UniRef90＿Q67S57 UniRef90－A1HSV7 UniRef90 K1ZMB9 UniRef90－F2NDA5 UniRef90－EEW361 UniRef90 W5WXL6 UniRef90－R7L8C2 UniRef90－Q73LZ4 UniRef90＿UPIOOO422FE6A UniRef90－UPI00047BE6A7 UniRef90＿A2C5P2 UniRef90＿O9KF78 UniRef90－E8X1Z7
UniRef90 L7VP UniRef90－UPI0003814D49 UniRef90－UPIO0047E8B43 UniRef90－H9UA6 UniRef90 ${ }^{-15 B 1 M 9}$ UniRef90－K7W5Q4 UniRef90－C6XHZ4 UniRef90－U2HYN6 UniRet90＿Q3B1J3 UniRef90＿C9RCP
UniRef90－B11585 UniRef90－Q891G7 UniRef90－R7KDW4 UniRef90－U5Q802 UniRef90＿UPIO004047A0B UniRef90＿Q7UFS3 UniRef90－JoN455 UniRef90－G9XB65 UniRef90－B1 H042 UniRef90－A0LK54 UniRef90－UTUA48 UniRef90 R5FXH4 UniRef90－A91M11 UniRef90－R6XR40 UniRet90＿CoQYF1 UniRef90＿G5JUB9
UniRef90＿B9Low3 UniRef90－10HYU9 UniRef90－K8EOQ9
UniRef90 O6ASN4 UniRef90＿UPIO003B69706 UniRef90－UPI0003B65576 UniRef90－C7M8M7 UniRef90－Q1AXU4 UniRef90 I4A0M1 UniRef90－W6K8H0
UniRef90 E4KRA0 UniRef90－C6BSD8 UniRe990＿UPIO0036755EB UniRef90－D6Z3W4 UniRef90－E8MZM9 UniRef90－D4YLP1 UniRef90－B3U4L1 UniRef90－D1A132 UniRef90－D4YEC5 UniRef90－B8DOZ5 UniRef90－WOFHC0 UniRet90－M1V8N1 UniRef90－D6YSF8
UniRef9O－G5ZYR3 UniRef90－066601 UniRef90－H6LAX9 UniRef90－A7BUH5 UniRef90－R6W5Y4 UniRef90－R7GH96 UniRef90－R6THL7 UniRef90＿UPIO0047882A1 UniRef90－C7HVB8 UniRef90 R6PS73 UniRef90－M1LUC1 UniRef90－F4LX51
UniRef90 F7YVU3 UniRef90－UPIO00299F68C UniRef90 UPIOOO3737CAC UniRef90－B3TGM1 UniRef90－D3IAL4 UniRef90－X1CY03 UniRef90＿DCG20
UniRef90＿Q2LXX

GPGTLAVRVIGEVTPEKTR\VREANA\｜VEEEVERAGLRPWQ









## 


 GPGLAVRMLGAVTPEKLSLLREADAIVTTEE：KKAGLEKWQ GPGLAVRVLGEVTREKLECLRAADAVVDEEVRRAGLYRWQ GPGLAVRIVGEVTEEKLNLKKEADALFTYEMEKANVGASQ

G

－



## O

## ．

## QUERY

 UniRef90_Q67S57 UniRef90-B9XRJ2 UniRef90_K1ZMB9 UniRef90_F2NDA5 UniRef90-E6W361 UniRef90_C8W1J3 UniRef90_W5WXL6 UniRef90_R7L8C2 UniRef90_Q73LZ4 UniRef90_UPI000422FE6A UniRef90_UPI00047BE6A7 UniRef90_A2C5P2 UniRef90_Q9KF78 UniRef90_E8X1Z7 UniRef90_L7VPR3 UniRef90 UPI0003814D49 UniRef90_UPI00047E8B43 UniRef90_H9UA61 UniRef90 I5B1M9 UniRef90_K7W5Q4 UniRef90_C6XHZ4 UniRef90_U2HYN6 UniRef90_Q3B1J3 UniRef90_C9RCP8 UniRef90_B1I585 UniRef90_Q891G7 UniRef90_R7KDW4 UniRef90_U5Q802 UniRef90_UPIO004047A0B UniRef90_Q7UFS3 UniRef90_J0N455 UniRef90_G9XB65 UniRef90_B2RIF9 UniRef90_B1H042 UniRef90_U7UA48 UniRef90_F8CDI9 UniRef90_R5FXH4 UniRef90_A9IMI1 UniRef90_R6XR40 UniRef90_C0QYF1 UniRef90_G5JUB9UniRef90_B9L0W3 UniRef90_IOHYU9 UniRef90_K8E0Q9
UniRef90 Q6ASN4 UniRef90_UPI0003B69706 UniRef90_UPI0003B65576 UniRef90_C7M8M7 UniRef90_Q1AXU4 UniRef90_I4A0M1 UniRef90-W6K8H0
UniRef90 E4KRA0 UniRef90_C6BSD8 UniRef90_UPI00036755EB UniRef90_D6Z3W4 UniRef90-E8MZM9 UniRef90_R7EKS9 UniRef90_D4YLP1
UniRef90_B3U4L1 UniRef90-D1A132 UniRef90_E3F4A8 UniRef90_D4YEC5 UniRef90-B8D0Z5 UniRef90-W0FHC0 UniRef90_M1V8N1
UniRef90_D6YSF8 UniRef90_G5ZYR3 UniRef90_O66601 UniRef90_H6LAX9 UniRef90-A7BUH5 UniRef90-D8LXI9 UniRef90_R7GH96 UniRef90_R6THL7 UniRef90_UPI00047882A1 UniRef90_C7HVB8 UniRef90_R6PS73 UniRef90-M1LUC1 UniRef90_F4LX51
UniRef90 F7YVU3 UniRef90_UPI000299F68C UniRef90_UPI0003737CAC UniRef90_B3T6M1 UniRef90_D3IAL4 UniRef90_X1CY03 UniRef90_D1CG20 3

