 PPKWKVKKQKLSEKAAREAELAAKKAQAGQELAVYLKLTP PPAWKVKKEKLARKTAAPVPTTPDKPERGVRPVRYLCKLPE
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 PPAWK VKKEK $\square$ ARKTEQE $\square$ PASPQKREKAERAVRY L RLPA

PPAWKVKKEKLERAKQAAEAPVPVKATKAPPPVRYGRTM PPAWKVKKEKLEEAAARESAPVVVNAVKPPPPVRYLR P SEPEKLTK $K$
K K
$K$ SEKLAN
PPPWKVKKQK LAQKQAKEAKRAPTKAPSVTPPPTAEKLKN PQKKTQEAEQPDKTTPAQKQSREQKTQQKTAAKRKSEKSR

S LIE TENQTENQTENQQPAANVAPSKN
ERSASAE PEKY K T K K
KLK

AK $\quad$ S T
QNAQQSRKQKTAGATPWQHKRQRK
$K \square K$

AMTEVQK LT D
RRPTERPSWRHKRQRK
KPQQDQTNTAHKGR $\square P P Q V N D R Q K P T N K T P W R H K R Q R K$
K FTN
QTTDAQVNSQKLTN
KTTSAHKVMPDNQNTQQKTGATPRRRMTKQQRK QNAQQSRKQKPTGATPWRHKRQGK

K A L K V V P P V V PEKFTN
Y L R L L P
A QKQDKTTSAHK VMPGNQKAQQKPTGATPWRHKRQRK KASN
K K L A N
PPSPQQEKLSRKERLARNAEKLKRRGEAG
QQKFSN QQAQEGNAAPALETPEEKSRRARARKALKDAK QTEEASPNLQKLTN

EQATEAQNQPEVQK\SS K L K N K L T Q $S \square_{K K}^{K} \underset{L}{P} \quad D$ K논
PPAWKVKKQADEEKAQRKAKQEPQRAESQAPRPVYRKAMP
 K L K S
$R \square T P Q N D K Q K S A D K A S W R H K R Q R K$
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RKPSRRDPWQHKRQRK KKEQELNKNAEKQTETQAQEGTHFEH
TPEQATTLEQVTTEQQAVPTQEKFTAN
PHPPKVAKQQP
 $K Q P L T T V K K D$ APAVKSPAPVKKTKKPEPPAVKPEKVPVPPTPPKKRMN

VAETKRLPLVSPKVKKKPHKQPNVS
$K \square P K T T P S S P T K T P A P T K Q E Q K K K V D P P T \square P K Q H M P$ EAAETKTSHDVSASPQQEESSAAAPSEPPPSP $P A T S T R A P R S G R A R G R Q A G K Q P S T P P R T R Q$
PLPK LEAVAPAEAEKPPAPDTSRVEPAVDASPQAQEDPS $K K L P P A P A K K Q K A V V \square P L K K \quad K V \square P P T P P K K H D P$



HI TVEEEQYALARLAKVRAQNARKAELRAVL
VVTVEEEQYALARLAKVRAQNARK
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VVTAEDEASARERLKKR LRQQRRRAEDQA $\square L D$
VVTPDEEQYAKDRMEKQRRQQAR
VLTEEHVEHAKQALAESKAKVRARR
KVTPDEEQYAQLDMEKQRRQQSR
HI S QEEEAYAAARDAK $\square R R Q N R \square K A E \square Q A V L D$
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TVTADEAHYASERMMKELLRAERK
TVTPEEENYARER RVRQSRLSARDQSQT
AVTEEHQQHAQETLKESKAK
VLTA EHVEHARDKKKEGKDKDKAQRDEQQKAE
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DLETEHVAYARQQL DEAKAR
HI TVEEEQYADARLAKARAQNARKAEDRAVL
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PI EKEHADHAQAQLEESKAKVAEKRKAQN
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VI EAEHAEHAQTQLAESKKRAAENRKKKA
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ELEGQHVEHARKQLEEAKVRQLQRAAQQAK
E D A DQAAYASKTLKESQEK
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EVTQQE
AI EASHVEHAQKTLKESKEKA
AI EKEHADHAKQQLDES
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VI DKEHADFAASQLETSKAK
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EI TEKEREYSRKKLDKLREK
A I EQEHADHADKQLNESKAKVAEKRKQ
TVSEEHAAFA
VLDAEHVAHAAEQLAEAKAKFAEKRKAE
EVTPSEQQDAE $\square R L M A D N E R C K R Q R Q$
VLEQEHVEHAARQLTEAKAK
VLDAEHVEHAQKTLEESKERNKKNAEQKA
AI EQEHQDHAEQSLAES
VVSDGEAEHAKTNLHESMRKA
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VI T PDEAAFAQTRKAQEHARRARKQALE
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QI EKEHADHARQQLDES
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A 1 T E K QKA YAQEQLIEKWR
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VI EQEH
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VVTELDVADTLKLI QKLVK QQ
DI GEQDVQHAREQLSTLQKHRREREEK
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PVAPEHVHHA LLEVF RRRQARSREDLGRAL
AVNDEEAQHARKKLEGLQARQRER
AVTESDVDEALKRGQKLVKQQSRSA
ELDQQH $K A P H V T A P D K T Q Q E A L Q Q P Q K K N K A E A H A K K R K R R T$ QQAKQAASEGGAPELKNGAEKRTGPKTKAARARLRK

PPTPPKKH K D
TPEAPAQADTPTQPAEQASKPGRSQA AEAQTAKADSALPETDKDPQAMRRES KPTSEPQQAKQQPAQERVRPEGMNRRQWKNFKH QPK $\square \mathrm{N}^{\mathrm{T}}$
 KQQSESVNVNDVASTANTKSRSKNRVA PAPARQRPARQGARGRPQGKPQNPARAPRA PAEATPAADTAEAQDELPS $\square$ DEAPS
$\square K R K T P Q E A P Q Q P K K K N K A D V H A K K K$

> QPKLNS

RKQELHPRTAVINKAQ KN K S K K K N KNKSKKA PQKFS $\underset{\text { Q }}{\mathrm{N}}$
PAGAAGQEGQAAGTAPAPRRTHP PLPANEPAPRSDPPARSEPQAQLDGQADVRQGPQSRLPS PPKWKVKKQKDSEKAAREAEDAAKKAQAGQEDAVYDKLTP KPASRQKQTQTQSVPDQDKNA DQARRERLGK QAAAEGGSGMALDA EATPPEGAGSSQAQQEAPS

