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UniRef90-G0SBU0
UniRef90_W3XD91
UniRef90_G0SOU4
UniRef90-E3QZI5
UniRef90-B8N2U8
UniRef90_W4JPN3 UniRef90-UPI0004407AB5 UniRef90-G4NEQ9 UniRef90_N4V6D9 UniRef90-Q4WZA6
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UniRef90-K9FQD7 UniRef90_U4LD08 UniRef90_B2ADY6 UniRef90-N4VHA3 UniRef90_N1Q6N5 UniRef90_E3QNF6 UniRef90-S0EAD7 UniRef90_Q6AW20 UniRef90_M7SZY2 UniRef90-Q0C7G4 UniRef90_A7E452 UniRef90_L7JP18 UniRef90_G2QFG4 UniRef90_N1Q371 UniRef90-A0A017S085 UniRef90_G0S9N2 UniRef90-M4FMG4 UniRef90_D8Q4W7 UniRef90_F9FVP6
UniRef90 C9SIK4 UniRef90_R7YNY2 UniRef90-A0A010QCR6 UniRef90-W3WGP7 UniRef90_K1Y433 UniRef90_M7T780 UniRef90_G2QFY4
UniRef90_K3UHT7 UniRef90-J3P7F1 UniRef90_K2RVZ2 UniRef90_Q7S6W8 UniRef90_B2WA23 UniRef90_Q9P8H5 UniRef90_K2T0Y1
UniRef90 C7ZFC9 UniRef90_G4UQF4 UniRef90_C5GSM4 UniRef90_Q53UG9
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ESASOFT 10 ${ }^{10}$ T GFOFTGTT ${ }^{20}$

20 THOTV 30 ${ }^{30}$

ASAYTDPQTGTDFQRYKPDAYPYSFGIAVPETT Q
 RGAYTFGGAASSTPYTDPATGLTFDTWAS
AVVYVDAASGITFQRH SETSGFAFGIAALP QSSSSYTDPSNGITFQGYSDPVHGVTYGAVFPPDATSGSN QSNSYTDQGGITFQGITDPTHSVTYGFVFPPT


PDAYGYCFGLALPETV

QSAAPYTDAKTG』KFNGY C P PTTGVCY DGGGIC

SSTPYTDPATGПIT DTWTVPT
ASITDPPT DV APTPYTDSETGITFATWSVPDGGLTFGVAL APTAYTDPGTG|TFDTWTMPATGTTGGMAL VIVEYKDATSGGUTFQQYTDTK

SVAYEDPDTGपKFSSYTS ADNVCF GGLPK
 QSSNAFTDSKTGПQYQQYYTPSGGYSFS円SLP
$\left.\begin{array}{ll}T Y T D Q T S G \mid K F K T W T Q E A S P F T F G L A\end{array}\right)$


TPTVWTEPGTG VENTWS QQSTPYTDPDTGUV
SASNYIDPDNGFQFTGVTASGSMTYGAFP
ASGDYTDPDTGDTFTTWTASAGAFTFGLVLPEDADTSTD
TSAYTDSASGПEFQRWCDDDTGFCFGI ALPEETT
ASSTI SAQQVSHCSDDVCFAVNVPASA ASSG
 SSPYEDPETGLTFASYTS DRGMTFRVA| PDPVPEDKV

 SSAYTDPKTGUDFQRFVDD GYSLGIAVPETL NGNSGVCFQVAVPETA ASAG ASAYSDPQTGTDFQRYLPSSYPYSFGIAVPET
TVAYTDAETGI KFQSYTDTVTNTSWRVALP LSTDG QQTSAKVDSNTGITFQGKTDAT GYYFGMAVP
TTEAYNDPNTGIIDFQRY ATNEYSFGTAVPENPEA

A S E
 QTGASYVDPDTGFTFWRYVN GNYTFGLVFPEDVT QTGASYVDP DTGFTF WRYVN GNYTFGLVFPEDVT QATPYTDDKTGUEFLGFHDPGGYRGGYA|LPE



## QUERY

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UniRef90_M4G917 UniRef90_D8QLR8 UniRef90_Q0C8J1 UniRef90_UPI0004414BB1 UniRef90_B8NQP5 UniRef90-W3X8R3 UniRef90_UPI000455E3A0 UniRef90_V2YCQ0 UniRef90_M1H9C3 UniRef90_M7TXS5 UniRef90_G0S434 UniRef90_W2RTG2 UniRef90-O74240 UniRef90_A0A017S554 UniRef90_Q0CDT4 UniRef90_M2RI55 UniRef90_V2XGG5 UniRef90_UPI000440EED0 UniRef90_G2RB43 UniRef90-U1HH53 UniRef90_TOKEE5 UniRef90_UPI0001F2B0DD UniRef90_S8BYK0 UniRef90_C9SN76 UniRef90_Q0U591 UniRef90_E3RTS7
UniRef90 G0SBU0 UniRef90-W3XD91 UniRef90_G0S0U4 UniRef90_E3QZI5 UniRef90-B8N2U8 UniRef90_UPI0004407AB5 UniRef90_G4NEQ9 UniRef90_N4V6D9 UniRef90_Q4WZA6 UniRef90_F9WXY5 UniRef90_E7D6C2 UniRef90_A1C890 UniRef90_R8BXS0 UniRef90_UPIO004415CB8 UniRef90_N1S424 UniRef90_F7VXV1 UniRef90_B2AE93 UniRef90_K9FQD7 UniRef90_U4LD08 UniRef90_B2ADY6 UniRef90-N4VHA3 UniRef90_G2QV06 UniRef90_N1Q6N5 UniRef90_E3QNF6
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UniRef90_Q7S6W8 UniRef90_B2WA23 UniRef90_Q9P8H5 UniRef90_K2T0Y1 UniRef90_C7ZFC9 UniRef90_C5GSM4 UniRef90_Q53UG9 UniRef90_UPIO00455D10D UniRef90_W3XF57 UniRef90_Q2H3T9

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140 A 150
150
160
CQGCTEWNNGGGTDVTSQGVLA WAFSNVAVDDPSDPQSTF CQNCTSWSGGGSLATTGTGVLA WAYSDVGVDDPSDPQSTF
 CQGCTSWTSPGSMNTNGVQVFGWAQGTTAPATPANPASTF


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| :---: | :---: |
| UniRef90 UPIO004449F18 | GIDYSAHSANY |
| UniRef90-M2C | EHTDF |
| UniRet90_F8PAL | QEHTDFGF |
| UniRef90 M5BP, | EHQTFGNWAHVTSTPHFSNYDDFLD |
| UniRef90-M4G917 | NFHSNFGRFKADLAAA |
| UniRef90-D8QLR8 | AQHTDFGFYGLDFASA |
| UniRef90-Qoc8 | QHDSGS |
| UniRef90-UPIo004414BB1 | AQHDDFGFWGMNLAAAHDANYEA |
| UniRef90-B8N | VQHDNQGIISATLENAASVSYED |
| UniRef90-W3X8R3 | HDAFGQYGGQLSGA |
| UniRef90-UP1000455E3A0 | HDQMNFFGLELSD |
| UniRet90-V2YCQ0 | QEHTDFGLYG\| DFSAATAEDYMN |
| UniRef90-M1 H9C3 | NEHTDFGFFGIIDYTTAHVDSYTG |
| UniRef90-M7T | NYHDFFGMFGAD\EAAS |
| UniRef90 GoStu |  |
| UniRef90-W2RTG2 | G |
| UniRef90_O74240 | EQHDGMGIUWGAQLSDAASPS |
| UniRef90_A0A017S55 | AGFGTFEVLLSKAKSAKY |
| UniRef90-Q0CDT4 UniRef90 M2R155 | PYHAGFGSFKMLLSTDAKSSKYSTW |
| UniRet90 V2XG | QHSDFGFFGMDFSEAHVSDYERWI |
| UniRef90-UPIO00440EED0 | TEHNEFDFFGVDLSTTHSSSYDTYL |
| UniRef90-G2R | EQHDGQGITWGAQLSNAANPSYT |
| Tok | A |
| UniRe90-UKEE5 | NYHAGFGSFQMVLADAKSAKYSTWAS |
| UniRef90-UP10001F2 | NYHAGFGSFQMVLSDAKSAKYSTWAS |
| UniRet90 C98SN76 | QFHSSFGNFGVDLAAAQSAQFATW |
| Un | TYHSGFGAFGMPLADARS |
| UniRef90-E3RTS | SGQATFTWDFANAKGGSSVN |
| UniRef90-Gosbuo |  |
| UniRef90-W3X091 |  |
| UniRet90-Gosou4 | StM |
| UniRet90_E3QZI5 | NYHAGFGLIF GANLADA |
| UniRet90_B8N2 | ARHDIDGTWTAMLDD |
| UniRef90_W4JPN3 | DEHTDFGFFGMLFSSATQSNYDAYLS |
| UniRef90-UP10004407 | S ${ }^{\text {a }}$ ( |
| UniRef90-N4V6D9 | G HEGVGHWYHDFETAQSPDFESW』E |
| UniRef90-Q4WZA6 |  |
| UniRet90_F9WX | RRHDNASPFKWNLAAASGGAD |
| UniRef90 E7D6 | NFHNGQM WGA |
| UniRef90-A1C890 | AQHDSQS WAAKLKNAVSTKYEEW |
| UniRer90-R8BXS0 | HNYFNFFGA |
| UniRef90 N 1 S 424 | NYHAGFGGYSLDTAAAQSADFETW |
| UniRef90 F7VXV1 | SQHDDHDEFQLDLTQATVSSDS |
| UniRef90_B2AE93 | E |
| UniRef90_K9F | TQHDDHGVTTIDLKKATGGNSVN |
|  | NGMGQYGMVLASAKFSQYQT WLD |
| UniRef90 B2ADY6 | HDGFGQWGAPLEGATSESYAEWAQ |
| UniRer90-N4VHA3 |  |
| UniRer90-G2QVob | GFHDGYGQWGAPLDGAAQASYSTW |
| UniRet90_- 1 Q6N5 | HDASPFT |
| UniRef90-E3QNF6 | QHENQG HGVPDASIDADPSYSAWV |
| UniRef90-SOEAD7 | ETSSLFGGQLTSAFNSKYGT |
| UniRef90 M 7 SZY2 | QHDGFGQFGAALDDAPNVS |
| UniRef90-00C7G4 | dGYGGRYVDLTRAK |
| UniRef90-G7XY49 | PYHAGYGGFEVQLAEARSSKYSTWAS |
| UniRef90-A7E452 | GFHDG |
| L7JP18 | Q |
| UniRef90_G2QFG4 | Q |
| UniF | GD |
| UniRet90 A0A017S085 | ARHDSQGTWTALLENAASESYDKWDE |
| Gos92 | GIHHSSLGMP |
| M4FMG4 |  |
| Ret90-D8Q4W7 |  |
| F9FVP6 | SYHAGFGQFGLDIKNAASAKFATWAD |
| UniRef90_C9SIK4 | D |
|  | R S |
| UniRef90-A0A010QCR6 | YHSGFGQFGLDIASAKSAKFD |
| UniRef90_W3WGP | HDSVGHWYADLAAAK |
| UniRet90 K 1 Y433 |  |
| UniRef90_M7T780 | K |
| UniRet90_G2QFY4 | DGFGQWGAVLEGATSDS |
| UniRet90-K3UHT7 | AGFGGFSVDAGSSKSAD |
|  | HDGMNLLYPANLVAAANPSY |
| UniRet90-K2RVZ2 | HDGMGQYGHUASARNTAYSTW |
| UniRef90-Q7S6W8 | HDSLGHPIMDLAVAK |
| UniRet90_B2WA23 | NYHDGFGMFGLPMANATSADYPKW |
| UniRef90_O9P8H5 | W |
|  | GYHAGFGAFGM |
|  | W |
|  | A W |
| ni |  |
| UniRet90-Q530 | D |
| UniRef90-UP1000455 | D |
| UniRef90_W3XF57 | NHDNYGNWY NMEDAKSANFAWD |
|  |  |
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UniRef90_GOS0U3 UniRef90-M3AXK9
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UniRef90_S3BP98 UniRef90-W7HZX9 UniRef90_K1XB55 UniRef90-M1W3H6 UniRef90-Q0CXQ8 UniRef90-S0DJJ1 UniRef90_Q7S0Y1 UniRef90_I7ZUA0 UniRef90_A0A016PY03 UniRef90_E9EJP4