755EB

A

## A

## 




 A F A V L P D


$\hat{A}$

## Y <br> S





S F AI I L PVVKTVVGVMGDARTYEYVI A I R A V
AFAVV

Y
A
Y
S
 F F A V L L P V V H S T G VVMG D QRTY A R VI A I R A V T S TADAMTAD WA YFAVLPDMRSVGVMGDGRTYAYAVVVRAVVSHDGMTABA

 S F A V L P A V




A F A V L L P V $V$ R S V G V M G D S RTY QE V V A L R A V T T E D F M T A S W W A




S F A V L P D L K
YFAVVLTNAHSVGVMGGARTYGYVVALAAVETDDFMTAEFS
AFAVLLSSKAVGVMGDFRTYEEVIALRAVATSDYMTADWY

A F A V L L P V K S V $V$ GVVM G D V R T Y E K VVVA L R A V E S V D G MTA D WA


A L VVLLD V VR SVGGVMGDGRTYEQTAAI RCVQTTD YMTADWY
 Y F A V L P N I K S V G G M G D E R TYA H T I Gil R A I T S S DAMTA D WA



A <br> \section*{\section*{A}} <br> \section*{\section*{A}}

A F

| $A$ | $F$ | $A$ | $V$ |
| :---: | :---: | :---: | :---: |
| $A$ | $L$ | $T$ |  |
| $A$ | $F$ | $A$ |  |

$S F V V L D P L \begin{array}{ll}R & T \\ K & G \\ G & M \\ M & D \\ M & A\end{array}$

A YKET $\square A V R \square V$
S

## QUERY

UniRef90＿Q67S57 UniRef90－B9XRJ2
UniRef90 A1HSV7 UniRef90－K1ZMB9 UniRef90－F2NDA5 UniRef90－E6W361 UniRef90－W5WXL6 UniRef90＿R7L8C2 UniRef90＿Q73LZ4
UniRef90 C1A3W7 UniRef90＿UPI000422FE6A UniRef90＿UPI00047BE6A7 UniRef90＿A2C5P2 UniRef90＿Q9KF78 UniRef90＿E8X1Z7
UniRef90 L7VPR3 UniRef90－UPI0003814D49 UniRef90－UPI00047E8B43 UniRef90－H9UA61 UniRef90－15B1M9 UniRef90－K7W5Q4 UniRef90＿C6XHZ4
UniRef90 U2HYN6 UniRef90＿Q3B1J3 UniRef90＿C9RCP8 UniRef90－B1I585 UniRef90＿Q891G7 UniRet90＿R7KDW4 UniRef90＿UPI0004047A0B UniRef90－Q7UFS3 UniRef90＿OON455 UniRef90＿G9XB65
UniRef90 B2RIF9 UniRef90－B1H042 UniRef90＿A0LK54
UniRef90＿U7UA48 UniRef90＿F8CDI9 UniRef90＿R5FXH4 UniRef90－A9IMI1 UniRef90＿R6XR40 UniRef90＿G5JUB9 UniRef90－B9LOW3 UniRef90＿10HYU9 UniRef90＿Q6ASN4 UniRef90＿UPI0003B69706 UniRef90＿UPI0003B65576 UniRef90－C7M8M7 UniRef90＿Q1AXU4 UniRef90－14A0M1 UniRef90－W6K8H0
UniRef90 E4KRA0 UniRef90－C6BSD8 UniRef90＿UPI00036755EB UniRef90－D6Z3W4 UniRef90－E8MZM9 UniRef90－D4YLP1 UniRef90＿B3U4L1 UniRef90－D1A132 UniRef90－D4YEC5 UniRef90－B8DOZ5 UniRef90－W0FHCO UniRef90＿M1V8N1 UniRef90＿D6YSF8
UniRef90＿G5ZYR3 UniRef90＿O66601 UniRef90＿H6LAX9 UniRef9O A7BUH5 UniRef90－R6W5Y4
UniRef90－D8LXI9 UniRef90－R7GH96 UniRef90－R6THL7 UniRef90＿UPI00047882A1 UniRef90＿C7HVB8
UniRef90 R6PS73 UniRef90－R6PS73 UniRef90－W1UA01
UniRef90＿M1LUC1 UniRef90－F4LX51

## UniRef90＿F7YVU3

 UniRef90＿UPIO00299F68C UniRef90＿UPIO003737CAC UniRef90－B3T6M1 UniRef90－D3IAL4 UniRef90－X1CY03 UniRef90＿D1CG20UniRef90＿Q2LXX1

100
NVP WEVLQRTAFRTTSETPEVGRVLYDD
110
RVLYDDT N K P P ATTE FE

R

 RLPYEVLESISSRIVNELKEI NRVVYD

RIPYEVLDKVSSRI I NEVKGINRIVYD





HLPHELLARFSNRII NEVQGVNRVVYD
RLP WELLD S I S R RIVNEVKGVNRVVYD
K L P P H E F
RIPYDILEAISTRIVNEVKGVNRVVYD
HHDMNFLSQVADRIVNEVKGINRVVYDI
HLP Y ELLAAKI SNE：I I NHVKGUI NRVVYD

