## QUERY

UniRef90_B7JB30 UniRef90_Q8ME68 UniRef90_O98427 UniRef90_B2BY98 UniRef90-W4NF37 UniRef90-I6NJKO UniRef90-D7BIR5 UniRef90-Q48952 UniRef90_R7XYT9 UniRef90-UPI0002EDF0C7 UniRef90_Q9TIC8 UniRef90 ${ }^{-}$K3Z2S 7 UniRef90-BOFIYO UniRef90_Q85ZK1 UniRef90 Q8MBZ6 UniRef90-Q9TKM8 UniRef90-G9B6J2 UniRef90-Q85ZK8 UniRef90_G8IVV9 UniRef90-Q9MT07 UniRef90-Q8WJA7 UniRef90-Q9XPY0 UniRef90-C7DTK7 UniRef90-S6DF14 UniRef90-Q9GG55 UniRef90-Q71N76 UniRef90-B6CJW4
UniRef90 Q29U57 UniRef90_B3SV61 UniRef90-O03124 UniRef90_Q8HSM6 UniRef90_Q9MSZ2 UniRef90-T1BQ18
UniRef90 E1CBU8 UniRef90_Q49P15 UniRef90_B6RIS4 UniRef90_Q8GIC5 UniRef90_Q71N62 UniRef90-D0ETE6 UniRef90_Q29Z81 UniRef90 Q36661 UniRef90_C7IXC7 UniRef90-Q4QSS8 UniRef90_Q6QE43 UniRef90_Q5J6H8 UniRef90-J7F859 UniRef90-Q95GX0 UniRef90-Q9MT16 UniRef90_Q6Y2Z5 UniRef90_I1SZM9 UniRef90-S5JU64 UniRef90-B5LZZ4 UniRef90_G3KEU8
UniRef90 F1D875 UniRef90-Q32298 UniRef90-A1E8T2 UniRef90-O03635 UniRef90-F4NB49 UniRef90_O46984 UniRef90_Q36841
UniRef90_D0ETE7 UniRef90_G3KEU6 UniRef90_S4S856 UniRef90_C5NT28 UniRef90_16Q9L8 UniRef90_C9DSA3 UniRef90_Q9LBP9
UniRef90-Q8HUN5 UniRef90- Q8MCY2 UniRef90-A0A024B822 UniRef90-Q36628 UniRef90_U5JEJ0 UniRef90-G3CET5 UniRef90_Q32627 UniRef90-Q4V182 UniRef90-A2T239 UniRef90_L7Q176 UniRef90_Q9GE55 UniRef90_A6YF66 UniRef90_Q8PXG9 UniRef90_C5NSZ2
UniRef90_I6QQF6 UniRef90-A8CCW5 UniRef90_A8Y805 UniRef90_LOL1E0
UniRef90 Q31790 UniRef90-A8CCW2 UniRef90_W5GR15 UniRef90_E216Y7

P P HG TQVERDKTNKYGRPLLGCTDKPKLGLSAKNYGRACY P P H GI QVERDKMNKY GRPMLGCTI KPKLGLSAKNYGRAVY
 P P H G I Q V E R D K L N K Y G R P L L G C T I K P K L G L X A K N Y G R A V Y P P H GI Q V E R D K L N K Y GR P L L G C T I K P K L G L S A K N Y G R A V Y





P P H GI QV E R D K L N K Y G R P L L G S

 P A T G VVVV ERERMDKF GRPDLL GA TVVK P K L G GL S GK N Y G R V V F P A A GVIVVERERLDVFGRPLLGATVKPKLGLSGKNYGRVVY PATGTVVERERMDKFGRPFLGATVKPKLGLXXXXXXXXXX P P H G I QV E R DK L D Q Y G R P L L G R T I K P EL GL S P K N Y G R A GY
 P P H GI Q SE R DK L N K Y G R P Y WDVLSN HK L GL SAKKLR R TVV



 P P H G I Q Q V E R D K S N K Y GR P L L G C T T K P K L G L S A K N Y G R A V Y
 P P H GI QV ERDKLNKY GRPLLGCTIKPKLGLSAKNYGRAVY
 P PHGI QVERDKMNKYGRPLLGCTIK PKLGGLSAKNYGRAVY P P H GI QV E R D K L N K K Y G R S L L G C T I K P A T G L I V



## PATG G I VERERMDKF GRPF LGATVKP K $\square G L S G K N Y G R V V Y$



P ATGGVVVERERMDKFGRPFLGATVKPKLGLSGKNYGRVVV P P H GI QVERDKLNKYGRPLLGCTIKPKLGLSAKKYGRAVY


YGRPLLGCTDKPKLGLSAKNYGRAVY PATGVVVERERMDKFGRPFLGATVKPKGGLSGKNYGRVVY PPHGIQVERDKLNKYGRGLLGCTIKPKLGLSAKNYGRAVY

PASGVVVERDVXTXFGRPLLGATVKPKLGLSGKNYGRVVF PATGI IVVERXRMDKFGRPFLGATVKPKLGLSGKXXXXXXX PPAGIQLERDRLNKYGRPLLGATIKPKLGLSAKNYGRAVY

PATG I VERER LNKYGTPLLGATVKPK $\square G L S G K N Y G R V V Y$
PATGX $\square V E R X R \square N K X G \square P L L G A T V K P K \square G L S G K N Y G R V V X$ PPHG $\square$ QVERDK LVKYGRALLGCT $\square K P K \square G L S A K N Y G R A C Y$ RDXLXXYDLXXXGXPXKPIXXLSAKNYGRAXY PATG VVVEERMDKFGRPFLGATVKPKLGLSGKNYGRVVX PATGXXVERERMDKFGRPFLGATVXPXXXXXXXXXXXXX PATGIIVERERLDKYGSPMLGATVKPKLGLSGKNYGRVVY PPHGI QVERDKLNKYGRPLLGCTIKPKLGLSAKNYGRACY

 PATGLIVVERRMDKFGRPLLGATVKPKGGLSGKNYGRVVF
 PNFGLPGURKLVGVQDRPLIGTIVKPKVGLNSEKHAEVAY
P P H G PATGVIVERERLNNFGRPILGATVKPKLGLSGRNYGRVVY
$P F L G A T V K P K L G L S G K N Y G R V V Y$ PATGVVVERERGDKYGRPLLGATGKRKYGLSGKNYGRVVY

## QUERY

UniRef90 B7JB3C UniRef90-Q8ME68 UniRef90_O98427 UniRef90 B2BY98 UniRef90-W4NF37 UniRef90-I6NJK0 UniRef90_D7BIR5 UniRef90-Q48952 UniRef90-R7XYT9 UniRef90-UPI0002EDFOC7 UniRef90_Q9TIC8 UniRef90-K3Z2S7 UniRef90-BOFIYO UniRef90_Q85ZK1 UniRef90-D5FFV0 UniRef90-O8MBZ6 UniRef90-Q9TKM8 UniRef90-G9B6J2 UniRef90-Q85ZK8 UniRef90-G8IVV9 UniRef90 Q9MT07 UniRef90-Q8WJA7 UniRet90-_9XPYO UniRef90 C7DTK7 UniRef90_S6DF14 UniRef90-Q9GG55 UniRef90_O71N76 UniRef90_B6CJW4 UniRef90-B3SV61 UniRef90-003124 UniRef90-Q8HSM6 UniRef90-O9MSZ2 UniRef90-T1BQ18
UniRef90 E1CBU8 UniRef90-Q49P15 UniRef90-B6RIS4 UniRef90-Q8GIC5 UniRef90-Q71N62 UniRef90-DOETE6 UniRef90-Q292881 UniRef90_- $71 \times 1 \times 7$ UniRef90-Q4QSS8 UniRef90-O6QE43 UniRet90-Q5J6H8 UniRef90_J7F859
UniRef90 Q95GX0 UniRef90-Q9MT16 UniRef90-Q6Y2Z5 UniRef90-11SZM9 UniRe990 B5LZZ UniRef90-G3KEU8 UniRef90-F1D875 UniRef90-Q32298 UniRef90-A1E8T2 UniRef90-OO3635 UniRef90-O46984 UniRef90-Q36841 UniRef90-DOETE7 UniRef90-G3KEU6 UniRef90_S4S856 UniRef90-C5NT28 UniRef90_16Q9L8 UniRet90_C9DSA3 UniRef90-Q9LBP9 UniRef90_Q8MCY2 UniRef90-A0A024B822 UniRef90-Q36628 UniRef90-U5JEJO UniRef90_G3CET5 UniRet90_Q32627 UniRef90-Q4V182 UniRef90_A2T239 UniRef90_L7Q176 UniRef90-Q9GE55 UniRef90-Q8PXG9 UniRef90-C5NSZ2 UniRef90-160QF6 UniRef90-A8CCW5 UniRef90_A8Y805 UniRef90_LOL1E0
UniRef90 Q31790 UniRef90-A8CCW2 UniRef90_W5GR15 UniRef90_E216Y7

ECTRGGLDFTKDDENVNSQPFMRWRDRFVFCAEATYKSQA
 ECLRGGLDFTKDDENVNSQPFMRWRDRFLFCTEALFKAQA EGLKGGLDFLKDDENINSQPFMHWRDRYLFAMEAVARAQA ECLRGGLDFTKDDENVNSQSFMRWRDRFLFCAEAIYKAQS EALKGGLDFTKDDENI NSQPFMDWRERFLYCMEAVNKAQA EACKGGLDFTKDDENINSQPFMRWRDRFLFGMEGVNKAMA
EALRGGLDFTKDENNGSQPFMRWRDRFGVMEGVNAAA ECLRGGLDFTKDDENVNSQPFMRWRXRFLFCAEAIYKAQA ECLRGGLDFTKDDENVNSQPFMRWRDRFVFCAEAIYKAQA EGVRGGRXXXXXXXVNSQPGRRWRDRFLMWAEALYKSQA EGLKGGLDFLKDDENINSQPFMRWKERFLYSMEAVNRSTA EGLKGGLDFLKDDEN NSQAFMRWRERFLYCQEGIQRAAA XXXXXXXFLKDDENINSQPFMRWRERFLYSMEGVNRAQA EWLCRGLEFPKDDENGDFQPFMPGKKRFLIWAEAFXKFQA ECLRGGLDFTKDDENVXXXXXXXXXXXFVFCAEXXXXXXX ECLRRGLDDPRMTKRELPTFYALERPFLILWLKQFIKRKP ECLRGGLDFTKDDENVTSQPFMRWRDRFLFVAEALYKSQA ECLRGGLDFTXDDENVNSQPFMLWRDRFLFCAETUYKAHA ECLRGGLDFTKDDENVNSQPFMRWRDRFAFVHEATEKAVR XCLXGGLXFTKXDENVNSXPFMRWRXRXLFCAEXTXLAXA ERLRGGLDFTKDDENVNPQPFMRWRDRSVSVAEALYKAQA EGLRGGLDFTKDDENVNSQPFMRWRDRFLFVAEALYKSQA EGLRGGLDFDKDDENVNSQPFMRWKERYLYCMEGVNRAAA EGLKGGLDFDKDDENINSQPFMRWKERFLYSMEAVNRSDA NVYAVGLDYTKDDENVNSQHFMRWRDRILFCAEAIYKAQA ECLRGGLDFTKDDENVNSQPFMRWRDRFLFVQDAI ENAQA ECLRGGLDFTKDDENVNSQPFMRWRDRFLFVQDSI DKSRS ERXXXXXXXXXXXXXXXXXXXXXFLYCIEGUXRSAA EGLKGGLDFLKDDENDNXXXXXXXXXXXXXXXXXXXX ECLRGGLDFTKDDE EGLRGGLDFTKDDENVNSQPFMRWRDRFLFCAEXVYXAQA EGLRGGDDFLKDDENGNSQPFMRWKERFLYSMEAVNRXXX

KDDENVNSQPFMRWRDRFDFCAEADYKAQA ECLRGGLDFTKDDXXVXXXXXXXXXXXXXXXXXXXXXX ECLRGGLDFTKXXXXXXXXXXXXXXXXXXXXXXX ESLKGGLDFLKDDENDNSQPFMRWRERYLYSMEGVNKASA EGLKGGLDFLKDDENINSQPFMRWKERFLYSMEAVNRSTA ECLRGGLDFTKDDENVNSQPFMRWRDRFLFCAEAIYKAQA ECLRGGLDFTKDDENVNSQPFMRWRDRFVFCAEAIYKAQA ECLRGGLDFTKDDENVNSQPFMRWRDRFLFCAEALYKAQA KDDENINSQPFMHWRDRFLYVMDAVNKASA KDDENI NSQPFMHWRDRFLYCMEAVNRASV KDDENINSQPFMRWRDRFLFSMEGVNRAQA ECLRGGLDFTKDDENVNSQPFMRWRDRFLFVAEALFKSQA EGLRGGLDFDKDDENINSQPFMRWKERFLYSMEGVNRSIA ECLRGGXDFTKDDENVXSQPFMRWRXRFLFVAEATYXAQA DFTKDDENVNSQPFMRWXXXXXXXXXXXXXXX EGLKGGDDFDKDDENINSQPFMRWRERFLYCVEGINRAAA X X X X X X X X XXXXXXXXFMRWKERFLYSMEAVNRS ECLRGGLDLTKDDENVNSQPFMRWQDRFEFVAEAVDKAQH
 EGLKGGLDFLKDDENINSOPFMRWKERYLYCMEGVNRAA NVNSQPFMRWRARFDFVQEAIEKAEA ECLRGGLDFTKDDENVTSQPFMRWRDRFDFVAEALYKAQS ECLRGGLDFTKXDENVNSXPFMRWRDRFCFCAEAGYKAQA XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXSPFMRWKERYLYSMEGVNRSDA EGLKGGLDFLKDDENINSQPFMRWRERFLYCMEGINRAAA ECLRGGLDFTKDDENVNSQPFMRWRDRFVFCAEAIYKAQA ECLRGGLDFTKDDENVNSQPFMRWRDRXXFVAEXIYKSQA x XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX EGLKGGLDFLKDDENTNSQPFMRWRERFLFSDEGVNRAQA EGLKGGLDFLKDDENINSQPFMRYRERFLFSMEGVNHASC ECLGGGLXFTKDDENVNSQPFMRWRDRFLFVAEAIYKSQA NSFVGGCDLVKDDENLNSQPFQRWQNRFEFVAEAIKLSEQ EALRGGLDFTKGDENN NSQPFMRWRARFDFVQEATLKAER EGLKGGLDF LKDDENINFQPFMRWRERFLYVQEGTTRAQA LVMDAVNKASA PFMNWRDRFLYCMEAVNRASA EGXXXXXXXXXXXXXSQPFMRWKERYLYSMEGVNRADA EGLKGGDDFLKDDENINSQPFMRWRERFLFGIEGVNRAAA SVYVVDXXXXXXXNVNSQPFMRWRDRFVFCAEAIYKSQA
QUERY
UniRef90_B7JB30
UniRef90_Q8ME68
UniRef90_O98427
UniRef90_B2BY98
UniRef90_W4NF37
UniRef90-I6NJK0
UniRef90_D7BIR5
UniRef90_Q48952
UniRef90_R7XYT9
UniRef90_UPI0002EDF0C7
UniRef90_Q9TIC8


## QUERY

 UniRef90_B7JB30UniRef90_Q8ME68
UniRef90_O98247
UniRef9_-B2BY98 UniRef90-W4NF37 UniRef90-16NJKO UniRef90-D7BIR5 UniRef90_Q48952
UniRef90 R7XYT9 UniRef90_UPI0002EDF0C7 UniRef90_Q9TIC8 UniRef90-K3Z2S7 UniRef90-B0FIYO UniRef90_Q85ZK1 UniRef90-D5FFV0 UniRef90-Q8MBZ6 UniRef90_G9B6J2 UniRef90_Q85ZK8 UniRef90_G8IVV9 UniRef90_Q9MT11 UniRef90_Q9MT07
UniRef90_Q8WJA7 UniRef90-Q9XPY0 UniRef90-C7DTK7 UniRef90_S6DF14 UniRef90-Q9GG55 UniRef90_Q71N76 UniRet90-B6C9U4 UniRef90-B3SV61 UniRef90-O03124 UniRef90_Q8HSM6 UniRef90-Q9MSZ2 UniRef90-T1BQ18 UniRef90_E1CBU8 UniRef90_Q49P15
UniRef90-B6RIS4 UniRef90_B6RIS4
UniRef90_Q8GIC5 UniRef90_Q71N62 UniRef90-D0ETE6 UniRef90-Q29Z81 UniRef90_C7IXC7 UniRef90-Q4QSS8 UniRef90-Q6QE43 UniRef90_Q5J6H8 UniRef90-J7F859 UniRef90-Q95GX0 UniRef90_Q9MT16 UniRef90-Q6Y2Z5
UniRef90_I1SZM9 UniRef90-S5JU64 UniRef90_B5LZZ4 UniRef90_G3KEU8 UniRef90-F1D875 UniRef90_A1E8T2 UniRef90-O03635 UniRef90-F4NB49 UniRef90_O46984 UniRef90-Q36841 UniRef90-DOETE7 UniRef90-G3KEU6 UniRef90_S4S856 UniRef90-C5NT28 UniRef90_16Q9L8 UniRef90_Q9LBP9 UniRef90-Q8HUN5 UniRef90_Q8MCY2 UniRef90-A0A024B822 UniRef90-Q36628 UniRef90_U5JEJ0 UniRef90_Q32627 UniRef90_Q4V182 UniRef90-A2T239 UniRef90_L7QI76 UniRef90_Q9GE55 UniRef90_Q8PXG9 UniRef90_C5NSZ2
UniRef90_I6QQF6 UniRef90-A8CCW5 UniRef90_A8Y805 UniRef90_LOL1E0 UniRef90_A8CCW2 UniRef90_W5GR15

T GGFTAN 130
GGFTANTSLAHYCRDNGLLLHTHRAMHAVIDRQKNHGMH T GGFCANTGLARWCRKTGTLLHIHRAMHAVVDRNPHHGDH TGGFTANTSLAHYCRDNGLLLHIHRAMHAVI DRQKNHGUH TGGFTANTSLAFYCRDNGLLLHIHRAMHAVIDRQXNHGMH TGGFTANTTLAHYCRDNGLLLHIHRAMHAVIDRQKNHGMH VIGWTADTSMGRWARKNDMILHLHRAGHGTYTRQRNHGDS TGGFTANTSLSMYCRDNGLLLHIHRAMHAVIDRQRNHGUH TMGYTADQSVSKWCHKNGMILHLHRASHATFTRQKNHGUIS VI GWTAMQSMAKWARRNNMILHLHRAGHSTYTRQKTHGVS TVGYTADQSMANWCRENGLLLHLHERAGHSTYTRQKTHGVVS TGGFTANTXLADYGRNNGLLLPI HRAMHAVIDKQKNHGIIH TGGFTANTSLSYYCRDNGLLLHIHRAMHAVIDRQKNHGMH
 V GYTVYKTMGDWAQNRGPMFSSNNANGQTDNRQKSHGMN
 VIGYTAI QSMAI WARKTDMILHLHRAGNSTYSRQKEHGMN XGGFPLKLGLTHFWKNNGPFFHTPGKGXALFGRQKNHGMH TGGFTANXXXXXXXXXXXLLLHDHRAMHAVIDRQRDHGMH TGGFTANTSLAHYCRDNGLLLHIHRAMHAVIDRQKNHGMH TGGFTANTSLAHYCRDNGLLLHIHRAMHAVIDRQKNHGMH TGGFTANTSLAGYCRDNGLLLHIHRAMHAVIDRQRNHGDH VVGYTA PQSMAD WARKAEMILHLHRAGNSTYARQKNHGUN RGDPLQILARLI AGTSAYLIFSFHRAMHTVIDRQKNHGMH TGGLTANTGLANWCRNNGMLLHDHRAMHAVLDRNPHHGDH
 TGGFTANTTLAHYCRDNALLLH!HRAMHAVIDRQKNHGDH TGGFTANTSLAYHRRDNGLPPHIHRATHAVI DRQRNHG』H
 XXXXXXXXXXXXXXXXXXXXXXIHRAMHAVIDRQRDHGMH V IGYTA $\square$ QSMG $\square W A R K N D M \square L H L H R A G N S T Y S R Q K N H G M N$ TGGFTANTSLAHYCRDNGLLLAHI HRAMHALIDRQKNHGMH TGGFTANTSLARYCRDKGLLLHIHRAMHAVIDRQKNHGMH VIGYTADQSMGDXSRKNDMLLHLHRAGNSTYARQKNHGDN VIGYTAGQSMA WARKHDMLLHLHRAGNSTYSRQKNHGMN XGGXIXXXXXXXXXXXXXXXXXXXXXXXXXXXXQXNHG

 VIGYTA DQTMGVWARKNDMILHLHRAGNSTYSRQKXHGMN TGGFTANTSLAHYCRDNGLLLHIHRAMHAVIDRQKNHGMH
 XXXXXXXXXXXXXXXXXXXXXXXHRAMHAVI DRQRNHGMH VIGGYTADQSMADWARKHDMILHLHRAGNSTYSRQKNHGMN IG YSAIQSMA I WSRKNDMILHLHRAGNSTYSRQK DHGMN TGGFTANTTLAHYCRDNGLLLHIHRAMHAVIDRQKNHGMH TGGFTANTTLAHYCRDNGLLLHIHRAMHAVI DRHKNHGMH MGGFTANTRLASYFRVNGLLVHTQRAMHAAIDRQKNHGTQ VIGYTADQSMSNWARKNDMLLHDHRAGHGTYTRQKSHGVS VVGYTAIQSMSEWCRQNDMLLHMHRAGHGTYTRQKSHGVS TIGYTAMQSMSKWARKNGTILHLHRAGYATWARQKNHGVN TGGFTANTSGAYYCRDNGLLLHYHRAMHAVIDRRQNHGGH TGGFTANTSLXNYCRDNGLLLHIHRAMNAVDDRQXNHGXH TGGFTANTSLAHYCRDNGLLLHI HRAMXXXXXXXXXXXXH VIGWTAMQSMAKWARRNNML HLLHRAGHSTYTRQK DHGVS VIGYTADQTAADWARANDMILHLHRAGNSTYARQKNHGIN VGGTAUQTMGUWARKNDMLLHLHRAGNSTYSRQKSHGMN
 VMGYTA QQS AYWARENDMLLHLHRAGNSTYARQKNHGIN
 IGYTADQTMADWARKA QMILHLHRAGNSTYARQKNHGIN TGGWSANTGLAQWCQDNGMLLHIHRAMHAVLDRNPHHGIH TAGFTANTSLANFFRYNGLLLHIHRAMHAVI DRNRNHGIH TGGFTANTSLAHYCRDNGLLLHIHRAMHAVIDRRQKNHGMH TGYSADQTMADWARKNDMILHLHRAGNSTYSRQKDHGMN VIGYTA!QTMAI WARKNDMILHLHRAGNSTYSRQKIHGMN $V L G Y T A D Q T A A L W A R E N D M D L H L H R A G N S T Y A R Q K N H G D N$ TGGFTAXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX TAGFTCNTTLAHYCRDEGLLLHDHRAMHAVIDRQRNHGDT TGGFTANTSLAHYCRDNGLLLHIHRAMHAVIDRQKNHGMH XXXXXXDQSMADWARKTDMLLHLHRAGNSTYSRQKDHGMN VIGYTA I QS $\backslash$ A Q WSRKHDMLLHLHRAGNSAYARQKDHGDN TGGFTANTXLAHYCRDNGLLLHIHRAMHAXIDRQKNHGMX TVGWAAHNSLSKWCRDNGMLLHVHRAMHAVI DRNPNHGDN PAGWTA $\square$ QTLREEAEDAGLALHAHRCMHSAYTRNPRHGIS TGGFCANTGLANWCRDNGMLLHIHRAMHGVIDRNPHHGI H TMGWAAQQSLSKWCRDNGMLLHVHRAMHGVIDRHPKHGIN
 VIGYTA GQSMARWARRNDVI LHLHRAGNSTYSRQKNHGMN VI GYTA $\mathcal{G}$ QMA DWARKNDMLLHLHRAGNSTYSRQKDHGMN


## QUERY UniRef90_B7JB30 UniRef90_Q8ME68 UniRef90_B2BY98 UniRef90_W4NF37 UniRef90-I6NJKO UniRef90_D7BIR5 UniRef90_Q48952 UniRef90 R7XYT9 UniRef90-UPI0002EDF0C7 UniRef90_Q9TIC8

 UniRef90 K K Z2S7 UniRef90_B0FIY0 UniRef90_Q85ZK1 UniRef90_D5FFV0 UniRef90-Q8MBZ6 UniRef90-G9B6J2 UniRef90_Q85ZK8 UniRef90_G8IVV9 UniRef90_Q9MT11 UniRef90_Q9MT07 UniRef90_Q9XPY0 UniRef90-C7DTK7 UniRef90_S6DF14 UniRef90_Q9GG55UniRef90_Q71N76 UniRef90_Q71N76 UniRef90_Q29U57 UniRef90_B3SV61 UniRef90_O03124 UniRef90_Q8HSM6
UniRef90_Q9MSZ2 UniRef90-T1BQ18 UniRef90-E1CBU8 UniRef90_Q49P15 UniRef90-B6RIS4 UniRef90_Q8GIC5 UniRef90_Q71N62
UniRef90_D0ETE6 UniRef90_Q29Z81 UniRef90_Q36661 UniRef90_C7IXC7 UniRef90-Q4QSS8 UniRef90_Q6QE43 UniRef90_Q5J6H8
UniRef90 J7F859 UniRef90_Q95GX0 UniRef90_Q9MT16 UniRef90_Q6Y2Z5 UniRef90-I1SZM9 UniRef90-B5LZZ4 UniRef90_G3KEU8 UniRef90-F1D875 UniRef90_Q32298 UniRef90_A1E8T2 UniRef90-O03635 UniRef90_O46984 UniRef90_Q36841 UniRef90_D0ETE7 UniRef90_G3KEU6 UniRef90_S4S856
UniRef90 C5NT28 UniRef90-16Q9L8 UniRef90_C9DSA3 UniRef90_Q9LBP9 UniRef90_Q8HUN5 UniRef90_Q8MCY2 UniRef90_A0A024B822 UniRef90-Q36628 UniRef90_U5JEJ0 UniRef90_G3CET5
UniRef90_Q32627 UniRef90_Q4VI82 UniRef90_A2T239 UniRef90_L7QI76 UniRef90_Q9GE55 UniRef90_Q8PXG9 UniRef90_C5NSZ2 UniRef90-I6QQF6
UniRef90-A8CCW5 UniRef90_A8Y805 UniRef90_L0L1E0
UniRef90 Q31790 UniRef90_A8CCW2 UniRef90_W5GR15 UniRef90_E216Y7

170
180
190
200
FRVLAKALRMS GGDHDHAGTVVGKLEGEREMTLGFVDLLR
F RVV V K A L R L S G G D H L H T G TVVVGKM E G D R A S T Q G WV D L L R
$F R V L A A K A L R M S$ G G D H I H S GTVVVGKLE GEREDTXXXXXXXX
FRVLXXXXXXS G GDHVIHTGTVVGKLEGERGMTKGFVDLLR
F RVLAKALRMS GGDH\|HAGTVVGKLEGERD円TLGFVXXXX
FRVI AK WL RMAGVDHAHAGTAVGKLDGDPLSVQGYYNVLR
F R V L A K T L R M S G G D H L H S G TVV G K L E G E R EVVTVGFVVDLMR
FRVI AKWARLAGVDHIHAGTVVGKLEGDPATTKGYYDICR

 F R V L A K A L R M S G G D H D H S G T V V G K L E G E R E I T L G G V V

$F R V L V K A L R L S G G D H V H A G T V V G K L E G E R E I T L G F V D L L R$
FRVI CK WMRMA GVDHI HAGTIVGKLEGVPLMIRGFYNTLL
$F R V I C C K W R M A G V D H B H A G T V V G K L E G D P L M V K G F Y H T L L$
$F R V I C K W M R M S G V D Y I H A G T V V G K L E G D P N A V K G F Y D T L L$
FRVI CKWMRMAGVDHI HAGTVVGKLEGDPLMIKGFYNTLL









F R V I CK WMRMA GVD H I H A G TVVVGK L E G D P L MVVRGFYNTLL


$F R V L A K A L R L S G G D H L H S G T V V G K L E G D R G A T L G W V D L D R$
F RVLAKCLRMSGGDHLHSGTVVGGLEGDRAATDGFIDLMR
FRVI CK WMRMAGVDHI HAGTVVGKLEGDPLMVKGFYNTLL

$F X V X X K A X R M X G X D X I H A X T V V G X X E G X R E D T L G F V D L X R$

FRVI CK WMRMAXXXXXXXXXXXXXXXXXXLMDRGFYNTLL
FRVLAKADRMSGGDH】HAGTVVGKLEGEREMTLGFVDLLR


FRVI CKWMRMA GVDHIIHAGTVVGKLEGDPDMIXGGYNTLL
F R V I C K WM R M A GVVD HIVHAGTVVVGKM E G D P L M M K G F Y D T L L
$F R A L T K A L R M S G G D H D H S G P X V G K L D G X R X X T F G L D D L L D$
$F R V L A K A L R M S G G D H I P A G T V V G K L D G N H Q L S L V P A Y Q L R$
FRVI AKWMRLA GVDHIHAGTIVGKLEGDPLTIQGYYNIGR
FRVI A K WLLRLAGVDHLHAGTAVGKLEGDPPTVQGYYNVLR

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

FRCIAKWSRLA GVDHIHAGTVVGKLEGDPATTMGYYDICR

FRVI CK WMRMA GVDHDHAGTVVGGKLDGDPLMDRGFYNTLL
FRVLAKCLRLS GGDQLHTGTVVGKLEGDRAATLGVVDLLR
$F R V I A B W M R L A G V D H V H A G T A V G K L V G D P D T V Q G F Y N V E R$

$F R V I A K W A R L A G V D H I H A G T A V G K L E G D P M T V Q G Y Y N V C R$
FRVI CKWMRMS GVDHIHAGTVVGKLEGDPLMVRGFYNTLL



 X X X X X X X X X X X X XXXXXXXXXXXXXX GEREMTLGFVD



 FRVLTKLLRLLGGDHLHSGTVVGKFEG
$M L V V A K L C R L I G G D Q L H \square G T V V G K M H G E K H E V L N L R D Q C V$ $F R V L A K A L R L S G G D H L H S G T V V G K L E G D R A P T L G F V D L M R$ F RVLAK MLLRLLG GD HLLHS GTV
FRVI CKWMRMAGVDHI HAGTVVGKLEGDPLMVKGFYNTLL
FRVI AKWMRLVGVDHIHAGTAVGKLEGDPLTVQGYYNICR





 D S F
 D T H T A I D L P R GVVYF D Q D WGA I K K V M P V A S G G I H A G Q M H Q L



 UniRef90-Q71N62 UniRef90-DOETE6 UniRef90_Q29Z81 UniRef90-C7IXC7 UniRef90-Q4QSS8 UniRef90_Q6QE43 UniRef90-Q5J6H8 UniRef90-J7F859 UniRef90_Q95GX0 UniRet90_Q9MT16 UniRef90-Q6Y2Z5 UniRef90-11SZM99 UniRef90 B5LZZ4 UniRef90-G3KEU8 UniRef90-F1D875 UniRef90_Q32298 UniRef90-A1E8T2 UniRef90-OO3635 UniRef90-O46984 UniRef90-Q3684 UniRef90-DOETET UniRef90 G3KEU6 UniRef90-S4S856
UniRef90 C5NT28 UniRef90-1609L8 UniRef90 C9DSA3 UniRet90-Q9LBP9 UniRef90-Q8HUN5 UniRef90-A0A024B822 UniRef90-Q36628 UniRef90-U5JEJO UniRef90-G3CET5 UniRef90_Q32627 UniRef90-Q4V182 UniRef90 L7 7 Q176 UniRef90-Q9GE55 UniRef90 A6YF66 UniRef90-Q8PXG9 UniRef90_I6NSF6 UniRef90-A8CCW5 UniRef90_A8Y805 UniRef90-LOL1E0
UniRef90 Q31790 UniRef90-A8CCW2 UniRef90-W5GR15 UniRef90=E216Y7

