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 $M \square E M C B V A$ V R L H I K G L S Y S Q T S G $E L N V V G V R V E L P T N$ T MQEMTI YGVSFDMVGK
 MI R VTVVSI RVSLLT QHRVVVIRRAESRRYLPI WIGLE E
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M K V A GI A L D A V S R N P V I L L R D A S E R R A L P I F I S N E Q I E V K I R A L M M D P N S G T P I I I L MIE MKVAGI AVDAVSHNPIVLLRDGTQRRALPI WI GESE MREVEVRALVMDPTQNMPVLLLRDPQSKKVVPVWIGQPE M R E L
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E MGEMRVVGl RVEPP Q N NMKK VK V GGL R Y SQT S GAPVLLLIREVSGARYMPI


$M Q$
$M$

## N

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| UniRef90_W6JX89 | Y A P E DL L S A Gl L L P E E T D D EVE |
| UniRef90-UPI00046F6FE2 | F T Y ESIL L E A GIV VT DEVEE |
| UniRef90-R7ZXS4 | YCSDPVMEEAGIE EAEDAD |
| UniRef90-I3ZXH5 | F A Y Q QVVQQA GVEFK\\|VEDEE |
| UniRef90_GOIUB0 | YCTNAVMSEAALEFTEEDE |
| UniRef90-E8V5S3 | YVERSVLDAV |
| UniRef90-C4XPN3 | LVNEAVID QVA |
| UniRef90-H6L2D8 | YTYEFILEQAG\\|VL |
| UniRef90-B2A720 | Y $\square$ NF Q ${ }^{\text {a }}$ - |
| UniRef90_UPI0003FF3A51 | F T Y T I L E S A G $\\|$ A L E E |
| UniRef90-C6W611 | YTYETILSEAG\\|V |
| UniRef90-K2A4S4 | YVDRKVIEKS |
| UniRef90-E8N1W2 | LVSREVMDVAGVTPEDD |
| UniRef90-E6Q1W0 | YVTDKIVLEESQSEGGEGDEE |
| UniRef90-A3Z612 |  |
| UniRef90_UPI000360B63A | HTYEFILDAAGVELQE |
| UniRef90-U2CX47 | LI Y ESILEKECLHMPEEEKERQE |
| UniRef90-I6YZP7 | YVS E DVMRLAS FVPS S E DV |
| UniRef90_NOEOS2 | EAGESLLAEVGVTMAPEAEVE |
| UniRef90-UPI00037D0C34 | YVAESIVQEIGFPETEDREAE |
| UniRef90-M7N8P0 | LCDEGVLQEASVMVS D D S E |
| UniRef90-C8X377 | F V H E NVFEAV |
| UniRef90-A3HSB2 | FCSEKVMSEASI |
| UniRef90_D1C362 | LVDEAVMDRAGVKLEAEETDEPE |
| UniRef90-Q05WM7 | WMLE EVVAEASIIPVDAEADSE |
| UniRef90-B5YIN2 | FVEEGI F |
| UniRef90_UPI0003C7FB24 | F CAEDVLEEAGITFAT DEEEQVVE |
| UniRef90-UPI0003F68A8E | LCAEAVLDEAGVEDAESDDE |
| UniRef90-F9YQQ7 | YT F P DILEKAGI Y 1 S L Q Q |
| UniRef90-W2C4J5 | YTFESLLQRCAITPVADSEE |
| UniRef90-1011U7 | YVAEEVMEQAGMV |
| UniRef90-A6LJA4 | Y I SNELYNTYTLQYDGESMD |
| UniRef90_UPI00037F6384 | FLS P K V |
| UniRef90-A3TKX8 | VTTEDLLDRAGVAM |
| UniRef90_UPI000255F18B | LCSAEVLHDAGVDPE |
| UniRef90-B12Y9 | FIS K V ADA A EVFS E E R E EL |
| UniRef90-10IRZ9 | FVK E EVLD |
| UniRef90-A0QGN4 | YVEEAVLA Q A GLLIP DESDEE |
| UniRef90_12EWB1 | YVSQSVLESAGYEIDDKGKE |
| UniRef90-M2YCS2 | LCASSVLEQAGLIMTGD |
| UniRef90-C7LX34 | RVIS E EVI A |
| UniRef90-R5AUD1 | Y TTPEIVEETGFVMEVQNTEE |
| UniRef90-D1CFY0 | YVEDHVMDQAGFVLPVEQEE |
| UniRef90-F6DEA3 | LVAEEVVEKAGVE |
| UniRef90-E8QZI0 | YVAEDVIT ${ }^{\text {V }}$ A |
| UniRef90-H1GTD2 | YTYKDILDRAGl |
| UniRef90-UPI00046A2AE7 | LIY D S I L ERECLHMS DEER |
| UniRef90-A5D3H4 | YLSEKV |
| UniRef90-B6WX68 | RVKTEVFEKAAR |
| UniRef90-UPI0003B43CD0 | F V A D DVLD ${ }^{\text {a }}$ ( $\square$ P A E L A E E D V |
| UniRef90-C1A8G7 | Y V A D L L |
| UniRef90-E4U7A6 | LVDEKVLAEGK ID |
| UniRef90-E6SVP7 | FI Y E DI L E A R RI K TEESSDSE |
| UniRef90-E1VUV2 | MCAEDVLQEAGVS |
| UniRef90_A6LCZ9 | FTSEEIVKECGVVLE |
| UniRef90-S3XBS0 | TCSGELMAQVGVEMFEQNEDEV |
| UniRef90-A2C7C8 | WMLEEVVAEASIPPVAEADAE |
| UniRef90-R9CHN9 | Y T TEQVLT EAGI MLELLS D N |
| UniRef90-B9KZ76 | YVDESVMDRAGVRL |
| UniRef90-R5K1G2 | FI Y D I L E |
| UniRef90-W0EQC3 | YVMQDI I E EAGFTYEESDE |
| UniRef90-C7LZA3 | FVDEAVMDAEGAVLDDAE |
| UniRef90-G8LQN9 | YTTKEIFDKAGI |
| UniRef90_UPI0004087A2B | FVADQVLDEAGLPAQDEAEDE |
| UniRef90-D6SRE7 | MVRQQILED |
| UniRef90_UPI00036D61A9 | FVDESIMDDAS |
| UniRef90_UPI0004071BD5 | Y M Y D D\|I Lle T Q C M P Y D E D E E |

