


## QUERY UniRef90_G9QLL3 UniRef90-A7WXP7 UniRef90_A0A033UL77 UniRef90_A6CLY3 UniRef90_Q81K80 UniRef90_R5Z283 UniRef90-V6F814 UniRef90-B9E9F9 UniRef90_UPI0003336907 UniRef90-G8PMX1 UniRef90_U6LMS9

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 EIF L SIP CI L G Q N G I T D I V K V N L N P E E E A L L R K S A E T L WN
 D V Y L DVYL GVPAVVNRQGI RDLYELHLTDEEKQKLHHSASVLK $D V V$ S MP A IV GKN GI E RQVP I S L D E D E QK QLLQK S A QI L K E



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| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |







D

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 $D L Y F G V P V V L G A G G V E R I L E L P L$
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 K GATSYA GLALDRIVAAILGDEGSVLNVSTLLEDYNGVS NGSAYYAPAASIVEMAEAILKDQRRVLPSIAYLEGEYGLE




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 N G S A Y Y A PA A A MV E MA E A I I I K D Q K R V L P A I



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## \section*{K} <br> T

K

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T G S A Y Y A P S A S A V E M D A I V N D R K R


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 QTKVNGK P L N QVI K



 E L H I G G S R L D QLI P N WREPED QL D QVVYN QVK NAAAYEI QR A C R I A GMP V E K F I
 Y T T I $\underset{\sim}{\text { S G Gl }}$
 Q A L L A A K P L K DVVMNPK S Y Y M E E LIE Q I S D DVVRCAA H K I I E A SA QVGGVPLLEFAEARGLSPEDRARI DEGVRRAAYRI I E G S A NVV GVVPLSNF CEMRGHHQHEMRQI AENVKNSAYE I I E K
 T A NI A GMSVQKMLE QSEDGQARMDKIVTTVRNAAYEVI AA SANVSG $\square P L N D F C E M R G H Y S H D E A E I A E E V K N A A Y E I I$ QR


## -


 NAS S GLTP I T D WEP GERFT DNEDDRI AAEVRNAAYRVI EG
 T V TVV










 AVHI S GKPLLQWMKDDTVRYGKLIDQI EEETANAGHEVI E G
 HI Q FM G Q P L D A I E K Q WG $\quad$ S L N R E DVVVEQVMNTARK I YK G








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UniRef90_M5E085 UniRef90-D9SWs0 UniRef90-R7NS51
UniRef90-H2Y5AO UniRee90-H2Y5A0
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UniRef90 R60096 UniRef90-R6QQ96
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UniRef90 ${ }^{-}$D7WSG UniRef90 E1QGP1 UniRe90_-E1QGP1
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 GLAA GVPAVLSQNGVKEIISLKLNEQEQQAFDHSAAVIKE DMSLSLPTLINSNGIKNVLELPLSEAEEKAFKDSAQHLKD DVYMAAPALVGWEGVRSII NVKLSEEEEEGLRKSAKALDD KIYAGTPAII NQSGVKSLIELSLTDTEMKKLQESCDALED DVCLSLPCVLNASGVNNIVQVNLNKSEKAALNKSATLIAK NLYMGVPCVVDRTGVVRIIDLPLTDDELLTLHRSAAELRE QVFLSVPCVVGENGITDVI QQTLTEGERNQLQKSAATLNE GLYUGVPAVVNREGIREVIRGKLNEVDQAKFDSSCRTLKE DVTDGVPAIVNRDGIKDILELNLNEDEDAKFKNSCETLRE

D DVALGIPATVDRSGVNRVIELALLDEHEKERFENSLINT:KE NVAIGVPAVLAQNGVQQI I ELQLEGEEQAKFQHSVAVI KA DVFLSLPAQLGRGGVLGVTNVHLTDEEAQRLRKSAQTILK
 DIYMGTPAVINRGGLKHIIELPLNETEQAAMSKSGKELKD
 DVSMGVPCVIGVKGVERHLEVPLDDWEQEHLDATDTAI QE


 DI Y GVPTVLGANGVERTLELKLTDEEKAQLKRSAEAVEG NIYFGVPVILGRNGVERVI QLGQNDAEMELVVKSAASVKE DVFLSVPGILGQNGISDLVKVTLTPEEEACLKKSADTLWG DVCLSHPSVVGASGLERQLHVPMSEEEAGLRASAEELRA EVSLSLPRILGAGGVEGTVYPSLSPEEREALRRSAELLKE GLALSMPAIVGAEGVETHVP VLSSEGEQESLRRSAEALSR GVYIGVPTVVNRQGAVRLIDLQLSDDEAERFARSAELLKS GVVLSMPCIVGSEGI ETQVPDKLDEDELKRLRDSAGLLKG DVYLSLPAVVNRGGLRRVVDLDLDEREREQFVESGEMLKE DICMGVPVVLGRNGWEKIINLRLSDAEKAAFEKSAEAVRS DVVIGVPCRLGFGGMENILELNLSDSEQEALHISSAQSVRK GI ALSVPCVLGSGGVQRVLHVEMDAGEQAAFLRSAEAMQA DLY GSPAVVNKAGVKQLIEDPDTDGEKDRMAASAEQLSN GVALSVPCIVSGSGAAPVASTPFSDAEDAQFRASAEALRA DVFLSLPCVVNRNGVDKVLLPPLLPAEKGALRNSAEVIKS NMFLSVPTII NKNGAKEIVEIKLADEERALLQKSAEVVQ ETCTGVPAIITRDGVKEIVELSLTEAEESQFAQSNDILRD DI YAGVPVVLNREGVFDVLEMHMTSEEQAQFAHSAEVIR DICCGVPVILGRNGIEKIVELPLNDTEKEAFKASAAAVRK NVYIGVPCVINRNGIREIMELELDEEEQQKFENSANLLKT DTAFSLPTIVGRRGRVKVLDIPLAPEEQQALCYSAGLLK
 NLYLGVPTILGGNGAESVIELHMTNEEQAALQHSAEAVKQ DLYAGVPDI GKNGVEKVIELQLTTNEQALEDKSVDGVRK GVYASVPCVLGAAGVEEV1 ELTLSRDEAEGFAKSCALIRE GVYVGVPVVLGRKGVERVVEVELTPAERSAFQTSVRAVRE DVYAGVPCILNRFGVKDVVEVNMTEVELNQFRASVHVVRE HVFASVPCVIDSSGVFAVVNLDFSPSEKQSGMASVDTLQA DI CLGVPVVIGKNGWEEIIDYKGNEEEQAAFNKSADAVRN D CLGVPIKLGQNGVEEVLELNLSQEEQKQLDTSALSVVKS DVCLAVPTVTSRTGAGKVLCPPLTMKERDGMTASAERLRQ DLFIGVPVKLGAGGVEEV
 DVCAGVPVVIGKDGIEKVIVELQLTEEEQKLFASSCKKIKD
 DVYLSLPVVLGSAGLTHVVKQQLTEAEVQKLHNSAKALLE胃 DLYVGVPVKLGKGGVLDVVEIKLTADEKAALDNSAGAVQK DVAFSMPCIVGRNGVEKQLEVSLDEQETEWLHKSAKYUQE DIVNGVPVMI GKDGAEKVIVETLDPCEKELFKKSVGAVKE


| UniRef90_Q1Q6E9 | L |
| :---: | :---: |
| UniRef90-Q92BI0 | N |
| UniRef90-M5E085 | N 1 |
| UniRef90-D9SWS0 | $\square$ |
| UniRef90_R7NS51 |  |
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| UniRef90-UPI00041D10FF | V E AL |
| UniRef90_E9FTK7 | $\checkmark$ Q |
| UniRef90-R6UPZ4 |  |
| UniRef90-S3Y9C8 | 1 Q E |
| UniRef90-R6QQ96 |  |
| UniRef90-F8C2V5 | L I S L |
| UniRef90-Q0EXT4 |  |
| UniRef90-UPI0002F90DBE | $V$ LD D A |
| UniRef90-W8ZM88 |  |
| UniRef90-Q8RED8 | Y I E V G |
| UniRef90_B9DN51 |  |
| UniRef90_A0A031FVS4 | $\checkmark \mathrm{A}$ |
| UniRef90-UPI0003768D30 | GIEEL |
| UniRef90_UPI0004692231 |  |
| UniRef90-A7LBQ0 | V Q |
| UniRef90-A0A023X3H2 | L VNV |
| UniRef90_C3PK93 |  |
| UniRef90-D2NTC0 |  |
| UniRef90-C9Y4G3 | $\mathrm{N} \ \mathrm{~A}$ |
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| UniRef90_U5GJ57 | V Q S |
| UniRef90-A6M329 |  |
| UniRef90-UPI000363AC4E | L H K A A |
| UniRef90-J3JB36 | L A D R A |
| UniRef90-S5YW44 |  |
| UniRef90-G4VV59 | VQS |
| UniRef90-M9VB37 | T $\square$ A A A |
| UniRef90-JON284 |  |
| UniRef90-B1SFC3 |  |
| UniRef90_K9SM66 |  |
| UniRef90-H1XY26 |  |
| UniRef90-UPI00036EFE24 |  |
| UniRef90-E8SJY3 | V K A |
| UniRef90_UPI00037E44DD | TMNV |
| UniRef90-UPI000273D135 | Q |
| UniRef90-UPI0003B7A005 | V |
| UniRef90-D4L5E6 | N |
| UniRef90-P62055 |  |
| UniRef90_R5CQ58 | V |
| UniRef90-K8GHC2 | N |
| UniRef90-C6M477 | Y |
| UniRef90_V2XQQ9 |  |
| UniRef90_UPI000363A05A | T |
| UniRef90-F7PG43 |  |
| UniRef90_C6W2U7 | M NA |
| UniRef90-K9QZ17 | N |
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| UniRef90_UPI00041677F3 |  |
| UniRef90-D9RXX0 | Y $\square$ D |
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| UniRef90_UPI00037C2B93 | Y M K $\square$ |
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| UniRef90-B114V7 | A Q |
| UniRef90-E4RY73 | M N A |
| UniRef90_E0MSG5 |  |
| UniRef90-B1HUX3 | $\checkmark \mathrm{l}$ A 1 |
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| UniRef90-T1BW93 | D L A |
| UniRef90-A9KMQ0 | A I E |
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| UniRef90-L7WTH7 | V K E |
| UniRef90-DOYRP9 |  |
| UniRef90-W7CGK6 | 1 |
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| UniRef90-U4TJK7 | N L A |
| UniRef90_R7PT17 | G1 T $\square$ A |
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| UniRef90-H4GJA7 |  |
| UniRef90_Q27888 | $\checkmark$ Q |
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| UniRef90_D7WSG0 | T $\mathrm{L}^{\text {A }}$ |
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| UniRef90-M1N1H6 |  |
| UniRef90-B9L519 | MVD |
| UniRef90_R7WSC2 | Q E |
| UniRef90-E3FMQ6 |  |



