QUERY
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MLSFQYPDVYRDETATQDYHGHKVCDPYAWLEDPDSEQTK MAYNYPKARRDESKIEDYHGTKI AEPYEWLEDPDSEETK

mikia MLS

SFQPD
LAYP
AYP
保
$\square$ s
SPKKYPVARKDDSQVETHHGVEVKDVYRWLEDPDAEET
SP

MPSTS PP K SRKADQVD YPDVRRDEVDDHGTLVA
MPFQYPQTRRCDQTIDTYHGTETVADPYRWLEDPDSEET MAMKYPDARRDETTVDDYHGRKICDPYRWLEDPDDAETI PAMDYPAVTRTVEQQDNYHGATVADPYRWLEDANSADTA LTYPQTRKSE QTDNYHGIQVADPYRWLENPDSPETK MSLNYPKTEETVKQTDDYHGVKVKDHYRWLENPDSPETK PNSKTGDQQDNYHGTQVADPYRWLEDANSAETH MS

| P |
| :--- |
| S |
| A |
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LSYPETA QDQQSDDY
KFVYPPHARQSDQVDEY A

SQTPP
LSYPAARKDDVVDNYHGTVVV
SYPATAKQ PVTDDYFGTKVE
KYPVVARRDESVVDDYHGVEVSDPYRWLEDPDSKETN
PNFSYPSSPQQD VTDVYHGVEIKDSYRWLENPDSEETK
SKFSYPETYKDESTIEEKFGVQIHDPYRWLEDPDSVRTK

M S
WQYPKLRRDESVREERAGVVVSDPYRWLEDPDSETR YPTTQKSE
MVFHYPKFERDESVVDNFFGTKVY
TSVYPEARRDETVGDNYGGVKVGDPYRWLENPDSSETK
TEMTYP VS
LSN NYPEVRKSD QI DTYWGEEVA


$K$ K K YTT

TKKENVSYEHF K甘CYPKVRRDSQHFDEYHGTKЏAEPYDWLEDPDSDETK PPVAEKQPQVLELHGDKRIDNYFWMRDREDPKTM A $\square_{\text {QYPTV }}$ HMPYPETQ KTVDTVDVY HMPYPETQ
$D Q Q P E T$ KRDVVDDY YYG MTYPEARKDGRFEEMIHGYKI KDVYRWLEDPDSVDTA
 LINLNYPKTKKVDTVTD YFGTKVNDPYRWLEDDRSEETEE TWAYPNTRRDESVVDEHG VADPYRWL YPSTAKGNVSDDFFGVKVADPYRWLEDDRSAETK SK $\mathrm{D}_{\mathrm{K}} \mathrm{KPPTAKGK} V \mathrm{VDTYFGVKVAEPYRWLENDTSKATA}$ SSKYPLARKDNSILDDFHGTKVADPYRWLEDPDLNETK SLTYFPARRDETVVETHFGETVADPYRWLEDPDSAETK AVNYPETKKGNVVDEYFGEKVADPYRWLEDDMSEETA KTSY VTKKGDVVDTFFGTDVADPYRWLEDDRSEETG MTVTYP TTQKVDHVDNYHGTDVQDPYRWL TRKSNPPDATKH
$M A \square N Y P E T A K V D$ HELVTHGDKRIDNYYWL

AKKNHTDTYFGTQVQDPYRWLEDDRAEDTK
PRHYPPVRRDDDVDGYHGVKVMDPYRWLEDDDSNAR
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## QUERY

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UniRef90 H8XRF5
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 AFVEAQNKVTMPFLEEAVVQAKFKERMTELYDYPKYSCPY AFVDAQNTLTRSVLDQCTVREPFEKRMTEI FDYPKHGTPF AFVEAQNKITVPFLEQCPIRGLYKERMTELYDYPKYSCHF
 AFVEAQNNI SRPFLDSCPVRDKLNKRLTELWDFPKYGCPY KYVEEQNKI SQPFL E GCE SWKKI NEKLTKKLWNYEKYGCPM SWVEA QNKVTQAYLA QDPQREAI RQRLTQLWNYERYSVPS DFVQKQVELTQSVLKECDTRGKLSEKITKLFDHPRYDPPY EFVQKQVKLTESVLEKCEARDKLRDEITKKLFDHPRYDVPF
 AFVAEQVKLTDTVLQSCDVRQKMNNKITEELFDYPKFECPF AFVVEANAITKPYLASCSVRNNDHKRLKQLWDFPKYSCPA TWV EA QNEVTFGYLREDPAVEPLKKRLTEELWNYERYSVPF AFVEEQNKVTMPYLEQCAVRPQFHQRLTELYDYPKYSCPY A WV QE QNKLT QGYLA Q IP GRDA KKARLTK K WNYERFSVPF
 A WV EA QNEVTFGFLEQI SERETI RKRLTDDLWDYEKYGDP I A WVEAQNAITMPFLEAI PARVPIRERLTQLWNYERWGVPY

 A WVTAQNQVTFDYLST IPSRQKLSDRLTKLWNYERYS DPF E YVNSQNNI SQPFLENCEQWKKI NSKLTKLWNYPKYGCPM A WVDAQNQI TFTYLNQIPAREKIKQRLTKLWDHEKYGIPF QWI EAENQLTFGYLEKI P DRARLKQRMTELWDYERFSVPW A WVKEENGVTNAYLKTIPYRDKI AKRLEAALWNYPKYGAPF EFVEQQMNLTESSLKVCETREKI REKLTTELYDFPKYTAPF
 TWIKKAQNQLTFDYLANDSVREPLKKRLTELWNYEKYGDPF



 A WVEAQNQLTFGYLNQ\|PYREKLKQRLTKLWDYEKYGDPF E WI EEQNEVTKEYLSDI DFRDNI KKRLTEEI WNYPKYGAPF A WV T A QNEVTFGYLEQIDFREDI RKRLEEVWNYEK LSAAPR AFI EKQNEI STKFI EQGQKTSIENKLTKLWNYPKYSCPA S WV A WI EA QNQVTFAYLSE IPAREKI KQRLTQLWDYEKYS IPF K FI DAQNAI SQPFLEKCDEWKKI NTKLTKLWNYPKYGAPM A WVKAENKVTFDYLNE円PFRKELKSRLSDLWNYEKVGAPF A WVKAENKATFGYLDKI PFKDEIK QKLEKI WNYEKI GAPF
 DWVTA QNEVTFGYLEQIPFRQALRDRLEQVWNYERYSAPY NWVEAENKVTFNYLDNIPYRDKLKKRLGKLWDYEKDSAPF TWI DAENELTQSYLAQUPVRETMQRRLDELDNFERYTAPS NFVHEQNKI FQAYI AKCDVKDKDNERLKDLMDYPKYSCPF

 AFVKA Q NDIT LIP YLA ECEVREKFKD
A YLEAENAYTQAKMQHTFQTQLYEEMDSRTKETDDSVPYR KWVQAQNA ITEDYLAQDPFRDKIEERLTEI WNYPKSGAPF A WVKA KNAVTQDYLSQIPFRDAI RGRLTQLWNYPKEGDPA A WVKAQNEVTNGYLAQUPFRDQLKKQMEEAWNYEKDGAPF A WVKEENAVTQNYLSKIPFRNNI QKRLENLWNYEKFSAPF EWVKAENKVTFGYLDKIPFKDDLKKRLSEVIWNYEKDGAPF
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 DWVRRQNAVTFGYLDGDPYREALRQRLEKLWNYEKLGTPF A YLEAENDYANAMKPTEVLQTQLYEEMLSRIKETDLSVP■ D WVKRQVAFTQNYLDQDSFRNEIKDQLKE WNYEKISAPF
 EWVKAQNKVTQDYLANDPYRNADEDRLTELWNYEKDGAPF A WVKA QNAFTGDYLSKI PYRQTI KEKLEKLWNYEKUGSPF

 A WVK K Q N KVTF TYLEKIIPFRDKG|KKRMEKLWNYEK|I SAPF




## QUERY <br> UniRef90_UPI0001CBA062 UniRef90-M3XJ9 UniRef90 E9BYZ0 UniRef90-UPI0003F14366 UniRef90-M0RSV5 UniRef90-F2DN24 UniRef90-K1R2E8 UniRef90-T1PFY3 UniRef90_UPIO00365B871 UniRef90-M5XRP2

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UniRef90 W0EVY1 UniRef90-W0EVY1
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## ET

 KQNEHQKLYY HLLL $\stackrel{\square}{\mathrm{L}}$
## ш

E
SGANYYQKEFFHQLGTPQ

ETSQVLNQKLYYHLLGNDOSDDVLCYEFPDHPDWLNSEL
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TNKNEYKVYYHKI
EVKONENHKLYFHKGGPQS

KTDQ
KTDQ
$\begin{array}{ll}\text { KTN } & \text { H K V Y Y H K } \\ L & \text { NHK L Y Y H K }\end{array}$
NHKLYYHKLGTPQSEDKLI FGDDKNXRRYVGAGV
K T DQ $\quad$ HKL Y Y H K L G
AKNEYHKVYYHRLGEAQSEDQLI
KTDQ HKLYYHKLGTAQSEDKVI
LKTANYFHKLYFHRIGTPQSEDELI FH
ENVKCVDHKMYYHKVGTPQENDVLVVEFPEYPEWVL GAQV
 KTD
ETSTNLH HKVYFHTLNTPQKDDKLVFG
KTNQ QK L Y Y H V

ETDMNLD HKLYF HKL
$\square K G K N E F$
$F S S Q N Q F$
KTSQ
ETK【
ENQLYYHLL KTDQHR
LAAKNENHQVFFHTL GTP
EVDTNLHQKVYYHKLGTSQEEDPLIFETPDEPTRIFGVEV
KTD
ANRPFQLLRHTLGTSVDEDVLI FHEPDNAFFLEVG
NKNEYEKVYFHTI GQDQKQDKLVYEDKQHPDRECYAGI STEKHEYHSLYFHKLGTPQSDDILVADFRSHPEYMCSGTV ANAQHEFQKVFYHKLGTDQQEDILI DSHPEHPKWDTDVTL KTDQ
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HKVYYHK
$M T D Q$
$D A N R P$
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KTDQ
$K T D Q$
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## QUERY

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[^0] KLVDNFDAE Y E Y I A NE GTLIFTFKTNDNSPRYKLI NI DDSK

 KL I D N F E GEYY D Y V T N E G TVVFT F K T N R H S P N Y R L I N I D F T D

 KVVDNF DA Q Y E YL T NEGTLFTEKTNDKAPNYKLI QIIDFSK



 RLVDKFDAKYEVI ANDGNVFTFRTNKNAPRYKVTRVDTRN
 ELI S EFEASYGLI DNDGTTFWFQTDLNASRGRVIALDLLTK KLVDNFDAQYSYVTNEGTVFTFRSNLDAPRYALINVDI QK LLEDFDAAYNFVGNDGQVFYFHTERNAPRGRIVAIDVVK

 ELISDFIGNFSFVEYEGSLIFWFRTDYNAPKGRLI GIDINQ


## E <br> E E I I I

 SDY Y D M O L
K PIVNQFEADYSFIDNKGSKFYFRTDLNAPKGKVIAVDIDN
 KLDDDFESSYDFI ANDGTVFTLKTDYQAPKYQLINVDINK KI I E K F E A D Y D Y I T N DG S KVVYLRTNKNAPNYRVI VI DFAN ELI N E F E A D Y S F I D H D D S I F F Y F R T D L N A P R G R V I A I D D



 E N FESSQYSVVVDNVGDKL LVMTNKNAPRYR LVLIDDPKK K V VD
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 VD R T T G I E Y D I D H H S D Y F Y I V T N E Q A DN F K L MR TPAV N A









 TD N F D A D T Y V I E N E G D K L F L V T N L G A P N K K I V T V N A K A
$\qquad$ VG RQT GV PVQKGYDYNT DVVDTKGDCFYGLTDKDA PNMKGMKKFDVKK PLVNNLDASYGFI GNDGANFYFQTDKDASKGKVTATNVLAA KLI DSFDASYTAIANDGSVFTFQTNKDAPRKKLVRVDLNN IDNFDTNSYVMHNEGDKLWVVTDKDAPNKKVVTTNFKN Q $\square$ GFDHDYTFVGNLGQKFFFTTNDGAPLMKVVSVDDSA





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UniRef90-14ALX4
UniRef90_UPI00047E0830 UniRef90_A0A024UQF3 UniRef90_M1WY60 UniRef90_UPIO0047787D0 UniRef90_UPIO0034B295D UniRef90_G5H535 UniRef90-R5KZ42 UniRef90_F9D2H1 UniRef90-FORG41 UniRef90-M5RRR4 UniRef90_UPI00035D8A9A UniRef90-F7NSU0 UniRef90_U6H5K2 UniRef90_UPI00046F6071 UniRef90-A5V5X3 UniRef90-N1MT10 UniRef90_UPI0003625945 UniRef90_UPI00047A48CA UniRef90_UPI000364D3B1 UniRef90_13C9K4 UniRef90-H1XPJ5 UniRef90_UPI0002657207 UniRef90_UPIO0036DB777 UniRef90-UPI0003694739 UniRef90-J4KF02 UniRef90_UPI00026CBCE1 UniRef90-M5UAX8
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TRNYPNT RKDNTKDTYFGTEVVPDPYRWLEDDRSKETA TRMTYPET KETTDKDNYFGTEVADPYRWLEDDRSAETK MKYPAT TRKVDQTDDYYGTKVAADPYRWLEDDNAADTK
 KKI EHTDTYFDTKVNDPYRWLEDDRSAETG $K K V D V$
$K K S D$
$K$ ALKYPATPKGD $\square \mathrm{DV}$ NYPTTA KVDDVDTYFDAKVND P L L S Y P P V MHFPYPETY KKESVTDTYFGTTVAD MHFP PPVA

## FQY $M N M P Q$

 PAYQYPAVHRKAPQADSYHGVTVAD $P P \vee A K S$SFHYPK
PAPQDNTVDT
PVAEQQPEVLELYGDCRIDNYFWM $\mathrm{PR} T \mathrm{~T} P$ VARMDSTVDDYFGTRVEDPYRWMEDDNASETA

I SYPSTA N
 $S K M Q Y P E T$
 $P \mathrm{P} \square \mathrm{A}$ AKRPVSATHHGVTTTD YPVTAK KGDVDTYFEEKVADPYRWLEDDRSSETGIA YPSTTR$R G P L$LRYP A A

R R P
L K Y $R G D$

S
QYPQT MKEIT

| $P P P A$ |  |
| :--- | :--- |
| $P$ | $A$ |

MPVTKYP TVFTYPET PRTRDQT TEELPAPP VA QR ${ }_{T}{ }_{T} \frac{1}{M}$ PMQYPET N T T Y P K
$\qquad$
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 KKDTTVTTYFNTPVPD

FDYPK
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MKDFTYPQTA S N MNYPST
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MKYPE | M |
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| 1 |

MS
M T TKTSRPPAAKQVPHE N LDPAAPVAPKKPVTDTRHGDSRTD PAQQYPET
MSD DIPPVAK MN KAP SADKIPAKTMEITHODVRVDN

A A Y P

MSENIQAPI TNFPQPPKAPKHP
MSKPYPQSPRGD

MMDFHYPQ
MD PSOYPPVYREENETDAYFGGTIVVN
PLSYPQT

LRYPDTNK Q

M P K
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## PQMKAPET

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PPTAKDSVVT
P V A P R R P HA F T
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puaprophaf
MT Q AAPPETVVE OVDVYASVAVSD
KLTYPTVRRAD
PPTVOOKPKELT GYP SDPYRWLEDPDAAETR APPVAKKVPKMEIHGHERVDPYYWMRDDSDPEML
NFSYPET MT KKENVEDTYFGEKVI PPKADKRSAMTDGVGV $P P \bigvee A R R V P V T A T H H G V V L V D D Y A W L R A G N W Q E V R$

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EWVIKAENQVTFDY|LSRIIPFRDA\||KARMEKLIWNYER\|SAPF QWVDAQNAVTRKFIDQISYRNQIKTRLTKLMNYEKYSQPF
 A WVKAQVK FTYGYLKQ DWVKTQNEVTFKYLNQ PYREVKARMEKLWNYEKISAPF EWVIAQNKVTFDYKDKI TYRNEA: KERLGGKLWNYERVSAPF SWVKAENEVTSGYLNQI PFRDALKARMEKLWNYEKIGAPS AWVSEQNKTTFGYLENIPFRNDLKNRLEKLWNYEKLGSPF AWVEAQNKVTDAFLETLPGRAALASRMRALYDYARTGVPD AWVKAENKVTFNYLGQLPYRDEIHKRLEFLWNYEKYSAPF VFVEAQNKITEPFLEKCLVRGLFKERMTELYDYPKYSCPF AYLEAENAYTKAMMQHTELQTQLYDEMLSRIKETDLSVPY SWVKAENEVTFNYLKADPYREELKNQLEKVWNYEKLSRPF AWVEAQNRVTFDYLHQLPYREALQARMTALVNYPRQSPPE AFVAAQNELTQKVFQDIPYRKEFLARNTELFNYEKYSSPF AYLEAENAYTDAMMEHTDQNELYKEMLARTKETDLSVPYR RWVTAENALTRHYDDQLPQRPKLMKRLKEVANYEKVSTPF AYLEAENAYTAAMMEHTEQTKLYKEMLSKIKETDLSVPYR A WVRAENEVTQHYDAQDPYRDIRGRLTELWNYPKYDVPR A WVAAENKVTQEYLSKIPFRGALLKRLTDVANYEKWGTPF A WVEAENAVTAAYLGKI PFRSKLMARLKAVANYEKVGVPF SWVKEQNNTTFGYLDQIPFRESLKQRLEKLWNYEKLGAPY A WVEAQNKVTQAYLQSLPEREAMRARLEKLWNYERFGLPS
 AFVAAQNAVSEKYLDTPV RGQILNALKRFQDYPKFGTPF AWVKAQNKVTFQFLDAIPYKGKI FDDLEKAYNYPKYSAPK RWVDAENKVTEAYLDALPGRDAI RKRLKTLWNYERYGVPR DWVAQENALTRRYI DGLPGRTALKARMQALLSHGRYTVPR A WVNAQNKVTRQYLEQIPAKGQIADHLKKLWNYEKRSVDF AWVQAQNKVTDAYLEQUPFRNQLKARLEKLWNYEKDGAPF A WVKAQNEVTFSYLKQIPFRDEVRAKLEKSWNFERIGAPF DYLERENAYFEKMTAHTDFEEDLFKEMKGRDKEDDESVPY AFVEAQNKTSKPYLDRCPHKKELTESLTKLWNYPKFTVPS DWVAAQNELTFGYLENLPGREQIAARMTELFNYERVGMPE A YLEAENAYTQAALGSTALQAELFQEMKGRLKPDDSTVPA A WVEAENKLTQAYLKRDPMREKLLKRLKEVSDYEKDGLPT A WVSQQNKVTQAYLDKLPSRKPMRDKLEQLWNYSRTGLPV A WVEAENQVTNAYLSKIPFRAKLLKRLKEVADFEKVSTPF A WVIEQNKTTQDYLSQIPYRESIRQRLENLWNYEKYGAPF EYLKAENEYKETVMKHTELQENLYNEIVARIKQTDMSVPF AHLEAENAYKDAMMKHTPLQEKLFEEIKSKIKPENESVPY QWVEAQNAVTFGCDHNTPFRHALRERLEAANNYVKESAPF AWVKEQNAVTFGYLENGDRRKLEEERVGRLKQTDESVPYK NYLEAENTYTDAMAHTKTGQSELTEEELKGRIGKDDDSVPVV AWVKAQSQFTTDYLNAIPYRKTIKEQLEKLWNYEKSGAPF QWVKEQSEFTEKYLAKI PFREQMRKELRAIWNYEKVSAPF QYLEAENRYLEETLKPVEFKNALFEEMKGRIKEDDQSVPY EWVKAQNEHALPRLKDLPGWQKINDRLTELWRYERYGVPY KWVKAQNALTQKHLDQIPFRTSFLKRLQEVYNYPKYSAPT DWVSRENAVTEDYLTALPQRAQFQRRIRAFMDYERFG円PV AWVQSEVDTTNAYLATLPGRDALAQRMKQLYDYARFGVPT AYLEAENAHTEAATAHTKDQDEIFEEDKSRTDETDLSVPS DYLNQENDYYKAQTAHTKQFQDDFLEMKARIKEDDSSVPY KHLEAENAYMKAAMADTELQKTLFAEMKGRIKEDDSSVPM DWVQAQNEFALPTLKALPGWQKINERLTELWQYERYGVPY DYLNAENAYYEQMTHTKDFQKKLFQEMKARITKEDESSVPY DYLERENDYYNKMTVHDDLKESLFQEDKGRIKEDDASVPY DWVKRQQAFGEEYLAADPNKQVVVDRITELWNFEKVGAPF AYLNQENEYYNAKTAHTKQFQELFEEMKARIKEDDQSVPY RWVEAQNAVTEDFLAALPARAAYRERLTALWDYPRDGLPW NWVKAENEVTFNYLRKI PYREALKDRLSKLWNYEKIGTPF DWVEAENAITNSYLAKIPFRKKLLDRLTEVANYEKVGVPF AFMAAQNQLTESVLEECDTRSKFKDMMTEMYDFPKISCPF AWVKAQNQVTFDYLAQDPYRGV1RDKLQQSWNFERVGAPF EWVKSQNKVSFSYLENI PFRDALKERLEKLWNYEKISAPF QWVASQNEVTFDYLAQUYRAELRERLAKAQDYKKSSQPF DWVTQENHLTRAYLDALPGREALKARMRALLAHGRFTLPR DYLNAENAYFEQEMAPKDLQDRLFTETKS RITKEDESVPYR DWVSRQNEVTFAHLNQTPFRDAIRKKLETVNNFEKVSQPF QWVKQQQLDGKAYLSAIENKQAIVDRITELWNFEKISAPN AHLEAENAYQRGMGDTEELLQKNLFQEMKGRITKEDDSSVPM A WVKAQNRVTQDYLAQ TPFRDAIKGKLATSWNYAKEGAPF EWVSGQNSVTFDYLGQUPFRQQURDLVANSQNYEKYSQPF DYLNAENDYCDAKMAHTKEFQKDFEEMKARTKEDDSSVPY RYLEAENAYTESLLGHTGLQKTLVAEMRARIKEDDSSVPS DYLNKENEYYNEMTAHTKFQTELFEEMKSRIKEDDQSVPY NWVEAQTEVTNAYLDQLPGRER UAARLAELWNYERYGLPT TFITQQNDMTQELRHTVPYVAETKARLTDLFNYEKYSAPR AYLNAENAYLEQVMVKPLQEQLFQEMKGRIKEQDESVPVK AHLEAENSYVDQVMEHKPLIQDALYEEMVGRLEKDKSSVPV NWVKAQNQVTFGYLNADPYRQKIKEQAEKLWNHEQLSAPF AYLAAENVYFEEQMPHKALTDTIYEEMKARIKEDESSVPQ KOKADQETLF


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 VA G G R Y F F T R N S G L Q N Q A V L Y V V R D G Q D G A E R V LI I D P N V W A $K R G N R Y F Y F Y N T G L Q N Q S V M Y V Q D S L E V E S R V F L D P N K F S$ RKDNYYYYSRTEAGKA YRIVYCRKK GLDAPE EVVLDDENELA
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 K R H GT WY VYK N NG GQ N Q SVLYK M DKL G GTLLEVLDPNKL S KDDYY Y Y SRTE E GKA YPI YCRKKGSLAATEEVVLLDEN QL K KVGGYYFFFENDGLRNQSVLYRQQGLSGKPEPFLDPNTLS $K K H G K F Y F Y R N D G L Q N Q S V L Y V Q D S L K G E P R V F L D P N K L S$ E QH GA WYCYRND GLQ N Q SVL YRLDDRLGGT GQVVALDPNALS KEGDYTYFSKNNGLQNQSVIYRKK DGEEEVFLDPNKFS

 KE GSFWYS WRNS GLQ N Q SIL HRHDKKGEVTEVVGLDPNRWT KKGDYYYFYKNDGLQNNQSVLYRQKGENGEVEVVIDPNSLS $K R G G R Y F Y T Y N S G L Q N Q S V L L V R D G L D G K E R E L L D P N R W A$ KAGGRYFYGYNKGLQNQTPLYMREGLDGPQRILIDDPEWA

 K Y N G Y WY DT K Y E E GK D Y P V Y I R K K D V D GVE EVVMFDCN EMA
 KNGF LYF FSRN DGLQRDQSVFYVQF GLDGEPRALI DPNGWS PD GP F YFANYVA GGQYPRLCRRARNSEGEH VLLD GNAEA F N NKK WY F Y K ND GLQNQSVLYVMDRPGDERRVGLDPNKLS K K G GHYFYTHNSGLQNQAVLYVRDSVDGAGRVLIDPNGWS RRGDRYFFSHNDGLQNQSILYTAPADDASDQVLIDPNTLS
 K TEGYYYYSRFEEGKEYPVYCRKKSLKAEEEILLDVNEMA $K K N G Y Y Y Y Y K ~ Q L P G K E Y O D V N C R K K G L D A E E E V M L D E N V L A$
 S N GYWYY T R F E E GQEYP I Y CRKMGGMDGEEEVMLNVNUMA
 QA GE Y LFFSRNS GLQNQSPVYVQAGASGKPRELLDPN TLAS KEGDY Y Y Y KNNGLQDQSVLYRKDK DGNEEVFLDPNKFA
 KKGDSYYYDYNNGDWDQNIFYRTPELAQDGKPMLDPRSLS EKGGWNYFYKNDGLQNQYVLYRQKGET VVEKVLDPNTLS $K A G G S Y F Y T R N T G L Q N Q A Q L G V R K G E D G K P R L L L D P N A W A$
 LH HGWWYYART DEGSQYPVHCRSRTEPADEQILLDENELA

 L Y N G Y WY IT RFE GGDYPIVS RKKESLLEAPEEILDFNCNEMA

 K DGPYA YGMSFRTGGEQPYFDRTPRDGGDETILLDGDKEA

 QR GQ Q W W Y S S N T G L Q S Q S V I Y T Q K T P D S E A T


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 TRETVYYFFSRND GLQQDQSVFMVQDGL EGEARPLDDPNEWA $K Y T A K Y V F S K N D G L Q N Q S V L Y I Q D T L Q G Q P R V L L D P N Q L A$ D GE Y F Y YVK Y DE G GEY P I Y C R K K G S L E A T E EVVLL D GNEMG
 K D G D WF Y WTAYETGGGQYKKWWRKPVAGGDDELLLDEPAAA F WH H WY Y R Y Y K Q GFEY P VI A R K DA L E S D N E Q L L DV N E RA

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俍 KDGASALAEWAPSPDGAHLAYAVQEAGSDWRTVKLLDVAS GQYFQi GGFQVSDDNNLLAFSVDTVGRRMYTLRIKNLTT
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$T D D G R Y L V I H N W K G S E P K S Q I$
$T$
$T$
VTDARGYLIVSAANATSGNKVFLKDAEDPTGAPRLT

TEDERFAVLYVSDRGKGKDGNGLWVKDAQSSTFRPV
TQDGRYALVTSSEGTDERYELTLFDLAEPNAKPR



$$
\begin{aligned}
& \text { TKSKKY } \\
& \text { R R SKK }
\end{aligned}
$$

        Y KKF
                        VFGSGS T \({ }^{1} T S^{T}\)
    SYCGRHLIVSVQEGCQD
THDGQYLVI YTSKGTDG NGTRILIDLTQEGAEPVVI
DKTLSGKKFLIVDAHDHQSNEVYLSDADKY ASPDVLVEK
NEEETMMFLY ESGAGAGNNGYVRDADKPDAQFIRMEANM
TDDGKWLVITTHEGTDNRYQITVIDLTAPKPVPRTDFK

$\qquad$ LI $\square$ A S N
TKSQKY L I I GSES
TTEDDRYLVI

S

SDDQRYL! VMY

N AT

EDGDYFVM

GEFRQF
GDFVALDF
KAMPKR
GAQP D
GAQPDLSAPTR
TDDQKYLI LSGANATSGGNEGY I RKASDKKGKFIPV
TKSEK CLLIHSEST $\mathrm{C}^{2}$ SEMRFLEADNPFGDFKILQP
SDDGNYLLFGI FDGYDSNGFYYRDLDRKSGKVV
SEDEDLAFLSVSDRGKGGNALYYKRKGEKNFSPV

EKSKKY
EKSKKY
MDD K DFIVIGSSSTLTT
TDDGNYLVLPI FDGYDS NGIYYQDLTKPSADVV

SDDGNF
A $\quad$ D

SEDGNYLFI TASISTSGNNKLGKKPLGKEGPGSGDFQP



 SKSRDY IFDQMGSTMSSETRYVAATDPTAAFQVFDP
TTEDDAFLVVSGAQSTSGNELYVRDLRQQDAP LTLVTNKN
TDKGDY LLLY SQGTDSRNRFFYKSLKQPQAEVVELDP
SRRKDWI


SKSRKYII I ACYS TSGN
AKSKSKKYLADESGSTGTTEYQULEADNPDGKFRMFQK
SDDGNKLLLYVQDGCKNANMVHVADLSDFDSF LKGPRDST
MKSKKYI AI VSDHNG円ASEYQLLDANNPTRACQTFLP


