UniRef90_K9ULD UniRef90-K9x6L UniRef90-K9RLY: UniRef90 X5JBP5 UniRef90 UPIOOO34C17DF UniRef90-B7JUN4 UniRef90_UPIO0037872E2 UniRef90-K9SK77 UniRef90-K9TVC3 UniRef90 ${ }^{\text {BoC9KO }}$ UniRef90 K9WL73 UniRef90_UPI000349CB52 UniRef90-K1W7E5 UniRef90 K7VSM3 UniRef90-UPI00034D8227 UniRef90-T2J956 UniRef90_EOUIEO
UniRef90 A4A0K2 UniRef90-K9SZD0 UniRef90-UPIO00349C361 UniRet90_UPI00034BCA27 UniRef90 A3Z768 UniRef90_UPIO00365FBFA UniRef90-Q31QX2

保 PPEWLQGI NEFNAGEYYACHDTLEALWMESVDPDKKFYQ
 LSEEFWE GVE QFNTGQFYACHDTLEALWDEALEPDKTFY Q
 EEFWQGI E QFNQGEFYACHDTLEAIWWDAPVVDKKFYQ TAEFRSAI A QFNQGDYYACHDTLEAIWUEAPEPERNFYQPPAFWQGVEFFNQGQYYACHDTLA A
$\square$
D P R F A R GV A L F DQGEWYAAHDVL D D

EGGIAL
LQKAIVAEFNQQK
LWEGVEQFNTROQ
FWQGI
VPAAFWQGVEQFNQQQFYACHDTFEL IPKEFWQAVDQFNAQDFYACDG
$\square$ F L E A I A Q F NK Q E F Y T C H D L L E A I WM D

## PEEFWLGVEQFNAGQFYACHD

 PPALVKAVDEFNAGQYFECHDTGEAWWDSDKSSVRDGYK LPQEFWQGVEQFNSGQFYACHDTLEALWIEATEPEKSLYQ MNEFLKKGI EEFNRQEFYACHDTLEEIWMDSDEPDKKFYQ LDQGI QQFNQQDFYACHDTLEAI WMEATEGERNFYQ】PETFWRGLEEFNARQFYACHDTLEAIWHEADNPLRQFYQ P EA LRRAVAKFNAGDYFECHEVLEAYWLEETGPVRDLYK PPGLLAGIA $\quad$ LFNAGRFYDCHEEL EDDWRAEPHPVRSLYQ FLEGIKQFNQQEFYACHDTLESIWDKTDDLDKHFYQ EFGEAJAQFNASEFYACHDTLEEAWMDAEYPDKTLYQ PPQFWQAVSQFNRGEFYACHDSLEPLWMEADQSERNFYQ LPTALQQGIAEFNQQEFYACHDTLEALWMDSTEPDRRFYQ MTEQFWQGVEQFNQQEFYACHDTLEALWMEAAEPNKQFYQ DPRFLAGVDDFNRGAFFDAHEVWEELWRDCPAPDRRFYQ
PAEFWVGVE
FSRGI EQFNQQQFYECHDTLEAI WI EADEDLDKRFYQ DPRFQEAI RLFNAQEWYAAHDVLEEI WHETADPERRCLQ MDERVAHGI ELFNTGQFFVCHEVLEEVWTTERNPRRRFLQ LSPQVWQAVLEFNQGEFYACHDTLEALWAEAREPERTFFQ पDARFQRGVELFNAASWYDAHDVLEEDWHETADEDRRVLQ LLTQGIKQLNQKEFYACHDTLEEIWMEAPETEKKFYQ

## QUERY

UniRef90_K9ULD1 UniRef90-K9X6L2 UniRef90-X5JBP5 UniRef90_UPI00034C17DF UniRef90-B7JUN4 UniRef90_UPI00037872E2 UniRef90_K9SK77 UniRef90_K9TVC3 UniRef90-B0C9K0 UniRef90 K9WL73 UniRef90-UPIO00349CB52 UniRef90-K1W7E5 UniRef90-K7VSM3 UniRef90-UPI00034D8227 UniRef90-T2J956 UniRef90-EOUIEO
UniRef90-A4AOK2 UniRef90-K9SZD0 UniRef90-UPI000349C361 UniRef90_UPIO0034BCA27 UniRef90 A3Z768 UniRef90_UPI000365FBFA UniRef90-Q31QX2 UniRef90-UPI0002DC1332 UniRef90-K9Z9B2 UniRef90_K9XAG4 UniRef90-K9YD02 UniRef90-K9S592 UniRef90-K9TH80 UniRef90-K9SR27
UniRef90-14F9B5 UniRef90-Q115H8 UniRef90-UPI0003F5A190 UniRef90-K9XXY7 UniRef90 A0YU77 UniRef90-D2QZY3 UniRef90-U5DL54 UniRef90_B3E439 UniRef90_UPI000365CF46 UniRef90-UPIO0020030D3 UniRef90-D4TSE4 UniRef90-K8GEY2 UniRef90-XOVVH5 UniRef90-B4WN95 UniRef90_UPI000466FED0 UniRef90-D7DWP6 UniRef90_UPI0003481E69 UniRef90_UPI0002EA39C3 UniRef90-U5QLJ1 UniRef90-G7QCS2
UniRef90-D1C614
UniRef90-D3ENK1 UniRef90_S7U0E4 UniRef90_UPIO0034957BD UniRef90-B8HY59 UniRef90-UPI000368D500 UniRef90-B4VM12 UniRef90_UPI00016C529A UniRef90_Q39Q87
UniRef90_K9F2Ls
UniRef90-L8LYD9
UniRef90_Q7U776
UniRef90_Q021P2 UniRef90-K9RQ08 UniRef90_UPIO00365D43A UniRef90_Q05TD0 UniRef90 UPIO0034512DA UniRef90-K9YKT8 UniRef90_Q0IAM8 UniRef90-UPI00034CED16 UniRef90_L8APZ9 UniRef90-UPIOOO28A1291 UniRef90-Q2JR83 UniRef90-A3YZZ4 UniRef90-K0K6E1 UniRef90-W2E924 UniRef90-I4ENE0 UniRef90_UPI000379FD83 UniRef90_Q46LG9 UniRef90_Q317M2 UniRef90_S9UGJ2 UniRef90_A5GLC4
UniRef90_D7AJ96 UniRef90_J2K7A1 UniRef90_Q1IHLO
UniRef90-B5EH64 UniRef90-V6M4G0 UniRef90_V5V3J0 UniRef90_L8NOB2
UniRef90_D3PTN8

50
60
70
80
GVILLAAALHQRRLGRPGLRNLRKAEARLEGLPCPLMGLD



Gl L $L$ Q $\operatorname{I}$




 GI L Q I A $A$ GI L Q I A V G L Y Y H L L G N H N G A MI L L L G E G S N R L R R Y L P P S Y G G I N
 GMLLQIAVGCYHLQNWRGAVILLGGEGLRKLNHYQPTYQGI D GLI QTAVCLHHFENTRGAVKLFHSSRNYLAPYRPEY LGLD GIL L GI $L$ GL I Q I A V A QV HLL QR GN GATIL F GE GL G RLLSRRSDP D L G L D GIV L Q I A V A L Y H L R N WR G A T I L L G E G N N R L R R Y A P V F R G I D GVLUQ GI $L$
 G L L Q I A V G I Y H L S N A N G A MV L L G E G V G R L R S Y E P D Y A G V A GVLLQIA V S L Y H L G N WR G A A I L L G E GII S R L G Y Y C P E Y Y N I D G L L Q GI L QI A V G L Y HAENWRGSMML L GEGGISKL HYYQPSYFGI N
 GI L QI A V G L Y HL S NHNGTVTSMGE GMRRLD Y F K P D Y F E I N
 G I Q L A I A LDH H WR N G N G A V S L L D G G V G Y L R K L A P Q T C L L W I D ALI QAAVCAYHSGNGNGACRLEESAKRYMTTYGSSHWGVD

 GLI QAAVALYHFGNGNGARKLHGSVHGYLEPYGSYY LGLLH


 GI L QL AVVAF Y HLLRNWR GCVIL L S T G I E R L E Y F V P E Y L G V D GVI QVA GGFFHWENGNKALVHLERAIVVLGRYAPRCQGLD
 GI L Q I S V G C Y HL I N N N G A V T L L G E G I R K L R K Y Q P N Y K N V N
 GI L QI AVAACYHLQNQRGAMILLGEGINRLQLYRPTYANLD GLL QV A V A C Y HLL GNWQGAVTLLGEGTRRLYDYQPRYATI D AL I QAA V A L H HF DRGNGAARLYRSGRRYMEPYRPAYR GIV

 GLL QVAVA QLHLLQRDNGATILEGEALGRLRRPGTPDDGGLD SLI HMAVGMYHRERGNGAIRQLRKGLRKL GEYQPVCEGI D
 $G L I Q V A V A H V H L E R G N G A T I L L G E G L G R L D G R A D P D F G L D$
 GI L Q I A V G C C Y H L L S N N N G A V I L L G E G I GI $L$ G L L L


 GLL LIA AVGLYHYRNGNGADKLLSGGDDKL GREPGRNEGMD GI L Q I GVGGY HLGNGNGAVALMTRGIDKVERFGTRCMGVE
 GVLQIAAGLWHDRRGNRNARLCTKGLGHLRSFPETCKGL R GLLQVAVGLHHFQNGNGA IKLLTAALQKLDAYPD I I L GIID GILLQIAVAHVHLERGNGAT』L MGEGIGRLKPSLPSALGLDD GAL QLAVALHHWRNGNGAMSLLQGGAGYLRRVRPVCQRVD GLAQLAVGLTHAARGNGGTALLDRGTSALAPYADAPYGIDD ALIQVA GSLFHFRRDNGARSMAKKALGRLEKYPETYGGVA
 GLLQLSVGLYHREYGNGARWMFGNARKYLSRYQPVHWGI D GLLQI AVACYHLSRGNGAILLLAEGRRRLEQCDPDYQGLD


90
WRS LLQEARRR\GA V TRLMEDSRNLLNT $V$ EEFLNQSWALL V DELLEQS DALLKA $V$ NQLLHQSKALLS



 I E T FVVDVSA N L L E


 V A HLQ Q Q S RAAL | $V$ | $A$ | $L$ |  |  |
| :--- | :--- | :--- | :--- | :--- |
| $V$ | $Q$ | $Q$ | $Q$ | $S$ |
| $V$ | $R$ | $A$ |  |  |
| $V$ | $L$ | $L$ |  |  | $V E S L V L D S Q E L L Q T$




 | $V$ | $D$ | $R$ | $L$ | $H$ | $S$ | $N$ | $E$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $V$ | $S$ | $H$ |  |  |  |  |  |

 | $V$ | $D$ | $K$ | $L$ | $V$ | $E$ | $E$ | $S$ | $Y$ | $D$ | $L$ | $L$ | $L$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $V$ | $A$ |  |  |  |  |  |  |  |  |  |  |  |  |
| $V$ | $E$ | $E$ | $L$ | $V$ | $D$ | $T$ | $S$ | $S$ | $H$ | $L$ | $L$ |  |  |
| $V$ | $S$ | $Q$ | $L$ | $D$ | $Q$ | $S$ | $S$ | $H$ | $L$ |  |  |  |  |
| $V$ | $S$ | $P$ | $L$ | $I$ | $E$ | $Q$ | $S$ | $L$ | $D$ | $L$ | $L$ | $D$ | $T$ |






 $\checkmark$ EGLI RQAE

\[
1 $$
\begin{array}{ll}
1 \\
1 \\
1
\end{array}
$$

\] | $V$ | $T$ |
| :--- | :--- |
| $V$ | $S$ |
| $V$ | $Q$ |
| $V$ | $L L E Q S A E C L L E$ |


 VA GLLA GAGDCLAA V ERLVLDSAT LLKT LETFLSQSAELL




 | $V$ | $T$ |  |
| :--- | :--- | :--- |
| $L$ | $Q$ | $L$ | TARLHGDATRALEA $\begin{array}{ll}V A S \\ V & V E Q A Q A L L \\ W Q P L L E A R R R L G A\end{array}$


 I LSETNASHALLVA
$L$ PLVR D QARLLRLLEA
 I ESLFRSSVLLLE
 L D H L R W V
V A GLIT WA



 VAGLISSAADRL VAGLLA WSREL
 $V$ SEVIA Y 1 A T C LA A FLA GVAE L



## UniRef90_U5VYV0 UniRef90_-Q7V802 UniRef90_D7B955 UniRef90 UPI000367C8B9 UniRef90_Q1ATA9

 UniRef90_UPI00029ADB3C UniRef90_C0ZR53 UniRef90_J3EZE7 UniRef90_UPIO0037C5F75 UniRef90_LOEDA1UniRef90-F2NKX5
UniRef90_C4XKB8 UniRef90_F5LLF1 UniRef90_UPI0004671D96 UniRef90_A5GCS8 UniRef90-UPI000372C0E7 UniRef90_W4C6Z1 UniRef90_UPIO00369EB3B UniRef90_D7BDN9 UniRef90_UPIO0037B8CB0 UniRef90_UPI000367A6AB UniRef90_M8DDV1 UniRef90_UPI000368A6D6 UniRef90_M1ZGH1 UniRef90_UPI00036A1CE6 UniRef90_I0RTK8 UniRef90_UPI0003685E85 UniRef90_UPI0002D373E3 UniRef90_A1UJU5 UniRef90-10I5M6 UniRef90_B9M4F6 UniRef90-MOM6J0 UniRef90_A0LWF1 UniRef90_F9CVI7
UniRef90_I8ALM2 UniRef90_F7PQ34 UniRef90_B7A9C7 UniRef90-I2NA67
UniRef90-A9BAR9 UniRef90_S7T328 UniRef90_C7MTF6 UniRef90-X5KDK6 UniRef90_UPI0002D562FC UniRef90_F8FPH8 UniRef90-R4TGQ1
UniRef90-D2S3Y4
UniRef90-G2HA05 UniRef90_V6KJU5 UniRef90_UPI0004236A80 UniRef90-J3NB15 UniRef90_U1NTK9 UniRef90-K9P4Q3 UniRef90_UPI00035D88E0 UniRef90_E6N304 UniRef90_UPI000344C9AE UniRef90-K6PNP9 UniRef90_K7SFM1 UniRef90_UPI000470A00C UniRef90_A0A059MI97 UniRef90_E8WKI4 UniRef90_UPI00036E098A UniRef90_K7RKD7 UniRef90_B9KYE3 UniRef90_U4WQN2 UniRef90-A0RUP8 UniRef90_UPIO002890EEA UniRef90-V4SVB1 UniRef90_W7T164 UniRef90_I4EQL7
UniRef90_H5X5C8 UniRef90_M0P760
UniRef90_C6WB23 UniRef90_W5WMS6 UniRef90_V9XGR6 UniRef90_C1CXD0 UniRef90_UPI000369835A
UniRef90_UPI0003494A09 UniRef90_UPI0003494A09
UniRef90_B3T774 UniRef90_A0A024YW09 UniRef90_K9Q1D2 UniRef90-W4BPC5 UniRef90-M2VDS0 UniRef90_UPI00046F9622
UniRef90__8EMz9 UniRef90_L8EMZ9
UniRef90_D1A848 UniRef90_UPI0004732285 UniRef90_T2GBI2 UniRef90-A0A059DGU5 UniRef90_D9UXK6 UniRef90_I7GDJ6 UniRef90_A9RTL9
UniRef90_C3AQ28