RLPYEVL ETMSRRLVNEVKGIVRVVYD
KVPHEVLDKRASSR VNEVKGVNRVVYD

HI PYELLAQI SNDI I NRVKGVNRVVYD






KI D Y NVLGII SNRI I NEVKGI NRVVYD

RLPYELLARVSNRIVNEVPGVNRVVYDI
RI PHEVLANISTRLVNEVAEVNRVVYD

KLPFELLERI SNRI I NEVVGI NRVVYD
DLPYKFL QKVSNDI NKVKGVNRVVYD
HF Y ELLE KV S S RII I
$\begin{array}{llllllllllllll}\text { Q } & \mathrm{L} & P & W & D & V & L & Q & E & I & S & T & R & I \\ R & V & N\end{array}$



PYTHEFLGETATR
RIPYDVLDTISKRIVNECAHINRVYOD




RFPYDLLARISNRII NEVKGI NRVVYDVS

RI P Y DVLDRVSVRIVNEVPHI NRIVYDITSKPPATIEWE






| $E$ | $L$ | $P$ | $Y$ | $E$ | $L$ | $L$ | $R$ | $R$ | $V$ | $S$ | $N$ | $R$ | $I$ | $N$ | $E$ | $V$ | $A$ | $G$ | $I$ | $S$ | $R$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $P$ | $F$ | $D$ | $H$ | $D$ | $F$ | $L$ | $D$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | $H$ | $V$ | $S$ | $G$ | $R$ | $I$ | $N$ | $Q$ | $V$ | $R$ | $G$ | $V$ | $N$ | $R$ | $V$ | $V$ | $Y$ | $D$ |  |  |  |  |
| $H$ | $L$ | $P$ | $Y$ | $E$ | $F$ | $L$ | $A$ | $K$ | $V$ | $S$ | $N$ | $E$ | $I$ | $N$ | $K$ | $V$ | $K$ | $G$ | $V$ | $N$ | $R$ | $V$ |
| $C$ | $Y$ | $D$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |





E W $K P P$ $\sum_{m m m} \sum_{m}$
 ート ハトハトトトトトト つの $T$
$T$
$T$
$T$
$T$
$S$
$S$
$T$
$\square$
トの の $\begin{array}{ll}T & S \\ T & S \\ T & S \\ T & G \\ S & N \\ T & P \\ S & S \\ S & G \\ S & G \\ T & S \\ S & S \\ T & S \\ T & N \\ S & S\end{array}$ $K$
$K$
$K$
$K$
$K$
$K$
$K$
$K$
$K$
$K$
$K$ $\begin{array}{ll}P & P \\ P & P \\ P & P \\ P & P \\ P & P \\ P & P \\ K & P \\ K & P \\ K & P \\ K & P \\ K & P \\ K & P\end{array}$
 ーーーーーーーーーー
mmmmmmmmmmm

UniRef90 B9E8Y0 UniRef90-S4WBG7 UniRef90-F4DJ36 UniRef90-M2T6V8 UniRef90-F8B622
UniRefoo $10 A H R 5$ UniRef90-D5ML81 UniRef90-17GYZ6 UniRef90-K9ZYI2 UniRef90-A0A017TEF5 UniRef90_DOKYEO Uni Ref90-JOLNZ7
UniRef90 S6CG94 UniRef90-UPI000371E803 UniRef90_UPIo004662CDB UniRef90_G9WMJo UniRef90-F8MUF7 UniRef90-LODBN1 UniRef90-Q0AW22 UniRef90_UPIO00472B30C UniRef90-A8FMV3 UniRef90 ${ }^{-}$WoJJ97 UniRef90-G2KUY2 UniRef90-B8C1B3 UniRef90-C5LI62
UniRef90-UPIO0016BFEE9 UniRef90-F7V8K6 UniRef90-E6SV74 UniRef90-B8FKL2 UniRef90-XOT399
UniRef90 J6F0Q6 UniRef90_UPIO003B66794 UniRef90-H8Z2A4 UniRef90-C8WP25
UniRef90 UniRef90-E7FYD7 UniRef90-в2TIX3 UniRef90-A0A031GRA8 UniRef90_UPI000471B77B UniRef90-N2AU69 UniReffo-D1B619 UniRef90-UPI0003F96D08 UniRef90-12K079 UniRef90-UPIO0036045DC UniRef90-G5GDG8 UniRef90-D6Z114 UniRef90-S5ZL90 UniRef90-I 14 YHC3
UniRef90 KOKFN1 UniRef90-K9SLJ4 UniRefo-E1QY69 UniRef90-R7JZ74
UniRef90 E4U892 UniRef90-R6U8N3 UniRef90-S3MPS7
UniRef90-W5XBG5 UniRef90-R5BN14 UniRef90-UPIOOO3F7BD08 UniRef90-E6X0A6 UniRef90-K6H094 UniRef90-13VIC9 UniRef90-17JEJ9 UniRef90-A5K7F1 UniRef90-UPIIOOO47B979C UniRef90-Q3YT30 UniRef90_K2DSS3 UniRef90_UPIo00362228C UniRef90-JOHHM3
UniRef90 EOXR90 UniRef90-S2VXX7 UniRef90-B8MNJ3 UniRef90 ${ }^{-Q 7 V R S 2}$
UniRef90 U3QDH5 UniRef90_-B9KH18 UniRef90-JgYVL1
UniRef90 DoRPI7 UniRef90-R6AMH3 UniRef90_O9Y933 UniRef90-H6Q5J2
UniRef90 O831D3 UniRef90-K6QD57 UniRef90_S3D1S5
UniRef9O_A6GKO5 UniRef90-A8PK17 UniRef90-UPIO0025552DF UniRef90-F4RUD5
UniRef90
I3SU4 UniRef90-UPI000477AE59 UniRef90-×5GXH8
UniRef90_x1BFX4
$\qquad$

