






UniRef90 UPI000383553A UniRef90_UPIO003B6BD19 UniRef90-WODXE0 UniRef90-A6SXK3 UniRef90_A1K795
UniRef90-J3D3U7
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UniRef90_X0ZXI5
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UniRef90_UPIO00378B169 UniRef90-H1XTK4
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UniRef90-A1WTA9 UniRef90-W6WDU2 UniRef90_G7Y578 UniRef90_UPI0002FD4D89 UniRef90_F9U508 UniRef90-T1D2U1
UniRef90-D9SH35 UniRef90_UPI000333EF40 UniRef90-H5WIB0 UniRef90-UPIOOO2038CC0 UniRef90-B1Y11J5 UniRef90-K9H2W2 UniRef90-A0A016XIM6 UniRef90-F5R8X7 UniRef90-W6UFC9 UniRef90_G4VND7 UniRef90-G3WEX9
UniRef90-D6CUV4 UniRef90-UPIO004669E85 UniRef90-F1W2Q3 UniRef90-LOE1T2 UniRef90-A3U2M8 UniRef90_13KRP4 UniRef90-K1ZJ94 UniRef90_UPI0003805C48 UniRef90-Q21X67 UniRef90_G0JML6 UniRef90_UPI0003EC3307 UniRef90_Q5DF17 UniRef90-I1EN86 UniRef90_UPI0004716561 UniRef90_UPIO0036FFB48 UniRef90_S9WJB3 UniRef90-A9IQS4 UniRef90-M4AQX4
UniRef90 UniRef90-E0XYL9 UniRef90_UPI0003724D3B UniRef90_UPI00037C45EA UniRef90_A7BNN2 UniRef90-R4XQH4 UniRef90-K2GL98 UniRef90-M4VWLO UniRef90-D5BX32 UniRef90-H3A2U4 UniRef90_UPI000368D567


MRFEAFSFGSVCDDGVTYQHDVVIDRGEVRKRKKKPSRQF LF IIEGYTNHGFTINGT$\quad M V I$ GPCAI LPQA LLQWN VNAYDAAA TTVNRVAHPCNLVVAPQALRENW QI NGVDHDAVII NRQRYEQAVIVSEQACSSGWFQGPWEA I E EVSWGKFVI NGRAHNSDGTLT GAGKICLIGKMLSPW $1 V V G Y Y S G R V G I N Q \| A H S R S L I V R P H E L R T D W P V D S V E Q$
 Q $\frac{1}{T}$ QSVNSHSVTINNKVYSHNLILMPE FTGYGKGHVLI NAQRHDGNLIVVADA VTAWAAP MHFEAFSFGSI RIDGVTYQHDVVI DHGQVRKRKKKPSKF

 M F VI GPCAVIPRAVLQWN V GYGDDHIMVNKDRHDGNLI LTADSI D HAP WAPL RITRAFDATWVQVNQTRYEDSLVVLPHALILDWGIDEPDD

 IDAYGSEGILI GGRRFTRGLIVTPNRIEDGW TGHGPGFVLI DQ QKYTESLVLSPERLQP $\square W A S R \square$
FTDYSDTHVSVNRERFETCLVVMGEEVRTDWNASNFDA
M Y
$1 D S Y N D R G F T I N G N R V H G P C A L L P H S V V Q Q W$ W
MFVESYTRRGFTISGNK
IT GYTSASDNVNAQPWDCSVIVPFQGDI LAWPCARFD I RGHGPGWDTVEGQRHTHSLVI GSRGLCRPWNDPTD
 IKNMSWGS ITV ETVSEDGTUNPNKLITYRDRAWDWN PGAGLSTWGRAEPTR
 VTGYGDDYVEI NKTRFTHSVLLMPDGPVLPWEPARFEA
 I HSYNSAGFNI DGNRVFGPCAVLPPAILQ
QI HA YQPGSDQLND DTYKK SMIVTPAKLIECWPPQYFK
 I HAYGPQGIVI HGKSHAHGLLVGADGERLT WLHSPWGP





 QUDAYGNGGFRFADMSHRGSVLLLPSGIYG
MHFGKFSFGS RQDDGRTYEQDVVIERGEIRKRKKRPSKKF





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UniRef90 UPIO003B6BD19 UniRef90-UPIOOO3B6BD19 UniRef90-WODXEO UniRef90-A6SXK3 UniRef90_A1K795 UniRef90_J3D3U7
UniRef90 UPIOOO2 UniRef90-UPIO002D64FDC UniRef90-F8GNF6 UniRef90-UPIOOO35D21F1 UniRef90-NoBID2 UniRef90-X1DTQ6
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UniRef90-DOCXZ3
UniRef90 -V715Q0
UniRef90-A4BS52
UniRef90-M7AMZ1
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UniRef90 G8AQR5
UniRef90-UPI000274362F UniRef90_UPIo00332F1E1 UniRef90-W5NAR5 UniRef90-XoZXI5 UniRet90_H1SDA6 UniRef90-UPIO004422CA2 UniRef90_UPIO00372DB3A UniRef90_UPIOOO378B169 UniRef90_H1XTK4 UniRef90_UPIO00363A1B8 UniRef90_Q3SK17 UniRef90_UPIO0037351FE UniRef90-AC610
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UniRef90 D9SH35 UniRef90-UPI000333EF40 UniRet90-H5WIBO UniRef90-UPIO002038CC0 UniRef90-B1Y1 15 UniRef90_K9H2W2 UniRef90-A0A016XIM6 UniRef90-F5R8X7 UniRef90-W6UFC9 UniRef90-G4VND7 UniRef90-G3WEX9
UniRef90 D6CUV4 UniRef90-UPIoo04669E85 UniRef90-F1W2Q3 UniRef90-LOE1T2
UniRef90 A3U2M8 UniRef90_l3KRP4 UniRef90-K1Z.J94 UniRef90_UPIO003805C48 UniRef90_O21X67 UniRee90_GOJML6
UniRef90-UPIO003EC3307 UniRef90-Q5DF17 UniRef90-I1EN86 UniRef90-UPIO004716561 UniRef90_UPIo0036FFB48 UniRef90-S9WJB3 UniRef90_A9IQS4 UniRef90-M4AQX4 UniRef90-J4PA15 UniRef90-UPIOOO3724D3B UniRef90-UPIO0037C45EA UniRef90-A7BNN2 UniRef90-R4XOH4 UniRef90-K2GL98
UniRef90 M4VWL0 UniRef90-D5BX32 UniRef90-H3A2U4 UniRef90_UPI000368D567
 EVADFAALLQASDFALLAWEPEVVLGTGTGQKFPHPRLT

GGFETLTAENFEQUNATEPDVVILGTGATQRFVHPRLT
PVTSFDTLSAGHFEQQDATGPDVVILGTGRRQRFVHPKLT REAFGH
$\qquad$
KEG
G HRVQ TEL

## DVEALAVEHLQSVI

VGSYKDINLE
LQDTAPLLD
GHVLTESMVERVL
 QGSYQDVTEESLFRLLEPRMEVLVLGMGODKVERARPDV

$$
\begin{aligned}
& \text { ETGTH } \\
& \text { Q }
\end{aligned}
$$

$\checkmark G$

EGHN REAFGH VGTHKDTTPGSAREDL DITPGSLFHMLEPK RERKGHLL ADARFETLVADHLQAM LDAPPEVLLIGTGTVQQFPARAV AdAREDLQEDDFASLAMAPELVLGGTGERIRFPHPRL AVDSFDNLNDEHFKRLRALQPEMILLGTGSKIRFPAPELL REAFGH T NVARFEDTTSMAEATWKCRRLGTGTGALPVMDEVVDGFAVRGDLVAREDFGHETGTGHGEL
GPA
GPAHPTQNDFSPWAHVGVELILE
NVEVGSHQDGFDSTEVGTHTD SPEHFAPVLADKPELVIFPVAEAGQ
IGRFED

