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$A$
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N A Y A



Y L K Q Y R Q T Q I D T A P K E Q L L L M L Y D GA V R F L N Q A K A G F A
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## Q R


QRGANAYAN $\square G V E T A S$
K QYQTVNVNAQVISEAD PHKLL


 N A YKA YKNNSVNY A S NPFAA Y QQTSVVTAA S GYQ Q Y E K S K Q HGANAYAKVGIETASPHKLVVML
 R A A S A Y R QVGGVQSASPMMLI KMLFD GLI QSLNAAR GA LQ Q GYAAYANNKIMTASPAELTLMLYEGAIKFANLADTA E KS GAK QYQQVNVTSADPHRLIQLLMEAALTRMAQSKGA】E RGANAYANVSI ETASPHKLIVVMLDGALVAVATAEQQMK R Q Y QK $\quad$ S A Q A Q T S EAAS P H R L V
 $G$ VI R Y R Q V S T A F S D R C R L I Q M L F D G GVVERLAQARAA VM NPYAQYKNSK\|LTASPAELTLMLYEGA!KFGN!A\|EAIE K
 YA QV D
 QAMRA Y Q Q N S V S T A S P G E L T L NGLQA Y QRVN NQTADPHRLI QLLYNGAI ERINMAKARMQ NA YQQYRNSTVETASPGALLLMLYDAAI QNLEGAKRADE Q Y A K VGll T S V M T A D P H QL I L ML F D GA L M SiA TA GA S ME
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 NA A QAYGARKVETATPAELTLMLYEGTIK F CNDAMGADE $R Q Y Q Q V N T Q A Q V S E A S P H R L I Q L L M E G A L Q R V V Q A B G A L E$ K Q Y Q K L G $\square$ E S EVV SHASPHRLI QLLFEGAL GRLAAAAGAME
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DSY ${ }^{2} \mathrm{ENSV}$ A AYKNTHTA SAAEAYKKQQIMTAT QQYQAYQNNSVNTAS

 PFNQYQNTQVGTAS SYAQVHRNANVEVAS QEALKKYRESEVSNAS QAAAAYKETSVKTAS RQYQQQYSQSQLAEAS ATNTYARVEVESAD YARVGVETGVMGAS NYONAYKKASVNTDDGELL $R Q A D N A Y A Q V G V Q T A$
$K D P K S Y Q Q N A V L S A A P$

## NPYAKYK

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371D44E

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NPQQAYQQ

## Q

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NA

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S Q E E ML LM L Y E GGI N F CN Q A K

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 QAYAA YRETGVKTAS QGK LI VMLYE EAL RRLLDSADLS YE NYQT TNLAASQAASASPVRLVIVLMDGLLDEMARARAHIE


## Q N

$Y A K V G L E T S T M G A S$

 K N R A Q H Y T DVVGV G E D S P H R L I Q M L M E G F LAA R I N S A K G A I A
 RTGQNAY LE S QLA GATPHQLI TMLYEGAINAMLRAK IM FE SAMNQYRQTGIAAADPVKLI EMLLGGAIDRLAYARGAML R A A F A Q Y K N N K V L L S A S G P E L Q Q Y K Q V


 Y DSYRRESRAAS SSPYELVVLVLGFDGLLLDELAARAR GHIJE
 RASAAAYRQSQVLSASPHGLIGLLYAALRSCLVGAKGADE


 SAAKVYKKNQI ETASPKQLVVLLYEGAIKFIRRAELAVE



$T G V A T$
 QMADVYKK QQUMTS SPQQLETLLLYNGALKFLNES LIAME KAYKSVALDSQKTVASPYKVVQMLLAGALERLARARSAME RHA Q Q A Y Q Q S E ITTMA T P Y QL I Q $K Q Y Q Q V S I E A Q V S D A N P H R L I Q L L M Q G G L E R L A Q A R G A M E$ QKF LNQYQQTSSI ETATPHKLVVLLYDGVVDALALVKGADE
 QRNDKA YKATS L EAA DPHRVI QLLMQ GF E R R L A K A K G A I E A Y R N T AVQTAAPDRLLLMLYDGLI QFLEAAKRALV $R R A L N S Y A K D S D G D A S P H E L I Q M L Y D G A L Q R D V Q A K G A D Q Q$ NA YNQYKENSVNFASKEQLLLLLLDNAVKFSKVGRQAI I


KAYKRTNLEAELSVADPHRIGQMMY

 QS S V S A Y R Q T S YND A DLA $\square R T A A A T P H Q L V L M L F T G L Q D E L V R A K G H D A$ NPDDTYKK TVNTASPYRIVQLLLQGALERLSLARHAQL $Y \square D D T V A T A S P A K L L T M L Y D R L V L D L T R A$
S GY D S Y Q QVQAA A A TP H QLVVVML DD GL L N E I E R DR G H DS
$R N P Y A A Y Q S T G D K T A S Q G S L V V M L Y R G A V K E L A A A D A C F A$

