## QUERY

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## UniRef90-U5DS66

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S SAALLGIHPLVDALAEQI R
FTASSAALG HPLVDALAEQ RSSWEQLPDGQPGQMPED
FTAPALLQAQLHPLI QRLSEAILSIDWSHLSLAPYALPAE

 MSESTNGLELHPLVTSSAEQDRTCRTAADLSSPLAVDPA

 MLYQPFLDHAIA YMRSRLPI SAYPIPPG FQPFKEYLEEELFGNFNLRSRPIPAG YQPFLDYADPLLKARDDLAPYPIPAG YQPFLDYALTLLKEKLPLTSYPIPDG YRPFLEYLEK LIYKLANSIVSCWE RHMYRPFLEHLEASLKE
$\qquad$ $K$ L Y L YQPFLRARELQPRAIPEG YQPFLD YAIATMQSKDDLEPYPIPDG YQKFQAF LETEELTRFEVVNRPI PTG FQPFLQYLEKELFSRFALTSFPI FQPFLHYLER
YQPFQEFLEA YKCFLEHLEQS
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$R Q G Q \square H Y C Q Q Q Q K N D K T R R V L E K A F G E A W A E R Y M S Q V L F D$ LA GQRHYCTQQQQNDKTRRVLEKAFGKEWAERYMTTVLFD
 RA GQQ Y Y C T K Q R Q N D K T R R V L E K A F G E A WA D R Y M T T V L F D LAGQRRYCTQQQQNDKTRRVLEKAFGDAWAERYMTTVLFD
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| UniRef90-UPIO004775222 | CAD |
| UniRef90-D4TU61 |  |
| UniRef90-UPI0004764833 | Y V |
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| UniRef90-F4XUI2 | L |
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Y R P F L E Y L E K ELLF S K F D L R S R P I P A G
Y QPF L E Y A I D E L N R S L D L G P Y P I P A G
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Y Q P F L D S A F T L L S E Q L S L Q P Y P


S S G L H P L V D A L A E T I R R S WS T L DL A P L A I E A D
VQ Q K G WR WQP F L D K A i S A L


 VAFTARRCPP FABCAS V A F T A R R CP P L Y D D F E F $V N \square P G W G W Q P F L E D A V Q A L$
 Q V S A H S Y QK F I H F A V S E T K R H T S L V P S P L Q E K
 S L R V S A V S Y K K F A D S A L Q E T S K R L L L E P SP L Q E K
 S Y NK F V R F A L E E TRRKHTRQLDPSPMLQDK

