



QUERY
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UniRef90_F9W3D7
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UniRef90_W0IAD1
UniRef90_F0ZW52
UniRef90_G5DCB6
UniRef90_B6AIL0
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UniRef90_N1R11X5
UniRef90_P41887
UniRef90_U4L650
UniRef90_Q5YJN5
UniRef90_I0Z919
UniRef90__N0AD UniRef90_N0ADL0 UniRef90_UPI00034F489F UniRef90_J4CCT6


| QUE | Y P ITTLFVE |
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| UniRef90_C7TZ19 | Y P I K L |
| UniRef90-F9W3D7 | Y D ${ }^{\text {E }}$ |
| UniRef90_U9TKQ9 | Y P I Q L |
| UniRef90-F0Y3V3 | F P I K |
| UniRef90-W0IAD1 | Y PI KL W |
| UniRef90-F0ZW52 | Y PI SL |
| UniRef90-G5DCB6 | Y P |
| UniRef90-B6AIL0 | FPI QL |
| UniRef90_Q15GB7 | YPINL |
| UniRef90-N1R1X5 | Y P I S |
| UniRef90-P41887 | Y Pi QL |
| UniRef90_U4L650 | Y P I F L HV |
| UniRef90-Q5YJN5 | YPI SLW |
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| UniRef90-N0ADL0 | Y P I K |
| UniRef90-UPI00034F | Y P I T L |
| UniRef90-J4CCT6 | F P I S |
| UniRef90_UPI00045DD4D0 | Y PI T L |
| UniRef90-E1F5T1 | Y P I Y L |
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| UniRef90-Q22W82 | FPIEL |
| UniRef90-F2E7K9 | FPIS |
| UniRef90-K2GPC5 | V P V M |
| UniRef90_Q0F237 | FP |
| UniRef90-A0KL53 | VP V |
| UniRef90-W4FFD3 | FP |
| UniRef90-UPI00016C4CA7 | HPVT |
| UniRef90-E1SWA5 | DP V E M W |
| UniRef90-A0DBI1 | FPI ELQ |
| UniRef90-A9SVT7 | FPI Y L W |
| UniRef90_Q963H0 | Y P I K |
| UniRef90-A0A011RL90 | LP |
| UniRef90-UPI00036E11CE | $V$ |
| UniRef90_C1IZ08 | YPI E |
| UniRef90-D8TT40 | FPI Y |
| UniRef90-I3CC43 | LP I V |
| UniRef90-D6X0J9 | FPI Y M |
| UniRef90-C1DC60 | EM |
| UniRef90-11MC31 | FPIY 1 |
| UniRef90-H8MW40 | HPI K L Q |
| UniRef90-I9BZH8 | LP I R M |
| UniRef90-I1XMF3 | L P |
| UniRef90-Q0A738 | V P I Q |
| UniRef90_UPI00035D9A77 | FPI R M |
| UniRef90-UPI0002D278AE | HPIV |
| UniRef90-UPIO00366E49D | $L$ PVI |
| UniRef90-I2JJP3 | $\checkmark$ Q $M$ |
| UniRef90_UPI000161E009 | YPIKL |
| UniRef90-UPI00037C0914 | FPVEMV |
| UniRef90-DOKVJ4 | FPVEML |
| UniRef90-UPI0002DE10D7 | 1 P V |
| UniRef90-V6F7R4 | $\checkmark \mathrm{M}$ |
| UniRef90-K2K818 | R |
| UniRef90-V9ILG4 | F |
| UniRef90-A0A031G | LP I V |
| UniRef90-UPI0004788382 |  |
| UniRef90-UPI000418EBB7 | Q |
| UniRef90-C1IZ09 | FPI K |
| UniRef90-F8XTS0 | LP ${ }^{\text {P }}$ ( R |
| UniRef90-B3E438 | Y P V C |
| UniRef90_UPI000413CB3F | $\square \mathrm{P}$ I L M |
| UniRef90-F2DTY0 | HPI Y |
| UniRef90-W0SGJ8 | QP 1 |
| UniRef90-C3XKG0 | F P I F |
| UniRef90_UPI00037B250E | MP\| L |
| UniRef90-G0A386 | L |
| UniRef90-U5T811 | LP I EL |
| UniRef90-H9JT91 | FPI Y |
| UniRef90-W6M3H9 | LPVIMP |
| UniRef90-H2ZL54 | FPI Y L W |
| UniRef90-W8BTN8 |  |
| UniRef90-H5XTS0 | YPITVNGQ |
| UniRef90-UPI00026523B2 | Y P I GLQ |
| UniRef90-U2FT87 | FPIM |
| UniRef90_UPI0000E0E69B | $\square \mathrm{P}$ V Q M |
| UniRef90-D8LHY7 | FPI Y Q L |
| UniRef90_Q21IX0 | LP V E M |
| UniRef90-G4QK72 | 1 P V Q M F K |
| UniRef90-K2BIC3 | LP I F |
| UniRef90-K0CE88 | F P I R |
| UniRef90-D3ZXC7 | Y P I T |
| UniRef90-W0EDD5 | YPVSVDGE |
| UniRef90-W0TQD2 | IP I E |
| UniRef90-A4BUS4 | LP $\mathrm{I}_{\text {V }} \mathrm{M}$ |
| UniRef90-UPI0002FF17BB | TPVQMFK |
| UniRef90-B4UZC7 | WPI R |
| UniRef90-F4PTJ0 | FPIYL |
| UniRef90-B3SC78 | FNI Y L W |
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| UniRef90 ${ }^{\text {K2AXQ6 }}$ | I P I L M |
| UniRef90_YOKFR9 |  |