|  |  |
| :---: | :---: |
| UniRe |  |
| Ref90 O5C | VGGVPLSSFIUKQGLIT TEQDDEIVCHTRTA WKEVADK |
| UniRef90 UPI000468 <br> UniRef90 IOGPL |  |
|  | SATIGGKSVEDVLKDNRTK |
| iRee90-UPIO | HSTIFGQKLEDYYQHEQ S |
| UniRet90-S2W | MAS ${ }^{\text {S }}$ |
| UniRef90_B1QZB4 | TVSVGGK |
| UniRef90-UPI00024857E2 | AGSVAGVRLSTRLRETDGG |
| UniRef90-G5APD9 | GVNIAGIFLKNLHPKDGDDKE |
| UniRet90-W8KJL4 | SAKVGGLNLFEQVNGRQFDAQ |
| Unireto-r | SANVG |
|  | Q |
| UniRef90-R2S2 | D |
| UniRet90-U6NK | GVN A GVS A QVAQAVGAPKGREQWQHKKVVGSAYEIIKM |
| UniRet90-UPIO0037A71C5 | GMM |
| UniRef90-U6HNF1 | RVSVGGVNLSTVYPKFDGDPNNFKAVHKDV |
| UniRef90-K7T117 | AGVPLSDVL SQEETDEIVQRTRKGG |
| UniReef90-UP1000382CFF9 | SGUSUTDLM SSEQUDRLVDRT |
| UniRef90-B8 | LTNVAGVNFDDYCGKDCCTKEFRKDTYNKVKNAAYDI ER |
| UniRef90-U5Q2988 | NLR R |
| UniRet90-R6RY43 | SAMVGGFPLEDYARQVGVS LDKKEIAE |
| UniRet90-G3N7X2 | GANVAGVNFQSLNPDIGTDG DKVFGERTHNAYEV |
| UniRet90-G3SEE6 | NVAGVSLK |
| UniRef90-B0 | GGARL |
|  | A |
| UniRet90-Q4 | YCCVNGTPLCDFTKKGATTEKEDSKTVEKTKNTS |
| Unif | N |
|  | NGLP EPPGCPGFQNQ R FRTRGSGAEVIKR |
| UniRet90_V4J8G5 |  |
| iRef90-O2R | LANVAGVDLEEFYLMDGMREEERVEISHQVREAAYEII I ER |
| UniRef90-UPIO00299E | KVNGLDL |
| UniRef90-F2BW8 | SVAGKPI DELLQS R R ${ }^{\text {a }}$ |
| UniRef90 UPI |  |
| UniRef90 A8UUM7 | MSNVGGI PLKDLIPRD K KLIELTQRTRFGGGEIVEIL |
| UniRet90-R5EY2 | TVSIGGLRLNDLHNYFPEVKLDRELI HKQVVKTAYEVMDA |
|  | GGKP DH DRQHQFAHVDDEDER |
| UniRef90-E6NB57 | HTYVGT |
| UniRef90 B4LT74 | GVTVGGIALLLRLLPNRDQDEEKWQKVHEDVVKAGSSVSKI |
| UniRet90-W1P5V6 | SVSVGGVGIVGLVKGE DAVLEEMRERVVKSAYEV |
| UniRet90-NoDYP7 | SAAI GGVPLTSWEQQGRDGPARRDETAHQVVNAAYEV |
| UniRet90_U2EE |  |
|  | QVNGVPI TELL |
| UniRef90-P4766 | SAKI AGLSLKHFSKASD ${ }^{\text {GKK }}$ |
| UniReteo-HzVB8 | GVNAGVPK |
| UniRef90-14BD07 | SVSVGGVPAHRFLRDGVFDDAARSRISSEVVNAAYEI |
| UniRef90-F4LJS3 | LCNISTVPIDSFAEDKLFPPLVHEEVENYVRKSGGR1 |
| UniRef90_K2BJW8 |  |
|  | DYA ${ }^{\text {a }}$ |
| Unip |  |
| UniRet90 UPI00021A707C | GUNVAGVQFRDILPNUETDEERWFES |
|  |  |
|  | 國 GGRTVDHVGRPFDAAAMQAL |
|  | NVAGVQFRDVLPNMSTDDEK |
| Unir | SAWVGGRPLRQWPGWTRERE APM |
|  | K |
| UniRef90-X0PAN5 | GRPLRMVAMEKNDSDDDDAQTEVDVRRKGGQ |
| UniRet90_J6UAYO | LICNVCGLEVDTFCRLINGHAPLDRAAVRGRVLIUGLDI FAG |
| UniRef90-F4GKF88 | GAS AGIPLKDYARQAGDDLAAEAPQ1EDVKTAGAQVISQ |
| UniRef90-Q1NK13 | LANLAGVPVTELL DAETIAGIVHRTQHGGAEIVNK |
| UniRet90-W0DG07 | R ${ }^{\text {T }}$ |
|  | R |
| UniRef90-Q078 | KVRVDGT |
| G9 | SAF |
|  | R |
| UniRet90_R4KCT2 |  |
|  | DAQI SGVPIHEWDGESVFTGEVLDDLAHEAAFAAYKIIEG |
|  | STNUGGVPVEKLIPAER |
| UniRef90-W0EUD1 | HATWGSTPVTNFLS DEQQAKIVADTMVGGATLTKLI |
| UniRef90-E1QU | G |
| UnRef90-E3C950 | TVRVLDQP TEELAKQKGLDLLDQLDQEAKM |
|  |  |
| t90 | EFVD VSDEELAEMQSGVKKKGGT |
|  | MVKKE |
| UniRef90_U1LL12 | VYGKSMKQLLEENEYRQEDLDA YQGVRDAA |
|  | 1 |
| UniRet90-U | PLSEY SALSADSLAEI EESVKKKGGQIIGL |
| UniRet90 | TVAGTPVTELI |
| UniRef90-UPIO0037E | MSNIAGVSLNKLVEEGKDSQARLEEIVDRTRKGGGE |
|  |  |
|  |  |
| UniRef90 W9XN15 | A |
|  |  |

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UniRef90_E8SFF7 UniRef90_R4KCT2 UniRef90_Q8TWG5 UniRef90_U7JFB8 UniRef90-S0EUS2 UniRef90-E1QUL2 UniRef90-E3C950 UniRef90_H3RRM9 UniRef90_D1J8E6 UniRef90_U1LL12 UniRef90_A0RXX8 UniRef90_UPI000248FF3F UniRef90_F4L543 UniRef90_UPI00037EE0FB UniRef90_B3T2X7 UniRef90-IOHN84 UniRef90_W9XNI5 UniRef90_H2BY90

K GCTEYAVANSAARVCAAVL|HNEHAVLISASTLLMCGQYGEE TGTAYFAPAAAAVKMAEAYLKDKKAVVPCSAFCSNHYGVK GTSA WY APGASVVYLVDS IL N D QK KMI A CSVVFLE GEYGQS K G WTN T GDAMGACRLAKAVLIDEHAVLDVSTPFNGEYGLN K GNTCYGI A A ATTAI VK SILLFNENRIVPVSVHLDGKYGMN




 K G WT N S GII A M GACRLLAK A V L WN ERRCDMPV S TVLE GE Y GLLS





 K GATFYGDAMAVSTIVEAIVKDDSAI LDPVHVLDESF GWA

 K G A T F Y A V S A S VN K I L G A L V A A Y D S V ATVVS SMMH GE Y G I E



 K




 K G WS H H A P GA GVVAVMVEA L K D D Q K S I DP T S T L L T GQQY GE K
 K GYTSWAI GYSVVGL A GTLLRDQRKIQPVSVVAKGFHGDE K GATNYAVGLAVARIVESI RRDENRVLPI STLLQDWHGIT KKATY L GGIGMALMRIITKAIVDNENSILLTVSVNPN GEFSMN






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K K GATF Y GVVA $\square$ SLMRLSKAI LYNQNVVMPVSAPLTGQYGLK K GNTNHGIAASVFRIVRAIAGNEHSVLPVGAMLEGEYGVE K GATFYGIALNTAKIVAAIMMNDNAILDVGHVLKEVYGIIK T GS A F Y T P GL A AVEMAEAVIT DSKRVVMCAA WL E GEF GI A
 TGGAYYAPASAASVMI ESILRRDQSRLLPTAAYLQGEYGLN

 WG GS QF GPA QA I T N L V R TI L Q D E R R V L T V S A Y L D GE D G I R
 GTSSA WY A P G A GTAA A M V V
 KKYTS YGVVATAAVRLVNTILSDALTEMPVSNYRKEY
K GATF Y GVVAMCDTQUCKAILENKALVMPL SAPMTEEYGDH

 K SAAYYA A GLGGLLIVRAIVRNENSVVTIGAHLDGEYGAS K GATVVHAPGNSGISAMVESIVRDKKQVIPVSAYLEGEYGHS
 MGTS A WYAPGAAAQMVEALVKDENDIPFPCCVNLSGQYGLLH TGSAYY APATSGDQMAESYLFDKGMVLPCATKVKK GTYDE



130
140
150
160
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UniRef90_D1J8E6 UniRef90_U1LLL12 UniRef90_A0RXX8 UniRef90_UPI000248FF3F UniRef90_F4L543 UniRef90_UPI00037EE0FB UniRef90_B3T2X7 UniRef90-10HN84 UniRef90_W9XNI5 UniRef90_H2BY90
UniRef90_Q74I27


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

 D I F L S V P T I I

 P V Y I G TP A V I N R S G V R E P V D I F L S S P C V L G Q N S I S D IVV KV T L T S K E EAA H LIK K NA D T M WA D V C L S V P C I V G R D GI I E S R V A P L

 D L Y i G D V GI I F F G V V P V E I F $\quad \mathrm{F}$ L S I P P C I L G Q N G I T
 GMAVSLPCRI GWE GDEACLRIPMNEEEQKAMDASIKDLQE E V $V$ F L



 DVCYSVPTVVGRTGVTDQVEMKLWPKEQTGLQQSARALKE
 E V A M S S L P P C V A R D GVVGR K L V P D S Y V





## 


D L GVP TVLGK Q GVVERVI ELKLSESSEQEQL DLSADAVMK N LY SGVP T Li
 GVALSLPTVVSARGAGEVLEVPLSEAEVQGLRASASALRN D V C L S T L S L V G R D G I G G K L I L P M S D T E V A S L K K S A D S L K D
 DVCMAAPTIVGRSGAGRVLNPPLTLNERDGLTASATRRLRQ



 $G V Y F S Y P V V V G R D G D I D E D V P L G L T D E E K N K L Q A S A D F I K K$ LGWPAVVNKNGWSKPLKLELNAEERRKFNKSAKEMKK
 GAVMSVPCVI GRGGLQRIVAYRFDAEEQADFEASHABVRE $D V V I S V P C V I N E G G I V R A L E \square P L A P E E L S A L R K S A D M L K$
 GYVPCFLGCRGVKKILELKLSDAEQEALHZSANSVRK TAFGVPVRLGSNGVEEIVEWDLDDYEQDLMADAAEKL

 NVALSSMPCDI S S E G ISSK KLEVVPLTKDEVDMLIKYSANNI GK DVCI GVPARLGREGVLE IVVPI ELEEDEMRAFRRSVKVVKE



 DLYLGTPA A SV NRTGURYVIE TPDLSEREVAAMQHSAAKMKE



D S GV P A V I G K N GVVEKIN ELDDLNQ
DLVMSSVPCVVGRGGVQRILHHEFTPEEDTQFRASEQHLRBH


| UniRef90_R7D848 | $\mathrm{N} \square \mathrm{A}$ |
| :---: | :---: |
| UniRef90-Q5CIJ0 |  |
| UniRef90-UPIO004681786 | M N A |
| UniRef90-IOGPL5 | VM |
| UniRef90_R7GJS6 |  |
| UniRef90-UPI000473A96F | A $\square$ S |
| UniRef90-S2W838 |  |
| UniRef90-B1QZB4 |  |
| UniRef90_UPI00024857E2 | VMR D A |
| UniRef90-G5APD9 | 1 Q |
| UniRef90-W8KJL4 |  |
| UniRef90-R5QCV7 | 1 |
| UniRef90_UPI0003623161 |  |
| UniRef90-R2S2X0 |  |
| UniRef90-U6NKC6 | VQ S |
| UniRef90-UPI00037A71C5 |  |
| UniRef90-U6HNF1 | T TS V |
| UniRef90-K7T117 | LTD T |
| UniRef90_UPI000382CFF9 | M I D |
| UniRef90-UPI000359475C | V Q |
| UniRef90-B8CYJ4 |  |
| UniRef90_U5Q298 | TNDV |
| UniRef90-R6RY43 | LWA |
| UniRef90-G3N7X2 | 1 Q |
| UniRef90-G3SEE6 |  |
| UniRef90-B0JP45 | LID |
| UniRef90-R5ECL1 | V I A |
| UniRef90-Q4XW35 |  |
| UniRef90-A0A016RXR0 | V Q |
| UniRef90-UPI00036CF85A | TMA |
| UniRef90_V4J8G5 | L |
| UniRef90-U1PEM3 |  |
| UniRef90-Q2RHG3 | L 1 A |
| UniRef90-UPI000299ED7D |  |
| UniRef90-F2BW87 |  |
| UniRef90-UPI0003B61310 | L |
| UniRef90-R6VA23 |  |
| UniRef90-A8UUM7 | SV |
| UniRef90-R5EY25 |  |
| UniRef90_UPI00036AB099 |  |
| UniRef90-E6NB57 |  |
| UniRef90-B4LT74 | A Q |
| UniRef90-E8MJ15 |  |
| UniRef90-W1P5V6 | V Q |
| UniRef90-N0DYP7 |  |
| UniRef90-U2EEC1 |  |
| UniRef90-D3QES4 | V K |
| UniRef90-P47698 | $\mathrm{N} \square \mathrm{K} \square \mathrm{L}$ |
| UniRef90-H3VBB8 | A Q D |
| UniRef90_UPI0001DEA924 |  |
| UniRef90-14BD07 | A Q D |
| UniRef90-F4LJS3 | V I S |
| UniRef90-K2BJW8 |  |
| UniRef90-K9F0K0 | NFEKA |
| UniRef90-K0YP12 |  |
| UniRef90_UPI00021A707C | V Q |
| UniRef90-R6IS26 |  |
| UniRef90_UPI00037EFD07 |  |
| UniRef90-K7J615 | V Q |
| UniRef90-W0RFP7 | R S 1 |
| UniRef90-UPIOOO2197179 | N |
| UniRef90-G4ELI8 | VFDEA |
| UniRef90-XOPAN5 | 1 VMAA |
| UniRef90-J6UAY0 | L L A L A |
| UniRef90-F4GKF8 |  |
| UniRef90-Q1NK13 | Q M A |
| UniRef90-W0DG07 | NLK |
| UniRef90-B1WZP8 | NV H F A |
| UniRef90_Q07841 |  |
| UniRef90-G9XCW0 |  |
| UniRef90-E8SFF7 | A 1 A T A |
| UniRef90-R4KCT2 |  |
| UniRef90-Q8TWG5 |  |
| UniRef90-U7JFB8 |  |
| UniRef90-S0EUS2 | L VE |
| UniRef90-W0EUD1 | M ${ }^{\text {D }}$ V |
| UniRef90-E1QUL2 | N |
| UniRef90-E3C950 |  |
| UniRef90-P62053 | V |
| UniRef90-H3RRM9 | V |
| UniRef90-D1J8E6 |  |
| UniRef90-U1LL12 | A $\square$ D |
| UniRef90-A0RXX8 |  |
| UniRef90-R6TAG9 | $\mathrm{V} \square \mathrm{A}$ |
| UniRef90_UPI000248FF3F |  |
| UniRef90-F4L543 | V M D V |
| UniRef90-UPI00037EE0FB | L N EAA |
| UniRef90-B3T2X7 | A L A |
| UniRef90-IOHN84 | L L A L A |
| UniRef90-W9XNI5 | YıA EA |
| UniRef90-H2BY90 | T NDL |
| UniRef90_Q74I27 | H $\square$ A |