 QASVKYCDPVSTI CYSEWINPPER DAFRTAAPENATATAD


FSPASDVVYRVVVPES TASSN QSSSASYDSNTGGDFQTYFDTTTGYSFGMAIPEDAT QEP T P Y K D P E T G I Q QTSTSFTDPNNG $\quad$ TT FQGGLQEPVHGVSYGFVFPESTT QS GS $\square$ Y T DPGNGF T F D G I T D P V Y DVVTY GVI F P T D T T D A G GVVCYS I A I P P T S S A N A G TSTACAQTSSSCNSNICYYLNIPES TANS G QAPTFTTHES GVRFGTWAAQQSPFTFGMALPENADTTTD
 S P T Q WY D S $\square$ TGGVTFFSRFY C P E T DVVC F S L L NV P A S S K T N A E T P T Q Y T DP D T G I I F S T WA I G Q A S M R L G V S L P A D A L T V D


## Q VF S S Y VD

DNGIVLWQNTWDS GNAQWGLA P
A T A QVA


Y T D S Y T GI S F S CAT GYLF GMALPETV
$\begin{array}{ll}E & T \\ D & Q \\ K & N \\ E & T \\ V\end{array}$

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


 QEQTMYYD KF GRCFASYTN DGGITFGIAIPEGATS GT
 DPNDNVTVSINVP

N D N

DATTGFTFSSWTN DHGUVYNGAVPDPDPA D G
 T S E WC D SIT D I C F Q R Y Y D A D L D D I A WG Y V FP P S P S S A G E P




QS T R VCD G LT G $\square$ CWS TY T T T T D G I Q Y S

A ALLFTPSALAI T PEFCPKNGKVCFTWGVPEASASS G


UniRef90_UPI000462173E UniRef90_GOSOU3 UniRef90-M3AXK9 UniRef90- S8ASV2 UniRef90-B8M127 UniRef90-W2S1M7 UniRef90 J3KDQ2 UniRef90_Q1K8P3 UniRef90-S5R9V1 UniRef90-W4KLQ3
UniRet90

T5AKY UniRef90-K3VZJ1 UniRef90-B2AVK3 UniRef90-G4TER5 UniRef90 E5R1N7 UniRef90-J9MIC6 UniRef90-M7SAW1 UniRef90-W9YEF8 UniRef90-C7ZHV7 UniReffo-B2APB2 UniRef90-M2ST56 UniRef90-Q4WC40 UniRef90-W3WYD7 UniRef90-UPIOOO455DBE2 UniRef90-E7D6C3 UniRef90-F9XFX0 UniRef90-UPIO00441773E UniRef90-Q8J2T4 UniRef90-G2RFK6 UniRef90-K2S715 UniRef90_J3P869 UniRef90-O2GTT2 UniRet90_F9XKK6 UniRef90-A8POV4 UniRef90-Q5AWV0 UniRet90_E7D6C5 UniRef90-G9NMA4 UniRef90-N1QGVO UniRef90-N1QJA2 UniRef90-F9XBY8 UniRef90 N1PR67 UniRef90-E4ZX50 | UniRef90_-B2AKW9 |
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| Uniren | UniRef90-M2ZOP1 UniRef90-E4ZK85 UniRef90-C0S2P1 UniRef90_M2YMP3 UniRef90-S8BLV9 UniRef90-W9CTZ0 UniRef90-МЗАYА9 UniRef90-H6C8Z5 UniRef90-Rolz76 UniRef90-Q7SHD3 UniRef90-A0A014MVX3 UniRef90-A6REL3 UniRef90-O42729 UniRef90-BOYOC7 UniRef90 E9E7A7 UniRef90-W3XKU6 UniRef90-H1V6C8 UniRef90-G2QU23 UniRef90-E3Q6HO UniRef90-V514F4 UniRef90-E7D6C4 UniRef90-C7YHC9 UniRef90-U7Q8G5

UniRef90-G2R1W2 UniRef90-E3QZT9 UniRef90-B2ARVO UniRef90-W9WT53 UniRef90-C4JIZO UniRef90-W9XHN8 UniRef90-R8BIP6 UniReffo-GOS3BO UniRef90-A8POU5
UniRef90
K2SEP2 UniRef90-I8IFR3 UniRef90-Q6BDD5 UniRef90_S3BP98
UniRef90 W7HZ9 UniRef90-K1XB55 UniRef90-M1W3H6 UniRef90-QOCXO8 UniRef90_S3DQL3 UniRef90_SoDJJ1
UniRef90 $\mathrm{Q} 7 \mathrm{SOY1}$ UniRef90-17ZUAO UniRef90-A0A016PY03 UniRef90-E9EJP4

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70
S VNFVPASFGWSGLSMGGQMSNSLLFTMWPNGNE\| P F D L F F Q LVVA K D A G WA A V G WG GRMNYN PLTVA WPN GD S V
 S GP Y YFQLLK STRQVSWFALGQGSGMSGSNIFVVYPNGNNV


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## S

$M V G S R W A D D Y V L P T A Y A G$
$V V S S R W S T G R V V P G A Y A G$ VVSSRWSTGRVVPGAYA VLSPRWATGHVMPTESTNA TVSRLGRGQVQP TVSPRLGGPHVEP TVSPRLGTGHVMP LYYSQARFSVLNGSGISNGVITANIR

 PKUTLLPPS INSTHVNAFR ASYTVLPTSTANATHWQLDVL
NVQLEELLEGSGAN GTMTANVR N
 TGUQDGSMVANVR
TGUSDGRMVANVR
SGTNASHWTLNAL STMATHWTLNAL
STVNSTHKWVYR
STVNSTHIKASFR LTSFHWASAQVEPVQYKGKATVRGIEGSGVDDGHMVANVQ YTTLRYAGGYAMPDKYAGNAEAGURSSKQNDDGFTLYYR VWSTRMASGYVMPDPYSGQPTVTQLSSSMMNSTHWKFVYR TLSTRTGRGHVMPE YTERSEVELLAGSGVKNNKMUANVR VISPRLATGYTTPSVYSGDVTLSPISGTFVNSTHFSATFL ITSFRLASSYANPDVYTETEALPIANGTFINSTHISYTFR VVSSRRATARTYPQPWTGAATYTVAGGGVANSTHWSYTFF<

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UniRef90
G2QMC6 UniRef90- $88 A S V 2$ UniRef90-B8M127 UniRef90-W2S1M7 UniRef90 J3KDQ2 UniRef90-Q1K8P3
UniRef90 ${ }^{\text {S5R9V1 }}$ UniRef90-W4KLQ3 UniRef90-T5AKY7 UniRef90-K3VZJ1
UniRef90 ${ }^{-12 A V K 3}$ UniRef90-G4TER5 UniRef90 E5R1N7 UniRef90--J9MIC6 UniRef90-M7SAW1 UniRef90-C7YEF8 UniRefefo-B2APB2 UniRet90-M2ST56 UniRef90-Q4WC40
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UniRef90
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UniRef90-E9EJP4