K S LDE ESVIVLHAESTVTSEVSMLDAKQPLGQFEPVLP


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UniRef90
NOBC

PQQANWKDFUKETEHVLIR
PKPENWKEL: KETENVLR

PKAETWKDVI AETSEPLEI N
PKPENWKPFI AETENVL


PDPSKWKV L P E T S NV L
P K WK P E HEK SVVLGG

FGEEHWTTVIIA
SDT\|VWTEVIPP E GVVDV LITAA A HAVRK

PAKQNWQTI IP HQ
$V T P V V T T L V$
$P A L K D W T E L V A$
PALKDWTEELVA
$P G F A E W Q E L V P E G$
PTPENWVDFIPEGSGVLL
ADREHWNEVVAEADDV
PGRENWGDLVPHNPGTLILGM PEADKWTDVI PETANVL

SASSGSGY|I|FASYMQDA|I|S|V PAADWDVDP DVGGAGFLFANYMVDAISQ





 PQE WIDDVVPAHPKNVLEWALAVVDGDKLIVVECQDVVSK PG TLSDIIPEGES PLQGVSYVGGHLIVESLEDVQSK PGQANWRELLAHKPRLI DDVV FKDHLVRLEREDSLPR
 HDRSTWTSSI GETDDTGLEDVSLL GDTIYASYLSDALSK






## P

$P \quad S Q W T T V I P$

K A WK E MVP ERKEPMV


P GREHWRPVLPHTPGVRVTGVDA FAGHLVVTMRRDGRTE
TGK A N WT DLI P H R D DV LLE E DI D I F F D Y L V I S E R S N G L N T

T S K E N WVVDV L P H R E DV L L E D I E I

PAK D N WR T L V P E S Q D PI A E $\quad$ I $T L K K H W K D V I P H R E E V L L E G \| D D \quad F K N Y L V V E G R S N G L N H$ $P$ QP E N WE ELV P E VP G R L I L S H S A Y K R H L V WM E R D N G L P R
 P T S E N WVD F I PETEHVL SPSTGA A Y L F ANYMVNA I S K



 TSKARWQEIIAHRDDVFLENMELFRE YLVLGERQEGLLQ $P$ VDEN WE DLI P E QE Q QLDDIE
S A K D N WK T I V P E LIK D $\quad \mathrm{P}$ P


$T K$ VIG

T S K E NWTEV, A H R D AVLLED DE I F F K G H L V R L E R A N A L P S
$P \quad E \quad D L S D V V V A$
 TADTSWKKTVIEHRPEVYLESMEV FKNHLVIQE\|FQGLSQ





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UniRef90 $\mathrm{F} 8 \mathrm{ECN1}$ UniRef90-F8ECN
UniRef90 P27028 UniRef90-UPIIOOO40B21A7 UniRef90-UPIOOO429EB2D UniRef90-GOJ2N1 UniRef90 UPIOO0478E4A9 UniRef90_UPI00047E3EC2 UniRef90-UPIO004760DA9 UniRef90 UPIOOO3B77C66 UniRef90-UPI0003C18B47 UniRef90-K9QX11 UniRef90-14ALX4 UniRef90_UPI00047E0830 UniRef90-A0AO24UQF3 UniRef90-M1WY60 UniRef90-UPIO0047787D0 UniRef90-UPIo0034B295D UniRef90_G55535 UniRef90-R5KZ42 UniRef90-FD2H1 UniRef90-FORG41
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370

390
400
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 IYHCDLTKEALEPRVFREVTVKGFDPSDYQTQVFYR ARVHNLFTGEESNTIFPEPTYSEGSNPEFHTNILRFNYTS VVOYDMNGKEVREVKRGVGSAGGFGGKKEESEMYFSFTN VFVHRYDGTLEREVALPGLGTSVGFAGDHDTRDVFYTFTS ARVQNLTTGAESHITFPEPTYEFGSNPEFNTNELRFNYTS CYLYTLEGRNDGEIKDPSVGSVSFSGERNEPECFFSFSS ARVRNLSTAAENNITFPEPTYSEGNNPEFNTTILRFHYTS VSOYTLSGEKVRDVEDPG円GTVTGMEGDSSARETFYAYSS AYVYGLDGRMEHE1GKPSLGSVGGSGDKNDKECFYTFTS VLQYNYNGDLVRTHELPGVGTASGFGGKKEEKEFYFSFTN



- V
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L


 VRYSREGQRDDDVTLPGKGSASGFGGRSDATETFFSFSN VMQYNMDGHLERSIELPGVGTATGFSAKKTEVELYYTFT LRVIPWNGEEYF IAFDEEVYTVNPVNDDFDTDVFRFSYTS VKQYRLSGEKVRDVADPDVGTASGFSGRGKDKTLYFTFTN YYQMAYDGSNKKAMEDPGTGSAGGLGGEEEDKVLFYTFTS VKQYDFSGKFIRDIKLPSIGVAGGFSSKEDQKDTYFWFTN VOQYDYNGRKIREISLPGKGTAGGFSGKKTEKNTYFSFSN V LVTD TNGDSHTVQFEDQTYTAWGANPEFETEMLRFGYNS VERLNLQGQLEEVVQLPGVGTAGGFQGKKTDEEVFYYFTS AE1LALDGSVGKTLSLNGIGTASGFRGKPGDPETFYAFTS VTVADLDGSNRHSLALPGVGSVGGFGGDADQDETFFAFSS IR1RPWDGTEEYYLPFESETYTAGTNPDFDTDILRYSYQS $V V V T D L N G E Q Q Y E L Q L P G M G T V S G F Y G D P D D S E T Y F E F S N$
 SMYNMDGVKREDVPGPGKGK MAGPYGKASKPYFYYGFNS LTLYDRETGEQHALAFDEEAYSLGLSAEYDTDVIRFSYS AFQHDFEGNKTRELELGLGSAEGFSGKKAAKEUYFSFTN AFLRSLEGKLKREKLPSLGRARFYGKRQHKECLYSFSS VKQFDYDGKLVRESSRGVGSVGGFSGKKDDSEVYYSFAN VKQYDYDGKLVREVDLPGI GSVGGFGGKADAETLYYSFTN IEQLDYQGNRVRDVHLDGLGTASGLGGKNEQTQLYYTFTN LRVMRWQDNEEHYLNFGEDTYAAGSNGEKDETKVLYYGFTS VVQYRYNGEKVRDVELPGDGCVSGFDGRQDSKELYYSFTN LTVYSMNGDKRQDVKLPGKGKVAGPYGKRSKDYFYYVFNS VEQFDHDGKRVREVGLPGLGSVSGFNGKQDDPALYFGFEN


## I



I R I I N N Q Q T K E E H F L $L$ N F G E P T Y D A G GL


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| UniRef90_C6XZG6 | YVYPATI FKYTVSTGKSELL |
| UniRef90-F8ECN1 | FNYPPTIFSYEIAT RKSSVFRNP |
| UniRef90-P27028 | Y 1 T P P Til FKYNVTTGNSE VYQKPKVK |
| UniRef90-UPI00040B21A7 | YITPGTIYSFDPKTG TSAVYQQPKV |
| UniRef90-UPI000429EB2D | YVTPGTIYSFDPKTG TSKEYQKPKV |
| UniRef90-G0J2N1 |  |
| UniRef90_UPI000478E4A9 | YTTPGSVYTF NPATGKSD VYEKPNV |
| UniRef90_UPI00047E3EC2 |  |
| UniRef90_UPI0004760DA9 | F NRPT T 1 Y RYDLT S GAVT |
| UniRef90-UPI0003B77C66 |  |
| UniRef90_UPIO003C18B47 UniRef90 K9QX11 |  |
| UniRef90-14ALX4 | YNTPSSIYKFDAETG |
| UniRef90-UPIO0047E0830 | FTAPATVYRYQLS S G D S T VYREVALP |
| UniRef90-A0A024UQF3 | FLYPGTI YREDLTDPTSSPAVFREAKVPGF |
| UniRef90-M1WY60 | LVTPPSVFDYDMNTNQREDK KETEVLG |
| UniRef90_UPI00047787D0 | TVPGTVYQFD T D S R T SRVYSQP |
| UniRef90-UPI00034B295D | F ITPQSVFDYNMETHQRELK KETEVLG |
| UniRef90_G5H535 | FTMPTEUYRYDLS S GASEP |
| UniRef90_R5KZ42 | FTVPS STYRYDIDNNTYT LLRAP |
| UniRef90-F9D2H1 | F TVPGTVYHYDAEQDRST VYAQPKVN |
| UniRef90-FORG41 | Y NTPGSSYSYNVETGKY |
| UniRef90-M5RRR4 | YVTPGEDYRVDLS S GET T L WRRPET |
| UniRef90-UPI00035D8A9A | MTTPSRVYDYDMATRERTLRKEEEI |
| UniRef90-F7NSU0 | Y NTAPSTFAFEPKS G |
| UniRef90-U6H5K2 | F DTP QVIY DVD\\|S G G Y Y EVSVVR T T ${ }^{\text {V }}$ N |
| UniRef90_UPI00046F6071 | F $\square$ YPPTI FKYDIS S G V S L F K K P EL |
| UniRef90-A5V5X3 | FATPSTIYRFNSATRKM |
| UniRef90-N1MT10 | FT TPSSIYRFD T S TLQ S QLF A Q P ELP |
| UniRef90_UPI0003625945 | F NRPSSVYRYDAAS G |
| UniRef90_UPI00047A48CA | YFTPGTI YAFEPQSGASE VHRESK |
| UniRef90_UPI000364D3B1 | YT TPSSUYALQPDSGKS |
| UniRef90-I3C9K4 | LTTPSSTVDFDMISK EKTVLKEQEVLG |
| UniRef90-H1XPJ5 | LIT PSSIYDYNLQTRER\\|LKKK |
| UniRef90_UPIO002657207 | FLTPGRIYRCEI DKPEAVLEEHKNDELAGL |
| UniRef90_UPI00036DB777 |  |
| UniRef90_UPI0003694739 | MTTPAETYDYDMAKRTRVLR |
| UniRef90-J4KF02 | YSTPGTVYRYDPATNRST |
| UniRef90_UPI00026CBCE1 | FATPTTIYRYDVKTGQATPW |
| UniRef90-M5UAX8 | YVTPPSIHRVNVATGESELWLRPEVP |
| UniRef90-UPI000468A4D2 | FTVPGTI Y Q Y DI A Q K S |
| UniRef90-H1Y8P6 | YTYPTTIFKYHIAS GAS |
| UniRef90-UPI0003B35188 | LT TPRSTFDYDMNT MEKKLLKQQEVVG |
| UniRef90-X5E055 | MTTPNSDYDYNDKTKERT LLKKQDEVLG |
| UniRef90-R1GUQ5 | YTTAADTYRFDPVTGETAL |
| UniRef90-L8JTP2 | LT TPNSTYDYNMETRERT LLKQQEVVG |
| UniRef90-UPI000366BC7D |  |
| UniRef90-G7G2F9 | MTTPDSSYDVNLATGN KTLLKQQTVLG |
| UniRef90-T1B914 | F LYP T T 1 F NY |
| UniRef90-J5VP44 | T C TP T S I Y K L N E S GE |
| UniRef90-K1MET3 | Y IMP STTYS Y HVENGTSD LYYRPNVK |
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| UniRef90-UPI000366596E |  |
| UniRef90_E4RSC3 |  |
| UniRef90-A0A031JUE3 | F NCPASIYRMDLATG |
| UniRef90_UPI0003B3FF0B | FTQPGAVYRLDMASETP |
| UniRef90-UPI00047EDC9D |  |
| UniRef90-UPI000365627E | LAVPSSVIDFNMKT RKKTVLKEQEVLG |
| UniRef90-UPI0003750D8F | MTTPSQLYDYNMATRER RLLKTQEVP |
| UniRef90-UPI000255944B | FLTPPSIYKLDVT T GKSEK |
| UniRef90-G8X8A9 | LKTPSSIIDFNMRTQEKEDK KEQEVLG |
| UniRef90-A6EQV2 | LTTPASVIEFNMSTK EKTVIKETEVLG |
| UniRef90-A1S7E0 | YVQPQTIYKYDLNKGTNE V F S A P K V |
| UniRef90-UPI000468CEAE | MATPSSVDDFNMATK TKVVLKEQEVLG |
| UniRef90-M3JRS8 | MTTPEQLFDYNMRTRERALLKKTQEVP |
| UniRef90_Q9RRI7 | F L VP S R P Y R L K LP G GELE P |
| UniRef90_UPI00035F9612 | YNTPGCSYKLNPADGTY SVYWQP |
| UniRef90-UPI0004727B57 | F TVPGT@YQYDVATNSS SVYAAPKVN |
| UniRef90-IOYUE2 | MT DPGSTFLYDTATPEVDPKH\\|S SVQIPG |
| UniRef90-I1E1T9 | Y T T P S Sli Q F A PQT GESSL |
| UniRef90_UPI000373A21C | YKTPGSI YAYDAKTGAS N $\quad$ Y K EPA $\square$ |
| UniRef90-B7VTE1 | YVTPPTIFSFDVESGSSEDYQRSESP |
| UniRef90-W1SBM3 | FVTPASIYRFDTATRQYQL |
| UniRef90-UPI00035FC7F2 | FTYPFTIFEYDVDSGESRP FFQPELK |
| UniRef90-UPI0003B43B3A | LT TP T S TY |
| UniRef90_U4K | Y IVA S S S Y R F D P E T G |
| UniRef90-B8CLD8 | Y TQPQTTYKFDFKTGESTL |
| UniRef90-UPI0002D52BAD | MT TP SQLFD Y DMRTRERTLLKTQEVP |
| UniRef90_Q06903 | YAQPPTLYKFEPNSGA S $^{\text {S L }}$ |
| UniRef90_A7N343 | YVTPPTIFSFDVESGEST LYQESKAP |
| UniRef90-A8ULG9 | MTTPSSVIEFNMRTK TKTVLKEQEVL |
| UniRef90_Q219P2 | MTTPSEVYDYDMTTRARLLRKREE |
| UniRef90-A6GXZ7 | LT TPSSVID F NMRTKTKDIKK K E Q EVLG |
| UniRef90-A3UG48 | LNQPATLYRYDVETGESE VFRAP |
| UniRef90-M4B8P4 | FLYPGSIFRDDLSKAEPETEVFRETKVKGF |
| UniRef90-I2ETJ7 | LTTPNSTFDYDMETRVKELKKKQQTVLG |
| UniRef90-UPI000255B4A3 |  |
| UniRef90-U2AR60 | FYTPLSIYKLHLEKGDTSL |
| UniRef90-T1W647 |  |
| UniRef90-B0TMY8 | PTTPESVYEYALAKPN ERELLKQEKVLG |
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PVAAEKI P HK T T I H H GQ E L V D N Y H W L R D D T D E K V L $M T K T V L P P R A V R R P V T H E I H G Q V T R T D D Y A W L R A D N W Q E V M$



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 PALPAABVAE




P PVARREPTPATLHGQTLEDD $M T T P T T P$

PPEAPRRPHSFTRHG
PVVA E R R P H S F T R H G I T $\square T$ D D Y A WL K D P S WQ E V L PVAKKEPYPMTIHGGTRIDDYYWMRDDQDPEVL
D $\quad$ P A P T
TA
P A A R R T E HVDK Y F GI E V L D
D $\square$ N Y P E S
T $\mathrm{N} \begin{array}{llll}\mathrm{N} & \mathrm{N} & \mathrm{Y} & \mathrm{P} \\ \mathrm{T} & \mathrm{A} & \mathrm{P}\end{array}$ K K $\square$ S FKENLL
AKRDP
PPKANKIPHVMSL
 P I A DKEPKKLEKHGDVRIDNYFWMRDS QT QKVV MSEDP LP AVARQVPA ERTFHGGTVTDEFAWLAEKENPDTII -PLAKKQPKSLLHHNHERIDNYYWMRDDENADVL ALSAP Q A K K K V D TVVDVYYG GT KVVPD P Y R WL E D D Q S D K T K
$\qquad$ Q P P Q A B K K A L R D T R H Q A E


M P S
M I Y
APPVAKKVPHERVHHGDQVVDN
M T K T L
PPRAAKEPKEF $\square$ A HGDKR
QPPVAKRMPTERTHHGDTF $P \vee A K R V \operatorname{PV}$ R HHGDTFVDEYEWLRDKESPEVI VAK QVPTREHHGHTFVDQYEWLRDKDDAEVV
MT TETPAPVVAKRVPTERVHHGDDIVVDD
M S QP P V A
$P P$ VA T K $\square$ P K RT E QL
MPSKAFPPDPEARPVTDTRHGVERSDE $M \square K N \square Q P P I A K \square I P T V L E K F G D \square R T D N$

P PVVA K K V A T E RVVH H G H T F V D E
MTEMK
A PRAAKVDYQVVSPHG
PPCAEKRPVVTTTHGQDLVDD

PLP H R K K F V HTA H G D S R Q D D Y A WL R A D N WQ EVV
MNQHSFPPATEKKAFSDDTRHGGVVRHDE Y H WLL R A A N N WQ DVV $M N D \square P R P P \square A A Q R P H Q T \square H H G R T L D E D P W A W L R D P T D P A V L$

TAKK $\square$ PHSMTHHGHQRT DNYYWMRDDKNDDVL
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PKTK
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E Y LL K A ENEY ${ }^{50}$ E
60
70
80


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 A Y L L K A E N A Y TEDA Q TK S K K TLLQ E N A WV QAESEFTNNAFMDSDGGREAALA GRMTALDWDFDA YS LA E E WSN WM GEKCETYYFS GI E T K V V E DKK R L E E L WN F P K Y F V P K A WVK QQQQAGHDF LA QL ENKQADVDRMITELWNFEKVTAPN $E W V K A Q N K V T F G Y L E Q L P Y R A Q L Q S R L E K L Y N Y P K Y S A P S$ A Y L E A E N A Y LDD TMMMGH TK F Q D N L F Q E M K S R DK E D D A S V P Y A WV D Q E N R LTMR RY L D D L T G R D I L K R R M E T L FA H GR F T V P R A WV DA QNDFSRPYLESLDARERRIKQQLT GLWNYEKVVSPV D Y L E R E N D Y Y N K M TH T D DE F K E S L L K K E M K S R I K E D D S S V P Y A WV QA QRDLTEAHLT DLPERHAYRARDRE LWDAPAE GAP W
 A H L E K K E N Q Y T D D S V A H L E A E N A Y T E A TA H HLE P L R E R I F T E I K D R T Q E T D L K HL E A ENAYMNAAMD DT KLLQKTLFAEMRGRDKEDDSSII PV A Y L T A E N A Y T A A VMR D T P L Q E A L F Q E M R GRI Q E S D S TVVPV






 D Y L T A E NK Y T E A L K S GQE LDRETLLYN EMT GRMS KED Q S V P Y

 E Y L L A A E N A Y T Q R M K P T E DLLQ A Alll

A Y L E A E N N Y TES L LGH T T L Q K K LVA EMRGR IKED D S SVP S A HL EAENRYTSAYFKPKPLQDGLFKELTERLVADESSVPY


 A WV DA QNAHTEAFLSASPDREAFRERLADLWDFPKPGTPW D WI T R Q N EF TK K Y I E K N K Y K K DLIE N Y L N Q I WE S E S DS IP Y A Y L N A ENEYTKAVMADTKFQDGLYTEMVARFK QD D QS V P Y

 D WV QR Q N EVT N E Y L S K DP YR DA I K N RL T E L WN Y E K Y S AP F A Y L E A E N A WF EAA A MP HKP L V D R L F Q E M K G R I K E D D Q S V P Q D Y L NAENAYFDKMFNTKDFQEELFEEMKGRIKEDDASVVPY A Y L E A E N A WTKAATA H S DLQQSTVVE E DK GRTMQETDDLSVVPS A Y L N A END Y NDAMHTKAF QQQ LFEEMMKSRDKETDESVVPYK A H L
D W A E N D Y C E A Q M P H Q A L Q T


 A ELLEAENAYQS KMADTVVELQQKQLVKEMKGRDKEDDS S V P M
 A HLLEAENTYKETMADTKSLQQEKLYNEMVSRLEKDKSTVPY
 A HLEAENAYTEARTAHLAER QTI F DHLRAENAYCEAKMAHKGLQDQLF





A WI G D Q N NVT A HL LTAENA YTKAMAASTETLLQAAMM E Y L NAENAYT DTMMTAKFQEQLFA R HLE AENAYAELMRDTEALQKDLAA E YLNKENEYYEAMTAHTKDF RKDFEEMRSRIKEDETSVPS
 A Y L E A E N A Y T A Q QL L E H E P L R R K V F Q E 1 K S S R T Q E T D M S V P T A Y L E Q E N A WY Q Q H S S S Y Q QL E QL T T E I IG R I K Q D D S S V P Y
 A HL D A E NAY QQLDMADTA ELLRKTLLFQEMRGRIVKEDDS SVM M Q Y L E DENAYADFMMKDTEDF QNEFE EMKSRYKKDDES L P Y R H L E A E NAYQSAMADTQE LQQKQLF SEMK GRDKEDDS SVVPV

 E WS N QL G K E C A D Y F T T A P S Q H T D K E K L A WV E S Q N TL LA R P Y L A E LIP S R E Q Y K E R L T A L WD Y E K Y S T P Y


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90
K K G D Y Y Y Y S R|V|A A GK Q Y S\|IHCRKK GLNSSEE\|I LIDEN QLAA EGNYYYYSRYVMGGEYPVYCRKKGSLDGPEEILIDGNAMA
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 TYNGY DYRTYQTGKDFPI YQRKPADNATDWQVMVD GNERA KLNGYWYLTYKKGNDYPIYVRKKESLDAEEELLFDCNEMA
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 K DGPYAYGSSFRKGGEQPRYFRIPSEGGAEEIILDDGDKEA Y H TK K WY F Y L N N GLQQNQSVLYVMDK LDDNA QVFI DPNKFS RRGARYFRTHNDGLLRNQPELLQVADAPRGPWRTVLDANTLS KVEDKTFFYFNDGSFQQSKLMIQDCEACEPKVLIDPNEFS FDN GYWYQNRFEEGAE YPFHTRRKKGTNDAPEEII L NPEMAT
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 K D GN Y WYVS EVVS GDE E Y AKYY RA S QE D S D K K L L L D D D Q L A RKGKYWFFSKNDGLQNQSVLYVKEGPDGQERVLLDPNKLS RD GLDYWYYARTEEGKQYAILHCRKRGEDGDE EVLLD GNVMA
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 R R GE WWY Y GRT IDEGQQY GLLNCRCATNDVPGEQILLADANVAAA K DGRFWYMSEVSGDDEYSRHYRGDEAMTDK QLLLDDVNQLA D NGYWYYSRFEEGKQYPYYCRKKESGDAPEEI ML DQNQLA RKGGHWY Y T R T V E GQQY GVQCRRA AVH D G DE E V L L D G N V L A RMGSWWYYGRTE E GKSYPDQCRCPVAS DGEQILLDD NAEA


 PD GP F YY S R F N DGGQHP I F A R R P K GQS T G E E G L L L D C D A LA S N GY WY Y T R S E E GE Q Y F K Y C R K R G S L E A P E E E L L

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 A D GTVALASTSVSPQGRLLAYGTQSAGSDWVTWRVRDVQS ARGYVRVGAFAPSPDGRYLAFAEDDDGSDRFTVRIVKDLQT
E

A
 GDEE F F GDEFFSLGTVDVSSDGRLLLAYSVVDGTGDERRTWRVLINIINS GHDATALAEWVPSPDGRYLAYAMQEAGSDWRTLRVLDVET

K G
K G

 E G Q F M S L G G M S V S L D GE KL A Y S T D N T G F R Q Y T L H V R D L S T


 D GTV S L G G TS II SNDASLI A Y S $\square$ S D G G S D WRTWKVMMNI E T
 ,
D GH D Y F $\quad \begin{array}{lll}L & A & G \\ G A & D & D \\ L & F & T \\ S & V\end{array}$ K GHD Y F L G G L N I S P D GRYLAA Y A I D T N G S E GNF F A L G TF DI T P D G D R L A Y S V D F D G D E R F T L K V K


 Q GQD Y Y V G G L A V S E D N R R L A AVA E D T Q G R R Q Y R A GKYFRLGGVDHSADHAKLLWAFDDKGSEFYTLRVRDLAD
 E G Q F M S V G T L GV S P D G K L L A Y T T D N T G F R Q Y R L A I K N L E T






 D D GTVSMS GVSFT ED GTKVA Y QLS DGGSDWRSIVVVDVVAS
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 A GKDFYVGNLSVSPDQQLLAYMEDLNGRRQYTLKVRDLKT
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 RE D GVVE Y E DA K L G E W WY F I Y T N Y Q A V N FRRLMMVVHAS Q RES GHEYSI AKLGDWYYIHTNKDAVNFKLMRVKASD EGVE


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E $\frac{L}{F}$ $R \square R G L E$
$D F R A A F$
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 P AVGLEGQVDAADFDGKVI LRTNAKTPRFQVLATDVEH PLVDELLDGAYQY LDHKD DTYWFYSTENAKNGKVAS LDQI K N RREG GEYDVEHAGDQLLIVVNADASNFSLATAPLNS $L T R D R T N D W R L I G S Q G S T L V F L T D Q Y A P R M R V V A D L D A$ RERNHEYNVEHYGGDKY II TN NLDAKNFRLMECPVDK RTRGLEYSI SHFGDSFYVVTNDKATNFKLMKTLETA
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 AREEGHEYSVSK LGDTYYILTNWQATNFRLMKVAIDA

GVE Y S V A K L G D WY Y I L T N D K A V N F R L M KV A K D Q



 REEGHEYSI AKRGEEFF LDSNWQATNFR L MKT TAAAD
AGRQPGREYDVDEHGGTLYIDRTNDSHPNFRLVKATLEA RERVQGVEYSIEHHGHRFLI LHNENAEDFAVAWTSVVDN

VA D T RE $\begin{array}{r}\text { R G H } \\ \text { R }\end{array}$
$D G V E Y$
$L F Y P S$ REDEHEYA I DHRNSDWY I RTN DKGRNFRRLVTVBDVGH
ARETMVEY DVTE GGDVFYILTNDGAKDFKIMEAPVNA R QA GRE Y Y L D HYR GEFY L RSNH QSPHF GL Y Q TASA N R E V $T V L D R V D$ T

$734 E B 9$ A91FCC S

G
G

83FD638E
E G T E YQGVEYTVEHHGH GE Y S AV H AVI G GVD

C
ERRRGLLEYSIAA HYDR

 FADEGADTFLLESDGETDLMGTNHEAPKGRVIADDPQN

A A

 RDFK YGAEHLNGRWII RTD WQAPNYRLMTVAADK ETEDEYSDEDDGD DRVYI LTNDGAEDFKIVNAPMKN
 $K E R E T G V Q Y D L E E G G D V F F I L T N S G A K D F R I M T A P V S D$




 KVEREYD DDERDGE LIF LLTNADGAEDFKIVTAPVAT

## UniRef90 K9UNZ7

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UniRef90 F4KQ21 UniRef90-B2VJ75 UniRef90 UPIO0047073DF UniRef90_UPIO0036A4E29 UniRef90-Q1N7G5
 ADRTAWKEVIPHRPDVYLANMDVFV NHLVLGERKDGLTD PASKNWRELI AHRDDVMLEDVDL FATFAAIGTRSNGLPH RSERNWQDVIAPQEHVQLVDFTL FNDHLVYEQRENGLAR ASDSKWQTVVPHNADAKLDSFEL FNQHLVYETRENGLSQ PGRGHWHDLVPHVPGRLISHTLYKDFMIRLEREDGLPR LHSESLNVLVPHRDNVRI EGVDT FATHIAFGYRSGGI GR PGLENWIEVIPHREAVLLESFEDFRNFLVLEERFEGLTR GEQTVSAEIVPESENTLID A ASVVGDRII AEYLIDAKSA ADPSNWKEVIPEQEDV PDDFVIALNEKLIDGLLHDAHHQ PKTKTTTVLLAEKPE PLSSIUGVAGGKLFANYSKDVTSR PHAVNWKDVIPHRENDFLEGVDYFKDYMAVQETFEGLAK PGRRETELVAERPDTLAGGSLV GNRLILAYMTQSETV TGVENWKDFIPHRTDVLMEGITTEFKNYLVFSERQNGLSQ PEMAQWQQIVPAQKQT LDSISAVGSRLFANYLQDARSR TSKENWQEVIAHRPEVLLEDVDI FKDYLVVSERSEGLDK GER RDLVPEGPDAVEQSALVPGG LLLLTLRDASHR PRKENWVEVLPGDDHVYLTDVI A FKDWLVIVDKLDGQDR MHRSKWQDVIAADDKTQLVDFTL FEDHLVYEQRKDGLTT PTSTTDRQVVIPHDDEVRLEDASAFADHLVISYRREGLTR PGKENWREVVAHRPGTLTLSHMAYAARHLVWLQRRDGLPE PGPENWEDFIPETEGVLVESPSTGAGYFFAEYMVDAVSQ PGE WT TLPGSDHSYITGLSMFR DYFVLEAREDGLDQ