KHGTSHRIALEDVIDVYD ESGTGHGI QKQDVDELLS TRGHSPGVQPADVE
$H V G A L L P A H D D A L$


## GFGDP

 K I G S S K E D पA ATCQEDASA $\qquad$ SHVDVTEESLSSGFWMLE GQGTCDRLRADE


## VSQHS

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UniRef90 UPI000383553A UniRef90_UPI0003B6BD19 UniRef90-W0DXE0 UniRef90_A6SXK3 UniRef90_J3D3U7 UniRef90_UPI0002D64FDC UniRef90 F8GNF6 UniRef90_UPI00035D21F1 UniRef90_N0BID2 UniRef90-X1DTQ6 UniRef90_UPI00037B4A56 UniRef90_UPI000473E538 UniRef90_D7DQB0 UniRef90_UPI0003802C4E UniRef90_Q6DFN1 UniRef90-E6PS18 UniRef90_V7I5Q0 UniRef90-A4BS52 UniRef90_M7AMZ1 UniRef90_B5Y7A1 UniRef90 UPI000366BEB4 UniRef90_H2ZVY4 UniRef90_G8AQR5 UniRef90_UPI000274362F UniRef90-UPI000332F1E1 UniRef90_W5NAR5 UniRef90 X0ZXI5 UniRef90_H1SDA6 UniRef90_UPI0004422CA2 UniRef90_UPI000372DB3A UniRef90_UPI000378B169 UniRef90-H1XTK4 UniRef90_UPI000363A1B8 UniRef90_Q3SKI7 UniRef90_UPI00037351FE UniRef90_A7C610 UniRef90_U1AQ69 UniRef90_UPI00035D0A05 UniRef90_UPI00039CF099 UniRef90_K2BMQ7 UniRef90_G1Y341 UniRef90_V9L0W3 UniRef90_TOAZH2
UniRef90_H1G1P7 UniRef90_A1WTA9 UniRef90_W6WDU2 UniRef90_G7Y578 UniRef90_UPI0002FD4D89 UniRef90_F9U508 UniRef90_T1D2U1 UniRef90_D9SH35 UniRef90-H5WIB0 UniRef90_UPIO002038CC0 UniRef90_B1Y1J5 UniRef90 K9H2W2 UniRef90_A0A016XIM6 UniRef90_F5R8X7 UniRef90_W6UFC9 UniRef90_G4VND7 UniRef90_G3WEX9 UniRef90_D6CUV4 UniRef90_UPI0004669E85 UniRef90_F1W2Q3 UniRef90_LOE1T2
UniRef90 A3U2M8 UniRef90-I3KRP4 UniRef90_K1ZJ94 UniRef90_UPI0003805C48 UniRef90_Q21X67 UniRef90_G0JML6 UniRef90_UPIO003EC3307 UniRef90_Q5DF17 UniRef90 I1EN86 UniRef90-UPI0004716561 UniRef90_UPI00036FFB48 UniRef90_S9WJB3 UniRef90_A9IQS4 UniRef90-M4AQX4 UniRef90_E0XYL9 UniRef90_J4PA15 UniRef90_UPI0003724D3B UniRef90_UPI00037C45EA UniRef90_A7BNN2 UniRef90_R4XQH4 UniRef90_K2GL98
UniRef90 M4VWL0 UniRef90-D5BX32 UniRef90_H3A2U4 UniRef90_UPI000368D567

110

LK QMRECG|V|EVQDTPNACATFNF|L|TSEKRM|V|AA A A LLLA GVGVVEVMT QAACRTENILADERRVVAAAL | $R$ | $E$ | $A$ | $R$ | $G$ | $V$ | $G$ | $V$ | $E$ | $F$ | $M$ | $D$ | $T$ | $G$ | $A$ | $A$ | $C$ | $R$ | $T$ | $F$ | $N$ | $I$ | $L$ | $A$ | $E$ | $D$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $R$ | $R$ | $V$ | $V$ | $A$ | $G$ | $L$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $A$ | $S$ | $L$ | $L$ | $R$ | $R$ | $I$ | $G$ | $V$ | $E$ | $C$ | $M$ | $D$ | $N$ | $Q$ | $A$ | $A$ | $C$ | $R$ | $T$ | $Y$ | $N$ | $L$ | $L$ | $M$ | $A$ | R P L I A R I G F E DM D L A A A C R T Y N I L V G E GRVAAA A

 KREAKRRHVVIQPTA DA $\quad$ RKTGLASNPK GANA I LIHLTC RALI R G $\square G F E V M N T A A A C R T Y N D L V G E R R A L A A L$ $\square N L I K$ QKGVEVAK S RVAVEDFK KLLSEGKNA LVA IVLDTC K D

$N V L V R R I G V E C M N N Q A A C R T Y N I L M A E G R K V A L$
 RVLDME HIGGFEVMMTAAACRTYNVL AA E GRVA GLL

 LK FMRECGVVEVQDTPNACATANTGLTSEGRATAA
 A A LAARH $\square G V E C M D S K A A C R T Y N V L M G E G R$
L D Y $V$ K K K G V $R Q G L R D A G V E V M D T A A A C R T Y N V L A E G R R V G A A L$
 $L R A M R Q R G V E V Q D T P N A C A T F N F L C H E G R V T G A$
LAFMRRKGVEVQQDTPNACATFNFLCSERRIVAA
 $\begin{array}{ll}L K C L Q Q R G V V E V & Q N T\end{array}$
 KAFLEESGVIIEKTPQACERFNRMFRQGAKVALLEGTC WR H L R S Q GVVEI MMDTAAAACRTYNNLIMAAEGRVVVAAL



 A SLAA RIGVECMDSHAACRTYNILMGEGR
Y G HLLA GI GVVEMMNT DAA CRTYNALSAERNVAAALL
RRAVKERGI DAMDTGAACRTYNVLAEGRRVAAAL


RAL DS G $\square G F E A M D T R A A C R T F N L L L G E D R P V A A$





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 RQALA G $\square$ G V EPMASPAACRTYNVLSEGRRVAAAL LALLKRKGVEVQDTPNACATFNFLMSERRIVAA

KSLI K QI GL ETMDTPAACRT
$A L R \| A D L A V E V M D T S A A C R T Y N I L L A E D R V V I A$
 AP LMME GIGGVDIMMSTPAACRTFNDLSEGRKVDALL
RAKLRSKGITTMMDSGAAVRTYNVLLEKRRVAAAL
$R P L L A R \square G L E V M D L G A L C R T Y N I L I A B G R N V G A$
VEYLK K K G I DVLQTE QAVKEYNALAT QGRVGGVFHSTC

LA LLLKRKRI EVQDTPNACATFNFLNSERRLVAA
AASLE KAGITTLQTEESVTKYNNLCEDEQVGGLIHTTC $R P L L A G \square G V E I V M D T H A A S R T Y N I L M A E G R V V A L I$

 RPLLAGIGVEIMDTHAASRTYNILMAEGRVVALI RQLLE E DLGLEIMAT GAA CRTYNVLLGEGRRIGAA $R R A L K D R G L A V M D T G A A C R T Y N V L M A E R R V A A A L$ EPLVRHQGVEFMDTAAACRTYNILVGERRVDAAL