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UniRef90 F5J1V6 UniRef90-W4LZBO UniRef90-U2YKW9 UniRef90-X1DJW6
UniRef90-D2REA3
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UniRef90 UPIOOO3B71F65 UniRef90-X1JZU7 UniRef90-Q0A851 UniRef90-C7M4V3 UniRef90-UP100036BCFAF UniRef90-UP1000312DC74 UniRef90-W2BQ62 UniRef90-B7IFJ3 UniRef90-UPIO003B48A5B UniRef90-K1HLT9 UniRef90-UPIO003794D34 UniRef90-UPI00047A329A UniRef90-F7YVW9 UniRef90-A1WUY9
UniRef90- W5X9X6 UniRef90-J9ZE52 UniRef90-R5AQK9 UniRef90-B4VD01
UniRef90 R7CBP5 UniRef90-UPIO00471BD99 UniRef90_C1DTE4 UniRef90-H5UPD4 4 UniRet90-D3PP51 UniRef90_M9V145 UniRef90-A7HLJ6 UniRef90-E6SLKO UniRef90-FOSO12 UniRef90-UPI0003B419EB UniRef90-EEVVYY UniRef90-15C8H4
UniRef90
OOF7Q9 UniRef90-D8U2M3 UniRet90-D8PGS1 UniRef90-S6CLMO
UniRef90 S5DPI UniRef90-G8UR20 UniRef90-I31029 UniRef90-R4KTY3 UniRef90-F2N6U0 UniRef90-R5Y385 UniRef90-UPI00038219FF UniRef90-MODHC1 UniRef90-13Z6Z1

UniRef90 L7TZF5 UniRef90-B0SC89 UniRef90_F8EWY3 UniRef90-UPI0003B7607E UniRef90-D4YKH2 UniRef90-UPIOOO36ADA9E UniRef90-UPIO0037A9B1E UniRef90-K9EQ31 UniRef90-A9BFE8 UniRef90-R9KVL2 | UniRef90-MODVK2 |
| :--- | UniRef90_l4AFH2 UniRef90 EORTC9 UniRef90-F8EQQ8 UniRef90-C8WIN3 UniRef90-C7NVN9 UniRef90-A1ZWQ8 UniRef90-UPIOOO36A08CE

UniRef90_xoU4Q5
$M L V A E V Y G L V K T A F G V T$
 $M$ LVAEVYGLVKT



$N \mathrm{M}$ L K L L


 $M 1 P$ V S L S K



## E

L VP VE L A T VG $\square$ A Q L V R L F I K R I S Y N Q S Q N A F V L I M M E E V E T D L K K L P i







## $\begin{array}{r}\text { M } \\ \hline \\ \hline\end{array}$

E
E

 V E V E V V G V RIDE MPAN QP I L L L K A S E P A Y Y L P I WV G A I E $M \mathrm{M} E \mathrm{~V}$ V V K S I A I D S DT G S P I L L L A D D V N N E D I Y P I WI G VA E

