## QUERY

UniRef90_OOPXW3
UniRef90_UPIooo38EF2FB UniRef90-V9LKD6 UniRef90_11EWF6 UniRef90-M4B301
UniRef90 - K9H1H3 UniRef90 ${ }^{-}$W5 JIM UniRef90 ${ }^{-}$W7TPG2 UniRef90-F4GMS4 UniRef90 V9LKD7 UniRef90-T1J3DO UniRet90_Q2W9V9 UniRef90-B4WODO UniRef90_Q7RR UniRef90 B7K9X2 UniRef90-C5M1J2 UniRef90_HOO1Y2 UniRef90 A7T8J2 UniRef90-H3AAL5 5

UniRef90-LONLS UniRef90-UPI0003B3886A UniRef90 H31H34 UniRef90- V4R244 UniRef90_UPIO003747EA8 UniRef90 C1CONO UniRef90-D4X7Q6 UniRef90-V4CJL1 UniRef90-BoJQV0 UniRef90 Q2YB52 | UniRef90_W4H6D6 |
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EGRDAI KKDFKFNDFNEAFGFMTRVALKADQMNHHPE NRDAI HR DFEFRDENEAWGFMNRAAL LAEQMGHHPE
DNRDAI RRRFSFKTFNQAFGFMTRCALVAEKMDHHPE
ENRDAI YKEYLFADFNQAWAFMSAVALKAEQMNHHPE ERDAVEKTFIFHDFNEAWGFMSRVALLAEQHNHHPE E GRDAI HK TFIFKNFNEAFGFMTQVAMQAEKLDHHPE DVEGRDALFKEFAFKNFNQAFGFMTRVALQAEKLNHHPE DRDAI YKE II IFKNFNQAFGFMSRVAMMAEKMDHHPE E VEGRDAI SRSLLRAADFSEAFAFMTRIAMAAERMNHHPE DWE GEAHLERSYEFPDFKTADAFTNRVGEDAEEQGHHPA

K DRDAI YKEY LFGDFNEAFGFMTRVALKADKMDHHPE NN NKLHREYKFNSFVEAFGFMSSTALIAESMGHHPE EKISSRNFQFRNFNEAFGFMTRVALVAEKADHHPN DRDAI HRSLRFKDFNAAFAFMTRVALMAEKMDHHPE VEAKTRDAI QKDFHFKNFNQAFGFMTQVALMAEKMDHHPE $V E L E D R D A I Y K E F L F K S F N Q A F G F M T R V A L Q A E K M N H H P E$ V D GAAI SRSFRFRNFSQAFGFMAECALVAERMNHHPE
 VGGRDA

 RDAI EKRYRFPNFNAAFGFMARVAMFAEKLNHHPE
 LE Y E G IP R L Q KLYK FANFQ GA AAFTNAVGEAAEKE GHHPA D WE GRDAI YRRFEFKDFSEAWGFMSRAALAA EQDNHHPE K DRDAI YKEFLFSNFNESFGFMTRVALKAETMNHHPE DWSDREAI TRTLKFKDFGQAFGFMAQVALVAEKHDHHPE WQD GEHLKRSFRFKDFSAAWGFMNRVALLAEAQDHHPE
 WQEGDRLKREWRFKDFSEAFAFMTRVALLAETMQHHPN E DGLLA TRE LKFADFNEAFGFMTRVAI QADKVDHHPE E GRRDABYKEDK FADFNEAFS FMQSVVALLA EKMDH H P E
 D GR D A I T R T F T F R N F REA F GFMM QV A L I A E K F D H H P E VRARSRRADFSAAWGFMTRVALEAEKLDHHPE DWKE GQK I RKELKFKDF $\square$ QAFSFMNSVAAVAE DMCH HPD E Q G D A I T K K E FS F D D F AQA F GF M T E CA I I A E K M G H H P E EKEGKLHREFQFNSFVEAFGFMSSLALVAESMGHHPE N W DNRDAI YKEY LIFRDFNAAFSFMSGVALLAEKLNHHPE
 GRA HKTYKFGDFVEAMGFMTRAALWAEKWNHHPE DEDAI R R S F DFKNFNAAFAFMTRVAMVAEK LDHHPE WE Q G D A I V KVVVRLA DFAEAMAFVNAVAELLAEAAAHHPD WQNRDAI QRTFQFKDFEEAWKFMSKTAELAEEMNHHPE