TETFGDDSVLQFGGGTLGHPWGNAPGAAANRVADEACVQA 280
 TE FGDDSVLQFGGGTLGHPWGNAPGAAXXRVXLEACVXA
$\frac{\mathrm{L}}{\mathrm{T}}$
LALFGDDVILQFGGGTI GHPMGIAAGATANRVALEAMVQA

LDLLGDDTVLQFGGGTI GHPMGIAAGATANRVALECMVLA

| L |
| :---: |
|  |







 RNEGRDIVNEGPEILQEAARSCTPLQQALETWKDVTFNYT
 RNRGRDLIARENEII REAGQWSNELSAACAVWKEI KFEFP RNEGRDLAREGNEI I KAACKWSPELAAACEVWKEIKFEFE RNEGRNLAQDGNSI I RQAGQWSPELAA
RNEGRDLAREGNEI I RKAVKWSPELAAACEVWKEDKFEFQ RNEGRDYVAEGPQILQDAAKTCGPLQTADDLWKDITFNYT RNEGRDYVAEGPEILQQDAAKMCGPLQQALDLWKGIISFNYA

 RNEGRDLAXEGNEVIREACKWSPELAAACEIWKEIKFEFD HNE
RNEGRD $\square$ ARESNE $\square \square R E T C K W S P E \square A A A C E \square W$
R NE
RNEGRDYVGEGPE $\|$ R RNAASTCGP $L$ KAA $\square D \square W K D \square T F D Y T$ RNEGRDLAREGNEI I REASKWSGELAAACE
RNQGVGH
RNEGXDLAREGNETIREASKWSPVLAAACEVWKEMKF RNEGRDLAREGNEI I REAXQWSHEL
RNEGRDPARDGNEVIREASK
RXEGR
RNEQRDYVAEGPQ LLRDAAKTCGPLQTALDGWKD $\square T F N Y T$ RNEGRDLARQGNEI I REAAKWSPELAAACE
RNEGREY S E GPQ L R DAAKTCGPLQTALD LWKD DT F N
RTEGRDLARE

RNEGRDY LNEGPQLLRDAAKMCGPLKTALDLWKDDTEDYT RNEGRNYVAEGPQULRDAAKTCGPLQTALDLWKDUSFNYT
RNEGRX $\square$ ARXGXXX $\square R$ XAXQWS XE $\square S \times D \times S \times W K E \square X \square E F P$
RNEGRDVEREGKDILAQAAKSSPELQVAMETWKETKFE RNEXXXXVTEGPQILQDAAKTCGPLQTALDLWKDISFNYT RNEGRDLAREGNEII RSACKWSPELAAACEEI WKAI KFEFE RNEGRDLAREGNEI I REACKWSPELAAACEVWKEIKFEFE RNEGRDLAREGHEI I REACK
RNEGRDLAREGNEVIREACKWSPELAAACETWKETKFEFD RNEGRNYVAEGPQILRRDAKTCGPLQTAMLDLWKDIKSFNYT RNEGRDYVTEGPQILRDAAKTCGPLQTALDLWKDITFNYT RNEGRDLAREGNEI I REACKWS

RNEGKD VVNEGPGTLKKAAQFCTPLKQALDTWGDTTFNYT RNEGRNI ATEGPEILRAAARWCKPLEAALDTWGNISFNYT RNEGRDYLAEGPEILNKAAKWCSPLRVALDLWKDITFNYT RNEGR
$R N E G R D Y \nabla A E G P Q \square L Q D A A K T C G P \square Q T A L D \square W K D \square T F N Y T$
RNEGRDLATEGNA\IRKACKWSTELAAACEDWKEDKFEFA RNEGRDI RNDGPAILRQAATFCTPLKQALDTWGEISFNYT RNEGRDY@EEGPQI LRDTAKMCGPLQTALDLWKDISFNYA XXXXXXXXAEGPQ】LREAAKTCGPLQTALDLWKDNTFNYT

RNEGRNLAREGNDVIREACRWSPELAAACE $\square$
RNEGRDIMAEGPDI LKAAAKSCKPLETALETWKGVEFNYT RNEGRDYVGEGPEILRVAAATCNPLKT
RNMGRELEKEGKD ILKSAAKHSPELA $\square$ AMETWKE $\square K$ KEMD
RNEGRDLAREGNEII
RNEGRDYVAEGPQI LQDAAKTCGPLQTALDLWKDDTENYT RNEXRDYVNEGPQILQDAAKTCGPLQTALDLWKDISFNY RNSGADFFSNGPK LLADAGKMCAP
R

RNEGRDYVNEGPQ】
$\square$ S


RNEGRD\ANEGPQ\|LRDAAKWCSPLAAALDTWGDIT
RNEGRDYLREGPQLLEAAARCCSPLKGALGAWKDVTFNYT RNEGRDYVAEGPQULQDAAKTCGPLQTALDLWKDITFNYT

| QUERY | P V ${ }^{\text {P }}$ L |
| :---: | :---: |
| UniRef90_B7JB30 | TVEKL |
| UniRef90-Q8ME68 | A MDTL |
| UniRef90-O98427 | P V D |
| UniRef90-B2BY98 | A M T L |
| UniRef90-W4NF37 | PTDT |
| UniRef90-I6NJK0 | T 1 D K L |
| UniRef90-D7BIR5 | STDT |
| UniRef90-Q48952 | STDS |
| UniRef90-R7XYT9 | S T D |
| UniRef90_UPI0002EDF0C7 | STD T |
| UniRef90-Q9TIC8 | AMDTL |
| UniRef90-K3Z2S7 | AMDTL |
| UniRef90-B0FIY0 |  |
| UniRef90-Q85ZK1 | A M T L |
| UniRef90_D5FFV0 | STDT |
| UniRef90_Q8MBZ6 | STD T |
| UniRef90-Q9TKM8 | S T D T L |
| UniRef90-G9B6J2 | STD T |
| UniRef90_Q85ZK8 | AMDTL |
| UniRef90-G8IVV9 | X $\square \mathrm{D} \times \mathrm{L}$ |
| UniRef90-Q9MT11 |  |
| UniRef90-Q9MT07 |  |
| UniRef90-Q8WJA7 |  |
| UniRef90-Q9XPY0 | S T D T |
| UniRef90-C7DTK7 |  |
| UniRef90-S6DF14 |  |
| UniRef90-Q9GG55 |  |
| UniRef90-Q71N76 |  |
| UniRef90-B6CJW4 |  |
| UniRef90-Q29U57 |  |
| UniRef90-B3SV61 | S T D T |
| UniRef90-O03124 |  |
| UniRef90-Q8HSM6 |  |
| UniRef90-Q9MSZ2 |  |
| UniRef90-T1BQ18 |  |
| UniRef90-E1CBU8 |  |
| UniRef90-Q49P15 |  |
| UniRef90-B6RIS4 | S T D T |
| UniRef90-Q8GIC5 |  |
| UniRef90-Q71N62 | P L V T |
| UniRef90-D0ETE6 |  |
| UniRef90-Q29Z81 |  |
| UniRef90-Q36661 | STIT |
| UniRef90_C7IXC7 | P VDKL |
| UniRef90-Q4QSS8 | A M T L |
| UniRef90-Q6QE43 |  |
| UniRef90-Q5J6H8 | V I D R L |
| UniRef90-J7F859 | STDT |
| UniRef90-Q95GX0 | ST D T |
| UniRef90-Q9MT16 |  |
| UniRef90-Q6Y2Z5 |  |
| UniRef90-I1SZM9 |  |
| UniRef90-S5JU64 | P T |
| UniRef90-B5LZZ4 | P T |
| UniRef90-G3KEU8 | P T |
| UniRef90-F1D875 |  |
| UniRef90_Q32298 | ST D T |
| UniRef90-A1E8T2 |  |
| UniRef90-O03635 | A X T L |
| UniRef90-F4NB49 | P T |
| UniRef90-O46984 | ST D T |
| UniRef90-Q36841 | STDT |
| UniRef90-D0ETE7 |  |
| UniRef90-G3KEU6 | P T E |
| UniRef90-S4S856 |  |
| UniRef90-C5NT28 |  |
| UniRef90-I6Q9L8 | P T |
| UniRef90-C9DSA3 |  |
| UniRef90-Q9LBP9 | S |
| UniRef90-Q8HUN5 |  |
| UniRef90-Q8MCY2 |  |
| UniRef90-A0A024B822 | S T D T |
| UniRef90-Q36628 |  |
| UniRef90-U5JEJ0 |  |
| UniRef90-G3CET5 |  |
| UniRef90-Q32627 |  |
| UniRef90-Q4V182 |  |
| UniRef90-A2T239 |  |
| UniRef90-L7Q176 |  |
| UniRef90-Q9GE55 |  |
| UniRef90-A6YF66 |  |
| UniRef90-Q8PXG9 |  |
| UniRef90-C5NSZ2 |  |
| UniRef90-I6QQF6 |  |
| UniRef90-A8CCW5 |  |
| UniRef90-A8Y805 |  |
| UniRef90-L0L1E0 | P T |
| UniRef90- Q31790 | STIT |
| UniRef90-A8CCW2 |  |
| UniRef90-W5GR15 |  |
| UniRef90_E2I6Y7 |  |

UniRef90 046972 UniRef90 F5B8Z7 UniRef90-B5SW42 UniRef90_LON864 UniRef90_O46968 UniRef90-Q58632 UniRef90-B6CWX9 UniRef90-A4GGX0 UniRef90 Q29Z69 UniRef90-O78531 UniRef90_Q8MDV4 UniRef90 S5Z8V0 UniRef90-A5X4E8 UniRef90-A3F4N2 UniRef90 N0BMV6 UniRef90 Q31862 UniRef90-B6RID4 UniRef90-D2REY6 UniRef90 G3EJI5 UniRef90-B5IGK0 UniRef90_UPI00034DDFC4 UniRef90- Q93A92 UniRef90 Q8H980 UniRef90-Q29Z92 UniRef90_LOLOG3 UniRef90 F8AF48 UniRef90-E0WMP2 UniRef90-H9AXK6 UniRef90-D5U228 UniRef90 N6ZDS5 UniRef90-Q32593 UniRef90-E7BJG4 UniRef90 Q36825 UniRef90 M1E6K1 UniRef90-LON854 UniRef90-O28635 UniRef90 C5H391 UniRef90-Q3ZTM2 UniRef90_WOI6Q3 UniRef90 Q29Z96 UniRef90-10JU35 UniRef90-C7AQS5 UniRef90-W5RG27 UniRef90 O78526 UniRef90-A3F4N4 UniRef90_S6CME1 UniRef90_Q29Z63 UniRef90 Q6L5W7 UniRef90_B6RID0 UniRef90_C1JFJ9 UniRef90 C6FFX9 UniRef90-Q32260 UniRef90_Q8WK40 UniRef90 Q29Z84 UniRef90 R4ITK6 UniRef90-S6DLT3 UniRef90-G3EJJ8 UniRef90-H81700 UniRef90-EOWH92 UniRef90-H1Z445 UniRef90-S2KHX8 UniRef90_Q946N3 UniRef90-O46976 UniRef90-UPI00037238A6 UniRef90 K4LFC4 UniRef90_V7AWJ9 UniRef90_C3M192 UniRef90-A3CV55 UniRef90 W2E2Y0 UniRef90-E6MJM2 UniRef90-H8XBR9 UniRef90 UPI0004689AF5 UniRef90 A7I7B2 UniRef90-W5UGA7 UniRef90-Q2FSY4 UniRef90 UPI00046ED4B5 UniRef90-A0B9K9 UniRef90_B9KXE5 UniRef90-O46970 UniRef90_C5H378 UniRef90_-Q4QST2 UniRef90_C5H372 UniRef90 M1ZKA3 UniRef90-D3SZ13 UniRef90_UPI000369EF47 UniRef90_UPI000364E063 UniRef90 UPIO0036C978B UniRef90-C9R9G7 UniRef90_UPI000479B9BF UniRef90-A6CPI1 UniRef90 E7DY67 UniRef90_E7DY67
UniRef90

PPHGTQVERDK LNKYGRPLLGCTDKPK LGLSAKNYGRACY


PRFGDEGVRETLK $\quad$ KKERPLLGT TVKPKVGLKTEEHAKVAY PATGVIVERERLDKFGRPLLGATVKPKLGLSGKNYGRVVY PPHGIVVERDXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

PPHGTQVERXXXXXXXXXXXXXXXXXXXXKNYGRAVY PATGILVERRXXXXXXXXXFDGATVKPKDGLSGKNYGRVVY PNQGI QGVRERLLK IVY DPDV GTVPKP KEGYTAEEVGKLAY P P H G I Q VERDKLNKY GRPLLGGTDKP K L G L S A K N Y GRAVY
$P N F G \prod D G V R N \square M R V H D R P L T A T V P K P K V G F D A D E Y A E V G Y$ PATGVVVERERMNNYGRPLLGATVKPKLGLSGKNYGRVVY

 $P P N G \prod Q V E R D \Pi L N K Y G R A Y L G C T \prod X P K \square G L S A K N Y G R A V Y$ PPHGIQVERDQLNKYGRPLLGCTIKPKLGLSAKNYGRAVY
PKYGVGG I R DLTGVY DRPLVNAAVRPKVGLDPATHAKVAY P Q Y GVKGIREFMGIEDRPLTATVPKPKMGWSVDEYAEI AY PATGUVVERERLDKFGRPLLGATVKPKLGLSGRNYGRVVY

PSKGVEGVREDFKVKDRP VVGTVPKPKVGYSPEEVEKLAT PATGVICERERMDKFGRPF LGATVKPK LGLSGKNYGRVVY
PAXGlISESXRMDKFGRPFDGXTVKPKLGLXGKNYGRXVY PAF GVDGVREVLGVKDRPLVGTIVKPKLGLDPKEQAKVVY


PATG VVERERMDKFGRPFDGATVKPK LGLSGKNYGRVVY PAHGUEGVRK $\square F G \square K D R P \square V G T V P K P K V G Y S P E E D E K L A Y$

PATGLIVERERLNMFGRPMLGATVKPKLGLSGKNYGRVVY PPHG $\square$ QVEXXXXXXXXXXXXXT $\square$ KPK $\square G \square S A K N Y G R A C Y$ TKPK $\square G \square S G R N Y G R V V Y$

PATGIIVERERDNKYGVPLLGATVKPKLGLSGKNYGRVVF PATGIIVERERMDKFGRPFLGATVKPKLGXXXXXXXXXXX PATGMIVERERMNMFGRPFLGATVKPKLGLSGKNYGRVVY PATGVIVERERLNKYGTPLLGATVKPK LGLSGKNYGRVVY $T K P K L G L S G K N Y G R V V Y$ PRFG $\square$ QDVRKY $\square G V Y D R P L I G T \square I K P K V G L S P K R T A E V A E$ $P \square F G M K G V R R L I G K S G R P H V G T \ I K P K V G L T P K D T A E V A Y$

 PKFGTQG\|RELLGUPERPLLNNMDKPCTGYTPEVGARLFS PQFG $\square A G T R R D T G V F D R P L D G T \square \square K P A D G D R P N E T A E M V C$ PHFGMEGTRDMMKIRGRPLTGAVPKPKVGFTAEEHAEVGY PKF GIQQGIRELLGVHDRPLLMSIFKSVI GYDLKELQTQFY $P K F G V Q G \| R D L L G V Q D R P L L N N M D K P C I G L S P K E T A K L A Y$
PKFG $\square E G V R S L L G V Q D R P L L M S \prod F K S C D G Q D L E S D E E Q F Y$ PHFGMDG\|RKMMGIRGRPLTGAVPKPKIGFSAKEHAE GGY PKFGlEGVRKLAGTVDRPHVGTIIKPKVGLNPKDTAAVAY PKFGI E GTRKLANVYNRPLIGTIIKPSI GLTPDDDRDVVR PKFGI EEARRI DDAYNRPLVGTIVKPKVGLNPSQTAEVAG PRFGIQGTRDIAQVYDRPLIGTIIKPSVGLSPEQTAVVVR

PKF GVKGDRDLLGVHDRPLVNNMDKPCAGCSPEEGAEYDY PQFGTSVAREKLDAGDRPILATVPKPKVGLSTDAHVRVGE PKFGDS GLLRNELGVHDRPLLMSIFKSVIGLDLPELREQFY

PKF G IE GTRKFTGVENRP\IGT\IKPSVGLSPEATAQQTK PAF GVQGVRETLGIVGRPLVGTVVKPKLGLSPREQAEVVY
 PAFGIDGIRQRLLNKYTPLVMSIFKSVIGKELDYFSNQLR

UniRef90 046972 UniRef90-F5B8Z7 UniRefofo-B5SW42 UniRef90-LON864
UniRef90- 046968 UniRef90-Q58632 UniRef90-B6CWX9 UniRef90-A4GGX0 UniRef90_Q29Z69 UniRef90-O78531 UniRef90-S5Z8V0 UniRef90-A5X4E8 UniReffo-A3F4N2 2 UniRef90 ${ }^{-}$Q31862 UniRef90-B6RID4 UniRef90-D2REY6 UniRef90-G3EJI5 UniRef90-B5IGK0 UniRef90-UPIO0034DDFC4 UniRet90_Q93A92 UniRef90_-Q8H980 UniRef90-O29Z92
UniRef90-LOLOG3 UniRef90- F8AF48 UniRef90-EOWMP2 UniRef90-H9AXK6 UniRef90-D5U228 UniRef90_N6ZDS5 UniRef90_O32593
UniRef90 E7BJG4 UniRef90-Q36825 UniRef90_M1E6K1 UniRef90-LON854 UniRef90 C5H391 UniRef90-Q3ZTM2 UniRef90-WOI6Q3 UniRef90-Q29Z96 UniRef90 - 10 JU35 UniRef90-C7AQS5 UniRef90-W5RG27 UniRef90-O78526 UniRef90_A3F4N4 UniRef90-S6CME1 UniRef90-O29Z63 UniRet90-Q6L5W7 UniRef90-B6RIDO

UniRefon C1JF.J9 UniRef90- C6FFX9 UniRef90-Q32260 UniRef90-Q8WK40 UniRef90-Q29Z84 UniRef90_R41TK6 UniRef90-S6DLT3 UniRef90-G3EJJ8 UniRef90-H81700 UniRef90-EOWH92 | UniRef90- H 12445 |
| :--- |
| UniRef90 S 2 KH 8 | UniRef90-Q946N3 UniRef90-046976 UniRef90_UPIO0037238A6 UniRef90-K4LFC4 UniRet90-V7AWJ9 UniRef90-C3M192 UniRef90_A3CV55 UniRef90-W2E2Y0 UniRef90-E6MJM2

UniRef90
H8XBR9 UniRef90_UPI0004689AF5 UniRef90-A717B2 UniRef90_W5UGA7 UniRef90-Q2FSY4 UniRef90-UPI00046ED4B5 UniRef90-Aов9k9 UniRef90-B9KXE5 UniRef90-O46970 UniRet90-C5H378 UniRef90-Q4QST2 UniRef90-C5H372 UniRef90-D3SZ13 UniRef90_UPIOOO369EF47 UniRef90-UPIOOO364E063 UniRef90-UPI00036C978B UniRef90-C9R9G7 UniRef90_UPI000479B9BF UniRef90-A6CPI1 UniRef90-E7DY67
UniRef90_IOBLM9
位 ECDRGXDDTKDXENVNSQPXXXXXXXXXXXXXXXXXXX ECLRGGLDFTKDDENVNSQPFMRWRDRFLFCAEADYKSQA EAWVGGVDLVKDDENLTSQEFNKFEDRПYKTLEMRDKAEE EGLRGGLDFLKDDENXXQPFMRWKERFLYCMEGVNRAA A XXXXXXXXXXXXXXXXXXPFMRWRDRFLFVAEALFKSQA DFTKDDENVNSQPFMRWKQRFDFVMEAVHKAQA ECLRGGLDFTKDDENVNSQPFMRWRDRFLFCAEALFKAQA EGLKGGLDFLKDDENINSQPFMRWKERYLYSMEAVNRSTA E 1 VGGMDF KDDENLASPSFCRFEARANA DMKAI DMAEK ECLRXXXXXXXXXXXXXXXXXXXXXXXXCEAIYKSQA RSWVGGTDILKDDENTTSQPFMRFEKRLLEKVMKARERAEN EGLKGGLXFLKDDENINSQPFMRWRERFLFAMEGVNRASA EGLKGGLDFLKDDENINSQPFMRWRERFLYSMEGVNKASA ELLSGGMDYUKDDENLTSQDFCKFEERAKA MKKAIDKAES RWRDRFLFVMEA JKKAEA EA WVGGDD\VKDDENGASQEFNRFEERLALTLEKKDDAEE
ECLRGGLDFTKDDENVNSQPFMRWRQRFDFVMEATHKAER ECLRGGLDFTKDDENVNSQPFMRWRARFLFCAEA YKSQX
DLFVGGCDMVKDDENLTDQKFNRFEKRAEDTFEAREDAEE ELWSGGIDLLKDDENFTSFPFNRFEERVRKLYAVRDRVEA EALKGGLDFTKDDE NDNSQPFMHWRERFLYCMEAVNKAQA ELLMGGDDY DKDDENLTSPKYCSFEARAKA DMKVIDKVEK

E G LK G G LD F LK D DE N DNFQPFMRWKERF LYSMEGVNRA DA KDDENI NSQPFMHWRDRFLYCMEADNKATA EGLKGGLDFLKDDENINSQPXXXXXXXXXXXXXXXXXXX
 ELLS GGMDY $\square K D D E N L T S P A Y C R F E E R A E R \square M K V I E K V E A$
EGLKGGLDFLKDXXXXXXXXXXXXXXXXXXXXXXXXX
DLLSGGMDYUKDDENLTSPWYNRFEDRAEVLMKVIEKVEN DLLSGGMDYVKDDENLTSPWYNRFEDRAEVLMKVIEKVEN

## MRWRDRFLFVAEATYKAQA

 EG $\square R G G \square D F \square K D D E N \square N S Q F M R W R E R F L Y V M E G V N R A S A$ NSQPFMRWRDRFMFCQEAIEKAEM ECDRGGDDFTKDDENVNSQPFMRWRDRFVFCAEALYKABA EALKGGDDFMKDDENLNSQPFMHWRDRFLYCMEAVNKASAEGLKGGDDF LKDDENTNSQPFMRWRERFTYCMEGTNRASA XXXXXXXXXXXXXXXXQPFMRWKERFLYSMEGVNRSTA EGLKGGLDFLKDDENDNSQPFMRWRERYLYSMEGVNKASA EGLKGGपDFLKDDENVNSQPFMRWRQRFDFVAEAVHKAAA EGLKGGLDFLKDDEN NSQPFMHWRDRFEYVMDAVNKASA EGLKGGDDFMKDDEN NSQPFMHWRDRFLYCMEAVNKASA QAALGGLDLIKDDETLTDQAFCPLEERLTAVMDKLDKAEA NAAVGGVDFTKDDETDTDQAFCPMDER EAVMGKIDRAQG QLVEGGI DFITKDELQANGPHNPLKARVDAVMPVINAHAE ECLRGVLDLTKDDENDNSQPFQRWRERFEFVAEAVKLAQQ QQALGGVDLIKDDETLFENPGMRESERFLYCMEGINRAAA QAIRGGVDVVKDELIADPPFCPMVERVKLYMAEARRYYE
 ETWMGGFDFVKDDENLTSQSFNRFDDRVRAMAKMRDRAEQ EQAAGGVDLIKDDELLFENPLTPDEKRVAVCKEASERAKD EAAVGGVDIIKDDELCANPDFCPLEDRVQAVMEADTKADQ QQAAGGVDITKDDEDLEENPLSPFEKRLEVALRAAQRASE ETWMGGFDFVKDDENLTSTSFNRFDDRVKYMTKLRDKAEK ECLRGGLDFTKDDENVNSQPFMRWRDRFLFIAEATHKSQA DLAMAGU DFIKDDELNANPAYAPGKDRVKAAMEEVERVAD AAVRGGLDLVKDDETLTDQKFCPMERRVEEVMAEFDRVES ELVEAGIDFIKDDELMANPPHNPLPARARAVMRVIRDYAD KDDENTNSQPFMRWRDRFLFGMEGVNKAMA ECRPRGQDSTKDXSNVNSDPFMRXRDRFLFCAEAIYKAQA KDDENINSQPFMHWRERFLYCMEAVNKAQA QAALGGVDVIKDDELVADRHFSPLEKRVELYMKALEKAEK EAWRGGVDLLKDDENLTDQDFNPFEDRLAESLAARDRVEE

TLTEAGLDFLKDDELMGDAPHSPFEKRVDAVMEVINDHAE EALVGGLDLVKDDENLTSQPFSPFEERVKRSLEACARAEA QQILGGVDIVKDDETLFDNPLTPFEDRIAAGKEVLQQVFE $D Q A L G G\|D\| V K D D E L F D N P L T P F A K R \| Q K A K Q T L D V V Y D$

## UniRef90 O46972 UniRef90-F5B8Z7 UniRet90_B5SW42 UniRef90-LON864 UniRef90_O46968 UniRef90-O58632 UniRef90-B6CWX9 UniRef90-A4GGX0 UniRef90_O29Z69 UniRef90 O 78531 UniRef90-Q8MDV4 UniRet90-S5Z8VV UniRef90_A5X4E8 UniRef90_A3F4N2 UniRef90-NOBMV6 UniRef90-Q31862 UniRef90-B6RID4 UniRef90 D2REY6 UniRef90-G3EJI5 UniRef90-B5IGK0 UniRef90-UPIO0034DDFC4 UniRet90-Q93A92

 UniRef90-Q84980 UniRef90-Q29Z92UniRef90-LOLOG3 UniRef90-F8AF48 UniRef90-EOWMP2 UniRef90-H9AXK6 UniRef90-D5U228
UniRef90
N6ZDS5 UniRef90-Q32593 UniRef90-E7BJG4 UniRef90-Q36825 UniRef90-M1E6K1
UniRef90_LON854 UniRef90-O28635 UniRef90-C5H391 UniRef90-Q3ZTM2 UniR effo-WOI6Q3 UniRef90-Q292966
UniRef90 $10 J U 35$ UniRef90-C7AQS5 UniRef90_W5RG27 UniRef90_O78526 UniRef90_A3F4N4 UniRef90-S6CME1 UniRef90-Q6L5W7 UniRef90_B6RIDO UniRef90-C1JFJ9 UniRef90-C6FFX9 UniRef90-Q32260 UniRef90-Q8WK40 UniRef90_Q29Z84 UniRef90_R4ITK6
UniRef90_S6DLT3 UniRef90-G3EJJ8 UniRef90-H81700 UniRef90-EOWH92 UniRef90-H1Z445 UniRef90_-a946N3 UniRef90-O46976 UniRef90-UPIo0037238A6 UniRef90-K4LFC4 UniRef90_V7AWJ9 UniRef90-C3M192 UniRef90-A3CV55 UniRef90 W2E2Y0 UniRef90-E6MJM2
UniRef90
H8XBR9 UniRef90_UPIO004689AF5 UniRef90-A717B2 UniRef90_W5UGA7 UniRef90-Q2FSY4 UniRef90-UPIO0046ED4B5 UniRef90_AOB9K9
UniRef90 B9KXE5 UniRef90-BgKXE5 UniRef90-C5H378 UniRef90-Q4QST2 UniRef90-C5H372
UniRef90 M1ZKA3 UniRef90-D3SZI3 UniRef90_UPIOOO369EF47 UniRef90-UPI000364E063 UniRef90_UPI00036C978B UniRef90-C9R9G7 UniRef90-UPIO00479B9BF UniRef90-A6CPII UniRef90_E7DY67
UniRef90_10BLM9

UniRef90_O46972 UniRef90-F5B8Z7
UniRet90_B5SW42 UniRef90-LON864 UniRef90-O46968 UniRef90-O58632
UniRef90 B6CWX UniRef90-A4GGX0 UniRef90_Q29Z69 UniReffo-O78531 UniRef90-Q8MDV4
UniRet90_S5Z8V0 UniRef90-A5X4E8 Uniinefoo-A3F4N2 UniRef90-NOBMV6 UniRef90-Q31862 UniRef90-B6RID4
UniRef90 D2REY6 UniRef90-G3EJ15 UniRef90-B5IGKO UniRef90-UPIO0034DDFC4 UniRet90-Q93A92 UniRef90_-Q8H980 UniRef90-Q29Z92
UniRef90-LOLOG3 UniRef90-F8AF48 UniRef90-EOWMP2 UniRef90-H9AXK6 UniRef90-D5U228
UniRef90-N6ZDS5 UniRef90-Q32593 UniRef90-E7BJG4 UniRef90-Q36825 UniRef90-M1E6K1
UniRef90 LON854 UniRef90-O28635 UniRef90-C5H391 UniRef90-Q3ZTM2 UniR effo-WOI6Q3 UniRef90-I0JU35 UniRef90-C7AQS5 UniRet90_W5RG27 UniRef90_O78526 UniRef90-A3F4N4
UniRef90 S6CME1 UniRef90-Q29Z63 UniRef90-Q6L5W7 UniRef90-B6RIDO
UniRefon C1JF.J9 UniRef90-C6FFX9 UniRef90-Q32260 UniRef90-Q8WK40 UniRef90_Q29Z84 UniRef90_R4TKK

UniRef90_S6DLT3 UniRef90-G3EJJ8 UniRef90-H81700 UniRef90-EOWH92 | UniRef90- H 12445 |
| :--- |
| UniRef90 S 2 KH 8 | UniRef90_-9946N3 UniRef90-O46976 UniRef90-UPIO0037238A6 UniRef90_K4LFC4 UniRef90-V7AWJ9 UniRef90-C3MI92

UniRef90 A3CV55 UniRef90-W2E2YO UniRef90-EGMJM2
UniRef90
H8XBR UniRef90_UPI0004689AF5 UniRef90-A717B2 UniRef90 W5UGA7 UniRef90-Q2FSY4 UniRef90 UPIOOO46ED4B5 UniRef90 AOB9K9

UniRef90 B9KXE5 UniRef90 O46970 UniRet90-C5H378 | UniRef90- Q4QST2 |
| :--- |
| UniRef90 | UniRef90-M1ZKA3 UniRef90-D3SZ13 UniRef90-UPIO00369EF47 UniRef90_UPIO00364E063 UniRef90-UPI00036C978B UniRef90-C9R9G7 UniRef90_UP1000479B9BF UniRef90-A6CPI1 UniRef90_E7DY67

