

## Dataset S1

### ST2 targeting vector (KOMP Project ID: CSD35155)

LOCUS KO-first\_condition\_ready\_35155\_MGI:98427 38330 bp dna linear  
UNK  
DEFINITION Mus musculus targeted KO-first, conditional ready, lacZ-tagged  
mutant allele Il1rl1 targeting project(s): 35155  
ACCESSION unknown  
SOURCE Mus musculus.  
ORGANISM Mus musculus  
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia;  
Sciurognathi; Muroidea; Muridae; Murinae; Mus.  
COMMENT cassette: L1L2\_Bact\_P  
COMMENT design\_id: 221092  
FEATURES Location/Qualifiers  
exon 13863..14063  
/db\_xref="ENSEMBL:ENSMUSE00000630167"  
/note="ENSMUSE00000630167"  
exon 14527..14737  
/db\_xref="ENSEMBL:ENSMUSE00000155488"  
/note="ENSMUSE00000155488"  
misc\_feature 9167..15050  
/note="5 arm"  
misc\_feature 15078..15102  
/note="B1 Gateway"  
misc\_feature 15115..15162  
/note="Frt"  
intron 15163..16037  
/note="mouse En2 intron"  
misc\_feature 16035..16037  
/note="Splice Acceptor"  
exon 16038..16210  
/note="mouse En2 exon"  
misc\_feature 16222..16815  
/note="ECMV IRES"  
gene 16816..19876  
/gene="lacZ"  
/note="lacZ"  
misc\_feature 19915..20158  
/note="SV40 polyadenylation site"  
misc\_feature 20162..20195  
/note="loxP"  
promoter 20222..20741  
/note="human beta actin promoter"  
gene 20767..21561  
/gene="NeoR"  
/note="NeoR"  
misc\_feature 21761..22002  
/note="SV40 polyadenylation site"  
misc\_feature 22019..22066  
/note="Frt"  
misc\_feature 22073..22106  
/note="loxP"  
misc\_feature 16052..16129  
/note="FCHK std\_gpr"  
misc\_feature 22122..22142  
/note="B2 Gateway"  
misc\_feature 15051..22172  
/note="Synthetic Cassette"  
exon 22530..22704

```

/db_xref="ENSEMBL:ENSMUSE00000309818"
/type="targeted"
/note="target exon 1 ENSMUSE00000309818"
exon 22823..22985
/db_xref="ENSEMBL:ENSMUSE00000630166"
/type="targeted"
/note="target exon 2 ENSMUSE00000630166"
misc_feature 22173..23200
/note="Critical Region"
misc_feature 23224..23257
/note="Downstream LoxP"
misc_feature 23201..23280
/note="synthetic loxP region"
exon 24631..24699
/db_xref="ENSEMBL:ENSMUSE00000309803"
/note="ENSMUSE00000309803"
exon 26384..26525
/db_xref="ENSEMBL:ENSMUSE00000549380"
/note="ENSMUSE00000549380"
exon 26827..26972
/db_xref="ENSEMBL:ENSMUSE00000549376"
/note="ENSMUSE00000549376"
exon 30372..30518
/db_xref="ENSEMBL:ENSMUSE00000373272"
/note="ENSMUSE00000373272"
exon 31990..32157
/db_xref="ENSEMBL:ENSMUSE00000335446"
/note="ENSMUSE00000335446"
misc_feature 23281..27556
/note="3 arm"

```

```

BASE COUNT 9751 a 8321 c 8385 g 11873 t
ORIGIN

```

```

1 gtgtgtgtgt gtgggggggt agggtagggg ggggcacaca tgtatgcatg tgcacacaca
61 gcagaatacc tgtggaggcc agaggactcc ctcttttctt ctctcatggt ggtcctgggg
121 agacaactca ggttgtcaag cttgaagaca agtgactact catgagccat cttaccatcc
181 tcagaaacac ctttgattgc atctgatttc tttagagact cctagtttta agaggatatg
241 ttcttttttg ctggatggaa aatgagggta tatcaggctg gatggggggac atccaagacc
301 ttctggtttg aggagacttt ccaagatggt tggactagac tctccctttg agatggatgt
361 gatctagcag tctttgagat gcacaccttt caaagccttt ataaatagac acataccaaa
421 tccatacaga actacttagt attttcacat attttttttt ccagtaagac ctttttattt
481 ctagctcgga tggaccttaa cattcgtctc tctagacttt gacgggagca ttgaggacac
541 cacgattcat ttagagagta ccaaagacat aaatgccaag gattgatgaa gactgtttta
601 aagataaata accactttct taaacactga cacgggccac ggtcttcaac attgttattg
661 tcatactcac gacaagtgat atcaagagat ctagacttag ggtagagtca taggccaacc
721 acaacagcag atggggaaaa gatctgctca cgaggaaaaga ctatcacatt agcttgatct
781 ctgttaatgt gataaacacc gaggtcaaaa gaaacttggg gaagaaaggg cttatttcat
841 ctgattcttc tctgtcaact ccataattga gggaaagccag ggcaggatct cagtctgaaa
901 cctggaggca agaattgaag cagaggccat agaaaaacgc tgctaactgg cttgctctcc
961 atatttgttc agactgcttc cttatacaac caaggaccac ctgtctcggg gtgccaccat
1021 ccgcagtggc tgctattccc acattaatta ttaaagaga agatttccca atggcctgtc
1081 cactggccaa tatgatggag acttttctca cttgaggttt cttcttccca gatgattctg
1141 gattgggtca aattggcaaa gcaaagcaaa acaagccaac aagcaaacat ataattttgg
1201 aacaatccat tctagttttc aaaattttta tttttcaaat atcttagttt gaactctata
1261 ttttcaggct tgtgaaatgt tatggcccct ttcccagctc ttacaggggt gcattccatg
1321 aggctaagaa tgtgtttcat gttcgtgcct ctttgagtat ctggattaat gttgtgcatg
1381 tcagtcagtc agtgtgtggt gtgtgattga tcaacttggt ctgggataat gttgagcatg
1441 tcagtcagta ggtggtgtgt ggttgactgc ttgttcatgt tttctccctt ctcatgccat
1501 ggggaataaa gggtaggtga ctccacataa tgtcacatc tgtgtggaga cgacacagta
1561 aaattctggt ggcattgcct tgctggtttt tcaactttta ttcagatgag cagtaaccgc
1621 agaaatgtgg gtaactggtc tcttgacaca aggacaaaag acaaacaaat caaaatataa
1681 aaacaaacaa aaacagaaca ataaaatata aaacaaccaa tgaagcgtaa gatcaaaacc
1741 caggctctaa ctcacactta ttactgactt agccagatgt gacatctgct gagttttcaa
1801 gcactctgcc tggtcaaaata aatcctaaag atgtttgttt gtttcatttt tttaaaatgt

```

1861 agttttgcca aaagtaatgt tcatgtttgg ggcagagaaa ctttaataata gattatcttt  
1921 acagaggtta tttatntagc agcaatcata cattttggac aagagattat tttgagagac  
1981 taaaacaaaa atttcccaa attagacaac aagtaagaga caaaacagga tgtacctaaa  
2041 gagttcgttc tcctccata tggagggctt tagtaaatta cacaacccat tggttcaaaa  
2101 gctactaatg tgaagagaaa caattgtata gataactaga gttggatatt agtattctag  
2161 aacacttgac gtgaactcat aaaatctttc ttataaggac ttgagaggcc atttgggaac  
2221 aggtggaag aatccagtta tgggcacttt ggattctgtc ttcgcttcta ccagccagtg  
2281 gcttgggtaa gatgattatc ttctgagcat cctgtcagtg ggtggaggct acaagggata  
2341 atgtgagcct agtcagtata caaagagctg gttgttcact taagtacatg gcatgtgcca  
2401 gactcttcaa aaccttgaca cagacgtttc aagagtaaca ctgtctgcag aactgtgtgg  
2461 tgtcaccctc agagcacagc tgtagggaa tccgtctatc tacctgctct ctgaggacag  
2521 caagagacct acagccagca ggaattgggc tggttttttt gttttgatga tacttgaag  
2581 tccatggaga taagggtaaa actggaagta cattgtgtca aatgtctaag acaaacagta  
2641 aatgagtgga agatggttaa cagctatctc tgagttacca gagacagttt ctgtctatca  
2701 gctactgggt tcctgtaaag taactgataa ggaacaggg aggtgtttag agataggggtg  
2761 gcaactgtat ttgcataaaa ctattagaga agtcaccttt tgcagttaac aaattctggt  
2821 ggttcgaagc tgaggaataa agatggctag gacctctggc taatgggtgag tagttttcaa  
2881 ggtttattta ttcatttatt attcatttaa tcaaagatgg ctcatctca aagggaaaag  
2941 ctctttctaa tacaacttta ggttaaagat gacaatcact acaacttttg cttatgagaa  
3001 agatagtatt attaatggga attaaaaaaa aatcaacaac aagcaaaacc caaggcacag  
3061 agcaatacgg ttgagctctt gaattctagt gtgtgagatg ggatttttgg ctgcagtgtt  
3121 gagaaggatt ggggtgaaac tctggaagga tgtgaaactt cagagcatgc gtctagagtg  
3181 ctcatggatt ctgatcatc cctgggaacc agataattct ggaaatgatg tagtgaagtg  
3241 ttctgtaatg aaagtgttga gtatgaggtt gtagggtaag gggagagggc tgtgaggggg  
3301 acagtggagg atggtgggag tgagataatc agtctatgtg agagttagga atcaccgagc  
3361 tctccccac ccgtctccc cctcctgccc tctcgtgccc ttctttgaca atcgggctga  
3421 cagtctactt cttgttctc tcaaggtgac cagaagagtg tgtacagcaa aataacctag  
3481 aactggactt caaacgttcc cctgaacat ctgtttttca ttgtagttac tttcagaaat  
3541 taaaaaagaa aaaaaccaa gaggaagtgc acttctatat ctgccagact ttgggcacac  
3601 cactgggcta gtccccttct gaacatctag atgtcacctt gaccattctc tacagagagt  
3661 gactgagaca gacagttcag atttatgcta tcctgcctcc aactcatggt ctttttcttg  
3721 tctactgggg ctctggggca ttgaaactag caactcatac atagtgggtca agtgctctat  
3781 catggagtca cacccecaac ctagtgttca actcctgatc ttgtattcat ttgcttggac  
3841 tctttgttaa gtcttgggtt ccttgtctag aaagccagca agcatgttgg tgctaaccac  
3901 aagctcaaag ggtggtttct aaagaagaat tgggtgtaga atccttagtg ttgtgataag  
3961 agagaacaag aaatactgtc agagttcatc actgttatgt gtccccttcc tgcctctgagc  
4021 acatgcttct atttgtccag ctatctgggt gctggggctg ctaatttgaa agtgtcagat  
4081 ctccagagg agtttggggt tctccctatt tctgattaag ttggtgaggg aaagattttg  
4141 gctctaaggc attttctac ctgggtgctt acatatttgt ggaccagag agcaactgaa  
4201 tctacaggaa gagtgatggg caggaagggc gtgttctctg ttttaagagc tctaattgatt  
4261 aaaaaacatt ttattaagca aacactagta caagctagtg tgtggatggg ttccgggtcct  
4321 tacaacatt tacatgtttg cctgctgtat tttcattcct tcattgggtg cttgggttgg  
4381 tcatttgttt attcatcctt tcttccctc ctccctctc tccctctgtc cctccatctc  
4441 tctctctctc tctctctctc tctctctctc tctctctctc cttctagcca catctctccg  
4501 tatctgttct ttttctttg agacagagtc ttgccatgta gccagctg tcttctaca  
4561 ggtgaacct cctgcttgg cctctcaact actaacacta tgtcacttcc tcttctctt  
4621 ctgaatacat attctaagca gtggagatgt agctcgggtg tcaagtctga acttagcaca  
4681 ttaatgacct cctcaactcc cagcatctcc aaataaatcc aatccgaatg aaaactataa  
4741 tcttttattt ttctgtttat catgtttgtt tttctaacta actgtaagag ggcaggtttt  
4801 caaagcaaac ataccttctt aaatgccagt gatctgttta ttatcctcta ttttcccatg  
4861 aagcaagggg attttctgct tcacacgtct atctttctct cctccatact tacttctagc  
4921 cttaaaaata ttttctagaa tattctagag cctacatcaa aatacagacg tgtgcctaaa  
4981 atctgcctgg gtttctactc acttagtgaa agtgctcagg agtcaggaga tgactctttg  
5041 acttgcctctt atatctccac ctttcttgc ttcaacttggg ccacaggacc tttctgactg  
5101 tcagacctgg gacatccatc ttacgcagga ctccaggctg gctgggtcct tctgcctgag  
5161 ctgcctgagc tgtgcttctg tagtttttct gcaaggcacc atcctaggta gccttcttag  
5221 atcatctgct gtagaattac cttgctatac ctgtccactt tgcccttctc ttttagatcat  
5281 ggtacatgat ctttacttta cttatgctgt ctgctatccc ttgcttctgg ggaataatgt  
5341 ttataacata aggtggtttt atatccctct gttctgtctg gtactttcct atactccaa  
5401 tgtctgaagc aatgaccogt gtctaaccct cacagcagtc tgaggttcaa catgttgcag  
5461 ttgaaagcct gtttgatgca gattgatata gtttactctt acaaaatgct aaggcctgga  
5521 actccttacc aatgagtcct ctaaatactc ccatgacctt tttcttggga aaccctcaa  
5581 attcaggcgc ttgacctggc tttcttccaa tgtctgttat cacttctac caccaactat