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CQNCTAWDGGGSENDDGTAVLAYASTKTPVEDPSDDDSS
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COCSDVAGG
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C SSCSKLAGG
CTNCNSWDGGSLSLGS
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| UniRef90＿UPIO00462173E |  |
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| ${ }^{90} 0^{-} 88$ | QQHD |
| UniRef90－W2S1 | RQHSSYGA |
| UniRef90－J3KD | QQHDVMGT |
| UniRef90－Q1K8P3 | SMHQSKGRW |
| UniRef90－S5R9V1 | HTDFGFF |
| UniRet90－W4KLQ3 | T |
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| UniRef90－K3VZJ1 | Q S F GGQL |
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| UniRef90－E5R1N7 | MMHDTMGGF |
| UniRef90－99MIC6 | DGDS |
| UniRef90 M7SAW1 |  |
| UniRef90－C7Z | 俍 |
| UniRef90－B2AF | GIHNTRGKFSHNLALGKISNFRAAV |
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| UniRef90－Q4WC40 | TRHDSRGV Tin |
| UniRef90 W3WYD7 Uni et90 पP1000455 | VYHDGANIYVANFTAAQSAQYATWAS |
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| UniRet90－J3 | GFHDGFGQYGASLEGVANP |
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| UniRet90－F9x | SRHDDAGAFKWD SAM G |
| UniRef90－Q5AWV0 | VQHEAQGIWVGKLSDAA |
| UniRef90－E7D6C5 | VQHNYQGIFGAGLVAGT |
| UniRef90＿G9NMA | HDSM |
| UniRet90＿N1QG | ＋ |
| UniRef90 N1QJA2 | QHAADGILMAATVASARNAAYTS |
| ${ }^{\text {N1PR67 }}$ |  |
| UniRef90－E4ZX50 | NVHQAWGKWIHNLDAARIDDFDSLVKK |
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| UniRef90－M2YMP3 | s |
| UniRef90－S8BLV9 | D |
| UniRet90－W9CTZ0 | and |
| UniRet90－M3AY | SANVAAT ASAR |
| 泿ef90－H6C8Z5 | HDEN |
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| UniRef90－A6REL3 | ， |
| UniRef90－O42729 | AEHTDFGFFGПNFPDAQSS |
| UniRef90－B0YOC7 | T $\mathrm{T}^{\text {H D F S GVATVNMKQA }}$ |
| E93 | HD GALFS |
| UniRef90－W3 | StD Toat |
| UniRef90－G20 | HDSLGHPVYDLSVAKNADFA |
| UniRet90－E3 | H |
| 咗 | QRHSEYGRFFMDMKQATGG |
|  | P |
|  | EHDEHSSFS |
|  | Q |
| UniRef90－E3QZ1 | RHQHVGRWMHNFKPAQSAGF |
| UniRet90＿B2ARVO | GIHD G |
|  | SKHEGYDFFNDNKAATGA |
| UniRet90－C4JIZ | QRHDDKGLFYFDLT QAVGGNSDN |
| UniRet90－W9XHN8 | SQHEGYDVFNLDFKSATG |
| UniRef90－R8 | S |
| UniRef90－A8POU5 | GQHDFDVSSARSDSYDMALD |
| UniRef90－K2SEP2 | Q QSYGSFN |
| UniRef90－181FR3 | HD |
| UniRet90＿C6BBDD5 | LEHNDFGFFGQNWQSAQT |
| UniRef90 S3BP | SVITPSYSTWA |
| UniRet90＿W7 WZX9 | PPHDSFANYGIGLEAARSSNYASW■ |
| UniRef90－K1X | AEHSNYGEP |
| UniRef90 Q0CXQ8 |  |
| UniRef90－S3DQL3 | GVHSKFGTWTHDLNAARNDNDSWV |
| UniRef90－S0DJJ1 | SEHDKHVDFSVDLA |
| UniRef90－Q7S0Y1 | PFHDGFGQY |
| Uni |  |
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1

T DTKTEETAASFFSPT LDFAFALNVPNDTTE SKYK DDSTNDT FGMYVDASTGYNFGGVLPDNALDKMD QA A A QYQG

F A P LKNEE LMYT DRV P E GTA HVG S N S GNYTFALNLPEN
 SAPFVVDQNTGLLQMERF FGARTSFGFAFATSSSTATA GS Q $\square$ TEP FVVDQVTGLTMERFFGSKTSFTHAFADPDNTAANTT

P A TE $\square$ S YRHYT
 A S S G
PATE $\square$ S YRHY GADNDCFAVGVP
 TF T DADSGlIFNSWS SK G G GFK F GVVALPE D A AL S T D

QQSAPFVDQATGLAMERFFGARTSFAFAMALPETTSSS



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

QTTTVLDRETGFTFSSYAGGTNP\|QLRVAVP
QFSQPFVD Q $\square T G L N M E R F F G A R T S F G F A F A L P$

STSTAVDTT TGG SSFSAKDGS\|NFALNIPEDDNNDNQ
$T \square A$ T Y C G D S N DV C Y S W GVVP E S T A S S G
K Y T D S K T G $\square E F W R Q V Q T A G G F E W G Y A L P G A A T A T N D$
QTFCPGVKNYTALNPD
$\square S F S P$ S CP G V K GVVCY T I GV P
ADAY



 T F TEPNTNIT FYTSYEPDGGYT F GI ALPPSATTHVD



STF S S P G G D V S F A F T V

 QKSAPFVDQATGLTMERFFGARTSFGYAMALPENTTSAS
 S GSGNYVFALNVPSN
T D WT SPDTG V VY QSYTG STGMTYGIALPT DS LT VD


| S T | $F$ | $V$ | $A$ | $P$ | $E$ | $N$ | $N$ | $V$ | $A$ | $F$ | $G$ | $F$ |
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| $S$ | $T$ | $V$ | $P$ | $E$ | $N$ |  |  |  |  |  |  |  |
| $S$ | $F$ | $S$ | $P$ | $D$ | $G$ | $S$ | $L$ | $A$ | $F$ | $A$ | $F$ | $T$ |

K F T H A G T G $\square E F$ WR QTVVSS G G L L E WGY V L






TSTAYSSSPAS G Y C D A S S K I C Y S WA V P S S S T S S S T


QCTKRYCDS QTLICY VGWTS TNGTTMGIALDATKTA



Q T E S Y VDP P D T G TTF Q G R T D P V V G VT $\square G Y V L P P$ P L E P A TANFTEPATGULMQRFFGAKSGFGFADAVP DTPSTAN

 STF V S P D G NVA F A l D I G E NV

## UniRef90 W6QAP5

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UniRef90 C4JN17 UniRef90－E5ACF9 UniRef90－G3J2U1 | UniRef90－Q0C7T8 |
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UniRef90－U11428 UniRef90－U11428 UniRef90－ROKWT3 UniRef90－E4ZUU3 UniRet90－C8VLS9 UniRef90－E5A9Q8 UniRet90＿Q0U0T16 UniRef90－A8NN13 UniRef90－W3X0z9 UniRef90 W2RMH2 UniRef90－E9E3A1
UniRef90 M1 WIJO UniRef90－M1 WIJO UniRef90－C7YRN 7
UniRef90＿M2STA3


50 ANEYIGILRCQSTNTWCGUSHGGQMTNSLLLVAWPWNGQV S
 $\stackrel{+}{A}$
 SKEFIGQLSFPNGAGWGAMGLTGDMEGNFFLAAWPDGGGV SKEYUGFLQCSKASGWCGVAHAGHMVDDLLLVAWPHDGEV SGNVYFR KAPTSLQWVALGTGEGMVGANVFLMYQDGGNV

A G NVVYFQQLDR P A A T Y A WA G L
 SYDAVIQVVAPNEVGWAGLAWGGSMVNNPLTLSWQNGQNV



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 GK GTARWS GVVS LAAGSMIDN K L L I V A WP NA Q T I
 ATSFI GHMTFPLANGWGGWSLTGDMEGPLLMAAWPDGGSV




## UniRef90 W6QAP5

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 IGSLRLATGYANPGVYSGAATLELEAGTATESTNFTMTFL TLSPRHAVGTTMPGLFDPEDDVELLGGSGVSNGTMMANIK VLSSRRASDHTVPGVWTGAQYTELKAGTHVNGTHWQYTAK TLSPRKAFGHDD VFYDPNDQAHLLEGSGIHDGVITANIR TVSPRRGTRYTQPQLDTSSARLQLLAGSGVSDGSMTANDA MATFRQGTNEDNPPEVKGNFAVRPGAGVRVNATSGTYTFR LTSFRYGS YSTPVLYGGSASVTQLYSSGVNSTHWVLVYK
 TVSPRLGGPHVEPDVYNPQAQVSULDGSGVSDGSMTANVR TLSTRTGTGHVMPQMTQRPAVALDAGSGVVDGQMDANVR MASFRQATNEDNPPEVAGQFRVRPDPGVSVNSTSLLYTFD VLSSRYTTSRSSPPTYTKATYTTRKAGTKVNSTHYQYTAK Th STRGKGHVMPE TLSPRLSYDHVEPS HTKNDSISVLGGTKIENGNYTVNAM KLSTRKGHGHDMPE YNTFQGVKLLEGTGVSNKTMVANVQ TVSPRLASGEQEPE Y YSSSDDVTLLEGTGLANNDMTVNAR

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160
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CGDCTSAS



