I---T <b>K</b> A <b>Q</b> L <b>P</b> G <b>A</b> F <b>V</b> -----	-----T <b>L</b> P--
CtiUGT73AE1	175	P <b>F</b> I-----L <b>P</b> G <b>L</b> P <b>D</b> R-I <b>E</b> I---T <b>K</b> V <b>Q</b> L <b>P</b> Q <b>E</b> F <b>N</b> -----	-----Y <b>S</b> D <b>L</b> G--
CaUGT73AH1	176	-----V <b>P</b> G <b>L</b> P <b>D</b> V-I <b>E</b> F---K <b>R</b> A <b>Q</b> L <b>P</b> G <b>L</b> F <b>N</b> -----	-----P <b>G</b> S <b>N</b> P <b>G</b> S
PzGAT2	177	-----V <b>R</b> G <b>L</b> P <b>D</b> H-I <b>E</b> F---T <b>K</b> A <b>Q</b> L <b>P</b> G <b>L</b> F <b>N</b> -----	-----P <b>G</b> S <b>V</b> P--
AcUGT73G1	174	-----L <b>P</b> N <b>L</b> P <b>H</b> K-I <b>E</b> M---R <b>R</b> A <b>L</b> I <b>P</b> D <b>F</b> R <b>K</b> -----	-----V <b>A</b> P <b>S</b> --
MtUGT73K1	173	-----I <b>H</b> G <b>L</b> P <b>H</b> P-L <b>T</b> L---P <b>I</b> K <b>P</b> S <b>P</b> G <b>F</b> A <b>R</b> -----	-----
GeUGT73F1	169	-----S <b>F</b> V <b>I</b> P <b>G</b> L-P <b>H</b> P---I <b>A</b> M <b>N</b> A <b>A</b> P <b>P</b> K <b>Q</b> -----	-----
AtUGT73B1	184	-----I <b>P</b> D <b>L</b> P <b>G</b> D-I <b>L</b> I <b>T</b> E <b>E</b> Q <b>V</b> M <b>E</b> T <b>E</b> E <b>S</b> V-----	-----
GuUGAT	173	-----V <b>P</b> N <b>L</b> P <b>G</b> E-I <b>T</b> L <b>T</b> K <b>M</b> Q <b>L</b> P <b>Q</b> L <b>P</b> Q <b>H</b> D <b>K</b> -----	-----
NmUGT73BD1	172	-----L <b>P</b> N <b>F</b> P <b>N</b> Q-I <b>E</b> F---S <b>K</b> A <b>Q</b> V <b>P</b> G <b>S</b> D <b>L</b> -----	-----G <b>I</b> K <b>D</b> ---
NmUGT73BD1	1	-----M <b>T</b> A <b>Q</b> F <b>H</b> V <b>V</b> F <b>F</b> P-L <b>M</b> - <b>A</b> Q <b>G</b> H <b>L</b> I <b>P</b> -----	-----

NtTOGT1	171	-----VPDL	PHE-IKL	---TRTQV	SPFER	-----SHEET	--
BvUGT73A4	176	-----LPHL	PHE-IEL	---TRLQF	SEELW	-----KNGG	--
Db5-GT	178	-----LPFL	PHE-VKM	---TRLQV	PESMR	-----KGEET	--
AtUGT86A1	182	-----IDYV	PGV-KAI	---EPKDI	MSYLQ	-----VSDKDVD	
ZmUFGT1	183	-----LISH	PGL-ASY	---RVRDL	PDGVV	-----SGDFN	--
CteUGT78K6	164	-----LDFL	PGL-SKL	---RVEDV	PQDML	-----DVGEKET	
AtUGT78D1	171	-----LGFIP	PGM-ENY	---RVKDI	PEEVV	-----FEDLDSV	--
CoUGT78B3	172	-----LTFIP	PAM-EKV	---RAGDL	PDEIL	-----KGNLDS	
MtUGT78G1	176	-----IDVLP	PGF-PEL	---KASDL	PEGVI	-----KDIDVP	--
LgUGT78J1	165	I-----QPLI	PGL-EMA	---TFRDL	PPEVF	-----LDKNPS	P
CpPGT11	169	IQL-----	APNMP	AI-----	STGEL	FWTRF	-----GDLT
AtUGT83A1	183	-----IQLS	PGM-PKM	---ETDKF	VWVCL	-----KNKESQ	K
FaUGT75T1	164	-----CITID	DGL-PPF	---ASDEL	PSYLL	-----PTSPHV	
AtUGT75C1	167	-----PIKLP	PKL-PLI	---TTGDL	PSFLO	-----PSKA	--
AtUGT75B1	154	-----VFEL	PNL-SSL	---EIRDLP	SFLLT	-----PSNTNKG	G
AtUGT75D1	181	-----SIKLP	PSL-PLL	---TVRDI	PSFIV	-----SSNVYA	A
ZmUGT74A1	162	GAAALSEA-	FLGL	PEM-----	ERSEL	PSFVF	-----DHGP
AsUGT74H5	159	-----EEGL	PAG---	F-EAEDL	PFTLT	-----LPLP	--
BdUGT74J7	174	-----LRGL	LSL-EL	---EPEDV	PSFVA	-----APDSYRL	L
SrUGT74G1	163	-----TVSV	PGF-PVL	---QRWET	PLILQ	-----NHEQIQ	S
AtUGT74B1	165	-----IRGL	PSL---	---SYDEL	PSFVG	-----RHWLTH	P
RsUGT74R1	158	-----PHGI	PRL---	---EQRDLP	SFIQ	-----DKENSA	H
LuUGT74S1	164	-----TLVI	DGL-PPL	---EVSDL	PSFIW	-----DDL	--
AtUGT74F1	156	-----IKDL	PLL---	---ELQDL	PFTVT	-----PTGSHL	L
SgUGT74AC1	158	-----TISLP	PSM-PLL	---RPSDL	PAYDF	-----DPASTDT	T
AtUGT74C1	161	-----LASF	PGF-PLL	---SQDDL	PSFAC	-----EKGSYP	P
AtUGT74D1	160	-----DVVL	PAM-PPL	---KGNDL	PVFLY	-----DNNLCR	P
AtUGT74E2	160	-----LASF	PSF-PML	---TANDLP	SFLLC	-----ESSYP	P
AtUGT84B1	163	-----LPAL	PLL---	---EVRDL	PSFML	-----PSGGAH	-
DgphBAGT	174	-----SVEL	PGL-PTL	---ESDEL	PSFLH	-----PVYSPDK	K
MtUGT84F1	164	-----DVQL	NSS-IVL	---KYNEI	PDFIH	-----	
GtUF6CGT1	176	-----DVQL	PGM-PLL	---KYDEV	PDYLH	-----PRTYP	P
PgUGT84A23	172	-----DVQL	PSM-PLL	---KHDEV	PSFLY	-----PTTYP	P
PgUGT84A24	171	-----DVQL	PCM-PLL	---KHDEV	PSFLY	-----PTTYP	P
AtUGT76E1	165	-----DKEF	PGL-HPL	---RYKDL	PTSFA	-----GP	--
AtUGT76D1	160	-----EETV	PEF-HPF	---RFKDL	PFTAY	-----	
SrUGT76G1	179	-----ASGF	PML---	---KVKDI	KSAYS	-----	
VvGT15	195	-----HDPV	PEL-HPL	---RFKDL	PISRL	-----GDLEA	--
AtUGT76C1	167	-----DDL	VPEF-PPL	---RKKDL	SRIMG	-----TSAQSK	P
AtUGT76B1	163	-----VPEL	PYL---	---RMKDL	PWFQT	-----EDPRS	--
CsUGT76F1	165	-----VVEL	PPL---	---KIKDL	PVINT	-----RDPET	--
OsUGT709A4	180	-----VRGV	PGMEGFL	---RRRDL	PSTFR	-----RHGN	DH
SrUGT85C2	176	YLDTV----	IDWV	PGM-EGI	---RLKDF	PLDWS	-----TDLNDK
CoUGT85N1	178	YLDTE----	IDWI	PAM-KGI	---RLKDL	PSFLR	-----TTD
MeUGT85K4	179	YLDQP----	VDFI	PGM-PNM	---KLRDM	PSFIR	-----VTDVNDI
AtUGT85A1	181	YLEDTV----	IDFI	PTM-KNV	---KLKDI	PSFIR	-----TTNPDDV
MtUGT85H2	180	CLETK----	VDWI	PGL-KNF	---RLKDI	VDFIR	-----TTNPNDI
MdUGT71K1	174	P-----DWSI	PGIVHPV	---PPRVL	PAALT	-----DGR	--
AtUGT89A2	179	-----LLDL	PRA-PIF	---KEEHLP	PSIVR	-----RSLQTP	SP
AtUGT89C1	158	-----AQED	RSFFND	-----			
AtUGT89B1	176	-----FPKI	PNC-PKY	---RFDQI	SSLYR	-----SYVHGDP	--
NmUGT89P1	168	FPD-----	VPNS	PAY--PK-W	---QACG	STQY	-----KKGDP
AtUGT92A1	182	-----LDDF	PEA-GEI	---EKTQL	NSFML	-----EADGTDD	D
GbUGT92K1	184	-----VPDL	PHI--RL	---HRSQL	SQILA	-----VSEASDP	--
GmUGT92G4	178	-----VPGF	PQN-YRF	---HKTQL	HRFLQ	-----AADGTDD	D
PoUGT90A7	178	-----VPTF	PWIKITR	---NDFDF	PLNQR	-----DPSGP	--
AtUGT90A1	176	PVT-----	VPDF	PWI--KV	---KKCDF	DHGTT	-----EPEES
AcUGT73J1	166	-----MDGL	AEK-IKL	---YRKG	LPMFS	-----	
MtUGT73P1	180	-----LPGL	PHN-VEM	---TRLQL	PDWLR	-----APN	---
SrUGT73E1	181	-----RVVL	PGL--PDRI	---EVTKL	QIVGS	-----SRPANVD	D
CpPGT4	173	-----YFNI	PGL--PDHI	---QFTKV	QLLIS	-----KRDDD	--
AtUGT73C1	179	-----IPNF	PDR-VEF	---TKSQ	LPMLV	-----AGD	--
CpPGT2	177	-----VPCL	PDK-IEF	---TTQQL	VSSLG	-----	
PjGAT	183	-----VPGM	PQR-VEI	---TKAQL	PGAFF	-----TLP	--
CtiUGT73AE1	175	PFI-----	LPGL	PDR-IEI	---TKVQL	PQEFN	-----YSDLG
CaUGT73AH1	176	-----VPGL	PDV-IEF	---KRAQL	PGLFN	-----PGSNP	GS
PzGAT2	177	-----VRGL	PDH-IEF	---TKAQL	PGLFN	-----PGSVP	--
AcUGT73G1	174	-----LPNL	PHK-IEM	---RRAL	PDFRK	-----VAPS	--
MtUGT73K1	173	-----IHGL	PHP-LTL	---PIKPS	PGFAR	-----	
GeUGT73F1	169	-----SFVI	PGL-PHP	---IAMNA	APPKQ	-----	
AtUGT73B1	184	-----IPDL	PGD-ILITEE	QVME	TEESV	-----	
GuUGAT	173	-----VPNL	PGE-ITLTKM	QLPQL	PQHDK	-----	
NmUGT73BD1	172	-----LPNF	PNQ-IEF	---SKAQV	PGSDL	-----GIKD	--
NmUGT73BD1	1	-----				MTAQFHVVFFP-LM-AQGHLP	

AtUGT81A1	249	---	SVHPLMQHVPLRVLRSKGLLKKIVFTTVIDLS	-TCH-PTWFH--KLV-----
AtUGT80A2	265	S---	GPSEIPIQR--NQMKDIIY---SLLPAC-KEPD	-PDSGISFKA--DA-IIANPPA
AtUGT80B1	228	S---	GPSEISKOR--KQLKAIIE---SLLPAC-IEPD	-LET-ATSF--AQ-IAANPPA
OsZOGT3	189	---	FLDYASERA--RASESILSGAGILANAS-RALE	-GDF-IDDLA--ETLAAGG--
OsZOGT1	182	---	KEFVELISRAEQDEENAASSGILMNTS-RALE	-AEF-IDEIATHPMFKE-----
ZmcisZOG1	182	---	SREFVDLVRMEEEEQAPVAGLVMNTC-RALE	-GEF-LDVVAAQPPFQG-----
GmUGT79A6	197	---	EKNLTGYERVLQSLGECFSF---IVFKTC-KEIE	-GPY-LDYIE--TQF-----
AtUGT79B6	185	DGTSFYERIMIGL--KNCDV-----ISIRTC-QEME	-GKF-CDFIE--NQF-----	
GmUGT91H9	192	KSDSDTGRMANFDL--RKAYSSCD--MFLRTC-RELE	-GEW-LDYLE--HKY-----	
ZmUGT91L1	171	---	FVETFKRCK-----VIAARSS-FELE	-PES-LPLMT--KIL-----
PoUGT95A1	239	PGGGPSPGPGQKP--RWVDEVDGSIALLINTC-DDLE	-HVF-INYMA--EQT-----	
MtUGT95B4	187	CGPSSMMGPPKLGQPPWLDEIQETIALMINTC-DDLE	-HPF-INYIA--NHV-----	
PgUGT95B2	221	K---	FMGPPKPGQEPWVDDVADSVALLFNTC-DDLE	-GPF-IEYLA--DR-VG-----
VvUGT95B6	212	SGPKFGGPPKPGHQPWVDETASIALMINTC-DDLE	-RPF-IEYVA--HQT-----	
AtUGT82A1	190	K---	RFKFWQRTL--ERTKS-LR--WILTSSFKDEYED	-VDVNHKASYSK--KS--NDLNKEN
VpUGT94F1	194	---	GSLNSSSE--IILLKTS-KELE	-KKY-IDYLSFLCR-----
AtUGT87A1	180	---	VFNIFKKSF--GELYKAKY--LLFPSA-YELE	-PKA-IDFFT--SKF-----
AtUGT72C1	187	---	ELAESQRIGDEVIT-AD--GVFVNTW-HSLE	-QVT-IGSFL--DPENLGRVMRG
AtUGT72D1	192	---	YKECVRAGL--EVPMSD--GVLVNTW-EELQ	-GNT-LAALR--EDEELSRVMK-
LjUGT72AD1	191	---	DYKVFLSN--KRFYL-AD--GVIINSF-FDLE	-PET-FRALQ--ENQGTSPPSV-
AtUGT72B1	175	---	AYKWLHNT--KRYKEAEG--ILVNTF-FELE	-PNA-ICALQ--EPLGDK-----
VvUGT1	191	---	AYKVVVHHA--KRYKTGP--GIIVNSF-MDLE	-PGA-FKALKEIEPDY-----
LjUGT72AH1	191	---	AYKFYLRR--QQLHI-TD--GILVNSF-TEME	-PEA-MKAIS--QNGGA-----
LjUGT72Z2	192	---	AYDLILKRC--KRFSLAD--GFLVNSF-LELE	-EGT-VKALQEQRNGRNGENRGN
GmUGT72X4	191	---	IYNNFLERA--KAMATAD--GILINTF-LEME	-PGA-IRALQEFENG-----
MtUGT72L1	198	---	AYKYFLQHV--KLSLAFADG--VLVNSF-LEME	-MGP-INALT--EEGSGN-----
PgUGT72BD1	195	---	HDDYVRIGR--RLAE-AD--GILINTW-ESLE	-PKT-LQALR--DPKAFGRFSQ-
AtUGT72E1	184	---	YREFVPGFS--VFPT-CD--GIIVNTW-DDME	-PKT-LKSLQ--DPKLLGRIAG-
OsUGT706C1	191	---	VGTTRIHHC--SRMAE-AR--GILVNSF-DWLE	-TRA-LKAIR--GGLCLPSGRSV
OsUGT706D1	191	---	FYKARVKLY--ARAME-AS--GVLNTY-EWLE	-ARA-MGALR--EGA-CSPDRPT
MtUGT88E1	196	---	SYQVLLQSA--KSLRE-SD--GIIVNTF-DAIE	-KKA-ICALR--NGLCVPDGT-
VpUGT88D8	182	---	THNHFLDTA--RNMKANG--ILVNSF-DALE	-YRS-KAALL--NGICVPNGPT-
NmUGT88P1	194	---	LYKELINTA--NQMAKCSG--ILINAF-ETLE	-PKA-IKALK--EGLCTPGMPT-
AtUGT88A1	195	---	YDVVFIMFG--KQLSKSSG--IIINTF-DALE	-NRA-IKAIT--EELCF-----
VvGT7	192	---	AYELFVNMS--IHLPRSAG--IIVNTF-EALE	-PRA-VKTI--DGLCVLDGPT-
MdUGT88F1	199	---	YSDMIYFCS--HLPK-SN--GIIVNTF-EELE	-PPSV-LQAI--GGLCVPDGT-
ScUGT5	192	---	AYHDVLYFS--HHLARSSG--IIVNTF-DGLE	-PIA-LKAIT--DGLCIPDIPT-
OsUGT707A2	209	---	NYEWLVYHG--SRFMEAA--GIIVNTV-AELE	-PAV-LEAIA--DGRCVPGRRV-
AtUGT71B1	188	---	WFPYVLRGA--RSFA-TK--GILVNSV-ADME	-PQA-LSFFS--GGNGTNI--
MdUGT71A15	198	---	DMESTKSTL--NHVSKYKQTKGILVNTF-MELE	-SHA-LHYLD--SGDKI-----
BvUGT71F1	209	---	GVPMLLNLV--RGLRRSKG--ILVNSF-TELE	-TSG-VQALL--DQATEGGS--
Db6-GT	194	---	EKDFLVKRG--RRFR-SN--GILVNTS-NELE	-SYA-IQTL--EQ-AKDNKI-
AtUGT71C1	208	---	TYEPWVELA--ERFPEAKG--ILVNSY-TALE	-PNG-FKYFDRCPDNY-----
AtUGT71C4	202	---	NKEAYEAYV--ELAPRFADAKGILVNSF-TELE	-PHP-FDYFS--HLEKF-----
AtUGT71D1	199	---	YDAYVKLAI--LFTK-AN--GILVNSF-FDIE	-PYS-VNHFL--QEQNY-----
FaUGT71W2	190	---	YVSFASHAR--RFKE-TK--GVIINTL-VELE	-SHAV-HSIFR--VGEQDQSDQPW
MtUGT71G1	199	---	YIAYYKLAE--RFRD-TK--GIIVNTF-SDLE	-QSS-IDALY--DHDEKI-----
MdUGT71K1	199	---	LSAYIKLAS--RFRE-TR--GIIVNTF-VELE	-THA-ITLFS--NDD-RV-----
AtUGT89A2	207	DLES	IKDFSMNLL-----SY--GSVFNSS-EILE	-DDY-LQYVK--QRMGH-----
AtUGT89C1	168	---	LETATTESY-----GLVNSF-YDLE	-PEF-VETVK--TRFLNH-----
AtUGT89B1	203	---	AWEFIRDSF--RDVA-SW--GLVNSF-TAME	-GVY-LEHLK--REMGH-----
NmUGT89P1	195	---	SWEFFKNGV--LANTQ-SW--GAIYNSF-RDLE	-GVY-IDYIK--KKM-GH-----
AtUGT92A1	209	---	WSVFMKKII--PGWSD-FD--GFLFNTV-AEID	-QMG-LSYFR--RIT-----
GbUGT92K1	210	---	WTLWLKRN--SCNLSSW--GTIFNTF-EDLE	-HDF-LDYFR--RIT-----
GmUGT92G4	205	---	WSRFLVPQI--QLSMKSD--GWICNTI-EKIE	-PLG-LKLLR--NYL-----
PoUGT90A7	204	---	YMDFIMETV--IASANSY--GLITNSF-YELE	-PLF-LDYLN--REA-----
AtUGT90A1	204	A---	ALELSMDQI--KSTTT-SH--GFLVNSF-YELE	-SAF-VDYNN--NS-GDK-----
AcUGT73J1	186	---	NIPFLITMG--EAEAKSY--GVVNTF-REME	-PTY-VDFYK--GT-----
MtUGT73P1	203	---	GTYLMKMI--KDSEKKS--GSLFDSY-YEIE	-GTY-EDYYK--IAM-----
SrUGT73E1	209	E---	MGSWLRAVE--AEKA-SF--GIVVNTF-EELE	-PEYVEEYKT--VKD-----
CpPGT4	199	---	RKELREQIL--AADKK-TY--GAIINTF-EELE	-SPFIENYKK--AKQ-----
AtUGT73C1	202	---	WKDFLDGTM--EGDN--GVIINTF-EELE	-PAYVRDYKK--VKA-----
CpPGT2	197	---	SRFNVFQKM--GAADGTY--GVIINTF-EELE	-PAYIKYKK--IRH-----
PjGAT	206	---	GLDDIRDQM--RAESSAY--GVVNSF-SELE	-QGCSEYK--AIA-----
CtiUGT73AE1	203	---	TKEQLERVR--ETEAT-AY--GIVINSF-EELE	-QEY-VNELK--KVKNG-----
CaUGT73AH1	203	A---	NVNDIREQI--RATEVGAY--GVVINSF-EELE	-HDY-VREFKKIKE-----
PzGAT2	202	---	AIDEIREQV--RATEVGAY--GVVINSF-EELE	-QDY-VDEFK--KVR-----
AcUGT73G1	198	---	VFQLLIKQ--KEAEKLSY--GLIINSF-YELE	-PGY-VDYFR--NVV-----
MtUGT73K1	193	---	LTESLIEAE-----NDSHGVIINSF-AELD	-EGY-TEYYE--NLT-----
GeUGT73F1	189	---	MSDFLESML--ETELK-SH--GLVNNF-AELD	-GEEY-IEHYE--KTT-----
AtUGT73B1	207	---	MGRFMKAIR--DSERDSF--GVLVNSF-YELE	-QAY-SDYFK--SFV-----
GuUGAT	196	---	VFTQLLEES--NESELKSF--GVIINSF-YELE	-PVY-ADHYR--NEL-----
NmUGT73BD1	196	---	GATELKFQI--NEADITSY--GIIINSF-NELE	-KDY-VDYFR--NVC-----
NmUGT73BD1	1	---	-----	-MTAQFHVVFP-LM-AQGHLP