UniRef90_IOBLM9

VIGGTAIIUSMATWSRKNDMIILHLHRAGNSAYARQKNHGIIN NGDFCANTGLAQWCADNGMLLHIHRAMHAMDDRNPSHGIH NGGFTANTGLABYCRDNGLLLHIHRAMHAVIDRQKNHGMH TGGFTANTSLAFYCRDNGLLLHIHRAMHAVIJDRKNHGMH VMGYTA QSAADWARKNDMLHLHRAGNSTYARKNHGDN VCGFSAVQSFREEDFK FII HAHRAMHAAMTRSRDFGI S VXGXSAIQTMADWARKAXMILXLHRAGNSTXARQKXHGUN TGGFTANTTLAHYSRDNGLLLHIHRAMHAVLDRQKYHGMH TGGFTANTGLANWCRDNGLLLHI HRAMHAVLDRNPNHGDH TGGFTANTSLAHYCRDNGLLLHIHXXXXXXXXXXXXXXX $\square G Y S A B Q S M A D W A R N D M 1$ HLHRAGXXXXXXXXXXXX UAGWSALTY RDLAEEHKLAI HGHRAFHAAFTRNPYHGIS TGGFTANTSLAHYCRDNGLLLHTHRAMHAVIDRQKNHGMH TAGFSAVQTVRNKCEELGLAI HAHRAMHGAFTRNEEHGIS VIGYTAI QSMAKWARAHDMILXXXXXXXXXXXXXXXXX VIGYTAI QSMADWARKHDMLLHEHAGNSTYSRQKNHGMN
 ISGFSAVQS YREEGFKMAI HAHRAMHAADTRNPEHGIN
 T GGFCANTGLANWCRENGMLLHIHRAMHAVLDROPKHGMH PTGWSSVQTLRDVTEELGLAI HAQDQGHNTFTGMEDHSIS VVGWSALQYMREVAEDLGLAI HAHRAMHAAFTRNPRHGI S VIGYTAI QSMAKWARRNDMILHLHRAGHSTYTRQKTHGVS VIGYTAI QSMADWARKADMLLHLHRAGNSTYSRQKNHGMN VSGWGVLNYDRDLAEEYGLAVHAHRAMHASFTRNPYHGDS VIGYTAAI QSMADWARRNDMLLHLHRAGNSTYSRQKDHGMN II GYTA: QSMSEWCRQNDMMLHERAGHGTYTRQKNHGMS VVGYTAL QTMADWSRRNDMILHLHRAGNSTYSRQKDHGMN TGGFAGNTSLAHYCRDNGLLLHAHRAMYASFARSKKHGIHH TTGWGALEYURDLAEDYDLALHGHRAMHAAFTRNAKHGDS VVGYTAA QSMAHWARRNGVLLHLHRAGHSTYTRQKTHGVS VTGWGALEYMRDLAEDYGMALHAHRAMHATFTRNPYHGMS TAGFTANTGLANWCRDNGMLLHMHRAMHAVVDRNPYHG\| H TAGFTANTTLAHWCRDNGVLLHIHRAMHAVI DRQKNHGIH TGGFTANTSLAHYCRDNGXLLHIXRAMHAVIDRQKNHGUH ПGYTA $\square Q S M A D W A R K A D M I L H L H R A G N S T Y A R Q K N H G T N$ TTGWAAHQSLSKWCRKNGMLLHVHRADHGVIDRNPKHGDN TGGFTXXXXXXXXXXXXXXXXXXXXXXXXXXXXX PAGFRPNTSLANWSRADGMLLHDHRAMHPVLARDPTHADH VIGYTAlQTMAKRCRNNDMILHLHRAGNSTYSRQKNHGMN VIGYTAIQSMADWARKHDMLLHLHRAGNSTYSRQKNHGMN VLGYTADQTAADWARENDMI HHLHRAGNSTYARQKNHGIN IGYTA GQMADWXXXXXXXXXXXXXXXXXXXXXXX VIGYTADQSMADWARKHDMILXXXXXXXXXXXXXXXX TAGFTANTSDANWWRENGMLLHDHRADHAVLDRNPNHGDH VVGYTGGQSGANWCRANDMLHEHAGNSTYARQKNHGN IIGYTALQSMAEWCRQNDMLI HLHRAGHGTYTRQKNHGVS TGGWSANTQRAQWCQDNGMLLHIHRAMHAVLDRNPHHGG H TCGYSALOALSEEMKDNVPVHVHRTMHGAMTRMPEHGUA SVGLSGVTHLRRHCR LALHGHRAGWGLYSRSPYDGMS TGGFTANTGLANWCRKNGMLLHDHRAMHAVIDRQKNHGDH VWTDLLTACDVYRSRKNDMM LHLHRAGNSTYARQKNHGIN SYGFDVLHESSDSSTNP AA HPALAGAFYPSQHYGIAA TAGLTALQSLAEDPEINVPLLAHDDFAGTMYESPYSGLSS STGQGA FLFLRRRSRLALHAHRNGWDILTRHPGLGMN VAGTAAVATLRDYCSDLGLAIHAHRAMHAAFDRDEKHGDT AYGFDVLHELSRDPNDPVPFMAHPSLSGALYPSQAYGIMA TAGFCANTGLANWCRDNGMLLHDHRAMHAVDDRNPHHGIH AYGYDALHRLSADPD SVPIMAHPALAGA】YPSPHQG【AA VAGTASVMTMRDYCSDLGLAIHAHRAFHSAFDRNKKHGMT TGGFTANTTLAMYSRDNGLLLHRHRAMHAVIDRQRNHGDH VCGFDAVRAVAEEPGGNLPPVHVRTMHAALTRNPEHGUA TAGFSADEALA ARGGVDLPI HVHRTMHGAMTRDRAHGDS TAGFSALEALA RNCRGVDLPI HVHRTMHGAMTRDRAHGIS VIGYTADQSMAVWSRKNDMILHGHRAGNSAYARQKNHGTN TLGYSAMQSMAHWARANGVLLHLHRAGHSTYTRQKTHGVS TGGFTANTSLAHYCRDNGLLLHIHRAMHAVIDRQKNHXXX AVGLD 1 VRMLAEDPEDNVPILGHATAAGGFTDSPYYGMS TCGWSAVQSVRDRCEKHGLAIHAHRAMHAAFDRMDHHGVS HMHRAGHGTYTRQKNHGI S WVGDSG LLKDNEFTQLPTHGHRNGWGDYARSPVLGME TAGFSGLLSLRKANLGLTIHAHRAMYASFARNRRHGDS AYGRDVMQNLVEDPETNDPMAHPAVSGASTASSLYGFSN

## UniRef90 O46972

 UniRef90-F5B8Z7UniRef90
B5SW42 UniRef90-LON864 UniRef90_O46968 UniRef90-O58632
UniRef90 B6CWX UniRef90-A4GGX0 UniRef90-Q29Z69 UniRef90-O78531
UniRef90
OMMDV4 UniRef90-S5Z88V UniRef90_A5X4E8
UniRef90 A3F4N2 UniRef90-NobMV6 UniRef90-Q31862 UniRef90-B6RID4 UniRef90-D2REY6 UniRef90-G3EJI5 UniRef90-B5IGKO UniRef90-UPIO0034DDFC4 UniRef90-Q93A92 UniRef90-Q8H980 UniRef90-Q29Z92
UniRef90-LOLOG3 UniRef90-F8AF48 UniRet90-EOWMP2 UniRef90-H9AXK6 UniRef90-D5U228
UniRef90
N6ZDS5 UniRef90-Q32593 UniRef90-E7BJG4 UniRef90-Q36825 UniRef90-M1E6K1
UniRef90 LON854 UniRef90-O28635 UniRef90-C5H391 UniRef90-Q3ZTM2 UniR Ref0-W016Q3 UniRef90-Q29Z96 UniRef90-IOJU35
UniRef90 C7AQS UniRef90 C7AQS5
UniRef90
W5RG27 UniRef90-O78526 UniRef90-A3F4N4 UniRef90-S6CME1 UniRef90_Q29z63
UniRef90_Q6L5W7 UniRef90_B6RIDO UniRef90-C1JFJ9 UniRef90_C6FFX9 UniRef90-Q32260
UniRef90-Q8WK40 UniRef90-Q29Z84 UniRef90_R4TKK
UniRef90_S6DLT3 UniRef90-G3EJJ8 UniRef90-H81700 UniRet90-EOWH92 UniRef90-H1Z445 UniRef90-Q946N3 UniRef90-O46976 UniRef90-UPIO0037238A6 UniRef90-K4LFC4 UniRef90-V7AWJ9 UniRef90 C3M192
UniRet90 A3CV55 UniRef90-W2E2YO UniRef90-E6MJM2 UniRef90-H8XBR9 UniRef90-UPI0004689AF5 UniRef90-A717B2 UniRef90-W5UGA7 UniRef90-Q2FSY4 UniRef90-UPIO0046ED4B5 UniRef90-A0B9K9 UniRef90-B9KXE5 UniRef90-O46970 UniRef90_C5H378
UniRef90_Q4QST2 UniRef90 C 5 H 372 UniRef90-M1ZKA3 UniRef90_D3SZ13 UniRef90_UPIOOO369EF47 UniRef90-UPI000364E063 UniRef90_UPIO0036C978B UniRet90-C9R9G7 UniRef90_UPI000479B9BF UniRef90-A6CPII UniRef90_E7DY67
UniRef90_IOBLM9

180
190
200 FRVLAKALRLLGGDHLHTGTVFGKLEGDRPATLGWIDLLL FRVLAKALRMSGGDHIHSGTVVGKLEGEREDTLGFVDLLR FRVLAKALRMFGGDH1HAGTVVGKLEGEREMTLGFVDLLR MLALAKDYRLLGVDQLHDGTVVGKMEGGEKEVKADRDEIV FRVICXWMRMXGVDHIHAGTVVGKLEGDPLMVXGFXXXXX FRVLAKGLRLSGGDHIHAGTVVGKLEGEREVTLGFVDLLR FRVLTKMLRLSGGDHLHSGTVVGKLEGDRDATLGWIDLMR XXXXXXXXXXXXXXXXXXXVGKLEGEREMTLGFVDLLR
XXXXXXXXXVM MFTVAKLYRVDGUDQLHVGTPVGKLEAKADDVIRNARVLR FRVLAKALRLSGGDHIHAGTVVGKLEGERDVTLGFVDLL FRVLAKCLRLSGGDHLHAGTVVGKLEGDRSSTMGFVDQLR LKVLTK KLARMAGVDHMHVGTGVGKMAGDKAEVMELRDVCR FXVICKWMRMAGVDHIHAGTVVGKLEGDPLM|LKGFYNTLL MFVLAK LYRVDGVDQLHDGTGYGKLEGGMWEVVQYAKTLR FRVLAKALRLSGGDHLHTGTVVGKLEGDRAATEGWVDLIR MLTLAKVYRL LGVDNLHDGTAVGKMEGSAKEVSKDRE FRVMAK WLLRLAGVDHLHTGTAVGKLEGDPMTVQGYYNVCR FRVLAKMLRLSGG
FRVLARALRMSGADHTHSG
FRVLAKCLRLSGGDHLHSGTVVGKDEGERAPTLGWIDDMR LYLLTKLARLAGLDQLYDGDIDKHFHEKKKELMALHDCCV MFVLAKAARMVGVDQUTGTAVGKMAGDYEEVKRUNGFLL FRVIAKWMRLAGVDHIHAGTVVGKL
FRVICKWMRMAGVDHIHAGTVVGKLEGDPDMMKGFYNVLL MFVLAKLYRVIGVDQLHVGTAGGKLEGGRLDVIRCAKILR FRVIAKWLRLAGVDHMHAGTAVGKLEGDPMTVQGFYNVCR FRVICKWMRMAXXXXXXXXXXXXEGDPLMIRGFYNTLL
 MLVLSKLLRFSGVDQLHDGTVVGKMEGDRDDVLVCHEAL FRVLAKALRLSGGDXIHAGTVVGK
 FRVIAKWCRLMGVDHVHAGTVVGKLEGDPATTRGFYDTLR FRVICKWMRMAGVDH1HAGTVVGKLEGDPLMMRGFYNTLL

 FRVLAKALRMSGGDHLHSGTVVGKLEGEREDTLGFVVDLLR FRVICKWMRMAGVDHLHAGTVVGKLEGDPLMVKGFYNALL FRVLTK
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX FRVLTKMLRLKDGDHLHSATVVAKLEGDPRATLGWIVDLIR FRVICKWMRMAGVDHVHAGTVVGKLEGDPAMMKGFYNTHL FRVLTKVLRLSGGDHLHSGTVVGKLEGDRASTLGWDDLLR
 XXXXXXXXXXXXXXHUHAGTVVGKLEGDPLMLKGFYNTLL FRVICKWMRMSGVDHIHAGTVV
FRVIAKWMRMVGVDHIHAGTAVGKLEGDPPTVQGYYNVCR FRVIAKWMRLAGVDHI HAGTAVGKLEGDPKTVQGYYNVCR MPVIAK TRMVGGTNLHDGTYSGKMERNDSDVDRSRDILR FRVLTKILRLSGGDHLHSGTVVGKLEGDREATLGWIDUMR MRPLARLVRLSGGDQLHTGTI SGKMGHSPEELKRDNELLK FMAYQKLWRLAGVDHMHVNGLRNKFSEPDDSVIASARGCL FRVICKWMRMAGVDH1HAGTVVGKLEGDPLMVKGFYDVLL PLLLGK MMRTAGADLSLFPSPYGSVMPKEENMGTRDALR
 MQFLAKMMRLVGVAQTHTGTAVGKLVGTRAEATVLADMLR PVLLGKLMRLAGADLVLFPSPYGSVVMPKEENMAIKQALT NLIGAVLPRIAGTDMIABTPYGKFPMQMDTFSSVGYKML FRVLTK LRLSGGDHLHTGTVVGKLEGDRESTLGWIDLLR MYFLAKLMRLDGVSQUHTGTAVGKLTGTKTESVALADLLR FRVLAKALRLSGGDHLHSGTVVGKLEGEREVTLGFVDLMR MRPUCRLVRMLGGDQLHTGTVSGKMEHDVTELRG FTAYQKLCRLAGVDHLHCNAIDSKFYESNESVDQSAKDC MLVIAKLVRMAGGTNLHTGSYVGKMASDDEENDQCRDACR FRAYQKIWRLAGVDHLHVNGLANKFWEPDDSVVRSDHDM FRVICKWMRMAGVDHIHAGTVVGKLEGDPLMVKGFYNTLL FRVIAKWCRLDGVDHLHAGTVVGKLEGDPATTKGFYDTLR X X X X X X X XXXXXXXXXXXXXXXXXXXXXXXXXXX FRVISKWMRLAGVDHTHAGTVVGKLEGDPATTKGFYDILR ELYNAKLQRLAGCDUINDCVPYGKLPMLKHKYVR\|YEMCM MRVIAQLSRLCGVDHIHTGTAG LGKLANEDTPGI NDWL SVLLGQLMRLAGADLVLFPSPYGSVTMPRDENMA $\downarrow$ RDELV FRVIAKWLRLAGVDHLHAGTAVGKLEGDPMTVQGYYNVLR FPAYQKFWRLAGVDHLHTNGVRNKFCETDTSVIQSIHQACL SLLLGKLVRMSGADFSLFPSPYGSVALDRNEALGTAEYCL

 UniRef90_Q93A92 UniRef90_Q8H980 UniRef90_Q29Z92
UniRef90_LOLOG3 UniRef90 F8AF48 UniRef90-EOWMP2 UniRef90-H9AXK6 UniRef90_D5U228
UniRef90_N6ZDS5 UniRef90_Q32593 UniRef90_E7BJG4 UniRef90_Q36825 UniRef90-M1E6K1 UniRef90-LON854 UniRef90-C5H391 UniRef90-Q3ZTM2 UniRef90_W016Q3 UniRef90_Q29Z96 UniRef90_IOJU35
UniRef90_C7AQS5 UniRef90-W5RG27
UniRef90_O78526
UniRef90-A3F4N4
UniRef90-S6CME1
UniRef90_Q29L63
UniRet90_Q6L5W7
UniRef90_C1JFJ9
UniRef90-C6FFX9
UniRef90-Q32260
UniRef90-Q8WK40
UniRef90_Q29Z84
UniRef90_R4ITK6
UniRef90_S6DLT3
UniRef90_G3EJJ8
UniRef90-H81700
UniRef90-EOWH92
UniRef90-H1Z445
UniRef90-S2KHX8
UniRef90 Q946N3
UniRef90_O46976
UniRef90_UPI00037238A6
UniRef90-K4LFC4
UniRef90-V7AWJ9
UniRef90_C3M192
UniRef90-W2E2Y0
UniRef90-E6MJM2
UniRef90-H8XBR9
UniRef90_UPI0004689AF5
UniRef90- A717B2
UniRef90_W5UGA7
UniRef90-Q2FSY4
UniRef90-UPI00046ED4B5
UniRef90_A0B9K9
UniRef90-B9KXE5
UniRef90-O46970
UniRef90_C5H378
UniRef90_Q4QST2
UniRef90_C5H372
UniRef90-M1ZKA3
UniRef90-D3SZI3
UniRef90_UPI000369EF47
UniRef90_UPI000364E063
UniRef90_UPIO0036C978B
UniRef90-C9R9G7
UniRef90_UPI000479B9BF
UniRef90_A6CPI1
UniRef90_E7DY67
UniRef90_IOBLM9


## EAFVPEDRARGVFFDQDWGSMPGVFPVASGGDHVWHMPAL <br> K S WHNFKPVFPVSSGGLHPGLIPDI

CSKTETNDPEGDFFDQXXXXXXXXXXXXXXXXXXXXXXXX ESDTDINLPQGLFFAQNWASLRKVVPVAS
ESSYVPDEKD IFH DKQEFHHUKPAMPVSSGGLHPGNVAGV
ERHIEEDRSKGLFFTQDWGYMPGMFAVASGGI HVWHMPSL
E DQLEDVPANESRFEQKWYEDKPVLAVASGGLHPGHVPAV
DSYTK QDLPRGLFFDQDWADMRKVMPVASGGUHAGQMHQL
DSYVKEDRSRGDFFDQDWGAMPGMFPVASGGDHVWHTPAL MDKVKGNEKMHU LPQNWDGIKPMFPVVSGGYVPALIPEL

S E WE H $\square K P \square F P V A S G G L H P G L M P E L$
EAD DS DNDPEGLFFEQNWAS LRKCMPVASGGDHCGQMHQL EQSFTPDPEDPFHLDPDMRHIKPAMPVSSGGLHPGNLPPV DTFTRQDLPRGLFFDQDWASLKRVMPVASGGIHAGQMHQL




DTHTKVDLLRGNFFEQDWGALRKVMPVASGGDHAGQMHQL ESFTRMDLERGVFFDQDWCDIRKVMPVASGGIHAGQMHQL EPWNDF
D S Y $\square$ KEDRSRG $\square$ FFDQDWGAMPGVFPVASGGI HVWHMPA
TPMFE $\quad P$ PAPGCEVMPVFSSGGLAPGQKVVAEM D A Y DEKDRDRGVFFTQDWAS LPGVMPVASGG


GKWLHFKPTFPMPGGGVMPAVVPA
 EKHT NAVDHMALDQDWGNTKSAFPVSSGGLHPGLVPDV T GQGKDY 1 SGNTGDQSSEGPLKPSDPVPSAGUYPGLVPLI ESYVPENRSRGDFFDQDWGSMPGVFAVASGGDHVWHMPAD EGWNTDD QQAQQTIKASFPVPSAGIHPGMTPLL KQKI QEVSHQCLAQDWGTIKTAFPVSSGGLHPGLVPDV DDYVEKDRNRGDYFTQEWCSMGGTLPVASGGI HVWHMP DNLALTEPFFDDKPTFPVASGGLHPGGVHKE E
 AD HVPTNPGNGUYFDQDWASMPGVMPVASGGUHAGQMHQL XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX EDHNPLK LEHGDFFEQHWASLNKVMPVASGGDHAGQMHQL AKF

Y HLNDTFVNVVAGVHPGMVPQL
RTDLPDQ

EQKNAVDLQRGDFFEQDWGDMLKVMPVASGGIHAGQMHQL GF GNASPVSGDLLRPQDWGEKSPMPVLSSGQWAGQTVDTY

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

UniRef90 O46972 UniRef90－F5B8Z7 UniRef90－LON864 UniRef90＿O46968 UniRef90－O58632
UniRef90 B6CWX UniRef90－A4GGX0 UniRef90 Q29Z69 UniRef90－O7853 UniRef90 O8MDV4 UniRef90 S5z8V0 UniRef90－A5X4E8
UniRef90 A3F4N2 UniRef90－NoBMV6 UniRef90－Q31862 UniRef90－B6RID4
UniRef90 ${ }^{\text {DRREY }}$ UniRef90 ${ }^{-}$G3EJI5 UniRef90－${ }^{-}$ UniRef90－UPI00034DDFC4 UniRef90＿Q93A92 UniRef90－Q8H980 UniRef90－Q29Z92 UniRef90＿LOLOG33 UniRef90－EOWMP UniRef90－H9AXK6 UniRef90－D5U228 UniRef90 N6ZDS5 UniRef90－Q32593
UniRef90 E7BJG4 UniRef90 Q36825 UniRef90－M1E6K1 UniRef90－LON854 UniRef90＿O28635 UniRef90 C5H391 UniRef90＿－Q3ZTM2 UniRef90－WOI6Q3 UniRef90－ 10 JU35 UniRef90－C7AQS5 UniRet90＿W5RG27 UniRef90 O78526 UniRef90＿A3F4N4
UniRef90
S6CME UniRef90－Q29Z63 UniRet90＿Q6L5W7 UniRef90－B6RIDC UniRef90＿C1JFJg UniRef90 C6FFX9 UniRef90＿O32260
UniRef90＿O8WK40 UniRef90 Q29Z84 UniRef90 R4ITK6 UniRef90－S6DLT3 UniRef90＿G3EJJ8 UniRef90 H81700 UniRef90－EOWH92 UniRef90－H1Z445 UniRef90 $\mathrm{Q946N}$ UniRef90－046976 UniRef90＿UPIO0037238A6 UniRef90 K4LFC4 UniRef90－V7AWJ9 UniRef90－C3M192 UniRef90＿A3CV55 UniRet90＿W2E2Y0 UniRef90－EGMJM2
UniRef90
H8XBR UniRef90 UPI0004689AFs UniRef90 A7I7B2 UniRef90－W5UGAT UniRef90－Q2FSY4 UniRef90 UPI00046ED4B5 UniRef90－A0B9K9 UniRef90－B9KXE5 UniRef90－O46970 UniRef90－C5H378 UniRef90－Q4QST2 UniRef90＿C5H372 UniRef90 M1ZKA3 UniRef90－D3SZl3 UniRef90－UPIO00369EF47 UniRet90＿UP1000364E063 UniRef90 UPI00036C978B UniRef90－C9R9G7 UniRef90＿UPIO00479B9BF UniRef90 A6CPI1 UniRef90 E7DY67 UniRef90＿IOBLM9
 VA】FGDDAVLQFGGGTLGHPWGNAAGAAANRVALEACVEA

LNY【GDDVVLQFGGGTTGHPDGПQAGATANRVALEAMVLA VEILGRDLIIQAGGGVHGHPDGTRAGAKAMRAAIEAIIEG XXXLGDDVVLQFGGGTIGHPDGIQSGATANRVALESMVLA TDV G GDSVLQFGGGTLGHPWGNAPGAVANRVALEACVQA GLIFGDDSVLQDGGGTPGHPAAGAAAVVLARALEACGQA LDYLGDDVVLQFGGGTIGHPDGDQAGATANRVALESMVIA IKAMGMD VVIVGGGTLGHPDGPRAGAAAVRQALEAYMT
VT FGDDSCDQFGGGTQGHPWGNAAGAAANRVSEACVKA IELIGGVDVIIQAGGGVHGHPDGSEKGAMALRQAISAVLE XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXMA

TDA鸟GED\QVGGGVMGHPDGPKAGAKAVRQALEA TK $\square G$ VSIFGDDAVLQFGGGTLGHPWGNAAGAAANRVSVEACVKA VDLLGKDVVIQAGGGVHGHPEGTRAGAKAMREALEAKMQG LNLFGDDVILQFGGGTIGHPAGDQAGAVANRVALECMVKA
 MNVFDKDVI TDCNSGIYSHPMGCAAGAKSCRQVIEAVLAG $\square R L F G R D L V I Q V G G G V M G H P D G P R A G A K A L R D A \succeq E A A L E G$

TDALGKEIVIQVGGGVLGHPMGAKAGAKAVRQALDA ITSA LDLFDDDVILQFGGGTI GHPLGTAAGAEANRVALEAMVKA LDYLGEDVVLQFGGGTIGHPDGIQAGATANRVALESDVDA I DALGTELVLQDGGGTLGHPDGPKAGAMAVRQALDAIIQG VADFGDDSVLQFGGGTLGHPWGNAPGATANRVALEACVQA


VNTFGDDAVLQFGGGTTGHPWGNAAGAAANRVALEACVRA TEIFGDDSVLQFGGGTLGHPWGNAPGAAANRVALEACVQA FSIFGDDSVLQFGGGTLGHPWGNAAGAAANRVSLEACVEA LHHLGEDVVLQFGGGTI $L D Y L G D D V V L Q F G G G T V G H P D G D Q A G A T A N R V A D E S M V M A$
$V T I F G D S V Q F G G T L H P W G A A G A A N R V A L E A C V A$

LDYLGTDVVLQFGGGTTGXXXXXXXXXXXXXXXXXXA IDYLGDDVVLQFGGGT GHP
CSUFGDDAVFQFGGGTLGHPWGNAAGAAANRVADEACDEA
$\square D \square F G D D V V L Q F G G G T \square G H Q G \square Q A G A T A N R V A \square E A M V Q A$ LD
LDHYG DDCLQAGGG VNTFGDDSVLQFGGGTLGHPWGNAAGAA
SGLGCDVVLQAGGGMHGHPDGTESGARAMRQAVDAYME RTIGSTDLIFCAGGGUMAHPGGDGAGVRSLRQAWDAAVQG
VYF LGDXXXXXXXXXXXXXXFMRGATAFRVAMEG ILA LRDFGREVVVNAGGGVHGHPQGAAAGGRAFNQAMDATLQG IRDLGKDCILGAGGAIHGHPMGPIVAGGKAMRQAIDAALQG TEDFGDDFVLQFDGGTLGHPWGNAPGA
 MRDFGKEVVVNAGGGVHGHPMGAASGGRAFRQAIEAASR ПKKFGNDVMIAAGGAIHGHPMGPAAGARAFRQGUDEVMNG VNILATTRCC
YEDFGTESTMNAGGGПHGHPQGADAGGRAFRQATS\｜LSSG LD पYGTDLVLLVSGGIHGHPKGTRAGAKATMQA EAWQ
VSmLGRDILQAGGGTHGHPDGTRVGATAMRQAVDAAVAG ASMET TDVMHLAGGGILGHPSGDEAGVKSMMQGWEAAVSG LDGYGIDCIVQAGGGVHGHPDGTTAGARAMVQAVEAWLSG RRCRTDDLLYLAGGGIFAHPHGVAAGDRADREAWEAAVAG LNYLGXXXXXXXGGGXXGLPDGSLSGATANRVAMECVLLA VDLDEDVILQFGGGTVGHPLGUAAGAEANRVALEADVQ LDHLGEDVVLQFGGGTIGHPGGDQAGATANRVALEAMIFA VGDLGTDIII GAGGGVHGHPMGAVAGGKAFRQAIDATI N
 NAIKSTDVMYVCGGGIVAHPDG\｜AAGVKSII QGWEAAIK
 YRDFGTDSVINAGGGVHGHPDGAAGGGKAFNQAI DAVLKG LDYGGNDVVLQFGGGTIGHPDGDQAGATANRVALEAMVIA

KYEGKDYDNEGPKTLRAAAETCAPLRSADBDWKDTAFNYT RNQGRELEKDSKDILTNAAKSSPELKTAMETWKEIKF

RNEGRDY LDAEGPA $\quad$ LLQEAAKMCGPLQTALDDWKGDSFNYS KS LLEEKAEEVAELKKALEYWK
RNEGRD
RNEGRDLA
RNEGRNLEKEGRTSEPRRPSHSPDSRRPWRTGKE $\square$ KF
RNEGPDLAREGNEIIRREASKWSP

RNEGRELEKEAAD LLSEAAARSPELADAM
GVDLEDYAKSHSELARALERWGRVS
RNEGRDYLSEGPQSLRDAAKTCGPLQTALDLWKDISFNYT

$\square \mathrm{D} P \mathrm{C}$
RNEGRD $\square A A D G P E \square L R A A A Q F C T P L K Q A L D T W G E \square S F N Y A$
RNQGRDTEKEGKD LLTVAKHSPE VKAAMETWKE $\square$ NF


RNEGRDYVAEGPQ L R DAAKSCGP LQTA
$\square P$
RNEGRD $\square$ ASEGPQ LLADAARWCQPLRAALDTWGDITFNYT
RNEGRS $\square R$ NEGP
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXKD■TFNYT
$\square S \quad$ LKEGAKSSKALELALSKWG

RNEGRDYVAEGPQXXQDAAK
RNEGRDYVAEGPQXXQDAAK ATR VQVEREGKKSLRTGAHSPELR
RNEGRDLMREGGDVI REACRWSPELAAACEDWKEDK
RNEGRDLAREGNEII RNAAKWSPELGSACEVWKEIK
RNEGR
RNEGVNDEKAGQEVLSEAAK
RNEGRDLAREGNEII KAAAKWSPELA
RNAGRELEKEGKDiLJAEAAKHSPELTTAMETWKEDKFE
RNEGRNYVAEGPQ!LRDAAKTCGPDQTAXDDWKDDSXNYT RNQGRALEKEGKDILTAAAANSPELK IAMETWKEI

R NAGRE
RNEA

| A P |  |  |
| :---: | :---: | :---: |
| V R | GLTAQEYAKDHTELRKALEKWG LIEDYATEHHELAQALEAFR |  |
|  |  |  |
|  |  |  |

NNFEQE!