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| UniRef90-M7SFN3 | PMHFNYGSFTADMVHATGS |
| UniRef90-U7Q3V9 | GFHDGYSQYGVDLTNADHPSYASW |
| UniRef90_S8B1S8 | AEHDAFGTFFVNLAKAKGPDSTNPL |
| UniRef90-A1C9B2 | ERHSKYGRFSID MTHATGGS |
| UniRef90_L7HQM2 | GFHDGFGQYGAVLE GLLARSEYSQW |
| UniRef90_U7PL90 | G $\square$ HS A K G K WT Q D G S AKLT GF A GLVQ |
| UniRef90-B2VRA7 | DFHEGFGPFTARLGAAVSAQFEA |
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| UniRef90-S3C8J2 |  |
| UniRef90-K1WP77 | GYHDGFGLIFAVDLAAAQSASFAEW |
| UniRef90-FOXFT9 | SQHDNTAQYKLDLTQAVIST DSN |
| UniRef90-E5A385 | NFHSSYGVFS WP FS SAVGGA |
| UniRef90-U7PTQ1 | T $\square$ HDVTNNWEHDFSVGQNADFAALVV |
| UniRef90-Q2H8S4 |  |
| UniRef90-181HX9 |  |
| UniRef90-J3P9N2 | R RHDDTSVFALDLSKAAIPS DSN |
| UniRef90-A7EIB8 | KRHDTYGVFAMDLSKA $\mathrm{K}_{\text {G }}$ A |
| UniRef90-A0A010SBE6 | GFHEGFGPFTARLGNAKSAQF |
| UniRef90-M4FWX6 | TFHDGFAQYFAEYAGAVSPKYKEW |
| UniRef90-A7ERA9 | YQHNGMGEFSlKVASATQSSYSEW |
| UniRef90_G2Q412 | DQHDNVAQFRVDLTKATVSADSN |
| UniRef90-J5K1T0 | NYHDDHSSFQI DLRQAAISADSN |
| UniRef90-D8PWK6 | SFHAGYGQFTVLLSEAQSPEYESW |
| UniRef90-B6QJ92 | RQHDVA GLA SVNLKAATGGN |
| UniRef90-G2YKD2 | SYHDGANIYNLNLTAAKSAQYSTWAS |
| UniRef90-G3JIZ6 | DYHDDHAVFQIDLGQAADAEDEN |
| UniRef90-M4FMS1 | PYHDVHQYWNHDFSAAGNPNFAALVQ |
| UniRef90-C7ZIV5 | GFHEGFGPFTARLAQAKTAGFDA |
| UniRef90-S3CN22 | PVHDVHSYWVHDFAQGANANFAELV |
| UniRef90-E9E1M8 | PYHDAFSSFSVNLQQAT\ASDSN |
| UniRef90-K1WMX8 | KRHDLYYGTFTMDLTKAVG |
| UniRef90-C7ZIX0 |  |
| UniRef90-Q0UAG6 | VFHDGQSQF GARVADARNAKYDTW |
| UniRef90-S8AW05 | ERHSKYGVFKMDMVHATGGSD |
| UniRef90-G4MXM8 |  |
| UniRef90-A2R335 | S 1 HDDMGG $\square$ QVDLT R A |
| UniRef90-Q0V5K2 | PVHDVYNYFTH |
| UniRef90-A7ELR7 | TYHTGFGNFADQTASAVNDNYATWV |
| UniRef90-G2Qll8 |  |
| UniRef90-S3CQ40 | KRHGSYGKFKMDLTKAVGA |
| UniRef90-A1C4G2 | DFHDSFGGAVVDLSCAQS |
| UniRef90-F8P6H9 | T $\mathrm{T}^{\text {H D V Y GSFELNLADAHFSDFFS LL }}$ |
| UniRef90_S3DF65 | GQHDGQGVFKVVVSSATHTDYSKW |
| UniRef90-A2QD75 | YQHDWHGTFTLNTTWAVGGNNTN |
| UniRef90-C4JN17 | DFHDDFGGAVIDLSRTKADSSDK |
| UniRef90-E5ACF9 | K R H $\square$ RYGTFTMDMLA |
| UniRef90-G3J2U1 |  |
| UniRef90-Q0C7T8 | ERHSEYGSFTMDMVRATGGS |
| UniRef90-T5A8W3 |  |
| UniRef90-F7VSM0 | S SHDGKAVWSHDLS LTA |
| UniRef90-S3CUW6 | SQHDTHGTITFDLQTAAGGDSVN |
| UniRef90_A0A017S0T0 |  |
| UniRef90-J3PGP7 | GFHEGFGPFTARLGNAR |
| UniRef90-S3CTW7 | EQHNGMGEFVIQVQSATHVSYSDW |
| UniRef90-L7HXI2 | GFHEGFGPFTARLAQAKAPDD |
| UniRef90-B8MCC1 | ERHSVYGNFVMNMTKATGGTD |
| UniRef90-G2X591 |  |
| UniRef90- W9C9Q9 | NQHDSYRQFTYDLTSATDTS DEN |
| UniRef90-G4N622 | GFHDGFAQWDAEYETAVSEKYDQW |
| UniRef90-A0A010SKR0 | KFHEEFGRFTLNMKRTVGPGDA |
| UniRef90-G9NVT2 | KMHSEHGTFTI DMKRTQG |
| UniRef90-E5A953 | VFHNGQSQFGITTVADARNQKYFDWV |
| UniRef90-G9N7L5 | ERHSRYGRFTMDMVRA IS S S |
| UniRef90-Q2GUN1 | S $\square H N S R G K W T H D L K S A Q 1 A N F A E L I E$ |
| UniRef90-K1WT04 | SQHDGMGMY DD PKLAVQASYSKW |
| UniRef90-K5XS03 | LEHETFGFYGADWT QAHVSAYNNWAS |
| UniRef90-M7TWH6 |  |
| UniRef90-Q7Z975 | DEHTDFGFFGEITSNAHVSQYEQYL |
| UniRef90-A1CVG5 | DFHDAFGAVVVDLNHARSTDLS D |
| UniRef90-ROIGK7 | AQHNGQSLFGAQVAPARNAKYADW |
| UniRef90-M2TCT3 | A Q HNGQGLFGAQVAPARNAKYSDW |
| UniRef90-Q5B668 | NQHSA |
| UniRef90-G2WR57 | PMHRQF G GFE\DMGR |
| UniRef90-U4KZR6 | SQHNAKGTFQLALQGADGNAGSN |
| UniRef90-I1RF83 | NEHDGTDDFSVDLSKA |
| UniRef90-E3Q5F1 | NYHSGFGEFGLDIAEPKSAKFQT W |
| UniRef90-U11428 | T Q H $\square$ A Y GK $\square$ MMDLT T A T G |
| UniRef90-S3DDI2 | NQHSDYAQFNFDLSKAALASDSN |
| UniRef90-ROKWT3 | DVHNSFGHYKANLTQGHNADFDRLI |
| UniRef90-E4ZUU3 | PVHDVYNYDTHDFSAGANPNFAALLD |
| UniRef90-C8VLS9 | SIHNDFGSTNVALANAVSTMDNPFLD |
| UniRef90-E5A9Q8 | SKHSTRSDAVFELDKARSP |
| UniRef90-Q0U0T6 | RQHTGHDTFSWDFATAKGGNSVN |
| UniRef90-A8NN13 | AQHTDFGFYGWALSHVDAETYEHWAS |
| UniRef90-W3X0Z9 | NFHNGFGGFQAQLGLARQADFD |
| UniRef90- W2RMH2 | A L H QAKGRFSTDMRSA |
| UniRef90-E9E3A1 | KYHEEYGVFNI DMRRTRGAADA |
| UniRef90-M1WIJ0 | TVHDGHSQFSVNLQQAS $\mathrm{V}^{\text {S S S S N }}$ |
| UniRef90-R01H62 | HVRYGFFTMNMLTATGP |
| UniRef90 C7YRN7 |  |
| UniRef90 ${ }^{-}$M2STA3 |  |

S S LQQ ${ }^{20} G S G N V T$ FA|L ${ }^{30}$
SASDPA
40

STFYLDETETQFSVNV ANN

 $S P V S Y C D G D S$

S K 1 C Y S WG V P S S T A S S S S
Q A N A $\square$ Y R D P D T G LVFS S N Y VVN Q G I T Y R V A I P A N VQ T Y T


STFY LAK TETQFSVNI STFISPDNHVAFAFTVPETEDFKY TATGIDFWRQVQTAGGFEWGWALPTNGTGADD





TS YCN GKSNNDCYTWAVV S S TAS S S S
 $T S V Y H D S E T G F T F T Q Y T L N N A A D T F R V A V P S G V P A N T N$

R S S GYVFALNVA EN

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

Q D S VP TTTDEET G $\quad$ TSF QSYTSA E G V S F G I A L P A D A G A D G S S S PVT DVD T GFVVFA A Y S G S NGAMQ F RVVAVPS GVGTNEP
 QTTTYRDSQ GRTFSGYTDRA GVVRYGIALPM TSAAPGA SASYKDPETGFTFSETKAATSNNVIFYRMARPANDSANDQ $F$ V S P N QE L AF GI S IP S P A S YCDASS S K V CY S WAVP S S T S S


Y T DPD T GI PFYGYVVP GGYRFGGVMPEKPTS
 Q T T G Q Y CNPES Q 1
 S N E D G S VDLLLALAASRNGTSN

NGNSGVCFQVAVPESAASAG  QDTKRYCDSAT LICYSSW ATNNG $\quad$ VFR $\square A L P E A Q T A$

A QYCQK G DLEFCMAVGSKENVAS Q Q T LF VLD S D T $\square$ AS F NVP P E

YSNPA GNLTFSLAA AVED G G PRRD D DFCMAVS LVYHNHSTS SAVWVDPETGFTFSQYAAAGKTVTFRDAIPSTATASAA $S V \vee F R D A Q S G F T F S S Y D A Q G S T I A Y R I A I P S D A T A S A P$
 QAAKFCDGP VCYSEFVS TQRVAYRVAVPDTAARGTM V N A T V S

$C L A L S T H H N S T T N$ QYCHTGPDFCFAATTQQN TASSS D QQSAPFVDQATGLRMERFFGARTSFAFGMALPEQA

DFCMGVVMHYNV SSQ
S G T $\square \mathrm{NGGS}$ T T AKYCPGGTQDCFSEFREPASGDYYRDA IPEVSAA ASSVISARNVSYCASGVCFAVNIPAS TASRG DFCMGVAMHYNRSSLHH SAATLTYAQSSSPVQGFTDRSSTFVANWNLPR F C VA L L LY H N H S T S

SAVVNGS
$F \subset V A V T P Y Q N A T S A$ QFCKFGHQVNEVDFCSSFTAHRNESTN QFCKFGHASGQVDFCSSFTAHRNASTH

QATRWCDDLTSVCFQRYYEE H LDDTAWGY TAPPPT
PRNEVDFCMAVS LYHNHSTE $\mathrm{V} T$ A F V N
SNTSTS
$S G L V N G S$

UniRef90_B6QJS3 UniRef90-G4MYD8
UniRef90 F9F7R2 UniRef90 Q0UY97 UniRet90-U7Q0M3 UniRef90_S3DWV5
UniRef90 W9Z817 UniRef90-E3RND6 UniRef90-B2ARU7 UniRef90-M7TC67 UniRef90 M1 W433 UniRef90_G4NOF3 UniRef90-S8ARG0 UniRef90_W9C2E9 UniRef90-N1Q513
UniRef90 $\mathrm{S3CTM} 8$ UniRef90-E3QPX0 UniRef90-SoEE62 UniRef90-U7Q0X6 UniRef90-U7PURO UniRef90-N1Q9B3 UniRef90-F9X1P7 UniRef90-M7SN45 UniRef90-L719C6 UniRef90-M2MSJ2 Uniinefo-S3C4X7 UniRet90-W3X8A4 UniRef90-G2XFU4
UniRef90 ROK6W2 UniRef90-M2UPF4 UniRef90-J3POA1 UniRet90_SOEEEE8 UniRet90-A0A016PJT5 UniRef90_B2A9B8 UniRef90-GOS9C3 UniRef90-G2RCNO UniRef90-A7EUV7 UniRef90-Q2HCG2 UniRef90-K1WXW6 UniRef90-A2QW72 UniRef90-J3KAB7 UniRef90-M2M2UO UniRet90_W9WPA9 UniRef90-G2X2A5 UniRef90-K2QTP4 UniRef90-L2G7M6 UniRef90-E5R561
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 SNDVNFYMVAPTHYTYVALGFGTGMANSFMLIAYPDGRHM AHDVYLSMAVRTSLGWTAAIGTGHKMAGSLMFVVLYASETKP
YDAVLQAAPDAVGWTGUAWGGTMVTNPLTVGWANGNSA YDAVI QVVAPVAVGWAGLAWGGSMVRNPLAVGWASGSTP DIUVSLTATPSDNGGWAAVG\|GKKMAGSLI FVMYSDTDSP AFDVLIQVVARAVGWAALAWGGQMTNNPLTIAYSNGGTA GSTVQYELTGSATPGWMA】GFGRSMVGSPMVVLWSNDGTV AHDVYDT THRSAVGWTAVGTGDSMTGSLMFITYASGERP SGALFFQIRGPATGKTWUALGIGSGMAGAHIFIVYTDGNV