UniRef90_C2BGR3
 UniRef90-F9VGZ5
UniRef90-UPIOOO287B76C UniRef90_UPI000469F9F3 UniRef90-K8EP077 UniRef90-ToUA77 UniRef90_UPIO0047A04F8 UniRef90-D7GE39 UniRef90-A0A014M1K6 UniRef90-Q2GCH6 UniRef90'UPI0003B2F951 UniRef90-R6H8B8 UniRef90-LODB95 UniRef90-G2E592
UniRef90 R7YWH UniRef90-10AFL4
UniRef90-J9ZA78
UniRef90-S2JRE9
UniRef90_UPIOOO29AE761
UniRef90-H1Y6F1
UniRef90-A7HM89 UniRef90-D6S5K8 UniRef90-F1ZAR8
UniRef90
F9MQB5
UniRef90-R5R5F1
UniRef90-G9YIX6
UniRef90-E3RDY9
UniRef90-E4T9W0
UniRef90-A5K221
UniRef90_J3MAJ2
UniRef90_O60176
UniRef90-E4PKJ8
UniRef90_R6J3D1
UniRef90-R7F6B4
UniRef90-Q979N9
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UniRef90
U5J7Z3
UniRef90-U1NNZ6
UniRef90_S4NFZ9
UniRef90-D4KGD5
UniRef90-UPlooo2557E87
UniRet90_N6VFJ8 UniRef90-U1M8V5 UniRef90-KOYMP4 UniRef90-H4GK94 UniRef90-Q4A5V1
UniRef9O-Q4YCR7 UniRef90-R4PZ53 UniRef90-H1 HTII UniRef90-UPIOOO475C1BD UniRef90-K9SD79 UniRef90-B4LKK2 UniRef90-R5TEN3 UniRef90-F7MKS5 UniRef90-E4BL85 UniRef90-F2L5P1
UniRef90-UPI0004002BD6 UniRef90-R5QVJ9 UniRef90-F6GJV2 UniRef90-UPIOOO372670D UniRef90_UPIOOO3B431AB UniRef90_UPIOOO468234C UniRef90_P50933 UniRef90-W8RXW5 UniRef90-H3RSD5 UniRef90-N6TP62 UniRef90-U6EEN7
UniRet90-UPIO002197410 UniRef90_UPI00036FB93B UniRef90-F6D4D4 UniRef90-O2GK85 UniRef90-D3LTV8 UniRef90-H7F808 UniRef90-UP100035D2DF5 UniRef90-G2D928 UniRef90-D4KE67 UniRef90-K2MA01 UniRef90-UPIO00249100E UniRef90 G5H864 UniRef90-O7UVK8 UniRef90-D2QXB3 UniRet90-C5R9J2 UniRef90-UP10003661EA7 UniRef90-O52354 UniRef90-W4Q0W6 UniRef90_M5U157
UniRef9__R7KBEE

50
60 70

80
NIIFIUNNTTFEEYLKQNPAS FSRDDVENLVRERAWRVDDG LASYRGVPVTEFL SADRLNQVAEDTKVGGATLTKLL HTTVGGKPVLEFIQNNRLEVADLQQLSDKVKNAAYEVTR ESIVANKPLRDYLE GGNDDVLNEIETDVRKKGGKIISN RVSI EGFKADE LAFKGSNSLSYKNI QGAVVKTAYDVLNA

 HSTVSGMSHPELVSVGLITKDKVDSDIERTRSGGAEVVAL AANVSGDAINDFFRDRGUENATRASVEESVRNSAYEIDEK AA AAGGMPLDKFPGWNANTADALEFKRTKGSGAEVI KK SVS GGVPD EQAVS DGUDDRAATAEDTKNKATAALMES
 AATIGGQPLTSFPEYQSTDK KAVSK VSGKAMEIIRL TVEVKGHPITKMAQELALLD LDELDQQARRGGWLVFYG



 KATRNGVPVSEF L



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


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



 QVCIA TKPVLDVIA NGVYKKEELEKIDVDVRTAADKIIAA



 SANAGGVQDEEFAEKKPFTPELKAKI DDCVRNAAYQI DDG $\square G K A A R N S V K V S E F L S E E R M D Q V V Q D T K D G G A T L T G L$


 $T V R V L G K Q V L D L V D E R H L D L T D M E E R A \quad R Q G G Y M V Y K G$ I S S PC QVLI ALLH WVAVAIDDPENWKDIHK QVIMSAYDVIGLL








 SAA I GSLD L EKFPGWTPALANQQL FTRTRGSGAEVDKR
 $D D P L S D L N D E V R \square G G Y T V Y H G$




UniRef90_C2BGR3
UniRef90_C7M7P0
UniRef90_F9VGZ5
UniRef90_UPI000287B76C
UniRef90_UPI000469F9F3
UniRef90_K8EP07
UniRef90_T0UA77
UniRef90_UPI00047A04F8
UniRef90_D7GE39
UniRef90_A0A014M1K6
UniRef90_Q2GCH6

K G H T Q C GllGNTVCSMIIDA\|VNDRKKVILVATLMEGMYGLD LGTS WYAPGAAVSALVQAI ACDQKKL FPCSVLLEGEYGQK KKATYY GDGMSTARIVVAALLNNEQAVLPVSAYLEGGQYGEE KHYTNWAI ATCAVKL SQAVLADARAAYICSSCYSEKY K GATFY GVVAMLDTQIVSAILANCSDEDPLSAPINGEYGDK
 K G S TH Y G A A S S L A R T T R S I L K D E H A V L P V S V H L E G Q Y Q A T K GATNYAVGLAVTNILESILVEERRVLAVS GLLHEFRGME K G S T N Y A I G L S G S F L L D Q L L S A T P S ML P V S S I L D D Y Y G $\square$ S


 K GGAGFAVGLS R DVVVHAVALDDQKRVLDVVSVVNGTY EMR RKNSSAAPGAAVAAMVDAIVNNRRRLLPCVALLEGEYGEA K GATAF GDGGVAAS I CK SILEDQKNI RPISHYREDL



 KGATNLADGAVTARLI S S MWRNEKRVWT ITSVLVD
 K G A T WY GI G A GLA R I V Q A I R D D Q R A V L T V S V R T P H V E G I E
 K GATF Y A V S VSVCKLVS ILLSASDSITTVVSSMLHGEY G DE
 $K G A T N Y G I G G V A A S I C K S V L F D E K I I R P V S C W Q E G L$ LGTS WYA PGAAVSTIVQALACDQKKMIPCSVMLNGEYEQN
 K GYTS WA





 K K Y TN Y GVA TAAVRLANTVVSDARTELAVSNYREELL

 K GYTNWAI GLTVVADVVSAI FEDSHRVLTLSTNVQGFCAVD


 K S S A A F A PA A S K GYTS FADATCAVKLSEAVFANARLACPVSAYSAA F K K A T Y Y GI G I A L T R L T K A L LG DE S S V Q TVV VVY LR G E Y K Q N K GCTN S GIA MVAC R I A R A V F Y N E N S I F P V S T T L S G E Y G L S
 K G N T C Y Gl G M C L T R I TTNAI L N N E S S I DTV S TYD S T M
 K GWTSSGGISKAAVSLARAMLLDQRSIHPVCTLADGVMGFH RGFSSWGPGAGVALMAKAVKRDERRALIVSVVLKGEYGVT
 LG T S WY A PGAA V S A MVVQA I A CDT K K I FP CS ALLLD GEF GLLN


 K GA T WY GI G G GLLAR V G A I A G D E Q A V L S V S TVVEAEVVLGVV K K Y T N Y GVVATAAVRLTNALLSDARTEMPVSNYHEEY


 HAEY





 K GYTNFAVATCAVKLAMAVFSDAKVACPVVAYSDA Y LGTSA WYAPGAAAAYVESIIRDQKKVIVVCTALDGEYGQK
 K GYT S Y A I ATC GVVKLAQAVLESNAHFF GPVVTVVE EV
 K K FTSYGGIASAASRLTKAILTDSHEELPVSNFRPEY T GS A YYA PSAAAARMAKA V A E D S GA VVMPV CA WVVD GE Y GDE K K A T Y F G I A E SMSLIT R A Y I Y NLLN TV LGGVGVQLD D K Y VA S


|  |  |
| :---: | :---: |
| UniRef90 C2BGR3 UniRef90 C7M7P | DVY｜LSTPCVLGKDGMEKAIVELKKL |
| UniRef90－F9VGz5 | Glı TGVPSVVNQTGVREI |
| UniRef90 UP | GTYVGQPAIIGKHGVEEVTTLPLT |
| UniRet90－UPI000469F9F3 | HDYLGTPAVI DGNGI SHVI |
| UniRef90－K8EP07 | RVAFSLPCI GKNG｜EEQLELLPLDKDETEALKHSVAA |
| UniRef90－TouA ${ }^{\text {a }}$ | DVCMSSPPVNSQG |
| UniRef90－D7GE39 |  |
| UniRef90－A0A014M1K6 | GVNIGVPAVLGANG\｜EKTI EITLNDKEKEKFAKSVEIVDT |
| UniRef90－Q2 | DIFSGIPVIMGSGGVERVIELDLT |
| UniReef90 UPIIOOO3B2F951 | NVYLSVPT L NGSGAKETVELRL |
| UniRef90＿R6H8B8 | DVVMSLPALVGSKGVEFPIPLQL |
| UniRef90－LODB95 | GRGGV |
| G2E5 | MGVPCVLGEKGVESVELCE |
| UniRet90 RTYWH4 |  |
| UniRef90－J9Z | GVFSGVPVQI GN |
| UniRef90＿s2JP | GVTLSMPAKI GWEGUQQVYDVPLSEEEEER Q A S ADAL |
| UniRet90 UPIO0029AE761 | QHY GYPAV GRQGLIELNPLKLTA |
| H1Y | K |
| 俍ef90－A7HM89 | PSVGKSG |
| 俍et90＿D6S5K8 | PAVINAN |
| UniRef90－F1ZAR8 | A |
| F9MQ | K |
| UniRet90＿R5 | GPNGI QGKVPMRL |
| UniRef90－G9Y1X | NVVAGVPCVLGKNGI |
| UniRer9o－E3RDY9 |  |
| ef90－E4T9W0 |  |
| iRef90－A5K221 | DLYVGTTA I NSSGA KPIEFALTQEEQQLYDKSDAFVRE |
| UniRef90＿J3MAJ2 | ELFLSLPARLGRAGVLSVAELVLTDEEERRLRISAETLW |
| UniRef90－ 600176 | K |
|  | DVCLSLPAVVGRNG |
| UniRef90＿R6J3D1 |  |
| UniRef90 R7F6B4 | DLCIGVPCKLGRNGIEK VELKLNEEEQAAFDKSAAAVHK |
| UniRet90＿－2979N9 |  |
| UniRet90－H0A805 |  |
| UniRef90＿E8SH74 | SEQGVEQM |
| UniRef90＿M5J7Z3 | YVGYPAI GADGVEEVIPLELTAAEDAEFRKSAQLIKE |
| UniRef90 U1NNZ6 | ETAFGVPVKLGADGVERVI EWELDA |
| UniRe90－S4NFZ9 |  |
| UniRef90 4 KGD 5 |  |
| UniRet90－UP1000255 |  |
| UniRef90 N6VFJ8 | EVYMSVCVVA |
| UniRef90 U1M8V5 |  |
| UniRet90 K0YMP4 | $\mathrm{NG}$ |
| UniRef90－H4G | S |
| UniRet90＿Q4A5V1 | GI Y 1 STPVIVGKNGYEYLVKPNFNNNELIKQFEASTSHMAK |
| UniRet90－Q4YCR7 | DLYAGSTAIINKTGAHPI EFILTEEEQACYQKSINNIRE |
| UniRef90＿－24PZ53 | GTYVGQPA GKDGVESVTTLALIADEQAKFRNSADTI |
| UniRet90－H1PTII |  |
| UniRef90－UP10004 |  |
| K9SD | DLFMGVPVQLGQEGI DMVVELNLSKAELNALHTSAKSVRE |
| UniRef90 B4LKK2 |  |
| UniRet90－R5TEN3 | DVYISLPCVINEEGI KEKI FVTLNENETYKLQNSDNII K |
| UniRef90－Q3ZZJ7 | NIVLGVPVKLGKGGIKElI TLPLDGQENARLQASAEMVKV |
| FMK5 |  |
| E4BL85 |  |
| iRef90＿F2L5P1 | VPVEVPVVLGRGGAVKVLEVELGAEEKAKFAQSVEAI RK |
| UniRef90－UPIO004002BD6 | NVALSMPCIGVNGVEKRLPVSLNAWEEAKLHESAAYI QK |
| UniRet90－R5Q | N｜CSSYPCVGKRG｜QGELYPDFSESEHRDLALSASVVKK |
| UniRet90－FGGJV2 | DV ${ }^{\text {a }}$ ， |
| UniRee90－UP1000372670D | － |
| UniRef90 UPIO000468234C | NGSGIAGVIETALSHEEVAKMQESATKMQE |
| UniRef90－P50933 |  |
| UniRef90－W8RXW5 | － |
| UniRef90－H3RSL | AVVGRDGVVEQLHDDLTAAEKEKLATSAKYıKD |
| UniRef90－N6TP | QVFLSVPAVLGENGISLIVKQRLTPEENQSLLKSASVMAE |
| UniRet90＿U6EEN7 | DVCLGVPVKLGTNGVEKII SVKMTDKEMEDFKTAAKVVKE |
| UP10002197410 | K |
| UP100036FB93B | GVTFSLPSVVGSDGINQILQPDMSADEKEALERCAAVLKK |
| UniRet90＿F6D4D4 | VPVKL GITNGIERVI RIKMTEKEKKAFLIKAAEAVKD |
|  | VPAVI GKNG |
|  | GR R |
| BOC | $V G R D G V H R R I K T Q L N A E L L A F Q K C A H H V K Q ~$ |
| UniRef90－H7F808 | DVC GAPAVLSRNGIEQVI EMPLNAVEEKQLAYSAQTI R S |
| UniRef90 UP100035［ | VYIGQPA VGKGGIVKRLHPKLT |
| UniRet90＿G2D928 | AMGVPCVLSEVGVELVVDLGLTAEEMALFEASAAAVRA |
| UniRef90＿D4KE67 | GKGGI KEl TVLDL NEKEQAMFDASVGSARE |
| UniRef90 K2MA01 | VALSIPRVI GATGIM |
| UPI000249100E |  |
| UniRef90－G5H864 | DICIGVPAVIGKNGVEKILSLNLTADEKALFEKSAEAVRK |
| UniRet90＿Q7UVK8 |  |
| UniRet90－D8IMU5 | － |
| UniRet90－D2QXB3 | Q |
| UniRef90－C5R9J2 | 析 |
| UniRef90－UP10003661 | A |
| iRef90－O52354 |  |
| UniRef90－W4Q0W6 | D 1 |
| Ref90＿M5U157 | DVCLSLPAVIGRQGVTRVLHPPLSDDEAESFRKCAAKVRR |
| NRef90＿R7KBE0 | DVALSIMSVVGCDGIIKTNVAPPLIDSEVESLVHAADMLKS |