RSATENRQPLNKRQRKSKKNRRRW VEQKSQAKHRTTESQTVNQNAKNRSKNRAA QPNTQESTAEK RTD K PQKPAKTAPTQPPKKVTPPPAKKQPTPPKQHLP PRPAHWTREY

KTEPEAGERGATEGTVERAVTKEAAQETAKGAEAPS EQEVQAAVETSEKAANTNKVNPP

TPAVATTPNP
PPATNPQK\IQA KTPQEAPQQPKKKNKA D I HAKK $K E Q L A K K A Q A E S K A G A Q R K K N P R A D T P A K P V D P$ RAEKEQAKTDSAKRPKQRPAPKAKPRDQDP PQQQHQQRKSKRPQQAQSPQQQPQQKQPQQPARPQRK

APKQRFASQAPKPPADTPQ QQAAQEAQQAQFDK KPEGREASPGAADVAAPAGAAPGAGPRAPQR PAQEEGAVAPAPARRKNPTRTRQ EK L A E LKK KQ LA E E $\square K Q K Q P A K P A K P K N A R V D P$ EPMSSKPALDKQTQDVQEQEAASQAPVVEQPS E LA QQAAAEKQKKRQLKEGGGATTRKAKVDP

QQKVEQTQNKTNPT
PEKQQFKE
RSKRLTGRKTKAAKARDRK
AAPDTPDAKNTTARSPDKRNRHAQK QPGAERAERSAAAPQSPKPARPAR PRAGQGDQPARAP $\square R$

AKRPRTQQRSRPAATPSQRTRE
KHQADTKKSKKLAEAKQA
RLKRATVSKATTPGHVASRATEKTGNKQHRK
K PAVNKNKAKNRAS
KHPKRKSSPQAKPRDLDP
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NTKKHTAPKKAHQPNKSAHQHEKSERRKPKWLEYQQ PAAGATNKVNPP KEAPEKEAPAE $\square G Q S T Q T V E S A Q T P S P H A$ PQKQDKKKPRPPRE APARKKKKKRQRFPRPSHWTSE L L $K E Q L A R Q A K A A P Q A K T R R A R P V A P V S P A K P V D P$


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UniRef90 E8LM20 UniRef90_-V2IY89 UniRef90_V5C9F2 UniRef90_F9Q5P5 UniRef90_UPI000369CD7E UniRef90_Q1QUE1 UniRef90_UPIO0036BE957 UniRef90_A1VSW6 UniRef90_E1V824 UniRef90_W6M722 UniRef90_M1S970 UniRef90_X8MUZ9 UniRef90-U9XVQ9
UniRef90-E0WRG2 UniRef90_D3HMN1 UniRef90_K7A6F9 UniRef90_K0HVX7 UniRef90_F4GEE9 UniRef90_S2L0T7 UniRef90_UPI000225B50C UniRef90_UPI0003636F18 UniRef90_A0A023LJN3 UniRef90_V5VX13 UniRef90_W0BV79 UniRef90_UPIO00255847D UniRef90_E8TTW5
UniRef90 E1SSP7 UniRef90-K8WRQ1 UniRef90_S0UIL3 UniRef90-F7SJ59
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UniRef90-UPI000365BD85 UniRef90_H5T9F4 UniRef90_G0A3R6 UniRef90_DOIWC7 UniRef90_A0A011ML08 UniRef90_UPI0003736684 UniRef90_V2CK59 UniRef90-X2JH59 UniRef90-A1TIR4 UniRef90_UPIO003659BC9 UniRef90_C5TD76 UniRef90_T2K1U9 UniRef90_J3D9J1 UniRef90_W0B5I3 UniRef90_U4TEL7 UniRef90_J8TDS3 UniRef90_S6H996
UniRef90_B1JA15 UniRef90_UPI000372A784 UniRef90_W9VET0 UniRef90_H4UK32 UniRef90-UPI00034CCF61 UniRef90_W6LRS3 UniRef90_K2BTB0 UniRef90_J4UP19
UniRef90_M4R4F2 UniRef90_G4FBP7 UniRef90_F5Y302 UniRef90_A0A027BZ85 UniRef90_A0A022H5Y7 UniRef90_M5F653 UniRef90_A0A014NIQ3 UniRef90_F4GWP2 UniRef90_UPI000288549A UniRef90_A0A038GDX5 UniRef90_K1ZX01

KlVIS K T Q V R Q


 G $ا$ S K T Q L


 DRVSK TLLRSSL RHYTNSWRYLHSLKKGAQRUDLDGGKDVG FEREAL K V A L G L H T R S T R Y L Q S V A A G DKR H DL Q G Q P V

 EPWPEK LVVRALACYVHLPRYLKAVRAGAERVGLDGESAG IP L S H K K I $\quad$ DR A L K A I A R | T | $E$ | $L$ | $S$ | $M$ | $D$ | $E$ | $W$ | $F$ | $C$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $A$ | $A$ | $V$ | $S$ |  |  |  |  |  |  |
| $A$ | $P$ | $V$ | $D$ | $K$ | $M$ | $V$ | $L$ | $R$ | $N$ | $A G G N G A A R Y A L K$ EKLARNRIIKRALAATYVS





 ETVVKTQLRQALRGYTMSWRYLAACKPNAVRVGLQGEEAG D DFKK D DLK K VA L G L H A R S T R Y L E A VA A G L A R H D L D G N A V E



GI T S E QL K L Gl T S WCK GTRYWAC MVENAPRLDDLNGQAA G D DFKAE DLLKVAMGLHARSTRYLESVAAGHPRHDLDGNVAE
 LP F A R N H I R K A I A RYASSWYKY L N S FS K H T H R Y D L E G N P A E

F EREAL K VAL G I H T R S T R Y L Q S VA A G D KR H DLQ GQPDVE DVFKRDELKVAL

 GIDDK R DL R A A I K T WC WG K R Y WE CL L E D AV RVVDLD G H A A G $K D A L K S A L Q Q H T R S G R Y L A A M A S G Q Q R H D L S G Q P V E$ ETVSKTLLRQVLRNYTNSWRYLAACQPNVARVGLQGEEAG



