

| Exon 27 | Exon 28

| | |
|-------------------|---|
| Human | 852 ESLIEGDDGKTYFYQI WYDQDYARFESPPK I OPTEDNKEKFC SCARLAEMRQKEIPRVL EOLE DLDSEVLY KSATKNGT ILYR VGDGV F L PEAFTFN KLLSPVKRPRK |
| Opossum 1a | 748 EIKMVEDDGRTYFYQMWDQDYARFESPPK I QSTEENKYKFC SCARLAEMRQKEIPRVT EPLEELD KVLYGLAMKNGVQYRTGDFV F L PEAFTGFN MKLC SPTKRSKK |
| Opossum 1b | 705 EIKMVEDDGRTYFYQMWDQDYARFESPPK I QSTEENKYKFC SCARLAEMRQKEIPRVT EPLEELD KVLYGLAMKNGVQYRTGDFV F L PEAFTGFN MKLC SPTKRSKK |
| Opossum 1ψ | 438 EIKMIEDNGKTYFYQMWDQDYARFESPPK I EAKRE KYKL AASCV E SEMEE EIPRVM E MLEEL D RIVYGLA IKS VQYRTGDFV F L PEAFTGFN MKLC SPTKRSKK |
| Wallaby 1 | 746 EIKMVEDDGRTYFYQMWDQDYARFESPPK I QPTEDNKYKFC SCARLAEMRQKEIPRVT EPLEELD KVLYGLAMKNGVQYRTGDFV F L PEAFTGFN MKLC SPTKRSKK |
| Koala 1 | 746 EIKMVEDDGRTYFYQMWDQDYARFESPPK I QPTEDNKYKFC SCARLAEMRQKEIPRVT EPLEELD KVLYGLAMKNGVQYRTGDFV F L PEAFTGFN MKLC SPTKRSKK |
| Tasmanian devil 1 | 717 EIKMVEDDGRTYFYQMWDQDYARFESPPK I QPTEDNKYKFC SCARLAEMRQKEIPRVT EPLEELD KVLYGLAMKNGVQYRTGDFV F L PEAFTGFN MKLC SPTKRSKK |
| Wallaby 2 | 747 EIKMIEDDGRTYFYQMWDQDYARFESPPK I EPPK V BPKENK YFGSCTROSEM E KPIESVRLE P LEVDD KI F YGLAMKNGVQYRTGDFV F L PEAFTGFN MKLC SPTKRSKK |
| Koala 2 | 507 EIKMIEDNGRN I FYQMWDQDYARFESPPK I EPPK V BPKENK YFGSCTROSEM E KPIESVRLE P LEVDD KI F YGLAMKNGVQYRTGDFV F L PEAFTGFN MKLC SPTKRSKK |
| Tasmanian devil 2 | 475 EVPVABNDGRTYFYQWYDPDYARFESPPK I EPTEDNKYKFC AASCVR I SEMELBKNT P VLEPLA E VD D KI F YNLAMKKG VQYRGDGV F L PAFGFLIK - PPVITRNLK |
| Platypus | 748 EIKMVEDDGRTYFYQMWDQDYARFESPPK I QPTEDNKYKFC SCARLAEMRQKEIPRVT EPLEELD KVLYGLAMKNGVQYRTGDFV F L PEAFTGFN MKLC SPTKRSKK |