|  | $90$ |
| :---: | :---: |
| UniRef90_U5VYV0 | V ${ }^{\text {A E E L }}$ A A WA R G L |
| UniRef90_Q7V802 | L D QL C I CVENRLQ |
| UniRef90_D7B955 | $V$ A GVa A F A R A L |
| UniRef90_UPI000367C8B9 | L A KLLR |
| UniRef90-Q1ATA9 | V S SLVRESEAC |
| UniRef90_UPI00029ADB3C | L ETFLHDFQQCFQ |
| UniRef90_C0ZR53 | $V$ P GLLM WSE HLL |
| UniRef90_J3EZE7 | $V$ D AVRTSLR S L |
| UniRef90_UPI00037C5F75 | $V$ A GL R E WA D T L |
| UniRef90_L0EDA1 | $V \mathrm{~K}$ R L R E D A A A V L |
| UniRef90_F2NKX5 | $V$ R A L E L EV V R AL |
| UniRef90_C4XKB8 | I A G L L G EVAVVA |
| UniRef90-F5LLF1 | $V A L L L R D A E A Y L$ |
| UniRef90_UPI0004671D96 | V H GIV V Q R A R A L A |
| UniRef90-A5GCS8 | $V$ A GLI K E S ERL |
| UniRef90_UPI000372C0E7 | L EKLVNDSR |
| UniRef90-W4C6Z1 | L G L V Q EVK A |
| UniRef90-UPI000369EB3B | L G Q L R Q A |
| UniRef90-D7BDN9 | $\checkmark$ A ELIE EVVRAALL |
| UniRef90_UPI00037B8CB0 | V R Q V I D Y I Q D |
| UniRef90_UPI000367A6AB | $V A G L V V W A R E G A E A$ |
| UniRef90-M8DDV1 | $V$ S AVL AF L N EC】A A |
| UniRef90_UPI000368A6D6 | L K S L I E Q I |
| UniRef90-M1ZGH1 | $V$ E ELCQ Q |
| UniRef90_UPI00036A1CE6 | $\checkmark$ S GLI ${ }^{\text {a }}$ FLLD |
| UniRef90_I0RTK8 | A GL CRF |
| UniRef90_UPI0003685E85 | TD GLA A WAR |
| UniRef90_UPI0002D373E3 | LRLF CR CLE S L L N |
| UniRef90_A1UJU5 | $V A G L 1 D Y A E A$ |
| UniRef90_I015M6 | A SLRAAAEA |
| UniRef90_B9M4F6 | $V \mathrm{~T}$ E M I A K C E R L |
| UniRef90-M0M6J0 | $V D D I R G F$ L T R |
| UniRef90-A0LWF1 | TDEVVR HV R |
| UniRef90-F9CVI7 | V D R I R N K I K |
| UniRef90_I8ALM2 | RPRRLLS LL K K R V |
| UniRef90-F7PQ34 | LAP P R Y YL A A L E A |
| UniRef90_B7A9C7 | WELL WQEARRRLGA |
| UniRef90-I2NA67 | V S GL T A WA R D L TE |
| UniRef90-A9BAR9 | I N R L Cl I VES R L |
| UniRef90_S7T328 | $V A G L L V Q A R A$ |
| UniRef90_C7MTF6 | 1 P AL CDWAS T |
| UniRef90-×5KDK6 | $V \mathrm{~T}$ GL S R Y A A A |
| UniRef90_UPI0002D562FC | $V E$ QVLG Y L G |
| UniRef90-F8FPH8 | L K K L RED GREYLLE |
| UniRef90-R4TGQ1 | I P GLQ A WA R A |
| UniRef90_D2S3Y4 | $V$ A GLV VA WA REL |
| UniRef90-G2HA05 | L A ALRDEALLR |
| UniRef90_V6KJU5 | V S GLT T S WA HELAAE |
| UniRef90_UPI0004236A80 | LE E V N R F $\square \mathrm{E}$ A C $\square \mathrm{E}$ |
| UniRef90-J3NB15 |  |
| UniRef90_U1NTK9 |  |
| UniRef90-K9P4Q3 | L G P V R L L A A R RLE A |
| UniRef90_UPI00035D88E0 | TAAALVAWARRA |
| UniRef90_E6N304 | $\square \mathrm{D}$ S RKE\I H VM |
| UniRef90_UPI000344C9AE | STVLID M L Q K RLD S |
| UniRef90-K6PNP9 | V E AV L A Fil D R Q I P A |
| UniRef90-K7SFM1 | V A Gll L S WA D A TVT A |
| UniRef90_UPI000470A00C | MA KLVNEARAC |
| UniRef90-A0A059M197 | 1 D GLAA WAEHLL |
| UniRef90-E8WKI4 | V GRLLA DAAVMQQA |
| UniRef90-UPI00036E098A | LS QTI A EVVR R A LE |
| UniRef90-K7RKD7 | WEALLGEARRRLGA |
| UniRef90-B9KYE3 | WGPFRRSARCYLE |
| UniRef90_U4WQN2 | VDEVLR Y L E K CLQ A |
| UniRef90-A0RUP8 | $V \mathrm{G}$ R R S K I T A |
| UniRef90_UPI0002890EEA | F D NLLDVLQ |
| UniRef90_V4SVB1 |  |
| UniRef90-W7T164 | 1 A G L V G WA T R |
| UniRef90-14EQL7 | $V \mathrm{P}$ GLV V WA E R L |
| UniRef90-H5X5C8 | I T GL C D WARAL |
| UniRef90_M0P760 | V D DVRET L R A A L E |
| UniRef90-C6WB23 | $V A G L V D W A E R$ |
| UniRef90-W5WMS6 | V G GLL L WT A A L L G |
| UniRef90_V9XGR6 | I D GL A S WA D HL L T |
| UniRef90-C1CXD0 | L A AL R Q EVWEALL |
| UniRef90_UPI000369835A | I S GLL L W W E |
| UniRef90_UPI0003494A09 | AL GAAA QGRA |
| UniRef90_B3T774 | V D K V K Q I I E ML |
| UniRef90_A0A024YW09 | $V \mathrm{P}$ GLVRWARE |
| UniRef90-K9Q1D2 | I Q D FVEQGDRLL |
| UniRef90_W4BPC5 | LA K LVVEVKR RLE S |
| UniRef90-M2VDS0 | VA GIV GWAEEAAE |
| UniRef90-UPI00046F9622 | L G K L V R E A |
| UniRef90_L8EMZ9 | $V \mathrm{P}$ G L T A WA Q NL |
| UniRef90-D1A848 | V A AV DAVSR DL |
| UniRef90-UPI0004732285 | L E S F CQCLIENLL |
| UniRef90-T2GBI2 | V A A C R I Q A A AVLE |
| UniRef90_A0A059DGU5 | FHQFEREVSA ALL |
| UniRef90_D9UXK6 | VA GLQRWA Q A L |
| UniRef90_I7GDJ6 | $\checkmark \mathrm{T}$ D L 1 R Y A E A L |
| UniRef90-A9RTL9 UniRef90 ${ }^{-}$C3AQ28 |  |

UniRef90_F5LAC1
UniRef90 ${ }^{-}$I3DUL4 UniRef90-UPIOO0316806B UniRef90-MOMIA7 UniRef90_E5WI68 UniRef90-V6AR3 UniRef90-UPIO003810466 UniRef90-UPI0003778A23 UniRef90_UPI0002ED9A4F UniRef90-UPIo0036177CC UniRef90-KoINF0 UniRef90-ROHFX1 UniRef90-U1ROE4
UniRef90-I4BRNO
UniRef90 W5TCT8 UniRef90-UPIO00413F701 UniRef90-C6CUP3 UniRef90-G7CM77 UniRef90-R7WSM0 UniRef90-M8DLQ8 UniRef90-F5Z2F3 UniRef90-MOIDDO UniRet90-A9WBD2 UniRef90-E2Q088 UniRei90-UPIOOO35EC529 UniRef90_UPIO0029B2CDE UniRef90_LoACFO UniRef90-K6D492 UniRef90-A5GTF8 UniRef90_UPIOOO3460956 UniRef90-MOMWZ6 UniRef90_UPIOOO36E2C05 UniRef90-M0CYX6 UniRef90-E6TPJ99 UniRef90-K0B896
UniRef90
O47TP3 UniRef90-LOK2Е3 UniRef90-B3QS36 UniRef90-A1VHH3 UniRef90-B0R516 UniRef90_UPIO002F3008B UniRef90-A0A022R4Y2 UniRef90-UPI00034DOC2A UniRef90-M7РоК9 UniRef90-UPIO003606632 UniRef90 F5XMV8 UniRef90-AOAO 15 KWU 5 UniRef90-A0A015KT73 UniRef90-C2PJM5 UniRef90_UPIO003620C90 UniRef90 W4Q122 UniRef90_B1 4445 UniRef90-V9GD17
UniRef90-UPIOO04757FEE UniRef90-E6JC33 UniRef90-D3FZV4 UniRef90-UPIO0036FBD01 UniRef90-E4WAG6 UniRef90-LOA3P1 1 Unires90_W9GIR4
UniRef90_UPIOOO3B4FO4D UniRef90-UPIO00463B572 UniRef90-E9UZ20 UniRef90-K1EP89 UniRef90-A0A034U7A7 UniRef90-UPIO0028A0FE9 UniRet90_L9WNY9 UniRef90_B8G7Q0
UniRef90 J8SVT4 UniRef90_UPIOOO37DAD4B UniRef90_D5WVA2
UniRef90-UPIO0047B7105 UniRef90-V7Q2J8 UniRet90_UPIO0036ECF07 UniRef90_Q7VCA6
UniRef90 F2E561 UniRef90-W4DWS7 UniRef90-G8RR37 UniRef90-D8J366
UniRef90
A5UV41 UniRef90-UPI0003626809 UniRef90-F5SFF8 UniRef90-F5L3N1 UniRef90-UPIO001E89630 UniRef90-Z5XAX7 UniRef90-E7QUA2 UniRef90-A1THG5 UniRef90_U1NZW0 UniRef90_UPIOOO478BA41 UniRef90_UPIoo036722E1 FNEGDYYTCHDLIEEMWMTDKGN MDAHLQAGGACYNAGRFHAAHDAWEDRWLADDDDDERFL MYPAYIEFMVHFHDRDYFECHETLEEYWKNTDRNNKSTWV GVFYFNEERFWEAHEVLEGVWKKCFEGERDLVQ DYAQRLLNDGTAFHAHEVLEAAWKNGPVAEKMLWQ MYPAYVEFLLHFHDRDYFECHEILEEYWKSLSPEKRTTWV AYINYLVFFHGRDYFECHEVLEEYWKQNKDEGRDTWV GLAEAQRLDDADRPFHAHEVLEAVWKGAPPDERELWR DEALERAVNLFNDEKYWGAHEALESVWKSADGTEKSILN SFEEAVALFNKRDYYKSHDALEALWDQAEEPTRTLFH VHGVRLYNAGEFHESHDCFEDEWYNYGTAESAFLH SDSLAYAQDLLNRGLAFNAHEVLEAAWKNGPEDERSLWQ DPELLAQRLLDEGLAFNAHEVLEAAWKNGPFAERMLWQ PSAYLSYLAEFNGRDFFECHELLEEHWKEHPDDPRALLWV DEAVRWAQDLLDRGLLAFNAHEVFEAAWKSGPDADRMLWQ PYLEEGQRLLDDERPFHAHEVFESVWKAASPEERDLWQ YLEYLLQRHAERDYFECHEVLEEYWKESPGERRAVWV MDDSLRAGIAIYNAGAYRAAHGAWEATWLEDETDDERFLH ALVCGIHLFNQGEFWHAHEQWEDCWRAAQGMDADFYQ PLYVAYQRLLDAGMPFHAHEVVEDAWKSGPAAERELVWR SLEWAQELLDQGLAFNAHEVLEGAWKSCPGTERTLWQ MYPAYDDFLRLFNAEAYHESHDCFEDEWYNYGRTESAFLH DPREGLQAFNAGDYHTAHDEFEDEWYNYGSTESAFLH RFSSGVELENGGEWYAAHDVFEELWHDTAEPERRWLQ MRSHLRAGRAVHNAGNHHAAHDAWEERWLESDGDDERFLH MDAQLRAGVAVYNAGHYHAAHDAWEQRWLALDGDDERFLH TEGLREGDFYFNNERFWECHEAFEGVWNQCYGREKELVQ AVVHGVRLFNDRAFHESHDCFEHEWYNYGTTESSFLH FLTGMKQYNNKDFFESHDTWEEDWHELRGTDRLFVQ AVEHGVRLINSGDYHEAHDCFEVEWYNYGSDESAFLH PDA AYGRYLVHFHDRDYFECHELGEEYWKELGKPQDPVWV EFMTFVITFNEGDYYTCHDLLEEIWL TDRQNLFVK HPGFDKFIAYFNEQDYFECHEVLEDYWLVAPRDRTHPLV PTTE ARAL LE MYPEYI QF LASAKA HFHGDDYFE


