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 $Y P G G A V V S Y G G H R W T S R W W T Q G D V P$
$P D C D A A A W N A G S V Y T G G D T V S H G G S V Y T A R W W T Q G E E P$ CTSPAYVAGTVYNSGSVVSHKGHTWKAQWWTQNEEP SCAAPVWSTGTVYHGGDTVTHDGRTYRAKWWTTNERP ACDAPAWNKSTVYTGGQVVAHQGQKWRAKWWTQGEEP CTAAPWAAGTVYTAGQQVSHKGHTWKAKWWTTGEEP GCTAPTWQANNVYTGGDQVQHGGKLYEAKWWTTGEEP ACETPAWSSGEVYTGGDQVSHGGRLYRAQWWTRGEEP
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$A$ A WS S SVAYDGGSKVVYSGRLWTAKWWT QADIP A A A WSSGSVYTQGNVVSHNGHNWQAKWWTQGETP

WT S GK A Y LA GEQVIF E GR LY Q A N WWVN N S P A SCTAPAWNENSSDYTA GEQVVIFE GRLLYQANWWVNNSPA TCTVAA WVA SRAYS G GAVVVSHNSKKWRAKWWTQQETP TCTVAA WVAS RAYSGGAVVSHNSKKWRAKWWTQGETP APAWS T QVYTGGAEVSHNGSIWRAGWWTLGEEP
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A P A WS S TAVYTGGTAASHGG\|NYTAKWWTQNNEP
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A WNS TTA YNGGGQEVVTYNGHHLLWTAKWWTQNETP
TCAAPAWDKAAVYTGGATVSWKAHSWKAKWWTQGDEP
A NAWDAATTYVEGDQVSHNGATWEAGWWTRGDEP
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S P P Q WD S DTTYTGGDRVVHEGY $\square$ WEAKWWTHGTEP
ACGGEAWAADKVFTGGSSVSYNGHTYTAAWWTQGETP
WQADS I YVGGDKVTHNGSTWTAQWWTTGEEP
DCVA GA WSA G S V Y NGGETVVSHDGHTWRAKWWVT GEEP
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T A P A WD A AKAYNA GDSVTYGGKTYKAKWWTQNNIP
TCPAP WET GAVYT GGDQVTYQGNVYQAQWWTSGNRP
CT T $\dagger$ T A WNSSQVYTGGTSVSWNGHDWKAKWWTQGEEP
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Y D GY I WE A K WWTK G TE P
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 SVQT WTA GVAYTAGEQVVSGGHLWTANWWTEGDVP
 A AP A WQEGTTYTAGTVVTYNGHDYQSAYVGASWTP A A P A WQEGTTYTAGTVVTYNGHDYQSAYVGASWTP TYPAWSATTVYVGGNKVSYNGVNYEAKWWTQGETP

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A WS S S AVVYTA GDEVSYNGNUYTANYWTESNDP A A A WNSSSVYTGGMTASHNGRNWQAKWWTQNETP A P E WS ST TA Y N G GDRVTYQGVLYEALWWTQGETP APEWSSTTAYNGGDRVTYQGVLYEALWWTQGETP A A A WS A TTVVYVA GDRVTYGGHLWWAKWWTQGNTP TCSAAPWEATATYSGDSEVVSHQGKLLWTARWWTTGEEP SCAASPYSAGTVYVGGDTVSAGGHTWKARWWTQGEAP TCAAP WSSGTVYTGGKTASYTGHNWLAKWWTQGETP
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P P T WSAESTYLGGDRVTYNGAVYEAKWWTRNETP CEASAWSSGAVVNTGDVVEHDGSEYRARWWTQGEEP
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E WQADEI YTAGDRVYYEGQLYEAKWWTQGENP
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 SANDWSPTAVYVGGDLVSHEGRTYKARWWTS GETP TNPAWQASKVYWGGDKVSYKGKNYQAKWWTRGEQP CKTTAWSATAVYNGGETVVYGGHNWRAKWWTQGEQP DVPKWNSSTAYTS GDQVSYDGETWEANWWTQGDEP DVPK KNSSTAYTS GDQVSYDGETWEANWWTQGDEP

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$P$ VC A N A
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F P A C

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s V S A
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QSGQW