TCSDPAGWCGVSDGGGMVSNLLVLAYPNPDEI
SNDFYLVVSAKFEDRYAAFGTGLTMDGSLMFVIYPDKEDVV SHDVYLTISATPSKKWTGVGLGREMKGALMFIVYEDQKSL
 NHDMYLTMEVPSSDGWTAI GTGSSMTGSLMFII YSDEHGP GQSLAQGNFGWMAIGGGTEMSNSPMVILWPNDGSV TTTYVMQSTGKAKLGWMAVGFGQTMANTPMVIMWPNDGSI

$P F D V L L Q U V A P V D G W A G V A W G G K M N G P L T V G W P N G D G A$ | $P F D V L L Q U V A P V D A G W A G V A W G G K M N G N P L T V G W P N G D G A$ |
| :--- |
| $S G D Y M Q S G S D M S W I D V G Q G S A M R G A K I F V M Y A D G N N V$ | DMYLTMETPRTSALGWTAIGTGSSMRGSLMFIIYSDQHGP AHDI YLSLSVRSSLGWTAVGAGPKMAGSLMFVLYPEASAP

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GNTVSYEMKADNQLGWMSIGFGSSMNNNPVVVMWPNDGST SHDVYLTISATPSRNWIGVGFGREMKGSLMFIIVEEDSSSL AGEFVGFFAAPVRSGWIGNSLGGSMRGNPLVVGWLDDDNP SSTVTYQLTALNQLGWMAVGFGMQMADAKMVIMWPNDGSV
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UniRef90_U7Q0M3 UniRef90-S3DWV5 UniRef90_W9Z817 UniRef90-E3RND6 UniRef90-B2ARU7
UniRef90 ${ }^{-}$M7TC67 UniRef90-M1W433 UniRef90-B2WHI7 UniRef90_G4NOF3
UniRef90_S8ARG0 UniRef90-W9C2E9 UniRef90-N1Q513
UniRef90-S3CTM8 UniRef90-E3QPX0 UniRef90-S0EE62 UniRef90-U7Q0X6
UniRef90-U7PUR0 UniRef90-N1QNY8 UniRef90-N1Q9B3 UniRef90-F9X1P7
UniRef90-M7SN45 UniRef90-L719C6 UniRef90_M2MSJ2 UniRef90-S3C4X7 UniRef90-W3X8A4 UniRef90-G2XFD4 UniRef90-ROK6W2 UniRef90-M2UPF4 UniRef90-J3POA1 UniRef90_SOEEE8
UniRef90 AOA016P UniRef90-B2A9B8 UniRef90_G0S9C3 UniRef90-G2RCN0
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UniRef90_W9WPA9 UniRef90-G2X2A5 UniRef90-K2QTP4 UniRet90_L2G7M6 UniRef90-C8V041 UniRef90-V5FGK2 UniRef90_H1VQD9 UniRef90-U7Q655 UniRef90-R1EGD3 UniRef90-G9NAJ2
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UniRef90-B2AP72 UniRef90-M2UB52 UniRef90-B6QRB7 UniRef90-B0D0E8
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UniRef90-D5G612 UniRef90-GORA87 UniRef90-B2ACE6 UniRef90_UPIO0044092A5 UniRef90_U1GL89 UniRef90_J5JP03 UniRef90_G3JAH7 UniRef90-K5W9S6 UniRef90-A8POW8 UniRef90-G9NS90 UniRef90_UPIO0044090B5 UniRef90-Q2GQ40 UniRef90-H0ERH5 UniRef90_UPIO004622B50


90
TLLS PR\|I ATGNKEPVLVPS
100 100 110

110
120
TLSPRIATGNKEPVLVPS LDVEIILPGSNTSDGLMTVNAR
 TVSPRIGGKNAEPT FSPEDDLDVLPGTTVNDSMLVLKAV VVSSRMAYGYFVPPAYDGAVYTVLKKGTHVNATHFQLTAT VGGLFDGYYSAPNVYTNASSVSPDAGTFVNSTHMSYTFLC TLSTRKGHGHNMPE YSRMSSVKLLEGSGVSNKTMVANDE VLSSRWAGPTTTPTPFSGPA PSPTAPT WQYTAQL
 KTKFVFVSGYVAPDDYTGNAVLSQIY SKVSDSNFELVYR TVSSRWASSMSP PSPYPAASYEKLPMSTTNATHWRLDAD





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UniRef90 W9Z817 UniRef90-E3RND6 UniRef90-B2ARU7 UniRef90-M7TC67 UniRef90-M1 ${ }^{2} 433$ UniRef90-G4NOF3 UniRef90-S8ARG0 UniRef90-W9C2E9 UniRef90_N1Q513
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UniRef90 $\mathrm{W} 4 J Z \mathrm{~W} 8$ UniRef90-V2WS63 UniRef90-G4UCM7 UniRet90-E3QXN9 UniRef90-G1XIV7 UniRef90-N1RYH5
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UniRef90_K5W9S6 UniRef90-B8M762 UniRef90-A8POW8
UniRet90_G9Ns90 UniRef90-UPIOO044090B5 UniRef90-O2GQ40 UniRef90_HOERH5 UniRe90_UPIO004622B50
85A54
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130
140
150
160
CKNCHSWNGGALNLSDTAYPWNYADGPNTALKSNSLSANLL CFNCRRWPGGSIIDVSAAQRCTWAAGPSYEVKSDDVAAPL CSGCRSWPSHGGDVYDHNSKAVFAFGPKEDYYSDDTDAP
CHNCRDF
CDV CVGCTLWGDTTSDDPKAQGSLAFAYAAAPVTTPSNNASSF CTGCITGTSSSFSGSTADDSLGFAVGTKSPTNPTSASATF CSNCRSY $C$
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$C$ COGCSTWTHNGFDSPRGGNRMAFAYSPNRPSSPNSPTSTI CQHCFAWNQGSQLPTGEVNVAGWAQHDKDFLMSNDQATW CSGCSSWQGGA DPACTTAALAWAMAHAAPAQPSSNTSSM CRNCSSWDGGSIDVNNEQQPFIGAWNGONDTLRSDDKNAPL CQGCLDASFGGAADTAGTFEMGWALGNKAVGNPGSSAAVL C CQNCWAWQQGTYNETVHTAVLGYAQATKGPTNPACTGNNF CSGCTSYAYGSSSSPTGSNRFAFAYSALKPSNPSLNTSDF C CRNCAQWATGGLDTSSTAQPFIFALGPNVTLEDDHPNAPL
CSNLTSFQGPWLRPGSNRLAFAMART
CSGCTGWGDSTSIDPTAKGSLAFAFATAPVTAPSNNASSF CRGCTYWSDPESLNPNGENYLANAYSTVPVDYPDEEQTPF CTNLRSLDSGKDSFTDSNQPFIYALGPSAPLTSNSVSAN C A

CSNCASGSST
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CRRCDPYATNSASGVERTASMMFAVGPELALNTDDLDARLI
CKGCTY WNDPTSLDPNGENYLAFAYSGVPVNDPAANDTTF
CF CRSWPGGSLNSFTTNQPMMYALGPSTALASNDQGVTR



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

| UniRef90 B60JS3 |  |
| :---: | :---: |
| UniRef90 B6Qus3 |  |
| UniRef90-G4MYD8 | KYHAGYGSFSLDKRAQGM |
| UniRef90- Q0UY97 | KRHDRYGHFEMDMVAATGS |
| UniRef90-U7Q0M3 | STHDLIGHWDHDFSA |
| UniRef90-S3DWV5 | VYHDGFGG |
| W9 | HDGTDGFSVD |
| UniRet90-E3RND 6 | GHFTMDMTAAT |
| UniRef90-B2ARU7 | P HDVHGYWQHDFSGAANQDFDATVE |
| UniRef90-M7TC67 | GLHSEHGTFTLDLAAAKSDQFDAWIE |
| UniRef90-M1W433 | KFHQEYGVFSIDMGRTRGAADAPLLN |
| UniRef90-B2WH17 | VFHNGQSLFGAQTAPAR |
| UniRet90-G4NO | SSRDHISFDLAAAKIANFNDVV |
| UniRef90-S8ARG0 | DQHDVMGVF |
| UniRef90 W9C2E9 | QQHSGHQQFT |
| 隹 | K |
| UniRef90 S3CTM8 |  |
| UniRef90 E3QPX | NFHNGFDGFDADLQAARFADFETW |
| Unif | GFHDGYAQWGAPVSNATAA |
|  | GYWNHDFGSAANPSFTSLV |
| UniRef90-N1QNY8 |  |
| UniRef90 N1Q9B3 | EFHGK |
| UniRef90_F9X1P7 | HDFHGTFQLDMTVATNG |
| UniRef90-1719C6 | SYHEVHQYWNADFGSAQNENFGELVE |
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| UniF | HDVVGHWTHDFSVAANDDFNATV |
| UniRet90-W3X8A4 |  |
| UniRef90-G2XFD4 |  |
| ROK6W2 | HDSYGTFS |
| UniRet90_M2UPF4 | HDVYNYTT |
| UniRee90 J3P0A1 |  |
| UniRef90-SOE | AEHDGTDSFSVDLSKATVSGSSN |
| UniRef90-B2A9B8 | PVHNNQGMFSLDFGKNARATFTQYVQ |
| UniRef90-GOS9C3 | HKGYAGFNLGLGAKNRA |
| UniRet90-G2RCNO | DDVGMFSESLSLIGKVPKFDAYVN |
| UniRef90 Q2HCG2 | QTHNNVGMFSEGLEEGKVPAFEEYVK |
| UniRef90-K1WXW6 | QHS STAQVQLDLAQA |
|  | M ${ }^{\text {d }}$ |
| UniRef90_ 3 K ${ }^{\text {AB7 }}$ | EYHHGHGGFYLNMADGRSASF |
| UniRef90-M2M2U0 | ESFGRFTM |
| UniRef90-W9WPA9 |  |
| UniRef90-K2QTP4 | RRHGFYGSFTMDMRRATESN |
|  |  |
|  | NVHNTFGNYTENL |
| UniRef90-C8V041 | AFHDEFGRVIVDLSRARTDSS |
| UniRet90-V5FGK2 | MHQSHGHLVV |
| UniRef90-G20635 |  |
| IRe990-H1VQD9 | RVGHWM ${ }^{\text {R }}$ |
| RiRef90 U7Q | HEAYGR |
| UniRef90 R1EGD3 | RRHEYYGAFSM |
| UniRef90-W3WKW9 | A VHDVTNYWN |
| UniRef90-M7T9S2 | NVHSVTNYWTHDFAAAKNDNFDALVQ |
| UniRef90-20CPQ8 | MFHDAYGIVVEGDMD |
| UniRef90-J3P | NKARVAFDL |
| W4J | GYGHAEFN |
| UniRef90-V24 | QQHRSMGSAQLNLAKGRTANFASAVE |
| UniRef90 E3QXN9 | RMHAGWGRFYVDMVRA |
| UniRef90-G1XIV | HDRTGVFTFDL |
| UniRef90-N1R | DGHNSFSVD |
| iRet90_B2AP72 | QHDSQGLFGA |
| UniRef90 M2UB52 | QHTDYDVFT |
| UniRef90-B0 | AEHVDYGVLLLDLTK |
|  |  |
| COS1T | HKGWGN |
| UniRet90-UPIOOO3F4904D | SHS |
| UniRei90-O2H3T5 | AYHDGRGVFDHDLSVAK |
| 1585A54 |  |
| UniRef90-T5BZK4 | MHKGWGNFYVD |
| UniRef90-D5G612 | SKHVRNGFYRLDMT ${ }^{\text {a }}$ (VTGGDSPN |
| UniRet90-G0RA87 | GY GHF |
| UniRef90 B2ACE6 6 | RHVA GIIFN |
| UniRefol-U1G189 | DENSGYGFFWTDFATALS |
| UniRef90-J5J | MHKGWGRFYVNM |
|  | HKGWGRFYVNM |
| UniRef90-K5W9 | HLDAGTFSLD |
| UniRef90-B8M762 | K GKV |
| UniRef90 A8POW8 | YQHTEASLLHTLDTVAGRSDAYDTDL |
| UniRet90-G9NS90 | EMHDGYGHFYVDMEAATS |
| UniRet90 UPIO0044090B5 | LHLDDSGNFT |
|  | HDGQGVFKVVVSSATHTDYSKW |
| UPI0004622 | MS Q |

