## QUERY

UniRef90_W5L8L7 UniRef90-H3BCL8 UniRef90 UPI00035970BB UniRef90 E9CAQ7 UniRef90_UPI0002C65449 UniRef90-।2C0B6 UniRef90_F7GCC4 UniRef90 Q9VAP8 UniRef90_U1MBX6 UniRef90_Q177N4 UniRef90-D6WGJ6 UniRef90_H9KMX6 UniRef90-M3XJE9 UniRef90_G8Y9W6 UniRef90 K1PPI2 UniRef90-V9KIW2 UniRef90_L8GR22 UniRef90 L7M7E3 UniRef90-E3Q937 UniRef90-E9G8U4 UniRef90_U5EW55 UniRef90 E9FX86 UniRef90-A0A024JBC8 UniRef90_L7M1Y8 UniRef90 W2SKN6 UniRef90-A0A023F409 UniRef90_D8LGW4 UniRef90_G0M8I6 UniRef90_UPI000298F398 UniRef90-C4Y8F7 UniRef90-T2MHY3 UniRef90_Q23296 UniRef90_UPI000329ED76 UniRef90_UPI0002B4948D UniRef90_UPI0003DF6149 UniRef90_R7Z440 UniRef90-Q4RTR5 UniRef90-Q6C8S3 UniRef90_M4CC86 UniRef90_LOP9Y8 UniRef90-R7V1V1 UniRef90_S4PDV8 UniRef90 UPI00044397EA UniRef90_U9TNS3 UniRef90-B2B3A3 UniRef90_V7CBI5 UniRef90_UPIO004415FA3 UniRef90-UPI000455D7D3 UniRef90_UPI0002657FF0 UniRef90 M7SQG9 UniRef90-11M1F2 UniRef90-R0JX40 UniRet90_E9BWB5 UniRef90-E5A155 UniRef90_U4UXU6 UniRef90_Q7SE16 UniRef90_W4KL55 UniRef90_F1KXX4 UniRef90_A0A016PV76 UniRef90 Q93Y37 UniRef90_UPI0003513CF5 UniRef90_S7QLH3 UniRef90_F6ZBI9 UniRef90 L8FQZ1 UniRef90_UPI0001FE296B UniRef90_L7HSIO
UniRef90_IOYR53 UniRef90-C7YHG6 UniRef90_A0A010QN68 UniRet90_K4B833 UniRef90_E9H239 UniRef90-C7YJE1 UniRef90_T0K531 UniRef90_M2RD46 UniRef90_D8R54 UniRef90-A0A010QBC7 UniRet90_C5PDR6 UniRef90-G9NMW2 UniRef90-UPI0004624311 UniRef90_G3BEN0 UniRef90_C7YGZ3 UniRef90-M0RI57 UniRef90_N1PXM9 UniRef90_J9JX67 UniRef90_G6DSL1 UniRef90_R1GL99 UniRef90_Q75IK7 UniRef90_EOVI77
UniRef90_A9TZK7

H L N Y R Q K G VIDVF LIHAWK GYRKFAWGHDEVKPVSRSFSEW QQESRLEAVREAFRHAWKGYKDFAWGHDELKPVSKSHSEW VNERQKAVIDEAF QHA WK GYK D F A WGHDEELK P I S K S Y S E W NDKQLQII A AFRHAWQAYKKYAWGHDELHPI SKTS SEW QRQRAVIDMFKWSWAGYKKCAWGKDELLPLSCSSHTW

ERQEAVVGAMKHAWKGYKTYAWGHDHLKPLSRSSNDW NYRQK GVI DVF LVA WK GYRKFAWGHDELKPVSRSFSEW NERQSAVVAAFKHSWAGYKKYAWGHDNLKPISQYSHEW NERQRAVVSAFKHAWNGYKKYAWGHDSLKPVSRGYSEW $N \mathrm{~V}$ V QRAVIEAF LIHSWRGYKEFAWGHDNLKPISMSYSDW ARQEAVVKAFKHAWQGYKQFAWGHDHLKPITEGYSDW NSRQKAIVAAFKHSWNGYKEYAWGYDNIKPI SRKYYEW $\square R E K R E K I$ KEMMKFAWDNYKRFAWGKNELRPLSKS GH $\square G$ WK A A QQEVKDAFLESWHSYEKHAWGKDVYRPVSKTGKNM VKKKRDKVREMMKHAWDNYEKYAWGANELRPISKRGHSA S YREKVVKEMMKFA WDNYK QYA WGTNEGLKPI SRSGHTS EKRREAVKGAFLHAWNSYVRHAWGFDELQPLSRSGKDW KVREMMKHAWDNYERYAWGENELRPVSKKGHSA
ES R R Q AVRDVVVK SWNSYKEYAWGFDELAPITAKGKNT
 VREKRDKV KEMMQHSWDNYKLYAWGKNELKPISKRGHS G IK AKRETVRKMMKHAWDNYATYAWGKNELRPISHKGHSS WK K RQDAVKESF LR S WGGYEKYAWGKDVYKPVSKTGHNM LRERREAVVNAFRHAWKGYKAYAWGQDHLRPLSRTGHTW

NDRQRAVVAAFKHAWEGYKKFAWGHDQLKPVSGGYSDW IT K R QEAVVQAFK HA WT GYVVKFAWGHDHLKPI SQRH H D W LEEKREAVLAAVRWAWKGYTTHAWGTDELNPLTRRGKTS

NDRQRAVVKAFQHSWMGYKKYAWGHDTLKPISKSYSDW SRRERI RFMMKFAWDNYKLYAWGKNELRPLTKNGHDG K K EV R DVF LVESWA A Y E AD A WGKDVYHPVK GS GENM $\square K$ NKRDTVRKMMKFAWDGYTKYAMGQNELKPISKTGHSA

NERQKAIVRAFQHAWSGYKKYAWGHDELKRVVKRFDDS AKREHVKQMMQHAWDNYKLYAWGKNELRPLSQRPHSG
ERRREKVVK E A A DH A WN S Y E K Y A WG Q D E L Q P Q S K S G I N S ARRDEI KGAFQRCWKAYKDNAWMRDEVTPISGRARNF VKEKRDKI REMMKHAWDSYRQYGWGHNELKPLAKKGHST NWVAEQNAVK QAFVDSWNGYHKYAWGKDVYKPQTKTGKNM $R R Q R V K E A M I$ HAWSSYEKYAWGKDELQPQTKDGVDS WE $\square R$ QS QVKDAFLHSWNGYKKNGWGKDKYSPVSKTGFNN NEQQRAVVEAF QHAWSAYCKYAWGHDELKPI SHGWQEW NARQFAVVESFKHAWKGYKEHAWGHDNLKPVSGMAYDW K ERRAKI KEMMKHAWDSYQRYAWGSNELRPVSKQGHSS ESRRESVK Q GF LH A WNGYVNYAWGSDELLPITNSSNNY
 QKRDAVVAAFKHANSAYE R DALLGDD DYMPDSRKGSNM
E AK R D A VVEA FK H A WLA Y E R D A IGGD D EYHP FS K T G S N L
 WDA R QK K V K E A F I H A WS GYK K F A M GY DE L M P L S Q H G DD L WEKRRQAVKDAFLLSWNAYEEHGWGYDEYRPVSKK GRYM RQDYVREMMQHAWNGYAKHSWGHNEHRPNARGPHNS RAAKVRDAMRHAWKGYKDRAWGRDELKPVSGRGHNW R RAA V K DAF LHTWE GYKKYA WLQDEVVPVTGGFKNS QRKLKVKEMMKHAWDSYVKYAWGKNELKPVSKKEHTG WLK R R ERVVEAMELSWDAYERYAWGYDEFHPVSKTGRNM RRDAVVEAFKHAWSAYERDAMGADEYHPI SRNGSDLL LARRRDFVKQMTKFAWDSYEKYAWGMNELRPLSRTGHSAB RQKAVRDEFLRSYRSYKKYAWMKDELTPLTAQGKDT

NE R R E K V K K A M L H H A WN S Y V K Y A WG M D E L Q P Q S K N G I N S K R D A V V E A FK H A WLA Y E R D A M G D D E Y H P I S H K G S NL PE R QQRVVVAFT L S WD AYERYA WGYDEFHPVSKKGK QM
 WLLKRRDHVVEAFELLSWAAYERYAWGYDEFHPVVKKGRQM

K S R Q K A VRDEFLR S YK S YK QYA WMK DE L TP I SA T GKD T QTESRRAAVVHAFRRSWASYKENAWTWDELTPVSGHGKTT WVAR QQKVVDAF DHAWS GYKA HAMGY DELMPLSHR GVND

E ERQQTVVKA AFSK A WA SYKA HA WLDS DELTP V S GSRRNT EKRDAVGEAMLHAWSAYERDAMGDDEYHPI SRTGSNL W $\square K R Q A A V V D A F K H A W N G Y K Q F A L G F D E L Q P V S R R G \square N L$


EKRRTTVRDVFQRSYSAYKK LDAWMRDELTPVSGSADPF K R D A V VA AF K H A WLA Y E R D A M G D D E Y H P I S
WK QA QAEV RDAF LESWHTYEKHAWGKDVFHPISQQGENM NWDHRRDRVVEAFELSWDAYRRYAWGYDEYHPVTKRGDNM K R DAVVVEAFKHAWRAYERDAMGADEYHPMSHKGTNL HWFSRKQKVKEAFVHAWSGYKNHAMGYDELMPLSQRGTDL

NPRQAAVKATFEKCWKTYKQHAWMKDEVTPINGNFKDT
LRQRRNKVKEMMKHGWDNYVKYAWGKNELKPVSKRDHSS

 RRAKI REMMHHAWDNYVRYAWGKNELRRDTKRGMTA ERRNK|IK DAMLHAWTCYEKYAWGFDELKPQSKTGNQF
QUERY
UniRef90_W5L8L7 UniRef90-H3BCL8 UniRef90 UPI00035970BB UniRef90 E9CAQ7 UniRef90-UPI0002C65449 UniRef90_I2C0B6 UniRef90_F7GCC4 UniRef90_Q9VAP8 UniRef90_U1MBX6 UniRef90_Q177N4 UniRef90_H9KMX6 UniRef90-M3XJE9 UniRef90_G8Y9W6 UniRef90 K1PPI2 UniRef90_V9KIW2 UniRef90_L8GR22 UniRef90_L7M7E3 UniRef90_E3Q937 UniRef90_E9G8U4 UniRef90_U5EW55 UniRef90_E9FX86 UniRef90_A0A024JBC8 UniRef90_L7M1Y8 UniRef90_W2SKN6 UniRef90_A0A023F409 UniRef90_D8LGW4 UniRef90_G0M8I6 UniRef90_UPI000298F398 UniRef90_C4Y8F7 UniRef90-T2MHY3 UniRef90_Q23296 UniRef90_UPI000329ED76 UniRef90_UPI0002B4948D
UniRef90_UPI0003DF6149 UniRef90-R7Z440 UniRef90_Q4RTR5 UniRef90-Q6C8S3 UniRef90_M4CC86 UniRef90_L0P9Y8 UniRef90_R7V1V1
UniRef90 S4PDV8 UniRef90_UPI00044397EA UniRef90_U9TNS3 UniRef90-B2B3A3 UniRef90_V7CBI5 UniRef90_UPI0004415FA3 UniRef90_UPI000455D7D3 UniRef90-M7SQG9 UniRef90_I1M1F2 UniRef90_R0JX40 UniRef90 F0Y5N1 UniRef90_E5A155 UniRef90_U4UXU6 UniRef90_Q7SE16 UniRef90_W4KL55 UniRef90_F1KXX4 UniRef90_A0A016PV76 UniRef90_Q93Y37 UniRef90_UPI0003513CF5 UniRef90_S7QLH3
UniRef90_F6ZBI9 UniRef90_L8FQZ1 UniRef90_UPIO001FE296B UniRef90_L7HSIO UniRef90_IOYR53 UniRef90_C7YHG6
UniRef90 A0A010Q UniRef90_A0A010QN68 UniRef90_K4B833 UniRef90_E9H239 UniRef90_C7YJE1 UniRef90_TOK531 UniRef90_D8R549 UniRef90_A0A010QBC7 UniRef90_C5PDR6 UniRef90_G9NMW2 UniRef90_UPI0004624311 UniRef90_G3BEN0 UniRef90_C7YGZ3 UniRef90_V2YNU7
UniRef90_M0RI57 UniRef90_N1PXM9 UniRef90_J9JX67 UniRef90_G6DSL1
UniRef90_R1GL99 UniRef90_R1GL99 UniRef90_E0VI77


## 



A

F G L G LT LID ALD TMWWLGLR KEFEEARKWVSKKLHFEKDV

F
F
F R LG LT LV
$\begin{array}{llllllllllll}\text { F } & G & L & G & L & T & L & V & D & A & L & D \\ F & T & L & W \\ & L & T & L & I & D & A & L & D & T & M & W\end{array}$
$\begin{array}{lllllllll}F & G & L & G & L & T & V & D & S \\ F & L & D & G & L & T & M & Y & M \\ \text { F } & V & D & S & D & T & M & M\end{array}$

## F


$\begin{array}{lll}F & G & L \\ F & G L & L \\ G & L \\ L\end{array}$

| $V$ | $D$ |  |
| :--- | :--- | :--- |
|  | $V$ | $D$ |
|  | $D$ |  |





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

F

N
S
 $G L F G A T I V D S L D T L L I M G L V E D F Q K A R D W V A T S L D F K V N S$






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

 G GLG WIIVDSLDTMMLMNLTTQLSHAREWIANSLKYDQDQ CNTGATMLDAL GTLWIMGMRKEFGRARDWVADEMSFDLNC




 GGIGGATAADALDDAMIMGLDDVVE EAGGWI EKELRFSHQG

 N PLGGWMIVDDSLDTLMIMDCPGEVLRARNWIK SVLDYNDDY







## QUERY <br> UniRef90_W5L8L7 UniRef90_H3BCL8 UniRef90-UPIO0035970BB UniRef90 E9CAQ7

 UniRef90_UPI0002C65449 UniRef90_I2C0B6 UniRef90_F7GCC4 UniRef90_Q9VAP8 UniRef90_U1MBX6 UniRef90_Q177N4UniRef90 D6WGJ6 UniRef90_H9KMX6 UniRef90-M3XJE9 UniRef90_G8Y9W6 UniRef90 K1PPI2 UniRef90_V9KIW2 UniRef90_L8GR22 UniRef90_L7M7E3 UniRef90_E3Q937
UniRef90 E9G8U4 UniRef90-U5EW55 UniRef90_E9FX86 UniRef90_A0A024JBC8 UniRef90_L7M1Y8 UniRef90_W2SKN6 UniRef90_A0A023F409 UniRef90_D8LGW4 UniRef90-UPI000298F398 UniRef90_C4Y8F7 UniRef90-T2MHY3 UniRef90_Q23296 UniRef90_UPI000329ED76 UniRef90_UPI0002B4948D
UniRef90_UPI0003DF6149 UniRef90_R7Z440 UniRef90_Q4RTR5 UniRef90_Q6C8S3 UniRef90_M4CC86 UniRef90_L0P9Y8 UniRef90-R7V1V1
UniRef90 S4PDV8 UniRef90_UPI00044397EA UniRef90_U9TNS3
UniRef90-B2B3A3
UniRef90_V7CBI5 UniRef90_UPI0004415FA3 UniRef90_UPI000455D7D3
UniRef90 UPI0002657FFO UniRef90_M7SQG9 UniRef90_I1M1F2 UniRef90_R0JX40 UniRef90 F0Y5N1 UniRef90_E5A155 UniRef90_U4UXU6 UniRef90_Q7SE16 UniRef90_W4KL55
UniRef90_F1KXX4 UniRef90_A0A016PV76 UniRef90 Q93Y37 UniRef90_UPI0003513CF5 UniRef90_S7QLH3
UniRef90_F6ZBI9 UniRef90_UPI0001FE296B UniRef90_L7HSIO
UniRef90_IOYR53 UniRef90_A0A010QN68 UniRef90_K4B833 UniRef90_E9H239 UniRef90-C7YJE1 UniRef90_M2RD46 UniRef90_D8R549 UniRef90_A0A010QBC7 UniRef90_C5PDR6 UniRef90_G9NMW2 UniRef90-UPI0004624311 UniRef90_G3BEN0 UniRef90_C7YGZ3 UniRef90_M0RI57 UniRef90_N1PXM9 UniRef90_J9JX67 UniRef90_G6DSL1
UniRef90_R1GL99 UniRef90_R1GL99
UniRef90_Q75IK7 UniRef90_E0VI77
UniRef90_A9TZK7




## QUERY <br> UniRef90＿W5L8L7 UniRef90－H3BCL8 UniRef90＿UPI00035970BB UniRef90 E9CAQ7

 UniRef90－UPI0002C65449 UniRef90－I2C0B6 UniRef90－F7GCC4 UniRef90－Q9VAP8 UniRef90＿U1MBX6 UniRef90＿Q177N4 UniRef90－H9KMX6 UniRef90－M3XJE9 UniRef90－G8Y9W6 UniRef90 K1PPI2 UniRef90－V9KIW2 UniRef90－L8GR22 UniRef90－L7M7E3 UniRef90＿E3Q937 UniRef90－E9G8U4 UniRef90 E9FX86 UniRef90－A0A024JBC8 UniRef90＿L7M1Y8 UniRef90－W2SKN6 UniRef90＿A0A023F409 UniRef90－D8LGW4 UniRef90＿G0M816 UniRef90＿UPI000298F398 UniRef90－C4Y8F7 UniRef90－T2MHY3 UniRef90－Q23296 UniRef90＿UPIO00329ED76 UniRef90＿UPIO002B4948DUniRef90－UPI0003DF6149 UniRef90－R7Z440 UniRef90－Q4RTR5 UniRef90－Q6C8S3 UniRef90－M4CC86 UniRef90＿LOP9Y8 UniRef90－R7V1V1
UniRef90 S4PDV8 UniRef90＿－S4PDV8
UniRef90＿UPIO0044397EA UniRef90＿U9TNS3 UniRef90－B2B3A3 UniRef90－V7CBI5 UniRef90－UPIO004415FA3 UniRef90－UPIO00455D7D3 UniRef90－M7SQG9 UniRef90－I1M1F2 UniRef90＿ROJX40 UniRef90－FOY5N1 UniRef90－E5A155 UniRef90＿U4UXU6 UniRef90－Q7SE16 UniRef90＿W4KL55 UniRef90－F1KXX4 UniRef90＿A0A016PV76 UniRef90＿Q93Y37 UniRef90＿UPIO003513CF5 UniRef90－S7QLH3 UniRef90－F6ZBI9 UniRef90＿L8FQZ1 UniRef90＿UPIO001FE296B UniRef90＿L7HSIO UniRef90＿IOYR53 UniRef90＿C7YHG6
UniRef90－A0A010QN6 UniRef90＿K4B833 UniRef90＿E9H239 UniRef90－C7YJE1 UniRef90－TOK531 UniRef90－D8R549 UniRef90－A0A010QBC7 UniRet90－C5PDR6 UniRef90－G9NMW2
UniRef90 UPIO0046 UniRef90－G3BENO UniRef90＿C7YGZ3 UniRef90＿V2YNU7
UniRef90＿M0RI57 UniRef90－N1PXM9 UniRef90＿J9JX67 UniRef90＿G6DSL1 UniRef90＿R1GL99 UniRef90＿EOVI77



$\qquad$
409


## 8

[^0]
## 



．

F R E L S R
170
180
190
200

F
F
F
F
F
F
F
F
F

## F

## F

## F

## 

## 

## 

## 



## F

## F

## F

## \section*{$F$ $F$

}F

## 

ワTー

\section*{$\rightarrow 7$

\section*{דー

## דー <br> 

## ワファ



## 

## 

## 

## 路

 KMDGLCPFYM PKGLYPNFIN P C

 D P K O Q
$\qquad$ のா




 GDQKYSDEAMKVMEHMKTDPKDEGGLVPDYMS GDASFSDKANRVFEQFSTM KGTQGLFPNYVD
 GEKDFWDRSEKVMKVIDDNQAPDGLVPMF Q
 GDPKFYDATDRVTQFLVKKVQNSTLLPGMWPVS

 GEPKYGVAADR1DKFLNATFDQASGLVPLY N GDPKFYDATDRVTQFLVRDQNDTPGMWPLCLIN
GNAKYYDATERVKEKTAAHSKLPGMWPMYMN

俍 GDPKYQAAVMEVMRQVHKLEGKQDGLVPMFIN
query
UniRefor W5L8L7
UniRefor
H3BCL8 UniRefi90-H3BCL8
UniReigo UPIooos59708B UniRef90 E9CAQ7 UniRefi9-UPR10002C65449 UniRei90-120086 Unirefigo- ${ }^{-F 7 G C C 4}$ UniReteo-a9vAP8 UniReto-UMMEX UniRef90_Q177N4
UniRef90 D 6 WG J6 UniRef90_H9KMX6 UniRef90-M3XJE9 UniRef90_G8Y9W6 UniRef90 K1PPI2 UniRef90_V9KIW2 UniRef90_L8GR22 UniRef90_L7M7E3 UniRef90_E3Q937 UniRef90_E9G8U4 UniRef90 E9FX86 UniRef90_A0A024JBC8 UniRef90_L7M1Y8 UniRef90-W2SKN6 UniRef90_A0A023F409 UniRef90_D8LGW4 UniRef90_G0M8I6 UniRef90_UPI000298F398 UniRef90_C4Y8F7 UniRef90-T2MHY3 UniRef90_-Q23296 UniRef90_UPI000329ED76 UniRef90_UPI0002B4948D
UniRef90_UPI0003DF6149 UniRef90-R7Z440 UniRef90_Q4RTR5 UniRef90_Q6C8S3 UniRef90_M4CC86 UniRef90_LOP9Y8 UniRef90_R7V1V1
UniRef90 S4PDV8 UniRef90 UPI00044397EA UniRef90_U9TNS3 UniRef90_B2B3A3 UniRef90_V7CBI5 UniRef90_UPI0004415FA3 UniRef90_UPI000455D7D3
UniRef90_UPI0002657FF0 UniRef90-M7SQG9 UniRef90_11M1F2 UniRef90_R0JX40 UniRef90_FOY5N1 UniRef90_E5A155 UniRef90_U4UXU6 UniRef90_Q7SE16 UniRef90_W4KL55 UniRef90_F1KXX4 UniRef90_A0A016PV76 UniRef90_Q93Y37 UniRef90_UPIO003513CF5 UniRef90_S7QLH3
UniRef90_F6ZBI9 UniRef90_L8FQZ1 UniRef90_UPIO001FE296B UniRef90_L7HSIO UniRef90_10YR53 UniRef90_C7YHG6
UniRef90_A0A010Q UniRef90_K4B833 UniRef90_E9H239 UniRef90_C7YJE1 UniRef90_TOK531 UniRef90_D8R549 UniRef90_A0A010QBC7 UniRef90_C5PDR6 UniRef90_G9NMW2 UniRef90_UPI0004624311 UniRef90_G3BEN0 UniRef90_C7YGZ3 UniRef90_V2YNU7
UniRef90_M0RI57 UniRef90_N1PXM9 UniRef90_J9JX67
UniRef90_G6DSL1 UniRef90_R1GL99 UniRef90_Q75IK7 UniRef90_E0VI77

## QN68

教
$-210$
F THLGVFTLGARADSYYEYLLKQWIQGGKQETQLL T N S GQFTHLGGIYTLGARADSYYEYLLKQWIQQGGKKETELL T NS G H F S H L G V F T L GARA D S Y Y E Y L L K Q Wi Q G GK K E T D I V A NS G DFRAS GTIT L GARGD S Y Y E Y L L K Q WV Q S GK R L T V F K PTSGTTFSTNHITLGARGDSYYEYLLKQWLQGGKKEARLH

 A NTGTF R NYATVSLGARGDSYYEY LLK QW I QTGRKDDNLI

 A NT G Q F R D H S T I T L G A R G D S Y Y E Y L L K Q WL Q T G K T I N Y L R
 $P$ RTGGRW GQ S H TAL GALLGDS F Y E Y L L K Q Y L Q T N Q Q E K V Y W
 GHS G K L S T S S K V T L G A L G D S F F E Y L L K L W L LaA D K R DP K Y Q $P K T G R W G Q H H M S$ MGALGDSFYEYLLKAWIQSDGEDVQAK FRDQSVT QHNEFT LGALADS LYEYLPKMFALLGGTDPAYE
 PKT GRWGQQHDS MGALGDSFYEYLLKSWLQSSKTNDEAR

 ANTGQFKK GATITT $P V S G N W V Q H H V S \quad I G G L G D$

A
PKTGKWGQMHMS $L G A R$
 P K T GKWGQHHMS LGGLGDSFYEYLL KAWUQSGKEDVEAR ARDKNFKYGGAFTLAAMADSLYEYLAKTYALLGGLEPMYK





QTS GQFTN N D E
F RE GTLNHES G
FRE GTLNHESGF
$R D A T F$ G G S O V F G A M G

DTGRGNDQT】TLGARAD
P HSGEFS GEN
A D R G T R R
N
A D RGTFRG NEI RWGSRGDSYYEYLDKQYLQTQKQEPVYM


PRSGKWGQHHMS MGA LGD
PSTGHFHTQN I RLGSRGDSYYE
PNDGRFV TSAIRRLGSRGDSYYEYLLKQYVQTDLTE GVYR

LDF QNQAHDNTFSLGALAADSLYEYLDKMHALLGGVDENYP

P H S G T A S Y S T I T FGAMGDSYY E Y L L K K V WI Q G N K T E H H Y R


## P

A
P PEKEFKVYNDDTFGFGANGDS
PEDGRFV GDA $\square$ R A MAD
PHSGTFQGNN I RLGSRGS SYE


 P DTGKY Q S R LI RLGSRGDS AESGKFV PSA, R L GSRGDS PHSGQFNGEN IRLGSRGDS
AKELDDFTQDTFFT
$P \square T G K W G Q R H \bigvee S$



I GA L G DS YY E

## QUERY <br> UniRef90_W5L8L7 UniRef90_H3BCL8 UniRef90_UPI00035970BB

 UniRef90 E9CAQ7 UniRef90_UPI0002C65449 UniRef90_I2C0B6 UniRef90_F7GCC4 UniRef90_Q9VAP8 UniRef90_U1MBX6 UniRef90_Q177N4 UniRef90_H9KMX6 UniRef90-M3XJE9 UniRef90_G8Y9W6 UniRef90 K1PPI2 UniRef90_V9KIW2 UniRef90_L8GR22 UniRef90 L7M7E3 UniRef90-E3Q937 UniRef90_E9G8U4 UniRef90 E9FX86 UniRef90_A0A024JBC8 UniRef90_L7M1Y8UniRef90_W2SKN6
UniRef90_A0A023F409
UniRef90_D8LGW4
UniRef90_G0M8I6
UniRef90_UPI000298F398
UniRef90_C4Y8F7
UniRef90-T2MHY3
UniRef90_Q23296
UniRef90_UPI000329ED76
UniRef90_UPI0002B4948D
UniRef90_UPI0003DF6149
UniRef90_R7Z440
UniRef90_Q4RTR5
UniRef90_Q6C8S3
UniRef90_M4CC86
UniRef90_LOP9Y8
UniRef90_R7V1V1
UniRef90- S4PDV8
UniRef90_UPI00044397EA
UniRef90_U9TNS3
UniRef90-B2B3A3
UniRef90_V7CBI5
UniRef90_UPI0004415FA3
UniRef90_UPI000455D7D3
UniRef90_UPI0002657FF0
UniRef90-M7SQG9
UniRef90_11M1F2
UniRef90_R0JX40
UniRef90_E9BWB5
UniRef90_F0Y5N1
UniRef90_E5A155
UniRef90_U4UXU6
UniRef90-Q7SE16
UniRef90_W4KL55
UniRef90_F1KXX4
UniRef90_A0A016PV76
UniRef90_Q93Y37
UniRef90_UPI0003513CF5
UniRef90_S7QLH3
UniRef90_F6ZBI9
UniRef90_L8FQZ1
UniRef90_UPIO001FE296B
UniRef90_L7HSIO
UniRef90_IOYR53
UniRef90_C7YHG6
UniRef90_A0A010QN68
UniRef90_K4B833
UniRef90_E9H239
UniRef90-C7YJE1
UniRef90-TOK531
UniRef90-M2RD46
UniRef90_D8R549
UniRef90_A0A010QBC7
UniRef90-G9NMW
UniRef90_G9NMW2
UniRef90_UPI0004624311
UniRef90_G3BEN0
UniRef90_C7YGZ3
UniRef90_V2YNU7
UniRef90_M0RI57
UniRef90_N1PXM9
UniRef90-J9JX67
UniRef90_G6DSL1
UniRef90_R1GL99
UniRef90-Q75IK7
UniRef90_EOVI77
UniRef90_A9TZK7
 E D Y L Q A V E GVVK K N L L K K S S P L G L T F V G EL SHGHFSPMMD H

 E D Y L E A I E G I K R HLL L R K S E P G K L T F V G E L A H G R F S P K M D H


 D D Y N K S M S A MER H L V R Q S E P N K L TVF V G E L P G G S Y S P K M D H D D Y R A A I G GV L H Q L V R V T P N E K H L Y I G E L N G K D F K P K M D H



 RMYDEAARGVLLQHMTAHSEPNKFTY LAELHSPQNMPRMDH RLLDAVKAIEAKMLLQSRGSGFLYLAEIKYDRVEPKMDH

 EMYVDAMDAAVAKLI QKSNGGLTYF AEMKFGRLEHKMDH A MYDEAME GVKVVHLV QQQSEPN KLTF DGEDLFSGEFSNKMD H


 K MYYEAMEADEANLVQKS PGGLTYMAEWRGGULDHKMGH


 QMYDEA IVAADDQHMMKTSQGGKLLYYVDLDKYDRLEHKM GH KLYDNAMAAAAQHTLYRPMTPDNADILMAGMTTLDPQGQH
 D MYEEAVVDGI KH HMVKKQSVP GDLA F G G LDDS GPFS T K M D H D M WEK S MN GLL S L V KK S TP S S FTY I CEKS GS S LTTHKMDE K MFEEAVEGI KKHMVKYSKPS GFTFVAELDNNNASFRMEH
 $K M Y Y$ D A L Q A I E T NL MRKS S S GLLTY I A E WK G GLLE H K M G H RMYEESSDDSMSKYLDKK GQYPDLLFLGSYSHGSFVARMEH K M H R A A M E V V V E H L V F R R P M P H D I L F V G D A F K I D HV P E S Q H EM WD K S M I G L E S L I K K S T P S S FVVY I SERLGNAVY DKMDE EMYDEAMTAJHDNLLARTPRHNLLYTVESNYDRKEHKQDH


 EMWKES LNGAKKKHLLTYTKHSHFTVLAERPNGHLHPKMDH A MYDTAMNVIRVMIPPRVNPT DADYVAEARGGSLDHKMDH EMYDEAMDGMVDLLLQUSSPSNLAYVADDDGGTVVHKMDH RLYEAAMEPAKKHLFFRPLNPNDQE LVAGBARLSPDTQH QMFDESMDAAFRYMLHESSPA GLTYFADLKFERLEHKMDH D MWND ALQGIRKHLVTYTENSGFTVVGERPSGNLSPKMDH

 D M Y $\square E A M K G V R H L L V Q N S D P K G L V F V G E L P Y G E F S P M M D H$


 R M Y D E A V VA L K Q H L L F R S A A T K L L Y Y V A D R R N NV A VA E M G H D M WDD SMDGMRKHLVTYTEHSGFTII GERPDGSLSPKMDH GMWVRAMDEVLKRLVGTSSDGLQ YVGD DNGGVFVQRLEH S M Y R I A S D TV V I K HLL L Y R P M L P E K D DI LDF S G DVV HV N T E S Q H



 D MYD DAMNGVHNHLI QKS QFAKDTYTSELIDSWRLTPK QDH D MY DEAMA GVVKHLLVVAKSVPN GLTF DGEL PSGRFSPMMD H K M Y R GA AKAAK GHLLLYRPMTP K K D D I L K L R K I D Q DS ELE H EMYEVAMEVARKRLEFRPRTSGAAYAVGKS IVHLKPE GQH K MYRGAMDAAVQNLLFRPMVPDLDD』AGRANGGLDTDSQH
 D M WDEA LRRGVRKHLVTYTKNS QFTII GERPTRALSPKMDH D MY D D A M D A I HE HL I KK K S Y A R LTTYTA E LI S WQL T P K QD H QMYEEAMRGVRHLLVRKSDPKGLVFVGELPHGSFSPKMDH K LY T R S MQTAAKHNLWRPMVPDEADI LMSGNPTLEPQGQH DMFDDAMASVMDNLVQTSSTGLTYLADMRFDRLEHKMDH EMFDEAMQAALDDKMLDRTSPS GLAYGAEDVYGRIFEEMMDH EMFEQAARVMKEHMFYRPVARAEDVVAEEGGVRLDPKNQH EMYTEAMKGVKHLLVRKTIPNGLVFVGELPYGRFSPKMDH D LF D NAMS S I F E HML K V S T G G L T T Y T D I K Y ERPE H K M D H

## QUERY <br> UniRef90_W5L8L7 UniRef90_H3BCL8 UniRef90_UPI00035970BB UniRef90 E9CAQ7

 UniRef90_UPI0002C65449 UniRef90_I2C0B6 UniRef90_F7GCC4 UniRef90_Q9VAP8 UniRef90_U1MBX6 UniRef90_Q177N4 UniRef90-H9KMX6 UniRef90_M3XJE9 UniRef90_G8Y9W6 UniRef90 K1PPI2 UniRef90_V9KIW2 UniRef90_L8GR22 UniRef90_L7M7E3 UniRef90_E3Q937 UniRef90_E9G8U4 UniRef90 E9FX86 UniRef90_A0A024JBC8 UniRef90_L7M1Y8 UniRef90 W2SKN6 UniRef90_A0A023F409 UniRef90_D8LGW4 UniRef90 UPI000298F398 UniRef90_C4Y8F7 UniRef90-T2MHY3 UniRef90_Q23296 UniRef90_UPI000329ED76 UniRef90_UPI0002B4948DUniRef90 UPI0003DF6149 UniRef90-R7Z440 UniRef90_Q4RTR5 UniRef90_Q6C8S3 UniRef90_M4CC86 UniRef90_L0P9Y8 UniRef90_R7V1V1
UniRef90 S4PDV8 UniRef90-UPI00044397EA UniRef90_U9TNS3 UniRef90-B2B3A3 UniRef90 V7CBI5 UniRef90_UPI0004415FA3 UniRef90_UPI000455D7D3 UniRef90_M7SQG9 UniRef90_I1M1F2 UniRef90_R0JX40 UniRef90 F0Y5N1 UniRef90_E5A155 UniRef90_U4UXU6 UniRef90_Q7SE16 UniRef90_F1KXX4 UniRef90_A0A016PV76 UniRef90 Q93Y37 UniRef90_UPI0003513CF5 UniRef90_S7QLH3
UniRef90_F6ZBI9
UniRef90 L8FQZ1 UniRef90_UPI0001FE296B UniRef90-L7HSIO UniRef90_C7YHG6 UniRef90_A0A010QN68 UniRef90_K4B833 UniRef90_E9H239 UniRef90-C7YJE1 UniRef90_M2RD46 UniRef90_D8R549 UniRef90_A0A010QBC7 UniRe9-C5PDR6 UniRef90_G9NMW2 UniRef90-UPI0004624311 UniRef90_G3BEN0 UniRef90_C7YGZ3 UniRef90_V2YNU7
UniRef90_M0RI57 UniRef90_N1PXM9 UniRef90_J9JX67
UniRef90_G6DSL1 UniRef90_R1GL99 UniRef90_Q75IK7 UniRef90_E0VI77

L VCF LP GTLALGVYHGLPA
300
310
320
A L A QELLMETCYQMNRQME
LVCFLPGTLALGAHHGLDAEHMELAKQLMETCYQMYAQME

$L V C F L P G V L A L G H V N G F P A S H L E V A K E L L Y T C W Q M Y E K M P$
$L \vee C F L P G T L A L G A H H G L P A D H M E L A R A L M D T C Y Q M N R Q M E$


 L T C Y L G G T L A L G V H H GLLP P D H M D L A N E I V V K T C Y Q T Y A I Q P
 L C F A G GMFA L G A K Y S D N E K Y L N L G A G S NT CHESYYVR S E
 LACFA G GFYG LM S RTMLGKDHFMDVAKNITNTCHESYDRTP



 L V C Y L
 LACFS G GMI GIGA D D GAP QHY LIDLAA A E I TH T CHESSYS R S A


## L

## L

LCFA GGMFAL GADGSPDDHYLQLGAEIAHTCHESYDRTVV


A


## QUERY <br> UniRef90_W5L8L7 UniRef90-H3BCL8 UniRef90-UPI0003: UniRef90-UPI0002C65449 UniRef90-।2C0B6 UniRef90-F7GCC4

 UniRef90_Q9VAP8 UniRef90_U1MBX6 UniRef90-Q177N4UniRef90-D6WGJ6 UniRef90-H9KMX6

## UniRef90-M3XJE9

UniRef90-K1PPI2
UniRef90_V9KIW2
UniRef90-L8GR22
UniRef90-L7M7E3
UniRef90_E3Q937
UniRef90-E9G8U4
UniRef90_U5EW55
UniRef90_E9FX86
UniRef90-A0A024JBC8
UniRef90-L7M1Y8
UniRef90-W2SKN6 UniRef90-A0A023F409 UniRef90-D8LGW4 UniRef90_G0M816 UniRef90_UPI000298F398 UniRef90-C4Y8F7
UniRef90-T2MHY3
UniRef90-Q23296 UniRef90_UPI000329ED76 UniRef90_UPI0002B4948D UniRef90_UPI0003DF6149 UniRef90_R7Z440 UniRef90-Q4RTR5 UniRef90-Q6C8S3 UniRef90-M4CC86 UniRef90_LOP9Y8 UniRef90_R7V1V1 UniRef90-S4PDV8 UniRef90_UPI00044397EA UniRef90_U9TNS3 UniRef90-B2B3A3 UniRef90-V7CBI5 UniRef90-UPI0004415FA3 UniRef90-UPIO00455D7D3 UniRef90-M7SQG9 UniRef90_I1M1F2 UniRef90-ROJX40 UniRef90-F0Y5N1 UniRef90-E5A155 UniRef90_U4UXU6 UniRef90-Q7SE16 UniRef90_W4KL55 UniRef90-F1KXX4 UniRef90-A0A016PV76 UniRef90_Q93Y37 UniRef90_UPI0003513CF5 UniRef90-S7QLH3 UniRef90-F6ZBI9 UniRef90_L8FQZ1 UniRef90_UPIO001FE296B UniRef90_L7HSIO UniRef90_IOYR53 UniRef90_C7YHG6
UniRef90-A0A010Q UniRef90_K4B833 UniRef90_E9H239 UniRef90-C7YJE1 UniRef90-TOK531 UniRef90-D8R549 UniRef90-A0A010QBC7 UniRef90_C5PDR6 UniRef90_G9NMW2 UniRef90-UPIOO04624311 UniRef90-G3BENO UniRef90_C7YGZ3 UniRef90_M2YNU7 UniRef90-N1PXM9 UniRef90_J9JX67 UniRef90-G6DSL1 UniRef90_R1GL99 UniRef90_Q75IK7 UniRef90_EOVI77

370
380
390
400
 F YLYRFTKDKKYQNWGWEILQSFNKYTRVETGGYTSINNV


 WYMYH
FY
LY G YYFYSITGNRTYQDMGWKIFQAFETHAKV NAGYTSMGNV WYFYADTGNKTYQDMGWT1FEAFNKYTKVKN GYTSIGNV FYWQ GNKTYQDWGWQIFQGFENYTKVKN GYISIGNV
 FYLIYRLTGDEKYRKYGYEI FKNFLRYTKVT F Y MWRLTK MYMWRFTH F YL WR L FLMYRMTGNPEYQE\|AWTMFQSVVKATETQH $D G S D V S Y T$ T L


 WYMYYFTRRNETYRDLA WRIF Q G G F E K H CKKVPGGGYTT I G S V F Y L Y R LT G D K M Y Q D WG WQ A F Q A $\square$ E Q Y A R V K N G Y S S V K S V WY L Y QI T G NK TY Q D WG WT IF Q A F E K Y TK V E W W Y T S I G NV
 MYMWR LT H
 $F$ V M W R L T H E Q K Y R D WA WDVV V E A L E K H CRRI G V G Y S G I R N V F Y L Y R V T K D K K Y Q E WG WK A F E S I E K Y A K V E T G G Y S S I D N V $F$ VLWR L T H D Q K Y R D WG WEA V Q A L E T Y CR T N H G Y S G I K N V

 WYMWR FTH D P K Y R Q WG WEAAA Q A I D K Y C R V $\quad$ S G G F S G V K D V $F Y$ LWR IT R N P IVY R E WG WE IIF Q A F Q K Y T K V P D A G Y D S I N N V






 $F$ I A Y R L T G D P V Y R Q Y G W S I F E A I E K H C R V S S G G Y A S V L D V WYL L Y FT R N E TY R D WA WD IIF Q A FEE Y A K I P S G GY T S I G N V
 FVVLYRDTVE D P K Y R E W G WQ IIF E A F E N H T K V D T G G Y C S L D D V

 F Y L Y R L T K D E K Y R D WG WE A V Q A L E K H C R V P G G Y T G I K NV


 $F V L Y R I T K D T K Y R D Q G W Q I F E A F E K Y T K V K S G G Y T S L D C V V$
 $F$ LA F R V T G D R R Y R E W G WQ $\ddagger$ F Q A I E K H CR I I E T G G Y A S V V N V F Y M WR L T K D P K Y R Q WG W D A A Q A L E K N C R T E N G Y T G I K D V
 F MM W R R T G D V K K Y R E WG WE MF K S F M N H T A V E D N G G F T S L S N



 $F V A Y$ R LT G N P R Y R Q Y G W D I F Q A I E K Y C K I E G G G Y A S I L N V


 $F\|A Y R L T G D Q R Y R D Y G W Q\| F Q A D E R H C K I E T G G Y A S D F N V$
 $F$ LA F R L T G D A R Y R N W G WN I F Q A DE K H C R V P T G G Y A S I I N V F V L H R V T E D P K Y R R E W G W Q I F E A F E K Y T K V D S F I L Y R AT G E E Y L L D A A WE MF R S I I N A T E TPP LAANAA LABDVT
 $F$ I LY R I T G D E T L L R E R A WN M F S K I I Q F T R T D DA H A G L D D C V $F V L Y R I T E D P K Y R E W G W Q D F Q A F E K Y T R V D S G G Y T G I D D V$ UniRef90_A9TZK7


| QUERY | $\text { FNTEAHPDP } 450$ |
| :---: | :---: |
| UniRef90 W5L8L7 | F NTEAHALP |
| UniRef90-H3BCL8 | LNTEAHPL |
| UniRef90-UPIO0035970BB | F ${ }^{\text {S S G H P L P }}$ |
| UniRef90 E9CAQ7 | F NTEAHPLP |
| UniRef90-UPI0002C65449 | F NTEAHPLP |
| UniRef90-I2C0B6 | F NSEAHPLP |
| UniRef90-F7GCC4 | F NTEAHP |
| UniRef90-Q9VAP8 | F N S EGHPL |
| UniRef90-U1MBX6 | F NTEGHPL |
| UniRef90-Q177N4 | FNSEAHP |
| UniRef90-D6WGJ6 | $\square$ NS E A |
| UniRef90-H9KMX6 | FNSEGH |
| UniRef90-M3XJE9 | F NTEAHP |
| UniRef90-G8Y9W6 | F NTEAH |
| UniRef90-K1PPI2 | F NTEAHPL |
| UniRef90-V9KIW2 | F NTEA |
| UniRef90_L8GR22 | FNTEA |
| UniRef90-L7M7E3 | LNTEAHPLP |
| UniRef90-E3Q937 | L NTEAH |
| UniRef90-E9G8U4 | L S EAH |
| UniRef90-U5EW55 | FNTEAH |
| UniRef90-E9FX86 | F NTEA |
| UniRef90-A0A024JBC8 | F NTEAH |
| UniRef90-L7M1Y8 | F NTEAH |
| UniRef90_W2SKN6 | F NTEA |
| UniRef90-A0A023F409 | VNSEGHPM |
| UniRef90-D8LGW4 | FNTEAHA |
| UniRef90_G0M8I6 | F T TEG |
| UniRef90_UPIO00298F398 | F NTEAH |
| UniRef90-C4Y8F7 | FNTEAH |
| UniRef90-T2MHY3 | L NTEAH |
| UniRef90_Q23296 | L NTEA |
| UniRef90-UPI000329ED76 | F NTEAHPL |
| UniRef90-UPI0002B4948D | F N TEAHPLR |
| UniRef90_UPI0003DF6149 | F NSEAH |
| UniRef90-R7Z440 | F NTEAH |
| UniRef90_Q4RTR5 | F NTEAH |
| UniRef90-Q6C8S3 | F NTEAH |
| UniRef90-M4CC86 | F NTEAH |
| UniRef90-LOP9Y8 | F NTEAH |
| UniRef90_R7V1V1 | F NTEAH |
| UniRef90_S4PDV8 | VNSEAHP |
| UniRef90-UPI00044397EA | FNTEAH |
| UniRef90-U9TNS3 | F NTESH |
| UniRef90-B2B3A3 | F NTEAH |
| UniRef90-V7CBI5 | F NTEAH |
| UniRef90-UPI0004415FA3 | F NTEAH |
| UniRef90_UPI000455D7D3 | F NTEAHPL |
| UniRef90-UPI0002657FF0 | YNTEAH |
| UniRef90-M7SQG9 | LNTEAH |
| UniRef90-11M1F2 | F NTEAHP |
| UniRef90-R0JX40 | F NTEAH |
| UniRef90-E9BWB5 | F NTEAHPLPV |
| UniRef90_F0Y5N1 | F NTEAHP |
| UniRef90-E5A155 | F NTEAH |
| UniRef90-U4UXU6 | Y NTEAHP |
| UniRef90-Q7SE16 | F NTEAHPLPV |
| UniRef90-W4KL55 | F NTEAH |
| UniRef90-F1KXX4 | F NTEAHPFPV |
| UniRef90-A0A016PV76 | L NTEAH |
| UniRef90_Q93Y37 | F NTEAHPLPI |
| UniRef90-UPI0003513CF5 | F NTEAHPLR |
| UniRef90_S7QLH3 | F NTEAHP |
| UniRef90-F6ZBI9 | F NSEA |
| UniRef90-L8FQZ1 | $\square$ NTEAHA |
| UniRef90_UPIO001FE296B | FNTEAHP |
| UniRef90_L7HSIO | $\square \mathrm{NTEAH}$ |
| UniRef90-IOYR53 | FNTEAHPFRL |
| UniRef90_C7YHG6 | LNTEAHPFR |
| UniRef90-A0A010QN68 | LNTEAH |
| UniRef90-K4B833 | F ${ }^{\text {T E A H }}$ |
| UniRef90-E9H239 | F NTEAHPLPV |
| UniRef90-C7YJE1 | F NTEAH |
| UniRef90-TOK531 | F NTEAHPFRRW |
| UniRef90-M2RD46 | F NTEAHPLPRIF |
| UniRef90_D8R549 | F NTEAHPLPI |
| UniRef90-A0A010QBC7 | F NTEAHPLK |
| UniRef90_C5PDR6 | F NTEAH |
| UniRef90-G9NMW2 | LNTEAHP |
| UniRef90_UPI0004624311 | FNTEAH |
| UniRef90-G3BEN0 | FNTEAHP |
| UniRef90-C7YGZ3 | 1 NTEG |
| UniRef90-V2YNU7 | L NTEAHPFPDF |
| UniRef90-M0RI57 | FNTEAH |
| UniRef90-N1PXM9 | F NTEA |
| UniRef90-J9JX67 | F NSEA |
| UniRef90_G6DSL1 | F NTEAHPLP |
| UniRef90-R1GL99 | LNTEAHPL |
| UniRef90_Q75IK7 | F NTEAHPL |
| UniRef90-E0VI77 | F NTEA |
| UniRef90_A9TZK7 | F NTEAHPVRI |

UniRef90 C7Z1K1 UniRef90-UPIOOO2C32C64 UniRef90-E3QWD4 UniRef90-M9м292 UniRef90-G2R391 UniRef90-S7ZUA7
UniRef90
K3WLS3 UniRef90-C7YIF1 UniRef90-A0A016STV7 UniRef90_UP10003F4953E UniRef90-A0A059CDD2 UniRef90-G1X7NO UniRef90-M5C4X4 UniRef90_C4JV20 UniRef90-E9DZM5 UniRef90-F9FVM1 UniRef90-K2RJY5 UniRef90-B6Q3X1 UniRef90-U3JCE1 UniRef90-A0A016PF50 UniRef90-B6Q1A0 UniRef90-D5GG24 UniRef90-H8X2C5 UniRef90-T1G608 UniRef90-M3C574 UniRef90-A0A010QC69 UniRef90-R7Z518 UniRef90-G2QM67 UniRef90-G2QW40 UniRef90-D3B8S4 UniRef90_UPIOOO2659C3B UniRef90_G9NUR2 UniRef90-Q1K8A8 UniRef90_G4ZNG8 UniRef90-G5EB12 UniRef90-M7X6L5 UniRef90-B8P5V2 UniRef90_A2RBC3
UniRef90 12 JUZZ UniRef90-12JUZ2
UniRet90 W2SB24 UniRef90_UPIO004433C14 UniRef90-C5GPR7 UniRef90-M4GF52 UniRef90-UPI0004416F2E UniRef90 L7N2G3 UniRef90-M2ZTZ9
UniRef90 B2W1F8 UniRef90-B2W1F8 UniRef90-G2X8D1 UniRef90-W3WLW6 UniRef90-E9EBV4 UniRef90-14Y183 UniRef90-W9CAZ4 UniRef90-M2Z7Q8 UniRef90-M5G9W9 UniRef90-V4B4T7 UniRef90-H2WKN2 UniRef90-W9WWGO UniRef90-G2QNW2
UniRef90 L8FT96 UniRef90-L8FT96
UniRef90-L7M57 UniRef90-G9NW07 UniRef90-G2YZH8
UniRef90 UniRef90-GOSF33 UniRef90 UPIIOOO444A757 UniRef90-GORLS8 UniRet90_B3RY07 UniRef90-J3P2Q0 UniRef90-T5ACB6
UniRef90-W7LNN5 UniRef90_C5G6G6 UniRef90_V5G6A8 UniRef90-UPIOOO233B981 UniRef90_UPIO00456083D UniRef90_U1GES5 UniRef90-G9N194 UniRef90-A9UY58 UniRef90-M2M4G4 UniRef90-M1WCP7 UniRef90-K5XL36 UniRef90-M7T2Y1 UniRef90-F0ZTI4 UniRef90-N4UZH8 UniRef90-C5FE05 UniRef90-G2WRU0 UniRef90-O54PQ1
UniRef90_W9YU28 UniRef90-C1MYC5 UniRef90-B6QNN5 UniRef90_K4C757
UniRef90- Mзв
Uniref9_M3вU02
 $\begin{aligned} \text { Q R Q K A V } & R D A F K K ~ S ~ Y ~ D ~ A ~ Y ~ K ~ R ~ Y ~ A ~ A ~ W A ~ R ~ D ~ E ~\end{aligned}$ L A P V V KRRQEAVRAAFVRSWDSYKTYA WLQDEVAPVSGGGKT T Y WE S HRE EVK DAFVTS WDAYSKYA WGNDVFHPI SKS G S QM QKEVVEMVKWAWGGYAK HAYGR DSLN I HDRTGPS RERQQAVTETFTRCWNAYKKHAWMADELSPVSGGTNPG EARRVTVK Q MTK FA WDNYRKYAWGSNELRPVSKKGBSA WV EKREEVREAFQWSWTAYERHAWGADEFHP WL
 RRDAVVAAFKHAWKGYERDAFGCDEYHP SGQ ARLNAVKGNFTHAWSGYKAHAWLRDEVKPLSGQAHPF NWDARRQSVVEAFELSWDTYSRYAWGYDEYHPVSKTGKNM D QRRKDI K QAFKKTWGSYEKYAWGSDELKPLSLKGRDT

 RERQQAVKATFTRCWNSYKK HAWMADELSPVVGGVNPF
 WK T A QLEVRQAMLDSWHSYEKYAWGYDVYHPIKQQGENM RRMKIVQMMQHAWSMYEKHAWGENELKPI SKRGHSA ERQAAVKATFQRCWKAYSNYAWMMDEVTPLTGNDKNF
E ERQQAVKGAFAKAWESYRDNAWMYDELTPVSGKGRNT NWQGRQDQVRDAF LLT WNAYEKYAWGHDEFHPVSKTGRDM
 E D R R K S V L RLARRSWDSYRIGAWKKDALQPLSRAGDQF ERASAVRNAMKFAWDRYVEFAWGDDELTPLQKKGKNW

LK EVKKVALRAWRGYKKHAWMQDAL LD I ERQAAVKDAFLRCWSSYRTKAWMSDELEPVNGGRKDT E A R RLDAV R K A M K F A WG N Y E E H A F G G D E V D P V N K L S N NVW $K$ SRQAA VKGAF QRAWTSYTTHAWKA DEVVR I TA GSRNN EVRQQAVLEAFKHSYSAYERDAFGFDDYHPISHRGSNM K R D AV TAAFKHA WLA Y E R DAMGDDEYHPIGGK G S NLL
 WDKRKLEVKEVFLVSWRDYSRHAWGNDDYHPVXQTGSNM ERRQKVELAFRKCWNSYRAKAWMFDELAPLSGAGRNT

REKI K EMMQFAWYNYK Q F A L G K NELLRPVTKNGYTG
 S RRDAVREEFARCWKAYREHAWMKDALLPI EKRDAVVNAFKWAWHAYERDAMGDDEYHP
 QRAARQEAVKEVFKRCWGSYRDLA WMKDELAPI ERQQAI KNAFKKTWTSYKRHAWGYDELKMP

RE YK R Q DVV R N T F V R D W RQNDI K ESFVKS WNAYKKYAWLRDEVTPVSGSYDPF K R D SVVK GAFQHAWSAYERDAFGF DEYHPI SRTGSNS
 EKRDAVVRAFKE A WVAYET DAFGS DEYHPI SHTGSNLL MMKHAWSNYEKYAWGSNELRPVSRRGHSA
 ETRRAAVKEAFVHAWNGYKKHAWGQDEVAPLSASRSSF RARQQAVRAAFVKSWRSYKTHAWLRDELAPVSGGGRTT K K R L A A V K E S F D H S WA G Y K K H A W L Q D E V V P V K G G A R N T QRLAAVKESFQHSWRGYKEHAWLHDEVSPISGAADPF
 E T R R A A V K E A F L H S WN G Y K K Y A W G Q D E V A P V S GA F R S S RKRREEVRDAARRAWNAYKKHAFGRDELTP LTLSSRDT E K R D A VVVEA F RH A W W A Y E R D A M G D D E Y H P AR R A VKMF A WD GYVKYAWGQNELSPNSLRGHFA KARKEAVRKAFVKSWEAYKKHAWTRDELMPGSAKGRHS ARKAAI KQAFTKSWEAYKKYAWGWDELAPVSLRGKMT ESRRDLVKKAFLHTWKGYKEYAWLKDELAPVNGGARNP WD A RREKV R DAFMVSWD GYEKYAWGFDEYHP I SKGGRHM
 WDERRDKVTEAFK $\square$ S WD GYEKYAWGMDEYQPISKKGRNM

QHRQHAVKD DFSKCWTSYRKYAWKADE LAPVSGGSNPF QSESRRESIKEMMRTAWSGYAKYAMGENELMPKAKHGHSA WDARAEKVKEAFKVSFEGYEKHAWGDDEYHPLAKNGRKM QERRDQVRNVF $\square$ AD WQNYRTYAWGRDALNPVSATADQF
 NREA ERAEKVKEAMKYAWDSYRENAWGHDEWLPI EKKTSNW $V$ K RVF SKA WTS YRA RA WLS DE LTPVVS GDGRNT
 R S E QV RGAMKHAWEKYREFAWGRDELRPLTKSHKEW WAE QREAVKSVFKTSWAGYEKYAWGMDEYHPLSRKGKNM ARRDAVVRDATRDAYAHYEKYAFGDDELRPRAKDGKNF
EARDDAVKGNFTHAWNGYRKYAWMSDEVAPDSGEANPF


