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 $R R P R I L V A K M G Q D G H D R G A K V I A S A G A D D L G Y D V D V G P L A$ R R P R I L V A K M G Q D G H D R G Q K V I V TA A F A D M G F D V $R R P R I L I A K M G Q D G H D R G A K V V A T A Y A D A G F D V D M G P L F$ RRPRI MVSKVGQDGHDRGAKVIAAAFADDGFDVD\|SPLF $K K D R I L I A K P G L D G H D R G A K Y V A R A D K D A G Y E V I Y Y G I R$ R R PRMLVVKMGGQDGHDRRGKVIAATAFAADDGF DVVDVGPM F $R R P R I L V A K V G Q D G H D R G A K V I A T G F A D L G F D V D V G P L F$
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 KVLDATVKGDVHDI GKNIVAVVLACNNYDVVDIGVM GKIVMATVKGDVHDIGKNIVTVVLQCNNYEVINLGVM VSKGKVIVATVKGDIHDIGKNIVKTIVENYGYRVI DLGRD SRGKILIATVKGDVHDIGKNIVAVVLRCNNFEVLDLGVM PRILIAKLGQDGHDRGQKVVATAYGDLGLDAVAGPLF KR四VLVAKPGLDGHDRGAKVIARALRDAGMEVIYTGLR GKKLLMATVKGDVHDDGKNLVSVVLACNNYEVVDGGVM GKIVMATVKGDVHDIGKNIVGVVLGCNNYEIIDLGVM RRPRLLVAKVGQDGHDRGQKVI ASAFADLGFDVDIGPLF DSKGKIVLATVKGDIHDDGKNIVKVILENYGYEIIDLGKD VSKGKIVLATVKGDVHDI GKNIVKVLLENYGYTVIDLGKD SRGKILLATVKGDVHDIGKNIVGVVLACNNYEVI DLGVM
 KKPVAVMATVKGDVHDIGKNIVNLILRCNGFEVIDLGVM KGRVVLATVKGDVHDI GKNIVGVVLQCNGYEITDLGVM
KGRIVLATVKGDVHDIGKNLVDIILSNNGYEVVNLGIK GKIVMATVKGDVHDI GKNIVGVVLQCNNYEVIDLGVM KRGKFIVATVKGDVHDI GKNIVSVILACNNFEVI DLGVM QGKILMATVKGDVHDI GKNVGGVLQCNNYEVIDDGVM VHKPVVILATVEGDIHDI GKNIVALMLGNHGFEVHDLGKD GVIVLATVKGDVHDIGKNIVGVVMACNGFRVIDLGVM QRIRVLLGKI GLDGHDRGDRMI ATWLSKAGMEVVYIGTH KKAKILMATVKGDVHDDGKNTVGVILACNNYDVIDLGVM RKDKILVAKLGLDGHDRGALVLCRGFRDAGMEVIYSGLF GRVLIATVKGDVHDTGKNIVAVVLQCNNFEVHDTGVM SKGSIVLATVKGDVHDI GKNLVEIILSNNGYTVHNLGIK SKGKILLATVKGDVHDIGKNLVEIILSNGFDVINLGIK KITRFVTAAALFDGHDASINNIMRRILQSSGAEVI HLGHN GKVVTATVKGDVHDTGKNIVSVVLQCNNFEVIDLGVM VEKGKVILATVKGDVHDI GKNIVKVLLENYGFNVIDLGKD KGKLLLATVKGDVHDIGKNLVDIIVSNNGYDVVNIGTK RRLKLLVGKPGLDGHSNGAEQIAVRARDCGFEVVYEGIR GKVGMATVKGDVHDMGKNVVGVVLQCNNYEVIDDGGVM
 RRPRILIAKLGQDGHDRGAKVIATAFADLGFDVDIAPLF MYNGTVVIATVKGDVHDDGKNIVAVVLGCNNFKVVDLGVM GKILLATVKGDVHDIGKNIVGVVLQCNNFEVIDLGVM

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UniRef90-K2MBF5 UniRef90-K2MBF5
UniRef90- S7WTJ4
UniRef90_H8MHK1
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ATTTEVVDVRTHL
TPSAEILEFV

ATTAS $\backslash V D W V N A N V R A$
TKVTDABVKIVDLI
STTQS $\square$ A D Y $\square K T D V$
DASKAVEAAKKLLNKD APTTEII DFLKK
TP L RE I I E IVVKKLVGAQ $T P M D D I G K F Q S N V R$ TVVIEAVLEVDHKLN TSPDAGI ADLKTDL L S L M DKV
$T P L P V A A M D V L D A V$



RAVNVVASLLDKD
TSDEETVEFVREN
ASRAVGV VTQLLS $\square \mathrm{D}$ TR R D DAAEQVISSIKKK TQIPAAVREVLSKLQPQ LRLMDSLMARKKG
TTTAEIVGWDEKRLEV
LR L MEA L
T P MEETVT F VR D N