NGKLRRELRFADFVAAFGFMTQVALAAEAMGHHPE WE Q GDALVRTYVFKNFREAMAFVNRVAELAEEARHBPD EWRDGLAI ERTFTFKDFSEAFGFMARAALQAEVQDHHPE K D GAALERQFKFKTFSKTWDFMTGVSLQCKIKNHHPE MGWEDRDAI HKVFNFTDFKSAFRWMGAVARYAEEMNHHPE EWTEPDGI ARSFTFPDFVAAFGFMTRVALLAEKADHHPE GQAI RREFRFKNFYETMAFVNAVAWISHREDHHPD E WED GKKI TKRFSFKGFYKTMAFVNAVAWVANTEGHBPD EGGAAI RKGFKFKNFSEAFGFMTRAALAAEKLDHHPE D D GL EREWRFPSFVEAFGFMTQVALLAERANHHPE KGRDAI EKTFKFKDFNEAFGFMTRVALVAEKMDHHPE $D$ VQ GRDA I HKTFVFKNFTRAFGWMTQQVA V A EKMD H HPE E DQKAI DKSFKFKNF DDAFGFMTRAAI WAEKWNHHPE EVEGRDAIEKTFRFTDFKAAFGFMTRVAIAADGQDHHPE E WESPEGI RRHFVFTDFNAAFGFMSRVALLAEKADHHPE
 EGRSAI ARSFKFADFNQAFGFMARIALMAEKLDHHPE EDRDAI RKNLQFKNFYEAFGFMTQVAMYAEKMNHHPE NGDRLHRDLQFNSFVEAFGFMAQVALLAESKNHHPN D DRDAI DKEYTFKDFNEAFGFMTRIALKADKMDHHPE EKRDAI QKLFTFGDFNEAFGFMTQQALKAEKMNHHPE D WENN NEIVVRTFRLANFPAA DAFVTHVAFLAEAA GH HPD WEVDGKLQRTFTFDNFVQAFGFMTRVALLAESMDHHPD DRAAI GRSFVFADFSEAFGFMARVALAAEKADHHPD VD G N N S G I I H R E F TF K D F S D A DIK F M N A V A V E C E A A G H H P T Q TK FK SFRFKNF DEAWGFMSCVALRAESQNHHPE RDAI TRRFGFADFGEAFAFMTRVALIAEKADHHPE D D K L H R E L R F A S F V E A FA F M S GV A V V A E S M N H H P E DNRDAI RKEFVFKNFVKAFDFMKAVADEAEKMNHHPE
 GRDAI KRTYLFADFNQAFSFMTRVALVAEQMAHHPE NDKLNKKFKFKDFVEAFGFMTKVAII SEKMDHHPE D G E E Q L Q R VF T F K N FVVQA Q A F T N KV A DL A E E E G H H P A WEDRDAIERTFKFKDFSEAWAFMSRVALIAESSDHHPE


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UniRef90 K9VRY1 UniRef90-UPIOO0456182E UniRef90-U4LCS1 UniRef90-UPIOOO35C27F4 UniRet90_L8MV61 UniRef90 U3AKZ2 UniRef90_UPIOOO3B75642 UniReffo-Q46GT1 UniRef90-UP10004001FC8 UniRef90-Q96YL0 UniRef90-M2TAD1 UniRef90_Q31HZ6 UniRef90- W9BQT1
UniRef90 A2C7K4 UniRef90-Q8DHW8 UniRef9O-UPIOO037A852C UniRef90-G6FPP8 UniRef90-A0A017HFQ8 UniRef90 UP100037028CC UniRef90_L1QUW0 UniRef90-W9H6T5 UniRef90-F2U1U8 UniRef90-N6YF68
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UniRef90_UPIOOO3632A96

WEDGQAIISKTYRFGDYYRTMAFVNALLAFVIAHREDHHPD WEFFDKIRKSYNFKNYYQTMAFVNAI AWISHREDHHPD WEQGDKITKTFKFKNF ${ }^{\text {GGAFGWMSQ}}$ EGRDAI QKDYQFKDFNQAFGFMSRVALKAEKMDHHPE VEKGGEQQIERTFKFKNFAEADTFTNKVGDLAEAEGHHPA DGHLERSWSFPNFVQAWGFMNQVALIAQAMDHHPN NALHRTYKFKDYTSAQAFANQI GALLAEAEGHHPA WQDGDAI AKSYAFANYYETMAFVNALALIAHQQDHHPD WQQGGVISKTFKFKNYHETMAFVNATAWI SHREDHHPD
 EQNGETRTFEFKDFKTALAFVNKVGDLAEKAGHHPD DRDA RKEFRFKSFNQAWGFMNRVALVAEKMAHHPE DGGKAFTRTFTFRNFNEAFGFMTRAALVAEKNDHHPD VEKQGQLQLEKDYKFSDFQQAITFTNAVGNDAEDEGHHPA VEKQGQLQQ EDGASIAKTYKFKTFPMAFGFMTRAALYAEKWDHHPD DQRAI CKTYRFPDFVAAFGFMTRAALWAEKWNHHPD GETALTRSFKFKDFSEAFGFMARAALVAEKLDHHPE ERGVLSKTFGFETFVAAFGFMTRVALWAEKWNHHPD WQE WWE RDFRRDEKDFAWGFMNVALLAEKADHHPN ERDAIQKTFTFADFNAAFGFMTRVAIKAEQMNHHPE EQNNRLIKQFQFKDFKEAFEFMKRVAVVADKMDHHPY QDRDAIKKNFTFKDFNEAFGFMTRIALRADKVDHHPE EWTDETKLYRHLTFEDFDEAFGFMTQVALLAEAMDHHPE WQDGNTLRRDCHFKNFYETMAFVNAVAWI ANREDHHPD
QDGKSITQDFKFKSFAEAFSFMTHVALLAEKADHHPD EDQEXAYYEFCFKDFNQAFSFMTGALRAEKMDHHPE
 GDGIERSFQFKTFTKTWDFMTAVALQCKLKNHHPE DWDDGRAI ERAFRFPDFHRTMAFVNAAAWVAHREDHHPD DWEGRDAIKKTFTFKDFNQAFSFMTRVALVAEQMNHHPE DVPGRNAMTKSFKFADFNAAFGFMTRVALAAEKANHHPE DELDGEEQLKRVFKFSNFAKALAFTNTIGELAEAEGHHPA

GRDADKTFVFKDFNEAFGFMSRVALVAEKRDHHPE VNVDSDDRLTRTYQFNNFVNADAFTNKVGELAESMGHHPA WQDGEKI VKEYKFKDHYRTQAFTNAVMWVSHREDHHPF ERDAI EKAYRFADFKTAFAFMSATALKAEQMDHHPE EGKKI RKEFKFNDFKQSGQFMNEVALAAEKLDHBPE QKLSREYTFKDFSEAWGFMSRVALAAEKLNHHPE GTDSI RKTWKFRSFSEAWGFMSRMAL LAAEKMGHHPD WQVNDAI QRKFVFKDFSQAFGFMTQAAMQAHHDDHHPE EDNKSI HKVFKFADFRDAMSYMVRVSFEAEAANHHPE EDGGSI WKTFRFKTFAEAFTFMTQCAFAAEK円NHHPE ENEKLTKQFQFKNFSQAFGFMTECADSAEKLNHHPE LEVDGGGGERTFKKNGWEMNGAEKKTHHP WEGDAAISKTFRFVNFYETMAFVNALALIABQQDHHPD WDEEHHLYKTFKFPDFKTALTFTNKVGEVAEEQGHHPQ DGKSISRTFDFKNFSEAFAFMMRTALAAEKMDHHPD DWDDNTKIMRTFRFKDFMSALNFVNKVGEVAEVEGHHPD DWKDEDRLVRTYEFSNFKKALAFTQKIGDKAEEEGHHPS DGKAI ERALTFADFNAAFGFMTRVAGYADKADHHPE EQGSLCRDFQFKNFYETMAFVNAVAWIIADREDHHPD WEDRDAMRKALTLKDFNEAFGLLMTRIALHAEKINHHPE DDREAISKSFKFKDFNAAFGFMVRAALYAEKLDHHPE VEKDGDKRLERSFRFSNFVEALAFTNKVGEVVEEEGHHPV DGKLYRHFEFTSFIAAFGFMTRVALIVETQGHHPE DGLEREYVFGGFAKAMDFMNQVAQQCRDTRHHPE DWSDGGSIKRSFVFRNFSEAFAFMTRVALAAEKMDHHPD NGKLQKNFKFRDFVEAFGFDSKVAIVADKMGHHPE ERDAIVRKFVFEDFNAAFGFMTRVALKADKMDHHPE EDGLSI GRVYMFGDFNSAFGFMTRVAIMADKMDHHPE DNKTIKKEFKFENFDEAFGFMSKVALLSEKDDHHPD WERGDAI RRTYRDAGFRDAVFFMNAVAALAEGMNHHPD DWEDGQAI TRTFRFADYYRTLAFVNALAYIAHEQDHHPD GNVIEKTFLFHDFKEAVNFLNKVQPI ADSMNHHPD DGRDAI AKSFKFSDFVGAFGFMSRVALLAEKADHHPE WDDYQTLTKTFSFKNYHQTVAFVNAITWVAHKEDHHPE

RDGITRRFRFDDFARAFGFMTSVATLAEKADHHPE
DQRLRRQWRFRNFVEAFGFMTRVALLAEAMNHHPE WKQGDRLEQTFTFKDFLGSTAFVNRLVDPAEQAGHHPD DWDGVLQLERVYKFKNFKQA 1 AFTNAI GDMAEAEFHHPA EGSKLCCQRNFKDF LQAMEFVNKLVEPAESAGHHPD EARDAVTKTYRFANFVEAFGFMTRAAIWAEKGNHHPE DWDNVMMLEREYKFKNYKLDAWAFANKSELAESEFHHPS

EAARSIQRCFKFKDYHETMAFVNAVAWI AHTEDHHPD DWDPRPAI ARTLRFADFNAAFGFMTRVALLADKVDHHPE EVEDRDAI RKVYHFPDFAAAWGFMSRVALKAERMDHHPE

KDRDAI EKSFNFKDFSEAWAFMSRVALKAEELCHHPE WQEGDRLVREFAFANFDRTMAFVNAVAWVAHAEDHHPD MKVSEPAALTAEFKCASFAAAMGFMTEIADADKDNHHPE QLEREFTFKNFKQAWAFADKVAELAESEFHHPA HH: EKEFQFKNFKEALDFTNKVGALAEKENHHPD



## UniRef90 K9x9Y4 UniRef90-UgVRY4 UniRef90_G7Y883

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UniRef90-A3Z5U0
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UniRef90_K1xLT0
DEVDGEPRLIERTYKFPDFQSALLDFTNRIVGAAAEEEGHHPA ${ }^{40}$ DWDGVQQLQRVYNFSNFKTALEFTNKVGEDAEAEQHHPA MDWENGKALGRSLTEKNFDDAFEFMKDVAVKAKEMNHHPE VDVEGTDQLHRSYRFPDFAQALALTNRIGALAERFDHHPE DWSARTALTRSFGFKDFSEAFGFMARVALEAQAQDHHPD WQNNDKLTKNFKFKSFIRAFGWMSQIAIWAEKLTNHHPE EWDDAHRIERTFRFRNFVESLAFVQKVGELAESEGHHPD EWDYNNQLTRDFQFNDFSEAFAFMTRVALIAEKMDHHPW WWEDDA NKVFKFKDFSQAFAFMTRVALKAEVMDHHPE WENRNVIRKNFVFKDFKQAWAFMNKVAEKADQADHHPE EWDGREAIKRTLVFKDFNAAFGFMTRVALYADKADHHPE DGQLERRWQFRDFNEAWGFMSRVALLAEAMNHHPD
GRDAIVKEFLFKDFSAAFGWMSRVAMKAEQMNHHAE EWEGGSKLSRSWKVKSFNKGLEFFRLIADLAEAEGHHPD DGRDAMSASFRFENFDDAFGFMTQUALRAEKMDHHPE EVDGRDAMEKTFVFDSFVDAFGWMTRAAIWAEKWDHHPE WQDGKTLRCRRVFGDFLEADAFVNALVEPAETAGHHPD WENSQQIQREFNFANFIEAFSFMTKVALICEKYNHHPN DWEGTDQLHREFTFKNFKLA WAFSNEVATLAEAEGHHPA WEEGKAI ARTFRFRDFSEAWGFMSRVALLAEAQDHHPE EGRDA:KKTFVFGDFTEAFAFMTGTALWAEKWDHHPE पERDGDPQLEKVYKFKNYKLAWAFANKVSGLAEEEFHHPS QLKREYTFKNFKQAMAFSNRLADLAEAEGHHPG WEHGKEI QRTFTFENFVKADDFVNRLVEPAEQAGHHPD EGREAITKVFTFGDFQEAFAFMTRVALDAERMNHHPE WEERDAI RRAFQFADFNEAFGFMTRVAIKAQEMDHHPE DWDGVQRLSRTYRFRNFAEA $Q E T N R V G A L A E T E G H H P A$ WEKNEKLNKSFKFKDFNEAFGFMTRIALVAESINHHPE EDGAAIVRSFKFSSFAEAFGFMAESALAAEKLNHHPE
 GGGSICRELLFDDFVQAFSFMTRVALLAERQGHHPD EWEHRDATRTFTFSDFAEAFGFMARVA VAEKMNHPE DWQVKDAI ERRFRFRNFYESMAFVNAIAWIAAREDHHPD EGKMLHCERKFKDFVEA IAFVNQLVEPAETAAHHPD KDGTEIVGSFSFNDFHESMGFANAVAFVANTEGHHPV DNTTKIQRTFTFSNFMEAQEFAQRVGNI AESENHHPD VEEDGПEKLQRHFTFKNFVQALDFTHRVGDLAEQEGHHPA RDA SKSFEFDDFVAAFGFMARVALHAEKADHHPE EENNKLKRTFEFKNFVEAFGFMSSVALTAEKMDHHPN WO NKK KCTKFDF WENGHALTRTFQFDNYYRTLAFVNALAFDAHCEDHHPD

DNQLSKEFKFKGFDQAFGFMTEVAITAETMDHHPE EQDNKLVRDLQFADFQEAFSFMTQVALVAEKMDHHPW
EDDTAISRDFRFADFREAFAFMSECALAAERLDHHPE VNGNNANAI ECDYVFANFVEAMRYMNTVAPVCEQMQHHPC GGDA TRHLEFKDFKTAFAFMTEVAEAADRDDHHPE EWQGIMQLERVFTFTDFQQALAFTNRVGETAEAAGHHPA VEVDGVKQLERQFKFDNFVAALAFTNRVGELAESAGHHPA DRPATRTLKFADFNAAFGFMTRVALMADKMDHHPE GKLYRECTFPNFALAFGFMASAAITAEAMNHHPE DWTEGKSIQMDLTFKDFDEADAYDNKVVEPAETAGHHPD

ENGKKIKKEFRFKDFKQSVDFLKDI QPSADALDHHPD VEDDGПKRLQKTFKFNNFANALSFTNKI GALCEQEGHHPA DWDGVMQLERAYSFRTFKHALAFTNAVGEIAESENHHPS DWSEAGLLQKNFRFASYAATLDFVNTVAGLAERENHHPD DDGTRIKRSWTAKNFMAAIDFFNKVAELAEQDGHHPD WT LDDAISKTFKFANFVEAFGFMTESALAAEKLDNHPE EDGDAAERKFKFASFREAFGFMTEGALAAEKFNHHPE ESRAALQQNFRLH LLPAFGFMSRVALQAEKMNHHPE
DETGCLQKAFGFSSYTATMDFVNMVAGLAERENHHPD WQESGAMEKSFKFKDFSRAFAFMTRVALLAERAGHHPD DWQGELQLRREFVFRNFKEGLAFTNRLGELAEAEFHHPA DWDDAHRIERRFAFDSFADAFKFVQRVAELAETEINHBPE DDWEYDNALHTDFEFDNFKDCMSAMNRIAFECEALNHHPE WEYDGAI ETTFEFKNFKEAFSVMTRIAFECEALNHHPD DGQSI VCDRRFAGFPEA $\square A F L N R L V E P A E A A G H H P D$ EGKALERSFKFKTFAKTWDFMTAVSLQCKLKNHHPE D WQ QDDKLSKQYKFSDFQHAFGFMT CACYCEKVNHHPE EWESRDATRRFTFADFSEAFAFMTRVAFLAEKADHHPE DWDGVMQLERMYKFKNFKLALEFTNLLGAMAEEEGHHPG DWDGSQALKRVFRFKNFKKALAFVNQVGELAEAEYHHPS DERDGUAQLEKIYCFKNFKQAWAFSNHIAELAEQEFHHPA DERDGUKQLEREFTFKNFKLAWAFSNKVAELAEAEFHHPT LRRSTLPDMSALAFSNRVGELAEAEQHPE D WDNDKRLVKVYKFNNFVDALAFTNQVGELAESLAHHPA VDDSGTSKLVRVFTFKDFQSALDFTNRVGQLAEAEGHHPA DWKEGKHLKIVKDFKDFIEAIAFVNKLVEPAETAGHHPD DWQYNQLI GKTFEFKNYYQTMAFVNVVAWDSHREDHHPD

LL LT E WG K|V|K|V|SWWTHATSG|L|HRNDF|I|MAAKTDQ■ATK L L T E WGKVTV TWWTHALNGLHRNDFI MAAKTDAAA Q


 $\square S$ F G W G Y A T V S L R T K K lak G L H E N D F I MA A K ID P L A



 WF NVV Y N R V E I Th L A T H D V Q G L S V R D V N L A A K F I WS NVYATV WF NVYNRVEVTLTT

 WS NV Y N K V E I T L T T H D V D Gl  WSNTYNKVKVVLTT | $L$ | $T$ | $I$ | $S$ | $Y$ | $N$ | $Q$ | $V$ | $T$ | $V$ | $V$ | $L$ | $T$ | $T$ | $H$ | $D$ | $A$ | $G$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $G$ | $G$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $W$ | $C$ | $N$ | $V$ | $Y$ | $K$ | $T$ | $V$ | $A$ | $I$ | $S$ | $L$ | $T$ | $T$ | $H$ | $D$ | $A$ | $G$ | WF N V Y Y N R V $V$ E



WANIYRTVTVTLATH
WF NVYSKVDITLSTHEANGV
WFNVYKVDTLS THEANGVTERDIADATADDSDA
 WS NVYSRVKVCLT THDSQGVTERDFLLAEAMQKAAA WSNTYNSVVVTLTSHDVGGLSSRDAKLARKMDAL
 WF NVYNRVDVTLT THDAGGV


L LSVA WA S CEVVRYWTHAA I H G L L 39F33F9 B4074A



 WS NVY NRVIVNDSTHSEGGITILDKELDAMKDDSII

 WS NV Y N R V S I R L T T H D S N GL TA S D l A LAA D D D A A A



 | $V$ | $C$ | $V$ | $Y$ | $Y$ | $N$ | $R$ | $V$ | $V$ | $V$ | $E$ | $L$ | $T$ | $T$ | $H$ | $D$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $I$ | $L$ | $T$ | $E$ | $L$ |  |  |  |  |  |  |  |  |  |  |  |  | L L T E WG K V $L V V G Y G R V T V S Y S T H D V G G L S R N D F T C A A K D E A L L R B$ L HLEYRNV SI E LIWTHAI G GLSENDF I LAAAKINQL WF N V $Y$ Y S R R V





L L W GKV TV S WWT H
 LEVSYNRVNI RLNTHDANGV WENFYNTTFI RWTTHNPGGL

## 

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UniRef90 UPIO0046FDCB0 UniRef90-UPI00041BF874 UniRef90-A6SW93
UniRef90—В В
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WSDARMIYRRFKFRNFTDALSFVNRVAEVAEAEDHHPD VEKNGVEMLERKYEFPDFASALMFTERVGKLAENEKHHPS DKDALHKSFRFADFNEAWGFMARCALLAE KMNHHPE GDAI CKSYHFATFPAG IAFDAKVADVAERDQHHPD VEDEGTPRLERQFRपRDFREA 1 AFTVRVGEEAEAEGHHPA EEPDRURAFTFPDFAQAQAFAVQVGTLCEAEGHHAE
 EQGKLHREFKFASFVEAFGFMSSLALVSEANGHHPE NGKEI QS $\square R K F K D F V E A T A F V N K L V A P A E A A G H H P D$ NEKLCKTFKFKNFUSAFGWMSQ AIDAEKLIHHPE NWKEGQRIRKEWAVKNFMTGMRFFNKVAEIGEAEGHHPD DEHHLEREYKFKNFKHALSFTNVIGKVAEEEGHHPD WKENSSLVKEFKFRDFSASVKFVDLVRPVADSMDHHPD WEYDDAI HTTFEFENFKEAFATMTRIIAFEAELQQHHPE KLSKTFKFESFVEAFGFMAKAALVAEKLNHHPE DDGHLIRRKFKFDDFKQALAFVDKVGQLAEEERHHPD DWDGVMQLEKRFEFPDFAQALAFTNRVGEIAEAEGHHPK MOWEGVQKLRQSWKVKSFTKGVDFMGAVAGVAEEEGHHPD DGDVLCKTFEFEDFTAAFAFMSRAALWAEKWNHHPD

## D W

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WEENGEI QKTYRLETFPEATQFVHLVADLAESLDHHPN EHDGDMKLTKDFSFRNFADALAFTQRVGDLAEQAGHHPV

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UniRef90
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10
20
30
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WKDGKWI ERKYRFEEFMDATEFVNQVAQVAESLNHHPM GDTITKSYHFATFPDGIAFIARVATVAEEQQHHPD MGWEGQDVTFQQFHFKDFRRAI GFVMRVALQAEKDDHHPE DWQEAGKLVRSFAFNNYYETLAFVNAIAWMDHAEDHHPE EGDKKLKKTFSFSSYKDSLDFTNKVGDMADKEDHHPE
WQDETVLTRRYETKNFAKALMLVNGVGYLAEAQGHHPD
ENDNKLYRKDTFKDFNEAFGFMTRVALAAEKMDHHPT DWKEEKMI VRRFRFPSFRQAMAFANGVAEMAEAMQHHPF QDGKLALSLQFQDFSMAWGFMSRVALLAEQQQHHPE EWEDAPALHRTVRLPDFAGATALVNEIAQAAEQADHHPD WQRGDALERTAELADFPQA $\triangle A V V N R V A E D A E G V N H H P D$ RKGVVRQFTFSSFTKA WRFMSLIADECKAKNHHPS GAQLQITRTFNDFVQATEFVNKLVAPAESAGHHPD WQQGGKLSKEYRFRDFATALGWMVKVGVYADTLGHHPE EWEHGDESSTYTFDTYMRGAEFVPILGELAEEAFHHPS DGVT ERTAKLPSFPDADAAVNKVALLAEAADHHPD EGNYVVRELEFKAFMDCIAFINQLAQ\|AEAEEHHPD EDDTKKLRVFSFPDFAEAGRFGRLVGELAEQEGHHPA
 DAKAKKDFRFEDFSAAWGFMNRAALLAEKMDHHPE DPDRLERDYRFSNFREAQHFAMRVGDLCEAEGHHAE
EDDTYI QRKVIFRNFSEALTFVNQVGKFAEDAHHHPE EWKDGRGLSRKYLFRNFDDAWKFMTMLVDEFRAKKHHPD DWDNNHHI QREFEFENFQEADNFVNDVGDDAEEQGHHPV WDEEGFLVTSLDFKDFADAFAMMTRIAFEAEALQHHPE EWRREDAIVRTAELPSFPAATEVVDRVAEDAEEADHHPD VDKDSUPKLSRSYKFSNFKRALAFTQKVGEAAEQAGHHPM NEHHLEKEWKFDDFQSALYFTNKI GSLAEEQGHHPD DGVPQLEKVYRFNNFKQAWAFSDQVANLAEAMHHHPK WDYDGALHTSLDFKSFRDAFAMMTRIAFEAEAQNHHPD DGKLHKAFHFDNFMHAFGWMTEI AMHAEKMNHHPE LQQEWKVRNFQAGLELDKRIGEVAEAEGHHPD
DGDEIARTFEFDSYGEGVGFASGAAGIAEEAFHHPE EEKKMTRQFTFQHFIQAFEFMTHCASYAEELINHHPD DGRVLYSTCTFPDFVNAI AFVNRLVAPAETRGHHPD WQRGDSLVRTVESPSFPEAVELVRKVAEAAEAANHHPD AFGFMTCVALQAEKMNHHPE DHMELERVF LFRNFRHALAFTNAVGAIAEEVGHHPA GDAI ERETELASFPEAI EVVNRVAELAEAANHHPD QDGEAIVRIAELASFSEAIQAVNRVAEIAENDNHHPD EPDKKLQKVFNFKNYKDSLNFSIKIAKLADEEDHHPQ DNKLSKEFRFSDFRQAFAFMAEVAILAEEHDHHPD EQDNELRAAFEFKNFTQAFAFMTEVAFVAEAQQHHPN QEERWLVRKYRFPAFRDAVSFVNRVAEAAEEDDHHPL QRKAL YRKLILLGDFCEAFGGMARIAALHAEKADHHPE GEQI ERSYSFPDYGTGVGFVIVVALLAERRRDHHPE D D R L Q K T Y T F G S F R E A V S F IVRIIA F EA E Q L N H H P E E ENKIIKKEFQFTNFDDSVTFVWM|RP■ANGMNHHPD




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 WENGWI RRKYRTEGWKGTLMVVNAVGHLAEAAWHHPD WEDGDSLVRTAQDPGFLDAI AVVDAVAQEAEAADHHPD EDGWLRRKFSTDGWPTTLMLVNALGYLCEAAWHHAD DGDEITRTYEFDDYDRGVAFATEVGELAEEEFHHPE DWEDRDWLRRTFHTPGWPHTMMLVQAVGLLAEAAWHHPD EWEDDKWI ARQYKFDSYMDGVQFANQI AEYAEKRQHHPF EDKFIVKRYRFSEFLTGVQFVNHVAEYSEDDQHHPF
WE LGDGI HKEFNTKNWKTTDFVVNTIAGLAEAHWHHPD E $\square \mathrm{DGDPQLCRNWNAKFVKG} \mathrm{\square EDMKRVAGVAEAEGHHPD}$ EDGKLVRTFGFSNYYRTMAFVNALAYLSHAEDHHPE D WR DGRAISRAFTSKNWSAAMEFLNAVSVVAEREGHHPD DWQDGETLAARFATGDFATGLDLVNRIGAAAEAANHHPD WEYRDAVHRTWQLKGFLTAMSMANALAHLANEANHHPD LEKNFTFKNFSESQKFVNEVGNIAETQGHHPD DSGELVRDWAFENFVEAMVFVNHVAGVAEASGHHPD DWEEHHELRRTVKMPDFMSAIGLINAVAQVAETQDHHPE EWELRDGLERDRVFADFSAAVSFVTAVAGLAEAQGHHPD WKNNHHLQKNYVFPSYQEALRFTNLIANLAESEGHHPE EDRMALSRTYQCRDFSTAVSFVNRVAELLDQDSHHVE DGDAIVRERELEDFRAALAWVNEVGAEAEAANHHPD WGDAGKI GRDFGFDTYQAGVDFVVRVAALAEARGHHPD DGRLEDSVRAKGFEGAVEFINRFADIAESMNHHPD LR RTYKKNWKATMMLVNATGYLAETAWHHPD KNKTGIERNFRFKTFKNTWAFMSEIAAECNQVRHHPE WDDATGI ERNTKFPTFKKAWAFMERVASAAAAHRHHPE WERADGI RRSITFPAFKDGDDAVRRVAEHAEAKDHHPD NWKNDKWI ERKYMFKDYMQGI QFVSAI GQIAEKNQHHPF

KDEKWI ECRFRFQEFMSGVQFVNKI ADVAESMDHHPF
QDGMGVTKTFYFKAYFKAVSFVNVIAAESAAKKHHPT EWRDGNTLRRSVVAPDFRTAIAGVNEAEQAEA NHHPD DDQLVKSFTFTDFRAAISFIVRLSFYAEELNHHPE DWSADDTIVATYATGDFATGLEFVNRVGAAAEAANHHPD

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KLHPSWLVKSFTKGLGFFNRVAK TAEWEGHHPD KDEKWI ERKYMFSDYDKGVEFVSEAAKLSEEHNHHPF LSRVYKFSNFEKSLNFINKLSTIAEEEGHHPD ENKQALVRTFSFPDFPSALRMVNRLADHMEGEDHDPE DES LDAIVRAFTSKNWSCALAFLNAVSVIAEREGHHPD DKDALVFDCKFKNFSKT WK FLNEVALLAHTMKHHPT DGDRLTRSYRDGSHFAATAMVVHIAQVQEELDHHSD AIEKTFVFDQHSHALLIVVNSVGWLSEKLNHHPE VYRDKFKNYLDAVKFLGDLAQIAERLGHHPD DKKWI EKSYRFKEYLDGIAFVQKIARISEEANHHPF DWKLIRALHARFDTGDFAKGLAFVTAVGKAAERAGHHPD DWKAGEYI ERVKHASTYMEGIAFVTKVAEAAEVNNHHPD DWHDGDAI TRTYTFEEYDDGVAFASEVGDLADEAFHHPE KDESRLCRTDKFKDFETTWSFLNQLSMRAHEWGHHPT पS WQDSTKLTKEFTFTNFKQTFVFMGSVSQVADQMQHFPK WQDSSKLVKEFKFNSFKETFAFMGSISTIADEMHHYPK


