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|  |  |  |
| :---: | :---: | :---: |
|  |  |  |
| A D N D K P I | A V T Q L P Q K A Q L F I K | K T HFP K EKV ALA K L E R D F |
| S A D N D R P I | SV SELPEKA Q Q F I R | RQHFPNEKV SFAKMEREL |
| A D N D K P | QV NQLPAKA Q T F L | NTYFKDHKVA LA K Q E T EL |
| A D D D K P i | QV NQLP QPA Q T F I K | KQYFSAAKVAMAKMETDL |
| A D S D P | DVA QLP QKA Q Q F I Q | QKHFA GEKVALAKVER |
| A D D D K P | QV S QMP QK A Q Q F I K | K Q HFAGNNIAMAKVESDFL |
| A ND DKP | K V A QLP Q S A Q Q F I K | KSHFGNSKVA $\square$ AKMET DWL |
| A D D D L P | R T N Q L P R N A Q Q F L T | T Q Y F R G VEVVS Y A K Q D D E GF |
| A D N D R M I | T V N Q L P Q K S QEFVVK | KQHFPNEKVAYAKFERE |
| A D N K P | Q V G Q MP Q Q A Q $\square \mathrm{F}$ I K |  |
| C A D | A LK DLP A A A Q Q F L K | K Q Y F P DVK A T Y A K V V N D L W |
| A D N K P | TFEQLPAAAQTFI K | K Q HFADAKVAFVKMEKEF |
| A D N K P | Q I N QLP A K A Q TFIN | NTYFKDHKVALAKEES GV |
| A D N K P | NV T QLP P T A Q QVL K | KKYFPSKKVALAK |
| A D H D P | Q F NQLPVAA Q E FV | NTYFA DQKVSFAKEERDFM |
| A G N R P | SFDQLPAKS Q Q M | K K Y F P N Q S V A L VKMEREFS |
| A D N K P | Q $\square$ Q QLP T K A Q T FI T | T T Y F K N H K V A L AKMES |
| A D N D K P | NFTQLPQAA QKFVK | K Q H P K A KI A F VKMETE |
| A ED DK P | QV V Q L P Q Va Q T FI Q | QQHFP THKVAMAK LESEWF |
| A D D D K P | Q FSELP P T A Q Q FVV | KQNFADKKVA LA K M E S D FF |
| A D D D R A | TVDQLP Q K A Q E F I Q | Q K Y F P K N El S L A K M E K D F W |
| SAA QETP | T R S QLP K A A Q A F L T | T K Y F P GQEI S R I IR D K E L M |
| S A D N D K P | T FEQLP A A A QQFVVK | KKHFASEKVAFAKEDSELF |
| A G N D R P |  | Q T HFP |
| A G NDR P | AV GELPATA Q Q F I K | K A HFA GVEVVSLS K V E E |
| A D D D R PV | RFD QL P AKA Q A Y V K | K K Y F P Q EKV A L A K M E |
| A G S D R | $Q L N Q L P K A A Q L F V T$ | T K Y F A GRTV SLVKEDREFS |
| A D NDKPI | HV G QL P T K A Q T L I T | T TYFKNHKI AL AKMES G L L |
| A A GNEKP I | SV S QMP H N A Q Q L L S | SRHFSNKKVALAKVESGFF |
| A D N D | T F D K LP A K A QTFI K | K Q NFPTEKVAFTKMEK |
| A G S D R | Q T NQLP K A A Q LF L A | AKHFAGRNVS LAKEDRDFS |
| A D HDRA | TTEQMPRQAQEFI A | ARYFPGEKI A Y AKKESDFF |
| A D N T P | TVDKLP A Q A Q T FL K | K TYFGDKRVAYATKD |
| A A DKDQP | EVT QLP A K A Q Q I I | HQ HFK G $\square$ Q I A |
| A D N K P | TFEQLP Q A A Q SFV K | K K H F A D NVAFSKMDKD |
| A D N D | A VT QL P A T S Q Q I K | K K N F A GKKV A L A K Q E T GL L |
| A A A NDP | K F S ELP QKA Q T FVV | KTHFSES DIA SVWK D TEML |
| ATNDKV | S LS EL P VK A Q T M I K | K K H F P NQTV S FVKM D R W WL |
| A Q D DVQ | TFDKLPAKA Q F FVV | KTHFPKEEVASVWKDTEML |
| A ANDKPI | EVSKLP Q T A Q Q IL K | K K D F S M K I A L A K M E S G F |
| ADNERP | D I S QL P Q T A Q TLL I S | STHFKNQTVMLVVKETE G |
|  | RIDDQLPEKA Q S Fi P | REHFK GVVVAL A KVVES D F |
| $\mathrm{D}$ | S PGKLLP Q A A LQQTIN | NTHLP GRKIA A A K V E S E LF |
| D N K P | TVS QLP A K A Q QVI N | NQNFKGKKI AVVVQD GML |
|  | PADSLPQAARNFI A | ATHFPGAAIFRAERDDD |
|  | $Q V S Q L P Q T A Q Q F$ | KKYFGDRKVAFAKEES D F |
| A G | A V N A L P VK A Q T L L S | SNHFNNQKVMLA |
| V V | T FSNLPKESQKF | K T HFP NVKV S RVVKD $\mathrm{V}^{\text {V }} \mathrm{S}$ S |
|  |  | TKYFA GRSAVLV KLD R D F L |