AtUGT81A1	293	-----TRCYC--	PS	TEVAKRAQKAGLETSQIKVYGLPVRPSFVKPVRPKVEL
AtUGT80A2	311	YGHTHVAEALKIPIHVFFTMP	-	WTPTSEFPHPPLSRVKQPA-----GYRLSYQIVDSL
AtUGT80B1	274	YGHVHVAEALGVPIHIFFTMP	-	WTPTSEFPHPPLSRVKQPA-----AYWLSYIVVDL
OsZOGT3	234	-----KKLFAIGP	-	LNPLLNTGSSEQGRRRHE-----CLDW
OsZOGT1	228	-----LKLFAAGP	-	LNPLLDATARTPGQTRHE-----CMDW
ZmcisZOG1	229	-----QRFFAVGP	-	LNPLLLDADAPTTPPGQA-----RHECLEW
GmUGT79A6	237	-----RKPVLLSGP	-	LVPEPSTDVLEEK-----WSKW
AtUGT79B6	224	-----QRKVLLTGP	-	MLPEPDNSKPLEDQWRQ-----W
GmUGT91H9	235	-----KVPVVPVGL	-	VPPSIQIRDVEEEDNPNP-----WVKIKDW
ZmUGT91L1	202	-----GKPVIPVGL	-	LPPAPAGGNTQRDDSA-----LSW
PoUGT95A1	284	-----KLPVWVGP	-	LLPEQFWKSAGELLHDHE--MRSNHKSNYTEDEVVQW
MtUGT95B4	234	-----KKPVCVGP	-	LLPGQYWKSSGSIHDRD--FRSNRLSNITEEEVIQW
PgUGT95B2	266	-----KPVWVGP	-	LLPEQYWRASAGSLLHDRE--IRTNRKSSITEDEVIQW
VvUGT95B6	259	-----GIPVWVGP	-	LLPDQYWKSSGSIHDRD--IRPNKSSCTEEEEVIQW
AtUGT82A1	238	NGQN-----PQILHLGP	-	LHNQEATNNITITKTSF-----WEEDMSCLGW
VpUGT94F1	225	-----KQIIPVGL	-	LIANSEDKDEPE-----IMQW
AtUGT87A1	218	-----DFPVYSTGP	-	LIPLEELSVGNENRELD-----YFKW
AtUGT72C1	233	-----VPVYPVGP	-	LVRPAEPGLKHG-----VLDW
AtUGT72D1	236	-----VPVYPIGP	-	IVRTNQHVDPKNS-----IFEW
LjUGT72AD1	236	-----PHVYPVGP	-	FIVQKESYDESHGNEDET-----DEYIRW
AtUGT72B1	216	-----PPVYPVGP	-	LVNIGKQEAQTEESE-----CLKW
VvUGT1	232	-----PPVYPVGP	-	LTRSGSTNGDDGSE-----CLTW
LjUGT72AH1	232	-----PQVHPIGP	-	ITQTSWNNKNCSE-----CLLW
LjUGT72Z2	240	RGKNRGNRD---SPVFLVGP	-	VIQTGPSSEPKESESEY-----CVRW
GmUGT72X4	231	-----KIRLYPVP	-	ITQKGASNEADESDK-----CLRW
MtUGT72L1	239	-----PSVYPVGP	-	IIQTVTGSVDDANGLE-----CLSW
PgUGT72BD1	239	-----VRILPIGP	-	LVSGFQSGSSQPKDD-----ILQW
AtUGT72E1	228	-----VPVYPIGP	-	LSRPVDPKTNHP-----VLDW
OsUGT706C1	237	-----PAIYCVGP	-	LVDGGKLENDAR-----HECLEW
OsUGT706D1	236	-----PPVYCVGP	-	LVASGEEEGGGVVR-----HACLAW
MtUGT88E1	241	-----PLLEFCIGP	-	VVSTSCEEDKSG-----CLSW
VpUGT88D8	227	-----PQVLFVAP	-	LVTGMNSRKGDE-----HECLSW
NmUGT88P1	239	-----PPVYCVGP	-	LIASGDKGNVNDAHGHEI-----LTW
AtUGT88A1	235	-----RNIYPIGP	-	LIVNGRIEDRNDKAVS-----CLNW
VvGT7	237	-----SPIFCIGP	-	LIAADDRSGGGGGGGGS-----GIPECLTW
MdUGT88F1	244	-----PPVYYVGP	-	LIEEEKELSKDADAAEKE-----DCLSW
ScUGT5	237	-----PPIYNI	-	LIAADATKPADQNLKHS-----LSW
OsUGT707A2	254	-----PAIYTVGP	-	VLSFKTPPEKPHE-----CVRW
AtUGT71B1	231	-----PPVYAVGP	-	IMDLESSDEEKRE-----ILHW
MdUGT71A15	241	-----PPVYVGP	-	LNLKSSDEDKASD-----ILRW
BvUGT71F1	253	-----PAIYVGP	-	LLELDSGSQGEDHVS-----ILQW
Db6-GT	237	-----PPVYVGP	-	LLELNSKSRCGTKEDEEV-----SIMRW
AtUGT71C1	249	-----PTIYPIGP	-	LCSNDRPNLDSSERDRI-----ITW
AtUGT71C4	245	-----PPVYVGP	-	LISLKDRAHPNEEAVDR-----DQIVGW
AtUGT71D1	238	-----PSVYAVGP	-	IFDLKAQHPPEQDLTRRD-----ELMKW
FaUGT71W2	236	-----PAVYVGP	-	LIDTKGEHQVRSRDR-----IMEF
MtUGT71G1	239	-----PPIYAVGP	-	LIDLKGPQNPKLDQAQHD-----LILKW
MdUGT71K1	238	-----PPVYVGP	-	VIDLDDGQEHSLDQAQR-----DKIKW
AtUGT89A2	246	-----DRVYVIGP	-	LCSIGSLKSNSSGVDPS-----LISW
AtUGT89C1	202	-----HRIWTVGP	-	LFPFKAGVDRGGQSSIPP-----AKVSAW
AtUGT89B1	243	-----DRVWAVGP	-	LIPLSGDNRRGGPTSVSD-----HVMWSW
NmUGT89P1	235	-----GRVWAVGP	-	LIPANDASKRGGSCVMP-----DDVMTW
AtUGT92A1	247	-----GVPVWPVGP	-	VLKSPDKKVGSRSTEEA-----VKS
GbUGT92K1	248	-----GRPVPVGP	-	LPLTGTLTKTKIAWRGN-----ESAVADETCLQW
GmUGT92G4	243	-----QLPVWVGP	-	LPPASLMGSKHRSGKE-----TGIALDACLMEW
PoUGT90A7	242	-----KPKAWCVGP	-	LCLAADHGS DHKPKW-----VEW
AtUGT90A1	245	-----PKSWCVGP	-	LCLTDPKQGSAKPA-----WIHW
AcUGT73J1	223	-----KKAWCIGP	-	LSLANKLDEEKTAGWIAE-----KEEVKEKIVKW
MtUGT73P1	242	-----GSKSWSVGP	-	VSLWMNKDSDKAGRGHG-----KEEDEEEGVKWK
SrUGT73E1	248	-----KKMWCIGP	-	VSLCNKTGPDLAERGNKA-----AITEHNCLKW
CpPGT4	238	-----GKVWRIGP	-	ASLCNKEPIDKAERGRTA-----SIDVPECLTW
AtUGT73C1	241	-----GKIWSIGP	-	VSLCNKLGEDQAERGNKA-----DIDQDECIKW
CpPGT2	238	-----DKVWCIGP	-	VSLCNKEYSDKAQRGNKA-----SVDEHQCLKW
PjGAT	246	-----KKVWCIGP	-	VSLCNKNDLDFKFERGNKA-----SIDETLCTEW
CtiUGT73AE1	243	-----KVWCLGP	-	LSLTNNNDLGKSVRGNS-----SIDEQRIVKW
CaUGT73AH1	244	-----GKVWCVGP	-	LSLCNTDDIDKAQRGNV-----AMDQQHKCLQW
PzGAT2	241	-----RDKVWCVGP	-	LSLNNENMLDKAQRGHNN-----ASIDGNKCLQW
AcUGT73G1	236	-----GRKAWHVP	-	LNLNDKNVNTFDRGSKSA-----IDEASCLSW
MtUGT73K1	228	-----GRKAWHVP	-	TSLMVEIPKKKVSTEN-----DSSITKHQSLTW
GeUGT73F1	228	-----GHRAWHLGP	-	VSLIRRTSQEKAERGEKS-----VVSVHECLSW
AtUGT73B1	245	-----AKRAWHIGP	-	LSLGNRFEEKAERGKKA-----SIDEHECLKW
GuUGAT	235	-----GRRAWHLGP	-	VSLCSRDETEEKSRRGREA-----AIDENECLKW
NmUGT73BD1	235	-----GRRAWLLGP	-	LSLINRNKDKTLIDEHE-----CLKW
NmUGT73BD1	1	-----	-	-----MTAQFHVVFFP-LM-AQGHILIP

NtTOGT1	235	-----GRRAWAIGP	-LSMCNRDIEDKAERGKKS	-----SIDKHE	CLKW
BvUGT73A4	241	-----GRRAWNIIGP	-VSLYNRSNEEKAQRGKQA	-----SIDEHE	CLKW
Db5-GT	242	-----GRRAWHIGP	-VSLCNRSIEDKAQRGRQT	-----SIDEDE	CLKW
AtUGT86A1	250	-----QPVYAIIGP	-VFSTDSVPTSLWAESD	-----	CTEW
ZmUFGT1	250	-----PNCVPFPGP	-YHLLLAEDDADTAAPADP	-----HG	CLAW
CteUGT78K6	231	-----QSLLYVVP	-LPCPQLLLPEIDSNG	-----	CLSW
AtUGT78D1	236	-----KRFLNIAP	-LTLLSSTSEKEMRDPHG	-----	CFAW
CoUGT78B3	237	-----QTCLTVGP	-FTIVAPSISDQHDPHG	-----	CLPW
MtUGT78G1	240	-----KLLLNVGP	-FNLTTSPQRKVSDEHG	-----	CLEW
LgUGT78J1	231	-----RHFLNIIGP	-SILPSP1ADDKSG	-----	CLSW
CpPGT11	231	-----PELLPIIGP	-LLASNRLGNSAGYFLPED	-----SK	CVEW
AtUGT83A1	245	-----PNIVPIIGP	-IGWAHSLEEGSTSLGSFL	-----PHDRD	CLDW
FaUGT75T1	231	-----NLITVGP	-LIRSAEVCDDLFDKSGDD	-----	YLOW
AtUGT75C1	231	-----KLKMIPIGP	-LVSSSEGKTDLFKSSDED	-----	YTKW
AtUGT75B1	220	-----DMVAVGP	-LPTEIFSGSTNKSVKDQ	-----SSSYTL	CLW
AtUGT75D1	248	-----KIVPVG	-LTLTRTDFSSRGE	-----	YIEW
ZmUGT74A1	231	-----LKARAIIGP	-CVPLPTAGRTAGANGRIT	-----YGANLVKPEDA	CTKW
AsUGT74H5	218	-----WGAKTVGP	-TVPSAYLDKRITDDVSYG	-----FHLYTPMTATTKAW	
BdUGT74J7	237	-----WRVKTIGP	-TLPSFYLDLDDRLPSNKTY	-----GFDLFDSTAP	CMAW
SrUGT74G1	228	-----WNLKVIIGP	-TLPSMYLDKRLDDDDKNG	-----FNLYKANHHE	CMNW
AtUGT74B1	229	-----MKATLIGP	-MIPSAYLDDRMEDDKDYG	-----ASLLKPISEK	CMEW
RsUGT74R1	219	-----WQVLTIGP	-TIPSMYLDKCVKDDRSYG	-----LNLFKPNRES	CRDW
LuUGT74S1	228	-----INFRTIGP	-TIPSFYLDKQIPDDKDYD	-----ISIFNPQNOT	CMNW
AtUGT74F1	217	-----CPVLTIGP	-TVPSMYLDQQIKSDNDYD	-----LNLFDLKEAAL	CTDW
SgUGT74AC1	223	-----RPVKTIGP	-TVPSAYLDKRVENDKHYG	-----LSLFKPNEDV	CLKW
AtUGT74C1	225	-----WPVKNIIGP	-VVPKFLDNRLPEDKDYE	-----LENSKTEPDES	VLKW
AtUGT74D1	224	-----WPVKNIIGP	-MIPSMYLDKRLAGDKDYG	-----INLFNAQVNE	CLDW
AtUGT74E2	224	-----WPVLNIIGP	-TVPSIYLDKRLSEDKNYG	-----SFLFNKVVE	CMEW
AtUGT84B1	223	-----KPVPIIGP	-LVSPFLLGDGEEETLDGK	-----NLDFCKSDDC	CMEW
DgPHBAGT	241	-----PIIRPIIGP	-LYKWKEEKDVRGDMWSAA	-----	EECIEW
MtUGT84F1	229	-----IAIRPVG	-LFKNPKANGASNNILG	-----DFTKSNDDCNI	IEW
GtUF6CGT1	240	-----CPIKPIIGP	-LFKIPKDPSSNGITGNFM	-----KVDD	CKEW
PgUGT84A23	236	-----CPIKTVGP	-LFKNPKAPNTTVKGFDMK	-----ADD	CIGW
PgUGT84A24	235	-----CPIKTVGP	-LFKNPKAPNAVVRGDFMK	-----ADD	CISW
AtUGT76E1	227	-----QVPVYPIGP	-LHIAASAPSSLLEEDRS	-----	CLEW
AtUGT76D1	222	-----GVPVYVPGP	-LHMTNSAMSCPSLFEEER	-----N	CLEW
SrUGT76G1	239	-----APSFLI	-LPKHLTASSSSLLDHDRT	-----	VFQW
VvGT15	257	-----QVPFFPIGP	-LHKLAPPSSSSLLEEDSS	-----	CITW
AtUGT76C1	233	-----IPIFPIGP	-FHIHDVPASSSSLLEPD	-----QS	CIPW
AtUGT76B1	223	-----PVPLFCIGP	-FHRYVSASSSSLLAHDMT	-----	CISW
CsUGT76F1	225	-----SIPIFPIGP	-FHICIPASPSLLTQDQS	-----	CIAW
OsUGT709A4	249	-----RDVFAVGP	-LHAMSPAPAAATSLWRED	-----DG	CMAW
SrUGT85C2	245	-----NHIYTIIGP	-LQLLLDQIPEEKKQTGIT	-----SLHGYSLVKPEPE	CFQW
CoUGT85N1	248	-----PQLYTIIGP	-LSMLCDHMLQPD SKLCEA	-----SLWEEDTS	CLEW
MeUGT85K4	249	-----SKNIYTVGP	-FILLEKGIPEIKSKAFRS	-----SLWKEDLS	CLEW
AtUGT85A1	252	-----PPVYSVGP	-LHLLANREIEEGSEIGMM	-----SSNLWKEEME	CLDW
MtUGT85H2	250	-----PSIYPIGP	-LPSLLKQTPQIHQLDSDL	-----SNLWKEDTE	CLDW
MdUGT71K1	238	-----PPVYVPGP	-VIDLDDGQEHNSLDQAQR	-----DKI	IKW
AtUGT89A2	246	-----DRVYVIGP	-LCSIGSGLKSNSGSDVPS	-----	LLSW
AtUGT89C1	202	-----HRIWTVGP	-LPLFKAGVDRGGQSSIPP	-----AKVSAW	
AtUGT89B1	243	-----DRVWAVGP	-IIPLSGDNRRGGPTSVSD	-----HVMSW	
NmUGT89P1	235	-----GRVWAVGP	-LPLPANDASKRGGSCVMP	-----DDVMTW	
AtUGT92A1	247	-----GVPVWPVGP	-VLKSPDKKVGSRSTEEA	-----VKS	SW
GbUGT92K1	248	-----GRPVPVGP	-ILPLTGTLTKTKIAWRGN	-----ESAVADET	CLQW
GmUGT92G4	243	-----QLPVWAVGP	-LPPASLMGSKHRSGKE	-----TGIALDA	CMEW
PoUGT90A7	242	-----KPKAWCVGP	-LCLAADHGS DHKPKW	-----	VEW
AtUGT90A1	245	-----PKSWCVGP	-LCLTDPPKQGSAKPA	-----WIHW	
AcUGT73J1	223	-----KKAWCIGP	-LSLANKLDEEKTAGWIAE	-----KEEVKEKIVK	W
MtUGT73P1	242	-----GSKSWSVGP	-VSLWMNKDSDSKAGRGHG	-----KEEDEEEGV	VLKW
SrUGT73E1	248	-----KKMWCIGP	-VSLCNKTGPD LAERGNKA	-----AITEHN	CLKW
CpPGT4	238	-----GKVWRIIGP	-ASLCNKEPIDKAERGRTA	-----SIDVPE	CLTW
AtUGT73C1	241	-----GKIWSIGP	-VSLCNKLGEDQAERGNKA	-----DIDQHE	CLKW
CpPGT2	238	-----DKVWCIGP	-VSLSNKEYSDKAQRGNKA	-----SVDEHQ	CLKW
PjGAT	246	-----KKVWCIGP	-VSLCNKDNLDKFERGNKA	-----SIDETL	CTEW
CtiUGT73AE1	243	-----KVWCLGP	-LSLTNNNDLGKSVRGNS	-----SIDEQRIVK	W
CaUGT73AH1	244	-----GKVWCVGP	-LSLCNTDDIDKAQRGNV	-----AMDQQHK	CLQW
PzGAT2	241	-----RDKVWCVGP	-LSLNNENMLDKAQRGHNN	-----ASIDGNK	CLQW
AcUGT73G1	236	-----GRKAWHVG	-LNLNDKNVNTFDRGSKSA	-----IDEAS	CLSW
MtUGT73K1	228	-----GRKVWHVGP	-TSLMVEIPKKKVSTEN	-----DSSITKHQS	CLTW
GeUGT73F1	228	-----GHRAWHLGP	-VSLIRRTSQEKAERGEKS	-----VVSVHE	CLSW
AtUGT73B1	245	-----AKRAWHIGP	-LSLGNRKFEEKAERGKKA	-----SIDEHE	CLKW
GuUGAT	235	-----GRRAWHLGP	-VSLCSRDETEEKSRRGREA	-----AIDENE	CLKW
NmUGT73BD1	235	-----GRRAWLLGP	-LSLINRNKDKTLIDEHE	-----	CLKW
NmUGT73BD1	1	-----	-----MTAQFHVVFFP	-LM-AQGH	LIP