UniRef90 C7Z1K1 UniRef90-UPIOOO2C32C64 UniRef90-E3QWD4 UniRef90_M9M292 UniRef90-G2R391 UniRef90-STZUA7
UniRef90 K3WLS3 UniRef90 ${ }^{-}$C7YIF1 UniRef90-A0A016STV7 UniRef90_UPIOOO3F4953E UniRef90-A0A059CDD2 UniRet90-G1X7NO UniRef90-M5C4X4 Uniinefoo-C4JV20 UniRef90-E9DZM5 UniRef90-F9FVM1
UniRef90_K2RUY5 UniRef90-B603X1 UniRef90-U3JCE1 UniRef90-A0AO16PF50 UniRef90-B6QIAO UniRef90-D5GG24 UniRet90-H8X2C5 UniRef90-T1G6088 UniRef90-M3C574
UniRef90 A0A010QC6 UniRef90-R7Z518 UniRef90-G2QM67 UniRef90-G2QW40 UniRef90-D3B8S4 UniRef90_UPIOOO2659C3B UniRef90-G9NUR2 UniRef90-Q1K8A8 UniRef90-G4ZNG8 UniRef90-G5EB12 UniRef90-M7X6L5
UniRef90-B8P5V2 UniRef90-A2RBC3
UniRef90-I2JUZ2
UniRef90-W2SB24 UniRef90-UPIIOO04433C14 UniRef90-C5GPR7 UniRef90-UPIO004416F2E UniRef90-L7N2G3 UniRef90-M2ZTTZ9 UniRet90-G2X8D1 UniRef90-ROKA67 UniRef90-W3WLW6 UniRef90-E9EBV
UniRef90- 4 YY 183 UniRef90_W9CAZ4 UniRef90-M2Z7Q8 UniRef90-M5G9W9 UniRef90-V4B4T7
UniRef90 $\mathrm{H} 2 W K N 2$ UniRef90-W9WWG0 UniRef90-G2QNW2 UniRef90-L8FT96 UniRef90-L7IM57 UniRef90-G9NW07 UniRef90-G2YZH8
UniRef90 V9DMF0 UniRef90-GOSF33 UniRef90-UPIOOO444A757 UniRef90-GORLS8 UniRef90_B3RY07 UniRef90_J3P200 UniRef90-T5ACB6
UniRef90-W7LNN5 UniRef90_C5G6G6 UniRet90-V5G6A8 UniRef90-UPIOOO233B981 UniRef90-UPIO00456083D
UniRet90_U1GES5 UniRef90_G9N194
UniRef90 A9UY5 UniRet90-M2M4G4 UniRef90-M1WCP7 UniRef90-K5XL36 UniRef90-MYT2Y1 UniRef90-N4UZH8 UniRef90-C5FE 05 UniRef90-G2WRUO UniRef90-O54PQ1
UniRef90_W9YU28 UniRef90-C1MYC5 UniRef90-B6QNN5 UniRef90_KMC757
UniRef90_M3BU02

GGWAATLVDSLLDTLW| MDMKDEFTKAVAAADGIDFTKSMN GGLGATVVDALDTAM MGVDEVVSEAGSWIEKHLSSRDKG FGWAASLVDSMDTLWI MGFRTEFYAAAEVAAQLDWANTTD NGWGASIVDADDTLLVMGRPKEYDLARQHVRDIDYGNADG FGWAATLVDSLDTLWIMGLEDEFYAAAAAAQLDWANTTET NGMGWIVVDSGDTLMVMNLTTGLGDARKWLNRALTYDQDQ QDLALTLVDSLDTLFLVGMFEEFDEASGWVAKNLETRMHY SVFGATVVDAIDTLWI MGLKEEYEQARSWI QHSDDFSRRG
 GGLGATVVDALDTALIMGADEEVSEAGSWIETQDRUKHKG RGLGYMI DALDTMLIMPLRKEYLRARHWVETELDFDRDG GGWAATLVDALDTLWIMGLKDEFERAVEAVAKDFGSCTMD KGLDGWIT IDSLDTMMLMNLTSRVEHAREWLSKSLTWDQDQ FGWAATLCDNLDTLUGMKREFYKAVDFVSRMDWDDPTA FGWAATLVDALDTLWIMDMKKEFEEAVAAVAHMDFSTANV NMFGATVIDALDTLYMMELEEEFQEAKQWVEKSFDLNVNG GGWAATLVDSLDTLWI MDMHDEFKEAVDAVDKDDFTQTEK FGWAATLVDALDTLLIMGLDEEFQLALDAVEQLDFTTTTD

G G WA A T L V $\operatorname{D}$ D S L


FHLGGLSIVD GMDTLYFMGLLEEEFATAREWVATKLDHRT GE
 G D DAA C S L V D

$T G I G Y T V V D S I D T M I I M G L D E E Y Q R A R T W V A E K M S F E R D G$






F GWGA TLV D S L D T L W W M D M K D E F S D D A V D A V G D D F GP R G S D

S G WA A T L V D S L D T L W M M G L K T E F E E A V A A V A K I D F Q S T S D

G G WA A S L V D T L D T L W W M GMMH S E F K V A V E A I Q T I D D F T C A L D
G GWAATLVDSLDTLWIMGLRDDFEEAVKTMT』DLGKATQD
S GVGGMMVDALDTLVMMGLDEEYKRARTWUEKDLSWDRGG

GGWGATLVDTMDTLLIMGLKMEFDLCVEQVKRDDFTTNDCD
FGWAATLV DALDTLWI MGLTTDDFYEAAAAAARLDWADTPD


F G WA A T L V D S L D T L Y I M G L K E E F E G A L E S L K K NI N F S K P N E

Y G WG A T L V $V$ D

F GWGATLVDSLDTLWIMGFKDEFEESVKAVQKIDWGAAS G
F G WA A QL V D A L D T L W M G L Q H D F Y L A V K E V A V T D W S K T R D


 VGMGW I V D ALLDTMI MMNLITSRVKHAREWIATSSLNYNAHH GGWAATVVDALLDTMWIMDMRPQFDEADVAAADTIDDFTKTA A S IF GATVI D A L D TLLI M G L N E E Y A D G R A WV A D N L H F DV S A

 S G WA AT L V D S L D T L W M G L K D EF NEADVNAAA GID F N S T S P








## UniRef90 C7Z1K1

 UniRef90-UPI0002C32C64 UniRef90-E3QWD4 UniRef90-M9M292 UniRef90_G2R391 UniRef90_S7ZUA7UniRef90-K3WLS3 UniRef90_C7YIF1 UniRef90-A0A016STV7 UniRef90_UPI0003F4953E UniRef90-A0A059CDD2 UniRef90-G1X7N0 UniRef90-M5C4X4 UniRef90_C4JV20 UniRef90-E9DZM5 UniRef90-F9FVM1 UniRef90_K2RJY5 UniRef90-B6Q3X1 UniRef90_U3JCE1 UniRef90-A0A016PF50 UniRef90_B6QIA0 UniRef90-D5GG24 UniRef90-H8X2C5 UniRef90-T1G6Q8
UniRef90-M3C574 UniRef90-M3C574 UniRef90_A0A010QC69 UniRef90_R7Z518 UniRef90-G2QM67 UniRef90-G2QW40 UniRef90-D3B8S4
UniRef90 UPIO002 UniRef90_UPIO002659C3B UniRef90-G9NUR2
UniRef90-Q1K8A8 UniRef90-G4ZNG8 UniRef90-G5EB12 UniRef90-M7X6L5 UniRef90-A8REBC3 UniRef90-I2JUZ2 UniRef90-W2SB24 UniRef90-UPIO004433C14 UniRef90_C5GPR7 UniRef90_UPIO004416F2E UniRef90-L7N2G3 UniRef90-M2ZTZ9 UniRef90-B2W1F8 UniRet90_G2X8D1
UniRef90_ROKA67 UniRef90-W3WLW6 UniRef90-E9EBV4 UniRef90-14Y|83 UniRef90-W9CAZ4 UniRef90-M2Z7Q8 UniRef90-M5G9W9 UniRef90-V4B4T7 UniRef90-H2WKN2 UniRef90_W9WWG0 UniRef90_G2QNW2
UniRef90 L8FT96 UniRef90-L8FT96
UniRef90-L7IM57 UniRef90_G9NW07 UniRef90-G2YZH8 UniRef90-GOSF33 UniRef90_UPIO00444A757 UniRef90-G0RLS8 UniRef90_B3RY07 UniRef90-J3P2Q0 Uniref90-T5ACB6
UniRef90-W7LNN5 UniRef90-C5G6G6 UniRef90_V5G6A8 UniRef90_UPI000233B981 UniRef90_UPI000456083D UniRef90-U1GES5 UniRef90_G9NI94 UniRef90_A9UY58 UniRef90_M1WCP7 UniRef90-K5XL36 UniRef90-M7T2Y1 UniRef90-FOZTI4 UniRef90-N4UZH8 UniRef90-C5FE05 UniRef90_G2WRU0 UniRef90-Q54PQ1
UniRef90_W9YU28 UniRef90-C1MYC5 UniRef90-B6QNN5 UniRef90-K4C757
UniRef90- M3BU02


AFDTPNHMP130
140
150
160

 AFDTPNRIPGFWLNFQNAKQGLQTAGTNDPSASPCSLSLE AYESRSGIPYASVNDGRRQGLPSHADGGSSTAEATT L AFDTPNHMPDARWNFQAAKEGKDQDAGGVLLAELGSLCME AFDTPTGDPYALVNPTTGSTKNYGWASGGCLSEFGSLQLE
 A YNSDSGLPYASVNLKTSKGDESHADGGSSTAETSTLQLE
 AFESESGVPYASVNLGKMQGLPSHADGGSSTAEATTVQLE AFDNPEHMPPHTIKFKTLKEGLGHPEPRQSAASLASMSME

 AFDTPNHMPITRWKFHEAGQGSNQVAGGVLVAEDGSLCME AFDTPNRMQVSRWDWKASLDAGTPMVAGNNTLLAEVGSGSME


 AYESMTG $\square P Y A S D N L K S R K G \square R S H A D G G S S T A E A T T T Q D E$ AFDTPNRMPDARWDLHAAARGAEQVAGKALLAEVATDSME GFDTANRMPVDNDDFAAAKAGSGLVVEDTVVAS PGTLTME AFPSDSPFPKTYLNFAKGTAK DPSWSGNCLIADVGTLEI E AF DTPPG
A



A F E S S G T G G P Y A S I N N L N K K S E G L
AFDTPNRMPD


A
A
S

## A

${ }^{\text {A }}$

## 

## S

## A

A
A
A
A






AFDNPARMPVNNFRFDLLAWSGNLMPSSREI SAAVGTMSME


A WN TP S G I P Y N R I N L A Y G N T N N P T W A R E N S I L D S G S EQQL
A F Q T K S G V P LDR EV D L Q T G E A F A D A D N N N S S L L A E A T T L Q L
A F E S K S G G MP YA S F N L









## UniRef90 C7Z1K1

 UniRef90-UPIOOO2C32C64 UniRef90-E3QWD4 UniRef90-M9M292 UniRef90-G2R391 UniRet90-K3WLS3 UniRef90_C7YIF1 UniRef90-A0A016STV7 UniRef90_UPI0003F4953E UniRef90-A0A059CDD2 UniRef90-G1X7NO UniRef90-M5C4X4 UniRet90-C4JV20 UniRef90-E9DZM5 UniRef90-F9FVM1UniRef90_K2RJY5 UniRef90-B6Q3X1 UniRef90-U3JCE1 UniRef90-A0AO16PF50 UniRef90-B6QIA0 UniRef90-D5GG24 UniRet90-H8×2C5 UniRef90-T1G6088 UniRef90-M3C574
UniRef90- A0A010QC69 UniRef90-R7Z518 UniRef90-G2QM67 UniRef90-G2QW40 UniRef90-D3B8S4 UniRef90-UPIO002659С3B UniRef90-G9NUR2 UniRef90-Q1K8A8 UniRef90_G4ZNG8
UniRet90-G5EB12 UniRef90-M7X6L5 UniRef90-B8P5V2 UniRef90_A2RBC3
UniRef90 12 JUZZ
UniRef90-12JUZ2
UniRef90_W2SB24 UniRef90_UPIOOO4433C14 UniRef90-C5GPR7 UniRef90-M4GF52 UniRee90-UPI0004416F2E UniRef90-L7N2G3 UniRef90-M2ZTTZ9 UniRef90-B2W1F8
UniRef90-G2 $2 \times 8 \mathrm{D}$ UniRef90_ROKA67 UniRef90-W3WLW6 UniRef90-E9EBV4 UniRef90-14Y183 UniRef90-W9CAZ4 UniRef90-M2Z7Q8 UniRef90-M5G9W9 UniRef90-V4B4T7
UniRef90-UniRef90-H2WKN2
UniRef90-W9WWG0 UniRef90-G2QNW2 UniRef90-G8FT96 UniRef90-L7IM57 UniRet90-G9NW07 UniRef90-G2YZH8
UniRef90 V9DMF0 UniRet90-GOSF33
UniRef90-UPIOOO444A757
UniRef90-G0RLS8
UniRef90-B3RY07
UniRef90-J3P2Q0
UniRef90-T5ACB6
UniRef90-W7LNN5
UniRet90_C5GGG6
UniRef90_V5G6A8
UniRef90-UPIOOO233B981
UniRef90_UPIO00456083D
UniRef90-U1GES5
UniRef90-G9N194
UniRef90-A9UY58
UniRef90-M2M4G4
UniRef90-M1WCP7
UniRefefo-K5XL36
UniRef90-M7T2Y1
UniRef90-FOZTI4
UniRef90-N4UZH8
UniRef90-C5FEE5
UniRef90-G2WRU0
UniRef90-054PQ1
UniRef90-W9YU28
UniRef90-C1MYC5
UniRef90_B6QNN5
UniRef90_K4C757
UniRef90_K4C757
UniRef9O_M3BUO2 69
C3B
14


170
-

## 

## レ - レ








| M |
| :---: |
| L |
| F |

## F F F M F M F F L F

F
4
$+$


## UniRef90 C7Z1K1

 UniRef90-UPI0002C32C64 UniRef90-E3QWD4 UniRef90-M9M292 UniRef90_G2R391UniRef90_S7ZUA7 UniRef90_K3WLS3 UniRef90_C7YIF1 UniRef90-A0A016STV7 UniRef90_UPI0003F4953E UniRef90-A0A059CDD2 UniRef90-G1X7N0 UniRef90-M5C4X4 UniRef90-C4JV20 UniRef90-E9DZM5 UniRef90_F9FVM1
UniRef90_K2RJY5 UniRef90-B6Q3X1 UniRef90_U3JCE1 UniRef90-A0A016PF50 UniRef90-B6QIA0 UniRef90-D5GG24 UniRef90-H8X2C5 UniRef90-T1G6Q8
UniRef90-M3C574 UniRef90-M3C574
UniRef90-A0A010QC6 UniRef90-R7Z518 UniRef90_G2QM67 UniRef90_G2QW40 UniRef90-D3B8S4 UniRef90_UPIO002659C3B UniRef90-G9NUR2 UniRef90-Q1K8A8 UniRef90-G4ZNG8 UniRef90_G5EB12 UniRef90-M7X6L5
UniRef90_B8P5V2 UniRef90-A2RBC3 UniRef90-I2JUZ2 UniRef90-W2SB24 UniRef90-UPIO004433C14 UniRef90_C5GPR7 UniRef90_UPIO004416F2E UniRef90-L7N2G3 UniRef90-M2ZTZ9 UniRef90-B2W1F8 UniRef90_G2X8D1
UniRef90_ROKA67 UniRef90-W3WLW6 UniRef90-E9EBV4 UniRef90_14Y|83 UniRef90-W9CAZ4 UniRef90-M2Z7Q8 UniRef90-M5G9W9 UniRef90-V4B4T7 UniRef90-H2WKN2 UniRef90_W9WWGO UniRef90_G2QNW2
UniRef90_L8FT96 UniRef90-L8FT96
UniRef90 L7IM57 UniRef90_G9NW07 UniRef90-G2YZH8 UniRef90_GOSF33 UniRef90_UPI000444A757 UniRef90-G0RLS8 UniRef90-B3RY07 UniRef90-J3P2Q0 UniRef90-T5ACB6
UniRef90-W7LNN5 UniRef90_C5G6G6 UniRef90_V5G6A8 UniRef90_UPI000233B981 UniRef90_UPIO00456083D UniRef90-U1GES5 UniRef90_G9NI94 UniRef90-A9UY58 UniRef90-M2M4G4 UniRet90_M1WCP7 UniRef90-M7T2Y1 UniRef90-FOZTI4 UniRef90-N4UZH8 UniRef90-C5FE05 UniRef90_G2WRU0 UniRef90_Q54PQ1
UniRef90_W9YU28 UniRef90-C1MYC5 UniRef90-B6QNN5 UniRef90_K4C757
UniRef90-M3BU02

AYTPTFHAG Ti DFTLGGMSD ${ }^{220}$ E Y|L|P K Q Y|L ${ }^{230}$ $Y|L P K Q Y| L L D N G Q V D Q P R$ PNTGEFSGNN DRLGSRGDSYYEYLDKVWLQKGPNREYDY
 FHDETVDDDNGFTLGALADSLYEYLPKMAALLGGRVPSYE

$P$ GQVA
PHS GQFSGEN
ANNGKFRGRE
NANDGNFYYS
NANDGNFYYSDLRLGSRGDSYYEYLLKQYLQTNRTEPVYA

AEDGFKVTDDTFGMGANGDSLYEYLI KEYVLLQGLEPKYG
AKTADFTQDTFFTLGGMSDSLYEYFPKTYALLGGLAPVYR
FANCMGDSLSFSNRDFTLD
$P$ VTGSWVQHHVS
AKSEDFNQGTIFTLGAMAD

PSTGRWGQRHTS
GRDADFTQDTYGTLAMGD
SAMS
GRDADFTQDTYFTLSAMSD
$P D V G R F R D S N D R L G S R G D$
$G K T A V F N S G N F A L G A M A D$
GKTAVFNSGSVFALGAMADSAYE

 M N A K DVVVQ GS T FT LGGGCA D S L Y E Y L P K M H Q L L G G G E P K Y D
A G R G K F D G G
$L$ Q K G D L $\quad$ T R G
$P$ D T G S F V
$P D D G K F$
$P E T G E F$
P $\square K G K F K S$



$K C W L \quad L \quad$ I $G$ C $Y$ G


MS GK DVS S GNVF T L G GCA D

AK DKK F T DYGGFTIIGGMA D
$P E T G E F \quad Y D S E V R L G G S R G G$

NAK E $\ddagger$ SWD Y N HF TMMGGMA D S



M N Y D E E MLEE S H Y S I A G S A D S Q Y E Y L VK M H P L L G G L D T E Y P



| $L$ | $R$ | $S$ | $L$ |
| :--- | :--- | :--- | :--- |
| $P$ | $L$ | $G$ | $F$ |

I S S GN W $\ddagger$ IS Q S V V I $\quad$ GA M G D
 $N Y$ Y R N E T V D A Q V F S L L G A G S D S L

 $T Q T P S F T R D R R F T F G S$ | $P$ E S G Q F R G E N |
| :--- |
| $L T$ | $\qquad$ PHTGHF YMSD\|RLGSRGD AD TGSFRGEN $\| R L G S R G D$


 $M D R M D V S S R R E F S$ G $\operatorname{MA}$ G GA D

## 

R D A K N F C S
P EKK KVFHQ GDAFT LGAMA D
AQAMNFHESTRFTIGGMADS
LN Y R K M LA
Q D A N G F C G
PANGEFRG
P GK LK W S S
AKTLNFHEF
$\begin{array}{ll}P & G K A V V Y S \\ A D K G T & G \\ R G Q N\end{array}$

## UniRef90 C7Z1K1

 UniRef90-UPIOOO2C32C64 UniRef90-E3QWD4 UniReffo-M9M292 UniRef90-G2R391 UniRet90-K3WLS3 UniRef90_C7YIF1 UniRef90-A0A016STV7 UniRef90_UP10003F4953E UniRef90-A0A059CDD2 UniRef90-G1X7N0 UniRef90-M5C4X4 Uniinefoo-C4JV20 UniRef90-E9DZM5 UniRef90-F9FVM1UniRef90-K2RJY5 UniRef90-B6Q3X1 UniRef90-U3JCE1 UniRef90-A0AO16PF50 UniRef90-B6QIAO UniRef90-D5GG24 UniRet90-H8X2C5 UniRef90-T1G6088 UniRef90-M3C574
UniRef90-A0A010QC69 UniRef90-R7Z518 UniRef90-G2QM67 UniRef90-G2QW40 UniRef90-D3B8S4 UniRet90-UPI0002659C3B UniRef90-G9NUR2 UniRef90-Q1K8A8 UniRef90-G4ZNG8 UniReffo-G5EB12 UniRef90-M7X6L5 UniRef90-B8P5BC3
UniRef9O-A2RBC3 UniRef90-I2JUZ2 UniRef90-W2SB24 UniRef90-UPIOO004433C14 UniRef90-C5GPR7 UniRef90-M4GF52 UniRef90-UPI0004416F2E UniRef90-LTN2G3 UniRef90-M2ZTZ9 UniRef90-B2W1F8
UniRef90-G2X8D UniRef90_ROKA67 UniRef90-W3WLW6 UniRef90-E9EBV4 UniRef90-14Y183 UniRef90-W9CAZ4 UniRef90-M2Z7Q8 UniRef90-M5G9W9 UniRef90-V4B4T7 UniRef90-H2WKN2 UniRef90-W9WWG0 UniRef90-G2QNW2
UniRef90 L8FT96 UniRef90-L8FT96
UniRef90-L7M57 UniRef90_G9NW07 UniRef90-G2YZH8 UniRef90_V9DMFO UniRef90-GOSF33 UniRef90-UPIOOO444A757 UniRef90-GORLS8 UniRef90_B3RY07 UniRef90-_3P2Q0 UniRef90-T5ACB6
UniRef90-W7LNN5 UniRef90_C5G6G6 UniRef90_V5G6A8 UniRef90-UPIOOO233B981 UniRef90_UPIO00456083D UniRef90_U1GES5 UniRef90-G9N194 UniRefol-A9UY58 UniRet90-M2M4G4 UniRef90-M1WCP7
UniRef90-K5XL36 UniRef90-M7T2Y1 UniRef90-FOZTI4 UniRef90-N4UZH8 UniRef90-C5FEO5 UniRef90-G2WRU0 UniRe90_-O54PQ1
UniRef90_W9YU28 UniRef90-C1MYC5 UniRef90-B6QNN5 UniRef90_K4C757
UniRef90_M3BU02

QLY
270
280
QLYEN F|IPVAMKHLFRRALT PWEKP|IGEQPKYSS|V|PRGQH DMYEEAMKGVKHRLVRKSIPNGLVFIGELPYGAFSPKMDH
 R M Y S D A $\square E$ GAK K LL I S R $\square D T V P G V T$ VGELS GSRYTA K LIE H K MYRAAMRVAKEHLLFRPMVAEHDEEGHPDH【DHVPEGQH EMWE EA LAA GI QK HLVVTTTKHSNLKF DAELPGGKLSPMMD H N Q Y IV A V N GIMD QLVAK S KP S GLVVF GELVDGHLSSPKMD H TMYEKAMDTALLQHNLFRPMTPENDDILI SGQ IHAKNKDQH NEYDAAVFAMEKKMLFESQQQKLWYFANLRGSRVEHKMEH
 DMYSEAMKGVHNRLVRKSVPNGLVFVGELPNGAFSPKMDH EMYHEAMAGVQKHLVKKSHPSGFTGIAELPGTTVSPKMDH EMY D R A MVA I H K NL V F K TP L L N K LT Y I A ELLEK WRIS P K Q D H E LY Q H A MEAI K RHMLYRPMTDGGEDI LF S GS IWWADS KTQH QMWDEALEGVRKHLITYYTEPTGYTII GERPS GLDSPKMDH K M Y L A A A D A GI K HL MF RPMLPE QD DVLMLGEASFPPRVEH S F Y ER S M K T A DIE S L DF K P MV P N D A DI LAA A G S V R T S P E WQ H EMYR $\square A L P S F R R H L$ FFRPSLDGEPDI ANNGSAKLDTA AQH K MYD DALEA IEKHLVKKSAGGL TYI AEWRGG LLDHKMGH TMYEKAVDSALDKLNLFRPMTP ENRDI DGRDSFELESSQGQH RMYEK S I E P I K K N L L F R P MVVK DNVVDI GTRN G N T L D Y E G Q H D MYNAAMSGVKKHLIAAKSHPSHLTFIAELPGGELSPMMDH DLYRESVEGVRKHLVKKSYPNGLTFIGELDGGPFSPKMDH

 EMWDEALTGVRRKHLI TYSYPSNFTVLAERPTGLDSPKMDH RMYEKAVDAAVKHNIFRPDTPADEDIAKEHG\|EDSEPQGQH TLTRGFMDAAKQHLFFRPMVPDNDDILISGNPRLDPETE H RMY LIEAVEAMHETLYTVS PKGEGYLS! DYGRENSHTMEH


 DMHNEAMGGIKK LLLLKKSATKGLMYVSELLPRRDTPRQDH D MYDDAMTAVHTHLIKKSEEEGLTYTAEII TWRMDPKQDH
 QLYE T S M A T V DK E M L D QLL L L L F Q A I E T H L L L Q K S Q E G L
 EMYDDAMNADHNHLDQKS ITGNEDYTAELISWRLTP KQDH EDYMQA IIE GVKKNLLQRKSHPNQLTFVGELAHGHFSPKMNH D M WQE S L H G I E Q H L L VP T K N S K L L M V A E L P G GP L S P K M D H RMYDYAMTTVIDDHSLFRPMVEDKADILVTSSVRRSSSGQH D MYAHAASTTRDHLLFRPMTPDSDDILLLSTVAHVAEMEH K M Y EK S M N A A DE N TLLFRPSNP QNDDML MSTR KE LDDPVME H TMSRGFMNAANEHLFFRPMVPSQED LLDS GNADYDP QSE H DMYTRSMEAANEHLFFRPMTPTSEDIVDSRKKELRPASGH EMYDEACKGDKRHLVK DSQGPKKLI HDNRPEYRPYNKQDH RMYEFA I DAMKRNI FYRPMTKNGEDVRLP GNVDSD GKTQH K M Y L R S M Q T A DKY NLWK P MT PEDA D L L L S G NPR L E P Q G Q H QMYDDAMTEMDQFLIHRTVKSNLTFTAEMHSWRLAAK QDH
 HMYEEA I D TAKRHLFFRPLVPGGEDLLDS GNANIEPQGQH NMYRAAMDASARHLLFRPMVPDDDFAGDAYAYRDRPQGQH K MYEKFMPVAKKHLEFRRPLNPDNLDVLVS GEVRVTPEGQH KMYEDF LGVVAKKYLLKRVLNRHNEPLISSGDIRYSPRAQH EMA $\square$ K ALDTIRDNLLIFRPMTPGDANIDNTRNATFTAKMDH K M Y R T A L S T I N K HLVVFRPNLPGDPDD DNSGKP LLLTA Q DQ H
 $K L H V D A M Q A A A R Y L L F R P M P P P P T A Y V S G H T Y T L R P E V Q H$ D MY DY TMDA $\square H$ SHLV QK SMES G LTTY T SE L M S WRLMP K QD F
 K MAKYMLDTARKHILFRPMVPDKVDI LIFSGEVIANTEMQH

 DMYEKAIV VAKKHI FFRPMTKDSDYI GGTTMVTLRPEGQH
 EMWEKSMKG LQQSLI WRSTPSFTCLXXRQGNAAFD XMDE
 E M WNESLE GI KK HLLLTYSKRASLTVLAERQNSPMTPKMDH
 E GREAFDDAMKRNVLTRKSSSGLTVVAEAKGTRLVHKMGH AMWNESLAGDKKHLLTYSSPSNFTVLAERPNGNIVPKMDH A MTESFMEAATTHLFFRPMVPGNVDVSDDGDTPLDPESGH DMY LDDAMS SVQQTHLGRKT QSGGLTYTSEDQQSWRLVP K QD H MMARGFMETAKQTLLFRPMVPGNES ILISSSGWVDPDGDH RYFETSADSI IE HLYRETKAGYGGI GTLNDNVLLVNEDH S MYENFVGGPAYEHNLFRPMTPTNEDIARPDGGELEPQGQH
 RLIVVISADSIIEHLYKVS PKGDGYLSAMDHNSLTNDQEH
 D M WDE SMRAMLLEHLVFP GEEE GTKYVAEWN GRAH HKMDH $\square L Y$ LLGA LAASMKHHI FFRPMTKDWYDHDGVARPRDEPKAQH


UniRef90 C7Z1K1 UniRef90_UPIOOO2C32C64 UniRef90-E3QWD4 UniRef90_M9M292 UniRef90-G2R391 UniRef90-STZUA7
UniRef90 K3WLS3 UniRef90- C7YIF1 UniRef90-A0A016STV7 UniRef90_UPIOO03F4953E UniRef90-A0A059CDD2 UniRef90-G1X7NO UniRef90-M5C4X4 Unirefotoc4JV20 UniRef90-E9DZM5 UniRef90-F9FVM1
UniRef90_K2RUY5 UniRef90-B603X1 UniRef90-U3JCE1 UniRef90-AOAO16PF50 UniRef90-B6Q1A0 UniRef90-D5GG24 UniRef90-H8X2C5 UniRef90-T1G6088 UniRef90-M3C574 UniRef90-A0A010QC69 UniRef90-R7Z518 UniRef90-G2QM67 UniRef90-G2QW40 UniRef90-D3B854 UniRef90-UPIO002659С3B UniRef90-G9NUR2 UniRet90-Q1K8A8 UniRef90-G4ZNG8 UniReffo-G5EB12 UniRef90-M7X6L5 Uniref90-B8P5BC3
UniRef9O-A2RBC UniRef90-I2JUZ2 UniRef90-W2SB24 UniRef90-UPIOO004433C14 UniRef90-C5GPR7 UniRef90-M4GF52 UniRe990_UPI0004416F2E UniRef90-LTN2G3
UniRef90_M2ZTZ9 UniRef90-B2W1F8 UniRef90-G2X8D1
UniRef90-ROKA67 UniRef90-W3WLW6 UniRef90-E9EBV4 UniRef90-14Y183 UniRef90-W9CAZ4 UniRef90-M2Z7Q8 UniRef90-M5G9W9 UniRef90-V4B4T7 UniRef90-H2WKN2
UniRef90-W9WWGO UniRef90-G2QNW2 UniRef90-G8FT96 UniRef90-L7IM57 UniRef90_G9NW07
UniRef9O-G2YZH8 UniRef90-V9DMFO UniRef90-GOSF33 UniRef90_UPI000444A757 UniRef90-GORLS8 UniRef90_B3RY07 UniRef90-_3P2Q0 UniRef90-T5ACB6
UniRef90_W7LNN5 UniRef90-C5G6G6 UniRef90_V5G6A8 UniRef90-UPIOOO233B981 UniRef90_UPIO00456083D UniRef90-U1GES5 UniRef90-G9N194 UniRet90-A9UY58 UniRef90-M2M4G4 UniRef90-M1 WCP
UniRef90-K5X 36 UniRef90-M7T2Y1 UniRef90-F0ZTI4 UniRef90-N4UZH8 UniRef90-C5FE 05 UniRef90-G2WRUO UniRef90-O54PQ1
UniRef90_W9YU28 UniRef90-C1MYC5 UniRef90-B6QNN5 UniRef90_K4C757
UniRef90_M3BU02

LIT CFAGGMVIAMASRTFNRPADLLE\|ATQLLEGCVWSYHATG LVCFLAGTLALGATNFEDLENLNLAEDLAETCFQMYSVTS VSCFAGGMMGLGGKDFADDSHVELGNRLARGCAWAYDAMP LSCFTGGMFALGGKLFNVPDHVAIGERLARGCAWAYDAFP LVCFMPGSMALGATVGKKEEQMKLAKELMKTCWAMYAVTE LVCFLGGMMALGGRLENREQDIDAAVK LTNGCDYTYQAFP
 LVCFMPGNLLLGATNGREEGYLTLSRELMRSCYEMYNVTA LVCFLGGSLQLGVTEGAKKRDWKLGEELTRTCMATHQTK VVCMPGTVALGATGGKKEDEMKLARELMQTCWGMYKVMA VCFAGGMFALGGRLFEDDDHVTVGQKLTDACIWTYKAFP GCFVGGMVGLGAKINESPAELETADK TNGCVWAYENTP LACFSGGMLALGAQEERRQRHMGLAAEATSTCHESYARSE VTCFIGGMFAAGGKGFDRPEDLKAAEQLVKGCDWAYDAFP LVCFYGGLLAVGATNGERASDFKFGEELTYTCYKMYHDSP LACFTGGMLGLGAEHSDDKKHMKVAKDGGKTCYESYDRTA LVCFMGGLLALGGKLFHHPDEVSVARKLVDGCVYAYKSFP LVCFMPGTIA A AVTGGGQEEAMNLAKELMKTCMGMYKVTP LACFWGGMMALAARGFGRDEDMEPARKLVEGCVWTYRAFP LACMAGGMFALGVDDKLNKKHFEMAEQVTKTCVNSYFNSK LTCFAGGLDGGLASTYYQDRKYLRMGAELTSTCHQSYNRSD
-
 LACFVPGLMYALGTLHAKNAKHLELUAEKLMETCYQFYHRQP VVFLGATFLLGASNSNTGPDWVAGKGLDRTCVDYYTNS LVCFYPGTIALAATGGRPEEETLLARELTKTCWATYLITK LVCFFGGLFALGATDGDPDRQLKLGKELTETCYHMYHDVP LACFSGGMIALGAEMGKRNHYMELAAQTKTCHESYDRTE LVCFAGGMFALGSRLFDDPSHMDUARKLTDGCDWTYKATP ACFIGGSLMLGALTDQGKRDWKSGVELVRTCWNTHDTA VCSLNPGFCSTSVTLGPPMSNWDLGIVLCWTGLRVY WEK LVCFLPGADAGGATNGQKSKEMHLARELMKSCHAMYKVTK LTCAGGMFALAGRLDERPDDVDVGAKLARGCAWAYASTD LACYTGGMFALGGKVEENEEHVDLGRKLAGACVWGYKASP LTCFTGGMLAFGGKLISSNDHLAWADKLTNGCVWAYRSFT LVCFDPGLLMLGVHQGQEHENWWVGTELDKTCYDTYNSTE LGCFAGGMVAIGAKMFENEKDLELARKLTEGCLWAYENMP LACFLAGSLMLGVTEGQDKRDWRNGEELDKTCMATHD T I LACFSGGMLALGANYSDPPKYGKGGEEAKTCHESYDRSA

## L

TCFVGGMDGMASKIFNRPDELACAEKLTNGCVWAYESQD
LTCFAGGMVGMGAKLENKPDDLDUALQLTDACVWAYNSTA GGFTGGMIGLGSRISQSPSEMETADKLTKGCVWAYEATP LACFVAGMVG| GARIFSRPDDVDVAHRLVDGCVWAYDAMP VVCFFGGSLMLGATRTGSLVHWRTGAELDKTCMATHDTK ACFSGGMFALGAKGAPKKMYLNLGREGGNCHESYDRTA LSCFVGGMYALSGKLLAFEDGVATGARLARGCAWAYSAFP LTCAGGTYGLAGRLLGRRHYVDLASRLAAGCVWAYDSFP LTCFVGGTYALAGKLLSRSDFVDLGSRLTAGCVWAYDAFP LVCFMPGTIALGATGGKPDEEILLAKELMKTCWATYLATK LACFVPGMLALGSSNGEAEKFMALAEELAWTCYNFYQLTP LVCFLGGAMMLGAVSASEAHDWRLGHELVRTCVDTYQKTK VVCFLGGLFTLGGKGFSRPQHLSAAAKLVDGCDWTYNALD
LACFASGMFSLGDEQEWADWYLDTAAGVANTCHEGYDRTP
LVCFMPGTDALATTGGMQEEDIRLLAEELMKTCWGMYTVTP LVCFMGATMALGGRLLDQPGHVETGAKLAKGCAYAYASFP
LACYLGGTYALAGKMFRNPEYVEIGAKLTLGCVYAYRAFP LTCFVGGMFALAAAVEKNEDYMEVGREVTRTCADSYFKSP LVCFLGGLLALGGKLFSRARDVDDGRKLVDGCVYSYKSFP
SCFAGGMVALAAKAFENSEDMETARKLVEGCLWGYEKSS LACFAGGMFALAADDKKSAKYMEVGEMITKTCVKTYKTFP LVCFMPGTHALAVTGGQHDENLKLAEELMKTCWGMYKVTP LACFVGGMLVLGAHGSDMKEYVAAAAETKMCYRMYTSQP LGCFAGGMVALGAKVFGYPEDLSVARKLVDGCDWGYENAP
LACFAPGMLALGSSGYGPQKFLSLAEELAWTCYNFYQSTP

UniRef90 C7Z1K1 UniRef90-UPIOOO2C32C64 UniRef90-E3QWD4 UniRef90-M9M292 UniRef90-G2R391 UniRet90-K3WLS3 UniRef90_C7YIF1 UniRef90-A0A016STV7 UniRef90_UP10003F4953E UniRef90-A0A059CDD2 UniRef90-G1 X7N0 UniRef90-M5C4X4 Uniinefoo-C4JV20 UniRef90-E9DZM5 UniRef90-F9FVM1
UniRef90-K2RJY5 UniRef90-B6Q3X1 UniRef90-U3JCE1 UniRef90-A0AO16PF50 UniRef90-B6Q1A0 UniRef90-D5GG24 UniRet90-H8X2C5 UniRef90-T1G6088 UniRef90-M3C574 UniRef90-A0A010QC69 UniRet90-R7Z518 UniRef90-G2QM67 UniRef90-G2QW40 UniRef90-D3B8S4 UniRef90-UPIO002659С3B UniRef90-G9NUR2 UniRet90-Q1K8A8 UniRef90-G4ZNG8 UniRef90-G5EB12 UniRef90-M7X6L5
UniRef90-B8P5V2 UniRef90-A2RBC3 UniRef90-I2JUZ2 UniRef90-W2SB24 UniRef90-UPIOOO4433C14 UniRef90-C5GPR7 UniRef90-M4GF52 NiRef90 $\llcorner 7 \mathrm{TN} 2 \mathrm{G} 3416 \mathrm{~F} 2 \mathrm{E}$ UniRef90-M2ZTZ9 UniRef90-B2W1F8 UniRef90_G2X8D1
UniRef90_ROKA67 UniRef90-W3WLW6 UniRef90-E9EBV4 UniRef90-14Y183 UniRef90-W9CAZ4 UniRef90-M2Z7Q8 UniRef90-M5G9W9 UniRef90-V4B4T7 UniRef90-H2WKN2 UniRef90-W9WWG0 UniRef90-G2QNW2
UniRef90 L8FT96 UniRef90-L8FT96
UniRef90-L7M57 UniRef90_G9NW07 UniRef90-G2YZH8
UniRef90 V9DMF0 UniRef90-GOSF33 UniRef90_UPIOOO444A757 UniRef90-GORLS8 UniRet90_B3RY07 UniRef90-_3P2Q0 UniRef90-T5ACB6
UniRef90-W7LNN5 UniRef90_C5G6G6 UniRef90_V5G6A8 UniRef90_UPIOOO233B981 UniRef90-UP10000456083D

```
UNRef90_U1GES5
```

UniRef90-G9N194
UniRet90 A9UY5
UniRefol-A9UY58
UniRef90-M2M4G4
UniRef90-M1WCP7
UniRefefo-K5XL36
UniRef90-M7T2Y1
UniRef90-FoZTI4
UniRef90-N4UZH8
UniRef90 C5FE05
UniRef90_G2WRUO
UniRef90-054PQ1
UniRef90-W9YU28
UniRef90-C1MYC5
UniRef90 B6QNN5
UniRef90_KKQNN5
UniRef90_K4C57
UniRef90_K4C757
UniRef9O_M3BUO2


UniRef90＿C7Z1K1 UniRef90＿UPIO002C32C64 UniRef90－E3QWD4 UniRef90－M9м292 UniRef90－G2R391 UniRef90＿STZUA7
UniRef90 K3WLS3 UniRef90－C7YIF1 UniRef90－A0A016STV7 UniRef90＿UPI0003F4953E UniRef90－A0A059CDD2 UniRef90－G1 X7N0 UniRef90－M5C4X4 Uniinefoo－C4JV20 UniRef90－E9DZM5 UniRef90－F9FVM1
UniRef90 K2RJY5 UniRef90－B6Q3X1 UniRef90－U3JCE1 UniRef90－A0A016PF50 UniRef90－B6QIAO UniRef90－D5GG24 UniRet90－H8×2C5 UniRef90－T1G6Q88 UniRef90－M3C574
UniRef90－A0A010QC69 UniRef90－R7Z518 UniRef90－G2QM67 UniRef90－G2QW40 UniRef90－D3B8S4 UniRef90－UPIO002659C3B UniRef90＿G9NUR2 UniRef90－Q1K8A8 UniRef90－G4ZNG8 UniReffo－G5EB12 UniRef90－M7X6L5 Uniref90－B8P5BC3
UniRef9O－A2RBC UniRef90－I2JUZ2 UniRef90－W2SB24 UniRef90－UPIOO04433C14 UniRef90－C5GPR7 UniRef90－M4GF52 UniRef90－UPI0004416F2E UniRef90－L7N2G3 UniRet90－M2ZTTZ9 UniRef90－B2W1F8 UniRef90＿G2X8D1 UniRef90－W3WLW6 UniRef90－E9EBV4 UniRef90－14Y183 UniRef90－W9CAZ4 UniRef90－M2Z7Q8 UniRet90－M5G9W9 UniRef90－V4B4T7 UniRef90－H2WKN2 UniRef90－W9WWGO UniRef90－G2QNW2
UniRef90 L8FT96 UniRef90－L8FT96
UniRef90－L7M57 UniRef90＿－G9NW07 UniRef90－G2YZH8
UniRef90 UniRef90－GOSF33 UniRef90＿UPIo00444A757 UniRef90－GORLS8 UniRef90－B3RY07 UniRef90＿－J3P2Q0 UniRef90－T5ACB6
UniRef90－W7LNN5 UniRef90－C5G6G6 UniRef90＿V5G6A8 UniRef90－UPIOOO233B981 UniRef90＿UPIO00456083D UniRet90＿U1GES5 UniRef90－G9N194
UniRet90 A9UY5 UniRef90－M2M4G4 UniRef90－M1WCP7 UniRefo $90-\mathrm{K} 5 \mathrm{XL} 366$ UniRef90－M7T2Y1 UniRef90－FoZTI4 UniRef90＿N4UZH8 UniRef90＿G2WRU0 UniRef90－O54PQ1 UniRef90－W9YU28 UniRef90－C1MYC5 UniRef90＿K4C757 UniRef90＿M3BU02

## － <br> ー <br>  <br> \section*{ <br> <br> \section*{F F F F

} <br> <br> ー} <br> <br> ー}370
380
390
400
 FVLYRITEDPKYREWGWQDFEAFEKYTRVDTGGYSSLDDV FLLYRMTGQEDLQDDA WNMFQSVMKATKTEFANSADADVT FLDYRMTGKEDLRDLAWRMFEAVMGATKTA LANSAIADV FLMFRVTNDPDYRKWGWKDFNAFQKHTLVDGEGYTSLNDV MIMYRVTKNEKYRVYGREIMRAFEKHCKLETGGYMSIGNV FMLYRVTGKAEFAEHAWTMFKATEEATKTEDANTAVWDVT FYLWRITKQDKYREWAWNVVLALEKHAKVEAGYSGIRDV FLAYRLTGEEKYREYGWSI FQAFQRYCRVKKGGYAGVEDV LFLYRITEDPKYREWGWQI FEAFENYTKVDTGGYSSLDDV FLMWRMTGDEDYREWGWKIFKAFMKHTTVEGGGFTSLNTV FI LYRITGNPSLPDKAWRMFNATVKSTITDDGHAALEDCT F YMWRI TGDVRYREWGWEMFESFVNYTAVEDEGGFTSLSN FYLYRITGNEEFRDDA WNMWTSIRAAAETDNAFAAVEDVG
 MYLWRLT FMMYRIT YIMYRITGEHEYTEHAWTMFKAIEEATKTELANTAVWDVT FVMWRITGDEKYQEAAWRMFSSDEKMTRTAGAAHASIKDV FYLYRLTGDVKYRKWGYEIFQNFILKYRVVNEHFTSLSDV FYLWRLTKNNMYREWGWQAAQALEKHCLIJDGGYTGIKDV FILYRIGQEYLLDRAWEMFGSIVNATETHDANAALADVT FYMWRATADTTLLDSAWDMFSSIDNATSTKLANTA VWDV

##  <br> F

E

$\begin{array}{lll}L & Y & R \\ F & L & L \\ F & T & G \\ F\end{array}$
$F$
$F$

## F

## 

## 

| $F$ | $L$ | $Y$ | $R$ | $G$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $F$ | $A$ | $R$ | $R$ | $L$ |




## $\stackrel{F}{F}$

F YM M WRITTG

| F | $I$ | $M$ | $Y$ | $R$ | $L$ | $T$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $F$ | I | M | Y | R | I | T |

$\begin{array}{llllllll}F & L & Y & R & T & G \\ F & Y & M & R & I & T & G \\ F & Y & L & W & F & T & G\end{array}$
F YMYRIT

F Y M WRRTH D Q K Y R D WA WD A A Q S I E K Y CR C G V G Y C GI K DV F Y M WR ITT | $F$ | $L$ | $Y$ | $R$ | $l$ | $T$ | $G$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $F$ | $A$ | $A$ | $R$ | $L$ | $T$ | $G$ |
| $F$ | $M$ | $Y$ | $R$ |  | $T$ | $G$ |



$F$
$F$
$F$
$F$
$V$

| $F$ | $Y$ | $M$ | $W$ | $R$ | $G$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $F$ | $I$ | $L$ | $Y$ | $R$ | $G$ |
|  | $G$ |  |  |  |  |



UniRef90 C7Z1K1 UniRef90-UPIOOO2C32C6 UniRefefo-E3QWD4 UniRef90-G2R391 UniRef90-STZUAT
UniRef90 K3WLS3 UniRef90 C7YIF1 UniRef90 A0A016STV7 UniRef90_UPIOOO3F4953E UniRef90-A0A059CDD2 UniRef90 G1X7N0 UniRef90-M5C4X4
UniRef90 ${ }^{-}$C4JV20 UniRef90-E9DZM5 UniRef90-F9FVM1 UniRef90-K2RJY5 UniRef90_B603X1 UniRef90-A0A016PF50 UniRef90-B601AO UniRef90_D5GG24 UniRef90_H8X2C5
UniRef90-T1G6Q8
UniRef90
M3C574 UniRef90 ${ }^{-}$A0A010QC69 UniRef90-R7Z518 UniRef90-G2QM67 UniRef90-D3B8S4 UniRef90_UPI0002659C3B UniRef90-G9NUR2 UniRef90-Q1K8A8 UniRef90-G4ZNG8 UniRef90-G5EB12 UniRef90_B8P5V2 UniRef90-A2RBC3 UniRef90-12JUZ2 UniRef90 UPIO004433C14 UniRef90-C5GPR7 UniRef90-M4GF52 UniRef90 UPI0004416F2E UniRef90-LTN2G3
UniRef90- M2ZTZ9 UniRef90-B2W1F8 UniRef90-G2X8D1 UniRef90-ROKA67 UniRef90 W3WLWE UniRet90_E9EBV UniRef90-I4YY 183
UniRef90_W9CAZ4 UniRef90-M2Z7Q8 UniRef90-M5G9W9
UniRef90-V4B4T7
UniRef90-H2WKN2 UniRef90-G2QNW2 UniRef9-L8FT96 UniRef90-G9NW07 UniRef90-G2YZH8 UniRef90-V9DMFO
UniRef90 UPI0000444A757
UniRef90-GORLS8
UniRef90_B3RY07
UniRef90_33P2Q0
UniRef90-T5ACB6
UniRef90
W7LNN5 UniRef90 C5G6G6
UniRef90-V5G6A8
UniRef90-UPIOOO233B981
UniRet90_UPIO00456083D
UniRef90 U1GES5
UniRef90-G9N194
UniRef90-A9UY58
UniRet90_M2M4G4
UniRef90- M1WCP
UniRef90-K5XL36
UniRef90 M7T2Y
UniRef90-N4UZH8
UniRef90-C5FE05
UniRef90 G2WRUO
UniRef90- ${ }^{-554 P Q 1}$
UniRef90-W9YU28 UniRef90-C1MYC5 UniRef90 B6QNN5
UniRef90-K4C757
UniRef90- Мзв

DNTEAHP|L
 FTTEAHPLLV
LNTEAHPLR
FNTEAHVLPRF
FNTEAHPFPM
FNTEAHP口R
FNTEAHPFPV FNTEAH円FPVF FNTEAHPLPLI FNTEAHPLPVF LNTEGHPLK FNTEAHPGR
LNTEAHPFRD LNTEAHPFR FNTEAHPLR LNTEAHPFR FNTEAHPFPKF LNTEAHPLPR FNTEAHPFRRW FNTEGHPFPRF FNTEAHPF LNTEAHPFR FNTEAHPDPD DNTEAHPFKL FNTEAHPFK FNTEAHPLRI
 FNTEAHPFPIF FNTEAHPFP LNTEAHPFK
FNTEAHPGPV
LNTEAHPR
LNTEAHPFR LNTEAHPFR

FNTEAHVLP
FNTEAHPFRV
FNTEAHPFK
FNTEAHPFK
FNTEAHPFK
FNTEAHLEPDF
LNTEAHPLR
FNTEAHPLPDF
FNTEAHPLPI
FNTEAHPFR
FNTEAHPFR
LNTEAHPFK
LNTEAHPLK
FNTEAHPFR
LNTEAHPRR
$L N T E A H P L R$
FNTEAHPFRTI
FNTEAHPGPIF
FNTEAHPLDK
FNTEAHPGPV
LTEAHPFR
LNTEAHPGR
FNTEAHPF
FNTEAHPMPRF
FNTEAHLLRAR
ПNTEGHDFPR
FNTEAHPFR
FNTEAHPVPD
■NTEAHPFR
LNTEAHPFR
DNTEAHPF
LNTEAHPLLI
FNNEAHPRRW
FNTEAHPFR
FNTEAHPFR
LNTEAHPFK
FNTEAHPDLI
FNTEAHPFPKF
FNE
FNTEAHPFPK
FNTEAPRKV
FNTEAHPRKM
FNTEAHPVIK K K K
FNTEAHPFPK

A R L G DVVRKTFQDNWESYRRFAWKKDA LLD|ISAGSRQF RLRAIIKDAAKHAWKGYRDFGWGFDEVAPVSGVGKNF
 ARLLEI K EAMVHSWRGYRENAWLQDELAPVTGGSRKT RQRAVKKAFQHAWKGYRNNAWLEDELSPLTGGHRET WDDRAEKVKEAFKTSFAGYKKYGWGLDEYHPVSHTGKQM LA R R QEEVKKVF QR GWTSYK QNA WLSDEGAPMTGTS KDT ESRANAVKEAFVHAWDGYMQYAYPHDELHP\|SNGGDSR EVVRELFRRDWANYKKYAWMKDALNPISATADQF EKRRAAVGKVFQDDWQNYKKFAWKMDALNPKSGTGNQF KKVVKEEFLRAWNGYKNNAWMHDEVVM LDSGGQKDT $\square$ K K K R D K I K E M M K H A WD N Y R T Y G WGHNELRPIARKGHST LNERQEGVIEAFRHAWKGYRQFAWGHDDELRPDVSRSYSEW R QKAVVGAFKHAWKAYERDAMGSDEYHPDSGEGTDF V K E A MRHAWNGYRKYAWGKDEVLP LTHGGQNN E A R R E E I R N A F LDH T WE GYK A H A WA H D E L R R P L A G G F K P F
 DRRQFIVNMTKFAWKNYRKYAWGFNELKPLSRSEHSA EKREKVKEMTWHAWNGYK L N S F GESSEVNPLTGQPVNS MRHSWA GYAQHAWGFDELMPLTQNGKNS WA NYKEYAWMKDALNPI SATADQF MMQF A WQ S Y K RYA M G K N E L Q P L T T K D G Y Q G D A R R Q A VK QVVFAK S R L A A RVV K D A F L V S WE GYE Q DA WGK DVYQP L A RTGTNM
 NWE E R REKVKDVVT T I S WD S Y E K Y G WGYDEYK PVV QK GRNM QLEERLKAVLESFTHSWEGYKQHAWLRDEVAPLTGKYKDT WP $\square R$ A N A V R R A F LDHS Y D GYK K H A WAS D E L L P L L S S S N N F EHRQDAVKKKAFKHA WNGYK EHA WLK DEELVMPI TGGWRNT FNEDQ
 RAEEI K GAMKYAWDKYVEYSWGKDELLPLTGSGKNW A D AVKEAFQHAWNGYTKYAFPHDELRPVSNGGDSR
K ERRMRVVTAMKRAWNAYHAHAWGKDTILDISTSANRW MLHAWTSYEKYAWGFDQL
WA ARREKVRDAFIVSWDGYEQYAWGFDEYHPVTKKGKQM $\square R E K R E K I K E M M K H A W N N Y K R Y A W G K N E L K P V S K G G H S S$

QERLAAVKEAFVHSWHGYKRNAWSQDEVAPVSGRDHNN $R K K A V I Q S F S H S W D G Y K K H A W L R D E V T P L S G K Y K N F$ LA E R R LDDV KQS F DK S WD S YR H K A WM Y D E L M P I S GLLGK ES A R Q D A I R R A MQHA WS GYETRA F GADEVVAPV SRRQNVV
K R RLS A AVEAAF LHASWE GYS R NA WLR DEVVTPQTGGYQD T
 WTARREKVRDAF IVSWEGYEKNAWGYDQYRPVSNQEDTS RQKAVRDVFEKGFASYKRFAWGRDELRPVSAGARDT
EFRRQKIVQMMDHA WDGYANYSWGANELK PLTNKSHDG ERQGWVRRGFQHVWEGYKARAWGHDELKPISGSFQPF
EARLTAVRAADKKSWDGYVKEAWGLDELRPVEGGGRDT
WPSRAQRVVKDVFKDSYSGYEKY GWGYDEYHPVVSHS GRFM
E QR L S E V R E A F LDH A WG G Y K K E A W A K D E L M P I N G GF K P F
WAARREKVRDAF IVSWDDYAKNGWGLDQYRPAAKDGKNM HMQDEVVAAMAWAWKGYRQHAFGHDS LDVVHSNGTAF ERAAAVKQVFRRSWDGYYKYAFPHDSLKPISRTGDDR A RLHSI REAMVHSWNGYRSKAWRMDELAPVTGGYRTT Y RQNVVVNAFLHAWNGYKANAYGFDEI HP I S GRPFTS
QSRADAI KA AFSHAWDGYDQYAFPHDELHPVSNGGDSR KRDAIVDAFQHSWLAYERDAMGADEYHPISHRGSNF RQKAVIDAFRHAWAGYRKFAWGHDE LRPV SRSFSEW WK ARKDEVRKVFHESWVDYVKHGWGK DVYHPVVQTAENM QRQAEVKKVFQRDWDSYKKMAWLNDELSPKSGKPKNT
DKRRRREVKRVFGK SWASYKK QA WMK DALKK P IS Q DVVNQF
KYRQQQI QNAFLHAWNSYKRNAYGFDEDHPLTGKPFNF WNARADVVRQAYLHAYAGYKEFAGNSDELLPLSDGSNNF RADAVRHAFLHAYTGYQKYAGNNDELKPVSNGANNF Q E R A E A V V A A F RF A WE GY LLE HAFPND E L QARANAVKEAFSHAWDGYYRYAAPNDELHPVTNNFSNS KAAVVD DFTK S Y E GYRKFAF GHD S L LDP S E S F D D R $M M \square H A W Q G Y K N Y S W G A N E L R P L A K T P N S Q$
EAKRDA ILAAFNDSWSAYKRDAWGYDEYHPISKHGKHG WE ERREKVRDAF DVSWDDYARHAWGRD DYKPRSKKGEDM