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UniRef90-M3G581
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UniRef90-H6RDL2
UniRef90-W9GML8
UniRef90-UPIOOO3B591F0 UniRef90-H8WZ13 UniRef90-K4AQM5 UniRef90-U5D263 UniRef90-K9ZVX8 UniRef90-A0A021 WOX7 UniRef90-D3SLY7 UniRef90-D9VQE9 UniRef90-V6HHH3 UniRef90_UPIO002F525F7 UniRef90_UPI000311FA32 UniRef90-Q5WAS3 UniRef90-F4S1R5 UniRef90-C1G3E5 UniRef90-H2AMP3 UniRef90-HOAET3
UniRef90 D9UJK6 UniRef90 ${ }^{-K} 8$ FF50 UniRef90-UPIOOO41480C6 UniRef90-B3QY50 UniRef90-UP100047DCF7A UniRef90-TORWM8 UniRef90-UPIOO046F55EB UniRef90-E2REV1 UniRef90-K9P993 UniRef90-Aовм93 UniRef90-C4XWK6 UniRef90-UPIO0037343BC UniRef90_Q9LU63 UniRef90-J1L533
UniRef90-G3AZ40 UniRef90-F4H6U4 UniRe90-E4V7396 UniRef90-D2PN66 UniRef90-A3TGV4 UniRef90-A3LMW2 UniRef90-MOM3G6 UniRef90-G5C433 UniRef90-R4Z4C0 UniRef90-P38744 UniRef90 UPI00031A32F0 UniRef90-UP100047D5BC6 UniRef90-M0QG31 UniRef90-G8YQB6 UniRet90 A6CBL5 UniRef90_D9SYQ2
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 ANF EASAFMTKVALICEKYNHHPN DEKWLEKKYRFGEYLNGTDFVQKVAHRSEQENHHPF DGHSANKTYFTKNWKETVFLANALAYLAEAYWHHPD DTGREFEFPTFKESFAFMSSVSDLSEKMEHYPK DTGKLVRECTFPDFESTWGFLTQVSMRSHLWGHHPT DKNRLVKEYQFADFARAVVFVNKLVNPDEERQNYPR EGDT WAVYVAPDFLTGLRLVEEVATDAEAMNHHPD DKSLTKDVVFPDFESTWGFLTQVSMRSHLWGHHPT GTSLQRELLLLADFEATWGLLTQVAMRAHLWGHHPT ENGWIRRKYKTHGWKGTLMAVNTIGHLAEAAWHHPD NRDAIEKEFQFKNFNEAFGFMTRVALLAEKMDHHPE EVDKHLAKDFQFGDYDQVVNFVNQVAAIAKSQDHHPD NGDSLTRTVECADFPAAI TLVDHVAEAAEAAQHHPD DNDDHIEKTFVFKKYSRALAFCNAIACDAEAHDHHPR EWRDGDAI RRRURAATF乌DGUDLVARVARAAEAADHHPD

DDGRAD HRSFRFDSFASAFAFMAACADEAEKLDHHPD EWRSGDSISRTDKAATFPAGDEVVRRVAVAAEAANHHPD WRQGDSLMTVLETSGFSRGAALLPEIAQVADELNHHPD DEVHYKLKNFKKTWEFLNLIAKQADLKKHHPK
 GGLSRDFTFESYEAGVAFAVHLALMAQRANHHPD EEGYLVKEISTKSWKETVMI FNAVAYLAEALWHHPD EDDRIERTYRVDSHRAASALVSHICVVQDELNHHSE RIRKNFPFSTYSEGTRFVNEIAREAEREDHHPD QLTПTYATGDFATALALANRIGEAAEAADHRPD EDDHLVRSYTLAGHPAAVALLVHI SVAQEELNHHAE EGEALWRTFTFDHFLKGIDFVQNVAAYSEGAQHHPV ALKKTFQFKTWGKADEWINKLRPMADECDHHPD EKMGVTKTFYFKTYTKCQDFFNLVA IKSKSENHHST ENRTSLTRECVFPDFESTWAFLTRVSMRSHLWGHHPT
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$\qquad$ EEGN LKKVTFQDFSSALHWVRHAGAICEEQGHHAD QEGDRIRATYKLKTFAKTWELLNM: ALQAQRLRHHPT GGDKI RCMWKVRDFGCGVELINRIHKVAEASGHYPS WSENGKLKRRFTFESVGEAAAF GQVALGAESADHYPD LSAHYQLSSFAKTWLFLSEVAREANKTKHHPT ERRCGIEKAYYFKTYTKCQDFFNTVADRSKAKNHHST

NALVRSVETPTFGDGTRLVATVAQLAESMNHHPD EGDTVATIEAPDFPAADRVAEAAEVAEEMNHHPD ETDFL HANYEFKTFKDTWKFLNKVADGANSLKHHPT
$E G D E V V R T Y E F D E Y D D G V E A S E A A E T A D E E F H H P E ~$

DAISRQFKFADFNEAFRFKTRVAIKAQQDDHHPF ELSERYAIKKEFFFKTFNQAFGFMSQIALQAEK】NHHDE VQWDPNKGITREVTFKDYETTWAFLTRVSMRSHLWGHHPD

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GREATEKRFTFADFNAAFAFMTRCAMRAEQLDHHPE LSKTFLFSTYLSGLEFVNSLAQDAEKLNHHPD DGMLTATYRAGNMVRGLELVTAVVGAAEQVNHHPD WQSDDALHARFQTGSFQSGFSFMAQASADAEQMKHYPK EGDLLQAAYRTGSMVRGGEFVNRADABAEDAGHHPD DYi QRKVVFPSFSQATTFLRDMLLQNEKMNHHCK WEDGDTITRTFA HTYHECVHLDMYVAAKAREDGHHPD



