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UniRef90-B4GPM4 UniRef90_B4JXD4 UniRef90-T1PK43 UniRef90-B4MK73 UniRef90_A0A034WJU1 UniRef90_Q5XWJ7 UniRef90-B6E9U6 UniRef90-Q818T3 UniRef90-W8CBW7 UniRef90_V5T759 UniRef90_Q8I8T1
UniRef90_B4KB05 UniRef90_Q9V8Y2 UniRef90-E2A534 UniRef90_Q2F5W4 UniRef90-G6DHP4 UniRef90-D6WS38 UniRef90_G8B1M3
UniRef90_14DJV7 UniRef90-14DJV7 UniRef90-UPI00021A65F7 UniRef90_F1DI85 UniRef90-C5J8G2 UniRef90_Q6F453 UniRef90_Q17HN8 UniRef90_W5JBR4
UniRef90-Q8WRW5 UniRef90_A6YIT8 UniRef90-E9JC82 UniRef90_UPI0003C3A99E UniRef90-B4LPR5 UniRef90-D4P5A8 UniRef90-U5EUS9 UniRef90-S5R7H8 UniRef90-A0A023F5W3 UniRef90-W8BUK4 UniRef90-WOHDG3 UniRef90-A0A023EDR0 UniRef90_M3TYY8 UniRef90-F1DI86


|  |  |
| :---: | :---: |
| Un | LELATELLNKCAVQE GADGCEKVFK\AKCVQATKPELWF |
| 90－11VJ77 | RDLLLLSALL NKCRTIEEGADGCEKSYNFNKCMYEADPVNWF |
| UniReef90－UP10003DF6894 |  |
| RRef90－B5A5 | TK ${ }^{\text {O }}$ ALEHLTTRECGHISHEDS |
| UniRef90－B6E | TGNKILNKCA VQDGADKCEKDYNVAKCVQGTVPELWF |
|  |  |
| UniRef90－X5F2Y8 | YGATRCDTAWLTFKCYYEK |
| UniRe990－D2EB85 | D |
| UniRef90－W5JL24 | NELKKCNVEGDD |
| UniRef90－K7IMN1 | KDHADEM AACKTT TGK |
| UniRef90－D6WNH1 | KNULLPALDKCRDTPKGT |
| UniRef90－UPIOOO3C | R |
|  | G |
| UniRefoto S6BVF9 | KINTMAQCNGSK GANNCDTAFELFK |
| UniRef90－G881T11 | QAVANELIDVCAKLD GADVCDKMYVMAKCVMMEKRPDLWF |
|  | AKKVLEGCQGAKSGETPQDTAFEIYK |
| UniRef90＿U5KCW | 俍 |
| UniRef90－Q8ISC4 | HRIVKTCHGTPGKDPCDKAYQVHKC |
|  | KVKAVQAKCDSLK GE |
| UniRef90 A1YM | RERUIEAVTKC SEQTAADECETA |
|  |  |
| TIGG21 | EVKNAIRTCADTKSHKD |
| UniRe990＿JgKYk8 | KLEQVLPSCTKNVK Q |
| UniRef90＿UPIO | KKLFNKCK SVQSDDPCDKAYKM |
|  | GTDACDTAYQA |
| UniRef90－P541922 | EDAPA EVVAKCEA ETPEDHCDA |
|  | $\begin{aligned} & \mathrm{NH} \\ & S \mathrm{~N} \end{aligned}$ |
| UniRet90－S5TP47 | 相 |
| UniRef90－F1CEYO | KSE |
|  | QHADAHLTRECGHIVT EDKCNTAYQTAKCYFSAHEDAIK |
| UniRef90－B6E9 | RGGKMMRKCTHVRENSAP ATAFAFNKCMYAADPEFYF |
|  | F |
| UniRef90－UPI00021A8975 | A ${ }_{\text {E }}$ |
| UniRef90－WOHGU5 | LTKANSM। DTCVKEVVVKDKCADGRLIRECFVKNGAKDNF |
| UniRet90＿D6V |  |
| M4VR | QAKAEEVVQKCRN NSGPNACERSFTLIFQCYV |
| UniRef90－S6AN | EVKADVEKCADNEQKSDSCTWAFRGFKCF |
|  | M ${ }^{\text {a }}$ |
|  | KAKAEEVNKCKD |
| UniRet90－B4MTE9 | SEIVDKCDEIEIVPEDH |
| UniRef90－083 | EATKTLEGCKD NGGKDAAD |
|  | A ${ }^{\text {L L K PAQHC }}$ |
| UniRef90＿M4VP05 | CLKKGDDDCARSLWYHSCWKKNDPAHYY |
| UniRe90 U4UH14 |  |
| UniRef90－U4U | AKNAK LIETCVVANK DPKLQAFNAFKCLYTNAK |
| UniRef90－B4GPM4 | QK |
| UniRet90－B4JXD4 | EAAGAE DDTCET DEVPEDHCDAAVAYQSCF |
|  |  |
|  | CHNLKGDNKCETAYKI HQCIMMLKREQNF |
| UniRef90－C5X |  |
| UniRef90＿B6E9U6 | QQVVQSCVKDIK |
| niRef90－Q818T3 | TELIAKEIAADCK AVANDDRCELAVDIMNCLKESAEKHGI |
| UniRef90 W8CBW7 | KAVDDCFKSVPDGDKCEMAASLATCMKEHHAE |
|  | CNKSTA |
| UniRef90－34KB05 | ， |
| UniRef90 Q9V8Y2 － | QEKTKAALEKCR TIMKGENKCDTASKLYDCFES |
| UniRef90 Q2F5W | KLIDACLIANKGN |
| UniRef90－G6DHP4 | KVAAGKVLSECKNKNGKNHADTAFQDFKCYHKATKQHVL |
|  | ATNKLIAKC AVKKD |
| UniRef90－G8B1 | KDKVDQVINTCK AEVVGK |
|  | KATAESVMSKCTPAPGSDKCDKDYNLAKCAMAEAPDVWF |
| UniRef90－F1D185 | C |
| UniRef90－C5J8G2 | K |
| niRe990－Q6F453 |  |
| UniRet90＿Q174N8 | － |
| UniRef90－W5JB | AKMAKEVAADCKDVVH EDRCELAVLVMNCLKDSAEKHGD |
|  | FDEALKNTKFCDGERKEKERTDKAFVFFKCIVGKNPDTFF |
| UniRef90－E9JC82 | QESSKRTLNQCKLIQAENACDRAFQIADCYVKAQPEV |
| UniRef90－UPIO003C3A991 | LS SVQHGLEKCDHNEWESDV |
| UniRef90 | KMPEIVNACRNIK GTDDCDTAFKISMCLKE |
|  | DQDPETF■ |
| UniRet90 | VQSFKGDVQKCIDENHDEDKCTWAYKTYMCFLSSHH |
| 隹 | QEKAKAMDDHCVGVYAGPDECDFAYRMAVCSYNYAKKVGD |
| UniRef90－W8BUK4 | S 1 |
| ef9 | K $\quad$ K |
|  | SKVEALVMMCSVQK DD |
| UniRef90 M3TYY8 UniRef90 F10186 | AAQLVTKCLVPKATPQ CTMAFESFRCYYQNTP |
| E3UPD2 | FKCY |



