## QUERY

UniRef90_D5CS04
UniRef90_-Q7VNG1 UniRef90_C1DB67 UniRef90_R6MAB1 UniRef90_C0Z6T5 UniRef90-D5W950 UniRef90-UPI000370275E UniRef90_B8GRJ1 UniRef90-F9ZET2 UniRef90_B8E5Q1
UniRef90-F6DND9
UniRef90_UPI0004758A46 UniRef90 L0E9H8 UniRef90_R7ALN3 UniRef90-A1VL58 UniRef90_H1XP10 UniRef90_D4MHL4
UniRef90_UPIO002EB7E01 UniRef90_UPI0003B67A3F UniRef90 A8IFK1 UniRef90-D1PN73 UniRef90-C5R8M1 UniRef90-D8JU72 UniRef90-UPI0003692256 UniRef90-E1IEJ5 UniRef90_B2lI03 UniRef90-D1C1P0 UniRef90_V7ICY9 UniRef90-D7AM99 UniRef90-R8VXR3 UniRef90-E8RES9 UniRef90-B0PF23 UniRef90_S0JYV3 UniRef90_E8TLD6 UniRef90_UPI0003FFF3C3 UniRef90-E8RT08 UniRef90-E6LRE2 UniRef90 UPI00036E5D69 UniRef90_UPI00047DF91D UniRef90-R5SFL4 UniRef90-UPI00037CAEC6 UniRef90 E6MGH2 UniRef90_UPI0003758442 UniRef90_UPIO003818A23 UniRef90 R5GLG5
UniRef90-UPIO00472783A UniRef90-V6F019 UniRef90-R6J3S9
UniRef90 UPI00037AB835 UniRef90-U2K529 UniRef90-UPI000477255F UniRef90-UPI00036F2CAB UniRef90 C1DXP5 UniRef90-B7HX15 UniRef90_D1VSK7 UniRef90_V4JNJ6 UniRef90_F7XY10 UniRef90-F6IQ25 UniRef90-UPI0002197028 UniRef90_W1NBY5 UniRef90-UPIO0040C207D UniRef90-F6CQ57 UniRef90_E8V0V1 UniRef90-U2K9X8 UniRef90_B9MLV6 UniRef90_W7R3N0 UniRef90_R5BDC9 UniRef90-R2QSA6 UniRef90_UPI00047A2DA2 UniRef90_B8GWM3 UniRef90_X7EMZ1 UniRef90-D9STI9 UniRef90_F4GJC5 UniRef90 UPI00037C1321 UniRef90-R6XIT4 UniRef90-V8R313 UniRef90-UPI000477C613 UniRef90 UPI00047A6CB4 UniRef90-Q1GYE8 UniRef90_R6C7P7 UniRef90_B0K7G6 UniRef90_F6CRJ7 UniRef90-L2F621
 L NALSNSLQDLRNRSNELRRFLDFDSKQERLAEVNQLAED L N P



LNP LY T Q IDDLQGRVDALRG
I NAISNRLQDLDSRASERRYDYDAKRERLEEVSRELED
V NPVKF

LGGIFDYAERKERLEEVTRELED
VKQDLREMAKRDQALRGSLDLDLKQEII A DYEEKMTA
LDQFKYTLSTYDETLKEVKDSLDLENKERRI TEEDDKSMEE

DE LUKVEFEGYEPELKELAGALDLDNLKAEVVKLEEQSAQ

ELLAAKVDEDNASVDLLRQHLNVDRSRRRLAELNADAED TDELKAKLGGMKTSVDDLRDALSI EASEKRLAELEHQMTL


EAEALVETIKQSLGLLRRHLDVDTSTRRLEEELNAKVEN I ENLEATVVGMLERLDRIGVRLDLPAKQREI E ELEARSAD INLLNNTLADLEKRSGEIRVYLDYDGKKDRLEEVVGLSED E E Y K A R K V E N N F G E E R
 ETQNTVDEDRQAIT LLRRRHFDWDQAIKRLEYLNVRAED LDQMKVELSNQRSTLDEVTGSLDLDSKKKMI EELSREMEE DVEASARDIEQSUGLLRRRLDWDVALRRLDELNARVED $\square G G \square F D Y E T K A K R L E E V V$ V R E L E E HFDLANKRDRVEELDKTMED
 D

 EAQAHVDT $\square$ NEA $\square A \square R$ K LSRVEERYNKIAADLCD
TDFDAE $\square K Q \square Q A T L H M F G G V F D H E A V E K R I A S K E E L T L A$ LEEDMQSALRCLGGI FDYDAKAEQLEEVVSRELES LEE E T TKQEEIIEKWNNLKDI LKPEK LQQEEIKVLDSQMAD

$G G \square F D Y D \square K K R \square A$
QAH $\square D R \square E K A \square A L V R K F L D W D R A \square R R F D E L N A R V E D$
TDFSAE DERDRHTYAS DAATGDTFVERFEELSALLSE $\square S D G K D D S L E Q R Y E E L S N L I A A D$

 KLEALDERYEEVQALLSD KLKGUKERYEQLTALLS D

G GVF
EAENTVARTEKSLELLGQRLNWETAEHRLEEFNARVED LDKANSDUKELSKTGEEMGALLDDPKAETTLEEDEGSMQE
 HF D A A S L EN D L K E QLE S STIDN
 $K$ K $\quad$ T LS ERDDELDRLLAS
$\square E E \square K Q E L L A Q Q P K \square E Y \square K E A \square G Y Q K L L E Q K K Q L D K Q A A Q$ KLQAI EDRYVDLSQKISD


 $M Q D \square L S E \square K S R \square L S D M V R L D \| A A K E L E I T E L E S A S A S$

## QUERY

UniRef90_D5CS04 UniRef90_Q7VNG1 UniRef90-R6MAB1 UniRef90-C0Z6T5 UniRef90-D5W950 UniRef90-UPI000370275E UniRef90-B8GRJ1 UniRef90-F9ZET2 UniRef90-B8E5Q1 UniRef90_M5DGC0
UniRef90_F6DND9 UniRef90-UPI0004758A46 UniRef90_L0E9H8 UniRef90-R7ALN3 UniRef90-A1VL58 UniRef90-H1XP10 UniRef90 D4MHL4 UniRef90_UPI0002EB7E01 UniRef90-UPI0003B67A3F UniRef90 A8IFK1 UniRef90_D1PN73 UniRef90-C5R8M
UniRef90-D8JU7 UniRef90-UPIOO03692256 UniRef90-E1IEJ5 UniRef90-B2llo3 UniRef90-D1C1P0 UniRef90 V7ICY9 UniRef90-D7AM99 UniRef90_R8VXR3 UniRef90-E8RES9 UniRef90_B0PF23 UniRef90-S0JYV3 UniRef90_E8TLD6 UniRef90_UPI0003FFF3C3 UniRef90-E8RT08 UniRef90-E6LRE2 UniRef90_UPIO0036E5D69 UniRef90_UPI00047DF91D UniRef90-R5SFL4 UniRef90_UPI00037CAEC6 UniRef90 E6MGH2 UniRef90-UPIOO03758442 UniRef90_UPI0003818A23 UniRef90_R5GLG5 UniRef90-UPIO00472783A UniRef90-V6F019 UniRef90-R6J3S9 UniRef90-UPI00037AB835 UniRef90-U2K529 UniRef90_UPI000477255F UniRef90_UPI00036F2CAB UniRef90_C1DXP5 UniRef90-B7HX15
UniRef90-D1VSK7 UniRef90-D1VSK7
UniRef90-V4JNJ6 UniRef90-F7XY10 UniRef90-F6IQ25 UniRef90-UPI0002197028 UniRef90_W1NBY5 UniRef90_UPI00040C207D UniRef90_F6CQ57
UniRef90-E8VOV1 UniRef90_U2K9X8 UniRef90-B9MLV6 UniRef90-W7R3N0 UniRef90_R5BDC9 UniRef90-R2QSA6 UniRef90_UPIO0047A2DA2 UniRef90_B8GWM3 UniRef90_X7EMZ1 UniRef90-D9STI9 UniRef90-UPI00037C1321 UniRef90-R6XIT4 UniRef90-V8R3I3 UniRef90-UPI000477C613 UniRef90_UPIO0047A6CB4 UniRef90_Q1GYE8
UniRef90-R6C7P7 UniRef90-B0K7G6 UniRef90-F6CRJ7 UniRef90-L2F621 UniRet90_UPIO0040C084B UniRef90-D7CJT5 UniRef90_Q6J517
UniRef90-D2MQ36 UniRef90-Q3Z8Y6 UniRef90-UPIO0047CA6CE UniRef90_KOJ2M8

PDVWNEPERAQALGKERSSMEAVVDTLDQMKQGLEDVSGL
 PTIWEDPKRAQELGREKKALEDVVLVIDSI LSTLADSREL PGFWDDPDKAQKVAQEANNLKSEVDTFTSLETKVDDLDTL PDFWDDNDAAQKTISELNAIKSLVETMAKLDSQYEDLQVM PDVWNDAKHAQALGKEKKLLDDTVGK LTS S T NDVNDAQDL PDI WNDPEQAQALNKER

SEVVWDPERAQALGKERASLEAVVKTIDDMDSGLEDVEGL
PA LWDDNKRAQELGGEKKMLEDVVVTLETVGRQLHDARDL

P NVWNDPDYAQKLGKERASLDRVVTTDDTLQQGLGD SEDLD

DGFWNDQEKAQKVLKQDNRHKEWVDAWQSVNNLLEEAK DL
PDFWNDVENSQKI SQKIGEDKNIVQSYEKLRESYDDVMTM PDVWNDPQRAQELGREKKSLDNIVGS LTHI GSALSEARELL


$P N L W S D A K N A Q K V M R Q R Q T L E R S V E D F K R L Q R D Y D D A L T A L$

## P

## P <br> P


A S L WN E P LIE A Q K L M R E R Q S L E E G I A S V K G L T Q A L E D N I G L










P A V VA D I S R Y T A L M K E Q K
 A D F W S D P A K A E K V L



 P D $V$ V WK E R A R A Q A L G K E R S S L
P T L W D K P K E A E A V M K E R R R L E A S I G T V N E I SAR E MA DA V E F



P A I WA D P A R S Q P L M R E R K R L E G L L S D D A D L E R R R S G D I D A Y








## 

ENFFWLDD T K N S S T V L K K I
GE VIIA D Q A K F R A Y S S K E Y A E E L P E L WA D Q EN A Q K V T R R LS G L E S TVVN K L G S I G Q R L D D L G V L
 P D F W WN D V E N T K K V L K K E Q K T V N E K V G S Y E N L V R M Y E D A Q T M PNVIISNVAEWRKYVKEHAAIVDIVLKYREYKKVLEDIEAT
 P E T M S D N K K F R Q L S V E H S DLL S DL V A T WHA F I Q A E D D L A CA





UniRef90_D5CS04
UniRef90-Q7VNG1 UniRef90_Q7VNG1
UniRef90 C1DB67 UniRef90-R6MAB1 UniRef90_C0Z6T5 UniRef90-D5W950 UniRef90-UPI000370275E UniRef90-B8GRJ1 UniRef90-F9ZET2 UniRef90-M5DGC0 UniRef90-F6DND9 UniRef90-UPIOOO4758A46 UniRef90_L0E9H8 UniRef90-R7ALN3 UniRef90-A1VL58 UniRef90_H1XP10 UniRef90 D4MHL4 UniRef90_UPI0002EB7E01 UniRef90-UPI0003B67A3F UniRef90 A8IFK1 UniRef90_D1PN73 UniRef90-C5R8M1 UniRef90-D8JU72 UniRef90 UPIOOO3692256 UniRef90-E1IEJ5 UniRef90-B2llo3 UniRef90_D1C1P0 UniRef90 V7ICY9 UniRef90-D7AM99 UniRef90_R8VXR3 UniRef90-E8RES9 UniRef90_B0PF23 UniRef90-S0JYV3 UniRef90 UPI0003FFF3C3 UniRef90-E8RT08 UniRef90-E6LRE2 UniRef90_UPIO0036E5D69 UniRef90_UPI00047DF91D UniRef90-R5SFL4 UniRef90_UPI00037CAEC6 UniRef90 E6MGH2 UniRef90-UPIOO03758442 UniRef90-UPI0003818A23 UniRef90 R5GLG5 UniRef90-UPI000472783A UniRef90-V6F019 UniRef90-R6J3S9
UniRef90_UPI00037AB835
UniRef90-U2K529
UniRef90-UPI000477255F
UniRef90_UPI00036F2CAB
UniRef90_C1DXP5
UniRef90-B7HX15
UniRef90-D1VSK
UniRef90-V4JNJ6
UniRef90-F7XY10
UniRef90-F6IQ25
UniRef90-UPI0002197028
UniRef90-W1NBY5
UniRef90_UPI00040C207D
UniRef90_F6CQ57
UniRef90-E8V0V1
UniRef90-U2K9X8
UniRef90-B9MLV6
UniRef90-W7R3N0
UniRef90_R5BDC9
UniRef90-R2QSA6
UniRef90_UPIO0047A2DA2
UniRef90-B8GWM3
UniRef90_X7EMZ1
UniRef90-D9STI9
UniRef90-F4GJC5
UniRef90_UPIO0037C1321
UniRef90-R6XIT4
UniRef90-V8R313
UniRef90_UPI000477C613
UniRef90_UPIO0047A6CB4
UniRef90-Q1GYE8
UniRef90 R6C7P7
UniRef90-B0K7G6
UniRef90-F6CRJ7
UniRef90-L2F621
UniRef90_UPI00040C084B
UniRef90_D7CJT5
UniRef90-Q6J517
UniRef90-D2MQ36
UniRef90-Q3Z8Y6
UniRef90_UPI00047CA6CE
UniRef90_K0J2M8


90
100

120 FEMAQAENDDDSLNSIAADVQDIETRVAALEFRRMFSNPA DE LDAVEAEDEQTLYEAQQEADELATKLAKLEFRRMFSGPY FDMGRAEEDDDTVLAVRDDLAGVETRGUMMLEFRRMFSNPM
 LEMAEADDDEETAASVEADVEALTARIGEGLERRMFSGDM LDMAAEEDDAETVSAVEADLANYENDVAQLEFRRMFSGEM



L ELA E EEGDESLEAELLAEGVAKLVRRDIGDVELGQLLLNQPY
 LEMAAEEGDEGSVAAGAREVDGYRATAEDMEFKRMMANGEA

 L LMAVEEQDADAVAEGEAGELKRGLTARVEEREFRAMLAGEA 1 DLTEAEGDATLYTE LAAEVRAAQKELAQRELALLLSGPY
 I DMALEEGDEDSFAAALEEDVAELEKQMAELEFKRMFNQP I ELGGEEAQDEATMDEVVRALNDSLMREVEGAEFQRMLSGPH
1

告

## QUERY

UniRef90_D5CS04 UniRef90-Q7VNG1 UniRef90-R6MAB1 UniRef90-COZ6T5 UniRef90-D5W950 UniRef90-UPI000370275E UniRef90-B8GRJ1 UniRef90-F9ZET2 UniRef90-B8E5Q1 UniRef90-M5DGC0
UniRef90-F6DND9 UniRef90-UPI0004758A46 UniRef90-LOE9H8 UniRef90 R7ALN3 UniRef90-A1VL58 UniRef90-H1XP10 UniRef90 D4MHL4 UniRef90-UPIOOO2EB7E01 UniRef90-UPIo003B67A3F UniRef90 A8IFK1 UniRef90-D1PN73 UniRef90-C5R8M1 UniRef90-D8.JU72 UniRef90 UPI0003692256 UniRef90-E1IEJ5 UniRef90-B21103 UniRef90-D1C1P0 UniRef90 V7ICY9 UniRef90-D7AM99 UniRef90-R8VXR3 UniRef90-E8RES9 UniRef90-B0PF23 UniRef90-S0JYV3 UniRef90_E8TLD6 UniRef90_UPI0003FFF3C3 UniRef90-E8RT08 UniRef90-E6LRE2 UniRef90 UPIO0036E5D69 UniRef90_UPI00047DF91D UniRef90-R5SFL4 UniRef90-UPI00037CAEC6 UniRef90 E6MGH2 UniRef90_UPIO003758442 UniRef90-UPIO003818A23 UniRef90 R5GLG5 UniRef90-UPI000472783A UniRef90-V6F019 UniRef90-R6J3S9 UniRef90_UPI00037AB835 UniRef90-U2K529 UniRef90-UPIO00477255F UniRef90-UPI00036F2CAB UniRef90-C1DXP5 UniRef90-B7HX15 UniRef90_D1VSK7 UniRef90 V4JNJ6 UniRef90-F7XY1C UniRef90-F61025 UniRef90-UPIO002197028 UniRef90 W1NBY5 UniRef90_UPIOOO40C207D UniRef90-F6CQ57
UniRef90-E8VOV1 UniRef90-U2K9X8 UniRef90-B9MLV6 UniRef90 ${ }^{-}$W7R3NO UniRef90_R5BDC9 UniRet90-R2QSA6 UniRef90-UPIO0047A2DA2 niRet90 B8GWM UniRef90_X7EMZ1 UniRef90-D9STI9 UniRef90-F4GJC5 UniRef90 UPI00037C1321 UniRef90-R6XIT4 UniRef90-V8R313 UniRef90-UPI000477C613 UniRef90_UPIO0047A6CB4 UniRef90-Q1GYE8 UniRef90-R6C7P7 UniRef90_B0K7G6 UniRef90-F6CRJ7
UniRef90 L2F621 UniRef90-UPI00040C084B UniRef90_D7CJT5 UniRef90-Q6.J517
UniRef90 D2MQ36 UniRef90-Q3z8Y6 UniRef90-UPIO0047CA6CE UniRef90_K0J2M8

I

## E

D S A D CYLD IQ A GSGGTEAQDWASMLERMYLRWAESRGFKT D P N N C F I D Q A G A G GTEACDWAS MLLRRQYLKYCERKGFKV D AT DCY L DLQ A GS GGTEA QDWT EMLL RMY L R WAESK GFKT D P NSCFVDI QS GAGGTEAQDWASMLERMYLRYCERKNFKV DANNAIMNLHAGAGGTEAQDWTGMLLRMFTRYAEGKGFEV DKNNAILELHPGAGGTESQDWASMLLRMYTRWGDAKGFKV $D P N N A F L D Q Q A G A G G T E A C D W A S M L L R Q Y L R Y C E R K G F K T$ DEANAYLDI QAGSGGTEAQDWANDLLRMYLRWAEHKGFKA

D A D
( QSGSGGTEAQDWANMLLRMYLRWAEHHGFKA
D RLNA L L EL HP GA G GTESQD WA QMLYYMYTR WAE
 DHNNAILTTFHAGAGGTEAQDWVEMLYRMYNHWAEQHGMKV DPDNCFMDIQAGAGGTEAQDWASMLLRQYDRYCENKDFKA DANNCF LD QAGAGGTEAQDWASMLLRMYTRWAEGKGFKV DSNDTYLVVHAGAGGTDSQDWAEMLLRMYRRWCERHGFKV
 D GMSTYVVEHA GAGGTES QDWASMLARMYARWGERRGYKV DPNNAYLDI QAGSGGTEAQDWANMLLRMYLRWGERRGFKT
 DEHDA M M I H A GT G GVDAQD WAEMLMRMYLRWASNRGFQA
DKNSCFVSINA GAGGIEAEDWAGMLLRMYVYGERKGFKV
DKNNALVSFHA GAGGTEAQDWCSMLYRMYTRWAERHGFTY
D ANNAILTIHHAGAGGTEAQDWVG■LLRMYLRWAESKGFKA
DANNAI MTFHAGAGGTEAQDWAQML YRMYTRWA
D H M N A L E DHPGSGGTESQD WGSMM MRMYERWGA
D
DNCNAILRLAAGAGG
D GNDAYVEI NS GAGGT
$\begin{array}{llll}D S S N A A & M K & L A G A A G G T \\ D S H N A F & V & D & \text { Q A GA G G T } \\ D P N P C & L & E & Q A G A G G T\end{array}$
A
D SNNAII S L L Q A G S G G T
DPNNAI LNIHPGAGGTE
D D REAVVNIRSGA GGVDAA DWAEMLLMRMYVRWAEKNGHKV

D



D EN D A I L
DSANAFVVD HAGAGG
DSADCYLDI QAGSGGGT
DSNDTYLEVHA GAGGTESQDWAEMLQRMYTRWA
DENNAIVEIHPGAGGTESQDWGSMLGRMYERWAE

## -

D

## 

0

D
D
D
D
$\qquad$
D
D
D
DDENAVTVHPGAGGTESADWAEMLMRMYGRWGE
DKNNALS HAGAGGTEAQDWAEMLDRMYTRWAAKKGYKV
DDRNCFIEI RAGAGGDEAGDFAGDLFRMYSRYAERKSWRV
DDRDVIIEVRAGTGGEEAALFGADLRRMYTRYAERHGYKA
DKNNVIMELHPGAGGTESQDWGSMLLRMYTRWAESHGFQV

 DKNDCFLS HAGAGGTEASDWAAMLMRMYLRWCE
 DEANALMSFHAGAGGVEAADWAVEMLDRMYTRWAERRGFKV
DAN
DERNIFLEDRAGTGGDESADFAGDLFRMYSRYAERQGWKV DQNNAILSFHAGAGGTEAQDWVQMLYRMYARWSERHHFKV EKNVIMEVRAGAGGEEAADFAHDLFRMYSMYAEKKGWKV俍 EKNVIME: RAGTGGEEAADFAADLFRMYSRYAEKQGWKV DHNATLEVHPGAGGTEAMDWAGMLYRMYTRFAERKGYHL DKNNALLELHPGAGGTESQDWASLLLRMYTRWAEHKNFKVVI

## QUERY

UniRef90_D5CSO UniRef90_Q7VNG1 UniRef90-R6MAB1 UniRef90-C0Z6T5 UniRef90_D5W950 UniRef90-UPI000370275E UniRef90_B8GRJ1 UniRef90-F9ZET2 UniRef90-M5DGC0 UniRef90-F6DND9 UniRef90-UPIOOO4758A46 UniRef90_L0E9H8 UniRef90_R7ALN3 UniRef90-A1VL58 UniRef90-H1XP10
UniRef90-D4MHL4 UniRef90_UPI0002EB7E01 UniRef90_UPI0003B67A3F UniRef90 A8IFK1 UniRef90_D1PN73 UniRef90-C5R8M1 UniRef90-D8JU72 UniRef90_UPIO003692256 UniRef90-E1IEJ5 UniRef90-B2llo3 UniRef90_D1C1P0 UniRef90 - V7ICY9 UniRef90-D7AM99 UniRef90_R8VXR3 UniRef90-E8RES9 UniRef90-B0PF23 UniRef90-S0JYV3 UniRef90 UPI0003FFF3C3 UniRef90-E8RT08 UniRef90-E6LRE2 UniRef90_UPI00036E5D69 UniRef90-UPIO0047DF91D UniRef90-R5SFL4 UniRef90-UPI00037CAEC6 UniRef90 E6MGH2 UniRef90-UPIOO03758442 UniRef90-UPI0003818A23 UniRef90_R5GLG5 UniRef90-UPIOO0472783A UniRef90-V6F019 UniRef90-R6J3S9 UniRef90-UPI00037AB835 UniRef90-U2K529 UniRef90_UPI000477255F UniRef90_UPIO0036F2CAB UniRef90_C1DXP5 UniRef90-B7HX15
UniRef90 D1VSK UniRef90_V4JNJ6 UniRef90-F7XY10 UniRef90-F6IQ25 UniRef90_UPI0002197028 UniRef90_W1NBY5 UniRef90_UPI00040C207D UniRef90-F6CQ57
UniRef90-E8VOV1 UniRef90_U2K9X8 UniRef90-B9MLV6 UniRef90-W7R3NO UniRef90_R5BDC9
UniRef90_R2QSA6 UniRef90_UPI00047A2DA2 UniRef90-B8GWM3 UniRef90_X7EMZ1 UniRef90-D9STI9 UniRef90-UPI00037C1321 UniRef90-R6XIT4 UniRef90-V8R313 UniRef90-UPI000477C613 UniRef90_UPIO0047A6CB4 UniRef90_Q1GYE8
UniRef90-R6C7P7 UniRef90-B0K7G6 UniRef90-F6CRJ7 UniRef90-L2F621 UniRef90_UPIO0040C084B UniRef90_Q6J517
Uniry UniRef90-D2MQ36 UniRef90_Q3Z8Y6 UniRef90-UPIO0047CA6CE UniRef90_KOJ2M8
 190

 ELLDVLPGEEAGTKSATLAIKGHNAYGFLKSEKGVHRLVR ETLDYLPGDEAGVK SVTLLI K GYNAYGYLKSEKGVVRLVR

 ELMEVTDGDVAGIKGATIKFTGEYAFGWLRTETGVHRLVR EVMEESAGEVAGIKSAS】KIS GDYAYGYLRTETGVHRLVR EILDLLP GDEAGVKSVTFQVTGPNAYGYLRSEKGVHRLVR DLLEASA GDVAGI K S A T P EVLDFLDGDEAGLKSITLQVNGENAYGYLKSEKGVHRLVR
 TVLDYLDGEEAGIKSASILVEGRNAYGYLKSENGVHRLVR EVLEESPGDVAGIKSATI KI EGDHAFGFLRTETGVHRLVR
 EVLDVLDGDEAGIKSASMMIKGANAYGMLKSEHGVHRLVR
 ELI EASPGEVAGI KSATDHFQGEYAYGWLRTETGVVRLVVR TIVDMSAGDEAGIKSATLELRGPYAYGNIRAEAGVHRLIR
 EI MEQDDGE $\square A G I N R A T \ R L E G E Y A Y G L L R T E T G V H R L V R$ EITDFQAGDEAGVKSATFTVDGEYAYGYLKAEAGIHRLVR KI MDYQDGEEAGLKSADVLIEGENAYGYLKGESGVHRLVR D L LDLDPGDEAGTKSVTI MVKGKYAYGYLRSEVGIHRLVR KILDYLDGDEAGLKSASILITGDNAYGFLRSEAGVHRLVR
 EVLD ILD GDEAGLKYVQFQI DGTNAYGLLKSEKGVHRLVR SI EEETPGEQAGIK SATDMVKGTNAYGWLKTEAGVHRLVR
 ELMEESEGDVAGIKSATVKFSGDYAYGTLRTETGI HRLVR
 $K Q L D Y Q P G D I A G G I K S A T L L I E G D N A Y G Y L K T E R G V H R L V R$ ETIELLPGDEAGIKSATLLVTGEYAYGYLRAEAGIHRLVR DVYDV SYAEEAGUKSATFVVHGEYMYGQLSVEQGAHRLVR EVLDILDGEEAGIKSASIHIQGFNAYGFLKSENGVHRLVR EMISASEGEHGGFKEVIARIAGEGAYGVLKFESGGHRVQR
 ELI DYHAGEQAGDKSATLLLKGENAYGYAKTESGVHRLVR ETVDMLEAE GGLK SVTLQ S GDYVYGYLK SEAGVHRLVR



 EMIEESAGEVAGIK SVTI KVIDGDYAYGWLRTETGVHRLVR
 EIVSASHGEQGGYKEVISRVKGDGVYARLKFESGAHRVQR KVLNTSYAEEAGLKSVTTEEVHAPYAYGTLSVEGGTHRLVR DLMNTSYTDLGGIK EVIF LI EGRGAYSKLKFESGVHRVQR E NEDQDGDEAGIKSATFTITGDFAYGLLSGETGVHRLVR ETLDDUPGGEAGGDKNVGVRINGAGAYSRLKYESGTHRVQR ELVSENVSEQGGYKEVVARIGGGAYGRLKKFESGGHRVQR ELMNENYTEKGGVKEAVLSLQGKGAYSRMKFESGVHRVQR
 ELIEETDGDQAGIKSATLLVKGANAYGWLKTEAGVHRLVR ELQSEEAGGEAGIKSCAYKI SGRNAYGWLKTESGVHRLVR
 EIMSESPGEMGGFKEIICKVNGDGVYGDMKFESGGHRVQR KELDF LD GDEAGDKSVTALISGEYAYGYLKGEMGVHRLVR
 EVLDYLEGDEAGVKNATLLVKGDYAYGYLKSEKGVHRLVR EVVSANESEVGGYKEIIAKIEGFGAYSKLKFESGGHRVQR KVLDY $\square$ A GEEA G $\square K$ SASI LI T GTNAYGFLKSEHGVHRLVR EI MS SNETDIGGFKEVILNI SGKGSYSRLKYESGVHRVQR EIVSASEGEHGGYKEVI ARIVGDGAYSKLKFESGAHRVQR EVLSANEAEHGGYKEVIARVSGNGVYGRLKFESGVHRVQR KTLNYQS GDTA G DK TVTIEI S GDYAF GWLK GENGVHRLVR DIMDTSYSDLGGFKEII FIVEGRGAYSKLKFESGVHRVQR
 EVLDQSPGEEAGIKSATLQI EGEYAYGFLKSEHGVHRLI R


## QUERY

UniRef90_D5CS04 UniRef90_Q7VNG1
UniRef90-C1DB67 UniRef90-R6MAB1 UniRef90_C0Z6T5
UniRef90-D5W950 UniRef90-UPIO00370275E UniRef90-B8GRJ1 UniRef90-F9ZET2 UniRef90-M5DGC0 UniRef90-F6DND9 UniRef90-UPIOOO4758A46 UniRef90_L0E9H8 UniRef90_R7ALN3 UniRef90-A1VL58 UniRef90_H1XP10
UniRef90 D4MHL4 UniRef90_UPI0002EB7E01 UniRef90-UPI0003B67A3F UniRef90 A8IFK1 UniRef90_D1PN73 UniRef90_C5R8M1
UniRef90-D8JU72 UniRef90-UPIO003692256 UniRef90-E1IEJ5 UniRef90-B21103 UniRef90-D1C1P0 UniRef90_V7ICY9 UniRef90-D7AM99 UniRef90-R8VXR3 UniRef90_E8RES9 UniRef90_B0PFV3 UniRef90_E8TLD6 UniRef90_UPI0003FFF3C3 UniRef90-E8RT08 UniRef90-E6LRE2 UniRef90-UPIO0036E5D69 UniRef90_UPIO0047DF91D UniRef90-R5SFL4 UniRef90-UPI00037CAEC6 UniRef90_E6MGH2 UniRef90_UPIOO03758442 UniRef90_UPI0003818A23 UniRef90_R5GLG5 UniRef90-UPIO00472783A UniRef90-V6F019 UniRef90-R6J3S9 UniRef90-UPI00037AB835 UniRef90-U2K529 UniRef90-UPI000477255F UniRef90_UPI00036F2CAB UniRef90_C1DXP5 UniRef90_B7HX15
UniRef90-D1VSK7 UniRef90-V4JNJ6 UniRef90-F7XY10 UniRef90-F6IQ25 UniRef90_UPI0002197028 UniRef90_W1NBY5 UniRef90_UPIO0040C207D UniRef90_F6CQ57
UniRef90-E8VOV1 UniRef90_U2K9X8 UniRef90-B9MLV6 UniRef90 W7R3N0 UniRef90_R5BDC9 UniRef90_UPI00047A2DA2 UniRef90_B8GWM3 UniRef90_X7EMZ1 UniRef90-D9STI9
UniRef90 F4GJC5 UniRef90-UPI00037C1321 UniRef90-R6XIT4 UniRef90_V8R313 UniRef90-UPI000477C613 UniRef90_UPIO0047A6CB4 UniRef90-Q1GYE8
UniRef90-R6C7P7 UniRef90-B0K7G6 UniRef90-F6CRJ7 UniRef90-L2F621 UniRet90_UPIO0040C084B UniRef90_D7CJT5 UniRef90-Q6J517
UniRef90-D2MQ36 UniRef90-Q3Z8Y6 UniRef90_UPI00047CA6CE
UniRef90_KOJ2M8

YRASGAGGQHVNRTESAVR1 ${ }^{260}$
H TP TGIVTQCQNDRSQHKN FRASGAGGQHINKTDSAIRITHQPTGIVVQCQNDRSQHRN
 YRASGAGGQHINKTDSAVRITHLPTNIVVQCQNDRSQHKN YRASGAGGQHVNKTSSAVRMTHLPTGIVVQCQNERSQLQN YRSSGAGGQHINTTDSAVRITHLPSGIVVTCQTERSQUKN YRASGAGGQHINKTDSAVRITHMPSGIVVQCQNDRSQHRN YRSSGAGGQHVNTTDSAVRIT $T H M P T G V T A C Q A G R S Q H K N$ FRASGAGGQHI NKTDSAl R I THNP TGGVVVQCQSGRSQHRN YRASGAGGQHVNKTESAI RITHLPTNTVVQCQNDRSQHKN FRASGAGGQHINKTDSAIRITHNPTGIVVQCQSGRSQHRN YRSGGAGGQHVNKTDSAVRITHLPTGLVVACQNERSQTYN YRSSGAGGQHVNTTDSAVRITHEPTGUVVACQSQRSQHSN YRSSGAGGQHIINKTSSAI R YRASGAGGQHI NKTDSAVRLTHIPTGIVVQCQEGRSQHGN YRASGAGGQHVNKTDSAIRITHLPTGIVVQCQNERSQHKN YRASGAGGQKVNKTSSAVRITHIPTGIVCACQTERSQHQN YRASGAGGQHINKTDSAVRITHIPSGIVVQCQNDRSQHRN FRSSGAGGQHVNKTESAIVRTHVPTGVVVACQTQRSQHKN MRSGGAGGQHVNKTESAVRLTHIPTGI AVVSQGDRSQHKN YRSSGAGGQHI NKTSSAVRLDHKPTGIVTSCQTQRSQLQN YRASGAGGQHVNKTSSAVRMTHDPTGUVVASQQQRSQFQN ARSSGAGGQHVNRTESAVRLV FRSGGAGGQHVNRTESAVR1 YRSSGAGGQHINTTDSAVRITHLPTGIVVTCQNERS YRSSGAGGQHVNKTDSAVRITHLPTGIVVTCQNERSQDQN FRASGAGGQHINKTDSAVRMTHIPTGIVVQSQNSRSQHDN YRSSGAGGQHVNTTDSAVRLTHLPTGIVVACQCERSQHDN FRSSGAGGQHINKTSSAVRLDHKPTGIVVACQTERSQFQN YRASGSGGQHVNKTDSAIRITTHFPTGIVVQCQNERSQHSN FRSSGAGGQHINKTSSAVRLTHDPTGIVVSCQNERSQFQN FRSGGAGGQNVNKVSTGVRLTHVPTGUVVASTMDRTQYGN YRSSGSGGQHVNTTDSAVRITHLATGI AVACQAERSQHKN YRSSGAGGQHINKTSSAIRITHLPTNIVVTCQNERSQFQN
 YRSSGAGGQHVNKTESAVRIT YRASGAGGQHINKTSAVRLT
 YRSSGAGGQHVNTTDSAVRITHMP YRSSGAGGQHVNKTSSAI RIT促 YRSGGAGGQHVNRTDSAVRMTHLPTGIVAQCQNERSQHKN YRSSGPGGQSVNTTDSAVRMTHLPTGIVVTCQNEKSQUQN FRASGAGGQHINKTSSAVRLIHKPTGIVVACQTQRSQVQN FRASGAGGQHVNTTDSAIRITHLPTGTVVECQDERSQHKN YRASGAGGQHINKTDSAVRITHIPTGGUAVACQTERSQHQN FRSSGAGGQHI NKTSSAI RITHLP YRASGAGGQHINTTDSAVRIT YRSGGAGGQHVNKTDSAVRF
$F R S G G P G G Q S V N T T D S A V R I$ YRASGAGGQHVNRTDSAVRITHIP
 YRASGAGGQHVNTTDSAVRI YRSSGAGGQHVNTTDSAVRI YRASGAGGQHVNRTESAVR YRASGAGGQHVNRTESAVRTHLLPTNIVTQCQSDRSQHKN
 YRSSGAGGQHVNTTDSAIRITHLPTGVVVECQEERSQHKN FRSSGPGGQSVNTTDSAVRITHIPTGLVVSMQEERSQHKN

YCASGAGGQYVVNTDTAVAR YRSSGAGGQHVNKTESAVRIKHIPTGIVVVCQNERSQHKN FRASGAGGQHVNRTDSAVRITHLPTGVVVECQDERSQHKN YRSGGAGGQHVNKTESAIRITHIPTGLVVQCQDERSQHKN YRASGAGGQHINKTESAVRITHIPTGTVVASQAQRSQLKN FRASGAGGQHVNRTDSAIVRVHLPSGVVVECQDERSQHKN YRASGAGGQHI NKTDSAVRL FRSSGAGGQHVNTTDSAVRIT YRASGAGGQHVNKTESAIVRI YRAGGAGGQHVNKTDSAVR FRSSGAGGQH
 YRSSGAGGQQGVNTTDSAVVR

YRSGGAGGQHVNKTESAIRI
FRASGAGGQHVNKTDSAIRIT ARSSGAGGQNVNKVETKVRLTHMPTGTVVECQQERSQHAN

 $F R S S G P G G Q N V Q K V S T A V R V T H D P S G I V V A S Q T E R S Q H Q N$ Y R A S GA G G Q H I N T T D S A V R I T H V
QUERY
UniRef90_D5CS04 UniRef90_Q7VNG1 UniRef90_C1DB67 UniRef90_R6MAB1 UniRef90_C0Z6T5
UniRef90_D5W950 UniRef90_UPI000370275E UniRef90_B8GRJ1 UniRef90_F9ZET2 UniRef90 B8E5Q1 UniRef90_M5DGC0 UniRef90_F6DND9 UniRef90_UPI0004758A46 UniRef90_L0E9H8 UniRef90_R7ALN3 UniRef90_A1VL58
UniRef90_H1XP10
UniRef90_D4MHL4 UniRef90_UPI0002EB7E01 UniRef90_UPI0003B67A3F UniRef90 A8IFK1 UniRef90_D1PN73 UniRef90_C5R8M1
UniRef90 D8JU72 UniRef90-UPI0003692256 UniRef90_E1IEJ5 UniRef90_B2ll03 UniRef90_D1C1P0 UniRef90_V7ICY9 UniRef90_D7AM99 UniRef90_R8VXR3 UniRef90_E8RES9 UniRef90_B0PF23 UniRef90-S0JYV3 UniRef90_UPI0003FFF3C3 UniRef90-E8RT08 UniRef90_E6LRE2 UniRef90_UPI00036E5D69 UniRef90_UPI00047DF91D UniRef90_R5SFL4
UniRef90_UPI00037CAEC6 UniRef90_E6MGH2 UniRef90_UPI0003758442 UniRef90_UPI0003818A23 UniRef90 R5GLG5 UniRef90_UPI000472783A UniRef90_V6F019 UniRef90_R6J3S9 UniRef90_UPI00037AB835 UniRef90_U2K529 UniRef90_UPI000477255F UniRef90_UPI00036F2CAB UniRef90_C1DXP5 UniRef90_B7HX15
UniRef90_D1VSK7 UniRef90_V4JNJ6 UniRef90_F7XY10 UniRef90_F6IQ25 UniRef90_UPI0002197028 UniRef90_W1NBY5 UniRef90_UPI00040C207D UniRef90_F6CQ57
UniRef90_E8V0V1 UniRef90_U2K9X8 UniRef90_B9MLV6 UniRef90_W7R3N0 UniRef90_R5BDC9 UniRef90_R2QSA6 UniRef90_UPIO0047A2DA2 UniRef90_B8GWM3 UniRef90_X7EMZ1
UniRef90 D9STI9 UniRef90_F4GJC5 UniRef90_UPI00037C1321 UniRef90-R6XIT4 UniRef90-V8R3I3 UniRef90_UPI000477C613 UniRef90_UPI00047A6CB4 UniRef90_Q1GYE8
UniRef90_R6C7P7 UniRef90_B0K7G6 UniRef90_F6CRJ7 UniRef90_L2F621 UniRef90_UPI00040C084B UniRef90_D7CJT5 UniRef90_Q6J517
UniRef90 D2MQ36 UniRef90_Q3Z8Y6 UniRef90_UPI00047CA6CE UniRef90_K0J2M8

R

R

R
.
R

290
300
310
N K S D $\quad$ G WG S Q
320
K D Q A MK QMKAKLYEVEMQKKNAEK QAMEDNKS DTGWG

 K E R C L Q L L R A K L F E Y E K A DQ D Q K D S D L A G D Y Q A I E W G S Q I


 K D A A M K Q L K A K L F E L E ML K Q N A D K Q A A E D A K S DI G WG S Q I
 RMAA MK L L K A K L DD LDE L R K K E E E LLA A L R G D Q K D I A WG S Q I


 REYAMRMLK S KLLLE IGERE HLD K DS D DK GE QLQQI A WGA QI RAEAMQMLKKSRLYEMEMRERMAEQQKMEDAKTDVGWGHQQI R D A A M K M L R S RMY E QE LQQK R NVA K Q K DE D S K S DI E WG HQ I
 RE Y A MEMMKAKLYQ\ALQQHKDK DDDワKGVQNEIAWGHQ $K D T A Y A M M R A K L Y Q L E M D K K E K E R A A A D A G D H D E N G W G S ~ Q L$ K D DA F R R L K A RLYEMELKKREAKANAEQAAKTDDGWGHQI K D Q C M K QL K A KLLYE F ELLQK RNS EA QADVE D S K A DI G WG S Q I RETAMRVL R GRLLEREELQRQLLE RARLLRGEHRDAAF GS QM
R A T A WNML R A RLLYEKELERREAEANATEAT KTEDGWGHQQI
RETAMMKILRARLTELAIARKREEEQAKLKGEHVAVGWGNRII