| Exon 29

| | |
|-------------------|---|
| Human | 962 EEVDEEPLYEHYRKSYI KGSNL D APEPYRIGRIKEIFCP KRSNGRPNET DIKIRVNKFYR PENTHKS T P ASY HADINLLYWSDEEA VDFKAVQGRCT V EYGEDLPEC |
| Opossum 1a | 858 ESVDEEPLYEHYRKSYI KGSNQDA P D PYRIGRIKEIFCS KRSNGKPNEADIKL R V NKFYR PENTHKS MKA SH HADINLLYWSDEEA IVDFKAVQGRCVIEYGEDLTEC |
| Opossum 1b | 815 ESVDEEPLYEHYRKSYI KGSNQDA P D PYRIGRIKEIFCS KRSNGKPNEADIKL R V NKFYR PENTHKS MKA SH HADINLLYWSDEEA IVDFKAVQGRCVIEYGEDLTEC |
| Opossum 1ψ | 542 E VNEECYPEFDQK * SEYI AKGSNQNA PKYQICISIKEIFCDK SNG --- EDIKL R NKFYQSENTHKS MKA SH HADINLLYWSDEEA IVDFKAVQGRCVIEYGEDLTEC |
| Wallaby 1 | 856 ESVDEEPLYEHYRKSYI KGSNQDA P D PYRIGRIKEIFCN KRSNGKPNEADIKL R V NKFYR PENTHKS MKA SH HADINLLYWSDEEA IVDFKAVQGRCVIEYGEDLTEC |
| Koala 1 | 856 ESVDEEPLYEHYRKSYI KGSNQDA P D PYRIGRIKEIFCN KRSNGKPNEADIKL R V NKFYR PENTHKS MKA SH HADINLLYWSDEEA IVDFKAVQGRCVIEYGEDLTEC |
| Tasmanian devil 1 | 827 ESVDEEPLYEHYRKSYI KGSNQDA P D PYRIGRIKEIFCN KRSNGKPNEADIKL R V NKFYR PENTHKS MKA SH HADINLLYWSDEEA IVDFKAVQGRCVIEYGEDLTEC |
| Wallaby 2 | 856 E SVNED C YPEYYRKOSD YI KGSNQDA P D PYRIGQIKEIFCFK SNG --- TDIKL R NKFYR PENTHCAINKFWEDINLLYWSDEEV VDFD V QGRCVVKYNSMTEP |
| Koala 2 | 616 E SVNED C YPEYYRKOSD YI KGSNQNV P E PYRIGQIKEIFCFK SODG --- TDIKL R NKFYR PENTHECRMKWFDDINLLYWSDEEV VDFD V QGRCVVKYNSMTEP |
| Tasmanian devil 2 | 584 E SVNED C YPEYYRKHS YV KGSNQDA P D PYRIGQIKEIFCE SNG --- AVIKL R NKFYR PENTHKS STKKYI EDINLLYWSDEEV VDFD V QGRCVVKYNSMTEP |
| Platypus | 858 E SVDEEPLYEHYRKSYI KGSNQDA P D PYRIGRIKEIFCH KRSNGKPNEADIKL KINKFYR PENTHKS I KAS HADINLLYWSDEEA IVDFKAVQGRCVIEYGEDLTEC |

