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UniRef90 ${ }^{-}$K1 XK88
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UniRef90-C9SIB5
UniRef90_UPIO00379F1D9 UniRef90_R4STQ1 UniRef90-R4STQ1
UniRef90 UPI00035FD2C0 UniRef90_UPI00035FD2C0 UniRef90_UPI00035FD2C0 UniRef90-G3JH26 UniRef90_UPI000360CBCF UniRef90_UPI000475C1B1 UniRef90-UPI0003754E99 UniRef90_C6WE77 UniRef90-C6WE77 UniRef90-C6WE77 UniRef90-UPI000378A106 UniRef90_UPI00035E16C2 UniRef90-J4W2U5 UniRef90_UPI00037642FC UniRef90-UPI0004411297 UniRef90-UPIO004411297 UniRef90-S9PFQ0 UniRef90_S9PFQ0 UniRe99_M3BPX2
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10
EVVS $\ln$ VT T
GTTRYTAHTDTTVNTQVVD LPENEYRSLRVTTPGHTDRYVRHQDALGFTAPD D




L T T S GQA

S T G T $-\begin{aligned} & \text { N S } \\ & \mathrm{N} S \\ & \mathrm{~T} S\end{aligned}$ T S SAP | T | T | L |
| :--- | :--- | :--- |
| P |  |  |
| P | L | P |

LPV G Q Y R S L Q GGPVVIN A GSTMS LT S G P

## L

$\begin{array}{rrr}T & Q \\ T & Q \\ S & A \\ L & T & S \\ L & T & S\end{array}$
AYTV

S A
T
T
S
S
0

## G

S P G

L
S P G

LM S GP T FA $\square$ G S S V S L R A T
$P G L G D A A C Y S F E$

A P PVTLLPT GQNK S LTRVT T R
ATGTTLD L
 LN S GT A L T V G S S I S L R AT

$L V S G P A F T V G D S V S L R$
SLQI GRRVSLRVTT
 TLL P T G E N R S
LS S GPRLSVGA RVS L R A T S
IA K GTEVVGRGELLL S L K R V T TA
1 AK G TEVGRGELLSLRV




VAESVP LTHVNARQS LRVT TPGLTDRYARHLDGQGVTSVVT LT ALPVGSYVSLRVTTPGHTDRYLRHTDALATTEVVT



## 

 $V N T L S L P A G A Y Q S F Q V T T P G F T D R V A R H Q N G L G Y T S V I N$ A GLLASSSCFSFEARSA PGRFLVRHNSRVVVDKA E





V A
VS P NF KFAK GSADS R A TTS C CT NRYDA HTGSTVNTQVI S TLAP GS EI SLLRAT TACCTAD SVRNQNGTAVIAPI T T GTGALLTGARVSLKATTPCCTSHYLRAADSTVGISVVN




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UniRef90_Q4WL66 UniRef90_Q4WL66
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$\begin{array}{lll}S & F \\ S & R \\ S & F & R\end{array}$


 SASSATDKA DATW V VRA GLLANSSCLSSF S
$A N A P G Q Y$
$V A T$
$V$ V A T P GRFLR R L Q $V A T P G R F L R H Q$ GGSPALEKQDATWQLVPGLADPSCFSLRSVNYPGDYMRHR A GSGDLLKKQDATWKVVRGLGNPLCYSFESRNYPGEYLRHR WS S S D SLLKR Q S T W IV V RA GL G N QAC F S F E S K D T P G S F I R H Y A ASPAADKGDATWVVHAGLANANCVSFESANASGQYLRHY S GSDATTRRDATFI ARAGFADPTCYSFEASNFPGQFLRHS SGSDATTRQDATFIARAGFADPTCYSFEASNFPGQFLRHS
 S S SASSVVQNAAKFVVRSPDASTGCVSFESVDTPGSFIRHS



 S S S G D Q L R R E A S WV V R A GLLGP G D CLL S F E S V D A P G S F

 PASADAPPGKAALSWVP LR RLNAYYSFTTPNYTNRVLRHY

 ASSSSATD KQDATEVVETA GLLADAACVVS E S DNRPGSYYLRHQ

 SSSSATDKADATWUVRAGLADSSCVSFESANDSGQFLRHY | $S$ | $L$ | $Q$ | $V$ | $N$ | $F$ | $P$ | $G$ | $R$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $S$ | $Y$ | $A$ | $T$ | $V$ | $R$ |  |  |  |
| $L$ | $Q$ | $V$ | $N$ | $F$ | $P$ | $G$ | $R$ | $Y$ | $S L Q S V N F P G R Y A T V R$



80
$Y$


70
P G S Y $\quad$ R H

 | R |
| :--- |
| S |






 S R N Y P G E Y
S R N Y P G S Y
L
L R H R
R

 $\begin{array}{llll}R & D & A & G \\ R & F & R & R \\ R & H & A\end{array}$ $\begin{array}{ll}\text { R NYP G D F } \\ \text { R N P P G S Y } \\ \text { R } & \text { R H F } \\ \text { R H F } \\ \text { R }\end{array}$ $\begin{array}{llll}\text { P R F P G S Y } & \text { L R H F } \\ \text { K N T A G Q Y } \\ \text { L } & \text { R H Q }\end{array}$
 $\begin{array}{lll}\text { K D T P G S Y } & \text { I } \\ R \text { R H H Y } \\ R & \text { R S Y } \\ \text { R H Y }\end{array}$ RNFPGSYY $\begin{aligned} & \text { R H H } \\ & R\end{aligned}$

 KNKPGFY L R R R SKNKPGFY L R R H R SKNKPGFY
S R N Y P GE F
L
L R H R R $\begin{array}{llll}R N F P G Q Y & L \\ R N F P G Q Y \\ R\end{array}$ $\begin{array}{lll}R & D T P & G \\ K & Y & L\end{array}$
 S R D T A G S F
 $\begin{array}{lllllllll}S & R & Y & P & G & E & Y & L & R\end{array}$
 RNYPGHFLRHA
 RNFA GHYLRHA


## 



QUERY
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UniRef90-G8SJ68 UniRef90-UPI00044174B5 UniRef90-M2UNP4 UniRef90_UPI00047EFCBA UniRef90_E3FL68 UniRef90_E3FL68 UniRef90_UPI0003A295D0 UniRef90_C7Z4C8 UniRef90-W9CI50 UniRef90_R8BNG6 UniRef90_S9QLY6 UniRef90_S9QLY6 UniRef90-10L752
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90
100
110
120
NFELLLNANDGTKQFHEDATFCPQAALNGEGTSLRSWSYP E S RVVYREASDGSELFHEDATWCAVPGLS GTGVVLRS YNFP
 S F TLLVVNKND GTKAFNEDATFCPQKGLNNQGS S I R S WN Y P



 NSRI RRDPRDGTALFDQDATFCARAALDGQGVSFEPKNKP HFAL LLKK PNDGTKGLHEAATFCPQAGLNSKGNSIRSWNYP EFRRVHREAGDGSAGFRADATFCAVPGQ GGVRLMA QNYP


 NFQLMLNANDGSKLFSEDATFCPHAGLNGQGNSFQSWSYP NFVLQQVNANDGSKMFQEDATFCPQAGGTGQGSSDRAWEYP $N F K V Q R Q P M D G S A A F R A D A T F C P V A G G N G Q G T S F R S Y N Y P$ NSRVVRRDPRDGTALFDQDATFCVRPALDGSGVSLESKNKP NS RVVR D P R D G T A L F D Q D A T F CVVR PALDGS GVVLESKNKP

 NFALLVNANDGTKQFYEDATFCLQS GLNGQGNTIRSWSYP
 E F RVVRREAGDGSTVVKEDATWCPVQG S GGVRMSAACFP E S R V R N S P N D G S ALLDRADATWCARVGLGTGSGVSLESYNFR
 N S K S L A A ND GSKAFKEDATFCPQAGLSGQGSSI KA WGYP
 NS E L WV D A F A DTELGFRQDAT WALAP P WWK S GVVSLQTAGFT D F R V R R D A ND D S ALLFKA DATVCAVAG S G GVRFTSANLP
 A Y R V Y R E A S T G G T F N A D A T F C A R P G L S G G G T S L E A S N L A NF D F R VVYK E A G D GS A L F R A D A T F C A LDP A A G G V R L A A Y N M A
 NF QL QL NANDNTKAFKEDATFCSSTGGLVGTGNTFNS WS YP


 DSAARTVDVLSTADLGGRQDASYRTVAGLDPRCLDSFESSVNQP

 D F R R L R K D A R D G T A L F D Q D A T F C A Q P P R A G A G V

 N S LA R L T P G S GE GATK DATYRLLRPGLDPACYSLESRRNFP

 E HRVVREAGDG VLFREDATFCPAPG SGGVRLSSANFP N Y E L R L H R N D G S KL F S E DA T F CP Q S G L N G Q G S S I R S WS Q P AF QL HL QPNDGSSQFAADATFCPKTGNSGTGYSLQSFNYP
 D S L A R T D V I G T S A T E K A D S S F R V V A G L D K D C Y S L E S Q N Y P

 NGQLY LAAT GDGGASWAADTTWVASPNWRSDAVSLQTAGST $N G Q L Y L A T G D G G A S W A A D T T W V A S P N W R S D A V S L Q T A G S T$ $N G Q L Y L A T G D G G A S W A A D T T W V A S P N W R S D A V S L Q T A G S T$ N Y HVVYL Q PMD GT QQY REDATFCAEPAKNGK GTSFHSYNYP AF QLHTEASNATTQFNQQATFCDQAGHSGQGYSFQSVVYP
 GFKLLVI NANDGSKMPFSEDATVCPQQSFDSTGSALLRSWNYP