N A T $\downarrow$ H D N


N G S
NETTS VNATIH
 $A A V N G$ TA $\square \triangle N G S$

A A E V $N G$

G G S Y C G T LVCVS GMDA G $\quad$ S N

TF $\square$ Q S T S H GNLT F S L S A VN S
T D G K
 T S HC $\square$ DE VGYC F T $\square$ T LP Q S N


 C Q T G LT S G A A D F C V S LS S LP NVT T S S H VTGTM D
SAASFCDASSNVCLAAFSS SSSVTYRワGVQEASAAASS STSYHDTETGFTFSETKAATSNIVYRIAQPANVPANTP

$$
\text { D A VT GASF Q T S T F T A S VLT } \quad \text { A } V C V N A N T \text { T N A }
$$

$\stackrel{Q}{\mathrm{~N}}$


Q

D S S
$N \bigvee N H D$
A S VP F VD P A T G $\square$ S F Q R F Y D E T S Q F S F G L A L S S LP S A A N D


NAT $\square$ FF N


N
N H N

P T Q NTQFCNFGHPTGDFCFGLSVKNHSSPK P
T T T A Q S D
CHTGLTSGAADFCLSFSLPNTTTSSHD

UniRef90 V2Y2N9 UniRef90－G2QZE5 UniRef90－M9LWN2 UniRef90 U7PX44 UniRef90－M2R6G7 UniRef90－Q0UT39 UniRef90 L8G7V3 UniRef90－UPIO004416BB9 UniRef90－S3CL43 UniRef90－E2LPZ2 UniRef90 UPI0003F4A518 UniRet90－G4TBM2 UniRef90－G2QV04 UniRef90－UPI00044177C2 UniRef90＿M5G802 UniRef90－V2YV55 UniRef90－A8N5L6 UniRet90＿UPIO0044119B0 UniRef90－UPIO0044119B0 UniRef90－M2R277 UniRef90－M5BMJ7 UniRef90－G7E6X9 UniRef90－L8XA888 UniRef90－W7EFI5
UniRef90 V2XNH4 UniRef90－B8N7T5 UniRef90－D8Q300 UniRet90－G4T9H8 UniRet90－U9UPZ9 UniRef90－E6R3Y5 UniRef90－UPI0004411511 UniRef90－G0S482 UniRef90－UPIOOO241190E UniRef90－Q4POD2 UniRef90－B3RUY8 UniRef90－J3NYT7 UniRef90 SoDML6
UniRef90 ${ }^{\text {O2GZ }}$ UniRef90－Q2GZR55
UniRef90 F7WC09 UniRef90－B3RUZ5 UniRef90－F4NSGO UniRef90－U5GYQ1 UniRef90－U7PQ84 UniRef90＿B2WAl3 UniRef90－B0D3H0 UniRef90－F4RMD8 UniRef90－UPIOOO4413841 UniRef90－UPIO001509C1D UniRef90－B3RUY6 UniRef90－UPI00045607F4 UniRef90－I2FNF6 UniRef90－B3RUZ2 UniRef90－U5GYQ8 UniRef90－B3RUY5 UniRef90－E6ZWLO UniRef90－17MML2 UniRef90－V5EUT4 UniRef90＿B3RUZ1 UniRef90 C3XV46 UniRef90－F4NSF9 UniRef90＿－J5K2E3 UniRef90－A7RU62 UniRef90－W3VL75 UniRef90－G4UK69 UniRef90＿U5H2S4 UniRef90－A0A014MV88 UniRef90＿UPIo004449BF6 UniRef90－K5Y4L3 UniRefofo－L2GO10 UniRef90－C3ZH87 UniRef90－C3YBR9 UniRef90 E3KSQ0 UniRef90－H2XTA5 UniRef90－Q95VU5 UniRef90－A8NGZ4 UniRef90－D6WLDO UniRef90－F7W8D5 UniRef90－11G5N8 UniRef90－W6QUS4 UniRef90－F6R8U2 UniRef90－A7RFN8 UniRef90－C3YGFO UniRef90－F6YNP9 UniRef90－C3YC57 UniRef90－B2ALK2 UniRef90－C3ZLH2 UniRet90－M7XA17 UniRef90－V9DL95 UniRef90＿11FK39
UniRef90＿Q7SC62

S VIYQ $\square T{ }^{50}$ QTPVGWVA $\square^{60}$ GFGRKMKNSHMUVDWENDGS ${ }^{80}$ ADGKSVV
 PFDTLVQVVAPAAVGWAGLAFGGSMVQNPLAVLWVDGGQG QTEYTLQSQGAATLGWMAMGFGTQMADSPMVIMWGNDGST

MAGAT $\square$ FAVYTDGGNV TVEYTDQSAGSQKPGWMAMGFGTDMSNSQMVIMWSNDGSV GDDYYFThATAFGEQWLATGSGTHMEDALMFVTYPENEGL DNTIIYQLTPRTPVGWVALGFGRKMEDSHMVVLWENDGST
 K D
 EQTMDFAISVKTS GWVGFGFTGRMPGSDTIIGWVANGKA TRDNDMITVHSSALGWVGFGDGSGMADSSIYLGWKNTGGV HADFAFTLKSRDAI GWI SLGGFTVMADSAMVIGWPNETAW PTTYLLQUVAPVAI GWAGVAWGGSMTGNPLTVAWPSDNSA YDVVLQVVAPISLGWVGLAWGGGMDRNPLTVGYPNGNKA KIDFVL IIIPQSKLGWПA IGHGTRMSNSRMMI IWPEEKGW GTDLTMMDESTKQQGWTGVGFGDQMANTPLVIDWQTNGTU NQDKIMQFTVEVTTGWIGFGDTGQMPGSDVVIGWVDNGKA
 SFE KKTMTFTVRVKTTGWIGFGDTGKMPGSDVVIMWVNNGKV

 TGD【IFTDQ SAAQGWAAFGVGPSMFDSTMYVGY】NSNGD ESSVKFALRVQAT GWVGFGDTGNMVGSDVVMGWVKDGKG GGAPNGWYAVGTGNKMKGSNMMIGWVDTGNV ATDFDGQLSFPLDATSDSUSPKLTASHLPLFLGLQSDGFG GVDLY号TIEMKPGEGWMAVGLGETMAESDMFVAFQPGHLL GFGRIDMAHTPMIMMWANDRSIV GWLADGWGGKMEGTPMVVVWPNDGTF TTGWVGLGLSGGMPGSDIVI GWVKDGTA EDEDEFETQVQT RGWLGLGLSGGMPGSDIVIGWVKDGQA THDTFELHGQTTGWIGGFTGGMRGADVVGWVKNGNA TYELTNMLDAESDVGWMADGFGRTMLQSPMAILWKNDGTM PQDVTFELQVRT LGYVGFGFSGRMTGADMVVGWVDKGQV ATDFUAQLSFPLLSTGUSISSKLTASHLDLFVGQQTDGFG QTDTTFETHGNTVGWTGMGTSGAMAGADMVVGWVKNGNA AKTISFALEAETTGWVGFGISSGMKGADTVIGWVKDGKA TF $\square F Q \square N V K T$ GWI GVGISGAMTGSDIFVGWVKNGKA NHDFHLSTRRSGKDGWTAVGTGPTMAGSVMVVVYPGRGRP SETDTFEAHVQTTGYDGLGFSGGMTGSDVII GWVKDGQA GWMGFGTGSAMSDADILVLWPNDGSW
 $\square \mathrm{Y}$ FHDT $\square$ TRWNANGWTA $\square G T G Q T M A G A D M F I V Y G D E K E P$
UniRef90_V2Y2N9 UniRef90-G2QZE5 UniRef90-M9LWN2 UniRef90-X8JRX6
UniRef90_U7PX44 UniRef90-M2R6G7 UniRef90-Q0UT39 UniRef90-L8G7V3 UniRef90-UPIOOO4416BB9 UniRef90-S3CL43 UniRef90-E2LPZ2 UniRet90_UPIO003F4A518 UniRef90-G4TBM2 UniRef90-G2QV04 UniRef90-UPIO0044177C2 UniRef90 M5G802 UniRef90-V2YV55 UniRef90-A8N5L6 UniRef90_UPIOOO44119B0 UniRef90 UPIOOO44119BO UniR Refo -M2R277 UniRef90-M5BMJ7 UniRef90-G7E6X9
UniRef90_L8XA88 UniRef90-L8XA88
UniRef90
W7EFIS UniRef90-V2XNH4 UniRef90-B8N7T5 UniReffo-D8Q300 UniRef90 G4T9H8
UniRef90 U9UPZ9 UniRef90-E6R3Y5 UniRef90-UPIOOO4411511