5641 cttataaaga ttattttccac atatcttact ttaaattgtgt ggagtcacta aaagtgaatt  
5701 tttattcatt atttattatt agagaggatc ctcccacctc aatcaaccca ataggggactg  
5761 tcctggttgt cttgggtgat tcttgctctt ctaaagttgg ccatcagtat tagccaccgc  
5821 agcactgatg gttacaaaca tgacttgaga aggtagcatg gtggtagcag atgaccgcct  
5881 ctctcctggt cgtcatgccc tgtgcagaat caaagatcct ccaagcattg catctcccca  
5941 acaaagtjac ttggagaact caaaatgaac ctggttcata gaaacatcag catgcatagc  
6001 aaataagcat ctttactttt cagtggcagc aatgaagact tggcattatt gtcagggtgcc  
6061 ctaggtaaag aagttagtct atggttgacc agttacactg aaaataatct gagatcaaac  
6121 aagtctctgt gggttgggtt tgtattgata tatgctgtat tagtaatctc tgaagcagca  
6181 gaaccaattg gtagtcatct ttctacctgg catctctgaa tctatgcttt tttttctttg  
6241 actaatacat aaataggatc atgcaagtcc agagttcaaa agtctggcag gcttaaatat  
6301 gtggaattga taagttcatc ttgaaactga tctaagagag cagcagggtg gaaactgagg  
6361 caggatttct atcacaaata aggcacagtg taccttttgg aagtctatct ctgcccttct  
6421 ggttgtcatg atgctggctg ttggatgagg catgcccttc actgtggaga gctgtcactc  
6481 tggtttgtca atgtatgtgc tgtggacctg gtaaattgtt ttaaggatcat ctatactttc  
6541 atctaagaaa ctggaaataa atctggctga ctgctcttac ttttaagtag aaaactgaaa  
6601 aaaatgataa gggaaaactt ttccaaaggg ttgaagagga aaaatccagg atagaggggc  
6661 cagcaaacca actcagaagg taaagacatc tgtacaaacc tgcagcctg agttaaattc  
6721 ccagtcctta ggtaaaggta caggaagtaa attgattcca tgcaagttat cctttgatta  
6781 ccacatatgt gctaccacat cacatacaat aataatgcta atcaattcaa aacatgaatc  
6841 aaaagaattc ctctagaac aacttgtcct tggaaatttt attgagtcac ctggttctcc  
6901 aggaattgtg gcaaggggta aaataatgtg gctacaacca catgtaggga tttctcctgc  
6961 tgtggcagat cccagaactg acttttagtac tgtgagctcc tgtcacatgt acagaaggaa  
7021 gtctctagtc aagggggggt tatacacctt gttgaatgaa attggatgct gtctctgtcc  
7081 actaaagcac acccagcaca ggctatgtct ctctctccca ggaacacagac ctttgtcacc  
7141 tccctttcca gtgaaccatc cacaaggctt ctctgtttca tcaccagaat ctgtaatccc  
7201 cactactcag catcacataa ggaccgtaca tactgttctg tatttggcaa ctttctgctg  
7261 ggatattttg gggaaagagct tgctcgttca ctttgaatg attccatact ttcagatcat  
7321 gctgtccttg agagtcatca gttcaccatg tccttacagc agcaattcct tccctttgtc  
7381 agtgactatt gccttttctt taccattct gtggatagac ttctgagtca ttttcaggtt  
7441 cggattatag ggtaggctt gtttgtggaa atgtgattta attcactagg agttaaagta  
7501 ctgagaaatg ttgcagtttt ttttttattt tagatattct atcttgtttg tctaaaatgc  
7561 aaaatgtata cactttacac atgaagctca ataagtttcc acacatgtgt agatgacgac  
7621 cctcatctca atttgtatct cctcccgc cccatcctt ctcatatcaa cctctacaga  
7681 taatcatcca tccttgcctt tcacattgcc taacccttg tggttttgaa agagtatata  
7741 tatccctggg ctacacaatg tagagtcttt taagtatgac ctctttcttt cagtataatg  
7801 tttcttggat taattcatgt cgcacacatt ggtgctttat tctctcttat tgctgggcag  
7861 cgttctgtga acacagatgg ttgttcatgt aaattccggg gaacgttgct gcatggccag  
7921 ttcttcttat ataaatcaag acacacaacc acagaggact tgtttgtgtg catgcattat  
7981 tatctctctc aggtgatac acagggggat tcttggttct tatagcaaat gtttaatcag  
8041 aatgactgt agtgtgtgac agtcatgggt tcagtggaaag ctctcatggc catctatgtg  
8101 caatgtctga gagctgggac cacacatgac ctccaatat ttggatttgc taggattttt  
8161 taaaaattgg atgtgaaata gaattgtata gtaatttaat tatattaatg tctgtaatga  
8221 ttgataatgc tgaatattat gatttcaat ttgaatgatg aattttttct tttgttaaat  
8281 ttactttaga tcttttctc attttttaat taccgccttc acttttctta tattggcttt  
8341 aaagagaatt ttgtgaatta tagctataga agtcaattct cagaatgtgt ggactttatt  
8401 tatcagaaac tctgggttag catattttaa tttcaatatc ctttgaagaa cagacactct  
8461 aacttcggcg aagtctaagt tactcattct gttaggatca gtgacatcat ttctgtgtat  
8521 atggtttaag ttcttttctt gtactaagtc aaagagattt aatgttataa aatatgattg  
8581 attttaattt tgtgtgtgtg tgaaaatttt ccacatagat agccagtttt ctatcatcat  
8641 gtgttggaat atgatgtttc ccatacatt tgcttgata gtttcgtgaa atgccagatc  
8701 attctctgag tctatttcta ggtgttcatt ttctgccttt gtccactatg tattataact  
8761 ctgtgccaac attacactgc tataattatt ttagctacat atgaaatctt tttaaaaatt  
8821 tttttattac gtattttctt caattacatt tccaatgcta tcccaaaagt cccccatacc  
8881 ctccccccc tcccctacc acccattccc actttttggc cctggcgctt cctgtactg  
8941 gggcatataa agtttgcgtg tccaatgggc ctctctttcc agtgatggcc gactaggcca  
9001 tcttttgata catatgcagc tagagtcaag agctccgggg tactggttag ttcataatgt  
9061 tgttgcacct acagggttgc agatctctct agctccttgg atactttctc tagctcctcc  
9121 attgggggccc ctgtgatcca tccaatagtt gactgtgagc atccacttat cttaatgtca  
9181 ggttgtttct attctccaac tcgattcctt ttctttgaaa cggcggtttg gatacttgat  
9241 gctgggaaaa atcacagcca cagtactgtt tacacaaagg aagttacacc tggattcaat  
9301 taaggtgtga caaattcata caccagtjac acatggtcag gggatgtgt tgcagtaact  
9361 gctccaaggt ctgaacagct tacttatgtc ttagtcactt tacacatgca aacaattagg

9421 actgcttggg gtttctcaca tgactgcacc ccccccccc cacagagttc tttctccatt  
9481 cttgctgatg gctttgttca tgaccaagat ttccccatgg atcctttccag atgacctggg  
9541 cctggccaaa catgagagag caaagagaag tcaatgtttc aggagagctg aggtctctgc  
9601 atagaggtcc atcattctct cattgtcatc tacactctga ggctggagtg tcagatgcac  
9661 aattcttctc tgtgctgtc ttggctcatt caaccaagtg tgtgtgtgaa gctttccctg  
9721 tttcacacac aaatcacaca gtaataataaa tgtcaaaatc actttccttc ctgtggcctg  
9781 cctgtgaatc ctgttccctc actgggctgc cttgtctggc ctcagtggga gaggatgcac  
9841 atagtctgc agggactgga caagccgggg aaagaaagcc agtaagtagc attcctcttt  
9901 catctctact tcacctocta cttccagggt cttaccttga tctctttctg tgacttccct  
9961 cagcagtgga ttgtagcctg tgaaccaaac aaaccttctc ctccctgctg ggttgctttt  
10021 ggtctcagta gtttcttcat agcatcagaa agcgcaccag gacaccagga tgagccttga  
10081 ggagaagatc tgtctcaggt tggaggagac gagttagtcc atggggagaac aaggggggca  
10141 ttggactctg tttatgaaca gaaaggacag aaagccacag gggcacggag ttgataggca  
10201 atagcatcct gtcaataaag ccacacggac actctaggat attggctttt cctcctgcta  
10261 aagtagaagg gtaccagaga gatgcatgaa ttggtttaga ttcttagggg ttctctggaa  
10321 tcagtgcata tagaagatac tgatgaggca ccagaaagct ctactgagt tttcaataaa  
10381 acgcaagtac aagatgacgt catggataag atggtggggg tatggtgtag gtaggatagg  
10441 gttcacaggt gatactgggt actcatccac atgggctgac tgctgcccac atatatggag  
10501 gaggcgagat caagcgtgaa gaattttgct ctgtgccaac gatgaggtgc tcagtactga  
10561 catgggaaaa gttgtggaga agccagcttt cacggggggc aggaaacaag gctagaggac  
10621 accgggtatt aggttctgca ggtaggaaga cttttctctt gatgcttgta cttcttattg  
10681 ttggggcaga gtgaccttta tagcagaaag ataaagagga agcaacagag cccaagtagg  
10741 tgaatcaaag gatccaggag aaaaatgtgca tttcctgtga tgacaggctg tatgagatct  
10801 gtggctgaca gataacagct atacacaca tttcattagg aaaagaaaaa aaaaaccaa  
10861 tttaaaaatg ttttttattt ataggagggc aaagtaatcc attctttgct tgttctggta  
10921 agatctcctg aaagttatgg aactgggtat atttgtttgt ttttattatg acaaaaaagt  
10981 tcccaactcc tacagtggac ttgtgataag atcggggtac aggcagccag ctcaggtgga  
11041 tgacatttgt agtttaaact taactgcacc gttggccaag tcaaatgaat aagctttgca  
11101 taatatccct tgttacaaaa catgtcagtg ccgtggccca aatggaagga actgactgcc  
11161 ctctcagagt gatttgtttt aatttactat ataggagaaa tgtcagagaa ccagatgata  
11221 aataaattca catataggtt caaaaactgta atcccaaatc aggggaactg gtgcaaaatt  
11281 acgttagata tttgtaaggt tgattttttt ttttttttag aatgaggtag tttgagaca  
11341 taaaagggta tttttttttt tcagaaaagt tggcagatgc tagctggatt ctgaaggact  
11401 tggctacttt aaaactccta tttggttcat tgattggagg ccgtccttgc tcagatgtgc  
11461 ctctgagct gtgtctatg tattctcaaa tggctgcatt ccatgtctac aaagcccaa  
11521 cagaggctga gatggcttat tgtttcttga agaacctggt taagggacag atcttacttt  
11581 aataactcag tcatggtgat cagagaaagg ggttgaccat gacagtttct ctctctcatt  
11641 ttttagtoga ccctgtgaaa aagagaagaa tgcagtgttc ctgtcttcaa ccatttgggt  
11701 ttaaccccag ccacatctga gtgagcttgg ttgaattatt taagcattat tattgctaat  
11761 gatagtacta aataacgtag ccttggtatt tgcctcaact catgctgcat gcaatcctga  
11821 taataagagt caagagcagc aaggaacaca ctcaaggtca agctcccaga cagcaaaagg  
11881 cttgcttttt ctgccatgta aagtgtatca ccagtggcta agagctggct aagccactgg  
11941 gcagagaaga tatacagga gcattccagc ccctataagg agctggctca agctgtgttc  
12001 ttagctagca aacttccat gcttgtcttt ctatgcctgg ctcaacttga ttcggtggct  
12061 agcctttaga gccagcctgc ttgggttcta attctcttag ctctgtgttg tgtggatccc  
12121 ttacttaatc tctgtgcctc tgggtcatca tttggacctt ggagagaaca acagatggc  
12181 attgactgac ttggggaatg aagaattgat atgggagtca cagagagcca cataaagcat  
12241 agaggagata ctgcataaag atttcaatta tatttttcta ttgggtctgg ggtggggatg  
12301 gtccttcaat ccttctatg catgaagaca taaaaggaag tctcataata gagttaagac  
12361 aaggatgctt ggcacaactc aaaaccaacc gttaacattg tttcatttga agccccaaaa  
12421 gatgatggcc tccttgaaa ggcttgggta tcttcatcct agatgagatt atagatcaaa  
12481 atctgaggta ctgactata ctttggacct gagatgctct ttccattatc caacacatct  
12541 aagcacccaa ggaacataaa catcgtttgc ctctcagggc tcatctccat gcccctcctg  
12601 cactctccct aacatgtgat ggtttgtgag attgtccaca gcacaggaaa caattgtgcc  
12661 ccctgacagt atcagcagag gtcatgaaca gcctggagga cagcctgggt cgtgtgtgtg  
12721 tttgagattt ggaatggac attatggtaa acagcattgt ttatctcagc ttcactgacc  
12781 cagcaaaagc aggggggggt gatttaattg gttcccctga ggtggattat gacgttgtgc  
12841 tcatggttaa atattatgt ggaatttca gaaatttcca gtaagtgaga cagcagcatt  
12901 tttgaacaag tcatggattt tggctaaaac taaaatttcta tgatgggagg gttaaaaaaa  
12961 aatgccaaga catctgtgta tttaaaaaga aagagggagc atgccacgt gggctgtctg  
13021 cagaaatgag acgaaggagc gccaaagtag ctacaggctc tgagcttatt ctctccagcc  
13081 cttcatctgg ggtaaagatc aatgactgtc tgaagcttgt aaaagaaaaa agtgcctgca  
13141 aatcaaagaa acgtgcactc ttgaaactac taaggagtta aatatttatt cctagctttg

