


## QUERY

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LTAKGEENRI LGLTDGADDYLTKPFSPHELVLRIQQI FRR
LSARDEVDRIVGLELGGDDYLTKPFSPRELVARVRALLRR LTAKGEEDRVRGLELGADDYVTKPFSPRELVSRVKAVLRR
LSARGEEDRTLGLDTGADDYVTKPFSPRELVSRVKALLRR VAARDFEKIMGLELGADDY:VKPFSPGEMMAR1KALLRR
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## UniRef90 O2S9E1

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## UniRef90－F5SEM3

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UniRefefo－B5EAZ9
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UniRef90－UPIOOO38233B3 UniRef90－F7NK39
UniRef90－D6GSX8
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UniRef90－F4XF11
UniRef90－UPI00028913C2
UniRet90＿R7M1S2
UniRef90－A4EM61
UniRef90－D8IXV8
UniRet90 CON373
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UniRef90－Q9TLQ4
UniRef90－K6T1R1
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UniRef90＿W9DVR3
UniRef90－A6GE03
UniRef90－A9B4X6
UniRef90＿D5WQA4
UniRef90＿C3B3U3
UniRef90－D6TF39
UniRet90 UPI0003648971 UniRef90＿UPIOOO41E8546
UniRef90－A1WT81
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UniRef90－V9GGU1
UniRef90－H7F3J8
UniRef90
UniRef90－E5AP53
UniRef90－WBKLO2
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UniRef90－V411E6
UniRef90 V8G3T2
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UniRef90＿V6J464
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UniRef90－UPIOOO2EAA4F9
UniRet90＿V4RPP0
UniRef90＿K5ZLJ4
UniRef90 U1R5V9
UniRef90－UPI00037243D4
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UniRef90＿UPIOOO4716BA3
UniRet90＿S3YCE7
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UniRef90＿EODIV2





EAA4F9

 AEDTPDLVLLDWMM


60
GDDGFTTCQRLLRK ${ }^{70}$
70
NMSGYELCSQI RREW STV｜P｜I IM

 KD DK PGLLLL DLMMLP $K D D K P G L I L L$
$L$
$L$
 YRYSPVLLLLDVMMPK

[^0]GL GLEI CRRLRATGN N L K

[^1] M
$M$

- 

$$
\begin{aligned}
& Q \\
& \frac{\mathrm{~K}}{\mathrm{w}}
\end{aligned}
$$



 $\begin{array}{llllllllllll}E & E & N & P & P & D & L & V & L & L & D & V \\ F & M & M & P \\ \text { F } & E & S & P & H & L & V & L & L & D & I & M\end{array}$ | $G$ | $Q$ | $S$ | $D$ | $P$ | $D$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $G$ | $L$ | $L$ | $D$ | $V$ | $M$ | $M P$ |
| $G$ | $C$ | $H$ | $P$ | $D$ | $L$ | $I$ |






フォWMLL $\begin{array}{ll}\mathrm{E} & \mathrm{E} \\ P & \mathrm{G} \\ \mathrm{P} & \mathrm{G}\end{array}$
G
GLKKLKKAERTA G w

[^2]



 NGFDVCRHI REK S S SVP MD GWTVLKKI REE $\quad$ SATPVI $\begin{array}{ll}\text { M } \\ M\end{array}$


## E E R


 M
M

M RQE QPDLIL LDVMM | $V$ | $R$ | $V$ | $P$ | $D$ | $L$ | $L$ | $L$ | $D$ | $W$ | $M$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $R$ | $R$ | $R$ | $K$ | $P$ | $A$ | $V$ | $L$ | $D$ | $V$ | $M$ | $M$ |保

C
R
E
R

$$
\begin{aligned}
& \mathrm{M} \\
& \mathrm{M}
\end{aligned}
$$A L

R $R$
$L$

－

## 

GTNNNDHLLIL
Gll
${ }^{\mathrm{K}} \mathrm{G}$ B E
K S LDD G I
E Y

$\square$ | $S$ | $D$ | $V$ | $P$ | $I$ | 1 |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | $M$ |  |  |  |  |
|  | $D$ | $I$ | $P$ | $V$ | $I$ |
| $M$ |  |  |  |  |  |

$$
{ }_{P}^{P} M_{F}^{D}
$$

$$
\begin{array}{l|l}
\mathrm{V} & \mathrm{M} \\
\mathrm{M} \\
\mathrm{M}
\end{array}
$$

$$
\begin{aligned}
& \mathrm{K} \\
& \mathrm{~K} \\
& \mathrm{E}
\end{aligned}
$$

$$
\begin{array}{ll|l|ll|l}
\mathrm{R} & S & V & P & V & V \\
\mathrm{~S} & \mathrm{~S} & \mathrm{~V} & \mathrm{P} & \mathrm{I} & \mathrm{I} \\
\mathrm{M} \\
\mathrm{~K} & \mathrm{D} & T & \mathrm{P} & \mathrm{~V} & 1
\end{array} \mathrm{M}
$$