AGNE $\square R T T D P Q K \square P A T A R E F D A T H F P D T R \prod A D T K D D R E G G$ SAQDDRFISFSQLPAKAQSFIKEYFSEENI A SVWVDTDYL AKDTPITFEQLPAKAQAFVKQHFK DNDI ASVWKDDDFH
 AGNDKPUNVNELPAKAQTLLSKHFKGQKVMLATIESGVV

## 

SFAQDKPDKYNQVPKTGQQFDNKHFGAKQVGSVLDDDDFF
RKITDAELPATAQTFI KTNFPNQATSYIIEDKEIT A D DKPI R F E QLPKVAQQFVKNHFS SEVVSYVTVDNDLI


A QDEGLVPDSTLPASAQSFDKQHFSANSVVSVWQDTEKG A GDRERPLTLDKLPAAAQEFLAANFKDLTLAYAVEDPKF $\square$


QUERY R5F3KO UniRef90_UPIo0035C93D3 UniRet90_R6KT39 UniRet90 R7NNX7 UniRef90-UPIOOO2F60474 UniRef90-R5RCG2 UniRef90_R5JK36 UniRef90-W2C6D4 UniRef90-R5Z135 UniRet90-G5H6Q8 UniRef90-R5U3N97 UniRef90-K9DZQ7 UniRef90 F 515 E 4 UniRef90_UPI0003A687F2 UniRef90-R5TV27 UniRef90_R7DK44 UniRef90--99H4K8 UniRef90-RIJ7X5 UniRef90-UPIO0037D771F UniRef90-R5S6C7 UniRef90-A0A016K169 UniRef90_RGYAL1 1 UniRef90-R6X3F2
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UniRef90
WOJ4G1 UniRef90-R7JIC1 UniRef90-R6YPU2
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AKYVSTMYPDAELER
AQYVSGHYPDASIVQUDRDKHDYEVK SNGWELTMFDLKKF
 ATYVKQNYPDASIVKI D
RKYVTHYPDVK KKERDKKEYEVKL
I RNYVKANYPDARILQUEKDDKKEYEIRRLSNRWEITFDDSKM
SQYVKSTYPGTKLLQUEKDDNQYEVKSSNRLEVTFNKNF
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| AQYVSQNYNGHPIKK\|SKKRYGYEVELSGGTDLEFSQNG
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SNYAKKNYPGTK LED ERDRSEYDVKLSNGUETVFNKKF
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I AQYVRANYPDCRILEDERDDEYEVKLSNHVEVTFNKKF
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I AKYVADNYPDNKIVQI ERDTRSTEVKDNRMEIKFDKQH
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MADYLKRNYPDRPVVKDDRDRRGYGVELSDGTDLEFNVRG VAQHVQRNFPNTFVKEIKKRKYGYEVELSNGLDLEFNRAG A AQYVKKTYPQTD|YK| QKKRYGYEVELANGLDLEFNAKG IKNYLKENYRGEIVRKDEDNKKEYEVELANGIDLTFNKHF AKNFLYAHFKG\|PVSSADRETYGYKVYLNNGMKMEFDSNG AKNFLYAHFKGIPVSSADREIYGYKVYLNNGMKMEFDSNG IVEYLKENHPDIPVIKFEQDTKEYEVKLKGG|EELTEDKQF AQSF ETNFPGAQFVLVTVDKDFYDVVLNNGVKLEFDAKG

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

 AQSFI TNFPGAQFVLVTVDKDFYDVVLNNGVKLEFDAKG VSTYVEKSFPNTKIVKIERDRNEDEVKLTNGLEVKFDKSG 1 AAYVAQNYKGLSVEKLDRERYGYKLEFTNDLELEFDANG ISNYVMKNFPGTTIKQIEKDRGGYQVELSNGLELKFNSKL SKAYVDKNHPNFKI 1