TAVPDAA
TSTKETAEF IRRRAVR
$\square R L M D A \square M A V K R G$

ASRAVGV
TPLDDLVRD $\square R$

$\square R \square M D A V M A V K K G V$
ASRAVGV
TVIAEAAEQLVDTL

TAKEEF $\square$ AKTRTE
T D P E E A $\square \mathrm{EA}$ A $\square \mathrm{KADDG}$
$\square R \square M D E D M T R K R G G G L D$ RAVGVVSNLLSKD IVKD

AS RAVGVAS $\square S K D \square R$

T P M S A S VA Y $\square$ QE N
TS $\square \mathrm{ND} \square \mathrm{T} \mathrm{SH} \square \mathrm{K} \mathrm{NGV}$
$\square R \square M D E L M A A K K G \square G P D$
D G R T M G L Q G M $\square$ NF L

LK L M D R ПMAVKRG
TRIMADIVRIAEIDAHKE TDASRAVGVVSNLLNAE ASRAVGV
LS LMDRVMAAKRG
TPIPKAAKDTLDA $\square$ RAK
ASRAVGVA
ASRAVTVDLLKKDSK $\square$



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|  |  |
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| UniRef90-H2T6W4 | RMTIPLLIGGATTSKTHTAVK |
| UniRef90-A4J7Z5 | GTGDIKLYVGGNLVVGKQDWQAV |
| UniRef90-B5JgE4 | EGMRDVKVLIGGAPINEKFCDKIDADYYADSAA |
|  | K KPDTLTVVGGAVMTQEYAGRIGADCYAKDAA |
| UniRef90-F4GR48 | DEYRKLPLLVGGATTSRVHTAVKIAPNYEG PVIVVPD |
| UniRef90-E2NLR2 | VGGADIPLLIGGATTSQLHTALK |
| UniRef90-12AD87 |  |
| niRef90_R9M284 |  |
| UniRef90-UPIOOO3B38540 UniRef90 RSW48 | AEMPQMPLLVGGATTSKVHTALRMAPAYRAVGVATMLVSD |
| UniRef90 UPIO0047D7 | DGLADDPLVVGGII P |
| UniRef90-UPIo004662BA8 | EQVKA RIMVGGAVVTEEYS |
| UniRef90-D3P8U9 | SQLKT KILLGGAALTEGYVKNECEP L LKRDAFDA】 |
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| UniRef90 E4TDS7 | QNLE FPLMIGGATTSKAHTAVKDAPQY |
| UniRef90-Q2WAL1 | A GL |
| A9 | RGIGDLLYVGGNLVVGKHDFAGVEAKFKEMGFHRVFAPS |
| riRef90_-8359 | E |
| UniRet90-B8D | AADGADGYSADAV |
| UniRef90-BOSGPG | EGASH1RVFGGGGGTI |
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| UniRef90-M7NYK1 | VKIDP NYRAVGVAQ |
| UniRef90-UP1000409B |  |
| UniRef90-02 | A D S |
| UniRet90-FOZS97 |  |
| UniRef90 UPIO003B34D36 | RG |
| UniRef90-ONBXO | KPKLERMGISGNYGPG |
| UniRef90-F9MNC8 | EKAYTGK |
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| UniRef90 R7PAE | A ALHMP |
| UniRe |  |
| UniRef90-ToRDJ2 | A |
| UniRef90_S9VRE6 |  |
| iRef90_UP10001C |  |
|  | AGIS ${ }^{\text {IP }}$ LVGGAALSRKFTENKI |
| UniRef90-J4U113 | KVWVGGAVLTKEYADEMGADFYA DASAS |
| UniRef90-C0GFQ0 | SIKIFIGGAPTSKQFAEK\GADFYCRDVMDA |
| iRef90-F2NW07 |  |
|  | ASHVRIFGGGGGTI |
| UniRef90-G70 | KADIPVVFGGIIP |
|  | MKMPLLTGGATTSRAHTAVK |
|  | QGFE LPLMIGGATTSRTHTAVKIHPNYNRG QAVYVTD |
| UniRef90-A0AO15LZ | G |
| UniRef90_UP10003 | , DADPVVVGGI P P P P |
| UniRef90-V5IN25 | A ${ }^{\text {allk }}$ |
| UniRef90-B2UNQ8 | RGM TIPLMVGGATTSA |
| - | AGDA LPLVVGGAADTKKFTMTRIQAHYDGVAYARDAMEG |
| UniRef90-TOQS17 | AGMTQPLMI GGATTSKMHAAVKIAPQYATI |
| UniRef90 K6H32 | S P L G GA |
| R5DMP0 |  |
| UniRet90-R7D1F3 | AGMRDVKIMVGGAP |
| UniRef90-Z9JXN0 | RRLADWP LLGGAALTRPYVEDDLASQFPGVRYARDAFEG |
| UniRet90-UPIOOO3E | QGL DTK |
| UniRef90-UP100045E | RGLDKIVLYVGGNLVIGKREFSEVETLFKDMGYDRVFPPT |
| UniRef90-UPIOOOC4795ADD |  |
| UniRef90-R4KDK5 | G |
| RRef90_B6YR3 |  |
| UniRet90-S7URH0 |  |
| 321 |  |
| UniRet90-81 | KVFVGGAVLTK |
| UniRef90-LOA $76911{ }^{\text {U }}$ |  |
| UniRef90-UPIO0029B1A9C | EGF |
| UniRef90-J7B3U8 | AD DiPiVVGGAADTRKFTDNRISPSYKGL |
| UniRet90-C6DY72 |  |
| UniRef90_S6FBA5 | DIKVFVGGAVLTKECAKMIGADFYAKDAREAV |
| UniRet90-14EXA8 | SKDAMEAV |
| UniRef90 Uliooduber | 俍 |
| UniRei90- R6M | K |
| niRef90-14C4P9 |  |
| ef90-X1B228 | ANKPKVKVII GGAPITQSFADQ\KADGYAPDAASA |
| Un | LPVVLGGAALNRHYVENDLRRVYTQVYYASDAFDG |
| 713CEA |  |
|  |  |

