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UniRef90_C3ZQG2

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AKTVTGCF $G C F$
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 K ${ }^{\text {K }}$ E

I A T K
PKDDPPAELRD P E ESVVSS K K R EV T T REDL NKLR R VESKEQL GRLRLSRHRLEKWVHAPFLKRAIVGCFV RFQPI SCKEDLARIRLSRFKLEKWVHDPFFKETCSGCFV KVVPVSKKEEUCKURLSR KDDPPADFRDFERARVSRSNFAQYCFYPNFEKLITGCYT RVEFVENKEQLAKLRISRHKMERWCHMPFFDRLVVGCYV

 K N R P I N T I E ELL S K I K M
 PK D D P P A T L K D RSHTVVNTVK PK S A Q ${ }^{R}$ V T E L L R D
$R P D V F D T$ TK
$P R D D P P A E L D$ PEDYA

VTNMHN $\begin{array}{llllllllll}P & K & D & P & P & A & E & R & D \\ P & E & E & Y & A & A & D \\ V & H\end{array}$ K N K E P ATLQD VPTFEDVERVRV
 IT T L R D
V P TKLD

 DEYAAIDAHN
K E

| $D$ | $L$ | $P$ | $A$ | $E$ | $L$ | $D$ |
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| $V$ | $P$ | $V$ | $S$ | $R$ | $P$ | $D$ |

V S TKEEGERI RL

DDFAAVDMHN
R D E P P A E L K
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 K D NASANLYDLNAI R L

I S SREQLNQLRLSRYKMERFVNLP F R
PRETP PAEMRRVVRI RV
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D Y A A I D V H N DN LI Y L R R N L VE DLLDD DEKF QDKVVGGS V

## P D

K DERP
PEEEK ITVL
PQTNPAADVHN
VDGLSE
PKDDP PA ELR
K EVVP DA LLRD QRARVGRTNFAQVCFYP GFDDAIISGCYA
 P S RLDD P P L T F F Q E D

$R E L P P P D M R D F E R \square R V G K S R F A E Y C F N P G F E S A A M \| G C Y V$
QUERY

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 $R$ R GI GN N














 R I S GPNRYRMA LVKGFTQQGKPYAMENFVTAQYVKAAHG








## R <br> R













 $R L S M N R N V Y R M T Q L K G L K T G R T Y S M G S R R T D K H L I L V H G$




 R L G I G K P S Y R L C I V R N V S D P D R N Y K L E N Y S T C K Y L N V V WD

 | $R$ | $F$ | $L$ |
| :--- | :--- | :--- |
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QUERY
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NDQRVFRLEFVSNQEFTESEFMKWKEAMFSAGMQLPTLDE S DERVFRRLEFVSNQEFMETEFMKWRET $\square M M G G M Q L P T M D E$


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 RYLVGQPVYRICQI QNAADFVKPYKIDEKMVNQALELKHG RIN GQDVYRMAIIKGF NTGRPYAMPDSSGHQYVKVAHG RIR SQDMYRLVQVVGTSKSSDPYKVGKKTTNVMVEIQNG RVGUGQSIYRLCMVRNVSDPDRQYKFENRTTHKYLNCVWG R|RISQDMYRLVQVVGTSKVAEPYKIGTRTTDIKLETLNL
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 RLGFGKPDYKLCMVQNVTDDNRQYQLEGKMTHKYLNCVWG RIALGPHQYRMAVIKGFS TSRPYAI QGPVTDQYVKAAHG RVGGGGPDYRLCMVKNVTDCDREYKLENKDTHKYLNVGWG RIGIGQPVYKVAEVLGVKDGFKPYMMGKAKTTKRLELADG

 RYLI GQPVYRBCE: SGLANLTKPYKINDTLIDDRALEALKHG RVNVGQTLYRMVKIEKVF LQKPYNMGKFYTNQYFGVTQG RISVGAHQYRMA VVKTFATGRPYALSGPNTDQY円KAAHG RYLI GQPVYRTCEVADTANLVKPYKINDQTVNQELELKHG $R L G V G K P Q Y K V C E 1 T S V D E Y K H A Y P F G E F E T R K A L M L R D G$ RVNVSGPDHRIAEVLGICEDDFGYKVEQDPTNVALRLRYD RLGQGQSKYKI WKIVNVEDGNKVYEFEGKRTNKHIKCQNG RIGVGNDVYRLARVVETPAYHRVYRDAGTLTKDALKDAHG RFLVGQNVYRVCQIVGDTESPVTYKIQDTVFNQQALLKHG KVG|GKNVYRLCVVRNVSDPSRAYDFENRKTHKYLSLVWG RYC GHSUYRACEIVEVAKLVTPYKTNEQPANQELILRHG
 $R V K I G E S V Y R L C Q I K G G S K G K K A Y R V E G Q L A N Q M L D C T H G$
 RLNI NPPEYRIAEI MDITTELPEGYYVGKTPTNIAALQLRYE
 $R 1$ ALGAH QYRLALLIKGFTETSRPYALGGSVTDQYVKAAHG $R V S V G R P T Y R M A R I K G F T$ VGKPYPMQGPNTDQYVIAAHG


 RI FI GHDVYRLCQVLEVVPWHKTYKDGNTWCNKAI KLKHG RI GI GRNVYRAAQI L DVVETAKVYQLENTRTNKGLKLKHG $R I$ RVGKNDYRLVQIVGTRLQAEEYKAGKKSTK VVLLITND RI AL GPHQYRMAII KGFTTGRPYALSGPNTDQYVKVAHG