UniRef90＿S5T773 UniRef90－B4JWD3
UniRef90 E3VSJ4 UniRef90－S6AU25 UniRef90－G6DAUO UniRef90 $V 5 T 6 V 1$
UniRef90 M4VRP4 UniRef90－M4VRP4
UniRef90－B0x0G1 UniRef90－C5J8H2 UniRef90－U5ETH6 UniRef90－B6E9U8
UniRef90
G8HHA7 UniRef90－W8ASY6 UniRef90－K7J387 UniRef90－UPI000258DB9A UniRef90－V5GGB8 UniRef90－UP10003C38F4C UniRef90－E9J9T6 UniRef90－F4Y5P0 UniRef90－A0A026X319 UniRef90－A0AO34WWL7 UniRef90－D6WS43 UniRef90＿M1JP97 UniRef90－G8B1L3 UniRef90＿－B0WM05 UniRef90－V5T8N5 UniRef90－D6WS46 UniRef90－T1E8E6 UniRef90－C1KV14
UniRef90 T1GNZ4 UniRef90－I4DJ69 UniRef90－AOAO34WTD0 UniRef90－D2D0C8 UniRef90－B4GGN2 UniRef90＿UPIOOO3C3969F UniRef90－W0HGS5 UniRef90－Q7YWD2 UniRef90－E2AB46 UniRet90－B3MEP2 UniRef90－X5FT04 UniRef90－B4Q5Q5 UniRef90－BOWLZ4 UniRef90－B4PVL4 UniRef90＿D2EB95 UniRef90－B3NO111 UniRef90－C0SQ83 UniRef90－A0AO34WQV5 UniRef90－Q0PXX6 UniRef90 UPI0003C35C57 UniRef90－UP10003C3550B UniRef90－Q27017 UniRef90－D2SNR2 UniRef90－C5J8G8 UniRef90－G8B1S6 UniRef90－Q177B9 UniRef90－Q26437 UniRef90－D2A1G4 UniRef90－O291H4 UniRef90 B4JWC9 UniRef90－H9IZE2 UniRef90－W8AVF6 UniRef90－Q706D7 UniRef90＿M4W728
UniRef90＿A0A022T3A4 UniRef90－B4KRL4 UniRet90＿Q8ISC2 UniRef90－F4WR96 UniRef90－S4WTU1 UniRef90＿UPIooo34F78C4 UniRef90－X1XZD5 UniRef90－A0A022T3K0 UniRef90 W5JJT2 UniRef90－AOAO34VYQ4 UniRef90－D2SNK5 UniRef90－F5ANH8 UniRef90－X1YDI2 UniRef90－D2DOC6 UniRef90－G6CSL8 UniRee90－UPI0003297ED3 UniRef90－B4NMR3 UniRef90－E2FKZ4 UniRef90－B0X0G3 UniRef90－B4JWD7 UniRef90－B4L660
UniRef90 O9V8Y9 UniRef90－Q9V8Y9
UniRef90 $\times 5 F 2 Y 5$ UniRef90－Q818R4
UniRef90＿OTYZZ4
$\square E L T E E Q \quad K T M \square R V N V D Q C \square Q E Q G \square T K D Q A \square A D H N D S D E N$ SDEQTAKAAVYYNECTKEENTSEEDAMKLKNKDLAP ALTDEQKQKLNKHKSECLAEFKPDEQLVEKLKAGDFTE MQTVFNNCREEASATEDDVKTEAAQQDPS
 SMTKDEVVKS EAAKQVRSKCRA
पT DEQKEQDFAEDK RKECMEAKKVPAEHTEKYKKFEFPD KEAAEKCSKDDGITLETVYATMKNELKD पTLEETYDMTADDKSRCMSEHGTKQEEIDEVSAGVIKN KEAQAKLKARAGECKTEVGATEADIKELMEMKPAS DDLRKLGATFRKKCDAETGVT臬DKLEGAEMGQFPD DEQTNAMVAKAFNKCREEFPISDDEIGGVRKTT直PE AFNKEEADKNFMTRAEECRGEVGAADSDIQDIVAKVPAS SEQQTEKLNQLSKECRALTGVSQETITNARNGNFEE DEPDDUKKTLYNACSEKFPLTEEDKNNVKNSMVID $M P E E M K Q A F K E C H T E L L G M P D E D A K P H G P P N P D$
$E K S M K Q V K Q A M E Q E G S Q A D A D N K M E K P V$ $\square K E Q M A K G T E S C K T S S Q A N S D D A K L G E T E S V P K$ TMTEVHLKQKLLNTIAVKCKDELGHPQESMATLASADVLD QMVEMNPELTKKCIDEQEKVDIDMEQKAKNGKVED QKEKAHLUTAECMKESGVKSEVLAEAKKGVFED EELTKENVIAMAMACKEEHGASDADMEAFKAHEGALI AEQCKTEVGATDADIGEMVGRKPAS DEQTNAMVAKAFNKCHGEFPTGDDEMKGVRKSTVPD ADTDEQDQKRNK $\backslash$ SKECQQVSGVSQETVDKVRTGVLVD LTVADDSPKPLTEDMKRDCGGEETDLSURELSKFQQQDFSP AEGCDPEVGASDADLQELVKKQPAS EEQKTLTKQYGEECYKEDNLTEEEKARVKAKDFKN AKKAGEECREEFYVPDE円YEKYLNYEFPD DEKEAMAKMLSEACMDKVGANEADIGDLIKKQPAS EEQHEIAKNLADACEKELGVPADFVTKMRLIADPD ALTDEOKDKIQSKFDEECUVEHPISDDDINSFKNKKFPS LSVSEDQHRITADMVR
LAPTMAQKVNAVAT
LDRNQAMAVLKAKADCKTELNSPPEAVALLGAKSLPT
LIRNAMAVLKAKADECKKEVNAKDSDVEELATRNPAS ADTEDDQKARAAGUASDCIAQEKITTEQAVEFSKGEFSK TMTRDQKNSGKLIKKTCMTKNDLSEDDVKDVDKGKFIDE DEDEKVKKSPKNACSSKFPLTEEIRNQAKNGILTE EYYKRPAKILHNDCLAESGAMESKLKQCMDGVLHD KEEATTIATECKEEAGASDADFEAMVKHQPAE DKFVAKVKSIGETCVPETNASKDDISSLLAHKMPD ED DIKLIKQHDEFCTKENHLSDKEITAKLKVKDFS P $\square A N T K C D D F E G V K L T A Q E C K D E V G A T D E D V E T M F K H E P A G$ AAKAFEDCREDNYVPDDVYEKFLNYEFPA RNKCDKDLNMQDDLQEEYGLFDFPD
 AMTDEQDHEHFEADGKSCNKDSHITADDIADLRARKIPS

 ■TEEQLAK LDREHRTACVTETGVEEDKVSKAKEGEWMD DEQVKKAEGFAMGCLEQFKLNKEHLALLRDGDFSK
 TRASFRQVLGPLVMECRNEFGVTEDDLKKAQQERSPD AAEMMLDNLRKGIFEE MAEDAKMLRDNCMEETGADVALI DKVNGGTLMP MAEDAKMURDNCLEETGADVALIDKVNQGTLMP
TAEDLQKT AMTDEQKEKTHEHFEKGCGKKYKYTEADDVAKYKAKKYPES QLMKQCLEETKVSEPELKEFMNSGMNP EDYDKEHDAEVAEECKTESGATDEDVEHMMQHEPAD DSMGQCNPDFRQL MQQCMETNQVTEADLKEFMAMQSSA
LTPEQRREDEAKLLSECKGPSGATDDDVKGLREHEVPK
A ATQSPVKEKVAALAKKCSADHKATPEQTKLVFSQKVPS

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 UniRef90_B4JWD3 UniRef90-E3VSJ4 UniRef90 G6DAUO UniRef90-V5T6V1 UniRet90-M4VRP4 UniRef90_B0X0G1 UniRef90-C5J8H2 UniRef90-U5ETH6 UniRef90-G8HHA7 UniRef90-W8ASY6 UniRef90-K7J387 UniRef90-UPI000258DB9A UniRef90 V5GGB8 UniRef90-UPIO003C38F4C UniRef90-E9J9T6 UniRef90- F4Y5P0 UniRef90-A0A026X319 UniRef90-A0АО34WWL7 UniRef90-D6WS43 UniRef90_M1JP97 UniRef90-G8B1L3 UniRef90-BowM05 UniRef90-V5T8N5 UniRef90-D6WS46 UniRef90-T1E8E66 UniRef90-T1GNZ4 UniRef90-I4DJ69 UniRef90-A0A034WTDO UniRef90-D2DOC8 UniRef90- B4GGN2 UniRef90_UPIO003C3969F UniRef90-W0HGS5 UniRef90-Q7YWD2 UniRef90-E2AB46 UniRef90-B3MEP2 UniRef90_X5FT04 UniRef90-B4Q5Q5 UniRef90-BOWLZ4 UniRef90-B4PVL4 UniRef90-D2EB95 UniRefoo-B3NO11 UniRef90-W5J7R9 UniRef90-COSO83UniRef90-AOAO34WQV5 UniRef90 QOPXX6 UniRee90 UPI0003C35C57 UniRef90-UP10003C3550B UniRef90-Q27017 UniRef90-D2SNR2 UniRef90-C5J8G8 UniRef90-G8B1S66 UniRef90-Q177B9 UniRef90-D2A1G4 UniRef90-Q291H4 UniRef90-D7R4H5 UniRef90_B4JWC9 UniRef90-H9IZE2
UniRef90 W8AVF6 UniRef90-W8AVF66

