

UniRef90 E3TEZ6 UniRef90－W4XKE0 UniRef90＿H2LTZ5 UniRef90＿W5GNZ7 UniRef90－Q642S1 UniRef90－V9L6P4 UniRef90＿Q67N37 UniRef90－D7BH25
UniRef90－D8T153 UniRef90＿UPI0003C389DD UniRef90＿U5D0M9 UniRef90＿G3C8Z3 UniRef90－c9W1H0 UniRef90－M0U9P1 UniRef90－C6XV13 UniRef90＿UPIO0026570BB UniRef90－U5EVI3 UniRef90－D1C3A4 UniRef90－E4U9J9
UniRef90－F1S7D0 UniRef90 XOTRV9 UniRef90－UPIOOO306A4A9 UniRef90－B8GNE1 UniRef90－T1DNG6 UniRef90＿UPI00039AAFD1 UniRef90－D9CJ31 UniRef90－E5S583 UniRef90＿1FZE8
UniRef90＿W2C5Y0 UniRef90－A5V9T5 UniRef90－Q1GRZ0 UniRef90＿U5QCB1 UniRef90－F2IJN0 UniRef90＿D5MLA9 UniRef90＿E3JUU2 UniRef90＿Q5L7W4
UniRef90＿S0ESM UniRef90－EOWOW4 UniRef90－TOSE96 UniRef90－UPIO004760E4F UniRef90－UPI0004059BB7 UniRef90－P93255 UniRef90－K2J1R4 UniRef90－E6PPC2 UniRef90－Q9HDV9 UniRef90－UPIO003613AF5 UniRef90－UPIO003752EFE UniRef90－UPI00037D1E1A
UniRef90＿UPI000363DF6F UniRef90＿UPI0003336588 UniRef90－FOR2Y3 UniRef90－UPI000366103F UniRef90－F1L713 UniRef90－E1GAW8 UniRef90－M1E532 UniRef90＿D5DM33 UniRef90－M1ZFY8 UniRef90－F3Y4X2 UniRef90＿UPI00015B5DB9 UniRef90－LODT13
UniRef90 D5WQ57 UniRef90＿U4TZL1 UniRef90＿F3ZRI9
UniRef90－Q096X8 UniRef90＿UPI0004250A68 UniRef90－UPI00036F3C19 UniRef90－F4GQZ4 UniRef90－W9C2M9 UniRef90＿UPIO003628C3D UniRef90＿G5H863 UniRef90＿UPIO0024892EE UniRef90－E9C4C8
UniRef90－A0A024G2J0 UniRef90－F5LAV2 UniRef90－T1FMS6 UniRef90－W5XAX3 UniRef90＿UPIO003F4C13E UniRef90＿Q08QG7 UniRef90－E2AWJ4 UniRef90＿UPI0003B357AA UniRef90－M5DGW4 UniRef90＿UPIO003637F2D UniRef90＿L8ENR8 UniRef90＿H9JRB5
UniRef90＿UPIO0047044EF UniRef90＿UPI00026CCB51 UniRef90＿D8LZN1 UniRef90＿I1BZB5

EVGTKLNKQEEFGALE
 EVGQRLEQMDEFGAL EVGASVSQGTNFGAV EVGKKLSKMEEFGTL EI GTKLNQLDEFGAL EVGRELKQNEQFGVV
$V \mathrm{P}$ GKKYQAGEAVAAV

## 

## 

 EPGTAFKQGDECGAL EVVGVTVTKGDSFGAV DI GTELTMHDECGAI EVGSEASAGERAATV
 $D$
$E$
$P$
$P$

 SVGDAFNQGDPFGTVE | $D S G R A V S K G G E A A V V$ |  |
| :--- | :--- |
| $E$ | $V G S S H G A G A A C A V V$ |
| $D$ |  |



，


QVGRVLHQMEAFGVV EVSATVSSGDLIGAV EVGRILKYDEPFGEV SVGQKFAKGESFGSV EVGAKVSAGDSFGEVE
E GGA APGKKVTKGGEAAVV AVGKTFAQKDTAGVV EVGAPVAAGEPCGEVE
EVVGATAGGDASVVE
TVDKEISQNDVFGTVE EVGDEVVQNSTFGTVE EVGTKLNKQDELGAL


## ${ }_{\mathrm{A}}^{\mathrm{E}} \mathrm{V}$

EVGTEVERDEPGSGVGO
$D \perp G Q Q I M K K E A D E C G A L L E$ $\begin{array}{lllllllllll}E & P & G & S & Q & V & Q & A & G & E & P \\ A & C & A & T & V & E \\ A & V & G & A & E & V & K & A & G & E & T\end{array}$
 KEGDTVEANEPFGSVVE
 AEGKQFDKGDEAAVV
EVGDRVEDGKAFGVV TEGETLAQNEDFGTII
$P A G T A V E K K A A V V$
PAGTAVEKGKEAAVV
DVGKKFAAGKAVGVV
SVGETFSKGDVFGAVE
QGOKYDKGDEVGAV
QVGRVLAGDSFGSV $T$
$K$
$K$
$K$ $K V G A S L T E G K Q F G V I$
$D V G F T V K K E E E C G A L$ AVGAALAKGDSASVV DVGRNLKQGEECAVVE
EVGKKVSAGDDCAVAE EVGKTVSAGDDCAVAE KPGTDKAGDECGAL TVGDTLNADDAFGSI EVGSTVKAGDSFSSV UniRef90＿E9GNX0 $S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$
$S$E P D S E L N Q M V
V
V
V
 S PLs ${ }^{70} \mathrm{GE} \mathrm{V} T \mathrm{ET} T \mathrm{NKA} \square^{80}$ VTINKALA TGE G
TGD
TGE
SGE
GEV $\qquad$ ${ }^{\text {T A }}$ N
 VTEINGA

 $\checkmark$ VE | V |  |
| :--- | :--- |
| $V$ | $E$ |
| $V$ | $E$ |
| $V$ | $E$ | V

 | T |
| :---: |
| $T$ |
| $T$ |
| $T$ |
| $V$ |
| $V$ |
| $V$ |
| $A E$ |
| $A$ | VKKTVADLFIDPVS

『のら

Elic

$$
\begin{aligned}
& \text { VGGT } \\
& \text { NAG }
\end{aligned}
$$

$$
\underset{E}{E}{ }_{E}^{V}
$$

V V
VTSCNESGG
I
T
E
V A
TVT
VA

PVSAs

## 

边$$
\mathrm{v}
$$

## 

QUERY
UniRef90_E3TEZ6
UniRef90_W4XKE0
UniRef90_H2LTZ5
UniRef90_W5GNZ7
UniRef90_Q642S1
UniRef90_V9L6P4
UniRef90_Q67N37
UniRef90_D7BH25
UniRef90_D8T153
UniRef90_UPI0003C389DD
UniRef90_U5D0M9
UniRef90_-_3032


| QUERY | K S ${ }^{\text {l E E }}$ |
| :---: | :---: |
| UniRef90_E3TEZ6 | K S I |
| UniRef90 W4XKE0 | E D |
| UniRef90-H2LTZ5 | K SLEE |
| UniRef90-W5GNZ7 |  |
| UniRef90-Q642S1 | K |
| UniRef90-V9L6P4 | K S |
| UniRef90-Q67N37 | K |
| UniRef90-D7BH25 |  |
| UniRef90-D8T153 | K |
| UniRef90_UPI0003C389DD | E |
| UniRef90-U5D0M9 | E E ED |
| UniRef90-G3C8Z3 | E |
| UniRef90_C9W1H0 |  |
| UniRef90-R7QNQ4 | A |
| UniRef90-M0U9P1 | E |
| UniRef90-C6XV13 |  |
| UniRef90-UPI00026570BB | K T S D H |
| UniRef90-U5EVI3 | K N D H |
| UniRef90-D1C3A4 |  |
| UniRef90_E4U9J9 |  |
| UniRef90-F1S7D0 | K Y $\square \mathrm{E}$ E |
| UniRef90 XOTRV9 |  |
| UniRef90-UPI000306A4A9 | A |
| UniRef90-B8GNE1 |  |
| UniRef90_T1DNG6 | K T A A |
| UniRef90-UPI00039AAFD1 |  |
| UniRef90_D9CJ31 |  |
| UniRef90_E5S583 | K S E |
| UniRef90-I1FZE8 | E T |
| UniRef90-W2C5Y0 |  |
| UniRef90-A5V9T5 | E G L |
| UniRef90-Q1GRZ0 | D A L |
| UniRef90-U5QCB1 |  |
| UniRef90-F2IJN0 |  |
| UniRef90-D5MLA9 | A A E |
| UniRef90-E3JUU2 |  |
| UniRef90-Q5L7W4 |  |
| UniRef90-S0ESM5 | E E |
| UniRef90_E0W0W4 | K K C D |
| UniRef90-TOSE96 | D E A |
| UniRef90-UPI0004760E4F |  |
| UniRef90-UPI0004059BB7 |  |
| UniRef90-P93255 | E EED |
| UniRef90-K2J1R4 |  |
| UniRef90_E6PPC2 |  |
| UniRef90-Q9HDV9 | K E E D |
| UniRef90-UPI0003613AF5 | K E |
| UniRef90_UPI0003752EFE |  |
| UniRef90-UPI00037D1E1A |  |
| UniRef90-UPI000363DF6F |  |
| UniRef90-UPI0003336588 | K S T E |
| UniRef90_F0R2Y3 | N |
| UniRef90-UPI000366103F | K T |
| UniRef90-F1L713 | K |
| UniRef90-E1GAW8 |  |
| UniRef90-M1E532 | K E L D |
| UniRef90-A0LU89 | EAAE |
| UniRef90-D5DM33 | NE |
| UniRef90-M1ZFY8 | R D |
| UniRef90-F3Y4X2 |  |
| UniRef90-UPI00015B5DB9 | K T |
| UniRef90-LODT13 | A SEE |
| UniRef90-D5WQ57 |  |
| UniRef90-U4TZL1 | E D |
| UniRef90-F3ZRI9 |  |
| UniRef90-Q096X8 | K E E |
| UniRef90-UPI0004250A68 |  |
| UniRef90-UPI00036F3C19 |  |
| UniRef90-F4GQZ4 |  |
| UniRef90-W9C2M9 | A D |
| UniRef90-UPI0003628C3D | E E E |
| UniRef90-G5H863 |  |
| UniRef90-UPI00024892EE | A $\mathrm{T}^{\text {L }}$ |
| UniRef90-E9C4C8 | A GLD H |
| UniRef90-A0A024G2J0 | ENEE |
| UniRef90-F5LAV2 | TEND |
| UniRef90-T1FMS6 | KRQS |
| UniRef90-W5XAX3 |  |
| UniRef90-UPI0003F4C13E |  |
| UniRef90-Q08QG7 | Q N |
| UniRef90-E2AWJ4 | K S |
| UniRef90-UPI0003B357AA | A G |
| UniRef90-M5DGW4 | E S E |
| UniRef90-UPI0003637F2D | E D |
| UniRef90-L8ENR8 | Q E |
| UniRef90-H9JRB5 | E T D A |
| UniRef90-UPI00047044EF |  |
| UniRef90-UPI00026CCB51 | E |
| UniRef90-D8LZN1 | K E A |
| UniRef90-I1BZB5 | E S |
| UniRef90_E9GNX0 | K N T G |



UniRef90_UPI0003670946 UniRef90-M5G2C0 UniRef90-A0LDQ0 UniRef90_UPI0004409C13 UniRef90_A6CF76 UniRef90_E6SL73
UniRef90_UPI0003 UniRef90_UPI00035D97C4 UniRef90_A2BJ.J2 UniRef90-D9QM98 UniRef90_UPI0002E383AA UniRef90_UPI000421FA35 UniRef90 A7HDC8 UniRef90-UPIOOO4560170 UniRef90-L7UAB7 UniRef90-X2GPQ1 UniRef90-C1N8Y3 UniRef90_UPI0002062C50 UniRef90_UPIO0036C19CD UniRef90-Q9WY55 UniRef90-W6M373 UniRef90_UPI0003B5C674 UniRef90-Q0RNH0 UniRef90_UPIO00382A20A UniRef90-A3QHI1 UniRef90_K8E007 UniRef90_UPI00041E87EE UniRef90_UPIO0036B01 UniRef90_UPI000262CF1D UniRef90-M7NB94 UniRef90-B6VKI3 UniRef90-E8N5JO UniRef90_S3VLJ8 UniRef90_UPIO0034C893F UniRef90_S9XZB6 UniRef90_U3HFEO UniRef90-A3TKX5 UniRef90_UPI00035C44AC UniRef90-Q20634 UniRef90-F8Ul10 UniRef90-UPIO00366968C UniRef90-D3L414 UniRef90-E2CBB6 UniRef90_C5FJR3
UniRef90 K3ZA97 UniRef90_UPIO0036137E3 UniRef90-E4T8E2 UniRef90-I6YY98
UniRef90 C3ZB58 UniRef90-C3ZB588
UniRef90 A4IZK7 UniRef90_I3VXV0 UniRef90-13YTS0 UniRef90_K6WQS6
UniRef90-A4BX08 UniRef90_M2U6I8 UniRef90-S4PAH8 UniRef90_L9JEJ0 UniRef90_UPIO003789BC5 UniRef90_UPI0002E4E1B9 UniRef90-E6WGS1 UniRef90-K5WNZ8 UniRef90-H2C8AO UniRef90-H8MPW9
UniRef90_B0VFE4 UniRef90_UPI00047A92EA UniRef90_UPI000413CDB5 UniRef90_D5SQ43 UniRef90_E8R913 UniRef90_UPIO0026C80E8 UniRef90-U2YQ23
UniRef90_Q6ARJ6 UniRef90_B4J126
UniRef90_F4R446 UniRef90_UPI00036042C6 UniRef90_UPI00047B7C9F UniRef90_UPIO002FEA452 UniRef90-I3UFR5
UniRef90-B7LOK9
UniRef90_K9SZT8
UniRef90 A0A031K UniRef90-U1WYM4 UniRef90-T1J4Y5 UniRef90-UPIO00472B2E4 UniRef90-K0NGC4 UniRef90_H7FQ60 UniRef90-K2BI45
UniRef90_AOKJ04 UniRef90_UPI0003B5B5DA UniRef90-EORTC0 UniRef90-UPIO0040ECBE8

50


60
70
80

DVGANLAASEEAGVV|ESVKAASD|LYAP|IAGEVVVEDNEAL|Q A P G S E L LA GE P L G A V E S V K A A A S D I Y S P V S G TVVEEVVN I L A | Q | E | D | T | L | Q | $M$ | $G$ | $G T$ | $F$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $A$ | V | G | T | K | V | S | K | G | D |
| Q | I | G | A | V | E |  |  |  |  | KI GSTVCEAGKVVFGEV EVGAQYRAGEAFGV KVGATFDKGKSFGSV

EKGRRVQA GEAVAS $E A G K T F G K G D S F A V V$
$E V G D E V V A N E P F G S V$ $\begin{array}{ll}T V G Q S L G E N D D F G T V \\ E & G D T V K G E S F G V V\end{array}$ AADSEVKQGDDVGAV KVGRKVAKGEAFGTVVE EVGGSVTHKETFGVVI DVGATFAAGDDCAVAE EVGREVKKGEVVAS DVGTALTQGSEGATVIV EVGTTAAAGEPFGEVV HVGTQLKVHQS L G VV
 ENGDEINANEPFGSVVE
 KVGKTIKQFDSFGTI


| $D V G K T$ |
| :---: |
| $T$ | $A V G D T V A V G D A C G E V$

$V E G T E L A K E S T F G V V$ DEGTE
 EVGKTVSAGDEAAVV EVGNSVYQVKKFGAV
 EVGKEVSKGEECGTV E GKEFAAGDDSCVV TVVGTMDKDEVFGTVV $T L D D T V A E G E V F G S V$
$D A G K T V K K G D E I ~ A V V$ $D P G T V V K E G D E C G A L$
$E V G S K L N N Q D E F G A L$ DVGRRCAAGEAFGE
 VI GTTEVVKQGDQUGAV

 KPGKALKVGESCGEV
 DEGVVLKKGAEAAVV
 $P E G T E V D Q D D T F G T V$
$T L G G D Y A Q K E A A A V V$ EVGDTVNagDDCAVAE
QVGAQLKAGDTAGVV
$K V G A K L T K G E A A A V V$ EVGETVSKGLPFGSV SVGDEVKONESFGSVE
 EIGDTFS FGDEFGSVE ELEVSVETGQECAVVE
EEGAELTAGEQCAVVE DVGDDLDAGDDCAVAE