 $R I M V G E N V Y R I C E A L K i G E G 1 Z K P Y V E G N Q V D E S V E L K H G$ RYLI GQPVYRLCEI QSTWYGHKPYKI NDKTVNQSFDLKHG
 RI GII G Q S I Y R V V CVVK NVVK

 RI GUGTSMYRLCVVKNVTESGKYYNMGKRRTDQHLRVSQG KVNVGTDMYRMVKIEKI F PVDKYKFENRTTHKYLNCTWG RVKI GENVYRVCQVKGLQPSAKDYSFEGVLSNQY DGECIGG $R V N V G Q T Q Y R M V K I E K V F \quad F Q K P Y N M G N F F T N Q Y F G V T Q G$ RVNI GSNASRIYQIVGLQQDNKDYQLGGKRTNQVLRLRYG
 RVNVGNQVYRI SQIVGLEHSKREYRLGSQNTSFDLKLRNA RI KI S QDHHRLVQVVDSSRVEEMNNTGGKSASMTLEELNL
 RYLI GSNVYRICEI KSISRTVLPYTVENVTMNQQLELAFA $R Y S L G Q D R Y S L C Q V V G V E P A E R S Y R F E G V Q T D L W L R L K H G$ RVNI GQPQYRIAARVEEVKRGGKPYRLLNKPCDVYLLVSQG RVNI NPPEHRMAQI FNVAELPLGYYVGKTATNIVLHLRYE
 $R V G I G Q N V Y R L V E I A G V A D G K K Q Y S L N K P P T Q K W L I L R W G$ RVNVNQPEYRIAEIVGVEELGLGYFVDGDPTNDTLRLRYN RVVI NMPEYRI A EVI TAVELSEGYYVGSLPTNMALRLRYD RI NLSPAVYRLSRIVAVEHTDQEYVLGNHRTKVKLQLKHG KVNVGQPLYRMVRIDDVKSPQKPYSVAGSK DDLYLTVQNK $R$ V SL GPNLS

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UniRef90-G8BP46 <br> \section*{} <br> \section*{}

G N S K N F S $\| E$ Y VVIS N P $\square$ T M P E Y E R WLR E VD K A H M DUIP T P A D DKKEVITMDTISNQDFTQEECKRLRQSMKCGLITRLKVGB
 HSERVV RLDEVVSNQDFTDSEFFKWREAMTLGGLSLDTVQD





 SESSAWQMAMVS
 DKKEVITMDTI S SAKKAFAMNFVS
 K SVR A PFQFLSNQRFT
 K A MKEFPF IDAASSGKFTEGELDRYQVTCRNENITDPTKQF ESTRRFAMDKVSNAPFEQKEFERLVKVCEAEKVKLPT

 KATKTF LMDDVVSNRPFTVSEWNRYEQTMQDEKQSMDTADQ


 $N E S S A W Q M A M V S D S A P D$ RYRRAFDISVLS D L I L Q H E 1 D AVKCWPMD IVS K AVRPWPFFTCSNSPITT
 P HEKEWPFVACSSDSKFTEAKLDKLKRTLSAENMKPPTRTA RDKRVYRLEFVSNQDFTETEFTKWRENINSQGMNLPTKEE K D R KV F QMNFFS
N S A K K F QVAAVIS
 E EERVYRLEFVVSNSET S QKKEDLDT I D L V S S S ER AFEMGIC S DKP LTTE D

## 

Q A IR EFTMERVS
K SVKK F TMEKVSNAPFDM
 QSEKTFRDSEIGSNSAT QDNEWSQWVAHCRDA GCKPDTSED DESTAWQMVRAS DQPAS QKE $\square$ S DYLRAVDNAKGRRPLKVD
 LA E R SFGMEFMS D D S S A WQMVRAS

 VQERRLS LMDVVVSNQPDVTK Y E F Y M WS G T WQR DLLKA L P L L L S Q
 GQYVVYSQMDVVNN QPVT QHEFDVVWIGACQREACPDPQQA D
 RSRRPFRMSFVSNGPDLQKEFMKWQAAMEKDNMAFPTADD
 ESKKLIDMACI S D SPFSSPSEFEAYRRRQEES GLELPSVGQQ NLCVSHELNDISNMAFTREEFDFWHDNCICQGIDWPTMEL GAVKRFPMDKASNGPFTTTEYEHLLKTMTNDRAAVPTKRQ

 $R \mathrm{HL}$ HSFRMDGIS NQPVLDNEF LLWWLDACQRQAQPDPSVNS N Q TKEFPLTVFS

|  | UniRef90_L8HAK6 | E A R R R |
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UniRef90 Q6CALO UniRef90-UPlooo32AC53E
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EDDTVTMVDFESVRLDRYKLSKHCMAPWFDRYVEGAYV
EERVSNLEQLSRAVLKRNDIKNLLGKPDFAEAVIGAFV
PKSCFAAVPDNGKRVYLRRTLVQNLLKEPAFARKVUGSFV



#### Abstract

$\qquad$ EQVVVGSY ${ }^{40}$ GSY Y


PEDVLPADWGQAHRYLLRRSFFEKFFYEPYFDKLVRGVYV
 NLKLVYLKRSLI EELLKKPDFDGKVLGSFV RSTELAKDEDVRIKVGRTILTGYCFHSGFEDTVVDFG TLADLNAARITRDNVESRLYAPRFREALIGGF■ KSTEDAKLEDVNRDKVGKTTLTQYCFYPGFDSTIEDTYG AN KKVYLKRSVVQELSKQDTFYGKMMGSFV DYAADDMHNMNLIYLRRSLMEDLIDDSAFPAKDSGGFV PENDKLVYLKRTLVEELLKQPTFGEKVTGSFV KYQQEATLSDFNKVRSSRSLLDKYMYRDEFDTVIPGSYV RDYPRVAYDKVEACRVSRDRLERYVNEPFFGEFVQGCFFV SKEPPSLE

