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UniRef90_F3WY25

IS D F HVATRFNDDFSRAVLEAEVQMCGELRDYLRVTVS
 HI A D Y H H T T E L S A D F R R A T L H T H V T L Q G E ALLATAA V D D HLMD $\square R$ VTPELDACYRDARLKVELQAAN GAGLSVEAN
 HI K DVRVTPNLDHRYREGELEIVDVQTT RGQGLQVRTV T A I E DVVRIE T QL D GAYR DA QL NVVVKDSNESS GAYQVVVE





 HVVR D Y Y V V T D L D D N Y Q N G TLLKV SA F V K N Q V Q D K Y R V K F K T S LAA D F R L R T D L N A D F T R A D L V A N V T L A GEAA A A S R I T L Q

 I A DFFAVPHLDENYE HAELVRVNARLEDAAAA GYQL SMQ



$\begin{array}{ll}H \\ H & \text { L } \\ \text { L }\end{array}$ GR
G
A R
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L
 HL L D F F A K P D L D A K Y K N G S L NVVEVSLIKNKADN NQKLIA K



 HI F D WHATTDLDENYKNAKLNLQITVNNQSKQNYKVRTS










 THIN DLGVVRTELDDHFTSGTLKGRLELLKGSDVPSRIAAAD T F L E D F K V R T P P L N D D F T K A E L E V T T L R T T G S G P K K S TFIHDHYVVTDFDENYKDATLRVETHIQNQLPEKGEI TVD
 HLRD $\square H \| Q T L L S P G F H S A E L T V M A A I N L P T S V D Y S V E V Q$





## QUERY <br> UniRef90_Q5ETW7 <br> UniRef90-A9MQ82 <br> UniRef90-UPI0002197E96 <br> UniRef90-E0I7Q0 <br> UniRef90-KOIZU9 <br> UniRef90-U0EMH6 <br> UniRef90_UPI0002F712CF <br> UniRef90-R9VQSO UniRef90_UPI0004053539 UniRef90-R8WMU2 UniRef90-R1FBN5 UniRef90-M5TT78 UniRef90_A0A010PK83 UniRef90-B2VHN8 UniRef90-J1GCD5 UniRef90_UPIO0036C99DD UniRef90-F8EDX9 UniRef90-UPI000469B67E UniRef90-UPIO003687F8E UniRef90-UPI000255D8833 UniRef90_UPI0004632296 UniRef90_UPIOOO3809221 UniRef90-D8MNR8 <br> UniRef90_S5EJX3 UniRef90_A5F5U6 UniRef90-R9NI22 UniRef90_UPI000428D015

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LWDGETLTHETTSPLGSEI I DERGAYHDRVTLRLNVENPA




LYDAQGHRVNEVVGFGQRYVDEKGPWQEVAHSQHSLANPH
 LIFDAE LYQGEHPVACDEQGVGTAPDD LDDENSDVVTTFEASQS LFDGDNAVTEQVITTNNKRDVQPNDAAKVTLQKDVAAPK LR



 VFDNEQALCEPHQSTNNKRVDEKGGWSDVVFQTIDIQSPK LHDKDGRSVWAQSP GEGVAFTNGASQ
 LFDAQGECVARSQAGLGQRVVDERGAYDDRTTLRLLPMVEQPA LWQRTRCIARHRQSLLSQIVDERGNYRDRTNLNLTVHQPE LWRNETLIVEQTQRFGSEI I DERGAYDDRTTLRLPVEQPA LYDPAGNPAHGWVR SATFDLLGESEETFVLSDDVPDAA LWRDGQLVGERRAPFGTPADDERGAYHDRVNLQDEVERPA LFYHGMSLFKATEQFGNRVIDERGTNDGQVSLELPVKNPA LVDASGKNVFTKEIN $\quad$ VVNFEASKVQTI NFAQNISSPK LYDARGHAVWSRPLQQSVTVGGATGEDVTVQAARAVPSPS

 LFEGEQPDTEPDARPHNRRDDERGSWRDVVFHSLMVREPK


LFNAQNVLVQN FTSDAVQITADNKQUI NISSEVLNPK
LADAQQQMVSQQSSQAGEFADEKGPWCDKVNHSLS I QAPE
LQDAHGRTVTTVSSPAG $V$ VGVTLTVPVSNPA

LYDARGHAVWSRPQQPVDVGGARAGEDVTVRAAKAVPKPR

LT LLDA DLQPVARASSTPIAADTAGTASTVNFAVEI EAPQ
LRDASNQSIASTEIQGN
LLDQNGKAV FLKVTHQASETIKFKKTIKNPA
$V L T Q D K N$ QK LDFSETSTVGAEPAMFQFNASVDNPK
LFDGE
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LEDQGKTVATGQCRA
LYDAELKEMLNQPLQTSLSVHEQ
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 LYDA

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 L YANK LY S DENTVVLSTVVKEVVPGESADVQTVFQVKAPR
 L F DA K Q NVETVSUPVEKDVKEWYPQRDNVKFEAEVDAPGL
 LLDGDKAVLTKENKVAA AGAARTETLSATI PGVR
 LKDRAGETAASWESVPS GKTVELTCRIPNVR
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,
DVRVVALDASYRN
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$H V \vee Q D V V_{R}$HLEDVRITPVLDSEYKDATLRVEVETTPRVK
$S \vee G^{T}$ R L L F V R D Y S L V T D F D A D F A D S T F S V T L E N N R G D A D G E I C Y I E D Y F F K S N LGE E F S Y A D IGQVEVK ID N S LIE N K F S I


 HIIN D F F I K T I I L D K E Y K D A E L I
 L K D F R V G S S L


 $T Y L E D M F P R G E L N Q G L D A G S L E V E A R V S F A T E A G W K V G Q Q$ Y R A D F F V R T N L D D H Y R D A E L M I D A K V V N Y F N G T L Q L E M A





 I T D Y F F K S N L A E D F S S A E M L V E V K I D D N V L T N Y T I E A T
 TAV K D F R V V S T L D D S Y T NGUFKLAVDIRNNAAT DKNLQV


T


HII E D F H V Q T L L D D D E Y K D A D L Q Q V K V T T Q G T G P




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VKDHDGTTLMDKTKPDDESVA■EPH SGTSAEVTLSTPVRAPA LYDKGREVRRGGRRVAA SFTEETDGKAELTARIADPA L LDDSRDF KDAEVV YYDK ELL YADKKI ELLKSASK
LLDAAGRQVTATTDKGS
VVDATGKQVYETRSEVDSDVQLA
L D S DQUAEKDQTTLVPKMSE
LTDASGRNVLNTSVDVNRVVNEYYPQRDTVEF
LKDRDDNLIYSFE

LSDKGKVLHTSREALEKEN
LRDAAGGVVAEHR
CDKVGKYVATES CDPSVKVVGQSVGD
LYDADGQPVAWTADAAHAILS
LFDSAKWHDSDEYCSSSVAHMELDPSSST
LDDAAGKAVATETAKGS DTVKFDA
LYDDDKQVAEQ LLTGARSNEDHDPRSKDADMAFDQDQ DPDGCKVASAREAVRNGRAV LEEGHKTKVTEENKKPEVIIVAQATKEGTTTFQVPVGNDR VYYKDKLLYQEKK NTT DTSNGDEVVTTGS LLDKNGQVVATEE

## K KDEGUM <br> LKDDEGDM

LYDASGKTVKKKEDLETFEQVPGAKGRERKVSFEAQPGAVH LSDNGNVVKEFSETTDGTA $\quad$ QSGQVNFAAEVVNVK LFDADRKAVLDNTTTVSEVYNERWPARDDTKFAFDVAQPR LKDAGGKTV YDDQGKKVWTGKQALSRLKMPHGKTEN QFLANIPNAK LIDPGGNRVFSSMPGEEDPLAERDNLGHLLRFSEKVEKPQ
 $V L D S E N G A P V C D S I L L D A G T \square P P G E E K \square V T I E K E K K R P R$
 LLDREGKVVA TSSEQ! HLKAGGVETVNFQKTLPDVR LFDKDGKQVATAVGVAKNGL LYDSGSWESSDGNPLSSNVADTTFQPTTTYTLVGKLQSPK DVNG
LYELDDKASGKVVANATESCIVKGEDIQTVTFGANLSGVK LYSDDNELVEGVGGTYKLDEMEKGGKLCSETEEDAVPSPR LKGRDNRGKKVEYKMAAPVKSLSPRSVNIFDLSCVLENPK LLDTGQAVASDTKHAADVGKSRGDSNFSAFSMKLANPR LLDADGKTVLERE QRIKSRGLSNFLAFDTESLPDVK
 LFENKLYSDENTLVLNQTAPVATVGKNNEIVAEFTLDTVK
LLDERQRMVAEGAVDGEVIVNVKGALGSESRFVILVEQPK LLDERQRMVAEGAVPAAA
 TDKUIPANASKPVYSATKKFTTADTP LNFQTTIKNVK SDK LRELPQNGGDT ADAGQDV SGDGKDNLSDPVKNPA LFDEQGKCI LEAMQEKILEDKG LLRNNHPVVKGTVANNKEVV ELAKNGGAVDTTQDAPVKSGDTK DDLDEKVQEPV LYDADGKPVFGKDDTVTADYVVNEPYPQRDNVEGAVSKPE


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THLLEDVKIITTHILINDTMARVEVINPTVDHPT
$\mathrm{k} \operatorname{vir} \mathrm{Y}^{4}$ HI RDVFVRTDLDENYRNGKIFLDVEMRNGGEEEEKLEVT THLTDLDLKPTVVNDYQDGVFNAKLHETGKMEGSVHLSVE TRIEDWF RTDLDSKYENATLHATIDTLSKGKGTLKLTLS QVRDIKAIPEYDDTYTNASLKITAQVSNKKAKGYSIAYS
T

T DVFVND SSDFSHATLRIEMETTGDA H: KDLFVKTELKNNYKDAELKLDCSLNSKDPKG KI WAK
 TTI KDYRADADLENDYKDGLLKLNLKLTGKKAKGYKVGVQ HVRDYHLSCRLNEELTSSEFQMKAMIRNYDRGKQULEVIG DFTVTSGLDASYKNGVFGVTMEFGNSSTKDDQVSTK TYVQNHVIVRELDDAYTSGTMTVQLDMAKRQEGTAKVTVS
THEDFKVISTLDDSYQNGLFNLATDINNQDADHISLSYE
THFEDVQUQTELHNKYKDATLHVGVKL NSDANVTDS
TSVSDMRITPDLDNNYEDGTLNUNVKVKGNSN AD YKVTSSUDKEYKEGKFGLDDTVEGSAAGVSTLVYES HRDFFVKTSLYDNYKKAEDTVDLDFIGSVSD GLEYR RI RIRDYAVRTPLSDNHQDFDFQVDPQFSGFTGKGYT:QGV I ADYFFKSNLA HI YGVRVRP
THITDLVVSTOATDGTVAVQVKVRNASDQTRKV
HI EDVAVRAMPRDGYTDGQL DVHLTFGDAAEKNVEIL SRVKDFHLTAGLTNDYKDGELKLDVFLHQPKAGE TVVVK INDFTVVADLDDEYKNGLLDLSFKLR EPKGKYVKVE
T K $\qquad$ NVDLSAK SHASDVVKADYDPADGKGMLTAAASVTGGDPSTATATAQ YVTSEIVNDNASDTAEVKLENKGHFKGNVEINQT HVKDLRLDPDLSPDLREGTLRISADLDSKDQKDLLLRYK H GDWKVDALLDENYQDG LNVEAALEGKADG CRVRLE Y K S SLD HLRDLAVTTELSDSFDRATVVVRPDLEGEGSLVLTLEGV RUEDMYARAEFNEDYSKAKLLVDASVKGVEDSDADVKIE

 HIKGVFAHPVKDEHGWH VPVEVTIVNSGDKTETVRVH
THLHDLTLVTTFDERYCDAQLAIDAELRSPAAEGCRLQAQ HLTDMDLKPTVKDNYRDGVFNAKLHFTDQAAGSDHLVVK HVETVQIEADYNPSMAAGTLNATLQLRN ANDAATVKAK HLEDIHQPQVATDKGGTLTVDAKASGTDSGAKAL DE THAENRLDPDLANN RLKLRVNTTGSG KVAAV SRIENVFAQTLLDSSYTDAELKVKISATGSG KVSVK HLEDLWMKPRLDDKCQNGKLEVDLSFE QVAKNSQLNVA HIEDMKVEADWNPETATGSLDALLAVRNAKNAATVSAT THIAGDFAYTNFQGTTTTVQIESTLANENTQTSDCTLKTY YI ADYNVSAGVDNGTYNGRFGLSVRVKG GGDATVSYA
$\qquad$
$\qquad$ QLRD TADYFFKSTVAEDFSYGDVQVEVKLDASSEAQLKI KAS THIAQWGVFAYPEVKGNKGTLHDEVEVENDAANNEQLSTE HLADUWLKAGLSEDNTTGLLTPELKLDGETEG VSVTLR RIFDWQVITEFDNTYTDSQLSTQVKIKNKQSGNYGLKAY HUWDVFATPEVSVKKATAKVNVDVTNSTGTTALVGVNVS
 AEVQLK HVRNATKKSFSVEYT
YVTTAKVDGQGASLNLVTTLENTGKENADVTVRSV IGGYFFKSHVGEDFSYADI QVEVKDDSSLEGNFKLEAV SHDRSIVHVSYEDDVSDQKARVNVKTHIVNDRESGCRVVVT HFKDLHLRTELSRDFKEGKLYFSGKDEGREKGKGILRYS HGQDLTVITELKRDLSGASVQCKVTVARSSASDFTVSST