UniRef90_G5JN47
UniRef90_-17JC30
UniRef90_M4VF97 UniRef90-V5T716 UniRef90_C6PQN3 UniRef90_B9LZ61
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UniRef90 A5VHZO UniRef90'UPI0004704A2D UniRef90_B2RM04 UniRef90_Oo8349 UniRef90-P37228 UniRef90-G6ENG7 UniRef90-UPIO00258E06E UniRef90-W7XD05 UniRef90 ${ }^{-}$Q16Z15 UniRef90 UPI00027F721D UniRef90_W11BA1 UniRef90-A0A026W785 UniRef90-W5B1X3 UniRef90_ROJDQ0 UniRef90_C9C9H3

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L L D S S R|L K N Q|L A K A T G|LAP Q S|I Q G Y V L GEHGDS QF T A WS C L D A RLK RVVGEALGVDPRSVNGYVLGEHGASQFAAWS


 L S A R F K Y R L L L D T S R R L R Y LV A D RL QV S PASVVS GYNL GEHGNS QFVAWS


LETYRRLDRV A GRTVGVSRRSV

## 1 L

V T A RLR A R। A
DSARFRQLLAREDGOMS


## VQAYMVGEHGDSSVA ${ }^{2} W S$

LK S THDHFF\GRRDADHCESCYRWDYNKHGNLSVPVWS



| $V$ | $L$ |
| ---: | :--- |
| $L$ | $D$ |
| $L$ | $S$ |
| $L$ | $S$ |

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


> LD S A R L R GVVA E K A E VA P N S $L$ DD A Y V L G E H G D S Q F I A WS L S A A R R Y L M A E K L G I HP S S CH GWI L G K H G D S SVVAVWS LDS S R F R Y I LAR ELLKTNQS EISALVVMGEHDDSMVIPI FS LLLDN C RLDQ HELA K E L G V N Q A A V H S MVVIA E S GP T S V P I W S L L D S A RMM R AV A E R L N L D P R S V D GYNL GE H GNS QFTA WS
$M L D V V R A N T F V A E V L G V D P R D V D V P V V G G H$


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60 TVNVMGQNVRTWAAEKS L
 ESTVSGKPLKDFAG SADKIKADVARTKQAGAEI HLKK K LNVAGIVYKEDASYYDIDNSVLDQVESGVRKKGGKII EN TVTVGGMPLDAFAHRKSFPQGNAEGGQEVVKTAYDVLNA TVTVGGMPLDAFAHRKSFPPGLIASIDDHQVRHAAYEII SG Y S SVNGVPL
$\square A T R N S \square P A S E F \square$
LF S QVRVKGHAIT D TANI S GVP I RDWDGDTVFTEEVLADLGREAAMAAYKI D G TSSIA GESFEEYAKKFNWNDDVKAVI ESDVKNAAYEIISR NAK GLLEPGGENGYSHEDMINIEDETRNFGFKIAQK
 LANIAT TPVVDEYKSCDEDNDKLDEEVESYDRSSGGKIDER CADAGGEPIDDTPHRR
 FTPEETEKGAKRASVNGAWEVAKG TVSVNGQPIK

N F

## $K \vee R V D G R$ <br>  D $P$

## GVKVGTKPALELLD

 AASAGSEHI DDNPARRDI SA DIAGMPVATFMSERDDWKEMDDGNAVHSAGFDVYKA
 ATTVGGIQI DNLLGVAKDP REEMIVQRVKSSGSYIIEA G IT V G GVPLRTCFERMTDFYDLVKGVHQQVVAAAYEVIKLD
 YAAYRGLPVTGLLPEDQLA KKVAADTMVGGATLTKLL $T V D V A S L G L G N M D E F F N R D Y K L N K G M D E Q V M Q V V Y D V I N L$
$H A S A G S E Q V V D N L P N L L C$


 GVNVAGVLLKSLNPGTDSDQEHWKKVMNQVVESGYEVLRLD

 SAQVNGVPVQAVLSRRPKGDFERREVEQEVKYANDSII EG






 $T \vee H V A G K T V S G S V A$ KALI DGKP L S E L P P $D L V P$ LSDER W WA E



Q $\square R \mathrm{R}$ G GRTTVNRCEEDHFCCSDY EEKLLEK EVVRRKA YE I I S R R




| $G V$ | $D$ | $V N A$ | $L$ |
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| $S$ | $S$ | $M L$ |  |











MF E GVVRAAYTII NK




 S CKSHANQTETMVAQNSK

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UniRef90 C6PQN3 UniRef90-B9LZ61 UniRef90-D3SE40 UniRef90-UPI0003610E02 UniRef90_F8DF75 UniRef90-K7SF38
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 KGATFYGПAMMLTQUVTAILTNRSIALPLSAPIKGEYGUK K GWTNAGVAQAAVTMAKCVALDERSIYPACTTLRGEYGHN
 LGTS WYAPGAAVSAMVQAIACDTKKIVPCSSLLEGEYGLD KFYTNFGDAAAAQRLAEAV INDSHEEMPVSNYRPEY K GATNYGIGLTGARLTEVLLSATRSVLPLSGVVHGTHGVD
 K GCTEFGGIANVACMLTITAIFQDQKLVWPCSTADDGEYGER KGYTNYAVATCAVRLVEAVFSDARLLTPVSTYVEKV K GATFYAVAlSVAHIVDCINNAADTTLTVSAMANGEYGDK K GYTNYAI ALAAADII QSIASDTKNTMPISLKVNGFLGVD KGYTSYAVATCAVRLAEAVLSNAHLEAPVSVYLDEY K GYTSYGIA DQAARIAEAILNDNHLVVPV SHYHQAE K H Y T NFAI ATCGVRLAQAVISADAKLACPVSAFDPQF KGATQWGPATGVGHVVESIIRDTGTVLPGSLVLNGEYGHD LGTSWYAPGASAATLVEAI ALDAKKVIPCCVYLEGEYGEK KGWTSFG円ATAAARLI A II HDDAREVLPISVYDES GEHSCYGIAFSATRIVETILGHSFAPIKISAEDQDEYGLS
 KGYTNYA IAAAACEVIRAIVYDSRRTIPLSTYLDDWLGIQQ
 KNGSEYGPASAIVNIVKCMANNDRRILTLSTYDEDEDEEG K GATVYGPGDAI ATLIVTIVEDENRMLTVATQIRREFGHE K GYTNWA $\square G S A V G S I V T T I V H D R R K V L P I T T H A G S \square R G L E$

 K GCTNTGDAMVACRFIKAI KYNEYTI LPMSSMILTGEYG\|H





 $K G A T N Y A V G L A V T G V L E A I L Q D Q R L I L P V S A R V D D F H G \square G$ 1 G A S Q H GI G MVVCA RI A E MI L R D E R A V I P I GRY
 K GPNCYCVALADERVIDKAI ARNEHAVLDVVSPADSEM

 K GYTS WA I GYSVVA SLAA SLLARDQHRIHPVVSVLAS GFH GI H
 K G C T E F GIIA NVVAKML I S A I F H D Q K L V V WP CS TLL L R GEY G Q H K H Y TNFGI A A AA LRRLVTAI DNDARAELPVSNFREELL KHYTNF G A T DA CEMA GAVMS DA HRDFP CSS Y DD D Y LKTGSAYFAPSAAAARMARAVAEDSGQPVCAWVDGEYGDH AMGGEPFKWPAGCYVN AFAKK K GKTFY G I S TCCVCYLAEA ILDSNKTVTANVTSSIQKTRYGE




 K GYTN WAI G L S V VA DLI E S ML K NLLSRIHPVSTMVK GMYG



H WY SVF GlA K N T F A VAEA I I K N H DLLETSASVLLE G QYGVT K GQHCWAAALCTCEI IDAIVVRNTCACLTVSTFVKGCRHEK

K G SAT $\square A P A H A T I E I L D H L V R G A R H G A V P V S V M L A G E Y G \square E$ $R G R S S F S P S Y V S I E M \mid R A A M G G E A F R W P A G C Y V N V P B G F E$



 K G Y T S WGVVSLSVA DLTE S I L K NLDR RVMPVSTLSK
N G S A Y Y A P A K S T T V M V D A I L K D T N Q I H S CA I ML L N D Y G Y S RGPSCWA LGFCTA EIVVDAIVRNTKVVLPVSTYVHTCDHDK



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A $\|$ Y|L|SYPA|I I GRQG|VDER|VJH LA|L|SEEEEQK|L|QNSAKA|I|KE Y I S S P A I I GRGGVVVANFDLAPLTAEEQDKLAA SAKA I Q
 DVAFSMPCLI GKDGI IR RIIAPELDDWETKKLNESDDY\QS NVT TADPHLVGGRGVLETFPPALDHMEREALRNSAR IVRN
 DVV Y L A V P T I L N S T G A V R I V N P I L K D E
K I F I S TP SVI G I N G V E K T G I M TLLNQEEDHKFETSANDIRN









DVVFLS L P CVVL GRN GVVVEVLQILDM


## K







GVCLSLPRVVDRAGAGPLEPVTPDPAELVALRRCAEVI


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##  <br> $\stackrel{\text { D }}{\text { D }}$

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UniRef90 FOZ8T4 UniRef90-K7GD72 UniRef90-Q6AW21

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LDSVRLRGMLAD KA GVAANADDLQVLGVHGESEVVAWS $L D V V R A R T F Y A E K K G L P V A D V E V P V V G G H G V T I L P F B S$ L DVCRANTFVANSQGLDPKDVVVTVI GGH
L D NARFKY EVVGKKLDDI K T S Y I D TKKLI GFHND SMVLVK S

 G Q $L D S T R L Q Q E L A K H F G L R Q S Q V N T R T Y G G H G E Q M A V F A S$
$\checkmark L D S V R L R G I L A D K T E V A A K S \prod D V F V L G V Q G E S Q V T A W S$ GVLDGARLGYESKVLLNDFQTPI KPYVI GSHSDDMLPLLR LIDVIRSNTFVAELKGKKDEDLEVPVIGGHSG