 S DVLP D L V L L D WML P A D RVVPDLIVVVWMLP

 QKNPPELLILD』MMP TRRPPDLLVLDWMLP D E N N DD L I L L D DMM MP L D M MP

## $\stackrel{M}{\mathrm{M}}$ <br> 


 DGWQVC R S $\left\lvert\, \begin{array}{lll}R & E V K ~ S V & P \\ R & L & L \\ M\end{array}\right.$


[^3]

QEHHPDLVLLDVMLIPT



## Y

RENEPDLIVLDVMLP EAEAPDLILLDLMLP

| $E$ | $D$ | $D$ | $S$ |
| :--- | :--- | :--- | :--- |
| $T$ | $D$ | $L$ | $V$ |

$A E N R D D L L V L D W M L P$
$R K E D F D L I I M D V M M P$$\mathrm{K}^{\mathrm{G}}$
${ }_{P}^{P}$



 SKFNPDLLILDDVMMPK SRENR L



 $\checkmark \frac{M}{M}$
 F AK $T$ P





 $L \frac{L}{\sqrt{M}}$ EKEELDLALLDIMMPK ISGLELCKKIRERYNY PII M

[^4]



| UniRef90_Q2S9E |  |
| :---: | :---: |
| UniRef90_UPI00034A3C70 |  |
| UniRef90-Q2G605 |  |
| UniRef90 D4J046 |  |
| UniRef90-Q8YXL8 | Q |
| UniRef90-E3PT04 |  |
| UniRef90-K8Z8M6 |  |
| UniRef90-UPI000466C024 |  |
| UniRef90-K6QF01 | E |
| UniRef90-W0EHR3 |  |
| UniRef90-B6AWY7 | T |
| UniRef90-UPI0003619876 | K |
| UniRef90-K9EF86 |  |
| UniRef90-F5SEM3 |  |
| UniRef90-S2KF35 | T |
| UniRef90-UPI00047E84B9 | Y |
| UniRef90-TOB121 | T |
| UniRef90-UPI000474CDEA | K Q |
| UniRef90_UPI00047A64F1 |  |
| UniRef90-E0IBF4 | K |
| UniRef90-B5EAZ9 | S |
| UniRef90-N1ZNC4 |  |
| UniRef90-R5XNZ7 | A E |
| UniRef90-UPI00038233B3 |  |
| UniRef90-F7NK39 |  |
| UniRef90-D6GSX8 |  |
| UniRef90-UPI00047AA2CE | Y |
| UniRef90-F4XF11 |  |
| UniRef90-UPI00028913C2 |  |
| UniRef90-R7M1S2 |  |
| UniRef90 A4EM61 |  |
| UniRef90-D8IXV8 |  |
| UniRef90-C0N373 | C Q |
| UniRef90-F8GDD2 |  |
| UniRef90-Q9TLQ4 | $\square \mathrm{Q}$ |
| UniRef90-K6T1R1 |  |
| UniRef90_UPI0003B5F447 |  |
| UniRef90-UPI00037F4AF8 | T |
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| UniRef90_UPI000469FF1A | A Q |
| UniRef90-A5UVL6 | R Q |
| UniRef90_A3VE31 |  |
| UniRef90_Q15VN9 |  |
| UniRef90-W9DVR3 | S |
| UniRef90-A6GE03 |  |
| UniRef90-A9B4X6 |  |
| UniRef90-D5WQA4 |  |
| UniRef90-C3B3U3 | S |
| UniRef90-D6TF39 |  |
| UniRef90_UPIO003648971 | T |
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| UniRef90_UPI0003077868 |  |
| UniRef90_A1WT81 | T |
| UniRef90-W0EA40 |  |
| UniRef90-V9GGU1 | T |
| UniRef90-H7F3J8 |  |
| UniRef90-M9M077 |  |
| UniRef90 E5AP53 | R |
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| UniRef90-F6B2X3 |  |
| UniRef90-V411E6 | S |
| UniRef90-V8G3T2 | Y |
| UniRef90-H5SBB3 | R |
| UniRef90-V6J464 | S |
| UniRef90-C3KZX1 | Y |
| UniRef90_UPI0002EAA4F9 | S |
| UniRef90-V4RPP0 | S |
| UniRef90-K5ZLJ4 |  |
| UniRef90-U1R5V9 | R E |
| UniRef90_UPI00037243D4 | Y |
| UniRef90-UPI0003F6FEFA | Y |
| UniRef90-UPI00047765B1 |  |
| UniRef90-UPI0004716BA3 | E |
| UniRef90-S3YCE7 |  |
| UniRef90-Q2SQT8 |  |
| UniRef90-A5KSR3 | P Q |
| UniRef90-N9QET6 | M E |
| UniRef90_G0A263 |  |
| UniRef90-D4L5W7 | S Q |
| UniRef90-A0A023RQC5 |  |
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| UniRef90-W4ALR5 | Y |
| UniRef90-R6Z8.J9 | Y |
| UniRef90-A0A023X3K8 | P |
| UniRef90-D7CK37 | R |
| UniRef90-E2SEV2 | S |
| UniRef90-UPI0003031C05 |  |
| UniRef90-H1XR24 | K |
| UniRef90-R6NIA3 | Y |
| UniRef90 E0DIV2 |  |