FKDYLVVNERENGLNK
FEDYYVLNEREEGLNK
FQNFCVLSRREGGTS NGNQLVVCYMSDVKHT SGHLVRLERAHALPS KDYLIDQTAENGLTR VQRSKWVDVIPANSDVQLVDFTLLN DHLVYEQRSNGLSK PQRANWKELVAHEPGRLILSVM GFKDFMVRLERKEGLPR LSKTEWKTIIPASKNVGLEDVTFADKQLIVTYMQDACSH
 EQQWQTVIPTRDDVVLEGFSLFR DWLVVEERQGGLTR ADKRKWQQVLAHDPEVRLEDLLLLDDYLIVGQSRSQGLSH PGE WEEVIGPDAHFYLTDFTL FKHFYVTEGRQDGLDQ
 PGE WVELIPHQPGTRLESVDA FQRHLVISQRRDGLTG GDVEQWEELVAHRDHVLLEGLELFNS HFVLTEREQGQDR PHIDNWKEVVPEDGNVLKGAYLS NSFAILHYMVDAESR EQRENWDERIPHRDNVMLEDVDLD FNRFYIACDREGGLPR PGKANWKEVVPHQEGR LILAHTAFARHLVWLERFAGLPR LPVRAWKPLIDPQENSELESFALFR DWLVVKERSEGLVH PVRANWQELVPHEPGRLILSV IIGFDHMVRLERKEGLPR PARQ RTLIAHRDDVRLDAVDALAG HLVVSYRREALPR HQMSAWQEVIPHRDDTQITGVVAFFKDFIAVTERSNGLTS

PGREHWQEILPEHADAPLEDFDLF G
PERQ
EWTDI PEQPQPLDDSV
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P G

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PGRAHWKDFVAHKPGTFITGLSAY
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AGREWTE AGREHWTELLPHREDVVLDDF NVFGR MVRLERVGGLPR PREENWTELVPH EAGRLILSUIGFRDWLVRTEKVEGLDK CGKENWVDVIPHRAEVLLEGFEI FKDYLVLEERERGLLQ PQKQNWTEVVAEKSGTII DDVGAYKNHLVWLERNNGLDR PDR WEEVLPPSDHFYLTDVSLFR DFYVTEGRENGLDQ AETAHWEEVVAHREHVLLEGLELEDS HFVVTEREMGQIR
 N A GFKDII FADHLVVTERSNGLTG AGYI FAEYMIDAIISQ FKDYLVRVERVNANTR FARFLVRLERKDGLPR FKDFLVVSERSNGLNR FADHLVLGYRREALTR FSDHLVLSYRRDVLTR FNDYLAISERSDGLRR
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380


400 I RVINQQTKTDEYLDFGEPAYVAG $\square$ NPDFNTNMDRFSYSS
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A Y LE A E N A Y T E A Q T A H R P L R E K ITF DE DK A R T L E T D L S VP T DHLDAENKYTE QMKP GEQLRDTLYQEMVDRMKQDDQSVPY GYLSQENNYEE QTKHTNAFQEDLVQEMKSRDKEDDSSSVPF A Y L EA ENAYT E QQTA GEELRRGQLF DEDIKSRTQETDDLSVPT GWL WA Q S E L F S R S R G P A Y L N A E N A Y S E HCAP QTA LDREQLLTTEMVARIPQQQASVP Y A Y L NAENEYFE QEMKHTFQKRLFEEMKSRDKEDDESVPYK S Y L E A E N A Y VD Q M T A H E P LRRQQ


 S Y L K A ENEYFAYKTK HTEQES LFEEMKSRIKQDDESVVPYK GWI A R Q N A LS A D Y LA K LP GRERLA T R I R A L F DFER Y GLPR A WV Y A Q N R L S V P Y L T G L Q GR D I F R E R L A A L F D H E R LTTP T
 A WI D T Q M K Y T E S YL S Q V K I R P E I A E R L S K L I K V E E Y S T P A
 D Y L N K E N D Y L D E Q M K A TA L Q T K L F D E M K A R $\square \mathrm{D}$ K E D D E S V P Y A WAD NQ N Q R TRTYF D S LTVVRNTI QKK LAGRWNAVKF FTPE
 Q WV E A Q N A L T L P F L A A L P ER A GFA E R L S A L W N H E R Y D V P E R HL L A E N R Y A EVVLRPS S E L K D K L Y Q E MV A R M S P E N R S V P W NYLNAENAYTE AVLAPDVKQREKLVDEMKARDKEDESVVYK A HL E A E NAYAE ERTSHAPDRAA IFSE DKSRVKETDDLSVPV





## S

## D

## D

 SYLE DENEYYGKVTYTKPFQEELLF A HL HEEENAYTNARTEHSLLRREQI FEEDKGRTRETDDLSVPV A Y L E A E NAYAA H L L E P D DL K T QLVA EMRGRDKEDDSS V P T A Y L E A Q N A F T E K H T A H D G L R K Q I F A E D A Y L K A E S A A Y Y H A Q T H T K P L Q E T L F T E M K S H I I K E N D S S V P P NY L Q A E N A WTE A MQP H Q A L R E K L Y Q E MVVDRI A Q Q D H S V P Y A WV L Q ENQYGRQDMS QNDLRDTMLGEELQRIPQRDASAPW
 EHLTTAENAYTKAMAPTEALQAAMFEEMKGRIKQDDASVPA DHLAAENQWFEHRMAGQKDKDALFVEMRGRIKEADKSVPQ

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

 E Y L N QENAYT E QQLLA GEP L K K E I Y DELLFSRDVK QD DESSV P Y A H L R A E N E Y Q E A V T G Q E P L R E A I F Q E I K G R T Q E T D L C H L E K E N A Y Q A A Q M A D T Q L Q D S L F A E M K N R A Y L L E A E N A Y A N E L L A A P K P V V Q E K L
 A Y L D A E N Q Y T Q H CM Q H T T L Q T S L Y E E M L L S H V E E N D D S T P V D Y L R A E N N Y G K K $\square$ M S Q Q P L Q D R V L K E I I D R L P P E D H S V P Y D Y L R A E N A Y T E Q ETAA H K E L T E N I F Q E V K S R V K K E T D M S V P S E Y L Q A E N A Y A D A V M A P K G L E D R L Y E E IV V G R I K Q D D S S V P Y A WI T K QK N L T E D Y L A T L P GR D L F K Q R L Q A L S D H E RLLI P P E
 D Y L NAENAYTK QQTADDDLTEQVFQEDKGRTKETMMSTPQ E HLKK A E N A Y LE A Q A E Q A G L R E T L F Q E I K G R D R E T D L S L P V A Y L E A E NAYAEALLS GAA DL R KTVVA EMRGRI REDDAS V P E A Y L R E ENAYFEAMQP HAALVETLVAEMKGRLKEDDASVVR SYLQQQENAYT DSVMS GTK QFEDQFKEDRGRIKEDDDSAPY E WA A A Q D T L F T DV A A G L P A R D WF A D R I H E L M G A G Y V G A P V

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VKHGYRYQTRYEPGNEYAIVFRQPGETEHWQTLIDGNERA EKNGYRYRHITYEGGEYPVYQRQPVATCTWDILLDGNQRA KREA II DD ITQDYK IRTVY IF VVTL RMGRYWYYSRSYEGKQYGVSCRCPIAAPGEEVLLDMNEDA KDGPFEYYTRYDKGAQHPVHARKPVGGGAEEVLLDEEKEA KDGDY $\square Y$ W $D E F E D G A E Y K K W W R K P V A G G P D E L M L D E V E D A$ VRRGYRYQSRYEEGNEYAVYTRQTSPKDAWEVLLDGNQRA VKNGYRYRHVYEPGCEYAIYQRQSALNDEWETLLDGNKRA RRGGYWYYGRTQEGKQYGIQCRCPDVDPGEEVLLDANVEA
RRRYWYYGRTHEGKQYCRCPIDRSDDDWTPPEVGDDPVPGE RFGAFVYYSRTQTGQQYPVVYRRADGADDEELLDDDNAGA KDGKYWYHSEDNGEQEYSNYYRSTSFT GENKTLLDDVNDRA RAGKYWYYSRTEEGKSYGYSCRDPVAEGSDEWILDANEDA $R R G K Y W Y Y G R T E E G K E Y G Y S C R I P V S E G S D Q V L L D V N A L A ~$
 NFNGYTYRSRVSGKNYPIYERRPIDSQEEWTVLVDGNQRA RKDGWWYFSRSAEGKEYGIHCRVKAQDPGEEVLLDGNVEA KRGPFSYGLSY ${ }^{\text {L }}$ G GQQPRYFRMPRDGGKKNIYLNGDALA RDHGWWYYSRYEAGKDYPVYARRKDGQGVDQVLLDVNELA RKGAWWYFSRTEEGKQYAVSCRVPADSDREQVILDGNELA FRNGYYYYSRVEKGKQYRVYCRKKGDEAKEEIFFDVNKMA KVGNYYYYHRINAGQQYWAHYRKPIAPDAVEELLLDENELL
 RERGWWYYARYETGKDYPVYARRADADGVDQVLLDVNALA KRGDRYFFVRSAGLEAQPVLYVRE NGTDRVVVDPNSWS VKNGYRYQSRYERGNEYPAYYRQPQDAAEWQLLLDGNQRA
RDGQFYYSVRYREGEQYPVYVRYPADDNEEEI RAGDFWYYGRTDEGKNYGLS CRVPVEEGTEQI I LIDMNEAAA PWGPWLYYQRTTAGDEYPRHYRCPRDENAEQLLLDPNALA PDGPFYYSRHREGGQHPLICRRPRDGEDGEQ LLDGDREG K D G D WL Y WWA YK P G G Q Y RL WY R K P A D G G A D T V I L D P A E A A RKGPYYYYTRNDEGKEYVQHCRRGPDDPPEHII L DENKVQ


## UniRef90_R7ZPN8 UniRef90-A3XLN2 UniRef90-UPIO0046FB3FC UniRef90-N6VE15

 UniRef90-M7QHA6 UniRef90-AоP320 UniRef90_UP1000476D3D3 UniRef90-UP100046DCD3D UniRef90-H6RCU3 UniRef90-C7BGZ3 UniRef90-UPI0002559501 UniRef90-UPIOOO35EEEB4 UniRef90_UPIOOO36280F4 UniRef90-M0Q7×3 UniRef90-FOIFF6 UniRef90-J4SHSO UniRef90-M4S6R0 UniRef90-UPI00034B620E UniRef90-UP100047CC8BA UniRef90-UP100037FEBC2 UniRef90_D7A4U8 UniRef90-J6ICQ0 UniRef90-Q2G5B3 UniRef90-F4GQR3 UniRef90-F5Z1C4 UniRef90-W9ARS5 UniRef90-Q11U30 UniRef90-UPIooo3670345 UniRef90-M7N133 UniRef90-D8KPK7 UniRef90—18TEM7 UniRef90-S3IUD7 UniRef90-S8EFO2 UniRef90-A4AUN2 UniRef90-E8NA85UniRef90
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UniRef90- UPIOOO3B43E48 UniRef90-E6RM90 UniRef90_C4ULW8 UniRef90-M7MGA1 UniRef90-D4E592 UniRef90_O2N770 UniRef90-D8MT64 UniRef90 UPIOOO3482354 UniRee90_UPIOOO37D4ABA
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UniRef90 ${ }^{\text {D2TMT3 }}$ UniRef90-H5U3S2 UniRef90_J9S394 UniRef90-A7NMF1
UniRef90 UniRef90-M1VO62 UniRef90_C3PJ91 UniRef90-UPIOOO37437E5 UniRef90-UP1000479BCD8 UniRef90 DIP427 UniRef90-UP10003786ED5 UniRef90-M1NSD9 UniRef90-E6WPD7 UniRef90-UPIO0047769C3 UniRef90-S5ZKZ4 UniRef90-UP10003B55EBD UniRef90-C1SF2 UniRef90_UPIO0046577D1 UniRef90-UP1000304F5B7 UniRef90-E6WA27 UniRef90O-UPIOO0375564C
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UniRef90_J2Wv92

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 EGHSYFKAGYSVSENNEIAVFGDDTVSRRQYVLQFKNLVT EDGATALAEWAASEDGSKLAYAVDDGGTDWRTVYVLDTAT E GLPFFLGGADHSPDHRLLAWGADDKGSEYFTIRVRDLES K SEFYTLGGLGGAPNNQLMAVAEDYLSRRQYGLRFCDLSN

EFLGICAVSPNHR\|LAYAlDTTGDERYTLFFRDLDG

K GHEYYL SNFAITTPDNKRIA ADAEDTQGRRNYQI SFKEI GD
EGHEYFVGGMSVSANNQLLVYGTDEVGRRQYTLRFKNLETV
 QGHFYALGALEVSPDNRLLADSEDTVSRRQYTVRI RTI ED

E G EAEDYFLASADHSNDHSHMIWGYDDKGSEYFTLRVRDLNT EGKYF QF GDARQSPDHRFYAWTADEAGSEYYTLRVRDIAA A GHKFYFAEFSVSPDNKWASFSVDTRGRRMYSLFIKNLET A DGSLALA QWEPSPSGRYLADAEQEAGSDWRTLRVVEVSS RDGTTALAEWAPSEDASYLAYATQEGGTDWRTIRVLEVDS ADQNTSVTIDDDSQDGSLLVYGDRAGGADEEAVHVLDVAK
EGHFFSLGGSSVSPDGTLLAYATDVVGDERYTIRVLEI DS EGHEYFVNGLA IATNQQLLAYSEDHIGRRDYSIKFKDLVT
 S DGTVALAQ IK PSHDGRWLLYSTATAGSDWNEFRIIRDVNT E GQYY QLVGQVVSQDNRMMA IAEDTSGRRQYCLALRDLQS


E G

N
EGQEYF LGAASVVSHNGRYLA YSTDTNGSERYTARDKDLQ
 SHSEFYMGALLDI SPDNQi MALAAEDFLSRRDYGIRRFRNLS S

 Q GHF YS L GALSSVSDDGDWLAYSTDVVGDERYTLRFKNLRT

 E D G T S S L G G T Y S S D D G E L M A Y S I M H S G S D WN E F K
 E GKEYFLGA\|STTTDGKLLAYSVDDNGSERFTARIKDLTT



 A GHFFSIGASSVTVSGRYLAYSIDTTGEERFTLRIKDLKT EGHF F A L GASSVVSDS GDLLAY SVVDVAGDERFELGIGKDLRT
 E GEYY RMGALLA S S D D T TLA DA EDR Q GRNDYGVSFR K I D D
 A GDYFSVGGYEVVPDNSLLA WAEDAVGRRQYTDRFRNLAT


 E G D Y Y S IGGDY A V S Q D N RL LAA Y A EDTN GRRRQYTVRFRN L A T EDGATALAEWAVSHNGRYLAYADQEGGADWRTIRVMDIDT

 GD GY LAL GAFTIS P DHRLLGYSLDTSGDE IVRLFVKDLGD E G L A A F F $\quad$ I A GAA A H S D D H R L L A A W G V










| UniRef90 R7ZPN8 | $\text { LCT P S SUIYDYDMDS QSRE } \quad \stackrel{420}{\boxed{4}} \text { MK QQE VVVG }{ }^{430}$ |
| :---: | :---: |
| UniRef90_A3XLN2 | L D T P P S V VS F NMDTKEKE VLKEVEVLG |
| UniRef90-UPI00046FB3FC | L NAPTTVYRYDVGAN |
| UniRef90-N6VE15 | LT TPGTLYDVDLATGK KTLLKQQQVLG |
| UniRef90-14YNH7 |  |
| UniRef90-M7QHA6 | MTTPDTLFELDMDTGER RVIKQQEVKGL |
| UniRef90-A0P320 | MTTPSQTFDYNVETRERVL |
| UniRef90_UPI000476D3D3 | VTPPSVFDYHFDSGTLELK K ETPVLG |
| UniRef90-UPI00046DCD3D | TPGIVYQCNLANK】PDMKVFREDTVPGF |
| UniRef90-H6RCU3 | F ITPMQVFDYVPATG ELLLRKEQPVLG |
| UniRef90-C7BGZ3 | MTTPSSTFQWDMRTGERE L |
| UniRef90-UPIO002559501 | MTTPSSVIDFNMNT QEEVVKKEQEVLG |
| UniRef90_UPI00035EEEB4 | F $\square$ T P GQVYDYDVKS G ELLL R K A P PVLG |
| UniRef90_UPI00036280F4 | NTTPPTIQRYDARTGETTLW |
| UniRef90-M0Q7X3 | MTTPGSVYEQDLDS GER R L L K Q Q TVPDF |
| UniRef90-FOIFF6 | MTTPFSI $\square$ D Y NMRTKEREDK KEQEVLG |
| UniRef90_J4SHS0 |  |
| UniRef90-M4S6R0 | MVTPNTVFDFDPVEGGLTTLKVQ |
| UniRef90-UPI00034B6 | NTHPSSVYHYDARSG |
| UniRef90-UPI00047CC8BA | MSTPS QVFDYNMVT RERTLLKTQEVP |
| UniRef90-UPI00037FEBC2 |  |
| UniRef90-D7A4U8 | MTTPSEVWDYDVASRARVLRKRQE |
| UniRef90-J6ICQ0 | MTTPYSVID Y NMRTGAKEVK K C Q QVLG |
| UniRef90-Q2G5B3 | F NMPPAVYRMDLRTGAV |
| UniRef90-F4GQR3 | HDTPTRIYRYDVATNSKTAWA EPKV |
| UniRef90-F5Z1C4 |  |
| UniRef90-W9ARS5 | MTTPGTHYDFNLSDG SNVVLKQAQILG |
| UniRef90-Q1IU30 | FTSPPT\YHYDVKTGATE VVARPN |
| UniRef90-A1SKZ6 | LAVPSSVYDYDVRS RELTLLRRRAPVLG |
| UniRef90-UPI0003670345 | LTTPS STYDYNMED R SQVLLKQQEVVG |
| UniRef90-M7N133 |  |
| UniRef90-D8KPK7 | FTTPSQVFDYTVADG SKRLLKQQEVVG |
| UniRef90-18TEM7 | CNQPLT PYRVSLK T A S |
| UniRef90-S3IUD7 | MTTPTSTYEWDLASGERTLLKRQQV |
| UniRef90-F8EF02 | LTTPNSTFDYDMDSRERT LLKQQEVLG |
| UniRef90-N0E214 |  |
| UniRef90-A4AUN2 | MTTPSSVIDFNMQTK LKVVVKKEQEVLG |
| UniRef90-E8NA85 | FVTPGTVYDYVIETG ELLLRKRQPVLG |
| UniRef90-W9APB8 | FVLPPVRIYDLDLTTGERT |
| UniRef90-F2G6T3 | LTTPGSI IDVNLDT LESEI MKQTR |
| UniRef90-UPI000248F | LT T P T SVIEFNMLT QESKVL |
| UniRef90-UPI00046F3309 | MTTPATTYQLDLDSGERQ VLKQTVVKGF |
| UniRef90-UPI0003B43E48 | MDTPDTVYDYDLATK TLLLRKQQAVLG |
| UniRef90-E6RM90 | LTTPGSLYNVDLTTG EKTLLKQQKVLG |
| UniRef90-C4ULW8 | MTTPTSLEEVNMDTGER VLLKQQEV K NF |
| UniRef90-M7MGA1 |  |
| UniRef90-D4E592 | MT TPTTLYQLDLDSGERVM LTMQEVKNF |
| UniRef90-Q2N770 | MVTPDSVYDYDVAS GALELLKQQE |
| UniRef90-I1DVW5 | LTTPASVYQLNMQTG EKTLLKQTEVP G |
| UniRef90-D8MT64 | MTTPDTLFELDLDSGER K MLKQAEVKGF |
| UniRef90-UPI0003482 | MTTPATLFELDMDSGER LVLKQSEVKGF |
| UniRef90-UPI00037D4ABA | FTTPNSVIDFNMSDQSKDVK K EQEVLG |
| UniRef90-U2TBY4 | FVTPSSVYDYDVRTREDTLR K WQPVLG |
| UniRef90-UPI0004785037 | PATPTETWDYDMATHERRLRKRQE |
| UniRef90-D0L3F5 | FTEPSELIELDVT T GERT LLKRQPVLG |
| UniRef90-C7M5X9 | LAATPASIIEYNMGTG EERLLKEQE |
| UniRef90-10QVU3 | MTTASSLFELDLDTDER KLLKQQEVKDF |
| UniRef90-I2BA43 | MTAADTLYALNMDTGER VVLKQQEVPG |
| UniRef90-X6LXU7 |  |
| UniRef90- W8AZZ8 | YITPFRYFDFVPETGELILR KEQVVLG |
| UniRef90-B8H2P6 | MTTPRQWFDYDMKSRQRTLRKTQEIP |
| UniRef90-19WGB9 | MVSPSSVYD Y EVA GRGLEL |
| UniRef90-Q2NTH7 | MTTPTTLFEMNLDTGER KLLKQAQVKNF |
| UniRef90-D2TMT3 | MTTPDTLFELDMDTGER RVIKQTEVPGF |
| UniRef90-H5U3S2 | F I EPAELFELDVETGERT L L K R Q PVLG |
| UniRef90-J9S394 | FIEPAELFELDVASGERT LLKRQPVLG |
| UniRef90-A7NMF1 | LTQPRTIYEYDMT A Q T LTLLKRDDVPG |
| UniRef90_Q47ZP5 | LTTPGSLFEFDLATGER KLLKQQKVLG |
| UniRef90-M1 V062 | FTTPSQLFNYWIATGERT LLKQQEVLG |
| UniRef90-C3PJ91 | F DQPAQLFDYRVATGEYT LLKEQEVPG |
| UniRef90-UPI00037437E5 | F TTPATVYELDLNTGDT RLLKQSQVMG |
| UniRef90-UPI000479BCD8 | YFTPPRVYDYLLDAGVLS $\square$ R K E T KVRG |
| UniRef90-D1P4Z7 | MTTPSSVYEINMLTQERT LLKQEEVKNF |
| UniRef90_UPI0003786ED5 | YFTPSRIYDFVLPTPEDDLLLRKESPVLG |
| UniRef90-M1NSD9 | MT TPDQVFDYEIKSRKQ L L K T Q |
| UniRef90 E6WPD7 | LTTPATTYELNVATGER RQLKQQPVPG |
| UniRef90_UPI00047769C3 | MVTPPSVYDYELDSH ELILLKKRRPVLG |
| UniRef90-S5ZKZ4 | LNRPQTLYEYTIGG GKTE KLKEQEIDPGF |
| UniRef90-UPI0003B55EBD | L VTPLSVFDYDMASRKRVLMKQKEV |
| UniRef90-E1SFZ2 | MTTPTTLFELDMDTGER R I L K Q S Q K G F |
| UniRef90-C2CTA2 | FDQPSQLFDYRVETGEYT LLLKEQEVPG |
| UniRef90-UPI00046577D1 | LTTPATTYEVNIDSGER R T L K Q PPVIG |
| UniRef90-UPI000304F5B7 | QDTPTT\YRYDVATNTSTVW |
| UniRef90-E6WA27 | MT TPTTLFELNMESGER RVLKQTPVPGF |
| UniRef90-UPI000375564C | PSTPEETFDYNMASRERT |
| UniRef90-UPI00037DF058 | FTQPAQLFDYRVATG EKTLLKEQElLG |
| UniRef90-U2ZJ71 | $\square N R P A Q V R Q L E L A T G A Q \quad K V L K Q T P V E G$ |
| UniRef90-A9VZU7 | MTTPAETYDYDCVTRARILRKRQSV |
| UniRef90-A5V671 | MVTPQTVFDYDPAARTLTTLKVQE |
| UniRef90-B9HG83 | LRTPNSVYDYDMNTGTSVVKKı VTVLG |
| UniRef90-UPI000348F2AF | NTSPSAVHHYDGRTGAVSLW |
|  | LRTPQTTYEVNVDSGER K L L KVQEVKG |

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UniRef90 UPIooo348B3C1 UniRef90-UPIO00348B3C UniRef90_UPIO0047BD552 UniRef90-AOA017SWW0 UniRef90-G2IPNO
UniRef90- $\mathrm{s} 5 \mathrm{~s} \times 34$
UniRef90-UPIOOO42A098F
UniRef90-G7GUK8
UniRef90-B8IUZ9
UniRef90_U5GZF7
UniRef90-HOROZ3
UniRef90 MOQPG7
UniRef90- UPIO004770429 UniRef90-D3BPJ2
UniRef90-Q11J08
UniRef90-FoWN55
UniRet90_B8ZSV9
UniRef90-B4SJN7
UniRef90_UPI000376D312
UniRef90-UPI00037D17BD UniRet90_UPIO003B6B028 UniRef90_S6BEX0 UniRef90-A4CDY4 UniRef90-G7LMY1 UniRef90-UPIO00471D67E UniRef90_UPI000363DBC0 UniRef90 J3Z2Z5 UniRef90-UPI000362D6D4 UniRef90-F6A887 UniRef90-S2KX83 UniRef90_UPIO0037E8389 UniRef90 UPIO002B424AF UniRef90_F4RMI1 UniRef90-Q2G5B2 UniRef90 UPIOOO3817F2C UniRef90-L7LPC9 UniRef90-ToS068
UniRef90 F1Z8G1
UniRef90-UPIIOOO377E35D UniRef90-Q2NYV2 UniRef90-N6Ul30 UniRef90-16YZF0 UniRef90_UPIO0029A6604 UniRef90-B4RHUO UniRef90-C0BJU3 UniRef90-A9TSL1 UniRef90-UPI0002C325A1 UniRef90-UPIO0036DDCCD UniRef90 A0A059FTI5 UniRef90-UP100047CBE28 UniRef90-H6RIS2
UniRef90-L1M050
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UniRef90
U8J1P4 UniRef90-F1YLF8 UniRef90-A0A059F8E2 UniRef90-Q0G4T7 UniRef90_UPI0003B2FB91 UniRe990_16ZZB3 UniRef90_C7Q8H9
UniRef90 V4P9E4 UniRef90-U5L637 UniRef90-UPIOOO2BC9DEC UniRef90-MOY2U1 UniRef90_UPIo0046244F1 UniRef90-UPI00046FC532 UniRef90_-_8EA21 UniRef90-UPIO000510161 UniRef90-B8EK82 UniRef90 ${ }^{-}$A0A017TAW9 UniRef90-UPIOOO3616232 UniRef90-UPIO0024857B3 UniRef90-UPIO0036C83C2 UniRef90-D8RZY7



TQDYPDTRRGSVVEEHFGVQVADTYRWLENDRDTDVA TQPMPP PTADTQLHVHETHGHQREDKYFWLRDDNDPKVL PVADLRPVRREHHGDLFEDPYEWLRDKNDPAVI $M P D \square R Y P$ PVARKIP
$P A E R Q D$
$P K P E K D$
TAPTP
PAARKVPVERTHHGDV
ARRADLVETGFGVPV
TPAQPP MTTVP

STPPVAKKVPTERTHHGDTF
KFPPTAPVRLHAVTVHGRTVSD
MATVPTPP
PVAKKVRTERTHHGDTV
MTLNYPK $\square R R D D S V$
TYPNVRR

PVPPAKRVETRR ARHRTNV QPPVAKKSPIT

PPRAAKHPVVRAFH
RTPPDAERRSETDTQHGHTR MPQAPIARПEPG

MTHHQHS
MTAPQAAKR PHPMTVHNDTRCD
PPMANKKDYDSGYHGDDRNDE
MT LP
P JAAQRPLTRTHHGREFV
MPNA乌QPPTARQD
QGA
ppVADTRPTTRTHHGRSGADP MNQSHSPPVADTRPDTRTHHGRSFVDNYEWMRAKDAPETI

AMYPKARRDESFKETFKSVEVHDPYHWLHEPKSEETQ MADRAAPPVAKKQPTVSSPHGDVQDPYYWLRDDTSPTVL RTPPVLAKKPH MVPFGNVIEDPYYYVRDDKNKEVI
MLTPPVTAKKPVEHHGDYVDYEW BAKDAVA
MLTPPPVTAKKPVERDHHGDVYVDDYEWLREKDDQAVI MTTHPFPPKASKIIYKKMYHGIYRNDPYHWLRAPNWQDVL MSGPVRPPAANRIDTLREYHGDTFVDPYEWMREKETPEVI

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VAPRDDHETTQVGRTRNDPYYWMKDDNWQEVR
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REHVREHHGDRVVDPYEWLRDGEDPEVR
P TPPTAH DHPTTRSHHGHDVVDNYEWLRDKESPETL
MSHAPTARTESG
TPNRYPQARRSD HVDVYHGVRVPNPYRWLEE HSEETE
PKANKRPYKDSQHGEERIDNYHWMRDAQTQEVL
SALPSPPVAQKRAHSFTLHGKTLQDEYAWLKDPDDPDIL
PPVARKVPRELAQHGDVRVDNYYWLRDDSRPDVL