| Exon 30 | Exon 31 | Exon 32

| | |
|-------------------|--|
| Human | 1072 MCVYSMGGPNRFYFLEAYNAK I KS FEDPPNHARSPGNKGKGK - KGKGKPK - SQACEPSEPE IEIKLPKLRLTDVFSGCGGLSEG F H QAGIS TLWAIEMW PAAQAF |
| Opossum 1a | 968 IQDYSAGGSDRFYFLEAYNAK I KS FEDPPNHARSPGNKGKGKSRGK - SIAVEPSEHETIEVK PPKLRLTDVFSGCGGLSEG F H QAGIS ETLWAIEMW PAAQAF |
| Opossum 1b | 925 IQDYSAGGSDRFYFLEAYNAK I KRFEDPPNHARSPGNKGK - KGKNPK - SIAVEPSEHETIEVK PPKLRLTDVFSGCGGLSEG F H QAGIS ETLWAIEMW PAAQAF |
| Opossum 1ψ | 647 IQDYSAGSSDRFYFLE --- |
| Wallaby 1 | 966 IQDYSAGGSDRFYFLEAYNAK I KS FEDPPNHARSPRNKGKGKGKGSKG - SVAVEPSEQETVDIKLPKLRLTDVFSGCGGLSEG F H QAGIS ETLWAIEMW PAAQAF |
| Koala 1 | 966 IQDYSAGGSDRFYFLEAYNAK I KS FEDPPNHARSPRNKGKGKGKGSKRKG - SVAVEPSEQETIEVLPKLRLTDVFSGCGGLSEG F H QAGIS ETLWAIEMW PAAQAF |
| Tasmanian devil 1 | 937 IQDYSAGGSDRFYFLEAYNAK I KS FEDPPNHARSPRNKGKGKGKGSKRKG - SVAVEPSEQETIEVLPKLRLTDVFSGCGGLSEG F H QAGIS ETLWAIEMW PAAQAF |
| Wallaby 2 | 962 HEKYSI C DPEH F QEAYNAK S FEDVPSYAR - GKD KKGK - KGKGKKG - SVAVEPSE RETVDIKLPKLRLTDVFSGCGGLSEG F H QAGIS ETLWAIEMW PAAQAF |
| Koala 2 | 722 HEKYSI C DPEH F QEAYTAKK S FEDVPSYAR - GDKHKCG - KGKSKKG - SVAVEPSEQE KITEI KLPKLRTDVFS CGGLSEG F H QAGIS ETLWAIEMW PAAQAF |
| Tasmanian devil 2 | 689 PEKYNIC DKEH F YF QEAYNAK S FEDVPSYAR - GKE EKEKGIGSEK - LITL EH - IEF MKE VNP KPLRLTDVFSGCGGLSEG F H QAGIS ETLWAIEMW PAAQAF |
| Platypus | 968 IQDYSAGGSDRFYFLEAYSAK I KS FEDPPNHARSSGNFGKGKGKGKGKTFVASEKEQETVGKLPKLRLTDVFSGCGGLSEG F H QAGIS ETLWAIEMW PAAQAF |

| Exon 33

| | |
|-------------------|--|
| Human | 1178 RLNNPGS T VFTEDCN I LLKL VMA GET TNSR GQ ELPQKG D VEM LCGGPPCQG F GSGMNR F NSRTYS KFKNSL VUVS FLSY CDY YPRFFLLEN VRNFV SFRSMV LKLT LRCL |
| Opossum 1a | 1077 RLNNPGCTTVFTEDCN VLLKL VMSGEKTN SLQKL P QKG D VEM LCGGPPCQG F GSGMNR F NSRTYS KFKNSL VUVS FLSY CDY YPRFFLLEN VRNFV SFRSMV LKLT LRCL |
| Opossum 1b | 1030 RLNNPGE TTVFTEDCN I LLKL VMSGEKTN SLQKL P QKG D VEM LCGGPPCQG F GSGMNR F NSRTYS KFKNSL VUVS FLSY CDY YPRFFLLEN VRNFV SFRSMV LKLT LRCL |
| Opossum 1ψ | 681 RLNNPGE TTVFTEDCN I LLKL VMSGEKTN SLQKL P QKG D VEM LCGGPPCQG F GSGMNR F NSRTYS KFKNSL VUVS FLSY CDY YPRFFLLEN VRNFV SFRSMV LKLT LRCL |
| Wallaby 1 | 1075 RLNNPGCTTVFTEDCN VLLKL VMSGEKTN SLQKL P QKG D VEM LCGGPPCQG F GSGMNR F NSRTYS KFKNSL VUVS FLSY CDY YPRFFLLEN VRNFV SFRSMV LKLT LRCL |
| Koala 1 | 1075 RLNNPGCTTVFTEDCN VLLKL VMSGEKTN SLQKL P QKG D VEM LCGGPPCQG F GSGMNR F NSRTYS KFKNSL VUVS FLSY CDY YPRFFLLEN VRNFV SFRSMV LKLT LRCL |
| Tasmanian devil 1 | 1046 RLNNPGTTVFTEDCN VLLKL VMSGEKTN SLQKL P QKG D VEM LCGGPPCQG F GSGMNR F NSRTYS KFKNSL VUVS FLSY CDY YPRFFLLEN VRNFV SFRSMV LKLT LRCL |
| Wallaby 2 | 1067 RLNNPGE TTVFTEDCN ALLKL VMSGEKTN SLQKL P QKG D VEM LCGGPPCQG F GSGMNR F NSRTYS KFKNSL VUVS FLSY CDY YPRFFLLEN VRNFV SFRSMV LKLT LRCL |
| Koala 2 | 827 RLNNPGTTVFTEDCN VLLKL VMSGEKTN SLQKL P QKG D VEM LCGGPPCQG F GSGMNR F NSRTYS KFKNSL VUVS FLSY CDY YPRFFLLEN VRNFV SFRSMV LKLT LRCL |
| Tasmanian devil 2 | 792 RLNNPGE TIVL SEDCN I LLKM VMSGEKTN SLQKL P QKG D VEM LCGGPPCQG F GSGMNR F NSRTYS KFKNSL I A SFLS Y CDY YPRFFLLEN VRNFV SFRSMV LKLT LRCL |
| Platypus | 1078 RLNNPGTTVFTEDCN VLLKL VMSGEKTN SLQKL P QKG D VEM LCGGPPCQG F GSGMNR F NSRTYS KFKNSL VUVS FLSY CDY YPRFFLLEN VRNFV SFRSMV LKLT LRCL |

