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| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $N$ | $S$ | $V$ | $D$ | $N$ | $V$ | $V$ | $I$ | $F$ |
| $V$ | $P$ | $Q$ | $G$ | $N$ | $V$ | $V$ | $I$ | $F$ |F GKVI

    R R A F
    HP HS A F SVG L S KP P NTPI KF
HPHPAFSASRRSPPGSTVVR
$P R S A F S V G L T P P A N R P$ I $\operatorname{P}$ K F
HPRRA
$P$ K S A F SAA RLL
R S A F S VGG Y P
Q P
Q P


RSA F S A A RT E S L Q D P M P F
RSAFSVALTTPLNDPRFDKLYNSFNYYTATGVFTC
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QRSAFSVGLTPAPGVPIR
Q
SMPAFTAQLTTTPGAPIKFDKLLYNGRQNYNPLTGIFTC
QSRTAFSATRKNPDPTPVVFNNVLTNQDNRYSALTGEFTC

PK S
$A G^{-1}$
QL
SA
QL
${ }^{\mathrm{K}} \mathrm{K}$
V A F T A L L T KA Y GQPI QF
K S A F S A ART $\square$ SRDQPI RFDRVI TNEKGHYENRYGRFTC
KSAFTVGGLTPPSNVPVRFDRVLYNGLNDYNPTYGKFTC



$P \vee V A F S V A R T S S S D T T L T Y D V V L S N V G G T Y N Q E T G K F V A$
K S A F S A A RTVVS E QP I R F D RII TN EKGHYENRYGRFTC
K S S F S A Q K A S GA DVVPVRF DKA TNDN GHYEPRTGKFT C



K S AFSVGGLTTAANAPIRFDKI I YNEQNHYDPQTGRFTC
SAFSAARSQSLHRPVTFDTEFVNDGGDFDAASGVFRC

HKSGFSAKRT
$\begin{array}{llll}\text { T H R D Q P } \\ \text { P R R G Q P V } \\ \text { R } & \text { R } \\ R\end{array}$
PAANGLVGRFNAVVVTNDGNHYSNRYGQFTC
HQSAFSSVTRQTGEHADVDFNNVIDNTNNDYSTTTGGKTS
$R P R \square A F Y A A L S E L F T Q V L R F T D V I T N L G A D Y S P G S G K F$
KHQSAFSDTRGAPI PFDKI LYNRQQHYDPRTGUFTC

RHSAFSVVGLTENFGTPIVFTKIVYNNQNHYNTSTGKGTC

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


HRSAFSVGLETRPNVPI RFTKIFYNQQNHYDGTTGKFHC


HSSFSVGLT DPTNVPI RFNKFFHNEQHHYDDVSGKFHC

K H Q S $V$ V $F$ F
RSAFSVGLFPPP GLPVVF DKVYYNEEGHWDPALNKFNV



RSAFS VAAATKSYP KP I KF DKI L M NEGSHYN P TN GKF DC
$P K \square A F Y A G L R K Q H S E D L K F D D V V T N V G N Y Y E P S T G K F T$

PRSAFSAKRSESADQPI RFDVVLVNEQGHYDPTTGKFTC


$P R S A F S A K Y K P A T G C P M K F D \| I I T N P Q G H Y N P D T G K$



$\mathrm{P} R$
P K

QSAFSVVKRQTHEHTPVVFRGNITNTYND
QS A F S VKRRQTHEMTTPVVVRGNITNTY
$\square P A F T A L L S P P A R Q P I V F D I V V T N Q N N N Y D E S S G \square F T$
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SVA SIPGDYYFSYQVVSSGDLCLL SIPGAYVFAYHMTIRGRLCLSATKNREN NVSGVYYFTYHDTVYSNVRVALVKNGIKMLHTVDKYQ $R V P G L Y Y F A F Q V V S S G D L C L S I T K N G L G G V A F C D N N$ PI S GIIYYFAYHVHVK GTNVWVALYKN SYSGVYVFSYQi TVRNK PRLRASLVVNGVR SIP GVYYFSYHLTVYLK DVVKVSLYKSDKTVMFTFDQL
 RIAGAYYFSFNI GKDPYKTMSVKLMKNQDEVQAMDYDDSH PVSGVYYFTYHITFSRNVRVALVKNEHRMLHTADMYQ
SLPGIYYFAYHVHVKG TNI WVALYKNNVPATYTYDEY TAPGVYYFAYHVHCKGGKVWVALMKN NEAVMYTYDEY QVSGI YFFTYHVLMRGGDSMWADLCKNGQEQVRASADAQD KVPGLYYFTYHASSKGNDCVNL MREQDAKQKVVTFCDYV DLPGIVYFSYHVNCKGA NVPGTYYFAYHLTVYMS SVAGAYVFSYHVTVRGR SI PGTYVFSYHVTVRGRPA
 EIPGVYYFSYHIHCKGANVWVALYKNCNKK KDPGYYYFSFQVVSSGSLCLRLMHK G CKSGWYYFTYNAVAVGDLCV HFDGDYYFTYHDTVFSR R $\mathrm{I}_{\mathrm{P}} \mathrm{G}$ L Y Y FAYHV HAKGS PATGAYVF DFHILKLDAS SDLWI ALYKNGTPMTYTYDEY
 HTPGVYYFAYHVHVKGSNVWVALYKNGSP V MYTYDEY RVPGIYYFTYHVTSKGSLCLRMKKGRGGSKGDVVLTECDY TFPGVYYFTYHITVYSRNV NVSLVRNGVSVLHTKDS
 KVPGTYFFTYNVLMRGGDGTSMWADDMKNTQVRASADAQD
 RI PGIVYYFTYHVTSRGNLCDNVKKGRGSRGEKVVTFCDYGV

 N
 SAAGAYFFTYHITFSRNVKVALVKNGAK IIHTTDNYQ RLP GAYYFSFTVGKMPRKTLSVKLMKNRDEVQAMDYDDDR QIPGLYYFSYHMHVNGGNALVALYKN DDAVLYSYDEY
 RVPGLYYFVYHTSQTANLCVLLFHNG VRVTTFCDHK KI SGLYYFVYHSSMERNLCLLLFQDK MKKASFCDHK
 RIPGLYYFVFHSSHTANDCVI L HKDEVKVASFCDHK EYSGVYYFVYHDTVYKHVRVCLYKNGMRMLHTFDSYQ RLP GLYYFVYHTSQNANLCVALYKNMSKM VSFCEHK TVGGVYFFTFTGMTPNLPNI NYFVRDMKNGSPMVSLYEHN HFPGIYYFSYHDTGASGTTQVSLRHNRQAVQNTYSVYS RPPRAYYFSFTIGKMPHKMLSVKLMKNRDEVQAMIVDDSP SIPGLYYFSYHITVYKDVKVSLFRND KD KAELFTYDQY
 RI PGAYYFSFTVGKFPHKDLSV MLMKNRNEVQADVYEEN
 $K V P G L Y Y F V Y H T S M T D N L C V Q L Y R S G V R V T T F C E H M S Q G S$ $T H S G V Y L L T Y H \square T V R N R \quad P L R V A L V V N G V R K V R T R D S D$ VVPGLYYFS $\quad$ H GTVFRGS LHLQLMKNGHSQASFFQLG


 EVPGLYYFVYYTSHTANLCVHLNLNL ARVASFCDHM
 GIPGDYYFSYH TTANKHLAALALVHNGQYRIKTFLAYDEDA ASPGTYYFTLFMHSSASGHLVVMIMKNGQLISNVCA KVPGLYYFTYHASSRGNLCVNLVRRDRDHMQKVLTFCDYA K IPGSYYFVYHASSKDHLCVSSVVRDSN $R F P G A Y Y F A F T V G K H P S R C V S V K L V K N G G D V Q A M V F D E D$ AYPG\YYFSYDI TANKHLAI GLVQNGDYR\|KT EVSGIYQFAFHLHVKGSSVWIALYKNDEP KTVLYMYDAY RVPGVYYFTFHTSLTANLCVNMYLNR EKVLSFCDHL EISGI YQF DYY LKVKGA NLWVGLFKNDEPI DYTYDDY


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120
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Y $Y G Q E \| D Q A S$ SHGULQQVN $K K G Y$ VNGSSVLSLALGDQVSL
 YQGGEDQASGGTVLEELKENDQVWIQMSDQANGLYSTEYUH QPQDIDQA QNNNVDQAS
 SK RREMQS GAEDQAS $K K G Y M D Q A$
$K K G S L D Q A$ AD Q N YDYA
$S N$ TFQVT KKG\|LDQA QNNNVDQA YGQDI DQA
YGQE
DQA YGQEI DQA
KKGF
K D NHRDVQVNS SQNKYQMN HGNEDQA KRGFLDHSS
 VHSSYQIT TGGVVLKMAMNDSVWLEPTE YQGSEDQASGGTVLELKAGDQVWVQ GAPDHETAS KKGYLDQA QDQSYDYA
HSTFQVT GNPNHQSS HSSYQVTT G GVVL QLQPGDEVW QN DFVTTG QN $\square F Q V T T G G L V L Q V Q K D E S V W L E T T E K N S L L G T D G A D$ SK RREMQSQSIMLPLQYGDTVWLYSHQHDGGAYSNHGKY GWPKPASLS GGAMVRLEPEDQVWVQVGVGDYGIYASIKTD QDKNLDQASGSVLLYLEKGDQVWLQVDGDHNGLYADNVND NKGFLDQMAGSAVFMLHPGDRVYVQVDEESNGIFAADNVH GSEDQAAGGAVLNL GVGDKVWLQVVGGENGLFADEDDD SR RREMQS NRGVLDOMSGSSVLM RGGOM
 $F N$ TF QVTTGGGVVLRLTQGEIVWLEPTEKNSLLGGUEGAD SNDK QVSSGGVLLRLQVGDEVWLAVNDYNAMVGTEGSD $T N N D Q V T S G G V L L H L K A G N Q V W L E V N D Y N G M V G T G G E S$ SK FDTAANSAVLQLKAGDEVYVKLDGGQVMKDGAQGRY AKGYLDQASGSAI I ELTENDQVWLQLNAESNGLYSSEYVH N TMQVSSGGTLLHLDAGNQVWLAVNDYNGMVGDGNSD NSEDQASGGALLQLQDGDKVWLQADDGENGLFADTNDD T N TMQVSS G GVLLHVEAGHEVWLEVNEYNGMVGTGNSD GGSHYQSGSNSAI LQLQPGDEVWVLLWGGH SLYSDSNRY LS S GASVLCCLRKGDEVWVQTE GAHDKAYTDVVTTD
SR RREMQS
QEKNVDQA NKGNVDQSGSVLLHLGVGDQVWLQVNGDHSGLYADNVND NKGFVDQMSGSSVLQLNEQDTVYMQIDDEANGVFAADNVH
 HEGNVDQASGALILRLQSGDEVWLQIYGDEGGVYADNTND TSAK $K Q G S K Q V T S$ YGQD IDDA


