## QUERY

UniRef90_UPI00035CCE98 UniRef90-D0GN87 UniRef90_W6GJY5 UniRef90_A0A011SGU1 UniRef90_C7HVQ4 UniRef90_F4HE59 UniRef90_D9TRG0
UniRef90_C8N8J5 UniRef90-J1F2K9 UniRef90-C8W7Q3 UniRef90-G2TQY1 UniRef90-D1ARP7 UniRef90_H3NCS4 UniRef90-U5MRP0
UniRef90 G9YB11 UniRef90-F2MNR4 UniRef90-D1AQH8 UniRef90_F7NDA7 UniRef90_UPI00020D9954 UniRef90-C4FAE2 UniRef90_E5WCA9 UniRef90_F5WRG1
UniRef90-J7SK58 UniRef90_UTVEC1 UniRef90_UPI0004687101 UniRef90-W7DFX3 UniRef90_UPI00045EC236 UniRef90_U2U4L3 UniRef90-D2TVV2 UniRef90-M9UBD4 UniRef90-LOIJA5 UniRef90-R6QIK4 UniRef90-U2NIU8 UniRef90_D4YDS3 UniRef90-K8FF51
UniRef90 R7GND0 UniRef90_WOHMM0 UniRef90-R7G898
UniRef90_U2UMIO UniRef90-UPIO003638C00 UniRef90_B6GE21 UniRef90-19D9P9 UniRef90-B1BZ08 UniRef90 U5MRB8 UniRef90_M1ZDM2
UniRef90_D4N1G3 UniRef90_G9WHI1 UniRef90_UPI0002E8DD50 UniRef90-E1L0Q9 UniRef90_UPIO00379CF98 UniRef90-Y1F8U4 UniRef90- X2H1Q3 UniRef90-C8N931 UniRef90-U1Y4Q5 UniRef90-F9VA39 UniRef90-R6A1R8 UniRef90-S2NJM8
UniRef90_UPI00036E257D UniRef90-17L646
UniRef90-S6FIU3 UniRef90-H3NQ58 UniRef90_K0D8T7 UniRef90-F7Z787
UniRef90 F4A4R7 UniRef90-UPI000417BD7E UniRef90-G0UG22 UniRef90-Q7VQY5 UniRef90-W1Q5L2 UniRef90-F2N718
UniRef90-E4KR29 UniRef90-13D7L2 UniRef90_H4GHR6 UniRef90-K8E5G1
UniRef90 R3U4N9 UniRef90_UPIO0030C2D93 UniRef90-H3NFQ9 UniRef90_C7HWV1 UniRef90_Q492L9 UniRef90_UPI000416A67C UniRef90-J3VUG8 UniRef90_UPI00035E19E2 UniRef90-D2TXL8 UniRef90-UPIO00381C169 UniRef90-C2BIO2 UniRef90-X0PG99 UniRef90_U4TKT8 UniRef90-G5H465 UniRef90_M5J478
$N \prod L L T R \prod D N R / L V H$ G QVGVTWTSTMGANLLVVVDDVVAND D


20
30
40

 NI L L T R I D NRLI H GQQVATQWSK IVVGALLLLVANDEVVAHDE D I R L A R V D S R L L H G Q V


GLA R

 $N$ K A A R D N R V H G
 D I GL A R I D S R L L H G Q V EI S F V RI D D RLI H G QV A TVVWTKA S GCNRI MACSDEVVAND P $N I L L L L R I D N R L V H G Q V G V A W S S S L G A N L L L V A D D G V A C D P$
 NILLTRIDNRLVHGQVGVTWVKSLGANLIVVVDDVAANSD

 $N$ I L L T R I D NRLI H GQQVATQWNSTLGGNLI LVANDEVSTNT


 $N I V L V R I D N R L I H G Q V A T A W A Q H S G A N L L L V P N D D V A C N P$ D V L TRI DNRLVHGQVGVVWTSAVNANLLLVANDDAANDS

 $N, ~ A L \vee R \quad D N R L I H G Q V A T Q W T G S V G A N L L L V A N D E \| A T N K$
 $N$ I V LTAR DNRL, HGQVVAVTWSSHVGAN
 $K \bar{Y} V L A R V D T R L L H G Q V A T G W V K S V N P N R I I V V S D K V A Q D D$ E I R L A R I D D R L I H G QV A T V W W K E T Q V E RI I V I S D D V A K D E
 NI L L T RI DNRLV H GQVVGVTWTKTIGANLIVVADDAVADDK K I K L C R I D D R L I H G Q V A TVVWA H E A D A E R I V V C S D E V A N D E
 $K F V L V R V D T R L L H G Q V A T T W T K M T N P D R I \quad V V S D A V S H D D$




 N L L T RID D RLV H GQVGVTWTTTLGANLIIVADDEVAENT

 $K I V L A R V D S R L L H G Q V A T A W T K S T N P N R I I V V V D S V V A K D E$ $\square L$ WRI D D R L I H GQVVATRWTKETGDKRIIVVNDQVEKDK




 $N$ L L T RID N RLI H GQVGVTWVRSLGANLIVVANDDVSKDP
 KVLARIDDRLI HGQVATIWTKETKCQRIIVVNDDVAKDE

 $K \quad F V A R E D T R L L H G Q V A T G W T K A T Q P N R I I V V S D T V A C D D$ K FVVLA R
 KYFARVDTRLLHGQVATGWTKAMNPDRIIVVSDNVAKDK $N$ L L L T R I D N R L V H G QV G M T WT N T L G A N L V V V A N D E V A T D S D I NIVLTRIDDRLI H GQVATQWTSSUNANLLLVANDEVAQNK DVVVLA R I D T R L L H G Q V A T S WT K S T N P T R I I V V S D N V S E D A I CLL A R I D D RLI H GQQVVTRWAK E Y N DK R I I V V N D EVV S K D M KVVLARIDDRLI HGQVATDWSKQTGCQRIIVGNDDVANDD I SLA RIDD DRLI HGQVVT RWTKETK K K RII IVVSDDVAADK

 K I GL A A R V D T R L L H G QVVA T T WT K TVVGP DRIVIV V S D K V A H D E I K L A R I D D RLI H G QV T TVVWSKEANANRI I IV S QE V F N D P NI LVTTRIDNRLVHGQVGMTWVNT $\quad$ G A NLLVVVAND DVAKDE $I \bar{K} L V R I D D R L I H G Q V A T V W A H E A G A G R I I I C S D E V A A D E$


QUERY
UniRef90 UPI00035CCE98 UniRef90_UPI0003?
UniRef90_D0GN87 UniRef90_W6GJY5 UniRef90 D4W6T4 UniRef90-A0A011SGU1 UniRef90_C7HVQ4 UniRef90 F4HE59 UniRef90_D9TRG0 UniRef90_C8N8J5
UniRef90 J1F2K9 UniRef90-C8W7Q3 UniRef90_G2TQY1 UniRef90_D1ARP7 UniRef90_H3NCS4 UniRef90_U5MRP0 UniRef90-G9YB11 UniRef90-F2MNR4
UniRef90-D1AQH8 UniRef90_F7NDA7 UniRef90_UPI00020D9954 UniRef90_C4FAE2 UniRef90_E5WCA9 UniRef90_F5WRG1
UniRef90_J7SK58 UniRef90_U7VEC1 UniRef90_UPI0004687101 UniRef90_W7DFX3 UniRef90_UPI00045EC236 UniRef90_U2U4L3 UniRef90_D2TVV2 UniRef90-M9UBD4 UniRef90_E0RC56 UniRef90_LOIJA5 UniRef90-R6QIK4
UniRef90 U2NIU8 UniRef90_D4YDS3 UniRef90_K8FF51 UniRef90-R7GND0 UniRef90_W0HMM0 UniRef90_R7G898
UniRef90_U2UMIO UniRef90_UPIO003638C00 UniRef90_B6GE21 UniRef90_I9D9P9 UniRef90_B1BZ08 UniRef90_U5MRB8 UniRef90_M1ZDM2 UniRef90_G9WHI1 UniRef90_UPI0002E8DD50 UniRef90_E1L0Q9 UniRef90_UPI000379CF98 UniRef90_UPI0002F83401 UniRef90_Y1F8U4 UniRef90- X2H1Q3
UniRef90 C8N931 UniRef90_U1Y4Q5 UniRef90_F9VA39 UniRef90_R6A1R8 UniRef90_S2NJM8
UniRef90_UPI00036E257D UniRef90_17L646
UniRef90_S6FIU3 UniRef90_H3NQ58 UniRef90_K0D8T7 UniRef90-F7Z787 UniRef90_UPI000417BD7E UniRef90_G0UG22
UniRef90_Q7VQY5 UniRef90-W1Q5L2 UniRef90_F2N718 UniRef90_E4KR29 UniRef90_I3D7L2 UniRef90_H4GHR6 UniRef90_K8E5G1
UniRef90_R3U4N9 UniRef90_UPI00030C2D93 UniRef90_H3NFQ9
UniRef90_C7HWV1 UniRef90-Q492L9 UniRef90_UPI000416A67C UniRef90_J3VUG8 UniRef90-UPIO0035E19E2 UniRef90_D2TXL8 UniRef90_UPI000381C169 UniRef90_C2BIO2
UniRef90 UniRef90_U4TKT8 UniRef90_G5H465
UniRef90-M5J478
$\qquad$
 V C R T P Q TVVR K L VE G G DD LK DVNVGN M H F S E GK K Q


 $L$ F E N P T D D A W R V V I $\operatorname{E}$ G G GV

 $V$ V R T P Q N A L




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



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


 $V C K T P Q V V Q Q L I$ E G GVVPIKEVVNVGNMHFEKGKRQUSKMV


L

## r-

正





 $V$ C K S P A D F L T L V E G G V P I T R














## UniRef90＿D9R1M0 UniRef90＿V62H8 UniRef90－B2TQ42 UniRef90＿UPI0003B72C40

 UniRef90－M2PQ27 UniRef90－D1AJGOUniRef90 M4U7F2 UniRef90－M4U7F2 UniRef90＿UPIO0047C0620 UniRef90－A6LUI1 UniRef90＿UPIO003B459F9 UniRef90－E1QVS6 UniRef90－C3ICD4 UniRef90＿F2N810 UniRef90－I8TU58 UniRet90＿S61AW1 UniRef90＿UPIO0046EC374 UniRef90－R4KBT7 UniRef90－UPIO003656E9A UniRef90＿R2P356 UniRef90－B5QJI8 UniRef90＿UPI00035C2D3B UniRef90－K0G7A0
UniRef90 R2QN71 UniRef90－R2QN71
UniRef90－B6FVW7 UniRef90＿UPIOO03B456DD UniRef90－Q1LT22 UniRef90＿UPIO00299D85A UniRef90＿U2TKP1 UniRef90－S0K981 UniRef90－F2MR19
UniRef90＿S0N866 UniRef90－C1MFE2 UniRef90－F5RQI6
UniRef90＿C9A7B1
UniRef90＿H3RNQ5 UniRef90－E7ML55 UniRef90＿UPI000363A480 UniRef90－B2TQX9 UniRef90＿UPIOX03657150 UniRef90－G8WCC9 UniRef90＿C4K8U5 UniRef90－Q040P0 UniRef90＿UP1000319EAC2 UniRef90－W7D0B0 UniRef90－Q38YH7 UniRef90＿A6VL17
UniRef90＿F5ZJB3 UniRef90＿F5ZJB3
UniRef90＿18R888 UniRef90＿G9ZGG6 UniRef90－JOL589 UniRef90－A5Z894 UniRef90－B3W872 UniRef90＿N9XW57 UniRef90－C5S191 UniRef90＿U2U368 UniRef90－F1T451 UniRef90 S1QZT4 UniRef90－M4UNE7 UniRef90＿Q48520
UniRef90＿G4L684 UniRef90－U4KD82 UniRef90－M4R6S7 UniRef90＿UPIO0047064CC UniRef90＿UPIO00478EEB2 UniRef90－C2CJ28 UniRef90＿E4SX54 UniRef90－UPIOO036A28F1 UniRef90＿K6TY36 UniRef90＿UPIO00472DA70 UniRef90＿D6S2P5
UniRef90＿U2TPV7 UniRef90＿G4L2S4 UniRef90－E3H2R1 UniRef90－R2P4P0 UniRef90－M4XLZ9 UniRef90－V6Q4Z1 UniRef90＿V604Z1 UniRef90＿Q2C915 UniRef90－R7D2F6 UniRef90－E7BOUO UniRef90－C9MZU3 UniRef90＿V9HC58 UniRef90－P26380
UniRef90－F2QGB5 UniRef90＿UPIO004689F9D UniRef90＿R6ZR11 UniRef90＿19KRN2

110
120
VRNPQAAR ｜LVVNPTDVLRMVEQNVPI KTLNI G GMAYREGKTQDTKAVS



 L FETVEDALAAVKAGVPLKE：INLGSSAYKDGKVNVTKALS




4


A

| L | F |
| :--- | :--- |
| L |  |
| F |  |
| F |  |

##  <br> －

ーム」ーム」ム」


|  |  |
| :---: | :---: |
| UniRet90-V6J2H8 | GPEDIEAFRKLNEHGVKLELRVVDSDTPVDI |
| UniRef90-B2TQ42 | SDKQAFRRLKELGVELEIVRV |
| UniRef90-UPIO003B72C40 | FDKDDVKTMREIEKLGVKFDVRKV |
| UniRef90-M2PQ27 | LGKEDVDALEKLTSLGVKDDVRKVP |
| D1AJGO | VNEEDVAAFRKLKALGVELDLR |
| UniRef90-M4U7F2 | VDENDISAFKALQEKGIESYVQGVPTEK |
| UniRef90-17LA99 | FDQQDUDADKELEKMGVKFDVRGVPGDK |
| UniRef90-UPIO0047C0620 | LDDDDKHAFRELLELGG\| PCT: QRNPSDTP |
| UniRef90 A6LUI1 <br> UniR | VNNQDIECFKKLYEKGVELEVGRVAKDNK |
| UniRef90-E1QVS6 | MDQDDVDTLEKIKAEGVTFDVRKVP |
| UniRef90-C31 | MGREDVEAFEKMKAKGIHFDVRKVPNDSRA |
| UniRef90-F2N810 | MGRDDVTAFEGLLEHGIEFDARKVPNDSA |
| UniRef90 I8TU58 | VNEQDVASFQSLHQKGVELEDRKISSDKKV |
| UniRef90-D1AWG7 | VDEDDKEVFKKI SNYGVKLTIKGVPTDKGQE |
| UniRef90-UPIO0046EC374 | MNNEDVQSFVKLADLGIELEIRQVPTDRK |
| UniRet90-R4KBT7 | E ${ }^{\text {d }}$ |
| UniRef90-UP10003656E9A UniRef90-R2P356 | VNQDDVAALKELVAMGIEVE:RKLASETKTD |
|  | VDQ |
| UniRef90-UPI00035C2D3B | NQNDTDTFRELTELGVVCTI QR |
| UniRef90-K0G7A0 | VDQKD |
| Ret90_R2QN71 |  |
| B6FVW7 | MDAKDIETIEELKDMGIKFDVRKVPSESGENI |
| UniRef90-UP10003B456DD | V |
| UniRef90_Q1LT22 |  |
| UniRef90-U2TKP1 | VNKDDANATKYLHEHGLKGTAQKVPSDKPQNV |
| UniRef90-sok981 | LDQGDTKAFEYLAQQDIELELRKVPADRKVYL |
| UniRef90-F2MR19 | VDANDLKAFLFLNEQGIELEIRKVAADSQVNL |
|  | NEQD |
| MFE2 |  |
| UniRef90-F5RQ16 | VNDEDV |
| C9ARS1 | M |
| UniRef90 E7ML55 | VDDTDMDDLKFIVSTGTNVFIQDVPGTQ |
| UniRef90-UPIo00363A480 | MGPEDVKAFDELKKMGVQFDLRKVPADKK |
| UniRef90-B2TQX9 |  |
| UP1000 | E E DV |
| UniRef90-G8WCC | VTSDDVAAFHALHAL |
| UniRef90-C4K8U5 | , |
| UniR f90- UPIOO0319EAC2 | MGKEDVETFDKLKQAGIKKFDVRKVPDDSSANM |
| UniRef90-W7Dово | VDETDIKAFNALNDKGIEDEARKVAADSKVSM |
|  |  |
|  |  |
| UniRef90-F5ZJB3 | VFKEDI |
| UniRef90-18R888 | FDQD |
| UniRef90-G9zGG6 | $1 D^{\circ} A D D$ |
|  | LDQQDVDAFKQLERLIGVSLDGQVVESDPHVNI |
|  | VDDQDEACLKRLKEKGVDVY |
| UniRef90- ${ }^{\text {B3W }}$ |  |
| UniRef90-N9XW57 | QDIDTFNKLKAGLEFDVRKVPNDKK |
| UniRet90_C5S191 | MGKADVKATKEEKAKGVETDVRKVPTNAPEE |
| UniRef90-F1T451 | MGKDDVEALEKLVSLGVEFDVRKVPADAP |
| UniRef90-S10ZT4 | LDEDDVRSFQYLYGKGIELEVRTVPADRK |
| UniRef90-M4UNE7 | VNDADMDAFKRIDAKGVPCTVQNTPDQKA |
|  | VDSENVAAFRALAEKGIELDLRQLPSDRSTN |
| UniRef90-G4L684 | MDETDLESYERMEELGVQFDVRKVPSDSS |
| UniRef90 - 4 KD 822 | VDDDDMTAFKR KELGVHFAVQRMPHEEKLD |
| UniRee900-M4R6S7 |  |
| UniReef90-UP100047064CC |  |
| Ref90 UP100047 | FKKLKAGLTFDVRKVPNDKENM |
| UniRef90_C2CJ28 | MNKEDVEC |
| UniRef90 - E4SX54 |  |
| 36A28F1 |  |
| UniRef90-UPI000472DA70 | VDDKDISAFHVLNSRGI ELEIRKVAADN |
| UniRef90-D6S2P5 | MDQKDVDTFEELKKMG |
| iRet90_U2TPV7 | M |
| iRef90_G4L2S4 | LTSAEVEDSKKLRDMGIKLYMQQVPTSKKEDL |
| UniRef90-E3H2R1 | E |
| UniRef90-R2 | GNDV |
| UniRef90-M4XLZ9 | T |
| UniRef90-V8WU41 | $\checkmark$ T |
| UniRef90- 0 AOO11 1 MQ9 | VNQDDI DAFVWLAGQGIELETRKVPGDRR |
| UniRef90- ${ }^{\text {O2C915 }}$ | VGADDVAEFGRLKALGVTCTIQGVPTES |
|  | LLPEEEDELHELAANGVELEIRQVPTEKKE |
|  | DTNAFYALAERGVHLDLRVVTSDPDVDV |
| iRef90-C9MZU3 | I NKDDLEAFKKLDSMGVDLELRQLASSSPENL |
| ef90-V9HC58 | VNDKDLEDLEATKSTKKK FiQdVPGDUKEYU |
| ef90 | $\checkmark T E Q D K A F E T L S D K G V K L E L L Q L P S D A S E D ~$ |
| iRet90_F2QGB5 | KDVEDF |
| UniRef90-UPIO004689F9D |  |
|  | VSEEEKNILKEMINGGVSVYIQIVPDDKKISV |
|  |  |