| Exon 34 | Exon 35

| | |
|-------------------|--|
| Human | 1288 VRMGM QCTFGV I QAGQ YGV A QT RRA I LAAAP GEK L P FPEPLHV F AP RAC Q L S V V D D K F V S N I T R M S I P F R T I T V R D T M S D L P E V R N G A S A L E I S Y N G E P Q S W F Q |
| Opossum 1a | 1187 VRMGM QCTFGV I QAGQ YGV A QT RRA I LAAAP GEK L P FPEPLHV F AP RAC Q L S V V D D K F V S N I T R M S I P F R T I T V R D T M S D L P E I R N G A S A L E I S Y N G E P Q S W F Q |
| Opossum 1b | 1140 VRMGM QCTFGV I QAGQ YGV A QT RRA I LAAAP GEK L P FPEPLHV F AP RAC Q L S V V D D K F V S N I T R M S I P F R T I T V R D T M S D L P E I R N G A S A L E I S Y N G E P Q S W F Q |
| Opossum 1ψ | 791 VRMGM HCTFGV I QAGQ YGV A QT RRA I LAAAP GEK L P FPEPLHV F AP RAC Q L S V V D D K F V S N I T R M S I P F R T I T V R D T M S D L P E I R N G A S O P S W F Q |
| Wallaby 1 | 1185 VRMGM QCTFGV I QAGQ YGV A QT RRA I LAAAP GEK L P FPEPLHV F AP RAC Q L S V V D D K F V S N I T R M S I P F R T I T V R D T M S D L P E I R N G A S A L E I S Y N G E P Q S W F Q |
| Koala 1 | 1185 VRMGM QCTFGV I QAGQ YGV A QT RRA I LAAAP GEK L P FPEPLHV F AP RAC Q L S V V D D K F V S N I T R M S I P F R T I T V R D T M S D L P E I R N G A S A L E I S Y N G E P Q S W F Q |
| Tasmanian devil 1 | 1156 VRMGM QCTFGV I QAGQ YGV A QT RRA I LAAAP GEK L P FPEPLHV F AP RAC Q L S V V D D K F V S N I T R M S I P F R T I T V R D T M S D L P E I R N G A S A L E I S Y N G E P Q S W F Q |
| Wallaby 2 | 1177 VRMGM QCTFGV I QAGQ YGV A QT RRA I LAAAP GEK L P FPEPLHV F AP RAC Q L S V V D D K F V S N I R R I S A P F R T I T V H D T M S D L P S I K N G A S E E E I T Y K E E K I C W F Q |
| Koala 2 | 937 VRMGM QCTFG H I L QAGQ YGV A QT RRA B I LAAAP GEK L P FPEPLHV F AP RAC Q L S V V D D K F V S N I R R I S A P F R T I T V H D T M S D L P S I K N G A S E E E I T Y K E E K I C W F Q |
| Tasmanian devil 2 | 902 VRMGM QCTFG H I L QAGQ YGV A QT RRA B I LAAAP GEK L P FPEPLHV F AP RAC Q L S V V D D K F V S N I R R I S A P F R T I T V H D T M S D L P S I K N G A S E E E I T Y K E E K I C W F Q |
| Platypus | 1188 VRMGM QCTFGV I QAGQ YGV A QT RRA I LAAAP GEK L P FPEPLHV F AP RAC Q L S V V D D K F V S N I T R M S I P F R T I T V R D T M S D L P E I R N G A S A L E I S Y N G E P Q S W F Q |