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A WD AT T I YT GG DQATKD GKDVWEAK WWTRRGEDP
WDAAAVYTGGDQVIYQGQNYKAKWWTQGEDP
E WNASKAYNGGERVQYQGVAYKAKWWT LGEDP
S VEE WNASKKAYNGGERVVQYQ GVAYKAKWWTLGEEIP
SVVE WREKLTYS G GDVVAFNGAQYKAKWWTRGEEP
SVIE EWREKLTYSGGDVVAFNGAQYKAKWWTRGEEP
A WTPSRIF VKG GDVATYNGHNYTAKWWTRNQTP
CQA AWKQGTAYTGGAKVQUNGRTYEARWWTQNEVP

A WDS TVAYTGGLKV TYK GHDWTAKWWTEADTP
WEATKVYNTGDKVSYKGATYEAKWWSQGNEP
WDA S A V YVG GNQV TWS GSVVWEAK WWT QGD DP
TCAAP WSASAVYTGGAVVSHGGQNWKAGWWTQDDTP
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$P D W S A Q T I Y W Q G D K V Q L G G R L F E A R W W S R G Q R P$
PTACVAA WSAATVYTGGATASFEGKNYRAKWWTQGDRP
P A Y DS GTAYSGGDRVTHEGADWTAEWWTK GTAP
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YPA WQMGGTY LGGGDQVSHQNLVWQAKYWTQMEPG
WTAS WITYTGETVVVHDGSLLWTAKWWTRNQEP
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Y P A WNESDVVYRS GDRVVWNGGGWEAQWWTQGDTP
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YPA WVASTAYTGGATVSYNGVNYKANWWTQGNNP
S Y P K Y EP GKE Y NQ GDIV EYNGKLLYKAKYWTTS
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WQSSKAYRGGEIVTFNGERYQARWWTRNQQP
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P A A WDANKAYVA GNEVIFEGNNYRAKWWTK GNQP

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$T V T$ T WD K D S I Y T E G DEVVVYN GVVTY QA K WWT Q G D DP
A WQ GKAYSGGTLVSYNGAIDWQNKWYESTEEP

P A WDRKTI YTAGDEVLHDGSVWVAQWWTKGEKP
PA WDRKTI Y TA GDEVLHD GSVWVVAQWWTK GEKP
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A WDA S SVYNT D D IV SHA GKTWQA GWWSRGEEP
WD E A A $\quad Y$ V G G D TVVIV N GVVEYTA K WWT Q GN R P
P P P TQPAWSADSTYKEGDVVTHNGRSWTAHWWTRGEEP
TYV G G NTVVSHGGHE WRAKWWT Q GE T P
WS K S K T Y V A G DKV S HK GVD Y EAKWWNRGEEP
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A A E WS STA $\operatorname{V} V Y T A G Q E V T Y Q G S S Y K A K W W T Q G N V P$


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| UniRef90_F4BJT5 | S |
| UniRef90-C9NQM1 | SAGGPWEL |
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| UniRet90-ACD2X0 | GESQV |
| UniRef90-J8HTJ3 | GESQVWEKQ |
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| UniRef90-R2QVS4 | GKTPVWEK |
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| UniRef90-UP100016A6A81 | GTGKVW |
| UniRef90 W4JPI | GSADVWT |
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| UniRef90-V4HB53 | DQHSVWKKL |
| UniRef90-V4HB53 UniRef90 R1GX26 | DQHSV |
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| UniRef90_UP100037DA4F3 | GSGGA |
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| UniRet90-G2S4W8 | ANSDV |
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| UniRef90-UP100047841BC | GASGPWS |
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| UniRef90 Z5XP16 | DLGGPW |
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| UniRef90 UPIOOO3782A5D | G |
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| UniRef90_C9P7N8 | AQSGAW |
| UniRef90 U1L7 | DQSDAWELV |
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| UniRet90_AOAL-F2 | DTSDVWK |
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GNAAVWSVV
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$G V E D V W V N L G$
GSD SVWLK
SPT GS WKKV
DTSAAWE
DTSAAWE
GTTGVWK LIGD
ASENVWTLEGN
ASENVWTLEGN
DNSNAWQ
D N S N A WQ
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ETSSVWVL
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GTTGQW
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GGD V WEEAG
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GSAGVWVK
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GTSGVWQDLG
DGADPWE
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GSTSVWVDAGR
GSDTPWTLI
GSKSVWTNEG
GSK SVWTNEG
GVAAVWNQL
$G \vee A A V W N Q L$
D RSDAWK LVVDV
DRSDAWKLVVSDV
TADGSWLAV
GVAPMWKDVGE
GVAPMWKDVGE
$\begin{array}{ll}\text { S E S D A WE QI } & \text { G } \\ \text { S E S D A WE QI }\end{array}$
GT T GVWEDQG
ADSGVWQKVGD
GQSEVWAKV
ASENVWT EGP
ASENVWTLEGP
GTVDVWADNG
GS DPVWLKVGPI
SKGGVWQEI
SKGGVWQE
GGAGVWTDD
$E T N S V W Q V V$
ETNSVWQVV
GGADDWTDDG
GSAGVWTDDG
STSGPWKLD
GASDAWTDNG
GQYGVWKYVSD
TKS GEW
GSAGVWTDDG
ATSGQW
GAAGVWT Q
AQSGSW
GTTGEW