PQSRFAADPKN
 DSSDPPSVADLNAARDT
E ENVPVTWDQANHYLLR
DVPKGITMDAIVKRLRLS DDFAADDMENMNLIML EQEATHAEINSILVTRDQLERYWDCPAFEAEWAKDAFV QEVYQLDQLKKI ILKRAKLEQWVEYTYFKEWVVGAYV DVPK S CFEN I K K L I Y
$R P$ VE C L E E L K L A R L $P D L P \vee T S R D Q$
DEYAA $\frac{\square}{}$ DVHN
PKSCFAAIPEN
PDNKKLYK K

## $\square \mathrm{PEN}$

$D V P K G\|F D S V R R\| R G S R T D V V K W M N S H T S L S Q L E G F F \mid L$

## UniRef90 O6CALO UniRef90 UPIOOO32AC53E UniRef90-V2YKP3 UniRef90- B3DMQ3 UniRef90-B9SS21 UniRef90-B9EUZ1 UniRef90 UPIooo2B432A7 UniRef90-। 4 YA10 UniRef90-GOWG11 UniRef90-나눈 <br> UniRef90-S8BAM1 <br> UniRef90-R9AEK1 UniRef90-E4XK07 UniRef90 F4PNP6 UniRef90-G8BKFO UniRef90-FOYLG6 UniRef90-V4LNQ5 UniRef90 C4Y8AO UniRef90-UPI00042B777E

 UniRef90-B4GKL5 UniRef90-G1XP66UniRet90 O6BKE? UniRef90-F4R508 UniRef90-A9VB16 UniRef90-Q4P3A3
UniRef90 E3JXG4 UniRef90 ${ }^{-}$W6MIB4 UniRef90-UP10002C2EDF2 UniRef90-G7J7X0
 RIG\|GKPDYRLCMVQRVGDPKKHYKVENRVTHKYLICVWG RYLIGNPVYRLCR1GRLNEEPKPYKVEGVLFDRTVELAYG RYLNGQPTYRMFEDISVHKEGRHYEFNGRKDTTHLGLRYA
 RVKLQKNSHMLVQVIGWKKASDSDGKSGKRTDEELCLQVS
 RUQDPNNDHRLVQVVGTSKDSTPYTVGEKTDDAMLDUDSLD RYLLGKPDYRLCEVVGLGDSTRPYAIGNTMTNQQLVLKQG RVNVGTDSYRMVKI EKVFLKG PYRMGDFFTNQYLGVTQG RLNVGK IYCIYEI DDLHQDREDYRVGSKRTNLVLILRYG KVNVSKPVYRMVKI EKVFDDKRPHDMGKFFTNQCFGVTQG RVCI GNHVYRLCQI KGWQDSRHTYEVGGDRTDKFATIASA RVSLGKPDYRLCEVIGLLGDSVKPYAI GNTMTNQQLVLRQG RVVIGGARYRIAGQI KDTGAGTKLYKVETKETNKILVLRYG KVNVGAPMYRMVKI DDLKRPEKAYKMGSSKYDLYFLVQNK RLGIGKAQYKVCEII GVEEYKHSYPFGEFETKKALMLRTG RIKVTGDDHRLVQVVGTSKATSSYQVGTKTTDVMLEILNL KINVGRPLYRVVQIEEVSHPHKQYRLGDTKTDFYLVVSQN RVKHGNTSFQLLQVTGIKKTS LMPNTNLRSTIYQITGLVHTDVTYQLGHKTTDYQLNVRHG RVSTGNHIMYRLCQI KDWQDSKSIYEVSSDKFRRNAIIATG RINI GQPMYRMVQI SDVKNPEKAYSTPNFKCDIYYLTVNQN RVSVGEVKYRVAEVKKCDIDNQKYYEVENQATTKTLOVVIA RVSUGVNHYRMGIIESVERGRVYSLEKTKTDLHIRVRHG RFSWGETVYRTHQVSDVEKPGKFYDLSGKWCNVYLVFEHA RVSVGEVKYRVGEITNIVQHRKYYEVEGQATKVALVVVLA RVNVGRSQYRMVKI EGV KNGKVYSLQGKASNVYMEISQG RIRUSHDSYRLVQVIGTNKVAEGYKVGTRTTDMKMEGUSNG RTKLQQNSHQLVLVKGLKKAS QAGNNDTNTDILLQVS RVRNDKKYYQi GLVTGIKKSSEEYK TKDTRTDILLCVSSM RVNIGRPMYRLVTITDVKSPEKAYDLPKFKCDIYLTVQNR RVLIGEDVYRLCEITDVKTGMKVYKFPPDMTTKTLTLKFG RVKNAPRVYQLGLVTGIKKSSEEYRINDTCTNILLCVTGL RFSWGQTVYRIHQVSEVVKPGKFYDLSGKWCNVYLVFEHA RLGVGLPQYRLCRVSSVREGTQSYRLEQTTTNTELELECHG RISVGENKYALGEIVGVAEGKHPHKGSGKWTNKWLLLRYG RIKLQKNPYQLVQVTGVKKEHGTDDF RINGKDSYRMVKI DGVKKKDRTYK LIGRTRDDTYGTVQNR RVKFQKNTYQLQQVEGVK KVMAASDGAFEIYYQLSNL RFSWGQEDYRVHQVDDVEKPRRFYDLSGRWCNVYLVEEHL KDRVNKHEHRMVRIEKVDH HKPYTLGSQKTDQQFVVSQG RFAWTEEVYRDHQVTDVHKPGKFYDLSGRWCNVYLSFEHA RUK GENS MGGRGLQTSPKVYSFEGDLSNQKLECDHG RFKISPNAFMLGRVAGLKKSSKEYKINDTYTNVLLCVTGL RTPDGETVYRVAEVTGVVETAKVYQLGGTRTNKGQQLRHG RAKMQKNSHQLVQVIGIKKTS $\quad \square N G E V N S D L L L Q L S$
 K TNLGQP MYRMVKIIDVKRPERAYKLGHSNFDIGLTVSQN RYNWGETVYRIHQI TDVHEPGKFYDLSGKWCNVYLTFEHD KVNLGKPLYRMVK DGVKRKDRSYRLGNNRYDKYLTVSQN RVKLQKNSHMLVQVKGIKETSKEGM