| QUEE | N ${ }^{\text {L }}$ D |
| :---: | :---: |
| UniRef90_R5F | NLI Di |
| UniRei90_UPIO0035C93D3 | N |
| UniRef90-R6KT39 | R V |
| UniRef90_R7NNX7 | NV |
| UniRef90-UPI0002F60474 | NL |
| UniRef90-R5RCG2 | NL |
| UniRef90-R5JK36 | NL |
| UniRef90-W2C6D4 | R |
| UniRef90-R5Z13 | N |
| UniRef90-W4UUS5 | NL |
| UniRet90-G5H6Q8 | NLI GFDD |
| UniRef90-R5U3N9 | NLI DMD |
| UniRef90-K9DZQ7 | RVIDTDD |
| UniRef90-R5KKV2 | Q V V |
| UniRef90-R515E4 | NLI |
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| UniRef90 R6YAL1 1 | RLID: ${ }^{\text {R }}$ |
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| UniRef90-U2JJC5 | QLVRYDD |
| UniRet90-R6C4K3 | Qvvold |
| UniRef90-R5CMW8 | QVID |
| iRef90-R5NE | NVI |
| UniRef90-J5VZ | QIVGYDD |
| UniRef90-R7JIT7 | NLI ${ }^{\text {a }}$ |
| UniRef90-R6DAF7 | RLVK1 |
| UniRef90-J9F3H8 | KLVELLD |
| UniRef90-R6C5N6 | NLI D M |
| UniRef90-R5M8F6 | AVI ${ }^{\text {d }}$ |
| , | KFLR1D D |
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| UniRef90-R7CXZ7 | NL V |
| UniRef90-R5CLZ4 | EVI |
| UniRet90-R6DX81 | QA $\downarrow$ D $\mathrm{D}^{\text {d }}$ |
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| UniRef90-R6YPU2 | QVI D D |
| UniRef90-D7JCA1 | NFIR R D D |
| UniRef90-Z4WVQ4 | QLVRYDD |
| UniRef90-UP |  |
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| UniRef90_UPIO003681376 | KFLRIDD |
| UniRef90-C7M | Q F |
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| UniRef90-R6 | QLID ${ }^{\text {a }}$ |
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|  |  |
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| UP100046F4C9C |  |
| UniRet90_UPIO0046F4C9C | E WK EV |
| UP100046F4C9C |  |
|  | KFKK ED |
| UniRet90 UPIO0036ED26A |  |
| UniRef90 UPI00046EAA64 | Q |
| UniRef90 UPIO003783423 | NLID ${ }^{\text {d }}$ |
| UniRef90-K1HM |  |
| UniRef90-U2HGV4 | N |
| UniRef90 J9GZP2 | KVVDVDN |
| UniRef90-R6FJZ4 | QLI DI |
| UniRef90- ${ }^{\text {BoMTD1 }}$ | NVID |
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| 1629 |  |
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| A0A016KHR |  |

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UniRef90 GOEK66 UniRef90-R6BSM5 UniRef90-Q64WW3

VQNARLPQPSQGFLKANFTNNT\AKTKVDKGNL QLPQTAREFI RKHFPATGVSHITIEKEFW DAKQLPGTARNFI NRYFTDPQI SHIKI ETGDG GREEPDAFDRLPQAAQTFLTTHFKDLTLAYI VADHKIMM DKKI YTTQLPDAARQFI NTHFSGVGI SHI K IE KEFW




 A Q VIS SQLPK SAQNFI QKTFPGAQI FKVKRD A Q D MVIS PA QLPNNVQSFLSTHFKGVNI GLAKKDLD ADDWIVSPDNLPERAKQFI A Q $\square F P D A Q I W Y V E M D$ $D K A T S P E S L P E N V L S F I T E H F Q G E K I A F A K E D R D L L$

SAFADWIVPASSLPENARNFTQKVYPNAQTWKEERD AKDMVVGVNALPANSKNFI QKHFTGSNI ALVKQDID DVIVSPSALPQKAQEFLNAHFKGVNVGYVKQDVD





## SCDD


KVDFSELPARSQAFI GKNFPTEMVKNVEMERKDA
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DNDRAVAFGQLPPAAQRFI ESFRPAAGVAYALREREFF ACDKEEDISTERLPEPAQEFI QKYFSNNNI DQVKYEKDGR A GNDK TSDTN TLLPVSSRQFI SDHFKDDPVVHUQDEKNLI
GCE A E DKVVVTFA QL

 DMPI QANQLPKKAQDFI SANFANDNIVYAEQDRN SANAQKKIEFKELPKTSQDFIKKYFSHTSVDIVKKDAEHG
 ACDEDEKVVDYQYLPDSVHQFVSTYFSDVKVVKAEKKNE TALPQKSRAFI NSTFPGVQI WKVERD
DDDHQVPNTELPAAAVSFLDTYFKGITI RKTEKQTATN DMVVPPSALPKQATAFI NRVFPGVQIWKVERD
EDKEFDNVALPIPAQLFVKQYFADATYSRVEKEKDDG
E DK E F D NVA



90
100
110
120
IA T D|I T A RYPDAVPYKVEK QP G GYE\| D
P GWELYYNYQG
T RYI MANYPGCKILEI EKDDDETEVTLSNHDEVTFNRKY
 I A QYV S Q NYS GHP KK I SKDKYEYE I L I $\begin{aligned} & \text { P S Y } \\ & \text { I } \\ & \text { A T F } \\ & \text { V }\end{aligned}$



 ALE YVQEHYPDEFITE WDKDRTDQEVRLSNRKELVFNLSG



 A R K F I $\quad$ R TYYF N E A D V V A R K F I R T Y F N E A DVVVSVKK E D K K S Y E V V R M R N G F K L E F D R N G

 AHTF L K EHFPNKTIVRATKDWKGFEVVWLNDGTEVEFWKD G I A K Y V K S N Y P N A LI K K $\square$ S K N S Y K Y E V E L S N D L E L E F K L N G
 I L K F V A A N Y P GRHVRGVERDGRNHEI TLDNGLELKFNRRF I S S T I K K T Y P Q A MV IDDVEKE WG N Y K V K L N N M M E L F DS S N G I A S Y I K T N F P K E NVI K I E DE S S G Y E T K L S N G L E L K F N L K G


 VANTVRRTYP QARMIDVEKE WGNYKI KLNNMMEDYVAANG

 I PA YVAANYSQNFI DEI NKESYGYEI GLNSNIELKFDDNG
 I $A$ T $\quad$ Y $L$ L L S T Y $V$ V $\operatorname{SAN}$ A K N F F V V K WE LDD R L E Q E I $V$ LK S V Q A K Y P Q DE V L E I S K E Y N S Y K L K L A N N RE V Y V S N N G
 $V$ MATIQRTYPQAAI I KI EKQFT DFEVVKLNNMMELY DDNNG I IA Y MERHYPHSSIVVIVYDRRGYEVELNNDVEIKFDSRG





 A A D KVNELYYPDSFI TKAEYDDGEGELKLDNGFELKFDKNF SKAFLAEHFPNTTVKHVSRDEKGYEVWLHDGTEVEFWKNG SKAFLAAEHFPNTTVKHVSRDEKGYEVWWHDGTEVEFWKNG VANTI KNTYPNAVI DEAEKEWGNYKVKLNNFMELIDTSDG V L A TIIK K M H P N A SI I K VEKE I Q GYK F KL N NMMEI Y T DVNG V ITTVVQAA QPNAALVEVDKRINGYKFRTNNMMEI YTDEKG
   $-ー ワ$

## I I L L I

## Q2

309334D V R TYMSNTYPK ERIIHKMAK T DKGYRFHLSNGLIL HFDA Q G





 I K D Y V A K N Y P N E KI T H I D Y G H K D L DVVDLTN K I D D L E F T K D G $V G N Y$ Y Q Q N Y P GA K I T E I K K G T R F N F V
 $V A N T V K Q T Y P Q A A I I V V E K E W G N Y K I K L N N F M E L Y I T A N G$
 V L Q A V K K A Y P Q A A I I D A E K E WG N Y K L K L N N M M E V MV S G N G



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 SALPKQAATFI KK $\quad$ YY P NAQI WKVERD
DMVIAPDALPANVKQFIQANFPTSNIMFAEQD
DKYSINRKDLPDAAKEMLDEHFPKAKVSMDKVDRHLL PNQLPNN ILQFVKSYFPNNSI IYAEMDR
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DIIVPA SEELPRNAQDFIGSKNFKTAQUALVKKDDD

SCD

ASAQNKKDTFND TPSEA IN Y IDNRS LAANDTTSVWKNTNDN

 SCDDDEAI DVRDLPSQAWDFLDYYYYDIPVVEAFYYGSGS K YVSVSELPKEGQVFI TSYFKGSNVLTVEERWN


K $\square$ T PSK $\square$ PENAKRF $\square$ AANFNKAK $\square V Y$ Y $\square \square K D$
DVHTRTSSLSQTILNYVTTNYPNLTIVEAEEEDNQN DVHIRTSSLSQTILNYVTTNYPNLTIVEAEEEDNQN DI ILLSPQNLPN IIKDFLQKNFK A QV SLAAQRDDN LPQPARDF S DHFPHTSVKEVEREDDDN LPEKSVKFINDYFNYNNI INVKTNE
DSLPVNIKQFIKDYF NAEI GLVEQD

K | D |
| :--- |
| T |
| T |
| P |

$K \square T$ T ALPKNAQEFI E WVYPQDSI EEMKMDK GV
GGNDKFIPYTSLPENARRLIEFYFHNTKIIYDDKDND
L L L $\square$
$\square V^{A}$
SLPENSKIFIENNFNNTSIKTINKINNRF
V SVSEVPSKA I AFADKYFADYYLYRATE
SGDDEETVSVQEVPSDISLFVSGRFSGAMI ERDSRVSE M


SGDDEDTVSVQEVPSDISLFV

| QN | TEN |  |
| :--- | :--- | :--- |
| Q | T | TEN |

EIKANDLPLQASKNFLINLNFPGNNLESVSLYQNGG
 FS ATKGGSEKPI PFEKLP KM ETKYEVVLVDDGTEVDFDSKGNWEEVVSAKGKTVVATVVPG F EKTFEVVFTNGYEVKFDKNGEWYKVDCKRDAVPSAIVLED

 | $G$ | $T$ | $M$ | $Y$ | $E$ | $V$ | $D$ | $F$ | $V$ | $N$ | $R$ | $D$ | $E$ | $V$ | $D$ | $F$ | $D$ | $Q$ | $N$ | $G$ | $T$ | $W$ | $L$ | $K$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $K$ | $A$ | $E$ | $G$ | $N$ | $P$ | $I$ | $P$ | $T$ | $G$ | $F$ | $L$ | $P$ | $S$ |  |  |  |  |  |  |  |  |  |  |  |
| $K$ | $K$ | $T$ | $Y$ | $D$ | $V$ | $R$ | $L$ | $T$ | $N$ | $G$ | $I$ | $K$ | $I$ | $E$ | $F$ | $S$ | $N$ | $K$ | $G$ | $K$ | $W$ | $T$ | $Y$ | $V$ |
|  | $S$ | $K$ | $R$ | $K$ | $A$ | $I$ | $P$ | $E$ | $D$ | $L$ | $I$ | $P$ | $A$ | $K$ |  |  |  |  |  |  |  |  |  |  | DEEYTV IFRDGEVFNGDGDWKELKARHGKVPDHVVPEK GGKFDV ELS NGAS I D F L T T N G D WV V N D GEYNGVP F S V L P Q A

 K T Y E I $\quad$ A L S Y DVIL I D GTEI DFM $\square$ NGDWKEVDGKYKALPHTIL WDKY TVYFNS GNQVSFEGS GDWSQIDMKEGSVPMSVI PAK EKVFDVRFEGDYTI LFDHKGNWF LVDCDKDPVPTLLI PAE

GSYDI RFTNGTEI DFDAQGRWTSVKASDRQLHTSFIPNA WDE Y GVVVV G GYEL GFDRQGHWEEI ESDDKP L SVVKLLPAP
K DFEVVALQSG■EI EFFMNGEWKEI KSPYQPLPATLLPNA K P K Y EV T L E NGTEI EMNDRGRWTEI EGKNNAVPTGFLKEA ATGFEAYLTDGAKLEFDGRGEWTSLDCKFSALPNGVLPEN EPHYKVELANGFVL RFYRNGGWQEVDGNGVEIPYDLLPGA VA TY N V QL K D G T K I E F TEENGE W DE V K G L G K A I P DK F FP E N



A
DYD L A N GlVDI DF DI N GNWI NV DAR

 WT R Y $\operatorname{D}$ VV
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PW3
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 V A D A V K K N A H P Q A F $\quad$ IM A E K T WN G F E I K T S N M M E I Y I T A N G I R N NVAK K Y S GEKIVRDSRSSLYY VGGANGKELKYDRLG $V$ ANTVLKTYPNNVVTKI KRKWNLYELKLNNMMKLY DDSNG $V$ MK KV SAT QPNAQI LEI DKE DNGYKFKFNNNMKVYTDMQ G I KTYTGNNYPGQRVVMLETTADGYKAVLANKTAALDFDKDG I T K Y I VENFPGDHI TQI EVEK S GYEVELES DLAAI RFDKK G

 V S N A L K Q K Y P Q A S l L L K lle K Q Y S S Y E I 1 I T Y 1



 I T A Y I K T N Y P G D V I T Y I N K N Q K G Y F V V VN Y V S E N F P V A EMT E M S R H N Y G F E I I E L N T N TEEIMH F D K D G I L N H L R T T Y P N N P I N G I E K T V T G Y E V E L V G K N DII H F NT N G IL N H














 $V L G Y I$ QANYPLESVRKVSRDKKGYKTELSNKKELNFDENF
 $V$ R D F V A T Y F P D A V V E H I K N V T A G Y S F WL E N GF K C V L N D R G II N F V G Y Y Y P Y E Al V S ITTIT GY G Y DIIL SNGTELSSD H Y G



 I VDYVQRKNYPNNPI NGVEKKLTNYEVVELVSFKDLYFNANG

 I A D Y V K K N T F A G Q F I K K I D R D KY T W E V E L S N G L E I K F D R K F

$\begin{array}{lllllllll}1 & K & D & F & \text { T T } & N & Y & P \\ I & A & S & I & K & K & N & E & F \\ K\end{array}$



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 VH S YIE S K Y G K WS L K EVVEVKRTRIIEVELENGAKLKFDRS G


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| UniRef90_G0L051 | D FIR $\quad$ D N |
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| UniRef90-T2BBC8 | NIL G |
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| UniRef90_I3YWS3 | A I I El D |
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| UniRef90-UPI0003719302 | S WT S |
| UniRef90-UPI0003719302 | S WT S |
| UniRef90-UPI0003719302 | S WTS |
| UniRef90-K2P2U7 | KFLRVD |
| UniRef90-T2BF25 | T I L EYD |
| UniRef90-F5IZ65 | NLI K V C |
| UniRef90-F0P0H9 | NWEEV |
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| UniRef90-L1PIS8 | NFVK |
| UniRef90-A1VZZ2 |  |
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| UniRef90-R7IZP3 | E V Y D |
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| UniRef90-Q64ZG0 | N F V E M |
| UniRef90-Q64ZG0 | N F V E M |
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DDDESTV
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TASEVP
DSVKVPAAVQNAFNKSF

ETE $\square$ R $\qquad$ F | $F E A L P Q A V R E A$ |
| :---: |
| $A Q S H G A K A A$ |

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 EAALSFMNAHFPGYRTVQTSTEREEG
EETTNDHRPVQAMTHVQQHFQNHKVEEVHRVTENS
GCASACEL GCASAQEDPQANVPAVVVNAFQQKF


EEVGKHQVPKTVLEAFDKAYPNAKEVEFEKEMDEG QKLSSREVPSVILNNFQTKFRNAEDVEWKHKNGYY
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ELNAGEVPASUMQALSAEYGGYRDDDVDRYETPQ
DYVRDLTALPQAVQAYAATVYAGWTVDDTEDQRPSY DYVRDLTALPQAVQAYAATVYAGWTVDDUEUQRPSY SCQENNKKEKSGVPEAVQDAFEKKYPGENDPDWKQDEHGY
 SQAPKAVQEAFQAKYPGENDPDWEDDAHGN PQSQVPSVVLSSFNTSFPKAQDVEWEMENGL I PFTQLPQAVQDFAAGTYASWRDDDVKDEKSDM
 ACDDDE QPSQVPSVVVNSFNKAFPKASDVEWEMQGDLVY $\begin{array}{ll}\text { ACDDDE } & \text { DKFAAPEAVRTAFSQQYSGATRVEWEYERSGY } \\ \text { ACDDDE } \\ \text { DKFAPEAVVTAFSQQYSGATRVVWEYERSGY }\end{array}$ QVPAVIVNHVKQQYPKAGPI WDFDKDDG
 ETEKKVAELPDAMTNAMKTQFSGYKVEEPEMEMANG SCQDE WAQKDVPEPVVAGLAKATFPEASQVEWEKEGD

VRFDRLPEAVKAA FQASEYATWRVDREGV
 VPETVDDAFRQKYPNAPEPTWEVDTN LPTDIQSF GQKYPGAA I


■SQDQVPSLLNQFKADYAKASDTEWEKEGEFY LPNAV ADAFSQKFPNAQKVRWNQE EAN SCDNDNVISSSEVVPQVVQSAFAKKYPGKTP NWELQQ SCDDDDSIAV PAELQNAFSSKYPNAANVKWESKSGY


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

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


ETNF VPVKVMETFKAKYP D T DA HWEKE R G R $\square$ E NF GLL P EPVRLS LNGEYKNWK PTDFDKERSNA E NF GL L P E PV R L S L N GEYK NWK P T D F DK E R S N A
$\qquad$ DKAP Q KV K DAFAKKFPTAKKVVWE K E G WN N $T V P$ Q Y Q
All S Q N
SCD D D
V L P E

 AV P L E V $V$ R Q NLL $L$ T TF P L $\quad$ A


 A LI I E MYPNAR IL D I E K E K D Y M AL L K E M Y P N AR I L D D E K E K D Y M
E I N Y Q S L P Q A V I N A F K A S Y A Q WR ID D IV M E R N N M
ANAQD I A QRQVPSVI LNKFHNDFPHAKD MEWEMK
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$\square P$ Q S Q V P S II N N E 1 P A NVVK

D D D D K F T P ES V TKA
F D TKYP DAQRVSWENEA GYV $\begin{array}{llllllllllllllllllllllll}L & P & E & A & V & K & A & A & F & E & Q & D & Y & S & T & W & T & V & D & D & V & D & K & E\end{array}$ R R D
$D K \vee \mathrm{P}$ Q $\mathrm{V} V \mathrm{~L} \mathrm{~N} A$ Y DTK Y P G E NDPD FELD DHGY Y I D T H Y P G A R L L E E D D K E N G T T SKTPKAVITAFNSAYPNAKKVKWDKEDNNF D D S D DVK P N DVPEVV KTSFATRFTTVTNLEWEKKGDDY E KVVP QKVK N A F T K K F P T A K S V K K W D K E S N E W
$\square K ~ E A Q V P A D V L N T Y K Q N F K S A K F S D W E D K S N G M$


LPHAS LPEAVKNAGNSEYGQWSLDREGM S N D N D D DL P S S K V P EVVVRNTFDSNFSNTSNLSWETKTVVSK ETEMPYSD\|PQA $\quad$ TKTSFESSSYASWKRDNE

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$T V A E F I$ A S KYPG
VEQDYDDG
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K EVP EKVEEAFNKKFPEAKAVVWDQESDH
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 K NI QPKDLPAPI I TGLTNKYPNFKYINTALINEKN
 ACSNNRKTPAENVATPURNFLKQKYPAATILKSEKETNGT
 S A A EAKK LVLS DL PA AVVQKMVQSNVGGGKVGEI DREED D G DEDYP I K PA QVVEQKFIDDAFR QKYPNA DMSKVVKWE QK QN T IIA Q Q E I P S V V I N A V M T K Y P N A K D L E WE V K N G I Y
 CSSAT $\square$ TA QSKAPKEVVETAFYSKFPKATKVKWDKE N $V$ S Y A N LPPA K V K D F A G S V Y S S WK V E D VDDD R M N T
 E K V V S

 A A Q A Q DVVDA K DVVP E A V K S A L S Q K Y A N A T D L E WE K H G D N

 V R Y GEELPAAV QAFDASAYARHRI DDI DHYDTPT VR Y GELPAAVQAF DASAYARHR】DD』DHYDTP T $D Y Q P \square D A K D \square P E A V R A K L Q K D Y A N Y A F$

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$D|V| M Y E \backslash V|E| L \mid E$
70
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 SGYYVADFYDGYETWFTQDGKWTETDIPYMALPQAVRKSF



EAKYK KND DKFEA $\mathrm{F}_{\mathrm{F}} \mathrm{S}$ STGTLIQTEKS GSDFEVNFMDGKKAVYSSSGELKETEV KAEFVV NGTEAWFETDGTWIGTETDFR ATVYVI EVEQGVDLYYTED ATVYVI EVEQGVDLYYTEDGVLLKAD RVEFEIGWSTDHEVWYDAAGNKLR HEEEDSKVVIPQA
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 EVS I WDENKEKVYFDSKKTWVGTSWD
 WESHFKIDGEKYRADFNADGTWVETE
 KAEF

YTGSYEAEFDPQGNWMLTE KAEF YTGSYEAEFDPQGNWMLLE
$\qquad$
$\frac{\mathrm{V}}{\mathrm{V}}$
 $E T V Y V I E V E K E M D L Y Y S A E G L L I K A D D$
$W E A H F K K D G E R Y R A D F N A D G T W R E T E ~$

