UniRef90 M5VV3 UniRef90－V4TQG1 UniRef90＿17GGD4 UniRef90＿V4S3E1 UniRef90－W9RJZ5
UniRef90 W9RJZ UniRef90－A0A022QY56 UniRef90 D6BR63 UniRef90－UPI00046DB3AA UniRef90 b9S4U9 UniRef90 U5G1C3 UniRef90－V4RZO
UniRef90－I1NI60 UniRef90－w9som9 UniRef90－M5Y1Z6 UniRef90－W9R3U3 UniRef90－Q8LNYO UniRef90 C6T3NO UniRef90－AOBEL5 UniRef90－Q6YEY6 UniRef90 ${ }^{\text {A A0AO222QVV7 }}$ UniRef90－P19873 UniRef90－G7JZ30
UniRef90＿11N158 UniRef90－D7LCC7
UniRef90＿K4C8B3 UniRef90－G714R4 UniRef90－B9HUC7
UniRef90 V7BOH2 UniRef90－UPIO00345F38F UniRef90－P16064 UniRef90－UPI0002B4CA3A UniRef90－UPIO002C2EBAF UniRef90－B9NFT8 UniRef90－M4E9M6 UniRef90－UPIOOO346D957 UniRet90－V4SD25 UniRef90－M5W784 UniRef90 D7T7B6 UniRef90＿UPIO002C30833 UniRef90 MOSNM6 UniRef90＿UPIO003D73E1D UniRef90－UPI0003D73E1D UniRef90－UPI0003D73E1D UniRef90－W9RBQ1 UniRef90－MOSNM7 UniRef90－UPIOOO42B4B31 UniRef90－UPI00042B11F1 UniRef90 P20076 UniRef90＿UPI00042B71C9 UniRef90－A0A059CGA4 UniRet90＿M5XWNC
UniRef90 I1LYH2 UniRef90－UPIO0046DE955 UniRef90－UPIO0046DE955 UniRef90－Q4FE26 UniRef90－W9R177 UniRef90－K3ZB15 UniRef90－UPIo002B45EF4 UniRef90－B9RTD8 UniRef90－A2CHN2 UniRef90 K4CVY UniRef90＿V4ADV9 UniRef90＿Q41361 UniRet90＿K4CVYO UniRef90－K3YCIO
UniRef90 ROEYA8 UniRef $90-\mathrm{K} 4 \mathrm{CV} 4$ UniRef90－11H000 UniRef90－B9IIU3 UniRef90 M8BXE2 UniRef90－UP10003D24919 UniRef90－M7YTB2 UniRei90＿UPI0002C2E29A UniRef90＿P05118 UniRef90－MOVFS7 UniRef90－Q2aNz6 UniRef90＿W5AAW5 UniRef90－Q6XNP7 UniRet90＿G7IW84 UniRef90－A0AO22PQY9 UniRef90－11Q．J10 UniRef90－ROGPN4 UniRef90－M5VHV1 UniRef90 K4CVX5 UniRef90＿B6UH04

## S

 CKS SWP E V GE DGA VA A A K O E CN G K S S WP E L V G V $N$ G E 1 A A A T 1            GKNSWPE
                        VGKDGEGAKTII
                        E K E N P C \(V\) V
                                IVL
            EGT
    
ECRGKRSWPE
CEQGKSSWPEL
SECKGKNSWPELLGAKGDVAAAK
SQCKGKRSWPELVGVKGTVAEAK
$\stackrel{ }{\mathrm{S}}$

S
SECE
QGKQSWP
S ECRGKRSWPELVGVPGNAAAA
S SCPGKSSWPHEVGVGGSVAKAI
SOCRGKKSWP
SSCKKKTWE
DDCKGKSSWPE
SEC
RKNSWP
GKMSWP
DECKGKSSWPE
CEGKSSWP
SYCKGKRSWPE
TFCKGKQEWP
CKGKSSWP


${ }^{\circ}$
HCPGKQAWP
H
DQCPGKSSPE
E
SNT
SNTPPKMEWP
PGKQSWP
SFCPGKESWP
PGKEWP E
STCQGKTSWP
CQ
SHCQGKKSWP
SHCPSKKSWPE
SCKGK【QWPE