AtUGT81A1	338	R	-----REL	GMDENLPAVLLMG	---GGEGMGPIE	---ATA	-----RALADALYD
AtUGT80A2	364	L	GIRDMVNDLR	KKKLKLRPVTYL	SGTQGGSGS	NIPH---	GYMWSPHLVPKPKDWGPOI
AtUGT80B1	327	W	SIRTYINDFR	KRKLNLAPAIYF	STYHQSIS	HLPT---	GYMWSPHVVPKPSDWGPLV
OsZOGT3	264	L	-----DRQ	---PPD---SVLYVS	---FGTTC	---SLRV---	---EQV-----AELAAATL
OsZOGT1	258	L	-----DKQ	---PLA---SVLYVS	---FGTTS	---SLRG---	---DOV-----AELAAAL
ZmcisZOG1	262	L	-----DRQ	---PPE---SVLYVS	---FGTTS	---CLHA---	---DOV-----AELAAAL
GmUGT79A6	263	L	-----DGF	---PAK---SVILCS	---FGSET	---FLSD---	---YQI-----KELASGL
AtUGT79B6	251	L	-----SKF	---DPG---SVIYCA	---LGSQI	---ILEK---	---DOF-----QELCLGM
GmUGT91H9	269	L	-----DKQ	---ESS---SVVYIG	---FGSEL	---RLSQ---	---QDV-----TELAHGI
ZmUGT91L1	231	L	-----DEQ	---PSK---SVVYVA	---FGSEY	---PMTV---	---KQL-----HEIARGL
PoUGT95A1	328	L	-----ESK	---PRE---SVIYIS	---FGSEV	---GPTI---	---EEY-----KELAKAL
MtUGT95B4	278	L	-----DLK	---PRS---SVLYVS	---FGTEV	---SPTM---	---EEY-----TELAQAM
PgUGT95B2	309	L	-----DSK	---PSG---SVLYVS	---FGSEV	---GPTM---	---EEY-----PQLAQAL
VvUGT95B6	303	L	-----DSK	---PRG---SVLYVS	---FGSEV	---GPTM---	---EGY-----AQLALAL
AtUGT82A1	277	L	-----QEQ	---NPN---SVIYIS	---FGSWV	---PIGE---	---SNI-----QTLALAL
VpUGT94F1	249	L	-----DEK	---SER---STVYIS	---FGSEC	---FLSK---	---EQI-----EIVAKGL
AtUGT87A1	248	L	-----DEQ	---PES---SVLYIS	---QGSFL	---SVSE---	---AQM-----EEIVGV
AtUGT72C1	257	L	-----DLQ	---PKE---SVVYVL	---LGVVG	---ALTF---	---EQT-----NELAYGL
AtUGT72D1	261	L	-----DEQ	---RER---SVVFVC	---LGS GG	---TLTF---	---EQT-----VELALGL
LjUGT72AD1	268	L	-----EKQ	---EPN---SVLYIS	---FGSAG	---TLTH---	---DOI-----NELALGL
AtUGT72B1	244	L	-----DNQ	---PLG---SVLYVS	---FGSGG	---TLTC---	---EQL-----NELALGL
VvUGT1	258	L	-----DHQ	---PSG---SVLFVS	---FGSGG	---TLSQ---	---EQI-----TELALGL
LjUGT72AH1	258	L	-----GQQ	---PPK---SVLYVS	---FGSGG	---TLSQ---	---DOI-----NELALGL
LjUGT72Z2	278	L	-----ENQ	---IPK---SVLYVS	---FGSGG	---TLSQ---	---EQM-----NELAFGL
GmUGT72X4	259	L	-----DKQ	---PPC---SVLYVS	---FGSGG	---TLSQ---	---NQI-----NELASGL
MtUGT72L1	267	L	-----DKQ	---QSC---SVLYVS	---FGSGG	---TLSH---	---EQI-----VELALGL
PgUGT72BD1	267	L	-----DDQ	---PTE---SVLYVS	---FGSGG	---TLSA---	---DQL-----TELAWGL
AtUGT72E1	253	L	-----NKQ	---PDE---SVLYIS	---FGSGG	---SLSA---	---KQL-----TELAWGL
OsUGT706C1	264	L	-----DRQ	---PKQ---SVVFCL	---FGSRG	---TFSV---	---SQL-----SEMARGI
OsUGT706D1	263	L	-----DAQ	---PAR---SVVFCL	---FGSMG	---SFSA---	---AQL-----KEIARGL
MtUGT88E1	265	L	-----DSQ	---PGQ---SVVLLS	---FGSLG	---RFSK---	---AQI-----NQIAIGL
VpUGT88D8	254	L	-----DSQ	---PSK---SVIFLC	---FGRKG	---FFSK---	---QQL-----QEIATGL
NmUGT88P1	268	L	-----NSQ	---PSK---SVVFCL	---FGSLG	---TFKE---	---DQL-----KEIAIGL
AtUGT88A1	264	L	-----DSQ	---PEK---SVVFCL	---FGSLG	---LFSK---	---EQV-----IEIAVGL
VvGT7	271	L	-----ESQ	---PKR---SVLFCL	---FGSLG	---LFSE---	---EQL-----KEIAVGL
MdUGT88F1	275	L	-----DKQ	---PSR---SVLFCL	---FGSMG	---SFPA---	---AQL-----KEIANGL
ScUGT5	266	L	-----DRQ	---PNQ---SVVFCL	---FGSRG	---SFST---	---DQL-----KEIAKGL
OsUGT707A2	279	L	-----DAQ	---PRA---SVVFCL	---FGSMG	---SFAP---	---POV-----LEIAAGL
AtUGT71B1	258	L	-----KEQ	---PTK---SVVFCL	---FGSMG	---GFSE---	---EQA-----REIAVAL
MdUGT71A15	267	L	-----DDQ	---PPF---SVVFCL	---FGSMG	---SFGE---	---AOV-----KEIACAL
BvUGT71F1	280	L	-----DKQ	---PSS---SVVFCL	---FGSMG	---SFDA---	---NEV-----KEIANGL
Db6-GT	268	L	-----DEQ	---PVN---SVLFVC	---FGSMG	---TFDE---	---DOV-----KEIANGL
AtUGT71C1	278	L	-----DDQ	---PES---SVVFCL	---FGSLK	---NLSA---	---TOI-----NEIAQAL
AtUGT71C4	276	L	-----DDQ	---PES---SVVFCL	---FGSRG	---SVDE---	---POV-----KEIARAL
AtUGT71D1	269	L	-----DDQ	---PEA---SVVFCL	---FGSMA	---RLRG---	---SLV-----KEIAHGL
FaUGT71W2	264	L	-----DNQ	---PPK---SVVFCL	---FGSFG	---SFDE---	---AQL-----REIAIGL
MtUGT71G1	270	L	-----DEQ	---PDK---SVVFCL	---FGSMGV	---SFGP---	---SQI-----REIALGL
MdUGT71K1	270	L	-----DDQ	---PQK---SVVFCL	---FGSMG	---SFGA---	---EQV-----KEIAVGL
AtUGT89A2	276	L	-----DGS	---PNG---SVLYVC	---FGSQK	---ALTK---	---DQC-----DALALGL
AtUGT89C1	234	L	-----DSC	---PED---NSVYVVG	---FGSQI	---RLTA---	---EQT-----AALAAAL
AtUGT89B1	274	L	-----DAR	---EDN---HVVYVC	---FGSQV	---VLTK---	---EQT-----LALASGL
NmUGT89P1	267	L	-----DTK	---TNSDN---SVYVVC	---FGSRV	---ELTT---	---EQL-----DSLAAAL
AtUGT92A1	277	L	-----DSK	---PDH---SVYVVC	---FGSMN	---SILQ---	---THM-----LELAMAL
GbUGT92K1	287	L	-----DSH	---PAS---SVLYIS	---FGSQN	---SISV---	---SOM-----RELSLGL
GmUGT92G4	280	L	-----DSK	---DEN---SVLYIS	---FGSLH	---TINA---	---SOM-----MALAEGGL
PoUGT90A7	269	L	-----DQK	---LAQGC---SVLYVA	---FGSQA	---EIST---	---KQL-----EAIKGL
AtUGT90A1	272	L	-----DQK	---REEGRPVLYVA	---FGTQA	---EISN---	---KQL-----MELAFGL
AcUGT73J1	260	L	-----DGK	---EEG---SVLYVC	---FGSLC	---HFSG---	---GQL-----RELALGL
MtUGT73P1	281	L	-----DSK	---KYD---SVLYVS	---FGSMN	---KFPT---	---POL-----VEIAHAL
SrUGT73E1	284	L	-----DER	---KLG---SVLYVC	---LGS LA	---RISA---	---AQA-----IELGLGL
CpPGT4	274	L	-----DSQ	---QPS---SVYVVC	---LGS IC	---NLPS---	---SQL-----IELGLGL
AtUGT73C1	277	L	-----DSK	---EEG---SVLYVC	---LGS IC	---NLPL---	---SQL-----KELGLGL
CpPGT2	274	L	-----DSK	---APK---SVYVAC	---LGS IC	---NLIP---	---SOM-----RELGLGL
PjGAT	282	L	-----DSM	---KPK---SVIYAC	---LGSQC	---RLVP---	---AQL-----MELGLAL
CtiUGT73AE1	278	L	-----DSR	---EPG---SVIYAC	---FGSSS	---RVIP---	---QQL-----IELGLGL
CaUGT73AH1	281	L	-----DAE	---KNG---SVIYVC	---LGS LS	---SLSNLSGA	---QI-----IELALGL
PzGAT2	279	L	-----DNW	---ANG---SVIYAC	---LGS IS	---SLTC---	---TQL-----MELALGL
AcUGT73G1	272	L	-----GKK	---SAG---SVLYVC	---FGSAS	---FFT---	---ROL-----REIAVGL
MtUGT73K1	267	L	-----DTK	---EPS---SVLYIS	---FGSLC	---RLSN---	---EQL-----KEMANGI
GeUGT73F1	265	L	-----DSK	---RDD---SVLYIC	---FGSLC	---HFSD---	---KQL-----YEIACGV
AtUGT73B1	282	L	-----DSK	---KCD---SVIYMA	---FGTMS	---SFKN---	---EQL-----IEIAAGL
GuUGAT	272	L	-----QSK	---EPN---SVYVVC	---FGSMM	---VFSD---	---AQL-----KEIAMGL
NmUGT73BD1	265	L	-----DSK	---KPY---SVIYAC	---FGSVG	---RLSK---	---LQL-----HEIALGL
NmUGT73BD1	1		-----	-----	-----	-----	-----MTAQFHVVFPP-LM-AQGHILP