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






| UniRef90_R5SWB5 | $\text { LTYDD\|IL\|EAECDRMDEGE } 140$ |
| :---: | :---: |
| UniRef90-14C6D4 | FVSEKVIE |
| UniRef90-T0XRL7 | F VK K N I L |
| UniRef90-R5P913 | Y TTPEI I EKAG L L V S QEVRE |
| UniRef90-R4JGB4 | FTSESVLNESGFEPDAKEK |
| UniRef90-W8F0B3 | FTVESVLSEAGl I L S D |
| UniRef90-O29158 | YVEEDVMDEAG EDEI PQEFVD |
| UniRef90-D6Z0Q5 |  |
| UniRef90-D5MFH6 | Y ASSKALD GA |
| UniRef90-X1MRV8 |  |
| UniRef90-UPI000421BE96 | YTTDEI MRDLAVVFTEGDE |
| UniRef90-UPI0002FBECA8 | FVSQTVLDEDGLDAPEPDEDAV |
| UniRef90-UPI00037B07A0 | YVAEEVAKAAGYFPQPSRKELE |
| UniRef90-C0QTZ6 | FL N E QVVKK K V |
| UniRef90-M1RR04 | YVNRDLFNSADI |
| UniRef90-E4RS45 | Y TTEEVLTVAGI S S D EVT DVEEPE |
| UniRef90-F5J1V6 | FTTEAI MQEQAIVFDEN |
| UniRef90_W4LZB0 | YVSEEVLEAAGRR |
| UniRef90-U2YKW9 | FVADDVLAEAGDPDTVSEAPE |
| UniRef90-X1DJW6 | YVEEAVLDKAGIIKPGQDAD |
| UniRef90-D2REA3 | YVEDKVLDEAG S S ELP E E V VE |
| UniRef90-Q1PXI9 | FVASKVLEEV |
| UniRef90-R6FG85 | YVYEDILEDEGПRSDASQQDE |
| UniRef90-B6YR47 | FTTEEVMKETGUVFTDESD |
| UniRef90-UPI0003B71F65 |  |
| UniRef90-X1JZU7 | Y AEEAVLDKAS |
| UniRef90_Q0A851 | HVAPEVL QAGDDL RYEP |
| UniRef90-C7M4V3 | YTYRDI I QRA G I Y i PLLNDE |
| UniRef90-UPI00036BCFAF | YTYKSILQKAGV |
| UniRef90-UPI000312DC74 | WVAEPVMAEAGVPDVLTETDAAE |
| UniRef90-W2BQ62 | S CLE S V M K A GVEVLEEAEDEVE |
| UniRef90-B7IFJ3 | YVSNELVNTHT |
| UniRef90-UPI0003B48A5B | YVAEEVLDEAGL |
| UniRef90-K1HLT9 | YTYPDI MNKAGI I L S GNPEVEEE |
| UniRef90-UPI0003794D34 | FTTEEI MQKMAIVFDEQA |
| UniRef90-UPI00047A329A | FCADEVLLA A GV |
| UniRef90_F7YVW9 | YVSNEI VEEHALDLNDPED |
| UniRef90-A1WUY9 | Y A P PVLEAAQEREQQRPRDE |
| UniRef90-W5X9X6 | FVADTILDAA |
| UniRef90_J9ZE52 | YVKEEVIHQ |
| UniRef90-R5AQK9 | Y T T P Q ILKE T GFVIENDP |
| UniRef90_B4VD01 |  |
| UniRef90-R7CBP5 | YVMEKVYEKASFPFKLN |
| UniRef90-UPI000471BD99 | FVETQLLEESGDEAPEADEEEV |
| UniRef90-C1DTE4 | Y L NEEVVKKVNV的 |
| UniRef90-H5UPD4 | RVAEAVMDEAGV |
| UniRef90-W4UP93 | LI Y N S I L ERECLR】S QEENGMEE |
| UniRef90-D3PP51 | LI A EQVLEQAG |
| UniRef90-M9VI45 | WCTEEVISSAGI LLD A GPEDAVE |
| UniRef90-A7HLJ6 | YVTNDI I A SEAIIYLDQS |
| UniRef90-E6SLK0 | YVAEPVLEMAAVR |
| UniRef90-K2CRK6 | LVARDIL DTA |
| UniRef90-F0S012 | YVEREVI E |
| UniRef90-UPI0003B419EB | YVAEEVI A GHGFSEQE |
| UniRef90-E6VVY5 | LVAERVLAEGGGPMQQGAKRVI |
| UniRef90-15C8H4 | YCVKKVLSEAGVEVVDEGEPE |
| UniRef90-T0F7Q9 | YLAKKVIEEAGUVMKDDE |
| UniRef90-D8U2M3 | Y VAKKI ADTAGTPYPDQP |
| UniRef90-D8PGS1 | Y ATQDVLNR |
| UniRef90-S6CLM0 | Y IEETVLDASSFPFEKQTEEEL |
| UniRef90-S5DPT8 | FVENSVFNDNY IETYYDEDK |
| UniRef90-G8UR20 | Y TLE S I MQQCGVVIDE |
| UniRef90-I3IQ29 | F VAKKVLEEV |
| UniRef90-R4KTY3 |  |
| UniRef90-S2L5R0 | HVAP QVLEA A R De Y E GLE E QVVT |
| UniRef90-F2N6U0 | YVEDDVMNRASRRTDEESRDE |
| UniRef90-R5Y385 |  |
| UniRef90-UPI00038219FF | LIA E EVLKQAGVD |
| UniRef90-M0DHC1 | 1 VSDEVLDEAGQPPERFDLGE |
| UniRef90-13Z6Z1 | F CVP K V M |
| UniRef90-L7TZF5 | Y T TKEVLEEAG\\|LLE\EEDD\|VT |
| UniRef90-B0SC89 | F 1 AKSVLDETGI I MKEDE |
| UniRef90-F8EWY3 | Y I SEQVVQEA GV |
| UniRef90'UPI0003B7607E | FVADEVFDEAGI PAELLAGD |
| UniRef90-D4YKH2 | ETTQELLDD\GLDAPQADEEEV |
| UniRef90-D5SMZ0 | YVTESVLQDV |
| UniRef90-UPI00036ADA9E | SVNEDLFLNNSTELIHDKANE\E |
| UniRef90-UPI00037A9B1E | FVAEEVMDTASIEFQVEDSDEHE |
| UniRef90-K9EQ31 | F I Y E EI L |
| UniRef90-A9BFE8 | Y I DEEIVSEHGDEASF $\square$ NAEE |
| UniRef90-R9KVL2 | YI EEAVLDSASFPF |
| UniRef90-M0DVK2 | VVTDAVIDEAGRPP |
| UniRef90-U7JGP3 | QCPEELIDEVGIILDADPQDEVE |
| UniRef90-14AFH2 | F T T D T M M E A |
| UniRef90-E0RTC9 | Y VA DFVVQETAll SVQl VGEEE |
| UniRef90-F8EQQ8 | FALDPEVIEQSAYFFDEKTRD |
| UniRef90-U1PD06 | IMSNAVI DEAGRPREAF |
| UniRef90-C8WIN3 |  |
| UniRef90-C7NVN9 | IVSDEVVDEAG |
| UniRef90-A1ZWQ8 | YTYETI MSEAGIVL |
| UniRef90-UPI00036A08CE | WCEDAVIE A A GVVI |
| UniRef90-X0U4Q5 | $F \\| D A K V L S K S$ |