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| UniRef90 N9D0G3 |  |
| UniReif90-H8L4T1 | VGFYSAFVVADKVTVLTRRAGTEAA |
| UniRef90--J91C | VGFYSAFLVANKVVVASKANDDEQHD |
| UniRef90-A5GE | VGFYASFMVADKVTLDTRKAGDKNAA |
| iRet90-02 | VGFYAAFLVADRVV |
| UniRef90-C5A, | VGFYSGFIVADRITVETRRAGTPAEG |
| UniRef90_B70 | VGFYSAFLVADRVVVTSKHNDDKQHV |
| UniRef90-A6F2 | $\checkmark \mathrm{G}$ |
| UniRef90-D7N |  |
| -4 | ADEDA |
|  | SDKVSVVSRKAGETQ GW |
| UniRef90 | VGFYSAF V VA KVtVTSRRAGETAAHV |
| UniRef90-D6Z0 | VGFYAAFMAADKVRVQSRSFRPDDAG |
| UniRef90 UPIOOO382E8E8 | GAAA A |
| O-LOF9 | TRSAQEALGMR |
| ei90_UP1000365 | TRRAGMPEHGVR |
| et90_C707Y6 | LRTRRAGTTEGT |
| UniRet90_W7ZL | GFYAAFMVADQVAVISRSV |
| UniRef90-D9YLZ88 | VGFYSAYYVADRVTVITKHNDDEQYRWESSA |
|  | GFYSAFLVAD |
| UniRet90-A8M4S6 | VGFYAAFMVADRVVLVTRQAGEADGT |
| UniRef90-H2DKZ8 | VGFYSVFLVADNVQVITKNNDDEQY |
| UniRef90-E1V6S9 | VGFYSGFIVADDITVRTRKAGTDAGGV |
| Q16 | YSAFMVA |
| UniRef90 W9A9A9 | VGFYSAF VADSV |
| UniRef90-231722 | ASF VADK TVRKAGD |
| UniRef90 G5B116 | VGFYSAYLVAEKVVVMTKHNDDEQYAWESSAGGSF |
| UniRef90-W1N | VGFYSGFIVADEITRTRKAGDDASSGVEWRSRGEG |
| UniRef90-UPIC | GFYSAFMVADVVTVISRALLGSEQ |
|  | Y V A D |
| UniRef90-UNBJ9 | VGF S |
| UniRee90-UP10003B34AA6 | Gry |
| UniRet90-B |  |
| UniRef90- T1XJD1 | VGFYSGFIVADKITVESRRAGLPAQGVRWVSAGAGDFEVA |
| UniRef90-H8FMX6 |  |
| UniRef90 M1LRA4 | VGFYSAFUVSDNVKVISRHAGPDDQAVCWSSDGLGEFTVV |
|  | GFY A MVAD V V |
| UniRet90-UPI00037D1223 | VGFYSAFMVADKVTIVTRKAGEKQ A WKWESAADGNYTI |
| UniRef90-G8AF79 | VGFYSAFMVADRVEVLTRKAGDTQ GWRWLSDGKGEFTDS |
| UniRet90_-8WPF9 | VASSVEVVSKNNEDDCYRWIDSADGSFTVEPA |
| H3KBG7 | A |
| UniRef90_A9V000 | VGFYSAFLVADTVVVTSKHNDDKQHIWTSDASSFSIVEPR |
| UniRef90_G8H307 | GFYSSFLVSETVVVSKHNSDKQYUWESNSAEYSUADDP |
| UniRef90-D2UZG9 | VGFYSVFLVASKVVVTTKNNDDKQLIWTSTADNTFTIIED |
| UniRef90-A1STIL | VGFYSSFIVADKVTVNTRKAGEPAQGTCWDSTGESDYTVA |
| UniRet90-W7TLX6 | S |
| Q8 | GFYSAF VADQVDVYSRRAGLPAEGVHWSSRGEGEFEDA |
| UniRet90_K21FH4 | VGFYSAF VADTVEVHSRAAGAKEGVMWRSKGEGTFETG |
| UniRef90 - UPI000378891C | GFYSAFIVADKVTVVTRRAGLPAAGVKWECDSAGEYSVE |
| UniRef90-A0А059KG42 | VGFYSGYIVADRITVESRRAGPVTEGVRWSSEGTGDFEVE |
| UniRef90-D9TEK1 | VGFYATFMVADRVTLLTRRAGQSGGTR WESAGEGTYSIE |
| UniRet90-UPIO003E | SSFMVANEVHVRTRSFQPSEKGYEWISDGDGKYTIT |
|  | S |
|  | FYSAFlVSDTVTVRTRGAGVASEGVFWESKGEGDYNLA |
| UniRef90_G8RIU | GF Y STFMVADKVELLTRKAG ESGATRWVSSGEATYT:E |
| UniRet90 UP10003B45E7A |  |
|  | , |
| UniRef90 DOEWD 6 | GF Y AFLVAEKVVVTKSPRSDKQVWESSSYKIREETD |
| UniRef90_WoIUM3 |  |
| UniF | $V G F Y S A F T V A K S V E F T R K A G Q D K S E G V H W S S T G E G E F N L A$ |
| UniRef90-C112 | VGFYSAYLVADRVVVTSKHNDDAQHTWESSAGGSFTVTED |
| 9-E2 |  |
| 㖪90-UP10003073 |  |
|  | VGFYSVFMVADEVRVRTKSKKNESAFEWHSDGTGKYFLH |
| UniRet90_O4SSB1 | MVADRVDVYTRSADPDAPGYKWSSDGSGLYEIA |
| UniRet90 | VVADNITLTTRRAGATAEGVRWQSEGQGEYTIE |
| UniRe | MVADTVTLVTKRAGEPVGTR WQSTGGGTYTIE |
| UniRef90 | GFYYAYLVAENVVVITKHNDYEQYAWKSSTGGSFTIHAD |
| UniRef90-UPI00035ED787 | GFYSAFMVADKVTLLTRAPG QEKGVRWESIGDGTYTLE |
| UniRef90_13D7P0 |  |
| UniRe990_-88CIH2 | Q AFSWVSDGSGEYEIT |
| UniRef90_13BYH4 |  |
| UniRe990-E5DVR6 | GFYSAFLVADKVIVTSKNNQDEQYIWESDSSSFTVVQDP |
| UniRet90_UPIO0036B7A0F | VGFYSGFIVADRI TVESRRAGLPAQGVRWVSGGTGEFTTE |
| UniRet90_S5R8E | VGFYSAF VAKKIVVKSRHNSPDTEGVLWESEGSGNFTIE |
| ef90_UP10002C301CE |  |
| Ref90_L8ENX3 |  |
| niRef90 A0A010Y |  |
|  | DRVTVISTKSPKSDKQYVWEGEEGSSSYTIK |
|  | DKVTVVSRSFQPDAEAAVWESTGGNSFTVG |
| UniRef90-G4VFN7 | P |
| iRef90-0330 | FMVANKVELLTRKAGETAATR WSSDGEATYTIE |
| niRef90-B9HWT4 |  |



| UniRef90_N9D0G3 | $\mathrm{L}\|\mathrm{P}\| \mathrm{IE}$ |
| :---: | :---: |
| UniRef90-Q2YZH7 | LPI LMEKQ |
| UniRef90-H8L4T1 | FPIR |
| UniRef90-J91C29 | Y P I K |
| UniRef90-A5GER7 | Y P V VMDV |
| UniRef90-Q22235 | FDI F |
| UniRef90-C5AAU6 | $\square \mathrm{P}$ I L M K Q |
| UniRef90-B7QC85 | F NI F |
| UniRef90_A6F266 | F P V VM |
| UniRef90-D7ML65 | YPI SLLW |
| UniRef90-F4GR22 | LP I Q M Q K E |
| UniRef90-UPI00036B2EE6 | 1 P 1 R |
| UniRef90-UPI0003B45AD8 | LP V R L K V D |
| UniRef90-D6Z0T5 | FPI K V A E E |
| UniRef90-UPI000382E8E8 | VP |
| UniRef90-L0F9P3 | YPVFVNDE |
| UniRef90-UPI000365783C | LP P R M |
| UniRef90-C7Q7Y6 | WPI R MAVE |
| UniRef90-W7ZLQ9 | Y PIKMNV |
| UniRef90_D9YLZ8 | YPIS |
| UniRef90-A4A3K1 | VP V L |
| UniRef90-V9KBC2 | FPIY |
| UniRef90-A8M4S6 | HPI R M A Ve |
| UniRef90-H2DKZ8 | Y P V Q L A V |
| UniRef90-E1V6S9 | V P V R |
| UniRef90-Q162C5 | FPVR\DTE |
| UniRef90-W9A9A9 | $\square \mathrm{P}$ V F I Q T E |
| UniRef90-Q31F72 | FPIKM |
| UniRef90_V9VA14 | F P I E L Y V E |
| UniRef90-G5BI16 |  |
| UniRef90-W1N7R8 | Vp V K M |
| UniRef90-UPI00030D6EA0 | YPIKMDV |
| UniRef90-L1IJY6 | FPIY |
| UniRef90-U5NBJ9 | $\square P$ I L M EKE |
| UniRef90-UPI0003B34AA6 | YPVTMDVE |
| UniRef90_B4JVQ8 | SPILLNG |
| UniRef90_UPI00025561EC | VP V Q M |
| UniRef90-T1XJD1 | LPI L M EKE |
| UniRef90-H8FMX6 | 1 P V L |
| UniRef90-M1LRA4 | LP 1 L MF K E |
| UniRef90-A4J4J9 | FSI SVNGE |
| UniRef90-TOREQ0 | F P |
| UniRef90-UPI00037D1223 | YPIKMNFE |
| UniRef90-G8AF79 | $\square \mathrm{P}$ I $\quad \mathrm{L} \mathrm{FGE}$ |
| UniRef90-F8WPF9 | YPIEL |
| UniRef90-H3KBG7 | TPVEL WVE |
| UniRef90-A9V000 | F DI Y L Y T |
| UniRef90_G8H307 | FPI Y L W |
| UniRef90_UPI0003A6E96A | FPIR |
| UniRef90-D2UZG9 | FPI Y L |
| UniRef90-A1STI2 | $\square \mathrm{P}$ V E M |
| UniRef90-W7TLX6 | FPI ELLWT E |
| UniRef90-Q8PJK3 | LP I EMRKE |
| UniRef90-K21FH4 | VP V E |
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| UniRef90-A0A059KG42 | $\checkmark$ LMRKE |
| UniRef90-D9TEK1 | WPI RMTVD |
| UniRef90_UPI0003B3D41A | FPIFVNGE |
| UniRef90-E4TIV5 | Y P |
| UniRef90-C4K7W6 | LP V ELLE |
| UniRef90_G8RIU4 | WP I R M Q VE |
| UniRef90-UPI0003B45E7A | LP V K M L K |
| UniRef90_B8KRR9 | $\checkmark \mathrm{P}$ V M M |
| UniRef90-D0EWD6 | FPI YTWQE |
| UniRef90-WOIUM3 | FPINLNG |
| UniRef90-J9JQ49 | SPIKLNG |
| UniRef90_S6HK29 | LP V I M Q Q E |
| UniRef90-C1IZ11 | FPI R |
| UniRef90-E2Q898 | WP I R M I P E |
| UniRef90_UPI0003073C76 | $\square \mathrm{P}$ V S |
| UniRef90-I3IIP7 | FPI IVCGE |
| UniRef90-Q4SSB1 | FPIFLNG |
| UniRef90-D6TD42 | LPI I M |
| UniRef90-H0QX20 | WPI RIEVE |
| UniRef90-Q58FF7 | Y P i T L Y L E |
| UniRef90-F1LYW7 | L Y L E K E |
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| UniRef90-S5R8E6 | FPIKMYK E |
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| UniRef90-A0A010YMY4 | WPI R LD G |
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| UniRef90-E1II63 | F PI Y M |
| UniRef90-G4VFN7 | FPI Y V W |
| UniRef90-O33012 | WPI R MEVE |
| UniRef90_B9HWT4 | F P I \| Y T WV|E |