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ASTHE $\ \mathrm{~V}$ RF ${ }^{130}{ }^{13} \mathrm{QE}$

TMPQEA $\square D D L L M D F G$

A SRSVGVA

T $\square R$ D K Y V $A$ G VA A D
$T P\|L A R\| V D L V E$
AD A AEAVRVI KK $\|$ L R $\square$

MP LDD D V IDA VAK VLG
$T Q \square M D G F \nabla D V I R$
$Y D \square T A \prod M G D \square V A D L D A$
HDLEDVCQLMANDI N
F QLINDIMAD VVKLVD
EGRTLGLQGMDNDV
KDAMTALADLNKMI
$\square S R D E F V S K L K Q D$ ATADALAAY I KRLVGPE

T Q $\square \mathrm{S} \mathrm{VIIDDH} \mathrm{\square RK}$
MP LIETVVARMAKGL

DS $\square$ QE $\square \mathrm{T}$ R WA Q T N $\square \mathrm{H}$

D GRRMG LQ GM $\square$ ND $L$
Y D पMDVMER\| DD I
A SRSVSVM
ASRAVGVA
LD $\square$ A N K L M D MLDE E LQV
ASMEEMTDYTHEN
TKRPEFLDDIKE
$\square D \square A$

D G R K K G $\square$ Q G M $\square$ TE $\square$
$\square R \square M E P \square V A V A R G A D P D$
CDLTEVASNGK【DTKA
TPPQEIVDAFRSLV
TMSSE $\square$ A GF $\square$ Q G T $\square$

SDAANCVRVVKK LLGV

DAMEAVARVKKLL

T R F DA $\square \mathrm{V}$ D A $\square \mathrm{R}$
LQLME $\qquad$ PLL $1 \mathrm{~V} T \mathrm{ElV}$




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UniRef90 H5Y112
UniRef90－X1AK10
UniRef90－T21KG6
UniRet90＿W6KML7
UniRef90 BoSVC8
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UniRef90－C7D7H5
UniRef90 Q9KCE
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UniRef90－XOY716
UniRef90－UPI00036BDADA
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UniRef90－14BOY3
UniRef90－UPIOO03F86403
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UniRef90－HOUR06
UniRef90－DomH32
UniRef90－WOJIX9
UniRef90 FOP1Q8
UniRef90－R6E5C2
UniRef90＿U5F7Q6