UniRef90 Q8RBN8 UniRef90_UPIO0047639C3 UniRef90-R7BM99 UniRef90 U1PEL4 UniRef90-B2V973 UniRefefo-C5C6E7 UniRef90-J3ELW7 UniRef90-XOUZS5
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UniRef90 U2SZO9 UniRef90-C5CE32 UniRef90-R7NUU9 UniRef90-UPIO0029AC5F5 UniRef90-V5WD20 UniRef90-F9Z7A2 UniRef90-X1GQ87 UniRef90-WODPA6 UniRef90-D2R4YO UniRef90-U5BUC5 UniRef90_A4A2N5
UniRef90 M5S8V6 UniRef90-A8M9K9 UniRef90-UPIO00362D7B1 UniRef90 UPIOOO47D72C7 UniRef90-UPIO0041BB558 UniRef90 U2UAQ5 UniRef90_NOBEQ3
UniRef90-A7IA24 UniRef90 E1RAD2 UniRef90-D6E875
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UniRefefo-LODLN8 UniRef90-A1VF05 UniRef90-V4GUAO UniRef90-K7RWY9 UniRef90-K1LGE2 UniRef90-D7EBB9 UniRef90-F4GZM2 UniReffo-H2J6A4 UniRef90-O3ITX5 UniRe90-F5YCH0
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UniRef90 E1Z2J0 UniRef90-FOSFI6 UniRef90-U1QCU5 UniReffo-K1DY56 UniRef90-T2JXZ9 UniRef90-UP10003B67DCB UniRet90-W9DR99 UniRef90-H9UFA6 UniRef90_14BWF3 UniRef90-UP100034D47A1
UniRefoo-G5F290


|  | 130140 |
| :---: | :---: |
| UniRef90-Q8RBN8 UniRef90 UPI00047639C3 |  |
| UniRei90' R7BM99 | YMDKNVLERASYPYQQTNDEELE |
| UniRef90-R5C340 | LIYEDVLDAEKMELDAE |
| UniRef90-U1PEL4 | IVSDEVVDEAGRPP |
| UniRef90-B2V973 | YLNEQVVKKLNVELKSQ |
| UniRef90-C5C6E7 | RCAPDVLATAGUELEEED |
| UniRef90-J3EZW7 | SISDELLDHAGRPPSAVD |
| UniRef90-XOUZS5 | FIIA STIVDEAS |
| UniRef90_UPIOOO360FABA | FIAET VDEASVAVNLISEDET |
| $\begin{aligned} & \text { UniRef90-S8FE43 } \\ & \text { UniRefono } 1 \text { WKW3 } \end{aligned}$ | YTVRTVLEQDHLLEDAEGK |
| UniRef90-F2KS63 | YVEEKVLDEACQ EEDPEDYVE |
| UniRef90 UPIO0037E1B77 | HATEAVLVEAGVL |
| UniRef90 R7HKD8 | YTTREVIDETGF |
| UniRef90 UPI00035D488B | AS SELLDETG\| ETPAEENQEVE |
| UniRef90-D5U3W5 | F\EEHVVDKAGUVLEDN |
| UniRef90-F4CJC8 | EATEDVLEAGA |
| UniF | KSEILNIVGTEVEPQAQEEV |
| UniRef90_U2SZ099 | FADEHVVERASMPFDQVEQDE |
| UniRei90-C5CE32 |  |
| UniRef90-R7NUO9 |  |
| UniRet90 UPIO0029AC, | YVADEVLD |
| $\begin{aligned} & \text { UniRef90-V5WD20 } \\ & \text { UniRef90-F9Z7A2 } \end{aligned}$ |  |
|  | YVEEEVMKKSGT |
| UniRef90-W0DPA6 | VAPDVLATRGRGFEALPDDPV |
| UniRet90-D2R4Y0 |  |
| UniRet90 SbBUC5 |  |
| UniRet90_A4A2N5 |  |
| UniRef90 M5S8V6 | YVSEKVLEEA |
| UniReef90-A8M9K9 | AVAPELEDVPFDFQAPGDDE! |
| UniRef90-UP100047D72C7 | FATDDVIENSAYDFDEK |
| UniRef90-UPIO00418B558 | YAEDSVLEEA |
| UniRet90 - 2 UAQ 5 | FAESDVLMTAS |
| UniRet90 NoBEQ3 | YVDEKVLDEA |
| UniRet90_A7IA24 | FASEALLNSNG GENNLSDMVE |
| UniRef90 E1RAD2 | F S EAVVDEAGUPDTSITEQATE |
| UniRef90 E3B637 | LVDDAVVTAAGLEVADEQEEEVE |
| UniRef90-M5U4Z4 | FVSEDVLSDA |
| UniRef90_JoS7U2 | S V DLEVAEQAGV |
| UniRet90_R7Al48 |  |
| UniRef90_O5V1K9 | VVTDDV |
| UniRef90-D3PE28 UniRef90 R7LWG7 | FVEEAVLTK |
| UniRef90-R4ZW ${ }^{\text {U }}$ | YVSANVLEAAGYRDSDDDQPE |
| UniRet90-X1IWN8 |  |
| UniRef90-F6CRB9 |  |
|  | ERHIEKAGI |
| UniRef90-LOHAS2 UniRef90 E1QXK8 | FVEETVLATAAQK |
| UniRe990-E10XK8 | MADEAVVEKAA |
| UniRef90-A0A021VYJ9 | MCAPAVLEESGLPV |
| UniRet90-R6HZL9 | YT T |
| UniRet9o_KILGYO | YTTS EVL |
| UniRee900 UPIO0031DF267 | WVA E VL |
|  |  |
| UniRef90-V4GU | RVLDEVLDAAGQP |
| UniRef90-K7RWY9 | TCPEELLEESGILLDESPQDEVE |
| UniRef90 K1LGE2 2 | LIPKQLLEEQR\|DMD |
| UniRet90_-D7EBB9 | YVKEDIFESVALDKDSLQD |
| UniRef90-4GZM2 UniRef90 H2J6A4 |  |
| UniRet90_H2J6A4 | KDSII ENGI |
| UniRef90-O3ITX UniRef90 F5 | GDEVLDEAGQPQDTFE |
| UniRef90-5YCH0 ${ }^{\text {UniRef9-M1XZB0 }}$ | FVGPEAVLEKAGSPP |
| UniRef90-D2QHR4 | RATTDVIDMSGYFVDDK |
| UniRef90-D3SCN5 | AVSPDVL EADVPFEYSPDDEV |
| UniRef90 B3ET46 UniRef90 F4BSO | FINEALFSQVG |
| UniRee90-F4BSX | EVRERVVADASUSKSDAEK |
| UniRef90-S2ZPP4 | YADEMV俍TAAAPDFADVEKDV |
| UniRef90-UPI0003733A4B | YПDQEILEAESTIEV |
| UniRef90-L9VFE3 | LVSDEVLDAAGQSPEAFDADFDE |
| UnRe990 R7D7P1 | YVEDDIMNRAGFSYQTDTNDEAE |
| UniRet90_Q2Y4P3 | HVRK S |
| UniRef90-F7PJG5 | VISDEVIDEAGRPPEAFEPD |
| UniRef90-E1Z | YVNKE |
| UniRef90-U1QCU5 | Y EDE |
| UniRef90-K1DY56 | VATDAVLDEVG㑑 |
| RRef90_T2JX |  |
| UniRef90-UP10003B67DCB | PEDLLEEVGVVLETEGDDEVE |
| $\begin{aligned} & \text { UniRef90-W9 } \\ & \text { UniRefgo_H9l } \end{aligned}$ |  |
|  |  |
| UniRef90-UPIO0034D47A1 | Y DEDDVMNRVGTVPAEADEDELE |
| UniRef90_G5F290 | FADE EIVLIEAAAIL |