## S S H TELQTA $\square \mathrm{D}$ T WG

$\begin{array}{ll}1 & \text { S P A } \\ \mathrm{V} \\ \mathrm{l} \\ \mathrm{S} \\ \mathrm{D} \\ \mathrm{I} \\ \mathrm{K} & \mathrm{S} \text { E G }\end{array}$
TYAEDHPELKRALDKWG
ITNEYAKTHTELKQAI EKFG
VMEYAERHKELKRALERWG
KYEGKDY $\square$ NEGPK $\square$ L RAAAESCA P L R TA A L D D WK D $\square$ AF NYT
RNEGRD $\square$ AREGNE $\square \square R K$ ASKWSPE $\square$ AAA
R N S G
N $\square \mathrm{P}$ LRKYAETHKELKAALDVWG

LADYAESHPELKAALEDWG
RNEGRNDAVEGPETLRAAAKWCKPLEAALDTWGNDSFNYT
QSFQEVARRE
1 S
G IDLETYSEDHAELKKALKFYGNLS
S LKQAAETNEDLK LADDLWGA



UniRef90 Q31785 UniRef90 XOTIA2 UniRef90-G9EEI8 UniRef90_13XPD1 UniRef90 Q85VF1 UniRef90-G3MF02 UniRef90_UPI00046F3ADO UniRef90 Q31996 UniRef90- Q4QSS7 UniRef90-C6CYF7 UniRef90_K9DA60 UniRet90 UPIO0036E538A UniRef90-C1JFLO UniRet90-G5E4R3 UniRef90 Q95GW3 UniRef90-G3KET2 UniRef90-K014B7 UniRef90-Q7X0C7 UniRe990 O46973 UniRef90 A4ILL5 UniRef90-V6M6W5 UniRef90-Q1QSJ9 UniRef90 S2WZY6 UniRef90-GoWXP2 UniRef90-LOECD9 UniRef90 UPI000465982F UniRef90- F5A076 UniRef90-UPIO0036FE6FO UniRef90-F5A0Q1 UniRef90 B5TIS2 UniRef90-X2L979 UniRef90-A8FCG8 UniRef90-Q13K83 UniRef90-C13K83
UniRef90 UPIOOO378C4E4 UniRet90_F2RM54 UniRef90 G8TNH2 UniRef90-Q1YLC2 UniRef90-Q5WQ13 UniRef90_W1PD34 UniRef90 D7AAR4 UniRef90-13E804 UniRef90-T1X8D UniRef90- UPIO0047A6104 UniRef90-Q8KBL4 UniRef90-W1N853 UniRef90 Q1YDM7 UniRef90-B5EKK0 UniRef90 UPI00047E4C62 UniRef90 NoDLVO UniRef90- G2DXM6 UniRef90-V5W8P0 UniRef90-A9CVC3 UniRef90 F8GV07 UniRef90-Q0GQ15 UniRef90-UPI0003B3ACA8 UniRef90 G3EJL3 UniRef90-UPI0003708ADC UniRef90-O85WD8 UniRef90- ${ }^{-} 6$ L4C2 UniRef90 UPI0002D69357 UniRef90-E4NPX6 UniRef90-K9RK11 UniRef90-W4QFX6 UniRef90-LOKU91 UniRef90_UPI0002883EF9 UniRef90_O9GGR4 UniRef90 B3EFPO UniRef90-F4LRZ3 UniRef90_S9QDJ1 UniRef90 Q32318 UniRef90-A1AWY1 UniRef90 W1 WTC5 UniRef90 Q21YM9 UniRef90-E7CQ92 UniRef90-M1YY16 UniRef90- x2L1L0 UniRef90-Q60FK5 UniRet90-×2KYB1 UniRef90 V4JLW9 UniRef90-COCYW8 UniRef90-WOF514 UniRef90 ${ }^{-}$Q4KYY4 UniRef90 UPIO0046641E6 UniRef90_UPIOO04742E57 UniRef90-UPIO00304F626 UniRef90 B1G890 UniRef90-W4HGZ4 UniRef90_GowXNo

PATGUVCERERMDKFGRPF|LGATVVKPN|LGUVGKNYGRVVIV PRYGI K GLLRKKFKIKNRPFVGTIVKPKVGLTPSEHARVAY

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

PKYGLEGVRQLLGVHDRPLLMSTFKSVVGHDLPNDQEQFY P Q F GVA GTRRLAGVYDRPMI GTIIKPSVGLSPEATAEQVR $P Q F G L A G S R K L T G V Y D R P\|I G T\| V K P A L G L R P Q E T A E L V G$


PRFG\AG\REKVGVYDRPLLMS\FKG\IGRDLAYDTSEDK PKFGI DGLRNRLGAHDRPLLMSIFKSCL GLPFDDLKTQFR PQFSIEGTRRLCGTEQGPLVGTIIKPSVGLTPEETATGVK PAFGVSGTRRMAGVHGRPLIGTIIKPSIGLTPDQTGELVD
PKFGTEGVRKQLGVENRPLLMSTFKSVIGHDLPNLREQFF PKFGIEGLRKWTGVQDRPFVMSIFKGILGKDLSFLLHQLE P K F G $\square$ Q G VRE L LDDVP H R P L L M S I I F K S V PACGLIVERERMDKF GRPLLGATVKP KLLGLSGKNYGRVVF
$P$ VFG $\ \mathrm{DG}$ GRKKTGVFDRPLLMS IFKGVIGRDMTDLKEQLR PRFGI DGLREKLDVVYDRPLLMSIFKGVLGKDMDFLTSQLR



PAFGVKGCRQLTNVQDRPLIGTDIKPSDGLTPEQTADMVK $P Q F G\|A G S R Q L M G V E E G P M\| A S I \quad I X P S L G L L P D E T A A V V A$

P K F GVAGTRRLAGVEGRPLIGTVVKPSVGFGPQETADLVE
 PRAGI A GTRRTTGVASGALVGTIIKPNVGLSASETAALVA

 P K F Gil E GL L R D L N A H G R P I F F GVVVK P N G L S P G E FA E I A Y


 PRFGVEGIRDMLQAY DRPIVFGVIKPNIGLPPDVFSDLGY

PQFGAD GTRELMGGHEGPVIGTVIVPSVGLSPSETAELVQ PAF G $\square$ D G T R K L A DVT T G PL I G T I I I K P $P R Y G \square D G \square R E T \square G V T G R P L V M S \square F K A M L G R D L S Y F Q Q Q L R$ P K F G VQ G $\square R E L T$ G A Y D R P LVMS $\square$ F K G V I G R D L S Y M E R Q L K K N Y GRAVV PGFGTAGTRRLTGVADGPLIGTVVKPSVGLTPEGTATDVD PAF G IDEGTRRMSGVRRGPLI GTIIKPSVGLSPDKTAEQVK




P K F G IVEG IR D I LQA Y D R P $\square F F G V V K P N \square G L K P S C F A E \prod A Y$ P NF GL E GVVRKLTGVY DRPLVLDMIKPCTGFSPKVGAKI FY $P K F G L P G T R E L A G V A D G P L I G T \square V K P S \square G L D A G Q T A A V V Q$

G G Y $\square \mathrm{A}$ G T I I K P K L G LR P K P F S E A A Y P K F GAE GT R R LA G VK D R P L I G T I K P S V G F S P G E T A A L V K $P$ R Q GVA G T R A L W PRFG $\square$ Q G V R D L L Q M K D R P L L M S $\square F K$ Q C $\square G L S L D E L E E E Y R$

 P E F G V E G CR K L T G V A S R P L I GT II K P S VGLLSVT E TA DLVK

PKFG\NG\RD\LHAYNRPLLNNMDKPCTGYTPDVGEKLFY PREGI E GI R E KL K K V Y D R P LV M S I F K G VI G R DMD YLITE QL R
 PAF GI E GTRRLSGVAHGPLIGTVIDPSVGLSPVETAQQVR


## UniRef90 Q31785 UniRef90_XOTIA2 UniRef90_G9EEI8 UniRef90-I3XPD1 UniRef90_Q85VF1 UniRef90-G3MF02 UniRef90_UPIO0046F3ADO

 UniRef90_Q31996 UniRef90_Q4QSS7UniRef90_C6CYF7 UniRef90-K9DA60 UniRef90-UPIO0036E538A UniRef90_C1JFL0 UniRef90-G5E4R3 UniRef90-Q95GW3 UniRef90_G3KET2 UniRef90_K014B7
UniRef90 ${ }^{\text {Q7X0C7 }}$ UniRef90_O46973 UniRef90-A4ILL5 UniRef90_V6M6W5 UniRef90-Q1QSJ9 UniRef90_S2WZY6 UniRef90_GOWXP2
UniRef90_OFCD9 UniRef90-UPIO00465982F UniRef90-F5A076 UniRef90-UPI00036FE6FO UniRef90_F5A0Q1 UniRef90_B5TIS2 UniRef90-X2L979
UniRef90 A8FCG8 UniRef90-A8WDQ7 UniRef90_Q13K83 UniRef90_UPI000378C4E4 UniRef90_F2RM54 UniRef90_G8TNH2 UniRef90_Q1YLC2 UniRef90-Q5WQ13 UniRef90_W1PD34 UniRef90-D7AAR4 UniRef90-I3E804 UniRef90-T1X8D1 1 UniRef90_UPIO0047A6104 UniRef90-Q8KBL4 UniRef90-W1N853 UniRef90-Q1YDM7
UniRef90-B5EKK0 UniRef90_UPI00047E4C62 UniRef90_NODLV0 UniRef90-G2DXM6 UniRef90-V5W8P0 UniRef90-A9CVC3 UniRef90_F8GV07 UniRef90-Q0GQ15 UniRef90-UPI0003B3ACA8 UniRef90_G3EJL3 UniRef90_UPI0003708ADC UniRef90-Q85WD8 UniRef90-X6L4C2 UniRef90-UPIO002D69357 UniRef90_E4NPX6 UniRef90-K9RK11 UniRef90-W4QFX6 UniRef90-LOKU91 UniRef90_UPIO002883EF9 UniRef90_Q9GGR4 UniRef90_B3EFP0 UniRef90_F4LRZ3 UniRef90_S9QDJ1 UniRef90_Q32318 UniRef90-A1AWY1 UniRef90-W1JTC5 UniRef90-Q21YM9 UniRef90_UPIO00375486A UniRef90-E7CQ92 UniRef90-M1YY16 UniRef90-T1WZS4 UniRef90_X2L1L0
UniRef90_Q60FK5 UniRef90- X2KYB1 UniRef90_V4JLW9 UniRef90-COCYW8 UniRef90-W0F514 UniRef90_Q4KYY4 UniRef90_UPIO0046641E66 UniRef90-UPIO004742E57
UniRef90 UPI000304F626 UniRef90-B1G890 UniRef90-W4HGZ4 UniRef90_GOWXNO

E G L K G GLLDFJLKDDENTNSQPFMRWKERYLYSMEGVINRA T ${ }^{80}$ ESWIGGCDUVKDDENLTSQNFNEFKKRFLFTTALRKKAEK QLVAGGDDFIKDDELQANGPHNP LRARVDADMPIDNAHAE K DDENINSQPFMHWRDRYLYCMEAVNHASA XXXXXXXDFTKDDENVNSQPFMRWRDRFLFCAEAIYKAQA KDDENVNSQPFMRWQNRFEFVAEAVIKAQQ QAAVGGVD DK DDEXVANPPHCPLIERDVKVMPAIVDADK X X X X X X X X X X X X X X X N S QPF MR WKERYLY SMEGVNRS $\square A$
KQADGGVDLIKDDEDLFENPDTPDEKRVEVCMEAARKAQQ ALVEAGVDFI KDDELQADGPHCPFEARISAVMRVINDHAD ELIUQSGVDFIK DDEKLMSPVYSPDKERVAAIMPKILDHEQ KDDENI NSQPFMHWRDRYLYVMDGVMKASA DFTKDDENINSAPFQRWRDRFLFVAEAI KESQA KDDENDNSQDFMHWRDRFLYCTEAVHRAEE $R \square C A A G V D F \square K D D E V C A N P V H A P L A D R D K S V M R R V R A H Q D$

Y VME GVNRSAA $K Q A L G G V D L V K D D E D L F D E L D P F E K R D T A G K A A L Q E V Y E$
 SLCAADUDFIKDDELIADPPYAPFDERLRAVMPVLQRHAD RQALGGVDLIKDDENL NSQPFMHWRDRFLYCMEAVNKAEA QQARGGVDFVKDDEILFDNELTPFEERITKGREVLEKVYS ECLRGGLDFTKDDENVNSQPFMRWRDRFDFCQEALEKAER A QALGGVDLDKDDE LLFENLLTPGEQRVRACYEAAQEAEQ EAARGGLDFTKDDENINSQPFQRWRDRFLFVADAITKAQA E GLKGGLDF LKDDENLNSQPFMRYRERFLYSMEGVNHAAC LQA LGGGVDFTKDDETLFESPLARWRDRFLFCAEAIYRAQS EQALGGIDLVKDDEILFENRLTPFEARITEGKEVLRQVYE

 DLCAAGVDFIKDDEKLMSPAYSPLEQRIAAIMPVIRDHEQ GLLDTKDDENVNSQPFMRWRDRFLFVQEAIEKAEA

LLA E GGDDFVKDDELQSDGPHCPFEERVRAVMRVVNDHAD EQAKGGVDIVKDDEIDFKNEDTPFEKRITEGKKVLREVFE RLCAAGVDFI KDDEVCADPAHAPLAERVPAVMAVVRAHQE QVAQA GLDIIKDDEILGDDATAPTLKRLEACRQVI EEDQQ EQGLGGVDVVKDDEILFENELTPGTDRVKVCKEALRQSYE


 QQALGGVDLIKDDE ILFENPLTPLEKRVEACMDAAREAER QSWLGGLLDIAKDDENLNSQPFMRWKERFLYCMEGVNRSAA TLEAGTDFTKDDEDQANGPHMRWRDRFLFVQEADEKSQA ELQANGPHCPFEERLKLVSRVINLHAE ELVAGGIDF IK DDELQADGSFCPFDERVSAVMRVVNEAAQ
 A
K G G L
 MLVDGGI DFI KDDELQADGPHCPFEERVTAVMRVVNDAAQ EAWLGGVDLLKDDENLTDQSFNPYHDRLVESLAALRDDAED QVAYAGLDI IKDDEVLGDDDVAPTDERLKACRQVDDEDKQ GQALGGVDIVKDDEILGENELTPLTNRIRVCKEALKESEE
 SQPFMRWRDRFCFVAEAIFKSQS ETALGGVDLIKDDELLGNPNFCKAVDRVKEYNEAAKAALE ELAEAGIDFVKDDELQADGPNCPFEDRVRAVMRVINEHAD QF WLGG DF $\square$ KNDEPQGNQVYARMKERTYME GVNRSA TLCEAGDDFIKDDELQADGPHCPFNDRVAAVMREMNSNAD
 TLCAGVDF $\square K D D E V M A N P P N P L A A R V A Q V M K V I A H A Q$ K Q $\quad$ EGGVDLVKDDEUFFADGKAPADERVKRFEAGNRQREA

DF LPHDENLNSQPFMRWRERFLYCIAGINRGAA MRWRDRFLFCQEAIEKAQA
QA WLGGLD\AKDDEMLADPDWSPLRQRSALLGEARARAEQ ETALGGVDFIKDDELLANPDFCPAAKRVKAYNEAAKAAYE T LAAA A G $\square D F I K D D E L L S S S A N S K F E D R V A G \square M K V I N K H A D$

EASAGGVD\IKDDELIGDRVFNKDEDRVKANMAAAKRAEE A QAMGGVDLVKDDEILGDNELTPFEKRITEGKKVLDEVYK EQALGGVDLVKDDEILFENHHTPFEKRITRGRKVLQQVYE ELVAGGIDFIKDDELQADGPHCPFDERVRAVMRVVNAEAD


## UniRef90 Q31785 UniRef90-XOTIA2 UniRef90-G9EEI8 UniRef90-13XPD1 UniRef90_Q85VF1 UniRef90-G3MF02 UniRef90_UPI00046F3AD0

 UniRef90_Q31996 UniRef90_Q4QSS7 UniRef90_C6CYF7 UniRef90-K9DA60 UniRef90_UPI00036E538A UniRef90_C1JFLO UniRef90-G5E4R3 UniRef90-Q95GW3 UniRef90_G3KET2 UniRef90-K014B7UniRef90 Q7X0C7 UniRef90_O46973 UniRef90-A4ILL5 UniRef90_V6M6W5 UniRef90-Q1QSJ9 UniRef90-S2WZY6
UniRef90-GOWXP2 UniRef90_LOECD9

ASGEVKGHYXNVVTAATMEXXXXXXXXXXXX XXXXXXXX
 VTGEVKGHY LNVTA GTMEEMYRRAEFAKELGGSVIVMVDD

 ETGQKLLYAVNLTGPT SQDAKRAVCARELGVPVVMHDYL ETGQKLLYAVNLTGPT SQQLASQARKADAAGANALLFNVL KTGKKVMYAFGI SHTDPDEMMRNHDLVLKAGGNCAVVNDN





RTGRKVMFAFNDTGEL DQMRRRHDVVLQHGGTCVMASLN TTGHRTLYAVNLTGRSSK LDR DQARKAAELGADVLLANVVF RTGKHVMVAFNITDET DAMKRHADLVEREGGSCVMASLN QTGRTVLYAVNVTGKA DQLIQKARLLVKQGANALLLNVL

 R

## K K

## A

## 

,
RTGRKVMYAFNVI S DE T D A A
ASGEVKGSYLNNITAATMDE


FTGEVKGHYL A ANTPEELY


A T G V P K V Y $L$ A $N$ I TM D


EMGHR T L Y A V N L T G R T F D L K
EKARKAAELGADALL F N V F

RTGKKAMVAFNLTGDLD DMMRRHDLVLAEGGTCVMAVLVN
TS GRRVMMAFNIT DET


## UniRef90 Q31785 UniRef90-X0TIA2 UniRef90-G9EEI8 UniRef90-I3XPD1 UniRef90_Q85VF1 UniRef90_G3MF02 UniRef90_UPI00046F3AD0 UniRef90-Q31996

 UniRef90_Q4QSS7UniRef90_C6CYF7 UniRef90-K9DA60 UniRef90_UPI00036E538A UniRef90_C1JFL0
UniRef90 G5E4R3 UniRef90 Q95GW3 UniRef90-G3KET2 UniRef90-K014B7 UniRef90_Q7X0C7 UniRef90_O46973 UniRef90-A4ILL5 UniRef90-V6M6W5 UniRef90-Q1QSJ9 UniRef90_S2WZY6
UniRef90_GOWXP2 UniRef90_LOECD9 UniRef90_UPI000465982F UniRef90-F5A076 UniRef90-UPI00036FE6F0 UniRef90_F5A0Q1 UniRef90-B5TIS2 UniRef90-X2L979 UniRef90-A8FCG8 UniRef90-Q13K83 UniRef90_UPI000378C4E4 UniRef90-F2RM54 UniRef90_G8TNH2 UniRef90-Q1YLC2
UniRef90-Q5WQ13 UniRef90-W1PD34 UniRef90-D7AAR4 UniRef90-I3E804 UniRef90-T1X8D1 1 UniRef90_UPIO0047A6104 UniRef90-Q8KBL4 UniRef9-W1N853 UniRef90-B5EKK0 UniRef90_UPI00047E4C62 UniRef90-NODLV0 UniRef90-G2DXM6 UniRef90-V5W8P0 UniRef90-A9CVC3 UniRef90-F8GV07 UniRef90-Q0GQ15 UniRef90-UPI0003B3ACA8 UniRef90_G3EJL3 UniRef90_UPI0003708ADC UniRef90_Q85WD8 UniRef90-X6L4C2 UniRef90_UPIO002D69357 UniRef90_E4NPX6 UniRef90-K9RK11 UniRef90-W4QFX6 UniRef90-LOKU91 UniRef90_UPIO002883EF9 UniRef90-Q9GGR4 UniRef90-B3EFP0 UniRef90-F4LRZ3 UniRef90-S9QDJ1 UniRef90_Q32318 UniRef90-A1AWY1
UniRef90-W1JTC5 UniRef90-W1JTC5
UniRef90- Q21YM9 UniRef90_UPIO00375486A UniRef90_E7CQ92
UniRef90 M1YY16 UniRef90-T1WZS4 UniRef90-X2L1L0
UniRef90-Q60FK5 UniRef90-X2KYB1 UniRef90-V4JLW9 UniRef90-C0CYW8 UniRef90-W0F514 UniRef90-Q4KYY4 UniRef90-UPIO0046641E6 UniRef90_UPIO004742E57
UniRef90_UPIO00304F626 UniRef90_B1G890 UniRef90_W4HGZ4
UniRef90_GOWXN0

150
160
XXXXXXXXXXXXXXANDMILHTHXXXXXXXXXXXXXXX TLGWGGLQTAR NFTKLPI HAHRAGHAMFDRNPNHGMT SVGLAA VAHDRRHCQVALHGHRAGWGMLSRSPHLGMA IVGWTA $\square Q S L S E W C R R N D M V L H M H R A G H G T Y T R Q K N H G \square S$ TGGFTANTTLAFYCRDNGLLLHTHRAMHAVIDRQKNHGMH TGGFCANTGLARWCRNNGMLLHIHRAMHAVIDRHPKHGDH $T V G D D V A R M I T E D P E D N V P$ LIGHSDYVGASTACEWCGTST VIGYTS $\backslash Q T M A \square W A R R N D M L H L H R A G N S T Y S R Q K \square H G M N$ VGGFTANTTMAHYCRDNGLLLHMUHRAMHAVYDRQKNXXXX SYGYDVLHELSKDSEDNVPIAAHPAMAGAFYPSPHYGDSA S 1 GLDPAMKMLRAHA QLPIHGHRNGWGMDGRSPAIGMS SIGMGG MAFVRKRSGLALHAHRNGWDVLTRHPGIGFD VIGWTA $\square$ QS IANWCRKHDMIMHMHRAGHGTYTRQKNHGVS TAGFTANTTLARWCRDNGLLLHIHRAVHAVIDRQKNHGIH IGYSA $\square$ QTMA $\square W A R A N D M L H L H R A G N S T Y S R Q K \square H G M N$ VIGYTAIDSMSKWARDNDMLLHLHRAGHSTYTRQRDHGMS WCGYSAVQTLR R RHTP LALLHGHRNGYGALSRHPLLGFS
TGGFCANTGLANWCRDNGVLLHTHRAMHAVLDRHPKHGDH
 TYGLDVLQGLREDENDNVPVMAHPAFSGAMTPSEFYGVAP AFGFDALHRLAADPDUNIPIMAHPALAGAYYPSPDYGIAT WIGLGA LAALRRHSQLAIHGHRNGWGVFYRHPQLGDS

 AYGLDTLHSLAEDSEGAVPIMAHPAVSGAFTPSPQYGLSN
 TAGFTANTTLSHWCRDNGVLLHDHRAMHAVIDRQKNHGIH V $\square$ GYTA $\square$ QSMAKWCRK $\square \mathrm{DCIL} \mathrm{C}$ LLHRAGNSTYSRQKNHGMN TGGFTANTSLANYCRDNGLLLHLHRAMHAVDDRHPKHGDH


 TGGFTANTTLSHYCRDHSLLLHDHRAMHAVLDRQKDHGMH SVGMAG VKK DCDQHQL S GYGGMTFLRKRSALC TLGWAAHQSLSKWCRDNGMLLHVHRAMHGVIDRNPKHGI N $S V G L V G$ MVE $V G R F T E D D H A H R N G W G Y L S R A P M L G W S$ SYGLDILQELREDDDDSLPIMAHPAFSGAITSSPYYGLSH WCGHSGMQTLR RHTGLALHGHRNGYGALSRHPLLGIS TYGFSVLEALAADPEDNVPIFAHPAFAGAMCASADTGLSY SYGLDVLQALAEEKE IHVPIMAHPAMSGAFDSSPEYGFSP

 $\begin{array}{ll}V G G P G M & T\end{array}$
 PVGLSAVRMLRKHAR QVPLIAHFPFDAPFSRLGNFGI H TGGFTANTTLAKWCRRNGVLLHDHRAMHAVIDRQRDHGU H SVGLTGLRAVRDRSP MIVHGHRAGWGLFSRSPDIGUS $S V G \operatorname{V} G L Q E L R \quad R H S Q L P I$ HAHRAGWGYLSRSPALGWD TMGFTAHTSLSRWCRDNGVLLHCHRAMHAVIDRQKNHGDH
 AYGQDVLQQELAKWARDNNMLLHLHRAGHSTYTRQKSHGVS
 SVGLAGLTALRRHCS LPIHAHRNGWGMLGRPSDSGWS $S V G L V G M N A L R \quad$ RHSALPI HGHRAGWGYLSRSPALGWD $T$
T G WAAV

 TAGFTANTTLAEYCRDSQCLMAHPAVSGTLTPSEFYGFSN $P V G \square S A V R M L A \quad K H T K V P L I G H F P F D A A F S R L E K Y G V H$ AVGYDMLHNLAK NGNVPILGHYAGAGMFYEGVLNGMSS


 SVGLAGMIELA KFSQLPDHAHRNGWGYLSRYPMLGWS
$V G G P G M V T$ WCGYGAI QSLR R RATPLALHGHRNGLAAAMARHPMLGIDD VLGYTAI QTAANWARENDMI HLHRAGNSTYARQKNHGIN
 TGGFTANTSLCKYCGDHGLLLHIHRAMHGVIDRQRNHGMH

 TVGGYS TFRA ISEQDP VPVMGHYAASGDSNEGLNSGLSS


 S $\square G L V G M H E L R R H A C D P I H A H R A G W G Y D S R C P E G G W D$ WCGLSGMETLR AHTPLAVGHRNGFGAMNRHPVLGMA
VIGYTADQSMAYWARRNDVILHLHRAGNSTYSRQKNHGMN

## UniRef90_Q31785 UniRef90-X0TIA2 UniRef90-G9EEI8 UniRef90-I3XPD1 UniRef90_Q85VF1 UniRef90_G3MF02 UniRef90_UPI00046F3AD0

 UniRef90_Q31996 UniRef90-Q4QSS7 UniRef90_C6CYF7 UniRef90-UPIO0036E538A UniRef90_C1JFL0 UniRef90-G5E4R3 UniRef90-Q95GW3 UniRef90_G3KET2 UniRef90-K014B7UniRef90 Q7X0C7 UniRef90_O46973 UniRef90-A4ILL5 UniRef90_V6M6W5 UniRef90_Q1QSJ9 UniRef90-S2WZY6
UniRef90-GOWXP2 UniRef90-LOECD9
UniRef90_X2L979
UniRef90-A8FCG8
UniRef90-E5WDQ7
UniRef90_Q13K83
UniRef90_UPIO00378C4E4
UniRef90-F2RM54
UniRef90_G8TNH2
UniRef90-G1YLC2
UniRef90-Q5WQ13
UniRef90-W1PD34
UniRef90-D7AAR4
UniRef90-13E804
UniRef90-T1X8D1
UniRef90_UPIO0047A6104
UniRef90-Q8KBL4
UniRef90-W1N853
UniRef90_Q1YDM7
UniRef90_-B5EKKK0
UniRef90_UPI00047E4C62
UniRef90_NODLV0
UniRef90-G2DXM6
UniRef90-V5W8P0
UniRef90-A9CVC3
UniRef90-F8GV07
UniRef90-QOGQ15
UniRef90 UPI0003
UniRef90-UPI0003B3ACA8
UniRef90_G3EJL3
UniRef90_UPI0003708ADC
UniRef90_Q85WD8
UniRef90-X6L4C2
UniRef90-UPIO002D69357
UniRef90-E4NPX6
UniRef90-K9RK11
UniRef90-W4QFX6
UniRef90-LOKU91
UniRef90_UPIO002883EF9
UniRef90_Q9GGR4
UniRef90_B3EFP0
UniRef90-F4LRZ3
UniRef90_S9QDJ1
UniRef90_Q32318
UniRef90-A1AWY1
UniRef90-W1JTC5
UniRef90-Q21YM9
UniRef90_UPIO00375486A
UniRef90_E7CQ92
UniRef90-M1YY16
UniRef90-M1YY16
UniRef90-T1WZS4
UniRef90-X2L1L0
UniRef90_Q60FK5
UniRef90- X2KYB1
UniRef90-X2KYB1
UniRef90_V4JLW9
UniRef9O-C0CYW
UniRef90_W0F514
UniRef90-Q4KYY4
UniRef90-UPIO0046641E6
UniRef90-UPIO004742E57
UniRef90-UPI000304F626
UniRef90_UPIO00304F626
UniRef90_B1G890
UniRef90_W4HGZ4
UniRef90_GOWXN0



FRVLAKA SRMSGG
$F R V L V K C L R L S G G D H L H T G T V V G K L E G D R A S T M G Y V D L L R$
$K L M N A K L P R L A G L D M I D A L S P Y G K F P M L M D T F I G C G Y A M R$
$K L M N A K L P R L A G L D M M D A G S P Y G K F P M D M D T F D D C G Y A M$
$F X V I C K W M R M A G V D H D H A G T V V G K L E G X P X X X X X X X X X X$

$X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X X$
$S V L L G K L M R L A G A D L V L F P S P Y G S V V M P K E E N M A V K D A L L$


FRVIAK WLRLLAGCDHLHTGTAVGKLEGDPMTVQGYYNVCR



FNAWQTVWRLAGVDHMHVGGLQGKFSQTDEEVVIESAHDTL
FRVLAKILRLSGGDHLHTGSVVGKLEGDRAT TLGWDDLLR
FRVICKWMRMAGVDHIHAGTVVGKLEGDPDMVKGFYNTLL
S LLLGKFLRLAGADFVLFPSPYGSVALEREQALGDARALLT
PLLLGTLMRIAGADLVLFPSPYGNVALDKNEALKLADHL
YRAYQALLRLAGADHLHVNGLASKFAEEDASVMDSARACL
F QAYQKLWRLA GVDHLHVNGLRSKFWEPDDSVDASARACLD
FRVIAKWMRLAGVDHLHGGTVVGK LEGDPAMTRGWYDYMR
PLLLGKLMRLAGADLVLFPSPYGSVVMPKEENMALKDAL


S LL GK LMMRIAGADLVLFPSPYGSVVMPREENDADQRELV
FRVLAKCLRMSGGDHIIHTGTAVGKLEG
FRVI CK WMRM



FQAYQTLWRLSGVDHMHVHGLAGKFAQSDAEVIESARDC



F RVLA ELLRLMGGDHLHSGKMVGNLEGDREATL GWDDLMR
FRILAKALRMSSGDHIHSGSVVGKLEGERDATLS VDLLR

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





FRVICKWMRMSGVDHI HAGTVVGKLK


Y A P WQKI WWRLA GAD HLLHVNGLRNKFSEADE SVVIAAAKAVL
F R V LA K WLR M A G G D H L H N G T V V G K L E G








$F R V$ L A K A L R L L G G D H L H S G T V V G K L E G E R E V T L G F V D $\quad$ VM R S R V M T K L Q R LAA G LD S I IMMP GF G S RMM TP E E E V M D N I R E C L
 YPA WS K F WRRLA GA D H M H V V G L L G N K F S E P D E S V M R S A R S L F X X X X X X X X X X X X X X X X X X X X X X X X E G D P L M I Q G F Y N T L L





 $F R V L T K V L R L L G G G D H B S G T V V G K L E G D R A A T L G W I N Q M R$
TRVLTTRLDRLAAGFDVIDMPGFGSRMRVTEAEVLENVAACV


$S K V V A K L A R L A G C D I Y L T Q P P Y G K F$
S L L L G K L L R R L V G A D F S L F P S P Y G S V A M P L E D T A G I

P L L L G K L T T R Y L G A D L S L F P S P Y G S V A L
Y A P WQMI WRLA GADHLLHVNGLRNKFSEPDDSVIAAAARAVL


## UniRef90 Q31785 UniRef90-XOTIA2 UniRef90-G9EEI8 UniRef90-I3XPD1 UniRef90_Q85VF1 UniRef90_UPI00046F3ADO UniRef90-Q31996

 UniRef90-Q4QSS7 UniRef90-C6CYF7 UniRef90_K9DA60UniRef90 UP100036E538A UniRef90-C1JFLO UniRef90-G5E4R3 UniRef90 Q95GW3 UniRef90-G3KET2 UniRef90-K014B7 UniRef90-Q7XOC7 UniRet90 O46973 UniRef90 ${ }^{-}$A4ILL5 UniRef90-V6M6W5 UniRet90_Q1QSJ9 UniRef90-S2WZY6 UniRef90-GOWXP2 UniRef90-LOECD9 UniRet90_UPI000465982F UniRef90- F5A076 UniRef90_UPIO0036FE6F0 UniRef90-F5A001 UniRe990 B5TIS2 UniRef90-X2L979
UniRef90 A8FCG8 UniRef90 E5WDQ7 UniRef90 Q13K83 UniRef90_UPIOOO378C4E4 UniRet90_F2RM54 UniRef90 G8TNH2 UniRef90-Q1YLC2
UniRef90
Q5WQ13 UniRef90 W1PD34 UniRef90 D7AAR4 UniRef90-I3E804 UniRet90_T1X8D1 UniRef90-UPIOOO47A6104 UniRef90-08KBL4 UniRet90-W1N853 UniRef90_Q1YDM UniRef90_UPI00047E4C62 UniRef90 NoDLVO UniRef90-G2DXM6 UniRef90-V5W8P0 UniRef90 A9CVC3 UniRef90-F8GV07 UniRef90-Q0GQ15 UniRef90-UPI0003B3ACA8 UniRef90 G3EJL3 UniRef90-UPI0003708ADC UniRef90-Q85WD8 UniRef90- UPIO002D69357 UniRef90-E4NPX6 UniRef90-K9RK11 UniRet90_W4QFX6 UniRef90_LOKU91
UniRef9_-UPIOOO2883EF9 UniRef90_O9GGR4 UniRef90 B3EFPO UniRef90-F4LRZ3 UniRef90-S9ODJ1 UniRef90_Q32318 UniRef90_A1AWY1 UniRef90 W1 JTC5 UniRef90-UPIO00375486A UniRet90_E7CQ92 UniRef90-M1YY16 UniRef90- X2L1LO UniRef90-Q60FK5 UniRet90-X2KYB1 UniRet90 - VuJLW9 UniRef90-COCYW8
UniRef90 WoF514 UniRef90-Q4KYY4 UniRef90 UPIO0046641E6 UniRef90_UPIO004742E57 UniRef90-UPI000304F626 UniRef90 B1G890 UniRef90- W4HGZ4 UniRef90-Gow


