UniRef90_KO1XZ5
UniRef90- $\mathrm{D6XW}$ UniRef90-D6XW30 UniRef90-UPIO003778EFD UniRef90_W9B5D1 UniRef90 N4WDX5
UniRef90 18 AFWW UniRef90-S2XDK5 UniRef90_-F8F5M8 UniRef90 W7B115 UniRef90-UPI0003134367 UniRef90-U4WJX8 UniRef90-LOEEK8 UniRef90-UPI00042A92FD UniRef90_UPI00047D4722 UniRef90-A6CH61 UniRef90-UPIO0035F0399 UniRef90 X5A368 UniRef90 UPIIOOO2FF7AD3 UniRef90-M1YV62
UniRef90 W7YXW6 UniRef90_U6B7C5 UniRef90-UPIO00411C2B6 UniRef90-U1Y761 UniRef90-M1NR72 UniRef90-UPIO003B3FCOD UniRef90 UPIIOOO3799A7C UniRef90-UPIIO003F95BD6 UniRef90_C6J3R6 UniRet90-X0XPQ5 UniRef90-UPIo0036F9117 UniRef90-F2KN71 UniRef90-UPIOOO375B747 UniRef90_UPIO00479F227 UniRet90_UPIO0041FBE6C UniRef90 K4IPA2 UniRef90-UPIOOO2625C98 UniRef90-UPI0003799C74 UniRef90_W9DSZ3 UniRef90-UPIOOO2887088 UniRef90-D5WXL7 UniRef90_UPIO004747D10 UniRet90_D2RG02 UniRef90_R6DDJo
UniRef90
S2X850
UniRef90-F6DJV3 UniRef90-UPIO003613740 UniRef90-G418J8 UniRef90_A4QA72 UniRef90_UP100047654C3 UniRet90_R7A5D9 UniRef90-UPIOOO3B671E9 UniRef90_UPIO003B737D3 UniRef90_UPI00037B61D7 UniRef90-A0A017RW72 UniRef90 G0EGE3 UniRef90-W5WRW3 UniRef90-A0A021 VKN6 UniRet90-UPIO0037AEA04 UniRef90_C2CLN9 UniRef90-UPIO00299CFD1 UniRef90 UPIIOOO47963F3 UniRef90 UPIOOO287CC7C UniRet90_R6N9F8 UniRef90_R6S974 UniRef90 UPIOOO47933A2
UniRef90 UPIOOO3B709CE UniRef90-UP10003B709CE UniRef90-K7SOF7 UniRef90-F9DTT9 UniRef90-R714R1 UniRef90-UPIOOO1E3050C UniRet90-K9ANJ4 UniRef90 UPIO0024857AF UniRef90 UPIO0047A7E79 UniRef90-R7EVU2 UniRef90-R6PJP4 UniRef90-W9GLT4 UniRef90-A0AO31 H8L2 UniRef90_COBWL8 UniRef90-F6EJQ6 UniRef90-R6Y611 UniRet90_R6L113 UniRe90_B9XLJ42
UniRef90_B8FK2 UniRef90-U2MBD9 UniRef90 UPIO0047E3F9C UniRef90 R6WEV6


TSKGKKlGKRLVYRHELLEQFLRMGGVDEEKMYNDVEGME



TPSGKKLGKREVYYRHELLEGFLKVIGOVDEEN:FEDVEGA

TERGEADGRAMRQRHETLATFLRLL

TAKGKRIGKRLVDRHKLLETFLEL
TA K GN K l $\quad$ G K R L V $\operatorname{l}$ F R H E L L
TSKGKKIGKRLVDRHQLLEQFLRLI
TTKGKKVGKRLVDRHKLLEEFAMA
TAK GK K I G Q R L V Y R H E L L E Q F L T L

T P K G R K I G K R L V E R H A L L E

## T

T P K G R E LAA VA MV R R H R L L E
TSKGKKI GKRLMDRHQLL
TDEGRRAALAMVRRHRLI ETFLCELGYGWDEVHDEAEVLE
TNKGKKIGKRLVDRHQLLEEFLGMIGVDHENIYKDVEGIV
TAKGKKLAREIKKRHTLLVEFLKDVGVDEQNAQQDACKLE
TPRGEQLGRLMKQRHKMLERFLRMLDVSEATDEKDVEGI E
TEKGKTVAESVKERREVLVKFLVTLGVPKHIAEEDACUI E
TPKGKKI GKRLVYRHELLEDFLYIVGVDDENIYRDVEG|
TIKGRKIGKRLVFRALLEQMKIIGVKDENIYNDVGGI E

TE TGRRYAVTMVRRHRLLETFLQVLGYGWDEVHEEADSLE
TSKGEKLGERLVYRHELLEEFLGLGGVDSDKVYEDVEGLE
TSEGEKIAKCTMEKHGVIKDFLELLGLDKEIADQDACKI
TDKGTSVAKKLVEKHEMLEDFLKMLGVQDKNIYEEVEKL
TPKGKKIGKRLVDRHTLLEDFLRMIGVDEEHIYKDVEGII
TEKGRKVARDVRERREIVVKFLTALGIPKDIAEKDACTIE
TAAGREVAEKIYERHTVLTDFLRRLGVDEASAAEDACRME
DRGRDIALIMVRRHRLI ESFLVTLGYTWDEVHEEAEKLE
T DLGRRLALAMVRRHRLLE

TDEGRQHAVSMIRRHRLL
TDKGKEDADK MYERHTLLT
TDEGRRHAVGMVRRHRLLETFLESLGYAWDEVHDEAENL
(
TPEGRAAAVSMVRRHRLIETFLQMLGYRWDQVHDEAENLE

TPEGRAVAVQVVRRHRLLE
TEEGRLHAVAMVRRHRLE
TKVGREVAVRILRRHRLLEEFAKTLGGDWDQVHEEAENME
TEKGGKLGSFLLDRHNTIEQFLKLLGUS NNVLEQTEKI
TDQGRSYALAMVRRHRLLEAFLQTLDYSWDQVHDEAESL
tekgravamlumvrrhrlit
TEEGRRLALAMVRRHRLI E
TERGMRFGKKLVHRHELLE
TEDGKEVGKFLLQRHHVIE

TPAGLALGLAMVRRHRLIE

## T

T D A GRRA
GKGC

TEEGKAAALSMVRRHRLI
AEGRRVAGVRRHR
TEKGRKIAESVYERHTLET
TAAGKKIAEMIYERHQLLSSWFT GLGAATABDACRIE
TDKGREVACKIQNRHETLS
TESGRKI AETDYERHTLLS



UniRef90＿J1AP31 UniRef90－G7MOH2 UniRef90＿UPIOOO3612910 UniRef90＿D8GS98 UniRef90＿C6LIJ6 UniRef90－B1ZWB2
UniRef90＿U3GW01 UniRef90－R6VMD9 UniRef90－N1V1P4 UniRef90－A1RDA2
UniRef90－B1VFK7 UniRef90－A5Z6N0 UniRef90－R7FWT8 UniRef90＿A0A023X635 UniRef90－J9HR43 UniRef90＿F8A1S0 UniRef90＿C5VS72 UniRef90＿D1JG00 UniRef90－R6CD33 UniRef90－D1BEI4 UniRef90－UPI00047CE2FB UniRef90－UPI00035F5628 UniRef90－Q12XU4 UniRef90－A9KN70 UniRef90＿R6IBL7 UniRef90－A0A022LG93 UniRef90－B8GIF5 UniRef90＿E4U694 UniRet90－F4BVV9 UniRef90－A3ZXD1 UniRef90＿UPI0003B4AC92 UniRef90－G7MD70 UniRef90－G2SWSO UniRef90－I6Y2D6 UniRef90－R6RKN5 UniRef90－E1QL56 UniRef90－A9A3L7 UniRef90＿D1BV05 UniRef90－D9R015 UniRef90－O3027 UniRef90－A6P134 UniRef90＿C8X4L1 UniRet90＿H2JBB8 UniRef90－LOHEV7 UniRef90－C2GKF6 UniRef90－R5I589 UniRef90－L7VQ88 UniRef90＿R5EZ18 UniRef90＿C4Z6Q6 UniRef90－D4MP80 UniRef90＿E4RLL5 UniRef90－B8D161 UniRef90＿R6EFF6 UniRef90＿E5XPS2 UniRef90＿UPI000370AE57 UniRef90－UPIO00413C2B3 UniRef90－X1P3Y5 UniRef90－Q2NH57 UniRef90－R5QEC8 UniRef90－S7TYQ3 UniRef90－UPI000382CDFE UniRef90＿UPI00046625F1 UniRef90－E7G739 UniRef90－R7IW99 UniRef90－H5Y1R2 UniRef90＿A6C9A7 UniRef90＿U2GW21 UniRef90＿A3CYG1
UniRef90＿A5UJP5 UniRef90＿S0EZK6 UniRef90＿R5V424
UniRef90＿R5YVG3 UniRef90＿UPIO0036A3662 UniRef90＿D0MI61 UniRef90＿A0LPC5
UniRef90＿R5D9E5 UniRef90＿UPI00037B24D5 UniRef90－R5MI65 UniRef90－S5TGS3 UniRef90－TOISY7 UniRef90＿UPI0004635F7B UniRef90＿A6LXZ5
Uniref90＿SOFGLO
 PT
T
T
T DLGGHELAL QMVRRHRLI E TYLCELGYS LDDEVHDEAE ELLE

－1DEGRTHALAMVRRHRLVK GRH $\quad$ GG K S L L E R H E E L I
TDKGRETGRFLLRRHNTIERFLRLI GLPEE VLQETEKMET P K GRELGSVI KDRHDTLKA LLEEI I QVVPER IAADK DAC DME

## －ーー

## －ーーー

T
T
T$T$ Q A GR T L A L RV LRR RHR LI

| $T$ | $E$ |
| :--- | :--- |
| $T$ |  | TP P GK K I A E M I Y E R R H R I L

TESGGQAA I S MV R R H R L L
T E K GVVR A MKLREKRNVVI
T A A GRRAALLEVDRH HRLLEA WLQSSLGYS WDEVHEAA ER L E
T D A G M E $\quad$ TAA S R I Y Y E R H R R L LTT
T

## $T$

## T

## $T$ <br> \section*{T}

T

## T

T E K G L LEVV G E R R I I S S N N H K L L L




T K E G L R I A S S VY E K H K FI I




TDAGKHSADRVLRRHRLI ELGLQTLKLSWDQIHAEAENME TELGGARLALVMIRRHRLIETGLETLGYTWDE\｜HTDADLLDE TPAGEEMARDL QRRHRTFAD LLEELLGVEGETAETDACQFE T D E G M K l A Q K I T R K H R I L E K F L E V V L N I K K Q E N V T DEGRAI A EMI YERHELLSKGLVALGVDPKVATEDACRI
 TESGRMMLAVQSRERHRIVEHFLVALGVSAETARRDAEGI E TEAGRKIALELLRHHRLIETFLEALGFDWHEVHDEAERLE TAAGRRLGQDIVRRHDILKEFFITLQLHPQQAEANACRI Q
 T D GVRHARGVVRRHRMV E T G Q G R R L A G Q M V R R H R L V $T$ D K GRQTGGY LVERNTLL Q