RERRAKVKEMMQFAWGNYKRYAWGSNELRRPVSKQGHSS QRQVTAAMSWAWGAYRKHAFGFDSLNVKDMDGLPG SRRAAVRETFVRSWESYKKYAWEYDELTPVSAKGKNT AVKEAFLHSWMGYKEHAWLQDEVAPI SGNARNP WRKRK QAVKEAFKHAWKGYKSNAWLRDELSPLSGGYRTS LKVYRDRVVEMFQHAYDGYMRHAYPYDELRPLSCDGVNT K A AVKK K $\$ T DTYSAYREYAFGHDELTPESKSFSDS
EDKPQA I K DAFNHAWKGYMTYAYPMDELRPVVSNDGSNP QRQTAVK DVFSKCWASYKRHAWKADELAPVSGGQNPF
 UniRef90_UPI0001CBBFB5

## UniRef90_T5A6V0 UniRef90_M3CX47 UniRef90_FOUPT8 UniRef90_G7XXN4 UniRef90_F9XEY7 UniRef90-C1H2Y1 UniRef90_C1H2Y1 UniRef90_Q2ULB2 UniRef90-TOKID2 UniRef90_J4KP35 UniRef90_J4KP35 UniRef90_A7F9F5 UniRef90_P39098-2 UniRef90_G2RF74 UniRef90_UPI0003 UniRef90_UPI00038BFBDF UniRef90_V2XGL9

 UniRef90_B8C5N4UniRef90_K1WXN44 UniRef90_M3ZB59 UniRef90_U6IGE8 UniRef90_J0DPH5
UniRef90_E4YKK7 UniRef90-IOZON0 UniRef90_A0A010QML2 UniRef90_UPIO003C4B5D1 UniRef90-G2RF13 UniRef90_M4FUV6 UniRef90_C5FXY8 UniRef90_C1EEZ2 UniRef90_B6QHC7
UniRef90_S3DZF5 UniRef90_J4HYY2 UniRef90_V5G432 UniRef90-E3QRL0 UniRef90_G4Z3C1
UniRef90_E4ZHE4 UniRef90_M3BTY6 UniRef90_F4Q470 UniRef90_A0A017SR37 UniRef90_W7TPZ0 UniRef90_A0A059CJL3 UniRef90_Q5B132 UniRef90_UPIO004401CBF UniRef90_M2LW59 UniRef90-N1JGY6 UniRef90_M7TEB0
UniRef90_W4GFK5 UniRef90-S8AZU0 UniRef90_N1PQ60
UniRef90_A8PDN7 UniRef90_F0X885 UniRef90_B6H604 UniRef90_N4V980
UniRef90_E5SUH4 UniRef90_E3KLQ2 UniRef90-M4FPA0 UniRef90-M2YKB5
UniRef90 S3D7C7 UniRef90_Q0D000 UniRef90_17ZLX8 UniRef90_A0A024UQ09 UniRef90_M4GE42 UniRef90-W9YR62 UniRef90_R9AGZ1
UniRef90_Q12563 UniRef90_K5XQC2 UniRef90-UPIO003C8597A UniRef90_C4R1N0 UniRef90_M7SI08 UniRef90_C6H707 UniRef90_Q0UNE3
UniRef90_14YG05 UniRef90_B8PIR3 UniRef90-S8FIJ9
UniRef90 E9CXX8 UniRef90_Q0CTT0 UniRef90_N1JM20 UniRef90_K5WPL1
UniRef90_K7GUZ4 UniRef90_R9P029 UniRef90_C5GFX5 UniRef90-W5LF81 UniRef90-W4FLT3 UniRef90_M3B0N6 UniRef90_Q5BBN5 UniRef90_-V5ICG9 UniRef90_UPI00044167D2 UniRef90_F2RZR6 UniRef90_G0RVU3 UniRef90-M2U2N4
UniRef90-U7Q625
UniRef90 UPI000


70
80 N G W G A T L V D S L


 G G WG A TL V D S L D Th L W M GLLK A E F E E A V T S I D F N P A K T S L E
 S G WA A T LVVDSLDVLWMMGLK AEFEEAVAAVATIDFFTNA D
 $N \square F G A T I V D A L D T L Y I$ M G L H D EFMD GQRWI E E NLD F S VI


 NMF GATVI D S L D T L Y L M E L K E EF QKA KA WV E E S F H L N VVVF SVIF GATVVVALLDTVMFNMTEEFNRCRDWITTHVNFDVDR


 G G WA A TLV D S L D S L WL M GMK G D F ER A VA AVA K D DF S R P N R

 F GWAATLVDSLDTLWIMGMKADFELAVKALGEDDFTTTDK
 NGWGASAVDALSTAI MENKDVVGQULNFVPSINFDVTDS Y GHDMTTVVDSLD TMFIMGLHDEFDEASAWVKANLTMFQGG

 NGWGASAVDALSTAILMRKA DVVNQDLDDHIA SVDYSTTPS


 C G WA A T L V D S L D T L W W M GM K E D F E D A V K S I D F T L M Q E T D P



 GGGWA A S V D S L D T W M M G F GWAAS LVDALDDTLW MGFED DFYAAAEVAA QLDWAATGS





 F G WA A T LVVDALD T LDWLMGLKE EFEEAVEAVAGI DFDDPA Q

 S GVGYMVI DAI DTMYLMGLKEEYNRARLWLAKEHTBERNG








 V GLL G W I I V D
 F GYAATVVDALDTLWIMDLHDEFGLALASDAK DDWD TVE F G WGA T L V D S L D S L W M M L K K D F E M A V S A I K K D F DS T P T S F GWA ATL V DA L D T L I I MDLT DEFEEALDALE HDDFSTTDS

 G GWAAT LV D S L D T LYYLMDMKPEFDEAVAAAASIIDFTKTDD F GWGATLVDSLDTLWIMGFREEFNEAVEAVAAIDFGRTNT UniRef90_UPI0001CBBFB5



## UniRef90_T5A6V0 UniRef90-M3CX47 UniRef90_F0UPT8 UniRef90_V9D2N7 UniRef90_G7XXN4 UniRef90_F9XEY7 UniRef90-C1H2Y1 UniRef90_Q2ULB2 UniRef90-TOKID2 UniRef90_J4KP35 UniRef90_A7F9F5 UniRef90_P39098-2 UniRef90_G2RF74 UniRef90_UPI00038BFBDF UniRef90_V2XGL9

 UniRef90_B8C5N4 UniRef90-K1WXN4UniRef90-M3ZB59 UniRef90_U6IGE8 UniRef90_J0DPH5
UniRef90_E4YKK7 UniRef90-IOZON0 UniRef90_A0A010QML2 UniRef90_UPI0003C4B5D1 UniRef90_G2RF13 UniRef90_M4FUV6 UniRef90_C5FXY8 UniRef90-C1EEZ2 UniRef90_B6QHC7
UniRef90_S3DZF5 UniRef90_J4HYY2 UniRef90_V5G432 UniRef90_E3QRL0 UniRef90_G4Z3C1
UniRef90_E4ZHE4 UniRef90_M3BTY6 UniRef90_F4Q470 UniRef90-A0A017SR37 UniRef90_W7TPZ0 UniRef90_A0A059CJL3 UniRef90_Q5B132 UniRef90_UPIO004401CBF UniRef90_M2LW59 UniRef90_N1JGY6 UniRef90_M7TEB0
UniRef90_W4GFK5 UniRef90_S8AZU0 UniRef90-N1PQ60 UniRef90_A8PDN7 UniRef90_F0X885 UniRef90_N4V980 UniRef90-E5SUH4 UniRef90_E3KLQ2 UniRef90-M4FPA0 UniRef90-M2YKB5
UniRef90-S3D7C7 UniRef90-S3D7C7 UniRef90_I7ZLX8 UniRef90_A0A024UQ09 UniRef90_M4GE42 UniRef90_W9YR62 UniRef90_R9AGZ1 UniRef90_Q12563 UniRef90-K5XQC2 UniRef90_UPIO003C8597A UniRef90_C4R1N0 UniRef90_M7SI08 UniRef90_C6H707 UniRef90_Q0UNE3
UniRef90_14YG05 UniRef90_B8PIR3 UniRef90-S8FIJ9
UniRef90 E9CXX8 UniRef90-E9CXX8
UniRef90 Q0CTT0 UniRef90_N1JM20 UniRef90-K5WPL1
UniRef90 K7GUZ4 UniRef90_R9P029 UniRef90-C5GFX5 UniRef90-W5LF81 UniRef90_L2GDJ2 UniRef90-M3B0N6 UniRef90_Q5BBN5 UniRef90_V5ICG9 UniRef90-UPIO0044167D2 UniRef90_F2RZR6 UniRef90_G0RVU3 UniRef90-M2U2N4 UniRef90_U7Q625
UniRef90_UPI0001CBBFB5

AFNSKNGMPVDFLDFAAAKQGGGLLVEGTVVASPGTLLSUE AFDTPNRMPETYYYWKPTFASNGHRSTRVVLAELGTMLSLD
 AFDTQNHMPVTKW SK IGGPGDEAPNAQTLIAEELGTMLSLE SFDTRNRMPQSRWEWTRSADGSIEPGRNTILLAELGSLLNLE

 AFNTEHRMPVDFINFNDAKAGTGLDVESSVVASPGTLSLE

 AFNTPTGI P WAMVNLK S GVGRNWGWA GS SILAE FGTM HME

A


## A

## A





## A

## 

A
GF DCA N H VV P C
AF DTANHMP LGS LD I MK V
AFDTPNRMP LDRWDFHAARNGQK QVSPDDI LA E L G G S L S L E
A
A
A
A
A
A
A
A
$A F$
$A F$
$A F$
$A F$

## A



A
A WVGNNN I
AFDTPNHVP DARWKYGEARKGVSQK
AFESPSGllPWSNVNLNTSEGVVVHF
GF DTPNRMPGFWLDFEDARAGRQVAGTSDPSAAACSSLALD

AFDTPNRIP GFWFDFEDARHGNQFAGVDTPSASPA SLS L


AFESSSSGVP FAS IDNLKK S E G DPAHSDNGSSTAEATTVVQL E

AFDTPNHMPVLHW S

A Y N T T S A MP LSVLN PN Q
AF D TPS GVVP Y NL N
A
S
A
S







AFESPS GVPYASIVLLNTSVGVESHMDNGSSTAEATTVVQL E

AFDTPNRMPPFWLDFKAAKSGELIAGTNDPSASPCSSLS
AF DTPNRMPMTRWNWQKTALGGEDQEAKRSSVLAEVVGSLTL

 SFNSTTGUPSNTLND SAQTTDGATSNGLAA
AFDTPNRMPDTRWAIHAAMAGKKQVAPGLLVAEI GSLSME
AFDTTNNTPLGWMSVEKVKKDTFDAETNI CFACLGS LTME

UniRef90_T5A6V0
UniRef90_M3CX47
UniRef90_F0UPT8
UniRef90_V9D2N7
UniRef90_G7XXN4
UniRef90_F9XEY7
UniRef90_C1H2Y1
UniRef90_-Q2ULB2
UniRef90_TOKID2
UniRef90_J4KP35
UniRef90_A7F9F5
UniRef90_P39098-2
UniRef90_G2RF74
UniRef90_UPI00038BFBDF
UniRef90_V2XGL9

## ェゅயாா

170
180
190
200 T R|L|S Q|V|T GDAKYHSVVSR|L|MH|V|FYQGQNKTPG|V|WP|IWV|S
 UniRef90_B8C5N4 UniRef90_K1WXN4 UniRef90_M3ZB59 UniRef90_U6IGE8 UniRef90_JODPH5
UniRef90_E4YKK7 UniRef90-IOZON0 UniRef90_A0A010QML2 UniRef90_UPI0003C4B5D1 UniRef90_G2RF13 UniRef90-M4FUV6 UniRef90_C5FXY8 UniRef90-C1EEZ2 UniRef90-B6QHC7 UniRef90_S3DZF5
UniRef90_J4HYY2 UniRef90_V5G432 UniRef90-E3QRL0 UniRef90_G4Z3C1 UniRef90-E4ZHE4 UniRef90_M3BTY6 UniRef90-F4Q470
UniRef90 A0A017SF UniRef90-AWATPZ0 UniRef90_A0A059CJL3 UniRef90 Q5B132 UniRef90_UPIO004401CBF UniRef90_M2LW59 UniRef90_N1JGY6 UniRef90-M7TEB0 UniRef90-W4GFK5 UniRef90_S8AZU0 UniRef90_N1PQ60
UniRef90_A8PDN7 UniRef90_F0X885 UniRef90_B6H604 UniRef90-N4V980
UniRef90 E5SUH4 UniRef90-E3KLQ2 UniRef90-M4FPA0 UniRef90-M2YKB5
UniRef90- S3D7C7 UniRef90_Q0D000 UniRef90_I7ZLX8 UniRef90_A0A024UQ09 UniRef90_M4GE42 UniRef90_W9YR62 UniRef90_R9AGZ1
UniRef90_Q12563 UniRef90_K5XQC2 UniRef90_UPIO003C8597A UniRef90_C4R1N0 UniRef90_M7SI08 UniRef90_C6H707 UniRef90_Q0UNE3
UniRef90-I4YG05 UniRef90_B8PIR3 UniRef90_S8FIJ9 UniRef90_E9CXX8 UniRef90_Q0CTT0 UniRef90_N1JM20 UniRef90_K5WPL1
UniRef90_K7GUZ4 UniRef90-R9P029 UniRef90-C5GFX5 UniRef90-W5LF81 UniRef90_L2GDJ2 UniRef90-M3B0N6 UniRef90_Q5BBN5 UniRef90_-V5ICG9 UniRef90_UPI00044167D2 UniRef90_F2RZR6
UniRef90 G0RVU3 UniRef90_M2U2N4
UniRef90_U7Q625
UniRef90_UPI0001CBBFB5
UniRef90_T5A6V0
UniRef90_M3CX47
UniRef90_F0UPT8
UniRef90_V9D2N7
UniRef90_G7XXN4
UniRef90_F9XEY7
UniRef90_C1H2Y1
UniRef90_Q2ULB2
UniRef90_T0KID2
UniRef90_J4KP35
UniRef90_A7F9F5
UniRef90_P39098-2
UniRef90_G2RF74
UniRef90_UPI00038BFBDF
UniRef90_V2XGL9 MS R Q D VT S GSTFTLLGGGADSDYEY|L|PKMHQLMGGGDPKYQ VDASGCTSAQTFTMGGQSDSVYEYLPKEYLLLGGHLDQYK





 $A D T G K F Q G E N \quad \square R L G S R G D S Y Y E Y L I K Q Y L Q T N K K E P V Y R$
 M Y H P E N P L L S TIT L GARGDSYYEYLLKVWI QTGKK SEWLQ P R S GK W G P K HVVSVGA LG D S F Y E Y L L K S WL R S G K N D A V Y K




 ADSGKFRG N NIDRLGSRGDSYYEYLIDKQYLQTSEGEP IYK
 $A Q H L D F S D R \quad R F$ T V G G MAD S $F \emptyset S N G T F A N R F G G W N G G T D S$

 SPNGESFCGNTVSMGGLSDSFYEYTLKMALYHDKRDNRYK DATGNFTGAAVSWDGGGADSFYEYYLIMMYVYDPHREMGYK


 A A K L S FD S GNFFS LGGMS DS LYE Y LP K QY L L L G G L $\square$ S QP K M Y A M Q L N T D Q S Y TI S A LA D S L Y E Y L P K M Y L L L G G L E P VY E
 VDAKHRFDWS QF SLGGGADSTYEY L PK QHIL L GA QRDE YR A R N A D F K K D T T F TM M G M A D S V V E Y L P K Q H L M ML G G Q N E Q Y R TEQGDFTGGS GFTIGGGMADSEYEYLPKEHLMLGGAS DQYR PDSGSFK G DR DSLGSRADSYYEYLDKQYLQTSEQEPVYK
 NP QSP QLLLS GQYTFGAMADSYYEYLIKKHQLLRGTNLQYS MNFRMPQHYTEFT LGALAADSMFEYLPKMHALLAGA A D HGT F R G D N DR L G S RGD S Y Y E Y L DK Q H L Q T S





PD T GSYWG NLIRRLGSRGDSYYEY LIKQYLQTN
PKDEKFNLDTTFGLGAMADSVFEYLPKMTALVGGLIPPYE PLSSEFAGDSTFTLGSMADSAYEYLPKMYALLGGTDSQYA




 PRTGAFVGGGYVSWGGGSDSYFEYGI K HARDSNTNDNLFV PDTGRFTGSHMS LGADGDSFYEYGLKSYYQSNYKDQQAK $P$ T T G K FM G Q N $I$ R L G S R G D S Y Y E Y L I K Q Y L Q T S R E E P I Y L $P N S G Q W G Q H H V S V G G L G D S F Y E Y L L K A W L M S D K R D E E G K$ DSHNGKDHRGVIKK GAGGDSYYEYLLKQWLFSDKKATKYK FRDESVVNHNEFTVGALDADSLYEYI PKMYALLLGGTDPAYE TK DAD FARDT TFT LGGMA DS LY E Y L P K Q H L M L G G G Q T S Q Y E




UniRef90_T5A6V0 UniRef90_M3CX47
UniRef90_F0UPT8 UniRef90- V9D2N7 UniRef90_G7XXN4 UniRef90_F9XEY7
UniRef90-C1H2Y1 UniRef90_Q2ULB2 UniRef90_TOKID2 UniRef90-J4KP35 UniRef90_A7F9F5 UniRef90_G2RF74 UniRef90_UPI00038BFBDF UniRef90_V2XGL9 UniRef90_B8C5N4 UniRef90_K1WXN4 UniRef90_M3ZB59 UniRef90_U6IGE8 UniRef90_J0DPH5
UniRef90_E4YKK7 UniRef90-IOZON0 UniRef90_A0A010QML2 UniRef90_UPI0003C4B5D1 UniRef90_G2RF13 UniRef90_M4FUV6 UniRef90_C5FXY8 UniRef90_C1EEZ2 UniRef90-B6QHC7
UniRef90- S3DZF5 UniRef90_J4HYY2 UniRef90_V5G432 UniRef90_E3QRL0 UniRef90_G4Z3C1 UniRef90_E4ZHE4 UniRef90_M3BTY6 UniRef90_F4Q470 UniRef90-A0A017SR37 UniRef90_W7TPZ0 UniRef90_A0A059CJL3 UniRef90_Q5B132 UniRef90_UPIO004401CBF UniRef90_M2LW59 UniRef90_N1JGY6 UniRef90_M7TEB0
UniRef90_W4GFK5 UniRef90-S8AZU0 UniRef90-N1PQ60 UniRef90_A8PDN7 UniRef90_F0X885 UniRef90_B6H604
UniRef90_N4V980 UniRef90-E5SUH4 UniRef90_E3KLQ2 UniRef90-M4FPA0 UniRef90-M2YKB5
UniRef90-S3D7C7 UniRef90_S3D7C7
UniRef90_Q0D000 UniRef90_I7ZLX8 UniRef90_A0A024UQ09 UniRef90_M4GE42 UniRef90_W9YR62 UniRef90_R9AGZ1 UniRef90_Q12563 UniRef90_K5XQC2 UniRef90-UPIO003C8597A UniRef90_C4R1N0 UniRef90_M7SI08 UniRef90_C6H707 UniRef90_Q0UNE3 UniRef90_l4YG05 UniRef90_B8PIR3 UniRef90_-S8FIJ9
UniRef90_E9CXX8 UniRef90_Q0CTT0 UniRef90_N1JM20 UniRef90-K5WPL1
UniRef90 K7GUZ4 UniRef90_R9P029 UniRef90_C5GFX5 UniRef90-W5LF81 UniRef90_W4FLT3 UniRef90_L2GDJ2 UniRef90_M3B0N6
UniRef90_Q5BBN5 UniRef90_V5ICG9 UniRef90_UPI00044167D2 UniRef90_F2RZR6 UniRef90_G0RVU3 UniRef90-M2U2N4 UniRef90_U7Q625

250
 TMY L N SMKP T DEKL MF RPMTPGD LDDI LI SWYETHTP KA E H
 RMYNSFMKALKS RLLLFRPMTEDGRDIGSSSRNNLEPQWEH

 D R WVK A A E S S DK HL A S HP K RP DLLT F L A S Y N D G Q Y GLLS S Q H
 RMYRNVLSTDNKHLVFRPNLPGDPDDVDSGQPILDAQDQH R M Y D D AV EA I E K HLI K K S R G G L V I GEWKN GHLERKMGH EMWQEA L Q GVVRKHLVVTYTEPSRRFTII GERPGGBLLDPKMDH
 K M Y D T A M Q G V H D K L V $\operatorname{C}$ K T P T K G L T Y
 NMYYEALEADETYGLNVSMPGGLTY IAEWRGGDLDDHKMGH NEY $\square$ T AVNGMRDNLI RKSVPNGLTFVGELHGSQFSTKMDH EMY D A A L A A DK K Y L L R Y S R Q S HL A Y F I E L K G K REV V K M D H S WLDEK TVVK GVEE HLV LEEQKDK E KY Q I MMV E GQQRRN RM G H A MWERSMDEMLDRKLLFKNEES GYTYVAEFCGSPDLDKMDH TMTENFLKAANESLEFRPMDSGNVDVDAGGNHSLDPESEH
 AMYEKAADAAARHNLDRRDLTPTVVHVGEDGSTEELEPAQAQH NM WN QA LA GDRK HLDA YTKHA S LT F V GERPS GLDEPPKMD H D M WEESMMRAMIDDKLVVEGEEE GTKYVAEYNANHAV HKMD H







 EMFDESVVDGA EELLDAR R GPGGRLLY A ANNDNGMQAKRME H EMWETS MS G LQQSLVRKTTPSAYAYI CEKNGNMLDAQMNE D M WDEA L VGITRKHLITFSKNAKLTVL GERQD GPLTPMMDH


 RTYD DAVA GMEKHLYVVHSVPDDAYFL QELPQMEGTP QQD H EMYEAAMKVITTGKLLDFRAMTK DE ERQVVLFTS HDVVEY DQE H

 EMWDEAL R G I R KHLVSFTKNS QLMIIGERPDQDLSPRMDH R M Y VGAMAMVEQHVLVRPMTPDGDVRVGPDRDEHVADGQH
 K MY T S A DE SARA HLI KTSGGGKNLTVIGGDLDSWGMFKPS LDD H A MYRTAMAVVEKYLLFRPMVPPTSSDGDDEPPQSSQDSQH A M WNES LA GMK K HLL I Y Y SHPNNFTVLLAERPNGLNRPKMD H
 KMYDAAMDPDK K RLLFRAMTKDKKDVVFA GNMRAEP QV E H EMWDEALIGGI RKHLVVAYTKRA QLAAVGERPE GKLSP KMD H DMYKTAVNGIMEKMVGRTKKS GWVFLGELETGELLPKMDH D R W $\square A A A D S S D K H L V H P S T R P D L T F L A F Y E N T T L L R Y V S Q H$ K L Y Q NAMGPVKKSILFKPMTPQNEDILMAGTVQFEPQMQH K Q Y I K A LID S I ND KL I IE DP SNDERFADHDDDDE ILPPKWEH D R WVAAA ASTMQHL SHPSSRPDDTFLASYNNGTLGLDS QH TMYDAAMQGIHDKLIVKGVKDGLTFTAELLPTVQNHKQDH

 RLYSHAMNTAMEY LFFRPLVPDNADILVSGQTRAETEGQH DMARFFMDTAMENLFFRPMIPEEEYDILDDGPRLDPESE H


 E M WDEA L VG $\triangle$ RK HLDA YSKNA QLTMLGERPS GLDSP KMDH D R WI L A A D S SIAAHLSHPSSRPDLLTFMAEYMGTNLLDFESQH
 RMHWEASSAADQKNMIKVSKKSQQLTYTVEENNGMAQHKMGH
 D M WN E A L T G I R K HLL T Y T K H A S LTVVLTGERPNHELVP KMDH
 $K M Y R D A M K I A Q Q H L L F R P M L P G G E D I L D P N G D R R N P E S Q H$ SMFRTALAAAKESVFFRPLNSENRKMHSHSRTKLLPQAEH RMYESA I PADKERMLFRPMTKGGEDDLDS GNDKVEAQAEH RMFAAYKGAIEKYMRR DD WFFWV SMSS GQVTMPVVQS TVWATAVDSSIRTLLSTSTVGNWTYLADLTDDEIRVIGGSH
 EMYEAAMATALKHNLFRPMTPSNQDIDGGVKTTLEPQQQH

UniRef90_T5A6V0
UniRef90_M3CX47
UniRef90_F0UPT8
UniRef90_V9D2N7
UniRef90_G7XXN4
UniRef90_F9XEY7
UniRef90_C1H2Y1
UniRef90_Q2ULB2
UniRef90_T0KID2
UniRef90_J4KP35
UniRef90_A7F9F5
UniRef90_P39098-2
UniRef90_G2RF74
UniRef90_UPI00038BFBDF
UniRef90_V2XGi9
 LTC F I G G M L A M G G K I F S LP E HVVEDG R K L T D G CIIWS Y N S T T
 L K C Y L G G T V G I G S K V F D R P E E L A V


 LACFA GGMFALGADGSRKDHYLELGAEIARTCHESYDRTA

L
$-1$ $-\perp$
UniRef90_A0A010QML2
UniRef90_UPI0003C4B5D1 UniRef90_G2RF13 UniRef90_M4FUV6 UniRef90_C5FXY8 UniRef90_C1EEZ2
UniRef90-B6QHC7 UniRef90_S3DZF5 UniRef90_J4HYY2 UniRef90_V5G432 UniRef90_E3QRL0 UniRef90_G4Z3C1 UniRef90_E4ZHE4 UniRef90_M3BTY6 UniRef90_F4Q470 UniRef90-A0A017SR37 UniRef90_W7TPZ0 UniRef90_A0A059CJL3 UniRef90_Q5B132 UniRef90_UPIO004401CBF UniRef90_M2LW59 UniRef90-N1JGY6 UniRef90_M7TEB0
UniRef90_W4GFK5 UniRef90-S8AZU0 UniRef90-N1PQ60 UniRef90-A8PDN7 UniRef90_F0X885 UniRef90_N4V980 UniRef90-E5SUH4 UniRef90_E3KLQ2 UniRef90-M4FPA0 UniRef90-M2YKB5
UniRef90-S3D7C7 UniRef90-S3D7C7
UniRef90_Q0D000 UniRef90_I7ZLX8 UniRef90_A0A024UQ09 UniRef90_M4GE42 UniRef90_W9YR62 UniRef90_R9AGZ1 UniRef90_Q12563 UniRef90_K5XQC2 UniRef90-UPI0003C8597A UniRef90_C4R1N0 UniRef90_M7SI08 UniRef90_C6H707 UniRef90_Q0UNE3 UniRef90_l4YG05 UniRef90_B8PIR3 UniRef90_S8FIJ9
UniRef90_E9CXX8 UniRef90_Q0CTT0 UniRef90_N1JM20 UniRef90-K5WPL1
UniRef90-K7GUZ4 UniRef90_R9P029 UniRef90_C5GFX5 UniRef90-W5LF81 UniRef90-W4FLT3 UniRef90_M3B0N6 UniRef90_Q5BBN5 UniRef90_V5ICG9 UniRef90_UPI00044167D2 UniRef90_F2RZR6 UniRef90-G0RVU3 UniRef90-M2U2N4 UniRef90_U7Q625 UniRef90_UPI0001CBBFB5

## UniRef90 T5A6V0 UniRef90_M3CX47 UniRef90-F0UPT8 UniRef90 V9D2N7 UniRef90_G7XXN4 UniRef90_F9XEY7 UniRef90-C1H2Y1 UniRef90-Q2ULB2 UniRef90-TOKID2 UniRef90-J4KP35 UniRef90-J4KP35 UniRef90 A7F9F5 UniRef90_P39098-2 UniRef90_G2RF74 UniRef90_UPIO0038BFBDF UniRef90_V2XGL9

 UniRef90_B8C5N4 UniRef90_K1WXN4UniRef90-M3ZB59 UniRef90_U6IGE8 UniRef90_J0DPH5 UniRef90_E4YKK7 UniRef90_IOZON0 UniRef90_A0A010QML2 UniRef90_UPI0003C4B5D1 UniRef90-G2RF13 UniRef90_M4FUV6 UniRef90_C5FXY8 UniRef90-C1EEZ2
UniRef90-B6QHC7 UniRef90-B6QHC7
UniRef90-S3DZF5 UniRef90_J4HYY2 UniRef90_V5G432 UniRef90_E3QRL0 UniRef90_G4Z3C1 UniRef90_E4ZHE4 UniRef90_M3BTY6 UniRef90_F4Q470 UniRef90-A0A017SR37 UniRef90_W7TPZ0 UniRef90_A0A059CJL3 UniRef90_Q5B132 UniRef90_UPIO004401CBF UniRef90_M2LW59 UniRef90_N1JGY6 UniRef90-M7TEB0
UniRef90- W4GFK5 UniRef90_S8AZU0 UniRef90-N1PQ60 UniRef90_A8PDN7 UniRef90_F0X885 UniRef90_N4V980 UniRef90-E5SUH4 UniRef90_E3KLQ2 UniRef90-M4FPA0 UniRef90-M2YKB5
UniRef90- S3D7C7 UniRef90_-Q0D000 UniRef90_I7ZLX8 UniRef90_A0A024UQ09 UniRef90_M4GE42 UniRef90_W9YR62 UniRef90_R9AGZ1 UniRef90_Q12563 UniRef90_K5XQC2 UniRef90-UPI0003C8597A UniRef90_C4R1N0 UniRef90_M7SI08 UniRef90_C6H707 UniRef90_Q0UNE3
UniRef90 14 YG05 UniRef90_B8PIR3 UniRef90_S8FIJ9
UniRef90_E9CXX8 UniRef90_Q0CTT0 UniRef90_N1JM20 UniRef90-K5WPL1
UniRef90-K7GUZ4 UniRef90_R9P029 UniRef90-C5GFX5 UniRef90-W5LF81 UniRef90_L2GDJ2 UniRef90-M3B0N6 UniRef90_Q5BBN5 UniRef90_V5ICG9 UniRef90_UPI00044167D2 UniRef90_F2RZR6
UniRef90 G0RVU3 UniRef90_M2U2N4 UniRef90_U7Q625
UniRef90_UPI0001CBBFB5
UniRef90_T5A6V0 UniRef90-M3CX47
UniRef90_FOUPT8 UniRef90-V9D2N7 UniRef90-G7XXN4 UniRef90-F9XEY7

UniRef90 C1H2Y1 UniRef90-Q2ULB2 UniRef90-TOKID2 UniRef90-J4KP35 | UniRef90-A7F9F5- |
| :--- |
| UniRef90 | UniRef90-G2RF74 UniRef90-UP100038BFBDF UniRef90-V2XGL9 UniRef90-B8C5N4 UniRef90-K1WXN4 UniRef90-M3ZB59 UniRef90_UGIGE8 UniRef90-JODPH5 UniRef90-IOZONO UniRef90-A0A010QML2 UniRef90-UP10003C4B5D1 UniRef90-G2RF13 UniRef90-M4FUV6 UniRef90-C5FXY8 UniRef90-C1EEZ22 UniRef90_-B60HC7 UniRef90-S3DZF5

UniRef90_J4HYY2 UniRef90-V5G432 UniRef90-E3QRLO UniRef90-G4Z3C1 UniRef90 E4ZHE4 UniRef90-M3BTY6 UniRef90_F4Q470 UniRef90-A0A017SR37 UniRef90_W7TPZ0 UniRef90-A0A059CJL3 UniRef90-Q5B132 UniRef90-UP10004401CBF UniRef90-M2LW59 UniRef90-N1JGY6 UniRef90_M7TEB0
UniRef90—W4GFK5 UniRef90-S8AZUO UniRef90-N1PQ60 UniRef90-A8PDN7 UniRef90-B6H604 UniRef90-N4V980 UniRef90-E5SUH4 UniRef90-E3KLQ2 UniRef90-M4FPAO
UniRef9O_M2YKB5 UniRef90-S3D7C7 UniRef90-QODOOO UniRef90_17ZLX8 UniRef90-A0AO24UQ09 UniRef90-M4GE42 UniRef90-W9YR62 UniRef90-R9AGZ1 UniRef90-Q12563 UniRef90-K5XQC2 UniRef90-UP10003C8597A UniRef90-C4R1N0 UniRef90-M7SIO8 UniRef90-C6H707 UniRef90-QOUNE3 UniRef 90 -l4YGO5 UniRef90_B8PIR3 UniRef90-S8FIJ9
UniRef90-E9CXX8 UniRef90-QOCTT0 UniRef90-N1JM20 UniRef90-K5WPL1
UniRef90_K7GUZ4 UniRef90-R9PO29 UniRef90-C5GFK5 UniRef90-W5LF81 UniRef90-W4FLT3 UniRef90-M3BON6 UniRef90-O5BBN5 UniRef90-V5ICG9 UniRef90 UPIOOO44167D2 UniRef90-F2RZR6 UniRef90-GORVU3 UniRef90-M2U2N4 UniRef90_U7Q625

370
380
390
400 F Y $\square$ Y R|I T GRAEFREAAWDMFEAVSKGTRTEYANAADV DVT FYMYRIT GEQHWRDAGWEMFKAVEAHTRAE FGHSAI D DI

 F IMYRI TG DRSLLQDAAWRMFQNIDKMTRT SFGHAAI S DV


 F I MYRLT GDPVWQE K GWKMFNAAVKHTHTDDGANARIVNV WYLWRFTHDPRYRQWGWEAADAIVEKSCRVVSGGFS GVKDV. F Y M WR IT T
CTVPQET
F IAF RLT G DPRYRDYAWN IF SA IIEKHCKLQTGGYLTVLHV


 F Y L Y Ql T K N P KY Q E WGRQUIFRSFN TYSRDVEAGYAPDLDV F Y L WR V T G K D K Y R E WC WMAA K N l E K Y C R TA A G G Y S GIV N V
F Y L WR
FVLWRVT
 $M \mathrm{Y}$ L WR Q T H NP I Y R E WG WE V VM A L E K Y C RTE A G FA GI Q D V FVLYRAT GRAELLLEAAWAMFEAI DAATTTTPLANSAVVDVT
 F Y L Y Y R I T E D E MY R E WG WE MF K S F DK H T A V N D N G Q S S S S L Y M Y R IT G D E Q Y R E WG WQ M F K S F V K Y T A V D GE S H P S Y R V V Y L L WR I T G DEA WRER GWA VF Q A L E R ET K T S S G Y A S L S S V F I MYR T G DKK Y Q DA A WRMFESSI N NDSKTDD A HA GI T DV YYAYRAT GDTKYQDWAWDAF LAI NKTCNVGD GFS GI TDV
 FIMYRDTGNSAWQEKGWTMFRSI YAHTRTEY ANAADE DV F YMYRFTGDTKYQEWGWRMFEAIIEKYCKTENGYVGFLNNM
 F Y L Wh R T G N TMY Q D WG WD I F Q A F E K N S R LE T G Y V GL T D FYMYR TT GDETYRHWGWEMFKSFDKHTAVVERGFTSLSNV







FYLWRTTK


| $F$ | $L$ | $L$ | $R$ | $T$ |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $F$ | $I$ | $M$ | $Y$ | $R$ | $I$ |

F YMYRIT GDETVRHWGWEMFK SFVVRHTADVEHDNTHADNN $M V L Y R V T K N E T Y R E W G K V I F R A F E R H C K L P Q G G Y T S V N H V$ Y YAYRAT GDPKYQE WA WEAF LDA IDAT C A Q GVGGY A L G DV
 Y Y A WRVTGQETYRDWDWSAFSAVND YCRTSS GFS GL T DV

UniRef90_UPI0001CBBFB5
UniRef90 T5A6Vo UniRef90_M3CX47 UniRef90_F0UPT8 UniRef90_V9D2N7
UniRef90_G7XXN4 UniRef90_F9XEY7 UniRef90-C1H2Y1 UniRef90_Q2ULB2 UniRef90_TOKID2
UniRef90_J4KP35 UniRef90-J4KP35 UniRef90_P39098-2 UniRef90_G2RF74 UniRef90_UPI00038BFBDF UniRef90_V2XGL9 UniRef90_B8C5N4 UniRef90-K1WXN4 UniRef90_M3ZB59 UniRef90_U6IGE8 UniRef90_J0DPH5
UniRef90_E4YKK7 UniRef90-IOZON0 UniRef90_A0A010QML2 UniRef90_UPI0003C4B5D1 UniRef90_G2RF13 UniRef90_M4FUV6 UniRef90_C5FXY8 UniRef90_C1EEZ2 UniRef90-_S3DZF5 UniRef90_J4HYY2 UniRef90_V5G432 UniRef90-E3QRL0 UniRef90_G4Z3C1
UniRef90_E4ZHE4 UniRef90_M3BTY6 UniRef90_F4Q470 UniRef90-A0A017SR37 UniRef90_W7TPZ0 UniRef90_A0A059CJL3 UniRef90_Q5B132 UniRef90_UPIO004401CBF UniRef90_M2LW59 UniRef90-N1JGY6 UniRef90_M7TEB0
UniRef90_W4GFK5 UniRef90_S8AZU0 UniRef90_N1PQ60
UniRef90_A8PDN7 UniRef90_F0X885 UniRef90_B6H604 UniRef90_E5SUH4 UniRef90_E3KLQ2 UniRef90-M4FPA0 UniRef90-M2YKB5
UniRef90-S3D7C7 UniRef90_Q0D000 UniRef90_I7ZLX8 UniRef90_A0A024UQ09 UniRef90_M4GE42 UniRef90_W9YR62 UniRef90_R9AGZ1
UniRef90 Q12563 UniRef90_K5XQC2 UniRef90_UPI0003C8597A UniRef90_C4R1N0 UniRef90-M7SI08 UniRef90_C6H707 UniRef90_Q0UNE3
UniRef90 I4YG05 UniRef90_B8PIR3 UniRef90_S8FIJ9
UniRef90-E9CXX UniRef90-E9CXX8 UniRef90_Q0CTT0 UniRef90_N1JM20 UniRef90-K7GUZ4 UniRef90_R9P029 UniRef90-C5GFX5 UniRef90-W5LF81 UniRef90_L2GDJ2 UniRef90-M3B0N6 UniRef90_Q5BBN5 UniRef90_V5ICG9 UniRef90_UPI00044167D2 UniRef90_F2RZR6
UniRef90 G0RVU3 UniRef90_M2U2N4
UniRef90_U7Q625

410
420
430
440 K A D Y P L LP ME D Y M E S F WL LA E T|L|K Y F Y|L V|F S S P D|I I S|L|D D F |V



 | $E$ | $K$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $M$ | $Q$ | $P$ | $E$ | $V$ | $T$ | $L$ | $R$ | $D$ | $N$ | $M$ | $E$ | $S$ | $F$ | $W$ | $L$ | $A$ | $E$ | $T$ | $L$ | $K$ | $Y$ | $F$ | $Y$ | $L$ | $L$ | $F$ |

 K K A D P LP K E D Y M E S F WL A E TLL K Y FY L VF S P P D LI S L D E Y V



$T A T \square$ T $T$ K Y R D N L E S F WFA E T L K Y L Y L L F D D D E Q W D L N K V V VT D GE P H Q LD S M E S F W L G E T L K Y F Y L I F S E P D H I S L D E Y V



 NAK D GGGGYGD F Q D S F WF A E V L K Y S Y $\quad$ G L I F A P D D E W Q V N Q W V


 TAEGKTQKLDSM
$T$ QLE S P LI D S ME S F WTA E T L K Y F Y LI F S D P S V I S L D D Y V REE K K P K QL D Y M E S F W LAA E T L K Y F Y L I F S E P E L I S L D D Y V QD H $\quad$ ELLED RME S F F L A E T T K Y Y L Y L L F S P D H F I M N N G Y V V N S N T T T L M D D T Q S F F Y A E V L K Y L Y L T F
 R P M GE P GMA D S M E S F WM G E T L M Y Y F Y $\operatorname{L}$ G V F A A W D D


| UniRef90_T5A6V0 | $\text { LNTEAHPEK }{ }^{450}$ |
| :---: | :---: |
| UniRef90-M3CX47 | L NTEAHFFR |
| UniRef90-FOUPT8 | LNTEAHP |
| UniRef90-V9D2N7 | FNTEAHPFRL |
| UniRef90-G7XXN4 | L NTEAHPFK |
| UniRef90-F9XEY7 | F NTEAHAFPKF |
| UniRef90-C1H2Y1 | F NTEAHPFRI |
| UniRef90-Q2ULB2 |  |
| UniRef90-TOKID2 | LNTEAHPFR |
| UniRef90_J4KP35 | L NTEAHPF |
| UniRef90-A7F9F5 | L NTEAHPL |
| UniRef90-P39098-2 | F NTEAHPLPV |
| UniRef90_G2RF74 | F NTEAHPLPRF |
| UniRef90_UPIO0038BFBDF |  |
| UniRef90-V2XGL9 | F NTEAHPFP\F |
| UniRef90-B8C5N4 | F NTEAHPLRL |
| UniRef90-K1WXN4 | L N T EAHPLK |
| UniRef90-M3ZB59 | F NTEAHPLPV |
| UniRef90-U6IGE8 | F NSEAHPFPL |
| UniRef90_J0DPH5 | F NTEAHAF |
| UniRef90-E4YKK7 | FNTEAHPLRI |
| UniRef90-IOZON0 | LNTEAHPLRI |
| UniRef90-A0A010QML2 | LNTEAHPF |
| UniRef90_UPI0003C4B5D1 | F NTEAHPLDPV |
| UniRef90-G2RF13 | FNTEAHP |
| UniRef90-M4FUV6 | LNTEAHP |
| UniRef90-C5FXY8 | FNTEAH I FPRF |
| UniRef90-C1EEZ2 | LNTEAHP |
| UniRef90-B6QHC7 |  |
| UniRef90_S3DZF5 | L NTEAHPL |
| UniRef90-J4HYY2 |  |
| UniRef90-V5G432 |  |
| UniRef90-E3QRL0 | F NTEAHPFRV |
| UniRef90-G4Z3C1 | F NTEAHPFPVW |
| UniRef90-E4ZHE4 | F NTEAHPFR |
| UniRef90-M3BTY6 | F NTEAHP |
| UniRef90-F4Q470 | F NTEAHPFST |
| UniRef90-A0A017SR37 | F NTEAHPIRV |
| UniRef90-W7TPZ0 | F NTEAHP |
| UniRef90-A0A059CJL3 | F NTEAHPLK |
| UniRef90_Q5B132 | F NTEAHPM |
| UniRef90_UPI0004401CBF |  |
| UniRef90-M2LW59 | LT T E A H P |
| UniRef90-N1JGY6 | F NTEAHPF |
| UniRef90-M7TEB0 | F NTEAHP |
| UniRef90-W4GFK5 | F NTEAHPLR |
| UniRef90-S8AZU0 | LS TEAHPFK |
| UniRef90-N1PQ60 | FNTEAHP |
| UniRef90-A8PDN7 | FNTEAHPF |
| UniRef90_F0X885 | LNTEAHP |
| UniRef90-B6H604 | F NTEAHPFPRF |
| UniRef90_N4V980 | F NTEAHPFKl |
| UniRef90-E5SUH4 | FTSEAH |
| UniRef90-E3KLQ2 | LNTEAHPFRI |
| UniRef90-M4FPA0 | L NTEAHPL |
| UniRef90-M2YKB5 | F NTEAHPFPRF |
| UniRef90-S3D7C7 | LNTEAHP |
| UniRef90_Q0D000 |  |
| UniRef90-17ZLX8 | F NTEAHPFPRF |
| UniRef90-A0A024UQ09 | LNTEAHPLP |
| UniRef90-M4GE42 | Y N TEAHPVKV |
| UniRef90-W9YR62 | FNTEAHPFR |
| UniRef90-R9AGZ1 | LS TEAHPFKL |
| UniRef90-Q12563 | F NTEAHPVRV |
| UniRef90-K5XQC2 | F NTEAHPLPL |
| UniRef90-UPI0003C8597A |  |
| UniRef90-C4R1N0 | F NTEAHPFPRF |
| UniRef90-M7SI08 | F NTEAHPFRRY |
| UniRef90-C6H707 | F NTEAHPFRI |
| UniRef90-Q0UNE3 | FNTEAHPFRL |
| UniRef90_14YG05 | LSTEAHP |
| UniRef90-B8PIR3 |  |
| UniRef90-S8FIJ9 | F NTEAHPLPIF |
| UniRef90-E9CXX8 | F NTEAHPVKVF |
| UniRef90-Q0CTT0 | F NTEAHPLPRF |
| UniRef90_N1JM20 | F NTEAHP\PV |
| UniRef90-K5WPL1 | F NTEAH |
| UniRef90-K7GUZ4 | FNTEAHPVPI |
| UniRef90-R9P029 | L N T EAHPLPVF |
| UniRef90-C5GFX5 | F NTEAHVF |
| UniRef90-W5LF81 | F NTEAHPLPV |
| UniRef90-W4FLT3 | F NTEAHPFPI |
| UniRef90_L2GDJ2 |  |
| UniRef90-M3B0N6 | L N T E A PL |
| UniRef90-Q5BBN5 | LNTEAHP |
| UniRef90-V5ICG9 |  |
| UniRef90-UPI00044167D2 | F NTEAHPFK |
| UniRef90-F2RZR6 | F NTEAHP\RV |
| UniRef90-G0RVU3 | F NTEAHPFR |
| UniRef90-M2U2N4 | FNTEAHPFR |
| UniRef90_U7Q625 | L N T EAHPLR |
| UniRef90-UPI0001CBBFB5 | F T T E A HLLPLY |

UniRef90_UPIO00455FEF2 UniRef90_B8NOR9 UniRef90-DEGGIO8 UniRef90-W5JT02
UniRef90_UP10002742393 UniRef90-W1 QB22 UniRef90-G9MVK7 UniRef90-S3D1E9 UniRef90-COSE65 UniRef90-W4JWN4 UniRef90-V5FLC1 UniRef90--K1QWY2 UniRef90-F4S146 UniRef90-M2UCR2 UniRef90-B2VRK0 UniRef90-P31723 UniRef90-N1PFG7 UniRef90-S7PXS6 UniRef90-C3YA24 UniRef90-T5ADE3 UniRef90-N1PHW3 UniRef90_Q5BF93 UniRef90-CONEX1 UniRef90-V2WW73
UniRef90 G6CNX9 UniRef90-G7DYM4 UniRef90-A0A023FAD5 UniRef90-F9X3E8 UniRef90_M7ST37 UniRef90-A0A024UIK1 UniRef90-K2RP95 UniRef90-R7STW2 UniRet90-B7PN16 UniRef90-W4GGS3 UniRef90-UPI00042BA750 UniRef90_F2RU38 UniRef90-D8T5H4 UniRef90-S3C7Z5 UniRef90_S2J8W7 UniRef90-G2QQV8 UniReffo-M7BJH6 UniRef90-E3KXK5 UniRef90-U9UWE4 UniRef90-W9NAV6 UniRef90-U1H192 UniRef90-W2S2G6
UniRef90-U1GPR3 UniRef90-U705R2 UniRee90 UPI0004575EEF UniRef90_UPIOO042B1E86 UniRef90-G3JS41 UniRef90- F7VXP4 UniRef90-M2QTR3 UniRef90-K916A0 UniRef90-UPI000359C09C
UniRef90_U5GXT8
UniRef90-G0SAG1
UniRef90-G4TCA6
UniRef90-K5W830
UniRef90-W3WKN1
UniRef90-IOYKL4
UniRef90-M5EB13 3
UniRef90-M2UQX6
UniRef90-U6IKY2
UniRef90-H6BTX7
UniRef90-M2N7V5
UniRef90-A7EWG2
UniRef90-UPIOOO4412628
UniRef90-UPIOOO4624360
UniRef90_D8Q128
UniRef90- S 8 Fl 135
UniRef90_UPIOOO440AEF6
UniRef90_-8PJJX8
UniRee90-H2MXP8
UniRef90_UPIOOO455F5CB
UniRef90-F6VNW9
UniRef90-E9D2S8
UniRef90-F4R587
UniRef90-G2XYI7
UniRefon K9FY
UniRef90-K9FYJ2
UniRef90 E
UKLO1
UniRef90-D1ZZ17
UniRef90-S3D7E7
UniRef90-UPIO0037A5CEF
UniRef90-F2UIN4
UniRef90-G1X3A8
UniRef90
K2RXQ2
UniRef90-F4NTG3
UniRef90-F1KQY8
UniRef90_W5MW27 NARTDAVKEAFLHSWNGYTKFAFGFDELSPVSNKGTNS NEGKEEAREMFYHAYRAYMDNAYPADELMPLSCTGRYR VRAQREK पKEMMQFAWQSYKRYAMGENELRPLTKDGYEG

R A A AVKAAFQTSWNAYRQFAFPHDDLHPVSNGFDDR RQRADAVKEAFTYAWNGYYKYAFPNDELNPVSNGFSNS ERAKAVKEAFEFAWSGYMKHAFPHDELRPVSNTPSDS RDAAKT DFTDSYQAYREFAFGHDDLSPLSQSFS DR QRAEAVKEAFQFAWNGYYRYAFPHDELHPVTNGGDSR KRLRATVKTMFYHAYNNYMEHAFPLDNLRPISCKGDTG QKREMRDSVEEMFNHAYGSYMKYAFPADELMPLSCKGRYR
 EARRDEVKKVFKKSWASYKSKAWMKDALKPI SGGYDQF E ERAQGVVDAFRVSWD GYYKYAFPMDELLPVVNNGSNS
 QRLAAV R E A A Q WA WK GF R E N G WD F D E V K P I S F G S N T F E AKKQVLEMFDHAYSSY LTYAYPADELMPLSCKGR LL KA D AVVKRAFE DSWE GYYNHSFPHDTMLHVVNGFD DR QERSAAVKEMFEFAWNGYYKYAFPNDELLPVNNSGNSR DSRADAVKEAFSHAWDGYYNYAFPHDELHPISNGGDSR
 R D AVK Q $\mathrm{MF}_{\mathrm{M}} \mathrm{V}$ D S Y T A Y K R F A F G H D D L L P L S K G F S D R QRRDWTKRADIHAWEGYKAAAWEHDEVRPVTGAPNNF EA LRREEARDMFYHAYWAYMDNAYPADELMPL SCQGRYR QRADAVKEAFEFAWSGYYKYAFPNDELLPLNNTGSNS


WS KRADAVRDAFRHAYKGYLEYAGSSDELKPVSNEANNF EMAQEAKDMFEFAYDSYMKYAFPKDELNPI YCTGRGP A RQDA VKRAMQHAWS GYESRAFGADEVAPVSGQRRHW NERQRAVDDAFRHAWTGYRKFAWGHDELKPVSRSFSEW SRLEAVKGNFSHAWNGYKAHAWMADEVAPLSGALNPF QRRERVVAAMLLH WTSYEKFAWGEDELQPLTKNGVNS $R$ L A A V KA SF DRSWQ GYKDTA WMA DEVVQPVVATPRND $N D R A Q R I K G S F Q F A Y N G Y K Q H A F G H D E L D P V$ SEHFSDS R QRADAVKDAFQVSWDGYYKYAFPHDSLRPVTNGYDDR
 ES RRNAVKESFIHAWSGYKAYAMGADELKPLSNKTNNP E QRRESVKNGFLHAWRGYTKYAWGYDELSPVSNNGRNF RASAI KEAFQFSWNNYYEYAFPHDSLLRPLDRSGDDR ERQQQVKDTF DKCWRSYRTHAWMRDELSSL SGNGRDF DRQQAVLNAFRHSWEGYKQFAWLDDELTPVSGGRKTF $\square R E R R Q T V$ K EAFTHS WD GYK E H A WL K D E V A P V T G G S R N T K A RLEAVVKASFLRSWE GYKENAWMADEVQPLS QDYEKLL RDQILLEMFDHAYGSYMKHAYPADELMPLSCRGRVR QRREKV KEAMDHAWSSYEKYAWGNDELQPQSKNGVNS QARASAVRAAFETAWSGYYKYAWPHDDLHPDSNTYDDR QRRDAVRKAAQKSWKSYRAFAWRRDELTPVSLTGKNS K QKVVDVF T T S WNAYKEYAYGHD DLTPI SMSFVDS RERTRELFYHGYDNYMTFAFPLDEELTPLSCSGRGP K EKRDKVREMMRHAWSTYVKYGWGANEHKPISRRAHSS KRRREWVKRAFMHAWEGYKK QWGHDEVAPVSGSYDRY QRAEAI KEAFQVSWDGYYKHAFPHDSLTPLNNAW LQ A R A E EVVKMA F R R GYGQYY L R H S Y P R D E L R R P L S N E S D N F DRTAAVQEAFDRAWNGYYTYAFPHDS L T P L S S L S F F D D F HS WRAYETYAWGMDELTPLTKGGNDF
LQERQRLVKHAFLHAWQSYKTHAWGADEVRPISGEPNDF E ERAQAVVNTFRVSWDGYYTYAFPKDELNPVTNNGSNS LE S L K Q RVVKHLFYHGYDNYMKHAYPY DELRPISCD GQDW $\begin{array}{ll}A R Q D A V & R \\ A & F \\ H & L\end{array}$ KHRQDVVAAF YRWQAYREHAWMADELAPVSNGSKHF RLA AVKESFVHSWE GYKAHAWLRDEVSPLSGSWKDT RDAVVKLFKDAYNTYKEHAWGHDELAPASKKGDDR WDTRAA QV KQAFRHAYSGYKRYANGYDELRPDSNTANNF WA ARAALVKGAFVHAYQSYNSNAYMHDEVKPVSGRVNNF WKERAEAVKNAFRHAYGGYERHAKPHDELRPLTNGTDNF
 K EMAR EMFYF GYDNYMKYAFP E D E L L N P I D CK G R G P WS ARADKVRDAFVHAYGEYEKYALPADELLPLSKGSNNF NERQKFVVDVFLHAWKGYKETAWGHDHAHP SRTTYDDW

S WS A Y A NQAWGSDDFYVLTGTGTRS DRQAAVKEAFSFAWNGYYQHAFPHDEDHPIANSFSDS SRQLAAVKEAFEKCWKSYQSLAAWGADELSPLSGSSKNLL ERQGWVRRGFQHVWEGYKARAWAHDELKPVSGSFQNP LREEVVREMFYHAYDSYLKYAYPYDELRP IGSDGDDT QRAEVVVKDMFKFAWKGYYKHAFPNDELVPMNWHTNSR N LAARVKAETQRAWQGYMKYAAGHDEIRPLSKQPHDW NA L L D D A R EAFTHAYDGYMAHAFPKDELCPLSCTGQDT RAD AV KEAFDFAWNGYYTYAFPNDELHPDSNGGNTR EKQEFIRNMDRHAWSGYMKYAQGSDELKPLSKSNMNW
A LR A QAK E M FLLH GY NSYMKY AY P H D E L M P L S CR GR S L