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UniRef90-IOZOU1 UniRef90_UPIO00346CA5F UniRef90_UPI0004056C0F
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UniRef90-W5YOK3 UniRef90-W0JT35 UniRef90_U2YFI8
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V|G|L A G S G A 30 VRLNAPEHEVLVVLTESDGEEVVPVIGTDQ VADGEDDGGVLIVLKGEGE SLVIMI GLAE

 AELEGIGTGRAAGGPAALLRARGE Y Y

RVQGVSVSEMGAAPTVVL
TE LHI K QVYESQSVGAYSLL DAGGDSTIPI YV GLWE ELVELEVKDVVPDMEAQTHAVVLTTKDGETVLPLFVDEGA LKRMDI QTVVVGGGP ELVELEVRDVIPLVEAKTHAVVLTTPDGAMVLPIFVDESA MNEI EI KVLAVLKPSDSFALVLEELGGHRKLALII GKQE VKIDVIKVLPSPTGCAICLGNDTGKVFVIYVGPNE MDAEVVS|LETMDSYGQ|VVVAEEWGDRAVPIVIGAAE MMPAAVREUA TTPMGYAAVV TPEFKDK
EYVPVRVKGVY DAETSPSPVVLLEDEKS R VVPI FVGLSE EYVEAKVEIVRHTKEFGHVIFLRLMESKHQYLPVYIGDTE $M V P V R V L G V A L D S A Q Q H V I L L A S S V E D G T V L P V W I G P P E$
 MVRAVLED【AVAGSGEFFVMLLKTAKGEFVMPI TWI GHLE
 LMEVNDADVSDTNVG FALIGAEEWGDKAVVPIIIGAAE $L L K V R V K G V Y A L H A G A A P V V L L E D E A S$ R MKEVELKILSVLK DSGYAVLLEPVSNPFRFLAVGVGGEFE
 MRQFKVKCVVKDPFDSSYKVILESDDDSTLLPLPVGPFE
 EAEVIG DGPDGGDPIPAVILEARGE MYE $\square G V K C V I K E P L T S R Y L L M M E T D C G D Y L L P I T T I G S F E$ $R M L E A E \| W T I A$ R 1 DEGTAAVLHPLGTE IAVVI FI GQNE $M V P L D F Y G V H T D G P E N F V C V L L H S R E R D R V L P V W I S P V E$ $V G V G V D A N G E E S A V L L A A R D E \quad Y L P I A V T T D Q$


> VT VTVKGVM PTANGCAVFGGNDG KTFVIYVDHSV MRAMRVLRLVVHAPSRQPVLVLGEVDGDRCVPVFLRGPQ VTI S DV RVVRSDHGPVVLLSADG
 MVRVDI ETIVMAAGPVPSLIVLRERCSKRSLSI QTGSFE
 $V A L A Q A G B D$ R QASTDAVRVAGTPQGPVVVLAVESEDDVVPI FIGFEE HVKDVYIVDVFSDPT PVVLLENLKGE MLPIVIGHDE NFVELQFHGI HTMEPDGFTCAVFRWEDGNKVLPI WMDQDD




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

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LENGTYLGWLEII RAGEEEPRR\|DTRPSDAL|A|LAVIVSGAS\| LREGTFIAELVLSNGA RVDARASDAIALALRAKVPV LRDGTYYAELVIVDSGGQTRR1DDRPSDAIAAALRTGSPV

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## \footnotetext{ \section*{ल} 