## ,

E

## ,

## N

## E

TMDE WL $A D V S R K L M R T A L$ \begin{tabular}{ll|llllll}
$E$ \& $V$ \& $T$ \& $E$ \& $D$ \& $M$ \& $V$ \& $K$ <br>
$E$ \& $T$ \& $V$ \& $L$ \& $A$ <br>
$S$ \& $K$ \& $T$ \& $Q$ \& $L$ \& $R$ \& $Q$ \& $V$ <br>
\hline

 

$E T$ \& $V$ \& $S$ \& $T$ \& $Q$ <br>
$D$ \& $K$ \& $R$ \& $Q V L$ \& $R$ <br>
$S$ \& $K$ \& $T$ \& $L$ \& $R$ <br>
$R$ \& $Q$ \& $A L$ \& $R$
\end{tabular}




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 E P WP EK LVVRRALAGYVNLPRYLKAVREGAERIDLDGAPAG


| UniRef90 UPI0003A7D566 |  |
| :---: | :---: |
| UniRef90-W11RJ3 |  |
| UniRef90-F4U110 | QVSEDEAKNAQRWLADRRRWEKKQAALAGTTD |
| UniRef90-C4K6B1 | TVEEQHEKHAQKQLSDANRRQKRKNDAQ |
| UniRef90_UPIO00469722C |  |
| iRef90 V1WQC5 | EVTTEQQQNA |
| UniRef90 W0BFQ1 | VVTDEQAKYAYQRY |
| UniRef90-F7NRU7 | LIDEQQAAHAAE |
| UniRef90-X8LWA7 | TVTELDVADTLKRT |
| UniRef90-221RU1 | AVAPEHVHFALLELE RRRQGRTQADLIRPKL |
| UniRef90-E8LM20 | EVTKEHEDYSQEQL |
| UniRet90-Virs | ELEQQHQQEAADAL |
| ga | A |
| UniRef90-UP1000369CD7E | AMAPEHVHHALLEVF RRRQQRGGED\TAKD |
| UniRef90-Q1QUE1 | AVTEGEARHARKQLD |
| RRet90_UP100036BE957 | VSEQEAEHAKG |
| IRe990_A1VSW6 |  |
| UniRef90-E1V824 | EVDAGAAEHARKKL |
| UniRet90-M15970 |  |
| UniRef90-X8MUZ9 | TPEQQA DaEkKDADWNK |
| UniRef90-U9XVQ9 | EVTPQEQKEAETRLMMLNDRRKDRK |
| EOWRG2 |  |
| UniRet90-D3HMN1 |  |
| UniRef90-K7A6F9 |  |
| UniRet90_KOHVX7 | DMAPEHVHHALLEVYRRKKARA |
| UniRef90 F4GEE9 | DMAPEHVHHALLEEVERRRKPR |
| UniRef90-W4MGR5 |  |
| UniRef90_UP1000225B5 |  |
| UniRef90 UPIO0036366 | $V V G D D D A R A R E Q L N T L K A R Q E A R E T A Q ~$ |
| UniRef90 V5VX13 | DYSHEHVEYSKKRLDEIAEKAEFRAK |
| UniRef90-WobV79 | EVTAEQQQRAAETLKVMTEKNVMFADE |
| UniRef90 UPIO00255847D |  |
|  | DMAP HVVHALLEVFRRRKPR |
| UniRef90-K8WRQ1 | TVTA S DVAdt |
| UniRef90-SOUIL3 | QVSESEAQSAGRRLATLEQKWRMKAQQEST |
| UniRef90-F7SJ | KVDKEAARHASE |
|  |  |
| UniRef90_12NEG5 | AEHAAQT |
| UniRef90-T1X678 | $\frac{V}{R T}$ |
| A6T2X2 | HRTHAT |
| UniRef90_GOAGB0 |  |
| UniRef90-U3QTR | VVSQTDAKRAQQ |
| UniRef90-A0' | TVTATQAQYAKQQASRQRSQD |
| UniRef90-UP1000 | PVAPEHVHHALLELHMKRRSQRTGEDLIRPQL |
| UniRef90 UPIOOO225B438 |  |
| UniRef90-UP100023771 |  |
| UniRef90-UP100047B? | PVAPEHVHHALEEVFRRRQ |
| UniRef9-UP1000362C4F2 | VVEAAGAAHARGMVRKQAKP |
| UniRef90 UPIO00365BD85 | KVDKEASLHADKRNEKQAKGQSKGAQEVAKKD |
| UniRef90-G0A3R6 |  |
| UniRef90-DolwC7 |  |
| UniRef90-A0A011ML08 | VVTEQEAAHASETL |
| UniRef90_UPIOO03736684 |  |
| V2C | EVSVEQQQNALDALKKKRME |
| UniRef90_X2JH59 | EAEYARLQVS |
| UniRef90-A1TIR4 | AMVPE MVYHALTEVYRRRKPRDGEDLRAKL |
| UniRef90-C5TD76 | DMAPEHVHHALLEVFRRRKARA |
| UniRef90- T2K1U9 | HISQEEEAYAAGRLEKTRRQNRTKAELQAVLD |
| niRef90-J3D9J1 |  |
| niRe990 W0B513 | E |
| UniRef90 U4TEL7 |  |
| UniRef90 J8TDS3 | EVTAEQQERAKQTLKEGRK |
| UniRef90-S6H996 | KVIESEAEYAKTQLKDFHQRRRDNQRLIQEQT |
| UniRef90- UPIO00372A784 | SRQRSQa |
| UniRef90-W9VET0 | KVTAEEAEHAKGKLKEMRKQRKAEQEKEA |
| UniRef90-H4UK | QVSESEAQSASRRLATLEQKWLRMKERQ |
| UniRef90-UP100034CCF61 | EVVTQVHR |
| UniRef90-K2BT | TVSAEEAKYSIER |
| UniRef90-J4UP19 | $\checkmark V D A Q Q A E H A A Q S$ |
| UniRet90_M4R4F2 | A A Q |
| UniRef90_G4FBP7 | DKEAAQHASEKRGEKRDNGAPKQPRSK |
| UniRef90_F5Y302 |  |
| UniRef90 A0A027B785 | EVSEYDAQNSKRWLAKKQRWLSMKAQQEN【SE |
| UniRef90 A0AO22H5Y7 |  |
| UniRet90-M5F653 | AMADADAA |
| UniRei90 ${ }^{\circ} \mathrm{F4GWP} 2$ | EVTVADAQHAKQLANRRRSHATRSRKQEA |
| UniRef90-UPI000288549A | DVDAQAAEHAKRKLERLQSERLERSRP |
| f90-A0A038GDX5 |  |
|  | VTAEESQYSDERKAKLQKKQ |