PEMQPPMAARRPHKVESPNG ARDDEYYWLRDDTNKDVL MSTLRYPDVKRKE HQDTYGSVVVSDYYRWLEGK GPEVD MADRVSPPVAKKVPTERVHHGDVVVDEYEWLRDKDDPEV

NGPSPPTAERLLEERTRHGRDARSDEYAWMKADAWQEVR
MPSFVYPQ AERDTVADRLHGRDVPDPYRWLEDPRDPRTV MTLPKAPSPARKPFTDEQLGRTRTDDYHWMKDDNWQAVL

PTARRSDHVDDYKSETVQDPYEWLEH NTEETD STATTPPVAKKVPFERTHHGHTFIDDDEWMRQKESPEVI

 MTELAYANSAP $\quad$ TAHKVEGSDPYSWLQNRDSKEVK


P PVAATKPWSQRYHGQALADEYHWLQDRNDPAVL
PAALRRSFPKTRHGVTWDDPYHWLRNSEDPAVI
TPPDVEKRPHVVRAPHGAERQDEYYWLRDDEDPAML

UniRef90 X7F2F7 UniRef90-E3BCH2 UniRef90-U2X823 UniRef90_UPI00040F78C4 UniRef90-F5XEI8 UniRef90-UPIO0038166E5 UniRef90-UPI000348B3C UniRef90_A0A024EYP5 UniRef90_UPI00047BD552 UniRef90-A0A017SWW0 UniRef90_G2IPN0 UniRef90- S5SX34
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UniRef90_B8IUZ9
UniRef90_U5GZF7
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UniRef90-M0QPG7
UniRef90_UPIO004770429 UniRef90_D3BPJ2 UniRef90-Q1IJ08 UniRef90-F0WN55 UniRef90-B8ZSV9
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UniRef90-B9FR10
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UniRef90-X8J1P4
UniRef90_F1YLF8
UniRef90-A0A059F8E2
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UniRef90-C7Q8H9
UniRef90_V4P9E4
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UniRef90-MOY2U1
UniRef90-UPIO0046244F1
UniRef90_UPIO0046FC532
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UniRef90_UPI000478BCCC

A

## A

 A50
60 70
D WARAQNETARDYLDALPGREVFRERLLTALFDHEKLTTPT A H L N A E N A Y T D A V A A Q E P L R E R L F D E I K S R T K E T D L S I P V A H L E A E N A Y T D A RTA A S G L R E R I F E E I K GR T L E T D D L A Y L E E ENNYT E Q Q MAPA ELLQQNLYDEMVAR QEPE LVES V P Y



 QWVAA ENDATA HYLAA LPGGREALMTR I A QLYYYERYGTPR
 D H L E A E Q A Y T D A VT D Q E Q L R T D I F N E I K N R TQQETDDLS V P S
 AFVK A Q GEFAS QYLA NFEDADKFNKA LTTTNWDYPKFSCPA
 A F L E A Q N A Y T A A H T D Q D G L R K Q I F A E I K G R T K E T D M S V P S K WV E A Q N KVT MA YLA G L P KREA I R D RLTALLYDYERF GIP K
 A WI D T Q M KY T E Q Y L S Q V K V K F V A E Q N QLT A A Q F E K HP Y Q K E YK A R L T E V F N Y E K Y S L P F A Y L DAENDYVNQMTAHEPLQQKIFNEIKARTKENDLSVVT

 A Y L D A E N A Y T K A E D P S E A L R E E L F Q E M R G R I K E D D S S S V P T A Y L E A E N A WLDD E LDA D Q K DLLRE SLLF QE DK GRIVRETDDLS L P V


 S Y L Q K E N A Y T M M M A K N E T L R K QL F T E MV ER R P Q Q D H S A Y Y

 E Y L N A E NA Y T E QE TA HA P L R E A L F S E L S S RI K Q T DM S V P

 D Y L H R E N D Y FA A Y A K A Y Q L T D K Li T A E 1
 D WV E A Q S RFA QAY L S LLPEREAAFARKMRN LVDYERTGVPV THLLHEENAYTNARTEHALLRREQDFDEDIKARTRETDDLSVVV
 H Y L E EENAYTSQMADTETLQNLL A HLEAENAYVDDQLGHAELRTTII $\begin{array}{llllll}A & Y & N & A & E & N A Y Q Q A Q A A D Q A P \\ E & L & T & A & E & \text { L A Y T K T VA G T E D }\end{array}$


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F RWLQAENAYLE
RWI NA QAEFTKEY LSKNAMDRETVLI
D Y LQA ENEYT A QKMAPF DLQEEI Y QEMDGRLPQREESVPY
A H L L R A E N LiY T A T IM P R A A L T G Q L F S E M K A R L Q E D E Q A V P W
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 A HL HEENAYTKAKTEHA ILQQEQIFEEDKHRTKETDDSVVPA D Y L K A E N A Y L E Q Q A D Q A ELLRETLF QEIK GRDRETDDLSLP S

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 KRDGRWYWSYNSGLQAQNVDYRTKDDED DGEVFFDPNLLS QMGGYTYGQRYEEGQEYPUYYRDKAGQTEEEILLDDNALAA KGQYYYYNRTLTGKEYVQHCRRLVPTDPHEHIILDENVKA WRGERRFFSRRTADQEHGVLHVQDG DGPERVLI DPGALAD
 KKDGHWYWSYNSGLQAQFVYYRSKGPEQGADI YFDQNLITT $E R G Y W Y Y V R Y D T G S E Y P D Y A R K R G E L S A P E Q V M L D V N R M A$
$F C R D R Y Y W N Y N S G L Q A Q Y V L F R D S K D A P A G E V F F D P N L L A$
 ПDGPFYYSRYREGGEYP VVARRNASPDAKETILLDGDKMA PDGDFSYGVAYEAGAEYPRFVRYRRTSSEPHILVDPSEAA REGDWWYFTRTVEGQQYGDHCRVPAAGPDDQVLLDDNAEA PWGPWLYYQRTTAGDEYPRHYRCPRDENAEQLLLDPNELA WRGERRFDTRRDPEQEHAVLLAVEAADGTERVLVDPMALD

 KDDGRWYWYHNSGLQAQSVLYRSKGNDVGGEVFFDPNLLS RRGNYWYFSRTKAGLDYGI SVR $\square$ P ISRPDDEVVFDSNIAA YDNSYYYYSRDEGKQYS IHCRRKGSIDAPEEILEDENKLA RRGGYWYFSRTRAGLDYGISVRVPISDPGEEVIFDSNDAA PDGRFLYYARFNQGSQHPI FCRAEEDGGDVHILLDADALS KRGNRVFYTRQEAKQEKRVVYWREQGAPKENVLLDGASLS PWGPYVYYTRTNAGDEYPRHYRCARDEQTEQLLLDPNALA RSGDWWYFSRTQEGKSYATMCRRPVDTGDDEVMLDCNALAA RQGGFYYYSRSSAGQQYPLNCRRRDATAPEQILLDQNRLA RCGDWYYFVHPQGKEFPVYSRRRTRQGGNSEVMDDDELA

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ADGTSA|L|AEWAPSRDGSR|V|AYASQKDGADWRT| $\mid$ R|VDD|V|ET EGKFYSVGALALTPDQNRLAALMDFAGDERYAVTVRDIAT

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## A G

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GGGFLSLGAFSISP DHRLLA YSLLDS S

 RGHFFSLGATSVSHDGDWLAYSTDVKGDERYTLRI RNLVT K GQHCDVGAVSVSPDHQFLAYSVDFNGYETYQGFVKNLRT HDGATALDQWAPSDDGALVAYSVQDGGSDWRRVGFLRVAD NGDFYA LGSF DVSAD GT RLLLWAVDTEGDERYTLRVRSLD D
 A GHFFS LGAAATVSPD GNTLA Y SVVDVGHEMY TLRFKNLRT
 EGDYFRLVGVNVSPDNTKVVYGDDTESRRKYTLYVKDLLTV EHEFYHVGEVKVSPNHKLLAVTEDFTGDEVYSIRVIDIET Q H A YY SI A A FKVVSPNNKLVA YAEDTKGNEIVYVYVIDADT NGGFFSLGAFSLSPDHQRLA YSDDTSGEEVYQLYVVELAN KGDYFAFGGDDTSPDHERVAYSIDTQGSEFYQIHVQDIAS

A GGF L

EGHDFALDABSSDT
E D GT A AL S TYAFSESGEYWA Y GVV S L S


EGHD F F L L A M S V S H D G D W W A Y S T D V







S D GTAALA V S
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 E G Q F F S S L G T F S S L T D D D G R Y L L L F G K GKAFF LGEARHSPDHQTFGWSVDEKGSELDSIIRVRDLES

 $R G K F F A L$ E GLLDPS P D G T LL A Y R AD T S GQHQF QL H I K D L R S


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ETLLTVRVKKHVLGTPASADTVVVY
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$L K \underset{T}{T} L_{L L}^{L L}{ }_{P}^{G}$


KI KSHVLGDNPAADRVVY
EAWRPD
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EWRPDSVWRHEI
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DAWRPDTVWRHE
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EAFRPYALYRYQLiNGGASQDKVVF
PAR
ETLRSES FR R GADWS GEDVLV

DTHRPHKLYRHTLGE
$R N L$
$D N H$

DNHRTAQVFRHDVGSD
ED QFHRRVWRHRVGAPADDDVLVVE


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$\qquad$ ETQGDVDAMVYYHR GTPQSEDILIHE


HRPSKVFYHALGS D ESWRPDTI WRHEVGTAA DEDRLI Y E DNTHRPHKI HRHRLGGEG EQQFHRRVKLHKVGTD RRPAR VDESQRPYQLWRHRDGSE
 ETQSDKNAMLFYHKVGTQQSEDVLVYRDESNPEWMWGTE

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| UniRef90 ${ }^{-} 5 \times \mathrm{XEI} 8$ | SASRDRQWI VLGAGSKLTSEYRL |
| ef90 UPIO0038166E5 | SRSGDYIVIGGWN |
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| UniRef90-A0A017SWW0 | TRSMSRALIFVSDSSWMTSEVRF |
|  | TDDGRW |
|  | TRSRKY MIESASKDTTETWVLDTTNPE |
| UniRef90-UP100042A098F | SADRRHLVVGI GCSEYSETRLLDFANPG |
| UniRef90-G7GUK8 | THSDKYLMI GA GSKITSETYILDSADPTGEFRSITPRV |
| UniRef90_B8IUZ9 | DQTQSGAFLTDTASDHETAEVHLVDRARPGTAYRTVEP |
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| UniRef90-D3BPJ2 | TDDFETLMVCISKDCNPENMTLITNFDEVINGKEQHFKKV |
| UniRet90-Q1 | ENERYLVVTVAHGVPPRVDIYAKDLRKPDSQVVKVIH |
| UniRet90-FOWN55 |  |
| UniRef90-B4SJN7 | TRDDRFTTIGVHSTVS SEERYAPAGDP |
| UniRet90-UP10003 | D RFLVIESGAKTTTEYRFLDDQDR |
| UniRef90_UP10003 | GSDRAEKYLYIASSSKLTSEWRVAPLGDP |
| UniRet90-UP10003B6B028 |  |
| UniRef90-A4CDY4 | SRDESLIMLDLE ATETSDTWVLDANNCHGEFV |
| UniRef90-G7LMY1 | TTSERYUIVYLSSTT TTEVLLI DAARHDAAPQV |
| UniRef90-UPIO004711 | SRSEQF I A S A T DSSEYRYLNADTPEAA |
| UniRef90-UP1000363 | TRSEKYLLIEV GSKTTSEVWAI DTANDESDPWC\\|RERD |
| UniRef90 | SQRYILLVLSSATSGETLL |
| UniRef90-F6A887 | SSERQLVMLL GSKTTTECWIVDADTPEQ |
| UniRef90 S2KX83 | SSERQLVLLL NSKTTSEAWVLDAHTPQAAFTCLAPRV |
| UniRef90-UPI00037E | TRSNSYLVID DSSKLTSEQWVCPMSDPTGSFECLIPRT |
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| UniRet90-ToS06 |  |
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| UniRef90_UPlooo377 | RF |
| UniRe990-Q21 | DDKYITI GVEST |
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| Ref90_L1M050 |  |
| ef90_A3TJT9 | WL L GSKT S EVRL |
| UniRef90_C4L- | GTTRSEKYLFVEVGSKVTSEVWFLDLIERVTGELICCIILPRH |
| UniRef90-UPIO00468FE44 | ERQLVLLL |
| UniRef90-H6L6T2 |  |
| UniRef90-C8WC75 | SRSQDRQWI FLESGNHQTSETYLIPTDDI |
| UniRef90-B9FR10 | SESKQYLFVESGSKNTSFIFYLDISKQS |
| iRef90_UPIO |  |
| UniRef90_UP10003A6B90C | KFLI |
|  | TEKKEY VFYTMKDTSRKNLLWVA |
| UniRef90-UPIO0044072F5 | TLDGKY |
| UniRet90-C01N87 | SPDGRYLTLY |
| UniRef90-F1YLF8 | TQSDEYLVIGV GSKVTSEALVLRADDPTGEFVSVAGR |
| UniRef90-A0A059F8E2 | SKSANREKIFVTSSNHTTSEWHWFDSREHAPTL |
| UniRef90-Q0G4T7 | SGRLVLIDI HD HETSECWMDPASNPAAEPRL |
| UniRet90-UPIO003B2FB91 | TRSRRF LAI EAGSNVTSETWLLDAAEPTGEFAVVWPRK |
| UniRet90_16728 | YRASSERQLVILSNSKTTSEAWVLPADEP |
|  |  |
| UniRef90_V4P9E4 | SSDA GFISIGGGNHETNETWLIPAAT |
| UniRef90 UPIOOO2BC9DEC | QASESKKYLFITSESKITRFVFYLDTSKPENGLVVL |
| UniRee90-M0Y21 | GKYVLLSVSESSEPVNKLYYCDLSALSAGTHEM |
| -9, | GRYLLLSITRDTSRKKLLWTADLQK GSDDQNIQWD |
| UniRef90-UPI | S |
| 俍90-F8EA21 | S |
| niRef90-UPIOOO051 | GSKT |
| iRef90_B8EK82 | HDASECWLLDLIN |
| Ref90-AOAO | SRDGHWLLVSVIRGAS V |
|  | WV |
| Uni | S A S |
| UniRef90_UP100036C83C2 |  |
| et90 | KNWQYVLI NVNSKTSSEVIAFHKCVARASTGQ |
|  | RDDRYIVIGVSSTVSD ELRYAPAADPR EFTVLAPR |

UniRef90_X7F2F7 UniRef90-E3BCH2 UniRef90_U2X823 UniRef90_UPI00040F78C4 UniRef90-F5XEI8 UniRef90-UPIO0038166E5 UniRef90-UPI000348B3C1 UniRef90_A0A024EYP5 UniRef90_UPIO0047BD552 UniRef90-A0A017SWW0 UniRef90_G2IPNO UniRef90-S5SX34
UniRef90_UPIO0042A098F
UniRef90-G7GUK8
UniRef90_B8IUZ9
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UniRef90-H0ROZ3
UniRef90-M0QPG7
UniRef90-UPI0004770429 UniRef90-D3BPJ2 UniRef90-Q1IJ08 UniRef90-F0WN55 UniRef90_B8ZSV9 UniRef90-B4SJN7
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UniRef90_UPI00037D17BD UniRef90_UPI0003B6B028 UniRef90_S6BEX0
UniRef90-A4CDY4 UniRef90_G7LMY1 UniRef90_UPI000471D67E UniRef90_UPI000363DBC0 UniRef90-J3Z2Z5 UniRef90_UPI000362D6D4 UniRef90-F6A887
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UniRef90_C8WC75
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UniRef90_UPIO0044072F5 UniRef90_C0IN87
UniRef90-X8J1P4 UniRef90_F1YLF8 UniRef90-A0A059F8E2 UniRef90-Q0G4T7 UniRef90_UPI0003B2FB91 UniRef90_I6ZZB3 UniRef90-C7Q8H9 UniRef90_V4P9E4 UniRef90-U5L637 UniRef90-UPIO002BC9DEC UniRef90-M0Y2U1 UniRef90_UPIO0046244F1 UniRef90-UPI00046FC532 UniRef90_F8EA21 UniRef90-UPI0000510161 UniRef90_B8EK82 UniRef90-A0A017TAW9 UniRef90_UPIO003616232 UniRef90_UPI00024857B3 UniRef90_UPI00036C83C2 UniRef90-D8RZY7
UniRef90_UPI000478BCCC

 EGVE RQRDHEYSVDHFQDKFFI RSNYSGKNFALHTLTFQV RRQGVEYDVEPAGDRLLLVNDGATDFELAQAPLDA

VQV

RQHGHEYDLDHYDGRFYVRSNKDGANFGLYVT DRV

DEHVLYEAEPVTDDGPSYLLTHNRDAKNSMI SLVEASE T TAPREQGHDYSADHRGQELLIVTDSPAMNSRLVTAPDDR LVRGLSHEWQFDGNVGDMLYFRTTMGAPNGRVVTLDATR $H D V E Y S V D H A E V A G Q D \quad R W I V T H N A T G K N F A V G E T G V E E$ EHILYYA EPFLLDGAERDLLTHNLDAVNSMLVHGTASR EGIEY NVEHVILGGEDYFSFVHNELRDNFAVDIAPVSD RTSKLTYSEHRGDELF LTNDGAEDFK AVAPLAE
 E GVE YSAEHAVIGGEDY

 D GI E YVEHAPS GLVGGQDRF LILHNDGAVNFTLVESPVSN VLAPR QRDVEY DADHYD GRWVI RTNDGAKNFKLV TAPTDA
 C $\quad$ E T D D I E Y S VVVD F D N E F Y I L T N S D G A V D F K I V K A P I S S
 QLCPRVKGHEYDADKLGDTFYIVTNWQAKNFRLMTANNTT RRKDHEYGVDHYRDAFYLRSNREGKNFGLYRTLE



 PGVE YGDDHAVVGGEDRWLVLHNATGPNFALGWAPVGE
 $P L V S T B A D E W S L D A G \square G D R L D W F V T S K D A P R K K V V M V D M S G$ $D G \square D$


 VLAK RERDVEYHAEHFDGRWVI RTNDDARNFKLVMTAPT DA CVQKR QK GIE Y S LTE G GD DF YI LTN DNAKDFKIMMIAP Y S S S G $\square E Y$ TVD H VVVGGE DRLLI LIHND GAVNFALAELDVAA EGHE
$R Q V G V K Y G L D H W G D R W V I$
$\begin{array}{lllllllllllllllll}R & S & N & Q & D & G & I & N & F & A & L & Y & Q & A & V & A & D \\ R & T & N & D & G & A & V & D & F & K & L & C & V & S & D & A & A \\ V\end{array}$
RLRGLEYSVEQFEDHFYILTNDDSKNFKIVKTPILN EGEDYSVTHRGNHFYFRRSEE $\square F N S E L L V A P V T N$ $\mathrm{D} G \square$ EGHEYFVDH GR QDQWRWFIRSNQDGワNFALFQAVDGD AEREDNEYSVVHWAGQFYGTNLDGAIDFKMMKAPMEA
 EGHE YDADH GK L D GE WR WF V R SNQD GDNFALYMAP GDR A ARRDGDE Y DVEPAADRLLI VHNTDNPDSDLAWAPLDA
 CLAPREEGHEYYVDHGDWAWLI RSNQRGDNFALLFVVES S
 A NH

RK T GRYYSVD $\begin{array}{llll}D G Q G G F Y & L \\ S G Q K & L & W & L\end{array}$ YGlD TTASH $\qquad$
 GNHFY KKRRNDDHVNFRLASASBET
 KVIDEF DAS Y NVI G NDDSK KYFMSNK DAPRYKVITIIDIS D RERNHEYDAEHLGNSWDIRTNWKAKNFRVVAAAQDS K LI N E WD A S Y S VLA N D GPR F Y I Q T N K D A P N Y R V M T D D D EGVE YSVEHARID GRDWFVMVHNGEQAVDFAVDDVPVD D T IAPRED GIE YSVVVWDGQFYITTNS GAVDFKVMRAPFEA ERETGI EYDVVDEGEDCLY RTNDGARDFKIVTTPMDK D GVE Y DVEHVVAGGRDRLLI, VHNDGAVNFELVSMAAS D ENHEYYPDHGRL DGQWCWFVRSNQTGUNFALYQAAEST VGLD N Q T S I E A P D S P L A G S VLV WT D R D APR GRI CV A AV G D $C V Q P R E D G V Q Y D I D H W D D R F I I R T N D G A D D F K L M V S L A E R$
 T GDD T S A S H
 KLI DEFEANYEYI ANDGTKFYFGLTNKDAPLYKLVSVVIAD D GVEYT VEHAVIGGEDRFLITHNRNRADFELVDVPAAD K GVEY DTEYSVKDHPTGFYMTWKDVNNKNQKVYQL PKTG R R A P GVVRY E V E H R G E R L L F M T T N N D G A E D F D K I I V D V P A A S D PLVKGHDGTVAALVWKD RIVLRTTEGAPRGRVFRVDPAK EGHDYSVVD GGLYEGQWAWFIRTNQDGDNFALYYALGDLD C $\square R P R E Q G V Q Y D V D H D W W L V L H D S L A E R P N G E L G R C P V G P$ RTPGHRYNAETHGDRLYLLTNRDAPNFRVVSAPLAA


UniRef90_X7F2F7 UniRef90-E3BCH2 UniRef90-U2X823 UniRef90_UPIO0040F78C4 UniRef90-F5XEI8 UniRef90-UPIO0038166E5 UniRef90-UPI000348B3C1 UniRef90_A0A024EYP5 UniRef90_UPI00047BDD552 UniRef90_A0A017SWW0 UniRef90_G2IPN0 UniRef90-S5SX34
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UniRef90_G7GUK8
UniRef90-B8IUZ9
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## UniRef90-S2KX83

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UniRef90-Q2NYV2
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UniRef90-B4RHUO
UniRef90-C0BJU3
UniRef90-A9TSL1
UniRef90_UPI0002C325A1
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UniRef90-H6RIS2
UniRef90_L1M050
UniRef90_A3TJT9
UniRef90_C4LH44
UniRef90_UPI000468FE44 UniRef90-UPIO00455F380 UniRef90-H6L6T2
UniRef90_C8WC75
UniRef90-B9FR10
UniRef90-UPIO00366BE5C UniRef90_UPI0003A6B90C UniRef90-B0DK56
UniRef90_UPIO0044072F5
UniRef90_C0IN87
UniRef90-X8J1P4
UniRef90_F1YLF8
UniRef90-A0A059F8E2
UniRef90-Q0G4T7 UniRef90_UPG0003B2FB91 UniRef90_16ZZB3 UniRef90_C7Q8H9
UniRef90_V4P9E4 UniRef90-U5L637 UniRef90-UPIO002BC9DEC UniRef90-MOY2U1 UniRef90_UPIO0046244F1 UniRef90_UPIO0046FC532 UniRef90_F8EA21

## UniRef90-UPIO000510161

 UniRef90_B8EK82 UniRef90-A0A017TAW9 UniRef90_UPIOOO3616232 UniRef90_UPIO0024857B3 UniRef90_UP100036C83C2 UniRef90_D8RZY7330
340
340
360
PEPE FTEVVIPEHPE MI TTRLASVVGDRLLVVTAMRDARTE PGVDNWQPLLVGAEGERILGVSAYR DFMLVGLRAGGLPT PTGAR EVVVPMEPGRRLEGLSTFRDWALLGGYRRDGLQR SEPNQWTPVLPATBGVIRI LDVAA

 | $R$ |
| :--- |
| D |
| F |
| T |
| F |
| V |

S D
 $P R K G P Q S S V$ L A ERSQTLA GA SMVGSRMILDAYQS DGRIM $P P L R E L D N L L P H D E Q V R V E G V D T Y Q G H V V A A Y R R G A I G R$ P V A E QWA TII A H D D GVVRI NGAATVTATHLVVVSRENTIER

 PDPTQRRRELI GHSSQRRRI ESVVDA FA DY LTTLSYRENALDPQ LS A R R E L I A H D P D R R I E D L D A F F A D Y L V L S Y R S G A L P R SEGVVALDVKTI ID ERDY LDQYAGS S DPQHWTMVVPEAK D GDSPS WVEVI REQPEVVLESVYPAR



| A |
| :--- |
| T |
| P |

P
$G E E S M W Q V L V$
$P G L R E L D E L V$

$R$
$P$$E_{R}$ R D

LESADLREI EPHRHDVRL
TS AT

| $P$ | $V$ | $L$ | $P$ |
| :--- | :--- | :--- | :--- |
| $P$ | $D$ | $l$ |  |

A A PVVTTVV
GDRQHWQPL A H

 PEPRFATVVGPQSEDTLEWAAAMVGGRLVLGYLHDARSR $P Q G P R \quad R V L L A H D P A V R I E G D D A F R$ D FVVSVEYRREGMTR T T R K Q WT D WV A H D D SVVY EN FE L F D GFTAA E ER S G G S P H $P$ QSENWSE LVP HQPGRLI LS HDAY Q D F LI WLE QVEGGP S ADPSAARTLIAHRDDVRLDGVEAFAQR
$P$
$P$
$S$

## T

UniRef90_UPI000478BCCC
 PAPERWQDVI P QQE GAVL SDVA LVVDGPQVLAVVAMVDA TDR
T
 DKYEQ KDLI PEEKDAF L D DI GVVMGN A P GAE HW
$P P$ P

TVL
P G A E H W
P P L
R
K N EVVK E L I
ANLTRNELVPEDKEAKLESANLVNEDAFVGVYKRNVVKDE P D REA WR DLI A H R D D A F I D D A C DVVFR D F V A V E E H S N GLA N
 FGAR RELI AHRPGRRVEDVDCFR DYLVLSYRADALPR T S R DE WEEVI A HRPGT LI L GLLQAQ K DYL SRMERENGLPR


 PQREHWQELLAHRDEVMLEDIS LNAS ALTLSLREAGLP LIA Y E NWRELVVPCRDPEAV LDDS YALLDDGPLLVVVARTR HAVGE $P S R D T W R D L V P H R P G \square Y I T G S G V Y$ K R HMLRVERENANTR | $L$ |
| :--- |
| $L$ |
| $I$ |
| S A R M |

 PAEKRFKELI PTAPGRDVIVTEAADDLRIVEDVDAFADF IVLSYRRGGFAR
 PAGTARETLLDDDVE GLDRI EDVDA FADFVVVSYR RGGFAR P GKAFWVDEV P HKPGRMIDELSVFPDYLVWLERENGLPR PERAGWEEIVPEDKEGVLEDVRVI GGHLALQYLRSARSE




## UniRef90 X7F2F7 UniRef90-E3BCH2 UniRef90-U2X823 UniRef90_UPI00040F78C4 UniRef90_F5XE18

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UniRef90_G7GUK8
UniRef90-B8IUZ9 UniRef90_U5GZF7 UniRef90 HOROZ3
UniRef90 M0QPG7 UniRef90_UPI0004770429 UniRef90_D3BPJ2 UniRef90-Q1IJ08 UniRef90-F0WN55 UniRef90_B8ZSV9 UniRef90-B4SJN7
UniRef90_UPI000376D312 UniRef90_UPI00037D17BD UniRef90_UPIO003B6BB028 UniRef90_S6BEX0 UniRef90-A4CDY4 UniRef90_G7LMY1 UniRef90_UPIO00471D67E UniRef90_UPI000363DBC0 UniRef90-J3Z2Z5 UniRef90-UPIO00362D6D4 UniRef90-F6A887

## UniRef90 S2KX83

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UniRef90-Q2G5B2
UniRef90_UPIO003817F2C
UniRef90-L7LPC9
UniRef90-T0S068
UniRef90-TOS068
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UniRef90-Q2NYV2
UniRef90-N6UI30
UniRef90-I6YZFO
UniRef90_UPI00029A6604
UniRef90-B4RHUO
UniRef90_C0BJU3
UniRef90-A9TSL1
UniRef90_UPI0002C325A1
UniRef90_UPI00036DDCCD UniRef90_A0A059FTI5
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UniRef90_F1YLF8
UniRef90-A0A059F8E2
UniRef90-Q0G4T7 UniRef90_UPG0003B2FB91 UniRef90-C7Q8H9 UniRef90_V4P9E4 UniRef90-U5L637 UniRef90-UPI0002BC9DEC UniRef90-M0Y2U1 UniRef90_UPIO0046244F1 UniRef90-F8EA21 UniRef90_UPI0000510161 UniRef90-B8EK82 UniRef90_A0A017TAW9 UniRef90_UPIO003616232 UniRef90-UPIO002485783 UniRef90_UPI00036C83C2
UniRef90-D8RZY7 UniRef90_D8RZY7