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T
 UniRef90-G0S482 UniRef90-UPIOOO441190E UniRef90-Q4POD2 UniRef90-B3RUY8 UniRef90 J3NYT7 UniRef9o-SODML6
UniRef90_O2GZR5 UniRef90-F7WC09 UniRef90-B3RUZ5 UniRef90 F4NGGO
UniRef9- U5GYO1 UniRef90-U5GYQ1
UniRef90 UTPQ84 UniRef90-B2WAl3 UniRef90-BOD3HO UniRef90-F4RMD8
UniRef90-UPIOOO4413841 UniRef90-UP10001509C1D UniRef90-B3RUY6 UniRef90_UPIO0045607F4 UniRef90-I2FNF6 UniRef90-B3RUZ2 UniRef90_U5GYQ8 UniRef90 B3RUY5 UniRef90-E6ZWLO UniRef90-V5EUT4 UniRef90-B3RUZ1 UniRef90 C3XV46 UniRet90-C3XV46 UniRef90-F4NSF9
UniRef90_J5K2E3 UniRef90-A7RU62 UniRef90-W3VL75 UniRef90-G4UK69 UniRet90-U5H2S4 UniRef90-A0A014MV88 UniRef90 UPIOOO4449BF6 UniRef90_K5Y4L3
UniRef90 L2G010 UniRef90-C3ZH87 UniRef90_C3YBR9 UniRef90 E3KSQO UniRef90-H2XTA5
UniRef90-Q95VU5 UniRef90-A8NGZ4 UniRef90-D6WLDO UniRef90-F7W8D5 UniRee90-1GGN8
UniRef90_W6QUS4 UniRef90-F6R8U2 UniRef90-A7RFN8 UniRef90_-C3YGFO
UniRet90_F6YMP9 UniRef90-C3YC57 UniRef90-B2ALK2 UniRef90 $0^{-C 3 Z L H 2}$
UniRef90 ${ }^{-}$M7XA17 UniRef90_V9DL95 UniRef90-I1FK39
UniRef90_07SC62

90 90 P ${ }^{100}$

110
120
TISQRFATGHTMPE\|VQRPPR\|AWPPDTKPDSWHQNATSLD TVSPRLSTGNTEPVVWTPDVHIAVNDGTTVNSNSMVVNAT VLSQREATAHAQPQVVSSPPRVATVRSD VASSRWSSGHTPPTSYNGASYDVL SSAAANATHWTIDAV TLSQRQAPQEVMPTVVPSPPRVATLSTDSGSNPQFVYTID IVSQRMAFGLSLPQAFDGAEYSYVKGTGYNETHWTLNVR

 $\bar{V} L S$ QREA TA HAQPPLVVSNPPRRVAAAIRS D
 TLL S T R EA T A H A Q P QVVVSTPPRVAAI R S

 TLSQRAAARGHSQPYVVPNPPRVATK

 $T L S Q R Q A S E H A E P K V A P N P P R V A T L D A A Q S N A Q$ GHTEP F F D P N V K V TVVHY S A VT E N LD II V H G T TLSQRQAG
VMSQRTAS GEVM
GHTS
GRT
G VLsVrRGa

 $V V$ S S R WA T G H T LP A AYA G A S Y R T LA S S K N A T H WT L S V V $T V S$ S R WA T G

A YLQDVYSSGEVTPS TDTQQDWTLLGSQTTSSSFKMKAK MM REANGRTLIPALDDNQDYKLISGIIEKNGMTTLK VMSQRTTSGHDTPSTSITALLAANLFSFSNSSGTVWAWSFP YLQDRFATGHTVPEDDTMQQDYTLFGGEETNGGMTHLKFK VMSQRTAEGHVAPTTSDSAADVYESHGYERNGTTVTIKFW AVQDAYSTNTVRPAFDTQQDWTLL GSSTSSNSFQMKAR VMSQRTATGHSDPTTSDNALTATMEPRSNSSGTVWAWSFP YLTDRYADEKALPPE DESQDWELLSGGYENDTHTVLRFK TLSTRDSHSHTLPQ YSSDQSAKLSHYEQMPTPSWKIVFT VLSTRHGRGHDEPRPFELLPEMVMSAVSDNENKWTSTLT VMSQRTASGHDDPVTTDTAA
NLAFSSFTEAVKSAASGAASNVTDPSATS $\square$ SATH $\square$ TYTFL TI SHRTTTGENEPKVASTDASLATNTSSKPTDSYASVSVL YLISTFASGHFPPEQDPRDTSLKMISTKSVRNGWKQIYVV TLSQRTAPREQEPEVVKNPPFRAVPSRTN SSWHPLLKD SLSHRYGPNHVEPVFIPTPRRVARADPPGASSWHPEGS 1 R TVSDRTGHGHTPPRPVAGQADVRMMRQWLNEPTFVASAV YLTDRHATENSLPPEDESQDWELLSG YENDTHTVLRFK QWAYCKASGHALPTPDSSQDDSVRVEGSEANSNHTLPSVK FLHDRYSNGHEPPSVDESQDAELLGG YQNDTHTVLRFS TVSQRVAVWFMEPFVERAPDRGATPVEPKRHAWHPAKST YFQDRHSSRDREPEV DPSQDYQLLLG YENHTHTVLRFR HFNDRYA SFTETVSASTAAASTASASBONSGFTTYTFL VLSDRTVDGHHQPRLTTGGADLR LLQTSWMSAQSAHLS SV FLTDRYADGEYMPKDDDHN DYKLISGTEENGTILKFSRK HLTDRYAEANAQPAVDESQDWELVSGNENGTHTVLRFN YLSDRHATANAFPPKDTGE NDELLEGSECNGGTVIKFR AVSVRSVDGHHLPGTDDHQAEWVLLGGEGRHDDEMEVEVV TLSHRTAATTVMPTLVGTANKDSLTDSSGSVRVVASLSSK TMTVRTVDGHHPPEAYTGDWYSEQLKAKPSHLGVAEFIVR YFHDRYAYGRYTPPI DPWQNWFLTNAEVEDGYTVLEF
UniRef90 V2Y2N9 UniRef90-G2QZE5 UniRef90-M9LWN2 UniRef90-X8JRX6 UniRef90-M2R6G7 UniRef90-Q0UT39 UniRef90-L8G7V3 UniRef90_UPIOOO4416BB9 UniRef90-S3CL43 UniRef90-E2LPZ2 UniRef90_UPI0003F4A518 UniRef90-G4TBM2 UniRef90-G2QV04 UniRef90-UPIO0044177C2 UniRef90 M5G802
UniRef90-V2YV55 UniRef90-A8N5L6 UniRef90-UPIO0044119B0 UniRef90_UPIO0044119B0 UniRef90-M2R277 UniRef90-M5BMJ7 UniRef90-G7E6X9 UniRef90-L8XA88
UniRef90
W7EFIS UniRef90-V2XNH4 UniRef90-B8N7T5 UniRef90-D8Q300 UniRef90-U9UPZ9 UniRef90-E6R3Y5 UniRef90-UPIO004411511 UniRef90-G0S482 UniRef90-UPIOOO241190E UniRef90-Q4POD2 UniRef90-B3RUY8 UniRef90-J3NYT7 UniRef90 SoDML6
UniRef90 ${ }^{\text {O2GZ }}$ UniRef90-F7WC09 UniRef90-B3RUZ5 UniRef90-F4NSGO UniRef90-U5GYQ1
UniRef90 UTPQ84 UniRef90-B2WAl3
UniRef90-BOD3HO
UniRef90-F4RMD8 UniRef90-UPIOOO4413841 UniRef9O-UP10001509C1D UniRef90-B3RUY6