UniRef90 UPIO003670946 UniRef90－M5G2C0 UniRef90－AOLDQ0 UniRef90＿UPI0004409C13 UniRef90＿A6CF76 UniRef90＿E6SL73 UniRef90＿UPI00035D97C4 UniRef90＿A2BJ92 UniRef90－D9QM98 UniRef90＿UPIO002E383AA UniRef90 UPIO00421FA35 UniRef90 A7HDC8 UniRef90＿UPIOOO4560170 UniRef90＿L7UAB7
UniRef90－X2GPQ1
UniRef90－C1N8Y3 UniRef90＿UPIO002062C50 UniRef90＿UPIO0036C19CD UniRef90－Q9WY55 UniRef90－W6M373 UniRef90＿UPI0003B5C674 UniRef90－Q0RNH0 UniRef90＿UPIO00382A20A UniRef90－A3QHI1
UniRef90－K8E007 UniRef90－K8E007 UniRef90＿UPIO00041E87EE UniRef90＿UPIO0036B01 UniRef90＿UPI000262CF1D UniRef90－M7NB94 UniRef90－B6VKKI3 UniRef90－E8N5JO UniRef90－S3VLJ8 UniRef90＿UPIO0034C893F UniRef90－S9XZB6 UniRef90－U3HFEO UniRef90＿B2RJH4 UniRef90＿A3TKX5 UniRef90＿UPI00035C44AC UniRef90－Q20634 UniRef90－F8Ul10 UniRef90＿UPI000366968C UniRef90－D3L414 UniRef90－E2CBB6 UniRef90＿C5FJR3 UniRef90－K3ZA97 UniRef90＿UPI00036137E3 UniRef90－E4T8E2 UniRef90－I6YY98 UniRef90－C3ZB58 UniRef90－A4IZK7
UniRef90＿I3VXV0
UniRef90－13YTSO
UniRef90＿K6WQS6 UniRef90＿A4BX08 UniRef90－M2U618
UniRef90－S4PAH8 UniRef90＿L9JEJ0 UniRef90＿UPI0003789BC5 UniRef90＿UPI0002E4E1B9 UniRef90－E6WGS1 UniRef90－K5WNZ8 UniRef90－H2C8A0 UniRef90－H8MPW9 UniRef90－BOVFE4 UniRef90＿UPI00047A92EA UniRef90＿UPI000413CDB5 UniRef90－D5SQ43 UniRef90－E8R913 UniRef90＿UPIO0026C80E8 UniRef90－U2YQ23
UniRef90＿Q6ARJ6
UniRef90＿B4J126
UniRef90＿F4R446 UniRef90＿UPI00036042C6 UniRef90＿UPI00047B7C9F UniRef90＿UPI0002FEA452
UniRef90 I3UFR5 UniRef90－I3UFR5
UniRef90－B7LOK9
UniRef90＿K9SZT8 UniRef90－A0A031K348 UniRef90－U1WYM4 UniRef90－T1J4Y5 UniRef90－UPIO00472B2E4 UniRef90－KONGC4 UniRef90－H7FQ60 UniRef90－K2BI45 UniRef90－AOKJO4 UniRef90＿UPI0003B5B5DA UniRef90＿EORTC0 UniRef90＿UPIO0040ECBE8
UniRef90＿U1QS62

## 8

 EPGLLNKSPEERGWLARLKMSNPAEMDELLTEEAYKAHC QPGLINKSPEDKAWLCKIKGSNPSEVEGLMNAEDYKTHC促 RPELVNQDPYGEGWLVR1QQLNRDELAGLLDAAAYRQ

 SPELVNSDAYGDGWLIKMKPANLADVDALMDADTYKQHV EPGLLNKDPEGKGWLCKIRLTQPQEFESLLSAEAYQKLC Pr

## N D D A D D D

## D



๑ロー

D
S

## \section*{A D} <br> E

## ค

## のく

## ， <br> S

ס

## －



がの
－
G



| UniRef90_UPI0003670946 | D A E D |
| :---: | :---: |
| UniRef90-M5G2C0 | ENEEH |
| UniRef90-A0LDQ0 |  |
| UniRef90-UPI0004409C13 |  |
| UniRef90-A6CF76 | E S E A |
| UniRef90-E6SL73 |  |
| UniRef90_UPI00035D97C4 | G E |
| UniRef90_A2BJ92 | R K E E |
| UniRef90-D9QM98 |  |
| UniRef90_UPI0002E383AA | N |
| UniRef90_UPI000421FA35 |  |
| UniRef90-A7HDC8 | E E |
| UniRef90-UPIO004560170 | E N |
| UniRef90-L7UAB7 | Q N |
| UniRef90-X2GPQ1 | A E |
| UniRef90-C1N8Y3 |  |
| UniRef90_UPI0002062C50 | D D |
| UniRef90-UPI00036C19CD | D A L |
| UniRef90-Q9WY55 | A Q |
| UniRef90-W6M373 | A |
| UniRef90_UPI0003B5C674 | ESEG |
| UniRef90-Q0RNH0 | K |
| UniRef90_UPI000382A20A | E G L E E |
| UniRef90-A3QHI1 | D |
| UniRef90-K8E007 | E |
| UniRef90-UPI00041E87EE |  |
| UniRef90_UPI00036B01AE | N |
| UniRef90-A0A033V068 | G E |
| UniRef90-UPI000262CF1D | Q E E |
| UniRef90-M7NB94 |  |
| UniRef90-B6VKI3 | D |
| UniRef90_E8N5J0 | E |
| UniRef90-S3VLJ8 |  |
| UniRef90-UPI00034C893F |  |
| UniRef90_S9XZB6 | K S $\square$ K E |
| UniRef90-U3HFE0 |  |
| UniRef90-B2RJH4 |  |
| UniRef90-A3TKX5 |  |
| UniRef90-UPI00035C44AC | K S Q E |
| UniRef90-Q20634 | K D E E |
| UniRef90-F8Ul10 | EAESE |
| UniRef90_UPI000366968C |  |
| UniRef90-D3L414 | E E E E |
| UniRef90-E2CBB6 |  |
| UniRef90-C5FJR3 | E |
| UniRef90-K3ZA97 | E E D |
| UniRef90-UPIO0036137E3 |  |
| UniRef90-E4T8E2 |  |
| UniRef90_16YY98 |  |
| UniRef90-C3ZB58 | K S E E Q |
| UniRef90_A4IZK7 | E D |
| UniRef90-I3VXV0 |  |
| UniRef90-I3YTS0 |  |
| UniRef90-K6WQS6 |  |
| UniRef90-A4BX08 |  |
| UniRef90-M2U618 | K D |
| UniRef90-S4PAH8 | K T D |
| UniRef90-L9JEJ0 |  |
| UniRef90-UPI0003789BC5 |  |
| UniRef90-UPI0002E4E1B9 | D |
| UniRef90-E6WGS1 |  |
| UniRef90-K5WNZ8 |  |
| UniRef90-H2C8A0 | R G E |
| UniRef90-H8MPW9 |  |
| UniRef90-B0VFE4 |  |
| UniRef90-UPI00047A92EA | ENED |
| UniRef90_UPI000413CDB5 | E G |
| UniRef90-D5SQ43 | ESEA |
| UniRef90-E8R913 | K S EK |
| UniRef90_UPI00026C80E8 |  |
| UniRef90-U2YQ23 | E |
| UniRef90-Q6ARJ6 |  |
| UniRef90_B4J126 | S S N E D |
| UniRef90-F4R446 | E G S D H |
| UniRef90-UPI00036042C6 |  |
| UniRef90-UPI00047B7C9F |  |
| UniRef90-UPI0002FEA452 | E E E |
| UniRef90-I3UFR5 |  |
| UniRef90-B7LOK9 | K |
| UniRef90_K9SZT8 |  |
| UniRef90-A0A031K348 | D S L |
| UniRef90-U1WYM4 | K E |
| UniRef90-T1J4Y5 | K DQNE |
| UniRef90-UPI000472B2E4 |  |
| UniRef90-K0NGC4 | K |
| UniRef90-H7FQ60 |  |
| UniRef90-K2B145 | A SEAH |
| UniRef90-A0KJ04 | DEE |
| UniRef90-UPI0003B5B5DA | D A |
| UniRef90-E0RTC0 | E E |
| UniRef90-UPI00040ECBE8 | E E DE |
| UniRef90_U1QS62 |  |



UniRef90_Q2NRE9 UniRef90_UPIO0047C5CC0 UniRef90-IODQI4 UniRef90-UPI0003B38661 UniRef90_B9JWI3 UniRef90-K6VL57 UniRef90-M4KBA5 UniRef90_UPIO004694449 UniRef90_UPI000258DFAC UniRef90_S9R7C6 UniRef90_S9X0B7 UniRef90_J4GUS3 UniRef90_W9B9G6
UniRef90-S6AB82 UniRef90-15C0E4 UniRef90-UPIO00470356D UniRef90_UPI00037E79EA UniRef90_O67192 UniRef90-D7G1U2 UniRef90-E9UVH7 UniRef90-I1NXN5 UniRef90-D2Q4C1 UniRef90_F5R926 UniRef90-B2IGK2
UniRef90 U5H609 UniRef90_C7Q4R7 UniRef90-E4RLA2 UniRef90-J7TB82 UniRef90_UPI000381BC22 UniRef90_UPI0003725961 UniRef90-UPI0003498E7E UniRef90-T1CBU1 UniRef90_UPI00047972A0 UniRef90-R7ZWT0 UniRef90_UPIO00288DD23 UniRef90_UPI000366DEF8 UniRef90-FORCK4 UniRef90-UPIOOO34788C8 UniRef90-Q2CES5 UniRef90_A6WCM2 UniRef90_GOIWP5
UniRef90-E7RY78 UniRef90_UPI0003B583ED UniRef90_UPI000362E39E UniRef90_UPIO0031
UniRef90-F6DNZ5 UniRef90-D6B9M1 UniRef90-K0SKK3 UniRef90-B5Y8S2 UniRef90-17ZF53 UniRef90-M0H108 UniRef90_V6F6G6
UniRef90 C5GMI9 UniRef90_UPIO0036785F4 UniRef90-UPI00022603CF UniRef90-E8RCC2 UniRef90-A0QGN7 UniRef90_UPIO003494984 UniRef90-B8DP97 UniRef90_UPI0003B370BD UniRef90_D7E100 UniRef90-Q0AVH7
UniRef90- L1NUW44 UniRef90-T1B2C7 UniRef90_UPI000470CF9A UniRef90_Q70J57 UniRef90-V4QC32 UniRef90_A3WJH6 UniRef90_14B8J1 UniRef90_UPI0002375743 UniRef90_L2F514 UniRef90-R4VV28 UniRef90-TOSCJO UniRef90-A0A059IRG8 UniRef90_D1P3Z2 UniRef90-B3P181 UniRef90-F2NM66 UniRef90_D6PC00
UniRef90 A3YED0
 UniRef90_F2IZ77
UniRef90_C6X246
UniRef90-F8FR93 UniRef90_UPI00036C3230 UniRef90-M0DV46 UniRef90_UPI00037A693A UniRef90_UPI00046E7B41 UniRef90_UPI00046FACE3 UniRef90_R7HMB3
O

## T

EVGATFSAGEDCAVVAES|V|KAASD\||YAP|ISGE\|VAVNDD|L|E A V G D T V E A G N A C A V V E S V K K A A S E V V G S S E I G T E L T Q EVGATFAKDGEVGV EVGSAVSAGDSCGEI EVGGATVEAEGQA GVVVE
ーロ

 $\begin{array}{lllllllll}T & E & G & E & T & L & G & L & G \\ E & V & F & G & S & I \\ T & E & G & T & K & I & A & G & K \\ A & L & A & V & I \\ E & A & G & R & T & V & S & L & G \\ E & P & F & A & V & V\end{array}$ $\begin{array}{lllllllllll}E & A & G & R & T & V & S & L & G & E & P \\ F & A & V & V \\ T & E & D & E & D & L & A & K & E & E & V \\ F & G & T & I\end{array}$ TVGETLAQGDVFGTVE
$A V G D E A A G D S F G S V E ~$ AVGSSFA HEVIGVI
 AEGETVTAGGACGEVVE
TVGETVESGEVFGTVE
EAGGSVEANEACCVVE KVGDPVKAGEDFGSV
KVGAKVRKGRGGDV KVGAKYGAGEEAAVVE SVGEQTAGEPMALV
KVGQALDAGQAMGVI
K GAC
 EVGQKVTKGDSVAVVE DEGDEITAGDEFGVV EKGREVKQGGDAAVVE $T V G E T L D K D E V F G T V$
$V S A N D L Q Q D S V A V V$ VSANDLQQGDSVAVVE
 DSGAMLKKGNDAAVV DVDTVLKQKDECGAL ETGAKLAAGDQAGVV
GVGDMVQGSACAVV SVGDELKSDEPFGSVE EVGDKVSVGDDVAVAE KAGAELKAMAVAGTI
D $\begin{gathered}\text { GA } \\ \text { O }\end{gathered}$ EVGKALKQGEEAAVV $T V D D E L S A G D V F G S V E$
$E P G D E L K A G E P D G S M E$
$A V G E R V$

 EVGRTLDKGDELAVVV
$E E E D E V T A N E D F G A V E$

UniRef90＿Q2NRE9 UniRef90 UPI00047C5CC0 UniRef90＿IODQ14 UniRef90＿UPI0003B38661 UniRef90＿B9JWI3 UniRef90－K6VL57 UniRef90－M4KBA5 UniRef90＿UPI0004694449 UniRef90－UPIo00258DFAC UniRef90－S9R7C6 UniRef90＿s9X0B7 UniRef90－J4GUS3 UniRef90－W9B9G6 UniRef90－SGAB82 UniRef90－15COE4 UniRef90＿UPI000470356D UniRef90＿UPI00037E79EA UniRef90－O67192 UniRef90－D7G1U2 UniRef90－E9UVH7 UniRef90－11NXN5 UniRef90－D2Q4C1 UniRef90－F5R926 UniRef90－B2IGK2
UniRef90 U5H609 UniRef90－C7Q4R7 UniRef90－E4RLA2 UniRef90－J7TB82 UniRef90－UPI000381BC22 UniRef90＿UPIOOO3725961 UniRef90－UPIOOO3498E7E UniRef90－T1CBU1 UniRef90－UPIO0047972AO UniRef90－R7ZWTO UniRef90－UPIO00288DD23 UniRef90－UPI000366DEF8 UniRef90 FORCK4 UniRef90＿UPIOOO34788C8 UniRet90－Q2CES5 UniRef90－A6WCM2 UniRef90－GOIWP5 UniRef90－E7RY78 UniRef90－UPI0003B583ED UniRef90 UPIOOO362E39E UniRef90＿－P6IONO3 UniRef90 D6B9M1 UniRet90－KOSKK3 UniRef90－B5Y8S2 UniRef90－JOZLLR2 UniRef90－MZF
UniRef90＿MOH108 UniRef90－V6F6G6 UniRef90－C5GMI9 UniRef90 UPIOOO36785F4 UniRef90－UPIO0022603CF
UniRef90－E8RCC2 UniRef90－A0QGN7 UniRef90＿UPIOOO3494984 UniRef90－B8DP97 UniRef90－UP10003B370BD UniRef90 D7E100 UniRef90－QOAVH7
UniRef90 LINUW4 UniRef90－T1B2C7 UniRef90－UP1000470CF9A UniRef90－Q70J57 UniRef90－V4QC32 UniRef90－A3WJH6 UniRef90－14B8J1 UniRef90－UPIO002375743 UniRe990＿L2F514 UniRef90－R4VV28 UniR Refo－TOSCJO UniRef90－V2TG22 UniRef90 A0A059IRG8 UniRef90＿D1P3Z2
UniRef90 B3PI81 UniRef90－F2NM66 UniRef90－D6PC00 UniRef90－ABYEDO UniRef90 UPIOO0345ABDE UniRe900－C6X246 UniRef90－F8FR93 UniRet90＿F8AYZ7 UniRef90－UPIOOO36C3230 UniRef90－MODV46 UniRef90－UPIO0037A693A UniRef90－UPIOOO46E7B41 UniRef90 UPIOOO46FACE3 UniRef90＿R7HMB3
4

G8

## A

 K
D
D
G
D
K
D
E
$D$
$D$
$D$
$D$
D
G
$D$
$D$
$D$
$E$
$A$

 PGLVNSAALDAGWFFKLKLANVDDLDELMDETA
 SPGILNEDPMGKGWFIKIKMTEPA PDTLMDPAAYETHC ATPELVNDDPYGGGWLFEVAPADPAELESLLDDAAAYEASDC DLPGLVNARPYETGWI VVVKMSDSGELNSLMNDEDYSKFC