K A T A L R M L R A KL Y E KE LLQEREVVQAS ELLA GEKK DI G WG S

K ATAMKMLMARLYEREKEEQQRTQENI QGDKKEI A WGS
R D K A M A M L L K S K L
K A K A WE ML R S RLLYE EE LIKKREAVANA TA

R D E A WK M L R A R L Y $\operatorname{L}$ E L
K D K A M Q M L K A K L F L L K Q Q A N V REVVAMNMLK K S K L
K A S A L A AV L Q S K L L E V

RAKAMSVLAARL, AKAREKRAAEEASTRRNLGSGDRSS

KAEAYNQLRARLYEHEDRKREEEANAVNATKTDDGWGHQI
R A T A M S ML K A R L Y E Y Y K Q E K E K E N A K F A Q EKKK DI A W G S Q I


REHAAM K M L K K A K L Y Q K K L E E Q Q A E ELID E I R G E Q K E I G WG S Qil


R E I A M M G M L
RVTTA M N MLL K S K L Y E R E Q E K K E A E K A K $\square$ E G K QLLDI G W G S Q I
RAKAMSLLAARLKQAALDSRQQEQADARRSVGSGDRSER

$K$ E K A M R V L R A R L L D R L Q E E Q Q Q K I A A S A R R S M V G T G R S E R I
R E K A M K V L R A R L Y
KAKAMSVLVARI QAAEDEKRRLE E ESTR
RDKAMRVLKSRLQALYOSKAAFAEADERKSVGSGDRS


 K E K A F AVLA A RLA K LLE E E K KETAMKMLK S K L LTTLKEK ENKE K IIEDLLKGNQMDDA WG S
 R E T A M R M L L K A R L L E I K K E R E RE R E I N A I


K DKAMK M L L






| QUERY | L |
| :---: | :---: |
| UniRef90_D5CS04 | V |
| UniRef90-Q7VNG1 |  |
| UniRef90-C1DB67 | V |
| UniRef90-R6MAB1 |  |
| UniRef90-C0Z6T5 | Q1 |
| UniRef90-D5W950 | G V |
| UniRef90-UPI000370275E |  |
| UniRef90-B8GRJ1 |  |
| UniRef90-F9ZET2 |  |
| UniRef90-B8E5Q1 |  |
| UniRef90-M5DGC0 |  |
| UniRef90-F6DND9 |  |
| UniRef90-UPI0004758A4 |  |
| UniRef90-L0E9H8 |  |
| UniRef90-R7ALN3 |  |
| UniRef90-A1VL58 | G V |
| UniRef90_H1XP10 |  |
| UniRef90-D4MHL4 |  |
| UniRef90-UPI0002EB7E0 | G |
| UniRef90_UP10003B67A3F |  |
| UniRef90-A8IFK1 |  |
| UniRef90-D1PN73 |  |
| UniRef90-C5R8M1 | L |
| UniRef90-D8JU72 | R L |
| UniRef90_UPI0003692256 |  |
| UniRef90-E1IEJ5 |  |
| UniRef90-B2II03 |  |
| UniRef90-D1C1P0 |  |
| UniRef90-V7ICY9 | GV |
| UniRef90-D7AM99 |  |
| UniRef90-R8VXR3 | A |
| UniRef90-E8RES9 |  |
| UniRef90-B0PF23 |  |
| UniRef90_S0JYV3 | K M |
| UniRef90-E8TLD6 |  |
| UniRef90-UPI0003FFF3C3 |  |
| UniRef90-E8RT08 | R V |
| UniRef90-E6LRE2 |  |
| UniRef90-UPI00036E5D69 | L |
| UniRef90_UPI00047DF91D |  |
| UniRef90-R5SFL4 |  |
| UniRef90-UPI00037CAEC6 | GL |
| UniRef90-E6MGH2 |  |
| UniRef90-UPIO003758442 |  |
| UniRef90-UPI0003818A23 | R |
| UniRef90-R5GLG5 |  |
| UniRef90-UPI000472783A |  |
| UniRef90-V6F019 | R 1 |
| UniRef90-R6J3S9 |  |
| UniRef90-UPI00037AB835 | R V |
| UniRef90-U2K529 |  |
| UniRef90-UPI0004772 |  |
| UniRef90-UPI00036F2CAB | G |
| UniRef90-C1DXP5 |  |
| UniRef90-B7HX15 | R 1 |
| UniRef90-D1VSK7 |  |
| UniRef90-V4JNJ6 |  |
| UniRef90-F7XY10 |  |
| UniRef90-F6IQ25 |  |
| UniRef90-UPI0002197028 |  |
| UniRef90- W1NBY5 |  |
| UniRef90-UPI00040C207D | R |
| UniRef90-F6CQ57 | D |
| UniRef90-E8V0V1 | R |
| UniRef90-U2K9X8 | D |
| UniRef90-B9MLV6 |  |
| UniRef90-W7R3N0 |  |
| UniRef90-R5BDC9 |  |
| UniRef90-R2QSA6 | K L |
| UniRef90-UPI00047A2DA2 |  |
| UniRef90-B8GWM3 | R V |
| UniRef90-X7EMZ1 | K V |
| UniRef90-D9ST19 |  |
| UniRef90-F4GJC5 |  |
| UniRef90-UPI00037C1321 | QL |
| UniRef90-R6XIT4 |  |
| UniRef90-V8R313 |  |
| UniRef90-UPI000477C613 |  |
| UniRef90-UPI00047A6CB4 |  |
| UniRef90-Q1GYE8 |  |
| UniRef90-R6C7P7 | A |
| UniRef90-B0K7G6 |  |
| UniRef90-F6CRJ7 |  |
| UniRef90-L2F621 |  |
| UniRef90-UPI00040C084B |  |
| UniRef90-D7CJT5 | D |
| UniRef90-Q6J517 |  |
| UniRef90-D2MQ36 | QL |
| UniRef90-Q3Z8Y6 |  |
| UniRef90-UPI00047CA6CE | M ${ }^{\text {M }}$ |
| UniRef90_K0J2M8 | N[V] |

UniRef90 C4ZEJO UniRef90-C8PRV5 UniRef90_UPIOOO2490144 UniRef90_R6HN89 UniRef90_C4FDT8 UniRef90-B0P903 UniRef90-L8D601 UniRef90 UPIO0036EFE2C UniRef90 UPI000366CE5E UniRef90-E4TE09 UniRef90-UPI000289348C UniRef90 HoUL54 UniRef90-Q1 ${ }^{\text {N3M0 }}$ UniRef90-UPIO001E30589 UniRef90 A0A017HNA1 UniRef90-A0A022LSK5 UniRef90-C1B1L3 UniRef90-R7IME6 UniRef90 E8LC13 UniRef90-M1ZAA3 UniRef90-R7D566 UniRef90 ${ }^{-}$C5BSZ6 UniRef90 R7BJU6 UniRef90-W9GJG2 UniRef90-M1LM66 UniRef90 B1C9T6 UniRef90-UPI0003640E7A UniRef90-E6W4C9 UniRef90-Q49VV3 UniRef90-C7MMX6 UniRef90-A4B176 UniRef90-LOGOS3 UniRef90 F1VX60 UniRef90 - 137291 UniRef90_UPIO0035D73C7 UniRef90_D8MRA2 UniRef90 K21KF1 UniRef90-E3HAN6 UniRef90-UPIO0036C062F UniRef90-15B527 UniRef90 D5EF47 UniRef90-WoRMV2 UniRef90-H9UHZ9 UniRef90 B1 C692 UniRef90-A4BTJ4 UniRef90-R6HB60 UniRef90_LOKAP5 UniRef90 R610P0 UniRef90_UPIO003B6FDF5 UniRef90-F9Z8T9 UniRef90 UPIO003767590 UniRef90-l3UGQ5 Unirefolo UniRef90 D9VZA8 UniRef90-E1QY14 UniRef90-R4JX92 UniRef90-C7XW82 UniRef90 W5YHN8 UniRef90 R5AQ03 UniRef90-R6QNX7 UniRef90-R5QR46 UniRef90 A4CFK8 UniRef90-A0A024IAF5 UniRef90-K0C8B7 UniRef90-R5BU83 UniRef90-R6YHSO UniRef90-E4RYZO UniRef90-G2IUC4 UniRet90_C7GYT2 UniRet90-G4Q3R6 UniReffo-U4TJW5 UniRef90-UPIOOO3775976 UniRef90_UPIOOO37F6C0A UniRef90-G9ZG08 UniRef90 R5Z467 UniRef90-Q03ZQ7 UniRef90_UPIOOO470410D UniRef90-D1B9U3 UniRef90 UPI000476D78D UniRef90-LTUEL1 UniRef90 U1RAK2 UniRef90_A6DHB5 UniRef90-F8C356 UniRef90-B1XM54 UniRet90_U7UHG1 UniRef90-F4LK68 UniRef90-C6WNI4 UniRef90_B6BM14 UniRef90 UPI00036FD18A UniRef90-G4SU88 UniRef90 W7YSW7

DFSEA $\square$ SQARAKYGS $\square$ AEALDMDRLKA QIAAELEQQAAE K L D D S V A A R Y E E I S R R L M E

DQAKN $\square$ SQRVSD $\square H K Y \square Q \square D K K K \square E \square T N D D E K T A A$ MLD
P $\square T \mathrm{~T} \| \mathrm{LEGLRSQRADLQDS} \mathrm{\square DPEGLRRQADELR} \mathrm{\square RSSD}$ KLQTLDERYEEVGHLLSD
TETQNVVDS TRGS IELVSRRMDRETARHRLEEFNARVED DFTEQLSALRETFGNI RSVVDVDRLQREIADLSEQAGA DVSADLSELDTTGRTVESVLDVEELRRRUDELEHQAAD R I E ELS RKMEE
HFD DDGNKEDEKLEKKSFA
 KLENLVERYDEVGALLGD
DFSQELK DLRATMDSVRGVTDDDADTARDADLEKQAAA
 LLQSLAD RYEKLSELLCD DF QPR】DAMEEKVEFFRRCDDVPAKEERDAELVPMUED LDLEAKETNI QEYEEMMTD


 KLEALQERHEEVEAMMLD KLESLQERFQEVQALLSD $D \square E N L V N S V E K S E L L R Q R M D$ KLLE EVVKKHEEL TGLLLGS DENLNSVEKSLELLRQRMDWDTASNRLEEFNARVED $\square E E \square R S L K D E \square Q E S \square D L P G L E \square K \square Q E L E E K T L K$
 K LLK S I E K R F NEVS ED DS N E E YK $\square K \square N D G K P K \square E A L A A S L N D D R V R N E D E R F H A M Q E A$ DIE K WLD L D GVVD RYKEDEGMLS D D Q LKAVEERSGA DRRYDDEE!SRRFKEIESLLSN


 ■ENKYE ELS $\square$ K $\square$ S D LE QLT DRFEEVSALLSD
IK PDALKAELKELEDQMGA
LADDTLK K DI A ELEKESAK

Y R KL L T L V V E R YE E V E A L L L L E E $K$ LD T L S E R R F E E I A G L L S S
T QEQ $\square$ KELQGRMETLDRCL

 K L Q A L E D R Y K
LDE A K R A L N A A K E P $\square$ A D L R N A L R
$\square$ A E Q $\square$ K E A A S R R D T LEKC LDD

 $P$ VSTVMGNLRSRMCE RT V V F DVVA L Q A R Q N D L E Q L A A Q
 N D S M E K $\square$ N G L R E R VLA L R G H L D L DF S Q DLEVARAKYETIAGAVNLDALRTQIKDLEREAS E

| $K$ | $L$ | $D$ | $V$ | $E$ | $K$ | $N$ | $F$ | $E$ | $E$ | $I$ | $S$ | $S$ | $K$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $D$ | $L$ | $S$ | $D$ |  |  |  |  |  |  |  |  |  |  |
| $L$ | $K$ | $T$ | $D$ | $A$ | $K$ | $I$ | $F$ | $D$ | $L$ | $Q$ | $Q$ | $A$ | $A$ |

 KLLEELSKRYAELNDMIQD
 E Y T E L L K NLLN L K M N N I T G VVVE P D K $\begin{array}{lllllllllllllll}K & D & E & L & A & E & R & H & Q & E & V & S & L & L & L \\ L & A & N & L & S & E & R & F & D & E & L & T & A & L\end{array}$


UniRef90_C4ZEJO UniRef90-C8PRV5
UniRef90 UP10002 UniRef90-UPIOOO2490144 UniRef90-R6HN89 UniRef90-_BOPDO3 UniRef90-L8D601 UniRef90_UPIO0036EFE2C UniRef90_UPI000366CE5E UniRef90-E4TE09 UniRef90-UPIO00289348C UniRef90_HOUL54 UniRef90-Q1 N3M0 UniRef90_UPIO001E30589 UniRef90_A0A017HNA1 UniRef90-A0A022LSK5 UniRef90-C1B1L3 UniRef90-R7IME6 UniRef90-E8LC13 UniRef90-M1ZAA3 UniReffo-R7D566 UniRef90-C5BSZ6 UniRef90-R7BJU6 UniRef90 $0^{-}$W9GJG2 2 UniRef90-M1LM66
UniRef90
B1C9T6 UniRef90_UPI0003640E7A UniRef90-E6W4C9 UniRef90-Q49VV3 UniRef90_C7MMX6 UniRef90-A4B176 UniRef90-LOGOS3
UniRef90-F1VX60 UniRef90-13ZZ91 UniRef90-UPI00035D73C7 UniRef90-D8MRA2 UniRef90 K21KF1 UniRef90-E3HAN6 UniRef90_UPIO0036C062F UniRef90_15B527 UniRef90-D5EF47 UniRef90-WORMV2 UniRef90 H9UHZ9 UniRe990_B1C692 UniRef90-ABETJ4
UniRef90_LOKAP5 UniRef90-R610P0 UniRef90-UPIO003B6FDF5 UniRef90-F9Z8T9

PDFWDDPEKSQSKMKELKSMKDDVIATYAKLKEQYEDIIETM EGFWNDPKKAEKLLTEIKKLKNRIEPWETLDADIEDLQTL PHFWDDQRSAQGLIDETNDLKKKFDDFHKLTTDLDDVNVL PDVIANQAEWQKYARAHAKLTDVVAAYREYK LDDKAREEA PGLWDDPENAQKVTSRLSAAQSQLKRLNSASQRDDDVETL
$P$ DVTGDPEQYASLMKEYSRLTPIVEKYRAYRTAKDACDEA

PNVMADMQRWQQHTRAHARLTPLITAFRTYKETLQAVTEA

PEFWDNPKEAEVFLKQLRSKKKWVEDYEEI HTGLEDLQVL
PSFWNDQSKAQAIINESKGLKD\VNEFYALQGEQEELEMT
PAFWSTGD AKEVSSQLSRLESSLEHWDHLERMFSDLETM
AGVISDQNKFRELSKEYAEIEPVVKAFAQYTQAEENLAEA
PDFWNDDENSQKVLQKDKTMKEKLERYNRLTQEWEDAKT L
PTLWNDPEAAQKLMRDRQVLLDKLTGVEAMERDLNDNVEL
QDLWDDVDHAQQVTSSLSHRQSELKKVTDTEQRUDDLEVV

## P

##  <br> 



P D L W D D P D H A Q Q V T S S L S R A N S E R E R V M GMMDR R V E D L E V L
P

## 

P

PEFWDDPKSAQNHLKQLQSKKNWVNDYQADEQATNDLKVL

$P$ A V I G D Q K R F Q A L S K E F G Q L E E V T G C F G R Y Q G A Q A D L E V A
SEVIKDPKKLIEYNKALNE TPVVEKYKEYKRYSDDLEFT
PNLWDKPDQAQKLMRERQSLVDAMEGHNQDRDDLLYNIDEM

PDFWG SDEARKVTQELARYQDKLDSWKKIAEDYEDLEI

| $P$ | $G$ | $F$ | $W$ | $N$ | $Q$ | $E$ | $R$ | $A$ | $Q$ | $D$ | $V$ | $V$ | $K$ | $Q$ | $V$ | $R$ | $D$ | $L$ | $R$ | $G$ | $W$ | $L$ | $P$ | $Y$ | $D$ | $A$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |$A$

P DVVWN D P E R A H E L $\operatorname{L}$ N R E R V

$P$ EVI N D Q E R F Q K L S K E Y A E L K K V V K K Y D E Y K E L R A N V E E A


P D F WN D Q Q N A Q K Q M R Q L D E V K A Q L T Q IT LL WA S A V N D A Q A T
$P S V H S D Q A N A R K L N K R Y A E L T P D V A T F R A W K Q S A B D \square E T A$
$P G F W D D A D A A S R S M T E L T R A K E D V Q G D E D A R T R G G B A S A A$
$P T V M A N Q K E W Q Q L C K E H A E M E T V V N K Y R Q Y R S A Q E S U K D B$


 A S VIV D D Q D R F R A L S K E Y A E L L


P AT A A D R E LGY A R L M K E H K E IVE P V V E T Y R A WR Q C GA D L S GA

P E I G N Q P L WQ K Y IGK E M S DME P I V K T Y S S F K K H K Q E L S D A






$\begin{array}{llllllllll}P & D & F & \text { WTR R A R K H M R Q L D D }\end{array}$


S

## P


P E LVVRD P K R Y K E I M R E H S H L S Q V M D S Y A E Y K EV L Q G I S E A

.

$V \begin{array}{ll}E & P \\ N & P \\ K & S\end{array}$

| f90_C4ZEJO $\quad$ TEMGYEENDESLTTPE\\|QQM|LD ${ }^{100}$ DFESTYDG110 MKTLLSGEY ${ }^{120}$ |  |
| :---: | :---: |
|  |  |
| UniRef90-C8PRV5 | ELLMDDPDDEMWTEFEEKLKALCQENGEAYNLAQLLSNG |
|  |  |
| UniRet90_C4FDT8 |  |
| UniRef90-80P903 |  |
| UniRef90-UP100036EFE2C RETLAEESDAEMRELAK A ELEEHQDKLPELRVLMLPKD |  |
|  |  |
|  |  |
|  |  |
| 02 | , |
| UniRef90 Q1N3M0 EALAKDDDPDMRQEEYSAAKEETERLDGELQMLLLPKDPN |  |
|  |  |
|  | LGLEEDDESV |
| UniRef90-A0A017HNA1 TE M |  |
|  |  |
|  |  |
| UniRet90_R7IME6 |  |
|  |  |
|  | IDELSLLEEEDYHVYKEUTIKNFEKVSYEAEKFKLSTLLNGEY |
|  |  |
|  |  |
| UniRef90 W9GJG2 VEMGEEEHDQATMEEAERELQKGKKDIGELEVRTLLSGEY |  |
|  |  |
| M1 |  |
| UniRef90-UPI0003640E7A RAMQDDEMKELVKLELLEELSERKQQLEERLKV的MLPKDPN |  |
|  |  |
|  |  |
|  |  |
| UniRef90_C7MMX6 | LDLAQDD PDFATEAQKAADELSRLLDDFEIESWFGNRF |
| UnRef90-A4B176 R GLLDDEDPDMRKDEDASAEALREELDEQLQLLLLPKDPN |  |
| OGO |  |
| UniRef90-FIVX60 H M M A A PDMKDFQEEILAARARTEQIEEDLQTMLLPKDPN |  |
|  |  |
| UniRef90-UPIO0035D73C7 Y ELLVKEEDDSELLEGELEKELLT |  |
|  |  |
| Uniref90-K21KF ${ }^{\text {a }}$, |  |
|  |  |
| UniRef90-UPI00036C |  |
|  |  |
| UniRef90 WORMV2 ELMLAMEPDADMAAELGREDDGLDEELAAFELRSLMQGAD |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
| Ref90-R610P0 |  |
|  |  |
| Ree90 UPI0003B6FD | VMNEEFIELAKEEKKELEREAKELESQLKMLLIPKDPN |
| UniRef90-F9z8T9 FDFAKEGEATE E EVVDTHYAETLDQVEELELKNMLRGEA |  |
| ef90_UPIOOO3767590 |  |
| UniRef90-13UGQ5 M M |  |
| 9VZA8 |  |
|  |  |
| UniRefo-E1QY14 LELGLETGDGDLLDEAAR CGALEDELGELELSSWFADDL |  |
| ef90-C7XW82 |  |
|  |  |
| Ref90-W5YHN8 |  |
| UniRef90-R5AQ03 |  |
| UniRef90-R6QNX7UniRef90 R5QR46 |  |
|  |  |
| iRef90-A4CF |  |
| iRef90-AOAO241A |  |
| UniRef90-R5BU83 |  |
|  |  |
| Ref90 R6YHSO |  |
| UniRef90-E4RYZ0 |  |
|  |  |
|  |  |
| UniRef90-G4Q3R6 |  |
| UniRef90-U4TJW5 |  |
| R678 |  |
|  |  |
| ireto |  |
| UniRef90-G9ZG08UniRef90 R57467 |  |
|  |  |
|  |  |
| UniRef90-UP1000470410D LLLHQLEADGLLLEEAHDALSTLQGALDRWELERLLNGPY |  |
|  |  |
|  |  |
| $\begin{aligned} & \text { UniRef90-LTUEL1 } \\ & \text { UniRefon U1RAK2 } \end{aligned}$ |  |
|  |  |
|  |  |
|  |  |
| UniRef0-B1XM54 AELLTEAEDPALLTEAMENLDDLQKELNRWELQQMLS GEY |  |
|  |  |
| UniRef90-U7UHG1 |  |
| UniRef90_C6WNI4 |  |
|  |  |
|  |  |
| UniRef90-G4SU88UniRef90- W7YSW7 |  |
|  |  |

UniRef90_C4ZEJO UniRef90-C8PRV5 UniRef90-UPIOOO2490144 UniRef90-R6HN89 UniRef90_C4FDT8 UniRef90-BOP903
UniRef90-L8D601 UniRef90 UPI00036EFE2C UniRef90-UPI000366CE5E UniRef90-E4TE09 UniRef90-UPIO00289348C UniRef90 HoUL54 UniRef90-Q1 N3M0 UniRef90_UPIO001E30589 UniRef90-A0A017HNA1 UniRef90 A0A022LSK5 UniRef90-C1B1L3 UniRef90-R7IME6 UniRef90-E8LC13 UniRet90 M1ZAA3 UniRef90-R7D566 UniRef90 ${ }^{-}$C5BSZ6 UniRef90-R7BJU6 UniRef90 $0^{-}$W9GJG2 2 UniRef90-M1LM66
UniRef90
B1C9T6 UniRef90_UPIo003640E7A UniRef90-E6W4C9 UniRef90-Q49VV3 UniRef90_C7MMX6 UniRef90-A4B176 UniRef90-LOGOS3
UniRef90-F1VX60 UniRef90-13ZZ91 UniRef90-UPI00035D73C7 UniRef90-D8MRA2 UniRef90-K21KF1 UniRef90-E3HAN6 UniRef90_UPIO0036C062F UniRef90_15B527 UniRef90-D5EF47 UniRef90_W0RMV2 UniRet90-H9UHZ9 UniRet90_B1C692 UniRef90-A4BTJ4
UniRef90
R6HB60 UniRef90 LOKAP5 UniRef90-R610P0 UniRef90-UPIO003B6FDF5 UniRef90-F9Z8T9 UniRef90-UPIO003767590 UniRef90-I3UGQ5 UniRef90-Q7V4A0 UniRef90-D9VZA8 UniRef90-E1QY14 UniRef90 R4JX92
UniRef90 C7XW82 UniRef90 ${ }^{-}$W5YHN8 UniRet90-R5AQ03 UniRef90-R6QNX7 UniRet90_R5QR46 UniRef90 A4CFK8 UniRef90-AOAO24IAF5 UniRef90-K0C8B7 UniRef90-R5BU83 UniRef90 R6YHSO UniRef90-E4RYZ0 UniRef90-G2IUC4 UniRef90 C7GYT2 2 UniRef90-G4Q3R6
UniRef90 U4TJW5 UniRef90-R6T8X2 UniRef90-UP10003775976 UniRef90-UPIOOO37F6COA UniRet90-G9ZG08 UniRef90-R5Z467 UniRef90_OO3ZQ7 UniRef90_UPIO00470410D UniRef90-D1B9U3 UniRef90 UPIOOO476D78D UniRef90-L7UEL1 UniRef90-U1RAK2 UniRef90-F8C356 UniRef90-B1XM54 UniRef90-U7UHG1 UniRef90-F4LK68
UniRef90-C6WNI4 UniRef90-B6BM14 UniRef90-UP100036FD18A UniRef90_G4SU88
UniRef90_W7YSW7

130
140
DKCNAIILILLINAGAGGTESCDWASMLIFRMYSKWADKKGFTL DGSDAFLTVHAGAGGTEACDWAQMLTRMYDRWAERRGFSV DKNNATLEVHPGAGGTESQDWGSMLDRMYTRWSEKHHFAV
DERSAVVTIRSGAGGVDAADFAQML LRMY LRYCERNGFKA
DDKNVIVEVRGGAGGEEAALFAGVLYRMYTMYAEGLGWQC
DEKSVIVEIRGGAGGDEAALLFAGDLFRMYTRYAEGRGWRT DKNNAILELHPGAGGTESQDWGAML DRMYTRWAEKKGFKV DEDSAVLQUTAGAGGTESCDWASMLMRMYLMWADKNGYKV

DGKNVILEIRAGTGGDEAADFSGDLFRMYTRYAEKRGWKC
DKNNALLTLHAGAGGTEAQDWVQMLDRMFTRWGESKGFTV
保
DERDALVNIRSGAGGVDAADWAEMLMRMYIRWAEKHGYGV
DKDDALLTLHAGAGGTESCDWASMLFRMYTRWAERKGFDY
DKNNAILSIHSGAGGLEAQDWAEMLFRMYKRWAEQKGFRV
DHGNAILTHPGQGGLEAQDWTFMLFKMYMKYCARRGWKV
DKCNALLTLHAGAGGTESCDWASML DRMYTRWANSKGFTV DEREAVVT: RSGAGGVDAADFAEMLLRMYLRWAERHGYPT DPLICFLDIQAGAGGTEAQDWASMLLRQYVKYSEKKGFQT
 DANNAIMELHPGAGGTESQDWTNMLLRMYQRYCEQKGFNV DEGDCIVTINPGSGGDAQDWCDMLFHMYTKYAENRGWKV DHKNVYLEVRAGTGGDEAADFSGDLFRMYSRYAEKMGWRV
DQLSALMEINPGAGGTESNDWASDLMRMYDMWGEKNGYKV
DERNLFLEI RAGTGGDESALLFAGDLLRMYTRYAERNRWQV
DDMSAVLQITAGAGGTESCDWASMLMRMYDMWAEKNGYKV
DANNAGLELHPGAGGTESQDWCSMLLRMYTRWGEKKGFK
DERNIYLE:RAGAGGDEAAIEAGDLFRMYSRYCEARRWRVV


DERNAFLEDURAGVGGDEAADFAGDLLRMYTRYAERNRWKV
DSNNALMSFHAGAGGTEAQDWCQMLYRMYTRWAERHGFTY

DEREAVITVRSGAGGVDAADFAEMLDRMYDRWAERRGYS T

DHGDAIVVVTPGQGGDEAQDWCDMLFKMYLRYCDRRGWKV
DNKNVFVEI RGGAGGEEAADFAANLFRMYTRYAERKGWNI
 DSCDAVLSLHAGAGGTEAQDWTEMLYRMYTRYCESRGWTV DSKNALL TFHAGAGGTEAQDWAEMLFRMYNRWGERHGYKV

 DGKNAFLEVVAGTGGDEAAIFSGDLYRMYLRFAEKKGWKF DEKNVIVEI RGGAGGEEAALFAYNLYRMYTAYAEGKGWKT

 DRNNAILSFHPGAGGTEAQDWAQMLYRMYTRWGESHGYNV DEKNVILERAGTGGDEAADFVAEVFRMYDRFAEQHKWKV DKMGALLD| NAGAGGTEALDWASMLRRMYTRWCEAHGYKV DAKNVVVEI RGGAGGDEAADFAAELYRMYCMYAEKNRWKT DANNAILEI HPGSGGTESTDWGANLYRMYTRWAQQHDFQV | $D Q E G A V L$ | $N A G A G G T D A Q D W A E M L M R M Y S R W A E R N G M T S$ |
| :--- | :--- | :--- | :--- |
| $D R S D A V V G I V A G A G G L D S Q D W A E M L Y R M Y V R W A E R N G F K V$ |  | DHSNVFLE

RAGAGGDEAADFAGDLERMYSRYAEQRRWQVV
DRSSCFMDI
NAGAGGTDSMDWAAMLLRMYSRYCEAKGWKV DDRTAVVT, RSGAGGVDAADWAHMLLRMYVRYAERNGYKV DSGSCFLS| NAGAGGTESCDWADMLLRMYRRWAESKGFKV
 DGNDAVLSI HAGAGGTEAQDWADMLLRMYTRYAERKGFSV EEKNIIMEVRGAGGDEASDFAADLFRMYTRYAEDKNWKY DARDALVTVRAEAGGVDAADFAEMLLRMYSRWAERHNYAV DSNNAILSIHPGAGGTESQDWAEMLLRMYKRWAERHGFGV DEANDFEEVRAGGGDEAADFAGDLFRMYTRYAETQGWRV DKMNALLELHPGAGGTESQDWGQMLLRMYTRWSEKHGFKV
UniRef90_C4ZEJo UniRef90-C8PRV5 UniRef90-UPIOOO2490144 UniRef90-R6HN89 UniRef90-C4FDT8 UniRef90-BOP903
UniRef90 L8D601 UniRef90-L8D601 UniRef90 UPIO0036EFE2C UniRef90-UP1000366CE5E UniRef90-E4TE09 UniRef90-UPIo00289348C UniRef90-HOUL54 UniRef90-Q1 N3M0 UniRef90_UPI0001E30589 UniRef90-A0A017HNA1 UniRef90-A0A022LSK5 UniRef90-C1B1L3 UniRef90-R7IME6 UniRef90-E8LC13 UniRef90-M1ZAA3 UniRef90-R7D566 UniRef90-C5BSZ6 UniRef90-R7BJU6 UniRef90-W9GJG2 UniRef90-M1LM66 UniRef90-B1C9T6 UniRef90_UPIo003640E7A UniRef90-E6W4C9 UniRef90-Q49VV3 UniRef90_C7MMX6 UniRef90-A4B176 UniRef90-LOGOS3
UniRef90-F1VX60 UniRef90-I3ZZ91
UniRef90-UP100035D73C7 UniRef90-D8MRA2 UniRef90-K21KF1 UniRef90-E3HAN6 UniRet90-UPIOOO36C062F UniRef90-15B527 UniRef90-D5EF47 UniRef90_Wormv2 UniRef90-H9UHZ9 UniRef90_B1C692 UniRef90-A4BTJ4
UniRef90 R6HB60
UniRef90-LOKAP5 UniRef90-R610P0 UniRef90-UPIO003B6FDF5 UniRef90-F9Z8T9

170
180
190
200
E VL|DS|LD GDEAG\||KS|ITFQ|V|NGENAYGY|LKSEKG|V|HR|LV|R ETLDELEADEGLKSITLQIRGDYAYGFLKAETGVHRLIR ETVDYQPGDVAGLNSVTLLIKGHNAYGYLRSEKGVHRLVR
ETVMASPTELGGFKEIVGQLSGQGVFGMKFESGVHRVQR KVMDTSYAEEAGTKSATFQVDAPYAYGRLSVEGGTHRLVR EVISANETELGGYKEVGSSITGEGAYSRLKYESGVHRVQR EVLSCNEGEHGGFKEVIANITGEGVFGKLKFESGAHRVQR ETLDYDPGDEAGTKSVTLLIKGRNAYGYLKAEKGVHRLVR KELNFQEGDVAGVKTVTLEVEGEYAFGYLKGENGVHRLVR RLLDLQQDEEAGLKSVTFTVSGSCAYGYLKSETGVHRLVR EVMSANEGEHGGYKEVITRIAGDGVYGQLKFESGAHRVQR RUDDYLDGEEAGMKSVTINVIGENAYGYLKSEKGVHRLVR TVMDTSYAEEAGUKSATFEDDAPHAFGTLSVEAGTHRLVR EVYDTSYAEEAGLKSATFAVKAPYSYGTLSVEMGTHRLVR EMLDYQPGDEAGVKSATVQVNGHNAYGFLRSEKGVHRLVR
 EIISENAGEHGGYKELITRVVGQGVYSQLKFESGAHRVQR KTLDMLEGDEAGVKSVTIQVNGLNAYGYLKSEHGVHRLVR ELIEESDGDVAGIKSATLKI IGNYAFGYLRTETGMHRLVR KILEQLPGDI AGIKSVILLISGDNAYGYLKGEKGVHRLVR EVLDVSMNDLGGFKEVVFMVGKGAYSKLKFESGAHRVQR EI ADYLPGDEAGVKSVTLIVKGHNAYGYLKAEKGVHRLVR RVLDAPLGEVIGIEHASFQIEGRFAYGMLRSEDGVHRLVR EVLSASEGEHGGYKEVISRLSGERVYSQLKFESGAHRVQR EMVSESESDVAGIVSVTLEFDGPLAYGFLKSETGVHRLVR KELNYQDGDVAGVKTVTLEIEGEYAFGYLKGENGVHRLVR ETLDYLPGEEAGVKSVTLLFKGHNAYGYLKAEKGDHRLVR
$E T M S T N D G E H G G Y K E V I K K V I G G A Y G R L K F E S G H R V Q R ~$ EVVSANEGEHGGFKEVIALVSGDGVYGRFKFESGGHRVQR EVMSKSEVGVGGLKEVVFSUQGQGAYSKLKFESGVHRVQR DLQSETPGEEAGUKSVTYKISGHNSYGWLKSESGVHRLVR KV EKNDSAAGGFKEVVSMVQGKGAYSQFKYESGI HRVQR KVLDLIKDSEGGISNVTLLVEGSYAYGYLKSEKGVHRLVR TVLDLLEAE GGVKSVTIEVVGPYAFGYLKAENGVHRLVR EMLSTNEDGTGGYKEAVFSIQGKGAYSRLKYESGTHRVQR ETIEFSEGEVAGTKSATLRI EGDYAFGWLRTETGVHRLVR
 EVLSANATELGGYKE SFMISGEGAYSRLKFESGVHRVQR ElLSANETGLGGYKEVSALISGKGAYSRLKYESGVHRVQR QVLDTQYADEAGLKSATFEVKAPYAYGYLKGENGVHRLVR EVISENESEMGGYREVITARVDGDGVYGRLKYESGAHRVQR TVDELSEGEEAGDKSATVEVEGRYAYGYLRNEKGTHRLVR TVNDAPAAEAIGDDRATFTVSGKNAYGMLRAEQGVHRLVR EVMSANETDDGGFKEVVFMIIKGEGAYSRLKFESGAHRVQR ETAAYEAGEEAGIK SVVLLVKGHNAFGYLHPEKGVHRLVR RELDLLDGDDAGVKSVTFEVSGENAYGYLKAEKGVHRLVR STLDYLDGDVAGUK SATVLVEGENAYGYLKGEMGLHRLVR EIVSANEGEHGGYKEVTANI SGTGVYGKLKFESGVHRVQR EIMSESPSELGGYKEVVARISGGGVYGRLKFESGGHRVQR EIMSENQGDHGGYKEIIIARIEGHDVYSQLKFESGAHRVQR TVTELLEGDEVGLKSATIQFEGDYAYGYLKAESGVHRLVR TVMDFTDAPSGGYKEIVVSVKGEDVYGKLKYESGVHRVQR EIVSSSESDLGGYKEVIVRLVGFGAFSRLKFESGGHRVQR EI IELLNETGLNGIKEAVMLIKGKGAFSRLKYESGVHRVQR ELMDSSPTGLGGFKEVIFMVSGSDVYSHMKFESGVHRVQR KLLDWLDGDEAGLKSATVMVEGLNAYGFLKSENGVHRLVR EVLSQTESGIHGLKDVTAIIEGDNVYSQLKYESGVHRVQR KTLDYQAGDEVGVKSCTLEVEGDYAYGYLKSENGVHRMVR EMI SLNENGLGGFKEVVFMTNGQGAYSKLKYESGVHRVQR ETLDYHAGDEAGDDSATIKVTGHAYGFLRSEKGVHRFVR TVAELSQGEEAGIKSATLEVTGRHAYGYLRHEKGTHRLVR RVVSSNEGEHAGYREVTVAVSGEYAYGYLKGERGVHRLVR
 TFVSILEGEEAGIKNCTMFIEGPMAFGYLKAERGVHRLVR DILDANETGLGGFKEVIAKVEGKGAYSRLKYESGVHRVQR RLAETSEGDEAGLKSATLEVTGRYAFGYLKHEKGTHRLVR EV DDILKEDEAGIKSATLLIKGDNAYGYFKSEKGVHRLVR EIMDASETEVGGYKEПSFS|ISGKFVYGSLRWEGGVHRVQR DVFDTSYAEEAGIKSATFRVTAPYAYGTLSVEQGTHRLVR EVLDYQVGDEAGIKDASILIKGENAYGYLKVENGDHRLVR EVLSANPGEHGGYKEVIARVEGKGVFSKLKFESGTHRVQR ElVNENEGEHGGYKEIVRRVGQDVYSQLKFESGAHRVQR


UniRef90_C4ZEJO UniRef90-C8PRV5 UniRef90_UPIo002490144 UniRef90-R6HN89 UniRef90-C4FDT8 UniRef90_BOP903
UniRef90 L8D601 UniRef90-L8D601 UniRef90-UP100036EFE2C UniRef90-UPIO00366CE5E UniRef90-E4TE09 UniRef90-UPIO00289348C UniRet90-HOUL54 UniRef90-Q1 N3M0 UniRef90_UPI0001E30589 UniRef90-A0A017HNA1 UniRef90-A0A022LSK5 UniRef90-C1B1L3 UniRef90-R7IME6 UniRef90-E8LC13 UniRef90-M1ZAA3 UniRef90-R7D566 UniRef90-C5BSZ6 UniRef90-R7BJU6 UniRef90-W9GJG2 UniRef90-M1LM66 UniRef90-B1С9т6 UniRef90-UPI0003640E7A UniRef90-E6W4C9 UniRef90-Q49VV3 UniRef90-C7MMX6 UniRef90-A4B176
UniRef90-LOGOS3
UniRef90-F1VX60 UniRef90-13ZZ91
UniRef90-UP100035D73C7 UniRef90-D8MRA2 UniRef90-K21KF1 UniRef90-E3HAN6 UniRef90-UPIOOO36C062F UniRef90-15B527 UniRef90-D5EF47 UniRef90-WORMV2 UniRef90-H9UHZ9 UniRef90_B1C692 UniRef90_A4BTJ4
UniRef90_R6HB60 UniRef90-LOKAP5 UniRef90-R610P0 UniRef90-UPIO003B6FDF5 UniRef90-F9Z8T9

290
300
310
320
 RATAMSMLKARLYEYYRNEKEKENAKFAAEKKGI SWGNQII RQTAMNMLKAKLYE LEESKKAKEKAADEGVQLDUGWGSQI $R E K C M R V L R S R V L E M E Q E K Q R A A T A Q D R K N Q V G T G R S E R D$
$R A A A M A V L Q S R L L V L R H E E E A K K K K E L A G D D V K S W G O M$ RAAAMAVLQSRLLVLRHEEEAKKKKELAGDVGASWGDQM

 KEKALQLLKGKGYERELEERMRALNEDRANKMKY EWGNQ RETAMKMLQAKLYQLKLEEKQEHLDE:RGEQKEIGWSSQL KATAMQVLRSKLYDLQVQNRRQELDDLAGEKKESSWGHQ KDTAMRMLKSK DEDKEREQKEKDEDGKGIQMDGAWGEQUB RAAAMRVLQSRLLLLKKEEENAKKKELAGNTGTASWGD KVSAMRVLQAKLLEVKRKEERAEMDALKGD GGSSWGNQM AMKMLKAKLI

KDKAMQMLKAKLFLLKQAENAAKQADERGEVMENGRS
RAAALRVLQSRLLLLRKAEEAAAKKELA GDVVKASWGDQM KAEALQULKSKLYDLEKRNRLNEQQULEDSKTDVGWGHQ KEKAMKVKGKGYKILMEEHKEKIDEDKGDYGQIAWGN KEQAMKMLRAKLYELEDEKKRQGLREVEDSKMDDAWGSQ
KEAAMKTLKSK
KARAMSLLAAKLKDAOEAKAR
REKAMQMLKSRLYQMEMEKRNAERDKDEAGKMKDDFGS
KASALKVLAARIKDAQVREQQSKEAATRKS DGSGDRS
RDQAMKMLKAKKYQKEVEEKEKAMAEVRGEQKDVAWGSQQ
KAKALSVLGA
KAKALS VASRIQAMEDE
RD DAMKALKSRLYQLELD
KAKALNVLKSRL
KAVAMQVLKSKL
KATAMKMLKKKLK K K
RANAMKVLKSRL
KDKALKILKARLF
KATAMKORAK EROR
RETCMRQ RSKVELEMHRREQADQVEESKADIGWGS
REKAMRVLRARVQEKDEEE