LD S T R LR SELLSKFFK TAADR $\square$ NSRTYGGHGEQMAVFAS LDSAHFCYLIGEKLSIHSSSCHEWDLGEHGDDGVNVAD DCHGWI WGEHSDSSVAVWS LDVIRSNTFVAELKGKQPEELNVSVVGGHSGLSSIL LDVVRAQRFLAGUVGADPKEVPVTVVGGHSGTTVVPL LDSTRDRSALAQHFDDSPDKVNCRTYGGHGEQMAVFAS
 GVLDNARFKYEVAKKLKARISSVDTRLI GFHNDDMVLVKS L DVVRARTF YAGKAKVNNVAGVDVRPVIGFGHDDMVLVKS LDVIRASRFISEVSGTNPTTEKVNVI GGHSG

$M L A T S Y F Q V E D A K L F K \square S P K N V H G Y \square I G D N A E D V D V W S$
 LDCVRANKFVAELTGKHPNDINVPVIGGHGVTDMPVFS LDVVRSRKFIGDHMNDDPEKVNIPVIGGHGPTILPLFS LDVVRANTFVAEVLGLDPREVEVPVVGGH
LDSARSLYLMAENFGI HPRSCHGWILGGCDAMWS DSSRFRFLLSERFDVAPTSDHGWI I GEHGDSSVPVWS DDS DRMSNVLAERTNADPSSIVNDVLGVNGKSQVIAWS L D A RLRYLLGDYDKVDPRNVHAYVMGEHGDSEFVPWS LDTI RASRFIISEVMANDPTQEKVNVVGGHSG

LDVIRSEAFDAELKGVDVASVKVPVIGGHSGTTUL


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 RTSEGVLP TARDDGKPDT位 AAT TGGVP TDKCLSNEKT TNRAELSNECKNRSQTIVRA HSLYGAENLADRLDLDSQQNLTRE VT ILPLLSQUPDVSFTDEEDEALTKRTQNAGTEVVEG LSQTEW
 TAKVNGKALTDIIGTDALTKEQWAEDQKVTKGGANDIN TTTVDDEPLDNGIGTDRLPVEEWDKI RDRVVQGGKNII DL VSLMTLHPAL GTDGDSEDWKYVHKQAVESAHEVIGL SVNVAGVSLQELNPEMNDDQETWKEVYKQVVESAXVVIKL SQTPHGKGVTGEAYKKLVHRIQFGGDEVVEG TAMVDGKPLESLGGTDKLTHDQWTVLKQKVVQGGKNIIDG TVRALGQTATELAAT YQLDLAQDAADARDGGFTVFAG YASVKNQKLGELLSEEEFEDLENEVKTMKRGGGAKVIKHG
$\qquad$ PSGNLSDEEEDRALTKRTQE S
 VSQTKPSVQFPPAELSALTARIQDAGTEVVKA RAF पGGKP LSYDEQKRTSAEDLQNTTKMITKIPDFPFEN SQTAYGKGLDQETWSKLVYRUQFGGDEVVKG TVRVNNKPITE
 $A G V T I L P L L S Q V K P P C F T H E E T E Y L T K R I V Q D G G T E V V K G$
 TASUGOTPVDEIKSQTLPSVIDRESUHTECIIRKDKMLRG QAMVATKSUREMVNHGSICEQDMEQUSEEVRTAAYKVUEA
So பT IIPLISQTKHKNLPKDKKDALTHRI QF GGDEVVNG QAPEDAARL SGHNL

PRLSQVEGVEFTA TTSVKGKPLNEDIG QCQPAFRGDDECIA
 LSQCDPPFNGTVKEREELVKHIRNASMEVIKG SQCSPTVSFPQNEREQLTSRI QNAGTEVVEG
 K T G PLLSQLPDSLDTGEREAILSRMRGASMEVIRG
PLLSHLKDKKWSDDELHALDKRDQFGGDEVVKA
QAT PKATMSAEVLDAL HATVNTVNGDKLVPDLVGDDKWLKEFIATVQQRGAAIIKK SQCKPADKLSQCTPQVKFDHDVLVKLTKRVQEAGTEVVQA QAT PKAALTDDETDALTKRTQDGGTEVVAG LS QLENCSTLSQEQKNELTHRTQFGGDEVVKG
VTIVPLFSQSSHPDLKGNEAAYVKRVQFGGDEVVKG LSQTPQGKDVKGEEYKALVHRIQFGGDEVVKG LSQVTPKVSFTNEEVIALTTRIQNAGTEVVEA HAVVKQDGKEDPVTAADNDDNWIKNEFADQKRGAAVI AAR SQCNPTVTLPRRVS

VTVVPL LSQSNHADDEGETRDALVNRIQFGGDEVVKG FATVEKVPITTVNNDPAFAEYLKTDFIKSVQQRGASVIKA ISKANPKVSTEGEKLMKLIKRIQEGGTEVVEG LSQCTPKVEFPQDQLEKLTARIQEAGTEVVAG
FGS $\square$ NGKSL SQCTPKVEFPQDVKKNFIPTVQQRGAAIVAA

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120
 K GSATLSMAYAGALFADACLRGLNGESDVYTFVESNIVPE
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 KGGTVVGPAYH\|IDLI R QULCDSRQTDPCSAVLDGE Y G LDD R G R S S F S P A Y V S I EMM R A A M G G E P F R WP A G C F V KGATPFGMGSIVSSICSSIVLDKHTVHP LIVSHPQSF Q GSAYFAPASAVVKMLELI ANPQDEEVVCSVYIQGEYGLQ GGSATLSMGQAAARMGLSMDRGLQGESNVIRSYVEGDGEH
 GRTSTWSSGRGTALLVDAIVTESDEPLPASVVLDGEYGVK
 RGRSSFSPA YLSSIEMDAAAMGGPSFTWPVGVYVDNDRRN
 K GYTDWA PGXSVA DLDDESMLKNLSRAMPVTTYVKGMQGTK AGSATLSMAYAGARFTRAINNGKGVVTPTFVKSPDPAD
 K A GGGSATLSMGQAAARFGLSLIRGLNGEANVVECAYSE H $K K Y T N F A \square A H A A V A L A Q L V L S D A H Q$ K T S A Y LA PA S A CVRMLE SIRSGE F LPMSVILHGEF GVG
 A GSATL S MAMA GARMAE SVL REKGVV EP T F VVDSPLLYK D Q G




K GSATVSMAYAGARLASSVLSGLAGEPKTECAYVMADDEG A G S A T L S M A Y A T S S FVVK SLI R A HN GQE G II E C S FVVA S CME



KNATYYGSAWP
K A G G GSA T L S M GQA A CRFGLS LVVKALQGEANVIECA YGGL A GSATLSMAQAGAKFANAVLAGLAGEREVYVDSPDYKSDG


 RGRSSFSPAY LSS IEMMDAAAMMGASFRWPA GVYVSS GKF D K G S A T L S TA Y A CFRFVNAMMGLKGMDGPPE CAYVES CVT D $L G S A T L S M A F A A T Q F V N S G \square K G S K D E C \square V E C A Y V E S D V T E$ KA GA GSATLSMAYAAAKFADACLRGLRGDAGVVECS YVAS KA GGGSATLSMGQAACRFGLDLVRALQGESNIVEAAYGEH RGRSSFSPAYLS LCMDAAAMGGKPFGYPAGVFVHNDEFK
 K A GA GSATLSMMYAGARFAL S LVVRADNGDPNVVECSYVAS K G S A T L S MAYA GA DFADACL K GL NGVPDVVECSFVQS SVE KAGGGSATLSMGQAAARFGLSLVRALQGEKGVVECAYGQY

S GS AT L S MAYA GF LDFTEGLIVKAMKGENVIQCAYVESTGTP

 K A GA GSAX LDSMGGAAAR FGVS LVRALDQGESDDVECAYGBY


 LSS A A LS A A S S A C D HDR D WVL G T P K G N WV S MVV S D G S Y G IP KA GA GSATLSSMAYA GAKFTTSMCRA ILGEPNVVECSFVES
 K G S A T L S MA Y A GALF GDACLRAKNGEAGVCTYVESDVVPG A GSATLLSMAYA GATFADAVMRGLNDEKNVFVDSPDFKNEG
 A GSATLSMGFA GARFANSLLLRAMNGEEPTFVESPLCYASEG KA GA GSA T LSSMAYAGARFAFS ILDEAMNGAK GVVVECA YVA S
 K GSATLAMAYAGARFANSLLHMRSRAEIVECAFVESEVAE A GSATLSMAFAGARFAESLLKVQGVIDPTFVDSPLYY DQG
 A G S A T L S M A Y A GARFVVFSLL EAMS GK QGVVVECAFVR S DVE




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AVFFSHPVRLGANGVEETLSYELSDFEQNAKDSMLDGLRG AVFFSHPVRLGANGVEELSYELSDFEQNAKDSMLDGLRG NVMMA RETTITREGVTYK EVDGLPEEEAADDKSYKHLEG EVFLSDPCVLGQSG1TDDVKVNMNTEEEALFKKSCDTLWN

 GFYVGVPAVLGENGI GASLGVPVLLGKSGVRSVVEWDLISTSELAAFRTGGDSVR HDMMAWETSLTADGC HCAALNGTAEEQAALDKSYEHLCAA HIMMAMETTLDRTGV HI HPVKGTPAEEASLEESYKHLCT NVFLSVLRMLVQNGISDVVKVT
NEALSLPCTLTAQGLTSVTNXQLRDNEVVLLKKSADTPWD ARFFAQPVLLGVNGIEEYLPVKLSAFEQQALESMLPTLRE HIFMAMETENQSGIVKLHHLKGTDEELLOSLNDSYKHLCH ARFFAQP TRLGKNGVEEILPCDTSAFEQGALDGMLATLKG DSYISTPALIGRGGIVGDFSTLTAEQASLKQSATALAE NKALGTMARLGLEGVVEDMKLELSDEEKDKVKKSLPELKS TVFFASKVRLGKNGVEEVLGLTLSDFEQQGLEALKPEMKS EEFFASKVKEGPNGVEKLEPDUDANEQKLLDACVGDLKK DVYMSVPCVI GREGVYCTVRQKLSEQEKAAVQTCADNIRN DVYFSTPLVLGKNGVEKNLGGKVTDYEKELVKAALPELKK
 GVCVGHPAT GAQGVVDNPPMALTAAEKAKYDATAKTIQH LPYFTSKVKFGKNGVEEVFPLKLNDYEKGRLAEAKAALKN NVFFAGPLELGKEGLKRYLELPLNEFEQKSLDKLLPILKK LPFFASKVRLGRTGAEEVYQLPLNEYERDGLEKAKKELAE PVFLLS
DCCFSSPAA鸟GTGIVKTVEपSMLPSEWQDUEETAKELRE

APFFAQPVRLGKDGIEEVLSYELSAFEQKALDGMLDTLNG DEFFASPVTLGVNGVEKIHSTDISSEEEELLAKCKETLKK CDYFSTNVELGPNGVEKVHPVKTEYEQKLLDTCVADLAG NVILSUPCVLGQNGISDVVKVELNSEEEACFKKSPDTLWG A AYFAHPVRLGKNGVEEDLSYELSAFEEKAKNDMDETLNK ATFFATPLSLGPKGIEKNHGLPMNDIEKQAMEKSTGILKD AQFFATPLILGPQGVKENTGLPLDDEERKALNGMLPLLKE QVFFASKVRLGRSGVEEDRPLPNEFERAGLEKAKKELAE HTLMAMETQUTKGVSYKNVQGTAEENKTLAASYEHLCK HPLFSSKVQLGPNGUEK\|LGLELSAYEQKALEAMKKEL NVYFATPLKLGKNGIVKNLGLEMNAYEKSLLESAD|PELQK ARFFSQPLLLGKNGVEERKSITLSAFEQHSLDAMLDTLKK DVYVGLDARLGRDGVAGIVELPLPPAELTALD A AYFASPCKFGPEGVKEVLGFTLSAYEKQWFDKMVPDRQK



## C

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NVYFSSLVRLGRNGMEEALPLPMSFFEREADKKAMPVLKK

 V



 DDFF A S R V ELL GP D G V K E I LDP V QV N A Y E E K L L E A C L L A D L K K
 $V$ P Y F S T P L QL G K K GME K N L G L K L S P P F E E K M V A A A MA E L K A




| UniRef90 W6Q316 |  |
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| UniRef90-10Z3A2 | $S \\| A$ |
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| UniRef90-B9KGG0 |  |
| UniRef90-L8JB26 | D $\square$ A |
| UniRef90-R6EEQ5 | M R D |
| UniRef90-K6YFM5 | D 1 E L G |
| UniRef90-B8GJX7 |  |
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| UniRef90-I1VWM9 | $\square$ |
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| UniRef90-V5SJ21 | N |
| UniRef90-M5X4IO | SI |
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| UniRef90-Q5ENS4 | Q ${ }^{\text {a }}$ |
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UniRef90－A4YDYO UniRet90－K8FCTO UniRef90－A4A3N5 UniRet90－S9VPP4 UniRef90－UPIO0036BBC39 UniR Refo－R7YXZ2 UniRef90－Q47TT4 UniRet90－E6ZQ26 UniRef90－S8DUW8 UniRef90＿UPIO0037BE078
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L D H N R R A K A A Q V A D D R L G G V N V V S D V H V V T I W W G N H S S S T Q Y P D V S

