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 PACEEDSYVREVK GRLEEDRLKEYG DADKRDAVLKKAEAAAEKLNSD AGRHERLDALAQNFVSGAGRDTLLAEAQKDANELGD AGTVTALDADAKYVN GELSLSEATEAAKKTAEEVKDD AGRLPSLDTI AQSFYSADKAARETLYTEAKAA KAGTVAVLDEFINKYISSRNAE DADDAELVAEVKKAAKG AGITDAFDKVIKKLGGTTNVA EITAEATKIAQELQHT KAGTIPTLDALVAKYVPT KSFAKLSDEIKKSAKT AGLIKSLDLFVSEFIDGSDTS EEVANKVSQAVQGIESN KAGTIETLDALVAKYISGTNLE TMVTELMEAARSLS AGLIPELDELVKQYLVKPDPERPSLKRGYKAMKEMGKD AGRVAGLDE: AKSFLGLSSDERPSIIEKATELASSATE KAGTILALDEIVAKYITSKN GCIEEFDLLAKELMETQDNTYDKLGEKGKQLLEKLSDE AGRVESTDVV KAGLVVALNDLVKEF AGRIAELDDLAKTFLKAEN
KAGRI HEFDSVVNTISSSN
KEEL
AGTLAADDAIVVKY TGGTSLSDA KEVISELKSLAKK AGRIPEFDALAAKFEAAVGDVRSDAAAEAKKAAADLKEE KAGDVAT
 AGTID\LDMIFERYUNGGKQDLAGSLYEAKVAAKGLKD AGLVASLDALVKEFHSAADDKRKEDLSKDEEEAAKLSGP AGTVGELND AAAYD ASDPSREEAYEKAKAYVSNLSS AGTVASLDALVAKFLDNGVADTEADSEVKEGVAKLKGT KGGAIEALDDVARYVSGG AUAEIAKDTKAAAGD AGRI GKLDELAIDFIKNAGER EKIHAEAVEAAKE AGTIAALDEVAKYI SGTTDADAAAEAKKEAETLKEK AGTVE IIDTLLAKYVTANGGKE KAGTVAALDELVAKYVTSRNA KSLVADVKKAAKGL AGRIAELDDLAKGFANKENKDELIKKAEAI
RAGT ASLDELVAKYTSSQN KRPGVEELLGEVKKAAKG AGRIPSLDNLASSYLS PTAERPKDLSQASSASSLTD CGLEKFDNMADEFMNAKEEHKNDILSQAETMAKELTNE PGCLKEVDELAAKFSKKSKDALAQLVSEVEQMEGLYEAE KAGTVAVLDKLVAEYVPTKD AGRIAELDALVASVQGПTS SETLTKAKEVATGLKDQ AGT:KALDAIIAKYATGSVKSVQKDLREVKALAK KN K K KAGTIEAVDTLLAKYVTSGG DQSDLEKATSDDGKAVEG

 PGCHEKFDELASQFMSGSKDKRADIIKQAEKLLAEDKDD AGRVAGLDTLAEFVGDPVSGHASLIKKATELASSANET





## RRPQYISDME

AGRVADLDVVVKAYADAED KAALLEKAKEVATGLAGD KAGVLASMVGPVKKFLAASTVEKKKVIAEVEATVSSLVG AGLLHSLDDLVSTFVGSTKHERVKLANKLTEALNDLKKE PGSIKEFEDLVVRFFKEPQESRASI IKLAEEELTKEKHK AGCVMEADELAARFADPANSKDESLIDETQTLHDSDQSE GVSEQLTKLVRDMVKAGGNRQEATEERLLAEVQQALSP AGRVEALDVVV AGTVEALDALVAKLVKGGTTLAEAAAEAKKTAEE


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UniRet90 - UH 578 UniRef90-U5H578
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UniRef90 C1BNK7 UniRef90-L8H2W3 UniRef90-D2UZM3 UniRef90-T1G6T2 UniRet90_BOWQW7 UniRef90-GOTXR5 UniRef90-TOQSC1
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Q Y $\square F$ KYYVRVMEKVLNGTE

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GENASYYIRVMEKLTS
GEAWIEKELKRLEGLLKKSMA QQYAQYYLKVATKLSQN LQDKYAQYYVKVAEKLSQN AEKKYAKYYVKVFAKLSE VQEQYAQYYI RVTEKLKE SENRFAEYYVKVFQK V AKYADYYVKAGKKLLEN YVEYYGKVAQKLHAN KMASYYVKVMNKLITD LSAKYADYYVKAGNKLQEN VGGKYAEYYVKVAEKLAQN EQ QQSANYYMKVMAHVVQE

