## QUERY

UniRef90_R4W314
UniRef90-Q45Q17
UniRef90 A5HB6
UniRef90-10J3G7
UniRef90-A9PE73
UniRet90-J9QGM3
UniRef90_L7Z3H3 UniRef90-UPIO0042B3D2E UniRef90-A0A059BXG5 UniRef90-P5117 UniRef90-Q9ZWR1 UniRef90-E1CPW7
UniRef90
B1B5E7
UniRef90 - W9RNN3
UniRef90-H6V8U3
UniRef90-W6CH02
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UniRef90_Q8S911
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UniRef90_W1PWU2
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UniRef90-Q08704
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UniRef90-R4H4Z4

| UniRef90- Q8HOG2 |
| :--- |
| UniRef90 |
| $1006 P 7$ |

UniRef90-S8D67
UniRef90 A0A059AE55 UniRef90-D5ADH5 UniRef90-D5ADH5 UniRef90_MOSPJ7 UniRef90-UPIO00351123E UniRef90_UPIO002B4A72D UniRef90_Q3HNP7 UniRef90-G4U3G9 UniRet90-ROGRT6 UniRef90-BOFYQ3 UniRef90-V9ZBA2 UniRef90-B7SJG8
UniRef90-M4CSF3 UniRef90-EOCRY9 UniRef90-B9SUP2 UniRef90-C7BG59 UniRef90-UPIO002B4B14D UniRef90-A0A023W5B8 UniRef90_D2XQZO UniRef90-ROIMQ8
UniRef90 MORUU UniRef90-F1C7S9 UniRef90-K4CGN6 UniRef90-P41089 UniRef90-V4KMF3 UniRef90-GOX8B6 UniRef90-D7US50 UniRef90-F2DKYO UniRef90-K3Y9Z7 UniRef90-W1PQA8 UniRef90-AOAO22QGB1 UniRef90-G1EN41
UniRef90 M4DMJ3 UniRef90-Q42925 UniRef9-A0Aог2R6A3 UniRef90- WoU1H7
UniRef90 A9ZM, UniRef90-A0A059ADE9 UniRef90_B4G1R6 UniRef90-11NJ68 UniRet90_W8R600 UniRef90-I1E312 UniRef90-Q8VZW3 UniRef90_O81980 UniRef90_D7US51 UniRef90_W9RV67
 VAFVQV NYVFPTVKPPASTNTLL
 SLAGLQVEATAFPPSVKPPGSSNTLFLGGAGVRGLEIQGN
 S L L S E
S
$\cos$

## $S$ $S$

## $S{ }^{A}{ }^{\text {AT }}{ }^{T}$

C $\vee \mathrm{A}$
$\begin{array}{llll}A & L & P & K \\ S & T & S\end{array}$
S V T
$S V$ S D GQ V

A

S
S V T K V $V$ Q $V$ V

 | $A$ | $K$ | $S$ | $S$ | $L$ | $Q$ | $E$ | $G$ | $F$ | $T$ | $F$ | $S$ | $P$ | $S$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $A$ | $V$ | $K$ | $K$ | $P$ | $P$ | $G$ |  |  |  |  |  |  |  |

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


| $S$ | $L$ | $K$ | $L$ | $V$ | $I$ | $G$ | $E$ | $V$ | $T$ | $F$ | $P$ | $P$ | $A$ | $A$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |$P$

 SVTGGLQVEAAAFPPATKPPGSASTLFLAGAGERGLINIDGK

S L T A I

E K$\stackrel{V}{V}$ E VL $N$ GV Q V E S F V F
$L N G V E L E G I A B P P T V R P P G G T K D L V L$L E V

S E
$\begin{array}{llll} & \text { S T L } & \text { F } & L \\ \text { A H S H } & \text { L } \\ \text { L }\end{array}$

| N |
| :--- |
| N |
| S |
| N |
| Q |
| A |
| A |
| G |
| T |
| K |

S K
G
G


| $A$ | $N$ | $T$ | $X$ | $F$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $T$ | $K$ | $S$ | $Y$ | $F$ | $L$ | AHSHFL HKK L F L

## 

SVTNLQVESVNFPPSVISPASSNRDFDAGAGVQGLDDQGD
 SATH VIEAVSFPPAVKPPASDKTLFLAGAGVRGLEDEGK

## 

 A GARGDE DQGK

TEEPATKVKFQRSLSLPGCSTSLS LLGTGYREKDFA I EHEFPAVVTSPVTENHUFLGGAGERGLTINGT AVSEVEVDGVVFPPVARPPGSGHAHFLAGAGVRGVEIAGN SVTP IHVGSFTFPPA $V$ TSPASSKK LIFLGGA

A ATVEVEGI P F PMRE VTVVEGIPFPAEITV
 $S$ SARLQ $S V T N L Q V D S V N F P P S V I S P A S S N P L F L G G A G V R G U D V L G K$


VE T VMVD E T S F P R Q TQ

## QUERY

## UniRef90_R4W314

 UniRef90-Q45Q17 UniRef90-10J3G7 UniRef90-A9PE73 UniRet90-J9QGM3 UniRef90_L7Z3H3 UniRef90-UPIO0042B3D2E UniRef90-A0A059BXG5 UniRef90-P5117 UniRef90-O9ZWR1 UniRef90-E1CPW7 UniRef90-B1B5ET UniRef90-W9RNN3 UniRet90-H6V8U3 UniRef90-W6CH02 UniRef90-Q8S911 UniRef90-COLF61 UniRef90-C3W5J1 UniRef90-Q53B74 UniRef90_M4PZ23UniRef90 B7FJK3 UniRef90-G3KG25 UniRef90-Q33DL3 UniRef90-P11651
UniRef90
W6JMU6 UniRef90-M9TM46 UniRef90-W5RY33 UniRet90-Q6QHK0 Uniinefol-G4U3G8 UniRef90-Q3Y4F4 UniRef90-K4BXK4 UniRef90_W1PWU2 UniRef90_S4X4V3 UniRef90-Q08704
UniRef90 Q6BEH3 UniRef90-G7IEZ8 UniRef90-R4H4Z4 UniReffo-O8HOG2 UniRef90-S8D6P7
UniRef9O_AOA059AE55 UniRef90_D5ADH5 UniRef90-D5ADH5 UniRef90-M0SPJ7 UniRef90 UPIO00351123E UniRef90-UPIOOO2B4A72D UniRef90-O3HNP7 UniRef90-G4U3G9 UniRef90-ROGRT6
UniRef90-BOFYO3 UniRef90-V9ZBA2 UniRet90_B7SJG8 UniRef90-M4CSF3 3 UniRet90-B9SUP2 UniRef90-C7BG59 UniRef90-UPIO002B4B14D UniRef90-A0A023W5B8 UniRef90-D2XQZO UniRef90-ROIMQ8
UniRef90 MORU3 UniRef90-F1C7S9 UniRef90-K4CGN6 UniRef90-P41089 UniRef90_B9F6Z9 UniRef90-V4KMF3 UniRef90-GOX8B6
UniRef90 D7US50 UniRef90-D5A9R5 UniRef90-F2DKYO UniRef90-K3Y9Z7 UniRef90-W1PQA8
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UniRef90 A9ZM, UniRef90-A0A059ADE9 UniRef90 B4G1R6 UniRef90-11NJ68 UniRef90-11MIX4 UniRef90-11E312 UniRef90-Q8VZW3 UniRef90_O81980
UniRef90 UniRef90_W9RV67

FVKFTAI GVYLEENAVPLLAVKWNGKTAEE
${ }^{70}$ LT E STPFFR ${ }^{80}$ FVKFTAI GVYLEENAVPLLAVKWNGKTAEELTDSVDFFRD FIKFTAI GVYLEDSAIPSLAVKWKGKTAEELTDSVDFFRD FVKFTAI GVYLEDNAVPLLAVKWKGKTAEELSESVEFFRD FVIDFTVIGIYLEANAI PSLSVKWKGKNTKELTESVPFFRD FIKFTAL GVYLEDNSLQSLAAKWKGKDAKELTDSVEFFRD
 FVKFTAI GVYLEDDAVESLAVKWKGKSAEVLTESVEFFRD FIK KTAl GVYL DAALPSLABKWSGKSAEELADSVEFFRD
FVKIA
FVKFTGI GI YLEDKAl S SLAMKWKGKTAHEL
FVKFTAI AVYLEDAVPA AKWKGK
FVKFTTI GVYLEDNAVKWLAGKWKGKSVEEL
FVKFTAI GVYLEDDAIPALAAKWKGKTAQE
FIKFTAI GVYLEDNAVSLLAVKWNGKSAEELTDSVEFFREA
FIKFTAI GVYLENDAVTSLAAKWKGKTAEEVADSGDFFAE
FVKFTA: GVYLEADAVPSLAVKWNGKSAEELTDSVOFFRD
FITFTAI GI Y LEDEALRSLSGKWKGKTTDELAASLEFFRD
FVKFTAICIYLQYDALSFLSVKWKTKSTHQLTESDQFFSD
FVKFTAI GVYVEDSAVSSLAGKWKGKSAEELCESVPFFRD
FVKFTAI GVYLQDIJAVPYLAEKWKARSAHELTDTVPFFRD
FIA AFTA: A I Y Y E NDAVKTLADKWRGKGAEEYSDSMDFFRD
FVKFTVI GVYLEESAVQFLAPKWKGKSAEELDHSVDFFRD
FI TFTA GVYLEDAAVDVLAGKWKGKTADELAGNVDFYRE
F: KFTA||GVYVEESAVEALIGKWKGKSGDELVGSPEFKRD
F AFTAL GI Y ETDSAPFLADKWKGKTGEELAGSLDFFRD
Fi KFTAI GVYLQADAVSALAKKWAGKAADELASDAAFFRD
FVKFTGI GI YLEDKAIPSLSVKWKGKTAEELIDSVEFFRD
FVVFTAI GVYLEDLAVSTLGPKWKGKTADDLAGNSDFFRD