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L|S S R D E IID R|V LG|I E L G A D D Y|V VK P F S P R E VVV|AR|V|MA|I L|R R $L T A L G E E D R V A G L E T G A D D Y V T K P F S P R E L V L R V Q S V L R R$
 LSAKDETDRVVGGLEDGADD YLTKP F GTRRELVAARCRALLRRR L T A R Q D L D K V R G L E L G A D D Y I D K P F S P M E L V A R I K A I L R R



 L T A K E D T D R I V G L E L G A D D Y I S K P F N P R E L L A R I K A V L R R

 L T A K S E E D E LL L G F E L G G D E Y I S K P F S P R DL V A R V D A I L R R $V$ T A R GEFEKI MGGDIGADDYIVKPFSPSEVMARLRAVLRR LTAKDEVDKVVGLELGADDYVTKPYSSRELVARIMAVLRR


 LT A K D D M D K L L GLE Y G A D D Y I TM K F F N L L | $V$ | $S$ | $A$ | $K$ | $D$ | $D$ | $E$ | $D$ | $K$ | $I$ | $V$ | $G$ | $L$ | $E$ | $L$ | $G$ | $A$ | $D$ | $D$ | $Y$ | $I$ | $T$ | $K$ | $P$ | $F$ | $G$ | $V$ | $R$ | $E$ | $V$ | $V$ | $A$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $L$ | $R$ | $V$ | $K$ | $A$ | $N$ | $L$ | $R$ | $K$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | LTAKE E WNRVNGLRTGADDYIVKPFSPGELIARMEAVLRR LTAARE E E D K V V G GL E V VGA D D Y I T K P F F S P K E L MA R LLK A V I R R


 L T G K D E E D DL N G LDDDGA D D Y M T K P F S P R Q L VA R V K A L L R R $L$ S A K S D F D KI S G L V M G A D D Y M T K P F N P P L E L L A A R V N A Q L R R

 L T A L D E T H R V D G L E A G A D D Y V T T K P F S P P R E L V L R V A A L I R R LSAREDNDKI LGI DTGADDYVTKPFNPLELVVRVKA QLRR


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 L A A D E P D K V A G L I S A K E D A S K I R G L D D L G A D D Y $\operatorname{L}$ L LTARDDADRIVGLELGADDYLSKPFNPRELLARIKAILRR LTAKSTEDKI TGGLNSGADDYVSKPFSPRELIARVQAVLRR




 $V$ T A REDAD KIR GLGGLGA D DY I SKPFSPTEVLVARVKANLAAQ L T A LDD DEDKIK GL DAGADDYVTKPFSAEVLLARRIRANLRR



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 L T A K D D D V D R V A G L D A G A D D Y V V V K P F S L A R D T F DKV S GL DSGADDYLAK P F E IVE ELLARMRAVMRR I T A L T E E E K V K G L N L G A V D Y I T T K P F E Q Q E V I A R I S L M L K L L T A L LTAKDNTDRIVGLELGADDYVPKPSSPRELVARIRAILRR $L T A R D D M D K V L G L G L G A D D Y L A K P F S D A E L V A R V G A Q L R R$

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K CI Y Y V VDD Do
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K $\operatorname{V} L L_{L} L$
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$K V \sqrt{\prime} I V D D D A Q L A A A L K \| A L E A W G F Y L L T \Pi N D L G H F W S A L$
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 LTAS DETD R D DGL L F GA D D Y V A K P F N P R E L L A R I R A V L R R LT A R Q N Q E K V Q G L T L G A D D Y I E K P F F S P M E L I A R I Q S L L R R | $L$ | $T$ | $A$ | $R$ | $D$ | $E$ | $T$ | $D$ | $K$ | $V$ | $H$ | $G$ | $F$ | $G$ | $L$ | $G$ | $A$ | $D$ | $D$ | $Y$ | $V$ | $T$ | $K$ | $P$ | $F$ | $G$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $I$ | $L$ | $S$ | $E$ | $L$ | $V$ | $A$ | $R$ | $V$ | $G$ | $A$ | $L$ | $L$ | $R$ | $R$ |  |  |  |  |  |  |  |  |  |  |  |
| $I$ | $A$ | $K$ | $S$ | $T$ | $E$ | $D$ | $I$ | $V$ | $L$ | $G$ | $F$ | $E$ | $L$ | $G$ | $G$ | $V$ | $D$ | $Y$ | $I$ | $T$ | $K$ | $P$ | $F$ | $N$ | $E$ | L T A R







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