UniRef90_UPIO00455FEF2 UniRef90-B8NOR9 UniRef90-D5G108
UniRefo - W5.JTO2 UniRef90- UPIO002742393 UniRef90-W1 QB22 UniRef90-G9MVK7 UniRef90-S3D1E9 UniRef90_COSE65 UniRef90-W4UWN4 UniRef9- V5FLC1 UniRef90-K1QWY2 UniRef90-F4S146 UniRef90-M2UCR2 UniRef90-B2VRK0 UniRef90-P31723 UniRef90-N1PFG7 UniRef90_S7PXS6 UniRef90-C3YA24
UniRef90- T5AD63 UniRef90-T5AD63 UniRef90-Q5BF93 UniRef90-CONEX1
UniRef90 V2WW73 UniRef90-V2WW73
UniRef90 G6CNX9 UniRef90-G7DYM4 UniRef90-A0A023FAD5 UniRef90_F9X3E8 UniRef90_M7ST37 UniRef90-AOAO24UIK1 UniRef90-K2RP95 UniRef90 ${ }^{-R 7 S T W} 2$ UniRef90-B7PN16 UniRef90-W4GGS3 UniRee90-UPI00042BA750 UniRet90-F2RU38
 UniRef90-S2J8W7 UniRef90-G2QQV8 UniRef90-M7BJH66 UniRef90-E3KXK:
UniRef90- S2IZB3 UniRef90-U9UWE4 UniRef90-W9NAV6 UniRef90-U1HI92 UniRef90_W2S2G6
UniRet90_U1GPR3 UniRef90-U7Q5R2 UniRef90 UPIOOO4575EEF UniRef90 UPIOOO42B1E86 UniRef90-G3JS41 UniRet90_F7VXP4 4 UniRef90_M2OTR3
UniRef90 K916A0 UniRef90-UP1000359C09C UniRef90-U5GXT8 UniRet90-GOSAG1 UniRef90-G4TCA6 UniRef90-W3WKN1 UniRef90-10YKL4 UniRef90-M5EB13 UniRef90-M2UQX6 UniRef90-UEIKY2
UniRef90 H6BTX UniRef90-M2N7V5 UniRef90-A7EWG2 UniRef90-UPIOOO4412628 UniRef90-UPIOOO4624360 UniRef90-D8Q128 UniRef90- 88 F135
UniRef90-UPIO00440AEF6 UniRef90-F8PJX8 UniRef90-H2MXP8 UniRef90-UP1000455F5CB UniRef90-F6VNW9 UniRef90-E9D2S8 UniRef90-F4R587 UniRef90-G2XYI7
UniRef90- K9FY UniRef90-E3KLQ1 UniRef90-D1ZZ17
UniRef90
S3D7E7 UniRef90-UPIO0037A5CEF UniRef90-F2UIN4 UniRef90-G1X3A8
UniRef90 K2RXQ2 UniRef90-F4NTG3 UniRef90-F1KQY8

NGWGASMADALDTMFILMGRNDWFEEAVAHFANIDFSRTND FGWAATLVDSLDTLII MGLMDEFEDALQALEHIDFSTTGT
 NMFGATVI DSLDTLYLMELKEEFQEAKAWVEKSFHDNVSG WIIVDSLDTLMLMKCDEERREARSWVKHELDYDFDY

 NGWGASAI DALSTALVMRLPDVVDDULKYVPTIDYSKTSQ K DPMLTLIDTLDTLVVFGDFEEFRRAVRLVLSGASFDGNT SGWGATLVDCLDTLLIMDLPTEYEYARDHVASTDWSVTYP SGWAATLVDSLDTLWMMGMRDEFYEAVRAVSTI DFTSTLS NGWGASAVDALSTALIMGEKTTVNQILEHIPTI NWAVTND
 NGWGASI ADALGTMVIMGLEADFLQAVNYTAYIDFSQTPD GGYSLTLIDTLDTLAVLGHLDKFEDAVKMIILQVSLDNDV
 NHWGASAVDALSTAIMMRNATIVNQI LDHIAAVDYSKTNA NGWGASAVDALSTALIMDSPEIVKSLEEHISKLDYSKTDT NGWGAT VDAMSTMH|MGLDDFFNEAVEFASKDDFSQTND NGWGASLVDALDLMIMIGEDREYNLCRAHVAADDFTMTTG NGWGASAVDALSTALIMGERDVVHQLEHIPTDDWNVSAD AGWAATLVDALDTLWIMGLREDFELAVAACDALDFAATAS NGWGWITVVDALDTLLLMNLTTQLTHAREWVSTSGTYEKDH DDYSLTVDA GGIGVTLVDSLDTLYIMGMRDEFHRARNWVANHMNFTHGT FGLGLTLI DALDTMWI LGLKKEFEEARKWVSKKLRFQKDV GGWAASMVDGLDTLWI MGLYDEFAEAVKAIDDDFNNCTVD FGLGAT IDAMDTLYIMGLHTQFQKARTFVAG DNFNDNY GGWAATLVDADDSLWI MGMYDEFRMAARACEA DFSHTDG NGWGASIIDALDTMLI MGLEKDYQEALEFVKDI DFTKSKD NGWGASAVDAFSTALVMGKWDVVGQILAYVPTINFDNTTD GMFSLTLIDTDDTLVVLNKLDEFEDAVRKVVLDVRDDNDV TSDGFFIVDVIDTYLLTGDMDEYQRARKYVERDLSFDVDG FGMGATMIDSLLSTMLIMDLDQEFEQVLPLVNQLNVHVNE NGWGATPVDSLSTALLMGDKKTVNQILEFIPTINFTRTNE SSWAATLVDSLDTLWIMGLKDEFVDAKNAVSGIDSHSPDN FGWGASLVDTLDTLW MGMKAEFEEAVAAVRNIDFSDAEQ GGWSATLVDTLDTLWI GGLRDEFRMAVRACEAIDFGVTDD GGLSGATLIDSSLDTLYIMGLLDEQFDAAVRKVINNVRLDNDD AQWGLTPIDALDTALVMNYKDVVNTILEFGPNTVDFTTTRK YGWGASIVDALDTAFLMGETSGFEEAVQWTSVDVNDKNSA DNYSVTLVDVLDTLVVLDDRDGFEKAVKNVIEWVQFDVNT STFGATIVDAVDTLYVMGLDEEYKVARDWI ATSLNF NGWGATUVDSLDTLLIMGLNEEYNLAREHVSAVDFSYPQK NGWGVTVVDSDDTMFLMGKTEEYEQARSHVAKDEQTCKGG NGWGATLVDGFDTMILMGLDDLTNRSIAHIAKLTFLHKNK GGWGASAVDALSTATUMGDKKVVNQLLDYIPKIDFTKANY GGLGATLIDSDDTLHMGDYSDFRRARDWVATQLDLQHDA NGWGATIVDALDTLLVMGLHDEYALAREHVHDDDFLVVCG NGWGASAVDALSTALIMGEKETVNQILDHI PTINWGVTDS GGFSLSSLDALDTLVVLGNHTEFQRAADLILENVNTNQNV CGWSATLVDSLDTLYLMELDAEFEEAVNATLTVDFTAGDC FGWAATLVDSLDTLWI MGLKEDFEDAVQSUEQI DFTTTNE
 NGWSVTVFDSLDTMLLMGLLDEMFDDALSVVARSEYQDSNN NGWGVTLFDSLDTMIMMGLNDEFARSLPVVSRAVTNRHQG
 DNYSLTLTDTLDTLLVLGNVSEFQRAVKLVIETVSFDKDS NGWAVSMVDALDTMWLMGLHDTFADSIIVVVANISYASHND FGVGLTLLDALDTVYIMGLQQEYFAARDWIANTMDFNKDT GS TGYF VDVLDTLILTKEMDEYARAREYIQNDLRFDDDG NGWGASAVDAFSTAIIMEDPEDVDVILNWVPT DFDETDS GGWGATLDNDDRWMGMHDEKKAVAAVTRIFEDTPSP FGWGATLVDCLDTLLIMNLTDEYNYARTHVKALDWAHTHP YGYSLTLIDALGTLAMGNHSEFQRVVQDTAKPDFDAND NGWGATAVEALGTAAIMD MPEVVDQLLDFIPKПDFTKSKD YAQPMTPVDALDTLIVMGLDDEAKQARELVETKLSFNQDD WGFALLTLVDTLDTLYLMGNYSEFEHASRRVLNVLDFDMDR SGWGASVIDGIGTAVLMELPEVVEQQLEFISKIDYTKCEH NNWGASAVDALSTALVMQNREIVNQILEYIPTIDYTTTST TSTLFTPLDSMSTLYIVGLSQEFNEAKSLVTNQLNYDDKT UniRef90_W5MW27



UniRef90_UPIO00455FEF2 UniRef90-B8NOR9 UniRef90-D5G108
UniRef90 W5JTO2 UniRef90- UPIO002742393 UniRef90-W1 QB22 UniRef90-G9MVK7 UniRef90-S3D1E9 UniRef90_COSE65 UniRef90-W4UWN4 UniRef9- V5FLC1 UniRef90-K1QWY2 UniRef90-F4S146 UniRef90-M2UCR2 UniRef90-B2VRKO UniRef90-P31723 UniRef90-N1PFG7 UniRef90-S7PXS6 UniRef90-C3YA24 UniRef90-T5AD63 UniRef90_N1PHW3 UniRef90_Q5BF93 UniRef90_CONEX1
UniRef90 V2WW73 UniRef90-G6CNX9 UniRef90-G7DYM4 UniRef90-A0AO23FAD5 UniRef90_-F9X3E3 UniRef90_M7ST37 UniRef90-AOAO24UIK1 UniRef90-K2RP95 UniRef90-R7STW2 UniRef90-B7PN16 UniRef90-W4GGS3 UniRee90-UPIOO042BA750 UniRet90-F2RU38 UniRef90_D8T5H4 4
UniRef90 - 3 S3C75 UniRef90-S2J8W7 UniRef90 G2QQV8 UniRef90-M7BJH66 UniRef90-E3KXK5
UniRef90
U2IZB3 UniRef90_U9UWE4 UniRef90_W9NAV6 UniRef90-U1H192 UniRef90_W2S2G6
UniRet90_U1GPR3 UniRef90-U7Q5R2 UniRef90_UPI0004575EEF UniRef90-UPIO0042B1E86 UniRef90_G3JS41 UniRet90_F7VXP4 UniRef90-M2QTR3 UniRef90-K919AO UniRef90-UP1000359C09C UniRet90_U5GXT8 UniRet90-GOSAG1 UniRef90-G4TCA6 UniRef90 W3WKN1 UniRef90-10YKL4 UniRef90-M5EB13 UniRef90-M2UQX6 UniRef90-U6IKY2 UniRef90-H6BTX7 UniRef90_M2N7V5 UniRet90 A7EWG2 UniRef90-UPIOOO4412628 UniRef90_UPIOOO4624360 UniRef90_D8Q128 UniRef90 S8F135
UniRef90-UPIO00440AEF6 UniRef90-F8PJX8 UniRef90-H2MXP8 UniRef90-UPIO00455F5CB UniRef90-F6VNW9 UniRef90-E9D2S8 UniRef90-F4R587 UniRef90-G2XYI7
UniRef90-K9FY UniRef90-E3KLQ1 UniRef90-D1ZZI7
UniRef90
US3D7E7 UniRef90-F2UIN4 UniRef90_G1X3A8
UniRef90 K2RXQ2 UniRef90-F4NTG3 UniRef90-F1KQY8

WNRLSQYTGND
No
180
190
200
信 FTRMSQLTKDPKYFDAIQRITTDK ESAQSRTQGLWPMMVD WTRLADITGNRKYAELSQKAESYLDRLGEPFPGLLGTNVD FLHETELSGNOVFAEKVRNARKVLRKDDK PFGLYPNFLN FKYLA QLTGEELYWRAAEQVMKSLDEADP TDGLVPNYYQ

## \section*{}

 WM H L L WS R L WT HL F T ML S VL

## 

## 




##  <br> *

## W

W

## 

##  <br> 

## 

Wiss wruak YKYL F GVLSRLVGNKVFETVA

## F

$R L S D L$
F A A L FKYLA $\begin{array}{lll}F & L & T \\ F & T & K \\ W & T & H \\ L\end{array}$

## ○エ

F T H L | $F$ | $T$ | $R$ | $L$ | $S$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $F$ | $T$ | $R$ | $L$ | $T$ |

 F 1 A L S QR $\begin{array}{lll}\text { W T R } & \text { L } \\ \text { F } & \text { S } & \text { R L } \\ \text { L }\end{array}$

## . <br> \section*{}

## Y

WT RLS D
WHALL A R

| Y | $T$ | $R$ | $L$ | $W$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $W$ | $T$ | $R$ | $L$ | $A$ | $D$ |
| L |  |  |  |  |  |

F G
F
FTR $\mathrm{T}_{\mathrm{L}}$ WHRLL WTYAAHAT Y K Y L A H LT Y T Y L A L L

 F G I L S R L DG D S T F E WV A R R A V R A L W R L R S N E T G L L G N V I N
 $\begin{array}{lll}\text { F } & R & R \\ \text { K } & \text { S } & L\end{array}$
WT H L

| $F$ | $T$ | $R$ | $L$ | $S$ | $Q$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $F$ | $T$ | $R$ | $L$ | $S$ | $Q$ |
| $L$ |  |  |  |  |  |

FGTLS
WTRLSDU

 WTRLLSDLLGDDE
Y Q
FA A L S R L L G K P I Y E E K A R K A M D F $\quad$ L W A Q R N R G S D
FA A L

UniRef90_UPIO00455FEF2 UniRef90_B8NOR9
UniRef90-D5G108 UniRef90-W5JT02 UniRef90_UPIO002742393 UniRef90-W1 QB22 UniRef90-G9MVK7 UniRef90-S3D1E9 UniRef90-COSE65 UniRef90-W4UWN4 UniRef90-V5FLC1
UniRef90
U0S7Y2 UniRef90-K1QWY2 UniRef90-F4S146 UniRef90-M2UCR2 UniRef90-B2VRKO UniRef90-P31723
UniRef90 N1PFG7 UniRef90_S7PXS6 UniRef90-C3YA24 UniRef90-T5AD63 UniRef90-N1PHW3 UniRef90_Q5BF93
UniRef90 CONEX1 UniRef90-V2WW73 UniRef90-G6CNX9 UniRef90_G7DYM4 UniRef90-A0AO23FAD5 UniRef90-F9X3E8 UniRef90 M7ST37 UniRef90-AOAO24UIK1 UniRef90-K2RP95 UniRef90-R7STW2 UniRet90-B7PN16 UniRef90-W4GGS3 UniRee90_UPI00042BA750 UniRef90-F2RU38 UniRef90-D8T5H4 4
UniRef90
S3C7Z UniRef90-S2J8W7 UniRef90-G2QQV8 UniRef90-M7BJH66 UniRef90-E3KXK5
UniRef90
S2IZB3 UniRef90-U9UWE4 UniRef90-W9NAV6 UniRet90- U1H192 UniRef90_W2S2G6
UniRef90_U1GPR3 UniRef90-U7Q5R2 UniRef90_UPI0004575EEF UniRet90_UPIOO042B1E86 UniRef90-G3JS41 UniRef90-F7VXP4 UniRef90-M2QTR3 UniRef90-K916AO UniRef90-UP1000359C09C niRet90_U5GXT8 UniRef90-GOSAG1 UniRef90-G4TCA6 UniRef90_W3WKN1 UniRef90-IOYKL4 UniRef90-M5EB13 3 UniRef90-M2UQX6 UniRef90-UEIKY2
UniRef90 H6BTX UniRef90-M2N7V5 UniRef90-A7EWG2 UniRef90-UPIOOO4412628 UniRef90_UPIO004624360 UniRef90-D8Q128 UniRef90 S8F135
UniRef90-UPIO00440AEF6 UniRet90-F8PJX8 UniRet90_H2MXP8 UniRef90-UP1000455F5CB UniRef90-F6VNW9 UniRef90-E9D2S8 UniRef90-F4R587 UniRef90-G2XYI7
UniRefo - K9FY UniRef90-E3KLQ1 UniRef90-D1ZZI7
UniRef90-S3D7E7 UniRef90-UP100037A5CEF UniRef90-F2UIN4 UniRef90-G1X3A8
UniRef90
K2RXQ2 UniRef90-F4NTG3 UniRef90-F1KQY8

PATGKSVIG ${ }^{210}$ Y $\square$ TWGGGTD
 AHDMQFTDPSRTVGGMADSTYEYLPKEHILLGAQTDQYR VHSGDWI RRE SGVGAGDDSYYEYCLKSYI LLG PVSGNWVQHHVSVGGLGDSFYEYLIKSWLMSAKTDMEAK PETAKFQG NLIRLGSRGDSYYEYLLKQYLQTAREPVYL TSSGAF QDSNGSWSALSDSFYEYLIKMYLYDPVAFANYK TTTGHFDNSDTSW GAGSDSFYEYLIKMFIYDESRFKTYR PSSGDPVGAYVTWGGGSDSYFEYLIKYARLSNTDDDTFA VDSGDWTE TISGPGSNSDSFYEYLLKMYVLEGDAESL VHNGDWDRREA GVGAGTDSYYEYVLKAYVLLGGDDEKY MRRQDVVSGYQFT円GGNAD VTTGQFTNARGGWVGGGD MDASFRNSPETFTLGGQSDS DHTGDWVRRESGVGAGIDD TENGEFLD SDGGWSGGTDS DENGSFVDNSGGGWTGGDD DTTGHFVNADVSWWGGGADS $P V K T A A V G S Y V T W G G G S D S$
$I V A G D W V R K D S G V G A G I D S S$ NAAYPQSLRGTYTWGGEADS VHSGDWVRRD SGVGAGDDS

TGEWTE VKTGIFQG SNDRHGSRGD VNTGEWIGK MSGIGAGADS
PETGHFTEDTIITVGARGDSFYEYLLKVWLYSGKRTDFDR THSGLFTHMGVFTLGARADSYYEYLLKQWIQGGKKETQWR AAAMNFRASNRFTIGGMADSLYEYLPKV
 LSDGQFVDGNGGWGGGDD IHNGDWVRRDRGVGAGDDS VKTGTFLFSPLGFGAMGD QATGNFINDDAVSFGANGDS PKAEDLTGDTGFTLGGMSDS GRDCNMHRDFTFSLGAFADS
ARTQEFSRDTFFTHGGMADS
 PDRGT GSYSTGTFGAMGDS
TADGTFLLNSRGGWSGGDDS
LIAGTRTSDTFTLGAGADS LIEEGTRPTSDTFTLGAQADSA
 TSRPEWDS DVYSFGAASDS
TSSGEFVD GNGGWGAETDS AMSGLPSNAAWS SGGALGD 1 ATGKFVN SNGGWGGGTD RHTGKYNPGNMYTVGGGADS
 VLTGAWVGREA TGAGTGVD MQKDRFDEDT爵FSGGGMAD HLSTGRPTSESRSVGAAADS KTAAPKSGY FSVGAFADS
 PATGESVG SYVTWGGGTDS VQTGQWVGK QSGLGAGMDS ANTGLFRPGGTLTVGARADSYYEYLLKQYLLSARSEPAMR TRKLDFTRYGGFTIGGMADSLYEYLPKQHILLGQATKQYR ISPMDGSTFFH\|RVGSRGDSYYEYLTKQYLQTNRTETVYR VNTGLFQDAS GGWNGGDDSFYEYLIKMYVYDSTRFGKYK NPDSPKSLGNKYTFGAMVDSYYEYLIKQYQLLRGTDLQYR VETGRWTYQDA GDGSGVDSFFEYLVKGS LLQRPE
VHSGKFTD AWGSWGAGGDSFYEYLYKMYMYDQARYRLNM TRTGVWTHDD SGIGGNQDS
LRDGFLDSGGGGAMGS
IENGSFVDASGGWVGGMADS


UniRef90_UPIo00455FEF2 UniRef90_B8NOR9 UniRef90-D5GI08
UniRef90-W5JT02 UniRef90_UPIOOO2742393 UniRef90-W1QB22 UniRef90-G9MVK7 UniRef90-S3D1E9 UniRef90_COSE65 UniRef90-W4JWN4 UniRef90-V5FLC1 UniRef90-K1QWY2 UniRef90-F4S146 UniRef90-M2UCR2 UniRef90-B2VRK0 UniRef90-P31723 UniRef90-N1PFG7 UniRef90-S7PXS6 UniRef90_C3YA24 UniRef90-T5AD63 UniRef90-N1PHW3 UniRef90-Q5BF93 UniRef90-CONEX1
UniRef90-V2WW73 UniRef90-G6CNX9 UniRef90-G7DYM4 UniRef90_A0A023FAD5 UniRef90-F9X3E8 UniRef90-M7ST37 UniRef90-A0A024UIK1 UniRef90-K2RP95 UniRef90-R7STW2 UniRef90-B7PN16 UniRef90-W4GGS3 UniRef90_UPI00042BA750 UniRef90_F2RU38 UniRef90-D8T5H4
UniRef90
S3C75 UniRef90-S2J8W7 UniRef90-G2QQV8
UniRef90-M7BJH6 UniRef90-E3KXK5 UniRef90_S2IZB3 UniRef90-U9UWE4 UniRef90-W9NAV6
UniRef90 U1HI92 UniRef90-W2S2G6
UniRef90-U1GPR3 UniRef90_U1GPR3
UniRef90_U7Q5R2 UniRef90_UPI0004575EEF UniRef90-UPIO0042B1E86 UniRef90-G3JS41 UniRef90-F7VXP4 UniRef90-M2QTR3 UniRef90-K916A0 UniRef90_UPI000359C09C UniRef90_U5GXT8 UniRef90-G0SAG1 UniRef90_G4TCA6 UniRef90-W3WKN1 UniRef90-IOYKL4 UniRef90-M5EB13 UniRef90-M2UQX6 UniRef90_U6IKY2
UniRef90_H6BTX7 UniRef90-M2N7V5 UniRef90-A7EWG2 UniRef90_UPI0004412628 UniRef90_UPIO004624360 UniRef90-D8Q128 UniRef90-S8FI35 UniRef90_UPI000440AEF6 UniRef90-F8PJX8 UniRef90-H2MXP8 UniRef90_UPIO00455F5CB UniRef90-F6VNW9 UniRef90-E9D2S8 UniRef90-F4R587 UniRef90-G2XY17 UniRef90-E3KLQ1 UniRef90-D1ZZI7
UniRef90-S3D7E7 UniRef90_UPI00037A5CEF UniRef90_F2UIN4 UniRef90-G1X3A8 UniRef90-K2RXQ2 UniRef90-F4NTG3 UniRef90-F1KQY8
 KMYDAAINS IKKRLLFRGMTKDGKDIMFAGNDRIEPQFEH ERWDAAADSTDKHLTSHPQPRQDTFVAEYQNQTLSGNQGH NMYYEALELGA EMY METVAGIRKHLVRYSKPNNLMFDGELIGGPDSTKMDH DRWVLAADSTIA HLSHPTTRKDLTFLSAYSGQSTSPNSGH D RWI KAADSSIAHLVHPSTRPDLTFLSVYNGKKLIYESQH D R WVLAADESSI KHLVSDPDRPEFTFLAPYSNKKLGSSSQH
 GMFEEVYSNVMEHNKHGDWYGDVSMWDGCTGGAAI VFDN YRFDKHYNSIMKYMSKG PMMVDVHMHKPTSSARHFMDA KMYTS ILSSAKSNLDKTFEPKTITILGDKDGGKDVNSLDH TMSRAFLDTAMNNLFFAPMDPGQEEILDSDGPSLDPESEH D R WVLAVDSSTEHLASHPEPPDlTALAAYNGTKLRLDSQH
 ETWQA AVDSSIVKYVRESTVGNWTYVADRDNGNIVGVGSH ERFNTHYAAVMRYI SQG PLLLDVHMHKPNVVSRNFMDS
 DRWVAAAESSINHLSHPSTRPDVTFLATYNEHQLGLTSQH D R WVLLA IESSIKHLKSTSNKNEYTYLAGFENDKLDFNSQH
 RVYADAVDSAYVHLDRNVPGEEFLTVGKAGWRDVEDKVDH SRFNKHYSAVMKYVSQGBPMLLDVHMHRPNTNSRNFMDA RLYEGFIDVAKAHLLRRAMNPDDVPIMFFADARVRSDAQH NMFQPVYS SVMEHNKHGDWYTDVSMWDGCVNAAYGFVFEN EMWDESLYGMRKHLLTYSTHANLTVLGERPSGNLSPKDDH D LY Y L R DASAILRNLLYVSPTRGLLYVTDAHQGAPTHTFEH RMF NESYSLIKQYMRKGRDHPGYVNVNMHDGSTSTDWDDS $Q L Y D D A V A G M E T H G L V Y S T D D D V Y Y L K E L Q Q L P E M Y P R Q D H$
$V A R P P P S P G P V W S S R G R A R S G V A F H V P A L V G P E E S P F Q D H$ 1 LYKVANNSSNISCL KKAPYYYVFERNSNGDDPAQH QMWERSMDG LMT LIKKKAPYYYVFERNSNGDDF PKMEE SMYEEFLP IAKKNLFRRVMNAWNLNLVTGHAVNTDNRGEH HVWQDSVESIENYMLSPTQDPSIKYVAMISNSTVYYSSQE D RWVAAADSSIKYLSHPTTRPDLTYLAMWQNTTLRFTSQH ERFNAHYVAIMKYIG EMYDEAMTGVKEELVRET RMYTKA $\quad$ D SMKTKMLVQ PPGGVVYVGELHSYRFLPKQDH RMYIESVESMYKYLIVKESPRPELLFLGELINGYFVGKMGH DRWIAAADSTMQHLSHPSTRPDLTFLISGYSGTQTYPNSGH K LYQDSMSVATEKLFFRPLTPDNADIIDSGDVRDEPKAQH TMY LDRSLAPITAHLLAKPMTPPLTYKANQPHPASVPQMQH RMYAYALQTIKSNLLFKPMTTTDKDDYGLNTVHLEPQSQH QMYEKWLPVAKKHI FRRVVNAWNDDPMTGKAITTTARGEH ERFNTHYRAIMKYI SQP PLLLDVHMHNPTVTVRKWMDS DMWETSMKGLL SLDRRSTPSSFAYICEKNGNSLTDKMDE DRWDAAADSTMEHLSHPTSRQDDTFLNQFDGQTTESVTGH TMHTKAMDAAAKHLLFRPMLPSGDDDAHRDKSALQPRVQH DTWATAVDTS\QVLARKSTVGDWQFLADWDTGTIDHIDSH DVWDDAYTA I MRYSRA A DGYWYRPVSMKTGDTAFFTVDS EMYDKAMQAVYDKLLAKSN SGLTYFAEYKSGRLEHKMDH RMYREVIDSAYEYLI RDPGQDHLTNDGEFNAELRPTLQH DRWVKAADSSLIHLVHPSSKPELTFLAEWRGKELNYYGQH E DYY K SMRGAVNRLVY L S RTRQLLY DRWVAADDSSI KYIASHSRPDKTLGAGWQNSTTLSYSSQH SMWERAMDEVL DRLDHVSSDGLSYVGHDSVAKRFKPKMEH RMYE EAMDSAMVHLFRPHSPNLLVAAEVHARQPYVAKDEH RWDTAVDSSIKYLVSHPSPRPDITFDAAYNGPKLRFDNQH
 SMWKAASKQI KRHLLERAFDPHGNETDDTNQTMLETRTEH KMYENFISVAQEKMFFSSGDワR\KGIGESTTPELMPRGQH NTWKTAI DSTRKHLIKESTVGGHTFTADMDDERIMY IGGH EMY LLSMNEVLTRLLY TTPERGLLYVTETKGFTASHTFEH D LYY R SMRAI FEHVTFVSPKREMLYVTEDRAGKDTHTFEH QLYLRATNHILTHMLYLSEARNLLYVTDNRDFRPSHNFEH NA WLTA AVDSIHTLLRTSTVGDHVYLADQDDDLIRHIGSH DA WATAVDSSIQKLLRNSTVDDWLYLADFDGTNILHVGSH QMFQAAYESIQNHLRRGRDPPDYVNVNMNSGE IINTWIDS DLYYDAANGU DTHLKYSTPNRGLVYVTDGGAGAPTHRLEH TEYLEADEGI QKHLVGHSFPNGFTYVGELIVGVTPSAKMDH EMYDVAMTGIKEELVRETA SGGVYTGELHTYKFVPKQDH
 KMYTSALMSARQHLI RTYD
E IDFHEARKS $\mathrm{D}^{2} \mathrm{DKYLKKDDWYMW} \mathrm{\quad VSMTKGQVTDPVFQS}$ ERWVTAADSTDETLADTPPGVNDTFLTETTGQPLDHKSGH AMWETS $\square K G L N A H V A D E V R K N W Y G H V D M H S G A R R A S Q W G S$ TMFSNAYTSITGDMKKG DWYVDVNMRTGAPTDPWFTS ERWIQQAADSTMTHLPDTTPASNLVFVGEYSNGRSVARGSH D RWILDAVDSSDQYLSHPSSRPDLTYLAAYDNQTTLNVSQH




UniRef90_UPIO00455FEF2 UniRef90_B8N0R9
UniRef90_D5GI08 UniRef90_W5JT02 UniRef90-UPIOOO2742393 UniRef90-W1QB22 UniRef90-G9MVK7 UniRef90-S3D1E9 UniRef90-C0SE65 UniRef90-W4JWN4 UniRef90-V5FLC1 UniRef90-K1QWY2 UniRef90-F4S146 UniRef90-M2UCR2 UniRef90-B2VRK0 UniRef90-P31723 UniRef90-N1PFG7 UniRef90-S7PXS6 UniRef90-C3YA24
UniRef90-T5AD63 UniRef90-T5AD63
UniRef90-N1PHW3 UniRef90-Q5BF93 UniRef90-CONEX1
UniRef90-V2WW73 UniRef90-V2WW73
UniRef90_G6CNX9 UniRef90-G7DYM4 UniRef90_A0A023FAD5 UniRef90-F9X3E8 UniRef90_M7ST37 UniRef90-A0A024UIK1 UniRef90-K2RP95 UniRef90-R7STW2 UniRef90-B7PN16 UniRef90-W4GGS3 UniRef90_UPI00042BA750 UniRef90_F2RU38 UniRef90_D8T5H4
UniRef90-S3C75 UniRef90-S2J8W7 UniRef90-G2QQV8 UniRef90-M7BJH6 UniRef90-E3KXK5 UniRef90_U9UWE4 UniRef90-W9NAV6 UniRef90-U1HI92 UniRef90_W2S2G6
UniRef90_U1GPRR3 UniRef90_U7Q5R2 UniRef90_UPI0004575EEF UniRef90_UPIO0042B1E86 UniRef90_G3JS41 UniRef90_F7VXP4 UniRef90-M2QTR3 UniRef90-K916A0 UniRef90_UPI000359C09C UniRef90_U5GXT8 UniRef90-G0SAG1 UniRef90_G4TCA6 UniRef90-W3WKN1 UniRef90-IOYKL4 UniRef90-M5EB13 UniRef90-M2UQX6 UniRef90-U6IKY2
UniRef90 UniRef90-M2N7V5 UniRef90-A7EWG2 UniRef90-UPIO004412628 UniRef90_UPI0004624360 UniRef90-D8Q128 UniRef90- S8FI35 UniRef90_UPI000440AEF6 UniRef90-F8PJX8 UniRef90-H2MXP8 UniRef90_UPIO00455F5CB UniRef90-F6VNW9 UniRef90-E9D2S8 UniRef90_F4R587 UniRef90-G2XY17 UniRef90-E3KLQ1 UniRef90_D1ZZI7
UniRef90_S3D7E7 UniRef90_UPI00037A5CEF UniRef90_F2UIN4 UniRef90-G1X3A8
UniRef90 K2RXQ2 UniRef90-F4NTG3 UniRef90-F1KQY8

A5CEF

T G 1 G P
340
350

360 T GIMPEAKYS SSGGPERWSWDPAQSDFYARNGFYTTASYYDGRPEAVI ESY
TKLGPEAFWFNSG
TKLGPEAFWFNSG REAVATQLSESYYILRP
TGLAPEIVVFKQDANSDKDFY DKPADKHNLQRPEVV

T

## 

H NFLP L E AF DVGRWR K
T GLGP E R M S VLD DEKS SKY WEDFKV H
S GI MPERYN MVLCP GPDHRKPCAWAK D

## S

GI GP EVVFA Y F S S D GNYY Q


TGLSPEIVHFNLYPQSDRKDVQVKVTGWA

T
TVAPESWSWTPQDNKRAVERTFKI ENADYDLLRP
G GPEIF S WQDAQAAFYNASGFWIDNGAYVLRPEVLE
TKFLPPEAF
T

## T

## - <br> TGII MP E V



T
T

## T

## $T$

## T

| F |
| :---: |
| F || F |
| :--- |
| F |


N
T
S
T

-     - 

T

UniRef90_UPIo00455FEF2 UniRef90-B8NOR9 UniRef90_DEGG108
UniRef90 W5, TO2 UniRef90-UPIO002742393 UniRef90-W1 QB22 UniRef90-G9MVK7 UniRef90-S3D1E9 UniRet90-COSE65 UniRef90-W4UWN4 UniRef90-V5FLC1 UniRef90-K1QWY2 UniRef90-F4S146 UniRef90-M2UCR2 UniRef90-B2VRKO UniRef90-P31723 UniRef90_N1PFG7 UniRef90-S7PXS6 UniRef90-C3YA24 UniRef90-T5AD63 UniRef90-N1PHW3 UniRef90_Q5BF93 UniRef90-CONEX1 1
UniRef90 V2WW73 UniRef90-G6CNX9 UniRef90-G7DYM4 UniRef90-A0A023FAD5 UniRet90_F9X3E3 UniRef90_M7ST37 UniRef90-A0AO24UIK1 UniRef90-K2RP95 UniRef90 ${ }^{-R 7 S T W} 2$ UniRet90-B7PN16 UniRef90-W4GGS3 UniRee90-UPI00042BA750 UniRef90-F2RU38 UniRef90_D8T5H4 4
UniRef90
S3C7Z5 UniRef90-S2J8W7 UniRef90-G2QQV8 UniRef90-M7BJH6 UniRef90-E3KXK5 UniRef90-U9UWE4 UniRef90-W9NAV6 UniRef90-U1H192 UniRef90 W2S2G6
UniRef90 U1GPR3 UniRef90-U7Q5R2 UniRef90-UPI0004575EEF UniRef90_UPIOOO42B1E86 UniRef90-G3JS41 UniRet90_F7VXP4 UniRef90-M2QTR3 UniRef90-K919AO UniRef90-UPIO00359C09C UniRet90_U5GXT8 UniRet90-GOSAG1 UniRef90-G4TCA6 UniRef90_W3WKN1 UniRef90-10YKL4 UniRef90-M5EB13 UniRef90-M2UQX6 UniRef90_U6IKY2
UniRef90_H6BTX7 UniRef90-M2N7V5 UniRef90-A7EWG2 UniRef90-UPIO004412628 UniRef90_UPIO004624360 UniRef90-D8Q128 UniRef90 S8F135
UniRef90-UPIOO0440AEF6 UniRef90-F8PJX8 UniRef90-H2MXP8 UniRef90-UP1000455F5CB UniRef90-F6VNW9 UniRef90-E9D2S8 UniRef90-F4R587 UniRef90-G2XYI7
UniRef90- K9FY UniRef90-E3KLQ1 UniRef90-D1ZZ17
UniRef90
S3D7E7 UniRef90-UP100037A5CEF UniRef90-F2UIN4 UniRet90-G1X3A8 UniRef90-K2RXQ2 UniRef90-F4NTG3 UniRef90 FiKQY8
UniRef90
W5MW2

 YHAFVATGDEKYREWAWDAFLALAATARTAS
YFLYATGDHYYLHAGKKALKALQQHARVPC YYGYK TGGDVKYREWGWEIVENFVKHTKVTSG
 YHAYR YYAYRITGDTKYRDWAWDAFVHDNATCRTDS YFLYKATHDPHYDQVGKLMVENLNKHARVPC
 AYAP
GHA
GF T
 GYAA V AGFSGTQDV
 $T_{G}^{G}$

A NA ADMDVT YYAYRATSDPKYQDWAWDAFLAI NATTRVGS
 FYAWRITGDTKYLDNAAAADQSLNEYGYVNAS SGGYaGTND YYAYRLTGDRKWQDMAWQAFESIKKACRTGS YYAYRVTGDRKYQDYAWSADQAI NATTRVGS YYAWRVTGDGTYREWVWNAFTN: NKYCRTA YYAYRMTGDRMYQEWVWEAFDAIRKSCRTGS
FYAWRVTGDPKYLDRAASAVKSFNTYGAKGS YFLHRATGDDHYLRVGKTVLKALQQHTRVPC FYQWRITGDPFWQDEAWRMFTAWVNVSUTDH YYAYRATGDSDYQDYAWNAFLSINATCR QGSGFTAVEDV FYMHRLTADPKMDKADMFAAVERLSRTE FYMWR\TGEAKYREWGWEMFQAFVKHTLVED CYLWRTTGDEVVRERGWAVERALEREAKTDS FYLWRLTGNKTYQEWGWNIFQAFEKNSRIE
YYAYRATGDKKYQDLAWRGFNS VSKCRAGS GYSGLRDV ALSHRFTSDPNLLDVAWRMFSADSKATETK FAFSATANV FYAWRDTGDTKYLERAASADEAFEVYDAAP VAYAPAVDDV YYMWRLTKKQKYRDWAWAMLQSLEKHCRTE GGYTGGKGDV FEMWRLTGDRKWQDMGWR FVDWSAVA IAEY GFAGIDDV YYAYRATGDRRYQEWAWDAFKADNATCRVGS GYSGVTNV
 YYAWRATGDSKYQDWGWDAF DA YYMWRLTGDRKYRDWGWEDFQAFQKHSRGKTGYHSVSDVM YYAYRATSDPKYQEWAWDAFVANNQTTRVGS GYSSINNV MHVYRATKDPYLLEMGVNDLTSIVKDAKTSCGGATIHNV Fi LYRDTGDPQLREDAWEMFLHI QNATMTATAHSATADVT FIMWRITGDRKYVDAAWRMFRAIERVCRTEDASAAVMDVT FYAWRATGDKKYYDQAAEFVKNLAKHTAV NGANGGDRDV Y MMWRTTGNPVWRERGWADFEAIVERETKTASGYASLKKVT YLMWRTTGDPMWRERGWTVFEALERETKTPSGYASSKNDL
 YLLYQATKNPFYLHVGMDILQSLEQTTKVRCGYATLHHVV YVMWRVTGDAVWRERGWAI FEALERGAVPTGPGGVGYASV FYLWRITKDTKYRDWGWDIVQAFERYTKV FVLYRVTGDPSFLEKAWKMFNAIVENTITD\AHAALDDC FLAWRSTHDPGYREWGWQDFKAFDEHSKDQFGGYHSIRDV
 YYMWRITGDRQWQDRGWRMFTSWMEACVTK FGFANLEDV MYLYRATEDPFLLQAGEDULRS QHSARTPC GYATVKDV YYAYRVTKDRKYQDWAWEAFVAIVAHTKDRN GFSPISNV YY LRRLTGDVRYLGEGREMFEDFERWCRTDTGFAALSSVV
 YYAYRQTRDPKYQEWAWEGFVN:NATSR QGSGFTAVTNV
FYMWRYTHDPKYREWGWNIVQALETSCK DDVGYHGLNN YLLYRATKDPHYRHVAKNVMDSLNELVRVKC GGAGV

UniRef90 UPIO00455FEF2 UniRef90-B8NOR9
UniRef90-D5G108 UniRef90-W5JT02 UniRef90-UPI0002742393 UniRef90-W1QB22 UniRef90-G9MVK7 UniRef90-S3D1E9 UniRef90_COSE65 UniRef90-W4JWN4 UniRef90-V5FLC1
UniRef90- T0S7Y2 UniRef90-K1QWY2 UniRef90-F4S146 UniRef90-M2UCR2 UniRef90-B2VRK0 UniRef90-P31723
UniRef90 UniRef90-S7PXS6 UniRef90-C3YA24 UniRef90-T5AD63 UniRef90-N1PHW3 UniRef90_Q5BF93
UniRef90 CONEX1 UniRef90-V2WW73 UniRef90-G6CNX9 UniRef90_G7DYM4 UniRef90_A0A023FAD5 UniRef90-F9X3E8 UniRef90_M7ST37 UniRef90-A0A024UIK1 UniRef90-K2RP95 UniRef90-R7STW2 UniRef90-B7PN16 UniRef90-W4GGS3 UniRef90_UPIO0042BA750 UniRef90_F2RU38 UniRef90_D8T5H4
UniRef90-S3C7Z5 UniRef90_S2J8W7 UniRef90-G2QQV8 UniRef90-M7BJH6 UniRef90-E3KXK5 UniRef90_U9UWE4 UniRef90_W9NAV6 UniRef90_U1HI92 UniRef90-W2S2G6
UniRef90_U1GPR3 UniRef90_U7Q5R2 UniRef90_UPI0004575EEF UniRef90-UPIO0042B1E86 UniRef90-G3JS41 UniRef90_F7VXP4 UniRef90_M2QTR3 UniRef90-K916A0 UniRef90_UPI000359C09C UniRef90_U5GXT8 UniRef90-G0SAG1 UniRef90_G4TCA6 UniRef90-W3WKN1 UniRef90-10YKL4 UniRef90-M5EB13 UniRef90-M2UQX6 UniRef90-U6IKY2
UniRef90 H6BTX7 UniRef90-M2N7V5 UniRef90-A7EWG2 UniRef90_UPI0004412628 UniRef90_UPI0004624360 UniRef90-D8Q128 UniRef90 S8FI35
UniRef90_UPI000440AEF6 UniRef90-F8PJX8 UniRef90_H2MXP8 UniRef90_UPI000455F5CB UniRef90-F6VNW9 UniRef90-E9D2S8 UniRef90_F4R587 UniRef90-G2XYI7
UniRef90-K9FYJ2 UniRef90-E3KLQ1 UniRef90-D1ZZI7
UniRef90- S3D7E7 UniRef90_UPI00037A5CEF UniRef90_F2UIN4 UniRef90-G1X3A8 UniRef90-K2RXQ2 UniRef90-F4NTG3 UniRef90_F1KQY8
UniRef90-W5MW27



TLDPDP KADRMESFWLAETLKYFYLIFAEPDVVSLDEYV DS DP DKVENKMETEWLAETLKY LFLLESSEDSVLPLDQYV NAANGGGFNDFQDSFLFAEVLKYAYMIHGDDEEYQVNQWV DEGSELTGKDSMDSMWMSQTLKYFYLMFSSDDLISLDEFV NS WP PKTTDKQESFVLAETFKYYYL LIFSEPDLI SGLDDYV RDH RKEDRMESFFLSETTKYLYYLEDTENF:IHNGGYI NEVGGGWKSGKQESF LIFSELLFKYMYLI FAAEESSEIVQVNEWV T
SDH
SREDG
NAPNG
TFGDRMESFFLSETLKY L F FLLA
GGSPDDNQESFLFA

FNTECHPF $\quad$ L
$\frac{\square}{F}$ NTEAHPFKV
 FNTEAHPLDPV
LNTEAHPFPRY
LN TEAAHPFST
 F NTEAHPFKV
FNTEAHPLKV F NTEAAHPFI
F NTEAHPIIK

 FNTEAHPFKL
LNTEAHPFRL
L F NTEAHPVKV W
LNTEAHFFR
FNTECHPF


YNTEAHPFKVY
YTTEAHP【KKV
FNTEAQPF

FNTEAHPLRD
VNTE
YNTEAHPFRL
LDFEGNLDREI
FNTEAMPFK
FNTEAHPFK
FTTEAHLLPL
FNTEAHPFKV
FNTEAHPFR
FNTEGHPFK
FSTEGHILLDV


F NTEAAHPLDPI F
FNTEAHPFPTF
FNTEAAHPVKI

둔 Th A
YNTEAHPVRV
FNSEAHPL

FNTEAHPRR



FNTEAHPF
FNTECHPFK

LNTEAHPLK
F NTEAHDFPVF
FNTEAHPFKV
FNAGGHP LK
FNTEAHPFR $\square$
F NTEAHPL
F NTEAGHPLR $\square$
FNTEAHPLR




UniRef90 F0ZBS8 UniRef90-Q4PD56 UniRef90-G4M135 UniRef90-O6DF63 UniRef90-M2PW88 UniRef90-UPIo00258FOF1 UniRef90- FoXLS7 UniRef90-W8BU24 UniRef90-Q5BFX9 UniRef90-EOVZR8 UniRef90-A2G576 UniRef90-G4U2B4 UniRef90-A8N9H0 UniRef90-B3RPB3 UniRet90-S8C772 UniRef90-A8QCT5 UniRef90-D8MBM7 UniRef90-T1IVLO UniRef90-UPIO00387DC09 UniRef90-S21ZW3 UniRef90-D6RNQ2 UniRef90_V2XZ24 UniRef90-H3G758 UniRef90-UPI0003337B48 UniRef90 H3F487 UniRef90-K4FTQ1 UniRef90_Q2GYk8 UniRef90-E4XFN5 UniRef90-MOSQR7 UniRef90-W4JWAO UniRef90-T1IJL9 UniRef90-D8UG85 UniRef90-A9UPZ7 UniRef90-FOXHN9 UniRef90_W2SEC3 UniRef90_B2W8D1 UniRef90-GONGU9
UniRef90 $\times 8 J F F 7$ UniRef90-X8JEF7
UniRef90 ${ }^{-1}$ B4N1L4 UniRef90-D8RFU5 UniRef90-F8NMP9 UniRef90-G4TK36 UniRef90-F9X7N5 UniRet90_L2FDP5 UniRef90-Q7S2U7 UniRef90-C5DFU0 UniRef90-R7RZR9 UniRef90-G3N5S9 UniRef90-UPI00022C94C0 UniRef90 U9TFE9 UniRef90-A0A016VN33 UniRef90-F8Q596 UniRef90-H2YOP6 UniRef90-V9D8N4 UniRef90-A0A024G4J3 UniRef90_UPIOOO4621A53 UniRef90-UPI0002658D24 UniRef90-W6UUW6 UniRef90-в8м 276 UniRef90-H2W5M4 UniRef90-U6NW20 UniRet90-A8NX90 UniRef90_UPIO00455D884 UniRef90-E3JZX5 UniRef90-K3WIG8 UniRef90-T1EEQ5 UniRef90-V5EYN7 UniRef90-UPIOOO4411A29 UniRef90-M5BK87 UniRef90-RTSEE4 UniRef90-A7WPD8 UniRef90 UPIOOO265296E UniRef90-C5DRG9 UniRef90-M3C2N3 UniRef90-A0A024UUK5 UniRef90-O94726 UniRef90-K2RoG6 UniRef90-UPIO004415CF2 UniRef90-T2M636 UniRef90-T1L580 UniRef90- E1ZHC9 UniRef90_WoTBX8
UniRef90_L8FSW5 UniRef90-W7HUP1 UniRef90-K1QX43 UniRef90-K3X0V5 UniRef90-R7TBC6 UniRef90-A0A024JFL7 UniRef90-A0A010QVF9 UniRef90-A9TTB9 UniRef90_H1XPD8
 MF L L A Y N N Y K D N A F P A D E L M P L T C K G R Y R MA Q Y R DRVK SMFYHAYNNY LDDHAFPYDEGRPG TCDGQDT F L H A HK GYM DYAYPNDELLD LTE GFNNF
 A LR R E EVVR S MF D H A Y S S Y L LT Y A Y P Y D E
HLRENVRAMFHHAYEGY LQYADGYDELRPDTCDGVDT H WEEHRKEVKDTFMASWDAYAKHAWGQDRFHPDISKTGSQM RDMFYHAYRAYMENAYPADELMPLSCKGRDP
KEKAEAVKEAFMHAWTPYRKYCWGQDEFVPHSRSCSNT
RAKRAAI YRAFEHAWFGYERHAFGADEYHPLSQTGTMA WRYRAERVKQAVQHAYRGYE LYAMPK DE LDRP LTNE GMNY
 L E R R R K L V KNA F DRA WQ GYKNYA WGA DEVVSPVVSEKPNN F FDSRAAMVKKSMQFVWENYRRHAWGFDELRPVSGTGNNW LKEEAKQMFFHAYRSYVNNAYPADELLMPLSCKGRFR
ERRREAVKKSFLHGWKGYTTYAFGHDELKPLSNKPDPF WDHRANAVKDAFVYAYENYLKYAEGYDELDPRTGKVNNF WEERAQKVKMAYAHAYHSYERGASPHDELRPVTGGYDNF

KTVRDMFYHAYNGYLTHAFPQDDLLPLSCRGGEF
K EKVRKMFYHAYDGYLNHAFPKDELKPLTCEGHDT RERVKAMFYHAYNNYLENAFPYDELRPLTCDGQDT MGKDRYHAVSGRGSQM KQVHGMFRHAYDSYMQYAYPADELMPLSCEGRTR
 RQAVRDDFTDSYQAYRKYAFGHDDLSPCLSQSFSDR RKEKVREAARWTWKGYRQYAWGHDELNAGSRTSREW MFYHGYDNYMERAFPADELMPGSCKGRVR DRADAVKAAFQLSWDGYYKYAFPHDSLQPQNNSYDDR ERQQAVKKEFLHAWDGYRDHSWMADGLDPLTGGRKQF EARLDDVKQQFLKCWNHYKEYAWMDDEVRPISGDSNHF
 QMAERAEAVRKAFRHAYNGYVRAAWTLDELLDNTNGSNNF QLRDEVKEMFYHAYNGYMDHAFPDDELRPMSCVGEDS
QWS QRRETVR
 AF EHS WN GYKENA WLHD DEVVNPLT GQSNP F
H $\square R E R R Q Q V K Q V F \square K N W K S Y R E R A W K K D A L L P D S G G Y D Q F$ YKRTEI EATFLQAWKGYAAHGWDADIYGPLSKTTSNM

$\square K Q G F L H A W N G Y V K Y A W G A D E \| L P \square S N P R N S Y$ REKVREMFYHAYNGYLNHAFPDDELKPITCKGQDT WAERAVQVKKAFDHAYHGYERYAAPWDELKPVTHKVNNF EAKEDARNMFYFGYDNYMKYAFPQDELNPIACCGRGP MADALKPLSGQTQHF
EERDEWVKDMFYHAYHGYMEHAFPSDNLLPLTCRGGEF RERVREDWHHGYDHYMDSGRGPNWLNPGDFARNDV LDEYRERVRAMFVHGYDSYMEFAFPDDELRPLSCDGFDT LQF LKQRVENDFYHSYDNYMNHAYPYDELRPISCDGHDW DRANAVKQAFQDAWDGYYAHAFPHDQLHPMDNTYDDY VKALRKEAYEMFMHGYNSYMNYAFPADELMPLSCRGRDR ERQDAAREMFYFGYENYMSHAFPADELDPIHCAGRGH WSARAEQVKAAFLHAYHGYEKYAMPADELLRPDSKTADKF QRREWI IRAFSHSWEGYKKTAWGFDQTRPLSGRGQNF ETVKDMFYHAYFGYDENAFPDDAGLPDIDCRGETF SRAET $\square R T A Y R T S F S A Y M R Y A F P H D A L D P L T N S Y D P F$ AKAKDADEMFTSAYADYKKYAWGNDSSAAP THKAANDR LD TALKS R DEDVKRMF LFGYDNYMKYAFPLDEELDPI HCTGRGP RSDI E EAF LTTSWEDYEAYGWGSDEYSPLKRTHKNM NVQAEAVKEAFLHGFNAFMKYANGYDEVRPLNGNGTNN ELRETSRRMFYHGYNNYMQFAFPNDELAPLSCEGRRW E EKAARDVEAMKYTFAKYRKHAWGYDDDLDPV SGGKKNT
$\square$ AHYRDK $\square$ K A MFDYAYENY $\square$ A NANNFDE $\square K P \square S C T G V E T$

## 

EEKADAVRKVMERTWK $\square Y K$ KKAFGFDEDKPASGGYRNS LNKDQQMAVDMTKHAWKAYMYAYPSDELNPIFCEGRGP LNKD QQMAVDMTKHAWKAYRDHADWKDFLNVKTMKGVYA MF QHAYDGY LHNAYPYDELRPLTCDGHDT $\square K T R R Q K A A D M F Y H G W N G Y L E Y A F P S D E L R S L S C D G L D R$

## UniRef90_FozBS8 UniRef90-Q4PD56 UniRef90_G4M135 UniRef90-M2R2P5

 UniRef90-M2PW88 UniRef90-UPIO00258F0F1 UniRef90-F0XLS7 UniRef90-W8BU24 UniRef90_Q5BFX9 UniRef90-EOVZR8 UniRef90_A2G576 UniRef90-G4U2B4 UniRef90-A8N9H0 UniRef90-B3RPB3 UniRef90-S8C772 UniRef90_A8QCT5 UniRef90-D8MBM7 UniRef90-T1IVLO UniRef90-UPIOO0387DC09 UniRef90-S2IZW3 UniRef90-D6RNQ2 UniRef90_V2XZ24 UniRef90-H3G758 UniRef90_UPI0003337B48 UniRef90-H3F487 UniRef90-K4FTQ1 UniRef90_Q2GYK8 UniRef90-E4XFN5 UniRef90-MOSQR7 UniRef90-W4JWA0UniRef90 T1IJL9 UniRef90-T1IJL9
UniRef90-D8UG85 UniRef90-A9UPZ7 UniRef90_FOXHN9 UniRef90-W2SEC3 UniRef90-B2W8D1 UniRef90-G0NGU9
UniRef90_X8JEF7 UniRef90-B4N1L4 UniRef90-D8RFU5 UniRef90 F8NMP9 UniRef90_G4TK36 UniRef90_F9X7N5 UniRef90-L2FDP5
UniRef90 Q7S2U7 UniRef90-C5DFUO UniRef90-R7RZR9
UniRef90-G3N5S9 UniRef90_UPIO0022C94C0 UniRef90 U9TFE9 UniRef90_A0A016VN33 UniRef90_F8Q596 UniRef90-H2Y0P6 UniRef90-V9D8N4 UniRef90-A0A024G4J3 UniRef90_UPI0004621A53 UniRef90-UPI0002658D24 UniRef90-W6UUW6 UniRef90-B8M2Z6 UniRef90-H2W5M4 UniRef90_U6NW20
UniRef90_A8NX90 UniRef90_UPIO00455D884 UniRef90-E3JZX5 UniRef90-K3WIG8 UniRef90-T1EEQ5 UniRef90_UPI0004411A29 UniRef90-M5BK87 UniRef90-R7SEE4 UniRef90_A7WPD8 UniRef90_UPIO00265296E UniRef90_C5DRG9 UniRef90-M3C2N3 UniRef90-A0A024UUK5 UniRef90_O94726 UniRef90-K2R0G6 UniRef90_UPI0004415CF2 UniRef90-T2M636 UniRef90-T1L580
UniRef90 E1ZHC9 UniRef90-WOTBX8 UniRef90-L8FSW5 UniRef90 W7HUP1 UniRef90-K1QX43 UniRef90-K3X0V5 UniRef90-R7TBC6 UniRef90_A0A024JFL7 UniRef90_A0A010QVF9 UniRef90_A9TTB9

50
 GGWGASVVDSLSTSFLMDHKDLYDQGVEFSKRDDFTKTSS WNFSLTMLDGLDSLFLTGELDEFEVAVKAVTRTVRFDSDV WGFSLTLI DALDTLLI IGNVTEFQRVVNVLQDTLDFDDDV NGWSITLVDGLDTMWI MGLHDEFYDTVPILLAMTFALPEKS DNYSVTLVDALDTFII LDDRHGFETAVRNIDGWVSFDVNT WGFSLTLI DALDTLAVMGNFSEFRRVAEDI SARASFEAND GWGGGTMV DAALDSLWMMGMHDEFRMAVRACADQDFSRTEA S GLGWUI VDSLDTLMIINDTSQLSDARKWLNRGMDYGQDQ
 GSVGYTVIDSSLSTMLLESLSEDYKAARKWL K E EHTFADVDA
 SGWGASVI DGI GTAVLMELDDVVQKQLEFI ATIDYTKCEH NGWGATVI DALDTLLVMGLHDEYLLAREHVYDVDFHYVDG DNFSLTMIDDALDTLIIMMDDLDDEFERAVKVI DK DVS F DS D I



WGFSLTLVDALDTLLVLGNVTEFKRASRLVLQSVRTDVDI WGFSLTLI DALDTLLVLGNTTEFQRVVHMLEKGVDFDIDV K GLGWIIVDSLDDMMIMNLTEPLAESRKWLHRSLSYDQDQ GNFQLTLIDSLDTLALLGYVDDFKEADIKLNKTLNLDGDF GGYALTLI DSLDTLALLGDRERFNAAVDWVSENVRFD DDK