D | A |
| :--- |
| D |
| D |
| D |
| D |
| $D$ |
| $D$ |
| D |
| G |

[^0]El

\section*{ーロா <br> <br> \section*{D <br> <br> \section*{D <br> <br> ．} <br> E}

## E

## 

－の

3 A A D
D T
D

## 

## －

 ローロ
## A

## 0 T

ーロー| UniRef90_Q2NRE9 | E |
| :---: | :---: |
| UniRef90-UPI00047C5CC0 | E D D H |
| UniRef90-I0DQ14 | E |
| UniRef90-UPI0003B38661 | E A |
| UniRef90-B9JWI3 |  |
| UniRef90-K6VL57 |  |
| UniRef90-M4KBA5 | G E |
| UniRef90_UPIO004694449 |  |
| UniRef90_UPI000258DFAC | ES D |
| UniRef90-S9R7C6 | NEVD |
| UniRef90_S9X0B7 | K |
| UniRef90-J4GUS3 | D |
| UniRef90-W9B9G6 | N D E |
| UniRef90_S6AB82 | E S E A |
| UniRef90-15C0E4 |  |
| UniRef90-UPI000470356D |  |
| UniRef90_UPI00037E79EA |  |
| UniRef90_O67192 | K E |
| UniRef90-D7G1U2 | E D |
| UniRef90-E9UVH7 | D A |
| UniRef90-11NXN5 | K |
| UniRef90-D2Q4C1 | D |
| UniRef90-F5R926 |  |
| UniRef90-B2IGK2 | K T L |
| UniRef90_U5H609 |  |
| UniRef90-C7Q4R7 | A |
| UniRef90-E4RLA2 | E |
| UniRef90-J7TB82 | A E E D |
| UniRef90_UPI000381BC22 |  |
| UniRef90-UPI0003725961 |  |
| UniRef90_UPI0003498E7E | G S |
| UniRef90-T1CBU1 | A E E |
| UniRef90_UPI00047972A0 |  |
| UniRef90-R7ZWT0 | G |
| UniRef90-UPI000288DD23 |  |
| UniRef90-UPI000366DEF8 | REQE |
| UniRef90-FORCK4 |  |
| UniRef90_UPI00034788C8 | R E E E |
| UniRef90_Q2CES5 |  |
| UniRef90-A6WCM2 |  |
| UniRef90-G0IWP5 |  |
| UniRef90_E7RY78 | K D |
| UniRef90_UPI0003B583ED | S E E |
| UniRef90-UPI000362E39E |  |
| UniRef90-UPI0003B70F4A |  |
| UniRef90-F6DNZ5 | K E |
| UniRef90-D6B9M1 |  |
| UniRef90-K0SKK3 | EKE |
| UniRef90_B5Y8S2 |  |
| UniRef90-JOZLR2 |  |
| UniRef90-I7ZF53 | E S |
| UniRef90-M0H108 |  |
| UniRef90-V6F6G6 | A G L E |
| UniRef90-C5GMI9 | E E A E |
| UniRef90_UPI00036785F4 |  |
| UniRef90-UPI00022603CF |  |
| UniRef90-E8RCC2 | K |
| UniRef90-A0QGN7 |  |
| UniRef90-UPIO003494984 |  |
| UniRef90-B8DP97 | A R |
| UniRef90_UPI0003B370BD | A S |
| UniRef90-D7EI00 | K T Q E |
| UniRef90-Q0AVH7 | QK E |
| UniRef90-L1NUW4 |  |
| UniRef90-T1B2C7 | DEED |
| UniRef90-UPI000470CF9A |  |
| UniRef90_Q70J57 |  |
| UniRef90-V4QC32 | GTL |
| UniRef90-A3WJH6 | D E |
| UniRef90-14B8J1 | K T L |
| UniRef90-UPI0002375743 | K T V |
| UniRef90-L2F514 |  |
| UniRef90_R4VV28 |  |
| UniRef90-TOSCJ0 | E E |
| UniRef90-V2TG22 |  |
| UniRef90-A0A059IRG8 |  |
| UniRef90_D1P3Z2 | A A E |
| UniRef90-B3P181 | ESEE |
| UniRef90-F2NM66 | ESE |
| UniRef90_D6PC00 | G E |
| UniRef90-A3YED0 |  |
| UniRef90_UPI000345ABDE |  |
| UniRef90-F2IZ77 | E T L |
| UniRef90-C6X246 |  |
| UniRef90-F8FR93 |  |
| UniRef90-F8AYZ7 | K A |
| UniRef90-UPI00036C3230 |  |
| UniRef90-M0DV46 |  |
| UniRef90-UPI00037A693A | E GLED |
| UniRef90 UPI00046E7B41 |  |
| UniRef90-UPI00046FACE3 | E |
| UniRef90-R7HMB3 | ENE E |


 UniRef90_Q3ST45 UniRef90-C4L4Z7 UniRef90_K9DF88 UniRef90_L1PE15 UniRef90-J3CHPO UniRef90_H5SJ52 UniRef90_Q486J7 UniRef90_UPIO003F48F23 UniRef90_C6PSC3 UniRef90_G8MAG9 UniRef90_A0A016TYA2 UniRef90_D5VCY9 UniRef90_UPI00035FF016 UniRef90_F4F1N4 UniRef90_G5ANY4 UniRef90_UPI0004076098 UniRef90_F2BBZ2 UniRef90-Q8PI38 UniRef90-C7R975 UniRef90_M4V8V5 UniRef90-C1DD72 UniRef90-M1YWG6 UniRef90_UPI000375E23C UniRef90_Q0BYP3 UniRef90_K6UID6 UniRef90_A4BS97
UniRef90_UPI0001FFEA3E UniRef90_UPI0004677E81 UniRef90_K4LV73 UniRef90-C1LK32 UniRef90_UPI000471CDF6 UniRef90_Q2RPV0
UniRef90_V4IUU2
UniRef90_M7NRX6
UniRef90_Q2S0U9 UniRef90_UPIO004056A22 UniRef90_J9YVJ0 UniRef90-B6B874
UniRef90-A8LIH3 UniRef90-A3UJC1 UniRef90_WODE18
UniRef90_UPI000349CF35 UniRef90_A0A011MYC1 UniRef90_F1ZA29 UniRef90_Q39WZ7 UniRef90-UPI00040D5F2B UniRef90_10V7P7 UniRef90_MOM038
UniRef90_X1U807 UniRef90_ROMV62 UniRef90-UPI0000E0E64F UniRef90_UPI0003762AC4 UniRef90_E0NV39 UniRef90_UPIO003821CB9 UniRef90_G7CLV6 UniRef90_Q2BI79 UniRef90_K9U7C6 UniRef90_A8X4P3
UniRef90_Q4CS26 UniRef90_K9VCR9 UniRef90-UPIO0036F595B UniRef90_R7EXH6 UniRef90_UPI000382A7B2 UniRef90_UPI000345E3C1 UniRef90_H6BP64 UniRef90-A8MEG5 UniRef90_UPI00045E55D0 UniRef90_L1NXD6 UniRef90_A6TMY7
UniRef90_B5JFX3 UniRef90-K0J1D4 UniRef90_W7Q3H6 UniRef90_A5EXS8
UniRef90_G7UQ81 UniRef90_-V4Q322 UniRef90_UPI0003B646D0 UniRef90-H9UCW2 UniRef90_A9V830 UniRef90_F2PE58 UniRef90_UPI00037EDDE6 UniRef90_A4SG07 UniRef90-UPI00047EC1C2 UniRef90-H5UPD7 UniRef90_H8Z771 UniRef90_C0S6U0 UniRef90_D3DJI2


EVGREVAK 50 E V $V$ D G T $1: L$ DV S E T I I T QVGKAFTAGDDAAVV | $T$ | $I$ | $G$ | $T$ | $L$ | $A$ | $K$ | $D$ | $T$ | $I$ | $F$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $T$ | $G$ | $T$ | $V$ | $E$ |  |  |  |  |  |  |
| $L$ | $G$ | $E$ | $K$ | $L$ | $Q$ | $Q$ | $H$ | $D$ | $V$ | $F$ |
| $G$ | $T$ | $V$ | $E$ |  |  |  |  |  |  |  |

 $K$ G K S V K Q M E EFAATV



 $\begin{array}{llllll}K & V & G T & T & V & K \\ E & D & G A & A & V & V \\ E & G A D V & A & A & G & P \\ L & G & E & I\end{array}$ $E \mathrm{~V}$ G $\ \mathrm{~K}$ AQGA I KQGDSAAVV | $E$ | $S$ | $G$ | $T$ | $K$ | $A$ | $A$ | $G$ | $A$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $G$ | $G$ | $V$ |  |  |  |  |  |  |  |
| $G$ | $G$ | $D$ | $V$ | $Q$ | $G$ | $N$ | $G A$ | $A$ | $V$ | $E V G S$ E V S G D Q A G V V

 $A V G Q V L A E G D G A G V V$ E A GK A V $V$ T A G E P F G E V EAGASLLAKGD GFAAVV



## V

\section*{| E |
| :--- |
| E |
| P |
| B |}P E GE T F EVKK G D E $\quad 1 \quad G G V I$

## E

 E E G D S V D K G D A I G S V A VGA T LMAA GQEAAVVV $\begin{array}{lllllllllllll}D & V & G & A & H & L & D & A & D & E & P & F & G \\ E & E & I \\ E & E & G & D & A & V & A & H & D & E & E & F & G \\ V & V & V\end{array}$

 \begin{tabular}{l|l|lll|lllll}
$D$ \& $G$ \& $D$ \& $A$ \& $A$ \& $T$ \& $G$ \& $D$ \& $D$ \& $V$ <br>
$A$ \& $A$ \& $V$ \& $A$ \& $E$ <br>
$E$ \& $V$ \& $G$ \& $K$ \& $T$ \& $V$ \& $T$ \& $V$ \& $G$ \& $D$ <br>
$A$ \& $V$ \& $G$ \& $V$ \& $E$ <br>
$E$ \& $V$ \& $D$ \& $D$ \& $E$ \& $I$ \& $E$ \& $A$ \& $G$ \& $D$ <br>
$D$ \& $F$ \& $G$ \& $A$ \& $V$ \& $E$

 

$E$ \& $V$ \& $D$ \& $D$ \& $E$ \& $I$ \& $E$ \& $A$ \& $G$ \& $D$ \& $D$ <br>
$E$ \& $G$ \& $A$ \& $V$ \& $E$ <br>
$V$ \& $G$ \& $D$ \& $E$ \& $I$ \& $K$ \& $T$ \& $D$ \& $E$ \& $P$ \& $F$ <br>
$G$ \& $S$ \& $A$ \& $E$
\end{tabular}

 EVGD RVV K GET F GSVV
 EVGTKLEK GEAF GSII S E $\perp G R H V V_{R} A K$
EAGTEVTAGE

| $E$ | $G$ | $M$ | $E$ | $V$ | $S$ | $K$ | $G$ | $D$ | $T$ | $I$ | $G$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $E$ | $V$ |  |  |  |  |  |  |  |  |  |  |  |
| $E$ | $D$ | $D$ | $E$ | $I$ | $A$ | $Q$ | $G$ | $D$ | $A$ | $F$ | $S$ | $V$ |



| $E D D S F E A G D D F G V V$ |  |
| :--- | :--- | :--- | :--- |
| $E$ | $G D S F S A G E S F G V V$ |

EVA D QLSAT DTFGSV

E V G R T L A K G D E F GVI AVGBVVEVGEESAVI D I G D T V EVGKIVNKGDVVCTI | $A$ | $V$ | $G$ | $E$ | $V$ | $K$ | $K$ | $G$ | $E$ | $R$ | $V$ | $S$ | $L$ |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $E$ | $V$ | $G$ | $Q$ | $A$ | $L$ | $T$ | $Q$ | $G$ | $E$ | $E$ | $M$ | $G$ | $S$ | $V$ | EIGDDKD DGEDAAAV E I GDTTDAGDAFS LV $\stackrel{\mathrm{E}}{\mathrm{P}}$

 A V D L L $V$ V A GETVGAV DVGAS LAAKGTSFGSVV
 STK S V $\operatorname{S}$ S E L

A P|L|S G E \begin{tabular}{cc|cc|c|c|ccc|c|c}
$G$ \& $E$ \& $V$ \& $I$ \& $E$ \& $V$ \& $N$ \& $E$ \& $D$ \& $L$ \& $V$ <br>
$G$ \& $E$ \& $V$ \& $L$ \& $E$ \& $V$ \& $N$ \& $E$ \& $A$ \& $A$ \& <br>
$G$ \& $A$ \& $G$ <br>
\hline \& $T$ \& $A$ \& $V$ \& $N$ \& $E$ \& $D$ \& $L$ \& $A$ <br>
\hline

 

$V$ \& $I$ \& $E$ \& $I$ \& $N$ \& $D$ \& $D$ \& $V$ \& $L$ <br>
$V$ \& $T$ \& $A$ \& $V$ \& $N$ \& $Q$ \& $P$ \& $V$ \& $A$ <br>
$V$ \& $L$ \& $S$ \& $F$ \& $H$ \& $E$ \& $A$ \& $L$ \& $V$ <br>
$V$

 

$T$ \& $V$ \& $T$ \& $A$ \& $V$ \& $N$ \& $Q$ \& $P$ \& $V$ <br>
\hline \& $A$ <br>
$V$ \& $L$ \& $S$ \& $F$ \& $H$ \& $E$ \& $A$ \& $L$ \& $V$ <br>
\hline \& $V$ \& $M$ \& $E$ \& $\square$ \& $N$ \& $P$ \& $K$ \& $L$ <br>
\hline

 

\hline$V$ \& $M$ \& $E$ \& $I$ \& $N$ \& $P$ \& $K$ \& $L$ <br>
\hline \& $E$ <br>
$V$ \& $V$ \& $A$ \& $V$ \& $N$ \& $T$ \& $E$ \& $L$ <br>
$E$

 

$T$ \& $V$ \& $V$ \& $A$ \& $V$ \& $N$ \& $T$ \& $E$ \& $L$ \& $E$ <br>
$Q$ \& $I$ \& $V$ \& $E$ \& $V$ \& $N$ \& $K$ \& $E$ \& $L$ \& $E$ <br>
$T$ \& $V$ \& $V$ \& $A$ \& $I$ \& $N$ \& $E$ \& $A$ \& $L$ \& $E$

 

$A$ \& $P$ \& $V$ \& $S$ \& $G$ \& $Q$ \& $I$ \& $V$ \& $E$ \& $V$ \& $N$ \& $K$ \& $E$ <br>
$A$ \& $E$ \& $E$ <br>
$A$ \& $P$ \& $V$ \& $S$ \& $G$ \& $T$ \& $V$ \& $V$ \& $A$ \& $I$ \& $N$ \& $E$ \& $A$ <br>
$A$ \& $E$ \& $E$ <br>
$A$ \& $P$ \& $V$ \& $S$ \& $G$ \& $I$ \& $E$ \& $E$ \& $E$ \& $N$ \& $E$ \& $T$ \& $L$ <br>
$S$

 

$Y$ \& $A$ \& $P$ \& $V$ \& $S$ \& $G$ \& $I$ \& $I$ \& $E$ \& $E$ \& $I$ \& $N$ \& $E$ \& $T$ \& $L$ <br>
$Y$ \& $S$ <br>
$Y$ \& $M$ \& $P$ \& $I$ \& $S$ \& $G$ \& $K$ \& $V$ \& $V$ \& $K$ \& $V$ \& $N$ \& $E$ \& $D$ \& $L$ <br>
$V$ \& $V$ <br>
$Y$ \& $A$ \& $P$ \& $V$ \& $S$ \& $G$ \& $E$ \& $V$ \& $V$ \& $A$ \& $S$ \& $N$ \& $D$ \& $A$ \& $L$ <br>
\hline

 

$A$ \& $P$ \& $V$ \& $S$ \& $G$ \& $E$ \& $V$ \& $V$ \& $A$ \& $S$ \& $N$ \& $D$ \& $A$ \& $L$ <br>
\hline
\end{tabular}

 \begin{tabular}{l|llllllll}
$V$ \& $V$ \& $E$ \& $I$ \& $N$ \& $E$ \& $A$ \& $V$ \& $V$ <br>
$V$ \& $S$ \& $A$ \& $R$ \& $N$ \& $E$ \& $V$ \& $L$ \& $A$ <br>
$V$ \& $A$ \& $E$ \& $\square$ \& $N$ \& $E$ \& $A$ \& $A$

 $V A B \square N$ E A L A 

$V$ \& $V$ \& $E$ \& $N$ \& $P$ \& $A$ \& $L$ <br>
$A$ \& $A$ <br>
$I$ \& $T$ \& $E$ \& $A$ \& $N$ \& $E$ \& $T$ <br>
$A$ \& $A$
\end{tabular}




 | $S$ | $V$ | $K$ | $A$ | $A$ | $S$ | $D$ | $V$ | $Y$ | $A$ | $P$ | $I$ | $A$ | $G$ | $E$ | $V$ | $L$ | $E$ | $V$ | $N$ | $A$ | $D$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | $E$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $S$ | $V$ | $K$ | $T$ | $V$ | $S$ | $D$ | $L$ | $Y$ | $A$ | $P$ | $A$ | $S$ | $G$ | $K$ | $V$ | $S$ | $K$ | $V$ | $N$ | $K$ | $E$ | $L$ |
|  | $E$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $S$ | $T$ | $K$ | $S$ | $V$ | $S$ | $E$ | $L$ | $F$ | $A$ | $P$ | $V$ | $D$ | $G$ | $E$ | $V$ | $V$ | $A$ | $V$ | $N$ | $D$ | $A$ | $V$ |
| $S$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |



 VK A AS DV Y A |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $A$ | $P$ | $L$ | $D$ | $G$ | $E$ |
| T | $P$ | $V$ | $S$ | $G$ | $T$ |
| $S$ | $P$ | $A$ | $S$ | $G$ | $T$ |



都

UniRef90_UPIO0035DOD8A UniRef90_Q3ST45 UniRef90-C4L4Z7 UniRef90-K9DF88 UniRef90-L1PE15 UniRef90-J3CHPO UniRef90-B6WWB9 UniRef90_H5SJ52
UniRef90_Q486J7 UniRef90-UPI0003F48F23 UniRef90 C6PSC3 UniRef90_G8MAG9 UniRef90_A0A016TYA2 UniRef90 D5VCY9 UniRef90_UPI00035FF016 UniRef90-F4F1N4 UniRef90-G5ANY4 UniRef90-UPI0004076098 UniRef90-F2BBZ2 UniRef90-Q8PI38 UniRef90_F3LH86 UniRef90_C7R975
UniRef90 UniRef90-C1DD72 UniRef90-M1YWG6 UniRef90-UPIO00375E23C UniRef90_Q0BYP3 UniRef90-K6UID6 UniRef90-A4BS97 UniRef90_UPI0001FFEA3E UniRef90_UPI0004677E81 UniRef90-K4LV73 UniRef90-C1LK32 UniRef90_UPI000471CDF6 UniRef90_Q2RPV0 UniRef90_V4IUU2 UniRef90-M7NRX6
UniRef90 O2S0U9 UniRef90-Q2SOU9
UniRef90_UPI0004 UniRef90-J9YVJ0
UniRef90 B6B874 UniRef90-B6B8744
UniRef90 A8LIH3 UniRef90_A3UJC1 UniRef90-WODEI8 UniRef90_UPI000349CF35 UniRef90-F1ZA29 UniRef90-Q39WZ7 UniRef90_UPI00040D5F2B UniRef90 10V7P7 UniRef90-M0M038 UniRef90-X1U807 UniRef90_ROMV62 UniRef90_UPI0000E0E64F UniRef90-UPIO003762AC4 UniRef90-EONV39
UniRef90-K9VCR9
UniRef90_UPIO0036F595B
UniRef90-R7EXH6
UniRef90_UPI000382A7B2
UniRef90_UPI000345E3C1
UniRef90-H6BP64
UniRef90-A8MEG5
UniRef90_UPIO0045E55D0
UniRef90-L1NXD6
UniRef90_A6TMY7
UniRef90_B5JFX3
UniRef90-KOJ1D4
UniRef9O-W7Q3H6
UniRef90-A5EXS8
UniRef90 G7UQ81
UniRef90-V4Q322
UniRef90-UPI0003B646D0
UniRef90-H9UCW2
UniRef90-S7TCP3
UniRef90-A9V830
UniRef90-F2PE58
UniRef90_UPI00037EDDE6
UniRef90-A4SG07
UniRef90_UP100047EC1C2
UniRef90-H5UPD7
UniRef90-H8Z771
UniRef90_COS6U0
UniRef90-D3DJI2
UniRef90_Q3AGL5

DAPETLNESAYDAGWI AKLKLADASELDALLDANAYQATV A EPALVNSDAEGKAWIFKLRIADRSELEGLMDEAAYKAHT DSPELVNESPFENAWMIEVELTEESDLDKLMSAEEYEAMD DRPSLVNSSPFEEGWLIKVRLSNKKELNNLMSESEYEDF DAPDSINQDAYGA WLFKLAPSDAGAYDKLLDADAYGK KKPEMVNADPYGEGWMIQUKIT TPEEWDSLL SASDYQKLI SNPELVNSDPYGEGWMI KMKVNNLDADEGLLTAKSYTSLI NAPEVMNSDPYGAGWIVRVKLS AQPEGLMDAAAYEEHC



SAPDQVNGAPY E SWLFK K K P S G A A G L D K L
 D $\quad$ T
E
D
S A
D K
D E
D S
D D
S A
A H
D S
D A
D D
E E
GA
G D
D E
K N
D S
E A

| UniRef90_UP100035D0D8A | A E |
| :---: | :---: |
| UniRef90-Q3ST45 |  |
| UniRef90_C4L4Z7 | Q |
| UniRef90-B3RJF5 |  |
| UniRef90-K9DF88 |  |
| UniRef90_L1PE15 |  |
| UniRef90-J3CHP0 |  |
| UniRef90-B6WWB9 | K N E Q |
| UniRef90_H5SJ52 |  |
| UniRef90-Q486J7 |  |
| UniRef90_UPI0003F48F23 | E G S E |
| UniRef90_C6PSC3 | G |
| UniRef90-G8MAG9 |  |
| UniRef90-A0A016TYA2 |  |
| UniRef90-D5VCY9 |  |
| UniRef90_UPI00035FF016 |  |
| UniRef90-F4F1N4 |  |
| UniRef90-G5ANY4 | K S TEE |
| UniRef90-UPI0004076098 |  |
| UniRef90-F2BBZ2 |  |
| UniRef90-Q8PI38 | E D D H |
| UniRef90_F3LH86 |  |
| UniRef90-C7R975 |  |
| UniRef90-M4V8V5 | S E |
| UniRef90-C1DD72 |  |
| UniRef90-M1YWG6 | K |
| UniRef90_UPI000375E23C |  |
| UniRef90_Q0BYP3 | E GL |
| UniRef90_K6UID6 |  |
| UniRef90-A4BS97 | A D |
| UniRef90_UPI0001FFEA3E |  |
| UniRef90_UPI0004677E81 |  |
| UniRef90-K4LV73 | EKAEE |
| UniRef90-C1LK32 | T S |
| UniRef90_UPI000471CDF6 | Q S E |
| UniRef90-Q2RPV0 | G E L D |
| UniRef90-V4IUU2 | A E |
| UniRef90_M7NRX6 | D E |
| UniRef90-Q2S0U9 |  |
| UniRef90_UPI0004056A22 | K S Lie |
| UniRef90-J9YVJ0 |  |
| UniRef90-B6B874 |  |
| UniRef90-A8LIH3 |  |
| UniRef90_A3UJC1 |  |
| UniRef90-W0DEI8 | A E 1 |
| UniRef90-UPI000349CF35 | D A |
| UniRef90-A0A011MYC1 |  |
| UniRef90-F1ZA29 | A G L |
| UniRef90-Q39WZ7 | S Q D E |
| UniRef90-UPI00040D5F2B | G E |
| UniRef90-I0V7P7 | D |
| UniRef90-M0М038 | E |
| UniRef90- X1U807 |  |
| UniRef90-R0MV62 |  |
| UniRef90-UPI0000E0E64F | E D E |
| UniRef90_UPI0003762AC4 |  |
| UniRef90-EONV39 | EK E |
| UniRef90-UPI0003821CB9 | N |
| UniRef90-G7CLV6 | D |
| UniRef90-Q2B179 | A E E |
| UniRef90-K9U7C6 |  |
| UniRef90-A8X4P3 | E E E |
| UniRef90-Q4CS26 |  |
| UniRef90-K9VCR9 | A E E |
| UniRef90-UPI00036F595B | D S E D |
| UniRef90-R7EXH6 |  |
| UniRef90-UPI000382A7B2 | K |
| UniRef90-UPI000345E3C1 | K D E |
| UniRef90-H6BP64 |  |
| UniRef90-A8MEG5 | EK E |
| UniRef90-UPI00045E55D0 |  |
| UniRef90-L1NXD6 |  |
| UniRef90-A6TMY7 | D E E |
| UniRef90-B5JFX3 | K D |
| UniRef90-K0J1D4 |  |
| UniRef90-W7Q3H6 | A E |
| UniRef90-A5EXS8 |  |
| UniRef90-G7UQ81 | D QEED |
| UniRef90-V4Q322 | A T L |
| UniRef90-UPI0003B646D0 | QKIEE |
| UniRef90-H9UCW2 |  |
| UniRef90-S7TCP3 | E D A |
| UniRef90-A9V830 | ES GE |
| UniRef90-F2PE58 | E E |
| UniRef90-UPI00037EDDE6 | E D |
| UniRef90-A4SG07 |  |
| UniRef90-UPI00047EC1C2 |  |
| UniRef90-H5UPD7 | D |
| UniRef90-H8Z771 | A E |
| UniRef90-C0S6U0 |  |
| UniRef90-D3DJI2 | VEI |
|  |  |




UniRef90_UPI00020010C4 UniRef90 A3W889 UniRef90_UPIO00347C0FC UniRef90_E6S6P9
UniRef90_F2KKU6 UniRef90-H5SNXO UniRef90-F3KQR5 UniRef90 G5IFK0 UniRef90_UPI000364B3E5 UniRef90-S7QMG2 UniRef90-G8R2A1 UniRef90_Q972C3 UniRef90-X1GC17 UniRef90-V5XC05 UniRef90 L8JD64 UniRef90-W5W903
UniRef90 G0A3F4 UniRef90-Q0A5H0 UniRef90-A4YHB5 UniRef90_UPI00025591F2 UniRef90-G7WHA5 UniRef90-F4CYY3 UniRef90-N4WQT3 UniRef90_K6Y962
UniRef90-S2DC27 UniRef90_S2DC27
UniRef90_G2MLT9 UniRef90-A5GWN5 UniRef90-Q4FTK7 UniRef90-B9M3H7 UniRef90-C1KY63 UniRef90_UPIO0016C52A1 UniRef90-M1Z653 UniRef90-NOBAP5 UniRef90_S3N567
UniRef90_R7D012 UniRef90 UPIO0036A16D5 UniRef90_E6YH49 UniRef90-D2S6I6 UniRef90_I010K5 UniRef90-W6KGU1 UniRef90_E4UN41 UniRef90-K5YN44 UniRef90_UPI00035EF65B UniRef90_B216Q0 UniRef90_Q1PZB2 UniRef90-A4HND8 UniRef90_UPI000467B343 UniRef90_UPIO003B64468 UniRef90-Q1N2R8 UniRef90_C5A593 UniRef90-K9TPH9 UniRef90-F4G0Q4 UniRef90-B3QM31 UniRef90_R7Z6M3 UniRef90-RAFF2Z2 UniRef90-N6XAZ6 UniRef90-U6HBR8 UniRef90_A1APD6 UniRef90-UPIO0031889A3 UniRef90-T1CNG9 UniRef90-F8A8W8 UniRef90-D8FVM4 UniRef90_UPI000299ED45 UniRef90-B2T717 UniRef90_G9ZZM1 UniRef90-D7CVH9 UniRef90-R7IYT9 UniRef90_UPIO00344C322 UniRef90-B3T0M3
UniRef90 E6N683 UniRef90_LOJZY0 UniRef90-R6EWV6 UniRef90-LORARO UniRef90-F8KVQ4 UniRef90-A0A024IE83 UniRef90_UPIO003635CD5 UniRef90-F8CLG2 UniRef90-W9A4A5 UniRef90-I1YUV5 UniRef90-A0A021VRF4 UniRef90-UPIOO0347A518 UniRef90_C9LI73 UniRef90-F2PAY4 UniRef90-F6DSE6 UniRef90_A8PL41 UniRef90-C4YFV8 UniRef90-A1R5C9 UniRef90_C9P748 UniRef90-F4PQI1
UniRef90_Q60CU8
C52


$\square$

90

## A <br> S

${ }^{90}$
100
110
120
EELQNDPYGEGWLLLLV|RPSEPAQ\|\|DGLDDATTYSAKIV|
DPGKVNEDPMGDAWFFKIKPADPSQMDEYMDEAAYQAH



## D

## ,

## 



| UniRef90_UPI00020010C4 | D |
| :---: | :---: |
| UniRef90-A3W889 |  |
| UniRef90-UPI000347C0FC | K T L |
| UniRef90-E6S6P9 | E S |
| UniRef90-F2KKU6 | K A A E |
| UniRef90-H5SNX0 |  |
| UniRef90-F3KQR5 |  |
| UniRef90-G5IFK0 | N E E |
| UniRef90_UPI000364B3E5 |  |
| UniRef90-S7QMG2 | K |
| UniRef90-G8R2A1 |  |
| UniRef90-Q972C3 | K Q R E |
| UniRef90-X1GC17 |  |
| UniRef90-V5XC05 |  |
| UniRef90-L8JD64 | D E S E |
| UniRef90-W5W903 |  |
| UniRef90-G0A3F4 |  |
| UniRef90_Q0A5H0 | A D E E |
| UniRef90-A4YHB5 |  |
| UniRef90_UPI00025591F2 |  |
| UniRef90-G7WHA5 | A Q D H |
| UniRef90-F4CYY3 |  |
| UniRef90-N4WQT3 | H G E |
| UniRef90-K6Y962 | D E |
| UniRef90-S2DC27 |  |
| UniRef90_G2MLT9 | A |
| UniRef90_A5GWN5 | E |
| UniRef90-Q4FTK7 |  |
| UniRef90-B9M3H7 | A D |
| UniRef90-C1KY63 |  |
| UniRef90_UPI00016C52A1 | A T E G H |
| UniRef90_M1Z653 | D E |
| UniRef90-N0BAP5 | G E |
| UniRef90_S3N567 |  |
| UniRef90-R7D012 | K E |
| UniRef90_UPI00036A16D5 |  |
| UniRef90-E6YH49 |  |
| UniRef90-D2S616 |  |
| UniRef90-1010K5 | E |
| UniRef90_W6KGU1 | E |
| UniRef90_E4UN41 |  |
| UniRef90_K5YN44 |  |
| UniRef90-UPI00035EF65B |  |
| UniRef90-B216Q0 | ES DE |
| UniRef90-Q1PZB2 | E S |
| UniRef90-A4HND8 |  |
| UniRef90_UPI000467B343 |  |
| UniRef90-UPI0003B64468 | E E D E |
| UniRef90-Q1N2R8 |  |
| UniRef90-C5A593 | ES L |
| UniRef90_K9TPH9 | E G E |
| UniRef90-F4G0Q4 |  |
| UniRef90-B3QM31 |  |
| UniRef90-R7Z6M3 | E G Lie |
| UniRef90_R5HPM3 | A A E E |
| UniRef90-A6F2Z2 |  |
| UniRef90-N6XAZ6 | A E |
| UniRef90_U6HBR8 | K R E |
| UniRef90-A1APD6 | K S |
| UniRef90-UPI00031889A3 | SEEE |
| UniRef90-T1CNG9 |  |
| UniRef90-F8A8W8 | A G E E |
| UniRef90_D8FVM4 | E GE |
| UniRef90_UPI000299ED45 | TVEAE |
| UniRef90-B2T717 |  |
| UniRef90-G9ZZM1 | D S L |
| UniRef90-D7CVH9 |  |
| UniRef90-R7IYT9 | A A K H |
| UniRef90_UPI000344C322 |  |
| UniRef90-B3T0M3 | K E |
| UniRef90-E6N683 |  |
| UniRef90-LOJZY0 |  |
| UniRef90-R6EWV6 | S K E |
| UniRef90-LORAR0 | E E A H |
| UniRef90-F8KVQ4 |  |
| UniRef90-W6KQ96 | K E |
| UniRef90-A0A024IE83 | K D |
| UniRef90-UPI0003635CD5 |  |
| UniRef90-F8CLG2 | K N |
| UniRef90_W9A4A5 | A D D E |
| UniRef90_I1YUV5 |  |
| UniRef90-A0A021VRF4 |  |
| UniRef90_UPI000347A518 | E G E E |
| UniRef90-C9LI73 |  |
| UniRef90-F2PAY4 | V K ( D E E |
| UniRef90_F6DSE6 | K |
| UniRef90-A8PL41 |  |
| UniRef90_C4YFV8 | E E E |
| UniRef90_A1R5C9 |  |
| UniRef90_C9P748 | E E |
| UniRef90-F4PQ11 | E E |
| UniRef90_Q60CU8 | E E |