## UniRef90 F9GWB1

 UniRef90_FOYV66 UniRef90-R9LNS4 4UniRef90 $\times 2 G U R 7$ UniRef90-18SFM6 UniRef90-E6LCL8 UniRef90-D9TQJ8 UniRet90-W6TBS 9 UniRefofo-R6UAB5 UniRef90-G4L7H6
UniRef90 UPIO002F66645 UniRef90-V9H8X6 UniRet 90 -F4BLT2 UniRef90-H3NCS3 UniRef90- ${ }^{-18 F 317}$ UniRef90-Q3Y229 UniRef90-COD6A4 UniRef90-G4L683 UniRef90-V605D6
UniRef90 R6UZV5 UniRef90-SoRT09 UniRef90-R5TFY5
UniRef90-C4F9F4 UniRef90-E2SQK3 UniRef90-R2NSG4 UniRef90 UPIOO0219693D UniRef9-19K $\times 86$ UniRef90-R2R273 UniRef90_C9A9C7 UniRef90-U1WS33 UniRef90-B9Y6W3
UniRef90-S2ZVG5 UniRef90-F9VIL2
UniRef90-SOPED5 UniRef90_SOPED5
UniRef9O_CODB38 UniRef90-D9SOR3 UniRef90_SOS5A7
UniRef90 A6M238 UniRef90-F9EDX1 UniRef90-UP100040BDEC9 UniRef90-UPIO003739E61 UniRef90-KoN868
UniRef90_I6T6Q1
UniRef90 R6PY35
UniRef90-R6PY35
UniRet90-S4D3N0
UniRef90_T3IFQ2
UniRef90-R6UIM6
UniRe990-UPIO003B5FDDE
UniRef90-R2SFV1
UniRefofo-S5K054
UniRef90-R6TR91
UniRef90-S4CTP4
UniRet90 D1AK35
UniRef90-UP10002490C4E
UniRef90-R7D202
UniRef90 W6G5H4
UniRef90 F2NAV8
UniRef90-F2NAV8
UniRef90 - U2TNT9
UniRef90-T0MIP8
UniRef90-K2PMW5
UniRef90-G1VR55
UniRef90-A0AO23CXM4
UniRef90-C4FAZ3
UniRef90-UP100037ED565
UniRef90-R2SXR5
UniRef90-BgY568
UniRef90-R2SCH3
UniRef90 $-\mathrm{G7S7C3}$
UniRef90- BOMCY
UniRef90-G9WHX2
UniRefol-F5ROS4
UniRef90-V5XLP1
UniRef90-H7CZZO
UniRef9O_D9R112
UniRef90-Q5WAK8
UniRef90-ROG2225
UniRef90-E1QW81
UniRef90-SOKJC4
UniRef90-R9CEG6
UniRef90-R6QY39
UniRef90-19KX63
UniRef90 D4C8Y6
UniRef90-UPIO004696512
UniRef90 U5CKD7
UniRef90-R7G5W8
UniRef90-R3W444
UniRef90-K8WG76
UniRef90-R2RVR7
UniRef90_F4LTE6
19693D
-
DRSTLVKGAAPP GDKVSVVSDAKAAAVYKNPYENDTVFY


VQKMTLK TA APGG| HLSILTAKGAAERINGKYAGQRVFL
VKM
TQKNDLKMSAPQYGKVVAFPVEKFGEVIKKNEDTRRTML





LSKFLLQQAAPP GINANVVTBAKMLETYNSELFSQKVML
LRKTLLQQAAPPGVKVNVITVAKM1 EVYHEELFDGGRVMM




V
F
FK
F
F $\quad$ K
M
M

$\stackrel{\rightharpoonup}{4}$

\section*{| I |
| :---: |
| L |
| L |}










 TQKSULTMAAPQGiSVKAFPVEKFGEDKTNKDTRRTML FMKTVLKNAVPSNVGLGLFTVEKAAARLKRGFKGDKVI FNKRVLKALAPEGIKVLVYDVATASEKLKGDPKPGEKMMV

DRKRLLAASTPP GIKLNVLT KKAAEVYHNPHQDLKKAML

FLKSVFKSAV P PANVKVGVKNEAKAVDRLDKGFPTDRVIV
MAKSSLKLAT PAGVALSVLPMEKAAANGKSGYENQRVFLL
LKKMSLNGKMPSGVKLNIFSVEEALSKMPKVEKNENIMF
VQKSVLRMAAPSGGSTSATJTEEKADTNNKAGKYDKQRVLL
VQKSVLRMAAPSGUSTSIVTEEKADTNWKAGKYDKQRVLL
LMERLYRAAAPVGTEVLKPVQEAAAFLREDGERGENLL



## UniRef90_F9GWB1 UniRef90-FOYV66

 UniRefefo-RgLNS4 4 UniRef90-18SFM6 UniRef90-E6LCL8UniRef90-I7LG98 UniRef90-D9TQJ8 UniRet90-W6TBS9 UniRef90-R6UAB5 UniRef90-G4L7H6 UniRef90 UPIO002F66645 UniRef90-V9H8X6 UniRef90-F4BLT2 UniRef90-H3NCS3 UniRef90- ${ }^{-18 F 317}$ UniRef90-Q3Y229 UniRef90-C0D6A4 UniRef90-G4L683 UniRef90-V6Q5D6 UniRef90-R6UZV5 UniRef90-SORT09 UniRef90-R5TFY5
UniRef90 C4F9F4 UniRef90-E2SQK3 UniRef90-R2NSG4 UniRef90-UPIOOO219693D UniRef90_-19K×86 UniRef90-R2R273 UniRef90-C9A9C7 UniRef90-U1WS33 UniRef90-B9Y6W3 UniRef90-S2ZVG5 UniRef90-F9VIL2
UniRef90_SOPED5 UniRef90-CODB38 UniRef90-D9SOR3 UniRef90_SOS5A7
UniRef90 A6M238 UniRef90-F9EDX1 UniRef90-UPIOOO4OBDEC9 UniRef90-UPIo003739E61 UniRef90-K0N868
 AKDPGT\|VKLLENGVKVKEVNI GNMGDKEGREQIKKSVY LVANPEDALQLIEGGVSIKKVN: GNMDMKEGKHEVASGVA VKTPKTVLDLIKAGVNI ADLNLGGMGATQGRKQLYRNIS LFTNPQDVVRLVQGGMFI HSVNI GGMRFQAGKHMVTNFVS LVKNPGVLRKLVDGAVLLPEINVGNMSTKAGTKQVAKSVA IVRNPQMLKLMQSAGVKFKNINVGNMSMSEGAKQDAKSVA LVESVEDAYRLASGFPATKSIN1GGMKARENRKQUSKAVF

 LFTNPRDVRRVVEGGVSFDSINIGGMSFSDGKKMLTNAVA VTRTPQTALQLVEAGVNLPEVNAGNMPKTDGTRPIRKTVH VFGNTKEVRQFCEAYPKVQEVNYGGVGKKEGSKQFSNAVF LFTNPQDVERLVRGGIVLKSLNI GGMRFENGKQMVTNFVS LLTNPLEVAAVVEAGVPLSSVNI GAMGYAAGKKMISNTIA LCENDEDVSRLAFGYDKUTS:MLGGDKNEAGKRQISKALS UFGNTATLRAFCEAYRKI RE NYGGLANKEGAKQYGSAI F
 LAKNPKVIKNITDGGVKIEALNVGGMGARKDRTQLYRN: S LFGNTNSTLAFAKAYGDLKE:INYGGIPEKEGSKKFSNT:A LFEKPEDVVRLVEGGVDLKEVNVGGMRFEKDRDHTTKAVS LFKNPQDVLRYIEADGPUKAI NVGNMSYKEGAREVTKSIQ LAKTPVT: WRMYKAGVEFPELNI GGVGMRAGRTTLYQNIA VLKGPKTIKQVADAGYMFPVVNVGNMSNKHGSTQIKRSVS LFETPQDMLRALEGGVDTKEANLGSMAHSVGKVVVTNAVA LFESPEDALRAVESGI DIKE円NLGSDAHSI GKVVVNRAIA LFTNPQDVVRVVQGGLSLSSVNIGGMRFQVGKHMLTNYVS L VKTPKTIYELIKKGПDLKEVNVGGMGAGPGRKQMYKNI S LAKSPEAYVELMNQGIALEKVNIGGMGAKEGRTKFYKNI S VFRGTKEALEFCKSCSSIKEI NYGGDANKENSKOYSNAIF VVETPAD VVRLDLVEADEVNVGGMTFKQGTKALSQAVY VVESPMDALRLLEAGVTVDEVNVGGVTFKPGMTLISEAVS LAKTPNTYLDLVEAGVAIKEVVIGGMGANPQRKKFYKNIS VVESVRDAYQLAKACPQIKQINGGTKAKEGTRSLGKAVN VVKSPFDVLYLIEHGLEVKEINVGNMSARDNTEHLKPTVS LFTNPQDVETVVRCGVELQTVNIGGMSFSEGKTMLTNFVS LVKYPKTVLGLVNSGVDLKELNVGGMGAGLGRKSFYKNIS VCKSPAIFVKMVQGGVDIKKVNVGNMHFSEGKNQISKTVS
 LVKVPEVVAYLLDNGIPLTLVVGGMGAKPGRKTLDRNVS VVRRPDRLLKLMELGVPITEI NVGNMSQSAATRSITKSIN LVTTSTDVLKLVENGLD:KEVNVGGMRYNENRKRLSKAVS
 AKGSKDVLRLVDAGVPI EHVNVGNMASEGTGKNVTRS:A VAKTPQVMRRLIDGGVPISSVNVGNMHHQEGKREYKPHVY LLETPQDLLRLAQQGVKIAEVNLGGMYFKEGRKQLLPYVY LFKKPADVLKFIQAGGKLESLNVGNMSYKEGSKEVTKSIK LFGNPAEIVEAIESGVDITTVNVGGMRFDPRKKQVTEAVS VVDSVVDALRIAEGSSVVESVNLGNMKNLEGRRQLTPSVY VVKSPVDLLDLMEMGLPIQTVNVGNMSVREGTRHVRPTVS IVKQPETLLELVQFGFPLEEVTVGNDNSTRGSRQIRKTIC LVKTPNVVLELVEKGVDFRSLGVGGMGAKPERSPLYRNI S LETTSEDVLRAYEVGVPDPSLNVGGMRFQEGREKLTKSVA LVKYPDTVLS LIEEGVEFEHLNI GGMGAAPGREKFYKNI S LGGNPTELLEAVNAGVEVKKVNVGGMRFAPDKIHVTESVS VAKKPDRLLKLVERGVPUKEVNVGNMSQTNETRSITKSI N LVKDVVDANRIYEGGFKYMDLNI GNMTHKPNAKKLSEKLF FANPMDVLALLQNGVQLKSINVGGMSFKNGKKQLATAVF LVNNSTDALTFAKSNVGLQSI NLGGMRAGEGKQSVSRAI Y VVKSIDDAYQLITNVASI KKLNLGGTKYSEDKEAISSAI F LAKYPQTFLSLVERGASLRQVIUGGMAREDRSRLYRNIS I VKKPETLLELVKMGVNLPTVNVGNMSKKADTKQLTKSVN II FGGTNSVLKFCEGYNKIKEINYGGDAKKDNSKQYSNAIF LVKYPKTLYRLMSEGIVFDHVNIGGMGVSGDRTKFFRNIS
 VAKKPHYLLELVKKGVPI EEINVGNMSQTDTTDAVTRSVN VFKYDKEAVQLVKEGIVNIPSLNI GGVYYSEGKTQYNKALS LAQGPKPFLELVQKGYHLDEI CI GNMSTRQGAKQMKKTVY VARRPDRFLQLVELGVPITEI NVGNMSQTDKTRSITKSIN LFTNSTDVNRLVESGLKLEKLNVGGMRMQEGRRNLSRAVA