TDAMDTПTVVSQLL QELEPLCDQlVQDVK
SSTEEIVAFTREQV
TDTRD VRFLQE
SDAGTAVSKAKKLLGV
EGALQQLEGDVQDL
DGRELGLQGMI

NGRELGGQGMI NTMLE YQLAAKVISEIVDLVD
SK】DD\VAWTDEK


TDPREA】】WVQERV

FKDTETMGDVVRLV ASAAELVGKLL

HGTSMGDQGMDND

VDAPAGVDVAKKMLGV

FNTNTTMMDIVTLVDPQ
YDLNAIMTDLAQLI
TVAPDAFAGLK
DGMQMGLLGMDNDV
ETAKKFMQDRKGVKV

TPPNT $\square$ QT $\square \mathrm{ERLV}$

A S VA A T TA

DGSK■GLVGMDEDL
ASRNAQLLARLLGPD SSAVDLAGDLLQ

TGFEAVVDAVKTELDVD

STMHE\VERLVK
YDAANAVERVR
DGRQMGDQGMDDY【
DRHMQALADMEKNLED

DGRELGLQGMDND D A 1 T LI A Q RLLD L



|  |  |
| :---: | :---: |
| UniRef90_G7WGN6 |  |
| UniRet90 Q2RIII | GGQEQVKVVGGAP |
| UniRef90-E5Y8U3 | RGL GVDVMVGGAVVTPAFAESSIGANYSSDAVDA |
| UniRef90-Q12TR0 | AGI RDVMTMVGG |
|  | RELP YPVLIGGAA |
| UniRef90-R5X4 | PGRDKIKVMVGGAPITQEFADEUGADAYTEDAASA |
| UniRef90 G7WDL | QLRDVK111 GG |
| UniRef90-UPI0003B44CBB |  |
| H6 | CPQT |
|  |  |
| UniRef90 C9MA UniRef90_UPIOO |  |
| UniRef90-UP100004685797 | MG |
| UniRef90 D4ZG22 |  |
| Ref90 | CPETAVMVGGAVLNAEYAAD |
| Ref90_LOK | MRDKKVMVGGAPATQTWADK |
| $\begin{aligned} & \text { UniRef90_F7V36 } \\ & \text { UniRef90 UPIO } \end{aligned}$ | EGIR ${ }^{\text {dVKIVVVGGGPVTQDYVDEIGANGYGKDVFGAII }}$ |
| UniRef90-A3Y | AGITA PVVILGGAALTPRFVQKDCRSVYGQVIYGRDAFAD |
| UniRef90-H6LCR1 | 㑑 |
| UniRef90-UPI0003B2E5B9 | QGGEHIQVF GGGGGVIVPAEDRELQAYGVARIYSP |
| UniRef90-Q55321 | RGANHIKIFGGGGGVI |
| UniRef90_Q2RIWO | T |
| H1L | YRDVK |
| UniRef90-A9BAF6 | A N QVPV Lickat |
| UniRet90-K0B2Y5 | EGL |
| UniRet90-F7Y) |  |
| UniRet90_G2FP |  |
| iRee90-F7 | RDVK |
| UniRet90-B2JQZO | WRDKVKVVVGGTPQASGAA Li RMGADGCY |
| UniRef90-R5B4N7 | RDVKKFVGGAPDTPGYSDEDGADVY |
| UniRef90 A6LK |  |
| UniRet90-D9 |  |
| UniRef90_-E3P100 | LGAKPAKFVGGGATISAG |
|  | ADD H1 AGGLI |
| UniRef90-G6A | AGLK ${ }^{\text {R }}$, P |
| UniRef90-UPIOO0476941B | LP EAPRFAlVAGGVM |
| UniRef90-E1RF57 | A G R |
| UniRef90_Fosh |  |
| IOG | RREYKVI GG |
| UniRef90-UPIOOO3B67944 | AGRETVKVVGGAPVTAEYAREUGADGYGFNAADAV |
| UniRef90-। 4 C | PDVAVMLGGAPVTKEVAADFGADGYAEGTA |
| iRef90-A4J5E3 |  |
| UniRef90-R7K944 | K FNIPVFCGGAVLTPEYAEQUGGDYCKD |
| UniRet90-K6GS54 | NLRDVKVIIGG |
| DOP | EGLRDVKVMVGGAPVNELFANQपGADGYSGNANAAV |
| UniRef90_UP100047C480C |  |
| UniRef90-S7TL | AGLTVKTIVGGAPVTQAFADQDKADGYSDDAPGAV |
| UniRet90_D5EBE4 | NVPVVCGGGAVTQDFIISD |
| UniRef90_G2 | AGAQEIPVIVGGIIIPATDAAALRAAGV AAVFTPD |
| UniRet90_UPI0002E87A6A |  |
| UniRef | KAHVGADYSAQAATDGVDE凹F |
| UniRef90 ${ }^{\text {O }}$ OAKM0 | R NPDLIPVAVGGAPLNQKFADEDKADDY |
| UniRef90-D6SR | D |
| UniRef90-R9T5M6 | DSVRDFKTMVGGAPVTQDWADKIGADDYAENASDSV |
| iRef90-T0I | ENVKVIVGGGPIS |
| iRee90 D7E | RDVKTMI |
| UniRef90-D7C | EGARDFKVIVGGSPVTESYARQLGADGYAAMGAV |
| UniRef90-X1N | DGV DSNFIVGGAAVTKTY AES $\square$ GAEYAKDGVEAV |
| ef90-UP10004 | AGQNKVKTLI GGAPV |
|  |  |
| UniRef90-X1BQ78 UniRef90_C7N2T2 |  |
| UniRef90-J71LQ9 | QGRQGLKITVGGAPIT DAFAKEDGADYTF |
| UniRef90 X1C | A ALSQVKVVVGGAP |
| UniRefao-NYQ21 | AGLIDV |
| UniRef90-14D478 | LTGFKVIVGGAPV |
| niRef90_D5H9 | RGAGHVRV YGGGGGVIVAEEKEELEDYGDAHDYSPD |
| UniRef90_EOUS60 |  |
| UniRet90- WOE | AGLRKVKVIIGGNPVTKEACETVGADAFTTNAAEGV |
| UniRef90-H6LD | DFKIVGGAPVTSEFAAEDGADGYKDAGSAAV |
| UniRet90-AGGJA7 | $\square \mathrm{DELHRYGI}$ |
| UniRef90-A7A6G1 | NLS FPTVLVGGGA |
| UniRef90-UPIOO00427301D | $V Q Y L V G G A P L$ |
|  | V YGGGGGVIV |
| M7 | QVVVGGRP■T |
| W4 4 | HPTAHVK\\| MVVGG YPFNIIDQELWKT\GADG YAPG |