$T$ TAVV
 HIENMQI ESDWDPESGSASLDAALTVRNAADAATISAT


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UniRef90_R5MMX1 UniRef90_U2P801 UniRef90_UPI0004676982 UniRef90_R5NFS5 UniRef90_R6KJ91 UniRef90_R6SDE3 UniRef90_Q9M113
UniRef90_R6D4A8 UniRef90_U1RIN3 UniRef90_UPI0003D74115 UniRef90_V4RIQ9 UniRef90_D5UV41 UniRef90_E6SW02 UniRef90-R2PEK7 UniRef90_W3WXH3 UniRef90_A6KXT2 UniRef90_E6K2V5
UniRef90_D4MNY5 UniRef90-JORUP3 UniRef90_U2MF35 UniRef90_U2IZW1
UniRef90_U2CEG8 UniRef90_R6D1A2 UniRef90_UPI0003F4F648 UniRef90_UPI0003B6FF76 UniRef90-R7BSY0 UniRef90_C9LRR6 UniRef90_D5EY52 UniRef90_M0CMD5 UniRef90_R9CQV6 UniRef90_V4QWX5
UniRef90 L7ZMH4 UniRef90_F6CAE1 UniRef90_C0BRC1 UniRef90_X0QN37 UniRef90_A6EJT1 UniRef90 L2QTK3 UniRef90_C0BV67 UniRef90-F4L018 UniRef90-F0F903 UniRef90_R513V0
UniRef90_U2D813 UniRef90_UPIO00475DBF6 UniRef90_UPI00046864CA UniRef90_M5X8J4
UniRef90_UPI00035FD353
UniRef90_K1UU80 UniRef90_R7EN12 UniRef90_UPI0003B5B1B4 UniRef90_R6RVB0 UniRef90_R6C6A8 UniRef90_B7BGF5
UniRef90_R6MPI3 UniRef90_UPI0002B47D25 UniRef90-R7EFQ0 UniRef90-X1RHA1
UniRef90 C2L1H7 UniRef90_X1UT35 UniRef90_J9CJV2 UniRef90_UPI00047D2185 UniRef90_UPI000469D09E UniRef90_A1A3V3 UniRef90_W9XHW4
UniRef90-M7T976 UniRef90_M7T976 UniRef90_UPI000368F6F4 UniRef90_K5ZV12
UniRef90_IOLNZ0

LIKYNDE I V
50
LKYNDEI IVSETKEDSS

 S LLQ F E|L|EHPY LYENKLYS DENT LVPGVTVTEVGKS GSSKLDLELAAVTNPD EVGKNGEDEVCATLAAGNVK
 L QDASGALVAS GES
 LDD A RGKAVLR RPLRAD





 LLDEQGKPVASGER QVNAAHGMTRKAATFDAGLPAVG

 LWDREGKQIFTQEKS LSVGKGKARQFSVQTQVENPH L E D
 LV DVS T GNI EAK GKVQGN LVDKTGKTVWAQKRK $\qquad$
$\qquad$ FEMK GEAETLSS S GRI KNVA $L$ K D A S G R E I A TVLK GDVVE D L L D L E HKA GRMNN M S A T I K S P K
 L K D T K N WY N S E S C ELLSP KVVANLK L N P S P S P T L L G K K L D S P N



LCDEDGDCIWE
V LD E GK P $\$ Y T Q K K T $\square T S$ $L T D P S$ GEQVVSSQDVANGQN L LDE DGKVIVFS L EDK K G K A VLQQ GEYPDVKSTSENSSFKFSRYMKSPQ F NGEGGSVWK L T DREGNEAAA GSVPA
I LDALGKQVA VNTENVLAPEFYK A G QVK I S A E L E NVV H L



 LID K D GNTVVEGGNFAVLGGDEDESMAVKMTEN,VNPH LCDSEGDCVEGEEAVVTATTHAC





 LL D A QK K EVVSS I LDPE GKEI YQQQYPLKEQMT I R I D G FENVA

 VID P V DPQGN
L I D Y K N ETA
 LSDEK GS DIVH DT A DAS D IL D DIQRGRSKFARMSAII NN P H I Y D G G N NLVAETSSRDMKSALLTLSKPLKVN ATVVRPH



 $L L D E A G E K V A E Q T V T G A$




 LIEPGGCIVGRSKSTGNMRDKNKG VIVVTLGVDNPG L L DVQ G H L L A E K E A T $\quad$ V

 LK $\operatorname{L}$ S D GNNV V WE T A N C A A D P D T S S I I S T G L | 1 | $V$ | $D$ | $N$ | $G$ | $V$ | $V$ | $V$ | $A$ | $T$ | $K$ | $S$ | $I$ | $T$ | $K$ | $T$ | $R$ | $G$ | $S$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $D$ | $V$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $L$ | $D$ | $D$ | $E$ | $G$ | $K$ | $V$ | $I$ | $L$ | $E$ | $A$ | $V$ | $R$ | $S$ | $A$ | $S$ | $T$ | $Q$ | $P$ |
| $S$ | $K$ | $Y$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | L L D D E G KVI LE AVR S A S T QP S KY FEDKRKSGF LVKRVSKK AT VKRGNASYMFTQDLTVVNPN



|  |  |
| :---: | :---: |
| UniRef90- Q56307 | WSAETPHLYVLKLKLGEDEKKVVECUSQQVG |
| UniRef90-C2EKX9 | WDNHDPYLYQLTIEIHNQSGHLDELVPYQFGFR |
| UniRef90-R8B9J8 | WTAETPNLYLVTLTLNNS |
| UniRet90-J90 | WSAEAPHRYTLVGELKDK |
| iRe | KWTAETPYLY |
| UniRef90-UPIO0046A56D2 | QWNAETPHLYTLLINLKDSKGKELESIVHPFGFR |
| UniRef90 UPIO003697912 | LWNAEQPHLY |
| UniRef90-C3W9G9 | LWSAEEPNLYKVFLILEDENNEIUEVIPQTIGLR |
| UniRef90-1010M6 | LWSAETPDLYTLVVTLQTPHGE ESSRCTVGFR |
| UniRef90-10LNZ7 |  |
| UniRef90-G0LBD2 | SWNAEKPNLY |
| UniRef90 E2NE97 |  |
| UniRef90-UPI0004791BD9 | PWSAEVPNLYTFVITWKNNNNQAMESTA ${ }^{\text {CKVGGR }}$ |
| UniRef90-R5GH23 | LWSAEKPNLYTVVVSQADADGAEESVFSTKYGFR |
| UniRef90-P00723 | HWTAENPTLYKYQLDLDGSDGSVIQSIKHHVGFR |
| niRe90-EONDI9 | L |
|  | HLYQLLTAVK EGGQPLEVVPFHVGFR |
|  | KWTAETPYLYQLALSMPGCOKKV SLAERVGFR |
|  |  |
| UniRef90-R5FPH8 | SWSP LTSPYLYSLRVYVKDKNGHVTDGYSRRIGGR |
| UniRet90-R5MMX1 | RWSAEHPNLYTLTLALKDDAGHITHLTGCKVGFR |
| UniRef90-U2P801 | TWTSEKPNLYTLLMTVTS GKSSETVPYHVGFR |
| P10004 |  |
| UniRef90 R5N | KWTAETPELYDCILTLRDEEGNTS VTACKTGFR |
|  | RWTAETPYLYKLHLTLLTAEGEVIEQVEQSVGFR |
| UniRef90 Q9M113 | LWSAEQPNVY\LVLTLKDTSGKVLDSESSIVGUR |
| UniRef90-R6D4A8 | RWTAETPYLYRLYLTLQDSDGKVIEQVEQPVGFR |
|  |  |
|  | Y T |
| UniRef90-V4RIQ9 | WSVEDPFLYTVVATLGDEAGKVVDSVSTRFGFR |
| UniRef90-EONZ78 | LWSAEYPFLYHLLI RVRDAAGTLQEVVRIRVGFR |
| UniRet90_E6SW02 |  |
|  |  |
| UniRef90 W3WXH3 | KWTAETPYLYT |
|  | PWSGENPYLY |
| D4MN | TWTAETPYLYTLNLSLKD GQQEHRVSIRTGFR |
| UniRef90 - U 2 MF35 | LWSPESPNLYTLITETVKDGNGKHLDRTSQRVGUR |
| UniRef90 U2IZW1 | RYVLVAELFDKSGKLLDRASTYTGFR |
|  |  |
|  | KWNAEKPSLYDCVITLWDDKNKQLAVTACKTGFR |
| iRRe990-UP10003 | L WDiden |
| UniRef90- R7BSY0 | L WSAEDPYLYKLRLTVEKGQPVVHDYRETDFGFR |
| UniRef90-C91 | L WS |
|  |  |
|  |  |
| R9C | YKLVMTVQNQGTSQAEVVPFTVGFR |
| iRef90-L7Z | YQLLLS Y S AGALLGVVPQRVGFR |
| UniRef90-F6CAE1 | YQLLEEYDEQDNLVELVPYQFGFR |
| UniRef90-C0BRC1 |  |
|  |  |
|  | YDLSISLEDARGQVIMDKVNSYFGMR |
| UniRet90 B2VZX7 | N Y ${ }^{\text {ch }}$ |
| UniRefgo | PWSAESPALYELOVVVIGHDGAIVETATORVGFR |
| UniRef90-F4L018 | WSSLEDPYLHRL |
| Uni | A WSAEHPNLYTLLVTLKDKNG |
|  |  |
| UniRee900_U2D813 | Y |
| UniRef90-UPIO00475DBF6 | LWTSETPYLYNLRLQLIDSLGGCVVEQTEQKLGER |
| UniRef90-M5X8J4 | LWSAEQPSLYALAVTLKDASGNLLDCESSLVGIR |
| UniRef90-UP100035FD353 | WSLDNPALYTLQTTVLKG GKVIDKTTTQTGFR |
| UniRetg | WSHKPVLYHAELTLKDAQG |
| iRef90-R7EN12 | KWTAETPELYTLGLELSNPAGLQKDK |
| UniRef90-UPIIOOO3B5B1B4 | WDESTNLYKL |
|  | FWSWGYGYLYTVKTALKDSNNRIFDEVSTRTGFR |
| UniRet90-B7BGF5 | WTPSTPTLYNLKVRVLDKEGNVIDGYRRRTGUR |
| UniRef90-R6MP13 | L WDVEHPYLYSLVTEVMKG GQCVDRYVTPVG\|R |
| UniRet90 UPI0002B47D25 | WSAEQPHLYTLIVLLKDSSDQUVDCESCLVGGIR |
| $\begin{aligned} & \text { Unir } \\ & \text { nniR } \end{aligned}$ | L WHPDTPNLYR |
|  | LWSAEQPNLYTLVLELCTEEGEVLEYIVEKAGFR |
| UniRef90-X1UT35 |  |
| UniRei90-UPIO0047D2185 | LWDVKKPYLYDIELSVIDDGEVIDSYEDKIGIR |
| UniRef90 UPIO000469D09E | LWSPETPTLYNLIVRIRNNEGNVVDGYRRRIGIR |
| UniRef90 A1A3V3 |  |
|  | LWWPGKPY |
| 38F6F4 | SVTTKl GTR |
| ef90_K5 | R |
| ef90_10L |  |

UniRef90 G9wpe9 UniRef90-UPIO002558E0D UniRef90-U2CCC5 UniRef90-R6GB42 UniRef90_G5GB65 UniRef90-R6CTY5 UniRef90_UPIO00365064E UniRef90-W0IXG8 UniRef90_U7UBT1
UniRef90 R6G7Z4 UniRef90_UPI00047D49E2 UniRef90-E5C8E0 UniRef90_UPIO0047BB610 UniRef90_Q8A6V0 UniRef90-A3XNL5 UniRef90_U2JC17
UniRef90_UPI0003 UniRef90_WP10003E UniRef90-R5PEF0 UniRef90-X1PQW6 UniRef90-R6ZEL2 UniRef90-F21717 UniRef90-K5ZFH0 UniRef90-Q023G6
UniRef90 W7YNJ1 UniRef90-ROJBB4 UniRef90_UPIO003761FE9 UniRef90-D9WV69 UniRef90-R6HWM3 UniRef90-R5TYK1 UniRef90-K9EGS6 UniRef90-V2YHC8 UniRef90_W7TQH2
UniRef90_R5PM15 UniRef90-G8TLW8 UniRef90_UPIO002881B5D UniRef90-UPIO002F6CF14 UniRef90-Z5XHY6 UniRef90-F2AUP5 UniRef90_Q01WV5
UniRef90_UP100031330DD UniRef90-F3PNC1
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UniRef90-R6AS15
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UniRef90-R5XGJ5
UniRef90-FOR9D7
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UniRef90-R6DHY4
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UniRef90-W3X372
UniRef90_UPI000412A8E4
UniRef90-J9G7G2
UniRef90_G0L4M6
UniRef90_E4T6C9

HMEDVVWK ${ }^{10}$ VLINPDNEHGS ${ }^{20} V|A| V|S M R| V I S A R K Q V T V H A Q F V V^{30}$ DWGLFVKTPVTEERAEVTLDVEVANQRDESAQFTDHSV $R V K D F K M T A G L T N G Y K D G D L S D D V F L H R P Q A G M E V E V K$





 K A S V HI S P A I I N E T K Q E Y R V T A S ASANILLQTQVRNDSRQKFQI EYE
SH $\square$ S DFHVTSVLDNDACR
$V$ K T T F DPNFENA $\square L T$ T D $\triangle$ F
PSVSETDAQVQVKTHVNNENAT SK




TY $\square$

SHVVFVTTQTKNANLAVAKVKVEYSNSHSEAMYVESE SHIT CVVRLTPD DDAG EIIVSCTGEGLDGCTIAAE

 $L S D Y T A V A R L D S Q H E H G H L D V T F Q V A R H R P G S F Q V Q A$ Q S A E
 EGVFVTPSVDSARATVVLRGDVVNSGDATRAVRVKAV



TAK $\square$ SAD D RAEVAAEVRVANSSAKNAVVIIAR
TSAEVLLKVHVRNDSRKDFTVEYE
$\mathrm{HVT} D \mathrm{~L} \mathrm{G} \mathrm{L} T \mathrm{P} D \mathrm{LTG}$
$R D L F L T T P V V E D S A Q V L V E A Q A Q N T P S Q P Q E A V A B A$






 V Y A T T D D T K A E K A Q V T $V$ V S S R V
 $H V A D Y Y A V S D I$ TPNLKDDTLSVTVRPS

 Y $\square$ T S E $\square T$ NT T A E $\square$ T A E E V TFVHDMKISSPE FIATP QVSASTASVQVK S SID NASAVNQKVQVVTT