|  |  |
| :---: | :---: |
| UniRef90 F9GWB1 UniRef90 FOYV66 | V A AFKKLLDMGVKL |
|  | VDDKDLDAFKKMEDCGVELETKKVP |
| UniRef90-×2GU | LDENDVSAFRKMHEMGVDLSLKV |
| UniRef90-18SF | LGVDVFVQIVPDANKMPMA |
| UniRef90-E6L | 1 DEKDRQAFYYLNHRGIELELRKVPADRKVNL |
| UniRet90-17LG9 | VSAQDDADFKYLAEKGSHLYHQMV |
| UniRef90-D9TQ. | ASEEERGDFKRILELGTHVFVQUIPDEKEV |
| UniRet90-W6TBS9 | VTPDDTETFNALSKSGTHLYHQMVPNDHQED |
| UniRet90-R6UAB5 |  |
| UniRef90-G4 |  |
| UP | TDEEVKDFYKLKAAGVEV |
| UniRef90-V9H8) | VTPEEKEAFKELIDRGVEVTALMTPTDPLVY |
| UniRef90-F4BLT2 UniRef90-H3NCS | VNHHDVQDLHYLNEQGIDLE R R KVVTSNKVY |
| UniRef90-B8F317 | VTEDDVEVFRKLSEKGVKL |
| UniRef90-Q3Y229 | L NESEQEDAKKLKALGIKQF |
| UniRef90-COD | VDPEMEEMFRELDSLGVRL |
| UniRef90-G4L683 | VDEKDQASFHYLAKQG |
| UniRef90 V605D6 | VDQQDIEAFRYLHTRG1 EL |
|  |  |
|  |  |
| UniRet90 R5TFY5 |  |
| UniRef90-E2 | INDKDETELKELQERGVSVFIQQLPAESA |
| UniRef90-R2NS | VSDEERACFKQLITDGTSVYVQ |
| UniRef90 UPIO0021969 | L |
|  | ASEEEKVLFNQ IDAGVTVKVQIVPSKATDVA |
| Ret90-R2R273 |  |
| UniRef90 C9A9C7 UniRef90-U1WS33 |  |
| UniF | GVK |
|  | NHGVK |
| UniRef90-F9VIL2 | MGKDDVKAIEKLISSLIUKFNVKKV |
| UniRef90_SOPED5 | PEKAFAE VEMGIPV |
| UniRef90-D9S0R3 | VSQEERATFREEINMGGVQVNTRMVP |
| UniRef90-SoS5A7 | ASSAEKASLKKLIDTGATVT |
|  | LNPEELEDTKKLKAMGINLYMQQVPTSKREDL |
| UniF | EDVKAFQEI DRRG |
| UniRef90-UPIO0040BDE | VNDEHUAAYKAI HELGVPLVLQQVPTSSRTN |
|  | EEEQAFKS LARNDPVEQMVPKDQVIDL |
| UniRef90- UPIO0021971CA | VTPDEKKELNDLVSDGIRVYTQQVPTD |
| UniRef90-16T6Q1 | VLPEEEKLLLEQMI ADG |
|  | VTPEEKKAFEETLAKGVEITTVLVPNAPKTYL |
| V6IYP7 | N |
| UniRefao Sedilin | k V |
| UniRe990-_36UIM | KGVNVYYQLVPEQKVVD |
| UniRef90-UP10003B5FDDE | VDDADI QSFNDLKDFN |
| UniRef90-R2SFV1 |  |
| 5K054 | - |
|  | EGRG |
| UniRet90-S4CTP4 | VEEEDDDVFQKLNEKKVRLYAQMVPSDRAED |
|  | A |
| UPIOOO2490C4E | VNDDDVAAFKDLNEHGSKLSRQQVPGDSA |
| UniRef90 R7D202 | LSKDDAELCKALDAAGVKVYFQKIPSSEN |
| UniRef90-F2NA | AsRGVT |
|  |  |
| UniRef90-TOMII | MAVFEKLIFKLGIKVFCQDLPGAEKKDL |
| UniRet90_K2PMW5 | VMPEEENIFQEIAAGGVKITAQLVPSEPAVD |
| UniRef90-G1VR55 | EANGIEV |
| O0A023C | KLNEMGVKLELRQL |
|  |  |
| 565 | K |
| UniRef90-R2S |  |
| UniRef90-89Y568 |  |
| UniRef90-G7S7C3 | ASEKEAFMKLLENSVEVT ${ }^{\text {a }}$ QMV |
| B0MC3 |  |
| UniRef90_G9WHX2 |  |
| UniRef90 F5RQS4 |  |
|  |  |
|  | NVNCYFQMI P T DSKQDI |
| UniRef90-D9R1V2 | NLIQ HEAGVRLETRMLSSDNQDDL |
| UniRef90_Q5WAK8 |  |
| Ret90_ROG2 |  |
| UniRet90_E1QW81 | ASQDERAALRALVDEGVDVAIQ\\|LADDAQVSV |
| UniRef90_SOKJC4 |  |
|  | G |
|  | ASEEEKKMLKELVEAGSKIGVR\\|IAEDS |
| -19KX63 | ERQDIEAL AKGV |
| 4C8Y6 | 俍 |
| UniRef90_UP100046 |  |
| UniRef90 U5CKD7 |  |
| UniRef90-R7G5W8 | EEDKKDFLELSKLIGVKLYLQEKPTDGKEDL |
|  |  |
| Uni | 7 |
| Ref90_R2RVR7 | EVAAIRQMVDKGVHVFYQLVPEQRLIEI |
| UniRef90_F4LTE6 |  |



## UniRef90 I3VYA6 UniRef90_UPI00031EDB6F UniRef90_R3TM56 UniRef90 UPI00046724EC UniRef90-G2TQW8 UniRef90_F5X5W4 UniRef90_N9XJ01 UniRef90-I8SKD4 UniRef90 F3Y7N9 UniRef90-UPIO0035E0260

 UniRef90_R2PAQ0 UniRef90_R7PFP8 UniRef90_V6YYD7 UniRef90_L2QY28 UniRef90_D1AG71 UniRef90_E1L3B4UniRef90 E3G2C7 UniRef90_F4LUJ2 UniRef90_UPIO00377C59F UniRef90_D4JZC4 UniRef90_U5F6A5 UniRef90_E7G5V4
UniRef90_UPI000413A66B UniRef90_UPI0003B6EAF1
UniRef90_F3Y9D1
UniRef90_U3GZI5
UniRef90_R6UJF7
UniRef90_UPI000367E670 UniRef90_R0GC17
UniRef90_H7EGC6 UniRef90_A0A023MVL8 UniRef90_M3HSC7 UniRef90-A0A023D0D5 UniRef90_B0K1J8 UniRef90_W7CXH1 UniRef90_U2M2N0 UniRef90_W2E7D9
UniRef90_G5F667 UniRef90_L8XMZ2 UniRef90_R6URT8 UniRef90_I7ASE8 UniRef90_R7G7F2
UniRef90_L2LMD0 UniRef90_F1T4F9
UniRef90_S3A8K6
UniRef90_F2N7I6 UniRef90_C6JPZ6
UniRef90_I8SEB7
UniRef90_R3WCS3
UniRef90_G2MXR2
UniRef90_B9Y2V
UniRef90_UPI00029AA08F
UniRef90_UPI00047632C9
UniRef90_V7HT87
UniRef90_S2SZX9
UniRef90-W3ANJ2
UniRef90_UPI0004060A1F UniRef90_UPI000255C315 UniRef90-R5ZNT9
UniRef90-R2QQK7 UniRef90_Q04GS7 UniRef90_F8IR27
UniRef90-TOVJE2
UniRef90 - F0JFS4
UniRef90_UPI000344A5AA
UniRef90-W6T4Y2
UniRef90_C4FAJ2
UniRef90_R2Q6E3
UniRef90_E2SMH5
UniRef90_F2N8K2
UniRef90_UPIO003B62D0E
UniRef90_E6HZV4
UniRef90_E4IIG5
UniRef90_G1WHY9
UniRef90_UPI00031A5DE1 UniRef90_B9CKX9 UniRef90_UPIO0045E8DFF UniRef90_G8PB28
UniRef90_C4FAD2 UniRef90_R7G7R1 UniRef90-R2SEB6
UniRef90_F4LW
UniRef90_V714I4
UniRef90_G1VVC7




 S QKAAMRMSKPA GTGMSSI DTNTAADTNFAA GKYDS HNVFGL NEKA I LRRMAAPA GVNTSDLD LEKA VANDKN GNYDGQRVMM





 FMQNI FKMAVPQE I SVVDLSVNDAI DVLKKQSFKKRTIV

 $\stackrel{L}{\mathrm{~L}}$

## 

I





 FMKS I YLLMAAPPNVKVVCYGNQSFAAAWRENQLGE GNVLV
 FMKEIVYSTQSSTGNMK IGVGSSSDGIVDEWNKNQFDYKLGL $M Q K D L D R M V A P A G V S T S I L T K E K A L D N D L E D K Y A D Q K V M L$
 L Q R S L L E M A C P R TM M K CFI A N E S K S SV E I L K K G Y P K K K F F
















 P R K A A M R L S K P A GTGMSSLIDTETGGVTN FKA GKY D S H NV L L


 FTKSIMSMAVPN GIKLS I LGI AD GSALLKD\|PANEKVII

UniRef90 I3VYA6 UniRef90_UPI00031EDB6F UniRef90_R3TM56 UniRef90_A0A011AY05 UniRef90_UPI00046724EC UniRef90_G2TQW8 UniRef90-F5X5W4 UniRef90_N9XJ01 UniRef90-I8SKD4 UniRef90_F3Y7N9 UniRef90_UPI00035E0260 UniRef90_R2PAQ0 UniRef90_R7PFP8
UniRef90_V6YYD7 UniRef90_L2QY28 UniRef90_D1AG71 UniRef90_E1L3B4 UniRef90_E3G2C7
UniRef90_F4LUJ2 UniRef90_UPIO00377C59F UniRef90_D4JZC4 UniRef90_U5F6A5 UniRef90_E7G5V4 UniRef90_UPI000413A66B UniRef90_UPI0003B6EAF1 UniRef90_F3Y9D1 UniRef90_U3GZI5 UniRef90_R6UJF7 UniRef90_UPI000367E670 UniRef90_R0GC17 UniRef90_H7EGC6 UniRef90_A0A023MVL8 UniRef90_M3HSC7 UniRef90-A0A023D0D5 UniRef90_B0K1J8 UniRef90-W7CXH1 UniRef90_U2M2N0 UniRef90_W2E7D9
UniRef90-G5F667 UniRef90_G5F667
UniRef90_L8XMZ2 UniRef90-R6URT8 UniRef90_I7ASE8 UniRef90_R7G7F2 UniRef90_F1T4F9
UniRef90_S3A8K6 UniRef90_F2N716 UniRef90_C6JPZ6
UniRef90_I8SEB7 UniRef90_R3WCS3 UniRef90_G2MXR2 UniRef90_B9Y2V6 UniRef90_UPI00029AA08F UniRef90_UPI00047632C9 UniRef90_V7HT87 UniRef90-S2SZX9
UniRef90-W3ANJ2 UniRef90_UPI0004060A1F UniRef90_UPI000255C315 UniRef90-R5ZNT9 UniRef90-Q04GS7 UniRef90_F8IR27
UniRef90-TOVJE2
UniRef90_F0JFS4 UniRef90-UPI00034 UniRef90-W6T4Y2 UniRef90_C4FAJ2 UniRef90_R2Q6E3
UniRef90_E2SMH5 UniRef90_F2N8K2 UniRef90_UPI0003B62D0E UniRef90_E6HZV4 UniRef90_E4IIG5 UniRef90_G1WHY9 UniRef90_UPI00031A5DE1 UniRef90-B9CKX9 UniRef90_UPIO0045E8DFF UniRef90_G8PB28
UniRef90_C4FAD2 UniRef90_R7G7R1 UniRef90_R2SEB6 UniRef90-F4LWV8
UniRef90_V7I4I4
UniRef90_G1VVC7 UniRef90_UPI00036A2341 UniRef90_F2M374 UniRef90_UPI000317C7AA UniRef90_L2P8F9
UniRef90_B3W754
UniRef90_UPI0002197413
 $V C K N P R V L W E L H E K G F D V E N I T V G N M S K A S D K \square A V C K S V A$
 VAKSPKT DCRLYDAGFHMDQVNVGNMGGKQNTRMLKKAVS
 L V K N S A D A L S LA Q G G GA I H S V N V G G M R Y S E G K L K L
 $L$ FK T V S T A L E T A E K G VV $L$ F T $N$ P P T D V V R


 I T K T I E D M G A L I D A GVV L Q A F NVVGNV S A K E G S K P I K K S V A


 L F T K P A D V L R M V E K G V P I K K S I N I G G M A F S K K G K V Q DT K A V S



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











 L C E T DIE D A Y K L A C C N T H A I S E I


 $L \vee A K S P S$.


 F G N T S T $\quad$ L R G F C E A Y P P K L VKNPKDI WELK QA GLDITTSFNVGNMAAKEGTRSDKRSVN






 VCPDPETVVRLLDLIPDRPLVNLGGMASGEGKRLFSRMVY

 L A K A P GT ML L L A K S GVVDI K E L N V GNMMGQ GA N R K P I M R S T Q




 L F T
 $L$ F K N $\square$ S T V K K E TVV N K G L P I Q


 $L$ F K R D Q Y V L D A V K Q G L D I K K E V N L G N L G S L A G R K S I I S K N V





UniRef90_G9WET1 UniRef90_E7ML36 UniRef90_UPIO0047CBAD1 UniRef90_R3WBM6 UniRef90_E2SIO7 UniRef90_I3U329 UniRef90_UPI00040867F1 UniRef90_D9R2R0 UniRef90_R2Q6Z5 UniRef90_U7PIK1 UniRef90_R2RYV1 UniRef90_C3FDH6 UniRef90_UPI00036FB2EE UniRef90_UPI000420BEE8 UniRef90_D8INC7 UniRef90-I6T4B1 UniRef90- X8HTFO UniRef90_S2ZKU0 UniRef90_UPIO003B5FC23 UniRef90_UPI000311BCDC UniRef90_UPIO004295EB2 UniRef90_B7CBW5 UniRef90-F2N7V2 UniRef90-R2SJM4 UniRef90_K8EFA4 UniRef90_S2XH61 UniRef90_UPI0004689F17 UniRef90_E1QYX4 UniRef90_Q8RD54
UniRef90_R9JNC4 UniRef90_R9JNC4
UniRef90_R2SKF9 UniRef90_R6UN01 UniRef90_B5QRK4 UniRef90_UPI00035F030E UniRef90-U2QNX6 UniRef90_UPI0002DB3A98 UniRef90_UPI0002E7F60A UniRef90_A6NZC6 UniRef90_R7G6U4 UniRef90_C5ERS1 UniRef90_UPIO002490E6B UniRef90_UPI0004681235 UniRef90_E1QZG8
UniRef90_LOIN32
UniRef90_Q67PY2 UniRef90_Q8XNL2 UniRef90-K0NB63
UniRef90 R5ZHR9 UniRef90_UPI0002D2F069 UniRef90_Q7MP27 UniRef90-J3EQX5 UniRef90_R6TJH9 UniRef90_UPI0004197E1D UniRef90_UPI00046EC87A UniRef90_D4M437 UniRef90_UPI0002D6580C UniRef90_UPIO004113FC0
UniRef90 T0D6L2 UniRef90-B6GED3 UniRef90_F5WU43 UniRef90_R7G8T4 UniRef90_G5ILC2 UniRef90_R6UTB9 UniRef90_R7G8M9 UniRef90-C0D7X2 UniRef90_V8G1D8 UniRef90_R2SM23
UniRef90_K9E9B5 UniRef90_UPI0002492E7F UniRef90_D4MF67 UniRef90-R4BQ96
UniRef90-G1WFN2 UniRef90_X0PG81 UniRef90-R6RK72 UniRef90_UPI00030FDB73 UniRef90_D4MYB4 UniRef90_R8VU99 UniRef90_UPI0002EB5F45 UniRef90-C0CTE3 UniRef90_U5FC29 UniRef90-B1R0C6
UniRef90_UPI000470A33E UniRef90_R5F9G6 UniRef90_R5TUA2 UniRef90-B6G9T9 UniRef90_UPIO00255BFC9 UniRef90-G1WK64
UniRef90-U2UAZ6 UniRef90_U2UAZ6
UniRef90_G2MXQ8



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



 LAK TPEPYVYL QEH GVSFDHVNIGGMGDKKGRKTIYKNIS

 CVVQTIA EAKQLIDGCPQITSLNLGNTKGSPTTREVARQVF V F E S P Y D A Y R V V E K G G N I T S I N V G G M H S V K G K R Q I L N Y I F I LAK GPETFEALI NNGVEINEINLGGMGSKQGRDKLYKN I A $L$ A K S P $V$ VK S P E DVVLY L L N N GL D I K E V N L G N I S S R E N T E K I MA G I N

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


 L F K Y P ETVVLKLI N S GVVEI PE I INLGGVGAHESRKKFYRNI S

 ILTNS DDAYK LAAKGGVKKPY L NVGGMRFVNGRTKDARAVS

 $V L R D V V S A L A L V D Q G V E L D E I N V G N V S A N P K K T K Y S K S V W$

 $V$ VKKPETVLELLEKGVELPEINNGNMSQTDETKHVNKSIN



 A RKPDRFLQLLEHGVKLDELNVGNMSQTEETQSLTKSIN



 I V D N TS DA LDELVKNVKDVDHVNLGNMKLTSERTMITPSLA
 $L L P D L G S M K E V Y E G G \| E V T D D Q V G G L G G A P N R K V V F Q N I T$
 $L C N R P Q P D L A M A R N G F K V D H V T V G N M S T K D D A K Q V R K T V G$
 I T K N V G D M A E L V V K A G L L PV P A V NVVGNVVAKRE G S R P I K K S V N

 VTKTPQCLCDLI R G GYELEDI TVGNMSNGADKKRVSKNI C VVES VVDAARIAENVSGVKQINLGGDKASEGTKNISKAIN

 $L \mathrm{~V}$ RHPRVLVNMI QKGVPITSVNVGNMSQTDETKAITNSIIN LLVPDLTTTLKAMVD QEI IDKE EI QVGGGLGGGGPNRKNVLKNI N



 I VK D CA D ALRRLVQGNVPI K KI NI G NI HNAE GKEKV T R S I F I CES S I K D A Y E L A K H I D D S I K K I N L G GTTK L A A G R K Q I S K A M F