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



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 ARARY【ADSTSTASPARLLVMLYDRLVQDIAQGEQAI R KAYTTQSLQAEMAVADSYRIVQMMQGLVERLAQSKGADED YRQLGLEAQUTGASPHRLIGLLYAGAIGELNRAIACES RSYADVGLETAVLNASPTRLVTLLFTGARAAAKAK RADANOYROTAVTSASPHOMMYDGADKLETACAAMD RALIANQYQTAVTSASPHQLTALMLAGARDRARLAAACLE YQVYQGNQVDGAGPDGLI LLTYEALYKSLGRTRLAI Q
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## VYKKNS


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AVATASPTR VTMDYDRLIMRAEDYFQ NGGKAYQDAAVTTQSKGRLI ILLYDGAIKFMRLAVRELE RRYAAVHSGSRTEGATPHALVKILFDELLDAMEAAALAER TRDSQANRSELVVI YELLLDSLADARQAFG TSQELTSLLYEACLTN KLETADIE SPQEПTALLYEACLDNLEEAKLATE AYKKSDVESDDPHAMVFLMFEELLRAMNKFVVNVE QSYGNVDKNSRLAAANAHELVEMMFEQLLLRMDRALKCLEE KHA $\square A A Y$ QTAVMTTPPLQAVVLLYDGILVRIHNAGDAAA R $\square$ TQANRTQLVVI LYDMVLEYLKEA DAAQE ALDNAYRQVGQQGVQEERLLVLGLDGLLEYLRRARGADQ NAARAYFQTKVKTTTKEDLVVQLYEAAI KFLEQAKERIR NSYQKYKENSVYSMSSWELLDLLYEEAI GRLRKAELIALT


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A WNAYRKNAVTTVDPQK VKLLFEEALKELSLCTKNFF
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 KTQQ IT M ML
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 REKDQAYTR RUTMANKTQMIVTLYEMVDRYYIEDACESDE KSEDNAYT MRVAQA SKVEGASKSE SKVEGATPHQLI AVLYEELIKSLDTLVVGLS ARV TOANRSEVVVI YEACLASHEEGKNYLK VRVTQANQSQLIVILYDELEAALLCATDAIN



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AKDY
DKEY
Q K
80 S

KKD
Y AKE
$R G D T S G R R V V$
$N R D D A G K$
KQDLQ
$N G D T E G$
$\stackrel{N}{\mathrm{~N}}$
Q
$\begin{array}{lr}\text { QKDKA } & P A A \\ V G D\end{array}$




VGD
KGNYI R
SGNUARRG
$V G D$
VG $V$ K Y EAK RAA
KGDYEAKGRY
QGD
R

QGD $\quad$ RMKVSDKQARAMS




K


$\begin{array}{ll}\text { RGDMP } & \text { AMFQSRARASD } \\ \text { ADNWP } & \text { IAWENLRHADQ }\end{array}$
ADNWP I IAWENLRHADQIVNALEESLDFDRGGEIATN
QGDYTRQYQE


ERALDRK AQAMGRAYQUVEHLLVALPDSESGELSQR
EKDY IAKGER


AGD
EGDVEAK


E EDVVERR
AGQTEE
FA V K RAALD
VAVQND LLARACI GQLRSSLDFQ YELAGN
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NNNYKMK SDKVTRAVDLLRGLLAALDFERGGDVAMR


RKDVELR

DSTEQA

DEP $\square$ KRG KHLGRAQKVIDLICGLDMQ

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EGD $\quad \mathrm{R}$ KRG
NDRP

ANESTQRA DDILHRLGAGLNYEAG IIADQ


NGDDAKRG
EK KAKNEANENISKAIS A GLIPSVNYEDAGEVAKN


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DRDTLRK

RTFKNELKQAVSFVKELLSLDMS


$A N G T L N R S Q V I V R R A R C N T: L D G L E G S L$
$V T D W Q$
$V$
KED RGGFREGIRKARGCIDELLASLNFD YELAMN


S RRFEEGHEHLMKATAILRGLSHNLDFTNGRDVAER
NKD FYTANENLKNTSDILHRLGVGLKYEAGV I AEQ


QKEFME

A GNDAEKGNA
RNNDRLK VSDKQARAMSILDALASAG
$D G Q D E A W E A L L R C R G V I T E I L D N L K P N V G A V A S Q$
NSNDDDAQS LK DK FLGG IVEGLQGYLDVERGGDIAVN
ARRFE EGHGHLGRAVAILRGLSGHLDTGRGGAVAEQ
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A N A Q L Q H A Q E I L LE L QA S L KVD
$L \operatorname{RR} L$ G V G L $N$ Y D A G IIA H Q
I $\operatorname{N} L$ R A G L N H E V G GQ A A A D
$V$ LIE L A GSLRPEL WE GGPA
I NEL N A V L D T D A G GE I A T N