 NAVL RMQPFDGTALNRSDATFCPEPGKNGKGNSFHAMNDP $N F R L S V N T D N G G G A F T Q D A T F C P T A G N S G T G T S F K S V N Y P$ NF QLHLQP NDGSSSLYAQDATFCAQAGNSGQGTSFQSVNFP N F E L W L D K F S G S T 1 F R N D A T F 1 Q R
NFELWLDKFS GSTIFRNDATEIQR
NYELYI AANDGSSVFAQDATFCPKAGNSGQGTSFQSVNYN




## QUERY

QuERY
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UniRef90 Q4WL66 UniRef90-B6HW29 UniRef90-TOKDL6 UniRef90-H2K1J5 UniRef90-S9R8F1 1 UniRef90-S5NFW1 UniRef90_UPI000371D7C6 UniRef90-Q08WD5 UniRef90_Q08WD5 UniRef90_G2P472 UniRef90_G8SJ68 UniRef90-UPI00044174B5 UniRef90-M2UNP4 UniRef90-UPIO0047EFCBA UniRef90-E3FL68 UniRef90-E3FL68 UniRef90_UPI0003A295D0 UniRef90_C7Z4C8 UniRef90- W9Cl50 UniRef90-R8BNG6 UniRef90-S9QLY6 UniRef90_S9QLY6 UniRef90_G2P3B
UniRef90-10L752 UniRef90_10L752
UniRef90 G2GDA2
UniRef90-Q0US03 UniRef90-E3FQX9 UniRef90-E3FQX9 UniRef90_E3FQX9 UniRef90_NOCHB9 UniRef90-U5VPQ0
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UniRef90_E3QU61
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UniRef90 V6KNW8 UniRef90-K1XK88
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UniRef90 M3FLJ6 UniRef90-M3FLJ6
UniRef90_D817C6 UniRef90_L7FOK3
UniRef90_B3DFA0

130
140
150
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 TRYFRHYNNKGYAASNGGVHDFDADKSFTDDASFVVAKSL ARWWRHYNA GGYDAANGGEHDFDSPTSFNDDVSFVVSAGF TRYFRHYNNVLYAASNGGVHTFDATSSFNNDVSWVISTGF促 TRYFRHYNNVGYAASNGGVHTFDSATSFNDDASFVVASSF GSYVRHRGGEVWVD GSYVRHRGGEVWVD TRYFRHYDNVLYAASNGGVDRLENTTGFRQDASWGIASAW GQYLRHYNSEVYAAVPGGVDRFDNPASFNDDASWVISAGF GSYLRHRDSALWVDPLTGSRA

DRFI RHYANNVYI ASNGGTNAFDSAT

AKYLRHFNFSVYI ADTSGTNAWDSATSFNDDVTWLVESGLL
GFYLRHRNSEVWVD
GFY R RHRNSEVWV
AFSDTLGFRQDAVWGITVPW
DRYVRHYNNVVYI A ANGGSNAFDSTNAYNDDVSWAVSSPW
TRYFRHYNNVLYIASNGGVNTFDATALIFNDDASFVI GAGF
TRYFRHYSNALYVASNGGVKAFDPATSFNDDVSWVVSTGF
TRFFRHYANVLYIASNGGLHTFDAAASFNDDASFVISTGF
GFYVRHRVVGEVVL
EALENTTGFRQDATWAPGEA W
GQYLRHDNAELWLAQSGSTHAWDNPAGFTEDTTWADEPPW
GKFLRHYNSEVWLSNGTGGDAWNTPTLWAADSTWNTAAPW
EQYLRHYGGELWLADPGGTRAWDKPALFTEDTTWAVEAPW


GSYLRHDDSEVWLATPGGGKAFDNPA
GYYLRHRNSEVWMDPNNGG
GYYLRHRNSEVWMDPNNGG
TRYFRHYANVAY I ANNGGVHDFDAAA L
TRYWRHYFNVLYVASNGGVNTFDAATAFNDDVSWVINSSF
GGYDRHDNSEVWMATRGGPRAWDNPASFTEDTTWAVADPW
TRYFRHYENAGYMGTNGGDHSFDAANSFNADATFVPDKGW D HLL RHDNAEVWDAGLGGGGAQDNPAHYEEDTTFAVEDAW AKFI RHYNNVGYI ASNGGVHDFDSATGFNNDVSFVVGSSF GSYLRHYDSEVWLSTPGGKQPYDTASHFTADTTWALEAPW T RYI RHFTNVGYVASNGGVHT FDAAREFNNDVSWVVGAGLD
 GAFIRHYAATVYLARSGGPNPWDTP
GRY $\operatorname{liRHAGGRVRVDTDTGGP}$ GRYLRHAGGRVRVDTDTGGP

## GRYLRHAGGRVRVDTDTGGP

TRYWRHFNSKVSI ASNGGPFVEDARYD GAR GHAVRHYAEAVYAVAGGGHAFDAAASYDQDVTWAVAPPW
 GSYLRHASSRVRLDANDG GSYLRHASSRVRLDANDG
GSYYRRHASSRVVRLDANDG
$\qquad$ S A
S A
A A
$G \mathcal{V} V R Y Q$ TRYWRHFNSKAYIASSNGGPFAQDAKY LFSDDASYFIVAGGW AKY ITRHYSFTGYI ASNGGSNAWDTTSMWAQDTSWLAASPW GHNIVRHFTGEVYI ASNGGSNAWDTTSMWAQDTS WLAASPW GHNI RHFTGEVWIA ANGGPKTSDNGF GKY L R HANSRIRRDSRDNTRVFD
GKYLRHANSRIRLDSRDNTRVFD

TRFFRHYHNAGYI ARNGGPLDYDTAT GSYLRHQNGELWITSNTGG
DRYLRHQGGVAITSAlGA
DRYLRHQGGVAITSAI GA
TRYLRHFANVAYVSSDGAPNDFDNANSWADDAVSWVARAGPW
NRFLRHYSYTGYLAGDGGGNTWDSDADWSDDTSWLPARPW NRFWRHFNNDMFAAGDGGGNTWDSDALVWSDDTSWLPAQPW TRYFRHYSNTGYAAMDGGWNDFDASTDFTEDASWLI SSSF
TRFDRHYNDVGHLARNGGPEDFDNPSNFNNDVSWVVGSGF EKYR EKYLRHASSRVRIDSR ARYWRHYNADLYI A GNGGPNNFDATYAFNDDVSFADTSGLL AKYDRHYYGKVYI A GDGDDNPWDAKALWSDDASFVVGPPW TKYVRHYNYAAYI ASNGGSNAWDSTTAWAQDTSWLTAAPLD GRFIRAFEGAVYLASNGGSNPWDAPTSWADQSSWLVAAPW

## TKY $\quad$ RHFNYTAY $\square$ AS NGGSNAWDSTTSWAD DTSWVVSTPW

 GRY L R HKDYRVRFDASNG -TVLFNKDATYCARPGS AKY R R Y N G G A GNGGTNWDATTSWAQDTSWLTASPW GYF R R Y N Y QLRVDVT DGTD

A
NNDASFVIGSGF
SFVQDASWAVQPPL
DANATARADATFVARTGF DANATARADATFVARTGF D F|LIR H QNFRIVLS SNDG


EGPALIQLDNGAWRLFFDGYGDYYYSDSYDTFATWSAP


$T \square P T G A Q \quad S \square E S V N F P G R Y \nabla R H A N Y V G Q \square E Q V T$

NDGPALTVGASVSFRPTAKCCTTRYMDHSGGS $\square$ S FMD MS

VPGLSGFDRHATVETVPGLPANASRSFSSLVNYPDRYIRHQ UniRef90-E6USN7 UniRef90-E6USN7 UniRef90-E6USN7
UniRef90-UPIO0034A43F0 UniRef90_UPI00034A43F0 UniRef90_C9ZD59 UniRef90 C9ZD59 UniRef90-K7WGF6 UniRef90-W4V7NO
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PSLATGVTRSFRSANYTTRYWQEV
TA APSDSGTARHFTVVPTLARNVTRSFQSANYPTRYWQQQ TALPSISGTARHFTVVPTLARNVTRSFQSANYPTRYWQQQ TASPAQARQDATLTVVAGLADANCFSLRTAD GRYLRHY

PAWNRLKSYNHPDRYVRHA
PAWNRLKSYNHPDRYVRHA
 $R$ VHVYGSTQRQSFNFQDRYVRQS
RLVHVYGSTQWNRLKSFNFPGSYVRHS
R QS YNF QDRYVRHY
R QS Y N F Q DRYVRHY
SASPAQTK LDATFT $\square V N G L A S P A C Y S L Q T K S$ G
RLESHNYRGYY। RHQ
TYNQEPLKRRARWTVRAGLANSACYSLESSFDTPGSFLRHY
LADGATFRFKSYNQPSHVIRHW $\begin{array}{rl}L A D G A T F R F K S Y N Q P S H V I & R H W \\ R L Q S F N F Q D R Y V \\ R H A\end{array}$