$\square$






 GPGLAVRCLGAVSAEKLRVLREADAVEEEEVRAAGLYAWQ GPGLAIRLI GEITRERLGLLRDADAI AREELSRAGLDRWQ GPGLGVRILGEVKKEYADILRQADH:YMEELRKAGLYVSQ
 GPGLAVRVLGEVRPEYVKTLQQADADERDELKSANLEVSQ
$G$
$G$
$G$
$G$ G
G
G
G
G
G
G
$G$
$G$
$G$ G

[^0] ○○
G
E59

路





UniRef90 B9E8Yo UniRef90-S4WBGT
UniRef90-F4DJ36 UniRef90 ${ }^{-}$F3A4M3 UniRef90-M2T6V8 UniRef90-F8B622
UniRefol 10 AHR5 UniRef90-D5ML81 UniRef90-17GYZ6 UniRef90-K9ZYI2 UniRef90-A0A017TEF5 UniRef90_DOKYEO UniRef90-JOLNZ7
UniRef90 S6CG94 UniRef90-UPI000371E803 UniRef90-UPIo004662CDB UniRef90-G9WM. UniRef90-F8MUF7 UniRef90-LODBN1 UniRef90-Q0AW22 UniRef90-UPIO00472B30C UniRef90-A8FMV3
UniRef90_WOJJ97
UniRef90-G2KUY2
UniRef90-B8C1B3
UniRef90_C5LT62 UniRef90 UPIO0016BFEE9 UniRef90-F7V8K6 UniRef90-E6SV74 UniRef9-B8FKL2 UniRef90-J6F0Q6 UniRef90-UPIO003B66794 UniRef90-H8Z2A4 UniRef90-C8WP25 UniRef90-K2BY69
UniRef90 E7FYD7 UniRef90-в2TIX3 UniRef90-A0A031GRA8 UniRef90-UPI000471B77B UniRef90_-N2AU69 UniRef90-D1B619 UniRef90_UPI0003F96D08 UniRef90_I2K079 UniRef90_UPIO0036045DC UniRef90-G5GDG8 UniRef90-D6Z114 UniRef90_S5ZL90 UniRef90-I4YHC3
UniRef90 KOKFN 1 UniRef90-K9SLJ4 UniRef90-E1QY69 UniRef90-R7JZ744 UniRef90-R6U8N3 UniRef90-S3MPS7 UniRef90-W5XBG5 UniRef90-R5BN14 UniRef90-UPIO003F7BD08 UniRef90-E6X0A6 UniRet90-K6H094 UniRef90-A8PQW8
UniRet90 $13 V I C 9$ UniRef90_13VIC9
UniRef90-17JEJ9 UniRef90-A5K7F1 UniRef90-UPIIOOO47B979C UniRef90-Q3YT30 UniRef90-K2DSS3 UniRef90_UPIo00362228C UniRef90-ЈОННM3 UniRef90-EOXR90 UniRef90_B8MNJ3 UniRef90 OTVRS2
UniRef9- 30 2 UniRef90-U3QDH5 UniRef9_BgKH18 UniRef90-DORPI7 UniRef90-R6AMH3 UniRef90_Q9Y933
UniRef90 H6Q5J2 UniRef90-Q831D3 UniRef90 K6QD57 UniRef90-S3D155
UniRef90-A6GKQ5 UniRef90-A8PK17 UniRef90-UPIo0025552DF UniRef90-F4RUD5 UniRef90-li3SU43

Y F T|VL|PD|I|RS|V|G|V|MDYRTYDYTVG|V|VA|TSDDGMTSDFA
60
70
80 AFSVLIPVQTVGVMGDQRTYENLLGI RAVTSTDGMTADWY
 Y F T C L P D I R S V G V M G D V R T Y D Y T V $A$ A V R A V T S $\square$ D G MTA S WA AFAVLLPVRTVGVMGDYRTYDRVCGLRAVTSTDGMTADVY




 S F A V L L
 A Y A A V DP S R A V GVMMGD K RVY GY DI IL R A V TTTTDFMTAAEAF
 AF AVLP P V R S V GVMGDARTYAYPI II RAVISEDAMTA EVA
 AF GVVLDDLK SVGVMGDKRTYDYTIVVRVVESDDGMTANWT

AFAVLLPVRSVGVMGDQRTYERTLVLRAVQTTDFMTADWY $\left.\begin{array}{llllllll|lllllllll|ll|l|l|l|lllllllll}\text { Y } & F & A & A & L & T & N & M & K & S & V & G & V & M & G & D & S & R & T & Y & D & Y & A & V & V & L & R & A & V & E & T\end{array}\right)$ A G VI L L P $V$ V Q S V VF $\operatorname{V}$


 A F A V F F L P V K S V G G L G D A R H Y D H V V A I R V V E T DD F M T A Q DA AFCVLLNVRSVGVMGDRRTYENTLALRAVQASDGMSAQCV Y F A AL L N M R S V G G M M D E R TY Y D Y A I AA L R A V T T S S D F M T A E S A A F A V F L A F A
 A F A CL L P I R S V G V M G D Q R M Y E Q V I A A L R A A FAVVFL P V K S V G V M G D G R T Y D Y V V A

 AFAALLPVKSVGVMGDQRTYEQVI ALRAI E
AFAVLLPVRSVGVMGDARTYAHPVVLRFVTSEDGMTADWA Y F A V L P D I R S V G GVMGDERTYARPVIV RAVESSSDAMTAD WA