| Ref90＿J1AP31 | HELHNETIEQVRGLVEYLERSPSFKAEFEAFL |
| :---: | :---: |
| Ref90－G7MOH2 | HVI SNESFKAl KKYVN |
| Ref90－UPIO0036 | HHISGNTAFClS |
| UniRef90 D8GS98 | HTVSKQTTKCFQDFLEFTDRDNEVINSFKAYK |
| UniRef90－B1ZWB2 | HVISEDVLDRLDALLGHPTTDP |
| UniRet90－U3GW01 | HAVSDTFlLDRVDTLLG |
| UniRef90－R6VMD9 | HVISKESFEAL |
| UniRef90－N1V1P4 | HTVSDTFTERLANKLG |
| UniRef90－A1RDA2 | HAVSDTFIARI DELLG |
| UniRef90－B1VFK7 | HAVSEKFLARA DELMGYPDR |
| UniRef90－A5Z6N0 UniRef90 R7FWT8 | HVISEESF |
| UniRef90 A0A023X635 | HAVSDTFTERLAEFLGHPEHDP |
| UniRef90－J9HR43 | HHVSPKTLESLQALVVFFQENPDALAAFLEFQ |
| UniRef90－F8A1s0 | HAVSDVFVERVAGLLGHPVRD |
| UniRef90－C5VS72 | HTINPETLKCI SNLLNYFNKNSKALESFKYFSK |
| UniRef90－BOTEL3 | HTVGEKTLVCLTDFVEFLRTRPDGMSDYEQFRRE |
| UniRef90 D1 JGoo |  |
| UniRef90 R6CD33 | HA SSTSFDRLKEHLKKYHQN |
| UniRef90－UPIO0047CE2FB | HTISDETLKKLNELVSFFKSNPH！】AMFHNYKK |
| UniRet90－UP100035F5628 | HAISEKVLEK |
| UniRef90－Q12XU4 |  |
| UniRetgo－A9KN7 | HV SKOSFEATKKCL |
| UniReformis | Sots |
| UniRef90 A0A022LG93 |  |
| UniRef90 B8GIF－5 UniRef90 E4U694 | H ${ }^{\text {l }}$ |
| UniRe90－F4BVV9 |  |
| UniRef90－G7WL | HKLDTKTVEQUKNLVKFVQDRPPWLDHFEVFCR |
|  | S |
| UniRef90－P10003B4 | SKETAKCFKDFVNFTNDNPNKIDKFKVYRR |
| UniRef90－G2SWSO | HDVSAESFEAMKRHIN |
| UniRef90－R7FGl8 | HVISAESFSAIKQHV |
| UniRef90－16Y2D6 | HAASEELVDRMDEV |
| UniRef90 R6RKN5 |  |
| UniRef90－E1QL56 | HAMDDEAMDRLVQFLGFDRTCPDWLKNFRRFCGR |
| UniRef90 HoR215 | V SDRLMARIDSKLGHPERDPKDENFKN |
| UniRef90 D1BV05 | HAVSDRLVERLDDLLGRPARDP |
| UniRef90－D9R015 | HVISAESFAAIKAHVNGPKD |
| UniRef90－O30276 | HVLHPETLRQLRNFVRFVESNP |
| UniRef90＿101625 | HVISEEFERR1DAALGYPTRDP |
| UniRef90－A6P134 |  |
| UniRet90－C8X4L1 | DDELLERLIAFIKFQQCPDWLQAFTRFCE |
| UniRef90－Q0AWR6 | HYi SPET罒Ki MLLVEFMENNFEWKQAFYEFQK |
| UniRef90－LOHEV7 | HTLSDETECALCKLLNAPARCP |
| UniRet90－C2GKF6 | HAVSDRFLIERLDAQLG |
| UniRet90＿R5 |  |
| UniRet90－L7VQ88 | HNI GLNTMKNI DMLNMFFEKNPD【LEKFKRF【E |
| UniRet90－R5HBL6 | H |
| R5EZ18 | A |
| UniRet90－C4Z666 | D SKE SFNAIK |
| UniRef90－F4RL 5 | HYLS DKT |
| UniRef90－13TEV2 |  |
| UniRef90－B8D161 | HYLSKETVHAMTMVVKFFEKNPGDQKMLTRFQRE |
| UniRet90＿R6EFF6 |  |
|  | K |
| iRef90 UP100037 |  |
|  | HYISDETFDAIKVFM |
| UniRef90－X1F | HDVSSET ${ }^{\text {d }}$ CLLEF\EFVRDNSKWM |
| UniRet90－O2NH57 | HTLSDEAERK\CQLLGYPDQCPD |
| UniRef90－R6XN08 | H ${ }^{\text {a }}$ S SESFQAMKKFIQ |
| UniRet90－S7TYQ3 | HAMDKVADNR V ${ }^{\text {a }}$ |
| UniRef90－UP1000382CDFE | HAVSERLLDR1 D DL |
| UniRef90 UP100046625F1 | HAASDMMLDR DDMLGHPSTDP |
| UniRef90＿E7G739 | HIVSEETYQCIQKFLK |
| UniRet90＿R7IW99 | HVISKESFEAIKTHV |
| UniRef90－H5Y1R2 | HYLSEATVRSI QAIVVTLLNQNPEWHKVLLE |
| UniRef90－A6C9A |  |
| UniRef90－A3CYG1 | HAVSPETLERLRLFLEFDSESPDCLAAFEEFQR |
| UniRef90＿A5UJP5 | EAERA |
| UniRef90－S0EZK6 | DFESR1 DDL |
| UniRef90 R5V424 | AESFAAIKKHL |
| UniRer90－UPIOOO36A3662 | OVS |
| UniRef90－Domi61 | HVISERLEARMAEWLGHPERDP |
| UniRef90－AOLPC5 | HAUDAVAVDRLVHFLEF LK L CP E WLE GF A LYYRK |
| UniRef90＿R5D9E5 | HDISDETFAA |
| UniRef90－UP100037B24D5 | HAI SERDEDRIDEFLGHPSRDP |
| UniRef90 R5M165 | ${ }_{+}^{+}$ |
| UniRef90－TOISY7 | HYGSKST VSIQRFTVFMKEHPADYQRFVDYVQE |
| UniRef90－UPI0004635F7B | HVISKESFDALKKHIN |
| O－A6LXZ5 | HVISNESFEAMKKYVN |
| UniRef90－SOFGLO |  |


\section*{UniRef90_R5FXB4 UniRef90_B5JO79} UniRef90-UPIOOO3737322 UniRef90-D9QKT5 UniRef90-D1YV11 | UniRef90-R6SUN6 6 |
| :--- |
| UniRef90 | UniRef90-E1IGH3 UniRef90-B9E696 UniRef90-058871

UniRef90 R60k16 UniRef90-C0E620 UniRef90-14D3X1
Unineffo-R7BEJ9 UniRef90-U6ED32
UniRef90 R8VTB7 UniRef90-N2B4G6 UniRef90-S7TRX7 UniRef90-R7N2R3 UniRef90-L1M914
UniRef90 $\mathrm{R} 7 \mathrm{CGO2}$ UniRef90-R7CGO
UniRef90-I5ATB8 UniRef90-UPIOOO40DA269 UniRef90-R5AUE3 UniRef90-UPIOOO3B5F226 UniRef90-UPIO004723C1E UniRef90-B1VEA2 UniRef90-A0A011UZ93 UniRef90-UPI00047B3022 UniRef90-UP10003B65EC7 UniRef90-R5CM58 UniRef90-B3V6T7 UniRef90-E8OXB4 UniRef90_R5NU72 UniRef90-R9LK58 UniRef90-xozJU8 UniRef90-UPIOOO378599E UniRet90-IOAGW3 UniRef90-K6TV59 UniRef90-N2BP23 UniRef90-R4KJI2
UniRef90-D4LZC2 UniRef90_R6BW13 UniRef90-UPIOOO3B45234 Uniref90-KKINAB UniRef90-K9EU88
UniRef90 $10 \times 9 \mathrm{H} 2$ UniRe90_IOXIH2
UniRei90_UPIO00367977C UniRef90-R6L9Y1 UniRet90-A9WPV5 UniRef90-Q11M10
UniRef90 Q2NSQ0 UniRef90-D4JSU0 UniRef90-UP100036CF50C UniRef90_U2FHM1
UniRef90 WOJK92 UniRet90_V8FV90 UniRef90-UPIO003B300A0 UniRef90-Q47PC0 UniRef90-R6MBL2 UniRef90-FOYVF1 UniRef90-A6P2R5 UniRef90-G7WC27
UniRef90-U1R7Y7 UniRef90-B8GBH4 UniRef90-UPIOOO4753373 UniRef90-R6LS95
UniRef90
U1B6J8 UniRef90-W6N5Z8 UniRet90-S2VTF4 UniRef90-C7MZQO UniRef90-R1AWP0 UniRef90-R5GCC5 UniRef 90 -D3T4V UniRef90-R6D901 UniRef90-D7UY36 UniRef90-JON4T4 UniRef90 14 C 4 H 4 UniRef90-C5NYS9 UniRef90-C5ERX7 UniRef90-W3ASG9 UniRef90-R5YXS4 UniRef90_UPIO004789E4E UniRef90-D4K3J2 UniRef90_C8PRA4
UniRef90_R5ZHY


20
30
40
TKEGEQLALLVLERHRLVEKLFLVVLGMDWHEALDDEAEALLE
 TEAGEAMASASRERHRTVHEFLTALGVSGETAEADAEGDE TEKGRAEAVQMERKHQLLETFLVTLGVELNKAHEEACEME TDKGLETAEKMYERHTLLSQWLIKLGVDEKVAVEDACRME TDEGRSVAEKTFERHRVLTKVFTKLGVSAGIAAEDACKME TEKGIAVGVFLLNRHVILEQFLNVIGVQKDIULDNVELME TESGKKi AESTMERHEFFSKWLVSLGVDKATASDDACKME TDKGRETGSYLVLRNQLLQEFLGLIGSKCNFVAEAEAME
 TDAGTAIAAKUYERHEFFSTWLTKLGVDEQTASEDACKME TPSGRQUAEMGYDRHQCLTKWLTTLGVDPEVAAEDACQME
T

TE GKKIAN MIL E RHTMI T
 t DVGrrva LTMVRrHRLLETFLNTLGYRWDQVHAEAENLE

 TPSGMETASQ1 Y ARHRALTNFFIRIGVCPEQAREDACKI

## T

TDKGRQVAQNIYDRHCFI KECLMFLGVSPETAEADACRL TDKGCELMKEVNNKHEKVYKFFEVLGVSDSTSKKDACN TPAGLEVVKRLKRRHRLLEVFRDVLKINPDKVHSEACRICE TEEGMSTGRYLLERHNIVKSFLENLGC KDDVLQETELI TETGKELAEKVYECHNLLTDWLVHLGVNPEDAAADACKME TDKGRKLGQFLVERNSLQKFLRVINSSCD DKAEAEAME TDAGKEVAVKIYDRHTTLTAMLVNLGVDEETAADDACKME TPEGEKIGRELSYRYDTLVDFLVVLQVDVRVAEEDACATE TESGTAVAKNLHDRHGVLAEFLRIGGVDEDTANRDAEGLE TESGRAHAERLVRGHRVEAGVAGYTVDEVEEEAEQLE
$T$
T
T

T A E GE A L A H E S R M R H Q I V E S F L L A L G GV S P E T A R R D A E G I E
 TASGKki ALEILRHhrlielylegmgyswdevhdeakkle

 K GVKIGKY L L K R H DL I E E F L KLL L NI S D D I L E E T E K I E TDAGRERADAVVRRHRLIETWLREMGYGWDEVHDEAEVVE TP T G D K VA L A V L R R H R L I E L LY L E E L L G Y S W D EV H D E A E V L E T DAGRAVAEQI RDRHEVLAGFFTGFELDAETQARDDEGI E T DKGMEI A QKI Y ER HQVIA K A LI A L G V DEETAYD D S CKI E T D T G REI A E M I Y E R HE L L T A WL V R L GV D H D T A A E D A CK I E TETGLLA AK TMYT RHTVLSQMLMELGVDEETATEDACRIE TESGKAIAADMDYERHKLL T DQGKEFGYY V V G R NK | $L$ | $V$ | $M$ | $V$ | $R$ | $R$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $E$ | $E$ | $M$ | $V$ | $R$ | $R$ |

