## QUERY

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UniRef90-T1AI37 UniRef90-K0NLJ2 UniRef90-A6Q298 UniRef90-B1KHZ6
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UniRef90 B5JS45 UniRef90-B2IJI5 UniRef90_UPI00037D9791 UniRef90_C9R919 UniRef90_G0A1T3 UniRef90_J6UCZ4 UniRef90_G2TEY3 UniRef90-C0AYM6 UniRef90-K8WB99 UniRef90_Q3A5T6
UniRef90-X5MN31 UniRef90_UPI0003B6FA34 UniRef90_UPI00036F7E4D UniRef90-D5XCE6 UniRef90-13TQD8 UniRef90_UPI00047BF49B UniRef90_LOWGX1
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UniRef90 H8L2Q3 UniRef90_UPI00046D0205 UniRef90_D1AZ04 UniRef90_D6E7B2 UniRef90_UPIO00377EBE4 UniRef90_D6Z4E5 UniRef90-J7QFL3 UniRef90_K5YIS6 UniRef90-BOTB86 UniRef90_UPI0003623DCF UniRef90-B8DJ84 UniRef90_F6BDYY6
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UniRef90_M1YVC7



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10 FKDETK 20 $\qquad$
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 MKLI MAII KPFKLDEVVRAL AALDVQGLTVSEVKGFGRQK
 MKK I EAI I MKLITAII KP F K K L
 MKLITAIV KPFKLLDVVREALVEVGVGGLDTVTEVKGFGRQK MK KI E A I I K P F K L D DVVKEALS E I GIVYGMTV TEEVNGYGRQK

 $M$ K K V EA I I K P F K L D D V K K E A L A E V G I Q Gli T V S E V R GF GR Q K
 M
M K

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 M K K $\quad \mathrm{V}$ E A
## M

 M K K
MK L MKKITEAVI
 MK K I $\quad$ E A V I $M K M V Q A I \quad$ K P F K L D DVVREALTEDGVTGMTATEVVKGFGRQR
 $M K L I T A V V K P F K L D D V R E A L D S D D G V S G D T V T E V V K G F G R Q K$ MKIVMAII KPFKLDEVRDALTSIGVYGMTVTEVKGYGRQK MKKVEAII KPFKLEEVKDVLASIGNFGDTVSEVRGFGRQK
 MKYI I A I I K P F KLEEVVRELLSELGI KGMTI SEVVGYGRQK MKYI I A I I K P F K L D DVVREALSDIGI Q GLLTITEVRGFGRQK M K K I E C I I K P F K L E D V K E A L A D M G I S GMTVVSEVVRGF GR Q K



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MK V MKLI A A V
 $M K L V A V I K$
$M K K I E A$
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M $M$
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$M$  N MKK MKL MKLITAIV MKK EAVVKPYRLDEVKNALQELGI QGLTVSEASGYGRQR MKMVMAVIKKPFRLDEVVRAALQEAGVEGMTVVEAKGFGRQR MKMLIAI I KPFRLDAVREALAEAGVQGMTVTEVRGFGRQK MKKIEAIIRPGSLDDVQAALDRFGVSGLTVTQVDGCGNQK MKKVEAIVRHFKLEEVKNALAERGVHGMTVCEVRGFGRQK MKQITAIVKPFKLEDVREALAEVGVTGDTVTEVKGFGRQK MKLITAIVKPFTLDDIRSALEQLGVLGMTVSEVQGYGRQK MKK EALVRPTKLEALKEELDSAGLKGMTVSQVQGCGKQH MKKI A K MKLITAVKPFTLPDVREALEQHDVHGLTVTETQGFGQQR