NS LLQVS RIKUSQDMYRLVKVDGTHKVSEKYSTGKKTTNFALELLNL
 RVRSGERVYVMAEIVGVGPYKRKYKIGNSYTQKCLKI SAS RVNLGENRYILGQIIGLKEVDKKYEGVCSKTKKVLCVTHA KCSWGEHVYRVHQILDVQQRDKYYDVSGRWMNSYVTFRWG
 KVKSQNQTHQLFQVTGIKKTSETQEIN NAEILLQVP KVIIGDRVYRFCQIVHMCYVEKEYVFAGEKTKKALMLAYG RFSWGETIYRDHQVADVIEPGKFYNLSGRWCNVFLVFEHD RTP IGEMVYRFCEVVNVCKMARSYTFCGETTHTGI ICAFG RLRLGKTGYYVACI SGAQKERP SQSSKNPI AVNIG RVKNDPNSHQLSQVKGMKKD RLRISQDLYRLVQVVGTSKAPEPYKVGKKTTDYVLELLNL RVLVGQNVYRLSRILSVEEAPTDYRLENCKTDKALKLAHG RFSFSG RYRLAE VEVKEPGNEYELGKFKTSLQLGLRFS R R GGTGYFVACI N ETQSRRQSSEQNTRKSFSVKVG R1KLQKNSHLLVQVKGTNRSSKODDIS
 RVKCNPNDYQLLQVKGVKLSSNGHMSAETS

GFLLLHS RLSVGTPVYRLVRIAGI HEREPRYKVGGQYTNKRICLIFG RIGVNKDNYRIVQVIDVFETAKVYNVESAKTNKGLKLRMG RVNVSGPDHRIAEVLGICELDFGYKVEQDPTNVALRLRYD RVDMSQKRYVLCQVVAVEERASPYPFGPNKTHKWLLVERG R $\|$ R RVKLQKNSYQLLQVTGVTGATGTTDTGTQ

 RVKNDPKDYQLGQVTGI RKSSEEYKVKDMSTNMLLCVSSC RVPDGEMVYRFCEVVNVCKLPRSYNFCGESTHMGICAFG

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 UniRef90-UPIo0032AC53E UniRef90-V2YKP3 UniRef90-S8EBG8 UniRef90-B3DMQ3 UniRef90-B9EUZ1 UniRef90-M5XJ72 UniRef90-UPI0002B432A7 UniRef90-I4YA10 UniRef90-GOWG11 1 UniRef90- 12 H 3 Y 2 UniRef90-S8BAM1 UniRef90-R9AEK1 UniRef90-E4XK07 UniRef90-F4PNP6 UniRef90-G8BKFO UniRef90-FOYLG6 UniRef90 -V4LNQ5UniRet90
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UniRef90
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A DEANFEMRYCSDSPTEE 100
 SENSAFQVAVASDSSPLEKEFKQWLREVERTCSHMPSKQN SSKKAFPLDKVSNGPFQPKEFERMSKTYEQDKVKMPTKSV

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 SDTKVFRMAYVSNKPUAESEYVRWUDETKKSKGSLVMRSH
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 GKDHHVDLRPLSTQRILTDSERQRWIAAAGADAKFPSADA

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SVKGEFS DERFSNKHPTE
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D LEMQHEDNDVSNDNFTQEEDR
NSQRGMPLAQVSNQGFTQAEFESWQRTGKEQHRPQVSRRT NKTEVLSI DTISNQDFTE
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| UniRet90-M5XJ | L |
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| UniRef90-I4YA10 | I EmVRTQ E E |
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| UniR |  |
| UniRef90-V4LN |  |
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| UniRet90_G1X | V ERKRKDVN |
| Q4BKE2 | N EKKYES |
| UniRet90 F4R508 | VSRKLNS |
| UniRee90-Q4 | V SRKA |
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| G7 |  |
| Ref90-UP100042 | L |
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| UniRef90-B7G787 |  |
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| UniRef90 C 1 EF27 | NAAQSN |
| UniR | MEEKARS |
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UniRef90_S9WS96