PPPSEVAPDQVEPVEAKPVEAKPEETKPEETKPESRPVRT


> NPATNPTHKA LP EKVQVKTDSTKPRMRKPSDQTKPSEQDP QLANKAKAESRTEGKRRRPAPAAAPAAAPAP PTEKAPRS
APEGRD $\square$ S PSAPAMT


PAWKVKKQAMEEQAKADRAAAKAARRAEK LQPTF $\square$ N $\square$ MP PTQSVKPNACNNKAAKTQTLTDQQQEALKAKLARWKE E RRQELHPRTA ILNKTQKNQSKKA

RAEKEQQQASAPAPAKRKPPQKTKPRELDP KAEEADEQHAAPAPSAGEPAE QETPS PSPKNERADTRKKTAAKPRNNKPKTEANTEPPPSKVLAH KAAPSKNKAKNRAG EKRRS $\square$ NRS $\square$ NWPA
RQAAAEKLKKAQAKNVNTPAAKPSHPVDPLLVN ASKAKAESRTEGKRRRPAPAAAQAAAPAKPPV DP SEQQVEQTTEQTNNKTNPS

TTPNDPK RRASPKVSARPAKPV KPFDP

QATSAGAEGSPESPSARQDSLADGEAPS
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QFPARSGAGKRPARDRQPPTRPTTRPERQVDP

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> QQTPAPNKFEN

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TAEAPQAPAKEAEAPVPPS
PQPKAQARSKASAPRKQ QENPVDP

$$
P \nabla P \vee P G \underset{M R}{Q}
$$

RAEKQQVT TKPRKRQPASPKKAQEQDP QLARDAERERAAKKPRKRDAKQATSPSSTDP

K N K PQ QT QPADHPSSPPQPQTGERKQPRKRANA EQVAEKSVPTLTPEQKKRQKNQKNNRRLL
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RKQALHPRTAVINKAQKNQSKRAR
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PNPVP\|PVPGHH EASESTVETATLTPEQKKRQKNQKNNRRL

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KQRKRDAAPQQAKPREQDP
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UniRef90- UPIOOO2ED14B4 UniRef90-UPIOOO2
UniRef90 F4DX95 UniRef90_UPIo00465B57D UniRef90-A0A011NTG6 UniRet90_J3CDF4 UniRef90_W6MC60 UniRef90 UPIOOO395A146 UniRef90_UPIOO046A86C5 UniRef90-C4YZN4 UniRef90-UPIO002FA6AA6 UniRef90-Q47JPO UniRef90-UPIO002E4CF6D UniRef90-A0A014Q8G1 UniRef90_UPIOOO36804C7 UniRef90-S6GKT9 UniRet90-K8NSX5 UniRef90_GOA578 UniRef90_UPI00047A945E UniRef90-A0A022FNS8 UniRef90_WoQ652
UniRef90 S1JUT2
UniRef90_SIJUT2
UniRef90-C7RIN9 UniRef90-A0A011Q3Y4 UniRef90-A0AO22H3W9 UniRef90-R9XTK7 UniRef90-U7P3H7 UniRef90-A0A011R2G6 UniRef90-АоАо22Н2P0 UniRef90-K4FPK6 UniRef90-K9DP12 UniRef90_UPI0003612F87 UniRef90-Q2BMU8 UniRef90-13W405 UniRef90-UPI0001D2F415 UniRef90-UPIOOOO467639A UniRef90-A0A023UJT2 UniRet90_L8MK80 UniRef90-K2DUA1 UniRef90-G9EHK2 UniRef90-A0A017L190 UniRef90-L4FED7 UniRef90-F3E698
UniRef90 W1N3V7 UniRef90_UPIO0037345F0 UniRef90 UPIO00225A9F7 UniRef90-J4YJ22 UniRef90-UPIOOO37FF6D9 UniRef90 UPIO0036A946D UniRef90-Q1GY08
UniRef90 B5WWE7 UniRef90-C4YZY2 UniRef90-A0A011 N742 UniRef90-UP10002F0543D UniRef90-E5U2N5 UniRef90-F6AHP8 UniRef90-UPIO0016A6D31 UniRef90_UPIO003EF7483 UniRef90-UP100036F9CBD UniRef90-F2K1U5
UniRef90 K2E5W1 UniRef90-HOBS22 UniRef90-05X8U5 UniRef90-W1RV14 4 UniRef90-A0A011QVZ1 UniRef90 X 7 E4X niinef90-W7XN8
UniRef90_F8GYH9 UniRef90-N6XT40 UniRef90-U5T4E8 UniRef90 U3H7WO UniRef90_UPIO002EEF0E4 UniRef90-A4JVH2 UniRef90_E5AUS1

 GH D Q K M
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F RKTMRTALGDHTGSLRYLRAMEKATVRYDLDGTAGA EPWS GKLVRRRALANYVN LPRYIVSMRE GVERVDLEGNPA G


 D A F E K N E L K V A L GL H T R S T R Y L N A V A M G Q PR H D L Q G QVVE

 Gll T R E Q L E $P P A R P P M R R A L A Y Y K T R L H Y L R K V I S G K N Y R D L H G N R C G$ EMASKRVVQRLLRMHCRHGKYLQAVLDGSQRYNLAGEEVG EKVAKNKIKRALASYVRAPNYFRAMKQDTDR $\quad$ KDLA GESAG T GLGAADI KHFLRAYTFGPKYDRALKAGAPRYALDGSVAG G L L A A DE I E