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| UniRef90-F9ZSA4 | GDGKI FVYPVERVI R | RTGEEGDEAV |  |
| UniRef90-A4JI54 | GDGKI FVTPI EQVIR | RTGETGADA |  |
| UniRef90-B4D892 | GDGKVFTFSVESATR | RTEETGEKA |  |
| UniRef90-UPI0002FBE658 | GDGKI FIT PLEQAVR | RTGEYDDAAL |  |
| UniRef90-W8WXG3 | GDGKLFVTPLEQVVR | RTGETGEAA |  |
| UniRef90-T1AI37 | GDGKI FVIDVEQAVR | RTGEQGEDA |  |
| UniRef90-K0NLJ2 | GDGKI FIL L PVEQVVRVR | RTGETGTEAL |  |
| UniRef90-A6Q298 | GDGKI F V S DI E K V VR | RTGETDEEAL |  |
| UniRef90-B1KHZ6 | GDGKIFVSPLEQVVRIR | RTSEEGDEAI |  |
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| UniRef90-H2G1T0 | GDGKI FVLDVGQVI R | RTGEQNEEA |  |
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| UniRef90-B6BUQ0 | GDGKI FVSPVEKAI R | RTSETNDDA |  |
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| UniRef90-R5PYH6 | GDGKI FVLPVEDAVR | RTHERGEDAL |  |
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| UniRef90-Q28S79 | GDGKI FVS DVSQAI R | RTGEAGEDAL |  |
| UniRef90_B5JS45 | GDGKI FVSDVERTI R | RTGEEDESA |  |
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| UniRef90-G2TEY3 | GDGKI FVFDLGEAVR | RTGERGEEAL |  |
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| UniRef90-K8WB99 | GDGKI FVLALEQAVR | RTGEKQDEA |  |
| UniRef90-Q3A5T6 | GDGKI FVYDI EQTVR | RTGETGPEAL |  |
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| UniRef90-D5XCE6 | GDGKI FVYPI ENAVR | RTGESGEEA |  |
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| UniRef90_UPI00047BF49B | GDGKI F V S PVEQVI R | RTGEMDNDAI |  |
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| UniRef90-S7TXK1 | GDGKI FVLSVEKAI RVVR | RTGEKGNEA |  |
| UniRef90-UPI00036BB470 | GDGKI WV SPI D QLVRVVR | RTGERGSDAL |  |
| UniRef90-Q9EZQ4 | GDGKMFVTTVDQTI R | RTGESGAD |  |
| UniRef90-L1NJP6 | GDGK\FI 1 PVEEAVR | RTGERADSAV |  |
| UniRef90-H8L2Q3 | GDGKIFVIDLEQAI R | RTQE $\mathrm{D}_{\text {D A D A }}$ |  |
| UniRef90-UPI00046D0205 | GDGKI FVTNLEEV | RTGESGP |  |
| UniRef90-D1AZ04 | GDGKI FVSEI ERVIR | RTGEQNEDA |  |
| UniRef90-D6E7B2 | GDGKI FIIFPVEEVVR | RTGETGEAAV |  |
| UniRef90-UPI000377EBE4 | GDGKI F VFNLEQV | RTGEQDS |  |
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| UniRef90-C0QG39 | GDGKIFIVPVEDAVR | RTGEKGAEAL |  |
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| UniRef90-B0TB86 | GDGKI FVSPPI ENVVR | RTGETGDGA |  |
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| UniRef90-F6BDY6 | GDGKI FVDPVEEVVRVR | RTGERGKDAL |  |
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| UniRef90-T1AGY9 | GDGKIFVSAI EQIVRI | RTGETGGDAL |  |
| UniRef90-G0A9F5 | GDGKI FVVNI EQVI R | RTGETGPDAV |  |
| UniRef90-A0L6C0 | GDGKI FVYDLESAVR | RTGESGPSAL |  |
| UniRef90-C8W3D6 | GDGKIFVLPVENALR | RTGDRGDDAL |  |
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| UniRef90_Q1YS71 | GDGKI FIS TLEEVI R | RTGETGAEAV |  |
| UniRef90-D8JWZ2 | GDGKIFVSPI EHTVR | RTGEADEDAL |  |
| UniRef90-UPI0003780CBB | GDGKVFVSSI E EAVR | RTDERGEQAV |  |
| UniRef90-UPIO003630047 | GDGKI FVVTNVEKVI R | RTGERDD |  |
| UniRef90-F7QHD6 | GDGKVFVTPI ENAVR | RTGETDNDAL |  |
| UniRef90-UPI0003B465C8 | GDGKI FI QPLENAVR | RTGETGTQAL |  |
| UniRef90-A0Y9D7 | GDGKIFVAPLEHVVR | RTGETNEDA |  |
| UniRef90-D9X821 |  | RTGERGPDAL |  |
| UniRef90_UPI0003B7AD20 | GDGKI FLSTI DDVVRI R | RTGERGNSAV |  |
| UniRef90-A8TRC9 |  | RTGETGSAA |  |
| UniRef90-UPI0003B7A0EB | GDGKI FVYDL NQTVR | RTGES GVDAV |  |
| UniRef90-LOF5P7 | GDGKI FVYPVEQAVR | RTGQQGEAAL |  |
| UniRef90_D2R353 | GDGKI FVVHLLDVVR | RTGETGQDAL |  |
| UniRef90-K4KR85 |  | RTGESGEKAV |  |
| UniRef90-C5CYM9 | GDGKIFVTGVERIVRI寿 | RTGEENENAV |  |
| UniRef90-H5WZH0 | GDGKVWVSPVDTVI RVVR | RTGERGADA |  |
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| UniRef90-A1HNS1 | GDGKI FVYPI ENAVR | RTGEEGD $\square$ A | M D |
| UniRef90_A3WJA4 | GDGKI FVTHLEHCVR | RTGEV |  |
| UniRef90-U5N8H8 | GDGKI FVTPVDRVI R | RTGEEDNAVV |  |
| UniRef90-M1YVC7 | G D G K I F V\|T D| V V D Ti R|i | RTGERGEEAII |  |




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



 $M \mathrm{~K} K \mathrm{E} A \mathrm{I}$ I K P F K L E E V K S A L Q E V G V E G M T V T E GK GF GRRQK MK LI T A I V K P F T L D DIV K D A L E QL DIV H GMTVVSETQ GF GQQ K

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

 MK KI EAI I K P F K L E EII K E A L T E L A I T GMTIIS EVVKGYGRQK $M K K V E V I I \quad K P F K L D D V K E A L S A I G V Q G M T V T E V K G F G R Q K$

 M K F V M A



 $M K L I V K P F K L D E V R E A L V A A G V E G L T V S E V K G Y G R Q K$
 MKLI TAI I KPFKLEEVKEALQRFGVHGDTVSESSGYGRQR






M
MKLVIA
MKKLEL

$\stackrel{M}{M}$



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 MKVIITT MQKI EAVI RQNKFN ALKA AMNS IGGVTGMTVDNVMGCGMQK MKKVEA QPSKLDAVKDALVEGGVEGMTITEARGHGRQK MKL KPFKLDEVREALDQTGISGMTVTEVKGFGRQK MKKI EAIVRAEKFPEVKAALEERGFYGMTVTDVKGRGQQG MKKI TAI I KPHRDEEVRAALSEDDVKGMTVSEVKGFGRQK MKEI TAVI RPDKLEVVKEALQEIQCNGVTVTEVKGRGRQL
 $M O K V E A D V R P F K L D A V K Q A L V S A G I D G M T V S E V R G F G R Q K$ $M K M V M A V V K P F K L D D V R E A L A E R G V T G D T V T E V K G F G R Q K$
 MKK EA VK PHKLEAVKEAV A LGVFGMTVTEVKGYGRQK
 $M K K I$ EAFI RPEKLEDIKEIMEEQKLNGLDSISQVMGCGNQK