| Exon 36 | Exon 37

| | |
|-------------------|---|
| Human | 1398 RQIRGA QYQPII RDHICK DMSA LVA A RMRH I PLAPGSDWR DLPNIEVRLSDGT MARKL RYTH DRKNGR S S G A L R G V C S C E A G K A C D P A Q F Q N T L I P W C L P H T G N R H |
| Opossum 1a | 1297 RQIRGSQY QYQPII RDHICK DMSA LVA VAGR MRH I PLAPGSDWR DLPNIEVRLSDGT TTRK L R Y T H H E K K N G R S N T G A L R G V C S C A E G K P C D P A D Q F Q N T L I P W C L P H T G N R H |
| Opossum 1b | 1250 RQIRGSQY QYQPII RDHICK DMSA LVA VAGR MRH I PLAPGSDWR DLPNIEVRLSDGT TTRK L R Y T H H E K K N G R S N T G A L R G V C S C A E G K P C D P A D Q F Q N T L I P W C L P H T G N R H |
| Opossum 1ψ | 901 RQMRGSQY QYQPII RDHICK DMSA LVA VAGR MRH I PLAPGSDWR DLPNIEVRLSDGT TTRK L R Y T H H E K K N G R S N T G A L R G V C S C A E G K P C D P A D Q F Q N T L I P W C L P H T G N R H |
| Wallaby 1 | 1295 RQIRGSQY QYQPII RDHICK DMSA LVA VAGR MRH I PLAPGSDWR DLPNIEVRLSDGT TTRK L R Y T H H E K K N G R S N T G A L R G V C S C A E G K P C D P A D Q F Q N T L I P W C L P H T G N R H |
| Koala 1 | 1295 RQIRGSQY QYQPII RDHICK DMSA LVA VAGR MRH I PLAPGSDWR DLPNIEVRLSDGT TTRK L R Y T H H E K K N G R S N T G A L R G V C S C A E G K P C D P A D Q F Q N T L I P W C L P H T G N R H |
| Tasmanian devil 1 | 1266 RQIRGSQY QYQPII RDHICK DMSA LVA VAGR MRH I PLAPGSDWR DLPNIEVRLSDGT TTRK L R Y T H H E K K N G R S N T G A L R G V C S C A E G K P C D P A D Q F Q N T L I P W C L P H T G N R H |
| Wallaby 2 | 1287 RQMRGSHDQ I LIRH HVCK E M N A L V S A R I K L I P I P GSDWR DLPN I Q V H I D S G T V I T K L R Y N D K K N G R S T G A L R G V C A C K G K P C N P A D Q F Q N T L I P W C L P H T G N R H |
| Koala 2 | 1047 RQLRGSQD QOII L R D H I C K T M N A L V M A R I K L I P I P GSDWR DLPN I Q V H I D S G T V I T K L R Y N D K K N G R S T G A L R G V C A C K G K P C N P A D Q F Q N T L I P W C L P H T G N R H |
| Tasmanian devil 2 | 1012 RQIRGP RH Q O I K D H I C K T M N A L V M A R I K L I P I P GSDWR DLPN I Q V H I D S G T V I T K L R Y N D K K N G R S T G A F R G V C A C K G K P C N E S D R Q F Q N T L I P W S L P H T G N R H |
| Platypus | 1298 RQIRGSQY QYQPII RDHICK DMSA LVA VAGR MRH I PLAPGSDWR DLPNIEVRLSDGT TTRK L R Y T H H E K K N G R S T G A L R G V C S C A E G K P C D P A D Q F Q N T L I P W C L P H T G N R H |