UniRef90-Q706D7 UniRef90-M4W728 UniRef90-A0Ао22ТЗА4 UniRef90-B4KRL4 UniRet90_O8ISC2 | UniRef90-F4WR96 |
| :--- |
| UniRef90 | UniRef90-BOXOG2 UniRee90-UPIOOO34F78C4 UniRef90-X1XZD5 UniRef90-A0Ао22TЗК0 UniRef90 W5JJT2 UniRef90-A0AO34VYQ4 UniRef90-D2SNK5 UniRef90-F5ANH8 UniRef90-X1YDI2 UniRef90-D2DOC6 UniRef90-G6CSL8 UniRef90-UPIo003297ED3 UniRef90-B4NMR3 UniRef90-E2FKZ4 UniRef90-B0X0G3 UniRef90-B4JWD7 UniRef90-B4L660 UniRef90-Q9V8Y9 UniRef90-X5F2Y5 UniRef90_Q888R4

UniRef90_Q7YYZ4

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80
EKNFKCYUACVYKMGQSVIKGNTLINHDMMLRQVJDMMFPAEN DDQVKCFANCYLEKFSFIADGQMNKDEVLKDTTPLAGAD DQKLKCYGKCDYSNMGA DDGELDAEALMFSSVMPEDL SKNMKCFSACFFEKAGTFKDNELQADVVMEKFGAIDGEE T TGGKCMLLCMFNHSGLMKEGKYNSEGALKLVGQVFAADP

 DPGYKCYVKCVMNELNLSHDGVYDDDEERQN M ITPPED
 OPKLQEHLLCMFKRIGFMQEGKDQRDVLRRKLVVDVIKDE
TKEGKCLRACLMQKYEVMDSGKFVTSVALKHAEKATNADK DRKLACYFKCVMEKGGVMKDGTDNYKV MAKLLPQAY SHNAKCLMACMLREGKMLRDGKYEKENALIMADVLNKDDP SMKLKCYLRCFMVKSGGLNEDN NVDALEKALRHLPRSM DPKLKLQVLC乌GKKVGTMNESQTDENVLKAKDRKVSDND DQNFKCFLRCCFDEMSLTDEDGLDDGKEESLAAMAVDKD
 DPQTQKYFGCMLRSVGVVNQGQLQVAALRKQVPKDM
SSKIKCLVKCFFEKTGFMDGGKLQQDVVVEQLSKFMP NEQQRCYLECVYKNLNLIKNDKFSVDKTMAK RFAKQPEE SHNFKCFNKCFMENIGFLVNGKLMEDKVLEALNQ DPADK DDKAKCFLKCVQNKKGLLENGVPNEAAGHKVMTPAWGNS DEETRSYDQCIFHKFDLFDDTKFKIDNLVAQLGQ GUGKED TMEGKCMRACLMKKFEVMDDGKFVADVALKAAEKVTAKDK SHNAKCLMACMLKEGKIVRDGKYEKENAIVMADVLNKDDP
DPKMKKHVLCFSKKTGVTEGDTNVEVLKAKLKMVASDE D KKLKCYLRCFMMKSGLLSENNNVD NGEKAVRHLPRSM SESUQCFTHCLYEQMGLMHDGVFVERDFLGLLSEASNPDH TYAGKCLRACVMKSFGVLADGKLDTEAGREKAKQGNDPAK TRTRKCFYACLFEKMGTSDGQRFDTERFLEVAETHFKDD HLRTSCFVKCFLEKLELFEKKGFNERAMIKQFTYRNFGDV HKLTNCYVKCWVEKMG| FTENGFNEKNVVAQYTYENFKNL
 GVNAGCFVACDFNKUGLEDDGNLSHSSALEKAKGIFADE DEKQRCFDECVYKNLGVVKDNKFSPEGSKALAAQRFKGDE NKNVKCYANCFLTKAGVLVDGVLQTSVVMEKMAPSVGE



| UniRef90_S5T773 | F P |
| :---: | :---: |
| UniRef90_B4JWD3 |  |
| UniRef90_E3VSJ4 |  |
| UniRef90_S6AU25 |  |
| UniRef90-G6DAU0 | F |
| UniRef90-V5T6V1 |  |
| UniRef90-M4VRP4 |  |
| UniRef90_B0X0G1 |  |
| UniRef90_C5J8H2 | F P |
| UniRef90_U5ETH6 |  |
| UniRef90-B6E9U8 |  |
| UniRef90-G8HHA7 |  |
| UniRef90-W8ASY6 |  |
| UniRef90-K7J387 | F |
| UniRef90-UPI000258DB9A | M |
| UniRef90 ${ }^{-}$V5GGB8 |  |
| UniRef90_UPI0003C38F4C |  |
| UniRef90_E9J9T6 |  |
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| UniRef90-A0A026X319 | N P |
| UniRef90_A0A034WWL7 |  |
| UniRef90_D6WS43 |  |
| UniRef90_M1JP97 |  |
| UniRef90-G8B1L3 |  |
| UniRef90 ${ }^{\text {B0WM05 }}$ |  |
| UniRef90 ${ }^{-}$V5T8N5 | F P |
| UniRef90-D6WS46 |  |
| UniRef90_T1E8E6 |  |
| UniRef90-C1KV14 | F P |
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| UniRef90_I4DJ69 | L |
| UniRef90_A0A034WTD0 |  |
| UniRef90- D2D0C8 |  |
| UniRef90-B4GGN2 |  |
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| UniRef90_E2AB46 |  |
| UniRef90-B3MEP2 |  |
| UniRef90 X5FT04 |  |
| UniRef90-B4Q5Q5 | F |
| UniRef90-B0WLZ4 |  |
| UniRef90-B4JWC8 |  |
| UniRef90-B4PVL4 |  |
| UniRef90_D2EB95 |  |
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| UniRef90_Q0PXX6 | F P |
| UniRef90_UPI0003C35C57 |  |
| UniRef90-UPI0003C3550B |  |
| UniRef90_Q27017 |  |
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| UniRef90-G8B1S6 |  |
| UniRef90-Q177B9 | F |
| UniRef90_Q26437 |  |
| UniRef90-D2A1G4 |  |
| UniRef90- Q291H4 |  |
| UniRef90_D7R4H5 |  |
| UniRef90-B4JWC9 |  |
| UniRef90-H9IZE2 | F |
| UniRef90-W8AVF6 |  |
| UniRef90_Q706D7 |  |
| UniRef90-M4W728 |  |
| UniRef90-A0A022T3A4 | M |
| UniRef90-B4KRL4 |  |
| UniRef90 ${ }^{-} 88$ ISC2 |  |
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| UniRef90-D2D0C6 |  |
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| UniRef90 E2FKZ4 |  |
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| UniRef90-Q9V8Y9 |  |
| UniRef90-X5F2Y5 |  |
| UniRef90-Q818R4 |  |
| UniRef90_Q7YSZ4 |  |



DEKAAMAKFDAELCKGEVGASDADVQSAMKHEPAA
$R \square A A E E C V Q Y L K I C P T R L E Q Y L K F \square F P E$ $D \square R V E M R K F F S Y C Q F E A N V T E T Q L N K F I D N G M L A$
 MMLEERKTMLREMTKECQEKEGTTEDDLEHLMGKNKPE E IVNKCKTEHEPTEDELKGMMALDKVPE
 EKVA QLLPVAMQCVGESSVPPEVIFQYASGKLGN EEQKAKLRELRTACVTETGVDEANVDSAKQGVWKD LEKFHKACMDEAKVTDEQMRQFFQNGMDA EA $\square R$ A A VKP DXQECGKEHGVT DDDLKAAKAAHSAD KEEAIAI VNECKEAEGASNADVEAMMKHEPAD QVQELISTARMECDQK LQLPRDQRPLVKVTN VA A ELLEKLKNSCLKKSGATEDTARRLVGUNVTE REKVQEYSD DCSK K D Y P LV T D E D KRMLKLAAGNCKSSEGATDADVDNLAEGRLPE DELRKLAGNLRKKCLGGENNTTDEDLGAAEQGDF E