UniRef90 B5E8J6 UniRef90-Q3M9G2 UniRef90-UPIooo39598F4 UniRef90-UPIOOO3155CC5 UniRef90-UPI00034C6F76 UniRef90-B4SE01 UniRef90-UPI0003773851 UniRef90-UPI00047BD94A UniRef90-G5G9D7 UniRef90-K7YNM8 UniRef90-W6M2L8 UniRef90-101L28 E
D
D
D
N
E UniRef90-UPIo0035CA69D UniRef90-W9AR38 UniRef90-UPI00037DCFCE UniRef90-C7NI14 UniRef90_UPI00047DB515 UniRef90-A3U2C9 UniRef90-F9D519 UniRef90-UPIO00364F7E6 UniRef90-UPI00040DEDFB UniRef90-UPIO003712031 UniRet90-U3P7X7 UniRef90-A6BGHO UniRef90-A0A058ZEF9 UniRef90-E8U6G5 UniRef90 M1 Y3NO UniRef90-A1BE02 UniRef90-E8WQ63 UniRef90-F8EDT4 UniRef90-S9RT19
UniRef90 V7EGQ6 UniRef90_V7EGQ6
UniRef90_W7CYK3 UniRef90-J3NYRO UniRef90_UP10003708D29 UniRef90-A0A011 U485 UniRef90_L8LR41 UniRef90-W7IGB4 UniRef90-J9HKQ5 UniRef90_Q5FRY1 UniRe990-K2NR11 UniRef90-W4EHP3 UniRef90-D6ZA53 UniRet90-J2XN23 UniRef90-M3BAC9
UniRef90 Q7TUJ2 UniRef90-D7GDZ4 UniRef90-U7JVE7 UniRef90-C7MQ82 UniRef90_UPI000225B5C6 UniRef90 Q6MEJ3 UniRef90_UPIOOO36F2601 UniRef90-L7LGD2 UniRef90-F5UBS9 UniRef90-UPI000255D77F UniRef90-R5BRM6 UniRef90-W7C6T3 UniRef90-Q6L1E3 UniRef90_D2SOR9 UniRef90-E3PXX7 UniRef90-S6EJG7
UniRef90 AOAO59MQR4 UniRef90-UP100036D7B3A UniRef90-S9S984 UniRef90--11E7V1 UniRef90-UPIo00374C7D1 UniRef90-B1WT69 UniRef90-D5WTA5 UniRef90 ${ }^{-}$W71958 UniRef90-UPIO003680031 UniRef90-Q2JX00 UniRef90-E4ZZ31 UniRef90-M3AXB6 UniRef90-B6AZU3 UniRef90-EOIAL5 UniRef90_17MOD6 UniRef90-A1ZE46 UniRef90-UPIo0034A1677 UniRef90-V4IWQ5 UniRef90_A3XD94 UniRef90-UPIO0031AC9A9 UniRef90-S3YDP4 UniRef90-UPIO0036CC32F UniRef90-A0AO17SFD1 UniRef90-A7FRV4 UniRef90-F3Z4P4 UniRef90-F5LH22 UniRef90-F6ABB2
UniRef90
O47XG UniRef90-O47XG3 UniRef90-COCTQ0 UniRef90_A3GI53
UniRef90_Q31LJJ





$\qquad$



 6

## 

4

90
100 110 VNDDPDAGWLVVI ESPDAVADDPYGEGWFLLKVRVNDPDEVNDALTADEYRAEV A

##  <br> லய

 $\stackrel{V}{0}$E
D
D


## D <br> D

## D

## S

## A

E
$\rightarrow$ mo


D D
EN P AL A N E D A IGGA G WF V K I EAAS D A S Q M D D YM D E A S Y K K F
E
E S
D H
E S
D
S

| UniRef90_B5E8J6 | $A \text { A A E D }$ |
| :---: | :---: |
| UniRef90_Q3M9G2 | E |
| UniRef90_UPI00039598F4 |  |
| UniRef90_UPI0003155CC5 | E GED |
| UniRef90-UPI00034C6F76 | E G D E |
| UniRef90_B4SE01 |  |
| UniRef90-UPI0003773851 |  |
| UniRef90_UPI00047BD94A | E |
| UniRef90-G5G9D7 | K |
| UniRef90-K7YNM8 |  |
| UniRef90-W6M2L8 | D D E E |
| UniRef90-I0IL28 |  |
| UniRef90_UPI00035CA69D | E |
| UniRef90-W9AR38 |  |
| UniRef90_UPI00037DCFCE | $\checkmark \mathrm{D}$ E |
| UniRef90-C7NI14 |  |
| UniRef90_UPI00047DB515 | G E |
| UniRef90-A3U2C9 |  |
| UniRef90-F9D519 | Q |
| UniRef90_UPI000364F7E6 |  |
| UniRef90-UPI00040DEDFB | E |
| UniRef90-UPI0003712031 | E E |
| UniRef90-U3P7X7 | G |
| UniRef90_A6BGH0 | E S E Q |
| UniRef90-A0A058ZEF9 |  |
| UniRef90-E8U6G5 |  |
| UniRef90-M1Y3N0 | A |
| UniRef90-A1BE02 |  |
| UniRef90-E8WQ63 | K G L |
| UniRef90-F8EDT4 | G E |
| UniRef90-S9RTI9 |  |
| UniRef90-V7EGQ6 |  |
| UniRef90-W7CYK3 | A E |
| UniRef90-J3NYR0 | A T E E H |
| UniRef90_UPI0003708D29 |  |
| UniRef90-A0A011U485 | G G E E |
| UniRef90_L8LR41 | E GED |
| UniRef90-W7IGB4 |  |
| UniRef90-J9HKQ5 | E ESKH |
| UniRef90-Q5FRY1 |  |
| UniRef90-K2NRI1 |  |
| UniRef90-W4EHP3 | G E |
| UniRef90-D6ZA53 |  |
| UniRef90-J2XN23 | Q D |
| UniRef90-M3BAC9 | E E A D |
| UniRef90_Q7TUJ2 |  |
| UniRef90-D7GDZ4 |  |
| UniRef90-U7JVE7 | K E |
| UniRef90_C7MQ82 | Q E |
| UniRef90_UPIO00225B5C6 | E |
| UniRef90_Q6MEJ3 |  |
| UniRef90-UPI00036F2601 |  |
| UniRef90-L7LGD2 |  |
| UniRef90-F5UBS9 | E G E |
| UniRef90_UPI000255D77F |  |
| UniRef90-R5BRM6 | K |
| UniRef90-W7C6T3 | D E |
| UniRef90-Q6L1E3 | G E |
| UniRef90-D2S0R9 |  |
| UniRef90-E3PXX7 |  |
| UniRef90_S6EJG7 | K E E |
| UniRef90-A0A059MQR4 | Q N |
| UniRef90_UPI00036D7B3A |  |
| UniRef90-S9S984 |  |
| UniRef90-I1E7V1 | K G L |
| UniRef90_UPI000374C7D1 | G E |
| UniRef90_B1WT69 | EGEE |
| UniRef90_D5WTA5 |  |
| UniRef90-W71958 | T S K D |
| UniRef90-UPIO003680031 |  |
| UniRef90-Q2JX00 |  |
| UniRef90-E4ZZ31 | E D |
| UniRef90-M3AXB6 |  |
| UniRef90-B6AZU3 | A |
| UniRef90-EOIAL5 |  |
| UniRef90-17M0D6 | E D L |
| UniRef90_A1ZE46 | E A |
| UniRef90_UPI00034A1677 | E P E D |
| UniRef90-V4IWQ5 |  |
| UniRef90-A3XD94 |  |
| UniRef90_UPI00031AC9A9 | Q A E |
| UniRef90-S3YDP4 |  |
| UniRef90_UPI00036CC32F |  |
| UniRef90_A0A017SFD1 |  |
| UniRef90-A7FRV4 | E E L D |
| UniRef90_F3Z4P4 |  |
| UniRef90-F5LH22 | V S E |
| UniRef90-F6ABB2 |  |
| UniRef90-Q47XG3 |  |
| UniRef90_C0CTQ0 | K T $\square$ E E |
| UniRef90-A3GI53 | E E |
| UniRef90_Q31LJ3 |  |



UniRef90 UPI0003C8E2CC UniRef90_W8T800 UniRef90-A0A037ZLK7 UniRef90 A3ZNK1 UniRef90_UPI000369DB2B UniRef90_H6CMM4 UniRef90 A7TKF1 UniRef90_A0A010YFC2 UniRef90_H0PZL6 UniRef90_UPI0003791BEA UniRef90_U2EG50 UniRef90_K1XDB4 UniRef90_G8C0X9 UniRef90_Q6SIO0 UniRef90_A3V9M6
UniRef90_UPI000466FD3A UniRef90-UPI000289FED7 UniRef90 K1Y977 UniRef90_UPI0004011B5F UniRef90_UPI0003011FAF UniRef90_G9WQ30 UniRef90_E0XXW7 UniRef90_B0F467 UniRef90-F6EMM7 UniRef90_G7WEM1 UniRef90_L9PC03
UniRef90 K0KBZ5 UniRef90_KOKBZ5
UniRef90_UPI000363DEEB UniRef90_UPI000375A5FD UniRef90_A3DNJ5 UniRef90_N1J672 UniRef90_K0K3C6 UniRef90_G7GKU0 UniRef90_N4VG06 UniRef90_R6GWG0 UniRef90_UPI00037B6539 UniRef90-P39726 UniRef90_Q7V9K3 UniRef90_J9RLT7
UniRef90_X8ISR3 UniRef90_LOHP65 UniRef90_D8GTW7 UniRef90_Q189S4 UniRef90_UPI000477FDE3 UniRef90_UPI00047B6F7E UniRef90_Q8W522 UniRef90-X5ED70
UniRef90-L7FAN8 UniRef90_M5U297 UniRef90_R6LLL6
UniRef90_V7MU45 UniRef90_S9SL91 UniRef90_UPI0003B5D0EC UniRef90_C1B455
UniRef90 H6N546 UniRef90_G0S787 UniRef90_UPI0004752730 UniRef90_U4KQR8 UniRef90_V5PKM2 UniRef90_F4XY32 UniRef90_UPI0001CE238C UniRef90_UPI0004748177 UniRef90_G1UPD5
UniRef90_S0FG43 UniRef90_Q31El1 UniRef90_UPI00047E9736 UniRef90_XOSRT0 UniRef90_L8P416 UniRef90_Q10UY0 UniRef90-GOQLE2
UniRef90 WOSE03 UniRef90_UPI0003687348 UniRef90_E4NH86 UniRef90_L8GA12 UniRef90_UPI00047B1BB9 UniRef90_A0BMS3 UniRef90_UPI00034C76DA UniRef90_G9A091 UniRef90_UPI000255F4DB UniRef90_M2REF2 UniRef90-TOLTI6 UniRef90_UPI00038EED8D UniRef90_UPI000464BA5C UniRef90_D0JB88 UniRef90_Z9JNA8 UniRef90_B4WL91 UniRef90_H8X4R6
UniRef90_U1GA02

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

 | $E$ | $E G T$ | $E V A$ |
| :--- | :--- | :--- |
| $K$ | $V$ | $D$ |
| $V$ | $D$ | $E$ | AV G A NLAA E E QA G VV





EVGTEVTKDDEVGVVI
AV D S E I A S GES F GEVV EI GKTFAAGDAAGVV



## шш

## D

,

QAGTEI EA GEPYGEVV EVGGRTLKVGGDEFGE $\begin{array}{lllllll}A \\ D & G & D & D & V & V & G \\ D & E & A & A & C & D & V \\ L & T & G & E & S & F & G \\ V\end{array}$ | $E$ | $V$ | $A$ | $M$ | $A$ | $A$ | $G$ | $E$ | $E V V$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $A$ | $S$ | $G$ | $T$ | $T$ | $V$ | $E$ | $G$ | $T$ | $V$ |



 | $S$ | $G$ | $K$ | $A$ | $L$ | $A$ | $R$ | $G$ | $A$ | $E$ | $S$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $S$ | $G$ | $V$ |  |  |  |  |  |  |  |  |
| $G$ | $G$ | $S$ | $F$ | $S$ | $K$ | $D$ | $E$ | $V$ | $F$ | $G$ | E V GRTVAK G D GVVVV D I D D T I E K G N NFGTI

$S P$ GT Q V


| $E$ | $V$ | $G$ | $D$ | $I$ | $E$ | $K$ | $E$ | $E$ | $F$ | $G$ | $T$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $D$ | $I$ | $G$ | $T$ | $K$ | $F$ | $T$ | $L$ | $G$ | $Q$ | $S$ |  |

$A V G R V V K A G E E C A V V$

E

##  <br> mmm

## ,

EGGTKLKHGEYFSHLG
D


 SVK
SVK
STK
SVK
SVK
SVK
SVK
SVK
SVK
SVK
SK
SVK
SVK
SVK
SVK
SVK
STK

P|L
G E

## E V p



$\qquad$

## MAR IIFFGLY

SVKAVSDVYSPVSGVVCEDNERLL



$$
\mathrm{L} \mid \mathrm{S}
$$

UniRef90_UPIO003C8E2CC UniRef90-W8T800 UniRef90-W7IDJ3 UniRef90-A0A037ZLK7 UniRef90_A3ZNK1 UniRef90_UPIO00369DB2B UniRef90-H6CMM4 UniRef90-A7TKF1 UniRef90-A0A010YFC2 UniRef90-HOPZL6 UniRef90_UPIO003791BEA UniRef90_U2EG50 UniRef90-K1XDB4 UniRef90-G8COX9 UniRef90_Q6SI00 UniRef90-A3V9M6 UniRef90_UPI000466FD3A UniRef90-UPI000289FED7 UniRef90-K1Y977 UniRef90-UPIO004011B5F UniRef90_UPI0003011FAF UniRef90_G9WQ30 UniRef90_E0XXW7 UniRef90-B0F467
UniRef90 F6EMM7 UniRef90-G7WEM1 UniRef90_L9PC03 UniRef90_KOKBZ5 UniRef90_UPI000363DEEB UniRef90_UPI000375A5FD UniRef90-A3DNJ5 UniRef90_N1J672 UniRef90-U2X5Q0 UniRef90-K0K3C6 UniRef90_G7GKU0 UniRef90-N4VG06 UniRef90-R6GWG0 UniRef90-UPIO0037B6539 UniRef90-P39726 UniRef90_Q7V9K3 UniRef90_-J9RLT7 UniRef90-X8ISR3 UniRef90_LOHP65 UniRef90_Q189S4 UniRef90_UPI000477FDE3 UniRef90-UPI00047B6F7E UniRef90_Q8W522 UniRef90-X5ED70 UniRef90-L7FAN8 UniRef90-M5U297 UniRef90-R6LLL6
UniRef90 V7MU45 UniRef90-S9SL91
UniRef90-UPI0003B5D0EC
UniRef90-C1B455
UniRef90-H6N546
UniRef90-G0S787
UniRef90_UPIO004752730
UniRef90_U4KQR8
UniRef90-F8GCE1
UniRef90-V5PKM2
UniRef90-F4XY32
UniRef90-UPI0001CE238C
UniRef90_UPI0004748177
UniRef90-G1UPD5
UniRef90_S0FG43
UniRef90-Q31El1
UniRef90-UPIO0047E9736
UniRef90-XOSRTO
UniRef90_L8P416
UniRef90-Q10UY0
UniRef90-G0QLE2
UniRef90-WOSE03
UniRef90_UPIO003687348
UniRef90_E4NH86
UniRef90_L8GA12
UniRef90_UP100047B1BB9
UniRef90-AOBMS3
UniRef90_UPI00034C76DA
UniRef90-G9A091
UniRef90_UPIO00255F4DB
UniRef90-M2REF2
UniRef90-R7WWB4
UniRef90-TOLTI6
UniRef90-UPI00038EED8D
UniRef90-UPIO00464BA5C
UniRef90-D0JB88
UniRef90-Z9JNA8
UniRef90_B4WL91
UniRef90-H8X4R6
UniRef90_U1GA02
4
$477 F D E 3$
$47 B 6 F 7 E$

Uniretgo_UlGAO2

E

## D D D N A

90
NP GLVVNK CNEDAWLLI KMTLLSNPSE|L|DEDMSEDVVEKYM
 NK DE S L N D DP Y A G GWWIA K L K V T D L ANPE LANSEPYAA GWFFKI K PANAA DL D GLL L D

 DAPESVNTDAY A A WLLFKIRPDNAADVGGLLD



$$
\begin{aligned}
& \text { O } \\
& \text { N } \\
& \text { D } \\
& \text { Q } \\
& D \\
& \text { E }
\end{aligned}
$$

$$
\begin{aligned}
& S \\
& E \\
& E \\
& N \\
& N \\
& D \\
& D \\
& E \\
& \hline
\end{aligned}
$$

## E D D

D D A

| D | WL | K A DNPKELESLMSLDEYEKKL |
| :---: | :---: | :---: |
| P E S | NGEPYNA WI FKL | $K P$ VD A G D L A K L L D A D G |
| P E Q | GD DP Y GD G WL VK | K A S DLEE L L D TL T A E E Y K D QV |
| A P ES M | NAKPY E A WL I K V | K DVS DKEDLLT A DEYEEF |
| V | NEDCYDEGWLVR | ETT NAEDT DELLDP K A Y K AVL |
|  | NKAAETDGWI A K | S I K D T A EFGTLMNAEKY A D |
| EL | NASPYRE GWL VE | EVA DES ALGETLDA |
| E | N K N P Y LEE G W | E AKDQT ELEELLT WQQYKE |
| A P ESI | N A D A Y A NWL FK | KPA DA A A I S GLL D |
| N A P LV | N S D P L G G W V V V | KVEDAEQLKELQNEQE |
|  | NRDPYGE GWL | QLP D N G G L G GLM S A T D Y K K Y T |
| E P T V | NTDPYGD G W |  |
| EPELL | N $\square$ D P Y G E G W | K PQD P K E Y E S L L P PE K Y A EM |
| K | NDEPENS GWF | ELSES GEMHDLMDLQEYKDL |
| S | NAGPFGDG | E I E P A D A D AL LD R A A Y VE |
| S | NAPYGEGWL | AVEDA T GLL |
| D | N S DP Y GA G WL V | TVA S A Q E LD A L D A A GYR A V T |
| G | N K VP E D D S WI A K | EV D EA GELEAL MDEEAYKAFT |
| , | N NDPMGA WI C E | El T A I PD D L M E A Q Y A |
| TPNLV | NESPYD D G WL Y | RL D D E D L Q L M S HE |
| P G | P M G D G WL VK | L VNVE QV E G L M S LEEQY E K T L |
| S P E | Q NDPH GE G WL | K P S D A S QL D KL M S S $\square$ Y S EKV |
|  | NS DP Y GE G WL V | A DEA I L D El L |
| A P E | NEDPYGA WL I K V | DVT ETE ELL S S D E Y D E FVV |
| S P E | NQDPY ENWLI E | E $\square$ K N P D E I K ELL S A |
| E Y | NENAY DAWIV | KVK D S G EVKK L V D A S E Y E A GL |
|  | NEDPY ENWI L K V | KLA DVA ELD T L L S D K E Y E A G |
|  | N NDPYGA WL FK | K P T NLLD DID A L L D A A A Y T K 1 A |
|  |  | RVES A A VME ELLSS S E Y S Q QV |