13201 gggatgtctg tatccctcct ctgactgggtg aaggggaaag ccacagtaat agattcttta  
13261 aaagaaaaag gattatttat tgtgcacaga cctctggcaa gcctccgtgg cttttgagaa  
13321 caagcctagg cagtactat tctttgaaag tttgggggaa cagtcttggg tggcctcctg  
13381 gctaagtgtt tagttcaaat ttttccttcc ttagtTTTTT ataatgatgc ctatctgtga  
13441 gtaactggcat gttgctctag cctgctacac ggctgtggct ttgattgaca ctgtgctttc  
13501 tagtatctac tcaattttat gtttctaagt ttacaaaatg caaaaatttg tttcctttcc  
13561 tcttaattta gttttttttt gtttgttttt tgttttttgt tttttatttt ttttgaggaa  
13621 atgttcaaga gactggtaag gtataatcaa tcatggaaaa aaaatctagt cattgtaagg  
13681 actgctgtct ggtttcacgt tcagtaggga tggatgcaat attgtatacc tgaaacctac  
13741 tattatccat atgtgaattt aataaatacg tgtcaaccga ctgtcctgta tggtaagaac  
13801 aaatcaaaac agtaagtaa aaagcgatac aaattaatta ttttcatgg tttatttttc  
13861 agtatctaca agtatttctc tcttgaccc tacctcagag agcacttgtc aaccgcttag  
13921 tgaacacacc attactatcc tgtgccattg ccatagagag acctcagcca tcaatcacta  
13981 gcacatgatt gacagacaga gaatgggact ttgggctttg gcaattctga cacttcccat  
14041 gtatttgaca gttacggagg gcagtaagta ccgattctca gatgagtggg atgggttgaa  
14101 cttaagtaat tctgggaata tttggcctca ttaagctgc ttgcttctctg ttgttttggg  
14161 ctgaatttta tggtaggaaa ctatttctc ttcattcatt ctttatcgta aatctctcag  
14221 aaggaattct ctataggag tagatcataa tttttgagtt atgtaaatta agacttaaca  
14281 cagtacacga acatggaagt cattagaagc attcattgat ggctaggagc aaacagggac  
14341 agtagtcaa attgattcct tagtctattg caccaagtgg cacatttagt aaaggggttt  
14401 aattgttgac ttcttcttcc tcaaagcatt acaatataat atccatttaa aaatctaatac  
14461 ctgaacagaa actgtagtct ttcacttgg acattttagg atcatgttca tacctttgac  
14521 ttgtaggtaa atcgctcctgg ggtctggaaa atgaggcttt aattgtgaga tgccccaaa  
14581 gaggacgctc gacttatcct gtggaatggg attactcaga tacaatgaa agtattccta  
14641 ctcaaaaaag aatcggatc tttgtctcaa gagatcgtct gaagtctcta ccagccagag  
14701 tggaaagact tgggatttat gcttgtgtta tcagaaggta ctgttcagga aaccattgta  
14761 agccttgtgc ctattcccct ttcattaatg gctggtagcc cagtgtctct tgctttctct  
14821 gtgctgccc ttcagtgaaa cagttaaatt tataaaatga ttagaacaag aagggacgac  
14881 tgagaagacc agcagtctga gggtgatgg gctggctatt gaatatgtaa cagtagaata  
14941 tataattggc agcctgatta gaagaatgac catcttgtct agtgacacat tagaacaatg  
15001 agtaattgct cgatgctctc tgggattaag aaaaaactaa catatgaaac aaggcgcata  
15061 acgataccac gatatacaaca agttgttaca aaaaagcagg ctggcgccgg aaccgaagt  
15121 cctattccga agttcctatt ctctagaaag tataggaact tgaaccctt tcccacacca  
15181 ccctccacac ttgccccaaa cactgccaac tatgtaggag gaaggggttg ggactaacag  
15241 aagaaccogt tgggggaaag ctgttgggag ggtcacttta tgttcttgcc caaggtcagt  
15301 tgggtggcct gcttctgatg aggtggtccc aaggctctgg gtagaagggt agagggacag  
15361 gccaccaag tcaagcccc cccctatcc cataggagcc aggtccctct cctggacagg  
15421 aagactgaag gggagatgcc agagactcag tgaagcctgg ggtaccctat tggagtctt  
15481 caagtaaaa aacttggcct caccaggct cagccttggc tctcctggg aactctactg  
15541 cccttgggat cccttgttag ttgtgggtta cataggaagg gggacgggat tccccttgac  
15601 tggctagcct actcttttct tcagtcttct ccatctctc tcacctgtct ctogaccctt  
15661 tccctaggat agacttggaa aaagataagg ggagaaaaca aatgcaaagc aggccagaaa  
15721 gatthtggct gggcatttct tccgctagct tttattggga tcccctagtt tgtgataggc  
15781 ctttttagta catctgcca tccatctcat tttcacacac acacacacca ctttcttct  
15841 ggtcagtggy cacatgtcca gctcaagtt cctcaacca ccccaatgc ccaacacttg  
15901 tatggccttg ggcggtcat ccccccccc acccccagta tctgcaacct caagctagct  
15961 tgggtgcggt ggttgtggat aagtagctag actccagcaa ccagtaacct ctgccctttc  
16021 tcctccatga caaccaggtc ccaggtcccg aaaaccaaag aagaagaacc ctaacaaaga  
16081 ggacaagcgg cctcgcacag ccttcaactgc tgagcagctc cagaggctca aggctgagtt  
16141 tcagaccaac aggtacctga cagagcagcg gcgccagagt ctggcacagg agctcggtag  
16201 ccggaagatc tggactctag agaattccgc cctctctcct ccccccccc taacgttact  
16261 ggccgaagcc gcttggaaata agccgggtgt gcgtttgtct atatgttatt tccaccata  
16321 ttgccgtctt ttggcaatgt gagggcccg aaacctggcc ctgtcttctt gacgagcatt  
16381 cctaggggtc tttcccctct cgccaaagga atgcaaggtc tgttgaatgt cgtgaaggaa  
16441 gcagtctctc tggaaagctt ttgaagacaa acaactctg tagcgaccct ttgcaggcag  
16501 cggaaccccc cacctggcga caggtgcctc tgcggccaaa agccacgtgt ataagataca  
16561 cctgcaaaag cggcacaacc ccagtgccac gttgtgagtt ggatagttgt ggaagagtc  
16621 aataggtctc cctcaagcgt attcaacaag gggctgaagg atgcccagaa ggtaccctat  
16681 tgtatgggat ctgatctggg gctcggcttc acatgcttta catgtgttta gtcgaggtta  
16741 aaaaactgct agggcccccg aaccacgggg acgtgggttt cctttgaaaa acacgatgat  
16801 aagcttgcca caaccatgga agatcccgtc gttttacaac gtcgtgactg ggaaaaccct  
16861 ggcgttacc aacttaatcg ccttgcagca catccccct tgcagcagct gcgtaatagc  
16921 gaagaggccc gcaccgatcg cccttcccaa cagttgcgca gcctgaatgg cgaatggcgc

16981 tttgcctggt ttccggcacc agaagcgggt cggaaagct ggctggagt cगतत्तत्त  
17041 gaggccgata ctgtcgtcgt ccctcaaac tggcagatgc acggttacga tgcgcccac  
17101 tacaccaacg tgacctatcc cattacggtc aatccgccgt ttgttcccac ggagaatccg  
17161 acgggttgtt actcgctcac atttaatggt gatgaaagct ggctacagga aggccagacg  
17221 cgaattatth ttgatggcgt taactcggcg ttcacatctgt ggtgcaacgg gcgctgggtc  
17281 ggttacggcc aggacagtgc tttgcgctct gaatttgacc tgagcgcatt tttacgcgcc  
17341 ggagaaaacc gcctcgcggt gatgggtgctg cgctggagt acggcagtta tctggaagat  
17401 caggatatgt ggcgatgag cggcattttc cgtgacgtct cgttgctgca taaaccgact  
17461 acacaaatca gcgatttcca tgttgccact cgctttaatg atgatttcag ccgcgctgta  
17521 ctggaggtcg aagtccagat gtgcggcagc ttgcgtgact acctacgggt aacagtttct  
17581 ttatggcagv gtgaaacgca ggtcggcagc ggaccgcgc ctttcggcgg tgaattatc  
17641 gatgagcgtg vtggttatgc cgatcgcgtc aactacgtc tgaacgtcga aaaccgaaa  
17701 ctgtggagcg ccgaaatccc gaatctctat cgtgcggtgg ttgaaactgca caccgccgac  
17761 ggcacgctga ttgaaagcaga agcctcgcat gtcggtttcc gcgaggtgcg gattgaaaat  
17821 ggtctgctgc tgctgaacgg caagccgttg ctgattcgag gcgttaaccg tcacgagcat  
17881 catcctctgc atggtcaggt catggatgag cagacgatgg tgcaggatat cctgctgatg  
17941 aagcagaaca actttaacgc cgtgcgctgt tcgcattatc cgaaccatcc gctgtggtac  
18001 atggtgcccga accgctacgg cctgtatgtg vtggtatgaa ccaatattga aaccacggc  
18061 atggtgcccga tgaatcgtct gaccgatgat ccgcgctggc taccggcgtg gacggaacgc  
18121 gtaacgcgaa tgggtcagcg cgatcgtaat cacccgagtg tgatcatctg gtcgctgggg  
18181 aatgaatcag gccacggcgc taatcacgac gcgctgtatc gctggatcaa atctgtcgat  
18241 ccttcccgcc cggtgacgta tgaaggcggc ggagccgaca ccacggccac cgatattatt  
18301 tgcccgatgt acgcgcgct ggatgaagac cagcccttcc cggtctgctc gaaatggtcc  
18361 atcaaaaaat ggctttcgct acctggagag acgcgcccgc tgatcctttg cgaatacgc  
18421 cacgcgatgg gtaacagtct tggcgttttc gctaaatact ggaggcgtt tcgtcagat  
18481 ccccgtttac agggcggctt cgtctgggac tgggtggatc agtcgctgat taaatgat  
18541 gaaaacggca acccggtggtc ggcttacggc ggtgattttg gcgatacgc gaacgatcgc  
18601 cagttctgta tgaacggtct ggtctttgcc gaccgcacgc cgcattccagc gctgacggaa  
18661 gcaaacacc agcagcagtt tttccagttc cgtttatccg ggcaaacat cgaagtgacc  
18721 agcgaatacc tgttccgtca tagcgataac gagctcctgc actggatggt ggcgctggt  
18781 ggtaagcgcg tggcaagcgg tgaagtgcct ctggatgctg ctccacaagg taaacagtg  
18841 attgaactgc ctgaactacc gcagccggag agcgcggggc aactctggct cacagtcgc  
18901 gtagtgcaac cgaacgcgac cgcatggtca gaagccgggc acatcagcgc ctggcagcag  
18961 tggcgtctgg cggaaaacct cagtgtgacg ctcccgcgc cgtcccacgc catcccgc  
19021 ctgaccacca gcgaaatgga tttttgcatc gagctgggta ataagcgttg gcaattaac  
19081 cgccagtcag gctttctttc acagatgtgg attggcgata aaaaacaact gctgacccg  
19141 ctgctcgatc agttcacccg tgcaccgctg gataacgaca ttggcgtaag tgaagcgacc  
19201 cgcatgacc ctaacgcctg ggtcgaacgc tggaaaggcg cgggccatta ccaggccgaa  
19261 gcagctgtgt tgcagtgcac ggcatgatac cttgctgatg cgggtgctgat ccagccgct  
19321 cacgcgtggc agcatcaggg gaaaacctta tttatcagcc ggaaaaccta ccggattgat  
19381 ggtagtggtc aaatggcgat taccgttgat gttgaagtgg cgagcgatac accgcatccg  
19441 gcgcggattg gcctgaactg ccagctggcg caggtagcag agcgggtaaa ctggctcgga  
19501 ttagggccgc aagaaaacta tcccagacc cttactgccg cctgttttga ccgctgggat  
19561 ctgccattgt cagacatgta taccocgtac gtcttcccga gcgaaaacgg tctgcgctgc  
19621 gggagcgcgt aattgaatta tggcccacac cagtggcgcg gcgacttcca gttcaacatc  
19681 agccgctaca gtcaacagca actgatggaa accagccatc gccatctgct gcacgggaa  
19741 gaaggcacat ggctgaatat cgacggtttc catatgggga ttggtggcga cgactcctgg  
19801 agcccgtcag tatcggcgga attccagctg agcgcgggtc gctaccatta ccagttggtc  
19861 tgggtcaaaa aataataata accgggcagg ggggatctaa gctctagata agtaatgatc  
19921 ataacagcc atatcacatc tgtagagggt ttacttgctt taaaaacct cccacacctc  
19981 ccctgaacc tgaacataa atgaatgca attgttggtg ttaacttggt tattgcagct  
20041 tataatgggt acaataaag caatagcatc acaatttca caataaagc attttttca  
20101 ctgcattcta gttgtggttt gtccaaactc atcaatgtat ctatcatgt ctggatccgg  
20161 aataacttgc tatagcatac attatacga gttatgttta aacggcgcgc cccggaattc  
20221 gccttctgca ggagcgtaca gaaccaggg ccctggcacc cgtgcagacc ctggcccacc  
20281 ccacctgggc gctcagtgcc caagagatgt ccacacctag gatgtcccgc ggtgggtggg  
20341 gggcccgaga gacgggcagg ccggggcagc gcctggccat gcggggcga accgggcact  
20401 gccagcgtg ggcgggggc ccacggcgcg cccccagc cccggggccc agcacccaa  
20461 ggcggccaac gccaaaactc tccctctcc tcttctcaa tctcgtctc gctcttttt  
20521 ttttctgcaa aaggagggga gagggggtaa aaaaatgctg cactgtgcgg cgaagccggt  
20581 gagtgagcgg cgcgggcca atcagcgtgc gccgttccga aagttgcctt ttatggctcg  
20641 agcggccgcg gcgvcgccct ataaaacca gcggcgcgac gcgccaccac ccgagacc  
20701 gcgtccgcc ccgagcaca gagcctcgc tttgccgatc ctctagagtc gagatccgc

20761 gccaccatga ttgaacaaga tggattgcac gcaggttctc cgcccgcttg ggtggagag  
20821 ctattcggct atgactgggc acaacagaca atcggctgct ctgatgccgc cgtgttccgg  
20881 ctgtcagcgc aggggcgccc ggttcttttt gtcaagaccg acctgtccgg tgccctgaat  
20941 gaactgcagc acgaggcagc gcggctatcg tggctggcca cgacgggctg tccttgcgca  
21001 gctgtgctcg acgttgtcac tgaagcggga agggactggc tgctattggg cgaagtgcg  
21061 gggcaggatc tcctgtcatc tcaccttgct cctgccgaga aagtatccat catggctgat  
21121 gcaatgcggc ggctgcatac gcttgatccg gctacctgcc cattcgacca ccaagcgaaa  
21181 catcgcacg agcagcagc tactcggatg gaagccggtc ttgtcgatca ggatgatctg  
21241 gacgaagagc atcaggggct cgcgccagcc gaactgttcg ccaggctcaa ggccgcatg  
21301 cccgacggcg aggatctcgt cgtgacccat ggcgatgcct gcttgccgaa tatcatggtg  
21361 gaaaaatggc gcttttctgg attcatcgac tgtggccggc tgggtgtggc ggaccgctat  
21421 caggacatag cgttggctac cgttgatatt gctgaagagc ttggcggcga atggcctgac  
21481 cgcttctcgc tgctttacgg tatcgcgct cccgattcgc agcgcacgc cttctatcgc  
21541 cttcttgacg agttcttctg agcgggactc tggggttcga aatgaccgac caagcgacgc  
21601 ccaactgcc atcacagat ttcgattcca ccgcccctt ctatgaaagg ttgggcttcg  
21661 gaatcgtttt ccgggacgcc ggctggatga tcctccagcg cggggatctc atgctggagt  
21721 tcttcgccc cccccggat ctaagctcta gataagtaat gatcataatc agccatata  
21781 catctgtaga ggttttactt gctttaaana acctcccctg cctcccctg aacctgaaac  
21841 ataaaaatgaa tgcaattggt ttggttaact tgtttattgc agcttataat ggttacaat  
21901 aaagcaatag catcacaat ttcaacaata aagcattttt ttactgcat tctagttgtg  
21961 gttgtccaa actcatcaat gtatcttctc atgtctggat ccgggggtac cgcgtcgaga  
22021 agttcttatt ccgaagttcc tattctctag aaagtatagg aacttcgctg agataacttc  
22081 gtatagcata cattatacga agttatgtcg agatatctag acccagcttt cttgtacaaa  
22141 gtggttgata tctctatagt cgcagtaggc ggaacactg ccacatgttt agatttcatg  
22201 ccactctctga tactcacaat agtgcagata agcctgggta tggtttgggtg accacagttt  
22261 ccaactcagg ccctgtacc agttaggtgt gtgctgccac caagtgacct ctctgactct  
22321 aggttctca tctgtataat tcatacagta gtatcattat gatcccaaaa tcaccactgt  
22381 gagaataaaa tgatgtaatt cacgaagagg gcttcaactc gtatctgggt caacaacat  
22441 tggcacaaca ttgtccaaga gttacagctg gataaagcta tatcatggta ataagtatct  
22501 ctttttaaat ctttggctt ttttaatagc cccaacttga ataagactgg aacttgaat  
22561 gtcaccatac ataaaaagcc gccaagctgc aatatccctg attatttgat gtactcgaca  
22621 gtactgtgat cagataaaaa ttcaagata acgtgtccaa caattgacct gtataattgg  
22681 acagcacctg ttcagtggtt taaggtaaac gtttgaatc tggggagaaa atgataacat  
22741 ctgcacaagt gatgtagctg agagtgaaaa ttgagtggaa gaaggttggg aagtcttctt  
22801 gttgttgttg ttgttgcttc agaactgcaa agctctcaa gagccaaggt tcagggcaca  
22861 caggtcctac ttgttcattg acaactgac tcatgatgat gaaggtgact acacttgtca  
22921 attcacacac gcggagaatg gaaccaacta catcgtgacg gccaccagat cattcacagt  
22981 tgaaggtaa cctctggctt caacaaggga taaaattcaa acaaatgcaa tcagggagac  
23041 ctgtgcact ctggtgcat ttctactcct cctcccttag tctattcctt tctacttctt  
23101 cttacttcc atattatact ctaacatgaa aggaagttgc catgaagcat aggtttaaaga  
23161 attccaggga aagatattgt tgaatcaaag ccatagctgt gagatggcgc aacgcaatta  
23221 atgataactt cgtatagcat acattatac aggttatagg ctgagctcgc catcagttca  
23281 ggggagggg gaaggttaa tttcaagaa taaccagtc tgaatttctt ccttctctct  
23341 cctgctccc cttcctctc tcctccttct ttaacaactc ctcctctctt tcctctctct  
23401 cctcctctc ttctggcta atctccagaa tgcttatata cctaaatcct ggatgatcca  
23461 gtgtcatata ttttctcag aggttctca cctcctcct taaattatac ccatctctg  
23521 gattacttgc aataaccaat acaactgaa aaaaaaaaaac ccaggtgtcc tgcttcatag  
23581 agaataatac atctacaaaa caaagtcta cacaaagatt atcaagaag ccactatag  
23641 tagctagttg agttcctgga tataaaagcc acaaatagg aggctagagt gtaacagggc  
23701 acagtacttt tatacacact gctggatggg tttcagtcct ggtctataat gcttttgaca  
23761 tcatcagtggt ttcaaagca ggtcatttgt tttagaaaaga actttttcca aatattgaat  
23821 caacgttaaa gaagacatta gaggggaaga ttccctaatac atagttgatg gtatttatag  
23881 aattgaggtt tttctgggt gcagttctc tatcgaagac atggggtctc actatcaagt  
23941 ggcattggaac aagaatagga ctaagcaata ctggagacaa tgttttgttt agagcctttc  
24001 tgactccat tgctgagag taagcatcac caaccacag ttgtgtctgt cctctcatt  
24061 gtttaatgtc aagtctgca atgtttctta atctcaatac ccagaaagaa aatgagcata  
24121 taaggtgaa gggttcatcc atgctcccag agacctcct gctcccact cccaccat  
24181 ctcagtgga acaggagga aaactacgc ggaggaagaa gaaacctctc catgtacaca  
24241 tggcaccagt ggtggagagc tgtgaacagt ggacctgtgg gctcctgaac acgtcttctg  
24301 catggatata ttgacagcat cttctttgaa tgtctatgct tcttctatag aatcatagtt  
24361 atcaataat ttataagtta cagagtcatt ggatcaggca gtatttctct tgatgatata  
24421 gaagatatca aaaaataaca taggaatagt aatcagaaga agtgtggcat aaattacttg  
24481 ttccatttgg gtatctgcac tgccaaaggt tattttccaa gagttgacac actgctgtga