RENAMRLLRSML
KELYERQ
$Y D M E L Q R$
$L L L K K Q E D$

KEKALALLKAKLMVIAQEQRAAEDAD DRGDUVEAAWGN
KEQAMRILRSR
KA円AMGILRSR
FEKAQQ
RAKALSFELASR
REVAMRMLKSKLVELGKRR
RAKAMSVLASRLQQAEDE
KAKALQVLAARLREKDRA
RARAMSLLKAR
KEKALKVLKARL
FDKALTVLRSRL
KASAMQVLAAR
號
REKCLRVLRSRIYAAQEA
KAKALALLQSRLLTAEQSA
REKGMRVLRARLYEVEAE
RENAMRLLRSKLYQRELDKRMATQQALEAGKKRIEWGS
RDUCMKQLRAKLYDLELQKRRASAQA\EDSKSDUGWGN
KDKALKVLRARLYELELQKQDAESAARRSQVGTGDRSE
RERAMALLKAKLLVIAQEQRAAEDADIRGDMVAAAWGN
RATALQMLKSKLFERQLRERQEQLEAUQGEKRADSWGS
RARAMSLLQARL LERERQKQAAEQAETRRNVGSGDRSE
RAAAMSLLRGRLYELEMK
RATAMKMLGAKLEELKOAK
RETAMNMLKAK
K A K A M R VL R A R
$K A T A M A V L Q A$
K A T A MKMLRSR
Y ELL LIA
RARAMSLLQSRGLSAEQE
REQAMTMMLRSK|LYERKDEEQKKHULDENRRGEQGSEIDWSGS


UniRef90_C4ZEJO
UniRef90 C8PRV5
UniRef90_UPI0002490144 QL
UniRef90-R6HN89
UniRef90_C4FDT8 R
UniRef90-B0P903
UniRef90 L8D601
R
UniRef90-L8D601
UniRef90 UPI00036EFE2C
UniRef90-UPI000366CE5E
UniRef90_E4TE09
UniRef90-UPIO00289348C
D
$\mathrm{Q} M$
R
UniRef90 HOUL54
UniRef90-Q1N3M0
UniRef90_UPI0001E30589
UniRef90 A0A017HNA1
UniRef90 ${ }^{-A 0 A 022 L S K 5}$
UniRef90-C1B1L3
DV
R M

K
A
UniRef90 E8LC13
UniRef90-M1ZAA3
UniRef90_R7D566
UniRef90 C5BSZ6
UniRef90 R7BJU6
UniRef90-W9GJG2
UniRef90-M1LM66
UniRef90-B1C9T6
UniRef90_UPIO0036
UniRef90_E6W4C9
UniRef90-Q49VV3
UniRef90- C7MMX6
UniRef90-A4BI76
UniRef90-LOGOS3
UniRef90_F1VX6
UniRef90-I3ZZ91
UniRef90_UPI00035D73C7
R
QM

UniRef90 D8MRA2
UniRef90 K2IKF1
UniRef90-E3HAN6
D M
D V
UniRef90-UPION036C062F
UniRef90_15B527
UniRef90-D5EF47
UniRef90-W0RMV2
UniRef90-H9UHZ9
UniRef90 B1C692
UniRef90_A4BTJ4
UniRef90-R6HB60
UniRef90 LOKAP5
UniRef90-R6I0P0
UniRef90 UPI0003B6FDF5
UniRef90- F9Z8T9
UniRef90_UPIO003767590 R
UniRef90_I3UGQ5
UniRef90-Q7V4A0
UniRef90_D9VZA8
UniRef90 E1QY14
UniRef90-R4JX92
UniRef90-C7XW82
UniRef90 W5YHN8
UniRef90-R5AQ03
UniRef90-R6QNX7
UniRef90-A4CFK8
UniRef90_A0A024IAF5 R
UniRef90-K0C8B7
UniRef90 R5BU83 UniRef90-R6YHS0

UniRef90 G2IUC4
UniRef90_C7GYT2
D
UniRef90-G4Q3R6
UniRef90_U4TJW5
UniRef90_R6T8X2
N
UniRef90-UPI0003775976
UniRef90_UPI00037F6C0A
UniRef90_G9ZG08
UniRef90 R5Z467
UniRef90-Q03ZQ7
UniRef90-UPI000470410D
GV

UniRef90-D1B9U3
UniRef90 UPI000476D78D
UniRef90_L7UEL1
UniRef90-U1RAK2
UniRef90 A6DHB5
UniRef90-F8C356
UniRef90-B1XM54
UniRef90_U7UHG1
D
K V
UniRef90 F4LK68
UniRef90-C6WNI4
R
UniRef90-B6BM14
UniRef90 UPI00036FD18A
UniRef90_G4SU88
UniRef90_W7YSW7




## UniRef90_N9U1N7 UniRef90-K9YDC1 UniRef90-W8VSV2 UniRef90_JOULC8

 UniRef90-R5QG84 UniRef90_UPIO0046FC0BC UniRef90-R6ZUM3 UniRef90 ${ }^{-}$F3LHI5 UniRef90_UPI00046641C1 UniRef90-UPI00047C1671 UniRef90-Q5QUZ8 UniRef90-H8Z2W9 UniRef90_G8TYL4 UniRef90_C9LJ29 UniRef90-R1CYV5 UniRef90-R7G2F3 UniRef90-F6DBZ2 UniRef90-D9SCF7 UniRef90-E6PU87 UniRef90_G9YHS3 UniRef90-F9U5U0 UniRef90_UPI0002EB4661 UniRef90-UPI00039F7870 UniRef90-R5W7Z1 UniRef90-A8V2C4 UniRef90-R5HET8 UniRef90-B8HQ61 UniRef90-UPI00047844A1 UniRef90_Q01RX8 UniRef90_U5VRL0 UniRef90-B8FAG4 UniRef90-D4W5E2 UniRef90-A7ZE19 UniRef90-K9ECE5 UniRef90-A3Q3C2 UniRef90_R6WDE4 UniRef90-B2V9H8UniRef90-R6D5V4 UniRef90-R6D5V4
UniRef90 A3QH30 UniRef90_C3JC63 UniRef90-C6VZY0 UniRef90_S3DJQ8 UniRef90_V2Y3N7 UniRef90-S3WRB3
UniRef90 B9M0L2 UniRef90-B9MOL2
UniRef90 C0K078 UniRef90_B3PJP4 UniRef90_UPI00036C72B7 UniRef90_R7B391 UniRef90 C0QB15 UniRef90_UPIO0047903FC UniRef90-J7J220 UniRef90-M7MXQ8 UniRef90-R4TEG2 UniRef90_UPI000366F07B UniRef90-A6Q162 UniRef90_J1LP68 UniRef90-L7EH90 UniRef90-S2XNZ9 UniRef90-UPIO0041F2558 UniRef90_UPI00037EC730 UniRef90_R5TMW8 UniRef90-R6XQV5 UniRef90-C8VVG1 UniRef90-F3B7V3 UniRef90-S2ZL52 UniRef90-UPIO0047D8776 UniRef90-D6ZGD9 UniRef90-R7FVB2 UniRef90_UPI0004752C14 UniRef90_C4KYV2 UniRef90_W9BFG5 UniRef90-E4U6J4 UniRef90_R6YOIO UniRef90_C8N8S0 UniRef90_UPIO0036469CA UniRef90-S6GGX7 UniRef90-R6QKD4 UniRef90-I7JVF7 UniRef90_UPI0003703F33 UniRef90-UPI000371A2CC UniRef90-W3ARX4 UniRef90-F3ZT111 UniRef90_B9L2A9 UniRef90_D8F494
UniRef90_F4BLN9 UniRef90_UPI0004757906 UniRef90-EOWUH4 UniRef90_UPIO0037C1702 UniRef90_LOB799

DDNNCYLIEIIRAGAGGDEAAITAGDLYRMYSRYAERQGWR\|I
DERGAVLTLNTGAGGTDAQDWAQMLDRMYSRWAEKRGYKA DDFSAVLQUTAGAGGTESCDWAEMLMRMYDMWAEKSGYKV DRNNAI SFHPGAGGTEAQDWCQMLYRMDTRWCDRHGFKY DTRNVFI 1 RAGAGGDESADFAGDLLRMYMRYAENCGWRT DANDTFLEVMAGAGGTEAQDWTEMLLRMYMRWAEKHGFKV
 DDKNVFLEI RAGTGGDEAADFSGDLFRMYSKYAEKRRWQV DDRNUFLERAAGTGGDEAALGSGDLERMYSKYAEKRRWQV DANDTYY EVNSGAGGTESQDWTNMLLRMYTRWAEQHGHKV DQRNVVYL VVRAGAGGGAEASALFAGDLERMYSRYAEKNGWKV
 DEKNVIVEI RAGAGGDEAGDFAGDLGRMYSRYAERNGWKV
D DKNVIME: RAGAGGEEAALEFAYELYRMYDKFAEKNRWKT
DERSVFLEVRAGTGGDEAALFAGDLFRMYSRFAERRRWQV DRKPAFLEVRAGTGGDESALFAADLLRMYTRYAERRGWRC DSCNAIMTFHAGAGGTEAQDWTQQVVRMYSRWAEQHGYKI DQRNVFLEVRAGTGGAEAADFAGDLLRMYDRYAEDMRWQV DDKNVIMEI RGAAGGDEAQIFAGNLFRMYSRFAEDQGWKT
 DSKNAIVSVQAGSGGVEACDWAEMLLRMYDRWAEKNGYNV DASNAILAFHAGAGGTEAQDWAQMLYRMYTRWAERHGFSY
DRNGAVLTTNAGAGGTDAQDWAEMLLRMYTRWAEQHGYKV
DSLSALLELHPGAGGTESQDWAEMLLRMYHRYCEYKGWKV DDKNVVLEI RAGTGGDEATLDAAEI FRMYSRYAETQNWKM DSREAVVAI RAGAGGVDAADFAEMLMRMYLRWAERHGYPT
DARNAIVAI NAGAGGTDAQDWAEMLLRMYLRWVEQKGFSY
DEKNVIVEI RGAAGGDEANDFASDLYRMYTKYAE LDKGWK I DGKNAIVSIHPGAGGTESNDWASMLYRMYDRFCEREGFKV
DERNIIMEIRGAAGGDEAQLFAGDLFEMYRKYAENQGWRV
DADDIVLEVKSGEGGEESALFAADLARMYDRYAERHGWSV
DDKNVVIEI RGGAGGDEAALFGAELMRMYMHYADAKRWKV
DEKNVILEI RQGAGGDEASLFAAELFRMYQRYAERHGWKT


DNCNCFLEIRAGAGGNESGIFAGDLFRMYSKFSEKRGWTLD
DDKNVIVEIRAGTGGDEAA FASELYRMYCKYAENNRWKP
DERDALVTI RSEAGGVDAADFAAMLDRMYQRWAERHEFSI
DDKSVILEI RAGTGGDEAADFAGDLERMYSRFAETNRWRV
DEKNCYLEVRAGTGGDEAADFSGDLFRMYSRYAETQGWRV

DDKNVILEI RAGTGGEEAGLFAADLFRMYSRYAEDKGWTV

DARDVI DEVKGGEGGDEAALLAADLLRMYTRYAEHRGWKT
DGSDVVMELKSGEGGEESALFAGDLLRMYLRYAERHGWKA

DEKDIYLEEDRAGTGGEEAADFASDLEKAYARYAEKKGWRV DRNNAILDLHTGAGGTDAQDWTEMLLRMYTRWAE
DEKNVIMEIRGAAGGDEAADFAGNLVRMYSRYADTAGWKI
DDRSAI LEVRAGTGGDEAALFAGDLFRMYQRYAEARGWRV

DEKNVIVEIRGAAGGDEGNIFAGDLYRMYLKYAESKGWKV DDKNVILEVRAGTGGEEAALFAGDLFRMYTRYAEKQGWRT


 DENNAVLTLHSGAGGTESQDWCEMLTRMYQKYAQRKKFQY EKN VFMEIVGAAGGDEAALFAGDLYKMYTRFAERQNWKV
 DHLNAIMELHPGAGGTESQDWALMLYRMYKRYAERNNFDF
 DSRNVFI EVVAGTGGDEAAI F SGDLVRMYSKYVD

D $D E$
$D$
$D E$
$D$
$D$
$D$
$D$
$D$
$D$
$D$ $D$
D
Q
D
D
D
E
E
E
K
D
D
D
D DK
Q
DK
ER
DK
E
E K
EK
K
A
E
D
D

## UniRef90_N9U1N7 UniRef90_K9YDC1 UniRef90-W8VSV2 UniRef90_J0ULC8

 UniRef90_R5QG84 UniRef90_UPI00046FC0BC UniRef90_R6ZUM3 UniRef90 F3LHI5 UniRef90_UPI00046641C1 UniRef90-UPIO0047C1671 UniRef90_Q5QUZ8 UniRef90-H8Z2W9 UniRef90-G8TYL4 UniRef90-C9LJ29 UniRef90_R1CYV5UniRef90_R7G2F3 UniRef90_F6DBZ2 UniRef90_D9SCF7 UniRef90_E6PU87 UniRef90-G9YHS3 UniRef90_F9U5U0 UniRef90_UPI0002EB4661 UniRef90_UPIO0039F7870 UniRef90_R5W7Z1 UniRef90_A8V2C4 UniRef90_R5HET8 UniRef90_B8HQ61 UniRef90_UPIO0047844A1 UniRef90_Q01RX8 UniRef90-U5VRL0 UniRef90_B8FAG4
UniRef90_D4W5E2 UniRef90-A7ZE19 UniRef90-K9ECE5 UniRef90_A3Q3C2
UniRef90_R6WDE4 UniRef90_B2V9H8 UniRef90-R6D5V4 UniRef90_A3QH30 UniRef90-C3JC63
UniRef90-C6VZY0 UniRef90-S3DJQ8 UniRef90_V2Y3N7 UniRef90_S3WRB3 UniRef90_B9MOL2 UniRef90-C0K078 UniRef90_B3PJP4
UniRef90_UPI00036C72B7 UniRef90 R R B391 UniRef90 C0QB15 UniRef90_UPI00047903FC UniRef90_J7J220
UniRef90_M7MXQ8 UniRef90_R4TEG2 UniRef90-UPI000366F07B UniRef90_A6Q162 UniRef90_J1LP68 UniRef90_L7EH90 UniRef90-S2XNZ9 UniRef90_UPI00041F2558 UniRef90_UPI00037EC730 UniRef90_R5TMW8 UniRef90_R6XQV5 UniRef90_C8VVG1 UniRef90_F3B7V3 UniRef90-S2ZL52 UniRef90_UPIO0047D8776 UniRef90-D6ZGD9 UniRef90_R7FVB2 UniRef90_UPIO004752C14 UniRef90_C4KYV2 UniRef90-W9BFG5
UniRef90-E4U6J4 UniRef90_E4U6J4 UniRef90_R6Y0I0
UniRef90 C8N8S0 UniRef90_UPIO0036469CA UniRef90_S6GGX7 UniRef90_R6QKD4 UniRef90_I7JVF7 UniRef90_UPI0003703F33 UniRef90_UPI000371A2CC UniRef90-W3ARX4 UniRef90-F3ZT11 UniRef90_B9L2A9 UniRef90_D8F494
UniRef90_F4BLN9 UniRef90_UPIO004757906 UniRef90_EOWUH4 UniRef90_UPIO0037C1702 UniRef90_L0B799

SM|VUSCNEGEHGGFKE\|VAK|V|DGERVYGR|L|KFESGGHR|VQR HLAELSEGDEAGTKSASLEIIGGYAYGYLKGEKGTHRLVR KELNFQAGDVAGIKTVTLELEGDYEGWLKGENGVHRLVR KLTDWLDGDEAGLKAATIFVEGENAYGYLKSENGVHRLVR EIMSASDSEVGGYKEVIVRII GQDVYGRLKFESGAHRVQR EYLEE SPGEEAGLKSSVVKISGHNAYGWLKTESGVHRLVR EVLDANDTGIGGYKEVVLMTGDKVYKLKYESGAHRVQR EUVSESRSQGGYKEVTARIVGQGVYQLKFESGAHVQR ETMSENASDLGGYREVIVRLVGQGAYKLKFESGGHVQR ELLEVHDGEEAGDKSATVLIKGHNAYGWLKTESGVHRLVR NIVASDGEHGGYKAIAHMSGDGVYGRMKFESGGRVOR ETISASDGELGGYKEVVRMSGKQVYARKFEAGTHRVQR RISNLQDGDEAGIKTVTIEIIEGDYAYGYLKSENGVHRLVR ELMSSNSQGVGGFKEVVVMIKGKGAYSRLKYESGVHRVQR ELIDENDTELGGVKEVVFSVSGKGVYSKLKYESGVHRVQR EIINTSDGEHGGYKEIIARIDGDGAYKLKFESGAHRVQR EVVSESPGEMGGYKEIIARII AGQGAYSVLKFESGAHRVQR EVISHADSLLGVKEAVVR SGEGVYGRLKFESGHRVOR RMI DYOAGDEAGLKSCAFTVEGENAYGYLKSEGVHRLVR EVVEAHSNDGGGYKUSFLI QGQGAFSKLKYENGAHRVQR EVYDTSYAEAGTKSTTFAVKTPYAYGTLSVEGTHRLVR RIADLQPGEEVGI KSATMEFEGDYAYGFLSENGVHRVR EI VDYQPDDVAGil KATFIVKGPYAYGYLQGEQGVHRLVR KVMDYOEGDEAGLKATDMIEGENAYGYLRGEHGVHRLVR HLAELSEGDEAGLSATLEDGRYAYGLRSEGTHRLVR DTLDYQDGDEAGVKSVTLSVKGANAYGLLKAEKGTHRLVR EVTSSSESSVGGLKEVIULVSGNKVYAKLKYESGVHRVQR EVYETSYAEEAGLKSATFAVKVPYAYGTLSVESGTHRLVR QVMNVQYSESGGMSGVEFMITSGESVFSHMKYESGAHRVVR ETLDFQEGEEAGLKDVSFIVKGENAYGYFKAENGDHRLVR EVLDSNTSGVGGFKEIIFSUDGNNVYSKLKFENGAHRVQR THLDETTSDLGGYKDATLSVRSDGVWSRLKFEGGVHRVQR EILSLHPTEKGGIKEVVAMLKGKGAYSRLKYESGVHRVQR EVLSANETELGGYKE EVSSYTEGTDGGYKE SVMDYTEGTNGGYKE ELLSFNENGLGGFK

## E

## E

 EVVNSDETGHGGMRE NVIESSHSSAGGFKEVISSMIKGNGAFSAFKYESGTHRVQR EIISFNESDLGGYKDVQMAIPAEGVYAHLKFEGGVHRVQR EVLDSVDSDLGGFKDVTVSIKSDGVWARLKFEGGVHRVQR SVIDYQDGDVAGLKSATVEVQGINAYGFLKAESGVHRLVR KVMDTSYAEEAGLKSATFEVQAPYAYGTLSVEAGTHRLVR ETIDLLPGDEAGVKSAALKI TGEFAYGYLKAEKGDHRLVR E MDASPTGDGGYKEVIFMMNGGAYSKMKYENGAHRVQR EVMSLSDGEMGGYKEIIASIIDGAGVYARLKFESGVHRVQR EI LNSNATELGGFKEISFSI LGYGAYSKLKYESGTHRVQR EVMNEEYSEGGGFSLISFMVKGKNVYSKLKYESGAHRVQR EVLDANYTDDGGFKEVVCMMEGKGAYSRLKFESGVHRVQR SVLDYLDGDITGTKTVTFEVNGENAYGYLQSEKGVHRLVR DIAEADPAEVDGIDRATFTVSGKNAYGMLRAEQGVHRLVR EMNDYQDGEEAG|K KATFTVSGEYAFGLLSGESGVHRLVR KVLDTSYAEEAGIKSVTFQVDAPYAYGMLSVEAGTHRLAR TEYDRLDGDGAGLKSVCFKVEGENAYGYLKAEKGDHRLVR ELLHSQPGEEAGLKTATILIKGPYAYGYLKAERGVHRLVR ELIDANYTELGGFKEVTFMINGAGAYSKLKFENGAHRVQR EIMEASTTGVGGYKEITFMINGNGAYSKLKFENGAHRVQR ELLDYEASDAGIKSVTFAVKGPNAYGLSAERGVHRLVR EILSENPGEHGGYKEITSQISGNNVYSTLKYESGAHRUR STVDYSEGTNGGFKEI QFEVTGNDVYGTLKFEAGAHRVQR EIISANAGEHGGYKEITSRVVGTDVFSHLKYYSGVHRVQR EMISFSENGDGGFKEVVFMVSGQGVYSRMKYESGVHRVQR EVEDYEPGDEAGVK SVSVRIQGNNAFGLLKSENGVHRLVR EVVSENPGEVGGYKEAIVRIVGHGAYSRLKFESGGHRVQR ELVSANETGIGGMKEAVFIVTGKGAYSRLKYEAGVHRVQR EINNFNEGTAGGFKEVVFSVSGDNVYGLLKYESGVHRVQR EVLSSSPTELGGFKE FFEVRGKGAYSHFKHESGVHRVQR EILSQNMTGIGGFKEVIVLIEGHRVFSRLKYESGVHRVQR ETI ELSEGDVAGIKSVTIKFTGDHAYGWFRTETGVHRLVR EVINUNEGEKGGYKEVITKKTTGNGVYGQLKFESGGHRVQR






UniRef90 N9U1N7
UniRef90-K9YDC1
UniRef90-W8VSV2
UniRef90 R6SYE9
UniRef90 JOULC8

| UniRef90-R5QGB84 | R |
| :--- | :--- |
| UniRe90-UPIO0046FC0BC | D |

UniRef90_R6ZUM3
UniRef90 F3LHI5
UniRef90-UPI00046641C1
UniRef90-UPI00047C1671 F
UniRef90 Q5QUZ8
UniRef90-H8Z2W9
UniRef90_G8TYL4
UniRef90 C9LJ29
UniRef90-R1CYV5
UniRef90-R7G2F3
UniRef90-F6DBZ2
UniRef90 D9SCF7
UniRef90-E6PU87
UniRef90_G9YHS3
UniRef90 F9U5U0
UniRef90 UPI0002EB466
UniRef90_UPI00039F7870 R
UniRef90-R5W7Z1
UniRef90_A8V2C4
UniRef90_R5HET8
UniRef90-B8HQ61
UniRef90_UPI00047844A1 K M
UniRef90 Q01RX8
UniRef90-U5VRL0
UniRef90-B8FAG4
UniRef90 D4W5E2
UniRef90-A7ZE19
UniRef90_K9ECE5
UniRef90-A3Q3C2
UniRef90 R6WDE4
UniRef90-B2V9H8
UniRef90-R6D5V
UniRef90_A3QH30
UniRef90 C3JC63
UniRef90_C6VZYO
UniRef90-S3DJQ8
UniRef90 V2Y3N7
UniRef90-S3WRB3
UniRef90-B9MOL2
UniRef90_C0K078
UniRef90-B3PJP4
UniRef90_UPI00036C72B7
UniRef90_R7B391
K V

D
D

D


K L R PF LLERYDELSKLLSQ V D ALLAAEHAELQERMAD KLDQLVARHAEVEALLAA K L E EVVERRFERLTALLSN



MAE
HFDRAGLEKELHELECKMQE
K LLEALEER FQLLVSEKDS D

(



 MKEK $\square$ NT L L K HAED $\square$ WRK LCCKNE

KLDAVVDKYNELTETVAD
K LQAVSDRYEELNEDMSD
LAGLVAHYEEEQEMMAD
ML

VA GLLAEHEDLTQQLSD
LEQLAFRAFEELSSMMLT
 DLSEELKNLDATLAGUATVLDVEGLRRRAQALEQEAAD


KLEDIERSFMDLEQELAD
KLEEATKLRWEDVEEQLSN
 AEVEKEAAD
K LQPFDDRYEEI NRLLSS KLEELLKKYNELTEKIS D

EELDSRCSS
SDWKSHAAA $\square$ AQS $\square H L I K K R \square Q W K K \square M V R \square D M L S V E L N K$ EQMLDEYRRVEVDMSS
$K$ K A L SERHHEVGLLLSQ
KLEQLSMRLDEI NALLS D L Q TVVVDR YDELLN NMLA D L D D L L H K Y E D MEEKTLE
K L E DLLIRYEEIMGELSS

K Q NVVDRYDELNELLAD


MTE
K LDD D L E K T F VDLEKQMS D
KLEKFSKRLKELDFLLTQ LRQDTDRFEFLEAQLNA LAQUTQRFQFLEASMSA KLVSMNRYEELGHMLMD
K $\square E$ GAEVRFMELEMLLLS S
EYGELLKS


UniRef90_UP100037CE47B UniRef90-A8ZTL8
UniRet90_G2TBW9 UniRef90-UPIO00468E372 UniRet90-UPIIOOO3B59BCF UniRef90-A8HYR7
UniRet90 Qo90k6 UniRef90-Q1GPK3 UniRef90-T1DWI4 UniRef90-DOKZK7 UniRef90-B4D3Y7
UniRef90
R7L5NO UniRef90-B1R155 UniRef90_R6MXP9 UniRef90-UPI0004238F5C UniRef90-R6E9W6 UniRee90-UPI0003C800E4 UniRef90-R6EIM4 UniRef90_UPIO003B37B2F UniRef90 D6GS80 UniRef90-ABV6F1 UniRef90_P57511 UniRef90-CLJAN6 UniRef90-D3PN93 UniRef90-051101 UniRet90-E1R4Q8 UniRef90-W2BYS3 UniRef90-U1SGE7 UniRee90-UPI00031CF928 UniRef90-Q042K5 UniRef90_UP10003B7724D UniRef90-M7NLG0 UniRef90_UPI0003744F8B UniRef90_UPIOOO40C2E11 UniRef90_UPIO003A66E59 UniRef90-A0A022LB70 UniRef90_UPIOOO2625169 UniRef90-Q9X1R5 UniRef90-A8L8M8 UniRef90-E4L879 UniRef90-UPI00029AEA45 UniRef90-U2W8L5 UniRef90-I0RI99 UniRef90-F4XBU7 UniRef90-C6BYQ4 UniRef90-C6XWL9 UniRef90-B1GZ15 UniRef90-Q11P59 UniRef90-E6X3B9 UniRef90-R5SY87 UniR Ref90-EOYOLO UniRef90-B9KIRO UniRef90-V5UJG9
UniRef90 UPIOOO2 UniRef90-UP10002C2FFAB UniRef90-U1Q9Q1 UniRef90_U2LKD5 UniRef90-14W2T1 UniRef90-UPI00036A2CB2 UniRet90-UPIIO002195A9E UniRef90 UPIO003615D95 UniRef90_R7K4J8
UniRef90-S7J5NO UniRef90-R5R040 UniRef90-UPIOOO318396A UniRef90-R5Q0M8 UniRef90-204DN8 UniRef90-K41K16 UniRet90_UPI0003B38643 UniRef90-J5TRZ4 UniRef90 K9SK06 UniRef90-13TX23 UniRef90-UPIooo366B98A UniRef90-D6TPL8 UniRef90_D5EE76
UniRef90_UPI00047D1584 UniRef90-S5R8H3 UniRef90-W8SsJ5 UniRef90_UPIO00468EF90 UniRef90-R5QCT8 UniRef90-T1DW90 UniRef90_O1WUD6
UniRef90-E1YC91 UniRef90-E6x010 UniRef90-06ZY50 UniRef90-D5V5U6
UniRef90 O15SO9 UniRef90_UPIOOO35DB536 UniRef90-Q2J6M0

I

PAVVIFDDPAKYTELLTKEHGSLLKELVVDDYDNMDLIKSRKEGN PSIVNDREAYQKHSREHAELADIVDAYRRYKAVSDEDEKS MRERTHIEQSVAGYRALEEREDDAATLE $P Q T H N D Q R L A R R L G R R Y A Q L N G I V E A H K R W K S V Q D D L A A A$
$G$ PDVLADSAKLQKVSKERAALEKLVETFRTYRKVLGDLAEV PRFWEDTKQAGETSKKKSILEKMLEEYRKIEQNLKDCSELL PEVINNQDRFRSLSKEHARLHDLVVVLDRYQKAKADLQAA
 PGFWDDSKKAEEVTKKSKLIKDKI ENYDKLKSQLDDVDVEL PDVMGDMKRYAQLNKEYKDLSRIVEEYHIYSNUVSNIETN PDFWEDATRAQEQMKKVKAIEKWLKGYQEVRQFADELSLA PAVHADPATAKRVGQRYAELNAVARAYHEWQQVGDDLEAA PDVANDAERFRRLMKEQSDLAPIVEAYKEYKQCKQNVEDS
 AA GGDDAA KGGEYAEDRPVVDTVTAYKDLA QMIDT PKTWTEQUSDKKLNKEKYLLNSI LQNI NEDEENI KEVVDF E VCDPKKFAGLSKEYAGLENIYQTI LNYKSLLQQKADA PALWNDQSRARAVNQEATSLRRLVEAYGTLSSDAEGLGEM PAVLANQSEYQRISKRYAEMGHLVETDRSYKEALTHLAEA KNFWNDPKRAQKVIKAQSULKNKIDPWEELINKLKDLSDLD PDVISNQSVWQKHMKEMGEMEPTVKKYПEYKEAREALEFA PDVASNPDKDRKLGRRHAELGQIVSAYQKY员DVTENLEAA PEVIADSDRFMKLSKEEGSIRETVEKYRRYRKVMDEI SDD PEVINDTKRYMEISKEEADMREVVQKYRKYKSDDKEDDDN PSVHADQNVAKRLGRRYAQLAPIVGCARELDRVRADEQAA PGFWDNQDEAQKVISEANGLKDVVNEYRRLEETQENLEMT GNL DGDRFVAVSKEYAELEPVAQAAGEVRRLRAEAESLL PEAVADMEQYRKLNQEHAELTPVADAYRAYRAAESDWADA PALHADAARAKKVNRRYAELNQTKSAYEAWQAAGDDLAAA PELVNDTQRFQSLSRELGEGUSYLDLLRRHEQRQRDHDEA PDLWSDQDRAQAVTRRLSAVKGDIGRVEGLRRBLDDLEAA PSVTENQEKWRKFSKEHAELGETVTLYRQYKKVFETLEIL SQTIQDQNRFRDLSKEYVQLLAPVVQSFQRYQANVAACNEA
PELHT SETYE NPAA
DPAL ARKAGRF PEVYNNQERYRKVTMAQTELQPLVETYRTYLRTQQSHLEA MRERQELDEAVTAIVKKLERDLEDGATL PDTMQDMKRFAALNKEYKDLGKIVDEYKVYKNVMSNIEAN LSSVLSNQEEYRELTKQHFYLRPLAEKYDRYSKLLNE:IKDA PEIAADVKKMTELSKEQSSIAPLVEKAQKYUEDSEAIEEN PEVISDQNTWKKLMKERSLMVDVAEKYSEYKQVKANMEEA PDVISDSKRYVQLNREYKNLKPLVEVRSQYLELSSRDEEA PNLWDDPVHAGKTSREHGSLMGKMKEVRAFEQELLEHVDM PAVLASPEKMRALGRRYAELGRVARVYGAFLAARADLDEA PGFWDDQSQAQSIIQEMNDKESTRNAFLKLVSDWEDLQVE PDVHADNSRFRELSQEYAQLKPVAESLRELDKAQDELEAM QSVVSDQNQFRELSDEHALSPVNDQYQQYDSTLNDINAA PDVMADSQNYMKLSKEAGQIRETVETYQRYQSVVSGI EEA




$$
\mathrm{S}
$$

 $P$ D A S D S GKYTR Y A K ELGE T P G
 S R E Y
S K E Y P DVA T D P Y E F Q R I MRER PDFWNDNLAAQKTSQELNELL PDFWSDNRKAQAHMQQLNA $P$ V VA A N L K E $\square Q Q$ Q

## G

 $P D \square G$ NNIKDYCKKVREH P D P D K $\square A E$ E S R E Y S E L S T I I I S D I K K K L T Q L DVIS TK R F TKLSKEMADLREVTKKAKLYLQTLESIMEN PE P A V H N D P A K A R A L S R R Y A QL A
 UniRef90_A8ZTL8 UniRef90_G2TBW9 UniRef90_UPI000468E372 UniRef90 UPI0003B59BCF UniRef90_A8HYR7 UniRef90_Q090K6 UniRef90_Q1GPK3 UniRef90_T1DWI4 UniRef90-D0KZK7 UniRef90_B4D3Y UniRef90-B1R155 UniRef90_R6MXP9 UniRef90 UPI0004238F5C UniRef90 R6E9W6 UniRef90_UPI0003C800E4 UniRef90_R6EIM4 UniRef90 UPI0003B37B2F UniRef90_D6GS80 UniRef90-A3V6F1 UniRef90-C5JAN6 UniRef90_LOA4R2 UniRef90_D3PN93
UniRef90 O51101 UniRef90_E1R4Q8 UniRef90-W2BYS3 UniRef90-UPI00031CF928 UniRef90-Q042K5 UniRef90_UPI0003B7724D UniRef90_M7NLG0 UniRef90_UPI0003744F8B UniRef90_UPI00040C2E11 UniRef90_UPI0003A66E59 UniRef90_A0A022LB70 UniRef90_UPI0002625169 UniRef90_Q9X1R5 UniRef90_A8L8M8 UniRef90-E4L879 UniRef90_UPI00029AEA45 UniRef90_U2W8L5 UniRef90 I0RI99 UniRef90_F4XBU7 UniRef90_C6BYQ4 UniRef90-C6XWL9 UniRef90_B1GZI5 UniRef90_Q1IP59 UniRef90_E6X3B9 UniRef90_R5SY87 UniRef90-E0Y0L0 UniRef90-V5UJG9 UniRef90_UPI0002C2FFAB UniRef90_U1Q9Q1 UniRef90_K1LDP8 UniRef90_U2LKD5 UniRef90_I4W2T1 UniRef90_UPI00036A2CB2 UniRef90_UPI0002195A9E UniRef90_UPI0003615D95 UniRef90_R7K4J8
UniRef90_S7J5N0 UniRef90_R5R040 UniRef90_UPI000318396A UniRef90_R5Q0M8 UniRef90_Q04DN8 UniRef90_K4IKI6 UniRef90_UPI0003B38643 UniRef90_J5TRZ4 UniRef90_K9SK06 UniRef90_I3TX23 UniRef90_UPI000366B98A UniRef90_D6TPL8 UniRef90_D5EE76 UniRef90_UPI00047D1584 UniRef90_S5R8H3 UniRef90_UPI000468EF90 UniRef90_R5QCT8 UniRef90_T1DW90 UniRef90_Q1WUD6 UniRef90_E1YC91 UniRef90_E6X010 UniRef90_Q6ZY50 UniRef90_D5V5U6
UniRef90 Q15SQ9 UniRef90_UPI00035DB536 UniRef90_Q2J6M0
UniRef90_B4EVR7
,

 DELGQ A E D D A ES I A E GE R M L H S A A QKA R K Q E L E S L L S G E A E ELGADDD A EFAA E V P G L R R Q L D E A A D K L L R M L I P R D E N R E L L A D P E M R D L A A S S E V T E A WL D D A D E K A Y A R E A L P G L Q Q R E E F E Q E L K L L L L P P K D P N
 EHMSKEPDREMAEHMSKEPDREMAA LAALELLKVVHLDPHDPA $\square E L A R E A N D E T S V K E V V E K E Y G V I Q N G L A E F E E L K M L L L N G P N$

 F E Y H K E GMVP FEYHKE GMVPE E EVV DADYAK A L L M MLL E E E S D E



 E I M L L T D P G M R QL A E E E L GA L K L A E E T WQ ML R VL L L P P D V D RE LQ F D P E L G E EMR A D CEI AENEKDTNG

 QELAS ED N D L L H E K LDDP DMEE
 REMSGEDEAFA LELLREEDDP DLHAEAQELLAA QY MT D A

 QELAREDAAFA DEVPGLEEQLSERQERLRRLLIPRDDPD
 LI L L S DE D Q E M A Q HVVE E I V QE L N D K N Q E ELL F E L A K K E DLLK E A E K E I I E K L E E H Q L H L L L L I P P K D P N

 $\begin{array}{ll}E & L \\ L & L \\ K & D \\ K & \text { M }\end{array}$




 FDMARE E GDEDSL LAALESDTQALAARVGEMERRRMFNNPA


## R



## E <br> $$
\mathrm{E}
$$

## ,

> 保
E A M
 K I L L E D K D GE LAAKE ELK ELES QKIIALEEEI KLLLI PK DPN


 QEMMQESSDPEMREMAQEEYKS SKQA I EQYLQLLLLPM DPN



130
150
160

UniRef90 UPIO0037CE47B UniRef90_A8ZTL8 UniRef90-UPI000468E372 UniRef90 UPI0003B59BCF UniRef90_A8HYR7 UniRef90_Q090K6 UniRef90_Q1GPK3 UniRef90_T1DWI4 UniRef90_D0KZK7 UniRef90_B4D3Y7 UniRef90 R7L5N0 UniRef90_B1R155 UniRef90_R6MXP9 UniRef90 UPI0004238F5C UniRef90-R6E9W6 UniRef90_UPI0003C800E4 UniRef90_R6EIM4 UniRef90_UPI0003B37B2F UniRef90_D6GS80 UniRef90_A3V6F1 UniRef90_P57511 UniRef90_C5JAN6 UniRef90-L0A4R2 UniRef90_D3PN93 UniRef90_O51101 UniRef90_E1R4Q8 UniRef90-W2BYS3 UniRef90_U1SGE7 UniRef90_UPI00031CF928 UniRef90-Q042K5 UniRef90_UPI0003B7724D UniRef90_M7NLG0 UniRef90_UPI0003744F8B UniRef90_UPI00040C2E11 UniRef90_UPI0003A66E59 UniRef90 A0A022LB70 UniRef90_UPI0002625169 UniRef90_Q9X1R5 UniRef90_A8L8M8 UniRef90-E4L879 UniRef90_UPI00029AEA45 UniRef90_U2W8L5 UniRef90 I0RI99 UniRef90_F4XBU7 UniRef90_C6BYQ4 UniRef90-C6XWL9 UniRef90_B1GZI5 UniRef90_Q1IP59 UniRef90_E6X3B9 UniRef90_R5SY87 UniRef90_E0YOL0 UniRef90_B9KIR0 UniRef90_V5UJG9 UniRef90-UPIO002C2FFAB UniRef90_U1Q9Q1 UniRef90_K1LDP8 UniRef90_U2LKD5 UniRef90_I4W2T1 UniRef90_UP100036A2CB2 UniRef90_UPI0002195A9E UniRef90_UPI0003615D95 UniRef90_R7K4J8
UniRef90 S7J5N0 UniRef90-R5R040 UniRef90_UPI000318396A UniRef90_R5Q0M8 UniRef90 Q04DN8 UniRef90_K4IKI6 UniRef90_UPI0003B38643 UniRef90_J5TRZ4 UniRef90_K9SK06 UniRef90-I3TX23 UniRef90_UPI000366B98A UniRef90_D6TPL8 UniRef90_D5EE76 UniRef90_UPI00047D1584 UniRef90_S5R8H3 UniRef90_W8SSJ5
UniRef90_UPI000468EF90 UniRef90_R5QCT8 UniRef90_T1DW90 UniRef90_Q1WUD6 UniRef90_E1YC91 UniRef90_E6X0I0 UniRef90_Q6ZY50 UniRef90_D5V5U6
UniRef90 Q15SQ9 UniRef90_UPI00035DB536 UniRef90_Q2J6M0



D S K N ATVVEVRAGTGGDEAA|IFAGDLIFEMYRKYADS Q GWNM
DNKNVLVVI RAGTGGEEASLFAHDLFRMYWRYAETMGWKT
 D


 D R Y N A F L T I N S GA G G T E S C D WA D MLL R M Y QR WI ER H G F K S DKNNAIVTM HVGVGGTDANDWTEMLDRMYTRWCENKGYSVV DEKNVI MEI RGGTGGDEAADLAADLMRMYSMYAESKNWK I D SKHAIVEI RGGTGGDEAALLFAGDLYRMYTRYCERRGWKM
 D E K N V I L L E I R R A GA G G D E A A L
 D A R P AL L E I R P GTGGGDEASLFAGDLLRMYQRYAENMGWRF

 DEKNAIVEI RAGTGGEEAADFAAELXRDMDMEYAKQGGYRV DANNAFLT D GKNT
D E $\begin{array}{cc:c}\text { D T K D V I } & \text { L } & \text { E } \\ \text { D K N N A I } & L & \text { E }\end{array}$
D

$$
x_{1}
$$

## D

## 

$$
=1
$$

D
D

$$
0
$$

 D K E GAVI
D S
D A
$\left.\begin{array}{llll}D A R D & A \\ D & E & F & N \\ C & F & L & V \\ E\end{array} \right\rvert\, \begin{array}{ll}K A & G \\ R & G \\ G & G \\ G & E\end{array}$

UniRef90_UPIO0037CE47B UniRef90-A8ZTL8
UniRef90
G2TBW9 UniRef90-UPI000468E372 UniRef90-UPIO003B59BCF UniRef90-A8HYR7 UniRef90-OO90K6 UniRef90-Q1GPK3 UniRef90-T1DWI4 UniRef90-DOKZK7
UniRef90 B4D3Y7 UniRef90-R7L5NO UniRef90-B1R155 UniRef90-R6MXP9 UniRef90-UPI0004238F5C UniRef90-R6E9W6 UniRef90_UPI0003C800E4 UniRef90-R6EIM4 UniRef90-UPI0003B37B2F UniRef90-D6GS80 UniRef90-A3V6F1 UniRef90_P57511 UniRef90_C5JAN6 UniRef90-LOA4R2
UniRef90-D3PN93 UniRef90-O51101 UniRet90-E1R4Q8 UniRef90- W2BYS3 UniRef90-U1SGE7 UniRef90-UPI00031CF928 UniRef90-Q042K5 UniRef90_UPI0003B7724D UniRef90-M7NLG0 UniRef90-UPIO003744F8B UniRef90-UPIOOO40C2E11 UniRef90-UPIOOO3A66E
UniRef90-A0A022LB70 UniRef90-UPIOOO2625169 UniRet90-Q9X1R5 UniRef90-A8L8M8 UniRef90-E4L879 UniRef90-UPIO0029AEA45 UniRef90-U2W8L5 UniRef90-I0RI99 UniRef90-F4XBU7 UniRef90-C6BYQ4 UniRef90-C6XWL9 UniRef90-B1GZ15 UniRef90_Q11P59 UniRef90-R5SY87 UniRef90-EOYOLO UniRef90-B9KIRO UniRef90_V5UJG9 UniRef90-UP10002C2FFAB UniRef90-U1Q9Q1 UniRef90-K1LDP8 UniRef90-U2LKD5
UniRef90 $14 \mathrm{~W} 2 T 1$ UniRef90-UP100036A2CB2 UniRet90-UPIIO002195A9E UniRef90 UPIOOO3615D95 UniRef90_R7K4J8
UniRef90-S7J5NO UniRef90-R5R040 UniRef90-UPIOOO318396A UniRef90-R5Q0M8 UniRet90-C04DN8 UniRef90-K41K16 UniRef90_UPI0003B38643 UniRef90_J5TRZ4 UniRef90-I3TX23 UniRef90-UPIO00366B98A UniRef90-D6TPL8 UniRef90_DEEET6
UniRef90 UPIOOO4 UniRet90-S5R8H3 UniRef90-W8SSJ5 UniRef90_UPIo00468EF90 UniRef90-R5QCT8 UniRef90-T1DW90 UniRef90_O1WUD6
UniRef90-E1YC91 UniRef90-E6x010 UniRef90-O6ZY50 UniRef90-D5V5U66 UniRef90-UPI00035DB536 UniRef90-O2JGMO
UniRef90 B4EVR7

S L M S L A E S EK G GYK E\| V|F S|L|E G DEVF GKMKYES GV/HR|V|QR EIMSSSVVGS G GFKEVIFMVYGKGAYSHLKFESGIIHRVQR
 ELLAATPSEAGGYKDVQVAIPAEGVYAHLKFEGGVHRVQR


 ELLDYQDGEEA G $\square$ K GAAF LI K GENAY GYAK VENGVMR LVR E L L S E QPGEH G GYR EVVIA QI S G D GVVYA A L K F E S GA H R V QR | $E$ | $V$ | $M$ | $D$ | $Q$ | $L$ | $G$ | $E$ | $E$ | $A$ | $G$ | $I$ | $K$ | $S$ | $C$ | $T$ | $L$ | $K$ | $V$ | $A$ | $G$ | $E$ | $Y$ | $A$ | $F$ | $G$ | $Y$ | $L$ | $A$ | $T$ | $E$ | $R$ | $G$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $E$ | $V$ | $R$ | $L$ | $V$ | $R$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $I$ | $E$ | $D$ | $V$ | $Q$ | $D$ | $G$ | $E$ | $E$ | $A$ | $G$ | $V$ | $S$ | $K$ | $V$ | $T$ | $F$ | $R$ | $V$ | $I$ | $G$ | $P$ | $N$ | $A$ | $Y$ | $G$ | $Y$ | $C$ | $K$ | $A$ | $E$ | $R$ | $G$ |
| $V$ | $H$ | $R$ | $L$ | $V$ | $R$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ETIDLIDA GDEA GI K S V T L K K V T G E Y V Y G Y L K A E K G I H R L V R


 E V L D A N E S A L G G Y K S

 EMMS A NETGI G GYK EVVVFMITGGGAYSRLKYESSGVHRVQR
 DV L G L S E T GLL G S V K E A QV GIIVGGK GV F A K L K F E S G V H R V QR E L L D E Q A G D Q A G I T T S Q F IV R G E R A F G M L A P E H GV H R L V R E V L D T S L T D D G G V S K VVVF E V S G G P G A Y G Y L K Y E A G V


 S L I D S E E P T E V G GYYKRRVAVMMTMADKV Y S K L K Y E N GA H R V Q R
 ETLDD D L A G DEA GVVK S V T I S I K G H N A Y G Y L K A E K G V H R L V R

 ELL L R T E S D L G G Y K D DV QVA I K K S N T V W W A H L K Y E G G V H R V Q R
 EVVFDTS EA E EA GLLK S A T F Q V K C P Y A Y G T L R S E H G V H R L V R

 TVVLDET TS DLGGGYK DATLSSISPEGVWSRMKFEGGVHRVQR



 EIVVSSEGTAGGYKELIALVKGEGVYSKLKFEAGTHRVQR EVIID DNE TE $\square G G G V E V S F M I K G K G A Y S R L K F E S G V H R V Q R$ A V L T M N E G S S G G F K E V V S F E VVNGEESVVY GDL K K Y E S G VV H R V QR EVLVVSDGDVA GI K S A S L KVVTGDYAY GY L R T E TGGVHRLVR $T V V E E M P G E I A G I K R A T T I V V D G E Y A F G Y A K A E V G V H R L V R$


 EVMSSNDGEHGGFKEVVARMISGSNVYSKLKFES GAHRVQR QI DDETTTEVGGYKEVAAMI TGDKVFSKLKFESGAHRVQR E 1.