SHCP
S C K
SN
GKNSWP
RCPGKNAWPE
CKGKSSWP EVGKSGNMAAAT
CKGKSSWPELVGVSGNDAEKDI
VADRPDVQVFLVPVGS
R
QCSGKQEWPE
RTSGKQSWP E
MSKTEWP
SHCRGKNTWP
ECRGK
SHCRGKNTWP
K DS WP
KDSWPE
S ${ }^{\square} \mathrm{WC}$
PGKSSW
KGKGF
GK SWP
SEC
GKSSWPE
QGKSSWPE
QGKRSWPE
DTCGKKASWPE
DTCGKKASWPELVGKSTEEAKK
SSCQGKSSWPE
SEEEKKTSWP
Q
CEGKQMWP
S S W
KTSWPEVVGLSAEEAKKV
CKGKRSWP EGVASAEEAKKVILKDMPDADIVVLPAGS
KSSWPELVGILASLAATQTAHDRPAAADEVLPTGV
SQCPVKNSWPELVGTNGDUAAGQIATERAANAKAIVVKEGV

GKFWPELGANGDAAAAVIGRQNPNVNAVVSTNPT
$P G K S S W P E L I G T R G E Y A K E V$
GKRSWPELVGEDGEAAAMK
SFCKG





|  |  |
| :---: | :---: |
| UniRef90-B6U463 | AVTSDFGFDRVRVFV GTVAQTPHVG |
| UniRef90-A0A059BKL0 | Spods indrvyvs |
| UniRef90-Q40444 | PVTKDFRCNRVRLFVN |
| UniRef90-A5Y6Z6 | VWTPATFCDRVLVFVDANGI |
| UniRef90-M8AEV6 | SSDTQF\ANRVRIFVNG |
| UniRef90-A9TU23 | MVTMDYNENRVRLFVDDERKV |
| UniRef90-D8R3 | LVTADFDKNRVRIYTDCSNRVVRTPSIG |
| UniRef90 UPIO00234FA58 | PVPPDFNAERVRVFYDSLALVTQUPKVG |
| UniRef90-D8L860 | L |
| UniRef90-Po1054 | MVPLNFNPNRVFV |
| UniRef90-W1PLG1 | FVTMDYDLRRVRLYVDATGU |
| UniRef90-J3L965 | TVPPGFSAKRVRVFFDATGP |
| UniRef90-W5H124 | TVAPGYNAERVRVFFAATGLVVSTPHVG |
|  | TVSPGYNAKRVRVFFNSLGPVVSTPLVG |
| UniRef90- S8DUF1 | LVTFDLCCNRVWLYYDSQNRVSAVPLVG |
| UniReef90 AOAO22S2C4 | PTTRDFRCDRVWVWVNDYG |
| UniRef90-ROGST1 | VVLTVVVCDRVYVRVNDHGIVTRTPSVG |
| N1QWV4 | PIGFNSKR RVFDSQALVANITP VG |
| UniRef90_M8AS75 |  |
| UniRee90-G7 | FVTADYNTQRVRL |
| UniRef90-K3YZ | EVPPGFDDKRVRLFVDFNLK |
| UniRef90-I1GZZ8 | KVSKGFNPKRVRVFFDSQGL |
| UniRef90 P86971 | DFRCDRVRVLINRGGV |
| UniRef90-K3YXT0 | PEPRDFDPHRVCLFVDDSFTVVRMPVVG |
| UniRef90-M8ARR5 | PVTLDLRPNRVRIFVD TVAETPFTG |
| UniRef90-K3Y3 | DNYCCNRVRL |
| 88M1F9 |  |
| UniRef90-RoGUU1 1 | YLPSUNCCNRVILFVCPNGP |
| UniRef90 K4CVW9 | PVTFDFRCDRVRLFDNVLGYV |
| UniRef90-T1LQL5 | SVAPGLNGERVRVFFDGTGSV |
|  |  |
|  | LEEDFCCNRVCVFMDENYLVVKVP |
| UniRef90-P08820 | FVTADYKFQRVRLYVDESNKVVRA |
| UniRef90-M8B | AVAPGEDDNRVRLFGDRTGLVAQTPVVG |
| UniRef90-P802117 | GFTKDFRCDRVWVVVDSTGV |
| D7G6N7 | MVTMDMRTDRVRMYYKENLVTRPPRVG |
| UniRet90 Q53PR9 | AGFGDYCCNRVYVWINEKGNVCEI, |
| UniRef90-UPIo002B4D | PMYLNFDPRRVRV |
|  | R V |
|  | D RVHLFVDS |
| UniRef90-A0A059BYM1 | EIFTDFCCNRVYVWIDEKGNVFQMPLVG |
| Q42162 |  |
|  |  |
| M8BLJ4 |  |
| UniRef90_A0A059 | YGFTDFCCNRVYVYIDDKDNVVQEPMVG |
|  | KLTKGFNPKRVRVFYDPRGLVAKVPVVG |
| UniRef90 A4ZZ73 |  |
| UniRef90-T1LXK4 | PVTKDFRPERVRVFID |
| UniRef90 K3YBD7 | MVDQMIVPNRVRLR |
| c5 |  |
|  | PLPSGYNPRRVVIISDGNGVVVKTPVIG |
| UniRef90-O5Z9Z4 |  |
| UniRei90-V4NH90 | MVIADNCCNRVI |
| UniRet90-11HN04 | MVTEDLQYDRVR |
| UniRef90-11NWS1 | QLPTDHDDLRV |
| UniRef90-T1MM10 |  |
| V4LB |  |
| UPI0002B4A310 | G |
| UniRef90-B7G | RVRILVDGNDLVSQTPSRG |
| UniRef90 R1D0C1 | MATMDFDEARVR |
|  |  |
|  |  |
| UniRef90-UPIO002345 |  |
| UniRet90-11NWS2 | DPARVAI FVDGDI |
|  | VNILCCNVGCFLDKNYRVYTVP\VG |
|  |  |
| UniRef90-J3L964 | SVPPGFDGERVRLFLNNDRTVAQTPVVG |
| UniRef90-D8M2N7 |  |
| OA |  |
| M8A | PSPPGFDSTRVCVFLDKLGRVAAVPVVG |
| UniRef90-11N | SVPPGFDGER |
| UniRef90-UP | AVPPGFHSTRVCVFYDSHDVVGATPAVG |
| UniRef90-T1N33 | PNPPGFRSDRVVVFYDELGRVAT PVIG |
| UniRef90-M8AKG1 | GWPPGHNPWRVVVRLSNEAGVVVKTP IVG |
| UniRef90-C5XT48 | YFNNRVRV |
| RRef90- M8BBZ3 | TVPPGYHAERVAVFFDEQGLI AAVPAVG |
| D8L86 | DDHRVYLFLDENLIVVRTPV |
| UniRet90_UPIOO | NPKRVALFYDANHIVTSVPK |
|  | PGYNAER |
| UniRef90-M1AR | ALTQDLRDSRVR |
| UniRet90 M1A2E88 | APADLCM |
|  |  |
|  | TIVSPPRVG |
|  |  |