 DENVKDK LLGTFRKCRNQHPDSDKVQQUKNFESVPS AGP $\square K D Q C M A A A G I T A Q D V A N R H E T D D P$
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 TRTTKCYYSCVMQKDGYSDGQRFDKEGFLSTAVNFSSKD THEGKCLRACVMKSFHDMDDGKLDVDAGREKAKQGDNPEK TMEGKCLRACLMKKYQVMDDGKFVADVAMKHAEKATDADK NKNVKCLMGCVFRKDGWLDDNGFSFNNAYKTSEEEYPDDK SENAKCLAKCMLMEGNMLKDGKYRKDDADTFAETHHSDEE SESVQCFTHCLYEQMGLMHDGVFVERDLFGLLSDVSNTDY EDNVECHMKCVMEKQGPLKNGAVKKKSVKKTLQSIPPKDH GDGVPCFVACMMKKMGVLDEGMMQKETALEEAKSVFDEEE GINA CFLRCVYNKAGVIDKGEYDADKALEKLKKFVNEDD NEEERCLVACVFKEYKVITDGHFDPVNALNVAKVVYKDDK TMEGKCLRACLMKKFEVMNDGKFVADVALKHVEKVTDGDK DRTAKCFMKCLFEKENFMDEGKLQLEAIATALEK DDYE TMEGKCLIVCLMKKYEVMDDGKFVKDIALTHAQKYTDEER SQNLQCYTKCLMEKQGHLTNGQFNAQALINTLKDVPQADK TRVQKCLQSCVQQQHGVSDGRRFLKEGYLALMRVVVGTDQ DPAFKCFLHCMFDMLGLDDHNVMQLESLIEEVLPEEIGPED NEEERCLVACVFKEYKVIIDGHFDPVNALNVAKMVYKPEK TDDGKCMIACYMEEMNLMADGK NVEEAKKTNSDKYDPDN SANEKCYVNCLYNKLVFYKDSTINKQAMKESLYEIVGEE NKDFKCYTKCVAQLGGVLKKGEISVQKSLAQMLIIIPKEM EPKLKNHVLCVSKKTGMASEGETNVEVLRTKLRKVSEND DEKLACFLNCUVKKMGITNNGDMDWEVARAKAPSSLSQEQ DEKLDCFSACMLKKIGIMRDGSI DVESARAKAATTNVD SNEGKCFFSCFHEKIGLTDNGVLQKK\AFGHLLKRIFD EPLLKCVVKCFDDKAGFIDDGVIQQDVIREKMTVGMDEDQ KESTKCLFACVYKVTGVMDQGELSVENALSQKYEADDPEK
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EEPVRKYL LCTAKKDGVFEHEGYHADRVAKQFKMDDDE
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SENTRCLVKCTMERYGLDRNGTYDTERADRDFASKVPKRK QAVTLCFLACGLEKFGLYDEHGFDLDKLYMQLAGVSGHDK SETAKCTIQCMFAKVGFLESGAANRDVLDAKLSKGNPT
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TDVQKCYLGCTDKQFGIDGKMFNEEGFLSLIEKLYGEEK SANGKCFMGCVLQEIGVVKDGKFDKEEAKKHASKMTDKDE TQAEKCMMGCLIMRKVNVINKGKFSVEEATKVAQKYYGEAM SESGKCMVACFMEERGMMKDGKDTEQVMLDNQEKWDAATH DVKLRCFFFCMMKK DKVMEDGTLNEEMTRKRMANDDPADK TENUKCQMKCMMQKQGIWKDGVFDADAKMKEGVQNPKFKG GIK PCFQSCVYKKAGDFDNGEYDINNAKTKMQKFVNDEE SKEGKCMKACALKKFGVLEDGKLIKDASTELTKRFIDEDK SEKEKCLVECVLKKMKLMDDNKLNVGQVEKLTSLVTQDNK
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 SREAKCLAACMLKEAGMLRDGKYNKEVAKFVAEGVHEDQE S R A QKCFLAACDFEHGRTSDGKRFVTE VF LDEKGEKMS GND Q GQEGKCLRACLMKKYEVLDNGKVVKSVALEHAKKNSDENK



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G E VG AKD 30
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40
E F A E A ClVGEVGAKDSDLQE\|VKKQPA S $M E Q E G A T K L D I H G V K S L N W P E$ E E QANALVAKAFNKCFGEFPDGDDEMKEVKKSTVPS

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

K Q M I R N A A Q A CK A S E G A S D E DVVDVLA E GRMP E

A M D S K E LIE E K A K N K I K A A C E Q E H P L S D D E VI D F G E D P A N N V

## TKDDFEK I L Q

K A KVER FRASCDT ETS S D P NDI Q GAK K GII S K A MTHE ELLK T GI Q T LQPP DCVGETGGTS QK I DEVVYN GNV NE
 $\vee$ S K TADE $\square$ K Q I R R V C L T E H P L S A E QI S KLL K NLLE F P D

 E V A K K L L K K V L I Q E
$K$ E A A E K EELVKKSMEETTKACKDK QFLQKDKKVSEDCDAE LTPENFALLNKDPHAD KKIIKVSEDCIAETQATKND\|KTLLEHKDPD
E S LRESL

| $L$ | $R$ | $P$ | $V$ | 1 | $V$ | $A$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $V$ | $K$ | $G$ | $Y$ | $K$ | $L$ | $H$ |
| $L$ |  |  |  |  |  |  |

L H EALK K L V E E
HV R E A
 VME QAVDAGAKCAEE LGGTPEDLDKLLAKRELLPE A IT D E HIIE A K F L T VG A SMTVE EVVE LIE P F GENCCKP K SLSNEEAEKLME YKESCTAETGVEKENIVEMIKNKPDA
 A $\square$ T K E Q A $\quad$ E M Y K K L A E E C C A A K E G A S A A D

$S M S D D Q$
AFHAC CDDQEGPSK E DV K V DT K FE T P K KEKCQKEFNVT DSVVEDFMKRNIPE

A LT E E QKA E $\square$ T K P LI D D E C S K K A G F S S L S D L K S I Y E GK G E E EKCMKEEGATVDDVEAFRAAKMPE A $L$ S S D E $\square$ K E A L H P F F VVVECAE E Y G E E Q K A K L K D Y K E S C I S E T G V D R DVVVK NA K E GVVID E S VT A E DN E K I L Q Q F N K K C S E M H K K I






 K KCSSENNVQPQLADKLVKHQAVS A LT LE E LQ N A LR $\square$ T Q S F CK T E S G V D Q Q V V DVVNS GK DN S DKQKELLA QHYKECLAKSKVNEATLQKARDGQFAD DEEREKFKALHNECQPKSHI DEESLKKY IKGE LLD A $\square$ S K E Y H D K A $\square E A \quad$ K N T CA K L E T P R E K L K Q H S D A C K A E S G V S E E S L N K V R N R E E V D CLIEANVEADLKKFRSNGLKA

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 T Q T Q K C L F S C V Q V Q F G L S D G K K F L K E GF L K H S E A I V G E E N
 DPKIMCLMKCVFVEAKWMDENNLQYDYIKNTDHHS I
 K MK C Y ML LCFYK K L G G V V N G K P NV A P L I A F ME ERY D H N DERLGGCYTYCMLRKK GIVEEN GHLLWVNIAKRQLITYGADA D E NVGQSYVECMMKKFNVVDNGNFNEKNTRDUVQAVLDDNE K D N V K C A S Q C VMA K L G FM N K G VLDQ D D KDME F FK D GP

 D D K V N C F A A C ML E EKANNIMM D G S M D E T V $A$ A R L R A A S K S M S Q E K DE P F K HNK CMMQKMG FKD GVF DADKMKELMMQNPSMM GH