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|  | YLRKEAMVGKGKAWTQSYGYQTKKMRQ |
| UniReef90-R7QD04 | YEQKEAMVGKGKVRTDSYAYSTDKLRQURTAHVQGGALLQ |
| $\begin{aligned} & \text { UniRef90_UPIOO02D48C03 } \\ & \text { UniRe90_K9PVB2 } \end{aligned}$ | LickM |
| UniRef90-Q71 | R\SERGRESTTITRSWCYTCSELRKIRYTYI DGGEHAQ |
| UniRef90-L8LQM3 | QKQGTMGKGTVLTTSYAYKCPKLRQIRAAHVEGGNS $\mathrm{L}^{\text {a }}$ |
| UniRef90-K9PX14 | FDRNEATVGKGKVVTTSHGFRTEKLRQI RAAHVEGGMACQ |
| UniRet90-Q10UW5 | NRGKNKARIOSW |
| UniRef90-U5D |  |
| UniRef90-U5D | ERGKNPATIUSWCYESSRLRKIRYTYI DAGESAQ |
| UniRee90- Ul10002F | FERKETVTGKGKVITTSYAWQSSKLRQURAAHVCGGD |
| UniRef90-84WG | ESKSAVTGKGKVTTTSYGAKAPKLRQURAAHVQG |
| UniRef90-M2X900 | EKVAITGKGSVKTTSYAYQSEKLRQURAAHVQG |
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| UniRef90 M1 | YSSLLAM DDKTEELQMLSFEAPKIRLLRSLLCLEGSDGMQ |
| UniRe90-A3YZ |  |
|  | S |
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| UniRef90-F6HA07 |  |
| UniRet90-UP10002002F66 | FDSREGVTGSKPVATATWACQTEKFRQVRAACVSAGSAAS |
|  |  |
| UniRef90-A5G | DAMAIDNELLCCPGLRKMHLETAQVGARLD |
| UniRef90_Q0WYD6 |  |
| UniRer90-Q3A |  |
|  | ALS GNLDGEALFIRNELIYHCRGFRKLHLETARLGVGLH |
| UniR UniR | SMTAY DCRTELKMQSFQSPKIRLLRSLLNIENEAMQ |
| UniRef90-Q93TL5 |  |
|  | DGKTQLEMLAFKSSRDRLLRS MADESETMQ |
| UniRef90-UPIo00472F | LLTNTISNEUGRELY ENEFHKAKGFRKLHEIUVAEFSNNLIK |
| UniRef90 V4U5 |  |
| A0A022 | GSDGMQ |
|  | LKNIYGKTDGEDFFIFNELICSRGFRKLHIETAVFEPSLE |
|  | GDDLFIVNEFHQSRGFRKLHLEICAMLGSSLE |
| UniRef90 A2CBW9 | REGKTGSKKVTTCTWACRTKKFRQVRAACVEAGSSAS |
| 䂙 |  |
| UniRef90-7 | ( ${ }^{\text {a }}$ |
| UniRef90-A9BCT2 |  |
| UniRef90-A5GVQ6 | TSQTGSKQVTTATWACKTNKLRQVRAACVEAGAAAS |
| 18 | N |
|  | LSYQQS EKRPARIESWQWKTKEFRKI RATYI DAGVNAQ |
| UniRef90-Q6E5A3 | DNTVLNALSFSTSKDRLLR |
| UniRet90-M0S512 | FRLLRSK DNNTVLRTLSFCAPKLRLVRSLVENAMQ |
| 相 |  |
| 3L |  |
|  | LASAQS SKKPARMESWCYQCPKFRK RLTYLDAGVAAQ |
| UniRef900Q46LL5 | LSRMYRKQNEEKLFITNEFYQAKGFRKI HLEVAKLIGKSLE |
|  | LEHCHSSKSGG STDSWLWSVPGFRRWRVTRLDAGESLQ |
| UniRef | KNSLI RSWLWQVPGFRRWR |
| UniRef90-Q02189 | W |
|  |  |
|  |  |
| UniRef90-UP1000 | ARTGSKA |
|  | ENEFHKAKRFRKLHVEVAFFSNNLK |
|  |  |
| UniRef90-A2C539 | OUS |
| UniRef90-D7G164 | LEGNCAVVGKGRVETSITAFRSKKFRQV |
|  | LRFlQGQLDGEGLSTGNELFRCIULR KLHLEVARLLGNGL |
|  |  |
|  |  |
| UniRe |  |
| UniF | LLEECQSAKGS |
|  |  |
| UniRef90_UPI0002002F65 | KQS EKKQSST R WhLWDVP GFRRWRVTRLDAGD |
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| E3SM16 |  |
| UniRef90-A3PF83 | NEDSKYIIKNWLISSSEYRKWRITRLDGGKKL |
| UniRet90-M4QE74 |  |
| UP10002C |  |
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|  |  |
| UniRef90-G4FF |  |
| UniRef | G |
|  |  |
| iRef90_C1MUP5 |  |
|  |  |
|  | Q |
| UniRef90 UPI000317FBA8 | Q |
|  | HNK |
| C1E6R2 | E |
| IRef90 M1UGK |  |



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UniRef90_U3SAF2
UniRef90_F6HA07
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UniRef90_U5QNN9
UniRef90_A5GTH8





R
R KTDYETVEQRVFP RPE

R
R P S QD E V
RFSSP H NHESVLIF SAFK E Y Y QA WL E L M D
RPMSEQEDGWFLEEVAALLAVMGKAVASTPE SDDP A AVAN
 RPRGVE E E Q GF QE LAVVGYLRLLLAAEAGRDSPDSPPATVAR