T H $\square$ D H $\square$ A VD A QMD GSLLKAVVDLVNPS ENLKI LAAS

 $Y$ YT D DV DESAKLIL QL HLRNETGKRFTGKI RYR

 VR D HY I T S KLD A GYTNGEMCVDLTLDNRDKGVKNLIVVK

 $H \square A D V F A R T E V A D G Y$ $A \bigvee V \mathrm{~S} V \mathrm{~T}$ K L K N
QQATLK 1 KTHVRNET

T R T E SVVRVTPDLDRDEASVEVTTRLGPAAEADLTCVVRAT Y VQDFYVQT ILDDRQYRDAELAVQVVTHGSGG $C R 1 / K Y S$ $R I K Y S$



## UniRef90 G9WPE9 UniRef90-UPIO002558EOD UniRef90-U2CCC5 UniRef90-G5GB65 UniRef90-R6CTY5 UniRef90-UPIO00365064E

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UniRef90 W7YNJ1 UniRef90-RoJBB4 UniRef90-UPIOOO3761FE9 UniRef90 D9WV69 UniRef90-K6Y885
UniRef90
R6HWM3 UniRef90-R5TYK1 UniRef90-K9EGS6 UniRef90-V2YHC8 UniRef90_W7TOH2
UniRef9O_R5PM15 UniRef90-G8TLW8 UniRef90-UPI0002881B5D UniRef90-UPIOOO2F6CF14 UniRef90-Z5XHY6 UniRef90-F2AUP5 UniRef90-Q01WV5 UniRef90-UPIOOO31330DD UniReffo-F3PNC1 UniRef90-R6ZKF2 UniRef90-UPI000474D838 UniRef90-E5RWQ2 UniRef90-R6AS15 UniRef90-DgX5Z1 UniRef90-K9EH22
UniRef90 G1V9G5 UniRef90-UPIOOO46F7281 UniRef90-UP1000416DD6A UniRef90-D7B1D7 UniRef90_U1PMK9 UniRef90-A6VYW8 UniRef90-R5B7Q3 UniRef90-U6RVV9 UniRef90-C7PBB8
UniRef90_R5FCR5
UniRet90_UPIO0047CAA66 UniRef90-A5FEH7 UniRef90-A6LGJ5

 I LDGQGREVARADSSSKLAADQSG TFMQALSIKSPS
 FQLKEKE GKTVLTTAKSLTVQRGKANYAVSSMKVDAPK
 QVQPNSGVVRKMQTEFAGDT IL LDPAGKPVFKKSLQQPVIFARSGLNRHTARFEEKIPPAR LYENKGFGDDNSTWSADAAMSGKSGYSADDCNHFT|VNDK LLDEDQTDYSETKPVTMK LLDAQN VYDAQDHKVSTNET I TDKQTGETLYGAPVRSK WSGATSAGETFTCDVKGLKPK VQRPDGQRAEEEFKSELALKNVPGEGRKGTLALELPNPR LLDSEQPS NSDSPTSIACGNSRINEDGNVRFEAKLENDQ AYDGGQLDVVVAVAGSGGEKVSEATGMAGKTFFLPVPDPR MVDSNNMVVAE KMSSTQTDPADSDHTFTQSATVANPS LVNGDRVLLKKQKAFSELLEEKDQEGNRDFRVESETVNEDT YYPWFPVEGEKVATVKRD DEDRPSVDNEDVLEDPVENPA LAGPDGSAIQRTTLA LLDANGAAVAS
LLNKENKEI WAEQ
LRDRDGKQVA LKDPDG LID QAGNSTVYDSSALTVGADTTRDATQEMTVQKPR I LDGGEQVYSGE
LLDGHQMLAKEEVSVS
LSDKEGQEVARQQI
 LEDVGRKVAGVMA LLTQKMHAKAGQTAERNGKMEVRVPS Y YNFG
 KPDGGRVVAVGSAGAGD LVDSRGKTVASERREAA VDAAGGAQTVDANLAVARPR LLDASGAEVGRSQSRMTNKVDVPQGATQSVSGMVPVARPR VSEPGGGEVARVAGDAGRP VSFQGQEKARASVP

 VDKETGSVLYSSLSLQKLVV
VYDSGKEILSALSADFQ
LDDEQKNVVGQK
LKDPKGEVVYS ABASEETL
LDNNDSVVWNHARNDSSALTHTNGA
LVDAKGKTVAQ AEQALTLEPKALATLKQNLDVLNAL LLEGG VGYSTDNASGKVIDAGKTVPGGTVTLPVEDPR AYDGHKRVGSVSGAAGTA LLDANRKKITSTGAGKK LYSPDNTPIAMQKSPV TVNKRTGEAYDHTYIPIKEPK LFDAQGGEVQNLLKS

 LD GAGREAASATSDACAVVREADCRYSLTTQSMKVTAPD L LNASGKK AETTQPVKAGGDW AETEQTTLNLKVANPE FKEDTKVTSVTQRPAGSDVTLGANASQTMKQQAQVETPV
 IVNEEG $A$ ATLRHDEKNUNLTUKSEGTFQTESTLEYPN KLPANAEQTISQETGMENPE

 LFDADNKQVYSE
 V LDQTGNKVAEMSAPVASGAAKDADGNLLNESKMSVSSPA VLDDGEEVGSATGAAGEE
LKDTEGNVVAEKETPASETVA
LDTNNTTVA VSSNKIELAKASEQKEVOKFEVENVH LVEEGSDKVVDSVK LALPDGKVV VVTGSDIRLNKGEAGSTVAETTLRKPR PRDAGRNDGDGSADRTAVTAETTVSAAETTDVVLPFDDPA LKYHGELAASQVM
 UniRef90_E4T6C9


## UniRef90 R5JNX8

UniRef90-L8PL68
UniRef90_UPIOOO37EF446 UniRef90-M5ABV3
UniRet90_C7M7J1
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UniRef90-F8N5N1
UniRef90-WOF115
UniRef90_S9QLY6
UniRef90-E2N8H5
UniRef90_UPI00037D285D
UniRef90-A5FLV7
UniRef90_U7PPZ9
UniRef90_J510G1
UniRef90_S6AXM3
UniRef90_R6N609
UniRef90-R7NR84
UniRef90-R5D3Y2
UniRef90_R9HMYO
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UniRef90-J9GZB8
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UniRef90_UPIO0037FBE04
UniRef90-LOF1L8
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UniRef90-UPI00037FF567
UniRef90-UPI00036BD272
UniRef90-M1LSM4
UniRef90-Q26B05
UniRef90-E5CCA5
UniRefon-KSBKE1
UniRef90-Q8A6V8
UniRef90-E8RN68
UniRef90-F8HY49
UniRet90
E4SCO3
UniRef90-W4TXJ1
UniRef90-UPIO00361AC23
UniRef90-R7DEZ7
UniRef90-DOGPR7
UniRef90 UPIO0036B3A2C UniRef90_A5FCJO
UniRet90-UPIIOOO40B6EB6 UniRef90-UPI0003B570F6 UniRef90-A6L2A9
UniRef90-D8DV21
UniRef90-FOHGZ9
UniRef90_UPIOO0363367D
UniRef90-R5YF92
UniRef90_UPIO00378A106 UniRef90_UPIO0035D68F5 UniRef90- ${ }^{-13 M C H 6}$ UniRef90-K5ZP75


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PKVNTLTN QSATVLHVQTEVKNDHA$H$
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$A K V V V N T E F V A D K K T S V T V A E T V$ 1 KDVTVVPDVDGDAETGVVSYTVQTSNATSGP DRIS HIIADLQAIPAYDGHAGKLDITATLQLSGKNAGKLRVRWS YVDKVFALPTVTGTDKNGNLNVKLNVANPGQKKGTVQLR RTEPFGVHDWNDEKAANVFVDTEVKNYGKTTETGEVVNK tYit TPk VTAE
$\qquad$
 HVDQFFVTTPVSADSATAHLVVEVENTATESRQVDVEVH HLADNGUTPDLSQTAQSGTVHVTAKVYNQSGNASQURVK

T Y $\square$ T A

## THV

$\nabla \mathrm{V}$
S

TPAITPEYASVKLQMEIEGA


DNREVHVQ
TDGTVE EVTLQNRTEKKTDVQLQ

TRVADVYI QPIVNKN ThEVEVTLRNDENKPVEVNVS



TPHVEK YПEDTFV TH TH ENTRTPDVDKN HIENIRLTPDIDAS HVTRLDITPDLPAA RPRITPN
$\qquad$

 $Y G 1$
E S
G TLIEEVKVTTNLKNQNAD

$$
A G T F D
$$

GTVVEVPLSANDPGGVVHIR TEDURLEPELSANRKEGSVKVKTSFYNPMDRKADVTVNS YVYDYFTTTE QQEDGQAVITVQAKYQG LQ QAVSTRTLT RVRDARVTPDLSDDTARVDVSVTAPEEGEPQADLASADVR SHQYAKI RAVVDLANG RTEDVNDITGMDGNF TVNAKV HVENVHITPDMD NGTVNTEAWLSREAKGVRNVRVA HVANWFVRT LELTERSARVAVKTQVRNATAAPVTLQVD TSLWGMHAVPVVGADGNGTVDVDVENTGNKKRDVTVVTT H:AKLDINPDLRG HI ADVFYQTELSDSFDKSVLQCTIDTVGS

## UniRef90 R5JNX8 <br> UniRef90_L8PL68 UniRef90-UPI00037EF446 UniRef90-M5ABV3 <br> UniRef90_C7M7J1 UniRef90-Q5B269 UniRef90-C5RBK9 UniRef90-F8N5N1 UniRef90-W0F115 UniRef90 S9QLY6 UniRef90-E2N8H5 UniRef90_UPI00037D285D UniRef90-A5FLV7

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UniRef90-D8I2T5
UniRef90_R6JKW6




 $\| V D A Q G N K I N G K Q Y A A R T E V V M P E N G T K D I A Q S F T L S N P Q$
 I SYEKNVVRA!QLPVLNQKV IVKEGSRVVATGQAI
IKKDDSIVFAGTISPDE $V R T G G T A V A T G T G P A G A E V V$
$V G D G A G D V V S G T V R A D L D L D A$ VGDGAGDLVVAGATRAGK
 $\qquad$

VELLTTMMMKAK
NNLDPVEITMPMENVK LYDANRKQUF

A NKKANTNV ${ }^{E}$
LYDAE

$\begin{array}{ll}I & R L L D G Q K V V A Q Q K \\ V & D R N G N Q V A Y R E A T P V K \\ D\end{array}$
$Q^{T}$
G $V$

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            T LA G N A
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D
D G

LEGELQVAEVK GEAVLTNGEIVNNPH


 $\qquad$ $L L A P D G S V$ AAKKET
$A R D A R G K V V G R V G G P A N S$
$T \vee \mathrm{~A} \vee \mathrm{~N}_{\mathrm{N}}$
PA A A
N P G HFKVKI DKPQ VFDAGGNEVS LVDADGV LVVADGV RASGPADTALKLPVSKQH DVPVKLEQLLYSTSEEKKRGEASGTDDGSATFNLAVEQPK $V$ TVKEG VVCSSVVTDDKEMQKEIVQQI KMDNPQ

 $\begin{array}{ll}L I & K K G K T V A K \\ A R K K G K V V G T V T G P A G T \\ M\end{array}$ ARKK K | $L \quad L D S$ |
| :---: |
| $1 \quad L$ | I FKESTDSS S E





1 NDASGKEI ANSKTSE
I YDSQKKVAQVTSKCAN



UniRef90 E8WGN5
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UniRef90 A9U6V4 UniRef90-D9RWY1 UniRef90-M5UIUT UniRef90-Q11W16 UniRef90-HBKUA9 UniRef90-RgJYG5
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TVTTKVNNND
30
KGRLIAVITVNSEGASKSA KIVITAV ATINYSLKMANKNDEPAAVVAS DVNVETVIANESNSNVTVKTT पDKVFADAQVDAEGKQGTLKISSRFYNKSQNAVVDTT

 $\square \mathrm{D} D V \mathrm{VT} T \mathrm{PDDD}$ ESIFVTTPV ATEASGTLALRASAANCGGRAETVELR TY四RTPFIVDD

 H LLADVDVRAS A A RSAQLNLATTVKNYSNKPVTMTDS HLADVDVRAS ADGALRVDCKVSGELPEGWYVTGE
 HTDGVFAHP IKDDEGWKDPVEVT LNNTGLSDSQVTVISR TYLTDLRDTPEVSAASATTKLEISLTGFDQFTGSAGLEAE
 YAATTGISDSSATVNVRSKLKSDSGHDADYTIRAA

 $V F V T T P G S D K E A K A V I S V K L R N H D P V K G H Y A V S V Y ~$
$F$
$F$ HVAQWYVTAE DVSKNNARLKIRTKLQYDAEADVVLQSR THபAGLY $\triangle A A R T T E G Q A W T V D V D A E L H T A E A A G M K L R H S$ ASATVNVNSTVENHTDSKVTVEDA TPE DSAEN
VFVTTPQFSN
TEA VVQADTQVVNETAETVIVQQT thlerlavoar

ADGELKVEVHLQGTTGEESL THVKNWKITTP KDNNKEATVEIETLIENANKEQVTLKTT THDDGVH1TPVVKDDYAKVNLKTKLVVTDKNFDKYRIVTD THDDGUYISTRKKEDTWNVEVDTEVGLCNDSAKHYRIRHS


THLQDTF
VNADMVD D TS
 TRZDDVFRTGYD PAGKAATVHA EYQEGDYDE Y| KWI HITPEKKGDTWKAGL TLCTSNVSDEDRTLDAT TYUTRLSUEPDVDNSCEKADVKKLQVNATGDSEATADVR YVRDFAVKYEFNDSRADGSLRASVRTTGNAEGHV AVGV FVTSEVDLQKKEARVKAQIVVTNQSGKSVDLIVQ पY DYFTTTR\|VDG NAEITVRAK
KSALLEFTT TK YYLKEAAPVVKI A TRHPFTKSELSPSYDLAKETVSVEVTNPTQRGVKCTV Hi RDTAVTTAKVRD SHAVIHIEAVVTNESEKDAQGTLQ TFYEEVEVQTKLNDDYVTYSINVNGSAANEADNNLYARIQ HปADVKAIPSYTDG KGTVNLNTTLQNDTTKNAKYKNR TY品HELRWTPDLDREATAALQTKVRATNDSRQRTVDLQ IHAVPVLNTSNNTGKLSLKLGFGANTNKNIKLSVT