D T A D V W WN
GKA Q V WK
GTSSDWTEI GP
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T A GDPW
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UniRef90
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UniRef90_S8E6T2 UniRef90_UPI0003715C4D UniRef90-UPIOOO3715C4D UniRef90_UPIO004624454 UniRef90 C7PON1 UniRef90_U3ATL8 UniRef90-S9T5U6 UniRef90-U4JWV7 UniRef90-UPIO0036F4441 UniRef90-UPIO00373EB09 UniRef90-UPIO0034501D6 UniRef90-B0TYR2 UniRef90 S9R882 UniRef90-W7Z1Q2 UniRef90_UPI00045E5C07 UniRef90_U1ARB6 UniRef90-U1ARB6 UniRef90-UPI000378E5CB UniRef90 UPIO004752C39 UniRef90 UPI0004752C39 UniRef90-K7S0S1
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$S \square P \square Y$ D S S K I Y L S G D $\square V M Y E G V Q Y K A K W W T L G E T P$ WASGKVYNAGDYATFNGKTWRASWWTQGEQP GCFA A WSADEVYVGGNQVTYNGRNYKAKWWTRGDDP

P TWSATEVYTGGKDVKYNNVHYQAKWWTQNQNP S Y A E WDKN T TY T GGDQVACGGK $\square Y \square A R W W T \square G D \square P$ E WSSETAYTAGQVVTYQGSGYKARWWTKGEIP EWSSETAYTAGQVVTYQGSGYKARWWTKGEIP $K V Y T G G Q T V S Y N G H Q Y K A K W W T Q G D Q P$
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 CQAEAWSSKQVYTKGDRVKDNDVVYEAKWWTKGEDP
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A WVSNVA Y E G G D TVI F N G H L WTAK WWS F G D T P
CTYAEWNAATAYTS GQRVSYSGKVYEAKYWTQGARP A WVS SAYTGGQKVTYAGRNYEAKWWTQ GNVP WNAGTVYNNGDTVIVNGTTYVAGWWTKGQEP ACVVA AYNNSAVYTGTQRASYNGHNWTAKWWTQGETP ACAPPAWSAASAYGGGSTVSHKGHSWKSKWWTKGEEP APS WS A GT T Y A AVT KVV WK GHYY QNK WWTA GEDP

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LP S C S A
ACFA
NAASCQA
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A


C S GQP WN S QVI Y T G G E QVV S WA N K V WQ A QWWTQQGN DP
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A WS A AKTYNENDVAIHDGIS WKAHWHTVGEEP
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PAWSAAT $\mathrm{P}^{\prime} Y \mathrm{YGGEKVVYQGRSYQAQWYTSGVAP}$
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AWT QSAVYUGGQRVVRNGVLYQAKWWTQGDDP WNTTKAYTEGDTVIHNGQLWEARWYSRNDEP WNTIKAYTEGDIVIHNGQLWEARWYSRNDEP WQS QQVY T GGDAVTYQSAKYTAKWWTQNQNP