 F FA V L P N V Q T V G G V M G D H R TYY D H L I A A P A S Y A A L L D V R S V G V M G D E R T Y E Q P I V L R A V Q S E D A M TAARA V
 CPVVLLDI R S V GVVQGDGRTYGHPDVLRPVVSEDAMTADWA
 A F A V L L P V R A V G V Q G D K R T Y D Q V I A L R A A Q T TAD F M T A T WY


IF AVFTGI KTTGVRGDERAYGETIAIRAIEAKAAMSANFA

 CPVVLLDVRSVVGVTGDQRTYGHPIVL RPI DSEDAMSAEWA A Y A GL DTSKAVGVMGDNRVYGYII I L RAVTTTXDMTAEPY
 AFAVLVPVRTVGVMGDGRTYGYVCALRAVTSSDGMTADCF A Y A AL L P V K T V G GVMGDNRTYEY L CLLL RAITS QDGMTAD Y Y AFAVLI PI KTVVGVMGDSRTYDYICABLRAVTSQDGMTANYY A G TVLL TVVRSVGVVMGDERTYEHPVAL RAVTSTDAMTAD WA
 C P V
AFAVLTTGT Q S A



A

| $A$ | $F$ | $A$ | $V$ | $L$ | $L$ | $P$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $A$ | $F$ | $T$ | $V$ | $L$ | $L$ | $P$ |
| $S$ | $F$ | $G$ | $I$ | $L$ | $L$ | $P$ |


| $Q$ | $S$ | $V$ | $G$ | $V$ | $A$ | $G$ | $D$ | $S$ | $R$ | $A$ | $Y$ | $G$ | $N$ | $V$ | $V$ | $A$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $R$ | $R$ | $A$ | $T$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $R$ | $S$ | $V$ | $G$ | $V$ | $M$ | $G$ | $D$ | $K$ | $R$ | $S$ | $Y$ | $N$ | $Y$ | $V$ | $C$ | $A$ | $V$ |
| $R$ | $A$ | $V$ | $T$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Unireforgacivo

UniRef90 B9E8Y0
UniRef90 S4WBG7
UniRef90-F4DJ36
UniRef90 F3A4M3
UniRef90 M2T6V8 UniRef90-F8B622
UniRef90-I0AHR5
UniRef90_D5ML81
UniRef90-17GYZ6
UniRef90-K9ZYI2
UniRef90-A0A017TEF5
UniRef90 DOKYEO
UniRef90-J0LNZ7
UniRef90_S6CG94
UniRef90 UPI000371E803
UniRef90-UPI0004662CDB
UniRef90_G9WMJ0
UniRef90 F8MUF7
UniRef90 LODBN
UniRef90-Q0AW22
UniRef90-UPIO00472B300
UniRef90 A8FMV3
UniRef90 W0JJ97
UniRef90-G2KUY2
UniRef90-B8C1B3
UniRef90 C5LT6
UniRef90 UPIO0016BFEE9
UniRef90-F7V8K6
UniRef90 E6SV7
UniRef90 B8FKL2
UniRef90-XоТ39s
UniRef90_J6F0Q6
UniRef90 UPI0003B66794
UniRef90- H8Z2A4
UniRef90_C8WP25
UniRef90 K2BY69
UniRef90 E7FYD7
UniRef90 ${ }^{-}$B2TIX3
UniRef90_A0A031GRA8
UniRef90_UPI000471B77B
UniRef90 N2AU69
UniRef90-D1B619
UniRef90 UPI0003F96D08
UniRef90 I2K079
UniRef90-UPIO0036045DC
UniRef90-G5GDG8
UniRef90 D6ZII4
UniRef90- S5ZL90
UniRef90-14YHC3
UniRef90-K0KFN
UniRef90 K9SLJ
UniRef90-E1QY69
UniRef90-R7JZ74
UniRef90 E4U89
UniRef90 R6U8N3
UniRef90-S3MPS7
UniRef90-W5XBG5
UniRef90 R5BN14
UniRef90-UPI0003F7BD08
UniRef90-E6X0A6
UniRef90 K6H094
UniRef90 A8PQW8
UniRef90-I3VIC9
UniRef90 17JEJ9
UniRef90 A5K7F
UniRef90-UPI00047B9790
UniRef90_Q3YT30
UniRef90 ${ }^{-}$K2DSS3
UniRef90 UPIOOO362228C
UniRef90-JOHHM3
UniRef90-E0XR90
UniRef90 S2VXX7
UniRef90_B8MNJ3
UniRef90-Q7VRS2
UniRef90-U3QDH5
UniRef90 B9KH18
UniRef90-J9YVL1
UniRef90-DORPIT
UniRef90_R6AMH3
UniRef90-Q9Y933
UniRef90-H6Q5J2
UniRef90 Q83ID3
UniRef90 K6QD5
UniRef90-S3D1S5
UniRef90_A6GKQ5
UniRef90 A8PKI7
UniRef90 UPIO0025552DF
UniRef90-F4RUD5
UniRef90-I3SU43
UniRef90 UPI000477AE5
UniRef90-X5GXH8
UniRef90 ${ }^{-}$X1BFX