ESF $\square P E D R R R G \square F F D Q D W G S M P G F A D A S G G \square H V W H$
T $\mathbb{P M G N D K P I F A M P G G G T T Q G H D E D \|}$
X X X X X X X X X X X X X X X X X X X X XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXYFTQNWVSLPGVLPVASGGTHVWHMPAL A TPMEDT TPLIFDT FPAPHAGCEAMPVAGSGQWGGQAPATY DSYTKKDDERGLFFDMDWADTKKVLPCASGGTHVGQMHQL ENYVEQDKSRGYFTQDWASMPGVMAVASRGI
LPHLDDNLPQGFFQQDWAALRKVTPVASGG\|HCGQMHQL DEHTEADLTHGVFFDQPWAGLNKVMPVASGGlHAGQMHQL A P LC ESFVPEXRSRGTFFDQDWGSMPGVFAVASGGTHVWHMPAL NTHTPVNLPQGLFFEQDWASLRKTLPVASGGI HCGQMHQL D
 RAMPVFSSAQTVHQACPTF EEYCPMNLENGVFFDQDWASMNKVLPVASGG\|HAGQMHQL KRDY TSDGLP
SSELAD RSSFPVPSAGDHPGLVPQT

ESFVPEDRSRGVFFDQDWGSMPGVFAVASGGTHVW KEDSVQKTFPVPSAG\| HPGMVPVL RNDF CKRTFPVPSAGIIHPGLVPLL ATPDAAGCDDAVLPAFSSGQWAGTQATF TP WQH 1 KPMMPMPGGGTTQGHDEEL DDF四EKDRSRGVYFTQDWVSLPGVIPVASGGDHVWHMPAL P DFSEADRP DPVVCSGQWGGQAVETYERTG DRYVKEDRSRGIFFDQDWGQMPG DDFIEKDRSCGUYFTQDWVS LLGDMHVASGGDH DWHMPAD TPLFEDKPC■ AMPVFSSGQSAKQAPGTY ETPDT $\quad$ GDDYKPCFPVPSAGIDHPGLVPGL S RNVFPVPSAGMHPGIVPKA TSADGHFKTAFPVPSAGLHPGLVPQL ENVIECTKPMGRIKPCLPVPGGSDSALLTLQTV
TPLSPARP
DVVMPVFSSGQSVKQAEGTW AYM|ERDSCDGPVYHQEWYGMKPTTPIDSGGMNAGRLPGF

GPMGSLKRSLP/VPGGSDWAGTLKTLHDKVGTVDFG
EDYVEEDRSRGNFFTQDWASLPGVMPVASGGVHVWHM QPVCEGDGPQHL APV MPEAAMPAMPVFSSGQTGLQAEDTY

 RPLF QDLPMAAMPVFSSAQTGLLQAHDTF
D
AKD
TPM
T

QDFGH【RTSLPVPGGSDSALLLETVYRKVGSFDFG
SLPYYNIKPSMPAVGGGVHPGDAERY DPMFEDKP KGUFFEQDWASCVPMPVFSSGQSAVQPPETF A YMIIERDSADGPVYHQEWFGMKPTTPIISGGMNALRLPGF TPMFADKPCDSMPVFSSGQGVKQVPH
AYMDERDECQGPVYFQKWYGUKPTTP\VSGGMNADRपPGF QPLAGGDADMPVFSSGQWAGTVPTF $\square T K \square D \square N \square P F G \square F F E M D W A S L R K C L P V A S G G \| H C G Q M H Q L$ ESFVPEDRSRGNFFDQDWG
DDYIEKDRARG\|YFTQDWASMAGVMPVASGGПHVW
KTKLSDDLPKGIFFDMDWASLRKCLPVASGG\|HCGQMPQL DKFVKEDRSMGIIFFDQDWGSMPGVFPVASGGI HVW PMGPTKPALPVPGGSDSAATLERY SLPCCHLKPTMPICGGGVHPGMVQRF $\square T H \square D V N L P Q G T F F E Q D W A S Q R K V T V V S S G Q W G G Q A F E T W$ DNTFDNYIINLITSKAKMYDIKPMLPFVGGGVVPGLVPKF ${ }^{K} E T^{\top}$ A P V
APLAEG
MREAPMSRTFPVPSGLHPGLPLL
DLTTKHDFAYGDYFSQEWASURKCVPVASGG\|NAGQMHF|L

UniRef90_Q31785
UniRef90-X0TIA2
UniRef90_G9EE18
UniRef90-I3XPD1
UniRef90-Q85VF1 UniRef90_G3MF02 UniRef90_UPI00046F3AD0 UniRef90_Q31996 UniRef90-Q4QSS7 UniRef90_C6CYF7 UniRef90-K9DA60 UniRef90 UPI00036E538A UniRef90_C1JFLO UniRef90_G5E4R3 UniRef90-Q95GW3 UniRef90-G3KET2 UniRef90-K014B7 UniRef90_Q7X0C7 UniRef90 O46973 UniRef90 ${ }^{-}$A4ILLL5 UniRef90-V6M6W5 UniRef90-Q1QSJ9 UniRef90_S2WZY6 UniRef90-GOWXP2 UniRef90-LOECD9 UniRef90-UPI000465982F UniRef90 F5A076 UniRef90_UPIO0036FE6F0 UniRef90_F5A0Q1 UniRef90-B5TIS2 UniRef90-X2L979 UniRef90-A8FCG8 UniRef90 Q13K83 UniRef90_UPI000378C4E4 UniRef90-F2RM54 UniRef90_G8TNH2 UniRef90-Q1YLC2 UniRef90-Q5WQ13 UniRef90-D7AAR4 UniRef90-13E804 UniRef90-T1X8D1
UniRef90_EOIOF
UniRef90_UPIO0047A6104
UniRef90_Q8KBL4
UniRef90-W1N853
UniRef90-Q1YDM7
UniRef90-B5EKK0
UniRef90_UPI00047E4C62
UniRef90-NODLV0
UniRef90-G2DXM6
UniRef90_V5W8P0
UniRef90-A9CVC3
UniRef90_F8GV07
UniRef90-Q0GQ15
UniRef90_UPI0003B3ACA8
UniRef90 G3EJL3
UniRef90_UPIO003708ADC
UniRef90_Q85WD8
UniRef90-X6L4C2
UniRef90_UPI0002D69357
UniRef90-E4NPX6
UniRef90-K9RK11
UniRef90-W4QFX6
UniRef90-LOKU91
UniRef90_UPIO002883EF9
UniRef90_Q9GGR4
UniRef90 B3EFP0
UniRef90-F4LRZ3
UniRef90_S9QDJ1
UniRef90-Q32318
UniRef90-A1AWY1
UniRef90-W1JTC5
UniRef90-Q21YM9
UniRef90-UPIO00375486A
UniRef90-E7CQ92
UniRef90-M1YY16
UniRef90-T1WZS4
UniRef90-X2L1L0
UniRef90_Q60FK5
UniRef90- X2KYB1
UniRef90-X2KYB1
UniRef90_COCYW8
UniRef90-W0F514
UniRef90_Q4KYY4
UniRef90_UPIO0046641E6
UniRef90_UPI0004742E57
UniRef90-UPIO00304F626
UniRef90-B1G890
UniRef90-W4HGZ4
UniRef90_GOWXNO


MNKFGNDVI $\ A A G G A \square H G H P M G P A A G A R A F R Q G \square D A V L A G$ XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX TE DF GDDSVLQF GGGTLGHPWGNAPGAVANRVALEACVQA LRDFGTDVVVNAGGGNHGHPMGTAAGGKAFRSATAAMNG AADGSTNLIFAAGGGIMAHPGGPGAGVRALQQAWEAAVAG HRTGRTTDLLYCGGGUVSHPGGPAAGVHAVQQAWQAAVAD VDMFGDDVILQFGGGTIGHPAGVQAGAVANRVGLECM
LDYLGNDVVLQFGGGTTGXXXXXXXXXXXXXXXXXXXXX LHYLGADCVLQFGGGTI GHPDGD
WDVHSNDLLFMSGGGULAHPDGAAAGVASDQQAWDAVQK
VAI FGDDSVLQFGGGTLGHPWGNAPGAAANRVALEACVQA L N YL LGEDXVLXXXXXXXXXXXXXXXXXXXXXXXXXXXXX VRDF GLDCIVNAGGGDHGHPDGA $\square$ GGGQAFRAA DDAALAG YADFGLDQVNAGGGUGHPGGATAGAKAFVAADEAVTAG YAALGSVDLMHAGGG\|IGHPDGIAAGMASMREGWEAAVAG IQ H L GEDVVLQF GGGTIGQ
HRDFGLDVVVNAGGGIHGHPLGTAAGGRAFRQA $\quad$ DAVL
$\square E D F G \perp D S V I N A G G G V H G H P A G S A A G G K A F R Q A V D A T L$
■SDFGTDVVVNAGGG $\square H G H P N G A S S G G R A F \square Q A \square D A A \square N G$

MKDFGLDHVINAGGG\HGHPRGA $\square$ GGGKAFRS $\square$ DAVI HG FEDFGIDDVINAGGGVHGHPDGARGGGDAFRQAIDLILNG DAVRSTDLLFMSGGGILAHPDGPAAGVTSVRQAWAAVQ 1 HKFGKDVI AA GGAVIGHPQGPTAGGKAFRQGDDAVMKG VEDFGDDACLQFGGGTLGHPWGNAPGAAANRDACEACIQA RRTKTVDLLYMAGGGIMAHPMGAAAGVVALQQAWQAAVDG RTLDLMYLGGGGIHGHPMGPAAGVRAIRQAWDAAAEG
TETFGDDSVLRFDGGTLGHPWGNAPGADANRVAFEACGQA AALGSPDLI FAAGGGMMAHPDGPAAGVASLREAWEAAMAS DQDFGDDSIDAGGGVHGHPDGAMGGGLAFRQADDAVLSG AADGSDDLLFMAGGGULAHPDGAAAGVSTRQAWSAA FADFGVDSINAGGGIHGHPNGTAAGARAFVAAIEGTLRN YEKVGNVDFFVPGRGVFGHPMGPKAGAKS RQAWEAD WRAVGDDLIVTAGGGIMAHPDGITAAGVRSLRQAWQAA RHAGSPDLIYCAGGGGVAHPSGUAAGVRSLREAWDAAMQG LQDFGPDVVVNAGGGVHGHPLGAAAGGRAFRQAVDAVIKG

F VPGRGVFGHPMGPQGGAKS $\square R$ QAWDA $\square V A G$
$R L L G N D D F \prod F C A G G G \square M S H P S G \prod G A G V D A L R Q A$
$R A L G T T D L I H T A G G G \| F G H P A G V S A G V E A L R E A W V A A V N H$
VRDFG $\square \mathrm{DCVINAGGGVHGHPDGADGGGRAFRQA} \mathrm{\square EVVLAG}$
YEDFGMNS $\square 1$ NAGGGVHGHPNGAAGGGRAFRQAVDAVVSG
RATGSTDLIFCAGGGVVAHPDGVAAGVHALRAAWEAAVAG KALGHADLLCTAGGGIF GHPQGVAAGVAALREAWDAAQ LDATGTNVCVQAGGGUHGHPDGTRAGAAALRAAVDGYAAG YADYGDDVILNAGTGMMDPDGAAAGVKAFFQALEKVERG GRDGTNDFIVCCGGGGMAHPGGAPAGGKAFHQADDAVMQG

$F V P G R G \prod F G H P M G P K A G A A S \square R Q A W E A \square R Q G$
$\square K D L G T D D E A P G G S I Q G H P K G A A A G A R A M L Q A D D A V M Q D$ RQLGRADCVYAAGGGUMAHPDGPGAGVRSLREAWDAAI FENLGGHGNVINTGGGSYGHDDSPAAGAKSLRQAYDCWMA A A LKSTD I M M A GGGDMGHPHGPGAGVCALREAWDAADQG FDNLGHGNI INTGGGSYGHDDSPAAGAVSLRQAYECW KA DAVGSDDLI FLSGGGULGHPHGPAAGVQSIRDAWEAARSG VHYLG $D D D V L Q F G G G T L G$ $\square R D F G P D L V I N A G G G \square H G H P Q G S T A G G R A F \square D A \square S A \square M A G$

## LNCLGEDVVLQF GGGT $\square$

QN $\square$ GNVDFGFVPGRGVFGHAMGPRGGAAS $\square R Q A W E A \square A$ DDDFGTDDILAAGGAIQGHPQGPAAGVRAMSQAVAAALTH QRTQTQDLLYMAGGGULAHPMGPAAGVTADQQAWSAAVE LDAGDDVLGVGAGIHAHPMGPQAGAKAFRAACDACMND I SDF GVDSINAGGGVHGHPDGAVGGGKAFRAAVDATLAG VQDYGIDCVINAGGGVHGHPSGAAGGGRAFRQAIDAVLE AA DGCADLIHTAGGGIVGHPGGVAAGVEALREAWVAAVEG EAAGGADLMFMCGGGLLAHPHGPAAGVASLHEAYDALS

|  | $290 \times 300300$ |
| :---: | :---: |
| UniRef90_Q31785 | XXXXXXXXXXXXXXXXXXXXXXXXXTALDXWKD\\|TFNYT |
| UniRef90-X0TIA2 | \S $\quad$ LKEYSKTHEELK ${ }^{\text {L }}$ ALLEFWK |
| UniRef90-G9EEI8 | 1 P |
| UniRef90-I3XPD1 |  |
| UniRef90_Q85VF1 |  |
| UniRef90-G3MF02 |  |
| UniRef90_UPI00046F3AD0 | QS ${ }^{\text {L }}$ L K A GKQYEELGAALNAWG\YKEN |
| UniRef90-Q31996 | X X X X X X X A EGPQILRDAAKTCGPLQT GLDLW |
| UniRef90-Q4QSS7 | RNEGRDLAREGNEII REASKWSPELAAACEVWKELKFEFE |
| UniRef90-C6CYF7 | VPLREAAAQPGNE PLQAAIDAWG |
| UniRef90-K9DA60 | $V$ DQAE AASQAPELRDALAAF |
| UniRef90-UPIo0036E538A | $\square P$ L $\quad \square$ T Y AEDHPELAASLKKF G |
| UniRef90_C1JFL0 |  |
| UniRef90-G5E4R3 |  |
| UniRef90-Q95GW3 | X X X X X X X X X X X X X R A AKTCGP LQ TALDDLWK M T F NYT |
| UniRef90-G3KET2 |  |
| UniRef90-K014B7 |  |
| UniRef90-Q7X0C7 | RNEGREDEKEGKDILTQAAQHSPELKVAME |
| UniRef90_O46973 | RKEGRDYLKEGPKILRAAGDQCTPLRVALDLWKDISFNYT |
| UniRef90_A4ILL5 | R LL REAVKENEALQKAI DRWGAIEVE |
| UniRef90-V6M6W5 |  |
| UniRef90-Q1QSJ9 | VS LEDHAKQEPDLAVALRAF |
| UniRef90-S2WZY6 | 1 G LDTYAKTHPALQRAMAHF |
| UniRef90_GOWXP2 |  |
| UniRef90-LOECD9 | A GEPLREAAKRHDELRAAIEAWG |
| UniRef90_UPIO00465982F | AKKTLS DAA T NEELRQALELWWGD |
| UniRef90_F5A076 UniRef90 UPI00036FE6F0 | VP $\quad$ LEQAA Q S LPELMAALD T WG |
| UniRef90-F5A0Q1 |  |
| UniRef90-B5TIS2 |  |
| UniRef90-X2L979 |  |
| UniRef90-A8FCG8 | ES $\quad$ TQEKTASCQDLKAALELWGRV |
| UniRef90-E5WDQ7 | AS LTTDAPSNFPELKKAIDLWG |
| UniRef90_Q13K83 | A GTPLPVYAEHMPELRRALAFFG |
| UniRef90-UPI000378C4E4 | A S LKEACKDTKN KELKSALDA WG |
| UniRef90-F2RM54 | RNEGRS LIA A G N N I |
| UniRef90_G8TNH2 | LS |
| UniRef90-Q1YLC2 | LS $\square$ LADKARDHPELAAS $\square$ AK WG |
| UniRef90-Q5WQ13 |  |
| UniRef90-W1PD34 | CNEGCDLAREGNEV!REASRWSPGLA A A CEVWK E $\square$ K F EFE |
| UniRef90_D7AAR4 | $V \mathrm{~V}$ ( V LADYARDHTALARALETY |
| UniRef90-I3E804 | K L L SESAETSEELRKAI DLWG SFE |
| UniRef90-T1X8D1 | RAGTALEEAARSAPELARALAFFG |
| UniRef90-E0U8F2 | QPFTVDSLPPG |
| UniRef90-UPI00047A6104 | ES LEE $\square$ AKGSEELAKALN $\square$ WG D A K |
| UniRef90-Q8KBL4 | EQG $\square$ SIETWAETHPELQAMVD |
| UniRef90-W1N853 | ALGVDAAQYGR EHPELARALEAF |
| UniRef90-Q1YDM7 | $V \mathrm{P}$ |
| UniRef90_B5EKK0 | GADP】EYAREHKEFARAFESFPGDADKLYPGWRE |
| UniRef90_UPI00047E4C62 | QS $\square$ EQYAQQHEELR】A $\square$ ERWG |
| UniRef90-NODLV0 UniRef90 G2DXM6 |  |
| UniRef90-G2DXM6 | VS LDERAKTHTELEAAMTAFG |
| UniRef90_V5W8P0 <br> UniRef90 ${ }^{-}$A9CVC3 | A A A AKEGVDIEMYAANA PELKSALETFK |
| UniRef90-F8GV07 | $\square P \square A R H A D A T S S A L R Q A M E F W R$ |
| UniRef90_Q0GQ15 |  |
| UniRef90-UPI0003B3ACA8 | G ELLS DVD D A R P E L A K A LS LTW |
| UniRef90_G3EJL3 |  |
| UniRef90_UPI0003708ADC | $R T \square \square E E A A K Q H E D \square R \square A L E \square W G T G K$ |
| UniRef90-Q85WD8 UniRef90- 6 L4C2 |  |
| UniRef90-X6L4C2 UniRef90 - UPI0002D69357 | $\square P$ A G $\square$ D L L L Q A A R E D P R L A A A M R A F |
| UniRef90_UPIO002D69357 UniRef90 E4NPX6 | KS A G $\square \mathrm{DLK}$ K Y A ATRPALQ |
| UniRef90_E4NPX6 | KS LIEESADDSPELA T A I DEWG |
| UniRef90_K9RK11 | ESFELESLNDG ALKRALQKWG |
| UniRef90-W4QFX6 | QS LKDAAQHSVELRQAI ELWG |
| UniRef90_LOKU91 | $\square \mathrm{Q}$ ( ARDYAATHPELEAALQAFG |
| UniRef90_UPI0002883EF9 | KT LVEFAKNSPELKKALELWG |
| UniRef90_Q9GGR4 |  |
| UniRef90-B3EFP0 |  |
| UniRef90-F4LRZ3 |  |
| UniRef90_S9QDJ1 | A GVPAETYAKDHP |
| UniRef90_Q32318 |  |
| UniRef90-A1AWY1 |  |
| UniRef90-W1JTC5 |  |
| UniRef90-Q21YM9 | GADP DEWAKEHREFARAFESFPQDADRLFAGWRD |
| UniRef90_UPI000375486A | $\square A \square P$ RH A Q THPALAAALDFYG |
| UniRef90-E7CQ92 UniRef90 M1YY16 |  |
| UniRef90-M1YY16 | YS $\quad \square$ REAAARS $V$ K $\square$ S $\square$ A $\square$ EK WGVV |
| UniRef90-T1WZS4 |  |
| UniRef90-X2L1L0 |  |
| UniRef90-Q60FK5 |  |
| UniRef90-X2KYB1 |  |
| UniRef90-V4JLW9 | A GVdVNEYARERPELAAAMEQFG |
| UniRef90_C0CYW8 | TPLTTAAAHHPELKTALSLET |
| UniRef90-W0F514 | GSTLQEAAAQYREFGKSAEKFG |
| UniRef90_Q4KYY4 | RNEGRDYVAEGPQXXQDAAK |
| UniRef90_UPI00046641E6 | VS LDREKAKECKELEVSLEKWG |
| UniRef90-UPI0004742E57 | QPLEDT NDEALQKALELLWGAVK |
| UniRef90-UPI000304F626 | GEELSEVVKEQDELREALKLWG |
| UniRef90_B1G890 | VP L K H A ARHPALNAALEFWK |
| UniRef90-W4HGZ4 | - AGEDLSAARASRPALAAALDTFG |


| UniRef90-Q31785 S T D T |  |
| :---: | :---: |
| UniRef90-X0TIA2 |  |
| UniRef90-G9EEI8 |  |
| UniRef90-I3XPD1 |  |
| UniRef90_Q85VF1 |  |
| UniRef90-G3MF02 |  |
| UniRef90_UPI00046F3AD0 |  |
| UniRef90_Q31996 | S T D T |
| UniRef90-Q4QSS7 | A M T |
| UniRef90-C6CYF7 |  |
| UniRef90-K9DA60 |  |  |
| UniRef90-UPI00036E538A |  |
| UniRef90_C1JFL0 |  |
| UniRef90-G5E4R3 |  |
| UniRef90-Q95GW3 | STDT |
| UniRef90-G3KET2 |  |
| UniRef90-K014B7 |  |
| UniRef90-Q7X0C7 |  |  |
| UniRef90-O46973 | S T D T |
| UniRef90-A4ILL5 |  |
| UniRef90-V6M6W5UniRef90 Q1QSJ9 |  |
|  |  |  |
| UniRef90-S2WZY6 |  |
| UniRef90-G0WXP2 |  |
| UniRef90-UPCDO00465982F |  |
|  |  |  |
| UniRef90-F5A076 |  |
| UniRef90_UPI00036FE6F0 |  |
| UniRef90-F5A0Q1 |  |
| UniRef90-B5TIS2 |  |
| UniRef90_X2L979 |  |
| UniRef90_A8FCG8 |  |
| UniRef90-E5WDQ7 |  |
|  |  |  |
| UniRef90 UPI000378C4E4 |  |
| UniRef90-F2RM54UniRef90 G8TNH2 |  |
|  |  |  |
| UniRef90-G8TNH2 UniRef90 Q1Y |  |
| UniRef90-Q1YLC2 <br> UniRef90 Q5WQ13 |  |
| UniRef90-W1PD34 | AMDVL |
| UniRef90_D7AAR4 |  |
| UniRef90-13E804 |  |
| UniRef90-T1 X8D1 |  |
| UniRef90-E0U8F2 |  |
| UniRef90-UPI00047A6104 |  |
| UniRef90-Q8KBL4 |  |
| UniRef90-W1N853 |  |
| UniRef90-Q1YDM7 |  |
| UniRef90-B5EKK0 |  |
| UniRef90_UPI00047E4C62 |  |
|  |  |
| UniRef90-G2DXM6 |  |
| UniRef90-V5W8P0 |  |
| UniRef90_A9CVC3 |  |
| UniRef90-F8GV07 |  |
| UniRef90-Q0GQ15 |  |
| UniRef90-UPI0003B3ACA8 |  |
| UniRef90-G3EJL3 |  |
| UniRef90-UPI0003708ADC |  |
| UniRef90-Q85WD8 |  |
| UniRef90-X6L4C2 |  |
| UniRef90-UPI0002D69357 |  |
| UniRef90_E4NPX6 |  |
| UniRef90-K9RK11 |  |
| UniRef90-W4QFX6 |  |
| UniRef90-LOKU91 |  |
| UniRef90_UPI0002883EF9 |  |
| UniRef90-Q9GGR4 |  |
| UniRef90-B3EFP0 |  |
| UniRef90-F4LRZ3 |  |
| UniRef90-S9QDJ1 |  |
| UniRef90-Q32318 S T D T |  |
| UniRef90-A1AWY1 |  |
| UniRef90-W1JTC5 |  |
| UniRef90-Q21YM9 |  |
| UniRef90_UPIO00375486A |  |
| UniRef90-E7CQ92 |  |
| UniRef90-M1YY16 |  |
| UniRef90-T1WZS4 |  |
| UniRef90-X2L1L0 |  |
| UniRef90-Q60FK5 |  |
| UniRef90-X2KYB1 |  |
| UniRef90-V4JLW9 |  |
| niRef90-C0CYW8 |  |
| UniRef90-W0F514 |  |
| UniRef90-Q4KYY4 |  |
| UniRef90-UPI00046641E6 |  |
| UniRef90-UPI0004742E57 |  |
| UniRef90-UPI000304F626 |  |
| UniRef90-B1G890 |  |
| UniRef90-W4HGZ4 |  |
| UniRef90_G0WXN0 |  |

UniRef90 U1WDJ1 UniRet90_U7GFY8 UniRef90-X2LOJ3
UniRef90 K9XQN8 UniRef90- H1YB65 UniRef90-UPIOOOS37E3117 UniRef90_M9SFFO UniRef90 W8KkW5 UniRef90-UPIO00382EB1B UniRef90_UPIO004248EF3 UniRef90 UPI0003782C46 UniRef90 A3X9D1 UniRef90-UPI0003F4AFC6 UniRef90-F4XPV2 UniRef90 ${ }^{-}$Q2RRP5 UniRef90 W9E1H0 UniRef90-H6SR69 UniRef90_Q32635 UniRef90 A6H556 UniRef90 ${ }^{-}$K1YIJO UniRef90-UPIOOO40528A8 UniRef90-UPI0003704DEF UniRef90-A7IJG7 UniRef90-R9T8T7 UniRef90-B6WB10 UniRef90 C5НЗАЗ UniRef90-UPIO00425046C UniRef90_U4WSK5 UniRef90 ${ }^{-}$A0A021X0E6 UniRef90 - $\mathrm{H} 2 \mathrm{Cl118}$ UniRef90-F5A010 UniRef90_UPIOO04792AB6 UniRef90-UPI00034BBB63 UniRef90 - X6L437 UniRef90-B1C9J3 UniRef90_16YD88 UniRet90_C1IIE0 UniRef90-B7JZ27 UniRef90-A7BYT9 UniRef90-D9SHP6 UniRef90-BOLQY6
 UniRef90-H8Z136
UniRef90-10JTZ9 UniRef90- C3P745 UniRef90_UPloo047909EF UniRef90-A6W001 UniRef90-Q6TEV4 UniRef90-Q5SCLO UniRef90_16YD22 UniRef90 U3MFP0 UniRef90-BOLQZ8 UniRef90_V5UID9 UniRef90-V8QVL4 UniRef90-BoLQZ6 UniRef90_X0Z867 UniRef90 C5H371 UniRef90-F7STU9
UniRef90-Q59462
UniRef90_OOFNR2 UniRet90_U3MDM8 UniRef90-A3PRW6 UniRef90_ABT1S6 UniRef90_D2SC10 UniRef90-M1GMR9 UniRef90-UPIO0036905D4 UniRef90_G2E110 UniRef90 R7CTTO UniRef90-Q6X766 UniRef90-C5H3B8相 UniRef90 Q2W3S5 UniRef90-K2A722 UniRef90_Q32592 UniRef90-E7BJF4 UniRef90-O5ENN5 UniRef90-17HIY8 UniRef90-BoMD38 UniRef90_M5JJJ6 UniRe990 UPIO003645BC8 UniRet90_UPI00035CDDA6 UniRef90-J9ZCF3 UniRef90_Q28MT2 UniRef90_A7BL54 UniRef90-Q33114 UniRef90_SofUK9 UniRef90 UPIO003829ABO UniRef90-G8LZL2
UniRef90 H5T867
 PAYGRQGTLALAGVRDRPMUGTIIKPSVGLSPAETASLVA
PT $\square G \square K G \square R A K \square S V S D R P L I M A \prod F K P A L G \square S A E D H A E \| L K$ PRFGI NGSRKSTNVTGRPLI GTI IKPSI GMTPEQTAALAK PRFGIAGTRQLTGVYGRPIIGTI IKPNVGMSVEELRGUVR PKFGDEGMRNMLS RPEKPLVGTVVKPKVGLSPKDTAEYIY
 PRHGVAGTRRLTGVVRGAMVGSII KPNVGLSASETGDLVA $P Q F G A Q G T R E F M G G H Q G P V I G T I I X P S V G L T P S E T A A L V Q$




PS Y TLDDMRKY DDVYERPILGTI DKPKMGLTSAEYAEVAY PSYGID GDRKVLGVHGRPLLMSIFKGMIGRDLTFFKKQLK PHFGIGGCRALTGAPGRPLIGTVIKPSVGLAPEQTAGMVQ PAFGI A GTRKLAGVAQGPII GTII KPSI GLTPEETAQQVR


PAFGVAGSRALTRVYDRPMDGT\DKPS DGMSPEQTADLVK PKFGIKGDREITGVHDRPLLMSIFKSCTGLSLEEDEVQFR PQFGVSGSFALTGVKDRPIIGTIVKPALGLRPHETAEMVG
 PRFGTDGLREKLNVNNRPLLMSTFKGVLGLSGKNYGRVIYY PRFGVAGLRERLQAFDRPIFFGVIKPNIGLPPEPFAELGY

 PRFGIAGLRKIVGIFDKPLLCTALKPM GKSPSEDAKLAY G GYIAGT IIKPKLGLRPEPFAKACY

KDGGY $\square$ A G T $\square$ I K P K $\square G$ R P E P FAEAA Y
PKF G DD G $\square R N L L Q V H D R P L L M S D F K G M \square G R N \square G Y D K T Q L R$ PQFGIKGSKASCGVDDRPMI GTIIKPSVGMSPEETAALVK PKFGIEGTYRKLGMSEGPVIGGILKPNIGMTPADSANLVE T I K P KLGLS GRNYGRVAT
$T \square K P K \square G L S G K N Y G R \nabla V Y$

PRYG $\square$ DGTRRATGVAQGALVGT $\square$ LLKPNVGMRADETAALVS PR L G VDGTRAS $\square$ GAS DGAMVGT I IKPNVGLTAQQTAELVK

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

G G MVVGT $\quad$ IK P K $\square G \square R$ P K P F A D A C H
PAFGVAGTRKLMGVPDGVLIGT\VKPNVGLVEEEFRGVVR
PQFGAAGTRNFMKGHKGPLIGTIIKPSVGYTPSETASLVK PRFGRTGLRRLLDVPDGPLLCTAIKPMGGGPRALADLAY PRFGREGปRELCGVEHGPILMSAIKP LGKSPKELAEMVY

PRFGDEGVRELVGVRDRPLVLNMTKPCTGLTPEQGAADFY MWKVLGRPVVGTII KPK LGGLRPKPFADACH



$P$ DMGVEG $\square R E R \square G V P D R P L V G A \ L K P C D G V P P E D S A N G A R$ $P Q F G I T G S R R L T G V A E R P I I G T I V K P A L G L R P H E T A E L V G$ PAF GVVGTRRLMGRPEGAMI GTIVKPSIGLSPDDLAEVVG