 D
A

D
D A

DEPALVNSAPFEGGWLFKVRV EATDELLDADGYTAF
EKPGTI NNAPE GGGWI AKVEI GEQGDDLGLMDAAAYK K F S
DEPELVNTEPY ENWIVSIVELDDDTGQDELLSA
D S P NLL I NEKA E E T W L L Q A K V Q N E S E L D T L L D K Q S Y E K I I

 TTPGNVNKDPEGDAWVAKITVS AEPKGKTMSKEEYAAFT GSPELVNSAPYEGGWLVDLEAADEAGLDEALDADGYAKVT D S

D
E

| UniRef90_UPI0003C8E2CC | $\mathrm{E}$ |
| :---: | :---: |
| UniRef90-W8T800 | N |
| UniRef90-W7IDJ3 | A E T |
| UniRef90-A0A037ZLK7 |  |
| UniRef90_A3ZNK1 | Q E E |
| UniRef90-UPI000369DB2B |  |
| UniRef90-H6CMM4 |  |
| UniRef90_A7TKF1 | K EDA |
| UniRef90-A0A010YFC2 | A |
| UniRef90-H0PZL6 |  |
| UniRef90-UPI0003791BEA | G |
| UniRef90-U2EG50 |  |
| UniRef90-K1XDB4 |  |
| UniRef90_G8C0X9 | A E N H |
| UniRef90-Q6SI00 | HDEE |
| UniRef90-A3V9M6 |  |
| UniRef90_UPI000466FD3A | A D |
| UniRef90_UPI000289FED7 | A |
| UniRef90-K1Y977 |  |
| UniRef90-UPI0004011B5F | G E |
| UniRef90-UPI0003011FAF |  |
| UniRef90-G9WQ30 | K T V |
| UniRef90-E0XXW7 |  |
| UniRef90-B0F467 | K T |
| UniRef90-F6EMM7 |  |
| UniRef90-G7WEM1 | Q N |
| UniRef90_L9PC03 | E A |
| UniRef90-K0KBZ5 |  |
| UniRef90-UPI000363DEEB | S GS D D |
| UniRef90_UPI000375A5FD |  |
| UniRef90-A3DNJ5 | K Q K |
| UniRef90-N1J672 | EKDD |
| UniRef90_U2X5Q0 |  |
| UniRef90-K0K3C6 |  |
| UniRef90-G7GKU0 | E |
| UniRef90-N4VG06 | A D |
| UniRef90-R6GWG0 |  |
| UniRef90-UPI00037B6539 |  |
| UniRef90-P39726 |  |
| UniRef90_Q7V9K3 | S S |
| UniRef90-J9RLT7 |  |
| UniRef90_X8ISR3 | E S E |
| UniRef90_LOHP65 |  |
| UniRef90-D8GTW7 | K |
| UniRef90_Q189S4 |  |
| UniRef90_UPI000477FDE3 | D A E |
| UniRef90-UPI00047B6F7E |  |
| UniRef90-Q8W522 |  |
| UniRef90-X5ED70 |  |
| UniRef90_L7FAN8 |  |
| UniRef90-M5U297 | S E |
| UniRef90-R6LLL6 | K E E |
| UniRef90-V7MU45 | H E |
| UniRef90_S9SL91 |  |
| UniRef90_UPI0003B5D0EC | G E |
| UniRef90-C1B455 |  |
| UniRef90-H6N546 |  |
| UniRef90_G0S787 | A A S D |
| UniRef90_UPI0004752730 |  |
| UniRef90-U4KQR8 |  |
| UniRef90-F8GCE1 | E |
| UniRef90-V5PKM2 |  |
| UniRef90-F4XY32 | D A |
| UniRef90-UPI0001CE238C | K S I E E |
| UniRef90-UPI0004748177 | D ELD |
| UniRef90-G1UPD5 |  |
| UniRef90-S0FG43 |  |
| UniRef90-Q31El1 | D |
| UniRef90-UPI00047E9736 | E E |
| UniRef90-XOSRT0 |  |
| UniRef90_L8P416 |  |
| UniRef90-Q10UY0 | E G E |
| UniRef90-G0QLE2 | K E |
| UniRef90-W0SE03 |  |
| UniRef90-UPIO003687348 |  |
| UniRef90-E4NH86 |  |
| UniRef90_L8GA12 | A S E |
| UniRef90-UPI00047B1BB9 |  |
| UniRef90-A0BMS3 |  |
| UniRef90-UPI00034C76DA |  |
| UniRef90_G9A091 | K H D E |
| UniRef90_UPI000255F4DB |  |
| UniRef90-M2REF2 | E E |
| UniRef90-R7WWB4 |  |
| UniRef90-TOLTI6 |  |
| UniRef90-UPI00038EED8D | K S $\square_{\text {l }} \mathrm{E}$ |
| UniRef90-UPI000464BA5C | ESEKE |
| UniRef90-D0JB88 |  |
| UniRef90-Z9JNA8 |  |
| UniRef90-B4WL91 | E G E |
| UniRef90-H8X4R6 | E E |
| UniRef90_U1GA02 | E G E G E |




## UniRef90 H2YR38

UniRef90-A2BZ55
UniRef90-G8LS64 UniRef90-UPI0002554CA1 UniRet90_C7Z3W9 UniRef90_Q02Q34 UniRef90-UPIO003A8C250 UniRef90-D1NRR3 UniRef90-UPIo003F87FD5 UniRef90-A1SY73 UniRef90-H2B1AO

SSPILINDSAEKDGNYTNYWF
DNPELLQNDPDGNGWLLKIKPESNVLLDELMNSDEYKSKV DAPDSTNKSPYDAWLIRAEGKDPE GKL DTAEEYQAQL DTPTLANTDPLGAGWFFRVKLSNPGQLDALLDEKAYAELA STPTLANTDPLNVGWFFKVKLSDPGQLDALLDEAAYAELL
TDAE 1 NEDPYGEGWIVKMELDD DQPDLLAAEQYAALL

NTPQLI NTDPQGKGWMVKFQVEESENMNELYTLEQYENFL
SPELLNEEPY DSWIFKAEAKQPG
QPELANSEPYGSGWLVRDRPASADATVGLMDVDTYQRHV
DNPGVLNSDPYGDGWLFEV NVTELGEVMDAAGYAE
 TPGLINKACYTDGDM
NPGLINSDPYGQGWMFK RPAADMADDDGLIGAAADQAWM

## DDPSVVNGDPYGEGWLLKVEDDDDEP DLLSAAEYLK

DAPELVNEDPFGDGWMLEI DADDTD


A

A
N
Q
S
D
SPELNEEPYEGGWIVKVKLQDASELDNLKDSEEYLNST

D

D
 NNPGLVNDDPYGEGWLFELKVSDPAQLSTLPDEAAYQKLI

GQANLLNDDCYGAGWLVRI RVDENANLSSLLTADAYMQML
ENLELLSSDPEGEGWI AVLEI EDPKELDDLLDED
EEPGLVNSSPYEEGWUAKIKLSNAEEAAELKKAAAYSKHC S SPALV
DAPQKI NEDPYGA WFVKVE GDVKPETLLDATAYQEYL EDPGKVGEDPTGEAWFFKIKPADPSQMDDYMDEAAYLAYI

 D
A DKPNLLNLDPYYTGWLYQUKLFDVKEIIDKMSYKNYKSLV


##  <br> 

AKPGLINEDPYGEGWLVKIKPADWDESGDLKTADALAAF DRPELINQEPYEGGWLFSVSPKQQTDMQQFLSAADYDALL ESPELMNSDPYESGWI ALIKDENNDELNSLLTFEQYVKLL DDPALINNDPYGEGWIIYEVQVSEVGPVK
T DPTLINEDCYGAGWMFRIRPKDAAQVQKL
DAPEI I SEDPQGDGWLFKLSFDDPDALEEFMSEAAYQKYD
 DAPEQVNESPYEKGWLVEVVLSDF DDCAII NGDPFTAGWLIFEVEVT

EVGPLLTAAEYAE
ETPGLV
DDPKLATDDPHG TWLYEDEV AEDPELMDSAAYEAFA $\square G$ LEKIVEDPYEEGWIVVLEVKGDSELRDLMSSEDYLKHL GAPELVNSSPYDDGWLVEITVGD
K SPSLLNEDP ANNWMVKFKVSKPDEFKKLMDSNKYKKFV
GEPGLVNSDPYGEGWVLRDRLAAAVETGHLLEAGGYLKHI DDPEVINGDPYGEGWIVKI ELDDDEP ELLDAEGYAKIV


| UniRef90_H2YR38UniRef90 A2BZ55 |  |
| :---: | :---: |
|  |  |
| UniRef90_G8LS64 | G E |
| UniRef90_UPI0002554CA1 |  |
| UniRef90_C7Z3W9 | G S E E H |
| UniRef90-Q02Q34 |  |
| UniRef90_UPI0003A8C250 | R T |
| UniRef90-D1NRR3 | K |
| UniRef90_UPI0003F87FD5 | K E |
| UniRef90_A1SY73 |  |
| UniRef90_H2B1A0 | K T A E |
| UniRef90-J8V2D2 |  |
| UniRef90-UPI00036BADD4 | D D |
| UniRef90_UP1000050FDE0 |  |
|  |  |
| UniRef90-D9PZ63 | K S |
| UniRef90-D0L065 | E |
| UniRef90-M0MY33 | E |
| UniRef90-T1HH61 |  |
| UniRef90_E1QKX8 | T E E |
| UniRef90_C4FGH8UniRef90_LOAK51 |  |
|  |  |
| UniRef90-P73560 | E T |
| UniRef90-E8NBH5$\overline{\mathrm{A}}$ |  |
|  |  |
| UniRef90 ${ }^{\text {W9CNK3 }}$ K D |  |
| UniRef90_UPI000475067C |  |
| UniRef90-F4LTI1 |  |
| UniRef90_UPI00037E8ECC | K D |
| UniRef90_UPI00047AEACB |  |
| UniRef90-F4CZ50 |  |
| UniRef90_C4LGX8UniRef90 UPI00047B6974 |  |
|  |  |
| UniRef90-G3B5R3 |  |
| UniRef90_D5UFQ6 |  |
| UniRef90_Q2RGD2 | K E |
| UniRef90-F6C600 |  |
| UniRef90-L7L544 |  |
|  |  |
| UniRef90-U4K5L3 | E D E |
|  |  |
| UniRef90_UPI0002FABD09 |  |
| UniRef90-UPI0003B5758A | E |
| UniRef90_Q8G9M7 |  |
| UniRef90-14C028 | K E E |
| UniRef90-UPI00037CD986 |  |
| UniRef90-E1VYYO |  |
| UniRef90_A0A011PT37 | D A |
| UniRef90-E9EA99 | S E |
| UniRef90-C6HWQ0 |  |
| UniRef90_UPIO0035DF3E6 |  |
| UniRef90-Q2LWS6 | A E E |
| UniRef90-D8JWJ8 |  |
| UniRef90-G0GAP2 |  |
| UniRef90-A0A059LQ16 | E S A G H |
| UniRef90-K7L362 |  |
| UniRef90_UPI0002EE61B2 | T E L E |
| UniRef90-UPI000255824C |  |
| UniRef90-F2V057 |  |
| UniRef90-UPI0003488BC6 |  |
| UniRef90_UPI000466CA17 | D |
| UniRef90-R6WTI4 |  |
| UniRef90-K4IMJ2 |  |
| UniRef90-M1SKQ0 |  |
| UniRef90-G8D481 |  |
| UniRef90-C3PHK4 |  |
| UniRef90-R7K3B5 | K T L |
| UniRef90-K1LNF7 |  |
| UniRef90-R7MDW0 |  |
| UniRef90_UPI000366957D |  |
| UniRef90-A1A342 A D |  |
| UniRef90_UPI0003AFC77A |  |
| UniRef90-B8GUG8 |  |
| UniRef90-M7NUE6 | D A |
| UniRef90-10A076 E S |  |
| UniRef90_C2GKG6 |  |
| UniRef90-14C1N0 |  |
| UniRef90-UPIO0046A9281 |  |
| UniRef90-L9ZZE0 | A |
| UniRef90-U5CNJ9 | D N |
| UniRef90-UPI0004173796 | Q |
| UniRef90-EODG77 |  |
| UniRef90-UPIO002BC926F |  |
| UniRef90-DOWQK0 | K E |
| UniRef90-B1L6U5 | K E |
| UniRef90-M3UGT7 |  |
| UniRef90-Q54FI0 | Q |
| UniRef90-UPI00037D22A9 |  |
| UniRef90_UPI000475B7C7 | K |
| UniRef90-R5SZ71 |  |
| UniRef90_UPI00029AFEC9 | E S G WE |

UniRef90 B8DWL6 UniRef90-B3T2Y6
UniRef90-X0SA27 UniRef90 ${ }^{-10 S T 08}$ UniRef90 C6YPF7 UniRef90-UPIOOO35D60B9 UniRef90_W5IGY1 UniRef90-M1QJI6 UniRef90-A8URDO UniRef90-D3Smjo UniRef90_UPI000378308A UniRef90-UPIO0046773C4 UniRef90-K4KYC6 UniRef90-R6IWC3 UniRef90- В2ААТЗ UniRef90-N2A080 UniRef90-R5BY93 UniRef90-E1QLF8 UniRef90-A6TPS3 UniRef90-G2FK82 UniReffo- 5 SS202 UniRef90-D3DIT8 UniRef90-TOJJI4 UniRef90-O67573
UniRef90 - XoUJM1 UniRef90_UPIO00477B20C UniRef90-R1CLH6 UniRef90-D4HDP2 UniRef90-F81B12 UniRef90 V714K8 UniRef90-B9NZ12 UniRef90-CCLYV5 UniRef90- F4B6E3 UniRef90-A0P4J8 UniRef90-UPIOOO3466325 UniRet90_FOSLG2 UniRef90-B9KХНО UniRef90-W5ER96 UniRef90-Q4JBR3 UniRef90 M1RE91 UniRef90_UPIO0035FB341 UniRef90-UPIOOOOF2F71E UniRef90-UPIO0038EC283 UniRet90-E6QH86 UniRef90-V9E7A9 UniRef90-GOJPX9 UniRef90-Q1Q7G8
UniRef90_UPIooo371D3E8 UniRef90-E6QTJ9 UniRef90_UPIo003B61F9B UniRef90-M5RWR0 UniRet90-B1HWKK UniRef90-SOG3K1 UniRef90-F81B11 UniRef90-E3GIBO
UniRef90 H1G5U6 UniRef90_UPIO003B6DOF1 UniRef90 K6WF63 UniRef90-UPIO002EF20A6 UniRef90-K9EDE4 UniRef90-X1IWA5 UniRef90_UPI000365732A UniRef90-K9D8Y4 UniRef90-T1BTU3 UniRef90-X0PFZ4 UniRet90-X1AMF5 UniReffo-H3N132 UniRef90_W8KRM7 UniRef90-B4DBR9 UniRef90-O9Z8B0 UniRef90-H8GW44 UniRef90-D5SU71
UniRef90-D5WTB3 UniRef90_UPIooo3B776F4 UniRef90 Q253W8 UniRef90_UPIO003B39998 UniRef90-X1G7W9 UniRef90-C1AXP7 UniRef90-SOJDZ7 UniRef90-H5X7H6 UniRef90-UPI0003B585AD UniRef90-F4BLV5 UniRef90_UPIO004704DA6 UniRet90_X1N2J3 UniRef90 ${ }^{-}$M8C5W8 UniRef90-UPIO0046ACCB1 UniRef90-UP10002F2E7A2 UniRef90-A6C8U7 UniRef90-Q4JBR4 UniRef90_WODEU4