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| UniRef90-A9RF24 | G V |
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| UniRef90_A3YZX7 | D |
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| UniRef90-U3SAF2 |  |
| UniRef90-F6HA07 | GVD |
| UniRef90-UPI0002002F66 | L |
| UniRef90-U5QNN9 |  |
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| UniRef90-Q0WYD6 | G V |
| UniRef90-Q3AUU4 |  |
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| UniRef90_UPI000472FF13 |  |
| UniRef90-V4U5W4 | G 1 K |
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| UniRef90-A9BAT5 | CP D |
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| UniRef90-M5WHM5 | G1 D |
| UniRef90-V7BDC9 | G V D |
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| UniRef90_A5GVQ6 |  |
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| UniRef90-R7QUU0 |  |
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| UniRef90-M0S5T2 | G V D |
| UniRef90_B9GIF8 | G L D |
| UniRef90_J3L7U6 | $G \vee N$ |
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| UniRef90-Q3AKB1 | N P |
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| UniRef90-L1IR81 |  |
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| UniRef90-D8R136 | GL H |
| UniRef90-E1ZFG1 | $C$ P |
| UniRef90-A4CSG8 |  |
| UniRef90-E3SM16 | K P K |
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| UniRef90-W1PBU0 | GVN |
| UniRef90-G4FPZ0 |  |
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| UniRef90-K0SXV6 | LS E |
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| UniRef90-UPI000317FBA8 |  |
| UniRef90-Q93SN8 | L N |
| UniRef90-B9HP19 | GLD |
| UniRef90_C1E6R2 | V |
| UniRef90_M1UGK1 | K V K |

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UniRef90-A9YTW5

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E WRWSNF $\square \mathrm{KLLIS}$ QLA
KYHC $\square \mathrm{E}$ HE $\square \mathrm{PSA}$
TNEWRWSKFQKY I IDK $\quad$ D
QYDF QKYK $\square \mathrm{PSE}$
K WRWSKY I KY LLS K
SQEYNLTEKATPPK TGRPRVRASALSYRQFVQFADDETADHTRVAPSPLQER


E WRWAKF $\square K F \operatorname{LI}$ S Q LD N NSWRLDRKFHDYAWEKLGY

 EALGLRPLQLDPE D A LIF ETFPQLELGEYVAK WD

MS MS QTADESSGFSYKKLIHFALEETNTHTLLAPSPLQEK
LQ HAAEDFAADLRAVPLERVRVPDA MGS WR $\square R S R T S P A L S V T L A Q \square E Q S W E D L T L V P L P C D P A$

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\square \text { F N T F D पE P D V }
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Y QKFVHFALEQTRHRSTLVPHPSQEK


RHEALF LDRDKTSLDLEDFT
 EARLGDLDWQREARPDE RHEA LIF $\square$ D R L L KTS
$\square G W \square P E D R P T R$ D D

ENRLDS QLFPCTLPHD
E LVSAVE A R L

DLVSTVE
DLISTLEDRFQSH
VSSAQKNLMVDLVSTLENRF


L L

HLLP C T L P L D

ENRLLGTSLLPCTLPSD



UniRef90 Q58LH5 UniRef90-UPIO003D2890A UniRef90-Q9K4U6 UniRef90-10Z6E8 UniRef90_W7U5V3 UniRef90-A9BCT3 Unirefolo-E3SC21 UniRef90-B7FTT8 UniRef90-K7M494 UniRef90-A0A024CJ70 UniRef90-A4RWL8 UniRef90 A0A059ABJ9 UniRef90-13TC50 UniRef90-MOYL87 UniRef90 D8LGZ4 UniRef90-D8TQT2 UniRef90-W7TCC7 UniRef90-Q7XY33 UniRef90 A3PF82 UniRef90-UPIOOO47435D9 UniRef90-B8BVK4 UniRef90 T2IZE0 UniRef90-A2BYX5 UniRef90-B7FTT9 UniRef90-UPI0002D78444 UniRef90 W9RF84 UniRef90_UPI0002F5043B UniRef90-A0A059AAK0 UniRef90_D8SIPO UniRef90-A4RY28 UniRef90-Q018H1 UniRef90-Q93SN7 UniRef90 Kor735 UniRef90-A0A017TC06 UniRef90-A0A024CHL8 UniRef90_O58MU6 UniRef90 B7FXQ2 UniRef90 UPIOOO47348CD UniRet90-K8EZ24 UniRef90-D8LQ14 UniRef90-M1C2M5 UniRef90-B8C1S2 UniRef90-A4YMP1 UniRef90 A0A059LGL4 UniRef90-11M6B3 UniRef90-UPIOOO473F748 UniRef90 M4SNN9 UniRef90 E3SL81 UniRef90_M4QDA2 UniRef90-D8S1A3 UniRet90_K7W1H4 UniRet90 D3RQ36 UniRef90-C1E1C9 UniRef90-W9VE60 UniRef90-D8SWD9 UniRef90-G2LG52 UniRef90-G2DXI1 UniRef90-W5CAE6 UniRef90-K8F2X8 UniRef90-13YF45 UniRef90-A0A059B9U7 UniRef90_UP100047393CD UniRef90_L7VY00 UniRef90-LOGYV7 UniRef90-A0A059BaIo UniRef90-UP1000473CAA5 UniRef90 I2CSC6 UniRef90-W9R4L2 UniRef90-D7SVY 1 UniRef90_M5WA01 UniRef90-V4RWD5 UniRef90-G7KE17 UniRee90-UPI00042B699C UniRef90 UPIO002C33773 UniRef90-UPI00032ACA6B UniRef90-C6TDC0 UniRef90-UPI000255B4CC UniRet90_-A9PG24 UniRef90-W9QU20 UniRef90-J3N298
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 VQYYENQNGTAQASLQDRSLK SSLIDFIHSEL PTGAALN VQYYKSKNGTSQVSLHIRPSNTDSGSWVHAEL PTGGSLD YCNQSGTSQGSALH1 RS GHSSSQVDFI HCE VQYYHNNSGTSAVSLHDRPGNTDSGSWVHAEL

VQHCQNESGSAQASLH $\square R S \square Q S S Q V D F \Pi C K \square P T G G A \square N$ NYCFSCRQTDFMLSSLHCKTGNGAN FENQTGTAHGSYVRSGNSASQVDFILGVHCNLPTGGADN VEYYQNQSGNGALLIRSGSPDSSLLASWLHSQLPTGASLN LQSYSSDTGEAHGSLNT FSGSEIDLVHAWLRDSKTGFS VEYQSGTSEGANFGLASWLHSGQGSKDDFQLPTGASLN LQS GEFSQIKMYGFM VQSYSADTGKAHGSLNT FSGEETDLVHSWLRDPQSGFC