 RFGPDGTRRLAGVEKGPLIGTVVKPSVGLSPENTAGLVA

PKYGUEGIRKLSDVKNRPLLLNMIKPCTGDTPEAGAGDFY PRFGQDGLRALTGVTDRPLIDTALKPM GLSAEAVAEQAY


## UniRef90 U1WDJ1 UniRef90-U7GFY8

 UniRef90-X2LOJ3 UniRef90-H1YB65 UniRef90-UPIOOO37E3117 UniRef90_M9SFF0 UniRef90-W8KKW5 UniRef90_UPIO00382EB1B UniRef90_UPIOO04248EF3 UniRef90_UPI0003782C46 UniRef90 A3X9D1 UniRef90-UPIOOO3F4AFC6 UniRef90-F4XPV2 UniRef90-Q2RRP5 UniRef90-W9E1H0 UniRef90-H6SR69 UniRef90-Q32635 UniRef90- A 6 H 556 UniRef90-K1 YIJO UniRef90_UPIO0040528A8 UniRef90-UPI0003704DEF UniRef90-A7IJG7 UniRef90-R9T8T7 UniRef90-B6WB10 UniRef90-C5H3A3 UniRef90_UPIo00425046C UniRef90_U4WSK5 UniRef90-A0A021X0E6 UniRef90-H2Cl18 UniRef90-F5A010 UniRef90-UPIO004792AB6 UniRef90 UPI00034BBB63 UniRef90-X6L437 UniRef90-B1C9J3 UniRef90-16YD88UniRef90-CIIIEO
UniRef90-B7JZ27
UniRef90 A7BYT9
UniRef90- D9SHP6 UniRef90-BoLQY6 UniRef90-X2L216 UniRef90-H8Z136 UniRef90-10JTZ9 UniRef90-C3P745 UniRef90_UPIo0047909EF UniRef90-A6W001 UniRef90-Q6TEV4 UniRef90-Q5SCLO UniReffo-l6YD22 UniRef90-BOLOZ8 UniRef90-V5UDID UniRef90-U3MK29 UniRef90 V8QVL4 UniRef90- BOLQZ6
UniRef90 - X Z 867 UniRef90-C5H371 UniRef90-F7STU9
UniRef90-O59462
UniRef90_QOFNR2 UniRef90_O3MDM8
UniRef90-A3PRW6 UniRef90-A8T1S6 UniRef90-D2SC10 UniRef90-M1 GMR9 UniRef90_UPI00036905D4 UniRef90-G2E110 UniRef90_R7CTTO UniRef90-Q6X766
UniRef90 C5H3B8 UniRef90_C8XHW0 UniRef90-O2W3S5 UniRef90-K2A722 UniRet90_Q32594 UniRef90_G5ILX4 UniRet90_E7BJF4 UniRef90-Q5ENN5 UniRef90-O6Y9H5 UniRef90-17HYY
UniRef90 BOMD38 UniRef90-M5JJJ6 UniRef90-UPI0003645BC8 UniRef90-UPIOOO35CDDA6 UniRef90_J9ZCF3 UniRef90-Q28MT2 UniRef90-A7BL54 UniRet90-Q33114 UniRef90-SOFUK9 UniRef90-UPI0003829AB0 UniRef90-G8LZL2 UniRef90 H5T867

A QVEGGVDLVKDDETFFVDDKAPLTERLGAYNRTI KLAEGGIDFlKDDELQANGPHCPFEDRLNEVMKVINSHAD MRWRHRFDFVMEAI HKAEA QVAFAGLD\KDDETLGDDPTAPTLERLTACRRVLTEVQE TLAEAGIDFIKDDELLSSAANSKFEDRVDADMRVVNNHAD ELASSGLDFIKDDEVHGNPPYAPLAERVKAAMEELERAAD EAGLGGLTNGKDDETLVDQTFCPDEERTKAVAEALDRVDE EVAFAGLDITKDDEDIVNRAGAPALERLHACLSVLDRAVKQ DFWLGG DFIKNDEPQGQTFAPLKQTIPGVADAMRRAQD TLVDAGVDFIKDDELQANGPHCPFDERVKEVSRVLNAHAD GQTRGGVDLVKDDELLFDNPLTPFDERVRVGASVVRESYE EVAGAGLDIIKDDEILGDLEIAPTLKRLEVCRKVLDEDKQ DFWVGGGDFVKNDEPQANQDFCPYDKMVKHVKEAMDKAVR AFWRGG DFLKNDEPQGNQPFAPFKETLRLVADAMARVQD

DFRVGGGDFVKNDEPQANQDFCPYDKMVKHПAEAMAKAVK EQALGGVDLVKDDERLFDNPGTSFDERIKAAVEVLKETEA TLAEAGI DFVKDDEL MASTANSPFETRVEAVMAVINRHAD ELDAGDIDFIKDDELQADGARCPFEARVKAVMRVVNDAAD EAGMGGLTNGKDDETLSNQKFCPFEDRVVAVAEAVDRVKD QTALGGVDLIKDDELLANPSYCTLEDRLDKYIEASNRAYE TLVTAGTDFTKDDEDMSSANPAKRVEAMAVNSASA AQAEGGLDLIKDDEIFFADDKAPFIQRIGRFKSIIDEDAE ELIDA AGVDFIKDDEKLMSPAYSPLKDRVAMIMPRILDHEQ EYWAAGGDF UKNDEPQGNQVFAPLQKVIPLVADAMKRAMD EALKGGLDFTKDDENTNSQPFMRWRERFLYGMEAVNHASA QQALGGVDLVKDDEDLFENEDTPFEKRDIEGKKALQEVYD QSWLGGLDIAKDDEMLADVDWCPLAQRAALLGDACRKATV ELCEAGVDFIKDDEKLMSPGYSLLEDRLKAVMPVIVRDHEQ
DAYLGGIVDVIKDDELLVDPAWCPLEKRVQAVTDAGKRAFE EALRGGLDFTKDDENTNSQPFGRWRDRYLYAMEAVNRASA

QVANAGDDLKDDE【LGNDAVAPTLKRDECCRKVLETVKE DFALGGIDIKDDHGLSNQPFCPYEHRVKACTEAVANANQ DF WLGG DFUKNDEPQANQPFCPMEVVMPKVAEAMDRAQQ NपNSQPFMHWRDRFLYVMDAVNKASA
SFWLGG DFTKNDEPQGNQVFCPTKKVIPLVADAMKRAQD PSCTGATVFRSSWKRSDAQQL DQADGGVDVVKDDEGLFENALTPLTNRIVSGKEVLOSVYE T LI DAG: DFIK KRXRASLDFVKDDENVNSQPFMHWRDRFLYCMEAVNKASA EA价GSDFTKDDENTNSQPFMHWRDRFGCAEALFKAQA DDEKLTHNHLCTGRDRF YCMEAVNRAQA NINSQPFMRWRDRFLYAMEGVNRAMA RLCDAGVDFDKDDEVCANPVHAPLAERVPAVMAAVRAHRE DDENINSQPFMRWRERFLYVQEGITRACA T LCEAGVDF TKDDEVCANPAHAPGAERVPAVMAVI REAAQ NIINSQPFMRWRDRYIHAMEAVNRAQA

R पCAAGVDFTKDDEVCANPAHAPDAQRVAAVMAVVRAHRE DFWLGG DFIKNDEPQANQNFCPMEVVIPKVAEAMDRAQQ QLCAAGVDFIKDDEVCANPDDAPLAERVPAVMAVINKWQE DSIDDENUNSQPFMRWRERFLYAMEGVNRASA EFWLGG DF DKNDEPQGNQTFAPLKETVRLVADAMKRAQD
 TLVEAGПDFTKDDELQANGPNCPFNERLEAVMRVDNDYRD RLALGGMHLIKDDHGLTDQGFCRFEERVSLCAEAVVRANR KLALGGCPIIKDDHSLMNQDYAPFEERVLQCIVMALADAKE DDENI NSQPFMRYRERFLYSMEGVNHAAA
KXDENI NSQPFMHWRDRXLYXMDAVNKAXA DTALGGVDLTKDDELLGNPPFSPVVDRVKAYLAAADRARD QFWLGG DFIKNDEPQGNQVFAPFKDTMRLVADSMRRAQD RFWKGGGDFVKFDEPQADQVFCPFEDAVKAVAKKMEQVRK EGLKGGLDFLKDDENTNSXXXXXXXXXXXXXXXXXXXXX EGEKGGUNIIKDDHGLTNQSFSPFKERVRVCSDAIKAAYE KDDENINSQPFMHWRDRFLYCMEAVNKATA AFWQGG DFTKNDEPQGNQPFCQMNEVIPEVVKAMRAADK GFWQGG DFIKNDEPQGNQTFCQMNECIPEVVKAMRAAQE QAADGGADVIKDDELLSYQPFMRWRERYLYCMEGUNRAAA ELIQSGVDFIKDDEKLMSPAYSPMKERIAAIMPRILDHEQ ELAEAGIDFIKDDELQGNGPTAPLAERVRAVMPVLERYAD NFALLGGMHLIKDDHGLVDGPTSPYADRLTACVTAVAEANA ETAEAGMDIKDDEMMPDGPGCTACDRIRACRPVLEKAQK DMALAGVD KDDGQANACPFDARVAVMDVNRAD XXXXXXXXXXXXXXXXXXXXWKERFLYSMEGVNRADA ETALGGVDLIKDDELLGNPAFSEVSKRVKEYKKAARRAFE QFALGGI DII KDDHGLADQKFCSFDERVARCSDAVARANA


## UniRef90 U1WDJ1 UniRef90-U7GFY8 UniRef90-X2LOJ3 UniRef90-H1YB65 UniRef90_UPIO0037E3117 UniRet90-M9SFFO UniRef90-W8KKW5 UniRef90_UPIO00382EB1B UniRef90OUPIOOO4248EF3 UniRef90-UP10003 UniRef90 A3X9D1 <br> UniRef90-UPIO003F4AFC6 <br> UniRet90-F4XPV2 2 <br> UniRef90 ${ }^{-}$Q2RRP5 <br> UniRef90-W9E1H0

UniRef90-H6SR69
UniRef90-Q32635
UniRef90 A6H556
UniRef90-A6H556
UniRef90_UPIooo40528A8
UniRef90_UPIo003704DEF
UniRef90-A7IJG7
UniRef90-R9T8T7
UniRef90-B6WB10
UniRef90-C5H3A3
UniRef90_UPIO00425046C
UniRef90_U4WSK5
UniRef90-A0A021X0E6
UniRef90-H2C118
UniRef90-F5A010
UniRef90_UP10004792AB6
UniRef90-UPI00034BBB63
UniRef90-X6L437
UniRef90_B1C9」3
UniRef90_16YD88
UniRef90_C1IIE0
UniRef90-B7JZ27
UniRef90
U7BYT9
UniRef90 D9SHP6
UniRef90-BOLQY6
UniRef90-X2L216
UniRefo - 887136
UniRef90-H8Z136
UniRef90-C3P745
UniRet90_UPIO0047909EF
UniRef90-A6W001
UniRet90-Q6TEV4
UniRef90-OSSCLLO
UniRef90-16YD22
UniRef90 $\cup 3 M F P 0$
UniRef90-BOLOZ8
UniRef90-V5UID9
UniRef90 U3MK29
UniRef90-V8QVL4
UniRef90-BoLQZ6
UniRef90-X0Z867
UniRef90-C5H371
UniRef90-F7STU9
UniRef90-Q59462
UniRef90_Q0FNR2
UniRet90_U3MDM8
UniRef90_A3PRW6
UniRef90-ABT1S66
UniRef90-M1 GMR9
UniRef90-UPIO0036905D4
UniRef90_G2EE10
UniRef90_R7CTTO
UniRef90-Q6X766
UniRef90-C5H3B8
UniRef90_C8XHWO
UniRef90-O2W3S5
UniRef90-K2A722
UniRef90_Q32594
UniRef90_G5ILX4
UniRef90-E7BJF4
UniRef90-Q5ENN5
UniRef90-Q6YMH5
UniRef90-17HIY8
UniRef90_-BOMD38
UniRef90-M5JJJJ
UniRef90-UP10003645BC8
UniRef90-UP100035CDDA6
UniRef90-g9ZCF3
UniRef90 Q28MT2
UniRef90-A7BL54
UniRef90-Q33114
UniRef90-SOFUK9
UniRef90-UPIO003829AB0
UniRef90GG8LZL2
UniRef90 H5T867


RTGRQVMVAFNTTDET DAMRRHADLIEREQGSCVMASD ATGQAKLFSANVTADFHEEMDKRGEYVLGEFAKYGNVDGF RTGRKVMMAFNITDET DAMRRHADLVAREGGSCVMASLN
 ATGEVKGHYLNVTAATMEEMYARAQLAKELGSVIVMDDVL RTGERKGHYGNVTAPSPEEMYERAEFAKELNMPCIMHDFL KTGKQVLYAVNITDEDGDQMWRNLDAMKNVEATCAMVCVQ KTGKKSMYIANCTADGLEQMLDRAYKAQEGGADGIMVAPA KTGEVKGHYLNVTAATMEDMYERANFATELGSVVVMID L AXGEVKGSYLNVTAGBMEXMYXRAXFAKELGSVXXMXD ETGQAKLFSANITADDPAEMIARGQFILDTFGENASHDGF
 KTGKKAMYVPNVTAPLK K DRDNARYAKECGADGDMVAPG ETGEVKGHYLN TAGTMEEMYRRAELAKELGSVIVMVDLI

E
 K
R
R

UniRef90_H5T867

UniRef90_U1WDJ1
UniRef90 U7GFY UniRef90_U7GFY8
UniRef90_XLOUJ3 UniRef90-K9XQN8 UniRef90-H1YB65 UniRef90_UPIO0037E3117 UniRef90-M9SFF0 UniRef90-W8KKW5 UniRef90_UPIO00382EB1B UniRef90_UPIO004248EF3 UniRef90_UPI0003782C46 UniRef90 A3X9D1 UniRef90_UPIO003F4AFC6 UniRef90-F4XPV2 UniRef90-Q2RRP5 UniRef90-W9E1H0 UniRef90-H6SR69 UniRef90-Q32635 UniRef90-K1YIJ0 UniRef90_UPIO0040528A8 UniRef90_UPI0003704DEF UniRef90_A7IJG7 UniRef90-R9T8T7 UniRef90-B6WB10 UniRef90-C5H3A3 UniRef90_UPIO00425046C UniRef90_U4WSK5 UniRef90-A0A021X0E6 UniRef90_H2Cl18 UniRef90-F5A010 UniRef90_UPI0004792AB6 UniRef90-UPI00034BBB63 UniRef90-X6L437 UniRef90_B1C9J3 UniRef90-I6YD88 UniRef90_C1IIE0 UniRef90_B7JZ27
UniRef90_A7BYT9 UniRef90_D9SHP6 UniRef90-BOLQY6 UniRef90-X2L216 UniRef90-I0JTZ9 UniRef90_C3P745 UniRef90_UPI00047909EF UniRef90_A6W001 UniRet90_Q6TEV4 UniRef90-I6YD22 UniRef90-U3MFP0 UniRef90-B0LQZ8 UniRef90_V5UID9
UniRef90 U3MK29 UniRef90-V8QVL4 UniRef90-B0LQZ6
UniRef90 X0Z867 UniRef90-C5H371 UniRef90-F7STU9 UniRef90-Q59462 UniRef90-Q0FNR2 UniRef90_U3MDM8 UniRef90_A3PRW6
UniRef90_A8T1S6 UniRef90-D2SC10 UniRef90-M1GMR9 UniRef90_UPIO0036905D4 UniRef90_G2E110 UniRef90_R7CTT0 UniRef90_Q6X766
UniRef90 C5H3B8 UniRef90_C8XHW0 UniRef90-Q2W3S5 UniRef90-K2A722 UniRef90_Q32594 UniRef90_G5ILX4 UniRef90-Q5ENN5 UniRef90-Q6YYH5 UniRef90_17HIY8 UniRef90-B0MD38 UniRef90-M5JJJJ6 UniRef90_UP10003645BC8 UniRef90_UP100035CDDA6 UniRef90-J9ZCF3 UniRef90-Q28MT2 UniRef90_A7BL54 UniRef90_Q33114 UniRef90-SOFUK9 UniRef90_UPI0003829AB0 UniRef90-G8LZL2 UniRef90_H5T867

 TYGFSILEALADDPAVNVPIFVHPAFAGALCAGTDTGLNY SVNSVGLS GTKKVCDQGELVIHGHRNGWGMLNRHPLLG\|E $S I G F A G$ $T S G F G A D Q A V A$ PVGLS G SYGFSVLEQLAADPEDNVPVFAHPADAGAACGAPEHGMAY


 I DGDTA GWMAVQRRRYPDVFIHFHRAAHGAFTRPENPGFS VDGYVAGPTTARRRFPNTFLHYHRAGHGAVTSPQSKRGYT V $\square$ GYTA $\square Q S M A \square W S R R N D M Q Q F H R A G N S T Y S R Q K \square H G M N$ I DGTTAGWMAVQRRKYPDVFI HFHRAGHGAFTRPENPGFN TYGLDVLQSLAEDPDVTVPIMAHPSFSGAMTPSKVYGIAN S GUSA TRRDCDLGQLADHGHRNGWGMLNRHPLL GDE
 SVGDDVLQYLTK NDDVPVI A HYASAGPYYESAFSG\|AS

 S $\square$ GFGG $L$ S F LRKRSGLVLHAHRNGWD LTTRHAGLGFE $V V G Y T A D Q P M A K W A R R N D M D L H D R A R A G N S T Y A R Q K N H G M N$
 A GF GGMTYLRRRSRLC L LHAHRNGWDVLTRHPAMGME $T \square G F S A M Q S M S K W A R A N G M L M H L H R A G H S T Y T R Q K N H G V N$ TGGFTANTSLAFYCRDNGLLLHIHRAMHAVIDRQKDHGMH TYGFSVLEMLANDPEDNVPI FAHPAFAGAMCAASETGLSY VTGPA GVTTCRREFPDTHFHFHRAGHGAVTSYKSPMGMD VIGYTAI QSMANWARKNDMILHLHRAGHGTYTRQKNHGVS TGGFTVNTGLVNWCRSNRIVLHIHRAMHAVIDRHPKHGSH
$V G G P G M V T T U R R Q Y P D ~ Q Y L H Y H R A G H G A I I T S P S S K R G Y T ~$ $V$ VGWTAI QSMSNWCRQHDMMLHMHRAGHGTYTRQKNHGDS A YGLDVLQSLAEDDEDPVPDMAHPAVSGAYSASKLYGISS
 VI GYTA QSMAKWARRNDMLLHLHRAGNSTYSRQKNHGMN TGGFTANTSGAHYXXXXXXXXXXXXXXXXXXXXXXXXXXX VIGYTAIDSMSKWARRNDMILHLHRAGHSTYTRQKNHGVS V GYTA: QSMANWARDNDMI L HLLHRAGHSTYTRQRTHGV S
 VMGYTALQSMADWARENDMILHDHRAGNSTYARQKNHGU N T IGGTAMQSMSKWARANGMILHDHRAGHGTYTRQKTHGVS TVGFSA LQ E DRDY LDDKD VVI HAHRAMHAADTRNKKHGMT WCGYSADQTLR RHTPLALHGHRNGYGADSRHPLLGUG VTGPA GVTTSRRAFPDTYLHFHRAGHGAVTSYKSPMGMD WCGLSGMESLR THTPLADHAHRNGFGAMSRHPLLGMG V $\square G Y T A \square Q S I C K W A R A N D Q I M H D H R A G N S T Y A R Q K N H G \square N$ VTGPAAITTARRQFPR QFLHYHRAGHGAVTSPQSMRGYT VIGYTAUQTMAKWARDNDMILHLHRAGNSTYSRQKNHGMN

 LAGFDAMRSLAADEGLCLPLLSHPAFQGSFCLHPDTGLSH

 SAGFGS TAGWTAVQTARRMWP DVFLHFHRAGHGAMTREENPGYT
 I G WTAlQQSIS EWCRQNDMIILHMHRAGHGTYTRQKNHGIS VVGGTAVT VARRNFPKQFLHYHRAGHGSVTSPQTQRGYT VDGYVAGVTVARRNFPKQFLHYHRAGHGAVTSPQTQRGYT VMGYTA RTAA DWARENDMLLHLHRAGNSTYARQKNHGDN AMGWGAVEDFAMKREKLIYPI F GHCAGMGAYYRSKTNGIS SVGFGG MSFLRKRSGLVLHAHRNGWDVLTRNPGAGMD LI GVSG LEFLRRHSAVPI HGHRAMFGAFGRSDQVGDG
 PVGLS GFLALSRHA DLPI HAHRNGWGALSRHPALGWS LTGFDTMRALAEEETVNLPLI SHPAF LDGSMVTSSENGFSH 1 G YTADQTMGVWARKNDMI HLDRAGNSTYSRQKNHGMN AVGYDVLNY S E S DD $\square$ P L L GHYAGAGDFYESGFSGIS S LVGLDVVRYLSENDDFALPI MAHPAFLGSYVTSDQNGLSH
UniRef90_U1WDJ1 UniRef90_U7GFY8
UniRef90_X2L0J3 UniRef90_K9XQN8 UniRef90_H1YB65 UniRef90_UPI00037E3117 UniRef90_M9SFF0 UniRef90_W8KKW5 UniRef90_UPI000382EB1B UniRef90_UPI0004248EF3 UniRef90_UPI0003782C46 UniRef90 A3X9D1 UniRef90_UPI0003F4AFC6 UniRef90_F4XPV2 UniRef90_Q2RRP5
UniRef90_W9E1H0 UniRef90_H6SR69 UniRef90-Q32635 UniRef90-A6H556 UniRef90_K1YIJ0 UniRef90_UPI00040528A8 UniRef90_UPI0003704DEF UniRef90_A7IJG7 UniRef90-R9T8T7 UniRef90_B6WB10
UniRef90_C5H3A3
UniRef90_UPIO00425046C
UniRef90_U4WSK5 UniRef90-A0A021X0E6 UniRef90_H2Cl18 UniRef90_F5A010 UniRef90_UPI0004792AB6 UniRef90_UPI00034BBB63 UniRef90_X6L437 UniRef90_B1C9J3 UniRef90_I6YD88 UniRef90_C1IIE0 UniRef90_B7JZ27 UniRef90_A7BYT9 UniRef90-D9SHP6 UniRef90_B0LQY6 UniRef90_X2L216 UniRef90-H8Z136
UniRef90-10JTZ9 UniRef90_C3P745 UniRef90_UPIO0047909EF UniRef90_A6W001 UniRef90_Q6TEV4 UniRef90_Q5SCL0 UniRef90_I6YD22 UniRef90_B0LQZ8 UniRef90_V5UID9 UniRef90_V8QVL4 UniRef90_B0LQZ6 UniRef90_X0Z867 UniRef90_C5H371 UniRef90_F7STU9 UniRef90-Q59462 UniRef90_Q0FNR2 UniRef90_U3MDM8
UniRef90_A3PRW6 UniRef90_A8T1S6 UniRef90_D2SC10 UniRef90_M1GMR9 UniRef90_UPI00036905D4 UniRef90_G2E1I0 UniRef90_R7CTT0 UniRef90_Q6X766
UniRef90_C5H3B8 UniRef90_C8XHW0 UniRef90-Q2W3S5 UniRef90_K2A722 UniRef90_Q32594 UniRef90_G5ILX4 UniRef90_E7BJF4 UniRef90-Q5ENN5 UniRef90-17HIY8 UniRef90_B0MD38 UniRef90_M5JJJ6 UniRef90_UPI0003645BC8 UniRef90_UPI00035CDDA6 UniRef90_J9ZCF3 UniRef90_Q28MT2 UniRef90_A7BL54 UniRef90_Q33114 UniRef90_SOFUK9 UniRef90_UPI0003829AB0 UniRef90_G8LZL2
$P L L L G K L M R L A G A D M I L Y P S P Y G S V A L N H T E A L T V A E H A R$

 FPAYQKLWRLAGDVQL HVNGDQNKFWESDDSVVRSIDEALD FSAY Q K L CRLCGADHLHVNGLNNKFYESDASVIGVRDCLT

 AFVLSSKMA RMQGAS GllHT GTMGF GKME G F RAYQT LWRLAGVDHMHVHGLAGKFAQEDVEVID
 $E V L L G K F L R L A G A D L V L F P S P Y G S V A M K K E D T L A I$


 FRVI CKWMRMAGVDHIHAAGTVVGKLEGDPLMDKGFYNTLL F RVL A K M L R L L G GD HL H S GTVVVGKL E GDREATVGWVDLLR V L V L S K F A R L A G A S G I H T G T GV G K M A G S P E E D I H I F H Q SR
 Y A P WQ QL WRL A GVVDHLHVNGLDNKFSEANASVIAAAARAVL $M N V F A K L V R M C G G D A L H I G T F G V G K M T G S$
$N L F L G K F A R M A G A D V V M I N T P Y G G Y P L K K S R Y L R A A H E L M$ FRVISKWMR LA GVD HI HAGTVVGKLEGDPAVI A G FYD S L R R

 SFVLSKMARLQGASGIHTGTMGFGKMEGDPE FRVI CKWMRMA GVDHL HA GTVVGK LE G S LL L G K LL LR YA GA D LSSLFPSPYGTVALEKPKALS DANELT $S R V M T R L Q R D A G F D V I \quad I M P G F G P R M F T P E A E V M D C V R A C L D$
 FRVIAKWCRMIGVDH\|HAGTAVGKLEG
FRVLAKALRLS GGDHLHAGTVVGKLEGERD■TLGFVDLMR SVVVGTMLAAYS GA DAV LVYPA H Y G S L P P F E V T E E N K I K E I L R
 F RVIA K WMRLA GVDHVHAGTAVSKLEGDPLTVQGYYDVCR $F R V L A K Y L R L S G G D H L H T G T V V G K L E G D R L A S F G F V D L M R$ A F V L A K MARLQ GAS GI HVGTMGYGKMEGDA K
FRVI A K WLR M C G VD HL HTGTAVGKDEGDPMTVQGYYNVCR

 $F N V W Q K V W R L L G I D H L Q I N G I D D G Y W Q G N D S V M E A Y Y A M$ FRVICKWMRMAGVDHIHAGTAVGKLEG
X X XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX FRVI A K WMRMAGEMDVVLGAGWPGVMLH
FRVI A K WMRLAGVDHI HAGTVVGKLEGDPATTKGFYDVMR FRVIGKWSRLMGVDHVHAGTVVGKLEGDPATTRGFYDTLR $F$ QAYQA LDWRLA GVVDHMHVHGG QGKEA QPDDEVDE S A $F R \square V I C K W M R M A G M D H D H A G T V V G K L E G D P D I V V G G F Y N T L L$ Y QP Y Q A M WRLLAGVDHMHVHGLQGKFS QPD SEVV

 $F R V L A K W C R L I G V D H D H A G T V V G K D E G D P R M I R G Y Y N V C R$ F Q A Y Q T LWRLA GVDHMHVHGLQQGKFS QPDAEVVESAR DCLL $P$ L C Y M KL A RLM GAS G $\square H T G T M G Y K M E G H N D E R V L A Y$ F QA Y H ALLFRLTGIDHMHVHGIGGKFVDTAEEVTAAARACL F RVICK WMRMAGVDHDHAGTVVGK LIEGDPLMVKGFYNVLL



 $G V L F G Q L N R L A G A D A T I F P T W G G R F S F T Q D E C L D D D D G T V$


 VLVHMKMARLLGAS GIJHTGTMGYKMEGAPDEKVVAY
 FRVICKWMRMAGVDHDHAGTVVGKDEGDPLMXXXXXXXXX FRVIAKWLRLA GVDHLHCGTAVGKLEGDPLTVQGVA

 AFVHTKLSRVIGAS GI H T GTMSF GKME

$F R V Y Q Q F W R L L G V D Q F Q \| N G D R V K Y W E P D E S F V N S F$

 Y V A F S K L WR LAA GA D HL L HVN G L S N K F C EPD E S V TAASARA C L
 $H L V T G K F P R L A G A D M V V D N T P Y G G S N L K H Q K Y L G T V V Q Q L D$ YALFGQLMRLA GADATVFPNYGGRFSFSKEECQGIARGCS G A L L G Q M R L A GAD A T I Y P N F G GRFS F S R E E C E S I A


UniRef90 U1WDJ1 UniRef90＿U7GFY8 UniRef90－X2LOJ3 UniRef90－K9XQN8 UniRet90＿UPIO0037E3117 UniRef90＿M9SFF0 UniRef90 W8KkW5 UniRef90 UPI000382EB1B UniRef90＿UPIOO04248EF3 UniRef90 UPIOO03782C46 UniRef90 A3X9D1 UniRef90－UPIo003F4AFC6 UniRef90－F4XPV2 UniRef90 ${ }^{-}$Q2RRP5 UniRef90 W9E1H0 UniRef90－H6SR69 UniRef90＿Q32635 UniRef90 A6H556 UniRef90－K1YIJO UniRef90－UPIOOO40528A8 UniRef90－UPI0003704DEF UniRef90 A7IJG7 UniRef90－R9T8T7 UniRef90－B6WB10 UniRef90 С5НЗАЗ UniRef90－UPIO00425046C UniRef90＿U4WSK5 UniRef90 A0A021X0E6 UniRef90－H2Cl18 UniRef90－F5A010 UniRef90－UPIOOO4792AB6 UniRef90－UPI00034BBB63 UniRef90－X6L437 UniRef90＿B1C9」3 UniRef90＿16YD88 UniRef90＿C1IIE0 UniRef90－B7JZ27 UniRef90－A7BYT9 UniRef90－D9SHP6 UniRef90－BoLQY6 UniRef90－X2L216 UniRef90－H8Z136 UniRef90 10JTZ9 UniRef90－C3P745 UniRef90＿UPloo047909EF UniRef90－A6W001 UniRef90＿Q6TEV4 UniRef90－Q5SCLO UniRef90－16YD22 UniRef90－U3MFP0 UniRef90－BoLQZ8 UniRefofo－V5UDID9 UniRef90－V8QVL4 UniRef90－BoLQZ6 UniRef90－X0Z867 UniRef90－C5H371 UniRef90－F7STU9
UniR Refo－O59462 UniRef90－QOFNR2 UniRet90＿U3MDM8 UniRef90－A3PRW6
UniRef90 A8T1S6 UniRef90－D2SC10 UniRef90－M1GMR9 UniRef90＿UPI00036905D4 UniRef90－G2E110 UniRef90 R7CTTO UniRet90－Q6X766 UniRet90－C5H3B8 UniRef90－C8XHW0 UniRef90＿O2W3S5 UniRef90－K2A722
UniRefon－O32594 UniRef90－Q325924 UniRef90 ETBJF4 UniRef90－Q5ENN5 UniRef90－O6Y9H5 UniRef90－17HIY8 UniRef90－BoMD38 UniRef90 M5JJJ6 UniRef90 UPI0003645BC8 UniRef90－UPI00035CDDA6 UniRef90＿JgZCF3 UniRef90－Q28MT2 UniRef90＿A7BL54 UniRef90－Q33114 UniRef90＿SofUK9 UniRef90－UPI0003829ABO UniRef90－G8LZL2 UniRef90＿H5T867