UniRef90-TOIE06
UniRef90 D7EAAS
UniRef90 D7CJZ3
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UniRef90 J7ILQ9
UniRef90-X1GAF3
UniRef90-N6YQ2
UniRef90 D2Q3B9
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UniRef90 W0ELK2
UniRef90-A0A022FZH1
UniRef90-H6LDJ3
UniRef90_A6GJA7
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UniRef90_F7NLQ9
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UniRef90 UPI00036D596A
UniRef90 M7T9C2
UniRef90 ${ }^{\text {W4C4JO }}$

S DPQDDVVWLESLV
T S $\square \mathrm{S} \| \mathrm{I} \mathrm{V} \mathrm{D} W \mathrm{Y} \mathrm{K}$

NAVEAVGMAKRLLGLE

QE $\quad D D \square R R Y \square D$

F G $\underset{\square}{V} \underset{T}{ } \mathrm{P}$ E

A S II
ASAADLCKELIAK

TPLLDE

TPP ETVIADVVRKLGV

TTPTRVASY IVNEF
E D A $\square$ Q F

T GMMADVVDVIR
GSAAVKAVELVKG EGMDMGLQGMIND

EAMEA $\square \mathrm{V}$ A G $\square$ AREL
D G R T H G L D G M $\square$
$\square \mathrm{P}$ ПNT I IRECDEDLGAQ
ADEAVAVAE
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UniRef90-K4KSL7
UniRef90- $\times 1$ M493
UniRef90_B8FXL1
UniRef90-G7W7Q2
UniRet90-MMYB7 UniRef90_UPIooo237A1C6 UniRef90-A6NZH5 UniRef90-COD664 UniRef90-U2DAC8 UniRef90-FOSYE7 UniRef90-B8FDF4 4 UniRef90_D6PB56 UniRef90-UPIO00478549A UniRef90-K6A6Z3 UniRef90-UPIO0036EB1D3 UniRet90_LOF8V6 UniRef90-R7YO16 UniRef90-E3PRJ4 UniRef90- N1 JMM3 UniRef90-D5EBE6 UniRef90-D4LG866 UniRef90-R6SA95 UniRefofo-D9QPL9 UniRef90-H5XX54 UniRef90-UPIOOO4066450 UniRef90_B8F9X9 UniRet90-C6PR89 UniRef90-A6UULO UniRef90-Q024B8 UniRef90-D9RY10 UniRef90 Q46AM1 UniRef90-H6LIG7 UniRef90-LOF453 UniRef90-B8D000 UniRef90-F4LTI2
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UniRefon $\times 127 \mathrm{~N} 1$ UniRef90-X1P7N1 1
UniRef90- 026227 UniRef90-Xoz9W1 UniRef90-ToY6E9 UniRef90-H6LKE4 UniRef90_E3GILO
UniRef90_C4RJX3 UniRef90-M1PI87 UniRef90-J7IYV8 UniRef90 UPlo004753A9B UniRef90-LTF4P2 UniRef90-UPIO0047ABEFD UniRef90-UPIO003646184 UniRet90-F6D4A3
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UniRef90-U5NB25
UniRef90-U5W221
UniRef90-F5LCNO
UniRef90-UPIO0047827F4
UniRef90-UPIO004773CFF
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UniRef90-X1RSS8
UniRef90-U2CIL7
UniRefofo-EORFJ4
UniRef90-UPIOOO37B528E
UniRet90 - x1R3R4
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UniRef90-D9S2C9
UniRef90-D8HX20
UniRef90-D1GLU9
UniRef90_Q48925

KGRILMGTVSEDIHDIGKDIMDEMLTAEGFKVMDLGVD
R G GTVGTVGDHS GKQMVATMLLSSSYEVIDLGVN SKGKIVLGTVEGDIHDIGKNITGAMFTAAGYKVFDIGTD KGTVVLGTVYQDVHSIGKDLAKTLLENYGYRAIDLGVQ KPGKVIVGTVAGDLHDUGKTLVKTMVMSLRDKVIDLGVD PRVLLSTISSDSHTWNLVFLQLLLEEGGNEVINLGPC KQGKVVLATVKGD HD GKNIVKVLLENYGFEVIDLGKD KHKVVIACVGGDTHDIGKNLVKDMMEYHGWDSIYGAA KHKVVI GVIEGDTHDIGKNLVKIMLETSGFEVFDLGRD GKYLIATIEGDDHDIGKNIVGMMLDLNGFEVMDLGVD RVI TAASLFDGHDAAINVMRRLI QSSGAEVDHLGHD GRILTATVEGDHDDGVKLVGMMLEGAGFEVRNLGVD $R K G V F V I G T V M G D L H D I G K N L T G M M V E G S G W E V D D L G T D$
$E R L K F L M G K P G L D G H S N G A E Q T A S R A R C G M K I E Y Q G I R$ ERTVLGTMEGDIDDDGKNII HYMLKSSGFRVIDLGVD VDRTRVLVTKIGGDGHDRGARIVASFLRDAGFEVIVTPPW RKKVVGASTGTDAHTVGDDAVMNMGYAGHDAYNLGSQ RRIVVVGASTGTDAHTVGIDAIMNMKGFAGHDAYNLGSQ VSKGKIVCHVAEGDVHDI GKSTVSALLRANGFDVVDLGRD GKLI ATVAGDLHD:GKNLVAMM1 ESAGFEVIDLGVD GKMII GTVSGDLHDIGKNLVAMMIESAGFEVIDLGVM K S GKVLIGTVKDDIM