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| UniRer90－D9PXG4 | Y |
| UniRei90＿UPIO00479CE83 | V |
|  |  |
| UniR | 析 |
| UniRe | ARGSLEGLRAENLAEATGLGAEILIVGTGKRQRFPQPTLL |
| UniRef90＿Q5P | AAAGFDDLA ADDFVALRELAPEVVLLGTGSRLLRFPSPRVL |
| UniRef90 S6BK01 UniRef90 UPIOO0441E579 |  |
| UniRef90－W9 | DFAS LTVASFDVISEPAVETLLLGSGPKMGLLPSKL |
|  |  |
| nieeso－oad |  |
| UniRef90 UP1000366 | ELTEAHFEYLLSFRPEVVLLGTGDRFQLVHPKLT |
| UniRef90－X0ZLQ8 | HNLCLED MEDVLKEKPEVLVVGTGFYGIVSVEEEV |
| UniRef90 UPIOOO37E | ПTLEESALIEREVDP |
| UniRef90 E6QD89 UniRef90 UPI00036 | EHADA LEFSHFDEVVTRRPD |
| UniRef90 | STCERL |
| UP | V |
| UniRef90－V6E | VQSAS DVALENLQPUIDPRPALLGGCGRS MAPVPRAL |
| UniRef90－UPI |  |
|  | RDP |
| UniRef90＿U5N5K3 | DFAGAAALGPEVVVVGTGQRQHLLLP |
| UniRef90－K2BT41 | QLLETKPDIILLGTGEKSVILPATKD |
| UniRet90＿UPIO003727D | DAL |
| UniRef90 D3NU | A S |
|  |  |
| UniRef90－UPI0003055 | SLRQAAGLTESRPDPMAANAPEVLLVGTGSQQRLLPAETV |
| UniRef90 | ELTEEDFKTLSALEVEVILLGTGAKQHFPFHQQK |
| UniRef90－UP10002 | RPNTASD1HPQDWIPLEELKPA |
| H4FD | S TASQLERVLAEGAEFLLLGTGKQMRLPVDPDV |
| UniRef90－Q4R） | KDITEESLFHMLEPKLETLVLGTGAKLERINPSV |
| UniRef90－UPIO00371 | KLTEESFDSFIEREI EVLLVGCGTKVEFLSPAF |
|  | － |
| UniRef90＿A7HXL2 | A |
| UniRef90－A0AO17 HC |  |
| iRef90－A2SG12 | （ ${ }^{\text {a }}$ |
| iRef90－F4LIA4 | AEVVRDPLAFLDEPEPEVLLVGTGRRQHLLGPEQV |
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| UniRef90－X4Y | SSAHLQQAAGLVAFLDEPPEVLIVGTGLKQRLLDPAEV |
| UniRef90－A3M | DRHALAR VFMGSADI DTLLI GTG T DVWPVPPEL |
| iRef90－X2HB40 | －ELTIDDFTQALQFKPEVILIGTGNHHVFIHPRLTT |
| iRef90－X1EGK2 |  |
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|  |  |
| UniRef90 A4EU | GPWNGFDD |
| UniRef90 UPIO0030130 | EPADSAALAVADFERVLEEDI QILLVGTGRDLR PLPQAL |
| $\begin{aligned} & \text { UniRef90-LONI } \\ & \text { UniRef90-W6V } \end{aligned}$ | ELGEGEPLTVASLMKVLAEEVEVLLVGMGAN L L P P Pa |
| UniRef90－UPIO004 | HRIQPADVQYLLNRTVETV |
| UniRef90－A8TKV3 | PVDLATLEPLLSAGFDILLTGTGSK |
|  | GLADAAPVLALAGKVDVV |
| UniRef90－10HU | LTAEHFERLAALIRPELVIFGSGRRLRFISPALL |
|  | AKM |
| UniRef90－B4S |  |
| Unip | DMREGEDLTVA |
| UniRef90＿UPI00036F75E4 | DMVEGDPLTVENFHRV |
| UniRef90＿B2 | RPEDUTLASLETVFAE |
| － | RLK RDPLAF |
| iRef90－B9NPD9 | 此 |
| UniRef90－A3V9B3 | AI DRM ADVDVVFV |
| UniRef90＿UPloo03F791B4 | E D A A A |
| UniRef90 K2L6T6 |  |
| UniReef90－K2M5J5 | D |
|  | E SL |
|  |  |
| UniRef90－E9CGW1 |  |
| UniRef90－B1ZJO2 | \DGPSLAPVLAE AEGIELLIGTGAE\｜VF LPE L |
| UniRef90 F8J666 <br> Uni | T |
|  |  |
|  |  |
| UniRef90－A3JPQ1 |  |
| UniRef90＿S4REK2 | KDISEESLFYLLEPRIELVLGTGDR VERLDAQL |
| ef90 X7E | GGLADTETLRAVAAEIDVLFVGTGAE |
| UniRet90＿－A3PGU6 |  |
| iRee90－V7 |  |
| UniRef90＿G2T9Q8 | － |
|  | SLAEEDFARLLDEEIQLLLVGTGQT LKPLPQGL |
| Ref90＿J2V | ATDLALLVAQSSEl |






UniRef90 UPIO00469CE98 UniRef90_UPIOOO4186B5A UniRef90_W816X6 UniRef90-J6UFW5 UniRet90_W8SJMO UniRef90-11AT71
UniRef $90-$-K8P683
UniRef90-U4M1C1
UniRef90-N6VMB7
UniRef90-K8NC08
UniRef90-UPIO003649CC3
UniRef90 V7IDF7
UniRef90-W4HR79
UniRef90-V8QM17
UniRef90-C1N3X3
UniRef90-UPI00046763B8
UniRef90-T2M6B3
UniRef90-D8JWH3
UniRef90-UPIo004654E14 UniRef90-14VW93 UniRef90-UPIo0037F0908 UniRef90 M4MTU2
UniRef90_JoQG91
UniRef90-W4Y7ZO
UniRef90-E8UCY3
UniRef90-M0RVX3
UniRef90_UPIO004658EA1
UniRef90-A3VMR9
UniRef90-A9D5M0
UniRef90-J4GNP7
UniRef90-UAUTI8
UniRef90-A0A037ZGB2
UniRef90-K8FIE9
UniRef90_14YX27
UniRef90_13TKVO
UniRef90 B9SKJO
UniRef90 Q28TF8
UniRef90-C4GFD4
UniRef90-F6DCA3
UniRef90-UPIO00464EC79
UniRef90-S9QEEZ2
UniRet90_G5ZW59
UniRef90-H2L4U6
UniRef90-B4RDH3
UniRef90_UPIO0046223E3
UniRef90_UP100047DBED2
UniRef90_S8DH85
UniRef90-B8ETD2
UniRef90-UPI000463EB8B UniRef90-K5X9Y7 UniRef90-UP10001CBB7F0 UniRef90 M5XB71
UniRef90-UPI0002DC06D3
UniRef90-V8NH39
UniRef90-I4WPI6
UniRet90_UPIo004416B45 UniRef90_UP10004789428
UniRef90_A1B1X1
UniRef90
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UniRef90-V8NV96
UniRef90-A1US87
UniRef90-A0A024UFR9
UniRef90-G4CFBO
UniRef90-UPI000465C650
UniRef90_WOBFC8
UniRef90-M4ZTJ6
UniRef90-UPIO003597F4E
UniRet90-B6AUS2
UniRe990-17EQC7
UniRef90_DOD197
UniRef90'UPIOOO4407456
UniRef90-UPIO0034B164A UniRef90-X8JTG6 UniRef90_A6FP27
UniRef90_UPIOOO44364C8 UniRef90-A9TJQ5 UniRef90-UPI0002C34FAA UniRef90 UPIO003F15FBA UniRef90-AOA058ZRG6 UniRef90_UPIO004680974 UniRef90_U5H9J6 UniRef90_OOFZN3
UniRef90_M2R821

1
VDGYGPGFFRTGGKLTEGPVVITGPSG
$\qquad$ TDAYGNGGFRFADRRLHASFLVSPNRLVEGWPVR
 VDGYGPGFFRLGGERDEGAVLMMTGV保 RAW
 $K V N D Q \| L Q Q S F I L M P D E L V E H W P V Q A L E Q$ DAYGNGGFRFADMSHRGSMMVPSGVYGDDMVEPIPDW 1 DAYGGGGFRLADLSHRGSLLALPSGM

$$
\begin{aligned}
& \text { WA W } \\
& \text { WA W }
\end{aligned}
$$

HI GHYQRGQDETDGYIYHQAVLLDGSGSVQTVNDPS

 LFTVKYNTKGFTVQGNKVFGSVAGLPKCYLSWKVKSSCD
 G T T DDRETSSFLLAPDRADNWPVTA R TGYDKDS WVNGQPCKQATLTAQSAETPWLNKTFAQ VDAYGNGGFRFADMSHRGSVLMLPSGIYA
IDAYGNGGFRFADПSHRGSIICVPSGIYGПNMDGPTP FISNYSUQGFTVSGDKVYGPVAILP VTAYDESYOEVNKERYFQSVYFTPESPVHTW RSND