 E ML S V N D T G L G GF K E A S A S V T G K S V F E K L K F E S G V H R V QR EIVD QTVGEAGGFKEAVINISSGNVYSKLKFESGAHRVQR


 $K L V S E S L A D M G G Y K E V I L E I \quad Q G D R V Y S K L K F E S G V H R V Q R$






 EIIDS S S EN DVGGGYK EMIDALI K GA GVVFSRRLKYE G G T H R V V Q R


## 

| $L$ | $V$ | $S$ | $F$ | $E$ | $G T$ | $S G G$ | $Y$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $E$ | $L$ | $D$ | $A$ | $N$ | $P$ | $S$ | $D$ |
| $L$ | $G$ | $G$ | $Y$ | $R$ |  |  |  |



UniRef90_UPI00037CE47B Uniinefao A8ZTLB
UniRef90 G2TBW9 UniRef90-UPIO00468E372 UniRef90-UPI0003B59BCF UniRef90-A8HYR7 UniRef90_Qo90K6 UniRef90-Q1GPK3 UniRef90-T1DWI4 UniReforo-DOKZKK7 UniRef90-R7L5NO UniRef90-B1R155 UniRef90-R6MXP9 UniRef90-UPI0004238F5C UniRef90-R6E9W6 UniRef90-UPI0003C800E4 UniRef90-R6EIM4 UniRef90_UPI0003B37B2F UniRef90-D6GS80 UniRef90-A3V6F1 UniRef90-P57511 UniRef90_C5JAN6 UniRef90-LOA4R2
UniRef90- D3PN93 UniRef90-O51101 UniRef90-E1R4Q8 UniRef90- W2BYS3 UniRef90-U1SGE7 UniRee90-UPI00031CF928 UniRef90-Q042K5 UniRef90_UP10003B7724D UniRef90-M7NLG0 UniRef90-UPIOOO3744F8B UniRef90OUPIOOO40C2E11 UniRef90-UPIOOO3A66E
UniRef90-A0A022LB70 UniRef90-UPIOOO2625169 UniRef90-Q9X1R5 UniRef90-A8L8M8 UniRef90-E4L879 UniRef90-UPI00029AEA45 UniRef90-U2W8L5 UniRef90-IORI99 UniRef90-F4XBU7 UniRef90-C6BYQ4 UniRef90-C6XWL9 UniRef90-B1GZ15
UniRefo-
O1IP5 UniRef90-E6×3B9 UniRef90-R5SY87 UniRef90-EOYOLO UniRef90-B9KIRO
UniRefo - V5UJG9 UniRef90-V5UG9
UniRefolo-UPIOOO2C2FFAB UniRef90-U1Q9Q1 UniRef90-K1LDP8 UniRef90_U2LKD5 UniRef90-14W2T1 UniRef90-UPIO0036A2CB2 UniRef90_UPIO002195A9E UniRef90_UPIO003615D95 UniRef90_R7K4J8
UniRef90- $\mathrm{S7J5NO}$ UniRef90-R5R040 UniRef90-UP1000318396A UniRef90-R5Q0M8 UniRef90_004DN8 UniRef90-K41K16 UniRef90_UPI0003B38643 UniRef90_J5TRZ4 UniRef90-I3TX23 UniRef90-UPIO00366B98A UniRef90-D6TPL8 UniRef90-D5EE76
UniRef90 UPIO004 UniRef90-S5R8H3 UniRef90-W8SsJ5 UniRef90-UPIOOO468EF90 UniRef90-R5QCT8 UniRef90-T1DW90 UniRef90-Q1WUD6
UniRef90 E1YC91 UniRef90-E1YC91
UniRef90-E6X010 UniRef90-Q6ZY50 UniRef90-D5V5U66 UniRef90-UPI00035DB536 UniRef90-Q2J6M0
UniRef90-B4EVR7

250
260
270
280
FRASGAGGQHVINKTDSA\| R\|ITHEPTG\|VVECQEERSQHQN FRSSGPGGQSVNTTDSAVRLTHLPTGVVVICQDEKSQLKN
 MRAS GNGGQSVNTTDSAVRITHIPS GLVVTNQDGKSQHKN YRSSGPGGQSVNTTDSAVRITHEPTGIVVSMQNEKSQLQN
 $M R S T G S G G Q S V N T T D S A V R L D H K P S G Q V V K C Q Q E K S S T K N$ YRAS GAGGQHVNTTDSAI RITHDPTGLVVDQQDQRSQHKN YRASGAGGQHVNKTESAI RITTHLPTGIVVQCQNDRSQHKN FRAS GA GGQHINNKTDSAI RVTHLPTGMVVECQDERSQHKN YRSGGKGGQNVNKVETAVRIRHIPTGIVAACQNERSQQKN YRSSGKGGQKVNKTDSAVRITHLATGIVVACQNERSQYKN YRSSGS G GQHINNKTDSAVRITHIDPGIVVQCQNERSQFSN
 $F C S S G P G G Q S V$
$F$
$R$ F R S S GA G G Q NV N K VE S GVRRLR $\begin{array}{lllllllllll}F & R S S & G P G G Q Q & V & N & T & T & D & S & A & V \\ F & R & I & T\end{array}$

| R |
| :--- |
|  |
|  |

$\begin{array}{ll}Y & L \\ H & \text { L } \\ H & \\ H & \\ H\end{array}$
E
T
T
T
FRASGNGGQCVNTTDSAVRL

 YRASGAGGQHVNRTESAVRITTHLPTNIVTQCQNNRSQHKN CRASGAGGQHVNTTDSAVRLTHLPTGLVVAQQDERSQHKN $Y R$ S Q GA G GQ G V N T T D S A V R V T H L P T G L Q $V$ A SRASGPGGQGVVNTDSAVQVLHKPTGMVVSCMESRSQIKN YRASGAGGQHVNKTSSAVRITHIETG\|VTQSQSDRSQHKN FRSSGPGGQSVNTTDSAVRVTHIPTGVVVTCQDEKSQLKN YRAS GNGGQCVVNTTDSAVRLLTHLIPTGLVVTCQDEKS QIMN FMSSGPGGQSVNTTYSAVRMTHIPTGIVVSMQDEKSQIQN $F R S S G A G G Q H I N K T S S A V R M T H I P T G V V V S M Q D Q R S Q Q Q N$ YRSSGA G GQHINNKTSSAVRMTHLPTGUVVAMQDQRSQQQN Y R S S GP G G Q S V N T T D S A V R IT H L P T G TVVVAMMQNEKS QLQ N YRSSGAGGQHVNTTDSAVRI
 YRSSGAGGQHVNKTDSAIRL FRASGAGGQHINKTDSAVR
 F R Y RAS GA G GQH I NK T S S A ll R

YRSS GK G G Q GVVNTTD S AVRI
F R S S GA G G Q HVVNK T S S A V R L
FRAS GP G GQ S V N T T D S A

Y R S G G K G G Q HVVNT T D S A V R
Y R A S GAGGQHVNKTSSAVRL YRSQ Q A C O
 YRASGAGGQHINKTDSAVRLTHIPTGIVVACQNDRSQHRN

## F


YRAGGKGGQHVNKTESAVRF
$F R A S G A G G Q H V N K T D S A I R D T$
FRASGAGGQHVNKTDSAVRVTHMP
YRASGAGGQHVNKTSSAIRLTHEP
Y R A S G A G G Q H V N K T E S A $V$ R



 $F C S S G P G G Q Q V N T T Y S A V R L T H E P T G Q V A Q C Q Q Q K S Q Q H K N$
 ARSGGAGGQNVNKVETAADLLHKPTGI RI FCTEERSQLQN




 MRASGAGGQHVNTTDSAVRITHLPTGIVVTSSE KSQHRN MRSS GA G G Q H V N T T D S A V R I T H L P T G L VVVTSSE K S Q H R N Y R A S GA G G Q HI NKTDSAVRITHLPTGIVATSQDGRSQHDN FRAGGHGGQCVNTTDSAVRITHIPTGISVSMQDEKSQHKN YRSSGAGGQHINKTSSAVRMTHLPTGGVVAMQDQRSQQQN YRSTGPGGQSVNTTDSAVRDTHLPTGLVVTCQDEKSQFKN YRASGAGGQHVNKTESAI RITHIDPGIVVQCQNDRSQHKN SRAGGKGGQNVNKVETAVRITHIDTGVTVRCTEERSQLAN
 FRASGAGGQHVNKTDSAIRITHVDPSGIVVECQDERSQHKN

 UniRef90_A8ZTL8 UniRef90_G2TBW9 UniRef90_UPI000468E372 UniRef90 UPI0003B59BCF UniRef90_A8HYR7 UniRef90_Q090K6 UniRef90_Q1GPK3 UniRef90_T1DWI4 UniRef90-D0KZK7 UniRef90_B4D3Y UniRef90_B1R155 UniRef90_R6MXP9 UniRef90_UPI0004238F5C UniRef90 R6E9W6 UniRef90_UPI0003C800E4 UniRef90_R6EIM4 UniRef90_UPI0003B37B2F UniRef90_D6GS80 UniRef90-A3V6F UniRef90-P5751 UniRef90_L0A4R2 UniRef90_D3PN93 UniRef90_O51101 UniRef90_E1R4Q8 UniRef90-W2BYS3 UniRef90_U1SGE7 UniRef90-UPI00031CF928 UniRef90_Q042K5 UniRef90_UPI0003B7724D UniRef90_M7NLG0 UniRef90_UPI0003744F8B UniRef90_UPI00040C2E11 UniRef90_UPI0003A66E59 UniRef90_A0A022LB70 UniRef90_UPI0002625169 UniRef90_Q9X1R5 UniRef90_A8L8M8 UniRef90 E4L879 UniRef90_UPI00029AEA45 UniRef90_U2W8L5 UniRef90 I0RI99 UniRef90_F4XBU7 UniRef90_C6BYQ4 UniRef90_C6XWL9 UniRef90_B1GZI5 UniRef90_Q1IP59 UniRef90_E6X3B9 UniRef90_R5SY87
UniRef90_E0Y0L0 UniRef90-B9KIR0 UniRef90_V5UJG9 UniRef90_UPIO002C2FFAB UniRef90_U1Q9Q1 UniRef90_U2LKD5 UniRef90_-14W2T1 UniRef90_UPI00036A2CB2 UniRef90_UPI0002195A9E UniRef90_UPI0003615D95 UniRef90_R7K4J8
UniRef90 S7J5N0 UniRef90_R5R040 UniRef90_UPI000318396A UniRef90_R5Q0M8 UniRef90_Q04DN8 UniRef90_K4IKI6 UniRef90_UPI0003B38643 UniRef90_J5TRZ4 UniRef90_K9SK06 UniRef90-I3TX23 UniRef90_UPI000366B98A UniRef90_D6TPL8 UniRef90_D5EE76 UniRef90_S5R8H3 UniRef90_W8SSJ5 UniRef90_UPI000468EF90 UniRef90_R5QCT8 UniRef90_T1DW90 UniRef90_Q1WUD6
UniRef90 E1 YC91 UniRef90 E6X0I0 UniRef90_Q6ZY50 UniRef90_D5V5U6 UniRef90_Q15SQ9 UniRef90_UPI00035DB536 UniRef90_Q2J6M0

K E K A M T M|L R S K
EKKEKERAADRKS
 K D Y C W S ML R A R L Y E H E L Q K R E E K T K A L E D T K T D DG WG H Q I K DAAMK IL KARLFDLQQREHDAKQSEER REAAMRVLRSRLLAHQQEQIDAENAEARKSQRTMDRSER K A RAMALLLRSRMLDEER QKADAN RAA DR GQVGGSGDRS ER L
 K A T A L K ML L Q S KL Y E L E RL K QQ GEVVD S

 (

 RAKAMLLLKS QLYDRAMKKRMEEQAK DEAGKKKDEWGS K E Q A MR I L R S RMLDEA A QA EA DAEASARRS Q DRTMDRS ERV K D K A L K V L R A R L Y E ME LA K Q H D A E A E A R K S QV G T G R S E K I

 K A K A MK IMMRARL Y DL R K REQDEVRAADRKS QVSGDRS E

 KAKALRRVLRARLYEAEMKQRKERDQARKSQDGSGDRSE REKAMKVLKARII YDKMQREQADKDAAERKDQIGTGRSE
 RVK A MEI L K Q R V Y D Y Y A S R E Q S E Y D E Q R K S V G T G D R S E R I
 RE QA MK L L K A K L Y Q L K $\square$ E E QE K E L L E D DR GEQK E IG WG S Q K A K A L K K V L R T R L Y E A E R E R L A A A E R S T R R A M V G S G D R S
 R A K A M S L L Q A R L D N R QREAQEKEMSDTRRSVGGGDRSERII REAGMRVLRARILARQQEELDADASDARKSQIRGDRSE R
 K A A A MMVLQ A K L LERRRRAEEAAEKMRLLTGGPQDVSFGS
 R DKAMRIL A S RLLYEAE QEK IVSEYTAQRRSSQVGSGMR K A K A MKV L C S RLL LQA E Q D K Q H A E M A E R R A QV G S GARRS E Ri RATA WN ML R A RLYEAELKKREEKANAEAASKTDDGWGHQI
 RERAMMKI L R S K I Y E E Y E L E K K R A A S Q K V E D S K L D Did F G S Q i RDKAMKVLKARVHEAMMREQMEETAGQRKQVGSGDRSEKI RETAMKML RSKLYEKARQEQESKVSSTRKQVGTGDRSEKIII
 RAEA WDML RSRRLFEHEMRKRRAEQDKDESSKTDVGWGHQI

 R E DIA M N I L L R S R R L Y E Y Y R E Q R E K E N N S K Y S G E K K D I S W G N QI R A R A MS L L R A R L L D A E R S K Q T A E Q A E R R L QV G T G D R S Q RI KA QALSVLASRI LDA QQYEQQKEQAT QRKEVGS GDRSQRII
 R E Q A M L ML K S K L A E LIR E R E Q M E E A Q S LIK G DVVK K IIE WG S Qil K A K A F QL L $R$ T K L Y D L E Q Q K A H D A E A E L
 RSKAWQIL RSRVYDHFQENREQYDQQR KEKAFRVLRSRLYEMELAKKQAEDAEKRGSMTSGDRSA


RDRAMKML QAKLYQLEQEKKAAEVDSLGDGDKTDIGWGHQ REVALKILKARLFELEQKKHDEEAARLKGEHVQADFGTQ

 REDA M GVLRAR L F D LDERRRAE E ER SADRKA QV S G DR S E R D K A M K ALL VA R V Y $\operatorname{D}$ Y F Q S S Q Q T E A R EK A M M K L L KA R V Y E A QL Q E QL S Q N S Q A R K N QV S G DR S K S K A M K V L R A R L L D DT M E Q N Q K R S A E R K H Q I G S G D R S E R I K A A A MK ML K S RLYEYEMAKKQAEDD G





| UniRef90_UPI00037CE47B | D |
| :---: | :---: |
| UniRef90_A8ZTL8 |  |
| UniRef90-G2TBW9 | R $\square$ |
| UniRef90_UPI000468E372 |  |
| UniRef90-UPI0003B59BCF | D |
| UniRef90-A8HYR7 |  |
| UniRef90-Q090K6 |  |
| UniRef90-Q1GPK3 | D |
| UniRef90-T1DWI4 |  |
| UniRef90-DOKZK7 |  |
| UniRef90-B4D3Y7 |  |
| UniRef90-R7L5N0 | G |
| UniRef90-B1R155 |  |
| UniRef90-R6MXP9 | D |
| UniRef90-UPI0004238F5C |  |
| UniRef90-R6E9W6 |  |
| UniRef90_UPI0003C800E4 | D L |
| UniRef90-R6EIM4 |  |
| UniRef90_UPI0003B37B2F | D |
| UniRef90-D6GS80 | D |
| UniRef90-A3V6F1 |  |
| UniRef90-P57511 | G L |
| UniRef90-C5JAN6 |  |
| UniRef90-L0A4R2 |  |
| UniRef90-D3PN93 | D |
| UniRef90_O51101 | K |
| UniRef90-E1R4Q8 |  |
| UniRef90-W2BYS3 |  |
| UniRef90-U1SGE7 | D |
| UniRef90_UPI00031CF928 |  |
| UniRef90_Q042K5 |  |
| UniRef90_UPI0003B7724D | D |
| UniRef90-M7NLG0 | R L |
| UniRef90-UPI0003744F8B | D |
| UniRef90-UPI00040C2E11 |  |
| UniRef90_UPI0003A66E59 |  |
| UniRef90-A0A022LB70 | D |
| UniRef90-UPI0002625169 |  |
| UniRef90-Q9X1R5 |  |
| UniRef90-A8L8M8 |  |
| UniRef90-E4L879 | D L |
| UniRef90_UPI00029AEA45 |  |
| UniRef90-U2W8L5 | D |
| UniRef90-10RI99 |  |
| UniRef90-F4XBU7 | D |
| UniRef90-C6BYQ4 |  |
| UniRef90-A9W6T9 | R V |
| UniRef90_C6XWL9 |  |
| UniRef90-B1GZ15 | D 1 |
| UniRef90-Q1IP59 |  |
| UniRef90-E6X3B9 |  |
| UniRef90-R5SY87 | D |
| UniRef90-E0Y0L0 |  |
| UniRef90_B9KIR0 | K L |
| UniRef90-V5UJG9 | G V |
| UniRef90-UPI0002C2FFAB | S L |
| UniRef90-U1Q9Q1 |  |
| UniRef90-K1LDP8 | HL |
| UniRef90_U2LKD5 | R |
| UniRef90_14W2T1 |  |
| UniRef90-UPI00036A2CB2 |  |
| UniRef90-UPI0002195A9E |  |
| UniRef90-UPI0003615D95 |  |
| UniRef90-R7K4J8 |  |
| UniRef90-S7J5N0 |  |
| UniRef90-R5R040 | D |
| UniRef90_UPI000318396A |  |
| UniRef90-R5Q0M8 | D |
| UniRef90-Q04DN8 | D |
| UniRef90-K4IKI6 |  |
| UniRef90-UPI0003B38643 |  |
| UniRef90-J5TRZ4 |  |
| UniRef90-K9SK06 |  |
| UniRef90-I3TX23 | R V |
| UniRef90_UPI000366B98A | R I |
| UniRef90-D6TPL8 |  |
| UniRef90-D5EE76 |  |
| UniRef90_UPI00047D1584 | G L |
| UniRef90-S5R8H3 |  |
| UniRef90-W8SSJ5 |  |
| UniRef90-UPI000468EF90 |  |
| UniRef90-R5QCT8 | D |
| UniRef90-T1DW90 |  |
| UniRef90-Q1WUD6 |  |
| UniRef90-E1YC91 |  |
| UniRef90-E6X010 |  |
| UniRef90-Q6ZY50 |  |
| UniRef90-D5V5U6 |  |
| UniRef90-Q15SQ9 |  |
| UniRef90 UPI00035DB536 |  |
| UniRef90-Q2J6M0 |  |
| UniRef90-B4EVR7 |  |



UniRef90_UPI000364757C
UniRef90_R5D7V9
UniRef90_UPI00036FC7A4
UniRef90_C7RH20
UniRef90 UPI00046AE6CC UniRef90_C7M128 UniRef90_C6WHK8 UniRef90_B8HXV0 UniRef90_Q0AUB8 UniRef90_B2KAS5 UniRef90_C8XIB0 UniRef90 R5XTS6 UniRef90_K9V535 UniRef90_Q0AHU1 UniRef90 G4ZDJ3 UniRef90-R5QBI6 UniRef90_E6UL43 UniRef90_A0A037YZU7 UniRef90 Q6MBJ4 UniRef90_R6W8K2 UniRef90_LOETC0 UniRef90_M1YYK6
UniRef90 F2J340 UniRef90-G5F205
UniRef90_E7S111
UniRef90 14AMZ2 UniRef90_Q5NMC7 UniRef90_G8X4R3 UniRef90_S2WDX3 UniRef90-R7EVH8 UniRef90_K1MP13 UniRef90_A5UYK3 UniRef90 E1L2Q7 UniRef90 F0P041 UniRef90-Q0BUJ8 UniRef90 UPI0003FFF850 UniRef90 UPI00036E2CBA UniRef90_R6AZE5 UniRef90-W7ZJT8 UniRef90 R5GJH3 UniRef90-UPI000365EBCA UniRef90_A8SLF3 UniRef90_UPI0004297FFF
UniRef90 D1AE34 UniRef90_UPI00047654F1 UniRef90_Q17VT1 UniRef90 K2P7H3 UniRef90-A6GMB9 UniRef90_UPI0003B751A5 UniRef90_K2KDM3 UniRef90-D3IAP3 UniRef90 FONUX9 UniRef90_UPI0004685700 UniRef90_M4S535 UniRef90 H6SJY7 UniRef90_U2M7M0 UniRef90_UPIO004287691 UniRef90 D4YEIO UniRef90_S7W048 UniRef90-A6GT38 UniRef90-C6Q1R3 UniRef90 A0A023DYG6 UniRef90_UPI00037A6C23 UniRef90_UPI000364B98D UniRef90 C1DSY7 UniRef90-B2S825 UniRef90_U5DRC1 UniRef90_F9ESI2 UniRef90 W0F0N3 UniRef90_R5A8I8 UniRef90_G8UKB3 UniRef90 U7UC36 UniRef90_C5C1S8 UniRef90_K4RHT2 UniRef90_D7N632 UniRef90 R5G367 UniRef90_J3HV70 UniRef90_F0RL42 UniRef90_W5WUL4 UniRef90 E6PT49 UniRef90_H1HTR7 UniRef90_E3PUJ0 UniRef90 G2LMP1 UniRef90_UPI0003F61C28 UniRef90_UPI00037FEA5E UniRef90_B0SH84 UniRef90_E4TX48 UniRef90_N9TUY5 UniRef90_B9E8G1 UniRef90 UPI0004781C25 UniRef90_UPI00035EEC43 UniRef90_UPI00030CB13E

EFETDLKDLAGKLT QVETVMDLDALRAQVAELEEQASS
NI E HI K E N YLLD L E K K M I D


KLD S L E E K Y D E L TH LL S Q
VD A LVA EYEDL QVKLS D
$K$ L A G V V $V$ S R Y E E V Q S L L A S
 N QAKRE $\square E V I H D V V A T A E N K Q E L A E L L R E A A A A$
$K \square R A L E D K F N E \square N E R L M E$
MQE
$K \square G Q \square E K K F Y A T E A K L S D$ L N NKA E D
LD D IE K RYEKLNNNLMS D
KLD TLLAR FAEI EHRMSS
KLE KL I A A Y E ELEKRMVD
K L E E IR KRFHAVREEMMN
LA A DARREELQAEMAR

T Q E QLL K D V Q S R V A D L A R Y L D 1
Q QLID GVT QRLS DVERALQLDTMQTK $\quad$ TAELEAECAK
KLRAlKQRFDEVADLI IQ

 M G G H F D $\begin{array}{lllllllllllllll}L & D & A & K & S & Q & K & \square & K & E & L & T & K & K & L \\ L & N & D \\ Q & S & V & E & D & R & Y & D & F & L & N & E & Q & L & S \\ D\end{array}$
 L Q A L A D R Y E K L N E L L C C D


$K L S S$ I L K R Y DELTTALLSS
KMRELERRFGEI EARMSA

$K \square E G L E S R F E E V S T L I T D$

NLSRVVARHDELHALLAQ
KLEDCKKRFDELSARVMD MQE

LD Q $\square$ SELLLCH $L E K E K R L F G G F F D K T Y S Q Q E L Q D L E E K M Q E$ HFDLPSKKEK

D QL L K R F S MIIES QMAN $K$ L R S V E Q A F D E L T H RLLA D
 KLEA I K A R Y D QL GVVALT N L $K$ L E GL T G R F D E V V S T L I I T D

 MAKKFD L LART

> $\square R E T \square R R Y E E V M A E L A A$ MS E $K L K S \square R N R Y Q E \| E L M L T Q$ $L$
$L$



## UniRef90_UPI0003647570 UniRef90 R5D7V9

 UniRef90_UPIO0036FC7A4 UniRef90_C7RH20 PNLWDDPDAAQKVTSELKDHRQELTEKVRTLYTGYEDVAVL PDVLADDSKLTKITREYNSLKP\VEKYDEIKDSESTIAEN PAVASDPKKLREYSKEQSNLEDTVQCYREYKEVVDQLQDA PGVWSDPAKGRELSRRYGTLKDDVELIARLDAMLADSNVA PSVHADQAGARKLGKRYAELTPDVRAARELETRNDLGAA PEVATDPEEFQRVAKARASLEETVDTYDTWKTVQQHLAEA PEVLSDQARFQKLAKAHSALSDDVTMYREYKSLSRQLEDS ESFWNDSDNARQVSKEADAVKTELETFSALQKEMDDAVTY PAVHADQAVSRKLGRRYAELTPIVTTARDLAATRGDLQAA PSЏGAD ELVKLNKETSVLEPVVEADHNYQKQEKSFKEA PEFWNDQTEAQQTLRELDELKVHLSQYHGWLSSVEDTRAV EK TVADDDNYRKLSRERSEIEPVTRFYHTYQQVEQDUATA PGFWDDPEVSQQVMKELKGLQDSVKEREKLYSDYEDMMLL
$P E V V N D S K L Y T E L M D E Y K N L E P V V E A K E Y D K A K A E F D E A ~$
 PAVISDMAQYTALMKEYSSMKPVVDKYQEYKAAEKDLADA PKVYGNPAEYQKCAREHSELSDIVSEYREWKRADRQLQEN N PDAATYVRLSREYSDLEPLVARVRALRRAEAELADA PDVVSNPKEYARIAKEHANQAELVAKAREYVQALDDD EVA EDIGKDISLLKKLNQEHAETSEVLDTYALWKQAGADLEAA PDLMKDMDNYAKLSKEYKDREKIDFKYEEYEKMLSNLEGA PDVIADQKRYVQLNKEYKDLKALVEKREEYVNLVGNDNEA PGLLWDDTARAQEVTSKLSHAQSELEKLETMRARIEDAGAL ADFWDDRKRAEAQMKKDKDLHFWI DSYKEVSGQTEELQLA PDVISNTERLREDTDEESELRPKVEKMKRFKTVIQE:EEA
EDFWGDPARASKTMATLT PDIITDQARYAKLINKEYSDLRDVEKOEEYEGLVNLEEA $\stackrel{\mathrm{G}}{\mathrm{P}}$ PDDWDDPAAAQKVT MQERNKRQAQVRKLRAVESRLDDLEVL ENTWKDVSKSTATNQERNKNQQKQVSTYQNVVNELADNYSEM PAVIADNKLYRDLMREHKSLTP LDMEVWQKYKKAKRSFDDA PDVVSDPSRLRSYAKEQSDLEEAYRAYVEYKKVVEQLREA PEEVMKDMNVWQKLAKEHGDMKP VVEKYRYSKHKKELEEN PAVHADQNAARRLGKRYAQLRPVVCARQLRKVKGDLD AEVINDTKKLTELSKEQSSTEETSVASKEYLSVLENTKEN GPAAD VYVKLASEYSELEPVVKK
$\qquad$ TM
PAVIADONYVRLGKEASLALVVETLID
TKEYKDLGDI IMEARKKYVTCLNVIKEA PGFWDDQEGAQKLISDNNLLKEKRDSFLKLQQDYEDELTA PDFWSDAKNAASUSKEKTSASSMLNRYEKAKSAVDDTND STGGG ETFVRLSRELGALLTPVVEADTALERARTERAEA SVGGKDVEKYKDVMREHGHLSELMELYGEYKKMLAGRAEA PDVINDNQRFRAISKEEADLRPKVETFSHYKDVI QAA EDT
 PNFWNDTDKAQEDTSEERFLKSRLDDKYELETKI QDAEFL



N PDSDTYVKLASEYSELQDVVGKIRELSDARMEASDL PDVATNPDELQRIARARSSLEETVQTYTAWKKARVDREGA PELIWNDPKRAQEI GKERKILEGTVLTLDNTASGIEDNRML PEIVGNNKKFAATSKEYRSLLKIVIAYNDYKGLLDDLAFN PEIYEDYKKMQTISKEKNSIEGIVKAYKKYNQVIQDIVAA PEVTADQKRFVRLTKEYKSLEDLIAAKKEYENLLGNLDES VNVINNSEDFQKVSDEYANLGPIVEKYKEYKSTKENDEDL PAVHADAGRARALGRRYAELGRVVGAYRAWRRAADDATAA PDFWQDKVIATQKNKEKMRIVERLLSAYYKTKDALDEAYEL PSVISDQKRFMRLSKEYKELENLTKKSDEYRLLLANLEEA MRERQQLEDSINSDRTLSQTLEDNIELL PEGWNDQNRARSTTQEATSVVGVVEKYQGLKSDLDGGAEM
PETHEDSVRDQRLLKEQAELSP LVACMEALQRAKEQEAEA PEFWNEVEKAQQTMQKNKVIEDKLEQFASLESELEDAFVL KNIIANRDQLKNLSKEYLKLSKTIKYFDEWEKLEDDIKNI EDUMGDMAQYRVLSREHAEVTAVASRWTRYQQREADLEAA EDFWNDRDAAQKLTDESASIRRKLDPDKKGETRDQD EVM DGFWNDA ATLKNLSKESRLTPYKADEYLIK KDCQDA
 MRERTML
AGFWSNREEAERITARNKEVRSRLQDLSSLERRVADLRALL


UniRef90-R5D7V9 UniRef90_UPI00036FC7A4 UniRef90 C7RH20 UniRef90 UPI00046AE6CC UniRef90_C7M128 UniRef90_C6WHK8 UniRef90 B8HXV0 UniRef90_Q0AUB8 UniRef90-B2KAS5 UniRef90_C8XIB0 UniRef90_K9V535 UniRef90_Q0AHU1 UniRef90_G4ZDJ3 UniRef90_R5QBI6 UniRef90_E6UL43 UniRef90_A0A037YZU7 UniRef90_Q6MBJ4 UniRef90_R6W8K2 UniRef90-LOETC0 UniRef90_M1YYK6 UniRef90_F2J340 UniRef90_G5F205 UniRef90_E7S111 UniRef90-Q5NMC7 UniRef90_G8X4R3 UniRef90_S2WDX3 UniRef90_R7EVH8 UniRef90_K1MP13 UniRef90_A5UYK3 UniRef90_E1L2Q1 UniRef90_Q0BUJ8 UniRef90_UPI0003FFF850 UniRef90 UPI00036E2CBA UniRef90_R6AZE5 UniRef90_W7ZJT8 UniRef90_R5GJH3 UniRef90_UPI000365EBCA UniRef90_A8SLF3 UniRef90_UPI0004297FFF UniRef90 D1AE34 UniRef90-UPI00047654F1 UniRef90_Q17VT1 UniRef90_K2P7H3 UniRef90_A6GMB9
UniRef90_UPI0003B751A5 UniRef90_K2KDM3 UniRef90 D3IAP3 UniRef90_FONUX9 UniRef90_UPI0004685700 UniRef90_M4S535 UniRef90_H6SJY7 UniRef90_U2M7M0 UniRef90_UPI0004287691 UniRef90_D4YEI0 UniRef90_S7W048 UniRef90_A6GT38
UniRef90_C6Q1R3 UniRef90-A0A023DYG6 UniRef90_UPI00037A6C23 UniRef90_UPI000364B98D UniRef90_C1DSY7 UniRef90-B2S825 UniRef90_U5DRC1 UniRef90_F9ESI2 UniRef90_W0F0N3 UniRef90_R5A8I8
UniRef90_G8UKB3 UniRef90_U7UC36 UniRef90_C5C1S8 UniRef90_K4RHT2
UniRef90-D7N632 UniRef90-R5G367 UniRef90_J3HV70 UniRef90_FORL42 UniRefo-WSWU UniRef90_H1HTR7 UniRef90_E3PUJ0 UniRef90_G2LMP1 UniRef90_UPI00037FEA5E UniRef90_B0SH84 UniRef90_E4TX48 UniRef90_N9TUY5
UniRef90 B9E8G1 UniRef90_UPI0004781C25 UniRef90_UPI00035EEC43 UniRef90_UPI00030CB13E



Y E L A E A E E D K A S A DEANTELLT S LLIREAVVQS|L|E|V|RT|LTS GE Y




 YEMALEENSET
QE LGAE A GF A

 VELLEELETDE GLLLE EATSTVIDRLNRELDQWELEQLLDSNE Y

 IV

## L

 K E MLL H D V A D T D E K E M L Q D D
 K E I L A D E M V E M A K M Q L E E A Q Q R L P Q L E E E I M F M L I P K D P E

 I E L A A A A E D D D SLLQA DIA A ELLK RTGEAIDEALEI EVLLLN GP Y



## RELAA

YEMSYEEDDDEAS LLLA DEA DVVA D DT
K

## 

 Y E MAS E E G DE D TIIS ELLVEDAS SLAETVVS DLLEIAMMMLS GE D MEMAEAEGDDAMVDEGVATLAALAERAERDKVQALLAGEA


E


130
140
150
160

UniRef90 UPI000364757C UniRef90－R5D7V9 UniRef90＿UPI00036FC7A4 UniRef90 C7RH20 UniRef90 UPI00046AE6CC UniRef90＿C7M128 UniRef90＿C6WHK8 UniRef90＿B8HXV0 UniRef90＿Q0AUB8 UniRef90－B2KAS5 UniRef90＿C8XIB0 UniRef90＿K9V535 UniRef90＿Q0AHU1 UniRef90＿G4ZDJ3 UniRef90＿R5QBI6 UniRef90－E6UL43 UniRef90＿A0A037YZU7 UniRef90＿Q6MBJ4 UniRef90－R6W8K2 UniRef90＿LOETC0 UniRef90－M1YYK6 UniRef90＿F2J340 UniRef90＿G5F205 UniRef90－E7S111 UniRef90－Q5NMC7 UniRef90＿G8X4R3 UniRef90＿S2WDX3 UniRef90＿R7EVH8 UniRef90＿K1MP13 UniRef90＿A5UYK3 UniRef90＿E1L2Q7 UniRef90＿FOP041
UniRef90＿Q0BUJ8 UniRef90＿UPI0003FFF850 UniRef90＿UPI00036E2CBA UniRef90＿R6AZE5 UniRef90＿W7ZJT8 UniRef90＿R5GJH3 UniRef90＿UPIO00365EBCA UniRef90＿A8SLF3 UniRef90＿UPI0004297FFF UniRef90 D1AE34 UniRef90＿UPI00047654F1 UniRef90＿Q17VT1 UniRef90＿K2P7H3 UniRef90＿A6GMB9 UniRef90＿UPI0003B751A5 UniRef90＿K2KDM3 UniRef90＿D3IAP3 UniRef90＿FONUX9 UniRef90＿UPIO004685700 UniRef90＿M4S535 UniRef90＿H6SJY7 UniRef90＿U2M7M0 UniRef90＿UPI0004287691 UniRef90＿D4YEIO UniRef90＿S7W048 UniRef90＿A6GT38 UniRef90＿C6Q1R3
UniRef90 A0A023DYG6 UniRef90＿UPI00037A6C23 UniRef90＿UPI000364B98D UniRef90＿C1DSY7 UniRef90＿B2S825 UniRef90＿U5DRC1 UniRef90＿F9ESI2 UniRef90＿W0F0N3 UniRef90－R5A8I8
UniRef90 UniRef90＿U7UC36 UniRef90＿C5C1S8 UniRef90＿K4RHT2 UniRef90＿D7N632 UniRef90＿J3HV70 UniRef90＿F0RL42 UniRef90＿W5WUL4 UniRef90＿E6PT49 UniRef90＿H1HTR7
UniRef90 E3PUJ0 UniRef90＿G2LMP1 UniRef90＿UPI0003F61C28 UniRef90＿UPI00037FEA5E UniRef90＿B0SH84 UniRef90＿E4TX48 UniRef90＿N9TUY5
UniRef90 B9E8G1 UniRef90＿UPI0004781C25 UniRef90＿UPI00035EEC43 UniRef90＿UPI00030CB13E

5

## 



C

DERDALVVTVIRSEAGGVDAADFAEMLLDRMYLRWAERHEYST D S CN A I MTI HA GA GGTESCDWA GMLYRMYNRWAEQR GFA L




 D R L N A M H I HA GA GGTESCCDWA QML L RMY TR WA E NH GLLKV $D G K D V L V E V K A G E G G E E S A L D A G D L L R M Y L R Y A E R R G W K T$ DEKNAI LEVRAGTGGDEAALFAAVLFEMYQRYAQKQGWKF DHLGAVLIT NA GAGGTDAQDWAEMLDRMYTRWGEDHNYKV