RNTFQVAT QSNNVDQA NT GNH NTGNHDVASGTTI HLKRDDEVWLQI SEQNGLFYDPYWAD
 NWPKPTSLSGGALVRLEPEDEVWVQVGVGDYGFYASVKTD RPGARRAASQSAMLQLDYGDTVWLRLHGAPQYALGAPGA NTGNHDVSSGSVAMYLMPEDEVWLEIDYEQNGLFSDNWTD RPDEEIS GSVVLSLETGDQVWLEMKAPYDNLIIDDSRD QN TFQVSTGGVVLKLEQDEIVHLQATD KNSLLGLEGTN
 DSKHRAMQSQSLMLSLREGETVWLYSQPHRFAVYSPQGRY SKGNVDQLSGCVVLHLQENDQVHLELGSEESSGLYSSDHMS SNPK QVTSGGVLLQLQKGHQVWLAVNDYNGMVGVAGAD ANGFADQASGSVI LHLEENDQVYLKLSDDSNGLYSSDHSQ


| QUERY | SVFSGFL!FPS |
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| UniRef90-W5NMZ2 | 1 TFT GF |
| UniRef90-W5URL4 | S LF S GFLLYAD |
| UniRef90-UPI0004575C09 | S SFS GF |
| UniRef90-UPI000441B742 | S VF S G |
| UniRef90-UPI0004573323 | S SFSGFL |
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UniRef90_K1PDL0
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UniRef90_UPI000440A761
PQAFSVGRKTALHQP FDTVIVNPDGHFDLKASHFAA
 GPEMVI T F DKVVVNDGGDFDPKTGTERC


A F HVGLS | $P$ | $P$ | $S$ | $N$ | $T$ | $P$ | $I$ | $K$ | $F$ | $T$ | $K$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | $F$ | $F$ |  |  |  |  |  |  |  |  |  |
|  | $N$ | $E$ | $R$ | $P$ | $I$ | $R$ | $F$ | $D$ | $K$ | $T$ | 1 | AFSVARF PRSAFSAAYTPAAGSPVTFNVIITNPQGHYNPGTGKFT HSAFSMGLTPASGSPI RFTKTFYNEQHHYDDDSGKFRC VAFS A ETLK FDDVVTNDGNHYDPASGRFTC H Q H $T A V T Y D V V H V N E G$ $\mathrm{H} Q \mathrm{H}$

VAF S A A R T S K T G RSAFSAARTQSHQEP I TF
SAFSATRSSSSQRAVTF
$\qquad$


$P$ V $\begin{array}{ll}S & \text { SHQ } \\ \text { THEH }\end{array}$ $\begin{array}{llllll}D & T & V & F & V & N \\ D & I & E & Y & V & N \\ D & R & L & L & V & N \\ D & H & V & F & S & N\end{array}$ | N | L |
| :--- | :--- |
| N | L |
| N | V | AFN

Q Q
QSVVFSDVTRKTVQNSVVVKF

$\qquad$ QSAFAAGLMTSPDTPVVF

Q S A
$P$ P A
MPAFTAELTPPVGAPVKF
LQSAFSVSRHTDANKVI

 K H Q SVFTVMRETAKARPVRFNTVITNPQQDYTTIDSGQFSC KPASAFTVILSEAYGTPI PFDKILYNRQQHYDPRTGIFTC Q P K VAA F S A DL P Q S T E H T LA F S N V FT N DG N N Y N PA T G L F D
PRIAFSA LINFNTKTTIVYPKVLTNMGGAYNSATG』FTA

HSAFSAKRAPPTDQPVLFDTVTQNEQGHYSPLTGKFTC
A F S VGRKKALH QVLIF DTVVVNLYSHFDMFNGKFYC
QSAFSACDNQSFNWPVAFPDILTNEQRHFDPSMGDYTA
PKSAFTATLPHSVGNAVQFDKVLLNEQDDYSPETGRFTC
QSAFSACINESHNFPI PFPHMLTNQQHHFNRNGDYTA QPKVVFSTALTSGTDVTLKFSKVF DNFGQGYNPSTGFFTA RQQAAFSVARGTDQASII RFTNVITNINNNYQTETGRFRC


HVAFSVRLGNNFGTPDTFHDVIYNGQNSYDPKTGFFTC
 HPKVAFSAA LKK STMGTNIAYPVVITNDIGGGYNPNTGI F TA AF SVGRKTALLHQTLLFERVFVNLDGCFDMATGQFAA QR QVAFSAADPT DAT DPLVYR HVLYNVGGHYSPVTGYFTAA SAFSVGRSNDYYQTLIVETEYVNLYNHFNMFTGKFYC

 QVAF S A S DK S GES Q T I IV N NV FTNNVGNA Y S P H T G DF A A
Q Q
VGFSVVARSS GMD QTVVYDIVVTNIVKNAYDSRTGRF VA

 A F SVGGRRK GLHQAVPR DTELVNVDSAFNLAS GRFHC

## K VA


KSAFCAIRTS PMSQVI NF QKVQTNKGKQMDRRAGYFNC
 K S RVAF S A ALTKGPDETLEFKRVITNDGNGYDPAT GVFA $K P N V A F S A S L G Y N S E V V L K F Q K V F V N I G H A Y N P S T G M F T A$

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UniRef90_H3AZB2 UniRef90-H3AGK0 UniRef90_S4S090
UniRef90_F1QSH9 UniRef90-H2MYR8 UniRef90-C3Z6Q1 UniRef90_UPI0003EA9244 UniRef90-H3AZI1 UniRef90_W5LM34 UniRef90_C3YHC1 UniRef90_E7EXQ2
UniRef90 C3Z6Q5
UniRef90-UPI0003C13ADB UniRef90_H3AGK2 UniRef90_F7EAZ8 UniRef90_S4RW50 UniRef90_UPI0004571790 UniRef90_B0S5W6 UniRef90_C3Z6P4 UniRef90-I3KKS7 UniRef90_UPI0004573C23 UniRef90_UPI0003C28342 UniRef90_UPI0002A4CD77 UniRef90-W5UKQ0
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UniRef90_W5NN48 UniRef90_UPI00038EBD6F UniRef90_I3IUY6
UniRef90_V9L6C2
UniRef90_U3J9E9 UniRef90_UPI0003B3993B UniRef90_H2UPU9 UniRef90_UPI0003EBCF94 UniRef90_UPI0003B4DF78 UniRef90_H2S4Q3 UniRef90_E6ZGC8
$P|L| G G|L| Y F S 50$
LIVNS WNFKETYIL HVVHNEAAAVI LIYAQPS


 RIPGAYYFSFTVGKFPKMNLSV MLMKNKNEVVVIVYDED
 TIS GLY Y F N FHV TLR GS LCLL N V V Q GVK VLGFCDNA A HP GVVYF T LY A HPSEQHLVVMIMKNGQVISSKMCGM
 SIP GI Y F FTYHVVLMR G G D GTS SMWADVCKNNQVRASAA A Q D A ASGIVYSFTFTGMTEAASAS LVVSLMKNDERIASLHVRNP





































































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$R G V Y Y F G F S A F A N G K N A M G|V H| L K N G Q N D A B C D$

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UniRef90 UPI0004448617 UniRef90＿W5QA07 UniRef90－Q1LWB3 UniRef90－H3A5M4 UniRef90＿O68ET4 UniRef90－Q4SPM7
UniRef90 H3AZB2 UniRef90－H3АGKо UniRef90＿S4S090
UniRef90＿F1QSH9 UniRef90－H2MYR8 UniRef90－C3Z6Q1 UniRef90＿UPIOOO3EA9244 UniRef90－H3AZ11 UniRef90－W5LM34 UniRef90－C3YHC1 UniRef90－ETEXQ2
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UniRef90－C3Z6P4
UniRef90－13KKS7 UniRef90－UPI0004573C23 UniRef90－UPIO003C28342 UniRef90－UPI0002A4CD77 UniRef90 ${ }^{\text {W }}$ WUUKQ0
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UniRef90－R4GAP3
UniRef90－H2UZK2 UniRef90＿UPIO0004442F4C UniRef90 UPIIOOO3EC1630 UniRef90－C3YQTO
 SR SHEQASS SGMLAAGDRVWVRLERENATYSDDDTY SGSSLLELEKGDRVWLESKLDREESEEGTGTH QSLMLSLKRGDSVWLYSQQDDGAVYSNQGRY SQSAMLQLDYGDTVWLRLHGDKYAIYSNDGPY HHKERKVAS YGQDIDQASSLVVLRLAVGDQ，WMGVFDNANGLYSDSDDD NENVSGGVVLNLRKDEYVWLETEKNSMLGILEGAD HSGNDDQASGGVILNLSSGDEVWLQLYDDDEGDYVDYNND ADQNYDYASNSAVLHLEPGDEVYVKLDGGKAH GGNNNKY AYEMHQSSSNSALLRLQLGDEVWVQLWSGYV LYSDGNRY ERSDMQ SQSLLLELEQNDEVWVRLFERENAVYSDDDVY SR HREMQSQSLMLSLKTGDTVWLYSQQHRFGVYSNHGKY
H S D T S
EMNTANSLV SLK
ENPQDHSSC
LN YF LIN YFQVSSGGAVMQLEKGEQVWLEATEYNGM TGIKDKD SNRK QVTSGGVLLHVTSGQEVWLEVNDYNGMVGV EGSD ERGGSDTMS