 I V R NPK T A L DLIF ER GFTI E SVVNVGNDSNTVGRKRLLPYI Y




UniRef90_UPIO0028820F2 UniRef90_UPI0003813604 UniRef90_R5XST9 UniRef90_A6LS18 UniRef90_UPI00037CE8E6 UniRef90-R7G8N9 UniRef90_C5ET11 UniRef90_F5WUL6 UniRef90_F7NLJ6
UniRef90_F2M5F8 UniRef90_I7KKJ3 UniRef90_C9XJ62 UniRef90_A7B5G1 UniRef90-S9PEH3 UniRef90_S2UC57 UniRef90_D9R868 UniRef90_Q67N19 UniRef90_R5SYC0 UniRef90_UPI0003787382 UniRef90_F0EJ09 UniRef90_UPI0002DF54BC UniRef90_E0NI05 UniRef90_R2VH86 UniRef90_G6IN91 UniRef90_H6WNP6 UniRef90_G8PEB1 UniRef90_SOPFT0 UniRef90_Q1K315 UniRef90_R6QB33
UniRef90 F0GX41 UniRef90-EONH20 UniRef90_K0NRF7
UniRef90_J6PFG7 UniRef90_F4AAN3 UniRef90_TOU941 UniRef90_R6FJ39 UniRef90_UPIO002491ACC UniRef90_S1RHQ2 UniRef90_C5ERR2
UniRef90_C4XU51 UniRef90_K0JIJ3 UniRef90_R2S749 UniRef90-F7JKP5
UniRef90-R2QEK0 UniRef90_L2PLV1 UniRef90_I7L6M4 UniRef90-M1WQM9 UniRef90-UPIO0037BE071 UniRef90_D9R9M7 UniRef90_H1AQH8
UniRef90 A6LS10 UniRef90_R6S8Q0 UniRef90_UPI0004248B91 UniRef90_B1CAJ0 UniRef90_UPIO004764E3E UniRef90_R5U8N4 UniRef90_B9Y3P0 UniRef90-E1M6R9 UniRef90-F0PGH0 UniRef90_R6UU16 UniRef90_UPI0002E602D4 UniRef90-R6QRD8 UniRef90_G0UGQ1 UniRef90_H1PQS1
UniRef90_UPI000463E153 UniRef90_LORBT9 UniRef90_R6QHU3 UniRef90-R5E853
UniRef90 Q3Y3W0 UniRef90_D7V6B6 UniRef90_B0P4V8 UniRef90_U5ZID8 UniRef90-F5ZK27
UniRef90_UPI00037E1F86 UniRef90_G1VX14 UniRef90_UPI00046A6DDE UniRef90_UPIO00428CD9B UniRef90_UPI00041D9B1D UniRef90_C0R286 UniRef90_H1XUM7 UniRef90_UPI0004040937 UniRef90_R4E819
UniRef90_F2M4T7 UniRef90_UPI0004751DB1 UniRef90_R6VP89 UniRef90_UPIO004015C92 UniRef90-R6QK76 UniRef90_H3NQL8 UniRef90_R6T7L7
UniRef90_A1VDK1
c $\frac{L}{F}$V WK T T L K M G K P A N V K L V I K D M E H A DEAI N S G V T D K KM I I l
I


V Q K S V M R L S K P A G T GMS I I D T Q T A D


F Q T K I F K K N A A P T G I I K V G V



FMTMIIMK GSMPAKI GLKVLSTDEAADYLNSEGAN GKVEGL





FKK M S L S L S K P A GA K L N I F TVLQ DALDAKMM K E V L P E N V M I























UniRef90_UPIOOO28820F2 UniRet90-UPIOOO3813604 UniRef90-R5XST9 UniRef90 UPI00037CE8E6 UniRef90-R7G8N9 UniRet90-C5ET11 UniRet90-F5WUL6 UniRef90-F7NLJ6
UniRef90-F2M5F8 UniRef90 17KKJ3 UniRef90-C9XJ62 UniRef90-A7B5G1 UniRef90-S9PEH3 UniRef90-s2UC57 UniRef90-D9R868
UniRef90 667 N 19 UniRef90- $\mathrm{B9Y559} 9$ UniRef90-R5SYC0 UniRef90-UPI0003787382 UniRef90-FOEJ09 UniRef90-UPIO002DF54BC UniRef90_EONIO5 UniRef90-R2VH86
UniRef90 TOVFH3 UniRef90-G6IN91 UniRef90-H6WNP6 UniRef90-G8PEB1 UniRef90-Q1K315 UniRef90-R6QB33 UniRef90-FOGX41 UniRef90-KONRF7 UniRef90-J6PFG7 UniRef90-F4AAN3 UniRef90-ToU941 UniRef90_R6FJ39
UniRef90 UPIooor UniRef90-S1RHQ2 UniRef90-C5ERF2 UniRef90-C4XU51 UniRef90-KOJIJ3 UniRef90_R2S749 UniRef90-R2QEKO UniRef90-L2PLV1 UniRef90-17L6M4 UniRef90-M1 WQM9 UniRef90-UPIOOO37BE071 UniRef90_D9R9M7 UniRef90-H1AQH8 UniR Refo AGLSH0 UniRet90_R6S8Q0 UniRef90-UPI0004248B91 UniRef90-B1CAJO UniRef90_UPIO004764E3E UniRef90_R5U8N4 UniRet90-B9Y3P0 UniRef90-E1M6R9 UniRef90-R6UU16 UniRef90-UPIO002E602D4 UniRef90-R6ORD8 UniRef90-GOUGQ1 UniRef90-H1PQS1
UniRef90-UPIOOO463E153 UniRef90_LORBT9 UniRet90 R6OHU3 UniRef90-R5E853
UniRef90
Q3Y3W0 UniRef90-D7V6B6 UniRef90-Bop4V8 UniRef90-U5ZID8 UniRef90-F5ZK27
UniRef90-UPIO0037E1F86 UniRef90_G1VX14 UniRef90-UP OOOM6AEDDE UniRef90-UP100042C9B1D UniRef90-COR286 UniRef90-H1XUM7 UniRet90_UPIOOO4040937 UniRef90_R4E819
UniRef90 F2M4T7 UniRef90 UPIO004751DB1 UniRef90-R6VP89 UniRef90 UPIOOO4015C92
UniRef90- R60k76 UniRef90-R6OK76 UniRef90-H3NQL8 UniRef90_R6T7L7
UniRef90_A1VDK
 VVKSVHDAYQLIKGCPRIEALNVGGTKKTDSTDQVTSSVF
 LVKNTKDALELVKNGGAIKELNVGGDRYEAGKQKLTDLVA VVENVKDAYRLITETKVFDSLNLGGTPPTDETRNISKTIN LVKTPQALVALTDAGDKLDFVNVGGDGAKAGRKTLYKNIS IVVTSVEDARYLMEKCPSIPNLCVGGVRQAPGKKMVERQVY VVRTIDVAYKLAQACPQIQSINLGGTKKEGDDEQUSKAIF LFKDVGTTVQAWKKGFPLEQLQ:GGLGAGPGRKAVYQNMT VAKKPQEYLKLLNEGVQLKSINVGTMSQTPTTKAVTKQIN LFKNVDMANKAYKAGLKYEKI QL GGDPNEAGKKMVFTAVS VVENVQDAYDLVKACERTKSVNLGGSKDEENRRKLDTAFY LLRDVABPFVQTHGLKLEHLNLGNVHFGTGRRQVSPSVF LFKNINSALSMAKKGLPFDRLVVGGVPQVEGKKMVTKAVY I TKNVTDMAALIRSEVPDKAFNVGNVAKREGSRPIKKSVN I AKFPSDADALLDGGLKPQEDNVGNQAPDPGTKMVTRTCA VMRGPETAKRVLEAGYFDPVINVGNTSNKLGSVRITRSVC I CGSPADANGLLKKLEEKPVVNLGGIQMADGKKLFSKAVY
 LMKTPQTAQKVFDSGAMLRALNVGGMGASKTRKNLYKNVS VVESVADASKLQETDGKIGELNLGGTKPREGTINYSKTVN
 LIRTVADALKKKESADSIKKINVGGLRFEEGKKKLNDFFIS
 LFKTPNDVLDFVNAGGKIETLTVGNDSYKDGAKEITKS:K LAKTPQTYEKIVDGGAHTPAINIGGMGDSGERKTLYKNIA VVKEPSTILKLIEGGVKIPEVNIGIVFKSDDSENIVNQVN VVKRPQILLDLVNDGVKLEA:NVGNMSQTDETTQLTNS: N LFKTVSSAFAAYQKGGHFPTLQLGGMAGKDGKS GKIVQFVS VCKSPEDALMLVEGGVPVKEINTGNI HNKEGKAQITRSI Y LVKTTEDARRLVEAGGVITTLNVGGLRYGEGKKKLTDLVA IVKSPRTLVNLLEAGVDLKKVNVGPMSARANTTVVGRNCA VVKEPKYLNYLVDAGVELSDVNVGNLARDNAKKILTHQVS LVETTDDALALAEQVPYLRSLNAALMKTEPGKKLLTKYLA LFASCRDAQVAYEYGFDFANLNLGNLHYAPGKRQVCPHVA ICRGPKEALQLIDGDTGKTINVGNIGMRKGKKSILPYI W LVKTPMELEKLTNKGVKIPSVCVGGMGAKAGREVLYRNIS LVKYPMVAKQLEDAGLQHRELVVGGMGANAERKKLFKNI S
LVKGPTVIEQLDENGLADDKLVVGGMGAKAERRVLYKNIS VAKKPAEFLALLNMGLKLDTLNVGTMSQTDTTKSITKQIN LFSNCSDAKRAFDFGFDYTSLNI GNVHYSPGKKQI SPSVA LFKNDEDVRSAVERGVAFTVVQI GGLGAAGNKTSVVKGIS II CETDELAAEI AKAVKMKSI NLGNIPFAEGKRQVSKSVF IVETVEDAYRLLEGCENDRKI NLGNSKVKDGGKQLAKTFY LVKEPGTLLKMDEGGVKIPAI DLGAMFEEKDRKPFTSRIA VMGNTATALAFCQKYPKIKELVYGVLPQKEGSTQYSTAIVY LFATTSDCDEALHAGLKYERLNGGNLAGHGKAQFSCTVF
 LEETPQDALRAIEGGVPIKTLNVGSMAHSTGKTMVNNVLS LTK SDEVMADII RGGVPMKELNLGGDPQKPGLTSLDKEVA LVKGPAELAALI EKGI EMKEVNI GNQRSGENKLQLASQMF LAKGPKVFLDLI EKGVQTKEINLGGMGSTQERKKLYKNTS LVKEPATLVKLIENGVQVPKVNLGIIFNQSGKQQFTKMVA LTGSMEDALSLCEKCEEVKDVCLGGLRKAEGKKMVERQVYA LFSSCADVRRALDAGFKFNSINIGNTHYGPGKKQISPSVA VVNNVKDVERLTDAVPETNDVNLGVLPAVEGSRALSKAI N VVDNTADALRLVKEVEAVDHINLGNMKVKDGTKTWTNSIA IVGTVEDAYEITQHVPELKEVNLGNLKKNENRKMDTSSVYY LAKSPVSYKGI I DRGVELEA LTNNIRDMRELIDGGVKLDRVNVGNVAPHEGAKSIKASVY IVKDLKDALRLVEGGVPINEINI GNLHNAEGKEQVTRSIF LCESVEDVYRLAKKVPTITAINLGGTKSGDDRKNISKAVN TRTUQDTLKLVKSTDCI HRVNI GGVKNKEGGKMI AAAVC
 I MGSFSDALRLKEGGVPIDHINFGGMRTTPERTISYDH:C I TKNDEDMNEITKDGVPI ETVNTGNVAKKEGSVQIKKSVN LVNSPFVIEKLLEKGAKIKKVNVGGIHFKEGRREFLDYGF VLGNTRETLELVEKVPGLDAVNFGG\|AQKEGAQQFGKAIY ITDSPAYFAQLAEAGVDFKVVNVGPISGGTGADNVARNVA LFKGVDSCYRAFDGGFPIRTLQI GGLASAPGRTTVSKAVS LFKNTSQAKAAWEAGVKFPSLQVGGIEGSGDKKNIYKNVV IFTNPKEVFQCDTGGVTIKYLNVGQMSKNDTNEKVTVGVA LFRDVKQUAELQEKGVSFEEITVGQMADIDDRKQIYKQVG




## UniRef90 C7RET2 UniRef90-19KWZ4 UniRef90-S1S6A9 UniRef90_I7LD26 UniRef90_R6UJK4 UniRef90-D1AQQ4 UniRef90- S4ZZM8 UniRef90_C5F7B0 UniRef90_Q045G0 UniRef90_S4CRP6 UniRef90_B9Y8Y8 UniRef90-K8WMJ8 UniRef90-B9YEB7 UniRef90_B9YEB

 UniRef90_UPI000470435E UniRef90_E7GA62 UniRef90_S4CGZ0 UniRef90_W7BN81 UniRef90_C5EEU6 UniRef90_A1AGZ3 UniRef90_UPI000288ACFA UniRef90_R6VK00 UniRef90_D3QEZ7 UniRef90_B9Y3G0 UniRef90_X2H4F1 UniRef90_S4ZJC1UniRef90 B9Y4S5 UniRef90_B9Y4S5
UniRef90 R5FHW1 UniRef90-UPI00037F6A31 UniRef90_V5S8Q2 UniRef90_D1AFD4 UniRef90_R6VI68 UniRef90_A1RZ66 UniRef90_R5ZSX9 UniRef90_H1AQJ0
UniRef90_I8SCC2 UniRef90-B9Y327 UniRef90_F216I7 UniRef90_UPI00037E59C3 UniRef90_UPI0002DC48F5 UniRef90_G9R710 UniRef90_C7XVA6 UniRef90_Q1Z3R2 UniRef90_X2H394
UniRef90_E7ML49 UniRef90_E2SQV2 UniRef90_R2Q0P8 UniRef90-F5WRM7 UniRef90_UPI00028A2076 UniRef90_V9HCF9 UniRef90_H3NQ82
UniRef90_R9IUV5
UniRef90_Q3A383 UniRef90_UPI0003B44238 UniRef90_F2N8E9 UniRef90_B9Y3A8 UniRef90_UPI0003737384 UniRef90-J6Q6C6 UniRef90-D2EJ22 UniRef90-D4JNA8 UniRef90_UPI0002DF5BA4 UniRef90_UPI0004638613 UniRef90_R2QUV4 UniRef90_C5ESZ5 UniRef90_17L6P9 UniRef90_R2T4S4 UniRef90_S4ZZH5 UniRef90_F0GW89
UniRef90_R5UEB9
UniRef90_EONHNO UniRef90_UPI0003785FD0 UniRef90_UPI0004073DDA UniRef90_E3G1I3
UniRef90_R6ZH80 UniRef90_R5Z810 UniRef90_UPI0003472DE3 UniRef90_UPI00034B7582 UniRef90_G2MTU0
UniRef90 D5GYM7 UniRef90_R7PGI5 UniRef90_F3Z3C1 UniRef90_G9WHN2 UniRef90_E4L529 UniRef90_E2NP37 UniRef90_UPIO0046EB8A3 UniRef90-R6UHR0 UniRef90_R7GMQ3 UniRef90_S4ENP4
$z \quad$ zz $\quad$ z $\quad$ m-

20
30
40 V VLA RI D Q RLI H GVTVVNQWNGELRPKRYMVVD DVVS QDE
 NIVMTRIDERLVHGQGGMWIKTLD $\quad$ GNTCIVANDEAAGDP NI L L A RIDD RLI H GQVMTS WVRFVK SKNILI DDDETYHDT
 $N L V L T R I D D D R L I H G Q V M T A W I K E R K A T G V V I V D D G T A N D D$

 VELCRVDDRMLHGQVAVT WVNQVAPDAILI ANDEAATNE
 S V L A RID N RL L H G VVAT Q WA GRSGAQRI MI DDDTVANNE


I EFLRVDHRLLHGQVAVSWFGALDVNTILVANDSVAGDD
E I S VF R I D D RLI H G QI I TA W WIA Y A D A K NI I VAAD D KAA V D E
S 1. NI TTFRIDDRLI HGQVVTAWDAHSDAKQI LVADDAAAKD T




 $N$ I VLARI D DRLI HGQVVMTAWMQFVKGNHIVIVDDATAGDD

 V VLAR D D RLI HGGQVAFSWTSALGGADCCLANDALMQDE I ThL F R I D E R L I H GQQI A DK WS K H Y N I N R IV V A N D Q A A S S P E V V L A R V D A R L I H G QV S T N L V N S T G A N A I FV A D D P S A H D D

 E I N MARVDDRRL HGKVMMKWTKGRGTNSVYVVDNATAADD I S FVVI D D RVI H GQLMTRWAKEVPCDGIVAIDAAVAA DP
 I EMLRLDFRLI HGQTGVYWTAKLGCDCILIVSDTLLQDP EI K F ARVDHRLI HGQVITK KMMKVNANKIVIVDDTLGKDP


 SVVLARVDNRLI HGQVLEAWDPSTKANCLVVANNKIADEG
 I KMFRIDDERLI HGQLADKWSRHTGVDHIVV GNDAAANS P $N$ I VMTRVDERLI HGQ GQLWWIKSLDCNTVIVANDAVAEDR
 IV M T R R I D Y R R L L H G Q V A F A A W T N N


 I K L V R V D H R L L H G QV A M A WT Q S L D V D C C M L I A N D A I M K D D I A Q L R V $D V V Y \square R V D D R L I H G Q V A G L W T N R L A A T R I M V I D D E V A N D N$
 $N$ I A ALRI DERLVVHGQ GQLWWI KTALGVNTVIVANDEAANDP I K L V V RVD H RLLH GQVAFA WI K Y L K KV D CVLI A N DEVAN D S EIVVFARVDFRLLHGQVATRWVPKI RPDTILIVDDALYEDQ