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UniRef90 D1KE11 UniRef90_A0A024PQ23 UniRef90-E01A35

1 QVQNHAFASDNAKILQLMIHSLYSNKEIVLRELVSNAADA E T H Q F K T E VAQ Q L L DTETFAFQAEDNQLLSLIINTFYNNKKIIFLHELISNASDA MATKEFKAESKKLLLDMMI HS IY S QKEIVFLIREII SNAS DA

 M T R E F Q A E T K Q L L L D L L M V
 ME TK Q F K A E SK R L L D L Mi N S I Y T N K E I QRETLGFQTEVVSKLLMLLMIHSSLYSNPEIVGLRELVSNASDA

 QPEVHEYQAEMQKLLDILVHSLGYTQKE


 QTEVVHEFQAETRQLLDLMVHSVYSNKDSFLRELI


YQAEVDR TMDMUVHSLYSNREVFMREVLVNNASDA
 VEKYEF QAEVGRVMDVIINSLYSNRDVFLRELVSNSADA


 ETKPF QAEVAELLNLDVHSVYSETEI FLRELINNASDAA MEKREFKAESKRLLDIVINSIVTNREI FLRELISNASDA


## Q

 TLGGF Q T E AK QLL L H M I
## M R


$K Q$
K

AETVQFQAEVKELLNLVINSLYTHKE K GKTFEF QAEVVSRVMDI I I H S L Y S H K E I F

THEFKAETKMLLDIVAKSLYSDKEVVIRELISNASAA TETRRFETEVSQLLQLMIHSLYSNREIMGRELISNGADAA EAETFQFSAETDRVMEI II NSLYSDKDVFRRELVS

 K S E K R E F Q A E E T R M L L MQTKEFKAESKRLLDMMINSIIYTHKEIIFLREII SNASDA M G K R K K F E K

K G
E SHTVGT E V
$K$


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 ME QKKFKTEVSELLQLLIIHSLYSHKEIVGLRELVSNSSDA ME T K Q F K A E S K R L L D L M I N S I Y T H K K E I F Li R E L I S N A S D A VE K HV F E A DVA R L L H L M V H S V Y S D K NV F L R E L I S N A A D A AETREFQAETRQLLDLLMHSIVSNPDTFLREVI SNSSDA M K N K K Y N A A E T E R L L M D L

 MAKK QFKAESKRLLEMMINSI YTQKEIIFLRELI SNASDA AEKHEFSAEVGRLLDDVVHALYSDREI FLRELVANAADA
 E DE QETHEFQAEARQLLQLMVHSIVSNKDI FLRELVSNASDA D TTTTHE F Q A E T K K L L D D I VI N S L Y T

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 ETRGFQSEVKEILHLMIHSLYSKKDIRLRELI SNASAA

 ES D E T H E F K A E V A A L L N L V T N S L Y T N S E I E $\square \mathbf{Q}$ Q E F E Y R A

MRKKQFKAESKKLLDMMDNS ITY THKE K HEFQSETVMLLQQVAKSLYSDKEVFMRELI Q P E Q H A F E A DVVS R L L H M M V KKETKVFGAETKELLNLMVHSIVYHKEIIFLRELISNASDA

 SNGVDA Q F K A E S Q R L L E L M M I N S S I Y T N N K E MKKKAFKAESKKLMDLMINSIMTNKEIIFLREII SNASDA QTYPF QAEVSRVMDIVVNSLYTDRDI FLRELVSNSADA $\square E R$ HE F G A E VG R L L D L V V T F E F K A E I R QL L D L L V H S L Y T N K E I F L R ELV S NA S D A

E T R GF Q S EVVK S L L H L M I N S I Y S N K E I F L R E L V S NA S D A
 ME QKQF QAESK KL MDMMMI H S I Y THHKE I F L R E L I S N A S D A TE T DE F Q A EAR QL L Q L M I H A I Y S S K DV F L R ELLI S N S S D A E QHEFSAEVGRLLDDVVHALYSEREIVGLRELVANAADA
 K HEFRSETRMLLQVVAKS LYSNKEVVGRELINNASDA K F K T E S Q K V L D I MIN S I Y T N K D I
 K HE F L A E T R Q L L MS K Q QFQ TEVVSQLLQLIVGHSLYSHPEIVLRELISNSSDA A E K G N $\quad$ IT $\quad$ DH T E N ESFGFQAEISQLLDLIINTFYSNKEI FLREIISNASDA MAKHQFQTEVGQLLHLMTHSLYSNKEIVI RELVSNASDA K HE F Q A E TK K K L D DIVAR S L Y S E K E V F I REELI SNAS DA







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v VGFYSSFMVAGKVDVISRKAGSDA GWKWSSDGKGSYDVV VGFYSVMVADKVDVTSRPADDSAATWTSDGGGGYTVAPA VGFYSAFMVAEKVDVISRRAGADTANDWSSDGKGAYTVG VGFYSAYLVAHTVEVITKHNDDECYRWASTAGGTFTVETI VGFYSAFLVANRVTVSTRHSKSDKQWVWEENDYSVYE TD VGFYSAFMVAHTVTVISKKYGDD KAYRWSSSGSDGYT VGFYSSY LVSNKVEVFSRAYGQPVYRWKSDSNGTYTDQEL VGFYSAYLVADRVTVRTKHNDDPVQYV WESGADQTFT R R

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 PATRDRAGTDVMMHKEDANDFLDSWQLESIVRKWADHIS PAENCGRGTTVILTLKENYSKYSDENTLNNLIMKYSNF：S EDKEDAHGTVVIMTLNDESSEYASRWKVEELVKRYSDHI A EADGVSRGTKVIDHLKETEKRFSLKSTVEDII RRYSNFVG E D A R P T A G T T V L I H L L N E E G A Q Y A S G Y R L