UniRef90 B5Y6U1 UniRef90-E1ZD62 UniRef90-TORUO8 UniRef90-J4URHO UniRef90-L8G7Q1 UniRef90-A0A02208D1 UniRef90-C0BZ64 UniRef90-K2BWF3 UniRefofo-T1BMY7 UniRef90-X1E2L7 UniRef9-I9ZC93 UniRefto - $\mathrm{X1G6C} 2$ UniRef90-R5FTY4 UniRef90_U2JAZ0 UniRef90-K2C213 UniRef90-D5VSQ3
UniRef90 G9MJ77 UniRef90-UPI00037F463C UniRef90-C7GZD6 UniRef90-A0A023AZS3 UniRef90_J9FXP3 UniRef90-C7N706 UniRef90-M9SAD2 UniRef90-M2LCM4
 UniRef90-R7FOM6 UniRef90-S9Q2J0 UniRef90-R6N764 UniRef90-R9MDE1 UniRef90-D1YVL3
UniRef90-W2UYM4 UniRef90-W91656 UniRefofo-AGVFII UniRet90-E6N9E9 UniRef90-T1BN12
UniRef90-M3A2G9 UniRef90-V6AQS5 UniRef90-NoBKR7 UniRef90-V4K5W6 UniRefifo-O8THK3 UniRef90-R6P006 UniRef90-UPI0003B7466D UniRef90-B1Y9L1 UniRef90- J1L436 UniRef90-17CAL9 UniRef90-R5RV77
UniRef90 R6E1D2 UniRef90-G4RPE7 UniRef90-B8D3X4 UniRef90-FOQR95 UniRef90-R7WAC2 UniRef90_LOHAK5 UniRef90-O26806
UniRef90 R5Y9U4 UniRef90-10AON6 UniRef90-B1L5Z7 UniRet90-V4HEC9 UniRef90-T1A6V0 UniRef90-K2EN21 UniRef90-D7HEW0 UniRef90-Z4WYK4 UniRef90-E3ZY74 UniRef90_S7VJY6 UniReffo-X1FTB2 UniRef90-T1AKU3 UniRef90-X1DU10 UniRef90-V4F8C9 UniRef90_R7FZC6 UniRef90-AOAO31HEG2 UniRef90-FOYB85 UniRef90-ToZYB0 UniRef90_K1T7Q8 UniRef90-W4UPIO UniRef90-X1EMS9 UniRef90-X1HTQ5 UniRef90_M5BU28
UniRef90_E2B6F9 UniRef90-T1PP07 UniRef90-A0A026WB09 UniRef90-B3S031 UniRef90-K7NPC3 UniRef90-H2SR85 UniRef90 W4LKU5 UniRef90-GOMVIO
UniRef90 E9H8P7 UniRef90_V9K8D9 UniRef90-Q4T8X4 niref90_B4GJJ8


 GPGAGVRVLGELEFPESILKVQQSDQ
 GPGLAVRVPGDVTLERLDVLRRADEVGUQALKDAGVYV WQ
 GPGLAVRULGEVTPER1UALIKRVTEVVENEVKGKGNLPWQ

## G



 RVP WPVLE K I R D R I I K D I P E V VKV L F D I T P K P P S T I E F V P Y Y
 EPN WD D M L F L A K L I P R I L H NV N R V C Y D I T H
GVEWEDMLFLAQLI PRVCHNVNRVCYDITP
H I P E EVVVFTI F K NVVE KIP GI S RVVLY DMTSKPP GTTEWE QFDPKFLAEVSAKVCNSVRGVNRIVYDDTSKPPSTVEWE


$H L P Q E V V D K M V$ EAVLTVVPGISRVLYDLTAKPPGTTEWE
PPEWESLLFLARLIPRMCHNINRVVYDITP
PH WDSLLTFLARLI PRMCHNINRVVYVFGSKEPPT

UniRef90 B5Y6U1
UniRef90 E1ZD62
UniRef90-T0RU08
UniRef90-TOLK18
UniRef90 J4URH
UniRef90-L8G7Q1
UniRef90_A0A022Q8D
UniRef90 C0BZ64
UniRef90-K2BWF3
UniRef90-T1BMY7
UniRef90 X1E2L
UniRef90 J9ZC9
UniRef90-T1B0C7
UniRef90-X1G6C2
UniRef90_R5FTY4
UniRef90 U2JAZ0
UniRef90-K2C213
UniRef90_D5VSQ3
UniRef90 G9MJ7 UniRef90-UPI00037F463C
UniRef90_C7GZD6
UniRef90 A0A023AZS
UniRef90 J9FXP3
UniRef90 C7N706
UniRef90-M9SAD2
UniRef90 M2LCM4 UniRef90-A0A010QEQ8
UniRef90-R7F0M6
UniRef90 S9Q2J
UniRef90 R6N764
UniRef90-R9MDE1
UniRef90-D1YVL3
UniRef90 W2UYN4
UniRef90-W9I6S6
UniRef90_A6VFI6
UniRef90 E6N9E9
UniRef90 T1BN12
UniRef90-M3A2G9
UniRef90-V6AQS5
UniRef90_NOBKR7
UniRef90 V4K5W6
UniRef90-Q8THK3
UniRef90-R6P006
UniRef90 UPI0003B7466D
UniRef90-B1Y9L1
UniRef90-J1L436
UniRef90_17CJL9
UniRef90-R5RV77
UniRef90-R6E1D2
UniRef90 G4RPE7
UniRef90 B8D3X4 UniRef90-F0QR95 UniRef90-R7WAC2 UniRef90_LOHAK5 UniRef90 O2680 UniRef90-R5Y9U4 UniRef90-IOA0N6 UniRef90 B1L5Z7 UniRef90 $\mathrm{V} 4 \mathrm{HEC9}$ UniRef90-T1A6V0 UniRef90 X0WKF4 UniRef90 K2EN21 UniRef90-D7HEW0 UniRef90-Z4WYK4 UniRef90 E3ZY74 UniRef90-S7VJY6 UniRef90-X1FTB2
UniRef90 T1AKU
UniRef90 X1DU10
UniRef90-F0UF70
UniRef90-V4F8Cs
UniRef90 R7FZC6
UniRef90-A0A031HEG2
UniRef90-F0YB85
UniRef90 T0ZYB
UniRef90 K1T7Q8
UniRef90-W4UPIO
UniRef90-X1EMS9
UniRef90 X1HTQ5
UniRef90- M5BU28
UniRef90-E2B6F9
UniRef90_T1PP0;
UniRef90 A0A026WB09
UniRef90-B3S031
UniRef90-K7NPC3
UniRef90 H2SR85
UniRef90 W4LKU5
UniRef90-GOMVIO
UniRef90_E9H8P
UniRef90 V9K8D9
UniRef90 Q4T8X4
UniRef90-B4GJJ\&

