

## QUERY

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 Di KTHDEMADTRVYNYALKAHGLEDMAYAKAFMRKVLTE KAKSIDDFLGDDRLFKYAMKAFGLQDMDYAKAFMRKVLEE Q $\operatorname{li}$ K TVDDFIKNDRIYRFAMKAFGLEDMTYAKAFVKKVLKE NVTSVEQFVGDFRLFSYAMKAYGLADMTYAKAFLRKVLTE KVKTVDEFMKDYRLFSYAMKAYGLGDMDYAKAFMKKVLTE NI KTI DDLLKDTRI FKYAMKAFGLEDMDYAKAFMKKALKE NI K SVDDFMADDRI YRYAMTAMGLEDMDYAKAFMRKVLTE TI KSVEDFMADRRVYAFAMQAFGLGEMTYAKAFMEKVLTE NVKTI DDFFADTRLYNYADKAHGLEDMGYAKAFMRKVLTE KI S Sil DEF LA NDRVYRYAMKAMGL EDMTYAKAFMRKVMEE NI K SI DEFLADDRIFNYAMTAMGLEDMDYAKAFDRKVLEE KI KTVDAFLKNTRAFTYAMNAFGLGDMAYAKGYMRKVLTE KVTTV GFLNNNRLFTYAMKAFGLGDMVYAKGMVRQILQQ KVTSI DGFLKDTRLFTYAMKAFGLEDMAYAKGYMRKVLKE KVKSI DDFVKNDRLFKYAMKAYGLEDMDYAKAFMVKALKE KVKSI DDFVKNDRLFKYAMKAYGLEDMDYAKAFMVKALKE NVKTI DDFLK $\operatorname{D}$ YRLYTYAMKAYGLSDMTYAKAFMRKVLTE KVKSVSDLLSNSKLYNYVMTAFGLSDMTYAKGLITKVLEG KVQSVDDFMKNDRLFNYAMTAFGLGDMTYAKGMMQKVLEQ KV T SI DNDMADKRLLTFAMASYGLDASTETPQQDRTMLEG KVTSI DNLMADKRLLTFAMASYGLDASTETPQQIRTMLEG KVTSI DNLMADKRLLTFAMASYGLDASTETPQQI RTMLEG KVTSIDNLMADKRLLTFAMASYGLDASTETPQQIRTMLEG K I S S A E ELLKDDKLYRFVMVAFDLESQTYARALI RKVLDQ KVKS TDDLMADKRLLTFAMASYGLDASTEKPLQISTMLAG KVKSI DDLMADKRLLTFAMASYGLDASTEKPLQI STMLAG K VK SI D DLMADKRLLTFAMASYGLDASTEKPLQI STMLAG KVKSIDDLMADKRLLTFAMASYGLDASTEKPLQUSTMLAG KVKSVDDLMKNQRLYAYVLKAYGLSDMAYAKGLI RKVLTS KVSSTEEFMKDDKLYRFVLEAFDLGSQAKSRGLI RKVLEE KVTSDEEFVSDDRLFRYAMKAHGLEDMAYAKAFMVKVLEE KVTSI E EFVSDDRLFRYAMKAHGLEDMAYAKAFMVKVLEE NVKSVDDLMADPRLLTYAMAAFGLDSTTEPAATVRAMLEG NVKSVDDLMADPRLLTYAMAAFGLDSTTEPAATVRAMLEG NVKSVDDLMADPRLLTYAMAAFGLDSTTEPAATVRAMLEG NVKSVDDLMADPRLLTYAMAAFGLDSTTEPAATVRAMLEG NVKSI DDLMGNDRLLTYAMAAFGLDADAEPAATVRAMLEG NVKSIDDLMGNDRLLTYAMAAFGLDADAEPAATVRAMLEG NVKSI DDLMGNDRLLTYAMAAFGLDADAEPAATVRAMLEG NVKSI DDLMGNDRLLTYAMAAFGLDADAEPAATVRAMLEG SI TSVDDFVNNYRVFTYAMKAYGLEDMAYAKAYMKKVLES TVRTADDLMKDYRLYSFVMKAFGL EEQDPYRALIRQVIEG NVKSTDDLMADKRLLRAAMAAYGLDVDVETPKTIRNMLEG NVKSI DDLMADKRLLRAAMAAYGLDVDVETPKTIRNMLEG NVK Si D DLMADKRLLRAAMAAYGLDVDVETPKTIRNMLEG NVKSI DDLMADKRLLRAAMAAYGLDVDVETPKTIRNMLEG TKASI DEEVTDDYRLWQSDT TAFGLLEDQAYAKAMLKKVIRE KVKSI DEFVDNPRLFKYAMKAFGLLEDMSYAKAFMKKALKE KVKSIDEFVDNPRLFKYAMKAFGLEDMSYAKAFMKKALKE NVKSANDLLNNSKLYSYVMKAFGLSDMMNAKGLIRKVLEG KVKSVDELLKDDRLFRYAMKAHGLEDMAYAKAFMKKVLNE KVKSVDELLKDDRLFRYAMKAHGLEDMAYAKAFMKKVLNE KVSSI DEFVKNDRLEKYAMKAFGLQDMSYARAFMVKALKE KVSSI DEFVKNDRLFKYAMKAFGLQDMSYARAFMVKALKE NVFSVDQLMEDRELYVFTMKAFGLEDQIFGKAMVEKILKS NVTSAA DLVNDRRL LSVAGGAFGLDDDINNRFFIRKVLED GVKSVDDFLANDKVYSYAMKAYGLEDMIFAKGMIRKVL KVKTI DEFVKNDRLFRYAMKAHGLEDMAYAKAFMVKALKE KVKTI DEFVKNDRLFRYAMKAHGLEDMAYAKAFMVKALKE
 KI A SVVDFI KDTGLYGFVLSAFGIDPSKTSKLTVEKVLES
 KI ASVSDFIKDTGLYGFVLSAFGIIDPSKTSKLTI EKVLES KI ASVSDFIKDTGLYGFVLSAFGIDPSKTSKLTIEKVLES
 KVGQVDDI FKNTRLRNYVFKSFGIDPQTFDYQHLKGVLT
 RVTSI E EFVNDDRLFRYAMKAHGLDDMAYAKAFMVKVLEE RVTSI E EFVNDDRLFRYAMKAHGLDDMAYAKAFMVKVLEE
 TLTSVDQLVADPRLFAYALTAYDI DATIASEPFIRAVLT TLTTSVDQLVADPRLFAYALTAYDIDATIAASEPFIRAVLTS D I S T A E E L V V N D R R L L R V $A$ KVGHVDDI FKNTRVRDYIFKSFGIDDPETFSYKHVKNVLTS