 E TEERA E A GT D I I L Y L R D D Y S E F LLE E Y R L R R S I V K Q Y S D Y I R





| UniRe |  |
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| UniRef90-D9YM09 |  |
| UniRef90-D9VF25 | WP VQ |
| UniRef90-U2EV51 |  |
| UniRef90-UPI000374C746 |  |
| UniRef90-UP10002658590 |  |
| UniRef90-C9LL |  |
| UniRef90-R5SS22 | YP EMEME |
| UniRef90-W5TCG2 | WP: RMT ${ }^{\text {P }}$ |
| UniRef90-W6N700 | YPILKMMV |
| UniRet90-U7D7N6 | FPVML |
| UniRef90-C8PM75 | FPIYL |
| UniRef90-F0RZP0 |  |
| UniRef90-K0AY06 | YPIMKMDV |
| UniRef90 W8IL78 | VP |
| UniRef90-UP1000299CFC1 | WP |
| UniRef90-UPIOOO3050D8C |  |
| UniRef90-K6G778 | FP |
| UniRef90-U3 4940 | LPI |
| UniRef90-D4W8E3 | YP1 K MD |
| UniRef90-UPIO003B72C13 | YPi ${ }_{\text {P }}$ |
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| UniRet90-G6XK82 | WP |
| UniRef90-D6GTD1 | YPIKM |
| UniRef90-UPIO0037D0017 | WP R V ${ }^{\text {WePE }}$ |
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| UniRet90-H8GBH1 | WPI RLRTE |
| UniRef90-V4IRW3 | FPIK |
| UniRef90-UP1000380452B | VP V ${ }^{\text {Y }}$ |
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| UniRef90-E6UGM4 | FPIKMDVE |
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| UniRef90-Q6TP35 | FPI ELCVE |
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| UniRef90-11C572 | FPIQV |
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| UniRef90-Q7YZ14 | YPi HLQ ${ }^{\text {Pa }}$ |
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| UniRef90-A0JHL8 | YPISLWVE |
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| UniRef90-B6WVU0 | FPVLVDGE |
| UniRef90-A8HVS4 | $\checkmark \mathrm{V} \mathrm{V}^{\mathrm{Y}} \mathrm{Y}$ |
| UniRef90-F8WPD8 | YP |
| UniRef90-K9RVK7 |  |
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| UniRef90-R6GUS5 | YP1K |
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| UniRef90-- ${ }^{\text {UPIOOO334F178 }}$ |  |
| UniRef90-B7GDN1 UniRef90 E2LSO9 |  |
| UniRef90-E2LSQ9 UniRef90 A8EV23 | Y P ${ }_{\text {P }}$ |
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| UniRef90-C7NOU9 | YPi RMEV |
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UniRef90-UPIOOO36797C7
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UniRef90-A5X8W1
UniRef90-B5NK15
UniRef90 V2XNU2
UniRef90-UP10001D2D565 MA T K EF K A E S K R|L LEMMDHS|I Y T HKE|I|F|L|RE|LI|SNASDA MENKQFKTESNRLMDLMINSIYTNKEIFLREIIISNASDA V MATVFQTEVNQLLKLIIDHSMYSNDIFLREIVSNASDAA $K$ K T T H K K F K A E
 T E S

Y Q A ETTTK L G LI D NL Y | $H$ | $N$ | $K$ | $D$ | $F$ | $F$ | $M$ | $R$ |
| :---: | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

EKKTLRFKTESMQLISLMID KI YKNKEI F L REELI SNA A DA

 E K G N DT DH T E N I LFP I I K K K S L Y T D H E I F L R E L I S N A V D A MAKRQFK TESKRILDMMVNSIYTHKEIFLRELISNASDA



 MS K R QF K A E S K K L L D L M I N S I Y T N K E I F L R E L I S N A S D A
 EF K A E S K R L L D L M I N S I Y T N K E I
 ETRNFGTEVVGRLL DLVVHSLYS DREVIV RELLVANAADA A E K K Q F K A E S S K R L L
QGEVVHSFKAETRKLLHVVTHSLYTDKEVVVRELISNAADA AKKK QFKAESKR L L D L MI N S I Y T H K E I F L R ELLVSNASDA


QTETR QF K T E S K K L L D L M I N S S I Y T N R E I

K ME K G Q $\square$ S $\square$ H T E N EVEKKEFQTETQKVLDLMINSIMTNQEI FLRELIANASDA | $S$ | $F$ | $Q$ | $A$ | $E$ | $V$ | $S$ | $K$ | $M$ | $L$ | $D$ | $L$ | $L$ | $I$ | $N$ | $S$ | $L$ | $Y$ | $T$ | $N$ | $R$ | $A$ | $V$ | $F$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $H$ | $R$ | $E$ | $L$ | $I$ | $S$ | $N$ | $G$ | $S$ | $D$ | $A$ |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $H$ | $A$ | $E$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | E T K H F F K T E

 E K K T L K F Q S E VK QL L N L MI H S LY S N K E A K T K T F Q T E T
$K \square A F Q A D \square A Q L M S L I \quad 1$ T F Y EVVHEKKTETKRLLDVVANSLYSNEKE

F E A DVSRLL HMMVHSVYS DK DVVF K T R Q F R A EVVRKV L H I L T N S L Y T N R E I F L R E L I S N A S D A MKKK Q F K A E S K K L L DLMIN SIV T NK DIIFLRELI SNASDA | $E$ | $S$ | $Y$ | $E$ | $F$ | $K$ | $A$ | $E$ | $T$ | $K$ | $K$ | $L$ | $L$ | $Q$ | $I$ | $V$ | $A$ | $H$ | $S$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $Y$ | $T$ | $D$ | $K$ | $E$ | $V$ | $F$ | $I$ | $R$ | $E$ | $L$ | $I$ | $S$ | $N$ | $S$ | $S$ | $D$ | $A$ |
| $I$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |




K K QFK SES K R L LDD LMDN S IY T HK E MQKGNDGVTYENIVPVIKKFLYSDHE ETFE YQAEVNRLMDLIVNSLYSNKDVVGRELI SNASDA

 M K K G N $\square$ A VQ T E N IVFP E T H GFEVDVVN QMMDTMI K S S V V Y S S S K E E V G S L S lid S D NLLF P II I K K WL Y S D H D
 MATGKDNVSVDNI FPLIMKGLYSDHEIIFLRELISNATDAA
 K QEFFKA E A K K V M D L M I N S I Y T N K E II F L R E L I S N A S D A E E E T L L Q F Q S D VA R L M R VVVVS H L Y H H H R D

T Q T F E A D T GK L L N V I N S L Y S D R D
EKGNDT TH TENTFP TITKKSLYTDHEDFLRELISNSVDA MEKGEI RI NTENI FPI I KKAVYSDHEIVGLRELVSNAVDA M Q K G A I R V Q TE N I FP I I K K F L Y S D H E I F I R E L V S N A V D A


G S L S $\quad$ N S E N ITF P I I K K WWLY S D H D $\square E$ K G S L S I T S E Ni F P I I K K WL Y S D H D I HGFQADVARLLELMTHSVYSERD