KHG
vV GSVQGDMH
KHGVFVGTI YGDIH GVLLMGTVRGDLH
KIVAATVGEDEH LMGTVRGDLHDIGKNLVCMMAEGAGFEVHDI GVD GTVGIVEGDSHFGKDSVATALEDEGFEVIDLGNG KKGVFVDGTVQGDDHDLGKNVVVTLLRTVGYKVIDDGKD RVVAATVGKDEHSVGDDI KHGGIEKYGFKVTYLGTS GRVLDGTVKGDLHDIGKDIFRGMMEANKFDVDDLGVD EKGTVVIGTUKDDLHDVGKNLVRMMMESKGLDVIDLGNS RTGKIVVASVYGDCHDIGKNIFASFATTAGFEVIDGIDD MSRKRVLLVPLDPVHDVGLKMIRRGLDEAGHETILLPPD KTGKTVIGTVKGDIHDIGKD FRHMLEAYGFDVI DLGVD KVVTGVVGNDIHVVANRLI DISLQARGFEVFNLGVN RKDTVVGACTGSDAHTVGDDAl MNMKGYAGFNAHNMGSQ RVGKVVMGTVAGDTHDI GKDIVVFMLDVNGFEVYDLGVD RNLKLVAACVNNELHE:GDRMVSDFFEMNGWESDYLGAN DKIKIILATVKGDNHDIGKNDLGSLLLSSGFELFDLGMD K GTCIIGTVAGDLHDTGKNLVSMMIESAGFDMVDLGVD KKGLMVIGTVEGDVHDIGKSIFKNAVSMSGFDVIDDGGVD
 RR爵KVLMCCLGPETHNRG\|IVVSTILKEEGMEVVYMGNT KKGTVATFVVEGDLHDIGKNIVAALLRANGFEVLDLGRD

RTVILGVAASDSHVVANHLIAHALRAEGFRVVNLGAC KSGKVLLGTVKDDIHDI GKEIFRALLETHGFEVLDLGVD RNUVVVGASTGTDAHTVG\|DA!MNMKGYAGHDAYNLGSQ GKIVFGTVEGDDHDIGKNDTISLLRCYGFEVYDLGVN RFVTASSLEDGHDAATNIMRRILQAQGAEVVHLGHN KRVLLACVEGNYHAVGLRMVADAFLLGGWDVHYLGEN DKTKIILCTVKGDNHDIGKNVLGSLLLSSGFELHDLGMD RKVVGATTGTDAHTVGLDAIDNMKGAGFEVYNMGS RKITVVGACTGTDAHTVGGDAIMNMKGYHGILAYNLGSQ KVVTGVVGNDDHVVANRLI DLSLKARGYEVYNL GVN RRVLLACVEGNHHAVGLSMVSDAFSLAGWQVQYLGAN PS L LTGTS SDSHTWNLVYLQLMDEEMGCRVHNLGAC TMVAACVGQEDHEVGLRMVADLFELNGWDTYYLGAN RKLVVIGATTGTDAHTVGDALMNMKGFAGHEAYNLGSQ RVLVTTIASDSHTWNLLVYLQLLLEEMGHEVTNLGAC RKGKVATFVAEGDLHDIGKNIVVAILRANGFEVMDLGRD TVLIGTVKGDIHQIGKDLVAMLLETGGFDVHNIGED K LVAGTVGEDEHSVGGDIKHGGLEKYGDECEYLGTS KGTVVMHAAEGDPHDI GKNTAAVLDKSNGYGVVDLGRD GDLHDLGKNIFMNFARGAGFEVIDLGTD GKVLLATVKGDVHDIGKNLVSVVMACNGYEIVDLGVM RKGKVVAATVGEDEHSVGLREVIDIKHGYGDEVHYLGTS RIVTAASLFDGHDASINIMRRIMQSQGAEVIHLGHN GKVILGVAASDAHAVANHLIAHYLRGLGFQVINLGVC SRGTIVLGVTASDAHVVGNHLIJAYLRRQRFHVVNLGAC GRVIVGTVKGDLHDIGKEI FEGLMKANGFEAI DLGVD MI LGVAESDAHAVANRLTAMHLSQAGFEVVNLGTC
GVVIVSSLASDAHTWNLVYLQLLLEEHGFEVVNLGAC

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UniRef90 D5EBE6 UniRef90-D4LG86 UniRef90-E3GPQ9 UniRef90-R6SA95
UniRef90_D9QPL9 UniRef90- H5XX54 UniRef90-UPIOOO4066450 UniRef90 B8F9X9
UniRef90 C6PR89 UniRef90-A6UULO UniRef90-Q024B8 UniReffo-D9RY10 UniRef90-B5JESO
UniRef90 Q46AM1 UniRef90-H6LIG7 UniRef90-LOF453 UniRef90-B8D000 UniRef90-F4LTI2
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UniRef90_F5LCNO UniRef90-×0SWY6 UniRef90 UPIOOO47827F4 UniRef90-UP10004773CFF
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UniRef90 - W4N UniRef90-W4NLU5
UniRef90 D9S2C9 UniRef90-D8HX20 UniRef90-D1GLU9
-