UniRef90 C7Z417
UniRef90-UPIO003B53436 UniRef90-Q0RX10 UniRef90-BoXSY4
UniRef90-D5UUE5 UniRef90-C5M519 UniRef90-G0QIN3 UniRef90_UPI00037E847B UniRef90_17BMN8 UniRef90-H6MXS9 UniRef90-UPIO0046F713C UniRef90_W9FYQ0 UniRef90-F2L6E0

## UniRef90-M2Y6X6

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 EWESNDGLQ SFKFSSFQTAFSFI TKLALVSESLDDH HAE GAL RAEYRTQSMVRGLNLVTEAVEAAEAANHHPD WVD D GTLTAGYRTGSMVRSVQFVDAVTAAAAAAAEHPD MDAVAAEAARTKHHPE WEVD GK LRHTFGFGSFDQSMKFVAKIAA DADKFNHHPD WRERDALVCAWAFADTRDADDFLALVAEAAEHQGHHPD WEDEDEIVRTFEFDAYLDGVGFAAAAGGLAQEAFHHPE VE WSEGDAI HRHTALPSTTELNVIQDLIMRRADEMGHHPH
 E GETLIRSFSFDDFLAG\|DFVQNVSAYSEGAQHHPY


G GQALEREFKFKTFAKTWDFMTAVSLQCKLKNHHPE
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DGDRLTRAYRLDSHFAAAALVVHVARIQDELDHHAE
 WK E R S R L E R R Y E F P D Y E T L R E F L D R V A E L S E Q E G L H P D WE LK DKL IKKFKFERF LDDGIEFVNMLAQQAEKEQHHPG WDP GRAL NKRYNFERYGQTRDF L DRVVAELDSESDGYHPN GSLLTYTAVCETPQAA $\square$ NLVVAAI GQAANSQDHHPD D P E S A TKLSMDVKFKNYKQTTQFITDVMAISQPGRHHVW WS GDTSSVRRVAM DEETANEAVEK I S DVANEMNH HPV
 E WE GGAAI EK IFRFPNRAMALKFVGGLQYIMECLEHFPS

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D WK L A Q G L H A R Y LVV D GF A A GAR F V GEVVA EAA D A L G H H P S
D WKLA Q GL HARYRID GF GAGARFLVAVGDAGAALGHBPS
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DGNEITCSFGDR YHGGVAMIVVHVADVERDIGHHAD


D WK Y Q G GLVTVVYKTSTAA DALALIAAAVGGIIAEDQNHHP D WREQGKLLFKRFAF GSYA QTRAFL DA LA A L SEETGQHP Q YRTGDFATGVRLVAEI GRLAEAAGHHPD
K ENNR LVRHFEFADFTAAFAFMMRVAFLA EKHNHHPE WQERKRLERRYEFESYNATRDFDDRGGEFSETTQRFPD

G G T GLLE
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WKVK K F A K G LD F F Q LVA A VA E E Q G H H P D
WE LRHSGRFPSFKAAMGYVNDVANLAKSEKHHPT
WKERNRLERRID FEDYEQTRDFLEALADI SEAANRYPD
 EALTRTEHFEAFREA Y LIFMGRGLWA F C Y GSSDK C P H
E W DE R Q K L E R R LA FE DYE GTR H F L EKAA E L S E R S G DH P D


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40 WEERNRLERRFEFETYSATRDFLDRLGSFSEDQQRFPD I QQSWK LK DEAAAEQMVERVTGVAAAEGHGDS LD D A D G M R L Q C V W K V $R$ R D E A C G H E L V A R I N A AVD G A D WK $\square$ RECLRREFSVKD GDAEALVEKINAKCEAE GWTPAA AEAEEMHHHPH E H P ERLERRDEFADYGATRDFLERLNDLCEAESRYPD ERLERRI EFADYEQTRDFLEQLNSLSEQQSRYPD
 VGWRQQDTLECVWKVRDEACGQELI ARINKALQGAAHAPT MD WTERKRLEKRIEFSSYAETRDFLDRLGCLSEAQDRFPD
 LT R R FEFETYYAETRRHFLD GIAA K LA E E A RLLY P N

RLERRFEFETYAETRDFLDRLGEHTEAAKRFPD YRTGS F T $\square G A R L V Q A D S E L P G V G D G H P D$ WTERQRLERRLEFADYETTRDFLDRAALVSERLGDYPD WERRDKLFRRFAFAQYAQTRAFLDALSALSEEIQRHPQ
 D WRRA Q GLHARYVVGSFGAGVRFAAAVGEA GEALGHQPR WDEGETISRTYPI R YHAAVAAVVTIADRSRRVQHHAD D WKLA QGLHTRYLIAGFGTGARFVTAIAEAGDELGHHPR D WK I R E V L R R E F A T G D K A K A A E V V T T R L E A VAA E E E A Q T IA A
 H R L VK
 E D K T RL $\quad$ R Y F Y I E D Y $\square M A V Q F L K D V A K D A L N F Q N C P S$ WEGDHGISRTVLLP EEAVTLVNRVEREARAANDHAH WEVV G K L
E E Q M G L QGRRLVRVFELGEGKEGWRFVGHVGQVVEDQDHHPT WVHRDA S SKKFHFHTYTKCRRFVVHVI GVECKAKNYHPD D WA G D GRI T R T VVLP G D D R WP L L R R V E A V Q Q E L S H HA K E WEDRTGISRTVRLDPDRHDPLDVNQVQRVAAEFNDHAR MGWKERKRMERRYQFEDYDA LRDFLDAAAEASEACGFYP D
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