| UniR |  |
| :---: | :---: |
| UniRef90 D1VRW8 |  |
| UniRef90-S3JM 3 | FPily |
| UniRef90-G7Y4A3 | A P |
| UniRef90-FOJG22 | F P |
| UniRee90-UPIO00362098D |  |
| UniRef90-B9D2W6 | YAIFADKE |
| UniRef90-A2DB82 | FP |
| UniRef90-UPIO0036665E6 | VP |
| UniRet90-A8PKO8 | FP |
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| UniRef90-X5 ${ }^{\text {HLV4 }}$ | FP |
| UniRef90-F7UM16 | VP |
| UniReforo-M9SF76 | WPIVHMTVD |
| UniRef90-17JEN5 | SPVEFIDE |
| UniRef90-C1LEAO |  |
| UniRef90-UP10002EB1401 | Y ${ }^{\text {P }}$ |
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| UniRef90-R7G747 | FP EMMME |
| UniRef90-R6D7L5 | YPI KMET |
| UniRet90-UPIOOO475B76D | LPI E |
| UniRef90 B3Q3C5 | $\checkmark \mathrm{VA} / \mathrm{RL}$ |
| UniRef90-R5LEC1 | YP: VMDVE |
| UniRef90-Q6SFJ3 UniRef90 W6UPN9 | LPIVMKK |
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| UniRef90-R5QAZ1 | YPIK |
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| UniRef90_FoV712 |  |
| UniRet90-B7CCQ5 |  |
| UniRef90_A2EY19 |  |
| UniRef90-R7B485 | YPiK |
| UniRef90-FOSYH4 | YPILVDGE |
| UniRet90-R7FXPO | YPI K |
| UniRef90 Q3A3Q0 | VP V |
| UniRef90-CKK8L8 |  |
| UniRet90-G01131 | F |
| UniRet90-UP1000287C43A |  |
| UniRef90-R6SHN5 UniRet90 R5ZJ88 | Y P P <br> Y PMM |
| UniRef90-87H6P6 |  |
| UniRe990-160 | FP1K |
| UniRef90 UPIIOOO36215CB | FPL |
| UniRet90_UP10003728C60 |  |
| UniRef90-F8WPE8 |  |
| UniRef90_G3RZS22 | Y |
| UniRef90-S2JGV1 | FP: ${ }^{\text {F }}$ |
| UniRet90-X6JMR9 UniRet90 G1UTW9 | $\underset{F}{V} P^{\text {P }}$ |
| UniRef90- R5TNUG |  |
| UniRef90-A5K4J5 | FPVY |
| UniRef90-R7FOK1 | YPIQMMV |
| UniRef90-S3V127 | Vpi YV |
| UniRet90-A9BAC8 | VEVC |
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| UniRef90 O7NJL8 | $\checkmark \mathrm{V}$ |
| UniRef90-EORY29 UniRef90 H9MGI4 | YELYLSKE |
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| UniRet90_R6A0X0 | Y |
| 隹Re90-ETRSR6 |  |
| UniRef90_K8E9D6 |  |
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| UniRet90_-125 |  |
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| UniRef90 H2K $\times 39$ |  |
| UniRet90_EOS5W8 |  |
| UniRef90 M M YPA3 | WP HMEVD |
| UniRef90_G2T1B6 | TE |
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| UniRef90-F2NB10 | HP1 Q |
| UniRet90-A4CQ59 | IP |
| UniRef90-X1AKP2 | FPVYIENE |
| UniRef90-C2CHH3 | YPIKMLV |
| UniRef90-R5E6E0 |  |
| UniRef90_G7DWS3 | A P |
| UniRef90-B2WVU0 | YP Y |
| UniRet90_QOSMU9 | YP1 Y |
| UniRet90 UPIOOO36797C7 | FP\| |
| UniRef90-Q6XE31 | FPI S |
| UniRet90_L8LZ65 |  |
| UniRe990 A2BWM9 | 1 DVLLEGE |
| UniRet90 |  |
| UniRef90-H1Q4Z5 | V |
| UniRef90-L8JPE9 | VP |
| UniRef90 A5 ${ }^{\text {a }}$ |  |
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| UniRef90_Don2Y9 | FPIIY\|V|N |





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| :---: | :---: |
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| UniRef90 A8BK58 |  |
| iRef90 ${ }^{\text {C7ML77 }}$ | VGFYSSFMVAKEVRVLTKKYGDDQAW |
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| Ref90-12MTA | VGFYSAFVVADRVV |
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| UniRef90-UP1000234 | A Y LVADKV |
| UniRet90-N0ELN8 | VVSNRVEVF |
| UniP | , |
| UniRef90-UP10001E2DE4C | LGFYSAFMVSDKVQI DTLSYQDGAQAVRWASDGGTEFEMD |
|  | EV |
| 90-B3L9 | AFMVSDSVEI D |
| UniRef90-R6N | AFMVADS ${ }^{\text {a }}$ |
| UniRef90-F7XU19 | VGFYSAFMVADLVTVYSRKANTAQTFVWQSTGESGYTVPK |
| UniRet90-C2BH69 | $V G F Y S A F M V A E K I V V L S K K S G S K K A H D W E S E D A D G F$ |
| UniRef90-U51 |  |
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| -E4RVA4 | MVAKEVEI DTKSFQEGAEAV |
| UniRef90-F8 | LGFYSAYMVADQVEINTLSYKEGAEPVFWSSDGKADYT |
|  |  |

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200
E G D Y D Q VG T K|I T L L HLLNEDCLEFSNEYKJV|REVIEKYCSFMP DVDCPHRGSRVVLHLRENSEEFLDTALLKHVILKYSGFVG PA E R A GRGTD I I L H I A P D S E E F L N K G R L Q GI L D K Y A R F L P P A E K E T H G T QV I L TIIK D N T DE Y L T E Y G L K D L I H R Y S N Y V R




| UniRef90_X8GRT8 | TE\|IYL ${ }^{\text {c K }}$ |
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| UniRef90-R5SMJ1 | VEI F L |
| UniRef90-I2MTA4 | QPIV |
| UniRef90-UPI00046345E0 | VEIVYL |
| UniRef90-UPI0002B4768B |  |
| UniRef90 W0ELN8 | Vp VVF GKE |
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| UniRef90-W8ERS4 | IEI EFEGE |
| UniRef90-UPI0001E2DE4C | Y EL |
| UniRef90-R7N3G1 | TEI Y L S R |
| UniRef90-B3L9X8 | FPI EI WS E |
| UniRef90-R6N6R0 | Y E 1 |
| UniRef90-Q4N786 | Y PI QL |
| UniRef90-F7XU19 | FPI ELIDDE |
| UniRef90_C2BH69 | Y P 1 Q |
| UniRef90-U5HFM5 | S PI Y L W |
| UniRef90-A4HH83 | FPIVVQEE |
| UniRef90_U2CHL4 | $\square \mathrm{E}$ I |
| UniRef90-E4RVA4 | T |
| UniRef90-F8LC47 | Y P V |
| UniRef90-B8J448 | FPVLVDGE |
| UniRef90-UPI0002C55B7D |  |
| UniRef90-W6LCH5 | Y EIT |
| UniRef90_C4V9F5 | Y P |
| UniRef90-R5NC57 | Y PIVME |
| UniRef90-A7ASC2 | FPLY |
| UniRef90-D3EQL3 | $\square \mathrm{P}$ I R F |
| UniRef90-N1ZEF8 | V PIFI |
| UniRef90_F5T7F9 | VEI Y |
| UniRef90-D4MI84 | Y PI R M EV |
| UniRef90-R7N186 | YPIE |
| UniRef90-W2UTW6 | $\square \mathrm{P}$ I K |
| UniRef90_E1L2M8 | HPVQMNV |
| UniRef90_C9LE28 | $\square \mathrm{P}$ V A M |
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| UniRef90-S7WAA9 | Y P |
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| UniRef90-T4VSI9 | V NI Y L D V |
| UniRef90-H2CLC4 | VKINVNGE |
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| UniRef90-B0VFT4 | YPI MF |
| UniRef90-G8LQW7 | 1 P I F L F S E |
| UniRef90-A5Z3X8 | VEI F V |
| UniRef90_UPI0004621DB1 | FPI Y M T |
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| UniRef90-U6LYW1 |  |
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| UniRef90-M5CEG7 | FPLYLQT |
| UniRef90-UPI000406F843 | VP ${ }^{\text {P }}$ |
| UniRef90-R6QP75 | Y ${ }^{\text {I }}$ Y L N |
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| UniRef90-B8ENR9 | APIDL |
| UniRef90-UPI0004412E3A | Y P I F L |
| UniRef90-C7HS64 | Y PILKMEV |
| UniRef90-O43953 |  |
| UniRef90-A2U4E8 | VP 1 K F |
| UniRef90-W4KE74 | FPI Y 1 |
| UniRef90-A8Z5Z3 | \P I K L |
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 EKEKGGISSVSTENIFPVIKRWLYSDKDIFLREVVSNACDA


## KHEFRSETQMLLQUVAKSLYSNKEVFLRELISNASDA ■T QLMSFlINTFY

DTELFAFQAETNQLLGLIDNTFF MATR KSST QSGRLSVDIDNUFPUITRWLYSDQDUFURELISNACDA

 ETLVLKGEMTEVLRLMKKTFYSNEE』FLRELINNASNA
ETETFTFQAK $\square A Q L M S L I \quad D N T F Y$

YRFQVNLSGMIDDLSNHLYSSPNVF RE LQNATDA
$T Y R E S Q V N$ N


$K \square E T H E \quad Y$ Q A E V T R L M D I I I N S L



EVETFAFQAEDAQLMSLI $\square$ NTFYSNKEDFLWELISNASDA HTF QVDLR GLVDLLSHHLYSSPRVVGRELLQNGVDA
 E $\square$ FP F Q A E V K R V L D I I V V H R T D V D L P G L M M V L S K H L Y Y S T P P M V A L R E L L V Q N A H D S HTFQVVDLRGLVDLLSHHLYSSPRVYLRELLQNSVDA