NtTOGT1	272	L	-----	DSK	--KPS	--SVVYIC	--FGSVA	--NFTA	---	SQL	-----	HEL	AMGV	--
BvUGT73A4	278	L	-----	NSK	--KPN	--SVIYIC	--FGSTM	--HMIP	---	SOL	-----	NEI	AMGL	--
Db5-GT	279	L	-----	NSK	--KPD	--SVIYIC	--FGSTG	--HLIA	---	POL	-----	HEI	ATAL	--
AtUGT86A1	279	L	-----	KGR	--PTG	--SVLYVS	--FGSYA	--HVGK	---	KEI	-----	VEI	AHGL	--
ZmUGFT1	282	L	-----	GRQ	--PAR	--GVAYVS	--FGTVA	--CPRP	---	DEL	-----	REL	AAGL	--
CteUGT78K6	258	L	-----	DSK	--SSR	--SVAYVC	--FGTVV	--SPPP	---	QEV	-----	VAV	AEAL	--
AtUGT78D1	265	M	-----	GKR	--SAA	--SVAYIS	--FGTVM	--EPPP	---	EEL	-----	VAI	AQGL	--
CoUGT78B3	265	L	-----	DAQ	P-KPS	--SVAYIS	--FGTMA	--TPPP	---	QEL	-----	KAL	AEGI	--
MtUGT78G1	267	L	-----	DQH	--ENS	--SVVYIS	--FGSVV	--TPPP	---	HEL	-----	TAL	AESL	--
LgUGT78J1	256	L	-----	GKQT	--RPK	--SVVYIS	--FSTVA	--TPPE	---	KEL	-----	VAL	AEAL	--
CpPGT11	263	L	-----	DQQ	--QAN	--SVIYVA	--LGSHT	--VLEQ	---	NOF	-----	QEL	ALGL	--
AtUGT83A1	280	L	-----	DRQ	--IPG	--SVIYVA	--FGSFG	--VMGN	---	POL	-----	EEL	AIGL	--
FaUGT75T1	260	L	-----	DTK	--ADS	--SVVYVS	--FGSMV	--VLRS	---	GOM	-----	EEM	LHGL	--
AtUGT75C1	262	L	-----	DSK	--LER	--SVIYIS	--LGTHADD	--LPE	---	KHM	-----	EAL	THGV	--
AtUGT75B1	252	L	-----	DSK	--TES	--SVIYVS	--FGTMV	--ELSK	---	KOI	-----	EEL	ARAL	--
AtUGT75D1	272	L	-----	DTK	--ADS	--SVLYVS	--FGTLA	--VLSK	---	KOL	-----	VEL	CKAL	--
ZmUGT74A1	272	L	-----	DTK	--PDR	--SVAYVS	--FGSLA	--SLGN	---	AOK	-----	EEL	ARGL	--
AsUGT74H5	258	L	-----	DAQ	--PPR	--SVTYVS	--FGSMA	--TPGP	---	TEM	-----	AEM	AEGL	--
BdUGT74J7	277	L	-----	DSH	--PPC	--SVVYAS	--YGTVA	--DLDO	---	AOL	-----	EEL	GNGL	--
SrUGT74G1	268	L	-----	DDK	--PKE	--SVVYVA	--FGSLV	--KHGP	---	EOV	-----	EEL	TRAL	--
AtUGT74B1	269	L	-----	ETK	--QAQ	--SVAFVS	--FGSFG	--ILFE	---	KOL	-----	AEL	AIAL	--
RsUGT74R1	259	L	-----	CER	--RAS	--SVIYVS	--FGSMA	--ILKQ	---	EOI	-----	EEL	AKCL	--
LuUGT74S1	268	L	-----	QSK	--PDG	--SVVYVS	--FGSLA	--RLSP	---	QOT	-----	EEL	YFGL	--
AtUGT74F1	258	L	-----	DKR	--PEG	--SVVYIA	--FGSMA	--KLSS	---	EOM	-----	EEL	ASAI	--
SgUGT74AC1	263	L	-----	DSK	--PSG	--SVLYVS	--YGLSV	--EMGE	---	EOL	-----	KEL	ALGI	--
AtUGT74C1	266	L	-----	GNR	--PAK	--SVVYVA	--FGTLV	--ALSE	---	KOM	-----	KEI	AMAI	--
AtUGT74D1	264	L	-----	DSK	--PPG	--SVIYVS	--FGSLA	--VLKD	---	DOM	-----	IEV	AAGL	--
AtUGT74E2	264	L	-----	NSK	--EPN	--SVVYLS	--FGSLV	--ILKE	---	DOM	-----	LEL	AAGL	--
AtUGT84B1	263	L	-----	DKQ	--ARS	--SVVYIS	--FGSML	--ETLE	---	NOV	-----	EEL	AKAL	--
DgphBAGT	273	L	-----	DSK	--PVG	--SVVYVS	--FGSVA	--VLEQ	---	QSM	-----	EEL	TRGL	--
MtUGT84F1	267	L	-----	NTK	--PKG	--SVVYIS	--FGTVV	--YLPQ	---	ELV	-----	YEL	AYGL	--
GtUF6CGT1	274	L	-----	DSR	--PTS	--TVVYVS	--VGSVV	--YLKQ	---	EOV	-----	TEM	AYGI	--
PgUGT84A23	269	L	-----	DSK	--PAS	--SVVYVS	--FGSVV	--YLKQ	---	DOW	-----	DEL	AYGL	--
PgUGT84A24	268	L	-----	DSK	--PPA	--SVVYVS	--FGSVV	--YLKQ	---	DOW	-----	DEL	AFGL	--
AtUGT76E1	257	L	-----	NKQ	--KIG	--SVIYIS	--LGSIA	--LMET	---	KDM	-----	LEM	AWGL	--
AtUGT76D1	254	L	-----	EKQ	--ETS	--SVIYIS	--MGSIA	--MTQD	---	IEA	-----	VEM	AMGF	--
SrUGT76G1	268	L	-----	DQQ	--PPS	--SVLYVS	--FGSTS	--EVDE	---	KDF	-----	LEI	ARGL	--
VvGT15	288	L	-----	DKH	--SPK	--SVIYVS	--WGLA	--CMDA	---	KDL	-----	AEL	AWGL	--
AtUGT76C1	264	L	-----	DMR	--ETR	--SVVYVS	--LGSIA	--SLNE	---	SDF	-----	LEI	ACGL	--
AtUGT76B1	254	L	-----	DKQ	--ATN	--SVIYAS	--LGSIA	--SIDE	---	SEF	-----	LEI	AWGL	--
CsUGT76F1	256	L	-----	DKQ	--APK	--SVIYVS	--FGSIA	--AVSE	---	AEF	-----	LEI	AWGL	--
OsUGT709A4	281	L	-----	DGQ	--ADR	--SVVYVS	--LGSIT	--VISP	---	EOF	-----	TEF	LSGL	--
SrUGT85C2	288	L	-----	QSK	--EPN	--SVVYVN	--FGSTT	--VMSL	---	EDM	-----	TEF	GWGL	--
CoUGT85N1	286	L	-----	QEK	--DPK	--SVLYVN	--IGSLA	--TMTS	---	QOL	-----	GEF	AWGL	--
MeUGT85K4	288	L	-----	DKR	--EPD	--SVVYVN	--YGCVT	--TITN	---	EOL	-----	NEF	AWGL	--
AtUGT85A1	292	L	-----	DTK	--TQN	--SVIYIN	--FGSIT	--VLSV	---	KOL	-----	VEF	AWGL	--
MtUGT85H2	289	L	-----	ESK	--EPG	--SVVYVN	--FGSIT	--VMTP	---	EOL	-----	LEF	AWGL	--
MdUGT71K1	270	L	-----	DDQ	--PQK	--SVVFLC	--FGSMG	--SFGA	---	EOV	-----	KEI	AVGL	--
AtUGT89A2	276	L	-----	DGS	--PNG	--SVLYVC	--FGSQK	--ALTK	---	DOC	-----	DAL	ALGL	--
AtUGT89C1	234	L	-----	DSC	--PED	N-SVVYVG	--FGSQI	--RLTA	---	EOT	-----	AAL	AAAL	--
AtUGT89B1	274	L	-----	DAR	--EDN	--HVYVC	--FGSQV	--VLTG	---	EOT	-----	LAL	ASGL	--
NmUGT89P1	267	L	-----	DTK	TNSDN	--SVVYVC	--FGSRV	--ELTT	---	EOL	-----	DSL	AAAL	--
AtUGT92A1	277	L	-----	DSK	--PDH	--SVVYVC	--FGSMN	--SILQ	---	THM	-----	LEL	AMAL	--
GbUGT92K1	287	L	-----	DSH	--PAS	--SVLYIS	--FGSQN	--SISV	---	SOM	-----	REL	SLGL	--
GmUGT92G4	280	L	-----	DSK	--DEN	--SVLYIS	--FGSLH	--TINA	---	SOM	-----	MAL	AEGL	--
PoUGT90A7	269	L	-----	DQK	LAQGC	--SVLYVA	--FGSQA	--EIST	---	KOL	-----	EAL	SKGL	--
AtUGT90A1	272	L	-----	DQK	--REEGR	PVLYVA	--FGTQA	--EISN	---	KOL	-----	MEL	AFGL	--
AcUGT73J1	260	L	-----	DGK	--EEG	--SVLYVC	--FGSLC	--HFSG	---	GOL	-----	REL	ALGL	--
MtUGT73P1	281	L	-----	DSK	--KYD	--SVLYVS	--FGSMN	--KFPT	---	POL	-----	VEI	AHAL	--
SrUGT73E1	284	L	-----	DER	--KLG	--SVLYVC	--LGSIA	--RISA	---	AQA	-----	IEL	GLGL	--
CpPGT4	274	L	-----	DSQ	--QPS	--SVVYVC	--LGSIC	--NLPS	---	SOL	-----	IEL	GLGL	--
AtUGT73C1	277	L	-----	DSK	--EEG	--SVLYVC	--LGSIC	--NLPL	---	SOL	-----	KEL	GLGL	--
CpPGT2	274	L	-----	DSK	--APK	--SVVYAC	--LGSIC	--NLIP	---	SOM	-----	REL	GLGL	--
PjGAT	282	L	-----	DSM	--KPK	--SVIYAC	--LGSQC	--RLVP	---	AOL	-----	MEL	GLAL	--
CtiUGT73AE1	278	L	-----	DSR	--EPG	--SVIYAC	--FGSSS	--RVIP	---	QOL	-----	IEL	GLGL	--
CaUGT73AH1	281	L	-----	DAE	--KNG	--SVIYVC	--LGSLS	--SLSNLSGA	QI	---	---	IEL	ALGL	--
PzGAT2	279	L	-----	DNW	--ANG	--SVIYAC	--LGSIS	--SLTC	---	TOL	-----	MEL	ALGL	--
AcUGT73G1	272	L	-----	GKK	--SAG	--SVLYVC	--FGSAS	--FFT	---	ROL	-----	REL	AVGL	--
MtUGT73K1	267	L	-----	DTK	--EPS	--SVLYIS	--FGSLC	--RLSN	---	EOL	-----	KEM	ANGI	--
GeUGT73F1	265	L	-----	DSK	--RDD	--SVLYIC	--FGSLC	--HFSD	---	KOL	-----	YEL	ACGV	--
AtUGT73B1	282	L	-----	DSK	--KCD	--SVIYMA	--FGTMS	--SFKN	---	EOL	-----	IEL	AAGL	--
GuUGAT	272	L	-----	QSK	--EPN	--SVVYVC	--FGSMM	--VFSD	---	AOL	-----	KEI	AMGL	--
NmUGT73BD1	265	L	-----	DSK	--KPY	--SVIYAC	--FGSVG	--RLSK	---	LQL	-----	HEI	ALGL	--
NmUGT73BD1	1	L	-----	-----	-----	-----	-----	-----	-----	-----	-----	MTAQ	FHVVFPP	LM-AQGHILP

AtUGT81A1	376	KNLGEAVGQVLIIC	G	---	RNKKL	-----	QSKLSSLDWKI	-----	-----										
AtUGT80A2	418	---DVGFCYLDL	---	ASNYEPPAELVEWLEAGDKPIYIGFGSLPVQE	PEKMT	EIIVEALQ	---	---											
AtUGT80B1	381	---DVGYCFNL	---	GSKYQPREEFLHWIERGSPVYIGFGSMLPDDP	PKQTM	DIILETLK	---	---											
OsZOGT3	296	---RGSKQRFIIV	---	M---	RDADR	-----	GNIFTDTGEGE	TRHAKL	---	SEFSKQT									
OsZOGT1	290	---KGSKQRFIIV	---	L---	RDADR	-----	ANIFADSGESRHAEL	---	---	SRFTAET									
ZmcisZOG1	294	---KGSKQRFVWV	---	L---	RDADR	-----	ADIYAESGESRHAMFL	---	---	SEFTRET									
GmUGT79A6	295	---ELTGLPFIIV	---	L---	NFPSN	-----	LSAKAELERALP	---	---	KGYLERV									
AtUGT79B6	283	---ELTGLPFLVA	---	V---	KPPKG	-----	SSTIQEALP	---	---	KGFEERV									
GmUGT91H9	301	---ELSGLRFFWA	---	L---	RNLQK	-----	---	---	---	EDLP	---	HGFEERT							
ZmUGT91L1	263	---ELAGTRFLWA	---	L---	KRPSV	-----	---	---	---	AHPDEDL	---	PGFEERT							
PoUGT95A1	360	---EESDQPFIVV	---	I	QPGSGKSGIPRSFLGPAAAH	TDDSEEE	EGYYP	---	---	---	DGLDVTV								
MtUGT95B4	310	---ESCEQPFIVV	---	V	QTGKGRPS	---	PPRLRGEPLGIPKAEGYFP	---	---	---	HGLDKRV								
PgUGT95B2	341	---EESSSPFIVV	---	I	---	QPGSGRGGP	RFTFLGKPDSDPKEGYFP	---	---	---	HGLKEKV								
VvUGT95B6	335	---EASNRPFIVV	---	L	---	QPGSG	---	RPGPPRRPGSDSNEDSGYYP	---	---	DGLEEKV								
AtUGT82A1	310	---EASGRPFILWA	---	L	---	---	---	---	---	---	NRVWQEGLP	---	PGFVHRVT						
VpUGT94F1	281	---ELSNVNFIVV	---	I	---	RFPEG	-----	---	---	---	KNSMTVENALP	---	EGFLERV						
AtUGT87A1	280	---REAGVKFFVW	---	A	---	RGGEL	-----	---	---	---	KLK	---	EALEGSL						
AtUGT72C1	289	---ELTGHRFVWV	---	V	---	RPPAE	---	DDPSASMFDKTKNETEPLDFLP	---	---	---	---	NGFLDRT						
AtUGT72D1	293	---ELSGQRFVWV	---	L	---	RRPAS	-----	YLGAISSDDEQVSASLP	---	---	---	---	EGFLDRT						
LjUGT72AD1	300	---ELSGEKFLWV	---	I	---	RPPHK	---	LEFIGDFGVGDEDP	LKCLP	---	---	---	DGFLERT						
AtUGT72B1	276	---ADSEQRFLWV	---	I	---	RSPSG	---	IANSSYFDSHSQTDPLTFLP	---	---	---	---	PGFLERT						
VvUGT1	290	---EMSGQRFLWV	---	V	---	KSPHE	---	TAANASFFSAQTIKDPDFLP	---	---	---	---	KGFLDRT						
LjUGT72AH1	290	---ELSRKKFLWV	---	NV	---	RAPND	---	SAT-ASYLSDDNELSDPLQFLP	---	---	---	---	PGFLERT						
LjUGT72Z2	310	---ELSGQKFLWV	---	V	---	RAPSD	---	SANAAYLGVGNEDPLKFLP	---	---	---	---	SGFIERT						
GmUGT72X4	291	---ELSGQRFLWV	---	L	---	RAPNN	---	SASAAYLEASKEDPLQFLP	---	---	---	---	SGFLERT						
MtUGT72L1	299	---ELSNQKFLWV	---	V	---	RAPSS	---	SSNAAYLSAQNDVDALQFLP	---	---	---	---	SGFLERT						
PgUGT72BD1	299	---EQSQHRFIVV	---	V	---	RPPQE	---	NSACGAYFEQAKRADGTPEYLP	---	---	---	---	DGFVTRT						
AtUGT72E1	285	---EMSQRQFVWV	---	V	---	RPPVDGSACSAYLSANS	GKIRDGTPDYLP	---	---	---	---	---	EGFVSTR						
OsUGT706C1	296	---ENSGHRFLWA	---	V	---	RSNLG	-----	---	---	---	---	---	EVDLEALFP	---	EGFLERT				
OsUGT706D1	295	---ESGHRFLWV	---	V	---	RSPRQ	---	DPANLLEHLPEPDLAALP	---	---	---	---	---	EGFLERT					
MtUGT88E1	297	---EKSEQRFLWI	---	V	---	RSDME	-----	---	---	---	---	---	SEELSLDEL	---	EGFLERT				
VpUGT88D8	286	---ENSGHRFLWS	---	V	---	RNPPG	-----	---	---	---	---	---	INNEPDL	LETL	---	EGFLERT			
NmUGT88P1	300	---ENSGHRFLWV	---	M	---	KSPPI	---	DDKTKRFLPPPEP	DFNLLP	---	---	---	---	EGFLERT					
AtUGT88A1	296	---EKSGQRFLWV	---	V	---	RNPPE	-----	---	---	---	---	---	---	---	LEKTELDKSLP	---	EGFLSRT		
VvGT7	303	---ERSGQRFLWV	---	V	---	RSPPS	---	KDPSRRFLAPPEP	DLNSLLP	---	---	---	---	---	---	DGFLDRT			
MdUGT88F1	307	---EASGQRFLWV	---	V	---	KKPPV	---	EEKSKQVHGVD	DFDLKGVLP	---	---	---	---	---	---	EGFLERT			
ScUGT5	298	---ERSGQRFLWA	---	V	---	KKPPF	---	DKNSKEVEELGEF	NVMEIMP	---	---	---	---	---	---	EGFLDRT			
OsUGT707A2	311	---ERSGHRFLWV	---	L	---	RGRPPAG	---	---	---	---	---	---	---	---	---	SPYPTDADADEL	---	EGFLERT	
AtUGT71B1	290	---ERSGHRFLWS	---	L	---	RRASP	---	VGNKSNPPPGEFT	NLEELP	---	---	---	---	---	---	---	KGFLDRT		
MdUGT71A15	299	---EHSGHRFLWS	---	L	---	RRPPP	---	---	---	---	---	---	---	---	---	QGKRAMP	SDYEDLKT	---	EGFLDRT
BvUGT71F1	312	---EKSGHRFLWS	---	L	---	RKPPS	---	AGTTQPSQDQ	TVEALP	---	---	---	---	---	---	---	---	EGFVDR	
Db6-GT	300	---EQSGYCFLWS	---	L	---	RQPPP	---	---	---	---	---	---	---	---	---	---	---	---	EGFVERT
AtUGT71C1	310	---EIVDCKFIWS	---	F	---	RTNPK	-----	---	---	---	---	---	---	---	---	---	---	---	HGFMDRV
AtUGT71C4	308	---ELVGC	RFLWS	---	I	---	RTSGD	-----	---	---	---	---	---	---	---	---	---	---	EGFMGRV
AtUGT71D1	301	---ELCQYRFLWS	---	L	---	RKEEV	-----	---	---	---	---	---	---	---	---	---	---	---	EGFLDRV
FaUGT71W2	296	---EKSGHRFLWS	---	V	---	RQRPPKG	-----	---	---	---	---	---	---	---	---	---	---	---	QGFLERT
MtUGT71G1	303	---KHSGVRFLWS	---	---	---	NSAEK	-----	---	---	---	---	---	---	---	---	---	---	---	EGFLEWM
MdUGT71K1	302	---EQSGQRFLWS	---	L	---	RMPSP	-----	---	---	---	---	---	---	---	---	---	---	---	DGFLERT
AtUGT89A2	308	---EKSMTRFVWV	---	V	---	KKDPI	-----	---	---	---	---	---	---	---	---	---	---	---	DGFEDRV
AtUGT89C1	267	---EKSSVRFIWA	---	V	---	RDAAK	-----	---	---	---	---	---	---	---	---	---	---	---	AGFEERV
AtUGT89B1	306	---EKSGVHFIWA	---	V	---	KEPVE	-----	---	---	---	---	---	---	---	---	---	---	---	DGFDRV
NmUGT89P1	301	---EISGVHFILC	---	V	---	KLHQE	-----	---	---	---	---	---	---	---	---	---	---	---	KEYEDRV
AtUGT92A1	309	---ESSEKNFIWV	---	V	---	RPPIG	-----	---	---	---	---	---	---	---	---	---	---	---	EGFEERI
GbUGT92K1	319	---EASQQA	FVWA	---	L	---	RPPVG	-----	---	---	---	---	---	---	---	---	---	---	HGFEERM
GmUGT92G4	312	---EESGKSFIWV	---	I	---	RPPVG	-----	---	---	---	---	---	---	---	---	---	---	---	KGFEESM
PoUGT90A7	303	---EESGVN	FLWA	---	V	---	RKYETS	AV	---	---	---	---	---	---	---	---	---	---	DELQERV
AtUGT90A1	306	---EDSKVN	FLWV	---	T	---	RKDVE	-----	---	---	---	---	---	---	---	---	---	---	EGFNDRV
AcUGT73J1	292	---EKCNKN	FLWV	---	V	---	RKEAE	-----	---	---	---	---	---	---	---	---	---	---	ENYKERV
MtUGT73P1	313	---EDSGHDFI	WV	---	V	---	RKIED	-----	---	---	---	---	---	---	---	---	---	---	SEFEKRM
SrUGT73E1	316	---ESINRPF	IWC	---	V	---	RNETD	-----	---	---	---	---	---	---	---	---	---	---	DGFEEV
CpPGT4	306	---EASNKPF	VWV	---	I	---	RGVSK	-----	---	---	---	---	---	---	---	---	---	---	QENFEERI
AtUGT73C1	309	---EESQRPF	IWV	---	I	---	RGWEK	-----	---	---	---	---	---	---	---	---	---	---	ESGYKERI
CpPGT2	306	---EASNRPF	IWV	---	I	---	REGET	-----	---	---	---	---	---	---	---	---	---	---	EDGFEERI
PjGAT	314	---ESSKHP	IWV	---	I	---	KEGER	-----	---	---	---	---	---	---	---	---	---	---	EEFEERI
CtiUGT73AE1	310	---ESSNRPF	IWV	---	I	---	RAGDR	-----	---	---	---	---	---	---	---	---	---	---	ETGFEERT
CaUGT73AH1	316	---EMSGYPF	IWA	---	L	---	RPGIK	-----	---	---	---	---	---	---	---	---	---	---	EEGFEERV
PzGAT2	311	---EASERP	FVWV	---	V	---	RAGGK	-----	---	---	---	---	---	---	---	---	---	---	EEGFEEST
AcUGT73G1	304	---EGSGHAF	IWV	---	V	---	RDDGD	-----	---	---	---	---	---	---	---	---	---	---	EGCEERI
MtUGT73K1	299	---EASKHQ	FLWV	---	V	---	---	---	---	---	---	---	---	---	---	---	---	---	KGFVERM
GeUGT73F1	297	---EASGHEF	IWV	---	V	---	PEKKGKED	-----	---	---	---	---	---	---	---	---	---	---	KGFEERK
AtUGT73B1	314	---DMSGHDF	VWV	---	V	---	NRKGSQ	-----	---	---	---	---	---	---	---	---	---	---	EGFEECT
GuUGAT	304	---EASGKPF	IWV	---	V	---	KKGGA	-----	---	---	---	---	---	---	---	---	---	---	EGFEERM
NmUGT73BD1	297	---ESSGHYF	IWV	---	V	---	KKSEE	-----	---	---	---	---	---	---	---	---	---	---	EGFEERI
NmUGT73BD1	1	-----	-----	-----	-----	-----	-----	-----	-----	---	---	---	---	---	---	---	---	---	MTAQFHVVFFP-LM-AQGLIP