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 TQKYVDVYRDUSY SKYKFKENRVLPDWTDVFSQGCKFM


## SNT

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YAEL $A$ D WGRF DPEY LDRHTSVLSPIVYK YRDKCSKFFDETQFFSKYL WT


 E ESYLNKYCAPMEDVRNKYDKMSKRFYDEALFFSQQQVIGAS NQGL
DED K K K K K L

ENQFNSELLDDQLVKLKKPIVAEKMSEMEVVSRFFSPGLI WS
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 HPREKY LF SVD G G LEEDD GKYR FFEMGNHFSKN
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NVSUIPKRYSHUETKQQSDHSKYQKLLP WGRFFSPYA L WT
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TTEHKD YREKYYRALMPLVHKYSEM
S LDDEP FARVAHVHRPALELPDELPLLESVTSPHLLHC SEAYLGRYVDALASLRDARFAESDRFYEDAQFFSPAMLFA TYCLINCYLARY
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RFEDGKVNDDGFPAFKSYVETHVDLVKNTPQAKNPQDVQH RPQTEAVITRVFSAFKDYLQAYLNFVEQAKPVTDSQRLETV RFEDEVVSQDLFPAFSRYVVTHLNLLRSTTPVAACDVQNV KOPKQTESDOLGEAWLELMDEAEENNESRITGN KLPKQTESDQLFDVFKEYLNLYFEVLYNTNRVNDDLNSEI RFSSQHMHDVLYSAFMDYLKVPC
RSDQGSSEPDLYTVYTQYVATYLKSLHSLEPNEDPGFCLR RPALLANETRSLDVVRAYLDVWLDRLDEAEREAEATEASA RPASEDVMRCSLDVVEAYVDVWLARLDEAEAGEDVRRCVL RLAKHQDENQLYDSFKEYLNLYKKTLFESEEVGHGLQQEL RVAGADLARAASACDDVRVHVSLCTASAPAPQHRLGTA RLPDGDEGDHLINSV
RYCKPDEVDQYLDTFK DY LTKYKEMTDNNKPVGEDTTVYS RMASSEDQTDLMAAFQAHLEVYTQLLH DYTDLESKDN KLPKEEDTNQLYTSFKKYLDLYLELEFESKEVNDKLQKEN


RLSDDTVST LVWEAYQEY DD DYYE RPASRHEVASVVSALIAYYLDAHLATAAEAE
RGLSREED VGAVIKYYQAHVARLVTALPAGDARRRAV YAEVWL ELICKAKETDESQDFHN RGSK LiLd RDLNNTFHSFVNNYLNIYKSPANQF LNAEED RYCKRDEVDDYLPMFKTYLLWYKHLTDEGKPTGEDTT RYCTFAEVDEHLDMFKKYLTVYRDMLESKKPDGESQNDM


TFKP LDPE LF LAAFGAVVETWCRY $\square \mathrm{DQAVSDADVQSRQA}$ R P
SPSTEHNHHVLHSAFVDYYKVWDELMDQAKENNKATTARN AF KPLDPDGFFAAFEAVVETWHHYDERAEDLDPVSVQAR RSSSEPDLESLYADCRNLLEDF

RPSKEENFQLVLECFEAYLRGYVELLKEERGAEVEEEEAF GAAELELLPVVRAAFRAYLDQTIEKPADPAASSGGD P SPIA
KLPKEEDTNQLFTSFKKY的LYLEILFESKEVNDELQKEL GAHAGAESSVFLSAFRKVADLPAQMTGSDQTLSASSRLDR AFKPLDPE RFLATFDATVTTWRDAYDATHDGDAASVQAR
SPDDA
K KLPKEETTNQLYTSFKKY听 RVEGDALVE
RI EAEAVERLEEDIDEYLRTWLEQCACVK REVN RIETEALQSHVGPVAMEVLGUWLDQCAFGEEVGDSEDREV RVDTETETGAGESTRDDYI ITNH RIQTENDENHDDPVSKVLG\|WLDHCACAEREVGEED RVTSPTVKDHVDPVAKAALGI WLDQCACGQRNVD RVDAVEDENHVGPVAEEVLG| WLEQAFGKREVGENERAEL RIQTENDGNDIEPISKQVLGI WLDHCACAKAELGEED RILTENEEDHLDPISKQVLGUWLDHCACAK RGSLSPVAEKVEPKVFAYVDHWLKLVHEAKAVQDAEARAV SVLSPTVVMIQDERMEEVVKNHIDPTAQEVVLGDWAEACAR
$\stackrel{R}{s}$ SQIT ESTKNHVGPIAARMVRVWVECACKEREVGMMERVELL RTETEALQSHVGPVAKEVLGTWLDQCAFGEEVGDSEП
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Y QD QVYYCQQQKQNKKTEAIVLGS WFDPTWAKHYI DNVLIF 240 CEARHKYGTWRSEKDPGHGVLKRLIDGEDLAKNVIVREFGL RVAHERYCAKQLENGKTRRVVLAAFGGEFATRYMAEIMFD QEGHRNYATYRAVNDPARGMLTRMYGRSWTERLIVEVLFE KEGQQSYDDYSSAHDPAHGLFKSYFGKQWSERFGKEFLTED
 IL EAQHRYDT WRAEKDPGRGVLKKLIGDTLAKDMLRSFLFN LAGQRRYTDYRAEKDPARGMLTRFFYGSEWTENYGHTVLLTBD
 KSRQDAYDQYNAERDPA
 CAFRARFCDNQLANKKTRRVLEAAFGKEWADEYMS
VSRHRAYDEYQLVHDPAHGLFTGYFGAQFAHD MLTFQFD V Le LLHR
$I \bar{N} G Q N E Y \square N Y R R D N D P A R P M L S S L F G K E F T E S L I E E V L F$
VERQQAYDTYSADRDPAAGDFAAMFGKEWAEDFDYDFLFS LQAQRRYDAYRADKDPARGMFTRLYGQAWTEEYI HGFLFD I NGQNNYLNYRRNKDPARPMLSSLFGKDFTESLI NKVLF

 DKGQNFYLQFRKDKDPARPMLNTLFGSDFAETLLSD LLIF
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REAQDAHDA WQLEHDPADAMFASWYGEEWARDFAETVLFP RAAQDAHDAWQLTHDPA IPMFASWYGEDWAREFAETVLFP IN GQNDYDNYRRDNDPARPMLS SWGGKDFTESVI NKVLIF


DFDTYMTE LDPDRGYMKNKFGEGRSEAFVNDFDF WSA EY LDYRLTNDPARPMLKSLYGEEWTERVLKTVLFP
 LLKKQ\LFCEKQLTNEKTRAVLERAMGSRLCERYMTEVGLED
LQGQEDY LEYRRSNDPARPMLIRGYGEDWAERVIGGVLRP QVAQRKY i A QRSNEHTFRMLAGCVGVDLARDFI DGWLFP LEAQKSLYQTRLDHNGDGREAVEGCLAGQEMQEYLS VLFP LEA QHRYLTWRAEKDPGRGVLKKLLAGDTLAKKMMLRSFLIFN K $\square$ NQ QKYDKYSFEKDPADKLFKSFFGEEWTKKFI NKFLGT HYHDFDKYMDK LDP P I S GYLGSAFGKEESEQLI KEFFF HKTYHDFDKYMRKLDPVGGYLSGKFGKEKSESLVNDFLF


RERVLELKRVIFENDPAFPVFTQSFGQSMSDTL
QEEQHKYDT WRAEKDPGYP LLKK LIGESRAEDLVMEFLFE RETLLELKKEVFRNDPAFPVYTRAFGKTMSD

## HPAVTA AK Q H HA A H S P GYA L L A P KA GE VWT R A F L WE WHF LELKKE $\square$ FRNDPAFPVFTRAFGETMSN

RRR $\backslash A E H D K W Q \square E R D P A \square K M F S K W Y G E E W A N A Y A S E V L F P$ HPDVVRYKHHHAINSPGYPLFRAKMGEEDAREFDFNWHF RDAVLE LKKVLFRNDPAFPVFTRAFGQGMSDVF REAQHRYPTLRAEK NEVRSFLFD RNGQNNYLNYRRDNDPARPMLSSL RELL WLAAERRNRKEHNALAKLLGAALATEYLDRFLF REAVLEMKRILFQNDPAFPVFTRTFGRAMSD REAQHRYPTLRAEK

DEAEKNY LQKRDKKTKTDE\LPRLFGPETADRVM
SYLEKRDRRSKTIEILPRLFGPETAGRVLE EEDERAYLKKRDDKRKTIEEI FPRLFGPDAADRVL
 K A Y L DKRVI RNKT I EVVFPRLFGPEAAKALILE
EAEKAYLEKRLI KNKTIEIFPRLFGPDDANRVIREV KKRDDLVKKKTI EIDDGSNFPRLFGPDAADRVL RAYVRKRVIRNKTIEVVFPRLFGPEAANRLLE
 GEREKAYMMKRDEKKKTDEE ARPRLGGPEVTDRVL
 AKRD R K N N N KT DE IFPRMFGQEVANRVL
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FKKYSALIGEAHGSVNT FSGPEDDLVHSWLREPKSGFC VEYYENQNGTSQLLIRRALPSSPMUASWLHLKQPQGGAFN GGALN

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

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