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 GIS DDESFANSLSDPRYREFAKAFNFESFGSAATSGDRAQ GI DSDDAFAKQLTDDRYTDLVESLNFARHGTSATSFDKAQ
 G DT DKKS FANRLLDERFVAFAKAFDFDSYGPLTTARAAAR GTS DPRAALANTGLNDSRYMALAAQTFDFANNLGANATSTTTAAG GVTDPKSFANKLNDDRFKAFAKVFDFKGLGGAAATQSSEA G GVSNPDSFANKLTDKRYAEFVSAFNFAANGANATITNKTQ GVSNPDSFANKLTTDKRYAEFVSAFNFAANGANATIYNKTQ





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 $G V T D P N S P A N K L T D K S Y A N F V T A F N F V Q Q G D T T T S R A A V Q$ GAT DREAMANQMVDPRYKELASFFEYDKLGMLNAQSPKWV G I S D P D SFANK LTDKRYAEFVSAFNFADHGSEATVYNKAQ GI SDPDSFANKGLTDKRYAEFVVAFNFADHGSEATVYNKAQ GVASNKSLANTLNDPRYKALATAFNFAANGAATTQATAAQ GI AKPGAFANKLTDKRYAEFVKSFNFAELGANATTYNQTQ GI A KPGAFANKLLTDKRYAEFVVKSFNFAELGANATTYNQTQ
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KIVGH|VDDIIFKNTR|VRDY|IFKSFG|I DPETFSYKHVIKNVLTS KVGHVDDIFKNTRVRDYIFKSFGADPETFSYKHVKNVLTS KVTSVDGLDGDFRLMTVALGAFGLEDDTNNRYFIRTVLSE NVENVEDLTEDYRLYSFVMKAYDLEDQ FGKAMMEKLLES EVKSAEELVSNRLLKALGAFGLDDDI NNKYFIERVLDE
 KI NSIEAFVSAPAVYDFALGAVGLDPANVSQATVKAAIVS KINSIEAFVSAPAVYDFALGAVGLDPANVSQATVKAAIES KVNSVQAFVSTPAVYDFALGAVGLDPKGVSEATVKAVLES KVNSVQAFVSTPAVYDFALGAVGLDPKGVSEATVKAVLES DINDVDQLLADSSLTDYLKMAYGLAYDT-SNAELKSLLT
 DI NDVDQLLADSSLTDYLKMAYGLAYDT SNAELKSILT
 DI NDVDQLLADSSLTDYLKMAYGLAAYD DI NDVDQLLADSSLTDYLKMAYGLAYD

 KIDSVQAFVSTPAVYDFALGAVGLDP EVSQATVKAALES
 NVTNVDQI MSDPVAVSYLRNSMQIAD NVTNVDQI MSDPVAVSYLRNSMQI AD NVTNVDQ|MSDPVAVSYLRNSMQ|AD NVTNVDQIMSDPVAVSYLRNSMQAAD NVTNVDQUMSDPVAVSYLRNSMQAAD KVKTVDEFVGNYRLFNFAMNAFGLSENA S 1 TNVDALLADGNMARYMKDAYGLGT
 SITNVDALLADGNMARYIKDAYGLGT S:THNVDALLADGNMARY:KDAYGLGT ANAKAYMKKVLVS

 KI GSVSDFIKDTGLYDFVLSAFGIDP KI GSVSDFIKDTGLYDFVLSAFGIDPSKTQKLTIEKVLES TVTSAEALVADYRLRRVALSAFGLSDDMPNRAFVERVLSE KI NSVQAFVSTPGVYDFALGAVGLDPANVSPATVKAVLES KI NSVQAFVSTPGVYDFALGAVGLDPANVSPATVKAVLES K
 K TTTAEDLVSDRRLLRVALGAFGLQED NVTNVDDUSDPVAVSYLRTSMQAD

$\qquad$ D

 $S V V \left\lvert\, \begin{array}{llllll}S & D & A & T & L & S \\ S & D & A & T & L & V \\ R & S & F & L & V \\ S & & \end{array}\right.$ NVTNVDDIMSDPVAVSYLRTSMQIAD
 NVTNVDD:MSDPVAVSYLRTSMQAAD



DVETVDQLLEDQELYAFVMRAFDLEDO
QVKTAED NVSSVDDLMQDSKLVQVALGGAGLLEDDLNNTYFVRKILED NVSSVDDLMQDSKLVSY:RTAYGUSEDDPDNYISAALKNA
 NITSADELVGDYKLFSYALTAYGLGDEVYAKALYKKVLSE NVTTVEDTGDERLFNYVKTALELDG TVTASVEKSIVTS

 DVSSIDDLMKDQDLYAFVMRAHDLEDQDFGKALIRKMLTS GARTVDQLLAAPRVASFIGTAFGLGS GARTVDQLLAAPRVASFIGTAFGLG GARTVDQLLAAPRVASFIGTAFGLG GARTVDQLLAAPRVASFIGTAFGLG GARTVDQLLAAPRVASFIGTAFGLG TVDSLDAFVSKPDVYNFALGAVGFDPK TVDSLDAFVSKPDVYNFALGAVGFDPKNVSQATIKAVLES TVDSLDAFVSKPDVYNFALGAVGFDPKNVSQATYKAVLES


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UniRef90_FOL2E4
UniRef90 A0A037:
UniRef90_A0A037ZLP0
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PDTQDD I I R NFLLVLSEMD
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PKS F
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PTKVNKLLQRFAA $\quad$ WWDATN

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K SF
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PK S
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T D V Q E QL LR R F L L R D Q M

|  | P EVVD K LVRKY VA $\square$ S D A |
| :---: | :---: |
|  | P E MlV EKV TTIA Y L A R S Q $\square \mathrm{N}$ |
|  | PKSYVNGLDRFVAFREAFN |
|  | PKSYVNGLDRFVAFREAFN |
|  | PK S Y V N GL D R FVVAFREAFN |
|  | P K S Y V N GL DR R V A F R E A F N |
|  | P K S Y V N GL DRFVAFREAF N |
|  | P Q K LT S F LA K F S T LY D S E N |
|  | P |
|  | P |
|  | P |
|  | P |
|  | P |
|  | $P$ K E L D R L V R T Y VT $\square$ S D A |
|  | $\underset{P}{P} V K L G K F L T R F T S M Y E \square N N P$ |
|  | P |
|  | P |
|  | P |
|  | P |
|  | P K S F |
|  | P K S F |
|  | PK S F |
|  | $L K K V D E L V R K F L V R S E A$ |


|  | 102003040 |
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| UniRef90_UPI00046AA7C7 | LD GFA G WRFLLQETY |
| UniRef90-B6IQB4 | S S IT Q WRLL GRTA DRQKTVMMSDPVNKA D T Q Y A R A KL A |
| UniRef90-B6IQB4 | S SIT T W RLL G R T A D R Q K TVMMSDPVNK A D T Q Y A R A K L A |
| UniRef90-B7RMN3 | GLS GWRFLQ T T Y DRQFETFTK SVELLKRDTEYFQKNI G |
| UniRef90-X7F9W4 | T GQTALTTLVKATEDRARELIRTSAQHERADSHFRENI A |
| UniRef90-E3EXD3 | LS G Y T G WRFLS Q T LER Q T AVFA A S GEVA M S STYFRDTIA |
| UniRef90-S31219 | AQQEAMDAAVANYKERMS |
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| UniRef90-UPI0003754C15 | Y Y R S K I S |
| UniRef90-UPI0003754C15 | Y Y R S K I S |
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| UniRef90-UPI0003754C15 | Y Y R S K I S |
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| UniRef90_Q07NF0 | EKAYFEQQA S |
| UniRef90-Q07NF0 | EKAYFEQQAS |
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| UniRef90_Q2JZC7 |  |
| UniRef90_Q2JZC7 | LVTS A Y AVASSTLASTETGEAYDTYFAAQI G |
| UniRef90_Q2JZC7 | LVT S A Y AVASSTLASTETGEAYDTYFAA QI G |
| UniRef90-A8I0E3 | STFATFNYYSKNSDTALKQEAAQPEVARDTAYYEANIG |
| UniRef90-LOLHT3 | Y Y K N H I G |
| UniRef90_LOLHT3 | Y Y K N H I G |
| UniRef90_LOLHT3 | Y Y K N HI G |
| UniRef90-LOLHT3 | Y Y K N H I G |
| UniRef90_LOLHT3 | Y Y K N H I G |
| UniRef90_LOLHT3 | Y Y K N H I G |
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| UniRef90-K0PTH6 | STAEARSTSSAARANLDYFQNKI G |
| UniRef90-K0PTH6 | STAEARSTSSAARANLD Y F Q NKI G |
| UniRef90-K0PTH6 | STAEARSTSSAARANLD Y F Q K K I G |
| UniRef90_K0PTH6 | STAEARSTSSAARANLDYFQNKI G |
| UniRef90-K0PTH6 | S TAEARSTSSAARANLD Y F Q NKI G |
| UniRef90-K2AGU2 | $\square \mathrm{L}$ GYA GWAF LKRTMTSQTAAFNTAPDLKSDEAYFRAKIG |
| UniRef90-B9TH97 | SQSTLTT D AVN N Y K R RIA |
| UniRef90_B9TH97 | S Q S T LTT DAVNNYK N R I A |
| UniRef90_UPI000465CBD5 | PVVRRETDHYLANI S |
| UniRef90_UPI000465CBD5 | PVVVRRETDHYLANI S |
| UniRef90-Q2CGH5 | T P A A LKLVDA T R D Q Q Lem |
| UniRef90_LONAW4 | QSII A T Q DKVAEETRYYKAMMA |
| UniRef90_LONAW4 | QSII A TQDKVAEETRYYKAMMA |
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| UniRef90-LONAW4 | QSIIA TQ Q KVA EETR Y Y K A M M A |
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| UniRef90-F2A8H6 | LVTTSAYAVASATI A S TQ T GEAYD S Y F A A EI G |
| UniRef90-F2A8H6 | LVTS A Y AVA S A TI A S T Q T GEAYDSYFAAEI G |
| UniRef90-F2A8H6 | LVTTSAYAVASATIA STQTGEAYDSYFAAEI G |
| UniRef90-F2A8H6 | $L \vee T$ S A Y AVA S A T IA S TQ T GEAY D S Y F A A EI G |
| UniRef90-B9JSI9 | QAEREAAYYKEKI A |
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| UniRef90_B9JSI9 | QAEREAAYYKEKI A |
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| UniRef90_UPI00035C810C | T A WSVLQ R N GEAMQARWEARKDVARDVERFRERAA |
| UniRef90-K2Q613 | I D L F K T R I A |
| UniRef90-K2Q613 | I D L F K T R I A |
| UniRef90-K2Q613 | I D L F K T R I A |
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| UniRef90-A4ETQ1 |  |
| UniRef90-Q28JJ5 | $\square G G Y A G W K V L Q S T L D V Q Q T R F A E D P V Q S R D R E Y F R E N I G$ |
| UniRef90_A9DR68 | STQVAVKKLFDATRDKQLDLVANDALNARQDEAFKERIG |
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| UniRef90_UPI000464774E |  |
| UniRef90_UPI000464774E |  |
| UniRef90-C8RX71 | LGGGYA GWSLLKRTMTTMKAAFAAVSTSKREEEYFRANI G |
| UniRef90-B6A277 | LVVTS GYAVASSTVASSDTGEAYDTYFAAEI G |
| UniRef90-B6A277 | LV V S G Y AVA S S TVVA S S D T GEA Y D T Y F A A E I G |
| UniRef90-B6A277 | LVTTS GYAVASSTVASSSTGEAYDTYFAAEI G |
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| UniRef90_B6A277 | $L \vee T S G Y A V A S S T V A S S D T G E A Y D T Y F A A E I G G$ |
| UniRef90-UPI00035C3108 | SQAYAELMA |
| UniRef90_UPI00035C3108 | SQAYAELMA |
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| UniRef90-N6U8X3 | Q Y Y K D Hi G |
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| UniRef90-N6U8X3 | Q Y Y K D H G |
| UniRef90_N6U8X3 | QYYKDHI G |
| UniRef90_B9JAK0 | Y Y K E H I G |