PLY SLELAQRLLDEGKPFHAHEVLEDAWKSCPPSEREDWR SLAWAQDLLDRGRAFHAHEVLEGAWKSGPTDERLLWQ AMYEFLIEFARDYFECHEEEHWKEDP MRTELREGARLINEGRYWEAHEAWE
 VEFHSTRDYFECHEI LEDHWKEAPSKERDVWP पREAQRLLDAGMPFHAHEVFEDAWKSGPEAERDLWQ DEALAYARELLDAGRPFAAHEALEVRWKSCPEEERELWQ AQQLLDDGLAFNAHEVLEAAWKNGPFAERMLWQ
EAQALLDAGKPFHAHEVFEDAWKTGPEEERPLWR MRDQLRAGAAI YNAGYYHAAHDAWEEHWLDLESDDEQLLH AFQSGLRLFNEGEYWHAHEQWEDCWRAVQGMDAEFYQ MYPEYIQFLIHFHGDDYFECHELLEEYWKKPRGNRDNYLV FVDFI HDFNERAFYDCHEYGEEDWLEEGRP LLFLK MYP YDDYLAEFHGRDYFEC
 VA P SLLKY LIYFNDRDYFECHEVLEELWLEKQRD SLKYAQELLDQGLIAFNAHEVLEAAWKSAPDDERSMWQ HPSYEFLAHFHDRDFFECHEVLEDHWKNTGMEKGSVWV HPGYYRFFQCYHAGDYWEAHEVLEELWQTRRHDD FYH MYPAYDNYDYHFHDRDYFECHEVLEEYWKEKDTGEREVWV MDASLAYAQDLLSRGSAFHAHEVFEAAWKNGPDGERPLWQ SDSLAYAQDLLDRGLAFNAHEVLEAAWKSRPAEERSLWQ

UniRef90 F5LAC1 UniRef90-13DUL4 UniRef90-UPI000316806B UniRef90-M0MIA7 UniRef90_E5WI68 UniRef90-V6AR3 UniRef90-UPI0003810466 UniRef90_UPI0003778A23 UniRef90_UPIO002ED9A4F UniRef90_UPI00036177CC UniRef90 KOINF0 UniRef90-ROHFX1 UniRef90-U1R0E4 UniRef90_I4BRNO UniRef90-W5TCT8 UniRef90_UPI000413F701 UniRef90-C6CUP3 UniRef90-G7CM77 UniRef90-R7WSM0 UniRef90-M8DLQ8 UniRef90-F5Z2F3 UniRef90-MOIDD0 UniRef90 A9WBD2 UniRef90-E2Q088 UniRef90_UPI00035EC529 UniRef90_UPI00029B2CDE UniRef90-LOACF0 UniRef90_K6D492
UniRef90-LOIB43
UniRef90-A5GTF8
UniRef90_UPI0003460956
UniRef90_MOMWZ6
UniRef90_UPI00036E2C05
UniRef90-M0CYX6
UniRef90-E6TPJ9
UniRef90-K0B896
UniRef90_Q47TP3
UniRef90-LOK2E3
UniRef90-B3QS36
UniRef90-A1VHH3
UniRef90-B0R5I6
UniRef90_UPI0002F3008B
UniRef90_A0A022R4Y2
UniRef90_UPI00034D0C2A
UniRef90-M7POK9
UniRef90_UPI0003606632
UniRef90 ${ }^{-}$F5XMV8
UniRef90-AOA015KWU5
UniRef90_A0A015KT73
UniRef90-C2PJM5
UniRef90_UPI0003620C90
UniRef90-W4Q122
UniRef90-B1 X445
UniRef90-G4H983
UniRef90_V9GDI7
UniRef90_UPIO004757FEE
UniRef90_E6JC33
UniRef90_D3FZV4
UniRef90_UPIO0036FBD01
UniRef90-E4WAG6
UniRef90_LOA3P1
UniRef90-W9GIR4
UniRef90_UPIO003B4F04D
UniRef90_UPI000463B572
UniRef90-E9UZ20
UniRef90-K1EP89
UniRef90-A0A034U7A7
UniRef90_UPIO0028A0FE9
UniRef90-L9WNY9
UniRef90-B8G7Q0
UniRef90_J8SVT4
UniRef90_UPIO0037DAD4B
UniRef90-D5WVA2
UniRef90_UPI00047B7105
UniRef90-V7Q2J8
UniRef90-UPI00036ECF07
UniRef90-Q7VCA6
UniRef90-_2F561
UniRef90_W4DWS7
UniRef90-G8RR37
UniRef90-D8J366
UniRef90_A5UV41
UniRef90-UPIOOO3626809
UniRef90_F5SFF8
UniRef90-F5L3N1
UniRef90-UPIO001E89630
UniRef90 Z5XAX7
UniRef90-E7QUA2
UniRef90-A1THG5
UniRef90_U1NZW0
UniRef90_UPIO00478BA41
UniRef90_UPI00036722E1

GLI $|Q| L|A| V|G| L \mid Y$
50
60
70
80
QLA GLLQMSVAI YHYEYGNKGARLMMKAANYLQKYRPFYWGLN
 GLI LMAVSFYHHRRNNGAERTLRKGDGULECSPADLLGLN GIILVAAAFVHYQKDETS ISVLGRALDKLANATGTYHNIN GLAQYAVGLTHDQRGNGATLLLERAVGRLTAAEPAPYDID CLIQVAVALYHHRRGNGATKLLQNALADLNKAELHHLGI N GLIQVAVAFYHHRNNNGSARLLKKALSNLKKEALSHLGI E SLAQVAVGDTHDRRGNGARALLDRATAALEPWARAPHGVD GILQCAVGFHHDSNHKGAMMELGEGVCKLRK
$G M V Q V A A G A Y K H E D D A G M R S L F G T A L D Y L T G L P R D Y Y G V D$ GLAQLAVGITHVQRGNGASALLQRSSHNLREVSAAAYSVD GLAQYAVGLTHI QRGNGARTLLERADGRLDALDDPPYRID GILQUAVGCYHLGNHNGATILVGEGLRRLRQTEAEYGGLD GLI QLAVGQYHERRGNGAVKMYEKALGKLDQPSLEQLGL D GLAQLAVGVTHIARGNGARTVLARAHSRIRLYEDPPYGLD GLIQVAVSLYHQRRGNGA IKMMDSADK』LNRERTDVLGLD GLAQLAVGVTHVQRGNGAVSLLRRGADRLATVPPVPYGID GLIQFTAAVHHVRDDNGAVGLARSAREYLSGLDDDYRGVN ALI QSAAALVKWRQGNRGLRLWAKAQRRLSRLPSFYRGI D GLAQLAVGLTHAARGNGGARLLRRGAGRIESGGADRYGID GLLQVAVGLYHFRNGSGALKMLQS SYRKLAPYPPQMLGI N GLAQLAVGITHVQRGNGALTLLERAAERIGFNPPAPYGI D
 GMVQIA AGVYKRENDDGDRNLFETACQYLQDVPSDYYGVD GAVQVAVAMVHLGRDNGAA LLGEGTGRLMRSQASPPGWQ GMAQUAVGLTHAQRGNGAARLLRRGADRVEGFGPEPSGVD GLIQFTAAI HHARNWTGATGLADSASDYLASLPSPYRGVD GLLQQAVALYHFRNGSGARKMMRSAVRKLASDYPPDALGGIV GLAQLAVGVTHDQRGNGATAALLHRGCAGLAEVRPAPHAVD GLAQVAVGVTHAQRGNGAARLLRRGADRVAEYGAEPHGVD $G M V Q V A A G A Y K R E D D D G M R S L F R T A D Q Y L Q G D P D D Y Y G V D$ GLI HSADGLYHLSNGNGARHQFEKCEKKLSAYLPAYRGLN $G V L Q V G V A Y W H A G R G N G A D R L A A R G V E H L A P F M P S A F G L D$ GMVQVAAGAYKHENDDGMRSLFRTAVQYLGDDPADYYGVD GLI QLAVALYHQRRGNGGMKMMASAI RNLERASVRQLGLD GILQCSVGFHHLQNHKGAMMEDGEGVCKLRKL
GLLQLSVSLYHYGYGNGSRSMMKVSYHYLDGYRPQHWGLD GYI QA A V ALY HWRRGNGAAKLLSKAERLLLRGGSPFSHGLD GLAQLAVGLTHAARGNGGARLLRRGAGAVTQWTAEPHGMD GLAQLCVGNTHRERGNGARRLWGRALGRLTAYRAPTYDLD GLIQI AVASYHHRRGNGARKMFGQAAVRMKRDALDRLGLD GLLQVAVGLHHWRNDNGAVK LIFTAALEKLAEYADDEL GLD GLIQI AVSLYHQRRWNGAEKMMKSAITILEKNSAPLLGIN GLAQLCVALTHAARGNGAHRLLERGVGRLQQYAGPTYGLD GLIQI AVGLYHHRRGNGADRMYTKARSDLEKVQLQQLGLN
 GLLQAAVGLFHFRNHNGAYKMFNSALIKQLEPYAEDELGGI E GLAQLAVGLTHLARGNGGRSLLERGAENIAEFAAAPHGIA GLAQLAVGITHQRGNGAMALLERAAERLAGDGPAPHGVD GLIQLAVALYHERRGNGAKRMYRSADRIIEKKSDEQLGI D GLIQQSAALYHMRQLRGGRNKLHQVLANLDDPTGMYMGI N GLAQLAVAVTHQMRGNGAVSLLRQGRHRIVPFEDDPHA$L$ GLAQLCVGLTHALRGNGAGRLLERGNARIERYGGPTYGLD GL $\square Q Q A V G L Y H E R R G N G A S K C L K N A G V I L R P D P R R L L G L D$ GLAQLAVGLTHAARGNGGARLLRRGADRLTSACESAYGI D GLA ALAVGLTHQRRGNGAASVTRRGAAAIVRYAAAPHGI D A LA QLAVGVTHDQRGNGARTLLTRAVTRLTEFRPEPYGUD ALAQLAVGLTHAARGNGGVRLLRRGADEVERWAGAAYGMD GLI QCTAAVHHAQNWEGAVGLAASAREYLEAVPPEYHGVN ALI QTAAALVKWQQGNGLQLNWAKARRRLVRLPPVYRGID GLI Q QAVSLYHQRRWNGAEKMMKSADTLLEKVP LDRLGID GLI Q SAVYY Y Y Y R RGNGAKRMAEKADDCFRQHELTRLGUI D


 A L QiA $V$ A QV HLSNDNGATILYGEGLGRLKSTGDPTLGLD
 GLAQLAVGITHVQRGNGAAGVLSRAADHI EADRPAPHGVD
 GLI QIAAVSFYHYRRGNGAIKMDEKADDIVNKKRAELHGIN GLI QVA ALDM QLKKRGRGARKLATTAAGYLDPFSPEKDGVN GLI QVAVGLYHFRWNNGAKLLFEGGLKKLEAYPDHHYGI N GLIQ $\ A V G L Y H H R R G N G S L R M L Q N A C R I I E S A A D E A L G L D$ GLAQFAVGVTHDQRGNGAAALLRRASTLLAEVPGAPYGID GLIQRTAVVHHDANWTG 1 RGLAESAAEYLAGLPDEYRGVN GLAQLAVGITHDQRGNGASNLLQRGSGRLSEVGPAPHSVD GLIQFTATVYHASNGNGATGLADSAGEYLAGLPSRYRGVN
GLLQMTVAI YHYEYGNGAR LMMQAAHHY QSYRPKFWGVD