 A $W \quad L \quad T \quad Q \quad L \quad G V D$

EGRRRAMGMVRRHRLLE

TDIGITKAEETVRKHEVL
TPEGRQKAESVYERHCLLS
TAAGQSMADTMYERHTMLS
T
$789 E 4 E$

UniRef90_UPI00036728AD
UniRef90_B2A2Y3
UniRef90_N1ZHX2
UniRef90_UPI000369E99F
UniRef90_UPI0003B31AA6
UniRef90_D0WN97
UniRef90_L1PFF9
UniRef90_B8FQ14
UniRef90_R6IN55
UniRef90_E1VVUY4
UniRef90_A0A021XC93
UniRef90_V1CM18
UniRef90_E8R861
UniRef90_V7HTY6
UniRef90_Q5V4N3
UniRef90_C6JDC3
UniRef90_A0A023Y2B2 TETGRR\|AVElVRHHRLLEAFLITLGGYWDEVHEEAEALLE TAKGQQ\|GEYLLERHHIVLEELLKTVGARGDJQREVERIE TEKGKEVAEKVYQKHCVLKEFLMQUGVEEEDAAKDACRME TDKGKKKAADVYDRHQTLTAFLQTAGVSPKVAETDACRI E TEAGRDEAARMVRDHRLIETGLMT GYSWDEVHDEAEHL
 TETGLAKANAVLERHLLLTRFLRNGGVSEETAEKDACR1 E GRREALRMVRRHRLLETFLRELGYGWDEVHDEAEELE TEAGKALAAKSRERHRIVEGFLRAVGVGEEAARDDAEGI E PSGLEIAEKVFERHQFLSVALMLLGVDEETATGDACRIVE TEKGLAVARDVHQRHRLLAEFLESGGVPREDAEEDACRME TEEGVKVAEALDRRHRIDETFLEKLGYKDADVHKDAEVLE TEFGKITGEEFQYRHELLTQFLGFVGVSDEKAQEDACRME TPAGEALAVEMRARHQTVEKFLDALGVDADSARRDAEGDE DDGRRLALMMVRRHRLLETYLRELGYAVDEVHDEAEVLE TPSGRESALAVVRRHRLIEMFLVTLDLAWDEVHEEAEALE TPDGRVLAEHVFERHQLLTVFLKNINVPADIAEHDACRI TQHGAETAVKITRRHRLWEVFLEHLGYSWDEVHEEAERLE TDAGRLAALRTLRRHRIDESYLTVLGYPWDRVHGEAERLE TGKGQEAGAYLLARHDTTEEFLRLIGGNTSPLEEAELI E


T PEGRELAVKVYQRHTTIRSFLEVLGVAPDTAEEEACHDE ESGREIAETMYERHTLLSNWLMYLGVDRKTAVEDACRME TKKGEDVAKKTVRKHRIIETFLKYLGVDKNDASEEACKME






T

## T


TEEGEEAAKDVFRRRTTILKRFRRVLGADEQMAEENACR I E


## $T$ <br> $T$ $T$ $T$


TDRGREVVLQLVRNHRLLETELEYL DYSWSAVHDEADRLA
T

## T

TEEGRDDAEKIVYRHQVI SHVLMALGVSEKHATEDACKME
 TAEGEK LAAQESRERHQIVENFLLVLGVSPE IARRDAEGME T K K G L K S G L F L L D R H K I I E N F L K L L G I S S D L L E Q T E K I E






|  |  |
| :---: | :---: |
| UniRef90_UPI00036728AD | HVI S ERFEQKVVAELLADPDRD |
| UniRef90-B2A2Y3 | HHISYDNFM L S D FLD F LK D NPE $\square$ L R Q F H Q Y K Q |
| UniRef90_N1ZHX2 | HVI S E Q L K CIL K H M D |
| UniRef90_UPI000369E99F | HVI S Q E F D A I EKY |
| UniRef90_UPI0003B31AA6 | HI I S P S T F K G I K K F M K |
| UniRef90-D0WN97 | H AVSATFVERLDAALGHPRHDP |
| UniRef90-L1PFF9 | HAIS DRLL NRIDDERLGHPVRDP |
| UniRef90-B8FQ14 | HVI S Q D S EKMKE |
| UniRef90-R6IN55 | HVI S P E T FT G I K K LI K |
| UniRef90-E1VUY4 | H TVVT DRFVDALD A RLGYPRHDP |
| UniRef90-A0A021XC93 | HHVSDETLAVFKAFLD |
| UniRef90_V1CM18 | HVISEETFQADKK HVVGKMYK G K P $\square$ K D M F |
| UniRef90_E8R861 | HVLHPETVAKI R E F L E |
| UniRef90_V7HTY6 | HTVSEELI D R L E DFLGHPQKCP |
| UniRef90-Q5V4N3 | HHISEEFERRVAAVLDEPEFDP |
| UniRef90_C6JDC3 | HVVSEETVQQ!CNFVDYGDT F ER L L K H |
| UniRef90_A0A023Y2B2 | H HVSEATLA A FEAFVR |
| UniRef90_UPI0002193198 | H A V S D L F i R DD A A M G P P A R D P |
| UniRef90_UPI0001E2D155 | HDIS DI SFECMKKH |
| UniRef90-UPI0001FFE1FB | H AVS D RLLD R I D D R L G H P R Y D P |
| UniRef90-E8LKJ4 | HVIS DET M N GII R T Y L K |
| UniRef90-U2CQ73 | HVTS SLF ENRLE K Y L G F P K T C P |
| UniRef90_W0RQR4 | HAASDELID RMAAAL GDPAFDP |
| UniRef90-F0SX14 |  |
| UniRef90-W4V2R9 | H NLSVDTL R S I D ELS S F F E EHPEIMMRFEHYRS |
| UniRef90_UPI000463E8C9 | H HV SAETLGAFRKAM |
| UniRef90_D7B7H0 | HVVSDK FVDR\A H H L G D PVVDP |
| UniRef90_C6LGU7 | HAIS PK S FEAI K K L M |
| UniRef90_E4LZ99 | HVI S E D T F K I K N F |
| UniRef90-C0DBM9 |  |
| UniRef90-F8AK87 | H TVVSED T $\square$ D K L Y N F M N K L R K E K E |
| UniRef90-C4GCJ9 | H Y I SADTFKALKEH |
| UniRef90_UPI0004647FDA | HDISDETFAMLKSHYRKLSE |
| UniRef90-M9R5M4 | H HVS EQS L A A FAKF $\square \mathrm{E}$ |
| UniRef90_R5L470 | HDI SEES FQLIIK E |
| UniRef90_UPI0003B45981 | HVI SVK S F N AL K K H F E |
| UniRef90_UPI0003B76482 | H DV S EATFERLKDHI |
| UniRef90-F4CRE8 | H AVSDTFVDRLA LR L G E P D R P |
| UniRef90_UPI00047C911D | HHASDRLI D CI EQFLA HPRFDP |
| UniRef90-F8E012 | HAVSDSFlERI ERKMGFPTRDP |
| UniRef90_R5IWA9 | HVLS S Q S F Q Al K K H $\square$ T Q G NELP A D M K E |
| UniRef90_UPI0004173A8B | HYIS DESFEAI K T H M |
| UniRef90-U2JT90 | HVIS DETFEALKRH |
| UniRef90-E9SI18 | HILS DET F A A I K K Y $\square$ |
| UniRef90-R5L713 | HDIS D T F NKLK N |
| UniRef90-B0P6E6 | HDISEETFKKLKEHTN |
| UniRef90_UPI000237B2CC | HAVSDELVA HIAAAKL G N P T R D P |
| UniRef90-C0EGA1 | HVI SEEVVFEKMKQHLE |
| UniRef90_UPI000310447C | HDLSDETFAK $\square \mathrm{KEH}$ H F L R E |
| UniRef90_A5G1Y6 |  |
| UniRef90-C0W2V8 | HACSQRLLEA LDRALDHPVRDP |
| UniRef90-E0RR10 | HAISEELLERLVQYLEF I Q E C |
| UniRef90_Z9JPJ8 | HSIISDRLLARMDADLGHPRTDP |
| UniRef90_14BWN7 | HYI S P S CLL R F VA F I E F L H T C P K F LE HFR Q F |
| UniRef90_UPI000476E0DE | HVIS E EFEERMSEAL GHPTT DP |
| UniRef90-R6RD46 | H DMSSETFQALKK HI |
| UniRef90_UPI0003B568A4 | H S IS P K T F ERLLTK Fi Q F V H D K P VWWLK S F E H Y Y K |
| UniRef90_E3GXG2 | HNLPDEVERKLCQFLKFPTCCP |
| UniRef90-A0A010ZL63 | H II S Q ETFEKI K E Y L |
| UniRef90-M0A206 | H HLS D R L A T Q L WK FI G K P TVDP |
| UniRef90_UPI00041B913C | H HVSAETVAAFARFVE |
| UniRef90_G6A1P5 | H HV SETTLQRFADFV |
| UniRef90-M0D9F0 | HHVSEEFTRRVERLLD Y P A A D P |
| UniRef90_UPI0004039D0D | HII S A D T K G I K R FL K E H K E |
| UniRef90-G4KZH7 | HDLNDETFARIT EFVE |
| UniRef90-UPI0003F5042F | HIHSEDLIN K L D K F L G F P K A D P |
| UniRef90-K1TRB7 | HAISQDTFEKI R D |
| UniRef90-D4LFV6 | HIVSDESFDRLK E A VE |
| UniRef90-F6DMN4 |  |
| UniRef90-Q5JFE6 |  |
| UniRef90-A0A056XU53 | HAVSDRLMARDD AKLGF P |
| UniRef90-E1RFC2 | HELNPRS】EQI QF LL NFVDERADRSHTFADF |
| UniRef90-R6TQ12 | HDISEETFHA 1 ¢ CHI K |
| UniRef90-B5ZHZ7 | HYVGAETLDA F Q R A I D |
| UniRef90_G9RSX4 | HVI S A E S F EK |
| UniRef90_L9WRJ1 | H HVSDEFTRRLAAFLGEPATDP |
| UniRef90-D5RZS1 | HVISKET F E GI K K Y L D |
| UniRef90-V9HIK2 |  |
| UniRef90-R6N6T0 | HDISDETFAVLKK |
| UniRef90-R6XKH7 | HDLSDETGEAIKKHV |
| UniRef90-X1EE71 | HGLLSDEAAAALCK A L D K P ETCPD |
| UniRef90-D6DUX3 | H HVSEET LLLKFREF |
| UniRef90_UPI00047A2714 | HTINNETLCAlK N L V N F LS S D S V L L N Y M D F S A K |
| UniRef90-K1SDD4 | HVI S DE SFQKLK K |
| UniRef90_R9ITD3 | HAVSNESYQALKK A L V |
| UniRef90_UPI0001E2F084 | HAVSSQTMDRLTEFL |
| UniRef90_U2DUR7 | HAVSSESFQKLKK |
| UniRef90-R6J2C7 | HVI S A ES F D ALKR |
| UniRef90-X1G5U0 | HTVS P LVLEKLVVELVES F S Q R E K K P E K L K |
| UniRef90-UPI0003761222 | H I Q S DKLTE R L DKFL N Y P D Y D P |
| UniRef90_UPI00037F1619 UniRef90_E7GTI7 |  |


\section*{UniRef90 D3F5N8 UniRef90－W2BVM6 UniRef90－A9AVR3} UniRef90 UPIOOO4631908 UniRef90－UPIOOO3BGA2FC UniRef90－UPIOOO36DD217 UniRef90－G8QRUO UniRef90＿COVYL5 | UniRef90－HOJD46 |
| :--- |
| UniRef90 E8RD | UniRef90－G2KPY7 UniRef90－R6HRI8

UniRet90 MocV04
UniRef90－ S5ZX15 UniRef90－UP100037BC25A UniRef90－U20744 UniRef90－J7ITX6 UniRef90－UPIOOO47478D2 UniRet90＿V2YHZO UniRef90－UPIOOO4706143 UniRef90＿UPIO003B49456 UniRef90－D4JDI9 UniRef90－FOKDL2 UniRef90－B3DUS8 UniRef90－UPIO0045E96A8 UniRef90＿17LJ11 UniRef90－UPIo003B2F6DF UniRef90－M1YQK9 UniRet90＿UPIO0047BE46D UniRef90－W2EQJ6
UniRef90 R6MT04 UniRef90－J2ZZG8 UniRef90－C9RRT3 UniRef90－K2CRU6 UniRef90＿R6OID7 UniRef90－DKK031 UniRef90＿UP10003B38EE9 UniRet90＿G9RYE4 UniRef90－D5RLU6
UniRef90＿R5REG5 UniRef90－UPIOOO36EBC08 UniRe990－F81628 UniRef90－O26316 UniRef90－N6V4X5 UniRef90－x1 1 080 UniRef90－LOADYO UniRef90－UPIOOO3744840 UniRef90－F3AU99 UniRef90－UPIOOO2260477 UniRet90＿FORM01 UniRet90 A6TNQ2 UniRef90－10K397
UniRef90－U4P5Es UniRef90－UPI0003B78517 UniRef90＿B217M2 UniRefoto QaAIY UniRef90－R7G902 UniRef90－R7AQ70 UniRef90－K1YMB66 UniRef90－R4YW68 UniRet90＿UPIo003B689B7 UniRef90＿C7M575 UniRef90＿A6NVF1 UniRef90＿14D424 UniRef90－UPIO003B71783 UniRef90－J9HPN9 UniRef90－C9RGA4 UniRef90－A6NST2 UniRef90＿UPIO0037A9990 UniRef90 R6SQLO
UniRef90 F2NEN4 UniRef90－R7H4E5 UniRef90－W0F3R2 UniRef90－10QVLO UniRef90－UPI000479467C UniRet90 UPIOOO35E1BE3 UniRef90＿A6MOT7 UniRef90－JIIRF3 UniRef90－C7ML27 UniRef90－×1T071 UniRef90－C7JIE5 UniRef90＿E8T240 UniRefgo＿selot
UniRef90＿UPIOOO4
UROMO＿UPIO0047EEAOE
10
30