D
D DEKNVIFME


D

－
D
D
D
D

## F

## D

## D

## 

ロロー$\qquad$


## UniRef90 UPI000364757C

 UniRef90 R5D7V9 UniRef90_UPI00036FC7A4 UniRef90 C7RH20 UniRef90_C7M128 UniRef90_C6WHK8 UniRef90_B8HXV0 UniRef90_Q0AUB8 UniRef90_B2KAS5 UniRef90_C8XIB0 UniRef90_K9V535 UniRef90_Q0AHU1 UniRef90_G4ZDJ3 UniRef90-R5QBI6UniRef90 E6UL43 UniRef90_A0A037YZU7 UniRef90_Q6MBJ4 UniRef90-R6W8K2 UniRef90_LOETC0 UniRef90_M1YYK6 UniRef90_F2J340
UniRef90 G5F205 UniRef90-E7S111 UniRef90_I4AMZ2 UniRef90_Q5NMC7 UniRef90_G8X4R3 UniRef90_S2WDX3 UniRef90_R7EVH8
UniRef90 K1MP13 UniRef90_A5UYK3 UniRef90_E1L2Q7 UniRef90_F0P041
UniRef90_Q0BUJ8 UniRef90_UPI0003FFF850 UniRef90-UPI00036E2CBA UniRef90_R6AZE5 UniRef90_W7ZJT8 UniRef90_R5GJH3 UniRef90_UPI000365EBCA UniRef90_A8SLF3 UniRef90_UPI0004297FFF UniRef90 D1AE34 UniRef90-UPI00047654F1 UniRef90_Q17VT1 UniRef90_K2P7H3 UniRef90_A6GMB9 UniRef90_UPI0003B751A5 UniRef90_K2KDM3 UniRef90_D3IAP3 UniRef90_FONUX9 UniRef90_UPIO004685700 UniRef90_M4S535 UniRef90_H6SJY7 UniRef90-U2M7M0 UniRef90-UPI0004287691 UniRef90_D4YEI0 UniRef90_S7W048 UniRef90_A6GT38 UniRef90_A0A023DYG6 UniRef90_UPI00037A6C23 UniRef90_UPI000364B98D UniRef90_C1DSY7 UniRef90-B2S825 UniRef90_U5DRC1 UniRef90_F9ESI2 UniRef90_W0F0N3 UniRef90_R5A8I8
UniRef90_G8UKB3 UniRef90_U7UC36 UniRef90_C5C1S8 UniRef90-K4RHT2
UniRef90-D7N632 UniRef90_R5G367 UniRef90_J3HV70 UniRef90-F0RL42 UniRef90-W5WUL4 UniRef90_H1HTR7 UniRef90_E3PUJ0 UniRef90_G2LMP1 UniRef90_UPI0003F61C28 UniRef90_UPI00037FEA5E UniRef90_B0SH84 UniRef90_E4TX48
UniRef90_N9TUY5 UniRef90-B9E8G1 UniRef90_UPI0004781C25 UniRef90_UPI00035EEC43
UniRef90_UPI00030CB13E


EV T Y 170
180
80
A P Y A Y G T L 19
190
Q G T H RLL $\nabla_{R}^{200}$
 DVYDVISYA E EA GI K S AT F K V T A S Y A Y G T L S V E Q GTAR LVR E DVEVVSSQ GVG GIKK EATEMMR GE GAYSRFK YE S GVVRRVQR EMI EAS LIN DVGGYKEVIFSVNGNGAYSKDKYES GAHRVQR $E V D E V T B G Q E A G G L S A T A V V R G R Y A Y G L L V A E R G V H R L V R$ EV L D GT D S D L G G F K D V T VAA K P D G V W S R L K Y E G G V H R V QR



 H L I E DS E G DEA G L K S A T DEVVTGRYAY GY L R S EMGTHRRVR
 E ELD Y L E G DVA GVVK GVVTFEVK GENAY GY LRRSEKGVMR LVR E V M S A N E T E L G GYYK E I T F TVV
 E D F V D G DVVGLK S I T L R F Q G S Y A Y GYSKA EK GVVR LVVR


 ELSASEGEMGGFKEVIASVSGENVFARLKFESGVHRVQR
 EMSFSEATAGGYKEVVSVT

KVLD TSYAE EA GLLK TVSS SYAEEAGLKSTTFEVS


 EVLNTS EAS GK GFKEMVISVVGNAVYGTMKYESGVHRVQR E I L E Y D D T G L G G L K G G MAEI T GR SVVFARLKYES GVHRVQR K V L D T S Y A E GA GI K S A T F EI D A P Y A F GT L S VEAGTHR L A R EVI E EQA GEEAGLKSAT LLI KGENAYGWLKTEAGVHRLVR E EL D C Q K GEEA GI K S A T I KI T GP Y A Y G Y F K GE Q G V H R L V R

## .




## 

 EVEETPGDVAGQK $\begin{array}{lll}E V L S A & L & G E A G G Y K \\ E & M S A S & S E\end{array}$
## 

 EINNESEGTMGGFKEVAFSVTGTNVYGULKYESGVHRVQR ETDDF QEGDEAGLK DVVSVI RGMNAYGYMKVENGIVRLVVR ELI DYHAGEQAGI KSATLMI RGENAYGHAKTESGVHRLVR EVLDASDTDIGGVKEASASIAGRGVYARLKYESGVHRVQR EIMNSTPTEVGGYKEDSFSLSGKFVYGTLRWEGGVHRVQR ETLDLDQGDEAGDKSVGTKVKGDFAYGYLKAEKGUHRLVR EIISQTSSDLGGIK DVQLAMPADGVWAHLKYEGGAHRVQR EVMEQSDGEVAGUK SATVMVEGEYAFGYLRTETGVVHRLVR
 SVLDVQDGEEAGIVKSATVLVEGEKAYGYLKGEKGVVHRLV

 ELVVASEGDAGGYKEDIATVVSGKGVFSKLKFESGVHRVVR

 A V S S C N E G T S G G F K E QVLEATESDLGGYKDVQVAVPEDGVWAALKYEGGVHRVQR ELLDYQEGEEAGDKGAAFSIRGVNVYGYMKNENGIHRLVR E IIMSTNE $\square G G G Y K E V I F M L D G R G A Y S R L K Y E S G V H R V Q R$ DILDEQPGDQAGYQSIEFII RGEKAYGMMSAEHGVVRLVR $E M L$ S F S E G NVGG A K E D I A V V S G D S V F S K L K Y E S G V EVLEESAGDVAGVKSASIKVEGDYAYGKLRTETGVHRLVR
 EIMSSSESEKGGFKEIIAKIITGKGACGRLKFESGGHRVQR


 EVVETNEADHGGFK E ISF II DGKGAYSKMKFENGAHRVQR TLMENSDGEQAGDKSATVLVSGPNAYGWLKTEAGVHRLVR



UniRef90 UPI000364757C UniRef90_R5D7V9 UniRef90_UPI00036FC7A4 UniRef90_C7RH20

FRSSGPGGQSV|NTTDSA|V|R|| YRASGAGGQHVNKTSSAIRITHLPTGIVVQCQNERSQHHN
 $F R S S G N G G Q S V N T T D S A V R L T H I D P T G I V V S M Q D E K S ~ Q U K N$


$Y C S S G P G G Q S V N T T Q$
$\begin{array}{ll}F R S G G A G G Q N V & N K V E \\ F R S S G P G G Q S V & V\end{array}$
R S GPGGQSVNTD SAVRI
S R A G GK G G Q NVV N K V E T A $V$ V $R \mid V$
FRASGAGGQHINKTDSAVRIVTHIP

$F$ R S S G A G G Q H I N
Y R A G G A G G Q Y V $V$ N K T E S A A 1
R
HRSAGAGGQHVNKTESAIR VH
Y R A S G S G G Q H I N T T D S A V R R T H H I P T N N I V V Q C Q Q E R S Q H K N
YRSSGPGGQSVNTTDSAVRITHVPSGIVVTCQDEKSQHKN
YRASGAGGQHVNTTDSAVRITHLPTGIVVAVQDERSQHKN

FRAS GAGGGQHVNKTESAA R R T A
FRSSGPGGQSVNTTDSAVR\|T
$F C S S$ GP GGQQ

R Y Q Y

| $F R S S$ |  |  |  |
| :--- | :--- | :--- | :--- |
| $F$ | $H$ | $S$ | $G$ |

ARSSGAGGQNVNKVETKVQLT

FRSSGPGGQSVNTTDSAVRIT

Y R S S G K G G Q G V $N$ N T T D S A V R R I T H L

$F$ C S S GA G G Q S V N T T T K S A $V$ R
Y R A S G N G G Q C V $V$ N

YRASGAGGQHINKTDSAVRL
RASGAGGQHINKTDSAVRLTHIPTNIVVQCQDSRSQHSN

MRASGAGGQHVNTTDSAVRITHLPTGLIVTSSEKSQHQN
YRAS GAGGQHINKTDSAVRITHLPTGLVVECQDERS QHKN
 YRASGAGGQHVNRTDSAVRITHEPTGIVVQCQSDRSQHKN FRSSGAGGQNVNKVESGVRLRYPWKNPNIECTETRDQPKN YRSSGAGGQHINKTSSAVRITHLPTGIVTTSQAQRSQLQN
 $Y R S$ G
 $F R A S G A G G Q H V N K T E S A I R R T H I P T G G V V Q C Q N E R S Q F A N$ YRASGAGGQHVNKTSSAVRLTHEPTGIQVAMQDQRSQQQN YRSSGPGGQSVNTTDSAVRITHDPTGIVVAMQNEKSQLQN Y R A S G A G G Q H I N K T D S A V R L T H I P T G G V V V Q C Q N D R S Q H R N YRSSGAGGQHVNKTESAIMITHIDTGIVVQCQNQRSQHHN YRASGAGGQHVNKTDSAVR\|THLPTGIVVQCQNDRSQHRN KRAS GA G GQHINNKTDSAI RMVHKPTGGVATCQSGRSQDQN YRASGAGGQHVNKTDSAVRWTHEPTNTVVQCQSERS QHAN
 MRASGAGGQHVNTTDSAVRITHIPTGIMVVQAEKSQHQN ARSGGAGGQNVNKVETAVDLFHKPTGIVRIFCTQERSQLQN YRASGAGGQHINKTDSAVRITHEPTGIVVQCQNDRSQHAN SRSGGAGGQNVNKVETKVMLTHDPTGTVVICQTERTQLGN TRSS GA G G Q CVVNTTDSAVVRLTHIPTNDVVVCQVERS QUKN FRSSGAGGGQNVNKVES GVRLNYNWKNPHIECTETRDCPKN $F R A S G N G G Q C V N T T D S A V R L T H D P T G I V I D M Q D E K S Q L R N$ FRSSGPGGQSVNTTDSAVRITHLPTGIVVSMQNEKSQLQN
 $F C S S G A G G Q S V N T T Y S A V R L T H I D T G I V V Q S Q D E R S Q L K N$ Y R A S GA G G Q HVVNTTDSAVRITHIATGIVVQCQAERSQHKN
 $M R S Q G S G G Q S V N R T E S A V R V V$
FRASGAGGQHINKTDSAVRII
 YRAS GAGGQHVNKTESAI RITHLPTGIVVQCQNQRSQHSN FRSSGAGGQHVNTTDSAI RI THIPTGNVVECQDERSQHKN FRASGAGGQHINKTDSAVRVVHLPTGVVAECQDGRSQHAN

Y R A S G A G G Q HVVNK T E S A I R I

$F R A S$ GA G GQ H V $V$ N T D S A ll
$F R S G G H G G Q G V N T$ T D S

UniRef90_UPIO00364757C UniRef90-R5D7V9 UniRef90_UPI00036FC7A4 UniRef90_C7RH20
UniRef90_H6SJY7
UniRef90_U2M7M0
UniRef90_UPIO004287691
UniRef90_D4YEI0
UniRef90_S7W048
UniRef90-A6GT38
UniRef90_C6Q1R3
UniRef90_A0A023DYG6
UniRef90_UPI00037A6C23
UniRef90_UPI000364B98D
UniRef90_UPI000364B98D
UniRef90_C1DSY7
UniRef90_B2S825
UniRef90_U5DRC1
UniRef90_F9ESI2
UniRef90_W0F0N3
UniRef90-R5A8I8
UniRef90
UniRef90_U7UC36
UniRef90_C5C1S8
UniRef90_K4RHT2
UniRef90_D7N632
UniRef90_R5G367
UniRef90_J3HV70
UniRef90 F0RL42
UniRef90_W5WUL4
UniRef90_E6PT49
UniRef90_H1HTR7
UniRef90_E3PUJ0
UniRef90_G2LMP1
UniRef90_UPI0003F61C28
UniRef90_UPI00037FEA5E
UniRef90_B0SH84
UniRef90_E4TX48
UniRef90-N9TUY5
UniRef90-B9E8G1
UniRef90_UPI0004781C25
UniRef90_UPI00035EEC43
UniRef90 UPI00030CB13E

UniRef90_UPI00030CB13E

K A A A LRVVLQAK|LLAKKKEEERAEMDALKD
GSSWGNQM K E K A M Q ML K A KL QL M K E Q E Q A E K V S D I R GE KAAAMKVLQA KKLLQRKKEEERAEMDADKDGGSSWGNQM





 K E K A M N HL R A K L Y D T Q K A N $\square$ D A T Y S E K R K Q V G S G D R S E R



 K E K A L K V M K T R L A E L E R R K R R E G A
 $K$ A K A M QL L R A K I Y D A E R E K A A S E R E A R R L Q V G S G D R S E R I





 R E T A M R V L R G R L L E R E L Q R K R E ERAAR L R GE YR QA D F G N Q M



R A T A WN ML R A R
K A T A L S VL T S K L K K L M EEA NTEEY DK L

K A K A L Q VL
K E K A M K
K E Q A M M L L R S R L L A D M K M Q E
KEQAMILRSRAAAAAAA

K AKAMKVLNVRLQDK
K A K A M K V L N
R DVA M K QL $L$ R A K L $L$ Y E
K E R A L S R L R T F I
R E T A M N E L R A K L F H L E E E K K Q K Q K Q A L K G
KANAMKMLKSRLYELELDKQQAEKAGU
RAEAMKQLKARLYEQELQRREAEASAGYEAKAE GWGHQ


K D T A M N M L

REAGMRVLRARI LAARYQEEADAEASEYRKSQRTMDRSERII

K A T A L K ML A S K L FALLEKKEKEEYAAA I QPEKK G $\square$ S W W Q

 RERAMQULLRAKL
K A A A MEMLLK S KL Y ELLEMRKRNE EKQAMLE GKS DVGGLGQPN
REKAMQMMRTKLYEEQVRKQEEEDSRHRKSVSSGDRSA

K E R A L A R L R S F I Y Y D K E H Q K Y D D D K E K A MK L L K T K L Y D M K DQ E Q NKEL S A EKK N Q IGTGRS E
 K A M A L K ML K S K L Y E L E L R K Q Q E Q S S Q K E K A MKIL K T KL Y DLLKLQE QNA ELS MQKKS QI GTGRS E K A R A ME ELLRTRI YNMEYQK Y DDEIIASKRKTVVSTGRSAK I



R A E A W A ML R S R L F E H E L R K R Q A E Q Q K L E D S K S DV G WG H Q I

K A K A L S IL SAR
KAQA L R V L A R
K A Q AL R V L Q A R L
Y A A T L E K K H Q E NS SMRKI LGTGERSDRN

KAMAR QAAE

R E T A L K V V L K S R L Y Y E I E M Q K R E E E E E S G L R K L A G T G D R S E K I
RE K A L K L L K T R V F D A K L Q E E Q A K Y S E QR K SVGGTGGDR S E R I
R A T A MEML R A RLYEAELQKRENEAAANEAAKTDDGWGHQI
R A T A L R VL R S R L H E V E L D R R R T E Q E R DY G E K GE I G WGR Q I




DVSAD $\square$ AD DDNTGKSVEAVVD


Q TKEKYHELEKSLLN LLDEYASLEKQMED
$\square E T \square L N K Y H M L Q Q K \square Q D$
SD
KLAALEHEYEQVEAHLAD
L N K L L E RYRELEK QLAC
LS GIDRTFNELTERLGD
DKVLERRQEVETKLSR
LE QVIDRFEEVEARM

UniRef90 C0GF87 UniRef90_R6YHX8
UniRef90_UPI00047B7AF3 UniRef90-TORTA7 UniRef90 A0A059KIN9 UniRef90_UPI0003B4AD15 UniRef90_K2E193 UniRef90-UPI000467FB89 UniRef90_UPI00047CE439 UniRef90_L2FAV0 UniRef90_A0A023BRX5 UniRef90 M1N2R1 UniRef90_UPIO0046EEDOA UniRef90_D2R8V5 UniRef90-F4Y381 UniRef90_V4IZ69 UniRef90_F7V5Q2 UniRef90-H0AOR8 UniRef90_Q68WK7 UniRef90-N6YMX5
UniRef90-B9Y5D5 UniRef90_R7GEM7 UniRef90_Q6NHU0 UniRef90_R5APC1
UniRef90-A8EY27 UniRef90_A8EY27 UniRef90_Q7ULT3 UniRef90_Q2JUK1 UniRef90_A0A059E2L8 UniRef90 F8HZ48 UniRef90_UPI0004778817 UniRef90_A0A022LIC9 UniRef90_Q9C7K9 UniRef90_R5FM49 UniRef90_E0XR15 UniRef90_R5T3Y9 UniRef90_R6XVP2 UniRef90_Q493E2
UniRef90_R6ZMA1 UniRef90-UPI0002F4AD29 UniRef90_K4CV42 UniRef90_UPI0004784C88 UniRef90_UPI000360A142 UniRef90_R7LM29 UniRef90_Q8D2K9 UniRef90_UPIO0036CEC85 UniRef90_C1E1A3 UniRef90_R5FTD0 UniRef90_F9Z7T2
UniRef90 F8EYK8 UniRef90_UPI00041363B0 UniRef90_UPI0004709295 UniRef90_A0A021VR06 UniRef90_M4V542 UniRef90_Q0B0B1 UniRef90_UPI0002EF07A7 UniRef90_M2R3G2 UniRef90_UPI000364BC28 UniRef90_C9XIR6 UniRef90_Q0ARZ8 UniRef90_B6BSS1 UniRef90_Q3AFP9 UniRef90_A5GIR6
UniRef90 A4XAX6 UniRef90_UPI00034A80E6 UniRef90_UPI000367C33D UniRef90_A0A024EZH0 UniRef90_F6EF27 UniRef90_UPI000306DAC5 UniRef90_W7QGR8
UniRef90_UPI00037277D9 UniRef90_H9UBJ6 UniRef90_Q0SR12 UniRef90_K2FIH5 UniRef90_UPI0003699F08 UniRef90 K9SR91 UniRef90_UPI0004045552 UniRef90_A0A059AXR2 UniRef90-S7VD24 UniRef90_M1WNT5 UniRef90_LORXC4 UniRef90_IOHHE3 UniRef90_M1ZF01 UniRef90_R5VQL5 UniRef90_UPIO0047DFEEC UniRef90_D2UB68 UniRef90_E8U7R9 UniRef90_UPI00036B97B1 UniRef90_D7FY16 UniRef90_E0XX63 UniRef90_UPI0003B3C407 UniRef90_UPI00035FC99C

PEVDARQSEWQK LMKEHAAMVDVVEKYREYKKANKDDEQA


 $P G F W D N A Q K A Q H \square A R E Q G Q L D R K V T A W K R L K T D L I D D G Q E L$ PEVIDNDTKRYMAYSKEEA DMRDVVNAFNHYKELQQSIMD S PAVHAD QARARRLGRRYAQLAPVVETARALEEARGDLATA

[^0]PEVVSDPKRLAK LGKE QA S LK QSVVEAYEELKS LNSHDEQA SEVVVS DVK RLMEEL S K E QR QL E K V V T P Y R E YK S L E E S I P S L
PETMGDQT LFRKLSKRYSELQPII NVNNKLVQARDDEEAA PAVISDRTRRYERLTKEFKSSLGRIVDKKQKYNRDSEE DDLA







 A DFWNDKSSSSDEEDS E L S D L K K L V D T T S K L E N E I K D S DD L PGUVWK N P K T A K LL R QK S S S L K I F I N I V D QL Y K N L V D L N D L

 P D I W S D Q K K A S E L G A K $\square$ R D I K D NL E F V C N WQ S V L D D A QVA P F SA K K Q K N F F L L S K E Y S K L N I L N K Y L K S L E S I N N T I E S T PAVHADA GAARKL GRRYAELLGPIVATHRAWEQI GDDLAA GTLWDDPDKAKAVMAEDADAKEQLATARGFENLLGDAAVA


 A AVG A DPALAARSLGRRYAELGRVVAAYRAWQEA BDGAT $P D V A S D Q K Q Y R A L M K E L S D L E K I V V L Y R D F K K K T V N G K D S$
 DTTWHDTATALDKTQTRVAQLEKQMETYQRDHTSHDALQQDL

##  A G D A DEIVVKLSKE HAELKK VAAEKANALKSARAELA ELL A NFWQDKNNSKNLIKEKKLYEDLLNDHKASIEKLIDDLNDI  PAI HAD QNTARRVGRRYAELVPL HKAATELTQARAD LAAA  P DLWD D QEHA Q QVV S S Q L S Y A Q GE L PATLS DNRLMAKLAKE QASLTTQTVEA YEEYKK IGEELVSA

MRERTS $\square$ D DAMS GVQR $\square E S E M K D N L E L$ N LDDLKEMDK TSA DYSNFKE DDE K ITEYFNLLDEKE L W A GFWD DVVQKA QEVT QEAKRVKD KIIDKFKNDNE RIDDVVEVL P E V L S D M A K M A S L G K R Q S E L S S E T V N L I IN E L E Q M Q E N A GI A PDI ATNPDELQKVAKMRSSLEDTVIAYQEWQKAQEDLKGA PDVAK D P S E FQRRI A K A R ASSLEETVQTFDTLRKAETDLQUL P AVASD P GVLRRL GRRYA EL GRVVTAHRAWETASADDLADA $P E V V S N P G E Y Q K L A Q S V S E L D E V V A T Y R R F K D C E K N L E D T$ ME D W Y D D L A E A K ED LDD A W


 $P E V V S D H Q R F R D Y S R E F A Q L Q P V A T A L A E E T A A K A N L A S A$
 P DVLLANPKLI MEVVS QERASSVEEVVVNCYAEYTKAA E D L E G A


UniRef90 C0GF87 UniRef90_R6YHX8 UniRef90_R6YHX8
UniRef90_UPI00047B7AF3 UniRef90-TORTA7 UniRef90_A0A059KIN9 UniRef90_UPIO003B4AD15 UniRef90_K2E193 UniRef90_UPI000467FB89 UniRef90_UPI00047CE439 UniRef90_L2FAV0 UniRef90_A0A023BRX5 UniRef90-M1N2R1 UniRef90_UPIO0046EEDOA UniRef90_D2R8V5
UniRef90-F4Y381 UniRef90_V4IZ69
UniRef90_F7V5Q2
UniRef90-H0A0R8
UniRef90_N6YMX5
UniRef90-B9Y5D5
UniRef90_R7GEM7 UniRef90_Q6NHU0 UniRef90_R5APC1
UniRef90-A8EY27
UniRef90-A8EY27
UniRef90-K9RP74
UniRef90_Q7ULT3
UniRef90_Q2JUK1
UniRef90_A0A059E2L8
UniRef90_F8HZ48
UniRef90_UPI0004778817
UniRef90_A0A022LIC9
UniRef90_Q9C7K9 UniRef90_R5FM49 UniRef90_E0XR15 UniRef90_R5T3Y9 UniRef90_R6XVP2 UniRef90_Q493E2
UniRef90_R6ZMA1 UniRef90_R6ZMA1
UniRef90_UPI0002F4AD29 UniRef90_K4CV42 UniRef90-UPI0004784C88 UniRef90_UPI000360A142 UniRef90_R7LM29 UniRef90_Q8D2K9 UniRef90_UPIO0036CEC85 UniRef90_C1E1A3 UniRef90_R5FTD0 UniRef90_F9Z7T2
UniRef90 F8FYK8 UniRef90-F8EYK8
UniRef90-UPI00041363B0 UniRef90-UPI0004709295 UniRef90_A0A021VR06 UniRef90_M4V542 UniRef90_Q0B0B1 UniRef90_UPI0002EF07A7 UniRef90_M2R3G2 UniRef90_UPI000364BC28 UniRef90_C9XIR6 UniRef90_Q0ARZ8 UniRef90_B6BSS1 UniRef90_Q3AFP9
UniRef90_A5GIR6 UniRef90_A4XAX6 UniRef90_UPI00034A80E6 UniRef90_UPI000367C33D UniRef90_A0A024E
UniRef90_F6EF27 UniRef90_UPI000306DAC5 UniRef90_W7QGR8 UniRef90_UPI00037277D9 UniRef90_H9UBJ6 UniRef90_Q0SR12 UniRef90_K2FIH5 UniRef90_UPI0003699F08 UniRef90_K9SR91 UniRef90_UPI0004045552 UniRef90_A0A059AXR2 UniRef90_S7VD24 UniRef90_M1WNT5 UniRef90_LORXC4 UniRef90_IOHHE3 UniRef90_M1ZF01 UniRef90_R5VQL5 UniRef90_UPI00047DFEEC UniRef90_D2UB68 UniRef90_E8U7R9 UniRef90_UPI00036B97B1 UniRef90_D7FY16 UniRef90_E0XX63
UniRef90_UPI0003B3C407
UniRef90_UPI00035FC99C
90
100
110
120
LAEDEGDKELWVDAEQVAAELAAEMDKLELAVLIFRGRY KEMLNDKELKELAEMEDEE IKEKLPKIEELKKILLIPKDPD
 MTKEE GDDDS LVVT DEA ETAA LIRETDERLEFRRMMSNPA
 D E I M R E T D D A E M Q A M A K D E M N S S K E E A E K I T L L M L P RELAAEDPSFAG EATTLEER $\square$ GELSERLREQLLP KDPD
 K T I I D DE M R T LDA QE EMP L L Y Q K I E Q L E R E L Q

 R S L L N D E L R E L A GL E V


E E M A K E H DP EMA QME LEE E L LDP K K E A L DA K DE VL L I P P K D P N KEMAHESDPEMAQMAQAELDSAHKRMAELEEELKVPKDPN EEMAYEDEFAAEAERLAEEIVSLE EQLADLLLAPRDP H RE I L A D E S DA E M R E L A R R QL E E DTAA F LAP R L E LL L L I P E D P E


 E A L M D A E M A E L A E M E F E DL K E MLDK E K LDD P EME E L T K E E D K E L T D F F E D Q L K I M L L P K D P N FDFAKEGEAT RELAA GDDS SFAEEADRLAAEE

 I E L Y Q D E DD E E DYYK E L I N T K K S V E K E F R E FE TLL L L L N G E Y LELLTEE Y DNI LLLSEDHDQSDDLDERTLSSQLEI SRMFIDGKY


 L
L
A
A
 K I L V K D E N E E I K E L A E M D L E E A N K N K V


 A A A ELLA A E D A S F A A E E L P A L
 E QMLLAA A T DPEMMRAYA GE E V A S L R A A Q E K L E D DK L L V D D GE A S LDA E E T E DE QMLDE $\square A P E L E E L Q T T T D R Y L I S L W L S$
 AEM MEGDDAEMAEMAREEFYALKERLPELELMLLPKDKD
 LQLLE EEENE ELADVEAQDKAKKLMEKLHRMEI E LLLLS GP Y RELLRRDSRGDEEMAE LDE ELD DRHEA LIDERLTLLALLPRDPR KELLA EDPAFAAEAEAADAATLPALEECLAELLLIDPRDP H RQVYKESHDPEWREMAALEDEELEDKTVALEQQLKPKDPN

 HELGHEKDE EMREMARME DEELVPRIAKLVVLLIVPDPM


 RED $\square$ Y K E E MK E LLA GLLE I E EL D A Q I K D L E K Q L K L L L L P R D P N
 V E LIA D D D K A L A K K E E D G G E M A E M I A A Y E I L E L A H E D P D E E A L D A L E A Q V V D L F K T R L A A S T E M A T M F A F E H

KEEQDEDVVALAHEE DKK LTEENEK TYDELK LILLPKDPN
 EAMRADP ERELLAE E E I A A A Q A HLLA D L DA QL A LL L V P R D P R RELLSDPEMRDARADLDASEARMRAIDTELEVLLLPTDPH
 KEMFTESSSGAGGDAEMKEMARREDDRDLEEMKLLLLPPTDPN



UniRef90_C0GF87 UniRef90_R6YHX8
UniRef90_UPI00047B7AF3 UniRef90 TORTA7 UniRef90 A0A059KIN9 UniRef90_UPI0003B4AD15 UniRef90_K2E193 UniRef90 UPI000467FB89 UniRef90-UPI00047CE439 UniRef90_L2FAV0 UniRef90-A0A023BRX5 UniRef90 M1N2R1 UniRef90_UPI00046EED0A UniRef90_D2R8V5
UniRef90_F4Y381
UniRef90-V4IZ69
UniRef90_F7V5Q2
UniRef90_H0AOR8 UniRef90_N6YMX5 UniRef90_B9Y5D5 UniRef90_R7GEM7 UniRef90_Q6NHU0 UniRef90_R5APC1 UniRef90-A8EY27 UniRef90_Q7ULT3 UniRef90_Q2JUK1 UniRef90_A0A059E2L8 UniRef90 F8HZ48 UniRef90_UPI0004778817 UniRef90_A0A022LIC9
UniRef90_Q9C7K9 UniRef90_R5FM49 UniRef90_E0XR15 UniRef90_R5T3Y9 UniRef90_R6XVP2 UniRef90_Q493E2 UniRef90_R6ZMA1 UniRef90_UPI0002F4AD29 UniRef90_K4CV42 UniRef90_UPI0004784C88 UniRef90_UPI000360A142 UniRef90 R7LM29 UniRef90_Q8D2K9 UniRef90_UPI00036CEC85 UniRef90_C1E1A3 UniRef90_R5FTD0 UniRef90_F9Z7T2
UniRef90 F8EYK8 UniRef90_UPI00041363B0 UniRef90_UPI0004709295 UniRef90_A0A021VR06 UniRef90_M4V542 UniRef90 Q0B0B1 UniRef90_UPI0002EF07A7 UniRef90_M2R3G2 UniRef90_UPI000364BC28 UniRef90_C9XIR6 UniRef90_Q0ARZ8 UniRef90_B6BSS1 UniRef90_Q3AFP9 UniRef90_A5GIR6 UniRef90_A4XAX6 UniRef90_UPI00034A80E6 UniRef90_UPI000367C33D UniRef90_A0A024EZH0 UniRef90_F6EF27 UniRef90_UPI000306DAC5 UniRef90_W7QGR8 UniRef90_UPIO0037277D9 UniRef90_H9UBJ6 UniRef90_Q0SR12 UniRef90_K2FIH5 UniRef90_UPI0003699F08 UniRef90_K9SR91 UniRef90_UPIO004045552 UniRef90_A0A059AXR2 UniRef90_S7VD24 UniRef90_M1WNT5 UniRef90_LORXC4 UniRef90-IOHHE3 UniRef90_M1ZF01 UniRef90_UPI00047DFEEC UniRef90_D2UB68 UniRef90 E8U7R9 UniRef90_UPI00036B97B1 UniRef90_D7FY16 UniRef90_E0XX63
UniRef90_UPI0003B3C407
UniRef90_UPI00035FC99C
 UniRef90_UPIO0046EEDOA UniRef90_D2R8V5
UniRef90_F4Y381
UniRef90_V4IZ69
UniRef90_F7V5Q2
UniRef90 H0A0R8 UniRef90_Q68WK7 UniRef90_N6YMX5 UniRef90-B9Y5D5 UniRef90_Q6NHU0 UniRef90_R5APC1
UniRef90 A8EY27 UniRef90-A8EY27 UniRef90_Q7ULT3 UniRef90_Q2JUK1 UniRef90_A0A059E2L8 UniRef90_F8HZ48 UniRef90_UPI0004778817 UniRef90_A0A022LIC9 UniRef90_Q9C7K9 UniRef90_R5FM49 UniRef90_E0XR15
UniRef90 R5T3Y9 UniRef90_R6XVP2 UniRef90_Q493E2 UniRef90_R6ZMA1 UniRef90_UPI0002F4AD29 UniRef90_K4CV42 UniRef90_UPI0004784C88 UniRef90_UPI000360A142
UniRef90_R7LM29
UniRef90_Q8D2K9
UniRef90_UPI00036CEC85 UniRef90_C1E1A3 UniRef90_R5FTD0 UniRef90-F9Z7T2
UniRef90 F8EYK8 UniRef90_UPI00041363B0 UniRef90_UPI0004709295 UniRef90_A0A021VR06 UniRef90_M4V542 UniRef90_Q0B0B1 UniRef90_UPI0002EF07A7 UniRef90_M2R3G2 UniRef90_UPI000364BC28 UniRef90_C9XIR6 UniRef90_Q0ARZ8 UniRef90_B6BSS1 UniRef90_Q3AFP9
UniRef90_A5GIR6 UniRef90_A4XAX6 UniRef90_UPI00034A80E6 UniRef90_UPI000367C3
UniRef90_A0A024EZH0 UniRef90-F6EF27
UniRef90_UPI000306DAC5 UniRef90_W7QGR8 UniRef90_UPI00037277D9 UniRef90_H9UBJ6 UniRef90_Q0SR12 UniRef90-K2FIH5 UniRef90_UPI0003699F08 UniRef90_K9SR91 UniRef90-UPI0004045552 UniRef90_A0A059AXR2 UniRef90_S7VD24 UniRef90_M1WNT5 UniRef90_LORXC4
UniRef90_IOHHE3 UniRef90_M1ZF01 UniRef90_R5VQL5 UniRef90_UPI00047DFEEC UniRef90_D2UB68 UniRef90_E8U7R9
UniRef90_UPIO0036B97B1 UniRef90_D7FY16 UniRef90_E0XX63 UniRef90_UPI0003B3C407 UniRef90_UPI00035FC99C

EVLIDLLPGDEAG|IKSATLLI KGRNAYGF|L|KAERG|V|HR|LV|R DVLNENETGLGGYKEVTFMVTGKGAYSRLKFESGVHRVQR
 QVLDVQD GDSAGDK S A TVTIVEGNYAYGNLKSESGVHRLVR TVEDVTE GDTA GIKK ATIVKVEGDYAFGHLRTETGVHRLVR $E V M S L S P T G K G G F K E V I F F G V S G A G A Y S V F K Y E S S G I H R V Q R$ SLVEK S D GE EA G $\square$ K S AT LLRVVEGDFTY GLLLKE EA GMHRLVR DI I DENSTEVGGYKDVAVMITGKRVYSKLKYENGAHRVQR EVID AVDAELGGYKDVSVAVKDEGVWPRLKFEGGVHRVQR


 $N$ N M E A S $\square S E A G G Y S Q Q V F M V K G D G V Y S K L K F E S G A H R V Q R$



 EL ME ETE GEVA G $\square K N C T D K L S G E Y A Y G Y L R T E T G I H R L V R$ QVLE MSESEA G GFS MVI FLVVKGGEVYRQLK FESGAARVQR TI YDSMPSDMGGYS QISFKVVSGDAVYSTLKYES GGHRVQR EVLGLSESDLGGVKDMTLSI RRDGAWSVFKFEGGVHRVQR
 SLVSESLAA EMGGFKEAILEV KGERVYSKLKYEAGVHRVQR
 $E V V D A S E G D A G G Y K E V V A N V S G D G V F G H M K W E S G V H R V Q R$ QII DENRTE $\square G G Y K E L V L M D Q G D N V Y S K L K F E N G A H R V Q R$
 E V L GVTV S D VVDEAPGEIAGIKRATIKVNGEYAYGYAKAEVGVHRLVR E DVT T NVTT DL G GVKEVSFLVKGNGAYSKLKFESGVHRVQR
 QLI DESPTSFGGFSFVSFKI KGKDVYSKLKFESGSHRVQR



 E TLD S Q L T D L G G L S K $\square$ S F E V R G P G A Y G V F K Y E S G V H R V Q R

 $R T V E R S E G E E A G L K S V T F E V Q G R F A Y G Y L R S E R G T H R L V R$ EITNALVSDMGGYSQIEFMIKGEGAYSFLKYESGSHRVQR EVTNAANE GTA G GYK E V VA SVVTGK GVVYGDMKYESSGVMRVQR
 EVLDDADTPLGGYKEASAEI SGRGVFARLKFESGAHRVQR $T V M D Y D E S E L G G G R G G D A E D N G K S V F A R L K Y E S S G V H R V Q R$
 ELMSYTD GNVGGAKEVIAMISGBAVFSKMKFESGVMRVQR

 DLLEASDGDVAGIKSATIHIQGDHAFGWLRTETGVHRLVR
 ELV S A S E GE H G GYK EVVVAA S GNGVVGRLK FESGVVRVQR

 E V I DV S E S LA DMGGGKEAIL E I Q


 ELLDESKSDLGGYKEVVVRIKGKNSGTYMKYERGVHRVQR E TI D Y LP P D EA GVK S V T L K V K G E F A Y G Y L K A E K GI H R L VR

 EV L GA T DS ELLGGYK DVRRLA I P Q D G V WA H L K Y E G G V HR V Q R


 $E T L D Y$ Y $\quad$ P GEEA GVVK S V T L LI R GKN A Y G Y L K A E K G V H R L V R EVMES NETEFGGFSLISSFMIKGGEGAYSRLKFESGAHRVQR
 EVESDNPGEHGGYKEVVARVVGRGAYSVLKFESGTHRVQR A V L D A N E S D L L G G L S K K V T F E VV T G D G A F R A F R F E R G V H R V Q R
 EVVMEVSETG $\quad$ GGGYKEATATIS G $\square$ DVVFARLKFESGVHRVQR



## UniRef90 C0GF87

 UniRef90-R6YHX8 UniRef90_UPI00047B7AF3 UniRef90_T0RTA7 UniRef90_A0A059KIN9 UniRef90_UPI0003B4AD15 UniRef90_K2E193 UniRef90_UPI000467FB89 UniRef90_UPI00047CE439 UniRef90_L2FAV0 UniRef90_A0A023BRX5 UniRef90 M1N2R1 UniRef90_UPIO0046EED0A UniRef90_D2R8V5 UniRef90-F4Y381 UniRef90_V4IZ69 UniRef90_F7V5Q2 UniRef90-H0A0R8 UniRef90_N6YMX5 UniRef90_B9Y5D5 UniRef90_R7GEM7 UniRef90_Q6NHU0 UniRef90_R5APC1UniRef90-A8EY27 UniRef90_K9RP74 UniRef90_Q7ULT3 UniRef90_Q2JUK1 UniRef90_A0A059E2L8 UniRef90 F8HZ48 UniRef90_UPI0004778817 UniRef90_A0A022LIC9
UniRef90_Q9C7K9 UniRef90_R5FM49 UniRef90_E0XR15
UniRef90 R5T3Y9 UniRef90_R6XVP2 UniRef90-Q493E2 UniRef90_R6ZMA1
UniRef90_UPI0002 UniRef90_K4CV42 UniRef90_UPI0004784C88 UniRef90_UPI000360A142 UniRef90_R7LM29 UniRef90_Q8D2K9 UniRef90_UPIO0036CEC85 UniRef90_C1E1A3 UniRef90_F9Z7T2 UniRef90_F8EYK8 UniRef90_UPI00041363B0 UniRef90_UPI0004709295 UniRef90-A0A021VR06 UniRef90_M4V542 UniRef90_Q0B0B1 UniRef90_UPI0002EF07A7 UniRef90_M2R3G2 UniRef90_UPI000364BC28 UniRef90_C9XIR6 UniRef90_Q0ARZ8 UniRef90_B6BSS1 UniRef90_Q3AFP9
UniRef90_A5GIR6 UniRef90-A4XAX6 UniRef90_UPI00034A80E6 UniRef90_UPI000367C33L
UniRef90_A0A024EZH0 UniRef90 F6EF27 UniRef90_UPI000306DAC5 UniRef90_W7QGR8 UniRef90-UPIO0037277D9 UniRef90_H9UBJ6 UniRef90_Q0SR12 UniRef90-K2FIH5 UniRef90_UPI0003699F08 UniRef90_K9SR91 UniRef90_UPIO004045552 UniRef90_A0A059AXR2 UniRef90_S7VD24 UniRef90_M1WNT5 UniRef90_LORXC4
UniRef90 IOHHE3 UniRef90_M1ZF01 UniRef90_R5VQL5 UniRef90_UPI00047DFEEC UniRef90_D2UB68 UniRef90_E8U7R9
UniRef90_UPI00036B97B1 UniRef90_D7FY16 UniRef90_E0XX63 UniRef90_UPI0003B3C407 UniRef90_UPI00035FC99C