| Exon 38 | Exon 39 | Exon 40

| | |
|-------------------|--|
| Human | 1508 NHWAGLYGRLEWDGFFSTTVNPEPMGKQGRVLHPEQHRRVSVRECAR S Q G F P D T Y R L F G N I L D K H R Q V G N A V P P L A K A I G L E I K L C V L A K L K E N A S A S K I K E E A A K - D |
| Opossum 1a | 1406 NHWAGLYGRLEWDGFFSTTVNPEPMGKQGRVLHPEQHRRVSVRECAR S Q G F P D T Y R L F G N I L D K H R Q V G N A V P P L A K A I G L E I K L C V L A K L K E N A T E K I K Q E H F E S T D |
| Opossum 1b | 1359 NHWAGLYGRLEWDGFFSTTVNPEPMGKQGRVLHPEQHRRVSVRECAR S Q G F P D T Y R L F G N I L D K H R Q V G N A V P P L A K A I G L E I K L C V L A K L K E N A T E K I K Q E H F E S T D |
| Opossum 1ψ | 1010 NHWAGLYGRLEWDGFFSTTVNPEPMGKQGRVLHPEQHRRVSVRECAR S Q G F P D T Y R L F G N I L D K H R Q V G N A V P P L A K A I G L E I K L C V L A K L K E N A T E K I K Q E H F E S T D |
| Wallaby 1 | 1404 NHWAGLYGRLEWDGFFSTTVNPEPMGKQGRVLHPEQHRRVSVRECAR S Q G F P D T Y R L F G N I L D K H R Q V G N A V P P L A K A I G L E I K L C V L A K L K E N A T E K I K Q E H F E S T D |
| Koala 1 | 1404 NHWAGLYGRLEWDGFFSTTVNPEPMGKQGRVLHPEQHRRVSVRECAR S Q G F P D T Y R L F G N I L D K H R Q V G N A V P P L A K A I G L E I K L C V L A K L K E N A A E K I K Q E H F E S T D |
| Tasmanian devil 1 | 1375 NHWAGLYGRLEWDGFFSTTVNPEPMGKQGRVLHPEQHRRVSVRECAR S Q G F P D T Y R L F G N I L D K H R Q V G N A V P P L A K A I G L E I K F S V L A K L K E K A T E K I K K E N L E S M D |
| Wallaby 2 | 1395 NHWAGLYGRLEWDGFFSTTVNPEPMGKQGRVLHPEQHRRVSVRECAR S Q G F P D T Y R L F G N I L D K H R Q V G N A V P P L A K A I G L E I K F S V L A K L K E K A T E K I K T E E V *----- |
| Koala 2 | 1156 NHWAGLYGRLEWDGFFSTTVNPEPMGKQGRVLHPEQHRRVSVRECAR S Q G F P D T Y R L F G N I L D K H R Q V G N A V P P L A K A I G L E I K L C V L A K L K E N T A ----- |
| Tasmanian devil 2 | 1121 NHWAGLYGRLEWDGFFSTTVNPEPMGKQGRVLHPEQHRRVSVRECAR S Q G F P D T Y R L F G N I L D K H R Q V G N A V P P L A K A I G L E I K N S I L A R L R E S Q T ----- |
| Platypus | 1407 NHWAGLYGRLEWDGFFSTTVNPEPMGKQGRVLHPEQHRRVSVRECAR S Q G F P D T Y R L F G N I L D K H R Q V G N A V P P L A K A I G L E I R L C V L A K L K E N S L D N I K L E K M E T T D |

Human 1617 *

Opossum 1a 1516 *

Opossum 1b -

Opossum 1ψ 1119 *

Wallaby 1 1514 *

Koala 1 1514 *

Tasmanian devil 1 1485 *

Wallaby 2 -

Koala 2 -

Tasmanian devil 2 -

Platypus 1517 *