 $K$ I AAL R I D D R L I H G QV A M T WT K Q LLKV Q GIVVVANDEAANDP I Q L V


 $N$ I VAFRIDDERLI HGQ GQLDWIKADGVNTVIVANDSASEDT

 I KLLRVDDHRLLHGQVAFSWKNAVEADCILI ACDAVVKD D




UniRef90_C7RET2 UniRef90_19KWZ4 UniRef90-S1S6A9 UniRef90-17LD26 UniRef90-D1AQQ4 UniRef90-S4ZZM8 UniRef90-C5F7B0 UniRef90_O045GO
UniRef90_S4CRP6 UniRef90-F4FRD1 UniRet90-BgY8Y8 UniRef90-K8WMJ88
UniRef90_B9YEB7 UniRef90-R5IV46 UniRef90-UPIO00470435E UniRef90-E7GA62 UniRef90-S4CGZ0 UniRet90 W7BN81 UniRef90_C5EEU6
UniRef90 A1AGZ3 UniRef90-UPIO00288ACFA UniRet90-R6VK00 UniRef90-D3QEZ7 UniRef90-B9Y3G0 UniRef90-X2H4F1 UniRef90-S4ZJC1 UniRef90-B9Y4S5
UniRef90-R5FHW1
UniRef90 UPIO0037F6A31
UniRef90- V5S0002
UniRef90-D1AFD4
UniRef90-R6V168
UniRet90-A1RZ66
UniRef90-R5ZSX9
UniRef90-H1AQJo
UniRef90-18SCC2
UniRef90-B9Y327
UniRef90- 21617
UniRef90-F21617
UniRef90_UPI00037E59C3
UniRef90-UPIOOO2DC48F5
UniRef90-G9R710
UniRef90-C7XVA6
UniRef90-Q1Z3R2
UniRef90- 2 H394
UniRef90 E7ML49
UniRef90-E2SQV2
UniRef90-R2QOP8
UniRef90_F5WRM7
UniRef90-UPIOOO28A2076
UniRet90-V9HCF9
UniRef90-H3NQ82
UniRefofo-R9IUV5
UniRef90-Q3A383
UniRef90-UPIO003B44238
UniRef90-F2N8E9
UniRef90-B9Y3A8
UniRef90_UPIO003737384
UniRef90-J6Q6C6
UniRef90-D2EJ22
UniRef90-D4JNA8
UniRef90 R7D7T7
UniRef90-UPIO002DF5BA4
UniRef90_UPIOOO4638613
UniRef90-R2QUV4
UniRef90-C5ESZ5
UniRef90-17L6P9
UniRef90_R2T4S4
UniRef90 S4ZZH5
UniRef90-F0GW89
UniRef90-R5UEB9
UniRef9O-EONHNO
UniRef90-UP10003785FD0
UniRef90-UPIOOO4073DDA
UniRef90-E3G113
UniRef90 R6ZH80
UniRef90-R6PRA8
UniRef90-R5Z810
UniRef90-UPIO003472DE3
UniRef90-UPIOOO34B7582
UniRefgo- G2MTMO
UniRef90_G2MTU0
UniRef90-D5GYM7
UniRef90-R7PG15
UniRef90-F3Z3C1
UniRef90-G9WHN2
UniRef90-G9WHN2
UniRet90 E4L529
UniRef90-E2NP37
UniRef90-UPIO0046EB8A3
UniRef90-R6UHRO
UniRef90_R7GMQ3
UniRef90-S4ENP4
UniRef90_UPI0003B617E9

























 L RKRVVLKAAA $\qquad$





 T Q Q M A L K M S V V P A GUll









 FMKDVYLMAVPDSLGVVIHSVDDAVSQYKNGQMPDAKLLV T QKMALLKMAVVPA GIVVVIDKPVQEADRMLNHPKAEKRILV $\begin{array}{cllllllllllllllllllllllll}F & M L & V & V & Q & M & S & A & P & M & G & T & K & V & D & V & K & V & D & D & F & I & A & H & W\end{array}$ L R K S M L R M M A C P E R C K L




 FMK K I L E M A M P P S A K L T V Y S CA E A T E S WR K D Q F GP GRA I



## UniRef90_C7RET2 UniRef90_19KWZ4

 UniRef90-STS6A9 UniRef90-R6UJK4 UniRef90-D1AQQ4 UniRet90-S4ZZM8 UniRef90_C5F7B0 UniRef90_O045GOUniRef90_S4CRP6 UniRef90-F4FRD1 UniRet90-B9Y8Y8 UniRef90-K8WMJ8
UniRef90 B9YEB7 UniRef90-B9YEB7
UniRef90-R5IV46 UniRef90_UPIO00470435E UniRef90-E7GA62 UniRef90-S4CGZO UniRef90-W7BN81 UniRef90-C5EEU6
UniRef90 A1AGZ3 UniRef90-UPI000288ACFA UniRef90-R6VK00 UniRef90-D3QEZ7 UniRef90-B9Y3G0 UniRef90-X2H4F1 UniRef90-S4ZJC1 UniRef90-B9Y4S5 UniRef90-R5FHW1 UniRee90-UPI00037F6A31 UniRef90-V5S8Q2 UniRef90-D1AFD4 UniRef90-R6V168 UniRef90-A1RZ66
UniRef90-R5ZSX9 UniRef90-H1AQJo UniRef90-18SCC2 UniRef90-B9Y327
UniRef90- 21617 UniRef90-UPI00037E59C3 UniRef90-UP10002DC48F5 UniRef90-G9R710 UniRef90-C7XVA6 UniRef90-01Z3R2 UniRef90- ${ }^{-2 H 394}$
UniRef90 E7ML49 UniRef90-E2SQV2 UniRef90-R2QOP8
UniRef90 F5WRM UniRef90-UPI00028A2076 UniRef90-V9HCF9 UniRef90-H3NQ82
UniRef90 R9IUV5 UniRef90-Q3A383 UniRef90-UPIOOO3B44238 UniRef90-F2N8E9 UniRef90-B9Y3A8 UniRef90 UPIOOO3737384 UniRef90-D6Q6C6 UniRef90-D4JNA8 UniRef90-R7D7T7 UniRef90-UPIO002DF5BA4 UniRef90-UP10004638613 UniRef90-R2QUV4 UniRef90-C5ESZ5 UniRef90-17689 UniRef90-R2T4S4 UniRer90-S4ZZH5
UniRef90-FOGW89 UniRef90-R5UEB9 UniRef90-EONHNO UniRef90 UPIOO003785FD0 UniRef90-UP10004073DDA
UniRef90-E3G113 UniReffo-E3G113 UniRef90-R6ZH80
UniRef90_R6PRA8 UniRef90-R5Z810 UniRef90-UPIO003472DE3 UniRef90 UPIOOO34B7582 UniRef90_G2MTU0 UniRef90-D5GYM7 UniRef90_R7PG15 UniRef90-F3Z3C1 UniRef90-E4L529 UniRef90- E2NP37 UniRef90-UPIO0046EB8A3 UniRef90-R6UHRO UniRef90_R7GMQ3 UniRef90-S4ENP4


 IVK DP E D AL K L VA G GV P I H E M N I G NI H N A P G K E K I T R S I F $V$ V E S V E D A A K L V R A V P P A V
 L V K GP E A L N Y L V D A GII HI E E I DVVG GMGSRKNRSVLIYKNI S I VKEP HY I LDDLI NA GI EI P KVVNVGALFEEGDRKPYTKRVA



 L F S S L A D ARRA Y E S G F R F E E L N I G N I Y H E P G K I H CA R S I H



 LVR GPK QALY LI D S CSDVK S I NVGNINMKK GKRKM L G N C W
 I F A N V Y T P L R L I E N QV P I QLL N L G G DR F HE G S R Q F T K A V F




 $L V K T P Q V I L T L L N N G V K L E Y L N V G G M G M K A G R S K L Y K N I A$

 LAKVPESFLTVIETGLPLEKI II GGMGANTKRTKFYKNI S


 V F K N V K E L K E S Y D N G L P LIK E V DVVG G A A K K P D TVVQP I G D V S

 I L T E K LT Y A R R L M K GCNI H K L N L G GIMMPTETSNKLNDAV Y
 LFKDPENVVDDADKA GFKMDELQVGNMGSSPGKKLVYKTVS $V$ VK DCKD ALRRLAE GGFPDEKLNVGNDHATA GKEKVS QFIV I T E T I K K DA K K L DD NV D S I K E L N L G GA K K T Q N S K Q I G K S F Y





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



 LVK S PLVLKRLF DRGLKIHTINLKNVSKRDDRRTILPGIAA

 $L \operatorname{F} R N$ I
 LI K DV T T A Y R L WK Q GFPMES L QI GNLTP QKK TKILLHR S SR


 L CNSPVPDLQMARAGFTVDHVTLGNISSREGSKQDARTAY

 V CKTPEDALKLAA G GVPVKEI NVGNDH HAPGKEEVSKYIA








## UniRef90_D6SSF8

 UniRef90_J0KWZ8 UniRef90_D4G7R3 UniRef90_V1WV94 UniRef90_H1BFD1UniRef90 R6ULD2 UniRef90_R5Z9B9 UniRef90_G5I9R9 UniRef90_UPI0002F4F4EB UniRef90_D2ELN7 UniRef90_F4LWW2 UniRef90_K6P7H0 UniRef90-E6VWJ3 UniRef90-R5ZRM5 UniRef90_XOPCX7 UniRef90_C0D451 UniRef90_UPI00046841AA UniRef90_D2ELR1 UniRef90_A4ED00 UniRef90_C7H643 UniRef90_R5QTP5 UniRef90_S0L7H5 UniRef90-F4EG30 UniRef90_WOHWH5 UniRef90_UPI00037EEEFA UniRef90_S4D7A6 UniRef90_UPI0003B6FCBB UniRef90_B3W833 UniRef90_C5R8R1
UniRef90 R6SUX8
UniRef90-E2SIJ9
UniRef90-R6RUC3 UniRef90_R6QTK1 UniRef90_F0ELM1 UniRef90_UPI0004638995 UniRef90_UPI00035E3226 UniRef90_C8X383 UniRef90-R3FDQ0 UniRef90_D1APL3 UniRef90_UPIO0046D5ECE UniRef90_C6JBS8 UniRef90_G2MTU9 UniRef90_B9Y2K4
UniRef90_F1T439 UniRef90_J6XTM9 UniRef90_Q8RFQ7 UniRef90_S0LGH9 UniRef90_B6WRA7
UniRef90_D5E5I8 UniRef90_UPI00035FC161 UniRef90_C2BHA7 UniRef90_G7MDD1 UniRef90_F2NB27 UniRef90-X0PP11 UniRef90_UPI00029A515E UniRef90 UPI0004660CE UniRef90_C7T9L7 UniRef90_Z4WY56 UniRef90-C8NF82 UniRef90_UPI00047A55CC UniRef90_K6R3J5 UniRef90_UPIO004693CCE UniRef90_C1A8G1 UniRef90_E1NYG7
UniRef90_B9YDF7 UniRef90_R3WQA5 UniRef90_R6VMG5 UniRef90_UPIO002DA0E66
UniRef90-D6S2W8 UniRef90_S0KBB7 UniRef90_F2NAX2 UniRef90-E2NV97 UniRef90_Z5U9L8 UniRef90_WOI093
UniRef90 UPI0004 UniRef90_UPI0004713070 UniRef90-UPILFO UniRef90_UPI00035C34AB
UniRef90 C7LT48 UniRef90_E3CQQ9 UniRef90_R6UB37 UniRef90_T2GDH0
UniRef90_UPI00030D83B3 UniRef90-W1Q2R1 UniRef90_B1H086
UniRef90_R6QSP7 UniRef90_UPI00047A82EB UniRef90_C6JMK3 UniRef90_G5HBX9


|  |  |
| :---: | :---: |
|  |  |
| UniRef90 Jokwz8 | EPEDAKRLYAGGVTVDTVN1GALSFDKTKVMV |
| UniRet90_D4G7R3 | FKNVDQVFKAVEKGFKI DELU |
| UniRef90-V1WV94 | VKTPMVVNELIAEGLEISEINVGNMGSKNGRAKYATTLW |
| UniRef90-H1BFD1 | MLRNPATALALCNLGFHIDTI NVGNDSNATGRKK |
| UniRef90-R6ULD2 | VCEDPGVFLRLQEAGQKIPRIVI |
| UniRef90-R5Z9B9 | IVFGNTAEMLQFC QGYKLDAI NLGATANHDGADQV |
| UniRef90-G519R9 | $V A K N P K T R G L L D H G F Q M E A V N V G N M G G K Q N$ |
| UniRet90-UP10002F4F4EB | VKEPSTLVRLLDSGTDTPSVNLGUVAD |
| UniRef90-D2E | GDVLQAGQIVPLLEGVKEI NYGGVKNP |
| UniRef90-F4LWW2 | KNLYLVKFMHQKGVKLKEINIGR1PSGPGKKK |
| UniRef90-K6P7H0 | PDLKTLKQVIDAGLYEGEVQIGGLGGGPQRKV |
| Ref90-E6VWJ3 |  |
| UniRef90 R5ZRM5 | V SKDIETCLKLVEKGVELPAI NVGAVP |
| UniRef90 WorJz4 | TGDTDTMARLIEGVPGIAAVNLGGVHHRVGRAQ |
| UniRef90-C0D451 |  |
| UniRef90 UPIOOO46841AA | LTNNVSDALKUAQNVSDTDGTNVANVGRFADKHQVGSTLM |
|  | K P |
| 90-A4 | NYVR LAEGVK |
| UniRef90-R5QTP5 |  |
| UniRef90-SOLTH5 | K |
|  | $V 1 \mathrm{~K}$ L L DALTLVKGGVPITELNIGNIHNAPGKTQVTRSIF |
|  | NAIALL SLAEAVPAIRKVNVG |
| UniRef90_UPIOOO37EEEFA | NVQELDKAVKAGLKLEEVQ1GGLGGGP |
|  | VKPPETVVKLYESGADFPQLNGPMSARENAKK GP |
| UniRef90- B3W833 |  |
| UniRef90 C5R8R1 | PQTFSQLVDMGVDFQKLNVGPMNTRPDTKVLGNT |
| UniRef90-R6SUX8 | R P G |
|  | LFKSVEDARSMQKRGFPMKALQI G |
| UniRef90 R6RUC3 | VENIEGAYRLVKE GIKELNLGG |
| UniRet90-R6QTK1 |  |
|  |  |
| UniRet90-UPIOOO4638995 |  |
| UniRef90_UPIO0035E3226 | LVSNCADARRAYDLGWSYDDL |
|  | NPFDLKK\TDSGTEDDTVYI GGMRASEERTR |
| UniRef90-D1AI | LFKNTKDARDTVDLGIPFKQVQVGG |
| UniRef90_UP100046D5ECE | HPRQG |
| UniRef90-G2MTU9 |  |
| UniRef90-B9Y2K4 | SPKTFL |
| UniRef90-F1T439 |  |
|  | EPETILLHLVENGIIELDRLIVGGTMVKEN |
| UniRef90 Q8RFQ7 | VES |
| UniRet90_SOLGH9 |  |
| UniRef90 D5E518 | VIQSITEDTYKLFKGGIPFEEINIGNTHTRDDRER |
| UniRef90-UPI00035FC161 | VIRYPILLKKIYEMGIKFEFVNI GNVSKKEGGEE |
| UniRef90-C2BHA7 |  |
|  | LLTNPIDVLHLVEGGCEDCELNLGGMKFGQNRRQ |
| UniRef90-F2NB27 | DPANLLEVFKA |
|  | NNPQDARFVETGVKPVL GNFGRAANKKKYT |
| ef90 - Ploooza 515 E | VENVDAMR M |
| UniRet90_UPIO004660CEC |  |
| UniRef90-Z4W | VFGNTKELLEFSKQH QFDEVNYGATANVDGA |
|  | S |
| UniRef90_UP100047A55CC | LVGD GTMQRLVTAAGQVRTVNVGG |
| UniRef90-UPIOOO4693CCE | IVIKSPVTLQRIEEAGIVGLRKMNVGPMA |
| UniRef90-C1A8G1 | LVGDDGTMLRLVTATGRIRTVNVG |
| Ret90-E1NYG7 | VAKRPKEFLDLI DEGVKI DSI NVGTMSQTNTTQMITKQI N |
| UniRef90_B9Y | N |
| UniRef90-R3W | LVPDLPTLEAMVNANVIENDIQ G |
| UniRef90-R6VMG5 | VSor |
| UniRef90-D6S2W8 | IVVGPGNDRPGA |
| UniRef90-B8DJQ7 | LFATCADARRAFDAGVGMSTLNI GNL |
| UniRef90- ${ }^{\text {- }}$ OKBB7 | LFKSTPMVLKAMTTGIKFERLQIGGIGGGPDRT |
| ef9 | LFKNVESLQRALLKAGVKLDSVQVG |
| UniRef90-E2NV97 | G |
| UniRef90_W01093 | ANYGRITDKTR |
| UniRef90 UPIOOO4713070 | IVRSPETLVRUFESGVDFKELNVGPMSVREGAKKY |
| UniRef90_B8IZF0 | LFGNCRDARRANDAGVIMETLN GNLHYGPEKTQV |
|  |  |
| UniRef90_C7L | DCADAKSAHMTGLS S SLl |
| UniRef90-R6U |  |
| iRef90--T2GD | A |
| UniRef90-UPI00030D83B3 | T |
| UniRef90-W102R1 | DLQSVAAGIKIPYINIGNLDMSPGKR |
| UniRef90-81H086 | G |
|  |  |
| UniRef90-UP100047A82EB |  |
|  |  |
|  |  |