FIKFTAI GVYLEDKAVESLAGKWKGKNADELNESVEFFRE
FIKFTAI GVYLEDAAVPALAKKWGGKTADELASDAAFFRD

FISFTAI GII YFEETAVASLADKWKGKSATELAESVEFFRD
 YVKYTA:|GVYLEATAVPILATKWKGKTADELRDSIEFFRD VITFTTVGVYYDSALVPYLANKWRGKTVEELNDSSDFFMD FVK $\square A A G G V Y L E D A B A A L A G K W A G K S A G E L A S D P A F F R D$ TVKFTAL GI YLEDKAVPSLAGKRSGKSAAELMDSVEFFRD FITFTGI GVYLEENAIASLAPKWKGKTPAELIQSLDFYRD FIKFTAIGGYLQADAVSALAKKWAGKAADELASDAAFFRD FVIVTVI GVYLEAMAVPSLSVKWKGKNAKELTDSVPFFRQ FVKFTGI GVYLEDKAISSLAVKWKGKTAQELTDSVEFYRD FVKFTAI GVYLEDSAVPSLAVKWKGKTAEELTDSVELDGE FVKFTAVGVYLEDNAVPSLAVKWKGKTAEELMDSVEFFED FVISTVIGVYLDPNALEGLP FCG TTEELAESVPFFRQ GVKVYAAGLYLNQSVSNKLNAWKGRSATEEQGDSSLFDS FVKFTA GVYLEDAVPLAVKWKGKTAQELTDSVEFFRE GVKVYAAGLYINSSVSNELNA WRGRSAAAIQEDSSLFDI FVKFTADGVYLEDKAVNCLAAKWKGKKAEELAESVEFFRD FiKFTADGVYLEDAALPSLAAKWGGKSAEELADCVEFFRD GVKVYAAGYYVNESVLRGLSA WKGRSADE:EKKDSGFSS Y LDANAVPSLSVKWKGKSPEELTESVPFFRE GVKVYAAGLYVNDSVFSSLDA WRGRSAADIQQDPSLFNK F:KKTCAGVYLEDKADKSLATKWEGKL EELLEETGDFYRD FVIVTVI GVYLEALAVPSLSVKWKGKNEKELTESTSFFRQ FISFTAI GI Y EESAVTSLADKWKGKSATELTESVEFFRD QUKFTA\GVY SVKVYAAGLYVDTTUKSYLAA WSGKDGSQI EQDNDFFNA QI KFNAVGVYLDVDGAMEHLQGWKGKS QLMEDEAFFDA Q KYNAIGI YLHNNALLHHLQSWKGKTADELLGDDAFFQA FVKFTCTALYMEEAAVYDLEPKWKGKSAEELLA SUNFFMD GVKVYAAGLYANQSVFTKLDA WSGLSSAELQKDSSLFDA FVKFTADGVYLEDSAVPQLAVKWKGKTAKELTECVEFFRD FVIITFFGVYLDPVAVPLLSVKWKGKTTEELMESVPFFRE QTKFTAMGVYLDPETVTHLDKWKGKSAADLAKDDDFFEA QVKFYS:GVYLDPEVVGHLQQQWKGKSAKELEENDGFFDS YVKYTAI GVYLEAKAVPILAAKWKGKTADELRDSIDDFRD Q1 KYNA: GVYLHDSTTPTLLGHWKGKTAEELLADAAFWAA FIKFTGI GVYLEDKAVPSLAAKWKGKTSEELVHTDHFYRD QI KYNAIGGYLEEAVVEHVGD WKGKKGGELAEDDDFFEA GVKVYAAGLYLDQSVTQELNA WKGQSKDAIQGNSSLEET LVVYTADGVYLEVYGVSTLAPKWKGKTADYLCDNYDCFRD QVKFTA: GVYLDPSDVKTHLDNWKGKTGKELAGDDDFFDA


| QUE |  | $2 L G G^{120}$ |
| :---: | :---: | :---: |
| UniRef90_R4W314 | VTGPFEKFI QVTMILPL | VSENCVANWKAVGI |
| UniRef90-Q45017 | VSGPFEKFTQVTMILPL | KVTENCVAYWK AVGT |
| UniRef90-A5HBK6 | VTGPFEKFlQVTTILPLT | KVSENCVAFWKSVGT |
| UniRef90-10J3G7 | VVTGEFEKFIKVTMKRPL | , |
| UniRef90-A9 | VRGPFEKFMRVTMl |  |
| UniRef90-J90GM | VTGPFEKFMQVTML LPPLT | TGQQYSQKVSENCVAI WK HL |
| UniRef90 L7Z3H3 | VTGPFEKFTQVTMI LPLT | TGQQYSEKVAENCVAHWK AL G |
| UniRef90- A0A059BXG5 | $\checkmark$ VTGPFEKFSRVTMILPLT | TGAQYAEKVTENCVKYWQSVGT |
| UniRef90-P51117 | VVTGPFEKFTKVTTILPLT | TGRQYSDKVSENCVAF |
| UniRef90-Q9ZWR | VVTGPFEKFMKVTMLLPLT |  |
| UniRef90-E1CP | VTGPFEKFSQVTMILPLT | TGQQYAEKVSENCVAAWKSLGU |
| UniRef90-B1B5E7 |  | TGQQFSEKVAENCTACWKAVGK |
| UniRef90 W9RNN3 | VTGPFEKFTRVTM LP | TGPQYSEKVSENCVAL WK TL Gl |
| UniRet90- W6CH02 | VTGPFEKFTRVTMILPLT | TGPQYSEKVAENCVAHWKAKGT |
| UniRef90-Q2PF16 | VTGPFEKFTKVTTILPLT | TGQQYSEKVVENCVAYWKADGK |
| UniRef90-Q8S | VTGPFEKLTRTMILPLS | SGKQYSEKVSENCVAFWKAAGM |
| UniRef90-COLF61 | VTGPFEKFFRVTMITPLT | TGKQYSEKVAENCVANWKALGT |
| UniRef90-C3W5J1 | FTGSFEKFTRVTMVLPLT | TGQQYSEKVAENCVAAWKAAG |
| UniRef90-053874 | VTGPFEKFMQVTM KPLT | T GQQYSEK A ENC A A Wr Sh |
| UniRef90-M4PZ23 |  |  |
| UniRef90-B7FJK3 | Y YAGPFEKFTKVVMLLPLT | TGAQYSEKVSEC |
| UniRef90 Q33DL3 | VTGPFEKFTRVTMILPLT | TGKQYSEKVAENCVAHWKA |
| Uni | VTGPFEKFTRVRFILPLT | TGKQFSEKVAENCVAHWKATGT |
| UniRef90-W6JMJ66 | VAGPFEKFTKVTMVLPL | KVTENCVA HWK A S GV |
| UniRef90 M9TM46 | VTGPFEKFTRVTMVL | KVIENCVAA W |
| UniRef90- O6RY33 | CTGPFEKFTNVTMILPLT | TGEQYSEKVTENCVAYWKAll |
| UniRef90-G4U3G8 | V VTGEFEKFTQVTMILPLT | TGAQYSEKVTENCVAYWKAVGA |
|  | QV T M |  |
| UniRet90_O3Y4F4 | MV |  |
|  | TGPFEKFMRVT | KVAGNCVA MMKAMGN |
| UniRef90 W1PWU2 | VIKCPFEKFTRIT | KVAENSVAGLKVAGI |
| UniRef90-S4X4V3 | VVTGDFEKFTRVTM | GEQYSEKVA |
| UniRet90 Q6BEH3 | IITGPFEKFTQVTLI | GQQYSGKVSENCTAQWKAAGV |
| UniRef90_G71EZ8 |  | GSEYVRKVSENCIAHMKSEGT |
| UniRef90 R4H4Z4 | GQFEKFIQIISML |  |
| UniRef90-Q8H | ISSPSEKLIRGSKL | VMENCVAHMKSAGT |
| UniRef90-ADAO59AE55 | VITGPFEKLTQVSFIT | GPQYTNKVTENC【AFWNCNGG |
| UniRet90-D5ADH5 | FTRVTMl | GMQYSEKVTEGCKAAWEAAGT |
| UniRet90-D5A |  |  |
|  | GGPFEKFTRVT | V |
| UniRef90-UPI000351112 | VYTGEFEKFTRVTF | AEEFAGKVMESRVAYLEAAGA |
| UniRef90-Q3HNP | IIKGPFEKLVRGSKLKKLD | DGNEYVRKVSENCASFTKSEGU |
| UniRef90-G4U3G9 | VVTGEFEKFTQ VTM | VTENCVAY WK AVGA |
| UniRef90 RoGRT6 | VTGEFKKAA | TG |
| UniRet90_BOFYQ3 | VTGPFEKFAQVTMILPLT | , |
| UniRef90 v9zBA2 | VVSGPFEKFTKVTMYLPMT | TGKQYSEKVAENCVAYWKSIVGK |
| M4C | VTGPFEKFTKVTMKLPLT | TGQQYSEKVTENCEA |
| UniRef90-EOCRY9 | FQ@PQEKSLQUV |  |
| ef90_B9SUP2 |  |  |
| UniRet90-C7BG59 | VVTGPFEKFMKVTMVLPLT |  |
| UniRef90-A0A023W5B8 | VTGDFEKFVRVTMILPLT | TGQQYSEKVAENCVAI WKSLGI |
|  | TGPFEKFSRVTMI | TGAQYAEKVTENCVKYWQSVGT |
|  | V L V |  |
| UniRet90-M0RUU3 | SAPVEKYFRIVVIKEIK | KGSQYGVQLESAVRDRLAAI DK |
|  | TGA EKF KV TMK |  |
| UniRet90- P41089 | SGPFEKLI RRSKIK | GPEYSRKVMENCVA HLKSVGT |
| UniRef90-B9F6Z9 | VTGDFEKFTRVTMI LPLT | TGEQYSEKVTEDWVAAWKAAGV |
| UniRef90-V4 | GVFEKFVRVTMKVNL | T G T Q |
|  | QFEKFIQITML |  |
| UniRet90-D7US50 | DKFLRVVVIK | GSQYGVQLESAVRDRLAEVDK |
| UniRef90 D5A9R5 | FEAPVEKSLQ VL | ALDEALSPRLK K |
| 2DKY0 | V AP EKVLR | , |
| UniRef90 K3Y9Z7 | VSAPVEKLFRVVVIKE | GSQYGVQLESSVRDRLVAADK |
| UniRet90 W1PQA8 AAOROGB1 | PFEKMSHVA |  |
| G1E | GPFEKFIQV | GQQYSEKVSENCVAFWKSVGI |
| UniRef90 M4DMJ3 | VTGTFEKL K VMMRVPLP | PGQLYSQUI G G SVKIWK SLG |
|  |  | KGQ |
| UniRef90 ${ }^{\circ}$ W0U11 ${ }^{\text {H7 }}$ | APVEKVVRLVVIKE | GAQYGVQI ESAVRDRLAADDK |
| UniRef90-A9ZMJ9 | VSGPFEKFTKVTMI LP LT | TGKAYSEKVVENCVAYWKGVGT |
|  | PFEKLTQVSFITQLT | TGQQYTNKVTENCIAFWKSNGG |
|  | K |  |
| UniRef90-11NJ68 | PFEK |  |
| Ret90_W8R600 |  |  |
| Ref90-11M1X4 | SFEK |  |
| Ref90_11E312 |  |  |
| 90_Q8VZW3 |  |  |
|  | 11 SGPFEKLIRGSKI LPLA | GAEYSKKVMENCVAHMKSVGT |
|  |  |  |




UniRef90-B9SUP? UniRef90_C7BG59 UniRef90_UPI0002B4B14D UniRef90-A0A023W5B8
UniRef90_D2XQZ0 UniRef90_ROIMQ8 UniRef90-M0RUU3 UniRef90_F1C7S9 UniRef90_K4CGN6 UniRef90-P41089 UniRef90_V4KMF3 UniRef90_G0X8B6 UniRef90_D7US50 UniRef90_D5A9R5 UniRef90_K3Y9Z7 UniRef90_W1PQA8 UniRef90_A0A022QGB1 UniRef90_G1EN41 UniRef90_M4DMJ3 UniRef90_Q42925 UniRef90_A0A022R6A3 UniRef90-W0U1H7
UniRef90-A9ZMJ9 UniRef90_A9ZMJ9 UniRef90-B4G1R6 UniRef90_B4G1R6
UniRef90 INJJ68 UniRef90_W8R600 UniRef90_-11MIX4 UniRef90_I1E3I2
UniRef90 Q8VZW3 UniRef90_O81980 UniRef90_D7US51
UniRef90_W9RV67

FSSKD GSMPKD GVVAVIE N NLLSEAVLESMDGKNGVSPAAKK
 FSKD $\quad$ S SVPEA GKAVI ENKLLAANSVLESII GKNGVSPAAK



S
 F G K H D A I P E A DVA V I E N G P L S Q S V L E S II G K Y G V S

 | $I$ | $S$ | $S$ | $D$ | $G$ | $S$ | $P$ | $S$ | $V$ | $A$ | $D$ | $A$ | $T$ | $I$ | $D$ | $S$ | $P$ | $A$ | $V$ | $A$ | $F$ | $A$ | $L$ | $F$ | $D$ | $V$ | $Y$ | $F$ | $G$ | $S$ | $H$ | $P$ | $V$ | $S$ | $P$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

## F S K D D S $\square P$ E T G K A V I E N K L LT E A

FSKDASMPEATNAVI ENKLLSETVVLES VVGKHGVSPATKQ


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I S F VT E G K G EA K $\square$ K VE N A NVVE M I Q K WF L G S R A V S P S TVVK




QUERY
UniRef90_R4W314
UniRef90_Q45Q17
UniRef90-A5HBK6
UniRef90_IOJ3G7
UniRef90-A9PE73
UniRef90 J9QGM3
UniRef90_J9QGM3
UniRef90_UPI00042B3D2E
UniRef90_A0A059BXG5
UniRef90_P51117
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UniRef90-W6CH02
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UniRef90_C0LF61
UniRef90_C3W5J1
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UniRef90-P11651
UniRef90-W6JMJ6
UniRef90-M9TM46
UniRef90-W5RY33
UniRef90-Q6QHK0
UniRef90 G4U3G8
UniRef90-E0D6S6
UniRef90-Q3Y4F4
UniRef90-K4BXK4
UniRef90-S4X4V3 UniRef90_Q08704
UniRef90-Q6BEH3 UniRef90-G7IEZ8 UniRef90-R4H4Z4
UniRef90_Q8H0G2
UniRef90 S8D6P7 UniRef90 A0A059AE55
UniRef90-D5ADH5
UniRef90 D5ADH5 UniRef90_D5ADH5
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S LADRFSELLKQHCEAEET
SI A TRVPEILK
SLA S RLS HLDNLS QPN
SLATRFFELFN
SLATRVAELLKESVDEPAAAE
SLLA ERLLSKLMNNSDQH
SLASRL
S LAA ARTS DLLRQNEPEELAA
SVAERLAQLMKLERRAE
S VA N GLATVLK
S LA E RLS A LLN
SVATGLAAVLK

SVA N QLA MTL
SLADNLGTMLAQ
S VAERLAQLMNKNKVEEEEA
SVAKGLEATLK
CLAARLPALLNE
SIIAARVSQLLK

SLANTLSAELSK
SVAS GLA SII
SI A DGFAAMLS
S L A D R F A A LL S

SLAARLSQLLNGCK
SLANALS LQLSK
SLASTLSTELSK
$S L A N R F A A L L$
STAEGTAK
SVMAGLSKVLK
TVA Q SLS S DIL
SI A D S I S AVLT
ILASRL


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UniRet90_C6SV98 UniRef90 ${ }^{-}$C5XZ21 UniRef90-UPIOOO42B7314 UniRet90_W1PT95 UniRef90-W5AKJ6 UniRef90-A7KTI4 UniRef90-B5A4UO UniRet90 UPIOOO2C2FD1F UniRef90-UP10002C2FD
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A SNNTRFLGGAGVGLEMEGK TMVDEDPFPHETT ATKALPLGGCGITDUEI HFL VMVDEFQFPKSIA PTASKALHLVGYG TDME HF VNVEPPPSKITF

EVLV
 VLVD

TGIEFPMILDS $\square$ S
TGTEFPT LLENNSSGTSEVLVGGSRTMK
ATEEVLVDEITYPSKTT
TTKPLSLLGHGIVTDM

TGUKFPLSVNNNSSWSPLVLVGDGSRSMK\| IVK
SSKEVMDDEUPFPVEIN
RTRPLALVGQGMTSDEDHF号
GLVIEGTQFPPGLTSPVSQKS LF DAGAGVRNDQDNPV TGIEFPMVLDNNSSLNSEVLVGTGSRTMTIRIK TGVEFPTMLESDSGFTPEVLVGTGSRTMTVRIK TG|LKFPAFLEDDSSPSTTVLVGMGFKGVKVRVK
VTGGEVETQWFPPEVKPPGSAKTFFLAGAGWRGMEVDGK TGIKFPA ILENDSSPATTVLVGDGFKGMRIRVK

VNVDENPFPPQ TKTTVEGVSFPSVFY ETKQLAGVGVRKKS ILGK

## TG $\square$ K F P TLLEENSNPTAQVLVGMGYRNMR $\square M K K$

TGПEFPMILNNNSSLSSEVLVGTGSRTMK川 IK TNVKFPRELTLPGYTEPLVILGTDYNMLEIEKF TGVSFPSVLGNSLRLGDGDRKK GUGK

NSKlLVGTGSRSMK! IK TGTKFPAFLEDDSCPATTVLVGVGFKGMKIRVK TGIEFPVILEQNSSFDSEVLVGTGSKNMTIVIK TGVSFPSVVY ETRRLLGVGLRRKSVLGK TGFSFPSVI GDSQQLLGGGGLRKA1LGK

GVSFPSVL TGIKFPTILEDNSNLSTEVLVGIGFRSMRIRVK TGVSFPSVV GGSRQLLGVGRRRKSVLGK TGASFPAT GESRRLLGVGLRKKSVLGK
 tGTSVEGAAFPTVL DGGRRLTGDGLRKTSVLGK


TGMAFPSLLKD TQRLLGQGLRKKAVFGK TGLKLPGEYCVNGG KCAPLTGMGVRMKR1AGD MQVLGGVGVRCMK
TGMEFPMLLKENASSNSEVLVATGSRTMKDRTK TGVAFPTEA SAGRRLLGVGLRKTSVLGK G $\square \mathrm{EFPETFCH} \square$ SQKDCPA $L I G T G A R A K K \square A G K$
sVSESK
TGVXFPSLLND
SRQLLGIGLRKKSVLGK ASQKLCGDGLRRKC\|LGK
TGSSFPSVLE
S S S DALLGTGYREKVFADI TGVEFPEVTTLWEGGKMASMGAGVRAKKFAFV GEAYRCLGAATRSKNVLFV GFLFPKTLRLDDSTEGQVLMAVGRTMYVFFT
PPDTVEGAEFPAWПDSDGAK DELGGTGLRKKSILGK $K \square N V E F L E F P A T V T P P D S T K T Y F L G G A G$

TGVKFPNEVASVHDSGALKLGGLGVRTVSFL
TGTSFPAVLKD
ATEEVLVD
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TRGCPALAGAGARTKR|AGK
VVVEGLEFPMQLCHNASLSCQILAGVGARSKEIMLK

UniRef90_UPIo002B47A3B UniRef90-A0A059BHS3 UniRef90 ${ }^{-}$W9RULO 0
UniRef90 MoTOV7 UniRef90-MOTQV7
UniRef90
D3YN53 UniRef90-I1V1P5 UniRef90-A0A024AX28 UniRef90-A9NRN8 UniRef90 WOSN99 UniRef90-A9SRW1 UniRef90-A9SD96 UniRet90-W1P2R1 UniRef90-V9PCW5
UniRef90 Moscra UniRef90-S8CQF2 UniRef90-B9RQY2 UniRef90-038HMO UniRef90-F6H2T1
UniRef90 C6SV98 UniRef90-C5XZ21 UniRef90-UPIOOO42B7314 UniRet90_W1PT95 UniRet90_W5AKJ6 UniRef90-A7KT14
UniRef90-B5A4U0 UniRef90-D8SOY6 UniRef90-UP10002C2FD1F UniRef90-A0A022PXM9 UniRef90_J3MC61 UniRef90_V4WHQ0 UniRef90-W9RR48 UniRef90-X5IGL5 UniRef90-QOPCE3 UniRef90-UPIO0023B31EA UniRet90_U5FFX3 UniRef90_Q6EQW2 UniRef90-A9NXH6
UniRef90
F4ZZA2 UniRef90-M8AMP9 UniRef90-Q9SXS9 UniRefigo-S4UT44 UniRef90-M5XBZ7 UniRef90 11HZR6 UniRef90-UPIOOO42B8580 UniRef90_MoZAZ2 UniRef90-A0AO59CN16 UniRef90 M7Z101 UniRef90-UPIo0032AA95C UniRef90-B9S415 UniRef90-UPIo002B43368 UniRef90-W1NZN4 UniRef90-Q8LGS3 UniRef90 I1KB79 UniRef90 W9QVM9 UniRef90-K3YT00 UniRef90-A0A059A709 UniRef90-M4FH57 UniRef90-11GT85
UniRef90 A9SYP7 UniRef90-A9SYP7
UniRef90-MOTQQ6 UniRef90-A0AO22OC92 UniRef90-U5GVJ9 UniReffo-D8SXX8 UniRef90-K4CAT1 UniRef90-C1E8P9 UniRef90-D859B3 UniRef90_UPIOOO42B5312 UniRef90_Q84RK2-2 UniRef90-K3ZVYO UniRef90-IOYR06 UniRef90-E7D616
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U5AE11 UniRet90-A5AE11 UniRef90_UPI00032AC879 UniRef90-111V07 UniRef90-W8CGK3 UniRef90_10YMM9 UniRef90_A8J6A8
UniRef90 L8H519 UniRef90-D7FP06 UniRef90_C1MT85 UniRef90-D8T216
UniRef90 S8EFQ5 UniRef90-G71EZ7 UniRef90_R9AN87 UniRef90-A0AO22S3R4 UniRef90-E1ZSA8 UniRef90_- 533 B 71 UniRef90-E1ZKT2 UniRef90_A9TWY8
 QI KFTAI GVYLDPEIVGHLQKQWKGKPGKVLAEDDDFFDA
 -
F $\square K F T A D G V Y$ K
 Q KFTA G Y Y DPEIVA E: KRFTAAMGFYAAEPSIISABHLLQ $K V K V Y A V G V Y A Q P D V A A S L A S$