RYSK YYKKAKNSLEK
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A VKHGKGYVNAKK DOGSD ASDAAAEYYVRAMERIKSKGDAWLDKEKNRLAGLLSSSMA LQDKYAEYYVKVFNKIGANSGYAAKERKRLQGLIKGNLA AEAKFADYYVRVFDK LLNKDAKFVSKELTRLQGILKGGLA NSSRWTQYYRNVFEKTLKKDENWVTKEAKRLSKLLQKSIA IGTRYGTYYAKIMEKMLANGEKFLETERARIAKMAGSDVS AQYKYAEYYVRVFDK LSKNDGYVKKEVARLDGLLKGGLA LKDSSVDYYLRALSKLTGN PEYAMKEQTRLAGLLKGGLA

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|  |  |  |  | AA A HGDVYLKALEKVLTKGAAYVDTEAERLRKLLAGNTS LODKYAQYYAKVEOKAAAN LKDKYAGYYVKALQKLGQN

 SDAKYGLLYLKATKKIVAKGPSYVDAEDTRLEGLLANNVT HDSKYASYYVKVMKKIADKGNDFPATEIDRLERILAGNVK KERTSAKFYIAAMRKIEEKGDSFVENESQRLKSMLDKALK AETKFAEYYVRVFDK LSKNEKFVNKELARLQGQLKGGLA PEAASAK YKRFAEKI NAGSDEYLEKETKRLSNI TKGADK
 LQGKYAEYYTKVAKKAQDN QGYVEKELTRLTNLIKGSLA LEKYHAETYVKIMKKLIENGKEFIAKEEERITKLNDKSIK DKYAQYYVKVADKLSQN AEYAAKELARLEKMLKGGSAA
 AAKHAKTYURALE LLKTKPEYLTTETERLTRMIEGSLS AAKANADVYAKAMARIVEKGAEYVATEVARLEKILAGSVS NKYKEDRYYSKLVNSLVNGPYDFIPREDARLEKMLGEDLA SNFEQAEMYVKLMSK LDDSDVNFLMKEDSRVSKLLAGKLS SLGEGATHYLRLATKVGEAGADYVAKESERVDRLLKGRIVT VQAKWAEYYLRVFEK LSKAEGYVTKELARLEGGIKGGLA EHKQSGDYYVKVMKTVEKGDDYPKNE ARLTRVLSKAAY TEKKSAEQYLKMSKlía GaEEFAANEVVRITKLIEKKMS

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| UniRef90－V5G725 | PEKVDDLVARSNLLREF |
| UniRef90－M7U3C1 | PEKLDEFTTKTNILR |
| UniReef90－G3SDQ0 | DGKKEELQKSLNLLTA |
| UniRei90－D8Q496 | S SKLDEMKVKI |
| UniRef90－G9NF | AGKRDE $\square$ Q $\backslash$ KVNILNKFAAKPEE |
| niRet90 U6 |  |
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| UniRef90 R7TXB3 |  |
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| UniRef90－B0Y1D4 | KLDDIVSRSNILRKFVGEKDTDA |
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| UniRef90－C5PL | D DLVSR |
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| UniRef90 WoxCV5 | PEKDDLQKRSNILSKFLVKEPEEKS |
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| UniRer90－OOUE |  |
| UniRef90－D3TS05 | SELATKLNILEA |
| UniRef90－M43130 | FGLRKNLLAFFQEKQNEKT |
| niRef90－F2U3A2 | N |
| UniRef90 L1 1341 | KKDEFQT |
| UniRef90 GoR756 | KRDEIUKUNVLRKFTPKEN |
| UniRef90 ${ }^{-10 А О 24 . J H 31 ~}$ | SSKLD |
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## RVEVMDALADRFRT

 GRI AEVDEVLQKFSEELQKEVEATLEKTEAKVAE AGRVEVMDNYARDF TSNISKHESIRQAAEEEINNQNDR AGRMVEMDAVVSNF AS DAD VRGKEAEKVKDKMAGR GRSKELDVFAKDFL SKDNQNEI DEKVEKL$C D P Q F D E \square A A K F M K E E D K T K Q E \square L S E A K K L Q E S L E K D$ A GRKSDVDSKISEDFKAAPQQANELDATNVLSGLSH AGR $\square$ PSLDSLAASYLV PTATRPS\|LESAFA VSLTSAS


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MSDEAAKYY ${ }^{50}$ KIVMDKAAADG ${ }^{60}$
60 DOSKA Y gFITSKETARLQKMI DGSVK VQGKYGEYYSKVAKKMAQN QGYAEKEFARLSKLIKKGGA AA RYGKDYVKAAKSSLQKGADYAKNEDQRLERMLEKSIN AKKKFAEYYVRVFDK LSKNEGFVSKELARLQTDLKGGLA AKDNGA LYVTFMKKAVEKGSEYLTKEKARLEKLLAGSVN SASRYGKUYVKAGKNSLEKGSDYAKNEVQRLERLLAK TEKKWAEQYLKПMGK\|LDQGEDFPASEMTR EKEAAASYYVRVMDKAGENAK FDEKETKRLAADLKKKDT MK DYYLKALAKVTGNPEYAMKEQTRLAGILKGGLA ASRAPYPMYLSLMRKIVKEADEVVADEMKRVEKLLAGKLS DQQKYAEYYVRVFDKLSQN NDWASKELTRLDGLLKGGLA AHKKWASQHLKLM ADKKSADVYIKMMXKVLERGKGFIDSETERVKNIRNGKTT LQDKTAEYYAKVASK AENNAGYLEKEYTRLQNLIKGNLA ASDEGYKYYYKVLDKLATNDGFVKSEYARLTGLLKKSMA E HQ EAAKYYVKVMGKAVESPEH PAAESKRLSGLVGGKMS KDTYADYYAKVGKKLQENAGYVDKELTRLQSMIKGNLA VSSKAGDYYRRVMDRT TADGTEYVQRESDRLSKGLAKSLT TAKKNFKYYVKVFKKIADQGVEFASMEKARLLKMLESNLK KVYLRVMSKI DSDGVDY SAESNRLNNLLATNLR ESEDAAYY KAAERIIAAKGPAYVESESARLKRTLGGPVA
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 PHAQDGSYY:HCMQRVLERGEEFVKEERERLARVASGSLT SASRHGKDYLKATKNYLEKGSDYANNEDHRLQRLLDKS: S HKRWKGEVYVDLMTTVMKEGDVYMSNEDNRIEKLLHAGUV DAKANAAVYVKVMQKAVEKGVGYLSKEKARLDKMLAGSVA KNKKSADTYIKKMKKVEKGDTFVETESTRVENVLKGKLN LQQGYAEYYUKAAKKAEANKEYMEKEDTRMGNLIKGNLT
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ADYYVKVMNKVQEKGDSY: ENESERLGRMVDGKVS ADKKSADVYIKMMQKVLERGKGFIDS
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| UniRef90_R1F0T3 | P A KKEQF GRRLNVLSS F |
| UniRef90-A0A017SAN9 | P EKVDELVSRSNILRQF |
| UniRef90_M2NGF8 | P EKMD DLTS R S NIL S $\square \mathrm{FR}$ |
| UniRef90-A5C7J5 | QAK A DEFILLKKNILS TF |
| UniRef90_F0XM39 | PVKTDELTS K T NILS K F A E N $\square$ A D K |
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| UniRef90_Q3YAG4 |  |
| UniRef90_UPI0004561804 | R Q K VDETKRKHNVLSAFTNER |
| UniRef90-W2RZY1 | P EKID DL QRRSNVLAK F L VKE D D E A |
| UniRef90_Q7QFB5 | D A K R A ELKLLRLNVMLS F |
| UniRef90_C7YTW2 | P S K R D Q I Q Q K T NVL |
| UniRef90_F1M259 | D S K K E ELQ K S $\square$ N L L T A F Q N N G A EK |
| UniRef90_C9W1Q2 |  |
| UniRef90-F9XL99 | P EKLDD L I S R K N L L R R |
| UniRef90_A8MSC5 | PVK A D E L T L K R N I L T T F V A S S |
| UniRef90_R4XCJ2 | K ELVVDEMRKKVNILSSAF |
| UniRef90_K2MTZ8 |  |
| UniRef90_A8I211 | D DKRAAMQLK L NVLAS |
| UniRef90_N1PZL5 | PEKLDDLVSRSNILKKFQGEDADE |
| UniRef90_A8QBP0 | GHK】D D I T R K I NVL S A F |
| UniRef90_R7QJ20 | A S QKRNFMRRVNVLSAF |
| UniRef90_14Y7E8 |  |
| UniRef90-A4I1Z8 | G D R R D N M V M R L N L L T $\square$ Q K H |
| UniRef90 W9S6C4 |  |
| UniRef90_C9ZS16 | GAK R D S L T I R F N L L A I K |
| UniRef90_G0UPI0 | GVK R D S L T IR L N I L S S $\ddagger$ Q |
| UniRef90_A9VCT6 | P A QPERFQQRLNVLCS F |
| UniRef90_K9FM23 | P EKLD D L L R S NILQR F Q E K R D E |
| UniRef90_Q4PDL1 | A K K V D ELJTK K K NVLLA F V V E R |
| UniRef90_Q86QQ7 |  |
| UniRef90_E1ZM00 | A A K LDEVSR KI SVLSSFTEKPAE |
| UniRef90_A4HES1 |  |
| UniRef90_K4E7C1 |  |
| UniRef90_I2G243 | G K K V D ELT K K K NVLLA F |
| UniRef90-H6BKM3 | P EKVD DLQRRSNVLSRFLAQEDSKS |
| UniRef90_X6N4N1 | P DKKNGMILLRKNVLD ${ }^{\text {L }}$ K |
| UniRef90_G4TWE6 | Q T K L D EVRIK A NI L T A FVVK R G E E |
| UniRef90_L1JT26 | P R KLT EMHKK L H V L DEFLAK |
| UniRef90_J3JXX7 | A EKKENMQLRANILTA F |
| UniRef90_K7M6P6 | P A K V V ELTL K K N I L S T Y A A |
| UniRef90_UPI0002B43F1C | Q D K ENLI Q K K NIL K E F |
| UniRef90_D8U9N8 | A A KVEEMSRKSSVLGAF |
| UniRef90_UPI0002658199 | K A K K V L L K E R V D $\mathrm{l}^{\text {L }}$ |
| UniRef90_D1FPL0 | K Q K MEEMQE R |
| UniRef90_M3B9P9 | P E K L D D LTS R R N I L S VF Q |
| UniRef90_C4QWA2 | A N NSDSVIGR L L I L R NF $\square$ E A K T E |
| UniRef90_W6MWF0 | Q S K L D TMQKRLNI L S T F |
| UniRef90_C4M1M6 | P K E I D D LQ R R $\$ NVL K K F  \hline UniRef90-K7MTB2 &  \hline UniRef90_S8BVA3 & A DKVDDFTKKQNILKRFQGTTQEET  \hline UniRef90_W71937 &   \hline UniRef90_F0YQ46 & SAKRKDFSARKNILNAFAE  \hline UniRef90_A0A059LQR6 & GAK LDEMSRKMSVLTAFVENNSENT  \hline UniRef90_D8M6I1 & $P L K K G L F R \square R L N I L D A F$ |
| UniRef90-M2XZR8 | PHKRNNLI RKQNI I KFF |
| UniRef90_C3ZBP5 | EE ERE DL I MRQNIL R V F Q K |
| UniRef90_UPI0002C3EB5E | LK Q L E K L Q $\quad$ K F AV L Q A F |
| UniRef90_I1E656 | AKKSDEFTKRRNVLRKF |
| UniRef90-F0J8U4 |  |
| UniRef90_K0KST5 | K EKS D Y LQ ER L N I LKVF NK |
| UniRef90_M7X766 | AKKLLEEARMKQNIL |
| UniRef90_E2L9K8 | PSKLLDEDK $\square$ K A NILRS FAEQKEEEA |
| UniRef90_IOYRJ4 | A NKA A EISS QK LSV V S A F S P D DEEE |
| UniRef90_A0A024GCW0 | LVKRKLFEKRKNILKA |
| UniRef90_D5GHK2 | P EKLD D L L S R K N L L T Q F L S K |
| UniRef90_C5LDY7 | K D K R A E M TKK LKV L EVCK K V N A S K A S |
| UniRef90_A0A058Z7R6 | QEQADRMHLRANVLRAFVH |
| UniRef90_A3LZX8 | P NT@DSMQKRSNILSS F |
| UniRef90_U5EN53 | ENKKSELKKAKVNILQS F K |
| UniRef90_D8LR34 | A QKRT L FMVRSNILRA |
| UniRef90_Q6BKX9 | K Q T $\square$ D S $\square$ Q K R L N V L S $\square \mathrm{F}$ T N H |
| UniRef90_UPI0002C3D87B | PAEIDD KQRRLNVLRKF |
| UniRef90_M7P925 | R K K R D D $\quad$ Q I R K N L S VFR D K G |
| UniRef90_UPI0001984926 | QAKADEFILLKKNILSTF |
| UniRef90_M2XMV4 | D S K R A NFL R R L H L L K S F L N D T E E T |
| UniRef90_C4Y7P8 | K GAYD HMQKRASVLQS FLLSAKA |
| UniRef90-X6MDN3 | $P$ DKRT GMLL L R R NVLT G F |
| UniRef90_G3B1Z5 | P Q K K K Q L I TR L N I L R F Y Q S T G L N |
| UniRef90_A2FMQ7 | S D DEII R F NVI SEF |
| UniRef90_L1K459 | GEHSEMLEAMRNALLAF L V R S S DE |

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    lupas_28
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