 GHFSLTLI DTLDTLVILNNTEFKRARGWVANHVKFDTDV NGWGASAI DAFSTAVVMENSQVDQQDLDHVQNDNFDNSVG CSWSATMVDALDTLWI MDLTEEFNYAI NGTMTI DFRSSMC GGWAAT LI DA L DTLVYMMGEEEFAMAVEDDEDVDFGYTDD

 GGYALTLVDSLDMLAVLGDREKFFDAVNWIGKHLRFDKNK GNFSLTLI DVIDTLVVIDDRRGFQNAVRNDIDWVSFDVNT NGWGLTIVDSLDTMLLMGFDKEFERGVEFVEKLNMSKNTH GGWGATLVDSLDTLWIMGKKKEFANAVSSLKKKDFTRTRT


 NGWGAS VVALDTMWDMDLKEEFKNATEHIVSHINGNSSNS WGFS LISLVDALDDTLIVMGNTTEFRRAVDLVLKSVRTAAMV





 GNFSVTMLDSLLDTLVVVNELDEFERAI DLVIKTVRFDS DLL D H Y S L T L I D S L D T LVVLGGRDEFKRAVWLVI NSVVFEKNT


 G GWGATVVDSLSTSYLMNHTD LDDGSKTAS D NGWGATIVDSLSTAKMMGLND\|YDEGVEFSKKIDFS IVSHT







 D P LGGWI I V D S I D T M M I M Y N K S E ILQLA E E WV DN TL N Y D ID S



 $R G Y S V T L V D A L D T L A L M G D C R G F A R G V R R V E N Y V T F H G N A$ $G G Y S L T L V D S L D M L A L L G D R A R F S K G V N W L G K N L S F D K N K$ Y S L L M T P V DA Y D T M ILLMGLENERRQAKELI CTHLLNFDKNF


NVSVFETNTRTVGGLLAAHMWPCNGSLLSLAHRMGERLLP NASVFETNI RVVGGLLSAHLWPCSGPLLRKAVEAAHRLLP

 TVNLFE T T I RYVGGLLSAYELS GKKHLVSKVKQLTDKLES TVQVFEANI RLLGGLLSAHLINYNGELLDLAHDLATRLLP EVSVFETTI RILGGLVAAYHSGGDELFLLKAVEFAESV
 EVSLFESTI RYLGGLLGAYDLSHEPRLLAKMVEVGDLLHG KVNVFETNI RHLGGLLASYELSGDKRLLNKAKEAGEMLDH NVSVFETNI RVVGGLI SAHMYPCDSPLLKLAVKMADRLMP HAPFFETAI RYLGGLVSAHYAGREHDLLTKAALLADKLLP NVSVFETNI RIVGGLLSAHLDWPCQGPLLRMAEDVARRLLPB TVSVFETTI RVLGGLLSAHMYDYNDELLNDAEDLGRRLLPD

 DVNTF SVASLE

2C94C0 VN33

## E

P I S S F
$\mathrm{N} V \mathrm{~S} V \mathrm{~F}$
AVPFFETVI RVVGGLVSAHMLSGRVPLLRLAEAMAARLLP
$T V Q V F E T N I R V L G S L L S A H L I D Y N G E L L S D A H D L A V R L D P$
EVNMFESTI RILGGLLAAYDLTNDVKLVSKLVELGDVLHD

$\mathrm{N} V \mathrm{~S} V \mathrm{~F}$
N
T
I

455D884



TVOV $K P Q V F$
$R V P F F$

V
4411 A29
E4
8 265296E
$\qquad$
UUUK5
$\qquad$ UniRef90_UPIO004415CF2
UniRef90_T2M636
UniRef90_K2R0G6

UniRef90-T1L580 UniRef90-E1ZHC9 UniRef90_W0TBX8 UniRef90_L8FSW5
UniRef90_W7HUP1 UniRef90_K1QX43 UniRef90-K3X0V5 UniRef90_R7TBC6
UniRef90 A0A024JFL7 UniRef90_A0A010QVF9 UniRef90_A9TTB9

## UniRef90 FozBS8 UniRef90 Q4PD56 UniRef90-G4M135 UniRef90-M2R2P5

 UniRet90-M2PW88 UniRef90-UPIo00258FOF1 UniRef90-F0XLS7 UniRef90-W8BU24 UniRef90-Q5BFX9 UniRef90-EOVZR8UniRef90 A2G576 UniRef90-G4U2B4 UniRef90-A8N9H0 UniRef90-B3RPB3 UniRet90_S8C772 UniRef90-A8QCT5
UniRef90 D 8 MBM 7 UniRef90- T1IVLO UniRef90-UPIO00387DC09 UniRef90-S2IZW3 UniRef90-D6RNQ2 UniRef90_V2XZ24
UniRef90 H3G75 UniRef90_UPI0003337B48 UniRef90 H3F487 UniRef90-K4FTQ1 UniRef90-Q2GYK8 UniRef90-E4XFN5 UniRef90 MOSQR7 UniRef90-W4JWAO
UniRef90
T1JUL9 UniRef90-T1JLL9
UniRef90 D8UG85 UniRef90-A9UPZ7 UniRef90-FOXHN9 UniRef90_W2SEC3 UniRef90-B2W8D1 UniRef90-GONGU9
UniRef90
X8JEF7 UniRef90-B4N1L4 UniRef90-D8RFU5 UniRef90-F8NMP9
UniRef90
G4TK36 UniRef90_G4TK36
UniRef90 F9X7N5 UniRef90-L2FDP5 UniRef90-Q7S2U7 UniRef90-C5DFU0 UniRef90-R7RZR9
UniRef90-G3N5S9 UniRef90-UPIO0022C94C0 UniRef90 U9TFE9 UniRef90-A0AO16VN33 UniRef90-F8Q596 UniRef90-H2YOP6 UniRef90_V9D8N4 UniRef90-AOAO24G4U3 UniRef90-UPIOOO4621A53 UniRef90_UPIO002658D24 UniRef90 W6UUW6 UniRef90- ${ }^{-18 M 2 Z 6}$
UniRef90 H 2 W 5 M 4 UniRef90-U6NW20 UniRet90-A8NX90 UniRef90-UPIO00455D884 UniRef90-E3JZX5 UniRef90 K3WIG8 UniRef90-T1EEQ5 UniRef90-UPI0004411A29 UniRef90-M5BK87 UniRef90-R7SEE4 4 UniRef90_A7WPD8 UniRef90 UPIOOO265296E UniRef90-C5DRG9
UniRef90 M3C2N3 UniRet90-M3C2N3 UniRef90-A0AO24UUK5 UniRef90_O94726
UniRef90 K2ROG6 UniRef90-UPIO004415CF2 UniRef90-T2M636 UniRef90-T1L580
UniRef90 E1ZHC9 UniRef90-WOTBX8 UniRef90-L8FSW5 UniRef90-W7HUP1 UniRef90-K3×0V5 UniRef90-R7TBC6 UniRef90-A0AO24JFL7 UniRe990-A0A010QVF9 UniRef90_A9TTB9


AFNTQTGMPYGTVNLKYGVHK DETPVTCTAGVGTMILE AFQTPTGMPYGTVNLMNGV NPDETPVTCTAGIGTFLLE AYESPSGPPYASVHLGRKVGLPSHDGGSSSMAEAATLQLE
 A WAPGLVVPFNTVNETSNTP AFDTPTGTPYSKDNHDHEEVRGKFGDGSTCDAEVATVSME GFNTTTGLPD NLLDEDPPRTNGSTSNGLATAGTLME AFDTPNHMPDTRWQFRAGEGKPQKADEQVLLAEI GSLTME AFNTDTGMPYGTVNLKYGVHK VFDSPSGLPFFGVRTSGPAPVYPTDDPSAPLAEFASCQME AFDTPTGQPYGSVNLLYGVSEDESQVT STAGGGTLTME AFNTPSGLPVTSIRIEDSVVVLGNSNGDYLAEMASCQME

 A CF ASETGMPHSLLNLHTGASKNYGWASSGCLSELGTMHLE AFNTETGMPYGTVNLKYGVPKRDETPDTCTAGVGTFIVE AFNTSSVMPYPRVNLRHGLPNST AFRTPNGMPRTRYRLGQREVRPQAPSTAPADAEVGTLSLE AFQTKTGMPYGQVNLRRGV PREGFSVAASTAEVGSTME AFNTVTGLPYARINLRHGVPKGEESTDTCTAGAGSLILE AFNTPTGMPYGTVNLAHNAVPPNETPVTVATVGTLILE
 AFGTRTGIPYPRVNLDRGVL PGTVEETCTAGAGSLLVE AFSTPTGUPYARVNLRQGVMKGSETYETCTAGAGSLILE AFNTKTGVPVA NYDLGTNPNEGS AFKTATGLPYGTVNLRNGVPEG AFNTTTGMPYGRVNLRNGVPEGESTPDIDSTAGAGSLSME GWLEGNALPCNTLKWNDYAKPTCNDTG A WVGDNPVPYGRMNFSTNA PDPAVIASNSIAGSGTLILE A WVGLNDIPYNNLDFSTDTPVLEQSG
 AFNSPTGLPHPRVNLCTGVPEGGDQ AFACTAGAGSLLL AFQSKSG|PYSSVNLHTGEAKNHVDGGASSTAEFTTLQLE
 AFRTPTGIPFARINLMKGVAGYREVTENCAAAASSLVLE AFNTGTGMPYARTHLRRGVLKGYETHETCTAGAGSLILE AFNTTTGIDYYKVNLKYGVNTPYSHETDTCTACAGTM1 ME AFDSPTGDIGNTVSLPR VQPDGGGGHTLLAEMGTNVLE
 AFDTPTGMVWPRVNFGTKSGGRKNKYTRIHLARAGSHWLE
$A F N T A T G \square P F P R V K G D Q G V P E ~ D C I N E T C T S G A G S L V M E ~$
AFNSSTGMPYGTVNLLHGVPKGETPVT CTAGVGTFLL AFTTPTGMPFPRLNLLRGLA DGQLTNESCASGAGSLVLE GFDTPNRLPGFWINFEDARNGTQLAGTHDPSASPGSMAME

## UniRef90_FozBS8 UniRef90-Q4PD56 UniRefefo-G4M135 UniRef90-M2R2P5

 UniRef90 M2PW88 UniRef90-UPIo00258FOF1 UniRef90-F0XLS7 UniRef90-W8BU24 UniReffo-O5BFX9 UniRef90-EOVZR8 UniRef90_G4U2B4 UniRef90-A8N9HO UniRef90-B3RPB3 UniRef90_S8C772 UniRef90-A8QCT5 UniRef90-D8MBM7 UniRef90-T1IVLO UniRef9O-UPIIOOO387DC09 UniRef90-S21ZW3 UniRef90-D6RNQ2 UniRef90_V2XZ24 UniRef90-H3G758 UniRef90_UPIOOO3337B48 UniRef90_H3F487 UniRef90-K4FTQ1 UniRef90-Q2GYK8 UniRef90-E4XFN5 UniRet90-W4JWA0 UniRef90-T1IJL9 UniRef90-D8UG85 UniRef90-A9UPL7UniRef9O-FOXHNG UniRef90-W2SEC3 UniRef90-B2W8D1 UniRef90-GONGU9
UniRef90
X8JEF7 UniRef90-B4N1L4 UniRef90-D8RFU5 UniRef90-F8NMP9 UniRet90-G4TK36 UniRef90_L2FP55 UniRef90-Q7S2U7 UniRef90-C5DFU0 UniRef90-R7RZR9
UniRef90-G3N5S9 UniRef90-UPIOOO22C94C0 UniRef90-U9TFE9 UniRef90-A0AO16VN33 UniRef90-F8Q5966 UniRef90-H2YOP6 UniRef90-V9D8N4 UniRef90-A0A024G4J3 UniRei90-UP100004625A53 UniRef90-UPIO002658D24 UniRef90 W6UUW6 UniRef90- $\mathrm{B8M2Z6}$
UniRef90
U2W544 UniRef90-U6NW20 UniRet90-A8NX90 UniRef90-UPIO00455D884 UniRef90-E3JZX5 UniRet90-K3WIG8 UniRef90-T1EES5 UniRef90-UPIO004411A29 UniRef90-M5BK87 UniRet90-R7SEE 4 UniRef90-A7WPD8 UniRef90-UPIO00265296E UniRef90-C5DRG9 UniRef90-M3C2N3 UniRef90_AOAO24UUK5 UniRef90_O94726
UniRef90 K2ROG6 UniRef90-UPIO004415CF2 UniRef90-T2M636 UniRef90-T1L580 UniRef90- E1ZHC9 UniRef90-L8FSW5 UniRef90-W7HUP1 UniRef90-K1QX43 UniRef90-K3X0V5 UniRef90-R7TBC6 UniRef90-A0A024JFL7 UniRef90-A0A010QVF9 UniRet90_A9TTB9
UniRef90_H1XPD8

## UniRef90 FozBS8 UniRef90-Q4PD56 UniRef90-G4M135 UniRef90-M2R2P5

 UniRef90-M2PW88 UniRef90_UPIo00258F0F1 UniRef90-F0XLS7 UniRef90-W8BU24 UniReffo-O5BFX9 UniRef90-EOVZR8 UniRef90_-A2G5764 UniRef90-A8N9HO UniRef90-B3RPB3 UniRet90-S8C772 UniRef90-A8QCT5 UniRef90-D8MBM7 UniRef90-T1IVLO UniRef90-UPIOOO387DC09 UniRef90-S21ZW3UniRef90 ${ }^{-}$D6RNQ2 UniRef90_V2XZ24 UniRef90-H3G758 UniRef90_UPIo003337B48 UniRef90-H3F487 UniRef90-K4FTQ1 UniRef90-O2GYK8 UniRef90-E4XFN5 UniRe990MOSQR7
UniRef90_W4JWAO UniRef90-T1IJL9 UniRef90-D8UG85 UniRef90-A9UPLT

UniRef90-FOXHNO UniRef90-W2SEC3 UniRef90-B2W8D1 | UniRef90-GONGU9 |
| :--- |
| UniRef90 |
| 8 JEFF | UniRef90- B4N1L4 UniRef90-D8RFU5 UniRef90-F8NMP9 UniRet90-G4TK36 UniRef90_L2FP55 UniRef90-Q7S2U7 UniRef90-C5DFU0 UniRef90-R7RZR9

UniRef90-G3N5S9 UniRef90-UPIOOO22C94C0 UniRef90 U9TFE9 UniRef90-A0AO16VN33 UniRef90-F8Q5966 UniRef90-H2YOP6 Unireego--A9DAN4
UniRef90-AOAO24G4J3 UniRef90-UPIOO04621A53 UniRef90-UPIO002658D24 UniRef90-W6UUW6 UniRef90- ${ }^{-18 M 2 Z 6}$
UniRef90 H 2 W 5 M 4 UniRef90-U6NW20 UniRet90-A8NX90 UniRef90_UPIO00455D884 UniRef90-E3JZX5 UniRef90 K3WIG8 UniRef90-T1EES5 UniRef90-UPIO004411A29 UniRef90-M5BK87 UniRef90-RTSEE4 UniRef90-A7WPD8 UniRef90OUPIOOO265296E
UniRefgo-UniRef90-C5DRG9 UniRef90-M3C2N3 UniRef90-A0A024UUK5 UniRef90 O94726 UniRef90-K2ROG6 UniRef90-UPIOO04415CF2 UniRef90-T2M636 UniRef90-T1L580 UniRef90 E1ZHC9
UniRef90 WOTBX8 UniRef90-L8FSW5 UniRef90-W7HUP1 UniRef90-K1QX43 UniRef90-K3XOV5
UniRef90-R7TBC6 UniRef90-A0A024JFL7 UniRef90-A0A010QVF9 UniRef90_A9TTB9


210
220
230
240 MDATEF CYSSTSLLGAKGDSFYEYLLKMWIYTDG EEKYS PRTGK PK KD DYVWGGGSDSFFEYLIKYAYLIGDDQDVWM
 VETGK PMNQHFSVGAFADSAHEYLLKQWLLTAKSEQKAL TWSGSWLSPEVSGVGAGIDSFFEYAFKWYVLSGEVIEXGL AAVPAFDGDDTFSLGGKSDSLYEYLPKQWLLLGGVLDQPR VQTGRWTALD SGUGAGVDSFFEYLVKGA MLNRPE GLMM VQSGDWVRRD SGVGAGDDS

| L |
| :--- |
| V |
| L |
| L |
| 1 |

 PVSGNWVQHHVS VGGLGDSFYEYLI KSWLMSGKTDMEAK THKGRFKDATT TFGAMGDSVFEYFLKEHLLVDGTDPQYG
QHNGAPTNQ QFTVGAYADSAYEYLLKQWLLTSHSEPKAL
NDTSAQPNDARDSAGAQADSAHEYLLKQYLLLTAKTDKANL
THSGHFTHLGMFTLGARADS
VQTGQWTATD SGVGAGVDS
PDTGRFT TSETRLGSRGDS
VNNGDWVRRESGUGAGTDS
IFTGEWTQFSTSTNRTSDS
PSTGEPFG GYVTWGGGSDS
DSLGC SGNHYTMGASADSA
ISSGAWHRTDAGGVGAGVD
MQRHFAKASYVYSLGADSD
ASNADFTSDGGFTLGSMSDS


VLSGEWTHKDSG GTSVDSFYEYLLKAYLEFG SEDEYL
VTSGKMTGTSVSTAGAMADSAFEYLLKQYLLSGRSEKRLL PNHGRFTTREDRGGSRGDSYYEYLAKQYLQTGGGETMYR

PKTGKWGQHHMS LGGGLGDSFYEYLLKAWI QSGKEDVEAR

QETGRFDNYDVVSFGANADSFYEYLIKQYLFVGGADDQYR NLTSGSWADGHDSVGAAADSAHEYTLKQYLLTAQTDKANLD VVTGEWMGK QSGVGAGLDSYLEYLLKAYVGFGEKRDL


SWNGQWTPPEVSGUGAGVDS
DLTTGQPTDYHVAPGGAADSAHEYTLKKQFLMSGEKTDKANL

VKTGEAMD DYVTWGGGSD
DPPTGTFTCKRITWGASSDS
PSTGKPAGDYUTWGGGSDS
PNGSN


| I |
| :--- |
| P |
| P |
| F |
| V |

UniRef90_H1XPD8

## UniRef90 FozBS8 UniRef90-Q4PD56 UniRef90-G4M135 UniRef90-M2R2P5

 UniRet90-M2PW88 UniRef90-UPIO00258FOF1 UniRef90 FOXLS7 UniRef90-W8BU24 UniRef90-Q5BFX9 UniRef90-A2G576 UniRef90-G4U2B4 UniRef90-A8N9HO UniRef90-B3RPB3 UniRef90_S8C772UniRef9O-A8QCT5 UniRef90-D8MBM7 UniRef90 T1IVLO UniRef90-UPIO00387DC09 UniRef90-S21ZW3 UniRef90 D6RNQ2 UniRef90_V2XZ24 UniRef90-H3G758 UniRef90-UPI0003337B48 UniRef90 H3F487 UniRef90-K4FTQ1 UniRef90-Q2GYK8 UniRef90-E4XFN5 UniRet90 MOSQR7 UniRef90-W4JWAO UniRef90-T1IJL9 UniRef90-A9UPZ7 UniRef90-FOXHN9 UniRef90-W2SEC3 UniRef90-B2W8D1 UniRef90-GONGU9
UniRef90
X8JEF7 UniRef90-B4N1L4 UniRef90-D8RFU5 UniRef90-F8NMP9 UniRef90-G4TK36 UniRef90-F9X7N5 UniRef90-L2FDP5
UniRet90
Q7S2U7 UniRef90-C5DFU0 UniRef90-R7RZR9 UniRef90_G3N5S9 UniRef90-UPIOOO22C94C0 UniRef90 U9TFE9 UniRef90-A0A016VN33 UniRef90-F8Q596 UniRef90-H2YOP6 UniRef90-V9D8N4 UniRef90-A0A024G4J3 UniRef90-UPIOOO4621A53 UniRef90-UPI0002658D24 UniRef90-W6UUW6 UniRef90- ${ }^{-18 M 2 Z 6}$
UniRef90 H 2 W 5 M 4 UniRef90-U6NW20 UniRef90-A8NX90 UniRef90-UPIO00455D884 UniRef90-E3JZX5 UniRet90-K3WIG8 UniRef90-T1EEQ5 UniRef90-UPI0004411A29 UniRef90-M5BK87 UniRef90-R7SEE4 UniRef90-A7WPD8 UniRef90-UPIO00265296E UniRef90-C5DRG9 UniRef90-M3C2N3 UniRef90-A0A024UUK5 UniRef90-O94726 UniRef90-K2ROG6 UniRef90-UPIO004415CF2 UniRef90-T2M636 UniRef90-T1L580 UniRef90-E1ZHC9 UniRef90-L8FSW5 UniRef90-W7HUP1 UniRef90-K1QX43 UniRef90-K3X0V5 UniRef90-R7TBC6 UniRef90-A0AO24JFL7 UniRe990-A0A010QVF9 UniRef90_A9TTB9
 PTWVNSVASSIIEHLVEHPEQTQASSLAYLSDYSASPRWSH HRFQTHYEAVNRYVSGPQSAEFPDVHMHRPAQRARTFMDA SMF LEYNKALQN FTKYDDWYVWVQMYKGTVTMPVFQS DLYMRASSSIDKELDFLSATRNLLYVTDTTDGRPSHTFEH DVWQEAYAAIMRYSRAPDGFWYRNVNDHTGDMAYATFDS TIFHEHKAAIEKYIRRE DWHDWVSMTKGQVTLPVFQS HMYSRFLPVAKKHLFRRVLNEHNWPLVFSGDARNSPRGEH EMFHEARRHDDKYLKKEDWYDWAH MNKGHVTDPVFQS EMWEEADTGIQKHLVTSTKHSKLQFTAELPGGQLSPKMDH GRFNKHYSAI MKYISQG PMLIDVHMHRPHTNSKNFMDA NKY LEDARDIKEKLIIHSGKSNYTGLGSYGGGRASPRQEH RLWDDADDQI HTTLEMRTPRRNLLYIAELNTWRREPKQDH ELYMHTTSH|LTNLDYDSPKRQLLYVTDLQTPLASHTFEH HRFNTHYEAIMNYISQG PMLVNVLMHRPRYASRPYMDA NRWVEAADSTIKYLSSPPTRTDLVFVAEYSNDS TAFRGSH RMFTEAMDSAEKHLWKPNAPSLVVVADTYARGRSWARLEH FHYNEADEGVNQLLDMRNKRSGWQFLGELLKKRADHSMQT NMYYEALEAIIETYLLNVS PGGLTYIAEWRGGILDHKMGH NMYYEALEALETYLLNVSPGGLTYLAEWRGGILDHKMGH RMYMQSIRSMKQYMLRQIPGYDMLLLPPFNTQTSTNAMDH EMYIIRATTHMI ANLMYISPTRHLLYVTDSDRARATHVFEH EMFAQVYPAVLEYNKHGDWYTDVSMYTGCHHHSGSSVFES ADYVQAVEGVKRHLLRRSEPSKLTFVGELAHGRFSAKMDH KQYYDLEDAILKYVRRGDSFHWVSMASGLTSHEGE LFQS SSFWEYEKAI KNY TKFDDWYVWVQMYKGSVTMPIFHS T LWHEA LAGGERHDVTTTRNAHLTIIAEDPGGPLSPKMDH ERFNDHYDAIKRFIQQG PMMIDVHMHRPTEQSRSFDDS FMFQEAYKAAMRYLHH DPWYVEVNMNSAATVWPLFNS NAWRTAVDSSTSTLARTSTVGNHLYMADFDENRQRHVGSH
DRFNETYHLIKQYMRRGRPHPLYVNVDMNGATNVPWIDS DMYKKADGGMRKHMLTQLWMGEDWIVAENDGGRRSNTLEH
 D DWTTASDQDRNFMLFRSFDPGADDETRMTEDELEPRTQH KMYEKSMETASKHALYRPSTPDNTDMLMAGFVRVEPEMQH KQFHEHATSTNKHVRK DDWFMWVSMAKGAVSLPDFQS DLWLDASDS: DSHMLY DSPNRKLLYITDDSGSEHSPKLEH HMFKESYKAVMRYLFKDPWYME VNMNSAVVVWPLFNS DVWQEAYAAVMRYARSPDGHWYRNVNLHTGDIAYASVDS RMFTSALQTAREHVLFRPLAPDETVRHSAHKNTGHPEAEH DMWEDVLDGMQKHLVTTTRNAALKYIAEDPGGALSPKMDH VPGNEDVDMI GTADVMDNKNGKEEVV DLYRVSVEGI KENLLSKSNPSGLTYGEKERGLSGPKMDH DAY RSANLI DSNLLFVTPDRGLLYVTDASGUKQSHTMEH QMYDEA ${ }^{\text {AAADDQHMTKTSQGKLLYVSDLKYDRLEHKMGH }}$ RMYEESIDSMHEYLIKEGQVKNRPDLDFLIYHGFLPRMEH EQFQEYLSATNRYVREG DWFLWVNMHKATVSLPTFQA EMYQRATTHI DNDLDF GSPERQLLYVTDTHTNRPSHLFEH TMWKAASERIKEHLLFRPATPNTVKVPNREYLDLETKVQH NVFEELYDAIMTYNRVGDWFFDVNLNDGFEAHNSQMIFEN DVWQDSYASVMRYSRA PDGFWYRNVNDHSGDAQYGTUDS EHFEAYRHAI NHYMRK DDWFVLVRMNSGEPTMPYYQS AMFREYRSAIKKYLKFGGWHVMATMDA GSVINAVYQS DRWLAAANSTLEHLLSHPSQPDLTFVNDWNNGTTISTSEH DRFNKHYEAIMRYVNKG PLFVDVHMHRPTVATRGFMDS QLFNEAYDAI LANLRRGREPPLFVNVDARDGSTANTWVDS D WDDAYAAMRY SRSLDGYWYRPVNMNTGDLAYYTVDS EMYDRATMYIMGEDMF SPKRHLLYATDVYQYRYSHTFEH EAYSHSVDSIFQYLAENIKDDNQGTQDSI IGEAYSPK円NQ AMFATVYPAVLQHNLHG DWYTDVSMWNGGNGAVLFEN DRFNTHYKAVMKYVNNG PGMLDVHMHRPQTNSRNFMDS
DMWVQGVESSIEHLVTHPQETQMGNLTYLADSSASPRWGH
 SRWLTAVDSSIRYLAQTTSVPDLLYLGDYTQNRVRHI SSH DTWLMAVDSSIEALLKRSTVDNWLYLADYANKTIQHVSSH ELYKVMDGVKRNLLGTSLPNHYLFI GEKMRGPLTPKMDH QAFNEVYGSVKKYMRKGRKHCRYVNVNMNTGNLMNNWVDA DFWLTATQSTIDHLVVTPRGYTPDELSMNRNGTVDNLADD DMFNQSYVS EKHLLHPRDGYHREVDMSLGNFVHSNRVSA EVWQKSLESLRHYTASLNEYYYQ NVYSANGMVMSRWVDS DRWTQAAHALRHDLSTRSYTPSHDFIGKLDDEWYLNEMSH DVWNDAYAAVMQHVRGSDGFWPCTRVNMDTGDLQYSMLDS DKFNKHYESIKRYIQRGSM FПDVMMHQPDQPVRSHMDA DMFNVY RRWEASVDEALEKLVVTPPGWPFSFAGDMRGEQVDSVLEH KLYNFSMKGMKRHLLDKSRGNLATY\|GEKEYGLAGPKFDH NMYRTALSTFSKNLFFRPKLPENTYNANSVVTKLNTEVQH RRWLQAMTSAQKHLLSVSDHPIHSFLDSYSKGMYNNKMGH KMFKEMYDSTKFHMRRGRNPPIYVNVNMKTGETVNHWVDS NQYVIDVNGMKAKLLGTSYPSKFVFLTEDNNGDQSQHMEH AMFKDNMAADEKYLKREDWYMWA QMKKGTVTLPVFQS SNFTTGYRALKTNSFDGT GLFYNTDYRTSTKANNWFDS KMYDGAMADVEQH DFRPMVSNRDDIVYADRDEHVSDGQH



## UniRef90 FozBS8 UniRef90-Q4PD56 UniRef90-G4M135 UniRef90 M2R2P5

 UniRef90-M2PW88 UniRef90-UPIo00258FOF1 UniRef90 FOXLS7 UniRef90-W8BU24 UniRef90-Q5BFX9 UniRef90-EOVZR8UniRef90 A2G576 UniRef90-G4U2B4 UniRef90-A8N9H0 UniRef90-B3RPB3 UniRef90_S8C772 UniRef90-A8QCT5
UniRef90 D 8 MBM 7 UniRef90-T1IVLO UniRef90-UPI000387DC09 UniRef90-S21ZW3 UniRef90 D6RNQ2 UniRef90_V2XZ24 UniRef90-H3G758 UniRef90-UPI0003337B48 UniRef90 H3F487 UniRef90-K4FTQ1 UniRef90-Q2GYK8 UniRef90-E4XFN5 UniRef90 MOSQR7 UniRef90-W4JWAO
UniRef90
T1JUL9 UniRef90-T1JLL9
UniRef90 D8UG85 UniRef90-A9UPZ7 UniRef90-FOXHN9 UniRef90_W2SEC3 UniRef90 B2W8D1 UniRef90-GONGU9
UniRef90
X8JEF7 UniRef90-B4N1L4 UniRef90-D8RFU5 UniRef90-F8NMP9 UniRef90_G4K
UniRef90_F9XTN5 UniRef90-L2FDP5 UniRef90-Q7S2U7 UniRef90-C5DFUO UniRef90-R7RZR9
UniRef90-G3N5S9 UniRef90-UPIOO022C94C0 UniRef90 U9TFE9 UniRef90-A0A016VN33 UniRef90-F8Q596 UniRef90-H2YOP6 UniRef90_V9D8N4 UniRef90-AOAO24G4U3 UniRef90_UP10004621A53 UniRef90-UPIo002658D24 UniRef90-W6UUW6 UniRef90- ${ }^{-18 M 2 Z 6}$
UniRef90 H 2 W 5 M 4 UniRef90-U6NW20 UniRef90-A8NX90 UniRef90_UPIO00455D884 UniRe990-E3JZX5 UniRef90-K3WIG8 UniRef90-V5EYN7 UniRef90-UPIO004411A29 UniRef90-M5BK87
UniRef90 R7SEE4 UniRef90-A7WPD8 UniRef90 UPIOOO265296E UniRef90-C5DRG9 UniRef90-M3C2N3 UniRef90_AOAO24UUK5 UniRef90_O94726
UniRef90 K2ROG6 UniRee90-UPIo004415CF2 UniRef90-T2M636 UniRef90-T1L580 UniRef90-E1ZHC9 UniRef90-L8FSW5 UniRef90-W7HUP1 UniRet90_K1QX43 UniRef90-K3X0V5
UniRef90-R7TBC6 UniRef90-A0A024JFL7 UniRef90-A0A010QVF9 UniRef90-A9TTB9
UniRef90_A9TIB9
UniRef90_H1XPD8

340
340
350
 NHGFDF
QPD PNV
QGF TVE D
E
H
K $V$
$V$
$W$ Y LR P ETTVES ${ }^{360}$ KLLPEAF GGLPEFYSTP
SGLGPDEVIMKAMPRSAENQ SGLDPEVWDMNFKV
TGMGPEKFFYATCEDQAGMRCSY
YGFLPEFYNDP DGEA
TGLSPEDAWFRADEADWKRDLIIK VQREVYPLRP
HNLIPEAF
TGVGPEFMDFVQSKD
RDFRASDPTKLR
TGLAPEDHFRTKTEPQWDTDKAEGEWYRYMLRP
HNFIPEAF
SHIGPEEFGWDAHKEFFEKNGWYYRGESDYRLR
SGGLGPENMEFFRPFDKDRYHDTRRDVSEDYRNRP
HTFLPEAFTM
TKLGPEAFWFNSG LKGMD
TGLSPENWVVSKTEAYNPMAVATQLSESYYYYLRPEVV
TGLGPDEVAMAPWPSPPEGQTN $\square G S R W K D Y L L R P E T V$

YGGDPEFYSIPQGSDVDKREG
SGLAPEIVWFDVEEEEWKKDFVTK
$Y G F \| P E A F$
YGFTPEGFNDAT
TGMGPESFAYATSSDGNFYNEMS
YSALPERFNWQK
TGVAPEDGQFQTGTTFTKTKYAFAPRSREYFAR
HKFFPEAF
TGIGPEGFQWQPAPPAESAAFAQEAGFWQYMLRP
TGLMPETVTLLPCPELDSDQCEWNATTWKYTLRP
VGIMPEVSHLLNCKDKKTCKWDEKAWDRRY
YGFPPEFYNIHNEEPVDKRSAF
TGLGAETVQFQGQNPKWDGQRDYSTSDPRWLSRP
YGFLPEFYNIAAGEA
FGFTPEGFNLAS
HSGLPEVWD
TGVGPENLHFYRWPTAKPKAGFMQATSFQFPLRP
ALPCSEVPTTTKNGKPMQNCTWSTEAWHRYILRP
$T G L A P E D A W F N A T E S K W H T D F D T K P A D A H N L Q R P$
$T G M M P E R Y N M V P C P S R D D V S C W W N E D V W R Y U L R P ~$
S
SGLAPEELTMMPWMGPYNAHRTAEDVKDEGLWMT
GGLPEFYSIPQGYTVDKREG
TKGGPEAFHFIEGNEAKS GKNGEKY
YGFPPEFYNIQSSVSEKRTAF
SGLGPDVVLMQSGGRSWMEAMGSWKRWGTYYLRP
TGIMPESFSVMRCPHEDPLNCEDEVS
GFTPEKWDVKAWSVDWSYYHQAT

YGFLPEMFDVSSNKPVGRQSV
HKFLPEAFAWDKAGVPADQEAFYEKAGFY
YGVLPERYNWLL
TSFK
TGLGPDSVTMRAGGDYDEVPWG

| $A$ |  |  |  |
| :--- | :--- | :--- | :--- |
| $Y$ | $L$ | $G P D$ | $I \quad I$ |
| $Y$ | $N E G S G H$ |  |  |

HNF I PEAAFNVLEWK
S

T

F S ALP ERFDWSR $\quad$ KNANI LFYPRLRP

TGLGPLAWAWFNSSGQTARGYFI PASDENWFSRP
FGALPELY DRSGTGS
F GQLPERYNLYT VVEWAKHYP

SGLPEVYDINNGV FKFLPEAF TSNFDLHWAQHPLRP
Y GFIP P FFDVS
S GLGAERTINFDLA LA

TSNFDLHWAQHPLRP
GGLSPEIVVFNSNYPIVYEDNWWVKPIDRHNWQR SGI MPEUFHVDKCDDPTACNWFRTVGDSSYQLRP
S GI GPE EWS WTPRESKRWQQTGDWPTQAN
Y GVLPERYNWYLRV
SKVAPE E DTHFTTEESYVERPGFVYEQQDFN
YGFTPEFYNDAKGEVVQNNREGNDRDEDPWY
S GVMPENFNLI PCEAWKTKKGFRNARDPRYQLRP


## UniRef90_FoZBS8 UniRef90-Q4PD56 UniRef90-G4M135 UniRef90- M2R2P5

 UniRet90-M2PW88 UniRef90-UPIO00258FOF1 UniRef90- FoXLS7 UniRef90-W8BU24 UniRef90-Q5BFX9 UniRef90-EOVZR8UniRef90 A2G576 UniRef90-G4U2B4 UniRef90-A8N9H0 UniRef90-B3RPB3 UniRef90_S8C772 UniRef90-A8QCT5 UniRef90-D8MBM7
UniRef90_TiIVLO
UniRef9O-UPIIOOO387DC09 UniRet90-S21ZW3
UniRef90_D6RNQ2
UniRef90_V2XZ24
UniRef90-H3G758 UniRef90-UPI0003337B48 UniRef90 H3F487 UniRef90-K4FTQ1 UniRef90-Q2GYK8 UniRef90-E4XFN5
UniRef90_MOSQR UniRef90-W4JWAO UniRef90-T1IJL9 UniRet90-D8UG85 UniRef90-A9UPLT
UniRef90-FOXHNO UniRef90-W2SEC3 UniRef90-B2W8D1 UniRef90-GONGU9
UniRef90
X8JEF7 UniRef90-B4N1L4 UniRef90-D8RFU5 UniRef90-F8NMP9 UniRef90-G4TK36 UniRef90_-F9X7N5 UniRef90-L2FDP5
UniRef90 Q7S2U7 UniRef90-C5DFU0 UniRef90-R7RZR9 UniRef90-G3N5S9 UniRef90-UPIO0022C94C0 UniRef90_U9TFE9 UniRef9-A0AO16VN33 UniRef90-F8Q596 UniRef90-H2YOP6 UniRef90-V9D8N4 UniRef90-A0A024G4J3 UniRef90-UPIOOO4621A53 UniRef90-UPI0002658D24 UniRef90-W6UUW6 UniRef90-B8M2Z6
UniRef90 H2W5M4 UniRef90-U6NW20 UniRet90-A8NX90 UniRef90-UPI000455D884 UniRe990-E3JZX5 UniRef90-K3WIG8 UniRef90-V5EYN7 UniRef90_UPIO004411A29 UniRef90-M5BK87 UniRef90-R7SEE4 UniRef90-A7WPD8 UniRef90_UPIOO0265296E UniRef90-C5DRG9 UniRef90-M3C2N3 UniRef90_AOAO24UUK5 UniRef90_O94726
UniRef90 K2ROG6 UniRef90-UPIOO04415CF2 UniRef90-T2M636 UniRef90-T1L580
UniRef90 E1ZHC9 UniRef90-WotBX8 UniRef90-L8FSW5 UniRef90 W7HUP1 UniRef90-K1QX43 UniRef90-K3x0V5 UniRef90-R7TBC6 UniRef90-AOAO24JFL7 UniRef90-A0A010QVF9 UniRef90_A9TTB9
$370 \quad 380$
390
 YYAYRTTGDTKWQEEVAWNAWTSUYKNCLVKKQNGALDAALAN MYLYKATRDP ILLELGRDAVESIERDSKVDC GFATIKDV YILWRTTGDEKWRERGWAVFEAI ERETKTHS WYLYRATRDPFYLDVGERILLDUTARAKVDC MYLYRATGDPYLIQVGDDILRSLQHSAKTTC GYATVNGV FVMWRLTGDTAWQDKAWHMFQSIARYTSTHPVAAAGULDV MYLYRATKNQFLLELGEDGLQSIEFSAKTRCGYATIRNV YFLYKATNDPYYLQVGKYALK SLQKYARVPC GYATI KDV FIAYRLTADPKYRRWGWQDFESIEEHCMDPTGGYAGVRNV Y L WKVTGDVKWRTRGWAVFEALERETKTETGYVTLKNV YFLYKATRDPFYLEVGKSIVENLNNYARVPC GFAALKDV YHAYVVTKDNKYREWAWDAFLAINRTCRTEN LYMWRTTGDPVWQERGWQMFASWMTHCLVRS

MYLWRQTHNPVYREWGWEVVLALEKYCRTE
FVDYKFFGDKRYQEYGWEIVYQAI EKHCKTKS
YVK
 FYMHEATNDSSWLRAGAHVVHSLQKYAKTPC FYGHRCTGDAKYQDWGWELLQSFNAYTRVPT MYLYRATGDPTLLEVGRDVIEADDRTSRVEC YVMWRVTGDPVYREWGWKI FEAFREGTAAGGR
 FYAWRVTGNTTYLDRAASAVKSFQTFDKTP YMDYQATKNPFYLHVGRD\LYNDNNFTKARC FYLWRATGDPDYREWGWNMFRAYERWCRVST YFLYTATDDPAYGEDGEELTSRLDSHARVTC
 MYLYRATKDETWLQLIGAEMVDAI ESSARTKC
 MWLYR WYLYR YLLWKTTG FVLYRITGDEGLREKAWEMFESINKSTRTRD FMMYRVTGDSMYREWGWKDFQAFREHTMAPDEGFTSLNDV FVMWRITGRQEFQEAAWDMFTAVSNATETEFANAAVLDVT MFLYHLTKEQKYRDWGWETFQSFRRHSGVNCCAYTSIITNV
 FVMWRLTKDPKYREWGWEAVQALEKYCRVP FILYRVTGDKSYQEKGWKIWKAI EKWCKTES


[^1]GGFTGLHNV AYS GLYNV \begin{tabular}{lll|ll|l}
G Y A T \& N \& N \& V <br>
G Y A N \& V \& D \& K \& V

 GYASLHNV GHASLASTT G F A GYSTMHDV GF A S L GFATVHNV A G Y A C $\mathrm{C}^{\mathrm{L}} \mathrm{H}_{\mathrm{H}}^{\mathrm{T}} \mathrm{N}, \mathrm{V}$ FGFAEI GDV GYATIAAD 

$G$ \& $F$ \& $A$ \& $A$ \& $I$ \& $K$ \& $D$ <br>
$G$ \& $V$ <br>
$G$ \& $L$ \& $A$ \& $A$ \& $L$ \& $A$ \& $N$ <br>
$V$ \& $V$
\end{tabular} G $N A A \subset V D V R$ $G \vee A \backslash D G I \quad W D V$ SVGWA CIT DV S P ETYS SL GYATLHNV AFAAVNNVV GYAAVGNV GFAA

 GFAALTDV GYPA T I K K N V $\begin{array}{llllll}T & P & P & P & P & P \\ \text { S A Y P T } \\ \text { S }\end{array}$ A H AR L K N N GY S E VVAS S V \begin{tabular}{ll}
\& $M$ <br>
$G$ \& Y A <br>
\hline

 

$G$ \& $G$ \& $R$ \& $S$ \& $V$ \& $S$ <br>
$G$ \& $G$ \& $V$ <br>
\hline

 

$G Y A T V$ <br>
$G Y V G A$ <br>
\hline
\end{tabular} A Y S A $\square$ A DV T A G Y A A A

UniRef90 FOZBS8 UniRef90_Q4PD56
UniRef90-G4M135 UniRef90-Q6DF63 UniRef90-M2R2P5
UniRef9O_M2PW88 UniRef90_UPIo00258FOF1 UniRef90-F0XLS7 UniRef90-W8BU24 UniRef90-O5BFX9 UniRef90-EOVZR8
UniRef90 A2G576 UniRef90-G4U2B4 UniRef90-A8N9HO UniRef90-B3RPB3 UniRef90-S8C772
UniRef9O-A8QCT5 UniRef90_A8QCT5
UniRef9O_D8MBM UniRef90-TIIVLO UniRef9O-UPIIOOO387DC09 UniRef90-S21ZW3 UniRef90-D6RNQ2 UniRef90_V2XZ24 UniRef90-H3G758 UniRef90_UPI0003337B48 UniRef90-H3F487 UniRef90-K4FTQ1
UniRef9O-Q2GYK8 UniRef90-E4XFN5 UniRef90-MOSQR7 UniRef90-W4JWAO
UniRef90
T1JJL UniRef90-T1JL9
UniRef90-D8UG85 UniRef90-A9UPZ7 UniRef90 FOXHN9 UniRef90_W2SEC3 UniRef90-B2W8D1
UniRef90-G0NGU9 UniRef90-X8JEF7 UniRef90-B4N1L4 UniRef90-D8RFU5
UniRef90-F8NMP9 UniRef90-G4TK36 UniRef90-F9X7N5 UniRef90-L2FDP5
UniRef90 $-27 S 2 U 7$ UniRef90_C5DFU0 UniRef90-R7RZR9
UniRef90-G3N5S9 UniRef90-UPIOOO22C94C0 UniRef90 U9TFE9 UniRef90-A0AO16VN33 UniRef90-F8Q596 UniRef90-H2YOP6 UniRef90-V9D8N4 UniRef90-A0AO24G4J3 UniRef90-UPIOOO4621A53 UniRef90-UPIo002658D24 UniRef90 W6UUW6 UniRef90-B8M2Z6 UniRef90-H2W5M4 UniRef90-A8NX90 UniRef90-UPIO00455D884 UniRef90-E3JZX5 UniRef90 K3WIG8 UniRef90-T1EEQ5
UniRef90 V5EYN7 UniRef90-UPI0004411A29 UniRef90-M5BK87 UniRef90-R7SEE4 4 UniRef90-A7WPD8 UniRef90 UPIOOO265296E UniRef90-C5DRG9 UniRef90-M3C2N3 UniRef90 AOAO24UUK5 UniRef90_O94726
UniRef90 K2ROG6 UniRef90-UPIOO04415CF2 UniRef90-T2M636 UniRef90-T1L580 UniRef90- 1 E1ZHC9
UniRef90
WoTBX8 UniRef90-L8FSW5 UniRef90 W7HUP1 UniRet90_K1QX43 UniRef90-K3XOV5
UniRef90-R7TBC6 UniRef90-A0A024JFL7 UniRef90-AOAO10QVF9 UniRet90_A9TTB9 L7

-T QRAMQTDDMESFWFA
ANPPPREDSMESFSL
KEH NDEDRMESFFLAETTKY YLEDTDNFTHSGGY DNKGAAAATNSQPSYFLAETGKYLFLLFSDDSALPLDDGF ETHRTQQDDHMESFFLSETVKYLYLLEDGDNVVENGPYL
 RVEGGGKK
RTV PPSTRDNMESFWLAETLKY LYLLFSPTDYMSLTEVVV
 RDH
Y LVDPPQQDNRMESFFLAE
ASNKEIVQNNNMERY
NDHSIEDRSKEMESFFLAETTKYLYLLFDPDNFLHNDGYI M GSPAQQLDSMPSYFLAETLKYGYGZFDDENDVPNDGY LDK RGQEDRMESFFLSETCKYLYLLFDFENPLHKSSSVV ETK RTNQKDEMPSFFLAETCKYGYLLENTSSFIGNGNFVV SDLRTNT QTH NVVGG HLLENR
TKE NRE
GE
KEDGQ
D D GKEDQMESFF ADLRSNKRDDRMESFALSE

NST
TGD
QTYGQSGFFDNTESFF
RS RSSYMNHESF RS RNSSYONHTESFFFAEVMKY YLTFDHPEKYSDDKYV MSTDSPQWND QAAYFFAEVMKYLYLTFDDPNNDSLDEYV
 KDCLPTQPLDNLESFWLAETLKYLHLEFQDDVVDLTKWV
HDKKKRMEDRMDSFFLSETVKYLYLZFSNDNALPASHVV
 NRGKKVTHIDEAESFWAAETLKYGYLTFADVNVGTLDAWV

| UniRef90_F0ZBS8 | F NTEA H P |
| :---: | :---: |
| UniRef90-Q4PD56 | F NTEAHPFEV |
| UniRef90-G4M135 | F T TEA |
| UniRef90-Q6DF63 | F NTEAHP |
| UniRef90-M2R2P5 | F NTEAHPLP $\square \mathrm{F}$ |
| UniRef90-M2PW88 | F T TEGH |
| UniRef90-UPI000258F0F1 | F NTEAHPI |
| UniRef90-F0XLS7 | F NTEAHPF |
| UniRef90-W8BU24 | F NTEA |
| UniRef90_Q5BFX9 |  |
| UniRef90-E0VZR8 | FTTEAHLL |
| UniRef90_A2G576 | F NTEGHPL |
| UniRef90_G4U2B4 | F NTEAHPFPRF |
| UniRef90_A8N9H0 | F NTEAHPLP ${ }^{\text {P }}$ F |
| UniRef90-B3RPB3 | FTTEAHLLPL |
| UniRef90_S8C772 | F NTEAHPMKV |
| UniRef90-A8QCT5 | F T T EAHPF |
| UniRef90_D8MBM7 | F T T EAHILP |
| UniRef90-T1IVL0 | F T TEAHL |
| UniRef90-UPI000387DC09 | F NTEAHPL |
| UniRef90-S2IZW3 | F NTEAHP |
| UniRef90-D6RNQ2 | F NTEAHPFPIF |
| UniRef90_V2XZ24 | F NTEAHPFPV |
| UniRef90_H3G758 | MTTEAHP |
| UniRef90-UPI0003337B48 | F NTEAHPLPIW |
| UniRef90-H3F487 | Y NTEAHP |
| UniRef90_K4FTQ1 | F NTEGHP |
| UniRef90_Q2GYK8 | F NTEAHIFPRF |
| UniRef90-E4XFN5 | FTTEAHLLPLW |
| UniRef90-MOSQR7 | F STEGH |
| UniRef90-W4JWA0 | F NTEGHP |
| UniRef90-T1IJL9 | F S TEGH\FPV |
| UniRef90-D8UG85 | F NTEAHP |
| UniRef90-A9UPZ7 | FTTEAHL |
| UniRef90-FOXHN9 | FNTECHP |
| UniRef90-W2SEC3 | $\underline{\square}$ NTEAHPFRL |
| UniRef90-B2W8D1 |  |
| UniRef90-G0NGU9 | F NTE |
| UniRef90-X8JEF7 | F NTEAHPLLGVW |
| UniRef90-B4N1L4 | F NTEAHPM |
| UniRef90-D8RFU5 | F S TEGHLEPL |
| UniRef90_F8NMP9 | FTTEGHI |
| UniRef90-G4TK36 | F NTEAHPLLP $\square$ F |
| UniRef90-F9X7N5 | LNTEAHP |
| UniRef90-L2FDP5 | FNTEAHPFPRF |
| UniRef90-Q7S2U7 | LNTEAHPFR |
| UniRef90-C5DFU0 | F NTEAHP |
| UniRef90_R7RZR9 | F NTEAHPLPVF |
| UniRef90_G3N5S9 | F NTEAHP |
| UniRef90-UPI00022C94C0 | F NSEAHVL |
| UniRef90_U9TFE9 |  |
| UniRef90_A0A016VN33 | F NTEAHP |
| UniRef90_F8Q596 | F NTEAHP |
| UniRef90-H2Y0P6 | FTTEGHLLPV |
| UniRef90_V9D8N4 | LNTEAHPFRL |
| UniRef90-A0A024G4J3 | FTTEAH |
| UniRef90-UPI0004621A53 | F T TEGHIL |
| UniRef90_UPI0002658D24 | F NTEAHL |
| UniRef90-W6UUW6 | F NSEAHP |
| UniRef90-B8M2Z6 | F NTEAHPFTV |
| UniRef90-H2W5M4 | LT TEAHFLPL |
| UniRef90-U6NW20 | FTTEEHL |
| UniRef90-A8NX90 | LT TEEGH1 |
| UniRef90_UPIO00455D884 | F NTEAHPLPVF |
| UniRef90-E3JZX5 | F NVA S H |
| UniRef90-K3WIG8 | MTTEAHP |
| UniRef90-T1EEQ5 | F T TEAHLLPLF |
| UniRef90-V5EYN7 | F NTEAHPLMV |
| UniRef90-UPI0004411A29 | F NTEAHPL |
| UniRef90-M5BK87 | F NTEAHP |
| UniRef90_R7SEE4 | F NTECH |
| UniRef90-A7WPD8 | F NTEAHAFPV |
| UniRef90_UPI000265296E | F NTEGHV |
| UniRef90-C5DRG9 | F NTEAHAFPV |
| UniRef90-M3C2N3 | F NTEAHPDR |
| UniRef90-A0A024UUK5 | F T TEGHLFPV |
| UniRef90_O94726 | F T T EGHL |
| UniRef90-K2R0G6 | FSTEGHPFRI |
| UniRef90-UPI0004415CF2 | LT T E G H ${ }^{\text {l }}$ |
| UniRef90-T2M636 | FTTEAHLLPL |
| UniRef90-T1L580 | FNTEAHPI |
| UniRef90-E1ZHC9 | LNTEAHPL |
| UniRef90-W0TBX8 | F NTEAHPFPVF |
| UniRef90-L8FSW5 | L N T EAHPFR |
| UniRef90-W7HUP1 | FNTEAHP |
| UniRef90-K1QX43 | FNTEGHVFPI |
| UniRef90-K3X0V5 | L NTEAHPFPI |
| UniRef90-R7TBC6 | FNTEAHP |
| UniRef90-A0A024JFL7 | FSTEGHP 7 W |
| UniRef90_A0A010QVF9 | LNTEAHPFK! |
| UniRef90-A9TTB9 | F F TEGHFLPM |
| UniRef90-H1XPD8 | FNTEAHLM |

UniRef90_Q9SXC9 UniRef90-T1FWI6
UniRef90 O6CWG3 UniRef90-A0A044U8D8 UniRet90 R7QJM8 UniRef90-FOYG13
UniRef90 R7UP52 UniRef90-L1J9U7 UniRef90_UPIO0046B8F21 UniRef9O-GOSW28 UniRef90-M5FXR2 UniRef90-N1PDR3 UniRef90-U1N9N4
UniRef90 D8MAS8 UniRef90- G2REQ6 UniRef90-UPIO00455FBB0 UniRef90-UPIO00381535D UniRef90-B6JZ34 UniRef90-S7QBB9 UniRet90-S7RWL4 UniRef90-M2MPA6 UniRef90-UPI0002C30229 UniRef90_Q0U236 UniRef90_A2FBR1
UniRef90
R9XGG0 UniRef90-U4LK72 UniRef90-E9GQLO UniRef90-G7E1HO UniRef90_DONB18 UniRef90-AOAO24U5 UniRef90-H2M3V3 UniRef90-G8ZSQ0 UniRet90_F9FWH6 UniRef90-A4S423 UniRef90-F4RTW8 UniRef90_E9DVU4 UniRef90-M5WM0
UniRef90
IGGJFO UniRef90-U9U215 UniRef90_-13KHH0 UniRef90-G3J448 UniRef90-ㅇWYP3 UniRef90-J4KQK3 UniRef90-C4JXTO UniRef90 ${ }^{\text {FoxDI }}$ UniRef90-B2WKX8 UniRef90-A0A016Q6C4 UniRef90_V9KPH1 UniRef90-G3IN87 UniRef90-@550P3 UniRef90-F9XJI9 UniRef90-E4ZHB2 UniRef90-F8MS96 UniRef90_J5JYB6 UniRef90_S7ZKT2 UniRef90-I2GZ888 UniRef90-UPIO0032919FD UniRet90 M2N6Q3 UniRef90_C9ZV71
UniRef90 M3A1×3 UniRef90-N1PTV9 UniRef90 W4JZ38 UniRef90-H1VQL2 UniRef90-A0A016Q2K0 UniRef90-H2AW30 UniRef90-F4RVII UniRef90-A7RNU8 UniRef90 WGPZLL UniRef90-E9ECAO
UniRef90 H2KUB2 UniRef90-H2KUB2
UniRef90 UniRef90-F4S148 UniRef90-BSRTE1 UniRef90_W9VPI6 UniRef90-GOVLO6 UniRef90_E3Q4E3 UniRef90 J3K409 UniRef90-G4NB03 UniRef90_F2SU92 UniRef90-G8ZSM44 UniRef90-A1CG09
UniRef90 H2ARJ5 UniRef90-UPI0003C16EFF UniRef90-K1WKB4 niref90_F4P448

1
10
20
K Q MREKVVREMFYHAYDNYMTYAFPHDE|L|KP|LTKSFTDY KNKVRRMFEHAYGGYMQNAFPLDELRPLTCDGQDT A I E R T F L LE S W DD Y R S N G W G L DVVY G P I S K K GR N M MNKYRDKVKAMFYHAYNSYLLHAYPLDELKPLSCSGMDW RQTEAMFEHAYTSYATHAFPADELKPLSCTPDYS
 LE EAK QMFSFGY DNYMKHAFPMDEGDDPIHCCGAGP

 $R R Q Q V L D A Y Q H A W N G Y S K Y C F G K D T F H P V S N T C N D F$
QLQDAKQSTRDMFYFAYDNYVRHAFP LDELDPINCTGRGH
VRELRQETVDMFYHGFDNYMK $\square$ AFPEDELRPVSCTPLTR LD T I K Q $\square$ F N T T Y A A Y L Q Y A F P R D E L L P L T K N G D D L D AMAARVRAEYLHAWQAYHAYAWGHDAL MPLSKKSHDW QLRDNVREMFHHGYDGYLTHAFPADELKPISCTGDSC WEARAEQVKQAFVHAYHGYEEHAAPHDELLPATAGSDNF MDHAFPFNQLAPDSCTGRGP
$\square K$ KVR R E E V K K K A F R H A WT GYAATYACMM N D T
DERREK IK DAF LY A WN IYKKK N C WG Y DF I NTAE LDR C F S Y RQAVEKVFLESWEDYVERAWGYDVFNAASGRGHNF EKADAVKEAMRETFWRYKEAAWGMDEVRP ISGGGNRTS

 HVSERRQQARDMFYHGYRNYMEHAYPWDELKPLSCSGRRW ERRRQKVKEAMDHA WSSYEKYAWGHDELQPQSKKGDDS | $M F$ | Y H GWN A Y Y N H A F P A D E L R P P |
| :--- | :--- |
| $M$ | $L$ |

 RAKA I V EAF RFSWNKYEEFAAP HDTMLDP I SKTADDR LR DEVVKEMFTDTLESYNVHAYPA DELLKPMSCE GVNT ELRDDLVKRTWNHGFDNYMTHAFPKDELRPISCQGLGP A RLMEVRGLFRENWKSYREDA WMQDALLPVSGGS RQF LRDKVVHKMFYHAYD NYMDHAFPHDEELKPLSKSFQDY RGKVKEMFMHAYDSYMTYAYPDDEGLQPMLTCSGKD T
 ETRANSVRDAMKY T FWKYKERAWGHDDILDVSGRSASS RQDTQDLFYHGYDNYLAHAFPEDELRPI ACKPQTR EA R LAA KVK AVVISK S WN S YRA NA WMHDELRPI S GSFPDF WA ERRER V K DAFR IS WD GYEKYAWGY DEYYP I AKS GRNM R R $\quad$ K I K D M M L H A WR GY A R VV WG T N E F R P I S R R A HVVG QLG R L R Q E T V D M F Y H G G Y D N Y Y M E H A F P E E D E L R P P L L LTERQKAVI ETF QHAWK GYKEFAWGHDELK PI SK T Y SEW

MF Y H GYDNY $\square$ KYSFPKDE $\square$ NP $\square$ S CS GTNT
QDRADAVVEMFRHAWDGYRQFAYPHDDLLPRSNSYSDS ETRAK SVVSAMRHTEWKYREQAWGCDDVLPVVGGNS S S E S R R Q QV K K VF DK N WN S YR T LAA WK K D A L L P I S G GY Y Q F HLA K L R QETVDMF YHGYNSYMLHAFPEDELRPVVCQPDTR QI KELRRQETERMFYHGYENYLEHAFPEDELRPLTCGPLTR LES DESMF LN SWNDYTQYGY GSDD Y Y A P I SHNHRNF $\square S T L R D D A K H L F W H G F D N Y M N H A F P E D E L K P I S C Q P Q T R$ V R D M DD HA F GSY $\square$ KYAFPK DELVCPV S GT GKNM KRDAVSDAFQHAWHGYSTHCFGGDTYHPVSNTCDNF
 WASRAAEVKGAFVDAYTAYKEHASGHDELLPLTNAPDNF

$$
Q L R G E T A A L F R H G Y E G Y \square K Y A Y P A D E L R P L S C A P L R H
$$ NKRADE IVEMFRFAWNGYYEHAFPHDSLRPKYNNYDDR NLKYCQDKI EDMLLTTWNDYSKNGFGFDIYSPDSHRSKNM

S RAEVVKHKFQQAYA DY $\square R W G F P A D E V A P L S K N G S N T$ VKELRRQETERMFFHGFENYLQYAFPEDELRALTCGPDVL YLA QLRQDTVDMFYHGFSNYMKHAFPEDELRPLTCGALTR $H L V R L R Q Q T V D M F Y H G F G N Y M K H A F P E D E L R P L T C S P L T R$ $H \square Q Y L K N E T R L L F K H A W S S Y M Q Y G F P A D E V L P D T C E P Y G P$ KLD Q $\square \mathrm{K}$ EAFRYA WNSYKRLDWGHDLLDPSTGKCEDT
 LA ELLRNATT QVFHHGWDNYMRDAFP EDELRRPI SCTP LTR






UniRef90 Q9SXC9 UniRef90_-T1FWI6 UniRef90_Q6CWG3 UniRef90_A0A044U8D8 UniRef90_R7QJM8 UniRef90_FOYG13
UniRef90 R7UP52 UniRef90_R7UP52
UniRef90_L1J9U7 UniRef90_UPI00046B8F21 UniRef90_G0SW28 UniRef90-M5FXR2 UniRef90-N1PDR3 UniRef90-U1N9N4
UniRef90 D8MAS8 UniRef90_D8MAS8
UniRef90_G2REQ6 UniRef90_UPI000455FBB0 UniRef90_UPI000381535D UniRef90_B6JZ34 UniRef90_S7QBB9 UniRef90-S7RWL4 UniRef90_M2MPA6 UniRef90_UPI0002C30229 UniRef90_Q0U236 UniRef90_A2FBR1
UniRef90 R9XG06 UniRef90_U4LK72 UniRef90-E9GQL0 UniRef90-G7E1H0 UniRef90_D0NBI8 UniRef90_U5G139 UniRef90_A0A024J577 UniRef90-H2M3V3 UniRef90_G8ZSQ0 UniRef90_F9FWH6 UniRef90_A4S423 UniRef90_F4RTW8 UniRef90_E9DVU4 UniRef90-M5WM01 UniRef90-I1GJF0
UniRef90-U9U215 UniRef90-I3KHH0
UniRef90_G3J448 UniRef90_M2TNW5 UniRef90_F9WYP3 UniRef90-J4KQK3
UniRef90 C4JXT0 UniRef90_C4JXT0
UniRef90-B3P823 UniRef90_F0XDI2
UniRef90_B2WKX8 UniRef90-A0A016Q6C4 UniRef90_V9KPH1 UniRef90_G3IN87 UniRef90_Q550P3 UniRef90_G3T5R2 UniRef90_F9XJI9
UniRef90_E4ZHB2 UniRef90_F8MS96 UniRef90_J5JYB6 UniRef90_S7ZKT2
UniRef90-I2GZ88
UniRef90_UPI00032919FD
UniRef90_M2N6Q3 UniRef90_C9ZV71
UniRef90 UniRef90_N1PTV9 UniRef90-W4JZ38 UniRef90_H1 VQL2 UniRef90_J9VXN8 UniRef90-A0A016Q2K0 UniRef90-H2AW30 UniRef90_F4RVI1 UniRef90-A7RNU8 UniRef90-W6PZL3
UniRef90-E9ECA0 UniRef90-H2KUB2 UniRef90_N4TQR7 UniRef90_F4S148 UniRef90_B5RTE1 UniRef90_A2E4P6 UniRef90_W9VPI6
UniRef90_G0VL06 UniRef90_E3Q4E3 UniRef90_J3K4Q9 UniRef90_-G4NB03 UniRef90_F2SU92 UniRef90_G8ZSM4 UniRef90-A1CG09
UniRef90-H2ARJ5 UniRef90-H2ARJ5 UniRef90-K1WKB4 UniRef90_K1WKB4
UniRef90 F4P448


60
70
80

G







D N Y S

 $D N F S L T L D D S L D T L V V L G D K K G F E D A V R N V D G W V S F D V N T$

 $K P$ LGGWM V D A L D T M ML M QL R R E V K R CEAA WI R D E L D Y D M D T NGWAATLVDTMTTTLVMGLEEEFLMELDYVVDKLDFDHAV


 G N Y S L $\quad$ T L
 P P M G WI I V DALLDTMFMMYNGS DILEVQVWIDNQLSYNDDA
 F GF AVVT LI D ALLD A MVVMMGKTAFERGVRAVI DNTRFDVDA D NFALTTLI DSLLDTFIVVFQDLDSFSKATRQIIDETVNFDLDS S GWAATVVDSLDTLWIMGLRDEFDEAVEAACQIDFVSTS P
 D DY S L T L V D C L D T FVVVF N D RK G F E K A V R DV I K Y V S F D Q D N

CGWA AT LVD S LD T LWW A G L REEFD DAVQYANDDFTYSEK Y NGWGAFIVDSASTLALMGLWDELAHSLEHMVA!NFTQTED NNYSLTLI DSLSTLAILASEREFQDGI RCGTRACGFDLDS CGWA AT L V D S L D T L W A G L R D E F D D A V K NANDDF T F S E K S VG M G WUIV D A L D T L M I M N L T S R VQ Q A R N W I H S S L R Y D Q D H GDF GATI I E S L D T L H L M GLLHNELNNRSRNWI EK S F S LDDRDD



F G Y A L T F $\square$ D S L D A LVVLGGD LKEFERA $\square$ K WVSEN $\square R F D K N \square$
NGWGLTMMNS LDDTAIIMGQQD\|VD\|ILHF\|PTVDFTKNNS NGWGAF IVDSASTMALMGLWWDELSHSIMEHILAI DFNQTTAD



 NNYSVTLI DSLLSTLADLASDDNPKHARRCGKRACGFDLDS


 A NVS LT LLDVLS S LPDLLHPHALPSALERI TTQVSFDQDV NGWGVTAVD GLDTAILMEQTD IVETILDFIPTINFTKTNT P RTN WI NI D S I D T L ML F Y LIE A EIIDK I E N WI T K DIDH Y D I D A
 D D Y S LTT L V E A L G T L A VM G N S T E F K L A V V Q HV IDD NV H F DR K S


 GNYSLTLIDSLSTLALASNPSFQDSVRDLVEQYGFDLDS



 D N Y S L T L V D S L S T L A A L A S A P D F Q D GV K A L V E Q Y G F D V D S







UniRef90_Q550P3
UniRef90_G3T5R2
UniRef90 F9XJI9
UniRef90-E4ZHB2
UniRef90_F8MS96
UniRef90_J5JYB6
UniRef90_I2GZ88
UniRef90 UPI00032919FD
UniRef90_M2N6Q3
UniRef90_C9ZV7
UniRef90-M3A1X3
UniRef90_N1PTV9
UniRef90_H1VQL2
UniRef90_J9VXN8
UniRef90_A0A016Q2K0 UniRef90_H2AW30 UniRef90_F4RVI1 UniRef90_A7RNU8 UniRef90_W6PZL3 UniRef90-E9ECA0 UniRef90-N4TQR7 UniRef90_F4S148 UniRef90 B5RTE1 UniRef90 W9VPI6 UniRef90_G0VL06 UniRef90_E3Q4E3 UniRef90_J3K4Q9 UniRef90_-16ND02
UniRef90_G4NB03 UniRef90_F2SU92 UniRef90_G8ZSM4 UniRef90_A1CG09
UniRef90 H2ARJ5 UniRef90_UPIO003C16EFF UniRef90_K1WKB4
UniRef90_F4P448

 AFHTPS GIP WALLNMKSGGIGSNWPWGGSSULAEFGTLHLE





 DTET
 AFNTPSGMPMYAVNTVTSSL





F21 AF GTDLGFPDPRY K
 AF WS STG\|PYPRVNLRHGDPFYTPEDTETCSAGAGSLVL AFSQSTGGIPFSSI NLLTGRAKNHQDNGASSTAEFTTLQL E AFYTKTGLPYPRVNLRHGDPRNTNEKTDTCSAGAGSLVLEE AFFTATGLPYPRVNLRHGVPFYPPEDTETCSAGAGSLVLE AFDSP $\square \mathrm{G}$ I PYSSI NLHSGEVIKDHGNSGASTAEDTTLQLE AFYTQTGMPYPRVNLRHGIPFYRNSPTETCSAGAGSLVLE AFYTPTGMPYPRVNLRNGVPFHPNSPTENCSAGAGSLVLE A Y L T T T GL P L A RI NLKHGVGLTADMVAENNVAAMASPMFE




UniRef90_Q9SXC9 UniRef90-T1FWI6
UniRef90-Q6CWG3 UniRef90_Q6CWG3
UniRef90_A0A044U8D8 UniRef90_R7QJM8 UniRef90_FOYG13
UniRef90-R7UP52 UniRef90-R7UP52
UniRef90 L1J9U7 UniRef90_UPI00046B8F21 UniRef90_G0SW28 UniRef90-M5FXR2 UniRef90_N1PDR3 UniRef90_U1N9N4
UniRef90_D8MAS8 UniRef90_G2REQ6 UniRef90_UPI000455FBB0 UniRef90_UPI000381535D UniRef90_B6JZ34 UniRef90_S7QBB9 UniRef90-S7RWL4 UniRef90_M2MPA6 UniRef90_UPI0002C30229 UniRef90_Q0U236 UniRef90_A2FBR1
UniRef90 R9XG06 UniRef90_U4LK72 UniRef90-E9GQL0 UniRef90_G7E1H0 UniRef90_D0NBI8 UniRef90_U5G139 UniRef90_A0A024J577 UniRef90-H2M3V3 UniRef90_G8ZSQ0 UniRef90_F9FWH6 UniRef90_A4S423 UniRef90_F4RTW8 UniRef90_E9DVU4 UniRef90_M5WM01
UniRef90_IGJF0 UniRef90_U9U215 UniRef90_I3KHHO
UniRef90_G3J448 UniRef90_M2TNW5 UniRef90_F9WYP3 UniRef90_J4KQK3
UniRef90 C4JXT0 UniRef90_C4JXT0 UniRef90_F0XDI2 UniRef90_B2WKX8 UniRef90_A0A016Q6C4 UniRef90_V9KPH1 UniRef90_G3IN87 UniRef90_Q550P3 UniRef90- F9XJI9 UniRef90_E4ZHB2 UniRef90_F8MS96 UniRef90_J5JYB6 UniRef90_S7ZKT2
UniRef90-I2GZ88

UniRef90_F4P448

MGA|L|SR|LTGDPRFESAALRALLRQ|L|WRMRSS|L|D|LL|GTT|L|D

 FS V L R YVGGD K Y Y NAALNAMRALHKRASRAGLVGNHI D F SVLSALSGNPDFGRKARASARALYDRRSVL GLLGKHIN


## F

## F



## F

## C





F
N



## 

## F

## N

F
$\begin{array}{lllllll}N & R & V & L & T & R & L \\ F & S & T & L & S & R & L \\ F & T & R & L & A & Q & L \\ F & K & Y & L & A & K & L \\ F & Y & Y & L & S & E & L\end{array}$
F T Y V L

| $F$ | $S$ | $V$ | $L$ | $S$ | $R$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $F$ | $L$ |  |  |  |  |
| $F$ | $V$ | $L$ | $S$ | $R$ | $L$ |

F R ELL
 FMHLS YLSG NP ITFAEKVMNDRTVLNNLEK PQGLYPNYL N
 $M T R L A Q V T G D M K Y Y D A A A R V M D V F E R G Q N R T K \square P G L W P V Y$




 F S LL S RLT GDQRYE QLARNAYYS\|WNRRSDNNLLGNT I G WQ H L S D L T G D P Q Y G E L A N R A E D Y WL S P S S E V WP G L T G G N F


F
F



UniRef90＿Q9SXC9 UniRef90－T1FWI6
UniRef90
Q6CWG UniRef90＿A0A044U8D8 UniRef90＿R7QJM8 UniRef90－FOYG13
UniRef90－R7UP52 UniRef90－R7UP52
UniRef90＿L1J9U7 UniRef90＿UPIO0046B8F21 UniRef90＿GOSW28 UniRef90－M5FXR2 UniRef90－N1PDR3
UniRef90＿U1N9N4 UniRef90－D8MAS8 UniRef90＿G2REQ6 UniRef90＿UPI000455FBB0 UniRef90－UPIO00381535D UniRef90－B6JZ34 UniRef90－S7QBB9 UniRef90－S7RWL4 UniRef90＿M2MPA6 UniRef90＿UPI0002C30229 UniRef90＿Q0U236 UniRef90－A2FBR1 UniRef90－R9XG06 UniRef90＿U4LK72 UniRef90－E9GQL0 UniRef90－G7E1H0 UniRef90－DONBI8 UniRef90＿U5G139 UniRef90－A0A024J577 UniRef90－H2M3V3 UniRef90－G8ZSQ0 UniRef90－F9FWH6 UniRef90－A4S423 UniRef90＿F4RTW8 UniRef90＿E9DVU4 UniRef90＿M5WM01 UniRef90＿I1GJF0 UniRef90＿U9U215 UniRef90＿I3KHH0
UniRef90＿G3J448 UniRef90＿M2TNW5 UniRef90－F9WYP3 UniRef90－J4KQK3
UniRef90 C4JXT0 UniRef90＿C4JXT0
UniRef90－B3P823 UniRef90＿FOXDI2 UniRef90－B2WKX8 UniRef90＿A0A016Q6C4 UniRef90－V9KPH1 UniRef90－G3IN87 UniRef90＿Q550P3 UniRef90－G3T5R2 UniRef90＿F9XJI9
UniRef90－E4ZHB2 UniRef90－F8MS96 UniRef90－J5JYB6 UniRef90－S7ZKT2
UniRef90－I2GZ88 UniRef90＿UPI00032919FD UniRef90－M2N6Q3 UniRef90＿C9ZV71
UniRef90 ${ }^{-}$M3A1X3 UniRef90－N1PTV9 UniRef90－W4JZ38 UniRef90－H1VQL2 UniRef90－J9VXN8 UniRef90＿A0A016Q2K0 UniRef90－H2AW30 UniRef90－FFRRVI1 UniRef90－A7RNU8 UniRef90－W6PZL3 UniRef90－E9ECA0 UniRef90－H2KUB2 UniRef90－N4TQR7 UniRef90－F4S148
UniRef90 B5RTE1 UniRef90－A2E4P6 UniRef90－W9VPI6 UniRef90－GOVL06 UniRef90－E3Q4E3 UniRef90＿J3K4Q9 UniRef90－G4NB03 UniRef90－F2SU92 UniRef90－G8ZSM4 UniRef90－A1CG09
UniRef90 H2ARJ5 UniRef90－UPIO003C16EFF UniRef90－K1WKB4 UniRef90＿F4P448

250
260
270
280
RMFHSAYLASQKYFRHGPWYHEA NMWSGKPTYWQLTS KMF LE YKSA DQKY LRR D DWY LWAQMQKGSDTHPLFQS K L Y D F S M D S MK R H L L G E S K G Q L H L Y $\operatorname{C}$ G E K D Y G L A G P KF D H
 AMFRESYAAI KTYLHKR PWYLDADMWSGHTSSLASSS


 $R V W Q D G Y A G L Q R Y V R T G G D G F W Y R G A N M Q T G Q L T S V E L D S$ N A WK Q AVD T S $⿴ 囗 ⿰ 丿 ㇄$ ERWLI VAESTMRYIGGSHPYHPEWTLLDPYWE GTSMFNAMDS RMF REAYA Q IIGQMRRGREPPDYVNVDMRDGSMLNTWDDA PMYDASVDGMLKHLFGVSKRDHYMFVGEKRGNRKVKQMQH EA WHHA HA A IKKRHLYS ERDHPHYENVNLWT GS LVVSNWVDS D T WA TAVDSSIDDKLLKRSTVDNWLYLAD YTN KTILLHVGSH
 EVWK LSSLVA M MQYMA PVDNFYLQNVF IANGHRVNT WIDS ELY L R T TN Y I DT NLLY LSPTRRLLYYVTDLQGNNQNPVFE H
 A MF
 DRHLLDMMKEDKRYMYYYHNETVDYGVGKSCWNVLYGDDHH $K L Y Q T T M A G M E K H M D A R S D P D E Y V Y I G E R Y G T L H T P Q M D H$ D R WVI A VEESTHKHLLAFRSYPNAPLLGLHQHRN GWLLNEMMH EMFWHHLVGDERYMRK DDWYFWVTMTKGTVSLDPVGQN $N V F A E S Y D A D Q Q H V K S$ SEGHWYRGVNMHSGKIAQTHIDS A MFNASYHAVETHVNHNNVY DEVDMNGGRNQVRAR RVSA EMWEKSMKGLL SLLVRKTTPSSFTYGCEKNGDSLSDKMDE S VF N N LY HALLKA HSFN G WAFRN I HYDRANLL T H WIDD S
 DLYRQSMEGMKRHLI GKSRPS GYTYIGEKPTGSLDPKMDH

 AMAGAFLDAADRHFVFRPMTPTAEDILLPGNVNVDPETEH RMFHSAYIAVQKYFRHGPW YSTTS L S DMFKE DFVPDKKYTDHNS WYVWVDKENGKVSYPYYEA KMFNEAYNSVLRYVKDETGYLYRNVNMMNGGLMSNWVDS KMYY T A LIEAI EANLVQKS PGGLTYMAEWRGGILDHKMGH
 ERFVVRAAYSLRRHLASRSAPMQHLY LGRQDDEQFENQQGH RVWEGAHAAVKRHI YRKSHHDKYPYVDAMNGAPRYNWVDN KLHENTVSAV DE WL MY R P M $\square$ N ETDDWDVYFR D $\square$ SVVE Y E AT H
 D $\quad$ FKEALLAVVA QNLVVI NAEDVTYVSTYRNGTLFHRMRH EA WNLAHAAIKRHLYSDREHPHYVNVNLWTGSLAS Q WID S A A WLD A H D GI KR QI YRGKQHQHPHYV DL Y T GA I RAFWI D S D A WHQA HASVVKRYLYDRNHYPYYSNI HRTTGQPYTMWIDS E D Y L L A VEGI K K NLIRKSEPNKLVFVGELSHNQFSPKM EDYVKA I EGIK THLLRHSQPGKLTFVGELAHGRFSAKMDH
 EQWRKAADSTDEHLLSPSSRPDLVMAGRYRGKIVRPETGY KRFLDA AYS L RTHLAS RSHPMQHLVY IGRQQDTVYENDQGH S MS R A F LIE A A D E KL F Y R P MVP GNEDVLDMDGTMVLDP ESE H EAWHQAHASVKRYI YDRNHFPYYSNNHRATGQPYTMWDDS QVWEDSHNAI NRHLYRGEGYQHPHLVVGTT GATRAFWIDS
 EMFNAAYQSI QNYLRRGRDPPLYVNVNMFSGQLMNTWIDS QA WTEAHSSILKRHVYRSSKHPYYAPTDLLTGAPRYTWIDN

WERFERTARAVNRYVRKGGMLLAASSMYS GRRLQQTSQES ERWLLA A A STDRYIGSHPYHPEWTLIDPYWE GDKTFNYMDS Q I WDEA HAAVKRHI YR DARYPYYSQVDFNSGASRYNWUDN

 RFTK AADSTGKHLVMPSSRP DGTFVSRLLQUPSPTTDDS QLTYR QS M E GVVKK HLVVHYS Y P N K WLLY I A E K P N G R I S P K M D H E
$Q L H \square H L R K G R \square K C D E G S G E T P V Y \nabla N V N M N T A K \square E N A W V D S$ QV WEESHTAA NRHLGRGEGYQHPHLIVVGVTGATRAFWIDS RAWHEAHASVKRHIYDRSQFPYYSNSHRAT GQPYTMWIDS HRFHTHYQAI KRYVSGPRFPFLFLDVNMHPSQRSRSFMDA TSRQSSTE WLDDPNVLHPPLPTEEAFLDAWHQAHASVVRYF K MYTS ILLKSAKENLKKTTTPKIITILGDRSGGKDSNS LD H HVFK T S YK A L L A H SVVQ G G G D N E GVVNVGVNDGS LA S DWID S NRHLMFMDDVRKNLVN DQGNMD IVYYIGTNLKGIRFPHASH NAWNTAHAAIKRHLYRGSTYQHPHYIQFSTGAARGFWDDA $D$
D F R H S M D S V K R H L V G H TVGGPS H L L V N G L Q H GE L S S K M D H K A WQQARHSI KHHLYRGSSYQYPHY\｜QGDTGATRAFWMDS D $\square \mathrm{FDD}$ DAME GVSKHLLFASVPNNLLFIAAKENGLNSSKMDH E A WH HA HA ATKRHLYNDRGHPHYVSVNLWTGSLASSQWDDS KVWEESFEADKTNLYRGSSYQYPHY\｜QGTT GATRALWMDS EI WHDSFEALKMYCKA DWFFVNAHPTTGQMSAPWVDS RVWEDSHAA KRHLYRGEGYQHPHLIDQGFTGATRAFWI D S RIWWEDSYEAL R $\square$ NSKS DWFYTNVEANS GY VVTNWI D S EMFNAAYGSIQNYLRRGRDPPLYVNVNMFSGQIMNTWIDS A A WQE A HA AI KRHLYS GTHHPHYVNV HLATGSPQAYWI D S

|  |  |
| :---: | :---: |
| NiRef90－T1FWIG | ETFWPGLLSLTGG DTESGMKTLHN |
| niRef90－Q6CWG3 | LVCFMGGLLAMGATNGKPYNDWELAEDLTKSC |
| UniRef90－A0A044U | LESFWPGVLADTG DVDDAQRIDYQYSQV |
| UniRef90－R7QJM8 | AAFWPGVQVTFGDH EDAADTARAHYS |
| UniRef90－FOYG13 | QAFWPGLQVLAG DVALIAARSLNAFWGVWA |
| UniRef90－R7UP | LQAAWPGVQVLNG DIEEAICMHAFYYAIWQ |
| L1．J9U7 | LQSFWPA EVVAG |
| UniRef90 UPIO0046B8F21 | LAAFFPGLVQVLK ${ }_{\text {L }}$ |
| UniRef90－M5F | LACFHGGNWL |
| UniRefoto－N1PDR3 | LSWFAGGSFGLGGMVTDNQTLTDFGLSUADA |
| UniRef90 U1N9N4 | LQASFAAVQVLNG |
| UniRet90－G2REQ6 | LGAYYSGLLVLAG |
| UniRef90－UPIO00455FBE | LGCFYGGNWILGGKMLNNDTTYNYGLELTDACFNTY |
| UniRef90－UP1000381535D | LDAFFPAVLALAG DLSGAEALQRSSFQMW |
| UniRef90－B6JZ34 | FPGLLVL |
| 70 | C ${ }^{\text {LP }}$ GLFAL |
| UniRet90－S7RWL4 | LSAFWAGLQVLAG |
| UniRet90－M2MPA6 | LSWFAGGNIILGG |
| 90＿UP10 |  |
| UniRef90－A2FBR1 | GARENNPNDFEMAKNLTDGYKMYRRFK |
| UniRef90－R9XG | IGGLLYAMAATEGKPDQYWQLAEALTYTCYR |
| UniRef90－U4L | AGGNLMLGGRHLGNPSDTQLGSELVETCRR |
| UniRef90－E9GQLO | YWPGVLSTIGGNSD |
| Ret90－G7E1H0 | a dor aik |
| UniRet90－DONB18 |  |
| UniRef90－A0A024J！ | LT Y L |
|  |  |
|  | LVCFMGGLLAMGATEGYPIDDWKLIAQELTHTCYQMYHQTP |
| UniRef90－F9FW | CGGSLILGGLLLQNQTFVDF GVK |
| 俍俍90＿A4S423 | （ GD EAAT |
| UniRef90－E9DVU4 |  |
| UniRef90－M5WM01 | LDQFFDGTLKVLV GD\AAANSSHREFVYVWKK |
| niRet90－11GJF0 | LDSYWPGLLSLVG NIKDAKKNIFNHFLVWRS |
| U9U215 | LSAYFPGLQVLAG DLDNADKSHLLYYNIWK K |
| UniRef90－\3K | LACFSGGMIG GADDGAPQHYLDLIAEETHTCHESYTRSA |
| UniRet90 G33448 | LTELGGMYGLGAKIFDRPQDLATAKRLTDGCVWAYHKTP |
| ef90－M2 |  |
| 俍et90＿－9WYP3 | G |
|  | P |
|  | $V \mathrm{GGLFALGATETHWEKY}$ |
|  | － |
| UniRef90－B2WKX8 | LSAFYQGLLTMAGK LDEADETHLLY TAL |
|  |  |

$L V C F L P G T \square A L G V H H G L P A D H M D \square A Q A L M E T C Y E M N R Q M E$ LQSFWPG $\square$ QSM YGDYENAFSTDKSFH V VWR

 LSA Y Y P GLL LA L D GK $\quad \square$ D EA DQI H L L T TA V WT R



 $V$ DVDGA GNKAMP T GMMPERENMVACARRDDCPWDAALLWE

## LSAFLPA DQVLAG D IPSADRSHLVFWNLDR K

 LACFIGGSFILGSSAMDRPDWLDYGLSFSEYCANGYRYTA $L V C F M G G G L A M G A T E G L R E E D W Q \square A K D L T H T C Y Q M Y H Q L P$ L
$\begin{array}{llllll}L & A & F & Y & P & G \\ L & L & L & A & A & G \\ F & A & F & P & G & Q \\ L & L & G\end{array}$
$L$ F A F WP G QVLLLG
L A F Y P GLLLAMAG EVVDEAVEANLVYTALDTR

L GAFWS GLQVLDTGQ

 L A F YP GLL A MA GEVVE EAEE A N L L Y T A L WT R
 $L$ GA Y Y S G L L T LAA G

 3C16EFF

## UniRef90 Q9SxC9

 UniRef90_T1FWI6 UniRef90-Q6CWG3 UniRef90_A0A044U8D8 UniRef90_R7QJM8 UniRef90-FOYG13UniRef90-R7UP52 UniRef90-L1J9U7 UniRef90_UPIO0046B8F21 UniRef90_GOSW28 UniRef90-M5FXR2 UniRef90-N1PDR3
UniRef90_U1N9N4 UniRef90-D8MAS8 UniRef90_G2REQ6 UniRef90-UPI000455FBB0 UniRef90_UPIO00381535D UniRef90-B6JZ34 UniRef90-S7QBB9 UniRef90-S7RWL4 UniRef90_M2MPA6 UniRef90_UPI0002C30229 UniRef90_Q0U236 UniRef90_A2FBR1
UniRef90-R9XG06 UniRef90_U4LK72 UniRef90-E9GQL0 UniRef90-G7E1H0 UniRef90-DONBI8 UniRef90_U5G139 UniRef90-A0A024J577 UniRef90-H2M3V3 UniRef90-G8ZSQ0 UniRef90-F9FWH6 UniRef90-A4S423 UniRef90_F4RTW8 UniRef90-E9DVU4 UniRef90-M5WM01
UniRef90 I1GJF0 UniRef90-I1GJF0
UniRef90 U9U215 UniRef90_I3KHH0 UniRef90_G3J448 UniRef90-M2TNW5 UniRef90-F9WYP3 UniRef90-J4KQK3
UniRef90 C4JXT0 UniRef90_B3P823 UniRef90_FOXDI2 UniRef90-B2WKX8 UniRef90_A0A016Q6C4 UniRef90-V9KPH1 UniRef90-G3IN87 UniRef90_Q550P3 UniRef90-G3T5R2 UniRef90-F9XJI9
UniRef90-E4ZHB2 UniRef90-E4ZHB2
UniRef90-F8MS96 UniRef90-J5JYB6 UniRef90_S7ZKT2 UniRef90_I2GZ88 UniRef90_UPI00032919FD UniRef90-M2N6Q3 UniRef90_C9ZV71 UniRef90-M3A1 X3 UniRef90-N1PTV9 UniRef90-W4JZ38 UniRef90-H1VQL2 UniRef90-J9VXN8 UniRef90_AOAO16Q2KO UniRef90-H2AW30 UniRef90-F4RVI1 UniRef90-A7RNU8 UniRef90 W6PZL3 UniRef90-E9ECA0 UniRef90-H2KUB2 UniRef90-N4TQR7 UniRef90-F4S148
UniRef90 B5RTE1 UniRef90-B5RTE1
UniRef90-A2F4P6 UniRef90-W9VPI6 UniRef90-GOVL06 UniRef90-E3Q4E3 UniRef90_J3K4Q9 UniRef90_I6ND02
UniRef90_G4NB03 UniRef90-F2SU92 UniRef90-G8ZSM4 UniRef90-A1CG09 UniRef90-H2ARJ5 UniRef90_UPIO003C16EFF UniRef90_K1WKB4 UniRef90_F4P448


TG L SPE $\square$ AHFN LYYTRADHKDVEVKPADRHNLLRPETVESL $Y G F D P E G Y N L L S$
$V K L G P E A F R F D G G V E$

AlATRQNEKYYGLRPEVVETY




Y S AL P ERW W M M H N S F $\square$ D P S FKHWAGRPEFI EST

Y QALPERWN TMNA Y IDD DNKHWPGRPEF I ST

A
F G ALLPESWRWQ



Y S G
Y S ALLP ER WS I R
K L MP EAF
Y A ALLP E R WS VR

| $T$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |


F S S L P E R WN I A T T G D
Y A ALLP ERWNVR
F S AL PERWNVATGD


G A L
Y A ALD ERWSVRDGQ
$P D V L \mathcal{L}$ Y P L $L$ R P
YGALPERFNMNL $\quad R D\|D\| G V Y P \| R P$

UniRef90 Q9SXC9 UniRef90-T1FWI6 UniRef90_Q6CWG3 UniRef90-A0A044U8D8 UniRef90-R7QJM8 UniRef90-FOYG13 UniRef90-R7UP52
UniRef90 LiJgu7 UniRef90_UPIO0046B8F21 UniRef90_GOSW28 UniRef90-M5FXR2 UniRef90-N1PDR3 UniRef90-U1N9N4
UniRef90 D8MAS8 UniRef90-G2REQ6 UniRef90-UPIO00455FBB0 UniRef90-UPIOOO381535D UniRef90-B6JZ34 UniRef90-S7QBB9 UniRef90-S7RWL4 UniRef90-M2MPA6 UniRef90-UPI0002C30229 UniRef90 QOU236 UniRef90_A2FBR1
UniRef90
R9XGO6 UniRef90-U4LK72 UniRef90 E9GQL0 UniRef90-G7E1H0 UniRef90-DONBI8 UniRef90-U5G139 UniRef90-A0A024 4577 UniRef90-H2M3V3 UniRef90-G8ZSQ0 UniRef90-F9FWH6 UniRef90-A4S423 UniRef90_F4RTW8 UniRef90-E9DVU4 UniRef90-M5WM01 UniRefofo-licalfo UniRef90-U9U215
UniRef90 13 KHHO UniRef90_G3J448 UniRef90-M2TNW5 UniRef90-F9WYP3 UniReffo-J4KQK3 UniRef90-C4JXTO
UniRefo- 338823 UniRef90-FOXDI2 UniRef90-B2WKX8 UniRef90-A0A01606C4 UniRef90-V9KPH1 UniRef90-G31N87 UniRefofo-a550P3 UniRef90-G3T5R2 UniRef90-F9XJI9
UniRef90 E4ZHB2 UniRef90-F8MS96 UniRef90_J5JYB6 UniRef90_S7ZKT2 UniRef90-I2GZ88


GFAGT YYLYKATGDPYYLRVGQSIVEKLNTYARVPCGFAA MFLYHLTKDDKYRQWGYEIFSNFVKHCEVLDDSHNTYLSL YYAYRATGDHKYQDWAWEAFEALNRMCKVEYTGLKSVMKT YLLYKATGDVTY DACGRDFRASLGRLLKTNC GYAHMADV FYMYRDTGDEAFQDKAWDMFTAI SNGTRTEYANAAVLDVT FY Y OATKDPWY DEVGESVVNSLNLYTKVD GGFASURDV
 MYMWRLTHDPKYREWGWEAVEALEQHCRVES GFSGIRDV



F $\square L W R M T H Y P K Y R S W G L E M V Q A \square E K Y C R K P Y G Y T G V L D V$


FY $\square Y R V T R D H K Y Q D W G W E D Q S F N K Y T R V P S G G Y S S D N N V$ YHMYQTNKDPDF DRMAKDLV WT 1 S NVTTTKC GHANDLDV MYMWRLTHDPKYRKWA WEAVEALESYCKV NGGYSGLRDV YYA YQTTRDQYWRDVA WA YA A A Q K T ERLP VGF GSLQNV FYAWRDT GEQRYRDWAWEAFAAMENHCKAPF GYAQLADVV FVMWRUTGRQEFQEAAWDMFTAVSNGTETEFANAAVLDVTT Y HI YRATADP WYLRVGEMVLNDIKRRCWVAC GWAGLENV

 Y YLY YATRDPWYLHVGEMALQRDVRRCWTKC GWADLGDV



 $M \square L Y H D T G N Q K Y R E W G Q E D M E S F D K N T C V H C R K F Y T S L N N$ FYAWRMTGKERYQEFAWSAFQADNKYCKA SASYAADMNV YVLYQATHHPFYLLHVGREMLRDLETHARAEC GYATI HNV Y Y Y RAT QDPWYL HV GEMVLSDLKRRCWTKC GWAGI RNV
 YYLYRATQDPWYLHVGEMVLKDIERRCRAPC GWAGLQDV
 Y Y
Y Y R AT R YYLYRATEDPWYFHVGEMVLRDIKRRCWTRCEGWASDQNV YYLYRATNDPWYVHVGEMVLSDDKRLCYTKC YY LYRATEDPWYL HVGEMAMRDIVRRCCWTKC MYMSKLSEDNKYKEWAWEITFENFRANSSLLDRD Y Y LYRATEDPWYLYVGEMVLRDIKRRCWTKC YFLYRATRDPFYLNLGVAVLESFQTRFKYKC Y Y L Y RATKDPWY L HVGEMVLRD $\quad$ GKRRCWAKC YFLYRATRDPFYLNI GKQILNDFQTRFKSKC YLLYQATKNPFYL HVGMDIIQSLEKYTKV




UniRef90_C4JXT0 UniRef90_B3P823 UniRef90_B2WKX8 UniRef90-A0A016Q6C4 UniRef90_V9KPH1 UniRef90_G3IN87 UniRef90-Q550P3 UniRef90 F9XJI9 UniRef90_E4ZHB2 UniRef90_F8MS96 UniRef90_J5JYB6 UniRef90_I2GZ88 UniRef90-UPIO0032919FD UniRef90_M2N6Q3 UniRef90_C9ZV71 UniRef90-M3A1X3 UniRef90_N1PTV9 UniRef90 W4JZ38
UniRef90 H1VQL2 UniRef90_J9VXN8 UniRef90_A0A016Q2K0 UniRef90_H2AW30 UniRef90_F4RVI1 UniRef90_A7RNU8 UniRef90_W6PZL3 UniRef90-E9ECA0 UniRef90_H2KUB2 UniRef90_F4S148 UniRef90 B5RTE1 UniRef90_W9VPI6 UniRef90_G0VL06 UniRef90_E3Q4E3 UniRef90_J3K4Q9 UniRef90_-16ND02
UniRef90_G4NB03 UniRef90_F2SU92 UniRef90_G8ZSM4 UniRef90_A1CG09
UniRef90 H2ARJ5 UniRef90-UPIO003C16EFF UniRef90_K1WKB4 UniRef90_F4P448




QNSQKPDPRDKMESFFVGETGKY LYLLFSDDELLSLDTCV
 YARHE SYDDVQQSFFLAETGKYLYVLFSDDDLLPLEHWV LAEDGGGTDDFMPSFMLAETLKYQFLIQSPKEGVKTNFFVV KGSDGSNWDDMQESFWAAETLKY L
 K TGEMDDRMESFFLGETAKYMFLLFTPDHPLNLDAWV
RYTS P
T P GE
TS


[^2]| UniRef90_Q9SXC9 | $\text { FT TEGHP } \square \mathrm{Q} \stackrel{45}{V}^{450}$ |
| :---: | :---: |
| UniRef90-T1FWI6 | F NTEAH |
| UniRef90-Q6CWG3 | F NTEAHPFPVF |
| UniRef90-A0A044U8D8 | F NTEAHP |
| UniRef90-R7QJM8 | F T T EAHPLRI |
| UniRef90-FOYG13 | F S TEA |
| UniRef90-R7UP52 | F S TEGHLLFPI |
| UniRef90-L1J9U7 | FSTEGHPLPL |
| UniRef90-UPI00046B8F21 | FTTEAHL |
| UniRef90-G0SW28 | F T TEGHP |
| UniRef90-M5FXR2 | F NTEAHPYP |
| UniRef90-N1PDR3 | F NTEAHPLKV |
| UniRef90_U1N9N4 | F T TEGHI |
| UniRef90-D8MAS8 | F NTECHPLK। |
| UniRef90-G2REQ6 | FSTEGHP |
| UniRef90_UPI000455FBB0 | F NTECHP |
| UniRef90-UPI000381535D | F NTEAHPDK |
| UniRef90-B6JZ34 | FTTEGHL |
| UniRef90_S7QBB9 | F NTEAHPFPVF |
| UniRef90-S7RWL4 | F T TEGH L |
| UniRef90-M2MPA6 | Y NTEAHPLKV |
| UniRef90_UPI0002C30229 | FNTEAHP |
| UniRef90_Q0U236 | L N TEAHPFR |
| UniRef90_A2FBR1 | F NTEGHPLRVW |
| UniRef90-R9XG06 | F NTEAHPLPV |
| UniRef90_U4LK72 | FSTEAHP |
| UniRef90-E9GQL0 | F NTEAHPMDV |
| UniRef90_G7E1H0 | WS TE G H Y L A V |
| UniRef90-DONBI8 |  |
| UniRef90-U5G139 |  |
| UniRef90-A0A024J577 | F STEAHP |
| UniRef90-H2M3V3 | F T TEAHLLPV |
| UniRef90-G8ZSQ0 | F NTEAHPFPV |
| UniRef90-F9FWH6 | LNTEAHPLLV |
| UniRef90_A4S423 | FTTEAHILPL |
| UniRef90-F4RTW8 | F T T E G H ILIFI |
| UniRef90_E9DVU4 |  |
| UniRef90-M5WM01 | F T T E G H P L P V |
| UniRef90-I1GJF0 | F S TEAHPIDV |
| UniRef90_U9U215 | F T T GR H |
| UniRef90_13KHH0 | F NTEAHPLDP |
| UniRef90-G3J448 | L NTEAHPFR |
| UniRef90-M2TNW5 | FSTEGHPFRM |
| UniRef90_F9WYP3 | FTTEGHPLV |
| UniRef90-J4KQK3 | L N T E A H P F R |
| UniRef90_C4JXT0 |  |
| UniRef90-B3P823 | F N S A G F L |
| UniRef90-F0XDI2 | F T TEGHPLI |
| UniRef90-B2WKX8 | FTTEGHP |
| UniRef90_A0A016Q6C4 | FSTEGHPLI I |
| UniRef90_V9KPH1 |  |
| UniRef90-G3IN87 | F NTEAHPL |
| UniRef90_Q550P3 | F NTEGHILFPM |
| UniRef90_G3T5R2 | F NTEAHLLP V |
| UniRef90-F9XJI9 | Y NTEAHPFRV |
| UniRef90-E4ZHB2 | F S TEGHPLLRM |
| UniRef90-F8MS96 |  |
| UniRef90_J5JYB6 | F T T E G H P |
| UniRef90-S7ZKT2 | FTTEGHPLVI |
| UniRef90-I2GZ88 | Y NTEAHPFPV |
| UniRef90_UPI00032919FD | F T TEGH V S V |
| UniRef90-M2N6Q3 | F T TEGHPLVI |
| UniRef90_C9ZV71 | F NTEAHLF |
| UniRef90-M3A1X3 | Y NTEAHPFRV |
| UniRef90_N1PTV9 | F STEGHPL |
| UniRef90-W4JZ38 | FNTEAHPLPVF |
| UniRef90-H1VQL2 | LNTEAHP |
| UniRef90-J9VXN8 | FTTEGHPLYT |
| UniRef90-A0A016Q2K0 | Y NTEAHPLKV |
| UniRef90-H2AW30 | F NTEAHPFPV |
| UniRef90-F4RVI1 | F NTEAHPYR |
| UniRef90-A7RNU8 | F S TE G H L F RL |
| UniRef90-W6PZL3 | F NTEGHPL |
| UniRef90-E9ECA0 | F T TEGHPLVI |
| UniRef90-H2KUB2 | F T T E A HLL PL |
| UniRef90-N4TQR7 | FSTEGHPLII |
| UniRef90-F4S148 | F NTEAHPFKL |
| UniRef90_B5RTE1 | FSTEAHPM |
| UniRef90-A2E4P6 | F NTEGHPFKKW |
| UniRef90-W9VPI6 | F T TEGHPL |
| UniRef90_G0VL06 | F NTEAHVFPV |
| UniRef90-E3Q4E3 | FTTEAHPLII |
| UniRef90-J3K4Q9 | FTTEGHPLVI |
| UniRef90_I6ND02 | F NTEAHPFPV |
| UniRef90-G4NB03 | F T TEGHPL |
| UniRef90-F2SU92 | Y STEGHP |
| UniRef90-G8ZSM4 | FSTEAHPMWI |
| UniRef90_A1CG09 | F S TEGHPLI |
| UniRef90-H2ARJ5 | FSTEAHPFWL |
| UniRef90-UPI0003C16EFF |  |
| UniRef90-K1WKB4 | F T T E G P L I |
| UniRef90 F4P448 |  |

MFYHGYKSYLKYSFPKDELKPISCTGSNT A LRKETEDLFYHGYENYMNHAFPEDELRPLTCKPLTR VKDMF Y HAFDGYMQHAFP LDDELRPL SCQGEDS DLKTEAEDLFYHGYNSYMKYAFPEDELRPVSCTPDTR


## L H A

 SETLIFDHAYNSYMLHGFPH D $V$ R P I A C E GV T M

NETRAMFYHGYNNYMRHAFPHDELDPI HCSGRGH
REES LGMFRFGYGEYMRLAFPKD DLRP I SCRGKD S $\square R D L R L Q T E Q M F Y$ THGYDNY I K Y A F P E D E L R R P L T C C G P LT R $L N Q Y K D Q V K E L F Y H G F N S Y L E Y G Y P Y D E V L P I T N T N D V L$

RQRVKSMFYHAYNSY LDNAFPYDELRPLTCDGQDT QLDELRKDTEHMFYHGFDNYITHAFPEDELRPLSCRPDVL DLREEAREMFRHGWENYWD DAFPEDEVKPLTCDAHHM


LK HYRETVKDLFHFAHENY DQKGYPYDEDRPDACTNDVL QRNLMENSVREMIDHAYSNYMDVAFPHDELKPIAKTYTDY LNVLA QDVKDEFDRSWEGYKKYAWGHDVLLPLSKSHQDW WDERREKVRDAFVTSWNAYSKYAWGNDVFHPLSKKGSNM

H T N H TK NQT R Q LIFKHAWSSYMEYGFPFDEVRPRSCEPYGM QLRHLRTETEQMFYHGFENYLEHAFPEDELRPLSCEPDVL

KEEEKRVVEAFELSWDAYERYAWGYDEYHPVAKTGKHM WSTRAEEVRDAF LHAYSGYQEFAVPHDEVDPVSGG
H $\lfloor$ A Y L R NETKS LDFNHAWQSYMQHGFPADEVVPI SCQPYGP
MQEKRKKVKEMMMFAWNSYKQFAWGENELRPLTKDGHFG
Q LREDARRMFYVGYDNYMSHAFPADELNPDDCRGRGP Q $\ E M F D H A Y G S Y M K Y A Y P A D E L M P L S C R G R V R$

NGRGSDKANPDN $\square$ NVNDV
AAFRRAWDAYRR LIAWGRDELRPLSGRGADF
EARRNAVKRGFVYAWQKYKDHAWGHDEVKPVTKDYHPF EDVRQEFLTAWTAYRRDAWGRDELHPVSGTGSEF MK HA F P E D E L L R L L T C G P L T R
WKVLAADVRSEFQWAWQGYVAKAWGKDETNPVSGTFVEG EARAKSVRDAMKYTFWKYRENAWGCDDVLPVSGGNSTS

KHAWQGYRDRAFGRDSVAPVSGRAVGS NDKQKAVVEAFKHAWKGYKKYAWGHDHLKPVTKSYNDW LRDEVKDMFYHAFDGYMKYAFPLDELRPLSCQGEDS ARCSLVKRAMEHAWQGYSRYAFGKDELLPLSKRGQDN

## $\square Q Q D V R Q A T A A T Y R \square Y \square R H C L G K D E \| V P T T R R C E D W$

 QIEANKALLQSMFTHAFDSYMFNAFPASELHPVTCHFHLV HLKDLRNRTKSLFYHGFNSYMAHGFPYDEVDPLTWKNDAM REERVRALFHHGYDSYMANAFPADVLDPLSCTGKDG LNTYA DLIVEQMYAHAFGDYMRYAFPYDELVRPLSCDCGRDT SRREEVREMFYHAYRAYMDYAYPADELMPLSCKGRYR H $\square$ KN $L$ RREAHDMFHHGYDAYYNFAFPADEEIRPLSCAPDVM LK DKAKEMFYFGYDNYMKYAFPLDELNP $\quad$ YCRGRGP
## M $\square$ R S WN A YK T YA WGKDVLLP $\square$ SK S GFNW

HYRERVKAMFYHAYDSY $\square E N A F P Y D E \square R P \square T C D G H D T$
DKQRAVVDAFRWAWKGYKAYAWGHDELLPVTKGHNEW $\square N A R Q K A V V D A F L H A W A G Y R K F A W G H D E L K P L T M S F S E W$ WDGYRACAWGEDEELQPLSCTGVHW

DR L KEVKTVMDQTWQRYKQFGFGHDEDHP $\square$ TGEARDP
ENRRRAVRTAAMNAWDAYVAGAWGQDTLRPLTGDGDDT EKTEALAEAFRHSWMGYYTYAFPRDTLNPLSETFNDL EERKDAVKRGFKHAWEAYKRHAWGHDEDRPVSDTSDPF RQRILSMFYHAYNSYLDNAFPYDELRPLTCDGQDT

RSRRQVVRDVFEKDWQHYRAHAWMKDAVNP $\square$ S GTADQF

EERKEAVKRGFKHAWEAYKRHAWGHDEVRPVSLTSDPF KRNK KEMMKFAWDGYRQYAWGSNELKP\|SK』GHSS

UniRef90 Foz8C2 UniRef90-Q6FK76 UniRef90-W2SE67 UniRef90-M7YLM1 UniRef90-E1GDU0 UniRef90-B4NTS2 UniRef90-Q6C995 UniRef90_X1XXH1 UniRef90-ARR442 UniRef9-IIGFT2 UniRef90-B7QCL8 UniRef90-B6QV06 UniRef90-Q6CWJ4 UniRef90-H3B325 UniRef90_O4S6D1
UniRef90 I7ZYF4 UniRef90-U4LSY5 UniRef90-J5P805 UniRef90_UPIO002899AFF UniRef90_I1FAK9 UniRef90 ${ }^{-}$C5E1Q7 UniRef90_-10YLQ5 UniRef90-W7YG65 UniRef90-N4VVH4 UniRef90-S4RLQ1 UniRef90-G8YTG6 UniRef90-Q5ARJ6 UniRef90 C9SM99 UniRef90-F8Q573 UniRef90-G3ALG3 UniRef90-Q6NRH5 UniRef90_N1RDY9 UniRef90-S4RM89 UniRef90_Q4S3AO UniRet90_H9GPR7 UniRef90-IICM31 UniRef90-G3T0L6 UniRef90-UPIO0035CCF8C UniRef90-11BJ77 UniRef90-K1VTI2 UniRef90-S5VRC6 UniRef90 R7Z026 UniRef90-A0A026WQU7 UniRef90-UPIO0036215D1 UniRef90 ${ }^{-}$B2WMW0 UniRef90_G3VEA3 UniRef90-FOY2Z2 UniRef90-E1FJX4 UniRef90-UPIO003512139 UniRef90-K0RBC2 UniRef90-UPI000443ACC7 UniRet90_SOF2U6 UniRet90-B8BRK5 UniRef90-W1QD96 UniRef90_R1F4E3 UniRef90 C5L318 UniRef90-GoWA44 UniRefofo- B7PA09 UniRef90 S8ASY0 UniRef90_UPI0002B44296 UniRef90-A2F055 UniRef90-E4YQU8 UniRef90-J9EVQ9 UniRef90- A0A024FHS7 UniRef90-UP10003945860 UniRef90_A0A023FYG0 UniRef90 G3HAP9 UniRef90-UPIO0046B316C UniRef90-D7SS50 UniRef90- F2TZ92 UniRef90_UPIO003C15E01 UniRef90-E1ZFE22 UniRef90-KOKHR5 UniRef90 UPIO003C108DA UniRet90_UPI0001CF1C22 UniRef90-R8BGB9 UniRef90-O6C8F1 UniRef90-M5BM59 UniRef90-R70215 UniRef90-C7Z5G8 UniRet90_B2VTQ6 UniRef90-E6R97( UniRef90-UPIOOO298F186 UniRef90- W5L1T3 UniRef90 C9SMY1 1 UniRef90 W4ZEN1
UniRef90 H2T1X1 UniRef90-H2T1X1


WGFSLTLVDALDTLVRRKRSQRSRHSDAFSWQDRGSRSS GNYSLTLIDSLSSLAIARAWAHFQDGVRDFERSRGFDIDS GEFSLTAI DSLSTLALMVEAQRFWDVVEELDRTYWFDIDA GNFTLTLIDSLTTHAVLQDRPRFLEAVKLVERTFPFDVDA

GNFSVTLVDSTTTAVMNDRPKFAEMVKLTEDTFPFNTDS SGVALTLI DALSTLAVIEDAARFHEAVSWLTKNLSFDVDV YSLHIS PI DAYSTMKVMGLDAYAKEVERYVTDSIGWDKDL EGLGWIVVDSLDTMMLMNLTEPLAEARRWLHRSLTWDQDQ
 GNYSLTLIDSLSTLALLASWQYFQDGIKDFERSRGFDDDS ND DNVSST LDNDDTLIMEQWEEDEYVLSYRKSQTFFEQDT SLFGATIVDALDTLFTMGLKEEFDEAQKWIETSLDLNVNG MKDEFKEAVKVVAMIDWSRTGD DNYSLTLDALDTRAVMGNASQNGDAHTQCDDNTHFEHFG GQFSLTLRNTLDTLVVLNKLDEFEDAVKKAVSDVRDDNDV LGYSLTLVDTLDTLAIMGTQEQFEKAVRQVIDTVSFHQNN NYSLTVVDALDTLAMMNSSEFQKAVKGVIJNTVSFDRDS HTFGLTIVEALDTLYLMELDEEDDAAVRWVKNELVLDQDV NGWGASIVDGLDTMLVMGLEKEYEEALDFVKDLDFKKSAT FIDSVPVVESLDTLFLMELDGELDAAVSWI GTRLDFDRDA DNYSLTLIDSLSTLAULASSPEFQDGVSLLKKARGFDLDS
HD LGGLSLVEALDTLWTMGLDAEFQAGVDWVKTS LDFDVDG NGWGAFIVDSASTLALMGLWDELAHSLEHILA IDFTQATN
FDMAVTLVDSDT LWVVGLKEEFKEARDFVATEAFRSPPS FGLGLTIVDSLSTAII MGLNDEFEEGRNWVAESLSFEKNH GGYALTLI DSLDTLALLGDKEKFGAAVEWVGKNVRFDTNK WGGMGTTVDSLSTLWQMGMKEDFWKARDWVRDHLDFSKKQ



FGLGLTLVDALDTMYLMALTDEYKEARDWVAHDLQLDKNV FGLGLTLIDALDTMWI LGLKKEFQEARKWVSKRLLFQKDV GNLSLTMVDSLDTLHLLGMRQEFEAAGWVVDQLDVGAPA
 GGMGAS VEALGT DYTMRDDSRYAKAREWVEKEDHFNVEG SGFGSTAIESLTTAIIMGEKT IVDRDMWYVGSATFYVTKE NGWGATVVDSDTLLLMGFSNEYNLCRPHTNQLNFHWVNG WGFSLTLIDALDTLLVLGNQTEFQRVASLLQDTUDFDTDV SGWAATLVDSDDTGWMGLRAEFDEAVEAVAKDDFQSSTS i DGNASEFQKAVQLVSETVSFEKNS

NGWGATVVDLDTMLLMGFSNEYNLCRPHVNQLNFHWVNG


UniRef90 Foz8C2 UniRef90-Q6FK76 UniRef90-W2SE67 UniRef90-M7YLM1 UniRef90-E1GDU0 UniRef90-B4NTS2 UniRef90-Q6C995 UniRef90-X1 XXH1

UniRef90 -A6R442 UniRef90-11GFT2 UniRef90-E1ZMI7 | UniRef90-B7QCL8 |
| :--- |
| UniRet90 |
| B60V | UniRef90-Q6CWJ4 UniRef90-H3B325 UniRef90-Q486D1 UniRef90-17ZYF4 UniRef90-U4LSY5 UniRef90-J5P805 UniRef90_UPIOOO2899AFF UniRef90-11FAK9 UniRef90-C5E1Q7 UniRef90-IOYLQ5 UniRef90-W7YG65 UniRef90-N4VVH4 UniRef90_S4RLQ1 Unii effo-GBYTG6 UniRef90-C5ARJ6 UniRef90_C9SM199 UniRef90-G3ALG3 UniRef90-Q6NRH5 UniRef90_N1RDY9

UniRef90_S4RM89 UniRef90 Q4S3AO UniRef90-H9GPR7 UniRef90-I1CM31 UniRef90-G3T0L6 UniRef90-UPIOOO35CCF8C UniRef90-11BJ77 UniRef90-K1VT12 UniRef90-S5VRC6 UniRef90 R7Z026 UniRef90-AOA026WQU7 UniRef90-UPIO0036215D1 UniRef90-в2WMW0 UniRet90-G3VEA3 UniRef90-FOY2Z2 UniRef90-UPIOOO3512139 UniRef90-K0RBC2 UniRef90_UPI000443ACC7 UniRef90-S0F2U6 UniRet90_B8BRK5 UniRef90 W WD96 UniRef90-R1F4E3 UniRef90- GOWA44 UniRef90-В7PA09 UniRef90-S8ASY0 UniRef90_UPIO002B44296 UniRef90-A2F055 UniRef90-E4YQU8 UniRef90_J9EVQ9 UniRef90-A0A024FHS7 UniRef90-UPIOOO3945860 UniRef90_A0A023FYG0 UniRef90 G3HAP9 UniRef90-UPIO0046B316C UniRef90-D7SS50 UniRef90 F2TZ92 UniRef90_UPIO003C15E01 UniRef90-E1ZFE2 2 UniRef90-KOKHR5 UniRef90-UP10003C108DA UniRef90-UP10001CF1C22 UniRefto-R8BGB9 UniRef90-Q6C8F1 UniRef90-M5BM59 UniRef90-R7Q215 UniRef90-C7Z5G8 UniRet90_B2VTQ6 UniRef90-E6R97 UniRef90-UPIOOO298F186 UniRef90- W5L1T3 UniRef90-C9SMY1 1 UniRef90-W4ZEN1 UniRef90-H2T1X1 UniRef90-UP10001D5D8AD UniRef90-JgVsvo UniRef90_H3ECJ4


NLHLAHEEEAVVGGLLSAHLWPCSGPLLRMAEDAARKLLP KVQVFETVIRGLGGLLSAHLFSYNGQFLRLAVDLANRLLP KVQVFETT:RGLGGLLSAHLFTYKNELLYLAEDLGRRLLP

TVOVETTR VGGTSAHTYATDPSTDODAKDMADRDD RVNVFEANIRLLGGLLSAHLLLAADPVLGPKAKDMADRLLP FVKTFEVNI RILGGMLAMYEYTGDQKIGDKTEDFGKRMLK DVNTFETTI RMVGGLLSAHHLSTDSVYLSKAVDLADRLSA NVSVEETARVVGGLLSAHLWPCSGPLLRMAEQVARKLLP VVQVFETTVALGGLLSSHCDNYDGFLLEMAHDLGKRLVV KVQVFETVIRGLGGLLSSHLFAYDGQLLRLAVDLANRLLP
 VVQVFEVTIRSLGGLLSAHLQEYDGFLLSMAYDLGLRLIP
 EASLFEVNI RYVGGLLAAYYLTGEEVFKSKALELGEKLLP KVQVFELAN: RVLGSLLSAHTDSKQPFGDMLAINLLANRLMP

 AIPVFETGI RYLGGGLLGAYDLSGDKLMLDRAVEVAEALSR


SASDFETTDRVLGGLLGAYEVSRDKDFVRALDTGNVIHG FVSFFETTIRVLGGLLSAYHLSGDQIFVHRAQDLGSRLTA TVSVFETNI RILGGLLSAHLQSYDDQLLNLAADLAQRLLP

 RVSTFE VIRATAGMNSAYQDTGDLLWRRKSVELADYLL NVSLRETVGVLGGLLSAHYWKYDGVLLTLAHDLGKRLLH NVQVFETTVRVLGGLLSAHYYAYDGFLLRLAYDLGKRLVLD | $T V S L F E T$ | $R A L G G L L S A H L D A A D P Q L G R K A D D L G D L M E ~$ |
| :--- | :--- | :--- | TVVQFETTVRILGSLI SSHDMGYDGULLDLAKDIGERLGP VVSVFEANIRMVGGLLSGHDDWYRGDLLLMAKELGYRLLP VVQVFEATVRVLGGLLSAHLLDYDNDLLTLAHDLANRLEP


$Y$ VQVFEVNDR\|LGGLLADYD DTKNPDVLSKA NASVFETN $\backslash$ RGELGF SGGA
NASDFETNTR
DVNTFECTTRVLGGLLSCYALTGDPTYKNKATDLGQRTSH DVNLFESTI RILGGLLSAFHLSGDVLFLKKAVDFGNRLMP A VNEFETAGRGLGGLLSAQALSAASHLAEKAAEEGARLLP

WPCSGPLLRMAEDAARKLLP FTYNGQLLRLALDLAQRLLP DVPDVETTDRYLGGLLSAYDLSGDKRLYYKAGELGDNLIG
 $E V N V Y E A T \square R L I G S M V S A Y D K S S L N A L L D Q A V I L T E A L K V$



UniRef90 FoZ8C2 UniRef90-Q6FK76 UniRef90-W2SE67 UniRef90-M7YLM1 UniRet90-E3L7B6 UniRef90_B4NTS2 UniRef90-Q6C995 UniRef90-X1XXH1
UniRef90-A6R442 UniRef90-11GFT2 UniRef90-E1ZM17 UniRef90 B7QCL8
UniRef90 B6QV06 UniRef90-Q6CWJ4 UniRef90-H3B325 UniRef90-Q4S6D1 UniRef90-17ZYF4 UniRef90-U4LSY5 UniRef90-J5P805 UniRef90_UPIoo02899AFF UniRef90-I1FAK9 UniRef90 ${ }^{-}$C5E1Q7 UniRef90_10YLQ5 UniRef90-W7YG65 UniRef90-N4VVH4 UniRet90-S4RLQ1 UniRef90-G8YTG6 UniRet90-Q5ARJ6 UniRef90-C9SM99 UniRef90-F8Q573 UniRef90-G3ALG3 UniRef90-Q6NRH5 UniRef90-N1RDY9
UniRef90-S4RM89 UniRef90 Q4S3AO UniRef90-H9GPR7 UniRef90-l1CM31 UniRef90-G3T0L6 UniRef90-UP100035CCF8C UniRef90-I1BJ77 UniRef90-K1VTI2 UniRef90-S5VRC6 UniRef90_R7Z026 UniRef90-AOA026WQU7 UniRef90-UPIO0036215D1 UniRef90-в2WMwo UniRef90-G3VEA3 UniRef90-FOY2Z2 UniRef90-E1FJX4 UniRef90-K0RBC2 UniRef90-UP1000443ACC7 UniRef90-S0F2U6 UniRet90 B8BRK5 UniRef90 W1 WD96
UniRef90 R1F4F3 UniRef90-R1F4E3 UniRef90-GOWA44 UniRef90-G7PA44 UniRef90-S8ASY0 UniRef90_UPI0002B44296 UniRef90-A2F055 UniRef90_E4YQU8 UniRef90_J9EVQ9 UniRef90-A0A024FHS7 UniRef90_UP10003945860 UniRef90-A0A023FYGO UniRef90 G3HAP9 UniRef90-UPIO0046B316C UniRef90-D7SS50 UniRef90- F2TZ92 UniRef90-UPIO003C15E01 UniRef90-E1ZFE2 UniRef90-KOKHR5 UniRef90-UP10003C108DA UniRef90-UP10001CF1C22 UniRefto-R8BGB9 UniRef90-Q6C8F1 UniRef90-M5BM59 UniRef90-R7Q215 UniRef90-C7Z5G8 UniRet90-B2VTQ6 UniRef90-E6R970
UniRef90 UPIOOO298F186 UniRef90-W5L1T3 UniRef90-C9SMY 1 UniRef90_W4ZEN1 1
UniRef90 H2T1X1 UniRef90-H2T1X1 UniRef90_JgVsvo UniRet90 H3ECJ4

AFQTPTG\|IPYGTVINLIKHGVV PMGETPTTSTASSTTFSLIE ALENKDGVPFQTVNLKHGITAMDGGGYTTTPTAEFTLQME AFWTQTGUPYPRVNLRSGUPFYAKSPTETCSAGAGSLVVE
AFYTSTGПPYPRVNDRDGVPFYEPEATETCSAGAGSLVL AFHASSLAFLMLALILLRYGLMPDEGTETCTAGAGSLLLE AFQTPTGAPYALVNTKTGVAKNYGWGGSSILSEFGTLHLE AFDTSTGMPYGTVNLRHGV PYGETSVTCTAGIGTFVL
 AFETPTGVPDSWVNLRHG QDPGDVRSTCTACAGTLLL
 AYLSPTGLPVPRUNLRYGTRDDPKLIEENNAAATASPLFE AFQTATGMPYGTVNLLKGVSPPTETPVTCTAGVGTVTV AFYTETGRPYPRVNLRYGVRRHPFYTTETCSAGAGSLVL ALTSPTG|LPYPRVNLRHGLPHPDEEDTETCTAGAGSLVLE AFATPTGMPYRFINLKTGAVREPL TSPAD【ATYLPE
 GMPEGAYSGGLHGVFQNETEVETNTAACGSFTIE AFDSPTGGPYYFFNLKTGEVKAGEKVNVAEAAS AFQTATGMPYGTVNLRHGV HPTETSVTCTAGVGTFTLE AFDTKSNMPTPRVNATGWKKDPSQLKKETCTSGATSPI LE AFDSESGVPYASVILSKGEGVSSHADDGSSTAEVTTLQL A LIN S SGLP 1

## A <br> A

 AFNTTSGLPYP KSSQRMLGRPWTSCGRGGREGATW AFNTPTGUPRGVVNGGSFNWLWDQAFMNFFLSQFS H AFETRTGIPYPRVNLRRGVPPTETTETCTCAGAGSLLEE
 $A F N T N S G L P A G S R M D P G Y Q T G A L K L H S V S I A E V G S M T L E$
$A F S S P T G A P Y R Y V N L R T G A V S$
$G$ AFYTPTGLPYPRVNLRRGVYFYPNSPTETCSAGAGSLVLE AFNTTTGPYGRINLKHGMKGVPMDSRETCTACAGSM1LE AFASPHGLPWRYVNLRTGAVSPDDPETNLAEAGTYLSE俭
K DDKRSGVCPPSF
A YATSSPVPYSDVSLTNREGRQPSWNTYC
AFDTPTGI PFGSVNLKYGVDENESKDT
 AFNTSTGLPYPRVNLKTGVBPQDGVNETCTAGAGSLLVE
 APYDPHGGLLLLALDLAERLLPALDTPSGTPYGSUHLRDG VYDTESGLPVSRINLKAGFERYSRQMNENNLAGMATPMLE AFNTSTGVPHPRINLRLGLKSPKGQVSETCTACAGTMILE
 AFNSPTGDPYHSVNGKTGKTSGNHSGNDVTAQAATYEE AFQTPTGMPYGTVNLLHGV NPGETPVTCTAGपGTFZVE AFQTPTGMPYGTVNLLHGV NPGETPVTCTAGपGTF $\square$ VE
 AFRTPSKIPYSIVNUGTGAAHPPQWTSDSTVAEVTSUQLE AFSSPSGGPG
AYEYGNG $\square P \square P R \square N \square K N G A S N \square P K K Y E D T C T A G A A S P F V E$
AFQTPTGMPYGTVNLLRGV NPGETPVTCTAGVGTFILE AFYTTTGMPYPRVNLRYGIPFYPPEDTETCSAGAGSLVLE AFDTPNRMPLLYYRWEDKSTNRRRPAQGAIVAELGSMTIE AFGTTTGDPFARDNLRHGVPTTETFEECTAGAGSLLLE
 ASPGTDTLE
 WS WGWASAGSSLLAEFGTLHLE AFNTPNHMPVDFTSFNQAKTGQGLTVEAWVVASPGTLSLE ARTSTDHSGPSRTMVNLCTGVPEGGIQEACTAGAGSLLLE

UniRef90_F0Z8C2 UniRef90-Q6FK76 UniRef90-W2SE67 UniRef90-M7YLM1 UniRef90_U1GDU0 UniRef90-E3L7B6
UniRef90-B4NTS2 UniRef90_Q6C995 UniRef90-X1XXH1 UniRef90-A6R442 UniRef90-I1GFT2
UniRef90 E1ZMI7 UniRef90-B7QCL8 UniRef90-B6QV06 UniRef90-Q6CWJ4 UniRef90-H3B325 UniRef90-Q4S6D1 UniRef90-I7ZYF4
UniRef90 U4LSY5 UniRef90_J5P805 UniRef90_UPIO002899AFF UniRef90-I1FAK9 UniRef90 C5E1Q7 UniRef90-IOYLQ5 UniRef90-W7YG65 UniRef90-N4VVH4 UniRef90_S4RLQ1 UniRef90_G8YTG6 UniRef90-G5ARJ6 UniRef90_C9SM99 UniRef90-F8Q573 UniRef90-G3ALG3 UniRef90-Q6NRH5 UniRef90_N1RDY9
UniRef90_S4RM89 UniRef90 Q4S3A0 UniRef90-H9GPR7 UniRef90-I1CM31 UniRef90_G3T0L6 UniRef90_UPI00035CCF8C UniRef90-I1BJ77 UniRef90_K1VTI2 UniRef90-S5VRC6 UniRef90_R7Z026 UniRef90_A0A026WQU7 UniRef90_UPI00036215D1 UniRef90-B2WMW0 UniRef90-G3VEA3 UniRef90-F0Y2Z2 UniRef90-E1FJX4 UniRef90-UPI0003512139 UniRef90-K0RBC2 UniRef90_UPI000443ACC7 UniRef90-SOF2U6 UniRef90_B8BRK5 UniRef90-W1QD96 UniRef90-R1F4E3 UniRef90-C5L318 UniRef90-GOWA44 UniRef90-B7PAO9 UniRef90-S8ASY0 UniRef90_UPI0002B44296 UniRef90-A2F055 UniRef90-E4YQU8 UniRef90-J9EVQ9 UniRef90-A0A024FHS7 UniRef90_UPI0003945860 UniRef90-A0A023FYG0 UniRef90-G3HAP9 UniRef90_UPIO0046B316C UniRef90_D7SS50
UniRef90_F2TZ92 UniRef90_UPIO003C15E01 UniRef90-E1ZFE2 UniRef90-KOKHR5 UniRef90-UPI0003C108DA UniRef90-UPI0001CF1C22 UniRef90-R8BGB9 UniRef90-Q6C8F1 UniRef90-M5BM59 UniRef90-R7Q215 UniRef90-C7Z5G8 UniRef90-E6R970 UniRef90_UPI000298F186 UniRef90- W5L1T3 UniRef90_C9SMY1 UniRef90-W4ZEN1 UniRef90-H2T1X1 UniRef90_UPI0001D5D8AD UniRef90_-J9VSVO
UniRef90-H3ECJ4

Y MNB NGLPLTN

 MTVLSRRLTADDRFEELAKRAFWAIWNRRSAI GLDGTGID
 FAYLSDI TGNPLYRERVQTDRQVLKEDEK PKGLYPNFLN
 FSILSRLVGDPGYENGARRAVRTLWDLRHPRTGLVGNVVN





FTMLSYLTLDSKYADVTRYAMNKTWALRTELQLLPMSFNP $M G V L S R L T G L P Q F E Y H A K R S L Q V L W$ SMRTPLGLFGTADD $M G I L S Y Y T K N P \square Y Y Q T A K K A N M A V W E R V S Q U N L V G E N I N V$ RDCPTG


 YKYLA HLTGRSQYYHKVEAIMDIMH

 WELLSSTSTTREWVRR
SHHFPDLRAHHFVPQVM NDRKVLNRDEKPQGLYPNFDS FGLLSRLTGDEKYERAAKRALKSVWDKRSHLSLMGNVID

## F

$\stackrel{F}{\mathrm{~F}}$


## 








 D A A L R A A R A I W W R H R S Q H DLL L A HVV D F GTLS LLTTGDWKYYEAARKA LDHLWYMRLGPAALMPTTIS F GMLS LLLTGDRKYMEVTRFTFDRLWKQFRARTGLLPDVSLD


 CREYD GLLCGMF
 F A TLLS H L T G D P V F F E DVVA R K A L K K A L W WK N R S D I











 $F G L L S T L V E D P V F E S L A R K A V T S L L D D K R S N Q T G L L G N V M N$

[^3]
## UniRef90 Foz8C2

 UniRef90-Q6FK76 UniRef90-W2SE67 UniRef90-M7YLM1UniRef90_U1GDUO UniRef90-E3L7B6 UniRef90-B4NTS2 UniRef90-Q6C995 UniRef90-X1XXH1
UniRef90-A6R442 UniRef90-11GFT2 UniRef90-E1ZM17 UniRef90 B7QCL8
UniRef90 B6QV06 UniRef90-Q6CWJ4 UniRef90-H3B325 UniRef90-Q4S6D1 UniRef90-17ZYF4
UniRef90 U4LSY5 UniRef90-J5P805 UniRef90_UPIoo02899AFF UniRef90-_11FAK9 UniRef90-C5E1Q7 UniRef90_10YLQ5 UniRef90-WTYG65 UniRef90-N4VVH4 UniRef90_S4RLQ1
UniRef9O-G8YTG6 UniRef90-Q5ARJ6 UniRef90-C9SM99 UniRef90-F8Q573 UniRef90-G3ALG3 UniRet90-O6NRH5 UniRef90_N1RDY9
UniRef90_S4RM89 UniRef90-Q4S3A0 UniRef90-H9GPR7 UniRef90-IICM31
UniRef90 G3TOL UniRef90-UPIOOO35CCF8C UniRef90-11BJ77 UniRef90-K1VTI2 UniRef90-S5VRC6 UniRef90_R7Z026 UniRef90-AOAO26WQU7
UniRef90 UPIOOO36215D1 UniRef90-B2WMW0 UniRef90-G3VEA3 UniRef90-FOY2Z2 UniRef90-E1FJX4 UniRef90-UPI0003512139 UniRet90-KORBC2 UniRef90-UP1000443ACC7 UniRef90-S0F2U6 UniRet90-B8BRK5 UniRef90-W1QD96 UniRef90-R1F4E3 UniRef90-C5L318 UniRef90-GOWA44 UniRef90-B7PA09 UniRef90_UPI0002B44296 UniRef90-A2F055 UniRef90-E4YQU8 UniRef90-J9EVQ9 UniRef90-A0A024FHS7 UniRef90_UPIOOO3945860 UniRef90-A0A023FYGO UniRef90 G3HAP9 UniRef90-UP100046B316C UniRef90-D7SS50 UniRef90-F2TZ92 UniRef90-UPIO003C15E01 UniRef90-E1ZFE2 UniRef90-KOKHR5 UniRef90-UP10003C108DA UniRef90-UP10001CF1C22 UniRef90-R8BGB9 UniRef90-Q6C8F1 UniRef90-M5BM59 UniRef90-R7Q215 UniRef90-C7Z5G88 UniRef90-E6R970 UniRef90_UPIO00298F186 UniRef90-W5L1T3 UniRef90-C9SMY1 1 UniRef90-W4ZEN1 UniRef90-H2T1X1


## ATSGKFRG SNDRLGSRGDSYYEY <br> GVGAIKDG

LANHWKDATT
LGGLGD
$P V S G N W V Q H H V S$
$N Y R D E K V G E A R F G G L G A S$
$V Q S G Q W V G E Q S G L G A E L D S$

 Y
SRTLQPTN
NFSGFGAGFD VESGEWKNQNWSYMGARADSYYEYLLKQWLQTGKTDDWLK
 VLTGKWVAQDA GIGAGVDSYFEYLVKGAI LL PRTGRWGQYHTS VGGLGDSFYEYLLKAWLMSDKTDYEAR
 TNSGSFTHDGVFTLGA
PMTGKATHKHTDTLGARSDSYYEYLLKQWLLTGKSEDWLR PVKGDWDDATT GI GASIDDSFYEYALKGADLEDDNE VLL V ITS K KWVAQDA GI GA GVDSYFEYLVKGAYML QDDEKLL AEHGKWVGP YAVIGAGADSFFEYALKTHVLLSGHDDDYW PMTAHAGVEQTVSFGGRIDSLYEYYIKEYILLGGADDTYK LASGTWLQPEUAGIGAGIDSFYEYALKMYVMTG GESEYY TKQGGFFGNQGGYTKNTAPFYYGMIKLRNMDSRRYKRTG MRNKDVVSGFQFTDGGNADSLYEYLPKAHALLGSADDKYE DAPLNTPMNGGLTFGGLADSYYEYLYKTYKLLGASEQVWR VQSQKWVAQDAGGGAGVDS
MRDKNVSARREFTIGGSADSLFEYLPKMYALLGGSSPMYE IQQTGQWVGV $D H V S V G G L G D$
HHVVSVGGGLGDSFYEYLLKAWLMSDKMDEEGR
PDAPDTTSMNGGTFGGLADSYYEYLVKTYKLLGQVSQVWR
PHTGKWGSRDGSMGAMADSYYEYLSKM

UniRef90＿FOZ8C2 UniRef90＿O6FK76
UniRef90＿W2SE67 UniRef90－M7YLM1 UniRet90＿U1GDU0 UniRef90－E3L7B6
UniRef90－B4NTS2 UniRef90－Q6C995 UniRef90＿X1XXH1 UniRef90－A6R442 UniRef90－IIGFT2
UniRefor
E1ZMIT UniRef90－B7QCL8 UniRet90－B6QV06 UniRef90－Q6CWJ4 UniRef90－H3B325
UniRef90 O4S6D UniRef90－17ZYF4 UniRef90－U4LSY5 UniRef90－J5P805 UniRef90＿UPIo002899AFF UniRef90－11FAK9 UniRef90－C5E1Q7 UniRef90－10YLQ5 UniRef90－W7YG65 UniRef90－N4VVH4 UniRet90－S4RLQ1 UniRef90－G8YTG6 UniRef90－Q5ARJ6 UniRef90－C9SM99 UniRef90－F8Q573 UniRef90－G3ALG3 UniRef90－O6NRH5 UniRef90－N1RDY9
UniRef90
S4RM89 UniRef90 Q4S3AO UniRef90－H9GPR7 UniRef90－l1CM31 UniRef90－G3T0L6 UniRef90－UPI00035CCF8C UniRef90－I1BJ77 UniRef90－K1VTI2 UniRef90－S5VRC6 UniRef90＿R7Z026 UniRef90－AOAO226WQU7 UniRef90－UPIO0036215D1 UniRef90－B2WMW0 UniRet90－G3VEA3 UniRef90－FOY2Z2 UniRef90－E1FJX4 UniRef90－K0RBC2 UniRef90－UP1000443ACC7 UniRef90－S0F2U6 UniRet90－B8BRK5 UniRef90－W1 QD96 UniRef90－R1F4E3 UniRef90－C5L318 UniRef90－GOWA44 UniRef90－B7PA09 UniRef90－S8ASYO
UniRef90 UPIOOO2B44296 UniRef90－A2F055 UniRef90－E4YQU8 UniRef90－J9EVQ9 UniRef90－A0A024FHS7 UniRef90＿UP10003945860 UniRef90－A0A023FYGO UniRef90 G3HAP9 UniRef90－UPIOOO46B316C UniRef90－D7SS50 UniRef90－F2TZ92 UniRef90 UPIOOO3C15E01 UniRef90－E1ZFER UniRef90－KOKHR5 UniRef90－UP10003C108DA UniRef90 UP10001CF1C22 UniRef90－R8BGB9 UniRef90－Q6C8F1 UniRef90－M5BM59 UniRef90－R7Q215 UniRef90－C7Z5G88 UniRef90－E6R970 UniRef90＿UPIO00298F186 UniRef90 ${ }^{-}$W5L1T3 UniRef90－C9SMY1 1 UniRef90－W4ZEN1 UniRef90－H2T1X1 UniRef90－UP10001D5D8AD UniRef90＿J9VsVo UniRef90＿H3ECJ4
 QLYLVSDDGIAKHLLGRTTPSNLLFI GERENGPFSTKMDH EAWSDAQAAVKRHIYRGSNYQHPHYVQVHTGAARGFWDDA RVWSEAHSALKRHLYRGKTYHHPHYIQGHTGATRAYWIDS E IWNQAYKAVMTYMRS PDGFWYRGVNMQTGAVATTTUDS EMFDEAMLLAI LDKMV RTSPGGLTTVYDDKFDRLEHKMDH A TF LEGKAAVDRYLKR DDWYVWVSMTKGQLTAPVFQS NVWQESLASI NHHLYRGSGYQYPHYI QGITGATRALWUDS EMFTEFYKNIMKYMRKGCCSCLDUI NDKWYVNVNYNSGK DMFKEVYAAAMTNLQL DDYKEAVEGDRKHLVRYSEPNKLLFVGEDRGLTFSPKMGY QVWQDAQDAIKHHLYRGHGYQHPHYVQGQTGATRAFWIDS SVWETATSALNSYSKTDWFYS NVGVSHGKTVVLWIDS KMYYDAVQAIEKHLIRKSN SGLTYIAEWKGGLLEHKMGH FLGRPPPAGGSAPRLRPTAPPWYLWVQMHKGTVSMPVFQS DLWQESHASVKRHLYRGEGYQHPHLIQGFTGATRAFWIDS DVWEKSRAALERHVLVKEPVPWWVHVNTGAGTQSGTWI DS DIWDVAYESLRTSCKN DWFFANIMADTGQLIVJPWIDS RMYHVCTAA LDK HQQVWKDGSWFADVDFETGQIVGTEQDE KWYLETVQGVEEVLLRESEPNKDTFIGESKGASFIPKMDH K WWQDAYNSLNTNSRA DWFYTNVQSTTGQLQTLWDDS EMFQAAYTAAIRHYRDGTWYPQAD DMWEDALDGI QTHLVTTTRNAALRYIAELPGGGLSPKMDH EMFKEYSEAI EKYMKH DDWYVWVHMSKGTVSMPVFQS NVFSSSYKSLLSHSAQGGGNTDYENI NVNDGLIATSWIDS QVWEESHSSIKRHLYRGEGYQHPHLI QGFTGATRAFWIIDS EMWEESDGGVRKHLITYSEPSRFTVLGERPDGKLSPKMDH YVDLNSAKGI NMYYNALEAIETHLIRKSPGGLTYIAEWRGGILDHKMGH EMTTKALDTAVKHILYKPRNPEDLDI LMSGNPELTAEMQH FKY乌RFQRESSCLRLCNHGLVFPSLFENCPKVLSTSTDTP DRFNVHYSATMKYILSQPPLLLNVHMHNTVSVRSWMDS SMYDNALEAIEKHLVKKSAGG LTYYAEWRGGILDHKMGH DMFEEAYRALMIYVRDAS GYVYRNVHMSTGSLMSYWDDS EMFNAAYQSIQNYLRRGRDPPLYVNVNMFSGQLMNTWIDS TTWQDSVESVEEYLLSPTQDPSDQFVAMMTDSSDYYSSQE ADSVDVARKVLFYDIPNVPGRDLFTVGKYEYGSPKVETEH GWYRTLTSAVLRHLGETRDGRLWFRSADMHSGATTGLGQS GRFNKHYQAIMKYVSQG PMLDDVHMHRPNTNSKNFMDA RWAVECVDAQLAHQAKRYGGRLWFPMVDFETGAVTSTAQS TTFLQAAYSLRKHLSSRSAPAQHLTYGGQNDKRYENHQGH KMYDDADEADEKHLDRTSNGGL TFIGEWKNGHLERKMGH QMYNDALDGMEQRLTSRGDDGLDYLDNLNWRFSRESAMEH NDYNQSMAAMEKYLLRYTKPNNFAFVGEIIG

FQEAYKAAMHYLHH DPWYVEVNMNSGATVWPDFNS RMYDKSIKGVLDKLTHMSRPNYLTYVAELKNGQVIJHKMDH RMFKAAYES IQNHLRRGRDPPLYVNVNMFSGEDMNTWDDS DAFQAAV ARAHVLDFRTEHNHTYVGEMLRGNTLSFKMEH TMFVAVYSGTGWSNSRLGDWYVDVDMNHGLNGNVRQTFES D IWQESYKALDMHSQN SUGIFTNDHASNAAAAREWIDA AAFHDAYRAAGRHLKHGAWYDVHTSTTAVMVGDLEPAVDT ERFMEHFDGПSSY N【WEESYKSLNANSK【DWFYG ERFNKHYTAVMKYISNG Y $\qquad$ FDUTATDSAHTQVSP DVFEVSSKAIHKHMLVESPAVLVDVHMHRPNTNSRNFMDA NGTGETPLUNVHMLTGEDFNTWIDS NKHПQIVKDTKEKLVIHSGKNNYTGLGVYSNGRTDPMDEH KSYRKYARMGRSKCFSGDGTPFFANVNFSTGEVANTWDDS DDYNQSMAAMEKHLLRYTKPNNFAFVGEIISDNYSSKMDH KVWEYSDAKINQYYSDDYNGRQFYACVNMETGEIVKQSMS SMFLEYNKAIKNY TKFDDWYLWVQMYKGTVSMPVFQS EDYLDAVEGI QKHLVRRSEPNKLLFI GELRGRTFYPKMDH AMFLEYNRAI RNY THFDDWYLWVQMYKGTVSMPVFQS KMYDDAVEAIEKHLIKKSRGGLDVFI GEWKNGHLEKKMGH EMWETSMKGLL SLVRRTTSSSFTYICEKNGDSLHDKMDG R

$N R Y D Q A M Q S V R S R L L K R T R P G L W Y D A E Q A K G G G L S G K M D H$
$D V W E R S Y K A L S T H S K N E W F F G N V N V D S G L V S P W D D A L G A$ KVMHDRKLLQKMDRPNGLYPNYLNPRTGRWGQHHTSVGGL TMFYEFDKSUKNY KYSKFDDWYLWVQMHKGTVSMPVFQS NMYDQSADQGAKMLLYKPNGDLHINPANLQDIVFSPTMAH DVWREGYSATMKY SRGPEGFWYRNVGAGTGNLATVYMDS
 AMSRAFMDTAMKNLFFAPMDPGNEDIVHEDGPSLDPESEH DVYERSDDKAKEELDDUVPGRDVLAVGKLENGRLDPELEH RMYYSALEAIETNLVQKS PGGLTYVAEWRGGVLDHKMGH TMTKDFLKTANEVMFFRPMLPDEADISEEGKVIFDPESEH QAFNEVYGSVKKYMRKGRKHCRYVNVNMNTGNLMNNWVDA DVYYRALEALETYLLNVSTPGGLTYIAEWRGGILDHKMGH
VYERSIDKAKETLIDIVPGRDILAVGKLENGRLIPELEH

UniRef90 FoZ8C2 UniRef90-Q6FK76 UniRef90-W2SE67 UniRef90-M7YLM1
UniRef90_U1GDU0 UniRef90-E3L7B6 UniRef90-B4NTS2 UniRef90-Q6C995 UniRef90_X1XXH1
UniRef90_A6R442 UniRef90-IIGFT2 UniRef90-E1ZM17 UniRef90-B7QCL8
UniRef90 B6QV06 UniRef90-Q6CWJ4 UniRef90-H3B325 UniRef90-Q4S6D1 UniRef90-I7ZYF4 UniRef90_U4LSY5 UniRef90-J5P805 UniRef90_UPI0002899AFF UniRef90-I1FAK9 UniRef90 C5E1Q7 UniRef90-IOYLQ5 UniRef90-W7YG65 UniRef90-N4VVH4 UniRef90_S4RLQ1 UniRef90-G8YTG6 UniRef90-G5ARJ6 UniRef90-C9SM99 UniRef90-F8Q573 UniRef90-G3ALG3 UniRef90-Q6NRH5 UniRef90_N1RDY9 UniRef90-S4RM89 UniRef90_Q4S3A0 UniRef90_I1CM31 UniRef90_G3T0L6 UniRef90_UPI00035CCF8C UniRef90-I1BJ77 UniRef90_K1VTI2 UniRef90-S5VRC6 UniRef90 R7Z026 UniRef90_A0A026WQU7 UniRef90_UPI00036215D1 UniRef90-B2WMW0 UniRef90-G3VEA3 UniRef90-FOY2Z2 UniRef90-E1FJX4 UniRef90-UPIO003512139 UniRef90-K0RBC2 UniRef90_UPI000443ACC7 UniRef90-SOF2U6 UniRef90-B8BRK5 UniRef90-W1QD96
UniRef9 UniRef90-R1F4E3 UniRef90-C5L318 UniRef90-GOWA44 UniRef90-B7PA09
UniRef90-S8ASY0
UniRef90_UPI0002B44296
UniRef90_A2F055
UniRef90_E4YQU8
UniRef90-J9EVQ9
UniRef90-A0A024FHS7
UniRef90_UPIOOO3945860
UniRef90-A0A023FYG0
UniRef90 G3HAP9
UniRef90_UPI00046B316C
UniRef90_D7SS50
UniRef90 F2TZ92
UniRef90_UPI0003C15E01
UniRef90-E1ZFE2
UniRef90 ${ }^{-K O K H R 5}$
UniRef90_UPI0003C108DA
UniRef90-UPI0001CF1C22
UniRef90-R8BGB9
UniRef90-Q6C8F1
UniRef90-M5BM59
UniRef90-R7Q215
UniRef90-C7Z5G8
UniRef90-B2VTQ6
UniRef90-E6R970
UniRef90_UPI000298F186
UniRef90 ${ }^{-}$W5L1T3
UniRef90_C9SMY1
UniRef90-W4ZEN1
UniRef90
UniRef90-H2T1X1
UniRef90_UPI0001D5D8AD
UniRef90_J9VSVO
UniRef90_H3ECJ4


LQ AFWPG L QVLA G DVDPA DRTHAAFFSVWK K
 L A C F L P GT LA YA A Q GE N P D D Y L P L A R A L A E S C Y A M S R G M LMAFYPGLQI LLGEVSP A AKTLDNSFFLVREF
$L$ GA F F P G L L V L L R A F H T L WR HL G LQSFW GGVVNAVQGPSAYATSDARMWSRLWDSM LSAFFPGLQVLAG DVDDSMMKHLLFLK QWDY



 LVCYFPGTTLML GVVGGMPQSHMELARELMDTYCIRMYS IVNP


$\square V C F D P G L L A L G D Y H G T N M P D \square Q D A A E L A D T C Y E L Y R R T P$ F F P GLL L V A G N GDSFYKA WLDMSDRKDTEARKMYDNA IVEVTNTGERALLDE LDEAFWPGMQS LIGG D DSSATKSFHNYYSVVWRQF











UniRef90_FoZ8C2 UniRef90_Q6FK76 UniRef90-W2SE67 UniRef90_M7YLM1 UniRef90-E3L7B6 UniRef90_B4NTS2 UniRef90_-Q6C995 UniRef90_X1XXH UniRef90-A6R442 UniRef90-I1GFT2
UniRef90-E1ZMIZ UniRef90-B7QCL8 UniRef90-B6QV06 UniRef90-Q6CWJ4 UniRef90-H3B325 UniRef90_Q4S6D1
UniRef90-I7ZYF4 UniRef90 U4LSY5 UniRef90-J5P805 UniRef90_UPI0002899AFF UniRef90_I1FAK9 UniRef90-C5E1Q7 UniRef90-IOYLQ5 UniRef90-W7YG65 UniRef90-N4VVH4 UniRef90_S4RLQ1 UniRef90_G8YTG6 UniRef90-C9SM99 UniRef90_F8Q573 UniRef90-G3ALG3 UniRef90-Q6NRH5 UniRef90_N1RDY9 UniRef90-S4RM89 UniRef90_Q4S3A0 UniRef90_H9GPR7 UniRef90-I1CM31 UniRef90-G3T0L6 UniRef90_UPI00035CCF8C UniRef90-I1BJ77 UniRef90-K1VTI2 UniRef90-S5VRC6 UniRef90 R7Z026 UniRef90-A0A026WQU7 UniRef90_UPI00036215D1 UniRef90 B2WMW0 UniRef90_G3VEA3 UniRef90-FOY2Z2 UniRef90-E1FJX4 UniRef90 UPIO003512139 UniRef90 ${ }^{-}$K0RBC2 UniRef90_UPI000443ACC7 UniRef90_S0F2U6 UniRef90 B8BRK5 UniRef90-W1QD96 UniRef90_R1F4E3 UniRef90 C5L318 UniRef90-G0WA44 UniRef90_B7PA09 UniRef90 UPIO002B44296 UniRef90_A2F055 UniRef90-E4YQU8 UniRef90-J9EVQ9 UniRef90 ${ }^{-}$A0A024FHS7 UniRef90_UPI0003945860 UniRef90_A0A023FYG0 UniRef90 G3HAP9 UniRef90_UPIO0046B316C UniRef90-D7SS50 UniRef90 F2TZ92 UniRef90-UPIO003C15E01 UniRef90-E1ZFE2
UniRef90 KOKHR5 UniRef90-KOKHR5 UniRef90_UPI0003C108DA UniRef90_UPI0001CF1C22 UniRef90-R8BGB9 UniRef90-Q6C8F1 UniRef90_M5BM59 UniRef90_R7Q215 UniRef90_C7Z5G8 UniRef90 B2VTQ6 UniRef90_E6R970 UniRef90_UPI000298F186 UniRef90 W5L1T3 UniRef90_C9SMY1 UniRef90-W4ZEN1
UniRef90 H2T1X1 UniRef90-H2T1X1 UniRef90-UPI0001D5D8AD UniRef90-J9VSV0


Y GF TPEGFNLATS
TVQNGQRSYPLRPELIEST
SGLAPEFVQF SKSSGDDFSKGSAAYYILRPETAETF GALPERYNWQLKA HGLAAEVTDFSGDTPRPMR
LGLLDPERFNFVHWKTEGSGDV
LGGR HPLRP
FSGFRWSYANRNSKPYHLLDMNDAVLLE WY P
LGVHPEGFNLVNLE G GLPEV ADDKERRVALIAYGRDFNLRR FGGIPERWEFTKEQGSGGGGGGVVLPQPWYPLRP
HNFLPEAF
HQALPERY
Y GAL
YALPERFNWK $\square R A$
TGVGPEK DRFSRSKDH
A F
TGLGPERVYFNI
Y GLLLPTRYLY

TFLSPE $\square A H F N D K P Q G A R$
GGLPEFYNDAQGYTVEKREG
LK K GPESFKFDGAVE
TKGAGENYFFHSGQD
$T$
T P R Q V

Y Q Gilp ERWDFLPSSPTTKIFGSGTKDPEWYILRPEFI EST TKGGPEAFKFEGG LEAVAMRQNEKYYULRPEVI ETY GGLPEFYS IPQGYTVDKREG Y A A LP P RWSVRR SGlPETFNLAT EKTVEGGLGWWPGRPEF

RQGVT $\square G Y P \square R P E F T E S T$ GMLGGESA RYNGGVWDTTGAYRLQSDLIDAL S GLPPRVFKWVDDKEAFANETGFWPTQRSSTLESELFETM
 TGLQPEVVEWY

FSALPERFDWSR
LKLGPEAFRFDGGVE
TKLGPEAFWFNSG
TGLQPEVVEWYAPHETREAVATQLSESYYI LRPEVVESY
TGLQPEVVEWYAPHETSAMYENVSUGGRHHPLDFSENES

UniRef90_Foz8C2 UniRef90-Q6FK76 UniRef90-W2SE67 UniRef90-M7YLM1
UniRef90_U1GDU0 UniRef90-E3L7B6 UniRef90-B4NTS2 UniRef90-Q6C995 UniRef90_X1XXH1 UniRef90-A6R442 UniRef90-I1GFT2 UniRef90-B7QCL8 UniRef90-B6QV06 UniRef90-Q6CWJ4 UniRef90-H3B325 UniRef90-Q4S6D1 UniRef90_I7ZYF4 UniRef90-U4LSY5 UniRef90-J5P805 UniRef90_UPIO002899AFF UniRef90_I1FAK9 UniRef90 C5E1Q7 UniRef90-IOYLQ5 UniRef90-W7YG65 UniRef90-N4VVH4 UniRef90_S4RLQ1 UniRef90-G8YTG6 UniRef90-G5ARJ6 UniRef90-C9SM99 UniRef90-F8Q573 UniRef90-G3ALG3 UniRef90-Q6NRH5 UniRef90_N1RDY9 UniRef90-S4RM89 UniRef90_Q4S3A0 UniRef90_H9GPR7 UniRef90_I1CM31
UniRef90-G3T0L6 UniRef90_UPI00035CCF8C UniRef90-I1BJ77 UniRef90_K1VTI2 UniRef90-S5VRC6 UniRef90 R7Z026 UniRef90-A0A026WQU7 UniRef90_UPI00036215D1 UniRef90-B2WMW0 UniRef90_G3VEA3 UniRef90-FOY2Z2 UniRef90-E1FJX4 UniRef90-UPIO003512139 UniRef90-K0RBC2 UniRef90_UPI000443ACC7 UniRef90-SOF2U6 UniRef90-B8BRK5 UniRef90-W1QD96 UniRef90-R1F4E3 UniRef90-C5L318
UniRef90 GOWA44 UniRef90_GOWA44
UniRef90_B7PA09 UniRef90-S8ASY0 UniRef90_UPI0002B44296 UniRef90-A2F055 UniRef90-E4YQU8 UniRef90-J9EVQ9 UniRef90-A0A024FHS7 UniRef90_UPI0003945860 UniRef90-A0A023FYG0 UniRef90-G3HAP9 UniRef90_UPIO0046B316C UniRef90-D7SS50 UniRef90-F2TZ92 UniRef90_UPI0003C15E01 UniRef90-E1ZFE2 UniRef90-KOKHR5 UniRef90_UPI0003C108DA UniRef90_UPI0001CF1C22 UniRef90-R8BGB9 UniRef90-Q6C8F1 UniRef90-M5BM59 UniRef90-R7Q215 UniRef90-C7Z5G8 UniRef90-B2VTQ6 UniRef90-E6R970 UniRef90_UPI000298F186 UniRef90-W5L1T3 UniRef90_C9SMY1 UniRef90-W4ZEN1 UniRef90-H2T1X1 UniRef90-UPI0001D5D8AD UniRef90-J9VSV0
UniRef90_H3ECJ4





















## Y



|   <br> $G$  |
| :---: |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |




FYMWR $\square T G D D V W R T A A W R M W E G D V K Q T E T Q E$ AFATDSDV YLLYQATKNPFYLHVGQKILQSIEKHTRVRC GYATLHHV YYLYKATGDPYYLRVGQSLVEKLNAYARVPCGFAAVQDVR
 YYLYTATKDPFY LEVGEMII QDLNNRTRVPC


 $\begin{array}{lllll}L & F \\ W & W L L\end{array}$ YF L Y RATGDHYYLGVGRKVLKSLQTYARVPC LDNWLLDRDERYRKLAA I HYREMKKTSRAA
$F$ YAWRITGEQRYREWAWEAWQALDEKHCKAPY


00
 GYTAIS NV

## Y WLFKATRD

F TLYHLTKDPDYR
$Y L L Y Q A T K N P F Y Q H V G M D \square L Q S D E K N A K V R C G Y A T L H H V$ YYLDKDDPGDKYKKWGET MWKA MKTYA QVPGQPDGVLS ST
 $\begin{array}{ll}Y F D Y R A T K D P F F L & R V G E A L L Q R F E T E F H A P C G F A G M\end{array}$

 YFLYKVS YHLYRATKDVWY LRVGEMILRDIQRRCWGRC GWGGLQDV Y LLYQATKHPFYLHVGAKUMESLETHAKADC GYATLHNV



 MY LYRATGDPTLLELGRDAVESDEKDSKVEC WY L WRFTHDPRYRQWGWEATLA I EKYCRVVSGGFSGVKDV FYLWRLTGSKTYQEWGWN $\square F Q A F E K N S R I E S$ GYVGLKDV
$Y$ LLWKVTGDPQYQQWA WQVFRA LQKWAKV
Y YLYRATRDPFY LDVGEKILNDYVENFKVEC GFAGYRDV WYMWRFTHDPKYRQWGWEAAQAMDKHCRVVSGGFSGVKDV

 FYMWRTTQDNMYRDEAWKTFINI DRECKVRSGAFTDLEE YYAYRMTGDTKWQDRAWDMFLTINSTCRVENGFVGI KDVT F $\square L W R \square T G D P V W R E T A W E M F D A V A K A T D T E Y A N A A 』 M D V T$
M Y
MYMWRLTHDPKYRQWGWEAVEALEKHCRVED GFSGDRDV
Y L LYQATGHPFY LFVGSD DMDSDETYTKAKC GYATDHNV MYL WRLTHDPKYREWGWEAVQALEQHCRVE GGYSGIRDV MYLWRQTHNP DYREWGWEVVLAALEKYCRTE AGFSGUQDV

UniRef90 Foz8C2 UniRef90-Q6FK76 UniRefefo-W2SE67 UniRef90-U1GDUO UniRef90-E3L7B6 UniRef90-B4NTS2 UniRef90 Q6C995 UniRef90_X1XXH1 UniRef90-A6R442 UniRef90-11GFT2 UniRef90-E1ZMI7 UniRef90-B7QCL8
UniRef90
B6QVO6 UniRef90 O6CWJ4 UniRef90- H3B325 UniRef90-Q4S6D1 UniRef90-17ZYF4 UniRef90 U4LSY5 UniRef90-J5P805 UniRef90_UPIO002899AFF UniRef90 I1FAK9 UniRef90 C5E1Q7 UniRef90-10YLQ5 UniRef90-W7YG65 UniRef90 ${ }^{-}$N4VVH4 UniRef90_S4RLQ1 UniRef90-G8YTG6 UniRef90-Q5ARJ6 UniRef90 C9SM99 UniRef90-F8Q573 UniRef90-G3ALG3 UniRet90_Q6NRH5 UniRet90_N1RDY9 UniRef90-S4RM89 UniRef90_Q4S3AO UniRef90 H9GPR7 UniRef90-I1CM31 UniRef90-G3T0L6 UniRet90 UPIO0035CCF8C UniRef90-|1BJ77 UniRef90-K1VTI2 UniRef90-S5VRC6 UniRef90 R7Z026 UniRef90-A0A026WQU7 UniRef90-UPIO0036215D1 UniRef90_B2WMW0 UniRef90-G3VEA3 UniRef90-FOY2Z2 UniRef90_E1FJX4 UniRet90 UPIOOO3512139 UniRef90 KORBC2 UniRef90-UPIO00443ACC7 UniRef90 SoF2U6 UniRet90-B8BRK5 UniRef90-W1QD96 UniRef90 R1F4E3
UniRef90 C5L318 UniRef90-GoWA44
UniRef90-B7PA09 UniRef90 S8ASYO UniRef90 UPI0002B44296 UniRef90-A2F055 UniRef90-E4YQU8 UniRef90-J9EVQ9 UniRef90- A0A024FHS7 UniRef90_UPIOOO3945860 UniRef90_A0A023FYG0 UniRef90 G3HAP9 UniRef90-UPIO0046B316C UniRef90-D7S550 UniRef90 F2TZ92 UniRef90-UPIO003C15E01 UniRef90-E1ZFE22 UniRef90-KOKHR5 UniRef90 UPI0003C108DA UniRef90-UP10001CF1C22 UniRef90-R8BGB9 UniRef90- ${ }^{-66 C 8 F 1}$ UniRef90-M5BM59 UniRef90-R7Q215 UniRef90-C7Z5G8 UniRef90 B2VTQ6 UniRef90 E6R970 UniRef90-UPIOOO298F186 UniRef90 W5L1T3 UniRet90_C9SMY1 1 UniRef90-W4ZEN1 UniRef90-H2T1X1 UniRef90-UPI0001D5D8AD UniRef90-J9VSVO



QDQ RLENRMESFFLAETTKYLYLLFDPDNFLHNGGYT


DNAF PTMLDEMPSYFLAETLKY LYLLFTDEELDP DDRWV QDVRTGERQDRMETFVMGETLKYLYLLFDDTKVMGNKNWU


| K AHRN $A D D R M D S F F L S E T L P Y Y Y M G L T G P Q V V A N R G R V$ <br>  TK GTLEDRMESFFLSETMKYGYLGFADTSTSPAQWV DR TVEDRMESFFLAETVKYGYLGFDDENPLHSEKWH SDVRTMKEKDYDATYFCAETLKYFYGASVNKDVFNFNEYV DNAKQTGPRDMMESFFLAETLKYLYLLISSEEDVLSPTKYL |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

YS STPTHDDVQQSFFLAETLKYLYLLFSGDDLLPLDHWV N RDVKDNMMQSFFLAETLKYLYLLFSPSSVISLDEWV

RTK ELQQNRMESFVLSETFMYLYLLFDEDNEMNFDKRV YSP NPTYDDVQQSFFLAETLKYLYLLFSSDDLLPGDNWV RDH KSGENRMESFFLAETVKYLYLKFDPDNFLHNGGYV

QS GEHEDRMESFALSETLKYLFLMFDEDNMTNSDNLV STDGNDTKGNNMPSDFMGSTLKMLYLDFSGHDVLSMDNWL VN TRLDLKGADWMSRTLKYLYLMFAPNGPWQLGAFV V VGSKKEDYMESFWMAETLKYFYLCFADTGLISLDDFV

YA STVSHDNMQQSFF पSET पKY पY LLFSDDDLLP पDDWV
■TKTKEDRMESFFLSETCKYLYLLFDKDNYTNASKYI YAA TPTHDDVQQSFYLAETLKYLYLLFSDDDHLPFDHWV YS SNPNHDNKQQSFFLAETLKYLYLLFSEDDLLSGEDWV

| UniRef90_F0Z8C2 | $\text { F NTEGHTIEPM }{ }^{450}$ |
| :---: | :---: |
| UniRef90-Q6FK76 | FTTEAHIFP |
| UniRef90-W2SE67 | F STEGH |
| UniRef90-M7YLM1 | FSTEGH |
| UniRef90-U1GDU0 | F NTEGHP |
| UniRef90-E3L7B6 | F T TEGH $\square$ |
| UniRef90_B4NTS2 |  |
| UniRef90_Q6C995 | WS T E G H P L |
| UniRef90_X1XXH1 |  |
| UniRef90-A6R442 | F NTEGHP |
| UniRef90-I1GFT2 | FTTEGHVIP |
| UniRef90-E1ZMI7 |  |
| UniRef90-B7QCL8 |  |
| UniRef90-B6QV06 | F T T E G H P L |
| UniRef90-Q6CWJ4 | FSTEAHPFWI |
| UniRef90-H3B325 | F NTEAHP |
| UniRef90_Q4S6D1 | F NTEAHP |
| UniRef90-17ZYF4 | F S TEGHP |
| UniRef90_U4LSY5 | FTTEGHP |
| UniRef90-J5P805 | FSTEAHPMWL |
| UniRef90_UPI0002899AFF | LS TE GNVL |
| UniRef90-I1FAK9 | F NTEAHPLPT |
| UniRef90_C5E1Q7 | FSTEAHPMWL |
| UniRef90-IOYLQ5 | FTTEGHP |
| UniRef90-W7YG65 | $\square$ NTEAHPFK |
| UniRef90-N4VVH4 |  |
| UniRef90-S4RLQ1 | F NTEAH |
| UniRef90-G8YTG6 | FSTEAHPM |
| UniRef90_Q5ARJ6 | F T TEAHPLLL |
| UniRef90-C9SM99 |  |
| UniRef90-F8Q573 | F NTEAHPLPVF |
| UniRef90_G3ALG3 | F S TEAHPLWL |
| UniRef90-Q6NRH5 |  |
| UniRef90-N1RDY9 |  |
| UniRef90-S4RM89 | F T TEGHL |
| UniRef90-Q4S3A0 | FTTEAH |
| UniRef90-H9GPR7 |  |
| UniRef90-I1CM31 | FTTEGHLL |
| UniRef90-G3T0L6 | FTTEGGVVISV |
| UniRef90-UPI00035CCF8C | LT T E G NVL |
| UniRef90_I1BJ77 | F NTEAHPFKL |
| UniRef90-K1VTI2 | L NTEAHPM |
| UniRef90-S5VRC6 | LTTEENVL |
| UniRef90_R7Z026 | FTTEGHP |
| UniRef90-A0A026WQU7 | FTTEGHL |
| UniRef90-B2WMW0 |  |
|  |  |
| UniRef90-G3VEA3 | F NTEAHPLPV |
| UniRef90-F0Y2Z2 | FNTEAHPFSI |
| UniRef90-E1FJX4 |  |
| UniRef90-UPI0003512139 |  |
| UniRef90-K0RBC2 |  |
| UniRef90-UPI000443ACC7 | F T T E G HVVPI |
| UniRef90-S0F2U6 | Y NTEAHPVRI |
| UniRef90-B8BRK5 | FTTEAHP |
| UniRef90-W1QD96 | FSTEAH |
| UniRef90-R1F4E3 | F TTEAHPLPL |
| UniRef90-C5L318 | F T TEAHVLPL |
| UniRef90-G0WA44 | FSTEAHPMWV |
| UniRef90-B7PA09 |  |
| UniRef90-S8ASY0 | F T T E G H P V IM |
| UniRef90-UPI0002B44296 |  |
| UniRef90-A2F055 | F NTEGHPLRTIF |
| UniRef90-E4YQU8 | F S TEGHLLPV |
| UniRef90-J9EVQ9 | F NTEG |
| UniRef90-A0A024FHS7UniRef90-UPI0003945860 | F NTEAHP |
|  | F NTEAHP |
| UniRef90-A0A023FYG0 F N TE A |  |
| UniRef90_G3HAP9 |  |
| UniRef90_UPI00046B316C | F NTEAHPLPV |
| UniRef90-D7SS50 | F NTEAHP】GI |
| UniRef90-F2TZ92 |  |
| UniRef90-UPI0003C15E01 |  |
| UniRef90-E1ZFE2 |  |
| UniRef90-K0KHR5 | F STEGHPLW |
| UniRef90-UPI0003C108DA | FNTEAHPLPV |
| UniRef90-UPI0001CF1C22 | F NTEAHP |
| UniRef90-R8BGB9 | FTTEGHPLII |
| UniRef90-Q6C8F1 |  |
| UniRef90-M5BM59 | F T TEG |
| UniRef90-R7Q215 | F NRVGHPLLV |
| UniRef90-C7Z5G8 | FSHGGHLI PL W |
| UniRef90-B2VTQ6 LN T E A H P F |  |
|  |  |
|  |  |
| UniRef90-W5L1T3 | F NTEAHPLDPV |
| UniRef90-C9SMY1 |  |
| UniRef90-W4ZEN1 | F NTEGHVL |
| UniRef90-H2T1X1 F N T E A H P |  |
| UniRef90-UPI0001D5D8AD F N T E A H P |  |
|  |  |
| UniRef90_J9VSV0 |  |

UniRef90 U6IGF7 UniRef90 J9E6K6 UniRef90_L9JBI7 UniRef90-E2LUL8 UniRef90 C9ZV74 UniRef90-UPI0004547F77 UniRef90-W9XS84 UniRef90 E2BH13 UniRef90 W4ZV36 UniRef90_V9F6V0 UniRef90-UPI00042CF806 UniRef90 F4S7W7 UniRef90-UPI0000189C51
UniRef90-D8Q2Z3 UniRef90 G7IPW8 UniRef90-A8NLU6 UniRef90-M7ZT44 UniRef90-A8PX48 UniRef90 UPI0003835C2C UniRef90-A8NWA4 UniRef90-UPI0003EC22DA UniRef90-H3FCY9 UniRef90-D5GE46 UniRef90-K2NHG9 UniRef90-A0A022TP52 UniRef90 U6DTS2 UniRef90- M7T6A6 UniRef90-A0A023FY85 UniRef90_K0KJL1 UniRef90-11P452 UniRef90-X1YF38 UniRef90-K0RV27 UniRef90 S3DAL3 UniRef90-G0PI52 UniRef90_UPIO003293280 UniRef90-UPI0001EA8ADA UniRef90 K7MKS2 UniRef90-W4XX72 UniRef90-R7Z4U5 UniRef90 N4XPZ7 UniRef90_D8QKA8 UniRef90-M2UDX5 UniRef90-M0REM4 UniRef90 W6QS67 UniRef90-E4Y2R8 UniRef90-B6HKV0 UniRef90 M7STX2 UniRef90-G3XV04 UniRef90_R0J5D0 UniRef90-UPI000161CFB7 UniRef90 E5SJ01 UniRef90-UPI0004413F26 UniRef90-H6QQ09 UniRef90 W5LCT1 UniRef90 E3S855 UniRef90-E91392 UniRef90-Q00ZM2 UniRef90 X6MJR3 UniRef90-J3PN62 UniRef90-E2LM66 UniRef90 F4NS55 UniRef90 R7SB39 UniRef90-T1DPR5 UniRef90-F6VLJ8 UniRef90 UPI00022B7F28 UniRef90 F4S6B6 UniRef90_A2G7V9 UniRef90-A2ER88 UniRef90 V7BK57 UniRef90-M8BPM8 UniRef90_UPI00046BD52B UniRef90 X6LMP3 UniRef90 L8X3C3 UniRef90_L8WJH7 UniRef90-UPI0004548612 UniRef90 C5KN83 UniRef90-A2FJL4 UniRef90-F0Y5X5 UniRef90-I1NIA5 UniRef90_W6ULY9

1
LEELRNKSKEMFFHAYSNYMTHAYPADELMPLSCRGRYR

WEERAQKVKMAYAHAYHGYERDASPHDELRPVTGGYDNF VRDM $\square \mathrm{DHAFGSY} \square \mathrm{KY}$ YFPKDELCPVSGTGKNM $\square N E R Q L A V V E A F R H A W K G Y R E F A W G H D E L K P L S K S F S E W$

WT S RQKKVKEAFEHAWSGYRNYAMGHDELMPLSRRGVDL FNEDQKMVVNMTRHAWHGYRKFAGWSDYLSMPT LVGGTV

NERQKAVVDAFLHAWAGYRKFAWGHDELKPLTRSFSEW RANHI RNDFQKGWSTYRAHAWGHDETSULFHQSDTR VAEDRREVVDMFYHGFDNYMRDAFPEDELRPVTCAPLTR WDNRAERVKKAFRHAYHGWEQYAAPHDELKPI SNTYDNF WDTRQQKVKEAFTHAWSGYKKYAMGYDELMPVSQHGTDL ERRDAVVAAFKHAWSAYERDAYGYDNYHPI SRKGSNS EKLNAVTEAFEKSWSAYQRNAWGKDEYHPLSKSGSNL

MFMHGYNSYMKYAYPHDELMPLSCKGRQR

RAGETKEAMSRTFWKYRLGAWGSDEDMP TSGNGKTT EMRPYVREMDGHAFNSYDKYAFPKDELCPVNGGGKNM RRDAIKSAFLHSWNGYKKHAWGMDEVGPLSGKSKDT

RDLARGMFVFGYDNYMAHAFPQDELNPLHCRGRGP

K LS K TKETFMKSWK LYK KEHGYGHDEVRPDSHKKDPF YMRNKVLEMFYHAYDNYMTYAFPHDELKPLTKSFNDY

KKTQVRDEFQKAWRGYKKHAWLHDELSPVTGNFRPF $\square E Y G \square S K T R E M F Q F G W R N Y M E H A F P A D E L D P I H C R G R G H$ SYLENAFPYDELRPLTCDGHDT
RDKVRNMFYHAYDNYMTHAFPHDELKP ITKTFQDY SWESTRSAECYRHEHCTI TYN
K $\square$ AVIT DAFRHAWSGYKSKA WMKDELSPVSGGYDPF WADRADLVRNAFVHAYNGYRRQAFGHDEVRPVSGKTADT

REKVRKMFYHAYENYMVHAFPHDELKPLTKTFQNY QRDSTIKAEFTHAWRGYKKDAMGHDEVKPLSKEFDPF S LREATREMLDHAFSGYMQYAYPKDELMPMSCQGKNT ERQAAVKAAFERCWSSYRD $\square$ ASPADEDAP $\square$ SGGARDN

MFMHGYNSYMKYAYPHDELMPLSCKGRQR DM $\square R$ QMF GFAYDNYMRWAMPFDELDPLNCRGRGP

RRMAKDMFYFGYDNYMKHAFPEDELNP $\square$ DCAGFKM

P F

EEKQKQVLEMFDHAYGNYMEHAYPADELMPLTCRGRVR NEKAQATKEAFLHGWNAYKTRCWGEDEYVPHSDSCSSP K L RKIRKGFLYLWNNYRFKAWSHD VINDEYEWEDY

KREATRQLWHHGFDSYMDHAFPMDEYRANDGHNDVM DRAEAVRNAFRHAYSGYTNAAWNYDELLPTSNGSNNF

MRHAYGQYEADAFGNDETNTLQGQGDNW $K \square K Q \square K K N F R T \square Y F E Y$ KKKAE LIHDY LLVDFPYQSDF AQRVRAS $\square$ AS AFARYRAEA WGADVLAPLSQSGRDR

K $\square$ REMFDFGYSNYMKYAYPEDE $\square D P \square H C R G R G P$

[^4]```
8 0-7lllllllllllllllllllllllllllllllllllllllllll
```

UniRef90 U6IGF7 UniRef90 J9E6K6 UniRef90_L9JBI7 UniRef90_E2LUL8 UniRef90-C9I0004547F77 UniRet90-WPIO0045 UniRef90 E2BH13 UniRef90 ${ }^{-}$W4ZV36 UniRef90_V9F6V0 UniRef90-UPI00042CF806 UniRef90 F4S7W7 UniRef90-UPI0000189C51
UniRef90-D8Q2Z3 UniRef90-G7IPW8 UniRef90-A8NLU6 UniRef90-M7ZT44 UniRef90_A8PX48 UniRef90-UPI0003835C2C UniRef90 A8NWA4 UniRef90-UPI0003EC22DA UniRef90_H3FCY9 UniRef90 D5GE46 UniRef90-K2NHG9 UniRef90-A0A022TP52 UniRef90 U6DTS2 UniRef90 ${ }^{-}$M7T6A6 UniRef90-A0A023FY85 UniRef90_K0KJL1 UniRef90-I1P452 UniRef90-X1YF38 UniRef90-K0RV27 UniRef90 S3DAL3 UniRef90- G0PI52 UniRef90_UPIO003293280 UniRef90-UPI0001EA8ADA UniRef90 K7MKS2 UniRef90-W4XX72 UniRef90-R7Z4U5 UniRef90 N4XPZ7 UniRef90_D8QKA8 UniRef90-M2UDX5 UniRef90-M0REM4 UniRef90 W6QS67 UniRef90-E4Y2R8 UniRef90-B6HKV0 UniRef90_M7STX2 UniRef90_G3XV04 UniRef90_R0J5D0 UniRef90-UPI000161CFB7 UniRef90 E5SJ01 UniRef90-UPI0004413F26 UniRef90-H6QQ09 UniRef90 W5LCT1 UniRef90 E3S855 UniRef90-E91392 UniRef90-Q00ZM2 UniRef90 X6MJR3 UniRef90 J3PN62 UniRef90-E2LM66 UniRef90 F4NS55 UniRef90 R7SB39 UniRef90-T1DPR5 UniRef90-F6VLJ8 UniRef90 UPI00022B7F28 UniRef90 F4S6B6 UniRef90-A2G7V9 UniRef90 A2ER88 UniRef90 V7BK57 UniRef90-M8BPM8 UniRef90_UPIO0046BD52B UniRef90 X6LMP3 UniRef90_L8X3C3 UniRef90_L8WJH7 UniRef90_UPI0004548612 UniRef90 C5KN83 UniRef90-A2FJL4 UniRef90-F0Y5X5 UniRef90 I1NIA5 UniRef90_W6ULY9

ATVIDSLDTLYLMELKEEFQEAQAWVEESFHLNVSG NGWGVSI I DGLDTMLLLGLKDEYKRADEQVEKDNFELDES GGYGWTLI DSLDTLAI AGFHKEFRRHAKWVEEHLTFDIDE

 YGHDMTTVDSLDTLFIMGLHEEFDEASAWI KANLSDIMFQ F G L G L T LI DALDTMWI LGLKKEFQEARNWVSKRLLF QKDV NGWGATLVDSLSTLQVMQLNKLFDDFDPLISPKRNPYDQT
 $N G W G V T V F D G L D T M L L M G D D H E Y K R A L K H V E D D F N M E E G R$
$G G L G A T V V D A L D T A M I M G I D D E V A E A G L W V E E H L R D S K K G$ GGIGGYMIVDVIDSLQIMNLTSEYARAREWVANELSFERDD NGSALTLVESLSSLVVLGNLTEFDRGVSWLSENLTFDVDA SP $\square G Y T I V D A L D S L I I M G L N D Q Y \square E A R N W I R D V L S W D I D G$ GNFSAS V

NGWAATIVDTLTTTAMMGLEEEFKDELNFTLGDDFSRAAD GGYGWTLI DALDTDAVAGFHTEFRRYARWVEENVSFDQDD FGWGATLI DALDTLWM DGGKKEFEEAVVAVSRVDFSATET D N Y S LTL VDALDTLA IMGNSSEFQKAVKLVIDTVSFDKDS

NGWSSTIVDALDSLWIIDEKQEFEEATNFLKTNFKQSFRN


CGWAATLVDTLDTLWIMGLENEFDEAARAVDKDDFTTPRA DHYSLGLI DTLDSLVVFGEPDEFKQAVNLVDKTVSFEKNT WGFSLTLIDALDTLLI LGNVSEFQRVVEVLQDNVDFD DDV

NGSALTLIESLS S LVIMGNNTEFERAVLWLSENLTFDVDA SFSLTLI DTLDSLALLGLLDEFEDAVKKVDADVTFNSDV
 F NWAVSAVDGLDTMWLMGLEDMFTEAVDLVSQQTWSMPDK
NGSALTLVESLSSLVVLGNYTEFERGVLWLSDNLTFDVDA NGWGATLVDSLDSLWI MQLKDEFSEALDLI KNDDFKTSRA WGFRLTLIDSLDTLLLTGDLRGFRKVEEVVNMNFDFDK TFGGWGAT

TLETFRDMGLRKEFEEA TTVITGTD FAPDE GNFSLTLVDSLDALVVMDELDEFEKSVERVVKNVRF DSNEL DDYSLTLVDSLTTLAVMGNVTEFRRAVGLVLEHVSFNKDN

NNF DGQFHMKTDRMGPMNDTHEYNYARTHVKA DDWSYVVP


ATKWVKESLSFDKHQ GGWGATLVDCLDTLLIMNLTLEYNYARTHVKA DDWGQ\|VG

GFALNLIESLGTAVVLEDAEVFSRLVNLIKYDDVEQD\} NNWGAT IIDSLDTLLLLGFPEEYTLCRPHINQLNFHWDSG

GQFSLT LIDS LDTLVVLNKTKEFEDAVRKVLRDVNLDNDV NGWGATLVDSMSTLYVMGLN VKGQ LHAA LTVVDSLSTLYLMNLTEEYQRARDY DQND FKPSG $\square H \square A L S M L A S H G T L S L M G L K M D V Y E \square D K F F N K T K D Q P K G$

ANFSLTLVDNDDTFVTFNNYSGFEWAVRQTDDGVSFDQNV
 GGMSLTMVDAIDTLLLMGMRAEYERAVGWLYQHYKHGKDL
 Y ALGGVTLVASLDALWAARLDDDLEAAAAWVAAESARPYDA

D $\square$ T D R N N $\square$ N $\square$ N D A $\square G \operatorname{D~Y~Q~} \square$ T

[^5]

UniRef90 U6IGF7 UniRef90 J9E6K6 UniRef90_L9JBI7 UniRef90-E2LUL8 UniRef90-UPI0004547F77 UniRef90-W9XS84 UniRef90 E2BH13 UniRef90-W4ZV36 UniRef90_V9F6V0 UniRef90-UPI00042CF806 UniRef90 F4S7W7 UniRef90-UPIO000189C51 UniRef90-D8Q2Z3 UniRef90 G7IPW8 UniRef90-A8NLU6 UniRef90_M7ZT44 UniRef90-A8PX48 UniRef90 UPI0003835C2C UniRef90 A8NWA4 UniRef90-UPI0003EC22DA UniRef90-H3FCY9 UniRef90-D5GE46 UniRef90-K2NHG9 UniRef90-A0A022TP52 UniRef90 U6DTS2 UniRef90 ${ }^{-}$M7T6A6 UniRef90_A0A023FY85 UniRef90_K0KJL1 UniRef90-11P452 UniRef90-X1YF38 UniRef90-K0RV27 UniRef90 S3DAL3 UniRef90- G0PI52 UniRef90_UPIOO03293280 UniRef90_UPI0001EA8ADA UniRef90_K7MKS2 UniRef90-W4XX72 UniRef90-R7Z4U5 UniRef90-N4XPZ7 UniRef90_D8QKA8 UniRef90-M2UDX5 UniRef90-M0REM4 UniRef90 W6QS67 UniRef90-E4Y2R8 UniRef90-B6HKV0 UniRef90-M7STX2 UniRef90_G3XV04 UniRef90_ROJ5D0 UniRef90 UPIO00161CFB7 UniRef90 E5SJ01 UniRef90-UPI0004413F26 UniRef90-H6QQ09 UniRef90 W5LCT1 UniRef90 E3S855 UniRef90-E91392 UniRef90-Q00ZM2 UniRef90 X6MJR3 UniRef90-J3PN62 UniRef90-E2LM66 UniRef90 F4NS55 UniRef90-R7SB39 UniRef90-T1DPR5 UniRef90-F6VLJ8 UniRef90 UPI00022B7F28 UniRef90-F4S6B6 UniRef90_A2G7V9 UniRef90-A2ER88 UniRef90 V7BK57 UniRef90-M8BPM8 UniRef90_UPIO0046BD52B UniRef90- X6LMP3 UniRef90_L8X3C3 UniRef90_L8WJH7 UniRef90-UPI0004548612 UniRef90 C5KN83 UniRef90-A2FJL4 UniRef90-F0Y5X5 UniRef90 I1NIA5 UniRef90_W6ULY9

|  EASLIFEVNDRYDGPFLSDHDPCSCTKFRIKAVKLGEKLLDP KVPYFETVI RYLGGLLSAYALSNDD LLLKRADELAEKLHP SVSVFETTI RALGGLLAAHFMYYNGGFLRDADDLADRLMP <br>  |  |  |
| :---: | :---: | :---: |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

QVNLFETTDRVLGGLLSAYHDSGGDQLLAVSKDLADRLLL DV SFFE ITT R SLGGGLLSAYYLSEEKHFLSLADKLGRALQM DVNDFE ST: R ILGGLLSAFHLS GDULFLKKAVSVMASGLL Y TKL F E Y Ni R Y G GLLS A YE GS T D QU LV TKA TQ L A D QLMY






LVDPFETTTRY乌GAMITSTVEEQERNALVAKAMELADKTAP SVV SVETTIRAG GGLLAAHFMYYTGGLMRLAVDLGNRLAP
 $T V Q V F E A T I R V L G S L L S A H D K D Y D N E L L H M A H D L A V R L L P B$
$N \prod P \prod F E N \square I V R L G G L I S G Y D L S K E E S L L N H A V E F A D F L!E$ RIVNGEECNRLLGGLISGHDLPYQDQLLHLAENLGSRFLP $1 \vee \mathrm{SV} \mathrm{F}$ ETNURMUGYVITVNLKHG

ALLAWEYDG LLVLAK $D T G D R L K P$ $D \prod P M F E T T \prod R Y$ T G GLLAA YDVSGGKYLLDKAVELAEVLMG TVQVFESTI RVMGGLLAAHMIAVDNTLLTLAHDLA GRLLP
 $R \ N D F E C N T R V L G G L V S A H L L A S D N Q L L A L A E D L G K R F D P$ VVSVFETNI RVVGGLLGGHMEWYKDELLQMAKEVGYRLLP

 RVNLFECNDRVLGGLVSAH【LATDNQLLDLARDLGQRFYA DI PMFETTIRYLGGLLGAYDISGHRYLLEKAEELAEVLI G $N V S V F E T N\|R\| V G G L I S A H L W P C K G P M L E L A D D V A D R L L P$
$L I N V F E T T \square R Y \square G G F L A A Y D L S G D Q R L L R K A R E V G D M L L G$
$R V T S L L Q T T Q L L S A L L S A Y D D T T D A R L L S K A M E V G D M L Y T$ VVSVFETNDRMVGGLISGHLRWYKDELL QMAAELADRLLP TVQQVFEANIRVIGALLSAHLIGYNDELLSLAHDLANRLMS
$Q \square S \square F E A V I R Y W G G L I S A Y D L S G D D L M L Q R A E D \square A D W L L P$ VLYYYDYSFRYVPVFLSDYTLFKNDKMSSKDDNNKDYCKS I I SMAD TARHLNSLLSAYDFCNDRRLLSAAIQLGNMLYT

TVSFFETTTRCLGGLMSVYDLTGNDTFLHKAKDLARRLSA EVS LIFETVIRYLGGLLSAYDLSGDKLMLERAEELAEWLLP
$D V S V M E \square N T R \square I G G L L S A H \square Q E Y D E S L L V V A \prod G \prod A K K \prod L A$ $R L P V F E T G \square R Y L G G L L G A Y D L T G D Q L L L D R A\|D L A H\| L G R$

VVSVFETNDR\MLKEKGEYMQWYNDELLQMAKQLGYKLLP



[^6]


UniRef90 J9E6K6 UniRef90-L9JBI7 UniRef90_E2LUL8
UniRef90-UPIO004547F77 UniRef90-W9XS84 UniRef90-E2BH13 UniRef90-W4ZV36 UniRef90_V9F6V0 UniRef90 UPI00042CF806 UniRef90 F4S7W7 UniRef90-UPIO000189C51 UniRef90-D8Q2Z3 UniRef90 G7IPW8 UniRef90-A8NLU6 UniRef90-M7ZT44 UniRef90_A8PX48 UniRef90_UPI0003835C2C UniRef90-A8NWA4 UniRef90_UPI0003EC22DA UniRef90-H3FCY9 UniRef90_D5GE46 UniRef90_K2NHG9 UniRef90-A0A022TP52 UniRef90_U6DTS2 UniRef90-M7T6A6 UniRef90_A0A023FY85 UniRef90_K0KJL1 UniRef90-I1P452 UniRef90-X1YF38 UniRef90-K0RV27 UniRef90_S3DAL3 UniRef90- G0PI52 UniRef90_UPIOO03293280 UniRef90-UPI0001EA8ADA UniRef90 K7MKS2 UniRef90-W4XX72 UniRef90-R7Z4U5 UniRef90-N4XPZ7 UniRef90-D8QKA8 UniRef90-M2UDX5 UniRef90-W6QS67 UniRef90-E4Y2R8 UniRef90-B6HKV0 UniRef90_M7STX2 UniRef90_G3XV04 UniRef90_ROJ5D0 UniRef90-UPI000161CFB7 UniRef90 E5SJ01 UniRef90_UPI0004413F26 UniRef90-H6QQ09 UniRef90 ${ }^{-}$W5LCT1 UniRef90 E3S855 UniRef90-E91392 UniRef90-Q00ZM2 UniRef90-X6MJR3 UniRef90-J3PN62 UniRef90-E2LM66 UniRef90-F4NS55 UniRef90_R7SB39 UniRef90-T1DPR5
UniRef90 F6VLJ8 UniRef90- UPI00022B7F28 UniRef90-F4S6B6 UniRef90_A2G7V9 UniRef90-A2ER88 UniRef90 V7BK57 UniRef90-M8BPM8 UniRef90_UPI00046BD52B UniRef90 X6LMP3 UniRef90_L8X3C3 UniRef90_L8WJH7 UniRef90_UPIOOO4548612 UniRef90 C5KN83 UniRef90-A2FJL4 UniRef90-FOY5X5 UniRef90-I1NIA5 UniRef90_W6ULY9


 GRPGGLRGPFGDDPGPAARPGSSPSSLPDLPSAV


AFSSPSADPFSDVVLRDRSAH ASPDGLSSTSEATTLQLE GFTCRASVPCHTVDLQGYTS YGEPHLSEAGTFQLE ASWGDWGLKCSAVN AF $\square$ A G L G CGGGRLFPVLSPPALASV A WQNMSILPFPQMNFTNQKPLLESNGNITNLAESGSLIIE AFYTKTGMPYPRVNDRHGDPFYPPEDTETCSAGAGSLVLE







 QFLQDNAV GLYYHYGRLVDWNDRREQVKNAFTTSWDAM AFDTPNHMPMLYYKWQADLT NKFASRQACLAEVGS LSLE

AFETRTG】PFGTVNLLHGVPEN
AFDTPNRMPVLYYYWKPTFAS QAHRAS GRSLAAELGS LS L
AF GTATGDPFTRVNLMKGVL PGTTNSTCTSGAGSLLLDE



 NSSHAD GL Y PSAFDLGGGVGRNFHFSAGAAADSAYEY LL K

 AF DTPNRMP $\square$ T R WDVGAAARGDKKKDGWA LIAEVGS LCME E T CSA GAGSLVLE FFDTPNRLPVTRWNATKAANGEEQQVSQHTDADLTSYSLA
 AFETNTGIPHPRVNLMHGDPG DTVNETCVAGAGTELVE
AFGTSSGFPVTHY QLGLNPNGKRAGRVVTADVGSLADE $S \square W K \square R V K A L T V I K M Y G F C T T G L K Y R V G P V A D E R G V A N \frac{1}{P}$ FFDTPNRMPITHWNSTKATHGDPQETAQKSTADLTSCNLA
 $A F G T S S G V P Q T Q Y$ E $\square G S N P L G G N V G R V V T S D I G S L T L E$
AFDTPTGLPY
E Q

AF DTDS GLLPAGR $\square$ DPGSPGGFRL GSVSAAEVGSMTLE

AFNTTS G LTPYPR $\square N \square K F G \square R K P E A R T T D T C T A C A G T G I L E$

 $\square A G T P T G \square P$ F P R $\square H \square G W R S \square E T L G R \quad E D S C L A G A G T L L L E$

[^7]$\begin{array}{llllllllllllllllllllllllllllllllllllllll}3 & 5 & 7 & 7 & 7 & 7 & 7 & 7 & 7 & 7 & 6 & 5 & 1 & 1 & 6 & 6 & 7 & 7 & 7 & 6 & 7 & 6 & 7 & 7 & 7 & 7 & 7 & 7 & 7 & 2 & 0 & 1 & 1 & 1 & 2 & 2 & 4 & 4 & 4 & 3\end{array}$


UniRef90 U6IGF7
UniRef90-J9E6K6
UniRef90-L9JBI7
UniRef90-E2LUL8
UniRef90 C9ZV74
UniRef90_UPI0004547F77
UniRef90-W9XS84
UniRef90-E2BH13
UniRef90-W4ZV36
UniRef90-V9F6V0 UniRef90_UPIO0042CF806
UniRef90-F4S7W7
UniRef90-UPIO000189C51
UniRef90-D8Q2Z3
UniRef90-G7IPW8 UniRef90-A8NLU6 UniRef90_M7ZT44

## UniRef90-A8PX48

UniRef90_UPI0003835C2C UniRef90-A8NWA4 UniRef90_UPIO003EC22DA UniRef90-H3FCY9 UniRef90-D5GE46 UniRef90-K2NHG9 UniRef90-A0A022TP52 UniRef90_U6DTS2 UniRef90-M7T6A6 UniRef90-A0A023FY85 UniRef90-KOKJL1 UniRef90-I1P452 UniRef90-X1YF38 UniRef90-K0RV27 UniRef90- S3DAL3 UniRef90- GOPI52 UniRef90_UPIOO03293280 UniRef90-UP10001EA8ADA UniRef90_K7MKS2 UniRef90-W4XX72 UniRef90-R7Z4U5 UniRef90-N4XPZ7 UniRef90-D8QKA8 UniRef90-M2UDX5 UniRef90-MOREM4
UniRef90 W6QS67 UniRef90-E4Y2R8 UniRef90-B6HKV0 UniRef90-M7STX2 UniRef90_G3XV04 UniRef90_ROJ5DO UniRef90_UPI000161CFB7 UniRef90 E5SJ01 UniRef90-UPI0004413F26 UniRef90-H6QQ09 UniRef90-W5LCT1 UniRef90_E3S855 UniRef90-E91392 UniRef90-Q00ZM2 UniRef90_X6MJR3 UniRef90_J3PN62
UniRef90_E2LM66 UniRef90-F4NS55 UniRef90-R7SB39 UniRef90-T1DPR5 UniRef90-F6VLJ8 UniRef90-UPI00022B7F28 UniRef90-F4S6B6 UniRef90-A2G7V9 UniRef90_A2ER88 UniRef90 V7BK57 UniRef90-M8BPM8 UniRef90_UP100046BD52B UniRef90 ${ }^{-}$X6LMP3 UniRef90_L8X3C3 UniRef90-L8WJH7 UniRef90_UPIOOO4548612 UniRef90 C5KN83 UniRef90-A2FJL4 UniRef90-FOY5X5 UniRef90-I1NIA5 UniRef90_W6ULY9

170
180
190
200
 FAALLSRLT GKPLYEEKARKAMDFLWAQRHRGSDLMGTVLN



WT H L T T L S
 FEYLAHATQNDSFQVKHVNNIMAKLVETNYSNGLI PVRMD SEHPTHSPPPPSAQEAAEEVTRHVHALHGKDDGLVPMFIN FYKLSKYTTNSTYLDLVETSMKSI DNNQQUWPGLHSVDLD FTVLSRLTGDPRFEQLAKRAFWAVWYRKSHD GLLGAGVD



F

F
F
F


## 

## F F

$F G A L$
F S A A F
F
M
F

## F

## 

## F

F
F

FT
MG
FT
F
F
FTRDSLIT GDPRWFDATEKDREVLEDQQEKTPGMWPDSVN FTVLS RLTGDGRYEELAKRAFWAVWARRSD■ GLIGSGI D


FTRLLSQLTSKDFYYDNVQK\|IDLFDWVS PDRLGTLFPETV HS HLLCLRSSGALLTALTDSLVALISYTSRRWVSVYLINM




##  $L I R L S Q \square T K D R Q W F D L S Q R A\|D F\| E N R \square I H P P L V P L W F T P$

## QRAVNDVTRHVRALSGKKDGLVPMFDN

 FAALSRFTGAT $\square F E E Y A R K A L D F L W E K R Q R S S N L V G V T I N$ F DRRLSYWTKNSSHRDLADK TSRH@MNT@TRFADNTHVFPG

MSHKLWSMQSSLKLGGTTPD
F GCDS Y TT GDMKYYD AAKKNDQLDKNSQSD MGLMGNHDD WT T L S RLT G D P E F E RVA R K A F F A I WN R R S D L G L L P N T I F D





[^8]


[^9]UniRef90 U6IGF7 UniRef90_J9E6K6 UniRef9o-LIJB17 UniRef90-E2LUL8
UniRef90 C9ZV74 UniRef90-UPIOO04547F77 UniRef90-W9XS84 UniRef90-E2BH13 UniRef90-W4ZV36 UniRef90-V9F6V0 UniRef90'UPI00042CF806 UniRef90 F4S7W7 UniRef90_UPI0000189C51 UniRef90-D8Q2Z3 UniRef90- G7IPW8 UniRef90-A8NLU6 UniRef90-M7ZT44 UniRef90-A8PX48

HRFKTHYTAVERYLGSPFPFSFLSVFMHKPSERARMFMDS YRFNKHYDA】MRYVNKG P LF $\$ DVHMHKPT $\square A A R T Y M D S$ NMYYEADESKHQ
EMY WERFERTARAVNRYVRKGGMLLAASMYSGRRLQTSQES EDYVRADEGVKRHLLRKSEPSKLTFVGELAHGHFSAKM
HRWTRAVDATMKRLSHPSSRPDLTFLASTNCTDVLYSSDH EMYDEAIAATTEHMIKTS PGKLVYVSDLKYDRLEHKMGH EMYTEAMKGVRHLLVRKTTPNGLVFVGELPSGRFSPKMDH CPPWHGCNMALWPLRWTLRPS
THWALAVDSTLKHLDRTSKTKERTFLASRKHGRVVYGMTH QAWHHAHAA KRHLYSDRDHPHYENVNLWTGSLATNWVDS QLY $\square$ RTATHIDTELMYDSPTRHLLYVTDKMPSRTSHDFEH EMYKEAMTGVRHLLVKKTVPNGLVFVGELPNGGFSPKMDH QMYEESMDGIHTALLDKGIHQGHTYTSEFIGYERSPKQDH DMFHSAYDAVQKYFRHGPWYHEADGGRTGEATHWQLTS DMYEFAFDDIKSKMLMSNPGVSPPLVGMSPSWAARTKQDH
$K M Y Y S A M E A L E M N L V K S P G G L T V A E W R G G I L D H K M G H$ EGILQHYDAIMRYVNKG PGFIDVHMHKPTIAARTYMDS SMF OAYDRALQNY TRFDDWYLWVQMHKGTVAMPGFQS ERWVKAVESTIQQLAQWSTPGKKLFLAQWKNGLDTSEMGH WERFERTVRDVNRYLRKGGMLTTVDMRSGRPFSFVHQS
EMFNAAYRSTQNYLR
DMWEES $\square A G Q Q R H L D T T T K D A G \square K F V A E D P G G K \square S P K M D H$ HMFKEYEKTI SKYMKR DDWYFWVENSSGKVTMPVFQS $D \square Y$ L RALDDI KEYMLFQPKDPNGEDLDGRYFVEQQNDMQH DMFHSAYLDAVKYFRHGPWYHEAD MRTGEATHWQLTS ARFNRHYNAIMKYDSQG PMLLDVQMHRPHTKTRNFMDA VMF LTTYSGVYENSRLGEWY VDVDINSGMSGYVRQVFES

D MYNESFDRDVTYMRRGRDVPDYVNVDARDGSTTNTWDDS AMFDEYNKAI RNY TREDDWYLWVQMYKGTVSMPVFQS E IDWNQAYKAVMTYMRS PDGFWYRGVNMQTGAVATTTIDS KMFHSAYVAVQKYFRHGPWYHEAD MRTGRATYWQLTS DKFNTHYEA DQRY $\square$ SDG PLLMDVQMHRPHARSRNFMDS
 EHLTCFLGGLLALGARAVPEVDGRAV TMTBAGN KMYDYAMATATTHTMFRPMVEDKADILIASANVEGNRSDH DMFHSSYLAVQKYFRHGPWCSTNNFL
QKWRLLEKP LETY T N TGHDFY ПWASMTSGATTQK DAQS QVWEESHTAINRHLFRGEGYQHPHLIVGDTGATRAFWDDS KMYTRAMDTAMKYNLCKPTSPF
 TVSTNA $\square$ DAT $\square R H L L F R P \square T P T N A S ~ L D A S H \square T R T H T I D A$

EMFTDFYSTDKQHMRKG
ETWKTA ID STLKKHLIKTSTVGGHTFTADDDDQRRTY DGSH KMYTSAIESARTHLI RTPGGKNFTVIGSMEAGVFTPTLDH DMRFCMNLTVYYNNVLNSDPPLYVNVNMFNGQIMNTWIDS MLQTATEVTI RDUVFRPVTPTNESILAKMRQVTLTHNITA TMWEKSVPGVNQYL GDEVRGELWYGHADMDGTRNATQYGA ADFEEAYAAI EAHVRVVAPWYDESGMATGNDITSRYDS VMY DEASEGMLHHLYRKHSASGLYY IAEWRSGQLDDKMDE RMYTSALNSARTYLIKTYEGKNLTVI GDSQSGNFRPSLDH DTWHTAMDSSDRSLLKNSAVGNYTYLADQDDYGNDVETSH DMFKEIYQAVKLYMQK SDHQYASVNLESGATISSKQMF $K L Y S D S D D T A R K V L L Y G$
$A T F L E G K A A V D R Y L K R$


## S Y WQQA VDS S $\square$ THLLK WSHKDAHPY LVEYSANE $\square$ SNFMTH

NDVNE $\square F D A \square Y N E Y \square E \square R G D S$ AY $\quad$ VQKNGKSDE K VVT KMFHSAYVAVQKYFRHGSWYHEADIVRTGRATYWQLTS VFQEAYKAAMHY LHHDPCDYGQDVVNMNSGATVWPLFNS SMFDEARKPADKYSA TSTGWYFWVNMQKGQVTMPIYQS QWWNDALYSITTYLSYYEGQNDWFALANMTTGQILPNGYQ DVWREGYSAIMKY
SMF LDENKATRNFTLF DDWY $\square W V H M Y K G T V S M P V F Q S$ NTWQRS LYKI Y HNFNSH
ARFGHYYDEMKNLSLIHDG
FF $\square R M R N G T \| D E V L M$ EAA WLRAADAYAAHLVQGVDGALFLGDLVANETLTTDFDG Y $\square F Q E A Y A A A M H Y L Y H D P W Y V E P$
QMFEES LRNGRRRLCGASHPPVYWNTDMFTGEVVNTWVDT

[^10]

UniRef90_U6IGF7 UniRef90-J9E6K6 UniRef90_L9JBI7 UniRef90-E2LUL8 UniRef90 C9ZV74 UniRef90-UPI0004547F77 UniRef90-W9XS84 UniRef90 E2BH13 UniRef90-W4ZV36 UniRef90_V9F6V0 UniRef90-UPI00042CF806 UniRef90 F4S7W7 UniRef90_UPI0000189C51 UniRef90_D8Q2Z3 UniRef90-G7IPW8 UniRef90-A8NLU6 UniRef90-M7ZT44 UniRef90_A8PX48 UniRef90 UPI0003835C2C UniRef90-A8NWA4 UniRef90-UPI0003EC22DA UniRef90-H3FCY9 UniRef90 ${ }^{-}$D5GE46 UniRef90-K2NHG9 UniRef90-A0A022TP52 UniRef90 U6DTS2 UniRef90 ${ }^{-}$M7T6A6 UniRef90-A0A023FY85 UniRef90_K0KJL1 UniRef90-I1P452 UniRef90-X1YF38 UniRef90-K0RV27 UniRef90 S3DAL3 UniRef90- G0PI52 UniRef90_UPIO003293280 UniRef90_UPI0001EA8ADA UniRef90- K7MKS2 UniRef90-W4XX72 UniRef90-R7Z4U5 UniRef90-N4XPZ7 UniRef90_D8QKA8 UniRef90-M2UDX5 UniRef90-M0REM4 UniRef90 W6QS67 UniRef90-E4Y2R8 UniRef90-B6HKV0 UniRef90-M7STX2 UniRef90_G3XV04 UniRef90_R0J5D0 UniRef90-UPI000161CFB7 UniRef90 E5SJ01 UniRef90-UPI0004413F26 UniRef90-H6QQ09 UniRef90 W5LCT1 UniRef90 E3S855 UniRef90-E91392 UniRef90-Q00ZM2 UniRef90 X6MJR3 UniRef90-J3PN62 UniRef90-E2LM66 UniRef90-F4NS55 UniRef90_R7SB39 UniRef90-T1DPR5 UniRef90-F6VLJ8 UniRef90 UPI00022B7F28 UniRef90 F4S6B6 UniRef90_A2G7V9 UniRef90 A2ER88 UniRef90 V7BK57 UniRef90-M8BPM8 UniRef90_UPI00046BD52B UniRef90 X6LMP3 UniRef90-L8X3C3 UniRef90_L8WJH7 UniRef90_UPI0004548612 UniRef90 C5KN83 UniRef90-A2FJL4 UniRef90-F0Y5X5 UniRef90 ${ }^{-11 N I A 5}$ UniRef90_W6ULY9

## LQA F L V C

$L L A F W P G U Q V L K G$
300
310
320

LS CF LP GLLALGAHTLP LDNHMWAAEGLAQTCWLTYADQP $L S S F F P G N L V L G G \quad H D H E A V E S S W P \square H T F F K H F$
SAFFAAGNF LLGGTVLHKPRYVDFGLTLVESQVELYRSTA LACFAGGMFALGAKNELSDKYMNDAAGLTNTCHESYDRSV
LTCFVPGMLALGYYHGMPTSHLELDAKETETCDSNRRHNW
LDCFVGGNFMLGGKMLKNQT\|VDYGLKLTETCADSYFSTR L GAFYAGLLVLAG $L S C F L P G L L A L G V D Q L P R D V H \square W A A E G L A Q T C W L T Y A D M P$ L V
LVCFLGGS $\square \mathrm{MLGGA}$
 LVCFLGGTMLLSATEFENYEDWRVGHELIRSCMNTYTESA LACFCGGMIGI GAEDGQKQHYLDLAGQUTHTCHESY


L

R

SSCTLGSTLALSAALTHNDTH TTYARLLTEGCDWTTLHAP LTRSALNLPHPTFTPHDRQLHMWAAEGLAETCWATYADMP $L V C F A G G M L A L G G R L F G N T T Y M D F G R K V T D G C A W T Y K Y S P$



LGCFAGGNFTMGGKLLNNDT VEEGLKLTDGCLASYNTA LSCFAGAMIGLGARLLNRKGDLDGALKHTDSCVWAYESTQ LQAFFPGLQVLNG SSCSLGGTLALSAAGGEKDRDLTYARLLTAGGCDWMSQHTD LDAFMPALLALLGG SMMDRAKRLQESNLKMWRLD LACFTGGMLA LGVIHQMVQRHTAAAEQLGETCYQMF
LTCFAGATIGLGAQLLHKKEDLNLAMRLQVLTFHSY
LACFHGGNWILGGKLLNNETVVSGGLALTVDACWNTYASTE FDTDWPS I QVLSGNILEADQVWKHTARYLALD
 $M R L L I P W L P F P F L L P P P P P G D R G E V A D K C G Y L S S A H R V R S$

LDSF LFGGLILLRRNDPPDS $\operatorname{LQKFGEK\square SNGLFNFLNDSV}$

$\square E A Y W P G L Q S L I G$
$D \square D S A M R S L L N Y Y T V W K Q F$
DEAF DP AAEMLHSEKNRKRADEDLNSYLS DRKTNK
 LQSVWPGLLM


UniRef90_U6IGF7 UniRef90-J9E6K6 UniRef90-L9JBI7 UniRef90-E2LUL8 UniRef90_UPI0004547F77 UniRef90-W9XS84 UniRef90-E2BH13 UniRef90-W4ZV36 UniRef90_V9F6V0 UniRef90_UPI00042CF806 UniRef90 F4S7W7 UniRef90_UPI0000189C51 UniRef90-D8Q2Z3 UniRef90 G7IPW8 UniRef90-A8NLU6 UniRef90-M7ZT44 UniRef90_A8PX48 UniRef90 UPIO003835C2C UniRef90-A8NWA4 UniRef90_UPI0003EC22DA UniRef90_H3FCY9 UniRef90-D5GE46 UniRef90-K2NHG9 UniRef90_A0A022TP52 UniRef90 U6DTS2 UniRef90 ${ }^{-}$M7T6A6 UniRef90-A0A023FY85 UniRef90_K0KJL1 UniRef90-11P452 UniRef90-X1YF38 UniRef90-K0RV27 UniRef90 S3DAL3 UniRef90- G0PI52 UniRef90_UPI0003293280 UniRef90-UPI0001EA8ADA UniRef90 K7MKS2 UniRef90-W4XX72 UniRef90-R7Z4U5 UniRef90 N4XPZ7 UniRef90_D8QKA8 UniRef90_M2UDX5 UniRef90-M0REM4 UniRef90 W6QS67 UniRef90-E4Y2R8 UniRef90-B6HKV0 UniRef90 M7STX2 UniRef90-G3XV04 UniRef90_R0J5D0 UniRef90 UPI000161CFB7 UniRef90 E5SJ01 UniRef90-UPI0004413F26 UniRef90-H6QQ09 UniRef90 W5LCT1 UniRef90 E3S855 UniRef90-E91392 UniRef90-Q00ZM2 UniRef90 X6MJR3 UniRef90-J3PN62 UniRef90-E2LM66 UniRef90_F4NS55 UniRef90 R7SB39 UniRef90-T1DPR5 UniRef90_F6VLJ8 UniRef90 UPI00022B7F28 UniRef90-F4S6B6 UniRef90-A2G7V9 UniRef90 A2ER88 UniRef90 V7BK57 UniRef90-M8BPM8 UniRef90_UPIO0046BD52B UniRef90 X6LMP3 UniRef90_L8X3C3 UniRef90_L8WJH7 UniRef90-UPI0004548612 UniRef90 C5KN83 UniRef90-A2FJL4 UniRef90-F0Y5X5 UniRef90-I1NIA5 UniRef90 ${ }^{-}$W6ULY9

HKF—DEAF
TGLGPDEMKFAP
GVLPEDFS LES GEPSW

THD L Q V H WA Q H P $\square$ RPEF $\square$ ES T

MS H D Y $\square$ GRPEH $\square$ ES L
TKLGPEAFHFLDGNCNKHPSKAKLKKANPHNMLRPEVLESGL
H

YAALPERWSDT HKD DEGGLGWWPLRPEFIEST
TGLGPDEMIFYTSMPE
$F G V L P E R Y L L D \quad Y G \square L H P T E K Y Y P G R P E F A E S T$
TGLGAE IVFF

F
GGDPEFYS $\square P Q G Y T V D K R E G \quad Y P D R P E L I E S A$ TGLAPE $\quad$ A HFNMDAAKADDVI $\square K P D D S H C L L R P E A V E A W$ TRIGGPETFAWTPGQREQKNNAGFWVTNARYLLRPETVESY F GALDPE
 YGFTPEFYEVV RGMABPKRDGYPLRPELVESLL
L Q MMP EK

F G M L H P T E K Y Y P L R P E F A E S T
VES E GARHPLRPELLESC

Y S G $\prod P E V F D \prod H R \quad K Q A T S G G Y P \square R P E F V E S N$ YGVLPERCFTLLKNDTHYVLNWLSQHSTY HNFLPEAF TPQYDVYWGQHPपRPEF $\square E S T$
PSFMPEDCSFDPNVWPEQEYPGFEKDWDKKGPRPEVVMSL S GLGPDGVAMALRMHDLKVLRMHELKAWHKPPGARRVEPI NGIVPEVFSMTPCPTWEPCDYKPQSGPHPY ILRPEAIESV

GW PEFYHVDK
YSG $\square$ PERWNVATGD $\quad \square$ DNGMPWYGGRPEF $\square E S N$
FSGGPERWNVATGD PSPMPESFSMLACAQNCTFEPAVWPTQVYPGFRPEMVMSL

TGMGPEVFAYASPDFYNEHGWYVYNNNAYYDGRPEVMESN T GVGPEEAWLLGGNEYTRWK IVNYKGFFFF
$G A L P E R Y N W Q L Q A \quad P D V L F Y P L R P E L V E S T$

 PGQKPYPLRPELIEST
$T G \square G P E G F A F V P E Q K A F N A K H G F F D T S S G Y Y \square R P E V L E S N$ SPFLLPDTTSMPRQD NAETENEYLLQSETAESL

TGLGPDSFSYH ENGYA $\square$ NPEF $\square \mathrm{L}$ RPEVVES $\square$
NGFPPKSAVLK GKLEVIDSSYDLSHRVLETL

YGFTPEVYNV
GTY $\|$ IE PGVYNFISDTAVNPSYDLLNPENFESN
G G $\square$ P E F Y N $\square \mathrm{P}$ Q G
F G LiF PRSVSVKNG MK LDDGTVVFPTRDFESLL


UniRef90 U6IGF7 UniRef90_J9E6K6 UniRef90-L9JBI7 UniRef90_E2LUL8 UniRef90 C9ZV74 UniRef90-UPI0004547F77 UniRef90-W9XS84 UniRef90-E2BH13 UniRef90-W4ZV36 UniRef90_V9F6V0 UniRef90-UPIO0042CF806 UniRef90 F4S7W7 UniRef90-UPI0000189C51 UniRef90-D8Q2Z3 UniRef90 G7IPW8 UniRef90-A8NLU6 UniRef90-M7ZT44 UniRef90-A8PX48 UniRef90 UPI0003835C2C UniRef90-A8NWA4 UniRef90_UPIO003EC22DA UniRef90-H3FCY9 UniRef90 ${ }^{-}$D5GE46 UniRef90-K2NHG9 UniRef90-A0A022TP52 UniRef90 U6DTS2 UniRef90 ${ }^{-}$M7T6A6 UniRef90-A0A023FY85 UniRef90_K0KJL1 UniRef90-11P452 UniRef90-X1YF38 UniRef90_K0RV27 UniRef90 S3DAL3 UniRef90- G0PI52 UniRef90_UPI0003293280 UniRef90_UPI0001EA8ADA UniRef90 K7MKS2 UniRef90-W4XX72 UniRef90-R7Z4U5 UniRef90 N4XPZ7 UniRef90_D8QKA8 UniRef90-M2UDX5 UniRef90-MOREM4 UniRef90 W6QS67 UniRef90-E4Y2R8 UniRef90-B6HKV0 UniRef90 M7STX2 UniRef90 G3XV04 UniRef90_ROJ5D0 UniRef90 UPI000161CFB7 UniRef90 E5SJ01 UniRef90-UPI0004413F26 UniRef90-H6QQ09 UniRef90 W5LCT1 UniRef90 E3S855 UniRef90-E91392 UniRef90-Q00ZM2 UniRef90 X6MJR3 UniRef90-J3PN62 UniRef90-E2LM66 UniRef90-F4NS55 UniRef90 R7SB39 UniRef90-T1DPR5 UniRef90-F6VLJ8 UniRef90 UPI00022B7F28 UniRef90 F4S6B6 UniRef90-A2G7V9 UniRef90 A2ER88 UniRef90 V7BK57 UniRef90-M8BPM8 UniRef90_UPIO0046BD52B UniRef90 X6LMP3 UniRef90_L8X3C3 UniRef90_L8WJH7 UniRef90-UPI0004548612 UniRef90 C5KN83 UniRef90-A2FJL4 UniRef90-F0Y5X5 UniRef90-I1NIA5 UniRef90_W6ULY9

# Y L L Y R A T K DEHYLHVAKN LDDSMNK LRVECGFAA <br> YMLYRATRDPTYLLMGKE $\square$ A $\square$ A $\square \mathrm{N}$ <br> YYAYRATGNRKYQDMSWE $\square F Q A M \square R A T R V S S G G F S Q V A D V$ FVMWRLT KDPKYREWGWEAVQALEKHCRVPGGFTGLNNV 

FYAFR $\square$ T GDPKWQEMGWKMWQS $\square E R C C L V S H Q G W D G W E D G$ YY $\square Y$ QA T K D P WY LY VGE MPK N


MY LIFRATGDHTY $\square Q \square G V D A D E S \prod E K \square A K T P C G G Y S V K D L$ FYLYRATGDKKYQEWGWAAFEAI DKYARIAGGGYSSVNNV FYAYRATGNQMYQEWAWDAYKYV DP DCCVMVGGRS

FMMWR $\square T E D P D Y R E W G W K D F K S F E K Y T K V N S G K G Y T S D N D$ VY L Y QATKDPHF LE $\square$ GVD LIES $\square$ MHSAKTEC GYAT IKK V F Y $\square Y$ QATKGDYR $\square F F \square V Q \square$

GKKALKA LQQHARVPCGYAA


YF $\square Y$ R A T K DE Y Y $\square E \square A E R V I T D L V N R T W V D C \quad G L A S \square$ YMLYK HYEA $\quad$ QR Y $\quad$ S DGPLLMDV
FTLYRVTGEERWREVGWQMWEGVER VMEEKVE WLL RPET $\square E S \square Y$ LL WR WRLI QSMERWCRAEYGYSVVSQI N $F Y$ Y Y R $\square \mathrm{T} G E R K Y Q D \square A W E M F Q A \square D A S T R T D L A N A A L S D V M$

YY $\square Y$ RATQDPWY $\square H V G E M V L S D \square K R R C W T K C \quad G W A G \square R N V$
 FALYRVT GEERWRDVAWE MWTSVER

FYAWRATGDKKYYDAAAQFDKNLAKYTAV NGAYAGDNDV $Y \square L Y Q A T K N P F Y L H V G M D \square L Q S L E T N T K V K C \quad G Y A T L H H V$ F YMWRVT GEREWLDVAWEMWESVDKSVR


FYAWRATGNELYLDRAARADVSNKYLSVTSGGFSGLQDV WHLLYAATKDESULEMVFELIDRLNMLTRTEC GFASISNI MY $\square Y R A T S D P F D E G G E N D L E S \square E H S A K T A C G Y A T D R D V$ LSIT G I S A T S DLLPPGPGPDAA PALSKVSSGGYSSINNV

WY A WR $\square$ T GDS $\square$ WQERA WE $\square$ F $\square$ A $\square E$ A HCKTD A GYHG $\square Y N V$
$\overline{L I} Y Y$ RSTHRKEYRDAA WK $\prod F K A V N E S C K T \prod Y G Y S P V I I N G$ FYLCQTTKDPWYDEVGESIVNSINDYTKVE GGFASI KDV



F I LYRKTHDKKYRD FFLRRATGDAAYAARAWDLFAHFEKGAATRGAFAAGGDDP



NNDGPGGRDDMMYGFFMAETDKYAYLIHVEEGEWHMNKWV Y LAD SAKDDVQQSYFFAETLKYLYLLFSDDDLISLDDWV

P $\square$ RESPEYGDFMESFWWAETMK

STMMNLDHQHSFF LSET

R D H
K T
Q $\square$ D N R MESFF $\square$ AET $\square$ K Y $\square Y ~ L L F D P T H F L H A G G F \square$

GDH T LDEDRMESFFLAETTKYLYLLFTPDHF!HNNGYV
NDVRTGKHEDRMDSY VLSETFKY LF LLESDPADLNDEDFD SSTTTGRHQDEMPSYFLSET $\square K Y$ KYLTFSDDS I LHTDDWI
 QMHRPHNFMDSLLAFWPGETHEMLYQVTQRHNFLP
QA LINGDAERDDEEFRMTMQTLKYFYLLFSKSDLLSLDEWV TDH PRMTDEQPSWLFAETFKYLFLLFTDEDLLPLDQWV KS PPEKYDSMESF


#### Abstract

LT GELIDRMESFF DGETAKY LYYLFDQDHPLNKVDWV 


RRTDSG FFDNTESFFFAEVLKY $\square Y$ YT F DDPEKFS $\square$ DDWV


NNFSAGR DDHTESFWFAEVLKY LY LTFDDPN LL

NNH QQDDRMESFFLAETTKY $\square Y$ YLIEDTNNFTHNDGY QNPKSPEPRDKMESFFLGETLKYMFLLFSDDDLLALDRFV

NNPQ GGFKDETESFLFAD
TNVTQVHK EVDPK TYSGFFK LMYY LIF LDSSVVDGDHFV TTM QLEDHQHSFFLAETCKYLYLLFDDDFVHENNYV
 QNVSTMS RQNSCPSYFFAESMKYLYLTFGVDTGFNFDDYV
$N N D M K E G G V V D P K L G A Y Y T Y \square Y L L F S D S T E D P \square E D W T$ AAESPRRLVDDMPPSVIAETLKFLYLTFLENHWPAGDAFA E N HMESFFLAETVKYLWLLFDLWKMGHTSEYI

[^11]UniRef90 U6IGF7

UniRef90 C9ZV7
UniRef90-UPI0004547F77
UniRef90-W9XS84
F NSQAHPLRV
FNSEAHVLPI
LT TEAHF $\square$ P L

UniRef90-W4ZV36
UniRef90_V9F6V0
UniRef90-UPIO0042CF806
UniRef90 F4S7W7
UniRef90-UPI0000189C51
UniRef90-D8Q2Z3
UniRef90 G7IPW8
UniRef90-A8NLU6
UniRef90-M7ZT44
UniRef90-A8PX48
UniRef90 UPIO003835C20
UniRef90-A8NWA4
UniRef90_UPIO003EC22DA F N T E A H P L
UniRef90_H3FCY9
UniRef90-D5GE46
UniRef90-K2NHG9
UniRef90-A0A022TP52
UniRef90 U6DTS2
UniRef90-M7T6A6
UniRef90_A0A023FY85 F N T E A H P
UniRef90_K0KJL1
UniRef90-11P452
UniRef90-X1YF38

UniRef90-K0RV27
UniRef90 S3DAL3
UniRef90-G0PI52
UniRef90_UPIO003293280
UniRef90-UPI0001EA8ADA FTTEGH\|LY I
UniRef90 K7MKS2
UniRef90-W4XX72
UniRef90-R7Z4U5
UniRef90-N4XPZ7
UniRef90-D8QKA8
UniRef90_M2UDX5
UniRef90-M0REM4
UniRef90 W6QS67
UniRef90-E4Y2R8
UniRef90-B6HKV0
UniRef90_M7STX2
UniRef90-G3XV04
UniRef90-ROJ5D0
UniRef90 UPI000161CFB7
UniRef90 E5SJ01
UniRef90_UPIO004413F26
UniRef90-H6QQ09
UniRef90 ${ }^{-}$W5LCT1
UniRef90-E3S855
UniRef90-E91392
UniRef90-Q00ZM2
UniRef90 X6MJR3
UniRef90-J3PN62
UniRef90-E2LM66
UniRef90 ${ }^{-}$F4NS55
UniRef90 R7SB39
UniRef90-T1DPR5
UniRef90-F6VLJ8
UniRef90 UPI00022B7F28
UniRef90-F4S6B6
UniRef90-A2G7V9
UniRef90-A2ER88
UniRef90 V7BK57
UniRef90-M8BPM8
UniRef90_UPIO0046BD52B
UniRef90 X6LMP3
UniRef90_L8X3C3
UniRef90_L8WJH7
UniRef90-UPI0004548612
UniRef90 C5KN83
UniRef90-A2FJL4
UniRef90-F0Y5X5
UniRef90-I1NIA5
UniRef90 ${ }^{-}$W6ULY9
lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm


FNTEGHPLII
FSTEGHPL
FGSDGHAL

F N TEAHPLR
FTTEGHVVPI
IGSDGHAFRV FNTEAHPFKL FTTEAH $\square$ FPL

F NAEGHVFPAY
FNTEAHPD
FNTEAHPLP $\square \mathrm{W}$

DTSDGNTLKTW
FTTEGHPFPV
FSTEGHLLP
FNTEAHPI
FNTEAHPVP

FTWNGHPLR


61467404789 $\begin{array}{llll}\mathrm{B} & \text { B B B B B B B } \\ \mathrm{B} & \mathrm{B}\end{array}$
jpssm

| jpssm | 130 | 140 | 150 |
| :--- | :--- | :--- | :--- |


| jpssm | 210 | 220 | 230 | -6 |
| :---: | :---: | :---: | :---: | :---: |


| jpssm | 330 | 340 | 350 | 360 |
| :--- | :--- | :--- | :--- | :--- |

$370 \quad 380$

$$
\text { jpssm } \quad \square \quad 450
$$


[^0]:[^1]:    C

[^2]:    R
    Q T A

[^3]:    

[^4]:    lupas_21
    lupas_14
    upas_
    jnet
    sol25
    sol5
    sol0
    jhmm

[^5]:    lupas_21
    lupas_ 14
    lupas 28
    jnet
    conf
    sol25
    sol5
    sol0

[^6]:    lupas 21
    lupas_14 14
    lupas 28

    | $\substack{\text { jnet } \\ \text { conf }}$ |
    | :---: |

    conf
    sol 25
    sol5
    solo
    jhmm

[^7]:    lupas_21
    lupas_14
    jnet
    conf
    sol0

[^8]:    lupas_21
    lupas_ 14
    lupas 28
    jnet
    conf
    sol25

[^9]:    lupas_21
    lupas_14
    lupas 28
    jnet
    sol25
    sol5
    jhmm

[^10]:    lupas_21
    lupas_14 14
    lupas 28
    jnet
    cont
    sol25
    sol5
    solo
    jhmm

[^11]:    lupas_21
    lupas_14