RLQSFNFQDRYVRHA


Ret90_F4FD16



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| UniRef90_L8PI04 | S |
| UniRef90_F4FD16 | G N |
| UniRef90_F4FD16 | G |
| UniRef90_F4FD16 |  |

$L \vee S G Q A L T V G S S Y S F R D T T S G Y T D R Y \square A H T G A T V N T M V V T$

AS P P A PRPTAAVTWRVRSVNYPDRYWHVSGGYVKDDPVG | 1 | $D$ | $E$ | 1 |
| :--- | :--- | :--- | :--- | :--- |
| $I$ | $D$ | $E$ | $G$ |
| $G$ |  |  |  |


QTSDLLSTGTWTAT DRRVYTQPLN

VT A G T $\square$ A $\square$ G R
VS L E S A G T A G R Y VA VT G D T G V L A A VG
$R$ Q S $L$ Q A S N A Q LA G WY VR Q S D GEAF L A P VN



WT A T DRRVVTQP LN
WTATDRRVYTQPLN
WT ATDRRVYTQPLN
F T F K S VNIP N N Y IR H S Y GVLQLIMT
FTFK S V N I P N N Y I R H S $\quad$ Y GVL QL M T
T DGLKVVVPGA ILSFE SYNGEGMFWRHAAFNAYRHGYS $S G S P E P S S G R R S V R \quad S L N H P D R Y W H V S D G L V R L D P$

TSPSAKPPAAKSGTSDRSVNYPDRYWQTSGGYVTLAQAG RTGSSSLEAANSPGRYATVAGDLGVLTAVG $T G A G S A T V A L G P L S L E S Q N S P G R F V A A E K G L G V L V K A T$

A P S K K P P S T S T S WK S VR S $\square$ N Y P D R Y WH LR S G V IQ LD QVS

SVRSVN Y P DRYWQVSGDYVK LN P
TTSPAKNPPSSSNTRVQAVSYPDRYWHLSNGAIRRLDSVG
TQSFGTYTPGVRGWHVHTGGGDAWITTGN VS PS A A A A D VP L L G V R S L E S V S L S A V N Y P DRYWHVSN GLVKLLDVPG VEGPALVQLDNGSWRILGDGYSGKY YYS DSANTAASW $V E G P A L V Q L D N G S W R I L F D G Y S G K Y \quad Y Y S D S A N T F A S W$

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UniRef90 D9VMH3 UniRef90-D9VMH3 UniRef90-D9VMH3
UniRef90-B5HUT1

RLLQSFNFQDRY|VRHT
RLQSFNFQDRYVRHT $R$ VLARYANTPAQRLQSFNFQDRYVRHA RVLARYANTPAQRLQSFNFQDRYVRHA PNWVRLKSSNLPDRYVRHA


S S S A T A L K Q Q A S WT V
RLQSSNFPDRYVRHA RLQSSNFPDRYVRHA GAES REDSTFKLVKGLAQGSCYSFATAD GTYLRHR SASTNLIKITEGLTIVPG AVLSFESHNGEGSFWRHE SASTNLIGITEGLTIVPGGAVLSFESHNGEGSFWRHE TFRFVSKNYPGYFMRHR
TFRFVVSKNYGGYMRHR SKHADTKPDPQTVNMVAKWGKPAWNRLKSYNFPDRYWRQV SKHADIKPI PQTVNMVAKWGKPAWNRLKSYNFPDRYWRQV SKHAD IK P IP QTVNMVAKWGKPAWNRLKSYNFPDRYWRQV


RFSS
GKPAWNR GK P A WNRLK SYNFPDRYWRQV


PAWNRLKSYNYPARYVRHS
PAWNRLKSYNYPARYVRHS
PSSDPAARERAG $L$ RAVAG $\square$ A D
 PRWNRLKSYNFPDRYVRHA GKGKQADREDATWSVVPALGGSGCYSFESSRKPGYYLMQK KVTEGLNPGAVLSFESHNGEGMFWRHE KVTEGLNPGAVLSFESHNGEGMFWRHE ATSPGSAKQEATFRFVAGLADSHCYSLK DASGRYLRHY SSSSATLKTEASFTIVAGLADSKGYSFRSSD GRYLRHY DGSDLFKKDASWNPQRGLANAQGFSFESVNYPGFFMRHS


PAWNRLKSYNYPARYVRHD
PAWNRLKSYNYPARYVRHA
PDSSDEHKQQASWTVRTGLGHEGCLSFESVDAPGSYVLHS
RLQSYNVPNMFVRHA
$R \mathrm{~L} Q \mathrm{~S} Y \mathrm{~N}, ~ \mathrm{P} N \mathrm{~N} F \vee \mathrm{R}$ R A
RLQ S Y NVVPNMFVRHA
L S Y N F Q S R Y L R H Q
TGTLRAGPVSLEAANATGRYITAS
TGTLRAGPVSLEAANATGRYITAS
TGTLRAGPVSLEAANATGRYITAS
AASSAATRRAATFTFVPGLADPRCYSLR

N S Y V $\mathrm{R}_{\mathrm{R}} \mathrm{D} N$

S K A G I Q P I S Q A V Y D MVVA Q WG K P A WN R L K S Y N F P D R F WR H A SKA GI QPIS QAVY DMV A QWGKPA WNRLLKSYNFPDRFWRHA D DNSAQFKEDSCFVAVPGYTDDQNADSFQAYNYPHSYVRHS
 A GSAAERRDATFTVVGKGLAKA GCYSFATAD G GYYLHR I A P G T I G V G V W S L E S A R K A G R Y L S H D



 SRSGSETREDSSFKLVSGLANSSCYSFRMTDGGYVRHQ


V R L S SHNFPDRFI SHQ P S WN R L K S S N F P D R F V V R H Q PSWNRLKSSNFPDRFVRHQ A GSTAARRASTFKVVKGLAK S S CYSFTTAD G GS Y L R H R SYSGGETREDSSFKVVSGLLAKSSCYSFKMAD GRYVRHQ $P G T D G T P D P Y A T W K V A S G L L A D P D C Y S D E S T D R A G N Y L R Q Q$








TTKPTAPKPAATRRSVRSVNYPDRYWQVSGGLVKLDQAD S S S K P K P S VT Y R S VR SVNFPDRFWHVDDGYVGLLDPVS

VTE GLQVVPGAVLSFE SHNGEGMFWRHEYFSVHRQGYS $G A A L A M \quad T Q S L K S H S G A V R S S Y \square D V Q G \square G V V T A R D P$

T GAAGTVSFEASNHPGHFLRHANFKVGLHK
TGAA GTVVFEASNHPGHFLVRHANFKVGGLH

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


NAPGRFVAVSADLGVLLPDT


| $G$ |  |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $G$ | $L$ | $D$ | $T$ | $R$ | $C$ | $V$ | $S$ | $F$ | $R$ | $A$ |
| $A$ | $D$ | $T$ | $R$ | $C$ | $V$ | $S$ | $F$ | $R$ | $A$ | $A$ |

$G R F$
$G R E$
$L$ $\begin{array}{lllllll}R & H & A & S & W R & V & R \\ R & H & A & S & W & R & D \\ R & D \\ L\end{array}$
R
R
$S$ G A A $\square G W$ WA A P $\square$ A N R A Q S $\square$ N Y P D M Y L R H A F F M G E $L$ S R V S T P D R S L L R S VEAVNYP DRYWHVS D G LVKKLD QVR

$V V P G G V S L P L G R L S L R S G E L G S Q \quad Y W R L V N D V V C L E A V S$


L N P GPA
S LE S S N Y P GLF A S A A G T Y G T LE K A G TYGFTTDAVHFTARYVRIQMVN TYGFTTAAVHFTARYVRIQMVN. TYGFTTAAVHFTARYVRIQMVN

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GSES
GSES
RADSTFTVVKGLADSSCS REDATFKQVKGLANASCY

NRLKS YNYPARYVRHIL VRFLSYNFPSYSI RHW VRFLSYNFPSYSi RHW


NDGSQAFTADATFRRKDGLANSAWTSYASYHDPDRYLRHY $N D G S Q A F T A D A T F R R K D G L A N S A W T S Y A S Y H D P D R Y L R H Y$
$N D G S Q A F T A D A T F R R K D G L A N S A W T S Y A S Y H D P D R Y L R H Y$ DDSR LLYNDDTCFIIKVGLLADSQGISHKSYNYQNYFIRHA
 AQDSAVSRNGSTFCARNSSANASDVSLISSQDWPGFFI RHR
 NDGSTTFRNDATFKRVNGLANASWTSYASFSNPNLYLRHY NDGSTTFRNDATFKRVNGLANASWTSYASFSNPNLYLRHY
 NDYP FKKDSSFLVDNGLGDQRGVSFISMSNKEFYVRHR SDGTVPMITDTT $\quad$ TGLNGT MNRIKSYNFQNMYWRNT

 LSVGGTEALTVADRTGFRVRHR SDSSTAVRREATFTVVRGLA SVGGTEA TVADRT
ADPNGFSLR SNSVYMKFE SNSVYMKEAYNYPGQFI QHK VA GTVPLGARSLESVDQPGLLFVTYA VA GTVPL GARSLESVDQPGLFVTYA VA GTVPLGARSLESVDQPGLFVTYA

## TYQAAARFDNVTARAFSR

TYQAAARFDNVTARAFSR
S WT
NNDTA LFKQDATWK LRTGFSSPWAA NNDTALFKQDATWKLRTGFSSPWAA NNDTALFKQDATWKLRTGFSSPWA

A F E
GSRLSLLAA GTT TGSEPEARSRATFEVVRGLSDPDCYSFRLSD保 AVLWNNP AVLWNNPGNWYTPTLHEGPAE

TH
GYSRFNSHNVPDRYI RHA
WRGGYSRFNSHVPDRYIRHA
WRGDYASLESY, APDFF, RHY
V VPGGATLGRLSLRS GDLGHQYWRLV $V V P G G A T L G R L S L R S G D L G H Q Y W R L V$ S D S DS TVRPPAARRVRPSWVVGSSVGLGSASVPGRRVRHR



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UniRef90-H6CJB2
UniRef90
H6CJB2 UniRef90- $\mathrm{H} 6 \mathrm{CJB2} 2$ UniRef90-J9IM08 UniRef90-J91M08 UniRef90_UPIOO0372FOB8 UniRet90_UP1000372F0B8 UniRef90-UPIOOO47D84F8
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UniRef90 U5VXX0 UniRef90- U5VXX0 UniRef90-C3НтI9 Ree90 UPI0003B55448



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GYFLRHNDNVLVLAKNDG GYFLRHNDNVLVLAKNDG
SII F S A D A T F YRTAGLL
TALFKQEAAFYPRAGLL
$T A L F K Q E A A F Y P R A G L$
$Y G S N R E D F S F N L V D G L$
ERFEY
S S QF
T S S
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LiF

GY RQQGLRVVLAASDGTD
SN
S NQYRNDAT WYPRVA
$P$ TTFLQDASWHVDWP

GYMKQENFA
GHYVRHRNSLGEI SRV
GHYVRHRNSLLGEII SRRV


GYYLRHRNHQLWVERNDGSN
GWFLRHRGDQLWVDQSDG
D GRSDGRFEEDATFCPRLGL
AREDATFCPRLGL
SALFDGD
GSFLREDHGEVWLD
GYY Y R R H R A F A L
GYYLRNSAFEVRVEKNDGTAAFASS
GYYLRHYGFALSIARNDGSSVFSS DASFQRRAGLL
GYYLRHYGFALSIARNDGSSVFSS
S SLIFKADATWWRRAGLL
GYF R RHRNGEVWLDRDDG
EYYI RHKCFSLYLEK TTGD
YNTTNRRDFYFRVVAGL

PD
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GYYLRNSAFEVRVEKNDGTAAFASS

D A S F QRRAGLL DASERRAG S L F K A D A T WWRRAGLL | $T P P P D S$ |  |
| :--- | :--- |
| $T$ | $P P P D$ |

 GYYLRHSAFE VVLARYDG

S ALF GQDASFHRRGGL SALLG GQDASFHRRGGL A

GHY R R R DYECWVESDDG GHYLRHRDYECWVESDDG
GRFVRHQNFVLVLQPR

ES SPLFAADATFCPRAA GRFVRHQNFVLVLQPR GWFLRHRDSQLWVDQDDGSER ESSPLFAADATFCPRAA

GY F $\quad \begin{array}{lll}\text { G } & \text { K R } \\ K & R\end{array}$

| GY F |  |
| :--- | :--- |
| G | $F$ |
| G | L |


RHF RHRGSDI FLDPD

GRFLRQGRSRLHLSG FGGATESFDRDATFAVRRGL

DRF ILHRNFNLWVEPAD


# TA GRRGWHVRSAGGDAWATPGT 

$S L T$ A G A T A G L E L VD Q P G Q WVR H R N F A G R VD P $\square S$

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$G$ $\begin{array}{ll}Y & F \\ Y & F \\ Y & F \\ Y & F \\ Y & F \\ Y & F \\ Y & F \\ Y & F \\ Y & F \\ Y & F \\ Y & F \\ Y & F \\ Y & F \\ Y & F \\ Y & F \\ Y & F \\ Y & F \\ Y & F\end{array}$ $L$
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$L$ $\begin{array}{lll}R & H \\ R & H \\ R & H \\ R & H \\ R & H \\ R & H \\ R & H \\ R & H \\ R & H \\ R & H \\ R & H \\ R & H \\ R & H \\ R & H \\ R & H \\ R & H \\ R & H \\ R & H\end{array}$ $H Q$
$H$ HQ
$H$ HQ
$H$ HQ
$H$ HQ
$H$ HQ
$H$ HQ
$H$ HQ
$H$


 | K | L |  |
| :--- | :--- | :--- |
| K | L |  |
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H K E E HKE E
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60
NDGSAQFAQDATFCPEAGLLSGQGT NDGSAQFAQDATFCPEAGLSGQGT $N D G S A Q F A Q D A T F C P E A G L S G Q G T$

G S T
GSTVTVAS $\operatorname{S}$ V
$V$ R L Q S Y N Y P N R Y V V R H A
QPSNTAPLGDATWKIVPGLADANCFRMGM
TA WR S V R S V N Y P D R S WQV S
T A WR SVR SVNYPDRSWQVS
A A GSDGDRADSRFVIRTGRAASNCFSFESVNFPGYYLRHR
A WRSFQSFNFQDRF I RHQ
A WR S
SFQSFNFQDRFI RHQ

SFKSANFPDHF I RHS G R L
GR L
A GEPAMLDADSQFMIVAGLAGSGSV
D

UniRef90-UPI00036DE77A UniRef90_IOBR19
UniRef90 IOBR19
UniRef90 IOBR19
UniRef90_UPI00034A69D3 UniRef90_UPI0002B42E24 UniRef90 UPI0002B42E2 UniRef90-UPI0002B42E2 UniRef90_UPI0002B42E24 UniRef90_UPI0002B42E24 UniRef90_UPI0002B42E24 UniRef90_UPI0002B42E2 UniRef90_UPI0002B42E24 UniRef90 UPI0002B42E2 UniRef90-UPI0002B42E2 UniRef90-UPI0002B42E2 UniRef90-UPI0002B42E24 UniRef90 UPI0002B42E24 UniRef90_UPI0002B42E2 UniRef90_UPI0002B42E24 UniRef90 UPI0002B42E2 UniRef90_UPI0002B42E24 UniRef90_UPI0002B42E24 UniRef90_UPI0003B4D0E0 UniRef90_UPI0003B4D0E0 UniRef90_G2QWT5 UniRef90_R4LHI1
UniRef90 R4LHI1
UniRef90_W8UDY1
UniRef90 W8UDY1 UniRef90-UPI0002B458AA UniRef90_UPI0002B458AA UniRef90_UPI0002B458AA UniRef90_UPI0002B458AA UniRef90_UPI0003710DCO UniRef90_UPI0003710DCC UniRef90_K0SFF2
UniRef90_K0SFF2
UniRef90_K0SFF2
UniRef90_G6FNK6 UniRef90 UPI000443DEAE UniRef90_UPI0002B4A201 UniRef90_UPI0002B4A201 UniRef90 UPI0002B4A201 UniRef90 UPI0002B4A201 UniRef90_UPI0002B46B1C UniRef90_UPI0002B46B1C UniRef90_UPI0002B46B1C UniRef90_UPI0002B46B1C UniRef90_J9HZI1
UniRef90_J9HZI1
UniRef90_G8S9Z4
UniRef90_G8S9Z4
UniRef90_G8RZS1
UniRef90 I3JM52
UniRef90_UPI0003B6C67A UniRef90_UPI0003B6C67A
UniRef90 F2R8I2
UniRef90_M5U7K0
UniRef90_M5U7K0
UniRef90_A9WSY9
UniRef90_Q2SAW8
UniRef90_UPI00039C4C15 UniRef90_UPI00039C4C15 UniRef90_R4LN50 UniRef90_R1E0F6
UniRef90_R1E0F6

DWLNLNGTWRFVPGPSDDRCCA



 S ERPGHYLRHH L V E L FRKDASFMVEK K LIS F GQAF S DESI NYP QYR I GVR LVELFRKDASFMVEKKLSFGQAF $\vee$ S VA DYPGYLVRHR A WST A WS T
E LF K N D A S F $\square$ I R D N Y Y Y P $\begin{array}{ll}D & S \\ D & S \\ D & S\end{array}$ FK N A S FIIRDNYYYPGFVS円G SAAFRETATWCPDV $\begin{array}{llllllll}D & N & Y & Y & Y & P & G & F \\ V & & S \\ D & N & Y & Y & Y & P & G & F \\ V & S \\ D & N & Y & Y & Y & P & G & F \\ V & S \\ K & G & Q & G & S & G & T & S \\ K & G & A & G & S & G T & S & F\end{array}$ PGAATSGE
PGAATS
PGAA MSESAA GQYWKHR

S DELGGKKDATYR LIP | $T$ |
| :---: |
| $L$ | TSADAA

$P G$ L A N S Q
CN A G D F FMMT
 L H S D L Y K N DAS F l 1 R Q N Y Y Y


| $L$ |
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NSFR VR S
$D \quad S D L$ F RGDATFCAE PG NSFRVR GNIS DTPDLSLDMMTPGDSDTSRVSFEAANYPDYFR HRR GSDAFWDGGATFVLHRNTWWSGYNSDESHAKPGFFBLHAT GSDAFWDG ATFVLHRNTWISGYNSLESHAKPGFFLHAT A GSKQADREDATVVVVPSLAAPGCYSFESVRKPGHFLKQP R $\quad$ R S L S A P D H Y V R H T RIE SLSAPDHYVRHT TNS PEELDRKSSTWKVVPGLYDKTCDSFQSLNFPQQYLSAR
 GSVVS LIE S A D A H G R F L G V S TVVAGRADESCFSFRT


UniRef90 UPI0003B55448 UniRef90_UPI0003B55448 UniRef90_UPI0003B55448 UniRef90_C7R560 UniRef90_C7R560 UniRef90_C7R560 UniRef90_W4VDE1 UniRef90 W4VDE1 UniRef90 R4T0E7 UniRef90_K4R3W0 UniRef90_K4R3W0 UniRef90 IOHD96 UniRef90_C3HA94 UniRef90_C3HA94 UniRef90_C3HA94 UniRef90-UPI000369C72F UniRef90_UPI000369C72F UniRef90_UPI000369C72F UniRef90 A8L4V1 UniRef90-A8L4V1 UniRef90_UPI00047BD73E UniRef90_W4V7H8 UniRef90 W4V7H8 UniRef90_UPI00036DE77A UniRef90_IOBR19 UniRef90_10BR19 UniRef90 IOBR19 UniRef90_UPI00034A69D3 UniRef90_UPI0002B42E24 UniRef90_UPI0002B42E2 UniRef90_UPI0002B42E24 UniRef90-UPI0002B42E24 UniRef90_UPI0002B42E24 UniRef90_UPI0002B42E24 UniRef90-UPI0002B42E24 UniRef90 UPI0002B42E24 UniRef90_UPI0002B42E24 UniRef90_UPI0002B42E24 UniRef90 UPI0002B42E24 UniRef90_UPI0002B42E2 UniRef90-UPI0002B42E24 UniRef90_UPI0002B42E2 UniRef90_UPI0002B42E24 UniRef90_UPI0002B42E2 UniRef90_UPI0003B4D0E0 UniRef90_UPI0003B4D0E0 UniRef90_G2QWT5 UniRef90_R4LHI1
UniRef90 R4LHI1 UniRef90_W8UDY1 UniRef90-W8UDY1 UniRef90 UPI0002B458AA UniRef90_UPI0002B458AA UniRef90_UPI0002B458AA UniRef90 UPI0002B458AA UniRef90_UPI0003710DCC UniRef90_UPI0003710DCC UniRef90_K0SFF2 UniRef90_K0SFF2 UniRef90_K0SFF2
UniRef90 G6FNK6 UniRef90 UPI000443DEAE UniRef90_UPI0002B4A201 UniRef90_UPI0002B4A201 UniRef90_UPI0002B4A201 UniRef90_UPI0002B4A201 UniRef90_UPI0002B46B1C
UniRef90_UPI0002B46B1C UniRef90_UPI0002B46B1C UniRef90_UPI0002B46B1C UniRef90_J9HZI1
UniRef90_J9HZl1
UniRef90_G8S9Z4
UniRef90_G8S9Z4
UniRef90_G8RZS1
UniRef90_G8RZS1
UniRef90 I3JM52
UniRef90_UPI0003B6C67A UniRef90_UPI0003B6C67A UniRef90 F2R8I2 UniRef90_M5U7K0 UniRef90_M5U7K0 UniRef90 Q2SAW8 UniRef90_UPI00039C4C15 UniRef90_UPI00039C4C15 UniRef90_R4LN50 UniRef90_R1E0F6
UniRef90_R1E0F6

D G Q|L WI D P Q Q T D T D F|L|GRASF|V|PWPAT|IPLPTS

 HYVGRI DATRDS E D WQWKKVTGLAPGGVSFESVNFP HYVGRI DATRDS E DWQWKKVTGLAPGGVSFESVNFP HYVGRIDATRDS DFDARIDEN DFDARI DEN $\quad$| $V$ | $P$ | K E D S |
| :--- | :--- | :--- | :--- | :--- |
| $V$ | $I$ | $P K E E D$ | NLRVQLA GND GTDVYKLNAQWRLVPGLSEGYVSIQSVNHP DGLVRLTTSSAD TFKLLKGLLAPSCYSHATAD DGLVRRLTTSAD TFKLLKGLAPSCYSFATAD DFRIELT RAEQSELFDEDSTGCAES\|RNGAALTLRSHNYP NF LGELTPDENSNLDRMDATFNLEWDESRNLVRFRSYNYP N F L G E L T P I


 NFAGELATI GNDTDRLDATFDVVGGLADDSVSLRSANFP DGCDEVVSSVSSTAVRREATFTVVRGLDPNGFSLRASD
D GCIVEVVS SVVSSTAVRRREATVTVVRGGLDPNGGSLARAS D
NGEFWL DAFE DT DLYK QDASFQQRAGLDDNGVSFQSVNYP
D F N L L Y I
D F V L R L


 D D S S A A I LLLF GVEEFREEVTSVEVES FIGGQAFSLESINYP


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D

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$\mathrm{~N} D$ DYTVRLAK we gs dar wdgat DYTVKGQVEEPYELYRRDASF

## D



D
DDQVIAGKRDNTYYQFKDDATWFDTPAL
DTAVVVAAVTASSHDRRDARFTVRAGRDPRCVSFESAGEP DTAVIVAAVTASSHDRRDARFTVRAGRDPRCVSFESAGEP

NGQLTLAKWQESEAFWERATF IRRNTWDPGYDS DESHAKP PPRRLLLKKRHSYGFRKAS LIFRLT
PPRLHLLKFRHSYGFRKASLFRLT
NLDVINAPDDRSNAFRTAASWCPVKGLSGTGTSFKWGVGP NFVLRVDSN VQPSQDADWKIVEGLAPGSVSIQSVNFP NFVLRVDSN VQPSQDADWKIVEGLAPGSVSUQSVNFP DVNVATRGTDASVLLPGEGTFCPRVGSTPDTMSFDWSGNQ GSRLRIAENDNSDLFKDDATFC FGSDQTLNSFNYP GDSAALVAGPGSEPERRLATFTVLPGLDSECFSFRASD GDSAALVAGPGSEPERRLATFTVLPGLDSECFSFRASD DYRLLRFDADDGSELFRNDATFCPDDGTRAGTVRLRSKNYP


FAESATFKVNPGL FAESATFKVNPGL FAESATFKVNPGLL
$\qquad$
F K N D A S F I I R

GRA DA H DGVVHDDVGGSTAF
GYYLRYSGSDASLGKHDGTPA

| A | F A ESATFKVNPGLL |
| :---: | :---: |
| A | F A ESATFKVNPGLL |
| P A | F AESATFKVNPGLL |

GYY R RYSGSDAS L GKHDGTPA
DKFLRHYGSELRLAGMDGTNVPHDTA
NKYLRHQNFILKLGHSLDNSELEKNDASFIIR
NKYLRHQNFILKL


NKYLRHQNFILKL
NKYLRRHQNFIL K L
NKYGLRONFILKK




VNGL
GYF L V A V G R DV K L L R N D GT T G FA R S A T F T Q
GY F L V A A V G R D V

GRYLRQYWGELWAANGSKENNFDT


D G N F S A D
S A L F A Q D A
S A L F A Q D A
N S F L R H Q D F R I KL H A E N P A D P
N S F L R H Q D F R I K L H A E N P A D P
$\qquad$
NHYLRYQNTRLVLSEYADNDLLRHEA S


GRF L R Q D G S R L R L G G G GATQSFDRDATFVVRRGLL $D Y Y L R R S G D Y V D L G L T G T T A E Q S D A T F F$


GHYMRHSSDTLRLNKGDGGQR


NKYLRHQNFI LKKL




 NKYLRHQNF:LKK
 GTYLRHSSFRIVAHQSDG
 GYYLRHRNGEVWLDQRSG GYYLRHRNGEVWLDQRSG

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| $H$ | H | D |
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| H S | L | $D$ |

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HSLDN S E
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$\begin{array}{ll}E & L \\ E & L_{L} \\ L^{L} & \\ L\end{array}$| E | L |
| :--- | :--- | :--- |
| E | F |
| F |  |


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GFF $\square$ HATPPR $\square$ HLKKRHSYGFRKAS $\square$ FR

GRF L R H R E F L L R LE PA D G S S LF D Q D A T F
GRFLRHREFLLRLEPADGSSLFDQDATF

$T R Y \square Q Q \prod Q G G \square Y A A Q D Y K N A P G N \square A Q$
NRFA KKDNGFVIEPKNDSDNFAARA
NRFLAKKDNGFVIEPKNDSDNFAARASFLQ


 D HVVHRRGTELYIDDEPEDSGTFAAESTGK

UniRef90-G6FNK6
UniRef90 UPIO00443DEAE UniRef90-UPI0002B4A201

UniRef90 UPI000363F2FD UniRef90-UPI000398FB7D UniRef90_S4XSR6 UniRef90 S4XSR6 UniRef90 UPIO0045720CE UniRef90_UPIO0045720CE UniRef90-C6WE63 UniRef90 C6WE63 UniRef90-UPI0002240067 UniRef90-UPI0002240067 UniRef90_UPI00046C2DAC UniRef90-K7FTZ5
UniRef90_K7FTZ5 UniRef90 UPI0002B49EC8 UniRef90-UPI0002B49EC8 UniRef90_UPI0002B49EC8 UniRef90-UPI0002B49EC8 UniRef90 F7C416 UniRef90-F7C416 UniRef90-UPI0003F13ED2 UniRef90 UPI0003F13ED2 UniRef90 UPIO001926936 UniRef90-UPIO001926936 UniRef90_UPI0001926936 UniRef90_UPI0001926936 UniRef90-UPI0001926936 UniRef90_UPIO001926936 UniRef90_UPI0001926936 UniRef90 UPI0001926936 UniRef90_UPI000395C65E UniRef90-UPI000395C65E UniRef90-H3DN78 UniRef90-H3DN78 UniRef90_UPI00038BBB2D UniRef90-UPI00038BBB2D UniRef90 H2UMH6 UniRef90-H2UMH6 UniRef90-HOZEQ6 UniRef90-I1GEA3 UniRef90-I1GEA3 UniRef90-I1GEA3 UniRef90_F1Q7R5 UniRef90 F1Q7R UniRef90_UPI0002B47F77 UniRef90-UPI0002B47F77 UniRef90 UPI0002B47F77 UniRef90 UPI0002B47F77 UniRef90_UPI0002B47F77 UniRef90_UPI0002B47F77 UniRef90 M3Z187 UniRef90-M3Z187 UniRef90-H5XJUs UniRef90_H5XJU9 UniRef90-R4T8N3 UniRef90-R4T8N3
UniRef90_UPI00035114AE UniRef90 UPI00035114AE UniRef90-F7FIY8 UniRef90-F7FIY8 UniRef90 G1P515 UniRef90 G1P515 UniRef90_UPI0003317783 UniRef90_E9UNI7 UniRef90 UPI00037A381B UniRef90-UPI00037A381B UniRef90_UPI00037FA430 UniRef90 UPI0003AF9779 UniRef90 C4RNI4 UniRef90 ${ }^{\text {C } 4 R N I 4 ~}$ UniRef90-UPIO00333354C UniRef90 UPI000333354C UniRef90_UPI00047D9C2E UniRef90-O55225
UniRef90_O55225
UniRef90 H2LY69 UniRef90-H2LY69 UniRef90_UPI0003C179F9 UniRef90_ITGEA4 UniRef90-I1GEA4 UniRef90-I1GEA4 UniRef90_UPI0003D07F35 UniRef90 UPI0003D07F35 UniRef90- T5KK91 UniRef90-T5KK91 UniRef90_W5M269 UniRef90-W5M269 UniRef90-G2WZW1 UniRef90-UPI0003AFD801 UniRef90_UPI0003AFD801 UniRef90_UPI00045DC6BB UniRef90_UPI00045DC6BB


LT S GPKAHDPNLVSFE
TADRPNYFL TADRPNYFL

HSG LVLGANVT HLASNGTLLLSK
HLASNGTLLLSK


HVGANGTDHVAK HVGANGTLHVAK
 HDNDSLSLKWE

LT S GPKAHDS S LIS F E LTS GPKAHDSSLISFE $V T P G L S A$ AD A S RVVS $V T P G L S R A D A S R V S F E A$

TAERPNYFLQVSNNTLVVSKWK TAERPNYFLQVSNNTLVVSKWK A ERPN F F L Y A S P S GQL RLA K AERPNFFL YASPSGQLL R A K K $V$ V LiEAA A D R P N F F L H TA A G S V R M A K WR MTPGLSARPHDTSRVVEFAA DRPNFFGLVS GGQLWWLAKWE





UniRef90_UPI000363F2FD UniRef90_UPIooo398FB7D UniRef90-S4XSR6 UniRef90-S4XSR6 UniRef90 UPIOOO45720CE UniRef90-UPIOOO45720CE UniRef90-C6WE63 UniRef90- C6WE63 UniRef90_UPIOOO2240067 UniRef90_UPIO002240067 UniRef90-UP100046C2DAC UniRef90-UPI0004438117 UniRef90-K7FTZ5
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UniRef90-UPIOOO395C65 UniRef90-H3DN78
UniRef90-H3DN78
UniRef90-UP100038BBB2D UniRef90-UP100038BBB2D UniRef90-H2UMH6 UniRef90-H2UMH6
UniRef90- HOZEQ6 UniRef90-HOZEQ6 UniRef90-11GEA3 UniRefofo-l1GEA3 UniRef90-F1Q7R5
UniRef90-UPIOOO2B47F77 UniRef90-UPIO002B47F77 UniRef90-UPI0002B47F77 UniRef90-UP10002B47F77 UniRef90-UPIO002B47F77
UniRef90- UPIOOO2B47F77 UniRef90-M3Z187 UniRef90-M3Z187
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UniRef90-H5XJU9
UniRef90-R4T8N3
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UniRef90-UPI00035114AE UniRee90-UPIo0035114AE UniRef90-F7FIY8
UniRef90-F7FIY8 UniRef90-G1P515 UniRef90_UPIO003317783 UniRef90-E9UNI7
UniRef90-UPI00037A381B UniRef90-UPI00037A381B UniRef90-UPIO0037FA430 UniRef90-UPI0003AF9779 UniRef90_C4RNI4 UniRef90-C4RNI4 UniRef90-UPI000333354C UniRef90-UP1000333354C UniRef90-UPI00047D9C2E UniRef90-O55225
UniRef90-O55225
UniRef90_H2LY69 UniRef90 H2LY69 UniRef90 UPIO 003 C 179 F9 UniRefo_ligeas UniRef90_11GEA4
UniRef90_I1GEA4 UniRee90-UPI0003D07F35 UniRef90-UPI0003D07F35 UniRef90-T5KK91
UniRef90-T5KK91
UniRef90-W5M269
UniRef90_W5M269
UniRef90-G2WZW1 UniRef90-UPI0003AFD801 UniRef90-UPIO003AFD801 UniRef90_UPIO0045DC6BB
UniRef90_UPIO0045DC6BB

EE DIVPGHAASFMLTSGGYDSNLGSFEADRPNYFLRAS
 WQKNQTFHREATFTIHRDAWVSGFNTFESYAKPGFFVHQM WQKNQTFHREATFTIHRDAWVSGFNTFESYAKPGFFVHQM DAPTRFRBY EANATFQQTATFFHHQGLWIPGSSAFELHSKK EANATFQQTATFFHHQGLWUPGSSAFELHSKKGFFITFI

 WEESEEFHNRSTFAIHKNTWLP | S |
| :--- |
| S |
| S |
| S |

WQKSEEFHSRSTFVIHKNTWISGYSAF WQKSEEFHSRSTFVIHKNTWISGYSAFESFAKPGHFVR ANS AFHRRATFFHHQGLWI PGYSTFELYSKKGFFIAFT ANS AFHRRATFFHHQGLW』PGYS

KSED FHNRSTFVIHKNTWLSGYSSFESFAKPGYFI HTS K S E D F F H N R S T F V I HK K N T WL S GY S SFE SFA K P GY F I H T S WE EKEAFWEAATGVLRRRNTWMPGYD S LEESLSKPSFFLHAS WEEKEAFWEAATFVLRRNTWMPGYDSLESLSKPSFFLHAS



VRFE
VRFE


VRLSPMSAKGAFYVRHY
SFGVPVGKGGP
SFGVPVGKGGP
CVR
$C$
$C$
$V$
V
R
EKNEEFHNKS $\qquad$
EKNEEFHNK

$\qquad$
HA A

VRLSPANAKAYVRA
VRLSPANARKAYVRHW
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GNS


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DRYDMHVDGGLTVSRPRDGHD RARATF
GYFIH IS S S SVDLLKYHHSEEYRLS ILDFKDVKFK

NRYARVVDGVIRVDPYEDSDAYGRA ASFVRVEGL NRYARVVDGVIRVDPYEDSDAYGRA

A S FVRVEGL
GFF $\square H \square$ SASSVD L $\square$ KYKHSEKFR $\square S T D F K D D A K F K$ GFFI




GFFDHDSASSVELLKYHHSEEFRDSTDFKDDVKFKD KYFI VQDGTDVFLKRHVDEKGFKRS ATWMPRNGL




GFF $\square$ D RYVRVVDGTVQIVPVAAGSPEATAASFR DRYVRVVDGTVQUVPVAAGSPEATAASFR

HS Y L A HREGRLVVERP
R S WA D R Q R A T F R V R
$\square L T$ DSSAKASKYDDSEEFKHDSSFSVEEDQ

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PGLVKDKI LSVSLESAERPNYFLVHDDRSVSLEQWV

$\vee R$ QANGAVVLALHE


VAPGD VVSFLLTAALYKAK AHDPDVVFLHVTA VAPGD\|VSFLLTAALYKAK AHDPDVVFLHVTA VAPGDDVSFRLTAALYQAK AHDPDVVFDVVVTA VAPGD VVSFRTAALYQAK AHDPDVVFLHVTA
PGLGKDKDLSLS LVSLECAERYV HADETVGLEQWQ




VS Le SAERPNYFLAVSGGS HLQLEH $P G \square G \square G E G P Y \square V S L E S A E R P N Y F G A V S G G S G H Q L E A$ LASYG QNDTV DGANDTSRLSRDS




$\square$ SLESAERPNYFLAVSGD GHLQMEH ISLESAERPNYFLAVSGD GHLQMEH


 AEGSVLFN F MI T A G LYK DRFVVALFESAAKP NSYF Y A S F C C V K P L N G S D A V S L Q L V K D S S Q Y L R L Q F C C I V K $\quad$ P L F C I V


 WQGSDAFHRHASFSLHQGTWRAGLVADESLAEPGSFELVS WQ GS DAFHRHASFSLLHQGTWRA GLLVALLESLAEP GSFBLHVS
 ASASFWRR ATAFFHHHGGLWSPGGLSA ASASFWRR ATFFHHHGLWS

ASS AFRRRATFFHHQGLWDPGYSAF ASS AFRRRATFF
 N V


T F M L T T P K A Y D P
GSDAFYHRATFS L HRGTWQA GLVVA A

DASLS

NGSLELAKWQASFS LHRGTWQAGLVALESLAKPGS NGSLLELAKWQASFSLHRGTWQAGLVALESLAKPGSFL PRPTDLD DNDSQFFLRQGLASEECYSFESVNYPGYFIRHE $N G G S$
$N G S$

ASTSFQRRAT
ASTSFQRRRATF
$G G E A F H H H A S F$
$G G E A F H H H A S F$
GGEAFHHHASF



S DTFRGRASFALLHRGTGRE

WS Q GAEFSRRATFIQHQGLFLPGF
 TYGNVGF ASSS
$F R R R A$
S F MIT P GL F
FRRRATFFHHQGL WI P
GSDA
 ASSS $\quad$ F R R R A T F F H H Q G L L W A S S S

FRRRATFFHHQGLWIP GR GR GS DA A

FHH

GS D A
FHRHA S F A HRHASFSSL

GGEAFHHRA GGEAFHHRA

GSDAFHHHA
GSDAFHHHA
RNSAFNDRLDA
$R G P E F S L R G$
$R G P E F S L R G$

SSDVFYHRATFSLVPVAEG GA GLALESLAEP

G D
S DVFYHRATFSLHRETWQAGLVAL
G D
R N SQEAFHRHASFLLHRGTWREGLVVALEPLTKPGFFLFVF
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ASDAF Y H HA TF S L H R R T WQ A GLLV A L L E S L A K P G S F
RNSGFNDRLDASFKVVPARDGSQCVSLEAAAYPGVYLMQS
WS Q GTEFSRRATF IQHQGLFLPGLTAF
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$L V G Q P$ GT F L T $L$

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| GFFDTLTRTETRAVG <br> KYYLGHQSDTI KLLRE <br> K Y Y L GHQSDTI KLLRE <br> K Y Y L GHOSDTI K L L R E <br> KYYLGHQSDTIKLLRE |  |
| :---: | :---: |
| N $\square$ Y $\square$ R HKNYAF $\\|$ I D N V | QTELDTKDTSF |
| $\begin{array}{lllllll:lll} G & Y & Y & R & R & H & S & A & S & 1 \\ G & Y & Y & 1 \\ G & R & H & S & S & A & S & 1 & 1 \\ G & \text { R } & H & S & S & A & S & 1 & 1 \end{array}$ | SNRDDGSESFRRDATF NNRRA L SNRDDGSESFRRDATFINRRAL |

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DY
T C WR Y
TCEWRY
GFF $\square$ HYM $\square$ S SVH $\square$ MKHEHTEGFRQSSHFR


A CEWRY
ACEWRY


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UniRef90 ${ }^{-} \mathrm{H} 3 \mathrm{DPH}$

UniRef90 F2U066
UniRef90-F2U066
UniRef90-F2U06e
A D R P N F F|L|HVTNGSLLE|L|AKWQ A D R P N F F L HV T NGSLELAKWQ A D R P N F F L H A T A N G S $V$ Q L A K
$G \square P \square P D G N T \quad P V R L R S A D P T G L F L R F Y T G N$
S GGK RLSWS GVELSSIDD PNYFLSVENDTVRLE QWE


LS L Y S N N Y P N M Y I R E VT GLGE LT T $\square Q$ AERPNYF LYVR ADETVGLEQWQ AERPNYF LYVVR A DETVGGLE QWQ $R Q S L R A W G G G Y A R Q S G A D R G K V V L N D T L K$
TPNFGVPVGDGLPVRLEPASGPGTFLAHDGAT$\quad V T$

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

$$
\text { Y } \mathrm{Y} \mid \mathrm{R} \text { Y Y T G }
$$

$T$





D Y QLG H K H R TVTMDSAS $D Y Q L G H K H R T V T L D S A S$

LF PGSAVS LDRSRPHTLLGDVLRFTDELVVLDS $\quad$ S PGLVVGVDLSASFQSEKYSDYYLVRKGKDDV
 NTVSFQPEAS PGFYLVSEN GKLLVSK
$G \square P \nabla P D G N T P D R \square R S R A D A A R Y V R F R G G T A$ D D K A K L K S V G FRFYSANFPGGYVAEEDNTVQLNPRE

 $G I P V G D G G P I V R L S P A D A P R W F V R H T G D E V K T E K$  $\mathrm{K} Q \mathrm{~L} T$ $Y \square K \square A \vee S T$ RFASAANAKLLLAHEGTRLI


VAPGPAPTDASKQYVAFESLLHPGLYIRFVDGSIERATGR $V A P G P A P T D A S$ K Q Y V A F E S L L L H P GL Y I R
 S SVVVMAAYR

GVPVGAG】PDRFAPLDRPGAYLRLDGT RLAVGD T D K Y V RV T T K S G K RLLAV S $\square T$
$\square$
$S T V N D A \square G K S V I L E L \quad F N L P G K V L V Q Q G K D K N L G \square A D$

VT LTS QQS GNI S YVLSNNN QT@TMEVV

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



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UniRef90-UP100032931CA UniRef90-A7SQS3 UniRef90-A7SQS3 UniRef90-A7SQS3 UniRef90-A7SQS3 UniRef90-M3EC74 UniRef90_G4MMH2 UniRef90-G4MMH2 UniRef90-RGMYZ8 UniRef90-R6MYZ8 UniRef90_W5K8AO
UniRef90_R5W208 UniRef90-R5W2Q8 UniRet90-D8RBB4 UniRef90-D8RBB4 UniRef90-UPIO003C19BDE UniRet90 R71wx UniRef90_V8NTH5 UniRef90-GoCVD3 UniRet90_UPIO002B43363 UniRef90-UPIO002B43363
UniRef90-Q5QZY8
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UniRef90-F4Y183
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UniRef90 E9SHS9 UniRef90-F7BJE8 UniRef90_HOUZF1 UniRef90-B4UXZ6 UniRef90 $10 \mathrm{HCX5}$ UniRe90-G2QGR9
UniRet90-A7SWO UniRef90-LTVUS5 UniRef90_R6N374 UniRef90_R5VJH4 UniRef90-N1MMC9 UniRef90-D4JOZ1
UniRef90 O 2 H 847 UniRef90-KOREG9 UniRef90-KOREG9 UniRef90-A8IFS5 UniRef90_S8EKV2 UniRef90-MORF12 2 UniRef90-UPI000362D12F UniRef90-T1EZA3 UniRef90_UPIO00369D40E UniRef90-A0A013XPQ6 UniRef90 UPIOOO46DA8AO UniRef90-UPIO00332ABD20 UniRef90-W1S3G2 UniRef90-M4CPN2 UniRef90_V7AEM7

90
${ }^{90}{ }^{\circ} \operatorname{lam}^{100}$
110
G A
120 GLVPALRLYHTEAFRRATLFRLLDAKSSGA AYP GPVLALRLYKRTEAFRRGTLFRLLDAKPSGA AYP TSTLVQGTEADTADFKDKSTFKIVDCFFSGGVSLQSAYMK TSTLVQGTEADTADFKIKSTFKIVDCFFSGGVSLQSAYMK NGQFEAGRNLNTAASKASASFNRRSGLNGSGLSLEASDAG
NGSVSVSNPN DMEVKVSKYDNSEEFKLSSSFK円E DMEVKVSKYDNSEEFKLSSSFKI E

S
SSGVTVAQDKGTADVAKRQTFKTVEGLDKKGVSLESVRYP
N
S
S
S S GVV K KV A K K Y D D S E EFFK H M
 NNALKIT KGTD KA

## N NALLKI T $\mathrm{K} \quad \mathrm{DGT} \mathrm{D}$

NSHILAKDDGSESF NS HILLAKDDGSESFKQEASWKVVQSAIFSAPV NYKFHL EKAKPT GLFEKDATFVERQPVGPHSSILELFTHP
 D

## 

## A


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


NHSLLRIDPAS TATDRADATFSIV
GNGAAVSVAPST1GAEATFYLV

NDVLKIT $\quad$ DGSD KTAATEIV GENSETTVLRGIN
E NRVRLERWRPGEDFRRQATFIHHQGLWPGRSSFELHSQK
 D G S V T L A Q D D A S E Q T A K N Q T F R TVVK G L T S R G T S F E S V A Y P GlN K N L V V V D T S QF A D $N G R V A L E K W Q R D T L F R K Q$
 DNS I F L A QWDASSLSFRRRTTFIIHHQ GW $\square$ S S YNTFELL
K GSVVNKRFAPPPDAATWCVSQNENGQS
PFNVRVLLSNNTNEFDFDTTWKMEA PFNVVRLLSNNTNEFDFDTTWKMEA
E G S L K L S K P S S NEE K E A A T F R P S A


 GGGGVI RTMMN
 DFKFRI EKPDNDENFKKEA T F I V V E N GVVE G GIL L R L L F E K P DGTVVLAQDDAAEETAQAQTFHTMEGLSDKGVSFESVLMP
 GF K I L L E KF A D ENGFK D DVS FYP R H S T Y E T G V M Y E C CN DP
 G T T V $\mathrm{L} S$

ADDGSAQFSSDAS
VSFEASDAS NYKFVLEKRQDTTKFDRDSSFVLVH
$T Q G V R F A P Y S V D N R F R E A A T F D L D A Y G P D G S Q S L R S T M Y S$ GTNVVLTQQDTTS ALAKKMTFKTVEAIDGGKVSFESVSTP SNKTVTLAQDAVSEVGKAQTFKKVAALDGGAYSYESVVTQP
 D GRVVQFERALTS A A S KASASSNDVEGLDS QVI SLEAS DAQ $G G G V R L G S \quad R A R A S Y L V R P G L S G G S V S F E S A D L P$
 GEGESLTVVSDAAS R A A A DF RDVPGGIDGGSVVSLE S E S R R
 GKRLVVAVTSRNSNTRKASKFLVVEGLDGNSISLESASMP GGGVVLAPATENP ARSGFRRVRGLAGRGVSFAALAPG GESLVLLDF QNNADEFNMDASFVSISSSINPSDVDYMS
E GKLKI ARNRSSALWK S L R R I Q

DGSI SLEKDSKSADFALRS QFVRFEEKGS DALLRFVA DSAP GLKLVCSPESSDAGFNQAASFVKSNG
GADKPLIIVDSS HGDAVFLVEPGLDGETDSLES Q S H S
 S A GVKL SK S D S D S SFK QA T SFVVAREGLN

UniRef90_UPI0003344CE5 UniRef90_UPIO003344CE5 UniRef90-13LK73 UniRef90-13LK73 UniRef90_J9JCF0
UniRef90- J9JCFO UniRef90-B2AFW4 UniRef90 U7LAI2 UniRef90-UPI00034FEC53 UniRef90_UPI00034FEC53 UniRef90_UPI0002B4B981 UniRef90-R5W3H1 UniRef90-R5W3H1 UniRef90 C3HB25 UniRef90-G1NF00 UniRef90-G1NF00 UniRef90-D9WX66 UniRef90-H0QLD3 UniRef90-R5RTE2 UniRef90-R5RTE2 UniRef90 UPI0004574EC7 UniRef90-UPI0004574EC7 UniRef90-A7SM84 UniRef90_F8MJL2 UniRef90-UPI0003C76D4D UniRef90_UPI0003C76D4D UniRef90_UPI00032931CA UniRef90-UPI00032931CA UniRef90-A7SQS3 UniRef90-A7SQS3 UniRef90_A7SQS3 UniRef90 A7SQS3 UniRef90-M3EC74 UniRef90_M3EC74 UniRef90 G4MMH2 UniRef90-G4MMH2 UniRef90-R6MYZ8 UniRef90 R6MYZ8 UniRef90 ${ }^{-}$W5K8A0 UniRef90-R5W2Q8 UniRef90-R5W2Q8 UniRef90 D8RBB4 UniRef90-D8RBB4 UniRef90_UPI0003C19BDE UniRef90_R7IWX0 UniRef90-R7IWX0
UniRef90-V8NTH5 UniRef90_G0CVD3 UniRef90 UPI0002B43363 UniRef90-UPI0002B43363 UniRef90-Q5QZY8 UniRef90_Q5QZY8 UniRef90 UPI00032AEB7D UniRef90-F4Y183
UniRef90-F4Y183 UniRef90 K7QK60 UniRef90-G6WYJ9 UniRef90_UPI0002B49825 UniRef90_UPI0002B4102E UniRef90_G2T0S0 UniRef90_G2T0S0 UniRef90-E9SHS9 UniRef90 F7BJE8 UniRef90-H0UZF1 UniRef90-B4UXZ6 UniRef90_10HCX5 UniRef90 G2QGR9 UniRef90_A7SW08 UniRef90_LZVUS5 UniRef90 R6N374 UniRef90_R5VJH4 UniRef90-N1MMC9 UniRef90_D4JOZ1 UniRef90 Q2H847 UniRef90-K0REG9 UniRef90-KOREG9 UniRef90-A8IFS5 UniRef90- S8EKV2 UniRef90_M0RF12 UniRef90-M0RF12 UniRef90 UPI000362D12F UniRef90- T1EZA3 UniRef90-UPI000369D40E UniRef90_A0A013XPQ6 UniRef90 UPI00046DA8A0 UniRef90_UPIO0032ABD20 UniRef90-W1S3G2 UniRef90-M4CPN2 UniRef90-V7AEM7 UniRef90_V7AEM7

TCEW HYD
TCEW HYD

NS Y TR HQMQTLYV
HVF QANSLYYSDACFGLRQGL
$H V F Q A N S L Y Y S D A C F G L R Q G L$


GYY LT VNGALSLTKGGDTEAATYTGDDKEDTSLR GYYLTIVNGALSLTKGGDTEAATYTGUDKEDTSLR NRYIRHRDFHLYTEP【NQYPDHQYATFRRA

GS WLAPTTTEVYARSPGGKPGEAQP $\quad$ VRPAAWR $\square$ SAP $\square$ GAYLVLRQGALALAKVGKDERPAAT

GWF LCHAPFVLKASKVVGSKEFDQKCVFR GQYL R LTGSELVVGAMGGDS $\square$ QKGQATFH GQYL

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TCEW HYD
TCEW HYD
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GVF LTTLTHTLARAQSYD

GCYI YVDDWRVPAQRSKENDGFDAKASFKA
GCYI YVDDWRVPAQRSKENDGFDAKASFKA

HSKRAVK $\square$ SKFDGTEEFKS $\square$ S S F

$K R Y L Q M D E T M M L L P T V G F \square A L A A S P \quad D R A A W S \square E A$ GYF TVSGDNDTLTDGSNA

N QVL
GRYLRHLRPDLVVAERDGEASFADRSSF
GRYLRHLRPDLVVAERDGEASFAURSSF
GWFV
GCFVSRRGSSNVTLTCGGGGTVD
REAASFGVRNG GCFVHHSSNGVRLLCQAKKAGRRGAALGRLASFTLRQGL $G C F V H H S S N G V R L L C Q A K K A G R R G A A L G R L A A S F T L R$
$G G Y L R H R D G S V V V G P V$

NHFLHTKNGK $\quad$ TE GEVQPSSSSALWK
GQALGTVGDQLRLVPSR DATAYWRAD
KCYVHNSGTGLKLRCMP DSEASFNQAASFVAEKGL GKALGLADGQVRLVRTRDAAAYWRAD GCFV YSDQTLKAGMK LKLKCDSDASFKQAASFR DRKG

 GVPVGNGATPE RFVSAADPKALLAHQGTDLIA
$\square E P F N S P G M A \square A H N G E G G N L V V A T$ R FASAANPKLLLAHEGTRLV T LA DANDRSVMLEPFDFPGMNV DHQGA GKPLLDA $\square T P V P P G S N S Q L V T L A Q E S G G K A F V L S A V N G S L T M Q E R P$ FTTFFERAADSDVHFSH V SGPEALIGSLV KLEPFDFPGMIVKQTDSSLTVQA RFSPVGAPERYLAHQAE RQPVV


```
lupas }2
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
```



```
jhmm
```


 KPSSVFLVVPGLDGRNTISLESQSDKGCYVYSS PGAVSFLSRRFSGRYVVVQ GNPALA QTQFRQSPGRAGAKSVMLSPULLPDHYLVAK PGTDEAASSTFRWVPGEANDTNVVLEPFDFPGMPVMHH Y S SA DSSHGGPLSSVFLLVPGLDGRNTVSLESQSNKGCYVMSP KDSGGTDAAHATFRLVPGTNSTAAATLEPDDMPG STGNEVD LTAADY $\square V A Y \square A D Q N C T Y I$ EGVDDPERFDRVR



```
lupas_21
lupas-14
lupas_
jnet
conf
sol5
sol0
jhmmm
```



UniRef90_V7AIQ5 UniRef90-V7AIQ5 UniRef90-F6YOHO UniRef90_K9DB06 UniRef90-W1PV83 UniRef90-A0A022S210 UniRef90-UPI0003A79F8E UniRef90-K7LPJ3 UniRef90-C5Z624
UniRef90-M0L0J9 UniRef90 D7M550 UniRef90_UPI0003B6680F UniRef90_UPI0003F72C18 UniRef90_A0A031K1Q3
DTGLGLSDDSDSE FKNRSNFVVVAGLDGGGSVSFESESHR
STSVGNDEDG STSVVGNDEDG FKKGASF
DGTVTLAKDDHSGDFAMRSQFVRFTDSGSRHVRFAPDGVR S S GVKLSKSDSDATFNKATSFVALQGLS NGMVTDTLTVSAEKSSGALFNVVPGLAGGSVSDEDGSRP NGTPVLAVKIGSSEFAEAATLSHTGSLTGDDDAWEAA GTK LRLECGSADEKFKEAASFKLKTGMN DGKITLTASTNRAAMLDR FRRHAGSDGSTDTLALANAP
 DGSVSLVPGSATEA ARFRREVGPASGTVRFASSAFE
lupas_21
lupas
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm


GKF TT TSGDSVRMLTP TTHEQKMSASFT GK H L A A I D GRI G L A AR S
GKALAAVDGR $\square G L A N S R S A A A$
GCFLVASGEKVQVGCTGGVKKHGNGGGFRQAASFARAEP

NKA LA FADGA LK $\square$ G Q A N GKALAAVGKEIRLAGSR $G R A L A H A G D R V V L A$

DRSASWRVD
D AYDA T A ARWLAAD