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E E A TD N KLL Y L R
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N N MK
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SDTCNSESSI QVVIS RIK NPCQLVHVTGVKEGNP RVKDQKNSHQLLQVIGTKKVPGT GNDKSTE ILLKVS RIPTGRQKYRVHKVIGFGSYKDEYKGREDKEDRGLKCQYG RIG GGENKYVVAEIVDVAEGKHEYSYGHKKTGKWLILRYG KVKNDPRDQQQVTGKTAD RIK NPCQLVHVTGVKEWNPTYFLQVTNYCYYL RIKDQKNSHQLLQITGIKKISGV KVKSGAHSYQLFQVDGVKKASKTGETDSE DGEIRLRAS RIGOLDYRA
 RARIDSNSYHLVRVLGV RAR EF RVKVDPNMYKLGQVVGLSKADQAYKDGEMSTDMVLCVS RLRLGKTGYYVACITGAQREISSPAGSKN RLKLDPNSHQLVQIAGMKLRS Y SDKCNSETSI QVS RVKCGKNVYLLGQVTGIKKSEN
RIK $N P C Q L V Q V T G V K E P S H G Y L L E V T N Y T Y S L$ KVALDERVYRFCQVQHTCKMDKEYMFMGEATKTGVMLAYG RVENGNSSYQLTGQKGITRKQ KI A DGERVYRFCQVSHVCNVERSYPFAGEKTKKGVMLVYG RIEHGRPKYRLYKUADVDDSGQEYQGRQIRETRALLVKYG RVKNDPKDY SYYKPKAFYQGG KMDSSRSNTGKQGILLLQVA RSKSDPNDYQLLQVTGILRKK KI DTNSSQFQQL DQVTAVSKMSSSDGRS LSVTIR RLRLGNGSYYVACTTGDGREHK RIKLQKNSHMLVQVTGLVESSRA NGTNTEMLLEVS RVKNDQKDYQLGQVTGIRKSSEEYK $\square R G I S T D \| L L C I S N T$ RLRLGKTGYYVARITGMK RTRVDGSSYLLCRIVAVEKSKVYDLMSDDRTNYVLILQDG R\|KTDPRDYQLAEVQGIYKKS RVRFAG GHRVAQI QGFGK RLRLGKTGYHVACI DGAQGDGKTQDAEG SILVKVG RMAYGPPGYLVMEI MDTKESGRAYKFGPKMTNKHLVLRDG KVKLHKRPYQLLQVTGVKRTSTSDNLNG NELLLQVH RLRLGKTGYYVACI TGAHRQSTQRNSKSSVSVSV RLGGGRDNYRLCKIVGMETKSEYSFPADTTDKWIKVSFG RTKLQKNPYQLLKVTGALSLLH RIGlGSHVYRVAQITDVVETAKVYALGRSRTNKACASSTA KVAVGRQFYRMVK EDIVRRPEKPFRUGNSKYDMYFLVSQN
 RTKTDPNSHLLMQVKAVLK KPNSESPSDGGDVLLQLHG RLNTGSGGYKVVEVLGSQRKGSAYGLNSKNCDMYLKVAFP RLRAGGTGYYVACINGL RGKGEKLERSNNCVCVDVC
 KVNEPNQSYADAQVLDVVEGEKSYQLEQTQTYKLLKLQRGG RLRLGKTGYHVARIEGANEGQNDSSKEHPVNSSVSVKVGG RVKNDPLDYQLSQVKGIKE ILLATNGEGNK GLI LLQGV RIPSDPNDYQLLQVAGVKKA RLRIGGTGYRMARIRGAIDR ECDDVGEEWILQVLVL RLRLGKTGYYVARIDEGQSSRRPSEVGMSSSUSVKVK RVKSDGNNYELVQVVGMKRSDDDLKVGAMTSK RVNIGESRYRLCQIAGIADGSKAYEYNDKSTKKWLILRWG KVKNDRNSYQLSQVTGUKQSS VIGENKSEILFRVS RVLLNSDHYYIACVRGARRGPKYSDMACTEWHIVIELQNG KVKNDPRDFQILQVTGAKTADGQS RVLLNNDHYYI ACVRGVQQGPTYFAADGSATEVGLVVQNG RIKLQRNSHQLLPVTGVDKSSAG RIRQKQDDYRLVKVLGTHKVAERYSVGKKTTDHALEELENL RVTLGETAYALALVMGVERPPGTYKDCGQTTDLWLRVARG KEDRPYAMMSFSTTQYVIAAHG RVLLGGDRYYTTCVKGAQKGPSGFSTDGATTEWHVLVENG RVSVQLPAYEISRIVGAQDSDSPYSVDGSLVHMALIVAGG RLGVGKPCYRLCKIVEVVTRDE YSFPRVKTDKHLLLAFG
 RARVNRNSYHLVRVDGV RKDSSTNEMNGEMSNGGLLQVS RMAYGPPGYMUMEITDURESGRGYSFGSRTTHKHLALRDG RYS R $\mathrm{K}_{\mathrm{K}} \mathrm{LQKNSHLLVQDHSTKTHCKKYK} \mathrm{\prod GRPEYNQEQLRDS}$ RVKNDPKDY STKTHCKKYKIGRP RTKSDPNDYR QKHSHNLLVAGLKVSSGTGGSNN RVKDGENEYRVCSTKKDEEKLRRQGTNDNKTKIGQRIQ RMKYKKNEFQLQLVTGTRRЏA RVSNNSSDHKLIQVKGII SSDNElRLKVA


## UniRef90_UPI0002BCB31D UniRef90_UPI0002BCB31D UniRef90_K7V3F2 UniRef90_B4.JMS0 UniRef90 ROFE45 UniRef90_V4S273 UniRef90_UPI0003F4A02C UniRef90_C1N6W6