## I


 $V R L L P K E G G A A R E L P F A G E L T V V G V N P T Y E A T T L M V A T E S$
 V HVLPRDTDGSLDEPLFDVYAVGG PNYVTQTDRDGFDS L RQVNRHNNTEHQ AFFDDPAYVSGTNPEADTPWLRYGYAS VTRHD LETGELLEVRDPGLGSVGGLMDRPEGHEVWFTYTD VRTAD RNAQNPYELKFADPSYSVGDNREYDTEWLRYNYES $V Q V L P L A G A P V E P A F D E Q L F T S S L A N A E F E S P D I R L S Y T S$
$L R F F P L M A A S H R V A L P E A A Y S L W N R P D F D T P T Y R F G Y E S$ AE LADLQGLSHGDVPLPGPGAASGFSGRSGDPETFFSFSS
 L SI A DLRTDEFRQVSFDQELYSVALLAGNPETPRLRMAYGS LIVREAATDEEHSVAFAEEAYSLGLLPAFDTTVIRFVYSS
 $V Q L Y E T D G K P A G T V P D P G 1 G T A T G F D A S D D G T T Y F G F S S$
 LHI Y S L DGDLLTKI DLDPGUGTV QVS SRRASS IVFYKFVS VQLWPI DYGEPEEI SFESELMWVSLNSNWVSPKLRDRAGS I RALTVKDGRSDYVKADEPAYSMGGDNTEADTPWLRYVYTS LSVASLA D GSWRELEFEELYSVSGGNPEWDAPVVRVSYTS I VIRSRD GAEHATEMKEAAYDLGLAGEYDSAILRFAYAS I QVH P EGAAPYPLQLPDAAYSLYVSLEFDSPVVRLRYEA FVVYQADGSSYPLEFNDACYYAGGENPEPDSNKARLYYSS LRQDNWQTREEKNITFNDASYVTWLNPTPETALLRYGYAS LRVREWKSNTEHYYVFGEPAYTAGANPDYNASQVRYGYTS

 I EVR PQGLASYRVELPDAAYSLYVSLEFASPRVRLRYEA VGIMTLDGGSFEPIEFDEELYSAGSNALWDAPVLRMGYSS

 I RIMPWQSDKAFYVTSDEAAYVTEVVNEQNTDWGRYSYTS
 $M V L A K P D G S V V G E V G L P G P G T V A G V S G R P S D R F G Y F A F S S$ VAVAQPADDTPHELHFDEELVTVGVGGNPEQPFLRLGYGS M

L

##  <br> 

UniRef90_UPIO004


UniRef90_F6HVY5 UniRef90_F8E140 UniRef90-E5XVE5 UniRef90_UPI00047CBE85 UniRef90_K1ESG6 UniRef90-A6WDV4 UniRef90_UPI0003B4704F UniRef90-D5UCE8 UniRef90_UPI000371EBA9 UniRef90_UPI0003B496A9 UniRef90-K7UDI7 UniRef90-H3H6P9 UniRef90-C4P9M4 UniRef90-F4D1N3 UniRef90-UPI00047BD6BA UniRef90-K7SCI8 UniRef90-W1PQB4 UniRef90_Z9JUG5 UniRef90-17L9D9 UniRef90-F8A0L7 UniRef90-S7VZW2 UniRef90-V4V8M6 UniRef90-Z9JIN4 UniRef90-A5G275 UniRef90-S8CN66 UniRef90-E2JFG2 UniRef90-H5TAZ1 UniRef90-E6S8C9 UniRef90-W9G7A5 UniRef90-V4NE98 UniRef90-L9JLM4
UniRef90 U6ZT99 UniRef90-H5UNC8 UniRef90-D8TR92 UniRef90_M9MGQ6 UniRef90-UPI00035E2AB4 UniRef90_K9ASL2 UniRef90-W7SZ97 UniRef90-D5AWK3 UniRef90-UPIO0045E6142 UniRef90_UPIO00255684B UniRef90_UPIO0040B1899 UniRef90-G4QJU4 UniRef90-E3GZZ4 UniRef90_UPI000255EF6E UniRef90_UPI0002DDD668 UniRef90-S4XHT2 UniRef90-Q0WN43 UniRef90_G8UNC8 UniRef90_UPIO002B47A25 UniRef90-UPI0004036FAB UniRef90_L1M9J0 UniRef90-K7ADW55 UniRef90-M2VXX4 UniRef90-W6K4T2 UniRef90_UPI0003811D00 UniRef90-J9DIZ7 UniRef90-F7XVF2 UniRef90-M5E716 UniRef90_UPI0002884B41 UniRef90-UPI0002DFF85E UniRef90-K6YTM7 UniRef90-D2PYD0
UniRef90_UPI00037AEF6F
UniRef90-C5C552
UniRef90-W9E461
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UniRef90-K8EYY2
UniRef90-W7E0T6
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UniRef90-UPI00039E214F
UniRef90 Z4WTY9
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UniRef90-S3YC33
UniRef90-V8A7N8
UniRef90_U2IXD6
UniRef90-D2UF98
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UniRef90-W7UAB1
UniRef90-M9VFG0
UniRef90_A9RBI6
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UniRef90_W4FM02
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P LPA A D T NAP $\square$ A H K A D GA D P Y A WL Q E R D T D A VL MEYPT TRRDD VVETLDHGHR】ADPYRWLEDPDSPETQ
 P YPAARRDDSASLTYKSVTVVEPYA WLEQPQSAE TK P A A A RGDTVVDVLFGRTVPDPYRALVDSDAPATR LT A S Y P P A E RLLP L V E D LIH G H A V S D P Y R WL LE D P A D E R TV
 PYPPARRSDVVDHLPGHTVADPYRWLEDDASAETQ

P P $\square$ AK RMA HTHE LHGDVREDDYYWL R DRNNPDVI PQANKIPFSAEYHGKTINDHFNWLKDVDDQAII PVPKKVEHDREYHGDTFDDHYEWMRDKEDQEVL
PTSHPPVAERRPVPREHHGQAFTDDYOWWREXESPRQVI
$\square P Y P$


PVVANK DEHRLVVNSEE V V D E Y A WL R D P E WP NV K
P PATPKRPVKTEQLGYSRTDNYAWMKDENWQDIR



MTK P $\square$ A L R K E Y K T $\square \quad$ D GR DD Y Y H WL R D P NWP DVV SAFPYPAARRSDASTTAQHGVTVPEPYDWLVVPQSAETA S Y DYPKTKDEDSVVYYKYYRTA I K DP Y Q WL E K DK T K T V Q



S H A PVVP S V S A EPVARRHHGHTFQDDFEWLRGKAEPRVL
YP HAPRED LVENLHGHEVHDPYRWLEDPEDPRCS


SDFPNVPHAEAHPELLRHDGVTTDDPYAWLEQRDNPEVL
PPVP K K VP FTVVSAMGTTWQDPYRWMSNTSDDPDLIS
TFMKPPVPAKKPDERTHHGDTVVVDNFDWLREKENQEVL SSYP PPSPRRVPRTVQLERVRQDDYAWMKDENWQKVL
 P DLLS YP DAERLLA GAEF LHGHAVADPYRWLEDATDARTQQ PSAPRRPHT WHRPTGEVDDDYA WMRDVDDPELH

P PIASKRPFLKEAHGDKWNDPYHWMSSPEKA HLT PRAARKPHA ATVHGDKR $\quad$ D Y Y Y WL R D D D D S DV L
P P A T P Q H A V R D TIVH NVVVFTMP Y R WL E D K D D P AVV PYPPARRDLNSSDVFQSVTVPDPYSWLHEPQSKETK

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UniRef90_W2C5M0 UniRef90_J3Q985 UniRef90_R7QNS5
UniRef90_E3FFD4
E H L A A ENAYTEAVTDQAP LREA VGEDK ARTVETDRSVPA E WLEQQDGDAS GRLADLPGKDRLAERIHALMSTGSVSAPT S Y L K T E N E Y T E A H TK H L K K K E T D Y N E I V K A I E E T D V D V K F

 NYLLE S ENA YTE E MQE S K E L Q E QLLYN E I L S R I K E D D Q S YP T D H L S R E N S Y A D A F M D S R G L Q R T L V S E M T S R M P T K D S T P P E
 E Y L






 K HLRRQENAYTNWMTMSKPYAK DIMYKEMLSHMLKE D DVVT VPA


RRGAYYYYKRTLAGKEYVVQCRRGPDAPQEHVILIDENKAQ RSGQWWYFSRTEEGKNYPTMCR $\square$ PAREEDEEVFLDANALA RVGDWWYFTRTEEGKQYGAHCRAPDSGPDDWVLLDGNERA WRGERRFHTRRAPDQEHAVLL ATGADGAERVLVDPVALD ASGGWWYYSRTVEGSQYAI QCRAPLVDRAAVPELDPTRPL HRGERVFRTRRDPAAEHAVLQVQDPGAAPRTLVDPVALD RAGDYWYYGRTAEGKDYGYSCRIPVEKGSDQDILDANELA WRGDRRFFSRRAGGQEHAVVVVAEPGEHTERVLIDPLVLD ITKNGYEYRWYFEEGAEYRTRARKDLATGDETVFMDETALA RRRGWWYFTRSAEGKPYTVQCRVKATDPAEEVLLDGNALA K G R Y Y Y Y E R T LTTGK E Y V Q H C R R P V S T D A P DTVVHLDE NV K A HDDGRWYWYYNTGLQAQTCLWRTRDDEDVGEI FFDPNALS WRAGRAFVRRSPGQEHAVVLVREPGPDGTTRVLLDPVALD PDGPWAYYSRFEDGAQHPLRARRPREGGAEQVLLDVDARA RKPYFYYDRTDEGKEYVQHCRRHGPDAPEEEIILDENVRS RRGDWWY DTRTTEGQDYPAFTRDPDAADVPQVILDAQAEA RAGGYWYYARTDEGKSYPVACRRALVDGADPWVLDLNALA WRGERRFFSRRAGDQEHAVVVVVEPDGARERVLVDPMLLD RRGQWWYFNRTEEGKQYSI HCRVPVADANDQILLDDNAEA KRGNKYFYFHNTGLQPQSVLYVQDSLDAKAKVLLDPNTLS RKRGWFYYARFESGKDYPI HARRKAGPGGEQVLLDVNALA PHGPYAYYRRFDPGAEHPVIARTPRAGGAEQVLLDLPARA RRGPYYYYTRTDEGKEYTMHCRRPVANPPEQVLLDENDKS LD S GHWY WF YN S GVQS QAVLYRQRGTRKVGEVYFDPNVLS IENGYEYTSFFNEGGEYRTYTRRKLDTASNDTTLNSDNAK RHDRWWYYSRTVEGEQYPVDGRVLVGAVPERPALDGDEAH RHDRWWYYSRTVE GQQYAVDARVRVDVQPDRPTTD GDLP P D GP WYYSRYEKGGQHPILARRPRSTTPFRRILLDEDERG CMHHHHHLPYA $\square P H M N Q R V L Y V Q D S L E G E A R V F L D P N L L S$ PWGPY LYYTRTTAGDEYPRHYRCPRDESREQLLLDPNVLA HEHGWYLVSRNDGTRPQNTWYVARTDEAGGRVLLDPS SWS
 WRGDRHFLIRRDPGREHAVLFVVEPDGTERALVDPVAID R R G GYWYF TRTKA GLDYGI HVRVPAADPGEEVVFDSNQAA WRNGRAFFTRRDPGQDHAALWWLRERDGSERVLLDVTVID
 WRGERWFAARRE GAAEHAVVD LAE PHGTRTMLLDDMRLDD PWGPY L Y Y QRTTAGDEYPRHYRCKRDESSEQLLLDPNELAA KHGPFFYYSRMDKNK QYP DY A RKKE P E V V E E EVVVL
 $R \square G D W W Y Y S R M V P G G Q Y P I F Y R Y P A L H E G D E V V L D C N E Y A$ $R K D D W W Y F S R T E E G K Q Y G V Q C R V R A R D E G E Q V I L D G N A E A$ Q D G P Y F Y Y K R MVVA N L E Y P I Y A R KR A N T R Q E E I I L D L N T L A DAGGQLFALKDQPP KQQPFLVVMKSANGSERVVVDPEVVD

 PD GAFAYNHRYR $\square$ G D Q H GLYERTKSPDGEPQTILDAEALS RDGDYWYY GRTE EGKSYFLSCRLPVLPDQDEIILD GNMLAA
 GD GP WWY Y GRT DE GQQYAVHARCPRPGPSEQVLLDGNAAA
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WRGDRCFVLRRSAGQEHPVLYADDAP $V L L D P \vee Q L$ $\square L V D P Q Q L$ ERSGRTFAWVND GTTNQDVLVVSDDADLDSRVLLDPNALD



RRD GWWYFVRTREGAEYP PHCRVPARDPGEQVILDGNAEA WRNGRSFFTR RGT DREFPVLFVRDESGTETPLVDVARDD QWGDEYYVRTVKGKSYP VVCRTNTTKGGGETVVLDVNELA E DGDW $\square Y L$ SHYEEGNEYKTYYRRS $\quad$ KHSPAEQLI L DPNQAT KRGERYFFTRNPGLDDQAVLVMRE GADGPE HVLVVDPNTWA VWGP WY Y QRTE A G DEYPRYYRCVRPVNDSLEIDLDLNALA L R R GYYYYTCTEK GK QYPTHYRYEEEAFNREWSFDVVNQMA $L W G P W L Y Y Q Y \square P E G K E Y P V L C R R R G G F G K E E V L L D W N E D A$
 LRRGYYYYTRTEKGKQYPVHYRMRQEDFDRRWKFDVNQLA EK KGGYY N LWWRDREHT RGLWRRYRKP EPKWETVLDDLDALN WRGTRQFFVRRSPGQEHPALLYVADPGKP ERSLI DPTRHD F NGGWWYVTTTEEGASYPRHHRGPSADATRHLLLDENVEA WGEHYYYSRTVVGKSYGYVCRRCGSMDAPE EIVLDLNALA HCGGRYLMWHDDGDAA QPVVQDWRDGFDRP DLLLDPNDWS RWGS WLYY SKVPE GAEF PVYCRRRAE GCHEEILLLDQNADA RKKGFYYYSRTLENQQYPVVCRRRMRPEFREVLLDENADA $N V G D R V F Q T V K M K G D K Q Y R I$ Y T $V$ I $K P D G Y Y Y F W F N S G L Q S Q Y V L Y R V K K G E P V G E L E L D P N L F S$ KKGAFKYYSKTVAGKSYKYFCRKA ILDGEEQLLLDDVNQUA P H GD F Y Y T R T E E G K A Y G $\quad$ DHYRK P R H D D G A E K I L L DV N K L A

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UniRef90
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UniRef90 U6ZT99 UniRef90-H5UNC8 UniRef90-D8TR92 UniRef90_M9MGQ6 UniRef90-UPIO0035E2AB4 UniRef90 K9ASL2 2 UniRef90-W7SZ97
UniRef90
D5AWK3 UniRef90_UPIO0045E6142 UniRef90-UPIO002556848 UniRef90-UPIOOO40B1899 UniRef90-G4QJU4 UniRef90-E3GZZ4 UniRef90-UP1000255EF6E UniRef90-UP10002DDD668 UniRef90-S4XHT2 UniRef90_Q0WN43 UniRef90-G8UNC8 UniRef90_UPIO002B47A25 UniRef90-UPI0004036FAB UniRef90 L1M9.LO UniRef90-K7ADW5 UniRef90-M2VXX4 UniRet90_W6K4T2 UniRef90-UPIO003811D00 UniRef90-J9DIZ7 UniRef90_F7XVF2 UniRef90-M5E716 UniRef90-UPIO002884B41 UniRef90-UPIO002DFF85E UniRef90-K6YTM7 UniRef90-D2PYDO UniRef90-UP100037AEF6F UniRef90_C5C552
UniRef90-W9E461
UniRefolo-UPIO00255CCCD UniRef90-H8Нозо UniRef90-F3BJ58 UniRef90_C5CCR6 UniRef90-UPIO004771D6B UniRef90_K8EYY2 UniRef90_W7EOT6 UniRef90-UP10003C184C5 UniRef90-UPIO0039E214F UniRef90-Z4WTY9 UniRef90-UPIIOO2C34BC1 UniRef90 S3YC33 UniRef90-V8A7N8 UniRef90_U2IXD6 UniRef90-D2UF98
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 PAGTTTLDAWQPSKEGTRLAYQVSHGGTEESVLHVLDVAT EGHDYFI GGWTISPDNRYLAYSYDTAGDERYQVKVRDLTT
 $K G H H C Q V A S V S P S P D H R Y L A Y M V D F S G Y E T Y T A Y V K D L K T$ K D GTA A L S T YRFS RD GKYFA YAl A Q S GS DF NTIVYVRPTD S



 P A GTTTMDAWQPSKE GT LLAAYQTSTGGTEESVVLRVLDVAT
 A GKYFSVVGDAQVSPNNHLLAWAEDSVGRRQYTVRFKNLDT K GHFFSSAPAVAHSDDHRLLAWAEDTQGSEVYRIHVREIET Q GHA Y Y V N A F K V N P S D KL I A Y A E D T K G D E I Y T V V H I DD A D S PYDYF SMGD WE IS PNNQYLA Y S YNTNGDERYTIVI K D L N T
 GHDYYETS GAEHSPDHTLYAWGEDTQGSEYYTI HVRDLKT D D GTV A L R GYA F S E D GEYFA Y G LI S A S G S D WVT I KFM K V D G N G G F F A L G A F S $\square$ S P D H QR L A Y S L D T S S G E E I Y S S L S QE YYSVGGGADVS P D QRLVYA WA EDTVGGEKYTLVVVELST
 PTGTTTLDQWTPSDEGDRLACLLSTGGDEESCLYVLDVRT RGDFFSLGTFSLTEDGRYLLYGVDTAGDERYVLRIVDLST



 K DMFFA L G VFQPSRNGKLLD DSVDEKGDERYEQRFSLNLET EGPFFS L G GLLAVSRDGNLMAYAVDHAGDERFTGRVRDLRT

 KDKKF TVGYLATSPDHTLLAYSVDFTGDEKFTLKIVNLKT

 A GYENFVGAFEVVSTDHS LLAY A YD TS GAERYVI RFKNLND A GHFFSLGVLSVSPDHARLAAG DDLEGDERFDI T $\square T$ DI A T
 A G K Y L R

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

 E G HFF A L G GLLH DS P DA T R V A Y A V D H T G DERF T L RVREDA T $P$ S GLT T L D R WT P S RE G DRRLA Y QI S T G G DE E S LLL Y V M S V E T $K Q M Y C S I G G F N M S A S H N L L A A Y G V D E T G Y E T Y R I V V R N V C T$ K T D Y Y K V G Y $\square E H S P T H Q H L A Y A E D T Q G S E D W D I R I M K D N T$

 K K Y Y V H V G TCRII S P D H H FLLA Y T LDDDKGNEQF ILLQ I K DL R R
 E GSDAY IA GYSVVSPNNQLAAYFSNTTGSYEFDLHLDRDLT T
 SSGHTT LDRWQPSPDGRQVAFQLSR GDEQSVLDVLDDVGT


 K GKDYYVRGIRPSPSHRYIAFGKDTNGSELYTIHFLDTQA

 E G H Y C G V $\operatorname{R}$ R S V V E V S P D H K L L A A Y S V D F M A Y Q T Y D




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| :---: | :---: |
|  |  |
| UniRef90-E5XVE5 | NGIE YGGVEHAVVVDGEDYW MVILHN |
| UniRef90-UP100047CBE85 | PVIVGADAKTGLHVGRDGR |
| UniRef90-K1ES | CVAARREGVEYDVEPAGDHLLIDHNERQPEGDLA WAPDDA |
| UniRef90-A6WDV4 | TVVAGRDASTSAWVGRDGRLYVFTDLDAPRGRLAVADPSA |
| UniRef90-UP50003B4704F |  |
| Ref90_D5UCE8 |  |
| UPIOO |  |
| ef90 UP |  |
| 77 | GN |
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| UniRef90-F4D1N3 | DDDVQAVPWVERDG |
| UniRef90-UP100047BD6BA |  |
| UniRet90-K7SCl8 |  |
| 俍et90_W1PQB4 |  |
| UniRe990 z9J |  |
| UniF | EGVE YDVD |
| UniRef90-F8A0L7 | EVAVGLDAETGV |
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| UniRef90-74VM6 | VIAPRERDVEYSADHEGGRWVINTNDNAKNYKLVTAPSDA |
| UniRef90-A5G275 | REPGLRYDVDDAGDRLII RTNDGAVDFKL |
| UniRef90-S8CN | ASH RGDH |
| UniRef90_E2 | KVINEFGADYHVITNHGSLI YVKTNVNAPQYKVVTIDLS |
| UniRef90-H5TAZ1 | SREQAFIASI DHANG |
| UniRef90_E6 | GD |
| UniRet90-W9G7A5 | DVEYDIEPFGDQLL THNA |
| UniRef90-V4NE98 |  |
| UniRef90 U6ZT | ELHEY |
| UniRef90-H5U | DVLPEFRDHVEVVDVVGDVLYVVTDADAP |
|  | AVQDTEYSVTDRGDWLYMTVRDKSRPNSE |
| UniRef90_M9MGQ6 | PLALLSFKYVLNYVTSKGNRFYFMTN |
| UniRef90_UPIO0035E2 | VTVGLDALTGVRVGRDGRLYVFTDLDAPRGRLCVADPAA |
| UniRef90-K9ASL2 | DGVEY SVEHAVVSGEDRFLITHNRDRADFDIVDVPAAD |
| UniRet90 W7SZ97 | EGGARCNAWVAGDGRLYLLTTLDAPR |
|  | VA ENKVFYEVEHNGDF |
| UniRef90_UP100045E6142 | VGLDAESG |
| UniRet90_UPIO0025568 | EYDVD |
| UniRef90 UPIO0040B | DARRNGIKYDVEHWGENLLLILTNEGAP |
| G4Q | QLVSREQQFLSK |
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| 速 |  |
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| UniRef90-M2VX |  |
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| UniRef90-FXVF2 | d |
| UniRef90 UPI000 |  |
| UniRef90-UP10002DFF85E | QDVDY SVEHAVIDGEDRFLIVHNRERADFDIVDVPAAA |
| UniRet90-K6YTM7 | MLNTREQNFKLEVDHGNGYFYMLTNDTHLNFRIAKTQEGQ |
| UniRef90_D2P | VLQAGADAVTVVSVGGDGRLYVVTTKDAPTGRI C |
| UniRef90-UP100037AEF6F | VVQQGVDAITVMSVSREGRLYVVTTRDAPTGKICVGDPED |
| UniRef | ALTSDARARWSVLGARGSRLVLHTDDGAPRRR |
| RRef9 |  |
| UniRef90-UP1000255CCCD |  |
| UniF | EVPLLTDGGDHWLLLTNDGASEFA |
| UniRe990-F3B | DTSVIDNEGSKLIFLVTNLNAPNKK |
| UniRet90-C5CC | PRAWRMLADVEPV |
| UniRef90-UP1000477 | VLDDSLGVQAKAK |
| niRef90_K8EYY2 | KRRDN |
| UniRef90_W7EOT6 | QSGIDYELTDWQHHFIIKTNDAADNFK |
| UniRef90 UPI0003C18 | G HNWFVAGNQGNRFFVVTDQGAERGR |
| UniRef90 UP100039E214F | R |
| UniRergo-Z4WIY | D |
| UniRef90 - S3YC33 | AGRV |
| UniRet90- V8A7N8 | NDRFIILTNAEAVD |
| UniRef90-U21XD6 | Q DVRYS\\|LSHREKFFVYYKDKEHLNGMVYVSPKDQ |
| UniRef90 D2UF98 |  |
|  |  |
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| UniRef90-W7UAB1 | RAENIRYSVEHHGE |
|  |  |
| UniRet90-A9RBI6 | MGRTKGVEYSVDDRGDMFFVVTNSNAVNNRLIACKNV |
| UniRef90-F2UM62 UniRef90 W2C5M0 | MGRTKGVEYSVDDRGDMFFVVINSAVNNRLIALKNV |
| UniR | INKFGHRYSFPQNDGS |
| UniRef90-R7QNS5 | ETYVLYDVTHAHGDTFYV |
| iRef90_W4FM02 | RVQGVQYTVEHWQNELLISTNRDGDNFKL |
| UniRef90-E3FFD4 | EDKVVGGRFGQDGAlLYL |


\section*{UniRef90 F6HVY5 UniRef90-F8E140 | UniRef90-E5XVE5 |
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UniRef90 UPIOOO47BD6BA UniRef90 ${ }^{-K 7 S C l 8}$ UniRef90-W1PQB4 UniRef90_Z9JUG5 UniRef90-17L9D9 UniRef90-F8A0L7 UniRef90-S7VZW2 UniRef90-V4V8M6 UniRef90_Z9JIN4
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UniRef90
W9G7A5 UniRef90-V4NE98 UniRef90-L9JLM4 UniRef90_U6ZT99 UniRef90-H5UNC8 UniRef90-D8TR92
UniRef90-M9MGQ6 UniRef90-UPI00035E2AB4 UniRef90_K9ASL2 UniRet90-W7SZ97 UniRef90-D5AWK3 UniRef90_UPIO0045E6142 UniRef90-UPIO002556848 UniRef90-UPIOOO40B1899 UniRef90-G4QJU4 UniRef90-E3GZZ4 UniRef90-UPIO00255EF6E UniRef90-UPIOOO2DDD668 UniRef90-S4XHT2 UniRef90-Q0WN43 UniRef90-G8UNC8 UniRef90-UPIO002B47A25 UniRef90_UPI0004036FAB UniRef90-L1M9.0 UniRef90-K7ADW5 UniRef90-M2VXX4 UniRef90_W6K4T2 UniRef90-UPIO003811D00 UniRef90-J9DIZ7 UniRef90_-F7XVF2 UniRef90_M5E716 UniRef90-UPIO002884B41 UniRef90-UPI0002DFF85E UniRef90-K6YTM7 UniRef90-D2PYDO UniRef90-UP100037AEF6F UniRef90-C5C552 UniRet90_W9E461
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VSTMTVLIS ${ }^{330}$
340
360
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 PAMENWTTLRAGSDDVYLMNLQT FADETVLKSRKNGYET TKPEQWQTVVAHEDTVKVEGTALDGGHVVLSVRRDTCER PAEQDWVDVGPYDENVKVDDIDDCFKNFMVMEGRQGGYSQ NER KLLVPESEDAAL FSTVCVNKNYMALVYKRNVKDE PQREHWRELVPEDPESVLEAVDPGGEPLLVLARARHAVAE TGRENWTPFVPYLEGHYLLGATASRNNYLAWSERKDGNVH PAAAWTTLAAADGERFESVDAFAAAAVLELRSGGLAS PGVGHWRTLLDQDDEAVLEDVAGTTPQLLLASWRRHAVSE ALGERYRDILPHNEAVRLESVDAFR DFVAIVYRREGLTR TGRSQWRDWVAHDPAVF REGFELGFDGFTAIQERSQGLER
$T$
G
PAYANWEDFIPEQKDAKLQQVKCVNKGYFVAIYKRNVKDE
TSHEEWRPGEVTDDEYVTGVDAFDGFIAVSLRRQGGTAR
PARSTWQEFVPHRPGIVVTGVEVTKRHMIRTERENANTR PDESKWKVLVPEHEKDVLEWVACVRSNFLVLCYLHDVKN GEDPAWETVVPEGEDALQGAVVA PAAG EVLIPHSRDVKLDGV SMGERYVVVISERSGGLQR AKQAQLRDVIAEDKDALLSSVQVIDSNKLLVVYSRDVKDE
$P G P E D W R D L V P E D P D V L T G F A V L D G P Q L L L T R T R H A V G E ~$ PTGDATETADAVDEPAGTGADPTTTGDFVVISYRRGGFAR PGREHWTELVAEEHDSVLENAEWVRGTHLVLQRTRHAVSE FENANWND YIQEEQDKYLKSFDVTKNYLILNYRYNGLPE PGPEHWTTLLEQDAEAVLCAAVLLDDGALVALWRRHALSE LQARM EEVVEYSEERYLQAMYPFQGALVVAGREKGLLTQ EGESRWVPVIRHSENVRLEGFTGSATHLVVTARADTTTR TDPRSWRTVVEHSATTKVDGAAVTATHLALSVRRQTTPR LSSPNCTALVPYNDNQYLQHVY PFAQCVIVSGREEGLTQ T

