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| UniRef90 W6LRW3 |
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 K LLDDPWYFDDTDCQRTLTDHFHVNALDGLGLDK Y DCGV A A $K V R P G W E F N F D S A K K R L C E Q F T V S N L A A F G E Q D Y P T A L I A$
$R R R P V W E F D L D T A R Q Q L T M Q F G T R D L D G F G V E K T E R G L S A$ RPQAPWNFELDTAERLLCQQFNTHDLSGFGCDHLPVALAA RRRPFWEFDYKTCFKQLCTQFKTNNLDGFGLKDTSLGICA RRRPSWEFELDTARQQLNLQFGTRDLTGFGVENDTKALRA THRPSWHFDGQTAQRLLSRQFGTQDLHGFGVVDLPMA G KRRPDWEFDLDSALLRLLNKQFGTRDLSGFGCDHLPVAISAA SSLDNHFFSDDSCRRGLREHYRVGSLDGLGLADYDSGVIA KRRAPWDFERDSALKSLCQQFSVQDLKGFGCETLTLAI GA TFRSQTPFTHAEAKQRLLQSYRVRSLEGFGCAHLPLAI RA RRRPQWEFELSTARQQLNMQFGTRDLRGFGVEQALLALPA

 $R R R P V W E F S L E T A R Q Q L N R Q F G T Q D L S G F G V E Q A D L A L A R A$
$K S Q A P W H F E S D T A F R L L T Q L K T K D L R G G C E H L I V A C Q A$ RPQAPWNFELETAERLLCQQFHTKDLITGFGCDHLPVALGA RRRPEWEFDHDTAVDQLNSQFNTRALKGFGVDDLKQGLGS R LIDTHFFDDEMCARDLKEHFHAASLEGMGLGDYNCGVDA
 SKLDGYYFEADDARERLLARFECQNLSAYGCENMPLADSAA RLLDSWYFDDELCRRTLKDHFHVGSLEGLGVGDYDCGDI A RRRPEWEFD DDTAVTALCQQFGTQDLDGFGVGBAKCALTAA RRQGEWLFDLDSATRSLCDQFEVQDLRGFGCAHLTTALDA TERPPWSFAGEQPYEQLCKHFRVRSLEGFDDEGPSTAVTA VARDGYTFLLDQAYFTLRDHFKVQSLDGFGCEEDPGAIGA
 GRRPAWHFDQDTAERLLKEQFGTQDLSGFGCAHLSLALCA FNLEDWVYQSDYSNETLLKHFNTKSLKGFGVENDTEGIDA CRRPPWHFEAESARLLVLKQFKAHDLKGFGCEAMPAAVAA SLRSQKPFTLVEAKQRLKDSFNVSSLEGMGCANLPLGVRA SLRSQDPFSLSEAKQRULQKFKVRSLEGLGCGHLSLAVRA MNFVYNYSRDEKAYNFLLEHFKTNSSSGFGCEDKPAALDA HA LDS WHFDQDTCERALKDHFQVGTLEGDGLKDYDSGMIA
 CMLS QLPFSQGESRSRLLQKFKVRSLAGGLGCDHLPLAVRA YS SDD WYF DDAVCKDKLLEHFKVKNFAGLGLAD Y DCGI I S SLRSQKPFTLVEATQRLKETFNLTSLEGIGCAHFPLAVRA
 ALRSPMPFELHEARQRLLEHFQLRSLEGCGCEQLPLAI RA RKQPAWYFDVTVARRLLLQQFGTKDLAGFGCEQLTIALGA QPVEDWMFHHSQAHRGLVEQFKTKTLDGFGCEA WPAAVSA RRRPDWEFDLDTARSQLTGQFGTRDLVGFGVEDCVLGLSA RSQPAWEFDLESAERNLREQFQTHDLRGFGCDNLRLGIAA RAQPEWEFDNESGSRALNAQFQTHDLQGFGCDRLKLAI GA FY LLEDWDYKEEYAFELLTNHFQTNSLKGFGVEDLQEGIDA RRQPDWYYDHDSALNLILQHYQDK





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| UniRef90_R7LFH8 UniRef90 G2LNC9 |  |
| R5ID18 | V |
| UniRef90-N6Z90 | S ${ }^{\text {d }}$ |
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| UniRef90 SoFVJ9 | A |
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| UniRef90 R6ASN5 | VTSFEGSDDLENELVGIVSPRELLANSEMFED |
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| UniRef90-UPIO003BB3444D | LTEAGKIRSVLDEI AKYQPSEl |
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| UniRet90 Uplooo3 | VNECA |
| UniRef90- B2A3X7 | VTEITNYDKVIDEILTVSPREII TDEEKTRADKI |
| UniRef90-D3AL03 | $\checkmark$ TEVASERE |
| UniRef90-FONY | S |
|  | TTGKELAELL |
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| B81205 | A |
| UniRef90-H8FMP3 | QSVTTAGLSAALARLAPGELVPE |
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| UniRef90-Q2GJL7 | S |
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| UniRef90-R7DVD6 | VAQFEHMDLLLDELSRINPSELLVSD |
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|  | VSETDKMDDLVNEL |
| niRef90 UP10004789 |  |
|  | Y |
| et90-R5K999 | V QAP |
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| 36493 |  |
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| UniRef90-FOIEZ5 | L |
| UP100047 | LCSQGNPAYIEKLLQGFMPSEVLFCKQHRQEFLFGDKFNT |
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| 3B5ED9F | VTAFAGEGHLCNELARFAPREVLLSPKCEGNKALNDLLKE |
|  |  |
| iRef90-F6CM23 | v |
| A7HZ64 |  |
| UniRef90 ROFGK2 | VM PVARVRLSPELARLAPSELVADGAVYDATLEYKIPL |
| iRe99- F9ZJD | Le |
|  | VSEGTPEHLDHIVSTFEPSEILHQRSTQLPYALQ HKNL |
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| UniRef90-UP10002001C25 | VTERDGSDQLHQELLQVDAAEVLWPGDGEPAWCPDALRLV |
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| UniRef90 UPIo003A6F301 | A |
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| UniRef90-Q46CE2 | TTQFRDFEKLLSELARMRPSECILPSSLYENPALAERLRA |
| ef90_G5H8Q7 | EGTNG YVDKLLSNLSPKEVIYSKGYEQEEAFGSKYYT |
| ef90_Q67 |  |




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UniRef90 F3G1 Jo UniRef90－R6N0T8 UniRef90＿D4L819

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TLT E GTLATAD GVSFNSALLEDKETNRIVAVSPDKKYAGLAWWASLQSGEFK
 GTLTESGULADRKNNFLASFASVRDEFALSUWVDSTGDFF GTLTEESLLEARRHNYLAAFAEVRDEHALAWVDISTGAF