KAKHYDSGS SLGEHDSS EASQLAT
ERSMMQ
EVSNLATA
DRSUMQ
DHGGYTSMT KKGGYTSMTSAVALQLDQGDRVRLALYPASYRLYDDSRNF QRGFLDQASGSAVLLLRPGDRVFLQLPSEQAGLYAGQYVH QQSNGQSSSGGLASYYLKENEKVWLMTNALNGMYATADRAD GPDDNDMGSNAVVVALEVGDQVYVQLQANR LVYDDGMGY AKGKHDSSGNSGVLKLSTGDEVWLRM GNGALYGDHQRF SN RRQVSSGGVLLHMESGQQVWLAVNDYNGMVGKK GSD TKGYLDQTSGSAl I ELTTEDQVWLQMSSTHNSLFSSKYSD SHDQHRYASNAAVLQLDVGDVVCVKLLPNQYTLYDSPDNL ADQNYDYASNSVILHLLDGGDVFIVKLNGGKVHGGGNTNKY
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EASSQTTA NWPKPVSLS EGTVPATTS SDGSHESTS
DPKVLGTS
RRGKRQTA RQKNRKVQS STSVYOTQSQSIMLQLKAADTVWLHDHGSKYADYSNMGPY NVS QVSGSTLVQLSEDDEI WLQLNASQNGLMVDETTD GEGS DTASNGAALMLEKGDRLKMVLW HNTQI WDNSNHH RQSGYDTASGSTFIKLAKGDRVWLIANHGGNGLTSD
QNSHYGSSANGVTLLLEVGDVVFLR QWVNTRIFDSENHH PSPSPGNASNNLVLHLFERDQVYLMITSDADAFSTVFGKY

ERSIMMQSG SGGFMLQREVGGDVHTQLEPGYMLYHOSTNS DRS 1 MQ GS S
AKDSYEQVS YTVVLH AMDDMVWLOVKDTENG F SGSSILQEKGDRVWLESKDDKTESEKG GA QN YDYASNSVILHLDVGDEVFIKLDGGKVH GGNTNKY NLANHEDASNGALLRLASGDRVWLELDEGA LDGGWKY KESTFGSSSNGVTLILEAGDQVFMRLWS QYKDYDDQHHY PKGDYSSTSNSAVVTLKAGEDVWWVRLEAPYSNFHFGAHRD STMRMRET
STRADTSMLS
QPSHYVTTS QPSHYVTTS
$\begin{array}{ll}\text { D } & \\ \text { DRK K M M } \\ \text { ERSUM }\end{array}$

## ERSIIMQ

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SI P Y WASA
 GSSELQHTGNDVIIHCDEGDGVWI WLSYSDSNPYHPTHKY QDVTREAA PASGGVSA GG
THGYHEF DRKVAQ
TLDNSYENMS
ERSVMQ
 SNGAVLHLETNDVVAIQQG GYVWDDNYHR

PNFSVNGS
RSVSLNLEKGDHVYI QL R S KTWI Y D D AS S





[^6]  STLLL L $K$
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Y$N S V$ L H L E R E D R L Y L K L E R G N LM
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$H \quad R$
N S H K Q A GA S N A M V L A L L E Q
NSHKDVNGANRA LLLLEKG D Q

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#### Abstract

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TTFTGYLVYPD

AVFTGFLIYAD ITFNGYLVKAD STFSGHLL FS VTFSGYLIH
SVFS GF LLEMP D
VTFSGHLV
STFSGYLLYPD IT FS GYL
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 CTFSGFLLFE SVFSGFLLFPD S SFSGFLVVAP
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$S V$
$V$ STFSGFLLFS SFFSGHLLF
 $\underset{V}{V}$ GF S S G F L L L DTFSGHb1
CTFTGFLLFP
DTFNGYLIKAA
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TVF Y GFLL
STFSGFI YPD STFSGYL L L Y Y E STF S G HML F A
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 PRPGTYVFFWTHYTHPRGY PR TEVANGNVISSGVTDSH SVPGVYHFGFD EFQHALKKLGLMKNGNGEHTQVLEEEAR PVRGAYHFEFYMYGHHSHPSGAVLVKNGEHMFEDAYEYS PVKGLYYロRDTGVVGSSMTLRAGLKKNGEDIFETKAKDQG PVDGRYFFSAVLMGHKNEKDEAVLSKSNYGVTRVDSGGYQ PVAGTYMFVVDSLSKPGDWLFLKVNNNAVGKLHVSVA YVPGVYYFSLNVHT WNFKETYVHLMRNEQAVATLYAQPS PVSGTYVFTVVSWDDGNISTDIVLNGNSKVRTFADSRGFH PYLGVYIGKYTVESFSPRVSGYLVVDGIDKMAFQSENGNN PIAGVYYFSFFYHAGGSQVKY IXLFKNGQRMISSSDHQCS PIA AGRYY DSADLTGHQNEKVEAVLSKSNMADARVDSSGYQ HI AGVYYFTYHITFSRNTQVSLVKNGVKILHTKDGYM EVEGTYYFSFTMRSYDAKHI GVILMKGNEGVVSM ATDAD PVRGVYY DRFTANAPTDVTLS SMLYKNGGKVILAAHESP RKPGVYYFTFQSTAKVSVCLRIIASDTIFDKPAGACD Y PVKGVYFFMISGNTDSSKSMGLRLMKNGQQMIS $\square F$ NQA PRSGQYVFFVSAQGYGSDTLYVSVVHNGGAKVMTMSDGGR位 PVKGVYFFNLVLFTNDAVSAGVKLLRNGKLVIAVTDNPPA PRKGIYSFNFHVVKVYNRQTIQQTTKAKRDYYVISAFAGD PFEGRYLITAVLAPERDEYVEAVLSVSNASVAQLHTAYHK PVRGAYHFEWHLHGHAYKSHPDAGVLFRNGE HIFLAFEL PVAGTYMFVVDSLSFP G TWLHVKVNKKTVGSLHVSSGH PRKGTYSFNFHVVKVYNRQTIQVSLMLNGWPVISAFAGD
 PVRGAYNFEWSVGARGDGSHGSGAWLVKNSEKVFVAWER NVSGVYVEYVHI LSSPGHMLYTELMV EDAVMGTHFMA PQAGRYLLSAVLTGHRHEKVEAVLSRSNQGDARIDSGGYE
 $P V K G V Y Y I R F T A T A P T S G L M S A V L Y K N Q T V Q L T V H E P P$ PRSGLYVFTWTDRLYGNAYFTTELVVNNVVVNWIFLG PMDGRYLVTAVLTPEQGQKVDAVLFVSSRSIQRLNSAGFM PVRGIYYFSFFYHAGGYQPVAL FLMKNNQIVVLSSDHKT KVPGIYVFHFHGLSETGEELYLELYHNYEYIVSAYGYDA PVKGAYYFSFSGHNDSSKAMGLQLMKNGQQMVTVV NHV YVPGMYFFTFHTYRATNLEVPA G KVPGTYF DS LHVHTWNFKEAYLHTMDDQRPMA VLYAQPS PVEGVYKFDLVLSSNVENGHG EMMHNGVKILDVYADKV SIV PGAYVFSYHVTVRARPARISLVARNKKQFKSTGHETV PVSGVYVFNWNTYS CFRGDTTSELMVNSSRKGGRRSDSR THAGVYHFGFDI DFRQVVKLGLMKNGIEVLEKEARAEDNN PG G YLITAITTPERDAYVEAVLSVANTSVAQLHTAGYR P G D G T Y V F F F V TVV N T Y G S N Y $\mid$ Y L

 PVPGDYYFTFFYHAGGSQVASLSLMKNNEAVVTTSDHQT LTAGTYVFYVSVQSENKQE\|RLDVVLNGSKVRAMAWSS GS PVRGVYYFSFSGHNMSSRPMGLRLMKNGEQMVTVY NHP $P \vee R G V Y H F E F F I Y G H G H A S H G S G A A D F K N G E H I V I G Y G G H$ P K K GVVYSFTFTVQSFSTTYTK LTFTVLEKTGVVPVMTKDTS TTPGVYNFAFDNMFQRSVK DGLMRNGDWVRWKQVQAKD $A V P G V Y Y V L D N V H T W N Y K E T Y L D H D T C N W W A A A V L Y A C P S$