VHTQPFQAEVSELLHLMVHSVYSETDDFDRELVSNASDA K SEKFAF QAEVVNRMMKLIINSLYKNKEI FLREEL SNASDA Q H E T P V V $N$ L P G L M M Q V L $\operatorname{S}$ K H L Y Y S T P M V
 M E E R T F Q Q V
 TFTF QAEX LMMS NINTFYANK I S L WELI SNASAA A R $\square H R A G V D L N G L M S V L G K H L Y S S P T V A L R E L V Q N A H D S$

NYQFQVDLRGGVDLLSHHLYSSPRVYLRELLQNAVDA SHTFQQVDLRGLVDLLSHHLYSSPRVVYRELLQNAVDA


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

 MS L I DN T F Y H P L S L C F Y
SHTFQVDLRGLVDLLSHHLYSSPRVYLRELLQNADD


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UniR Ref90-E4T526 UniRef90-R5ALK0 UniRef90-UPI0004416ADC UniRef90-Q81II6 UniRef90-UPI00046442F8 UniRet90-13QG28 UniRef90-B2RGR5 UniRef90-R51230 UniRef90-J4G0Z6 UniRef90-UPI000379FB6E UniRef90-U6KW92 UniRef90-UPIO00273D901 UniRef90-K5V8M0 UniRef90-G4TFY1 UniRef90-C5LX15 UniRef90-R5B7Y5 UniRef90-R1D521 UniRef90-K1ZEI8
UniRef90 D9YXX2 UniRef90-V9IH13 UniRef90-E9GSP3 UniRef90-W5LVC5 UniRef90_U5GQR9 UniRef90_D3R184 UniRef90-S4R4N4 UniRef90-F6YNJ1 UniRef90-J8ZTS1 UniRef90-V7C008 UniRef90-AоA02317A9 UniRef90_E9HEQ6 UniRet90_S6G385 UniRef90-F1M2F7
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UniRef90_Q9ZIP7 UniRef90-E9GNI5 UniRef90-UPIO003678D33 UniRef90-R9KFA8
UniRef 900 EvNDP1
 ปTKYKRLVSLGN DESDGSEPLVSVTVDKDTRTUTUSDNG VSKYKR LVSTGEAEGTDDEKFKVVVSVNKEEGTLTFSDNG ISKLKKLQDIGEAPVRENEKFEITVAVSKENKTIKIIDNG TQKLKTLSSVGEFKGEMGDLI RVMVKFDDQTLTISDRG LSKLRMMY KKSRKEPVNEPTMDDRIHFNEEKKQLIUQDGG I LKKKKGCDTGEAADNLNEPFKITVTVVKEASTLTISDNG VOKRKTLVSKGEYSGEVGDLQ







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 NK $\|$ RYESLTDPSKLDSGKDLK $\|$ KiVPNKDDCSLTLI G

 LDK $\square R Y E S \square T$ DPSK $\square D S G K E \square K \square D \square I P N T Q E H T \square T \square V D T G$ $V T A R R$ APDAQAPAA T T TVEDGGLRVTDTG

 LDK LRLISLTDENALS GNEELTVKI KCDKEKNLLHVTDTG


 F D
 $\mathrm{L} L \mathrm{R}$ R R L
L

VTARTK LDPTAPTA
I TARQRATPGAPAA
ITVRTGDVLTVTDTG


## 

TTARRSTEPKAPA RVRMEPPEDTGDGTDRVHDTG I TARKENTLEDTVSESNDYEGKVIVELSGDQQVLMI QDNG VDKDRYESLTDPSNLDSGKELHI HLIPNKQDRTLTVVDTG CLVRQADDP NAPLPEI HVRYDPFGRSLTIEDNG

 AVTARRAADPAAPDRMRLYTAPDAEPLRVEDS G






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416ADC $6442 F 8$

VGFYSAFMAGK VVRVQSRSWD KSEGHE WVSDGTGSFTDT
 $V$ G F Y S A F M V A D K V V GF Y S A Y L V A D K V TVVHS K Y N D D E Q Y V W E S S A C C S F T I K P N $V$ GF Y S A Y L V A E K V T V $V$ T K H N D D E Q Y A WE S S A G G S F TVV V D VGFYSAFLVANKMIVITKHNDDEQYVWESQAG L GFY S A F MPA E K V EII FS L L S Y L P G GA K A A H WL S E D GV S Y T L S




 VGGSYSAAHLVDEKV
I G L L S C F M V S D E $V$ V L L T Q S VQ G GPSMEWR GRP D GTYS DR Q
 V




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HREPMSTGTK VLHLKEDAMDYLEEKKVKEVVKKNSQFDC ASEPLGRGTKVILHLKEDQTEYLEERRVKEVVKKHSQF:G ECEKAEVGTETIITLSDEAQKFVNAGFVRATLHKYCYFMP NDEPLGRGTKIVLH IVEDQTEYLEERSIKD VVKKHSQF $\square G$ EDD
CEK IKDHGTKVVLFVREGDENYKGQEKVEETVKKYSMFDP




LGS QLS T GTRDYLKCKPDYEEYFDHEFVEELIFYYGALLP EGEHAPPGTKVFLRCKEGSEAYFEESNLQEGLFHYGALLPD


LE GDLSPGTKVYLRCKPGCELYFEEASLAEWLHYYGALLP NGEEE $\square R G T R V I L H D N A G N R L L A P G M L A E L I D S H F F H A D$



REEREEPGTTVFLTPRRGSESWFAADRVDELARDFGALLP PSEHPEPGTTVRLTPRADGTEWTRPDQVAALARHYGGLLPB K V
 PADRPEPGTTV HLTARAGACEWLAEERVVALARDFGSLLP $S G E Q L G R G T K I T L F L K E D Q L E Y L E E R R I K D L V K K H S E F I S$
 S GAVGTPGTTVRLRAREDTDFYFEYDELREALANYGRIMP PAERDEPGTTVSLRARRGAEQWFEPETVRDLCRLYGSLLP



 PSAVPEPGTTVVRVPRADNAEWTEPGRVVSLARHYGALLIP




QTTRPTAGTTVTVADKPSQVHLLREDELSRLIRLFADLLS PLEECPVGTAVILTAKHGMEHYFQPRKVAELVRYYGLALP IPARAQVGTEVMLELHSDYLLLAQEGRLREULSRYCALLR HREPMGRGTKI ILHLKEDPMDYLLEEK
PAARPEPGTTV HLTPRPGCAEWFEPARVAALAREFGSLLP