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DCSAPNWDSTSVYNGGDQVQHVNEAYQANYWTQGNNP WDESTLYQEGDRVTYDGY $\begin{aligned} & \text { WWEAD } \\ & \text { WS S S R A A OP }\end{aligned}$
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ASPTYAPGS $1 Y$ QKGDQVYHDGKYYEAKW YADS $\square P$
YPEFPRGDHAAGGDQL DHNGSVWQANWWT NSTP
A AP $\square Y N E T Q S Y Q Q G S Q V E H \square G N V Y Q A K W W A T E D D P$
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WT P S RIIF TA GDRASYKGVVYVAKWWTRNQAP
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NQGDKV IYDGVVYQANWWT SSVP
$N Q G D K V Y D G V Y Q A N W W T ~ S S V P ~$ GCDA AWNAATAYGGGSLASENGVNYKANWWTQGDDP YP PLWDAKTVYGGNETVSWKGHNYQVKWWSQGKQP WQAQSVYTKGESVTYQSVSYTAKWWTQNQNP WNNSQAYQGGQIVKYQQQFYLARWWNQKANP WSPTTTYLAGDKVVWHHNVYEVKWWTKGDVP WSPTTTYLAGDKVVWHHNVYEVKWWTKGDVP WQSGNAYTGGQQVEQNNNAYEANWWTRSEPA PA WVANVAYNSAQNVTHNGHDFTAKTLTAGSTP PVDPNAWDAGKVYNTGDRVVVGGVTYEAVYWTQGDDP A WNASTSYAUGDLVSYSSSKYEATWWSTGAQP WNSSNVYTQGDRVEYNVVEYRARWWTQGDNP ATAWSASTTYNAGQTVSLSGHNYSNKWWTLNEDP SAEDYDNTKSYSGGERVSFNGAIYEAQWWVNNQSP S回PDWDSTATYTSGTQVKTQGAAYEAAYWTQGNDP WN S S Q TYat VT PVTYDNYLYYNKWWTQNENP PDWNSATIYEQACQVKYAGKAWLNGWWTQNSPP
PDWQANGIYVTDDKVQWKGRQYQARWWIQDSEP
$P D W Q A N G \perp Y V T D D K V Q W K G R Q Y Q A R W W I Q \ E P$
WDSNTSYTGGAQVKYSGAAYQANWWSRGDNP
FGGCAAKAWQSDKAYRLGDAVAYNGVIYQARHWSYGFQP

| UniRef90_B5FBA8 | $\text { ETHSEWKNLG }{ }^{50}$ |
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| UniRef90-UPI00031ECC50 | S T T GVWL ${ }^{\text {V }}$ |
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| UniRef90-UPI00034D431F | A THSQWRLLGQ |
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| UniRef90-UPI000440E496 | GASGDWT DNGP |
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| UniRef90-Q6LQ32 | S TS QEWSLL |
| UniRef90_UPI00037B4432 | GA A QVWA DL G |
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UniRef90 K9NEM7 UniRef9O-UPI0003B74DCC UniRef90-K1C060 UniRef90-R8AU09 UniRef90-R8AU09 UniRef90-J4HS67 UniRef90-UPI000299DEC9 UniRef90_-Q693B6 UniRef90_A7N1W5 UniRef90-DOLUY5 UniRef90-10H310 UniRef90_UPI00047B292F UniRef90-Q2C6H1 UniRef90-Q2C6H1 UniRef90-UPIO00455DFDA UniRef90-U0Z6Z6 UniRef90_UPI000366C22C UniRef90-F9T1A8
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PAWVSSAAYTQGQQASVNNINYKANWWTQGQNP AAEPYDSSKSYSKGEQVSADGKLYEAKWWNSGQSP WA GNPNHAGGDKLVHNGAVVYANWWTR S IP PGCDGNAWSAS DAPEWAFS SVYY GGALVKHNGHDWRARYWTQGSEP