MPVESYGPGFRVAG IDAYGNGGFRFADMSHRG $\qquad$ TDGYGPGFFRVGGQVYNSA I EGYGPGFFRIGGEVIHGPVLAGPDGTLP
 FDAYGNGGFRFADMSHRGSVLALPSGT


1 DSYTAGEITINQTAYTHNVQLGDNVAL IRSYEPNCVSVNQQQLCQSCVISQHHLLSDWPVTQLS
 IASLSWGHMKVKGSSYKDCKVWPGGS RAWDWR DAYGDGGFRVGGERRDGSLLI DDSKVEDEARSWPVA VDAYGNGGFRFGGMSHRGS LLAPSGKVHGWAAPETRW DDGYGSGGFRFGGMSHRGSLALPSGVYA SACLFLEGKVFLWNAPPTPW DSSYSTHGFTVNG DRSDKTVGPVALLPKTLVHWAVA R $\square D D Y G D G G F R F A D M S H R G S I L A L P T G$ VRA $\square A T A S W K E$
$\square Y$ VRRVGARSVTVIDREDTCSFLLAPDRAVENWSVTA QDGLVDPGPCVF LEGKVLLWD VNERRDERSFII APDRLVEDWPVR
VDGYGPGFFRVGGVVHHGAVIVTAEG VQPWG
VTRYGDHF $\square E V N E V K Y T H A I A F R P E G A V R P W N V T A V S D$ VEGYGPGFFRTGGTVFEGPMVAGTSGVVLDDVPQSLW MF I EGYSTRGFTI SG VF
 1 SEYDDGGFVVNDVNMRGSVALMPN IVMMW MFIENYTNYGFSINGNT VVGPCA LPQALLQWN LR 1 TTEYDDGGFVVNEVNLRGSIAVFPEIAMM w LQQEAYRPGQLTVNGHTLSEAVLICDTGHTLRPAGLAAP MHI QSYSDSEDK DNNTLYKESII ISRQALDTEWP
$\square D G Y G K G G F A F A D M S H R G S L L C L P D S$ CR WAWDVTEP
Vegrapgrfrliagevileapmivistag
DGYPGFFRVGGVHOGHL
VDGYGPGFFRVGGRAVEGALCLSVEGALA TG
IRGFTETSVRVNHDEYFQSFLLTPERVVPDNNDPTLW $S \square T V V D R E \square A A S F V L A P D R L L E D W P V A D A R$
TAGYGPGFFRVGDDVLQGAVLVTSS VKKYQPGLVKUNDIDVHSSCFLSQTELKTDWPC
VR DNGYDEKKFFANGDEDEGSTICLSSLTDKWAPKS F LRFQGYTDTGFKVNGVDYEGSLLC GNMLMSWAPK MY DSYSSRGFTVNGYRVHGPCALDPQSVVQPWGGDD W VDGYGPGFFRIGGELFKGAVIANGATVTPWGGLDDPA


UniRef90_UPIO00469CE98 UniRef90-UPIO004186B5/
UniRef90 W816X6 UniRef90-W816X6
UniRef90 J6UFW5 UniRef90_W8SJMO UniRef90-11AT71 UniRef90-K8P683 UniRet90-U4M1C1 UniRef90_N6VMB7
UniRef90 K8NC08 UniRef90-UP10003649CC3 UniRef90-V7IDF7
UniRef90-W4HR79
UniRef90-V8QM17
UniRef90-C1N3X3 UniRef90-UPIo0046763B8 UniRef90-T2M6B3 UniRef90-D8JWH3 UniRef90-UPI0004654E14 UniRef90-14VW93 UniRef90-UPIOOO37F0908 UniRef90_M4MTU2 UniRef90 JoQG91 UniRef90-W4Y7Z0 UniRef90-E8UCY3 UniRef90-M0RVX3 UniRef90-UPIO004658EA1 UniRef90-A3VMR9
UniRef90 S909F3 UniRef90-A9D5M0 UniRef90-J4GNP7
UniRef90-U4UT188 UniRef90-A0A037ZGB2 UniRef90-K8FIE9 UniRef90-14YX27 UniRef90_B9SKJ0 UniRef90-Q28TF8 UniRef90-C4GFD4 UniRef90-F6DCA3 UniRef90-UPIO00464EC79 UniRef90-S9QEEZ2 UniRet90_G5ZW59 UniRef90-H2L4UG
UniRef90 B4RDH3 UniRef90-UPIO0046223E3 UniRef90-UPI00047DBED2 UniRef90-S8DH85

## UniRef90-B8ETD2

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UniRef90-UPI0004416B45 UniRef90-UP10004789428 UniRef90-A1B1X1 UniRef90_l3UDM9 UniRef90_S7RW16 UniRef90 A3SXR6 UniRef90 UPIO00359676E UniRef90-TOQ7G4 UniRef90-V8NV96 UniRef90-S8CFD6 UniRef90-A0A024UFR9 UniRet90-G4CFBO UniRef90-UPI000465C650 UniRef90_WOBFC8 UniRef90-M4ZTJ6 UniRef90-UPI0003597F4E UniRef90-B6AUS2 UniRef90-17EQC7 UniRef90_DOD197
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UniRef90-M2R821




UniRef90_UPIO00366D5E5 UniRef90_UP10004697827 UniRef90-17J113
UniRef90-U1IRB7
UniRef90-Q213W4
UniRef90-UPIO00455DAB5
UniRef90-G9EUSO
UniRef90-K5XXG7
UniRef90-UP100036COD5C
UniRef90-Q1YIP6
UniRef90 W4KE80
UniRef90-UPI00036EAA7B
UniRef90-Q8RUX8
UniRef90 UPIOOO367631A
UniRef90-B3R192
UniRef90-HOZFC8
UniRef90-Q5HB24
UniRef90 $\mathrm{Q9PH} 50$
UniRef90-C3XA49
UniRef90-W3RGB8
UniRef90-R7T204
UniRef90-UPI000373E569
UniRef90-UPI00039909DC
UniRef90-D3BNS6
UniRef90-UPIO003761A1D
UniRef90-V2WXE1
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UniRef90-UPIO002E28778
UniRef90-B7RQ99
UniRef90_E9PIQ4
UniRef90-UPIO0033321EA
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UniRef90-UP100036BC6CB
UniRef90-K2JQU3
UniRef90-F1A389
UniRef90 UPIOOO45E7508
UniRef90-UP1000381754F
UniRet90 C1EJ47
UniRef90-J7QKQ1
UniRef90-T1AZB6 UniReffo-UP10001D2FOB UniRef90-A0A024GF27
 FEDTAPLL ELAQTELVAGEVDVLFVGTGAE IAHLPDDLD PVTRPQDIDEYSLQKVAANADDTLIVGTGTEVWVPPMGL PVSDPAQIDEYSLRRVIENAIDTLIIGTANQVWQPSASL RTGEWEGWDQDCFFEVVVPRPEVLIVGTGNEMSLIPPPVL EGWSPERF AASLAEASAESLAPVIAAGDADLLVLGTGQRFALAPAGL AEAPFTGERLGKVFEEAEE QGWSKERF
$\qquad$ GDAAALLALAGS KFSEITTDSL STFQTVRPVDV VAELSLAEI QAVMDQPPEI FLL ILLREYTVKRNESLFPVLVPRIDILVIGTGNNLAFPPQATV NVGSHRDISHESLFRLLEPQIEILVLGTGDR VERLHPDV
 IHSFDELTLPDL!ELEQYKPDIIVLGTGRKTRFDRQEET
 KPEHF QVGSYKDITHDSLFR EED EVLGTG EPAETTVESMAALARVDPPVEFVVVGTGDEAVVPLDPAV
 NLTTPAEFRLEAFDRVIEEQPDVLLVGTG PDLSPLSADL 1HTVNEDDAELLVPLLKHQPR1IVLIGHNNQGQLVSFPDI
ETGT
GFDDVDALLALAGK DDULFVGMGAD IAHLPADL
ETGTEHGVQPADVKEVAEKGVQTLVIGRGMSEALKHSPL
QDLTADSFQAAQQAGAEVVLLGTGSKQQFVHPKIM KR】EEDTRDHDAVFTVANPPVEILVLGCGERINHGLAPEL

| $\begin{aligned} & \mathrm{D} \mid \mathrm{I} \\ & \mathrm{R} \mid \mathrm{V} \\ & \text { SV } \end{aligned}$ |  |
| :---: | :---: |
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QDNDSRVVEEAD
ElL VLDDLLALTAYODEI LLI
PGLGNETR RLPEDW AYQTEQEI TLNDVQAAFEQGANVLLI GTGEKQRFVSPKLV PFNWGDALPKDAFFETMTPRPELLLLGCGR QTASDDRAHSDDFLEVVKPAPS LLALDARMD EQADRYSLQR S QR DFDNANDDTLVGTGAD
KRPSD SLQR VFDNANADDTLVVGTGAD

$$
\begin{gathered}
A \in 5 \\
S
\end{gathered}
$$

GLDDLAAI IENDYDVVFI
$\stackrel{\mathrm{D}}{\mathrm{R}} \mathrm{V}$


KLNSADTVTPESMFTLIEPKLELVILGTGGSRMVNVDTAVV
 QGHERQTEDFLNAIRVPPEVILVGT
LVKSTQEIDEVYMNLLTQFKPEDVIGGHENTGKLPPLSTM S $\square$ NKYNF TVDDEPLFALEPELIVLGGGGAQVFPPAAK WTGFDDDAALRALAGQPVDVVLCGTGNDQHFMHPKLT PQ LDPAAL LWSKFDLLTDEPDFEAKQKYDVLLIGSGSRQLFF PPS GHMPMKDWDGDAFFDVVSPRPELVLEGTGKEGDAPLPEET


SEWGG DDRA LALAGRVDVLFGMGA AI AYPPKAL
EADNEHSLS LFTVLEPKLDVLIIGAGTSDDLKVDPKL


UniRef90 E2PD24 UniRef90-G4E254 UniRef90-M5GC51 UniRee90-UPI00026C9BE2 UniRef90_L7LVC8 UniRef90-M2U7Z7 UniRef90-W0A986 UniRef90-A6GQ74 UniRef90-W6K8B7 UniRef90-Q7QFV4 UniRef90 T1J857 UniRef90- BowKL7 UniRef90-F4PZ17
UniRet90-FOWYN3 UniRef90 - 13 ITN1 UniRef90-UPIO00441455E UniRef90-UPIOOO175832B UniRef90_UPIO0026C7B00 UniRef90 J9VQ07 UniRef90-UPI0003C37911 UniRef90-K5D5E8 UniRef90-UPI0004560C86 UniRef90 F0GFZ2 UniRef90-171582 UniRef90-K4AYM5 UniRef90 Q16XR7 UniRef90_Q54CZ9 UniRef90_AOBNL1 UniRef90 UPI00037F16D5 UniRef90-B4LNX6 UniRef90-D4DU08
UniRef90-TOGCG6
UniRef90-001CS5
UniRef90-UP10003C45DCD UniRef90_B3Y5K0
UniRef90 B4MRP9 UniRef90_UPI0003B36486 UniRef90-U9U9Q8 UniRef90_V9TVE3 UniRef90 M1LYB7 UniRef90-G4CPM4 UniRef90-UPIO00288F2E7 UniRef90 TOHPT8 UniRef90-M5FAP1 UniRef90-UPIO003B66621 UniRef90_E31014 UniRef90-D8PNIO UniRef90-FOEXV6 UniRef90_L8x511 UniRef90 UPIO004288B66 UniRef90-UPIOO0466A9BC UniRef90 UPI0002659083 UniRef90_M7XTD4 UniRef90-M4BB05 UniRef90-K4DNE2 UniRef90 F1L216 UniRef90-UPIOO02B43364 UniRef90-UPIO00371E435 UniRef90-Q1N7H9 UniRef90 A0A023G5R3 UniRef90-W7U410 UniRef90-M1LS42 UniRef90_UPIO0042A148B UniRef90 L1 J926 UniRef90-B2AXP7 UniRef90 DOA8H4 UniRef90 UPIO0026CD6D1 UniRef90-G4VCG3 UniRef90-L8GNY7 UniRef90 1 1P5K2 UniRef90 D2V7E3 UniRef90_UPIo0032988C7 UniRef90-S2JM26 UniRef90 UPIO00370B87A UniRef90-UPIO00412C203 UniRef90-H3FYY4 UniRef90-F0Y3Z0 UniRef90 UPIOOO370C951 UniRef90-UPIO00379BDED UniRef90-A0A013WH65 UniRef90 UPIOOO34F8688 UniRef90-A4RUA7 UniRef90-UPIOOO4015450 UniRet90 U6NW41 UniRef90_10YTH3 UniRef90-M2X1C3 UniRef90-F8G9M2 UniRef90-A1KU36 UniRef90-A8JGNO

1
GHRSGEDR|LAGQSFHKPVLVHKDSVCLISQCRT|LS
VT A Y A D GQIWWVNHRAYHSHLLITPTQVIADGDHTPAAQ

$R X D G Y A D N G F T V S N E X V E G A V L C D \quad G N L C T K W N V Q \quad R R$ IT G Y S Q Y GFRLNN DMVLIGPITVFPRSVLSWNV GVLVNDRRLDRSFILAPNALI ED W
D G F IVT SNE DEVK G P VI L L N G D L I M WD V P Q G D H G MHIIHCAEDKFTIKNTNYTGPILVSRENIQQWDIESDVLW




 LHI K S YAPNFFRLNDESEWHN $V D G Y G P G F F R V G G D A H H G A V I V T A Q G G V Q P W G$ $G F R L T N D G F V L G B P D$ LWK P


VF P D G L L L S P VRAMAWT VN S Y S P A GFRMN NGLFIVGPVALVPRSVLQWRVR

 V NERKLERSFI ISPRTTLIENWPV T
VQ S Y N Q Y G VVVNNV L L P G A VL L L P VQI TN GS GALLI G GEAFEWKPWL TK DGK GTRKKMDNS K W MRITAYTPDSIFVNDKEVI GSCIVT DKSYYHWNVSS

$F \prod S G Y G Q R S F F V G N T R \quad \quad \square F S \prod F A T K K Q V F V W$ 1 TGFS QYGFRRNN D D MVIMGPMAMFPRSVESWNV GF VLSNH $\quad$ SK $\square$ D QP LI LL NGSPF L WNAPPRAP $\square$ D GYARGAFHFAGMASAGSILALPS GD HAWPPR IS GF S GRGFKVDE GVYEG LL IVTP QRADGWSPP

 I K H F E N G K $\square$ A F P Q H E S S K N

 GP I A L F P K T ALLS W IE GCAANGF VNNEDVEGAVLCVGN MKLD GYS G A Y FVV N NVVEVRSSILLLLPHTGYL
 GE $I R L$ S GRHFNK PVLL H R D S A GLLS K WQSLLS

## UniRef90 E2PD24

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UniRef90 | UniRef90-W0A986 |
| :--- | UniRef90-W6K8B7 UniReffo-OTQFV4 UniRef90-T1J857

UniRef90-BOWKL7 UniRef90-F4PZ17
UniRef90-FOWYn3
UniRef90_13ITN1 UniRef90-UPIO00441455E UniRef90-UPIO00175832B UniRef90-UPIO0026C7B00 UniRef90-J9VQ07 UniRef90-UPIO003C37911 UniRef90-K5D5E8 UniRef90-UPIO004560C86 UniRef90-FOGFZ2 UniRef90-171582 UniRef90-K4AYM5 UniRef90-Q54CZ9 UniRefofo-AOBNL UniRef90-T1G612
UniRef90-UPIOOO37F16D5 UniRef90-B4LNX6 UniRef90-D4DU08 UniRef90-TOGCG6 UniRet90-Q01CS5 UniRef90-B3Y5K0 UniRef90_B4MRP9 UniRef90-UPIOOO3B36486 UniRef90-U9U9Q8 UniRet90-V9TVE3 UniRef90_M1LYB7
UniRef90_G4CPM4 UniRef90_UPI000288F2E7 UniRef90-TOHPT8 UniRef90_MSFAP1

UniRef9O_UPIO003B66621 UniRef90-E31014 UniRef90-D8PNIO UniRef90-FOEXV6 UniRef90-L8X511 UniRef90_UPI0004288B66 UniRef90-UPIIOOO466A9BC UniRef90_UPIOOO2659083 UniRef90-M7XTD4 | UniRef90-M4BBO5 |
| :--- |
| UniRef90 | UniRef90-K4DNE2 UniRer90_-Y1LI

UniRef90_UP002B43364 UniRef90_UPIO00371E435 UniRef90-Q1N7H9 UniRef90-A0AO23G5R3 UniRef90_W7U410
UniRef90 M1LS42 UniRef90-UPIO0042A148B UniRef90-L1.1926 UniReffo-_L2AXP7 UniRef90-DOA8H4
UniRet90-UPIOOO26CD6D1 UniRef90-G4VCG3
UniRef90 L8GNY7 UniReffo-L8GNY7 UniRef90-D2V7E3 UniRef90-UPIOOO32988C7 UniRef90-S2JM26 UniRef90_UPIO00370B87A UniRef90_UPIOOO412C203
UniRef90-H3FYY4 UniRef90 FOY3Z0 UniRef90_UPIO00370C951 UniRef90-UPIO00379BDED UniRef90-A0A013WH65 UniRef90_UPIo0034F8688 UniRet90-A4RUA7 UniRef90_UPIOOO4015450 UniRef90-U6NW41 UniRef90-IOYTH3 UniRef90-M2X1C3
UniRef90 ${ }^{\text {F8G9M2 }}$ UniRef90-A1KU36 UniRef90-A8JGNo UniRef90_LOB611
 LDLEQLLSLLQQPPELLLLGCQHAPYSAMQPLMAKVPRSV
 ETGTNHHVQPSDLEEILRKGVQTLLVIGRGMT RPEDDWNTDLFAPFEVVVPKPELVIVGTGARTDQP PPRV DTDESHYDSSGTGLEPKLDVYVLGDGDPQKFSFYKK1 RFG $A D E M L V P R P E I L L L G T G Q R A W P A P K R L$ SVEDDNEAS SLLFTALEPKDDVLILGDGDQTPSPDSKEI EPVDAKELSVGHFEKVLAEDVEVLLIGTG$D$ MRATPGGLDVWRVFKMVDDRPELLEFGTGKTVVL
 SHEDVTEESLGSLFTALEPKDDGLVIGGGDQQ STMPAFT ПRABSF

 DAPGSEALTVASLGDLLDLDPRFLLLGTGADVRQPPRSFV

 RPRAVADLQPEDLAPLLALNPTVVLLGSGATLVEPSPAVL
KGSVFNNWTTDKVFEVIKPRPELLIEGTGKSVVPDP SHI
 DDQFF LLSQFENTLAPREVVLVGTGRKHCFLHPKIT DAPSVDALDASQFGDLLDPAPEFLLLGTGAGLRQPPRPFV EA EA DI DRFLDTRE
SSWEGWSDKHFEVFETVLD K

## N

NFQC TNEKSL SLFTALEPKDDMLSAGDGDQSAMLLPPKF LIPATFDE GTEAHUQAWLARKPTLILIGTG NKMEFLLAPQW $N \nabla A G V Q G U T P E S L L L E L A B K V D V L V L G M G A E D A F P P E L A A$ KRDEETTREHLTVETVENRPBELLLIGTGSSTLLAPQRV SFEEVDERTLALLLHLYPV PDVIFLGTGRNLHF


| Un | 110 |
| :---: | :---: |
| UniRef90 G4E254 | GIGGFEMMRTEAACRTYNLLVSEGRVA |
| UniRet90-M5GC51 | NEMGMQVMDTRNACSTYNLLLEERR |
| UniRef90-UPIO0026C9BE2 | RALAQGVGVEAMDSRAAARAWAVLRGEGRVAGAL |
| UniRef90-L7LVC8 | TQHLRRIGVEVHPTSVACATFNFLVEDRNVAAA |
| UniRef90-M2U7Z7 | LAALRERGLEVMDSRAAARTYNLLVAEDRAIAA |
| UniRef90-W0A9864 | A RKFFANKRVEYMDSQAACRTYNVLIGGEGRVI AA LLL |
| UniRef90-W6K8B7 | KKALKDDHGIVMDTGAACRTFNV |
| UniRef90-Q7QFV4 | \DFMKRDNVEVLGTEQACSTFNFLNAENRV |
| UniRef90-T1J857 | KFLUSKKIEILPTDQACATYNFLN |
| UniRef90-BoWKL7 | SFMAKDNVEVLNTEQACATFNF |
| UniRef90-F4PZ17 | KRNETMATDNADGTYNILVEEGR |
| UniRef90-FOWYN3 | EYLRMHGIVVLDSANASATFNILAEDRRVAAAL |
| UniRef90-UPIOO0441455E | RTALLNEMGLDTMDTRNACSTFNLLLEERRV |
| UniRef90-UPI000175832B | VPFARKHKLEILPTEQACATFNFLSSEGRVAGAL |
| UniRef90-UPIO0026C7B00 | HQLSQQTGI ECMSDGAACRTYNVLLSEHRVVAGF |
|  | ISGLGIDVMDSRAAS |
| UniRef90 UPI000 |  |
| UniRef90-UP10004560C86 | RKLINDLGUDVQNTRNACSTFNLLAEERKVAAAL |
| UniRef90-171582 | QLSQKRTGTECMSTGAACRTYNVLLSEHRVVAGF |
| UniRef90-K4AYM5 | R |
| UniRef90-Q16 | ACATFNFL |
|  | STRNVETMTTDNADGTYNULAEEERRVSAFHV |
| UniRef90-AOBNL | K |
| UniRef90-T1G612 | RK\| NVELLPTDQALSVFNFLNAEKRVAGAF |
| UniRef90 B4LNX6 | KRIIKKTNVEVLRTEQACATFNFLNAEGRMVA |
| UniRef90-D4DU08 |  |
| UniRef90-ToGc | RDLSSGIGVEAMDSRAAARAWGVLRAEERV |
| UniRef90-Q01CS5 | YLRELGVDVSDTSRATSTFNVLVEEGR |
| UniRef90-UP10003C45DCD |  |
|  | RGLSAKG S |
| UniRef90- UPIO003B36486 | AACLQGIGIEVIMDNAAAARTFNVLATERRVVAGFLL |
| UniRef90-U9U9Q8 | RQYLNGLGI EIVDTRNALATFNVLA |
| UniRet90-V9TVE3 | WRIREQGPVEVMSTDAACRTFSLLAEGRRVAAAL |
| UniRef90 M1LYB7 |  |
| UniRef90-G4CPM4 | AKAAKGGV |
| UniRef90-TOHPT8 | RALARGI GVEAMDSRAAARAWGVLRAEERVAALL |
| UniRef90-M5FAP1 | ALKAAGI SSDPMSTGAAVRTYNVLDAENRA |
| UniRet90-UPIO003B | A ALAQGI GVEVMDSRAAARAWGVLRAEGR |
| UniRet90-E31014 UniRef90-D8PNIO | RQLKRGLGLETMDTAAACRTYNVLIAERRTAALL |
|  | RNALKK |
| UniRef90-L8X511 | REYGSKAGVQTMDTRNACSTYNLLAEERRVAAAL |
| UniRef90-U5EV21 | K1NVEVLSTEQACATFNFLCAEGRMV |
| UniRe990 UPIO0004288866 |  |
| UniRef90_UPP000466A9BC | MAEPMSSPSAARSYNVL |
| UniRef90 UPIOOO2659083 UniRef90 M7XTD4 | RKFFNR\|GMEFVSTGDALATFNYLNGDGRLAGAT |
| UniRef90 M7XTD4 4 | KRYLNGLGVDVLDSRNACSTYNLLQEERRVAAAT |
| UniRef90-M4BB05 | QLMFQKRGM |
| UniRef90-F1L216 | SKH K DGLEDMNTEDAVATFNFLAECRYVAAAL |
| UniRef90-UPIooo2B43364 | RQF RSTGLEAVDTRNAASTYNILNEEGRIVAA |
| UniRef90-UPIO00371E435 | GEFLRRTGLETMDNAAAARTFNVLAGERKVVAVFLL |
|  | GIGVEAMDSRAAARAWGVLRAEERIVA |
| UniRef90 A0AO23G5R3 | EKKIVEPTVTACTTFNFJLVERNVAAA |
| UniRef90-W74410 | VANDGVAM |
| UniRef90-MLIO42042A148B | F |
| $\begin{aligned} & \text { UniRef90_UPIO00 } \\ & \text { UniRef90-L1 } 1926 \end{aligned}$ | WFGDQGI DFMDSVNAFATFNVLASEGRVA |
| UniRef90-B2AXP7 | RQA SEMGVEVLDTRNAASQYNLLATERGVAAAL |
| UniF | RTAFQKRGI HCLLT TPQACGHFGVQLSVSRRAAL |
| UniRef90-UP100026CD6D1 | GTGVEAMDSRAAARAWAVLRGETRVVGAL |
| UniRef90-G4VCG3 | HRLPVEVMSTHHAMGTFNFLNSERRYV |
| UniRef90-L8GNY7 | RDFFRQKGI EALDTWNAVATWNILNQEDRAVAA |
| UniRef90-X1P5K2 | QFTREKGVI DKSEEAVKTFNV CQQNKIIGLFHLTC |
| UniRef90_D2V7E3 |  |
| $\begin{aligned} & \text { UniRef90-UPIO0032988C7 } \\ & \text { UniRef90_S2JM26 } \end{aligned}$ | RQYFFKLGI QVMNSKHAAATYNVLAEEGRRI |
| UniRef90 UPI000370B87A | RWQLRDAGI AVLPTRSAASTYNV |
| UniRef90-UP1000412C203 |  |
| UniRef90 H3FYY4 | FRFLQKIGLEDSDTEDALATFNF |
| UniRef90 FOY3Z0 | EAFFRDEG EQMDTANAVHTFNILNDEREVGA |
| UniRet90 UPI000370C951 | AALIARGLGVEAMDSRAAARAWGVLAEDRQVVAA |
| UniRef90-A0 | RDLAKG $\mathrm{C}_{\text {GLEAMDSRAAARAWGVLAEERSIVAAL }}$ |
| UniRef90-UP100034F8688 | RAAANELNLEVLATEHACSTFNFLNAEGRVAAAL |
| UniRef90 UPIOOO4015450 |  |
| UniRef90-U6NW41 | NRIGLETSDTEDADATFNFLNAEGR |
| UniRef90-10YTH3 | TDGLSSKGISVEDTANAAATFNILQEGRKVAGAL |
| UniRef90-M2X1C3 | D |
| Uni | AKAGVDFMASDT |
| UniRef90 A8JGNo | REYLQRLGVEVLDSRNATGYFNVLNDEGRVVGAL |
| UniRef90_LOB611 | LPGYKGIUVEIMNTRSATYTYNINNRDVIFAAI |