RV Q K C Y Y G C L F Q A L G Y L D A E GF NSEG F L T T T L M M A N N

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 T D DGECCMI A CYMEEKN LMAD GK DNVKEANQTNSDKYDPD N

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| UniRef90－Q7 | K |
| UniRer90－UP100032A177A | M |
| UniRef90－AOAO23EGE6 | EKAAKAMVQNCD DQKENPLDTAYAVLVC |
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| UniRef90－B4KR | KALLEAC GSTTGAN |
| UniRef90 B4JH15 |  |
| UniRet90＿－5ANH5 |  |
| UniRef90－K71U53 | VDRV LSSCKSEEVGKDKCETGGKILECL |
| UniRef90＿W8BU34 |  |
| CoS | D |
|  | RDAMIKTI EKC SQKKEANECETVFHAVQC |
| UniRef90－A1YWY5 | KDFSKILGCVEEANKGENECDVAAG |
| UniRef90 S4WWT2 | QKKLEEVAKQCASVSKGTAGCERSALLAGCFL |
| UniRef90－B6DDQ1 | AKEYVKQCDHRR TNPCDTAWAI Y C C |
| UniRef90－G91566 | AGCERAALL |
|  | A A ${ }^{\text {a }}$ |
|  | WPERQ CHAIRGSNKCETAFRIHQC |
| UniRef90－08MYB8 | MASVWT T CSNTVNDSDECNTGVNLAKCMKESSEK |
| UniRef90 S4WZ53 | N EKFLT CAKVND |
| F4Y5P7 | K |
| UniRef90 | EHSPRECLKGCNDQAGPDKCEVAMDIAMCM |
| Ref90－B87WK4 | DGEEGCDRSLLLAKCL |
|  | DEIVDKCNEQVISPDGKCEYGFKLTECGLKHRLLEK |
| UniRef90 X5FT09 |  |
| UniRef90－GOYYB8 | SRYVDQVADECEKI |
|  | NV ${ }^{\text {V }}$ |
| UniRef90－F4Y5P？ | VELANQVADTCDQEVFTEGRCKV |
| UniRe | QADTKTATDECKK QHGLNDCDTAYETAMCIYGRLPE |
| UniRef90 UPIO00252A | TGDVHEIIEQCVNQAA |
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| UniRef90 O9BLW6 | AHKFLEAAGGACVKINDEDGCDRAKLLFDCL |
| UniRef90－UPIO003C35A34 | LPKMLETGNSCKLLK GENDCKQAFNLNVCILQKAAE |
| UniRef90－E2BIP0 |  |
| з3N | DKDLEKC GQ |
| UniRef90－T1HD09 UniRef90 O17HN7 | A SKAREVVEHCATEVGVDDDCEFAYKLAVCSDNHAKKD |
| UniRet90－WOHDC5 | CGHEIPTKNECDGAGEVMACRNKYNKDH |
| UniRef90－Q16F71 |  |
| UniRef90＿Q17K30 | AEMF AEKCNMFEGANGCEKAHGLFECY |
| 216GC2 |  |
|  | YEKTKECLERRVGADDSPNSCCQAYETFQCYFQE |
| UniRef90－A0AO23FAQ4 | ELERIFKECVNSDYTKGECQVAYDAYRCVVKEGRAV |
| UniRef90 A0AO34WW | K S SkN |
| UniRet90－F4Y5P8 UniRet90 ${ }^{\text {B0WSW7 }}$ | Q |
| UniRef90 ${ }^{\text {Q81807 }}$ | QNRTRSCLAALEPSVADTVCERAHRSFLCYHQH |
|  | QNRTRSCLAALEPSV TDV |
|  | ITEGLNEMVETCVADRGETDFCERAYGLVSCLVKEK |
| UniRef90－Q1W641 | QVNRLVNNCKD⿴囗 |
| UniRef90 D4P933 | KLIDHCSSQVSPDSKCEYAYQFSKCGLEYGMKNGL |
| UniRef90 ${ }^{\text {D1 }}$ |  |
| UniRef90－UPI000252C088 | VE QLITAEC SP |
| UniRef90－M3VHC0 | K |
|  | Alv |
| UniRef90－F4Y5P9 | HAAADEVVDKCSAEVPTENECEWGLALTKCALKHGKEAGU |
| UniRer90－UP100034FDA43 | PEKVDDL |
| UniRef90－UPIOOO3C39EAF | TDQDMA ${ }^{\text {dVEKCKSEKDNEDKCEYAFEVTACF }}$ |
| UniRef90－A0A034WVP9 | EDQDKEAINTCK TEKGANDCDTAFKITMCL |
|  | DKl |
|  | KQ 1 I EMC |
| UniRet90－X2CBF | CAVDRNESCKCDRSYMFMKCLMESE凹KSFM |
| Re990 B4LPR7 | AEKALAA |
|  | Q SAPKFGF |
| UniRef90 D2EB88 | EVVLPP CYAVSGTNKCDTAFELTKKCFKN |
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| UniRef90＿Q16VE3 | LEEFKTRATLCCEANRPQDYCTAAYRLYLCFREH |
| UniRef90＿Q16VE3 | RLYLCFREH |


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FKKPFEANAPKCMDK TSEENMGRMMQGNMDN EELWGKAEKKCQQLSKLSSDERASTLTSGGND

[^1]
## UniRef90 WOHHZ5 UniRef90－F1CEY2 UniRef90－E5FD95 UniRef90＿G8B1L5 UniRef90＿N6TII3 UniRef90＿A0A023EFT2 UniRef90＿UPI000350065D

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| UniRef9 | N6TII3 |  |
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| UniRef9 | UPI000350065D | F |
| UniRef9 | B0WVK8 |  |
| UniRef9 | T1H963 |  |
| UniRef9 | Q7YWD5 |  |
| UniRef9 | G8B1U0 |  |
| UniRef9 | F4Y5P1 |  |
| UniRef9 | F1CEX7 |  |
| UniRef9 | G6CWN1 |  |
| UniRef9 | UPI0003DF603D |  |
| UniRef9 | D6X0T3 |  |
| UniRef9 | B4LPY8 |  |
| UniRef9 | G8B1L7 |  |
| UniRef9 | D2SNV4 |  |
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| UniRef9 | M3VK50 |  |
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| UniRef9 | F7IVC5 |  |
| UniRef9 | U4TZJ7 |  |
| UniRef9 | D2A1G2 |  |
| UniRef9 | -G6DFG7 |  |
| UniRef9 | B4JWD0 |  |
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| UniRef9 | T1H838 |  |
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| UniRef9 | UPI00022C885C |  |
| UniRef9 | G8B1T6 |  |
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| UniRef9 | A1YWY6 |  |
| UniRef9 | D1FPW0 |  |
| UniRef9 | P91903 |  |
| UniRef9 | F4X7K9 |  |
| UniRef9 | X5F9U0 |  |
| UniRef9 | W8C379 |  |
| UniRef9 | C6ZEB8 |  |
| UniRef9 | B4MRU6 |  |
| UniRef9 | T1GN15 |  |
| UniRef9 | T1H841 |  |
| UniRef9 | Q8WRW1 |  |
| UniRef9 | Q818P6 |  |
| UniRef9 | T1H1C2 |  |
| UniRef9 | Q1PB57 | M |
| UniRef9 | B3MXM1 |  |
| UniRef9 | G6DFH0 |  |
| UniRef9 | D2A055 |  |
| UniRef9 | W4X5S2 |  |
| UniRef9 | A0A034WW87 |  |
| UniRef9 | Q16GC1 |  |
| UniRef9 | M4VV00 |  |
| UniRef9 | W8C4C0 |  |
| UniRef9 | Q9U5F2 |  |
| UniRef9 | G8B1T2 |  |
| UniRef9 | B0X0F9 |  |
| UniRef9 | S5R4H5 |  |
| UniRef9 | A0A034WPR8 |  |
| UniRef9 | W5JVG6 |  |
| UniRef9 | UPI0003DF65E5 |  |
| UniRef9 | B4L659 |  |
| UniRef9 | UPI0003C37E30 |  |
| UniRef9 | UPI0003C37E30 |  |
| UniRef9 | Q8ISC3 |  |
| UniRef9 | UPI0003C35FA9 |  |
| UniRef9 | M9YNS2 |  |
| UniRef9 | W8BB75 |  |
| UniRef9 | UPI0001758071 |  |
| UniRef9 | B4MRU5 |  |
| UniRef9 | X2D9T4 |  |
| UniRef9 | Q1W634 |  |
| UniRef9 | A7VJIO |  |
| UniRef9 | B0WU15 |  |
| UniRef9 | G8B1S7 |  |
| UniRef9 | D2EBA3 |  |
| UniRef9 | H9JK18 |  |
| UniRef9 | UPI0003C35C78 |  |
| UniRef9 | B4MRT8 |  |
| UniRef9 | A1YWY3 |  |
| UniRef9 | T1H8H0 |  |
| UniRef9 | G8B1S0 |  |
| UniRef9 | A0A034WJH7 |  |