AEAWNPDTTYEGGEQVHFRDRVYEAQHWVRTDPP WQAGQTHTGGSQVQAQNSAYEAKWWTQSNPV WDSSTTY $\operatorname{CGGDVVIYAGQAWKAQWWSRGGE}$
WNSAN AYQGGDQVQDEGDAYEAKWWTRDDKP WSASA $\square Y H G G D Q V Q F N G N K Y Q A N Y W T Q N N N P$ WQQGQTHVGGDQVQAQDSAYEAKWWTQTETS WDANTPYDKGDRVVVNGVTYEAKYWTKGDDP AASAYD $\square \mathrm{NQGYGGGSQVSFNGQIYEAKWYNPGQSP}$ AAELYNPSQNYPAGEQVSFNGNI YETQWWNPGQSP EWQPTTVY LGG $\operatorname{L}$ GQATQNNQLYTAAWWTQNQSP APPYDSAVAYNTGDKVSKQTLTWQANYWIQGETP A WDA AKFYGPGDVVSYKSHKWTSSWYSVGAEP WSADKAYGGGSTVQHESKVYTANWWTKGNNP EWQSDVAYSGGDQVTYEGDLFTAEWWTKNDPP APEWDSNIAYFSGQLVKYQGKLYSAKQDVAGTLP
 TYANWDANKAYVSGDTVNYEGKNYKAKWWT WNKETVYTKGDSTRYLGRLWVAKWWTQGDRP VGGDKMAYQGSVYRANWWT NSDP YPDWTETTAYPAETKVVWHRNVYEAKWWTEGDQP YPIWTETTAYPAETKVVWHRNVYEAKWWTEGDQP WNPGTSYHRGDRVTYNDLPYEARWTTRGDAP EWDSAKAYVPNDVVGHNGHKWTSLWYSTGAEP
YPA WAAAAVFSGGQRTTYNGRNYEAKWWTQGDNP WSATTAYALGDKVSYQGFEYEATWWSQGAAP WSATTAYAAGDKVSYQGFEYEATWWSQGAAP
P $\square$ WSASFPYPAGYKVVWGGY $\quad$ YEAKWYNQGQQP LPEETYPKWAEETIYKAGQRVMFEGDAYEAKWWNKNENP S CTAPK YAEETVYKAGQRVMFEGDAYEAKWWNKNENP $\square P V G T Y P D W S G T T Q F N K G D R V L F E G V P Y E S K W W N Q G E S P$ CSAPSWEEKVYNGPTTVSKDGRDYTSKWWVSAEVP DCTSPVWNSAAAYGGGSKVQQQNKAYQANWWNQNMSP
DCTSPVVNSAAAYGGGSKVQQQNKAYQANWWNQNMSP WVANVAYESGDQVVYNGNLWTATEWSYAETP
CPAWYSNRAYTQGERVAFGRFVYEASYWSKNQNP
$P V W D A T T V Y V G G N A V Q H S S V K Y T A K W W T Q G D N P$ WDSSTVYNS GDQVQTKGAAYEAAYWTQGNDP WNSVTAYVGGDQVQHNGNAY $\square$ AN WWTQNQDP DCSSVA WQFATAYPGGSVVKHNGHLWKARWWTQGSEP CDAPAWAEGSTYAAGAKVTYQSRLYSAKWPGAGWNP E WKSDSVYTGGDQVQQGGVAYKANYWTQNNSP E WKSDSVYTGGDQVQQGGVAYKANYWTQNNSP PDCAA APWSSPAAQYMAGSVVGRGGVNYTAAFWTQGNAP A PA WVP WK LY WWGDQVSYKGKVYEATRPT』LQ $\square P$ A WDSSTIYNTGDQVQHLGEGYQANYWTQGNNP AP WSADTVYATTTQVTQSNGЉYQNKWWTTNESP YPNWTQSDWQGNPTHAGGDDMSHNKVVYRAGWWTQQSTP YPSWTAKDW SGGDYNSGDYMSYQGVLYRANWYTA TVP TYPNWPNGGNHSGGDQQLDYQDAVWEAKWWTQ A V V TVAA WNATTVYSAPCQVSYQGKVWVNGWWTRGEAP W $\square A T K V Y V K G D K V T V N G T T F E A K W W T Q G D A P$

 | WQGTPTHAGGDQIVHEGKVYKANWWTMS |
| :--- |
| WDAGKTY C |

PSGAAPWYSTG VYTAGDVVVHDGVEFAAAWWTRGQEP PSGAAPWYSTG VYTAGDVVVHDGVEFAAAWWTRGQEP YPDWTEEASYLEGTKIVWHRNVYEAKWWTRGELP YP I WT E EASYLEGTKIVWHRNVYEAKWWTRGELP