 UniRef90 V4KNN7 UniRef90_M4EKQ7 UniRef90_UPI00032AA6C8 niRef90_F6HK22 UniRef90_R1DH90 UniRef90_UPI0003D2842E UniRef90 V7BRK7 UniRef90_MOT1R3 UniRef90-K3W5X8 UniRef90 V4RZN0 UniRef90-K4B1Q1 UniRef90-C5XEM2 UniRef90-T0QD95 UniRef90_UPIO002C35104 UniRef90_W4GRV3 UniRef90_E6R7U3 UniRef90_R7WD05 UniRef90_UPIO002B4334B UniRef90_UPI0003512A38 UniRef90_UPI0002B49F0 UniRef90_A0A022QY73 UniRef90_U5GLC4 UniRef90_J3M7A5 UniRef90_B9RTE3 UniRef90-H3FFU0 UniRef90_UPI0002C2DDFE UniRef90-X6N3X3 UniRef90-B4MB11 UniRef90_W9QEA5 UniRef90-A8IWS4 UniRef90_A0A059ABD2 UniRef90_UPI00042B3F97 UniRef90_B5YN06 UniRef90_B9SS94 UniRef90_UPIO002C33AEA UniRef90_B7PMQ2 UniRef90_A5E620UniRef90_A0A059B2L8 UniRef90_UPI00032A53BF UniRef90_UPI0002C36C0A UniRef90_F2QQ42 UniRef90-K4CVW5 UniRef90_A9TIU1 UniRef90_W1P179 UniRef90_A0E506
UniRef90-M4EXZ9 UniRef90_UPI00046DB39D UniRef90_UPI0002C2F4C2 UniRef90_Q9LEB5 UniRef90-D8TBP4 UniRef90_D7MNN1 UniRef90_W1NWL3 UniRef90-H3DZ70 UniRef90_K8EUA8 UniRef90_U5GRZ8 UniRef90_C9ZQD1 UniRef90_UPI0002B48EF3 UniRef90_M4DI25 UniRef90_W6LOD2 UniRef90-W9RDB0 UniRef90_ROEUR3 UniRef90_A0A059LKK6 UniRef90_UPI0001586B5D UniRef90_S9UW36 UniRef90_A0A058ZFV6 UniRef90-K0RNB2 UniRef90_B9HKE9 UniRef90_B4L550 UniRef90_UPI00032AA71B UniRef90_M5XK57 UniRef90_D8UEY2 UniRef90_J5SPG5 UniRef90-G7J7W9 UniRef90_T1MT29 UniRef90_W9R544
UniRef90_C1GWX3 UniRef90_S8C557 UniRef90_UPI0002C3738E UniRef90_M0SGP6
UniRef90_S9WS96

NVVATDVVSTTMLISDKDTLEEHCDVLRKNVKAGLQKKDT\|VE
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QKKESI T DE VVVSNQDF T E
GFKCLI NCPFI SNQDFTEDELMAWWDATVRSNEKLPTEEE
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## G

 G GMASGVSDSKLDDSDVSQEEDNDLKQKVMNGLLRQDTVVDE WSERLWPIALVSNQAPTPAETDKLARTMAEENRP

 GVKCLVESQYI SNHDFTES

 GI TRVMAMA NFDEAEYERYKRHCGRASRAPDTR $K V Q R L Y R D A D V S N S E F D E S E F S R F M L T C Q G D G V L P P R R S E$ YVAEDVPGSKUSDDDFSEEECQDGYRRMTNGLLKKPTDME SVIKDVPTCMLSDEDFSKEECEDLRQRVKDGMLERPKVEE
NFFKAVPLSMLSDDNFSKEEVEDVQQK $\quad$ VENGS LKKFS LHE



| UniRef90_UPIO002BCB31D | QQRAK!LHE |
| :---: | :---: |
| UniRef90-UP10002BCB31D | LQQRAKILHE |
| UniRef90-K7V3F2 | LEEKAR |
| UniRef90 B4JMSO |  |
| UniRef90-ROFE45 | M |
| UniRef90- UPI0003F4A02C | LLKKHED |
| UniRef90-C1N6W6 | VAAAEEN |
| UniRef90-V4KNN7 | MEQKAKAL |
| UniRef90-M4EK | MEEKVRT |
| UniRef90-UP100032AA6C8 | OA |
|  | E |
| UniRef90 ${ }^{-}$UP10003D2842E |  |
| UniRef90-UPIOOO3 |  |
| UniRef90-V7BF | L |
| Ref90 M M 1 R3 |  |
| UniRe990_K3W5X8 |  |
| UniRef90_V4RZN0 |  |
| UniRet90_K4B1Q1 | LEQKAKILHE |
| UniRef90-C5XE |  |
| UniRef90-TOQDS | A |
| UniRef90-UPIO002C | IEHKARQ |
| UniRef90-W4GRV3 | AlKQYNAIKE |
| UniRef90_E6R7U3 |  |
| UniRef90_R7WD05 |  |
| UniRef90_UP100022 | L |
| UniRet90-UP10003512A | SNKAREDHO |
| UniRef90-AOAO22QY73 | LNSKLKDRH |
| UniRet90_U5 |  |
| UniRet90_J3M7A5 |  |
| B9RT |  |
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| A90-R7QIDO |  |
| 㖪90-UP10002C2 |  |
| UniRef90-X6N3×3 |  |
| UniRef90 W9QEA5 | LGGVK Y AL Da |
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| UniRef90 B9S | A |
| UniRef90 UPIOOO2C33AEA | TEQKA |
| UniRef90- ${ }^{\text {- }}$ |  |
| UniRef90_A5 |  |
| AOAO |  |
| RRef90_UP1000 |  |
| RRef90-UP10002C36C0A |  |
| 速 |  |
| iRef90_K4CVW5 |  |
| A9 |  |
| N1 |  |
|  | L |
| UniRef90_M4EXZ39 | L |
| UniRef90-UP100046DB39D | LQEKVQML |
| UniRef9-UP10002C2F4C2 | $\mathrm{E}$ |
| UniRef90_O9LEB5 UniRef90-D8TBP4 |  |
| UniRef90-D8TB4 |  |
| UniRef90 D7MNN1 | LS R K $\downarrow$ QQ |
| UniRef90-W1N UniRef90 $^{\text {H3D }}$ | THKKMKDVAS |
| UniRef90-K8EUA8 |  |
| UniRef90-U5GRZ8 | I EKELARLQK |
| UniRet90-C9ZQ |  |
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| UniRet90-M4D125 | MEKKAKALHE |
| UniRet90-W6L | LHFRLGMLEE |
| UniRef90- Q9F |  |
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| Ref90_ROEUR3 |  |
| UniRee90-AOAL59LK |  |
| UniF |  |
| UniRef90 A0A058ZFV6 |  |
|  |  |
| ef90 B9F |  |
| UniRef90-B4L5 |  |
| UniRef90-UPIO0032AA71B | LQEKA |
| UniRef90-M5XK57 | IERELVRLQK |
|  |  |
| UniRef90-J5SPG5 |  |
| UniRef90-G7 | A |
| UniRef90-T1MT2 |  |
| UniRef90_W9R544 | LQHKAR\\|LHE |
| Ret90_C1 |  |
| UniRet90_S8C557 |  |
| 0 UP10002C3738E |  |
| Unef90-MoS |  |
| S9WS96 | LQ P R LGM M |


