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| :---: | :---: |
| Ref90-ASZ767 |  |
| UniRef90-W5N276 | VIPRTPIPRISEAKDDEAQL |
| UniRef90-UPI00041D0343 | FVPKTDLATLNDLQASQAEVVGR |
| UniRet90-17K9R9 | VPKKHIESALKLEGEDF |
| UniRef90-UPIO004654EDC | PKHHYKDLCEL DGA |
| UniRef90-UPIO0031936DA | LAIPKKHIPSLMAIQPEDKELVGHLHLVLQKV |
| UniReef90 G415J1 |  |
| UniRef90-Q0F3H0 | LVIPKQH |
| UniRef90-l1D1M7 | LVIPKEHHTDA |
| UniRef90-O3AP96 |  |
| UniRef90-K2EVK8 | LVIPKKHYNSLN |
|  | LIIPKEHYDDI Y SMDADTASKIFTIATEVAK |
| UniRef90- N2A6F3 | LI PKEHFRNLYDLDDELASKVLVLARKMTVRLKED |
| UniRef90-R6WBZS | LILPKEHYANLYELDDEV |
| UniRet90_UPIO0040CE170 |  |
| iRet90_G4E8R4 | KHATLNDLTEA |
| 55S | V PRQHSSDVLDMS |
| UniRef90 UPIOOO2D80842 UniRef90-M2WVE1 | LLIPKKHHENIYDMSSEEAAQI |
| UniRef90-F2G9Y4 |  |
| UniRef90-E6RLP2 | IIPKQPIATINDINNEN |
| UniRet90-U4KOV9 | LVVTKNE |
|  | $V 1 P K E H V S D 1 F Q Y D A Q L A G E V F S$ |
| iRef90_UP10003 | LPKNHYADLFELPEDVA |
|  | VPRRHVPDL LGND |
| UniRef90-L8D | LVVPR |
| UniRef90-13DLFO | P |
|  | V PkL |
| UniRef90_R5Q894 | LVVIPKCHVASSAEVKDSAVWGALMGAAVNKVAELSL |
| UniRef90-A3DF72 | LIIPKEH |
|  | PKKHIUNLNDLTEDD |
|  | LVVPKAH |
| UniRet90_D2RJ52 |  |
| AOAO22 |  |
|  | YKKHVP |
| $\begin{aligned} & \text { UniRefono-vag5K4 } \\ & \text { UniRotan lankga } \end{aligned}$ | LVVVPKKHEASMMLEMDGEDLVLGL |
| VvW09 | PCRNLLDASPAQMAA |
| UniRet90-A1BCP8 | LIIPLKK |
| UniRef90_S4RCNO | LVVPKLRI PRISQAQSQDTQLLGHLLFIDAKTLAKKEGLD |
| UniRef90_O2LV | M |
| Ref90-D5CNF8 |  |
| UniRef90 G3P8Y4 |  |
| Reto--R1S | V V ${ }^{\text {P }}$ |
| EMF | VIIPRKHY |
| UniRef90 A7RSL2 | LVIPKTP |
| UniRef90-E8RDK7 | LVIPKKH |
| UniRet90- D6E6W6 | VPKDHYDNIGDGVPDEELG |
| UniRef90-FoS057 | LIVPKEHTPTVNDLEEKHK |
|  | PKQHIPTLDDVPPEQA |
| UniRef90-R6- | , |
| UniRet90-UP1000379-269 |  |
| UniRef90-R6FY $\times 5$ | LIIPKEHFDNTYDL |
| UniRef90-U1WBN6 |  |
|  |  |
|  | VPKKHV |
| UniRef90 B3R759 | LVIPKSHV |
| UniRef90 UPIO003AA6A22 |  |
| UniRef90-D2R4CO UniRef90-M3J715 |  |
| UniRef90-K1YAK0 | LVIPKKHTAAPVDA地EDKKLIGKLIRTGSKLAAENGVAD |
| UniRet90-16X3C | L V V PR |
|  | PKK |
| UniRef90-X4Z3G00 | V ${ }^{\text {P }}$ |
| UniRef90-H8GF23 | $v$ |
| UniRei90- UPlooo3794E91 |  |
| UniRei90-UPI000312817A | LIIPNKLIP |
| UniRet90-F8A913 | KK ${ }^{\text {R }}$ |
|  |  |
|  | \|LILPKKHF |
| UniRef90-F2L103 | LVIPRRHLDTLSSAGAEDAP旨LGRMLVLVARLAEQLLGCAE |
| eef90-DoL995 | LV PRRHSKD |
| UniR 9 - GOEE 23 | VPK Ph P ERL |
| UniRef90 ${ }^{\text {C4LYI2 }}$ |  |
|  | VIPKKHI A NLLEITPD |
|  | V 1 |
| UniRef90-G7V | LVIPREHV |
| UniRef90_UP10003 |  |
| ef90 TOSHC6 |  |
| UniRef90-F8E6P9 |  |
| Uni |  |
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| :---: | :---: |
| UniRef90-P53795 | NGYRVVVNNGKDGAQSVFHLLHLHVLGGRQLDQWPPG |
| UniRet90-W5N276 | GYRVVINDGKHGAQSVYHLHIHVLGGRQMS WPPG |
| UniRef90-UPIO0041D0343 | DGYRIVMNCNDDGGQTVFQ! HLH |
| UniRef90-17K9R9 | DGFRIVNNCNRAGGQTVMHIHFHLLGGRDM QWPPG |
| UniRef90 UPIOOO4654EDC | AGFNVVQNNGKEAGQTVFHFHVHLIPRYEEG |
| UniRef90 UPI00031936DA | DGFRVVTNUGPHGQQTVFHLLHY |
| UniRef90 G415J1 <br> UniRef90-Q0F3H0 | TGNN\|AINDGKSAFQTVFH1LHLHVMP |
| UniRef90-l1D1M7 | SGYRLVFNTGKDANQTVFHVHCHVLGGRN |
| UniRef90-Q3AP96 | SGYRFVINTGADAMQTVFHIHAHLIGGQAMGWP |
| UniRef90-K2EVK8 | NGYRVVLNTGEKAGQTVFHIHLHVLGGR |
| UniRef90-T1L1Q1 | GFRIVINDGPQGCQSVY |
| UniRe990-R5K595 | DGLIII QNNGAAAGQTVFHFHMHLVPRFIKDTWVPGQ |
| UniRef90 N2A6 | DGYNVQNNEEVAG |
| UniRef90-R6WBZ5 | DGYNIVQNNGEAAGQTVFHFHMHLIPRYKDDGWKMGE |
| UniRet90 G4E8R4 | RGYRCVINCNLDGGQSVYHIHLHLLAGRKHS WPPG |
| UniRef90-W5 | cGVNYSATGADAGOVI HTHFHVVPR |
| Un | GLNILNNNGAPA |
| UniRef90-M2 | DGANLMLNDGPAAFQTVAHVHLHVVPRRHGDRDRFAT |
| UniRef90-F2G9Y4 | GYRVVMNCNEHGGQTVYH |
|  | KGIVNLNNNGEVAGQTVYHYHVHIIPRYEM GWPPYQ |
| UniRef90-E4KQ77 | KGMNLINNNGQVAYQSVFHSHFHLIPRYSSDDPGF |
| UniRef90-UPIOOO3E | DGLNLVQNNGEAAG |