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UniRef90-F2A8H6 UniRef90-B9JSI9 UniRef90-B9JSI9 UniRef90-B9JSI9 UniRef90_B9JSI9 UniRef90_B9JSI9
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N|I E T A E E|LV|ND H R|L|MTV|A|L|GAFD|L|SDD|INSKYF|I|QK|IL|E
 AI ETAE GLLVKDRRRLLTVTLGAFGGLQDDINNRYFIRRKVLEE DVNSVDDLMADPELYGFVMRAFDLEDQIFGKALMSKMLKS KI QTPEDLLAADRRLLSVAL GAFGLQDDLNAKAFIIKRVLVE $N$ I K K V NI K K V D D F L S N D GLY QMALRAYGLTEQDVPRSTLRKLLKS NI K KV D DFLSNDGLYQMALRAYGLTEQDVPRSTLRKLLKS $N$ I K K V D D F L S N D GL Y Q M A L R A Y G L T E Q D V P R S T L R K L L K S N I TLLSNVDDLI A DTKLTSFLLKS A


S

## \section*{N} <br> N N



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$G T T N D D S L A N R F A D P R Y A E L S K A F G F G P N E S R K N G A S G F A$ DTAEPDALVNRLSDPRFKELYNALGFGPEGTLNTDSSRWR GTDDKTAFANKLSDKRYAALANAFGFGNEGGARTADAGFA D P

D P
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$D$


| $R$ | 1 |
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| $R$ | 1 |
| $R$ | 1 |
| $R$ | 1 |
| $R$ | 1 |
|  |  |

FSNVVEAFNFAADGSAAAQSTAVM
$F S N V N E A F N F A A D G S A A A Q S T Q Q T$
$F S N V N E A F N F A A D G S A A A Q S T Q Q T$

DVNNASSFVNLSNKDAY
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 DVNNASSFVNLSNKDAYTRGMNAFNFKQDGTLDAQSATQS DI A D A I GLIS



 DLSDSSSLVYKLNDQRYMNLA TTPAAVFKNAFADPTTAAVVSQFNFQSDGTLASGQTAQS TTPAAVFKNAFADPTTAAAVSQFNFQSDGTLASGQTAQS
T T TT T



DP SFASTQG F
 $T$ THP SFASTGQGNNVVNAAFSTAASDGGSATAASSGPQS
 D PYDPKSYVNSSLKDSRFTALLAKAFNFDSKGNLKAPVVQSLS GVEDPDSFANKGLTDKRYAEFAKAFDFARHGAGATTYNPA Q
 DKNDPASYTNTKSTQAHIDLAAGAFEFAVDGTSAKGSAQTE DKNDPASYTNTKSTQAHMDDLAGAFEFADVDGTSAKKGSAQTE DKNDPASYTNTKSTQAHI DLA GAFEFAVDGTSAKGSAQTE DKNDPASYTNTK STQAHIDDAGAFEFAVDGTSAKGSACT

D I A A E A

DLNDANSYANTQGKVKYAK
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DL NDANSYANTQGKVKY
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UniRef90- $\$ 31219$ UniRef90-S31219 UniRef90-S31219 UniRef90-UPIOO03754C15 UniRet90 UPIOOO3754C15 UniRef90-UPI0003754C15 UniRef90-UPIOOO3754C15 UniRef90-UPIOOO3754C15 UniRef90_UPIooo3754C15 UniRef90-Q07NFO UniRefefo-COTNFO UniRef90-Q07NFO UniRef90-Q2JZC7 UniRef90-Q2JZC7 UniRef90-Q2JZC7 UniRet90-Q2JZC7 UniRef90 Q2JZC7 UniRef90-LOLHT3 UniRef90-LOLHT3 UniRef90-LOLHT3 UniRef90-LOLHT3 UniRef90-LOLHT3 UniRet90_KOPTH6 UniRet90-KOPTH6 UniRef90-KOPTH6
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| UniRef90 $\mathrm{N} 6 \mathrm{U} \times 3$ | UniRet90-N6U8 $\times 3$ UniRef90_N6U8×3 UniRef90_B9JAKo

EATIDDRYEA DEFE $\square$ AA A GEQNESMRFALIYAEREMSVVLAKWY NQ:AD LYVRERYE ESVVSSKNESLGMMLDFTRNLPTKRSWA


 AKYATNYKRATLGMDDGASKDATKAVDDFAKGMAEVKS LDD
 AKYATNYKRATLGMDDGASKDATKAVDDFAKGMAEVVSLLD AKYATNYKRATLGMDDGASKDATKAVDDFAKGMAEVVKSLD AKYATNYKRATVGMDDGASKDATKAVDDFAKGMAEVVSLD AKYATNYKRATLGMDDGASKDATKAVDDFAKGMAEVVS L D $\operatorname{L}$ G $T S V D T L Y A A H Y$ GDEQQAEDDSSVVANYKARMAKVVDV T

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TATTTAAAFDENYQVLIANTDSEDAV DNYTTR
TA


## D

## - <br> Q



|  | S DLD Q Q L Siv K S A A NVS Q F A D |
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| LVS NAMWEMALRAFDI | $D P D S V S R S Q V R K I L E$ |
| LV S N A M WEMAL R A F DI | D P D SV S R S QVRKI L E S D |
| NAMWEMAL RAFD | DPDSVSRSQVRK |
| LV S NAMWEMALRAFDI | S V S R S Q V R K I L |
| LVSNAMWEMALRAFDI | D P D SVS R S QVRKI L E S D P |
| L K A F D L | D P TQESASKI K Q V L K S DL |
| LA N A KL Y N Y AL K A F DL | D P TQESASKI K QVLK S DL |
| LA NAKL Y N Y A L K A F D L | D P TQESASKI K Q V L K S D L |
| L Y N Y A L K A F D L | D P TQ ESASKI K QVLK S D L |
| LYNYALKAFDL | D P TQQESASKLIKQVLK S D |
| EL Y Q M A L R A Y GI G | GS DEVTK S Q LT K K L E S D |
| L Y Q M A L R A Y GI G | G S D EV T K S QL T |
| L Y Q M A L R A Y GI G | G S D EVVT K S QL |
| L Y Q M A L R A Y GI G | G S D EVVT K S QL T |
| L Y Q M A L R A Y GI G | GS DEVVTKS QL |
| L Y Q M A L R A Y GI G | GS DEVVTKS QLT |
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| UniRef90_LONAW4 | P N S Y A L |
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| UniRef90-LONAW4 | P N S Y A NL |
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| UniRef90-N6U8X3 | PKS YVNSLKRFT DLA K A F N |
| UniRef90-B9JAK0 | PKS YVNSLKRFTNLAKAFN |

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F EELK
ADDAEDEGKTSRYKLLIK
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$G E$
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$T S D Q M K A M S N Q A A N T T S Y Y Q S K I V$ TSDQMKAMSNQAANTTSYYQSKIV S S L LWY Q LA NDQKESHMKLFESQPTTARD DETFKEEIV SGIIAGWKIVQRSEERQDMAVEADP【VQRSTAYFQDKI G KEETRYYNIMI D KEETRYYNIMI D KEETRYYNIMI D KEETRYYNIMI D
G Y A G Y R F L A R T LE VQQA A Y A A S A P $\square$ ATE


## UniRef90 B9Jako

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110
120
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SSTAAIFGLTD GTVAQDALANRLADNYAD DISSADSYVNRQYNKRTAEMAAAFGFGDSPIPRTVLGRFP DISSADSYVNRQYNKRIAEMAAAFNFRDDGFVADGT KAQ DI SSADSYVNRQYNKRI AEMAAAFNFRDDGFVADGT KAQ Di SSADSYVNRQYNKRI AEMAAAFNFRDDGFVADGT KAQ DISSADSYVNRQYNKRIIA
DI ADSDGLS
Diladsilall

DidADSIGGSNRAEPRYE
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DLSNAASFANKLVDKRYQDFAKAFSFLADKPSVQSKDAL DLSNAASFANKLVDKRYQDFAKAFSFL KPSVQSKDAL DLEDETNYLVAFHKGKLVALSRAFNFEEDGTRPDGDAENQ
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UniRef90-F8JFU8
UniRef90-F7U587
UniRef90-F7U587
UniRef90 F7U587
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PKSYVNSLKRFTNLAKAFN
PK K Y Y V N S LKKRFTNLAKAFN
 PKSYVNSLKRFTNLAKAFN PKQEEKLI RLFLIRSEAN

| SKS Y V S LDRFVAFRKAFN |
| :---: |
| SKSYVNSLDRFVAFRKAFN |
| SKS YVNSLDRFVAFRKAFN |
| SKSYVNSLDRFVAFRKAFN |
| SKSYVNSLDRFVAFRKAFN |
| PAFVDKFi ARFLTQKDAE |
| P A Q MEK $\square$ AR L F L VRAEL |
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| P |
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DEAVQDLVTKY IVRSQLD
KLVRTYMLRDQLN PGE@DRLTEKYAL! KDI ENP PAERERLTSRYVAISDVINP PDMVQDA』TKF』VRDQL

S K S F
SKSF
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T QA $\square$ QS $\square$ TDTY Y $\quad$ ARS Q
PAEQERMDTRYMAISDVLNP
PATMGKNDKRYLLALKNAFN
PATMGKNDKRYLALKNAFN
PATMGKNDKRYLALKNAFN
PATMGKNDKRYLALKNAFN
PATMGKNDKRYLALKNAFN SAVMEKTDRDYLVRSQLE PDLSERLIQQFLLQSEL P
P
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$\stackrel{P}{P}$
KKSFVYTLERYVKLAELFN KKSFVYTLERYVKLAELFN KKSFVYTAL ERYVKKA ELAF KKSFVYTLERYVKLAELFN PEKRDELI R LDFLVRSQU


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PEEMKTL\NTY\ARRTELE
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 K I D S P E A L L K D R R A L E F V L T S F Q L E S E I G K T G I L R K L L T E


 