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



Y H E GVF L C S LV L S D GE
L V S S TY T A TAV Y I K D K D G K T H S F D A R P S



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VEKGTFYAEVMVRK DGELVAVDSRPS

RDGIFFADLVLDSG

## VRDGIFYADLVLASGT

 RVVNTYFAKLYLSKGNEDISVVDVRPS VHGTTFFANLMLRDYNGQ <br> \section*{$\rightarrow$ 「} <br> \section*{$\rightarrow$ 「}
HFEGVYMATITTSEDE


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| UniRef90_UPI0003786282 | F STKEVLEEAGILLEDSEED\VE |
| UniRef90-F3Z038 | RVA Q A V D E A SV D |
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| UniRef90_UPI0004712CB3 | F AEEAVLD K A G $\square$ A V P A |
| UniRef90_G2MFW4 | E $\$ D D A V L D A A RPGDE  \hline UniRef90_R5LGF0 & FVVE E HVI EK A GM1 I E D N G S K E LE  \hline UniRef90-17J7M8 & M I E D TVVVETA AVRKD D L P R  \hline UniRef90-F3ZNR4 & FIVEEEILNQESVE V L L DED  \hline UniRef90_H8MGQ0 & $R \mathrm{~V}$ T R K V L T L A Gli T R A EIIE |
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| UniRef90_K1XSW9 | Y I K K D I F E K V |
| UniRef90_G7VHR8 | Y I A D NL |
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| UniRef90_14B423 | YV A EHVYDRTA DD PT T R |
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| UniRef90_A0B7P2 | HI Q Q RI IE $\square$ S G M D R S E M E |
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| UniRef90_UPI0003B4C77C | FID E EVLAK S S |
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| UniRef90_D8PIG8 | LVGGRDMLD AVGTS |
| UniRef90_UPI0001FFDAFB | GMA E HVLE EV GQPVED |
| UniRef90_R5Z6L0 | F VED DI MNRLGVSAHAEEVD |
| UniRef90-M0U2G2 | QV NRNLVYS DAMRVVE |
| UniRef90-D5EPL9 | YV S Q DVWERV |
| UniRef90_A0A059AT12 | Y V N K Q I V L R D $\square$ |
| UniRef90-A9S241 | F I NKKVAEEA |
| UniRef90_M0CMY8 | EVTDEVFAD |
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| UniRef90-I0IBX0 | F V A EHVLS |
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| UniRef90-Q3IU58 | DL NGKVF EAGREPKDEYEDL |
| UniRef90_B9SXC6 | HV S K Q I VFT D A $\square \mathrm{R} \square \mathrm{S}$ |
| UniRef90-B9M9G1 | MV H E DVVREA |
| UniRef90-W5Y0K3 | LADEEVLA Q A S $\square \mathrm{F} \square \mathrm{D}$ D G D V E |
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| UniRef90-U2YFI8 | RVAPDVFEAGRRERETFDD |
| UniRef90_D7GDZ1 |  |

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UniRef90 B3DZ65 UniRef90-X8AU92
$M \mathrm{~V} P \mathrm{~L} T$ Y Y G V H S VGPEN
NP TI AA A B G E E QP A $P V A \square K G V M \quad P T A N G C A L V L I K E D G S D E L L P D V V L E M P$ A GTPS GPVPDVVLLAVD GEACDYVIPI F I G F D E NEDPVRVLDMSVLKPSDAFALVLEEEGGHRRLALII GADVE

 $M A Q V R \vee R A V G \square D V G P D T P D L L L E E D G G G R V V P V E V G B C B$ VDAN F V G P GF L Q R F Q N P TI FL K DS D G E F L L P I V V GE L A






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 Q NPTIFLK $\quad$ TS D GDYVLP V V GK $\square A$

 LEFHGIHVMEP ENELCALLRWVEGNKILDVWLSPLE IE L LTV V L G L L K Y R V R G D K S N ALV L K E K H G
 NLT]

VRA E V V D V C P S P Y G Y A V F L R A D


Q S P T I F LK VS D G DF L LP I I VGE F S QPAIVLQNDGSNLLLPI IVLEFP QPA V $V$ K K D D D S NLL L P I IV L E L P N MLE MK VF GFA LDDA DA QMPVII L K D T E E K HABV P V WI N A Q D


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| UniRef90-UPI00035F254E | LVS REVWDEV |
| UniRef90-M2Y9R4 | YVNQLVLR H S GERLEK\QK |
| UniRef90_UPI000365BF2D | TCTEELLAEFGVTPSVPAEDEVE |
| UniRef90-M1XZ91 | EVDSSVFDTGREP |
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| UniRef90-UPI0002C2FA47 | Y V N K Q I V VR D A VR $\square$ S |
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| UniRef90-D5UEX1 | MCSAEVVALAGVEVRPAASEE |
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| UniRef90-D7WCW2 | EVDETVLSQSSLWL |
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| UniRef90-L0IF00 | ElS ESVFERSSEDPAQYDE |
| UniRef90-A1RWD7 | YVAAH LEKHARR |
| UniRef90-H2G398 | SVDDEVLNQASVFVPESDME |
| UniRef90-UPI00017452A0 | LVANEVWQSVDDVSETLDQ |
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| UniRef90-Q3ABZ8 | Y $\square_{\text {T E K V }}$ |
| UniRef90-D6YRJ5 | YCTREVLSKT VPTEE |
| UniRef90-W1NKE0 | YVNK Q IVS T DA\\|RV |
| UniRef90-B3DZ65 | Y |
| UniRef90-X8AU92 |  |
| UniRef90_UPI0003B7ABB3 | Y VS ERIV |
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| UniRef90-A5G669 | MVHEEVVKQA |
| UniRef90_G7JYS6 | YVSKEIVFTD |
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| UniRef90-F8KZC5 | Y CTREVLEK |
| UniRef90-C2CME2 | TVDQELLNKVSVFVTADDME |
| UniRef90-D0ZYE9 | LCVKSVFDAV VPYEE |
| UniRef90-UPI0003B41902 | YASEDVLESAGI DLT E G D |
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| UniRef90-A9SCC6 | QV SKDLAVGD GVRIVNDPE |
| UniRef90-D8T3P9 | QVNKQLAYCDGVRIVKK ${ }^{\text {P }}$ |
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1
 NYAGIILGTE EKQFAIYGCASM VEYHGVHMVGPENFMCA LARSEDGKQLPDVWGSAVE EYVAAT $\square$ AE $\square G L D H \square G G \quad V A L L A A K G Y D M P V P I A V G I N D$