| UniRef90 K7F | QGINVISNVGEVAGQSVFHLHVHLIPR |
|  |  |
|  | GFRVVINNGAEGCQSVYHL |
| UniRef90-R50894 | DGFRVINNCGKDAGQEVMHVHFHMLAGRV |
| UniRef90-D4M7V8 | DGYRMVINTGEGSGQTVPHLHTHLLSGRNF GWPPG |
|  | KGYRLITNCGVAAGQTVFH |
| UniRef90-U3H3Y3 | GFRVVMNCNELGGQTVYH1HMHVLGQRQL HWPPG |
| UniRef90_D2RJ52 | KGFRVVVNTGVEGGQTVPHLHFHILGGKEL GWPP |
| UniRef90-A0AO22RKC7 | DSFNMLVNNGAAAGQVIYHTHDH |
| UniRef90-H9UE99 | SYR VONNGKDAGQEVHHIHFHILGGR |
|  |  |
| UniRef90 I4DYG1 UniRef90-V9VWOs | KGMNVINNNEEDAGQTVFHTHMHLAPR |
| UniRet90-A1BCP8 | SGYRMVFNTGADADQSVFH |
| UniRef90_S4RCNO | NGYRVVINDGPDGSQSVYHLHVHVIGGRQML WPPG |
| UniRet90-O2LVFO UniRef90 D5CNF8 | HGFRTVINSGKGGGQEVFHLHMUVGGGN |
| niRef90-G3P8Y4 | SGYRIVVNDGPDGGQSVYHIL |
|  |  |
|  |  |
| UniRet90-E6MF88 | DGFRVVNNCGEAGGQTVPHVHFHFLAGRNMA WPPG |
| UniRef90 ATRSL2 | DGFRVVINDGRHGCQSVYHLHLHVIGGRQL GW |
| UniRef90-E8RDK7 | PHYRVVFNNGSQAGQTVFHLHMHLLGGR |
|  | NGYRVVVNTNNDAQQSVHHLHVHVLGGAPMNSGDPSRK |
| UniRef90-D6E6W6 | NGYRILINCNKDGGQEIYHIHYHLFAGKPLGKM |
|  | DGYRIVMNCREHAGQTVFHIHLH |
| UniRef90-R6H9T9 | SGYRVVVNTGADAGQTVFHFHIH |
| UniRer90-UPIOOOO379F269 | K Y Y L VFNTGADAGQTVFHAHMH. |
| UniRef90-R6 | DGLNLVQNNGEDAGQTVNHFHLHLIPRYEGDG |
| UniRet90-U1WBN6 | DGVNLLNNSGKVAGQTVFHYHLHILPR |
| UniRet90-B4SE | SGYRLVFNTGPDSLQSVFHIIHGHLIGGQ |
| UniRef90- ${ }^{\text {U3R }}$ | NGFRTVINTGPDGGQEVYHSHLHVLGG |
| UniRef90-UPI0003AA6A22 | YGFRVVINTGEQGGQEVHHLHVHVIGGP |
| UniRef90-D2R4C0 | SGYRVVANVGPDGGQSVDHLHFHILAKRPLA WPPG |
| UniRef90-M33715 UniRef90 K1YAK0 | GVTVIQFNEPAAGQTVYHL |
| niRef90 K1 | GFRV FNGRKAGQVVF |
| UniRef90-16X UniRef90- ${ }^{\text {D5 }}$ ( | SACNLSNAGADSGQEVFHLHVHVLPRYSA RWPPG |
| UniRef9-DEGG2 |  |
| UniRef90-H8GF23 | GYRIVFNTGPDAGQTVFHVHAHVLGGEQL |
| UniRef90-F3YW93 | DGLNFGVNTNAAAGQVVMHAHFHLIPRFAGDGLKWGQ |
| UniRef90_UPIO003794E91 UniRef90 UPI000312817A | DGFRVIMNGSNGGEAVPHLHLLHLLAGRQL |
| $\begin{aligned} & \text { UniRef90_UPIO00312817A } \\ & \text { UniRef90-F8A913 } \end{aligned}$ |  |
| UniRef90-A6D9 | YRLITNNGKNAGQEVFHLHIHLV |
| UniRef90_C6L134 | DGINVLQNNHEAAGQTVFHFHIHLIPRWQKDGWKPGK |
| UniRet90-F2LIO3 UniRef90 DoL99 | N |
| UniRef90-M7NDV0 | AGMNLLNNTGAAASQSVYHFHLHFIPR |
| UniRef90-GOEE23 | TGYNVVVNVGKSAGQEIMHVHLHVIP |
| UniRef90-C4LY12 | EGYRVVNN |
| UniRef90-A11 | DGFRVVINTKDNGGQTVHHLHCHLLGGRFM TWPPG |
| UniRef90-G7V6G0 | DGYRVVLNCGDRAGQTIYHLHVHVLSGRFF RWPPG |
| UniRef90-UP10003735B26 | DGVNLALNDGRAAFQTVFHSHIHVVPR |
| UniRef90-TOSHC6 UniRef90 F8E6P9 | DGYRIVINDGKNGCQSVYHLLHLH\|IGGRPLDGWPPGMK |
| Uni | $V L$ NNCGPAA WQTVFHLHFHVIPRY |
| UniRef90 | GEVAYQSVHH |
| ef90_UP1000360491B | NGFRIVINTGKDGGQTVEHLHIHLLAGRELLI WPAG |
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UniRef90_UPIOOO47012966 UniRef90_UPIOOO46880B1
UniRet90_UPIOOO26CCOFA UniRef90-10ZoW6 UniRef90-UPIO0037DE1EA UniRef90_GOTYS4 UniRef90-UPIOOO288CCA4 UniRef90_Q12FC3 UniRef90-A9ALQ4 UniRef90_UPIOO045EA174 UniRef90-FOIYF3 UniRef90-C1BPY6 UniRef90-O6MDP2 UniRef90-I1BP92 UniRef90_UPlooo381596F UniRef90-J1QEKO UniRef90_12JK92
UniRef90 M9MFN2 UniRef90-UPI00037C201C UniRef90-UPIOOO45EC261 UniRef90-R7DT67 UniRef90-V4NS32 UniRef90-B0CV17 UniRef90-14VRZ1 UniRef90-HOUM37 UniRef90-Q1LRX9 UniRef90_UPIO003B5A690 UniRef90-R5JBG7 UniRef90-EOTB97 UniRef90-E2CPB7
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UniRef90-C8PNR7 UniRef90-Q754B3 UniRef90-Q07L58 UniRef90-UPIOOO471545A UniRef90-D8QTW1 UniRef90-МзАТІз UniRef90_UPIOOO346574C UniRef90_UPIooo364168F UniRef90-B4XALO UniRef90-14C3H4 UniRef90-C5C3566 UniRef90-G6EY31
UniRef90 MOC381 UniRef90_W4GYR2 UniRef90-D5GDP6 UniRef90-D6PBD8 UniRef90-TOU8M9
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50
LVI PKEHSEDFDS TTDEN TDAFVNATKKHVVRLLDAK TK ${ }^{8}{ }^{8}$ MLIPK LH I GSLDEVEDKHRSLLGEMMVLIPRLAREQGCTD LVI PK G R YVSWD W S S AKASDAEDT GFVVRAVK VARDAGLVA

















