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GR $\quad 10$ 10 P P ${ }^{10}{ }^{20}$

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TT QVTDRKC ${ }^{40}$ QVTDRKCs
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D K
D K
T D

K C

R

Q C GC K C
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 CRLRHQASSLP $C L L V T N T G A R I V L E D G R A V I L G R G P D D T G V V T D K K C S$

$C$ C L R SVNNSHAND LLKKDGETLLLGQMKKTQCEDSRWN MVPDETLPKIHL DDGKLVTLGRSPATQVRCKTCA

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 KFYVIVSDENPEQKFILQNNEPLILGKKQQTGUVDSRMP WLEPLPFVCSQPGEIPPLEHGVVLGRNPDLNG DNRCS $\square R G S E G G K D V I L \quad A E G K T S W G R G P L L S V A D K R V S$
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 ESGVTVLGRGAKFGITDRRVS LIRTDAEDPK!LDP回GH VIGRGKLLDCDDKKIS
 S GRGPLLKITDKRVS
 $L V P P S A E L P A D D$ R
 LVPLRGATASSPLPRDTDVITMGRSKELEVECKRVS YLVPLDNNLREPKLPLSQGPNVIGRT NIPVSDKRLS QCNLIQENGTK $\frac{\| Q L K}{}$
 MVLGRG LCGVSDKRCS
 VPIFEGANFVGRN NLNVSDKRVS FLVPLEEDTSTPKLPDPTGANVIGRNSTSKVSDKRLS YLVPKEEASVPKFAVSDGUNVDIGRN NIPVPDKRLS K LCLHHVD
$Y \square I P V E G S \| P \quad K \square A \square S D G T N V I G R N \quad N \square P V P D K R \square S$
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YLIPPLNPNSEEKELTDSDGTNII GRN NVPVNDKRLS
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GKTVLGRGPLLKTT DKRVS GADIVMGRGPLLGI SDKRCS
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FLVPLEDGKSSIPUPLSEGPNCVGRDCUDPTDKRDS
SPSASS $\square P M P \square P \square F K G T F S I G R G S F E K L Q E K K C S$
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$R L T$ LEGGECMPPTLDLSPTGQPVTVGRSRDNTVRDEMAS $L V R \square D S E P Q K I D L P$ EGTHII GRGKFDDAEDMRVS
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RNHANL

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RTHAT Q
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RKHIISL
RSHALL
RNHALL

## R

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$\stackrel{\mathrm{E}}{\mathrm{E}}$
TVS
RKHAILL $R$
RRHATL
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 RNHGVIKVPTEYNTIHITSTHANPIFYRKNLTKDLTQSLN VSLKADCEKCHVEIKQLGVNASLDGFALKKDEVYEIGG RKHLTLTA RLC RKQUT T LN DDTVYUSST GUNPSYLKKQMAKDQNYTLE RKHLTTTAS ADGTANDHVEGTNPVVVNSKLNSKQTAA: F

 RNHAVL EVGDGKIVVMPDHTNPTFFHGPLTKDVWQDLK RKH ALTTSPGDGSAHLLVEGTNPVVVRKKLSSRENAACN RKHAELK $\qquad$ SKHCELSIVNVVTLRVTLKDDSTNGTYDNSELKRVVVS N RKHLTLTASPDASAVLAVDGTNPVVVKSKLEPKDNATVH RSHAVIDNDENK LLLKSLCKYPTYEVIPLKYNEECVLA RRQAVLTATPSDQPFALVAHGPNTTFVRRRMAKGEVYFLN
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 RTHAKVY FEDGRWHVRDFGLNGTRVDG RVSGATELT RNHAEI EVTDTCVILKSLHQNPCFSKRTLTQNNAQLLC RKHLSLHAS TDGSIEVVVEGPNPRSNGQRRKVCATGKAK
 RRHLSTNV WADTSASVLVEGSNPSSNGKKLSSGQKST| Q RNHLSLTADDASSSAALVVEGSNPVVVRRKLCHKDSVTIR KEHCKLFWDSLERRFYLTDCSANGTFIGERLKKGETYILP


|  | 90 |
| :---: | :---: |
| UniRef90_G1KVU9 | P G D RFS L L V ${ }^{\text {V }}$ K Y A F K V L |
| UniRef90-T1EER7 | S G DMLSLLK T N GFKYELVKVE |
| UniRef90-UPI000329008C |  |
| UniRef90-J9JQT8 | H G D K V S L N S N F T Y H L D F |
| UniRef90_UPI0003F08E9D | NGEKFSLI PEFH】FKVVIDE |
| UniRef90-T1KMT2 | Q G D If SLLP NGYRFQVEFS D |
| UniRef90-F2U205 | HNSVVCLLPNRYCFRVV |
| UniRef90-R4FMR4 |  |
| UniRef90-L8HIX3 | K GQQV D L P N G |
| UniRef90-T1FYY0 | HGDVI SLLP DKLFF K I H Y K |
| UniRef90-V4AS51 | E G DVFGLLPD Q L F F K V L Y K |
| UniRef90_U4UFA1 |  |
| UniRef90-J9JYZ3 | Y G DKI T L L Y K N H S Y H L D F |
| UniRef90-E9CIB2 | DGDVFHLLDTAFPFRVR |
| UniRef90-Q7TQC4 | P G QVL H MV N GLY P Y IVE F E E |
| UniRef90-Q9BUL2 | VGD TL Y L V N GLHPLTL R WEE |
| UniRef90-A7RZU3 | TGDLI SLLPDQHVFE |
| UniRef90-UPI0003AFED53 | PGDRFSLLVDKY I F CVV |
| UniRef90-P61798 |  |
| UniRef90-W5J490 | PGDQF GLLPDSYWYEI R GKE |
| UniRef90-UPI0003EBE616 | HGDFFSLLPGRF $\square$ Y EVV |
| UniRef90-E9C5Y2 | HGDVLFLMPNAFPFRVV |
| UniRef90-B0WL40 | K G DKFALLPDQYWYE』RRFGE |
| UniRef90-W1NRX7 | H G DVLELI P G K H C F K |
| UniRef90-UPI00035A0312 | HGDEFGLLPDQFFYKVSY |
| UniRef90_UPI0000E491D7 |  |
| UniRef90_UPI0002B45219 | D G DVI EL I PGHYPF |
| UniRef90_UPI0002739B6E |  |
| UniRef90-L8GUK1 | NGDRVSLI EGLLLLFTFA |
| UniRef90-UPI00042BEAA6 | P GDS F S L D D K Y I F KV |
| UniRef90-S4P4D6 | NGDRFGLLPD T F WY EVLF |
| UniRef90_F6XLV7 |  |
| UniRef90-B9RXR7 | SGDVIELI PGHHFFKYEGE |
| UniRef90-I1G0A1 | D G D Q I S I L |
| UniRef90-L8H0T4 | VG DVI S L L P G L Y GY T L R |
| UniRef90_UPI00032AAFB3 | D G DVI EL I P G H H LF K Y Q |
| UniRef90-K2MYU2 | S G D RVCLTN |
| UniRef90-K1QVD7 | NDET F GLL R D R L F F K VMY D |
| UniRef90_G6CIU3 | NGDRFGLLPDS Y WF E I |
| UniRef90_A4H5J1 | NGD R V EL |
| UniRef90-F0ZGB9 | D G Q Q FLLCSQK Y P F TVQ |
| UniRef90-G1MYY8 | F GDSFSLMVD K Y \F K V |
| UniRef90-G0V2B2 | P G DE\S L V |
| UniRef90-V4TP90 | D G D I E L I P G H H F K Y V |
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| UniRef90_D0A993 | S G D Q S FVV |
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| UniRef90_UPI00038C1B42 | P G |
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| UniRef90-E0CVK9 | NDDII ELI P G H Y FFK Y V |
| UniRef90_I1JUA1 | N G D I I E L I P G H H L F K Y Q |
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| UniRef90_W4VVC5 | H NDRLELL Y GKHVFElE F |
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| UniRef90-UPI00020E2F4C | PGDSFSLLVDKY IF RV |
| UniRef90_G7KVX8 | D GDVI ELIPPGHYLFKYQ |
| UniRef90_G0UDB8 | P G D SV |
| UniRef90-A0A059CDY2 | P G CVI E L I P G H H F F K Y E |
| UniRef90-F6U857 | TGDEFSLLQNKYKYKVSLQD |
| UniRef90-W4XKT0 |  |
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| UniRef90_D3BHP0 | D G D SFS ML Y E M L T F T V V $\square$ E |
| UniRef90-B3SAH1 | NGDEVSLLPS DL Y Y QVV |
| UniRef90-W6KMD6 | P G D HVSL |
| UniRef90_M5WNH3 | HG DVI ELIP GHY LF K Y K |
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| UniRef90_L8GHM9 | D G DVI R LPPD Y HPIVLR |
| UniRef90_W9R0B7 | N G DVI E L IP G H Y M F K Y V I S D |
| UniRef90-UPI0003C91DD7 | P G D RFSLLVD K Y If R V |
| UniRef90-H2RQ84 | $D G D L F S L L P G Q L I$ Y R V V |
| UniRef90-M1C866 | S G Di le L I P G H Y L F K YV |
| UniRef90-F0Z946 | DK D CFSLL F EMF T F MVVFE |
| UniRef90_R7WFZ5 | HDDVLEL I P GE Y |
| UniRef90 E9CGJ1 |  |
| UniRef90-UPI00016C4E1C | D G Q R $\square \mathrm{K}$ I |
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| UniRef90_C5XA60 | HGDVLELI PGDY |
| UniRef90_UPI0003EDB906 | VGDTL Y L V N G L P P L L R WEE |
| UniRef90-I1GTU1 | HDDVLELI PGDY |
| UniRef90-A0JNH9 | PGDHFSLLVDKY |
| UniRef90-S8CIL9 | PGDVIEMLPGQYFFKYV |
| UniRef90-UPI000350F9A2 | HDDVLELI PGDY |
| UniRef90-UPI0002C36367 | D G DV I E M I P GKY LYY Y R |
| UniRef90_R9KD13 | NGGQFSLVNH\CNLEVRWE |
| UniRef90-A0A022QJS1 | NGDM\ELI P G H F F K Y Y V |
| UniRef90_M4CPZ8 | NDDLI E L I PGHHFFKLV |


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UniRef90-W6MIF7 UniRet90-WoN11
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niref90_D3Q5N2
LVISTDVDSPPVISI NKDKFTIGGGDMTFPENKLVIS FLRPVEGGLRPVPLSESEGTVVGRSKDLGQLDNKVS
LVSKSSDVPDLKIJKEGDKMMIGRNP\AKGKNDKCP
 SSHESDPIHQDDGVIVLGRSKKLPGTSEKVS HTQKAVPESGQEGLGGGKFLECDDKRVS LT DP DPESMYTKA PDSSVRFA GRADNTAVSDERLS YLACPPPRWQPKGDSPAPDTGRSPSCDI EDDQVS LYLIACPPPRWQPKGLSPDAPPLTIGRKKGCDLSNKLVS GFLNLRGTADEEGSTDLAED QLLIGRTSKCKI RDTTVS LIPMSRSGPRIHLRKDRNSGTLGRGSENVIVBLKI S RCPDAAVPEGGGE
LISMNGAKVSSQDLLDNE $K V V L K P V E G P Q K P V E L K I G K$
 LMRGSGGPADSLMPRPEQTVTLGRGKEVQVADRRS FLVEQSGREHPLR PGTTVV GRG

 KVHLIS DHPDLPDIEIGTEELPVVLGRSNEDRIDDPMLS LVKVDASPGSEVVLINSECTVGRKKDCDLSNKLVS L Q P C S S NEQFT CRLVCTTGQYTAEGPNI GRDDLVSANKQVS CRLVCTTGQYTHFDLTQDKNLWI GRNQECDYTSTRLS
 RSEDGQPPTSRDELNLPHFII GRSDETAGT LVRLGAEHAEPHVFLLKREWTVGRKKGCDLSNKLVS

R S P

GNAPQALP $\square$ ATTTVT TGRGLDND


GK RST $\square$ GECHRLR LGLNS

$R L K L M P V S S Q L P P$ L RLVVL
LEPINANTSAUTLS GKATVVI
LVCQDPGASPRELTLDRFPLEGGRSTSVR|DDRW| S N NAPPMRVP $\square P A A T V T \prod G R A H D S T I S D P K V S$

 AGAEP $\square$ A $\square \mathrm{PR}$ TRP $\square \mathrm{Y}$

GRDATQUEDTRVS



GQFRLLVVDGTTSSVDLPP KGlVL
 GRDPQDEHTDGVS GRLPDTALSDKTVS VPPS LAKTVVKDPRDGGVVVVGRERDVRLNDGTVS $\square K P G K D S H A P I F I R Q G V N P Y A V G R N E D T F I N D D R M S$
L V/S G D G R Q Y A I T M

## UniRef90 C3YDLO UniRef90-С1MHM9 UniRefofo-O22W29 UniRef90-T1KKE4 UniRef90-UPIO0006CCOC1 UniRef90-UPI00038EA709

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UniRef9O_D7G8G8 UniRef90-W5X871 UniRef90-A8JGQ7 UniRef90-G8JNR2 UniRef90-A6CD80 UniRef90-O6P256
UniRef90-A5WW08 UniRet90-F8NV23
UniRef90-U5GZU7
UniRef90-J9J8N8 UniRef90-A9SZ81
UniRef90_B5RTA3
UniRef90-D2VH26 UniRef90-AOD3K4 UniRef90-W7Z1H2
UniRef90-UPIO003DOF6D9 UniRef90-L5KTT3 UniRef90-E2QUI8 UniRef90-UP10003FOE75A UniRef90-U4LCQ4 UniRef90-UPI0003D0716B UniRef90 A6Q1E8
UniRef90 M3VYM UniRef90-M3VYM5

UniRef90 A6CF81 UniRef90-UP10002A4C9EA UniRef90-Q5B498 UniRef90-E9SD92 UniRef90-G8BZX8 UniRef90 UPIIOOO2217942 UniRef90-R5RWG1 UniRef90-B9H1H3 | UniRef90-S9VOGO |
| :--- |
| UniRef9O-A7NK | UniRef90-O86HG9 UniRef90-K7S108 UniRef90-K4A5P9

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UniRef9O_C5LT49 UniRef90_A5V087 UniRef90 A3DJW2 UniRef90-W6MIF7 UniRef90-FOIX14

SSHCSLLRE ${ }^{50}$
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 GTHCKLDYDPSENEVYLQDLSTNGTFDDRKLGKENKSKID RRHAIL TVEVVGDQLRLK RTSTPSFTGECRGLSKKQS RTHGRDASELKGSKLRLESGHDNPDFCRKKLKKDESILLE RKQAS FEVKNGRVYVTALGSNAMMKGSKI RKNNKIE F KIHCDFKKD NGTVWLLDMSTNSCVNKVVLGKGKKRQLL GSHCRISVDATGNVVLEDDQSTNGSFVDSLEQRISRTTLR RRHAQLFLDTVAGQVRLRDLGTNGTLNGQRLALDEEAVLR GDHCKI VVDESGQVSLEDTSTNGTVINKKVVKKQTCPLQ GKHCYLERDKDGQVWLYDTSTNGTLLNMNIKKGECRELK SVHAKLSFARETGEVWLEDCSVNGTWLGRRIGKGKVVRLH NKHCMLRWDSSDSSLTVMDKSSNGTFNGSKVGKGRSAILK RRHCSVA YRAGAWHVTDDSTNGTHVNRPIGKGNEVALR ADHLRFTANHE GTHCKLKWDAANNपAQLQDDS
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| UniRef90 C3YDL0 | $\text { HGDE! }\|\mathrm{H}\| \mathrm{I} V \mid \mathrm{F}{ }^{90} \mathrm{~K}$ |
| :---: | :---: |
| UniRef90-C1MHM9 | PGEVLYL |
| UniRef90-Q22W29 |  |
| UniRef90-I1FRB2 | PGAKLEL MTEKD |
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| UniRef90-UPI00006CC0C1 | S GDLIYY 1 |
| UniRef90_UPI00038EA709 |  |
| UniRef90-W6L6Y4 | PGDLVS |
| UniRef90-Q7Q9Z2 | $\square$ G DKFKLIVDGVWFEV |
| UniRef90-U9SV43 | DGDTLTLMQKEYPFTVTIT Q |
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| UniRef90-F0EXC9 | P GQTI Y L A R D $\triangle$ A YQL |
| UniRef90-F4QDB1 | D G D QLS L LY EMYA Liv |
| UniRef90_H8N1Q4 | P G D R |
| UniRef90_UPI0003C27EE4 | T G DVIY V V Y R K |
| UniRef90-UPI000359D092 | HGDEFHIVHK |
| UniRef90-R1BZD8 | D G D $\square$ F S L L P P Q Y S S $\square \mathrm{E}$ |
| UniRef90_UPI0004407C39 | D G |
| UniRef90-UPI000376FD64 |  |
| UniRef90-R1CN77 | PGDLI SLI |
| UniRef90_A0DDD6 | NGDEI FIL |
| UniRef90-B7P1A4 | S GDSIALLPTSYKY IVE |
| UniRef90_D6PJ76 | A GDMI ALI LD QF $\$ Y AVVEFEE  \hline UniRef90-D7G8G8 & S GDEI SLLN  \hline UniRef90-W5X871 & G GEKI S  \hline UniRef90_A8JGQ7 & S G DVL S L V N P L T QLC F VF E E  \hline UniRef90_G8JNR2 & HGDELKI I WDK  \hline UniRef90-A6CD80 & PGDILTI  \hline UniRef90-Q6P256 & N G DVI YVVYRK  \hline UniRef90-A5WW08 & NGDVIY F V Y R K  \hline UniRef90-F8NV23 & E G  \hline UniRef90-U5GZU7 & N G D $\quad 1$ |
| UniRef90-J9J8N8 | NGDEI HLL |
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| UniRef90_UPI0003F0E75A | HGDEI HIVFRK |
| UniRef90-U4LCQ4 | DGDEI I L MKD |
| UniRef90_UPI0003D0716B | SGDII YLVYRK |
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| UniRef90-A6CF81 |  |
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| UniRef90_Q5B498 | ENDTLEL |
| UniRef90-E1BBP0 | T GDVI Y L VY R K |
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| UniRef90_G8BZX8 | VGDVI D L |
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| UniRef90_A9WEE2 | D G DVV S |
| UniRef90-R5RWG1 |  |
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| UniRef90-S9V0G0 | NGDRV |
| UniRef90-A7NKX8 | D GDVISL |
| UniRef90-Q86HG9 | D D DL I S L Y D S $\square$ P F S $\quad$ H $\square \mathrm{E}$ |
| UniRef90_K7S108 | P GEPFTLMVGGYPLQVE |
| UniRef90_K4A5P9 | H G DVI SFI |
| UniRef90_A0A026WYX5 |  |
| UniRef90-M5T6F2 | DGDLLRI GKLSFALVIE |
| UniRef90_D0LUL5 | H D D R |
| UniRef90_UPI0003C366FC | K GDTI GI |
| UniRef90_IOZAH6 | T G DQ |
| UniRef90-A6DPH1 | PGDVVTI GNVSFLLCYEE |
| UniRef90-E9CE72 | A GDSIVIVK |
| UniRef90_Q08WF5 | D G D L L |
| UniRef90-D2QXB5 | HGD E L CVGLTTHFVVQF |
| UniRef90_C5LT49 | A GDRIGL |
| UniRef90_A5V087 | P G D L S |
| UniRef90-A3DJW2 | D GDNIKI GNVK |
| UniRef90_W6MIF7 | NGDRI HI HNERLLSYKVVIND |
| UniRef90-F01XI4 | HGAVI RLGNQELIYH |
| UniRef90-UPI0004642A68 | D G D L T I |
| UniRef90_-14EMP8 | EGDVI AL |
| UniRef90-A0DKZ7 | NGDT\| HILP |
| UniRef90-V5V8D6 | HGDRISIVPGPYPYT |
| UniRef90_Q08W97 | P G DVV S L |
| UniRef90-M5SOZ5 | PGDKLTI GKLEFEVLIE |
| UniRef90-E3EDM9 | DGDTFKIA GVS Y I Y R L |
| UniRef90_Q12HS7 | 1 GDVISL |
| UniRef90-C1N3L9 | VGDVVTL G P P HLARFE |
| UniRef90-A5DJY0 | NGDQ। A FFQDGTTHEV |
| UniRef90_UPI00046B4A1A | TGD\\|IYLVY |
| UniRef90-D9S5D8 |  |
| UniRef90-G2LLI5 | DGDRFT\ GSHTFVFV |
| UniRef90_UPI0003633629 | SGDTVQI GKTLFRFE |
| UniRef90-G3AR58 | SGQSLYL |
| UniRef90-FOSSP2 | DGDLI RI |
| UniRef90_D3Q5N2 | P G D M II Q ${ }_{\text {L }}$ |

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UniRef90-A4CCW6
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UniRef90-IIYBM7
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| lupas_21lupas_14 |
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| jpsss |



RCHAALLQYSPDQGF|IISDLESTNGTVNGEK|L|KR VYT|LIR RQHVELRFLRAEARVEVKALGTNATGEELNLGKGDPASLI K $\square$ HCLLVMELS V YEI WLLDFSTNSCFNGGKI GKGNK DQI F
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 R $\square$ HA VVE WNNNQWLI RDLSNNGTVNNQKLVKDNPHKLK
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 RFHDRI R SNHSSRTLSLSVHGT WVRGRKLEPGVSAELK QHHATLRWNAATGLVRDAQSMNGTWI NGAPLGFRAQVTLN