 T A S GQK VA L G I I R RHRL WEYF L E KL N F K WDEVVHDLAAE EME T P K G WE Y A C R I V R N H R L W WT
T
T

T K S G R K A A E F L V R R K H N I V V A K F L Q L i G C Q E



 K A G T E LIG K S L L N R H N N I I E $\operatorname{L}$
T G G L K Y A A S I F E R HVVVI ENF L K I L G VGGE E N A H K D A C R L E


TD K G TK L A K H C R E R H V L V K T F L V A L G V P A E V A S I D A E GI I


$T$
T

## T



TE A G H K $\quad$ I A A R I Y Y G R H K K L L T E F F F V
T S S G QV L A A R R I Y E R H C F F K K L L I A A A G V

T D R GYR I A R R IVTRKHRLLERFLHVLGIKRERIHRQACEME
T DEGHRLAMATRRRHQVVEAVLCRLGVDPDTARNDAEGDE
TSAGRKMAERARLRHRLVVAVLETLGVPTETAEADAEGIE


$$
7
$$

## \section*{}

TT
TT
－ーーー

T
T
T
ESGFATAR
T D E G R A RA E A Y E R HVLISNWLIVI GVDEKVAREDACRVV




 TEAGRQKASDVYNRHEI LCDF LEEVLMVSRENAENDACKI E T DEG $\square E$ I AE DLIRRHRLWETFLVSLNYKLQDVHYDAEVLVE

T
T R

TKKGREYA QKLYRKHRALDTELKVL KLPKEVAERE GCLME


| UniRef90 D3F5N8 | HH\|I S E E LEE 50 |
| :---: | :---: |
| UniRef90 ${ }^{\text {W2BVM6 }}$ | HAVSDFLIEKMDEKLGHPTRDP |
| UniRef90-A9AVR3 | HVLSEALEERTAEYLGHPQFDP |
| UniRef90-UPI0004631908 | HLIS DEVFDGIK K F L N |
| UniRef90-UPI000420A2B5 | H HVSAETLA AFERL |
| UniRef90-UPI0003B6A2FC | HISSQQLI DRLDQFMGYPKHDP |
| UniRef90_UPI00036DD217 | HVLGEETVRQI ERLLK N P K T P |
| UniRef90-G8QRU0 | HDISS ETMEKLAS FMR |
| UniRef90-C0VYL5 | HVMS DAVEERIGKLLDNVERDP |
| UniRef90-H0JD46 | H HVSEATLEVFRRF |
| UniRef90-E8RD45 | HTAPPQ I N RMVEFIK F LD DCP D L IS GFANYCRE |
| UniRef90_G2KPY7 | H HIS A E TLD |
| UniRef90_R6HRI8 | HVISPETFEGIKKHL |
| UniRef90-M0CV04 | HYISEKLEARIAALLGFPTVDP |
| UniRef90-S5ZXI5 | HAASDELDDII DLYL GNPERDP |
| UniRef90_UPI00037BC25A | HVLSESVERKI LDLL NHPTESP |
| UniRef90-U2Q744 | HTISNDVLSGI C K L L D F F ESNPSLKEEELS K |
| UniRef90-J7ITX6 | HSVSPSTLSLLNALLAFFQSNSCILQSYEDYKK |
| UniRef90_UPI00047478D2 | HS SSDHMIDALDAFLDHPGHCP |
| UniRef90-V2YHZ0 | HDLSDESFEKIKA |
| UniRef90-UPI0004706143 | HHVSDETLEI FRAF |
| UniRef90-UPI0003B49456 | HVMS E QVEDKIR QMLGDPTES P |
| UniRef90-D4JDI9 | HNISDESFSRLKE |
| UniRef90-FOKDL2 | HTINAE ILCCMNDLVDFFAAYPDFFKKFNEFRK |
| UniRef90-B3DUS8 | HVISEQFEEAlAKLLGHPLRDP |
| UniRef90_UPI00045E96A8 | HIVSPETFSKI K E |
| UniRef90-17LJ11 | HGIS DETDDRLSSYMDGA Q P P P G R L |
| UniRef90-UPI0003B2F6DF | HVMSDQVEQRLIGLLDHPQHDP |
| UniRef90-M1YQK9 |  |
| UniRef90-UPI00047BE46D | H HVSEQTISAI K K FL |
| UniRef90-W2EQJ6 | HVMSESVESRLVNLLDNPRFCP |
| UniRef90-R6MT04 | HDISEESFMALKKL |
| UniRef90-J2ZZG8 |  |
| UniRef90-C9RRT3 | HILSAETLSTI E D F M K |
| UniRef90-K2CRU6 | HVISEEMEERIANSLGNP\VDP |
| UniRef90-R6QID7 | HVLSAQTFQGI K MFL |
| UniRef90_D4K031 | HILS EQTLKKI R E |
| UniRef90-N6X537 | HVMSDTVEERLVSLLEDPKTDP |
| UniRef90-UPI0003B38EE9 | HITSPETFRGIKKFVKDHKEE |
| UniRef90-G9RYE4 | HDLSEETFEKLLLHAQKNSEDP |
| UniRef90-D5RLU6 | H HVS D A T LA AFEKFLG |
| UniRef90-R5REG5 | HGI SDDSFEKLKTLLD F |
| UniRef90-UPI00036EBC08 | H HIS WNTLELLR S L V H DLE E |
| UniRef90-F81628 |  |
| UniRef90-O26316 | HSLS DDAERALCHLLNMPGECPD |
| UniRef90-N6V4X5 | H HVSEKTLDEAFERFL |
| UniRef90-F7SCB7 | HYVSDVTMQAFTKFI Q |
| UniRef90-X1U080 |  |
| UniRef90-LOADY0 | HHVSDELARRLSAFLGDPATD |
| UniRef90_XOSGH7 | H TLGPE\IERLLCFIEFVTQS S DLA D E F Q F C N K |
| UniRef90-UPIO003744840 | HMLSEETFNGI RAFWEKHQE |
| UniRef90-F3AU99 | HVISETSFARLKE |
| UniRef90-UPI0002260477 | H YVGDETLAAFKRA丁D |
| UniRef90-F0RM01 | HALSERLEARIA A WL GEPSFDP |
| UniRef90-A6TNQ2 |  |
| UniRef90_I0K397 | HVRSDELVARLD T F L G NPQFDP |
| UniRef90-U4P5E9 | HVIS GETVENI K M L N M F Le N N S DVLK K Y N K F K |
| UniRef90-UPI0003B78517 | H GI S EVTL D RLR H ${ }^{\text {F }}$ |
| UniRef90-B217M2 | H HVSETTLAAFRTFDQ |
| UniRef90_Q6AIY5 | HAAPPEVIEKMVNFIEFMQVCPELIRGFAQFCQ |
| UniRef90-U5FBG1 | HVIS E ETFQKLMD |
| UniRef90-R7G902 | HVISEDTFQKIANF |
| UniRef90-R7AQ70 | HAVSKTTFNAl K S FVQ |
| UniRef90-K1YMB6 |  |
| UniRef90-R8W5T0 | HVVSDELIERLEALL |
| UniRef90-R4YW68 | HVISTPVEEALAELLGDPTTCP |
| UniRef90-UPI0003B689B7 | HVIS QETFDAI QNYYE |
| UniRef90-C7M575 | HI QSEKLIERLDAFLDFPKKDP |
| UniRef90-A6NVF1 | HVISKETFERLKA |
| UniRef90-14D424 |  |
| UniRef90-UPI0003B71783 | HVIS DETFQAI KKYYEFHE |
| UniRef90-X8K440 | HALSKESFE\\|IKEHAK NEHPD $\square$ YEA |
| UniRef90-J9HPN9 | GSVSPLVEDRLNELLNHPATCP |
| UniRef90-C9RGA4 | HALSDEILKRLKEFMENFNKN |
| UniRef90-A6NST2 | HAISDESFRALKS STQ |
| UniRef90_UPI00037A9990 | H HVSDET LAA FERFL |
| UniRef90-R6SQL0 |  |
| UniRef90-F2NEN4 | HAMPRVIVDRLILFSEFLEEVCPKW $\square$ R GFQHFC |
| UniRef90-R7H4E5 | HVVS DETVQQI CNFVNY |
| UniRef90-W0F3R2 | H I K S P L V D Q L E K L GFPEDDP |
| UniRef90-I0QVL0 | HHVSDETLEAFKRFTE |
| UniRef90_UPI000479467C | HVVCDETINK\KEFMK |
| UniRef90-UPI00035E1BE3 | HATSDNLVQHLDDFLGHPKRCP |
| UniRef90_A6M0T7 | H I S S ETI N N D M M N M F F A E N $\square$ DVLE R Y R N F K K R |
| UniRef90-J2IRF3 | H HVS P ETLEEAMKR |
| UniRef90-X1AZ01 | HTTS DLVADRLD A F LK H P S V P |
| UniRef90-C7ML27 | HYDS DETFKCLK |
| UniRef90-X1T071 |  |
| UniRef90-C7JIE5 | H YVGAETLKAFQ |
| UniRef90-E8T240 |  |
| UniRef90-S6C724 | HAIS DASFEKWGAFVRSLD |
| UniRef90-UPI00047EEA0E | H I D S E L V E K LDD E F L |

## UniRef90 K1M167

 UniRef90-R9KFSO UniRef90-A3U5H7 UniRef90-K1SHM8 UniRef90-UPIO002D2CDE4 UniRef90-U6EVQ5 UniRef90-T4VIB5 UniRef90-X1PQ84 UniRef90-R6Y575 UniRef90_UPI00045E5A35 UniRef90_C7R0G3 UniRef90_M5S2P9UniRef90 W6TPP5 UniRef90-E8LD54 UniRef90-R6MR16 UniRef90_Y5PCE1 UniRef90_T0E398 UniRef90-A6EA73 UniRef90_UPI000466B643 UniRef90_R5LVK1 UniRef90-H8KRP2 UniRef90-F6D524
UniRef90 Q2FNN9 UniRef90-HOE7E2 UniRef90-D1CCH3 UniRef90-B2KCF9 UniRef90_D6TIH4 UniRet90-R6QQ24 UniRef90_UPI0003AA9A4E UniRef90-E318C5 UniRef90-Q3IN51 UniRef90_UPI00037E0FC0 UniRef90-D6ZEQ5 UniRef90_UPIO003A3A4C8 UniRef90-F9HJA4 UniRef90-UPI0001744767 UniRef90-I3C397 UniRef90-R7GJN2 UniRef90-19M9A6 UniRef90-N6W0A6 UniRef90_UPI0002E19B43 UniRef90_H7EIP3 UniRef90_UPI000347AC39 UniRef90_M2X576 UniRef90_UPI000378C444 UniRef90-UPIO00424BA91
UniRef90 UPIO0047E0880 UniRef90_UPIO004672F8E UniRef90_U2VLC1
UniRef90-R7B317
UniRef90 X1KDB7 UniRef90_UPIO0047935AA UniRef90-F5T8V8 UniRef90-B1C0L9 UniRef90_K7YPU7 UniRef90_Q8TI19 UniRef90-R5JFC2 UniRef90-E9CJX5 UniRef90_UPIOO04772F06 UniRef90-B8FXZ3 UniRef90-G2SQT7 UniRef90_UPIO004745EB8 UniRef90_UPI000423672F UniRef90_G9Z5B7 UniRef90_C7NTK4 UniRef90-J1LOT4 UniRef90-T3DOLO UniRef90_C2FUY0 UniRef90_D4W6T0
UniRef90_V6Q4A6 UniRef90-I1AZ44 UniRef90_UPI0003613F4F UniRef90-K7RUX8 UniRef90-C5EVX1 UniRef90_V5WEI9 UniRef90_JoKZ48
UniRef90_D6E8A3 UniRef90_S5XWN1 UniRef90_C7N7Y2 UniRef90_A0A011ABE1 UniRef90_UPI0004641A35 UniRef90-UPI0004183510 UniRef90-A6NYV1 UniRef90-R9LY28 UniRef90_UPI000377D8B9 UniRef90-A0A011B186 UniRef90_G5GEW3
TP K G V K A A D E V K Q R H V L i