VFTTTPVAKDKASVNI RSLVTNQSATKRPI KMTYS QQDLFVETLPDENYENFTLK GGAFFSNYVKNVNVTRR
 TQKNVSAQKADVE:SQSIRGDMEHGCRVRAE
 HTTRVDLTPDLPGETLDAVVHAE THVGQWFITSRVSKSSAVLDLLVQVENAGETSQKLSVVTD VHDTTPVNKNNGTVTHKTTVKNENNTAKKSKIRTN FDIAGRRATIHAESQVRNDSAAALSLRVE TQKNVSKKSAEVTVKVKVDNTTLTPVPLELE


## UniRef90 E8WGN5

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UniRef90-UP100037B4DAA UniRef90-R7DZ32 UniRet90_UPI00025583AB UniRef90-UPIO00469BB3C UniRef90-W4DCC0 UniRef90-X0TRD8 UniRef90-K2A857 UniRef90-UPI000475C1B1 UniRef90-F4С3M3 UniRef90 H5x131
UniRef90-A0AO24K6Z2 UniRef 90 -B5CY75 UniRef90-S1R7A8 UniRef90-V4P2BO
UniRef90-U2QH93 UniRef90-A0A010ZMU7 UniRef90-R5NIZ1 UniRef90-B6W4P4 UniRef90-R6D7G6 UniRef90-Q93KF0 UniRef90-K5ZHV1 UniRef90-RETTC8
UniRef90 C 6 Y 1 M 3 UniRef90-R5DP35 UniRef90-U2B3W1 UniRef90-B4N5Y3 UniRef90-A9U6V4
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UniRef90 UniRef90-R6K6L2 UniRef90-R5FB75 UniRef90-G8TLW5
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50
ARDSKGKVVIGTVTGPAN
60
70
80
ARDSK GKVVGTVTGPAN GELSLDVV|AKQH

 $L$ LD R Q GK L L A R QQ T R
 ARDKHGKVVGRVS GPAN K


TERRNVVGKGSAD KLTVMVAKQH
 L LDA A GQ\|V GTFTDTSFFTVNNPR



 I Q S P S GEFV S Q A TIQVVTS GGTTTLEFPA IT NPQ


 I D E N GEELEGGVVVVSFDKEKLLKVAAHSNSVVLERQVIIDENPR $V$ F D GKNLVAK GAALD G L Y D K D GIL VA N ELDAED GVGAEVAKCKS LS L DNDPATSDQKLGGKLQVNPVK
 LVDAD GNAVGEAVSEAQ LMPLTPAEVEQEDHLKNPR I L D A A GTLVA GQVTE VTVQGELTVHTHSRLTVDQPL $L$ L D P D G R TVVA $\quad$ T G S K E D T V P A G G S R E L D Q S F V I E N P Q $V$ TIDK E Q D GT L V K K DE GS K K T I S P G Q T T M L S A TA E L D H L H IVDPPK G R TV VA RASSSTA A V T
 LF D E A N N QV G
 L L D K N GKVVVATNEK QGTRFDD NT F SQELIVV T S P A



$\begin{array}{ll}R & R \\ S & D\end{array}$
I G P N G E DVA T A S G A A G S D
Y K D N K G N I A A F E V F S I I D EM GQVVVAEME $V$ RDLD GKVVAA TFDGGQTK!AAGQTAT $\quad$ TKNQA I S DV H $V$ T D P E G RVVVAS F QAPA GRSAESSRL V T DN K T D $\quad$ D LSDPDGNTVASLQGVATGTPC T LP P V N A P E

 L L N K D N QVVFFEKTDT EK VKANE EKY VS DA ETVYKPE 1 D C Q GKEVNK SGTTVTVPSLETKEVETYMDVRQVD
 ! R V
$L Y N K Q G V M V A N$
AF YE GKEVGEATAVVQG
LIF A D D N E L V
 $V$ T E E N Q P

 HRD EKVAEFAlIDVVDGR
VS K D GEVVAS GESPVA LKNKKTGEY
AYD GRRVIGTATGRTGKP
VLSH GRRV ARSEAGAS G $V$ KD A GGRKVAAVV HENVVVSP QGTTYDDQSMLAMTRPH $V L D G G T V V G T A S G A P G S E D A$
 LADEHGTVVTAAEARA DLDLDGPRLALTVPADRQR

 TKF IGAGGKEAGM LI S P S G KV I N T Q
 $V L D E Q Q Q V V$
$V L D K G Q V V A T A K G V Q G K E$

 VRDSKGQCIAKCK SEKLNLAAGGKTDVKQDINIFQPQ




|  |  |
| :---: | :---: |
|  |  |
| UniRef90-R5NTS9 | VLDENRRVVAERKALRRVEAQSLAHFDLTTD |
| UniRef90-D6ZK | LTDGPNTVGQTELHPL C CDGDETYTHATEFHLEHPK |
| UniRef90-E6SN | VYDGDHLVATGKSVNAEAVEПAMP |
| iRef90-D9WW | LFDASGAEVAAATGAAGT |
| UniRef90-R6YV | ELY ADNQTGRKVASSSHVRLDLPANATAQDSVSLR |
| UniRef90_A9AZL4 4 | LLETISDPAANNVQAQSANYQLAAGQSAEFSHQHTLNNPQ |
| UniRef90-L7W5T2 | LKAPNGA I AGPKVETRDRVA |
| UniRef90-R7EFJ | Y YPDGTLLQTQKQFIQRKAGETRNFDSNIS |
| UniRef90 N2AT17 |  |
| UniRef90-W4 | LTDAFG KTDKRVSGK【ALKAGEKKKIMQQ1 |
| UniRef90-UPIO0021919, | $V$ DGPDNQVVATTQ |
| UniRef90-D44506 | $1 Q^{2}$ |
|  | KDGUQVVVAQ |
| $\begin{aligned} & \text { Q2N } \\ & \text { So } \end{aligned}$ | ( |
|  |  |
| AOA |  |
| UniRef90-W1RT00 | $I V A P N G D V V A Q \quad A K E L R I V V G R G S A D W N Q S L T V S R P A$ |
| UniRef90-R6U4D2 | I TSPDGEEILTSETSGTV VSACGRCTVTFEETVEHPA |
| UniRef90-M4 | Q |
| 29 |  |
|  |  |
| iRef90-UPI000 | TKDAQGKVVASSSDKLSRF |
| UniRet90_R5UQ38 | IHDPSGQIVSS YREMLSIRSKEDTTLNVVCQLKRPV |
| UniRef90 - 2 M 4 H5 | LYAPDGKVLAKQAAKPN MSKE MSSRIDFA A APV |
| UniRef90 livRN9促 |  |
| UniRef90 J3P832 | VVTDILFGGAKVATDANATVTVAPGGKNSTTGSAALSNPK |
|  | ASLGGVSVGKAAAEVPKDKAFATLDVDMKVRDPAPLDGVA |
|  |  |
| UniRef90-R5K2L5 | IVDKENRTVAWKE GQLVTLDNQEKTEINHILLEVTSPQ |
| 190 | $\underset{\sim}{R}$ |
| $\begin{aligned} & \text { UniRef90_B5D3S0 } \\ & \text { UniRef90_FOBF8B } \end{aligned}$ |  |
| UniRef90-E6X8Z1 |  |
|  |  |
| UniRef90_UP100047C | LLDTNGKKTGKVAKIAPANTLLQAQGTATVSGSAT |
| UniRet90-E5C891 | D |
|  |  |
|  | T |
|  | GQGKTVAQSERS GTGVRIDADGAFAFKERLPMENPQ |
|  | $V D \square H D A V Q G K K L K T D T G G R Y T L Q A N E T R T D R T T T H L S D L N ~$ |
|  | H |
| WOFJJO |  |
|  |  |
| UniRef90-UPIO0046B3 | VYDKDDEVASHTGQSDQPLL FVFKVSEPK |
| UniRef90 WoF1F4 | LTTLVKNRQQQVVAADSQQVQLK MDNTTRQVLLVKQPE |
|  | + |
| UniRet90-D2PZX3 |  |
| UniRef90-E8RKQ8 | TKLNAEGALLA QPK |
| UPIOOO16C | $\begin{array}{\|} K \\ K \end{array}$ |
| iRef90 E6UHW1 | VYOKDGNTVAETSCPCCAVVVHKGCKYSVNTMITKADSPE |
|  |  |
|  |  |
|  | RDRDSTVVAADTAP |
| H1LCA1 |  |
| Uni |  |
| UniRet90-UPIO0047E8CD |  |
| UniRef90_UPIOO03B6DCA |  |
|  | LRDEEGKVVAEQENP FSLEGGDDCCLEQTLTVSKPL |
| UPI | VKRADGKMLASDDRPGNKL A D DATAFNQNFVIYNPS |
| niRef90-K9D | LLDKGKR\\|IS S FQTDERKTEPGTAKYLTGNGILKKPL |
| UniRef90-UPI00037 |  |
| UniRet90-10L752 |  |
| UniRef90 X1QB21 | LGDENTRLLEQKAEFRGN |
| UniRef90 LOEBQ8 | + |
| UniRef90-S6FM | LLDKERV VALANKKDNDNKEGNKTLTT |
| UniRef90-w6U0 | VYDEDKK |
| UniRef90 R6UXFO | GEVREWDNQAGKTMPVTTVVLQKGEKKKVIIDTKPDDKLK |
| UniRef90-A0A017SBL4 |  |
|  | A |
|  | S |
| UniRef90-V4PD38 | A QLDAYGESQVSQASHLAAPK |
| Ref90 |  |
| iRet90_uploo04 | VDAAGKTVAKTEKRFNNLTGDIDLW SLEVKKPK |
|  |  |
|  |  |
| W4 |  |
| ef90-UP10003B71544 |  |



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UniRef90-V5B9P4
UniRef90_UPI0004048C4B UniRef90_UPI00026CCA76 UniRef90_UPIO002630D23 UniRef90-W8B3H4
UniRef90-TOKZ15
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UniRef90 G2P4W7
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UniRef90_-ROMDV4
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UniRef90_E6K662
UniRef90-LOIUQ7
UniRef90 F3B364
UniRef90-W0V2E3 UniRef90_D5HF90
UniRef90-C2KZR6
UniRef90_R7ETM7
UniRef90_UPI00029A76BE UniRef90-E3QRZ6
UniRef90_UPIO00378F2DF UniRef90_FOSA35 UniRef90-R51043
UniRef90- Q8A3U9 UniRef90_UPIO0037C40D8 UniRef90-M3YXN7 UniRef90-UPIO00366F9E6 UniRef90_UPIO004787A31 UniRef90_UPIO00255870A UniRef90_C3RDR9
UniRef90_UPIO00332FDEB UniRef90-E3RN93 UniRef90_UPIO00420714B UniRef90_L1M9F6
UniRef90 UPI0003 UniRef90-T1W4R8 UniRef90-K2PSU2
UniRef90-U2AYQ5 UniRef90_UPIO0037BF9C1 UniRef90_E3IUF9 UniRef90_C9PT76 UniRef90-C7MQS5 UniRef90-B8CZV2 UniRef90-W7S625 UniRef90_R9JU95 UniRef90-L8ELF1 UniRef90-R6Z4D0 UniRef90-F4A261 UniRef90_UPI00046F6AE9 UniRef90-C6J045
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UniRef90 C6IYS5 UniRef90-R5RES4 UniRef90_A0A034W8Y7 UniRef90-E9SH61 UniRef90-K9DYR1 UniRef90_I1FGY0 UniRef90-A2EG37 UniRef90-REFQHO UniRef90-A8XW98 UniRef90-X6Q5C4 UniRef90_UPIO0036A3FCB UniRef90-B5YFE0 UniRef90-13Z980 UniRef90_UPI000313535B
 Y LQDFF
 T DRARE
DQDI $S Y \square D D \square T \square T$ T DVDQD

GLVNYQU SGELRVDCRVRGALP
 $S G V T V F P Q$ $T Y \prod D D \square T V T T S V D \quad Q G T G L V D Y Q \prod F V Q G S E H F Q L E V R$