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 GTVLEDANLNTKSHNYLGALCYDQGRGGFAWADI STGQWS

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 GVALEDNVLSAGRSNYLATFVVRDGKAGVAVAEASTGEFS GTVLDDANLSTKSHNYLGALCPDAEKGGFAWLDVSTGQWS GTVTDASMLEEGKSNYLGAVYYESGKCAAAFCDISTGEFC
$G T / T E D T L^{L} D A R T N N$
GTVVEDDNLSAKVNNYLAA
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| UniRef90-DAAOF | SKRPNVDFNGNNAQKTLCDQLQVGSLSGFGI |
| UniRef90 H6SN45 | PLPASRFDSENAKRLHEVFAVGAL |
| UniRef90- xovZL0 | ERPTWYFDPYQARQRLLKHFGTATLEGFGПKDGD |
| UniRef90-F5R869 | TPRSAWQFDADEATRLLTAHFGSRDLSAFDV |
| UniRef90-L5TKP9 | RLNAWQFAADAGEKLLTEYFGCQDLRGFGL |
| UniRef90 UPIO00377C6A4 | DDWVFKADLISHNLI NSHFQT SLKGF G\| |
| UniRef90-B9XNR3 | ILYEDWVFAPETALFTVRDHFKVASLDGFGLKNK |
| UniRef90-R61079 | YUTKFNDKFFISDCSKIKEKFQLFDNNQNNIEDK |
| UniRef90-H1LU02 |  |
| UniRef90-A1B095 | EL |
| UniRef90-UPIOOO4684C50 | TDLARASFDSTGAEKR CSSLFSVSSLDAFGNFTR A E S S A |
| UniRef90-Q2RNG0 | SPLPASRFDSENARKRVEGLFGVKALDGFGGFGR AEVAA |
|  | SPLSPGAFDSTQGTKR\|CDVFQLASL |
| UniRef90-T1CSJ6 | HRCAVTSHSESFAEKVLCGTYGVNTLKGLGNFTKDVEVSA |
| UniRef90-R6TWS2 | STLDEWAFVYDAAVEKLKRQLRVDSLKGYAD |
| UniRef90-W8SL | TPLSPGSFDSQSGEKRLCGLFGV |
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| UniRef90-FOFOP8 | SRLHHWQFAPDAAFALLTDYFGCQDLRAFGLDQHSA |
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| UniRef90_Q8PWA7 | QEFAPEISGIEEAGEKLKIHRMVSTLEGMGCEKLEFGGVYS |
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| UniRef90 C7LK44 |  |
| UniRet90-A4YKQ0 | DVFDGATAERRLCDYFAVATMDGLA |
| UniRet90-R6GFB3 | VEIKNSDDSFDVYKNVVLQQFKNKALDEL |
| UniRet90_U2PYK3 |  |
| UniRet90_-G1UNY7 | VRMPAAHFDLKRATERTLRAQGVQEAGALGLQGKNELMRS |
| UniRet90_R7EU |  |
|  | PDWHFDTAAGTQRLRDQL |
| UniRef90-E8RBC0 | TARPD |
| UniRe990-M2QKH6 |  |
|  |  |
| D7Cu66 | RFD SEAGGALAG |
| UniRet90_Q1AZB0 | WTFEPSAGQALRQHFGVASLKGYGLDGSPQLVAA |
| UniRef90 R5GSP4 | DDWAFAETGARERLLKHFEVKNLKGFGLDHLAAAVVA |
| UniRet90_B8J008 | GGDDYEYMACAARVCEQFGLSSMDEAGL |
| UniRef90-B9QX08 | PRFFDGSTADRLAHYFGVKTLDGFGT |
| UniRef90-B9E | RVDECYFQKGEEV |
| UniRef90 B4S9E7 | SLQD |
| UniRef90-W9DVU1 | $\begin{gathered} \mathrm{k} \mid \mathrm{V} \end{gathered}$ |
| UniRef90_Q0 |  |
|  |  |
| UniRet90 A9AWF1 | WHWDARTARDALLNQFKSQSLDGFGLGNKALATRA |
| UniRet90-E1JYR2 | RFPLRPHFDLTSGRDKVLKAQGVADLAALDVGDKPQLVRA |
| B11292 |  |
| ef90 UP10004 |  |
| iRet90_G4CIE3 |  |
| UniRet90_K2MD04 | SPQPANLFDSASAEMRLTRFYEVATLEGFGHFSR AELSA |
| UniRef90-E6U2Gs | A |
| UniRef90-UP1000248BE8D | , |
| UniRef90_L7EN |  |
| UniRef90_A6E505 | TGLGQAAFDSTAGERRLCLLYGVDTLDAYGSFTRPGEAA |
| UniRet90_O3SVD4 |  |
| UniRet90_R6U1T4 |  |
| UniRet90_G8PJD8 | DGANAQDR |
|  | deana |
|  | EAAQAEARVRFAGEAIPSEFDNTDD |
| UniRet90-F2JRN2 | FNILSLGGIGLSEDG\| |
| Ref90-C7NXQ7 |  |
| 俍e90_Q14T15 |  |
| UniRef90_UPlooo370F16 | N |
| UniRet90_Q38YR4 |  |
| UniRef90 | R |
| UniRef90-UPIO0036C63B9 | A |
| UniRet90_B3EEE1 | F |
| ef90-Z4WQV8 |  |
| iRef90_C7LTT7 |  |
| UniRef90_-EOTCZ1 | NAQTIFGVQSLDAFG ELTELEAGA |
| UniRef90-Q0KCC0 |  |
| UniRef90 UPI000372ACDC | VEADAGR |
| UniRet90-G4QAV0 | TKVPDWHFDLKECTLRLKEFFKIDDLSVFGGVETSLLI IS |
| iRet90_Q2CJT2 | TPLGATSFDSTSGERRLCEITRVGSLEGFGTFTR AEISA |
| UniRef90-UЗАEZ7 | TPMLHRGAFDSASGAARLAALLWKVIASLIDAFGAFSR AEVVIS |



UniRef90 101001
UniRef90＿101001
UniRef90
B3EP11 UniRef90－AOAO23EOG6 UniRef90＿TOPBX6 UniRef90 B5IJF0 UniRef90－A0A011UTP7 UniRef90－B5JHPO UniRef90－F4DJT9 UniRef90－T5K746 UniRef90－G4R8H6 UniRef90－M1LTK9
UniRef90－UPIO00225E968 UniRef90－ $15 B 2 \times 7$ UniRef90＿G4FQE5 UniRef90－JoR676 UniRef90－G6A152
UniRef90 ETNV91 UniRef90－UPIO003B374CE UniRee90－UPI00036606DC UniRef90－Q127P5 UniRefto WABUX7 UniRef90－B6JA30 UniRef90－Q99XL8 UniRef90－17KB53

UniRef90 G9RYS4 UniRef90－UPI0003B69643 UniRef90－E6QMA0 UniRef90－UPIO00287BE1D UniRef90＿A2SJQ7 UniRef90－C6XIF9 UniRef90－A0AO23CVN8 UniRef90－M5J568 UniRef90－W7DA87 UniRef90－V6J1F5 | UniRef90－R7GBW5 |
| :--- |
| UniRet90 | UniRef90－B9JZ

UniRef90 UniRef90－R7FG70 UniRef90－O1GPC6 UniRef90－E6QUI4 UniRef90－M406W5
UniRef90 $\mathrm{S3}$ SO96 UniRef90－R71KH8 UniRef90－UPI000476AEFB UniRef90－Q8UIF2 UniRef90－R2STJ8 URe900 UniRef90－FORZ17 UniRef90－C1DX97 UniRet90＿UPIOOO3800C20 UniRef90＿UPIOOO2EC7C91
UniRef90＿O0G5W5
UniRef90 S1NAI2 UniRef90－R2STA6 UniRef90＿UPIO0037727B8 UniRef90＿UPIO0046E7B29 UniRef90－W9F6W7 UniRef90－M0M6D7 UniRef90－F9HJUO UniRef90－UPI000476C02D UniRef90－X8K4F5 UniRef90－Q7UA23 UniRef90＿SgUSF UniRef90－C3BOS2 UniRef90＿WTRU39 UniRef90－Q7V9M5 UniRef90－U1ETZ1
UniRef90 R6T5VO UniRef90－R6T5VO
UniRef90＿A9BTE6 UniRef90－L7WZU3 UniRef90－Q0AK91 UniRef90＿SIRQWO
UniRef90＿OO5UL4 UniRef90－U2MBY4 UniRef90－HOBRW9 UniRef90－F4A857 UniRef90＿UPIOOO348D435 UniRef90＿UPIOOO3641862
UniRef90－UPIOOO381EDB0 UniRef90－G2LEX2 UniRef90－C3XCYO UniRef90－D3E8Q0 UniRef90 UPIOOO26CDB8A UniRet90－D3PMN6 UniRef90－M1PBJ2 UniRef90－W5SQ47 UniRef90－M1YONO UniRefol－K4ZICO




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 GTLQQED GLL N A H Q H N F L VA V GRVSA DLAA A WADMS T G DF Y




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GTVF D N E K I K S G
 GTVMDQGGVDEKQNNYILSFVQINDCYALSYCDVSTGELK GTVTEETLLEPGQGNHLMTVARLGGKYALAWTDLSTGDFR GTLMEGKGIDAKANNFLTAVVQSGQQFGFAYADLSTGELK GTMMESKALSDKANNYMVCVTEQEGKMSLAACDLSTGELH


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 GTLTSQMMLNENENNYLAATYCDKAGDSLSYCDISTGELR GTVLEEGMLSSRRNNWLAAVVTEPARWGLASADVSTGEVQ