| UniRef90_F5LAC1 |  |
| :---: | :---: |
| UniRef90-I3DUL4 | LE EV N D FIE Q CLL |
| UniRef90-UPI000316806B | L EKL R H D A G E |
| UniRef90-M0MIA7 | $\checkmark$ G EVR E Y L A V |
| UniRef90-E5WI68 | ADQLMMK L K Y R L |
| UniRef90-V6AR31 | $\square \mathrm{DLL}$ R N N I K S I I S |
| UniRef90_UPI0003810466 | TAGLL ${ }^{\text {a }}$ G R AREL |
| UniRef90_UPI0003778A23 | VD S F TQLLQER |
| UniRef90_UPI0002ED9A4F | Y E NLIM I L N R R L |
| UniRef90_UPI00036177CC | A A GV IA ATRALL |
| UniRef90-KOINF0 | \D R I A D RVS El I N |
| UniRef90_R0HFX1 |  |
| UniRef90_U1R0E4 | VD DVRRT■EA A L S |
| UniRef90-I4BRN0 | $V \mathrm{~V}$ GLI G WAEELI G |
| UniRef90-W5TCT8 | ASGLI A HAEGLLS |
| UniRef90-UPI000413F701 | 1 L G Fi Q Q Gell L |
| UniRef90_C6CUP3 | GTRTIA DLL HRYE |
| UniRef90_G7CM77 | $1 A G L V R Y A G A$ |
| UniRef90_R7WSM0 | 1 A GLT T W ${ }^{\text {L }}$ |
| UniRef90-M8DLQ8 | PDATIQTLS QLL |
| UniRef90-F5Z2F3 | LA G L R S F |
| UniRef90_MOIDD0 | L D AV R S Y L A H L |
| UniRef90_A9WBD2 | $L$ A RLC T A M T A L V N |
| UniRef90-E2Q088 | TA GLL S GWARALL |
| UniRef90-UPI00035EC529 |  |
| UniRef90 ${ }^{-}$UPI00029B2CDE | A PGLIS Y A |
| UniRef90_LOACF0 | VLEI R T T T T N ALE |
| UniRef90_K6D492 | YEQLLILLLRKRL |
| UniRef90_LOIB43 | V H SVRTVA T R A L N |
| UniRef90-A5GTF8 | ASALLDPCRQL |
| UniRef90_UPI0003460956 | ALGAAAYARSVADA |
| UniRef90_M0MWZ6 | VA A VR GF L V A L |
| UniRef90 UPI00036E |  |
| UniRef90-M0CYX6 | VETVRES L |
| UniRef90_E6TPJ9 | V D GLL $\square$ A WAT DL |
| UniRef90_K0B896 | 1 DRI R K |
| UniRef90_Q47TP3 | ALGVVA A C A R A R |
| UniRef90_L0K2E3 | VREVRQTLLETALE |
| UniRef90_B3QS36 | V Q A F |
| UniRef90_A1VHH3 | L A T L V E DVR H A |
| UniRef90-B0R5I6 | VGE $\\|$ R R V I Q A A |
| UniRef90 UPI0002F3008E |  |
| UniRef90-A0A022R4Y2 |  |
| UniRef90-UPI00034D0C2A | VE H I L A F |
| UniRef90-M7P0K9 | LPAFLR DL R Q A G N A |
| UniRef90_UPI0003606632 | TGGLLVA WARELAD A |
| UniRef90-F5XMV8 | LA ALL G WLT A R L |
| UniRef90_A0A015KWU5 | GEALL R I V GERL |
| UniRef90_A0A015KT73 | LG R L K L D TR R A L A A |
| UniRef90_C2PJM5 | QT QL L CLL Q D R L Q S |
| UniRef90-UPI0003620C90 | LT AVV S CARDRVT S |
| UniRef90-W4Q122 | K L D I K Q LD |
| UniRef90_B1X445 | L N S L R D L A K $\square \mathrm{Y}$ L |
| UniRef90_G4H983 | MGKLVEEMRE |
| UniRef90_V9GDI7 | M GVLV S EMRR |
| UniRef90_UPI0004757FEE | V S SL I D WS R |
| UniRef90-E6JC33 | A T GLVAYA D D |
| UniRef90_D3FZV4 | TS QLQQQLI E R TLLQ A |
| UniRef90_UPI00036FBD01 | 1 P EFLS CLD |
| UniRef90_E4WAG6 | I T GLVA WA D H L I |
| UniRef90-LOA3P1 | L QVLAREVEEALE |
| UniRef90-W9GIR4 | LA DFRTRIN N V A G T |
| UniRef90_UPI0003B4F04D | AERLLQR\E EQL |
| UniRef90_UPI000463B572 | VGGLVVWAREL |
| UniRef90 E9UZ20 | L GELI A C A R R |
| UniRef90_K1EP89 | $V$ A GLV ${ }^{\text {V }}$ A |
| UniRef90-A0A034U7A7 | RA GL I A Y A E A L L |
| UniRef90_UPI00028A0FE9 | LP G V V T WA R A L |
| UniRef90_L9WNY9 | LP P I R A F LT A L |
| UniRef90-B8G7Q0 | L A TLA A TMD HLL |
| UniRef90-J8SVT4 | Q T QLL L L N E RLQ S |
| UniRef90_UPI00037DAD4B | ADRFTAVI QKSLN |
| UniRef90_D5WVA2 | VER I L Q D M N L |
| UniRef90_UPI00047B7105 | $V \mathrm{~S}$ SLL L H Q I T Q C\\|E S |
| UniRef90-V7Q2J8 | YSRFIKLL R |
| UniRef90_UPI00036ECF07 | IT Y I K N KV S E MLL |
| UniRef90_Q7VCA6 | I E NLT E IV E QRL |
| UniRef90-F2E561 | FSRFRDEVAAVLS |
| UniRef90_W4DWS7 | L E K L VREA G A RLE A |
| UniRef90-G8RR37 | ADGLI GHANALI |
| UniRef90_D8J366 | 1 V DV RT A LT S AL |
| UniRef90_A5UV41 | V A DL 1 A A MD R |
| UniRef90_UPI0003626809 | YE QL L S ML |
| UniRef90_F5SFF8 | VEAVL R WL E E CLL N |
| UniRef90-F5L3N1 | $\checkmark$ Q K L R H DVVK C Y L |
| UniRef90-UPI0001E89630 | SAR L L K S L E ERI |
| UniRef90-Z5XAX7 | 1 A GLTA T GAEL |
| UniRef90-E7QUA2 | V E TVRS Y L R |
| UniRef90-A1THG5 | I D GL DGWAA G L VG |
| UniRef90_U1NZW0 | L T DL R A ELLA TLAE |
| UniRef90-UPI000478BA41 UniRef90-UPI00036722F1 | LEEIND FIJK T CLLS |

UniRef90 molrlu UniRef90-UPI00047DF791 UniRef90_I8UFP1 UniRef90_UPIO0037222B5 UniRef90-17CFB7 UniRef90_W4RL75 UniRef90_J2ZSA6 UniRef90_UPI0002FD4809 UniRef90_V8D4B9
UniRef90_LOAF42
UniRef90_F6ELV2
UniRef90_UPIO0036E5261 UniRef90_E4NTW9
UniRef90_UPI00036306E9
UniRef90_UPI0003711A3D UniRef90_M0CNG9
UniRef90_M0JP76

## UniRef90-W1SQS6

UniRef90_G2ML69
UniRef90-UPI00047B965B
UniRef90_L9ZXR3
UniRef90_UPI0003FA90F5 UniRef90_A5BZQ1 UniRef90_MOABS2
UniRef90_UPIO0047E524B
UniRef90_UPI000364F47D UniRef90_A6CMY0 UniRef90_MOLAHO UniRef90_UPIO002E2FC0B UniRef90_A1AT48 UniRef90_F9DNW6
UniRef90_S2XLU4
UniRef90_U5EEJ1 UniRef90_D6Y2X9 UniRef90-U1P8C2 UniRef90_I3EA41 UniRef90_UPIO00415021F UniRef90_A9B158 UniRef90_UPIO003759969 UniRef90_L8DAF7 UniRef90-UPI000248C855 UniRef90-W0JMD7 UniRef90_V4XD98 UniRef90_H6RKD8 UniRef90-UPIO004763B33 UniRef90_LOJN20 UniRef90-M0BGM1 UniRef90_I4X4S6
UniRef90_M3C297 UniRef90_E3DWG7 UniRef90-V4HN30 UniRef90-S9QGW4
UniRef90 S3ZWP6 UniRef90_W3AF17 UniRef90_M5PAI7
UniRef90_S5V0A9 UniRef90_UPIO00373055F UniRef90_UPIO003B57EA2 UniRef90_A9GIX4 UniRef90-MOCSA6 UniRef90_Q5Z379 UniRef90_F8D578 UniRef90-K5B7Y6 UniRef90_C9Z6L1 UniRef90_-_9X5J6
UniRef90_G2GK64 UniRef90_A0A023DDU5 UniRef90_UPI0002FDCFBD UniRef90_D8J948
UniRef90-UPIO004257353 UniRef90_UPI0004668A7B UniRef90_UPI000360AF79 UniRef90_U1WXD9 UniRef90_UPIO0036908BC UniRef90_C5D3M7 UniRef90_L9YF12 UniRef90-UPIOOO37BC361 UniRef90_U1R0T1 UniRef90_E4NSF7 UniRef90-R4VUR8 UniRef90-UPIO0036E221C UniRef90_UPI0003B5AE78 UniRef90-UPIO00288EEF0 UniRef90_UPI000467EFC4 UniRef90_L9WF10 UniRef90_LOJTR8
UniRef90_D2B2M2 UniRef90_UPI00029A8A02 UniRef90_F0S0W7 UniRef90_F8FD19
UniRef90_D3SP64
 LISARSLVEAGRSFAAHEVLEARWKAGPTEERNLWQ $L R E A Q R L L D$ AVVHGVALFNAGAFHESHDCFEAEWYNYGTTESAFLH
 $H P$ LA A KF FN
MREQL
RA GV
LAEAAAIYNDGYYHA
DEALREAQR LDQRLPFHAHEVFEDAWKSAPEQWRGLWK MERTLRVGAAVFNAGDYHAAHDAWEDEWLADEDDDERLLH

VEAQALLDEGKPFHAHEVFEDAWKSGPDEERALWR
GLDEAQRLLDEGYAFHAHEVLEAVWKGVEGPERELWR


AVEHGI RLYNADAFHESHDCFEVEWYNYGSTESAFLH MYPEYDK LLVHFHDRDYFECHEVLEEYWKSVDKNNKA WVV
 AVALL N X RDYYRCHDFLEEDWNRAEDPVRTLVH VHGVRLFNDGAFHESHDCFEAEWYNYGRGESSFCH ALAFARELIAQGRAFSAHEVLEARWKAAPSDERDFWQ DYLDA QATHFDAGKPFHAHEVEDAWKAGPESERTVW MHDQLRAGAAVYNDGHYHAAHDAWEEHWLESGTDDEQLELH

 H P L F V Q F A $\mathcal{Q}$ Q $\mathcal{L}$ N E DF F E C H E V L E E Y WK E A P K D K T H P L T A TEDAKRLLEAGRPFHAHEVFEARWKTGPAEERELWQ M D T $\qquad$ REAQRLDDAGMYFECHEVEEYWKKAKGDKSSVWV TSEFIQGFELFNAGHYWHAHEAWEVQWLQRNGNERDLLQ
 M R D

AV1) G GVRLYKS GAFHE

EAQALLDAGHPFHAHEVF
MRAPLVAGGACYNAGAY H
RAPLRAGlAVYNDGHYHAAHDAWFA H

MYPAY DD
HARDYF
L GE GMTL F NE GAFHAAHEAWE
H P L F I R F 1 I H F N E E DYF E C H E V GE
MYPAYI EYLAEFHSRDYFECHELLEEHWKKDPPGKRKMLYWV V EA QA LLEAGKPFHAHEVVEDAWKA GPGEERALWR


YVA YLVYFNDRDYFECHEVLEELDWLS KERDPLYK
S L S Y A Q QL LD D GLAF NAHEVLEAAWKNGPFAEKMLWQ


TESLA Y A Q TLLLEQGLAFHAHEVLEAAWKKAPPDEKPLVQ
 $\square P E A Y$ YRY LVVHFHD R DYFE CHEVLE EHWK K FYWK D GYK KVVWV
 MYPAYVQFLVQFHARDYFECHEVLE VEAQALLDDAGKPFHAHEVFE MYPAFID Y LVYFHARDYF AYYEF FI RYNEGDYYMCHD G MYPAYIRYLI HFHDRDYFECHELL E E HWLKK R G N Y L F L K DGYKKVWV MRDRLRAGVAIFND GHYHAAHDAWEDRWLES GS D DERLLD V T P ALA EAQRLLDADRPFHAHEVLEAVWKAAPDAERAL WR $V$ E P A L R A GLLAL Y V D G Q F HA A HE P WEA V WLD A T G E T E RLL L H
 $S L A Y A Q E L L D A G L$ Y LSFFRHYHAEEYWEAHEVLEELDWTQRDND MYPAFYLG LSYFNRNDYFECHEVLEEHWKDAKGVRDHELV
 MRDRI RA GAA I Y N DGYYHAA H DA WE ERWLE LEDD DERLLH ALAEARRLLGESRPFHAHEVLLEGRWKTAPE E EREELWQ


 UniRef90_MOLRL3
UniRef90_UPI00047DF791 UniRef90_I8UFP1 UniRef90_UPI00037222B5 UniRef90_17CFB7 UniRef90_W4RL75 UniRef90-J2ZSA6 UniRef90_UPI0002FD4809 UniRef90_V8D4B9 UniRef90_LOAF42 UniRef90_F6ELV2 UniRef90_UPI00036E5261 UniRef90_E4NTW9 UniRef90_UPI00036306E9 UniRef90_UPI0003711A3D UniRef90_M0CNG9
UniRef90_M0JP76
UniRef90_W1SQS6
UniRef90_G2ML69 UniRef90_UPI00047B965B UniRef90_L9ZXR3 UniRef90_UPI0003FA90F5 UniRef90_A5BZQ1 UniRef90-MOABS2 UniRef90_UPI00047E524B UniRef90_UPI000364F47D UniRef90_A6CMY0 UniRef90_MOLAHO UniRef90_UPI0002E2FC0B UniRef90_A1AT48 UniRef90_F9DNW6
UniRef90_S2XLU4
UniRef90_U5EEJ1 UniRef90_D6Y2X9 UniRef90_U1P8C2 UniRef90_I3EA41 UniRef90_UPI000415021F UniRef90_A9B158 UniRef90_UPI0003759969 UniRef90_L8DAF7 UniRef90_UPI000248C855 UniRef90-W0JMD7 UniRef90_V4XD98 UniRef90_H6RKD8 UniRef90_UPI0004763B33 UniRef90_LOJN20 UniRef90-M0BGM1 UniRef90-14X4S6
UniRef90 M3C297 UniRef90-E3DWG7 UniRef90_V4HN30 UniRef90_S9QGW4
UniRef90-S3ZWP6 UniRef90_W3AF17 UniRef90_M5PAI7
UniRef90-S5V0A9 UniRef90_UPI000373055F UniRef90_UPI0003B57EA2 UniRef90_A9GIX4 UniRef90-M0CSA6 UniRef90-X4ZBA9 UniRef90_Q5Z379
UniRef90_F8D578 UniRef90-K5B7Y6 UniRef90_C9Z6L1 UniRef90_L9X5J6 UniRef90_G2GK64 UniRef90_A0A023DDU5 UniRef90_UPI0002FDCFBD UniRef90_D8J948 UniRef90_UPI0004257353 UniRef90_UPI0004668A7B UniRef90_UPI000360AF79 UniRef90_U1WXD9 UniRef90_UPIO0036908BC UniRef90_C5D3M7 UniRef90_L9YF12 UniRef90-UPIO0037BC361 UniRef90_U1ROT1 UniRef90_E4NSF7
UniRef90_R4VUR8 UniRef90_UPIO0036E221C UniRef90-UPI0003B5AE78 UniRef90_UPIO00288EEF0
UniRef90_UPIO00467EFC4 UniRef90_L9WF10 UniRef90_LOJTR8 UniRef90-D2B2M2 UniRef90_UPIO0029A8A02 UniRef90_FOSOW7 UniRef90_F8FD19
UniRef90_D3SP64
 GLAQDCVGLTHAARGNGALALIDERGAARLEEYGSPTYGLD
 $G L A Q L A V G L T H G A R G N G G A R L L R R G A G A L S S Y G E A P Y G I R$ $G L V Q V A A G A Y K H E N D D G M R S L F E T A G Q Y L S D V P N D Y Y G V D$ GLL QMS VA I Y HYSYGNGARLMMQAAHDYLQTYRPDVHWGL D
 SWI LL STGMYHWRRGNGAKRSLVSSQKRLNPSSPFYEGIDD $G L A Q Q C V G L T H H L R G N G A T R L V E R G A G R L L R Y S A T P Y G L D$ $G L D Q L S$ GAVY HA R D G N GAVVGL A E S A R S Y L EVLP S T Y A S V S
 $G L A Q L A V G L T H A Q R G N G A V S L L R R G A E N L G A G A S V A H S V D$
 GL A QLAVGLTHAAR GNGGARLLRR GA G GVVEWAE QPY GMD $G L A Q I A V G L T H A Q R G N G A A R L L R R G A G A V E A F A P A P S G V D$