T A L G G E A V A A D R L V V R K H R L L E T F L L E Q L

T D K GRRVRA V A V M R K H R L A E R L L V V I GL K WE HA HA E A CR WE
TA

T
T








$T$
$T$
$T$
T

## I

T
TVEGHEMAVNVMRKHRLAECLLQVI GLDRALVHDEACRWE
T
T
T
T
T
T
T
T
T
E GRIIT GE Y L LE R H N T L E R F F T ML K SP
TALGRQTAVRVMRKHRLAER





| UniRef90_K1M167 | HVUS DKLIUDRLDQFLIKYPSHDP |
| :---: | :---: |
| UniRet90-A3U5H7 $\quad$ HVKSPKLTNEL |  |
|  |  |  |
|  |  |
|  |  |  |
| UniRef90-UPI0002D2CDE4 H AI S D T S FRKLK |  |
|  | HSVTEEALEKGDGNKFDKENKDDKEKFENFDK |
| UniRef90-T4VIB5 UniRef90 $\mathrm{X1PQ} 4$ |  |
| UniRet90-X10884 | HDLSKETFAAI EKLVENL |
|  |  |
| UniRef90-C7R0G3 | HVMSERVEERLVQLLNSPRYS |
| UniRef90-M5S |  |
| UniRef90-W6 | SPELIERLDEF |
| UniRef90-E8LD54 HIT SPETFAGIKK |  |
| UniRef90-Y5PCE1 HKISDLLCERI |  |
|  |  |  |
| UniRef90-TOE3988 HTISVETLVKI |  |
|  |  |  |
| UniRef90-A6EA33 ${ }^{\text {H }}$ |  |
|  |  |  |
| UniRef90-R5LVK1UniRef90 H8KRP2 |  |
|  |  |
| UniRef90-F6D524UniRef90 O2FNN9 |  |
|  |  |  |
| UniRef90 HoE7E2 | PAIEQGM |
|  |  |
| UniRef90- D6TIH4 $\quad$ HFIS GAVESRVTASLDLPQTCP |  |
|  |  |  |
| UniRef90-R6QQ24UniRef90-A2TO95 |  |
|  |  |  |
| UniRef90 UPIOOO3AA9A4E HI K SKRMI DQLE D |  |
| UniRef90-Q31N51 H HVSDGVTD RLA EL |  |
| UniRef90-UPI00037EOFC0 |  |
| UniRef90-D6ZEQ5 HVMSDEVERRLVEVLGHPVSSP |  |
| UniRef90-UPIO003A3A4C8 | HVMSEEVERKLVEVLNHPTTSP |
| UniRee90 ${ }^{-} 9$ HJA4 3 H TVS D H F VE QL E K |  |
| UniRef90_UP10001744767 | 1 SK STLKVLTL |
| iRef90-13C397 H K S D K LIE KLD TFLD Y P | HYKSPKLTEEALK ${ }^{\text {H }}$ |
| UniRef90_19M9A6 | HYLSKET円K SiQLLVKFMQDHTEYYNDFDE |
|  | HVVSDKVLDRLKMFIED |
| UniRef90-UPI0002E19B43 HVMSDQVERRLLALLENF |  |
|  |  |
|  |  |  |
|  |  |
|  |  |  |
| UniRef90-UP100047E0880 HI K SQKLINQLDALLGGFPTHDP |  |
| UniRef90-UP10004672F8E HVIS E E S |  |
| UniRef90-U2VLC1 HDL S A T M R WVS Y |  |
| UniRef90-R7B317UniRef90-1KDB7 |  |
|  |  |  |
| UniRef90 UPI00047935AA HY\| SFKTYRGTSALLEFMKDNPMILEKFYKYLLEE |  |
| UniRef90-F5T8V8 HVLSPESFGKIKDFYAKFKK |  |
|  |  |
|  |  |
| UniRef90-R5JFC2 $\quad$ HVISDDSFARIVAYLT |  |
| UniRef90-GOJ3G5 |  |
|  |  |  |
| UniRef90 UPIOOO4772F06 | HVMSDEAEERIYQLLGGPTESP |
| UniRef90-B8FXZ3 ${ }^{\text {a }}$ HSNVSTVLQLHTLLDFFAQNVAVRESFETFKK |  |
| UniRei90-UPIO004745EB8 |  |
| UniRef90-UP1000423672F H TKSEKLI N RLD E Y L |  |
|  |  |
|  |  |  |
|  |  |
| UniRef90-T3DOLO HIJSDDSFEK\NNY |  |
| Unirefoc-C2FUYO HI QSTK K F K M M EL |  |
|  |  |
|  |  |  |
| UniRer90-V6Q4A6  <br> UniRef90-11AZ44 H VTVS <br> H  |  |
| UiRef90-UPI0003613F4F HSVSDK |  |
| UniRe90-C5EVX1 HAISDETFQKLKRHLLRKEEDE |  |
|  |  |  |
| UniRefo-V5WE19 HILSPGTLEAIKDFVKSHTKEP |  |
| UniRef90-JOKZ48UniRef90-D6E8A3 $\quad H$ HIASENLLME H L L D A F |  |
| niRef90-S5XWN1 HHVSDET边AFEQH |  |
| UniRef90-C7NYY2 $\quad$ HTISSDSFQK |  |
|  |  |  |
|  |  |
|  |  |
| niRef90-A6NYV1 HAIS |  |
| UniRef90-R9LY28 |  |
| UniRef90_UP1000377D8B9UniRef90-A0A011B186 |  |
|  |  |  |
| UniRef90_G5GEW3 | HVTS ENLK N R LIN E F LIH R P Q H C P |

## UniRef90 K2L459 UniRef90_UPI0002628C8B UniRef90-UPIO0046538DC

 UniRef90-FOIEJ4 UniRef90_UPIO00471F688 UniRef90-U1MGZ8 UniRef90-A0A0591J76 UniRef90_B9L1D6 UniRef90_S0G4C1 UniRef90_B9Y6A4 UniRef90_C7P7Q5 UniRef90_J1LMX1 UniRef90_R7HZZ5 UniRef90_UPI00046CE37C UniRef90_D1A6F2 UniRef90-M1XKS0 UniRef90_C4FBD7 UniRef90 G2I615 UniRef90-M5RWP7 UniRef90-SOEWQ7 UniRef90_B2S2B4 UniRef90_UPI0004799D5D UniRef90-U2V9N2 UniRef90-IOWJ20 UniRef90_A1ZX50 UniRef90-M2X9A3UniRef90_G8PE73 UniRef90-K1LVN2 UniRef90_F8KWZ1 UniRef90_JOV4B2
UniRef90_H9UKR2 UniRef90-U1QY12 UniRef90-U2RAW5 UniRef90_UPIO002E3B62F UniRef90_E3J5Y4 UniRef90_R9H4Y6 UniRef90_Q3ZAA1 UniRef90-X5DLP6 UniRef90_G1WKA5 UniRef90_UPIO003B61C74 UniRef90-A8LSX7 UniRef90-A8U9L9 UniRef90_U1RDQ3 UniRef90_R7QV61 UniRef90_UPI00047BD428 UniRet90_L1PJW8 UniRef90_UPIO00425B5CE UniRef90_IO19Q0
UniRef90-A4AN15 UniRef90_A4ANI5 UniRef90_UPIO0046786BC UniRef90-B8FPA6 UniRef90_IOS935 UniRef90_V4L525 UniRef90-H1CFR5 UniRef90-NOBFF7 UniRef90-I3ZBE5 UniRef90-G7V6X2 UniRef90_UPI000255F056 UniRef90_J4KA32 UniRef90_D4YF52
UniRef90_D3PDS9 UniRef90-D3Q6E8 UniRef90_S0JM53 UniRef90_UPI000393DD84 UniRef90_UPI0003611857 UniRef90_B9E992 UniRef90-K9B4Z6 UniRef90_UPI0003B5FFC1 UniRef90_D3T9Y5 UniRef90_A6ELK5 UniRef90-W0.J001 UniRef90_G9RN83 UniRef90_M1P121 UniRef90_UPI0003B6DC51 UniRef90_B4S5Y1 UniRef90_GOLBE66 UniRef90-R5FJV5 UniRef90-N9WYH3 UniRef90-XOSR01 UniRef90-UPI0003B7A888 UniRef90_M5AFU3 UniRef90-D4TYT9 UniRef90_R7K7B6 UniRef90_SOFKV7 UniRef90_S1QXH1
UniRef90_R5K6ZZ

1020
$\stackrel{20}{N}$
\TA 30
30
 RRHRLAETLLELDYGWEVHDEAEVLE

\section*{| $T$ |
| :--- |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ | <br> | $T$ |
| :---: |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |
| $T$ |}



TDEGRRRQAVHVVRKHRLAERLLIVLGGMPWTDVHVEACRWE





$1-1$
$\square$
T
T
T
T T
T

 DEGKVLAEELIGRERLLVDFFEVLNLGEEEARTNACSIE


T D LGGRE R A V S V M R K H R LA E L L L V V Vi GM S Y E D A H D E A C R WE





T


UniRef90 K1RUD3
UniRef90-F4LJL7 UniRef90_UPI0004148EE8 UniRef90_W7Q349 UniRef90_Q11VC9 UniRef90_F7V1P4
UniRef90_R7D5L2 UniRef90_S6CCZ4 UniRef90_B5JMV0 UniRef90_UPI000466EBB0 UniRef90_R7GL14 UniRef90_D6DFF4 UniRef90_D1B7U4 UniRef90_U1P876 UniRef90_C0M6N6 UniRef90_UPI00047B0502 UniRef90_UPI000470A338 UniRef90-B2GFN6 UniRef90_A0A010PGR7 UniRef90_L1MFV8 UniRef90_UPI000377EF3C UniRef90-M7MS16 UniRef90_UPI00047DDE34 UniRef90-D2PRF7 UniRef90_G8XAK6 UniRef90_F0PBU2 UniRef90_H5XS48 UniRef90_UPI00029AAD0F UniRef90_MOPI66 UniRef90_UPIO002555D40 UniRef90_F8ECK5
UniRef90-I1ZJY9
UniRef90-W7Y6B8 UniRef90_D4LZA7 UniRef90_UPI0003634A98 UniRef90_M9SHY2 UniRef90_H1BDS8 UniRef90_A0A011QTH6 UniRef90_UPI00031B81FF UniRef90_UPI00037421C2 UniRef90_LOG4K9 UniRef90_C1D3S6 UniRef90_UPI0003612D3F UniRef90_B3QXC9 UniRef90_E7NRZ5 UniRef90_A0A031LMT5 UniRef90_B4U486 UniRef90_C5EGM6 UniRef90-E1Y8F6
UniRef90-R9MAR6 UniRef90_UPI000317470F UniRef90_UPI00035CAA4F UniRef90_HOUR41 UniRef90_S3K824 UniRef90_R2PXA7 UniRef90-A0A022L3Q9 UniRef90_UPI0003B37599 UniRef90_UPI0003821C23 UniRef90_T0TH32 UniRef90_A8U179 UniRef90_UPI0004033D04 UniRef90_R7L2D3 UniRef90_W6TAK1 UniRef90-E4TAW7 UniRef90_D2MM79 UniRef90_S3A9A9 37D99BE UniRef90 Q11TH1 UniRef90_U2PW06 UniRef90_R5C1F1 UniRef90_G5HPA0 UniRef90_U3U8A8 UniRef90-I3ZYI6 UniRef90_M7ERV7 UniRef90_A7VT08 UniRef90-F2IDU0 UniRef90_F5WQS0 UniRef90_J9UU40
UniRef90 D8J972 UniRef90_K7TDZ5 UniRef90_M2JWH3 UniRef90_W9GSY0
UniRef90_UPI00037F42C2 UniRef90_F0SX08 UniRef90_IOIJ11
UniRef90_C8WH72 UniRef90_F3PBG0
UniRef90_I0R3M2
UniRef90_D4JAX6
UniRef90_UPI0003B7333A KKRKA
 T E A GRARA LS I Y R R HYN VVF F L ELLLGVDQDRAGRDACEME
T

I

T D K G RM Q A I R V M R K H R L A E R L L V VI G L E W W D V H A EA C R WE
T E K G L TRAGKLCAVDVKNRHRVLRKFLEVLGVDYQTADKDACLME
 TAEGEAVALEVVRHHRLLEAFLDQLDYDWSDVHEEADALE