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| UniRef90_UPIo003804E95 |  |
| UniRef90-Q3JMK3 | RVSAADAKRA RM |
| UniRef90- D3RWE | AVTEAEEVVAKAK |
| UniRef90-U2ZUC8 $\quad$ VVTANQAL |  |
| UniRef90-U7A7V9 | TVTASQALHARQQASRRRKQSKPKERPQEQG |
| UniRet90 UPIOOO37B65BB | AMAD |
| UniRef90-T2L1H5 |  |
| UniRef90-V1W294 | VSDRDVFYARQT |
| UniRef90-UP10004730A19 AI T D EHRAHASEV |  |
| UniRef90-A0A011 NV08 | EITPEQRLHAAKLVKERLQK |
| UniRef90-Z5Y8P9 MVTAAQALLHAKQQ AKRQR |  |
| UniRet90-F8GT66 VVSLIADAKRAQQLKARRSAGARPRKA |  |
| UniRei90 UPIOOO36COS | ALSEEHRRTALETLLKRRQQRRGSAQ EPVLE |
| UniRef90 UP100047700c4 EVT DTHRTHAKETLLKRRQQRRGS |  |
| ¢95 VVTAG |  |
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| UniRef90 UPIO00465B57D | VVTTTQAMHA |
| UniRef90-A0A0111NTG6 EVTEAHRSHATE | PVAPEHVHHA!LELHRRRRNNGNAEELRPQ |
| UniRef90-W6MC60 EVTPEQQT F A Q |  |
| UniRef90-UPI00039 |  |
| UniRef90-UPI0004 |  |
| UniRef90-UPIOOO2F | TKEEVPPKTNKFFKPKKKSARNARK |
| UniRef90-Q47JP0 |  |
| UniRef90 V6JCP1 |  |
| UniRef90 UPIO002E4CF6D SVDRGAADHAHRKLEKLQERQRKPARPRKK |  |
|  |  |
| UniRef90-UP100036804C7 K S D D E E R R Y A V |  |
| UniRef90-S6GKT9 | KVSESEAEYAKV |
| UniRef90-K8NSX5 |  |
| UniRet90-G0A578 F V S K E EA S S S E | VAPE HMS |
| Ref90-A0A022FNS8 |  |
| UniRet90-W0 W652 |  |
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| UniRef90-C7RIN9 El M T T R T H |  |
| AOAO11Q3Y4 EVTETHRSHA |  |
| Ref90-R9XTK7 VVEAAQAEHAAQSLA |  |
| RRef90_U7P3H7 |  |
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| UniRef90-K4FPK6 |  |
| UniRet90-K9DP12 |  |
| UniRef90-UP10003612F87 V V T Q A D A K R A Q QL |  |
| UniRe90-13W405 V |  |
| UniRef90-UPI000467639A |  |
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| UniRef90-A0A017L190 |  |
| UniRef90-L4FED7 | EVSEYDAQNSKRWLAKKQRWLSMKAQQENDSE |
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| 73450 |  |
| UniRef90-UPI00037345FO A V |  |
| UniRef90- J4Y J22 ${ }^{\text {a }}$ AVTANEAKHAKRMASRSASKN |  |
| UniRef90-UPI00037FF6D9 |  |
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| 2F0543D |  |
| UniRef90-E5U2N5 AVTANEAQHAKRMAS |  |
| UniRef90-F6AHP8 | TVTAAQA号HKQQ ARRQR |
| UniRef90-UPIO0016A6D31 R |  |
| UniRef90_UPI0003EF7483 |  |
| UniRef90_UPI00036F9CBD |  |
| UniRef90-K2E5W1 | 1 V |
| UniRei90-H2BS22 AVTSANAAYAQ |  |
| UniRef90-Q5X8U5 EVTEEEAENASMKIKKRVEKSVKNARKQ |  |
| UnRef90-W1RV14 |  |
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| UniRef90-X7E4×4 |  |
| UniRef90-F8GYH9 |  |
| UniRef90-N6XT40 |  |
| UniRef90-U5T4E8 |  |
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| UniRef90_UP1000225BB2E EIAETOKAHA |  |

KAE $\square T P E Q R T \square N N A K A \square N A K ~ \square K S$
TRAGRPQPARHTEPARPADDAKPVDP APALSPSAEGAVPQQ
$K P D^{D}$
LK D
RPARRPSPKAKPREQKPREQ DP
QQPAGKPQQPARRPAPAADAKPVNP KPGTGKASGARAGARPAGKPAQPRRPAAPAADARPVDP KEVESKPVVDNKKTKEDQEKLQAEESSRT

AKPGARPAGKPSQPRRGAAAAAPAADAR APESDSSVGPAAPKQ AKKPPRERKAPRPTPAPAAPAKPTKPAKPTKPVDP AAKPSAPVDP
KQAPEEAASKKKPARPATNEAGSRKPSARPSDD AKPDRKPAPARQAPKQQNPVDP QKKDAVAEKTRKKQPQPWY पKKQ AKQARGQR
KRKSSPQGKPREKDP
KPQPKKQVTPPSELKMRE
EKSAEKKAAKPDKPASKPKKQKTNPRALTEYH KPSHQRRGGGAGAGAARPAAAPAADAKPVDP KRRRAER

PPPPEVENEMPAHQAKKNKKWTPE PQKRKAPQKAKPREQD $\underset{R}{\text { E }}$

KARQWAERQAQEREAMRAARRKPAPEPVYRKVMP ARARPARKPAEPVDP RPQPRRPRQGPKTPKAPSAPRHP

KRRRAER
ETTPEAQAEEAVAKTPAVSK S
KPRDAKPRDARRAPRPAKTHGKPASARPAAKQQNPVDP
QQAETAAPAPLSTNA QDQAKQPR $\square$
A AENNEVSQKKLEAKRKKEYEA
PRPQNGDNKGQRKQGGDKGQRPPRAEKREAPV VA AKDARPAKDARPAKPQRARPAGSAAPAAPAKPVDP QANATARPQQKRESGQAKAAARPQQKREPVDP
PSTKPNPQPARGGKGKDPKKKPARKPADKPPVTPPSDDK
KREPQQAAKPHKPSTAKKKPARKPTKKPTTPPS EQADSESTDSEQKADKPAKKRVP
RAQAAQAKPAQTKSSAGRAKKREAVEPG
KPKSGDRPSRGAKSNAGPKASAGAKPVAAKPSA
QSAAAKKAEKDSLLSPAERQ
KPKSGDRPARGAKSGAAAKAPSGAKPASAKPST
QETALGAAFKQAVQTMSKRQQTEL