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 N I $\underset{\sim}{V}$ S













 DVIF T T Q I L A A D K K A L T D D F I L V







 K I $\quad$ N S S V $\quad$ D K
 KIN S V D KLL I A D K K I L D Y V L N A F DII N T N H I S I P F L R R N L T H
 K L S T V D DLL L K D R R T L S F V L S A F Gll D I



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## S

## S

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GVANS GAALANTMLRDPNDILAFAKAF
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D L DPHSDVNRSRDQRFAQLNAFNFDSNGNASSPFQALS

 $N A A D G P A$ A N
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N A N DASN
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D A S N
V V D P E S S F LA RLLNNPKYT QFA EALL
A P D P E S S F L T R L L N N P A Y TK F A E T FA F D P N DE S S L V N R L A D K R Y L K M N Q E M K L S S S A S S G T V D A A M I



SFEETT


NLD

VA AR
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YNNNENLLIKYGKKHMRQMAEYFNFKSDGKNSALTENK
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PKS F
PK S F
PK S F
PK S F
P K S F

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PNALANVL
PNALANVL
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PEEVDKFVKKFVILYDAQN

PKKVAKMTQRY LV
EDVMDKVIQRFHTMDSTAN
PEAVDKMIVRYHAMKSI
PAEVDKFVKKFVILYDAQN


PNKIGNRIQ


| $P N K$ | $G N R$ | $Q$ |
| :--- | :--- | :--- |

GDNLEKLMKNFLLRRQLE
SEARDQLRTNFLLAKQL
$K \prod S T A Q K R F D Y D S E T D R Q V E Y F Y N M R P$ KI S TA QKRFDYDSETDRQVEYFYNMRP K I S TA QKR F D Y D S ET DR QV E Y F Y NMR P LS GNS GWKF LEATYDRQLKSYT DS


 S GVA GWNF LDQSTY DRQYDAFVK S GS LKN DSEYFA ENDG NP $\ \square A D R \square A Q Q N E T K D \square Q A E A K S P Q V Q R D \square A A F T K A V N$ | S | $D$ | $E$ | $I$ | $T$ | $G$ | $K$ | $L$ | $G$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $S$ | $D$ | $E$ | $I$ | $T$ | $G$ | $K$ | $L$ | $G$ |

QY LS IVKKETSSVTRWEKSVSSQQAVAAFQKDAS GLVGWQML QSTMMSQRSSFDQSAEDARETTYFKEKD

 T GLIG WQVL QS TMD DQRRAFNSSAEDQRADDYFRENDG $T G L I G W Q V L Q S T M D D Q R R A F N S S A E D Q R A D D Y F R E N I G$ | $A$ | $L$ | $A$ | $A$ | $Q$ | $V$ | $E$ | $N$ | $L$ | $E$ | $I$ | $A$ | $Y$ | $F$ | $T$ | $E$ | $N$ | $I$ | $G$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $A$ | $L$ | $F$ | $A$ | $A$ | $Q$ | $V$ | $E$ | $E$ | $N$ | $L$ | $E$ | $E$ | $A$ | $Y$ | $F$ | $T$ | $E$ | $N$ |
| $I$ | $G$ | $G$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

ADFAKQFE FGKPPEDQALVSEFNQHT $\begin{array}{llll}A & F & A K Q F E \\ A & F & A K Q F E \\ A & \text { F }\end{array}$ ADFAKQFE F GKPPEEVQALVSEFNNQHTE F GK P P E Q A L V S EF NQ H T E

 YK Q TLLK NE DKA TERLSK DAAI T R DLD RLQK A I D

## A T A A LR DELA <br> A TA A L R D R R L A <br> A TAALRDELA

AASTPVARFVAAFEGRMD AASTPVARFVAAFEGRMD AASTPVARFVAAFEGRMD A A STP V ARFVAAFEGRMD


T D T D T S L Q S DLT T FK S A A P T D T D T S L L Q S DLTT FK SAA A T D T D T S LLQ S DLTTTFKSAAP T D T D T S L L Q S D L T T F K S A A P

K DEAKSASDYAKDATVTNYTSSFEEDAV

VSPVASYLSADKDEDTAASNYVKSDVAKQADASFEKKAP $V$ S PVASYLSALK KEDLAASNYVKSDVAKQAI ASFEKKAP $V S P I T S Y L V A Q K D E T T A A Q N Y A K D S V T A N E V A T F E K D A G$

[^0]
 UniRef90-V7ER86


GVPSVEALLADSALLGRALDAFDLGADRDRTVFLSRVLRS GVPSVEALLADSALLGRALDAFDLGADRDRTVFLSRVLRS GVPSVEALLADSALLGRALDAFDLGADRDRTVFLSRVLRS NADELLENEGLLKAVVDSFDLE NADELLENEGLLKAVVDSFDLE Y YTNT: FALKRMLES NADELLENEGLKKAVVDSFDLE YTNTIFLKRMLES



UniRef90_M7YTK7 UniRef90-M7YTK7 UniRef90-M7YTK7
UniRef90-A0A059G4V UniRef90-N6UW26 UniRef90-N6UW26 UniRef90-N6UW26 UniRef90- 6 XGH 9 UniRef90-C6XGH9 UniRef90-C6XGH9 UniRet90 ${ }^{-}$A0A059FA05 UniRef90-A9HH96 UniRef90-RoDYS7 UniRef90 FOJ196 UniRef90-V9VTV4 UniRef90_V9VTV4 UniRef90_G6X198 UniRef90 -11AYM7 UniRef90-11AYM7
UniRef90-K7SL45
UniRef90-S9QSJ6 UniRef90-Q0FVE2 UniRef90-Q0FVE2 UniRef90_B7QWP2
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UniRef90 W4HIK8 UniRet90 UPI000377ACE5 UniRef90 C5AU56 UniRef90-C5AU56 UniRef90-UPIO0046E99B1 UniRef90 UPIO0046E99B1 UniRef90-UPI00046E99B1 UniRef90-UPIO0046E99B1 UniRef90_UPIO0046E99B1 UniRef90 B1ZL93 UniRef90-BOUC10 UniRef90-UPIO002260015 UniRef90_D5RG55 UniRef90_D5RG55 UniRef90_U2Z7Q8
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lupas 21
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jnet
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678776510135517




QAVTQAY LRQSLESEAGDADTGVRLALYFARKASSDASAY QAVTQAYGRQSLESEAGDADTGVRLALYFARKASSGASAY



$R T V T D A Y L E Q T L E S D A G E E D T G L R L A L Y F A R M A P T L T S A Y$ D SIV VT K Y DEKS YETALLEA QTS GVVGNALYFTRTMTTVMTVD DFI AN RYT Q I R F E E S L GQS S ETLLRRAVYAKRMLPQMNNWF


A G
A G
D G $\square$ M D R WK D R R F E A A VGRMD ND LRRLAMNARRELAE $\square A K W \square$

[^1]

 DI A S DPVLADIVRTDLGLPQSINDQAEAFAKTLSVASLRD DI AS DPVLADIVRTDLGLPQSINDQAEAFAKTLSVASLRD $R M L A N V P V R T L L E G A M N L P S D Q E R Q A D \square F K E R L D V S E L S S$


$N T L G D K \| L R R V A L T \backslash A G L P Q S T E S Q A R Q L E K R \prod D L K Q F A T$ D I L S D P A L T K V A N V V L L G L P A T L V R R A A LI K Q K I D I A S F Q D D I L S D P A L T K V A N V V L G L P A T L V R R A All I K Q K I D EI L G DKALLT MLLQTTFGWPADI DKQAKMIADKI DFSKMSD


QVLADE

Q $V \begin{array}{llll} & L & A & D \\ A & E\end{array}$
QVLAD E
QV LAA D E $\quad$ I MG D A RLLNVVETVS GFALD Y D E QVRLLLTGKVDLLS F S S QV F A D E
$Q \vee F A D E$
QV F A D E
 DVIFNNAVREVTFDFFDVSSDLL $\quad$ V Y L QRVMESDPAN $\left.\begin{array}{lll|llll|ll|lllllllllllll}D & V & I & F & N & N & A & V & R & E & V & T & F & D & F & F & D & V & S & S & D & L \\ D & V & I & F & N & N & A & V & R & E & V & T & F & D & F & F & D & V & S & S & D & L\end{array} \quad \quad \begin{array}{lllll|llllllll} & V & Y & L & Q & R & V & M & E & S & D & P & A\end{array}\right]$

D $\$ LGDAA LS QVANTVIGLPATLAKRAQLIDRKDDDASFRD
 DLLNNDTVLSMIM STYGLD S STD
DLLNNDTVLSMIMSTYGLDSSTD

LLN ND TVLS MIM S T Y GLD S S T D
$D \square L G D A A L S K V A N T V A G \square P A T \square D A R A A F D A A K \square D \square A G F Q D$ QI MSDSTLLKVVETVSGYNLDYDEQKRLIEKTYNASDFSS SVIADRNLAEVVQNVLGLPLDVDRQKAVLEKRMSDADFKD



K $\square \mathrm{MGNLPDRTVVQRAFGLPMDDDRQVAMLTERATVSQFAD}$
lupas_21
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jnet
conf
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sol5
sol0
jhmm
jpssm


| UniRef90_M7YTK7 | PRTLSQF!DRY |
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| UniRef90-A0A059G4V6 | PEIID KAIQRFHVMQS $\square$ N |
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| UniRef90-K7SL45 | S N G V Q R F A E Q Y LA LL QVN |
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| UniRef90-B6B8I2 |  |
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| UniRef90-W4HIK8 | P T SLL GLl |
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| UniRef90-U2Z7Q8 | PAELEKLERKYVADS A A |
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