## 


$M \square K M R \square R C V H N N P Q G G H P A\|V L K M E D G T G L L L P\| I V L E M$ LKFLGIHPVGPEGNLCALFYWEEADRHVPVWVSPDD $\square R F A G \square H Q L A P E E F Y C A L F D W P G H D R I L P V W L S P D D$




## LIEVDFHG】H【VGPEGFTCAVLVWREENR】DPMWLSPD

HPAIVLKMEDGTGLLLPII VLEM


NPT $\square \mathrm{F} \square \mathrm{K} \square \mathrm{S}$ DAEYVLP I VVGEHA ILEIFVAGDT
MEELHLVTMVVHRVTREPLAVLADAAEDRCLVVAVRRPQ $A T L L S V G \| L T R E E Q A L L V L G B E A Y P H P G T L L V G L D E$




#### Abstract

NPTIFLR\｜SDGDYILPIVVGQDA MIKMRLRCVHNNPQGGHPAIVLKEDGSDLLLPIIVLEMP RKIELTVQEISKGVTYRGY ILLLEEKDGIRKLPVMLGMAD  $M N R V K L R F H A \square S Q V G P A V L R M E D G T G L L L P V V L E M$  MALAHLA GVYPLGPEEYLCAVLVVEGTSRCLPVWLPPVE  $N K V K L K \square K N V S D M G T E D M G V I L L T D E E E Q R Q L S I V C D K A M$ ELVQLFPYGLSVTTDATRPFLLLKDEAHQYTLPVAVSADD QMY $\square K S \square G E M S A R S Y V L L L G K E S Q G T R K F A V Y G H V S M$ LVELFP Y GLSLTNDASRPFMILKDKSGEMLPVWVSGNT  VQQQGYFLLMRVEDTDRGLVMSVGGDT EY $\square P$ AR $\square S Y V G V D Q V G L E G V V V L K S E D G K E G F P M R A F S G E$


VKVDQTGT LDDSQTGAVLLKDEKVEFVMSGFSSEV
 LVKLIPY GLSVSNDVTRPFLLLKDEAHQYTLPVAVSPID MI K TRLK F YNV SEVVGGGLLVLTDEAMTRQLSITCCDKNM

 FDQSGQTGFLLLALEASSRGLVLSVSGDV


$A Q L R E V S \square Y P G G G N V L L L L \quad P G S D T P L E V A L A G P E$ NKVKVNFKSUS VVGTSD IGLLVLVDEKEERQLAVTCDKQM VDP Y G $\square E G A L V L R S N D G K V G H M R A F S G E V$
VALDEPFARDELVSRQAEHPGRDSDPVSVEQ
 NKVRIFKSVTEVGSGLSLDDKTRQLSIVERNV NKVRLIFKSVTEIVGSGGLILVDEQQQRQLTI PCDRNM $\square R L K F K G \square S I V G S E E V G L L V L T D E E E A R Q U S I T C D K A M$
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UniRef90_S5T2G3 UniRef90_E1ZNR2 UniRef90_S7KIU2 UniRef90_E5AIA9
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60
70
80

 A A QL F H A A GPEFRRPSTMSL WVRSLQAA GATVDRVI T R GQAFHQESSGDS LQRPDTHDVLNFVFSGFDDHADRVVIND GQAF S I M L L A A L R N

 A Y NIHA QLH GQKENRPVVHDLMFNLLARGQWQLLRVABA
 GARVL QVLERHFNARPS TYELLLIAFAEQLD G I E HI C V S E

 A S S L I L A M E R E K Q E E E S G Y D L A V E L F R K H R F A L R G L E V V R


 T S SIE K GLLQK ELLSVRPWGHDLVAQDLENFGDKVLLIIKI HT A A ELGGDRSEGSERRRPGTRDVVADVLSRFDGGVEQLALTS

 A Y L L L M K M K G N K K N P S S M S D T LYY V A E LR R H DA A A K S D R K DL LS A L L G HLLDA EV A E I VI E D $S V L L M A A V R N D Q L A R P T M Y Q V L K E M V E K M G Y T V K V V R V T K$ A AVLSTCI DRMRFSRPTPFDII LQMLKHTNTRIVYFEI Y D
 AT N I Y T QL L N T K S A R P MV H D L M F N M L T R A Q WQ L L R V A V A
 A G S V V D A A G G S R G R R P S MLDA T WA NTMLQALLGGKVVERVVI T R EHDLGRRVRRDAAPG LLAETI RALGGRVREVEI AS
 R R NVVQLAR P TMY QVVVK DMI E KM G Y T V K L V V R V T K
 A H A L L R KL H P EQTGGGDVA DVMASVTGLYGDQAEEVLI YR A ENI SS RKCSGKDCKKSPYDDLTPILDWVDSAVNKVVID D
 $P S V L L M A A R N G Q L A R P T M Y H V L K E M V D K M G Y A V K L V R V T K$