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 TGFDLWNNEFIAHDPSKYDSSFSLTKNYLLLNYRDKG1P LPDDDLRVLVPHRDTVRLNAVGAW ARYLVLSYRQEGASK I QYEQWQTVLAGSDTSYF KALQVFNDFLVIGQSDQGMES PGEAWLPATSGPGERFLGVDA FDDFAVLTLRAEGLPT PNPATAAVLLPESNQNDTRMVSTYKDFLFVTLSDGINEK LKNWQEFVPSSD YYI QDIYY A EDYLVLLTRGKGRAK GGVSQYRDLVPEDKNADLTTATVIDNNKMLVVYSRDVKDE PQQEFWEDVVP DGGFKIEDISTAGGFFFVKYDTESSVT PDAAQARPVVSDVSGVRIEEVQA FSGLTAVGYRRAGFAR LEYDQWQTVFAGSDSRYFKHIQTLFKDFVAIGQSDQGLES PLI WHDYVAADPDAPLSSLAVLDKVVLVGGSRAGMGE PQ VWRDFIPADPAAPLSSLALLDKVVLVGRTR NAVGE GGPVEFVELVAEDADAVLRPESALAADGLALVYSRDATHR LIENQNWKTYVPAKDEVGIDGGLTFLKNWI RGETSDAGDK ATLADAEPVLPYSPERYLTGFHLFRS HLLLAGREGGFTR PSPENWDDLIPETKNVLNL TKGGDTFFANYMVDADSQ ADRGAWRTVVPHREDVKVDGVMVTLDTHAALLAVRRETTPR PEPDDWTELLTEDSASVLEAVRLVDSPELAVLRTRHAVSE PGMENWTDLFPWSEKRTLESIMTYKNHIVIDGREDGFTQ TQSDYWQSWVEHDPQDYLMNMIAY QDYFI RLERHDVNTR PVELRUVDLVQERDDATLNDASLLGGGKLVTYYVHAKTE SDRLSWTLLVPHREDVRLEDSDGVYEDYI AL EERRNGLTE GDPTQWQVFVPHREDVRLDSDGVYRE HVALEERREGLTE AGKRAFQVLFAPTKTTSLESFAW TKSRLVLNVLDDVKSR PGHEHWTELVGEQPGAPLSHLALLD THPTSWTEVVGESGRRILGCEA FADHLLIHEWAAAQPR PSSAHWEEVFAYDPAEQL KHLTCFRDAVVIHGRAQGYAQ
 PADKHTEELI GHRPHVKLEDVTLYRQ HMVVSERRDGLPV PEYKDWRVLIPEGETVMQNCVVTKHN DIVQDKKDIQSR T EEGFTDLVPEDRAVLGGYHPUNNHQAIGTYSRDVKDE


| UniRef90_F6HVY5 |  |
| :---: | :---: |
| UniRef90-F8E140 | FVIRPARVFDMDLAT GEKVLR K E Q V VL |
| UniRef90-E5XVE5 | FTRPAQVYDLDVPTGER ILLK T Q PVLG |
| UniRef90-UPI00047CBE85 | HTVAVRVLHYDARNRAVT T W |
| UniRef90-K1ESG6 | WVSPRSVLDVHVATGER VVLKRHQVLG |
| UniRef90-A6WDV4 | ATTPAHVWRFDARTHE |
| UniRef90-UPI0003B4704F |  |
| UniRef90-D5UCE8 | HVTVP HV HRYDARTGEVTLW |
| UniRef90_UPI000371EBA9 | MVTPSTVFDYDPESKTLETRKVQN |
| UniRef90-UPI0003B496A9 | D FTPARVYDLW |
| UniRef90-K7UDI7 |  |
| UniRef90-H3H6P9 | MTT P WT TF DYDVNTQEST LLKEK |
| UniRef90-C4P9M4 | FTSPSTVGRYNFQDPEEEWS IFRAAK】KNL |
| UniRef90-F4D1N3 | LVTPYQVQRYDRATGRTVL |
| UniRef90-UPI00047BD6BA | FlQPPPTLYRVDSMTGKRE DFAQPKVP |
| UniRef90-K7SCI8 | PTTPAHWYDYDLATGERTLQKVRDV |
| UniRef90-W1PQB4 | LRTPYSVYDHDMNTNTTV |
| UniRef90-Z9JUG5 | LLTPATVAEAGFATGERT VLRVTPVP |
| UniRef90-17L9D9 | FTTPAEVYDYEVATGKR RLLKRRAVLG |
| UniRef90-F8A0L7 | HTSVPTVLRFDATTREVTPW |
| UniRef90-S7VZW2 | FVTPTIVYDYLVDD SELILLRKQQPVLG |
| UniRef90-V4V8M6 | FLDPG\\|VYQCNLK TETPEMKIFRET I I PGF |
| UniRef90-Z9JIN4 | TPATTYELNMRTGER R Q |
| UniRef90-A5G275 | PTTPRQTFDYDLATRTA I LRKTQD |
| UniRef90-S8CN66 | LT TPPSVYDYDMKSE\SVLK K V N V V G |
| UniRef90-E2JFG2 |  |
| UniRef90_H5TAZ1 | MIT P S TVEDYY LA D K K LVIKKVQ |
| UniRef90-E6S8C9 |  |
| UniRef90-W9G7A5 | LVSPRTVSDYDV RRRELTVLKQQEVRG |
| UniRef90-V4NE98 | PTTPSQTF GYNMETREKV |
| UniRef90_L9JLM4 | FLSPG\IY HCDLT K E ELEPRVFREVTVKG |
| UniRef90-U6ZT99 | LNRPAQI RQLQLADGQQQ VLKQTPVLG |
| UniRef90-H5UNC8 | VTAPVQSFVVTPSTGA |
| UniRef90-D8TR92 | LTTPSTII DMHVGTGKRCVKKV APVLG |
| UniRef90-M9MGQ6 | FVNPGQVVRLDPDARKAKQTAYYDT QVEG $\square$ |
| UniRef90-UPI00035E2AB4 | Y TAPSAVLRYDARTGADETW |
| UniRef90-K9ASL2 | MSTPAVVYQHDVATG T DTVLKRQPVLG |
| UniRef90-W7SZ97 | F T T P T CVVR Y RVGAS D TELLW |
| UniRef90-D5AWK3 | LARPNTTYSYDFDKNKLT ILLKDQEDPGF |
| UniRef90_UPI00045E6142 | HTSPTSIRRYDARTGSVD V W |
| UniRef90-UPI000255684B | LNRPAQVRQLNLAT GAQQ V |
| UniRef90-UPI00040B1899 | LT PKT TY GL NLLN |
| UniRef90-G4QJU4 | MI TPSTVFD Y NVVNKDLVTKKVQE! |
| UniRef90-E3GZZ4 | FLTPRRVYDYFPMS QTLLLRRETPVLG |
| UniRef90-UPI000255EF6E | WVTPSQVLDWEVGAGEATL HLRRQVEVPG |
| UniRef90_UPI0002DDD668 | FLTPT\TYGLDPQT RQLTILKQQEVPG |
| UniRef90-S4XHT2 | Y TEPAAWFAYAAKDGKVTKTPL |
| UniRef90-Q0WN43 |  |
| UniRef90-G8UNC8 | FTSTPKTFVASPSD F KWRLYYQRELP |
| UniRef90-UPI0002B47A25 | LARPNTTYSYDFTNDKLTILKVQE\\|P S GF |
| UniRef90_UPI0004036FAB | PTTPRQTFDYNMETRERVLRQTQEV |
| UniRef90_L1M9J0 | FTTPARLYDYWPAT G ELRLLKEQE\\|PG |
| UniRef90_K7ADW5 | M1ITPDSIYDYDVFSRTL |
| UniRef90-M2VXX4 | LACPNSVYDIDL NTYQMV |
| UniRef90-W6K4T2 | F I HPRATYAVQPLNGGRT, LLKR R Q PVLG |
| UniRef90-UPI0003811D00 | WNNPGTAYEYNPDNRQDAV |
| UniRef90-J9DIZ7 | MT TPKQDFDYNMDS GERHM VYEQSVP |
| UniRef90-F7XVF2 | LK T PRTTID Y DFVTGEKKVLKVQR】 |
| UniRef90-M5E716 | G |
| UniRef90-UPI0002884B41 |  |
| UniRef90-UPI0002DFF85E | LVRPHTVADCTPAS TQ |
| UniRef90-K6YTM7 |  |
| UniRef90-D2PYD0 | SVTPAAVYCYDATTGETSLW |
| UniRef90_UPI00037AEF6F | SVTPAAIYYYDATSARTTLW |
| UniRef90_C5C552 | FTDAGTNHRVVTSPTPKHTVLPTP |
| UniRef90-W9E461 |  |
| UniRef90-UPI000255CCCD | WLTPPRIYDVHVADGAPEPILRRETP |
| UniRef90-H8H030 | LTRPAEHLDLDLET DETRLVKATPVP |
| UniRef90-F3BJ58 | YKTPGTTYTFDVATGES |
| UniRef90-C5CCR6 | WIT PARVLDVSAATGEVHDR RETEVPG |
| UniRef90_UPI0004771D6B | FVTAPCVHTYS L GAEATEP |
| UniRef90-K8EYY2 | LVNPRTVYEFDMDSQTKVMKKT TAVKGF |
| UniRef90-W7E0T6 | PTTPRHWYHYNMRTGEQKTLK |
| UniRef90-UPI0003C184C5 | YDAPMTIYRYDVTNRQLEVVWAQPEV |
| UniRef90-UPI00039E214F | $\square$ L R P A EVRALHI A S GEQ HI LKRTPVEGL |
| UniRef90-Z4WTY9 | M NRPTSLYEYDLTKG TSRLLKEQEVGG |
| UniRef90-UPI0002C34BC1 | PVMPDVVIDYDMPTRRF SVVQQEEVIGF |
| UniRef90-S3YC33 | MLTPTTVAQIPASGGEPE ILKKETPVPNF |
| UniRef90-V8A7N8 | PTTPAHWYDLDMRTGEQS LTKKIRE |
| UniRef90-U2IXD6 | PNRPTSLYEYDLVRGES RLLKQQEVGG |
| UniRef90-D2UF98 | F LTPTTLMLADVQRGPQS $\square$ E TLLKA T P |
| UniRef90-D2PW90 | SVTPPGVHRYDARSGLVTPW |
| UniRef90-M5A062 | LTSPPTLYDEDVVTGERTL |
| UniRef90-W7UAB1 | LVTPRQTID YNLLT GA K T L L K V Vivp |
| UniRef90-M9VFG0 | PSSPNVVYHLDAASGELE KLQSAEVGQF |
| UniRef90-A9RBI6 | P L M P EATFDYDLRRTGES |
| UniRef90-F2UM62 | M T T P L S F DLDMNSPHAQPVLKKQEPVLG |
| UniRef90-W2C5M0 | FTTMPKTFVASPKDFKWKL |
| UniRef90-J3Q985 | FDTPGADYR QEDPELVEFSKTAMSGL |
| UniRef90-R7QNS5 | LTTPMQTREYDVK LRTSNLLKEVEVP |
| UniRef90-W4FM02 | LTTPVQTVEYDFISNKT VILKETPVP |
|  |  |

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UniRef90 B4S8S7 UniRef90- ${ }^{\text {S5EUL1}}$ UniRef90-LOIIEF3 UniRef90-E4NKX5 UniRef90 - I2GFJ6 UniRef90-E919D7 UniRef90-D7BLS6 UniRef90-UPI0003B4EF1B UniRef90 V4PCD8 UniRef90-IOZ4E9
UniRef90-TOSXA4 UniRef90 N1WNW8 UniRef90-UPIO0037D5DEF UniRef90-D7VXN5 UniRef90 UPI00037362E5 UniRef90 M7AW83 UniRef90-UPI0003796CD9 UniRef90_V4HC55 UniRef90-UPI00037095DC UniRef90-D3SQX8 UniRef90-R7H027 UniRef90-UPI0003B35B40 UniRef90 Q9CAA3 UniRef90-G7JZA5 UniRef90-W4TD70 UniRef90 B2GKX8 UniRef90-UPI0003B7773F UniRef90-UPIooo375B6D3 UniRef90_K6VPY1 UniRef90 UPIO00427AA5B UniRef90_UPIO00288453D UniRef90-E1ZDEO UniRef90 G9ZE26 UniRef90-UPI0004755753 UniRef90-U3LNE9 UniRef90-14YAC1 UniRef90 A0A021W9Y8 UniRef90-A0A034TH04 UniRef90-Q1N9Q7 UniRef90_MOQNG9 UniRef90-14MFD9 UniRef90-K4F199 UniRet90-R9CW83 UniRef90 A9RDL3 UniRef90-LOMHX1 UniRef90-UPIoo0302F508 UniRef90_MOEMO6 UniRef90 G7GNC7 UniRef90-A0A031HL21 UniRef90-W1JN87 UniRef90-UPI00030624F3 UniRef90 C1F7F5 UniRef90-UPIO0036D8CA0 UniRet90-TONNQO UniRef90 W2TVI6 UniRef90-UPIO0036B27D6 UniRef90_UPI0003B3952B UniRef90-J3C0U1 UniRef90-S4HQM0 UniReffo-V4NZ13 UniRet90_-_OYGE8 UniRef90_A9E683 UniRef90_x0UY45 UniRef90-14BDM5 UniRef90-A1A340
UniRef90_14VS00 UniRef90-KovC43 UniRef90-UPIO0037B0B68 niRet90 M5XMZ3 UniRet90-DOA9G2 UniRef90-B3EDC5 UniRef90_J9RX12 UniRet90 C5CN44 UniRef90-C7QYX4 UniRef90-U7NZS1 UniRef90 DgUVN2 UniRef90_UPI000477FCC3 UniRef90_UPIOOO308EFB9

MLT P PRAATRDYVRTQHGDQVVKDEFAWFADTADPEFR P P V P K K I P F S V T T H G VT R Q D P Y R WM R N T K D A P F L P PLPRAEPR DRVLHD DVTVVDRYGWLRDRENPDVR
 Q P L L P R A E P R R V L H D DVVMMD S Y R W L R N R D N P D V R APP CRPH TETLC G V EVVS DP FRRPLED F SVVPAVA PSARRDARSGYTLHGQRFDDPYAWMEQLDAPETQ P P H A R LVP HR RVTHGDVVE D P Y E WM R D K D S P E L A P K L R Q Q $\quad$ T $\square \mathrm{K}$ K C H G $\quad$ IS WE D N Y A W W L K D P N N P E

AAKKVPFTATAHGATWQDPYRWMSDVTDPDF ETPADPYAWLEDVTGDKSL


PPATERDPVIEEDHGEEDADPYRWLVEGDGGEAVD
 D D Y F G T K $\quad$ Q T D P Y R WME D M K N P E L L MHAPRLAK NPVTRSFHGDDVVDNYEWIREDSNPAVI PVAPRGNVVDHLYGKD\PDPYRWMEGQDNKAFQ P P V A V Q K P L L F P K WGH K RQ D N WA WL R D D K D P QV L


 MPTPPDTRADPVTETLDGDEYTDPYRWLEDADDPEVA

PPHSKRENTSYERHGDMVDDPYR
PAARREPHARTVHGDTF DDDYEWDRDKTSVPVR PTEAPPVPKK\PFADSSHGDTRQDPFHWMKNTDDTDFV




 DPYAWLEDVDGKRAL DPY TWWLEDWTGPRAM
DDKSTDT\ASDPTDDPYLWLEDVTGETAム FAKPAEAKRDPSKREFHGDTYVDDYAWMKNRSSSELL PQAEKKPHTDSTHGDTRVDNYYWLRDDTDPQVL APSKPVTDEYHGVKVVDEYRNLEDDKDPATI

 PAPSPPETRREVVTETLHGVDVDDPYRWLEADDDA VVR
 KSTTQVLHGVSAKDPNLWLEN DGTKQL
PVTKKTYQNVTKHGKTYKDDYTWL ENMMRSPEVG NYPKTPEDPVTDDYFGTKDTDNYRWLEDLKSPEVQ

 PPVARTAPVSDFYYGQQVVDRYRWMETRDTPEWT

P P VAK K VP KE LT A H GDT R


DPFLWLEDTHGTRPL
TDTRPEPTDTDPYLWL E EVTGDDAL MTEPEPAETAPEETAVNTYPQEEVADPYUWLEDVEGEEAL FTVSVHGRSWQDPYHWMSNTNDPD S


TQTDEHQWLEDIDGADA
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TDDYFGTKVTDNYRYMENFNDQQVQ

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UniRef90_UPI000308EFB9
 DHLHRENSYA QAFMDTET LRRRDLI SEMKTRIDPAEDV TPPBE
 A WI K VQ N A Y T D QVLAA AMPDGKAMNARVQQDITSTTRSSPM EWLLAQGAKTKEHLTGLPLRAELLARLDEVTRDTEVTAFA

 A Y V


$T W V R A Q N A T S E K V L T Q N P A F K T\|E A D L L A\| L D S D D K \square P Y V$


D WVHARNAKTEAEYTGSAQFKQLEAS $\square R A N L D S D A K \square P G \square$

 K WL K GQADYARHVLDGPNHRA ITKTIAKYSQATTDATGAQ A HLRAENAFTEAATGHAAFRAKLYDELLSRVQEDD DTPP Y A FVV K Q N K DT E D K L S S DP E Y Q G I Y E K S L E IF F S T D G IV Y P A Y L K A ENA YK DA MTH TKDF QE KLYNE I L GRIK Q T D MSVP Y A WVREHNEPTVA DLGGERFEQMRAEALEEVLDTDTADP YV
A WVEKENAKTAARFADGARFEKTRDSULEVLDSDARDPDV A WV REHNEPTLAEFAG ERFEQMRTEAGEVLDDTAARIM YVV NWVRS QNERTLEALQS GDMYQRYYEDALDVLQSDERIP YVV
 A HL H L L E K D Y Y E K R A V D D DLAA E T I Y Q E H DS H DE E T D M S A P Y




 E WVIKA Q A D F T TH T LDE Q $\square P G R N D F F N R M M E L D P A K D S W V L R$

## UniRef90_K6VM55 <br> UniRef90-M4CJH2

 UniRef90-P55627 UniRef90-14W1T2 UniRef90_WTTOET UniRef90-X5PDN1 1UniRef90 Q3B4S7 UniRef90-Q1D170 UniRef90-UPI0004798A9A UniRef90-B3T217 UniRef90-FoWJY6 UniRef90-D1QV19 UniRef90-A0A022QNL8 UniRef90-A0A023Y012 UniRef90_B4S8S7 UniRef90-S5EUL1 UniRef90-LOIEF3 UniRef90-E4NKX5 UniRef90-I2GFJ6 UniRef90-E919D7 UniRef90-D7BLS6 UniRef90-UPI0003B4EF1B UniRef90_V4PCD8 UniRef90-10Z4E9 UniRef90-TOSXA4 UniRef90-N1WNW8 UniRef90-UPIO0037D5DEF UniRef90-D7VXN5 UniRef90_UPIOOO37362E5 UniRef90-M7AW83 UniRef90_UPIO003796CD9 UniRef90-V4HC55 UniRef90-UPI00037095DC UniRef90-D3SQX8 UniRef90-R7H027 UniRef90_UPI0003B35B40 UniRef90 Q9CAA3 UniRef90-G7JZA5 UniRef90-W4TD70 UniRef90_B2GKX8 UniRef90_UPIO003B7773F UniRef90-UPIo00375B6D3 UniRef90-K6VPY1 UniRef90 UPIO00427AA5B UniRef90-UPIO00288453D UniRef90-E1ZDE0 UniRef90-G9ZE26 UniRef90_UPIO004755753 UniRef90_U3LNE9 UniRef90-I4YAC1 UniRef90-A0A021 W9Y8 UniRef90-A0A034TH04 UniRef90_Q1N9Q7 UniRef90-M0QNG9 UniRef90-14MFD9 UniRef90-K4F199 UniRef90-R9CW83 UniRef90-A9RDL3 UniRef90_LOMHX1 UniRef90-UPIOOO302F508 UniRef90_MOEM06 UniRef90-G7GNC7 UniRef90-A0A031HL21 UniRef90-W1JN87 UniRef90_UPIO0030624F3 UniRef90-C1F7F5 UniRef90-UPIO0036D8CAO UniRef90-TONNQ0 UniRef90 W2TVI6 UniRef90-UPIO0036B27D6 UniRef90_UPIo003B3952B UniRef90-J3COU1 UniRef90-S4HQM0 UniRef90-V4NZ13 UniRef90-FOYGE8 UniRef90-A9E683 UniRef90-X0UY45 UniRefofo-l4BDM5 UniRef90-A1A340 UniRef90-14VSOO
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90
SHRGWWYYSRTQEGHQYGAECRIVIADVVPGEPQVLVIDGEVEA RWGQWLYRQYPRGKEYPLLSRRLDKAETNWLSVLDWNQIA QVGPFDYFQGHERGLPHPVWWRRPVTGGSAELVLDPNADP LAGGTLFYMQETPPQPQPQLIAQPWPDGQPRVLVDLNA MAGDRVFFLRQTGA QVGPFEYFQRDEPSLAHPAWWRRPVRGGSEEQVLDPNA|PD TDNDRYFYLKETPGDETGKMYLREGFKGRETLLEDPGTLD RVNGYWYFSRTREGSQYAVSCRDPGSMPGEQVYFDANRES YGPYLYYNRTVKGSCYPINCRKPRSGVGQEE\|LLDQNELAA

RWGPWПYYQC TPEGKEYP LLCRFKGGFGAEQVLLNWNETA QKDGDYYYNFWKDKQHERGLWRYRKASPTWETVLDDDALN SESNRYFYLKRSPSDETGKLFYRNGFKGKEHLLFDPETYK TKRGEYYYNFWQDQANPRGLWRYRKDQPNWETVLDDDALGG ARGGRYFQLVEAADADQPRLTVRTERDAEPRTLVDPTEF
$A R Q N G Y F Q R V R D A D A D H P V L F R P G L N E R R V L G D P N E M S$ ARQNGYFQRVRDADADHPVLTFRPGLNEDRRVLGDPNEMS
LTGEQYVYLKTNANENDASLYVRRGLKGTEVRLVDPRKLT KHGEKYYFYKNTGLQNQSVLYVQDTLESEPRVFLDPNTFS RDGDYWYWRRTFEGKSYAASYRCAAVGDGCELLYDGNVLA QKDGAYYYNFWKDKQHVRGLWRRTTLEPQWETVLDLDALN RVAGRLFFDRLEQGKQGVLMQRKP DGSEMVLLDPNAVA RVDGFWYYSYRRQGDQYRIQCRRKVPQGAEEVLLDENKEA LKGDYYYTVTVKGEDYPRHCRKKGSLEAAEEVYFDTNDEA
 QRGNLYFYAKTKKNEKLSKLYAKDVSTGQETLIFDPETYK VTRGGYLYNFWRDTAHPRGLWRYREAAPDWEIVLDVDALE KKGKRYFHFYNTGDQNQRVLYVQESLDADAKIFLDPNKLS RKGEYYYYREEKGKNYPRLCRRNAAMDGPEVVYMDVNKEA
 AAPTGYFQEDETDEDDQAVLYVRESLESEREVLVDPNEFS
$R$ DDDYWYFVRTQEGKQYA TQCR TPTQNKDDQ TEDANKEA $R \overline{W G Q W L Y R} \mathrm{Q} Y$ ПPKGKEYPLDCRRLERGEEEEVVLDWNQTA RWGPWLYYQYIPEGKEYPVMCRKMAGSKREEVLLDWNELA QRGNFYFYTKTKKNEKLSKLYVRDMTTGKESLLEDPETYK RHGEWWYFARTVEGGAHQVFCRVPVADPADWTPLDGEQAQ RMDGYWYYVRTQEGQQYGTQCRLPIRGADDQVVFDANVEA SKMGTYYYNFWKDKTNPRGLWRYRKEHPKWETLDDVDALG RVGDWWYYRRTFQDRQYPAMFRTPARGAPEFPVWDGNELA VKRGEHFYNFWQDRDHPRGLWRRTTLEPEWEVLIDGDALN YQQYFYYTRTEEGQQYAVHCRRKLPAGAPEEVLLDENAEA VKRGDYYYNYWQDKDHPRGПWRRTTWDPKWDTLIDLDALN SKLGFYYNFWQDDEHPQGVWRRYRKANPKWETVLDLDAL

## QK $\square$ GEHYYNFWQDAQHQRGLWRRTTLDEYWETVIDLDALN

QVHGRVYNFWRDADHPQGПWRWTDTPNWTTVLDLDADSKA RRRGEYLYNFWRDATNPRGLWRRTTLDPNWDVLIDVDTLE RMNNYWYYVRTQEGKQYATQCRMKVSDEANWVTVDEETLF RKGYRYQSRYEPGKEYATYLRQPEQATEVWETLLDGNQRA
$T G N D L Y F Y L K K G A E K G A K L Y Y K K G K G K E E L Y N P A Y F D ~$

RKYGDYYYNFWQDQKNPRGLLRRTTDDEYWETVLDDDADG RHGDWWYFARTVEGGAHQVFCRVPVSDDGEQTLLDANAAQ VREGRYFATVREPGADHARLVVRDAPDGEDRVLVDPNAWP RRRGEYLYNFWKDAQHPKGLWRRTTFESYTTDTPDWDVLI QLFGRDYNFWRDADHPQGUWRWTSEADPKWTTVLDVDALS SLERQGLCNFWQDESQVRGLWRYRSSDTRWETVLDVDAL GRNGVVFUDR KPADSPKGAIYMRHGDAGPECLL QRGKFYFYKKTKKDGKПAKLYSRNIDTGLETLVFDPETYK VIYRQKSTKDEGEVFLDPNE DS RRGRTVFASRPAGAEHPRILAFEGPDPDRARTVFDPAAAD RYDDWWYYTRTFKDRQYSAMYR $\square R V T N G S H P T Q W D G N N \square G$
RMNGYWYYVRTQEGKQYTVQCRMKVTDENDEVLFDANDEA VLPDFLVVIVRSPGDATYKVFTQDRQTGARRLLTDPTQYT KLGDWLYFSRTVKGLSYRQYLRRPVGGGPDELYLDVNTLP STYGEFYNFWKDENHVRGDWRRSPKGNPTWETLFDLDEMS KDQGYYYTRYEEGYEYPDYCRKKESLDAEEEDILNVNEMA RRRGDHDYNFWRDAANQKGLWRYRTEEPDWDVIIDVDELD NRRGDYLYNFWRDKAHPRGVWRYRKANPDWEVLLDVDALN
 RWGPWLYYQYIPEGKEYPVLYRRDEVEKLNWVKTFLRYVH VYDRFLYYTRDVKGLSYKLHCRTPGEGEDEELVLDENKLA RRRGEYLYNFWRDATNPRGLWRRTTYDSYVTDAPDWDVLI RK円GPLFYNFWRDKKNPKGLWRYRKPQPEWETVLDLDALA SSVGGYLYNFWRDADHPRGVWRYRSPDPTWETLLDIDALA PLDHYTYWSETAADADYPVWWRHPNGKPDRAAPFLDLEAR VRRGTHYYNFWQDADHPRGLWRYRTAEPDWE ILLDVDADE


## UniRef90_K6VM55 UniRef90-M4CJH2

 UniRef90-P55627 UniRef90-W7TOE7 UniRef90-X5PDN1 UniRet90-Q3B4S7 UniRef90-Q1D170 UniRef90-UPI0004798A9A UniRef90-B3T217 UniRef90-FoWJY6 UniRef90-D1QV19 UniRef90-A0AO22QNL8 UniRef90-A0A023Y012 UniRef90-B4S8S7 UniRef90-S5EUL1 UniRef90-LOIEF3 UniRef90-E4NKX5 UniRef90-I2GFJ6 UniRef90-E919D7 UniRef90-UPI0003B4EF1B UniRef90-V4PCD8 UniRef90-10Z4E9 UniRef90-ToSXA4 UniRef90-N1WNW8 UniRef90-UP100037D5DEF UniRef90-D7VXN5 UniRef90-UPI00037362E5 UniRef90-M7AW83 UniRet90_UPIO003796CD9 UniRef90_V4HC55 UniRef90-UPIOOO37095DC UniRef90-D3SQX8 UniRef90-R7H027 UniRef90_UP10003B35B40 UniRef90_Q9CAA3 UniRef90-G7JZA5 UniRef90-W4TD70 UniRef90-B2GKX8 UniRef90 UPIO003B7773F UniRef90-UPIO00375B6D3 UniRef90-K6VPY1 UniRef90_UPIO00427AA5B UniRef90_UPIO00288453D UniRef90-E1ZDE0 UniRef90-G9ZE26 UniRef90-UP10004755753 UniRef90_U3LNE9 UniRef90-I4YAC1 UniRef90-A0A021 W9Y8 UniRef90-A0A034TH04 UniRef90-Q1N9Q7 UniRef90-MOQNG9 UniRef90-14MFD9 UniRef90-K4F199 UniRef90-R9CW83 UniRef90-A9RDL3 UniRef90_LOMHX1 UniRef90-UPIOOO302F508 UniRef90-MOEMO6 UniRef90-G7GNC7 UniRef90-A0A031HL21 UniRef90-W1JN87 UniRef90-UPIO0030624F3 UniRe990_C1F7F5UniRef90-UPIOOO36D8CA0 UniRef90-TONNQ0 UniRef90 W2TVIG UniRef9O-UPIIOOO36B27D6 UniRef90_UPIO003B3952B UniRef90_J3COU1 UniRef90-S4HQM0 UniRef90-V4NZ13 UniRef90-FOYGE8 UniRef90_A9E683 UniRef90-XoUY45
UniRef90 $14 B D M 5$ UniRef90-A1A340 UniRef90-14VSOO
UniRef90-KOVC43 UniRef90_UPIooo37B0B68 UniRef90-M5XMZ3 UniRef90-DDA9G2 UniRef90-B3EDC5 UniRef90-J9RXI2 UniRef90_C5CN44
UniRef9O-C7QY44 UniRef90_U7NZS1 UniRef90-DgUVN2 UniRef90-UP1000477FCC3 UniRef90_UPI000308EFB9

A GSDYALLGACEVSPDSELV|AFA|V|DRAGDERFDVVV|RR|IED E QF GYVHVGVCVVSDHNYLA YTVDPKGNERFDLQLIKDLRS
 NGGNTAAVAYWPSPS GRYLA YGTAAGGSEMTTMIHVLDVAS GDEHSTL EFFDPSPDGRLVACGLAQGGSEQCQVHVLDVAT
 K GTR HVI S H I S P S D D G L R V A V S V S A N G S E D D R I L I M D V D R SNEVLVFAVPS PD GAFVAFGKAVGSAHGALIHVLEVST