,
 V P P ERFAEAAEKYNADVVGMSALMTTTMLEQRNVI E EL K K
 $V$ K S S V F V V S A EKFVDAVRENDVKIVACSGLLTTTMPAMKETVQSLKN I K A E DF A A K A Q E VGA D I I GAS ALLTTTTMSA QK D I I E Y L K E


 $V$ P PAA A F V



 V

## O <br> \section*{V}

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-TPAERVIDTMRSGKLILVNGS VSGETFVKKTREFKPDIIGLIS VENEFFVRKADEDKADVLVSGVLTSTDDQMKQVIDILAA VANEEFVRKALELKADVLLVSQTVTQHLQNLTHLVELLLEA VPTVDVVKAVKEYNPVFVTGTALMTTTMTVFPKVVEALQK VPSLTLVQEAKEWKPDVVGLSVALAHHLHAVKETITGLRQ VDANVIVDKVKETGATVIALSSLLTMTVEQUKNVHEALKV VENEELVRKAVELGADALLVSQVVTQKDVHIHNLVDLLEA VENEEFFDAVVETGAEVLMSSSLNGEAEGWGREVGKLLKY
,


 CPDEKLIDAADETKAQVIMASTIITHHVKNMRKLHDLCVE VLVDNVVKAVEEHKPVVVTGTALMTTTMSAFPKVTERLAE VAKEKFVGAVKEHSPLALGMSCLCTVTTGEDGKVIEELKG
 TPVSEFMGAYDEHDALAVAAGGSMNGHALQDLRELVKLLKQ VSKEVFTKSVIKYKPDIVALSGVLTSTVDSMKEVVDALVE



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UniRef90-K4KSL7
UniRef90 X1M493
UniRef90 B8FXL1
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UniRef90-T0Y6E9
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UniRef90 D8HX20
UniRef90_D1GLU9
UniRef90_Q48925

RDAFESVRIVKEML
$A P \quad A V T L V N K L L G L D$

D R $\square$ A E $L V S$ GARQA $\square G A$
A R

D G R T M G L M G M $\square \mathrm{HH} \mathrm{L}$

T $\square \mathrm{MMDDV}$

TAPRHIVEVV
TFAEDV $A$ AFIV $H K$
$S \nabla A T D L V$
$\nabla$ S TARLVRG $\|$ VNAVR
$T K G \square H V A S F L V K K D R$
TDASSAVELFLKFI G PEDAVSKAKSAL

TS GDEVASFLVKK
TYADDVASF $\square$ A QEL
T T VEea Laf VERREYVE
$K D A \square D V A N R L I Q$
$T \square P P D \nabla A T Y \square A K K \square$

R P P D

DRPDA $\square$ ESFRR
T K R DELVTVIKNAAND
DELPSALAELR
SKIEDCLDEWKR
K Y A D DVASFAVKE $\square$

TYADDVASYAVQEL
TFAEDVGAFIAQE
$T \square A P D V A S F V V Q E$

T FSENVASYFVKE!
GSVPEFRSFV
EPID

THGNNVATFIVETL
EEADEVAGDLL
LVEKAAAGW
VTGTD I I
T K G V H VA S F L V/K

AELVPLLDS LDRPKVAV PDAVPEFERYL

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 RRLVATCVGDEIHEVGLDMVADLFEAEGWDTYYLGAN HDI GKKIVGMMLEREGYEVVDIGDD KKGR LLLGTAMGDFHGLGKKIVAGCLKAHMFEVHDLGIN DRDSVVIGLIRGNTQDIGKNLVALILTAHGYDVCDLGKN GRIVVACMDGEWHALPPRLVAEVLRLRGWQVTFLGAS RPRRLVSACVGTEQHEIGDRMLTDFFEMDGWDTYYL GAN RPMRII A GTLGEDEHSVGDD LIHGGDEKYGFECDYLGTS RKIVRVLIASSLFDGHDASINIMRRIFMSQGAEVI HGGHN $R F V T A A S L F D G H D A A D N V M R R L L Q S Q G A E V V H L G H D$
$H A V L S T I P S D S H T W N L D L Q L T L E E Q G W E V T L G A C$ SPPHAV LI A TVESDSHMWNLVVYLQLWLAE H GFNVKNLGSC $K V V I G T V Q G D \square H N D G K D L V V A M L K A G N F D V V D V G V D$ GRVTVACVDGEWHALPARLLAEVLRLRGWQVDFLGAQ PKI IVTTPTGQLHEI GALIVASTAESDGWQV $\square Y$ Y G VN $\square K V V A G T A G N D E H S V G L R E I$ LDDKHGYGDKYTYLGTS $K G P V V L G N V E D D Y H S L G R K M V A V F L R A A G W K V I D L G N D$ RGRVTVACVDGEWHALPARLVTEVLRLRGWEVDYLGAQ QGTVVIGTSFGDFHGLGKKIVTGCLRARMFQI DDLGDN RQPRILMARMGEDQRDKNRMVVATGFADLGFDVDVGPHM