QETALGAALKSAVQTMSKKKQTDM AAKPKSVRPPRPAAAPKANARAAAKTEPVDP

QKAQQK LT GATSWRHKRQRK
AP $\square S$ A QEARQKR VVV PTQNPLLTKDK
TDAGKPQRKARREPAAARRTEEPVDP
TAETPETAVEPAAEPAEAAPRAAELS

A A A PSPAKTPDMS
RAQAEQAKPAKSAQSKAKASPGRAAKKREPVDP AGRDKPQGQKRSAPQARAQQPEPPRDPLLV

K E Q D V IT N S K R E $\underset{\text { R }}{\text { R }}$


UniRef90 Q2A0A1 UniRef90-UPI0003013FB1 UniRef90-UPI00036D4063 UniRef90_UPI000363985C UniRef90_N6ZCW7 UniRef90_G4AGU5 UniRef90-K8RB32 UniRef90-A0A011N2W6 UniRef90-H0J7E4 UniRef90-G2A3395 UniRef90-C5Al97 UniRef90-KODLK1
UniRef90_UPI0002E5D0CC UniRef90-G0YPR7 UniRef90_UPI0003FB2105 UniRef90-_N6XD39 UniRef90_R4WY05 UniRef90-A0A024RE80 UniRef90_F7T837 UniRef90-B2JH34 UniRef90-W8KN17 UniRef90-S6AKQ6 UniRef90_G8QJ95 UniRef90_13BWH1 UniRef90-E2CSK8 UniRef90_UPI000368FDF1 UniRef90_UPI00037EB2E5 UniRef90_X8MUW8 UniRef90-H7EGL8 UniRef90-U2B9P2 UniRef90-A5UERO UniRef90-A7C492 UniRef90_UPI000362FA4A UniRef90_UPI0003B46D43 UniRef90-W8E856 UniRef90_UPI00047003E3 UniRef90-A0A024IKX0
UniRef90-R4V819 UniRef90-H0Q0H2 UniRef90-A1K900 UniRef90_W6X4T3
UniRef90_S9ZFT2
UniRef90_C4KBG0
UniRef90_B1Y649
UniRef90-I3BZ76
UniRef90-A4BE56
UniRef90-H0F8I3
UniRef90-Q471S4
UniRef90-E3HJQ5
UniRef90-I3ВТ37
UniRef90_UPI000479DC9D
UniRef90_UPI00037E6F49
UniRef90_D0KWW8
UniRef90-16RKV4
UniRef90-UPI00035F1642
UniRef90-A2WI43
UniRef90_UPIO003B5F08E
UniRef90-B1Z610
UniRef90-V9HCY0
UniRef90_UPIO003741BC5
UniRef90-F0EW61
UniRef90 ${ }^{-}$C4GJD4
UniRef90_UPIOO03746555
UniRef90_UPIO00469D7AA
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UniRef90-A0A027BW15
UniRef90_UPI0003626CEB
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UniRef90_D4DQ23
UniRef90_UPIO003B50840
UniRef90_D5BV00
UniRef90_A0A059KNC8
UniRef90_A6V4J8
UniRef90-UPIO0037C4C70 UniRef90-A2SBQ7
UniRef90-H5WT01
UniRef90_UPIO0047208A8
UniRef90-F9ZU68
UniRef90
UniRef90_UPIO0037B0715 UniRef90-UPIO0037930F1 UniRef90_UPI0002EB3EF4 UniRef90-B2XSF7
UniRef90-V7IEH0

DKRAKRWDMDTWPAPS
 VVRS RGRLQKRFPVAFPKNPKLALKI GI FEDLVVHAKEL RIE PRALLQSLQKAFPAFRDCKPLALKID AS VE RM


 MLKDAKARE

 YNRRMGELVKQFPNVFNKSLDMPLA I GlVHKTLAE


 AAAA S SRLQRQFPKAFPKKPKVPLKLGVLEDLVQHAKALD

 AVDA LD DRLN GFRVWLT
 ARDFLEVLIDRHPGALSRDHVRPLAIGGQEALRADLDTDD
 TVEAI WRLQKHFPLAFPPAPKDPLKEGI $\square$ KANLAKLKERFPNVFF EDLLEIIFFEKFSNTFFKEADRPI QKY EALRLVRILWPNAFNVSDPRPLKDGIHKKIAERRASN ECAEQLKQRFPALEAG APKPIKLRVQAD DQARAP LADALALLKRCWPALVTDGQPQLLAVNIREAMVNDDRRRG $V V L S I G R L Q K H F P S T F P K N P K L P L K I G I H Q D L L A B K A K D$





NRKALDELCELYPEVFNPTQPKPLQIGI HEAIIAAD A AH
 VI QA GGKLQKRFPGAFPKNPKLPLKVGUGEDLLQHASTL



PQEVIAAR VAAWPSAFFPRSVKPLTVGVDKA YQLVAEHF
 PVDALGKLQRRFPRAFPKNPKVPLKVGGIDWEDLARD A QS SRELKRIMAETFSV WRRRRPLAI GI DDQI AAFVAEKN

 $\square A E \quad Y$ K



 PAECAARLAELFPALFAPP
$\begin{array}{lll}P & K & P \\ F & K & P\end{array}$


PAECARQLRERFPALFDGPA

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MFLPLKLGUQADQQRAP

QPRP
PLEVGTGKEVREQLRSH
FQDTMTLLHTRWPEAFSG FKPLEIGGVRKILQELGAEH
 $P G D P \square R P F A!G L F E E I R L L L K$
$A Q T A R D L L K A L Q Q Q F Q V L R D Y A P L A I G: D K Q L L A$
VVADGKLQKRFPLAFPRNPKVPLKVGUWADLAGEAQA YQDCKRWILSNWPEMFDEKNVKP LAG GTYRD:AAAHREAG