 P A GVYYY F T I F CH A R G DRSQRLVGLYKNNEVVMVMTND H DT D
 $P V L G V Y$ SFNFHNSSSTSVPHMAVGLDFVNERVALALTE EA

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




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 SNGN GSNGVVLTLEPGDQMYTKLW RNTWVYDDDASY LGNQHVQATDNMVLELQKGDQVTWKSRESNNVYYDDDNY KAGTQASASNGVALELQEGDRVFVQ1 WENDLTLADQSRL ESDFTRNGGNGLTLLLEKGDQVYIVLSSYTYHIWDGKNM GEGS DTASNGAALLLQAGDKLKMMLW HNTHI WDNSNHH PEGRENKAVFNDLPLNGGDTVCDBDLVMGKLADSVEPL
 AEDNYRHASGNV AQUAGDHVNRRHANYIFSNAEGR SSSHSVSSSNGVTLLLEVGDVVFLESWNGA WITFDNENCH S G QSTGWPSASNGASVLLEVGDQVTVRLWAGST VYDSDNH KEGLLENNAVFSIILPLQTRDTVCVVDLVMGKLAHSVEPF KEKPFVQISRTVIVRLKSGDHVRVENYSNNGIIHDG TQYVYQTGTNLLMLLHLQEGEEVWVRMFERENAIYSEESDY $T$
$S M Y Y Q T G T N L V S L H L Q V G D R V W V R K Y S G T G S$ PEGLENKGVLSLLLPLQAGDTVCIRDVVMGPLAHSQEPL SDGADNGANAVTLQLEVGDQVFIVGMANTHVWDSVNH AKGYLDQA SSEDQA GGALLDTENDQVWL DRSVMQ
SGEGSDTAS
NRNADQVLS GATLLLEEGDRLQMMLWA NTQVWDNANHH LEKPMAVASGGVVLQLTAGQKVWLESFRDRAETRDTQAKQ
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 PRGGKQTCGGHLVLHLKAGDEVNIVITGGKGAYTDSDEDY QASGTVSTSCGTSLLLEPGDQVSLRLWAH ARIFDGVNHD NGNSTSQDSRTVIVKLKSGDHVKIENGVKNGYIHGYYLY PTSGRVSASNGASLLLEVGDQVSVLLHA NTRTHDNHNHH NGDGHKTGTFDVVLTLKKGDRIYLRCKGGHDSIYSDSDNY QNQYRGSASNGVTVLLLEVGDVVSVRLVA NSVVNDNENHL ESTYYSNGGGMAVVHVNAGDSVWVRVRTAESGTIIGWE PEGESQPSSGSLILPLDAGDTVCI DLVSGQLAHSEEPL STADHQTGTNLVILHLQTGDTVWVKRGGGTGYLHSDSAHI VGPGSDTAANGAALLLEQGEELYMQLRPNSHDWDNASHH YNNDDGSVTGTAVVHVNQDDDALVRTTHHSGSIVSDNDGK KEAYSSGSNMAVMTLQKGDTVLVRSHDHNGSVIDDSDY SHDGADNGGNAAFLELQQGDQVYV LLEANRHVWGNDYT GSYAAGSNAVTLSLAGDTVYIDVQSSSVLYGTHQEVY AGNRHETATNGMTLQLEVGDHVYMRLYENTWIFDNSNDH DDDYRDTASNSVVLMLKEGDEVWLQLD TNSYLSSSVDKH ERSLMQ AQSLLLPLEASSTVWVRMFDQDNAIHGEPGDY NQSFYGRGSGSIVVRMAKGDKVWIQHDDVGNTVINGGDE FESSHNGA NAI TLQLMKGDKMCI RLWAENWVFDDDKNY VTNEDHSSSGCIVVNIRKGDVVFIRIHPKKGSIISYPGLY G REFLEYHHSPGAIVHLKAGDAVNVVVTGGKLAHTDFDEMY NSANYMTGTNMAVLQLYTGNSVWVSRSSGQSY YTDSVPI SAAAYQTGTNMVVLNLQKGDSVWVRHHRGKGYYSHSIPV NN WNQSTGVIVAHVNKGDDVFVKTSGSQGETYSGVNSR DHGGYASTCSSMALQLEAGDRVRLSLPASYRLYDDSRNF HDGA DNGGNAAFLQLQQGDQVYVRM PANCHVWQNDYVL
SKNEYENASGAMIMPLRQGDKVWLEADVETEEPDQAKVV SSSDHQTGTNMVILHLQTGDSVLVRRYLGTGYYYDSAHV AEQRYDTGTNGMTLQLAAGDQVYMRLRPDTWMHDNNNNH QASLSVNGCNSATLLLEVGDVVFLR QWQNSRIYDSQNHH HKHA $\stackrel{\mathrm{E}}{\mathrm{p}}$ PTSGGVSASNAASLLLQAGDQVSVRMSAYSNALYSERGDY SSDHYDAGPNLVVLTLQKGDRVWVKRYSGQGYYIDGDPD NVDGGGVSGTAVVQVYQGDDVFVRTNYHFGVIRSDSVGR
 TRRETDNGGNAVFLQLQQGDKVYVVLEEETMHVWGGESQQ
 RQDYEDSATNAVILQLEKGDQVYI QLDQA GRYFSNYHKQ NDSVDGSVTGTAVVQVNQGDDVLIRTGSHTGTDKSNHDGK NEDDYGSSSQTVLLKVDKGQHVWIRTGAQGKGTLHGEDY RHPCGGPGAFHLVVHLRAGDGVSVVLTGGRLAHADFGEVY PTSGTVSASNGASLLLEVGDQVFVRLLAGP RDFDSQNHH SKGKADTSGNSAVLKLAKGDEVWLRM GGNGALHGDHQRY


| UniRef90_F1C798 | SGF\|LV|NQD |
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| UniRef90-R7TGQ1 | STFSGFIIFE |
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| UniRef90-UPIO003F088C1 | DT F NS |
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| UniRef90 H3CM55 | 1 FFSGFLIFSD |
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| UniRef90-UPIO002A484C1 | SVFS GF |
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UniRef90_V9LXJ2
90
G G GRHEVV|ASNTVY|L|S|L|KKGDEVV
110
TKGTEGKKLYAAEPY E H S D W A V S S G T AV TR R N S G D R V W W R R V S D M S H VVVY G T G F G T P E G L E K PM A F N I I L P L E A G D T V $\operatorname{C}$ CI LNTRSLAE GKAVLSLQRGDRVYVEVSRSANGIGFS

 QPSHGANSANGDTVLLEVGDVI FLR QWQNSRIYDNDYCH K QNC G GLGTFHMVLSSLKA GDEVSVVVVTGGK LAA YTES DEMS $E \square H C D R V V T G D V L L E L N Y G Q E V W V R L \quad V K G S \square P R K S P P T$

 TPSRRDT TSSLQSTLNLKKGDQUWLKVSDMS GDLBDDDHHH

 GSVS GSHGA
 NAK K Y D NENHH NTGNHDVAS GSTLVYLKPEDEVWLEI
D S S R D D S GTGTVV A HVVNQ GD DV Y I K THS G G G G L L E G V GR


## 





 $\begin{array}{lll}G V D T E D T D A G S A C L L L & E R \\ N K G F L D D M S G S A V L L L D\end{array}$
H V WTSSNGASLLLEAGDHIFDRLSAD ARVRDSEGHH

 $G N P L \square Q \quad \square S R T V I V R L K P G D H V K I E N A S N \square G T \square Y H K$ TTMTYNSATNSIIVVKLHKDDKVKIDKYGPWGAPFYLHPTW












 GWPK PA S L S G GAMVRGLEPED QVWWVQVGVGBYGLYA SVKT D

 QDKNVDQASGSVLLHLEVGD


 Y G Y DEGTQVVNDHCAQGERVWIRHLMGVGDSADMPAGF NSKAE GMLLS QTVLLNDEKGDEVGVV FAYHGNIRDGGWHY GPDQYS QF S $\square Q L M L I L K K D D Q L W M Q \square S Y S G S G L H D S G N H Y$
 A DQNYDYASNSAILHLDVGDEVCVRLDGGKVGHGGNTNKY
 G T T T F N GVT SKKEYENISSGAVLMPLKK GEKVWWLEA EVVENEEPNKAEVI S SA S H Q T GTN MALI HL D K G D S V WIS HS S GT GY Y T T S V P





T $\square$
$R$ TTVWD
S $\square$ S


| $Q$ | $V$ |
| :--- | :--- |
| $R$ | $Y$ |
| $V$ |  |
| $V$ |  |
| $V$ |  |


| $V$ | WA |  |
| :--- | :--- | :--- | :--- |
| $V$ | $F$ | $V$ |
| $V$ | $F$ | $V$ |
| $E$ |  |  |


|  | $W$ | $K$ |
| :--- | :--- | :--- |
| $F$ | $V$ | $R$ |
| $F$ | $V$ | $R$ |
| $E$ | $V$ | $V$ |

130
NLIFSGVLI
S SFA GYLLH
TMFS GVLLY
S Y F S G H L F P
T SFAGWRL
T T F S G F LLL
TTFS GHLL
S TF S GVVFL F Y P

 | $S$ | $T$ | $F$ | $S$ | $G$ | $V$ | $F$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |

$T \square F S G M L L$
THFTGFML
$\begin{array}{llll}S T & F & S & G \\ S & L & L & Y \\ \text { S } & \\ \text { S }\end{array}$
$\square Y$ F S G F L
S T F S G Y L L
N T F S G HLI
$L$
$\begin{array}{llllll}S & S & F & S & G W K & L \\ T & F & T & G & L & M \\ \text { S S }\end{array}$
S T F S GF LV F $\begin{array}{lllllll}S & S & F & S & A & V & L \\ T & S & F & S & G W & \text { W } & \text { Y }\end{array}$
SVF S GYLI
THFS GWML
S SFA GYFL

NTFSGHLLF
T T F S GH LL F
TSFTGFGLLVPD
$T \mathrm{~T} F \mathrm{~S}$ GVLL
TTFSGFKLG
MF S G F
STFTGF LL
STFTMTLAY
$T$ TF S GF L V
AVFS GFLI HE
$\begin{array}{ll}T H F T & G F L \\ S M F F & L \\ S & L\end{array}$
$\begin{array}{ll}S M F F G Y \\ S & L \\ S & \text { G GY }\end{array}$
T S F S GY F H E
SMFS GYLI HA T
$N V F S$ G LI
THFTGFML