UniRef90 Q7YWD3 UniRef90-B4MAK8 UniRef90-V5T818 UniRet90_WOHHT3 UniRef90_v9ZAB9 UniRef90-F1CEY UniRef90-BOX8A7 UniRef9- 081073 UniRef90-A0A034WGT3 UniRef90-D2A675 UniRef90 W8C0X8 UniRef90-B4GD93 UniRef90-H2CSN2 UniRef90 W4WUX8 UniRef90 C5J8H0 UniRef90-Q9TW84 UniRef90-V5K5N3 UniRef90- Q17LZ8 UniRef90-Q17LZ8
UniRef90-AOA034WQW6 UniRef90_U5ER84 UniRef90-Q818Q2 UniRef90-H9N4R8 UniRef90-UPIo00252C031
UniRef90 Q1W639 UniRef90-Q8WRX3 UniRef90-B3LYF5 UniRef90-UPI0003DF73BD UniRef90-B4MTE8 UniRef90-UPIOOO258D641 UniRef90-A0A023W726 UniRef90 C5J8G7 UniRef90_UPIOOO3298534 UniRet90_Q7PGA3 UniRef90 J9E937 UniRef90-BoWU10 UniRef90-G8B1T4 UniRef90 W8AGN5 UniRet90_B4P7S9 UniRef90-W5JNC0 UniRef90-B8ZWK2 UniRef90-D2A053 UniRef90-UP1000252C038 UniRef90_B3NJH2 UniRef90-T1GDH7 UniRef90-B0XC79 UniRef90_E2AD33 UniRef90_Q5MGD0 UniRef90_O16ID1
UniRef90_B4MAK9 UniRef90 I1SV20 UniRef90_D6WS47 UniRef90-V5T8N7 UniRef90-BOXCD4 UniRef90_UPIOOO258D642 UniRef90-B4LPY7 UniRef90-A0A034W3Z7 UniRef90_13WEV4 UniRef90-G8B1T5 UniRef90-O2Q1Y8 8 UniRef90-T1DJ24 UniRef90-J7S518 UniRef90_O81886 UniRet90_BoW9W9 UniRef90-D2EBA6
UniRef90-B4JWD6 UniRef90-H9JKG0 UniRef90-T1H8Z3 UniRef90-T1H845 UniRef90-G6DC20 UniRef90-O81875 UniRef90-F5GTV1 UniRef90- B6E9V2 UniRef90-B0W4L9 UniRef90-A0A034WGW2 UniRef90 T110U4 UniRef90-Q17CK7 UniRef90-H2CSN6 UniRef90 M4VRA3 UniRet90 - X2CDC8 UniRef90-P54194-2 UniRef90_U5ESII5 UniRef90 D2A5B1 UniRef90-Q1W637 UniRef90_X1XXP9

ETPQQK【RQYSDACLTSVGIVSQES ${ }^{30}$ RKIVRNREHV ${ }^{40}$ EVVQQMIDDHTKKSCLK QLDMSSPQRSLI REPRPTE पT DEQRKKKVTERFNKCKAETSASTRNXTSEERKSAAFPN


QATCAKI L RI P P N HLLKLYK Q GI F P D VEKSFNQAQAECAEYQGVHDDDLKRYVKEGYPD QEFQDFVTTSKTQCAKEMNINPNELQKSLLYEDQP
 MRKYIDECTKDHNVTPKEFHEFMEGKAAP

E E M MK K C VT D LGVVTE Q DVLDD K L G K VK P
S $\square$ TSTEMR MDMMVIQHCNETHPVADIDMNKINKKIEPQ VSFTVDSKKASVNGNYNTCLTETNVSEDDMDRYKSENQET
 T PEEFNAMAR ECHREFPFSKELQNQEDNLDF

QECAEYFQ Q E N L LQQY $\square$ S S S YP D $K A A R E A C \square A E A K L T A T D A N Q V R K L I Q N D$ NKCKESLNVENEILDKYYDTIVPD VRKSFPEAQAECAVYLQVPDDRLQRYMREGYPD
 ALLS LIM D F Q N A

QECAVHLQVAEDNLQRYRHEGYPD A LT DE E L K T K LTH T E QSACKTETGUD QQKAN DVNQGNVDE Q Q Q MV D T S K S E C L K Q L K M P K Q Q R P L M R E T R PT E VMEKKMEA IG A CAK ENGYT D Q NAREI F D K E MT G D ELLE E IKK K LIY NACA GKFP IT E EVVKNNAKNSIFLDD NDMRRDCHKEDPFSEELQKKEEVLRRFDD ANDELKVHYRANEFPD QLTEDM QVT K R C Y K QLD $\square$ S S DLLVERLYNRDLPD CQMRQRAS DKDVEMFHTMQRPD EK $\square$ F HECLLE END ITK E S D F K N L E GK K K T ARESCDKEVNLSAADANSVRKLVQNN ESVGKECAKKLGITEDYFE NFPH K G A $\square D H C T K D F D I D M D D V D S L K Y G D F T E$
MNEDDEP FRKECARQVKASMADVEKFLKRDPQS EVTE LMTAMSECNETFRDEMGYI HTLHETSFPD A S A EE DNVGKI E SVVE K K C Q E K T G V S E E S L Q KI MRLLE EVD

 S D D D V $\begin{aligned} & \text { EA A M } \\ & V \\ & E \\ & E\end{aligned}$
E VT A F LK G V IEE E C DE E T GVVPN ILE L L K A D N YVA KTLATI E QECA GY LLLSNETL RSYIAAASFP K


TCLETSKVDSERALRTASGIID E C A Q Y N E $\square$ P
Q T F K P DE E
E A F R E Q I E $C A$ C
VA E A F REQDE
RSFVEACQVKHNDT $\square$ QE LDEFPTDPSSPR
TMMSQLKAAV VK
K S V K R QKF C I N S GF NYD KLEKI K K WVFP S
$\qquad$ $\begin{array}{lll}A & K & Y \\ K & A \\ \text { G } & \text { L }\end{array}$
$\square$ VQS $\quad$ VQA Q HE E C EDPFIKSFAD Q VS ERCMRLLEKV P D R YKA QFTEF QFP N FSESCDT DNALTE QDIHNVMMGKLSP
 LT P
 $\begin{array}{llllll}C & Q & K & F & F & V \\ C & D \\ C & V & L & L & N & D \\ C & X \\ C & Q & G & V & S & E \\ C M V & A & N & A & E\end{array}$
MTARSCMVSANASE
 KS K A G VSAETUTEVVIKYF GECKQS LTSVPDENAKNIKNWSFNN $L N E Q E L R K I W G I T R N T C F S E I G I T P A A D F V K L Q P A N E A R$