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| UniRef90_Q2A0A1 | E\\| T E E Q K A H A A K Q Le NLK A |
| UniRef90- UPI0003013FB1 | EI LEE HRVVSDRQKDKK S |
| UniRef90-UPI00036D4063 | EVTEEQRQHAAQT\KKERFAEVAK |
| UniRef90 ${ }^{-}$UPI000363985C | KVTA QEAAGAQRLLAHR |
| UniRef90_N6ZCW7 | EVT DEQRTHAKERFAA $\square$ A K Q Q K EKREAEA |
| UniRef90-G4AGU5 | ELEREHADHAAQQLAEAKAAQKRAAEKAAKGE |
| UniRef90-K8RB32 | EV S S A D A ERA |
| UniRef90_V2AKP4 | LI T D QEREYAYQK LVGKMAERKRTA |
| UniRef90_A0A011N2W6 | EVTEAHRGHAAE |
| UniRef90-H0J7E4 | TVTAS Q A |
| UniRef90_G2A395 | EVTTEEDKSVASELLLKRR\EQMKQKNSQQ |
| UniRef90-C5A197 | TVT A Q Q A A GAVRLD A A R R S R A G K |
| UniRef90-K0DLK1 | KVTAQEAA GAQRLQAHR |
| UniRef90-UPI0002E5D0CC |  |
| UniRef90-G0YPR7 | EI S E EHLLYGFSRAFDNLT K K Q K A |
| UniRef90-UPI0003FB2105 | KV T A Q EAA GA QRLQA HR |
| UniRef90 ${ }^{-}$N6XD39 | EVTEEQRTHAAT TLLEER |
| UniRef90-R4WY05 | EVT T A D A A R A |
| UniRef90-A0A024RE80 | R V T R D D |
| UniRef90-F7T837 | AVT A NEAQHAKRMASRR |
| UniRef90-B2JH34 | KVTASESAFARRR |
| UniRef90_Q9F577 | TVVK K A H A T Y A QLVLD A R K K A SEKK |
| UniRef90-W8KN17 | A I T A EQQQHAR GKILEDRKRAKQQKR |
| UniRef90_S6AKQ6 | TVVTA GQALLY A K Q Q |
| UniRef90_G8QJ95 | EVAEEHRQHASEVLKERFKKQAE |
| UniRef90_I3BWH1 | DI S Q Q HQQHAAETLTTRQ |
| UniRef90-E2CSK8 |  |
| UniRef90_UPI000368FDF1 | KVTAQEAA GAQRLQAHR |
| UniRef90-UPI00037EB2E5 | AVTEEAVAHARARRDEQKARAAERRRQ |
| UniRef90 ${ }^{-}$X8MUW8 | TVVTELDVVADTGKR\QKLAKQQSR |
| UniRef90-H7EGL8 | VVSEHEAQHARAFLAKLASKNKNN |
| UniRef90_U2B9P2 | V V T A A Q A |
| UniRef90 A5UER0 | L I T A E EKQLA RERLNQ】NEHNKANAEYR |
| UniRef90-A7C492 | EVSEQHQEDAKLRL |
| UniRef90_UPI000362FA4A | KVK L R E A V D A EIIKL |
| UniRef90_UPI0003B46D43 | PV S DEHRQAALDELARRRAQARRAEEDQARRD |
| UniRef90_W8E856 | AV S A E EAAYAVERRAQEHAKRQRRA |
| UniRef90_UPI00047003E3 | SVVSARDAALLARSLENRRKARQAK |
| UniRef90-A0A024IKX0 | VVAPEQRHHA 1 VEVFRRRQARSP |
| UniRef90-R4V819 | PV T D A A DE VA K |
| UniRef90-H0Q0H2 | EVTEEQRQHASQTLKER |
| UniRef90-A1K900 | EVTEEQRQHASALLKKERFAAAAK |
| UniRef90-W6X4T3 | KVTASESAFARR RSGGRNKPAAKAGE |
| UniRef90_S9ZFT2 |  |
| UniRef90_C4KBG0 | EVTEEQRQHAATTLLKER |
| UniRef90_B1Y649 | EVSDEHRQAANEELQRRR |
| UniRef90-I3BZ76 | A I H Q A EREHAARVVAA LP K |
| UniRef90-A4BE56 | TVTAEEAQHAQQKLAE $\square$ DKRRAAKR |
| UniRef90-H0F8I3 | AVTANEARHAKR |
| UniRef90_Q471S4 | QVTLLADAKRAQQQRQQHRASRAQKGKQQAAGE |
| UniRef90_E3HJQ5 | TVT AEQAAYARRQASRR |
| UniRef90-I3BT37 | D I T A Y Q Q Q L A A E T LT K RQA |
| UniRef90_UPI000479DC9D | ALTEEHRKHASDTI RERLKKQAEERRAQQKAE |
| UniRef90_UPI00037E6F49 | T I T P H QVDLA G Q WLQ |
| UniRef90-D0KWW8 | EV D D K A REFAKA QI VA DK Q Q R A R |
| UniRef90-I6RKV4 | KV T A E Q AVYSRRQREQMREKRAKRAQ |
| UniRef90-UPI00035F1642 | $\mathrm{S} \vee \mathrm{S}$ |
| UniRef90-A2WI43 | R V T R D D |
| UniRef90-UPI0003B5F08E |  |
| UniRef90-B1Z610 | RVTHDDAARAR RLKSRRPGNKGSAQ |
| UniRef90 ${ }^{\text {V }} 9 \mathrm{HCY} 0$ | EI SAEEQLLYALL |
| UniRef90_UPI0003741BC5 | EI K A S EKEHAQRTLDE\ALLAQTPKAR |
| UniRef90-F0EW61 | EV S E E ER口H A L E Q R A I E K Q D A R A E A Q A K |
| UniRef90_C4GJD4 | EV S E Q E Q Q A L S Q |
| UniRef90_UPI0003746555 | SVTARDAAFARRQAHGAHASRRQAK |
| UniRef90_UPI000469D7AA | AVTANEAQHAKRMASRRHSKNANKAKPQA |
| UniRef90-F1VTX3 | ALT DEHRLRAT T L L K ERFKKEADQRK |
| UniRef90-A0A027BW15 |  |
| UniRef90_UPI0003626CEB | TVT A A Q A A Y AKQQASRQRGQDRRNRAKAA |
| UniRef90_UPI000414ECAC |  |
| UniRef90-I3CBV9 | EVT A EQVS SFKERRK |
| UniRef90-V213C9 | QV S A R D A A R A R HLEQLR S R R A K P S S P APA Q |
| UniRef90-H5N3F0 | TVKKAHATYA QLVLDA RKKASEKK Q L K R K G |
| UniRef90-10HK33 | EL S A EHRELAAAEIIARRR |
| UniRef90-F2BCI0 | EVSAEEQAVA A Q N MKEMLIEQQAARAAQK |
| UniRef90-D4DQ23 | EVTTPEEQAVA A Q N MVKEMLLKNKRHAVPR |
| UniRef90-UPI0003B50840 | TVSDEEQA Q A $\quad \square \mathrm{R}$ L A S LDE K Q |
| UniRef90-D5BV00 | KPTEEHAEHARQKLKARFEARKQKRANEP |
| UniRef90_A0A059KNC8 | D IS DEHRTVAQQELDRRRRREQRRGAAPQAQGE |
| UniRef90_A6V4J8 | KVTAEQAVYAKRQASRRQRREKRAKRARAATE |
| UniRef90_UPI00037C4C70 | TVTAAEAGHASFLARQQRKKAQAAAKP |
| UniRef90-A2SBQ7 | DVA DLDRAAATGELDRRRA |
| UniRef90-H5WT01 | DI ADEHRQAAQEELNRRRDQQRRAAQ |
| UniRef90-UPI00047208A8 | KI TEQHRNEA L L R L K K LR TK |
| UniRef90_F9ZU68 | V L T T A D K R F A HARLLYREKKRNRR |
| UniRef90-Q7NYF7 | EVSAEEKRAAELQMQ PKNAPAAEPE |
| UniRef90_UPI00037B0715 | ALSEDDRMTAQNRFLGLKQK |
| UniRef90-UPI00037930F1 | AVSEEQRELAANLLREYFKRRAE |
| UniRef90_UPI0002EB3EF4 | R V T R D D |
| UniRef90-B2XSF7 | EVSKENQKTAAEALE |
| UniRef90_V7IEH0 | EVSPEEQA $\square$ A Q Q AVQEMLA R Q A A K |
| UniRef90_B1KC31 | R\|V|T H D D |