T D

ETEDIDGNELLFDRTDNWTKTETAYR
 EADFDVNTVD YKALLDPSGTVLKYKYD I LATELPAA

 RLEVDI RLEVDIIHHGVVEVVFDDSGNWLSTEIGWNSLPEVVVKIA WESHFKQDGEKYRADFNTDGSWVETE NDIKTENLPEA
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YEAEF $\quad$ DRTKAKFAKSGKWLKTK
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 YEATYIQQNDKYEAEFSDTGEWLETEYY E V VTSKEFPDU EDSYVVEVVKGRDMTVSEEGKLLGMEVDLNEVPA YTEFDRIANVETEVWFNSSAVWMMTEEDL EAEFD LD KNDYEVWVNTQGTILLKVE ATEYKVE LDDNE DF DTFDENGNWLS DNS EK PPLYRALIENANSIVYNEDGELV

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 $V K$ QAV QQQ F A GYTI H DVVKHTAGYKVVELQKKPEVTFSPD G
 MRTFI EKNYPGASIVETVYEANWVEVDIIHDKEVRFTTAG


TA YEA GDYAA WHVDDVDKQRNGYVI EVVEHAKDLYYSED G TAYEAGDYAAWHVDDVDKQRNGYVI EVVHAKDLYYS E DG EATEYHTSWRTDDVDKLERKGYVI EVVEKQNQLDLYYS GEG










 $V A R S \square A Q S Y P N Y K T E E A E V D T T T Y Q V V L S G E L E L A F S A E G$
 $V$ M S F E N S E Y A S W W R D D I D K E R T Gll E V E K Q N QV D L Y Y S A D G $V$ K QAVNARYPGFTI DDAEYSEEWYII DLENKENLIRIKAD G
V V

## 

## \section*{$\ll$} <br> V

.
V
 A K E Y L D A N F K GWF I A Y V ENKLG GYM I A I N DYYYI NF DANA
 V M D A L Q N Q Y K $\square E D I T A D E R P D G F Y D F E L N N E D H I I L L D S E A$ V R A A A L K K P Y P G G R I $\quad$ K E A E K K V T E G G Y K V
 VAAFNNTAYATAKI DDDKHYTTYY II EVSADMQLYF LPD G I LAA K V K A E F K D Y K L D D D SK R R K S I Y Y Y E I

\section*{|  | S | N | T | L | T |
| :--- | :--- | :--- | :--- | :--- | :--- |
| V | K |  |  |  |  |
| K | E | K | V | D | K |}

 $V$ NSFDS QNYPKAVVVNDERQDGGLEVDIDDEKEVLFDRNN

$\vee$ K A A I E K E I A G G TVVK G I V K K
$V$ K A A I 1 E K E
V S Q TI A KEFAGFSVVEKA
$V$ R TAA G Q N Y K S M R L D D I E L VEK Y Y QVELLDQDKKVVLS A D G $V$ NDKLKADFNKLSIDDLQRSDNGYKMELNSDWEVVMDANG I RTAM GQNYK GMRV D DVVEKDGKTY

 $V$ K K K S V


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UniRef90-F3QWH0 UniRef90-R5TUS9 UniRef90-НЗКСҮ3 UniRef90_UPI0003453C60 UniRef90_UPIO003453C60 UniRef90-G2EGE3 UniRef90-A4CIV2 UniRef90_A4CIV2 UniRef90_UPI0004224DDE UniRef90-UPI00035E8C54 UniRef90-Q21HU0 UniRef90_UPIO0047EF324 UniRef90-R6S5C3 UniRef90_UPI000386FF91 UniRef90-C2MAC3 UniRef90_UPIO003665D7C UniRef90_UPIO0036E3C19 UniRef90-X0TF87 UniRef90_UPIO004749246 UniRef90_UPIO004015EB5 UniRef90-R5S4Z4 UniRef90-R5S4Z4
UniRef90_UPIO0036A0A74
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UniRef90-R5JRH0
UniRef90-R5JRH0
UniRef90-B4D7H7
UniRef90_R5UH97


 WEANFKDNGERYRADFEPNGLWVETE NSIIKKELPEA





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& \mathrm{Y} \\
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\end{aligned}
$$ E V E QYYKAEFNNNGYK TEYKA DGSWWTETEMPY S $\square$

WFAF ASFKDGVHYDFS R【VYEVKLGSGHKVLVDA TEVEIVHGS I SKDVMFTAEGAWAYTIWD K ISY EAKFKKDYS I EFNE GTFYETRFDDDVKIYISHDGTVLEGRGGGN GGNTEDTGTVAGD


 Y Y G

 ST E I EFVHGYEAVFDSSGQWGYTKTDLGRNYARLVPEV YKL EVVAEDGTELYADKEGNWIELE


 KADFELDLNTQAEAWYSQEGEWLRTEYYFNPSATDVIPQA
 EIRYEAKFKTDKNTVYDSGGALKAFEL


WEVHFNTLPDP G YI ATFQNGQEVEFNENGEWI SSRTAVRQEEWPEP Y QGQFWDEANGQYVYFDELGKWLKSEMEVD XSSFTLA

 FEASFKK E Y R A DF S S P N G D W
WEAHFKKDGEKYR $R \| V Y E V K L L S G H K V L V D A S G K V L S V G E K T A D A R D A V T P A Q$ TDLPLSQLPTA ISKRHLEDV


## 

 T LY A
ENWIDM


I IE GWKVTVVNYYA VEFYGDGVSGEVLYNDKGINDEALPPS NVY VDVELPNGQEIEFDQT GNWQVVEVQRDLMWEA TPQN



 K VVYVAD DEK G DEVMLS DA GKILEVKEEEEVAWKKLLPAG $H V Y \ D V E G A D G N E I E F D Q N G K W Q I V E I Q R D L V L A Q C P A E$

 $K$ S F E AK DK S A SEVSVNA A GK LLA V E


| UniRef90 J1FKT2 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
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| UniRef90-H110L58 |  |  |  |  |  |  |
| niRef90_A6EC49 <br>  | VRNGAKKYFAGYRVDEVEKQRFYYKLCLKTFTDAVFDQEG |  |  |  |  |  |
| iRef90-R6E955 | VESWLKEKYPDARIIDVDNEDGGTEVEFISGNEAFFDRSQ |  |  |  |  |  |
| UniRef90-R6Z5990 |  |  |  |  |  |  |
| UniRef90-UPIO00363C7C2 |  |  |  |  |  |  |
|  | LKTISDTRYPG |  |  |  |  |  |
|  | $\begin{aligned} & \text { AA Q } \\ & V \mathrm{~K} D \mathrm{~K} \end{aligned}$ |  |  |  |  |  |
| $\begin{gathered} 90 \\ 90 \end{gathered}$ |  |  |  |  |  |  |

UniRef90-A6L9X8
UniRef90 R5U7Q0

| UniRef90_J1FKT2 | S $\operatorname{V}$ |
| :---: | :---: |
| UniRef90_W8VRM1 |  |
| UniRef90_UPI00047CFAB8 | N F $\square$ N |
| UniRef90-H1DL58 |  |
| UniRef90-A6EC49 |  |
| UniRef90-R6C261 | N WM |
| UniRef90-R6E9D5 | V I L K |
| UniRef90_R6Z590 |  |
| UniRef90_UPI000363C7C2 | E WL |
| UniRef90-UPI000363C7C2 | E WL |
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| UniRef90-UPI0003F8ECD7 | M L |
| UniRef90_UPI00035DF5B1 | VWV |
| UniRef90_A6L9X8 |  |
| UniRef90-R5U7Q0 | Q 1 D |
| UniRef90_UPI0004778E65 | G L V D |
| UniRef90-H6L7N9 | K I L |
| UniRef90-R5C832 | Q WV |
| UniRef90-R5C832 | Q WV |
| UniRef90-R5C832 | Q WV |
| UniRef90_UPI0002D98B69 | K L R Y D D |
| UniRef90-R7E4Q9 | 1 L I K |
| UniRef90-R7E4Q9 | IL I K |
| UniRef90_UPI00041AA08F | T I N |
| UniRef90_UPI00036DA4F5 | NFVK |
| UniRef90-E6X513 | A I N |
| UniRef90-L7W916 | K NMDV |
| UniRef90_UPI00037DB9CD | K V L S A |
| UniRef90-R5DHE5 | DLIK K V D |
| UniRef90_R7ELA9 | E 1 L |
| UniRef90_E6X563 |  |
| UniRef90_UPI00037907CC | E VLE |
| UniRef90-R5MFC0 | E WV R |
| UniRef90_UPI000255AE78 | K L L |
| UniRef90-L8M8E4 | T TLLK |
| UniRef90_UPI0002D78465 |  |
| UniRef90-F5ISS2 | A F V K |
| UniRef90-UPIO003687734 | N T TE |
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| UniRef90_UPI000472D16C | R 1 |
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| UniRef90-D5BEC4 |  |
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| UniRef90-R5VBH6 | ML V K |
| UniRef90_J9FXC1 |  |
| UniRef90_R6WPJ0 |  |
| UniRef90_F3QWH0 |  |
| UniRef90-R5TUS9 | T |
| UniRef90-H3KCY3 |  |
| UniRef90-UPI0003453C60 | G F |
| UniRef90-UPI0003453C60 |  |
| UniRef90-G2EGE3 | T V L D $\square$ D |
| UniRef90-A4CIV2 |  |
| UniRef90-A4CIV2 |  |
| UniRef90_UPI0004224DDE | NWLK $\square$ |
| UniRef90-UPI00035E8C54 | K L M E |
| UniRef90-Q21HU0 |  |
| UniRef90_UPI00047EF324 | K L M |
| UniRef90-R6S5C3 | S 1 |
| UniRef90-UPI000386FF91 | Q। EK |
| UniRef90_C2MAC3 | V I TEEV |
| UniRef90_UPI0003665D7C | NYIK TED |
| UniRef90-UPI00036E3C19 | T F L R |
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| UniRef90_M1ZAG7 | S L LE |
| UniRef90_UPI00047244B0 |  |
| UniRef90-UPI00040A3A8D | G F |
| UniRef90-UPI00029AC4C9 | K F V/K |
| UniRef90_UPI000369843C | E F V K V E |
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| UniRef90_J9G2A9 | N L L K |
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| UniRef90-J2JA83 | $N \mathrm{WL}$ K |
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| UniRef90 R5UH97 |  |



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lupas_28
jnet
jnet
jhmm
jpssm```


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