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Q G T A D NAY K TPEE
TPEK
$K G V P E E$
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K G T
PEQVVKNLT




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K G S
K P
K P D V PGDEAEK T EDAPGMLQFSRSGNHLKITNPSAYYLTLVNLKVGNQ
S P A D A P AKLLTFHKQGNKI SINNPTPYYITLVNFNIGNH
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 Q M Q P E D AVK QI RFARS GQYLKIVNPSPYYVS LVNLKLGNE DKALQALQF $\quad$ R K GA QLEI I RNP TPYYLTI SQLKAGNH $P E Q A Y G Q L R F Q S Q P G G I K A C N P T P Y F L S L D S L C T L D G Q$
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70
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 $K V N D N Y A V P K G E S R F P L K A S A N G V S W K I \quad N D Y G A V S K S W S$ EDEP GMVAPMS S LTTWPI S GS GTVVKWRAI NDF G GI T DVA Q


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$K G L$
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EDMAPKL
A MAP K F Q R

L S
EAA E
AS AA GSLEWSRHNNTLQVFNKTPFYMNLKSLIIGKT A S E A A K K L K GDADEAYKSLTFRQDGNQLEVKNPSNYYVTDGQLKVAGK PAEAPYTLKKSRSGNYINVHNPSPFYVTLVNLQVGSSQ
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 G D P LDEA Y Q QL R WTRKS Q GVVQLTNPTPYYINLIVQVSVNGK G D A N E A Y S K L Q F Q L Q N S R L TVNSNP T P Y Y V S L R G L A V G G K K M D S EE R A K QL Q F Y R K G N QL T I N N P T P Y Y I T T L S EVV I A S
 K GNVSEAAKSLTWHKDNNTLSVTNPSPWYVTIDSIITINGN
 QGDANEAAKAVTWTAKGNTLLANNPTPYFVSFVTLSASGK $K T T L D E A A R A L Q W R D S G Q T L Q V T N P S P D H I T F S H I Q Q G G A K$



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SPS DA Y S QVVK WR GQ G K QLL LVVDNPTP YY I TVYPEVKV GAA
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T P NT T E A A K K VT P $\quad$ K A Q S M I K F S R N G D K I II SN P T P Y Y I T I I N MD V G K G

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| :---: | :---: |
| $G L$ | $A$ |
| $G$ | $D$ | $K$ GLDP K A P A Q L $K G E P A V A A G Q L K W S Q Q G S T L T A R N D S P F Y V D D A R M T I G G G$

 GNPS GMAKKLTWRVNGRQLI ATNPTLFYMNLGSLLSFNDK K S D A QEAYKSLVFSVVGGRLAVDNPTAYYDSLHNMTVDGK
 Q G D P T I A WQ K L T F S R K N G TVL F V S N P T P F S VV S F Y D L K K V N G K


 DAPS GLLEFYHS DNQLKI KNPTPYY T DA QLKTGDT
 GD P L Q A P E K L Q WQ L Q G D S L QVNNP GP Y HVVSMLR I S I H Q H K M K P EA A L N E L K F S K S A D G V Y V V N N S S P Y H V S S FVVNIIH I D N Q
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 Q GSANDAVKS I DWQAKGTHLEATNPTPFYVSFARLVVNNN


 K A P A E A D Y K KI TF NVQ GK K $\square R V N N P T P Y W F T F Y S G K A G G K$ $G N P N D A A Q S L V W T R T P G G \mid L K A T N P T P F B D S G V T V G M T G S$

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S P
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A P V T
T P L T
$\square \mathrm{K} \square \mathrm{S}$

Q S $\square$

K K L

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ATV
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Q

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| G S S | S |  |
| :--- | :--- | :--- |
| S | N | L |
| R | S | 1 |

LP V

| V P |
| :---: |
| A N V |
| M S L |
| A A V |
| R |

## R

A Q LS

SKL

A A L
A T
VRL
R

QR】
$M P \square T$
$\left.{ }_{A}^{A} \mathrm{~V}_{\mathrm{K}} \mathrm{L}\right]_{S}$

VK 1

A Q L T
A

V

SKLS

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 NTANVQEQLRFSKQGGNLVVSNPTPFHQTLLEMTVGRD
 E G
 GAVE QLPEKLRFS LVVENQVLVVNPTGFYASFGTITVGNR
 NSEGQQI E WGURDGNLVAKNKTPYYFTVVNASFNGK K G S S S E A A T A L T WK K K D K Q V EVVK N A S P Y FVVTV N EA T L N A N E K D E Q R L H F S A T S H G V M I T N P T P WY M S L V IM S I D K R APAKVTWKREGDALEAKNPTPYY DSVTKTGLVSA

 VA K QVV F S L Q G T Q L R V E N P T P Y F L T F S V L K V G G Q


 GDRDAAPELLVLSKQGEELAINNPTPFYDTITRIQADNK K E S S V S Y L D K L

T L E E S A


GDPADTAS
 GDPADTASAL WA LT S D P L K V R N P T P Y H A S L Q A L H I D G Q
 $N \square Q Q$ K P E S L E W S L E K G K L K V K N P S R Y V V QL H S V T I N G T GSPAEAVS RLGWQLVGGGLLRVSNPSPPHINLSEVLLSGP DAEKKKLI K QRRRDNEVVWL KN P T P Y W WF A V T G L L K L N G K


T V E Q A
D
P E H P W
 E G GSADEAVSRRV T WRLGGAPGLEADNP
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 K DDRR A EQQ T L KK QAKGYTIHNPTPYHVIVASNKKGGE K D D R R DAENKLLLVQQDGNKTLLKNPTPYYFS I IGGMNNSK


QAF | E K | R | $F$ | $I$ | $Q$ | $A$ | $G$ | $E$ | $S$ | $K$ | $V$ | $V$ | $N$ | $E$ | $L$ | $P$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $K$ | $W$ | $Y$ | $A$ | $N$ | $F$ | $L$ | $A$ | $I$ | $K$ | $V$ | $G$ | $E$ | $E$ |  |  |
| $I$ | $T$ | $L$ | $Q$ | $R$ | $Q$ | $G$ | $N$ | $G$ | $Y$ | $Q$ | $S$ | $N$ | $P$ | $T$ | $G$ | $D D V A A K Q Q F S R Q P G A L K V A N P T P Y Y A T F D S A E V E S Q$ P A EVVYK K IS Y K LE D N S I IV K N D S K Y Y F T $\square A K \square T N D N E$ Q GRPE DLPGQLRFRSAGWAVRVDNPSGYYASFASASVGQR




GTAE
D F S D K F T D S RTS S D G L




 | $Y$ | $Y$ | $L$ | $T$ | $L$ | $S$ | $V$ | $T$ | $V$ | $D$ | $Q$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $Y$ | $R$ | $I$ | $N$ | $F$ | $E$ | $H$ | $V$ | $D$ | $F$ | $K$ |
| $N$ |  |  |  |  |  |  |  |  |  |  |



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AP L
$A D L T$
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A NV
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T T LT
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K

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N L
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A N $V$
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| UniRet90 L7ZE69 | G |
| UniRef90-UP100035D71D7 | LRWLLERDRLLKENPTDFHAALLGLEEAGE |
| UniRef90-H8DUE6 | LTF SNVSSSVRLTNSSPYYVSLTKVVVRNR |
| UniRet90-W8UHE9 | VSFTLNKQNLTAHNPTPYHVSFGQ1 QLKNR |
| UniReef90-V6MKE5 |  |
| (e) | GDPALEPQQQLVWSSDGRTVTANNPSAFHLSLLSNLETADS |
| UniRef90 C4TON9 | $F Q G S G G D F R V T N P T P F N V T F Q T L E T A Q S$ |
| UniRef90- J1Y ${ }^{\text {¢M0 }}$ | 俍 |
| UniRef90-G0K170 | D ALQWEDDRSELVARNPSPYFVSRRMVLNGY |
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| UniRei90-UPI00041264 | SATDAGDSVVWKMTKSRLKALNNSPYYVSLINRUVAGK |
| UniRee90-АоАо23MP04 | KLTLTYQGDGVIF DNPTPFYLVISNAGSKEN |
| UniRef90-K5VFZ2 | ENI QVLKTSKGTLFRNPTDYYFALSKVQVGNQ |
| UniRef90-UPIOOO, | KELTWHQGGSRLVVRNDSPYVVRLSELQLNPH |
| UniRef90 UPIO0046F1C8B | AVQQLVWNTDGHSVTVSNPSALLHLSLINVQTDSQ |
| UniRei90-UPI000474D921 | VVNQLTERLSGWAlAVNNPTPGNISFTSTALVND |
| UniRef90-K8WIU0 | DKVSVIKKTNGIII DNQTPYHLSVKEIFVNGT |
| UniRef90-U2N819 | QQFSLIRQPGKLTVDNASPYYATFSAAKLTGR |
| UniRef90-Q0VTH1 | TSLKI SLTEEGVSIKNPAPFSVSFFSPLLEDK |
| UniRef90-C4TWN6 | N1SLVKK GVTYLSNPTPYYFAVIGMKVNGQ |
| UniRef90-D4BZS2 | QKKISFRREGNNIIVKNNSPIVYMSFESLIAVNGY |
| RRef90-B2VEYO | R |
| UniRef90-B2 | NPSPYVVRLGETVTADW |
| UniRef90-UP100031 | QNDTANWVTI IEVKVNGV |
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|  | KVTLVKTPKGYRLNNVTPFNLTI IGVGNNRK |
| UniRef90_C3K | DTPYVVRLAQPGDNRA |
| M9S |  |
|  | G |
| UniRef90 E2XM06 | NDQLSVHNPSPYVVRLAQPGGGSA |
| UniRef90-K8WWP0 | DNFLLVKNTSSYHISFTGMNVSSK |
|  | GSALEAADHVTWTKDGNGLVAHNESPYNVALSMVKLSGQ |
| UniRet90-X7IBQ0 | GSPLEMANTSRVWLQNGKLHLRNNSGFYLALSSLDVSGQ |
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| UniRef90_UP1000 |  |
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|  | D |
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| UniRee90-UPIO0042890C6 |  |
| UniR | G |
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|  |  |
|  | S |
| UniRef90-A0A | QKLSMKRSGSIYS KNDAANWITVTEVKANNV |
| UniRef90-V1DHY3 | GREISFNVNGIEVDVINKSPFYASFVDVKLGNQ |
| iRef90 J7GGG5 | G |
| UniRef90-D4BU96 |  |
| UniRef90-UPIO004711E9F | PDQLT WSVSREGLAIANASPFTVNFARMELPGQ |
| UniRef90-F2LRQ1 | WEYLKWRIQGDQLCVSNDTKMAI RFVNDVTLQP |
| UniRet90-W8U | RVAAESVSWKKTGKAIVI KNKSPYHISIGKFVVGSK |
| UniRef90 Wol700 | WKRLTWKQSGNSLTVSNPSPYVVRLGQNTLPGW |
| UniRef90-B4EXD3 | DVIDDVIVEKVNENIVINNKSPLYMTFEYLKVGEV |
| UniRef90 G2J821 | WKSLVWSVSGKRLQVNNPGPYVVRLLSNPDVGTR |
| UniRef90-A4T UniRef90 ${ }^{-}$L6 | SEGVATKLSFTLEGRVLRVANPTPFNVTFQTDA |
| UniRefg UniRetg | Q |
| 75 | QWRWDNARLQVHNPSPYVVRLASMTLP SR |
| ef90-XBLI58 |  |
| UniRef90 ${ }^{\text {N9 }}$ | DLQAVAAQLKFSTDGQQLISENPSAYFISFSETTLRSQ |
| UniRef90-K8WQC8 | NVSASHSENOLSTKNPTPY |
|  |  |
| UniRef90-X5FCW4 | G |
| UniRef90- S6INX4 |  |
| UniRef90 B6XDA0 |  |
| UniRef90-V5ZBZ3 | LS WTKAGNDL |
|  | R |
| 468 | K A DLIN NLQ Y Y LTLASEHDGLCLKNS P P Y YVtL |



| UniRef90_C6V1L0 |  |
| :---: | :---: |
| UniRef90-L7ZE69 |  |
| UniRef90_UPI00035D71D7 | V |
| UniRef90-H8DUE6 |  |
| UniRef90-W8UHE9 |  |
| UniRef90-V6MKE5 |  |
| UniRef90-UPI00028880EF |  |
| UniRef90-\2BL77 |  |
| UniRef90-C4T0N9 |  |
| UniRef90-J1YXM0 |  |
| UniRef90-G0K170 |  |
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| UniRef90-X5A3G5 | S P L |
| UniRef90-L2E7D5 |  |
| UniRef90-J2UBS0 |  |
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| UniRef90-A0A023MP04 |  |
| UniRef90-K5VFZ2 |  |
| UniRef90-UPIO004762981 | A P 1 |
| UniRef90-UPI00046F1C8B | A A L |
| UniRef90-IODSR6 |  |
| UniRef90_UPI000474D921 |  |
| UniRef90-K8WIU0 |  |
| UniRef90-U2N819 |  |
| UniRef90-Q0VTH1 | REDS |
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| UniRef90-D4BZS2 |  |
| UniRef90-D5WLM2 |  |
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| UniRef90_B2VKN4 | A |
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| UniRef90-G9Y450 |  |
| UniRef90-V6MPA1 |  |
| UniRef90-D1P6Y0 |  |
| UniRef90-C3K4P3 | A P L |
| UniRef90-M9S0W5 |  |
| UniRef90_Q8D1K9 |  |
| UniRef90-M7CAL7 |  |
| UniRef90-E2XM06 | A P |
| UniRef90-K8WWP0 |  |
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| UniRef90_UPI0004641765 |  |
| UniRef90-L2E824 |  |
| UniRef90-UPI0003299028 |  |
| UniRef90-F0KS87 |  |
| UniRef90-UPI0004752A32 | A L L |
| UniRef90-B5XUJ8 |  |
| UniRef90-K8BWB9 |  |
| UniRef90-U1UJI1 | A PV |
| UniRef90_G9Z9Y5 | A R V ${ }^{\text {T }}$ |
| UniRef90_K8WI59 |  |
| UniRef90-C5A921 | P P L |
| UniRef90-E3GCT4 |  |
| UniRef90-G8LP56 |  |
| UniRef90_UPI00042890C6 |  |
| UniRef90-A1RPW7 |  |
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| UniRef90-UPI000465EFE6 |  |
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| UniRef90-K8WEM3 |  |
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| UniRef90-A4TLG0 |  |
| UniRef90_L6XYD6 | A P L S |
| UniRef90-W6AWE3 |  |
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| UniRef90-J5U340 |  |
| UniRef90-UPI0004 |  |

sol25
sol5
sol0
jhmm
jpssm
lupas 21
sol0
jhmm
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