UniRef90 R9P2L5 UniRef90 G2ILN5 UniRef90－W5ACl UniRef90＿E9H068 UniRef90 H8L049 UniRef90－D6ZZ40 UniRef90－P18152 UniRef90 W7HU18 UniRef90－I1XIE9 UniRef90－B7PK57 UniRef90 UPI000180B382 UniRef90－B2SUB6 UniRef90－D8TN42
UniRef90－L8FZB5
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UniRef90＿J5SGU2
UniRef90＿N1PUU8
UniRef90 E5UIR7
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UniRef90－U6FWA9
UniRef90 S3DSY4
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UniRet90＿G2Y5J1 UniRef90－M2U3T0 UniRef90－A0A031HJ19
UniRef90 B2WKB8 UniRef90－W3XET9 UniRef90－N4VGU9 UniRef90＿CONBI8 UniRef90 R1EE07 UniRet90＿G3JUQ3 UniRef90－J3KE74 UniRef90－G7XF12 UniRef90－H2XFN7 UniRef90－J3PRF8 UniRef90 D1AUC8 UniRef90－E4VOD4 UniRef90－E4ZJO4 UniRefo－ UniRef90－Q5DAV2 UniRef90－L8Y234 UniRef90 w9wm77 UniRef90－V4L1C6 UniRef90－F3X2D4 UniRef90＿A5V6A3 UniRet90＿D5G8C5 UniRet90－B6BUF7 UniRef90－C5GDA6 UniRef90 G2X680 UniRef90－UPI00042B27DC UniRef90－A0A010RFQ5 UniRef90＿－7W123 UniRef90 M3D9L5 UniRef90－M4S2K0 UniRef90－W1S5W9 UniRet90＿W2RM39

DTGFAGRGFRVGERVFSGGLLIDPSGV
A A WD A P
TNSYSRVGFRTNGMMAFGP ПATFP KS ILS WNVQ
LFI RRQADDSTTVMDRTLRRSFILARRQLLEDWPIT
IDGYGRWSFHFAGMASDGSDLALPSGI HAWAPRVPA
YDDGFLLNNGMKFHGDG｜VIVHNEAFNWLTDGAVR $\square K S Y G D G F L L D Q S Q R \square T N N C \| L S P D G \square F D P \square E L P P S Q W$ ■TGLYKGGFAFQATTLHCPVTVRDVIFKWNVTSPEE KVNDQILQQSFILMPDELVERWPVQSLEQ पDACLWDGFHLNNKПTNGAGVLLVNGEVGSWKPWNANR NGFRVLGPAVFFP RSVLGWKVKNS ПDSYGNSFTETNKK【YEKP YFTVNSEVKEWIVD

GFGGITVTGGGNGVLLIDGEVFNWRPWLVNK
MRDSGT GVLLVGGEAYRW RPTGALLNAKRQWEVP GKGRLKNGGTVYETPVCLIGGRVFPVSESRPEDL INSYKEGS LKUNGULYTDNVLFSNNSKILKLDM\｜NDQD

VNDRRLTTSFAVSPDTLIEEWPVVAVGL （1）DGFSQVGFRLNNHTUGGMVLFPFDGLLLSPVVLAWNG NGMFVIGPMIIFP KLLS KTVLSN पDACTSDGFALNNQRISGSGIMLIGGEAFRWWPWTAG GLGNGYFSVNNVWYPGSLLIFPNQVFLWDVQTAAD GFrVDDERVFRALLMTVETASEWTPPDD

ПNDATYQDP VVGDDVLRENVLPVDSE VSPPGDIMKAWAGWTPE
MKПEATSFG\｜LQ GGEQTYSKP ПCWQDGKIS\｜IPQAT\｜ TDSYGTYGFRLNGDTVLGP TAIVPGGSQLS WQVG WD WR Q｜HSYDDNNVVIRPQAIETNFILTADTLIVDWAVS ITGFTARGFKLDGRRVDSSLVLTPDSAF VSAMPW VSYEYGFMLSNGTALHGPMVSFPQSAF $V$ VGFTTRGFKLDGRRVDGSLVLTP $\square$ IKYGFR LYNGTTVRDSGLLLVDGEAFSW RPWGDQ GDGVFK DGKWRRGSGVLLVGGEAFGWKPWVGGA पDATGDGFALNNQMR】SGSGILLVGGEAFRW RPWLYE
पDACTSDGFALNNQRDSGSGILLVGGEAFRW RPWDRE GSGIILIGGEAFRRPWELSPSASEGKPRGQNKK
TDSCFPDGFQLNGMRTTGDGCLLVDGEVFRWRPWEAGK
 GFGGDTLGG GDGALLVDGEAFTW RPWE VKDTGYEDGFLLNNGMRFSGDGIIIIHNEAFNWLSHGAAR VKITG GNGVFLVGGEAF VWRPWQGA GP $\square$ ALFPKTALSW
पDSCDGECFVIQGEVYRGPSVVFPRSVVAL PHQDE NGVRIDGNGCLLVDGEVFVWR PWEA