1
 FAQKQLGDIVSVELP DYYTKEHDWMKDEEEKCKDGVTDYFQKMLRDIVFVELP DL YTDSNLWVEVKGNIARVGIDDYSQDEFGEIVYVDLP FHRSHLWLRPSAGEAHI GVSDFAQKQLGKILYVELP YSEDHVWVDSSVSPALVGUTAYAAEQLGDVVYIDFP DVYYDENOWWAKDNGGTFTVGGSVAAMAGRLVAYTPK DLYYDENQVWLLRVEDGTVTMGLTDVGQTRAGRLLHARDK T K L YYTKODEWVSVDGDVATIGVS
YFNENDCWAYVDGNKARVGVT
YYSKDHEWIKKEDGKVCVGVT ERFFSKKHLWVLQNGNTATIGIT YFNENDVWAYVSGNHAR GV DFLQEKLGVIIFLNLP E YFNENDVWAYVSGNHARLGVADFVQKSLSDIMFFTPP LKYHSQHTWVKVEGDTA YTGVSEYAQEQLGEVLFVEMP ELHYDEHHQWLKREGNTIIGGLTDYGQYTRGDILYLSDP SELYYDENQVWYKLEDGTVRVGATDGGQTRAGRMVNVRTK LYYTHDHAWVKVEGNTIRIGVTDFLQKLAGEITFIRIP DLYYDENQVWFKVEDGTVTVGVTDDGQARAGKIINGERUK $D \square Y Y D \square D Y \square W A R E E D G S F T G L T D P A Q T M A G R L Q Y T T F K$

YYTKDHEWVKVEGD GGT GI TNFAQEADGDIVYVELP TSDHLWIRPGNGRVRLGVTSVLLDHFGPVESVSLP YPDKHVWARPDDGTIWVGMTDVAQSLAGKIVVVNLR RYDLDADVWVRFEGELVRLGMTDVAQSRMGKLVQLSWK ELKFSQDHVWIDQDNNKYQLGITDFAQDLLGDIVFVDUQ DRLYAPEHLWLREEDGLITLGLSAYGVALYGDIFAFTPK DLYYVESHQWVRVEDGSVRLGYTDVAQTVAGRILQVTFR
 DLYYDENQVWI RLEDGNVTYGLTDVGQTRSGKLLHIRI K LKYTKDHEWVRIDGDEAEFGVTDHAQEA $\square G D V V F V E L P$

 KYTPQHEYVT DNGKEGTVGITDFAQNSLGDVVYVDLP
K Y S DTNVWLRKE
YADDHGWFFDNKKSITFGLTDFFDKDLGKLLFDDDP


MFVELP
E $\square Y Y E K N H Y W V R T D G D \square V M G M D D F A Q K M A G D T M F V K I P$ VWVKLEDGSVRVGMTDPAQTRAGRLLTMQVR ELKYDKEHLWI AVDDNVATI GITDFAQDKMGDILFVELA DLYYDDEYVWLRREGNILTIGMTDLSQATAGKILHVRVR

KYTDTHEWLEDDSWECSVGDTERDQDVYGDIVFVDLP DRRYHPDHLWVEVGDGRVRVGFDALTADTYGALAQLVMS $T E L R Y C R N H M W C R P E D G V S R F G F S T Y A L R L M Q D V Y F L D W C$
$Y Y T E D H D W I I E D E G K K A R V G I S E Y A A E E L G D V V G V E L P ~$

YYTEDHDWIEDEGKKARVGDSEYAAEELGDIVHVELP MRKFA NYLWVDKTDDIYTISMTPELQDDGTVGYVEFT ELGBGVGFT ENDMWCRLGDGRMQVGVSAFGVKISGNYFYMCRP DRWYDRSLEWLRPEDGTARIGMTASWSAFLGRVLRMEYR
 FTEEHDFVEDAPNRARIGLTAFAAEQLGDIVVVELP ELYYDAEYQWLREEDDTLTVGMTDLSQAIAGHILHVRVR TDCLYSPSHFWLEVEPGRWRVGFTKFATRMLGEIVEVQWK TDRNYVATHFWLQTEPRVYRVGFTAYAVRLLQDVYF VWVRLEDNTVLLGMTDPAQTRAGKILQIRAR SDHYFHTGHAWARIEGGFIRVGMDDFSLKVLGSPDHLELP YSDCHVWlQI HSDVVRLGLTDKMGKNLGK DHIDLP Y LSPGHTWL KLEGGVVSLGGDDFAARLLGTFDSLSAP SDRRFTATHGWVALPPGQLRAGVTDRALDDDIDVVGVDLP KDNLWVLFNGTEYVVGLTKEAQDDLGKITFASVP VHEFTEKHGWITTESGIEQWESTIICTGSFGDVAFVGCD YYHMGHSWARFEGGRIRAGFDDFMVRLFGAITYLSLD KYSENGLWVLKEGDNYRTGLSEKGQDDLGEVMFVELP DNLWVLKTNEGYKVGLTNEAQEDLGNUTFATMP DLK YAETHEWVK DHLGDVVYVELP DKYLWVEKGDDTTRTGLTAAGQEALGKVKFIDLP KYFWTKKDGDNVRLGLSKDAQDELGNVTYIDLP DRVYSKSHLWFQQTADHWRVGFTAYSVRLLQDVYFLDWF ERHVWMKVENKVVSVGMTXDGYGAGKIFQVSPR

UniRef90 B8DWL6 UniRef90_B3T2Y6
UniRef90_XOSA27 UniRef90-XOST08 UniRef90_C6YPF7
UniRef90_UPIO0035D60B9 UniRef90-W5IGY1 UniRef90-M1QJI6 UniRef90-A8URD0
UniRef90 D3SMJ0 UniRef90-UPIO00378308A UniRef90-UPI00046773C4 UniRef90-K4KYC6 UniRef90-R6IWC3
UniRef90-B2A2T3 UniRef90-N2A080 UniRef90-R5BY93 UniRef90-A6TPS3 UniRef90-G2FK82 UniRef90_U5S2Q2 UniRef90-D3DIT8 UniRef90_TOJJI4 UniRef90_O67573
UniRef90- X0UJM1 UniRef90-UPI000477B20C UniRef90-R1CLH6 UniRef90-D4HDP2 UniRef90-F8IB12 UniRef90_V714K8
UniRef90_B9NZ12 UniRef90_C7LYV5 UniRef90-F4B6E3 UniRef90-A0P4J8 UniRef90_UPIOO03466325 UniRef90-FOSLG2 UniRef90_B9KXH0 UniRef90-W5ER96
UniRef90 Q4JBR3 UniRef90-M1RE91 UniRef90_UPI00035FB341 UniRef90-UPIO000F2F71E UniRef90_UPIO0038EC283 UniRef90_E6QH86 UniRef90_V9E7A9
UniRef90_G0JPX9 UniRef90-Q1Q7G8 UniRef90_UPI000371D3E8 UniRef90-E6QTJ9 UniRef90_UPI0003B61F9B UniRef90_M5RWR0 UniRef90-B1HWK5 UniRef90_SOG3K1 UniRef90-F8IB11 UniRef90-E3GIB0
UniRef90 H1G5U6 UniRef90-UPI0003B6D0F1 UniRef90-K6WF63 UniRef90-UPIO002EF20A6 UniRef90-K9EDE4 UniRef90-X1IWA5 UniRef90-UPI000365732A UniRef90-K9D8Y4 UniRef90-T1BTU3 UniRef90-XOPFZ4 UniRef90 X1AMF5 UniRef90-H3NI32 UniRef90-C5LQT1
UniRef90-W8KRM7 UniRef90_B4DBR9 UniRef90_Q9Z8B0 UniRef90_H8GW44 UniRef90-D5SU71
UniRef90-D5WTB3 UniRef90_UPI0003B776F4 UniRef90-Q253W8 UniRef90-UPIO003B39998 UniRef90-X1G7W9 UniRef90_S0JDZ7 UniRef90-H5X7H6 UniRef90-L5M3A1 UniRef90_UPI0003B585AD UniRef90-F4BLV5 UniRef90-UPIO004704DA6 UniRef90_X1N2J3 UniRef90-M8C5W8 UniRef90_UPIO0046ACCB1 UniRef90_UP10002F2E7A2 UniRef90-A6C8U7
UniRef90_Q4JBR4

60 S AKAlVIE PMIDSPA A GVVRYVNSET



## 

 <br> \section*{\section*{R <br> \section*{\section*{R <br> <br> \section*{} <br> <br> <br> 2. <br> <br> <br> 2. <br> <br> } <br> <br> }
## K T G S E I E Q G G E A G T I

P PGKHVPKGKP $\quad$ AA S L


D
-
D

## K

## ग

P T G R H Y A R D A T V A V V V


| $D$ | $V$ | $G$ | $K$ | $K$ | $I$ | $P$ | $K$ | $G$ | $K$ | $P$ | $V$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $E$ | $S$ |  |  |  |  |  |  |  |  |  |  |  |
| $E$ | $G$ | $R$ | $T$ | $V$ | $A$ | $A$ | $G$ | $E$ | $A$ | $F$ | $A$ | $V$ |

$\begin{array}{llllllllll}E & V & G & Q & V & T & A & G & E & Q \\ E & A & G & V & V & E\end{array}$

| $K$ | $V$ | $G$ | $T$ | $H$ | $L$ | $E$ | $A$ | $G$ | $R$ | $H$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $A$ | $A$ | $L$ | $E$ |  |  |  |  |  |  |  |  |
| $S$ | $V$ | $G$ | $D$ | $K$ | $F$ | $A$ | $K$ | $G$ | $D$ | $A$ | $F$ |




DEDDEFERGDEFSVVE
RPGSRAPAGKPATVE
QLIE


UniRef90_B8DWL6 UniRef90-B3T2Y6
UniRef90-X0SA27 UniRef90-XOSTO8
UniRee90-C6YP7
UniRef90-UPIOOO35D60B9 UniRef90_W5IGY1 UniRef90-M1QJI6 UniRef90-A8URDO UniRef90-D3smuo UniRef90-UPI000378308A UniRef90 UPIOO046773C4 UniRef90-K4KYC6

## UniRef90-R6IWC3

UniRef90- В2ААТЗ UniRef90-N2A080 UniRef90-R5BY93 UniRef90-E1QLF8
UniRef90 A6TPS3 UniRef90-G2FK82 UniRef90-U5S2Q2 UniRef90-D3DIT8 UniRef90_TOJJI4 UniRef90-O67573 UniRef90-XoUJM1 UniRef90-UPI000477B20C UniRet90-R1CLH6 UniRef90-D4HDP2 UniRef90-F81B12 UniRef90_V714K8 UniRef90-B9NZ12
UniRef90 C7LYV5
UniRef90-C7LYV5
UniRef90 F4B6E3 UniRef90-AOP4J8 Unirei90-AOP4J8
UniRet90-UPIOOO3466325 UniRef90-FOSLG2 UniRef90 B9KXHO UniRef90-W5ER96
UniRef90 ${ }^{\text {Q4JBR3 }}$ UniRef90-Q4JBR3
UniRef90-M1RE91 UniRef90-UPIO0035FB341 UniRef90 UPIOOOOF2F71E UniRef90-UPIO0038EC283 UniRet90-E6QH86 UniRef90-V9E7A9 UniRef90-GOJPX9 UniRef9O-Q1Q7G8 UniRef90-UPI000371D3E8 UniRef90-E6QTJ9 UniRef90_UPIO003B61F9B UniRef90-M5RWR0 UniRet90-B1HWKK UniRef90-S0G3K1 UniRef90-F81B11 UniRef90-E3GIBO
UniRef90 H1G5U6 UniRef90-H1G5U6
UniRef90 UPIOOO3B6DOF1 UniRef90-K6WF63 UniRef90-UPIO002EF20A6 UniRef90-K9EDE4 UniRef90-X1IWA5 UniRef90 UPI000365732A UniRef90-K9D8Y4 UniRef90-T1BTU3 UniRef90-X0PFZ4 UniRef90-X1AMF5 UniReffo-H3N132 UniRef90-C5LQT1 17
UniRef90-W8KRM7 UniRef90-B4DBR9 UniRef90-O9Z8B0 UniRef90-H8GW44 UniRef90_D5SU71
UniRef90-D5WTB3 UniRet90'UPIOOO3B776F4 UniRef90 Q253W8 UniRef90-UPIOOO3B39998 UniRef90-X1G7W9 UniRef90-C1AXP7 UniRef90_SOJDZ7
UniRef90-H5X7H6 UniRef90-L5М3А1 UniRef90-UPI0003B585AD UniRef90-F4BLV5 UniRef90-UPIO004704DA6 UniRet90_X1N2J3 UniRef90 ${ }^{-}$M8C5W8 UniRef90-UPIO0046ACCB1 UniRef90-UP10002F2E7A2 UniRef90-A6C8U7 UniRef90-Q4JBR4
UniRef90_W0DEU4


 A
D
D
G
D
E
D
D

| UniRef90_B8DWL6 |  |
| :---: | :---: |
| UniRef90-B3T2Y6 | E |
| UniRef90-X0SA27 | EK L |
| UniRef90-X0ST08 |  |
| UniRef90-C6YPF7 |  |
| UniRef90-UPI00035D60B9 | G E |
| UniRef90-W5IGY1 |  |
| UniRef90-M1QJI6 |  |
| UniRef90-A8URD0 | E H $\square$ D E |
| UniRef90-D3SMJ0 |  |
| UniRef90-UPI000378308A |  |
| UniRef90-UPI00046773C4 | D E |
| UniRef90-K4KYC6 |  |
| UniRef90-R6IWC3 | G K E A |
| UniRef90_B2A2T3 | Q |
| UniRef90_N2A080 | R |
| UniRef90-R5BY93 |  |
| UniRef90-E1QLF8 | S A E |
| UniRef90_A6TPS3 |  |
| UniRef90_G2FK82 | D R E L E |
| UniRef90-U5S2Q2 |  |
| UniRef90-D3DIT8 | D R |
| UniRef90_T0JJ14 | T E |
| UniRef90-O67573 | ERED |
| UniRef90-X0UJM1 | ET LD H |
| UniRef90_UPI000477B20C |  |
| UniRef90-R1CLH6 |  |
| UniRef90-D4HDP2 | GEV |
| UniRef90-F81B12 |  |
| UniRef90-V714K8 |  |
| UniRef90-B9NZ12 |  |
| UniRef90_C7LYV5 | D |
| UniRef90-F4B6E3 | K E L |
| UniRef90_A0P4J8 |  |
| UniRef90_UPI0003466325 |  |
| UniRef90-FOSLG2 | D K K WE |
| UniRef90-B9KXH0 |  |
| UniRef90_W5ER96 | E E D |
| UniRef90-Q4JBR3 | K E |
| UniRef90-M1RE91 | D R ED |
| UniRef90-UPI00035FB341 |  |
| UniRef90-UPI0000F2F71E |  |
| UniRef90_UP100038EC283 | Q S $\square$ E |
| UniRef90-E6QH86 UniRef90 V9E7A9 |  |
| UniRef90_G0JPX9 |  |
| UniRef90-Q1Q7G8 |  |
| UniRef90-UPI000371D3E8 |  |
| UniRef90-E6QTJ9 |  |
| UniRef90-UPI0003B61F9B | E D L E D |
| UniRef90-M5RWR0 | A E |
| UniRef90-B1HWK5 | A E |
| UniRef90_S0G3K1 |  |
| UniRef90-F8IB11 | K A E |
| UniRef90-E3GIB0 |  |
| UniRef90-H1G5U6 |  |
| UniRef90_UPI0003B6D0F1 |  |
| UniRef90-K6WF63 | A D E |
| UniRef90-UPI0002EF20A6 | N T N W |
| UniRef90-K9EDE4 |  |
| UniRef90-X1IWA5 | D S L |
| UniRef90-UPI000365732A |  |
| UniRef90-K9D8Y4 |  |
| UniRef90-T1BTU3 | A E |
| UniRef90-X0PFZ4 |  |
| UniRef90-X1AMF5 |  |
| UniRef90-H3NI32 |  |
| UniRef90-C5LQT1 |  |
| UniRef90-W8KRM7 |  |
| UniRef90-B4DBR9 | D T |
| UniRef90-Q9Z8B0 |  |
| UniRef90-H8GW44 |  |
| UniRef90-D5SU71 | A A S WE |
| UniRef90-D5WTB3 |  |
| UniRef90-UPI0003B776F4 |  |
| UniRef90-Q253W8 |  |
| UniRef90-UPI0003B39998 | A D V |
| UniRef90 X1G7W9 |  |
| UniRef90-C1AXP7 | S E |
| UniRef90_SOJDZ7 |  |
| UniRef90-H5X7H6 | A E |
| UniRef90_L5M3A1 |  |
| UniRef90-UPI0003B585AD |  |
| UniRef90-F4BLV5 |  |
| UniRef90-UPI0004704DA6 |  |
| UniRef90-X1N2J3 | K E |
| UniRef90-M8C5W8 |  |
| UniRef90-UPI00046ACCB1 |  |
| UniRef90-UPI0002F2E7A2 |  |
| UniRef90-A6C8U7 | D D G WE |
| UniRef90-Q4JBR4 |  |
| UniRef90_W0DEU4 |  |

```
UniRef90 A5FBF7
UniRef90-KON142
UniRef90-H3NG08
UniRet90_KONJ1O
UniRef90 UPIO003DE7A26
UniRef90-J9W4W8
UniRef90'UPIO002490D6F
UniRef90-TOANG3
UniRef90-B4UAK5
UniRef90 W105E5
UniRet90 UPI000467EBC7
UniRef9O-UPIO002197777
UniRef90-R2QS77
UniRef90 A0A022PQ48
UniRef90-FOVFB3
UniRef90-T1AYF8
UniRef90-UPIO0046A51D4
UniRe90 I7AOM5
UniRe990-E3C636
UniRef90_W6T6D4
UniRef90-A0A031LKU2
UniRef90-A5DQQ1
UniRef90-T1CFX3
UniRef90-S1QWH3
UniRef90- SOPGP4
UniRef90-V2WIG4
UniRef90_UPIOO037320DD
UniRef90 A7HBB1
UniRef90 UPIOOO42316BE
UniRef90_UPIOO0471E725
UniRef90-F4FRE2
UniRef90- XOPC75
UniRef90-UPIO0046F2FAC
UniRef90-F0ZYV5
UniRef90 W7KHT1
UniRef90 C2CZK4
UniRef90-Q02C01
UniRef90-W6TB64
UniRef90-UPIO0026287BB
UniRef90-Q4L9VO
UniRef90-17J9G1
UniRef90-K1LN49
UniRef90 Q54JU1
UniRef90-H2C1L9
UniRef90-F4FRD9
UniRef90 Q54JUO
UniRef90-V6Z5S5
UniRef90-H3NJZ5
UniRef90-UPI00036DD3C8
UniRef90 V7AR19
UniRef90-S8DNH4
UniRef90-E6N8B3
UniRef90-C9SNQ1
UniRef90-UPIO003633411
UniRef90-X0QPL6
UniRef90-11HWIO
UniRef90-M4CHQ1
UniRef90-Q2GWF8
UniRef90-Q0E4G5
UniRef90-A3SLC7
UniRef90-G9ZPB3
UniRef90-S4NLU5
UniRef90_C2CZK7
UniRef90_UPIO0034FD274
UniRef90-A7SRF3
UniRef90-A4RW24
UniRef90_B4MBM7
UniRef90 W5K7L2
UniRef90-UPIOOO3598531
UniRef90-R7VL45
UniRef90_16ZRW8
UniRef90-L7M4R5
UniRef90-W4YPB9
UniRe90-Q28G67-2
UniRef90-15D6N6
UniRef90-J4C374
UniRef90-C7XWN6
UniRef90-Q28G67
UniRef90-UPIO004547664
UniRef90-Q6XHU2
UniRet90_Q4UDT8
UniRef90 H2LED5
UniRef90_Q80ZQ9
```