| UniRef90 UPIO004695880 | V |
| :---: | :---: |
| UniRef90－R6WE09 | YPVK |
| UniRef90－B0LRB3 | YPIKLLVE |
| UniRef90－UPIo004288E89 | TE1 |
| UniRef90－L7VNQ8 | Y EI |
| UniRef90－R7， |  |
| UniRef90－W6 | FPi Y LaEE |
| UniRee90－UPI00034D2826 | VP1 |
| UniRef90 UPIO0016BFFO7 | $1{ }^{\text {P }}$ |
| UniRef90－UPIIOOO36C4E4C | VP VFGKE |
| UniRef90－R6TVR3 |  |
| UniRef90－B0СY90 | FPi Y LW |
| UniRef90－How | YPITLFVE |
| UniRef90－E4Tt | TEI |
| UniRef90－R5ALK0 | VPVET |
| UniRef90－UPIO004416ADC | FP1 Y |
| UniRef90－Q81116 | FPVY |
| UniRet90－UPIO0046442F8 | VE｜FLVDE |
| UniRef90－l3QG28 | $1 \mathrm{~T}_{1} \mathrm{Y}$ |
| UniRef90－B2RGR5 |  |
| UniRef90－R51230 | V P／AFGKE |
| UniRef90－J4G0Z6 | FPI YLYTQ |
| UniRei90－UPIOOO379FB6E | FPLNLTGE |
| UniRef90 U6KW92 | $V \mathrm{~V}$ Y Y L E |
| UniRef90 UPIIOOO273D901 |  |
| UniRef90＿K5V8MO | F P P F |
| UniRef90－C5LX15 | FP |
| UniRef90－R5B7Y5 | VPVVFGKE |
| UniRef90＿R1D521 |  |
| UniRef90－K1ZE18 | FPIKLDGE |
| UniRef90－D9YXX2 | YPikkLlve |
| UniRet90＿V91H13 |  |
| UniRef90＿E9GSP： | E |
| UniRet90＿W5LVC5 | YPITLLFVE |
| UniRef90－U5GQR9 | YP：Y M WTE |
| UniRef90－D3R184 | QP Frome |
| UniRef90－S4R4N44 UniRef90 F6YNJ1 | E |
| UniRef90－J8ZTS1 |  |
| UniRef90 V7C00 | HPIY L ws E |
| UniRef90－A0A02317A9 | FP】KLYVE |
| UniRef90－${ }^{\text {d } 6 \text { G }}$ |  |
| UniRef90－F1M2F7 | YPVTLY何 |
| UniRef90－G5BSP7 |  |
| UniRef90－UPIO0037 | YQ ${ }^{\text {P }}$ LK SE |
| UniRef90－W4L |  |
| UniRet90＿UPI0003B40836 | YPIFFYGE |
| UniRef90－L7U8F3 | FP】RLTV |
| UniRef90＿D4NXL8 |  |
| UniRee99－UbJST6 |  |
| UniRef90－UP10003614F7 |  |
| UniRef90－U61AJ5 UniRef90－I2NJJ6 |  |
| UniRef90－I2N7J6 UniRef90－D9XIZ6 | YDVVFDDE |
| UniRei90 H8ZOH2 |  |
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| UniRef90－V6K602 | Y EVtV |
| UniRef90－S7USC2 |  |
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| UniRef90 A0A059A782 | YPLYLWTE |
| UniRet90＿W |  |
| UniRe990－H9ZD |  |
| UniRef90＿V5TV53 | EPLFVGEE |
| UniRef90－E8UBA0 | Y P |
| UniRet90－UP100047C5E88 | FRVTVAGE |
| UniRet90－UP10003724DD1 | VEVTVDGE |
| UniRee90 M2WUH3 |  |
| UniRef90－R6QP60 | FPLMLK TE |
| UniRee90－${ }^{\text {UR10003 }}$ |  |
| UniRef90－R5Y7 ${ }^{\text {a }}$ | YPI KMEVE |
| UniRef90－H6R7P6 | YEVS |
| UniRef90 12 N 176 | YRV |
| UniRef90 A0AO23B8P0 | YP |
| UniRef90－V9TAB5 |  |
| UniRef90－UPI00042B1F99 | FPI Y |
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| UniRef90－－D9T473 |  |
| UniRef90－GovY72 | YPVLLS VD |
| UniRe90－9KW |  |
| UniRet90－G9YNV7 | V P V $\mathrm{Y}^{\text {ch }}$ |
| UniRef90－Q9ZIP7 | EPI |
| niRef90－E9GN15 |  |
| UniRet90－UP10003 |  |
| UniRef90＿R9KFA8 |  |
| UniRef90 E4NDP1 | i P P V｜Y V |

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F QV NLK GMLAL LSEHIYSNPNTFVRELLQNSVD
$R L S M N A V Y S S N E V L L R V L I L N D M N A$
MVKHQTPVHLQGLMQVFSQHLYSTP\|VATRELVQNAHDA
$F Q V D L R G V V D L L S H H L Y G S P R V Y V R E L M Q N A V D A$
QADSQNFQVDLGGMVELLSRNLYSGPRVFVRELLQNGFDA SHRFQVNLAGMIDILSNHLYDEKDVYIRELLQNATDA MTNAVYS S ELISN ESNA

TF QVD $\square R G M V D L L S R N L Y S G P R V Y V R E L L Q N C D D A$
TNFQGLVRLLAKS $L Y P E P D A F \prod R E L L Q N A H D S$
EAETFTFQAKTAQFMSLI INTVYSNK SFLRVLILSENDA
GAYDVDLRSLIDVLGTNLYSNPGVYVREVQNALDA AF QVDLR GVVDLLARHLYSGPRVYVRELLQNAVDA

MDLLSHHLYSSPKVYLRELLQNAVDA
ENMRFKVNLGGMIDLLSNHLYDSKDVYIRELLQNATDA QF QVDLRGVIDLLSRHIYSSPRVFLRELLQN


EAETLTFQAK TF QVDLGGUVDLLARHLYSSPRVYLRELLQNATDA

FDVELSALIDVLGTNLYTGPGVYVRELLQNADDA
QKHAYQSDVARLRRIVMNAVYSNK SFF LKFELDRGRLLNLLVHTDYNDATVAI RELLQNSDDA AFRVDLRGLVGLLGHNLYSSPRVFVRELLQNGVD MY L RELLQNAVDA
DRFMVELLSRNLYSGTDVYLRELLQNGVDA




FHVE $\square$ NRIIDLLAKQTYQTPLALLRENCQNAYDA


A D P L S F EAD DR H L R KVAD DLYESWEATDREYLANAETA ERIKFRV SNEII PNLDEPLYGNPECGLREII QNACDA $D V A G L V K L G G K Q L Y G N P K V A L R E L I Q N A A D A$

ID RLVKLLAESLYGDPMAAVRELLQNANDA




| UniRef90＿UPI00037F626A |  |
| :---: | :---: |
| UniRef90－R6ZBQ9 |  |
| UniRef90＿X6LUM4 |  |
| UniRef90＿UPI0001E8s |  |
| UniRef90＿UPI00047480E8 |  |
| UniRef90＿U5E9C2 | STARPVLDPS A Q |
| UniRef90＿S9U5U3 |  |
| UniRef90＿L1MAN4 |  |
| UniRef90＿L8DYJ5 |  |
| UniRef90＿X6LD58 | $L \mathrm{D}$ K VR Y V S P T N P EVF D K D K K F K IEVVLP D P D EKLL L I R Y T G |
| UniRef90－M2QX51 |  |
| UniRef90－E1ZU41 |  |
| UniRef90＿U1PDR9 | $\square S$ ARR E LD P Q APARDSFTDEGNTLT CAD T G |
| niRef90＿L5JZ49 | GKELKTDI IS K P Q E C T T L VDA G |
| UniRef90－W6MBD2 |  |
| UniRef90＿X6LY31 |  |
| UniRef90＿E9HY79 |  |
| UniRef90＿M7A163 | HT VAAGTA DTEIA IVET D G V EFRIID D H G |
| UniRef90－F4H4Q7 |  |
| UniRef90＿UPI0003780E9D | 1 T A R R A EEPD A P A R VRLFAA E GRLR V E D S G |
| UniRef90＿D7UZ14 |  |
| UniRef90＿A0A031FUQ4 |  |
| UniRef90＿S4PZA5 | D R A L E I K L T T D K Q N R T L T F E D S G |
| UniRef90＿J0WIL6 |  |
| UniRef90＿UPI000426 |  |
| UniRef90＿X6M197 |  |
| UniRef90＿E9HE17 |  |
| UniRef90＿D1BJ33 | $\square T$ A R RVDEAA G GA GVA D T EVVRGSVTLCGA G G T L EVS D S |
| UniRef90＿E9FRP2 |  |
| UniRef90＿M3VAI3 |  |
| UniRef90＿V7C3I8 | NDELI ITLLIPHKVNKTLSI DD N G |
| UniRef90＿X6LA26 | LD K I K HVS LP NPEVLE K D K K F K N K M I P N P DEKMCII R N T G |
| UniRef90＿UPI0004408A04 |  |
| UniRef90＿UPI00040C8FAF |  |
| UniRef90＿U2SA24 | ALTASSPRPGDRRPGIELDGS A D G R M H CLD S G |
| UniRef90＿UPI00037988B4 | ARR A EQPDAPARVRLYAEGGSVRVEDS G |
| UniRef90＿UPI00047E6CFE | 1 T （ A S GLLTTEGRIR FVVDEHVLRVVTDNG |
| UniRef90＿UPI00035E0651 | I DARE A I L R GECAS LKGE】DILI STGTE GLRLEWKDNG |
| UniRef90＿UPI0004660CBD |  |
| UniRef90＿UPI00029A36D2 |  |
| UniRef90＿X6LU74 | YYKKNTNTYNKNRLIINAKELKIIENIPNPDEKRLII R D D T G |
| UniRef90＿D4L216 | CKTMEESATKMEKFRYQNYQPYISVILDKDRKKVMVMDNG |
| UniRef90＿UPI00046A952D |  |
| UniRef90＿X6P5I7 | NPDEK CII R C T G |
| UniRef90＿X1MPW8 |  |
| UniRef90＿UPI0002DC1A3B | CRTLQ SMISENNRKHHCCKVEFGLCDKPE G I Y L Y CHD D G |
| UniRef90＿R9KIL9 |  |
| UniRef90＿A9KZQ1 | CLLR SALLE NS WN TLLY TPEDIHIJKY T T END D DVLEITS D N G |
| UniRef90＿J7T1M8 | $C L L R Q K L S Q R W G E T Y K P E \square E V E F Y S K \quad N G D D Y L K V K D N G$ |
| UniRef90＿A5FGS4 |  |
| UniRef90＿A6FY38 | DVHIE HQP P D D P S G D D P G LMV I EI V D T |
| UniRef90＿R9KP92 | VRARRAVD Y R W W We En Q IVS G W S D KEENQWFRIDDS G |
| UniRef90＿W0DF25 | $L \mathrm{LLLRR} \mathrm{H} \mathrm{L} \mathrm{A} \mathrm{PA}$ |
| UniRef90＿C3EUD1 | CR CALA NKD】TEGR】EFG |
| UniRef90＿K6H8D5 |  |
| UniRef90＿R4T6Y8 | $C L R$ VQ NF LD H G T E T TEDGYEPR\EVT WDRSENKVEDR D N G |
| UniRef90＿V9HUZ7 |  |
| UniRef90＿I3Y939 |  |
| UniRef90＿UPI000369FA13 | LRYRKVIVKRDNGSEFVEGNIVFEHTIDEHGYQLIDRCDDNG |
| UniRef90＿UPI000234ECA8 | SDKP S PES Q T DKSKLDA QPELFIHIVPDKA A N N D |
| UniRef90＿I4KDF7 |  |
| UniRef90＿H2K797 | CRRRRYHARQCGDETEREQLLAGRR\｜VPDTGRAYI QCEDNG |
| UniRef90＿G3IQT8 |  |
| UniRef90＿Q0TR00 |  |
| UniRef90＿U8RME9 |  |