 GLI L M A V S L Y H H R R E N G A E R T L G K G L A GLLI QTS A A V H H H A R N WE GA V G L A A E R A H G Y

 $G L A Q L C V G V T H A A R G N G A D R L V E R G A G K L T A Y T G A T Y G V D$ $G L A Q L A V G L T H A A R G N G G A R L L R R G A G A V Q E W A A R P Y G M D$ GLDQMAVGFYHYRRGNGAERILNKGKRDLKQHALE DLGDA GLL Q L S G A V F H A H R G N G T V G L $G L L Q \mid A V A L H H W R S G N G A V T L L A R G A R R L R$ G Y L MA T GLYYHWRRGNGAARTLTKA LHRFQQMPDE YEEVA A WI L L S T GMY HWRRGNGAKRSLAKS YDRLNGTSAFYEGI N $G L A Q Y A V G D T H D Q R G N G A G T L L R R A S E R L D T Y P A Q Q H G V D$ $G L A Q \square C V G L T H V Q R G N G A A T L L T R G S A R L S A Y G S R P Y G L D$
 GL L LMAVANYHHRRNNGAHRTLEKSLLGLEKNELAQLGL D $G L A Q L A V G L T H A A R G N G G A R L L R R G A A A L T E F G A P A H G I D$
 AL I Q $D A V A M Y H H R R G N G A V K M V Q A S L R N L Q D D A A A S L D G L D$ $G L A Q L A V G L T H L L R G N G A G S L I R Q G H D R L V G F E E P P H H L D$ $G L D Q V A V S L Y H Q R R G N G A V K M L A S S L Q R F K D E Q L G L L G I D$
 $G L A Q L A V G L T H A A R G N G A T T L L E R G A A T$ I $\operatorname{L}$ G S YA DP P H G V D $G L A Q M A V G L T H A A R G N G G A R L L R R G A D A V A D W P G P P A R L D$ $G L V Q V A A G A Y K H G N D D G M R S L D E T A L D Q Y R G V P N D Y Y G V D$ $G L I Q Q T A A D H H A H R G N G A V G L A E S G R E Y G R E F G D V Y R G C N$ $G W I Q L A V G M Y H W R R S N G A L R S F D D R A K V K L A A G G D W V E G B D$
 GFIQLAVALYHQRRANGAKRLLANSDRDLEKQAVEALGLDD GLI QFTAALHHARTGNGATGLARSAGDYLAGLPADARGLD GL I L A A A G WL K R DVG N G A WT L F S R A L E R L E S L A P L C E G V D
 GLI QL A V A L Y H QRR GNGAKRLMANSLRIL EAEAAEALGLD
 GLA QLAVGLTHAARGNGGAALLARGAAESLAPYAGGPBGI D $G L A Q L A V G L T H A A R G N G A V A L L N R G V T T L A P Y S G A P Y G V D$ $G L I L V A A A M H K L T R M Q G A L R R L L D K A R A R L A G T P D G M G G L A$ GLI QYSSAVYHARNWE GTVGLAESAGEYLAGDPADHRGGR

 AL A QLAVGITH DQRGNGATAVLRRAADVLTATGTAPHHIDD $G L A Q L A V G L T H A A R G N G G A L L L R R G A G A V E E W G P R P H G V D$ GL DQFTAAVFHARNWAGAVGLAESGLDYLEALPAD YR GL R

 GLI Q Y T A A I H H A R N WA GA T G L G G S A R E Y L D G L S E THRCGV D GLI QTAVGLYHHRRENGAEK I FASAHS DL QANTADSLLGL D AL A QLAVGITHAARGNGADAVLERAA TNLGPYAAPPBCQIA $G L A Q V A V G L T H A A R G N G G A R L L D R G A G A V R A W E P R P Y G U D$

 GL I Q Y S A A V F HA R N WQ G A V G LAA E S A D G Y L A T L A P A E Y R D L R



 GLI QI A A IMHQLKRGRGARKLATSAYRYLSPFRPERDGVD
 G L Q Q A VS QY HYRRGN GAYKMLVSA DSLLEQNEVE QLGFM GLI QF TA AVYHARNRNGAVGGLADSAREYLAAVPSDYR GL R





UniRef90 M0LRL3
UniRef90_UPI00047DF791
UniRef90_I8UFP1

UniRef90_I8UFP1 UniRef90_UPI00037222B5
UniRef90 I7CFB7
UniRef90_W4RL75
UniRef90_J2ZSA6
UniRef90 UPI0002FD4809
UniRef90_V8D4B9
UniRef90-LOAF42
UniRef90-F6ELV2
UniRef90-UPI00036E5261
UniRef90_E4NTW9
UniRef90_UPI00036306E9
UniRef90_UPI0003711A3D
UniRef90-M0CNG9
UniRef90_M0JP76
UniRef90-W1SQS6
UniRef90_G2ML69
UniRef90_UPI00047B965B
UniRef90_L9ZXR3
UniRef90_UPI0003FA90F5
UniRef90_A5BZQ1
UniRef90_MOABS2
UniRef90_UPI00047E524B
UniRef90 UPI000364F47D
UniRef90-A6CMY0
UniRef90 MOLAH0
UniRef90_UPI0002E2FC0B
UniRef90_A1AT48 UniRef90-F9DNW6
UniRef90
UniRef90_U5EEJ1
UniRef90_D6Y2X9
UniRef90_U1P8C2
UniRef90-UPI000415021F
UniRef90-A9B158
UniRef90_UPI0003759969
UniRef90_L8DAF7
UniRef90_UPI000248C855
UniRef90-W0JMD7
UniRef90_V4XD98
UniRef90_UPI0004763B33
UniRef90-LOJN20
UniRef90_M0BGM1
UniRef90_-14X4S6
UniRef90_M3C297
UniRef90-E3DWG7
UniRef90_V4HN30
UniRef90-S9QGW4
UniRef90-S3ZWP6
UniRef90_W3AF17
UniRef90-M5PAI7
UniRef90_S5V0A9
UniRef90_UPI000373055F
UniRef90_UPI0003B57EA2
UniRef90_A9GIX4
UniRef90-MOCSA6
UniRef90_X4ZBA9
UniRef90_Q5Z379
UniRef90_F8D578
UniRef90_K5B7Y6
UniRef90-C9Z6L1
UniRef90_L9X5J6
UniRef90_G2GK64
UniRef90_A0A023DDU5
UniRef90 UPI0002FDCFBD
UniRef90_D8J948
UniRef90_UPI0004257353
UniRef90_UPI0004668A7B
UniRef90 UPI000360AF79
UniRef90_U1WXD9
UniRef90_UPI00036908BC
UniRef90_C5D3M7
UniRef90_L9YF12
UniRef90_UPI00037BC361
UniRef90_U1R0T1
UniRef90_E4NSF7
UniRef90_R4VUR8
UniRef90 UPI00036E221C
UniRef90 UPI0003B5AE78
UniRef90_UPI000288EEF0
UniRef90_UPI000467EFC4
UniRef90_L9WF10
UniRef90_LOJTR8
UniRef90_D2B2M2
UniRef90_UPI00029A8A02
UniRef90_F0S0W7
UniRef90_F8FD19
UniRef90_D3SP64

VGP $\quad$ R R F LLA S
L S AVVS CARDR



 \begin{tabular}{l|ll|llllll}
$L$ \& $D$ \& $A$ \& $V$ \& A C A E Q Q <br>
L \& E P \& I \& Q S Y \& L A A S \& L <br>
\hline

 

$L$ \& $E$ \& $P$ \& $Q$ \& $S$ \& $Y$ \& $L$ <br>
$V$ \& $A$ \& $S$ <br>
V \& D \& G \& L \& R \& T \& W <br>
\hline \& $E$ \& $R$

 $\begin{array}{lll}A & G & V \\ V & G & W A \\ V & T & T \\ D & R & R\end{array}$ 

$V$ \& $G$ \& $G$ \& $V$ \& $R$ \& $T$ \& $Y$ \& $L$ \& $D$ <br>
$L$ \& $A$ \& $L$ <br>
\& $V$ \& $A$ \& $A$ \& $W$ \& $A$ \& $R$ \& $G$ \& $L$ <br>
\hline
\end{tabular}

## LTDVRATLSAA <br> L D EVVR S F L <br>  <br> $L L D V R T V L T N A \square E T$ V <br> $L A G L A R W A R E L A D T$  

VNQLIDHLK DSL
F S RLI VNLE QSLES
RAGLVAHARTLLAA
L R A L A
T G DVAAACGRL
SFKL $\quad$ K I L S EHLLE
VGALTGWARE L

$V$ V GL L T WSE G L L

| $A$ | $A$ | $E$ | $F$ | $R$ | $L$ | $R$ | $L$ | $Q$ | $S$ | $R$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $L$ |  |  |  |  |  |  |  |  |  |
| $L$ | $E$ | $T$ | $V$ | $R$ | $T$ | $F$ | $L$ | $A$ | $A$ | $L$ |
| $V$ | $R$ | $G$ | $V$ | $R$ | $T$ | $T$ | $L$ | $T$ | $A$ | $A$ |


| $V$ | $R$ | $G$ | $V$ | $R$ | $T$ | $T$ | $L$ | $T$ | $A$ | $A$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $V$ | $P$ | $G$ | $L$ | $V$ | $T$ | $W$ | $A$ | $R$ | $A$ | $L$ |  |

 $\qquad$ HE KLI R I L S D \begin{tabular}{c|lllll}
$L$ \& $P$ \& $G$ \& $V$ \& $I$ \& WA R E <br>
$Y$ \& $T$ \& $R$ \& $L$ \& $M$ \& $L$ <br>
$L$ \& $M$ \& $Q$ \& $L$

 $\qquad$ $\vee \mathrm{D} Q \mathrm{~L}$ R R D $\square \mathrm{T}$ R 

<br>
$V$ \& $D$ \& $Q$ \& $L$ \& $R$ \& $R$ \& $D$ \& $I$ <br>
$P$ \& $R$ \& $R$ <br>
$V$ \& $E$ \& $E$ \& $W$ \& $A$ \& $R$ \& $A$ \& $L$ <br>
\hline \& $E$ \& $L$ \& $I$ \& $K$ \& $N$ \& $\square$ \& $S$ <br>
$H$

 H GRLV S LMRR 

$V$ \& $A$ \& $G$ \& $L$ \& $V$ \& $V$ \& $W$ \& $A$ \& $R$ \& $E$ <br>
$V$ \& $A$ <br>
$V$ \& $G$ \& $L$ \& $T$ \& $R$ \& $W$ \& $A$ \& $E$ \& $A$ \& $L$ <br>
\hline
\end{tabular}

$V$ A G L T R WA E A L
V S A V S T WS

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



## UniRef90 M0N315 UniRef90_Q9KZB7 UniRef90_B7GKI3

 UniRef90_UPI00047D0AAD UniRef90-F3Z5L9 UniRef90_UPI000426B7C1 UniRef90_N0AVQ2 UniRef90_U2YCQ4 UniRef90_X0MKL4 UniRef90_H6R8M8 UniRef90_UPI000379B36D UniRef90_W8Z0R1 UniRef90_V6M285 UniRef90_Q9RVS9 UniRef90_C7NYP1 UniRef90_F5SJ81 UniRef90_UPI0003654858 UniRef90_B4CVI4 UniRef90_UPIO003C74CA0 UniRef90_M0MJD6UniRef90_S9T5B9 UniRef90_M0GU07 UniRef90_A7GS83
UniRef90_UPIO003793E73 UniRef90_L0EDZ6 UniRef90_UPI0003761115 UniRef90_I9K9R3 UniRef90_UPI00047A9B53 UniRef90_UPI00047AC133 UniRef90_R7ZG57
UniRef90_T0CXM9
UniRef90_UPI0002E2872E UniRef90_Q2J8P1
UniRef90_UPI00047D720B UniRef90_A8FER0
UniRef90-D7WXZ5
UniRef90_UPI000287E8B6 UniRef90_E01511 UniRef90_UPI00038085BE UniRef90_W4QUJ3 UniRef90_K6CEU9 UniRef90_UPI000379D858 UniRef90_C3B9W3 UniRef90_UPI0002EC3405 UniRef90_UPI0004704DF3 UniRef90_E6S931
UniRef90_A7Z672
UniRef90_M1ZGJ6
UniRef90-K6IHB4
UniRef90_UPI0002F1CD7E
UniRef90-T0RC65
UniRef90-I3IPH7
UniRef90_W4RHM3
UniRef90_J9RV19
UniRef90_J9RVL9
UniRef90 UPI0004
UniRef90_J8TMD9
UniRef90_U5LFA8
UniRef90_UPI0002897477
UniRef90_S4ZGU4
UniRef90_V4HV72
UniRef90_E8N5N9
UniRef90 $29 V R Q 6$
UniRef90_W4LNV5
UniRef90_UPI000408A287
UniRef90-B9XGP0
UniRef90_UPI0003B66FD3
UniRef90_A8UXV2
UniRef90_UPI0003616695
UniRef90_IOJNG4
UniRef90-E6TYM0
UniRef90_K7ULY7
UniRef90 UPI0003E
UniRef90_UPI0003B3AD0C UniRef90_UPI000374D79C
UniRef90_H3SBM0
UniRef90_W8A2T3
UniRef90_M9TZN9 UniRef90_UPI00037C1496 UniRef90_UPI000364AECC UniRef90-D3DAS8 UniRef90_L7K5W3 UniRef90_D5DL67
UniRef90_UPI000473116A UniRef90-W4EKX0 UniRef90_MOD340 UniRef90_M8D939
UniRef90_B9E6N4 UniRef90_N1WHQ6 UniRef90_UPI000368FF65 UniRef90_O66853
UniRef90_F2FAN7
ALLDHGVR|LYNASEFHDSHDCFEAEWYNYGSAESKFLH EAQRLLDDGKPFHAHEVFEDAWKAGPEEERELWR A Y $\square E Y$ L L H F H A R D Y F E C H EVVLE E Y WK Q T G E DEAFHEYLVYFHGRDYFECHEVLEERWKQDPGRRKPHWV



 D A A L A E A Q R L L D A GMP F H A A H E V V L

 MNPELRRGADLFNA GHWWEAHEAWEDVWRVSSGEERAFVQ

 S LRREAQR LLDA GLDPFHAHEVLDEA WKACRGEEREDWR A Y IE Y L A HF H G R D WF E
 $M$ YPA Y I Q F L I HF H G D DY F E CHEVVLEEYWWKLKP GK R D H H WV A A TALLEQGRPFS