D Y VT T T S F T S D位



|  | LS Y G GQHLGTQQLATSEPRARMSCADARQANGQAY ESLL |
| :---: | :---: |
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| UniRef90-UPI0003F78E35 |  |
| UniRef90-UPI000370451B | ISRGGGETLGEGFSTVSADETGAALSQLQFTVRDPQL |
| UniRef90_K1RB55 | L R D P ENREV YVCERRLCGKNDKLVFYMDAPK |
| UniRef90_UPI0003C8932A | $L L D A D G R T V A Q G T G G Q G Q L Q ~ V P R A H$ |
| UniRef90_L7FJ18 | D G QLLLQQ A EFDR\V TEDDRVSDFLLGEPR\GARVTDVR |
| UniRef90_UPI00041C1C42 |  |
| UniRef90_UPI000361C923 |  |
| UniRef90-W9JCG6 |  |
| UniRef90_V5B |  |
| UniRef90_UPI0004048C4B | AWNNKEK\AEYTGS |
| UniRef90_UPI00026CCA76 | VRS GGKTIAST\\|VRANR HASLSVPGAH |
| UniRef90-UPI0002630D23 |  |
| UniRef90-W8B31 | LRNKEGE】VAHS $\square$ S K S |
| UniRef90-TOKZI5 | L ND KPVASETVDA Q D A DVA A T F H I Q D P A |
| UniRef90-UPI0004178C45 |  |
| UniRef90-F7KFL9 | LMDEEGNLAAADSMP VTAEEHSRDTYRQRLYVKQPR |
| UniRef90-G2P4W7 | I R D GS GAVVASDHSR V TVLP GEPATARQRLYVPSPA |
| UniRef90_UPI000360E575 | LFEEEG K K LVVTSKDESLRAYPGLT NF T L T L EVAPPPR |
| UniRef90-R0MDV4 |  |
| UniRef90-A0A033UKQ3 | D Q G Riv A S ENGAESTVEI ENVH |
| UniRef90_E6K662 | NALVDAA GKTVGRASQALILSSPGTQSVSQRMVVKRPR |
| UniRef90_LOIUQ7 |  |
| UniRef90-F3B364 | LFDANEFKSFDESPVVSELLK DCSSGENNDSFIL D D M K |
| UniRef90-W0V2E3 | IVDAA GNTVAEAKDVVRVLPPNAAAPVENKFTQNLTVRQPT |
| UniRef90_D5HF90 |  |
| UniRef90-C2KZR6 |  |
| UniRef90-R7ETM7 | LLSPDGKEES GGSIVLGDA GHFEMLVSKPA |
| UniRef90_UPI00029A |  |
| UniRef90_E3QRZ6 | DGKSLASETVEAEADAGTSATFQ \Q P P A |
| UniRef90_UPI000378F2DF | V F D A D GRSAASVSEKLLKR GQAVSTRTVTLIDSPR |
| UniRef90-F0SA35 |  |
| UniRef90-R5I043 | LTSPPEGRAVW |
| UniRef90_Q8A3U9 |  |
| UniRef90_UPI00037C40D8 | VTGGTEVELAVSPPTGDGVVCVRGPAGGR LR A D P P E P H |
| UniRef90-M3YXN7 | $L L D Q E S K V V A Q G T G C R G Q ~ L T V M P N A H$ |
| UniRef90_UPI000366F9E6 | I KDENVRFEKQVQLAR GERKEDS F S PEEYPQLVL K M P R |
| UniRef90-UPI0004787A31 | $V L D E D G Q \ V A E A V D L E G * S V T I P E V R$ |
| UniRef90 ${ }^{-}$UPI000255870A |  |
| UniRef90-C3R |  |
| UniRef90-UPI000332FDEB | LLDED GKVVAKGTGNQGQ $\quad$ LQVPNAQ |
| UniRef90_E3RN93 | I YERDATTKKATATFPTAKADVAGLTKHSVNGSVVVTNPK |
| UniRef90_UPI000420714B | I EDMDGKII K T F S GKDETFS GGETK L L SVS DRVSNLH |
| UniRef90_L1M9F6 |  |
| UniRef90-UPI000373572F | I L N A K G AVLATATAVVNK GDSLVELRRTKVKDPL |
| UniRef90-T1W4R8 | LIDDYSGAVVAS D SAAFGVRPGDTSVLRQRFTIDNPR |
| UniRef90-K2PSU2 | I YEFNNNEVATVATDTK S NVKIP A G K S Q Si K G SVTT D N P K |
| UniRef90_U2AYQ5 | $\square F \mathrm{NAKGEKLT}$ THTTQSTEYT GDVLSNELYワNHPT |
| UniRef90_UPI00037BF9C1 |  |
| UniRef90-E3IUF9 | LT DAEGTAVARATGTAGV L T T A DV |
| UniRef90_C9PT76 | \|I Y DAEGRRVAQSVV T G CVARMGKTTVNQRLNVSHAK |
| UniRef90_C7MQS5 | VRDG R RVVSRTQGAPDEP LELSVPDAK |
| UniRef90_J1KTP8 | TT DYKEDKKVGS A DVIE M T LT P K S G T L L NVKAEI ES P I |
| UniRef90-B8CZV2 | EFKDDPRVNGNKVEGSK T H T Y K Y F LDE Q ELYYELEILDDLY |
| UniRef90_W7S625 |  |
| UniRef90-E1MB38 | YKDALVIA GQWQFHHDNLKFSIDLVQNQDFRTGFHTN |
| UniRef90_R9JU95 |  |
| UniRef90_L8ELF1 | ARDKKGKVVGRVTGAAN A DLRLKVRDQH |
| UniRef90_R6Z4D0 |  |
| UniRef90-F4A261 | LF DGELICC EKEFHNSLLTAK GQE VVVHRIELDD\K |
| UniRef90_UPI00046F6AE9 |  |
| UniRef90_C6J045 | VTSPS GHVLETQVSEQNEQSTARANGTRERHDPVEIILNPE |
| UniRef90-W0AFS3 |  |
| UniRef90-N9X1I0 | L A A $\square$ A SEAMELDALEAGGEK TVDFQLSAAEAE |
| UniRef90-L5MC |  |
| UniRef90_UPI00036EA97D |  |
| UniRef90-R5TSA0 | LLDAEGELVAETEGKEGI |
| UniRef90-R6EQ53 | I RNEKGDAVGEE K TVAVLFDQEQREDTQRIVIGKPE |
| UniRef90_G1XWI3 | $\square \mathrm{V}$ D A A GNVVASAQAVPA Q A P E T APPPATFDQTLTVVDHPT |
| UniRef90_E6U3G4 | APDGKTFTVEQEMEQAKGV |
| UniRef90_UPI00029B3D33 |  |
| UniRef90-19T6F2 | I Y DHDGNEVARTE $\quad$ N NHVIENYETNYKATQTVTFNNPN |
| UniRef90-UPI000476CB88 | II LD G VQEVAVVTESNGSALFDD |
| UniRef90-UPI000255873C |  |
| UniRef90_W7YHV2 |  |
| UniRef90-F0YU23 | I CDNTGTVMPGMQHSTEG |
| UniRef90-C6IYS5 | LLDAEGEEVAGRQAALLRRAFPNADHTKGAASAEDRVACPR |
| UniRef90-R5RES4 |  |
| UniRef90-A0A034W8Y7 |  |
| UniRef90-E9 | LYDGDTLICGGKAEEGNA |
| UniRef90_K9DYR1 |  |
| UniRef90-I1FGY0 |  |
| UniRef90_A2EG37 |  |
| UniRef90_R5FQH0 |  |
| UniRef90_Q2U3J6 | VLDED GT T VAT T S G S G - T |
| UniRef90-A8XW98 | MFDGDSNQVFTTNQTKTE GKLENAK |
| UniRef90-X6Q5C4 |  |
| UniRef90-UPI00036A3FCB | S G GP SPIRVPVQVSGG R A T G TVRIPSAK |
| UniRef90_B5YFE0 |  |
| UniRef90_I3Z980 | AFAK GEKVAERS GTLGSEV |
|  |  |



UniRef90 UPIo0036BA7DO UniRef90-A0A031KN44 UniRef90-R6FGR9 UniRef90-N1MFH7 UniRet90_UPIOO036CE20E UniRef90-WOF1B2
UniRef90 W3XPYO
UniRef90-W3XPY0
UniRef90 ${ }^{-}$W9C2C9 UniRef90-UPIOOO382EBD3 UniRef90-D20TL7 UniRef90-TOJV47
UniRef90-LOEFB1 UniRef90-K1TJBO
UniRef90-D3E8F4
UniRef90-F8WX29
UniRef90_UPIoo037363E6 UniRef90-H1YBQ2
UniRef90-H5XFC8
UniRef90-U2CW97
UniRef90-E2ZKNO
UniRet90
Z4XCP6
UniRef90 ${ }^{-}$C7PQN8
UniRef90_UPIO00419E7A5 UniRef90-R5FRII
UniRef90 Z $\mathrm{Z5XDA} 4$ UniRef90-F9FUQ2 UniRef90_UPIOOO29B0588 UniRef90-E8UXX4 UniRef90-W9AQT9 UniRef90-E3QV33
UniRef90-W7Z5U6
UniRef90-T2NLW1 UniRef90-UPIOOO2559217 UniRef90 UPIOOOO4065162
UniRef9O UPIOOO25591C7 UniRef90 C1F828 UniRef90-J3NM95 UniRef90-C4Z412 UniRef90_R6NAS7 UniRef90-UP1000367DBB7 UniRef90-R5T3Z1 UniRef90-UPIO0040902CD UniRef90-E5CBJ9 UniRef90-R5T757 UniRef90_UPIO00376B569 UniRef90-C6H3U4 UniRef90-UPI00047CCA81 UniRef90-V9G147 UniRef90-W8YRG1 UniRef90-R5J077 UniRef90-UP100034AD8FE UniRef90-UPIO00258F288 UniRef90-C6LKL9 UniRef90-FOS9Q9 UniRef90-V4Q824
UniRef90
U7C959 UniRef90 - W4D0S7 UniRef90-K1T2M9 UniRef90-H2M6N1 UniRef90- V9GC51 UniRef90-A0A017SQW5 UniRef90-G8NVH2 UniRef90-G3QA27 UniRef90-C6LBV6 UniRef90_UPIOO03819319 UniRef90-UPI0003FF634D UniRef90 U5HJA6 UniRef90-R6W191
UniRef90-B3PLJO
UniRef90_LOEHU2
UniRef90-x1F017
UniRef90_J8VS49
UniRef90-I2GJ64
UniRef90-E6TQD6 UniRef90_UPIOOO361EA53
UniRef90-F9z924 UniRef90_UPI00047B344A UniRef90_N9W415 UniRef90-A0A011A6G3 UniRet90 N2BD21 UniRef90-R7J5Y4
UniRef90 R6WC32 UniRef90_UPIO0040BE25D UniRef90-A0A037ZLN4 UniRef90-N2AX99 UniRef90-F4XG38 UniRef90-A6DF85 UniRef90-H8G8R9
 Yil SDDTUNTRETVDDASVEFNDDTEWTG TSVLQQGGGSCRVKVLARLLRNQGKA F DTTPQVHEGQNALESATTYLLNDRKGDRSVDLE $\square \mathrm{YVSTP}$ S V TPE



F पTTP AVGPDEAAVAVRTTDCNDSADPGEVV

$\qquad$ TQAKT

 VQSLKITPDVDKH KGVRVDFAVNKDGKSPVKDVD TGDATVRTMALAAD SHIADLYTESEVEKSLKKADVVVHAAVEGTAS KKVRFE


 QAEMDEHRLVNTDKQDRVVRDE
 TPTiDVVNKNATLNLKTSGKNENTPVNCTVK HAPDDY:TADVA A DMAGKVTVTAHSAGQANASVSVSVIT
 SRTSDLHFRQNVEKSLKQAELVVTAEVEGDAENVTFHIE H【GSVFAKTKGSDSPDKA VEVEVEIASRKDRDYVVDIN H $\square \mathrm{SD} \mathrm{D}$ पY $\square \mathrm{RPD}$
 DGKAEAWLEI QNDRYDTLPVELS YISDITLVPDVQG-TDGVVKYVEAAGLHEHEDPDRVS VDKLFALAEVDAQGKQGQLKDTGRFYNPDGNTANVNI L

TYLSNLKFTVADPD Y 1 RKLDVVPDDDNNLTSTDIDLSAEMKG YVDDTVVVTFSDN TGLVSYUVSVKGAVTAALKVK TH DAGVYIHSTRQMDSNDWLI EDETE DAVLAEDAEERHT
 YVDDITVVTDFSDNTGLLVYKVSVQNAASATFKI HUAGUFAHTDHIVNGGDAVGVEVTVGNHTAKEQDVWVR
$F$ VT T P R I S A A A A
R!LDLHPVALVSEKL
DATLSLEVQLTNKQ
RRALLAVDYALERHVPATLEVAVVT RLDSVYARTMSDDGGEAVVRIDAEFRGFRDRRLTCEVS QUDDLKDTPNDDKSFSELFLIDEVLFDNKTDTQDKGNLD
TFLEKVKMTPDID

 TYTKD MHLKKEVKD HTGTVTARIGUGEGNTSEEQLRMP

 UDNVKIETPDALADTKTVNARVILNTTAPEGAKLSAQ TLEVEVDTQGLEAP



|  |  |
| :---: | :---: |
| UniRef90-C6J |  |
| UniRef90-UPIO00380DD63 | HVDSLKLTPDVSTN ARLTVAQ GVRDGVPVAAT |
| UniRef90-UP10003B64CB7 |  |
| UniRef90-UPIO0037372B0 UniRefo- | KDPFVVTDLPPATDKAAIKGETTLQNNTNASQTGVLK |
|  | LEN【FVQTNNS SNHTKECVVSADVLGEIPLGGAKVKAVV |
| UniRef90_Z9JI |  |
| UniRef90-E5A7 |  |
| UniRef90-Q1GUD8 | SHIAGVYATPTIKDG AGQVAIRVRLT DiA |
| Ret90_D5GMU8 | DDLK【LPKVHDELDKADIK |
| UniRef90- YPlooo419] | HFTSVMFIPS |
| UniRef90-E1Z1L0 | -R PSLAKGLVTVKTLVRSKMKDSCKIEFC |
| UniR |  |
| UniRe | T R |
| UniRef90-UP100037B3D | $\checkmark \mathrm{H}$ |
| UniRef90-UP10004656F | PDVDRN ELE EV |
| iRef90-W40 | IRSSEGWQGTIR |
|  | AVLEYTNCADEAVNVLYS |
| UniRef90-D4XUZ5 | VYVDYTLYDDY ALIKAKVYTKNALEKNLSVEIS |
| UniRef90-S2Z256 | QVRTQKDDGQKWEVTV |
| UniRef90 F5WSV3 |  |
| UniRef90 G204 | URNFSVPPAGKRLIFTSUGDAGDMDGKLTVTVH |
| UniR |  |
| G7VZS | HLGTVFVTP |
|  | YSTRYRLLTETM GAE |
|  | KDP PLUST FFDDYKRVYL HAT ET QN |
| UniRef90 F8FHT9 | Y/ERIQFTPYLRDSTWGGEVVVHVANSS |
|  | Hi TGLDVTADMN |
|  | RIDSLRLVPDIDEG |
|  | AN GLVKVHARLARHGAGPTKLIA A |
| UniRef90-UPIO00366E86F | VKTT T DVLSEEKSASVRVHLSNPRNVHFL |
| UniRef90-D9VA00 | ASGSVTVNAVVGGPVNQNRVQAV |
| UniRef90 W2S | GDM DGQVTATVHTASQGQEAVETKVY |
|  | ATPTYDLASKSAHISVSLRDTEQTKGDITVELT |
| UniRef90-12NDNO | SF |
| UniRef90-H1 XTR8 | T A |
|  |  |
| $\begin{aligned} & \text { UniRef90-I3YZ } \\ & \text { UniRef90-K9FI } \end{aligned}$ | IT K |
|  | D |
|  | K |
| UniRef90-G8P194 | NVLSSSPSLDVDCFLAGRSRGSLSLEVE |
|  |  |
|  | F ${ }^{\text {a }}$ |
| UPI000371E257 | EVRPQVTVA DGTGR |
|  | R |
| UniRef90-UP10004654F22 | Q A |
| UniRef90-Y1PI | SFVEDITVVTHVSDNGEEATICWQVTGKG |
| UniRef90 UPIOOO3770B16 |  |
| niRef90_B2W |  |
| UniRef90-UP10003B50838 | VRIPPE SDLK TLS |
|  | SLDI |
| P1 | A DMLIT P D |
| (eate |  |
| UniRet90_8XMS8 | Q |
| UniRet90_D3EBF6 | GCAHL |
|  | YREDTQVYPDU EHKQARVR |
| UniRef90-UPIOOO3790 | TFIENVFAAPK NVMTQPAVD |
|  | ADFCARTPLQFDGAGAT |
| R6 |  |
|  | GGAVDVKSRIVNQ |
| UniRef90-AOAO24L | RLTVYSD |
|  | RKNAKV |
| - |  |
| W4 | ( |
| c6CX70 |  |
| UniRef90-A7VPZ3 UniRef90-S9QUQ0 |  |
| UniRef90-UPI0003B47BE6 | D |
|  |  |
| UP10004407E9E | $\begin{aligned} & \text { SR } \\ & \text { TR } \end{aligned}$ |
| UPI000462C32E |  |
| UniRef90-UP100037BD768 |  |
| UniRet90-M4AUX7 |  |
| ef90-W4 |  |
| UniRef90 G7WHE4 |  |
| - ${ }^{\text {a }}$ - 2 EVA3 | HVQDLT RTDFADDYQSATLSAQIEDENATASGYTLEYA |
| $90-\mathrm{U} 2 \mathrm{DCC2}$ |  |