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[^1]

lupas_21
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conf
sol25
sol5
sol0
jhmm
jpssm




QPDDPPHGTRVTLR LRETVD LSKKTDEE\|VRYW
S GLDDERGTCVSLRPTAATAHWLTSERVTRLARTFGSYDP ADDRTEPGTTVHLTARPGCGDWLAEERVVSLARDFGSLLP
 $K V S D\|P \square G T S V R M M I N S T H S K Y F S A S A L C N A\| V R \square S R F V R$ LVEDKEHGTRIELNLRPQSRE

KNDCANFCKEKNLKELVKKHSQFVV ESPTGKPGTTVIAE $\square$ SPDTPVNVEEAK $\quad$ YIAEFVKHVD
PKH $\square$ AEHGTV $\quad$ K $L$ H L R DNADMQN $\square E H N \square K K W \square$
PGSRSIPGTSTKLFLR
DSNRIEPGTETVLRLKLHPWDQMNKDSFKKSVKSLVPLPP NKDRKASGTSIILNLKKEYENYSSKDYF DYI KDKFRYDE DMPVEGTTDRIYKHADADAVEDA RRRAGRVLEYWCKHAK VEEKGDQGTSM VEGS K ${ }^{\text {D }}$

LGSDLPFGTQVYLLCKPGFEEYFERETLCNLVNKFGGLLP KLPE EQYGTKFQMTPDGNFD

RSAVERFAEWMR QDETFEHGTEVCVDLKKDLSE DEQYELLEKLK
 QRELESGGTRVRLYLHDDPDE TDEQR
KT $\ V \mathrm{DSNKSGTK} \square \mathrm{K} \square \mathrm{K} \square \mathrm{D}$

[^2]| UniRef90_UPI00037F626A | H P V $\mathrm{T}^{\text {T F D }}$ |
| :---: | :---: |
| UniRef90_R6ZBQ9 | Y P V Y L H |
| UniRef90_X6LUM4 |  |
| UniRef90_UPI0001E8930B | Y P $\$ K M D V  \hline UniRef90_UPI00047480E8 & E P V Y V  \hline UniRef90-U5E9C2 & F EVVV D G  \hline UniRef90_S9U5U3 & LP L LMCK E  \hline UniRef90_L1MAN4 & $\checkmark \mathrm{D} \backslash \mathrm{T}$ |
| UniRef90-L8DYJ5 |  |
| UniRef90_X6LD58 | F P V NLLT |
| UniRef90_M2QX51 | Y P I Q L A V |
| UniRef90_E1ZU41 | FP I Y ML T |
| UniRef90_U1PDR9 | VEIEV |
| UniRef90 L5JZ49 |  |
| UniRef90_W6MBD2 | $F P \square L \mathrm{~L}$ N G |
| UniRef90-X6LY31 |  |
| UniRef90_E9HY79 |  |
| UniRef90_M7A163 | $T P$ VRVNGE |
| UniRef90-F4H4Q7 | LDVQVEV |
| UniRef90_UPI0003780E9D | $Y D V R V G E E$ |
| UniRef90_D7UZ14 | $\square A \cup R$ |
| UniRef90_A0A031FUQ4 | H TVV VD |
| UniRef90_S4PZA5 |  |
| UniRef90_J0WIL6 | V D I E V |
| UniRef90_UPI000426CA74 | 1 T I K L |
| UniRef90_X6M197 | F R $\\|$ NL L T |
| UniRef90_E9HE17 |  |
| UniRef90_D1BJ33 | V D L R L E V E |
| UniRef90_E9FRP2 | Y P I K L L V E |
| UniRef90_M3VAI3 | T P V L V N G E |
| UniRef90_V7C3I8 | HPI Y L WS E |
| UniRef90-X6LA26 | $F L V N L L T$ |
| UniRef90_UPI0004408A04 |  |
| UniRef90 UPI00040C8FAF |  |
| UniRef90_U2SA24 | $Y \mathrm{R} V$ |
| UniRef90_UPI00037988B4 | Y D V R V |
| UniRef90_UPI00047E6CFE |  |
| UniRef90_UPI00035E0651 | HR】K】HVD |
| UniRef90_UPI0004660CBD |  |
| UniRef90_UPI00029A36D2 |  |
| UniRef90_X6LU74 |  |
| UniRef90_D4L216 | $\square \mathrm{P} \square \mathrm{K} \square$ |
| UniRef90_UPI00046A952D |  |
| UniRef90-X6P5I7 | $F$ LV F L LT |
| UniRef90_X1MPW8 | $\checkmark P \vee M V N D E$ |
| UniRef90_UPI0002DC1A3B |  |
| UniRef90 R9KIL9 |  |
| UniRef90_A9KZQ1 |  |
| UniRef90_J7T1M8 | F E TTMK A E |
| UniRef90_A5FGS4 | FPI II DCE |
| UniRef90_A6FY38 | VEI RLD G |
| UniRef90_R9KP92 |  |
| UniRef90_W0DF25 |  |
| UniRef90_C3EUD1 |  |
| UniRef90-K6H8D5 | V P R F L |
| UniRef90-R4T6Y8 | V P V |
| UniRef90 V9HUZ7 |  |
| UniRef90_I3Y939 |  |
| UniRef90_UPI000369FA13 |  |
| UniRef90_UPI000234ECA8 |  |
| UniRef90-14KDF7 | T S $\square \mathrm{K}$ |
| UniRef90_H2K797 |  |
| UniRef90_G3IQT8 |  |
| UniRef90_Q0TR00 |  |
| UniRef90_U8RME9 |  |
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| sol0 |  |
| jhmm |  |
| jpssm |  |


[^0]:    lupas＿21
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    lupas＿28
    jnet conf sol25
    sol5 sol5 jhmm

[^1]:    lupas_21
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    lupas_28
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    conf
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    sol5
    sol0
    jpssm

[^2]:    lupas 21
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    lupas_28
    jnet
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    sol5
    sol0
    jhmm
    jpssm