$K K T S W P E V V \mid G W E P L V A G L K \| H G D R P D V / R F E F H H D G D$
 QCNGKLSWPELI GVPTKLAKE II E CQGKQTWPELLGKDQDTAYDTI

K S S
$K$ K
KVA
$K T A S$
$G K V V$ $\qquad$
SWP A
PGKSAWPELLGKQATLAALDADAHDRPDVVVQVLPPAS
KTSWPEVVGWNVIAAGKKVVADRDDVHLEVHLVGD
SRFPGKVVWPELKGVSAPEAKRMI ESDNPHVSGVIIPEDV QGKTAWPELLGQNVEKAVSI I EKENPTVRPVVLNQNI CPG EWPELKGVKYMRAVKIVIKRSNPKVVGLPVDGGC PKRTSWPELVGI PALAAVMRINHDRPELVVEVLPLDM

 GKTSWPELLHWAVEPAMEQIKSDRPELMIESLPVGT GK QS WPELVGGKDQDTA Y LVI K K E N P QVVTVVVFLVSD
 $K T L W P E L V G Y N A D A A G M L I L R D R P D V H V E Y F T V G A$ MSKNSWPEVVGMSGEEAQALVEAEEGGVKAQLVPPGG
 CQGKQSWPELIGKEPKTAYNCIRHDNPQVNNITFLISD GK TS WP E L MGTKGDYAASVI ERENPEVTAAVIVVGTT


KVEWPELKGVSGPEAKRKI EGDNPHVNYWSVN
KTSWPEVVGWPAAQAVTQVNTDRPDVAIEVLPSGT MSKSSWPELVGVMATPAATQIALVRPDVAVEVLPPGA KTSWPELVGKSLEEVREVI LKDMPEADTVVLPACS

 ERETPVVNSVILDGS PGKS S WPELVGVLAKLAATTDAHDRPDVSDDVLL

TS WPDLKGKTRHEAEELIKKEKEERNI KVMKKGT CGKQEWPELVGTFYGAA AAKI KSDYLGGVVVAYSPKGS

K F T WP ELVRKNGQVAKSTIEKDNPEVTVRILPPG GK SWPE -EVVGLSEEEAKKKI TEHKPDPSVHVVPSDA PSKTSWPELVGYSSFAAGILI VGGQPYEEAKDABEAREGDVHVEYFE!NT $L V G Q T A S E A V A K A V K D S G A R H A R V L K P G M$ PTKTSWPELVGYNSFAAGLLIVYDRPDLAVDFFPV M
T RCPKKSSWAELVGKS DEDARKVILKDMPEAD DKVLPV