 MKRVVTAVRPEKMEPLKDALAAADVKGMTIS QVHGCGAQB M K K I $M K K V E I I \quad R P F K L E E I V E C L T E I G G I K G M T V T D V K G F G R Q G$

 LKMIMSII RPEKLGDVKKALAEVGAPSLTVTNVSGRGSQP M K QV DA V I R S T QL D K V K E A L V N S G V V G M TVVA N AR GF GR QK


 $M \mathrm{~K}$ L I T A I I K $M K L V T A I I K P F K L E E I V A A A L A E D Q V E G M T V T E V K G F G R Q K$ KI EII M K Q N K F E A L K N A L D K V GI T G M TVV S NV LG Y GE F Y
 $\begin{array}{lllll}M & K & E & \text { E } \\ M & L & 1 & A & A \\ M & K & \text { K }\end{array}$

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UniRef90-EOMSY3 UniRef90-EOMSY3
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UniRef90 F6CND5 UniRef90-F6CND5
UniRef90 ${ }^{-15 Y H 07}$ UniRef90-A7BR91
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UniRet90
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 $K L V M A F V R P D K L P D V E R G L A E A G A P S I D V T N V T G R G G Q W$ MKLI R A IV R P E KL G DV L K A L F Q A E V H GL TVVTHVVKGHGETY M K E I R A I I R P E KL Q DV L D A L E K A GHP GlVTV A QV E G H GRQA


KV E A V L R P WRLS P V S S A L L K M GI R G V T V T DVVR G F G A Q G

 $M K L V T A V I K P H K W E D V R E A L V T M G V T G M T V V E V S G Y G R Q K$

 $M K L I \quad I A T I X P Y K L D E V R E A L T E K G V R G M M V S E I K G F G A Q S$
 $M K K V E A V I$ R S H K LLE DVVKLALVGGAVIVGMVVEVRGFGRQK $M \mathrm{~K}$ LI T A I L Q P E K L D DVV D A L C S I G V H G L T I S E A H G Y G R Q R
 $M K K I$ EA I I R P EKLL N EVVKLAALS DLLGVDGMTVVNAS GF GK QK
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 LI KV EAIL R P SII C Q $M K K I D E A$ $M K K I E A I I R P D R L R E V K T A L A Q V G A P S I T V T N V S G R G G Q W$ , RPD K L E DLK D ALAK S GYS GMTVSQVLGYGNQR MK R I A A V V R P E K L E P L K E ALL F QA K I S GMTIVY QV H G C GNQ H
 $M K M I K A M D R P E K F E D V K A A D D T A G F G A M T I F R V E G R G V Q R$
 $M K L I L A I I Q P S K L D A V K E A L N K V E V F R D T I V D V L G F G R Q K$

 KI EII T D Q D K F K DLK D ALNEI GI MGMTVSNVLGCGTQK M
$M K \stackrel{R}{L}$ MKLVV I A TII K M N K I I EAA I I

 M EVVMLVN MKLVVAYI R HEAFEPI RDELLDEGFPS STIIEVVKGSGRQK M K Y E A I I R K S K F E A V K D A L HK I G I N F F T Y W DV T G V G N E K
 M K K

 MTKVVECLRPAKVESVVKEAVNKFGVHGDTVTGVIGCGLQK
 $M K F V T A V F K P S K L D A V L D A L T E L G V T G L T V T E V R G Y G R Q Y$

 MTKV D I A A N Q E KF EVL K HA L S S I GI T GMTV SHVMGCGMQK $M K$ LI T A DRP E K F D D V R G A L E S Y G V Q G L T TV S A A N GY GR QR
 $M \mathrm{~K}$ K I E A I I R D Q K L T A V K D A L K A I G V A GM T V S E V K G H G T Q K

 M E K I E A I I Q P G R L E A V K S A L V E L GVV G M T V T R R V A G F G H Q K
 M K K L E I I I R P E K L E D L K A I L E E S NV N GL N I A NI M GY G N Q K MT K I E A Y L R P N K L D VV K S A L G K F GII H GMT A L E V I G C GLLQ N $M K$ K




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UniRef90_R6IBW5

KJV $\bar{V} V I T K Q D R F E S L K T A L D N L L G I T G M T V T N V D G Y G M Q K$ MNVVVAIIQPYKLDDVRDALTEAGVDGTTVTEVRGFGHQK MKKVVVVIKPEKLTDVKHILEAHKVSGLMI SNIMGYGNQK $K V V M I$ FNQSRFVALKEALTELGVTGMTITQVMGCGTQK KLIMAVVRPDRLSEIKTALAEVGAPSLTVTQVSGRGNQP MKKLEAIIRMERVGLVKNALYKSGHASLTLTEVKGRGERY $M K K V T A V V K P F V L E D V K G A L E Q M G V L G L T$ -K EA DREEKFEEVKDALAALDVHGITCYQVMGCGTQR MK $\qquad$ K El KA
 KPFKLDDVITELHKIGGLPGDVSVRGFGQG KLVTGII QPHRLDDVKSALEAAGVRGMTVSEASGYGRQK MKLITAIVQPGRLDQLKQALTEVGVHGMTVSSAQGYGRQG MK V AVIKPFK MK KIIEAII KKSKFDEVRDALGQQIEVNFFSYWDVTGHGHVY MYKIEAII RPHLLEAVREALTDLHVVGDTASDCRGSGSQR MKKI EAIIRTSQYEAVKKALHEIDIDFFTWWDVTGQGNDK MKEI VAFI RRHQVPATKKALEEAGFPADTVQSVEGRGKQK
 MKKLEIITKPEKLESLKNDLDDCEASGLLMITNIMGYGNQK MVKVEAVVRPGVLEDVKDGLSKYGDHGMTVAQVMGCGLQK MKKIEVIIRPEKLDDLKKILSKNEYSGLTVMSAMGCGHQK MKLI LALI QPTKLEAVKEALSHVEVFRLTVMDVQGFGRQK MKKVEAII RKSKFDEVKKALLHGIEVNFFSYWDVTGQGHVY MKKIEMI I RPEKLEDVKE\LNESQIFGMTVLMVSGCGHQK MKKIEAI RKSKFEEVKKGLHDIGVNFFSYWDVTGVGNEK M M MKKIRAFI RPEKEQEVVLALEGAGFPALTKMSVLGRGKQK
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$\stackrel{M}{M}$ MKK EALIRKSKFEDVKRALYDAGIEWFSYWDTTGLGKST