NtTOGT1	304	---	EASGQEF	I	WV	-	V	---	RTELD	-----	-----	-----	NEDWLP	---	EGFEERT	-	
BvUGT73A4	310	---	EASGKDF	I	WV	-	V	---	RNEDD	-----	-----	-----	-----	---	LGEFEQRM	-	
Db5-GT	311	---	EASGQDF	I	WA	-	V	---	RGDHG	-----	-----	-----	QGNSEEWLP	---	PGYEHRL	-	
AtUGT86A1	311	---	LLSGISF	I	WV	-	L	---	RPDIV	-----	-----	-----	GSNVPDFLP	---	AGFVDQA	-	
ZmUGFT1	314	---	EASGAPF	L	WS	-	L	---	REDSW	-----	-----	T	---	---	PGFLDRA	-	
CteUGT78K6	290	---	EESGFPF	V	WA	-	L	---	KESLL	-----	-----	---	---	SILP	---	KGFVERT	-
AtUGT78D1	297	---	ESSKVPF	V	WS	-	L	---	KEKNM	-----	-----	---	---	VHLP	---	KGFLDRT	-
CoUGT78B3	298	---	EASGVPF	L	WS	-	L	---	KDSVK	-----	-----	---	---	LHLP	---	HGFLERT	-
MtUGT78G1	299	---	EECGFPF	I	WS	-	F	---	RGDPK	-----	-----	---	---	EKLP	---	KGFLERT	-
LgUGT78J1	289	---	EACQFPF	L	WS	-	L	---	KEQAR	-----	-----	---	---	ESLP	---	DGFLERT	-
CpPGT11	295	---	EICNRAF	L	WV	-	V	---	RPDIT	-----	-----	---	---	NDANDAYP	---	EGFRERV	-
AtUGT83A1	312	---	ELTKRPV	L	WV	-	-	---	---	-----	-----	---	---	TGDOQP	---	IKLG	---
FaUGT75T1	292	---	VDSGLPV	L	WV	-	I	---	RKSGN	-----	-----	---	---	EGDQETENLIN	---	NTLKKEQ	-
AtUGT75C1	295	---	LATNRPF	L	WV	-	I	---	REKNP	-----	-----	---	---	EEKKK	---	NRFLLELI	-
AtUGT75B1	284	---	IEGKRF	L	WV	-	V	---	TDKSN	-----	-----	---	---	RETKTEGEEETEIE	---	KIAGFRHEL	-
AtUGT75D1	304	---	IQSRRPF	L	WV	-	I	---	TDKSY	-----	-----	---	---	RNKEDEQEKEEDCIS	---	SSEKSFDEI	-
ZmUGT74A1	304	---	LAAGKPF	L	WV	-	V	---	RASDE	-----	-----	---	---	HQVP	---	RYLLAEA	-
AsUGT74H5	290	---	HSSGKAF	L	WV	-	V	---	RASEA	-----	-----	---	---	SKIP	---	DGFQERV	-
BdUGT74J7	309	---	CNSGKRF	L	WV	-	V	---	RSVDE	-----	-----	---	---	HKLS	---	EELRGKC	-
SrUGT74G1	300	---	IDSVDNF	L	WV	-	I	---	KHKEE	-----	-----	---	---	GKLP	---	ENLSEVI	-
AtUGT74B1	301	---	QESDLNF	L	WV	-	I	---	KEAHI	-----	-----	---	---	AKLP	---	EGFVEST	-
RsUGT74R1	291	---	ENLQTRF	L	WV	-	V	---	RETEM	-----	-----	---	---	AKLP	---	SEFVEWN	-
LuUGT74S1	300	---	KNSNHYF	L	WV	-	V	---	RESEV	-----	-----	---	---	AKLP	---	KEYEYS	---
AtUGT74F1	290	---	SNFSY	L	WV	-	V	---	RASEE	-----	-----	---	---	SKLP	---	PGFLETV	-
SgUGT74AC1	295	---	KETGKFF	L	WV	-	V	---	RDTEA	-----	-----	---	---	EKLP	---	PNFVESV	-
AtUGT74C1	298	---	SQTGYHF	L	WS	-	V	---	RESER	-----	-----	---	---	SKLP	---	SGFIEEA	-
AtUGT74D1	296	---	KQTGHNF	L	WV	-	V	---	RETET	-----	-----	---	---	EKLP	---	SNYIEDI	-
AtUGT74E2	296	---	KQSGRFF	L	WV	-	V	---	RETET	-----	-----	---	---	HKLP	---	RNYVEEI	-
AtUGT84B1	295	---	KNRGLPF	L	WV	-	I	---	RPKEK	-----	-----	---	---	AQNVAVLQ	---	EMVKE	---
DgphBAGT	305	---	LNCGQPF	L	WV	-	V	---	RPPPK	-----	-----	---	---	ESSKGGGRLP	---	DWLVOQA	-
MtUGT84F1	299	---	LDSQVTF	L	WA	-	-	---	KKQHD	-----	-----	---	---	DLP	---	YGFLEET	-
PtUF6CGT1	306	---	LNSEVSF	L	WV	-	L	---	RPPSK	-----	-----	---	---	RIGTEPHVLP	---	EEFWEKA	-
PgUGT84A23	301	---	LNSGVNF	L	WV	-	M	---	KPPHK	-----	-----	---	---	DSGYVLTLP	---	EGFLEKA	-
PgUGT84A24	300	---	LNSGLNF	L	WV	-	M	---	KPPHK	-----	-----	---	---	DSGYQLLTL	---	EGFLEKA	-
AtUGT76E1	289	---	RNSNQPF	L	WV	-	I	---	RPGSI	-----	-----	---	---	PGSEWTESLP	---	EEFSRLV	-
AtUGT76D1	286	---	VQSNQPF	L	WV	-	I	---	RPGSI	-----	-----	---	---	NGQESLDFLP	---	EQFNQTV	-
SrUGT76G1	300	---	VDSKQSF	L	WV	-	V	---	RPGSV	-----	-----	---	---	KGSTWVEPLP	---	DGF	---
VvGT15	320	---	ANSNQPF	L	WV	-	V	---	RPGSV	-----	-----	---	---	RGSOWIEQLP	---	ETFMDTV	-
AtUGT76C1	296	---	RNTNQSF	L	WV	-	V	---	RPGSV	-----	-----	---	---	HGRDWIESLP	---	SGFMESL	-
AtUGT76B1	286	---	RNSNQPF	L	WV	-	V	---	RPGLI	-----	-----	---	---	HGKEWIEILP	---	KGFIKNL	-
CsUGT76F1	288	---	ANCKLPF	L	WV	-	V	---	RPGLT	-----	-----	---	---	RGSDCLEPLP	---	SGFMEMV	-
OsUGT709A4	313	---	VAAGHPF	L	WV	-	L	---	RPDMV	-----	-----	---	---	TARLQ	---	HADLQEAVA	-
SrUGT85C2	320	---	ANSNHYF	L	WV	-	I	---	RSNLV	-----	-----	---	---	IGENAVLP	---	PELEEHI	-
CoUGT85N1	318	---	ANSMCPF	L	WV	-	I	---	RPDIL	-----	-----	---	---	DRASGIVS	---	EDYKKEI	-
MeUGT85K4	320	---	ANSKHPF	L	WV	-	V	---	RPDVV	-----	-----	---	---	MGESAVLP	---	EEFYEEI	-
AtUGT85A1	324	---	AGSGKEF	L	WV	-	I	---	RPDLV	-----	-----	---	---	AGEEAMVP	---	PDFLMET	-
MtUGT85H2	321	---	ANCKKSF	L	WV	-	I	---	RPDLV	-----	-----	---	---	IGGSVIFS	---	SEFTNEI	-
MdUGT71K1	302	---	EQSGQRF	L	WS	-	L	---	RMPSP	-----	-----	---	---	KGIVPSDCSNLEEVLP	---	DGFLERT	-
AtUGT89A2	308	---	EKSMTRF	V	WV	-	V	---	KKDPI	-----	-----	---	---	P	---	DGFEDRV	-
AtUGT89C1	267	---	EKSSVRF	I	WA	-	V	---	RDAAK	-----	-----	---	---	KVNSSDNSVEEDVIP	---	AGFEERV	-
AtUGT89B1	306	---	EKSGVHF	I	WA	-	V	---	KEPVE	-----	-----	---	---	KDSTRGNIL	---	DGFDDRV	-
NmUGT89P1	301	---	EISGVHF	I	L	C	V	---	KLHQE	-----	-----	---	---	IS	---	KEYEDRV	-
AtUGT92A1	309	---	ESSEKNF	I	WV	-	V	---	RPPIG	-----	-----	---	---	VEVKSEFDVKGYLP	---	EGFEERI	-
GbUGT92K1	319	---	EASQQAF	V	WA	-	L	---	RPPVG	-----	-----	---	---	TTELSSDHLP	---	HGFEERM	-
GmUGT92G4	312	---	EESGKSF	I	WV	-	I	---	RPPVG	-----	-----	---	---	FDINGEFSAEWLP	---	KGFEESM	-
PoUGT90A7	303	---	EESGVNF	L	WA	-	V	---	VRKYETSAV	-----	-----	---	---	---	---	DELQERV	-
AtUGT90A1	306	---	EDSKVNF	L	WV	-	T	---	RKDVE	-----	-----	---	---	EIIG	---	EGFNDRV	-
AcUGT73J1	292	---	EKCNKNF	L	WV	-	V	---	RKEAE	-----	-----	---	---	GDDVSEKEWMP	---	ENYKERV	-
MtUGT73P1	313	---	EDSGHDF	I	WV	-	V	---	RKIED	-----	-----	---	---	AEDGDDGFL	---	SEFEKRM	-
SrUGT73E1	316	---	ESINRPF	I	WC	-	V	---	RNETD	-----	-----	---	---	ELKTWFL	---	DGFEERV	-
CpPGT4	306	---	EASNKPF	V	WV	-	I	---	RGVSK	-----	-----	---	---	LEALEKWL	---	QENFEERI	-
AtUGT73C1	309	---	EESQRPF	I	WV	-	I	---	RGWEK	-----	-----	---	---	YNELLEWIS	---	ESGYKERI	-
CpPGT2	306	---	EASNRPF	I	WV	-	I	---	REGET	-----	-----	---	---	SKELKKWV	---	EDGFEERI	-
PjGAT	314	---	ESSKHPF	I	WV	-	I	---	KEGER	-----	-----	---	---	FQELEKWL	---	EEFEERI	-
CtiUGT73AE1	310	---	ESSNRPF	I	WV	-	I	---	RAGDR	-----	-----	---	---	ATEIEEWIT	---	ETGFEERT	-
CaUGT73AH1	316	---	EMSGYPF	I	WA	-	L	---	RPGIK	-----	-----	---	---	HKEIEKVI	---	EEGFEERV	-
PzGAT2	311	---	EASERPF	V	WV	-	V	---	RAGGK	-----	-----	---	---	QKEIEKWIL	---	EEGFEEST	-
AcUGT73G1	304	---	EGSGHAF	I	WV	-	V	---	RDDGD	-----	-----	---	---	EQWMP	---	EGCEERI	-
MtUGT73K1	299	---	EASKHQF	L	WV	-	V	---	HG	-----	-----	---	---	KEGEEDNWLP	---	KGFVERM	-
GeUGT73F1	297	---	EASGHEF	I	WV	-	V	---	PEKKGKED	-----	-----	---	---	ESEHEKWKMP	---	KGFEERK	-
AtUGT73B1	314	---	DMSGHDF	V	WV	-	V	---	NRKGSQ	-----	-----	---	---	VEKEDWLP	---	EGFEERT	-
GuUGAT	304	---	EASGKPF	I	WV	-	V	---	KKGGA	-----	-----	---	---	KSEGEKLEWLP	---	EGFEERM	-
NmUGT73BD1	297	---	ESSGHYF	I	WV	-	V	---	KKSEE	-----	-----	---	---	AEKWLP	---	EGFEERI	-
NmUGT73BD1	1	---	---	---	---	---	---	---	---	-----	-----	---	---	MTAQFHVVFFP	---	LM-AQGLIP	-