24541 aattaaatag aacttcaaaa gacttgcttt atattgatga ctaatcaata cttcaataat  
24601 tatattctat ttctgttttt aatttttaag aaaaaggctt ttctatgttt ccagtaatta  
24661 caaatcctcc atacaaccac acaatggaag tggaaatagg taagaaaatt taaactactc  
24721 tctgttgacc tgggaaaacg tttccttagg atttcagggtc tggtttccta tgggaagggtc  
24781 acgaattagt agaggggaac ttggggatca tgtgaggatga caatatgaaa acacctgccc  
24841 ccgtcacagc aaaaatcagc actgcatttg tgttgagcct tggagttcat ggttatgtca  
24901 tagaagtatt tcttgttata atcagttctg cctagggagc agttgtcctc acttcaactgt  
24961 tgaggaggaa tataggctca gagatgctca aaggagcacc aaaggctcatg gatagcaaaa  
25021 gagcgagagt agagttttat gaatctgctt ctgctcttgt tggttttcat tagatgctgg  
25081 gtccaatgga aagaacttgg tgtctgaaac accatgatga atcataacctc cctcaccaca  
25141 ctctgtaacc aatcactctc ctacactctt gcctcagca taccactgtc tgatgacatg  
25201 tgtgcttgca ttcttcccta ttctgcccac atggccgttc ctcatctctg tggagcgaga  
25261 tcatacgtaa cctcccatgt gcagtccttc ctgcctccct cttccttgcc aacaagcagt  
25321 ttctagctgc atcatcagct caagtcttgg ctactagatt ttattttaca gtgtggtagc  
25381 ctctaatoct ttctccacag ctttgccttt ccagagactg tcaggctcctc cctcatgcct  
25441 gtgatgtgac tcatttttag gcaagctcaa gtataagtct gaggttctga aagggaaagt  
25501 tgaatgtata actgtagcca aaatcagctc tgatgttttc tttctttttt attggtaatt  
25561 taattttttt acatttcaaa tgctatcccc ctctctgggt tccccttcac aaatccccat  
25621 cccatccccc ctccccctgc ttctaagagg gtgctcacc acctacacac tctgccccta  
25681 ccaccctagc agtccccctc actgggacat caaaccttca caggattaag tacctctcct  
25741 ccatttgatg cccgacaagg ccatcctctg ctacatatgc agctagagcc atggatccct  
25801 ccatgtgtat tctttgggta gtggtttagt cctggggagc tctggggagg ggcctagttg  
25861 gttgatcttg ttgttctttc tatgggggtg caaacccctt tagtaccttt aatccttctc  
25921 ctaactcatt tggccccaa gctcagtcag acagttggct gccagcatcc gcatctgtat  
25981 tggccaggag atcactctgt gaatggtgac attcaggtta cttgatagtt ggcttgggta  
26041 aagctgtttt agctccagag gtacgctgtg aagagataag aggaattctg taggaagaga  
26101 aagctgtgga agagaccagt gaaaaagaaa ctacttttt aactagcagc aactcctatg  
26161 tgattatgtg aggcacagag aagctttgtg ttccctgagt taagaggggtg ctagggctat  
26221 aaggacatg gagacattgg ggaggagggtg tgagaacaaa gaggcacagc acgaggataa  
26281 ggaagggatg tgagcagaac tacagggtcta ttacactgtg tgaaactgga tgccactagc  
26341 agaattcaac ttttgtgatg aatctcttca cttttttatc taggaaaacc agcaagtatt  
26401 gcctgcttcc cttgctttgg caaaggctct cacttcttgg ctgatgtcct gtggcagatt  
26461 aacaaaacag tagttgaaa ttttggtgaa gcaagaattc aagaagagga aggtcgaaat  
26521 gaaagggatg tcatctatca tatctatcta tctatctatc tatctatcta tctatctatc  
26581 tatctatcta tctatctatc tatcatctat tgagacaaa ccttactagg tatgtcctag  
26641 aactctctgt gtagaccagc ttaacctcaa ttctctgctt cctgaatgat gggattatta  
26701 tatcccatca ttgggatata atattaccat gccagcaat ttctatattg aagctgaaac  
26761 atccctctgt gcctcctcac agctggcact tggcaggaaa acattagtaa tatgttgcct  
26821 tctcagttcc agcaatgaca tggattgttt aacctcagtg ttaaggataa ctggtgtgac  
26881 agaaaaggac ctgtccctgg aatatgactg tctggccctg aaccttcagc gcatgataag  
26941 gcacaccata aggtgagaa ggaacaacc aagtaaggag tgtccctcac acattgcttg  
27001 aataaattgg ctgaaatcagc tgtgcaactgc atccgttttc tccgaggact gtgtgttgta  
27061 gcttgggtccc agggaaatcca tcatgatcaa gggaaatagt ggctgtttc atcaagtgtt  
27121 cttctcacgt tgaggaagct ccttaaatct ggtctttcca gaatgtttct gtcttccac  
27181 aggaatctct gtcatgtgat ccttcccctc tctgtgtccc ctccctctgt ttctcccgc  
27241 agtccctccc atctcctcac ctcccttaat gtgttcttga ccccttctc tcttttctt  
27301 ctctctgagc tccttctcac ccaatagtgg cttttgcagt catcctttgt accgactaca  
27361 agggacattg gtattggtag tgggttcaga gcagtaataa ctctgctgtg tctctttgta  
27421 taaccttgtc atggaaaaca acttacaaac ttctattctg agcagttatt aattcccttg  
27481 cttggctcctt gggttgacag gtgcagccat catgatagat agatgaccaa cctgatccga  
27541 ttttaaaaga gtaaacatct tttttaccct tatcactctc ttatgatact gaccactgcc  
27601 ttactggcaa tacaactaat atgaaaacat ttttaatttc tttcaaatat caagagggca  
27661 tgggagggag agagacacta actctaagat catagcaata tgtggggcat ttatttggat  
27721 gaatatattg attaaaaggg taggggtggag gtacctatta gattcagtcg tgctgtgtct  
27781 ctgctgaag tggatatttg gatttttgtt gattctgttt gtcttctttt gtttgttttt  
27841 actatagaaa ctattctgcc cttgtactcc tagagtcacc tgtctttgcc tcccagttac  
27901 tgggactaaa gctatgtgtc accttactga gccaggggtg ttcttgtttt ggttttgatt  
27961 tttagcctc tggcttgtaa catttttata aacagaatt ttgattccta ggtggccaga  
28021 gttgtgactc atagagggat tttgtgtctg ttgtgatcag tgaggctctg gggatctgcc  
28081 cctgataatg gtgttactcc ggggtgactgt ggaccacagc actgtgttcc cagatgggtg  
28141 tggctactgc acattctgca ggaaaagaga atccaaacc ctattctcac ccagtttgac  
28201 cttgattoca caatgccttc ctctgtaaca ggatcttttg tctagatttc tgagtgtact  
28261 ttagttcagc tttgtattag aattatattt tttaatcagt aattttgtat ttgttttgtt

28321 tgtgtgtgat ttctttgttt tccagtttat ttttaattca cttggtgcta ttcaaatcaa  
28381 tgtgttcata ctgtttgaac aacacagcgt attaaataaa attcgtgtct attggtcttg  
28441 aatgatcata atgaattctt ctgatatttc ttaaattata aatcaaaaa ccttataaag  
28501 cctccctctg tatttctcaa caccactagg tacaagtaga gtgtctgtga taacaataat  
28561 tcataatcat gttcaatgtt ttctatgttg aagccagatg tcttcaacat agtctttaga  
28621 atttctcatt tatcttttta cccatacta tttgtcaatt ttactgacta agtcaatgaa  
28681 gcaaggaag agtgggcta aggccttgcc aagaactgta attctagacc caggatgcaa  
28741 cacagacaac attttctgt ttataaacac tgccaagaag catttgcgctc tggctattga  
28801 cgtgaaaacc acttgtagtt tacaagtca taagcacgta gatagatggt gagcatcaac  
28861 ttcttgggtc accttgaatc acagtcttgc ctagggtaaa catttcagcc acccacacag  
28921 gtacttcacc cacagcagtt cctataagaa gtctatcttc cataccctct gtaccctctt  
28981 agcacgcatc cgttgggact tttagacaat tttctggaac aagctgcttg ggaagtctt  
29041 acttaaacct aaagaagtga agacagcaag ctctggccag ttttgagatc ttttctcatt  
29101 ttttgggtc gcaagacttt agtgtcttga gtttctttt cctggattta gagagaaggt  
29161 gaactgtcaa ggatggtaga ggaatttgtc actactagca gggatttcac gccaggtctt  
29221 gtggcctatg cgtggggatt tacaataaaa ataaaaaaga actatttacc cggcttgacc  
29281 gaggaatctc ctcatattca tggataaaca aagtctatga ggatcatatg gttccaacag  
29341 gcaagcagac caggaatggt agcagttcct gtgtccaacc tgtacatgtg tcttacaagt  
29401 tcctgaaggt gaaagccatg tttcttgcgt gttttgtgaa acaaggatg tgggactcgg  
29461 ctgagagata gttgaaggag gatctcaata gcagaaggca tcaggatgat agaaccacg  
29521 aatttgatgt ctccatcaca gcactctgtg acctgcaact gtgctgtgat cctatattcc  
29581 ccaccacctc gatgcaacca ttttctctgat ctactgactc acatgcctta gggctgcca  
29641 taaacaccga ccttaccaat cgaattccta tcatttcaca agttccaagc ctcatattcc  
29701 cccacaata cctgttata ttcttgaac acgtcatccc ttctataca aatgaacgtt  
29761 ccactactgt cagattaatc ttactgaaaa gcactttcat ctctaatacc cttcacatc  
29821 aggacacatt ccctagcaag agtgtctgat catgcatagc cctgaccacg ccttccacga  
29881 attcccaaaa cgcagttact acagttctta gaacacacac ttccacctct gcacatgaac  
29941 tcagcattct ctctggagag gggagtgttc ttttttttt tcttagaccg ttctgagtct  
30001 tctttgtcct ttagtaatcc attctatagt aagccttctc tcttctctct aatatagagc  
30061 agtttctgtt taagatggct gtcagctgaa atcccttttg cctcctatct tagctgggtt  
30121 ttctgtatc tatgagcttc cttaccttta agcacactct gtgttactaa gccttaagac  
30181 ttgtccgag tatgtgctaa gaaaattgat ttgttgattt tgaaagtatt gttgaaatt  
30241 cagtattggt ttattgggta ggaatgcctt gtggttgggt tctagggatg tggagttca  
30301 tgcaaccatc cattctgtct cattttgcta ttactaatgc cgtttcccc catctccca  
30361 tctcttgata gttgatcacc gaagcatcta ctacatagtt gctggatgta gtttattgct  
30421 aatgtttatc aatgtcttgg tgatagtctt aaaagtgttc tggattgagg ttgctctgtt  
30481 ctggagagat atagtgaac cttacaaaaa cgggaacgggt gagtatctgt tttcaagatt  
30541 ctcttcacaa gaaaagtcc cactgactct tgattatttc tttaatgata ttttgcctct  
30601 aaaccacatc tccgtttcct ttaaacctca tctgtgagat tttggagtct acacgcatca  
30661 ttttccatgc ctctgtgtca ctgcttatac ttctgacatt cagacattca tctccaagat  
30721 tctccttgcc gagattgcta ttctagtga gccccataa ctctgcctga gaccgaaca  
30781 ggttctgctg ttttgaaaaa tgcatgttaa taacatttta caacaggaca atagaatcat  
30841 acctgctttt caagtgtgag caggttatgg agagagttgg aacacatgct cattgccctt  
30901 gaatcctcat tccatgagta cacacttgca caaactttac acatgaaaaa gaacagtccc  
30961 agtgaagtag gaactttgaa gctgtttgtg gcacgaagca atcaattaac tgtagattgc  
31021 ttgatttgtg gaaaatacag accccttaag aagtcctact tctttgccac tatttgccat  
31081 tggcatatta ccttccgagg aagtagtatg gttgccatat gccctttctg gggtttcaat  
31141 tgtctaaggt caactgaagt ttgtaaagat taaataagca aaacaaatgt gagttttaag  
31201 ttgagcatga gtctgagata tgtgattgtc ctgcctggga tgtgaattgt ctgtttgttc  
31261 agtgtatcta tgtgtataaa tgtataataa cctagcacta atcagttacc ctattagtta  
31321 acaggtcac tgccgaagtt ccgtgggtgcc tgtgtttgag ggacagttat tttatgttga  
31381 cgtcactgcc ttcactgctg gagttagtat gccatggatt ttgttgtagt ccattgtcct  
31441 atgtttatta ctagctatgg ttgttaaact cttactgtga caagtgtatt aggtctgtgt  
31501 gtgcagaagt aagtgtttaa tggaggccac agtattatct gtggcttcag gtactcactg  
31561 gatgtctttg aacctgtgct ctgtggctaa atgaggaatg ttgtgtggga aaactgtaac  
31621 agtcaataga cagagaagac ccttccccac ccatgataat agacactaat agcttataaa  
31681 caaacttgaa gtattctgaa gactctttgt tctttatcat tcaagctaa atcataaacc  
31741 aaccaacca ccaaccaacc aaccaacca ccaaccaacc aaccaacca ccaactttg  
31801 tccagatcg cttatttctc agtcacaatt tagagccata gtttgtgtat atctcttgg  
31861 tttagagtat gagaggggtg aaagccagat attagcagcc ataaaacttg gtaagaattg  
31921 cccttcagaa gacagcgagg aagtctgaga agcagtaa at gaagcgggtac ttcttgattt  
31981 ccttctcaga tggcaagctc tacgatgcgt acatcattta cctcgggtc ttccggggca  
32041 gcgcgggcggg aaccactct gtggagtact ttgttccaca cactctgccc gacgttcttg