 LVIPKY HGEKLHDVPD

L I V P K K K H Y Lid L Y D I P L L D V L S H D N K V S K E I S K

 L V I P K WH GA K L H D I P D E Y L H D V L P TAAK K I A K A L N L D A D G


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K GFNF\|ISNNGAAFQVVIFHYHEH\|VPKYKTEGY円PSKN GFRTI DNTGRVGGQEVHHLHIHIIGG
$P G Y R L L A N T G T D S H Q E V P H L H V H I F A G R A L G$
GFRVVINDGVNGCQSVYHLHLHIVGGRQLTWPPG
EGTTI FQMSREAGWQTVFHLHMHVI PRWEEDG
$\square A Y N V L Q N N G R L A H Q E V P H V H F H L I P R R$

YGFRILTNTGAEGGQEVHHLHFHVI GGPR
D G L F I GQF NGAAA GQTVPHVHFHVI PR
P GMTLAQANGSAAGQTVPHFHIHVIPR
TGYRLLANMGPDSHQEVPHLHVHVFAGRPLGPM GYRVVINNGDEGGQEVPHLHIHVIGGKQLGKPP
GYRLVTNNGTMAGQVI FHLHFHLI G GRQLG
GQYNLLQNNGPMAHQVVPHVHFHVI PKPS
E GLSIL QFNGEAGGQTVFHLHFHIVPRW
$K G V V L M Q L N G T E A G Q T V P H L H F H L I P$

S GYRVI TNDGEDGGQEVPHLHFHVLGG
$F R L V F N T G V D A G Q S V F H V H A H L L A G A R L G W S P G$
$K G V N I I S N C Y E E A G Q S V M H F H \square H V I P R Y F K G B$
D GI RI AQFNGETA GQTVFHLHFHI I P CWDAGK
PDYNI LQNNGK\AHQEVPHAHFHVIPKPSVSDDEG
PGLNLWQSNGEAGGQEVFHFHLHVHPRR
$E D F R L V V N C G A A A G Q T V P H L H V H L L A G R \quad L L G W P P G$

$G L T L V Q N N G L K \quad Q E V K H F H L H L K P Q Y K$
DGIRLMQFNGSAAGQSVFH $\quad$ MHFHI LP $\square W$
DGTTIQQFSEPAGGQVVFHTHVHVIPR
DAFRLAVNNGAAVGQSVFHLHVHILAGRPF KWPPG
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TNWRTVINTGAES GQTVFHLHDHFLSGRKM NWPPG
TEYNVLQNNGA $\quad$ QA HQVVEHVHFHMIPKP
D GVDILNANNEAAQQSVEHLHYHVIPRKKNDG
K GFNYLSNEQP $\square$ S GQ TVLHYHEHI MPK Y

E G $\square$ NI L NANNQCA GQTVFHLHDHLDPRKSGDA DPG
PGYNVLQNNGRLAHQEVDHVHFHLIPRR
D G $\square T L Q Q F S E P A G G Q V V F H L H M H V L P R$
S GYRLITNTGPDA GQEVPHYHVHLLA GAKLS G
GYRVVINDGPDGCQSVYHLHLHILGGRQL KWPPG
N YNI LQNNGALAHQQVGHVHFHI I PK P
SDFRLVFNTGTGAGQTVFHVHAHVLGGRGME WPPG
T FNIVDNNGANAGQTVFHLHLHLLSGKSFNWLP
ENYNILQNNGREAHQVVDHVHFHFI PKKSMKD
SGYRFFIDNVNRGGGQVI FHLHAHLVSR
E G L S VI QS NGDTAT QTVP HLLH $\square H L V P R W K G P \square W P D G T D$
$N G Y R L V S N T G R D S G Q E I P H F H F H I M G G R Q M G$
D GVNLLHASGKAAQQSVPHFHIHLAPRRSDDRWP
GYRIV DND GPRGLQSVYHLHLHILGGRTLS WPPG
VE Y NILQNNGRGAHQLVDHVHVHMIPKP
KEFNVLQNNGVNAYQSVFHVHFHII PKYEDGRFPF
NGLNI I N N N K ELLA Y Q S V F H SHIHLI PR Y
D GIQ I A Q F N G A P A GQ T I F H L L HV HI L P R W
$D G F R M I S N A G E H G V Q E V P H L H V H I L G G R P L G R M$ YR LVINNGEGVGQTVFHLHI HI MGGRAF TWPPG
EGFTIVQNNGVGGQVPHLHIHVIPR
GY R V V I N N G V D G G Q S V F H L H I I H L L G G K A L G
QGTFVAMNNRVS QSVPHLHTHVVPRTKGDG
ENYNI LQNNGK】AHQVVPHVHFHVIPKPSDSD
E GLFI GQFNGAAAGQTVPHVHFHVI PRW
D GITTLDQNNGLP QAI KHYHMHLI PKYK
D GIT L HQ Y NESAGGQVI FHLHFHILPRW
K F N V LQN NGTIA H QVVPHVHFHMIPKP
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K DWNLLQNNGKLAHQEVGHVHFHMIPKP
$D G D H V A Q F N G A P A G Q T V F H L H V H V V P R \quad W E G G$
D GAR V V I N D GPD GGQEVVMHLHVHVLGGRKM
EAVPCKRVGMAVIGGEVPHVHVHLI PLNKMKDMDF
$K G Y R L A L N V G E Y G G Q T I Y H I H M H V L G G R R L G$
$G L N V V N N N G V A A G \quad Q T V F H Y H V H L I D P R Y$
$E G T F I G \square N N R V S$ QSIPHLDIVVVPRRRGDGLRG VS CKRVGMAVVGLEVPHTHVHLIMDNSMKDMDFSNN DGVNVKHNTGEAAGQDVFHFHAHVVPRWHGDN
VGFNFVSNQGVEAFQTVFHYHEHII PKY
EGYRVVINDGKQGCQSVYHLHDHVI GGKQLS WPPG K GFKLQINSGSAAGQEVFHTHVHI I P
K GYRLIVNCGHDADQLVPHLHIVILGGGKLG
ERAGVI I A GLDEVPHLLHVHVFPARDLSDFGF
EGI I QMQLNGAEAGQTVFHYHVHLIP
E E Y N I L L Q N N G K N A H QVVV D H V V H F H
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G GYRII SNCGPDACQSVHHMHFHILGGTQLAD
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SGFN G G IN NGKA A GQTVMMCHDHLI PRYPVGNPEGG







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UniRef90-UPI00036DFFA8
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UniRef90_B8HB19
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UniRef90 UPI0003
UniRef90-L8FWS6
UniRef90_G2QLX3
UniRef90_A9EFE7
UniRef90-E4VOZ3
UniRef90-E4VOZ3
UniRef90 UPI0001FFE5EC
UniRef90-H3N2V9
UniRef90 Q31N56
UniRef90-G2LGD6
UniRef90_A8GL12
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UniRef90 LOHH78
UniRef90-F3P884
UniRef90-DOMKA3
UniRef90-L9Y3D6 UniRef90-UPIO00361103E UniRef90-A4BGZ9 UniRef90_UPI0003B5A13A UniRef90_K2F5J6 UniRef90-K1X5K0

AVMGLEVPHTHILHPINRESDM

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HGFNIGINLGKVAGAGIPHLHVHIVPR WEGDAN
K AVPCKRVGMTVIGLEVPHAHVHLIPDNSMDD
E GVRRLTNVGRTSGQVI FHTHVH11 P SWED
GYNIGLNCGRDAGQSVMHDHMHLI PRYSGD $\square K$ CT R $\square G V A V I G G E V P H V H \square H L V P D K T M D D D N F$