AtUGT81A1	407	----	PVQVKGFIKMEE	-----	-----	CMGACDCIITKAGPGTIAEAMI
AtUGT80A2	473	RTKQR	GIINKGWGGLGNL	-KEPKDFVYLLDNVPHDWL	FFPRCKAVVHHGGAGTAAAGLK	
AtUGT80B1	436	DTEQR	GIVDRGWGGLGNL	LATEVPENVFLVEDCPHDW	LFPQCSAVVHHGGAGTATGLK	
OsZOGT3	337	--EGT	GMVITGWAPQLEI	-----	-----	LAHGATAAFMSHCGWNSTMESMS
OsZOGT1	329	--EGV	GLVITGWAPQLEI	-----	-----	LAHGATAAFMSHCGWNSTMESLS
ZmcisZOG1	333	--EGT	GLVITGWAPQLEI	-----	-----	LAHGATAAFMSHCGWNSTIESLS
GmUGT79A6	330	--KNR	GVVHSGWVFOQLV	-----	-----	LKHSVSGCYVCHGGFSSVIEAMV
AtUGT79B6	315	--KAR	GVVWGSWVQPLI	-----	-----	LAHPSIGCFVSHCGFGSMWEALV
GmUGT91H9	328	--KER	GIVWKGWAPQIKI	-----	-----	LGHAAIGGCI THCGTNSLVEMLN
ZmUGT91L1	295	--RGR	GSVVTGWVPTSI	-----	-----	LGHGAVAAAFMMHCGWGSTIEALQ
PoUGT95A1	410	--GNR	GLIITGWAPQLLI	-----	-----	LSHPSTGGFLSHCGWNSTAEAIG
MtUGT95B4	356	--GNR	GLIIRGWAPQLLI	-----	-----	LSHTSTGGFLSHCGWNSTIEAIG
PgUGT95B2	388	--GDR	GLIIRGWAPQLLI	-----	-----	LSHPSTGGFLSHCGWNSTVEAIG
VvUGT95B6	378	--GKR	GLIIRGWAPQLLI	-----	-----	LSHPSTGGFLSHCGWNSTVEAIG
AtUGT82A1	338	ITKNQ	GRIVS-WAPQLEV	-----	-----	LRNDSVGCYVTHCGWNSTVEAVA
VpUGT94F1	315	--KGR	GMVWKWFAPQTRI	-----	-----	LAHKSIGGFVSHCGWSSITESVY
AtUGT87A1	306	----	GVVVS-WCDQLRV	-----	-----	LCHAAIGGFVTHCGYNSTLEGIC
AtUGT72C1	334	--KDI	GLVVRTWAPQEEI	-----	-----	LAHKSTGGFVTHCGWNSVLESIV
AtUGT72D1	333	--RGV	GIVVTQWAPQVEI	-----	-----	LSHRSIGGFVSHCGWSSALESIT
LjUGT72AD1	342	--KGQ	GFLVPHYWANQIEI	-----	-----	LSTGVIIGGFVCHCGWNSTLESIV
AtUGT72B1	319	--KKR	GFVIPFWAPQAV	-----	-----	LAHPSTGGFLTHCGWNSTLESIV
VvUGT1	334	--QGL	GLVVS-SWAPQVQV	-----	-----	LSHGSTGGFLTHCGWNSTLETIV
LjUGT72AH1	335	--KGQ	GFVMSGWAPQSAI	-----	-----	LSHGSIGAFVTHCGWNSILESIV
LjUGT72Z2	352	--KGQ	GLVIPSWAPQTOI	-----	-----	LSHSSIGGFVTHCGWNSVLESIV
GmUGT72X4	333	--KEK	GLVVASWAPQVQV	-----	-----	LGHNSVGGFLSHCGWNSTLESVQ
MtUGT72L1	343	--KEE	GFVITSWAPQIQI	-----	-----	LSHSSVGGFLSHCGWSSSTLESVY
PgUGT72BD1	344	--QK	LGLVPMWAPQREI	-----	-----	LAHPSIGGFVSHCGWNSTLESLI
AtUGT72E1	332	--HER	GFMVSSWAPQAEI	-----	-----	LAHQAVGGFLTHCGWNSILESIV
OsUGT706C1	328	--QGR	GFVVKNWAPQSAV	-----	-----	LQHGAVGAFVTHCGWNSLEAIM
OsUGT706D1	337	--ADK	GMVVKSWAPQAKV	-----	-----	LRHAATAAFVTHCGWNSTLEGIT
MtUGT88E1	331	--KEK	GMVVARNWAPQCSI	-----	-----	LRHSSVGGFVTHCGWNSVLEAIC
VpUGT88D8	322	--KER	GFVIKSWAPQKEV	-----	-----	LSHESVGGFVTHCGRSSILEAVS
NmUGT88P1	343	--KER	GVIKSWAPQLAI	-----	-----	LNHDAIGGFVTHCGWNSVLEAIC
AtUGT88A1	332	--EDK	GMVVKSWAPQVPV	-----	-----	LNHKAVGGFVTHCGWNSILEAVC
VvGT7	346	--KER	GLMVKSWAPQVAV	-----	-----	LNHASVGGFVTHCGWNSVLEAVC
MdUGT88F1	350	--ADR	GMVVKSWAPQVVV	-----	-----	LKKESVGGFVTHCGWNSVLEAVV
ScUGT5	341	--KDR	GMVVESWVPOVKV	-----	-----	LEHPAVGGFVTHCGWNSVLEAVM
OsUGT707A2	350	--KGR	GMVWPTWAPQKDI	-----	-----	LAHAAVGGFVTHCGWNSTLESIV
AtUGT71B1	333	--VEI	GKIIS-WAPQVDV	-----	-----	LNSPAIGAFVTHCGWNSILESIV
MdUGT71A15	340	--ATV	GKVIG-WAPQAAI	-----	-----	LGHPATGGFVSHCGWNSTLESIV
BvUGT71F1	352	--AK	IGKIIS-WAPQVSI	-----	-----	LSHPVSGGFVSHCGWNSTLESIV
Db6-GT	339	--SHK	GKIIG-WAPQVSI	-----	-----	LAHKAVGGFVSHCGWNSTLESIV
AtUGT71C1	343	--MDQ	GIVCG-WAPQVEI	-----	-----	LAHKAVGGFVSHCGWNSILESIV
AtUGT71C4	341	--AGR	GLVCG-WAPQVEV	-----	-----	LAHKAIGGFVSHCGWNSTLESIV
AtUGT71D1	330	--DGR	GMICG-WSQVEI	-----	-----	LAHKAVGGFVSHCGWNSILESIV
FaUGT71W2	337	--KGV	GMLCG-WAPQVEV	-----	-----	LGHKSTGGFVSHCGWNSILESIV
MtUGT71G1	329	ELEGK	GMICG-WAPQVEV	-----	-----	LAHKAIGGFVSHCGWNSILESIV
MdUGT71K1	341	--NGK	KGLICGWAPQVEI	-----	-----	LAHSATGGFLSHCGWNSILESIV
AtUGT89A2	332	--SGR	GLVVIRGWVSQLAV	-----	-----	LRHVAVGGFLSHCGWNSVLEGIT
AtUGT89C1	305	--KEK	GLVIRGWAPQTM	-----	-----	LEHRAVGSYVTHLWGVSVLEGMV
AtUGT89B1	338	--AGR	GLVIRGWAPQVAV	-----	-----	LRHRAVGAFLTHCGWNSVVEAVV
NmUGT89P1	326	--AGR	GLIIRGWAPQVAI	-----	-----	LRHRAVGAFLTHCGWNSILEGIA
AtUGT92A1	346	TRSER	GLLVKKWAPQVDI	-----	-----	LSHKATCVFLSHCGWNSILESIV
GbUGT92K1	352	RANNK	GFLIRGWAPQLMI	-----	-----	LSHPSTGGFLSHCGWNSVLESIV
GmUGT92G4	348	RDTKR	GLLVHKWGPQLEI	-----	-----	LSHTSTGAFVSHCGWNSVLESIV
PoUGT90A7	329	--GER	GLIVTEWVDQMEI	-----	-----	LKHESVKGFFVSHCGWNSVLESIC
AtUGT90A1	333	--RES	GMIVRDWVDQMEI	-----	-----	LSHESVKGFFVSHCGWNSVLESIC
AcUGT73J1	326	--GER	GLVVKGWVPTTV	-----	-----	LDHKSVMGFVTHCGWNSLOESTC
MtUGT73P1	345	--KER	NKGYLIWGWAPQLLI	-----	-----	LEHGAVGAVVTHCGWNTIMESVN
SrUGT73E1	346	--RDR	GLIVHWGAPQVLI	-----	-----	LSHPSTGGFLTHCGWNSVLESIV
CpPGT4	339	--KGR	GLLIRGWAPQVLI	-----	-----	LSHPAVGGFVTHCGWNSILEGIV
AtUGT73C1	342	--KER	GLLITGWSPQMLI	-----	-----	LTHPAVGGFVTHCGWNSTLEGIT
CpPGT2	339	--KGR	GLVIWGWAPQVLI	-----	-----	LSHPSIGGFVTHCGWNSVLESIV
PjGAT	347	--KRR	GLLIKGWAPQVLI	-----	-----	LSHPAIKAFVTHCGWNSILEGIV
CtiUGT73AE1	343	--KDR	GLLIRDWAPQLLI	-----	-----	LSHPVSGGFVTHCGWNSILEGIV
CaUGT73AH1	349	--KGR	GMLIWGWAPQVLI	-----	-----	LSHRAIGGFVTHCGWNSILEGIV
PzGAT2	344	--KGR	GLLIRGWAPQVLI	-----	-----	LSHPAIIGGFVTHCGWNSILEGIV
AcUGT73G1	332	--EGR	GLIIKGWAPQMMI	-----	-----	LNHEAVGGYVTHCGWNSILEGIV
MtUGT73K1	330	KEEKK	GMLIKGWVPAALI	-----	-----	LDHPSIGGFVTHCGWNSVLESIV
GeUGT73F1	334	----	KGLIMRGWAPQVLI	-----	-----	LSHRAVGAFLTHCGWNSVLEAVS
AtUGT73B1	346	--KGK	GLIIRGWAPQVLI	-----	-----	LEHKAIGGFVTHCGWNSILEGIV
GuUGAT	338	GESNK	GLIIRGWAPQVMI	-----	-----	LDHGAVGGFVTHCGWNSILEGIV
NmUGT73BD1	326	--KDK	GLIIRGWAPQVSI	-----	-----	LEQESTGGFVTHCGWNSILEAIV
NmUGT73BD1	1	----	-----	-----	-----	MTAQFHVVFVFP-LM-AQGHLP

NtTOGT1	333	--KEK--	GLIIRGWAPQVLI	LDHESVGAFFVTHCGWNSTLEGV
BvUGT73A4	334	--EGK--	GLIIRGWAPQVLI	LEHEVIGAFVTHCGWNSTIEGIA
Db5-GT	343	--Q GK--	GLIIRGWAPQVLI	LEHEATGGFLTHCGWNSALEGIS
AtUGT86A1	343	--QDR--	GLVVQ--WCCQMEV	ISNPVAVGGFFTHCGWNSILESVW
ZmUGFT1	341	AGTGS--	GLVVP--WAPQVAV	LRHPSVGAFFVTHAGWASVLEGV
CteUGT78K6	317	--STR--	GKVVS--WVPQSHV	LSHGSVGVFVTHCGANSVMESVS
AtUGT78D1	324	--REQ--	GIVVP--WAPQVEL	LKHEFAMGVNVTHCGWNSVLESVS
CoUGT78B3	325	--SER--	GKVVP--WTPQSR	LRHPAVGVVIVTHCGWNSIMESIM
MtUGT78G1	326	--KTK--	GKIVA--WAPQVEI	LKHSVGVFLTHSGWNSIVCIV
LgUGT78J1	316	--TSF--	GKIVS--WAPQLQV	LAHDSVGVFVSHCGWNSIESIS
CpPGT11	326	--AAR--	GQMIS--WSPQKQF	LTHPSISCFMSHCGWNSTTEGV
AtUGT83A1	332	--SDR--	VKVVR--WAPQREV	LSSGAI GCFVSHCGWNSTLEGAQ
FaUGT75T1	326	----	GLIVP--WCSQVEV	LSHKSVGCCVSHCGWNSTIESLA
AtUGT75C1	323	RGSDR--	GLVVG--WCSQTAV	LAHCAVGCFFVTHCGWNSTLESLE
AtUGT75B1	323	--EEV--	GMIVS--WCSQIEV	LSHRAVGCFFVTHCGWSTLESV
AtUGT75D1	344	----	GMVVS--WCDQFRV	LNHRSIGCFVTHCGWNSTLESV
ZmUGT74A1	331	--TATGAAMVVP--	WCPQLDV	LAHPAVGCFFVTHCGWNSTLEALS
AsUGT74H5	317	--GGR--	GLVVT--WVAQLEV	LAHGAIGCFVTHCGWNSTMEALG
BdUGT74J7	336	--NEM--	GLIVS--WCPQLEV	LSHKATGCFVTHCGWNSTTEAIV
SrUGT74G1	327	--KTGK--	GLIVA--WCKQLDV	LAHESVGCFFVTHCGFNSTLEAIS
AtUGT74B1	328	--KDR--	ALLVS--WCKQLEV	LAHESIGCFVTHCGWNSTLEGLS
RsUGT74R1	318	LSSGL--	GLVVT--WCNQLDI	LAHETVGCFFVTHCGWNSVLEALC
LuUGT74S1	326	--GEK--	GLVVS--WCSQLQV	LASGKVGCFVTHCGWNSTLEALS
AtUGT74F1	315	--DKDK--	SLVLK--WSPQLQV	LSNKAIGCFMTHCGWNSTMEGLS
SgUGT74AC1	322	--AEK--	GLVVS--WCSQLEV	LAHPVSGCFFVTHCGWNSTLEALC
AtUGT74C1	325	--EEKDS	GLVAK--WVPQLEV	LAHESIGCFVSHCGWNSTLEALC
AtUGT74D1	323	--CDK--	GLIVN--WSPQLQV	LAHKSIGCFMTHCGWNSTLEALS
AtUGT74E2	323	--GEK--	GLIVS--WSPQLDV	LAHKSIGCFVTHCGWNSTLEGLS
AtUGT84B1	324	--GQ--	GVVLE--WSPQEKI	LSHEAISCFVTHCGWNSTMETVV
DgphBAGT	338	--DGK--	GLVVQ--WCPQERV	LAHPVAVCFVTHCGWNSMEILS
MtUGT84F1	324	--SGR--	GKVVN--WSPQEQV	LAHPVAVCFVTHCGWNSMEALT
GtUF6CGT1	339	--GDR--	GKVVQ--WSPQEQV	LAHPATVGFVTHCGWNSTQEAIS
PgUGT84A23	334	--GDR--	GKVVQ--WSPQEQV	LAHPATVGFVTHCGWNSMEALT
PgUGT84A24	333	--GDK--	GKVVQ--WSPQEQV	LAHPVAVCFVTHCGWNSMEALS
AtUGT76E1	322	--SER--	GYIVK--WAPQIEV	LRHPAVGGFFVSHCGWNSTLESIG
AtUGT76D1	319	--TDGR--	GFVVK--WAPQKEV	LRHRAVGGFFVSHCGWNSCLEISIS
SrUGT76G1	330	--GER--	GRIVK--WVPQQEV	LAHGAIGAFVTHSGWNSTLESVC
VvGT15	353	--GER--	CHIVK--WAPQKEV	LGHRAVGGFFVSHCGWNSTLESIS
AtUGT76C1	329	--DGK--	GKIVR--WAPQLDV	LAHRATGGFLTHNGWNSTLESIC
AtUGT76B1	319	--EGR--	CKIVK--WAPQPEV	LAHRATGGFLTHCGWNSTLEGIC
CsUGT76F1	321	--DGR--	GHLVK--WAPQQEV	LAHPAVGAFFVTHNGWNSTLESIC
OsUGT709A4	343	AAAGHSKARVVR--	WAPQRDV	LRHRAVGCFFVTHAGWNSTLEAAV
SrUGT85C2	351	--KKR--	GFIAS--WCSQEKV	LKHPVSGGFLTHCGWGSTIESLS
CoUGT85N1	349	--GGR--	GLLVS--WCQQEKV	LKHPVSGGFLTHCGWNSTLESIC
MeUGT85K4	351	--KDR--	GLLVS--WVPQDRV	LQHPAVGVFLSHCGWNSTLESIC
AtUGT85A1	355	--KDR--	SMLAS--WCPQEKV	LSHPAIGGFLTHCGWNSILESLS
MtUGT85H2	352	--ADR--	GLIAS--WCPQDKV	LNHPVSGGFLTHCGWNSTTESIC
MdUGT71K1	341	--NGK--	KGLICGWAPQVEI	LAHSATGGFLSHCGWNSILESLW
AtUGT89A2	332	--SGR--	GLVVIRGWVSQLAV	LRHVAVGGFLSHCGWNSVLEGIT
AtUGT89C1	305	--KEK--	GLVIRGWAPQTM	LEHRAVGSYVTHLGLWGSVLEGMV
AtUGT89B1	338	--AGR--	GLVIRGWAPQVAV	LRHRAVGAFFVTHCGWNSVVEAVV
NmUGT89P1	326	--AGR--	GLIIRGWAPQVAI	LRHRAVGAFFVTHCGWNSILEGIA
AtUGT92A1	346	TRSER--	GLLVKKWAPQVDI	LSHKATCVFLSHCGWNSILESLS
GbUGT92K1	352	RANNK--	GFLIRGWAPQLMI	LSHPSTGGFLSHCGWNSVLESIS
GmUGT92G4	348	RDTKR--	GLLVHKWGPQLEI	LSHTSTGAFFVSHCGWNSVLESLS
PoUGT90A7	329	--GER--	GLIVTEWVDQMEI	LKHESVKGFFVSHCGWNSVLESIC
AtUGT90A1	333	--RES--	GMIVRDWDQWEI	LSHESVKGFFVSHCGWNSQLESIC
AcUGT73J1	326	--GER--	GLVVKGWVPPQTTV	LDHKSVMGFVTHCGWNSLQESTC
MtUGT73P1	345	--KERNK	GYLIWGWAPQLLI	LEHGAVGAVVTHCGWNTIMESVN
SrUGT73E1	346	--RDR--	GLIVHWGWAPQVLI	LSHPVAVGGFLTHCGWNSTIESIT
CpPGT4	339	--KGR--	GLLIRGWAPQVLI	LSHPAVGGFLTHCGWNSILEGIS
AtUGT73C1	342	--KER--	GLLITGWSPQMLI	LTHPAVGGFLTHCGWNSTLEGIT
CpPGT2	339	--KGR--	GLVIWGWAPQVLI	LSHPVAVGGFLTHCGWNSILEGIS
PjGAT	347	--KRR--	GLLIRGWAPQVLI	LSHPVAVGGFLTHCGWNSILEGIS
CtiUGT73AE1	343	--KDR--	GLLIRDWAPQLLI	LSHPVAVGGFLTHCGWNSILEGIS
CaUGT73AH1	349	--KGR--	GMLIWGWAPQVLI	LSHRAVGGFLTHCGWNSTIEGIC
PzGAT2	344	--KGR--	GLLIRGWAPQVLI	LSHPAIGGFLTHCGWNSILEGIS
AcUGT73G1	332	--EGR--	GLIIRGWAPQMI	LNHEAVGGFLTHCGWNSILEGIS
MtUGT73K1	330	KEEKK--	GMLIKGWVPPQALI	LDHPSVGGFLTHCGWNSVLEAIS
GeUGT73F1	334	----	K--GLIMRGWAPQVLI	LSHRAVGAFFVTHCGWNSVLEAIS
AtUGT73B1	346	--KGK--	GLIIRGWAPQVLI	LEHKAIGGFLTHCGWNSLLEGVA
GuUGAT	338	GESNK--	GLIIRGWAPQVMI	LDHGAVGGFFVTHCGWNSTLEGVC
NmUGT73BD1	326	--KDK--	GLIIRGWAPQVSI	LEQESTGGFFVTHCGWNSTLEAIS
NmUGT73BD1	1	----	----	MTAQFHVVFP-LM-AQGHLP



