## QUERY

UniRef90_R5EKL1
UniRef90_U2UUJJ7
UniRef90_E1RI7
UniRef90-E1SS54
UniRef90-P8323
UniRef90-F4GHHP2
UniRef90_C2L1K2
UniRef90_S3356
UniRef90-Q9Z4P0
UniRef90-E3G136
UniRef90-H1 UniRef90-UPI000476E4FF UniRef90-H7F8U4 UniRef90_D4MCZ1 UniRef90-R7IAZ7 UniRef90_D5H324 UniRef90_C8NG68 UniRef90_Q1WSJ8 UniRef90-J7KR69
UniRef90-N1ZZY8 UniRef90-N1ZZY8
UniRef90- UPI00046463D3 UniRef90 R7C1T5 UniRef90_UPI00047E7D36 UniRef90_A0AFE8 UniRef90 X2H4M8 UniRef90_UPIOOO219232F UniRef90_C2CY14 UniRef90_C7XVJ9 UniRef90_Q03ZX2 UniRef90_UPI00046AA924 UniRef90_U2JZ03 UniRef90-D5H230 UniRef90-E4SNN6 UniRef90-UPI0003941619 UniRef90_UPI000394437C UniRef90_E3CLP8 UniRef90-B9Y3V7 UniRef90-UPIO00472714E UniRef90_U1FJ87 UniRef90_A8MK89 UniRef90_UPI00035EADB1 UniRef90_M7WUD3 UniRef90-I1CCM2
UniRef90 G2SR95 UniRef90-F214W3 UniRef90_U5H4Q7 UniRef90-K9EXJ1
UniRef90-D0WI2 UniRef90-N1JH41 UniRef90-D8Q912
UniRef90-W6TB72 UniRef90-M3AQC3 UniRef90-F2Q613
UniRef90-R2SIX6 UniRef90-MON5V0 UniRef90-C5L6B1 UniRef90-R5EHQ3 UniRef90-H3KCK5 UniRef90-K1KGN4 UniRef90-A8TNE6 UniRef90-W4V836 UniRef90_M5G1D2 UniRef90_A6TLB6
UniRef90_M8DCH0 UniRef90-K1JMY2 UniRef90_H3KD06 UniRef90_S0G550
UniRef90-F8NU84 UniRef90-W4H3T4 UniRef90-A8H7Z5 UniRef90_C5LJM7
UniRef90 C9RHT7 UniRef90_UPI000379FD17 UniRef90_O66855 UniRef90-Q57W38 UniRef90-B9JWF8 UniRef90_UPIO0037AE259 UniRef90_A5E1R5 UniRef90_L7VSE1 UniRef90-F1KRD8 UniRef90-A5FYR8 UniRef90_Q2JIY0 UniRef90-B9W9Y4 UniRef90_D2RFJ2
UniRef90 Q1IPE9 UniRef90-F6EN58 UniRef90-W6KUT8
UniRef90_E3GX00

QY ITA A P TLSVKGGVMVTEAVRGNGA 30 GA LVNREGKRFVNEI

UniRef90 R5EKL UniRef90_U2UUJ7 UniRef90_E1R717 UniRef90_E1SS54 UniRef90-P83223 UniRef90-F4GHP2 UniRef90_C2L1K2 UniRef90_S3J356
UniRef90_Q9Z4P0 UniRef90 E3G136 UniRef90-H1HW42 UniRef90-UPI000476E4FF UniRef90_H7F8U4 UniRef90-D4MCZ1 UniRef90-R7IAZ7 UniRef90_D5H324 UniRef90-C8NG68 UniRef90_Q1WSJ8 UniRef90-J7KR69
UniRef90-N1ZZY8 UniRef90-N1ZZY8
UniRef90- UPI00046463D3 UniRef90-R7C1T5 UniRef90-UPI00047E7D36 UniRef90-A0AFE8 UniRef90 ${ }^{-}$Х2H4M8 UniRef90-UPIOOO219232F UniRef90-C2CY14 UniRef90-C7XVJ9 UniRef90_E3C9A9 UniRef90_UPIO0046AA924 UniRef90-U2JZ03 UniRef90-D5H230 UniRef90-E4SNN6 UniRef90-UPI0003941619 UniRef90_UPI0003944370 UniRef90-E3CLP8 UniRef90_B9Y3V7 UniRef90-UPIO00472714E UniRef90_U1FJ87 UniRef90-A8MK89 UniRef90-UPI00035EADB UniRef90_M7WUD3 UniRef90-I1CCM2 UniRef90-G2SR95 UniRef90-U5H4Q7 UniRef90-K9EXJ1 UniRef90-DOWI72 UniRef90 N1JH41 UniRef90-D8Q912
UniRef90-W6TB72 UniRef90-M3AQC3 UniRef90_F2Q613 UniRef90-R2SIX6 UniRef90-MON5V0 UniRef90-C5L6B1 UniRef90-R5EHQ3 UniRef90-H3KCK5 UniRef90-K1KGN4 UniRef90-A8TNE6 UniRef90-W4V836 UniRef90-M5G1D2 UniRef90-A6TLB6 UniRef90-M8DCH0 UniRef90_K1JMY2 UniRef90_H3KD06 UniRef90_S0G550
UniRef90 F8NU84 UniRef90-W4H3T4 UniRef90-A8H7Z5 UniRef90_C5LJM7 UniRef90_C9RHT7
UniRef90_UPI000379FD17 UniRef90-O66855 UniRef90_Q57W38 UniRef90-IOH283 UniRef90_B9JWF8 UniRef90_UPIO0037AE259 UniRef90-A5E1R5 UniRef90_L7VSE1 UniRef90-F1KRD8 UniRef90_A5FYR8 UniRef90-Q2JIY0 UniRef90_B9W9Y4 UniRef90_D2RFJ2
UniRef90 Q1IPE9 UniRef90-F6EN58 UniRef90-W6KUT8 UniRef90_E3GX00
 TTRDKASAAI LIE QTGKTAFLI F D D S S V R H S L K K K I E R Y I E L G






 STRRK I V S S A I TN N LIHE D GA Y L I F D S G V R A H F A A V E F Y D Q


 T T R D V T S A A V S K Q T G G VA Y E I F D Q K V R D K V K Q T GA A F E L G
 D T R R D K

 N T R R K I V $\operatorname{S}$ N A A 1


 a

 A RRDTMTMALFHQPDNYMWIVLDSHCYPTGDEKNNFNESA ERRRDVMTKAALME QK DAAMWVIVVDKNSYMTGETKNNFNESS



 DRRDVLSNAIKS QTGGMGYMLWNQAAADHADEYDNLLEKR G GHRDYVSGEMWKEKEKGRFPIRNSKASKVLDFHTRHYAGR QHRDFVTGKMWENGKFP R R LVNGKASKEI EWHCKHYVGRG
 GHRDYVSGQMWKEKEKKKWPI RNSKASNDLDFHTRHYSGR
 HRRDYVSNTMFKNKGPFRLVLNSKSSQE DHWHCEHYKGRG ANRKVRADADMVEQANGRKCFVKPFETQRPGMLNKHLERN D R R DVLSHA LIE QTGGYC WVLWNDK DGADSNTVGTHTTE Y
 S EKLA EQQIRDKNS GRAWLI FDQAMIVDMPVLKS YARSG H GYSEQAVVVLA QPDG DAFNLYDQRLHDGFDDYRAAAKAG
 QHRDFVTGKMWENGKFP\|RLVLNGEASKQ\|EWHCKHYGRG GRRDVMTNGLIEQTDSFMHVVVDSQSMPDGSKNHFNEERG APRDVVARA IVSEMERTHSAYV A D RKARTDAMENGKPVYPVCFTDSKGVAKAQTLRNGLKYK A A R DVLANAI I K QPKGTYWIVVNKVRYPARDWVDANGAT A DRRLRSSEAIISACHACIGVVDHKGAQKELGSLAS CGKTG Q H R D F V T G K W WEN GKY PV R L I NGQASSEVEWHCKHYVVGRG
 GRRDYVSDKMFHNKGPFRLVLNTASANEDRWHVEHYKGRG STRDVVARADYRE DKEGRGVNGGVYLDVSHLPKEVIEKK APRDVVSRAI FRHLQQRSPDEPDWVWLDMRHLDPKTIR
 $D L R S V V S K A I M E Q G A E Y P G S G G S M F A Y G V S S H E F Y W K K M G$ $A A P Y S D V V H V M Y D G D H F P A W M I T D Q E Y R N R Y P Y P Q A W Y D S G$

 APRDVVSRA IF QELQKTGSTYV YLDISHKDPEY GRRD Y L S QA GGA HTALLMLMTDQSADDFGRASFGFYANVKG APRDEVARAVVRHLAAGHRVRLDA TRLGAG APRDVVARAVFWERQQTGGTYLDLRVVEHLE
GTRDWVSGEMDKQ!KQGNFSIRSEKAGENLKFHVKHYTQR
 APRDVVARADAHE $\quad$ DELAG SAEAVVYLDLTHLDPA D R APYVEATHAMYGGKFGQGWI।FDQRYRNRYMFPGRWFKAG GLRSVVS QAMIA Q GDEYPGSQARKFAYGKGALGFYWKKMN

## QUERY

UniRef90_R5EKL1 UniRef90-U2UUJ7
UniRef90- 1 R1R77 UniRef90 ${ }^{-}$E1SS54 UniRef90-P83223 UniRef90-F4GHP2 UniRef90_C2L1K2 UniRef90-S3J356 UniRef90-O9Z4PO UniRef90-E3G136 UniRef90_UPIO00476E4FF UniRef90-H7F8U4 UniRef90-D4MCZ1 UniRef90-R7IAZ7 UniRef90-D5H324 UniRef90-C8NG68 UniRef90 Q1WSJ8 UniRef90-J7KR69 UniRef90-N1ZZY8 UniRef90 UPI00046463D3 UniRef90 R7C1T5 UniRef90-UPIO0047E7D36 UniRef90-A0AFE8 UniRef90- Х2H4M8 UniRef90-UPIOOO219232F UniRef90-C2CY14 UniRef90_C7XVJ9 UniRef90_E3C9A9 UniRef90_UPI00046AA924 UniRef90-U2JZ03 UniRef90-D5H230 UniRef90-E4SNN6 UniRef90-UPIO003941619 UniRef90_UPIOOO394437C UniRef90-E3CLP8
UniRef90 BgY
USV7 UniRef90-UPIo00472714E UniRef90_U1FJ87 UniRef90-A8MK89 UniRef90-UPI00035EADB1 UniRef90_M7WUD3 UniRef90_l1ccm2 UniReffo-G2SR95 UniRef90-F214W3 UniRef90 U5H4Q7
UniRef90 K9EXJ1 UniRef90-DoWI72 UniRef90-N1JH41 UniRef90-D8Q912
UniRef90 W6TB72 UniRef90-M3AQC3 UniRef90-F2Q613 UniRef90-R2SIX6 UniRef90-MON5VO UniRef90-C5L6B1 UniRef90-R5EHQ3 UniRef90-H3KCK5 UniRef90-K1KGN4 UniRef90-A8TNE6 UniRef90-W4V836 UniRef90-M5G1D2 UniRef90-A6TLB6
UniRef90-M8DCH0 UniRef90 ${ }^{-} 1{ }^{\prime}$ JMY2 UniRet90-H3KD06 UniRef90_SOG550
UniRef90 F8NU84 UniRef90-W4H3T4 UniRef90-A8H7Z5 UniRef90-C5LLMM7 UniRef90_C9RHT7
UniRef90_UPI000379FD17 UniRef90-O66855 UniRef90-Q57W38 UniRet90-10H283 UniRet90 B9JWF8 UniRef90-UPIOOO37AE259 UniRef90-A5E1R5 UniRef90 LTVVSE1 UniRef90-F1KRD8 UniRet90-A5FYR8 UniRef90-Q2JIY0 UniRef90-BgW9Y4 UniRef90-D2RFJ2 UniRefofo-211PE9 UniRef90-F6EN58 UniRef90-WGKUT8
UniRef90-E3GX00

90
100
110
120
VAPTADSLVKDGKMEGTDGKALTETVARYNSLVSSGKDTD LVTEGTTLDELAKKLNUNADNLKATLDQYAKFQAAKKDDA FTVQGESYEALASAMGTDPETLKGTMEDWNKAVQEKKDPS VVPSNSSLKALGDSLGINGAELEKSVARYNEFVAAGKDGD IVKEGKT EELAKQIDVPAAELAKTVTAYNGFVKSGKDAQ LLTEGATVSELAGKLGMPAAALEETVTTYNGYVANGADPD FVISAATAGELADKLNMEPEALQQTLERYNGFVKQNKDED MLYKGDTVEQLAKSTGMKVADLAKTVSDYNGYVASGKDTA YTTQGDSYAALATALQDDPTAFETTMNEWNAAVEAKTDSQ LVQEGQTLADLASKLGVDPSDLEQTVNRYSQFKEAGADED FVKKADTVEALAKEMDVPANDLKATLDTWNSSVKAKKDAE FVEKGETIEELAEK円GMPADTLKATIDTWNQDVNAKDDKQ LMKKCDTVADVAKMI GADPKVVQASFDQYWKAYDNKKDDL
 LVEHGSDLKELAEKI NVPADKLEATVNNWNQMVAAGKDTD LTVSADSVAELADKLDMPPVALHASLERYNAFIADKHDED LVVHGKDLADLAKNGGVDANNLEQTVAEWNSAVKNKDDDA LIVQAET:EQLAEKLAIDSHGLATTIARFNQFVTNQHDDD


 LVVEGOSVAELAKTMNVDAANLGATVAKNWEGYVADGEDAEE LVVHGDTVENLAEKLNMDPATLKQTVTTWNQAVESHDDAE LAVSGNTVYELAEKKGVNPNNLEKTVSGWNMYQKAFEDDA

 TIDKADTDEELAEKIGVPAETLSNTVAQYNHCVEQGHDPE
 MIYKAADAKEAAAKTGMNAETAAAAVKRYNGFQASGKDSD NEVKANSVEELAKAMNVPADHLKAALDDFNKHVADKSKDA DELVSQNRAFKAKQUGVNPDNFVKAVKEFNEAVDGTPDK LMKKFDTVADIAKEMGIEASKLQKTFNEYMEICEGKRQDP LMKKFDNGEALAKEMGISPKHLEETFDTYNA AEGKDKDP LVVEARTLEELAKKПNVKENDLKQTREKWNQAVEKKQDSE ACFRADTLEELAEQINADPEVLVDTIEKYNQYVEDGHDPE LIMKRFETGEEVAKEMGLPKDKLAQVFADYVAVTKDPKKDP GLVKADTLEEAAAHFELDADELKKTVERWNQFAKDGKDAD LMKRCNNGDELAKEFGLPPATLKKTFEEYNKAVRSQKDP VAYRADTLSDLAKQLQMDPAVLTKTDENYNSYVDAGEDPE GLMKKMTGAELAKEIGCGEKKLNETFTAYNKYANGEEKDP GLMKKMTGAELAKEIGCGEAALRKTFDEYNADGEGKKPDP DELIKDKDEEAAEFFDDDPEALKATVEKVNEYAKTGDDKD VYHEAESVEALADHLGCDPDVTAATVERYNEAVAADEPDE VMKDFASGAALAQEMGTPTSKLEQTCKTYNETMQKQKDPD LDF KYDTLDELAKAQGIDAEQLKQTVEEFNGYVKNKKDPV EAFTKQGMATCDDLKCIADFLKGTVDRVSSMAGKGNDKD KAFKANTLDELAKKLGMNPDNLKRTVAKWNEFCKTQKGDE YFIDRGTSDLELARGI RVPPEKFHETLVRYRSMVDRQEDTD AVRRFEN LDAUASALDLP AA DAQTVEHAARCARGETTDP LMKRYESGEALAKDMGLRPEVLKKTFDEYNKIAEAKKDP QTLKAMS LEELAEKMNVDVDNFTETDAKYNEAVDTGVD E IKHRFPNYYGCLQYGLDMVTDWDPVAPACHYIMGGVQTD VIWQFDTVEALADHFKIPAAELKAQVARWNEMVAAGNDKE RDMEADSLDDLAKKTGMDAGKLKVSIDGYNK\|VKDGAKDP K 1 RRFDTLSHLAAEFNMPAGCLEQTVAEYNQWTAQPGPDR LMKRFESGEALAKDMGLKPEVLKKTFDTYNAGVKAKKDP EKIGLVKVVPTAQVVGVPQSVLDAEFDSYLKAARGQAADT VIKKADNLDELAKIYNMPAEALKAQVARWNEAVTKGEDGE VMKDFDSAYDLAKEMGDPASTLEQTFKDYKEVAEKQEADK LETMYKQFLRFGDDDRKEPMDVSPTAHHFMGGLKDNEKCE

HRFPT\|ATVCRSYGПDVYTQPVPVAPAAHYWMGGVETD KERLPQVRQLAIDFEGVDPAKELVPIRPSAHYCMGGUHVE LLFVKADTMRDLAALIGCPVESVQQTLEEYERLCSTSQRSCP FSRRFPAI GALCRAVGIDPSSQPDPVRPAAHYHMGGVETD AVRCFENLETMAAGLNLPDAALQATFDEMQQHAEQQTADS NLMRTVTGRQLCEELGCSEDDLKSQLDTYNKAAKGETEDP VKNRFPTIYKTCGRYGIDDTKDRIDPVAPAAHYSMGGKTDE FFKKFNNVAEGANYMNVDEAKDRKTLTDYNKYVTSNKKDE FAARFPTVDAACRAAGLDPARQPDPVRPVAHYHMGGDAVD GLMRTVSGKELVEEIGCSEDTDKRQLDTYNDAASGAIKDP EERLPLTRDMCKKFVGIDPVEEPTPVRPVAHYTMGGIHVN TRSRFPR1YKTCLEYNIDDATDLIPIRPAAHYAMGGVKTD LQQARTVEEGAGKMGVPSDALKSTVERFNGFAAAGRDDD
LERFAENVHELAVLIGCEESTLLRTLESYKDLSSLDRKCP

QUERY UniRef90_R5EKL1
UniRef90_U2UUJ7 UniRef90-E1R717 UniRef90 E1SS54 UniRef90-P83223
UniRef90-F4GHP2 UniRef90-C2L1K2 UniRef90_S3J356
UniRef90_Q9Z4P0 UniRef90 E3G136 UniRef90 H1HW42 UniRef90-UPI000476E4FF UniRef90-H7F8U4 UniRef90- R7IAZ7 UniRef90-D5H324 UniRef90_C8NG68 UniRef90_Q1WSJ8 UniRef90-J7KR69
UniRef90-N1ZZY UniRef90-UPI00046463D3 UniRef90 R7C1T5 UniRef90-UPI00047E7D36 UniRef90_AOAFE8 UniRef90-X2H4M8
UniRef90 UPI000219232F UniRef90_C2CY14 UniRef90_C7XVJ9 UniRef90_E3C9A9 UniRef90_Q03ZX2 UniRef90_UPIO0046AA924
UniRef90-D5H230
UniRef90_E4SNN6
UniRef90_UPI0003941619
UniRef90 UPI0003944370
UniRef90_E3CLP8
UniRef90-B9Y3V7
UniRef90-B9Y3V7
UniRef90-U1FJ8
UniRef90-A8MK8s
UniRef90_UPI00035EADB
UniRef90 M7WUD
UniRef90-I1CCM2
UniRef90 G2SR95
UniRef90-F214W3
UniRef90-U5H4Q7
UniRef90-K9EXJ
UniRef90_DOWI72
UniRef90 N1JH4
UniRef90_D8Q912
UniRef90_W6TB72
UniRef90-M3AQC3
UniRef90 F2Q613
UniRef90-R2SIX6
UniRef90 MON5VO
UniRef90-C5L6B1
UniRef90-R5EHQ3
UniRef90-H3KCK5
UniRef90-K1KGN4
UniRef90_A8TNE 6
UniRef90_W4V836
UniRef90-A6TLB6
UniRef90-M8DCH0
UniRef90_K1JMY2
UniRef90_H3KD06
UniRef90_S0G550
UniRef90-F8NU84
UniRef90-W4H3T4
UniRef90-A8H7Z5
UniRef90-C5LJM7
UniRef90 UPIO00379FD1
UniRef90-O66855
UniRef90-10H283
UniRef90 ${ }^{-}$B9JWF8
UniRef90_UPI00037AE259
UniRet90_A5E1R
UniRef90 L7VSE
UniRef90_F1KRD8
UniRef90-A5FYR8
UniRef90 Q2JIYO
UniRef90-B9W9Y4
UniRef90_D2RFJ2
UniRef90_Q1IPE9
UniRef90 F6EN58
UniRef90-W6KUT8
UniRef90 E3GX00