UniRef90_UPI000466B77C UniRef90_B0MHQ9 UniRef90-D8I883 UniRef90_UPI0003FBC832 UniRef90-UPI0003B69B99 UniRef90_S7UEN5 UniRef90_C0CTK1 UniRef90_G5ILK5 UniRef90-S2RCH6 UniRef90_R6VS40 UniRef90_R4KAD1 UniRef90_A8GJT4 UniRef90_UPI00037B061A UniRef90_W1U4M6 UniRef90_A6LXG7 UniRef90_E7MQ63 UniRef90_H8LBN8
UniRef90 R9LSX8 UniRef90-T4NJ92 UniRef90_U2V2W3 UniRef90_M5ACZ4
UniRef90- 3 BTT8
UniRef90-R6Z6I2
UniRef90_UPI00036642A4 UniRef90_K6Q6B3 UniRef90_R6QFP2 UniRef90_R2NVG3 UniRef90_UPI000467CDD9 UniRef90_UPI00030964B4 UniRef90_V6Z267 UniRef90_U5F8C7 UniRef90_UPI0003B4D657 UniRef90_UPI00024934BC UniRef90_D4MZ50 UniRef90_H3NQSO UniRef90_S4CUR3 UniRef90_UPI0002DAC898 UniRef90_UPI0002E82434 UniRef90-X8HRQ3 UniRef90_R7G8Q8 UniRef90_UPI0004674654 UniRef90-TOU6C5 UniRef90_R6QLE7 UniRef90_UPI00035C6F05 UniRef90_R7GN62 UniRef90_U5F2M3
UniRef90 R6UY57 UniRef90_U5FAP6 UniRef90_A8UCE7 UniRef90-V5P4D6 UniRef90_C2BGY2 UniRef90_D4JCG3 UniRef90_C8ZWX6
UniRef90 G1WH60 UniRef90-D1ANP6 UniRef90_UPI000379AD46 UniRef90_S0S6H4 UniRef90_DOHFP4
UniRef90_C9XJ60
UniRef90-R5QU07
UniRef90_UPI0004712C32 UniRef90_R2RLF7 UniRef90_UPI000464F7D6 UniRef90_R5QY61
UniRef90_E1QZE9
UniRef90_UPI00038053C7
UniRef90_C7HB11
UniRef90_Q310S3 UniRef90_G7M715 UniRef90_Q832F8 UniRef90_V3XIE3 UniRef90_UPI00046791E7 UniRef90_B7CD77
UniRef90 E6U319 UniRef90_-R6UWG4 UniRef90_R5ZHU8 UniRef90_I6TN35
UniRef90 B1MYG4 UniRef90- F8IP35 UniRef90_UPI00046E93C6 UniRef90_UPI00036789F3 UniRef90_R8VSA1 UniRef90_R2PZ85 UniRef90_M5J4J4
UniRef90 F0K3U8 UniRef90_SOLLH2 UniRef90_UPI00029B0771 UniRef90_R2RER3


30 $K \operatorname{L} A$ L V R I D N R L I H GQTCTRWALE YPCDG|l

V $\mid$ A $\mid V D$ N A A N N P
 $N 1$ VLTRIDDRLI HGQVATMWSSSVGANLLLVANDEVAGNE
 WV R V D N RLV H G QVVETVWLP YT GATTVIV A N DK VA E DM


S

E E$V$ V LA R V D S R L M G G
I KLA RVDDNRLLH GQVATVWTKTVKPNRILVVSDAVAQD Q
N

$\mathrm{E} \| \mathrm{Q} |$| A | R |
| :--- | :--- | :--- |

N K VR D SRL
N

 ..... | $T$ | $Q$ |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $K$ | $R$ | $V$ | $D$ | $D$ | $R L$ |
| $L$ | $I$ |  |  |  |  |

SI H GQT TTMRWSK A R D L H G F

| 1 | $T$ | $L$ | $V$ | $R$ | $V$ | $D$ | $D$ | $R$ | $I$ | $I$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $I$ | $A$ | $L$ | $T$ | $R$ | $V$ | $D$ | $F$ | $R$ | $L$ | $I$ |
| $I$ | $N$ | $L$ | $I$ | $R$ | $L$ | $D$ | $E$ | $R$ | $M$ | $I$ |
| $I$ | $K$ | $L$ | $I$ | $R$ | $L$ | $D$ | $E$ | $R$ | $M$ | $I$ |
| $I$ | $K$ | $L$ | $C$ | $R$ | $V$ | $D$ | $H$ | $R$ | $L$ | $L$ |$\begin{array}{llll}H & G & Q & A \\ H & \text { A } & K \\ V & V & T & K\end{array}$$\begin{array}{lllll} & \\ R & L & T & P & G \\ G & V & N & R \\ G & Q & A & N & R\end{array}$

$H$ G
$H$
$H G Q$
$H G Q$H GQVI TK WMPP $\quad$ IT G A S K K T
G QV ALVWTKHLLGVNRI IVAND DVVエエH
SI E

H GQV AMTWTK
K HH G
H G
H
GQMAL A WL K K T Y G A A D R

$\vee \frac{V}{T}$ | T | 1 |
| ---: | :--- |
| V | A |

VANDAAAAN
V
V TII D N E L L A K D P
$V$ VANDDAAGDP

IV
ㄴ
M V
I
HGQI T T R WAKEVVPCD GI I AVV N DKAH D N P
H G QVA 1 S WS N HL G $\square \mathrm{N}$ T I ANDEVKNDK
VADDKVPNDP
$V A N D E A A N D E$

$V$ VS D D L A N D DA V D D K A Q D PA V DK A Q P| $A$ | $V$ | $N$ | $D$ | $K A A N P$ |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $V$ | $A$ | $D$ | $D$ | $E$ | $L$ | $K$ |
| $N$ |  |  |  |  |  |  |

    VK Y CRCDD R LIH GQVIVK WVK HLGGVKKVVVVDDETTNDV
    I SMM R ID D RLI H G QV A VM WSK ELLGIS R I I V A S DADA S N E
    $K I V L T R I D N R M I H G Q V A S G W I G K S N A G K I V V V D T V T A D N E$
$V$ NLARIDERLI H GQVMVT LS QKS GVNSIVVVDDIVAQDK

IS F V RI D D RMI H GQTVVTRWS LIEYPCRDGI I AVNDAAATN P


IV S L RI D E RLI H GQQVAMTWSKSLQIDGIIVANDETANND


I KMMRIDDRLI HGQVAVVWSKHLGVNRIVVANDEIVNNE


$K$ I K MV R I D Y R MV H GQil VA K WI K FRPVDRLILADDALVD D

SI SF VRIIDDRII HGQTVTRWAKEYPCDGLIAVNDAAATNP
$N \mathrm{II} \mathrm{I}$ TRVVERLI HGQ GQ LWWIKFLNCNTVIVANDAVAEDK

S I S
I S F L R CD D R II H GQVVTRWAMERQCDGLI AVNDKAAKDP

SVSFLRIID DRMI H GQTCTRWALEYPCDGII AVNDAAANNP



UniRef90_UPI000466B77C UniRef90-B0MHQ9 UniRef90-D81883 UniRef90_UPI0003FBC832 UniRef90-UPI0003B69B99 UniRef90-S7UEN5 UniRef90_C0CTK1 UniRef90_G5ILK5 UniRef90-S2RCH6 UniRef90-W6N570
UniRef90-R6VS40 UniRef90_R4KAD1 UniRef90-A8GJT4 UniRef90-XOPRC2 UniRef90-UPI00037B061A UniRef90-W1U4M6 UniRef90-A6LXG7 UniRef90-E7MQ63 UniRef90-H8LBN8 UniRef90-R9LSX8 UniRef90-T4NJ92 UniRef90_M5ACZ4 UniRef90_E3BTT8
UniRef90-R6Z6I2
UniRef90_UPI00036642A4
UniRef90-K6Q6B3
UniRef90-R6QFP2
UniRef90-R2NVG3
UniRef90-UPI000467CDD9
UniRef90_UPIO0030964B4
UniRef90-V6Z267
UniRef90-U5F8C7
UniRef90_UPI0003B4D657
UniRef90_UPIO0024934BC
UniRef90-D4MZ50
UniRef90-H3NQSO
UniRef90 S4CUR3
UniRef90_S4CUR3
UniRef90_UPI0002DAC898
UniRef90_UPIO002E82434
UniRef90-X8HRQ3
UniRef90-R7G8Q8
UniRef90-UPIO004674654
UniRef90-TOU6C5
UniRef90-R6QLE7
UniRef90_UPI00035C6F05
UniRef90-R7GN62
UniRef90-U5F2M3
UniRef90-R6UY57
UniRef90-U5FAP6
UniRef90-A8UCE7
UniRef90_V5P4D6
UniRef90-C2BGY2
UniRef90-D4JCG3
UniRef90_C8ZWX6
UniRef90-G1WH60
UniRef90-D1ANP6
UniRef90_UPIO00379AD46
UniRef90-SOS6H4
UniRef90-DOHFP4
UniRef90_C9XJ60
UniRef90-R5QU07
UniRef90-R5BSC6
UniRef90_UPIO004712C32
UniRef90-R2RLF7
UniRef90_UPIO00464F7D6
UniRef90-R5QY61
UniRef90-E1QZE9
UniRef90_UPIO0038053C7
UniRef90_C7HB11
UniRef90_Q310S3
UniRef90-G7M715
UniRef90_Q832F8
UniRef90_V3XIE3
UniRef90-UPIO0046791E7
UniRef90-B7CD77
UniRef90 E6U319
UniRef90-E6U319
UniRef90_R6UWG4
UniRef90-R5ZHU8
UniRef90-I6TN35
UniRef90 B1MYG4
UniRef90-B1MYG4
UniRef90_UPI00046E93C6
UniRef90_UPI00036789F3
UniRef90-R8VSA1
UniRef90-R2PZ85
UniRef90-M5J4J4
UniRef90-FOK3U8
UniRef90-SOLLH2
UniRef90_UPI00029B0771
UniRef90_R2RER3

V LK A A YKA
50
60
60
70
80 MMRD I L S L A VP GKKT FIWTMAD WKKKCQKVLDNDNYF|L LQRMLLPQAAR

## 



















 FRSKVI KEMAPQGLI IVHVYGIDRATEKLKEAFDGERVIV



 VKLK A A YKA A A





I S V M A L N I A A K P V D C C E L S I I P F S Q L K E L V E E K Q


 I AKGLIKMAA PKNIDDLSILTVSESRRYFYNNQADDNVVV
 FMRDLKYKNAGSRTGKKTVVVTMDRAKHYWDEYEFD YN CIL





 MQMMTVKMAVPQ NDKAIIKNVDDSDKLLNDPRAESNI LVV



 VLK L AF K S
I Q Q S L M K

 LIK QALKA SSDKKTFVWTMEQFLSKMHEAEKSAKNYF
 V LK A A YK S A A

| $F M$ | $V$ | $F$ | $K$ | $M A$ | $A$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $V$ | $R$ | $A$ | $L$ | $R$ | $L$ |

UniRef90_UPIO00466B77C UniRef90_B0MHQ9
UniRef90-D81883 UniRef90-D8I883
UniRef90-T0E9R0 UniRef90 UPI0003FBC832 UniRef90-UPIO003B69B99 UniRef90-S7UEN5 UniRef90_COCTK1 UniRef90-G5ILK5 UniRef90-S2RCH6 UniRef90-W6N570
UniRef90 R6VS40 UniRef90-R4KAD1 UniRef90-A8GJT4 4 UniRef90-X0PRC2 UniRef90-UPIo0037B061A UniRef90 W1U4M6 UniRef90-A6LXG7 UniRef90-EMLQ63 UniRef90-R9LSX8 UniRef90- T4NJ92 UniRef90-U2V2W3 UniRef90-M5ACZ4
UniRet90 E3BTT8 UniRef90-E3BTT8
UniRef90
U6Z612 UniRef90_UPI00036642A4 UniRef90-K606B3 UniRef90-R6QFP2 UniRef90-R2NVG3 UniRef90-UP1000467CDD9 UniRef90-UPIO0030964B4 UniRef90-V6Z267 UniRef90-U5F8C7 UniRef90-UPIO003B4D657 UniRef90-UP100024934BC UniRef90-D4MZ50 UniRef90-H3NQSO
UniRef90 S 4 CUR 3 UniRef90-UPIO002DAC898 UniRef90-UPIO002E82434 UniRef90-×8HRQ3 UniRef90-R7G8Q8

UniRef90_UPIOO04674654 | UniRef90-TOU6C5 |
| :--- |
| UniRef90 $\mathrm{R} 6 \mathrm{QLE7}$ | UniRef90-UPIO0035C6F05 UniRef90 R7GN62 UniRef90 U5F2M3

UniRef90 R6UY57 UniRef90-U5FAP6 UniRet90-A8UCE7 UniRef90-V5P4D6 UniRef90-C2BGY2 UniRef90-D4JCG3 UniRef90-C8ZWX6
UniRef90-G1WH60 UniRef90-G1WH60
UniRef90-UPI000379AD46
UniRef90-SOS6H4
UniRef90-DOHFP4
UniRef90-C9XJ60
UniRef90-R5QU07
UniRef90-R5BSC6
UniRef90-UPI0004712C32
UniRef90-R2RLF7
UniRef90-UP1000464F7D6
UniRef90-R5QY61
UniRef90-E1QZE9
UniRef90-UPIOOOO38053C7
UniRefto C7HB11
UniRef90-Q310S3
UniRef90-G7M715
UniRef90-Q832F8
UniRef90-V3XIE3
UniRef90-UP100046791E7
UniRef90_B7CD77
UniRef90 E6U319
UniRef90 - E6U319
UniRef90-R6UWG4
UniRef90-R5ZHU8
UniRef90-16TN35
UniRef90 B1MYG4
UniRef90-F81P35
UniRef90 UPIOOO46E93C6
UniRef90-UPIO0036789F3
UniRet90-R8VSA1
UniRef90 R2PZ85
UniRef90-M5J4J4
UniRef90-FOK3U8
Unirer90_SOLLL2
UniRet90_UP100029B0771
UniRef90_UPlooveng
UniRef9O_R2RER3



## UniRef90 SOKSP8 UniRef90-G4L7L3 UniRef90 UPIOOO37BFB7A UniRef90_C5EPN-UniRef90-R5K3U8 UniRef90-C7HWKO UniRef90-R7QX94 UniRef90-K8QTQ8 UniRef9-S7V6E3 UniRef90-F218T5 UniRef90 E8ULW0 UniRef90-Q2LSZ2 UniRef90-BOMHG6 UniRef90_KONZBO UniRef90-UPIO00476A75B UniRef90-UPIOOO2196938 UniRef90-G1VPB6 UniRef90_19KXC7 UniRef90-B5Y9Q3 UniRef90-C5VTM <br> UniRef90-U2VCV7 UniRef90-UPIO002EFE2F7 UniRef90-VORCI7 UniRef90 U6V224 UniRef90-D1APR1 UniRef90-UPIO003B64702 UniRef90-17LPS4 UniRef90_BPYBF1 1 UniRef90-R2SK56 UniRef90-UPI0003AACFEO