32101 aaaataaatg tggctacaaa ttgtgcattt atgggagaga cctgttacct gggcaaggtg  
32161 aaccgactga gacacatcag gggttgaaat tatttgaaaa aaaattcagg aaaggagact  
32221 atgggtagat aatgctaggt agtgaggagg ggggtgggtg gaggggaagg acaggtagat  
32281 cgtagatcat gatagctaat aataaagtgt gcgagagata ggaaaaggaa agccacagaa  
32341 acacagttcg ttacaaaatg tcattatgat tccgaatgca ttatacatcg attttaatttt  
32401 ttttaaatat aaaaaaaaaa acttttagtac atggagtaag tactgagagt tatatatttg  
32461 catttgctt ttggtttatc aggtgaacca tacatataatg ttctcgatac tgcattttta  
32521 aacttaacat tctgttttga agtccatagt aacttcatag taatgagcag aggttaattct  
32581 gatgttcata ccctacacat aataggaatt atttattata ttatataatt attatattat  
32641 aatataattat tacattgttt tttttattat gtattttctt caattacatt tccaatgcta  
32701 tcccaaaagt cccccctcca cccactccc ctaccaccc attcccattt tttggccctg  
32761 gaattcccct gctctggggc atataacggt tgcttgacca atgggacctct ctttccagtg  
32821 atggccgact aggtcatctt ttgatacata tgcagctaga gtcaagagct ctgaggtagt  
32881 ggtagttca taatgttgtt cctctgatag ggttgagat ctcttttagt ccttgggatac  
32941 tttctctagc tcctccattg gggccctgt gatccatcca atagctgact gtgagcatcc  
33001 acttctgtgt ttgctaggcc ccggcctagt ctacaaggg acagctatat caccatcctt  
33061 gcaacaaagg cttgctagtg tatgcaatgg tgtcatcgct tggaggctaa ttatgggtag  
33121 gatccctgga tatggcagtc tctagatgga ccatcctttt gtctcagctc caaactttgt  
33181 ctctgtaact ccttccatgg gtgattgttt tcaattctaa gaatgagcaa agtgtctaca  
33241 ctttggctt cattctctt cagtttcata tgttttacct attgtacctt atatctcgct  
33301 atactaagga tctgggttaa tatccactta tcagttagta catttcattt gagttctttt  
33361 gtgattgggt tacctcactc aggatgatgc cctccaggtc cattcatttg cctatgaatt  
33421 tcgtgaattc attcttttta atagctgagt agtactccat tgtgtagatg taccacattt  
33481 tctgtatcca ttctctgtt gaggggcatc tgggttcttt ccagcttctg gctattataa  
33541 ataaggctgc tatgaacata gtggagcatg tgtcttctt acogggttgg acatcttctt  
33601 gatataatgcca cagaagaggt attgctggat ctccggtag tactatgtcc aattttctga  
33661 ggaaccgcca gactgatttc cagagtgggt gtacaagctt gcaatcccac caacaatgga  
33721 ggagtgttcc tctttctcca tatcctcgcc agcatctgct gtcacctgaa tttttcatct  
33781 tagccattct gactggtgtg agatggaatc tcagggttgt tttgatttgc atttctctga  
33841 tgattaagga tgttgaacat tttttcaggt gtttctcagc ctttcgggtat tctcgggtg  
33901 agaattcttt gttcagctct gagccccatc ttttaagggg gctatttgat tttctggagt  
33961 ccaccctctt gagtctttta tatatattgg atattagtcc cctatctgat ttaggatagg  
34021 taaagatcct tttccaatct gttggtggtc tttttgtctt attgacggtg tcttttgctt  
34081 tgcagaagct ttgcagtttc atgaggtccc atttgtcaat ccttgatctt aaagcacaag  
34141 ccattgctgt tctatccagg aattttttcc ctgtgccat atcttcgaga cttttcccca  
34201 ctttctctc tataagtttc agtgtctctg gttttatgtg gagttccttg atccacttag  
34261 atttgacct agtacaagga gagaggaatg ggtcgattcg cattcttcta catgataaca  
34321 accagttgtg ccagcaccat ttgttgaaaa tgcgtcttct tttccactgg atggttttag  
34381 ctcccttgtc aaagatcaag tgaccatagg tgtgtgggtt catttctggg tcttcaattc  
34441 tattccattg gtctacttgt ctgtcactat accagtacca tgcagttttt atcacaattg  
34501 ctctgtagta aagctttatg tcaggcatgg atattccacc agaggttctt ttatccttga  
34561 gaagagcttt tgttatocta ggttttttat tattccagat gaatttgcag attgctcttt  
34621 ctaattcatt gaagagttga gttggaattt tgatggggat tgcattgaat ctgtagattg  
34681 cttttggcaa gatagccatt tttaacaatt tgatcctgcc aatccatgag catgggagat  
34741 ctttccatct cctgagatct tctttaaatt ctttctcag gggcttgaag tttttatcat  
34801 acagatcttt cacttccctta gttagagtca caccaagata ttttatatta tttgtgacta  
34861 ttgagaaggg tgttgtttcc ctaatttctt tctcagcctg tttattcttt gtgtagagaa  
34921 aggacattga cttgtttgag ttaattttat atctggctac ttcaccgaag ctgtttatca  
34981 gatttaggag ttctctggtg gaatttttag ggtcacttat atatactatc atatcatctg  
35041 caaaaagtga tattttgact tcctcttttc caatttgtat ccccttgatc tccttttgtt  
35101 gtcgaattgc tctggctagg acttcaagta taatgttgaa gaggtaggga gaaagtgggc  
35161 agccttgtct agtccctgat tttagtggga ttgcttccag cttctcacca tttactttga  
35221 tgttggctac tggtttctg tagattgctt ttatcatggt taggtatggg ccttgaattc  
35281 ctgatctttc caagactttt atcatgaatg ggtgttggat tttgtcaaat gctttttcca  
35341 catctaacga gatgatcatg tggtttttgt ctttgagttt gtttatatag tggattacgt  
35401 tgatggattt ttgtatatta aaccatccct gcatccctgg gatgaaatct acttggtcag  
35461 gatggattat tgttttgatg tgttcttggg ttcggtttagc aagaacttta ttgaggattt  
35521 ttgcatcgat atcataagg gaaattggtc tgaagtctc tabctttgtt gggctttttt  
35581 tgggtttagg tatcagagta attgtggctt catagaatga gttgggtaga gttccctcta  
35641 cttcgatttt gtggaatagt ttgtgcagaa ctgggattag atcttctttg aaggctctgg  
35701 agaactctac actaaaacca tctggctctg ggcttttttt ggttgggaga ctattaatga  
35761 ctgcttctaa ttccttaggg gatatgggac tgttttagttc gtttaacttga tccctgattt  
35821 actttggtag ctggtatctg tctagaattt tgtccatttc atccaggttt tccagttgtg

35881 ttgattatag cttttttag aaggatctga tgggtgtttg gatttcttca ggatctgttg  
35941 ttatgtctcc cttttcattt ctgattttgt taattaggat gttgtccctg tgccctctag  
36001 tgagtctagc taagggttta tctatcctgt tgattttctc aaagaaccaa ctcctcgttt  
36061 ggtaattctt ttgaatagtt cttcttgttt ccacttgggtt gatttcaccc ctgagtttga  
36121 ttatttccctg ctgtctactc ctcttgggtg aatttgcttc cttttttttc tagagctttt  
36181 agatgtgttg tcaagctgct agtatgtgct ctctcccggt tcttcttggg ggcactcaga  
36241 gctatgagtt tccctcttag aaatgctttc attgtgtccc ataggtttgg gtatgttvtg  
36301 gcttcatttt cattaaactc taaaagtct ttaatttctt tctttattcc ttccttgacc  
36361 aaggtatcat tgagaagagt gttgttcagt ttccacgtga atgttggcct tccattatth  
36421 atgttgttat tgaagatcag ccttaggcca tgggtggctg ataggataca taggacaatt  
36481 tcaatatttt tgatctgtt gaggcctgtt ttgtggccaa ttatattggtc aattttggag  
36541 aaggtcccat gagtgctga gaagaaggta tacccttttg ttttaggata aaatgttctg  
36601 tagatatctg tcagatccat ttgtttcata acttctgtta gtttcaactgt gtccctgttt  
36661 ggtttctgtt tccatgatct gtccattgat gaaagtgggtg tgttgaagtc tcccactatt  
36721 attgtgtgag gtgcaatgtg tgctttgagc ttactaaaag tgtctttaat gaatgtggct  
36781 gcccttgcag ttggagcgtg gatattcaga attgagagtt cctcttggag gattttacct  
36841 ttgatgacta tgaagtgtcc ctcttctgtc tttttgataa ctttgggttg gaagtctgatt  
36901 ttatccgata ttagaatggc tactccagct tgtttcttca gaccatttgc ttgaaaattg  
36961 ttttccagcc ttttactctg aggtagtgtc tgtcttttcc cctgagatgg gtttctgtg  
37021 agcagcagaa tgttgggtcc tgtttttgta gccagtctgt tagtctatgt ctttttattg  
37081 gggaattgag tccattgata ttaagagata ttaaggaaaa gtaattgttg cttcctttta  
37141 tttttgttgt tagagttggc attctgttct tgttggctgtc ttctttttgg tttgttgagt  
37201 gattactttc ttgcttgttc tagggcgtga tttccgtcct tgtattgtctg cttttctgtt  
37261 attatccttt gaagggtctg attcgtggaa acataatgtg tgaatttget tttgtctgtg  
37321 aatacttttg tttctccatc tatggtaatt gagagtttgg ccgggtatag tagcctgggc  
37381 tggcattaat gttctcttag tgtctgtata acatctgtcc aggetcttct ggctttcata  
37441 gtctctgggtg aaaagtctgg tgaattctg ataggtctgc ctttatatgt tacttgacct  
37501 ttctccctta ctgcttttaa tttctctctc ttatttagtg catttgttgt tctgattatt  
37561 atgtgtcagg aggaatttct tttctgggtcc agtctatthg gagttctgta ggcttcttgt  
37621 atgttcatgg gcatgtcatt ctttaggttt gggaagttht cttctataat tttgttgaat  
37681 atatttctg gccccttaag ttgaaaatct tcattctcat caactcctat tatccgtagg  
37741 tttgttcttc tcattgtgtc ctgaatttcc tggatgtttt gagttaggat ctttttgcag  
37801 tttgtattat ttttgattgt tgtgtctgat ttctctatgg aatcttctgc acccgagatt  
37861 ctctcttcca tctcttgtat tctgttctgt atgcttgcgt ctatggttcc agatttcttt  
37921 ctaggggttt ctatctccag cgttggctca ctttgggttt tctttatttt gtctacttcc  
37981 ctttttaggt ctatgatggt tttgttcatt tccatcacct gtttggatgt gttttcctgt  
38041 ttttctataa ggacttctac ctgtttgggt gtgttttctt gcttttcttt aagggtctgt  
38101 aactctttag cagtgttctc ctgtatttct ttaagtgagt tattaagttt cttcttgatg  
38161 tcctctacca tcatcatgag atatgctttt aaatccgggt ctagcttttc ggttgtgttg  
38221 ggggtcccag gactagctgg catgggagtg ctgcttctg atgttgggtg gtgggtcttga  
38281 tttctgttag taggattctt acctttgcct ttcaccatct ggtattctct

//

### IL33 targeting vector (KOMP Project ID: CSD26735)

LOCUS KO-first\_condition\_ready\_26735\_MGI:1924375 23236 bp dna  
circular UNK  
DEFINITION Mus musculus targeted KO-first, conditional ready, lacZ-tagged  
mutant vector Il33 targeting project(s): 26735  
ACCESSION unknown  
SOURCE Mus musculus.  
ORGANISM Mus musculus  
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia;  
Sciurognathi; Muroidea; Muridae; Murinae; Mus.  
COMMENT cassette: L1L2\_Bact\_P  
COMMENT design\_id: 102206  
COMMENT backbone: L3L4\_pD223\_DTA\_spec  
FEATURES Location/Qualifiers  
misc\_feature 29..49  
/note="B4 Gateway"  
misc\_feature complement(125..378)  
/note="BGH pA"  
CDS complement(503..1159)  
/note="DTA"  
promoter complement(1173..1685)  
/note="PGK promoter"  
promoter 1686..1836  
/note="spectinomycin promoter"  
CDS 1837..2847  
/note="SpecR"  
misc\_feature 2995..3587  
/note="pUC ori"  
misc\_feature 3858..3885  
/note="rrnB T2"  
misc\_feature 4017..4060  
/note="rrnB T1"  
misc\_feature 4156..4176  
/note="B3 Gateway"  
misc\_feature 4182..4189  
/note="AsiSI"  
misc\_feature 1..4214  
/note="Synthetic Backbone"  
exon 4912..5019  
/db\_xref="ENSEMBL:ENSMUSE00000145157"  
/note="ENSMUSE00000145157"  
exon 7228..7353  
/db\_xref="ENSEMBL:ENSMUSE00000145149"  
/note="ENSMUSE00000145149"  
exon 7982..8092  
/db\_xref="ENSEMBL:ENSMUSE00000145152"  
/note="ENSMUSE00000145152"  
misc\_feature 4215..9350  
/note="5 arm"  
misc\_feature 9378..9402  
/note="B1 Gateway"  
misc\_feature 9415..9462  
/note="Frt"  
intron 9463..10337  
/note="mouse En2 intron"  
misc\_feature 10335..10337  
/note="Splice Acceptor"  
exon 10338..10510  
/note="mouse En2 exon"  
misc\_feature 10522..11115