VE F H GTRDYF
D T GHP
V
 MYPEYI HFLA HFHDRDYFECHELLEDYWKKTDSRNKDIWV M D Y R
M Y P E $\begin{array}{lll}F & D Y C A Y Y N G G G D Y F E \\ L L & S Y G Y Y F N A K D Y Y\end{array}$

DRAY
$M P A$
EAQRLLDAGLDF
E Y
FI DYCAYFNGGQDFF

HGAY DQFLI HFHSRDVYF


 PAEFFVSY LVVQFHSSRDYF ECHEVLLE EYWKEVVPRNKKSHWVV
 $M Y P A D R A R D L V A G G R P F A$
$\square D F A$ V YL VHFHGDRDFFE

P Y IG Y LLLHFH GSRDWFECHE I ME EMWKAETSMERKQWW

 MDSRFREA IRRREQGRYLD MYPAY REA RYY KNGRYYF YLTYFHNHDYFECHEVLE MYPEYI QYLVHFHARDYFE CHEVLEEYWKEKTAKHREDWV S F V L F $L$ LSY F N R R D Y F E LA Y A Q DL L D R GLLA FNAHEVVLEAA WKN GPA DEQAD WQ
 GLEQAQRLLDAGMPF PP E $\underset{Y}{\mathrm{G}} \mathrm{L} \mathrm{E}$ Q G V E F
$\mathrm{E} C \mathrm{~F}$ Q GLYYFEAHDVLEELWLDRKGPNYSFHK

 MYPEY IIE FLAHFHGRDYFECHEVLEEHWKLVEPKNRSVWV A Y IDF L DEFHTRDFFECHEI ME EYWKEHNENH SFGAAV ALF NRGEYHACHDVVEELWWYSAEDPARTLLD
 P P H Y $\square$ A F L E F H G T R D WF E C H E V I ME E Q WK A E S S A E R K L W W W RE A QR L LD A GMPF HA HEVVFEDAWKS GP DA E RE L WR Y L Y A V DLLF NHGY WWEAHEAWEDVVWLAA GREEGQEVQQ



## UniRef90 MON315 UniRef90-Q9KZB7 UniRefofo-B7GK13

 UniRef90 UPI00047DOAAD UniRef90-F3Z5Lo UniRef90_UPIOO0426B7C1 UniRef90-NoAVQ2 UniRef90_- U2YCQ4 UniRef90-X0MKL4 UniRef90-H6R8M8 UniRef90-UPI000379B36D UniRef90-W8ZOR1 Uniinefoo-V6M285 UniRef90-Q9RVS9 UniRef90-C7NYP1UniRef90 F5SJ81 UniRe90_-5SJI UniRef90-B4CVI4 UniRef90-UPIOOO3C74CAO UniRef90_MOMJD6 UniRef90-S9T5B9 UniRef90-MOGU07 UniRef90-A7GS83 UniRef90-UPIO003793E73 UniRef90-LOEDZ6 UniRef90_UPIOOO3761115 UniRef90-19k9R3 UniRef90-UPI00047A9B53 UniRef90-UPI00047AC133 UniRef90-R7ZG57
UniRef90-ToCXM9
UniRef90-UPIOOO2E2872E UniRef90_Q2J8P1

UniRef90-UPIO0047D720B UniRet90 A8FERO UniRef90-D7WXZ5 UniRef90-UPIo00287E8B6 UniRef90-E01511 UniRef90-UPIO0038085BE | UniRef90-W4QUJ3 |
| :--- |
| UniRef90 | UniRef90-K6CEU9

UniRef90 YPIOOO379D858 UniRef90-C3B9W3 UniRef90_UPIOOO2EC3405 UniRef90_UPIO004704DF3 UniRef90-E6S931 UniRef90-A7Z672 UniRef90_M1ZG.J6 UniRef90-S3AF53
UniRef90-K61HB4
UniRef90-UP10002F1CD7E
UniRef90-TORC65
UniRef90 ${ }^{-13131 P H 7}$
UniRef90_W4RHM3
UniReffo-JgRVL9
UniRef90-UPIOOO46CEA9E
UniRef90-J8TMD9
UniRet90-U5LFA8
UniRef90_UPIOOO2897477
UniRef90-S4ZGU4
UniRet90-V4HV72
UniRef90-E8N5N9
UniRef90-D9VRQ6
UniRef90-W4LNV5
UniRef90-UPIIOOO408A287
UniRef90-B9XGPO
UniRef90_UPIO003B66FD3
UniRet90-A8UXV2
UniRef90-UPUOOO3616695
UniRef90-10JNG4
UniRef90-E6TYMO
UniRef90-K7ULY7
UniRef90-UPI0003B3ADOC
UniRef90-UP1000374D79C
UniRef90-H3SBMO
UniRef90- W8A2T3 3
UniRef90 M9TZN9
UniRef90-M9TZN9
UniRef90-UPIOOO37C1496
UniRef90-UP1000364AECC
UniRef90-D3DAS8
UniRef90-L7K5W3
UniRef90-D5DL67
UniRef90-UPIOOO473116A
UniRef90-W4EKX0
UniRef90-M0D340
UniRef90-M8D939
UniRef90-B9E6N4
UniRef90-N1WHQ6
UniRef90-UPI000368FF65
UniRef90-O66853
UniRef90_F2FAN7

GMVVQVA A G A H K Q E DEAGMRSVLFRTALDYFVGVPND FYGVDD $G M A Q L A V G L T H S A R G N G G A R L L R R G A G A V E A G R E R P Y G M D$




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

 GLL QI A V G Q Y H L R R G N GA RK ML R S A WER L S LP L L E Q A G L D GLI QI A VA L Y HHRRGNGA $\square K M L S S A D H D L D K Q Q L Q E L G L D$ ALI LLAAALHKWHHGSLAHRNFYKAEKYLGTLPDEYGGVD $G L I$ QF TAVVHHLDDGNGATGLAESAAAYLADLAAA YRGVE
 $G L L Q V A V G L F H Y R N G N G G L M M L Q S A C E K L R K A S P E D L G I D D$ $G L I Q V A G A F V H L R R L R P A V R D F Q L A A K N L G A F A P R H L Q L D$ $G L A Q L A V G L T H A A R G N G G A R L L L D R G A D R D V P Y A S G P Y G I D$ GMVQVA A G A Y K H H D D A G M R S L F R T A L D
 GLI Q $\square$ A V S L Y H QRR WN GA A K M I K R A I A I L E KEREP DHAL
 GLIQLAVALYHHRRGNGAVKIYRGAAARLRPETLDRLGLD GLI Q V A V S S Y H HRR G N G A V K MLH T A DK H S D P QP L S QL G I D
 GLLQAAVGLHHWHNDNGAVKLMEAA LAKLCAYADVGIGLD GFI LLSVSLYHHRRKNGAKRTLAKAI K I FELDQDTKLGVN
 $G F I L L A V S N Y H H R R G N G A A R T L K K A D T \square F Q Q H D L E P Y G L A$ $G \operatorname{L} A Q L A V G V T H L A R G N G G V A V L R R G A A N L I P Y A D P P B G V A$ GLLDQ A A A L Y H Q R R E N G A L K MI S N A I K I L E K E K D E QLLGL M
 GYV QL A T G FY H WRRGNGAKRI LEKAL HNFQVNEGHFQEI D



 $G L L Q M V V A Q Y H Y S Y G N G A R L M L E D A E Q Y L R P Y C P L Y W N L D$
 A Y L L L S T GMY H WR R GNGA LDRTITKA HQRFT TLPSK YDEV D $G L A Q V C V A L T H A A R G N G A Q R L S D R A A M R D A A Y S A D T Y G V D$ GLIQLAVALYMERRGNGAKRLIANSLRILRSEKQAVLGLS
 GI I QLSVSLHK DYGKPNGRGSRMQAERSKEKLEAVFESGD $T L V Q I A V G L Y H E R R G N G A C K M L R S A M S H A N Q V P W H D L G L D$ SI I QVAASMFHTREGNGAWGMLFKAQDK LRKCEAMH
 ALI LLAVSTYHHRRNNGA DRTLTKAEE』FSETKEATEGID $G L A Q L V Q G T H H R R G N G A R R L Y D R A A A R L E E Y E$
GWALL A AALFHRDRGNGAGRCFQRARSHWGALGPE YAGLD

 GFI QLA T G M Y H WR R G N GA R T I F K K A E L L H L R S S S A Y Y E G L D

 ALAQLAVGLTHAARGNGGARLLRRGAGALAGLGSEAYGMD AMIQLAVGTHHWNNGNGCQSVWNKALNKCDTLGLQY A FIVQLAVSQYHFRRDNGADKSLRSAEKRFEKKGVVEELGDS

 AL L LLAA A A L HK WHH GS L A H R NF IK A EK Y L D A L P E Q Y A GLL D

GL I QLA V A I Y HERQKNGSLRLVEKSLNHLKESETAFLGLD GLLQCAVGFHHLLN
$G L I Q Q S A S L Y H T R M L R P L R S L S T A G R D K L R Q V S G N Y M G L N$ GLAQI CVGLTHLQRGNGALTTLFARGAARVQASGGAY TLVQI AVGLYHERRGNGAGKMLRSALAHAPEDAWAQLGDD ILIQQAVALYHERRGNGARQLYNRVENRLKEFQLEDLGMN
 $G L D Q L A G A Q L K R E V P R G A Q V L T E S G A A K L S A V Q G V F L G I D$ SLI QLA G I FVVHDRRHRPALALLNDCQDYLKSYGTACEGLD $G L T Q Q V V G L V H V G R G N G A I T L L R R G L A G L V P R P H T S E G$ GLAQLCVALTHHRRGNGARRLUDRAAARLVEYEGVRYEMD GLIQIAVSLYHHRRQNGAKRTMQKTLAILTKKEEAQLGLN GL L Q V A V S L Y H H R R S N G A E R T M K K A D S S L $G$ W GLIQYTAAVYHARNWS GARGLAESASGYLGEVASDYREVN

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

| UniRef90 M0N315 |  |
| :---: | :---: |
| UniRef90 O9KZB7 |  |
| iRef90-B7GK13 | VEQLIAL |
| UniRef90-Q9KCL2 | E |
| UniRef90-UP10004 | Y TLI |
| UniRef90-F3Z5L9 | LTGLVGWA |
| UniRef90-UPIO00426B70 | YEAL |
| UniRef90-NOA |  |
| UniRef90-U2 | $\bigcirc \mathrm{V}$ |
| UniRef90- XoN |  |
| UP1 | A AGLIA |
| UniRef90 ${ }^{-}$W8ZOR1 | GGLLRRQLDE |
|  |  |
|  |  |
| UniRef90-C7N |  |
| niRee90-F5SJ81 | 促 |
| UniRet90-UP1000 |  |
| Ree900-B4CV14 |  |
| UniRef90 UPI00033 |  |
| UniRef90-MOMJD6 UniRet90 S9T5B9 | LLEDVR |
| UniR | LGdVRNFLSTL |
| UniRef90-UPIO003793E73 | LDDV |
| UniRef90-LOEDZ6 | vo El |
| UniRef90_UPI00037 |  |
|  |  |
| Uni | L A |
| UniRef90-UP1000047AC133 | PVGLIHLLHEKL |
| Re | K |
| UniRetg | ENEFMLLLKKRL |
| UniRef90-O2J8P1 | VPGLLLA WVDLR |
| UniRef90_UPIOOO47 |  |
|  |  |
| UniRet90-D7WX | Y LELLT Q T K A |
|  | SAE M |
| UniRei90-UP100038085BE | YRA |
| UniRef90-W4QUJ3 | VS ELL |
| UniRef90-K6CE |  |
| UniRef90-UPIO00379D858 | v |
| UniRef90-UPI0002EC3405 | QL |
| UniRef90-UPI0004704DF3 | FDQLIQD |
| UniRef90-E66931 |  |
| Ref90-A7Z672 |  |
| M1ZG |  |
|  | GEDLLVARIVRQR |
| UniRef90-K61HB4 UniRef90 UPIOOO2 | GEQLTS QLEAKपT |
| UniRef90 TORC65 |  |
| UniRef90-131PH7 |  |
| UniRef90-W4RHM3 | R |
|  |  |
| UniRef90-UPIO0046CEA9E | $\square \mathrm{D}$ R P |
| UniRef90-U5LF | A REFTLLISGRLS |
| UniRef90-UP10002897477 | MQQLFEAL |
|  |  |
|  |  |
| UniRefgo- D9v | VAGLVRWAREL |
|  |  |
| UniRef90-UPI000408A287 | HL |
| UniRef |  |
| UniRef90-UPIO003E | DVW |
| UniRef90-A8UXV2 |  |
| iRef90-UPIO003 | ELRADVWA ALQ |
|  |  |
| UniRet90-E6TYM0 | VKTLSDMTRQR■ |
| UniRef |  |
| UniRef90-UP10003B3ADOC UniRef9-UPIooo374D79C | L |
| UniRef90- 3 USBM0 |  |
| UniRef90- W8A2T3 |  |
| UniRef90-M9TZ | V |
| UniRet | VK |
| UniRef90-UPIO00364AECC |  |
| iRef90 D3 |  |
| UniRet90 Liks |  |
| UniRef90_D5DL67 |  |
| UniRef90_UPI000473116A | SILNKHLRLI QA |
| D3 | VGEVRAY |
| UniRef90'M8D9 | AEQLLALIHTYI |
| UniRef90-B9E6N4 | S |
| iRet90-N1WHQ6 | LSEVRRETLDMLSA |
| iRef90_UPl000368FF65 | T |
| UniRet90_O66853 | T |
| UniRef90_F2FAN7 |  |

## UniRef90 Q3IUD4 UniRef90_UPIO003651CD2 UniRef90-UPI0003B6AA1D UniRef90-W7Z5X5

 UniRef90_UPIO003EADF57 UniRef90_G9QPC8 UniRef90_Q5WH06 UniRef90_UPIO001851020 UniRef90_UPIO00373E729 UniRef90_X0RNH2 UniRef90_V5ABE1 UniRef90_D3DKG1 UniRef90_B7RJS4 UniRef90_D8PBH1 UniRef90_X5M1X0 UniRef90_M1XK55 UniRef90_W4QAB6 UniRef90_K7KEl8 UniRef90_X6D537 UniRef90_UPI0002ECEF76 UniRef90_Q53U04 UniRef90_UPI000428BB82 UniRef90_UPIO0046A2EFF UniRef90_UPI0003623DA1 UniRef90_L0DJ85 UniRef90_UPIO004785801 UniRef90-E1QTYO UniRef90-V9W9X6 UniRef90_UPIOO0468FC06 UniRef90-G414E7UniRef90-D6XVF2 UniRef90-UPI00047B8F78 UniRef90-G8NBP5 UniRef90-K0ABD1 UniRet90_A7HAT8 Uniree90_-UTVID7
UniRet90_UP00046FFE70 UniRef90-U6B7L4 UniRef90-S5z6W2 UniRef90-UPIOOO37B7C0C UniRef90-MODSB0 UniRef90-UPI00046AF2E4 UniRef90_UPIO001FFEETA UniRef90-UPIO0036FF6CF UniRef90-D6PC19 UniRef90 E1X382 UniRef90_D8SQ73 UniRef90_UPIoo047B7359 UniRef90-I4BAX1 UniRef90-F7ZA86 UniRef90-K9B4TO UniRef90-J2KVB8 UniRef90 R9C8C1 UniRef90-A0A016QRE3 UniRef90-UPIOOO46EA757 UniRef90-E8T3W3 UniRef90-UPIO0035CBAE0 UniRef90_N1UP66 UniRef90-A0A024PG15 UniRef90-Q7NHA6 UniRet90_UPIO00414074A UniRef90_UPIOOO3609463
UniRef90 UPIO00299FD2 UniRef90-UPIO00469FD68 UniRef90-G2LIP9 UniRef90-VVVEK4 UniRef90_11NQ5 UniRef90 W7L8K1 UniRef90-Q49XU4
UniRef90 A1RRF9 UniRef90-UPIO00467A46C UniRef90-Q8ZU40 UniRef90 G7VFI1
UniRet90 A6G78 UniRef90_S2YJ39 UniRef90-L5N1E5
UniRet90 G4RPZ1 UniRef90-A4A2X5 UniRef90_H6Q9S5 UniRef90-UPIO0041C4085 UniRef90-E8UBU9 UniRet90-S3VTF UniRef90-A4YI86 UniRet90_C3MW13 UniRef90_Q9HIG4 UniRef90-A3K0Х8 UniRet90-V4XRF9 UniRef90-TORD96 UniRef90-FORJW9
UniRef90_A8MCS5

[^0]A ${ }^{10}$ 20

PQALSAAQDLLDAGLYFQAHEVLERAWRTAPAAERGLWR RRFVVLFNEEDFYECHEI FEWA WKQTDDPDGPFYK AYGDYLYFFHAEDYFECHEVLETEWKKRAADHRHYWV GFDTTVADFNGGDFHTCH
SYLLYLAHFHDHDYFECHEILEEYWKNETQQKRDVWV PGEYLDFLYYFHARDYFECHEVLEAEWKSVPKDKRAYWV MYPAYTDYLEFHVTRDYFECHELLEEYWKEQPGDDYDTWV ALEAGLALYNEGEYHAAHAPLESVWLDRDSDTARLLO AA WQAGRA VWDEGGFYEAHELLEDIVRLYPKEDRNCYQ DYLYAVDLYNFGYWWESHEVLEGLWHACGRTTTAYFQ RLSYAQDLLDRGQAFSAHEVLEAAWKNGPGDERTLWQ RLRVGDALYNVGRHDAAHEPLEELWLEAPAGERDYLQ FDEAVALFNGGEYYKCHDYLEALWLNAEEPTRTLIH FRWGI DLFNHGYYWEAHEAWEALWHAAKAQHRLFFK P Q A SLREAQRLLDAGDY DQAYDEYLAHFHSRDYFHAHEVLEDAWKGCAGEERELWR TAAFRAGLKY四ERGYFWECHEVLEAVWLQTPEAERNMVQ
M H P

ALEEAQRLFA
ALAAE GA RFNLVQQD
L GAR F A GRFFDA
EFAWGQDLLN NHGYY

A WQAGLDYF
$S \frac{L}{Y} \mathrm{I}$
$P$



 EYLHADIDYFGS R DFFECHEIVME EYWKK T S GSSELDWCWL TAAFRAGLI Y LADAGYYWECHEVLEAVWLQTPKAERDMV Q
 MEN ALLK E F Y F LQF H N Q H Y Y F L L C H

EKYVELFNKERFWEAHNVLEGVWRKTREP
VEGGVRR R F V H P N WLE GLALLD R GYY WEA HEA WE GL WVAA K GA LA D L L N
 RFVQLFNE ERFWEAHA ELLEP LWRKSRD GR
SFLWGI DLFNAGYYWEAHEAWEAVWQALGGERADA I K





D A A F R N A RYL V S R E RFWEAHEALLEDAWRSAYGSRKDRI Q
A WHA G L RFYRDGAFWEAHEVWEAVWMAAPEKEKLMMVQ


P A RWQA GAQL FA A GQWWEAHEAWE

## UniRef90 Q3IUD4

 UniRef90 UPIOOO3651CD2 UniRef90-UPIOOO3B6AA1D UniRef90_UP10003UniRef90
W77555 UniRef90-UPIO003EADF57 UniRef90-G9QPC8 UniRef90 Q5WH06 UniRef90_UPIO001851020 UniRef90-UPIO00373E729 UniRef90 XoRNH2 UniRef90 V5ABE1 UniRef90-D3DKG1
UniRet90-B7RJS4
UniRef90-D8PBH1 UniRet90-×5M1X0 UniRef90 M1XK55
UniRef90
W4QAB6 UniRef90-K7KE18 UniRef90-X6D537 UniRef90-UP10002ECEF76 UniRef90 Q53U04 UniRef90-UPI000428BB82 UniRef90-UPIO0046A2EFF UniRef90-UPIooo3623DA1 UniRef90-LODJ85 UniRef90-UPIO004785801 UniRef90-E1QTYO UniRef90-V9W9X6 UniRef90-UPI000468FC06 UniRef90-G414E7 UniRef90-D6XVF2 UniRef90 UPIO0047B8F78 UniRef90-G8NBP5 UniRef90-A7HAT8 UniRef90_L7V4D7 UniRef90-UPI00046FFE70 UniRefe90-U6B7L4 UniRef90-S5z6W2 UniRef90-UP100037B7C0C UniRef90-MODSBO UniRef90-UPIO0046AF2E4 UniRef90_UPI0001FFEE7A UniRef90-UPIO0036FF6CF UniRef90-D6PC19 UniRef90 E1X382 UniRet90-D8SQ73 UniRef90-UPIOO047B7359 UniRef90-I4BAX1 UniRef90-F7ZA86 UniRef90-K9B4T0 UniRef90-J2KVB8 UniRef90-A0A016QRE3 UniRef90-UPIO0046EA757 UniRef90-E8T3W3 UniRef90-N1UP66 UniRef90-A0A024PG15 UniRef90 Q7NHA6 UniRef90_UPIO00414074A UniRef90-UPIOOO3609463
UniRef90-UPIOOO299FD2 UniRef90-UPIO00469FD68 UniRef90-G2LIP9
UniRef90-V6VEK4 UniRef90_11NQ5 UniRef90_W7L8K1 UniRef90_Q49XU4
UniRef90_A1RRF9 UniRef90_UPI000467A46C UniRef90_Q8ZU40 UniRef90-G7VFII UniRet90-A6G7U8 UniRet90_S2YJ39 UniRef90-L5N1E5
UniRef90 G4RPZ1 UniRef90-A4A2X5 UniRet90-H6Q9S5 UniRef90-UPIOOO41C4085 UniRef90-E8UBU9 UniRef90_S3VTF1 UniRef90-A5YYZ UniRet90_C3MW13 UniRef90_Q9HIG4 UniRef90-A3KOX8
UniRef90 V4XRF9 UniRef90-TORD96 UniRef90-FORJW9
UniRef90_A8MCS5
 ALTQ\|VVGLVHAARGNGATALLRRGLTGLAPYLPDP ALLQVAVGLYHQRNGNGAVKLWAAALEKLAAYPEEWMG|D TLI QLAVVLYHERRGNGAHTLLNRLLKRLEHVQLEHLGIN GHL RCVVGFHYGHNHRGAIIGLREGLCKLHKLR
 คの $\triangle$ ค ALI QLANARLKLRMDKPRARLCNLVDGHLAQCAEMLLGVD GLAQLAVGITVQRGNRTGAAALLRRASARLARPAPYDVD GLIQACAAVHKSRSGNGAAGLAESAVGYDDAGGDTGTGVR GILQCALDFHHLFN
GLI LLAAAGVKIREGKRGARHAGRAAADFRQDARVPNG
AFI QLAVGLYHQRRNNGAYRMVKNARRMKGRRTTLLGLH
GLAQLAVGLTHAARGNGGARLLLRGADRITPYGPGPHGUE GFlQLAVTLYHHRRGNGAKRTLKKSRQALQQH
ALI QLANARLKLLMQRPAKRLVAMVGEHLARDPSDQLGLT GLI QLAVGLYHERRENGAVRMLRSSYQILHKLTVEKLGLN AL KLAAAGVKVRERQPGVTHAQRAAVLFRSAGQNQLGLD GLI QTAAALVHWQRGNGLRRNWAKARAK
GLI ILAAAFVKDQENNPEARLIIRARELIMKNQWPY LLI QLAVAQYHERRGNGALKMLQSADMYFHPEQISELGLD D GLAQFAVGTHVQRGNAAALLRRASALLADVTTPVPYGVD TLIQRAVAVYHERNRKGSLRLYRKVLSHLDETPGMLLAI N VLIRIAVAQYHARRGNGALKLMGKAAEETDPDRFGEIGUR D GLLLLAAALHQASLGQGGLRNLRKAEAKLAPFPSPYLGLD GLI QI AAGFHKQGRPSGMVRLLDTGLRRLEA SGGUEGLR GLAQLAVGITHVQRGNR
GLILLSAGVKLREGKPAMRHARRAGALLRDDTAPH
GL QLAVARYHHRRGNGAQRTYAKAFDKIERHRASLIGDD VL Q AVAFYHYRRGNGADRLIKRARGLLEETGGRQLGLD GLI QVAAALHHYRRGNGAGKLIEKSLFRLSGEEEALLGGD GL AAATAHADARNWSGAVGCASNAVEYLDGTGSAPRGVD SLI QLANARLKILMGRPARRLCVMVDEHLQRCPQP ILGLA ALAQLAVGLTHAQRGNGAVSLLRRGAG:RLWRPAPAALD
 VVIQVATSLYHYDNLNGAEGMIRKAKRKLE ALLQSSVGLYHDQNYRGAMVELGEGVS
GLAQLAVGLTHRGNARGAATLLDRGAGNTAGYAAPPHGDA AMIQVAMAYYKLYNFTGALSLLTKALEKL ALI QLANARLKVLMPRAAWRLCDMVDTHLSRCPTDVLGLN SLILLATGCYHYRRHNGAYRSFRKAKHVIDGVEDELLGUD GLILLSAAGVK DREGKPAMRHAGRAAGLFRQLSKVPH GFI LMAVSCYHHRRENGAEKTVQKSRKLGEKKKEALLGRD ALVVQAAVAMVHWGQGNGATLLWGEAVARLARCRDELDGVD ALIQVGVAYYHLKNFNGFKLLLENALELLQGYSGTVLSVN GMLQA AVGLYFENGNGSRKLFMAGUEKLDQYPDQMLGUN GIIQLCVSLHKDYNSRGSRMQAERSKE
LFI Q AVAMYHDRQGNGALTLMKRCLVKSRYHQEGLLGLD GILQLAVAYYHDRNWQGCVILLSTGIERLDYFAPEYLGVD ALI QYAVAHYHARRGNAGAKKS! EALKRLASDELEMLGUD

 GL QLCGVHLKMLKGRPMQRLCNMVEGHLQEYADD GL QTAVAFYHYRRGNGALRL1RRARALLAEEAGQRRRLGLD ALILVCASLINFLKNKVEVKLMDEALSU:SKLPEDCLPM
 GLILLAASGVKIREGK
GLILLAASFVKLQEGSPEERLMKEALALMQ EDTDCVK
 SLI LLATGCYHYRRGNGAHKTFNKAYQ\|DSYKPVYLGLN LFI QTAVCMYHYRRDNGADTLUKRCDRAESSEDEELGVD GLI ILAAAYVKLQEGDKFVFLASEALKLLEGGRADGCI N GLIMLAAAFVKLQEGSPEERLLKEAI YLIE EDVGCIK ALI LLAAALHKWHHGSTAHRNYHKAERYLNDLPAAYGGVD GWI QLADSLNK川FNPRGARMQAEKAREKFLSLGET
GLILLSAAGVK REGKHAARHAGRAAALLRRL
ALILLCASMI KYRKNRGVSELMERALSLISELPQDLLPL
S:ILLCASLIKYLKGEVDVSLMEKALS LISDLPQELLPL GVI QLANARLKRRMGRDA MHAAMDRLSEDAADLM
GLI AAAAATHHARNWSGAAGCAENAVGYLGAVDETHRGFA VVIQTATSTYHLEDRNGASGMDNKAKRKID