 UniRef90_COD8U9 UniRef90-C2BF35 UniRef90-FOGX68 UniRef90-R2Q8X2 UniRef90-UPIOOO3709F23 UniRef90-B9Y4H8 UniRef90-UPI0002194B64 UniRef90_UPIOO041652E3 UniRef90-U6Z0K1 UniRef90-COD3K7 UniRef90_UPI0002F9BB04 UniRef90-B1CAIO UniRef90-V4FCM3 UniRef90-B6GAC6 UniRef90-D4JFT2UniRef9O-H3NQH3 UniRef90-BgY443 UniRef90-R7G6U9 UniRef90_R5Z3N9
UniRef90_F2N6YO UniRef90-UPI00036C55E4 UniRef90-G5F589 UniRef90-C8W8E9 UniRef90-G5KDJ6
UniRef90_R6UQG8 UniRef90-UP10002E38CAF UniRef90-UPIO002 19741A UniRef90-X0PMK2 UniRef90_U1WR53 UniRef90-X1L526
UniRef90 B4ULF2
UniRef90-14C2R5 UniRef90_G9WG23 UniRef90-B5Y677 UniRef90-R9LVZ7 UniRef90 WOHMY1 UniRef90-UPIIOO2F1BA10 UniReffo-GOX1X3 UniRef90 BgY4e9 UniRef90-A4EBS7 UniRet90-D9R7C1 UniRef90_B9Y635 UniRef90-H1AJG4
UniRef90 UPIOOO4 UniRef90-UP100047AA3D5 UniRef90-F4LX63 UniRef90-R7G9Y5 UniRef90-JoLovo UniRef90-H1B4T8 UniRef90-UPIO0036BF19E UniRef90-D7V6R3 UniRef90-Bopo47 UniRef90-U1Y6T11 UniRef90 D4JGD2
UniRef90
B9Y474 UniRef90- BgY474
UniRet90 B9Y495 UniRef90-R6UV26
Uniref90_K6RV62


## UniRef90 SOKSP8

 UniRef90 G4L7L3 UniRef90_UPI00037BFB7A UniRef90-C5EPN7 UniRef90_G2TJ85 UniRef90-R5K3U8 UniRef90-C7HWKO UniRef90_R7QX94 UniRef90-K8QTQ8 UniRef90-S7V6E3 UniRef90-F218T5 UniRef90-E8ULW0 UniRet90_Q2LSZ2 UniRef90-BOMHG6 UniRef90_KONZBO UniRef90-UPIO00476A75B UniRef90-UPIO002196938 UniRef90-G1VPB6 UniRef90-19K XC7 UniRef90-B5Y9Q3 UniRef90-C5VTM7 UniRef90 U2VCV7UniRef90 UPIOOO2EFE2F7 UniRef90-VORCI7 UniRef90-R6V224 UniRef90-D1APR1 UniRef90-UPIO003B64702 UniRef90-17LPS4 UniRef90-B9YBF1 UniRef90-R2SK56
UniRef90-B9Y4G3 UniRef90-UPIO003AACFEO UniRef90-COD8U9 UniRef90-C2BF35 UniRef90-E7UF05 UniRef90-FOGX68 UniRef90_R208X2
UniRef90_UPIO003709F23 UniRef90-B9Y4H8 UniRef90-UPI0002194B64 UniRef90-UPIO0041652E3 UniRef90-U6ZOK1 UniRef90-COD3K7 UniRef90-UPI0002F9BB04 UniRef90-B1CAIO UniRef90-V4FCM3 UniRef90-B6GAC6 UniRef90-D4JFT2
UniRef90-H3NQH3 UniRef90-BgY443 UniRef90-R7G6U9 UniRef90-R5Z3N9
UniRef90 F2N6YO UniRef90-UPIO0036C55E4 UniRef90-G5F589 UniRef90-C8W8E9 UniRef90-G5KDJ6
UniRef90-R6UQG8 UniRef90-UP10002E38CAF UniRef90-UPIO00219741A UniRef90-X0PMK2 UniRef90_U1WR53 UniRef90-X1L526
UniRef90 B4ULF2 UniRef90-14C2R5 UniRef90-G9WG23 UniRef90-B5Y677 UniRef90-WOHMY1 UniRef90-UPIO002F1BA10 UniReffo-GOX1X3 UniRef90-B9Y4E9 UniRef90_COD454
UniRef9O_A4EBS UniRef90-D9R7C1 UniRef90_B9Y635 UniRef90_H1AJG4 UniRef90-UP100047AA3D5 UniRet90_C5EKW9 UniRef90-F4LX63
UniRef90_R7G9Y5 UniRef90-JoLovo UniRet90-H1B4T8 UniRef90-UPIO0036BF19E UniRef90-D7V6R3 UniRef90-BOPO47 UniRef90-U1Y6T1 UniRef90 D4JGD2 UniRef90-BgY474 UniRef90-R6UV26 UniRef90_K6RV62

II AKTPETTVIRLYDAGADFTSCNVIGPMSAREGAKK|IGPNV|A 1 VNSVSDATKIAQNVESIESVNVANTGRFDSKTMLFPSVQ TKNPVDMKLLVDQGFDVKEIVVGPCNDRPGAVKLGNNQS FQNDDTAKRCYDQGDGYRSINI GQVPKMADRYHANNTCH LVTTVKDAVTICERFQDDELVNIGNAGKMTDGEKDTKEVM ICETVEDAKAI DEATGEKTLNIGNDAYHENAKLYGRSAY VAKSIDVFYKLI KHGVEVCELNVGGIAKKENDKLVGKSAY ITKTDEDMGTLIENGVEDKTVDIGGRAPQSGMMTIDNEVG LFATCIDARRAYEAGLHFSSINI GNLHYSPGKKQUCAHVA IVNKVSDAYQTAKAVENTEAVNVANVGRFDEKVAPFSSVQ VVRDISVIVKLVERGVFLPKI QLGIIFEREDRERFTKSVS LFSCISDAVRAYESGFHFHHLNIGNVYSEHCAMTCLPSIL KVKDVERAYTAFMNGFRYQELQI GCIGGGPGRTNLVGPVC ITKSPLDMKKПGFKPSDVKVVNVGPGNDRPGAIKLGDNQS I VKHPESARKILEQYQGMAEI NMGNAGMAAGRSKLSSSVY LVRTVSDAEAVAEKVSGDEYVNGGNVGKTDPKTTLTQFVM VMNDPVQVEKLEKGGVNVNKITLGPVSQEEGRTLLEAQFTA IVRYIPAAWELVRSGLKPARVNDGNVAKKRDVSQVTHTIF IVNKVSDATKUAKNVKDDETVNVANKCDPKDKVMVFPSVQ IFKNVDSCYKAVENGLILEEINVGASESTSERKQIIGGVS
 LVETPKDALRII RSVPGIQHLNVALMKGGPGKKMVCPSLA VITKVTMAKLLVDNGVNVQTLNVGPQSARGNTMYVNKNCD LVDNPKDALALVNA VAPLEIVVNVANFTKKDHKLQLITHACS VMKNPVDAARLLQKIEDIJERINIGNSGDKGDRMMMTKEVY LWGNIKDAYDTLQAGLKFDFI ALANDPGEVGAVQVNASCY LVSTVAAEALVSQCPETRRVNVGPGRVTEGKVEVSDGVF
TVANCQDARRACDDGIEMPVLNGNLHGPDKLQLLPHVA LVSTPVDAARVCKGVNGDERLTVGGVRKKAD YITDNLN VIDSPQNFAEI LKMGGDFKVLNIGPMNTRPGAKVLGKTTA ICRTPQTVRKLVEGGDDLKDVNVGNMHFSEGKKQUSSKVY FRDVATAKRIFDANVELAELNVGAVPSAKERHSTTQGVA
 VTETVEDACYLWERVKGVVKLVIVGNKKPGEDYUPTLPQVIN LFKSTADAKATLDAGLVFPNLQIGGLGSGGGKTSVVRGIS LVRTVADAVRLAEMIGKDNYVNI GNVGKQDQKKTLTQFVM VI ETMAELLVDWGMKVNTKTLNI GPQSAKKDTVRVSKNAD VVRTDDTLLNDAENAKDVKEINVSNYGRGKERKGYTDHLF IFKSI EDAYNAYEKGLNFTSLQLGWTNPKKGRERDDQSLC LFSNIADACDAYHRGFHFDKLNNGGVYNNEYKVCCSPSVF ITKNPIDMKILVDDGFDVKRVVI GPCNDRPGATKLGNNQS IVDNPKDAVALVKA LPI TEVNVANYKKSANKVNLTRGVN IVENFADMWQI HE LDSI HSVNI GGLRNKNNSLILNRFVI TKNPVDMKEGLVDDGFDIKTVIVGPCNDRPGTTKLGNNQS LTKNPDDMKRLVDQGFELDRVCVGPCNDRPGADRLGNNQS ITKNPLDMKRIDEKFVPVKSVVVGPCNDRPGTTKLGNNQS TKNPVDMKKDLVDFGFKINTI II GPGNDRPGAVKLGNNQS LVNSVADAYK AKSVPLIEGINVANVGRFDTKDKVSSTGL LVKDPIIALELQKNCVLPKALNIGPMSNRKGTKKATYFSY LVRNPESMLKLLNLGLVLSEIVNLGNISMTKGRKMLLKNIH LTSNVKDALE:VKNCDEVGSVNVANIGRGEERVRLNSSLF I ARDPQTFLDLVEQGQKDPVLTLGLTELDPPEGPGYKAAF VGSTREAFNLLMQGLK LVRDVPGLAAARDAGLGAPRVNLGNLHFGPGRRLVTPSVF LVDNPLDALRLKKLGVNFDRLNLGNLTANSAVASLSRSVI ITKNPLDMKTVKFKPSDVKTVNVGPGNDRQGSDKLGDNQS ITKNPVDMKILVDMGFDVKRLIIGPCNDRPGATKLGQNQS LFKSIGNVRHLMSRDIVFKEVQVGGLGGGVNRRSVVNGIS I TKKLQTYQRLQETGVRIKALNIGATAQMKERTVLSKFAS LTKTIGDMKALVDAGL LDEFNVGNDSKQEDSVQVKKSVE LVGSIENAWQI AAACPGI RRVSIGAVRQHRGSRACSPHI Y VVGNVHDACEVARACPKITSVNLGGARPGDSVKELGPAVR VITKTPMAELLVDYGLKKNTLNVGPQSARQNTDQVNKNAD LTRNVKDALKLVKSCKEICEVNLANAGDSDMGEKINNRVS V TTKMKKVLIDDQDKDDLDMVVCGPANDRDGSTKLGNNQS $I T K N L K D A Q F V I E G G H A I S D V L L G G L R S G E G K V Q I N M N S Y$ IVKMPEVLTALKEEMGGAKAIMLGNLAKKEDSRHANGDFY IVKQPSKLKELEESGLCCEQLVLGNLAKRPDTDKVSGAFY I TKNPQDMKDLKFKPSDVKTV VVGPGNDRENADKLGDNQS ILTNTVKDAYELVKHCPNIQAVN:GNVGRFDGDPMSDKTDY VVRNFKDALEI AKNVKNIEQVNVGNYNKHKGKKKIDATVE TKNSVDMAELLVDFKFPI KKVIVGPCPDRPGAVKLGNNQS LCNKPKPILKMAECGYVVPQVTI GNTPVKNDQVHVTGTTY VVKTTEDALALINSIHEISLVNIGGLSNRKGNNKIVKGVY IVRRPSTLLKIYKAIPDLKTINVANMPKEKDGFWVRRDIW VGREDQDVYALYKAGVQFARVNLGNVTQNTGETLI DKTVR LTNSUQDALKVATNGCKVESVNVGNVGRFEEKKQLNADVG


## UniRef90 U4TNO9

 UniRef90-E6W1Z5 UniRef90-E1QX99 UniRef90-C2CIY9 UniRef90-G1VX65UniRef90 E7MLU7 UniRef90-D1ANR3 UniRef90-F218W2 UniRef90-U2NJS7 UniRef90-Q2NQ78
UniRef90-TOU6K0 UniRef90-D4H7T8 UniRef90-D0DN04 UniRef90-B7CBX6 UniRef90-S2ZN56 UniRef90_R6ULU1
UniRef90-R3TR55 UniRef90-B9Y4E6 UniRef90-M2PZX8 UniRef90-R6V400 UniRef90_UPI00036C6208 UniRef90_UPI0003B61C5C UniRef90_B9Y3J6 UniRef90_B9Y2P9 UniRef90_UPI00040D7BDA UniRef90_I4TYT2 UniRef90-B2KAZ7 UniRef90-R2NVH1 UniRef90-B6GD68 UniRef90_UPI0002E8FC7C UniRef90_F5ZJA2 UniRef90_UPI0001F85B68 UniRef90-B0MF86 UniRef90-E4TK56 UniRef90_UPIO002891658 UniRef90-H1AHB3 UniRef90-W6ACC2 UniRef90-T9HA12 UniRef90-A1RF38 UniRef90-H3NQA5 UniRef90 Z5TDA0 UniRef90-A7H6M6 UniRef90-R2R171 UniRef90-F8E5L8 UniRef90-B6W6W4 UniRef90-V2M1X9 UniRef90_UPI000346C92C UniRef90-D9PG10 UniRef90-H8L989 UniRef90-UPIO004700D22 UniRef90-R2SBA8 UniRef90-S1H6P1 UniRef90_C2WFP5 UniRef90-J5WE82 UniRef90_UPI0002ECF8B1 UniRef90-T4PLT0 UniRef90-UPIO00361CA8D UniRef90-C2BF73 UniRef90-W1W0Z4 UniRef90-G1WJL4 UniRef90_UPI000302FB5A UniRef90-F3R7A3 UniRef90-G2SCG5 UniRef90-E3G112 UniRef90-G1VR58 UniRef90-Q1JAA3 UniRef90-Z4WX11 UniRef90-S2U5V9
UniRef90 G2BHY3 UniRef90-E8ZNZ2 UniRef90-S4CK72 UniRef90_UPI00031F9D5D UniRef90-T9UYR6 UniRef90-V2Q940 UniRef90-E6I6N8 UniRef90-B7C8C4 UniRef90-X8JZI3 UniRef90-B9CWA6 UniRef90-G5LVM2 UniRef90_UPI000379A7AB UniRef90_C0AWP8 UniRef90-F4DBQ9 UniRef90-B9Y2X3 UniRef90-E2SP95 UniRef90-E7G615
UniRef90-R6K377 UniRef90-R6K377
UniRef90-C4SWQ1 UniRef90-T3BI14 UniRef90-H7D790 UniRef90_B9YBE3

$D \square K M V R \square D Y R L I H G Q V V A K W L K V S P V R R \| V L V D D V L G S D E$ $R \| F R V D D R L I H G Q V I E G W U K Y Y K L N N T S I V N D K V Y A D P$ VVID NRLVHGQIAVNWKQALQFDTVVVVDDALVNDK TLI RCDDRLI HGQCMTVIVKAYDDEEIIVVDNFTATNS FIRVDDRLVHGQVVTAWIK QLNAKKIFVVDDLAASNP AADT

## $\square K F \square R \square D Y R \square L H G Q \| V V S W N R Y S \square D R \square I I I D D K A G S S K$


$\prod K A G R \square D Y R L L H G \| V Q S Y W C P M Y A T Q R T M V I D D A T A G D E$ IVAARVDERMI H G QVA MVWTNTVGANRLMVVNDEVVRDE NITLDARIDDRLIHGQVTTVWSKVANAQRIIIICNDEVYNDE
$K V K \square R V D N R L L H A T V A L N W S R F V N A S Q!I I V D E K S K G D L$ NILLTRIDNRLIHGQVATQWNSFVGSNLLLVANDDVASNP

##  $N \square L L T R I D N R L I H G Q V A T Q W N G S L G A N L I L V A N D A A S E D T$

$N \nabla S L L R \square D D R L I H G Q V A T S W A K A V K C E A \square F A V N D D V A N D E$ SDELDADP $K \ V N T R \prod D E R L I H G Q V A G \square W S S S L G T Q R I I V A N D E A A A D D$ NIVWTRIDERLLHGQURITWGKHTEANLILVANDDAAEGP


## 

[^0]
UniRef90_U4TNQ9 UniRef90 E6W1Z5 UniRef90-E1QX99 UniRef90-C7RFE8 UniRef90-G1VX65
UniRef90-E7MLU7 UniRef90-ETMLU7
UniRef90-D1ANR3 UniRef90-F218W2 UniRef90-U2NJS7 UniRef90-Q2NQ78
UniRef90_TOUKK0 UniRef90-D4H7T8 UniRef90-DODNO4 UniRef90-B7CBX6
UniRet90-S2ZN56 UniRef90_R6ULU1 UniRef90-R3TR55 UniRef90-B9Y4E66 UniRef90-M2PZX8
UniRef90 R 6 V 400 UniRef90-R6V400
UniRet90-UPIOOO36C6208 UniRef90-UP10003B61C5C UniRef90-BgY3J6 UniRef90-B9Y2P9 UniRef90-UPI00040D7BDA UniRef90-I4TYT2
UniRef90-B2KAZ7
UniRef90_R2NVH1 UniRef90-B6GD68 UniRef90-UP10002E8FC7C UniRef90-F5ZJA2 UniRet90-UPIO001F85B68 UniRef90_BoMF86 UniRef90-UPIO002891658 UniRef90 H1AHB3 UniRef90 W6ACC2
UniRef90
T9HAl2 UniRef90-T9HA12
UniRef90-A1RF38