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UniRef90_101001
UnReego-UniRef90-A0A023E0G6 UniRef90_TOPBX6 UniRef90 B5IJF0 UniRef90-A0A011UTP7 UniRef90-B5JHPO UniRef90-F4DJT9 UniRef90-T5K746 UniRef90-G4R8H6 UniRef90-M1LTK9
UniRef90
UPIOOO225E968 UniRef90-15B2X7
UniRef90_G4FQE5
UniRef90-JoR676
UniRef90-G6A152
UniRef90 ETNV91
UniRef90-UPI0003B374CE UniRef90 UPI00036606DC UniRet90_Q127P5 UniRef90 W W 2 BUX7
UniRet90_B6JA30 UniRef90_O99XL8
UniRef90-17KB53
UniRef90-G9RYS4
UniRef90_UPI0003B69643
UniRef90-E6QMA0
UniRef90-UPIO00287BE1D
UniRef90_A2SJQ7
UniRef90- 66 XIF9
UniRef90-A0AO23CVN8
UniRef90-M5J568
UniRef90-W7DA87
UniRef90-V6J1F5
UniReffo-R7GBW5
UniRef90 B9.JZ11
UniRet90_R7FG70
UniRef90-O1GPC6
UniRet90-E6QUI4
UniRef90-M4Q6W5
UniRef90 $\mathrm{S3}$ SO96
UniRef90-R71KH8
UniRef90-UPIO00476AEFB
UniRef90-Q8UIF2
UniRef90-R2STJ8
UniRef90-UPIO0047B497B
UniRef90-UP1000473C50D
UniRef90-FORZ17
UniRef90-C1DX97
UniRet90_UPIOOO3800C20 UniRef90 UPIOOO2EC7C91 UniRef90-OOG5W5
UniRef90_SINAI2
UniRef90 R2STA6
UniRef90-UPIO0037727B8 UniRef90-UP100046E7B29 UniRef90 W9F6W7 UniRef90-F9HJUO UniRef90-S2XRQ1 UniRef90 UPIOO0476C02D UniRef90 X8K4F5
UniRef90 Q7UA23 UniRef90_S9USF5 UniRef90_O3BOS2 UniRef90-C4GME1
UniRef90 W1RU39 UniRef90-Q7V9M5 UniRet90-U1ETZ1 UniRef90-R6T5VO UniRef90-A9BTE6 UniRef90 LTWZUU3 UniRef90-QOAK91 UniRef90-Q05UL4 UniRef90-U2MBY4 UniRef90-HOBRW9 UniRef90 UPIOOO348D435 UniRef90_UPIOOO3641862 UniRef90-UPIOO0381EDB0 UniRet90_G2LEX2 UniRef90-C3XCYO UniRef90-UP100026CDB8A UniRet90 B9L3T5 UniRef90 $0^{-D 3 P M N 6} 6$
UniRef90 M1PBJ2 UniRef90-M1PBJ2 UniRef90-M1YONO Uniref90_K4ZIC0

TTLIEAWRVSLETAEASLKRHFGIVIATLDGYGLQGKPEALRA T D D WMFSEESASQVIERHFKTHSLKGFGIDSAFAARVA SLSRFSNAAFSSDTEKLQAQFKNFNEDTLGQG VEKA
 SEQPGFQFDSDSGAQSVMDLLGVINLEGFGREKTHDALGC TLSSYWAFEHQFATQKLSSHFKVCSLDGFGLKGLVPALNA TPVPEWHFEYENADSYLDEHFRDDSLSEGLDGNHQNTGA
 CTLGNTPFSQPEAEALLDERFRLQTLDGDGLQNVPLAMRA SPQPSALFDHKKAAERLCEFYGVATLQGFGQFTPPPMLSA AAQEARAFDSEAGAKRLQALYGVATLDGLGDFGRAELAA SLL SARPAWQFDGALGARRLLEQLKVASLASWNAEALNEAHAA RPVVYTSWT KNKEDLVRQQFGEAVWARLE ALPERQAC TPLTRDVFDSASAEQRLCDYFAVATMDGLATLSR LEATA NLLLSYEETVYEDKSLI DGQLT SRYRDDAFDPDAAYARLCEQFGTTTDEGYGCEGLTAPVAA
 TGIEDWVWSSDYALPLVERQLGVHSLEGFGLGNHPTASIA TRRPAWQFDTALGRRKLCEQLRVASLAGFNAEDVSAAHAA
 QLNAMISHNDSVTV LNTTFSECDKDUVPEQLKGIDAAIVQDKLNDEKFNDDIMPC VLQPSVLFDSASAEGRITRYFNVKTLDGFGGFSRP EMAA
 VRRPASDFASTAAQKRLEAFFGVRTLDGFGQFSRSAEMAA VAQPNVFFDHSDSESRIADYYNDTTVDTFGSFS QVEKTA FPYPDWHFNANTAYKKLTAQFKTANLAPFGLNEDSAEVAP
 LVFSKQETSEANAEFNFLTSELTDDLEKE
RRMAHLPANAEAAARDLAQRFGAASLDAFGDFSGAEAL A $T \square T \square S F E E S T K V E D A F L H L T E S L Q Q Q K L V D T F$ T KLPSWHFS DS EGYTRLCCNH DGSTS LKKAFGLENKNPMLSS NLLLSTEK TTET ITVLNEDSNAEYAVNTSNDQSLYN

A
RPEPRAYFDVATAPDRDAKFFGVSTLDGFGDFSR AELSA RLNLVESSQLEMKENAEFQF ERLGLVFSTQETDEDNAEFSFLTADVEQ KPVVYTPWE KREEELARRQFGEAAWVRLEKERGLC
 TLHATEAFEPGRARAMVDDQFGEAADSSVGLADSTGADRAA $N \mathrm{NL} L \mathrm{~L} S \mathrm{R}$ V $E \mathrm{D}$ V RQFSMITETVTVVER\|SDVQYAVNQL

 TPMSSTPFSRPEAEAVLLEHYNLASLDGLGLPEVPLDALQA HPFDRAAFSSNRAEDALKRDFGVATLDGFGQFGR AELAA T QQSKTSFSLQEAKADLKKHYNLKTINGLGDNETELDALRA ETITVVVDTITDMMYNVNQLQHHTMYY


 TAMANTPFSRPEAEQALLNHYRLSTLDGLGLQEHPLALRA SLRDDVCFDPVQNRELVCQQFGVPSLDGLGMTEDGADVSA
S PRPDWQFDSALGERKLLENLGAASLQAWGAQDLGEAHAA
 NRVPDWHFDVLGGHKALLEQLSVATLTGFGADGLGAAFGA $N$ N L L S Y $E$ E E K S Q E S Q L L L VTVE QLS F A P DA GEAL L RE HFGGVRS LAGFGLEGRPLA GA QALP GSSRNDVVYTA WDRRREDALVVRTAQFGEAA WARRLE E ERARA

 S P QP A SLLF DVITAAK R D I C N Y F K LIS T L E G I S DY S R S E L S A
 TPYERSAFESEAAAAKAASYFGEGSLAG EAETRA

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| UniF |  |
| UniRef90_B3EP11 |  |
| UniRef90-A0AO23E0G6 | AGVVVDYVVLT QKRQTLKLNRPKHHRQDHWVRL |
| UniRef90 ${ }^{\text {B5 }}$ | AGGLVAYLDSTQSGRVP L D D P P CWHPGDALVL |
| Ref90-A0A011UTP7 | GIIAYVEKTQKAERPPLSRPEREENGATLFI |
| UniRef90-B5, | AGALLHYANETLCSKPENLSSTREYSAKASLLI |
| UniRet90--4DJT9 | AGGLLSYIQDKLLLPUNHIDIPRMHGQQQRLLL |
| UniRef90-T5K746 | AGALLS |
| UniRet90-G4R8H6 | \GALI TYVAETQKGAGTPLRQP |
| UniRef90-M1LTK9 | AGALIRYASRSQSKELSSHIQNTYIERTDQLVFL |
| UniRef90-UPIOOO22 | AGGLLAYLEHAGRGAMPFLLPPRINASDACMAI |
| UniRef90 | AGAAISYVRDTQLSDTSHIYKVIPYNLDDFMVI |
| UniRef90-G4FQE5 | AGGLLAYLGETCPLDEDG\|TPPPLERP |
| UniRef90_JoR6 | I SATI RY EKTQ K KRPALMRPEHENTNTTLIL |
| UniRet90_G6A152 | AGGLLAYLQRTQLNQMPRLTSSLSLSKAFM |
| UniRef90- UPIO003B374CE | AGGLMAYLTHSQGQALPYLSPPQGRADGDHL |
| UniRef90-UP100036606DC | AGKLLQYVHQT |
| UniRef90-01277 | ASALLGYAEHTQGRALPHVQGLQVVRSGELIEL |
|  |  |
| UniRef90-099 | AGKLLQYVHKTQMRELSSHLQALVHYEDKDYLQM |
| UniRef90-I7KB | AGAALRYAQETQQSSLPHISGIASRIPTGNMVL |
|  | LAVALLGYLKETQKKGVERLKTVHNYAEAQYMQL |
| UniRef90 UPIOoo3B69643 | AGFLL |
| UniRef90-UPIO | ANGLLNYIIETQKVKMSHIDIIESYNTNDYLVI |
| UniRef90-A2SJO7 | ALL SYAEHTQGRALIMVGSLAVERASDLLEL |
| UniRef90-C6X | - |
| A0AO23C |  |
| UniRet90_M55568 |  |
| W7 |  |
| UniRet90-V6J | N Y |
| UniRet90-R7GB | NY SKTQRHNLY |
| UniRet90-MOMAD6 | AGGLL SYVDETGLGVLAS MTRLQPYDTGESVAL |
| UniRet90-R7FG70 | VCGMLDY RETQKRNLIARFISIDVVDSAETMGL |
| UniRef90-Q1GP |  |
| E6QU\| |  |
| 44 |  |
| UniRef90 S3JC | AGF\|LDDYLEKTTNTAVPHVDGURVYRDSEYVVI |
| RiRef90-UP1000476AEFB | GGVLLDYLQLTQAGDKARLAPPVRVSRAQYMAI |
| UniRef90 Q8UIF2 | AAAAVAYVEKTQ QAERPPLGAPERESAASTLFI |
|  | SLLAHI QKAVEYQPDHFLKM |
| Uni | ASFVLAY EATQMGATPRLSRPV |
| UniRef90-UP1000473C50D |  |
|  | AVFNYAK |
| UniRet90-UP10003800 | AEKLLQYVHRTQKRELSHLQKVLHYEDKDYLQM |
| UniRef90-UPI0002EC7C91 | TQLLLDYIFHTQKRDLSHIETVVKYEAVDFMKM |
| UniRet90-Q0G5W5 |  |
|  |  |
|  | TGKLLTYLAVTQKRSLGHIQKAEEYQPEHFLKL |
| UniRef90-UP100037727B8 |  |
| UniRefot ${ }^{\text {- W9F6W }}$ | DYIHHTQKRDLSHIEDVVQYAADDYMKM |
| UniRef90-M0M6D7 |  |
| Un | AGKLLHYVFQTQMRELLSHLKKVHHYEDKDFLQM |
|  |  |
| UniRef90 UPIOOO476C02D | TQLLLDY:HHTQKRDLSH:ETVIKYEAIDFMKM |
| UniRef90-X8K4 | LGA L S S M M |
| UniRe990-Q7UA23 |  |
| UniRef90-S9USF5 | M MGY |
| UniRef90-C4GME | AGALLNYLKDTQSQLPPHLDALTLEHEHQYI AL |
| UniRef90-W1RU39 | MGGLIAYLDHAGKGTLPFLAPPLRKTSGGHVAI |
|  |  |
|  | TQLLLDY HHTQKRDLSHDETVVTYEADNFMKM |
| UniRef90-R6T5 | VCGL FA |
| UniRef90-A9BTE6 | ALLS |
| UniRef90 L7WZU3 | DGAL D |
|  | D |
| UniRef90 Q05UL4 | GLMAYLQDTRPLEAPPL |
|  | GMLDYITETQKRNTARFVSTEVADSASAMGL |
| UniRef90 H0E | AAGLLTYAEHTQG |
| UniRet90-F4A857 |  |
| UniRet90 UPIO00348D435 | SGAGMRYAHSTQGRGLQHVRTLTETENETDGL |
| UniRef90- UPIO003881EDB0 | A AKLLQYLHQTQMRELSHLQKAVHYEDKDY的M |
| UniRef90-G2L | A A AVLRY |
|  | CGAILKYAHTTQSQNLQHVRTLSVETEDDF VTM $^{\text {a }}$ |
| UniRef90-D3E8 | C |
| UniRet90-UP100026CDB8A | AGGLVAYLDHTAKGAMPFLRPPRLGQSAQHMAL |
| UniRef90 - ${ }^{\text {daL35 }}$ | L |
| UniRet90 ${ }^{-} 1{ }^{\text {M1PBJ2 }}$ | - |
|  |  |
| M1 | L |
| K4ZIC0 | LA\\|LMGYLQETQKRSLSQLTNIRTYDPDQYLVL |

## UniRef90 K1SY28 UniRef90-DONQE4 UniRef90-Q2N5V9 UniRef90-B0R2T7

 UniRef90-W7BJ60 UniRef90_UPI00026277C3 UniRef90-W7CAS0 UniRef90_UPIO0047CB00A UniRef90-V5XL14 UniRef90-UPIO00366824C UniRef90_G4L348 UniRef90_G2IRC7 UniRef90-U7VVCV0 UniRef90-R7NQG9 UniRet90_VGYZN7 UniRef90_D7UZF7 UniRef90_UPIO004777E3C UniRef90-F3Y8F4UniRef90 C2CFL7 UniRef90-K4LI14 UniRef90-F0GZG9 UniRef90-LOA3Y2
UniRef90 U5P5S8 UniRef90-U5P5S8 UniRet90_UPIO0047AEB60 UniRef90_I3DZJ6
UniRef90_V6M278 UniRef90-UPI00047DCFC7 UniRef90_UPI00036CBFF0 UniRef90-EOE302 UniRef90-G4XHP1 UniRef90_UP10003B46D8B UniRef90_UPI00035E3D71 UniRef90-A3CR17 UniRef90_D2RDB5 UniRef90_Q5HPP5
UniRef90-J7JOB4 UniRef90-J7JOB4 UniRef90_UPIO003B30FE2 UniRef90_F8JG95
UniRef90 UPI0003 UniRef90-UPIO003F94D21 UniRef90-UPIO004666397 UniRef90-Q9KAC0 UniRef90-UPIO00477F65D UniRef90-P61666 UniRef90-C2ETT3 UniRef90-K6U654 UniRef90-J2ZZ71 UniRef90_UPIO0036C3E2C UniRef90-A0A033V3W7 UniRef90_UPI00035C567A UniRef90-K9EZ14
UniRef90 R5ADH6 UniRef90-S6ER99 UniRef90-D5ELC1 UniRef90-D9SM44 UniRef90_Q1IY52 UniRef90_D5RLE0
UniRef90_S6BY02 UniRef90_Q24X61 UniRef90-B1YMD7 UniRef90_UPI0003B531D4 UniRef90-A0A059KGQ7 UniRef90_UPIO004008C8F UniRef90-FOGUG5 UniRef90_R7L211
UniRef90 B3DX29 UniRef90-W7BDI5 UniRef90-ROMDF2 UniRef90-K9DJW2 UniRef90_UPIO00310DA59 UniRef90-E5BHH3 UniRef90_UPIO004775866
UniRef90_UPI00036ABFDF UniRef90-A7Z4X5 UniRef90-R6HHZ4 UniRef90-E3CAB2 UniRef90_UPIO00346BEBD UniRef90_Q21XE3
UniRef90_B5YE41 UniRef90-UPIO0035ED4CF UniRef90-W6T7J8 UniRef90_UPI00047AAA45 UniRef90-D7N5Y8 UniRef90_C7RHL5 UniRef90-UPIO0037F427F UniRef90-B9DW73 UniRef90-D4GSE9 UniRef90-G8NAV9 UniRef90_Q03EQ7

GTLTES SMLLEDDDNNY\|ICCAFYDNEQCGIICFADIISTGDFC




 GTVMDEKGLKEKENNYISALAFDGERFGFAYCDLSTGEGK GTLTEDSLLDARSSNDLAALSNGGDEGATALADVSTGRFE

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## UniRef90 K1SY28 UniRef90-DONQE4 UniRefofo-O2N5V9 UniRef90-B0R2T7

 UniRef90-W7BJ60 UniRef90_UPIo0026277C3 UniRef90-W7CASO UniRef90-UPI00047CB00A UniRef90-V5XL14 UniRef90-UPIO00366824C UniRef90-G4L348 UniRef90-G2IRC7 UniRef90-UTVCVO UniRef90-R7NQG9 UniRet90-V6YZN7 UniRef90 B4SFR2UniRef90 D7UZF UniRef90 UPI0004777E3C UniRef90-F3Y8F4 UniRef90-C2CFL7 UniRef90 ${ }^{-}$K4LI14 UniRef90-FOGZG9 UniRef90-LOABY2
UniRef90 U5P5S8 UniRef90-UPIO0047AEB60 UniRef90-I3DZJ6 UniRef90-V6M278 UniRef90-UP100047DCFC7 UniRef90-UPIOOO36CBFFO UniRef90-EOE302 UniRef90-G4XHP1 UniRef90-UP10003B46D8B UniRef90-UPIO0035E3D71 UniRet90_A3CR17 UniRef90-D2RDB5 UniRef90-O5HPP5 UniRef90-J7JOB4 UniRef90_UPI0003B30FE2 UniRef90-F8JG95 UniRef90-UPIO003F94D21 UniRef90-UPI0004666397 UniRef90 Q9KAC0 UniRef90-UPIO00477F65D UniR Ref90-P61666 UniRef90-C2ETT3 UniRef90-K6U654 UniRef90-J2ZZ71 UniRef90-UPI00036C3E2C UniRef90-A0A033V3W7 UniRef90-UPIO0035C567A UniRef90-K9EZ 14 UniRef90-R5ADH6 UniRef90-S6ER99 UniRef90-D5ELC1 UniRef90-Q1IY52 UniRef90-D5RLEO UniRef90-S6BY02 UniRef90-B1YMD7 UniRef90_UPI0003B531D4 UniRef90-A0A059KGQ7 UniRef90_UP10004008C8F UniRef90-FOGUG5 UniReffo-R7L211 UniRef90_B3DX29 UniRet90 W7BDI5 UniRef90-ROMDF2
UniRef90 K9DJW2 UniRef90-UPI000310DA59 UniRef90 E5BHH3 UniRef90-UP10004775866
UniRefoo-UPIooo36ABFDF UniRef90-A7Z4X5 UniRet90 R6HHZ4 UniRef90-E3CAB2 UniRef90-UP1000346BEBD UniRef90-Q21XE3 UniRef90-B5YE41 UniRef90-UPIO0035ED4CF UniRet90-W6T7J8 UniRef9O UPIIOOO47AAA45 UniRef90-D7N5Y8 UniRef90-C7RHL5 UniRef90-UPIOOO37F427F UniRet90_B9DW73 UniRef90-D4GSE9 UniRef90-G8NAV9 UniRef90_Q03EQ7 UniRef90_UPIOOO35E2321