YNDFGMDIVIVNAGGGVHGHPSGAADGARAFRAATDAVVN

■TDYGNDVILNAGTGПMDHPDGAAAGVQAFFEALARПKNN RRTQTTDLLYMAGGGI MAHPDGPGGGVVALQQAWEGAVNG ARLQTVDLLNDAGGGIHGHPGGPGAGYRSLVQGWEAAVAG MKVTGNDVQIQAGGGVAGHPEGVRGGAMAMCQAADA FVPGRGVFGHPMGPRAGATSDRQAWDADG ■ADYGQDA！LNAGTGLMDHPDGPAAGVQAFFEALKLAAPG FNLGHSNLILTAGGGAFGHDDGAAAGATSLRQAEECWKQS AAVGTSDLLFMAGGGПMAHPGGPAEGVASIRAAWVAA SLLGNDDFIFCAGGGILSHPSGAAAGVIALRQAAEAARS ANDFGVDSV NAGGGI HGHPGGAEAGARAFRQADDGVLRG VADYGQEVILNAGTGIMDHPDGPAAGVKAFFEALH FELGNANVI LTAGGGAFGHDDGPVAGARSLRQAWQAW RD ПDVMNVDF TTMGSGVHAHPGGTQDGAKALVQACDAYLQ FANLGHANVIQTGGGCFGHDDGPAAGARSLRQAWEAWSQ XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
$V$ VITGDAVLQFGGGTLGHPWGNAGAAANRVSLEACVKA DVMGNVDFITTMGAWCHAHPGGTQKGATALVQSCEAYKAW DQDFGlDSVINAGGG\｜HGHPGGASEGGKAFRDADDGDRD RRTQTTDLLYMAGGGIMAHPGGAAAGVTALQQAWEAAVS AA GCADLHTAGGGlFGHPAGVPAGVEALRAAWRAAMAG VEIAGTN QLQAGGGVAGHPGGVRKGAMALSQAVDAAYE II KQLGKDUMLAAGGAVQGHPDGAESGVKAMDQSIESACQ 1 T Y
RRTQTTDLLYMAGGG LAHPQGASAGVTADKQAWEAAVNG YADFGLDQVVNAGGGIHGHPDGATAGGRAFRAADDASVNG TAATQTDLLYLCGGGUVSHPGGPGAGVKADRQAWEAAV
FDNLGHANIIQTGGSFGHRDGVKAGVASURQAVEAWQKG
$\square \mathrm{GDFG} \square \mathrm{DSF} \Pi \mathrm{NAGGGVHGHPDGARGGG} \mathrm{\square AFRQA} \mathrm{\Pi ETNDQG}$ YRIGSADFGFVPGRGVFGHPMGPAAGATS四QAWEA IAAG GGIHGHPGGAAGGVRAIRQAWDAAAAG
$\square Y E V G T D V M \square A A G G A V H G H R N G A T A G A R A \square R Q A \square D G A M A G$
VD DFGDDACLQFGGGTLGHPWGNAPGAV
LADYGTEVVLNSGTG MDHPDGPASGVKAFFDRL

SPAGG【SLGQAYDCW KS
FENDGHANLINTGGGSYGHVDGPAAGARSLLQAFECWKAG LDLFGDDVVLQFGGGTDGHPQGDQAGAVANRVAL
1 RDFGKDVVINAGGG HGHPNGAQGGGKAFRTA DATLQN RRTQTTDLLYMAGGGI LAHPMGATAGVNALQQAWKAAVDG YNRTGKSTELMYGGGUHGHPLGAQGGVKA\RQAWDSCISG

TE $\square$ FGDDSVLQFGGGT $\square G H P W G N A P G A \square A N R \nabla A \square E A C \nabla Q A$

QA $\square$ GRDD $\square \square F M A G G G \square L A H P D G A G A G V Q S R D A W Q A M R A$ HAVQSQDLLFMSGGG【LAHPMGPAAGVVSपRQAWAAQQEG
 CHYLGEDVVMQFGGGTDGHPMGDAAGARANRVAVEAMIQA AAVRTDDLLFMSGGGILAHPDGPAAGVQSIRQAWQAV FENLGHGNVINCGGGSFGHDDSPAAGGISSGQAYACWKT A AA QS SDLMFMCGGGILAHPQGPDAG\｜ASLREAYDVLRSG
FDNGGHSNVIQTGGGAFGHपDGGTAGAKS $\quad$ RQSHEAWM A
AAVGSTDLLMLAGGGПAAHPDGPAAGVRS $\square R Q A W \square A A V S$
E $\square G N D D F T Y C V G G G M S H P G G A A D G V S \square R D A A E A A R \square G$ CAFYGSDVSLLI GGDLQAHGGDLVASCRRFVE
YQTYGPDTIFLVGGALQTEGPDLTDNVKFF
$\square D \square X G D D V V L Q F G G G T D G$
VDELGPDIILGAGGADQGHPDGAAAGADAMRQA $\square D A V M A G$ FDNLGHSNVIQTGGGAFGHKDGPVAGALSLRQAHEAWMRG ADVIGTVDFITMGGGVHSHPSGTEKGAMALVQACEAWKQ XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX VSNYGKDVLLLIGGGLFTCGENLAANCRQFTAAVEA $\frac{1}{F} D \operatorname{DLL}$

MDLLGNDC $\square \mathrm{LMAGGG} \mathrm{\square YGHPMGAEAGAKA} \mathrm{\square LSA} \square$ NAKMK
AA $V R T T D L V L A G G G H G H P D G A S A G V A S M R E A W A S A A G$ QRAYGEHVIYLIGGALLREDDLIDAA MDDYGPDVALNAGTGMMDPMGPAAGVRAFFEALDRWENK AA $\square$ GSADLAHAAGGGULGHPDGPRAGVAAMRSAWAEAMH

MSDLGAD\｜LASGGAVQGHPMGAAAGAKAMRQAMDAVVE TEVYGKDFVLLIGGGLHRHGPDL
LKVYGKDVIFLVGGGLFRHGPNLDENCA

QS F D $\square$ NS $\square$ PS G

GVPVLDYAREHKEDARAFESFPGDADQDYPGWR KIDIEEYAKTNKELAQAIEYF
GVDLVTYAKEHRELARALESFQA
RNEGRDYVAEGPQDLQDAAKTCGPLARAGLDSWQADTFNYT RNEGRELEKEGKDILDEAPQ
ES

$K \square P A S E Y R K T H V E L D Q A L S K W G$
GIDLDNEAKNHKELDKALEDWG

4
1
$S$
$\square s$
K D
$\square \mathrm{P}$
DA EAVQQYPEFALSVEKFG

LLDYAGDHQELAAAF
LLAEGAENYPELK LDALK L $\square W G$
VADYAAGKPELAAALQAFG


GSDP $\square E$ YAKTHKEFARAFESFPKDGDK LIFAGWRE

AN P LD WAKDHKEFARAFESFPHDADA $\square$ FPSWRE


Q S
VS
$\square \mathrm{AH}$ Y S R N MPELKAA LDFFGA
GYTLKEYAKDHNELARA $\square E \square W G$ RNEGRDFYVEGPDDLARAAQGCPEL
GAEPDEAPREAGQDLAAFAAEAPELRRADEHFG GS L A E

GVDLVTYAREHRELARAFESFPADADKFYPGWRD
SPLAAEHAARGDSALAHALQTFP
$\square \mathrm{P}$
$\square E$ Q Y A K P N T P $\square$ HAA $\square$ A N F

VVEAGQEHPALGRALDRFG
K $\square$ LV VEYAQGHPELRGAFESF RNEGRDYVAEGPQULQDAAKTCGPLQTALDGWKD DSFNYT

KAGVYGSVS $\square$ S DGVIE YAKTHEE $\square$ KGAF $\square$ T F
GKT $\square$ LE AASECAE $\square Q A A \square D V W G$
EPVDVAFERSAALRRAAELFGPVR
ES FEPGS $\square$ PGG
$P \square K A A D G K W G$

UniRef90 U1WDJ1
UniRef90-U7GFY8
UniRef90-X2LOJ3
UniRef90_K9XQN8
UniRef90_H1YB65
UniRef90-UPIO0037E3117
UniRef90-M9SFF0
UniRef90 W8KKW5
UniRef90-UPIO00382EB1B
UniRef90_UPIO004248EF3
UniRef90-UPIO003782C46
UniRef90 A3X9D1
UniRef90_UPI0003F4AFC6
UniRef90-F4XPV2
UniRef90 Q2RRP5
UniRef90 ${ }^{-}$W9E1H0
UniRef90-H6SR69
UniRef90-Q32635
UniRef90 A6H556
UniRef90-K1 YIJ0
UniRef90_UPI00040528A8
UniRef90-UPI0003704DEF
UniRef90-A7IJG7
UniRef90_R9T8T7
UniRef90-B6WB10
UniRef90 С5НЗАЗ
UniRef90_UPI000425046C
UniRef90_U4WSK5
UniRef90_A0A021X0E6
UniRef90- H2Cl18
UniRef90-F5A010
UniRef90-UPIO004792AB6
UniRef90 UPI00034BBB63
UniRef90-X6L437
UniRef90-B1C9J3
UniRef90-I6YD88
UniRef90-C1IIE0
UniRef90_B7JZ27
UniRef90-A7BYT9
UniRef90_D9SHP6
UniRef90-B0LQY6
UniRef90-X2L216
UniRef90-H8Z136
UniRef90 10JTZ9
UniRef90-C3P745
UniRef90_UPIO0047909EF
UniRef90 A6W001
UniRef90-Q6TEV4
UniRef90_Q5SCL0
UniRef90-I6YD22
UniRef90-U3MFP0 UniRef90-B0LQZ8
UniRef90_V5UID9
UniRef90_U3MK29
UniRef90 V8QVL4
UniRef90-B0LQZ6
UniRef90-X0Z867
UniRef90_C5H371
UniRef90_F7STU9
UniRef90-Q59462
UniRef90_Q0FNR2
UniRef90 U3MDM8 UniRef90_A3PRW6
UniRef90-A8T1S6
UniRef90_D2SC10
UniRef90 ${ }^{-}$M1 GMR9
UniRef90_UPIO0036905D4
UniRef90 G2E1I0
UniRef90 R7CTT0
UniRef90_Q6X766
UniRef90-C5H3B8
UniRef90_C8XHW0
UniRef90-Q2W3S5
UniRef90-K2A722
UniRef90-Q3259
UniRef90-G5ILX4
UniRef90_E7BJF4
UniRef90-Q5ENN5
UniRef90-Q6Y9H5
UniRef90-17HIY8
UniRef90-B0MD38
UniRef90-M5JJJ6
UniRef90 UPIO003645BC8
UniRef90-UPI00035CDDA6
UniRef90-J9ZCF3
UniRef90-Q28MT2
UniRef90 A7BL54
UniRef90-Q33114
UniRef90-SOFUK9
UniRef90 UPI0003829AB0
UniRef90-G8LZL2
UniRef90_H5T867

STDT

UniRef90 X1CMU7 UniRef90－W7ZX99 UniRef90－Q7X097 UniRef90 ${ }^{-} \times 1$ GVD 8 UniRef90－U3MEU7 UniRef90－G1EFN6 UniRef90－IOJTY9 UniRef90－LON7Y4 UniRef90－X2LOG4 UniRef90－D7GXD0 UniRef90 V5W9K5 UniRef90－A1R5Z1 UniRef90－×1CX47 UniRef90 101MN8 UniRef90－${ }^{-}$N6UUG5 UniRef90－H9ABC7 UniRef90－A4S040 UniRef90－G9IJ55 UniRef90－F2ZCD1 UniRef90－R5BSI7 UniRef90－U1NOAO UniRef90 K4ARX4 UniRef90－TODURO UniRef90－J8TTD1 UniRef90－T1X146 UniRef90 ${ }^{-}$X2L245 UniRef90－T1 1258 UniRef90－T1 X2Q1 UniRef90－T1X1P4 UniRef90－${ }^{-} 2 L 7 L 1$ UniRef90－M9ZPF6 UniRef90 U3MC57 UniRef90－F2ZCF5 UniRef90－UPIOOO362E40B UniRef90＿B8XLF2 UniRef90 I4DDM4 UniRef90－X1KXK2 UniRef90－F2ZCE6 UniRef90 G4V4B0 UniRef90 F2ZCF4 UniRef90－U3MBG2 UniRef90－F2ZCG2 UniRef90 F812R2 UniRef90－I4DDP5 UniRef90－C1FGV9 UniRe90 UniRef90－W0E144 UniRef90－Q8MDW UniRef90 101588 UniRef90－Q6ST42 UniRef90－Q32366 UniRef90－T1X2M9 UniRef90＿A1WU93 UniRef90－Q013D2 UniRef90－X2L2E7 UniRef90 T1WZU3 UniRef90－G4E634 UniRef90－G2ZCE9 UniRef90－T1X283 UniRef90 X2L297 UniRef90－F2ZCB8 UniRef90－F2ZCC4 UniRef90－X1GPV0 UniRef90－D7BHY9 UniRef90－D5SVD7 UniRef90－D3PQ41 UniRef90 G3EJJO UniRef90－Q5DVV2 UniRef90－X1L1A5 UniRet90 A0A0591N90 UniRef90 QOA9HO UniRef90－Q5DVV5 UniRef90－F2ZCB3 UniRef90－C1MR98 UniRef90－Q0GEYO UniRef90－S6DLX0 UniRef90 UPI0004769195 UniRef90－I6QN08 UniRef90－ 55 K 309 UniRef90＿S9QP18 UniRef90 W3Y5H0 UniRef90－F2ZCB0 UniRef90－S6DLW2 UniRef90 F2ZCA9 UniRef90－A0A017HM60 UniRef90－X0TT38 UniRef90－V5LLY6 UniRef90 V4KR78 UniRef90＿W1UWYo UniRef90＿Q07KC6 PR $\square G \square E G \square R D L V D V H S R P A M S V A K G A \square G R S V D S F H E V L$

#  

GLS GKNYGRVVY

PGYG $\square \mathrm{PG} \square \mathrm{RQM} \mathrm{QGVYGRPLLCAVLKPM} \mathrm{G} \square S S A D \square A N \square A$ PAFG■EGTRK पISDVQGVMVGT VKPNVGDSEEEFRLVR PAFGПQGПRRS四TFDRPLLMAПFKPSGGLTAREHGEIFR PRHGlAGLRARAGVGETPLLMSA】KP VGLPTKELARLAH
PRFGVHGLRRLLRVPEGPLVMTALKPMGGLSQEDAEDAY SDLWRILGRPI AGTII KPKLGLRPEPFANAAY


 PGTGTEGLRADTGVPRRALLATALKPMAGLASELAARCS
 G G Y $\square$ A G T $\square \mathrm{I}$ K P K $\square G \square R$ P K P F A D A A Y
VKGISDLWRILGRPLIGTIDKPKDGLRPQPFADAAY PRWGIPGURQULNVPQRPLVMSIFKSENGRYDDEFADAFE PRFGTKGLRERPMKDGGYIAGTIGKPKLGLRPEPGAKAAY
$P L L G V S G \square R K K \square G V M D R P L V G A \square L K P C \square G V P P E A S A Q G A A$ PRFGREGLRACCGDPARPLLCTALKPM GRSPAEDAEAAY PAFGLSGDKKRRGNDDRPFLGATVKPKLGLSGKNYGRVVY
 TVKK K KLGLS GKNYGRVVY

PRYGTAGVREMLGTGERPDSSTALKP LGGDTATDAGFCA PRFGAKGLRKLLGVERGPLVMTALKPM GTPSDKLAEMAY
$P A C G \square A G L R E Q L N A P Q R P L T C T A L K P Q G G P P Q A D A Q L A A$ $\lfloor S N L W R V L G R P G V G T \square V K P K \square G L R P R P F A D A C Y$
$\square S D \square W R \square G R P \square A G T \ K P K \square G \square R P E P F A E A A Y$ $D M W R V L G R P I V G T I I K P K L G L R P Q P F A D A C Y$ PRFGIKGTRKLLAIDPDDELIGTIIKPCAGLSPEEVAEKCY PRYGI A GLRHLLNAYDRPLTCTALKPQ GLSPEQLSDLAY
 PAMGI A PAMNIQ DMWRVLGRDIVGT
 PRFGIEGIRALCGBPRGGLIAPVLKPQ GLDADADAELGY $P G L G V S G L R A R L D V G A R P L L C A A L K P M \quad G L S A P A L A A R C A$
 PKFGVRGDRKLLGVPRGPII MTALKPM GSSTAADAEMAY PATGIICERERMDKFGRPFLGATVKPKLGLSGKNYGRVVY RFGAAGLRQLIGKKSGGFVGTIIKPKLGLRPEPFAKAAY
 RFGVEGDRRDCGRPRGGLGATIIKPKLGLRPQLFADACH
 QAVIKPM GTSSAELARMCG

 RFGVEGLQRLAGRPGSGLDAPVLKPQ GUGAEELAR】AY

GTI IKPKLGLRPEPFAKAAY $R F G \square D G \square R R L I G R E R G G L V C P V L K P Q G T N T G D L A K L C Y$


UniRef90 X1CMU7 UniRef90－W7ZX99 UniRefofo－Q7X097 UniRef90－X1GVD8 UniRef90－U3MEU7 UniRef90－G1EFN6 UniRef90－I0JTY9 UniRef90－LON7Y4 UniRef90－X2LOG44 UniRef90－V5W9K5 UniRef90－A1R5Z1 UniRef90－X1CX47 UniRef90 101MN8 UniRef90－N6UUG5 UniRef90－H9ABC7 UniRef90－A4SO40
UniRef90－G9IJ55 UniRef90－F2ZCD1 UniRef90－R5BSI7 UniRef90－U1NOAO UniRet90－K4ARX4 UniRef90－TODURO
UniRef90－J8TTD1 UniRef90－T1X146 UniRef90－X2L245 UniRef90－T1X2S88 UniRef90 ${ }^{-}$T1X1P4 UniRef90－X2L7L1 UniRef90－M9ZPF66 UniRef90－U3MC57 UniRef90－F2ZCF5 UniRef90－UPIO00362E40B UniRef90＿B8XLF2 UniRef90－4DDM4 UniRef90－X1KXK2
UniRef90 F2ZCE6 UniRef90 ${ }^{-}$G4V4B0 UniRef90－F2ZCF4 UniRef90＿U3MBG2 UniRet90－F2ZCG2 UniRef90 F812R2 UniRef90＿14DDP5 UniRef90－C1FGV9 UniRef90－R2XGK1 UniRef90－W0E144 UniRef90＿O8MDW1 UniRef90 101588 UniRef90－Q6ST42 UniRef90－Q33366 UniRet90＿T1X2M9 UniRef90－A1WU93 UniRef90－Q013D2 UniRef90－T1WZU3 UniRef90－G4E634 UniRef90－G2ZCE9 UniRef90－X2L297 UniRef90－F2ZCB8 UniRef90－F2ZCC4 UniRef90－XIGPV0 UniRef90－D5SVD7 UniRef90＿D3PQ41 UniRet90＿G3EJJO UniRef90－Q5DVV2 UniRef90－X1L1A5 UniRet90＿A0A0591N90 UniRef90＿Q0A9HO UniRef90－O5DVV5
UniRef90 F2ZCB3 UniRef90－C1MR98 UniRef90－QOGEYO UniRef90－S6DLXO UniRef90－UPI0004769195 UniRef90＿16QN08 UniRef90－S5K309 UniRef90 SS9QP18 UniRef90－F2ZCB0 UniRef90－S6DLW2 UniRet90＿F2ZCA9 UniRef90 A0A017HM60 UniRef90－X0TT38 UniRef90－V5LLY6 UniRef90－V4KR78 UniRef90－W1UWY0 UniRef90＿Q07KC6

SHCYGG $\square \mathrm{D} \|$ I QDDERLFEHDWTPGEQRVPVGLAA $\square \mathrm{AEAAE}$
EALPGGLDLTKDDENTLSQPFMAMARRFLGCMEAVNRAQA KTALGGVDMVKDDEMI SEVYNSKFEPRLKAVLDALNRAKN
 EGLRGGLDFLKDDENGNSQPFMRWKERFLYSMEAVNRSMA
mrwrerflnc国g Tinasa EFAFGGAD $\ 1$ KDDHGLVDQTFCPFEQRITLCQQAIEAANA MRWRERFSYVMEGVNRSAA D पAMAS पDLIKDDEПMTDPAYपPLERRVAVATEEIRAAEQ KAAVGGCDVVKDDELTSNPDFNTVEERUTKVMEVVDRADS DFALGGMHYVKDDHGLVDQKTSPFAERLKACVEAVGEANV
GFAKGGDD\KDDHGपADQPYSPYDERVRMCAAAVARANA QFWLGGDFIKNDEPQGNQVFCPTKEVLPLVRDALRRAQD QFWLGG DFIKNDEPQGNQTFCPLKKVLPLVADAMKRAQD AYVQGGADVIKDDHG\｜TNQPFCTFEERLKRCAAAVAETNA MPLERARIGADVIQAHFE AQARGG DVKKDE FFTEAYATPEARVVAYRAAAQRVAE VQALGGVDFVKDDELLFENELTPLVERVPVGLAADTEAAE DEMGWRDRFLFVFEAI YKSQA NSTDDENTNSQPFMRWRERFLYCIIEGINRAAA DSIDDEN NSQSFMRWQERFLFSMEGVNSASC DDENLNSQPFMRYRERFLYSMEGVNHASA MRWRERFLNCLEGI NRASA DENLTNSQPFMRWRERFLYCVEGINRAAA QFWLGG DFTKNDEPQGNQVFSPVKET PLVADAMKRAQD AFARGGVD\｜IKDDHGLTDQAAPFEERLARCQAAVTDANA

MFWLGG DFTKNDEPQGNQVFAPLKET TR LVADAMKRAQD QAALGGVRF：KDDEKMLGPSYCPLEEKVKLISQRLQQVAE DFWLGG DF LKNDEPQGNQVFAPLKETUTAVADSMRRAQD

QFWLGG DF DKNDEPQGNQKYARMKTVTPLVADAMKRAQD DDENDNSQPFMRWRKRFLNCLEGDNRASA QFWLGG DFTKNDEPQGNQVFAPMKDVIPLVVDTMKRVQD AQUNGGVDLVKDDEDFLADQFAPLVERIQVARDRLNERTQ QF WLGG DFIKNDEPQGNQVFCPAKKVYPMVHDAMKRAQD
AFAKGGDDIV DSIDDENINSQPFMRYGERFLYSMEGVNHAAA NAALGGADVIKDDELLSDPAYSPMVDRVKTVMSYLKEVGK RLARGG円DLIKDDHGLTDQSFCRFEPRVRLCAEAVARANR EGLKGGLDFLKDDENINSQPFMRWKERFLYSMEAVNRSTA ESLVGGMDAIKSDELLQESD KNWTARFEAAVAAARRAEK AFWLGG DF｜KNDEPQGNQPFAPLRDTDALVADAMRRAQD EGLKGGDDFLKDDENDNSQPFMRWKERFLYSMEGVNXXX DFARGGTDLIKDDHGLCDQDTSRFVDRVQACQRAVNEVNA AFAKGGリD甘IKDDHGLANQRYAPYEERVRACAAAVKRANE MRWRDRKDLGTEA｜DKAER RFAQAGDDLIKDDHGUAEQHFAPFAQRVPLIQAAVAQANE DFWLGG DFIKNDEPQGNQTFSPLKETIPLVADAMRRAQD DDENTSQPFMRWRERFLNCMEGNRASS QFWLGG DFTKNDEPQGNQVFAPMKKVMPLVADAMRRAQD QF WLGG DFIKNDEPQGNQVFAPLKETISAVADAMRRAQD TAALGGLDVVKDDHGITNQVYSPFHQRVPALQKALQRANL EFAAGGGDLVKDDHNLAESTFDAFRTRVEACQQAVQLSKT QFWLGG DFIKNDEPQGNQVFAPLKKTI PLVADAMKRAQD DFWLGGTFIKNDEPQANQPFCPMEEVIPLVAESMDRAQQ DLARAGFDFAKDDEGCVNPDDCPLEKRVKLVGQTLDKDQE AFARGGVDLI KDDHGLADQPDAPFAERLNACQDAVRQANR
 KFAKGGDDVVKDDHGLADQPYSPYDERVVACAAAVRRANE EGLKGGXXXXXXXXXXXXXXXXXXXXXXXXXXXX QFWLGGDFDKNDEPQGNQPFCPLKKVIPLVVDAMNRAQD QTALAGADIIKEDHGLSNQKNALFKDRIPLCAEAVAKANA QFWLGG DFIKNDEPQGNQVYAPMKESUPLIVDAMKRAMD SFWL EGEFVKNDEPQGNQPFAPYRETMRLVAEAMRRAQD RCALGGADIVKEDHGLGDLPSAPFRARVEAVTAALAAVQA AYTRGGADVIKDDHGISNQSFSEFRDRISRCAYTVQEINA QFWLGG DFIKNDEPQGNQVFAPTKQVLPLVADAMKRAQD TFWLGG DFIKNDEPQGNQVFSPLRETVPVADAMRRAQD LFALGGADFKNDEPQGNQVFAPMKKTIPLVVDAMRKAQD EFWLGG DFTKNDENLVDQEFCRWDARVNAVLEVIDKVKD ATLRAGADTVKEDHGLANQPAAPFRDRVPALAQAAARANA AYTRGGADVIKDDHG SNQSFSQYKDRVKRCABMVQEMNA

UniRef90_xıcmu7 UniRef90-W7ZX99 UniRefefo-Q7X097 UniRef90-GOZDJ4
UniRef90 $\times 1$ GVD UniRef90-U3MEU7 UniRet90-G1EFN6 UniRef90-I0JTY9 UniRef90-LON7Y4 UniRef90-X2LOG44 UniRef90-V5W9K5 UniRef90-A1R5Z1
UniRef90 $\times 1 \mathrm{CX47}$ UniRef90-101MN8 UniRef90-N6UUG5 UniRef90-H9ABC7 UniRef90-G91155 UniRef90-F2ZCD1 UniRef9-REBSD7 UniRef90 K4ARX4 UniRef90-TODURO UniRef90-J8TTD1 UniRef90-T1X146 UniRef90-X2L245 UniRef90-T1X2S88 UniRef90-T1X1P4 UniRef90-X2L7L1 UniRef90-M9ZPF6 UniRef90-U3MC57
UniRef90 F2ZCF5 UniRef90-UPIOO0362E40B UniRef90-B8XLF2 UniRef90-I4DDM4 UniRef90-X1KXK2
UniRef90 F2ZCE6 UniRef90-G4V4B0 UniRef90-F2ZCF4 UniRef90_U3MBG2 UniRef90-F2ZCG2 UniRef90-F812R2 UniRef90-14DDP5
UniRef90 C1FGV9 UniRef90-U3MDP2 UniRef90-R2XGK1 UniRef90 WOE144 UniRef90-I01s88 UniRef90-Q6ST42 UniRef90-O323666 UniRef90-T1X2M9 UniRef90-A1WU93
UniRef90 O 013 DD UniRef90-X2L2E7 UniRef90-T1WZU3 UniRef90-G4E634 UniRef90-F2ZCE9 UniRef90- X2L297 UniRef90-F2ZCB8 UniRef90-F2ZCC4 UniRef90-X1GPV0 UniRef90-D7BHY9
UniRef90-D5SVD7 UniRef90-D3PQ41 UniRef90_G3EJJO UniRef90-O5DVV2
UniRef90 $\times 111$ A5 UniRef90-X1L1A5 UniRet90_AOA0591N90 UniRef90_Q0A9HO UniRef90-O5DVV5 UniRef90-C1MR98 UniRef90-QOGEYO
UniRef90 S6DLXO UniRef90-UPI0004769195 UniRef90-16QN08 UniRef90-S5K309 UniRef90-S9QP18 UniRef90-F2ZCBO UniRef90-S6DLW2 UniRet90_F2ZCA9 UniRef90-AOAO17HM60 UniRef90-X0TT38 UniRef90-V5LLY6 UniRef90-V4KR78 UniRef90-W1UWYO

90
EKKTYMPNIITAPDSE
100
100 R 110

ATGEDKGGY NHTAQTMEGMYERAFFAKEDGSVVVMD

 ATGEVKGHYMNMT

Y L NATAGTCEEMDKRAEVFAXXGGGDSVVMMDYD
 ASGEVKGFYDND DA GTMEDMYERAEFAKLIGGVIVMMID L
 VHRRRVLYAVNL

 ETGEAKLFSMNITADDHDEMI ARGEYALETFGPDADVDGY


 ETGKVKGSYLNV


 ETGEAKDFSMNDTADDYHEMCARADFALDEVFGEDAPVDGY
ATGRRCQYFPNVTAQRTTLMARARAAREAGCAGVLVNPWL ATGRRCQYFPNVTAQRTTLMARARAAREAGCAGVLVNPWLD
别
omm
E
E G R K

## UniRef90 X1CMU7

 UniRef90-W7ZX99 UniRefofo-Q7X097 UniRef90-X1GVD8 UniRef90-U3MEU7 UniRet90-G1EFN6 UniRef90-I0JTY9 UniRef90-LON7Y4 UniRef90-X2LOG44UniRet90 $\mathrm{D7GXDO}$ UniRef90-V5W9K5 UniRef90-A1R5Z1 UniRef90-X1CX47 UniRef90_101MN8 UniRef90-N6UUGG5 UniRef90-H9ABC7 UniRef90-G91155 UniRef90-F2ZCD1 UniRef9-REBSD7 UniRef90_U1NOAO UniRef90-K4ARX4
UniRef90_TODURO UniRef90-J8TTD1 UniRef90-T1X146 UniRef90-X2L245 UniRef90-T1X2S88 UniRef90-T1X1P4 UniRef90-×2L7L1 UniRef90-M9ZPF6 UniRef90-U3MC57 UniRef90-F2ZCF5 UniRef90_UPIOOO362E40B UniRef90-b8XLF2 UniRef90-I4DDM4 UniRef90-X1KXK2
UniRef90 F2ZCE6 UniRef90-G4V4B0 UniRef90-F2ZCF4 UniRef90-U3MBG2 UniRef90-F2ZCG2 UniRef90-I4DDP5 UniRef90-C1FGV9 UniRef90-U3MDP2 UniRef90-2XGK1
UniRef90-W0E144 UniRef90-Q8MDW1 UniRef90 101 IS88 UniRef90-Q6ST42 UniRef90-Q32366
UniRef90
T1X2M9 UniRef90-A1WU93 UniRef90-Q013D2 UniRef90-T1WZU3 UniRef90-G4E634 UniRef90-F2ZCE9 UniRef90-X2L297 UniRef90-F2ZCB8 UniRef90-F2ZCC4 UniRef90-X1GPV0 UniRef90-D7BHY9 UniRef90-D3PQ41 UniRef90_G3EJJO UniRef90-O5DVV2 UniRef90-X1L1A5 UniRet90_AOA0591N90 UniRef90_QOAYHO
UniRef90-Q5DVV5 UniRef90-F2ZCB3 UniRef90_C1MR98 UniRef90_Q0GEYO
UniRef90 S6DLXO UniRef90-UPIOO04769195 UniRef90-16QN08 UniRef90-S5K309 UniRef90-S9QP188 UniRef90-W3Y5H0 UniRef90-S6DLW2 UniRet90_F2ZCA9 UniRef90-AOAO17HM60 UniRef90-X0TT38 UniRef90-V5LLY6 UniRef90-V4KR78 UniRef90-W1UWYO
 AYG $\square D V L Q G L R E D E E D D V P L F A H S S L A G M I R S K Q H G \square S S$