## UniRef90＿G4MOYO UniRef90＿W4YGA6 UniRef90＿EOVNC1 UniRef90－R7TZP7 UniRef90 W5LLY7 UniRef90－H2Y9F2 UniRef90－L8GR34 UniRef90－F6U2U3 UniRef90 A8AA67 UniRet90 UPI000395CD9A UniRef90－W2TON4

 UniRef90－N1U314 UniRef90 UPI00017972F6 UniRef90－K2BMXO UniRef90－Q09580 UniRef90－H9JD39 UniRef90 D6WW83 UniRef90－A7SNA7 UniRef90－N1W180 UniRef90 UPIO0046CA7DF UniRef90 O6N7J6 UniRef90－UPIOO042610E2 UniRef90－N6U4D8 UniRef90 M7BON5 UniRef90－A0A023FL24 UniRef90－BOWOE1 UniRef90＿U1GSE4 UniRef90－H7EHW3 UniRef90－T1HV64 UniRef90－X1RJJ2 UniRef90 A6DKP8 UniRef90－F4PMV8 UniRef90－R1FQK5 UniRef90＿J9FLC2UniRef90 E0XZ08 UniRef90－S6B890
UniRef90－D3BSA3 UniRef90 G7YW04 UniRef90 J9K0C4 UniRef90－L1JM17 UniRef90－F2NW60 UniRef90 K2CQY1 UniRef90－A8WT10 UniRef90＿UPIo0037AAB74 UniRef90 U61HNO UniRef90－ToGDR6 UniRef90－10XSG4 UniRef90－U6FXB9 UniRef90 E1FH30 UniRef90－UPI000161D8DC UniRef90－U1NCR3 UniRef90 V8NM20 UniRef90 A0A024MTD2 UniRef90－E4XLJ9 UniRef90 XoXDS4 UniRef90 A0A016RYE5 UniRef90－O5DH96 UniRef90－UPIO002628EFF UniRef90 W6KVU3 UniRef90 P32073 UniRef90－ X 1 S 7 H 8 UniRef90－S9V963 UniRef90 Q57V01 UniRef90－E9BFL9 UniRef90－S4PZR7 UniRef90 A0A016RYN9 UniRef90 K4EBX4 UniRef90－Q4CNX6 UniRef90－X1DET7 UniRet90 F9WCE4 UniRef90 E1ZYK1 UniRef90－S9V128 UniRef90－E4YIM8 UniRef90 C6SIC0 UniRef90－G3H229 UniRef90－S9UVU3 UniRef90＿S4RA80

[^1]

LPDVTPTYLATLRQCDDAAMVLHSSGHMVSQ ANPHLDKKFRYAG KISQ GPGLAVRVLCGDEPKKHSLTNRVQNGATEEECEFDSRVSQ TQNVIAQ RQADSMVNRIENECMRKISQ GPGLSTNVLCSKDEEELKAAQEEDKV PALTECADCTSS GGGEVKDPVQDITPTYLATVRQADHLATQVLNNSEYMRSQ GPGLAMR GEVTKEKLEDLRGADWVVMNEVKKAKVYRWQ GPGLALRIICAERPPDVDTGDKDDQHLREMGCLERLRRSG GPGपS DNVLCTGNKEFPEQTATAKAVRT CDNDPE HPGTDKAGYCPVD PDT TSQLQTADATANETLQKYKLIRSQ GPG■A $\square R \square L C A A E P Y P H A L L T R D N A V A R L E E Q H R D T M H R T$ DVTHTYMDLLKQADHVINKVLTECPLKVSQ GYCTKDRLDQTRDADDIVLTALHKSGWYIFG GPGLSTRTLCEVVENGLETNRKLAATVQKYCATQRALKLE GPGLAUR』LCASTQEVTEKLISAQG\｜YENEHYEANAQKHQ GPGLSTR\｜LCASEPERLNKINEAEQDRLREITADGALT $G P G L V V R M \perp$ SQKQDTSELVQKELETILKE D LREADAAVEKLRKDYDQLWQ GPGLADR\｜VCAETQHHLHMVAEFSTITQYDLKAISDHDFE DVTRTYLNLIKWADR：ASDVLCGLGENDQQ GPGLA $\square R V I C A E Q P Y C D L L S V A Q N L S A A E L H A L C D H D H E$

## $\square \mathrm{NS} \square \mathrm{TQH} \quad \square \mathrm{SKAD}$ 亿K $\square \mathrm{SDHDFE}$



GPG【STNVLC
SSEDTILQPELDADHQ PEVVDK LRDADDIVSRILDDHSLTRSQ TPDVIKQLQHADSIVSEQLYKYNLTKSQ GPALSAR【IGPVTSENLKFEKKVHDVVESTVDDYYTEPFQ PEVLDKLRLADDTVNRALIKYGLVRSQ GPG■ADRT LCDGTPFRDRVCMGADASFAEVATLA QKAT GPG【A $\square R \square I C A Q K P H \square C N \square S R Q P T P F E E E Y R M S G W E T S E$ NPTTLDRLR\ADD【VNSTLLKHDUVRSQ MNETKKAKLYRWQ PETLNK LRTLADNLVNEVLLKYNLVRSQ GPQ［H HPTQDTTPTYLATLRQADHLANQVLTSNGCMINQ
 GPGLGVR पGEVKKEYSQLRECDHRANSLLKKHSEKLSQ GPGLGVRILGEVKKEYADLLRQADDTFTQELRNWYDLTSQ GLATRTLCDVTPTFLSTLRQADFVAHNVLRESGYKISQ GPGLAALVICSGKKPHALQQKVKDCTTDDEQERLTEIVNS