NtTOGT1	372	GGVPMVMTWPFVFAEQ	-FFNEKLVTEVLKKTG	-AGVGSIQWKR	-----ASEGVKREA
BvUGT73A4	373	AGVPMVMTWPFVFAEQ	-FLNEKLITRVLRI	-IPV---GAKKW	-----DCKPSEEYVVKKND
Db5-GT	382	AGVPMVMTWPFVFAEQ	-FHNEQLLTQILKVG	-VAV---GSKKW	-----TLKPSIEDVIAKED
AtUGT86A1	381	CGLPLLCYPPLLTDO	-FTNRKLVVDDWCIG	-INL---CEKKT	-----ITRDQ
ZmUFGT1	381	SGVPMACRPFPGDQ	-RMNARSVAHVWGF	-AAF---EGA	-----MTSAG
CteUGT78K6	355	NGVPMICRPFPGDQ	-GIAARVIQDIWEVG	-VIV---EGK	-----VFTKNG
AtUGT78D1	362	AGVPMIGRPIILADN	-RLNGRAVEVWVKVG	-VMM---DNGV	-----FTKEG
CoUGT78B3	363	GAVPIVYRPFPGDH	-MLISRFSVDIWKIG	-VSA---GD	-----VVFTKDG
MtUGT78G1	364	GGVPMISRPFPGDQ	-GLNTILTETVLEIG	-VGV---DNGV	-----LTKES
LgUGT78J1	354	SGVPMICRPFPGDQ	-KLNSRMIQDSWKIG	-LRI---EGGV	-----FSKSG
CpPGT11	364	NGVPFLLCWPFFADQ	-FMNTTYICDVWKVG	-LRL-ERNQSGI	-----IGREE
AtUGT83A1	370	NGIPFLCIPYFADQ	-FINKAYICDVWKIG	-LGL-ERDARGV	-----VPRLE
FaUGT75T1	361	AGVPVVGCPIHFADQ	-TTNAKLVEELWGS	-VRA-RANEEGV	-----IERAE
AtUGT75C1	363	SGVPMVAFPPQFADQ	-CTTAKLVEDTWRI	-VKV-KVGEEDG	-----VDGEE
AtUGT75B1	361	LGVPVVAFPQWSDQ	-PTNAKLLAESWKTG	-VRV-RENKDGL	-----VERGE
AtUGT75D1	379	SGVPMVAFPPQWSDQ	-MTNAKLLDCWKTG	-VRVMEKKEEG	-----VVVVDSEE
ZmUGT74A1	371	FGVPMVAMALWTDQ	-PTNARNVELAWGAG	-VRARRDAGAGV	-----FLRGE
AsUGT74H5	355	AGVPMVAVPQWSDQ	-PTNAKFVEDVWCVG	-VRA-RRDPEGV	-----VRRRE
BdUGT74J7	374	TGVPVLLAMPQWTDQ	-PTTAKYVESAWGIG	-VRV-HRDNEGV	-----VRKEE
SrUGT74G1	366	LGVPVVAFPQFSDQ	-TTNAKLLDEILG	-VRV-KADENGI	-----VRRGN
AtUGT74B1	366	LGVPVVAFPQWSDQ	-MNDAKFVEEVWVG	-YRA-KEEAGEV	-----IVKSEE
RsUGT74R1	358	LGVPVVAFPQWSDQ	-PTNAKFVEDVWCVG	-VRA-KEDEDGI	-----VKSMV
LuUGT74S1	364	LGVPVVAFPQWSDQ	-LTNAKFIKDVWKTG	-VRAEADDGKGI	-----MWGMIKREV
AtUGT74F1	354	LGVPVVAFPQWTDQ	-PMNAKYIQDVWKVG	-VRVKAEEKESGI	-----CKREE
SgUGT74AC1	360	LGVPVVAFPQWADQ	-VTNAKFLVDVWVG	-KRV-KRNEQRL	-----ASKEE
AtUGT74C1	365	LGVPVVAFPQWTDQ	-PTNAKFIEDVWKTG	-VRV-RTDGEGL	-----SSKEE
AtUGT74D1	361	LGVALIGMPAYS	-PTNAKFIEDVWVG	-VRV-KADQNGF	-----VPKEE
AtUGT74E2	361	LGVPVVAFPQWTDQ	-PTNAKFMQDVWVG	-VRV-KAEGDGF	-----VRRRE
AtUGT84B1	361	AGVPMVVAFPQWTDQ	-PIDARLLVDVFGIG	-VRMRNDSVDGE	-----LKVEE
DgPHBAGT	376	SGVPMVVAFPQWTDQ	-VTNAKFLTDVYGVG	-VRL-LRSENDL	-----NTFSSER
MtUGT84F1	362	LGVPVVAFPQWTDQ	-LTNAKFLVDVYGVG	-IRL-ARGERKL	-----VRRDD
GtUF6CGT1	377	SGVPMVVAFPQWTDQ	-VTNAKFLVEEFKVG	-VRL-GRGELEN	-----RIITRDE
PgUGT84A23	372	SGMPVVAFPQWGDQ	-VTDAKYLVDVFKVG	-VRM-CRGEAED	-----KLITRDV
PgUGT84A24	371	SGMPVVAFPQWGDQ	-VTDAKYLVDVFKVG	-VRM-CRGEAEN	-----KLIMRDV
AtUGT76E1	360	EGVPMICRPFPGDQ	-KVNARYLERVWRIG	-VQL---EGE	-----LDKGT
AtUGT76D1	358	SGVPMICRPFPGDQ	-RVNTRLMSHVWQTA	-YEI---EGE	-----LERGA
SrUGT76G1	368	EGVPMIFSDFGLDQ	-PLNARYMSDVLKVG	-VYL---ENGW	-----ERGE
VvGT15	391	EGVPMICRPFPGDQ	-RVNTRYISHVWVG	-LEL---ESDE	-----LERVE
AtUGT76C1	367	EGVPMICRPFPGDQ	-FVNARFISEVVRV	-IHL---EGR	-----IERRE
AtUGT76B1	357	EAIPMICRPFPGDQ	-RVNARYINDVWKTG	-LHL---ENK	-----VERLV
CsUGT76F1	359	EGIPMICRPFPGDQ	-KVNARYVSDVWVG	-LQL---ENGL	-----KREE
OsUGT709A4	385	EGVPTVCWPFVFDQ	-QINSRFRVGGVWGTG	-LDM---EGE	-----KDACDAV
SrUGT85C2	389	AGVPMICWPFVFDQ	-LTNCRYICKWEVVG	-LEM---EGE	-----GTKVKRDE
CoUGT85N1	387	EGVPMICWPFVFAEQ	-QTNCFYICNKWIG	-MEI---EGE	-----DFDVKRE
MeUGT85K4	389	GGKPMICWPFVFAEQ	-QTNCKYACDVWKTG	-VEL---EGE	-----STNLKRE
AtUGT85A1	393	CGVPMVCWPFVFAEQ	-QMNCKFCDEWDVG	-IEI---GGD	-----VKREE
MtUGT85H2	390	AGVPMICWPFVFAEQ	-PTDCRFICNEWEIG	-MEI---EGE	-----DTNVKRE
MdUGT71K1	380	HGVPIATWPMYAEQ	-QLNAFRMVRELGMA	-LEM-RLDYKAG	-----SADVVGAD
AtUGT89A2	371	SGAVILGWPMYAEQ	-FVNARLLVEHLGVA	-VRV-CEGGETV	-----PDSDE
AtUGT89C1	344	GGVMLLAWPMYADH	-FFNTTLIVDKLRAA	-VRV---GENRD	-----SVPDSK
AtUGT89B1	377	AGVLMLTWPMYADH	-YTDASLVVDELKVG	-VRA-CEGPDTV	-----PDPDE
NmUGT89P1	365	AGVPMITWPMYADH	-FTNANLLVDELKVA	-MKA-CEGGDSN	-----VNPAM
AtUGT92A1	387	HGVPLLGWPMYAEQ	-FFNSILMEKHIGVS	-VEV-ARGKRCE	-----IKCDD
GbUGT92K1	393	QGVPIIGWPIYAEQ	-FYNSKLLVEEVGVV	-VEL-CRGIDGE	-----VRKNN
GmUGT92G4	389	YGVPMIGWPIYADQ	-PYNVKMLVEEMGVA	-VEL-TRSTETV	-----VSREK
PoUGT90A7	368	SEVPIILAWPMYAEQ	-PLNTRMVVEELKIG	-LRVETCDGSVK	-----GFVKSEG
AtUGT90A1	372	YGVPLLAWPMYAEQ	-PLNAKMVVEEIKVG	-VRV-ETEDGSV	-----KGFVTR
AcUGT73J1	365	AGVPMITWPLFHEQ	-FINAEFLVETMGIG	-ERMWEGFRKSE	-----YRKFDDVIVTAD
MtUGT73P1	386	AGLPPLATWPLFAEQ	-FFNERLLVDVLKIG	-VAV---GAKERNWNEFG	-----DDVVKRED
SrUGT73E1	385	AGVPMITWPLFAEQ	-FLNEAFIVEVLKIG	-VRI---GVERA	-----CLFGEEKVGLVKKED
CpPGT4	378	AGVQMLTWPFFADQ	-FCNEKLIIVNVLRI	-VSVGVEVPMNF	-----GEEKIGVLVNKEN
AtUGT73C1	381	SGVPLLWPLFPGDQ	-FCNEKLAVALKAG	-VRAGVEESMRW	-----GEEKIGVLVDDKEG
CpPGT2	378	AGLPPLTWPFFADQ	-FMNEVFVQILKIG	-VKVGVEVPMIW	-----GEEKIGVLMKRDD
PjGAT	386	SGVPMITWPMYAEQ	-FFNEKLIIVDILRI	-IKVGVQVSVRW	-----GEEKIGVLVKREQ
CtiUGT73AE1	382	AGVPLVTWPLFAEQ	-FLNEKLVVEVLG	-VPVGAPRVVHW	-----GMEDKFGVTVRSDQ
CaUGT73AH1	388	AGVPMITWPLFAEQ	-FVNEKFLVQVVKTG	-VRVGVEAVVDM	-----GYKEEFGVKVVKRED
PzGAT2	383	SGVPMITWPLFAEQ	-FFNEKLVVQVLETG	-VSVGAKEVMPL	-----GEEKFGVKVRSKN
AcUGT73G1	371	VGLPFTWPLFAEQ	-PYNERLIVDVLKVG	-VAVGVKEYSFD	-----PEERTVIEAGS
MtUGT73K1	371	SGVPMITWPMYAEQ	-YYNEKLVTEVHRIG	-VEV---GAAEW	-----SMSPYDAKTVVRAER
GeUGT73F1	371	AGVPMITWPMYAEQ	-FYNEKLVTVQVRIG	-VEV---GAAEW	-----SAIFGEREKVVKRES
AtUGT73B1	385	AGLPMTWPLFAEQ	-FYNEKLVTVQVLKIG	-VSVGVKMMQV	-----VGDVFSREK
GuUGAT	379	AGVPMITWPMYAEQ	-FYNAKFLTDIVKIG	-VGV---GVQTW	-----IGMGGGEPVKKEV
NmUGT73BD1	365	AGVPMATLPTFAEQ	-PFNEKLLTRVLKIG	-IPVGSPLSNRA	-----VSLVKRE
NmUGT73BD1	1				-----MTAQFHVVFFP-LM-AQGHLP





NtTOGT1	420	I A K A I K R V M	--VS	E E A D	--G F R N R A K A	----	Y K E M A R K A I E	-E-G-	G S S Y T G L T T L L E
BvUGT73A4	423	I E K A L R E V M	--E G N E A E	--E R R T R A K E	----	Y K E M A W K A L Q	-E-G-	G S S Y S D L S A L I D	
Dt5-GT	432	I E K A V R E V M	--V G E E G E	--E R R R R A K K	----	L K E M A W R A I E	-E-G-	G S S Y S D L S A L I E	
AtUGT86A1	422	V S A N V K R L M	--N G E T S S	--E L R N N V E K	----	V K R H L K D A V T T V	----	G S S E T N F N L F V S	
ZmUGFT1	420	V A A A V E E L L	--R G E E G A	--R M R A R A K V	----	L Q A L V A E A F G	-P-G-	G E C R K N F D R F V E	
CteUGT78K6	395	F V K S L N L I L	--V Q E D G K	--K I R D N A L K	----	V K Q I V Q D A V G P H	----	G Q A A E D F N T L V E	
AtUGT78D1	402	F E K C L N D V F	-V--H D D G K	--T M K A N A K K	----	L K E K L Q E D F S	-M-K-	G S S L E N F K I L L D	
CoUGT78B3	403	V V N A L D T I L	--H K E E G K	--R I R E S V G M	----	W K L K A T Q V V G D S	----	G S T T H N L D K L L K	
MtUGT78G1	404	I K K A L E L T M	--S S E K G G	--I M R Q K I V K	----	L K E S A F K A V E Q N	----	G T S A M D F T T L I Q	
LgUGT78J1	394	A M E A L N R I M	--T G D E G K	--I I R E N V N V	----	L K E K A T T A V E P Q	----	G S S S K N F Q K L L Q	
CpPGT11	407	I K N K V D Q V L	----	G D Q	--N F K A R A L K	----	L K E K A L S S V R	-E-G-	G S S N K A I Q N F V Q
AtUGT83A1	413	V K K K I D E I M	-R--D G G	--E Y E E R A M K	----	V K E I V M K S V A	-K-D-	G I S C E N L N K F V N	
FaUGT75T1	404	I K R C L E V V M	--G D G V R G E	--E M R R N A Q K	----	W K S L A M K A V N E S	----	G S S D D N L R N F V R	
AtUGT75C1	406	I R R C L E K V M	--S G G E E A E	--E M R E N A E K	----	W K A M A V D A A A	-E-G-	G P S D L N L K G F V D	
AtUGT75B1	404	I R R C L E A V M	----	E E K S V	--E L R E N A K K	----	W K R L A M E A G R	-E-G-	G S S D K N M E A F V E
AtUGT75D1	426	I R R C I E E V M	----	E D K A E	--E F R G N A T R	----	W K D L A A E A V R	-E-G-	G S S F N H L K A F V D
ZmUGT74A1	415	V E R C V R A V M	--D G G E A A S	--A A R K A A G E	----	W R D R A R A A V A	-P-G-	G S S D R N L D E F V Q	
AsUGT74H5	398	L E R C I R E V T	----	G D D	--K Y A C N A L D	----	W K E K S K R A M S	-Q-G-	G S S D M N I T E F L Q
BdUGT74J7	417	V E R C I R E V L	--D G E R K E	--E Y R K N A A R	----	W M K K A K E A M Q	-E-G-	G S S D K N I A E F A A	
SrUGT74G1	409	L A S C I K M I M	--E E E R G V	--I I R K N A V K	----	W K D L A K V A V H	-E-G-	G S S D N D I V E F V S	
AtUGT74B1	410	L V R C L K G V M	--E G E S S V	--K I R E S S K K	----	W K D L A V K A M S	-E-G-	G S S D R S I N E F I E	
RsUGT74R1	401	L E K C V R A V L	--E G E K G E	--V V R R N A G K	----	I K R W A L E A V Q L G	----	G S S D N N I A K F V T	
LuUGT74S1	412	I E R C I R E V M	----	E G E	--E T R R N A D K	----	W G K I I K E A V V	-E-G-	G S S D K N T E D F A T
AtUGT74F1	398	I E F S I K E V M	--E G E K S K	--E M K E N A G K	----	W R D L A V K S L S	-E-G-	G S T D I N I N E F V S	
SgUGT74AC1	403	V R S C I W E V M	--E G E R A S	--E F K S N S M E	----	W K K W A K E A V D	-E-G-	G S S D K N I E E F V A	
AtUGT74C1	408	I A R C I V E V M	--E G E R G K	--E I R K N V E K	----	L K V L A R E A I S	-E-G-	G S S D K K I D E F V A	
AtUGT74D1	404	I V R C V G E V M	--E D M S E K G K	--E I R K N A R R	----	L M E F A R E A L S	-D-G-	G N S D K N I D E F V A	
AtUGT74E2	404	I V R T V G E V M	--E G E K G K	--E I R K N A E K	----	W K V L A Q E A V S	-E-G-	G S S D K S I N E F V S	
AtUGT84B1	405	V E R C I E A V T	--E G P A A V	--D I R R R A A E	----	L K R V A R L A L A	-P-G-	G S S T R N L D L F I S	
DgPHBAGT	421	V A N C I V E V T	--K G P K A E	--E F K K N A L K	----	W K K A A D D A A R	-E-G-	G T S Y N N L D K F V M	
MtUGT84F1	405	L K K C L L E V T	--T G E K A E	--T L K K N A T K	----	L K K A E E E A V A	-V-G-	G S S D R H L D A F M E	
GtUF6CGT1	422	V E R A L R E I T	--S G P K A E	--E V K E N A L K	----	W K K A E E T V A	-K-G-	G Y S E R N L V G F I E	
PgUGT84A23	417	V E Q C L R E A T	--Q G P K A A	--E M K N A L K	----	W K A A A E A S F V	-E-G-	G S S D R N L Q A F V D	
PgUGT84A24	416	V E K C L L E A T	--V G P K A A	--E V K E N A L K	----	W K A A A E A A V A	-E-G-	G S S D R N I Q A F V D	
AtUGT76E1	399	V E R A V E R L I	--M D E E G A	--E M R K R V I N	----	L K E K L Q A S V K S R	----	G S S F S S L D N F V N	
AtUGT76D1	397	V E M A V R R L I	--V D Q E G Q	--E M R M R A T I	----	L K E E V E A S V T T E	----	G S S H N S L N N L V H	
SrUGT76G1	407	I A N A I R R V M	--V D E E G E	--Y I R Q N A R V	----	L K Q K A D V S L M	-K-G-	G S S Y E S L E S L V S	
VvGT15	431	I E R A V R R L M	--V D G E G E	--E M R Q R A M E	----	L K E K V D I C T S	-E-G-	G S S N R A L K E L V E	
AtUGT76C1	406	I E R A V I R L M	--V E S K G E	--E I R G R I K V	----	L R D E V R R S V K	-Q-G-	G S S Y R S L D E L V D	
AtUGT76B1	396	I E N A V R T L M	--T S S E G E	--E I R K R I M P	----	M K E T V E Q C L K	-L-G-	G S S F R N L E N L I A	
CsUGT76F1	398	I E K T I R R V M	--V E K Q G E	--E I R S R I F R	----	L K E K A N H S W K	-Q-G-	R S S F E S I N S L V T	
OsUGT709A4	424	V A R M V R E A M	----	E S G	--E I R A T A Q A	----	L A E K V R R D V A	-D-G-	G S S A T E F K R L V G
SrUGT85C2	428	V K R L V Q E L M	--G E G G H	--K M R N K A K D	----	W K E K A R I A I A P N	----	G S S S L N I D K M V K	
CoUGT85N1	426	I G M M V K E L M	--K G E K G L	--E M R N K V E D	----	L M S K A I K A T T	-P-G-	G S S H T N F E M L M E	
MeUGT85K4	428	L V S I K E M M	--E T E I G R	--E R R R R A V E	----	W R K K A E E A I S	-V-G-	G V S Y N N F D T F I K	
AtUGT85A1	432	V E A V V R E L M	--D G E K G K	--K M R E K A V E	----	W Q R L A E K A T E	--HKL	G S S V M N F E T V V S	
MtUGT85H2	429	L A K L I N E V I	--A G D K G K	--K M K Q K A M E	----	L K K K A E E N T R	-P-G-	G C S Y M N L N K V I K	
MdUGT71K1	427	I E K A V V G V M	----	E K D S	--E V R K K V E E	----	M G K M A R K A V K	-D-G-	G S S F A S V G R F I E
AtUGT89A2	414	L G R V I A E T M	--G E G G R	--E V A A R A E E	----	I R R K T E A A V T	-E A N	G S S V E N V Q R L V K	
AtUGT89C1	387	L A R I L A E S A	--R E D L P E	--R V T L M K	----	L R E K A M E A I K	-E-G-	G S S Y K N L D E L V A	
AtUGT89B1	420	L A R V F A D S V	--T G N Q T E	--R I K A V E	----	L R K A A L D A I Q E R	----	G S S V N D L D G F I Q	
NmUGT89P1	409	L A N V L A E S I	--N G G R A E	--R E R V T E	----	L C D A A L K A V Q	-S G N	G S S A K D L D S L T N	
AtUGT92A1	430	I V S K I K L V M	--E E T E V G K	--E I R K K A R E	----	V K E L V R R A M V	-D-GVK	G S S V I G L E E F L D	
GbUGT92K1	436	V E R I V K M L F	-DGH	D E K G I	--E L R K R A M D	----	L K A A A T I A V S S T	----	G S S I T H L D D F I Q
GmUGT92G4	432	V K K T I E I V M	-D-Y E G K G K	--V M K E K A N E I A A Y	----	I R E A K T E K G K E K	----	G S S V R A M D D L V T	
PoUGT90A7	414	L K K M V K E L M	--E G E N G K	--E V W K K V K E	----	V G E A A K V A M A	-E-G-	G S S W R T L N E L I D	
AtUGT90A1	418	L S G K I K E L M	--E G E T G K	--T A R K N V K E	----	Y S K M A K A A L V	-E G T	G S S W K N L D M I L K	
AcUGT73J1	417	I A G V V G R V M	--G G E K Y E	--E M K R K A K D	----	Y G E K A K K A V D	-E-G-	G S S Y N D V V A L I E	
MtUGT73P1	437	I G K A I G L L M	-G-G G E E C L	--E M R K R V K A	----	L S G A A K K A I E	-V-G-	G S S Y T K L K E L I E	
SrUGT73E1	438	V K K A V E C L M	--D E D E D G D	--Q R R K R V I E	----	L A K M A K I A M A	-E-G-	G S S Y E N V S S L I R	
CpPGT4	431	V K T A I N I L M	--D D G E E R	--N A R S A R E	----	F G E L A K R A I D	-E-G-	G S S Y N N V E L F M Q	
AtUGT73C1	434	V K K A V E E L M	--G D S N D A K	--E R R K R V K E	----	L G E L A H K A V E	-E-G-	G S S H S N I T F L L Q	
CpPGT2	431	V R N A V E K L M	--D E G K E G E	--E R R N R A V K	----	L Q M A N M A V Q E	-E-G-	G S S H L N V T L V I Q	
PjGAT	439	I Q K A I E T I M	--N G G E E G G	--I R K R A T K	----	L S K V G A R A M E	-D-G-	G S S H F N I S L L I Q	
CtiUGT73AE1	435	V S N A I Q K A M	--D V G N E G N	--E R R R K V K A	----	L G K V A E N A I E	-E-G-	G S S Y K N L T L L I K	
CaUGT73AH1	441	V K N A V E C I M	--S E D E E G E	--Y R R N R A K K	----	L A E M A V K A V E	-E-G-	G S S N L N M T L L I Q	
PzGAT2	436	V K E A I E C I M	--L E G K E G Q	--E R R K R A R E	----	L A K E A V R A V E	-E-G-	G S S H L N I T L L I E	
AcUGT73G1	421	I E T A V K K L M	--G D D E E A E	--E R R R R A K E	----	L A A M A R K A V E	-E-G-	G S S Y E L M S D L I R	
MtUGT73K1	423	I E K A V K K L M	--D S N G E G G	--E I R K R A K E	----	M K E K A W K A V Q	-E-G-	G S S Q N C L T K L V D	
GeUGT73F1	423	I E K A V R R L M	--D G G D E A E	--K I R R R A R E	----	F R D K A T R A V Q	-E-G-	G S S H N N L T A L I D	
AtUGT73B1	433	V E G A V R E V M	----	V G E	--E R R K R A K E	----	L A E M A K N A V K	-E-G-	G S S D L E V D R L M E
GuUGAT	428	I E Q A V R R I M	--V G Q E A E	--E M R N R A K E	----	L S Q M A K R A V E	-E-G-	G S S H N D F N S L I E	
NmUGT73BD1	412	V S D A V K R V M	--E G E E A I	--E M R T R A K S	----	L K K M A C K A V E	-E-G-	G S S Y N D L T S L I D	
NmUGT73BD1	1	-----	-----	-----	-----	-----	-----	-----	M T A Q F H V V F F P - L M - A Q G H L I P