 TEKGLLIAANQLI RKHRDWEVF TKSGRKAAALVVRKHRLTEMF EELEYTWDQVHEEAEGL E TEEGKKSAALDRKHRLWEVF E QMGF GWE EVVAIA E QI E
 TEQGE QLADKVASRHRVVLQALRALGVPES IARA DSE GI E EGKKI A L NMLRKRRLLELFLKMAGYDLYDVDEEACRLE TKKGQTI AKNVRLRHNALHMFLEVLGVESKKAAAEACEME

T
T
T

## T

TPTGKMAAKDVIRRHEVLSDFFKVLAVEEADADKAACLME KGQKDASQVYERYDFLTKLFCQFGVPVEDARKDACLDE
TQEGTDYAKKLIRKHRLWEVFLKHLGFNINEVHPEAELLE
EKGQTMVAGLYRKHRLIEVFLYHLNYSPKEVHEEAEVLE
T
$\begin{array}{ll}\text { T } & \text { S } \\ \text { T } & D \\ \text { T } & D\end{array}$

 TETGTINVAELYRKHRLTEVFLDHLQYSCDQUHQEAEGLE
 TPKGRQAAESVLKKHNILFQFLTNLGIPRSAABEAACKME


TTEKGIERGKRIVRLHRLWEMYLKNLLLDSDHVHDDAETI E



$T E E G R K Q A A$ LVVRKHRLTEMFLVVMMGFAWDEVHEDAEQVV

T QKGLLLVSDLLYRKHRLIESSGRDLHYTADEIHQEAEVLVE
TEAGLVKIAKATYERHQTFQTEL EEELGVDGKTAAADASSLME
TTLGNSFALABIRKHRLWETFLVTLHEGWDEVHD@AEQLE
TEKAT LEAKTLVRKHRLWEVFLVHLGYSWTEVHEDAEVLVE

TNAGQDMASKARHRHGIVEAFLLALGDSEENARDDAEGUGE
GREDAEKLYERHQYFANQLTGAGVDASTAEAEACKME
TEDGTRMANMARQRHRVVFDFGRADGI DRETAEADSEGME

T
T S A G K K Lin A A A C A Q R H H E A V Y Y R F Li R K L
TAAA GK H L A E E T L S S K H R F F E R L L A N A G V N A E VVA S K E V C R M E
TDEGRRRATDVI RKHRDAERLLDVVGMDRRLVHEEACRWE



| UniRef90_K1RUD3 | $50 \quad 60$ |
| :---: | :---: |
|  | $H \mid V I S T E$$H$ H D D VEGGLLNYMDFPKRD |
| UniRef90- F4LJL7 <br> HI I DDDVFQG LNYM |  |
| UniRef90-UP10004148EE8 |  |
|  |  |
|  |  |  |
| $\begin{array}{ll}\text { UniRef90-F7V1P4 } & \text { HC CLS S A S SFEKFSA } \\ \text { UniRef90-R7DL2 }\end{array}$ |  |
|  |  |  |
|  |  |
| UniRef90-B5JMVO | HVLGEETVRRLERLLDYPSEDP |
| UniRef90-UPI000466EBBO HVIS DESI K |  |
| UniRef90-D6DFF4 H DIS EQS |  |
|  |  |  |
| UniRef90-D1B7U4 | HLLDDD ${ }^{\text {degri FALSEFDKASEGWARELQE }}$ |
| UniRef90-U1P876 HHISEEFERRVAEALDNPSVDP |  |
| UniRef90-COM6N6 ${ }^{\text {HI }}$ H S K D T F K K K K Y |  |
|  |  |  |
|  |  |
|  |  |  |
| UniRef90 AOAO10PGR7 HVMSERVERRLVELLQSPVESP |  |
| UniRef90-L1MFV8 | HVMSDEVEQCLVSKLDNDER |
| UniRef90-UP1000377EF3C | AISPEIESKIDELLG |
| UniRef90-M7MS16 HVMSERVEQRLYALLGKPAASP |  |
| UniRef90-D2PRF7 ${ }^{\text {HV }}$ HVSDAVELRLDKILDNPTESP |  |
|  |  |  |
| UniRef90-FOPBU2 $\quad$ HVTSQTLVNRLAD |  |
|  |  |  |
|  |  |
| UniRef90_UPI00029AADOF | RLIMNHLDVFLNYPTHCP |
|  |  |
|  |  |  |
|  |  |
|  |  |
|  |  |  |
| UniRef90 UPI0003634A98 HVISDETLRKIETLYN\IKKNSDTENKDR |  |
|  |  |  |
| UniRef90-H1BDS8 HVI SETS |  |
| Unireet90-A0AO110TH6 H A S D |  |
| UniRet90_UP100031881FF |  |
| UniRef90-UPIO0037421C2 | SPAFFTRMDEL |
| UniRef90-LoG4K9 HI K SNLLTQRLDD |  |
| UniRef90-UPI0003612D3F HHCSDETVAAMHRFLD ENP |  |
| UniRef90 ${ }^{-} \mathrm{B3OXC9}$ | HVISDRLADALDKMLGHPK边P |
| UniRef90 ETNRZ5 ${ }^{\text {H Al }}$ SQETAQKLYEYLEKDGK |  |
| UniRef90-B4U486 |  |
|  |  |  |
| UniRet90 E1Y8F6 HSIPRVILERFIQFAEFVEVCPKWTAGFNYHCDQ |  |
|  |  |  |
| UniRet90 R9MAR6 |  |
| Ref90_UP1000317470F H S T S A ELJA R R E A Y L |  |
| UniRef90 HOUR41 |  |
| UniRe990-S 3 K 824 H |  |
| UniRef90-R2PXA7 $\quad$ HVTSSQLEKRLNTYLEHPAYCP |  |
| UniRef90-A0AO22L309, HVM |  |
|  |  |
|  |  |  |
| $\begin{array}{ll}\text { UniRef90-UP10003821C23 } \\ \text { UniRef90-TOTH32 } & \text { HVDS } \\ \text { HV }\end{array}$ |  |
| UniRef90-A8U179 H ${ }^{\text {H }}$ H VSATTLKVLED WI K |  |
| UniRef90-UP10004033D04 HVMSEEVERKLVKVLDEYTVSP |  |
| UniRef90-R7L203 $\quad$ HSIDDLDDM |  |
| UniRef90-E4TAW7 HIHSEEFFDKMDEL |  |
| Uniref90-D2MM79 H ${ }^{\text {U }}$ HLSDQTFSKMK |  |
|  |  |  |
|  |  |
| UniRef90-H6RE05 HHLSEEILDQLDKKLGFPSKDP |  |
|  |  |
| UniRef90 R5C1F1 HVVSGGVIQGVCEFLKYGNTYDRVAKNLN |  |
| UniRef90-G5HPA0 $\quad H \mathrm{FIINRKTVENMERTITFLREMP}$ |  |
| UniRef90-U3U8A8 $\quad$ HHVSDETLAAFQKF |  |
| UniRef90-13ZY16 |  |
|  |  |  |
|  |  |
| UniRef90-A7VT08 HAVSPESYE |  |
|  |  |
| UniRef90-J9UU40 |  |
| UniRef90-D8J972UniRef90 K TTDZ5 |  |
|  |  |  |
| UniRef90-K7TJZ5 |  |
| niRef90-W9GSY0 HHASDQTLA A M |  |
| niRef90-UPIO0037F42C2 HVIS A D V |  |
|  |  |
|  |  |  |
| niRef90-F3PGGO $\quad$ HVMSEQVEERLA A L D DVSVDP |  |
|  |  |
|  |  |  |
|  |  |

UniRef90_UPI00041FD3CD$34 A F 790$GF2

5 GF2
T

037F431C
$\qquad$
R4
H4
UniRef90_R5QHE8UniRef90_C2CP36UniRef90_UPI00042894FCUniRef90_UPI000476F7DEUniRef90_UPI00035C82C8
UniRef90_UPI00036B6506
UniRef90-W8VZQ7
UniRef90_F3Y9S0
UniRef90_A3XH55
UniRef90_A9BH76
UniRef90_G5HDS0
UniRef90_E1R8X3
UniRef90_U2L7A4
UniRef90_C8W8C8
UniRef90_E1V7K7
UniRef90_D2SBP7
UniRef90_M5E0R5
UniRef90_UPIO002490F74
UniRef90_S8YSI8
UniRef90_M1E8T9
UniRef90-X0TXH7
UniRef90-H1CB80
UniRef90_B7C909
UniRef90-U2N191
UniRef90- Q2FNY0
UniRef90_F2NC58
UniRef90_M1IM89
UniRef90_UPI00024903C1
UniRef90_UPI0003702D0C
UniRef90_R6RMF7
UniRef90_UPIO003697AEA
UniRef90_M7Y3V9
UniRef90_H3RRJ5
UniRef90_UPI00042237B4
UniRef90_UPI00036FC1CE
UniRef90_R7LV08
UniRef90_U1PXI3
UniRef90_TOLGP3
UniRef90-K2ESX1
UniRef90_C0VVN2
UniRef90-E7GA49
UniRef90_GOIWJ8
UniRef90_E4KR76
UniRef90_F9V8J9
UniRef90_-Q2RIM2
UniRef90_G1WVX5
UniRef90_H5UTB7
UniRef90_L8JJ24
UniRef90_D1CEB4
UniRef90_H1YYV1
UniRef90_D7GFL1
UniRef90_H1X775
UniRef90_C7RGX8
UniRef90_UPI00037E7B49
UniRef90_G9ZTA8
UniRef90_R5PZL3
UniRef90_F2L3P3
UniRef90 S7J5M1
UniRef90_U4KP60
UniRef90_UPI0003659697
UniRef90-D5RGC2
UniRef90_UPIO003654558
UniRef90_F1T6H4
UniRef90_UPI00046AA04A
UniRef90_A0A055LC85
UniRef90-T2A0F2
UniRef90_D3S1K6

UniRef90 UPIO0041FD3CD UniRef90-E1QYO9 UniRef90-B4UDV8
UniRef90 D2NR21 UniRef90- XopDU8 UniRef90- XIJZU5
UniRef90- $10 R 316$ UniRef90-UPI00035FBD95 UniRef90-D7WFG5 UniRef90-UPIo0037E3DDE UniRef90-E5YAJ8 UniRe990-XOZIOOO34AF790
UniRef90-UPIO UniRef90-R5HNR9 UniRef90 ${ }^{-}$A0A022LGF2 UniRef90-A4EAP5 UniRef90_G2M192 UniRef90_UPIooo37F431C UniRef90-S2Y7D6 UniRef90- S2WIK6 UniRef90-J7IWH4
UniRef90 UniRef90-R5QHE8 UniRef90-C2CP36 UniRef90_UPIO0042894FC UniRef90-UPIO00476F7DE UniRef90-UPI00035C82C8 UniRef90-UPIO0036B6506
UniRef90 W8VZO7 UniRef90-W8VZQ7 UniRef90_F3Y9so UniRef90_A3XH55
UniRef90_A9BH76 UniRet90_G5HDSO UniRef90_E1R8X3 UniRef90-U2L7A4
UniRef90 C 8 W 8 C 8 UniRef90-E1V7K7 UniRef90-D2SBP7 UniRef90-M5EOR5 UniRef90-UPI0002490F74 UniRef90 S8YSI8 UniRef90-M1E8T9
UniRef90-X0TXH7 UniRef90- ${ }^{-1 C B 80}$ UniRef90-B7C909 UniRef90-U2N191 UniRef90- F2NC58 UniRef90-M11M89 UniRef90-UPIOOO24903C1 UniRef90 UPI0003702D00 UniRef90- R6RMF7
UniRef90_UPIO003697AEA
UniRef90-M7Y3V9
UniRef90 H3RRJ5
UniRef90-UPIO0042237B4
UniRef90-UPIO0036FC1CE
UniRef90-R7LV08
UniRef90 U1PXI3
UniRef90-TOLGP3
UniRef90-K2ESX1
UniRef9o -
UniRef90-E7GA49
UniRef90-E4KR76
UniRef90 F9V8.J9
UniRef90-Q2RIM2
UniRef90 G1WVX5
UniRef90- H5UTB7
UniRef90-L8JJ24
UniRef90-D1CEB4
UniRef90 H1YYV1
UniRef90 D7GFL
UniRef90-H1X775
UniRef90 C7RGX8
UniRef90_UPI00037E7B49
UniRef90-G9ZTA8
UniRef90-R5PZL3
UniRef90_F2L3P3
UniRef90 S7J5M1
UniRef90-U4KP60
UniRef90-UPIO003659697
UniRet90_D5RGC2
UniRef90- UPI0003654558
UniRef90-F1T6H4
UniRef90_UPI00046AA04A
UniRef90 A0A055LC85
UniRef90-T2AOF2
UniRef90-D3S1Kt