 VK A N G G GLTMTEVKGFGQQK MKLITADQPDKDDDVVSALAGVGVHGLTDSEAHGYGRQH
 MKKLEII IQPEKLEDLKTILDGCSANGDMITNIMGYGNQK $M R K$ EAIFKPFRLDAVKDALHDLGVRGITVTEVRGFGRQK MKEI DTVIRPKKVNATKEILVRLGIPSMTAIPVLGRGKQK MMKVEAII RPERLDQVKKSLEEKGFVGMTVSEVTGRGEQK

KVDAVIRPEKLEEKKKLYE
 MKKIEAI IRLSRFEAI RDALAEDDVKFFTLSEVKGFGLQR KVEAITRPELLEDLLKEALAKLGVVGMTVSEVNGCGMQK KIDAITRKDKFDALKDALNNDGITGMTVTQVLGCGVQK MKLVTVVIKPFKLEDVREALSSI GI QGLTVTEVKGFGRQK MKLIVAIVQPSKLDA:CKEALTRVEVHRLTVVDCQGFGRQR MKKIEALTRKTQFEDVKNKLHEVGVNFFSHWDVTGDGRVY
 MKK MKKIEII TRREKVDEVKTKLYEMGATGMMLSNIAGYGQDE MKKI EAVI RPNKLEEVEKALAEMGVSGITISQVLGWGRQK MKMIQAIIRPEKLDNVKKALDDRGFIAMTI DDVKGRGEQK MTKVVIVFKEQKLQALIQAMEA DDVGDTVTHVTGCGMQN KVDIITSGGRFEELKKAMGD:GISGMTVTNVLGCGMQK MKKVVAIIRPEKLNDVKAALEEKGYFAMTVHEVKGRGAQR MKKVESI I RPERLTETIKRLKNTGVTGFTVSQVVGRGKQK
 MKKI EAI REEKLNDLKECLEKEGIYGMTVMRVKGRGDQR MKMIKAI A RPEKVDDVVEALEKEGFLAMTRDDVVGRGKQG
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40 MK K|I E A II IR SHKLDE|V|KTAALNAGVIGMT\|TELLRQFGRQK MKEIDAI I RPKKMGATRDAVDKLGFPGLTAVLVLGRGKQH
 MKEI I A I I RPNKMEKTKEALDRDGFPSFTASAVMGRGHQR $M K E I \quad I \quad A \quad I \quad R P K K V E P T K E A L V E L G D P S V T V V P V G G R G K Q R$
 M M KI E A I I R P T K I H EVVK D AL D E A GFESVVTVT DVVGGRGKQK K V M K
 MK KLLEI I DRPEKLEDLK DILTECSITGMMVNNDMGFGNQM MKKLEIVTRPEKLEDLRKILEQFGVTGDNIFHMEGYGNQK $K V V I I T K A E K F D K I T K A L N E D G I G G M T V T K V S G C G V Q K$

 $M K M$ S A K P E R F E F V K K A L E D K G Y V S M T
 MKEI MAI I RPKQMTRTKEVLAALGFPALTAWRVLGRGKQK

$\mathrm{M} \square \mathrm{K}$




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




 $M K M I V A D I D R P D K F E A V Q A A L V A K D I V Y M T V S D V R G C G T Q K$ $M K Y$ V $M \square K V E A V V R D E L Y E D L M Q A L K S V A I V G I T V S Q V M G C G T Q K$ $M K L V T A V V K P H R V D E \| K D A L Q R F G I Q G L T I S D V Q G H G R Q R$
 MVELLAI I RKERSYDLRRALSDRGVPYVS WSVKGRGKE G MKEVTAVVRPNKMSVTKDALDKIGYRRMTADPVLGKGKQR
 $K I E A I V R E E K F E Q V K S A L Q D D Q V N G V T D S Q V M G Y G T Q R$ $M K M D R A M V$ R P P E A T D K K A K Q A V A EVVGA P S $K L E A I I R P F K L E E V K V R L M T A G V P G I T V T N V M G C G K Q Q$ $M K Y I$ I AI I QPDRLDEVMRLLEEQEI HLVTVSNVVGRGRQK
 $M K L V T V V I K P F K L E D V R E A L S S M G I Q G L T V T E V K G F G R Q K$ MKLI TAII PPDRLDHVREALIQADITRIITVSRVTGHGRQE MQMI RAI I RPEKVDEVVDSLDNEGFCAFTRضDVFGRGRQK
 MKMI RAI L R PEWTEEVT DGLSEAGYYSLTKINVFGRGKQK $M K M I R A I I R P E R A E V I$ A EALLAQENLFSLTKMHVFGRGKTK $M K L V 1 A$ YFRPE QLNSVVKQALYAKGIHGMSVTNIAGS GRQK $M K E I V A I I R M N K V G V T K D V L A A A G Y P A A T F Q K V M G R G K Q R$ $M K$ L I I A Y I R P E R L N P P V K Q A L Y A K R V



 $K V \operatorname{VII} A R K N K L D A L L H A M N D I N V T G V T D T D V T G Y G I Q K$
 $M K E V M A D I R F N K I N D T K R A L V D A G F A S I T M L K T M G R G K G E$ MK QVTA I FRPDRLEAVE QAL HALHLPGFTILPAQGBPRGB MKKI EAIVRRLSRFESIVRALAGIGVNFFTLTEVKGFGLQK


 MKHIDA YI K P H K L T EVVTMAL QRIDLS GMTVLDVKGFGRGR
 $M L L I$ RAIVRPEKTGDILSELLSAGFPAVTKADVFGRGKQK
 $M K K V E A V I \quad R E E K L K D V I K A L E D E G F F G M T V T A V M G R G K E G$ MKEVVAVI RMNMMNKTKEALTEAGVDAFFAQEAQGRGKGR MKMVRSIVRPEKVDEVLAELSDAGFPAVTKDDVAGRGKQR
 MKEV $\square$ AIVR R $\square$ NMMNQTK QALTVCGVDAFFAHEAQ GRGQEQ


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| UniRef90_E0UK63 |  | R T E E H N Le Al |
| UniRef90_UPI000474E37D | GDGRIFICCI E SVTTRIR | RTDEEGEKA |
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| UniRef90-R5KKB4 | GDGKI FIRNI E EAI RI R | RTGERGEKA |
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| UniRef90-UPI0003F9EE33 | GDGKVFVLNLEECFRVR | RTGEVGGAAI GP |
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| UniRef90-E6ME91 | GDGKI FVYDLKNVIRI R | RTGETGVA AI N |
| UniRef90-M3C7K0 | GDGKVWVVPVETVVRVR | RTGERGPDAL |
| UniRef90-I2Q3U4 | GDGKVFILPVDDALRLR | RTDETGDSAI |
| UniRef90-A8UQY1 | G D G K |  |
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| UniRef90-Q3Z7C9 | GDGKI FVVPVLEAVRLR | RTGERGEDAI D S V |
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| UniRef90-UPI00037188AD | GDGKıVV口DLEHVVRIR | RTFE $\square$ GAEA |
| UniRef90-A8JI83 | GDGKIVFVHPVAEVVR\\|R | RTAETGLEA |
| UniRef90-UPI0004626F64 | G D G K |  |
| UniRef90-Q11P32 |  | RTRTRGDDA |
| UniRef90-H1XY07 | GDGKI Y I CELQEAI R ${ }^{\text {G }}$ | S S GERGENAV |
| UniRef90-D5XC11 | GDGKI FVLPVTDVI R V R | RTGETGEEA |
| UniRef90-P25770 | GDGRI FVLPVEEAIRVVR | R T GETGE $\square$ A 1 G |
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| UniRef90_UPI0002485BED | GDGRIFVVDVAESYTI S | S S S K D |
| UniRef90-R9SIZ5 | GDGKIFI CPITQS | RTDETGDAVL |
| UniRef90_Q2FMD4 |  |  |

## UniRef90 Kobeno UniRef90-O66588 UniRef90-FOJD13 UniRef90-A1BEG8 UniRe990_E6U4T7 UniRef90-D5EUE7

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1

 M K E V I A V V R M N M M N K T K S A L T E A G V D A F F A H E A Q G R G K V E MKEIIAAVI R DNKMNETKQALVEA GIPAFTATRVLGR GKGQ MKMI RAIVRPEKATDDTDGLSEAGFYSMTKFNVFGRGKQK

 MKEI E FII N GEKLETLKHVLDQFSNRGITMTSAMGYGHQH

 $M K M I R A I V R P D K T E E V V D S L A E A C Y V A D T K M D V I G R G K Q K$ $M M L V T A I V K P F Q L A D V Q A Q L E R A G V L G M T V S E A Q G F G R Q K$ $M K M V Q A I I R S E K L D S V K K A L E E K G F V A M S I I D I T G R G E Q K$ MKEVMAIVRMNMMNRTKKALSDAGDTSMTARDALGRGKEK MKEI WAI I RREKYAETKRALDTDGCGAMS $\square H S V W G R G K Q K$ $M L L V R A I V R P E K S G A V M S E L A A A G F P A D T K M D V F G R G K Q K$ MKEVMMVI R R H QVPATKKALE DAGFPALTDQSVNALMKSN $M K L V I A Y I R P E Q L S L V K Q A L Y A E G F Y S I S V T N I L G S G R Q K$
 MKELEIVVIKPEKLENLKRDLDSEGARGVMITTIFGYGHQK
 MKMI EAA L R P N KI E QTLLE S L Q S S GF Y A A T RI S V L GR G K QL $M K L I R A V V R S E K E P Q V L K S L E S G G F Y A M T K F P V V G R G Q Q Q$ $M K E V I A A V R \square N M M N Q T K R A L T D C G V D A F F A H E A H G R G K V E$ $M K G L V I Y I R R E K L D A V C A V L R R H N A A G F S V S N V E G C G R R K$ MKEI I A II R M N KVNPTKKALAD DGVCGLHAIKVMGRGK DH MKEVV MFI RPKMYFETKKALNDGGFHSMTVKDVVGRGRTP
 $M D M$ R AIV R P EKAD DVLAALLMDAGFPAVTKYSVAGRGKQR




 $M L \mathrm{M}$ I K A

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

 MKEI DAVVRMDMMNRTKKALTEAGLDAFFAHEAQGRGKGF MYMIRAIVRPEKSDAVLAALMDAGFPAVTKYAVAGRGKQR KVEAIVVREEKAEDVIAAADNNDQVNGVTVTKVEGYGAQR

 $M D A L A A M D V H G M T C Y Q V M G C G T Q R$ $M V M D R A D V R P E K A E E V M A A L M A D G F P A D T R M N V S G R G K Q R$ MKEVDAVI RMNMMNKTKKALQDAGVVAFFAHEAFGRGKRK

 MKEI DAFI R S S K M N A TKK IL DELLNVS SVTA IPVLGRGNQR


 $M L L I R A D V R P E K K D E V V G E L S S A A G F H A T V V D V V G R G K Q K$
 $M K E V V A V I R M N M V G K T K E A L L K A G I P A D T C K E V L G R G K K K$ M K E E V
 $M K L V \operatorname{T} A V I \quad K P H K W E E V R E A L A A A A G V A G M T V T E A S G Y G Q Q K$


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











## UniRef90 Kobeno UniRef90-O66588 UniRef90-FOJD13 UniRef90-A1BEG8 UniRe990_E6U4T7 UniRef90-E9SE87 UniRef90-D5EUE7

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GDDYMSD 50 60 GKEKVLMPFLPKRAF V F P E E GK VV N AVV L Q GYYE EAA A E V L A A K R M V V H Y D I A P R L V A K R L L A L V V P P E E L C C K T A I D T I I K V N Q T G K A




 G $\square Q K \square Y Y$ D E L P K T M I L L V A E D D A T P Q I V D LI NE SAFT G S F


















 GFSEAFTELIDAKRSFTIIVNDGEVEKAVETVIDNVKTDTP A NP QVK G K L YP K R VLT AVVVDESMVVGCVVETI NTN QTGMP



 GAD N WE T K V V R P K V $\operatorname{M}$ K V





 GLLNPVGMKFVPKRMLVIVAKDEEVNLIVDALVKVNKTGF』



 VDF S M Y H RLIS K RMITIVVNDEDLDKTVKTIMEVNSKGNA



 GVVRDVVY DELLPKTLLLFFVIQDEDKDDLVKLIMKNAKTGEF V A D S S F D P Y MP K K RIVEIFAS DE QVDN IFS TVMMTANTYQD



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 E D K D Y N T E KLIP R R MF TVL AHDEDVSKIVAAIIEANRTDNV

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| UniRef90-D5EUE7 | GDGRIFVSDVIDTWSIRTGENGDTVLRD |
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| UniRef90-K6TKE0 | GDGKIFISPVDEAYTVRT |
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| UniRef90-C4Z4B4 | GDGKIFIKDIEGVVKIRTGE |
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| UniRef90-D3SMH4 | GDGKIFVCPL E EVWTVRTKSR |
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| UniRef90-101LP8 | GDGKIFIQEVLSSHTIRTGEHGE |
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| UniRef90-B0CD03 | GDGKIFVSPLQKVVQVRTG |
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| UniRef90-Q74BA7 | GDGKIFISTIDDVVKIRTNERGSSAl |
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| UniRef90-K4LDM2 | GDGKIFVMPVVDVIRIRTGERGEGAI |
| UniRef90-F6B3H3 | GDGKIFVSPVEEAYTISSG |
| UniRef90-B8GEW6 | GDGKIFISPVEEVYTISK |
| UniRef90_K6TYW0 | GDGKIFVTEVEEVYTVSSGR |
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| UniRef90-D9SS83 | GDGKIFVTNVVDAVRVRTGETAEKAI |
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| UniRef90-W7Y952 | GDGKIFITPVEEAYTISRG |
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| UniRef90-B3EH87 | GDGKIFISAVEEVYTISSGEQETE |
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| UniRef90_Q2Y813 | GAGKI YIIDVSGSGNISSGER |
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| UniRef90-G8M362 | GEGKIFVYDVERVIRI RTGEEGDAAV |
| UniRef90-UPIO002554CCB | GDGKIFVLPCEAACRI RTGEKNES |
| UniRef90-E6U589 | GDGKIFIIPVSRVVR!RTNETDENAL |
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| UniRef90-13C6T0 | GDGIKI YLSNVEDAFQTKTGKS |
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| UniRef90-A5N1U1 | GDGKIFVTKVTDVVRI RTGETQDEAV |
| UniRef90-A0A011PHQ3 | GDGMVGVVELVTAVRIRTGERDAAAL |
| UniRef90-F3KKM2 | GDGKVFVTSVEDALDICTKKRGTTSI |
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| UniRef90-E1R3' | GDGKIFITPVEETYTISS |
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| UniRef90-15AVA2 | GDGKIFVTPVTNADRVRTGEEGMDAL |
|  |  |

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 $M$ K LI I A Y V R P ERTLTA V K QA L Y T R Q I Y S M S V T N I L G A GRQ K






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 $M Q E \square A G V G V T V D V R G F G R H E$

 MQE I K A Y $\square$ K T RKLE S V T LALLHRLGI T GMSVVEVRGFGRS K
 GI R GVTVSDVRGLGRHA MKEDKAYワRRERADLI IQNDESAGVKGMTVIDVYALCED Q
 MY
MKEDKAYDRPE QVD DVILDALEKEGVPGMTVIDDVALARAR
 $L K L I T A I I D R P D R L G A V K K A L A E T G A P S D T V T N V S G R G G Q W$ M K A L L D A GYP A V T K V D V F GR G K Q R
 MKELI A Y I E P F MLLP K LL Q A L L D E D FP GMSV S D C E GF G EVVK MK QV VTVVSP HLLA ENVLAAARRRAP LEGLSVMEVKGYGRQK $M$ DE I R A V I R P A R L D P L R A A L R Q I E FP GM S V DKI D G C S E P G
 $M Q L V T A V V K P F A L D D V R A A L A A L G V E S A T V T E V S G F G R Q R$ $M A I V R M K K T G A T K K A L V E T G V A G F T A V K V L G R G K L I$ $M \vee K A V I R E A K L M N V L A A L I A N G F T G A T A Y R V Q G M G G E G Y W$ MKE $\square$ K A F VVRPDR LPD D VNH L REEGVCCLTVFEGEGT GHYT

MKR $\ E A T V Q V D K A G A V S D A \square K D \square V G G F T \square T E G K G R G S G K$
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 MK QI TAFIUHHVRSADVIDALRDAGYKNLSLLDIKGTEKPL
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 $K V T A I$ I DVGSLEAVERAVVQVGTFEVAVTRVKGYGHYK $V \square A I V R D D V L E P L$ E R R L A A V H V V G L T A T T V K G Y G H Y A MILI TALI RPHMEGHMVRALHDLDFPGFTFDEVRGQGRGY $M \mathrm{KLI} \mathrm{V} A \operatorname{I}$ I QPHKLEEVKAELTKNEDYRDTVSDVQGYGQQK $M K L V T A V V K Q L A L D D \| K T N L L R E G V S W I A V S A V H G R A C F Y$

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



| UniRef90＿C8W3E4 |  |
| :---: | :---: |
| UniRef90－V712P9 | GDGKIFVFDIPETYKVRTGE |
| UniRef90－S0FFL8 | GDGKI FIIPVESS $\mathrm{I}^{\text {T }}$ I I S S G |
| UniRef90－G4RK24 | GDGRIFVIPVLEAWRI R N GER |
| UniRef90－E1JSU4 | GDGRVFVIPVAEAYTIRSGDRN |
| UniRef90－D5XC10 | GDGK\FILPVEEVYT IS S GKK |
| UniRef90－V1IG22 |  |
| UniRef90－R6MED8 UniRef90 G2H9D2 |  |
| UniRef90－E6U9G9 | GDGKIFI R N I D GVVRI R T GERGVKAL |
| UniRef90－V1XUI8 |  |
| UniRef90－FOT190 |  |
| UniRef90－R5EG28 | GDGKI FVVPVYESYTIS S |
| UniRef90－Q702D5 |  |
| UniRef90－E6U588 | GDGKIFVTPVSKAYTVSSG |
| UniRef90－A6SV01 | GDG\VWMNTID Q |
| UniRef90－B9RN90 | GDGKIF |
| UniRef90－C0QKL0 | GD GVVWVMPVLES L S V V T GES G K V VL |
| UniRef90－R7FIT8 | GDGK FVYALEEATRISNGMTGEDAL |
| UniRef90＿G7WJI2 | GDGKI FVI PLKEVVRVRTGETGKEAV |
| UniRef90－M1WR39 | GDGRIFISPVSNVVRI RTGEN\IEEAM |
| UniRef90－UPI00036E456E | GDGLVVVVDI DETHRI R D G |
| UniRef90－UPIO00422E2B0 | GDGKI FVSPVDEVYTISSG |
| UniRef90－Q0W441 | GDGKI FVMPMHDAVRVRTGEAGEAA】 |
| UniRef90－UPI00040F837E | GDG\｜I Y TTElE S A YRI K T GES |
| UniRef90－B6YRI7 | GDGKIFVTPVEETYTI SRAKKD |
| UniRef90＿UPI000408EEB0 | G D GLLVWVT DVVSAKPI R |
| UniRef90－19C8K8 | GDGKI FI SSTDEVYTV S S GVA G |
| UniRef90－J3M3Q0 | GDGKIFL |
| UniRef90－TOIMV1 | GDGKI IVMPMLDAIRRVRGEAGEDAV |
| UniRef90－KOILU1 | SDGKI FVYDVAEAYDI GSKEKGDAAL |
| UniRef90－UPI0003B5DCFB | GDGKI YVLPVQRAVDI RSYEAGGAA |
| UniRef90－UPI00037D7B0B | GDGRI FVSDI RRAI RILQDGDEDTNVV |
| UniRef90－Q202M6 | GDGKIFL L PISDVI RVRTGERGEKA |
| UniRef90－W7YJX1 | GCGKI FI MPVMDVI QVRTGDTGSKAV |
| UniRef90＿D8QS61 | GDGKI FVIPVADVIRVRTGERGLQA |
| UniRef90－17A271 | GDGMI FI SPVE |
| UniRef90－UPIO0035E9AB0 | GDGKIFISAI DEVYTVSSG |
| UniRef90－K2C9J3 | GDGUVVVSPVESUYRIRTK |
| UniRef90－UPI0003B62A4D | GDGKI FVTPLDHALR $\quad$ R T GETDADAL |
| UniRef90－X1KFJ1 | GDGKI F |
| UniRef90 D9SGQ8 | GDGVLWVT DVQT F T RLLCT |
| UniRef90＿L9VG40 UniRef90 B4VJP7 | G D GK\F VISPVEEV |
| UniRef90－C6NWX0 | GDGKLWI SPMVRAIVVRT\DSDAEA |
| UniRef90＿UPIO004688189 | GAGKVYVIDVIKS GKı S T GVRKDE |
| UniRef90－M1MZS5 | GDGKI FVLPIKDSYRIRDGKS GEDVL |
| UniRef90－Q7UL18 |  |
| UniRef90－F1Z311 | G D GLI WTCRVENF |
| UniRef90－UPI0004643DB1 | GDGKIVVS G |
| UniRef90－F4D118 | GDGKVWVSRLETA |
| UniRef90－A717F1 | GDGTIVVLPVYDAVR｜VRTGETGEAA】 |
| UniRef90－A4WJN3 | GDGRIFVIPISAAlRI R T G |
| UniRef90＿M0MVG1 | GDGKVFV MPVENAAQI R NDVRGTDAV |
| UniRef90－E4TUF1 | GDGUI YI TEVSEMVKVKT L EPD DE |
| UniRef90－X8FDY0 | GDGKVWVSPVDT IVRVRTGERGPDALL |
| UniRef90－A9A4W5 | GDG【ITVSSVESALNI ASKKTGSEAL |
| UniRef90－10KNP2 | D A GWVYI SPVEQAFPI |
| UniRef90－SONJZ6 | G D G K I F V T K V V S Y NVH |
| UniRef90＿VOM1C2 |  |
| UniRef90－U6EB78 | SE K L F |
| UniRef90－F3KC01 | GDGKI FVTS L EQVIRRI RTGE $\square$ GSEA |
| UniRef90－R7HDJ3 | GDGRIFTVDLQSSYSVREGK |
| UniRef90＿A0L2X6 | $\square$ D GWVYVTP V EQALPPI G GKE |
| UniRef90－F6D4E8 | EDD MFIYPIERILRILRTSEEGEEAD |
| UniRef90－S9RZ74 | GDSAlWMTDVVQAFLHRTG |
| UniRef90－E8QZL1 | GDGKI LVLRSDAPAVIWRGE |
| UniRef90＿D5WNP6 | G D GVVAVFPVERFFRIS |
| UniRef90－A0M114 | GEGLI YVSEVLEDYKVRTGE |
| UniRef90－K8NW16 | GDGVVFTTPVRAFGR\｜R |
| UniRef90＿D3SMH5 | GDGKI FVV |
| UniRef90－13CZR9 | GKI FVSSILLRAVDIA S DEEGEST】 |
| UniRef90－14WGH3 | SHG\VAVLPVEE\YRIR DQRGAD |
| UniRef90＿UPI000347B88A | GTGIVAVFPVEDFFHI R T |
| UniRef90－Q1QF86 | GDGVIY T T PVVES GRIR |
| UniRef90－M3HS23 |  |
| UniRef90－U5WV08 | R D GELWTCCEVRTA |
| UniRef90－UPI0003B57A61 |  |
| UniRef90－LOHC18 |  |
| UniRef90－V6AV64 | GKIFVYPVLRAVD\K S GAEGQKA】 |
| UniRef90－UPI00038093E3 | K D RILLS SPIL HVISSI |
| UniRef90－UPI000360256F | S E GLVSIVPI NDLYWI H D K R S A DEA |
| UniRef90＿F3KM34 | GKI FVISPILLRAIDI GTGQEGEETI |
| UniRef90－A9AU63 | G D GVVAVVPVERFLRVRS |
| UniRef90－R4YVC3 | SEGLVCI APVKDLI WI H |
| UniRef90＿S3K7S1 | G H G \｜L F V LP IT D A Y Gl |
| UniRef90＿I1NBG0 |  |
| UniRef90＿O67025 | H S G／V VFVVS V |
| UniRef90－UPI000380E764 | GQGI SC： $\mathrm{S}^{\text {S }}$ N E D A L |
| UniRef90－A0A037Z2F0 | GNGII I I Q V V K Y G |
| UniRef90－F3KM33 | G GKI FIS S MEEVVDMET |
| UniRef90＿W4VM54 | $G N G \square I \quad \mathrm{~V} Q \overline{\mathrm{D}} \mathrm{V} \overline{\mathrm{Q}} \mathrm{T} \mathrm{Y} \mathrm{G} \square$ |



[^1]


GHTEYVVD 50 70
 YAMDLGDEVVNEYKLELLCEDGEVDEVVAAIQASARTGEA THTLFSMAI EPKEIVMILAESKTTEAIVTAI RNELHTEQP

 GYEEAAAKLYPKRVVTVVVEDERAPDVIDAIIGANQSGS







 ARRFFGITISSERELIVILTEQEKEAILDAVVRAGRLDEP







[^2]

|  | UniRef90_B0L8W4 |
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|  | UniRef90_UPI0001E2BE47 |
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|  | UniRef90-Q24PQ9 |
|  | UniRef90_A0A024PEM1 |
|  | UniRef90 E6VS26 |
|  | UniRef90 S0K763 |
|  | UniRef90-V4J486 |
|  | UniRef90-L7VNH8 |
|  | UniRef90 UPI00047CC8C5 |
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|  | UniRef90 UPI00037CC597 |
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|  | UniRef90-H1PVG0 |
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|  | UniRef90 UPIO003940134 |
|  | UniRef90-D4YE44 |
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|  | UniRef90-D3DIA9 |
|  | UniRef90-B111U8 |
|  | UniRef90- Q8PYD3 |
|  | UniRef90-E0NNJ0 |
|  | UniRef90-I3CBR0 |
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|  | UniRef90-L5N3D8 |
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|  | UniRef90-J1F891 |
|  | UniRef90-_V7IAV7 |

GNGWIFVQAVSKAY
$V A G W I T V Q E L V Q A D A H$
GNGDI FVLDVTQTYGLR


GNGDLFVEPVAEV
STG AF ALP I E H AV
K A GII I A VI PTETFMPDHTTE
GAGI I FSMAVNNA
DDSLI GVFKLTQAFMVKNSD
GKG AF V LDVERTVGI
GRGVIFVQEVNKA


GS GVVF S P V V QV
A H GI AFSMPVDGVVGワ
ARGUAFVLAVEEVTG\|VHREEG
$G T G D G F V L D V D K V V G D$
GTGVGFIVPLEKVFG
GA Gl L F Tl LDVNKV
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GKGlAFVLEVEKTVG■
GKGF $\backslash Y V T Q I E K A$
GNGMGFMLPVVRVFGD
GRGDAFVMDVEHTAG】
GMGI LWVTRLEK

lupas_21
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lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm


[^0]:    $E \square N Q Y N D D M P K$

[^1]:    lupas 21
    lupas_14
    lupas_28
    jnet
    conf
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    sol5
    jhmm
    jpssm

[^2]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
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    jpssm