 EKNYVHVGTCRVSPDHNFLAYTLDTKGNEQFQLQUKDLRND
 PEDRYS $\quad$ GG K $\square A P S D D G E T D V F S V A A N G S E N A T L L I M D V T T$ K K D WVFHGSQS LAP P Y Y Y CLL LELSP DGGDATEI REFDLVT


 K E N WVWHGAD CLLRPDYRRCLI ALLSRGGADADVTREADLVD




 D

 D EN WVWWH GA DVL H P GY R L A L V VE L S R G GA DA SVVVREF D LV T
 E GHDFF LGGMDDSK D GRWMLYGGTDVHGDERYDFRI R D L E T E QF GYVHVGVCVSPDHNYLAYTVDPEGGERF\|LQI KDLRT EKYYVHVGTCRVSPDHNYLA Y TVVDSGGERFMLQVMDLRS K EHEFYA GAFSVVA Q GHFFALGGMDI SK G S R LAA SEDTAGDERFTVHVVKDTTS
 DENWV WA GVT L L R P E Y R R GL V S L S R G GA DA SVVVREFDLE T LGEEFF LGGGFMPSPD GKLGAMSVDFTGDEHF TLLRDFDI ET A EN WVWHGAHCLLRPEWRHCDIDSLSRGGADADVTREFDLVE R A HKFYVA GFQESPDHR LVVAWGEDTS GNEKYTVRVREVGS K S T WV WH GADCLLRPDYRHCLIDSLSRGGADADETREYDLET

 A Q Q WVWH GAECLR P DYQRCLISL
 D E N WVWS G A T M L Y P D Y D R A L I S L S R G GA DA TVVVRE Y DV T T D A NFFRLGGMDLSSDGSRMLYGVDTQGDERFSYFMRDFST E GHFY S L G A L E I S P N N T L L A L S E D F L S R RQY T LRFR D L N S

KKEWVYHGS PP
 ANPPRSMA WYVPSHD GERVAVGVTEGGDENYDVRVLDSVPD E ENWVWS GVTMLLRPEYDRALVSLSRGGADAVVVREFDVAA



 $K D A Q \quad I \sqrt{S N F N D D M K G E K L A L L F S K S G G E \square C E L R D L D L L N T}$ VDGTVSMGTF IHRPDGSILAYGLSENGSDWVTVKFRGAD $P G G R T Y L D A W E P S P D G R L V A V Q T S T G G T E R G S L R V L S A A T$ DGLDFF CGGF LPAPNGKYGAMLIDVTGDEHYS LADEDMET
 $K$ GQTA N L G WS EVVSPD GK WLA Y G L D Q G G NE VA QA F VRE I A T NPK QCDVHEVEVVSPD GS QVAFAVDGTGYETY
K T D WVY NGSNGLYP DYNRFI IVYLSKGGSDAS\|KREFDVVK K G Y F Y S VA GYSSSSNNNLIAAYGVDTVVRRLYTLYFMDLTT GENWVWAGAAVIDEDHSRALI SLSRGGSDAAVVREF DMRT
 D Q N WV WA GADVVI E P D H S L ALLI S L S R G G S DAAAVVRE F DMR T E ENWVYKGANCFQPDGEYCMISLSDGGKDAVIQREFSDSS

GDKKGSIGGIIAPNNDGSKVAFTVVYNGSENAALLIMMETEK DENWVWAGATVLRRPEYERAALIDSLSRGGADASVVREFDDPS

A A A HDF LGGDMALS PDERWLA WSEDTTGDEREDDFLDARLPD


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 UniRef90-M4CJH2 UniRef90-P55627 UniRef90-W7TOE7 UniRef90-X5PDN1UniRef90 ${ }^{\text {Q3B4S }} 7$ UniRef90-Q1D170 UniRef90-UPI0004798A9A UniRef90-B3T217 UniRef90-FoWJY6 UniRef90-D1QV19 UniRef90-A0AO22QNL8 UniRef90-A0A023Y012 UniRef90-B4S8S7 UniRef90-S55EUL1 UniRef90-LOIEF3 UniRef90-E4NKX5 UniRef90-I2GFJ6 UniRef90-EE19D7
UniRef90-D7BLS6 UniRef90-UPI0003B4EF1B UniRef90-V4PCD8 UniRef90-10Z4E9
UniRef90-ToSXA4
UniRef90-N1WNW8 UniRef90-UP100037D5DEF UniRef90-D7VXN5 UniRef90_UPI00037362E5 UniRef90-M7AW83 UniRef90-UPIO003796CD9 UniRef90-V4HC55 UniRef90-UPI00037095DC UniRef90-D3SQX8 UniRef90-R7H027 UniRef90-UPIO003B35B40 UniRef90 Q9CAA3 UniRef90-G7JZA5 UniRef90-W4TD70 UniRef90-B2GKX8 UniRef90-UPIO003B7773F UniRef90-UPIO00375B6D3 UniRef90-K6VPY1 UniRef90 UPI000427AA5B UniRef90-UPIO00288453D UniRef90-E1ZDE0 UniRef90-G9ZE26 UniRef90 UPIOOO4755753 UniRef90-U3LNE9 UniRef90-I4YAC1 UniRef90-AOA021 W9Y8 UniRef90_AOAO34TH04 UniRef90-Q1N9Q7 UniRef90-M0QNG9 UniRef90-14MFD9 UniRef90-K4F199 UniRef90-R9CW83 UniRef90-A9RDL3 UniRef90-LOMHX1 UniRef90-UPIOOO302F508 UniRef90-MOEMO6 UniRef90_G7GNC7 UniRef90-A0A031HL21 UniRef90-W1JN87 UniRef90-UPI00030624F3 UniRef90-C1F7F5 UniRef90-UP100036D8CA0 UniRef90-TONNQ0 UniRef90 ${ }^{-}$W2TVI6 UniRef90-UP100036B27D6 UniRef90-UP10003B3952B UniRef90-J3COU1 UniRef90-S4HQM0 UniRef90-V4NZ13 UniRef90-A9E683 UniRef90-X0UY45 UniRef 90 - 148 DM5 UniRef90-A1A340 UniRef90_-I4VSOO
UniRef90_K0VC43 UniRef90-UPIOOO37B0B68 UniRef90-M5XMZ3 UniRef90-DOA9G2
UniRef90-B3EDC5 UniRef90_J9RXI2 UniRef90-C5CN44 UniRef90 C7CYX4
UniRef90 U7NZS1 UniRef90-D9UVN2 UniRef90-UPIO00477FCC3
UniRe90_UPIO00308EFB9
$\qquad$

GCLVPRLEVDGVVS LAWALDGGVLFYTVVDE GRDV WRDAGSVGQVVWAADNHTLFFTRERP GKVLPDAMPWAGGGGLAWDADEKGFTYVRLPPPPAGHEVK GDLTPTEDTHSLQGHPTWDPDGSGFFCHRRPAPDPPADRR GQDV WQGSNKVAMVA WAADGHTLFFTREQP KQLYPEIIDRCRFASPSWTEDGTAFIGNRLRPLTRPG
GRLLPDRPRGTSHASVAWRPDASGFFYANPDPGEVPTGE GEELPEVFEGD SNACFTPDAAWVFYTVLD NK I SEETUKET SGSATTWSKDDKFIFYSNLDK GQLLQDMRLVKGESLEWGTTSSQLFYTTTD NSISSPRAEGVV SLAWAHDSCTLFYTLCDQN KTWIKDGFFRPESKGGLNWVDRDTVFVYTDF AELYPEK DERCRFASPSWLPDGSGFLYNRM KQFVKDGFVLPVAKSQASWIDKDTLFVATDF GEVIDRVDDVGRCGEFSVAWQGNGFYYQQ GETAEELTDVGRTGPWCFGWTDDGFYY GRETGETIDRARYGGTAWLPDNRSFFYTRL QQLTPADAP GEKYPEILEKVKFSP A WTHDNRGMFYGQYRDQQGKTDGS DETVDESLLN MGYGLVWSEDSTRVYYTRND
 DTVVPISGVHDASGQLA WA GKDF DYQVENSNGSYMWVGDTDVYYVER NTF LPD DI PSASGAMGWSFDDSAFMYMWD K K T DNK GARVGPAVRGVRYSHVAWDPGREAFYYVRRDDKHGT KKFLNDTLSPIWSENFEFTPDGQYDTYTKMSTGDPNSNML KAFVDDGFLLPEAKSMVGWDDEDRIYVGTDF GDNGEGS PEELPDMLERVKFSCMAWTHDGKGMFYNSYPKQDGKSDGT GKDSEWTFPNSTGS M ILWDDDEHLLVVERDEQARGKHVY RTFVEDGFFLPEAKSTMGWIDDADRVYVGTDF GEGS GTVIEELSAVGRTTPQSLAWTPDGFYYSRT GEELPDCFDQVGGAACFTPDAQWVFDTEDDDAWRPYRIV DRLVPRLEVDVVS LAWALDGDTLFYTVTDEN GLHDPNI EVDDVVS LAWARDASSLFYTQSDEN GKLLDDVLSPLWSEGFEFTSDGNSITYTQMSTGDPNSNML GELLADRLPQTSYGAF LTPDASQVVYTVVD GEELAERFDGDAAAACFTPDARYVFYTVLD
 GQUVDDSVRDDGY GLAWMADSSAVAYSRVD KRWVEQGFYRPEAKGGLGWWDRDTVYV GREVLSQPDPDTAGNFAFANDNRTLFYVTKDKLD KRFVDNGFTRPEAKGLLAWKDADTVYVASDF QTDFGAGS
 KAWIKDGFYRPEAKGSLTWIDRDHVYVATDF KEQLEPEUVDAKFTSDS WLGSKGFYYSSYDKPQGSELSA RGWVTDGFTLPENKSSVGWIDRDTVYVGTDFGEQDDGRPS CSWSPLEESWENLSSASLSPDGKWVFYVK DD GEWLPDVI ENVTAAGAEWSADSTMLYYVRKHAQ $K K V F P Q U T N T E P G G D K W L G D N T G F F Y V Y F P A Q$ VTD DV $R V V Q P D T L S W V K F T S T A W T H D H E G T F Y N R Y P Q P E G T D A G T$ KRFVEQGFRLPTAKSVVSWASADELFVATDF GSGS GELLADQDPQTSYGAF LTTPDASQVIYTVVD PSEPGDESPRVNAGSLAWAADGGGLVYVA RSWVTDGFVLPENKSRIDWIDHDTAWVGTDFGAQPDGHGA GQFVAGGFALPKSKQGASWLDKDTALVSRDW KAFVPAGFDLPEGKQSVSWVDRDTLLVARDW GEGGT GHELIPDVIKNAKFGGMATLPEARYLYWSMPDTSSGSAVYY GKKLPDVIKNAKFGGMAWKGDEGWFY
 GRPVEEPLTGDRYTHVAWDPPGDAFYYVRRDGAGVRGL GLILDDSVRNAGYGGLCWTADSTGVAYTRVDKPKGSEGSA SMWEPLEETWENLASASDTPDGKWVFYVRDD
GKDILVTADSSRLGGWLPDSSAFTYYRGRADADFGAADY RQLTNDGADETUSKGGVSYVDKNTMGGIAWASEKEFYYVT

GENT GKVFEDK LNT SGRAAWANDNKTVFYALKD
 GEGS
 $\begin{array}{ll}\text { RTFVDGGFELAEAKSQVSWEDHDTLEVGTDF } & \text { GEGS } \\ \text { RSFVENGFVTNEAKQGLAWVDPNTVLI ATDW } & \text { GEGS }\end{array}$ GCUIPNVRVDGVVS LAWAQDGRTLFYTLSDE

RDVVADKVEGTNGSVVWGPNAECFFYUTKD AQRYPETVSRCRFASPSWGPDGTSFLYNRLEPSGKQGK
$R T W V A D G F V L P E N K S D V G W D D R D S V Y V G T D F G E Q P D G H G S$ KQFVASGFTLPEAKSNVAWKDDDHLYVATDFGPDELGNS GE PRRLLRDDGPELTWAEDNATLLFTRYD
HEFVEGGYTLPEAKHRIGWDDADRVYIGTDFGP GS
KQFVEGGFSLPEAKNHVGWKDDDHLYVATDFGPKMGGB
T RSGTGTR GAGS TGSA GAGA T L




| UniRef90 K6VM55 |  |
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|  |  |
| UniRef90－M4CJH2 | QRPHRVV |
| UniRef90－14W1T2 | PFHAA |
| UniRef90－W7TOE7 | DNSA |
| UniRef90－X5F | SRQQCHEL |
| － | QNPQYDSQVFLHRAGTDPKEDIEDFSAEKYPELQUAGSE |
| UniRef90－Q1D170 | EAHWN AVYEHRLGSGAPARRVF GDDHEKEYWCTVKV |
| UniRef90－UP10004798A9A | A WRPCAVFRHRVG |
| UniRef90－83T217 | FHRPRQIYRHKI GTPIKNDQLI YDEKDKG FTCGIGV |
| UniRef90－FOWJY6 | DLLLRPNKVWRYAVGRMEAGKQNIYTDDDA |
| UniRef90－D1QV19 | SKNEVHKY Y Y K K GiPQNEDELFYQNPAFPDRFYDVMV |
| UniRef90－A0A022ONL8 |  |
| UniRet90＿A0A023Y012 | GYPRV |
| UniRef90－B4S8357 | DVQMDSKIYLHTIGG SP |
| 㤑 | 㑑 |
| UniRee90－Lols | ADDGGLLEKEVCFHEIGTDPADDWTLEATPEFSTQTWPLVE |
| UniRet90－12GFJ6 | KAEGQQKS |
| UniRef90－E919 | LGNQNQKLCYHVVGTSQSDDVVAVEFPEEPLWRDFANT |
| UniRet90－D7 | DA WRSYQVWMHTVGESADQDVLLYQEDDELTV V VGL |
| UniRef90 UPI0003B4EF1B | MTSSGYPRIAKQWKRGTP |
| 4P |  |
|  | TLRSDKLWRWQI N |
|  | EFSRGAKVYSN F EGP |
| Ref90＿NWNW8 |  |
| UniRet90＿UP100037D |  |
| UniRet90＿D7VXN5 | LKE MKAMLHQIGTSQDKDVILGSREEYPELFPEVSF |
| UniRet90－UPlooo37362E5 |  |
|  | 㑑 |
| UniRef90 V4HC55 | GDERVLATHDDQHVWPALA |
| UniRef90－UP100037095DC | SSGYPRLVREWRRGTPAGDAVTVFEG EPDDVSVGAYH |
|  | A QLEKS |
|  | AKNAVQK\YYHRDGTPQSDDRLFYQNPSQP |
| UniRef90 UPI0003B35B40 | PRSEDVTVFEEHDERFWEGVEYDVSFASFEGAGD |
| UniRef90－Q9CAA3 | QRPYRYVN ESDGRDD |
| UniRef90－W4TD70 | d Qrpmkakly hi gis idik |
| UniRef90－B2GKX8 |  |
| UniRe990＿UP1000 | QR |
| UniRet90－UPIOOO33 | MTK S SYPR |
| UniRe90－K6VP | L |
| 俍－UP1000427AA5B |  |
| UniRef90－UP10002 |  |
| 1ZDE0 |  |
| UniRet90＿G9ZE26 | GYPREARLWQRGTPLIADAKTVYRGEENDMLITAAHD |
| UniRet90－UPI0004755753 | A ALRDNVVREWKRGTPMTEASLVYEGSSKDLGVGAYRN |
| UniRef90－14YAC1 | ETAANENAKLYYHKVNTPQSEDKLVLEDPQNPTHMWSAST |
| UniRef90－A0A021 W9Y8 | SSGYARTVRLWTRGTPMAQAALVYEGKDSDMMVAAWHD |
| UniRef90＿A0A034TH04 | RTE HHKLYYHELGTPQSEDKVIFGELIDTQVHRYVS |
| UniRef90＿Q1N9Q7 | KSGYPFVVKTLKRGEPLSSAR |
| 90＿M0QNG9 | SSGYPRVVKRWSRHTSLDAATTVFTGEVTDVAVGATHD |
|  | WRPYQVWRHRVGTPTSSDVKVFEEKDERFFVD VYE |
| UniRef90－K4F199 | OLLPYQVYRHRLGSDPAQDELVYEEKDDTYYY VVSLL |
| UniRef90 A9RD 3 | （ |
| UniRef90－LOMHX1 | SGYPRTVKRWR RGTPLESAEALYQAQPEDMRAYAYHD |
| UniRef90－UP1000302F508 | ESWRPHRVYRHLLGTDVAEDQLLFQEDDPGLWL GAEL |
| UniRef90－M0EM06 | ADGAQMDKEIRRFRFADGPDDETVLLEHDDQHVW PRVTV |
| UniRef90－G7G | PRVAKRWTRGTPLDEA VTVFTGEPGDVS V $^{\text {S ASH }}$ |
| UniRef90－A0A031HL21 | ASSYPFVVKTVKRGQPLAGAQELFRGQPTDQLGTYAGV |
| UniRet90＿W1JN | PSGYPFVVKELKRGQPQAREVFRGSSNDAMAQPFVLWD |
| UniRef90 UPIO0030624F3 | SYPRIVKEWKRGTPLSSATTVYEATDEDMSVSAMRD |
| Unil | LKK A K GPRMYRHVFGQPLTADALMFGPGKGP SDLLAS |
| UniRef90－UPIO0036D8CA0 | ADSTFQVYHKLGT |
| UniRet90－TONNQO | MK |
| UniRef90 W2 | NEFHSLYFHRMGTDYRKDVVIVYDRKDHPDDFIUFAKT |
| UniRef90 UPI00036B27D6 | WLHRVAAGGPAPVPDALVRRCASPRTVPGVRL |
| UniRef90－ $33 C 0 \cup 1$ |  |
| UniRef90－S4HQM0 | A WrPYQVWRHRVGTSTKSDVKVFEETDERFFVD VYE |
| UniRef90－V4NZ13 | NSGGTAWKHVI GS |
| UniRef90－FOYGE8 | AHRPYRVWKHVLGTPQADDALVFEEP |
| UniRef90＿A9 | SGYPRQVKLWKRGTLLKDATLLYEG EVDDDGVSGYV |
| UniRe90－14BDM5 | S |
| UniRef90－A1A340 |  |
| UniRef90－14VS00 | SSYPRIVKEWKRGTPLSAATIVYEGKASDL |
| UniRef90－KovC43 | ESGYPRLVKRWRRGQPLAEAETVESGADSDV |
| UniRef90 UPI00037B0B68 | ASGYPYIVKRWSRGTPLSQAVEVTRGDES |
|  |  |
|  | R |
| UniRef90＿B3EDC5 |  |
| Ref90＿J9RXI2 |  |
| Ret90＿C5CN44 | SSYPRIVKEWKRGTPLESAATVYEGGEDDMTVSAWRD |
| riRef90＿C7QYX4 |  |
| 99 |  |
|  | SGYPRLVKEWRRGTPIEEATLVAEGKPDDVAMMAYHD |
| UniRef90－UP1000477FCC3 | MTS S S PRIVKQWRRGTPLESAVTVYEGLHEDMSVSAWRD |
|  |  |

## UniRef90_K6VM55 <br> \section*{UniRet90-M4CJH2}

 UniRef90-P55627 UniRef90-W7TOE7 UniRef90-X5PDN1 UniRef90-Q3B4S7 UniRef90_Q1D170 UniRef90_UPIO004798A9A UniRef90-B3T217 UniRef90-FoWJY6 UniRef90-D1QV19 UniRef90-AOAO22QNL8 UniRef90-A0A023Y012UniRef90-B4S8S7 UniRef90-S5EUL1 UniRef90-LOIEF3 UniRef90-E4NKX5 UniRef90-I2GFJ6 UniRef90-Eg19D7
UniRef90-D7BLS6 UniRef90-D7BLS6
UniRef90_UPIOOO3B4EF1B UniRef90-V4PCD8 UniRef90-10Z4E9 UniRef90-ToSXA4 UniRef90-N1WNW8 UniRef90-UP100037D5DEF UniRef90-D7VXN5 UniRef90-UPI00037362E5 UniRef90-M7AW83 UniRef90-UPIO003796CD9 UniRef90_V4HC55 UniRef90-UPIOOO37095DC UniRef90_D3SQX8
UniRef90 R7H027 UniRef90-R7H027
UniRef90-UPIO003B35B40 UniRef90 Q9CAA3 UniRef90-G7JZA5 UniRef90-W4TD70 UniRef90-B2GKX8 UniRef90 UPIO003B7773F UniRef90-UPIO00375B6D3 UniRef90-K6VPY1 UniRef90-UPI000427AA5B UniRef90_UPIO00288453D UniRef90-E1ZDE0 UniRef90-G9ZE26 UniRef90 UPIOOO4755753 UniRef90_U3LNE9 UniRef90_-14YAC1 UniRef90-AOA023 W9Y8 UniRef90_AOAO34TH04 UniRef90-Q1N9Q7 UniRef90-M0QNG9 UniRef90_14MFD9 UniRef90-K4F199
UniRef90 R9CW83 UniRef90-A9RDL3 UniRef90_LOMHX1 UniRef90-UPIOOO302F508 UniRef90-MOEMO6 UniRef90 G7GNC7 UniRef90-A0A031HL21 UniRef90-W1JN87

SRDERW LVVISAASKSTSECWLIGDLELACPKLLVSV 280
SADERWKGVNA
SQSGAWLFLDVLTTSDMSSEVWCLPADEPGGGLR QWR SQSGAWLFLDVLTTSDMSSEVWCLPADEPGGGL PSDTELAFALDSHAASGGSLEFSLYATDRAGLADPTACVW SGAWLFLDVTAFSGYSGAEEVWCLPADQAGGGLAANWR
 SFDER HVVIGTGSKTTSEVLMLPVDDPTGEFVPFDPR
 YKSRSSKYLFDESESKETSECSVLELEQANAKPRVMEK



 S

 TRSRKYLLLYGRSEVTKY LCYLPAHTPLGNLTVLGPKV TSDKAYAVLNLDASGAS SAVFYHSLKGTDKEFKLF SKNAKDYVFAGQGTVAKELILYYAPIDQFNSEKTLCKATD DGHRLLVTESHGTGHRTDLWDADLDRARPERPRLRP TSDYQTMLLRDGSTKSENPVFYARTPDSSLKDKKMKW DPTEGFARDFVHRSVDFYRDETYGRTPTGGGLVRLDVPD TVDOEYVMVYLNSGSSQVVYV HEPTGTLVVSFGEMSGGTRVTAWRGEDGAGETGDGDEEF
DSTEGFERDFVRRSVDFYRTJTFFRRAPT $T D R A G D Q L L V A L V A D W D R S D L L Y A A V G D T D L T P$
$N K E E T V M Y L T E A G M D N G N N L Y R D M R Q D A Q F$ NKEETVMYLTEAGGMDNGNNLYVRDMRQPDAQF TKDGKFVTINSNSRTSSEEFVYIVNADKPMAGLQRT
TKDGKFUTVNSNSRTSSEEYVYVIDSTNPMDGLQR SDDFNYLLLNLGSTKKSESPQFYABPADYSALKDKKDTW FDD NRHVVIGTGSKTTSEVLMMPVDDPEGEFTPVIPRR DDTPGFERDFVSRADDFWSGENFLRGGKDNKEFTRDDVPRD EQSRNGKWLIDRSASVTSSDVRFDSTENDEQRIKVL STPGFERDFVSRARAFYDNELY GRQADGSLTRIEVPN
 HQPGFERD VVYHNLSFYEDDVYGREARAPDGKLVKLDAPK

| $\begin{aligned} & L \text { NDRNAE S SNMCWL } \\ & \text { RGADGKLSKLDGPN } \end{aligned}$ |  |
| :---: | :---: |
|  |  |
|  |  |
|  |  |
|  |  | PTPGFERDFVERTLAFYNNELF LRGADGKLSK

 SFDERYMMISSSSSKTTSRVLMLPDSTPEGDFRMVIEP SKTTSEHYITTYLSSTTTTEVLLLDATLPEAVPQV
 DTPGFERDYVVRMIDFYRQETFLLHANGEQQRIEVPSDAE
SADKQWLMLSSSCSEYSEYRILHLSA


 TNDYKYIQLRIGS GVKSEAPAFYAPYSSDKDKKDKWTQ
SEDGKYLIASASHGGLYNALYYYDSKVNKGNVGKITPK
 RNHKWMIVHSVSLTSSETTMI SAED
TEDDHYLVTTAANST YGNELYTKDLTNPNSPD HERRY SFDERYMMI SSSSKTTSRVLMLPLSTPEGDFRMVIEPV QPQVRWYRGSDHVGLHDVNALPYGYYAKAADVKAAQTPW
WRDADGSTVFDESESKETTEELRFI SLEDGGGAPTVVRPRE
TKSKKYLITASTRADIFFEEVY GDDVEPGASSMPDGTPYSNPCNPAIL RTPGFERDFVSVAKDFFHSELY
DRTEGFERTLVSRADDFFNEQVY E EDRGAE
QAHG
 ASTKDGKFITVY SGTLI DAANPLDGLQKVWK SGDGKTLIIC SMSSETSESHLLDLRKG VKHNTDE SQDVSYDKESATLFAFVSNDRRLKVYYSPASELEKEQDTW NTPGFERDFVSRQMDFYDSETW L HTPGWERDFVARSLAFYRSELYL TRSRQW $\qquad$
L
P
GGDRLVKIDVPD



\section*{UniRef90 K6VM55} UniRef90-M4CJH2 UniRef90-P55627 UniRef90-W7TOE7 | UniRef90-X5PDN1 |
| :--- |
| UniRef90 $\mathrm{Q3B}$ | UniRef90-Q1D170 UniRef90_UPIO004798A9A UniRef90-B3T217 UniRef90-FoWJY6 UniRef90-D1QV19 UniRef90-A0A023Y012 UniRef90-B4S8S7 UniRef90-S5EUL1 UniRef90-LOIEF3 UniRef90-E4NKX5 UniRef90-I2GFJ6 UniRef90-E919D7 UniRef90-D7BLS6 UniRef90-UPIO003B4EF1B UniRef90-V4PCD8 UniRef90-10Z4E9

UniRef90- TOSXA4 UniRef90-TOSXA4
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290
300
310
320
AGRREGLLEYDTEPDREGILFIITHNATSPDFEVSWTSWQA ARERVHGVQCFLEHRNGYFYILTNWSGEGYYLARCLVEE $R \square V M R E L G H Q \prod Y A E H W Y D R F L F R V D D A G P Y W R L V S A P D D D$ GDAANVRTAAWVGNRLLVASFANAPRGKLLAVDD RKITDPADEVTGYADHGDTIYVVTHKNAPRSEVQAWSDTD R\VRRGNGHEDYAEHWGDSFLFRVDDAGPYCRLVCAP DN KPLIRPEDETHDFATTATELYVFTPKNAPRFRILKTPLER L $N Q$

REGVEYDVSFACFEGPVAVVDHNAQNPNFQIDVIDMRT RQKEMI YSGDSWKGNFY HTNQDAEDFK CKCKHEN
N C
QYALVQTVGDSGYVFTNAGAQKNRLMLANLAN RVSGVQYFLEHHSGFFYVLTNAPGDGYYLAACRDDD SAEKGLRKQWLTLERRDAWTVGGKTYTAGSLLVTKGDDYD MADAEPEDNVGWLEVKPNSDWQVGETRYPSGALLATHFDD PLVTDVDASLELLAHEGRVF LLTNHDAPRFRLLGGDADA


UVSERRSGLHYTVEPAGDCLLIVHNRTNVDFDLADAPDGP SASKSVKREWLTLELRDPWTVGGKTYPAGALLATRFDDFM NCLINYDDEVQGVNLKGHTFYATSKKGAPNGKLLT四DAS HARKYQAAD WGDMWIMLESDMQKDTLIAEELLLLEMSNSTD
VTGDNDISYELDHWDGNFYMSTNKGNAQNFQIFKVEADH QVTGDNDUSYELDHWDGNFYYSTNKGNAQNFQLEKVEADH VQVGVEAETEARLGPDGLLYLRTTGDAPLRRVCVADPDE DAYTSVHREWLLIVTRSEWVIGEDTYPAGALLAADFDAFL TH
 TLFDGGDAEVSVELTDDRVF LRTDAGAPRGRVLGADAAL DAHASVHREWLLITTRSEW VVGDDVHPAGALLAADFDA VITDADHVYLPLTHEDGAY LQTDLDAPYYRFLELDDLAG QMCSDPQYVYTPVETVVGNRMY LTNAGAPKYRLMVADVAG ACGSPYGCEEPGGETGGNVHKRQPRKGDTGADPRDVASQ LCERTSGVQYFVEHHSSLFYGLNWSGEEYYGVRCRVED KQIVKASDDIVQTFDTGDQLIFFLTHKNAPNYKIGVTSLSN EGYDVSFGVFEHAGEQGEDDPTYHNAVNPNFEDDVIDMRA AASFGTHREWMTVQLRNAWTVGGNTYPSGSLIAIKFDDFM SGVRH DWLFVMPRSDWTI ADRTYPAGSLVVFDYPAYD SAHKQVHREWLLVEDREPWEVAGTTHPAGALLI ADFDAYM RSEVEYSVEDRGNHFFITGRDQERPNSELLVAPMAD
GVYRDWLNITRREDWTLNGKTYSSGSLVANYADWQ
TADK DSHKYUQRSWLLLQLRSAYTYQQQSYSVGSLIATPLADFM
 SANKEVRRDWLLLEDRDRYEIGGKTYPAGSLIATRFDDFQ
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NKKDK VYYSRSDGSTTVFLSGYNSPNFKLCRTKTET KLVDNFDAQYQYVANDGPVFTFLTNRSAPRYKVTRVDDNN