$\square K R Y D D A G F T \square D D A H Y G G \square V L Y K N D V Y D T \square A P T$
YRVGETAYPALLLSPDWHEPWRP $\square R G F S G T A F R V A D R \square V P G G L W L T P D$ NADDWA TSAYEENWLKTNNKKYNQSIIVLPN EVLSTKRLSSPD IDACLPDGFQLNGVRDTGDGCLLVDGEVFRWRPWETGK FQGYTDTGFTVNGVNYEGSLLC VAGHLLTSWVPN IDACVWDGFHLNSKIMDGDAALLIGGEAFEWRKGSKNL

IVRGFRERGFLVSDRYVPGGLKLTPDDA LIN P T RA L A WS D A

पrfagytdtafkVng पGNMDMS WAPK
【 IKGFRERGFLVADRYVPGGLKLTPD DARDW MKDDGYDDGFKINNVKYEGSLLI IDNDSHGFILNNGVR\｜DGPMVIFP KELRTLSWN
K KKCYEKSHTQTNEMNYDTSLILSPEKLIAPWEDDLQK LKVYGVADGQFLINHYWVSGSVIVFPN RFYMWNIL

## UniRef90_R9P2L5 UniRef90-G2ILN5 UniRef90-W5ACI1 UniRef90-E9H068 UniRef90 H8L049 UniRef90-D6ZZ40 UniRef90-P18152 UniRef90-W7HU18 UniRef90-I1XIE9 UniRef90_B7PK57 UniRef90-UPIOOO180B382 UniRef90_B2SUB6

 UniRef90_D8TN42 UniRef90-L8FZB5 UniRef90_V3ZZQ8 UniRef90-M1LS02UniRef90 F9F395 UniRef90-E3KBW1 UniRef90_ROKAP2 UniRef90_F2BCB1 UniRef90-L0B960 UniRef90-UPIO00418ABA7 UniRef90_J3JXA2 UniRef90-K9CVN3 UniRef90_T1HCR8 UniRef90_Q0UEB4
UniRef90_G0QRNO UniRef90-UPI0003752397 UniRef90_D6WK38 UniRef90_C7RAG2 UniRef90_J5SGU2 UniRef90-N1PUU8 UniRef90-E5UIR7
UniRef90_M UniRef90-G6CTV1 UniRef90_C0N504 UniRef90_U6FWA9 UniRef90-S3DSY4 UniRef90-W9BSM6 UniRef90_G4N5R1
UniRef90 A8P905 UniRef90_G2Y5J1 UniRef90-M2U3T0 UniRef90-A0A031HJ19 UniRef90_B2WKB8 UniRef90_W3XET9
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UniRef90- J3PRF8 UniRef90-D1AUC8 UniRef90-E4VOD4 UniRef90-E4ZJO4
UniRef90 C1H7P0 UniRef90-M2NL63 UniRef90-Q5DAV2 UniRef90-L8Y234 UniRef90-W9WM77 UniRef90_V4L1C6 UniRef90-F3X2D4
UniRef90 A5V6A3 UniRef90-D5G8C5 Uniref90_B6BUF7
UniRef90_C5GDA6 UniRef90-G2X680 UniRef90_UPIO0042B27DC UniRef90-A0A010RFQ5 UniRef90-F7W123 UniRef90_M3D9L5 UniRef90_M4S2KO
UniRef90_W1S5W9 UniRef90_W2RM39 UniRef90-J3NIM2 UniRef90_UPI0002C37704 UniRef90_U1GJ49 UniRef90_UPI000248A005 UniRef90-J3N534 UniRef90-M2W391 UniRef90_UPIO0046D818D UniRef90_G2QCW3 UniRef90-K2C1D3 UniRef90-J9HRT1 UniRef90-Q0C9Q0 UniRef90_M1WA95 E

50
LF E L 60
60
ETLLIFGTG
70
SRVLIP P P QP ${ }^{80}$


SAED $\square N E D S \square S L F Y T L E P K D D I L V I G \square G D P D Q K V S H N I$ HAGQLDAALAAP MA LDKPELVLLGTGPTQDFPSSDVL
S 1 KK S H
 $V \vee R N S V L E D D E E L L G V L D P K P E L L I L G T G A R S G L Q S A R T$

 | V T S S E S |
| :--- |
| L H V |

 EVTPDSLGELLKPAPEVLVLGTGAQQAEPLPPAL AEGEENKRLANDVLGMVWPKPDLLILGGGPN MMPLSPAT

 EGAWG

l Le L V
 LTPELLEPLLAAFGDLLDRPDVIVIGGGGGRQAFPVATQA




 K QA WG

LᄂD미 ETKSLNECMLPASGVEEVIKNRPEVIIIGTGAKQQFMHPK@A $\square N V D S L K$ DAPD Q QLSAA QVAELQRLDPEVILFATGSGLTVEHQKDA
 NGGGHTAMELVNLLDLVWPKDELLVLGKGAASEKMNQREL
 KEGE E L E L Q F E CGDE A WG PR P D L L I L G L G K D M R P I I S P
 G Q Y DVPP P P S L S S L F A H L W W P R $\quad$ P P D L L L : L ND GDSGGGRKD GMRAMI NEKPDLLI L GLGGAS VYPISPET



$\square S$ G G A
 AA GKERN【VN

DFTQLTEK HFRSW SLLSLLYPK
 V b V V W VA QLIK E DHKERNLELI $\qquad$



 PAVDALTVMALGDLLDLDPAPEFLLLGTGTGGRQPPRAMV
 AATDVTEDAVADVADLLWPKPDLLMVGTGGKKVWPLSKET

 $\square S V H D F E L I Q A L D P K I F L L$ DASE DKPHTLE LLNFVK


UniRef90_K2C1D3 UniRef90_J9HRT1 UniRef90_Q0C9Q0

Y E HFRRMGITVDTCPEATSTFN
KRHTNS LTGVEVLDTRNAAAQFNMDATERGV
RMHIA QLGVEVLDTRNAASQFNLLATERGIAAAL
UniRef90_B8CC15



UniRef90 S3DBQ2 UniRef90-T5ACC8 UniRef90-D8QRW6 UniRef90-A0A024SEW8
UniRef90-M1VCE8
UniRef90-W9CM31 UniRef90-N1J7B0 UniRef90-S8ANJ1 UniRef90-E2C9C6 UniRef90-U4LF27 UniRef90-H1W347

lupas_21
lupas_14
lupas 28
lupas
jnet
conf
sol25
sol5
SOlO
jhmm
jpssm

UniRef90 S3DBQ2 UniRef90-T5ACC8 UniRef90-D8QRW6 UniRef90 ${ }^{-}$A0A024SEW8 UniRef90-M1VCE8 UniRef90-W9CM31 UniRef90-N1J7B0 UniRef90 S8ANJ1 UniRef90-E2C9C6 UniRef90-U4LF27 UniRef90-H1W347

RRCDTA LGVVEVDDTRNAASQFNLLLATERGVAAAL RRRVADLGVEVLDTRNAAAQFNLLATERGVAAAL KEFLKSRNIKIEDSRHAADAFNFMVECRDVVAA REHVSRLGVEMLDTRNAAAQFNLLATERGVAAAL MEYLEKHGVSFESTARACATFNFLNEERRTPAAL RAF NGLGIEMADTRNAAAQFNLLATERGVAAAL KERISRLGI DI QDTRNAAAQFNLLAAERNVAAALL KHRLHSLGI RIMDTNHAASSYNLLATERPI AAAAL