EWNKSMSYSRKDKVSWQGKAWKAAYWTQGNTP WSATAVYTASMVASQNGHNYSAKWWTQNESP AAENYDPHQSYASGEQVYFDGKDYQAQWWNPNQSP WSKDKTYLLAETKVVWQHNVYQAKWWTRGDEP
EWQASEVYLGGAKATQDGKLYEAAWWTRNQSP YPVWSADASYLEGTKIVWHHNVYEAKWWTSGDLP A QT WQSGKAYQSGELVVWKDRIWKARHWTK EEP WQA DREYVGGDEVVYEGVRYRAKWWNFNQNP



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UniRef90_V4HTD7
UniRef90_U4KF65 UniRef90-A7IDN7 UniRef90_C9Q4P1 UniRef90_UPI0002EDA41B UniRef90_UPI0002EDA41B UniRef90_UPI00047223D6 UniRef90_UPI00036B645A
UniRef90_U4K7W9
UniRef90_A4C3H7
UniRef90_G8SE49
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UniRef90_L8JW79
UniRef90-Z5XLZ
UniRef90 L8JI47
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GPWDEWLQLG
E EFS D WTLVG P G V D Q E WRLL G EKS GEW
G VD S P WA L LG
ATENSW
ETHSEWKHQGE
G S D G S WS Fl
SFSGA WQLLTDD
GAPGSW
STSSEWKFV
D S K NVWTL
T N A T Y WE K $\square G E$
GTTGKW
GSDDSYQPWSEL
QRD GP WK L V
GS D GSWTFV
D G S Q P WR LL GPV
D GS QP WRLL GPV
STD
GAPGSW
A Q S G VWK D $\square \mathrm{G}$
DKSQVWK K
D K S QV WK K
TQQTPWELLGPV
A GDGSWKQL
EETSAWKALSQ
LG $\square$ G S WQ
DAASS
G D A A V
D A Y QEWK LL GE
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GFK GP WK L I G
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G
G


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10
WNAATAYGPGETSHAGHKWSTWYSTGAEP FNPGEAYLTGEIVEYNGSLWRAKHVTSS P $V Y V K D N Q V S Y Q S K N Y T A K W W T Q N E V P$
$A Y T A G E Q V I V D G V R Y Q A K Y W T Q G D D P ~$ WSQSSAYNGGAQVQKSQQAFEAKWWTQADPV WEPTVAY LGKDQVKHLDSAYEAKWWSRGSAP WNPSIAYTAPTQVQHNGKRYQANYWTQNNNP WQDGQAYGGGSTVQHEGDVYTANWWTNNANP
$P N W S N T E T Y Y G G D R V D H N S K T W R A T A D N K G V E P$
$P V W S A S V A Y V K D N V V S K G G S N Y T A K W W T Q G E D P$ NTGDKVVNDGKVYQANWWTA SVP A WNASTYYRIGDKVSYNNREYQASWWSRGAQP WDATATYMENDLVIWKGHQYKAGWWTVGDQP WDRSKTYASPHRVSWNGDEWENQWWTSGNEP WLADTEYASTTQQVTQQNSLDFQNKWWT TN ESP WQANK $\square Y Q G G S L I K H G T D Y Y F A R Y W N E N N P P$ WQS GDAYVGGSQVQAQNSAYEANWWTQTNPV WVA NKVYVAGDRVSYGGGRY QVAKHWTQNAAP AWDSSKAYTSGSQVQEGNKVYKANWWSKGNNP $\begin{aligned} & \text { DCFTP } \\ & \text { WSSSSQVYVGGNKASYNNVNYTANYWTQNNNP } \\ & \text { WKKTYAMPNKVTYNGAEWMNGWWTQDNQP }\end{aligned}$
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jnet
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sol0
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jpssm


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| UniRef90_I3IE55 | A S N S G WLD ${ }^{\text {L }}$ G |
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| lupas_21 |  |
| lupas_14 |  |
| lupas_28 |  |
| jnet | - |
| conf | 765244413699 |
| sol25 | B |
| sol5 | B |
| sol0 |  |
| jpssm |  |


[^0]:    

[^1]:    

[^2]: