QUERY
 UniRef90-H3AN25
UniRef90 Q1AMQ8 UniRef90-UP10003D08ACC UniRef90-O53U17
UniRefo-P12416 UniRef90-Q53UJo UniRef90-UPIO001CBA273 UniRef90-G1N5B5 UniRef90-G1TXK2 UniRet90 W5L7M2 UniRef90-UPI0001CB998B UniRef90-P12100 UniRet90_Q5U3W7 UniRef90-A3EY16 UniRef90_UPI00039405D6 UniRef90-UPIO003BD569D UniRef90-J71259 UniRef90-A0A023CJF9 UniRef90-EOV9M9 UniRef90-E9HZY6 UniRef90_Q29B26 UniRef90-UP10003F17C4D UniRef90-T1IIV7 UniRef90-R5EDN3 UniRef90_UPIO002653719 UniRef90-F21717 UniRef90-B4JTP3 UniRef90 UPIIOOO3648ECF UniRef90-J4TZ45 UniRef90_UPIO0047B6E57 UniRef90-R5NZJ7 UniRef90-2NJR2 2 UniRef90-B4LYA1 UniRef90-UPI0003C3574A UniRef90-L1MYS7 UniRef90-Q9VG74 UniRef90-UPIO001757EB9 UniRef90-D245760 UniRef90_C2XJH1 UniRef90-E4TRA6 UniRef90-C3L1V2 UniRef90-R6PQX1 UniRef90_D3DZQ0 UniRef90 UPIOOO37A8821 UniRef90-HOUSJO
UniRef90 -T1KX10 UniRef90-A0A016IXX3 UniRef90-B4K878 UniRef90-K2F1J8 UniRef90-UPIO00368B206 UniRef90_B3M2Q8 UniRef90_UPIO001E89E05 UniRef90-S7TH48 UniRef90-UPIO0047DBC09 UniRef90-EONYY8 UniRef90_UPIOOO3676D14 UniRet90_LOHGZ8 UniRef90_UP100031B5663 UniRef90_R5GWJ1
UniRef90 F8AC60 UniRef90-U2F7N3 UniRef90-R9SK50 UniRef90-U2E8U2 UniRef90-H1KWH3 UniRef90-X117U2 UniRef90-T1HB06 UniRef90-MOCVFO UniRef90-X119W3
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UniRet90-UPIO003BB4F3C0 UniRef90-B8FAR3 UniRef90_UPIO00477DEF1 UniRef90_G2H8B6 UniRef90-UPIOOO3B50BF8 UniRef90-I0GTJ3 UniRef90-W6K6Q3 UniRef90_L9P1R5
UniRef90_D8PHF8

KAsVVANO 10 KSVANQLTP TNTALTLIMMKAEVVTPMGTPAEETPKLLN Q E K
 KSVVAKVAI K S V V A K V K KSVVAKQDi KSIVAKTVI KSVVAKVRI $K S V \vee A K T K$ KSVVAKLA K S V V A K V A Q K

K $S \vee \vee A A Q L$ | $E$ | $S$ | $V$ | $V$ | $A$ | $A$ | $V$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $Q$ | $S$ | $V$ | $V$ | $A$ | $T$ | $Q$ | $L$ |
| $A$ | $I$ | $V$ | $V$ | $A$ | $T$ | $Q$ | $L$ | V V A K V $\mathrm{V}_{1}$ K S V I A K K A L K T V V A A TAD $K S V A B Q$ $K \quad S V \vee A$

K K V I A K V A I

Q S V VA T QLIP $\square \mathrm{N}$
K T VVAA A K P L K K G DVV T WD NV S L K V A E P K Gli P G N Y L H N I
K S V V C T Q K L EA G VQ L C S E H L TVV K V G Q P V G WP P Q HL
K S V V A K V

R
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 $K$ SIV AARDLDKGHKI QVSDLTDKVSEPSGI SAETYFDI QSIVANRDLDVGAVLKKDMVDFKRP $R R S$ I V A R V H I P A G T T I R A D M L T C K R P RRSVI A A V EI
RRSIVTTCDIKKGA L V A N Q Di

## K S

K T L V A A K DLP K G H II S P A DL CVVKVS
RRSIVAAKHLPAGHVLSMEDLDAK $P$
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$P$
K S L V A A T T L R K G D I L Q H E N I Kll K V A E P
$R R S$ I V A A VDI PA G T MI LEEML T F K R P G
RRSLVATGDI E E GTVI TREMLTWKRPG
R R S I I A S R NL S A G HV L M IVEDLDAKRPG
R R SLI A TS D DI P K G TVVITKD HLTTWKRPA



$R \quad \mathrm{R}$ R P

R

R R
R R
KSIVAARSLSKGHVLEPTDMADKVS
$R R S L V A N E D I D E K G V I T R E M L T F K$
RKSIVAAARRIPAGRII TADDLTVK


RRSVVAAYELKEGTVITEEMLEFKRPG
RRSI I A A S DLLPK GKVL E F A D M D A K R P G


RRSLVANKTIPKGSI I T P DMI IPKR P
RRSII A K K N I P K G K I I E K S D L TIIK V V A A A K F L P K G H T L K K S L V A ERDI
R R S LI A A H KIIPRGTVI TRSMI DVK
$R R S V V A A T D L P A G T T L A A G H L A Y K R P G$
K S L V A A R S L K K G HR L QRAD I A $\square$ K VS E P $R K S I$ I A A K D I PS G SVI


| $R$ | $K$ | $S$ | $l$ | $V$ | $S$ | $A$ | $C$ | $A$ | $I$ | $S$ | $A$ | $G$ | $Q$ | $C$ | $I$ | $T$ | $E$ | $D$ | $M$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $R$ | $R$ | $S$ | $L$ | $V$ | $K$ | $R$ | $P$ | $G$ |  |  |  |  |  |  |  |  |  |  |  |  |
| $A$ | $R$ | $V$ | $D$ | $I$ | $K$ | $P$ | $G$ | $T$ | $T$ | $L$ | $T$ | $Q$ | $E$ | $M$ | $I$ | $G$ | $L$ | $K$ | $R$ | $P$ |


R R S L FAVVQDI P A G T I LTN E N VR S I R P
RKSVVAARII $P$ $P$
$P$
$P$
$P$
 GGTP P Y E M D R V H G I S P R Y M D DV

R R S L V A L K Di



| QUERY |  |
| :---: | :---: |
| UniRef90 G3Q410 | VGKKVKKDVEEDESILPEVVEGY |
| UniRef90-F7BVV6 | EGKTVKREI EEDESVTEEA |
| UniRef90-B5X2G1 | VGKSVTEDVEEDESITPDVVDS |
| UniRef90-M3ZWR8 | VGKTVTEQVEEDDSVLPEVVD |
| UniRef90-C3YJ26 | VGKKLKRALECDETVAGDDV |
| UniRef90-E3TCP5 | L GKKTMKDI GMDESVTTENAVEN |
| UniRef90-F6SJ79 | 1 GQKVKVNI EEDDTI TEEA |
| UniRef90-H2US31 | VGNTMMENVEEDESIAPELVDSY |
| UniRef90_V9L106 | V GKKVK A K I DEDETITTEELF |
| UniRef90-H3AN25 | $V \mathrm{GKKA}$ A A I GGDESVTEDAVEN |
| UniRef90-Q1AMQ8 | V GK QVNRAVPDGT T I MPEMVK |
| UniRef90-UPI0003D08ACC | $V G K M V L V T I E E D D T V L E E S V Q S Q S$ |
| UniRef90-Q53U17 | I SMQVNQAVPMGTTLIMPDMV |
| UniRef90-P12416 | VGKQVNRPVAKDETLMPNMVKTYR |
| UniRef90_Q53UJ0 | V SMQVNQAVACGTTLMPGMVKT |
| UniRef90-UPI0001CBA273 | 1 GKKLKKGVENDDSVTEDNL |
| UniRef90-G1N5B5 | VGQKAKTTI EEDETI TEQA |
| UniRef90_G1TXK2 | V G K M V L I I K E D Dil Le E SVEENH |
| UniRef90-W5L7M2 | VGK\ITVDLQQE |
| UniRef90-UPI0001CB998B | GKKLK S GVDSDESILKKNI A T Y S |
| UniRef90-P12100 | VGMQVNRAVNLDETL MPDMVKTYQ |
| UniRef90_Q5U3W7 | VGKKI SVNLEKDATI T D A |
| UniRef90-A3EYI6 | V GKQVNTPVAKGQTLIMPDMV |
| UniRef90-UPI00039405D6 | VGKKI KVDMDKDDSILADVI |
| UniRef90_UPI0003BD569D | VGKKIKVDVEEDDSILADM |
| UniRef90-J71259 | VGKQVNQPVVKGQTLMRNMVK |
| UniRef90_A0A023CJF9 | GREAKVDI KEDDILTWEMV |
| UniRef90-E0V9M9 | GKTINKTVDEDE |
| UniRef90-E9HZY6 | V GKTLSRNVDQDETITTSDC |
| UniRef90-Q29B26 | VGKELTDTVYEDEPI A GNMV |
| UniRef90-UPI0003F17C4D | 1 GKKVL VVMEGSV |
| UniRef90-T1IIV7 | GRTLIRD\ACDDSIKSQD |
| UniRef90-R5EDN3 | IGRKIKRNI DEDE\IFEDDLE |
| UniRef90_UPI0002653719 | FGKRTAKAL |
| UniRef90-F21717 | IGGRKNQDLAEDT TLMEDMLE |
| UniRef90-B4JTP3 | I GMQLTRSVNQDEPI IENVL |
| UniRef90-UPIO003648ECF | VGRKI RKM E E D EQI KLE DL |
| UniRef90-J4TZ45 | LGRVSAVDI AEDSILQEEMFEG |
| UniRef90-UPI00047B6E57 | V GRTARVDIPFDEIVTWEMV |
| UniRef90_R5NZJ7 | I GRTMAVDVKEDTILQEGML |
| UniRef90-F2NJR2 | IV GRVTKRPLKYNEAIISWDDI |
| UniRef90-B4LYA1 | I GMRLKDSVYEDEPI T ENML |
| UniRef90_UPI0003C3574A | V GLLQL T Q S V S Vid P L FWD |
| UniRef90-L1MYS7 | V GKKVKRDMEADEMLLPDDL |
| UniRef90-Q9VG74 | VGKELADNTGEDEPILGNSIDN |
| UniRef90-UPIO001757EB9 | GKHVKGVI NEDESILQENLDN |
| UniRef90_D4S760 | L GKTAKETI K G D TVLMKDML R |
| UniRef90-C2XJH1 | G L K VT K Ni K EDDVI T WEML |
| UniRef90-J4XAM9 | I GKK L K R D I EVDE M L M P D D |
| UniRef90-E4TRA6 | I GKKTLFDI K EDDVLK WNLFE |
| UniRef90-C3L1V2 | L GRQVKVNI E EDTI L T W |
| UniRef90-R6PQX1 | I GRTLKVDVAEDTI L Q WS MLVN |
| UniRef90-D3DZQ0 | V GKKAKITI PEDELI QYDFLE |
| UniRef90-UPI00037A8821 | L GKK T AKEI PEDESI Q WDML |
| UniRef90-H0USJ0 | VGREAKVDI A A DQWI T WEMI |
| UniRef90-T1KX10 | I GQKVA Q L EVVDVAI QLN |
| UniRef90-A0A016IXX3 | GKQVKKDLLEDTVLT WD M |
| UniRef90-B4K878 | I NKQLT D NVNEDEPITE |
| UniRef90-K2F1J8 | L GKSLT R D K P M S L L ALDD DV |
| UniRef90-UPIO00368B206 | LGRTTACDIGEDDLLI WDMLK |
| UniRef90-B3M2Q8 | I GKELIVDVGEDDPI T G S M L |
| UniRef90_UPI0001E89E05 | I GKVVARNKI SEDTILQ Y G M I K |
| UniRef90-S7TH48 | GQKAVREI GEDTLL S WEMV |
| UniRef90-UPI00047DBC09 | I GRQATCDI AEDALLA WHMV |
| UniRef90-EONYY8 | VGKTLRRAVKEDTLLQEDD |
| UniRef90_UPI0003676D14 | L GKKALK NVPADELLNFEMFK |
| UniRef90-LOHGZ8 | I GK S AKCDI RKDSVI T WDMVE |
| UniRef90_UPI00031B5663 | I GRKLKRDI K E D EVIK WEDI |
| UniRef90-R5GWJ1 | VGKRLTSDIEKDTLI NAED |
| UniRef90-F8AC60 | VGKKVVHNI E EDQLIKWS DI |
| UniRef90_U2F7N3 | VGRRAFCNI SEDDILKWNMVE |
| UniRef90-R9SK50 | GKTAKCNI NSDDI L NYDMFE |
| UniRef90-U2E8U2 | I GRKLNRDI KEDELI T WKDI |
| UniRef90-H1KWH3 | I GKKAKRDI K K DEVLKWGDLE |
| UniRef90-XOWEZ9 | L GRKVKAPI QMDQQI NWD LFD |
| UniRef90-X117U2 | I GRKANKDI E $\square$ D D I L T WDMI |
| UniRef90-T1HB06 | LKKKLKHNLDEDQVINAEDLET |
| UniRef90-M0CVF0 | 1 GNTASRDI RNDT TLT WED |
| UniRef90-X119W3 | I GR\\|VANTDI K EDD| L T Wemv |
| UniRef90_Q0A628 | I GRRLAVDLA HDELI T P D |
| UniRef90_B4NJF3 | DKELAI GL NEDEPI |
| UniRef90-I3VYR9 | I GKK T RI HI LK D T I I D F S M L E |
| UniRef90-UPI0003B4F3C0 | I GRTAEI DI EEDDI FQWEMF |
| UniRef90_B8FAR3 | GREAAVDI REDELI T W |
| UniRef90-UPI000477DEF1 |  |
| UniRef90-G2H8B6 | VGRRTLVAL QEDQGVSLDAVE |
| UniRef90_UPI0003B50BF8 | V GMTAAEDI DEDTVMQWKMFK |
| UniRef90-I0GTJ3 | LGKTAKVDIAFGTPLDSWELVE |
| UniRef90-W6K6Q3 | VGRTAAREI KFGELI VWEMLK |
| UniRef90-L9P1R5 | L GKEALDEIHEDTVLQWNM |
| UniRef90_D8PHF8 |  |



| UniRef90_X1MAG5 | L | G K K I R R K D |
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UniRef90－LORAI6
UniRef90－UPI000479EFC3
UniRef90－R5MMT9
UniRef90－D6PLC8
UniRef90－19P885
UniRet90－NVZVH5
UniRet90 B1KYD2
UniRef90－K1XAK1
UniRef90－U2UTU2
UniRef90＿WOEAM2
UniRef90－A4SHH4
UniRef90－UP100047BF2A2 UniRe990 UPIO000373BF15 UniRef90－UPIIO00479BDA7 UniRef90－C6XLJ4 UniRef90－R4XNL4 UniRef90－13BS69
UniRefofo－R4NKA9 UniRef90＿UPIO00225AB35 UniRef90－W4E153 UniRef90＿W4BCK7 UniRef90－Q7U964 UniRef90－C2NB85 UniRef90－UPIOOO36E2557 UniRef90－X0S1R0 UniRef90－K2BKS9 UniRef90 UPIIOOO3667F50 UniRef90－R5NPQ1 UniRef90－MOPQ53 UniRef90－V9H610 UniRef90－UP1IO00369F6EA UniRef90－UPI000371791A UniRet90 D5XCT6 UniRef90－W9HF33
UniRef90 E8M577 UniRef90－F6CZK0 UniRef90－C3PVG2 UniRef90－UPIO0046FAAB7 UniRef90－T2BCU5 UniRef90－UPIOOO46961C4 UniRef90－A3WUE5 UniRef90＿UPIOOO47A4828 UniRef90－S6ECE1 UniRef90＿D3LLK2
UniRef90＿R9NBB4 UniRef90－UP100035E5C6C UniRef90＿R7CIR7 UniRef90－A4U173
UniRef90
X1LWK4 UniRef90－UPIO0047B3A5B UniRet90－H8XT68 UniRet90－C6B1NO UniRef90－R7HAP1 UniRef90 ${ }^{-}$F4A5Y6


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 KSVIADVSI AKGEKITRKMLAVK RRSLVAAKKLDEGEKITREDISIKRPG RRSLVAARHIKAGEVFELDGLAFKRPG