/note="ECMV IRES"  
 gene 11116..14176  
 /gene="lacZ"  
 /note="lacZ"  
 misc\_feature 14215..14458  
 /note="SV40 polyadenylation site"  
 misc\_feature 14462..14495  
 /note="loxP"  
 promoter 14522..15041  
 /note="human beta actin promoter"  
 gene 15067..15861  
 /gene="NeoR"  
 /note="NeoR"  
 misc\_feature 16061..16302  
 /note="SV40 polyadenylation site"  
 misc\_feature 16319..16366  
 /note="Frt"  
 misc\_feature 16373..16406  
 /note="loxP"  
 misc\_feature 10352..10429  
 /note="FCHK std\_gpr"  
 misc\_feature 16422..16442  
 /note="B2 Gateway"  
 misc\_feature 9351..16472  
 /note="Synthetic Cassette"  
 exon 16839..16964  
 /db\_xref="ENSEMBL:ENSMUSE00000145155"  
 /type="targeted"  
 /note="target exon 1 ENSMUSE00000145155"  
 exon 17497..17547  
 /db\_xref="ENSEMBL:ENSMUSE00000145159"  
 /type="targeted"  
 /note="target exon 2 ENSMUSE00000145159"  
 exon 19197..19294  
 /db\_xref="ENSEMBL:ENSMUSE00000145146"  
 /type="targeted"  
 /note="target exon 3 ENSMUSE00000145146"  
 misc\_feature 16473..19446  
 /note="Critical Region"  
 misc\_feature 19470..19503  
 /note="Downstream LoxP"  
 misc\_feature 19447..19526  
 /note="synthetic loxP region"  
 exon 21114..22968  
 /db\_xref="ENSEMBL:ENSMUSE00000721792"  
 /note="ENSMUSE00000721792"  
 misc\_feature 19527..23236  
 /note="3 arm"

BASE COUNT 6257 a 5592 c 5425 g 5962 t

ORIGIN

```

1 ccactggcgc tcgttttaca ttaattaaca acttttctat acaaagttga cagatatctg
61 tttaaactcg gccgctctag cctcgaggct agaactagtg gatctcgagc cccagctggg
121 tctttccgcc tcagaagcca tagagcccac cgcaccccca gcatgcctgc tattgtcttc
181 ccaatcctcc cccttgetgt cctgccccac cccacccccc agaatagaat gacacctact
241 cagacaatgc gatgcaatth cctcatttth ttaggaaagg acagtgggag tggcaccttc
301 caggtcaag gaaggcacgg gggaggggca aacaacagat ggctggcaac tagaaggcac
361 agtcgaggct gatcagcgag ctctaggatc tgcattccac cactgctccc attcatcagt
421 tccataggtt ggaatctaaa atacacaaac aattagaatc agtagtttaa cacattatac
481 acttaaaaaat tttatattta ccttagagct ttaaatctct gtaggtagtt tgtccaatta
541 tgtcacacca cagaagtaag gttccttcac aaagagatcg cctgacacga tttcctgcac
601 aggcttgagc catatactca tacatogcat cttggccacg ttttccacgg gtttcaaaat
661 taatctcaag ttctacgctt aacgctttcg cctgttccca gttattaata tattcaacgc
721 tagaactccc ctacgcgaag ggaaggctga gcactacacg cgaagcacca tcaccgaacc
  
```

781 ttttgataaa ctcttcogtt ccgacttgct ccatcaacgg ttcagtgaga cttaaaccta  
841 actctttctt aatagtttcg gcattatcca ctttttagtgc gagaaccttc gtcagtcctg  
901 gatagtcac tttgaccacg cctccagctt ttccagagag cgggttttca ttatctacag  
961 agtatccccg agcgtcgtat ttattgtcgg tactataaaa ccctttccaa tcatacgtcat  
1021 aatttccttg tgtaccagat tttggctttt gtataccttt tngaattggaa tctacataac  
1081 caggtttagt cccgtggtac gaagaaaagt tttccatcac aaaagattta gaagaatcaa  
1141 caacatcatc aggatccatg gcgaggacct gcaggtcgaa aggcccgag atgaggaaga  
1201 ggagaacagc gcggcagacg tgcgcttttg aagcgtgcag aatgccgggc ctccggagga  
1261 ccttcgggcg cccgccccgc cctgagccc gccctgagc cggcccccg acccaccct  
1321 tcccagctc tgagcccaga aagcgaagga gcaaagctgc tattggccgc tgccccaaag  
1381 gcctaccgc ttcattgct cagcggtgct gtccatctgc acgagactag tgagacgtc  
1441 tacttcctt tgtcacgtcc tgcacgacgc gagctgcggg gcggggggga acttctgtac  
1501 taggggagga gtagaagggtg gcgcaaggg gccaccaaag aacggagccg gttggcgct  
1561 accggtgat gtggaatgtg tgcgaggcca gaggccactt gtgtagcgc aagtgccag  
1621 cgggctgct aaagcgcag ctccagactg cctgggaaa agcgcctccc ctaccggta  
1681 gaattcgata aacagctcta gaccagccag gacagaaatg cctcgacttc gctgctacc  
1741 aaggttgccg ggtgacgcac accgtgaaa cggatgaagg cacgaacca gtggacata  
1801 gcctgtccg ttcgtaagct gtaatgcaag tagcgtatgc gtcacgcaa ctggtcaga  
1861 accttgaccg aacgcagcgg tgtaacggg gcagtggcgg ttttcatggc ttgttatgac  
1921 tgttttttg gggtagcagtc tatgcctcgg gcatccaagc agcaagcgcg ttacgccgtg  
1981 ggtcagatgt tgatgttatg gagcagcaac gatgttacgc agcagggcag tcgccctaaa  
2041 acaaagttaa acattatgag ggaagcggtg atcgccgaag tatcgactca actatcagag  
2101 gtagttggcg tcatcgagcg ccatctcgaa ccgacgttgc tggccgtaca tttgtacggc  
2161 tccgcagtg atggcggcct gaagccacac agtgatattg atttgctggt tacggtgacc  
2221 gtaaggcttg atgaaacaac gcggcagcct ttgatcaacg accttttggg aacttcggct  
2281 tcccctggag agagcgagat tctccgcgct gtagaagtca ccattgttgt gcacgacac  
2341 atcattccgt ggcgttatcc agctaagcgc gaactgcaat ttggagaatg gcagcgcaat  
2401 gacattcttg caggtatctt cgagccagcc acgatcgaca ttgatctggc tatcttctg  
2461 acaaaagcaa gagaacatag cgttgccctg taggtccag cggcggagga actctttgat  
2521 ccggttctcg aacaggatct atttgagggc ctaaagaaa ccttaacgct atggaactcg  
2581 ccgcccagct gggctggcga tgagcgaat gtagtgctta cgttgtccc catttggtac  
2641 gtcgagctaa ccgcaaaaat cgcgcgaag gatgtcgtg ccgactgggc aatggagcgc  
2701 ctgcccggcc agtatcagcc cgtcatactt gaagctagac aggttatct tggacaagaa  
2761 gaagatcgct tggcctcgcg cgcagatcag ttggaagaat ttgtccacta cgtgaaaggc  
2821 gagatacca aggtagtcgg caaataacct tcgagccacc catgaccaa atccctaac  
2881 gtgagttacg cgtcgttcca ctgagcgtca gaccccgtag aaaagatcaa aggatcttct  
2941 tgagatcctt ttttctgcg cgtaatctgc tgcttgcaa caaaaaaac accgctacca  
3001 gcggtggttt gtttgccgga tcaagagcta ccaactctt tccgaaggt aactggcttc  
3061 agtcagcgc agataccaaa tactgttctt ctagtgtagc cgtagttagg ccaccacttc  
3121 aagaactctg tagcaccgcc tacatactc gctctgctaa tctgttacc agtggtctgct  
3181 gccagtggcg ataagtcgtg tcttaccggg ttggactcaa gacgatagtt accggataag  
3241 gcgacgagc cggctgaac ggggggttcg tgcacacagc ccagcttga gccaacgacc  
3301 tacaccgaac tgagatacct acagcgtgag ctatgagaaa gcgccacgct tcccgaaggg  
3361 agaaaggcgg acaggtatcc gtaagcggg aggtcggaa caggagagc cagcaggag  
3421 cttccagggg gaaacgcctg gtatctttat agtctgtcgg gtttccgca cctctgactt  
3481 gagcgtcgt ttttgtgat ctcgtcaggg ggcgggagcc tatggaaaaa cgccagcaac  
3541 gcggcctttt tacggttctt ggcttttgc tggcctttt ctcatatgtt ctttctgctg  
3601 ttatccctg attctgtgga taaccgtatt accgccttt agtgagctga taccgctcgc  
3661 cgacgagcga cgaccgagcg cagcagatca gtgagcgagg aagcggaaga gcgcccaata  
3721 cgcaaacgca ctctccccgc gcgttgggcg attcattaat gcagctggca cgacagggtt  
3781 cccgactgga aagcgggcag tgagcgaac gcaattaata cgcgtaccgc tagccaggaa  
3841 gagttttag aaacgcaaaa aggccatccg tcaggatggc cttctgctta gttttagtgc  
3901 tggcagttta tggcgggctt cctgcccgc accctccggg ccggttcttc acaacgttca  
3961 aatccgctcc cggcggatgt gtcctactca ggagagcgtt caccgacaaa caacagataa  
4021 aacgaaaggc ccagcttcc gactgagcct ttcgttttat ttgatgcctg gcagttccct  
4081 actctcgcgt taacgctagc atggatgttt tcccagtcac gacgttgtaa aacgacggc  
4141 agtcttaaat cgtgccaact ttattataca aagttgcgga cgcgatcgcc ggccgataac  
4201 aatctcacac aggaagaaaa tcggcaacct tactcattt attcttgagg aacctgctt  
4261 aatcttgatc actgctgccc attactcttt ttaaacattc agctgggtgc aaatctgacc  
4321 cgaggaaacc ctccacgggtg gctcccacat gcttttgaca caaactcatt tagtttttta  
4381 atagctggac gttttctggc ataacgtgtt ttatggctcat tattactttc ctgaccacga  
4441 atctggagtc aaagtctctt ccagtgagga aatatttag aaaataaaat gtgtacacac  
4501 actgcttgtt taatactgac tcaaatctaa catcgcaggg catttgcctt ggcttctgag

4561 ttacgtat ttttcttta cccccctaca gtgagaaatc atacaagatc agtatcgcta  
4621 tttttttttt ttttttgcta tatactacaa caaaacagta ctgagatttc aacacaaaca  
4681 tggcattaac actaagacta ctcagcctca gattttctctg tgcttttcatt acttttattct  
4741 ttgattctat ggctagattc tagcctaagt gttagagtcag aatactatgc tgaattttat  
4801 tctccccctt cccccctgta tggctatcag tttcatgggtg agatagccaa ggttgcttct  
4861 gatgacttca ggtccatata gttggattaa tgttatat ttt caatcccaca gaaacactgaa  
4921 aatgagacc tagaatgaag tattccaact ccaagatttc cccggcaaag ttcagcagca  
4981 cgcagggcga agccttggtc cgccttgca aaataagaag taagagcgct ctctttaacc  
5041 actattaat ctattatcaa atatttggtta tttcaacatg aagacgggcg accttaccaa  
5101 aaactctcaa gtatacaaga gctgaaaaga aagagagaca gcttggtggt tttcttaaca  
5161 gacttcacag catcacggtt gttatttggtt acaacatagg acagttgacc acttattctt  
5221 gactatgtaa caagaagggt agcagagctc tgggtggacag aacggaagtt agagggtgat  
5281 gggaaaggaa agcgatgtcc cttctgccc tttccgaggt gctggactgc tcacacactt  
5341 ctttcaaagc caggatttaa aagaaaaaaa attgacagtg gtttctgaat ggccagaaaa  
5401 aatcacagtg taaattaatc ctttcat tttg cagttatgtc ataatgctct gtgcagatat  
5461 aatgactcag tgcaagtgac tcggtgttcc caagtttctt cctattaaag aatgactgt  
5521 cttcagatcc aagaaaacga ggcctttat cggcactgcc ttgtggagta gacatgccag  
5581 aatgctgac attggtgccc gcgcttgctt cgaatactga gatcttcaa ttcacatggt  
5641 ctagttttca tctccatctc accctggaat actattttacg atgtccagaa cacaatggac  
5701 tttctgcat gggacttaaa tttttcttgg gctaagtaaa atgagaatta acaataaact  
5761 cgtaaatctt ttagttccg ttgcctgaat ttgcatttga ctgctccctc agatggcagt  
5821 gctcacttac ttctcccctt accaaaatag actctgtgta gctcacactg atctggaaac  
5881 tcgcaaccct cctgcttttag cctcttgggt actgggacta gaggcacgac cacatctggc  
5941 cagtggctct tttctttgat ggaggtagag tctaattgagt agctttgata ttaaagatat  
6001 tgcatataat aattttacac cgctatggcc aaatacccag cagaagcaac ataaaggctt  
6061 catagcttag aagatacagg ccattaggat acagcagga tgggtggctga accagtttga  
6121 tctctggtag ccttagcttc cagggacttc tcatatggca ccgcccaaga gtgggagatg  
6181 aaggaccagg ctataatctg agactgtccc ccacggtcta ggtatatcag caaggcccca  
6241 aaagtttcac aatctcccaa agagtttcc tagtttggga ccaagtgtc aaggacaaga  
6301 ttctgtggga acatttaact gtaacacact tcttagcaca actctgagct atgtaatttt  
6361 gggcagtgcc atgaacctga aaagcctcga attatcattg taaaactaag ataaaacttt  
6421 actcactaat catgaatggc taagttaaaa gacacataaa agtaattagc agagtgtttg  
6481 gcctcgtttt tatatgcagt caatggcagt tcttttagta tcaataacct ttatggctta  
6541 cagccatcct ccaaaaatta tgacgagcag aaatctccta tggatgttaa cgtgccctc  
6601 agttaggcaa agattggtcc aactgaatg tagacttgggt ccttcaaagt gaattatgaa  
6661 acaaaaacac caaaaaaaaa aaacccaaa aaaaaacaaa aaacccaaa tttctaaaga  
6721 cctaattgtct ttagaccatg tggcagcaaa atgcaactcc agcctcttgt ctatcaaact  
6781 ccaaggtctg gaacggtcga ttttaaaagg caaattgatt gaattcagaa ccaactaagg  
6841 actggtgag gcatgtcttt aggtatgtgt ctatgcagc attctctgga aaggattggc  
6901 ttagaccac cctgaaaatg agtagctgag acatcccctg ggctggatcc agaactaatt  
6961 aaggagaata cggatataga cacaccttcc ctccataaag aacctgagac acaagcaaaa  
7021 ctaatccctt tctcctttaa gttgctgctt gtcaaagact tggtcacagt aaggagaaaa  
7081 gactatttca ttttgcatat cctatctgtg gcttgcctgta aaattaatga agttaactaa  
7141 gtagtgctgt tccagcctct gttggaggca cgtgtatatt ataggatatg acctacataa  
7201 actcactctt ttttttcta ttgttaggat cccaacagaa gaccaaaaga tctgacctg  
7261 tctactgcat gagactcctg tctggcctca ccataagaaa ggagactagt tatttttaga  
7321 aagaaccac gaaaagatat tcaactaaaat cgggtaagta catttctgga aagactgatg  
7381 ggcactctatt tgcttttact ttccatacac acacacacaa cacacacaca cacacacaca  
7441 cacacacaca cacacacaca cgcacacaca cacacaattg tttttcttac ctaaaattctc  
7501 cttgagggaaa agaatacaga tgataatgtg ttggccattt tagaaagggt ttttctat ttt  
7561 tagaatttct aaataaatat tcaaaaagtc tattctagaa tccactttag aaatggatac  
7621 actggtgagt aaaaacagaa gacacaagat tatgtgtaaa tatgtaatca tgtggtgta  
7681 tattttgtaa tatagaggaa acaaaactaaa tggttcatag tggctgcttt ggaaggcagt  
7741 aactgtggtg agtggtcttc tgtttattttg tttgtttggt tcttcttttg gtgtgctcta  
7801 ctggagtgca aatggtcttc actttacgctc attattaagg aggaattgat cccattagac  
7861 cattgggtgg ccacagccct aggatcactt accaccgtcg ccatattggc catcaaaaaa  
7921 gatagcatat tggcacaatg aagattgctg actcagccca agccccacta ctgtcttgca  
7981 ggtaccaagc atgaagagaa cttctctgccc tatccacggg attctagga gagatccttg  
8041 cttggcagta tccaagcatt tgcctgctct gttgacacat tgagcatcca aggtatgact  
8101 ggtcataggg gatgtgtggg gtgaggtggg agatagcaca tggggccttg gcaagggcta  
8161 ttgcatagag caaactcagg agtatgtctt catatgtatt agaaacggtt gtttctgct  
8221 tgggtaccag ttcagtggtt atccaaattg ggtgtggtgg agctgtgcct atttaactta  
8281 tggttagcat tccacttgta ttttgaataa cttgctatag gttgggagca tgtcttcatc