 WKGKSAADLVKDEALFQE

 QI KFTA DGVYLDPEISTHLQ RWKGRAAGDLAQDDEFFSD
 SLKVYAFGFYVHPLICEKLGPKYASDPVDELNKRQDFYED
 FVKVYAAAFYVDYS LIRLDTEQWKEKDGDESFDGSSVFDS
 F V KVYA A A FYVDDSI GGDTEQWRKKVGLE TKADASS GFD S

T TTVTVLGFYFEDGILKHLS GKWSGKSGSELEKEDDFFTD

 SLKVYAF ALYYVGPSVCEKLGPKYASLSVAELNKCGGFYED FVVKFTTTGVYLKDEAVSWLAAKWKGKTAEELDESDEFFQD TLNLYAFGLYMQPSUCEKLGPKYASVPTTKLKDDPDFYND

 FLKDYAAAFYVDCSI GVDTMRWREKVGDETFDASSVFDS



KS LIKYAFGFYVHPNSVKKLGSKYASTSVDELNKRRDFYED FVKVYAAAFYVDYS I GLDTEQWKEKVGDESFDASSVFNT NIDVYAFGVYANGDDLRKLLSEKYGKSATEDKDNKDFNND
S LK LY AF GFY DHPSVCKK NL NLYAF GLYMQPSICEKLGPKYASVPTTNLKDDPDFYDD
 $N$ N NVYAFGVYADDDQVKKVLGEKYGKS DSELKKNKGFKDD

 NI DVYAFGVYADCNDIRKFLGEKYGKSSSEITENKQFSDD $N L N L Y A F G L Y$ Y DQPD C CKKLGPKYACDPDAELKDHPDFYED NI DVYAFGVYADDKDINKLLKEKYGKS DSELKESNEVSED NI DVYAFGI YADCDDVKKLGEKYSSDAASELRGNNAFIDQ SII DVYAFGVYAD DNDLKRLREKYEKLPVSELKQNAELI ND




NDDVYAYGVYADDDVKRY LAEKHGRRSVSELQQKEELRNH


S LKVYAF GFYVHPSSVQKLGRKYASVPASKLDKCDDLYKD SI DVYAFGVYADGNDLKQLEEKYQKFSGSELKENAELIND FVKVYAAAFYVD $\mathrm{S}^{\square}$ GLDTEQWRRKVGLDTFDASSGFDS NIDVYAMGFYIDSRAAKELGRDFDCLPPVSLEHNQVLAER
$N \square D V Y A F G V Y A D D G D W K R L L S E K Y G K L S \quad F S E R K D L S K D$ NIDDVYEF GVYA D DK D IVKRLSEKY GRFSAS QLKGNKEFTED
 PVVKV A VTVYVEEKAARELGVRQRGGFFDD NRDEDFTLA


 S I VVYYA F GI Y A N A A K L R E L K L K D D K K A $\square \mathrm{L}$ L A E $N \backsim D V Y S F G V Y$

H GN AV TA LASKWKGRTA A ELLES DPRND D $S \| R V Y S L G \square Y A E E S A H S A L S E N V K E K L T R T A S Q D S D L M E R$ $N$ I DVVY A I GVVYA D D S DVVK K F L S E K K G
 HVKFYSIGGYLEPEVVGHL EQFKGDSAKELEENDEFFNA





VS SDGT PS S LDATDASENVS SALFD
FQ Q INEGSKAPSSFIVNNENVSTSITEWDLGENSMTPSTVE

F
$V$ VS DGRRVGTIFSENLCRAFFDLYIGOPPVSSSAKH TEDGGNLIGAVRSKDLCRAFFGMYIGDVPVSEQTKE
 IGN GQ KEVGQVHAPGFTRAFFDGYDGTDPVSPDGKA FSKDGSDPEEGVALI ENKLLAGAVLESIVGGKGVSPAARQ
 TS FATEGKDEAKVAVENAAVAEMIVQRWYGGSAVSQTTVR 1 S S D LMPPGSDYSQAKPEVESPMLCRALFEVYMGSDS\|VPHARA VTPPVTAPEYGTATPESAALGRGLFEVFLGDSPVVPEAKT
 VNGKDA MKGKSVGTI K S GPL S SAMVDVYL GKKAVSPGAKK
 FSKETSUDGVGAIESKLLCKSLETMUGEIDSVSRARKE YKGDTLGRLDSKSEGVKFISTQLLLAYFADKNPISPKAKA


VGRVDWSTVVADASTASAGLCRGLFEVYMGGESVVADAKK |I E

| UniRef90_UPI0002B47A3B UniRef90-A0A059BHS3 | $\text { SLLANNLLA } \square E\|L\| S K$ |
| :---: | :---: |
|  | UniRef90-W9RULO NLADTLSAKLS |  |
|  |  |  |
| UniRef90-MOTQV7 | SVADGL |
| UniRef90-D3YN53 SLAARLSEFFKKC |  |
| UniRef90-A0A024AX28 | S $\square$ A K $\$ G $\square$ M |
| UniRet90- WosNog | TLADGMAALLKQ |
|  | SLATGLSTELSK |
| UniRet90- A9SRW1 | SVAEAIAA |
| UniRef90-A9SD96 | AVAEGI SKL |
| UniRef90-W1P2R1 | SLANGLADLTSQ |
| UniRef90-V9PCW5 | SLAVKFEDILS |
| UniRef90-MOSCR5 | EVAENVAGLI |
| UniRef90-S8CQF2 | SLAHHLAGLLS |
| UniRef90 B9RQY2 |  |
| UniRef90-F6H2T1 | ETGRNVANT |
| UniRef90-C6SV98 | ALSRRVVQVNDHNFV |
| UniRef90-UPX221 | STARLLEALL |
|  | D GRNVASI |
| UniRef90 W5AKJ6 | ELDSNNLADMLK |
| UniRe990-A7KTI4 | NLAEKFEAILCQ |
|  | SLASRLSDVIKQYNEKAA |
| UniRef90-B5A4U0 | CiAQRLSALL |
| UniRef90-UPIO002C2FD1F | El GRNVAS |
| UniRef90-A0A022PXM9 | E GKNVAS |
| UniRef90-J3MC61 | ELGKNVASMDK |
| UniRet90 V4WHQ |  |
| UniRef90-X5IGL5 | SLANILPD |
| UniRef90-11H007 | EVARNVAGLIS |
| UniRef90-UP100023B31EA |  |
| UniRef90-U5FFX3 |  |
| UniRef90-A9NXH6 | StallLeallt k |
|  | K $\square \mathrm{GVGLASLLSQ}$ |
| UniRef90 F4ZZA2 - | DTAQNVGGL |
| UniRet90-Q9SXS9 | CLAARLPALFDQ |
| UniRef90-S4UT44 | SLAFHISELLLKEPLIE |
| UniRef90-M5XBZ7 | STAQLLEALLTN |
| UniRef90-11HZR6 | dVEVNAASFLQK |
| Uniree90-UP100042B8580 | SLANRVAELLK |
| UniRef90-AOAO59CN16 | ElGGKNVAD:1 |
| UniRef90-UPI00032AA95C | EIGMNIANIMKSC |
| UniRef90-b9S415 | DIESKLVSLTQK |
| UniRef90-W1NZN4 | DVRQALT ${ }^{\text {d }}$ |
|  | E GHGLASL |
| UniRef90_Q8LGS3 | CVATRLSELLKESDD |
| UniRef90 I1KB79 | SLASTFSQELSK |
| UniRef90-K3YT00 | DIAQNVAGLI |
|  | DVKLNLASFLEK |
| UniRef90-A0A059A709 UniRef90-M4FH57 | D N A |
| UniRef90_IIGT85 | NIQGNLAS |
| UniRef90-A9SYP7 |  |
| UniRef90 MOTQQ6仿 0 - 10402002 |  |
| UniRee90-U5GVJ9 |  |
| UniRef90 D8SXX8 | SVAK |
| UniRe90-B6S557 | SLAARVSEL |
| $\begin{aligned} & \text { UniRef90-K4CAT1 } \\ & \text { UniRef90-C1E8P9 } \end{aligned}$ | DVESNLASL |
| UniRef90-C1E8P9 UniRef90 D8S9B3 |  |
| UniRef90-UP100042B5312 | SVANGLASILK |
| UniRef90-Q84VK2-2 | ElGRKVVI\| |
| UniRef90-K3ZVY0 | NVQENI ASILK |
| UniRef90-M0X6K0 | STAQLLEAILTE |
| niRef90_10YR06 | SI AKGLAA |
|  |  |
| UniRef90 E7D616 | EVELKLVSLLQK |
| UniRef90-UP100032AC879 |  |
| UnRef90-111V07 | SLADHFTALLS |
|  | A WAGGART LSSEVRRDT |
| UniRef90-ABJJA8 | EWIKGAKQLLDSENVKRST |
| UniRef90-L8H519 | K WAVALTEWL |
| UniRef90-D7FP06UniRef90 C1MT85 | AFATGVAA |
|  | SLGEALAA |
| UniRef90-D8T216 | Al A AGLS SMLS |
| UniRef90_D8T216 |  |
| UniRef90-G71EZ7 |  |
| UniRef90_R9AN87 |  |
| UniRef90-A0A022S3R4 | DVEELNL |
| UniRef90-E1ZSA88 | SFGRGLA |
| UniRef90-E1ZKT2 | EWANGARKDESDDTRROT |
| UniRef90-A9TWY8 | ETGSNFARIVKER |



UniRef90 D8TCQ7 UniRef90_M0X6J8 UniRefofo-C1EBF9 UniRef90-W9R6Z5 UniRef90-I4L144 UniRef90-S4BG70 UniRef90-E1ZK45 UniRef90-M8BIN7 UniRef90-MOS9U8
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UniRef90
R7Q84 UniRef90-K8FC35 UniRef90-K3YTC4 UniRef90-J6EQY9
UniRef90 W 1 Q0B0 UniRef90-D7G2G9 UniRef90-C1MVC1 UniRef90-A4S4T1
UniRef90 W7TIJ2 UniRef90-S8BU24 UniRet90-M5X8X9 UniRef90 F6HUU2 UniRef90-W7MSO
UniRef90_W9SOR1 UniRef90-B7G763 UniRef90-B9S659 UniRef90-F4NS83 UniRef90-L1JN69
UniRef90-M2WUL8 UniRef90-U5DFI9 UniRef90-A0AO22SON8 UniRef90-U9UEP8 UniRef90-MOVRX1 UniRef90_O6V7U9 UniRef90-K8EU55 UniRef90-LiJUV5 UniRef90-J9VF60 UniRef90_- E3JPT0 UniRef90-UPlooo3F49366 UniRef90-B8LEL6 UniRef90-A0AO24TS91
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UniRef90- N6Y6A6 UniRef90 E3FVU1 UniRef90-G7E1R3 UniRef90-Q00Y44 4 UniRef90-MOTM85 UniRef90-HOPZGO
UniRef90_K5WN33 UniRef90- в8С2м UniRef90-M2RB33 UniRef90-KORTT4 UniRef90-M1UPD2 UniRef90-B0CP76 UniRef90-A0A059AQD7 UniRef90_C4ZKA9
UniRef90
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UniRef9O-G4U2Y8 UniRef90-IOYIQ5 UniRef90-N6XC40 UniRef90-U5HF95 UniRef90-A3GET2 UniRef90-S2J6S6
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UniRef90 GORVS9 UniRef90_13UB97 UniRef90-V2XH10 UniRef90-GoSH64 UniRef90-L9PJ98
UniRef90_G9N144 UniRef90-A5DL18 UniRef90-G3AS39 UniRef90-G4MLR7
UniRef90-s9QVC6

AlVIKAYAVGFYANKEQLIP $\quad 60$ NDWDKNFLVEA HT ${ }^{70}$ FVKVYAAAFYVDUS GLDTEQWRRKVGLDTFDASSGFDS NVKVYGVAMYVDAA SLKVYAFGFYVHPSSVEKLGPKYASFSFDELNKRQYFYED NWKFCA $\square D V H P S S V Q K L G P K Y A S \Pi P A S K L D K C D D G Y K D$ NDDVYAFGVYADDDDVKRCLSEKYGKSPSELKGNKEFNED QVQVYAVGLYVPDSAGLKLADQRHR DVQLVPSTA AET
GTVFYAFGMYVHDDADKELLKAKDGEAAE KPCKEDYEA
NI DVYAFGVYATDEDПKRHLSEKYGK
 NVQVYAVGVYTEPGVVEEL KGK $\qquad$ EPNDMYKY RVKVYA G Y O LVRVYALGLYADRSALRDALSNWKGFSREEALSSDALWDS NVKVYAVGMYADE $N L N L Y A F G L Y$
$K M K V Y S A G F Y V D D V C K K L G P K Y A C I P D A E L K D H P D F Y E D$
$K$ KMKVYSAGFYVDDVSLRKLREQVRSSPD ASVDEVVDR NVNVYTVGLYVEPKGARKALKSYAGRDPEELSKDKSVYRV NVKVYAVALYVDADACK AALTTGATP DVKIYALAMYVDADAAR AQKGKG AVKVYGVGLYVDKGVAVRKLSKFKGHKA GSKALFDA SLKVYAFGFYVHPDVCGKLGRKYSCDPDDEDKGCRDFYRD G|KMYGFGMYADNEKLRELKKLK GKAPAKPTKD MYQLV EVNVYAVGLYGETSLLGRLKA FRGKSSEADAKEAKYYAT GVKVYGFGVYADNEKLKDLLKSKIGKSPAKPTK EMFQLD GIKUYGFGMYTDNDTDKDDLKLKDGKAPAKPTK EMYQA AV YTAADYVDDSSTRWTQEFAQDKLVQNTSDSKWFVSD AVNVYAVGMYV DSDAAKAAAPKDEKSANKA RVKVYSVGVYVDEKEARPVLSGEDYSNPEQLEGDERFWST GiK YGGGUYAENEKLKDILLRTKGEKEPTKATKEMYQV K $\backslash \mathrm{KVYVIGMY} \mathrm{\square SEDDUDVLJKNWKGDKEKSENDESMTLS}$
G $\Pi$ K $\Pi$ YGFGTYADNEK NVDVYVIGLYFLPKACKKHEG LAQAYAIGLYUDESFVED ESGAQGRHLDAR KDKVYSAGFYLQDGATRCLSPSPAGETAAPQLSGEALMAN FS VYAVGLFVDRDDAKSLPDTQAGHVAARLE
AVKVYVAGFYADPRVLRALDDLTKEKLLSKSTQKQALIRN RIQVYSAGFYLDEKVANSLRSVKGPVPASEDLESEGLVRT FVKVYAVGTYMD
 T F K V V Y A M G L Y L R R PATGG VRVYTAGLYAEERLLRNLSK DQGGKPSRDपNEGEALIAS DVKVYALCMYVD AAKAKDQRGKG
NNISYAYGVYADESDVKR $\square R K K Y G T F S V S E \square K G N K E D D$
FKVYAlGLYL PQRAGNLA A GTKVYSVGUYADGNGPKDNGKSATPEEKDEHPDVRNS GFKVYGVGUYGEEKTVQKLKKQYT GTKVYSVGFYADLS NPNDNDSQDAPVEEK NVKVYAVGFFAERKT TKALQRKH SNGNLESRFAQD NVRVYYVGGYVDPGARNVLLSDYYGKDAQMICADTAFWDA N|KVYSIGGYADLD NPNLMVPKDGSPEEKIKKTKEMYY
 MARAYAI GLYTEDK QPVNE TA KFKVYALGUY GVRVYSAGFYVDPRVLRALRVKEKLLSTETDSKSESMMRN QVANYSVGLYVDPVQASAHLLRFKGLSFGSVAADPDFSVA QVANYSVGLYVDPVQASAHLLRFKGLSFGSVAADPDFSVA $K V Y S V G F Y A D D Q Q P G F Q P R L D G T P E E Q L E H$ TVKIYDFAMYMDGKQAREVAEQYKGRQKAAPLDST FFQR NVQVYTAAFYVEAKLLQRLAQVWKDYSPSDLLPPDGQEGK SFKVYGMGDYYAKKDVKKLSSSPDGKLEDLLNDSVEVVEK PTKVYVVGMYMKSEDIGELDDGWKDFDKSKFLQDTELAEQ $G 1$ KVYSVGGFYAD


 GIQVYMVGFYVATQDDAKLQVKKDNPTATTLTEGEETWDA
 $N L Q V Y L V G Y Y V D L A A L Q S A L I K H V N P \square A T T L E E R D Q L R T Q$ FFKVYAAGLY FGDQVYMVGFYVATQDDAKDQQKKDNPSATTLAEKDALRKA SFKVYGI GVYIANSDUAKAALRSDPGSLADPEESAKVIAK


## UniRef90 D8TCQ7

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UniRef90
K 8 FC UniRef90_K3YTC4 UniRef90-J6EQY9 UniRef90 W1QOBO UniRef90_D7G2G9
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UniRef90-F6HUU2 UniRef90-W7TMS0 UniRef90-W9SOR1 UniRef90 B7G763
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UniRef90-M2RB33 UniRef90-KoRTT4 UniRef90 ${ }^{-M 1 U P D 2}$ UniRef90-B0CP76 UniRef90-A0A059AQD7 UniRef90-C4ZKA9 UniRef90-S8E1Q1 UniRef90-A9RME8 UniRef90_W6MVQ3
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T F A GAFEKG|LVV|K|LARDVVGALFSSADNDELLKPR|L|KS




 V IDD G DVGGI A V GDAASYERLVRLVFARNVGGDKIVEALAERIRPAM LS A D I S M TI RL QVVYYG S $\square R S V R S A F E V S V G S K L Q K F G$

 L M E S V I K Q S V R I I P V R NTMDF G H L R D G F D R A V Q A RMM V V Q
 L L R E N DD M T V R L VV S Y G L S D G T V R D A F E K S L C F R L Q K M N P L L T A P A G D A V R
 LLD GA F D K T L A I E L A A R D V G G E T F W D A L LDEDA V T P R $\quad$ R R R I A T LL L N G D Y D K E L A I E L A R D V L E T G N F D K I V L L K M A R K V $\operatorname{G} A A A$
 $V$ I D S D L W W M M V
 A I D G D F A M M V R M V I V Y G L T M S M V R K S F D E G L G A S I K K L T G LLD P TYP RTIR VV MNRGLS SEKYTSA IVEALEPRMK V I E S DVAMMMREVIVVSSLTMNMVK KN FDE GLGAADRKDNG

 A I D A D M A T VA R L V V V Y G L N M G T V R K $\square$ F N D N L G A S I K K L S Q

















 IV R NTAC VLRRMPTRSTSYSHMRDGFMRALQARSKQRGS




 GAN P S GEEKM I CAVVI


I $\operatorname{V}$ K N T A C C
 LLDNGVRF LARRLSPVRNTDFNHMKDGLIKSILSGYNNAD
 LL R D S DCRSVRIVPVRDTDFHHLRDGFVRSIAARSQRNQA

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


## UniRef90 D8TCQ7

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UniRef90-M2WUL8 UniRef90-U5DFI9 UniRef90-A0AO22SON8 UniRef90-U9UEP8 UniRef90-MOVRX1 UniRef90-Q6V7U9 UniRef90-K8EU55 UniRefofo-LIJ1V5 UniRef90-J9VF60 UniRef90_E3JPT0 UniRef90-UPIOOO3F49366 UniRef90-B8LEL6 UniRef90-A0AO24TS91 UniRef90-A0A024TS91 UniRef90_N6Y6A6 UniRef90-E3FVU1 UniRef90-G7E1R3 UniRef90-Q00YU4 UniRef90-M0TM85 UniRef90-HOPZGO
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UniRef90 $10 \mathrm{YIO5}$ UniRef90-IOYIQ5

UniRef90_N6XC40 UniRef90-U5HF95 UniRef90-A3GET2 UniRef90_S2J6S6 UniRef90_K0T3W8 | UniRef90-A8NOH7 |
| :--- |
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UniRef90 $13 \cup B 97$ UniRef90_V2XH10 UniRef90-GoSH64 UniRef90-L9PJ98
UniRef90_G9N144 UniRef90-A5DL18 UniRef90-G3AS397 UniRef90-G4MLR7
UniRef90_S9QVC6

130
140
150
160
SPEGEKTLISEFGKDFQNRKLKKGTTVYFTWПQPDTLYVVG PTAEEESSLSTFRNSF LGRNLKQGTRIYLTWLEPSRMLVS AEDEDGNFMEEDKGLFQGRKLRKDDKVLIWWSPNKGKFE NPETDFHCDRTGSCFQDDPLPAGTTDFRRTADGQLIT NPKTNFHCLNDFGSFFQDIP:PAGTVIDFRRTADGQLIT PVERAGAAVDQFKALFPQGKIAPGDAVDFVLRPDGVLQLS WACADEAVMDDFCGFFEAKKMDKDAEICLLWHADGPLDVC GGQKNEELIKKVMAAAKDGTLPPGSVIETRLPGQVLQAM DADSPALRAFEADFDGVSFKKGTSLDFHATFEGELA GSDNKELLQRFTSQFKDEKDPRGSVIHLSRDKGHVLR DEASTAG TLDNFRAQF
TLEEFRKQFDGVHFERGLETAFTCPDNKKLV KPSEKKATKKFADMF LGVTMKVGSEAVVVLDGDK REDDEGNFMTTTAEYSKGGKLEKGAQDSFTFLETGGEVAM NTD YHCLKTFGSYFED ${ }^{\text {ORIPA }}$
LTPAESEAITEFKGCFPSGSVPKGKELLLVRSPDGRDFVE QKHEE LLNKMGEVQGGLKLPTGSVIENSRPG VNQD KEDEDGNFMESGKGLF保 NMDEDGNSLDAMRDGFSSLKLKQGTKMTITWTSNGCAI AV GKGSEAALLQFQDVLKGGEAETGKQFGFGDQGGSKLIVT EADLSCLQTFGSFF
GKKNEALANKVMGQASDDTKLTSGSVIETSRTPGNTLQ GRRNDELSNKVMGEASDDIKLTSGSVIETTRLPGYTLETK VKKEVMADFKKSLLAADGSSLKEKETLTLAWTPDDRLS GKKNEDLTNKVLGQASDDDKLTSGSVIELSRDPGVLQAK GQDLEKLEEF KQLNP AVDLVQGAELEMT GKKNDEDANKVMGQASDDTKLTSGSVIEISRDPGHVLETK LDEKESAALDDLRALFPSGALMKGQVLVFTKLSDGRLHVS NMPDGKQALKKFNGFFLEKSMAVGCELLFVCSANGT GENNDELLQRVLGEVREDLKLPPGSVIEIAKLPGFVLQTK LTGGKNEQITKMGEASDEIKLTPGSVIEISRLPGYTLQ SEEDAENVLKADKELFPKSVVKAGTALILKKEKNGTLIXE GGKNEELTKKDMGEASDDIKLNSGSVIEGSRLPGYVLQ GGNEESEALEMFKSMFRSVKIEKGASLTFSTNESGTLTTR SKKSPGKALKKFTSDFSSGTLQQNDDVMLYMPGDGSLTM LLSEADEEALQTLKTEFPAQTVHKGKSVTLLRPPEGGLVVE AGERASQSINTFRSFFPGVSVPKGKALTLIRTASQSLIVE QDLQSLEEFKKLNPPVDLDQGAEMEMTDRGDTLLYKA GAVNELVELTFME KSLRKGEMIFTIHPAAVLDFH
 QMPALQQRLDTFKAADPD RKKGDELVLTYVPGKGTRVE ATDNVSASLNELKSLFPVGKLAKGNELLLRRGTDGALLVEE NEDEDGNALSDMRDGLIKLNLKQGTKMALSWTPKGANKVG HTPQELASSQPSUDAFRNTMLPKGTQVLLDSTPGSGTRLT DTADEELALRKFKSMFPGTPLPKGQALDILLAPP QTSDDEAFETFLNMIGGDDLAK VGEVNAKEFQDFLLSMLNDRVEKGSDTYTTCRGDK QMPDDRAKLAQ QKNYLLGDRUPENSQLRFALLDEGNTLMM GNKHEDDTNKVLDESSDDIKLTSGSVMEDSRDPG ATDALLGALAAVGEV LTPEDELALRKFKSMFPNTPLAKHAPLDVLLTAPSS GSKSGKDALRDFTKCFREKTLKKGSEVALLWTPDNKLVVY NANAVAEGLDQLRADFNSKKGPKGTNLFLETUADGKLRIS KGERASESINQFRSFFPGVSVPKGKTLLLRKTSSGSLSLE A LLLDDTKSAFASLSVEAGELLLLNVHPDSSFSVS DTTEQEDALQTMKGLFPNVSLPKHQPL HVVLTSPNRNGTR SPDD $\qquad$ AALAQMVTCFREESL
 SGEEALESLSRRKGAFPSRKDDKGSQLLFYRRQRREVEFW NRELVGEGLDQLRTAFSGRKVPKDHLLYFEVLPGGKLSVS TTEQEFEAMDKLKRLVADGVAAKGAA LVERFEAALKAVL GESVARGAQLYLT CKADSGYVS MSERTGAALVEFKSFFPSKTLQKGLPLEVYYSADRTALFQ LKQQLNQGLDELRGVFSGGSVPKNDVLVLEMLPNGGLGIC
 SAQKFAGLLKQKSLKRGSVIDLDFSGSGRRVS
 NTDKNERSTMKFGEVFQDQALKKGDQMLLDWTPG YNDESGVAMKDFKALFNRGSVPKKQELLLCRDEKGVLSVM


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UniRef90_C1EBF9 UniRef90-W9R6Z5 UniRef90_V4L144 UniRef90-I3TA56
UniRef90-S4BG70 UniRef90_E1ZK45 UniRef90_M8BIN7 UniRef90-M0S9U8
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UniRef90 W7TMS0 UniRef90-W9S0R1 UniRef90-B7G763 UniRef90-B9S659 UniRef90-F4NS83 UniRef90-L1JN69 UniRef90-M2WUL8 UniRef90_U5DF19 UniRef90_A0A022S0N8 UniRef90_U9UEP8 UniRef90-MOVRX1 UniRef90-Q6V7U9 UniRef90_K8EU55 UniRef90-L1J1V5 UniRef90_A9UX50 UniRef90_E3JPTO UniRef90_UPI0003F49366 UniRef90-B8LEL6 UniRef90_A0A024TS91 UniRef90-A0A024TS91 UniRef90_N6Y6A6 UniRef90 E3FVU1 UniRef90-G7E1R3 UniRef90-Q00YU4 UniRef90_MOTM85 UniRef90_HOPZ60
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UniRef90_G9N144 UniRef90-A5DL18 UniRef90_G3AS39 UniRef90_G4MLR7

$\square G V$ VG GMP $\square \mathrm{E}$
$\square T$ S Q Q $\square$ A Q A VF DVY C G D DPVS P S A F Q $\square S K D \underset{T}{L} C P T K A Q G$ R $\quad$ YANVAGAFFDMY $\square G D V P V S E Q T K K$ TTIDGQEVGSIQSKLLCS
 VRQFSAGQEVGRHELCRRALSQVTLHCVI FTLKQDAKS MTKVGGQQKG

TKVGGQQKGTISSGALCSSLFDDY LGSDPVSNEAKT YNGDTLGKLDSRDAGVAFISTQLLLAYFADKNPISSKAKN


YEGRVLGGTKEPWVGRN MDASYFSKNPDSEKLLE FVLQTKVKGEVVGKTESELLCRAYFNMYLGEDPFDQDAKE V R DKEIGSVIDES GLPASVFNDFLGSDPVSPVAKT VGGGKS $\quad$ IASA $A G A A K M E F E S A E F A K A$
$\square$

TKVIGEVVSKVESELLCRAYVNMYLGDDPLDKDTQE


$\stackrel{V}{\mathrm{~V}} \mathrm{M}$ GREM
 ALG QKKKTFSSAPLCKAMFD DYLGESPVSVHAKE
 VM TKVKGELVSTVQSELLCRAYDYMYLGEDPFDKEAKE
 LRGKTKVKGE TVSKVESELLCRAFIVMYLGDDPFDKEAKE
 FEGA LGGKLNDPWIGK QLILTYFADNGAVSDKLKE




 SKTGQEI SVEGKDFADALEGVWLGKSPVDGGLK YEGNAS
 VGGTRRGDD
 FD STVFA Q A LL Lid FSQQRSLI VRD DGSUPEGFYPALLRIWLGEHPADDELKQ
 $P \mathrm{PK} \mathrm{P}^{2} \mathrm{KQDRTLVGTVQNNWLAREFLAAYFDGSGISPALKQ}$
 VFRDLGADE HDWVATE TV
 QPRTLIVRDLGSVQNDWLATEFVLAYFEGGSGDSPPLKN $F \quad D N Q M R$ AVIESPI LCRAVFDMYLGEDSI
 VGAGADEASASNPALSKAAVGTALQSLFYGYSTPDVEARA
 SARADEHELVTVQSRPLCHAVFDLYMGDQPVSRKAKR VN GQARSDIADPALYPALLRIWDGDRPADADLKE $\square K E P K S D K E E R \square G A F D D R F L S R E L F L S Y F S D D A D S K E L R K$ YENPVKKS VAEMGVVQEPGVSKVLFLSYGGRKPLSESLRK YEGRD CTSDGSVKVSVDGVGSAPDLCQAFTGVFLDDKAVSPSFRE VFRDLGADENDWVATE GKGDCLAVLHYFEGDGPVSPPALKK ITRNEQSRKPEVLGTLREPLLARELIVSYFSDTAASRELVT YVNQKS GEVKKMGVVTNPLI GKTLMWKYLSSKPLSESLRK YDHPGKEFYKM GVVESPLISRQLFLQYLGPKPLSESLRQ
 $V S A L G G Q Q G A V D G B A G F A Q A L L A V W L G K D P A Q S S L K Q$ I
I RRDLGAQ
$Y$ R EGTQCYLNGKKI GEMPDVAFYNAVLRIWLGDHPVDSSLKM FSRGKDLKSEVLGTVEDERLSRLLLNYLAGSKVASEPARE
 YVNTMTK ETVPMGGVVDDESVVSNQLGLQYLGVKPLSEPCRK

YDDGKSREVIGTVDDERVSRALLNYLAGKNVASEPARK

| UniRef90_D8TCQ7 | SIIADHL 210 |
| :---: | :---: |
| UniRef90-M0X6J8 |  |
| UniRef90-C1EBF9 | SFVAGAAAL |
| UniRef90-W9R6Z5 UniRef90 V4LI44 | E $\square \mathrm{GRNVVGM} \mathrm{\square K}$ |
| UniRef90-li3TA56 |  |
| UniRef90-S4BG70 | NFLSGLQAFASQ |
| UniRef90_E1ZK45 | A |
| UniRef90_M8BIN7 | STAQLLEA |
| UniRef90_M0S9U8 | RFGRTLVSSLS |
| UniRef90-A4S177 | TV |
| $\begin{aligned} & \text { UniRef90-K7K94 } \\ & \text { UniRef90_A8JCW7 } \end{aligned}$ | S |
| UniRef90-L1JQ10 |  |
| UniRef90_D8U586 | TFGKSLAA |
| UniRefefo- ${ }^{\text {U }}$ |  |
| UniRef90_R7Q844 UniRef90 K8FC35 | SAAETLEMLLRE |
| UniRef90-K3YTC4 |  |
| UniRef90-J6EQY9 | DVAKGLE |
| UniRef90 W1 1 OOBO | SFGKFL |
| UniRet90-D7G2G9 UniRef90 C1MVC1 | AFAEGVPAFL |
| UniRef90-A4S4T1 | TFEKGLAAL |
| UniRef90-W7TIJ2 | SVAQGLLT W\N |
| UniRef90 S8BU24 | KFGMSTPSLF |
| UniRef90-F6HUU2 | KFGMSLLSLF |
| UniRet90 W7TMS0 | GFAA |
| UniRef90-W9S0R1 | K F GM |
| $\begin{aligned} & \text { Uniretgo_B/G/63 } \\ & \text { UniRef90_B9S659 } \end{aligned}$ | KFGMSL ${ }^{\text {S }}$ SLF |
| UniRef90-F4NS83 | SVAAGV |
| UniRef90-LTJN69 | SMVA GLE W WTOES |
| UniRer90-M2WUL8 | QFGRGCFSWLQES |
| UniRef90 AOAO22SON8 | KFGASMLS |
| UniRef90 U9UEP8 |  |
| UniRet90-M0VRX1 | N $\downarrow$ QESLAS |
| UniRet90-Q6V7U9 | KF GT SML |
| UniRef90 K8EU55 | A ASSILSQALKLITPSEED |
| UniRef90-LJ1V5 UniRef90 J9VF60 | NFLAGGEGFTNK |
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| UniRef90-E3JPT0 | SVAEGFSSLYQPE |
| UniRet90-UP10003F49366 | DVARGLEER |
| UniRef90 B8LEL6 | DVLKGVKEL |
| UniRee90-A0AO24TS91 UniRef90 A0A024TS91 | TLIERVPY |
| UniRet90-N6Y6A6 |  |
| UniRet90-E3FVU1 | - FAOL |
| UniRei90_G7E1R3 | SFAQGL |
| UniRef90 Q00Y ${ }^{\text {d }} 4$ | AFEKGLASL |
| UniRef90-HOPZ60 | A |
| UniRet90-K5WN33 | SVAEKL |
| UniRet90-B8C2M0 | GFAKGFSSM |
| UniRef90-M2RB33 | S |
| UniRet90_Korit | GFEKAFGEL |
| UniRef90 M1UPD2 | SFCTGMERIIKE |
|  | KFGM SMLKLIF |
| UniRef90-C4ZKA9 | ALLK N |
| UniRet90-S8E1Q1 | MVAERLED |
| Unireego-A9RME8 | SSTSGT |
| UniRee90-W6MVQ3 | SSIS GL |
| UniRef90-F4RED8 UniRet90 TORAAG | SVAEGEEKMYK |
| UniRef90-TOR6A6 UniRef90 ${ }^{\text {TOR6A }}$ ( | RLMQRLPYLL |
| UniRef90-TOR6A6 UniRef90 G4U2Y8 | RLVMQRLPYLLS |
| UniRet90-G4U2Y8 |  |
| UniRef90-N6XC40 | DLLN R |
| UniRef90-U5HF95 | STAMGFA |
| UniRet90-A3GET2 | S SVEEGLA |
| UniRef90-S2J6S6 | D ADNFERLMRE |
| UniRef90 K0т3W8 | SVVDN |
| UniRef90- R1DW94 | GFEAGLE |
| UniRef90-M7WRQ7 | SSAMGFSGEARGEPGDRGAA |
| UniRef90-G8BB14 | S CTAGMSAMLDHYGNGKS |
| UniRet90_M3HNJ5 | S |
| UniRef90_S7S476 | SVVANLE |
| UniRef90 GORVS9 | S A I E GV |
| UniRef90-V2XH10 | sVVErvs s |
| UniRet90-GOSH64 |  |
| UniRef90-L9P 998 |  |
| UniRet90_G9N144 | S ITE GV |
| UniRef90_A5DL18 | S CGEKKLAVL |
| UniRef90-G4MLR7 | SITADGV |
| UniRef90 S9QVC6 |  |

PASS|L|PAGTGK|L|R|LVG|L|V|R


EYATSUTFESKLDNLYLVGAGVRKKS
PTTTGPDQTE YTLVGFGLR TVTFL
$T V D G H T V P D T A Q$ GNTTLILNGAGLRKKVV
TSTAFPNTLKIQSKTPTFTLMGVGVR STES $\square Q$ VDSUEFPTVLNVPSYMPTFTLMGVGVR

TFPKYLQHSSSPETYQLLGLGUR
TSTSFPTILQLDGEPK MTLLGLGVR


 ATAVEVAGVKFEDKARVGNGDLLVNGAGLRKK TESLQVDSSVEPRTMPVST TKKLGYGQ NVAGVTFPKTVKRPSAPTEYTLLGLGQR
 VTALEVEGTRFDPTTRL SDSTLQLNGAGVRTRFI DI AGVKYPDTATVAG KELKLNGVGLRKKAl
DVAGVNYPETATVAG KKEKKNGVGLRSK FM

LTVDGHTVPDTYTLN NTQLVLNGAGDRKKVV

FPRTVKLPTSKESFTLVGLGVR
L L G GL G|l
QVVVDNLSFPLYMRTPASLASGRLVGLGVR PCTEYTLVGLGTR GTEFTLVGLGTR

$T V A G V A Y P A Q A G V \quad G G Q T \square Q L N G A G \square R Y K A \square$ GMELAGVKYPPSVQVGGAT YTGLEGAGA| R VSVDSHAFPVVTSDYLLQTPFQLLGYGUR PASCKSSGQSEPRFLVGLGVR
$T Q V V V D N L A F P A Y$ PTPASFSSLRLVGLGVR
GVSMPNSVTVAG KKLTLNGMGLREATVSFL FPPTLKLDGQ PFPTALLSANQTNDFQLLGYGVR
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PFPAQDDLPQDK FQLLGVGVR
DVGGVDFKS QDSVENTRVELNGAGLRTR VNVDSSPFPTK LGPPELSTEYMLLGYGFR SVTFL

SGEGTETDGПPYPTSTNAREGGTTYTLLGCGVRYПSVATF
 PATLSSTTAAPRLKLAGLGVR TVGFRL
VAGTRFRT RLPSSDAEYQLEGLG RTKKSFL
QVDVAGVKLEDQMDLRGTMPLVLNGAGIVRYKI,
TSUAFPTTLKIQSKAPTFTLVGLGVR TVSFL
PGVTVGRTRYPSSINSSVGGKPMVLTGAAMRTKY MDVAGVRVPEQLSE GGHALVLNGAGVRTKFV

ASAMEIEGVRFDEAARL GGKELLLNGTGLDRVFV

## L) VVENVPGAAATDKHGTE <br> LVGLGVRTVI

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RVRIVYVAAFYVIDENRLQQVAAQGGFRGDADSTEKQ VOK ${ }^{80}$ GFDVYA:GMYLPESQVRELLQSTSGKSVLDPVHGAAKIRW

 $N D Q V Y V V G L Y V E T S A L P K L Q A K Q V N P \square A S A L A D S N T V W E S$
$L T K Y Y A M G Y V$ KIKVYSVGFYADLSN PN TNTPKSATPQEKDEH GIKVYSVAFYAD


 S FFKVYA F GLY $S \Pi Q V Y M T G F Y V A T Q D \Pi A K L Q V K K \square N P S A T T L A E G E E T W D T$ HI QVYVLGDY SPSSIPTLQSVAHEKDADDPARSEEDWSA RVRVYVAALYMDESAL KFEVYVVGFYVDDAALQNRLIKRVNPDATALETQSQTDWDV
 GUQVYMVGHYVATADVAKLQSERDSLKAKLLVEGEET WSA

SFHVYA पG Y $\square$ AEADAKE पDPKHEGS LESALLDHDQUISH TFKVYAMGLY SFRVYADGUYDDTDSSKTHSDNVKAAD DDPSKSSVLIGN
 NDNVYSLGFY NQEHAQTKLSEHVTKSKEEFCNDKEUKQE
SVRVYVVGLYVDAAGASSHLVRFKGLSFGSLSTDPDFSMA RVQVYVVGLYVDMSKLQNHLINTVNPTASALGEKDELRSA
$\begin{array}{ll}V K V Y V A A L Y V & \text { VHKSHDAATLVNSTEPSR } \\ \text { FKKYTAGLYM }\end{array}$
 S $\square G V Y \| V G F Y V D I A K \square Q H H L V K K V N P \square A S T L A E S E A T W T A$ TFKVYSIGSYVQEKVTVRNASE

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LLREAGCRSIRII PVVETDFPHLRDGFVRAIAARSQRNAA I L Q NPE I K S V RIV PTRNTDFHHLRRDAWVRSLTARAQKNRE

I L E E G VP TLIFRII

| 1 | $L$ | $K$ | $D$ | $A$ | $G$ | $C$ | $R$ |
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$\begin{array}{llllllllll}L & V & H & T & A & C & V & R & V \\ L & L & Q & V & V & G & R & S & F & R\end{array}$
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 VLANTGAKRMHVVMLRDIDANELGKGFTR
I I A Y E HE HRMVL HML R GLLS S K R L Y GAFS E A ME L
$L L S S G V R F S A K I V P V R N T D F N H L R D G L I K S V K S N M K R G D N$ I L R E A GCRSFRVVPVRDTDFHHLRDGFVRAIQARSGSDKA L E Q H V Q E M L I R I V P V R N T D F N H L R D G F I R A L Q N R L K R I Q S
 AI T S RYAK QL R MV S R R NIGKGSLLENAFKDG円RA










 L R L QLLLR DVD S K S L D E A LDQ D GL R D NLAA A M A

 L L Q D L Q CR SFR $L L Q D L Q C R S R V R D T D F H H L R D A F V R A V Q T R S P R P Q E$ $L V R D D V P K Q L C L A F E R D V D G D A L D E S S R R D S I G M M D P A$ | $L$ | $V$ | $N$ | $S$ | $A$ | $E$ | $P$ | $R$ | $R$ | $M$ |
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| $L$ | $R$ |  |  |  |  |  |  |  |  |
| $L$ | $L$ | $D$ | $P$ | $P$ | $A$ | $R$ | $S$ | $A$ | $F$ | KR L PV R DTD FH HL R DGFVRAI QARSDKI QA LQ D A T C R S A F R