FERPNDPRALNEGNYYATEVTPGVHH F GRADMPRPLTQGPWYAVQVTPAVHH FGRTSFAEPLDSAPYYAI KVIPGGIHH FGRNDDPSEI DHAPFYGI RIVPAVHY
FARPNMPRSLNQGNFYAI EVTPAVHH
FERPD LDPRELVVAPFYALEIAPAVHH FGRKEMPRSLATGPYYAVVEVGPAVHH FGRTTGLRPLEHGPFYAI RIAPGVHH F GRADMPLNMT QSPYYAVKVAPGVAH F GRTTALRPDNE GPFHADRIAPGVHH FQRDDMRLD FGRTGMDHDDSKAPYYA: K I GPGIVY FGRPEMVIRLDQAPFYVAEVTPGIHH FGRTTMDRELDRGPYFAIHVHPALIHY FGRTAMDHDLSKGPYYAI QI APGI HH F DRKTGMRKI SEAPYYAI HI APAI HY FGRTTGMRPLNQAPYYAIKVAPGVHH FGRTTGMRGI NEAPYYAI HVVPAI HY FNRKTALRPINQAPYYAI QI APGI HH FHRPDGFPKVDKPKYYAI EI TPAIHY FGRRLLNVELANAPFYGVEVSPAIHH YGRTTMDNDLSKAPYYAI KI GPGIIHY FGRTTGMRPINKGSFYAI KI APGIHH F GRTAMDRGI A TAPFYAIHI KPAIHY FGRSTMDRDISQAPFYAI HI APAVHY FGRTTGMNPLSKAPFYAI HVAPAI HY FHRTTMDRGITKPGFFAI HI APAI HY
 FNKRSMKYAI EKAPFY ILKAVPAVHH FHKNVLGLKCEVAPFYATPRKPAI HH FHKNVLGLKKCEVAPFYATPRKPAAVH H FHKDTFSLKVEKAPFYATPRQPAVHH FDKGAFDLKVEKAPFYATPRKPAVHH FNKRGDDIAFGEGPYY IMKSDPA A H H FGRKNMADDL HFPDYAVQVKPAVHH

FGKDVFDLKVEKAPFYATPRKPALHH F GKKFFHNTNWKGPFFVAQMEPVLHY WGKRFFHNPDKTDYFYVALMQPVLHY FGRKTGMRELNQAPYYAIHIAPA!HY FNKGSFNYKVEVPPFYATPRSPATHH F GKKNTDWSLTSGPFHVADMTPVLHY
F NHRAGLAPIEEAPFYI QQGAPSVHH FNYRADLFTI DAGPYYLNSYKPAVVHY Y GKKFFHNTPDQDEFHVA IMEPVLH
 FHKNAFDLKVQVAPFYATPRKPATHH FKKKNFPVEVNDD FHVAQMEPVLH WGKKNDPMKVDD TFYVA LDMEPVLH
FHHRGGLVSLEKGPYYIEKADPSVHH TGRTDGVNTLS PPFYGAEVTGALFH FGKKFFDYPMSNDTFDVAIVTPLVHY LGRNNEQLPVETAPFYVGELQPKVHH FNHRSGLVDMSQGKYYVIKAVPSTHH
F GRMSCGNKLPGGPYYASVMTPSVHH F GRPQLLSRLDSSPGYAVSVRPGIH


F GKKFFAKWSMNDYFNVALMTPVLHY | $F E K H L L D K K D D Q A P F Y A S P R V P T A H H$ |
| :---: |
| $L$ | $\square$ GNNKADTTLTEGPWYACQKVVTVHH


 F GRPQKAMLLDKGPWY GVRMWPKV HY FGKTNYDFKMDD HYSVAIVVTPGVHY TNGRTTDDR GLIFAGEVAGGV NYKTS ETPLKKGLYAVGECACVVH $\square T$ RKS YPCVLTKGPYYVAFVTPSIHY FHRGDCLAPIWLPPFYAFKIVPG FGKTSVA GLWAAGEVACGL
 FGKKYFPATPSDGKYHVSFITRVLH WGRTG』 EGFYACGEAACGIH
FGKVF FPASFNDAVIYAAKDTPAIHY ARGRASVDGLYAAGEAACGLH
FGFTGLP GLYAAGEVASGL

$\frac{L}{F} G R T T L P B L Y A A G E C A C G V H$
FHRGESLAPLDFGPFYAAKIVPG


UniRef90 Q111Z1 UniRef90-A0A059FBR1 UniRef90-E3LZ40 UniRef90-B5YJV5 UniRef90_A0ZD66 UniRef90-12JZV9 UniRef90-K8GLB6 UniRef90-UPIO004163501 UniRef90-X0ZUW2 UniRef90-A3SZL8 UniRef90 UPIOOO46F0752 UniRef90-T4C1N8 UniRef90-UPIOOO36927E7 UniRef90-D2RXY4 UniRef90-A6UTL3 UniRef90-K9RL79 UniRef90_S9UKT8
UniRef90 R5E8N6 UniRef90-UPI0004762ED9 UniRef90-B4S3V9 UniRef90-U5RPNo UniRef90-UPI00037F24FD UniRef90-K9W4N4 UniRef90-O2YAQ7 UniRef90-A0A058ZL44 UniRef90-D5WZ17 UniRef90-E6W108 UniRef90_UPIOOO3643E08 UniRef90-A1CDJO UniRef90-A817C3
UniRef90-C7LN39
UniRef90-K2FG11
UniRef90-13U722 UniRef90-M3А925 UniRef90-RIKN2 UniRef90-14A3T4
UniRef90_E8TFK9 UniRef90-J2VYDO UniRef90_B3E5J5
UniRef90-Q3ACC9 UniRef90_A1DCI4
UniRef90-A6Q6K3 UniRef90-L8HEV0 UniRef90_UPIOO04677123 UniRef90-R5E622
UniRef90 N6XE80 UniRef90-U2T3V3 UniRef90-UPIO0039D1F6B UniRef90_UPI000467AEF5 UniRef90_A91HJ5 UniRef90-A4X8C0 UniRef90_B6GA69 UniRef90-R9SII6 UniRef90_B2IFFO UniRef90_A4AD17
UniRef90_L8M5P9 UniRef90-A6WPD2 UniRef90 K4L1A4 UniRef90_UPIo0034A30A4 UniRef90-A9WA70 UniRef90-E3HXB1 UniRef90-A3MY25
UniRef90 M1WUF8 UniRef90-F4B906 UniRef90-O7NCJ1 UniRe990 R9IJR7 UniRef90_UPIOOO3690252 UniRef90-A0A059E9N9 UniRef90_E1VTJ1 UniRef90- WORK96
UniRef90 Q6BSW6 UniRef90-G2DQ93 UniRef90-W6K8A1 UniRefigo-R6V276 UniRef90 E1ZGNO UniRef90-UPIO002E16C36 UniRef90- XOMHX8 UniRef90-D81708 UniRef90-HOR1B8 UniRef90-UPIO0034A2242 UniRef90 KONFY UniRef90-G9Y7H1 UniRee90-UPI000377DA37 UniRef90-Q7NSQ1 UniRef90-SOARAO UniRef90-A1V6U3 UniRef90-W0JJHO
Uniref90_C7RQz2

 GMTHPGGESAFALWFTGG\FVNQDGNRFVNES EFVQFHPTGMVGEGRLVTEAVRGEGGRLYNSENERFMMEL EMVQFHPTGMVGTGlLVTEAVRGEGG\|LYNKDKERFMME EFMQ



## E <br> E E E E <br>  <br> E <br> E

WWGP T IPLPRGPWFALSERAPGSMMVNDRGQRFMNES
Q


E
EFVQFHPTALEGPRPLV
QMGPWVAHPHGILITT
E

EF $\begin{aligned} & \text { l } \\ & \text { V }\end{aligned}$


EFFQFHPTGLAGLGILLTEGARGEGAILRNSDGERFMEDG EFVQF HP TALENPLSLVSEAVRGEGATLVNALGERFMPEL



- VQVHPTGVVDKFLAPEKLRGVGGILVSPEGRRFVDEL




EFVQFHPTALDRPHFLISEAVRGEGAHLIDDKDGRRFKGE L







## UniRef90 Q111Z1

 UniRef90-A0A059FBR1 UniRef90-E3LZ40 UniRef90-B5YJV5 UniRef90-I2JZV9 UniRef90-K8GLB6 UniRef90 UP10004163501 UniRef90-X0ZUW2 UniRef90-A3SZL8 UniRef90-UPI00046F0752 UniRef90 ${ }^{-14 C 1 N 8}$ UniRef90_UPIO0036927E7 UniRef90-D2RXY4 UniRef90_A6UTL3 UniRef90-K9RL79 UniRef90-S9UKT8 UniRef90-R5E8N6 UniRef90-UPI0004762ED9 UniRef90-B4S3V9 UniRef90-U5RPNo UniRef90-UPIO0037F24FD UniRef90-K9W4N4 UniRef90-Q2YAQ7 UniRef90-A0A058ZL44 UniRef90_D5WZ17 UniRef90-E6W108 UniRee90_UPIOOO3643E08 UniRef90-A1CDJ0 UniRef90-A817C3 UniRef90-C7LN39 UniRef90-K2FG11 UniRef90-13U722 UniRef90-M3А925 UniRef90-R6IKN2 UniRef90-14A3T4UniRef90 E8TFK9 UniRef90-J2VYDO UniRet90-B3E5J5 UniRef90_Q3ACC9 UniRef90_A1DCI4
UniRef90-A6Q6K3 UniRef90-L8HEVO
 APRDEVARAVHTERASGRGAFLDC ARRRDVANAMLEHAKPGREDFQGGSAERNAADMLMNEAEH APRDVVSRSI ISEMVKTNSTVATAHVWVYLDMTHLDENF ALRRDQVTEAVLKNCAEDXNDIRQWKVWLVLDEGSTSKDGN APRDVVSRA| FNHLLKTAPDPTTATVWLDLRRDPDPAER

 KDRYTMTQHI MEQTDQMMFMISDADTCRYGHNLQSLI DQG APYDRLGRD DRQMDEPYWMDYDDKEGEVPPCKATNVSMV DARDVVARA GQEDDAGRGTENGGVYGDVSHRDADYVRER APRDIVSRALFTHLQNTE EDPTTANVWLDMRSGSPER GRRDHVSGAMNKQNAPFYLILNEVSAKEMEHHCKHYVGRG
 GPRDLVSRSMETELLQGRGFESPAGQYMHLDLTHLGADLI LIPYVEAVHQMYGGEYGQCWLVFFDQYRNRYMFPGNWFKSG APRDVVSRALFSHLQKTSADPTNDHVWLDLRPIPP APRDVVARAMFSETQAGNRPMLDTREVL GRGMGR
 APRDVVSRA FSHDQRTAADLATAHVWLDMRPTPP G DK QTRQRVVDAIVASAERLDTATRQWDVTLVLDEGAAAAGSH HGYSEQAAEVLRQPNRMAWTDFDTRIARQFEDFRQAEADG
APRDIVTRAV VDELLKTGEDCV


APRDIVAKGI MRRMRETGAD
QPRDVVTEAIVKEEKKFGTD APRDVVAREI WREQAKG
APRDVVARAVWRQLALGRRVFLDARQCEVYLDFRPDGLE
LGYSEQAAAVITEPESIAFSVFDERITARQFEDFRRAEASG GNRKVRADAMMALGYPTMIGGDAVNVKRQVGSHTGEKGMA APRDVSRSEMQEVEAGRGFTREDGLDYVLDDSTHLGREK KPRDEVARAVFAQMKEGQRVFLDVRHLGEAKLMMELAPAQEV
 ARRDVLRDAMLDQPKADAWTIVDADGFEQQKNSKGPEKAG APRDVVARADDFEMKKRGLDCV PVGDDISHKPAEW APRDVVAKAITRTAAHGTD HMFLDGRHFGAAM APYHEFVDAMYAHDRPGASTVPSWLILDGQPFPKPWLESG APYDAVHAMRSPGVRQPAWLVADQTYRDRYPLPRHWFTSG QPRDVVARADQDEM REGRGERDEGVEHEWLSFEPVDREA ATRDVVARSVYNE DREGRGTEDGGVY ASRDVVSRRMEEHTRAGHAARSRFGEHLWLDTRLLGASHI APRDVVSRAMFTHLQKAGDS APRDVVSREI WKQMQTGQVYLD APRDVVARA| DFEDKKHGLDYVHDDGSHQPP APRDIVARAI QSEDERHGLECVHDDTSHQPP APRDVVSRALLTECAEGRGFQHESGMCYVGLDLRHLGEEK APRDIASRADTEMREGRGFPGGYVGLDLRHLGEDYDKER

 QSYKALSNDGMAQPEGDGFQTFDDRLMQRSHQDTSVNNYR APRDVVAREDFREQQRHGKVWLD GTRDYVSGEMEKQDNGPGRLVLSTKSEKNLSFHIKHYTQR APRDVVARATDFEMKRLGVDCLHLD DDSHOEDF
 TTRD KALLQQPHRQAFLLLGSDAAQQFPALGFYVSKS
 APYHQFVDAMYAAHTPPSWLILDAHSKSRYLFTGLFPGQP
$A P R D V V A R E M F R E Q Q A H G R V F L D A$ APYSDVVHAWLIVDQNYRNRYLFRDDAPLLPFPDAWYAAG APRDIVSRSDYNHDHKVS VNDPVHDKVYLDLRSIPVPR APRDIVARADEWHWQQKGPVFLDARHLQDFK
ADRGILAQVDQDGNPLYPDCFTTGDGAKQAQSDTHADHYK MPYVEACHAWLLFDQQYRNRYTFAGLQPGQRIPKKWTEAG GPRDRLSQAFWYEQQKGRTVQGPWGSAVYLDLRHLGHAKL APRDVVSRSMADEDREGRGFEGGYLGLDLRHLGKKYULER
APRDIVARAI DNEMKKQGLD
APRDIVARSIFSEM
UniRef90_Q111Z1 UniRef90-A0A059FBR1 UniRef90-E3LZ40 UniRef90_B5YJV5 UniRef90_AOZD66 UniRef90-I2JZV9 UniRef90-K8GLB6 UniRef90-UPIOOO4163501 UniRef90-X0ZUW2 UniRef90-A3SZL8 UniRef90_UPI00046F0752 UniRef90-T4C1N8 UniRef90-UPIO0036927E7 UniRef90-D2RXY4 UniRef90-A6UTL3 UniRef90-K9RL79 UniRef90-S9UKT8 UniRef90-R5E8N6 UniRef90_UPIO004762ED9 UniRef90_B4S3VV UniRef90_U5RPN0 UniRef90_UPI00037F24FD UniRef90-K9W4N4 UniRef90-Q2YAQ7 UniRef90_A0A058ZL44 UniRef90-D5WZ17 UniRef90-E6W1Q8 UniRef90_UPIO003643E08 UniRef90-A1CDJ0 UniRef90-A817C3 UniRef90_C7LN39
UniRef90_K2FG11 UniRef90-K2FG11
UniRef90-13U722 UniRef90-M3A925 UniRef90-R6IKN2 UniRef90-14A3T4 UniRef90_J2VYD0 UniRef90-B3E5J5 UniRef90_Q3ACC9 UniRef90_A1DCI4 UniRef90_A6Q6K3 UniRef90_L8HEV0
UniRef90_UPI0004677123 UniRef90-R5E622 UniRef90-N6XE80 UniRef90-U2T3V3 UniRef90-UP100039D1F6B UniRef90-UPI000467AEF5 UniRef90_A91HJ5 UniRef90_A4X8C0 UniRef90_B6GA69
UniRef90 R9SII6 UniRef90-R9SII6
UniRef90- B2IFFO UniRef90_A4AD17 UniRef90-L8M5P9 UniRef90_A6WPD2 UniRef90-K4L1A4 UniRef90_UPIO0034A30A4 UniRef90-A9WA70 UniRef90-E3HXB1 UniRef90-A3MY25
UniRef90-M1WUF8 UniRef90-F4B906 UniRef90-Q7NCJ1 UniRef90_R9IJR7 UniRef90-UPIOO03690252 UniRef90-A0A059E9N9 UniRef90-E1VTJ1 UniRef90-W0RK96
UniRef90- Q6BSW66 UniRef90_G2DQ93 UniRef90-W6K8A1 UniRef90-R6V276 UniRef90-W5WC70 UniRef90_E1ZGN0 UniRef90_E1ZGN0
UniRef90_UPI0002E16C36 UniRef90 XOMHX8 UniRef90_C1A5G6 UniRef90-D81708
UniRef90_H0R1B8 UniRef90_HOR1B8
UniRef90_UPIOOO34A2242 UniRef90_KONFY5 UniRef90-14X0R5
UniRef90 G9Y7H1 UniRef90_UPIO00377DA37 UniRef90_Q7NSQ1
UniRef90_SOARA0 UniRef90-A1V6U3 UniRef90-WOTLY8
UniRef90-WOJJHO
UniRef90 C7RQZ2



##  <br> ,

90
100
110
120
EK $\square$ MS RCWE EGHRLLIG TDAVNEPMPVRPTAHYSMGG $\square$ PTN FPEHFPTVVAACKSAGI DPRTDMDPIAPAAHYHMGGIVPD DAF GRPA FNFYAKALNVVESVVDKATMDDDYKEDFEGKKEDP



 A Q $\ddagger$ T G D T V E T L A A K V G L L


 I RYRFPNNVVKVGQRWGIDVFSEPDPVAPAAHYWMGGDQTD







 MEFYA WK GLMMRKT TVGELGPRA LVTMMDYAEVVSGKKK D P AIVVT A D T P Q A L A A R TG L P A D A LI STMLSDVERLVKLDGATDT
 I R E H F F P M $\quad$ I Y Q T C C L

 $A$ V DE A D S $\quad$ A A L A A V R L K L
 HMDFYVGKGLMQKVV. ELCK】HE HVVDPAK E L I P F L H G Y L G V E E M A E G L E L P G N T L K K T F A E Y H E C F Q G N C A D P