## A

 VIGYTALQSMGKWARDYDMLLHLHRAGNSTYSRQKNHGMN IGYTADQSMGDWARKNDMLEHLHRAGNSTYSRQKDHGMN LVIGWTADQSMAVCRQNDMLLHLHRAGHSTYSRQKNHGDS VMGYTADQSIAYWARENDMLLHLHRAGNSTYARQKNHGMN LVGLDTVRYLASTYR MI MAHPAMTGAYFHDPNYGMP VMGLPA MALLRSFAEVPI HGHRAGLAASMRSKGLGMD VMGLPA AYGYPVLESLAADPLINVPLFCHPALSGVYTGPSDYGFSA V DGYTA QTMADWARKNDML LDHRAGNSTYSRQKDHGMN ITGLDAMREDAADPSFNDP IAHPALLGCMDGGGSTNRDH VGGPGMVTTARRW FPNQYLHYHRAGHGAVTSPSAKRGYT VGGPGMLTTARRNYPNQYLHYHRAGHGMVTSPSAKRGYD TYGLDALRELANDSDRRVPLAHPAFAGALTGSGNGBH AYGYDVVAALAADPEDNVPILAHPAVSGALYGGDTYGIEA AYGLDVLQALREDPDVDVPILAHPAVSGALTASANYGFAS DGYTAIQTDAYWARNNDMLHEHAGHSTYTRQKTHGMN NAGVTANTTLAHDCHGHGLLEHLHRAMDAVIDRDKNNG H VIGYTAI QSMALWARQNDMILHLHRAGSSTYSRQKNHGMN VIGYTAI QSMAYWSRKNDVLLHLHRAGNSTYSRQKNHGMN VMGYRAI QSTAYWCRENDMLLHLHRAGNSTYARQKNHGDN
 VGGPGMVTTARRQYPD QYLHYHRAGHGAVTSPSSKRGYT TGMDAV IVAGPTAIJTTCRRQFPSQFLHYHRAGHGAVTSPQAKRGYT VAGLGLMNSGASDSDDNVPLYAHSGSRSGWSTGPRRLDD IVAGPAADTTARRYFPNQYLHYHRAGHGAVTSPQTQRGYT VGGCGMVTTARRNFADQYLHYHRAGHGCDTSPSSVRGYT VMGYTAIQSTAYWARENDMLDHDHRAGNSTYARQKNHGDN
 VGGPGMLTTAR RQYPGQYLHYHRAGHGMITSPSKRGYT ITGDDTMRHLAEDPDFGLPTVCHPAAMLGGGSQHECRFSH GYA QSMAD WARNY DVILHLIHRAGNSTYSRQKNHGMN ALGFGAMEALVRFLKDQNPDGGHCAGAGAYYKAENNGLSA IGYTA XXSGIWARKNEMXXHXXXXXXXXXXXQKXDWMX
 XIGYTA QTMARWARKNDMLHLHRAGNSTYSGQKDHGMN VMGYTALQSTALWARENDMLLHLHRAGNSTYARQKNHGDN LT GLDA LWARERYDMALMAHPAFAGAVAGAEHGGDP TGGLDSMRALAEDPDFGLPIIAHPAAMLGGGTEDVCRFSH VGGYTANTGMAYWARKNDMALHLHRAGNSTYARQKNHGUN

 TRAFPSDCSGGVCDRDHRYLLNIHKSNHPVIDRQRNHGVQ VGGPGMVTTARRWFPNQYLHYHRAGHGMVTSPSSKRGYT VAGPTAVTTCR RAFPNQFEHYHRAGHGAVTSPQSKRGYT
 LGLPV ETFEELMGGSGMAVLAHPAFAGN L GLLATFQELV VGGPMAVTTCR RYFANQFLHYHRAGHGMVTSPQTQRGYN VTGPAGVTTCRRAFPDTGFLHFHRAGHGALTSYKSPMGMD SIGLAS SUADYLRRNFSCPIYVHRVGGNSISYKRLNFDP
 TGLDTM RELADDESFGLPDCHPAMLGAMLGGGSYDRVH VIGYTADQTMADWARKNDMLHDHRAGNSTYSRKDHGMN VDGYVAGPTVAPRNFPAQFLHFHRAGHGAVTSPQSKRGYT
LFGFDAMQRLARNDGFGLPMMAHPFAGPFVLSEDTGYSH VGGCGMVTTARRNFPNQFLHYHRAGHGMVTGEESNRGYS MGGPAAVTGARRRFANQFVHYHRAGHGAVTSAQSQRGYT LIGFGWLHVLATDETLGLPIDNHPAFSGCCVSPGDSGVAD VGGPGMITARRQYP NQYLHYHRAGHGMVTSPSAKRGYT
VVGGPMNVTLCRRYFANGFLHYRAGHGMVSSQAKGYN VGGGTANTTLARRVFPNQYLHYHRAGHGAVTSPSAKRGYS LFGFGLI ARDARDEALAMPVMAHPSFDGSFVLPEDAGGAH VGGPGMI THARAFANEYLHYHRAGHGAVISESAKRGYD


UniRef90 X1CMU7 UniRef90-W7ZX99 UniReffo-Q7X097 UniRet90-GOZDJ4 UniRef90-X1GVD8
UniRef90-U3MEU7 UniRef90-G1EFN6 UniRef90-I0JTY9 UniRef90-LON7Y4 UniRef90-X2LOG44 UniRef90-D7GXDO
UniRef90 V5W9K5 UniRef90-A1R5Z1 UniRef90-X1CX47 UniRef90-10IMN8 UniRef90-N6UUG5 UniRef90-H9ABC7 UniRef90-A4S040 UniRef90-G91J55 UniRef90-F2ZCD1 UniRef9-REBSD7 UniRef90_U1NOAO UniRet90-K4ARX4 UniRef90-TODURO
UniRef90 - J8TTD1 UniRef90-T1X146 UniRef90-X2L245 UniRef90-T1X2S88 UniRef90-T1X1P4 UniRef90-×2L7L1 UniRef90-M9ZPF6 UniRef90-U3MC57
UniRef90 F2ZCF5 UniRet90_UPIOOO362E40B UniRef90-B8XLF2 UniRef90-l4DDM4 UniRef90-X1KXK2
UniRef90 F2ZCE6 UniRef90-G4V4B0 UniRef90-F2ZCF4 UniRef90-U3MBG2 UniRef90-F2ZCG2 UniRef9-Fi2R2 UniRef90-C1FGV9 UniRef90-U3MDP2 UniRef90-2XGK1
UniRef90-W0E144 UniRef90-Q8MDW1 UniRef90 - 101 IS88 UniRef90-Q6ST42 UniRef90-O32366 UniRet90-T1X2M9 UniRef90-A1WU93
UniRef90
Q013D2 UniRef90-X2L2E7 UniRef90-T1WZU3 UniRef90-G4E634 UniRef90-F2ZCE9 UniRef90-X2L297 UniRef90-F2ZCB8 UniRef90-F2ZCC4 UniRef90-X1GPV0 UniRef90_D7BHY9
UniRef90_D5SVD7 UniRef90-D3PQ41 UniRef90_G3EJJO UniRef90-Q5DVV2 UniRef90-X1L1A5 UniRef90-A0A059IN90 UniRef90-Q0A9HO UniRef90_Q5DVV5 UniRef90-F2ZCB3 UniRef90_QOGEYO UniRef90-S6DLX0 UniRef90-UPI0004769195 UniRef90-16QN08 UniRef90-S5K3Q9
UniRef90 S9QP18 UniRef90-W3Y5H0 UniRet90-F2ZCBO UniRef90-S6DLW2 UniRef90-A0A017HM60 UniRet90-X0TT38 UniRef90-V5LLY6 UniRef90-V4KR78 UniRef90-W1UWYO
UniRef90_Q07KC6
 RLLLGKLMRMAGADAVLFPSPYGRMGDNHEEAQHVKEQLT FRVLAKCLRLSGGDHLHTGTVVGKLEGDRASTLGFVDQLR FRVISKWMRLAGVDHIHAGTVVGKLEG
WPVMARDCRLCGADLMLTPTYWSTI PMVS
FRVICKWMRMAGVDHIHAGTVVGKLEGDPLMTKGFYNTLL
FRVICKWMRMAGVDHiHAGTVVGKLEGDPLMIKGFYDTLL
FRVICKWMRMGGVDHLHTGTAVGKLEGDPMMMHGYYNARLV
FRVICKWMRMAGVDHI HAGTVVGKLEGDPLMVKGFYDTLL
SVLLGSVFRLMGADLSDFPNAGGRFNFTPEESLALSHSLR
FRVLCKWMRMAGVDHLPAGTVVGKLEGDPGMVKGFYNVLL YRVWQQMARLAGADHLHASGLGSKFYELDEEVAANVRSLL
 RAFFGTLHRLMGADAVIYPNFGGRFGFTREECVSIADAC FRVICKWMRMAGVDHIHAGTVVGKLEGDPLMCRGFYNTLL AFVLAKMSRLQGASG\|HVGTMGYGKMEGSADDKVIA AFVLAKLSRLQGASGliHVGTMGFGKMES YLWMGLLPRLFGSDMSIFVSYGGRFTFTAQQCQRQSAYC FWVLAKALRMYGGDHIHSVT IVGKLEGERDDT GGFVDLLL DIVLGQLARMAGADMVIFPSMYGSVVLGEAATARLIGHLR SLLLGKLLRMAGADLVLFPSPYGSVALDKEETEAIAKRLQ

FRVICKWMRMAGVDHIHAGTVVGKLEGDPLMIQGFYDTML
FRVICKWMRMSGVDHIHAGTVVGKLEGDPLMVKGFYNVLL


FRVICKWMRMCGVDH|HAGTVVGKLEGDPLMVKGFYNTLL
 FRVICKWMRMAGVDHIHAGTVVGKLEGE PLMDKGFYNTLL ALVHCKMSRLQGASGlHTGTMGYGKMEGDASDKATA VVLAKLVRLAGGDYFQDGVMG SFVLAKMARCQGASGTHVGTMGYGKMEGEMDDRADA
FRVICKWMRMAGVDHI HAGTVVGKLEGDPLMVKGFYNTLL AFVLAKDSRLMGASGIHVGTMGFGKMEG FRVICKWMRMSGVDH: HAGTVGDKLXXXPDXDKXFYX $\square$ AYVLAKMARLQGASGIHVGTMGFGKMESEPKDRNTA A LLGTLPRLAGADDVLPSPYGSVSDPAADSFAVAENDR AFVLAKLSRLQGASGLHVGTMGYGKMEGEHSDKNI C KVLLGVLPRLAGADSTIFPSFGGRFGFSEQECVDIAKGC FRVICKWMRMSGVDHIHAGTVVGKLEGDPLMIKGFYNTLL ALSCGKLPRLDGMDMPLVYPDSGRFGTTTDELV
AVLYGLFNRLAGADATIFPSWGGRFAYTAEEC
FREICXWXXMAGVXPIXAXTVVGKXEGDPLMTRGFYNXLL VRAWSKFMRLAGAD\VLYPALKGTDKATRSELLEVMDAVK AFVHCKMARLQGASGIHTGTMGFGKMEGESSDRA\AYMLT FRVICKWMRMAGVDHIHAGTVVGKDEGDPLMDRGFYNTL FRVICKWMRMSGVDHIHAGTVVGKLEGDPLMUKGFYDILR ALLLGEDTRLFGADMVVYTNAEGRFPTYDQACDRDNDRLR FRVAAKCLRYTGGDQLHTGLVVGKYARHRNCSLGFVDQLR FRVICKWMRMSGVDHVHAGTVVGKLEGDPNAVKGFYDTLL ALVLGKLFRLAGADAVIYPNHGGRFGFSPACCQRIATFAR
$A F V H C K M A R L Q G A S G U H T G T M S F G K M E G$
$A$ FRVICKWMRMSGVDHIHAGTVGGKLEGDPLMDKGFYDVLR FRVLAKPVRMSGRNHLQSRTVVGKLEGERNVTLGFVHLMR AFVLAKMSRLQGASGI HVGTMGYGKME
AFVHCKMSRLSGASGlHTGTMGYGKM
DVVLAKLVRLAGGDYFQTGVRVP
PLFFGKLFRLDGADAVIYPNHGGRFSYSRDTCMSLAQAAR AFWLSTMMRLCGCDGTVFPNTGGRFSFSQADCLSIADAAR PLMFGKLIFRLLGADAVIFPNHGGRFAYSPQTCLALAQAAR
 DFYYFAGELMSWHAGENMGSFY
GVMFGTLQRVAGADTSVFPNVGGRFGFSAGECGQTAAACR ALLLGELFRIAGADAVIYPNVGGRFRFSADTCQAINHADR MLVHMKMARLQGASGIHTGTMGYGKMEGAADDKVIA
ALVHMKWARMSGASGUHVGTMGY
EVLLGADPRVAGADATIFPSFGGRFGFSVKECEGDARGAR FRVICKWMRMAGVDHIHAGT
AFVHCKMTRLMGASGMHVGTMGY
GCYLGDLMRLAGADTSVFPNYGGRFGFSKEQCLEIVSACK ALVHMKWARMSGASGI HTGTMGFKME
AFVLAKMSRLQGASGIHVGTMGY
GVLYGTLQRLAGADISVFPNVGGRFGFSEEDCRATARSCL YLQLGLFPRLFGADMPIFVSYGGRFTFTQDQCQRI
AFVLAKM
MLVHMKMSRDQGSSGDHTGTMGY
$A \bar{F} V$
GVMF GTIQRLAGSDISVFPNVGGRFGFSEAECRSIAAACLD YNIFAKLWRLDGVDQLHTGTGVGKMEGSPLIITRYGQDCR A Y V LVKMS CLE GVFGl HVGTM G Y
GMLFGTLARLAGAD I S I F FPNVSGRFGYSHAECREDAAACT
Y LQL GLLPR1FGADMP:FVSYGGRFTFTEKQCKR1

UniRef90 X1CMU7 UniRef90－W7ZX99 UniRefefo－Q7X097 UniRef90－X1GVD8 UniRef90－U3MEU7 UniRef90－G1EFN6 UniRef90－IOJTY9 UniRef90－LON7Y4 UniRef90－X2LOG4 UniRef90－D7GXD0 UniRef90 V5W9K5 UniRef90－A1R5Z1 UniRef90－×1CX47 UniRef90－IOIMN8 UniRef90－N6UUG5 UniRef90－H9ABC7 UniRef90－A4S040 UniRef90－G9IJ55 UniRef90－F2ZCD1 UniRef90－R5BSI7 UniRef90－U1NOAO UniRef90 K4ARX4 UniRef90－TODURO UniRef90－J8TTD1 UniRef90 T1X146 UniRef90－×2L245 UniRef90－T1X2S8 UniRef90－T1 X2Q1 UniRef90－T1X1P4 UniRef90－×2L7L1 UniRef90－M9ZPF6 UniRef90 U3MC57 UniRef90－F2ZCF5 UniRef90－UPIOOO362E40B UniRef90＿B8XLF2 UniRef90 I4DDM4 UniRef90－X1KXK2 UniRef90－F2ZCE6 UniRef90 G4V4B0 UniRef90 F2ZCF4 UniRef90－U3MBG2 UniRef90 F2ZCG2 UniRef90 F812R2 UniRef90－I4DDP5 UniRef90－C1FGV9 UR10－ UniRef90－W0E144 UniRef90 Q8MDW UniRef90 101588 UniRef90－Q6ST42 UniRef90－Q32366 UniRef90－T1X2M9 UniRef90＿A1WU93 UniRef90－Q013D2 UniRef90－X2L2E7 UniRef90 T1WZU3 UniRef90－G4E634 UniRef90－F2ZCE9 UniRef90＿T1X283 UniRef90 X2L297 UniRef90－F2ZCB8 UniRef90－F2ZCC4 UniRef90－X1GPV0 UniRef90－D7BHY9 UniRef90－D5SVD7 UniRef90－D3PQ41 UniRef90 G3EJJO UniRef90－Q5DVV2 UniRef90－X1L1A5 UniRef90 A0A059IN90 UniRef90 QOA9HO UniRef90－Q5DVV5 UniRef90－F2ZCB3 UniRef90 C1MR98 UniRef90－Q0GEYO UniRef90－S6DLX0 UniRef90 UPI0004769195 UniRef90－16QN08 UniRef90－S5K309 UniRef90－S9QP18 UniRef90 W3Y5H0 UniRef90－F2ZCB0 UniRef90－S6DLW2 UniRef90 F2ZCA9 UniRef90－A0A017HM60 UniRef90－X0TT38 UniRef90－V5LLY6 UniRef90 V4KR78 UniRef90－W1UWYo UniRef90＿Q07KC6



पEEGTRTAQVK LAPFYHVKRTWPMPAAGMYPGLTPVL DFKSEVNLPEGLFFAQDWASLRKCVPVASGGDH VSHLKKNUPXGFF
DTHTPMHLPRGLFFDQDWASLNKVMPVASGGПHAGQMHQL DDFDEKDRSRG｜XFTQDWVSXCAMXVITCELQVVSCLAYA ETKTEVNLVEGLFFAQDWASLAKCMPVASGGIHCGQ KTNDEVNLPQGDFFEQDWAALRKVVPVASGG\｜H

HKSSIFPVPSGGVNPGSVFPL
SVELGGLKTIVPAPGGGMTLNRVAEM DSY■DDNDPQGDFFKQDWASLRKVTPVASGGDHCGQMHQL YM I ERDECQGPAYYQKWYGMKPTTPIISG
AYMIERDECQGPVYYQKWFGMKPTTPIISGGMNALR
TNPDEGLKATCPSPGGGVTEKRLPEL
EPHW
DDESVEQDRS EADDVFKQAFPVPSAGGHAGMTEKL LPTLKENRSIGLDFDMDWASIRKCLPVASGVSTW EADVDNDRDRERYFTLDWDSLPRVMPIASGAIHVW
K SKLSDDR K GMFFDMDWASLRKCLPVASGGMHGQ1
ETHNDLNLPEGLFFAQDWASLRKCLPVASGGIHCGQI
XFKXHLKVPQGIXFXQD
FTELELKLPMRIFFEMDWDSLRCCDPVAGGGDLCGQ
ETKTDINLPEGLFFAQNWASLRKCMPVASGGI HCGQ
DTKSEVCLPEGLFFAQDWASLRKCVPVASGGLH
AYMVERDECQGPVYYQKWYGMKPTTPIISGGMNADR
RPLGGLRAAMPTPGGGLDVTRDGAW $\square P Y$ LEVNTPQGLFFEMDWASLRKTMPVASGGUHAGQMHLL YMLEQDVAQGPYYKQEWLSMKSTTPIISGGMNALR
SRTPELLIKLHKVLSQPWGYLKDTASVVAGGLNAINLVDN YMIERDSADGPFFHQEWQGMKPTTPIVSG
KTKLADNLPEGLFFDMDWASLRKVVPVASGGDHCGQMHQL AYMIEQDSAQGPVYHQEWFGMKPTTPIISGGMNALR LTXLPGKLPYGIDFEMD

## YLIERQSFDGPAYHQEWGGMKPTTP\｜ISGGMNALR

SDDGHLP VWPGPSAGDHVGMLPTL YMDERDECQGPVYYQKWYGMKPTTS ISGGMNALR
 DFKSDUSDPKGMFFAQDWASLRKCVPVASGGIH ETHSALSTPMQG｜ESAFTTVAGGVHPGTTEYL RALVAGASRPFAGLRP【LPVPAGGMRLDRVGEL ESH【XDNVPQGILFE

TPDGTRKESDIAVGGGMHAGTMKVH QDEAQGPFYRQSWGGMKACTP
FT TFRVNLSQG川FFEQDWA
QCKNEVNLPYGUFFEMDWASTRKCMPVASGGTHCGQT
RPLGDlRPALPTPGGGVDAARAPYW RLM VRDRTNGVVFDOEGHESVLPSPGGGMTLDKVKVM ESLVPVDRTNGVVFDQEWCSMPPVHAGKSGG\｜DVW
LPTLKENRTLGLFFDMDWASLRKCMPVASGGLHC
AFMLEQDSADGPYFH PWGLHKADCPVPAGGMHPDRLAEV HQEWHMNPTTSIISG
EA $\|$ VEKDRDRGVYFTQKWGSVPGVMPVASGGDHVW

## A <br> PWGHVLPALPVPAGGMTVERVDEM KP LGRLKSCFPAPAGGMSYASLPGM

PWGHIRPALPVPAGGMTVERVEEM AYMLENEEAEGDYYPQKWYG AYMLERDECQGPYFYQKWYGMKATTP $\square 1$ CGGMNA

D PRGPGLTMLPSPGGGMSVARAADM
RPLEGLASAWPTPGGGVDVKRAGHW YMLERDSADGLSYHQEWEGMKATTP』ICGGMNA

RPMGGMPD $\square$ FPSPGGGMTMERVAAM
SDTG $\square$ GKA $\| \mathrm{LPSPGGGMS} \square \mathrm{ER} \square \mathrm{PEM}$
D
PTGPGRP\｜LPSPGGGMSVDRAAGM
SRY $\square K N P T G P L K A A C P A P G G G \square T D T R L A E L$

D

D
PSGHGПP ILPSPGGGMTLDRMADM SSYロKRSMGLMKAACPAPGGGVTDARLNEL P WGALEPCMPVPAGGLTADRVAEL

UniRef90 X1CMU7 UniRef90_W7ZX99 UniRef90_Q7X097 UniRef90_GOZDJ4 UniRef90_X1GVD8 UniRef90_U3MEU7 UniRef90-G1EFN6 UniRef90-10JTY9 UniRef90 LON7Y4 UniRef90-X2L0G4 UniRef90-D7GXD0 UniRef90-V5W9K5 UniRef90-A1R5Z1 UniRef90-X1CX47 UniRef90-10IMN8 UniRef90-N6UUG5 UniRef90-H9ABC7 UniRef90-A4S040 UniRef90-G91J55 UniRef90-F2ZCD1 UniRef90-R5BSI7 UniRef90_U1NOA0 UniRef90 K4ARX4 UniRef90-TODURO UniRef90-J8TTD1 UniRef90 T1X146 UniRef90- X2L245 UniRef90-T1X2S8 UniRef90-T1X2Q1 UniRef90 ${ }^{-11 X 1 P 4}$ UniRef90-X2L7L1 UniRef90-M9ZPF6 UniRef90 U3MC57 UniRef90 ${ }^{-}$F2ZCF5 UniRef90-UPI000362E40B UniRef90_B8XLF2 UniRef90 I4DDM4 UniRef90- X1KXK2 UniRef90-F2ZCE6 UniRef90 G4V4B0 UniRef90 F2ZCF4 UniRef90-U3MBG2 UniRef90-F2ZCG2 UniRef90 F812R2 UniRef90-I4DDP5 UniRef90-C1FGV9 UniRef90 ${ }^{-}$U3MDP2 UniRef90-R2XGK1 UniRef90-W0E144 UniRef90-Q8MDW UniRef90 I01S88 UniRef90-Q6ST42 UniRef90_Q32366 UniRef90_T1X2M9 UniRef90-A1WU93 UniRef90-Q013D2 UniRef90-X2L2E7 UniRef90-T1WZU3 UniRef90-G4E634 UniRef90-F2ZCE9 UniRef90-T1X283 UniRef90- X2L297 UniRef90_F2ZCB8 UniRef90-F2ZCC4 UniRef90-X1GPV0 UniRef90-D7BHY9 UniRef90-D5SVD7 UniRef90_D3PQ41 UniRef90 G3EJJ0 UniRef90-Q5DVV2 UniRef90-X1L1A5 UniRef90 A0A059IN90 UniRef90 Q0A9H0 UniRef90-Q5DVV5 UniRef90-F2ZCB3 UniRef90-C1MR98 UniRef90-Q0GEY0 UniRef90_S6DLX0 UniRef90-UPIO004769195 UniRef90-16QN08 UniRef90-S5K3Q9 UniRef90_S9QP18 UniRef90 W3Y5H0 UniRef90-F2ZCB0 UniRef90-S6DLW2 UniRef90_F2ZCA9 UniRef90-A0A017HM60 UniRef90-X0TT38 UniRef90-V5LLY6 UniRef90 V4KR78 UniRef90-W1UWY0 UniRef90_Q07KC6
 KKDFGKEVII NLGGSVHRYTGGDEEGGKAFDQAIESN VNDF GDD SVLQFGGGTQGHPGGNAAGAAANRVALEACVKA

VREYGCD $\square V \mathrm{VI}$ P GGGMLGHPMGYTAGARAWQQA】EATMDE

LHLLGDDVVLQFGGGTIGHPAR
CLPKFWDDSVLQLGGTLGHPWGNAPGAXANRV
A A MYGVDTVYT $\square$ GGS LLLKHPDD $\square R \mathrm{DSTRVF}$
EAVGSTDLMMDAGGGVAAHPDGPGAGVRSLRQAWEAAV VKDAGKDILIGSGGGIHAHPDGPTAGAKAFRQADDAVMQ VQAYGTNQII NAGTAIIMDHPDGVSAGVRAFQDAL
REAYGNDIMYLVGGALLEQ DNLVEACQRLCDAVNA LD Y DGDDVVLQFGGGTIGHPDG
REVYGPDLLLLIGGSLYSHSENLVDGARHFMKLAGRKELY
LD DYGPDTMFLVGGDMFRRGPD $\square$ AANMKAFVELLAQH 1 RDFGTDVVINAGGGDHGHPD
REACKWSPGLAAACEEWKED
YRDFGND IVVNAGGGDHGHPGGPAAGGQAFVEADRAVQGG
$\square K D F G H D I V I N A G G G U H G H P D G A V A G G R A F R D A \| D G V L E G$

ARHYGRDTLFLVGGSQYARGD DAAASARLIEALEHAH VDY $L$ GEDVI LQPGGGT $\square G H P D G \square Q A G A T A N R V A L E A$
$\square D A F G Q D F M G L A G S S \square L K H P M G \square K A G V D A M Y Q A A E A V R Q$ $\square Y Y \square G D D V V L Q F G G G T \square G K T M$

FRDFGPDVI INAGGAVHGHPDGTEAGARVLVEAAQRFQ T QVYTEDVMLLIGGSLIGHSPDLVANARHF

MGLLGNET LMAGGGDYGHPAGAVSGAKALLQADEAVMQE LIE F YGRDA LLDGGDLHR

Y D LIF GPDFAY $\square C G G G \square C G H P D G A R A G G K S \square R Q A W D A \square S Q G$

A ERYGPDVVLLIGGSLYAQGDRAAAA
METYGQDVLLLVGGSLYSHSSDLTTANARH ILSMAGRTDTY
$\square$ AF YGPDVMLLIGGALLDAPDMDRAATDFVQRAAH

VGFYGPDTMLLIGGNLLAAGDGVLERTRAFVRRVAASV ARDYGPDTIFLVGGGLLGYSENLADSTAAFRSRIEELFLT $\square G L Y G L E T M L L I G G D L L A A K D N L L E R T R Q F V Q$

A A MYGADTVYLLGGALLR $\square G T R \square G E G \square A A M R A E D D R A D Q A$ K QA Y GPDTILLIGGSLYAQGD $\square E A A S R A L M Q A \square$

NEVYGEDVLLLIGGS LMGHSPDLVANAKHFMK $\square$
YDTYGDDCVYLVGGS LLRYGAK $\square$ GDA $\square$ K QMSAA $L$ N
RAMFGEDVCY LIGGSLLRHGER!
VGLYGNDTMFLVGGDMFRRGPDI

RAMYGSDVVYLLGGSLLRSGEA $\square$ GEE $\square$ ARMRRADDA VE $\square Y G K N L V I Q A G G G U H G H P H G T \ A G A K S \square R C A V D A V M E G$
RSMYGDDCVY LLGGGLLR DGDRDGDGVREMDAADSA VELLYGNDTMFLVGGDMFRRGPDIEANM
LQFYGHDVMLLIGGG\LSARERLTEEAARFVNEVAAH

```
WS
```

K S LP E VT

```
```

```
K S LP E VT
```

```

LAA D A AKESDVLRQALEKWG KESDALKKAIDAWGY LIK
GVK VK DYAKDHKELGVALGVWGTGK

GPLECPHDGYRGHTM

UniRef90 X1CMU7
UniRef90-W7ZX99 UniRef90_Q7X097
UniRef90 G0ZDJ4 UniRef90 X1GVD8 UniRef90-U3MEU7 UniRef90-G1EFN6 UniRef90 IOJTY9 UniRef90-LON7Y4 UniRef90_X2L0G4
UniRef90 D7GXD0 UniRef90 V5W9K5 UniRef90-A1R5Z UniRef90-X1CX47 UniRef90 IOIMN8 UniRef90-N6UUG5 UniRef90-H9ABC7 UniRef90-A4S040 UniRef90 G9IJ55 UniRef90-F2ZCD1 UniRef90-R5BSI7 UniRef90_U1N0AC UniRef90 K4ARX UniRef90-TODURC UniRef90-J8TTD UniRef90 T1X146 UniRef90- X2L245 UniRef90-T1X2S8
UniRef90 T1X2Q
UniRef90 T1X1P4
UniRef90-X2L7L1
UniRef90-M9ZPF6
UniRef90 U3MC57
UniRef90- F2ZCF5
UniRef90-UPI000362E40E
UniRef90 B8XLF2
UniRef90 I4DDM
UniRef90-X1KXK
UniRef90-F2ZCE
UniRef90 G4V4BC
UniRef90 \({ }^{-}\)F2ZCF4
UniRef90_U3MBG2
UniRef90 F2ZCG2
UniRef90 F812R2
UniRef90-I4DDP5
UniRef90_C1FGV9
UniRef90 U3MDP2
UniRef90-R2XGK1
UniRef90-W0E144
UniRef90 Q8MDW
UniRef90 IOIS88
UniRef90- Q6ST42
UniRef90-Q32366
UniRef90 T1X2M9
UniRef90-A1WU93
UniRef90-Q013D2
UniRef90-X2L2E
UniRef90 T1WZU3
UniRef90-G4E634
UniRef90-F2ZCES
UniRef90 T1X28
UniRef90 X2L297
UniRef90-F2ZCB8
UniRef90-F2ZCC4
UniRef90 X1GPVO
UniRef90-D7BHY9
UniRef90_D5SVD7
UniRef90 D3PQ4
UniRef90 G3EJJC
UniRef90 Q5DVV2
UniRef90-X1L1A5
UniRef90 A0A059IN90
UniRef90-Q0A9H0
UniRef90_Q5DVV5
UniRef90-F2ZCB3
UniRef90 C1MR98
UniRef90-Q0GEY0
UniRef90-S6DLX0
UniRef90 UPI0004769195
UniRef90 \({ }^{-16 Q N 08}\)
UniRef90-S5K3Qs
UniRef90 S9QP18
UniRef90 W3Y5H0
UniRef90-F2ZCB0
UniRef90_S6DLW2
UniRef90 F2ZCA9
UniRef90 A0A017HM60
UniRef90-X0ТТЗ8
UniRef90-V5LLYe
UniRef90 V4KR78
UniRef90-W1UWYO
UniRef90_Q07KC6

UniRef90_UPI000411B6AD UniRef90-X6KVB0 UniRef90_Q2IV37 UniRef90 E6VQD3 UniRef90_C0QU33 UniRef90-H6SP89 UniRef90_B8EPK8


lupas_21
lupas_14
lupas_28
jnet
conf
conf
sol25
sol5
sol0
jhmm


lupas_21 lupas \(14^{\text {lupas_28 }}\)
jnet_
conf
sol25
sol5
sol0
jhmm
jpssm


lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm





RTQYGADCVYLL GGSLLRQGEEVGAADKACRAADD LSFYGRDVMLLI GGSLLAARENLGAEAARFVAEVAAH LAFYGSDVMLLI GGSLLAAGEHLTEQAARFTAEVASH YREFGNQVII NIEESYYNHPEGLQAGVRAFREALDCVIKG VECYGADV L D RYGRDVMLLIGGALLSAP


B B B B B B B B B
```

lupas 21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm

```

jnet
sol0
jhmm
jpssm

28889```