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 P N A A A T S T F L G F DE K S L K K A E S MV MRID E D D R F E YR







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 | $T$ | $D$ |
| ---: | :--- |
| $T$ | $S$ |
| $T$ | $W Q A$ | Y ND D A GVAMRDFK A L F N R G S V Q K K Q E L L L CR D E K G L L S V L F GDEK GSAMGEFK ALFNRGSVMK GRELLLSRDESGKLGVW QS Q DD ASE DQ HVK DAFPK GSVPKGSPLDCVIVPS GNQKPA Y N

 $\stackrel{\text { A }}{\text { A }}$
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 CNDDAGAAMKDFKALFNRGQVPKKKELLLSRDAQGK L DVVM D S P LIE S E A I Q Q I K D S F PR G SVP K G S P L DLVI LP T S S L NFE

 N K E UVVS N G L

S SEAEAAALKERVQTAE
V
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$V$ S E S D Q G G L $V$ Q P F L D F F
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K K SFQFG
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 $P$ T D QLTR L M A A $\square G T A$ K E G DV I DL Y F DA G GV
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 ATG $\quad$ G G GGGQ VNGQVQGKD FSYHDSKNNEVMGVVSGEDFYRALLRIWLGSKPVQDDLKA YQPAGMGPLERLGVVEDERLSRLTWLLYLGGKNVSSEAKK GKRRGED IVRDL GAI QND YQRDTGIVRDGGAALQNDWVAQEVMLAYFEGDGNSPALKK FSYHDNUNNEIMGVVNNQLVGKFLESQYLGDKSPSPQAKK 1 DGKEVSKTVEGDDFYRAL LADWI GPKPTQDDLKQ VTGGQS D VEGKDFADALESVWLGKDPVDGGLK FDDGRSMGRQSVGRVQDERVSRLLLNWLAGSKVASPPARE TSFHSAATQAEDLTMESGGEGTAFQRIFFDDDTPVPTMRH VSALGAQQGAVN TTVTRNGAPVGEAKPLYDAVLAIWLGEKPIDGSLKK YSPDNEPKREVMGTFGEERLSRLLLNYLAGSKVASEPARE Y EDGEKGSQKLGEVADERTSRGIWLGYLGANVSSEEARR RSGRDELKHEVKPVDASFTVAELVLAYFAEQGESSTPFKK YSGDFKTPKKSVGSLGDERLSRLLLNYLAGKKVASEEARR
 FDDGRSFGRQT $\square G K V Q D E R V S R L L L N W L A G R S V A S E P A R Q$ YEGKDW GTVNNKWLAKNFIMAYITQSPSSEAALQ VKGQAQG $A P$ FQEPEFFQALLGDWLGPHPADEQLKK YQPETMGKSSWLGEVKDERVGRLVWLLYLGGQNVSEDARK ISVNGKATGQPIVEPE FYSGLMRIWLGKSPAEATLKA GVNGTARGTDAGMEFNRALLDEULGGKPVQEDMKK FQLYTTRDQMAEGVVEEPLIGRLLFMSYLGAKPLSEPARS YGEGDNAPKSLMGTVSDERLSRLLWLNYLAGNKVSEGARN YNSQDFGQVQKSGTPADAKSDKSVLAYFADKDEISTPFKK FEYDGQVFGEAEGSGFSVA RELVLAYFAEQGEUSAPFKK F
YDEVGD DPY YENPVKNELTSMGQVKEP IISKLLFLQYLGKKPLSEPLRK YDPQGRGDGKGSGTMRDYRVGLALWLGYLGEKVASVPARE YYDRGNDEMVILGQVNEPLVGKFLFSQYMGPKPLSPSTQQ IUNGHDYGTYQGFGVETSNLLKAFIGTYTGKKVASEELRQ GQPQGK YGKNEKDAEVLDGVVKDKNLSKLMLQYLAGKNVSSESARV INGQVQGSDI AD PAFYPALLRIWLGEGPADSALKA YYNRKKDQVVAMGHVDEPLVGKYLESQYMGPKPLSPSTKE VM GEVVSKVESELLCRSYDNMYपGDDALDKGAQE TLRRKNDSYEKICTIQNPGIGKLMFQYMCGPNAPSQMAKD FESTS DKGKQVGSDEGVDFQQALDAVWLGDKPADSGLKQ FESTSSGQTTLSPQPSHGQVGSAI QSVFYGYHAAS DARA FEYEGQTYESNVAKDEDKGFTELVLAYFADKGEDSPKFKR YQPLVKGEQAEKGEVKDERVSRLVWLLYLAGGTVSEDARK YQPVVQEGKKMGAATRDERVSRLVWLLYLGGQNVSSEARQ VRGGTHNGVQRGRIDDNPDFARALLRVWLGDKPAQASLKN VRGVAQP

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D V L K G I K T L
\({ }_{\mathrm{K}}^{\mathrm{K}} \mathrm{L}\)
TA!DKLITLL
\(N V \vee D G\)
SVVQK LAD F
DVI EGVS


Q L


D S
S
SVAEG VEV V
EFVEQ\VQ
A L
Q \(F A Q G V L E L L K\)
NAVEALAKL
D
\(S V A T H \prod A A M\)
K FGMSLLDSLF
AVAASIVDLFKDEK
EFYENLWNIFNNKQDH
K M L K G
QLMQRLPLLL
SVEQGL
SIVNG
S IVDG
\({ }^{A}\) L
A L
\(N \prod I E G V\)
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SVI D GVVA F



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 P R R MVV T A LR E L S S S D F N D AVMNHFGPR

\section*{}

 I L N S D K P K Q L F L K WV R S V S G K K V Q D G Y K E S F D K V A N R E Q R




 \(L L K V P G V K T A R V T P T R N T D Y G H L R D G W \square T G \square N N R \square K Q V A Q\) MMHF

LYKEVRADQLVEAWNE GFEKNSGA \(A L R G P K R D S V T M L D R D L D S T E L L G R L D S R G M E D N M M\)



 \(L L V P P V G L S L T V R A C R N L P L P L L G A E F E R I L Q R R H E K A G G\)


 HLALS G A R
 LI E GP G A R R L H L Q M L R D I D S K T L M S MP F D R T L M MV K T N M Q L S T D A M R K S \(F \square D N G V R T A D R V V P T R S T R Y P H M R D G W V R G U Q G K T T D N P E\) VFA A A GP K R L H I V M L R D D D A N E L GK L F T Q S RE D F VK S DP G

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DLGDVEILMKQLKSAFPGMDMPTTSEEDFLRKDADTLVVL VM RMSEVFQHKKLDAGESFMVDWLPGQGATVT AK \(\stackrel{L}{G}\)

\section*{LTNQLL} EEPDARAAQKVLHLS Q DNQKGARDGFIDAF LDGGPAYDGGMLLGEHWW QMQALQAGLGELTRVFQSVTAKTGDSVVLDMGPEG LVVA NQEAVSRGLQELKNAFRKGSVPKNDDLIGELQANGSLQLS AFSRLAPGVLRMGEDFAHRRLAAGDRFTVDWLPGTG TV VTELEGIIAEGLGK KGAARGTKLRFDCSEAG RENHNEAQLEKFLEQAMNQTARKGDVIDFDYTPDSGTVVA VYSDEGAAMKMSQIFSEHKKLMAGEQFVVDWLPGTGTQVT SDPHDQPR DEQLIAVFK GAETEYEAI GEFKNIFAGGKAPKGSVMILSRQRNGSLDVW SLTVLKEKIERFNGFF TEPMKKGETMNLTYYOPGKGTEV RPPESTQAVGKLLTLFPNAPMSTTSTLDVAYFHPG
 RYGDEGEGVAELKKLLNRGSMPKGKELLL SRDGKGRMA QTDSPLEAIQQIKDSFPRGSVPKGSPLDLVILPTAV RADD PAALRELGSYFSRERLPKGAAITFSRSSSGELV
 P SKILTQTM LIPGLMRMSQLDFTDIVKKKLAGQSFSLDWVPG AEDALKPAVERLSQLLRGTRLREGDTIDDEDDSD AGA A SSFRERMADDRMLEKIKSKSAPPGTELVFTWRKNGDFEVR DYDDDADSUGRFKADFGGRKVPKGRALILLRDENGALEA RLLLLHRTMEQMGTA

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LS \(\square\) NGEARGKVAG
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Y
V
V YDDGRSFGRQYLGSVED
NGSH
NGSH QGDAKF
HNNRKKNKADGDAKFTDAGLGGAFVDVFTDAEAVSPSLVE FQGGEKGRIGG KDFQRALLAVWLGRYPADRSLKE
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 I DGVPSGGVFTE PQFFNSMLKDWLGKNPAEDRLKR VKGQPQGE AAFKEPEFFNALLGUWLGPKPADQQLKK DGKQVVEPLPDVARVEREFYALLKMWLGEKPLDVKLK YNQNVTLPGHDVGVEDEYNTLLAGWLGDKASDPTLRS YNQNVTLPGHDVGGMKSEAFNALLAMVLGDKASDPTLR HVSVDGKSQGKVASDGLGAAFCDVYLDDKCVSPPLRE YRSRKQNECMMLGRVDEPLIGKFLFSQYLGDKPLSPPTRE DTVKGVPQGEPFHEPE SRATMDGQETSR
VSVDGAD
VGI VSVDGALI NGTPGKP TPGRLLYAVMMMGRADRGK YSGGKKPQREVGVPQGEPFKEALLGIWLGSQPADWKLKD FOKP NGKQTATIAGADFKQAFLGIWLGDNPVQASLKK FQKPDGTPEEQAGHVADERDGKLI WLGYLGEKVSSEAARK V
 DAGNDRNGSEVGTVPSKELFDADLSDWLGEFPVSQDFKS DAGNDRNGSEVGTVPSKEDFDADLSDWLGEFPVSQDFKS YKND GWYDDGKTGAVRGSVADER \(\square\) SRVVLNYLAGQYPASEPARK

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I LYNRQDKGR LDGRVMD VFVDGT IIFPRPDMAKGLFSEYMNDNPISIVDAKK VFVDGT QGKVIHEG DGSAMASVFLDDKAVSPSAVT YGPDEAVKDKELGVMDDPRVARALLCYFAGKKVASEGARS NGKPAAEP
ПNGTPRGKP
II LFNDKM

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\hline UniRef90-S8AGA9 & SVVDGLVEVVS \\
\hline UniRef90_G8YSM0 & S CVVD GLVGL \\
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\hline UniRef90-W0TEI9 & S V V/S K L \\
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                    \(P G A A N E G K T D E E Y Q L V G L G D R T T V M F\)
        E ERTTS T TAPK T N D

            TSII IFAPKL
                                    T TLLKMVGVGVRKKS



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                            LKLNGAGMREM
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                    K V S
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\(L K D R \quad G A K I R D Y Y A K P D K K G D L D E L V Y D K G K\)


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