## $L$ L W F <br> F

 A A H R A D T L D NLATM GGVPAAALEDTIRRFNEFAQRGRDDD






| L |
| :--- |
| L |
| L |
| I |

$\square$
E

## ,

## 號

| UniRef90_Q11121 |  |
| :---: | :---: |
| UniRef90-A0A059FB |  |
| UniRef | 3LZ40 |
| UniRef90 B5YJV |  |
| UniRef90_A0ZD66 |  |
| UniRef9 | 2JZV9 |
| UniRef90_K8GLB6 |  |
| UniRef90_UPI0004163501 |  |
|  |  |
| UniRef90_A3SZL8 |  |
| UniRef9 | UPI0004 |
| UniRef90-T4C1N8 |  |
| UniRef90_UPI00036927E7 |  |
|  |  |
| UniRef90-A6UTL3 |  |
| UniRef9 | K9RL79 |
| UniRef90_S9 |  |
| $\begin{aligned} & \text { UniRef90_R5E8N6 } \\ & \text { UniRef90_UP10004762ED9 } \end{aligned}$ |  |
|  |  |
| UniRef90_B4S3V9 |  |
|  |  |
| UniRef90_UPI00037F24FD |  |
|  |  |
| UniRef90_Q2YAQ7 |  |
| UniRef9 | A0A058ZL |
| UniRef90_D5WZ17 |  |
| UniRef90_UPI0003643E08 |  |
|  |  |
| UniRef90-A1CDJ0 |  |
| UniRef9 | A817C3 |
| UniRef9 | C7LN39 |
| UniRef90-K2FG11 |  |
| UniRef90_I3U722 |  |
| UniRef9 | M3A925 |
| UniRef90-R6IKN2 |  |
| UniRef90-14A3T4 |  |
| UniRef90-E8TFK9 |  |
| UniRef90-J2VYD0 |  |
| UniRef90-B3E5J5 |  |
| UniRef90_Q3ACC9 |  |
| UniRef90-A1DCI4 |  |
| UniRef90-A6Q6K3 |  |
| UniRef90_L8HEV0 |  |
| UniRef90-UPI0004677123 |  |
| UniRef90-R5E622 |  |
| UniRef90-N6XE80 |  |
| UniRef90-U2T3V3 |  |
| UniRef90_UPI00039D1F6B |  |
| UniRef90_UPI000467AEF5 |  |
| UniRef90-A9IHJ5 |  |
| UniRef90-A4X8C0 |  |
| UniRef90_B6GA69 |  |
| UniRef90_R9SII6 |  |
| UniRef90-B2IFF0 |  |
| UniRef90-A4AD17 |  |
| UniRef90_L8M5P9 |  |
| UniRef90_A6WPD2 |  |
| UniRef90_K4L1A4 |  |
| UniRef90-UPI00034A30A4 |  |
| UniRef90-A9WA70 |  |
| UniRef90-E3HXB1 |  |
| UniRef90_A3MY25 |  |
| UniRef90-M1WUF8 |  |
| UniRef90-F4B906 |  |
| UniRef90-Q7NCJ1 |  |
| UniRef90-R9IJR7 |  |
| UniRef90-UPI0003690252 |  |
| UniRef90-A0A059E9N9 |  |
| UniRef90-E1VTJ1 |  |
| UniRef90-W0RK96 |  |
| UniRef90- Q6BSW6 |  |
| UniRef90-G2DQ93 |  |
| UniRef90- W6K8A1 |  |
| UniRef90-R6V276 |  |
| UniRef90-W5WC70 |  |
| UniRef90_E1ZGN0 |  |
| UniRef90_UPI0002E16C36 |  |
| UniRef90_X0MHX8 |  |
| UniRef90-C1A5G6 |  |
| UniRef90_D81708 |  |
| UniRef90_H0R1B8 |  |
| UniRef90-UPI00034A2242 |  |
| UniRef90 K0NFY5 |  |
| UniRef90-14X0R5 |  |
| UniRef90_G9Y7H1 |  |
|  |  |
| UniRef90-Q7NSQ1 |  |
| UniRef90_S0ARA0 |  |
| UniRef90_A1V6U3 |  |
| UniRef90-W0TLY8 |  |
| UniRef90_W0JJH0UniRef90 C7RQZ2 |  |

T D GRVVFASA 130 V D G LIF A A GE CACVV H
F G K S S L D

$\square G K T N D E G W F A A G E V A C G V H$
F GRTN F GRWSLK P E I V A GRDV P VL
F G R S S $\square$ K GLLYAC GEVT S GLLH
T WG Q T NLT NL Y A C GECT S GVV H
F GRTWGAAS LS APFCAVKVVGALIFH
HGRTGVAA GLWAAGEVACGLH
F GRTTHESP\|ENPPFYASPRTWAMH
F GRGSP LVS I D Q GPFHAAQ
$F H T G E T R V$ V $\quad D G L Y A V G E A V A G V H$
TN
LNRTSIP GLYAVGETAS GVH
FGKT QFRNA EH QK PV HVAA VAP VVV H Y
LGKKS LT LDP IAHPP FWACYAGMTVHY
FGRTNKPNPVAK GPFYAVKMVPG
$\begin{array}{ll}Y G R T P M \\ F & D R A S M E N V A A G E A A C V V H\end{array}$

FGRTNKPNPLEK GPFYAVKMVPG
LN R T S
F H GQVVAPYKTGPFYAV

F G K K D F P F T R S N DVF H A M M $\square$ T P A $\square H Y$ FGRDFTTKAALVAPFYAVKVTGALIFH LGRGVLVNKDIXAPFYAGRVTMKRHH A A RTDVP GLYAV


FGRA $\square \mathrm{N}$ LIF P $\square \mathrm{D}$ QP PYY $\square \mathrm{A}$
$\square N$ TEVLQDNDTGLFAAGEVACVVH
$L$ GRSSSLPR

FGKQ Y FPNTPTDS KYHVSFITRVL H
M H
GRTDVD GLYA $\square G E V S S G L H$
F GRGNRPNPLVRAPYYAVR\|VPG
HGKTVFPTTIDQAAVHVARUTPVVHY


FRRGSCLAPLWAAPYYALRLVPG
FGRTNKPNPVDKGPFYAVKMVPG
KPTGESPTLKGLFSAGEAAC
WGETTDPH
MHKDS RAVPLDKGPFVAVRVWPKVHY
F GRTNKPNPIKHGPFYAAKMVPG GHCAAPMPGLYAAGECSSGDH
$T T G T N H D L K G V F A A G E A A C V V H$
$L G R T D \square 1 T G L Y$ Y $\quad$ GETYTGLH HKARTDVRGLYAVGETATGLH


## UniRef90 R6AF33 UniRef90-S6CEM4 UniRef90_UPIOOO35D4A05 UniRef90-L8JKZ0

 UniRef90_UPIO004666E75 UniRef90_D8R6H7UniRef90 Q4D779 UniRef90-C0GKY8 UniRef90-V9VRZ8 | UniRef90-C8WNT3 |
| :--- |
| UniRef90 | UniRef90-UPIOO046394E1 UniRef90-AOA0591JH2 UniRef90_UPIOOO3B6F998 UniRef90-E1SRW5 UniRef90-W117T5 UniRef90_UPIo0046375DF UniRef90-R4VXB6 UniRef90-M5FH07 UniRef90_OOCC76 UniRef90-UPIOO039DC736 UniRet90_U2X5N6 UniRef90-H5T824

UniRef90_T1AYK8 UniRef90-UPI00047BA84B UniRef90-R5XKX1 UniRef90-N6YY38 UniRef90-I1CZK2
UniRef90 D9UWT5 UniRef90_UPI000262CA11 UniRef90-JOB1V1 UniRef90-S6C7L8 UniRef90-B4LF66 UniRef90-R6S1W4 UniReffo-V4J1U9 UniRef90-TOLWT1
UniRef90_C3AR34 UniRef90-F4XWY7 UniRet90-UPlooo3816C2F UniRef90-K6TGS8 UniRef90-E4ZC19 UniRef90-K1YR78
UniRef90 A0QW99 UniRef90-Q9A4C3 UniRef90_W7ZXX1
UniRef90_C7LWA4 UniRef90-F4KWM8 UniRef90-R4YWM1 UniRef90-Q1PV38
UniRef90 L9XMH3 UniRef90-UPI0002E4124E UniRef90-UPIO0047AED5B UniR Ref90-A3U015 UniRef90-G2P510 UniRet90-R1EUN2 UniRef90-M4ZSIO UniRef90-A0AO24JUM1 UniRef90-A0P638 UniRef90-H3KF50 UniRefolo- 4 LOK3 UniRef90-UPI000374BBB3 UniRef90_UPIO0037D4292 UniRef90-G4SZY7 UniRef90-UPI0003B4BF7D UniRef90-DOCPC3 UniReffo-O20YC4 UniRef90-GOV8R3
UniRef90
B9QY00 UniRef90-E4NCC1 UniRef90-UPI0002D70473 UniRef90-D6SK79 UniRef90-W6N2V6 UniRef90-T2KJ54 UniRef90-UPIO0047C9038 UniRef90-R7PNG8 UniRef90_A4SK05
UniRef90 UTV244 UniRef90-UPIooo35DBOF4 UniRef90-K9NGE5 UniRef90-F6CZGG UniRef90-A0A010T7Z1 UniRef90 OPIOOO36123AB
UniRefgo- $8 \times N E 2$ UniRef90-O8XNE2
UniRef90 KOC5V3 UniRef90-S3H7L2 UniRef90 UP1000379C9A7 UniRef90-M1WJD3 UniRef90-M1Z209 UniRef90-13BPI2 UniRef90_J3C5D4
UniRef90_A4NPN3


UniRef90＿R6AF33 UniRef90＿S6CEM4
UniRef90＿UPI00035D4A05 UniRef90－L8JKZ0 UniRef90－UPI0004666E75 UniRef90－D8R6H7 UniRef90－Q4D779 UniRef90－COGKY8 UniRef90－V9VRZ8
UniRef90＿C8WNT3 UniRef90－R5YF81 UniRef90－UPIO0046394E1 UniRef90－A0A0591JH2 UniRef90－UPI0003B6F998 UniRef90－E1SRW5 UniRef90 ${ }^{-}$W117T5 UniRef90＿UPIo0046375DF UniRef90－R4VXB6 UniRef90－M5FH07 UniRef90－Q0CC76 UniRef90－UPI00039DC736 UniRef90－U2X5N6 UniRef90－H5T824 UniRef90－T1AYK8 UniRef90－UPI00047BA84B UniRef90－R5XKX1 UniRef90＿N6YY38 UniRef90－I1CZK2 UniRef90－D9UWT5 UniRef90－UPI000262CA11 UniRef90－Job1V1
UniRef90－S6C7L8 UniRef90－B4LF66 UniRef90－R6S1W4 UniReffo－V4J1U9 UniRef90－TOLWT1
UniRef90＿C3AR34 UniRef90－F4XWY7 UniRef90－UPIOOO3816C2F UniRef90－K6TGS8 UniRef90－E4ZC19 UniRef90－K1YR78
UniRef90 A0QW99 UniRef90－Q9A4C3 UniRef90－W7ZXX1
UniRef90 C7LWA4 UniRef90 ${ }^{-} 4 \mathrm{KWM} 8$ UniRef90－R4YWM1
UniRef90－Q1PV38 UniRef90－L9XMH3 UniRef90 UPI0002E4124E UniRef90－UPIO0047AED5B UniR Ref90－A3U015 UniRef90－G2P510 UniRef90－R1EUN2 UniRef90－M4ZSIO UniRef90－A0AO24JUM1 UniRef90－A0P638 UniRef90－H3KF50 UniRef90－E4LOK3 UniRef90－F2SJU8 UniRef90 UPIOOO374BBB3 UniRef90＿UP100037D4292 UniRef90－G4SZY7

ADRRTRADAETPDKTNYP每VFCGEKTTEHAEGFQAAYRDK ${ }^{60}$ RDRYSMTADDMEQPGQMMYMITDADTCRVEGDDNRYGHQG
APYSDVVHAWLIVDQNYRNRYLTRDDILPTFAFPDDWYSSG APYSDVVHAWLI VDQNYRNRYLFRDILIPTFAFPDDWYSSG
ASRDUVARAIDSEMKASGDPCVV A AYDRQGRED DDQMDKGMWMVYDNRDGEVPPCKATNVPMV APRDVVARS｜DDQLKKNNEKFV

 TDRKRYADAL DETGQPCVQПTCKKADYDGGSGDEGADKAG LAPRDVVAHAVYVQMAKTGSD HVLEDARHLGADF RGYSEQALDVLAQPGGDA WCVFDERLDELARAFPDFRTAE APRDVVARAVHAQNGSGKGAFLDA BRAGAA APRDVVARAI DYEMKRLGADCM YDDTSHKSAEF LTPRDVVARAIASQTANGDEVFLDVRHLGEEKLLHLMPQEV APRDIVARGMFAEIAAGRGAFLDARAAL ASRDVVSRAELTEVNEGRGVEDEYV Y APRDIVARAVWKHLANGHRVFDDVREKP GPA ETREHVTNAVMSAATSLDTHARQWDLSLVLDEGAASHDEF APRDIVAKAIMRQMLALGKD APRDVVARAI ASAMARQEGRPV LLDATGLRETPPATAAF APRDIVARALDFEMKRLGEDCM HKDHMYLNTSHKPSEF APRDVVSRAMT DE DREG RGDGEHKDHMHLNLQHLGADVI APRDVVARAVAREGMGEVP AS RDVVSRRMAEHMRRGKGVKSAAGEHLWLDDAVLGAABY APRDVVSAADTRRLASAPGGVDDHVF LDATSVEGFAER APYVEAVHAMYGDKHVPAWLVFDQRYRDRYLITGLGPRQP APRDVVSRAI AA QMKQEDRAQVGAIIDQKSYNLFMPTVF GSRTDMTDALLMEQDGGVGFQVVDHDSSMITDGKTHTGMDV APRDVVARAMTMEVKGNGCGPLKDHVHLQLHHDDPEDIYK GPRDLVSRADETEVREGRGGPDDEVF DVALGGPERIQER DARDVVARANYKEIMEGRGTEHGGVYLD DSQKGADF $\square K H K$ APRDVVARATHEQLDAGESVYLDISSIQNFE
APRDVVSRAIFCHLLQTKPDPYCVYLDLRP $\quad$ TKAQR

 APRDVVARAVDFEMKRLGDDCV WMVY S Y APRDVVARALHAERAAGRGAFLDA APYVEAVHTMYGGEYGPCWLVFDQRYRSRYTFAGLQPGQR ASRDVVSRRMTEHMRAGKGVQSAYGEHLWLDIRHLGDKHD APRDIVARADDNEMKVRGEDCM YLDCRHLNHED KPRDVVSRAMTRTMLDQNMD HLWLDATVLED APRDVVSQS LLKEMRETGNT REDGVYLDVRHDRKR KGYSALA DDVVDQPGGVGYEDFDERDFEKLRGEFDDFDEA GPRDLVARSIETEIKEGRGFGEGITAYVYMDLLRHLILGREID
 APRDVVARAVYAQTQAGLAPALDTRAALGARULTDFPA
$H N Y S D V G R M H N F D E M A F W V V D D D K K R Y P G G R G P G E P$ APRDVVSRSMTMEDNEGRGVGPDKDHDYपY LIH
APRDVVARAVWRRRAQGHRVFLDARDRP
EVPPETQKYVARD RAYDRVGREI DAQMS LLPYWMIYDDSEGEVPPETQKYVAAG APRDVVARAIDFEMKKRG円ECV Y
 KPRDIVAGAIKNEMEREGVDFEDDSFRKYGSMKPLGEER GPRDKLSQAFWQQQQ
APRDTVARATFAQDQTGHRPALDAREAL GAH APRDIVARAIDHEMKKRGDDCV YDDTSHKPEAF APRDIVARSMANEVREGRGAGPNKDYV YLDLTHLDEPED APRDVVARAVY品TKAGNRPADDT RAADGAA APRD\VARGVFAEDAAGRGAFLDARTAL GAH TTRDEVTAAIQKQCDKYNNDTLLVMSEKVYENYKNNMDFY QGYSEAARAVLAQPGGEAYTIFDGQ\｜AEIARQFEDFKNAE
 APRDVVARSMADEVRAGKGFDPKGVDHVKLKLDHEGADLI APRDIVARAI KDQMDKFKSKYV APRDIVARADDNE DHTTGERHVYLDCTHLDYDA APRDVVARADTQEGDG PDGETDPVYLDMRHVKGDD LIPRDAVSQALEAEMEREGSR GRRDEICLATFAQKDGQYYMINDSQ\｜IPSDRKTTSGQKKG APRDIVARADDHEMKKSGDDCV SQITPS YDDTHGKGYR
 QSYKLLGDAVMQQAYGVAYQDLDQSTMDSGDNQVRDLDFT

 APRDVVARAI GAEIARGGRVFLDARGAL APRDIVTRAGMNEML APRDIVARAEQSEDDEGRGVNGEDF DNGDLRHLGEKRDME APRDVVARADDHEMKRLGLDCV
APRDVVARGIVAEVMSGRGAWLDC

 DAK L P D D T E FARTY L G V E P Y T E P V P V F P T C H Y VM G G I P T D






## -

UniRef90 A4NPN3

|  |  |
| :---: | :---: |
| UniRef90-S6CEM4 | FGRTSFLSPIENP |
| UniRef90-UPIO0035D4A05 | FGRGSCL |
| UniRef90-L8JKZ0 | WGRTNDDN |
| UniRef90-UPIO004666E75 | FGRGDPL |
| UniRef90-D8R6H7 |  |
| UniRef90-C0GKY8 |  |
| UniRef90-V9VRZ8 |  |
| UniRef90-C8WNT3 | FKKPDDAQTTDEPPFYGV |
| UniRef90-R5YF81 | YMSKTSMDRL YAV |
| UniRef90- UPIO00463 |  |
| UniRef90_UPIO003B6F | LDGSTGVA G |
| UniRef90-E1SRW5 | LGQTDLPP GLYAlGEVATGLH |
|  |  |
| UniRee990-UP100046375DF |  |
| UniRef90-R4VXB66 UniRef90 M5FH07 | NENGATVVDGL Y ${ }_{\text {d }}$ |
|  | FGRKNWTLTDVKPDIY |
| UniRef90-UPI00039DC736 | LHGQISVP GLYACGEVAC |
| UniRef90 U2X5N6 | LGRTDLL DGLFAVGEVRTGV |
| Ref90-H5T824 | AR |
| UniRef9-UPIOOO47BA84B | LHKGDVNDAVVPGLFAGGEAACVV |
| UniRef90-R5XKX1 | TNSKTSLDRL FAVGETSCGUH |
| UniRef90_N6Y | HRGE SPSLRGLFAV |
| UniRef90-11CZK | YGRTEV |
| UniRef90-UPI000262CA11 | PAKTNWARPIDTPPFYGYELVPGV |
| UniRef90-JoB1V1 | LGRTSVP GLYADGEV |
| UniRet90_S6C7L8 |  |
| UniRef90 ${ }^{\text {B4LLF }}$ | FGRDEFKDKIIE |
| UniRef90-R6S1W4 | TSMPNSTD GVYAVGETSCGU |
| Ref90-ToLW | RTNLEN LFA |
| iRef90-C3AR34 | KTNCDGETS $\square$ P H |
| UniRef90-UPW03816 |  |
| UniRef90 K6TGS8 | LNSKTSMENL YAV |
| UniRef90-E4ZC | NGDGATCVEGLYCA |
|  | S |
| Ref90 A0QW99 |  |
| UniRef90-Q9A4C3 |  |
| UniRef90-C7LWA4 | KNGGAAYGLKGLFSAGEAAC |
|  |  |
| UniRef90-R4YWM1 | ATSLP GLWAAGETTCGVH |
| UniRef90-L9 | VGR VDGRAVLE |
| UniRef90-UPIO002E4124E |  |
| UniRef90-UPIO00047AED5B | NT EGLYAAGEVTGGL |
| UniRef90 | FGRGTT回PDENAPFYACRVYSGV |
|  |  |
| UniRef90-M4Zs | M |
| UniRef90-AAAO24 UniRef90 AOP638 |  |
| UniRef90- H3KF5 | F |
| UniRef90-E4LOK3 UniRef90 F2SJU8 | G |
| UniRef90 F2SJU8 <br> UniRef90 |  |
| UniRef90-UPIO0037D4 |  |
| UniRef90-G4S | R NA |
| UniRef90-UPIOOO3B4 | 1 E ANVLQDNETGLFAAGEVACVVH |
| UniRef90-DOCPC3 | A |
|  |  |
| UniRef90-890 | FGDTQLA PMPG |
|  | VLRNNTD VVPGLYAAGEVACVVH |
| UniRef90-UP10002D70473 | LGRKNGKEH |
| UniRet90_D6S | MHRTNGER EDGYAVGECACGVY |
| UniRet90-W6N2V6 |  |
| UniRef90-UPI00047C9038 | cov |
| UniRef90-R7PNG8 | SRTTMEHL YAVGETSCGVH |
| UniRef90-A4SK05 |  |
| UniRef90-UPIO0035DBOF4 UniRef90-K9NG5 | KGDCLAPLLK GPFY |
| UniRet90-F6CZG5 |  |
| UniRef90-A0AO10T7Z1 | GRRHLLCPDERAPFYAYPSTAAVF |
| UniRef90_UPI00036123AB <br> UniRef90- Q8XNE2 | HGRTDL <br> LGKTS |
| UniRefoto-KoC5 |  |
| UniRef90-S3H7L2 UniRef90 UPI000379C9A7 | RS SVA |
| UniRet90-UPlooo379C9A7 |  |
| UniRef90-M1Z209 | $\square$ IRRDGDGTAVEGFFAAGECACVV |
|  |  |
| 4 |  |
| A4NPN3 | F N |

## UniRef90_UPIO00364219E

 UniRef90 A1WT24 UniRef90_UPIO0036D516D UniRef90_V4Y3W3 UniRef90_LOAGS8 UniRef90_R5PRE0 UniRef90_UPI0003C7E39E UniRef90_UPI000410B1EC UniRef90_H6LG38 UniRef90_X0W8E1 UniRef90_B6BUK3 UniRef90 A4AKF4 UniRef90_Q51363 UniRef90-K2NT16 UniRef90_Q2W0D7 UniRef90_B0SBH3 UniRef90-G0ABL4 UniRef90_A1SR23 UniRef90_UPI00036A1820 UniRef90_UPIO004787353 UniRef90_J2VSW6 UniRef90-R5E1R3 UniRef90_UPI0003802EAC UniRef90_H9UMW2 UniRef90_B3QUM1 UniRef90_UPI0003801FD1 UniRef90_A8LCM6 UniRef90_A4C6N7 UniRef90_S5DSB6 UniRef90-UPI00047C7B11 UniRef90_IOYU66 UniRef90-W8H3E4 UniRef90_H5YFJ6 UniRef90_UPI00037DEFEF UniRef90_K2PUZ6 UniRef90_R5E0P9 UniRef90_A1U9K6 UniRef90-M4U1W2 UniRef90_F8I9M9 UniRef90 E3J4U0 UniRef90-UPI0002D58136 UniRef90_W9W5Z4 UniRef90_F8A4S4 UniRef90_B6AAK4 UniRef90_A5EP31UniRef90_Q7MUF2
UniRef90_J5L1P9
UniRef90_A9BCV6
UniRef90_UPI0001D2F4ED UniRef90_F7RXE2 UniRef90_F1W4T1 UniRef90_UPIO0034DBDDB UniRef90_D5P081 UniRef90_C7M2N6 UniRef90_R6GIN6 UniRef90_H0QUE0 UniRef90_UPI0004173D85 UniRef90_UPIO001745EAC UniRef90_E6N340
UniRef90_R5PJU2
UniRef90_Q3SJL7
UniRef90_UPIO0040C622C UniRef90_A0A037XZR7 UniRef90_S9PYZ0 UniRef90-UPI0002625EF6 UniRef90_Q47F57 UniRef90_Q1YS39 UniRef90_Q9PC57 UniRef90_Q753Q1 UniRef90_R8Y5F7 UniRef90_R5EN46 UniRef90_UPI0003B70820 UniRef90_I2H3C8 UniRef90_UPIO00316F4A5 UniRef90_M0EQ90 UniRef90-UPI0003B4FB91 UniRef90_A3VK70 UniRef90-F7UWZ0 UniRef90_UPI0002FB4350 UniRef90_UPI0003B7258C UniRef90_G7GKD6 UniRef90_L7UBU2 UniRef90_B0UQU4
UniRef90_UPI000373357F UniRef90_UPIO004674ECB UniRef90_Q47KV6 UniRef90-I4Y179 UniRef90-Q0KBJ2 UniRef90_UPI0004786835 UniRef90-R7HRD6
UniRef90_C7MN44

## E




EF $I$ QGHGSVAHPHGILIT


EFVVQYHPT GLPGS GILMTE GCR GEGGILTNKD GYRYLQDY





## E

 E
EFYQFHPTG $\square Y$ G

QY DQFHPTA LSASGRMGNVEMTLPGS TVAAGKRFVNEA EFIQQFHPTCLYHPSFLI TEALLRGEGAVLVGKDGKEFMHKG


## EF DQ F H P T A L Y HP GF L ITEAMRGYGAVLRTLDDGEEFMQK L


 E F Y Q F HP T VLLY H H K F L I S E A V R R G E G G I L R T K D G E P F M R D L
 EF Q QFHPTCLFDPAFLISEAVRGEGGHLLNEAGERFMAEL WWMP WLLAD GTPSMTLSERKPHSUIVVAHGNRFFNEA EFYQFHPTCLYHPSFLISEALRGEGGKLRLKGGQTFMERL






UniRef90＿UPIooo364219E


UniRef90＿A1WT24
UniRef90＿UPIOOO36D516D UniRef90－V4Y3W3
UniRef90 LOAGS8
UniRef90－R5PRE0
UniRef90 UPIOOO3C7E39E UniRef90－UPI000410B1EC UniRef90－H6LG38 UniRef90－XOW8E1 UniRef90－A4AKF4 UniRef90－Q51363 UniRef90－K2NT16 UniRet90－BOSBH3 UniRef90－GOABL4 UniRef90－A1SR23 UniRef90 UPI00036A1820 UniRef90－UPIO004787353 UniRet90－J2VSW6 UniRef90－R5E1R3 UniRef90＿UPIO003802EAC UniRef90－H9UMW2 UniRef90－B3QUM1 UniRef90＿UPI0003801FD1 UniRef90＿A8LCM6 UniRef90－A4C6N7 UniRef90－S5DSB6
UniRef90 UPIOOO47C7B11 UniRef90－IOYU66 UniRef90－W8H3E4 UniRef90－H5YFJ6 UniRef90－UPIO0037DEFEF UniRef90－K2PUZ6 UniRef90－R5EOP9 UniRef90＿A1U9K6 UniRef90－M4U1W2 UniRef90－F819M9 UniRef90＿E3J4UO UniRef90－UPIo002D58136 UniRef90－W9W5Z4 UniRef90－F8A4S4
UniRef90 B6AAK4 UniRef90－A5EP31 UniRef90＿Q7MUF2 UniRef90＿－J5L1P9 UniRef90＿A9BCV6
UniRef90 UPIO001D2F4ED UniRef90－F7RXE2 UniRet90－F1W4T1 UniRef90－UPI00034DBDDB UniRef90－D5P081 UniRef90－C7M2N6 UniRef90 R6GING
UniRet90 HOOUEO UniRef90－UPI0004173D85 UniRef90－UPIO001745EAC UniRef90－E6N340 UniRef90－R5PJU2 UniRef90－Q3SJL7 UniRet90＿UPIO0040C622C UniRef90－A0A037XZR7 UniRef90－S9PYZo UniRef90－UPIO002625EF6 UniRef90－Q47F57 UniRet90＿Q1YS39 UniRet90＿Q9PC57 UniRet90－Q753Q1 UniRef90－R8Y5F7 UniRef90＿R5EN46 UniRef90＿UPIO003B70820 UniRef90－12H3C8 UniRef90＿UPIO00316F4A5 UniRef90－MOEQ90 UniRef90＿UPI0003B4FB91 UniRef90－A3VK70 UniRef90－F7UWZ0 UniRef90 UPIOOO2FB4350 UniRef90－UP10003B7258C UniRef90－G7GKD6 UniRef90－L7UBU2 UniRef90－BOUQU4
UniRef90－UPIOOO373357F UniRef90－UPI0004674ECB UniRef90＿Q47KV6 UniRef90－14Y179
UniRef90
OOKB．J2 UniRef90－Q0KBJ2 UniRef90＿UPIO004786835 UniRef90－R7HRD6 Unirergo＿rank b
UniRef9＿＿C7MN4
 APRDIVARAIDYEMKRLGAECL TVADDSHQPDAL ASYMDVRACAGEKETAMWLVCDGYVKPAPGPHGKFDKQG APRDIVARAVDAEREETGEVVLDVSPDEGEF
ASWLALRQALQNLPDGKMWVLTDSGTVKNNDFSLK MM TG APRDVVARG｜AAQMAAQGGVPVRLDATA APRDVVAAAI TRHMALERGGIDDHVFLD ATHLDAAT LPRDLLTKALQEQMAQDESDFV DRGDMWSMQKMGSDV APRDIVARADDNEMKQHGLDYV APRDUVARSMATE APRDVVARAVDHEMKRLGIDCVDVRERP GAA
 APRDFVSRSMDQEIKEGRGCGPHKDH
APRDTVARADDYEMKRGGADCM Y听 TSHKSKEF APRDVVARENVRRQGGRPVLLDCTALRPSGPHGGGTTAEF APRDVVAKGVVTAMAETGAE HVWLDARHLGGEF
 GNRDIVARAIVALGKOAIIYTCEANMMNKVVGKNMKPEQF APRDVVARGI HQQ QRMLLTGSDNVYLDAASMIDADT APRDVISRC YMEDAEGRGDGPNKDYVELDLTHLSLKQDE APRDVVVRA』LSEMASTASE APRDVVAK RMSRVMAEQGVRH APRDIVARATDYEMKRLGANCV APRDMVSRAIATEDSAGNGAGPDDYVY口DLTHLGAETDKK
 APRDVVARGVFAEISAGRGAFLDAROA YLDARHLISG EGYSEQAARVLAQPGGVAWDVFDERLAGIARQFEDFRAAE ASRDVVSRALYLELSHSKEKCV ARRDVIRDATLAQTDQTVYPVCDTDGFDKNNEYYNEMNHR APYDRLGRAVIAEMDSRGMTLPFWMVYDDMVEAAQYRDAG SSRDVVARALGREAMAGRGTPHGGAWLDITHKGPDYIKTK

 APRDVVSRSMTMEDMEGRGCGDDKNYDH SGYSEQAANVLAQPDGVAWT IFDARDAAQFEDFRNALAHG
 ASRDQVSRALFQAMQSQKVNHLGLDLTRDPP KK

 APRDVVSRAIFQHLQD LNYHDFARVFGNYLDMDADFVSKYPVAGHPVFDNEKDAPE APRDMVARAIHAEIREGRGAGPDKDYV YLDLTHLPPEQD LPRDILTGKIKEQMKKDGTN LINYHDACRVFGRQQNNPAWLVFDAAY乌AKYPVAGSAAGSP APRDIVARAI DHEDKRTGGPCV
 APRDVVARAI ALEDAEGRGCGPRADYVELKIDQLGEQTUS APRDIVARVIEWHWQKNDPVFLDARHIYRFD
ASRDVVARA\｜DRE TLRGGRVFLDARKALD GSG GYRDYVT AEMMKLNTPVQLVIPANCVPDVANFVKFYSFK APRDVVSGA $\square$ TRRLASAPGGlDDHVFLDATGVPGFAKR ASRDVVSRRMEAHIRSGKGARNRFGEHLWLDITQLGAQHD
APRDVVARADDHEMKRLGSDCL AARNIVAQAISAEITRGGQVFLDARQAL GAR ATRDVLTASIQEHCKEHVAYVLSQGAYETLQSFVNFYITSK NSYHDVGRACENFDETAMWLICDHKTDSKYGLGYAKPAPM APRDVVARADDNEM KNRGDHVYLDVTHKDPEE APRDVVARSMAMEMREGRGVGKDKDH
DTRDNVTAAMNKCCKDDVRALIVMSENVYQAYKNNMDFY APRHVVAQTMFSYMNKGNDIYLDISSIDHF APRDVVSRAVAAERRATGEVLLDVSPLDFAGEFPGLAE APRDVVARAIDTEDKKSGAE TEYSVLSEVLSTGTAGECFADFDEAARAEAKAHPAPNWKG MQYGQLYAQDMNQPDYMHFQVFDDNFRTDWEDMGSGMMKK APRD\VARADDA NI QQGTDGHVWLDVRHDGDTN $\begin{array}{ll}\text { MNYNDMGKANYAYANQPCWLI } & \text { FDQRFRDSYMVTPDAFTPA } \\ \text { INAYQEAGQLMFAHEKKPSWLLI } \\ \text { I }\end{array}$ APRDVVARAIDAEMKRTGDECV Y㽞MTMGRAF APRDVVARAI FARTSRGERVFLDARGTEVARRFPTVAA APRDEVARAI DSEDKAGRGAFLDA APRDIVTRAI LIAEMLKT DQDCVY的VASYVKD APRDVVREARAMAETGADYGGTAHVYLDARHFGADK
 APRDVVSRS I ALLHLAATGAAPDSPVYLDARGLEAERGAGF APRDIVARAI DNEMK MRGDDHVWLDVTHKDPEETK



AVLEADNVASLAAAMRVPADVLMATCDEVREAKARQRVDR IRKRFPTICARCAELGLDLTDDRDPVAPAAHYTVGGDSTB K GMVCKSI DEDASKYGVPADALKESVKKYNEGVKAKKD E IETRFPS LDRCREFGVDPMKTVIPVAPAAHYWMGGVATD



## 


DAKLPD DSGFVRTYLGLEPKRDPDPIQPTAHYAMGGDPTN LTNHFPNIVKHCKEHGYNVPKEMIPVVPAQHYFMGGIKVN A A WMTAADE ELAGKVGDDPAGLTATVARFNAGASEGMDPE FYAHFPVITAHCNSLGIKPERDLIPIVPAAHYQCGGKVDQ IISHFPN YQTCDSVGIDMTKEPIPVVPAAHYQCGGVKTD YL L R A H S L E ELA RKIGVDEKGLLRTVERFNEMAVKGVDED KHKEYPTLKAMADDLKI PFDQLKKTNDDFNSYMKAKKDPE $E K \square P G \square R E L A \square R F A G V D P V E K P \square P V A P T A H Y M M G G \square P T D$
 GLMREVDAEELSKVLNCTSKDLENTFSLVNKASRGETKDV DHK DREVKEDCHYFLGGIDPARQWIPRVRPAQHYSMGG FSTRFPTITALCHKVGIDPVHMPIPVCPAAHYHMGGDADD


$\square F K K L \square K K S T \square K D L V D Q Y$ N $\square P \mathrm{~V} T \mathrm{VDEFSNYSNESTKDT}$ SEKFPT $\square$ S SLCEQYGLNWKDGIIPVAPASHFIMGGVETE KCADRGVDPTDGGI PVAPAEHFLCGGVADD I PVVKADTLTELAERIGVRPET VVTTAERYSADARAGADSA EPPVDIVASIEAESMGVPADALTATVERYNQLCDEGYDDD LRHHFPTI LAHCASRGI D DT QEP DPVVPAAHYSCGGDA


 LEKHFPTVYSGCLK LGGUDVTRQPI PVVPAAHYFCGGVTDN WERRFPT:LASCRTHG:DPVVDLDVAPAAHYASGGURVD

 | $\square A G R F P T$ | $A$ |
| ---: | :--- |
| $H$ | $A$ |
| $H$ | $H$ |



| Un | FGRGEWPNPLVTGPFYAME |
| :---: | :---: |
| UniRef90-A1WT24 | RGRTDVP |
| UniRef90-UP100036D516D UniRef90-V4Y3W3 | FNRGTTVAPMSQGPFYAVKV |
| UniRef90-LOAGS8 | RGRASL EGLYAVGECRTGVH |
| UniRef90-R5 | FGKT M MLK A DDEPPFYY |
| UniRee90-UPIOOO3C7E39E UniRef90_UP1000410B1EC | VGRTGLV GLEMAGEVASGLH |
| UniRef90-H6LC |  |
| Ref90 xo |  |
| UniRet90 ${ }^{-14}$ | KTTIN VVkGL |
| UniRef90 O51363 | QH GHTDVP |
| UniRef90-K2NT16 | QGRSSV QGL |
| UniRef90-O2W0D7 | GRTDVDN |
| UniRee90-BOSBL- | LGRTNLAD LYACGETTCGV |
| UniRef90 A1SR23 | HH GQtD\DGLY |
| UniRef90-UP10003 | LGRTTVP GLYAVGECAAGVH |
| UniRet90 | RGRTSLP GLYACGEVSCGVH |
| UniRef90-J2VS | FDCMFF |
| UniRef90-UPIOOO3802EAC | HARTHVT |
| UniRef90-H9UMW2 | LGRTTLER LYAVGEVSCGVH |
|  |  |
| UniRe |  |
| Un | A C |
| UniRef90_A4C6N UniRef90-55DSB | FNGKTDLDNLDPGVAIGEVA |
| UniRef90_UPIO0047C7B11 | FGRGACLAPLLAA |
| UniRef90-10YU66 | GETVA GL |
| UniRef90_W883E4 |  |
| UniRe990-H5 |  |
| niRe | YGKS T |
| UniRef90-R5EOP9 | LGRTP |
| UniRef90-A1U9K6 UniRef90-M4U1W2 |  |
| UniRef90-F819M9 | TCATNDP |
| UniRef90-E3J4U0 | TGRTSVP GLYACGEAACGVH |
|  |  |
| $\begin{aligned} & \text { UniRef9O-W9 } \\ & \text { UniRef90- } \end{aligned}$ |  |
| UniRef90-B6AAK4 |  |
| UniRef90-A5EP3 | FGRSFAGVPQLAPSYRAVKV |
| UniRef90- 551 1P9 |  |
| UniRef90_J5L1P9 | GKESALLFEINEGPFYVIRLSPKPHH |
| UniRef90-UP10001D2F4ED | AGRTSLA GLWAAGEVASGVH |
| UniRet90-F7RXE2 |  |
| UniRef90-F1 |  |
| UniRef90-UPI00034DBDDB | LGQTS A GLYAVGETASGVH |
| UniRef90-D5P081 |  |
| C7M |  |
| UniRef90 R6GIN UniRef90-H0QU |  |
| UniRef90-UPI0004173D85 | N |
| UniRet90_UPIOOO1745 |  |
| UniRef90-E6N340 | FHRGESA |
| UniRef90 R5PJU2 | FDC |
| UniRef90-UPI00040C622C | VS QLYA |
| UniRee900 A0A037XZR7 | EOFPF |
| UniRef90_SgPYZ0 | GTDGR |
| UniRef90-Q47F57 |  |
| niRef90_Q1 |  |
| Uni | R |
| UniRef90-Q753Q1 |  |
| UniRef90-R5EN46 | LDARSSUNRLEMGAVGECACGLH |
| UniRef90-12H3C8 | FNRAHIINNFSD |
| UniRef90-UPIO00316F4A5 | YGQTNV QGLFAVGEVAC |
| UniRef90-M01 | RGRTSL DGLYAVGECAC |
| UPVK1003384FB91 |  |
| UniRet90-F7UWZO | YGKQAGLKPVRKGPFYAl ARRAGV |
| UniRef90_UP10002FB4350 | A |
| UniRef90-G7GKD6 | FYRGECLGPISka |
| Uni | RT |
|  | GRASLP GLWACGEVACGLH |
| UniReef90-UP10004674E | TGRTNLER पYAAGECACGLH |
| UniRef90-Q47KV6 |  |
| iRef90-14Y179 | RGSTPAPTEQ |
| UniRef90_Q0KBJ2 | K S |
| UniRef90 UPIO004786835 | LGRTSVP GLYAAGEVA |
| 迷90-C7MN44 |  |

UniRef90 U2L1J4 UniRef90-K5YKR0 UniRef90-UPIo0035F2FFD UniRet90_W9AZF1 UniRef90_D5POJ8 UniRef90-E1VH77 UniRef90-E5Y4A0 UniRef90 R7JHVO UniRef90-A8ZZE1 UniRef90-F2GC19 UniRef90 M2N2L8 8 UniRef90 D5Y9D5 UniRef90-I1BQ74
UniRef90-R5E9E3 UniRef90-B9XM04 UniRef90-K4AVM4 UniRef90-Q762H3 UniRef90-F3X1L6 UniRef90-A0A024HHT8 UniRef90_A0A023BPM1 UniRef90-UPIOOO4184EFB UniRef90 ${ }^{-}$QOFPS2 UniRef90_UPIIOOO36A9741 UniRef90-C4K7D3 UniRef90-F2LX61 UniRef90-K6VZM9 UniRef90-UPIOOO3118CF9 UniRef90_UPIO0035C9A42 UniRef90_Q01737 UniRef90-131BM3 UniRef90_UPIO00348D170 UniRef90_UPI00037DF2E3 UniRef90_UPI00035E9963 UniRef90-U2Y688 UniRef90-R5NS45 UniRef90-UPIO0047A4F6B UniRef90_F2J2N5 UniRef90-M4ZWT7 UniRef90-A5V7D3 UniRef90-D4KH86 UniRef90-A5F6H0 UniRef90-B9Y7U8 UniRef90-UPI0003B75E55 UniRef90 Q0F3J5 UniRef90-A0A031GWG4 UniRef90-F2RS13 UniRef90-J2TVU6 UniRef90-A2C663 UniRef90-D5PER2 UniRet90-HOS9E9 UniRef90-Q1LFA9 UniRef90-Q31E04 UniRef90-12GY51 UniRef90_R5EKD9 UniRef90-E3SOW4
UniRef90 UPIOOO29AOC63 UniRef90-A0A024HKU4 UniRef90-B3QTD8 UniRef90-K5BC59 UniRef90-UPIO0046311A8 UniRef90-D5V5S6 UniRef90 - I4D4Y7 UniRef90-UPIO0036A2A13 UniRef90-B5EB27 UniRef90-A0A009P2U2 UniRef90-A8LEQ8 UniRef90-G3BBZZ6 UniRef90-UPIO004692DB0 UniRef90-UP10003828DFC UniRef90_UPIOOO3674CD6
UniRef90 A0AO23WZZAO UniRef90-Q6FLSO UniRef90-D3R5R0 UniRef90_UPIO00200266B UniRef90_G2R798 UniRet90_Q6F8K9 UniRef90_O2SD30 UniRef90-UPIO004624A76 UniRef90-D6E8U3 UniRef90-R7HTN8 UniRef90-FOE9B3 UniRef90-F2TXQ8 UniRet90-R5E6D9 UniReffo-B5JK22 UniRef90_U2L2C7 UniRet90 A5EJC3 UniRef90-F3QL63
UniRef90
B5I3H9 UniRef90-B513H9 $L G P G G D P R \quad F L V A E R S L A P F S V M V N T G G E R F T N E S$ PGSFIVDQHGRRFANES P YFNGK T GVFPH $\quad$ MMDRAPGS I GVMKNGKRFVNEA





 WFVLFHP T ALA DEGFLI TEAVVRGDGGIL YNLDMERFMPELD
 EFVQRFHPTALYEEKFLISEAVRGFGAYLRNRNGHRFMGEL
 EMWQFHPTGDA GAGVLVTEGCRGEGGYYLNRHGERFMERY EFVQFHPTGIYGVGNLITEGVRGEGGYLINANGERFMKKY $W W \square P D T D L P E G \square M I N A D R T R P R R S I M M N G K G K R Y T N E A$


 GIVVNSDGKRFVDEG
EMMQFHPTCLYNKNF LITEAVRGEGGRLINRTGKRFMEEL
 HPAGAVIP LVVERCD PRSLIVSGEGGRFTNES WM $\square$ N RERVQPRSIMVNAAGKRFANEA RHPHSLCVNRLGQRFVNES
YVQDH P T S LP GRSFVLSESVRGEGAKLVGKDGRRFANEV EMWQFHPTGIAGAGVLVTEGCRGEGGYLLNKDGERFMERY
 EFFQFHPTGUA DVGPLITEGVRGEGGYLLNSENERFMERY E F I Q F H P T C L Y H P S F L I T E A I R GE GGLL KLAAA GTRFMA EL EFVQFHPTADRGGHFPHII ERGPGII GVLSNGQRFVNEA EFVQFHPTALKLEGFLISEAVRGEGAVLVDAQGQSPVGELG EFVQFHPTAMQDPAPVVSESLRGAGALVNRRGQRFMVDL QYHPTGIAYPGGLI SEAARSAGAKLINGEGERFVD EFWQFHPTGVADKGMLLSEAARGEGGVLRNGNGEAFMKDL
 EFVQFHPTGDFGAGVLITEGARGEGGYLLNGEGENFMHRY EFIQQFHPTS L YNPKFLLITEAMRGFGGGILKRRMGKKFMHKG EFDWWAPTTHVEGRALFVERTLBGCVLVDSAGQRFVNEA EFHQFHPTTLFHPSFLISEAVRGFGGVLRLKNGEEFMHKL
 EAVQFHPTPLVPSGILLTEGCRGDGGVLRDVDGHRFMPDY EFVQFHPTALEKPGFLI SEAVRGEGAVLVTEEGERFMSDV


## $\square Q \square N P$ T GF VD N K K L L

F VQ F H P T L L F VNGG L I S E A VR G



UniRef90 K5YKR0 UniRef90_K5YKR0
UniRef90_UPIO0035F2FFD UniRef90-W9AZF1 UniRef90-D5P0J8 UniRef90-E1VH77 UniRef90-E5Y4A0 UniRef90_R7JHV0 UniRef90_A8ZZE1 UniRef90-F2GC19 UniRef90-M2N2L8 UniRef90-_11BQ74 UniRef90_R5E9E3 UniRef90-B9XM04 UniRef90-K4AVM4 UniRef90-Q762H3 UniRef90-F3X1L6 UniRef90-A0A024HHT8 UniRef90-A0A023BPM1 UniRef90_UPIO004184EFB UniRef90-Q0FPS2 UniRef90 UPI00036A9741 UniRef90_C4K7D3 UniRef90-F2LX61 UniRef90-K6VZM9 UniRef90_UPI0003118CF9 UniRef90_UPI00035C9A42 UniRef90-Q01737 UniRef90-131BM3 UniRef90_UPI000348D170 UniRef90_UPIO0037DF2E3 UniRef90_UPIO0035E9963 UniRef90-U2Y688 UniRef90-R5NS45 UniRef90_UPIO0047A4F6B UniRef90_F2J2N5 UniRef90-M4ZWT7 UniRef90-A5V7D3 UniRef90_D4KH86 UniRef90-A5F6H0 UniRef90-B9Y7U8 UniRef90_UPI0003B75E55 UniRef90 Q0F3J5 UniRef90-AOA031GWG4 UniRef90_F2RS13 UniRef90-J2TVU6 UniRef90-A2C663 UniRef90-D5PER2 UniRef90-HOS9E9 UniRef90-Q1LFA9 UniRef90-Q31E04 UniRef90-I2GY51 UniRef90_R5EKD9 UniRef90-E3SOW4 UniRef90_UPIO0029A0C63 UniRef90_A0A024HKU4 UniRef90-B3QTD8 UniRef90-K5BC59 UniRef90_UPIO0046311A8 UniRef90-D5V5S6 UniRef90-14D4Y7 UniRef90_UPI00036A2A13 UniRef90-B5EB27 UniRef90_A0A009P2U2 UniRef90-A8LEQ88 UniRef90-G3BBZ6 UniRef90_UPI0004692DB0 UniRef90_UPIO003828DFC UniRef90_UPI0003674CD
UniRef90-A0A023WZA0 UniRef90-A0A023W UniRef90-D3R5R0 UniRef90_UPIO00200266B UniRef90-G2R798 UniRef90-Q6F8K9 UniRef90-Q2SD30 UniRef90_UPIO004624A76 UniRef90-D6E8U3 UniRef90-R7HTN8 UniRef90-F0E9B3 UniRef90-A7TBY2 UniRef90-F2TXQ8 UniRef90-R5E6D9 UniRef90-B5JK22 UniRef90_U2L2C7 UniRef90_A5EJC3 UniRef90-F3QL63 UniRef90-B513H9 UniRef90-UPI00047CF4C9 UniRef90_G9XLW7
UniRef90_UPI000402FFB7
 EDVWPKRYAI WGRLVAQQPDQVAYSIIDSQAEKLFMPSVF
 NGYDGMDKATKDGEPVTSWQIADASFVRKYPDGMAKPFPM APRDDVVARAMVK E I LAA GNGC GPEKDHVVMLKLDHLGGEEVL A P R DVVA R A M M D E ML ACRDVVARA DTEMKQSGDDCV


FLD L S H K N A D F
A PRRDVVARSMMTE IRE GRGCE GPWGTH
$A P R D V V A R S M N D E D R D G R G C G P D K D H \square Y Q Q S H L P K E L I$ MPY VEACHHMY GGEH GQGWWVFD QRYRDRY LIFA GLQP GQR NLREHVTKKVFGQTDTVHNRPNSWMFKVVPKKYFYASKGF
 APRDVVARSIDDDQLKKR GEEYVLDDISHKPKEK
 $G Y Y D Y V A A A L P E D A E P C S W L V C D H R F L D R Y G L G Y V R P A P B$ A S R D IV S K S I D N E L K K S G D S CV V $\quad$ R RYY A EVVHNELD K L E DK HA Y G L L D S R D E K LVVEN LE K GV S E G QSYHDFCQAMVKRCQEEGWFVADHRTFRKYVPYKSLVKQG D GYY D Y T A A MV A K V P E G E WLI C D H H A R P F P I P V APRDVVARS SMDEI REGRGCEGPWGPHVKLKLDHLGKEVL APRDVV S R GMA QE I RE G R GVVGPK K D H I L L K L
 A P R DVVARTI ARDVMAEQGTD HVY L E TRHFGQDL APRDQVSRALVRRMQAQGVAHMGLDLTP
APRDIVARAI DHE $\quad 1$ KRRLGCDFVYLD $\quad$ LSHKSPEF
 APRDVVARAI A VEVKE GRGCGLKKDHVLDLDLDTHLDDE EVI ATYA K Y GR D L LAA QPGSAA F QUF DA S S R P ML R A E E Y D M P GV
 APYVNFVHD QLA GGHVPAWFVMDAKARARYPFAQVFYEQG VS Y HEFVVRAMYSRPAIDPAWVVDRAFDRRYPSLRSWVDSG ANYNAFGAAFHREDAGSFTYENMPSWLLDFDQPYLVKS GPD

 SSNKA L LDVMTNTLPEARFWLVFDDRVRSTLKPRTQKYRYD APRDVVSRAIALEIREGRGCGPNRDH
APRDVVARA ADFE GHRD YV S GQMWKEKEKKK WP I R N SKA S N I L L D F HT R H Y S GR APRDQVSRSLI QTMHHQGVQHLGLDLTPDP S GQ CDYNS MA GAFHYY VNDRGWMVF D S I H L Q RYGF LG DEP GQP APRDTVARGDMAELTAGRGAFLDARDVL DED K A R DIVASAI LIRECAQGRG\|IDREQVGVLLDTPTLEMEHP A S R DVVVSRAI AVEVKEGRGCGPNKDYVLDLDDTHLDA EVI
 APRDVVSRSMNLEILKGRGCGPDKDH

 APYDRL GREI LDRAMRA GSVGPRYWMVYDSFAPFQAYRAA G
 EPRRDVVSRRMME HMRK GKGI DSVVYGTHLWLD $\square$ S $\square L G R E H \square$

 A PRDIV ARAI DNEMKTHGDDCV A PRDIV A R A I DFE
 TSYHAFVEAMYRSHADTPTVPAYLLCDQRF DDTWHUIDDAG APRHVVAHK IVYTLKQQKKVFLDI RNLEHFE
NSYHDFCQAMFERCQECAFFIAADHRTFRKYGLGFAKPAPV



 APRDVVARSMDME I LE GRGCGPNKDH
 $N V I D H G G L A D M H Q K G N H A F A D W D D D Y A N E P G W Q N H R Y V D G$ APRD V T RAIFNEMKENNVD NVYLNAACDDAKK GYY D YV A A M V A A VMPA D Q EVVCS WLVCD HR F L R R Y GLGGHARP ASRDIVSGSIDKELKKSGDP HVYLDCTHLDVVA GKRDYVTGRMLRCQAPFRLVMNGKQSREFEWCVSRCCCQA

 EDVWP K RYA I WGRLVVA A QPD QIA Y I F D S K S A NL F M P S L Y





UniRef90 Q0F3J5 UniRef90-A0A031GWG4 UniRef90-F2RS13 UniRef90-J2TVU6 UniRef90_A2C663 UniRef90-D5PER2 UniRef90_Q1LFA9 UniRef90_Q31E04 UniRef90-12GY51 UniRef90-E3SOW4 UniRef90_UPIO0029A0C63 UniRef90-A0A024HKU4 UniRef90-B3QTD8 UniRef90-K5BC59 UniRef90-UPIO0046311A8 UniRef90_D5V5S6 UniRef90_I4D4Y7 UniRef90_UPI00036A2A13 UniRef90-B5EB27 UniRef90_A0A009P2U2 UniRef90_A8LEQ8 UniRef90-G3BBZ6 UniRef90_UPI0004692DB0 UniRef90_UPI0003828DFC UniRef90-UPI0003674CD
UniRef90-A0A023WZA0 UniRef90_Q6FLS0 UniRef90-D3R5R0 UniRef90_UPIO00200266B UniRef90_G2R798 UniRef90_Q6F8K9 UniRef90_Q2SD30 UniRef90-D6E8U3 UniRef90-R7HTN8 UniRef90-F0E9B3 UniRef90-A7TBY2 UniRef90_F2TXQ8 UniRef90_R5E6D9
UniRef90-B5JK22 UniRef90_U2L2C7 UniRef90_A5EJC3 UniRef90-F3QL63 UniRef90-B5I3H9 UniRef90_UP100047CF4C9 UniRef90_G9XLW7
UniRef90_UPI000402FFB7

| UniRef90＿U2L1J4 | $\text { FGKNKVMT P }{ }^{130} \text { K A P F Y A VE } 140$ |
| :---: | :---: |
| UniRef90－K5YKR0 |  |
| UniRef90－UPI00035F2FFD | F GRGRTLLGPLEKGPFRAFRVYPG |
| UniRef90－W9AZF1 | F GRSAYLRPITKGPFYAVKMV |
| UniRef90－D5P0J8 | FGRGETLGALEKGPFYAVQVYPG |
| UniRef90－E1VH77 | $\square \mathrm{HGQA} \square$ A Q D I D G Lif A VGEVACVVH |
| UniRef90＿E5Y4A0 |  |
| UniRef90＿R7JHV0 | L N |
| UniRef90＿A8ZZE1 | MGK T D $\square$ D R LYA VGET A C G L H |
| UniRef90＿F2GC19 UniRef90 ${ }^{-}$M2N2L8 |  |
| UniRef90－D5Y9D5 | Y HRSNKPNPVGHPP |
| UniRef90－I1BQ74 |  |
| UniRef90＿R5E9E3 | SGRTSMKR LYAAGETAC GVVH |
| UniRef90－B9XM04 | TGG $\quad \square \mathrm{AGLYAVGEVACGLH}$ |
| UniRef90－K4AVM4 | LGETNV RGLYVAGEVACGLH |
| UniRef90－Q762H3 | F GRGDALAPVRTGPFYA $\mathrm{C}^{\text {P P MV }}$ |
| UniRef90－F3X1L6 |  |
| UniRef90＿A0A024HHT8 | FGRGSTPAP $\$ ERGPFYAVKVQPG  \hline UniRef90＿A0A023BPM1 &  \hline UniRef90＿UP10004184EFB & F GKNKQMT PMLK A P F Y A Y DVK P T  \hline UniRef90＿Q0FPS2 & FGKGSTAAPVKKGPFYAVRLYVG  \hline UniRef90＿UPI00036A9741 & F GRGSTPAPIEQGPFYAVKVLPG  \hline UniRef90＿C4K7D3 & FTNPNGEDEVIPGLFAVGEVACVVH  \hline UniRef90－K6VZM9 & FHRGESAHPDENPPFYAMELKPGV  \hline UniRef90－UPI0003118CF9 & A HLDGT TEEPHFYA  \hline UniRef90－UPI00035C9A42 & \GGRTGVPP GLWAVGEVRTGVH  \hline UniRef90－Q01737 & $L Q \quad A A T S \square P G L Y A V G E V A C G L H$ |
| UniRef90＿131BM3 |  |
| UniRef90＿UP1000348D170 |  |
| UniRef90＿UPI00037DF2E3 | F H G QVLP T PVD GLY A |
| UniRef90＿UPIO0035E9963 | P P K S N WA R S I A T GPFYAFPVT C Gl |
| UniRef90＿U2Y688 | LGRTDLP GLYA A GECTS GLH |
| UniRef90－UPI00047A4F6B | FGRPTLPNPVDEAPYYAVR\EVG |
| UniRef90＿F2J2N5 | FGKGGTLGPI A QPPFYAVAVWPT |
| UniRef90－M4ZWT7 | F GRGATLGPI DTGPFYAVQVRPG |
| UniRef90－A5V7D3 | FGRGECMAPVETPPFYAVR |
| UniRef90－D4KH86 | KYSKTTMNNL YAVGETSCGVH |
| UniRef90＿A5F |  |
| UniRef90＿B9Y7U8 | F GKESYMLDALDKAPFYG |
| UniRef90＿UP10003B75E55 | F GRAVPLKP T E P P F Y A $\backslash$ R $\\|$ HPS |
| UniRef90 Q0F3J5 |  |
| UniRefgo－A0A031G |  |
| UniRef90－J2TVU6 | F GRGSTPAP $\square E Q G P F Y A V K V Q$ |
| UniRef90＿A2C663 | T NLQAA TNQP GLY AI EVVACGVH |
| UniRef90－D5PER2 |  |
| UniRef90＿H0S9E9 | GRG RSSIEGLWAAGEVA |
| UniRef90＿Q1LFA9 | GHGTTS VSGLYCVGEVAGG $\square$ H |
| UniRef90－Q31E04 | F N |
| UniRef90－I2GY51 | $\square G R K V F L N N F \quad G P L Y \square G E \square T P V V H$ |
| UniRef90＿R5EKD9 |  |
| UniRef90＿E3S0W4 |  |
| UniRef90＿UPI00029A0C63 | MARTS G R |
| UniRef90＿A0A024HKU4 | FHKGECLAPLLKAPFYAVR】 |
| UniRef90＿B3QTD8 | L G R T |
| UniRef90＿K5BC59 | F GRGSPLVP $\square$ T T P P F R A A Q |
| UniRef90－UPI00046311A8 |  |
| UniRef90＿D5V5S6 | KPTGESQTLQGLFSCGEAAC |
| UniRef90－14D4Y7 | YGRTNID GLYACGECATGVH |
| UniRef90－UPI00036A2A13 | WGRTTVRR LYAVGEVACGVH |
| UniRef90－B5EB27 |  |
| UniRef90－A0A009P2U2 |  |
| UniRef90－A8LEQ8 | F GRGSTLGPVETAPFYGVEV |
| UniRef90＿G3BBZ6 | F GRKVFGEPFLS SKFYYGFTTPSLH |
| UniRef90＿UPI0004692DB0 | F GKGGTLAPLGAGPYYAVKV |
| UniRef90－UPI0003828DFC | FGRTTV HGLYA VGETACGV （ $^{\text {G }}$ |
| UniRef90－UPI0003674CD6 | F GKGTTLAPVEKGPFYAVKLVIG |
| UniRef90－A0A023WZA0 | AENCATTVD GLFAAGECAGGLH |
| UniRef90－Q6FLS0 | F GRTNFGENVTQDTVFVGEVTPVVH |
| UniRef90－D3R5R0 |  |
| UniRef90－UPI000200266B |  |
| UniRef90－G2R798 | FGRTAFGHWTEDAEVCVGRVTP VV |
| UniRef90－Q6F8K9 |  |
| UniRef90＿Q2SD30 |  |
| UniRef90－UPI0004624A76 | F NRKNTPNPLEKGPFYAVK\｜VPG |
| UniRef90－D6E8U3 | F GRKELLLP |
| UniRef90－R7HTN8 |  |
| UniRef90－F0E9B3 |  |
| UniRef90＿A7TBY2 | TGKTS】 K NLFACGEVRTGLLH |
| UniRef90－F2TXQ8 |  |
| UniRef90－R5E6D9 | FGRKYMKGTFEKGPFYGF $\square$ G Q P |
| UniRef90－B5JK22 | L N |
| UniRef90－U2L2C7 | LRKKQPSRPFNAGPYYA |
| UniRef90－A5EJC3 | CHKSHWARRワDTGPYYAYPVRPGI |
| UniRef90－F3QL63 | F NRTSILVKI ETGPFYDYPA |
| UniRef90－B5I3H9 | P PK S N WA Q PLTTPPYVAFPVTCGD |
| UniRef90－UPI00047CF4C9 |  |
| UniRef90＿G9XLW7 | F GKE T Y M L A L EKP |
| UniRef90＿UPI000402FFB7 | $F G R G D T L G P G D R G P F Y$ A A P L Y |