$L R R L$ G A GL NYEA G II A D Q



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RRYAAVHSGSRR ANGVQLI VAL

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 RADDAYRRAA TAVPPAHAVVLLYDEVVNALTHAEQHAR SPAA $\square Y K L Q Q K T T D N S H Q L I$ KATLEYLAKSLSLMV
 A QRAYVENAVETATPAQRLLI LYEMVLDYRLEANLVALG


 D A K A A L KTSSLNPHKI I EEVLRDLKKNMEAYS
 VVRGYETAAAHLHQARDAAR
 RDYYSRKQTTTVSEASAHQLITLT LNKLKADLILER RISNANKTQMITI LYE LLMCYADEAIDDLLG QA WQRYMQHNIMTSNPDKNTIFI YERCIVEFRKLEELLN $Q D \square Y$ DEQKVLSASPEQLISYYYDAA\|AGCVK NPY TQK MSASPEQLVVY YD TA $\square$ A ACG NPYLVNQI KNSTPQELTLLKVYDFATQQC
RRTSDTYLESMUATSSPAKLRLMLDERSVEVARHLAGDW TS QEI TALLYEALLDHLEEALAS SN
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KTASSNGCGLISDLYDGYGEYEQRALDDQF KSNRLYEMSPEELTQAMLHALVYHYANARTA RSPHEAYRRVRVKGASPTELVHLCYEHLVSALGTADHA

 A LKNL LESMTALK
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UniRef90_UPIooo3B305B0 UniRef90-G8AY62 UniRef90_Woc8M8 UniRef90 U4UR31 UniRef90-UPI0003B5612D UniRef90-UPIO00375EBAC UniRef90_UPIO0036F34FD UniRef90 UPI0003A8BCFA UniRef90-17A6C4 UniRef90_M5TL60 UniRef90-UPI00047B9999 UniRet90 W7BQK6 UniReffo-K1RPJ2 UniRef90_N2AY41 UniRef90-_OAMR1
UniRef90_-TOY5S2 UniRef90-G2T5W1 UniRef90-C4L5L6 UniRef90-J2GW22 UniRef90 UGBBBC5 UniRef90_U7D629 UniRef90-R5EL92 UniRef90-C4Z955 UniRef90-Q2RRA9 UniRef90-D41XH4 UniRef90_U1N2H1 UniRef90-F6IIW2 UniRef90_M17582
UniRef90-_55K976 UniRef90-UPIO00225ABA2 UniRef90-UPIO0036DE6D6 UniRef90-G7ZFL8 UniRef90_E6QWV5 UniRef90_R9M3F0 UniRef90-M9R7C1 UniRef90-A7GNG7 UniRef90_G9XD89 KGDHDGQK

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80 RTQ QEARPLPSDHVNRVLTALYLQQSSLDEAGGP SN SEAYVEKG FHLGRMTTILDALRDRLADTRETPLAYD LRDEAARREAARRALGNLVDLQANLRMVG LGGEW KRADADRS:GYAQNC:DELLRSLDMR YELAKN NGD ENYKTALRNASKTI SELISSLDFS YQEDRLKVLS DGFKTEDLOKADSYDKSAKGVLELVKALDMEQ RDTNRFDEVNERLQKAYQLLDKLRGSGLMDDGYE: SHN

 KTQPGKRGTNEYSLKLLELLSELLSGVTMDDSSVDVCRT QKPDDVAFERGSA QRAV SL GGLRGTLDMDRGGOLAQQ QKPDQAE FQ ARSAGRALGGMLDELMRSLDMORGDIANS $\stackrel{Q}{\mathrm{~L}}$ | L |
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 AAYDAADWDAYKEALRRAQRAI DELDSALNFS YDMAKN ERAQDSTDAERNRHLRQARELLVKLHQGL HDGGGDIAAQ RGDNCLK AK EKAFDHMNERLQKAYALLTKLSEGL HDDGGIITSQ EKNLDE FDHCDDKARAVOMOLN FRGKETANT RHVSEDREALRKGVSDVQAALDELMGALDFK YPLAGQ RHATAGQFDRFHAD\|VHA\|RIYTGLQVVMTNQVGGPSGKA AGQMTETFEAEFEAMSKATLILSELERCLNTERAQSMSKT DTDAERNRHLRQARELLAKLHQGLSHDGGGIISAQ DEDYDQUIELNNS VKDYEQRY $A Q S F L Q E L$ M S M S DAESPEEREPDF LTE VTS YF AAAREEDHHVADQRAVMVFAGLDS LDFDKYEDVAWT RRDFAAK QRAMERVQQVVQHLLVTLGDNPPSPHLIRR RKEFA QANEHLIKNAQDLIQLQ SLIPKDGDETSQQ KPERHSETFMTHTARVLTSIYVLQSSLNFEKSVKLSTN KDD KEGKKIFASSDKTRDULSN | $L_{1}$ |  |
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