AtUGT81A1	522	KK	-----NSLPQLSCTA-----
AtUGT80A2	636	FS	-----
AtUGT80B1	599	WF	-----FIQIGKKCCLPCGGV-----
OsZOGT3	461	HI	-----TR-----
OsZOGT1	460	YI	-----TR-----
ZmcisZOG1	464	YI	-----TR-----
GmUGT79A6	459	QL	-----KSMA-----
AtUGT79B6	442	AL	-----EKLQVNINLE-----
GmUGT91H9	453	AL	-----QKYKTPNSNC-----
ZmUGT91L1	421	SL	-----RTYKN-----
PoUGT95A1	539	FI	-----SQKAT-----
MtUGT95B4	480	FI	-----KQRFV-----
PgUGT95B2	512	FI	-----RQKTK-----
VvUGT95B6	503	FI	-----NQRAP-----
AtUGT82A1	459	EL	-----N-----
VpUGT94F1	442	LC	-----AKNKLQKCD-----
AtUGT87A1	435	DI	-----TKIV-----
AtUGT72C1	454	AY	-----FT-----
AtUGT72D1	465	RC	-----YLVP-----
LjUGT72AD1	471	KW	-----KRLAVEGEGN-----
AtUGT72B1	448	KW	-----KAHKKELEQNGNH-----
VvUGT1	462	IW	-----KNIKV-----
LjUGT72AH1	464	KW	-----KSLGTITQD-----
LjUGT72Z2	481	QI	-----ENFLALK-----
GmUGT72X4	461	QW	-----ECFSGNC-----
MtUGT72L1	472	KW	-----RNLVQKNQI-----
PgUGT72BD1	476	EC	-----KIGLVGLKQRARGA-----
AtUGT72E1	463	ES	-----EHLLEVRRCMARGA-----
OsUGT706C1	457	NL	-----GTNNVKSGPRDTPVHD-----
OsUGT706D1	466	RL	-----VTSE-----
MtUGT88E1	460	SW	-----REHASWTSVSPNSPFLFA-----
VpUGT88D8	451	LV	-----IG-----
NmUGT88P1	472	GW	-----K-----
AtUGT88A1	458	SW	-----SPK-----
VvGT7	475	SW	-----RPG-----
MdUGT88F1	481	SI	-----T-----
ScUGT5	471	VW	-----FGN-----
OsUGT707A2	483	EM	-----AHMSSI-----
AtUGT71B1	467	DV	-----VDNVP-----
MdUGT71A15	470	KI	-----
BvUGT71F1	487	DV	-----LTFE-----
Db6-GT	474	DL	-----LENAGF-----
AtUGT71C1	472	DL	-----IDGVSISK-----
AtUGT71C4	471	EL	-----FEDGSSC-----
AtUGT71D1	461	DV	-----IGIKP-----
FaUGT71W2	467	VL	-----SQNLENN-----
MtUGT71G1	460	DI	-----TGSN-----
MdUGT71K1	472	DV	-----IGQN-----
AtUGT89A2	461	EF	-----EKV-----
AtUGT89C1	432	EM	-----CL-----
AtUGT89B1	465	HV	-----VSLGLNK-----
NmUGT89P1	455	QL	-----NGLKVKIN-----
AtUGT92A1	480	QA	-----MVKKVEN-----
GbUGT92K1	485	KL	-----KYSKGMENQG-----
GmUGT92G4	484	TI	-----LSPKVL-----
PoUGT90A7	461	EL	-----QSVRN-----
AtUGT90A1	466	EL	-----CKSRDSNGASE-----
AcUGT73J1	465	EL	-----KTL-----
MtUGT73P1	485	EL	-----KSFKLEKINKKLVSVT-----
SrUGT73E1	486	DV	-----TETVRAPH-----
CpPGT4	478	DI	-----MQQPSSEVI-----
AtUGT73C1	482	DI	-----MQLEQPKK-----
CpPGT2	479	DI	-----MKHVHSSSQAN-----
PjGAT	487	DI	-----WKQKNNQEKL-----
CtiUGT73AE1	483	DI	-----RELAKD-----
CaUGT73AH1	489	DI	-----IEQVKDRLALS-----
PzGAT2	484	DI	-----M-----
AcUGT73G1	469	EL	-----EGLRDRRNK-----
MtUGT73K1	471	YL	-----HSVVVTKSVELN-----
GeUGT73F1	471	DL	-----RRLRDRKVLD-----
AtUGT73B1	477	EL	-----TLVKLQKEKV-----
GuUGAT	475	DL	-----RSRAH-----
NmUGT73BD1	459	GV	-----KAYRSQSSEAEHEHN-----
NmUGT73BD1	1		-----MTAQFHVVFFP-LM-AQGHLP-----

NtTOGT1	467	DI	-----STYSSTGH-----
BvUGT73A4	470	EL	-----RGLST-----
Db5-GT	479	EL	-----KGYHTSEKE-----
AtUGT86A1	469	EV	-----RNRIETKLCNVNGLEISPSN-----
ZmUFGT1	467	IV	-----CRA-----
CteUGT78K6	442	VI	-----SSS-----
AtUGT78D1	449	EI	-----VKV-----
CoUGT78B3	450	IV	-----TARN-----
MtUGT78G1	451	IV	-----TS-----
LgUGT78J1	441	II	-----CI-----
CpPGT11	451	SI	-----KQWPA-----
AtUGT83A1	458	WI	-----KSQVN-----
FaUGT75T1	452	SL	-----A-----
AtUGT75C1	454	ED	-----E-----
AtUGT75B1	450	DI	CGESLIQNLCEAEEVKVK-----
AtUGT75D1	472	EH	-----M-----
ZmUGT74A1	463	FV	-----RAGATEK-----
AsUGT74H5	442	AL	-----RRSRKSYEAKPIEPLLVGLDA-----
BdUGT74J7	464	KY	-----ASS-----
SrUGT74G1	456	EL	-----IKA-----
AtUGT74B1	457	SL	-----GK-----
RsUGT74R1	448	GL	-----ALKD-----
LuUGT74S1	456	SL	-----INFAETFQFSC-----
AtUGT74F1	445	KI	-----QIK-----
SgUGT74AC1	450	ML	-----KQT-----
AtUGT74C1	455	LL	-----T-----
AtUGT74D1	453	KI	-----VR-----
AtUGT74E2	451	MF	-----C-----
AtUGT84B1	452	DI	-----TIA-----
DgphBAGT	468	EV	-----QALKQGLCTSEEDPHQS-----
MtUGT84F1	452	DI	-----KKHKRC-----
GtUF6CGT1	469	EV	-----ARKTGTK-----
PgUGT84A23	464	EV	-----KRRSIEITASKPAVKAAPNGVVAAAESVVETKANGKVELAA-----
PgUGT84A24	463	EV	-----KRRSIAIQSNKSEPKPVVQNAAVADHFGAKATTNGVAADLAGSNADGKVE-----
AtUGT76E1	446	SL	-----KMMNFM-----
AtUGT76D1	444	AI	-----MMQIDEQ-----
SrUGT76G1	454	YI	-----SSL-----
VvGT15	478	YI	-----SSF-----
AtUGT76C1	453	RI	-----SIIIEPLVPT-----
AtUGT76B1	443	YI	-----LSF-----
CsUGT76F1	445	HI	-----LSLETFTFHTQ-----
OsUGT709A4	468	FL	-----QELATRIQHAN-----
SrUGT85C2	474	EI	-----TVLARN-----
CoUGT85N1	473	DV	-----AKW-----
MeUGT85K4	475	EV	-----ILQQQTQ-----
AtUGT85A1	480	KF	-----LLGQKSQD-----
MtUGT85H2	476	DV	-----LLKQN-----
MdUGT71K1	472	DV	-----IGQN-----
AtUGT89A2	461	EF	-----EKV-----
AtUGT89C1	432	EM	-----CL-----
AtUGT89B1	465	HV	-----VSLGLNK-----
NmUGT89P1	455	QL	-----NGLKVKIN-----
AtUGT92A1	480	QA	-----MVKKVEN-----
GbUGT92K1	485	KL	-----KYSKGMENQG-----
GmUGT92G4	484	TI	-----LSPKVL-----
PoUGT90A7	461	EL	-----QSVRN-----
AtUGT90A1	466	EL	-----CKSRDSNGASE-----
AcUGT73J1	465	EL	-----KTL-----
MtUGT73P1	485	EL	-----KSFKLEKINKKLVSVT-----
SrUGT73E1	486	DV	-----TETVRAPH-----
CpPGT4	478	DI	-----MQQPSSEVI-----
AtUGT73C1	482	DI	-----MQLEQPKK-----
CpPGT2	479	DI	-----MKHVHSSSQAN-----
PjGAT	487	DI	-----WKQKNNQEKL-----
CtiUGT73AE1	483	DI	-----RELAKDH-----
CaUGT73AH1	489	DI	-----IEQVKDRLALS-----
PzGAT2	484	DI	-----M-----
AcUGT73G1	469	EL	-----EGLRDRRNK-----
MtUGT73K1	471	YL	-----HSVVVTKSVELN-----
GeUGT73F1	471	DL	-----RRLRDRKVLD-----
AtUGT73B1	477	EL	-----TLVKLQKEKV-----
GuUGAT	475	DL	-----RSRAH-----
NmUGT73BD1	459	GV	-----KAYRSQSSEAEHEHN-----
NmUGT73BD1	1		-----MTAQFHVVFFP-LM-AQGHLP-----

AtUGT81A1	-----STYSSTGH-----
AtUGT80A2	-----RGLST-----
AtUGT80B1	-----KGYHTSEKE-----
OsZOGT3	-----RNRIETKLCNVNGLEISPSN-----
OsZOGT1	-----CRA-----
ZmcisZOG1	-----SSS-----
GmUGT79A6	-----VKV-----
AtUGT79B6	-----TARN-----
GmUGT91H9	-----TS-----
ZmUGT91L1	-----CI-----
PoUGT95A1	-----KQWPA-----
MtUGT95B4	-----KSQVN-----
PgUGT95B2	-----A-----
VvUGT95B6	-----E-----
AtUGT82A1	---GESLIQNLCEAEEVKVK---
VpUGT94F1	-----M-----
AtUGT87A1	-----RAGATEK-----
AtUGT72C1	-----RRSRKSYEAKPIEPLLVGLDA-----
AtUGT72D1	-----ASS-----
LjUGT72AD1	-----IKA-----
AtUGT72B1	-----GK-----
VvUGT1	-----ALKD-----
LjUGT72AH1	-----INFAETTFQFSC-----
LjUGT72Z2	-----QIK-----
GmUGT72X4	-----KQT-----
MtUGT72L1	-----T-----
PgUGT72BD1	-----VR-----
AtUGT72E1	-----C-----
OsUGT706C1	-----TIA-----
OsUGT706D1	-----QALKQGLCTSEEDPHQS-----
MtUGT88E1	-----KKHKRC-----
VpUGT88D8	-----ARKTGTK-----
NmUGT88P1	-----KRRSIEITASKPAVKAAPNGVVAAAESVVETKANGKVELAA-----
AtUGT88A1	-----KRRSIAIQSNKSEPKPVVQNAAVADHFGAKATTNGVAADLAGSNADGKVE-----
VvGT7	-----KMMNFM-----
MdUGT88F1	-----MMQIDEQ-----
ScUGT5	-----SSL-----
OsUGT707A2	-----SSF-----
AtUGT71B1	-----SIIIEPLVPT-----
MdUGT71A15	-----LSF-----
BvUGT71F1	-----LSLETFTFHTQ-----
Db6-GT	-----QELATRIQHAN-----
AtUGT71C1	-----TVLARN-----
AtUGT71C4	-----AKW-----
AtUGT71D1	-----ILQQQTQ-----
FaUGT71W2	-----LLGQKSQD-----
MtUGT71G1	-----LLKQN-----
MdUGT71K1	-----IGQN-----
AtUGT89A2	-----EKV-----
AtUGT89C1	-----CL-----
AtUGT89B1	-----VSLGLNK-----
NmUGT89P1	-----NGLKVKIN-----
AtUGT92A1	-----MVKKVEN-----
GbUGT92K1	-----KYSKGMENQG-----
GmUGT92G4	-----LSPKVL-----
PoUGT90A7	-----QSVRN-----
AtUGT90A1	-----CKSRDSNGASE-----
AcUGT73J1	-----KTL-----
MtUGT73P1	-----KSFKLEKINKKLVSVT-----
SrUGT73E1	-----TETVRAPH-----
CpPGT4	-----MQQPSSEVI-----
AtUGT73C1	-----MQLEQPKK-----
CpPGT2	-----MKHVHSSSQAN-----
PjGAT	-----WKQKNNQEKL-----
CtiUGT73AE1	-----RELAKDH-----
CaUGT73AH1	-----IEQVKDRLALS-----
PzGAT2	-----M-----
AcUGT73G1	-----EGLRDRRNK-----
MtUGT73K1	-----HSVVVTKSVELN-----
GeUGT73F1	-----RRLRDRKVLD-----
AtUGT73B1	-----TLVKLQKEKV-----
GuUGAT	-----RSRAH-----
NmUGT73BD1	-----KAYRSQSSEAEHEHN-----
NmUGT73BD1	-----MTAQFHVVFFP-LM-AQGHLP-----