HTKSPTFFDKIIDELLINHPVADP


HATSGDLTDRLNKFLDYPTHCP HELEAKTIEQLKN
HVMSESVERKLIGLLKNPSVSP $H \mathrm{HVV}$ E D T L R
HVMSEEVERRLTHVLDDPTRSP
HALSEELEDLIAATLGNPTHDP
HVIPPDVIRRLGQFVLYLRSREDWQEDYKEDR
HGVSKEAAEKLEKLLKSPKTCP
HVMSERVERKLLDLLDHPTESP
HAIS RQSFAVLKDRLE
HIQSTLFFDKMDQMLNYPRFDP
HVMSDDVERRLIEVLEDPRTSP
HCLSEESFEKLRAMLN
HHISEELERRMAALLEDPETDP
HVMSDRVERKTLALLDGNSQSP
HVMSDAVERKVEALKGEPAVSP
HRVSELFVERLDELKNYPETCP
HRVSELLFVERLDELLNYPETCP
HVMSDRLEKKLTELLGEPRVSP
HVISNDSiHAMQEFL
H HISERFETELAAALDEPTVDP HFISKKSFQGIRNFIKQVEE
HVMSEEVEKRVVAVL
HIKAPLFFERIDQLLGFPKYDP
HIKSPLLVERLDHFLGNPQYDP HVMSDEVERRLDDVLEDVDRSP HVWPDDVLERLDEILGRPRTCP
 HIKSDKLIRELDKFLGYPKHDP HHMNDNFYISLDGLMLF GKRNPDELTEAKKF HYLSQESVVSUGGLVG
HVITPELASRFRSLTQYDEDE
HVLSDDSFEKTKNYIK
HSLSDDTLAKL1TFLE
HHCSEATVEAMRRYLN
HVMSEAVERKLLTLLGNPTVSP
HALSQESFEKMVKYL
HVTSTKLVNSLDTFLWHPQHCP
HILKEDSFKKปKKFVQ
HDFSQSTFRKMERMIAF DEKHPEDFEEFKKF
HTLPPEMERSTCTLLGHPPFSPA
HVISESSFQHLKK
HTISEESFKKLK
$H V I S S D S T N A M Q K F L$
HGLSPDSYKKLVPFIKFTEE
RAIPGVIVDRLI QFGEFLDICCPEWLQDFQRFCQ HDWPEDIDEKI DVMLNKPSTCP
HQTSDRLASSLDNFLGYPKHCP
HVMSDAVEQHVVSVLNSPKRSP
HFINEKTDYNI ENFLK ITHEKE
HVNFEELTERLAKFLGNPEFDP
HVRSQ\LVQRLDEYLGYPKFDPHDPDEFGEVKSR
HNTSDRLATALDAFLNHPKYCP
HAGNDELTERLYLFLDKPK
HLLTTAEEI ERLAELLE
YAMPCDVLEKFVQFLTFMEKCPKWVKSFKYYSQ
HVMSDDVEARLLAVLDDPGVDP
HTlSPEMEERLLEI FGKSQTCP
HTLTPDMEEKLTRLGENPKLDP
HVMSDDVENLLTTVLSTTKVSP
HFMDRKT LQ EKLTLFLENHHD
HVKAPLLVRRLDEYLGFPKFDP
HASSPKLVEYLYALLDYPAVDP
HYDTPPTMCLFRNLVQYFRAHPEYDDEL
HAISAEAFQKLKN
HVMSERVERKIVRLLDEVDVSP
HILTPELEARLEKLLNYPKVDP
HAITDETEEKLWIALGRPTTCP
HSASDDTIKKLNEYL!RPGRCHGWRQ
HVMSEEVANRLCEMLGTPVSTP
HDADDEFVNALEKFLDYPKYSP
HVTSEEMFIALNKFLDYPKKSP
HVMSERVERKI LAMLK
HDTTNEMDDHLDDFLGNPERCP
HYLEGKAASRFFNMIDFLYEKEEWMNGL
HVMDPRVVERDAKLAEALKQLSEAL
HVFTDELEEAIVARLQDPDYDPRLIPKRKHHQEE
HATSPRLVEKLFDYLGRPTHC
HVMSEEVERRVIDILGEPSHSP
HHASDK
HIITPELERQLDKSLNFPKEDP
HAISTDTQNRWLAYLD
HSSDKDLMDHLNDFLGHPQRCP
HAVSDRLMARIDAKLGFPQRDP
HVLSYESFKQLKKYLE
HILSDEVEEALCTLLG

UniRef90_R7PKV3 UniRef90_LOABP5 UniRef90-D3RXA0 UniRef90-R7FUM5 UniRef90-U2JKK06 UniRef90-17L581
UniRef90-R7MNH UniRef90-R7MNH1
UniRef90-V4J8B0 UniRef90_UPI00047B4AB6 UniRef90_K2A654 UniRef90-B5Y9M4 UniRef90-Q026A1 UniRef90-X1KWT2 UniRef90-C7RI31 UniRef90-D1C3K2 UniRef90-Q2IUL4 UniRef90-X0SLL 1 UniRef90-R5SID0
UniRef90 F6GGV7 UniRef90-MOFQE0 UniRef90-D5E894 UniRef90-K1SCG2 UniRef90-W4RH05 UniRef90_G4KY65 UniRef90_UPIO00478ABE8 UniRef90-J5HSK4 UniRef90-A3ZXJO
UniRef90-D1PII3 UniRef90-D1PII3 UniRefgo UP10003695520 UniRef90_Q1Q4R0 UniRef90-B3ET31 UniRef90_U2USR3 UniRef90-D4H2B6
UniRef90_C5CFL3 UniRef90-J2ZK18 UniRef90_C0D3Z5 UniRef90_UPIO00248EBA6 UniRef90-Q96YD2 UniRef90_E0XX39 UniRef90_B5IEE8
UniRef90_R7NI40 UniRef90_Q8PX90 UniRef90_UPI0003F65C06 UniRef90-UPI00035D9168 UniRef90_V5WFW7 UniRef90-H5SH71 UniRef90-Q12UX2 UniRef90-F8L6P3
UniRef90 H1Q482 UniRef90-R9GC42 UniRef90-U1MVK3 UniRef90-KOPAHO UniRef90_U5BT65 UniRef90_R5SZL1
UniRef90_Q2FM93 UniRef90-H1HSY5 UniRef90-R5S894 UniRef90-M7A802 UniRef90_UPIO0047C3932 UniRef90_U2XLZ0 UniRef90-D2Z6N5 UniRef90-Z9JUQ7 UniRef90-H1D081 UniRef90 R6SCC7 UniRef90-E1L154 UniRef90_G4KWNO UniRef90_S5DLE8 UniRef90-G8P3N4
UniRef90-EOSPQ1 UniRef90-UPI00035CBOAA UniRef90-I4AL54 UniRef90-D5E9FO
UniRef90 LOHKUG UniRef90-LOHKU9 UniRef90_AOR805 UniRef90-D8K3D9 UniRef90_S4M6W0 UniRef90-R6HZR8 UniRef90-A8MAJ8 UniRef90-C1D412 UniRef90_E5WLW8
UniRef90_K6WBZ2 UniRef90-Q9Z8J6 UniRef90-W9DVX0 UniRef90-D4MUU1
UniRef90 R7Z728 UniRef90_R6AH91 UniRef90-UPIO003B35B2F
UniRef90_T2KHD5

TEKGYEEGRYLLHRHQVLQDFFCTLNHTEDE LELVEKTE T NKGNELASSIVEKENEIKNLLDRIGVDEKESEDI ACILE
 TEEGNIRAQDLLSDHRLWEYFLCILGMDSEKIHEQADLLE
 T DKGLAAAEA IAGKERALREALKLMGVPEAEAEKDACLLE
 TKKGLKEARK円ITRHRIAESFMHILKDNKRDLHKEAHRLE TAPGREDANRLLNRHHLI ERMLEIGGLEWYKVHDEAEQLE TKAGRAAATEIVQKHNILKSFFVVLGIEKDDAQHAACKAE
 TENGEKAALEVLRHARLLELYLAEAGYSWDEVHEEADRLE TRKGRREAGKDFRFHADWEDF LE KLK DDFNQADEDACKME TNKGEKMALNVIRKHRLWEAFLKTFDMTLHEDHREAEFLE TTEGEELALRVVRRHRLAETMLELFGYAUSEVDTEAD\|LE TESGMUQANNLQRKHLVLKNFFRVLDDVEEVADQEACALEE
T DKGREVGNYLLYRHEVIHRFLCALNHS DNELEQVEKI E EKGYLEGRYLLYRHEVIQRFLCLLN DSENELEEVEKI E T DAGEAAAKRIISKHRLWEYFLETLNFNWKDVHAQASALQ TESGNHEARRLMRAHRIWETYLQRVGMPEDSLHDRAHLLE EPGMVIARRIYDRHRKLTQFFVAL GVDPEVAABDACKI TNQGVEAARRLVRAHRLWETYLTEVGLDKEQDHLDAERHE TQKGREAGNYLLYRHEVLHRFLCLLNHTENE LDEVEK DE



TKTGLDQADLLDRKHRLWETFDANLAFALPDDHPEAEVL E
TEKGLLREGEYL L HRHQVLHRFFCALNGTEDE LEQVEKVE



T DMGKAYAEFLVRRHRILSSLLDFTHYGLSTEEACAEVVSRFE
T DPGKYQARRVVRLHRLWESYLEYMNIAPDHVHESAEKLE T DAGD G L A RKL L L KHRATQDF L QLL GL P HERAQEVSAQ I E



TEEGRKHALLKI I RAHRI YEQY LE E S SGYAPPEWHERAARME
TSEGAREAALLVRNHRLWEVFLVKLHYQFNTVHPEAEQLE

TEE E GKK F A L L R TII R K H HLL WE V
T E E G V K K A K K E VI I K K H H E T L S S E F F E E I L


T K D G L L D DAA

TRKGREKALETYRRHQHMT LIFSE ILGGVEDPIAEEMACAAE
TE LGGWSRA TS V M R K H R L A E RLLLD H L G L E Y Y A L V H E E A C R WE
T L K G T E LIA N K L L N R H L F F Q KIL L E A GIIE QQQA E K E A C M L E
TEIGGRQGGRQIVRAHRLWETFLQRLGLRPEQWHDNASRAE
T S V G L E Y A T H I W W A H C M M R S F L E H L GVVVRDVA D E E A C L M E
TALGEKAAADLEKKYT LLKR LFTVVLDVDEQTAAQDACRDE
TESGDCLAKIVIRRHRITTERFLEVLNLPWADVYKEASKWE
T D LGTHEARFILKSHRVWES FLEKVGYTMEEVHDEAENLE DKGRDMALTIVRKHRIAETFLRILKFDDVKAHSYA HAME TEEGRRRLAEVVRRRHVLVRDFLDWLGVDAETAEGAAEGDE

TDEGKQYAQFLVKRHRILSLLLVRNGLSREDACREVSRFE
TVDGEARAAQIVRLHRLWEVYLDYLGMGSERVHRSAEEME

 K GKNRAKKLVRAHRLWECYLRSLEFKEEEVHGFAEEME
T
$\begin{array}{ll}T & \mathrm{~S} \\ & \mathrm{E} \\ \mathrm{T} & \mathrm{K} \\ \mathrm{T} & \mathrm{G} \\ \mathrm{T} & K \\ \mathrm{~T} & \mathrm{E} \\ \mathrm{T} & \mathrm{P} \\ \mathrm{T} & \mathrm{S} \\ \mathrm{T} & K \\ \mathrm{~T} & \mathrm{E} \\ \mathrm{T} & \mathrm{E}\end{array}$
S
E
K
T
G
T
K
E
T
T
T
T
T
T
T
T
E
E

 GS GTS A A LAA IRRQRLTETF LQEMGYGWHEV HDDATA L A K GRSEALRLVRAHRLWESYLVNLDFSKESVHELAEEIDE MGREFAE FFVN R H N L L S L ML SHYGLS S DDACS EVVSRFE SAGKKKA LIE I T R R R R K L WE WV F L


|  | 506070 |
| :---: | :---: |
| UniRef90_R7PKV3 | HFIINHRTVANMEQALIPFLRPKND\} |
| UniRef90_LOABP5 | HKIS D N AVKKLKEFVN |
| UniRef90-D3RXA0 | HVANEDALRKI CHFI |
| UniRef90_R7FUM5 | HVIS K ESFEAI K R HV |
| UniRef90-U2JK06 |  |
| UniRef90-17L581 | HSSSKRLVERLYTLMHFPKTDP |
| UniRef90-R7MNH1 | HFINRNTVDNIQNLMKQ\NK |
| UniRef90-V4J8B0 | HSVSDQAVRAMTEFVR |
| UniRef90-UPI00047B4AB6 | HAVSAAFEARLLEKLG |
| UniRef90_K2A654 | HSLS K KVK R MAKILK N P K VCP |
| UniRef90-B5Y9M4 | HFLHTETLEALMNSLFDPKE |
| UniRef90-Q026A1 | HAVSADFERKLDERLGVESECP |
| UniRef90_X1KWT2 | H T L K P V V A R L |
| UniRef90-C7RI31 | HVIS DETFEKLKKHF |
| UniRef90_D1C3K2 | HSIS E ELEARID RALLGYPT T D P |
| UniRef90-Q2IUL4 | HHVSDATLAAFAQFLE |
| UniRef90-X0SLL1 |  |
| UniRef90-R5SID0 | HQTSDMLAERLDEFLGHPEHCP |
| UniRef90_F6GGV7 | HETSDFLANKISDYLGNPKFDP |
| UniRef90 MOFQE0 | HHLSERLCREIERKLDMPETDP |
| UniRef90-D5E894 | HVMSDVVLERMCSY |
| UniRef90-K1SCG2 | H DLS E ESFQKLKELFKNMN |
| UniRef90 W4RH05 | HHLSRDADDRI GDLVQFFEEDQSRVQE LTRA $\square$ Q K K |
| UniRef90-G4KY65 | HFLDRKTVKNLELL |
| UniRef90_UPI000478ABE8 | HFLSPKTIENLAKLSSRLEN |
| UniRef90_J5HSK4 | SVTSDELFEKLNDFLHRPAACP |
| UniRef90-A3ZXJ0 | HLNDEATVDYLDDRLGHPTRDPE $\square$ P E D F |
| UniRef90_D1PII3 |  |
| UniRef90-UPI0003695520 | HLLLPEA L S A V E K L G Y P Q DD P |
| UniRef90-C0C4N1 | H Yı DKRTVENLARLL |
| UniRef90-Q1Q4R0 | HFLSEEVTTSICTLLGHPLTCP |
| UniRef90-B3ET31 |  |
| UniRef90-U2USR3 | HIT D GEMMKRLNAFLNYPTHCP |
| UniRef90-D4H2B6 | HYNDADA】QYIYEQMGSPVTDP |
| UniRef90-C5CFL3 | HIS N $\square$ RFFT A L S VMMDF L N E N P E L K K R F |
| UniRef90-J2ZK18 | HVTSPKLLARLDKFLGYPKHCP |
| UniRef90_C0D3Z5 | HFMDRVTVGNLERLLGKME |
| UniRef90_UPIO00248EBA6 | HETSDFLADKI HEYLGFPDYDP |
| UniRef90-Q96YD2 | Y S VPDEV $\mathrm{V}^{\text {E R I I Y E Y L G K P E K C P }}$ |
| UniRef90-E0XX39 | HAI TPLVADRLEEYLGYPKFCP |
| UniRef90_B5IEE8 | VNI EDDVVELI CNRLGNPKECP |
| UniRef90-R7NI40 | HFIDETTLTNLEKQIN |
| UniRef90-Q8PX90 | AFVSRNSVNKICSSMGHP |
| UniRef90_UPI0003F65C06 | HLLTP DLEALLES R L N F P K LD P |
| UniRef90_UPI00035D9168 | QSLPADVLCRLVQFNNFYRNNP |
| UniRef90-V5WFW7 | NNISDIFEERMFKALGKPQTCP |
| UniRef90-H5SH71 | HFLAEGITRA】CTLLGHPRVCP |
| UniRef90-Q12UX2 | HTVSDLVVESMCNYLG |
| UniRef90-F8L6P3 |  |
| UniRef90-H1Q482 | HRIS DDERERIA SLLGNPLFDP |
| UniRef90-R9GC42 | HVTNHDLAERLADFLGHPKRCP |
| UniRef90-U1MVK3 | HALS DRLLESIAASLGDPERDP |
| UniRef90-K0РАНО | HIDSDILI DRLDHFLGSPYCNP |
| UniRef90_U5BT65 | HI K S K L I Q R L D Y L GFPKFD P |
| UniRef90-R5SZL1 | HVIDNRILKKLEQHI K |
| UniRef90-Q2FM93 | HLVPKVHID Q I C R S L G P S R |
| UniRef90-H1HSY5 | HVISEDSFHKMQA H |
| UniRef90-R5S894 | Y SMP DEVLE K F VGG ${ }^{\text {L }}$ T F M Q N C P K W $\square$ K S F Q H Y $\square$ K E |
| UniRef90-M7A802 | HVMTEDVERSIAATLDDPRRSP |
| UniRef90_UPI00047C3932 | HVSNNQILDKLYEFLGEPK |
| UniRef90-U2XLZ0 | HTISDRLLAGI A ERLGDPRFDP |
| UniRef90-D2Z6N5 | HCLDSTTERRLAAFVDF |
| UniRef90_Z9JUQ7 | HVMSLEVEKRIA ERI DAPYLDP |
| UniRef90-H1D081 | HQTNDILSEKLEAYLNHPTHCP |
| UniRef90-R6S7C7 |  |
| UniRef90-D5SYP0 | H Y I S SELR HELSNDLMRPDQDPQ |
| UniRef90-E1L154 | HAI S LD TQNKWLS Y L E |
| UniRef90_G4KWN0 | HVISSESLINRLE |
| UniRef90_S5DLE8 | NVLSPLTEKAMLEILGNPTTGP |
| UniRef90-G8P3N4 | HASSPRLIESLYVLMGYPETDP |
| UniRef90-E0SPQ1 |  |
| UniRef90_UPI00035CB0AA | HHVSEATLRAFARKLG |
| UniRef90-14AL54 | H ILTPE I EA QLETRLK Y P Q K P |
| UniRef90-D5E9F0 | SFVS $\square$ QAID TIC STMGHP |
| UniRef90_LOHKU9 | SFISRNAIDTMCRAMGHPQ |
| UniRef90_D1R644 | HILTPELEKELTVLLK D P K K P P |
| UniRef90-A0R805 | HVVKKEIEEEI CRLL G HPETCP |
| UniRef90_D8K3D9 | HLLI K GLDENICVLLGHPKIVCP |
| UniRef90-R5AGC1 | HFMDRRTVENLDRLTGRMK |
| UniRef90-S4M6W0 | HVLT D ELD M A T ELLDNPHYDP |
| UniRef90-R6HZR8 | HFLDRRTVENI SRFLE |
| UniRef90-A8MAJ8 | H V N DVVI DRIYNMLGRPMTCP |
| UniRef90_C1D412 |  |
| UniRef90-E5WLW8 | M HIG T EVVFKIKSFIENHKKN |
| UniRef90-K6WBZ2 | SAASDRLID Y L D D R G G P T R D P |
| UniRef90-Q9Z8J6 | HVLT E ELDHTLTE\LNDPCYDPHR |
| UniRef90_W9DVX0 | AFVSKDAIDTICGAMGHP |
| UniRef90-D4MUU1 | HVLDERILTGIRMFME |
| UniRef90_R7ZZ28 | HISSPLLIQRMDEFLGYPKFDP |
| UniRef90_R6AH91 | HQT NEELCSKLDDAYLGNPEYCP |
| UniRef90-UPI0003B35B2F | HSSSDKVIQSLYHYL GEPK |
| UniRef90_T2KHD5 | HRLLS H D E A D ELIA A H\|L G H P Q F D P |

## UniRef90_W1TN32

 UniRef90_B5YKN5 UniRef90 V4L1V5 UniRef90 ${ }^{-}$15C1Z6 UniRef90-E6QKQ9 UniRef90_S3WZS6 UniRef90 UPI00038155A8 UniRef90_Q12UD0 UniRef90 B5ECZ6 UniRef90 W7UUF9 UniRef90_UPI00035C7EF6 UniRef90_H3NM48 UniRef90-D2MMH5 UniRef90_A9WHC8 UniRef90-D5ANL3 UniRef90_R6BYZ5 UniRef90 T0MW15 UniRef90_C2CJQ3 UniRef90_C4XPN7 UniRef9- XOXLY2 UniRef90_F4ZYT9 UniRef90_M5SY85 UniRef90 A4GI87 UniRef90_M5J9Q5 UniRef90-Q3A366 UniRef90_D3E3S7 UniRef90_Q7UAM8 UniRef90_W0J5G9 UniRef90_R7A273 UniRef90_F0QW26 UniRef90_Q39SV7 UniRef90-R9STK2 UniRef90_F9YSE2 UniRef90_UPI00029B2CA6 UniRef90_Q1JD70 UniRef90_E1WZA1 UniRef90_IOAGW4 UniRef90-UPI0003744608 UniRef90-X1S9U1 UniRef90-A6C9P1 UniRef90-X1HRP4 UniRef90_G8R720 UniRef90_T0SWX3 UniRef90_L9XRF2 UniRef90_B8EK93 UniRef90_D7EAJ8 UniRef90_W0JKG1 UniRef90_D5SYP1 UniRef90_A0A031LLH0 UniRef90-MOANE9 UniRef90-W9DU02 UniRef90_X0ZVV2 UniRef90_B9DKB1 UniRef90-TOY3S1 UniRef90_W7YE66 UniRef90_X0YRW1 UniRef90_F8D9P1 UniRef90-MONGF7 UniRef90_J1AWR2 UniRef90_R7DY09 UniRef90-F3KN19 UniRef90-D5EQF0 UniRef90-XOYSQ0 UniRef90-TOMTM3 UniRef90_T0CIY3 UniRef90_H2C904 UniRef90_S0FFV0 UniRef90-S0ATI7 UniRef90_UPI00035DBDAF UniRef90_UPI000367CFFE UniRef90_D4VUN9TEKGEKLALLIOMVIRKHR1I 20 20 30
 T T R GVEAKNIEVKKNILYKFLEILRVSHESAQKDVHKME TRGALAHSIARRKRCLTRLLVDINMAPADADGEIHRLE
 ET GWARARAVMRKHRLAERMLDVGMDVVILHEAACKLE


 T DA GL A L A R D LT R R HR L WE HYMQAA GL GP WAAHRAA DEVE
 TKTGMQESKRILSCHRLWETF LEKLHYNWQDVHEQADLLE TANGYLLARHLIVRHRLLERFLDVVGVPWDFVHREAARLAA
 TELGGVVQGEECLLRHHNLTQFLQMCGLEEEEAEENACRME TEKGK KLLEN L N K K E S S I Y E LLL K L M G CDE E TAKERAC F F E

 T D K GEVY A QQLI R A H R L A E RLL $\quad$ Y DVLS G D YE



 TENGEYLGRSLVRKHRIAEKVVADLDGDMDEMEELADQDE

$\begin{array}{rl}T & D \\ P & G R G R E\end{array}$

## T

T
T DEGDKEMNS L RA HRVI FTFL KVKANL

T A T G K Q S A L E I I R A H R L Y E HF L EK T GYAP I Q WH K Q A E K ME
T QEGARLLAAKAVRNHRLWELYLIHADVALGRVDREAADIDE
T D K GH DEVHR LLS S R T L L Y Y F L K FVVGVS EDTAERD S CL ME
TSEGKKSYALRVVIRVHRLWEKFLDETSMTEKEWHKAAEEDE P A GE R R A I E L I R A H R L WE R Y L D K E G V A L H A L H E E A M R R E
T
T

 T A E GQQDAVE TVVRHCLLLEAYLKFLDHPDQAAHKEADQLE



## T

TEGLDRAHEALQTYCI IERFLNVLEVDE










TE A GL D A A A K V T R NHR L WE L Y L E HA E VA A S RVVDRDA DAV E





lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm


lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm