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VAVRRGPGRTMEAA VA GVV SQT LN LQMGPDSHSENQQKEVRKMMAESAYE GIRLL
 H GYVT $\square$ NGEKKS ITTEAVND DA WLKGDFSTVQKRGAAVI K L
 $L S Q \square S P P H S Y T Q D E I V E L T Q R I Q F G G D E V V K G$ D QEAALNHNSKVQLLSRAMEMLRV $P \square F S Q L K D A S L S S E Q L V K$ LTHK TGFGGDEVVKA S HATVTVNGGDKPVRELVANDQWLEFITTVQQRGAA\|I KAR
 $T V T V K G V P I D E Y D K E K G L D L S R S R I E E Y V K E V A A T I$ I A K Q S GlV HASAVVGGSTANAVEAVK DAWDN HATVVSTKTGDQPVRELLVADQKWNEFSTEVQQRGAEILRR IS QCTP PVVSFPA E ERE K LTTRRI QNA GTEEVV E G
$R \quad L K M P$ R $\quad$ E E NL R L
QATVNGLKLEFTQEQIEQLTHR\Q

QALSEGLPLS
F TQQEE I E A L T Y R H T KVK VHGKE $\square$ GAYEAVKDDS WLKGDIVISTQRGAADVIKAR NATI CGKPVSEF $\square$ R DENWLDENDF HANVQTASGS $\square G A Y E A V K D D S W \square K G D F K T V Q Q R G A A V I$ KA S Q A Q Q GS SVS P GEQYEK V VHR\|QFGGDEVVKG S S A P A T D S QP E $\square$ T P G P T
 HAEVAGQKA TVRIVK G WS IDD K C $\square$ S E G L L M T E E D WN E I S QCQPSVTFDQAALEAITTRI QDAGTEVVKG $L S K A R P K V P F T D E E V E E L T A R V Q N A G T E V V E G$ S H NQEFAGK P K V S P SVT I IP D D NAVVII SGGVEKPVPAADNDDEY LIKSLFVSTRGAAVIAARK

 L S QA TPAVTVF QA DLEA LTVVRIQNA GTEVVEA
 $T \mathrm{~V}$ K $\square \mathrm{KGG}$ G V D E F N I N K D EVVSDYVKK IP GEI I R V LS QTFPQTSFSEKETEDLTDRI QNAGTEVVEG
 HAVVTKDGKQHPAKELINDEKWVKEVFTCVQNRGAAVIGL S
 QSE HAEVNGRSAVEAVN PKA D


## $\begin{array}{ll}\text { S Q QA A A A G } \\ \text { S Q A L } \\ \text { G Y } & \\ \text { D } & \\ \text { V }\end{array}$

I S QS EPKVQLS QE
 $K A V T \| L P L L S Q V P G \square T F S D E E V N L L T R R I R N A G T E V V E G$ KAK PSFQDPTDKYDALVNRVQFGGDEVVKG H A TVVSTDRGERPVRELIADEDWLEEFVTDVQQRGAAVI K K A GVV ILDP LLLS QV KP RSFTA E ETE Y LTTNRMQNGGTEVV EA QATVN GKPALLEQVDRTWYENDYIPTVAK RGAAII EAR G HAKVVVQGKEVGVYEAVKDDSWLKGDFDMTQRGAAVIKAR S KYP ELSSAEQVKADTHRDQFGGDEVVKG H A KVTVVS GAEKPAYDAVVK EA WL R GDDFDS TVVR GAAVI KA R FATI Q GESVKDMINDQEWNANVFLDTVGK RGAAII EARG HATI Y GEPAMS QVDENWYRDHFIQKIQK RGAAVIEARG
 HAYVANPKVTEAVNDDA WLH GEFVVQSVQSRGGAVIMARKG S I SVGGMKLRDDNSRE QDDPEKWYE IVENVKSVGKE LEEK NAKI DGKPVKDVIK DTKWLEEEFTDTVQKRGGALVQK
 NAKIA GK』ATDVI K DQDWLKGDFIKNVQQQRGAEII KAR HAKVKGQDALSLVEHDWF VKEFIDPTVQQRGAAIIKA $S$ Q A L G Y D S V S E
 HATVA GRPALEMVGTEWAEGVFIE Y A TI E GERASD LVDAA WYKE TYI P SVAK $T$ VA Q RGAA I EARG
$\qquad$
HATIDGKPAREVIGDDAYLD V S G S N I S E NL N

 SQATPASNALSHEDLVALTKRTQDGGTEVVEAKA


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UniRef90 A9UV42 UniRef90-H9K481 UniRef90-Q8HOKO UniRef90 ${ }^{-M 2 Y 9 X 4} 4$
UniRef9- M2W0T8 UniRef90-M2W0T8
UniRef90-TOGDL9 UniRef90-UPIOOO35D56D1 UniRef90_UPIOO0255648F UniRef90-D2TX06 UniRef90_K4BH19 UniRef90-G3B970 UniRef90-G7HOY9 UniRef90-LOGSY7 UniRet90-A5E3K9 UniRef90-F4RQE6 UniRet90-E1ZN90 UniRef90-A7ZDM3 UniRef90-F9E180 UniRef90-UP100035CDD51 UniRef90-F2CQRO UniRef90_LODA29 UniRef90_UPI0004416254
 KGYTKWATGLSLMDLLESILKHDSGDHPVSSMVGTCGTES AGSATLSMAYAGARFAFSLLRGMKGESVVECAYVASNVTE SSATSAAKA VVDHVHDWVLGTPEGEWVSMATPSDGSYGTE ASSAASAANAADDHDNSWVLGTPAGDWVSSAVVDGSYGI P KAGAGSATLSMAYAGARFVESLVDAMNGKEGVVECSFVQE KGQRSWSVGLSAADGADSIVNNKKKVHSVSVLSKGYYGUS AGSATLSMAMAGARMADSVLRASQGEKPTFVESPGYKDQG KDGAGSATLSMAYAGARFTLRLLDAMNGSRDIVECSFTEN KGYTSWAD
QGATIWGPAATFQEIVVSHLANEGRIIPVSVVQEVPGVG AGSATLSMAYAGARMTNAVLRGLSGEVGVYVESPLYTDQG KLSSAMSAAKA TCDHVRDWYGDKWTSMGIYSNGSHYGLPE QSSALSAASAACDHDHDWFLGPKGSWVSMGVCSDGSYGDA GGSATLSMAYAAARFANSLMEAMSGESGVECAYVFSGDAD AGSATLSMAYAAARFAESCLRADDGDADVCTYVKSDVMQE AGSATLSMAYAGFRFAEALLKEKNVVEPAFVYLPGVPGGE
 GGSATLSMAQAGAEFALGLVRALIGEDVDYAYVDNANGES ASSAASAANATVEHMRDWILGTPQGDWVSMAVSDGSYGVE AGSATLSMAYAAARFVESSLRALDGDSDVYECSYDQSELE K IS SAMSAAKA CDDMRDIWEGEFTSMGVYSSGNSYGVGY KLSSAMSAAKAICDHMRDVWEGEFTSMGVYSSGNSYGVPD RKLSSAMSAAKCDHMSDWWFGTKEGEWTSMGVWSDHYGIE AGSATLSMAYAGAVFADALLRAMHGEKGVKFVESPLLFKDQ RGQRSLSVGLSVADIVHSLLADQRKTHSVSTLAQGWGGVC AGSATLSMAYAGAKFTNALLRGDNGDTPTFVKNDDYADKG GASSAASAANATVECMRDWMGPEGDWVSMAIPSDGSYGVP AGSASLTMAYASAKWSASVLRALLKGDRGMVECSSPLMMPK
 AGSATLSMAYAAARFVEASLRGLDGDGDVCAYVQSQVVPE LGSATLSMAYAGYRFAEKLLKAAKGVEPTYVYMPGIPGGK KGQRSWSVGLSUSDLVDSVANNKKKVHSVSVLAKGYYNUS MSSALSAAKAASDHMRDWFLGSGDRWVSMGVVSDGSYGPR AGSATLSMAYAAARFVESSLRALDGDSDVYECAYVESDGD LSSAASAANAADDHDRDWVLGSNGQWVTMGVPSDGSYGDE KAGAGSAT LSMAYAAARFCFS LLAADEGKE GVIECAYVKE AGSATLSMAYAGARFFSLCDAMNGKEGVIECSFVRSEETE GGSATLSMAYAAARMGEALLRGLSGESDVCSYVSSDVVPD RGASSAASAANIDHMRDWALGTPEGDWVSMVYSDGSYGDE RSSAASAAKADVDQMRDWWFGTKEGEWVSMSVYDHYGAPK AGSATLSMAYAASEWTFSVDKALRGDRGEYTYVASDVQPP KSSAASAASAADDHMRDWVQGTDGKWTTAAVPSTGQYGVE AGSATLSMAFAGYRFAEAVNGESGIVEPTYVYDPGVEGGD AGSATLSMAYAGARFALAVLAGKPGAHPEMGYVDAVIGTE AGSATLSMAYAGATFANALFREKGVITPSYVRSPLFESEG AGSATTCMAYAGFRFAQAIYKAAQSQTPAYVYLPGVPGGD RGASSAASAANAVVDSVASITAPGDWHSVCIHSDGSYGDE AGSATLAMGYAAARFTLSLVRALQGQQGLCAYVESESAFS QSSSLSAASAACDHMRDWILGTPKTWVSMGVYSDGSYGVE KAGTGSATLSMAYAAAKFAGACDRGLKGEAGVVECA
ASSAASAASAADDHMHDWALGGTKDGEWVSMIPSDGSYGDE KLSSAMSAAKAICDHVRDMWEGEFVSMGVISDGNSYGIPE AGSATLSMAYAAAEFADAADRALKGEQGVAVYVKSEVNPK
$K L S S A M S A A K A D C D H V R D D W E G E F T S M G Y A G G S Y G D P E ~$ LSSAASAANAAIDHDRDWWLGSNGKWVTMGVPSDGSYGIE RSSAASAAQAVINHMHDWINGTDENDWVSMAVSDGSYGIK VS SATLSMAYAGARFVFSLVDAMNGKEGVECSFVKSQETE SSALSAAKADSDHMHTWWFGTPDGEFTSMGVVSDGSYGTE WGRSSAALADADKSLVTPTPDGDWFSTGVYTTGSPYGIRAE KMSSAMSAANAVGDHLHDWLLGSDRVVSMSVASDGSYGIE KLSSAMSAANAVADHLRDWFAGTQDVVNMVVCSDGSYGIK GASSAASAANGVVDTVRQWNPTPAWFSVAVASDGSYEAD RGQAASAANAAINQMNNWALGTKEGDWVSMAISDGSYGDE KAGAGSATLSMAAAGARFALALVKGLSGVPGVVEAAYVEG KAGGGSATLSMGQAAARFGLSLIQALNGKENIIIECAYGEY GRSSAASTAVSVVDAMRSLVTPDWFSTGVYTNGNPYGDAK AGSATLSMAQAGARFAGSVLGEKDVIDPSFVDSPDFKDEG GSSAASAANAATADMRDDALDPEDWVSMLVSDGSYGV AGSATLSMAQAGARFTGALLNGLAGEKDVFVESPLFKDEG KGSATLSMAYAGFRFADSLIKAKWTEMAYIAVQSEAHDAS LSSALSAASSACDHIRDWVLGPEGTWVSMGVYSDGSYGP ASSAASAASAAAAKMVRDWCLGGVKGSTWTASIMSDGSYGVE GASSAASAANGVVDTVRSLVTPTPKWSSVAVCSDGSYGIP KGSATDSMAYAGAVFGDACLKGDNGVPDITECSFVQSTVE

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UniRefo
U6.JYT4 UniRef90-H2Y3K9 UniRef90-M4CF15 UniRef90-R7TSVO UniRef90-D8T610 UniRef90 W2RVT1 UniRefefo-D8LQM3 UniRef90-A717B6 Uni Ref90_M4XJP7
UniRef90 S 3 KAF UniRef90-C9ElK5 UniRef90-A3N1U6 UniRef90-W5NGN6 UniRef90-R7LBP6 UniRef90-11FND6 UniRef90-A8Q524 UniRef90-W5M1C4 UniRef90-UPIOOO4408865 UniRef90-Q6A6Z5 UniRef90-s9V8D0 UniRef90-UPIOOO46EDCB8 UniRef90-H2YZK0 UniRef90-K3ZU36 UniRef90-F8MLJ3
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$\mathrm{EVY} \mathrm{WS} \mathrm{LP} \mathrm{CLL}{ }^{130}$
140
150
160
 EVFQSLPCILNAQELTSDINQKPKAEEVSQLKKNAGT AA YFATPCQLGAQGLTSDLNQKPKAEEVSQLKKNAGT
 GGLIGVPATSTGGAWQVVQGLEEDDRSRAKMDASVKELAD



RVAVSVPTKT
VDFFSSRVTLGKEGAEDTHPVGLNDYETGLLETCLQNLKK NIVYSVPVRIAPGGEYTVVELKISDFARSKMDATAQELLE PLVYSFPVICEKGSWKIVQGLSVDEFSREKMDDSARELAE TKYFSTPLLLGPNGVAKNLGLSLNEYEHDLVKEAMPELKM EDYFSVPVELGPNGVEKANNDKANDYEKKLLDEAVKGLKGG APFFASPCTLGKDGVSKVHGFNLSSFEQALVDDNVPALVK PAFFAYPIRLGTNGVEKVLPMNLSEFEKDQLEQLIPVLND GVIGSFPCVVKNGKYEVVGLELDAFSRAKLDASVAELED LPFFASK|KLGKQGVEAVIGSDLTEYEQKSLEALKPELKA DLIYSFPVVIKGKSWKVVDGLEINDFSRGKMNATAAELVE GIVYSVPVRINPDRSWQVVDLSVSDFAREKMDISAKELVE VQFFASPVELGPNGVENIPALPITAEEQKLLDNCLTDLAK


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 CGWF V S P V E L GK D GVE N I L P F P L N E Y E T S L L E N A L K L L MATYFSVPVVELGANGAAKARIVIVVI

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## D



## UniRef90_UPIO0038143B2

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UniRef90 Q3U1V6 UniRef90-UPIO002F03503 UniRef90-UPIO002627516 UniRef90-K4KFS3 Uniref90-AOC8S6 UniRef90-A9NX63 UniRet90-U5EC80 UniRef90-W6LY07 UniRef90-UPL000462DDC8 UniRef90-F8KZP6 UniRef90 ${ }^{-}$VgIIT1
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UniRef90_M5 990

\author{

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## L

LD
10 OLL A H LL 20
$\qquad$ SASQYPDVV1 ${ }^{40}$ DIVRASTFISEAAGKPTESLKIPVVGGHSGVTIVPL LDVVRASTFVAQALGGSPKHEKVPVIGGHGATLLPLYS LDHNRADSQLATKLGGSAEFNNVVVWGNHSATQFPDTT
LLDGLRATRFINDACLAVATDUGGMIWGNHSP
D DNRADGQI SERLSVPVSDVNDIWGNHSSSQYPDVN LDENARAQLALTLGAPVHTVRVPI WGNHSATQFPDIS
 LDVVRAKTFYAGKANVPVTGVNVPVVGGHGDTILPLFS LDQNRATSQATK乌GVPISAVNI IIWGNHSSTQYPDAG LDHNRALSQVAAKTGKAVKDINLTVWGNHSPTMYADYR GALDSSRFKYFLSQALGCNANEVEGMVIGGHGDTMHPDAR पDHNRAVAQLAKKLNAPVSETKDTTWGNHSASQYPDTF LDHNRAQTQI AQKTGKTLNDVKLTI WGNHSSTQYPDLH LDQNRAQSIGAQRVSANVEDVNITIWGNHSTTQFADVS LDHNAVAQLARTGAPAADLHRMVWGNHSASQFPDLS LDHNRALSQLAEKTGAHVNDIKKMIWGNHSSTQYPDLS

VADWS
DDQNRAVAALAKHANTDVESVHMTTWGNHSSTQVPDFY LDQNRAAALSTKLNVQVDKVNVIVWGNHSSTQYPDAS LDHNRAKSQAEKTGKHNTDVKKMI WGNHSSTQYPDLH L
$\stackrel{L}{4}$


LDHNRALNQUALKMGHSVNS:CQCVWGNHSPSMYTDYR
LDVRASTFLSGLAGSNPDDTKVPVVGGHSGVTVVPL
LDVVRASKF GDDKGTAPETVEVPVLGGHSG GMPD LDENRARTQLAKKAGVDTTAVDIGIYGNHSPTMFPAFA LDHNALGLLAAKDGVLTTEIQLVVWGNHSDTQFPDLT LDQNRAYGQLASKLGVALTDINLVIWGNHSPTMFPDLF LDENRAKCQLALKAGVFYDKVNVTIWGNHSTTQVPDFL LDSQRLQYVITKVLKAQTSGKEVWV GGEQGEDKVPTWS LDHNRGLSQLAAKLDVTAEDIVKMIVGGHAGTTIIPLL LDHNRALTQLAQKAGKTISDINLVVWGNHSATQYPDLF LDHNAI AQLAKKDDVAVADVKKMIWGNHSATQYPDIF LDHNRAVAQLAHRANVDVGE:RVTVWGNHSATQYPD:F LDQNRARAQI ALRAKVSVKDVHNIIWGNHSDTIFPDHR LDNRMKGELAEKAGVPYSNVHVTVWGNHSNTQVPDCS LDSVRANTFVAHVQGVEPECVMVPVVGGHSETIIPVLS DIIRSNTFVAELKGKQPGDVEVPVIGGHSG LDHNRTSLLARHCGCNVAE:RVVIWGNHSPTQYPDVH DHNRADSQLAAKTGAAVTDVKKM1VGNHSATQYPDVF L DVRASAFVSGlAGTHPKDTNIPVVGGHSGVTVVPL

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UniRet90
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UniRef90 R4LVF1 UniRef90－H5U219 UniRef90－D3PQLO UniRef90－D3HLG7
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HATVDGRPATELVDERWTT ${ }^{60}$ DEYIIPRVIAK ${ }^{70}$ RGAETITDVVG ${ }^{80}$【SQSQPS円DVSQEKIEQLTNRMQFGGDEVVKG QAH $\quad$ P YSQAPAVDLHDEQLAPI YATVGGEKVTDLVDHDWY VEEFIPRVANRGAEII EV QATILGKPAMSQDDTTWY RDEFIPKVQKRGGEIIQA VTIVPGLHQLPGPLPPKEQLDKDTKRVQVAGTEVVKA HAKVQTSSGEKPVRELVKDDAWLDEFDSTVQQRGAAV KK HGVVKTTEGVEKSIREAVADDEWLEFDKVVQQRGAAI KM SNLL CPSHYCVGHCEADTLTRLIKKSGTEVLNR QATPASNAL QGKVVINGETKSVADAVNDNAYLQAFVETVQKRGAAVIRK
FATIVGESVKDMINDQEWNANVFLPTVGK RGAAIIVARG FAT：NGESVKDMI NDQEWNANVFLPTVGK RGAAIIEARG LLATYKGQPVSTLL SEEKLNEVVASTMVGGATLTKL HAEVAGKNAAEAVN DEKWDQKGDEVAVRQGGQQVFNG
 QATVDGADAMGLIEQSWYENEFI PVVQQRGAAIIKARG
 HAVVGGEPAPELVD CEWVRAEFVPTVQQRGTAIIKA QCTVKGQAATALVDQGWYRNTFIPEVQQ RGAAIIKARG $G V N V A G V S L Q D L N P A L G S D Q D P W K Q V H K Q V V D S A Y E V I K L$ HVRIHNKPLDEVIKDEEWDKTTFHKNVQ QRGAAIIAAR
 SQVPAASSLSE HAVADDGGDEKKVYDAVANDEYLKNDFVSIRGAAVINARK HAEVGGRNAAEAVGDQAWLENDFTHRPTVAKRGAAIIEA QTKVNGSPAIDMVDQDWY ENDFDPVVQQRGAALIKAR SLG SQVQPAGCIDS LLNAEEDSALTERTQNAGTEVVAG YATVDGKSVKDLINDPVWNN DVFLPTVGKRGAAII EA FATVNGQSVQELIG DAQWNTEHFLPTVAKRGAAIIEA HAEVGGKNAAGLVNDEAWIESTFDPTVAK RGAADIEARG QATPKPNSVLSEEDTKALTKRTQDGGTEVVEAKA G QATVTIVPLLSQAGCDITGAERDAVVKRIQFGGDEVVKG NCVIETKDGEKTATELDFEEFLHGEFVQKISTRGGAVIKA HATINGKPAAEVIGDDAWLKGPFCE TVGKRGAAI IAA YATVDGRSVLELVDQEWINT EF TPQVAQRGAD\｜। AAR NATVNGKPAVEVVDDMAWYENEY苗PNGGRRGAAII EAR SQASHPLPA GLDAKDEFDALVKRVQFGGDEVVQA NAKDDGSPVKEVIK DQSNWWEEEFTEKVQTRGGVLIKK G QEGMSPNSQVQLSNSTRW GALGLKG SQEGLSHNSDVQLS HTLVKGDVAVEQVEKDWYENDFTDPTVQQRGAAIIKARG NATVDGADAMGLIDQAWYENDFI PTVQQRGAAIIKARG HAEVKGTNAAEAVNDRAWLTDEFIPRVAAKRGAEI DEAR HARVGRRSGAEYAADREWLVDDFIPTVAK RGTAILEARG SNLTPRNYRIEPCQADMLTRLVRKAGTEVVMHKH NAVYDSPEGPKKVSQLLPDEALKGEFVQKIATRGGAVIKG QA HARVKGKPALSQIPGVSFTEEAADLTKRIQNAGTEVVEA HAE GGRNAASVVGDQDWI ESTFIPTVVQQRASVAITRG HAELGGRNAAEVVGDQDWIESTFIPTVVAKRGAALVEAR SQTPEGKKIVEK HATVNGSSVRDADNDQAWLADEFDPRVAKRGAEIDEVRGA WATVGGEKVSQASPAVNDPADK HAKVKGQDALSLVERDWF HAKVKGNDALSKV VD HAVVMITNTEKSAI ETVGDAEYLKTSFI DVVQKRGATVIKA QARUFG THTKPGLKTEDEDDALPDIKKVRDAEETVAKTKG HATAGGKSVRELVNDDEYLNGEFVTTVQQRGAADIVARK HADVNDQSVPDAVNDDAWLNGVFVETIQ KRGAAVIAAR NAR CGKPADQWI ADDAWI AFDF PTVGARRGAAVIAAR HATIEGKPAREVIGNDAYLDGDF VDVVRARGAADIEARK QAKVTNGTVKSVVDADNDNGYDQGSFVETVQKRGAAVIAA HAETDGNKISLLI NDPAWDEDYFDPTVQ KRGAVVIEAR NALVNGKPALDVIN

SQMTPK乌S VTFTDEEVDNLTQKIQDAGTEVVKG VT KLP LLS QVEGVSFTDEEVAALTKRUQNAGTEVVEG HATIGARAATDAVDQAWMADEFIPTVAK RGAAIIDARG FATADGAKVPELKDGTGDAWNKDTFIPTVGKRGAAIIEA NATAAGRPVAELVEQSWLADEFDPRVAK RGAEDIEVRG HARVGDRSGADVAADTDWLVDDF IPTVAARGTAUIEARG HCEVGGRNAYELV GDHDWYANTYIPKVAKRGAEIIEAR NAKVNGVSAAQVIDEAWLKDT FVSTVQQRGAAVIKA HVCVNGNWVADRDAVKDDDYLNGEFDSTVQKRGAADIKAR SVRVDGKPLDSDTKLRCHSREVFERFKSEAFRVAESVLGS SLDIID

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S S S A A S A A S A A IDD H ITH DWVNGTGDRWTSAAIVSDGSYGVP A GSAT LS MAYA GARFADAVLIKK LDETTEQAYVHLSADDSGND
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 RKF S S A LIS A A S AVVCDHVSNVT PA G T WVVSMGVVFSDGS Y GVVP KHGSDSAMAWS $\square$ NEFVQNLIDEALYGNCVIVNSYTANPHFG K GSATLSMAYAGAVFGDACLKGLNGVPDVECSFVQSTVTE MSSAMSAAKAACDHMHDWWNGTAPGTFVSMGVCSDYNSPK LSSAA SAANAA DDHMRDWADLGTNGE WVTM G I PS D G S Y G I E


 ASS SAASAANAA DF HMRD WA L GT T E GD WVV MVVYSDGS YGGI E
 R S S A A S A A SAA I D H H D WVL GT P A D DWT SMAVVSD G S Y GVP

 MS SAMSAAKAA GDHMRDWWV GTKPGEWVSMGVLD GS Y GDK

GASSAASAASAA $\square D H M R T W A T A E G D W V S M G \square P S D G S Y G \square P$
LSS SAMSAANAATEHMRDWWT GTAPGKWVSMAVYSDY QVPK
RGA S S A A S A A N D HV V T WVN GTA E G D WT SM GDPS D G S Y GVP
A GS A T L S MA Y A A A EWS T SVLLKALLR GDKGVI EYA S PA HA PT
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A G S A T L L S M A Y A A A V F A N S L L K A L L N G E K GVVK FVV E S P L F A D K
K G S A T L S M A Y A GAVVFASSVLKGLNGEPNVVCSYVQSNVTE
S GS A T L S M A F A GA A F T N S L L
$R G L S S A A S A A N A D V D H V R S L V T P G A D H S V A V K S N G V Y G F D$
GLSS S A A S A A Y A AVV D MH D WI HG S K G WV S A A I P S P GVV G I E



 A GSATMLSMAVAGWRFANALL RGDK GDKNDQCAYVAS DAV K ASSSAASAANAA IVHMRDWAL GPEND WVSMGVYSDGS Y GI E


A
R K
A
 KAGGGSATLSMGQAAARFGLSLVRALSGEKGVVECAYGQY KSSAASAANAALDHMRSWFLGTPKDDWVSMTVSDGSYGDE
 A GSATLLSMAYAGAEFTDAALLDRADGEKNVCTYVESPMYAK
S S
R G
R G
APSSAASA
FSSAS A


RKM S S A M S A A KC D HVMY D WDH GT K E GE WT S MVI S D G S Y GVVE
GS S S A A S A A NA A DN HVVRD WV T R E N D WIVSM GIP S D G S Y G I E
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A GSATLSMAVAGWRFAHSLLRRGIKGEKNVQCAYVASAAVK

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K L S S A M S A A K A I C D HM R D WWT R E GE WV S M GVVVS D G S Y GI E


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 QVCFSFPC K GLVSSFPVTCADGAYRIVDLVLDDYARAKIDASVAELVA GVIVSYPCV CKNGDYEIVGLSVDEFSREKMLATEQELRE NVFLS LDPCVLGSVGLTSVI NQKL
DLIFSFPCRLDQKGDWEIVKLELNPFDKEKILLTEKELDE DIVFSFPDTI ENGQYKIVGLSINDFARSKLNITSSELEE


CLWFSCPVELGPGGVAQVLPLPLSAHEQ GLTYSFPCVCKDGDWQIVQGVEVNDSRAKMTATQQELTE V

## G

G
C
  EGIIS L E Y F S S NVVELLGPE GVVKRIL

 EGLISSFPVTCQAGEYRIVGLEDDDFSRERMDASVGELAE EGLVSSFPVRSVDGRWEIVELEINEFSRARIDASVAELQA TKFFAGPTSVGPHG\|IQACHFPMSEFESYLLNRCIPDL
 ARFFASPLLLGPLLGVTKNF
GLMFSFPVTIENGRFRリVDLPDDTFSRERLRLTEVELE EGLISSFPVTTKDGWEVVQGLEDDDFSRAKIDASTAELAD EVFFAVPVELGPTGAVRATNPQANEYEKTLLEEAKKGLAG EGLISSFPVTAKDGRFEIVGLEDDEFSRGRIDASVAEVVE

## \section*{d}


 DI WY S VP CRCPGDGVERV LDDIPPDEYSAAMMDATRKEELLDE
 APFFA
E

## G

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GGL



G
$G C S I L G$
$L T F F A$

LT F F A SRVKLGGRNGVEALD YEQKA|LEALKRE|LKS

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पD HNRATAQVAERARARVEEVNC! IWGNHSGTQVPDVN AASDVRVLVVGNHSATQYPDFT LDHDRALRQLADKARRGVGEVNMTI WGNHSSTQYPDVF LDHNRSLSLLAEKAGVHVKEVNAII WGNHSSTQVPDVN LQNRMHSMLSHRAEVPLSAVQVVVWGNHSAKQVPDFT LDSVRAETFLGDLVGEPAPEVKGRISVIGGHSGDTVIP DVVRASTFVAEDLGDLGKAPSVV GVGVVGGH LDQNRAQAQLAARLSVGIDRVNVIIWGNHSSTQYPDAK AYLKTQIA AQLSVSVQDVTVLAI GNDETQYPDPQ LKEMRARTLASAAKGMNPATVQVNVIGGGTQTAVPVIS

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 HATVDGKPVIGQVDNQWYVDTFIM TVQQRGAAI I KAR
 HGTVLGKRIRRQFI NDEAYLNNAFIERVQ K K R G GEVVLAA R



 FS $\quad$ N A EVVDE D WYKE EMIDPKVAKRGAE I I A V HATVNLDGKTVKVTEAINDADYFKGDF QAK PAFNIPADKYDALIHRVQFGGDEVVNG Y A T A GDKKVTE LVDTQWVEDY LIP TVARRGAE II EVR NAEYDTPEGVVKLVKDALPAELLDRGEFVTKISTRRGGAVIMA YATVGGEKVSGLVEEAWL R DEFEPRVAKRGAEI I E G


 NTKIS GKPVTVDVISDHEWLK GDFIVNVQQQRGAEVI KAR
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 HA K V NK G R L M E AV DA V G DEA WLK GD F L N TVVQRRGAV I I E K
 NALI S GK LG S E V I N D M N W DE S E F $⿴ 囗 ⿰ 丿 ㇄$

 LVDVREEEYRVLTT
 NAVI QDFPLTTPVLTAVNDNKWLEESFPQVQNRGAAVIAA
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 N ATVVNGRKATCELVDRE WI N N WATVGGGTPATELLVDEA WLAPNFRPVVVAK SQARPSLP SSSQKSDDEAGTKRDRGAAMAEARG RAYVGGTPLTVNPDNDFNQDLMFEMEEKILKRSDAJLKITE

 Y ATAAGEKVSDKVDAA WVEQDFIPRVAK RGAEII EVRG


 ET DVPLFS LGAPEFYKSLDDEQRDALVHRVQYGGDEVVKG FATADGASDADAINDQEWNANTF，PTVGKRGAADIAARG
 H GKVVND GAEVAASAACNDNAWLKSDFITTKRGAAVLAAR HATVDLPEGTVKVADKLDAEY LEKEFAPMDATRGGAVDKM

 S QAKP SNK DS QVEA R R LTY A DRMSNN TVLDPHDN



 SQSQPKFALDDE MFNQMK IA L R I HGGEEVVLAKNH
 NAKI K GQAVTEVI S D QA WLE GEF ITVVQQRGAA I KA R
 QALI NDRPDAETIA DRDWLDG

 S GIVPLLSQSSHPLPS GFAQDALEQLTNRDQFGGDEVVKG NATVDGKSVVEAVANNDYLNAEFVVEVVQ KRAAAVINAR H A KVVKLQAKEVGGVYEAVKDDSWLKDMTHTVQQCDAVVDKA Y CRVV G I P L G ELLLDAREVD A L T EAVQDTHKKS S T I GTKPGGKYLKRDFNDLYKRFTMMTREVLATKKVPPTLSAG
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K L S S A MS A A K G V D H MK D WWA GEYVSMGV ${ }^{\square}$ V D GNTYGVGK GASSAASAASAAIDHMRDWVGGQWASMGVVSAGNPYGVDE GGSATVLSMAYA GYKFA E A F E GK K GVVAPSYVYVQKE IGQD K N S S VMS A A N AVK D H L H D WY T K S GEFVV MAVY SD G S Y GVV ASSAASAASSA DDHDRDWVLGTPEGEWTSMAVSDGSYGIE KGSATLSMAAAANRFLCGIL RADCTGETVDDCFVREMMHK MKKSSAASAASCDHVHDWWVGTKPGEFVSMGVLNNKYGVS S S A A SA GNAAMNHDTTWVNGTAEGDYTSMAIPSDGSYGVK RGKSSAASAASAADHMHDWDHGTEDWRTAAVVSDGSYGVD VT R F F C T Q GE WVS MAVI SDCSYGPA A GSATLSMAYAGYRFAEAAKGEKG\|VESTFVYLPGVQGGE GSSSAASAAAAA $\square D H M R D W V H D P A H W R T A G V Y S D G S Y G \square E$ RGASSAASACRMRNWCDGTTGDNWVSMADPVPENKPYGIV

 LS SAA SAANA A DDHMRD WA LGSNGRWVTM GDASDGQYGIK K G GAGSATLSMAAAAAEFADACLRGLSGESGIWACAYVES GASSAASAANGVVDTVRGDITPPGDCFSAAVVSDGSYGAE RSSAMSAAKAA CDHDHDWHFGTKA GQFVSMAVSD GS Y G IP QLS SALLSAASSVCDHVYD WLNK E GEWTSMGVVSDGS YGVE GASSAASAASATIDHARDWALGTDQDVSMAVPSDGSYGVP

 R S S A M S A A K A A CD DVVRDWFMGTK Q DEWVSMAVSD GS Y GVV ASSAASAASAALDHIHDWVRGTAA GDWVSMAVSDGSYGVP GASSAASAA GAADDHMRD WVTPEGQWVTA GVASD GS Y GVVE SSATS A AKAADDTVDACEKPTDSGDCFSAAI AS DGA YDV E

 LSSSAASAANAA I DH I R D WVL GS N GKWVVTMGVVPSDGS Y G DE

 LSS S A A SAAAN A A I D H V AR D WV L G S N G K WVT M G DP S T GVV Y G V E
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RSSAASA GSAAI DHMRDWVVGSKEMQS I S F Y S S D GK T Y GU E


 GLSS SAASAANAAIDHMRDWVLGSDEWVTMGVPSDGSYGIP SSSAASAAAAAVDHMRDWVMGPEGDWVSVALPSDGSYGID K A GGGSATLSMGQAAARFGLS LVRADNGEANVVECAYGEH
 TLSMAFAGAEFAGKVIRALNGEKGVVAPSYVALKKEIGKD

 $R$ S S A A S A A S A A CD HI H D WFIGGT Q S GQIVVSMAVID GS Y GVV KMSSAMSAAKAAVDHMRDWWS GSGSWVSMGVI SDGSYGVP $K L S S A M S A A K A D G D H L H D W \square C G S E G R W V S M A V T N K Y G V P E$ R GASSAASAACVKD W』YGTKDGEFVSMADPVPDNEPYGVK KMSSAMSAAKAASDHMRDWFTHDGEYVSMGVDSDGSYGPK RKASSAASAAKDDHFRDWTDGT DKEK VVCMIVSEGQYGワK A GSATLSMAYA GYKLAES ILLKAFNEPNVVCTFDNLDDSIK KEKNSFALSYAAARFCMSLCKADRHQGNVCAYVRSCADPE
 SAASAARALAEAARSIFDPREGEWFSSGVCSDYNPYGIPE LSS A A SAA NAAVGHVHD WMLDS SH HN D WVT MVP S D G S Y DI E R GAASAANACVQGVYNLTHDTPAGETHSMCLSSTGQYGVD RGSATLSMAEAGARFAMMVVKGLTANPDVCAYVDTNGQHG
 $K$ GAA QL SMGYCVVA QFCDS LVVRSMQ GEKNVKEVGFDPS DVN KGSAPFG $\square A S V A A N L C C S V I L D K H E V Y P V S H F Q E Q Y$ $R G L S S S A A K A D V D H V D W M L G T P S G T H V S M A V Y S N P Y G V P$ GSSSSAASAANAVVDTVVKSVVTPTPAWTVVAVCSDGS YGVVE GSSSAASAADATIDRHVHDWFT PE GDWTSMGVVSDGSYGVPD R GSAAKAAVDHVHD WVLGTTAE GTHVSMGVYSTGNSY GVPD R GK S S A A S A A R A LA EAARS $\square Y$ QE WFS S GVCSSDHNP Y G L P E
 A GSATLSMAYAGVEFANKI DRAVKGEKGLVAPLKKEIGSD KMSSAMSAAKAASDHMRDWF TKDGEFVVSMGVVSDGSYGPK R K P S S A M S A K A I S D H I R D IW W G E F V S M G I IS D GN S Y GVP D D APYTLA Y ALLS K L V C N V VA K GLL C G K K H H P T S V V F L R T S A L F G V K




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UniRef90_UPIO00273F3E1

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A A
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DDTFSR
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 GLVYGFPCTSNGGEWEIVKGLEIDEATRAGIDHNI AALEE EGLUGYPLILDDGSUEVKRDVSLSEFAKSKFKDSVDELGS
 GLVFSFPVQCRAGEWSIVQGLK』TP DDFFSVP
D VFGLPDT TENGEYKLVELETDAFSKELTAKTLAELEE GLIFSMPCRSKDDGRYEIVDFVI DEWLDEKITASEEELDK GYFAAPLELGPNGDQKHLDIPLNDYECELLKAAVPRIKK GLSFSYPITSEGAHWQVVEGLPHDAEARERIVRLTTEELLQ GLIFSFPVTV KDGKWSIVELELDARSKEFAKTIAELGE GLFASFPCRSVDGRWEIVQGLELDERQQERIRTTADEL GLDFSFPVT TKNGKYEVVKLNLDEDSRQRIKKTVDELDS

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## A

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 GlFF SMPVICY G GEYHVVDDLVLDPSTKEMLKNS

 DLI F S M P
 GLLI FAS F P CRRV

 GLIES FPVTCS G GE WQIVSGLNVTPADSERIKA

 DLI YS FPCT CKD GEWTIV D
DLIFF GFPCRMLAT GEYEVI P LPP WDAF $\square R G K M Q \square S \square D E D L Q$



 GLM Y S F P V T I E N K K I T IVVQGLLS I N E F
LPFF A S K I K I G K Q GVEAV DA S DL T E Y E Q K S LEA A L K P E L K A


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| UniRef90-L8WMD6 | $\mathrm{N} \square \mathrm{S}$ |
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jnet
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sol25
sol5
sol0
jhmm
jpssm


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


[^0]:[^1]:    VGSATLS MVYA A A R FVVES S MRALDGDGD\|YEYS YVES DIE