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| :---: | :---: |
|  |  |
| UniRef90-UP10003 | A YDGKR |
| UniRef90-UP100033 | VIRSKAFREEAAQMADSNTNDYSNNCDQDETDSIELSDVL |
| UniRef90-UPIO0037372B0 | GSDGNVTFQQNVTVPANTLSVVY FTPE |
| UniRef90-×0- | $\square K \mathrm{DNNGVTLA}$ A EA乌KN\DGDSGK |
| UniRef90-R7G | VVYEFNKIVAAS |
| UniRef90 Z9JNX9 | $V$ VDPDGAEVATLIEHALTT GAEREVDLAAAVPAVR |
| UniRet90_E5A784 | VYDEDKLVFKESALVN |
| UniRef90-Q1GUD8 | LRDAGG |
| UniRef90-D5GMU8 | APSGG |
|  | VLEADSCITAHTFTAGG |
| UniRef90_UPIO00419DFD5 <br> UniRef90-E1Z1L0 |  |
| UniRef90-R7G2U6 | DKDGKVVFTNKQQVKSESIV KRDNRTVFESSVVEPS |
| UniRef90-C5 | GDDVVGSSAVTAARQ GRTVLDVSV |
| UniRef90-UP100037B3DB2 | LRDENDQ VATSNGRSGDLV |
| UniRef90-UPI0004656F81 | LAYQGEQLSEDEYRDSGKTETRTDGLHTFNEHGLGG |
| UniRe | VRDADGKEVASAVRPADST |
| UniRef90_UP10004707C45 | AQDSMP VTVQEHTKNTYRQKLYVKNPS |
| UniRef90 D4XUZ5 | ASTII KSMYFSSSYELELIVKDP\\| |
| UniRef90 F5WSV3 | KTEVVTVDGTSMGKAETKEVETQAGKEQTLDSTПMVSNPS |
| UniRef90-UP10003B58 | AFAGDKAVAVETVP |
| iRef90-G2Q4L9 | TKKETPVE $\mathrm{S}^{\text {SVVAPHGGVGAKHEGVSDREFT }}$ |
| UniRef90-R5FSK6 | FDGE |
| UniRef90-C7H4 |  |
| UniRef90-UPIOOO2B | V T A Elle GNicliver |
| UniRef90-UP1000248 | 1 TFQGEHVTTETFQINHDLESRSDGLNDFHDHGM |
| UniR | A |
| J4U0 | OKHGKQVALS ${ }_{\text {G }}$ |
| UniRef90-UPI0003F4C4C1 |  |
| UniRe |  |
| JP1000366 | LADUDGNVLATASADT T GDDATLDFSG Lichile |
| H7 |  |
| UniRef90 H7CTM |  |
|  | A |
| iRef90-12NDN | NDEDQSUFLAPKVKLSSQEITVHSGQEAKFTTELVVE |
|  | A HVM Geg in |
| Ref90- I3YUB9 | ESEYQ |
| 9FDR3 |  |
|  | DIKKIVTVDANDWATTGMD |
| X81XH9 | DRVIAKGTQPVYLSTETARDSARHTVT |
|  | AR |
| UniRef90-UPI000374ADE8 |  |
| UniRet90-R9GQ31 | $V Y N K K Q E S K E P D A T D K Y V L H L E A G Q K Q Q R V A A T E$ |
| 003 |  |
|  | R D ${ }^{\text {a }}$ |
| UniRef90 UPIO004654F22 | AA PDNFAGQRYQQPFPVNLRATGDAPQRVRV |
| Y1 | LRDS |
| UP10003 | YDEAQQVATATGGEKVFAVRPATQETOVA V |
| UniRef90 B2WJL1 | VFDGDKQVFKETAKTSNGVV |
| 0003B5 |  |
|  | VGTPEG APLIATASARADLDLAPRVRVAIPEEHVR |
| UniRef90 R7K7 |  |
| UniRef90-V5XSL9 |  |
| UniRef90--18X |  |
| UniRef90-D3EBF6 | N |
| UniRet90_FOR580 |  |
| UniRet90-UP10003790F1D |  |
|  | VYDPAGAQACQVAELASQLOPVWAAADTRATLSLD |
| Ref90-11ET |  |
| UniRef90-U5P5G1 | V |
| UniRet90-A0A024L | RElRFDPDTFALRVS |
|  | 边 |
|  | LLEPNSDNCVATARTHRS |
| UniRef90 J9HEW9 | GFSRGDGTKASGDUVIEAR |
| UniRef90-W4N9U4 |  |
| UniRet90-A7VPZ3 | AYEVDGEKKEARAAAQISVNEKGRGILVFPDYDHRAANDF |
| UniRef90-S9QUQ0 |  |
| UniRef90-UPI0003B47BE6 |  |
|  | Q |
| Uni | LV |
| UniRet90 UPIooou | , |
| UniRef90-UPI00037BD768 | LRDESGEVVGE GQADVSGAAATGFKASAVLEVDKPY |
| iRef90_M4AUX7 |  |
| W4 |  |
|  | 1 SDGSAGLAEQTLTVPAQESSDRQP VTLTESLPNAR |
| UniRef90 - 51115 | GESKAVAAQNNETKNTSAASEKPAKEYQAVFLLDVPNAK |
| ef90- |  |


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| :---: | :---: |
|  |  |
| UP | W |
| UP10003864CB7 | W |
| t90-UP | L WWPGRQD |
| UniRef90 XotDM | WT |
| iRef90-R7GJ56 | LWS |
| UniRef90-Z9JNX9 |  |
|  |  |
|  | WNGRDPYRYRLETRLAD |
| UniRet90-D5G | WW |
| UniRef90 G9R | L WT |
|  |  |
| UiRet90-E1Z1L0 | AWTPDSPFLYEGEVSYDQD ELVDRYSVNFGMR |
| - ${ }^{\text {O-C }}$ | PWSPADPHLYRLRLAVV VDGELRDEVSGAVGLR |
|  | LWNVRDAHLYTLT |
| UniRef90 UPIO004656F81 | NLYDI HFTVLVDGVQVDEVDSYFGMR |
| , |  |
| Unief90-MP10004707C45 | WDVEAPYLYSYRACLMEGE NMYDEECGSAGVR |
| iRef90-D4XUZ5 | LWDGTNPYL |
|  |  |
|  | L W |
| G2Q4 | LWSPDSPTLYNVTVKLGA |
| - | L WDVENPALYTAKVTLTTDNDS DERVVRFGVR |
| G7VZ | LWDIDDPKLYEAELTLL RDGKQLDRLNVRFGFR |
|  | WNVHAAYLY |
| UPI0002B4 UPIOO248 | LWPPGKQYLYNVVISIVDGFGESDSWSHDFGFR |
|  | PWSHEAPHLYLLDAKLYDGAADPSDDLTERVGFR |
| UniRef90-J4UQ14 | LWSPSSPYLYNTVSMGD TVEDTISSYTAFR |
| UPI0003F | LWDVTNPALYQLRTQIL RNDELIDEKTEMFGFR |
| iRef90-J2L1P7 | LWWPHHP YPLETR |
|  | R |
|  | WTPDPPFLYDLRVSLSSG TE D SVGSYFGLR |
| UniRei90-W2S967 | LWSPDSPTLYDVTVTLSGG |
| RRef90-C2G1V7 | L WSPDQPNRYTLHIQGNYNGQTF RHSTT |
|  | L W |
|  | VWWPGQP LYDLDLQLAGSDGTVLDRWQRRVGFR |
|  | LWWTHNPFLYDIQIELIH NNSVLETYSKKLGDR |
| 3 | L W |
|  | LWNGKDPFMY |
| 19 | WQLEQPKLYTV |
| 25SYM2 | LWWPEQP ${ }^{\text {W }}$ WTV |
| P1000374A | L WSPDDPYLYRVLSTLETASGQKLDEVSNPLLGFR |
| 371E257 | LWWPGKAALHDLDLTLATADGTT乌DTWSRR岛GR |
|  | WWPGRPDLYDLKLEFV QNGNP'EVSTLKFGIR |
| Plo00465 | WWPGAPHLYQ |
| Y1P | WQPGEGY |
|  | L WQVEDPYLYT |
|  | WYPEQP LYTVTATLFANDVK L H OTSRRTGFR |
| $\begin{aligned} & \text { UniRet90_UPIO318 } \\ & \text { UniRef90_S3Y318 } \end{aligned}$ | I WATGEPELYSVKARLLDSDGGLTDEVHSYAGLR |
|  |  |
| P10003F5 |  |
|  |  |
|  | LWWPNQP YNLDLELMDE GKVTESRTVRFGIR |
| D3E | LWETGQARLYDLELSLQ GDGQPSDTVQSYFGLR |
| 3790F1D | LWGLDHPQLYRVRVRLMRGR QIVDEQTVRFGFR |
| UniRef90-E1Z6H8 | L WSAEQPHLYSSSGGGEGGGRRVLEWEACQVGFR |
| UniRet90_R61193 |  |
| UniRef90-U5P5 | LWDVKNPALYTLYTRVY RDSQLVDVQKERFGYR |
| - | LWWPGRPDLYDLRLEFL RYGRATDTLESRFGTR |
| UniRet90-G8UPD2 | WTPETPSLYA |
| UniRet90-H2IFD7 | PWWP |
| W4N9U4 | R |
| UniRef90-C6CX70 | R |
|  | YWSPEHPNLIGVTAELWAGD DCLDRVETYFGMR |
|  | LWSPDDPVLHDLIVEVER ${ }^{\text {W }}$ |
| UniRef90-V9GIII | LWSPETPHLYEGELRLSGTSGD DVVHTYFGTR |
| 004407 | L |
| UniRef90 I6AQT3 | VWSPEHPALHTLS SCAEADGEEGDAVIEQFGLR |
|  | LWWTHDPYLYELKVVLSAEDGRELLDSYRCEYGIR |
|  | LWWPNPGYLYSLEVRLKDESSTYEDVYTRPVGIR |
| W | WSDEPNLYQLHIHLQDQDGEV |
|  |  |
| АЗ |  |



UniRef90_C4Y0L3 UniRef90-E8NDW0 UniRef90-F7K4C7
UniRef90-UPI0003B4A758 UniRef90_UPIO003B6F870 UniRef90_UPIO0046770A0 UniRef90_UPI00036054BC UniRef90-A0A022R3Q0
UniRef90-R71575
UniRef90-R7TC05
UniRef90-R7CAV2
UniRef90-UPIO00419B6F4
UniRef90-R714Y1
UniRef90-17J4J9
UniRef90-N2ATP0
UniRef90_UPI00047AE3A8
UniRef90-UPIO0029A362C
UniRef90-D6TZY4
UniRef90-H3CT15
UniRef90_UPI0003FF6F38 UniRef90-R5JPV8 UniRef90-Q7MXW7
UniRef90_UPI00047A231E UniRef90-C4UJQ4 UniRef90_UPI0004561B86 UniRef90_R6VWD1 UniRef90-W4KGD9
UniRef90-UPIO003B5DC72 UniRef90_D9TE55 UniRef90_C6D093 UniRef90-A0A015KMV7 UniRef90-W6T5C1 UniRef90-M2RLX2 UniRef90_UPIOO03A9934B UniRef90-D1CHX0 UniRef90_R6QJ22 UniRef90-U3FGB9
UniRef90 E9FG59 UniRef90-E9FG59
UniRef90_G3B6Z1 UniRef90_V2XL44 UniRef90_UPI00040048B4 UniRef90-R9LZX4 UniRef90_UPI000375D47C UniRef90_UPI000464ADA7 UniRef90_R3TJC2 UniRef90_UPIO004664507 UniRef90_UPIO00479E271 UniRef90_UPIO0046962F8 UniRef90-R5LMT5 UniRef90-UPIO003614F5E UniRef90_UPI0003F14B35 UniRef90-A1DMT2 UniRef90_UPI0003B5BA6A UniRef90_UPI00047E1A9D UniRef90_U3P295 UniRef90_UPIO0036CE347 UniRef90_UPI00047C0839 UniRef90_UPI0003623C66 UniRef90-E0RXJ7 UniRef90_UPIO00478603F UniRef90_G5IG88 UniRef90_B6QB13 UniRef90_R5L4E7 UniRef90_UPI00029B557C UniRef90-D5ES79 UniRef90_R5EQ97 UniRef90-R3W159 UniRef90-L1N189 UniRef90_UPIO0035F5637 UniRef90_W7DFW6 UniRef90_Q21DU2 UniRef90-W0RRR6 UniRef90-W7Y2G5 UniRef90_UPI0003476DF8 UniRef90 XOWCH7 UniRef90-F8WZW7 UniRef90-T2FE92 UniRef90-B3Q0B2 UniRef90_UPI0003B2FD3C UniRef90-U5WCJO UniRef90-W4KE30 UniRef90-X1V417 UniRef90-W4VNI8
UniRef90- K4RWX7 UniRef90-I1JRDO UniRef90-M4GG96 UniRef90_R5GRP6
UniRef90_A0A026W656 UniRef90_AOA026W656
UniRef90_UPIO00288EC3A UniRef90_S4Y1N9



$\qquad$ SADLS FT
KA HI TGEVTFTG

| $Y$ | $I$ | $A$ | $D$ | $V$ | $T$ | $L$ | $V$ | $S$ | $S$ | $M$ | $D$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $Y$ | $V$ | $D$ | $D$ | $I$ | $T$ | $I$ | $V$ | $T$ | $D$ | $I$ | $S$ | DKEDFMV

VRDYFVHTADDFDD DCAT TVG




 $\square S$ D $\square \mathrm{Y}$ MQ N T P E VT K V
 ID $D L L A V P D W S E G L E$ H I SH V ATTPDDD









##  <br> I E D L $\quad$ T V $V$ V $P$ S

$\qquad$
D A
E $L S$

| $L$ | $D$ | $V$ | $T$ | $L$ | $K$ | $G$ | $N$ | $L$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $C$ | $N$ | $A$ | $K$ |  |  |  |  |  |
| $C$ | $E$ | $V$ | $F$ | $L$ | $S$ | $D$ | $N$ | $R$ |

K F Gll L Y EVRTCGS G
 Y L S D MKVVA DPDNS C RI E DVVYITTQDHRDN
$L$ R H P F V K S E L LK P G Y D Q A R E
$V$ HLEANICGNAAGGELTAN
$L$ R H P FVVK S E L K P G Y D QAR E S V EV E TDVVGEAS D DRMLLE
TY YD D $\quad$ TVITT T $A T V S \| A \vee P V R N V A A T$
T Y $\square \mathrm{D} D \square \mathrm{~T} \mathrm{~V} \square \mathrm{~T}$ G TEQEC

HFSKVK F T P DVD
 H $\square P$ DLDNK $\quad$ RFYVQP HF Y G LYPNDATKRFYVQPHFYG LIEN GARKVRRAT


 $D C Q U T A S S D D A S Y R Y G S V V A D V A R A K G C G T G T Y R$

$T H L R D V H L V A N \square D T T T N H V R L F T D V Q L T M P F E K F G K V M A T$ T Y V E RLA A DA QPDLA DGSAKIG G D AVAHNASRQVWKMLLR HI D Y V K MTPDFDARKDDFEVEANVW HDDVTACAT HI D GL HAT PRLSSETLE G GKWS DPVEVTNNSGENLQTVTV H I D R V A V D A R $\quad$ R A D G T L R V D A Y V G T S D S D G A R VTA Q


 $\square L D V Q V D G T L D D S Y Q T G \square F T A R \square T \quad G K Q P L Q Q A A W$

 L K N T F V
 $R$ L $\operatorname{C}$




## UniRef90 R5S2A1 UniRef90－C4Y0L3 UniRef90－E8NDW0 UniRef90－UPI0003B4A758 UniRef90－UPI0003B6F870 UniRef90＿UPIO0046770AO UniRef90－UPI00036054BC UniRef90＿A0A022R3Q0 UniRef90－R71575 UniRef90－R7TC05 <br> UniRef90_UPIO00419B6F4 <br> UniRef90-R714Y1 <br> UniRef90-17J4J9 <br> UniRef90-N2ATP0 <br> UniRef90_UP100047AE3A8 <br> UniRef90_UPIO0029A362C <br> UniRef90-D6TZY4 <br>  <br> 5 <br> 8

UniRef90-H3CT15
UniRef90_UPIOO03FF6F38
UniRef90-R5JPV8
UniRef90-Q7MXW7
UniRef90_UPI00047A231E
UniRef90-C4UJQ4
UniRef90_UPI0004561B86
UniRef90-R6VWD1
UniRef90_W4KGD9
UniRef90-UPIO003B5DC72
UniRef90-D9TE55
UniRef90_C6D093
UniRef90-A0A015KMV7
UniRef90-W6T5C1
UniRef90-M2RLX2
UniRef90_UPIOOO3A9934B
UniRef90-D1CHX0
UniRef90_R6QJ22
UniRef90_U3FGB9
UniRef90_E9FG59
UniRef90-E9FG59
UniRef90_G3B6Z1
UniRef90_V2XL44
UniRef90_UPI00040048B4
UniRef90-R9LZX4
UniRef90_UPI000375D47C
UniRef90_UPIO00464ADA7
UniRef90_R3TJC2
UniRef90-UPIOOO4664507
UniRef90-UPI000479E271
UniRef90_UPI00046962F8
UniRef90-R5LMT5
UniRef90-UPI0003614F5E
UniRef90-UPI0003F14B35
UniRef90-A1DMT2
UniRef90_UPI0003B5BA6A
UniRef90-UPI00047E1A9D
UniRef90_U3P295
UniRef90_UPI00036CE347
UniRef90_UPI00047C0839
UniRef90_UPI0003623C66
UniRef90-EORXJ7
UniRef90_UPIO00478603F
UniRef90_G5IG88
UniRef90_B6QB13
UniRef90 R5L4E7
UniRef90_R5L4E7
UniRef90_UP100029B557C
UniRef90-D5ES79
UniRef90_R5EQ97
UniRef90-R3W159
UniRef90_L1N189
UniRef90_UPI00035F5637
UniRef90_W7DFW6
UniRef90_Q21DU2
UniRef90-W0RRR6
UniRef90-W7Y2G5
UniRef90-UPIO003476DF8
UniRef90 XOWCH7
UniRef90-F8WZW7
UniRef90 ${ }^{\text {T2FE92 }}$
UniRef90-T2FE92
UniRef90-R5UOT6
UniRef90-B3Q0B2
UniRef90_UPI0003B2FD3C
UniRef90-U5WCJO
UniRef90-W4KE30
UniRef90_X1V417
UniRef90_W4VNI8
UniRef9O-K4RWX7
UniRef90-11JRD0
UniRef90-M4GG96
UniRef90-R5GRP6
UniRef90_R5GRP6
UniRef90_A0A026W656
UniRef90_UPIO00288EC3A
UniRef9_S4Y1N9
I LENPQGEVViA
${ }^{50}$ A S R Q

VRDPAGRSVA
LWCSVMDYIEEKQADGEKVFARELTRKDAEDFSFSLDKPR
VEEADAVWRGSAATLATGV ELRLDGPR

VLDKS GNVISSGME
$L E L A E V R L Q T$ TVADPPGGTRDRDDGARYP
V
VGTEPEGDLILVEHLQTQKLSIPAGSHVQYTLELGFYKPN
VGTEPEGDLILVEHLQTQKLSUPAGSHVQYTLELFFYKPN
$V G D A D G Q V V S G T G A S G E V$
$V$
IIDHEYSVVAEVDGADGE LRVANAH


I FEGKK DKKFWTEIKQKREKFILDVCDDNA QFK





CGANCDTEQTQVSLSVSLQQPGSSNKVELNMVVEDAK

RRDG

LI PDNF IGQSYQLEKSVSLVASQHNAQTLTTNFLIDNPA

$L L S P S G$ ETVTTGT RSVTLGMRGEDTVRFDARDPYDS

L A D G $\square$ A V A E A T A PVV ${ }^{\text {G }}$
LADGDAVAEATAPVGQGLSASEGKTEGIVDLSGSFKSPK

LCDADGQVVAENT GVAEGKVRVKAGHESR



I DKDKEKIVGCENK
L LNAENKVVAEGTGTQGQ
QQ DF TKEGKVVSEGVRSETKNDAENETADFRQTLKVVNGAS

LA GRN GGSVIK SADVPGSLSSEGEREVK DVLHHLEKEGVE
V
D VT

 $P \mathrm{~N}$

V R D $\backslash$ H GKEVA GGVRPVDD
QFKl $\qquad$ FTDAGTNY N $\quad$ K K EVVAVVSND S
 AKAQGANCDTEQTQVS SVVSLQPG SNKVELNMVVEDAK
8
47A231E
4561B86
解
LHGYKTSVS


D9

## 5KMV7

$\qquad$
3A9934B DKokekTVacenk
 V $\mathrm{V} T \mathrm{D}$

D $\operatorname{D}$ SUSLGEKVWLGRQT VYD GUEAQASGASGKTMSTSPQTYQEKDTTIRNVR ESTGSSGWKSTEETFLGSDTCPCGPDSCCYKLSYALSNDD



 LDAEGQVVAHGEGAQGQ
IKDAATGSVLSSGLLQNVTV SGNSDTGTTTLRVPNAH LRDGDKVLAKETAPLSLHTVESGMPSQTLRFD RLTGPK ISFNGETVAKDADHLLADNTQRSDDGFQNS\FRTPFHNGW AFDAEGAEVGQATGAPGE
VK N V K K T V S K Y E VI A S N N VI C E
 LEAFDKSKNALEFVAVV








 $V L A D D G R P L G G A L A$

 KLSYRGEVVASGEAFAKEA

 SPSGSVVVGQKQ
 L W R G E E Q I A A G R Q P L L G T P T V



|  |  |
| :---: | :---: |
| Ref90-C4YOL3 | LWF PWTPNL |
| UniRef90-E8NDW0 | LWSDDTPALHELHTALADEGGAPVDTDRTAFGIR |
| f90-F7K4C7 | LWWPGEPFLYEVRTCL |
| ef90-UPIO003B | WSPEDPYLY |
| P100 | FWSAECPALY |
|  | LWNAENPYLYTIILETQNGAPREVVDRLGMR |
| UniRet90_UP10 | WWPGEPALLYNVEIVTVDVEDHPESDSWSERFGFR |
| R71575 | LWEPGVPYLYTARVRF |
| iRef90-R7TC05 | L WW |
|  |  |
| UniRef90-UPIC | AWTPDTPA Ya |
|  | YWSPEEPKLYD |
| UniP | RWEDNSPYLYTVTATLQRRNEAWDEVSARVGVR |
| UniRef90-UPIO0047AE3A8 | LWKPGAAYLYSLTVQ RDG GRLLDSYT LPVGVR $^{\text {L }}$ |
| UniRef90 UPIO0029A362C | LWDEFNPNVYQ KAQLNISSGKTQHEKATTFGLR |
| Ref90-D6TZY4 | YWSTQSPYLYDLEDELLNGE TAVDSATSYAGLR |
|  | WWPENPYLYSLEVRLVPGNDASED |
| R5JPV | LWELSSPELYTCRVRIKQGK NVLDEDMKNFGFR |
| UniRef90-Q7MXW7 | RWMPGLPLMYTLVARLQDKDGTTWQTYRTQTGFR |
| UniRef90-UP100047t | L WAPGSPNLYDL |
|  | WWPGKQNLYRLEVSFSDRLGGTMDTSHVRTGLR |
| UniRef90 UPI00045 |  |
| UniRef90-W4KGD9 | LWWPGKQALYQVEVVLLNNGGDVLDIKTQNI GFR |
| UniRef90 UPIO003 |  |
|  | QWNPGKPE Y |
| $\begin{aligned} & \text { niretgo_C6003 } \\ & \text { iRefo_AOAO15 } \end{aligned}$ | WWTPEKPNLYDVTFTLLEEGKPRDEVSSYFGMR |
|  |  |
|  | GKQQLYVVYVTLFDEGNNALD |
| UP10003 | PWSPEDPFLY |
|  |  |
| 60J2 | LWWPERPYLYSLIEVRLTAPTGPVSDVYT |
| 9FG59 | LWTTKHPQLYVLKTKVY KEGQLVDVTEDTFGYR |
|  |  |
|  | R |
|  | ${ }_{\mathrm{R}}$ |
|  |  |
| UPIO00464AD |  |
| 3TJC2 | SWTPETPNLFDVSFELV KKRQVVDQVSSYFGFR |
|  | L |
| 00 | WWPGPQNLYD |
| R5 | LWSVDDPMLYTLKISLYSGS ELLDDCVNETFGYR |
| 0036 | LWWPGDPNLYDLTLTATVA GRRSDERASRFGMR |
|  | WWPPGEQNLYNV |
| UniRef90-UPIOOO3B5BA6A | LWDLHTPKLYEV |
|  | CWTPENPNLF |
|  |  |
| UniRef90-UP100047C0839 | LWDEFNPNVY |
| 003 | L |
|  |  |
| UniRet90_UPIO00478 | LWWPDQP |
| UniRef90_G51G88 | PWTAETPYLY |
| UniRef90-R5L4E7 | $\mathrm{N}^{\text {V }} \mathrm{Y}$ |
| UP100029B |  |
| 5 | L WWP GEPNLY |
| 59 | WWPPGPP Y |
| UniRef90 R3W159 | VWRPEQPNLYDVTFRLWDHQGQLVDCVDSYFGMR |
| 5 5 | LWHFDHPHLYRAEISSEGGANSHVFASTFGAR |
| W7 | VWNTETPNLYDV'FTLLKEN TVIDRVESYFGMR |
| UniRee900-Q21DU2 | S |
| UnRee90-WorRR6 |  |
| UPI0003476DF8 | PWSAETPRLY |
|  | PWNDQTRHLYTVELRAESA GKVFDVVRFRFGMR |
|  | WSEFDPA YKVNFEESQRKKDSYODFG R |
|  | LMW AP |
| 源 |  |
| UniRef90-B3Q0B2 | PENP |
|  |  |
|  | R |
|  |  |

UniRef90 UPI0003FC5FAF UniRef90-K9ZY36 UniRef90-W7Y 446 UniRef90 UPIO0047AD44F UniRef90-A81Z85
UniRef90-R6SSD1
UniRef90 ${ }^{-}$W4VFM5
UniRef90-10H706
UniRef90-R7ZPK4
UniRef90-W8XAV2
UniRef90-I3YKU1
UniRef90-K1SL52
UniRef90K1UJG2
UniRef90-N9XAL2
UniRef90-TOVPB5
UniRef90-U4LJD6
UniRef90 W4CNPO
UniRef90-U2CPA5
UniRef90-G2T3V6

UniRef90 W409W
UniRef90-H1HKS7
UniRef90-A7NKT9
UniRef90 V4P2Z3
UniRef90-B9MQL8
UniRef90 W2ETF2
Unie9o- G5HSU5
UniRef90-V4NX77
UniRef90-HOE746
UniRef90-UPIOOO30ACB9D UniRef90-UP100030ACBGD
UniRef90-UPIOOO3B6D4F1 UniRef90-C9YCN3 UniRef90 R5RB07 UniRef90-UPIOOO369F645 UniRet90-R6Q9C8 UniRef90 A7B2M9 UniRef90 UPIOOO2630DE3 UniRef90-C6DOU8 UniRef90-T1E1Y9 UniRef90-M5RIX2 UniRef90-R5GKW6 UniRef90 UPIO003B43632 UniRef90-R4LXUO UniRef90-C9RPU7 UniRef90 N1QL24 UniRet90_W0FH46 UniRef90-M2V6S6
UniRef90 D310N7 UniRef90_UPI00036F748C UniRef90 - 12 J 8 P 2 UniRef90-D2QKB4 UniRef90-W2RN12 UniRef90 G9PA99 UniRef90-UPIO003741D8F UniRef90 W7BR21 UniRef90 UPI00038F83D4 UniRef90-R6L2P7
UniRef90-UPIO0047ACEFC UniRef90 G7VZC5 UniRef90-UPIO00477BA92 UniRef90-S8D0X1 UniRet90_L2FWR2 UniRe990-ORIZ00 UniRef90-G8NSU4 UniRef90-D9THU5 UniRef90-UPIO0034961FC UniRef90-G8TLZ3 UniRee90-UPIOOO40D4B0A UniRef90 UPI0003B3C7CF UniRef90-R616U1 UniRef90-H1YOW5
 UniRef90-F7KD11 UniRef90 H6UP38 UniRei90-UPIOO0471FFE8 UniRef90-R5UHE4 UniRef90-LOK4Q0 UniRet90-V9KIR6 UniRef90-E5XUU8
UniRef90
W4C9A0 UniRef90 Jow530 UniRef90-R5UT20 UniRef90 хог9нз









$Y \square K D F$
T A S LVPD G T Y GR $\square E L K \square K \square D A P$ VQ G A C
$R D V R / \mathbb{V}$ R】RTLEWSSSLD
 H $\square$ RRINVYPDVTAK
Y $\square$ T E LTVT P D Y D A R S G
R A
T G
NA
IA RFA
KVT V T V
 $T V T V$ K $\operatorname{T}$ R $\quad$ H D P G D Y I L R L Q
AVIDVKVETSAS G

| A |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| $G$ | $T$ | $A$ | $V$ | $E$ | $V$ |

D
E
T
K
K
R
V
E
E
A
R
H
S

E L L E

HTDKLRMTPNVD




$\square S D \square H V E P D M D Q E$

 T TLSVDPALVRLECAVR

SVPVVVGESWNLELEVDDE
$T \| L T P K L E E Q K N G K V E T H V T N T D D K D H E L V A E Y Q$
 K V R F D
$S R L A D L Y S N V T V D E S L A S A K V V L H A A T E G K A S$
1 RDDFDQARADAD HI DYVKMQARAEA GNGVLS I EMRGT
 HISDAWVLNTPDPHVVTGHVEVT GKKRSARAT S YVEAVKMTPDLDAR SI RFEYQVQGAGAADDDTLET E D I Q V Y P P DLA G $\quad$ K K V LVVRMNVVRASSSSAK GEVIALSSAR
 ARLTAVAEIENAG
$A \square L K V S A E V E N P T S S E V T L K Y T$ IVDP HLVSTFFDKYKRCYL HAT LDDLVNKSSSSDAPCSSQQ $D$ VS K D S A T IDDL S VT I Q T A N E T Q T T V S I I S E I K A L V I T S N L E Q R C W H V T V

 VA DLAVHAAYDAETGTGTLRVDV DGAAGAVVSV


 $H \quad L R K V K Y$ V $A$ D D T N SGKNTIEVLADNS LVPNCRLEDS
 LKVT P A V S LIE E K K A EV TVEA WVT G N A S

TFDSDYNDQ
LTPDT TDKDVRVEDSLSVEANEHDSFDVE I N D Y H I K $\quad$ I Q L I Q DVKWNPTVLDPDNR
$R \square \mathrm{NDV}$
 L Q Q N E V S A T S A S L T A V V E V E T S Q A V D T T I R I G
! Q HVVNV Y P DV


UniRef90_UP10003FC5FAF UniRef90_K9ZY36
UniRef90_W7YJ46 UniRef90-N1VV36 UniRef90-UPI00047AD44F UniRef90-A81Z85 UniRef90-R6SSD1 UniRef90-W4VFM5 UniRef90-10H706 UniRef90-R7ZPK4 UniRef90-W8XAV2
UniRef90-13YKU1 UniRef90-K1SL52 UniRef90-K1UJG2 UniRef90-N9XAL2 UniRef90-TOVPB5
UniRef90_U4LJD6 UniRef90_W4CNPO UniRef90-U2CPA5 UniRef90-G2T3V6
 UniRef90-R6W4D1 UniRef90 W4Q9W2
UniRef90 H1HKS7 UniRef90-A7NKT9 UniRef90-V4P2Z3 UniRef90-B9MQL8 UniRef90-W2ETF2
UniRef90-F7KJJo UniRef90-G5HSU5 UniRef90-V4NX77
UniRef90 HOE746 UniRef90-HOE746
UniRef90-E8V2C4 UniRef90-UP100030ACB9D UniRef90-UPIo003B6D4F1 UniRef90-C9YCN3 UniRef90-R5RB07 UniRef90-UPIO00369F645 UniRet90-R609C8 UniRef90-A7B2M9 UniRef90-UPIOOO2630DE3 UniRef90-C6DOU88 UniRef90 W7D2X1 UniRef90-T1E1Y9
UniRef90 M5RIX2 UniRef90_R5GKW6 UniRef90_UPIo003B43632 UniRef90-R4LXUO UniRef90-C9RPU7
UniRef90 UniRef90-W0FH46 UniRet90 M2V6S6 UniRef90-D310N7 UniRef90-UPIO0036F748C UniRef90-I2J8P2
UniRef90 D2OKB4 UniRef90-W2RN12 UniRef90-G9PA99 UniRef90-UPIO003741D8F UniRef90-W7BR21 UniRef90-V4PV64 UniRef90_UPIO0038F83D4 UniRef90-R6L2P7 UniRef90-UPI00047ACEFC UniRef90-G7VZC5 UniRef90-UPIO00477BA92 UniRef90-S8D0X1 UniRef90-L2FWR2 UniRef90 FORZ02 UniRef90-UP100047C589C UniRef90-G8NSU4 UniRef90_D9THU5 UniRef90-UPIOOO34961FC UniRef90-G8TLZ3 UniRef90-UP100040D4BOA UniRef90-UPI0003B3C7CF UniRef90-R616U1 UniRef90-H1YOW5 UniRef90-C6D6C2 UniRef90-A6EHS4 UniRef90-F7KD11
UniRef90 H6UP38 UniRef90-R5JTL0 UniRef90-UPIO00471FFE8 UniRef90-R5UHE4 UniRef90-LOK4Q0 UniRet90-V9KIR6 UniRef90-E5XUU8 UniRef90-W4C9A0 UniRef90-JoW534


NPDRTLTS ${ }^{50}$ DGTGEKETETSEENGKKVAKGS ${ }^{60}$ KKTENA ${ }^{80}$
 ALDGEK ITAESSNQNAN VLDNTTGSSVNVKYTVTAPDSNVIGKD DPVNKEFKIIPDPQ AAGGAEGGAGAPPDPLAHDCSNSSGGSSCGSGSGGMGGLR GSIGTGRFAQEVTRKAGEEKENLFTPERFGQLNM EGPR VAAATNAPVTVVRDKKGRIAGRASGTANADLRVALVNPR LLLSSKTGFRRVLPFSTS VPANGRQEVFVTTQIRRGDFH ATPDNFSGPRFQQAFAVTLENTAG DGRVLRVSLPMPSAK LYYTGDSKSSAETASRERVKQPDDGGQEKTSVTVPVVDNPR EDRNGAVVAL S S OTYQGEGEKYQFSKALETVKTPE ISFKEQLIAAGRLSADSAKMKFNADLFQEHDFRSNFHDGW TTEDDTUTADVRSPSGEEFSTILSKVDDTYSSTVTHPDPE I YTPDGTLCVQERTQDGRNID LWTGEAPDVTVTVAGETQTVPVENGYAKAV VDFALKNVG LKSPGGSVVASDSHGSTMAGKGGPCLVSFFLAPDEVE VYEKENPGKVILEKKLPRVADKQGGTNVVTMELHCPEAR IT YRKLMPGSMQTVVFEREVEVPAGRSVTVSFTLHIRRPY FAPVNFAGAVQT TVERAALAAGEHEVVGVLLVRDPH LKFDVFSKDEKJILSSEEKFLIGKNEEKVIAKTLELKPFK QEVRKQGSAGVLATFDSPVRTLGAAATTTLSTSAMMQNGD DGFSCHTTVTDPKGKQQ DTRLEEDDSEKGEDEIKEPC
 LRREG NGSGELLTRTGTALPGENELAFDYRGLL TYDEAGAKV GECNGATGKDEVKNVH LANPTQAAFTGSALVEDCAVDGNVLHQQTVEFSASFEGLA IREKGGKVIVRQSMSADSLQAHAG K IVQTLPMKQVK AFDHYGKELLATSDYPLRLEGAGQKQQRVVLNNDDRAD VVRAGG I TGGESKTVEASRTLSIDDLKSADGNGENAVQMQLETLPKAKQ

 SR TFTGNTEEKSTDKYTVTAPDGTILVKDGPLSESYDDTSPE
 PHDSDTGSLRLREETDAEANLTKDPETGRYSAEIAVPGAQ MADKGEKPAYRNTVMDAAGKVVASMMTGSPQQLLKVKRPQ



 TRDPELN VYKTQT VESPDGEVIYENVKDGEK KKDGDREIAATE GEGELTLSGGTGLR KKDAPTFLKMKVGDSPAVDEDDTDDGAEVQRAESSGAH AVSFNTQQALKVAPVTKSV QLKNGETDLDMDGPMGDKM VYTMDGKQVTQSVLL KANSTAE UKFDFVLKNPK HFTDDGKTVSSPVENGYAAADDRGEASAROR FYVENVR VVTEDRSASGAVVATDTAELTVLPGEPASARQRLYVREPS I SHTRN GEILCSRSKEFSFKNKVDTT IVWKIDGLNPE
 $V$ DGERYEQDTSLAQGREEKNAD G IS LRDHTGKVVATVKDQPSENLPSDQNFKDVEDPAKVPGAT A DGQRWERSVSLQPGTQ


 20


$Y$ I R K F Y LT P Y V D D M QV Y P D I T Y I K QLRWTPIFD

DYDKGELHTRMLTHGTAP K N K S l K V K M T V R N C T E H T A S $\operatorname{G}$ K FEI GCEVLAAGKQKSGLSVEV Y I Q N V M F T P V R Q G L G WH G S WK A V V R N M G Q V E R M V


LYP DAESRRVVRAVRVAGE DGPVQVTiR SADDAANEVQLRIGTIGENPTDVVLEAT

 VK DPLVTTDLKTDSSDVAVQATVENVTDQPQKGVLKGT R四EVQVYPDVYKK SVRVRVNDASPEK YKKNTELI


|  | 50.6080 |
| :---: | :---: |
| UniRef90_UPI00036BDA16 |  |
| UniRef90-17E244 |  |
| UniRef90-N2B718 | VREKGGKLVATHQ\GDDSLVAQEG |
| UniRef90-N9XTQ9 | S S CAEATCTDNIIVAANSEA【AQ\\|ILKPENVR |
| UniRef90_UPI0003135 | DGECAAFLNSPLS WTATLAPYETRAVEMVVRDREPR |
| UniRef90-UPI00047BDEA6 | RVSVPEDGIDIA VGESVAVE |
| UniRef90-UPI00035D0 | TVTVARDGQAVAERRVPA A D GSAEDRTIPNPE |
| UniRef90-R9JHC6 | VFEESNCICDKESSASALSAAKRNPEGYSLSADIRIPKAR |
| UniRef90-R7ER71 |  |
| UniRef90-UPI00037BFE98 | LS LGG KVLADD\\|MLVGLEANRK\|ALS DPGIDDS R |
| UniRef90 ${ }^{\text {W }}$ - $4 \mathrm{~B} 8 \times 7$ | L A GIDDAELGRSLV KS GETVEISSWVAYPDVK |
| UniRef90-R6WZQ4 | LLEANGALGYQ A DREVLVKAFSEYDFDHEFILSGMH |
| UniRef90-R5MTA9 | 1 PELKI ASEVQT DGQ GMAKDSFCAKKDE |
| UniRef90-UPI00036CDC2F | I RAGDRLIAKRAVP AEVHDGLATVDHDFSLG EDAR |
| UniRef90-B7RU08 | VFSGDELVAEVRTAAGRDATVVR |
| UniRef90-B1ZVU9 | ATSFNHDGAPHQPAPVELEWSDAATRDHELT C P L G G A AK |
| UniRef90-UPI00046EEF7C | PELNINKSLETNKEGVGSFEIVSDK】Q |
| UniRef90-K0VY57 |  |
| UniRef90-UPI000479A709 | ENINFEEPVEIPAHGSQKVDF DPKTTPALHIENPR |
| UniRef90-UP10003FDD107 |  |
| UniRef90_R7DRM3 |  |

[^0]
90
100
 LWDVDDPALCEVVVTVQSGK HTLDQRVVRTGFR
 DWAF WKPELYYVAEFSVTMADADEADRFATQFGLR LWWPN QP R Y Y VTAVLADDEGETVDRTERRVGFR PWTTEDPFLYTLKIQRGD DHVESYFAMR LWNEFHPNLYTLDCKLTSEGQSYAHEKSTTGGMR EWSLENPNLYAGTAILTTTEEGYDCDDWLDRVGFR

 LWSPDDPFLYDVKI RML RNEEELDFI ESYFGAR
 YWSVK N PN N Y



[^1]


[^0]:    lupas_21
    lupas_14
    lupas_28
    jnet conf
    sol25
    sol25
    sol5
    sol0
    jhmm

[^1]:    lupas_21
    lupas_14
    lupas_28
    jnet conf col2
    sol5
    sol0
    jhmm
    jpssm