TLLRDSDCFNPRपKKE\|VLKQFSAASLDMLGLAEDGPETGA TFRPASSFDPQASRRSLRDVFKTLD T LRPPSEFASDEGEARLKADHDVATDDGFGDFSRAMLAA

 TIRSAYDFDTQTARQRLLEHFGILNLAGFGVEELMRGTRA REQLGLFDSYENNNELPDGYHALITNTDLGDHPDEKKA
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GAELTHLERIA
KLRERDVLAISFEDNSSIDMNFSHLLKDLNQEKLKQTD KMRERSVLTVSFEDDTNLQSSYEHLLKELNQDKLRVMAT AEYPKTTVPTAMGENSQLDPFAVDTQYQEQAKELDLAMRA SMRPEWQFDAALGQRKLLEQLQVASLSTWHAEDLPQAHAA NTYGNEDFDGSLLDKTUYDRFEPAYLDKLGLDKDNGALYS SLLEPWMFSEEQSQTVLLRHFKTHSLKGFGDETNRAALVA VIASRGPFQSGEGERLLKARFGVATLDGFGTFDKAALAAA
$T S R K I V Y T E W D K S K D L V R S Q F G E P V W A R M P E E R R Q C V S ~$ $N$ LL
HTLSQDEYSFKESDELLKE CVQDFERLEEEE ECVRA ETITVREDDSDEDYDMNQLTHQLMHDTTQ


 TLSEEEAEDLPKGYESLCE NVVEPKLLRA VVLPAARFRPEAGRRVLEAAYGVATLDAFGPFSEP EL AA TVRARSHFDLKSGTERVMRAQGVADLGSLGLEGKPELVRA $L L S K K K F D E F L V R K E E G M E Q F S E M E V A G L N E E R E D A E G A$
$D A M V T D F D A D A F G H D A A R E T L S G Y V P S P A V V A N D A E S A$ DAMVTDFDADAFGHDAARETMSGYVPSPEAVVANDAELSA QLITETDTVIDSYEERDYEVVTGTS HAQKRS NLLLS QETD GLVISHLSDFNQDQESKDDYKA】Q KLKASVECQEESSQQRVSQQFGGKTMQEDEDSDKPLAVKA LITKRNLKDFHCTDNELIEQFSEVEIIGLHNSSK LA TAVPDYHFDSTSGAQTVMETLGVLNLDGFGDDRNHPALGT RMLSPANFDEENARQELEAVLGEVP GSLGGAALVRA RDRLVERDAPRDPARRLAEFYGVAGRDGFGRFTAAELAA
 IQSTRRETHPHGDRADDAAQAD ПPQVFFSFRARQAEEFLKESFNVADLAGFGDSGAPFADQA TSRPHWQFDPALLGERKLREQLKVAHLAGFNAQDLHAAHAA TVSHQQVCDDEESFHHLVEQL GMNGKKMRQLLEG VNYIQNPKDYKSRAKLVEDHLGIANLK KK K K HRYFSWAFSYEEAQSFLVNHFKVSSGEGYGLGEMPAAVCS VVSILHDEIVEPTAESEKLLDRSTALS NLVLSHEKE QRVPEWHFDVLKGHGALDEQLGVATLTGFGADGMGAAFGA TISYSEETESDEEDEKLTSHLQQDKL ESGGAQKPDAVKT GIKMNFCKNVKQAESYLKECYQ\LSLESFGLAQKPLAQQA RRRPPW
SPQEDWDYDFTQAKNYLQDHFGVKSLAGFDDDGRRFAVSA GATVS DEDGEDTERDEVAKHDPGEELTETFMKGNPABALS


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| iRef90-W7BJ60 | k |
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 TFRPAASF $\square P Q T P G S R R Q G R A S T \square N$ AR APSPEAA TNYKND E G GPNANAETSYLTQQL

 $1 \mathrm{~T} V \mathrm{~V} T \mathrm{P}$ I Q D Q E K K H A E V S Y A I Q K L



 FLITTKDIAFFTNAKLPKNVDKEKNL YEHQINS




 K RERFAAT LSYEDNVEVNESFSSLFNALEESKLS AESA T QWKESAFATDSARETLTAY SELAGYHFDTATGGKTVMDTDGVLNDQGFGLAHTHPALGP RYGKCSAEQLSDEDFSIDDVSEIVTADEDGLAGKDNALRA SVFDAEAFAPGRASHAVREQFGRETADSVGD DSDLALRA HFYRSAQQHSTTTVVEWTPMLERATPEKQAEAFAPCEEAA TFRPARSANHKAGENLLKETFNDAADEALGDFNRAAELAA SAHDLDAFDRESASDRLESYLAAPD
DK F N D S Y K
TERPAF QF D

$K V F E N D K D L K E \| K V$
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 GTLTE T FI SERSNHYL ASVVFD TQWGLSFLDLSTGEFT
 GTLI D E S FLLN QY E N N Y L L S I S S G E S N L LGL A W D D V S T G E FY

\section*{

##  <br> <br> !

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GTTFTADTA
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$\qquad$ EGGGDVHLVACVP

## G <br> G <br> G

 GTYFE

DEKF
GMILEDGI
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## -

## or

 S EGGGDVHLVACVPRGEAWDLAVLS $\square$ S TGLFE GTVLEEGGLCDARNNYLLSALYWGNRLTDYGSYYVDYSTGELS



HLVT F SPHES LAAN $\square$ D D WAPY LES E $\square$ S QAARTSFTD DEVTA
 SFVVAS GEGHPAD NAT DARHDHKSELDASHRDS LTS M M RVVA LVQERDYFKPE LLKLPDAADNGELSA $I L L S T E E T K L E \square N T N K \bigvee F V E Q N P \square D V H G V$
I V L S ill E E VM D E V K S T Q Y L E E A P S N L H GA GR K
$V L R P A W A F D A A L L G E R K$ L L D Q Q L Q A A S L A A WGA D G L A D A HA A
 RLMTF F P F P QD I LPM S QWD S MLLEAPVS P K S $\square K S$ S T P E ETA A
 GQQ H H L L


| $L$ | $P$ | $K$ | $E$ | $V$ |
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| $N$ | $H$ |  |  |  |

NIVVSEFKNNDEII Y QP L L KKNLDNEKVVQKK

TEDRH DAT APGRARARLGEQFGODAVDAVGLESDAAVAA
TRLNAWQFAA DAGKN NMMGWTPFLEAPLQQTFTSEEVSA
ILLS DIENEEA DRDWETALT DACPAP IR P
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A A AL WE Y VLETMP GDPS HIVVEI KTYRSEQRMFL


## A <br> $+$

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$\square G$ L L T Y V S EVVMQS SVVSHVTS LQP DDRERHLVL G G T L L S Y V K D K L Q G L A M K L Q P P I R R S K E N S ML I
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L G G L L T L
T TMLL GY I F D T QRRNLEHIVPA ES YERLA Y L CHLVLE YAKTQMKET DVKLQPPRRKLVEDS MSI


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 CGALL A Y A E E S Q GDR L E Y L T H L T R Y DP R E Y L L L
 A A A V L R Y L E E T O F


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ENNFLLAVEVAESERGLAWADLGTGEVW





 T S P D Y L P A K D N R Y L A A A L L C L V

 GTLLETT D A QA QY LGAA GDS GS RYGVA CADD I T T G K F Y GTLI DENFMDPYASNYVMADHDPEQDDGLAWLDLSTGGQFF

 GIYMNDS IGIVENNYLSALDYVNGQYILAFSDVGTGEL K



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CAVCKDAE LIRGEVV|GRIISPRELLVVIRKG|V|AEVVIEMLLKEGGAG WDRVPNDSQI YDSLSMYRPAEIII PKGTILPQSIVDF DHN
 $A T S S A S N E A$ A DEES SRFDPAEAVVGPDVRTESLFPKDCMV
 WMACQMEEKL F DVLSVYTPRELVIVETMASQQSRVKRFLET
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## Y

## V

 WQVCDTDGWVGDMVSVYAPRELLLGSTAAQKDGERKILQQ VTHEIEPEILVSEVQRISPREIITS YTP ITTS LE KLVAELEKFRPSEI CVPQSELSFFQEDEYFRD ATA GSAADVEEELARVSPAELLRGP YAAYAGEQQI LDELYRRMTAELLFTEGLSIADDVRA FVR MCEFTDRTKLDTLLTQVRPKELILEKSKISQKSIRA $\square K Y C$ VT DGEG $\quad$ NTLQRVLATVVPAELLLVA VTHRD
ISEFED DVDLETEVVAQTSPRELILEKSHLSTKALPTTTWN TEAANMSALPSVLSRDSPKEVVLDQALSKDHDVVSILAE



 I S EFEEDDVDLETFVAQTCPRELVLEKSRDSTKARPTTADWN



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 VEEDDHQSHL DQSLLKANVRECVVSSSFEKMKNQDQEQGUV























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UniRef90-E1L8P0 UniRef90_UPI00035F3B89 UniRef90-S7ZL70 UniRef90_M0L2R5 UniRef90_Q3ACA5
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UniRef90_UPIO00379BDD2 UniRef90_UPI00040EF0A5 UniRef90 B2ALK1 UniRef90_UPIO000164CE5 UniRef90-J9G5U8 UniRef90-N2B9T5 UniRef90_F0X9Y4 UniRef90_U1P9J3 UniRef90-N4V926 UniRef90-M3HDQ2 UniRef90_D4H6A9 UniRef90-D4YFR3 UniRef90-BOS1C1
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UniRef90 G8.JXA9 UniRef90-G8JXA9
UniRef90-UPI0004561A2C UniRef90-M2N6G5

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WVVSEHGMSMEGKMKEYLEMWRRAAVNTEEVEADRLELTA
 RLVTVFS FPDTUAPMSNWESMDESPVSENADAS TPFDEAVFDRDRAAETVADYFGNPDSLLA VNY $\mathrm{D} E \mathrm{~K}$ KPAEE RDWSCTVTADQRDESDAYETDPVKYFSAQAVEKAKPVLAC TEDDAAQFDRAVARDRLCEY TKRPNVDFNLNNAQKNLM
ERYPVTYSARGELRQLSDWAPMLESEDPAQTVETDCEVQA TS PTT TWNY LKKPGKEFWEGHDTAKE IEASDYFDKDLLMSA SNFAGRPPTPAQARQLLGERFPAGGAEAADNPALAA TRVDDWVWTYDFAVPLVERQLKVRTDEGFGLVGHEAAADAA
 REFTVLKNQ REEGYFLSFASVAARSADDTPLPPDESGMSDAGDAQETAAA TVHTEESFAPGRARHRVRDHFGPETVDSVGDADDDAA DCA RLLT LTQTGSDFVSMSEWSQMLESPVSDNADDSFTDGEKV REGNCVLTEPDVRTDVDYEAVGTQYFTVEMMAAAKAASYC FETMQTTHNSGAFEDATATQTGEAYVDEPTAF LSSSAERRA
RLPSEFLVTAVDAAEKASEKWISMVRSSNEAFSEGESLAA KEFTVLKDQPEDPEK DQFQ L L SRYLDE
TD Y D PDAFAPEAARERLSPYASPDRFPAAAASAAGALL
 NI FIUS YYDNDE LTYKGKVFENVTDQKL $E L V E F T R Q K L P S A R K K U N S F F K E H N U K A A Y D N F K Q K E Q S A$
$Q R L P H C A D S I V S A ~ D A G A E A L L A R H F P P E E D P A D A G A R T A ~$ VSSSSIWNFI KPYTEFWDNERVEREIIDAGDYFEKPLATSA PHDLATAEGGLNSFYAVQNVESGGCRGRPLCIQA
 LGAPVAPREAGDAPRRLMDFFGVATLEGFGALGEAE IAAA
 HHDLLATYHTSSSPFTSIAEWNGVFEDDAAEDRFSGSEKLA IN EKNDE EDKNKEYDKHLSSEDKDE LDNSKYRENIS LAELYQDPPFNTAYSNEDEFPLDYSREDTNSEKEVL YLKPGTEF WDAETSRRELEQEEVWPEKLLEKVKEKDLLMASA R
TPMPSWHFDAEHGVEK L
FALDAWYFSDETTSATLLGHFKVNSVEGLGLKDYPCGTTA YRKSGSEFWDADTTRRELDCGGYFTADDGGNEDWPFLMSA TRHDPEAFAPGRARKQVREQFGTERTETLEQ ETMPATQA NLKPGTEFWDADTSRREDEHAEVWPE ILAQAKGKPMLMSA R

GGSFSETLASREVMEHYSVGAMKSLGDDDETVF
 TAPST $\square W N T L K P I K E F W P A D T T I R E D D A N N Y F E S P L V M S A$ EVT DSSEFLWNKYKNLLDTDEDARVKNG
TGPTT $\square$ WN YMKPGKEFWEAD DT $\square$ KELQASEYFEKELLMSA H LK PGAEFWDADDSRRELKCDGAWPEVLQQFQDDDLVMSA TPPTT DWNH LKPDKEFLSADKTRMK DDGEAYFDKCVEFSA QKLPAQHRTIETARKQLMDQLQTFTQK
ELVE TTPTTDWNY LTKPNKEFWPADDTCREI DASAYFEKELVMSA LK PADEFWTSEDAFEQLTKYFEANDLDDLSNYNKNVGFSA RAADRDDEELDSAH
LSASSTDHNIKPYNEFWDQERTVREFDSCDFFDNPLAASA
 HLKPGTEFWDADTSRRELKCGNVWPEVLQQYKDDDLVMSA TGPTTLWNY LKPGKEFWEADVTVRELDAGGYFDKELVMSA $L K H G V E F W D A D T C R R E D T D S D G G W P E A D E K Q R D N D V L M S A$
$H P L P P R E A E T E G E A E W E P Y E S E D P E A T A D Q F T D V E V A$
 QVSDSSEY HKLPSRYRS $\square$ DSFYYLFTSGESNATKKEFD VVLNSLETAS

T A P T T $\square W N H \square K P D K E F D T$ AEKARMT DDGEAYFDWPA A LRA TPLSRSEGSFDK TLE ELLKALYPPESSDNDGMEDDETAIES

UniRef90 U4LAl1
UniRef90 ${ }^{-}$E1L8PO UniRef90-UPI00035F3B89 UniRef90_S7ZL70 UniRef90_MOL2R5 UniRef90-Q3ACA5 UniRef90-F9MQC0 UniRef90 U1NTI5 UniRef90-A3M436 UniRef90-G2PZU7 UniRef90-W9YSC1 UniRef90-UPIOOO47A74DA UniRef90-L1MZ79 UniRet90 G2R4AO UniRef90-UPIO004416A46 UniRef90-C7NXR5 UniRef90 V9DK18 UniRef90-D3LVB1 UniRef90-Q18FJ9 UniRef90- M6BLV7 UniRef90-V4HB50 UniRef90-B2AY95 UniRef90-G3EQSO UniRef90-R6BMZ4 UniRef90_C4R218 UniRef90 O74502 UniRef90-R7QK81 UniRef90-Q754J6 UniRef90 UPIO002E4A7A1 UniRef90-V6DHE5 UniRef90-UPI0003733B95 UniRef90 W2SH70 UniRef90-EONNG5 UniRef90-UPI000379BDD2 UniRef90 - 2 ALLK1 UniRef90_UPIOO00164CE5 UniRef90_J9G5U8 UniRef90 N2B9T5 UniRef90-FOX9Y4 UniRef90-U1P9J3 UniRef90 R8BRP9 UniRef90- N4V926 UniRef90-M3HDQ2 UniRef90 D4H6A9 UniRef90 D4YFR3 UniRef90-B0S1C1 UniRef90 D2MN15 UniRef90 ${ }^{-}$C5P456 UniRef90-A0АО24JCM2 UniRef90-R5A925 UniRef90-F9DP35 UniRef90-A1CXE2 UniRef90-B3RJ73 UniRef90-N1S441 UniRef90 EOQK77 UniRef90-F4Q8W3 UniRef90_AOA010RI48 UniRef90 D2VDU3 UniRef90-MOCUG5 UniRef90_U5FBB7 UniRef90_A5DIU2 UniRef90 R6UDR3 UniRef90-E4ZTZ9
UniRef90 R7P6Y6 UniRef90-U1HMX7 UniRef90-M1WEA2 UniRef90-N1 Q2J6 UniRet90_GOW6R0 UniRef90 P25846 UniRef90-R7YLX0 UniReffo ${ }^{-}$W1OEV4 UnRefo_AgGlm, UniRef90-B6126 UniRef90 A5DSG8 UniRet90 E9F3W5 UniRef90-F2SWI6 UniRef90-G3JIN8 UniRef90-N1W6Z6 UniRef90-R7NG63 UniRef90-G8JXA9 UniRef90 UPI0004561A2C UniRef90-M2N6G5

A A R|L L $\operatorname{N} Y|V| E K M|L| P G \square P V|K| L|Q A P V| P R M T S R D M K \| I$ LGFMLLYL Q DVI KTEI AHINYVHQMDVGNRIIL A V R L L H Y L H RTRQK R S L
 C GAL L E YAE YAR GSELE EYLTHLTRYDPREY LLL YK L L I S Y L K R $\quad$ E P A V L S I F GQP EF Y Q


GNTLLNYVMDRLQGLSVKLQPPMRHESMHDMND
LG ALL I QYLRTNIERDLVTLGNFTWYDP
A A MA WQTLVATRRCQPEHI EPLGLYEVGGHMVL AGAVLHYVRTTQKNDALHI DSLRFQEHSTALEL VATLLRYLHDTVRTDLSQI NRLSFQDTRETMQL GNLLLHYVRDRLQGLSMKLQPPLRHESMHDMHI $\square$ D LL T S F A GAVLS YVEDTGVGTLASI TRLQSYGATDHVNL A GHLLDYVRNRLQGLQVRLQPPRQRELHAMLNI LGGLLLSYVTEVMKCDLSYFHTLEPDQQEQRLVL
GTMLL YI RETYRDNKLVLREPRILSSGKFLE M GYAEYTQGGPLAYVTRVRRYDPRRSLRL
GSLLLHY VGGDRMQGMLSMKLQPPVRHVNMMEVMNO
 VAALLRYLHDTVMADLSQDNRDAFLDAAASMQL F GAL FWYLRQ
AASLLSYTQQTQERP $\square P \quad \square N P \square K T F A \square D D V M L L$
LGALTQY LR M
 ATA L LYVERTQKGSRPALARPMSLRESATLEI
 I HLLLDYAKHQLQRTQLRLQPDRERQDTHVLSL LEILLNYLSNVSKTKLNHLVKDAD DNDEQKMLL N LLVA Y I R A H NMRELKKHFRTVEKHKGKETMQL LGLLLAYLEETQKQFLPHDRPPRQLQSETVLVL $L G G L V H Y L R E R S L L S Q G N F E P Y N P I H R N G T L I L$

A GALLKYLYETQKNEMEHMSA $\square$ HPYTTGMFMVI F GALVNYLRD
A GAALAYVNETGAGVLASMTRLQRHD
GSLLLHYVKDRLQGISMKLQPPLRHETMQVMN】 LGALIHYLK
AAP DYMALKYMQRVMLDTLLKPKLVTDDERVYL LLLLLTYVNSMSHQAI DHWQAATHYEVAHYLHM V ANLL K YVFRYQ DDLVHDNSSRKYYINEFMED YGRMLNYLQNTQKQALTHLLRQPSLEKEEEALYM LYK IFRYINHTQKS
FGALIQYLRMLKERDLITIGNFTWYDP

 FGALVQYLR
$\square \mathrm{K} M \mathrm{~L} \mathrm{~L}$ K Y L T D TRGRH $\square$ KT $\square$ TPKHYS $\square$ D DHMS $\square$ TGALI SYLR
LS R IYKYVYDTQQ
VGACLSYLFD
$L G A L V Q Y L R$
A GAVDSYVDETGAGVLASMTRDQSFDESAYVDD FGQLTNYLDETQRRNMAHLNHVEQVYENEFLQM FKDKNQYAFSAFGGLLLSYLKFLK
F GVLTNYLDETQKRNMAHLNAVEMVYENDFLQM FGAGLQY L R TLKRDLVTLGNFQWYDP
 FGALTQYLR TLKKRDLITGGNFSWYDP MGALLSYLKFLQERPLLSQKSFERYSP LGGLLIWY L
LRNLLIYYSDHLPHFSTNLQVPQRQLTTSTMQ\
 FGALL WY LLKDTALISMGNIEQYDPYKTS

VGALVWY LR Q

 VGGLVSYLK

## FGALLQYLEMLKGRDLDT $\square G N F T W Y D P$

VGALVWY R


$\square R N T L Y Y$ I DEHLLPYVAVNLQFPQRQLT TS S MQ
VGALIWY L
LGSMI WY L Q

| UniRef90_H0EI76UniRef90_R6QZ01UniRef90_E0P1Y8UniRef90_A0A024JMF2UniRef90_T0RZH2UniRef90_S0E017UniRef90_IOXRY7UniRef90_W7MGG4UniRef90_M7NN01UniRef90_A0A017SRW7UniRef90_G9PAS3UniRef90_E6RDC0 |  |  |  |
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 TVEGSMLQDDMATFCVABVDDLPAFGIAFVDTATGQFF GTALSDEALRDASNDYVVLLHEPAGQFVLAGADITTGEAF
 GTVIEEHLLS GF QNNY LCVLVPKAALLIGVGGMADVVSTGEVVF GTLVNEGIIASDMSTYCMATKEEYESYGI CFVDAAAGNFK GTLVEGSMLQDDMSVFCVAIKEDLPAFGLADVDTATGQFS
 GTTILEENAIADKSNNYLMYIYEEQGEIVLILSDUSTGECS
 GTVVDESMLSSPQANYMLTVSAESQAMGVCLLEASTGYFY GTVVDGSMLTDDMSNHCVAMKEHPPSFGVCVLDASTAEFS
 GTLTDLNM』NDDMSVYCLSUREEDNGFGUAFVDTATSEMN
TVIEEESTKSADFNFLLSFYYTNNTYFIALIDTSTGDLF
 GTLVDAELLDDELAGHCVSVAKKASAFGVCTVDASTAEFN







GTLVDEDLLTDEQAGHCVSTREFDENFGTCVLDSATSEFN GTLTD GDMIHTDLATYCLADKEESGNYGIAFIDDATGEAK
 GTLTEGELLSANPDSYLMALTESNQSFGUCVVDVATSRII

[^1]| UniRef90_H0EI76 | LIS YFVDDVDLETIVAQTRPQELLLEKSCIISTKALIRILKNN |
| :---: | :---: |
| UniRef90-R6QZ01 |  |
| UniRef90-E0P1Y8 | YAVYAGEHAIMDELYRRMAAELLLTEGFSLADE |
| UniRef90-A0A024JMF2 | V QTSTLAELATDLAR\SPAEVVIDKKLQDRATTTDT GLVV |
| UniRef90-T0RZH2 | GY QVK T FEDLLEKVRVLSPKEFI WDDHAEMETLLTHMGT |
| UniRef90-S0E017 | TQEA NLASLPTILSRLCPRELLLDQALLQSCDLLAEDRHI |
| UniRef90-I0XRY7 |  |
| UniRef90-W7MGJ4 | TQEA NLAS SLPTILSRLCPRELLLDQALQS CPLTEDRHI |
| UniRef90-M7NN01 | IT Y F K R TK L Y TLI T Q I K PKELI LEKANVTPKTIKETIWN |
| UniRef90-A0A017SRW7 | LSEFVDDVDMETFVAQTRPQELLLEKSTI SQKALRTIWNY |
| UniRef90-G9PAS3 | LS GFVDRTRFETLIA Q T GPRELLLEKSGLATKTLPT TILWT |
| UniRef90-E6RDC0 | S YFEDRTRLETMFRQ\\|RPKELI HAKGNLSVTT TR |
| UniRef90-E4LAN8 |  |
| UniRef90-N1QKK6 | LAEWVDDVDMETFVAQ\\|RPGELLLEKGCISAKAMRIIL |
| UniRef90_UPI000372577D | T C MASLEGCGPALARIGPSEILVAQWPEDSDALS |
| UniRef90-L1K1Q1 | LGEEVEDDEMFETVLDKAKPKEVVYPKGCLNKDCL NM |
| UniRef90-M7XLC1 | LSFFTDRTELETLVRQLKPKELI HQKGNLSV |
| UniRef90-A7TSN2 | MLEFEEDDSKFDTLMSQIKPKEVIMEKNN |
| UniRef90-K5WFB1 | LSAFEDRTKLETMVRQLRPKEIVFTKRLLKA\\|LPSNCLWT |
| UniRef90-G8XZP2 | VEFEDDQEL DTLLITQVKPKEI I CEKNLKFSSHSTNQI WN |
| UniRef90_U7PW53 | NLAA L S S ALS RVAPREIVLDERLQRTQQQQQLI TY |
| UniRef90-D3PA79 | ISETKNIFSVIDKW DPKEI I GNK DLNIKNVN |
| UniRef90-V2Q1P6 | LKT】PVDTLEENTHSMEAKEII A N I DVDDIN NDPVTIRNS |
| UniRef90-M9LX28 | LTEFEDDERLETLLRSLRLKKVLHEKAGLSPQTLRVLRS T |
| UniRef90-UPI0004417B43 |  |
| UniRef90-S2KKT2 | L VHFQDRTKFETLIMQI KPRELVTEKRLLKS |
| UniRef90-I1CDB9 | LVHFEDRTKLGTLLMQI KPRELVTEK\QMIK S T L |
| UniRef90-K9HDB7 | LSAFEDRTKLETLMRQI R P K ELLFKKRMLKMULPTNVLWT |
| UniRef90-Q552L1 | $\square$ S S S T LENLS SELNRI QPKEILDP A SLNYNQQ |
| UniRef90_B9W9U2 |  |
| UniRef90_H2AMS5 | MLEFEDDNELDTI MSQIRPKEII IEKN |
| UniRef90-F4NYW3 |  |
| UniRef90_G0V9Z7 | DDSELDTUMSQVKPKEIIME |
| UniRef90-X0XHT5 |  |
| UniRef90-I2H6B6 | MLEFEDDSELETLMSQIKPKEVLDNKIVKFNASPNADFNY |
| UniRef90_G4TQ89 | RTRTETLLRQLRPKEVI GNLSVSTNRLLKNCAIT |
| UniRef90-U1QPF6 | LLTALLYRFDPVEVLPGPDARADDALLE QVRE |
| UniRef90-W4JWM9 | LETLLRQLRPKEI LIFTKRLLKTVLPVTCLWT |
| UniRef90-J7S1X9 |  |
| UniRef90_UPI000386FBFA | FDSFRDRLELESRVLRLQPVEI I LP S TLL S Q S Lidd di |
| UniRef90-V4TBP7 | LG QVMDDLDLCCLLSELRPVEII KPANMLSPETERA |
| UniRef90_W6TIP7 | SPKEI I VSDDFYYEYLEKDRFLV |

[^2]

|  | 20 |
| :---: | :---: |
| UniRef90_H0EI76 |  |
| UniRef90-R6QZ01 | NILISSYENDIE GLLEHQY\\|LTNVRDLNQRKGVVR |
| UniRef90-E0P1Y8 | RL P PCAVSVVSREADAALPAQHFPAEEIPCDAGARAA |
| UniRef90-A0A024JMF2 |  |
| UniRef90-T0RZH2 | VTHLSQEYFDPKYTEDFTEKLIPTFKRDQVIQENADTLAP |
| UniRef90-S0E017 | PHDS SLFHPENWTPMLECALKHEASAFSPAEVHA |
| UniRef90-I0XRY7 | GEREDTVLDAS KVGSENSNDPFQT |
| UniRef90-W7MGJ4 | SYAPCPHDSLLFHPENWMPMLECALTKHEASAFSPAEVHA |
| UniRef90-M7NN01 |  |
| UniRef90-A0A017SRW7 |  |
| UniRef90-G9PAS3 | NLKPGTEWDADTS RKELEDEEEVWPEALQELRDDDLVMSA |
| UniRef90-E6RDC0 | LPS S T A WQSFKTAEDTLNLLPSIFSAEEDESQDNALAMES |
| UniRef90-E4LAN8 | SVGGCLLVRKEYTDE\KENDVIYSDNKKVQK A |
| UniRef90-N1QKK6 |  |
| UniRef90_UPI000372577D | GDLGRPSLT PEAVEAVLSEAFGPAGRTAMRGFS PPELRA |
| UniRef90-L1K1Q1 | HLDNP ILNALQPGEQFWDHQRTVTELENGSYFSSPT |
| UniRef90-M7XLC1 |  |
| UniRef90-A7TSN2 | TEFYDFHRTYDELLKPENAYFEEQSEWPYYNNGKQVGFSA |
| UniRef90-K5WFB1 | SLRDCEGLS F DATI K A LKELYYPSSLDDDDDLEPRPHAVEA |
| UniRef90-G8XZP2 |  |
| UniRef90_U7PW53 | ASAPP ${ }^{\text {S A A EAGSEASHDRSALLS D WKPVLESE }}$ LPAEISA |
| UniRef90-D3PA79 |  |
| UniRef90-V2Q1P6 | G Q K H NTALNRVLSHYSVTSEKAL FIVEKG Y I WA |
| UniRef90-M9LX28 |  |
| UniRef90_UPI0004417B43 |  |
| UniRef90-S2KKT2 |  |
| UniRef90_I1CDB9 | MVLPEREFWDDQTTETDNEQNSGFNQAMQELYADPMLMSA |
| UniRef90-K9HDB7 | SLRTVEGFDYDQTMEQLKTLFPPGDEDMEEMASYPKAlES |
| UniRef90-Q552L1 | Y NVSMEND\KSFNYKKNNNNNNE【NNEYFENEFSNDELNS |
| UniRef90-B9W9U2 | AHSDHQ $\mathrm{A}^{\text {S }}$ |

LLRDKEFWDEEVTMDE LTNRGGYFKDMASTES $\square$ NHS $\square$ AMSA
ELLPEVAVTPDEASFFEADTAPDRP DGFESGSSDPEQRA LKMEEEFFGFDKTYDELVVNDPDYF LKKYYDSKKKVGFSA SLLRPVEGFDYQTTLKELLSSLYPSPEDDDDGMDGEEAPGIA TL HTAEAFAPGRARHRVREQFGTETVESDGDDD IK P ESEFYSFDKTYEKLTENDAEYFLQSYYKEGKKI GFSA ERMENLHFEYSHAFQLITDFYAKEVPDTYGPQKLSLLVICS TRNP


[^3]

| UniRef90_H0EI76 | $F \text { G A L T Q Y LL }{ }^{130} \text { L } K \text { RERN }{ }^{140}$ |
| :---: | :---: |
| UniRef90_R6QZ01 | L LS Y i K DTQKKD LDDYMK IATVLKNNAVMQI |
| UniRef90-E0P1Y8 | $\square \mathrm{LA}$ ALLTYL HETVMADLSQDNRLAFLDAAETMQL |
| UniRef90-A0A024JMF2 | GAGVLKYVREHLPETDVKVVLPTRVRPAGLMKI |
| UniRef90-TORZH2 | IGALAYYI CSTQSEEFTHVHPFSLVSETGFM |
| UniRef90-S0E017 | A GFLLGYVKDRLQQ M S MKLQPPLRNKDMQVMA |
| UniRef90_10XRY7 | Y Y R R N YRDGTLTLREPRILQ T G S Y LEM |
| UniRef90-W7MGJ4 | AGFLLGYVKDRLQGMSMKLQPPLRNKDMQDMA |
| UniRef90-M7NN01 | VGGLLVWYLK T L K M D |
| UniRef90-A0A017SRW7 | F G A MVQ Y L R I L K L R DLI I T G N F S WY D P |
| UniRef90-G9PAS3 | VGGLTTS YL R |
| UniRef90_E6RDC0 | L G GMLF YL K |
| UniRef90-E4LAN8 | FLLLVEYLK DVMKS D S VKF H N $\square$ Y K L R E D H V L H L |
| UniRef90_N1QKK6 | L GALTWY L |
| UniRef90_UPI000372577D | LA ALLD HVRVVVGQLP A ALP S PRRAATGDTME |
| UniRef90-L1K1Q1 |  |
| UniRef90-M7XLC1 | LG GMIWY L R Q |
| UniRef90-A7TSN2 | FGGLL N Y K K S S L I S L M M K Y Y L I K S Q H M M L |
| UniRef90-K5WFB1 | L G SMI WY R R |
| UniRef90-G8XZP2 | F G G L L F Y L R |
| UniRef90_U7PW53 | G S L L L H V K D R L Q G LS M K L P P P VR Y E G M Q VM T |
| UniRef90_D3PA79 UniRef90 ${ }^{-}$V2Q1P6 | $\square A M V L D Y \square D D T T K L M L$ |
| UniRef90-M9LX28 | L G GML C Y L A Q |
| UniRef90_UPI0004417B43 | LGSLI WYL R Q |
| UniRef90-S2KKT2 | F G GLI WYL R |
| UniRef90-I1CDB9 | F G GMI WY L R S LK K ELLS H IVMYDP $\square$ R Q G T S LVL |
| UniRef90_K9HDB7 | LGCMI WY L RQ |
| UniRef90_Q552L1 |  |
| UniRef90_B9W9U2 |  |
| UniRef90_H2AMS5 |  |
| UniRef90-F4NYW3 | $F \mathrm{G} G \mathrm{LLLF} \mathrm{Y}$ LR |
| UniRef90-G0V9Z7 |  |
| UniRef90-X0XHT5 | A A A VLN Y THANQPSAASLLR R $\square$ R P YR $\square$ A D T M G L |
| UniRef90-12H6B6 |  |
| UniRef90_G4TQ89 | LG A M I WY L |
| UniRef90_U1QPF6 | GGAVLS YVEETGAGVLASMTRLQQHGT GEHVHL |
| UniRef90_W4JWM9 | G S M I WYL R Q |
| UniRef90_J7S1X9 | FGGLVVYYLK |
| UniRef90-UPI000386FBFA | LA AVIA Y L K E N L E R M L Y N P S NFKRLS S E E Y M T |
| UniRef90_V4TBP7 |  |
| UniRef90_W6TIP7 | SFLLIDDY |

[^4]


[^0]:    ## 

[^1]:    lupas 21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

[^2]:    lupas 21
    lupas-14
    lupas_28
    jnet
    conf
    sol25
    sol5
    Sol0
    jhmm
    jpssm

[^3]:    lupas_21
    lupas_14
    lupas_28
    jnet
    conf
    sol25
    sol5
    jhmm
    jpssm

[^4]:    lupas 21
    lupas_14
    lupas_28
    jnet
    conf
    conf
    sol25
    sol5
    sol0
    jhmm
    jpssm