250
260
270
280
 FRASGAGGQHVNKTSSAVRLIHEPTGIVAECQTERSQTQN
 YRSGGAGGQSVNTTDSAVRITHLPTNTVVTCQNERSQLQN FRASGAGGQHINKTDSAVRLTHIPTGIVVQCQDGRSQHSN $F R A S G A G G Q H V N K T E S A V R D T H V P T G F V V S C Q D E R S Q H K N$
 YRSSGAGGQHINKTSSAVRMT
 Y R S S G A G G Q H V N T T D S A V R R T T H L P P T G V V V A C Q S E R S Q I S N TTS T GP G G Q S V N T T Y S A I K L H H EP T GMMV S C Q D Q K S S H K N MRASGAGGQHVNTTDSAVRITHIPTGlMVVQAE KSQHQN YRSSGA GGQHVNTTDSAVRITHLPTGIVASSQDGRS QLDN
 YRSSGPGGQSVNTTDSAVRVTHLPTGUVVTCQDEKSQHKN
 YRAS GAGGQHVNKTDSAVRITHIPSGVVVAMQEERSQHKN YRSSGAGGQHVNTTDSAVRITHIPTGI TVVALQDEKSQHKN YRASGAGGQHINKTDSAVRITHEPTGIVVQCQNDRSQHKN
 FCSSGPGGQGVNTTYSAVRVTYIPTGEYVACQDHRSQHEN YRSS GKGGQGVNTTDSAVRITHLPTGLVVTCQKERSQIQN FRSGGAGGQNVNKVESGVRLRYNWKNPNIECTETRDQPKN
FRASGAGGQHVNTTDSAVRITHDPTGTVTQCQSDRSQHKN ARSGGAGGQNVNKVETAVDLFHKPTGMRIFCTEERSQLKN
 ARSGGA G GQNVNKVETAVDLLHKPTGI RVVGCTEERSQLQN MRSSGAGGQHVNTTDSAVRITHLATGIVVTSSEMSQHVN YRSSGAGGQHINKTSSAVRMTHLPTGVVVAMQDERSQQQN $F R S G G A G G Q N V N K V E T G V R L R H A P T G I M I E N T E S R S Q L Q N$
 $F R S G G A G G Q H V N K T E S A M R D T H L P T G G V V V C E D E R S Q D K N$

 $Y R A S G A G G Q H V N R T E S A V R M T H I P T N D V T Q C Q S D R S Q H K N$
 ARSGGAGGQNVNKVETAVVLYHKPTGIIRICTEERSQLKN Y R A S GA G G Q H VVN K T D S A I R SRAS GPGGQGVNTTDSAVQVLHKPTGIIVSCMESRSQDKN MRS G GA G G Q NVNKVE TAVRILHKPTGIVVKCQQERS QLQN $F R$ S S GA G G Q H I N T T D S A I R I THMDP T N I V V E C Q D E R S Q H K N

 MRAG GP G G Q CVVNTTDSAVRITHIXPSGIVVHCQDEKS Q IVKN FRAQGAGGQHVNKTESAVRVTHLPTGIVVVMQDEKSQHKN FRASGAGGQHVNKTESAVRITHLPTNIVVSMQEEKSQHKN $F R S S G P G G Q S V N T T D S A V R L T H L P T G I V V S C Q N E K S Q L Q N$ MRASGAGGQSVNRTESAVRLHHNPTGILVHCQEGKSQANK YRSSGAGGQHINKTDSAVRITHLPSGIVVQCQNERSQHAN $M R A G G A G G Q H V N K T E S A V R L W Y K R G T P E V K C Q D E R S E R K N$


 YRSSGAGGQHVNTTDSAVRDTHIPSKIVVQCQNERSQHKN FRSGGAGGQHVNKTESAVRITHLPTGITVVCQNERSQLMN



 FRSS GPGGGQVVNTTDSAVRDTHLPTGGVVSCQNEKS QLQN

 $Y R A S G A G G Q Y V N K T E S A V R I T H D P T G I V V T C Q S E R S Q H E N$ Y R A G G A G G Q H V N K T E S A V R I T H I P T G I V V Q C Q N E R S Q F S N

 FRSSSGPGGQSVVNTTDSAVVRIMNLPTGIVVVSQNEKS QLQNK


 Y R S S G P G G Q S V $N$ N T T D S A V R R I T T H

 $F R S Q G A G G Q G V N T T D S A V R A V Y R P D E \| V V V C Q D G R S Q \square K N$

 $F R S S G P G G Q S V N T T D S A V R I T H M P T G I V V S Q Q D E K S Q H K N$


UniRef90_COGF87 UniRef90-R6YHX8 UniRef90_UPI00047B7AF3 UniRef90-TORTA7 UniRef90 A0A059KIN9 UniRef90_UPIO003B4AD15 UniRef90-K2E193 UniRef90_UPI000467FB89 UniRef90-UPIO0047CE439 UniRef90_L2FAV0 UniRef90-A0A023BRX5 UniRef90 M1N2R1 UniRef90-UPI00046EED0A UniRef90-D2R8V5 UniRef90-F4Y381 UniRef90-V4IZ69
UniRef90_F7V5Q2 UniRef90-HOAOR8 UniRef90-N6YMX5 UniRef90-B9Y5D5 UniRef90-R7GEM7 UniRef90_Q6NHU0 UniRef90_R5APC1
UniRef90 A8EY27 UniRef90-A8EY27
UniRef90-K9RP74 UniRef90_Q7ULT3 UniRef90_Q2JUK1 UniRef90-A0A059E2L8 UniRef90 F8HZ48 UniRef90_UPI0004778817 UniRef90-A0A022LIC9 UniRef90_Q9C7K9 UniRef90-R5FM49 UniRef90-E0XR15 UniRef90-R5T3Y9 UniRef90_R6XVP2 UniRef90_Q493E2
UniRef90_R6ZMA1 UniRef90-UPI0002F4AD29 UniRef90-K4CV42 UniRef90_UPI0004784C88 UniRef90_UPI000360A142 UniRef90-R7LM29 UniRef90-Q8D2K9 UniRef90_UPI00036CEC85 UniRef90_C1E1A3 UniRef90-R5FTD0 UniRef90_F9Z7T2
UniRef90 F8EYK8 UniRef90_UPI00041363B0 UniRef90-UPIO004709295 UniRef90-A0A021VR06 UniRef90_M4V542 UniRef90-Q0B0B1 UniRef90_UPIO002EF07A7 UniRef90-M2R3G2 UniRef90-UPI000364BC28 UniRef90_C9XIR6 UniRef90_Q0ARZ8 UniRef90_B6BSS1 UniRef90_Q3AFP9
UniRef90_A5GIR6 UniRef90-A4XAX6 UniRef90_UPIO0034A80E6 UniRef90-AOA024EZH0 UniRef90-F6EF27 UniRef90_UPI000306DAC5 UniRef90-W7QGR8 UniRef90_UPIO0037277D9 UniRef90-H9UBJ6 UniRef90_Q0SR12 UniRef90-K2FIH5 UniRef90-UPI0003699F08 UniRef90_K9SR91 UniRef90-UPIOO04045552 UniRef90_A0A059AXR2 UniRef90-S7VD24 UniRef90_M1WNT5 UniRef90-LORXC4 UniRef90-IOHHE3 UniRef90-R5VQL5 UniRef90_UPIO0047DFEEC UniRef90_D2UB68 UniRef90-E8U7R9 UniRef90_UPIO0036B97B1 UniRef90_D7FY16 UniRef90-E0XX63
UniRef90_UPI0003B3C407
UniRef90_UPI00035FC99C

290
300
310
320
RDRAMKTLIKAR|LADLUYQRQQAEELSNDRGEQKEDAWGSQ\| REYAMRLLKSRIYEQEKAKQDAELANERKSQVSGDRSEKI R DKAMKRLRATHAGMEAERRAAATAASRKGVGGGDRSQR KAQAMKVLRSRLRLYEQEDEKRREADNEAEAQKIAWGAQI RDVA WKRLRSRLYDFEMKKRLDAEQQKDEATKTDVGWGHQII
 REKAMQILKSRVYDYYEENQSEYDEKRKSAVGTGDRSERI


 LLAKALRILKSRLYDFYRQREQAKRAAERKSVGSGDRSER KAKALTVLRARLLDRLEQEQHERISQDRKSQVSGDRSER $K E K A L K V L R A K L Y D M E L Q K H D A E A D A R R S Q I G T G D R S E K$
$R A K A M K V L R A R L Y O Q R L A A D A R A D R K A Q V G T G D R S E R ~$ KAKALKKLRARLYEKRRQKEQERSDSRRWQVGSGDRSERI KAEAMSMLKARLYEAELRKRQSEQQKLEDSKSDTGWGHQU RETALRLIRARVYELTRQKEEEEGAVRRAKDGTGDRSEK KARAMQVLAARLAMAEEQAEAEAAEGRAAQI RTMDRSERI
 KAQAMRMLKAKLYELEMQKRTDNINEQNAAKTDNSWGHQ LLAKALRVLKARIYEKKREEEAAKQAEARGLIGSGDRSQR REKAMEQLK $\square R$ LYEKERSERDAERAEARASQISGDRSQKV RAKAMEILKTRVYNFYASQNEAEYSEMRKAVGTGDRSERI
 KASAMAVLQSRLDQLEMARQTAMNAQHTQSLTEISWGNQI YEKAMK LKTRLYDHFQTMAKAMTDKRSAQUGTGDRS KEQAMQMLKSKLLILKKESEEKLLDNDRGEQKNGEFG SEKI KNQAMKQLRAKYELEDQKKNYEKKMRESNKVNDTWGNQ RATALAT AARVKEEHQRELDEKAAERRTKIGTGDRAEK KNRAFQLLRAKLYEMKREQQESITRNQRKLQQGSGARSEK RDNAMKQLKAKLYEMEMSKRNEAAQAMEDSKSDIGWG REKALTILRSRLLEDKRAEEAARLRENRAQDGTGERS KENAMQILASKLLALRQAEHEKKLAELKGENVDDNFGS KSKAMLVLKSRLQANLLKNKKQKEEIIRKSLGSGDRSDR KEQALRLLRARLDAVAQEEADKEAGDLRKSQRTVDRSER KAKGLARLKAKLVAVAEEQRAADVAAIRGDAVRAEWGQQ KERALSRLRTFIYDKEHQKYDDDESAKRKTMVSTGRSAK RAKAMKI LRARLYEAERAAKDAARAADRRSQVSGDRSER RAKAMKI RARLYEREREQAHAHRAARRSQVGTGDRS KDAALRLLRARLAARQEEAAAAASQARRSQVRTVDRSER RLAAMKLLQAKLYALKQKEAQDKLQSDKGDYKEGAWG
RESAMRVLRSRVFEQRLKLHKERADARKSQIGTGDRS RMLALSVLKSKLF ELELQKRQQAKADLHNALPENAWGSQU KAEAMKQLRAKLYEQELLSRNAEKQAMEDNKSDIGWGS KDRAMRLLMAKLVELKELEQKEKIEDIDQGKYSQITWGSQU KETCTNMLKARLYDYEDKKKEQKNQNTENSKSETGWGHQI RALAEKLLKAKLLDLEMKKKEEEMAKLRGEQKEDAWGSQ RERAMELRAKLYERQLAEANARESARRAQVGTGDRSEKI
 KAKALKGLRSXLDDSEKNKELERAANRKSQVGTGRSE REKALKMLKARLYEMEIEKRNAEKDAMNSQKKANEWGS KAAAMRVL QAKLDERKRHEERAEMDALKSESGSSWGNO KATAMRLVRSRVYEHMRKLEEEAGAERRSKIGTGDRSE KDQAMKQLKAKLYELELQKQNAEKQAMEDGKSDQGWGSQ RATAWDMLRAKLYERELKDREEQAVADQAAKTDIGWGHQ RDTAMGMLKSKLIELKERAHKEKIEDLTGELKDMGWGSQ1 EKAMKVLRSRLLQUEEDKKAKELGDARRSQUGTGDRSEK RERAMQI LRAKLYEGKMKEQQSEVTDLLRRSQVGTGRSEK

 KATALRLVKARLYELEEKKMEDSRRQEYESKESUAWGSQ KESAMRILRSRLAQAQEAADAAAGDARKAQVRTVDRSERV RERAMKI LAEVDENVKVETREEDLK IDDVYRQKEIGWGNQI KEKALQLIRMKVAEELKSKQLEEVSAERKLKVKGERSEKI RDKALKRLKAQLLDAERNKQAAAEAQDRKQVGSGDRSQR REKALVVLRARLAERERAVREAQRADRAAQVGSGDRS
 RAKAMKILRARLYDAERARVESERAAARGQVGSGDRS RATADKMLKSQUYEDELRKKQEARSEDESSKMKDEWGS


| UniRef90 | COGF87 |  |
| :---: | :---: | :---: |
| UniRef90 | R6YHX8 | D |
| UniRef90 | UPI00047B7AF3 |  |
| UniRef90 | TORTA7 | V |
| UniRef90 | A0A059KIN9 | GL |
| UniRef90 | UPI0003B4AD15 |  |
| UniRef90 | K2E193 |  |
| UniRef90 | UPI000467FB89 |  |
| UniRef90 | UPI00047CE439 |  |
| UniRef90 | L2FAV0 | G L |
| UniRef90 | A0A023BRX5 |  |
| UniRef90 | M1N2R1 |  |
| UniRef90 | UPI00046EEDOA |  |
| UniRef90 | D2R8V5 | D |
| UniRef90 | F4Y381 | D |
| UniRef90 | V4IZ69 | D |
| UniRef90 | F7V5Q2 | D |
| UniRef90 | H0A0R8 |  |
| UniRef90 | Q68WK7 | D |
| UniRef90 | N6YMX5 | G V |
| UniRef90 | B9Y5D5 |  |
| UniRef90 | R7GEM7 |  |
| UniRef90 | Q6NHU0 |  |
| UniRef90 | R5APC1 |  |
| UniRef90 | A8EY27 | N |
| UniRef90 | K9RP74 | D |
| UniRef90 | Q7ULT3 | D |
| UniRef90 | Q2JUK1 |  |
| UniRef90 | A0A059E2L8 | D |
| UniRef90 | F8HZ48 | D |
| UniRef90 | UPI0004778817 |  |
| UniRef90 | A0A022LIC9 |  |
| UniRef90 | Q9C7K9 |  |
| UniRef90 | R5FM49 | N |
| UniRef90 | E0XR15 | D |
| UniRef90 | R5T3Y9 |  |
| UniRef90 | R6XVP2 |  |
| UniRef90 | Q493E2 |  |
| UniRef90 | R6ZMA1 | D |
| UniRef90 | UPI0002F4AD29 |  |
| UniRef90 | K4CV42 |  |
| UniRef90 | UPI0004784C88 | G |
| UniRef90 | UPI000360A142 |  |
| UniRef90 | R7LM29 | N |
| UniRef90 | Q8D2K9 |  |
| UniRef90 | UPI00036CEC85 | D |
| UniRef90 | C1E1A3 | K |
| UniRef90 | R5FTD0 | D |
| UniRef90 | F9Z7T2 |  |
| UniRef90 | F8EYK8 |  |
| UniRef90 | UPIO0041363B0 | D |
| UniRef90 | UPI0004709295 |  |
| UniRef90 | A0A021VR06 | D |
| UniRef90 | M4V542 |  |
| UniRef90 | Q0B0B1 | K |
| UniRef90 | UPI0002EF07A7 | D |
| UniRef90 | M2R3G2 |  |
| UniRef90 | UPI000364BC28 | G V |
| UniRef90 | C9XIR6 |  |
| UniRef90 | Q0ARZ8 | D |
| UniRef90 | B6BSS1 |  |
| UniRef90 | Q3AFP9 |  |
| UniRef90 | A5GIR6 |  |
| UniRef90 | A4XAX6 |  |
| UniRef90 | UPI00034A80E6 |  |
| UniRef90 | UPI000367C33D |  |
| UniRef90 | A0A024EZH0 | L |
| UniRef90 | F6EF27 | R |
| UniRef90 | UPI000306DAC5 |  |
| UniRef90 | W7QGR8 | G L |
| UniRef90 | UPI00037277D9 |  |
| UniRef90 | H9UBJ6 | D $\square$ |
| UniRef90 | Q0SR12 |  |
| UniRef90 | K2FIH5 | D V |
| UniRef90 | UPI0003699F08 |  |
| UniRef90 | K9SR91 | D |
| UniRef90 | UPIO004045552 | D |
| UniRef90 | A0A059AXR2 |  |
| UniRef90 | S7VD24 |  |
| UniRef90 | M1WNT5 |  |
| UniRef90 | LORXC4 |  |
| UniRef90 | IOHHE3 |  |
| UniRef90 | M1ZF01 | K L |
| UniRef90 | R5VQL5 | D |
| UniRef90 | UPI00047DFEEC |  |
| UniRef90 | D2UB68 |  |
| UniRef90 | E8U7R9 |  |
| UniRef90 | UPI00036B97B1 | D |
| UniRef90 | D7FY16 |  |
| UniRef90 | E0XX63 |  |
| UniRef90 | UPI0003B3C407 | D |
| UniRef90 | UPI00035FC99C |  |


PKLKAQKIDLEQQAAV E L R AEYA DLGAGMSD LKTASESFLDNENQLAD $\square A E L R H A T A S$ LQVKLDRYEELEKELQD F D $\lfloor$ S K $\square E K E L E K L E N K T L E$


K LIKSSVERYHTLGEKLAE
$K Y \square E \square K T K Y Q Q L E A D L Q N$

# $\square$ N A M L E K Y D E LS N K $\frac{\square}{M}$ T S K  <br> K L I NRYKE $\square$ NE LLS S <br> K LDD A V VAR Y DELDNAVS 

 S D WR SHAAAVAQSVKLIKKRLKWGWDLERSRQLSVVLER

VE Q $\square E$ A R F A E LDEA Q $\|$ V
D T L F R R R A DELDARMRD KVKEIISRYETLEKTLSQ NLQDLKKKKFSDVERNLEN
$\square E R M \square D E H A V I E K R L A B$
LIERVDKRYQELNRQIAM
VDD 1 LAEYQGLEAQMAD

EVSS LRQSVQEQVHRTSELLDLEAQRKRLKELERATLS

$\square R L L S W K$ S RQY LMERDAS
F G G LIF DFDKKEEK $\square$ KK L EE $\square$ TKE
L E ELLISRHSS LEKDLAS



K पK MMSNKYTTLKS पMES


LT QVIDRFEQTEARMS
IDDLLAEHAGLEQQLSD
$D L I K \square M D \square S A \square E H R N A F \square Q R \square I N Q$
VD D Y VSEYQG $\square$ QAQMGD
MEEYY VALQDK LAS
VA QMRSRGAEMEAESSK
$\square S A \square E$ Y R T S C $\square$ N N F L N Q
$G D$
$G D$

UniRef90_G8QVX5 UniRef90-UP10004751443 UniRef90-K2AN65 UniRef90-S3Y2R3 UniRef90 UPIOO0312A118 UniRef90-UPIoo047769C9 UniRef90-ToSFW9 UniRef90-A6C398 UniRef90 ${ }^{-}$R5XLT UniRef90-A0A059G894 UniRef90-R4VNW1 UniRet90 B3DYW4 UniRef90-H5S9E4
UniRef90-Q4JUIV
UniRef90-Z9JYZ2
UniRef90-E9C962
UniRef90 Q0SNW8
UniRef90-D3SN43
UniRef90-UPIo0047DAF09
UniRef90-M2XB35
UniRef90-F9YUR6
UniRef90-K1Z2Y9
UniRef90-T2GED2
UniRef90 K6AQ64
UniRef90-UP1000374F3D9
UniRef90-Q028H6
UniRef90- ${ }^{\text {R7HFI4 }}$
UniRef90-D8FEAO
UniRef90-E5Y8P1
UniRet90-K9ZW34
UniRef90-MOYVN5
UniRef90-D8JZU0
UniRef90-M1E5J9
UniRef90_U5Q6P3
UniRef90_UPIO0036D9BF8 UniRef90-B6WAHO UniRef90 UPIO003765BDO UniRef90-M2WVY3 UniRef90-A0A010ZMY3 UniRef90-B9F7X7 UniRef90-UPIO003B367D6 UniRef90_UPIOOO47A8122 UniRet90_S7XCC6
UniRef90 WOJ418
UniRef90-DORQ39
UniRef 90 - B 3 CLL 87
UniRef90-E31X14
UniRef90-Q10233
UniRef90_- X1M157
UniRef90_C4XU79
UniRet90_C2GJ34
UniRet90_H5TBD6 UniRef90-X0U2F5 UniRef90-M1VFN7 UniRef90-X1N4F2 UniRef90 F2LTJ2 UniRef90-U1Y493 UniRef90-A0A058ZHU9 UniRef90_A5FX99 UniRef90_K2FDV1 UniRef90-R5Z216 UniRef90-SOGOC8 UniRef90-E0XWX3 UniRet90 M4X7Z9 UniRef90-R5M9M6 UniRef90 U2RTH2 UniRef90-L8M118 UniRef90_UPI00036D40FA UniRef90_D3B5G2 UniRef90-M4BQ16 UniRef90-C7LKC1 UniRef90-A0A011PG39 UniRef90 C6XPZO UniRef90-M0QQM0 UniRef 90 -B4VNE9 UniRef90-V4N2D2 UniRef90-J3VTV1
UniRef90-D7WDF9 UniRef90-B7J109 UniRef90-UPI00047C5974 UniRet90_B3CRQ2 UniRef90-K2DYB7 UniRef90-UPI0004732188 UniRef90-K1ZN20 UniRef90-X1EP82 UniRef90 K7KGG3 UniRef90-A4NOU6 UniRef90_Q1Jos3


EERYTDPSKTRETAKEHTRLKETDDGYGELKQMENAKSSV PEVLLDHERYVKLLKQQRELEPII AKYREYERLRREWEDA PELHNDPAAARKVGKRFSELQPI GTHQKLEQAREDQEAA TSPSATKEDNVLKGQLVAANPLVDALQRMAKDIDDLDAM

 PQVLKEPAELKRISKLRASLEDLVNSYTTWEQLTEELNST
 S
 MQDRKRLEEAVANDDQURALTDDLDTM EEVLNNYELLKNTSKEKSDLEETVDTYKEYKKVDDDIENT ADFWQDQEEUSRLNQERSALSEQLDTWEDLFRKTEDAALL PAVLGDPNRLRTLTRRHSELSREMDLWREHQQLSTAAREA


THSDPSDYTKMLRELSDGGDVVEAVQELRRQQDMRGL
GEПYAQPGRAAETTREHARपKEVFAQHGपWVSAQDKVTS ASFWENKTQAEKVLKDLSSKRYKLEKFSSWEQRLQDLQAY
 DLUDDPVFAGKVSREHGELMGK KSVNQFEQELMEHIDM PDVIGDRRRYAEVGREYRRMTNANALAGQWRHAVDDAAGA MKS PAFYTDARAAAEVTREHQRLSQLLADHRAWQKTDAEITEA TD DKNTYVKNSKEYSSIGDI I TDVKNY TKMVEDKEGS PTNLS QKEFVSFSKEYSELRPIIEIIDEYNILKEETSDL PaVHNDVGEARALGRRYAELAPIVELAREIEQANGDLETA PQVDADSGRYMSLMKEHGCLSKIVHKYAQLTKTYDRKQDA $P E V A S D$ LK QLQTLAQERASUEGLVTKYRQYKATSKSLEET

PEFANDPDNVRKAGKRYSQLQPIVNLNTQLEQARADLADA MNT TQNLHQGSQDIEGL

PEMWNDAKEAQRKपRALAHQKALVERAERWLRAVADDEEL SSVWNDYQLLQNपK RKQSSDEQK पKTVEEपENDVDTLL SDEMNDPVKLREYSKEQSDVEETVQAYREYKETTEQLQDA GV DGERFVAASRELAEIEPVEQQWLLLRAAERARDEA NPSKMATLGKRQAELEKTMTLVNRLESDESELKEN
 GNV DKKDFAEKSKEYSDLNEIVNKYASYKNDKIELEKI SEITYKKDKYDKYSREYSNFEKLVNLWKYYKKLELELIGN EETLKDIKLLTELNKERSNLEEVVAKYQEFKKVNQDIEES PAVIGDPRRSRRIGRRYSELSGIVRALDEHDRLADDLAAA MQELNDLKSNLAQYQQWHDVLDDAQAI
MKEVKAI ESWIIKSYEESVTLTEELELA QTL SQEDTKRTSNDAQQIEESVQLFRQYVNEDGNDKEL PKLLWEDATNATSVLQRLAELESQQTRARELLYRRFLDTKEL
PFFWKNKKQSKKIIKSLSETKKWLNTFNLLKESFNDLKKL

VATDPTE\|VQLSKDHAELKLVADKARELMDAREALAEA PALHDDPANARRVGKRFAELAPVMATYEKLRAARDDLAAA
PEY SQEEFSRANKELRKLRESMELITDLRADQKEDDGL PDVVGDQDपFRKपSKRYAQLQP乌INVNNETQAREDGEAA GTLEVKEMTKLLKEVSDMDEVIENYRNEKELKDGKELI EGFWNDSQKASGDMQE DEEDRKEПSEDSSDETEDDEDDEM PELASRPTALRRAWREHARLRHVATVADRCHELCYDLQAA

PE_ASPSEYARANKELRKLSGSVDLDKEपRAKQKETDGL VSVISDQDKFRAYSKEYSQLEEVVKCFNRWTQLNQNIEEA

| UniRef90_G8QVX5 UniR 990 UPI0004751443 |  |
| :---: | :---: |
|  |  |
|  | UniRef90-K2AN65 |
|  | UniRef90_S3Y2R3 |
|  | UniRef90-UPI000312A118 |
|  | UniRef90-UPI00047769C9 |
|  | UniRef90-TOSFW9 |
|  | UniRef90-A6C398 |
|  | UniRef90_R5XLT7 |
|  | UniRef90 A0A059G894 |
|  | UniRef90-R4VNW1 |
|  | UniRef90-B3DYW4 |
|  | UniRef90-H5S9E4 |
|  | UniRef90-Q4JUI9 |
|  | UniRef90-Z9JYZ2 |
|  | UniRef90-E9C962 |
|  | UniRef90-Q0SNW8 |
|  | UniRef90-D3SN43 |
|  | UniRef90-UPI00047DAF09 |
|  | UniRef90-M2XB35 |
|  | UniRef90-F9YUR6 |
|  | UniRef90-K1Z2Y9 |
|  | UniRef90-T2GED2 |
|  | UniRef90-K6AQ64 |
|  | UniRef90-UPI000374F3D9 |
|  | UniRef90_Q028H6 |
|  | UniRef90-R7HFI4 |
|  | UniRef90-D8FEA0 |
|  | UniRef90-E5Y8P1 |
|  | UniRef90-K9ZW34 |
|  | UniRef90-M0YVN5 |
|  | UniRef90-D8JZU0 |
|  | UniRef90-M1E5J9 |

 EQ LLHEETDAEMLEMTKEELSALKKAYTVSEVVLMPPDPM
 AELLAED PSFAAEVDDLDKQLGFARAKVTALLAPSDPN KRLLKKDEMESLINDELQDLQNNKDYLIQRIKIALLPKDPR
 FDLMALEEHEEDVVAGCVASLATALASAKKLRAELLMSEPA
 ES LTAKETVDPEDQELAQQEDTR\SNKDQELTMATLPEENK RALLDEELRELARAEMHALEERLQRCEQELKLLLLPKDPN SEMASEDKEFAEEAKRDEEEDSELEEQLTDLLAPBRDPH RELDALEDPDFAAEADQLEARAARDSEELEELLAPRDPD


 KQLLYEESDPEMKQLVQMELSDLEKRLDQVENNLKPKDPN
 LDEFAAAEETQQDVLEQLAAAQLDVVATMTLQEVVEMDLLLSNPV

K AEMALDEDKD K T T S L E
QEMAQEGDAAEALE
RDLAADPMHELAEDLLNSTTRLGAIETELDLLLIPSDPS

ELNKLKNYLSDLKELKNSEDEEIKALAEEEFQLLLPKDPG KEMVNEPDADAEMKALAQEEYHELKEKLPVQUMLLPKDMD
EALLQESEDPEDHQLAEEELVQARQAAQDAHRQLLPADEN LQQLQSTE GEPDSLEEATQHVVQLKKELNRWETQHHGSGRY LEMAEDEGDSGSVEEVATEVESLKKTVEELEVRTLLSGDY L R LTA REEDDNELE
KNIKDEEFFREMAKMELDELLTQQEAKEETRLMLTPKDPE KEMMADDEDPEDREMDDA A K R DTE YEFYKEDEAPMENVEERYETVVNA IEKLE GKKNMLSEEG RALLKDPGRELAEAELPELEARKETLFREVLAAMDPPEPT
 E S S M G ETTEN RELAVED PSFRAEVTDLETAIQDRRQRLRTLLAPTDPD
 KELAAYES AFTAEVERLEPKVVEDEEKLADMDAPRDPH LE LA $\square E A D D Q E T T F D E A Q Q E$ Y QELPHEPGTTGVQTSALAEDERDASDLGSFELERLISSGQY E LSEEVEDDESYKQELEDNTKELTKKVEKLKETELLPLSDDS KEMLE EKDDDEMREMVKMELGELEEKKAEDRVLLLPKDPN DQMMQAERDADMLAMVREELA RLATSEDAALMTDLLPKMDKH



 KE L L TE K DDEMRSLAK LQQLEEAQEAIIIIEEQLDPKDPN EELAGDDS DFAAEADSLGARLASVTERLTRLLAPRDPN
 KMMDDMEKEEASREMUDEADLKAMGEQLAAALEYSLLPADKD YGMAAEDNDELMLTECTREMAAVRAEAQQLRGGLVLLHES FFYFKSGEETEL EINNLLKKIENLISKIELKNFFFEKE
DALLSDKDSDADMEEREELKSSLPELEQSLQLLLLPKDED RELAADDAAFAEEDPALEELVGELDAA LTDLLAPRDPH
KSLVSESSDDKDMSELDEALEEEKRLQTLLLKSLLLKDEA
 E $\square E E D H D L L S$ S
 RELTEED PSFADEVQRLEEELDRRRRDLTELLAPSDPG $L K K L R E N G D K W E F E R L L C G E Y$
$M Q M A Q E E G S R L K I L L L P K D T N$
KS SLMAEDMLNMATEEMGQAVEEERKLQNLLLKSLLPKDDA E LLLDDPEMKEMAQMEDEESKAEDEEVEQLQILLLPKDDN
 UniRef90 B9F7X7 UniRef90_UPI0003B367D6 UniRef90_UPI00047A8122 UniRef90_S7XCC6 UniRef90_W0J4I8 UniRef90-D0RQ39 UniRef90_B3CL87 UniRef90_K2FDH4 UniRef90_E3IXI4 UniRef90_Q1Q233 UniRef90_X1MI57 UniRef90_C2GJ34 UniRef90-H5TBD6 UniRef90_UPI00037F1721 UniRef90_X0U2F5 UniRef90-M1VFN7 UniRef90-X1N4F2
UniRef90_F2LTJ2 UniRef90_U1Y493 UniRef90_A0A058ZHU9 UniRef90_A5FX99 UniRef90_K2FDV1 UniRef90_R5Z2I6
UniRef90 S0G0C8 UniRef90_E0XWX3 UniRef90-M4X7Z9 UniRef90-R5M9M6 UniRef90-S5LXH8 UniRef90_L8M118 UniRef90_UPI00036D40FA UniRef90_D3B5G2 UniRef90_M4BQ16 UniRef90_C7LKC1 UniRef90_A0A011PG39 UniRef90_C6XPZ0 UniRef90-M0QQM0 UniRef90-B4VNE9 UniRef90_V4N2D2 UniRef90-J3VTV1
UniRef90_D7WDF9 UniRef90_B7J109

 DDNDAII EI KS GEGGEESADFAADLLGMYQHYVESRGWKM








 $D E R N V M$ V V RA GT GGDEANDWWA GDLV RDVFQKYAEDRNWKA


 DGKDVI MEI RGAAGGGDEANDIAGMDLFRMYYSYAEKEKFAAT
 D H A D A L L E I H P GA G GTE A QDWA Q ML QRMYLRWADSHGFSV

DERNALL S
EKN L E I RAGAGGEE





|  |  |
| :---: | :---: |
| $\checkmark$ | Q G GA G GEE G G L F |
| S AVLQ ${ }^{\text {d }}$ | T A GAGGTESCDWANMLMRMYLMYAEK |
| , |  |
| N | R |
| R NAIL L | RA GTGGEEAALIFAAMLFRMYQKYAERR |
| , |  |
| GRD A L L E V K |  |
| NKNVI AEIIR | R A GTGGEEAAI F A A DLFRMY I K Y A E S Q N |
|  |  |
| D AI LEI H | HP A |
| D M V MEI K |  |
|  |  |
| LT A V MQi N | N |
| T N N A I VTI R | R P GA G G T ES Q D WA EMLLRMYLRWAEKNKY I A |
| $\vee T \vee Q$ | QA GA GGTDAQDWAE\\|LLRMYTRWCERKFGN |
|  |  |
| , | WVS MLF R M Y S M WCD N N E Y K |
| K NVI I E I R | R GAA G G DEAALFASDLFE |
| AIL L EV R | AI F TREMLR |
| P A | R P A A G G DEAAL F A A L L F A Y YR Y A DLR |
| R | SLLFA A TLLFKMYSRYAENN |
| HKNCILEEI H | HA GA GG ES CDWA S L M R M L R Y C K K G K K |
| D A L V | NA GAGGTDS QDWA E IL F RMYSRWDDK K G Y K M |
|  | R A GT G GLEA SLFA G DLFKMYEKVCNKK K |
| L E | R |
|  | R |
| NVI F E |  |
| A D D A L L I R | RS GEGGEESALLFAADLLTMYTRFAERVG |
| L ${ }^{\text {T }}$ |  |
| Q LG CI L K I N | NS GA G GTES QDWA SMLMRLYY L W A EHNGYKA |
| D G N A II E I R | R |
| ERSCFLEI Q | QA GAGGTDSCDWTAMLGRMYTRWGNARE |
| N ${ }^{\text {L }}$ | Q |
| $V \mathrm{E}$ I N | NPGAGGTESNDWADMLN |
|  | R |
| G D DVVLEIIK | KS GA GGEESALLFAADLARMYLKYCERRGYKA |
| G | , |
|  | RA GTGGEEASLLAMDI FRMYERYSQK |
| 过 |  |
| A D D V I M E | KA GAGGEEAA LFAGDL A |
| N NAFLT I H | HS GA G G T E A C DWVA MLY C R M Y S R Y |
|  | K GAA G GDEGNLFAGDL L |
| V C C L D I N | NAGAGGTESNDWASMMLRMYLRFAESMNFK |
| NVI M A H | H A GA G GVD A Q DWT EMLL R M Y L R F CEK K GFS A |
| E D AI VEI L | LS GEGGEESADLAA DLL R MYQ S Y A E S VGWTM |
| $A \vee V \mathrm{~S}$ N | NA GA G G T D A Q DWVE L L RMYSRWA D N N |
|  |  |

DERDC I LEVRAGTGGEEASDFAMDDFRMYEKYALEK GWKF D E Y N C YL L
UniRef90 G8QVX5 UniRef90-UPIOOO4751443 UniRef90-K2AN65 UniRef90-S3Y2R3 UniRef90_UPIOOO312A118 UniRef90-UP100047769C9 UniRet90-TOSFW9 UniRef90-A6C398 UniRef90-R5XLT7 UniRef90-A0A059G894 UniRef90-R4VNW1 UniRef90-B3DYW4 UniRet90-H5S9E4 UniRef90-Q4JUl9 UniRef90 -z9JYZ2 UniRef90_-9C962 UniRef90-D3SN43 UniRef90-UPIo0047DAF09 UniRef90-M2XB35 UniRef90-F9YUR6 UniRet90-K1Z2Y9 UniRef90-K6AQ64 UniRef90-UPIO00374F3D9 UniRef90-Q028H6 UniRef90-R7HFI4 UniRef90-D8FEAO
UniRef90 E5Y8P1 UniRef90-K9ZW34 UniRef90-MOYVN5 UniRef90-D8JZUU UniRef90-M1E5J9
T UniRee90-U5Q6P3
UniRef90-UPIO0036D9BF8 UniRef90-B6WAHO UniRef90-UPIOOO3765BDO
UniRefgo-M2WVY3 UniRef90 M2WVY3 UniRef90-A0AO10ZMY3 UniRef90-B9F7X7 UniRef90-UPIIO003B367D6 UniRef90_UPIOOO47A8122 UniRef90-S7XCC6 UniRef90-W0J418 UniRef90-DORQ39 UniRef90-B3CLL87 UniRef90-E31X14 UniRef90-Q1 Q233 UniRef90-X1M157 UniRef90 C4XU79 UniRef90-C2GJ34
UniRef90 H5TBD UniRef90-UPIooo37F1721 UniRet90-X0U2F5 UniRef90-M1VFN7 UniRef90-X1N4F2 UniRef90-F2LTJ2
UniRef90 U1Y493 UniRef90-A1Y493 UniRef90-A5FX99 UniRef90-K2FDV1 UniRef90-R5Z216
UniRef90 soGoc8 UniRef90-EOXWX3 UniRef90-M4X7Z29 UniRef90-R5M9M6 UniRef90-S5LXH8 UniRef90-L8M118 UniRef90-UP100036D40FA UniRef90-D3B5G2 UniRef90-M4BQ16 UniRef90 C7LKC1 UniRef90-A0A011PG39 UniRet90_C6XPZ0 UniRef90-MOQQMO Uninefoco-B4VNE9 UniRet90-V4N2D2 UniRef90_J3VTV1
UniRef90_D7WDF9 UniRef90-B7J109 UniRef90-UPIO0047C5974 UniRef90-B3CRQ2
UniRef90-K2DYB7 UniRef90_U1GML3 UniRef90-UP100004732188 UniRef90-K1ZN20 UniRef90-X1EP82 UniRef90-K7KGG3 UniRef90-A4NOU6
UniRef90_Q1Jos3

170
180
190
200
ETLIS SNETGllGGYKE|LVFS|V|SGKDVYGS|LRWESG|VJHR|V|QR TINELSEGEEAGFKSITFEI EGKYAYGYLQNEKGTHRLVR QV $K$ PI S A S E S DLLGGFFK E L VI S V K G E S V Y S QL K F EA G V H R V QR
 E V N A V

 E L L H F N P S E L G GlL K E V VI F TVV Q G K E A F R K M K F E S G V V QLLDVSESDI GGVKEALLLI EGRGAYSRDKFESGVHRVQR


 $R T L D Y V A G D V A G L K S A T L E I V G E F A Y G Y L K S E D G V H R L V R$
 DLMDTNR DG G GYK EV I FSSIS GHNVYKDLKYEMGVHRVQR S L L D Y Q E GE E A G L K G A T L E L K G T N A Y G L L K G E T GIIHRRLIR

## V

## 

 EVVLH C I

 E ILETSAGDEA GDK SVTAEFRGRYAYGNLRSEHGVHRLDR
 HIYDLDEGDEAGIKSVTIEFEGDYAYGYLKAENGVHRLVR EALDYSENGDGGVKEATALISGAGVFSNLKYESGVHRVQR EDIDVSSQGI GGMKEATFIVRGEGAYSKLKYESGVHRVQR API SLAPSELGGLKEIIVEISGDGAYRQLRFESGVHRVQR TVVDDADGEEAGVK SAYLQQQNEYAYGYLQGEKGAHRLVR
 ELVVYTE GTS G GYKE IVVNNVNAEDAY GTDKYESSGVHRVVQR ESLSVSDGKY $R E L N M Q E G D V A G \square K T V T L E V E G D F A F G W L K$ G E N G V V V R R L V R EPTGTSPSERGGFREASFLI RGQDVYKQLKFESGVHRVQR
 V M V E E T R G A EA G DK S A T I EI S GA Y A Y G Y L Q S E A G V M R L V R EILLEANPS DLGGYRDVSVAVKYPGVYGRLRFEGGVHRVQR





 DIIDNANES G DGGFK E I I F E I K G E GVF S R L K Y E R G A H R V QR




 | $T$ | $L$ | $I$ | $D$ | $L$ | $Q$ | $P$ | $G$ | $D$ | $E$ | $A$ | $G$ | $I$ | $K$ | $G$ | $V$ | $T$ | $F$ | $K$ | $V$ | $A$ | $G$ | $K$ | $N$ | $C$ | $F$ | $G$ | $F$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $E$ | $L$ | $K$ | $V$ | $E$ | $S$ | $G$ | $V$ | $H$ | $R$ | $L$ | $V$ | $R$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $I$ | $S$ | $R$ | $S$ | $D$ | $A$ | $G$ | $G$ | $L$ | $K$ | $E$ | $V$ | $I$ | $A$ | $S$ | $I$ | $K$ | $G$ | $N$ | $N$ | $I$ | $Y$ | $S$ | $T$ | $L$ | $K$ | $Y$ | $E$ |
| $S$ | $G$ | $V$ | $H$ | $R$ | $V$ | $Q$ | $R$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |


 E PLE A E GT DLGGGYRSVTVALRDEAPYGVLK FEGGVHRVQR R LVEE S A G DEA G I K S A T L EVIV G R Y A Y G Y L K A E K G T H R L V R
 ESLDVSYTDVGGCREASAADSGKGVFGFLKNESGVVRVQR
 SQQID Y QP G EV A G DK S A S L E I D GP FA Y G K L K S E DGGV H R L V R
 QL A E F S E G DEAA G $\square K$ S A T L E I Q G L R A Y G Y L K A E K G T H R L V R EIVDDT E S D MK GYKEASAAA C GASVVYGKLKA ES GIHRVQR HI I E ESEGESVGGKSATDKITGNYAYGWLRTETGVHRLVR D V L EVLDAMVGAMGGYTS I E FMVSGKKAFS FLKYESGTHRVQR

 $T V L D S Q V T D L G G F R S V V A A L D E R P A Y G T M K F E G G V H R V Q R$

 EVVDIA QSDHKGYKEASAAIAGDGVFRKLKFESGIHRVQR $E V L S E N E S E Q G G F K E V I V L V S G E G V Y G Q L K F E S G G H R V Q R$


## UniRef90 G8QVX5

 UniRef90-UPIo004751443 UniRef90-K2AN65 UniRef90-S3Y2R3 UniRef90 UPIOOO312A118 UniRef90-UPIOo047769CS UniRef90_ToSFW9 UniRef90-A6C398 UniRef90 ${ }^{-}$R5XLT UniRef90-A0A059G894 UniRef90-R4VNW1 UniRef90_B3DYW4 UniRef90-H5S9E4 UniRef90-Q4JUII UniRef90-E9C962 UniRef90-QOSNW8 UniRef90-D3SN43 UniRef90 UPIO0047DAF09 UniRef90-M2XB35 UniRef90-FYYUR6 UniRef90 T2GED2 UniRef90-K6AQ64 UniRef90_UPI000374F3D9 UniRef90_O208H6 UniRef90-R7HFI4 UniRef90-D8FEAO UniRef90-K9ZW34 UniRef90-MOYVN5 UniRef90-D8JZU0 UniRef90-M1E5J9 UniRee90-U5Q6P3UniRef90-UPIO0036D9BF8 UniRef90-B6WAHO UniRef90_UPI0003765BD0 UniRef90 M2WVY3 UniRef90-AOAO1OZMY3 UniRef90_B9F7X7 UniRef90 UPIO003B367D6 UniRef90-UPIOOO47A8122 UniRef90_S7XCC6 UniRef90_W0J418 UniRef90_DORQ39
UniRef90 B3CL87 UniRef90-K2FDH4 UniRef90_E3IX14 UniRef90-Q10233 UniRef90_X1M157 UniRef90-C2GJ34 UniRef90-H5TBD6 UniRef90-UPIO0037F1721 UniRet90-X0U2F5 UniRef90-M1VFN7
UniRef90 $\times 1$ N4F2 UniRef90-F2LTJ2 UniRef90_U1Y493 UniRef90-A0A058ZHU9 UniRef90_A5FX99 UniRef90_K2FDV1 UniRef90-R5Z216
UniRef90 soGoc8 UniRef90-E0XWX3 UniRef90 M4X7Z9 UniRef90-R5M9M6 UniRef90-U2RTH2 UniRet90-L8M1118 UniRef90-UPIO0036D40FA UniRef90 D3B5G2 UniRef90_C7LKC1 UniRef90-A0A011PG39 UniRef90_C6XPZO UniRef90-MOQQMO UniRef90-B4VNE9 UniRef90-J3VTV1 UniRef90_D7WDF9 UniRef90_B7J109 UniRef90_UPIO0047C5974 UniRef90-B3CRQ2
UniRef90
K2DYB7 UniRef90-U1GML3 UniRef90-UPIOOO4732188
UniRef90-K1 UniRef90-K1ZN20 UniRef90 X1EP82 UniRef90_K7KGG3 UniRef90_A4NOU6
UniRef90_Q1Jos3

250
260
270
280
MRAGGPGGQCVINTTDSAVIRITHDPTGLVVICQDEKSQTKN SRSGGAGGQNVNKVETAVRITHLPTGIISVRCTQERSQLQN FHSSSQGGQNVQKVSTAVRLTHKPTGLVVTSQRERFQEAN FRSSGKGGQGVNTTDSAVRITHVPTGTVVTCQDERSQLQN ARSGGAGGQNVNKVETAI DLLHKPTGlRVFCTQERSQLQN YRASGAGGQHVNTTDSAVRITHLPTGVIVQCQNERSQLMN YRASGPGGQHVNKTESAIR THHLPTNVVVQCQSDRSQHRN YRASGAGGQHINKTSSAVRITHIPTNTVVACQSERSQDQN YRASGAGGQHVNRTDSAVRLTHIPTNTVVQCQNDRSQHRN YRASGAGGQHVNRTESAVRITHQPTGIVVQCQNDRSQHKN CRASGPGGQGVNTTDSAVQVFHTPSGIMVRCQDERSQDKN FCSSGHGGQSVNTTYSAVRITHLPTGLVVTCQDERSQKNR
 MRASGAGGQHVNKTESAIRVTHIPSGI AVHVOEDRSOHKN YRSSGAGGQHVNTTDSAVRITHLPTGIVVQCQNERSQHKN FRASSAGGQYVNTTETAVRITHLPTGIVVTCQDERSQYQN YRSGGAGGQNVNKVETAVRLKHVPTGVVAECQQERSQLQN ARSGGAGGQNVNKVETAIIDLFKPTGI RIFCTEERSQLQN MRSSGAGGQNVNKVETAVRLRHHPTGIIIENSETRSQLDN
FCAGGHGGQSVNTTYSAVRIDHTPTGTIVQCQDERSQTAN FRASGPGGQSVNTTSSAVRVTHLPTNMVVQCQNEKSQLRN FRSGGAGGQNVNKVESGVRLRYQFKDPYIENTETRDQPKN FRSGGAGGQNVNKVETGVRLRYQYTDPDIENTETRKQQEN FRASGAGGQHVNMTDSAVRITHFPTGIVVQCQNERSQHKN YHSSGAGGQSVNTSNSAVRITHVPTGVVVTCQEERSQLKN YRASGPGGQHVNKTSSAIRITHLPTKIVVQCQNEKSQHRN FCASGPGGQGVNTTYSAVRITHIPSGI SVQCQNERSQHHN FRSQGAGGQSVNTTDSAVRAAYRPDEI TVVCQETRSQITKN YRSGGSGGQSVNTTDSAVRATHBPTGTVVADQDERSQHQN FRASGAGGQNVQKVSSAVRLTHTPSGTVVTAQTERSQHQN FRSGGAGGQNVNKVETGVRVRHLPTGI SVENTETRSQLDN YRSQGAGGQHVNTTDSAVRITHLPSGVVVQCQDGRSQHKN YRSSGNGGQSVNTTDSAVRLTHI PTGLVVTCQDEKSQTKN CRAGGPGGQGVNTTDSAVQVLH PTGLVRCQEGRSQIKN

 FCASGPGGQSVNTTYSAVRL
 QRASGPGGQGVNTTDSAVRR
FRSSGPGGQSVNTSSAVRM FRSSGPGGQSVNTTDSAVRITHTP YRSSGPGGQSVNTTDSAVRVTHMPSGMVVSQQDEKSQHKN YRASGAGGQHVNTTDSAVRI FRSSGPGGQSVNTTDSAVRITHV FRASGPGGQKVNKTSSAVRITHITGVVVSCQNEKSQLQN FHSGGAGGQNVNKVATAVRITHHLSTGVVVKCLDEKSQHKN FRASGPGGQHVNKTSSAI RITHLPTNIVVQCQNEKSQHRN YRSSGKGGQGVNTTDSAVRLTHLPTGIIVTCQKERSQDQN YRASGAGGQHVNRTDSAVRTTHLPTNTVVQCQNDRSQHKN FRSGGAGGQNVNKVETAVRLTHKPSGIIVECQQARTQGEN YRATGAGGQHVNTTDSAVRITHRTNVVQCQNERSQYSN YHSGGAGGQNVNKVATAVRITHLPTGMVAVCQDERSQLRN FRASGAGGQHVNKTDSAIRITHIPTGIVVSCQNERSQHKN FCSSGAGGQSVNTTKSAVRLTHVPTGIVVTCQDEKSQHKN
 FASSGPGGQSVNTTMSAVRITHLPTGIVASCQDAKSQHKN YHSSGAGGQSVNTTDSAVRITHLPTKIVVTCQNERSQLKN FRASGAGGQHVNKTSSAVRITHLPSGTVVQCQQEPSQHRN YRSSGAGGQHVNTTDSAIRITHIPTNIVVECQNERSQHKN FHSSGAGGQSVNTSDSAVRITHLPTKIVVSCQVERSQLRN YRASGAGGQHINTTDSAVRITHIPTGIVAASQDGRSQHDN YRSTGKGGQGVNTTDSAVRVTHLPSGIVVTCQDQRSQLQN SRAGGKGGQNVNKVETAVRIVHLPTGLIAVRCTQERSQLQN FRSGGAGGQNVNKVETGVRLRYQYKDPDVENTESRSQLDN FRSSGPGGQSVNSTDSAVRVHLP FRSSGPGGQHVNSTDSAIRITHLPTGIVVQSQSDRSQHRN
 MRSSGAGGQHVNTTDSAVRIDHLPTNI MVTSSEKSQHAN YRSSGKGGQGVNTTDSAVRITHLPTGIVVTCQNERSQLQN SRSGGKGGQNVNKVETAVRVKHI PTD:AVRCTQERSQLQN YRSGGCGGQHANTTNSAVR1 DHLPTGUMSDQDERSQHMN
 YRASGAGGQHVNKTSSAVRITHIETGIVTQSQSDRSQHKN FTSSGPGGQSVNTTQSAVRLTHIPTGLSVASQLGKSQHEN YRASGAGGQHVNTTDSAIRITHFPTKIVVQCQNDRSQHKN YRSSGAGGQSVNTTDSAVRITHRPTQVVTCQNERSQLQN
FRSSGPGGQGVNTTDSAVRLT
SRSGGAGGQNVNKVETAVRIVHLP
FCSGGHGGQSVNTTYSAVR1TH1
Y R S G G S G G Q HANT T N S A V R V THI P
YRSSGAGGQHVNTTDSAVRITHIP

## UniRef90 G8QVX5

 UniRef90-UPIo004751443 UniRef90-K2AN65 UniRef90-S3Y2R3 UniRef90_UPIOOO312A118 UniRef90-UP100047769Cs UniRef90-TOSFW9 UniRef90-A6C398 UniRef90 R5XLT7 UniRef90-A0A059G894 UniRef90-R4VNW1 UniRef90-B3DYW4 UniRef90-H5S9E4 UniRef90-Q4JUIV UniRef90-Z9JYZ2 UniRef90-E9C962UniRef90_OOSNW8 UniRef90-D3SN43 UniRef90-UPIo0047DAF09 UniRef90-M2XB35 UniRef90-F9YUR6 UniRef90-K1Z2Y9 UniRef90-T2GED2
UniRef90-K6AQ64 UniRef90_UPIO00374F3D9 UniRef90-Q028H6 UniRef90-R7HFI4 UniRef90-D8FEAO UniRef90-E5Y8P1
UniRef90 K9ZW34 UniRef90-MOYVN5 UniRef90-D8JZUU UniRef90-M1E5J9 UniRef90-U5Q6P3 UniRef90-UPIO0036D9BF8 UniRef90-B6WAHO UniRef90_UPIO003765BDO UniRef90-M2WVY3 UniRef90-A0AO10ZMY3 UniRef90-B9F7X7 UniRef90 UPIOOO3B367D6 UniRef90-UPIOOO47A8122 UniRet90-S7XCC6 UniRet90_WOJ418 UniRef90-DORQ39 Uninefoco - 3 CLL87 UniRef90-K2FDH4 UniRef90-E31X14
UniRef90 Q10233 UniRef90-X1M157 UniRef90_C4XU79 UniRef90-C2GJ34
UniRef90 H5TBD6 UniRef90-UPIO0037F1721 UniRef90_X0U2F5 UniRef90-M1VFN7 UniRef90-X1N4F2 UniRef90_F2LTJ2 UniRef90_U1Y493 UniRef90-A0AO58ZHU9 UniRef90-A5FX99 UniRef90_K2FDV1 UniRef90-R5Z216
UniRef90 soGoc8 UniRef90-E0XWX3 UniRef90 M4X7Z9 UniRef90-R5M9M6 UniRef90-S5LXH8
UniRef90 U2RTH2 UniRef90-L8M118 UniRef90-UP100036D40FA UniRef90-D3B5G2 UniRef90-M4BQ16
UniRef90_C7LKC1 UniRef90-A0A011PG39 UniRef90-C6XPZO UniRef90-MOQQMO Uninefoco-B4VNE9 UniRef90-V4N2D2 UniRef90_J3VTV1
UniRef9O_D7WDF9 UniRef90-B7J109 UniRef90-UPI00047C5974 UniRef90 B3CRQ2 UniRef90-K2DYB7 UniRef90_U1GML3 UniRef90-UPIOOOO432188 UniRef90-K1ZN20 UniRet90-X1EP82 UniRef90-K7KGG3 UniRef90-A4NOU6
UniRef90_Q1Jos3



310
320 KEKAMLLLKSKLLIIAKEQRAEEDADMKGEFVEAAWGNQ| KEQAMRILRARLVAAAAEQAAAEASAARKSQRTVDRSQRV RERAMEILRAKLYEDQDEEANKKRSERLMQVGTGDRSEKI RETAMKMLKGKLUHLKELEQKERDEDVQGKYSQDTWGSQ| KDTAMEMLRARLLQLELIDQENERRKYTQGLGDNGWGSQU RETAMKMLKSKLLDLKEREHKEKDEDDKGEQRDTAWGSQ RDQAWQMLRSKLYELEMQKRRAVADASYAGKSE: GFGHQQ
RATAMNQLRAKLWEREMEAQRAQAAEVEESKADIGWGSQU KEKALKJLKARLLARKQEEEAQKRAQERKSMISGERTEKI ERALRVLRSRLLELEERRRQHEAVSAERRQQVKSGDRSEK
 RAKAYSVLRARLYEDQREKLAQERAAHRAEQVGTGRSERR


K K RAFQILRAKLYEIRLKEQQDADTGMRRSQVSGARAE $K N K A L Q L L K S Q L Y E V E L K K R Q A K R D E D E A G K M K D E W G S$
$K D K A M K V R S R G E V E R E R E A E M S Q K K S Q D S G D S S E ~$ KEAADKVLKARLYERELKRREEEKRNEYASKDADGFGS RENAMRQLRSDLYDKELKHRLAEQAKDEAGKKKI EWGS RANAMRHLKSELYDRELKRRHKMTEEIEGSKMKIEWGS KERAMELLKDKINSALEDEKNSKEQSERKSKIGTGRSE
 REKALNILRARLAERQREAADADRASRQAQDGSGDRSEKV KAKALKVLRARLYEDERHRLDHDRSKLRSEQSGDRS KEKAMRILAAKILEEKRASEKEDAMSRRDQVGSGDRSE
 KQDAMQLLRSKLLLLEKERMERVRNEVRGDVVEAEWGNQU RAAAMRVL QARLLERRRQEQKAEMDALRGDGGNSWGNQM KASAMAVLQSRLDQLEDARQAQMNADHTQSDSEDSWGNQD YDKALQVLRSRVYEMELQKHDEETSKKRKTMVSTGRSAKV REKALRVLRARLYEHAVAEQQAEQSAARAQVGTGDRAEK
RNRAMQMLKSQLYEMELQKQMAQRDDIEAGKMKIE WGSQ KASAMAVLRARLDQKKQEEAAKYAAQRRGQDGTGDRSER KAKALKMLRSKLYELERSKLEKERSSARKSQISGDRSER KEQAMKVLKARLHQKYLEKQKEEREKLRGEYKSAEWGSO KAKAMRILRSRLHESIEEKNQLERDQRRTQDGTGDRSEK KTKAMSVLRARLLDLEQRKQEAMTKQRRSQVGTGDRAEK KARAMQVLQARLQQIEEEKAEAEAAERHAQVRTMDRSE KDQAAMKQLKAKLYELEMQKQNEEKQAMEDKSDTGWGS REKAMKMLKSRLHEEEMRKREE乌KNANNASKKKI EWGS KMTAMKILQARLFEHYQQQKEKDLLKEVRGKKKNIAWGS KTKAMAVLKAKLLVIREEQRSSRWEEDRGEAVEAAWGQQ KAFALKILKAKLYQLEEEKKKKEDEKゆEGEKKKDEWGS KDKAMRVLRARLYDKYQQEAHAYADARRSAVGTGDRSE
 KDQAMKVLRSRVVQVQLDEESKKLGDARLSQUGTGRSEK KEKALEVLKKNKLKMDEDERQEEKLNNLK KAKGMKL
$K S K A L L$ KERAMEML KDKAMTLLRAKVYQEAEVEKKEAELNKEKGISDSGNFG KEQALRILRGRVAAAQQEAAAAAEQARRCQVRTVDRSERI
 KSKAMKVLRARLYEMERVRLQTERSAERNSQDGGARSE KNKALKLLKSRLYYUMEKQKLFKSKMKFNKKKIEWGSQ RARAMEMLK $\begin{aligned} & \text { RLYEKERAEKDAAMADARKTQVSGDRSEK }\end{aligned}$ KARAMQVLAARLQAAEEQADAAAAEGRAAQIRTVDRSERI KEKALALLKAKLLVIAQEQRAQEDAERRGDMVEAAWGNQU KDQAMKQLKAKLYEFELKKKNLEKKVLEDTKSDDSWGRH
 KDLAMKVLKSRLYEYYKSKEDEKNKSKQDTKKEDSWGNQVIV KAEAMRMLKAKIYEDEQKKQNEIINNHNAAKTDNSWGY KEQAMKDLRAKLHQKYDTEREEEKKKLRGEFSSAEWGSQ

 KAKALKVLCAKLYEMERLRLRSSRSKLRLEQUSGDRSER


UniRef90_G8QVX5
UniRef90_UPI0004751443 N
UniRef90_K2AN65
UniRef90-S3Y2R3
UniRef90 UPI000312A118
UniRef90-UPI00047769C9

UniRef90-TOSFW9
UniRef90-A6C398
UniRef90- R5XLT7
UniRef90-A0A059G89،
UniRef90-R4VNW1
UniRef90 B3DYW4
UniRef90-H5S9E4
UniRef90-Q4JUI9
UniRef90_Z9JYZ2
UniRef90-E9C962
UniRef90_Q0SNW8
UniRef90-D3SN43
UniRef90 UPI00047DAF09
UniRef90-M2XB35
UniRef90-F9YUR6
UniRef90_K1Z2Y9
UniRef90 T2GED2
UniRef90-K6AQ64
UniRef90-UPI000374F3D9
UniRef90 Q028H6 R

| UniRef90_R7HFI4 | D 1 |
| :--- | :--- |
| UniRef90_D8FEA0 | K |

UniRef90- E5Y8P
UniRef90-K9ZW34
UniRef90-M0YVN5
UniRef90-D8JZU0
UniRef90_M1E5J9
UniRef90- U5Q6P3
UniRef90_UPI00036D9BF8
UniRef90-B6WAH0
UniRef90_UPI0003765BD0
UniRef90-M2WVY3
UniRef90-A0A010ZMY3
UniRef90 B9F7X7
UniRef90-UPI0003B367D6
UniRef90-UPI00047A8122
UniRef90-S7XCC6
UniRef90 W0J4I8
UniRef90-D0RQ39
UniRef90-B3CL87
UniRef90_K2FDH4
UniRef90 E3IXI4
UniRef90-Q1Q233
UniRef90-X1M157
UniRef90 C4XU79
UniRef90_C2GJ34
UniRef90_H5TBD6

D

UniRef90 ${ }^{-}$X0U2F5
UniRef90-M1VFN7
UniRef90-X1N4F2
UniRef90 F2LTJ2
UniRef90-U1Y493

| UniRef90-A0A058ZHU9 | D |
| :--- | :--- |
| UniRef90-A5FX99 | D |
| UniRef90_K2FDV1 | D |

UniRef90 K2FDV1
UniRef90-R5Z2I6
UniRef90-S0G0C8
UniRef90 E0XWX3
UniRef90-M4X7Z9
UniRef90-R5M9M6
UniRef90 S5LXH8
UniRef90 U2RTH2
UniRef90-L8M118
UniRef90_UPI00036D40FA
UniRef90_D3B5G2
UniRef90 ${ }^{-}$M4BQ16
UniRef90_C7LKC1
UniRef90-A0A011PG39
UniRef90 C6XPZ0
UniRef90-MOQQM0
UniRef90-B4VNE9
UniRef90 V4N2D2
UniRef90-J3VTV1
UniRef90-D7WDF9
UniRef90-B7J109
K
UniRef90 UPI00047C5974
UniRef90-B3CRQ2
UniRef90-K2DYB7
UniRef90-U1GML3
UniRef90- UPI0004732188
UniRef90_K1ZN20
UniRef90-X1EP82
UniRef90 K7KGG3
UniRef90-A4NOU6
UniRef90_Q1J0S3



G FDTRAAKKDGEYSPVVNALGEWNKANESVAELD

$P G \square A S D$ E $\square \square K M N K E \square R K \square D Y S V D M D K A D R A K E K E V I G L$
GETFDEDKQ $\square$
LQKDKKRLEKEVKLFSRLYGKKEELEVL
G QNYSEDDSKKYASLMALDGVYBEYLEQKENYNDL GNF DQE $\quad$ TNVRYSNLSVILDNYHRYVQDMENVAAL PY I VKLESAEKTWKELS GESFDVEKQ KKYSKLSS VVDTFRAYQDNVHMYREL

YDPE $\quad$ QQ $\ Q F D R \| S Q \prod M D K Y E K F \Pi S L S G E \prod S E L$
D A K T A KRAGELAPVANULKEWVNANDSIVEL

MRRIVDGYQSLQSDAEGLSEM
SF DAAKA KRAGELRRVATALHDWEKANSAIAEL
P $\square S N Q K K Y K \square L F K E Y Q K L K K I M S L Y E R Y K N K L F S L Q E A$
$\square A K R \square G E \square Q N V T$ TALRKWEKTKESLSEL KRAGELHRVATALAAWQECLSSLSEL VAKRLGELAPVAQAVKDWDKTHETITEL

RRMGELKKRVTEVLKEWEAQNNSLSEL
QEVLADPARMSAVAREHGTLAKVVTKYRRLKEDNAQDVDA


## $\square A P L I Q T \square R E L D T K Q K E \square A E T$

T F DPKTA KRAGE $\square$ ATTATT $\square$ KEWEKANES $\square$ SE $\square$
FLLSESDRRALSKRHVELSPLTADLQEDTAAEREAQED F DMWDDPAKFSDGLVKLANSAKVVDSLXKDKYKVVEEAKLL

D YDAKCAKRTG E TSKTATA TKEYDKALSTLKELQKL YDLWDDPAKSNEILAKLADSAKVVDALKDLTYKVEEAKLIU TEGVDNAE VGKQLKELDPLRQAWETLESKVADLQEM
 RELQRGEELS

NAAGNSKSYARLSQ LDGVVNALEQRRVLERNLTSQ
LMMENAQASVVASQRTKDLEAVHKTWSA WREQLQCVQDT PHQLSQNESKDHVLEQLSVLKSICSTYQTFQVLTKQLREL GS MNEYDRST LSRRHNHLSTLVAAFQEDQEAEREVQEI

P D L S S D T Q K Y Q K $\square$ A K E H A G L K E T VE K $\square$ D E L E K T E K D $L$ A G A LVEN $\square$ QN L Q D L VK QDTE $\square$

DNKTLAVRSRRDKELDTLPDLYSSYQQSMDTLHTT GAKECDD GDKWS K Q IEF Y DLRVNSSGSQKEYSQLSDGVKMLEQHRALQGNMTSK

RRPELVADAKLLNEKEQELQETGHL


## UniRef90 MOT314

 UniRef90-A7HDW3 UniRef90-Q7UQ31 UniRef90-K2BD97 UniRef90 W1VKI4 UniRef90-UPIIOO2F73BEB UniRef90-R7HEG2 UniRef90-DOJB15 UniRef90 ${ }^{-}$X1KBM5 UniRef90_UPIO0037D6332 UniRef90-A4RYN9 UniRef90 K2CGY1 UniRef90-M2VOS3UniRef90-F2U393
UniRef90-A8NMZO UniRef90 Y3BQH6 UniRef90-K1X112 UniRef90-D8QYC5 UniRef90 T2M452 UniRef90-E3QKU6 UniRef90-J7RQ21 UniRef90-R7PP38 UniRef90 - $\times 11141$ UniRef90-12K184 UniRef90-A5DMPO UniRef90-A7TJJ1 UniRee90-UPI0002B46B5F UniRef90-Q75B56 UniRef90-UPI0003FOEDA3 UniRef90- D8TJJ8 UniRef90-M2Rом3 UniRef90-K1WYP0 UniRef90-UPI0003958042 UniRef90-H8X732 UniRef90-B6HEY3 UniRee90-UPI000368695C UniRef90 G3JJF7 UniRef90-G7SPU4 UniRef90_UPI00035E042E UniRef90_W9CJ38 UniRef90-M1VV50 UniRef90-B6QTJ1 UniRef90-C5DPY0 UniRef90-UPIOOO34F6379 UniRef90-N1JLV2 UniRef90- XoVRR8 UniRef90-E6RDQ1 UniRef90-A5BMQ9 UniRef90_Z2EA19 UniRef90 131 IQ8 UniRef90_UPI000219627B UniRef90-CONIX9 UniRef90-X0RYF5 UniRef90-H3AQV2 UniRef90-V7BLUO UniRef90-UPI0003EC20F4 UniRef90 J9WT91 UniRef90-M2ZVC3 UniRef90-WZS846 UniRef90-X1U632 UniRef90 -12FZQ1 UniRef90-UPIOO035A0654 UniRef90-K7FCK4 UniRef90 W9W5U1 UniRef90-V4AL43 UniRef90-UP100038C2D8E UniRef90-K71UL3 UniRet90_K2RW28 UniRef90-B4MX15 UniRef90-A8PX78 UniRef90_B6JY59 UniRef90-M7B8U3 UniRef90-M3XFF4 UniRef90_S8A979 UniRef90 14 YB58 UniRef90 W PRN41
UniRet90
U2R117 UniRef90-K2A094 UniRef90 R9Yk90 UniRef90-E2BXM6 UniRef90 M1VAE7 UniRef90 UPI0001A641F5 UniRef90_UPIO004416D75 UniRef90 U6HLW2 UniRef90-UPI0003C3964A UniRef90-F2DC83 UniRef90-UPIO002C35C08 UniRef90 EЗКҮНо UniRef90-W5NEM1 UniRef90_R1BUJ4
 EAAQQCEVVAKDLEALEFGKMLSGEH FEMADEDESTVDEVRSEQDRLEVVLDDLE KNMLRTEMLEMAKEEDDVSNAKVEELEEKLRUSLIPKDKN VELAAEGDPDFAAEVPGLQAAAETATEHLREVLVPRDPD

 EALTSVEALDKALDAWELRRLLGGKY
 EHMQRTETDPDLKAMAVSELKEVRARAPEVEQLLLPHDDA NALLSDPDP SMRAMASEESTALNSTLQTLVELLLPPSPT

KELVKESVEDEEMRELQTATREVRDAQHDVLLELIPKDEA AALGDD NKEMKEFVQEEDSACQVCDADLELRLLPKDKD NGLKDKEDRDMAAEELESTRDQLAAVSRRLSASLTPKDPY NGMMATDPKSEAEAELLRLIDPRFNGYAERLLGELLPPPAF
VELSEEGENVDEEDRESLAFFEKDLAEVELQMLFFEED IGLLKDDDEDSLKEEAENELKTVIPADDKLKAKLLKPHPF KEMLAEETDPEMQQEADKELQHLVPNVQRLQARLLPPVSH NEMVKSDPKDEASQELEQLIPLLNRSSSVLLDKLLPPHEF SQAVIENTRANDIHKRVPFLVPLTSRVKIFTVMLLPSDPLL AALLKDPDVRAMAEEEGRELQQQAAGLRRLLLALVPRDPR ASLLSDSDPAMRALAEEEHASLTEEGTKMVETTLVPSSTT LLLIPSEEA SKMKDHELIEDAKVEDQSLVPQLQELCNELKNKLLPPVKY NSLLTDPNTDAETEDLESSRDALPSUSDRLKKALIPRHPF RSMTHGGGPDHDRDELATEAARLATLERNLSASLTPRHPF KNVLENDSDPEMKEपASLEKKKILEDLSSUEKESLLSDEE
DALLKDSSTDEEDRELALETAHपEELSRपTTTSTPKHPF QSMASDPDQDPDRDELTLEQQKLETLERNLSASLTPRHPF NSLISDPETDSELEDLDQTQQLPGVSDKLKSALIPRHPF QEMAGED ADFAEEAKRLEAELPGVEEKLRTALIPRDPD
 MEM VEGSDPELRELAGAELPELEREACWNELLDMTVGGE KPFLEDSDPTGLREMFETEHASLCTELDTLISSLLPPSST ETLLKDEDPC $\square R E \operatorname{VERAGCLED\square QT\square RQK\square LDLLIPEEE\square }$ NNLLEDPSTDSEDEDपRSAKASपTLSSNGKQTIPRHPF DSTYKNMESENDEQMLELAVEEREQTSRRLFQSLVPKDKH NQLEMNADDYGDYKQAYEASLDVSDLDDQYEDSKLLNGPF
 ESMCESDNKQDEKEERQTDDKKDNTLYSKLLEQLVPEEKH KDLEQEKDEDMRQDMEEENQVYAKQEQTMDQELLTDADDE
 ESMCTDEKQMLELALEEKEIINQKDNTFCKKLSIVPREKH EERQAMVQKDNMLYSELIFQSLVPKEKY

KELLEDPEMKEQAKKE $\square$ AN $\square T K Q K E \square K K \square E Y A L L P K N P N$ KKपAEEEELVY KEQLDEपDKNLLD【ILADMCKE
EKMASDEPDDULREMAAAEMEELQSNYNSTEAULASNAH DQLVTDIVGTDTEDDVNDGKAIAELERKQRNVQRPIDERD ARLLTDPDETMRTMAAEEQEALLSSLMEDLTELLVPKSET EETEAEKDSDMRQEEENQVYADLMKKADLLTKMLLLADSE
DHDENED $\square R K \square A E S E \square T S C Q K E \square Q \square K H Q \square I L L V P S E E T$ PRPES EALLKDDDA ETRELAEKERVLGQEEVQGLKKKLVPTEEA


| UniRef90 MOT314 <br> UniRef90-A7HDW3 <br> UniRef90_Q7UQ31 UniRef90_K2BD97 <br> UniRef90-W1VKI4 <br> UniRef90-UPIO002F73BEB <br> UniRef90-R7HEG2 |
| :---: |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

DERDC| L|E|V|RAGTGGEEAS|LIFAMDIIFKMYEKYSQKRGWKF DRAGAIVEVKSGAGGVEAMDWAAMLYRMYTRYCERRGWSV
 DARDVI I EVKAGEGGEESALFASDLARMYTRYAERMGWAV

 LSKSVIVETRAGTGGEEAALDASELFNMYVRWAERNDYEA DAFGAVLQIYAGAGGDDAQDWTEMLERMYLGWCEKRGFAV MEVRSAAGGDEAGDFAGDLLRMYTRFVQNQGWK I A H DP CLLEI RPGAGGSEAAIFAGDLFRMYQAYCNRNGFKY
 QK ILLE DRAGAGGDEAADFAGDLARMYQKYSEVRGWKF DSR GAGGDEASI FASDLFKMYEKYTANNSWRF DSNNA TMETRAGTGGREAAIFAAEMLSMYDKYSSSNQWKF AHMPCLLEIRPGPGGLEGRFFADTLFRMYKQYCSRKGYRA SGKPCLMELRPGVGGVEAMNFTQDLTNMYDNYAHKKRWKY DARNVILTDHPGAGGTESQDWTQMLLRMYLLRYAERKGFKV

 DARNIML EVVAGVGGDEAGUI WAGDLVVRMYQKYSERNSWKF
 DENDLILEVTAGVGGQEAMLFTAEVFEMYQQYAAFKRWHF
 EDMPCLI EI RPGVGGGEAALFAGDLDRMYRSFCARKNMRA A ECKTMVVLRPGVGGNEASLI TEEDLLQMYVNFAMFKNWKY ADDPCLLEARPGAGGDEAGLFAFEMLRMYVAFCSRRGLRP ADTSALIVAVVK S A G GTESQDWAGMLSRMFMRWGERRGFKV DHRNA IVELRSGTGGYEACLFVEDILRMYDMYFKQVGWKY
AEDPCLVETRPGAGGGEAALFAADLLRMYRAYCDRKRFRS ADMPCLLELRPGPGGLEGRYFADSLFKMYMALCARRGYRA

 EDNDLI MEVTAGVGGQEAMLFTAEMFDMYQHYAVHKNWSF



## DLS DLVLEVTAGVGGQEAMLFTAEVFDMYQGFAHHHGWSF

A D L P C L LE LRPGAGGEEAG $\square$ FANELLRMYTMFCSNRS $\square R T$ RDLYNMYVRYADSRRWKV DKSDVILEVTSGRTGDDCQQFSKEI FEMYQNYADYKFWQF

 AHDPCLLEI RPGAGGDEAGFFAGDLDRMYQAYCSNNDLRA DIEGACVVIKARSEG Y SEDWASQLLRMYTKWAKRQGYKG DSRNAMLALHAGAGGTESQDWANMLLRMYDRWAERHDYKA



 MLI RPGAGGSEAALFAADLLRMYQAYCSHNGLRA VYPSLLFGVNSGAGGQEAMLFAQELYEMYTSYFEHMDWDY QSKGA MELRQGVGGQESCLFLGGEMLRMYDKFCETRGWST YQAPALLEVRAGVGGSEAALFASELLSMYERYCAFRNWKW

A S
LYKMYSSFFSLLRWQT

DSKDVIMETRAGAGGNEAGLFAADLFRMYSKYAEDKSWKI VFI EI A VGVGGQESVAFSQDLSKMYCRFASQKGWEV
CCDN
HRSCLVEVRAGAGGTEAMDWCSMLVRMYQRWAESRFQEVV SQKGILLELKAGVGGSESADFVQDMLKMYTAFSDSQRWS S LD SAVIMELFAGAGGKEAGLFAHDLMNMYHAFAVQQNWSF AQMGALDEKSGVGGSESSLFLAELMRMYMRDAERKRWKA QYSAVRLQLDAGAGGLEAAMFARDLFTMYAAYARYCGWQF YYPSLIFEVNAGAGGQEAMLDARELYDMYDNFFDNNGWDY
DESDLILEVTAGVGGQEAMLFTSEDFDMYQQYAAFKGWHF YDQSALVEIKPGVGGVEASHFATLLMNLYTRDATRKRWH DEGDLVLEVTAGVGGQEAMDFAAE FHMYQNFASFQGWRF
UniRef90_M0T314 UniRef90_A7HDW3
UniRef90-Q7UQ31 UniRef90_K2BD97 UniRef90_W1VKI4 UniRef90-UPIO002F73BEB UniRef90-R7HEG2 UniRef90_DOJBI5 UniRef90 X1KBM5
UniRef90 UPI0003 UniRef90-UPI00037D6332 UniRef90_A4RYN9 UniRef90_K2CGY1
UniRef90_M2V0S3 UniRef90-F2U393 UniRef90-A8NMZO UniRef90-Y3BQH6 UniRef90_K1X112 UniRef90-T2M452 UniRef90-E3QKU6 UniRef90-J7RQ21 UniRef90-R7PP38 UniRef90_X11141 UniRef90-12K184
UniRef90-A5DMP
UniRef90-A7TJJ1
UniRef90_UPI0002B46B5F
UniRef90-Q75B56
UniRef90-UPI0003F0EDA3
UniRef90-D8TJJ8
UniRef90-M2ROM3
UniRef90-K1WYP0
UniRef90-UPIO003958042
UniRef90-H8X732
UniRef90-B6HEY3
UniRef90_UPIO00368695C
UniRef90-G3JUF7
UniRef90-G7SPU4
UniRef90_UPIO0035E042E
UniRef90_W9CJ38
UniRef90-M1VV50
UniRef90-B6QTJ1
UniRef9-C5DPYO
UniRef90_R5MUW4
UniRef90-UPIO0034F6379
UniRef90-N1JLV2
UniRef90-XOVRR8
UniRef90_E6RDQ1
UniRef90_A5BMQ9
UniRef90-Z2EA19
UniRef90-I3IXQ8
UniRef90_UPIO00219627B
UniRef90-CONIX9
UniRef90_XORYF5
UniRef90-H3AQV2
UniRef90 V7BLU0
UniRef90_V7BLU0
UniRef90_UPIO003EC20F4
UniRef90-J9WT91
UniRef90-M2ZVC3
UniRef90-W9S846
UniRef90-X1U632
UniRef90_12FZQ1
UniRef90-UPIO0035A0654
UniRef90-K7FCK4
UniRef90-W9W5U1
UniRef90-V4AL43
UniRef90-UPI00038C2D8E
UniRef90-K7IUL3
UniRef90-K2RW28
UniRef90-B4MX15
UniRef90_A8PX78
UniRef90_B6JY59
UniRef90-M7B8U3
UniRef90-M3XFF4
UniRef90 S8A979
UniRef90_S8A979
UniRef90IIYBB5
UniRef90_W8PN41
UniRef90-S2R117
UniRef90-K2A094
UniRef90_R9YK90
UniRef90_E2BXM6
UniRef90-M1VAE7
UniRef90-R9ASE9
UniRef90-UPIO001A641F5
UniRef90-UPIO004416D75
UniRef90-U6HLW2
UniRef90_UPIO003C3964A
UniRef90-F2DC83
UniRef90_UPIOOO2C35C08
UniRef90-E3KYHO
UniRef90-W5NEM1
UniRef90_R1BUJ4

170
180
190
200
DVI I D TMESDLLKGYKEASGTIISGPRAYGRLKFESGVVHRVQR EPADLVAGEEAGISQASFIARGEFAYGFLKAERGVHRLVR ELLDRQENEEAGUNHASIAVRGPMAYGYLKGEEGMHRLVR EILEESLSENDWYKEIIMKISGDGAYSRFKFEAGTHRVQR EVLDATDSDLGGYKDVRLAVPQDGVWAHLKYEGGVHRVQR S I MD STD SDL G GYK DVRRAA PADGVWARLKYE GGVHRVQR

 RATERLEGEGGGLKTATLEVEGRYAYGYLSSEKGTHRLVR EELDRSEGKLGQUKEVVLKVKGKDVYNKLKYESGVHRVQR ENVNGTTEAGDPLSEAI I EVEDENAYGVFRCEAGVHRVQR
 EIVEASESDHGGYKEISFSVSGNGAYSKLKFENGAHRVQR I V E F EVLDESESTDGGLKEVSVNi DGSGVFGKLKHEDGVHRVQR EVI KYETADESPLQEAIVEIHDPGAYDLFRGEAGMHRVQR



 EPLEYVPSEIGGLRHASASIGGTDAYKHMKFEGGVHRVQR QVVELTASEVPGVKHVVAAVADGRVYGTLLPESGVHRVQR SVLSVNETENGGVKDAI MEVKGEGAYDVLRWESGVHRVQR SLLKYETADESPLAEAI LEEVESAGAYGKLRSEAGVHRVQR EVLEYFPSEDGGLRHAVASVA GVEAYKYMKYEGGVHRVQR KIVSTGKTSSGFI NEAILSIDEPGSYDVLRHESGVHRVQR $T I L K Q D T P S E D R L S E A V I E Q A N G A Y D U L R T E S G V H R V Q R$ ELI DQQDGEQAGVLS SEFII RGEKAYGMMAPEHGVHRLVR KVVKYSAEGELPLQEAILEI EDAGAYDAFRAEAGMHRVQR EILVHSQKGGDKGYKEIILEVVGNDVYSNLKLESGVHRVQR
 KALKYEMADEDPLQEAVI EVVQDQGAFDVFRSEAGMHRVQR

 $N V Q S E N T T E L G G V K D V Q I A B P E D G V W A S M K Y E G G V H R V Q R$ DLLEYFSSELGGLRHATVSIGGQDAYKCLKFEGGVHRVQR SLI KYETADDMPLAEATLEVDSAGAYGKLRTEAGVHRVQR EILGMNPTEDGGFKEVVLGLQGEGVFRHLEYESGGHRVQR EEISRVEGTGGKGGGGIRELTVKFVYGALQWEKGVHR\|QR $R V V E K Y A S K N G G D K S A T D E F E S E Y G Y G Y L S G E R G V H H M D R$ MMS SNEAEHGGYKEMDAKVSGDGAYGVLKFESGGHRVQR D ILEHTTSEVRTLRHASASI | V |
| :--- | GPQSYKRMKFEAGVHRVQR T LLKKECENEDRLDEAVMEI ETPGSYETLRTEAGVHRVQR EQLDFSTSEKNGFREVIFNI KGPGVWSELGYEGGGHRVQR EVLNYMPAEYGGLHHAAVRISGECVYKYLKYEGGTHRVQR RIVDKCPFKNGGINSATIEFEFECAYGYLSGEKGAHHLDR ETLEYFPSEDGGLRHASAS $\square G G S E A Y K H M K F E G G V H R V Q R$ EVI DRQEGDVAGIKHVTVKFSGDYAYGYAKAERGVHRLVR TILKLETSEDTHVQEAVLEVETPGAYGULRCEAGVHRVQR RVVEKRSSMNGGI K LATI EFEFKFAYGYLS GERGVHHMIR EVLDVSPGEEAGIKSAIVEDKGDYVHGYLKGEHGVHRLVR EMLSSTSVDVSSLKEAIIEVKGKGVFQKLKFEAGVHRVQR GVI SS D G NELGGSRKASVEVGGEDVYKHLKHEAGVVRVQR EILEYFPSEIGGLRHAAASIVGLEAYKLMKFEGGVHRVQR TLASYTPDDSTHLTDALLEVHQPGAYDVLRTEAGVHRVQR EVLTYDKTVEGGLRKAEIEVNGDFVFKYLKYEGGVHRVQR ELLNYTPADYGGLHHAAARISGDSVYKHLKYEGGI HRVQR DI I EMDESPQGGCRHASTMISGKESFEKLRHEAGVHRVQR HLVKYEDAEDAPLQEA LLEVEDEGAYGRFRCEAGVHRVQR EEFARETADDGGLRHANILI NDQDAYNWLRYEAGVVRVQR

 DIL NYTPAEDGGGIHHAAAHISGDCVYGYGLKYEGGTHRVQR ELLNYTPADYGGLHHAAARISGDSVYKHLKYEGGDHRVQR N I S Y Q THNEEGCSELVMTVSTPESYDLLRHEAGVHRVQR EVINESSGGAGAVKEALVEIKGPNVWSTLKYEKGVHRVQR DVMCANSAEAGGIKEASLLI AGKDAADWLAHEPGVHRVQR EVADYQPGDEAGIK SVVLLINGENAYGLLKSEKGVHRLVR NLINSNRTGIGGFKEVIFEVKGDDVFKKMKYESGVHRVQR KLISGS FDGNDSKAVVLRLEGAGIFSWLRFESGNHRVQR
 SLLST TYVNNEVIKEA LLEI KGTDTWPLLRFEKGVHRVQR TVLHKTVMSNEECAPSHNEVMS LGAYGQLKWEAGVHRVQR $T$ PVAVNETENGGVKDAVVEVKGKRG SVVRCVMGKRRTQG AAVGADSPIHHVEVRVESSDPADPVYSRLRWEAGVHRVQR DVLAED DT D $\square G G L R H A N V I V N D D Q A Y Q T I C Y E A G V H R V Q R$ K PVVCS EAEKGGLKTYVMEVKGKQVYSKLKFESGVVRVQR ETLEYFPSEDGGLRHASASI GGSEAYKHMKFEGGVHRVQR K PVSVEYMGQDGLREAVLEI EGQAVYGS DRWEAGVHRVQR ETLASTCSRLAGVWHARACIADRCEHDFGSPET


UniRef90_MOT314 UniRef90-A7HDW3 UniRef90-Q7UQ31 UniRef90-W1VKI4 UniRef90_UPIO002F73BEB UniRef90-R7HEG2 UniRef90_DOJB15 UniRef90- X1KBM5 UniRef90-UPIO0037D6332 UniRef90_A4RYN9 UniRef90-K2CGY1 UniRef90-M2VOS3 UniReffo-F2U393 UniRef90 Y3BQH6 UniRef90 K1X112 UniRef90-D8QYC5 UniRef90-T2M452 UniRef90-E3QKU6 UniRef90-J7RQ21 UniRef90-R7PP3 UniRef90-×1144
UniRefol
I2K184 UniRef90-A5DMPO
UniRef90-A7TJJ1
UniRef90_UPI0002B46B5F
UniRef90-Q75B56
UniRef90-UPI0003FOEDA3
UniRef90-D8TJJ8
UniRef90-M2ROM3
UniRef90-K1WYPO
UniRef90 UPI0003958042
UniRef90-H8X732
UniRef90-B6HEY3
UniRef90-UPIO00368695C
UniRef90 G3JUF7
UniRef90-G7SPU4
UniRef90_UPIO0035E042E
UniRef90-W9CJ38
UniRef90-M1VV50
UniRef90-B6QTJ1
UniRef90-C5DPY0
UniRef90_R5MUW4
UniRef90-UPIOOO34F6379
UniRef90-N1JLV2
UniRet90-X0VRR8
UniRef90-E6RDQ1
UniRef90-A5BMQ9
UniRef90 Z2EA19
UniRef90-131XQ8
UniRef90_UPIOOO219627B
UniRef9-CONIX9
UniRet90-XORYF5
UniRef90-H3AQV2
UniRef90-V7BLUO
UniRef90-UPIOOO3EC20F4
UniRef90_-_9WT91
UniRef90-M2ZVC3
UniRef90-WZS846
UniRef90-X1U632
UniRef90-12FZQ1
UniRef90-UPIOOO35A0654
UniRef90-K7FCK4
UniRef90-W9W5U1
UniRef90-V4AL43
UniRef90-UP100038C2D8E
UniRef90_K71UL3
UniRef90-K2RW28
UniRef90_B4MX15
UniRef90_A8PX78
UniRef90-B6JY59
UniRef90-M7B8U3
UniR Ref90-M3XFF4
UniRef90
S8A979
UniRef90-S8A979
UniRef90 14 YB58
UniRef90_W8PN41
UniRef90-S2R117
UniRef90-K2A094
UniRef90-R9YK90
UniRef90-E2BXM6
UniRef90-M1VAE7
UniRef90-R9ASE9
UniRef90-UP10001A641F5
UniRef90_UPIO004416D75
UniRef90-U6HLW2
UniRef90-UPI0003C3964A
UniRef90-F2DC83
UniRef90-UPI0002C35C08
UniRet90 E3KYH0
UniRef90-W5NEM1
UniRef90_R1BUJ4
 YRSSGAGGQKVNKTDSAVRLTHLPTGIVVAVQNERSQQKN YRASGAGGQHVNKTDSAIRETHIPTNTVVQCQNQRSQHQN CRASGAWWQHVNKVESAIRIVHKPSWLAVECQDQRSQLKN FRSSGPGGQSVNTTDSAVRITHLPTGIVVSMQNEKSQLQN FRSSGPGGQSVNTTDSAVRLTHLPTGIVVSMQNEKSQLQN YHSSGAGGQSVNTSNSAVRTTHEPSKVVVAVQNERSQLRN FRSSGAGGQHVNKTESAVRLI FRSSGPGGQHMQKTSSAVRITHLPTGLVSTCQGQRSQHQN
 FRSGGAGGQNVNKVSTAVRLTHIPTGLVVTCQTERSQLQN MRASGAGGQHVNKTESAVRLTHTPTNTVVAMQDSRSQHKN YRSGGAGGQHVNTTDSAVRETHPTGVVVAVQSERSQHRN MRARGAGGQHVNRTESAVRLTHIPSGITVSMQDERSQHQN FRSSGPGGQNVNKVETAVRIVHKPSGIVVSSQSGRSQFGN
 FRSSGAGGQHVNTTDSAVRLTH MRARGAGGQHVNKTESAIRMTHVPTGTVVSMQDSRSQSRN KRASGKGGQHVNTTDSAVRLTHIPSGIVVSMQDERSQQKN YRASGAGGQHINKTSSAIRITHI PTGTVVTCQNERDQRQN YRSSGSGGQHVNVTDSAVRITHIPTGIVVQCQNERSQHKN MRAGGAGGQHVNKTESAVRLTHIPTGIVVRDQDDRSQHRN MRARGKGGQHVNTTDSAVRITHFPSGIVISMQDERSQHKN ARSGGAGGQNVNKVETAIDLFHKPTGIRIFCTEERTQLQN MRASGKGGQHVNTTDSAVRITHFPSGIAIHMQEERSQHRN KRASGAGGQHVNTTDSAVRIVHDPTGVVSECQQERSQLKN MRASGAGGQHVNVTDSAVRITHVPTGLVVSCQNERSQHLN
 MRARGAGGQHVNTTDSAIRLTHMPTNTVVSMQDSRSQHKN MRASGKGGQHVNTTDSAVRLVHI PTGLIVTQQDERSQPQN MRAGGAGGQHVNKTESAIRLTHIPTNTVVSMQDERSQQAN FRSQGAGGQGVNTTDSAVRLTHLPTGDAVASQVTRSQDKN MRARGAGGQHVNKTESAIRMTHLPTGTTVSMQDHRSQHRN FRSSGAGGQHVNKTESAVRLTHITSK円TVECQEERSQHKN YRSSGPGGQGVNTTDSAVRITHLASGLVVSCQNERSQMQN MRARGAGGQHVNTTDSAVRLTHVPTNTVVSMQEGRSQLQN MRSRGAGGQHVNKTESAIRLTHLPTGTTVSMQDHRSQARN MRASGAGGQHVNKTESAVRGTHIPTGGTVSMQDSRSQHAN
$M R A G G K G G H V N T D S A V R T H F P S G V V A Q D E R S H K N ~$ FMSSGPGGQSVNTTYSAVRMTH KRASGAGGQHVNTTDSAVRTVHTPTGVVSECQQERSQTKN MRARGAGGQHVNTTDSAVRLTHIPTNTVVADQDSRSQHAN FHASGPGGQHVNKTASAIRLTH MRARGAGGQHVNRTESAVRLTHTPTGTTVSMQDSRSQHQN SSPSCHGVEQGRTGHAVCIQHIPTGISVQSSGERSHFAN FRASGAGGQHVNTTDSAIRITHLPTGTVVECQDERSQHKN KRASGAGGQHVNTTDSAVRIVHLPTGVVAECQQERSQLKN FRSGGAGGQNVNKVSTGVRLTHEPTGIVVSSTVERTQYGN MRAGGAGGQHVNKTESAIRLTHMTGIVVGMQDSRSQHEN SRSSGPGGQNVNKDSSAIKLEHIPTGITVSMQEEQSQHKN
 KRASGAGGQHVNTTDSAVRIVHLPTGVVSECQQERSQLKN
 MRASGAGGQHVNRTESAVRLTHAPSGIVVAMQDSRSQLTN FRSSGPGGQHMQKTSSAVRITHLPTGLVATCQGQRSQHQN MRSRGAGGQHVNKTESAI RLTHEPTGI SVSMQDSRSQHQN MRGSGPGGQSVNTTDSAVRITHVPTGTVAECRQERSQTKN KRASGAGGQHVNTTDSAVRIVHIPTGVVSECQQERSQIKN MRASGAGGQHVNKTESAIRLTHLPTNTVVAVQEERSQHKN FKSQGSGGQSVNKTDSAVRMVHLPTGTVIECQESRSQTEN
 MRASGAGGQHVNKTESAVRLTHIPTGTVAADQDSRSQRAN KRASGAGGQHVNTTDSAVRVHLPTGLAVEAQSERSQLKN MRARGAGGQHVNRTESAVRLTHDPSGIVSMQDSRSQHQN MRAKGAGGQHVNRTESAVRLTH TPSGITVCMQDSRSQHEN FRAKGAGGQHVNTTDSAVRIVHIPTGLTVECQQERSQQMN FRAKGAGGQHVNTTDSAVRLVHVPTGLVVECQQERSQDKN MRASGAGGQHVNRTESAIRMTHMPTGIVVSDQDSRSQHKN MRARGAGGQHVNKTESAVRLTHMPTGUQVSMQDTRSQQQN MRASGAGGQHVNTTDSAVRLTHLYPGVTACSSKKSQHQN
FRSSGAGGQHNKTSSAVRLIHPTGUVTSSQAQRSQFQN

FRASGAGGQHVNKTDSAVRTTHDPTG\|VVQCQNDRSQHRN KRASGSGGQHVNKTNSAVRITHIPTGLIVECQVHRSQDRN MRSSGAGGQHVNKTDSAVRITHRPSGIVVTCRSERSQHQN MRARGAGGQHVNKTESAVRLTH!PTGI QVSMQDTRSQQQN HRPTGPGGQNVNKSTSAVRLTHLPTGIVISCQRERYQHVN MRSRGAGGQHVNKTESAVRLTHIPTGITVSMQDERSQHQN FRASGAGGQHVNKTESAVRVRHRPTGHVAVCQADRSQHTMN KRASGAGGQHVNTTDSAVRIVHLIPSGIAVESQSERSQIKN ARSGGAGGQNVNKVETAIDLIHKPTGIRIFCTEEKSQLQN KRASGAGGQHVNTTDSAVRIVHLPTGVVSECQQERSQLKN



K E K A M Q V L R A K L Y T M K L E E E T S K R N A R K $⿴ 囗 十 ⺝ 刂$ Q RAKA WQVLRRSRLA QAKREAREEEVRK LRRGVIKMGRGDKV

R A WA WE ILRA R LSEK H NEEVEARRASRRDQVKGADRSDK
 KAKAMAVLAARIVVAEQERRAAEVSDTRRNLGSGDRSDRD R E K A M K S L R A K L Y S M K L E E E T S K R N QR K DQ I G T K G R S E K il R D Y A M R L L K S K L Y Q L E L E K K E A E R A A L T G E K M E N G W G S Q
 R E T A LLRMMRA K L Y Q Q L I Q K E V E QR Q S T R K V Q V GTA Q S ER I K M K A L N R L K A KL L VT A RE Q GVA S IGK S DQK DNIVNP WQEET



RTKAWAVLRARLLDDRKLKQEVEGNRERRAQVASMDRSDRV K E L A A L K S L K E I A M K I L R A A K L Y S D $\quad$ K L E E E K K R Y N A R K DQ I G T K G R S E K

 R E V A L K R L Q A R L V Q Q Q L E S S E A H L A T K K A Q Q G S L N R N E K il RVVKA WDVL R A R L L D D H L Q K E A S E N R A L LR R S QVVSAARRSE R V


 K A T A MA MLLKAKLLYQREEEAKRAKAKA 1 Q GEQKDVAF GS Q

K S N A VE A LTT T K $\square R$ L L N K E K A E G A A Q T K K Q K L F G S GRPE K $K K \square A M M R L R N M M Y E Q Q L N K Q T S F R S E D R K K Q \square G M G R N E K V$ KARALLYVLRSKLRERYLQERRQRQASMTHHGGSAGFGSAD RQRA Y QVL S S R LL S K RMQDE DDERKKGR DS QIINMDRS DK I




RERAYMIL RARLLDDLKRQKVIENRES RLSSQVKNTNRSEKI
K E K A M T V L R A K L $\operatorname{C}$ Y S M K L E E Q M S K R Y S A R K Q I G S R G R S E K I
RA T A MK M｜LA A R｜V K A HEEEKRRAEQQAARGA PASGGRSER｜V


UniRef90_X11141
UniRef90-I2K184
UniRef90_A5DMP0
UniRef90_A7TJJ1
UniRef90_UPI0002B46B5F
UniRef90_Q75B56
RTYNFQQNRVTDHRCNFTLYDLEGCMNGRLDD I DD
RTYNFPQNRVTDHRCGFSLHDI DGCMQGKLEEI I E
RTYNYPQNRITDHRCGLTLYALNEVITGELDEVMD
RTYNYKDNRVTDHRDKTNFELTSFLEGDI EDAVQACVTM RTYNFPQNRVTDHRCAVSLHALAEVVTGELDELI DSMARY
 RTYNFPQGRVTDHRTHLTLHDLDSVLVGGLQRLMGVLRAA RTYNYAQDRVTDHRLGLSVMNLDSVMEGELRDILDAL RTYNWGQQRVTDHRSGLSVVHLDNVMEGELEKVIDSVRTW RTYNFPQDRITDHRDSRSVHHVESFMLGELDEMI QTL RTYNYPQNRITDHRCGYSLHDI DGCMKGELQDIIN
RTYNFGQSRCTDHRTGDT IHNLDGILDGGLETVMDSVRTW RSYVLDKQY $\square$ KDHRTGLMKHNPS
RTYNYNQDRCTDHRAALDVHNLPAVLQGGLDKVMDAGRDW RTYNYPKSRVT DHRDHKSIYDIVGFMNGNIQEMID
RSYVLAPYQMKDLRTDFEVGNPSAVLDGDLDGFIEAGDKW RTYNWGQQRVTDHRSGLSVHNLDDVMEGELEKVIDSVKAW


$R T Y N Y P Q D R V T D H R \square G K S \square H N D E G F D F G E L D D L D Q S L$ RTYNWGQQRVSDHRSGLHCHNLADVMNGELDKIMDSVQKW
RTYNFNQDRLTDHRFGTTVTGLQRVLDGELEDVI
RRYVFHPNKVQDVKTDI QLPDLNSVLDGNIEPLI GANDSM RTYNYPQGRVSDHRDNLTI YRLNEVMEGDLQSLIDPVVQ RTYNFSQDRITDHRIGMTLHDLKSFLLGELDEM
RSYVLHPYQMKDHRTNYETNQPQAVLDGDLDPFDNAY LQW RTYNFGQNRCTDHRSGLTLHNLGSIMEGGLEKIMDS
RTYNYPQNRVTDHRDKLSLYSLDKIMAGDLGE I I AAL
RTYNFTQDRVTDHRISVVVRDI KEFLCGGLDELI NELVES RRYVFHPYKVHDVKTGUQMPDLNYVLDGNIGTLIAAHINS RTYNFPQNRVTDHRDNTS LDDLETFMQGELDELVQSL VIMFF
RTYNFGQQRVSDHRSGLDLRNLDDVLAGGLEKVMESVRVW RKYMSNPHKVEDVKTGLQLPGLNSVLDGNLEPLIAAHIST

RTYNFPQDRVTDHR $\square N S \square N G \square D A \square M E G E D D H \square M E S L$
RTYNFQQDRISDHRIKENFFNMQEFLNGELDDMISSL
RTYNFPQDRVTEHRINRTVHHIHKFMLGELDEMIKSL
RTYNFSQRRVTDHRSGMDSSDLEGILGGGLEDLMDS

RTYNFNQDRVTDHRSNGTLHNLKGFLEGGLDGLHERL
RTYNWGQQRVTDHRSGLTVHGLDDVI EGNLEQVMESVRKW RTYNFVQDRITDHRDNGTLHNLNGFLQGQLSGLDEKL
RTYNFPQDRVTDHRUG S S L D IHRFMDGD
RTYNYAQNRITDHRCSCSMYDTEGFMEG
RTYNFTQDRVTDHRDSYDIRNDKEFLCGELDELINKLLES


RTYNFAQDRVTDHKLKVSSSGVDR ILNGELKSFVSKLIAQ
RSYVFH
$R T Y N F P Q Q R V T D H R L N R T F P Q L P E\|L L G N \square S P\| D S Q L M$
RTYNYNQDRVTDHRLNGTFYNLSEFMQG
RSY ILSPFTVKDLRTGLTCSDAESVLDGG DALHE MLRA RTYNYPQSRITDHRVNLSLSDLQSFFE
RTYNFPQDRVTDHRLNHSWNNLYRFM
 RTYNYQQDRITDHRLGRSWSGLATFM
RTYNFVQDRITDHRI GGTVHNLKEYLQG


RTYNFPQDRVTDHRI SKTVYDIKSFMLGKLNDVIQSL


UniRef90 M0T314
UniRef90-A7HDW3
UniRef90_Q7UQ31
UniRef90_K2BD97
UniRef90 W1VKI4
UniRef90-UPIO002F73BEB
UniRef90-R7HEG2
UniRef90_D0JBI5
UniRef90 ${ }^{-}$X1KBM5
UniRef90_UPIO0037D6332
UniRef90-A4RYN9
UniRef90 K2CGY1
UniRef90-M2V0S3
UniRef90-F2U393
UniRef90-A8NMZ0
UniRef90 ${ }^{-}$Y3BQH6
UniRef90-K1X112
UniRef90-D8QYC5
UniRef90 T2M452
UniRef90-E3QKU6
UniRef90_J7RQ21
UniRef90-R7PP38
UniRef90 X11141
UniRef90-I2K184
UniRef90-A5DMP0
UniRef90 A7TJJ1
UniRef90-UPI0002B46B5F
UniRef90_Q75B56
UniRef90-UPI0003F0EDA3
UniRef90- D8TJJ8
UniRef90-M2R0M3
UniRef90-K1WYP0
UniRef90 UPI0003958042
UniRef90-H8X732
UniRef90-B6HEY3
UniRef90 UPI000368695C
UniRef90_G3JUF7
UniRef90-G7SPU4
UniRef90-UPIO0035E042E
UniRef90 W9CJ38
UniRef90 ${ }^{-}$M1 VV50
UniRef90_B6QTJ1
UniRef90 C5DPY0
UniRef90 R5MUW4
UniRef90-UPIO0034F6379
UniRef90-N1JLV2
UniRef90 XOVRR8
UniRef90-E6RDQ1
UniRef90-A5BMQ9
UniRef90-Z2EA19
UniRef90 I3IXQ8
UniRef90-UPIO00219627B QL

UniRef90-CONIX9
UniRef90 X0RYF5
UniRef90-H3AQV2
UniRef90-V7BLU0
UniRef90-UPI0003EC20F4
UniRef90 J9WT91
UniRef90-M2ZVC3
UniRef90-W9S846
UniRef90-12FZQ1
UniRef90-UPI00035A0654
UniRef90-K7FCK4
UniRef90 W9W5U1
UniRef90 ${ }^{-}$V4AL43
UniRef90-UPI00038C2D8E A
UniRef90-K7IUL3
UniRef90 K2RW28
UniRef90-B4MX15
UniRef90-A8PX78
UniRef90_B6JY59
UniRef90-M7B8U3
UniRef90_M3XFF4
UniRef90-S8A979
UniRef90 I4YB58
UniRef90-W8PN41
UniRef90-S2R117
UniRef90-K2A094
UniRef90-R9YK90
UniRef90-E2BXM6
UniRef90-M1VAE7
UniRef90 R9ASE9
UniRef90-UPI0001A641F5
UniRef90-UPI0004416D75
UniRef90_U6HLW2
UniRef90 UPI0003C3964A
UniRef90_F2DC83
UniRef90-UPI0002C35C08
UniRef90 E3KYH0
UniRef90-W5NEM1
UniRef90_R1BUJ4

UniRef90 U6IAT7 UniRef90-W1PBW6 UniRef90-I1JK70 UniRef90-L0B1U8 UniRef90-E2AL66 UniRef90_K2F7V6 UniRef90-S5SQ94 UniRef90 T1K8W1 UniRef90-Q4UA63 UniRef90_E7KCC8 UniRef90-UPI000258F053 UniRef90 UPI00046BE7E0 UniRef90_V4ZT13
UniRef90 E3MR64
UniRef90 ${ }^{-1719 B 8}$
UniRef90-H2WDI3
UniRef90-B7GDE0
UniRef90-A4HE77
UniRef90 Q05FU9 UniRef90_U6KPX0
UniRef90-L1LCD9
UniRef90 Q812J2
UniRef90-E8RKD9
UniRef90_G3TT88
UniRef90 UPI000378BD36
UniRef90 A0A024VGM2 UniRef90-W7APQ1
UniRef90 ${ }^{-}$K8A8K5
UniRef90 K 1 YC 40 UniRef90-S6BNR9
UniRef90_H8Z652
UniRef90-D4C3Y8
UniRef90 UPI0001E2C748
UniRef90_UPI000477F727
UniRef90-UPI000225A9D1
UniRef90- G2Z7M3
UniRef90-V7IF27
UniRef90-UPI000414C57A
UniRef90 UPI00036FF316
UniRef90 UPI00036A57C6
UniRef90-F8X318
UniRef90-V6SD07
UniRef90_R9L205

```
lupas 21
lupas_14
lupas_28
jnet
conf
sol25
sol5
solo
jhmm
jpssm
```



UniRef90 U6IAT7 UniRef90-W1PBWE UniRef90-I1JK70 UniRef90 L0B1U8
UniRef90-E2AL66
UniRef90-K2F7V6
UniRef90-S5SQ94 UniRef90 T1K8W1
UniRef90-Q4UA63
UniRef90-E7KCC8
UniRef90 UPI000258F053
UniRef90-UPI00046BE7E0
UniRef90_V4ZT13
UniRef90 E3MR64
UniRef90 1719B8
UniRef90-H2WDI3
UniRef90-B7GDE0
UniRef90 A4HE77
UniRef90 Q05FU9
UniRef90_U6KPX0
UniRef90-L1LCD9
UniRef90 Q812J2
UniRef90-E8RKD9
UniRef90-G3TT88
UniRef90 ${ }^{-}$UPI000378BD36
UniRef90 A0A024VGM2
UniRef90-W7APQ1
UniRef90 ${ }^{-}$K8A8K5
UniRef90 K1YC40
UniRef90-S6BNR9
UniRef90_H8Z652
UniRef90 D4C3Y8
UniRef90 UPI0001E2C748
UniRef90-UPI000477F727
UniRef90-UPI000225A9D1
UniRef90 G2Z7M 3
UniRef90-V7IF27
UniRef90-UPI000414C57A
UniRef90 UPI00036FF316
UniRef90 UPIO0036A57C6
UniRef90-F8X318
UniRef90-V6SD07
UniRef90_R9L205

FEF $\square$ D L K TVGHLLDDRTH $\square \quad \square E N \square Q N \square Q D \square A K Q D V E M$
G $\square$ H F D V N K Q
 PEQ $\quad$ S WEA $\square$ AKQAA $\quad$ VSDTRSE $\square F Q L N S \square I N D L K E T$



UniRef90 U6IAT7 UniRef90-W1PBW6 UniRef90-I1JK70 UniRef90 L0B1U8 UniRef90 E2AL66 UniRef90_K2F7V6 UniRef90-S5SQ94 UniRef90 T1K8W1
UniRef90-Q4UA63
UniRef90_E7KCC8
UniRef90 UPI000258F053 UniRef90 UPI00046BE7E0
UniRef90_V4ZT13
UniRef90 E3MR64
UniRef90 1719B8
UniRef90-H2WDI3
UniRef90-B7GDE0
UniRef90 A4HE77
UniRef90 Q05FU9
UniRef90_U6KPX0
UniRef90-L1LCD9
UniRef90 Q812J2
UniRef90-E8RKD9
UniRef90-G3TT88
UniRef90 UPI000378BD36
UniRef90 A0A024VGM2
UniRef90-W7APQ1
UniRef90-K8A8K5
UniRef90 K1YC40
UniRef90-S6BNR9
UniRef90-H8Z652
UniRef90 D4C3Y8
UniRef90-UPI0001E2C748
UniRef90-UPI000477F727
UniRef90_UPI000225A9D1
UniRef90 G2Z7M3
UniRef90-V7IF27
UniRef90-UPI000414C57A
UniRef90 UPI00036FF316
UniRef90 UPI00036A57C6
UniRef90-F8X318
UniRef90-V6SD07
UniRef90_R9L205


E Y S
QEMVVSDPRAEAEQEYAELVPQYETTSSRLVNKGLPDRRKY $K K L V K E E Q L M Y Q Q E L V E V D K H Q L D V I L Q T L D G K E$

EEMRKEGDVES $\operatorname{ZKETLESELQQLATRVVPLNNLDVLS}$
N ML Y F E E E E DGKS $\square E E G L E E Q L E D \square A K R \square V P L N N \square D V L S$ EDD
$M$ S
YEERNED $\square$ NQLNCH $\square$ ESVTN LI $\square D D \square I L F Y K S Y V N Q D H H L$ L VP K D K Y

DESSNDDDFKE
A AK\|IKNLEQKA\|LSDEH
lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm


```
UniRef90 U6IAT7
UniRef90-W1PBW6
UniRef90-I1JK70
UniRef90_LOB1U8
UniRef90-E2AL66
UniRef90-K2F7V6
UniRef90-S5SQ94
UniRet90_T1K8W
UniRef90_Q4UA63
UniRef90-UPI000258F053
UniRef90-UPI00046BE7E0
UniRef90_V4ZT13
UniRef90_E3MR64
UniRef90 1719B8
UniRef90-H2WDI3
UniRef90-B7GDE0
UniRef90_A4HE77
UniRef90-Q05FU9
UniRef90_U6KPX0
UniRef90-L1LCD9
UniRef90 Q812J2
UniRef90-E8RKD9
UniRef90_G3TT88
UniRef90 UPI000378BD36
UniRef90-A0A024VGM2
UniRef90-W7APQ1
UniRef90-K8A8K5
UniRef90-K1YC40
UniRef90-S6BNR9
UniRef90_H8Z652
UniRef90_D4C3Y8
UniRef90 UPI0001E2C748
UniRef90_UPI000477F727
UniRef90-UPIO00225A9D1
UniRet90 G2Z7M3
UniRef90-V7IF27
UniRef90_UPI000414C57A
UniRef90-UPI00036FF316
UniRef90_UPIO0036A57C6
UniRef9O-F8X318
UniRef90-V6SD07
UniRef90_R9L205
```




```
UniRef90_U6IAT7
UniRef90-W1PBW6
UniRef90-I1JK70
UniRet90_L0B1U8
UniRef90-E2AL66
UniRef90-K2F7V6
UniRef90-T1K8W1
UniRef90_Q4UA63
UniRef90-E7KCC8
UniRef90_UPI000258F053
UniRef90-UPI00046BE7E0
UniRef90_V4ZT13
UniRef90_E3MR64
UniRef90 1719B8
UniRef90-H2WDI3
UniRef90-B7GDE0
UniRef90-Q05FU9
UniRef90_Q05FU9
UniRef90-L1LCD9
UniRef90- Q8I2J2
UniRef90-E8RKD9
UniRef90_G3TT88
UniRef90_UPI000378BD36
UniRef90-A0A024VGM2
UniRef90-W7APQ1
UniRef90-K8A8K5
UniRef90-K1YC40
UniRef90-S6BNR9
UniRef90-H8Z652
UniRef90-UPI0001E2C748
UniRef90_UPI000477F727
UniRef90_UPIO00225A9D1
UniRef90 G2Z7M3
UniRef90-V7IF27
UniRef90_UPIO00414C57A
UniRef90-UPI00036FF316
UniRef90-UPIO0036A57C6
UniRef9O-F8X318
UniRef90-V6SD07
UniRef90_R9L205
```


lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm

|  | UniRef90_U6IAT7 |
| :---: | :---: |
|  | UniRef90-W1PBW6 |
|  | UniRef90-I1JK70 |
|  | UniRef90-L0B1U8 |
|  | UniRef90-E2AL66 |
|  | UniRef90-K2F7V6 |
|  | UniRef90-S5SQ94 |
|  | UniRef90-T1K8W1 |
|  | UniRef90-Q4UA63 |
|  | UniRef90-E7KCC8 |
|  | UniRef90-UPI000258F053 |
|  | UniRef90-UPI00046BE7E0 |
|  | UniRef90-V4ZT13 |
|  | UniRef90-E3MR64 |
|  | UniRef90-1719B8 |
|  | UniRef90-H2WDI3 |
|  | UniRef90-B7GDE0 |
|  | UniRef90-A4HE77 |
|  | UniRef90_Q05FU9 |
|  | UniRef90-U6KPX0 |
|  | UniRef90-L1LCD9 |
|  | UniRef90-Q812J2 |
|  | UniRef90-E8RKD9 |
|  | UniRef90_G3TT88 |
|  | UniRef90_UPI000378BD36 |
|  | UniRef90-A0A024VGM2 |
|  | UniRef90-W7APQ1 |
|  | UniRef90-K8A8K5 |
|  | UniRef90-K1YC40 |
|  | UniRef90-S6BNR9 |
|  | UniRef90_H8Z652 |
|  | UniRef90-D4C3Y8 |
|  | UniRef90-UPI0001E2C748 |
|  | UniRef90_UPI000477F727 |
|  | UniRef90-UPI000225A9D1 |
|  | UniRef90-G2Z7M3 |
|  | UniRef90-V7IF27 |
|  | UniRef90_UPI000414C57A |
|  | UniRef90_UPI00036FF316 |
|  | UniRef90_UPI00036A57C6 |
|  | UniRef90-F8X318 |
|  | UniRef90-V6SD07 |
|  | UniRef90_R9L205 |


lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm

| UniRef90_U6IAT7UniRef90_W1PBW6UniRef90_11JK70UniRef90_LOB1U8UniRef90_E2AL66UniRef90_K2F66UniRef90_S5SQ94UniRef90_T186W1UniRef90_Q4UA63UniRef90_E7KCC8UniRef90_UPI000258F053UniRef90_UP100046BE7E0UniRef90_V4ZT13UniRef90-E3MR64 |  |  |  |
| :---: | :---: | :---: | :---: |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |



CRSSGAGGQNVNKVETAAADTHKPTGDRDESQEERTQSKN QRASGPGGQHVNRTESAVRITHQPTGLSVLAQEERSQHMN TKAQGAGGQHVNKTSSAVRAKHVATGITVKVQSERSQHAN MRSSGPGGQNVNKVESAVRADHLPTGLTVTASEERSQYMN LRAGGPGGQHQNTTDSAVRVLHRPTGLVVTARDERSQHRN VRASGPGGQHVNKTESAI QUTHDPTGIVVKAQEERSQHDN IRSSGAGGQHVNKVSSAI RATHIPTGLVVLAMDSRSQHQN CRAGGKGGQHVNKTESAVRAVHFASGIAVRAEGERSQHAN MRSSGAGGQHVNKVSSAIVATHGPTGLSTVAMDSRSQHQN FRAGGPGGQHQNVTDSAVRADHIPTGLSVVAREERSQHRN CRASGSGGQHVNTTDSAIHATHIASGI SVKVMNERSQYAN LRSSGAGGQHVNKTETAVRADHNPSGLSVVIASDQRSQHQN

lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm


```
UniRef90 U6IAT7
UniRef90-W1PBW6
UniRef90-I1JK70
UniRef90_LOB1U8
UniRef9O_E2AL66
UniRef90-K2F7V6
UniRef90_T1K8W1
UniRef90_Q4UA63
UniRef90-E7KCC8
UniRef90-UPI000258F053
UniRef90-UPIO0046BE7E0
UniRef90_V4ZT13
UniRef90-E3MR64
UniRef90 1719B8
UniRef90-H2WDI3
UniRef90-B7GDE0
UniRef90_A4HE77
UniRef90_Q05FU9
UniRef90_U6KPX0
UniRef90-L1LCD9
UniRef90 Q8I2J2
UniRef90-E8RKD9
UniRef90_G3TT88
UniRef90_UPI000378BD36
UniRef90-A0A024VGM2
UniRef90-W7APQ1
UniRef90-K8A8K5
UniRef90-K1YC40
UniRef90-S6BNR9
UniRef90-H8Z652
UniRef90 UPIO001E2C748
UniRef90_UPI000477F727
UniRef90_UPIO00225A9D1
UniRef90 G2Z7M3
UniRef90-V7IF27
UniRef90_UPI000414C57A
UniRef90-UPI00036FF316
UniRef90-UPIO0036A57C6
UniRef9O-F8X318
UniRef90-V6SD07
UniRef90_R9L205
```

290
300
310
 K ITKALNRLKAKLLVVAMERGISNMQYFSKNDIYNMEQQET
 KEVVAMIKLRSULYEQQLNKQTTFISELRQKQMGMSRNEKV
 K K H A L I L K K K K


KKVADMKDKS\|LYQDEMDKQVSF\TADRKKQMT KDEK\| K EMAMKKLRAKLYSMQDEEETSKRNARKDQDGTKGRSEK KLALELLRAQQLQQLMRQASEERGRADDAQKGSKDRSEKI IQ Q A Y K RLA A I L MQRQVDAMDEKGVSRRKQVGSKARAEKI KALALKALADKJEERERNSIITMKAIKLKCKQTGNDRSEK
 KELALQMVAQQILARRVKEQNSSLHKAWQNQWSGERSDRM

 KNLAMQLLKDKLYNFYYEEKNNFLKEKKNQKQSADRSHKI

 K NLAMQLLKDKLYNFYYEEKNNFLKEKKNQKQSADRSHKI K R A AKKLTQK IUHDLRSREKEEELQNERNKFVKECHRSNRU KRLARLLDAHKLDAQQEAQSAGQKAQRRLFHHQDARGNPT

K E TA LE K L K QLAAK D DE S DVRHDAQNRRKEQ VKGSKRSERL RRLALARLDALLAEREAERRRAAEDKRWRQHTQLERGNAV KKLAKQLI QWKLNEHQSQQLNELDKQRHHSHYQIERGNAV KKLALGRLSNLIKA!NNEDSASHKKTMWMQHNDLERGNPI K A L A L R R L E A ML R HLEVEKQEAAKSGRFDANRTI ERGNEV KKLA LARAL ANLLKTKQAEKDEANRQKERWEQHHALERGGNSK
 KK LAA TERLLLEKLIKGFEFEALKQQVSRQWENQLNVVRGNPT KAAADARLGEMLMGQAVLAAASARRKDWLAHKSLERGAPV KKLARELIALKLQQRLQMQVAQDKHSRHQQHGQLERGNPI
 KRKAMEKLQEKLAGLHQEQKADQVNAAWREHNRVVRGNPV
lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm

C C C C C C C C C C C C C C C C C C C C C


UniRef90 U6IAT7 UniRef90-W1PBW6 UniRef90-I1JK70 UniRef90 L0B1U8 UniRef90-E2AL66 UniRef90_K2F7V6 UniRef90-S5SQ94 UniRef90 T1K8W1 UniRef90-Q4UA63
UniRef90_E7KCC8 UniRef90-UPI000258F053 UniRef90 UPI00046BE7E0
UniRef90_V4ZT13
UniRef90_E3MR64 UniRef90 1719B8
UniRef90-H2WDI3
UniRef90-B7GDE0
UniRef90_A4HE77
UniRef90_Q05FU9
UniRef90_U6KPX0
UniRef90-L1LCD9
UniRef90 Q812J2
UniRef90-E8RKD9
UniRef90_G3TT88
UniRef90_UPI000378BD36
UniRef90-A0A024VGM2
UniRef90-W7APQ1
UniRef90-K8A8K5
UniRef90 K1YC40
UniRef90-S6BNR9
UniRef90-H8Z652
UniRef90_D4C3Y8
UniRef90 UPI0001E2C748
UniRef90_UPI000477F727
UniRef90-UPI000225A9D1
UniRef90 G2Z7M3
UniRef90-V7IF27
UniRef90_UPI000414C57A
UniRef90-UPI00036FF316
UniRef90 UPIO0036A57C6
UniRef90-F8X318
UniRef90-V6SD07
UniRef90_R9L205


## RTYNFNQDRITDHR\DGTMHNLKGFDKDGL


RTYNFQRDVVTDHRCRMHVNGVEEFLDSGLFE HEVLKRQ
RTYNFQHDKVTDHRDQMAI TGVDEFLSGELHAMDDRLQEQ
RTLNFEHDRVTDHRCNLSVNDVKDFLRGDFDLFHEALSQT
RTYNFQHDRVTDHR $\square Q M A V T N V A E F L A G E \square D K L Q D Q H L E D$
RTYNYPQDRITDHRCKV
RTYNYPQNRVTDHRDGKD YALSSFME
RTYNFTNNKITDH TNNKNYFQLNK LLNGEFNLI
RTYNFPSDCVRDHRCSEAVPGVRQFLE
RTLNFDHDTI DDHRCKVTLNGI ESFLDDNGDEK DHQS L
RTYNFLHDVI I DH DTNTQYSGUQNFFKG
RTYTGP
QTYNFTQDRVTDHK $\square$ AYEVHD
KVFDGPHFREK
RTYNFDHDVI IDH TITNTQYSG円QNFFKG
RTYNFFTGYITDHIKNRK YDLMYFEKGKLEHLFN
RCF
KTYFFNTHQ $\square$ NDRCGCK YN $\square$ NDF $\square$ KFK K $\square$ E K $V$
RVYRRADFRC
MTFSGNEFK
R $\square$ Y E GLDNKKLK TK
RSFKGLNFLKETK
RSFKL
$R L Y K G E K F \square$
RTFEGSDFK
RVFK GE GFREQ
RTFTGSDFKKQKVEKGYKS
RRFKGPRF
RSY
$\mathrm{K} V$
RTFEGSDF
RVYEGEKFVLKRPNTAV


| UniRef90_U6IAT7 |  |
| :---: | :---: |
| UniRef90-W1PBW6 |  |
| UniRef90_11JK70 |  |
| UniRef90_L0B1U8 |  |
| UniRef90-E2AL66 |  |
| UniRef90-K2F7V6 |  |
| UniRef90-S5SQ94 |  |
| UniRef90-T1K8W1 |  |
| UniRef90-Q4UA63 | N V |
| UniRef90-E7KCC8 |  |
| UniRef90-UPI000258F053 |  |
| UniRef90-UPI00046BE7E0 |  |
| UniRef90-V4ZT13 |  |
| UniRef90-E3MR64 | H M |
| UniRef90-1719B8 |  |
| UniRef90-H2WDI3 | R L |
| UniRef90-B7GDE0 |  |
| UniRef90-A4HE77 |  |
| UniRef90_Q05FU9 |  |
| UniRef90-U6KPX0 |  |
| UniRef90-L1LCD9 |  |
| UniRef90-Q812J2 |  |
| UniRef90-E8RKD9 |  |
| UniRef90-G3TT88 | A |
| UniRef90_UPI000378BD36 |  |
| UniRef90_A0A024VGM2 |  |
| UniRef90-W7APQ1 |  |
| UniRef90-K8A8K5 |  |
| UniRef90-K1YC40 |  |
| UniRef90-S6BNR9 |  |
| UniRef90-H8Z652 |  |
| UniRef90 D4C3Y8 |  |
| UniRef90-UPI0001E2C748 |  |
| UniRef90-UPI000477F727 |  |
| UniRef90-UPI000225A9D1 |  |
| UniRef90-G2Z7M3 |  |
| UniRef90-V7IF27 |  |
| UniRef90-UPI000414C57A |  |
| UniRef90-UPI00036FF316 |  |
| UniRef90-UPI00036A57C6 |  |
| UniRef90-F8X318 |  |
| UniRef90-V6SD07 |  |
| UniRef90_R9L205 |  |
| lupas_21 |  |
| lupas_14 |  |
| lupas_28 |  |
| jnet |  |
| conf | 99 |
| sol25 |  |
| sol5 |  |
| sol0 |  |
| jhmm |  |
| jpssm |  |


[^0]:    $P D \square I A D Q K K Y \square Q L N K E Y K D L K A L M D E R E R Y D E L T N N Q Q E A$ N
    N PNAE $\square Y V K L A S E Y A E L R P I V A P \square R \square L N T A Y K E D K E L$
    
     PELISNQKEYQRLAKDHAQLVRLNALLSEHNKLNRQLADN
    
    