[^2]UniRef90_G4MOY0 UniRef90_W4YGA6 UniRef90_E0VNC UniRef90_R7TZP7
UniRef90-W5LLY7 UniRef90-H2Y9F2 UniRef90 L8GR34 UniRef90_F6U2U3 UniRef90 A8AA67 niRef90 UPI000395CD9A UniRef90_W2T0N4 UniRef90_N1U3I4 UniRef90 UPI00017972F6 UniRef90 K2BMX0 UniRef90_Q09580 UniRef90_H9JD39 UniRef90 D6WW83 UniRef90_A7SNA7 UniRef90_N1W180 UniRef90 UPI00046CA7DF UniRef90 Q6N7J6 UniRef90-UPI00042610E2 UniRef90_N6U4D8 UniRef90 M7B0N5 UniRef90-A0A023FL24 UniRef90_B0W0E1 UniRef90_U1GSE4 UniRef90 H7EHW3 UniRef90_T1HV64 UniRef90_X1RJJ2 UniRef90 A6DKP8 UniRef90_F4PMV8 UniRef90_R1FQK5 UniRef90_J9FLC2 UniRef90 E0XZ08 UniRef90_S6B890
UniRef90_D3BSA3 UniRef90-G7YW04 UniRef90_J9K0C4 UniRef90_L1JM17 UniRef90_F2NW60
UniRef90 K2CQY1 UniRef90_A8WT10 UniRef90_UPI00037AAB74 UniRef90 U6IHN0 UniRef90 ${ }^{-}$T0GDR6 UniRef90-IOXSG4 UniRef90_U6FXB9 UniRef90 E1FH30 UniRef90_UPI000161D8DC UniRef90_U1NCR3 UniRef90_V8NM20 UniRef90 A0A024MTD2 UniRef90-E4XLJ9 UniRef90_X0XDS4 UniRef90 A0A016RYE5 UniRef90 ${ }^{-}$Q5DH96 UniRef90_UPI0002628EFF UniRef90_W6KVU3 UniRef90 P32073 UniRef90_X1S7H8 UniRef90_S9V963 UniRef90 Q57V01 UniRef90_E9BFL9 UniRef90_S4PZR UniRef90_A0A016RYN9 UniRef90 K4EBX4 UniRef90_Q4CNX6 UniRef90_X1DET7 UniRef90 F9WCE4 UniRef90_E1ZYK1 UniRef90-S9VI28 UniRef90_E4YIM8 UniRef90 C6SIC0 UniRef90_G3H229 UniRef90_S9UVU3 UniRef90-S4RA80


K A D WE T L E E IS T S LT NRFPEVNRVIT
 E I D WT LL H R I T D RIVVNEVPGI NRVCYDLTPKPTGTDEWE PRDWDWLEDTS I R I I TNTVRSVNRVV
R H D M E C L A A $\quad$ S R K I T E N I P E V N N V V C Y D Q $\square P$ E E C L R E MVVDA LAAKTPN I S R V V F DLLTSKPP GT TE WE WD A L S F LA H L I PR DCHND N R V V F
$H$ I P A A L V H K M M A A A Q N I P GI S R V L Y D L T P K P P G T T E WE
 KASWQQL NELSSVRI T NEVVEI NRVLDW

 P P D WD SL F FMAH II PR\|CHNINRVVY
K N WED WN K I S T Y I T N R S S SVNRVV
 $M P G V D L P L Q V V E K M V K E V A G I \quad S R V L Y Y D I A A K P P A T I E W E$ $P$ I P WEL LERLAHVI PRLLHNI NRVVY
D I P E Q N L L

PI P WEL LIERLAHII PRLLHNI NRVVY

 HIPE DVVVYKM QKAAEEVPG ISRVLYYDLTSKPPAT DE WE PK D WE WL E NTS ITR LTN QVRA I N RVV
TMPLSSVLEQ VVTELL KLSFVSRVMFDLTSKPPGTTEWE $N 1$ SFDCLQEITTNNILTTSVNGISKVLLDCTSKPPGTTEF

 A E Q WS T L M Q LA K EIIPKTAHAVNRVVF


LMPLAALEEMVNS LQQLDFLSRVMYDLTAKPPGTTEWE EA E WK A L S R L A L A I P P K VA Q H V N N R V V F M F G P K
$R$ L P Y D L L A A Y H SHSSVDI T R
DMPLEALKEMVAA LETLDFASRVMYDMTGKPPGTTEWE ■P GKDLPI HVS
DE E WRELLL L V A R A $\square$ P K NA H S $I$ N R VCFMFGEKSPSTTE KKYARF PGGITRLLYDLTSKPPGTTEWE
$\square \mathrm{H}$

$P$ VH WE SLLY L A K LI P R $\square$ CHNINRVV

[^3]



[^0]:    $\infty$

    
    

[^1]:    lupas 21
    lupas＿14
    lupas＿28
    jnet
    cont
    sol25
    sols
    sol5
    jhmm
    jpssm

[^2]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

[^3]:    lupas 21
    lupas_14
    lupas_28
    jnet
    conf
    sol5
    sol0
    jhmm
    jpssm