 CAKKNGLTEKTPKEIVYNELER A LT KEE $\square$ KEAT LDMFNECNKDFNVSED D IKAAAT QKNMD LT R E D F R



|  |  |
| :---: | :---: |
|  |  |
| UniRet90-V4MAK8 | GFNHYDMLK |
| UniRef90 WoHHT3 | K ClLACMLK |
| iRef90-V9ZA | TRELDCFSACVLKKNGVMK |
|  | CVLKKFDI \( |
| ) d |  |
| UniRet90-B | CLFRCLGIR T NLYSD |
| UniRef90_B0X8A7 | CLFRCLGLRTNLYSDTEGDLERLHAQFAEPYDEP |
| UniRef90_Q81073 | EEVRCLLRCVEANLRFWNHTTGMQKNMVAGHFVPYPDDF |
| UniRef90_A0A034WGT3 | S |
| UniRef90 W8C0 | NLKCSSHCVMLKQGIIDEGNFKPDVAKSK MPDDK |
| iRef90-B4 | NVKCTAQCVMVASGY |
| UniRet90-H2CS | CFVFCLLNKYEWMDDGGFLTANMKHNLLS SHLDQL |
| UniRef90-W4WUX8 | S |
|  | Y |
| $\begin{aligned} & \text { UniRef90 Q9TW84 } \\ & \text { UniRef90-V5K5N3 } \end{aligned}$ |  |
| iRef90- W4X5 |  |
|  |  |
|  | AGKTNAAKTLEYMSQVSGDTD |
| UniRef90-U5ER |  |
| 90-Q818Q2 |  |
|  | ANACFFACIFKKTEMIDEG |
| $\begin{aligned} & \text { UniRef90-UPIO002520 } \\ & \text { UniRef90 O1W639 } \end{aligned}$ | NVQLYVECMMKRFNIVDEGNFMEKY |
| Uni |  |
|  |  |
| UniRef90-X1YD09 |  |
| UniRef90-UPIO003DF | Q |
| UniRef90-B4MTE8 |  |
| iRet90_UP100 |  |
|  | CVNKKFGLQKDG |
| UniRef90-C5J88 | DQNFKCFLKCCLDEMSL |
|  | Y L A M W |
| Q7PGA3 |  |
| Uni | KCYYDCMMQVMGYSNGKRFNRDRFEDFLGAAKNDDQ |
| UniRet90-G8B1T4 |  |
| UniRef90-W8A |  |
|  | S SRVKCFYHCQMEKLEIIANGVFDPHVL NITPEN |
| UniRef90 W5JN | DPLIECFTECLMKKSGFMDDYTYNKTLI GGFAGRYLEPD |
| B82 |  |
| Ret90-M4XYA9 |  |
| ef90_D2A053 |  |
| UP1000252 |  |
|  |  |
| UniRef90-T1GDH7 | NRNEKCFRYCVGUNSGLDPGKLNLSNUKEQLKKFLKKAP |
|  |  |
| UniRef90- Q5MGD |  |
| UniRef90-Q161D1 | DSTVQKLVHCFLVNMNAWDDETGITKDYVIRNYFK P |
| niRef90_B4M | - |
|  | PSDFSCYLFCLFKDINIMNKGEFDPNLAAQEVQ |
| UniRef90 D6WS47 |  |
| eef90-V518N7 |  |
|  | 俍 |
| S5 | D PCFGGLFKKVGL NEGR |
| UniRef90_UPIO00258D642 |  |
| UniRef90-A0A034W3Z7 |  |
|  | - |
| UniRef90-G881T5 |  |
| Q201Y8 |  |
| Ref90 U5EHT7 |  |
| $\begin{aligned} & \text { UniRef90-T1DJ24 } \\ & \text { UniRef90-J7S518 } \end{aligned}$ |  |
| Q8 |  |
|  | EHSTRKL HCILVNLHAWDQVNGITDYVFSQFFDPAPSDN |
| UniRet90_D2EBA6 | DPIVHKYILCVNRELQIWDNNGFDIEKIYQQYKGRANEE |
| 0-B4JWD |  |
| ef90-H9J |  |
| ef90-T1H |  |
| T1 | DVGFKKITGCYGEKMGYVSGTKPNWERLRESYEVYYKDED |
| UniRef90 Q9 | GLN PCFL GCVLKSAGUI DKNGFDVEATKEKSKKYUSSEK |
|  | YDDK |
| UniRef90-F5GT | SESVKCYFQCLFIRENI TNKGKFNDDNYFNLFNT |
| UniRef90 U5EJ67 |  |
| UniRef90-B6E9V2 | Cl |
| UniRet90_B0 | P G A |
|  |  |
| UniRef90-T110U4 | NDGFKKVLGCYAGKMTFVDDTRINWDKVRAEIIYHENEKEY |
|  | OTV |
| UniRef9o-H2CSN6 | a |
| $\begin{aligned} & \text { UniRef90-M4VRA3 } \\ & \text { UniRef90- X2CDC } \end{aligned}$ | A CLI GCMMKRSHL |
| UniF | DKDSMCYFHCFFEKSGLMTDYKLNTDLVRKYV |
|  |  |
| 90 |  |
| Ref90 |  |



UniRef90 UPI0003C36693 UniRef90-Q17D39 UniRef90-B4L658
UniRefo-I4DKT5 UniRef90 X5FAIO UniRef90-D6X4H6 UniRef90-UPIO003C36D07 UniRef90_Q1W647 UniRef90-W8C879 UniRef90-D6X4H5 UniRef90-UPIOO0252C097 UniRef90 B8ZWK3 UniRef90-Bow9W6 UniRef90-T1PFL9 UniRef90- A0A034WW39 UniRef90_UP10003C362D1 UniRef90-UPIO00252BECA UniRef90 D1FP17 UniRef90-P34170 UniRef90-D6WADO UniRef90-D2A1T1 UniRef90 E2BV43 UniRef90-B3МН81 UniRef90-G91570
UniRef90 ${ }^{-}$V9ZA04 UniRef90-K9P1W5 UniRef90-B4MKE8 UniRef90-O8MTC1 UniRef90- B4KRK7 UniRef90-B8ZWK7 UniRef90-X1XUD4 UniRef90-Q28YF0 UniRef90-D6X4H4 UniRef90-W5JNN2 UniRef90-A0A022T6L4 UniRef90 W8B841 UniRef90-S5TP41 UniRef90-D1FPL UniRef90_WOHGT1 UniRef90-UPIO003296A9E UniRef90-T1H296 UniRef90-G6DQM1 UniRef90 UPI0003C35A21 UniRef90-A1ZBP8 UniRef90-F1D187 UniRef90-UPI0003DF763C UniRet90-BoW9X0 UniRef90-B4JWD1 UniRef90 Q1 W640 UniRef90-B9UR15 UniRef90-UPIOOO3C37E13 UniRet90_BoWR79 UniRef90 D6WPR7 UniRef90-W4X740 UniRef90-A0A023EG24 UniRef90 G6CIF8 UniRet90-BOWP 14 UniRef90-Q06D17 UniRef90-UPI00021A7499 UniRef90 BoWVK6 UniRef90-V91M79
UniRef90-T1E2C7
UniRef90-G8FZR5
UniRef90 ${ }^{-}$Q8887 UniRef90-A0А023EE52 UniRef90_S5SYT7 UniRef90 D6WDX0 UniRef90-H9JFQ8 UniRef90-Q17LZ6 UniRef90 UPI00022C885D UniRef90_UPI0003DF567B UniRef90-G6CU70 UniRet90-M1KDIO UniRef90 BoW4L7 UniRef90-H2CSM8 UniRef90- ${ }^{\text {BEEOLS}}$ UniRef90-Q7PJ76 UniRef90_B4JXD2 UniRef90-B0M2D1 UniRef90_BoW4L6 UniRef90 F1D193 UniRef90-T1GEM0 UniRef90-UPIO003C370EA UniRef90- BoxCD6 UniRet90-G8B1L6 UniRet90-Q95VP2 UniRef90-0818R1 UniRef90 D1FQA0 UniRef90-BOWVK7 UniRef90-T1H8N1

EATMQMCNESFGAPEDCLTLSLPWKLPQ
EADMQMCNESFRTSMEYLDELNSTGFPD AMDKKEDEEKVKK■GAECAKEVGISDDEMKLFUANQSKA

ASTRSFMEACKMENDD ETAKEKLRKYSDECKSVSGVSEELLNKVRNHEDVB AMTDEEAKAQLRDVQQTCKAESGIDEQKANDVHEGSFDE KSWKEAQEECADYLRLTDETVERYENQGYPD HVTEKCFDQLHVPQRYKATFQAFRYPD LKKVEGDCNKEYGGDKALLADWDAHKDAQ A $\square T$ PEE $\square K \square A$

EECREESGLSV
SEENDTNETRSVEENCQKQTGVS ZVEKVNNFELVD EKLTQEVQAVGTSCGEKEHATADDMIEIMEEKFPP LSLT QEDVQK CIIEKTGTTQDDIDNLQTVDFDE K पS QDMDRSCMRKTE DSMSQLKLFHMSLLNN
पS FAEDP $\square K D \square$ K DY $\square K S C L I E N G F D P Q Q Y N G M R N V K D P E$ VAESCRTE KQLSKEVEHMSYHSWRMPT LADSTQSYKDAMGPLVRECMGSVSATEDDFKTVLNRNPLE SQSAADLIAAYAKK QQECDKELKIPANEATQITANKDVS HVAKSME KAMSACNESFRLEYAYLESLLNDSSFPD AAFKQNQESCDKELGAAEAALLTTDKEVANP DKLEVMUNECKTKTGVPDDVLVKARNGEKDD HNLNRGHTKS
LEDVVRDCNSSFSTPTDHTMQFNTDGLAD SVIDK KFSDK■RQLVWMKCNKDSQVDMAELVQLQSYVIPT

EDVKKHVKESMQECAKEVK MITHAECLEKHELTENEFQEMEKMSDDI K LSQEMLRACMRRTEVSMSQLKSDMNSDYNN TEKETEK LRGYRTLCMNKYDVDTTIIKKAKEMENDI F LK S LGEAQQECAEYQGISNETVEHYARNGYPD DEDTHMCNQSF IIDVSYAFQFNNTDVLD
 PVTTRCEKRNKLDKATDKTYHNLQQ PK SVEDTNVECNSSFSIPMDHYRTFNTTELDPD LTEEQ KNNWRKWSNECKVLIGVSQEAINKIRNNEFDS

MPQ DKQKGESYHAYCEKRNGKKKFDMQKARNYDTG KCMKTVGYTETDPKVIFEQEVK【
 RRFRETCGKILRTSPEVMTLAEQGQFSD TEDDIJKLRARKVPE
QDCMEYLQVPGYRYAEYAANSFPD
RGFRQKCAKTLQSSTGTVEKVEQKNFHD VMNSCNESFRTEMAYIQSLNETGTDE HQIALQC\|DIVGI DQKVVEDA\|NDEIPN ASSLDDLKMVYKNVIKECVGDYPITAADLKLIKARQUPN KEFDSYFHECGEYFEVPNCTLDEYTANAFPD