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| $N$ | RRSILAKEDLKKGTVLSKEMECYKRPG RRSLVTRRALPQGHVLVEADLDAKRPG

ATVVTTKELKSGNTLTKDNIWVKRPGT KRSLVFGSDIEPGHVLQAADVAVKVSEPRGLSPTLFDSV RRS：VAKMD：AAGALIDASMLDFRRPAGAGSPMAXKK
 RRSIHANARILKGETIADGKLTIK RPGG｜PPHLIDDVV RKSI TAKVKIKKGDIFTIENLTTKRPG
KSVIAARDIPCGALLEQGML R DASP
SIVSTRAIKAGEVIGEDMVWSKRPG RRSVVLRDMKVGEVIKAEDLMPKRPG R
 RRSDYПAKDMAG RKSIVAKKAI DKGEVFTEENTTVKRPG
 RKSIVAHNRINKGE RRSVYTSKDINKGELFTEENLT
 RRSLVACSDMTKGTKIGWADLT RRSIYAA RALKAGEVIKRDATAFKVPG
KSVVAARDLKAGSVVTREDLGLK
RRSLFAVENIKKGEVFTEKN FIGRADRP
 EKSLAVSKDLPAGHVLTFDDLEAKKPAG RKSVVAAKEIKAGELFTENNLGLK RPGGLSARDFKSV
 RRSIYLTKDLPAGTELTENHL TVQIDR R K S I

AKN
RKSLVA
VAGOKIKKG
RRSLVAARAI RKGDILTQDMLAEKRPG

K SLVAARPLQAGATITADDVTVK SAP RKSIVAARN：SAGEILFTQKNLTTKRPG
SUVPARPI PAGATITQEMLWSKRPG RKSLYAARDI AAGQUI SDDDIARRRPA


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PG
NG SPMRWYDV
NGGSMKWFEV
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MGLHPRYYEDL
TGGVSPMRWHEEV

$\begin{array}{lllllll}F & G & L & K & P & K & Y \\ N & V & K & L & I \\ S & P & M & K & W & F & V\end{array}$
GGLAPKYYDLL
GGMPPKYYEML GG EPSQYEDL SGI NPMRWP ATVVASKRINKGETFTMDNIVWKKRPGT NG SPMHWYML
 EKSLSVNKDLPAGHVLKFEDLEAKKPKGL RKSIVAKKTIKKGEELTEDNLDDKRPG NGGISPMCWN SV RKS VVAKNFIKKGEIVKEDLDYKRPG

| A |
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UniRef90_UPIO00287E19A UniRef90OUPIOOO4276897 UniRef90_UPIOOO4729823 UniRef90-UPI0002E81823 UniRef90_UPIOOO3772895 UniRef9O_UPIOOO4799669 UniRef90_N4WCW8 UniRef90-A1B7Y2 UniRef90- $\mathrm{X1HK} 48$ UniRef90 UPIO004734F84 UniRef90_UPIOO03747CC4 UniRet90-U2L5N8 UniRef90-M1PR18 UniRef90-K1XTZ6 UniRef90-UPIO0046A43DB UniRef90_UPIOOO34854AF UniRef90_UPIO00469A240 UniRef90_R5JTR4 UniRef90_D4YEZ1 UniRef90-VGHMS1 UniRef90 K6D598 UniRef90-M8DFN3 UniRef90-UPIOOO466747C UniRef90-UPIO002E79584 UniRef90-A1S830 UniRef90-UPIO0046F3001 UniRef90-UPIOOO360FD11 UniRef90-E7C9Y1 UniRef90_D3DJI5 UniRef90 Q893U6 UniRef90-UPIOOO4149867 UniRef90_UPIO0037256F4<br>UniRef90_L2F942 UniRef90-O48DJ2 UniRef90_UPIOOO3727C60 UniRe90_LONJO2 UniRef90-R6QXF3 UniRef90-A8TX92 UniRef90-V6HJA1 UniRef90-UPIOOO366D01C UniRef90_F5ZE74 UniRef90_XIICL4 UniRef90_S8PII4 UniRef90 W6TXH6 UniRef90-UPIO003696047 UniRef90-G7V5V2 UniRef90-UPIooo26C7D05 UniRef90_L8JP22<br>UniRef90_C0QPC2<br>UniRef90-G2IZJ2<br>UniRet90-UPIO0041EFFB8 UniRef90 Q30T07 UniRef90_UPIO004685D71 UniRef90-W4F502 UniRef90-UPI000473D61A UniRef90_E6SQ67  UniRef90-F5SPU7 UniRef90_J9L1Z7



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lupas_21
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