STFTGALLQPA
THFNGWKL


S T F S GF L L L

TAFGGFLMF
STFSGFLVYSD


S SF S GWMLF
TVFSAVLLYP
THFNGWLLQED
TAFGGFLL F
STFSGALLHAD
THFVGVRI H
THFTGFLL
$N V F S G V L$ I

| S T F | $S$ | $G$ | $F$ | $F$ | $Y$ | $S$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $S$ | $T$ | $F$ | $S$ | $G$ | $F$ | $I$ |


A MF S GHFLL
A MFS GHF
T T F S GWC

TTFSGFLL
$S T F \square G$
STFSGFM/VVP
TVF Y G F LI
S SF S GWLL LY S
NT F S GFGLLYAT
NTFS AFLLYYAD
T H F T G WML E E D
STFAGW
TTFVGWR/L
NTFSGF LI YPS
NHFTGFLL
T T F S
T S F S G VLV

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UniRef9O K1R271 UniRef90_K1R271 UniRef90-K1RBU7 UniRef90_K1PZA5
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## VA F Y A G F

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$Q \left\lvert\, \begin{array}{lllllll}A & F & S & A & S & L \\ V & A & F & Y & A & T & F\end{array}\right.$
 FSAYKQSSESGTIRFEQTYYNLGNHYHTENGIF\|A Q K KV ALLT Y R T S G A D H TIIK F D R R IT DVVN S Y S S S T GIF TA

 VAFYATSSEAATQMVKFSTTS DNVGSSYFPEHGYFRA



FTVGLDHHFHSTVKYNFIMANSNNVYNPSSGKFTA


 PH $\square$ AFSAAALST QRTEPVVPF DRVVLLNDGGAYDPATGGTFTAA


QARVS S RLRNVPKGRTVRFDTVLLNEGNGYSGRSGQFTA


$\square A F H A R P S T D L R N V V V F G T V T \square N T G K G Y N P T T G K F T A$ I AFHARMSTDQKNIVVFGTVTLNTGKAYNPTTSKFTA V Y F S A Y L K N S P S S I V Y D GVR S NY H N S Y N P A T GRFTA K P K VA F Y A A L S N N T D I L K Y E KVF T NVGQAYNRNTGYFTA
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UniRef90_K1PZA5
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 PTAGVYVFHWVTYSQHQGDVVVTELVVNSVSRGCSRSDSH
$P$ ERGVYVFAVSVEFGPGPGTG QLVFGGHHQTPVSSTEER RVPGYYYFNFDVEDYHCVKVWDMRNQDQDAEKRQDSQKEH PVRGVYNFGLTLHGHGDSAYPTSARLF MNEDLIFTAWEH PEHGVYLFVVTVTFGPGPGMGQLVFGGHRRVPVYSSAEQR $P V S G V Y M F Q W T V V S G S S D F T T Q L M V D G$ PVGGYYAFVLDTRTDPGRDCWDDAVKNGVP DATNYM EA LESGLYVIGLTGEQTRGQYGDLGVVQNGNTGLNTFADSE PSSGVYSLAATVYSLSPLDLPQATCAQLQVNGVAVAPLAE $P Q R G V Y$ LFAVSUTFGPGPGTG QLVFEGHHRVPVYSTEQR PENGVYVF HTSTTSYDKSVCSVEVVKNGQIKDITLADSG P 1 PGLYVFHFHAYSSNKDTIMWLELVHNDRAVV SVI SVI PVAGVYYFTDFYH GGRSYSHYLRIFKNTGMTVITSDHKT AFDGTYDFHYYG PSPGVYMFSFTAFSSVGVDGRLYHKVMKNGKMGVSVWENN PVKGHYSFTWTDATQSGAWFSTLLVINGKPISYNHVNGKS PVDGVYFFSWTTLSDAGKYFITEIVLNNDPIARTDGRGRP PI EGRYMDTAVLTPEQEHHIEAQMDTSGYKKEVLEYNKPG PVRGMYYFSFFYHAGGGHPVGL NLMKNNQVVVLSSDQKT PVDGHYYFSAVLTGHKNEKIEAVLAKSNYSVARVDSGGYQ PVSGRYLVSAVLTGHKGEKLEAVLSRSNQGI ARLDSGGFQ PAPGDYFFSFTGVAHLGPYFFSALVLNGSVIGTGFVQDN QSSGTYVFSWTVASKQHHQTTADLLINDVSVGSTATYSRG $P V T G V Y M F H W T I A T G G S A F T T Q L M V A G S V R A B A N V P$ PLKGLYHFAVHMSVCGRAQCADFKNGESLMASVYHTS TNRGIVYFSYHVSGRYKVCLKKLEKNGVSDMEAGNLCDQY PETGVYVF TWSFLNGASAYHSTQLLMVNTAEWGVVA HS PVQGVYYFTFSSFRWGRNTGTSGGSLYHNGNQIVSWYGHS VIKGVYFFSYHVSAKSRVCLKKVKGSDSHMTL PKTGMYVFVWVIRVHQAEHSTELMGNNSVYGSTFDRAKGR PVDGVYSFSWTYHTNKGSVAYLGGYVDGTURTYVGTMET $P A R G V Y L D A V S V E F G P G P G T G Q Q V I G G H H Q T P V H T T E Q R$
$P R T G K Y F F F N F P A S S T S G F A S R I V L K N D A A V G K S Y C V G$ PLSGTYVFGDATGTLDGSHASVELVLNGVVKGVSWADSM $P Q S G T Y V F T F T V Y C Y P G S G V S L H L V A N S Q L F D G V L C N A E$ PTNGRYQFHWYTLSDPKKLSHAGLFVNGRMKARQASNNSG PVDGRYFLSAVLTGHRTQKDEAVLSKSNVGVARVDSGGYQ PRKGVYFFAFNGVGTLDKPGYLDVLMVNGVQAGRAECHST
$P V N G L Y Y F C T Q I S S G K L V I L M K N N S L G K G F S V E G E T$ PERGVYFFAVSVEFGPGPGAG QLVVFGGRHRTPVHATE
PRKGTYFFSLSGDAVIPSTKGHLDVGIALNGAVVGANDYT $P$ LDGRYLVSGLLTAQQGERMQAVLSVSNRSDQRLQSAASQ RLPGNYHFQFDVELQHCNVT DVWLKKNHTAVLEKHQV PTDGTYVFFVTVTPHGLRALYDDVVQNGVSKVRSMSHGST
 PTDGRYLVTAVLTAQRGERVEAVLSASNRSDQKLDSAGLP PSLLIYNFNFMFFGVALPSTVFQVNLMLDNGKPVISAFAGD PTKGVYVFDWT TVDNGDTFFTEVKNGSAFGYNHCAAK
 PDSGRYLVSAVLTGHRGEKIEAVLSRSNQADARSDSAGYQ
$P R P G D Y F F S F T G S A R S Y V G F Y S Y L Y L N G D I I G T G R V S E Y N ~$ PVKGTYFFTFTGHAYFQLSVNLYLNGNQIGSSSVGETNDL PVLTSPFPASGMPGTSVWVALYKNNVPATYTYDEH PSRGHYSFTWT円ATRPGYMFSTQLVI NGNPVSYTHVNGKT PSRGHYSFTWTIATYPGAMFNTQLVINGKSVSYNHVNGRV PVKGLYVFAWETVTGPNKDFDTVLLVNGEGVMLNNCNNLA PVSGAYYFQFTLAGYQAYDTGVVFLKNNMVFMYNVEWKRT PRSGFYVFTWTПRLNGAMHHTTEPLVDNNHINRASAIA ND PSGGVYVFFWRI LTLKGRDAYISLVVNGQYKSWNHCTDRY PFAGAYVFTWTINTNPNGAHWTNLMVNNATVGG NLCDTQ PERGMYMFAVSVEFGPGPGTGQLVIGGHHRTPVCTTAQSA PRPGGYFFSFAGTARLESSSPASFYTRLYLNGKIDGGSHV TDAGMYYDSYHDSSSQSACLKDQVGEQEK VSFCD PTPGKYFFSYSGLSHANLLGRVELQMWTAATDWVKDGQAF PQNGVYMFVINVKFSAGPALGQLVFSRGNRMTLSSSQETT PVSGLYYFAVHVCNYSSQVFQYAIVLENNNDATSYKYD $P Q A G L Y F F Q V Q H N T Y G E V N V D L I Q V V D G S P S V I G G V R R T S$
$P S T G V G G S W T L C V S R I S D G G R K M S G S S V I G L I H A D T E ~$ PSGGI YVFDWTTLTFQGHA AYTSKVVNDQFKSWNYCRDED PRTGUYFFSFTGLGSSGGHILDVALLLNGNEVGRAECNDFT PKSGTYFFSFTGMANFPQSSSSGGFFGNVRQAVGSFNDNA


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UniRef90-K1R811 UniRef90-M3ZKW0 UniRef90-K1QRS1
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STGSVLASSSNTVIL QLLA $\square$ G DEVV|F|V|ELRQGK FLNSNFNRH R DWDHSSGNVVVETHTADHVYI RMQEGMDVVVSNERGR NTVADQWSPLQVTLSLAAGDQVWLEDDYDTAGI HDDADHY GADGFLVTS GSAVLDLEVGDKISVEPTRYNGMVVSQSSTS SGG PGAFHLVVHLKAGDGVNIVVTGGRLAHTDFDEMY QCDCGGSAS $L$
TLDE
L $R$ GGS ASSGLVVLHVSQGDLVSVRTH KTFFSAHT LPLSRGDKVWLEAEVETEDPNQAEDT
 AGNTA ATAFAMVELQKGERAWFELT YPGG G D S S S A MAlI EVNK D DHVWIQIVGSSEYVYGGSNRF $P S G Q E D S E T S F A V V R D T G D Q V W V R N K V Y H G H S C G G D D L$
 DHNDWAVSSGTAVTRMNSGDRVWIRVSD IHVTVYGAGLGT