UniRef90 Q3IUD4 UniRef90 UPIO003651CD2 UniRef90＿UPIO003B6AA1D UniRef90 UPIO0037661BA UniRef90 W7Z5X5 UniRef90＿UPI0003EADF57 UniRef90－G9QPC8 UniRef90 Q5WH06 UniRef90－UPI0001851020 UniRef90＿UPI000373E729
UniRef90 X0RNH2
UniRef90 V5ABE1
UniRef90－D3DKG1
UniRef90－B7RJS4
UniRef90＿D8PBH1
UniRef90 ${ }^{-}$X5M1X0
UniRef90－M1XK55
UniRef90－W4QAB6
UniRef90 K7KEI8
UniRef90－X6D537
UniRef90＿UPIO002ECEF76
UniRef90 Q53U04
UniRef90 UPI000428BB82
UniRef90－UPI00046A2EFF
UniRef90－UPI0003623DA1
UniRef90 LODJ85
UniRef90－UPIOOO4785801
UniRef90－E1QTY0
UniRef90 V9W9X6
UniRef90－UPI000468FC06
UniRef90－G4I4E7
UniRef90－D6XVF2
UniRef90＿UPI00047B8F78
UniRef90 G8NBP5
UniRef90＿K0ABD1
UniRef90＿A7HAT8
UniRef90 L7V4D7
UniRef90＿UPI00046FFE70
UniRef90＿U6B7L4
UniRef90＿S5Z6W2
UniRef90－UPI00037B7C0C
UniRef90－MODSB0
UniRef90＿UPI00046AF2E4
UniRef90 UPI0001FFEE7A
UniRef90＿UPI00036FF6CF
UniRef90－D6PC19
UniRef90＿E1X382
UniRef90－D8SQ73
UniRef90＿UPIO0047B7359
UniRef90＿I4BAX1
UniRef90 F7ZA86
UniRef90－K9B4TC
UniRef90－J2KVB8
UniRet90＿R9C8C
UniRef90－A0A016QRE3
UniRef90－UPI00046EA757
UniRef90＿E8T3W3
UniRef90 N1UP66
UniRef90－A0A024PG15
UniRef90＿Q7NHA6
UniRef90 UPIO00414074A
UniRef90－UPI0003609463
UniRef90－UPI000299FD2E
UniRef90 UPI000469FD68
UniRef90－G2LIP9
UniRef90＿V6VEK4
UniRef90＿I1INQ5
UniRef90＿W7L8K1
UniRef90＿Q49XU4
UniRef90＿A1RRF9
UniRef90＿UPI000467A46C
UniRef90－Q8ZU40
UniRef90＿G7VFI1
UniRef90－A6G7U8
UniRef90 S2YJ39
UniRef90－L5N1E5
UniRef90＿G4RPZ1
UniRef90＿A4A2X
UniRef90＿H6Q9S5
偪
UniRet90＿E8UBU9
UniRef90 S3VTF1
UniRef90－X5P9Z1
UniRef90－A4YI86
UniRef90＿C3MW13
UniRef90－Q9HIG4 UniRef90－A3K0X8 UniRef90＿V4XRF9 UniRef90 T0RD96 UniRef90＿F0RJW9
UniRef90－A8MCS5

V G S LL V D WLLARL
MAA V $\square K E T E A R \square A A$
VARLREDFRR
PSKLLID【H【R【
PDRL
A RA L K Q D MK A R L
PNLLLSLINQR\｜
VA TARRYLD
I P Y LL S F V N S S $\square E$
VQEIAQ
TVTFANDVT
VTGLVSFAGDLADA
VDALL V GWLGRL
TTKLLRTLKA

AEK LLASLKTL
VSALAA WARGLAE
VA GVR GWLN A C
ADHLEELLDEQU
LGELEQTAQQ
KEKLLRKMDNAL
VLGLERPKMERL
TAGLI EVA
EDAVI S EVVRRDQ
LKKLLGDTYRRWSA
WHPLWREARRRLG
VD RLLA
LAAFLA

VS Y L LD
LA ALLD NTARR】
SGKFLS LLEQ
VNPVRDWCRRL
TEEVRGWLLNA
LD GVTA HADAL
L ${ }^{\mathrm{D}} \mathrm{D}$ E F R E W $\square$ AE M $\square$
VP
VA DMVSLVSEA
IN A YLE TLLD HLIDEA

LA YLHDQGRHWL
V DNLKNSIGKRALET LGQLIHEARQ

GVHLHNQDQE
I ETLLEQSTACLDET
V P RFARDLER
GERLARMLKERAQA
LD N L VQVATEL
VA QLLRETET＠LQT
DEALARLDDE
$\square$ QKVIAE LVHADE
IRKLRKKVEKAL
■REVKEKAEKALL
AQEVKRKAEAAL
FD HLRAVARQA
$\square$ AEYKEVLKHLISA
A E S Y L E H H N R R

I K EVVKKLAEKAL
V D E
L A R L R A D VWAAL

VETACEWCRRD
WALLEQQVAASLNA

UniRef90＿10XSF1 UniRef90－UPIO00346B61F UniRef90－A3VE80 UniRef90＿17KN81 UniRet90 M6DBY8 UniRef90－V6HCV4
UniRef90 TONJL4
UniRef90 C4L380 UniRef90－HODKW1 UniRef90－UPIOOO375C751 UniRef90－Q6KYX1 UniRef90 ${ }^{-}$M5RSD9 UniRef90＿Q970T9 UniRef90－U1LHW4 UniRef90＿A0A031LNS9 UniRef90－C5QSN3 UniRef90＿U1FUA3 UniRef90－F4B9R5 UniRef90－UPIO00310FBC1 UniRef90－Y5NUB4 UniRef90－G7ZNN7 UniRef90－UPI000367A101 UniRef90－B1YAY1 UniRef90－TOLRD6
UniRef90 UniRef90－UPI00042A91DC UniRef90－UPI0003719C48 UniRef90－B9NVS4 UniRef90－MOEHJO UniRef90 S3FFV6 UniRef90－C0QDF9 UniRef90－TOMVII6 UniRef90－Q5HP54 UniRet90＿A3MVA2 UniRef90－H2C974 UniRef90＿UPIO00478E6E8 UniRef90＿MOP7C7 UniRef90－A6Q6G7 UniRef90＿UPlooo412260B UniRef90＿Q5LM65 UniRef90－G5JJF7 UniRef90－E1QEC2 UniRef90－U1WN44 UniRet90＿C4WA64 UniRef90－B9DNS4
UniRet90－TOLUA7 UniRef90－TON301 UniRef90－E1WZL8 UniRef90 DgX8P4 UniRef90＿UPI00047A9B69 UniRef90 A7GUC9 UniRef90＿UPIOOO371B4E5 UniRef90－D5SV．J9 UniRet90＿FOSQB5 UniRef90＿Q4L6J6 UniRef90－UPIO002D8739B UniRef90＿V4JF16 UniRef90－UPI00036E9558 UniRef90－D3QCQ4 UniRef90－UPIO0041073F2 UniRef90－A5IT24
UniRef90－X1CNG2 UniRef90－A0A033V407 UniRef90－UPIO003787116 UniRef90－TORSJ5 UniRef90－F2L492 UniRef90－E8SHH6 UniRef90－UPI0004700521 UniRef90 UTPGU4 UniRef90－KONDN3
UniRef90 ${ }^{\text {D2QWQ }}$ UniRef90－A6DAU9 UniRef90－W4M732 UniRef90－E8RGG8 UniRef90－UPI00046459ED UniRef90－12K4D1 UniRef9－EKX2T5 UniRef90＿D6Z5X8 UniRef90－D7CTI7
UniRef90－B9L8J1 UniRef90＿UPI0003B6513E UniRef90－A9AV68 UniRet90－E4U502 UniRef90－E4TWB5 UniRef90－WOSER5 UniRef90－MOEK07 UniRef90－UPIO0047CAAFF UniRef90－EOUSU6 UniRef90－L8LUK5
UniRef90＇в6ВН52

AWTEGRKПY品KGRYFELHEVFEFQWKKETGGRRDFLH
AWMEGRKLYFAGNYFELHEVFEFQWKKESGGRKLLLH

VWDQEDFFEVHEWI E
MDQS
GLTYGFNSMDEEKYWLAHEDFE EDYVRLENQERFWEAHNALEE

HADYFECHEVLEEAWQESGGRQHHGYA FNEGHVLAAHDPWEAAWLPDDGDDERLLH DEGALKQYIILLDKGEYFDAHEVLEEAWHPLRDPDANLTK

> PAWTAGWRLDEDGYFWEAHEV WE MQQALIKFYYQFHHQHYFLCHDILEDAWKEQANYSKDAIV PPLELGLALWRRGLFFEAHEALEQAWQTASGPRRQALK MEQALIQFYYYFHRQHYFLCHDLLEEAWKENENFSKDAIV MEEALLSFYYQFHAQHYFLCHDLLEDAWKKQPFSKEDAVV DYEKFALMNRDERFWEDHELME

EFFGSRDYFECHEDMEA鸟WKKKGTGRECWR YNAADYDTCHDWLEEMWLEERSN LFLK RHYFECHDILEEHWKEQDNFSKDPIV
YLLAMDYFNYGYYWESHEEWERLWRVSTPDSGRFLK
YLMGLDDFNYGFYWEAHEEWDRLWKSSGPDTGKFLK MDRALIDFYYYFHQQHYFLCHDLLEEAWKNDNFSKKDGIV MEQALI QFYYQFHKQHYFLCHDLLEEAWKENNDYSKDAVV MEKALIEFFYQFHHQHYFLCHDILEDAWKEQPSYSKDADV MQQALINFYYQF HEQDYFECHE\｜MEDVWKDKENFTKDAEVV

> RHYFECHD DEDAWUKDQEQPGRELYR

SDDFDFALDLWDDALFFECHEWLEQNYRGLKGQEKK LQ
 YTTAVRDGLHRYFWECHELLEPLWMKQGSSEKDHLQ
MKQA
 Y ELFKELIKEGKYYDAHEVLEEYWHKTDHPYKNAYR LWQGLVLWDLG的HFEVHELEQVWHRAQGRERLFWQ ALQEFIDLIKKEQFYEAHEVLEEDWRKSKDVYDLVLK DEGALKTY LELLDKEEYFEAHEVLEEAWHPLRHPLANLAK LDGALRAFCHCLSRGEFFEAHEVLEEAWHPGRRRNDPLVK GWEAGARHFNAGAYWEAHEAWEGPWGAAQGRDRSLYA
$\qquad$

## E

 YWMYKQYIIN WQGF TTAFNEERFVDGVLQLEEDWFPSRNDERLYRALEQAGRLWREGAYWEVVEVLEPAWLAARGPERDFLDHSCEFVLSISEGRYYDAHEDLEPLWYPEDNNEVRLWK DWTEVAALWNGNELCALHDLLNERWLGTRDPEAEFLQ

MHKH乌QFFNELLIKQDYFECHEDMEEAWKDKEFTKEDPEV


UniRef90 IOXSF1 UniRef90-UPI000346B61F
UniRef90-A3VE80
UniRef90 I7KN81 UniRef90 M6DBY8 UniRef90-V6HCV4 UniRef90-TONJL4 UniRef90_C4L380 UniRef90 ${ }^{-}$HODKW1 UniRef90_UPI000375C751
UniRef90 Q6KYX1 UniRef90 M5RSD9
UniRef90_Q970T9
UniRef90-U1LHW4 UniRef90-A0A031LNS9 UniRef90 C5QSN3 UniRef90_U1FUA3 UniRef90_F4B9R5 UniRef90 UPI000310FBC UniRef90-Y5NUB4 UniRef90-G7ZNN7 UniRef90 UPI000367A101
UniRef90 B1YAY
UniRef90-TOLRD6
UniRef90-M1IS71
UniRef90 UPI00042A91DO
UniRef90-UPI0003719C48
UniRef90_B9NVS4
UniRef90 MOEHJO
UniRef90 S3FFV6
UniRef90-C0QDF9
UniRef90-TOMVI6
UniRef90 Q5HP54
UniRef90-A3MVA2
UniRef90_H2C974
UniRef90 UPI000478E6E8
UniRef90 M0P7C7
UniRef90-A6Q6G7
UniRef90_UPI000412260B
UniRef90 Q5LM65
UniRef90 G5JJF7
UniRef90-E1QEC2
UniRef90-U1WN44
UniRef90 C4WA64 UniRef90-B9DNS4 UniRef90-TOLUA7 UniRef90 TON301
UniRef90-E1WZL8
UniRef90-D9X8P4
UniRef90-UPI00047A9B69
UniRef90 A7GUC9
UniRef90_UPI000371B4E5
UniRef90-D5SVJ9
UniRef90_FOSQB5
UniRef90-Q4L6J6
UniRef90-UPI0002D8739B
UniRef90-V4JF16
UniRef90_UPI00036E9558
UniRef90-D3QCQ4
UniRef90_UPI00041073F2
UniRef90 A5IT24
UniRef90 X1CNG2
UniRef90-A0A033V407
UniRef90_UPI0003787116
UniRef90 TORSJ5
UniRef90-F2L492
UniRef90-E8SHH6
UniRef90 UPI0004700521
UniRef90 U7PGU4
UniRef90-KONDN3
UniRef90-D2QWQ8
UniRef90 A6DAU9
UniRef90-W4M732
UniRef90-E8RGG8
UniRef90-A6Q0Z7
UniRef90 UPI00046459ED
UniRef90-I2K4D1
UniRef90-E6X2T5
UniRef90-D6Z5X8
UniRef90-D7CTI7
UniRef90_B9L8J1
UniRef90 UPI0003B6513E
UniRef90 A9AV68
UniRef90-E4U502
UniRef90-E4TWB5
UniRef90-Q5NYR4
UniRef90-W0SER5
UniRef90-M0EK07
UniRef90-UPI00047CAAFF
UniRef90 EOUSU6
UniRef90_L8LUK5
UniRef90 B6BH52


VD S FVA QLD E
LRKVIQEERTRLE
LR QLASA I S GALE S
IK SLK S EI R S GI

VETFAKDLD
I H N Y K K LIR H Q IT S IT TYKSLVQNML

IQ A Y K R LLVELIKA VNEFTFLI QNQI E IDEFQKLIAQQ』E

AEE $\square$ KAKAEKA $\square$

Y N H L
1 LR
 VDRLIAS

I N EFKQLIVKMIEA
AKELREKALAAL
VEAFTSQLDE $\operatorname{V} D P$ VI RWCRRL


VERVAA WA ReL
LA G

FT LLAFADRAAQ
$\square \mathrm{DELDGALKS} \mathrm{L}$
I E A Y QQLI E E K I $V$ DGFINKIERRYQ YQLLI EQQ $\quad$ AK $\square \mathrm{LNA}$ VAKFRKEAR KASFQS L DRSQ VS D L IELIKN VLKLRE QLAK K L SRSYMMLLRELIES

VRALEA QVHAALQ

ITRR\REY I Q D C $L G A F L E G V G R A D E$

DDP I G S Q L L $\checkmark \operatorname{V}$

VT S L R S Q S LY L L
lupas_21
lupas_14
lupas_28
jnet
conf



```
lupas_21
lupas_14
lupas_28
jnet
jnet
sol25
sol5
sol0
jhmm
```



```
lupas_21
lupas_14
lupas_28
jnet
jnet
conf```


[^0]:    