 VQEGTIIGTVK T DIH DI GK SMFKSVALAS GFKIVDLGVD

 EHMKVVCGTVGDDEHSVGINIVHGGIEKWGDECVYLGTS
$G R V T D A C V D G E W H A L P A R L V A E V L R \square R G W Q V D F L G A Q$ GVLVSACVGGELHEIGLRMLTDVFEMEGWDTHYLGAN GKVMLF CLEEEQHFIGLKMVSLLFEEHGFDTRFLGAD $R$ PKVLLTTLDPEMHSLGLLMVEAMLVLEGCHCVSLGTQ RPVAVVSSTASDAHTWNLVYLQLLLEELGFAVSNL GAC RRLTVVGAC IGGTDAHTVGIDAILNIKGFAGLKVVNLGAQ KKVVILAPLDPVHDVGLKMIGRGLNQAGHETFLLDPDD $R D V V I V G A S T G T$ D A H TVVGMDADMNMKGYAGDEAYNLGGSQ $R P R V L D T T L S G E G H G L G U L M A E A M F T L S E C E C V Q L G L Q$ MVGCCVGE E LD HELGMRMVCDFFEMDGWDTYYMGAN
 $K G K V V L G T D K G D \square H D L G K D \square F A T L L K D E G F K I V D L G D D$ $R K L V V V G A C I G T D A H T V G \square D A I L N I V G F A G L R V L N L G A Q$ KGKAVISAAANEYHEI GSRII ADSLDEM GWDVDHLGAD $K \square K I V A A T V G E D E H S V G L K E I L D I K H G G G \square E C N Y L G T S$ $R G R I A V A C V D G E W H A M P A R L L A E V D K V R G F H V D Y L G A Q$
$T \| I A L T P$ GAELHNDGLRMITDFLELKGYNVDYLGS N
 $K \vee L \vee G S T$
 $L R R L H V L V T G T S S D A H T W N L M Y L Q L A L E E A G H D V T N L G P C$ H T WNLVVL QLVLEELGHRVVNLGAC RRKAVVLSSQNEYHELGARILADLL ELSGWNVSYLGAN RKPKVV CGTVGEDEHSVGワDIVKHGGEKYG』EVHYLGTS R R P R V L L F A T L P G E P H E L G L L L GA A LLY A H DA GAP V L Y L G T E SKGNVASFVAE GDLHD GGKNDCAADMRANGYNVV DLGR D S K GPVLVGNVED DFHPDGRKMVAAFL RADGWEVHDLGVD
 RPRILLLT TVP DE QHVLGGLMAEALLVLEGATEDSLGTQQ
$R G R V T V S C D D G E W H A L P A R L V A B E L D R L R G W R V D Y L G A C Q$ KTVVGCCVVSSEVHEMGMRMV CDTFEMNNWTTHFLGS G






## E Q

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 KKALI SCTANEHHQVGGKMVAD IFEMQGWDTQFLGAN RPRVLLTTMPQEPHGMGLLMAEAMLALEGCHCVSLGVQ

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AS AAAKLLNEHFKPE
A
$T K G \square Q V A D F L I R K$
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$\square P G M \quad \square$ NE LIDRECDVD
A
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TKG $\square$ HVAS F $L V K K \square R$
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A S VP D
E D 1 D E VIG F $\square K$

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 PRITCVCAPGEMHEDGLLFVTLYLRQHGYDVIFLGAG PKVICVCGPNETHEIGGLIFTLYLRRRGYEVI YLGSG $K K L L G G S D G S C V H V A G V L N F L K L A E K E G Y K S I V Y G G A$
RPRVLLTTLPDEVHVLGLLMAEAMLVPEGASCVSLGTR GRVTVVACTDGEYHALDTRLLAEEVLRLRGWRVDFLGAN PKUVVVCPPEEGHEMGAQTAAYLCALHGCHPHYLGAQ
 KKILGACVGSCVHVAG\|LNFLNLASKYDYSTKFLGSA
SRPRVLLTTFPHEPH GLGLLMAEPLFLLEGCRCLSLGVQ
 K QKTVVAAALGECVHVAGVMNFLRLAEEAGWRTVFLGPA $M E S K K V L G A S L G T C V H V A G V Y G F L T L A E R F G Y Q T V F L G P A$ DKRRVLLMGAPGEQHTFGUA VEQFLCKAGWNVVSG
SRGQVMVACVDEEWHALPARMLAETDK $\quad$ RRGWRVDYLGAQ PKALLFGVAEEQHYLGLRMAASIFREHGWSVKYLGPN RTTILAACAPGEHHDLGLLLLAGLMLVRRNYRVVFLGAD $W N L V L G L L L E E R G G E V V N L G A C$
 RRALFAS $\quad$ E G DQHSFGTVVIDELFGSNGWTTHRINEA MLLENYEYRVVDLGRD $\square R S N R A L F T T M P N D Q H S L G T \square M \square S E C F Q R A G W D V E A L V E$ EYHTLGKKIVSAVVRSSGFDLIDDYGSI


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