UniRef90 S7VBNo UniRef90_10GCH9 UniRef90-XOQNE8 UniRef90-A5DUI2
UniRef90-A0A022LLB2 UniRef90-F2KTV3 UniRef90_W6MSN0 UniRef90-A4CQH9 UniRef90_Q1JZ94 UniRef90-T0ND88 UniRef90-UPI00035D7235 UniRef90 B1Y4N1 UniRef90_UPI000475727D UniRef90-J2PWB7 UniRef90-C8X9S8 UniRef90-E3DBN2 UniRef90-A1SN08 UniRef90-F3QJL7 UniRef90-M7NYZ6 UniRef90-D1A5K0 UniRef90_A5GQP7 UniRef90-U2XWZ8 UniRef90-V2UKK7 UniRef90-D5MK51 UniRef90_UPI000248BE6C UniRef90-H8WYE2 UniRef90-R6A8E6 UniRef90-U5E048 UniRef90-M5JG11 UniRef90-I1ZLE6 UniRef90_UPI0004766C0D UniRef90-A2BRY2 UniRef90-X5L405 UniRef90- D5P2T0 UniRef90_UPIOOO362F557 UniRef90-EOUQ89 UniRef90_R5EEA9 UniRef90-W5IKP9 UniRef90-Q1NHD2 UniRef90_UPI00039AF125 UniRef90_Q13LT8 UniRef90-H0IW84 UniRef90-V7M2T3 UniRef90-B8FZT9 UniRef90_K6WIU2 UniRef90-J2A656 UniRef90-UPI0002892204 UniRef90-UPI0004779749 UniRef90_UPIO003691EB1 UniRef90-E5X9Q4 UniRef90-R7I9LO UniRef90-UPI0003733E04 UniRef90-B9Y6A5 UniRef90_V3DKI1 UniRef90-E8NBG7 UniRef90-P21375 UniRef90-W2SDA4 UniRef90-D6TP45 UniRef90-UPIO002D6BEDA UniRef90-A8MLY3 UniRef90-X7YQN2 UniRef90_UPI00035D5B29 UniRef90-G1X6Q1
UniRef90_A5P8Z8
UniRef90- XOSP80
UniRef90_UPIO0026281BE
UniRef90-G6ED96
UniRef90-B1ZD58
UniRef90 UPI000366A8CA
UniRef90-A3VK68
UniRef90_G8RUY5
UniRef90_LOM9G1
UniRef90_UPI000262CFB3
UniRef90_UPIO00419FAEB
UniRef90-AЗYXE3
UniRef90-UPI00037147DA
UniRef90_Q396T3
UniRef90-R5EH43
UniRef90-D4G834
UniRef90_UPI00036845B5
UniRef90-U3QYT1
UniRef90_UPI00047C225A
UniRef90-M2LQ68
UniRef90-D9V4J5
UniRef90-A6TSH6
UniRef90-D9QN78
UniRef90-FOEDL9
UniRef90-NOB1YO
UniRef90-R9KTH1
UniRef90-B9DN07
UniRef90_F7UWB9
UniRef90_B9XC84

EFVQFHPTGMVWPG■LVTESVRG $D G G V L R N S E G E R F M P E L$
$P H T I V V N R A G K R F G N E A$ $P G V A V G A D G R R F V D E S$ EFNQFHPTCLFHPHFLLSEALRGEGAVLTRPDGSRFMPELD $A Q P D G G G S F T L G F R S$ GALIVDQGGQRYANEC SIMLNKEGQRFVDEG PYSIMVDAKGDRFANES
EFVQFHPTALMQPGFLLSEALRGEGARLVQADGQPLFSEL
QALGS LAYPQMLVIPHTLLIS PGVI AVNTDGKRFVNEA
QYVQFHPTTDPSGRFLISEAMRGEGARLVDGKGREFMTDLD WWS PTVPMPGQDTS WAVMAPGCVIVNAKGKRFANEA EFI QFHPTALYNPAYLCGEAMRGY $G M L V L D N G E E F M Q K L$ EFVQFHPTMLYVDGGLISEAVRGEGATLVTDDGRHVMDDD GTAKSTGGGNDAVLKENGLLLNVDGKRVVNER
 EMVQFHPSGMVLPGTVVTEAVRGEGGKLLNNKGERFMKEY EF $\square$ QFHPTMLFGRRPLVTEA $\square R G E G A I L V D R Q G N H P M G D D$ EMLQFHPTVFVNSKMLLTEADRGEGATIVDEAGRRFRGEG EFVQYHPTGLLGCGLLMTEGCRGEGGVLYNKDGYRYYMEL PGFLCVRRDGRRFANEA PGCl AVDAKGERFGNEA
$E L V Q F H P S G L I A P G T L V S A A R G E G G U L R N A S G E R F M M E A$ WWFPAVAPVPGPKVMLAERSPGSLIVDQDGERFVNEA
 GIVVNKNGDRFVAED EFAQFHPTLLVKNGGLVSEAVRGEGGFLTDQNGRRDMEDLD WF APGVVPDTRPVFYTSVWS GIVVNKMAQRFYDEG SYNFL WVNAAGQRYMNER WIQCGPWNSPDVKGMGDADYFAQSAAANCATGKRFVDED EFVQFHPTAFHHHKFLITEAMRGEGAKLMNSKGEYFMPDL I FVGQDGRRFMDEK EFVQFHPTALAVGAFLVSEAVRGEGAVLIDDTGRRFDGEL
 EMYQFHPTGDYKVGVLLSEAARGEGGKLLNDKGEYFMEDL PTGDGEFTAFPH LLDRKPG』I GVNDAGRRFTNES EF $\square$ QF HPTMLFGGRPLVTEA $\square R G E G A T L V D A Q G V H P M G D L$ VQVHPSGF\DPKFLAAEVLRGEGGLL
 EFVQFHPTVLMKEGGLVSEAVRGEGGVLVTANSNHPQKDLD QGHGAVAANAGTLVGWATIIHGAVLVDTTGRRFGDET EFVQFHPTA $\square$ ADPMPLATEA $\square R G E G A R L I D E F G D P V M G D L$ PGATDYTGVWPHLVDRTPGSFIVQTGRRFANES GLVHPDGRAAFALCCTGGGIFVDESGRRFVNES EFNQFPDGTEERFPHLVTDRAKPGVIAVNQRGVRFVNES EFVQFHPTAUVNAHGRRFMDED VQFHP TA $\square M \square P G F L I S E A V R G E G A R L I D S H G H S P V G D L$ $H V W G A P T V G V A G R A D F V E R \quad N \square P G C V I V N S D G K R F V N E A$ VQVVPWCSPYEKSMFSQTCAAPYGIWVDVNTKRFINEL EMWQFHPTGGSEVGILITEGCRGEGGYLINNIEERFMSRY EMVQFHPTGLLATGTVLEEGLRGAGGHLLNGNGERFMEER $G V V V N R D A Q R F Y D E G$ GVVVNREARRFYDEG GIVVNKGCKRFYDEF
QMMPSSSPVKGTM TDGПWADAA $\square W \square D G E G N R F V N E Y$ EFVQFHPTA ILDPMPLATEALRGDGARLIDRDGHFLLGEA EF $\square$ QFHPTMLVKNGGLDSEAVRGQGA LIKTKNGKADMDDAD EMDQFHPTLLYEAYSLVSEAVRGAGAGLVNEVNVRFMDS EMVQFHPTGLVVPGALLEEGLRGAGAHLFNGKGERYMEER

## UniRef90 S7VBNo

 UniRef90_10GCH9 UniRef90-X0QNE8 UniRef90-A5DUI2 UniRef90-A0A022LLB2 UniRef90-F2KTV3 UniRef90-W6MSNO UniRef90_A4CQH9 UniRef90-Q1JZ94UniRef90-TOND88 UniRef90_UPI00035D7235 UniRef90-B1Y4N1 UniRef90_UPIO00475727D UniRef90-J2PWB7 UniRef90-C8X9S8 UniRef90-E3DBN2 UniRef90-A1SN08 UniRef90-F3QJL7 UniRef90-M7NYZ6 UniRef90_D1A5K0
UniRef90_A5GQP7 UniRef90-U2XWZ8 UniRef90_V2UKK7 UniRef90-D5MK51 UniRef90_UPI000248BE6C UniRef90-H8WYE2 UniRef90-R6A8E6 UniRef90-U5E048 UniRef90-M5JG11 UniRef90-I1ZLE6 UniRef90_UPIOO04766C0D UniRef90-A2BRY2 UniRef90 X5L405 UniRef90-D5P2T0 UniRef90_UPIOOO362F557 UniRef90-EOUQ89 UniRef90-R5EEA9 UniRef90_W5IKP9
UniRef90_Q1NHD2 UniRef90_UPIO0039AF125 UniRef90-Q13LT8 UniRef90-HOIW84 UniRef90-V7M2T3 UniRef90_B8FZT9 UniRef90-K6WIU2
UniRef90-J2A656 UniRef90-J2A656 UniRef90-UPIO002892204 UniRef90-UPI0004779749 UniRef90_UPIO003691EB1 UniRef90-E5X9Q4 UniRef90-R719L0 UniRef90_UPIO003733E04 UniRef90_B9Y6A5 UniRef90_V3DKI1 UniRef90_E8NBG7 UniRef90-P21375
UniRef90 W2SDA4 UniRef90-W2SDA4
UniRef90 D6TP45
UniRef90_UPI0002D6BEDA
UniRef90-A8MLY3
UniRef90-X7YQN2
UniRef90_UPI00035D5B29
UniRef90-G1X6Q1
UniRef90_A5P8Z8
UniRef90-X0SP80
UniRef90_UPIO0026281BE
UniRef90-G6ED96
UniRef90-B1ZD58
UniRef90-UPI000366A8CA
UniRef90-A3VK68
UniRef90_G8RUY5
UniRef90_LOM9G1
UniRef90_UPI000262CFB3
UniRef90_UPIO00419FAEB
UniRef90-A3YXE3
UniRef90-UPI00037147DA
UniRef90_Q396T3
UniRef90-R5EH43
UniRef90-D4G834
UniRef90_UPI00036845B5
UniRef90_U3QYT1
UniRef90_UPI00047C225A
UniRef90-M2LQ68
UniRef90-D9V4J5
UniRef90-A6TSH6
UniRef90_D9QN78
UniRet90-NEDL9
UniRef90_R9KTH1
UniRef90-B9DN07
UniRef90_F7UWB9

UniRef90_B9XC84
 LSHHEFVLAMKGEPDRPFYLVCDRQFLWSYRGIRRYVANG APRDVVARA DAEQ STRDVVTEYTLDNCEDKRENELNNHVGFYKHQGLLQQGTD

 ADRKTRADAELTCRDDPPVTDTSYEHAKEHPTMKKVLKYG ED DWPKRYA I WGRLVAEQDSQLAYA IIDNKS IGKFMPTAY DSYGDVGRACEGQKNTAMWLVCDKFVKPAPMPDGKFLRNG
 FYRDHIDGANQTHPNFPCWAVIDSQVREKYPF GSDMPGSD
VSYHRFVRAMYASGTVPAWLI I DSRALHRYAYGRKYDQS G APRD VVARA DDHEMKRLGADCM
 ATYKA YGPKEVLVQQPDGQAYQIVDENVRLMQLQNRPPEKRLD

 $D S Y H D F C M A Q I A S N Q G K D Y L I C D H T A D Q K Y K K L D Y F L R E K$
$A P R D V V A R G \| H Q M M L E S G E P Y A$ MPY LEFGDAMYADHAAGNGTVPAWMVFDARYRWKYEWEGD


 ASNHALDDVLMNQESKMLYLLLDQEHFDDFWLAQNGSQTP $L P Y D R I G R V V L D R L R D G D I R L P F W M V Y D P L G E S S D Y E R A G G$
$D P R D R V A D A N Y T E I D E G R G T K N G G V F L D U S H K S K E F ~ I V E K$ SYHSRTSAFVLEQPDQSAYLVVDEAHMQMPEMPLDKF

 GPRDRLSQAFWNESKKGRTVKYPDGEAVHLDLTHLGEKYL
 STRDRVALASYTEGQEGRGTPGGGVWLDVTHMPRQTVMTR AHYEETIRLIAEQKKGDAYCILDDKINRIKNWKRCVRSDM DDYMSFGREQAGDRVDTMWFVVFDQQFPRMPDPQGWYEAG
APYMDFGHAMIDGQRSGVTHI PCWLITDHRSWNRYVIGG H APYDSKDHGASKQPKQ WWFQIFDSNYWEDVNAFHTTICSR SYHSRTSAFVMDQPDSAAY IIVDEAHMRRPEVPLIVF DSYHDFDQAWLLADRRADRRYGLGHARPFPFTPTAWLRTG APRDVVSRIIHEEIVKGKRVYIDC
EDFWPKRYA WGRLVAREPDQIAYS DVDAKA $\square$ GRF $\square P P D F$ LPYDRAGHEMLKAHRTPTHWVFDQRQI DNWFDVEKF AAG VNTQSKSCVKSYQPEGKAFTI YDANSLESFAQSCNDGISG ANRKVRADAVINAANKGQLCIAVANKEGDEMMQQDHHERG APRDIVARSIVDEMLKN RTKDDVVDLYGRTGVDYFWSLADEASDEMMQLADAAKDHE NSYHDFVQAMDNVRDACAWLVCDRRTLRRYGLGCVAPFPL APRDVVARANARAMAAQGGRPVRLDATA $V$ R
 APRDIVSSCIVQEVNEGRGIDGKDYVYDDVRHDGAKADAE
 E YWFKRAATLYHDLGFSNYFADTDSKLDNEN
 ETRENVTNAGVA TAPTSELPKQWTVQLVLDEGGAYNAAK
APRDVVARANDDQIKRYGLDYVHLDISHQPP

RGYSEYAAELAARPGATGWIVLDETIFEQCQPFQDFRDTV GSYMENGAENMYARGADPAWVVLDETDFEQCQPFQDFRDTV APRDVVARGDFQALSRGRTVYLDTRGS L ADYMSFGQEAAGTPVESMWIVFDQQYFPRMLDPRRWYDAG QYRDLVIGAWLIADHRAVKRWGDGFVRPFPMPRGRY IKNG A AYDRLGRE LLNAVRDPYWMVYDSRAGEQPPVMATNVSFS
NSYHHFASAMQQQENAPCYLISDALAMKNYVNNDALIKA G APRDIVARAMQQQENAPCYLISDALAMKNYVNNGAGLIKAG ASYA VVSGGIDDAQPGPVWAVFDERARDGLDPGYAHWTPE APRDQVSRARTMQAQGVDHLWLDLRPVGQER
DSFEVIARK DFEQPDHIAFIIFDNKANLIDRFKEGDKSDL APYSEFVPAMYRDHARTGASVPAWMVFDARFRRKYPCGPLI GNRKVRSDADI ADNNDGHKCISKQLEKNRPGTLPKLMATK ATRDIVSRGIVSEMRAGRTTPNGGVHIRMSHLGPDDVR ADFWPKRYA I WGRMVAQQPEQVAYSII RAKAVGGRFMVPDVF EDFWPKRYAIWGRLVAQQPGQIAYSVIDAKAIGRFMPPVF ASYAVSSGDISAQDGPVWMVFDDRARRDLP PGYAHWNAEH
 DCYHDFAQAWLICDHAAQRRYG $\quad$ GWAKPFPFPTR $\square Y Q R C G$ APRHIVSQTIFEY LQQNGEEIFGDITMDEHF
EPYGHLAMAI QAQPGTYDFYVVDGA IAEK DDK DWTPSSSC APRDITSRALYHQQMQGHDCFLD ISSISHFEQRF
$\square P S N F L A N A D N A Q V G A H D W V I A D A D I A S N D D K D R D L V I P G$
 LAKRFPTIFKRCLEDGI DILKDPVPVVPAAHYSCGGIVNE Liv LAQRFPT TDAAVRERGLDWARDPDPVTPAAHYLMGGVVTD MSKNLIKKVSUNDLLRQYDLDQTASSVTELKSYSDVNTKDT KLPDDTDFARNY L GVVPDTEPVPI QPTAHYAMGGDPTD YLLKGRTLAELALKAGLDGPGLEQTVERYNQGASVGKDVE TAFKADTVEELAKFAGAKPETLKATVTRYNGFAATGKDED PGTQAETLPELARKLGLDEARFMQTLTAYNAACRVGTFDA SHDDFYIFKGLMKKIADDDDGALESVQQYAASAAGEQVDS ARFPSITKLCEKAN QDESGLLEVRPGAHFFNGGIQVN ASGALVWADSAEELAAVTGPELADELAVAGADARGERADS
$P D A L I V S G Y M K A R Q C G I I D A N G K Q G V D R N G F A R T G V D E D$ MLQRFPTVAALCAEAGI DPAVQPDPVRPAAHYHMGGIFDE IAFRADNLTDLAAQDNVPAGTFRATVDRFNENAFAGEDPD YLKRGKTLDELASICGIEAEELKATVARFNGFAKAGRDDE PWVQADTLEGLADKDGVPAANLVDTVRRFNELUERDDDED YLHKADTLAALAQQLNLDPRTLEETVARYNRDAANGTDSE HVAREADAGRTARAI GVPADADGAAVRRWNGTLPHGRDPE LNRQFPT LRRCRELGLEPTAAPDPVAPAAHYWMGGVSTD PP\VANS DEELAEKLSIPKDNLMKTIQEFNKAVQHGKFDP MPASMMPDSRIAARIGVDAAGLHDTLRDMARYAVTGDDEA GLLEFPTLEAVAKYYGTPYDVLKGEVDQYNANVRNKI EDS ELEKKLPGILELSQTGVNPKESDTPVAPTCHYMMGGUPCN PGTRAKGMVERCADCGFDLDGGLVEVVPTAHYMMGGVTFN PGEQADSLPELAAKLGLDAGEFMQTLDAYNAACRPGRFDH KPPEKADTIEEAEKLGLDPKELKKTVDDFNAAVNDKEFDH RTLRADTLEEGAGKMNVPAAALQATVDRWNAQLPSGEDPE
 Y LHKGDSLAQLAQRCGUDAAQLQCTVAAFNQHAAQGLDPV

| UniRef90 S7VBN0 | $\text { WGRST TGH } 130 \quad \text { LY A A GETA C G/VH }$ |
| :---: | :---: |
| UniRef90-10GCH9 | F GRGS TVAP $\square$ A R A PFFA MR $\square$ Y P A |
| UniRef90-X0QNE8 |  |
| UniRef90_A5DUI2 | LGRTVVF GHVFTK QFFFGLTTPVLH |
| UniRef90_A0A022LLB2 | FGRGECLRPLE GERFHAVRLVLG |
| UniRef90_F2KTV3 | $\square$ LAESSIHRLL YAVGECSCGLLH |
| UniRef90_W6MSN0 |  |
| UniRef90_A4CQH9 | LQ A A T T IP GLFAVGEVAS GV H |
| UniRef90_Q1JZ94 | F GKPMKKAKYLK A P F V TVR NWP K V H Y |
| UniRef90_T0ND88 | F N K S HWAVP I N T P P Y H A YP LS P GL |
| UniRef90_UPI00035D7235 | CHKDSWLRPLS APFAADSVAAGM |
| UniRef90-B1Y4N1 | F GRGT TVAAPVQS GPFYAVKV DM |
| UniRef90_UPI000475727D | A D T CAA L VP G LF A A GEVA G G M H |
| UniRef90_J2PWB7 | $F G R G T H P W P L E K G P F Y A V R L$ |
| UniRef90_C8X9S8 | F G K G T C LG P I D Q A P F Y A I A L VP T |
| UniRef90_E3DBN2 |  |
| UniRef90-A1SN08 | F GRGGDLTA C T E A P F Y A A R L |
| UniRef90_F3QJL7 | F K R L S T PVP IE K A P F Y $\square$ MPATC G |
| UniRef90_M7NYZ6 | P PK TNWANTI DE GPFYAYPVTC GII |
| UniRef90_D1A5K0 | $F G R G N C L G P L E K P P F T A F K V V I G$ |
| UniRef90_A5GQP7 |  |
| UniRef90_U2XWZ8 | F G R D F T A G R SLE A P F Y Al RVTG AL F |
| UniRef90_V2UKK7 | F A K G T CLG K L E T GPYYVLEV IP |
| UniRef90_D5MK51 | WGQ S S L H R |
| UniRef90_UPI000248BE6C | F D K T NLP N P LT K A P Y Y A LKLLNP G |
| UniRef90_H8WYE2 | LGRTVF GSAlSS E F Y F GLT T PVLH |
| UniRef90_R6A8E6 | L N |
| UniRef90_U5E048 | FHKSAWLRPL Q S P F A A $\square$ D VQRGM |
| UniRef90 M5JG11 |  |
| UniRef90-I1ZLE6 | F HRRFLQKPVGEGPYY LIE Q K P |
| UniRef90_UPI0004766C0D | F R R GEEPVP I EQPPFHAV |
| UniRef90-A2BRY2 | P ENLSTSVE GLFA A GEVAGGL |
| UniRef90-X5L405 | FHKPEYLAA Q DKGPWAVFPDLS LGVV |
| UniRef90_D5P2T0 |  |
| UniRef90_UPI000362F557 | CHKSHWARP ${ }^{\text {C D T P PFYGYAL R P G }}$ |
| UniRef90-E0UQ89 | L N A RVP NVK NLY AVGEVVAS TVVH |
| UniRef90_R5EEA9 | GNTETRMP GLLYA GGECAS Gll H |
| UniRef90_W5IKP9 | F GRSA Y LR P LEK GPFYAVK L L P G |
| UniRef90-Q1NHD2 |  |
| UniRef90_UPI00039AF125 | HGTD VR G L M A GEAAS G L H |
| UniRef90_Q13LT8 | P R K S W WAMPLDTPPFH\\|YP |
| UniRef90-H0IW84 | F A R GQS LR PLERGPFYAVKMV |
| UniRef90_V7M2T3 | F NR G D S L Y P L G D P P Y Y A FRIV VLG |
| UniRef90_B8FZT9 | F GKP GSLR P V A Q G P F Y G $\square$ AL |
| UniRef90_K6WIU2 | F HKPEFLAPQDHGPWA A FDL S L G |
| UniRef90-J2A656 | FHRGATLGP LR E GPFYAVR\\|LP G |
| UniRef90_UPI0002892204 |  |
| UniRef90_UPI0004779749 | P P K S HWAVA L D T P P Y Y A Y P L C P G |
| UniRef90_UPI0003691EB1 | FGRTDGPNPI DQGPFYAAKI V |
| UniRef90_E5X9Q4 | F GRPEILLWPID T P P Y F A G Q L V S L |
| UniRef90_R719L0 | L N R NK DCKP MVVNGPWY CSKLSPKV H H |
| UniRef90_UPI0003733E04 | H GRTTVAR L T A VGECS C GVVH |
| UniRef90_B9Y6A5 | Y GR T A FWFP |
| UniRef90_V3DKI1 | $F G K G S K A N T \\| E R G P F Y A V K V L$ |
| UniRef90_E8NBG7 | LGRTTVPP GLYAVGEARTGVVH |
| UniRef90-P21375 | F D R P LI INAFDKS TVVYVGEVTPVVH |
| UniRef90_W2SDA4 |  |
| UniRef90_D6TP45 | LD GRVV ID P Q WT GF Y A A GEVACVVH |
| UniRef90_UPI0002D6BEDA | $F G R G T$ TAA P I GA GPYYAVKL VM G |
| UniRef90-A8MLY3 | F GKPALLNAVDQAPYYA |
| UniRef90-X7YQN2 | CGRTELPP GLFAAGEVRTGMH |
| UniRef90_UPI00035D5B29 | P A K T HWAR P $\square$ D T A PFFG Y P L R P G |
| UniRef90_G1X6Q1 | F HR T S F A N WA LK D P $\square \mathrm{Y}$ T G $\square$ VT P VV H |
| UniRef90_A5P8Z8 |  |
| UniRef90_X0SP80 | SNGNTTLNRL Y Y V V G VAC GV |
| UniRef90_UPI00026281BE | $F$ G R T N WERPLS GRLAA A R RVVPALLF H |
| UniRef90_G6ED96 | F Q R G A C L T I E K A P F Y A I EV F P G |
| UniRef90_B1ZD58 | A GRSTVPP GLWACGEVAS GLLH |
| UniRef90_UPI000366A8CA | F GRGRSLLRP L L S GPFY AVKMV |
| UniRef90_A3VK68 | Y QR GA T P Y A L E T GP Y Y A V R $\square$ Y P G |
| UniRef90_G8RUY5 | F GRGSPLVPI D T P P F R A A |
| UniRef90_L0M9G1 | FRKGACNAPLS Q GPF Y A DT LY T G |
| UniRef90_UPI000262CFB3 | LQ GET DLA G L M A V GEV S S GLDH |
| UniRef90_UPI000419FAEB | FRRHRTLAP $\square$ G R P P F Y AVRIILPA |
| UniRef90_A3YXE3 |  |
| UniRef90_UPI00037147DA | PPK S NWALDP TDEPPPFMAYPV DGTL |
| UniRef90_Q396T3 | $F G K G D C L G P \\| D Q A P F Y A V R$ |
| UniRef90-R5EH43 | LGK TADCTE MK T GPWYA A EL M P K I H H |
| UniRef90_D4G834 | $F G Q A L T M N S K G E G L F V I G E V A C S V H$ |
| UniRef90_UPI00036845B5 |  |
| UniRef90_U3QYT1 | P A K T HWARP LD TAPFY GYA LR P GI |
| UniRef90_UPI00047C225A | PAK THWARPID T P P F Y G Y ALLRPGV |
| UniRef90-M2LQ68 | PNK T NWASKI EKAPFYGYPMT |
| UniRef90_D9V4J5 | F LR HETPAKI A T GPFFAARTLPA |
| UniRef90_A6TSH6 | FHKENワA GA ID |
| UniRef90_D9QN78 | $G R T S L P$ G $\quad$ LFAVGECAA GVH |
| UniRef90-F0EDL9 | Y GRGA SLR P L L N GPFYAVKLLP G |

F N F P E M M M T $\square$ D T P P F Y A T K
$F G V P E K L A P V L T P P F Y A C$
$\square N R D G F T N L I \quad G L F A A G E D A S G V H$

UniRef90 UPI000316345B UniRef90-P32614 UniRef90-G8C1J1 UniRef90-M7MUX6 UniRef90 UPI000365D060 UniRef90-Q89P14 UniRef90-W0BDM2 UniRef90 A2BZS5 UniRef90-F6ID27 UniRef90_UPI00037CC91D UniRef90 A0R1T2 UniRef90 UPI000365FF52 UniRef90-F0G9M3 UniRef90-B2JW32 UniRef90_U1GRC3 UniRef90 C5FP3 UniRef90_UPI0004696AE9 UniRef90_UPI0003770EF7 UniRef90 W9XZV3 UniRef90-V6LDD0 UniRef90-13ECX7 UniRef90 UPI0003A26E02 UniRef90 I4MWP8 UniRef90-B1J7C6 UniRef90-X8FH53 UniRef90 UPIO004630DA6 UniRef90-R9L5F7 UniRef90-UPI000248AB52 UniRef90 F9F9X9 UniRef90 U7PWH5 UniRef90-W3ATD0 UniRef90_UPI0001B42DD6 UniRef90 B3E5J7 UniRef90-UPI0004131CEA UniRef90_W7IWA3 UniRef90-A0A024IMY3 UniRef90 UPI00046742C6 UniRef90_C1DF35 UniRef90-SOEX01 UniRef90 W7UYL3 UniRef90-A0A024QF55 UniRef90_UPI000477C4A7 UniRef90-M8ID17 UniRef90 W9NBQ9 UniRef90-K2NYJ9 UniRef90-UPI0003674C74 UniRef90-T0JNJ2 UniRef90-D8INI6 UniRef90_R9KVP2 UniRef90-UPI0004670B30 UniRef90 U5WRF9 UniRef90-G9XQF8 UniRef90_C5ZXR2 UniRef90_E2Q4N5 UniRef90_W6K5D0 UniRef90-D0CQZ4 UniRef90_G9RVT0 UniRef90 UPI00032A301C UniRef90 R5PIR0 UniRef90-B9KVNo UniRef90 UPI00035EB6E0 UniRef90 16Y0J9 UniRef90-B7S0S3 UniRef90-UPI00037FB123 UniRef90 S8FA24 UniRef90 ${ }^{-}$C4XYQ8 UniRef90_A0A038GPJ9 UniRef90_A1WKV0 UniRef90 U2YIR5 UniRef90_R5VKA6 UniRef90-A8LCX5
UniRef90_K5BHF6 UniRef90_M1GXT4 UniRef90-X5KY35 UniRef90_M4Z7J8 UniRef90 UPI00029A8138 UniRef90-X1A0Y2 UniRef90-M1MV07 UniRef90-R717J4 UniRef90_V6L2Xs
UniRef90-17L8P6 UniRef90 UPI0002D4D8F UniRef90 B9B7S6 UniRef90 B9Y3K4 UniRef90-D7WRL2 UniRef90_F7UVZ9 UniRef90-19W833 UniRef90-UPI000367E1A0 UniRef90_Q043S9 UniRef90 Q07WU3 UniRef90_UPI0002EC938B Unef90 R9KUL2

10 20 30 30
$N$ TEGKRFTDE 40 IQVHPTGFIDPKFLAAESLRGLGGILLNPTGRRFVNEL
 $V$ Q WD A GASPNGGELTN QLTRQSYGIVVNRDGRRFDDEG
 EFYQFHPTLLHHPSFWISEAVRGEGALAKNADTERFMRENL EF F QF HP TALKAPSFLISEAVRGEGAVLVDSFGESPVKDL

FHPTA $\quad$ DD DPAPLATEALRGDGATLINSEGRRFMGELL FMLNERMMPSQFVVNGEGKRFINEA HPGGQRERFPHLVTDRAKPGVIAVDPTGRRFVNES GVVLNRNAERFYDEG $P G V I A V T R A G Q R F V N E A$
QCHAVA $\square$ DARGG】 ITRHDSVVFGGVVNKHAERFYDEG ERARPFSVI $\square V D S S G S R F M N E A$
 $P G V: A V T A K G R R F T N E G$ EFVQFHPTGMVWPG L V T ESVRGDGGVLVNSDGERFMPEV
 GIFINEQGQRFINED $P G I I A V N R A G Q R F V N E A$ $P G V I A L D P A G R R F V N E S$ EFVQFHPTGMVWPG LVVTEGVRGDGGVLKNSDDDRFMPDLD

Q Y A G DGVLGRWFWFGE GVI AVTRSGRRFVNEA QPFLKLNLKGERFCNES P HC I A V NAA GHRFANDA $G I M L N V D G V R F V D E G$ $G \vee M \mathrm{M}$ T Q GERFVDEG
$\mathrm{C} \square \mathrm{P}$ GVMY GTHDYCASAFQPYFW
 $V Q P Y F W V T P R G E R Y T D E S N I V F W P Y S N N S L V R V G G V A Y$
 WMPLS IVPGGRSGTMVFPHPGVI AVLRTGRRFTNEA GLIVNGEGRRFVAFD $P G V I G V L R D G R R F T N E S$
 QYHPT GTGYPGALVTEKVRSLGAKLVNDDGDVFMHPL $S \mathrm{M}$ M NKD GQRFVDEG $G V V L N R E G K R F Y D E G$
$V W G \square P T M D N P G T G K V T E A M F A P F S F V V D G Y G R R F F S E S$ $E M V Q F H P T G L L A T G T V L E E G L R G A G G E L L N A H G H R F M F D Y$
 EMMQFHPTVFVNSKLLLTEALRGEGATVEDENGKRFLYE Y

EFFLQVNEHGERFTNED
PGVI A V MRDGKRFANEG
FMLLERMMPAQFI VNGDGRRFVNEA
$\begin{array}{ll}L & W W P G S Q P W N T R G E R F M N E D \\ L & G E G A F V V D F W G K R F K G E D\end{array}$
 EFVQFHPTGMVWPGULVTESVRGDGGGLRNSEGKRFMFDY
 $G F V L L N T R G L R F V N E D$

NYRAWLQSGULVNNE $F$ VQ F HP T GMLDP T PLLTEALR VGFHPTGMLDPTPLLTEALRGDGAKLVDEYDSQFMKDL PGMIAVNAAGERFTDEA | $G$ | $A$ | $N$ | $D$ | $K$ | $A$ | $Q$ | $R$ | $F$ | $\square$ | $N$ | $E$ | $D$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $V$ | $G$ | $V$ | $R$ | $A$ | $G$ | $K$ | $R$ | $F$ | $A$ | $N$ | $E$ | $A$ |


 EMVQFHPTGLLGTGTVLEEGLRGAGGYLLDGSGERFMGER WY P SIISPD GTINVGIWERTPGSIIVDQSGQRYTNEA
 QGHP RSRSVRLERTR PRSI IVNRAGKRFLNEA
 GDTDD GHPRSRSVRRPRSIIVNRAGKRFVNEA $P G V I$ AVTAD GVRFANEG
TLFPNGHAAFTLGFRA GIIVDGTGRRFANE L
 GRMVVNSKAQRFFNEG PWGVMVNAHGRRFVDEG
 P GLI AVNRRGERFVNES
 PGT\FQENI GSQPFMKVNRNGVRFANES Y VK L L P M WT P E R

T ERALPKMA


UniRef90 UPI000316345B UniRef90-P32614 UniRefofo- 88 Cl 1 J 1 UniRef90-UPIO00365D060 UniRef90-Q89P14 UniRef90-WOBDM2 UniRef90_A2BZS5 UniRef90-F6ID27 UniRef90-UPI00037CC91D UniRef90-A0R1T2 UniRef90- UPI000365FF52 UniRef90-FOG9M3 UniRet90-B2JW32 UniRef90-U1GRC3 UniRe990_CSFP30
UniRef90_UPIOOO4696AE9 UniRef90-UPIo003770EF7 UniRef90-W9XZV3 UniRef90-V6LDDO UniRef90-I3ECX7 UniRef90_UPIO003A26E02 UniRet90-14MWP8 UniRef90-B1J7C6
UniRef90 - $\times 8$ FH53 UniRef90-UPIO004630DA6 UniRef90-R9L5F7 UniRef90_UPIO00248AB52 UniRef90-F9F9X9 UniRef90-U7PWH5 UniRef90-W3ATD0 UniRef90-UPI0001B42DD6 UniRef90-B3E5J7 UniRef90-UPIO004131CEA UniRef90-W7IWA3 UniRef90-A0A024IMY3 UniRef90_UPIOO046742C6 UniRef90-C1DF35
UniRef90 SOEXO
SO UniRef90-SOEX01
UniRef90 W7UYL3 UniRef90-A0A024QF55 UniRef90-UP1000477C4A7 UniRef90-M81D17 UniRef90-W9NBQ9 UniRef90-K2NYJ9 UniRef90-UPI0003674C74 UniRef90-TOJNJ2 UniRef90-D8INi6 UniRef90-R9KVP2 UniRef90_UPIO004670B30 UniRef90_U5WRF9 UniRet90-G9XQF8 UniR Refo-C5ZXR2 UniRet90_E2Q4N5 UniRef90-W6K5D0
UniRef9O-DOCQZ4 UniRef90-G9RVTO UniRef90-UPI00032A301C UniRef90_R5PIRO UniRef90-BgKVNo UniRef90-UPIO0035EB6E0 UniRef90_16YOJ9 UniRef90-B7SOS3 UniRef90_UPI00037FB123 UniRef90_S8FA24 UniRet90-C4XYQ8 UniRef90-A0A038GPJ9 UniRef90-A1WKV0 UniRef90_U2YIR5 UniRef90_R5VKA6 UniRef90-K5BHF6 UniRef90-M1GXT4 UniRef90-X5KY35 UniRef90-M4Z7J
UniRef90-UPIOOO29A8138 UniRef90- $\mathrm{X1}$ AOY2 UniRef90-M1MV07 UniRef90-R717J4 UniRef90-V6L2X9
UniRef90 I7L8P6 UniRef90-7LLP6
UniRef90-UPIOOO UniRef90_B9B7S6 UniRef90-B9Y3K4
UniRef90-D7WRL2 UniRef90-F7UVZ9 UniRef90-19W833 UniRef90-UPIoo0367E1A0 UniRef90_Q043S9 UniRef90-Q07WU3 UniRef90-UPIO002EC938B UniRef90_R9KUL2
 MFKKLVQKLTLSQVVSEY NLP DTVAQQTYSSFTTKADP TSKGLVQKMP SSLVSEYNDP SATIASDLIEYSTEKKDK LPRVYQTMLEVQML DVTAEPDEI APTAHYSMGGV TSAVADS EELADKLGVDRDGLLATVREFNESIVDVEFTD Y LSRGATLRELAAATGLEADGLEATVREYNEGAVHGUDRA ytinccrlaw
VEARFPSIFQRCRELGLEPGKEADPVAPSAHYWMGGVATN YLKKADT ADLAGQCGUDPSQDEATVGRFNQFARAGKDGD FPEMFPTVYASCMAAGIDP DPDPVTPAVHYHMGGVDTD VVQEGRTMEELATK\GVPPQNLRATAERFDQLLARAGHDD YLYRAATPQALAQALGVEPKVFAQTLEQFNTDARNGDDRA PGVRAGSDAELARATGLNEQSFVNTVAYNAACRPGTDDT PVSSYVNSGYLAKVCGLDAQGLENTVSAYNTYAKDGFDPQ Y YKADT QDLARQIDVDVQGLEKTLHRFNGMARAGVDED YLQRADS QAALARRCGIDPQGLAHTVQGFNQQARQGQDPE
 RLP SMMHQ SKELADVDDEAQPMEVGPTCHYVMGGVDVD KRFPTDTSLCKRNGVSUKDGLLPVAPGSHFLMGGUKTD DATAGESWAEVERDLELPAGALTGTVEDYNAHAARGADPD DNMRADSPEQLAHLLGIDPKGLAATLRQHNADALTGADSQ YLHRAGSVQGLAQAlGVPAQVLQETLQRFNADARSGDDRQ KPAPVPFRRHVASRAGVDPQGLRHTVGTFNDHARGGDDPD YVQQADTMEELAEKLNLPVETTVASWKRYNEMAAAGRDED GQPMSEGMGVTAAAAGLDAAGLEATVARFNRFCEDGVDHD ERTTANTLEELADKCARNKAAFIDTVHEYNEAVYAHRREN RKI RADTLEELADKLAHSPAKFLETMHDYNAAAHAKWDPA EYVHMETLDDVAKELNDDADALKASVEKYNGYCKSGVDEE NVAKADPFR GAKODNMKPETKRIDVHPGAHFLMGGIRTD SFTADS LEKLADKLPVDKKAFLDTMNEFNHAVEDGKGAK RLPSMYHQFKELADVDITAE PMEVGPTCHYVMGGVDPD HRHLNSGYLCRKLGIDGEALEKTVADFNRGARTGADPQ PL GWETVAEMAAALDI PAEQLQSTLDHYNEHAARGADPD PLRPLLRSGYLALRAGLDPQGLEGTVRQYNLGAERGVDNE DPAMMRMFGKYGDDLRKEPMLVYPTLHYQNGGLDDSDDCA PGTKANSLRELALALGFNEDEFLETYHTYNRACQPGTFND ADQRSDTVDGLAKQLLVPNQSLQATLEEFNQACVQGTDDC VRKKFTGMVKRCADCGFDDAGGLVEVVPTAHYFMGGVDPD LPHVYRTLLDLQMVDVTSDPVEVAPTAYYSMGGAQVRPED FVQRFPNIYKNLRDIGFNVPDQRVPTSPAFHYADGGIKTD ESEGADYFQEVAQKAGDDVAGLSETVQKYNDYAKQGKDEE RSYGDGEGFSQLELSADATQNLTAAVARYNELCEKGVDED
 KLKKADTHEDLASQLGLPAAAFAETDKRYNQNAEKGFDAD FYERFPNUARNLNSVGFDVPKDRIVPSPAFHYCMGGDQTD

PPVKANSTEDLAEEFDLAPEKLRHTTESFNSACREG
 YLQSADTLEGDAERCGLDAEGLRDSVSRFNGFADRGEDPD DEDLEKWLAENGRKAGUDGRTLEKTVARYNELVKLGKDED KVTAATLEELAGKLEGVDPARFLQTVRAYNAAVQTGRGTE NFLKKANIDFTKEKIPVTPA
YLFKARTLAELAVRIGVDPRGLEETVRKFNADCALGRDSL DAGTGESVTELEDELGLRKGSLQQTVDLYNEDCVTGEDSQ PLWRGRSLRELAEVCGVDPAGLEATVAAYDAEAREGRDPQ
 RTFPGMVHRCLDCGFDLAGGRVEVVPTAHYDMGGVEFD RQYVESGFFQKAGKCGDDAAGLVATVTRVNSMAAAGVDAD EGTIEKRTPAMLRMFGKYPILIYPTLHYQNGGVKVGTDSQ APVVANSVEELAAADDVDVDAFARTVRDFNSSIDTGATVVE GPADGYY TKKGDFEKTKDGVCATVTPVVHYTMGGDRDD VEPGEPVPDWFCEKTGHDQQGLAATLASWNDNVARNTDPD

 RVTAPTLEQLARKLDGVDPEGFLTEMAAYNAAVDSATPFD LKQNNDDFETNQRKMGVPSEQLMQTMKPGMHFLMGGVKTD YLVKGATLAELAAKLQVDAAGLARTVETYNRDAADGKDPA SAYKADTLEALASLTGMDAELLTASVNRYNELASAGNDED $M M A V G M P$ IVE F F CKVA GDA KQAFLDQAERYNA QF DA Q K D D D II D G A E S L L A E LAA Q Q T G V V D E A V L R A T V E Q W N A D C D A G E D T A




|  | 30 |
| :---: | :---: |
| UniRef90_UPI000316345B | P P K S HWSRS ${ }_{\text {d }}$ |
| UniRef90-P32614 | LGRTVILNEFGETVVFIGEVTPVVH |
| UniRef90_G8C1J1 | F DRVVHKIN T F G D A EVVYVA EIT PVV H |
| UniRef90-M7MUX6 | WVRPEDHGTDVNGLYA G G A S S GL H |
| UniRef90_UPI000365D060 | P PK S NWA A A L D T A PFYGYPVACGI |
| UniRef90_Q89P14 | FKRGSTAAP I G T GPYYALLKL 1 M G |
| UniRef90-W0 |  |
| UniRef90-A2BZS5 | $\square K$ A Q T NVK G LiF A $\square$ GEVVA C G L H |
| UniRef90_F6ID27 | F GR GE WA D P $\square$ SRPPFWAAVI R P G |
| UniRef90_UPI00037CC91D | GGRTS $\square$ D D L W A A EVT S GVV |
| UniRef90-A0R1T2 | F NRGDSLR P L G K P P Y Y A F Q |
| UniRef90_UPI000365FF52 | F G K G G CLA PL S N GPFYA $\square$ R |
| UniRef90-F0G9M3 | P PK T HWAQPI DKPPFYAYALRPG■ |
| UniRef90_B2JW32 | F HKGSTPAPIEESGPFYAVKL L P G |
| UniRef90-U1GRC3 | P A K T HWARKI E T P P Y L A Y PVRP G I |
| UniRef90_C5FP30 | F R R GVS A F AI EKPPFYAVRIVPG |
| UniRef90_UPI0004696AE9 | F GRGSTAAPI EQGPFYGVKVLPG |
| UniRef90_UPI0003770EF7 | FGKGSKAAPLENGPYYAI R L V I G |
| UniRef90-W9XZV3 | F HRPSTGLP CVRAPFYALPLYPG |
| UniRef90-V6LDD0 | $P \mathrm{P}$ T G A VGVVGLYAA GEVSGGMH |
| UniRef90-13ECX7 |  |
| UniRef90_UPI0003A26E02 | F HK P K WLK P LT Q P P FVA |
| UniRef90-14MWP8 | F NKGGCLAPLTRAPWYAlRDETG |
| UniRef90-B1J7C6 | F HKPNCLAPLAKAPFYAIRMHTG |
| UniRef90-X8FH53 | TGAATVPP GLFAAGECSGGMH |
| UniRef90_UPI0004630DA6 | F GK G S TVA P IE NGPFYAVKLV IG |
| UniRef90_R9L5F7 | Y NKKHRLMAI D T P P F Y GVR |
| UniRef90_UPI000248AB52 | F ARGSVPAPLEK A P F HAVKVTMGV |
| UniRef90-F9F9X9 | PNK S N WA L P L D K G P Y V A V K V T C GV |
| UniRef90_U7PWH5 | LP K S N WA L P I D K G P F V A V K V A C G V |
| UniRef90-W3ATD0 |  |
| UniRef90_UPI0001B42DD6 |  |
| UniRef90-B3E5J7 | F G K P K FLR K V A T GPFY A T K L T |
| UniRef90_UPI0004131CEA | P P K S N WA L R I E Q GPFY A F PV |
| UniRef90_W7IWA3 | TGAASVVP GLFAAGECS GGMH |
| UniRef90_A0A024IMY3 | F GRGS SAAP C E R A P F Y GVK L R I G |
| UniRef90_UPI00046742C6 | F HKPQW |
| UniRef90-C1DF35 | F GRGGTVAPVAS GPFYAVKVIM G |
| UniRef90-S0EX01 | $T C A T T V P$ G L M A A GEVAA GLLH |
| UniRef90-W7UYL3 | T GVENL L Y A A GEVA G Gli H |
| UniRef90-A0A024QF55 | P PKTNWAAK\EQGPFYAFPVTCGII |
| UniRef90_UPI000477C4A7 | CHKTHWAQPLDWP P F Y A Y AL R P Gl |
| UniRef90-M8ID17 | P NKTHWAVPLDQPPFYAYALK P G I |
| UniRef90-W9NBQ9 | FHRGECMGPVKESPFYA |
| UniRef90_K2NYJ9 | $T \quad R A G I E G L Y V A G E D A G G A H$ |
| UniRef90_UPI0003674C74 | NGTD V $\quad \mathrm{D}$ GLFVVGEAASGLH |
| UniRef90-T0JNJ2 | LK |
| UniRef90_D8INI6 | F GRSKF LH E Y EGDEFY I I E |
| UniRef90-R9KVP2 | F GKAEK MFPVVDPPFYA |
| UniRef90_UPI0004670B30 | FGKGTRAAPI ANAPFYAIKMVIG |
| UniRef90_U5WRF9 | Y CRG D S L Y P L G D P P Y Y A FR V V L G |
| UniRef90-G9XQF8 |  |
| UniRef90-C5ZXR2 | VGKVLGMQNL |
| UniRef90 E2Q4N5 |  |
| UniRef90-W6K5D0 | F H K T N WA R P IDDVP P Y Y G Y S LR T GV |
| UniRef90-D0CQZ4 | K T N WARPI TEPPFY GYSLRTGV |
| UniRef90-G9RVT0 | Y GKRAMLIFPVEK GPFYAAKFVPA |
| UniRef90_UPI00032A301C | FQRGATLGRLLSEAPFYAVR L L P G |
| UniRef90_R5PIR0 | FGRPFMKAAISEGPYY IVE |
| UniRef90-B9KVN0 | LP K S NWANTLD QAPFEAYA $\square$ T CGV |
| UniRef90_UPI00035EB6E0 |  |
| UniRef90_I6Y0J9 | F G K G E S L G P LK T A P F Y A M AVY P T |
| UniRef90-B7S0S3 | Y H K A S Q WL K PLE A P L VA L D I TP G |
| UniRef90_UPI00037FB123 | F HRGESPAPLGE GPYYAVEVVPG |
| UniRef90_S8FA24 | PPKSNWALPL EKPPFLAVKV A C G |
| UniRef90-C4XYQ8 | LGREYFGNSVG PEFYFGFI T P V L H |
| UniRef90-A0A038GPJ9 | FQRGT T L G P IGGQAPF Y A VRL Y P G |
| UniRef90_A1WKV0 |  |
| UniRef90_U2YIR5 | FDRGDNVYPVDAAPFYAVRYWPG |
| UniRef90-R5VKA6 | $T C V E N L$ |
| UniRef90_A8LCX5 |  |
| UniRef90_K5BHF6 | F GRGSTLGP I D T P PYYAVPV |
| UniRef90-M1GXT4 |  |
| UniRef90-X5KY35 | $F G R G A T L G P V D T A P F Y A V P V K V G$ |
| UniRef90-M4Z7J8 | F GKGSRAAPI K D GPFYAIKMVI G |
| UniRef90-UPI00029A8138 | FRRKEC L R P L G GERFHAVRLVLG |
| UniRef90-X1A0Y2 | NEKCASRVE GFFAA GECACGVVH |
| UniRef90-M1MV07 | F GRPEYMKP I RKGKFYAAKFFPG |
| UniRef90_R7I7J4 | F GKD S NLT AI D A A PYYAVR $\square$ |
| UniRef90_V6L2X9 | P NKTNWANRIE Q GPFEAYAVTCGI |
| UniRef90-17L8P6 |  |
| UniRef90_UPI0002D4D8F1 | F GK P K Y M R P I N E GPFYGF |
| UniRef90_B9B7S6 | FRRGSSPRPPIGAGPYYAVTVWPA |
| UniRef90-B9Y3K4 | F GKAELMSEVTAAPYYAVRCT |
| UniRef90-D7WRL2 | K GK T T I P N LYAVGEVAC GVH |
| UniRef90 F7UVZ9 | F GKEA YLLSALLRTPPFYGC |
| UniRef90_19W833 | F GRPETMMALLREPPYYWAALLWPVV |
| UniRef90_UPI000367E1A0 | F H K A T Y LE P Q DVGPWA A F DLS LG |
| UniRef90_Q043S9 | FGRKSMAKFAEDGPFYAlKMA |
| UniRef90-Q07WU3 | F GK P S K M L P V V A P P F Y GI HRRMRI |
| UniRef90_UPI0002EC938B | $F L R P$ T EPDPI GEP P Y Y AVRLLPA |
|  |  |

$1020 \quad 20$ GG\|I TLN NAGKRFVVDES 40
 LWVNENGERFVNEE
WRFLSPPKAWGQGML $\square V \operatorname{DGRGARFVNEI~}$ EFTQFHPTLTYRTAGLASEALRGEGARLVDQEGTP\MEDL QYIASYPCGIVVNGYCRWWFI TGQGGILI NKNGARFITER
 VGTGYGYGPEYAMPHSMIVDQSGNRYCNDS EFVQFHPTTLYKPGFLISEAVRGAGAELVLPTGEPFMHRY GGIMI NEEGRRFASES PFGIMVNAKGERFVDEG QY $\square$ Q $\square$ HVTSHDEPFFGFAYRAYAYGIMVNPKTGLRFVNE PGVIAVNRAGQRFVNES GHGAI YVNSKGERVVSEV PDAI IVDRYGRRFASEY NHF LDGAFRQP CLDVNRNGYRFMPED WRFLSPPRAWGRGMLGVDGKGERYVNET
AFFGDPQMMARGI LINGRGQRFIAED GLMFNTLGERFVDEG PF S MMNADGKRFLDEG
I Q E H A $\square$ LPD DFEFNEDRMGQPFLHVNVNGERFMNED $M M Q F H P T G L L A N A P M I N W G V R G S G Y L R L N L E G K R F M N E D$ EMMQFHPTGLLANGGVLEEGLRGAGGYLVNSLGERFMMER NGYLWLNLRGKRFMNED GMDETGA WATNGLGSQPFLKVDRNGERDANES F L N P PLAFAHGVVVNKNGQRFCNEM PFGI IVNSEGKRFVDEG APKFNGGFVTNAAAMQPLLWVNEKGLRFVNED GVIVNDEGERFVDEA QMGPDTRYPD $\quad \square L G A V Y N E G L L T L S R Q G R R F M N E R$ GAIVVNKEGKRII DEN TGUPDPGTNRGLSAANMFGMIVNSEGQQFANGW GVMVNTQGKRFVDEG
$P G V I G V L R S G R R F T N E S$ TELPGCKAALQVTMMAPSFIWVVDNGKRFADEF EGAFRQPTYWCDRNGERFMPED
$P G L I \backslash V N K K G V R F V N E G$ DPRSGVSEPIVFNFPYGILVDTSGRRFIDEA LPDWTPQLQEPDVRMSWIVLDRQGRRFMNEY $P \vee D D G G \square V T R \square R G M P L G L V V D G D G R R R H D E G$
GLMLNDHGQRFVDEG
EDA AVNESGVRFHDEA I NLNAD GLRYMNED
GLMLNAHGRRFVDEG
QPWLWVDHTGRRFFNES
GVIAVNAAGERFVDES
GFMYVNTEGKRFMNED
QY $\square$ A S YPCGlVTGGYCRFWYFTQAGG\LINKNGKRFVSEN
AYRTTGTILVNMAGKR】VNET
GPGSIIVNQQGERFMHGG
WRFLSPPSAF LEG LTVGADGTR $\square$ ANED WMPYGLSNAGAILVNSAGERFCDEE FIVPPLAWARGLIVNADGRRYCNEE
EFVNTQPNSMILPSGLVGAAYSASGAFLVNQDGVRFANEK

[^0]```
8 0 5 7 5 3 6 7 7 7 7 7 7 6440 3 1 04 5 7 7 7 7 6 1 4 4 0 6 7 7 6 5 2 2 1 7 7 7
```



```
        B B B B B B B B B B B B B B
    \longrightarrow
```

UniRego-E UniRef90-M2QZL2 UniRef90-F6CI84 UniRef90 H4GJP8 UniRef90-R7YXIO
UniRef90-U2YLK UniRef90-D3FUIO UniRef90 S3BFZ1 UniRef90-UPIO0039C116D UniRef90_F7V151 UniRef90 UPI000255DFE2 UniRef90-M7N2Q2 UniRef90-S6CL79 UniRef90_K8P41 UniRef90_U5Y0U7 UniRef90_UPI0002FACB69 UniRef90 B9Y5X0 UniRef90-UPI000478B416 UniRef90_UPIO004634391 UniRef90_A4XF69
UniRef90_D5UME7
UniRef90-W9WV29
UniRef90-UPI0003B5404F
UniRef90 S6C144
UniRef90_UPIO00360BF34
UniRef90_UPIO0030AD2FO
UniRef90_E2ZK84
UniRef90 S6CKG7
UniRef90-DOWI13
UniRef90_K6GJK4
UniRef90-U4QIC7
UniRef90-C3N4A5
UniRef90_L9XME7
UniRef90_C2D0U7
UniRef90-E1RCA5
UniRef90-F6ITP8
UniRef90- UPIOOO29B23B7
UniRef90-W9WZ96
UniRef90_R9V7D4
UniRef90_F3QKN9
UniRef90-E1QVG6
UniRef90-T4BVP2
UniRef90 Q3S8E6
UniRef90_UPI000360FD8E
UniRef90-H8Z041
UniRef90_G3J3C7
UniRef90_F4CZX8
UniRef90-B8FQD5
UniRef90_K5VYD2
UniRef90-10LML9
UniRef90-F7UV28
UniRef90_R7IDK2
UniRef90_U1GYQ1
UniRef90_UPIO00363F128
UniRef90-F7KIG3
UniRef90_IORWC5
UniRef90-S6CL08
UniRef90-S6BLG

UniRef90 E7H6L7 UniRef90-QOSCL8 UniRef90-M2QZL2 UniRef90-F6C184 UniRef90-H4GJP8 UniRef90-R7YXIO UniRef90-U2YLK9 UniRef90-D3FUIC UniRef90 S3BFZ1 UniRef90-UPIOOO39C116D UniRef90-F7V151 UniRef90-UPI000255DFE2 UniRef90-M7N2Q2 UniRefolo-s6CLI79 UniRef90-K8P411 UniRef90_D4H153
UniRef90_U5YOU7 UniRef90-UPI0002FACB69 UniRef90-B9Y5X0 UniRef90-UPIO00478B416 UniRef90_UPIO004634391 UniRet90_A4XF69 UniRef90 D5UME7 UniRef90-W9WV29 UniRef90_UPI0003B5404F UniRef90 S6C144 UniRef90-UPIO00360BF34 UniRef90_UPIO0030AD2F0 UniRef90-E2ZK84 UniRef90- S6CKG7 UniRef90-DoWI13 UniRef90-K6GJK4 UniRef90_W1SNW UniRef90_U4QIC7 UniRef90-C3N4A5 UniRef90-L9XME7 UniRef90-C2DOU7 UniRef90-E1RCA5 UniRef90-F61TP8
UniRef90 A6TSI2 UniRef90 UPI00029B23B7 UniRef90-W9WZ96 UniRef90 R9V7D4 UniRef90-F3QKN9 UniRef90 E1QVG6 UniRef90-T4BVP2 2 UniRef90 ${ }^{-}$O3S8E6 UniRef90-UPI000360FD8E UniRef90-H8Z041 UniRef90-G3J3C7 UniRef90_F4CZX8 UniRef90-B8FQD5 UniRef90_K5VYD2 UniRef90_K1JV39 UniRef90-10LML9
UniRef90 F7UV28 UniRef90_R7IDK2 UniRef90-U1GYQ1 UniRef90-UPIo00363F128 UniRef90_F7KIG3 UniRef90-10RWC5 UniRef90-S6CL08 UniRef90-S6BLG3 UniRef90_B9Y9K1


#### Abstract

90 100 110 WHLIDQGRVPDYAAAGLNPAVVITSTVEEYNR|LAPHGKDP FLHKAGTVEELALETGVDVAGLKKTLAEFNAGAAKGEDPK EKDRAESAEELGDKLVERGDAFVLTLASYNDAVRTFREEE HPAMFRQYKRFNDNMAEQPILVYPTLHYQNGGILINDRAE VYVLRGQKMDTLQEEKMGLAQLPATI SRYNRDAAQGEDRE 


#### Abstract

NपWKCDT LEELSKESGVS DEGLKKQTEDWNKAVETKVDNQ LPAMVRQYKRFDIDILKYPMLVYPTLHYQNGGVLIN MVTDLPVAVGYADLAGFPRETFLIATVKRYNEGVAQKHDDD FSQHFPADYQTLLQQGIDPQEQLVPVVPAAHYMCGGISTA WAFEADSLEELAGMMEVAADTLVAEVARFNGFVDNKLDED KVQADTLEELSTKLDDVDPAGFMRTVTGWNSAVDKKDVP RGMQFETMDELDKFYGINKEPFLTEEKKYNEWVDKAKDPK DNSALIEAGYLARTAGIDASALEHTLTQFNADAEQGVDRQ  PVCQADTVEELAEKAGIDPEGLVKQVEEYNEMCDGGFDED PTWAAETVDELESDMGLPAGTLAGTVATYNRYAAAGTDPL ERDTADSVEELADKLTPNRDAFVRNVEEYNEAVYAKWDPA LYPAFNADVYDCEAMSDQKATFLATVERYNGLVAAGEDTD CYVGKNPKNFVLDLDGEDKKTALASIKRYNELAKAGKDED VLKMFPGMVERCRDVGKDLSDEPVEVSPAAHFQMGGVRV CYYRDEPLPEYGMDEGMDVETAKASVERYNELARAGEDTD MTWKMQLKDKTVDEAGDAKTTFLATVDAYNALYDAGEDTQ KVKAKTLKELAEKLEGVDNEEFLRTVKEYNEAVTKGRCTE  SPIKANSIKDLSHALGVNEDNLDSTHSRFNQSDPKNCHDD PYKENVII DDLAKKLSVSAKILHRTFKRFNKAADKGKDPE WMFSADSLEGLSKQTGMPLENLKKSVADMNGYAAQGQDPE VYVRRGEKMTKAAKMHDPVDQVTRSI QTYNQYCDNGQDNE VF RRGDNTEEVAVSAEIDGDSLKETI GRWNEMVASGEDKD $K K V D A Q I L Q N L A K K T G L P S E N L V E T V R R Y N E L V D K G N D D D$ $E R I T A N S I E E L A D K C L Q R G E S F I S T L R E Y N E A V Y A H R K E H$ YLLKGKTLAELAGKAGIDAQGLERTVRDYNDGAVQGEDRQ VHPHDLYEHFEAEKIGUDPEGLSKNVEAYNEMCHAGYDED AYFKADTEDDGAKQLGLDAAKLKEVVARYNELCDKGVDED KPDEATSDAELAEKVCLDAAALGATVTAFNAATREGTFNP SVEPYEWSDDNLKEVGNDAAVAESLARWNASVAGGDDGD SPRSAPDLPRLARLLGMDADALETTWLTYNFPASHSPPGD PA VQAPTLVELAALTIGVPVAALEATVAGWNAFTDATRDPL  WAFKADSUEELAQQUGVPPENLKDTMKKVNGYAEKGHDPE FWDDMSRTTAEAAAMGVDEKTFLAEVENYNAGYAAGEDTQ VFAHGDSEKEVAERVGMDAAGLEKYFEAYKSYAAKGEDPN WVAVGOSUKELAERKGGUDPAGLSKTVNRYNELLAEKGGEDDND FQRLQDWYEG  SDEDVEKWEDLAKKMNLPEGALTEAAAKFNETAAKGEKDE


lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm
lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
jhmm
jpssm

|  |  |  |
| :---: | :---: | :---: |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |


lupas_21
lupas_14
lupas 28
jnet
conf
sol25
sol5
sol0
jhmm


[^0]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol5
    jhmm
    jpssm