 A A T LVDA



KFEDNATDNEIRSVMLTRSRAAELCSTKFFEEYVKG
NLKLMKSVHLTKDRIEFMLEHPKFTEYLCGSYV
TYETLCDVLVPRSLLAKNVYKPMFDR LAGNYV SLELLNGVRLSTERLLHMLEHPQAEKFVRGCFV AT L EEATTVRFLSRSRIHQLCDGPGTGSAARGAMV

 PRDFILKNICKPFFDHIKGTYV EEDSRLFEAAKRAQVSRNTAIYVIENVDSSRTLSGAFV
 PKSCFAA I PENDKLIYLKRS IIQNI LKQKTDETKIVGSFV
 ADDFLEFSQCIVSRDMIARNVFKPFFDNFIGGHFT
RRYAAVTRHNVELVYTTRVAAASLHEDTFDEVTVMSYV D NI K L I Y L R K SL VMM LL L K QPAF E N KVI GC F V
 PVSFDMFKCTVLCRNTFVSNMYKRTF KLLNGYYV RENDKLIYLRRTLVIDLLKQPTFECKVIGCFV FKLIQNAQLKRDQIVYLLMKHYCDNVIEGGFV ATTYDVFKAVVLRRSTFVSNVYKKALKSFEGYYV RQAQLTRTEALQVI MSDAPHSVFYGAFV
 E ECDT Y $\qquad$
 KEAQLTRNEAVHII MSDVSHSVFYGAF

TKKEMKTLYRTREEV ${ }^{\text {K }}$ KYRTP

NF D $\square F \mathrm{~F}$ C CVIKRDFIDDNTYKPF LQNW! GNLV FREFKKYFIPLTFVLKNLFKP FLKNLDGCYV

PYDLTTLNEARLGRMTMMRWFRRYRRRFYLEGLIV
NEQNGDFKAllRRLRLSRTDVIRWMKSANLSYSLEGFFI RAESVITLEMAQAVTVNREKLSDWHHKDRSRSVVSGFFV

P LTFKQMKEMYI TRENALSYADTAERFERYIVNKYV


[^0]

 RVLVGKKTYRLCQI DQVQDMTKDY LFGTNNTKKGLLLKFG KVTY QNSYRVCKI KKAQNALSEYVVENPVTKKELI LK WG KVPIINNEYLI CEEI SDV.
 RLRDGKTGYHVACI TISESEKHSLEKH TRKSLSVKVG KVPQPPPVGWVCQIVGL RPCEPYFVNGVSCSVKLLLRVA

 RVKDMSNQYAI GRVVGGCERIAPYRDGSLVCNLNLLVRVS RI K LQ KNPYQLVQVTGVKKEPGTDDF KVCF YNGYAI CKIVDIFFYDEDYKYEYNKTDDYLKVQHG $R V L V Q L P D Y V I A K V L S A V E G E S Y Q V S G E S T N V Y L V V Q L P$
 RVCF KSGYVIKRVEGDERGDEYFVDEGTRTNKSICILHG

 RI RERQD Y GLYQII RLI NNTELLLDI I H Y

 RVLLEMPGYVVARI HSTTAGEVYSGFSTTTNVYLMLENG
 $R V G V G G G Q Y Q V A E L A G G A P A G P N D P A N S A T Q P V L R L I D G$ RTKSDPNDYRLLLVAGV K $\square$ S S GTGGSNNSEILLQVS

 RLRVGKPKYMLCIVMMAGDPKRPYKLESYKTCRYLNVLWD RFKNGEAHYRLVQVNRIEHGDEPGTPDTPKTTRWLVCNNM RVKNDPKDYQLGQVTGI RKS SEEYK
$R M G V G K D T Y R I A Q M I D V V E A A K G D T L G$
RCLNGQKSFYVGLVIATKRAPRPYRLGKKLVEMSDQLRTS KIRLEEGYHIYRISK DYE GKRYEI DGKVTNYWMQLERT RVKNDPREY SRHKPQK LYQLG QVTGKGGLLRNG

 RVLVQSDSYIIARV GAVTTGEPYDGFSTRTDKYLVLVNG RMRW HEEYVI HQI ARVV $R$ VCF KS GYVVKRVEGMQRASEYFVEESTRTNKNI CIVRG $R V L L E R E D Y U V A R V G A \square A T G E V Y N N A N \square R T D N Y L V L Q N G$