8341 agtcctgata aatgtaatat ccttgagag aggaaaaaaa caaagcacca gtccccacat  
8401 ttcaaatgt tcaccatgaa agaaaataaa ggaactatct tttaaaataa catgatgtgg  
8461 cttgaagagt agtttaaagt ttttgaccat ttttgctgcg ttctaagtaa aatggtaatt  
8521 atcaagaagt gaagagaacc cagggcgtgt agttcagtg tagaacattt gcctcatgtg  
8581 ccaggctctg catgtagtct ctatcaatgt gggaaaaaatt caaagtgagg gttgggcata  
8641 atggcatata atctccatcc cagaatgggg gaggcaggtg aattccttgg gttcaggtct  
8701 gcctggtcta cacagtgagt ccagaaacag ttagagttat atagtgagaa actgtctcaa  
8761 agacaaacaa aaggccaat taaataatta acaattagc agcccatca ctaaggaatc  
8821 gtgattaaga atcacatatt gccattctaa tataatattat ttttatatgt gatcttatat  
8881 aaaaactt agaatgtatt tatgtatagt gtgtatata attatatata tatatatata  
8941 atataactt agtatagtt taatataaat acattaacct cctgggtcaat attcagtttc  
9001 tcacaaactg gatttaaatt actttagatg ttagatgtt tagatgttta gatgtttaga  
9061 tgttcacatg caaattcttt ctattttgta cagtaaattt gaatgtagga ccctcagatg  
9121 ggtccaagtc tgcttcagtt taccatata tgcttttaa atgttatcaa gtgctctgta  
9181 tgtgttoga ttgtccgggc aaaagcagaa ctagtttaca tctgcatccc cctagaccag  
9241 tgactcaatc ttctaaatg ctgtaaccct ttaacatagt tctgcacgct gtggtgacc  
9301 caaccataac ctactcttg ttgtacatc ataactgcaa ctttgctact aaggcgcata  
9361 acgatccac gatatcaaca agttgtaca aaaaagcagg ctggcgccgg aaccgattt  
9421 cctattccga agttcctatt ctctagaag tataggaact tgaaccctt tcccacacca  
9481 cctccacac ttgccccaaa cactgccaac tatgtaggag gaaggggtt ggactaacag  
9541 aagaaccgt tgggggaag ctgtgggag ggtcacttta tgttcttggc caaggtcagt  
9601 tgggtggcct gcttctgat aggtggtccc aaggtctggg gtagaagggt agagggacag  
9661 gccaccaagg tcagccccc cccctatcc cataggagcc aggtccctct cctggacagg  
9721 aagatgaag gggagatgcc agagactcag tgaagcctgg ggtaccctat tggagtcct  
9781 caaggaaca aacttggcct caccaggct cagccttggc tctcctggg aactctactg  
9841 cccttgggat cccttgtag ttgtgggta cataggaagg gggacgggat tccccttgac  
9901 tggctagcct actcttttct tcagtcttct ccatctctc tcacctgtct ctgaccctt  
9961 tccctaggat agacttggaa aaagataagg ggagaaaaca aatgcaaac aggccagaaa  
10021 gattttggct gggcattcct tccgctagct ttatttggga tcccctagtt tgtgataggc  
10081 cttttagcta catctgcaa tccatctcat tttcacacac acacacacca ctttcttct  
10141 ggtcagtggt cacatgtcca gcctcaagtt tatatcacca ccccaatgc ccaacacttg  
10201 tatggccttg gcgggctcat cccccccc acccccagta tctgcaacct caagtagct  
10261 tgggtgctgt ggttgtggat aagtagctag actccagcaa ccagtaacct ctgcccttc  
10321 tctccatga caaccaggtc ccaggtcccg aaaaccaaag aagaagaacc ctaacaaaga  
10381 ggacaagcgg cctgcacag cctcactgc tgagcagctc cagaggctca aggtgagtt  
10441 tcagaccaac aggtacctga cagagcagcg gcgccagagt ctggcacagg agctcggtag  
10501 ccggaagatc tggactctag agaattccg cctctcctt cccccccc taactgtact  
10561 ggcgaagcc gcttgaata aggcgggtg gcgttgtct atagtattt ttccaccata  
10621 ttgctctt ttgcaatgt gaggcccg aaacctggcc ctgtcttctt gacgacatt  
10681 cctaggggtc tttccctct cgccaaagga atgcaaggct tgttgaatgt cgtgaaggaa  
10741 gcagttctc tggaaagctc ttgaagacaa acaactctg tagcgaccct tgcaggcag  
10801 cggaacccc cacctggcga caggtgctc tgcggccaaa agccacgtgt ataagataca  
10861 cctgcaaagg cggcacaacc ccagtgccac gttgtgagtt ggatagttgt ggaagagtc  
10921 aatggctct cctcaagcgt attcaacaag gggctgaagg atgccagaa ggtaccctat  
10981 tgtatgggat ctgatctggg gcctcgtgac acatgcttta catgtgttta gtcaggtta  
11041 aaaaactgct aggcctccc aaccacggg acgtggttt ctttgaaaa acacgatgat  
11101 aagcttgc caaccatgga agatccctc gttttacaac gtcgtgactg ggaaccct  
11161 ggcgttacc aactaatcg cctgcagca catccccct tgcagcagct gcgtaatagc  
11221 gaagaggccc gcaccgatcg ccctcccaa cagttgcgca gcctgaatgg cgaatggcgc  
11281 tttgctggt ttccggcacc agaagcgggt cggaaagct ggctggagtg cgtcttctt  
11341 gaggccgata ctgtcgtct cccctcaaac tggcagatgc acggttacga tgcgccatc  
11401 tacaccaacg tgacctatcc cattacggtc aatccgctt ttgtccac ggagaatccg  
11461 acgggttgtt actcgtcac atttaattgt gatgaaagct ggctacagga aggcagacg  
11521 cgaattattt ttgatggcgt taactcggcg tttcatctgt ggtgcaacgg gcgctgggtc  
11581 ggtaacggc aggcagctc tttcctctc gaatttgacc tgagcgcatt ttacgcgccc  
11641 ggagaaaacc gcctcgggt gatggtgctg cgtggagtg acggcagtt tctggaagat  
11701 caggatagt ggcggatgag cggcattttc cgtgacgtct cgttctgca taaaccgact  
11761 acacaaatca gcgatttcca tgttgcact cgctttaat atgatttcag ccgcgctga  
11821 ctgaggtg aagttcagat gtgcggcgag ttgcgtgact acctacgggt aacagtttct  
11881 ttatggcagg gtgaaacgca ggtcggcagc ggcaccgccc ctttggcggg tgaattatc  
11941 gatgagcgtg gtggttatgc cgatcgcgtc aactacgtc tgaactgca aaaccgaaa  
12001 ctgtggagcg ccgaaatccc gaatctctat cgtgcgggtg ttgaaactgca caccgcccac  
12061 ggcacgctga ttgaagcaga agcctgcgat gtcggtttcc ggcaggtgcg gattgaaat

12121 ggtctgctgc tgctgaacgg caagcogttg ctgattcgag gcgtaaccg tcacgagcat  
12181 catcctctgc atggtcaggt catggatgag cagacgatgg tgcaggatat cctgctgatg  
12241 aagcagaaca actttaacgc cgtgcgctgt tcgcattatc cgaaccatcc gctgtggtac  
12301 acgctgtgcg accgctacgg cctgtatgtg gtggatgaag ccaatattga aaccacggc  
12361 atggtgcaa tgaatcgtct gaccgatgat ccgcgctggc tacggcgat gaaataacgc  
12421 gtaacgcgaa tggcgcagcg cgatcgtaat cacccgagtg tgatcatctg gtcgctggg  
12481 aatgaatcag gccacggcgc taatcacgac gcgctgtatc gctggatcaa atctgtcgat  
12541 ccttcccgcc cggcgcagta tgaaggcggc ggagccgaca ccacggccac cgatattatt  
12601 tgcccgatgt acgcgcgct ggatgaagac cagcccttcc cggctgtgcc gaaatggtcc  
12661 atcaaaaaat ggctttcgct acctggagag acgcgcccgc tgatcctttg cgaatacggc  
12721 cacgcgatgg gtaacagtct tggcggtttc gctaaatact ggcaggcgtt tcgtcagat  
12781 ccccgcttac aggcggctt cgtctgggac tgggtggatc agtcgctgat taaatattgat  
12841 gaaaaacggca acccgctggc ggcttacggc ggtgattttg gcgatacggc gaacgatcgc  
12901 cagttctgta tgaacggtct ggtctttgcc gaccgcacgc cgcatccagc gctgacggaa  
12961 gaaaaacacc agcagcagtt tttccagttc cgtttatccg ggcaaacat cgaagtgacc  
13021 agcgaatacc tgttccgtca tagcgataac gagctcctgc actggatggt ggcgctggat  
13081 ggtaagccgc tggcaagcgg tgaagtgcct ctggatgtcg ctccacaagg taaacagttg  
13141 attgactacc ctgaactacc gcagccggag agcgcggggc aactctggct cacagctgc  
13201 gtatgcaaac gcgaacgcgac cgcatggta ccaagccggc acatcagcgc ctggcagcag  
13261 tggcgtctgg cggaaaacct cagtgtgacg ctcccgcgc cgtcccacgc catcccgc  
13321 ctgaccacca gcgaaatgga tttttgcatc gagctgggta ataagcgttg gcaatthaac  
13381 cgccagtcag gctttctttc acagatgtgg attgcgata aaaaacaact gctgacggc  
13441 ctgcccgcagc agttcaccgc tgaccgctg gataacgaca ttggcgtaag tgaagcgacc  
13501 cgcattgacc ctaacgcctg ggtcgaacgc tgaagggcg cgggccatta ccaggccgaa  
13561 gcagcgttgt tgcaagtcac ggcagataca ctgtctgat cgtgtctgat tacgaccgct  
13621 cacgcgtggc agcatcaggg gaaaacctta tttatcagcc ggaaaacct cccgattgat  
13681 ggtagtggtc aaatggcgat taccgctgat gttgaagtgg cgagcgatac accgcatccg  
13741 gcgcccgatg gcctgaactg ccagctggcg caggtagcag agcgggtaaa ctggctcgga  
13801 ttagggccgc aagaaaacta tcccgaccgc ctactgccc cctgttttga ccgctgggat  
13861 ctgccattgt cagacatgta taccocgtac gtctcccga gcgaaaacgg tctgcccgtc  
13921 gggacgcgcg aattgaatta tggcccacac cagtggcgcg gcgacttcca gttcaacatc  
13981 agcgcctaca gtcaacagca actgatggaa accagccatc gccatctgct gcacgggaa  
14041 gaagccacat ggctgaatat cgacggtttc catatgggga ttggtggcga cgactcctgg  
14101 agcccgtcag tatcggcgga attccagctg agcgcgggtc gctaccatta ccagttggtc  
14161 tgggtgcaaa aataataata accgggcagg ggggatctaa gctctagata agtaatgatc  
14221 ataactagcc atatcacatc ttagagaggt tttactgtct taaaaaacct cccacacctc  
14281 cccctgaacc tgaaacataa aatgaatgca attgttggtt ttaactgtt tattgcagct  
14341 tataatggtt acaataaag caatagcatc acaaatttca caataaagc atttttttca  
14401 ctgcattcta gttgtggtt gtccaaactc atcaatgtat cttatcatgt ctggatccgg  
14461 aataacttgc tatagcatac attatacga gttatgttta aacggcgcgc cccggaattc  
14521 gccttctgca ggagcgtaca gaaccagggg ccctggcacc cgtgcagacc ctggcccacc  
14581 ccactgggc gctcagtgcc caagagatgt ccacacctag gatgtcccgc ggtgggtggg  
14641 gggcccgaga gacgggcagg ccggggcgag gcctggccat gcggggccga accgggca  
14701 gccagcgtg ggcgccccgg ccacggcgcg cgccccagc cccggggccc agcacccca  
14761 ggcggccaac gccaaaactc tccctctcc tcttctcaa tctogctctc gctctttttt  
14821 tttttcga aaggagggga gagggggtaa aaaaatgctg cactgtgctg cgaagccggt  
14881 gagtgagcgg cgcggggcca atcagcgtgc gccgttccga aagttgcctt ttatggctcg  
14941 agcggcccgc gcgcccct ataaaacca gcgcccgcac gcgccaccac cgccgagacc  
15001 gcgtccgccc cgcgagcaca gagcctcgcc ttgcccgatc ctctagagtc gagatccgcc  
15061 gccaccatga ttgaacaaga tggattgcac gcaggttctc cgccgcttg ggtggagagg  
15121 ctattcggct atgactggc acaacagaca atcggtgct ctgatgccgc cgtgttccgg  
15181 ctgtcagcgc agggcgccc ggttcttttt gtcaagaccg acctgtccgg tgccctgaat  
15241 gaactgcagg acgagcagc gcggctatcg tggctggcca cgacgggctg tccttgcgca  
15301 gctgtgctcg acgttgcac tgaagcggga agggactggc tgctattggg cgaagtgcg  
15361 gggcagatc tcctgtcatc tcacctgct cctgcccaga aagtatccat catggctgat  
15421 gcaatgcggc ggctgcatac gcttgatccg gctacctgcc cttcgacca ccaagcga  
15481 catcgcacgc agcagcagc tactcggatg gaagccggtc ttgtcgatca ggtgatctg  
15541 gacgaagagc atcaggggct cgcgccagcc gaactgttct ccaggctcaa ggcgcgatg  
15601 cccgacggc aggatctcgt cgtgacccat ggcgatgctt gcttgccgaa tatcatggtg  
15661 gaaaatggcc gcttttctgg attcatcgac tgtggccggc tgggtgtggc ggaccgctat  
15721 caggacatag cgttggttac ccgtgatatt gctgaagagc ttggcggcga atgggctgac  
15781 cgcttctcgc tgctttacgg tatcggcgt cccgattcgc agcgcacgc cttctatcgc  
15841 cttcttgacg agttcttctg agcgggactc tggggttcga aatgaccgac caagcgacgc