1


TKYY WTEENNGEVTVGLTEAGKNEDGNTTVSDP YHSGHSWVRERKNVVRVGADEFAAALAGKLEKIELP TDKYFWVKKDDGTTKIG円SATGVDELGQI NFIDDP


KNYYWПKKGDKTTR $\square G \square T Q E A Q E A \square G D V K Y E \square P$ KDGLWILHNDKDFCMGLTKEMQDELGEVSFVSFP APTHVAFKDEGGVTSMDFNVGKSDRSGIKVTGKRK DRGYDDEHDWQDAADGTARLGLLATLGAFAGPFVAFAFR DDYFWTETAASTRRVGI TKAAQSEFGQKFVDVP SENHCWAAIEEGAARIGIDDFAKK IVGKIDNIEFP TYFWTKQQDGTTQVGLNDQGRDDLGEVSFIDRP ATYFWTK DLLYDEEY DWDKDEGDUIDSVG円TDVGQYMAGKIFQVEVK

HKDDLWLLYNGKEYCVGLTKKAQDDSGGAVQNARLK KDNVWLLFNGTEYCLGLTNEAQEELGDVTFATLP KYFWTKSVADGTRTGLTTEGQDEGGT TKFAKLP MRKYPGHTWLQPRGGALELGVDDLANRLLPAVSAVELP ANYLWVEQNGDEFTFIMTPELQDDIGTVGYVEFI AKYLWOKKSEGHTRIGLNDLARGEVGQVTFAEFP KFSKDGFWIKEQDDHIVIGFGLKLQDDVGEVAFASFP KFTPSHQWVKTSGDKCLI GDTNYANDADDKVTVDKDP DLLYD KEGDEILV ADRRYSANHMWL
 ANYLYVEKVGNQYIYRMTPELQDDVGTVGYVEFM T R Y Y D
 ■K Y S

PN HQWUKEGQDYVIRMTPELQEDUGTVGFVEFS LKYSKHLWFRFQGDVVEVGMTSLGQYMAGKIFQVTVK KYLWATVDDSHTRI GLNDLARGEDGEISFAAFP RYSKNHLWHSVNNNNTLGLTENG円NKFDDVLY KKFP

YTHYGLWLEEEENQVR GDSDWGQDSAGEDSYYE LQ EFLFIEKNGDDYTLSMTPELQDDDGTSGFVEYT APSHVAFKDEGGПTAVDFNVGKSDRSEMKVTGKRK

SD

APTHVAFKDKNVVTSVDFNVGKSDRSGDKVTGKRK
S R R LY
Q DKiGVGI S
T LNGVWWEQRHADYRLG|TSDADQQLGKTSFAELV
APGHVALKEDGKSTRAVGLTPEAQDELGRVKFVELDP
APTHIAFKDEGGITNIDFNVGNSDRSVLKVSGKRK
A $\square K R Y$ KKEHEW $\quad D \square D K K T V L G D S E Y A K Q L G D I V Y V E D P$
HGALKEEGGMTAVDNVGKSDRSEMKVTGKRK
Y 1 TGTGERVRERGGLVEVGLSPEAQVALGDLLHFQSL
KDGIWAKLPDGNYLLGIDESVYQLMGKITFADFP
KDGUWAKDSDGNYLLGGDKSVYDLMGK TFADFP
APSHEWARANDGNFRGGLSDAAREEFGEISSVTFS
APSHSFFSKDENYKINFNIGKDDRLNNSVKGKSK
SPPRFTSTHEGVNAHGSTYAVGMSAYAFNRLDNAVSGKSK
IDSDGS RLNNKVSGKSK
AESHPDCSEKKEVIKVDFEVKGSNRMDNKMSGKAK

## 

 APSHP【ITREKKTVIKVDYVNEKLNRLNNQVSGKWK TNRMDNKVIGKNK KFTIEYL NDKNEYLLRLTPDAQDEISSI SELNDM

CSRDQNKVSGKFK
 GCSRLNNKVSGKSK


|  |  |
| :---: | :---: |
| UniRef90_A5FBF7 | TNPSSIUNRDPY NNWF |
| Ref90-H3NG08 | EDFDLLNSTDRADNWIVKLRPKDTSLFSQLMD |
| UniRef90-K0NJ10 | HPEIVHEDPYHEGWLCI |
| UniRef90-UP10003DE7A26 |  |
| UniRef90-J9W4W8 | NDPSVLNGTDKATSW |
| UniRef90-Q0 | NNPALVRQDPYGKGWL |
|  | SSTDTLNS |
| UniRef90-ToAN | DSASLMNTDPY A AWLVA |
| UniRef90-W4UAK5 |  |
| UniRef90-UP10000467EBC7 | DNPAAL NEDPYG SWIAAIEMSDKSEDEELDKPEVYEKDC |
| UniRef90-UP10002197777 |  |
| iRef90-R2QS |  |
| UniRef90-A0AO22PQ48 UniRef90-FOVFB3 | SQPELLNSVPDREGYUAMMMPRPADWLKALLLDSEQYKKLR |
| UniRef90-T1A | ARPRLLNDAPYTDGW VRLRP |
| UniRef90-UP100046A51D4 | DSPELINADNEKDAW1 ADV |
|  |  |
| E3C | DLSSSDDQQN |
| UniRef90 W6T6D4 | KDFSVLNSEVDGEAWLIDVE |
| Unip |  |
| UniRef90-T1CF | ENPHL! |
| UniRef90-S1QU | D ${ }_{\text {A }}$ |
| UniRef90-V2WIG4 | DQVEADPWGDGWLFDVRLSDPEQLDELLAPDEYLASV |
| UPIOO | NGSDTDAAWFV |
| UniRef90_A7HBB1 | RDPGLVKREGYGRGWLVAI |
| UP1000423 | DAPEQLNSEKADESWVYKMTNVDQAYDKLEDA |
| UniRef90-F4FRE2 | EHPELLNEDNADKTWIVELTDVASFEALEDA |
| UniR | DHPEYLESPDEEKNWI I EL |
| UniRef90-UP100046F2FAC | DTPELLLAVDEELW WLVEL |
| UniRef90-FOZYV5 | NNPTLINKPTLKQSWTMEL |
| UniRe | DHPDYLNDADKEKNW |
| UniRef90-202C01 | TNPSPLTSDPYTGGWLFE GVATPETTEHLLQGAAARDWM |
| UniRef90-W6TB64 | TNPSPITTNVQKDNWLVKL |
| UniRef90-Q4L9V0 | DEPAILNSEKPEENWLKLENVDEAAYDALPDPDE |
|  | E |
|  | S |
|  | LK S NSL F F N N Q S WTI |
| UniRet90-H2C1L9 | RNPSLLNSSPYSA WVVRIKVRD AEKSKSKL |
| UniRef90-F4FRD9 |  |
|  | STP SLLNQKEADKNWLVKLTNVDEKAYQALADA |
| UniRef90-H3NJZ5 | AHPEDLNDKDEDKNWFVLVT |
| UniRef90-UPIO0036 | NEPALLNSAKAEENWI |
| UniRef90-V7AR UniRef90 S8DN | KQPELLNVSADREGYIAIIMPKPGDWLKSLVSLQEYKKLK |
| UniRei90 E6N8B3 | A TPELLVQKPYDEGWLAKIMVEEPDWKSLIEADEYRRL |
| UniRef90-C9SNQ1 | EKPGTI NKVPEDDSWLARVEVDEQGD\ESपMDAEAYKAFV |
| UP | N |
| UniRet90-х0C | DDPELMNSQKHQDNWI |
| Uniref90-11 | KQPNLL SSADREGA |
| UniRef90 Q2GWF8 |  |
| UniRef90-Q0 | KQPDLLNTSADREGYIA |
| UniRet90-A3S | SVNGPNPQVNWL |
| UniRet90-G92 |  |
| $\begin{aligned} & \text { UniRef90_S4N } \\ & \text { UniRef90_C2C } \end{aligned}$ | QDQPERLNTPDPQVNWIM |
| UniRef90-UP100034FD274 | QNPLLLKNMPDSDGFI AIMLASSEATKSELLTHEEYTKCП |
| UniRef90-A7SRF3 | KTPELI KLK ${ }^{\text {P }}$ |
| UniRef90-A4RW24 UniRef90 ${ }^{\text {B4MBM7 }}$ |  |
| UniRef90-W5K7L2 | KHPDLLLEKPSTDGYTAVILPESKSITNGLLTREQYEEVV |
| UniRef90-UP10003598531 | TKPCLLTEKPLGAGYLAVMLPGFDKEIAQLMCEEKYKKAL |
| UniRef90-R7VL45 | ARPELLSLMPETEGYUA VMTSHKTQVDALLSHEDYLKAL |
| UniRef90_16ZRW8 | EKPGLEKDPYFEG |
| UniRef90-W4YP | SHPQLLVEKPNTEGY |
| UniRef90-Q28G67-2 | QNPELLKEKPSTEGYU AVVLPKFEESTEGLLSQQEYEEIL |
| UniRef90-15D6N6 | QNPSLVLSVYDDENW |
| UniRet90_J4C374 | NQTTDLFDNPEGDNYLV |
|  | GLNS SQQLT SP |
| UniRef90-UPIO004547664 | HQPSLLQEKPSTEGY |
| UniRet90-_66XHU2 | EEPKLLEQ |
| ef90-Q4UDT8 | DEILNDFFSNH |
| UniRef90 H2LED5 UniRef90 Q80ZQ9 | ERPNLLLEKPSTEGYIAVILPESKSVTENLLSRKEFESIVV |
| UniRef90_Q80ZQ9 | HQPSLLQEKPSTEGY $\backslash A V V L P E S K S V T E G L L T Q Q Q Y E E V V$ |


| UniRef90_A5FBF7 | Q |
| :---: | :---: |
| UniRef90-K0NI42 |  |
| UniRef90-H3NG08 |  |
| UniRef90-K0NJ10 |  |
| UniRef90_UPI0003DE7A26 | K S D |
| UniRef90-J9W4W8 |  |
| UniRef90-Q01YU8 |  |
| UniRef90-UPI0002490D6F |  |
| UniRef90-T0ANG3 |  |
| UniRef90-B4UAK5 | E D A E |
| UniRef90-W1Q5E5 |  |
| UniRef90-UPI000467EBC7 | E E L D |
| UniRef90-UPI0002197777 |  |
| UniRef90-R2QS77 |  |
| UniRef90-A0A022PQ48 | T E L |
| UniRef90-F0VFB3 | ERE |
| UniRef90-T1AYF8 |  |
| UniRef90-UPI00046A51D4 |  |
| UniRef90-17A0M5 |  |
| UniRef90-E3C636 |  |
| UniRef90-W6T6D4 |  |
| UniRef90-A0A031LKU2 |  |
| UniRef90-A5DQQ1 |  |
| UniRef90-T1CFX3 |  |
| UniRef90-S1QWH3 |  |
| UniRef90-SOPGP4 |  |
| UniRef90_V2WIG4 | G E V |
| UniRef90-UPI00037320DD |  |
| UniRef90-A7HBB1 |  |
| UniRef90_UPI00042316BE |  |
| UniRef90-UPI000471E725 |  |
| UniRef90-F4FRE2 |  |
| UniRef90-X0PC75 |  |
| UniRef90-UPI00046F2FAC |  |
| UniRef90-FOZYY5 | N D V D |
| UniRef90_W7KHT1 |  |
| UniRef90-C2CZK4 |  |
| UniRef90_Q02C01 | E HEQH |
| UniRef90-W6TB64 |  |
| UniRef90-UPI00026287BB |  |
| UniRef90-Q4L9V0 |  |
| UniRef90-17J9G1 |  |
| UniRef90-K1LN49 |  |
| UniRef90-Q54JU1 | ENTD |
| UniRef90-H2C1L9 | K S V E E |
| UniRef90-F4FRD9 |  |
| UniRef90_Q54JU0 | K N |
| UniRef90-V6Z5S5 |  |
| UniRef90-H3NJZ5 |  |
| UniRef90-UPI00036DD3C8 |  |
| UniRef90-V7AR19 | E |
| UniRef90-S8DNH4 |  |
| UniRef90-E6N8B3 |  |
| UniRef90-C9SNQ1 | G G E |
| UniRef90-UPI0003633411 |  |
| UniRef90-X0QPL6 |  |
| UniRef90-11HWI0 |  |
| UniRef90-M4CHQ1 |  |
| UniRef90-Q2GWF8 | A VE E E |
| UniRef90-Q0E4G5 |  |
| UniRef90-A3SLC7 |  |
| UniRef90-G9ZPB3 |  |
| UniRef90-S4NLU5 |  |
| UniRef90-C2CZK7 |  |
| UniRef90-UPI00034FD274 | D |
| UniRef90-A7SRF3 |  |
| UniRef90_A4RW24 | EREE |
| UniRef90-B4MBM7 |  |
| UniRef90-W5K7L2 |  |
| UniRef90_UPI0003598531 |  |
| UniRef90-R7VL45 | K D R E |
| UniRef90-16ZRW8 |  |
| UniRef90_L7M4R5 |  |
| UniRef90-W4YPB9 | S S |
| UniRef90_Q28G67-2 |  |
| UniRef90-15D6N6 |  |
| UniRef90-J4C374 |  |
| UniRef90_C7XWN6 |  |
| UniRef90-Q28G67 |  |
| UniRef90_UPIO004547664 |  |
| UniRef90-Q6XHU2 | K T K K E |
| UniRef90-Q4UDT8 |  |
| UniRef90-H2LED5 | S K R D Q |
| UniRef90-Q80ZQ9 |  |

UniRef90 Q80ZQ9
S K R D Q

| lupas_21 <br> lupas_14 <br> lupas_28 <br> jnet <br> conf |
| :--- |

$1 \quad B \quad B \quad B^{10} \quad$ B
$\begin{array}{llllllll} & 20 & & & \\ \text { B B B B B B } & \text { B B B } & \text { B } & \text { B B B B } & \text { B } \\ \text { B } & \text { B B B } & \\ \text { B } & \text { B } & & \text { B } & \text { B } & \text { B } & \text { B } & \end{array}$
pssm

```



solo
jhmm
jpssm```


[^0]:    203