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ALSTRVNFGTS QAI KHYHMHLLP
RCGYMI AGFEVPHTHDHLFPASDMSGY FRLVFNTGAAAGQTVFHVHAHVLAG
HGFNTGMNLGSVAGAGIAHVHQHVVPR WGGDTN
RVGLLI A GLEVPHLHDHVFPATSLDTFDADQN
GGFNIGINIGRVAGAGIEHVHVHIVPR WNGDTN
SGVRILTNIGRSAGQVI FHTHI HI I PSWEVSNFEP
GYRMVVNEGSDGGQTVYHTHLHVLGGRQM NWPPG
DGFRMI ANSGQHGVQEVPHLHVMILGG
EAYTIGINDGKAAGRSIDHLHIHLIPRHQGD
EVAFGVQRSGLVAGFEVPHTHLHVIPLRQESD
RMGLLI AGLEVPHVHIHVFPALSMETFD
D GLTLERANRPAGWQDVFHLHVHLVPR
DGYNI GVNVGAAAGQTIFHMHVHVIPRY
SGFRIITNSGTNGNQDVPHFHVHLLGGKNLGRM DGFSVFHTSGPLVGTVDHAHVHLVPR
VGFSVFHTTGSLLVGTVDHAHVHLLPRFEDDD RGFNFVSNQGAKANQVVFHFHLHI I PRY
DGYN GGNVGKYGGQTVRHCHFHLI PRYDGDDPKP
KA $\square P C Q R \square G M A V V G D E V P H A H D H L I P D N S M A D M D F$
DGYN $\square G F N V N Y S G G Q T V M H L H Q H L I P R Y$
GCRMMVNEDSEGRQSVYRIHLHVLGG WPPG

D DWNVVQN NGAAAAQIVPHTHFHI I P RARRQGRW
DRLQVI TNQ
AFNVGLNDGGPAGGSLASHLHQHVVARWSGD
D GYNI GTNVGYAAGQSVLHFHVHVIPRYRGD
K GYRLVVNGG GAQ I DHLHIHLMG
KGFKLLVNNESVANQQI FHTHI HI IPPFY

HGFRIISNIGPDSGQEVPHFHIHMLGGKALG
HD WNVVQNNGAAAAQVVPHVHYHVIPRPEI
DGYNFGLNEGEAAGQTI SHLHFHLI PRY
QGSFVAINNRVS
QSVPHLHTHVIPRTRGDGLRG
RAGLTDAGFEVEHLHLHVWPVNEMADFNFSQ
WD WN VQNN GAAAA QVVPHVHFHLIPRPGL
DGFNI GTNCGDNAGQSIMHCHDHLI PRY
DGYNI GMNCGEMAGQSIMHLHIHLIPRYQGDTTDP
A GFNLGLNQGVVAGAGIAHLHQHVVPRWQGD
QGFNVGLNLGLVAGAGU1AHLHQHIVPR
GISICONGGK FNDLTHYHMHLI PRYEGSD
D GIS CQNGGK F FDDLHYHMHLIPRYEGDGFAW
DGYNI GDNDGAAAGQTVPHLHDHLIPRYHADRHDP

DGTFVAMNNRIS QSVPHLHVHVVPRHRKDGLRG FPCRKVAQVVLGDEVNHAHLHLLPMNSEADVDF
NGYRVVTNVGEDGGQSVNHLHFHVLAKRSDA WPPG
RVGVIVQ
GFEVPHAHVHVFPTSDPGDFDLGRK

DGFNLGCNIGSAGGASIDHLHLHIIPRW
RAGLIVAGYEI NHLHVHVWPSRTMADFDFGS
AGFNLGMNQGEVAGAGIAHLHQHVVPRW
RAGLI LQ
GDWNVVQNNGAAAAQVVAHMHFHVI PRPELRD
RVAFFYT G G I HVAHTHAHVVP
GNWN I IQNNG RASQTVPHVHFHIIPRPAFG
VGRTGMFFEGYVAGFEVPHLHVHVFAWDMRAF
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MGCNVGMNLGQAAGAGI DHLHMHVMPRW
VGRCGMVFE GFGVDHLHAKLIP
DGFNAGLNLGDGAGGSIDHLHTHVVPR
WEGDTN
DGYNVGFNVGEAGGQTVFHCHCHVIPRY
HGFNLGMNQGEVAGAGI AHLHQHIVPRWKGD
DGFNVGMNDGKVAGAGIPHVHDHVVPR
EGFSVFHTSGPLVGAVDHAHVHLLPR
MGFNIGMNQGAVAGAGVAHLHQHVVPRWSGD
RVALMLA G E EVPHLHVHVHPAWGLEAFDFSR
DG $\square G F M Q N N G Y P D F N A L D H Y H L H I F P R F K G D Q F G W K T$
DGFNDGMNLGRSAGAGIAHDHLHVVPRW
TNFRMTTNAGDAAA VVHMHMHLL
WDWNVVQNNGAAASQVVPHVHYHLVPRPNDDG
WDVNMGNNGAAASGVVPHVHYHVWPVSSTA

UniRef90_UPI00036DF71E UniRef90_NgSRE7 UniRef90-LTM 624 UniRef90-E7ROO2
UniRef90-LOAL8 UniRef90-UPI00041505BA UniRef90_UPIooo2C45C89 UniRef90-E1IEJ7 UniRef90-I4BZD6
UniRef90-A1CID8 UniRef90 V2QED7 UniRef90-L8WM60 UniRef90-UPIOOO36D040F UniRef90-UPI000441662E UniRef90-W7LLN8 UniRef90-C6TCG0 UniRef90-W4M2M1 UniRef90 K0EH27 UniRef90-M2XFY1 UniRef90-UPIO0046418CB UniRef90 U2RLV5 UniRef90-_13TQ33 UniRef90-B8G608 UniRef90-A4X3E6 UniRef90_UPI00047E2FE2 UniRef90_V4XJJ2 UniRef9-KK2FV28 UniRet90-D3BFA6 Uniree90_U1QAQ3
UniRet90_UPIOOO46995CA UniRef90-D5X1T6 UniRef90_W5XTF8 UniRef90-C5GKIO UniRef90_N6ZM32 UniRef90_K2FTK4 UniRef90-D2Z691 UniRef90-13EFT7
UniRef90
U1R4X7 UniRef90- А5СММЗ UniRef90-UPI000328A85E UniRef90-S7N1×9 UniRef90-UPI00047C3D85 UniRef90_B2GIM4 UniRef90-R4L7X5
UniRef90-F7GFPO UniRef90-UP10004754833 UniRef90-E8Q6A0 UniRef90_UPI00046E962B UniRef90 H1Z3Q2 UniRef90-B3EI88
UniRef90-F8POU4 UniRef90-R8QE39 UniRef90-UPIO00367323B UniRef90-E3DAFO UniRef90-A0A016SPG2 UniRef90-K5BJZ6 UniRef90-A1CWC1 UniRef90-UPIO0047081AB UniRef90_J9EJP4 UniRef90-Q16KC3 UniRef90- QOAY90
UniRef90 A8EST9 UniRef90_UPI0004411C93 UniRef90-10CED4 UniRef90-UPIOOO24853F9 UniRef90-B2B3S1 UniRet90_S3YANO UniRef90-K9Q5Q66
UniRef90 F7VM87 UniRef90-D8KN15 UniRef90-E8NFH8 UniRef90-UPIO002ED3572 UniRef90-E1QP61 UniRef90-D5CSL6 UniRef90-C1BPQ9 UniRef90-N9VDE6 UniRet90_UPIOOO479C496 UniRef90_UPIO0026C7A71 UniRef90-SOEYZZ UniRet90-F8EEZ8 UniRef90_B6R9W4 UniRet90_O7PV69 UniRef90-JTSCG3 UniRef90_16Z526 UniRet90_B3M7H4 UniRef90_UPlooo3F06271 UniRef90-UPIO0022B192D UniRef90-V4VLC5 UniRef90-R5S099
UniRef90_UPIOOOO3315058

1 MASVVFSM11INGDLIPGRFIVWKDDDVVIAFILTTNPVITAG40 $\stackrel{D}{\mathrm{D}}$ IFQRIIDREIPATILYEDADVIAFLDIKPVQKGHF CIFCKUAAGKEPTTLLYQDEDYVVFSDUHPASTHHY CVF CAFPKRDDEHEVVMRDHAVVMLNNYPYNPGHV ERF
$\qquad$ S CVFTKIIKGEDPCHKIYEDEYTFAFLDIHPIQPGQV CTCNAPKKDEEVLKLHKGSHCFIIMNLFPYNNGHV SCTFCQTNRDQSAHFLIAKSNSLRAVLDI HPITEGHL C LF STL VDVSRQVFYRSSLSYACVNLKPIVPGHV
SCVFCAVAAKSTSANTLLSDDKVVAFQDVNPSAFRHY KEYDCPFCRVVKGEAPSDVVYRDS CPFCTGPRRDDESLVFRGEHCLAFMDIRPMTPGHV DCLFCRTARGELPAHRUYEDEHCLAFLDLLPPMRPGHC MS

 CLFCAIADGRLPTHLVHQDEE IMAFMD QPURPGHT | $C V F C A M A R D D A E R L V L Y R G R Q C F V V M N L Y P Y N T A H / L$ |
| :---: |
| $C V F C G U V A G R V P A F R V V D E P D G V A F L D T R P V F K G H L$ |

D CLGCRLAKKDAPVHLIYENEHVSCTLDHDPYNEGHT DAK VYEDK MMAFKD HP MAPGHI EQKGCPFCRYVAGEDPGRFVWADDVCVAIGTHEPVADGHV CPFCQ DMP
 CPFCA $\square$ ARRDVP
CTFCKT\SKETPSSP
SCLFCRIPKGEGGG
DQATCPFCALLRDELPQDVVAERD


$$
\begin{aligned}
& \text { DT } \\
& \text { MSTLFTKIIDGDIPGRFI WQDDDVVAFLTIAPLTDGHT } \\
& \text { CPFCNAPRSDEDSLIVHRGEHCFAVLNLFPYNPGHV }
\end{aligned}
$$

$$
\begin{aligned}
& \text { DCPFCVGPRTDEDALIVYRGTSCYVVLNLFPYNPGHLL }
\end{aligned}
$$

$$
\begin{aligned}
& \text { ECPFCTAPSKDADGLIVARGQHVYAVLNLYPYNPGH } \\
& \text { KEEKSVFSDMPPEEDEERFVHRGKTCFIIMNLYPYNCGHL } \\
& \text { ECLGCRLSNG } \\
& \text { EGK } \\
& \text { PESIFYRSRLCFAFVNLKPVLNGHV } \\
& \text { RSDKPFTDIPQSDEEGLVVARGELVYIVLNLYPYNPGHS } \\
& \text { KKESCPFCRIAAQETHAHLVLSTPYVLAFLDVMPGTRGHV}
\end{aligned}
$$

CTF CH
$D \square P D T V F Y S S E L C Y A F V N G R C V V P G H V$ CVFCHDGKKDEKLGVILSSEYCYVVMNKYPYSPGHU CPFCDELIPSKIILETDLNYVFLDIGPVISEGHA QETDCPFVDLPAGDEDGLIVARGAEVFCLLNLYPYNPGHM
 NCIFCNPYRN LQLLTESATAYAIFDGYPVSKGHV QPNCPFCHTSSTFPPTFLLLSTPLLVAFLDMMPLSPGHL RITNPFIRIPESDEEGLIVARGELVYCVLNLFPYNSGHM
 ATCVFCQTAGKQDESKIR MDNVFDDISGKEF KSDCLGCQLANKKSAVHVVYEDDVCVAFYDKFPVSKGHF
 QSKCPFCKPASR L HL LA EQTDCSFCKIAQKHYRVFEVYRDDGVMGM E QTDCSFCKIA QKHYRVFEVYRDDKVMAFLDNGPIRPGHII

SCTFCDTVNDRSRCHKIWEDEEYLAFLSIFPNTDGFS NCIFCKITSGQDANTVLMENDEFVIFKDIKPASQHHY SCVFCNAARNDLRADILYKDSKYVVFRDIRPSAKEHY



UniRef90_UPIO0036DF71E UniRef90-N9SRE7
UniRef90-L7M624 UniRef90-L7M624
UniRef90 E7R002 UniRef90_LOIAL8 UniRef90_UPI00041505BA UniRef90_UPI0002C45C89 UniRef90-E1IEJ7 UniRef90-14BZD6 UniRef90-A1CID8 UniRef90-V2QED7 UniRef90-L8WM60 UniRef90_UPI00036D040F UniRef90-UPI000441662E UniRef90_W7ILN8 UniRef90-C6TCG0 UniRef90-W4M2M1 UniRef90-K0EH27 UniRef90-M2XFY1 UniRef90_UPIO0046418CB UniRef90_U2RLV5 UniRef90-I3TQ33 UniRef90-B8G608 UniRef90-A4X3E6 UniRef90_UPI00047E2FE2 UniRef90_V4XJJ2 UniRef90-K2FV28 UniRef90-U1QAQ3 UniRef90_UPI00046995CA UniRef90-D5X1T6 UniRef90-W5XTF8 UniRef90_C5GKI0 UniRef90-N6ZM32 UniRef90-K2FTK4 UniRef90_D2Z691 UniRef90_13EFT7
UniRef90- X1R4X7 UniRef90- X1R4X7
UniRef90- A5CMM3 UniRef90_UPI000328A85E UniRef90-S7N1X9 UniRef90_UPIO0047C3D85 UniRet90_B2GIM4 UniRef90_R4L7X5
UniRef90-F7GFP0 UniRef90-B8H9E7 UniRef90_UPIO004754833 UniRef90-E8Q6A0 UniRef90_UPIO0046E962B UniRef90_H1Z3Q2 UniRef90-B3EE88
UniRef90-F8POU4 UniRef90-R8QE39 UniRef90-UPIO00367323B UniRef90-E3DAF0 UniRef90-A0A016SPG2 UniRef90_K5BJZ6 UniRef90-A1CWC1 UniRef90_UPI00047081AB UniRef90-J9EJP4 UniRef90_Q16KC3 UniRef90_Q0AY90 UniRef90-A8EST9 UniRef90_UPI0004411C93 UniRef90-IOCED4 UniRef90_UPI00024853F9 UniRef90-B2B3S1 UniRef90_S3YANO UniRef90-K9Q5Q6
UniRef90 F7VM87 UniRef90-D8KN15 UniRef90-E8NFH8 UniRef90_UPIO002ED3572 UniRef90-E1QP61 UniRef90_D5CSL6 UniRef90_C1BPQ9
UniRef90-N9VDE6 UniRef90-UPI000479C496 UniRef90_UPI00026C7A71 UniRef90-SOEYZ2 UniRef90-F8EEZ8 UniRef90-B6R9W4 UniRef90_Q7PV69 UniRef90-J7SCG3 UniRef90-I6Z526 UniRef90-B3M7H4 UniRef90_UPIO003F06271 UniRef90_UPIO0022B192D UniRef90-V4VLC5 UniRef90_R5S099



- 1
$\stackrel{50}{ }$
( LVVHKEFSRNDYDI EEKDLLKLVSKARELALE WTEKDNA
 LVIPTSHCEEDSUASEPTRQAVFDAVGHVSAADEQALDP $L V T P K R H V E Q U S D L T P A E S L D V M E D L Q K T A K S V Y S A Y G P$ $L V V P K K H V G N C N D L K K D H V E L V E N M V A V G K T S L K R N N F T D$
$M V L P Y Q H T S D M P G L C A T V A Q E L F S L T A R C V R I L K G E A Y A P$ MVAPYRHCGDYDDLDGEFALE NEVQRCIKLLKKVA MAP LVVTRDHYEK ${ }^{2} G D M G V E V S R E W L I S R V V M K T V F G T D Q E S D$


 LVI PNRRPVPRIA DLNASELAS LMDSVQRVGSVLERAYGA
 $L V V P K V A A R S L A E L D P V V G G K L F Q V G Q R V A A A L R V S E V G C$ LVCPYRHLADLTELTDDELTELMRLTMRDAVVAVSEASHP LVIPKRHYPWFEDLPEDLATRITGCAQRLARQMK LVVPRQEVAKFTSADDALLARLMSVAKDIGQAVERAFDSP LI I PRAHHAYFEDLPPATAARIVDLGQRLAREMKRD


 LVCPKRVVKRFYDLSPEEINDIWQSASRISRVIEKH FDG LVIPREEVARFTDLDD DVAFAHVSVVAKHIGNAQDRA


 LIIPKKHDETDTDLEDNDEELIWWMFLLARDIAKDKNIS MVVPYRHTAEYGSLDPKEVAEMHHLTSISMDVIKRTMNP


## 



3






UniRef90-U1LEE3 UniRef90_G8RJM5 UniRef90_X1GQL3 UniRef90_H1XR84 UniRef90_LOA2H9 UniRef90-W5WWJ7 UniRef90- G8BSK9 UniRef90_UPI00047BE18A UniRef90_R7UAX0 UniRef90-B5YJT6 UniRef90_C0HB64 UniRef90-X8JV55 UniRef90_UPI000351227C UniRef90_Q01D01 UniRef90_F8K3W1 UniRef90-IOGLB2 UniRet90-H2JK91 UniRef90_C3PGS0
UniRef90_UPI000344BDED UniRef90_A715E0 UniRef90 G4ZAQ4 UniRef90-D1Y3G8 UniRef90-Q7MA74 UniRef90 F6Cl11 UniRef90-H8YXY2 UniRef90-N6TYH6 UniRef90-A0A059LPF0 UniRef90_UPI00042B366D UniRef90-Q3ASX3 UniRef90-B6QQRO UniRef90-D6Y2E0 UniRef90_T1PFZ5 UniRef90-X1AW32 UniRef90_G1XTL5 UniRef90_EOSQK6 UniRef90-FOYSI1
UniRef90 W5Y140 UniRef90-Q86KK2 UniRef90-A8XHK8 UniRef90_Q3A4F7 UniRef90_UPIO004416147 UniRef90_A7SWA8 UniRef90-K6W684 UniRef90_U6HXZ9 UniRef90_UPIO0037A7782 UniRef90_Q6CEJ3 UniRef90_G3XSZ6 UniRef90 C5ZYF0 UniRef90_G0R8T8 UniRef90-K9XBV0 UniRef90 E1Z512
UniRef90-C5CGT3
UniRef90_UPI000466DF4E
UniRef90-X1G533
UniRef90-N91X01
UniRef90_UPI00035FA623
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UniRef90-F8ACX4
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UniRef90_UPI000367CB28

RMKRPFTELLIPADDRAALIVIHRARHAYLVMNRFPYNPGHLL CPFCRAPEADDQGLIVHRGETCFVLLNLYPYNTGHM K N T G
 STAFCEVVRGTQPEDVILHTPDVTAFIAWWPNNPGHV CVFCTAAQESEDSLCVFKSKHSMVVINKYPYNSGHV MS

 CPFCSIPAKDEDGLIVRRGEHVYAVLNLYPYNGGHL CPFVGEIPQSDEDGLIVARGELVYCVLNLYPYNAGHM
 SCDFCDFPADDRKSQVIVYESSSSFALVNLKPIVPGHV


## ECRFCVSKPGRE

 VLLR GQETFVLLDNLYPYTN
$C \square L C D K$ NS

CTFCNAVNNDEQTYVTYRSKYSMAM NRY
DKNPTVFGKLRREQPVRVLHED KKKENPFGKVLPTREDPDGLVVVARDDTYFAFRNDKPYAPLAG KKKENPFVVIPTPDEDGLVVARGTYVYVLLNLFPYNAGHM KFAEFPDPAHI FYSTPHSFAFVNLKPVTDGHV
 $F G H 11 L K P S V V F Y R S N L S I G F V N I K P V L P G H V$ PF LDDIPMSDED GLIVARGETVYAVLENLYMPYNPGBT PF $\square E \| P K S D E D G L V I A R G Q W V Y A V L N L Y P Y N P G H M$
 QKEGCPFCRVPDRDEDGLIVARGRTAYVVLNLYPYNPGHLD
 CLICRIDQGEF GDULCE

KI AAEEVFAT
KERCVFCDVVNOSPHCFAFVNLKPVVPGHV
 KMNCDFCRA!KNERDALILEKGTHNFDVLNKYPYTAGHL EPKPCAFCAYLNNQRPFTFVFKDKNDAILVTREQRGNPHLL

DCYFCRVAAGELADPCIVENRSFVALFDTAPVVNPGHA MSALF FSSFDVTRQAFYRSGLAAAIVNDKPIVPGHV


SClFCHFANRDEET | $R$ | $L$ | $L$ |
| :--- | :--- | :--- |
| $F$ | $V$ |  |
| $V$ |  |  |

KFASFDVTT | $D$ | $Q$ | $F$ |
| :--- | :--- | :--- |
| $S$ | $F$ |  |
| $S$ | $F$ |  |

CPFCA $\square A E D D E K N F V F Y$
NCTYCKTSEHREHADIVYQDD
T I F SRI LDR SLPADI LYEDQQLL
CPFCELLAGGELSDLIYRTESVAVICDGFGPHGGHA RHDCPFCEAPKSDEDALIVARGETAYVILNLDPYNTGHM ECKFCR】AKKEEYDTILFETDNFVVFPAKGHFDEGYLL
MNCKCCNYA ENFKWVLFE
K P D E C V F C E D Q A Q D E E R CIL LA R G R Y C F V I M N K F P Y N C I F C D I I S G K S T T K FEVGET D D Y V I FK D I K P A S D H H Y

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

CVFCNLIRSEAHGFIVSRGEFGYICLLNAFPYSSGHV
 D D D RAT LIL SREKHSFI IMNRYPYNAGHL PFTELPADDRAAFIVYRSPLSYLMLNRFPYNPGHL


UniRef90_B1ZT18 UniRef90_U1LEE3 UniRef90-G8RJM5 UniRef90_X1GQL3 UniRef90_H1XR84 UniRef90_LOA2H9
UniRef90-D5UN36 UniRef90-W5WWJ7 UniRef90 G8BSK9 UniRef90_UPI00047BE18A UniRef90-R7UAX0 UniRef90_B5YJT6 UniRef90_C0HB64 UniRef90_X8JV55 UniRef90-UPIO00351227C UniRef90_Q01D01 UniRef90-F8K3W1 UniRef90-IOGLB2
UniRef90-H2JK91 UniRef90_C3PGSO UniRef90_UPIO00344BDED UniRef90-A715E0 UniRef90_G4ZAQ4 UniRef90-D1Y3G8 UniRef90_Q7MA74
UniRef90-F6Cl11 UniRef90-H8YXY2 UniRef90-N6TYH6 UniRef90_A0A059LPFO UniRef90_UPIO0042B366D UniRef90-Q3ASX3 UniRef90-B6QQRO UniRef90-D6Y2E0 UniRef90-T1PFZ5 UniRef90- X1AW32 UniRef90-EOSQK6 UniRef90-FOYSI1 UniRef90-W5Y140 UniRef90-Q86KK2 UniRef90-A8XHK8
UniRef90 ${ }^{\text {Q3A4F7 }}$ UniRef90_UPIO004416147 UniRef90_A7SWA8 UniRef90-K6W684 UniRef90_U6HXZ9 UniRef90_UPIO0037A7782 UniRef90_Q6CEJ3 UniRef90_G3XSZ6 UniRef90 C5ZYF0 UniRef90-G0R8T8 UniRef90-K9XBV0 UniRef90_H8ZC20 UniRef90_E1Z512
UniRef90_C5CGT3 UniRef90_UPI000466DF4E UniRef90-X1G533 UniRef90-N91X01 UniRef90_UPI00035FA623 UniRef90-D7FVB6 UniRef90_UPI0004414712 UniRef90-F8ACX4 UniRef90_UPI0003758A3C UniRef90_UPI00036D6751 UniRef90-M3ZNM6 UniRef90-H1Z693 UniRef90-Q0UMA6 UniRef90-I2G502 UniRef90_UPIO003C17EC4 UniRef90-V8CFW2 UniRef90-V9L5K4 UniRef90-A6DMK8 UniRef90_UPIO003AEEEC9 UniRef90-M7MVN8 UniRef90_UPI000469937B UniRef90-A0A016K420 UniRef90-A0A011NPK2 UniRef90-D9STX7 UniRef90_E6VX55 UniRef90-D3TP73 UniRef90-S3CZG0 UniRef90-Q8GWE2 UniRef90_G1QAR4
UniRef90 E8X5J3 UniRef90-UPIO003FOCCC3 UniRef90-C4WUV2 UniRef90-B5JMQ0 UniRef90-WOIZG5 UniRef90_R4HCl3



UniRef90 I6ZVS8 UniRef90-UPIOO0346A301 UniRef90-UPIO003598EOA UniRef90-K9GBV8 UniRef90_L1IPN2 UniRef90-A1VYK4 UniRef90-UPIO003789FD1 UniRef90_B4JZX8 UniRef90 D6YRK8 UniRef90_UPIO00440ED9E UniRef90_C4Y613 UniRef90 A8F721 UniRef90-D5GDQ2 UniReffo-B8GNR9 UniRef90_T1EDB7 UniRef90-UPIO002E00EF8 UniRef90-K2G4U0 UniRef90-D5EHW0 UniRef90 FOSST6 UniRef90-B2JCU6 UniRef90_UPIOO047705C5 UniRef90 x1E062 UniRef90 UPI0002A499B9 UniRef90_UPIO003EA8881 UniRef90-A0А017TOA8 UniRef90 W9XU62 UniRef90-Q7XU70 UniRef90-K0TG39 UniRef90-M4BT82 UniRef90 E8RF28 UniRef90-G4UJ12 UniRef90_UgSN90 UniRef90-C3IKC4 UniRef90_C4V7C5 UniRefofo-F5RFZ3 UniRef90-S8C5M9 UniRef90-K1Z402 UniRef90_UPI00034FC2F9 UniRef90_M1PEZO UniRef90-N6X4L7 UniRef90-W2SDH2 UniRef90-U2HU60 UniRef90-G8NTA3 UniRef90_L8FXTO UniRef90-FOVA55 UniRef90 UPI00036CE8A1 UniRef90-D6Z4C2 UniRef90-K4LHH4 UniRef90-J3NAW8 UniRef90-E1YB23 UniRef90-F9N4L1 UniRef90-A7GYQ6 UniRef90_S7Q2D9 UniRef90-UPIOOO4630364 UniRef90-T0Y808 UniRef90 B7IFC9 UniRef90-UPIO00288F953 UniRef90-UPIO0036F119D UniRef90-W1QKQ6 UniRef90 V9EKF8 UniRef90-UPIOOO474976E UniRef90-V4YUC8 UniRef90-C3ZAA2 UniRet90-UPIo0029A69D0 UniRef90-G2KQL6 UniRef90-C6HY84 UniRef90_D6z818 UniRef90-LOSVS1 UniRef90-B9IQX9 UniRef90_UPIO0034F3F68 UniRef90-T1B340 UniRef90-UP10003EC01CE UniRef90-A0A046KWW1 UniRef90-UPIO0037550BD UniRef90-I3TD19 UniRef90-UPI0003702E6F UniRef90-UPI00038025D5 UniRef90_UPI000373E682 UniRef90-A6CKN7 UniRef90-R5T1Z7 UniRef90 R7LC67 UniRef90 L7EUH2 UniRef90-G4P6Q1 UniRef90-UPI00047C002D UniRef90-UPIO003B36215 UniRef90-G1T296 UniRef90-I3J4V0 UniRef90-K2GYC4 UniRef90-A3MXN5 CPFCRAPGPDEE GLVVVHRGELAYAVLNNYPYNSGHL
 FAK I IR GELRRASVVFDSESF VI KDRSPASKLHLL EKSVCPFCDCANKDEDLGVIFRAKHCFGVMNRYPYSAGHF

$$
\text { NC } \square F C D \prod A S G K T K T V L E L D T N E F T \prod F K D \square R P A A E H H Y
$$ KGNDPFCNI $\square$ KKQL $\quad$ VKEGAYVRI LYDYRP $\square$ GDSHF SCVFCSVANG KERCVFCD! IDQEVDSQVFFKSKYSYALVNLKPLVPGHV NCHFCRTAAG VTSQVEYSTAHSFALVNLKPLLPGHV LADPVYENRSFVVAFDTNPVNPGHT CVFCNGEDEPRQKVMLSNEHCMHFQVKGSQLEGAG

 $M D C D F C R \quad E D G G D V L W Q D E T L R V V L A D E H D Y P G F C$

CIF CLI AN QDEE TEVV K Q D K K LVACFR D DWPAAP H HY DRGDC $\square$ F C G $\square P$ D A E E E E QV VA K

VF GR DLR GELDASADYAETPTLLAFRDRTPRASDHA SCRFCEI LKG GNEP F LYEDEDVIVFRPLAPVVVSH I K D R C V F C D


## 

NCP $\square C D D T P G H \quad E$

 K NKKCVFCDMMEKEVYARVVFENDGFIAAFEPYASKNP FET

MDCPLCTPSA
QV V WE
$\square G E$

ECHFCVIGKT GKPA Y LV LA T H SVVVGFL ESAPMGHGHI RFA Q WP DE RK IVFFSPLSIAFTNLKPVVPGHEV K E R CVF CD IIH QE LIE Q D V V K N D K F LAA VP FAPRSPFEM D K GKCLYYCDMIS QEEKARIVAVENDDFLSFCPFASRFPFET EHGECLFCKMVVKNDDTLFKGVLTMVVMNKFPYTNGHL
 $C S F C G V V$ VEK GF DVVWEDRD Y VVFR DYRPSAA H H L DCVFCRELQ GE LDRSRVIVETES FVAFPCDGQQVEGHF K E R CVF CDMDS QEENR R V VE ENEDF DAFAPYAS RFP FEVV M E C C I F C H H I VT S QVFFYK S K F T YALLVNLK PIVPGHV


 SCLLCEDPRDSRDRDWLGQGELTVAVSNGFPSTVGHT



PKEVVFYATHLSYAMVNLRPLLPGL
VD S S EPAMPSLRNEDLVCFRD』KPAAPHHY


MSCVFCHLS
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E CLFCKLQARDEEAYVVYRGRFNFVVLNTFPYNSGHV


 CLIC CDVLRK HEK QQULWWETA HWMVVTPNEFPYA GTRRV
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UniRef90 A6CKN7 UniRef90-R5T1Z7 UniRef90-R7LC67 UniRet90-L7EUH2

## UniRef90-G4P6Q1

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 LV VPRRMVVSLFELDESEQADYFDAIGGARAV ESTDMAP LVSSLRVAARLTDLTKPEVADLFSAVQDVSRVVENVYAA LIVPKRHMEKAFDMTQEEWNATYTLLQEVKKYLDEK HQP LVLPYREVPTLDQLTEEERHELMDLIVKMAQQLLQSALSP RVIWNRHVAEFSDLGDGERDRVMRVVYAVERAI RRT
MVVPYRKVAELENLTGAESAELMTFVVRAVQTLKRVSR P WIIPKEHMESFSDMGENDLVDCSKILRNTMKKI YDGLNDP LVPRAHUHSCRSLSGEHIHLVDRMTSMGKDVLREQGITN LVCPDRPVERFRDLHPEEVADLFRMTQRVANVVEKHFQG LVVPHTHTSALHELSLLAEADALFRLVREAATRLQRAVKAE LVIPPIEHIPTVNNLQRTTEDHQLVSHMLESVGRDLLNRDAP LVVPRRHIRNVNELREMPWVSQLLSPGKQAERAHGLISNS

LLTPFRVVQRYIDLNSDEVSDLFLSAQKVGKVIEREYQG LVSPUSQKQFLSDLSKEEYIDLFECVRLLSLKSLSLYGTS MVLPNRGVPGLSDLNDDEFAELWSLVVDLTAACTDGLGC WI LPKKHKPYFQUVDYKERVMLGDCLRTVLKKLYKGLNDP LVIPKTPDARLSQVNASDTELLGHLLVTASRLAHKEG LIAPTRHIACDTELNKSERDSLMAMVSEATQLLREFDHP RVICRERCVARMSQLLTADRRHLFAVVMATERALRDLLHPD MVLSKSLRRRDYFELTMVDEKTDLDNAIMLAKSLIETEFTP VLLPREHAGKISDLSSGGSAVLGFWLPDVSRGVMKWRDHD LLVPKRVVPNFRHLTDAEVKDLFAS ARLVASLLTSKYKA WL LPRKHSSSYCNSDNETFRALTEDTESECLRRLKCLDPDVP WI MPKWHQPGFEMDDDGMLSSLSEIVQKTVQKITGTLNNP LVCPKRNVKRFANLTVDETCDLWITAKDIGVRLEQY HRA LVAPAKHISALDELDKKEKADLLDMVDKSIGLLKLVMKP MVIPLQHTDKI EELDEQTWLEMSHFVREGVKILKSELRAE QVIPKKHDDSVRSLRKEHVALVRSMGEVGHRVLDALNVPA LVIPKRHYQSLLDREEAEDYDKVHTLVRKLSPVLLRALGA LI LSKAHDMDLRELSAPQVIELWELEKKIITICEESLAV LVAPKAHI EHAVRDLEEPAYLALMPVVRKVALAVEAVFEP LVVPLRVVPRLKDLSPEESVDYiMTVQLIHSFIEKVVYA LVVPRRHIRNVNKLTPDDAALLRRMREVAASVLREMPRED RVVAKQHVGEMTDLTLAVREHMMAVVWTCELVLRET
LVSPLRVVERFGELSSEEVADLFMATQTISGVVEKHFQS
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PA YLALMSVVRKVALAVEAVVA VAIPKKH|SSLITLEESDHSLLLELMLVIKEVAAEVTEKH LVLPLREVGD ALLEGDEKLEFFDAIIKGEK ILLRDABKM
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 DCDFCGVTK SNSAFKVVVYEDNEGVVVFRDRSPGSKVHLL
 V S M Q D P T MQ V F K D D K I VV I K DK Y P K A R Y H W
$D C P \square C$ PATQETVLWRDGSCRVILIDDPDYPGFC

$C$ VF C A MLA D E LAASR LVY A N D DFVVA F VLY A A S S P F H I MNDFYCQVIP GKVVKVEI FETDEVMAFYHTDPFWEKHV DEDLVCFKDDKPAASHHY


 CAYCDFDDYD VI AKNDFGADFPEPHPDSKGHM
S CRF CE MLLE QEQKK RUI A Y EN E TF LAA I AP YA S RYP Y E VV NGRLHRRKIVESENVLVFLDNAGDVDGHM K P DECVVFC IPADSSED HE LL HREKHCFFI MN KFPYNN GH L
 K S E CL F CKI L A H T A K E HI L Y E S D N F FiV I P G T G A F F D G Y I
 $P D V Q V Y K D C E Q V V V I Q D K Y P K A R Y H W$





 E K G R C L F C D D M L K A E L L D K R V I F S S N E H F T T V F L P F F T E Y P Y G V C L LC D VLL A Q E V S ER V V V VE T G K F I S S F AP FA S R FP P E M

 $V \operatorname{L}$ WQ S A E C R V I $A R V D D D P Y Y$ P G F C K HKKC $\square$ Y CQMNK WE $\square$ KKRIVVFENRSFRVVCPGASRTAFEV




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lupas_28
jnet
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sol25
sol5
sol0
jhmm
jpssm



WGVGLTF 90
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HQRRLGFH
$\stackrel{+}{\mathrm{H}}$
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PFRFGYHAI PSMSHVHLHVI
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GGCRI SSNDGS YQSSKHLHWYVHYGARD
F ENVRMGFHMPPFCSISHLHLHVDA
P $\square$ KMNYE $\square H G N S I P H L H V H F F P R Y V G D P F E$ HGAKSCTNS GCGVYHAHIH V VP
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S SLT FAVQDGPQAGQTVPHMHVHTLPR KGGDFE HVYAlVS QTVP HMHVHLLP

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GYNLCLMDSPKFGD FHWHLQLLPR
DGVNLI KAEDETVEEHVSHLHFHIIPRKKQDG G NVGLNLGDAAGAGDAAHLHWQLVPRW
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VS S K LRFRL GYHAI PSMSHVHLHVI
RLRFRLGYHA IPSMSQLHLHLI SQDFDSKW
FNWGCLMNTFY LDGTPEPQLHWHFIPRY
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VARTGIMYEGY GVDHAHAKLVPMHGTAG
SDYNILQNNGT $\square A$
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FPYMMCMHNAPVNGPDVYHFHI EFFP
F NMVLHTAPVNEPDTUHYHWHILPRLTMAGFELGT GAASVTTNVGL YQESKHLHWHV
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K $\square \mathrm{NDASFGNVVPHDHWH} \mathrm{\square IPRWEDDRHFP}$
A YNFYLHTAPSDNKNHYYHWHWTILPKTADPGFEFGT GGFSVAVQQGEDAGQTVPHLHVHIIP
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$A K T Y V A Q F A E A D G F \quad A H V H F H V V P R$
K


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