 E S D GADNGGNAVVFLQQQQ GDQVYVNMAANTVYWGAD
 RED DEDSAT QVVVMEMQRGDQVYVELMSGRKLCTDME
 NNSGFVVMSSSSNANI KMK K GDNV WI RTHYN YGQFGGDRGEW


 YP G GADSSSAMVIIDVNK EDHVWI QLYGSSEHVYGGSNS Q PNDCCQVAS DS STVLL SVGDQLWVNLWGH GRHIDAT EDND NG N DKE Y Q P AT K AVV L E E K K K G DVVANV A A H G H Y A K S Sis YMQ S T GVVVVHVNKGDDVFVKTDSSNGNVISNMY N QAHPDS A SNSAVLMLQVGDKVNVRLWDNQ QISDNENKY

QAS P WQS QT GNLV DKLLKK GS QFWVQTYMQT
A G GT $A T T F A L A E L Q Q G E R V W F E L T$

 GA GWHRSVSSTAVVQDNQGDAVFDRTHMNDGDUSSYDNAR S S S Q W DT A G S S VA A L P L K K G D E V Y I R S SVNAA WPT H L R G L W

 EQATTFAVAQLQKDERVWFELT QN Y Y YA RNSVV AQLQGTVTKRNPP G

 ATKE ATKEYRNLAATLI L PLGIGEKVWLE A QVEPEDPD QAR A

Y Q M G S N M A V L QL D K G D S V WVV R R L A
 SGSTVVT TFAMAELQKGERVWFELT QGSVIKRSPPG
 A D Q N Y D Y A S N S V V L H L D S G D E V $V$ Y V K L D G GKA H G GN N N K Y

 $\stackrel{P}{P}$
+
 $G G N N Y E T G S S T V I L K M E K N D V I V F E V D$

 FNLE Y F TNSSLI LELQAGDT
A D Q N Y D Y A S N S V V L H L E P G D E V Y I K LX G GKA H G GNNNKY $N N A \square D G G \square V G T V V V M V N Q G D D V F V R L R Y N N G D \square K S D S D G R$ SK TWLPCSKMTIVKLKVGGDRVWIVVVNGPAHM$\quad$ QK Y GTGSFDSDSNTVVVVL SQGGSSVNLDRTTYQSTDDYADSHAF GG G TATTFAMAELLRGERVWFE LT Q GTVAQRSPVGG

 GSVSVQTF S L Q A NL K L A K G D Q UR L L L A E G GIED DAN H Y GSSE TTFAMAELKKEERVWFELLDQGSIVKRSPPG NN NYDCGSMSTETKV A A GQRVWVVRTSGSTSALLWWSS GR KHNERDGLSSRGFFVYMKEGDQVYLRGNPMSGLFSD
TKSDDACST GYVI KYVSK DTEVVYLRTYDHTGKILSMDQTR
 G K VE WEMY S L Q S TL H V Q S G D K I WL E I P S M G M GVVV T S L H Y GTSQWWLTAGSSMALPLKRGDEVYIMDVHGWKAQLRSQW NS VN F QK S T L Q S T F GL NE G D RI WL QII FMAS GVYDNE WH Y GSDGHPMSSSHANDKMKKGDKVWIVVNRNPGQYYDQGGNW

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1
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VAFYASFSEGTAQALKFNTTYTNVGGSYFPEHGYFRA VLYRHVFLNLGDGYATTGGFTA
 AFYAFMSPGGHHLLVYDTVKTNVGNAYNNFTGIFTV KVSFSAGLT DPPFGVIRFNEVLVNDGGHYDSDTGIFTA PRVAFYAGLKNPHEEVLKFDDVVTNLGNSYDAASGKFTC HVAFQVTTTDDNGGVIVFDQVNTNLGQGYNSTSGDFT PAFTASLTTHAGEVIKFDKURLNTGSDYDPSTGDFTV
VYFYVQKDNSTNDPDPKRTLVNVGNFFTLESVFVA KPYFYVQKDNSTNDPMPFERVVNNVGNAMNLDTGIFTA PVVLFRARNVSPSNTIIKFPDVATNSGSGYDKSTGVFTA VAFHVGFSKDKEKTVRFNETYLNYGNSYFSEHGHFKA VVFHALLAKPKDTDIKFENVEINQGNGYNPANGKFTA QVAFSASLVNDTDTRLVEEKVTTNDGNGYNANTGMFSA KVAFSAVRSTNHERDIYFDQILVNVGNFFTDESVFVA VYFSAYRTNDLNFPVVYDGVRSNHHNCYDATTGLFTA PRV， VYFYAQRLTTFSQPVPFQAEILNTGGAFRLSDGTFSV
PSS SF
NSTGUPTPFTLARVNEGNALNLTSGIFTA
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VFFFAKLSRNKNSTVKFNEVVTDSGNNFNHGNGMFVA AFYAYISSGANHVFRYDTVVTNHGNVYNKHTGAFTA VAFTLGQTNHSHGQLSYNKVITNSSAEFD SLGSFVC VVFSAGRDSPTKHIIELPDVFVNQGDSFDEDSSQFKA FYVQKNSSVGTAVPFEVEKVNTGNAMDGEDGDFTA SGTHHT：IYDNEVTNLGNG
PSVAFYAGFPQGTHGPVKFNVTQपNपGDCYVP GTYVRFNOAPNMQAETKDHGYRV RTFEKGSYWNYDRVVTNEGNAYNPS
VMF LIAGTQDGTNQAVLFERVVLNRGQAYSPRTGVFWV QNNSSFYAKRPSSASHGFEFQSVVNNGNVYDSTNGVFTC VAFSVMGASGSQSGVFPKVTTNVGGAYNSSTGLFTA VAFSAYMSQKHDENVVYDKTWLNTNGVYNTITGFFTA QQVGF T
 RVAFAAVRSNGTSGAI YFDQVLVNEGGGFDRTSGSFVA QLAFSASLTGPFNTHIDFKHVATNDGNAYNSNTGLETA KALHNDQDRFNLSTGVFIC TPPLPFELAVVKGGNAMDVPSGLFTA PSTAFAVHRTKSWQSPVPFEETEVNQGNAFDAGTNTVVI KSAFHVSRNAHFGTPIPFQ\｜ $\qquad$ FSYKKSQKDEKTVVFDVPLTSGGDGVLDGEGYFDV FYVQKNSSMGVPI PFEMARVNSGDDFDLANGTFTA VMFKVLLNDGHTQLLKWNKVILNDGGGYDDTTGLFTA IIAFSAYMSESKGSTLIFDKVETNSGSDYSVSSNRFTV HQTLIYDTVKINGGQGYHHDDGOFAB GSSTNATQLTPYNNVLNNKGGGYNPSTRLFTA
RSAFSA
GSSTNATQLIPYNNVLNNKGGGYNPSRALFA【AFQST】TKHAKETVIFDKVSLNEGNAFDKTSGVFTA VSFHAQRENAVNSAVNYSLVRLNVGNALNPSTGVFVA FSAVRNSVFNSTLPMDDVIINEGSAFTTDGSYFTA RESFFAWRNNPNGKVVQFNNVVTNTGGNFAASGREFSA


Q TAFYTGLSK SDENKLDFESVMLNDGSGYDNTTGDFTV PSVAWAVSRTEPWQSPMPFQDVGVNVGSAYDPYSNTVTI PDSAFLASWKEGVNQTVVFEMVSLNRGQMYSPTTGIFFRA SFSVGQQEGLHSTDRFDAELVNLDXSLYDPSGRFDR SSGYTGRPDGIGQLTNYTRIITNEGEGMNASSG｜FKA VAFHVYSRTDVNSTI RYENAYVNTG SMDDETGVFRA VTFLARLVTPDYGTIKFEKTTENVGNGYDNKTGUFTA


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EYAGTYYFSF 60 60
NMRKPSNVTTTQVIDLEKN
PHRGRYS\|SGLLTAKQGDWIDAVLSVSNRSVHRLRSSTRA $L V N G T Y F F S F A G R A F S P T S S S L P P N Y L N G E Q T G I G S V Q D S$
$P K T G L Y Q D A C T I Q G H R T S G V T F Q D Q K N N E R F D L D$ PISGFYHFSASGTQDDKNMPLHFSIKRGYNNNDDVLCSAQ
 PERGVY LFAVSVAFGPGRGAG QLVFGGHHQTQVSTSKCR PERGVY LFAVSIEFGPGPGTG QLVFGGHRRT LVCSSGQK PRSGVYSLAVTVYSAYGS LGAGAHLTVNGLTASAL REKE PRNGIYSFTWSTRVQCSKAHTTELVLNTRVLGSTYIDW PRSDLYSGTWSTRVACHKAHTTELVINTRILGSTYVY PTDGRYLLTAVLTAQPGQKDEAVLSVSNRSGQKDDSAGFW A $\square \mathrm{PGTY} \mathrm{FF} \mathrm{T} Y \mathrm{HVV} \square M R G G D G T S M W A D L C K N G Q V R A$ WRDGVY $\square F$ T WS MRSHPVTRKYTDTYLFVNGEAVGNDRDKS $P \square P G I Y F F T Y H V L M R G G D G T S M W A D L M K N G Q V R$ PRDGLYLVSSSLLMAVNGKHLHCHMWKNGQSNVGAF SMWADLCKNNQVRASADAQDAD
QTIQVNLMDNGKPVISAFAGD

 $P Q S G T Y L F G L Q Q C P E K N H N V H M T L R T N S N T F G V L N Q K N S H$ PHKGVYLFVISVEFSSGPALGQLSFSRGYKRTLSSSQRKT
 PETGVYVFTWTMREASNCRHSTQLMVNNAEDGAI HDHSVS $P R K G I Y S F S F H V I K V Y Q S Q T D Q V N L M L N G K P V I S A F A G D$

$P V K G L Y V F T W E S L T A A A K D I D S E L M V N G V V I M L N N C N F L S$ | $P V K G L Y V F T W E S L T A A A K \square F D S E L M V N G V$ |
| :--- |
| $S V$ |

PTPGIYHFSFSGLRAAANHFVHVTLQVNGKRFGSAYSGTP PKSGIYKFNCLIRAKGSNEVHFQLNKNDE R W W PRQGTYYFSFTFPASSSKVWLGVGLYDNGGRDGVGYVEEA

 HKPGLYAFHFFS LAQSHSGTWIELFKNTNYVCSIFGYTAH
 PKSGI YHFSFFDPGSSGEMLELLRLMLNGVRVGSSYATKSS
 DTKGVYFFSFHISARNKVCLKKLMKNDNVHMTTCDSF

 $P A D G V Y L F V V T V D F G \quad V G A S L G H L K K G D V V V A T L H Q N$



 PVRGVYSFRFHVVKVYNRQTVQVSLMLNTWPVVSAFAND $P V D G N Y M F S M \square G T V K P E P G D H S L H L L L K R N G N T D G Y D F D S ~$
TVPGVYHF GFD DE

LF QHAMKLGLMKNGTQVLEKEAQ $P R Q G T Y Y F S F T Y S S D S A S Y N C Y G Y L N G D I I G S S H V R N K K A$ PRTGFYFFSFTGLAEFPDASTYKNLDGTTVGNAWVSEQHT PTSGYYY | $P R T G T Y F F S F N G M S Q T R V G L G V A D Y L N G V R K G R S W N E K D N$ |
| :--- |
| $P E T G V Y V F D W S F M N G N N D A H S T Q L M U N T V E W G D V H A$ | T $\square T G M Y Y \| S Y Q \square S F Q Q S A C D K \square Q V G A E E K$ PRSGTYYFAFTGLAEFPASVQFVYLEVRLLVNGLGVGTAH

 DHPGVYVFSFHDTVRNQ PLRASLVVNGSRRVRTRDSLD PSSGIYAFTWTI CVDSRYTNYGTELMMGSTK\|GVLHTDT PRSGIYGFTLAVSSSGWASTE AA NGQKYGRASADGDD
PVTGVYMFHWTVATGSTGFTTQLMVAGSVRASNL PA GFYHFSFYHMSHNSQTEGIFTLNGTYVKAGGTPDRVH

 $P E D G Q Y Y F S F S V G Q V P F V V S L L I D S V G Y P Q A E V D L W K G S N$
$P F T G E Y F F T L T A Q H D H A Q P F Q L T V Y V N G I P S T T P G G S N S F$ PFTGEYFFTLTAQHDHAQPFQLTVYVVGUVSTXPGGSNSF $P V S G R Y L V S A V L T G H K G E K L E A V L S R S N Q G D A R D D S A G F Q$
$P K P G K Y F F S Y S G L S L N T A L G G V E L Q V R T A T V D W S R D G N A F$ $\begin{array}{ll}P V S G V Y V F V V V I S A Q S Y E K A G V R L L Q \\ T & T \\ T\end{array}$ $P T S G V Y L F V L T L D F G P G P S L A B E M$ HLGKRGEEVAATLERQS



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 HPGSLRGTGSSAVPQL EN LVTNSAMFHLKSRDQVY■CSRYTTPYV GAM

GTNWSQGTLNTVMNTTGDKDTRHDNASGEEVFGS HW QN YDYASNSVVLHLEPGDEVYIKDDGGKAH GGNNNKY KDVTREAATNGVLLYLDKEDKVYLKLEKGN LVGGWQY TVEQFGTYDMESTLNLKSGDQVWLAIKSTDTYVFDNFQHQ KTGNPNSQTQSFVISLKRGDLISITKTGGGNIYGG RY DDGPCDSTSGVTILL KGAKVWVYCKSASSGVWNAGENG PHGN TMTTFAI AEMEKGETVCFELL HGSVVKRSPPG RPSNWQNTSGHFIGKLKKGDQFWHASFHGTAPLIH ENGY TVGPHSSTSNGMTLVLEQDDRLWVTLLASNSSIFDQGRLL KDVTREAATNGVLLY TQGAYSSCTGVAPTHLEPGDIAHIRASSGNHLHGGGW

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GWPKFNQTQLESTLKLGESDRIWLETHAHSGAAGDADWH DLNAYSSVSGTAVLSMQKNDTVFTRTFATHGAIPDDYLMR TQDQEDSATAVVALHLKAGDVVSVSLGAG CFLCDDHNHY NGFLVTSGSALLELEPGDTVSLVPVLFNTLVLTQTSVA AAAGTTTAATFAVAELQKGERVWFELT KGSLARKNPSG SHNGFSWASNSAVLYLAPNDLVY LYLEEGDDYESSAQNAF GRSHKWVTSGSGMLLLKKGDEVYU GSVYGGIAKLRGQF
 NYSVGADFSCQAILVLNVGDQV KRKNKTKDFYDGPFHC GKSQWLTCSNTAILLLQKGDVVHVADHYSAATLLQRGLY SEGSHSSVTGSMVLWLKPNDIVYPFVEDGNLYSTAKTRAL SKLDYTMSTQTATLNLKRGDIVYLQVEEGSDFESSQSRAY PDVTREAATSSVLLPLDPGDR
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TKYDDACSTGFVIRYVSSGNQVYVRNNYAHQGLSKESQTR GSHGYGTGFALANVNAGDHVYIRMNAGDPVLYGDG
 SR RREMQSQSVMLALRRGDAVWL GRDGFAMSTSHANMKMKKGDKV A QTLTVHATLQLSKDDKV RMFLVEGSVREDGVQF A WNTMALQS TLQLTKGDQ TRLFLLQGTIHDDNNNF NHNGLDMQSRAVLARLTKGQRAWLAVQAD GVVYSEEEHF ARPSNDLLQTSGVLKLNAEDKVAVRLHE NSLPETGDGT A DLK SQLTLQLTLNLKKGDKVWLQLCCMSPGVYDDSAGF PEG
GS GNFQTFSLQANDDLAKGDQ TRLLLVEGTTHDTDDHF VKGTEGLLSQASLLKLQEGDKVTLEL VKGRLRQGQPND KGDNEDFASNGATLQLAKGD\|VYLVLPSGFQVTSNAFKND FWATVTNQAI IQLNKNDQ। WLECRDEAYRLHG HMY
 TVSRRPE LLLPLATGDAVRVRVEDRSNALYGEHSDLD HSTYSVPDFFHSVLLLQTNDEIKMLLYEGDINAVIDDHQMS GPGEDDMSSTTVVIHVNEGEDVFLRTKMDHN
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UniRef90_R7U994


VHFS GMLL
STFSGNFL
THFTGGLL SAFKGWKVV
$S S F L G F G I$
$W S F S G F Q I$
TTFTG
TS LS GFKYSPS
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N IFTGFLI FPT
T A L G GFLVF
TSFSGFLV
TAFGGVRI
NTFGGFLL F
STFSG WR
S SFKGWKV
S DFSGAKI
TTFTGFR
THFTGVFL
THFSGFLI
TTFSGHLLF
SMFF GYLL Y
THFSGFML
THFTGFLL
TTWMGFLLYED
THFTGWIL
TMFAGWKL H
CTFTGFMLEP
THFSGFLLEED
NGFSGFY

T T F S G WK M
TSFSGWML
STFSGULL
AGFNGFYL

T NFAGWLIEED
SNFVGYLIEED
TAFAGY
DSFSGFLI
THFTGILL
TNYVGHLL
NTLSGVLLF
STFSGFLLF
S S LS GY LL YP
T S WMGFLLY
CTFSSHLVKPA
ARFSGFLI YST
THFTGFLL
FSGHLVH
T T WMGFLLYED

$A \square N T \square S K Y K T \ V Y Y$ V VAFSATQASVDHAKVVFAETLVDKGVGYVAQTGVFIT
 $R V A F S V S R Q T N H E P T$ DMSNRTMI
KVGFSVGLKSGAGQTVKYDTVLTNDGNGYDDRTGVFTC SAFSVSSNSSSFVVVTYDHTYLNTGEMMNDTGVFTC
VAFYAYMSTSTEHVLVFDVAKTNDGNAYHPSTGVFMV AFSATLTGPFNVPLKYSNVFVNIGKAYNPNTGIFTA RVAFGASRNTGPDTTLTYKTVFLNTGAYNPATGIFTA AFTATLTLSSGG\|VKYNRVLANIGNCYNSYTGVFSV $\square A F T V E R T$ TPSRDUGGFNRI YLN NGEALDVDTGRFKV $P V V A F S V A R T T S L N T V L T Y G V I L S N V G G A Y N Q E T G K F V A$
$P R V A F S A A L S G P R S E P V P F D R V L L D R Q G G S L P A P T G V F T A$ PRIVAFSAALS LDPREPVPFDRVLLRQGGSLPAPTGVFTA FETVITNDGDGYSQHTGFSTP FQASMKNNDENTVIFNQVSLNEGKAYDTNSGKFTA
 $\square A F A V H R T S P P L D P V E F H E V G V N Q G N A F N H A A N V V I I$
$\square N V G N P M N D P T G \prod^{F} G A$
$K \prod H F F A G Q L S G K V N R D K Y S K V L V N V G R A Y N R R T G V F K A$ SFFAQRNGTFNTVI PFD VVPLNQGQCFSPSSGVFTV QRKTVFFARQSNVTHQRLQGYQTTVNKGFNFFPNTGEFKA SPRPGQALVFDNVLHDNSKSYDTESGMYTF
$D P G S V I T W D N L I S S K G G G Y E P S T G D F T A$
$N K V R F Q T E Q Y D L A N E Y D L N T S T F V P ~$ NKVRF QTEQYDLANEYDLNTSTF VTP

VAFTAWLSKGTNHAVVYNKLLLNKGNAYNAHTGHFTA I SFDGISYNSPHDTLTNSTTFTV KVAFSVVRNTNHEMVIYFDQVLVNVGRSFDEERSNFFA RPAFRAVSTTSTFTIFPANSAVFNIGSAYNTGTYKFTAA AFYAYLSSGQGQ\|LKFDPVKTNAGNGYHPNSGVF $\square A$

[^7]

| UniRef90_UPI0003EBDFA7 | R\|VQGTYYFNFHSVAKVSMC|L|K|VYDGPG GTLGFCDFN |
| :---: | :---: |
| UniRef90_E91 | PKS G $\square$ Y F F SFT T K S P NKVQLE I GLLYLS GKRVGRALDAEES N |
| UniRef90_R7TH18 | PTRGYYYMEVSFGTLPYLPL DVVIILVNGQPEDPHAFVAST |
| UniRef90-R8LE1 |  |
| UniRef90_F1R6V5 |  |
| UniRef90_UPI0004543E3A | C S A A L QV S LMLLN GWPVIS A F A G D Q DVT |
| UniRef90_K1RYH6 |  |
| niRef90-E7EZV1 |  |
| UniRef90_UPI00021A7FC2 | HCPGLY QFSFA GYGST DLRLLTLKKKLNNSDSWRPVVSTGA |
| UniRef90_M3YWS6 | A VP GVYY LS H T CNHKRPTCTSCATGGPPLCRTPA QRA Q C H |
| Ref90_Q4SN | $D N V S L M L N G W P M F S A F A G D Q D V T$ |
| iRef90-K1Q5L3 |  |
| UniRef90_UPI0003F | RVVS GVYQF GFSVYVAPEQRAFVRMLRNQNMETGDYSTYGD |
| UniRef90_K1Q2I2 |  |
| UniRef90_UPI000441041B | P $\quad$ R GVY TFRFS $\square$ T G H G S D S T GARLLFKNGRHVVI A Y C H |
| UniRef90_G3PQB9 |  |
| UniRef90-F0V472 | $K$ TS GAYSGSASMMSSPGKASYLDLMKNGQULVSPFA |
| UniRef90_E2S051 |  |
| UniRef90_E7FG77 |  |
| UniRef90_C3Z6Q4 |  |
| UniRef90_UPI0003EBF190 | $P L A G R Y L L S A V L T G H R H E K V E A V L S R S N L G V A R$ |
| UniRef90_M1EKH1 | $T V P G \square Y Y F A Y H A S S R G N L C V N L D I M G R E R M E Q V V T P C D Y A$ |
| UniRef90_K1RBQ9 | ETNGTFVVFTWNIESYNESAVIALLEVNGEE\\|IQTHTACKYR |
| UniRef90_K1QX59 |  |
| UniRef90_F0V4D3 |  |
| UniRef90_C1C0U7 | PRS GHY LFQ F HALV ES GHEARVLILVNQDP TLLYMYDKD H T |
| UniRef90_R7TH17 | P K S G Y Y Y I ELS IG S M P H T T L DVEILLLNGNPETA HVSVES T |
| UniRef90_K1R697 |  |
| UniRef90_Q4RF37 |  |
| UniRef90_E9HAV8 |  |
| UniRef90-E6ZI12 | P VK GVY QFFFS T Q A A A GQKTDLWWLVINSYWVAVSHTHVS |
| UniRef90_E910E3 |  |
| UniRef90_UPI000359, | LY Q GI Y HFS LS FLK A K E FPLEACCLVVD D QVIA T A |
| UniRef90_K1QM01 |  |
| UniRef90-G8DDG5 |  |
| UniRef90_D5E3U9 | RENGVYTLT S SVKFRRPFNSLDIVVFLITNKGETEGRDNEAF |
| UniRef90_UPI00042C8D7C |  |
| UniRef90_G1NVF2 | PLA GRY L L S AVLT G H R HE KVEAVLSRSNLGVARIDS G G Y E |
| UniRef90_K1Q009 | P I D GT F VFT WTIIFS D T L S Y I DS QIVVVNTEAT T S ML T D S E |
| UniRef90_F0V4D1 | $P \vee R G L Y Y L S A S I M A S P R K Q V H C Q W S A M$ |
| UniRef90_UPI00035E4ED0 | S Q S G H FiVQ Y DI NLVT P H P ALN T Q VA $\square \mathrm{NG}$ G T GLLQ S |
| UniRef90_F1 | PRKG\Y S F N F HVVKVY NRQTIQVSLMHNGW |
| UniRef90_S4S2D4 |  |
| UniRef90_K1S3U9 | P ET G Y Y VF S WT SRS N $\square$ MVARA K T M L W |

[^8]```
8 5 5 8 1 5 8 9 9 9 7 1 1 1 8 8 4 2 2 8 8 8 8 7 4 2 1 8 8 8 8 4 5 8 8 8 8 8 6 1 1 5 7 7
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UniRef90_R7TH18
UniRef90_R8LE10
UniRef90_F1R6V5
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UniRef90_K1RYH6
UniRef90_E7EZV1
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UniRef90_K1Q5L3
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UniRef90_G8DDG5
UniRef90_D5E3U9
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UniRef90_K1Q0009
UniRef90_F0V4D1
UniRef90_UPI00035E4ED0
UniRef90_F1QGT4
UniRef90_S4S2D4
UniRef90_K1S3U9

RSN NQKCDS LQSTLK LLEKHDNLWLQDDFKSTFLYDRDGHW NHSHVASTGRSLI HLEMHDVVRLKAQPETG I FSDDDKQ
 RKLGAPATRVIILEMEQGEE LYR LELVQGTIERNNPQD REAASNGVLI QMEKGDRAYLKLERGNDM GGWKY D HNDRAVASTMSSLNLTKGDVVLVRV
SSSVGNLSTYMTT LRKGAIVYVTHNRGRSWANSASNT GGGA NLVLLDIEAGDH LAVFVDAGKILDGV

$L V Q S Q S L L L L L N \square D D T V Y \square D \square G M N D G \quad F A \square G G N R F$ QPTYSVSTTNGAS LLLE
AGDHYNTATNDSTAL QVYAQLH RNTWDHDNKNL


QN TFQVTTGGVVLKLREGENVFLQVDVVMQLAHSEEPL RQRGAGMTSSNALIKMKKGD
KHGDDACSTGFTVKY 1 REGGAARDRDHTRQGLLLSSEGTR YNWRYSMDSQSLI YSLNCGDKVVVRLHKGALLKGGGTHAF NHTGVATSGRGLI THLWQNDILRLRANGLSG DFSDLNKQ


 RDDQQAY ID DMTPPLEPGQKVWADVTT TN LT EDNEVT
 AGKRPGIITTSETLWLNAGDQVVVGMRSS DNGMDQGDGS
 GTAGRGSFSNGF $\square V Q L N A G D T \square E \square Q L Y G Y N G S V E H S T G D G$ SGGGDSYATES MMQLDAGDTASFQTYQESGGVTANQTSH

[^9]


UniRef90 UPI0003EBDFA7
UniRef90-E9H5Q1 UniRef90_R7TH18 UniRef90-R8LE10 UniRef90-F1R6V5 UniRef90-UPI0004543E3A UniRef90-K1RYH6
UniRef90 E7EZV1
UniRef90_UPI00021A7FC2
UniRef90-M3YWS6
UniRef90 Q4SNT5
UniRef90-K1051
UniRef90-UPI0003F0657A
UniRef90_K1Q212
UniRef90 UPIO00441041B
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UniRef90-FOV472
UniRef90-E2S051
UniRef90_E7FG77
UniRef90 C3Z6Q4
UniRef90_UPI0003EBF190
UniRef90-M1EKH1
UniRef90 K1RBQ9
UniRef90-K1QX59
UniRef90-FOV4D3
UniRef90 ${ }^{-} 1 \mathrm{COU7}$
UniRef90 R7TH17
UniRef90-K1R697
UniRef90-Q4RF37
UniRef90 E9HAV8
UniRef90-E6Zl12
UniRef90-E910E3
UniRef90 UPI000359A6CB
UniRef90 K1QM01
UniRef90-G8DDG5
UniRef90-D5E3U9
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UniRef90-K1Q009
UniRef90-F0V4D1
UniRef90 UPI00035E4ED0
UniRef90-F1QGT4
UniRef90-S4S2D4
UniRef90-K1S3U9

THFTGWML
TSWMGFLLYAD
S DF SGTI L
NTFAGGLDM
STFSGFLVFP
$\square A F G G S L$
T F S G Y R I
CTFSSHLVKPA
STFSGFLVFP
TTFHGHLV

STFNGHLLS P
LLFTGYMVY
TMFSGALLYGD
TMFS G WK
T T FSGGWK
T T WMGLLLYED
SCFS
TMFSGMLLYE
TNFVGRLV
ITTFGGSLL
LTEGGFLL
TGFS
NSFS
TTFSAVKVFP
DYFSDFL-
TMFSGALLYGD PSFNGWKL

A S $\square$ T $\square$ F K $\square$
LS F WGY LL

| lupas_21 <br> lupas 14 |  |
| :---: | :---: |
|  |  |
| lupas_28 |  |
| jnet |  |
| conf | 58886760799 |
| sol25 | В В В В В B B В |
| sol5 | B В B B B |
| sol0 |  |
| jhmm | $\longrightarrow$ |
| jpssm |  |


[^0]:    

[^1]:    
    

[^2]:    

[^3]:    

[^4]:[^5]:    

[^6]:[^7]:    lupas 21
    lupas_14
    lupas_28
    jnet
    onf
    sol25
    sol5
    sol0
    jhmm
    jpssm

[^8]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

[^9]:    lupas 21
    lupas_14
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    conf
    sol25
    sol5
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    jhmm
    jpssm