15901 ccaacctgcc atcacgagat ttcgattcca ccgcccgcctt ctatgaaagg ttgggcttcg  
15961 gaatcgtttt ccgggacgcc ggctggatga tctccagcg cggggatctc atgctggagt  
16021 tcttcgcca cccccggat ctaagctcta gataagtaat gatcataatc agccatatca  
16081 catctgtaga ggttttactt gctttaaaaa acctcccaca cctccccctg aacctgaaac  
16141 ataaaaatgaa tgcaattggt catcacaat ttcacaaata aagcattttt ttcactgcat tctagtgtg  
16201 aaagcaatag catcacaat ttcacaaata aagcattttt ttcactgcat tctagtgtg  
16261 gtttgtccaa actcatcaat gtatcttctc atgtctggat ccgggggtac cgcgtcgaga  
16321 agttcctatt ccgaagttcc tttctctag aaagtatagg aacttcgtcg agataacttc  
16381 gtatagcata cattatacga agttatgtcg agatatctag acccagcttt ctgtacaaa  
16441 gtggttgata tctctatagt cgcagtaggc ggaaaggtct ggaccaccag gttgagaaac  
16501 actgcctgat agtgttgaa atctctaagt gatcatgctt tataaagggg aatacattca  
16561 cctatgtctt ccaaaacatg accattcttt gcagctgtcc cctagactgt gggaaggtaa  
16621 gaaaaggagc taccctctc gtctcacc caactgtgca ggaaggtaac acctttaatc  
16681 ccacctgggt atcagctatg gtacttagct tttgctatg ttacaatgac aaagtagagc  
16741 tcacactaaa gacaaaact cttcagagga agtaattcat ataaataacc aagagaacgg  
16801 ttcatagaat ctttgtggt ttttattctt aatgacagga acttcacttt taacacagtc  
16861 tctgcctcct ctgagtacat acaatgacca atctgttagt tttgttttgg agaatggatg  
16921 ttatgtgac aatgttgac actctggaaa agaccaagag caaggtagag tatctcctca  
16981 cgtctatact tagtaatgac tggcaaggtt taaaaaaaaa aaatctacca agttatcaac  
17041 agtggattaa ctgagctatt caacagcagc aagtttcacc atctttggta attttagtcc  
17101 ttctatgtc aagaaggtct cagtgtagtc acattcttca ggaataaat cagacattga  
17161 gaaatcctta ttgagaaata cagaagagg gactacatgt atctacaaat gctgaataat  
17221 aagatcttgt tcaccttttc agtgccccca aagcatagtc ttttgtgaaa gattatccct  
17281 ttgtcataaa caataccacc tgcatattgg ggaatccatc agagcagaat atattttaag  
17341 atctttctaa gaatcactaa agttccgctt ttttggata tgacaaaagg agagggagtt  
17401 tgtgttcccc gccacccca gccccagac gggatggaac cgaaaccttt tgatacgttc  
17461 ctctgtcacc cagtgcacc caatgttctc tttcagacca ggtgctacta cgctactatg  
17521 agtctcctcg tcttcaagt caatcaggta atgtagaggc agggggaggg ggtggtggtt  
17581 gcattctcat ccagaacaaa gctgaatctg aagtagcccg tggttatcat gaggttcaga  
17641 aggttatctt caaccccaca ctcatgttaa aacctacct catctacttc tgaattagta  
17701 ggagaaaagc ctagctgcac ttataatagt acagccataa tagtacagcc catctcagcc  
17761 aagactcaaa agattctgct caaaggttgc ccagaagcag ttccttctac atcatcagtc  
17821 catccatgca taatggctca ccactatggc cagtgcagca gagacaggaa ggcagggtgaa  
17881 tacatatgtc ttccgcttca gggcacaatt gtgtaccacg tgtctgctta tcttcagttg  
17941 gtcagaactt agtctgagag caacaggagg agaaaagttc tattatctgt tatctattag  
18001 aggacagctc tcagcagctt ccatgaaca gaggggaagca ggtgaccaa gcagtatcca  
18061 ttggcatcag ttgaattaca aaagatcaga acaacaacag aaagtaaaaa ctaaacctc  
18121 tctcagaaa gatttagaaa gactcctggg ctggccttgg tgggtgcacat ctttaatccc  
18181 agcactcagg agccaaggc aagcagatgc ctgagttcaa agccagcctg acctacagag  
18241 tgagtttcag gacagatagg gccacacaaa gaaaccctat cttgggggaa ggaagaaata  
18301 aaaggaagga aggaagggag ggaaggggaag ggaaggggaag ggaaggggaag ggaaggggaag  
18361 ggaaggggaag ggaaggaaga agggagggag ggaaggaagg aaggaggaag gaaggaagag  
18421 agggaggaag gaaggaagga aggaaggaag gaaggaagga aggaaggaag gaaggaagga  
18481 aggaaggact acctggtatt tgggtgcaaa tactttttaa tggattagtg agtattttc  
18541 atttgcaact gaaattcttt agttaaagtt aagatgagtt acaagactta gaatttttga  
18601 tttgtaattt ctttgtctta cttttaaatt ataggtaaaa ttgtattaat catgaaccac  
18661 agatgatttt tgctttggag caagcgatat tttttttaa aagattttat ttctatttaa  
18721 tgggatgtaa tgttttgctt gcatgcatgt aagcgttga gatgcttata gttgtgtaga  
18781 aagctagaag acagcactgg atgtcctgta acttatgggc tctgggaact gaatgcaggt  
18841 cctcttgcaa gggcatcaag tgctcatgac gaaggaagta tctctctagt cccatagcag  
18901 gagttttttt tttttttaa gatttattta ttgattatat gtaagtacac tgtagctgtc  
18961 ttcagacact ccagaagagg gcatcagatt tcattagga tggttgtgag ccacctgtg  
19021 gttgctggga tttgaactct ggacctcag aagagcaatc ggggtgctctt acccactgag  
19081 ccatctcacc agccatagc aggagttttg aggtatctat tgtctctgtc taatagagag  
19141 atcaaatgag gccaaagggc agctgtatca cctcacctta taattttcat ttaaggcga  
19201 cgggtgtgat ggaagaagc tgatggtgaa catgagtcct atcaaagaca cagacatctg  
19261 gctgcatgcc aacgacaagg actactccgt ggaggtaaca gaaatatgac cctatgacgg  
19321 ccacacttgg ttctacctgt taacgtaaaa tagatgttag atgttagggc aattttgaag  
19381 ccagaagtac acactgttga aaataaacta cagtcagtca cttctaataga cttgcttggg  
19441 agtagggaga tggcgcaacg caattaatga taacttcgta tagcatacat tatacgaagt  
19501 tatggtctga gctcgcctc agttcaagat ctaaagtctc caggacagga acttcatccc  
19561 ttcaccacag tttgagaggc acttctgcac agagtgagtc acagcctttc catttggcta  
19621 tgttcttcca gaattgtttt aggattattt attttatgca tatgaatgta ctgtcactgt

19681 gttcggtcac accagaagag ggcacagat cccattacag atggttgtga gccaccatgt  
19741 gggtgctggg aattgagctg aggacctctg gaagagcagt tgggtgctctt aaccgctgag  
19801 ccatctctcc agccctggag atatatagtt tctgactcca agtctgtcaa ggggaaggca  
19861 gcaaatgtgt ccatacatca gcagtttggg gcagcattac attctacatc tgggtccggttc  
19921 ttgctcagca aacagcaggt gtacatcagc caggacgaaa aaaaaaattc tgatcatgta  
19981 aagaacaaac aggccagagt gagaaggaag gaaggaaggg aggaaggaca tgggagaaca  
20041 taataacgaa gatgatttct ataaatata accatttcaa agcaatccag ccacataaga  
20101 catcaacaca aacagtccac aaagaccagc actcttctca ggagaatact ctcaggtgta  
20161 catgatgcaa aatctagcag aaagaaagcc tcaaaagtaa cagtgggctg ccatggcaca  
20221 tcaagttctt gcttaccatt tcctaagccc tgtctcttta atcctcacag caaatttata  
20281 tggaaaaatt gccttgggtc gctattgtgc aacaaactat cacaaaactc attggattaa  
20341 aataataatc acatataggt cctcagcaac tgagagctca tccgacgac ctgagttggc  
20401 tccccagtat tcattggcag gcgactcaca acacctgtag ctctcgctcc aagacagtca  
20461 ggtgctctctg gcctccatag acatctacac ttatgtgcac aactcagac atagccacat  
20521 acacataatt taaaataaat tcttaaaaat aacacaaatt aaaaacaata atctgtatct  
20581 aatgagctt aatttaattg aacaacttag ttaacaatc aacttaatta aaatattgtct  
20641 gtatttaaac tgacaatgaa cgaacctaga gggcgtgtcc acagagagtt ctgggtaaac  
20701 tggaaaagtc aggtttacta gatacatac agacagacat gttctcatgg caaaaacaga  
20761 ggggaacaaa tctggatggt ttgctgtagt ttggtgcaca gaagctgacc aaggtaatta  
20821 ttccatataa acttgctgtg tgaattaaag agatgggggt tgtgacgtat gaaggaaatt  
20881 gacctggtca gtctctgcca agctgcttat cactctcca caaatcgctt tcacctcttc  
20941 catgagcct ctctattccc tccactgctc atttctccct cctcgactca gtacaaactt  
21001 ctagaaaagt tcaagctata agtgatcagt ccccccattg atgctgacct aggaaggcaa  
21061 tggtagctct ggactcccc ttcacacctt ggtttctctt cttcttccct cagcttcaaa  
21121 ggggtgagtc ctgctccg gaacaggcct tcttctctc tcacaaaaag tccctggact  
21181 ttgtttcatt tgaatgcaag aatcttctg gcacttacat aggagtaaaa gataaccagc  
21241 tggctctagt ggaggagaaa gatgagagct gcaacaatat tatgtttaag ctctcgaaaa  
21301 tctaattgag taaaacgct gtgctgtctg ggttgaatga cttaatgctt ccaactgaag  
21361 aaagggtaac agagagaaag aaagccattc ttggcttacg atggttggga atgttattat  
21421 gtagaaaact tcttttattt ctttttctc agctacatgt tcaatagact cacagatata  
21481 tgacttacgg cgttggtaaa gaaactgaa gagattcagc cttgctcttt ccttttctct  
21541 gccttgagtc ctgtatgaaa tcacactcac ggacttcaga agagcaggca ccactgta  
21601 tggtttgctt tagagagggt ccatttcaaa accttcata aaaaacaatgc aaaaacaaga  
21661 aacaaccgaa caaaaaaacc acctatttcc tggttctaaa caaatgattg taataactaga  
21721 gcagttagtg ggaggaccag ctagggggag gatcacctag gggaggacca gctaggggga  
21781 ggaccagctg ctgcaaagac tgactgtttc tacttataa taaaatgcca aatgcctccg  
21841 cagatgcccc aggcaaccct cagatcagcc ctttctgtga agagtggcgt tacctgtgct  
21901 tgtttccttc ttaaacttcc aattttctc ttttaacaca tttaacattt aacttttagc  
21961 aagctgagctt acattagtaa gtgaaagaca ttttagttcc caccogtgat tgaatcatt  
22021 gactatatct aacaagctta agtctctctg taagaactga tcaggatata cactaggaca  
22081 tgccaataga atgggatctc atggtgcagt ctgaagccct ccaactggag agacgctaac  
22141 atcatccttc tcgctgattt ccaaggagct atgactttgg atgcatgcat ctgcttggat  
22201 gagatgtctc ggctgcttgc tttccttatg cacacgttct gttcagcttc acagcagcaa  
22261 tgctcacggg ggaatagctt agcttagctt ctgccccttc tttggttctt ttgaccaca  
22321 tatcogtaac ggctctocta ctccctcagc tttctttctc tttgctctga ogtctatag  
22381 ccaacacact tattccactg tctttaccct gcactgcaga attttacatc tacctactgg  
22441 ttaccaggtt gtcccctgaa caaccttctt ttgtgtttta ctgttattaa agtagtaata  
22501 tttgtattca accatgtagt aatattttaa gccactaaag gaatagtttt acttatttag  
22561 acaacagcaa tttctactac atttttataa gcttaaaact tacatgtttt aaaacttaaa  
22621 acgataaaga caataacaac attgatggag tatgatatga cagttcagaa agggtagct  
22681 cttatcttcc agtcgaggaa acctattgta tacaatagct ggaggaatgt atgatcaag  
22741 aggccgggaa ccgctgtgta ggatcgtagc gctgtaacag gtataattgt ttcattaatt  
22801 tgtcacagtc ttactgtaga ggaatgtaaa ggccgaatct gcgctattcc tctggaaacc  
22861 acagtgttga ctctgtgaat ctgtacgata tctttaaagt agtaactacg tagtcaaatg  
22921 tgttcttgac gttgttcata actttgaata aaccattttt caaaaccagc tgtgaccaca  
22981 aagcgtcca acgttccgag ttcttaaatg aaaaatgagta taccocagtg catcattgtt  
23041 gacaagtgag gccgggtggct gtttgacaac ttagggtgtt aagtttagact ttccggaaca  
23101 cggatgtgct tgtttcacct tcaccccc agctctcca ctctctcaa taggagactt  
23161 tcgacccaaa ccaaacatc gccccatgg tctacatca aatattaacc tgaattccc  
23221 gatcccttat ttcttt

//