APKAKSKDEKKNKKQEAAASNKVVASPEE $\square$ MKAK $\square$ KRH

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\text { PKK } \square \mathrm{DKK} Q
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REERDARNRAKK LRQ PASVAKSPSGAKAASGVKASPGAKASSDARPSSGGKSSA

QQAMRDKPKRQQ

L V A K A

ASNKSLA $\stackrel{R}{H}$

EPRKGQTSKRVPYFADRPP LP
PRPSHWTREY

EQTSKMKPWVTSQGPVPASANDLKKAAA KMAAVDLRRQEVRDEPATETPETKPVRSPTKRPNVV
 QKGQQTKKTQNTSAGMAARKAP $\square P K E E \square R V L H$
lupas 21
lupas_14
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jnet conf sol25 sol5 sol0
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 PDTAVTALRRAVSAYTHSKRYLACAQPDAFRHDI DGNADA FDPKII NRVLSNHCRRPRYVKSVARGGKRFNLNNRFQG FDAVLI ARVVANHCRKPRYIKALARGGKRFDLSCKPAG GKFPNNQLSRFFHRYCGSFKYKEKLVEGAQRFNLDGSPAT

 LDLTRAKASATDMFYTQRVFY V GLTE A E LR DAMSTWCRGNRYWSCLVEDAVRVDDQGNEAG PDVKATAVRRAVGSFVHSKRYYASAQPGSMRHDIDGKPAE
FDPVVVQRVIQRHCSTARYLKAMQREGFRYHLTGKRAA PDMPVMSLRRATSAFLHSKRYYACAQPDSMRHDMAGNPAE
 $\square G L T E P V A R D A D R T W C R G T R Y W T C L V E G A P R V D L A G Q A T G$

 PEGGVTTLRRATAAYVHCRRYYASAQPDSVRHGVDGEPVE

 KGDRHKDIFA LLRDHARRPEYLRVVAANRQRHDLGGKPDE Y D DGEDELDAALAVWCSAPRYLRTVVEGATRVDPEGRPAG PDVGDT TLRRATGAY乌HSKRYYATAQPDSLRYGDDGKPRE TELTI DEWLCAVSCITSRRVYLQRTAVA
PD DVVTTMRKATGAYDHSKRYFATAQPDSMRFDLQGKPDE PDVGVTKLRRATAVYVRDKRYYASAQPDSMRHDLAGAPVE LIAAAES F LAFVYRAHPAYLAAVVRNTRRVTLDGGRAE


 | TGWS A |
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| $\mathrm{L} P \mathrm{P}$ |
| 1 |

KA GRRRLLAAVLRFHTRQKAYDEAVAAGSMRHRDDGRRFE PTVTPQEVEQAVEYWEGRKFYLKSFESATHRDNLAGDPVQ

[^1]

| UniRef90_E5ULN9UniRef90_B9JPN9UniRef90_UPIO004287CEFUniRef90_UPI00045E7EDDUniRef90_UPI0003813A97UniRef90_A5WY96UniRef90_H8FYB1UniRef90_FOG116UniRef90_Q2NQ39UniRef90_UPI00016A5146UniRef90_UPIO003B5FA66UniRef90_C1D7F1 |  |
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140
PI TEENRMAAQLDAFTKVAKR
EVTPEEQAFALEQREALERQDARRAE
EVTAEEKQAAEGQ\AAKAAAVPAPVEPAGTT
LVTKKE
AVDEADR $\operatorname{L}$ SA Q $\square R$ VEE $\square R R E R Q A S A E L$
SVAAQENDEHARAYLIDR
RVTRDD
QQAHALK Q LEKWR
RVSKDD
$P L S T E D R L V A Q R R F L S L K R S N$
ELTDLERDDAKRRLDAMSK
PLSAEDRLAAQERIAALKQTQAKSPAP
$P$ V S E E D RLLS S QLDRFADLLDRSK
PV
HVAPADATRAQH LQSQRTARA $\operatorname{CSRPATAPKS}$ TVSDADRDAAEEKIES LDRR
TI QDYE ISHADNKLAKRKK
AVSEADRLAAREKYK
PMSPEDRLVAQKRFLSLKQSA
$P$ VSAEHRGSARTRFKTVRAYRRRAAQLQP
KTTADERNQAREQLDKRNDWTPRMEE
E $\square$ TEEQKEAARAEIAK $\quad$ E AWDAKNKPEKAK
PVSAEHRDYARQKRERLSRTSE $\square$ SRK
RVPAANAANASERLHALSRQ
AVSEGDR\TAQEKYLGLKRQNVARAD
PVSTADRLSAQARYQR $\square K R$
$P V S A A D R L Q A Q R R F L E M K R T R M Q A D A D A A V$
RI EPEEREQALLWTLRAL
$P V S A D D R M A A Q L R V T E D R R Q R K \square Q A D M$
SVSDEHRQEARDRLKTR
PIDPEPMAGFSSRLKAFRDRGR
PVYPRHREFAQKT DQKR
ILDDADREKALSRKRN IVSQRQMNE
PVSEEHRAKAREQLKDR
lupas_21
lupas_14
lupas_28
jnet
conf sol25
sol5
sol0
jhmm



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

[^1]:    lupas_21
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