##  <br>  <br> 

## 

[^1] UniRef90-H3NQA5 UniRef90-Z5TDA0 UniRef90-A7H6M6 UniRef90-R2R171 UniRef90 F8E5L8 UniRef90-B6W6W4 UniRef90-V2M 1 X9
UniRef90-UPIOOO346C92C UniRef90-D9PG10 UniRef90-H8L989 UniRef90-UPIOOO4700D22 UniRef90-R2SBA8 UniRef90 S1H6P1 Uniref90_-2WFP5
UniRef9O-J5WE82 UniRef90-UPI0002ECF8B1 UniRef90-T4PLTO UniRef90-UPIO00361CA8D UniRef90-C2BF73 UniRef90-W1 WoZ4 UniRef90-G1WJL4 UniRef90-UP1000302FB5A UniRef90-F3R7A3 UniRef90-G2SCG5 UniRef90-E3G112 UniRef90-G1VR58 UniRet90-Q1JAA3 UniRef90_-4WX11
UniRef9_-S2U5V9 UniRef90_G2BHY3 UniRef90-E8ZNZ2 UniRef90-S4CK72
UniRef90-UPO0031F9D5D UniRef90-TgUYR6 UniRef90-V2Q940 UniRef90_E616N8
UniRef90_B7C8C UniRef90-X8JZ13 UniRef90 B9CWA6 UniRef90-G5LVM2 UniRef90-UPIO00379A7AB UniRef90-COAWP8 UniRef90-4DBQ9
UniRef90_B9Y2X3 UniRef90-E2SP95 UniRef90-E7G615
UniRef90_R6KK37 UniRef90-C4SWQ1 UniRef90-T3B174 UniRef90 - $\mathrm{H7D790}$
UniRef90 ${ }^{\text {B9YBE }}$
 QMKAIY QSVLPSTVKLHVFDVTKASKKLEEAQKGKKYYI MLAEMMDMGIISDA YEPEVTTSAVESFLSHHPRDENVLL
 FIIKVMKLCLPEPMEVKIFSTKELVDFIEKDSSTKRNMV FLEKVLQLSESNKSKVSTFSVDQLLEFLAQDTEEKNVMV
 ILKAVFKTAVPANMKAGVYTVDEAVPKIEAALANDPTLV

 VLSQAYKS MASEKKTFVWTKQHFKDVQEKVINSKDQYF FMSDDYKMAVPKGT A VDIVTVNKAKSVLDK ATNDTVFL 1 QQMI YRSVV PK KVNI FIVTIKSFENEFDKDKNND FLV


 TEKS $\square$ KK $\square$ AK PSGTKASVVTVEEKMIKAYHSEYEGVTAFL $\begin{array}{ll}M V L A E G D A V R F W S L Q K T & D\end{array}$
 $V$ QASVAN FAVPPGVKVIDFGVA QFAEVMKKTEVKK RTML



 VQKTAMRMSKPAGTGMSIDDTDTADTNFKAGKYDDHNVLL LRMSALRMAKPEGGKLVMKSVEDSITALNSGVTDKKLLI MLR S M MEMGVPKNYATKUVTVDQAKELLREDSSKTR LV




 MA DQ GLK DA RPA GK KLAI S SVA K A DENLQNGKF D D QVFV


 $M R Q Q L L N M A A P A E E Q Q R F F P L D R R L D R S F I K P Q K D K R F F$
 $\square R R E L L L Q Q V P P$ GLLKGYVIDVVEKADKVVHNPKYGKNDVLV


 QKMMVACKM PRENTKAML

## $\square M E R \square Y K ~ A ~ A ~ A ~ P ~ M ~ G ~ V E V V L I D Q S ~ V ~ S ~ E ~ A ~ R ~ E ~ F ~$ $\square$



## UniRef90 U4TNQ9

 UniRef90-E6W1Z5 UniRef90-E1QX99 UniRef90-C7RFE8 UniRet90_C2CIY9 UniRef90-G1VX65UniRef9O_E7MLUT UniRef90-D1ANR3 UniRef90-F218W2 UniRef90-U2NJS7 | UniRef90-Q2NQ78 |
| :--- |
| UniRef90 | UniRef90-D4H7T8 UniRef90-DODNO4 UniRef90-B7CBX6 UniRet90_S2ZN56 UniRef90 R6ULU1 UniRef90-B9Y4E6 UniRef90-M2PZX8 UniRef90-R6V400 UniRef90-UPI00036C6208 UniRef90-UPI0003B61C5C UniRef90-BgY3J6 UniRef90-B9Y2P9 UniRef90-UPIO0040D7BDA UniRef90_-14TYT2 Uniinefol $\quad$ B2KAZ7 UniRef90-R2NVH1 1

UniRef90_B6GD68 UniRee99-B6GDD8
UniRefo-UP0002E8FC7C UniRef90-F5ZJA2 UniRef90_UPIo001 F85B68 UniRef90-BOMF86 UniRef90-E4TK56 UniRef90-UPIO002891658 UniRef90 H1AHB3 UniRef90-W6ACC2 UniRet90-T9HA12 UniRet90-A1RF38 UniRef90 - H3NQA5
UniRef90-Z5TDA0 UniRef90-A7H6M6 UniRef90-D3PD47 UniRef90-R2R171 UniRef90-F8E5L8 UniRef90- 66 W 6 W 4
UniRef90 V2M1 99 UniRef90-UPIOOO346C92C UniRef90-D9PG10 UniRef90-H8L989 UniRef90-UPIOOO4700D22 UniR Refo- R2SBA8 UniRef90-S1H6P1 UniRef90_C2WFP5 UniRef90-UPIO002ECF8B1 UniRef90-T4PLTO UniRef90-UPIO00361CA8D UniRef90-C2BF73 UniRef90-W1WoZ4 UniRef90-G1WJL4 UniRef90-UPIO00302FB5A UniRef90-F3R7A3 UniRef90-G2SCG5 UniRef90-E3G112 UniRef90-G1VR58 UniRef90-Q1JAA3 UniRef90-Z4WX11 UniRef90-S2U5V9
UniRef90 G2BHY3 UniRef90-E8ZNZ2 UniRef90-S4CK72 UniRef90-UP100031F9D5D UniRef90-T9UYR6 UniRef90-V2Q940 UniRef90-E6I6N8
UniRef90
B7C8C4 UniRef90 - X 8 JZI 3 UniRef90_B9CWA6 UniRef90-G5LVM2 UniRef90-UPI000379A7AB UniRef90-COAWP8 UniRef90-B9Y2X3 UniRef90-E2SP95 UniRef90-ETG615
UniRef90-R6K377 UniRef90_C4SWQ1 UniRef90-T3B114 UniRef90-H7D790

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

LVRSPEPLAEMLDYGYTFDHVTVGNMSTKDGAKQDRNNMF V AK K P D R F L K LVVEA GVP $\square E T L N V G N M S$ QTPE T R S I T R S $\square N$ L F
L F P S L A A VQ D A $\square Q \square G F D \nabla T R \square Q V G G \square G G G P N R K A D F Q N \square T$ L F K
LVKHPGVIKKLVDAGLD\KEFNTGNMSNR LETTQVKRSTS
 $L A K Y P Q T F Y L L M E G G D E F R E I I I G G M G A R E N R K V L Y K N G C$ $L$ FE TP QDALRAAIE G GVDIQELDIGSMAHSLGKVVVNKAIA LVKVP E II E S L L K E G I E I E K


Uner90_B9YBE3

UniRef90 U4TNQ9 UniRef90－E6W1Z5 UniRet90－E1QX99 UniRef90＿C7RFE8 UniRef90＿C2CIY9 UniRef90－G1VX65 UniRef90－E7MLU7 UniRef90－D1ANR3 UniRef90－F218W2 UniRef90－U2NJS7 UniRet90－Q2NQ78 UniRef90－TOU6K0 UniRef90－D4H7T8 UniRef90－DODN04 UniRef90 B7CBX6 UniRef90－S2ZN56 UniRef90－R6ULU1 UniRef90－R3TR55 UniRef90 B9Y4E6 UniRef90－M2PZX8 UniRef90－R6V400 UniRef90－UPIO0036C6208 UniRef90 UPI0003B61C5C UniRef90－B9Y3J6 UniRef90－B9Y2P9 UniRef90 UPIOOO40D7BDA UniRef90－14TYT2 UniRefolo－ 2 KKAZ7 UniRef90 R2NVH1 UniRef90－UPI0002E8FC7C UniRef90－F5ZJA2 UniRef90 UPI0001F85B68 UniRef90－BoMF86 UniRef90－E4TK56 UniRef90－UPI0002891658 UniRef90 H1AHB3 UniRef90－W6ACC2 UniRef90－T9HA12 UniRef90－A1RF38 UniRef90－H3NQA5 UniRef90－Z5TDA0 UniRef90－A7H6M6 UniRef90 D3PD47 UniRef90－R2R171 UniRef90－F8E5L8 UniRef90－B6W6W4 UniRef90 V2M1X9 UniRef90－UPIO00346C92C UniRef90－D9PG10 UniRef90 H8L989 UniRee90－UPIO004700D22 UniRef90－R2SBA8 UniRef90－S1H6P1 UniRef90－C2WFP5 UniRef90－J5WE82 UniRef90－UPI0002ECF8B1 UniRef90 T4PLTO UniRee90－UPI000361CA8D UniRef90－C2BF73 UniRef90－W1WoZ4 Unirer90－G1WJL4
UniRef90＿UPIOOO302FB5A UniRef90－F3R7A3 UniRef90 G2SCG5 UniRef90－E3G112 UniRef90－G1VR58 UniRef90＿Q1JAA3 UniRef90 Z4WX11 UniRef90－s2U5V9 UniRef90－G2BHY3 UniRef90 E8ZNZ2 UniRef90 S4CK72 UniRef90－UPI00031F9D5D UniRet90－T9UYR6 UniRef90 V2Q940 UniRef90－E6616N8 UniRef90－B7C8C4 Une｜r UniRet90＿B9CWA6 UniRef90－G5LVM2 UniRef90＿UPIO00379A7AB niRet90 C0AWP8 UniRet90－F4DBQ9 UniRef90－B9Y2X3 UniRef90－E2SP95 UniRef90－E7G615 UniRef90－R6K377 UniRef90－C4SWQ1 UniRef90 T3B14 UniRef90－H7D790 UniRef90＿в9үВЕз


पT PEQTED【NVLESHGTDLI
LNDEEVLA
V VDA D IEVFKKLDQ
पT REE $\square$ AN $\square Q Q \square I D K K V Y$ VYYQMVPDEKAVD
VSEKDCELLRKMNDKGTR\EDQMVPDEPAKDV


FNDTE TDTRRTQNYNTKMYFQTAPDDAKE VDENDLRIFDKUKNQGAK
【TSEQ
LTNDDLTLDQDLKQHGTSV
LCKKDIQUABQWFQQEIEVEDRQDPGEKEDKD MDKEDVATFEKGRDQGVTFDVRKVPNDSKKNL

FNQEDTDAFNKLKQAGLNFDVRKVPSDSKGNM YDHKDLQK $\square R E L Q K N G \perp R F Y Y Q T T P M D T K E$
$\square D D D D \square N A F H E L N N \square G V I L D \square R V A S D P S T N \square$ LS पNDFQK乌Q\LSENYDUYFHKVPWEKPV
VNEKEAAAFKKTKEHNTPMYYQ TTPNVSKDDDS

पDEKDVG LLND $\square$ KNRGVQVFFQT $\square$ PEDKPQP
VTHAEKDD LDDINRGTKTTARMVPDDGEELD VDDKDKEAFRFLEDHGVLLTHQVSPEYNKKMG MGKDDVETLEKLKELGMTFDVRKVPADSKENM

| $\mid R[L / R|V| D D S F L Y G K K A L L W D N A T R A K V I V L D D N G \mid L R F D Y$ SISFVRIDDRIIHGQTVTRWAKEYPCDGLIAVNDAAANNP $N T K A V R L D E R L I H G Q G R L W D S N L G V N L V I V A N D E V A T S H$ $D V \operatorname{V} N I R V D D R L I H G Q V A G L W T N R L A A T R I M V D D D E V A N D N$ $\checkmark$ ANDAAAGDN
$\square S \square Y R \square D D R V I H G Q T \| V R L L P Q Y A C D G \square I I I D D H \square S G N P$ 1 IVANANAAAD

 VLARVDSRLLHGQVATTWTKTTNPTRIIVVSDSVAKDE
$R W L Y D Y R F D H S R \square F V A W R K A Y Q F D T V V I L N D R D A V N P$ ITSVVRIDDRVI HGQTMTRWTKARPVDGILVVGDSIAHNQ $N 1 / L V R V D S R L L H A T V Q L N W N Q F \square N A D Q V W V V S P H Y V E D P$
$\square 1$ A $L$ VD D HYVHGQ $\square G \square R W F H E F Q G Q L I: V D N E V N D K$
NAQRI I I CNDEVYNDE
$K Y \| L V D Y R \square I H S R \square F \square K W R K K \square G F N E L V V C N D Q L V S N$


UniRef90 C5ERF7 UniRef90-I7LQG4 UniRef90-X6WF96 UniRef90-F3MVG2 UniRef90 F3MVH6 UniRef90-R5BTR8 UniRef90-E3YKW8 UniRef90_A6MEV0 UniRef90-S2ST50 UniRef90 W1CHLO UniRef90-E2SH90 UniRef90-G5S843 UniRef90-K6RKD3 UniRef90-T3K1G8 UniRef90 T0U8F8 UniRef90-B8B2J4 UniRef90_C7TN81 UniRef90 E2SPG2 UniRef90-T4N8J8 UniRef90-E2SH84 UniRef90_KOMT12 UniRef90-R7G7R8 UniRef90-K8Z8G3 UniRef90-E4KQ10 UniRef90-E7I5Y6 UniRef90 C0D1K1 UniRef90-R7GSE7 UniRef90-A0A030DVF5 UniRef90_R2NSI1


[^2]

UniRef90 C5ERF7 UniRef90-17LQG4 UniRef90_X6WF96 UniRef90-F3MVG2 UniRef90 F3MVH6 UniRef90-R5BTR8 UniRef90-E3YKW8 UniRef90_A6MEV0 UniRef90-S2ST50 UniRef90-W1CHLO UniRef90-E2SH90 UniRef90-G5S843 UniRef90-K6RKD3 UniRef90-T3K1G8 UniRef90-T0U8F8 UniRef90-B8B2J4
UniRef90_C7TN81 UniRef90-E2SPG2 UniRef90-T4N8J8 UniRef90-E2SH84 UniRef90_KOMT12 UniRef90-R7G7R8 UniRef90_K8Z8G3 UniRef90-E4KQ10 UniRef90-E715Y6 UniRef90 C0D1K1 UniRef90-R7GSE7 UniRef90-A0A030DVF5 UniRef90-R2NSI1


[^3]

UniRef90 C5ERF7 UniRef90-I7LQG4 UniRef90-X6WF96 UniRef90-F3MVG2 UniRef90 F3MVH6 UniRef90-R5BTR8 UniRef90-E3YKW8 UniRef90-A6MEV0 UniRef90-S2ST50 UniRef90-W1CHLO UniRef90-E2SH90 UniRef90-G5S843 UniRef90-K6RKD3 UniRef90 T3K1G8 UniRef90- T0U8F8 UniRef90-B8B2J4 UniRef90_C7TN81 UniRef90-E2SPG2 UniRef90 T4N8J8 UniRef90-E2SH84 UniRef90-KOMT12 UniRef90-R7G7R8 UniRef90-K8Z8G3 UniRef90-E4KQ10 UniRef90-E715Y6 UniRef90-C0D1K1 UniRef90-R7GSE7 UniRef90_A0A030DVF5 UniRef90-R2NSI1

LTDEEVKS LREVVEMNPKTCMQQVPNDEQK
VTDENLEDFDYLSKKGワK TTAQMVPSE
 VTPDN AVFDYLTKHVELYBQMVPNDQK

 LTEQE A DSQALKAKGDR LEMRQVPAHSAELL $\downarrow L P T E V R V Y K A L E G S G V K V V S A Y T T N D K P L Q V A$
$\square T$ DAEAEDARKMKDLG $\| V Q Y M Q Q V P T S K K E D L$
TSPKENEAFSALLKKNVNVF $\operatorname{TQVMPQDKPVSV}$ VSDNDEKILKDLMDDGFDVFTQMVPSDKRVN TTGNAD LLAALSKAGVSVMYKQVPDE

VD ME DMLAFH WLHE QGYPLIA QKVAS DVKKE L LS QEHIDF L

ATDREDEAYKVLKGNGTK $\square Y$ A QYVP A D S VVN $\square$ LT K E ELDDA LKELVELYPDTFFQGTPSMEKK $L G E T D K S A \| R C L H D H Q V V F N T K T T P A$



[^0]:    $\square K L V R V D H R L I H G Q V A F T W T K F L S T D C I L I A S D D L L K D E$

[^1]:    

[^2]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf sol25 sol5 sol0 jhmm

[^3]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf sol25 sol5 sol0 jhmm
    jpssm