 ESQKETUNKYSDपCMKELDFPED\LQMAMYGDLSN

EFEDHDAQDHDNCDAENGVDDDGTAHDHKENPPE ETKKQEESFFAYCAKKLGANKEGYTKLRDYELAD SMT LQEVVEMDEPFGQGCDPK PEQSHFEEMVLNKEDA


KEMATKCMEQNNTTEDEFEA DPKGEDFD KECAEYFEVSDCTLGKYIDDSYPN




UniRef90_U5KEQ5 UniRef90-F7IVN4 UniRef90-V9Z672 UniRef90- Вом2С9 UniRef90-B4IMQ6 UniRef90-G4XDQ8 UniRef90-T1GX83 UniRef90-J9LNL3 UniRef90-B6E9V4 UniRef90-FGJYF5 UniRef90_Q17HN0 UniRef90-D2EB89
UniRef90 B0XCEO UniRef90-Bom2D5 UniRef90-D1FPH4 UniRef90-S6B6K4 UniRef90-B6E433 UniRef90 T1GM01 UniRef90-Q176E3 UniRef90_Q176E3 UniRef90-D6WS39 UniRef90-Q95NY5 UniRef90-B4J5K8 UniRef90 B5E010 UniRef90-M4WGB0 UniRef90_UPIO00252ABDF UniRef90_U5KD23 UniRef90 F6JYF2 UniRef90-Q17PG0 UniRef90-C5J8F1 UniRef90 A0A026WGE6 UniRef90_B0XCD5 UniRef90_Q16Y73 UniRef90_O7Z1D8 UniRef90 Q9V931 UniRef90- BOXCB8
UniRef90 WOHHT7 UniRef90 ${ }^{-}$B0X6Y9 UniRef90- J7SC26 UniRef90-BOW4L5 UniRef90-F4Y5Q1 UniRef90- UPIOOO3C3A2BC UniRef90-B0X8A8 UniRef90 T1E269 UniRef90 UPI000258D68D UniRef90-T1D6E0 UniRef90_M4VRM1
UniRef90 C6F011 UniRef90-Q8WP90 UniRef90-F1CEX8 UniRer90-ELFDA UniRef90-AOAO34WN19 UniRef90_T1H857 UniRef90 G8B1R5 UniRef90-B4KPI6 UniRef90-BOWPS2 UniRef90-UPI00034FC042 UniRef90 A4F5B9 UniRef90-Q9U9J5 UniRef90_S5TP43 UniRef90 - UPlooo UniRef90- 44 JFA UniRef90_B4PAK9 UniRef90 G8B1R6 UniRef90-Q818Q5 UniRef90-UPIO00252C70A UniRet90 BoXCU6 UniRef90 BoXCU6 UniRef90-B4JXD3 UniRef90_D2EBAO UniRef90 Bom2E1 UniRef90_O2TJC8
UniRef90 UPIOOO3C35326 UniRef90 UPI0003СЗАЗС5 UniRef90 BoW4L8 UniRef90-S4WWS7 UniRef90_Q66UB3 UniRef90 Q176E2 UniRef90-Q176E2 UniRef90-B4PB44 UniRef90-Q66U5? UniRef90_Q173T2 UniRef90 UniRef90 Q16F73 UniRef90_G8FZR8 UniRef90_T1GN16

VF NPCASRTEMTENEAHQVMWPDPPV
 STKENFAACAKELDIQEDAYEK E Q $\square \mathrm{D}$ Y Y GKA

NASEDDLIVLKSYKVPS
CHKEHGGDQALLQKWMKFE DPD
MQQFQDTLNEAKFKCARAMRL DSNKLLMYEDQP
ECAEYYEISNCTLDKYIAESYPN VYNPCDQQTELTEDEAHQVNWPDSP I
DDLVEAMMGFTDEC EEPKPTKENAKEVIKFVKDA TMKDITSGFFKVLNECKHELNDPDHLVGDFYHYWRQE KCAKELNLDLNDKDDMAKPEF
 MREMTRNFDKACAKEYNLPEELINFWKEGHEDT DEQKSKILEEYSKECLKESKVDESVLKEAEKGVYLD MPE DK QKGESFHAYCEKRAGNKQSEWKNGRRYKLTG VADECLAKNNVTREDF LLR RDQS L A E

QKCELKHQVNDSEKA IWWAWKIPA CLEQENLTFDDVNSLIEDKSER
K ESFHPF\|MK CAEEYGUTEEQFEEAKEKHSAE
QLK SFSSAQQECAVY LLLSNETVQQCEVNGYPD A A TRVQLKNAALNSASDCDEQNNMTARDIALNHHTEPEN ECAEYFETSECRLSQYVEDSYPN
ECAAE ULNNI PKTTTVQKSIVEDQFRC
EPVLAKCLKESGLEADKDKLLSDESTVD NYVSDCLASNNI SQAEFQELIDRNSSE QECCIEFLQVSPDELDDYVRYNFQL MAEYSDKQQAALLDDVATKCQREGKNPDLVKKWMNWELPN【S LT MAYLAAALQANQDECREESNFRGELNDDVGRNV

KTFAEVTHNKCRRMYGQSDNETTXMTNATDPN
CAQEFHLTEDEANNTQASQTVD CMEDHLPDDDTVLSWKDWNLTD EADQREKAVEFQRGCMEAHGLLEDELHEIMDGKPIQ DECREESGLSTEVLEEFKHF WSE
 MTTTMTDQVNSDEAVMDMCNDSYRIDPTYLQALNEFDDET MQDAVMQCNRTFVI QPDYLSELNETSFPD VK GYKLHClESSGI T ET S AKKLS DGEQDK
 MDEMVTK G QEKTFRRALDECAEY LEVPAETVEHLVSHRFTS
 SSEAMRHDATGFDECADELGISEDUATNIQAAKNGA ASSLDEGKMKYVDMDIECSDNYPITAPDLIQLKSKDMPD S S NALLEMVKMSVEDCTKKDEGSDDGFQDGVKGSRDA

ETYVSDCLASNN【SHAEFQELIDRSSEE KCQLNS GASDASDEDARRRKLSE $\square Q Q H V T S R C M D V H Q D T T E Q L M S G L S A E A M D A$ QVAVECMDRSNMTFHELMKLIRDSS:ME QVAVDCINILQVSDDLLNQISQGEIPD EVQQLIDRTKETCLEKLDMPPSQRSLMRVTSPSE

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UniRef90_Q9TVTO


[^2]

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|  | UniRef90-B0W4L3 |
|  | UniRef90-T1H960 |
|  | UniRef90 ${ }^{-1}{ }^{\text {B0M2C3 }}$ |
|  | UniRef90-B0M2D9 |
|  | UniRef90-B0XA70 |
|  | UniRef90-F6K0S3 |
|  | UniRef90-Q9TW99 |
|  | UniRef90-V5K5V3 |
|  | UniRef90-K7JTY2 |
|  | UniRef90-D2A056 |
|  | UniRef90-Q06K67 |
|  | UniRef90-G8B1L1 |
|  | UniRef90-E7CC94 |
|  | UniRef90-I1VJ76 |
|  | UniRef90-B0M2D6 |
|  | UniRef90-T1E1T4 |



E N S\V|N K Y|V|E A V\Q S LDP E T E D S C E Q|V|F S A Y
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LKPLLMEQCATPQ GA TLDDDRMFKFYTC
RSTMWANFDNCDKYLS Y GNDCQDA Y E SLLR CF
QESWPDSVDNCRTELADSDSCEYFSGMANCLL
RWVA T DLVVVCRIIEFSDEK DLLCEGLSFGGLFN CLFRR
EVRFKQAAHSClIA A DQYRGACERAYHMMDCF
ASQ|MN|L\RGCEKNEA\T DHCDRVRE|AKCFH
AQQQVDUVHKCED\PNNEDPCLKVLDDUAKKCFKTEVVHKLNW
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TPP HEDDFYHCVDENDYEGGGCEAVVSEYFKCVIMR
AK QLVELIHKCEGSVADDDACMKVLDDAKCFKAEDHK\NW
E AVDA CLLKKVGTVTT T CQHI KKVA K C Y
FAFAPTMRRCRDEYKKETDDCERTFG|FNCFRQEK

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[^0]:    $\frac{M}{M}$

[^1]:    SDDDKKDLTREQRECVAESGVDETKVED:KNQGLET

[^2]:    lupas_21
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    jhmm