| UniRef90 V2Y2N9 | 180 |
| :---: | :---: |
| UniRef90－G2QZE5 | RRHAAYGQTTLDLSkAVGP |
| UniRef90－M9LWN2 | KQHSDYGTFSLDLT |
| UniRef90－X8JF | NQHSTTGSFT |
| UniRef90－U7PX44 |  |
| UniRef90－M2R6G77 | QQHLLNSGPTSLNLAKGQNANFDK\｜V |
| UniRef90－L8G7V3 | NHHSSHSNYTLDLSQGQNANFDKV |
| UniRee90－UPI0004416BB9 | DQHDSSGMSTLDLSATDTGD |
| UniRef90－S3CL43 | QQHDVYGVLFFDLLHANGD |
| UniRef90－E2LPZ2 | YQHYAAGQV |
| UP10003F4A518 | HVGMGIT |
| UniRef90－G4TBM2 | VEHDDKGTMSLNLVN |
| UniRet90－G2QV04 | PDHTGWGIITMVLSD |
| UniRef90－UPIO0044177C2 | LQHQDAGNFTL |
| UniRef90－M5G802 | IQRYOQGTYTLD |
| UniRef90＿V2YV55 | IDKGTTK |
| UniRef90＿A8N5L6 |  |
| UniRef90＿UPIO0044119B0 | QFHDGYGAVVLEASAPLSAD |
| UniRef90－UPIO00044119B0 | QFHDGYGAVVLEASAPLSAD |
| UniRef90－M2R277 | QHLDAGQFS |
| UniRet90 G7E6X9 | QQHDAYGSTQidis rav |
| UniRef90－L8XA888 | AQHSVTGSFTLN |
| UniRe990－W7EFI5 | RQHSSTGKFWVDMVNATSVS |
| UniRef90－V2XNH4 | KWHVDKGVT HLEL |
| UniRerso－${ }^{\text {d }}$ |  |
| UniRet90－D8Q300 | TGTGHFKED |
| UniRef90－G49H88 | PRHDYRGAISLNL |
| UniRef90－E6R3Y5 | KQHTASGN |
| UniRef90－UPIO00441151 | QYHKAKGAVVNVSQPGGAS |
|  | RRHIISYGKFTVVA |
| UniRet90－UPIIO000441190E | QVHRASGPVVLDVSQAVGDS |
| UniRef90－Q4POD2 | KRHTAFGS RT |
| UniRef90 J3NYT7 | TFHDGFAQYFAEYAGAVSPKYKEW |
| UniRet90－SODML6 | EKHGDYGHFSLD |
| UniRef90－Q2GZR55 UniRef90 F7WC09 | RRHSAYGRFTINLLRATLSPSTDYV |
| UniRef90 ${ }^{\text {B3 }}$ | TKHTKOGSRSVND |
| UniRef90－F4NSG0 | R\HNRRGVIGLDLTTEFGSN |
| UniRef90＿U5GYQ1 | DKHDIFGSFTLD |
| UniRet90＿U7PQ84 | GYHNAKGTVAVD |
| UniRef90＿B2WAl3 | PVHDVYGYI |
| UniRef90＿－80D31 | EFHRANGHFTLDL |
| UniRet90－F4RMD8 | LYHDGYGLVNLNL |
| UniRei90－UPI0001509C1D | VQHDDY Y S S GkL |
| UniRef90－B3RUY6 | PMHHKMGSRSVNLFNA |
| UniRet90－UP100045607F4 | REHTDYGVLN |
| UniRef90＿l2FNF6 |  |
| UniRet90＿B3RUZ2 | TKHEFQGTRSUNLFN R】PEFDK |
| UniRef90－U5GYQ8 UniRef90 B |  |
| UniRef90 E6ZWLO | Q HEDAMARS |
| UniRet90－17MMU22 | GYHDSYYSYSITTINSQG |
| UniRef90－V5EUT4 | RRHTAYGSDTLDLTKPYSTD |
| UniRef90－B3RUZ1 | TKHEYQGTRSLNL |
| UniRef90 C3XV46 |  |
| niRet |  |
| UniRef90＿F4NSF9 |  |
| UniRef90＿\5K2E3 | P |
| UniRef90＿A7RU62 | R G S T |
| UniRef90 W3VL75 | KQHSDYGTFSLDLTK |
| UniRef90－G4UK69 | AYHRGFGHLK DLEGATAEQFNGW |
| UniRef90－U5H2 | TQHNAHARTSLDLSQAV |
| Uniree90－A0A014MV88 | PMHVKHGHATLNLNRTFSP |
| UniRef90－K5Y4L3 | AHYQAGFLNIDFSK |
| UniRef90－L2G010 | EVHNGWGLFYVDMKSSTS |
| UniRef90＿C3ZH87 |  |
| UniRet90＿C3YBR9 | R Y H |
| UniRet90－E3KSC | EFHDGYGTA【LINFVS |
| UniRet90＿H2X |  |
| UniRef90－Q95V | QQHTEVGY品吅TSTOS |
| UniRef90－A8NGZ4 | ARHTEVGYLKLDLSTDLSGQSQ |
| UniRef90－F7W8D5 | AYHRGFGHMKTDLEGATAEEFSAW |
| UniRef90－11G5N8 | QRHSVMGSTSLSL |
| UniRef90－W6QUS | DMHVGNGRFYVDMAR |
| UniRee90－F6R8L | FRGSRSVLMLNSQGNS |
| UniRef90 C3YGFo | RYMRFRGSRSVLMLNSQGNS |
| UniRef90－F6YNF |  |
| UniRef90＿C3YC57 | A Y H |
| UniRef90－B2ALK2 | KMHRGFGRFWVDMRRAA |
| UniRet90 |  |
| UniRef90－M7XA17 | TQHDGMGATYVDLSATFSATSAA |
| UniRef90＿V9DL95 | DMHQGFGFLWVDLLNA |
| UniRef90－11FK39 | TYHNNQGTRSFNLLGA |


lupas 21
lupas_14
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sol25
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jhmm
jpssm

UniRef90_C3ZP42 UniRefo- W9Z3G UniRef90-C3XVR1 UniRef90 V2X072 UniRef90 ${ }^{-}$M7WVYO UniRef90-F7ARX5 UniRef90 W9YZ82 UniRef90 W9WYK UniRef90-A0A015L8D5 UniRef90_СЗҮНА3 UniRef90 K1QE34 UniRef90- F6XF34 UniRef90-V4BC59 UniRef90-F2D2Q2 UniRef90 C3YIF2 UniRef90-W5KGR2 UniRef90-A8P0R6 UniRef90-I1FK23 UniRef90_11PMM2 UniRef90-F4NSF8 UniRef90-C3ZTP1 UniRef90-I1G2F8 UniRef90-13K7A8 UniRef90_U9URB4 UniRef90_C3ZBM5 UniRef90 A0A044QKD6 UniRef90_-H2VRK3 UniRef90_A0DD44 UniRef90 D2XNH5 UniRef90_A0BE52 UniRef90_C3ZHPO UniRef90-W5AXR3 UniRef90 UPIO001CBA640 UniRef90_Q08CS6 UniRef90-K7IPK7 UniRef90_A0A016TY1
 AT GYVGFGISPNGDMTGSDIVTGFVDQGDT PFDFFVNMTAPVPYGFAGFGDGDVMTDADLVPVLLQGDQV

TSPTSVGWLGVGHGTAMADADFLLAWPSSVNW HGNTTGWIGMGFSGAMTGADMFVGWDAS GTA $D L Y V R M Q A S S A Q G W A A D A L G P E M K G A L M F I I Y G D D P H L$ GWASL GL GPQMK GALMFI I YGDDKSM
 ATHDTMEDHVQTT QWVGIGFPTMPGTDVIVGWTENGEA TDD SFTMKARLNSKWI GVGFSKDMANSDAII GWVDNGQV QWS FVLSAPDKRSYVAVGFSGKGGMVGSSAMLGWSS GGKG




F ILSAPDKGSYVAVGFSGKMVGSSAVVAWSSGGKG $\begin{array}{cc:c}A Q G W A A F G T G N S M S G S S M V I & G W I & N S N G V \\ T R G W V G L G L S G G M P G S D V V I & G W V & K D G Q A\end{array}$
$K T T G W I G F G L S G Q M P G S D V V I G W L D G Q G T$
$\begin{array}{ll}N T T G W V G F G L S G D M K G S D I V I & G G V G S S G S \\ S T N A W F A D G F G N G M T D T D M M I & F W E N N S V\end{array}$
 ETTVVMQLEVVQGMVADGFSPNGNMPGSDDVAGYVVDDGQP
 TRDTI E DCVILNKKSWVGUGFGQGMNGVDMFADNVIDGAA TDDTIEMCVCLNKKA WVGDGFGSGMNGVDMFAINIIDGAA DEDF $\square L R Y K N T G T S Q W V G F S G K G G M V G S S A M V G W S S G G K G$ GT TLFQLSVNTS GWI SFGDSGGMTGADDIVIAGGVDNKGT ANDVRFE ISSKN IGGRTGIGFSGQMTNSD\|YTGWVFEGKA

[^1]



[^2]

UniRef90_C3ZP42 UniRef90_Q5BA10 UniRef90_W9Z3G8 UniRef90-C3XVR1 UniRef90_V2X072 UniRef90 ${ }^{-}$M7WVYO UniRef90-F7ARX5 UniRef90_W9YZ82 UniRef90 W9WYKC UniRef90-A0A015L8D5 UniRef90_C3YHA3 UniRef90_K1QE34 UniRef90 F6XF34 UniRef90-V4BC59 UniRef90-F2D2Q2 UniRef90 C3YIF2 UniRef90-W5KGR2 UniRef90-A8POR UniRef90-I1PMM2 UniRef90-F4NSF8 UniRef90-C3ZTP1 UniRef90-I1G2F8 UniRef90-13K7A8 UniRef90-U9URB4 UniRef90_C3ZBM5 UniRef90 A0A044QKD6 UniRef90_-H2VRK3 UniRef90-A0DD44 UniRef90 D2XNH5
UniRef90_A0BE52
UniRef90_C3ZHPO UniRef90-W5AXR3 UniRef90 UPIO001CBA64C UniRef90-Q08CS6 UniRef90_K7IPK7 UniRef90_A0A016TY11


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[^3]| UniRef90_C3ZP42 | $\text { YHQGRGTSS } 170 \text { NL } \quad 180$ |
| :---: | :---: |
| UniRef90-Q5BA10 | KMHEGWGRFYVDMARSTSKDNSA |
| UniRef90-W9Z3G8 | DMHQGFGFLWTDLRNALS P |
| UniRef90_C3XVR1 | M Y H |
| UniRef90-V2X072 |  |
| UniRef90-M7WVY0 | S Q H D T G VT S $\square$ D M S A A |
| UniRef90-F7ARX5 | NYHS |
| UniRef90-W9YZ82 | DMHQGFGFLWTDLKNALS P |
| UniRef90-W9WYK0 | DMHQGFGFLWVDLLNARSD |
| UniRef90-A0A015L8D5 | SYHGGRGTKM】NLLTGESSGFAD |
| UniRef90_C3YHA3 |  |
| UniRef90-K1QE34 | S Y H D N |
| UniRef90_F6XF34 |  |
| UniRef90-V4BC59 | T K H |
| UniRef90-F2D2Q2 | QMHRDMGSRSFKFASASPSS |
| UniRef90_C3YIF2 | S Q H |
| UniRef90_W5KGR2 | T Y H T S R G T K EVNL |
| UniRef90_A8P0R6 |  |
| UniRef90-11FK23 | SKHTTAGSTS $\square$ N |
| UniRef90_11PMM2 | PMHRSMHSHAFNYT |
| UniRef90_F4NSF8 | P V H N S R G S $\quad$ K A |
| UniRef90_C3ZTP1 | GYHGHH |
| UniRef90-11G2F8 | SAHTNVGGKHVNL |
| UniRef90_13K7A8 |  |
| UniRef90_U9URB4 | T Y H G G R G R T $\square$ NFRTGAS T D |
| UniRef90_C3ZBM5 |  |
| UniRef90-A0A044QKD6 | GY H D $\square$ Y |
| UniRef90-H2VRK3 | G Y H D |
| UniRef90_A0DD44 | E D H S NVGQFS $\square$ T L S |
| UniRef90_D2XNH5 | S K H |
| UniRef90-A0BE52 |  |
| UniRef90_C3ZHP0 | Y H D A |
| UniRef90-W5AXR3 | QMHRDMGSRSFKFASASPSS |
| UniRef90_UPI0001CBA640 |  |
| UniRef90-Q08CS6 | S Y HKA Q |
| UniRef90_K7IPK7 UniRef90-A0A016TY11 |  |
| UniRef90_A0A016TY11 | G Y H D L Y |
| lupas_21 |  |
| lupas_14 |  |
| lupas_28 |  |
| jnet |  |
| conf |  |
| sol25 | B B B B B B B B B B B B |
| sol5 |  |
| sol0 |  |
| jhmm | $\longrightarrow$ |
| jpssm | t |


[^0]:    

[^1]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

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

[^3]:    lupas 21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm
    