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




 ASSSLMMTSESLVTPHPMDHDALAQFLNKHAFKARYVVELWG



 VKAFSLLRMNHAPGVERLLDPEALGRLLRRQEGHHFE I HI H S






 G R A V A M





SFEHGF $\qquad$ A L



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| UniRef90-S5T2G3 | LI DEDVWS Q A If L S DED |
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| UniRef90-V8C311 | Y I EAGLMQKQSVE |
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$M G K V Q L I H V G V S Q \| V G G S L L V L S D M S E T R Q D A D V C D H M$
$M Q L V G V R S T N P D D G L V A V L V E D G G P A M L A I P V T A H E$ RVTLELAAVLPMPEGPAVVLRDGKSGTVLPLLVPDGD REVLVKDVAFIFDNRMPVMVLHDEDGRDFTMVNVEFLV $V N S G A G A Y V V L L E N D E E F T M V N I P M D V A E$ $M T D M S V R S T T S Q K G L V A L E V E D G G P A V V A V P V N P R E$
 OSEPASALVLAVGGDT LSLEDGRMFSLVNI PADV VR $\square Y$ YKE $V V V S S N T D \square G L L I L V D E Q E K R Q L V I P C D K L M$
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 $M S K V Q L I Y K G I S Q \| V G G P L L V L S D L A H T R Q I A A V C D H H M$
 EKNRHIIAI VICNDNV
 I E L QAQGIT QGATKSAYILLFKEKGGNNLVPTLINKEE $V$ KLRLAAVSNMRTSPHDGMMLVDDDECRALVITCDNNV MTLVGVRSTAPSRGLVATLVENGGPAVLAVPVNARE MSKVQLI YTGVSQUVGGPLLI L SDDLSHDRQVAIVCDSRM NK $\square Q V F F K G \square T V V G G S N M G L L V L T N Q D E D K Q V A V C D G D M$




lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm


lupas_21
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UniRef90＿F9EGN8
UniRef90 F2KXZ9
UniRef90－D5U3G1
UniRef90－V8CRW7
UniRef90 UPI0003FCD471
UniRef90－Q976A9
UniRef90－UPI00036076B2
UniRef90＿V4LRQ8

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\begin{tabular}{|c|c|}
\hline & \[
\text { Y\|DEALLMNSQSTPFD } \quad 140
\] \\
\hline & Y ADRGLMTKQS \\
\hline &  \\
\hline & YASSDLMRKQSVPYNGGSRDI \\
\hline & YAEDKLMRSQSMPYNSNTPDV \\
\hline & F 1 DEYLMKRQS \(\quad\) PPFNKD \\
\hline & FI D S ALMSRQSVLYKEN \\
\hline & LVKKELVDRS \\
\hline & YI EKEMMYRQSVA YRKNAGDM \\
\hline & QVNKYLAYSDGMRV \\
\hline & F MEENLFKRQSVV \\
\hline & HASSSLTRLRAVDLS D D \\
\hline & STTKRLLAEAGLTPDE \\
\hline & YVNENLLED \\
\hline & FVSKKLVD \\
\hline & A A S \(\quad\) KLLQLR G \(\\) A LDD A Q E \\
\hline & YMEEKL \\
\hline & WTAK C \\
\hline & Y V S K K L A D \\
\hline & F ASERLMFRQS \\
\hline & RASSEVLRLRGVDLGEEP \\
\hline & LASEALLRLRGVDLGEQTMHE \\
\hline & FMEEELFNRQSTPV1边DERM \\
\hline & KVKRELVDKS \\
\hline & F MEEKLFIR Q SVPFEA \\
\hline & FMEEHLFKRQSVDSNTSQNKM \\
\hline & T\DTALIFQSQSTPFSA \\
\hline & YIEEKLFNQQSCA \\
\hline & WVQRDTFERQSRM \\
\hline & Y I Y K K \\
\hline & Y A D R TLM D R A S P \\
\hline & VA S P \\
\hline & FMEESLIFKRQSVDYHANKNK】 \\
\hline & Y V SVQLVDEQERLYRI \\
\hline & YMEEKLFIDRQSVPYE \\
\hline & YMEETLFSRQSVPCE \\
\hline & Y VKKNLVDE \\
\hline & FVDEEILR \\
\hline & V T R R L V E \\
\hline
\end{tabular}
Y \(\|\) D E A L 1 M N S Q
YADRGLMTKQS
Y I E E DVLNTAEKQVKYK GYDEV YASSDLMRKQSVPYNGGSRDI YAEDKLMRSQSMPYNSNTPDV FIDEYLMKRQSIIPFNKD FI DSALMSRQSVLYKEN LVKKELVDRS EKEMMYROSVAYRKNAGDM QVNKYLAYSDGMRV F MEENLFKRQSVV HASSSLTRLRAVDLSDD STTKRLLAEAGLTPDE Y VNENLLED A ASDKLQLRGLDDAQE YMEEKLFKRQSVPYE WT AKD
Y VSKK L A D
促
RA S S E V L R L R GVVD
FMEEELFNROSTPVDADEERM
K VKRELVDKS
FMEEKLFIRRSVPFEA
T TD TALFQSQSTPFSA
YIEEKLFNQQSCAINIINKE
WVORDTFERQSRM
Y I Y K K
YADRTLMDRQASP
VAS
MEESLFKROSVDHANKNKI
Y V S VQLVDEQERLYRDFEE
YMEEKLF \(\square\) RQSVPYELNKN YMEETLFSRQSVPCE
Y V K K NL V DE
Y V T R R L V E
```