 RSKSDPNDYQLLQVTG\| KMDSSRSNTGKQGULLQVA $R$ VKLQRSTHQLSQVKGUVCTCSQYQAMRFVTDV
 RFKDNED YY I GKVVRY IHDQEVYDLGVTKTDVVFELDAG

 RLRLGKTGYQVAR GGUSKLDAYSIS


lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm


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UniRef90-MOYJD9
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UniRef90 S9TSK4
UniRef90-L8GK02
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UniRef90-S9TYJ1
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UniRef90_Q5CHYO
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UniRef90_C1FFI6
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UniRef90-S9U7R0
UniRef90_S7XV51
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VVIQ ${ }^{90}$


GMDKEWDLSSISNEPFSEEDLLEWKAMVREFNQS



 HYEETHGMEVVSNAPPVAQEDTTWGKRMRAASRPFVTAGF SEKRD GIDTVSNAPPVKVEVKGWMKKMLNSFRTFPTPGF GDPKPYALYMTSSQPFLRDEFEAYQLRVAMNPEEADTPSE NY DTDVA I SVGSDDNFSQVEMEAKARSLUHEDGTKKL

 GSKKEWGIE S
KFDREFSLAELLNSPVTPAEYEGWKKKDQE FDSVED RDERAHSLGVI SNSAPTRVEWDAYVAACRNGGMPPPRVGD TRTKNFRI ENISNSPLLREEYEDVWRSFKDGPMSK
EETR S EVVSNAPPVPQEVSTWGKKMVSAHRCFMAPGF



$V$ Q YQLNSVSNSSMGEGEFREWLQMDRNEPLREPTVQE GIKKSSVGSQYVSNHDFLEVSF QAERPHSVGVI SNSEPSQREWDEYVDACERTGPPPPRVKD GVIGKDVP | G |
| :---: |
| $T$ |

 NEANAWQMTQVS
QQTKDFP ITSVFDSP DSQDEFNRY LDELKKTNES $\square D Y$ VDD GTEKT $\square A L A D D S N A R F T D Q E G A K L G E F I N D G$

DECEDFRLFVQKENSKRLTVV


DMECTVDSQYVSNHSFTEAELVEWWRERWKAGKRLIPEAE KVFRRIG G A FLSNAPPTQSDYEDFLK

DEGREFPAYA ISSNYFSHQEMVQWLLGRKAMRRDPLTLEE
T TDE $\square$ L Y Y C GVAAMVPVTCLSNQPI SEVELQLDTAAVQEVALSAP



| UniRef90_A4HV54 | L Q F RLLG MLLEE E ${ }^{130}$ |
| :---: | :---: |
| UniRef90_D2UY71 |  |
| UniRef90-J9J7L4 | CEAKTRQMN |
| UniRef90-B6A9C4 |  |
| UniRef90-UPI0002C2EDE2 |  |
| UniRef90-M0YJD9 | LIE E K E A S V H |
| UniRef90_G7K528 |  |
| UniRef90-FOVEE7 | LS K K L R A |
| UniRef90_J9D212 |  |
| UniRef90-D0A5Q7 | 1 E A KVG DVN S A |
| UniRef90-S9TSK4 | I EAKHSDLK |
| UniRef90_L8GK02 | LQ Q K L R |
| UniRef90_V4KS70 |  |
| UniRef90-J9DLT4 | VT K E E M K $\square$ Y E |
| UniRef90_S9TYJ1 |  |
| UniRef90_J3QB31 | V S E R L R |
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| UniRef90-K4DZD1 | 1 E DKLG D I D S A |
| UniRef90-W6KKV9 | LNVT A E RIIR |
| UniRef90_J9DHZ5 |  |
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| UniRef90-A4H5L9 | LS EVT A R L H |
| UniRef90-A0A022QWG6 |  |
| UniRef90_C1N220 | V A TVRRA【E R A |
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| UniRef90-16TT76 | YEKLAKNMN |
| UniRef90_M1VBJ0 | VE |
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| UniRef90_G3AV11 | VN D K F E QLQ Q |
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| UniRef90-H3FXM5 |  |
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| UniRef90-I3EKD0 |  |
| UniRef90-Q60DV4 |  |
| UniRef90-A0DUB9 |  |
| UniRef90-H8Z953 |  |
| UniRef90-G0U8D0 | L H D $\square \mathrm{GN}$ Q $\square \mathrm{H}$ |
| UniRef90_D0A9C1 |  |
| UniRef90-G0U9Z1 | I EAK L G DVD S A |
| UniRef90-L7JWX5 | LVKKAHAFKNA |
| UniRef90-Q4E3Y8 | L E |
| UniRef90-17M9Q1 | V D K K Q |
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| UniRef90_L2GPR7 | L K K K Y K K V Q |
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| UniRef90_UPI0002C378C9 |  |
| UniRef90_F9WIP8 |  |
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| UniRef90-A0A059EQ52 |  |
| UniRef90-J9DNT4 |  |
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| UniRef90-L8HKB8 | $\square \mathrm{A}$ A K K R V I A K A |
| UniRef90-M0S8V0 |  |
| UniRef90-G0TW61 | MEERLR M |
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| UniRef90-K2GA69 | A REEIKKIE |
| UniRef90-S9U7R0 | MVYK MEE |
| UniRef90_S7XV51 |  |
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| lupas_14 |  |
| lupas_28 |  |
| jnet |  |
| conf | 99999987289 |
| sol25 | B B B B |
| sol5 | B |
| sol0 | B |
| jhmm |  |
| jpssm |  |


[^0]:    lupas 21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
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    jpssm