 K M S WP EVVEMSVEKAKEVI LK DKPDAE I EV V PVVD
RSSWPEAAGLPVATAALLIVNGDRPDVAVA LIVERD PDKKTWPELEGVPCGEACRKDKQERPDVEIK LLKLDT

[^0]
$A V P P G H D D D R V R L F L A P G E T V A A T P F D G$ $G V Q Q D \square S D N R V R V F V G T \square A S V V T V P K V G$ PVTKDFSC
EENDEFCCNRVVLVIGALDPTISKVPQVG
 $\vee \vee L A V V D C D R V Y V R V N D Q G I V T R$ AVVAI NCCNRVILRVCPNGPVLNDPHVG TPPLGFDPERVVVFVDADQRVAFTPTIG FVTADYKPQRVRLYVDESNKVTRTPGIG $G V 1 Q Q V C C N R V I L V V C P N G L V L N S P Q U G$ PVTKDI DPGRVRLVVDANGKVVNVPQEG $P V T L D L R Y N R V R V F Y N P G T N V V N V P H V G$ AVIPVYND
 FVTMDFRHNRVRLYVDSSGKVERPPSVG NAPPGYDGERVRLIIDPGTTIAQTPVI G
 PDPDPVDCTRVLVF $\quad$ N DNNQVALVPIV

 IHIFNLCCNRVWLCPDEKGLIREKPVVG AVSPEFNPKRVRVFVDNNFIVVKVPVIGG
 VVTTDYRADRI RI YFDPTYYVVQPPSVG
 $A P P T G F D P K R V V I F R N S G N R V V K A P T L G$ $M M T M D F R E D R V R I R V K E D G T V D S V P Q V G$ $P$ LDPPELNDERVRVFIDAASLVAQUPM $A P P S P R E P K R V I V F T D G Q I T V V F P P F V G$ $\frac{V}{P} \mathrm{P}$ K D L A MSRVRIYVDNEGKVVEAPKRG $P$ VTMDYRPDRVRTFVDDDGFVVGTPYSG AMTLDFRTNRVRIIVD TVATSPSIG A LRPMCCNHVLLVIGNDG\|I KVPHVG PVPFEYN
IVTMEY
IVTQE $\mathrm{M} D \mathrm{~F}$
 $C C N R V L L R V C L N G P V V N S P R \| G$
SVS P G F
PL TPADYP
VVFADWRSNRLEFFH
TN NT D ICCNRVWIYVDGNG\|VQNDPAVG $R M T R D Y N P F R V F V I T E K E Y K V V S P P G C G$
PWPPGPHPWRVVVVSDATGVVVQTPVVG PVTTDFRCDRVRVFVDGNR\|VVKTPKSG

SSSTEHDESRVILYVDDND VVVEEPKVG P VT TE $\square R$ MDRVIVS $\$ NS D GTVLG VPS V

MYPSEFWFKKVRLVVNGSNVVVEEP FVTMDYNTGRVR
AFS YNPKRIRVFMDDSF VVVKVPVMG DPGHG DSKRVVAWTDGHDTVVYPPYVG AVTQDFRDDRLNVELDEDGNITN
AMTMDYREDRVSIEVDEQNKIVR
PQDPGFEPNRVVALTDGHNMVVYPP
PSPPGFDSTRVCVFLDQRDKVADVPVVG
KYSEEFWYNEDKLVYDKSNNVVEVP PASTEVC
PRPADQLDTRVVIYVDPNTNVETV
$P \square P G R S D P R R V T L V S D T A S V V V K T P V A G$ $A F T D D L D S H R V R L F D N L L D \cup V V H T P K V G$ $D L L M G F D$
A MTMDFREDR $\square S \square E \operatorname{VDAQNR\square VR}$
P
$A V T M D F R P D R L N V Q V E Q G K \square$
PRPANLAPGRVVI YVDPNETVEETPYT $N G P V G S D L T R A V F R D P T R D V V Y P P Y V G$ AVTMDFRQDRVTVQVDAQNRIER
$P V T M D Y N S R R L N I D V D D A G V V K Q$

[^1]


[^0]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

[^1]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol5
    jhmm
    jpssm