PVLTDTDAETSVRFHDGTAF VSTDHGAPRRRLLACSVDD FAVFR DWLLVLTRSPWTVGEATYEADTLLVFGYDDYD TSPVGMVAGQVLFQTSDPWGADTAGSVAS APGAEVQ AGDVGIASNRLLVTLEEDWVPSGSTHFAAGSTVLAEWKQD DAHVDIDRQWLMIEPRSDWTVGGKTYTSGSLLATNFDDYM ADFNGV DTNRTLYIETDWHAGRGEVFTATMPR PPDFEDSGVQWMNGRIYOSSKESNWGDVRSFDPDN PLFDKMDAKYLYIDHDEDSMLIMTNREAPKFKLIRIDSKN PLQVGAEAETSVDLGPDGLLYLRTTLGAERRRICAAAPAA LVPRHEKLEYYVEPAGDQLLIVHNANNPDFELASAPMRA EGVEY
QPVFVTED VQEVTMVDGYTYADAVGAASNGEVIRVPASD FGVRYDAASHAP R SNSSLILTSNASKDAPGTWALLSDG


DATDSVHRTWLLIEERTSWYHGVDEYPAGSLLAADYEQF口 SHRHFUALLOYAESLI HIAVMTKRAAEDFLL DASADAHREWLLI GLRTDWAYGTRKFSAGSLLAADYYERFL SPEGIYQFIVSLKEDWSPASGQSFSSGDVVAFNLNN MVRPREKGVRYTVEMHGDTLIVLTNKDKCNGKVVLTKRSA KKLFEPEDEDHDFAVRNNELYLYTPKNAPGFRVLKTSLQN DASTEVTREWMLVEPRSPWTVGGTTYKPGSLLAMRFDDYM SAEAGVHREWLLIETREPWVVGDTTYPAGALLILTRFEDYLL DVEVSTHREWLLVHPRSAWSVGGVEHPAGTLLAIDYDAFK KKMCDATDEVILFEVHGEEVYLLTHKDAPRYKIVKTSLKN

## UniRef90 K6VM55

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UniRef90-R9CW83 UniRef90-A9RDL3 UniRef90_LOMHX1 UniRef90_UPI000302F508 UniRef90-M0EM06 UniRef90_G7GNC7 UniRef90-A0A031HL21 UniRef90_W1JN87 UniRef90_UPI00030624F3 UniRef90_C1F7F5 UniRef90_UPI00036D8CA0 UniRef90_TONNQ0 UniRef90_W2TVI6 UniRef90_UPI00036B27D6 UniRef90_UPI0003B3952B UniRef90_J3C0U1 UniRef90_S4HQM0 UniRef90_V4NZ13 UniRef90_FOYGE8 UniRef90_X0UY45 UniRef90_14BDM5 UniRef90_A1A340 UniRef90_I4VS00
UniRef90_K0VC43 UniRef90_UPI00037B0B68 UniRef90_M5XMZ3 UniRef90_D0A9G2 UniRef90_B3EDC5 UniRef90_J9RXI2 UniRef90_C5CN44
UniRef90_C7QYX4 UniRef90_U7NZS1 UniRef90_D9UVN2 UniRef90_UPI000477FCC3 UniRef90_UPI000308EFB9
 $\square$ D S S E WQVVFF P D D DVVI EDMD MF S DYLVLFFSKKGSPM
 HGNTTEVLGERKGAVQSIEPI ADGFLLVRSWGPDWW GTR R TVVVPGGDRAVMGVVVVMGDHLIRDIDAGTAR PSPSSSWE EII P HRA GVTLE EV HVLEK HLVVLEREGLRPR
 P TQWRTLIPESEHT LQTVVAVGGRLYAVYSRAASHH



 A GKREFTVVETPTA QVALSGYSATMRDHLILLSIMDNVVNR


SEPETWVPDYEALPGQRLAEVVAFR DFAVLNMRDGGAMQ A GKRQF DVLEEPTDRTSLAGVVWTRS HVVLNVLEDVKNR

 PDWANAETVVA EKDMSLTGYTRSKDYLLLNYSDGINSH



WD QK Q WQLMQAESDS ISLTD IHHFYSHYLIIEQKNNALDE A GETDP ETVVVPE GE GVVVRE VTTTTATHLVVVHSHREAASR A GRRELE ILEAPDEHTSLSYHAWTRNHLVLATLRDVKS Q S DPNELDPELDPERDG D DKDAAVVDNHLLVVQYERAAVSE P GYADWK ELV GE GESSV LVEDVT FTADNRMILLQYAKANCN Q
 I E A S DWQTVVRPDD DVVVI QDMD MFNDYLVLYYLNKK GLLPM
 P S GLLP WRLVLAR E ERVLLYEAEPLTTVAGTVVLLLSSHDANGR HKPPYRTPFTDARNPALLQGVIAFHKNFVALSYRGDGLPR A GKRDFTVLFAPSETT SLLAG HSWTRHHLILDTTLHDVVSK TGGGRDATVLFMPDSHTSLSDYGGTRSHLILVVLDRDVHTE STPEEWAPI FVP E E GERVVYVEAYAG HAVI SMRSE GQTQQ NGERELRRVLFTPTERTS L S DAATWTRRHLILNNVDDDVKHR

 P
 A GKRDFVVLVAPTDTSSLAG TTWTRHHLIIVVLDDVKNK $T Q T E Q W A D V D A E Q E Q P Q E I \quad S K G G G Y L F A T Y M V D V L D S K$
 LP D A N

LS FEECREVLPGSEG IIQSVVPTPERLLVHRQRDAHSR AGGREHTVLFTPDAHTSLDDFV FTKSHLILVKLRDVATE


 PA EKK $\quad$ PV DS Q Y Q N QL LTTDTVYFFK D R V V CK YKNA D G N Y PDFAKAK TVI PESK YFIT S DHS SKNYLI YS LSSDGINQD





A GTAPLRVVFAPDEHTCLHHYAWTRDDRVVVTLADVASR GRPWRFTELVPHDDWDVDESVDEDNE ERAEI WGKDDAAAS A GKPQFTVLVKPDAHTSLASYDW TQHHLILDILDDVKSR


 PDLLKRAEVVIPEFRNAKLSGMTLTSRGDFYKLSLNGVQEE SGNRDATVLFAPDAHTSLVDYA YTRSHLIIVKLHDVHTR A GRREDTVLEEPDDTTALDDY S WTRHHLILVVMHDVVNR A GGRDLTVLFEPTSSQSLAGASSTKNHLVLVVLDHVKNR ADAS GWQALVAHREHHTLEGVDAFDWG LVLTERDHAEAQ A GERDFTALETPDAHTSLLDYYTWTRNHLLLATTLHDVKSE A GS R T LT V L F E P D DTTAALDD Y S WTRNHLIVVVMH DVVNR

UniRef90 K6VM55 UniRef90_M4CJH2 UniRef90_P55627 UniRef90-I4W1T2 UniRef90_X5PDN1 UniRef90_Q3B4S7 UniRef90 Q1D170 UniRef90_UPI0004798A9A UniRef90_B3T217 UniRef90_FOWJY6 UniRef90_D1QV19 UniRef90_A0A022QNL8 UniRef90_A0A023Y012 UniRef90_B4S8S7 UniRef90_S5EUL1 UniRef90_LOIEF3 UniRef90_E4NKX5 UniRef90_I2GFJ6 UniRef90_E919D7 UniRef90-D7BLS6 UniRef90-UPI0003B4EF1B UniRet90_V4PCD8 UniRef90-10Z4E9
UniRef90- TosXA4 UniRef90-N1WNW8 UniRef90-UP100037D5DEF UniRef90-D7VXN5 UniRef90-UPI00037362E5 UniRet90_M7AW83 UniRef90-UPIOOO3796CD9 UniRef90-V4HC55 UniRef90-UPIOOO37095DC UniRef90-D3SQX8 UniRef90-R7HO27 UniRef90-UPI0003B35B40 UniRef90_Q9CAA3 UniRef90-G7JZA5
UniRef90
W4TD70 UniRef90-B2GKX8 UniRef90 UPIO003B7773F UniRef90-UPIo00375B6D3 UniRef90-K6VPY1 UniRef90 UPI000427AA5B UniRef90_UPIO00288453D UniRef90-E1ZDE0 UniRef90-G9ZE26 UniRet90_UPIOOO4755753 UniRef90-U3LNE9 UniRef90_-14YAC1 UniRef90-A0A021 W9Y8 UniRef90-A0AO34TH04 UniRef90-Q1N9Q7 UniRef90-MoQng9 UniRef90-14MFD9 UniRef90-K4F199
UniRef90 R9CW83 UniRef90-A9RDL3 UniRef90-LOMHX1 UniRef90-UPlooo302F508 UniRef90-MOEM06 UniRef90_G7GNC7 UniRef90-A0A031HL21 UniRef90-W1JN87 UniRef90-UPIOO030624F3 UniRef90_C1F7F5 UniRef90-UP100036D8CAO UniRef90-TONNQO UniRef90 ${ }^{-}$W2TVI6 UniRef90-UPIOOO36B27D6 UniRef90_UPI0003B3952B UniRef90 J3COU1 UniRef90-S4HQM0 UniRef90-V4NZ13 UniReffo-FOYGE8 UniRef90-X0UY45 UniRef90-14BDM5 UniRef90-A1A340 UniRef90-14VSOO
UniRef90-KOVC43 UniRef90-UPI00037B0B68 UniRef90-M5XMZ3 UniRet90-DOA9G2 UniRef90-B3EDC5 UniRet90_J9RXI2 UniRef90_C5CN44 UniRef90-C7QYX4
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LR A FPR SVP A E GEVVDP T E E L A T L GF Y GN WGAREVGFS VES LSVITPTAQGWKKVGAPAFGTVDVSAVDDDSDALWLTVTD $L$ VRAPYDGGAMKAVPLPYHGAAYLTDSDPMVDGLVFTLQS
FKIVTLEEGEGRAVTFEEESYSLGFGGPLDSPVIRVVYSS



LVVQDMDSGQKDRVSMPDEAYEDDFSGDWDHTRVRLDYSS LAAHAFDGTHAFDVDLPGLSTVHGVEGDPDADDCFYVVES FTVLTPAAGSWVSAPLPDAGSADVLDTNPDDDEYYVNASG LELFDLAGEHVRSTDLPGTGTVAGLDGTPDASEAFFSYQS LYVYDTDGNRLSEIELPTFGTTS VSGARGQKEAFYSFQS LAVMTKDPWQFEAVTPPDSDTHVGGNPNYDAPRMRYSFSS VYUQDLKKPWYFPLP NTCSSVPGSNHDFLNTVYRVVLS S KYQMDMKTFADKKIPLPEVNNSAPLNARENDDLQCYNFN TS LMPLEHAGRR LADVDLVDVVPASDTVRV
LAITLAGRPWTELVPPPLYSIGAGNPSYEAPRMRYSFTS LEVLTPPGTEWKRAALGGAPALSTVSAADHDDSYFWTVSG

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 LUTVAPEGASEAVMPEPVFTVAVANKEFNATTFRMTYSS LVVRSLRDGSHLYRPFDFTGSVNQVTGERDHTKVYMSTTS
 VMVLTPDGWSQTPVELPDNATVSVASASDKSDKAYGSVAG

LYMY KNGREVP TADPYVGNTADQNKGKDFSDTWTSCEG LQVHDLQTGAFRCGIPLEFGTVSDTSGRREDSEIFINFTS LEVLTPQGERWQSRPPVELSTVAAGGПDDKTNDYFLTVSG
LSVHDRDGTRLSEVSLPSYCSVTWVSGNRDAPEAFFGLTG VEVITLGGDWAVVQPLPELATISVLDTDPDSDEVFWTASS AAVYTPGAGGWRPQALPDNVSLGVASADDKSDHGYWTVSG TFVYRYDQGAWQATP
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UniRef90_B4S8S7 UniRef90 ${ }^{-}$S5EUL1 UniRef90-LOIEF3 UniRef90-E4NKX5 UniRef90 I2GFJ6 UniRef90-E919D7
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UniRef90_UPI000308EFB9

$V L T P D T F Q R W N D D T G A \quad \square V T V K E T E D$
YLTPTTLSWVDVGS
WTQPRKLFAYDPARGLSDLNL
FVTPDSTYD $\operatorname{VNAMTGRRVLKKQKQ\quad VLG}$

WNKPLTEFSFDADTEKFTASIVEEVEVK $\begin{array}{ll}V A T Q Q R V L A \\ W L T P G T F Y D Y N P E S G A R E P R \\ Y & \text { T }\end{array}$
$Y L Q P A S \square Y R G D \square G \quad A E P E \| L R Q$
PVRPSTVLEDDLSTVQTTVVYTRETP
FDRPASVVHADLGTG
YTQPATLYRGDVG AEPElLKQAP
FDHPPAVCRYDLEADTVT
YTTPGAI YSYDMATAKSTL
YTRPGELHDLDPATGD DRLLKRATVLNF
PVIPDTI VDYDVSRR
PVMPDVIADYDMS
RQTYS IVHQEEVN
WLSPRTAYEYSPANGKVVKSKY

YTRPGELREDDPATGEDT LLKAATVLG | $F$ |
| :--- | :--- |
| $F$ |

Y LT P T T LLHGRVG GALETLKQAP LRTPDQTVDYNMATGARAVKKV QPVLG YTLPTTLYH
YLTPSSLYQGAVGK APEKLKQTP
MTTPTTWLDVSPETHEMKPVKVREV YTTPGEVLCFDFEELEKRKTVFRSAEVNGL Y LTPTTLA L A E PGQKPEV $\square K T M P$ YVTPPTI FSFDVESGEST LVEESKAP FLAPTTLWAMDAANPAPTQVK FTTPPSLLHGDAGGD VDVIKQSP

WTHEAQRYKYDLATNQFS
F $\square$ QP T S $\square Y \square G S \square D E E G E P E L L K Q A P$
F DRPPAVRGLDLAD
FTTPPTLLHGD
FLTPTTLLPIDAASG
YLVPTSLWYLDAATKRLEMLK
$F L Q P T T L Y Y G T L G Q G D A Q$
FRIPTGFYRW

VSTQQTVRL LAPGARRPS
 YTTPGT $\square F S F E P K S G K S E \quad \square Y Q K P K V$
LTWPSRQFHYDGKT
VTTPSSTLDYDVASTAFTTVKVQPVP F LTP T T LYY $\square$ ANAK TNT $\square$ S P
FETPSRLLH
YTRPGELHDYDPDTG EDRLLKRATVLG F LAPTALQRGVLGSEPATTDK FDTPSTLL YGTAGGELS
F LTPDSLLRYDVSTGELTPLK
$P V M P D V V V D Y D M S S R R F$ SIVQQEEV
$M T T P T V W Y D E D V L S G E R \quad K V V K A R K V G G$
WNRDYRRFRYDAESRSF
FTEPPSLLH
FLQPT TLY Y GT T GRGEPEPLK
YLTPSSLYRLAVDD
FVLPVSWDEHDLDSGER RLLKQQPDHG
$Y V Q P S T L T R G V V G G D \quad V E V L K Q A P$
$\mathrm{F} L \mathrm{~L} Q P$ T T L Y $\quad$ IGTI GGGQGEPQVLK

T D PY $\backslash$ WLDEEVEGERAM
PPYAKREPKRREFHGDVFEDDYEWMRDKDSDDVR DPY LDWLEDVT GEDAL DPYQWL E E V E EGARPAL

 APSANVVETVCGERIADPYRPLENLKDPKVA MSAPFARTAPADSVLDTVHGRTVPDPYRWLEDGESTATR | $\square T G D D P Y L W L$ |
| :--- |
| $D E D D D P Y R W L E D G G G S A L$ | DPY LWL E DV SGEEAL

DPYDWLENVDGDQAL
KSPTFFENHGDR\|IDDYEWLRSDKKAAEK FHGDTFVVDDYE WLRRDKMS P E V R RD】SPVETY RRANDPWHWLEQRDDPQVN

MT THGDTRDDNYYWLRDDERPDVL MSSHRQPPEAKKVPFLMEIFGDKRLDNYHWLRDARDPDVQ DPFLWLEDVEGEAAL
HGRSWSDPYHWMRDTSDPDFA

P $\square$ AK P D S S T D

TPDDPFLWLEEIHGDRAL
HDPHRWLES LDSPDVT


VDDFVWLEETK GEVAV DPHLWLEDVTGDDAL DPYLWLEEVTSDRAL
DPFWLETRSDAL
DD P Y L WL E DLDS P PA L
TIDPWLWL E D L E GAKA L DPHLWLEDITGDDAL
KKVRHEMELFGDVRVDNYYWL R D DSN PE ELL
ADEFQWLEEVEGDKA
VAPEDPVAPLAPG
E D
PTPKK\PYELIQHND TRVD
RNRAPGYKLRDDSDKEL
MM MTAAPSQAQDSHVPG
ADPYLWL
PDSDPFIWLEEARSDRAL
$S \square$ AAPPPVRDTP ETHFGVTVH

DEFLWL EDLRGEAAL HDDWLWLEDIHGEKAL
PPSAPVQPVERTLHGEPVVDDFGWMRDHADPR L R TVEDKFLWL E DRTSKESLL

 SLTTHDHSWEDPYSWMSKLNDKVAM ADDFVWLEEI NGETAV PAADHDPVPSTPLDPGAVDPYGWL E DVGEGAA L

RRPDDWHWL E ERDSVQVK
ADPFLWL E EVEGGRAL


MSTPPDTRTEPVTEVLHGHEHVDPYRWDEDADDPAVA MTEHSHLPADDFTWL E E $\square$ HGPEPL DPYVWLEDWTGPRAM
$A P P V A P R \square P F R \square E Q \square G R V R D D P Y R W M E M R T D P E A R$
FTVSVHGRSWQDPYHWMSNTYDPDLS
$M V P N R A P G A A G V D P S A D T R$ R R V VPDPYRWMESADSPETLL
PTYLKKNTSD $\square$ YHGKEVKDTFRPLENMKDSLIL
MSAVAPP $\square$ AKRVPHTVT FGRELSDDLFWIRDDKNEDML D Y LYLEEVEGEKAL

PTAVADPAAD
VEQVDKYQWL EDVNGKRSLL

EDPFLWL EDVLGERAL



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UniRef90_UPIO0035C3A1A UniRef90_A0A024USK UniRef90_MON9N5 UniRef90-N1UZX9 UniRef90-TOIEQ5 UniRef90_UPI00046DBF36 UniRef90_UPIO00475660F UniRef90_A9EDQ4 UniRef90_UPI00035E8FF1 UniRef90_R1DVM7 UniRef90_UPI0004701DC1 UniRef90_W5WZ84 UniRef90_W5X5R6 UniRef90_UPIO004793CA2 UniRef90_E8TGN7 UniRef90-B1Y8D6 UniRef90-U2ZDN3 UniRef90_UPIO0035FCC00 UniRef90_M4Z172 UniRef90_T0IYW5
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 AFLDSANEEFGRWFTPEPLVDTGYHGHLARRELADTGLPT DWVRARNEPTLDARRD A EFERMRVEALEVLDTDARDPYV E Y L HA E NAYGK QVMD QLS LQ ER L L K E I I D R I P QREVVSAPY
 A WV A ERNAETVGLLTGDPGFAGLREQARQVLDDTARIPY T
 EFAKAENKRTDEHFQQNPRFKTMIEHDLRKDMAEDRVPAVH E Y ID S Q N K Y T E Q R V S R D S L R K QLIF NEMKS RIQETMMS V PT D WV H R Q N E V T VG QL Q G D P S Y Q A S F Q T A LDD L MA E D N M AV G A D WV R S R N AVTTTEALAAG DAF DVTESRDIREVLDDTDARMPYA A WV RAENARTLARSPEGSRAQLTGE LLEVLESDER\|PYVT
 $R F L$ K LIERN Y LAN QL S K P K F R KVERAF NNRLL REDF S I P E C

E WAVQQS K Q T R R E F A E S D R F E Q I R S DVVF D C N A T T Q






 A WAREQNAKTLARLEK DPRFEPLRAEAERILITARDRIPY G




 D WVRNQNDRS LIKVLKADPDYAGYEAAMEALITSAER\|PYGS

 RWVA QENQRTLARYA Q GPHFPGLERQVMDILNKDTRIPWV





DF LHA A NLAS DECLA PEPLA DALFDELLSRQELASESLKT RHLDME EKYTEATMMSGRLLQS KL QSEMASRFASDDSSTPP L D WA IQ Q S Q Q T R R EFA E S D R F E T I R S DVF D C L N A S T Q IP MV A WVRERNAHAHRSVGSGAGFETVEKAI LEVVLDSDARIPVVS

 D WV K Q Q NATTAMRFVDNDEFTRTRDS ILEVLDSDARIP YV
 DWTERQSEYTESKPYRKFQRALYAEMRERLLDQADHSIPE
 QWV E A E NKATVATLQ G DRRYKAFYE QALSIASKDR\|AMPM THLEAEAAYADAVAPARKLQPE I $\quad$ AA QMVA QLP GNDAPPP $\square$ EYLLNKENAYSEAFMADTNLQQRTLTSEMTRRMPTKDSTPPE
 $\square S$ GR L FQ
 E WLE A E K E L S K K Y L K K T GY Q F S TK T K ID Q Q Y S Y A K Y K IV R AFAEAETERSVAHFKKSPFFNGLEKDFRSLLATDRLDPLVS D WVVK A E N A R S A K V L E S D P R F A K L Q A E A L A WTASQSAKT LKHFAG TQFERDRAVLDVMFDRFDRIIPLV A WVGARNRESQSELTALPSYAELRPRLLAVLNARDCIPQV A FVVE QS N T R A L S R L E G D P R Y E P F F R R E A Y Y A I L D WARERNAESLAELTEAERY A F V A A Q N QRTLAA A FGGA G


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UniRef90-D1BVV2 UniRef90_UPIO00380BC25 UniRef90-UPIO00365637A UniRef90_UPIo003B350B4 UniRef90_14W395 UniRef90 $\mathbf{3} 310 \mathrm{HO}$
UniRef90-UPIO0035C3A1A UniRef90_A0A024USK UniRef90-MON9N5 UniRef90-N1UZX9 UniRef90-TOIEQ5 UniRef90_QOCOAO UniRef90-UPIO0046DBF36 UniRef90-UPIO00475660F UniRef90-A9EDQ4 UniRef90_UPI00035E8FF1 UniRef90-R1DVM7 UniRef90-UPIOO04701DC1 UniRef90-W5WZ84 UniRet90-W5X5R6 UniRef90_UP10004793CA2 UniRet90_E8TGN7 UniRef90-B1Y8D6 UniRef90-U2ZDN3 UniRef90-UP100035FCC00 UniRef90 M4Z1722 UniRef90_OIYW5
UniRef90_Z9JVP7

 RRRGEHLYNYWRDATNPRGLDWRRDSPEWDVLI DLDAVAAA EK IDDFYYNLWKDKDHARGVWRRYRKPNPTWETVLDIDDALN R RGE WL K K GK Y F Y Q L Y R K D D T K S A Y LTM Y R K K V D D F P M Eiv V N P Y K il Y


 V R R G H L Y N F WQ D A D H E R GLLWRRYR T D C P A WEV L L D L L A A A A
TK $\quad$ IGHYYNFWRDAK QVRGVWRRYRKPEPAWETVLDLDALE RK GK WWF Y QRTVS GKSYPYYYRDKTPSSNEELI FDANAES RMDGYWYFTRTKQGEQYGVQCRDP $\square R D D D D R \| V D T N A E A$ PLDDHYTYWSETAADA DYPVWWRHPNGTPSAHRFLDDLTRT VRRGEHLYNFWRDADNPRGLWRRTTGDPEWEVVLIDVVDEDD
 VRRGPYLYNFWRDADRPKGVWRRTTVEQYQKDEPDWDVLL RRRGEYLYNFWRDADHPRGLWRRTTLDPEWDVLIDVDAL E $P$ WG P WLYY Q Y VP E GK E Y P V L S R Y L S G S E K E Q V L L D WN E V A L KNGELYNFWQD GK HVVRGLWRKYMTS HPHWDVI LDDDA A A RMD GYWYY VRTVE GK QYGI QCRMPGETEGEEVI FDANKEF A $\square$ A G H VY N FWQ D G L WR R T TVVA S Y K T E K P E WE TI I D F D Q L A RRRGFLYNFWRD GEHVRGLWRRTTMDEYRTEDLDLDADAEN RHGEHLYNLWRDAE HVVQGLWRRTPAPEWEVLLDLDALGAA $\square G D Y E Y F M K Q A P G E N F P V Y Y R R R R S A E S N E E I V L N Q N V E P$


VKRGP HFYNFWQDEK NPRGLLRYRSDTPEWETVLDVDALG RRRGKY LY NFWRDAD HVRGLWRRTTMDPE WEVLVDVVELA SRRGDHLYNFWRDAEHPKGLWRYRKPNPQWEVLI DL D A L E E SFRHYGLVNFWQDAKNPKGILLRWRTDNPEWETILDVVALA

 R R R GE Y L Y NF WR D A ENPRGL WQRTT LD P D WDV I I DVDA LD RRGSYFYYTRNLE GKEYVQHCRCGPDAPSEHIILDENVKA SLE GGVVDNFWQDENHVRGLWRYRTADPAWDVVLDDDALE


 HRPGAVFATLRSAGAEMPRLVVFDTTEGDGRTVYDPCVED


 FRAGMVYNTWRDADHGRGLVRRTSAPEPKWETVI DYDALA SK L G GDYYNFWQDQANPRGLLRYRKAEPVWETVLDDDALG
 F RPD GLYNFWQDKENP K G LL R R Y Q T DN P E WE TV L D D A A A A
 RRGSWRYLS R DEP D LDD YPVHYREPVAGGP RELVLDENA WA
$P \quad L D A F T Y W T S \square G A D D D Y P V W K R H P \square G T P D E E V L L D M Q A L S$ RWGP WYYRRVVEGKQFPVLGRRLASLNDEFDSHKSPSAGF NKCGHYFYNFWQDEKNPRGVLDRYRTESPDVWETVLDDDDAGG RIG DHLYNF WRD GAHPRGLWYRTDSPEWEEVLDLDALAEA PLERYTYWSETAADADYP I WWRHPNQSPDQRECLLEQRSS PLDHYAYWSETAADADYPVLWRHDSERCGHQCLI DLLQALA
 SRMGNHLYNFWRDKSHPRGIDWRYRKAEPAWEVLLLDIDALLN

 PRGNRYVALDRDTDADRPSLLDRDTPGGEARVLATPDDFE
 WA GD WAYS SHYPE GSEHAVYT R S WG P WLY Y Q Y DP E G Q E Y P V LC R RLLEVE GRE EI L L D WNE DA HRSGAVFATVRPA GSEHPRLVVLDGGDGPPRTLYDPGS
 T R R GS WLY NFWRDAE HPKGLWRYATDDPA WEVLVD LDT LLE


 NR DGRHVYNFWTDEAHPRGLWWRYRNAQPAWETVLDDVDALGG TRRGQYLYNFWQDAGNPRGQWRRTTVAAYMKVDLDALAAS


 $V$ KRGHLYNDWT DAEHERGLLWRRYRTDEPVVDVLLDVVALG

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UniRef90-B6IX27 UniRef90 Q1CXE5 UniRef90_UPI00036490D0 UniRef90_UPI0003755DF5 UniRef90-J7LBM4 UniRef90_V5X887 UniRef90_UPI0003B3FE76 UniRef90 A0A059E2R6 UniRef90_UPI0004796EFO UniRef90_UPI00047D6B08 UniRef90_WOHZT2 UniRef90 UPI00031C029E UniRef90_R1G2M8 UniRef90_A3WAN7 UniRef90_X5XNR9 UniRef90_U5WVA2 UniRef90_C7M3A9 UniRef90_UPI0004704C0E UniRef90_M5VUE2 UniRef90_I0QTC4 UniRef90_UPIO00380BC25 UniRef90_UPI000365637A UniRef90_UPI0003B350B4 UniRef90_I4W395 UniRef90-J3IOH0 UniRef90_UPI00035C3A1A UniRef90_A0A024USK UniRef90_M0N9N5 UniRef90-N1UZX9 UniRef90-TOIEQ5 UniRef90_-UPI00046DBF36 UniRef90_UPI000475660F UniRef90_A9EDQ4 UniRef90_UPI00035E8FF1 UniRef90_R1DVM7 UniRef90_UPI0004701DC1 UniRef90_W5WZ84 UniRef90_W5X5R6 UniRef90_UPI0004793CA2 UniRef90_E8TGN7 UniRef90_B1Y8D6 UniRef90_U2ZDN3 UniRef90_UPI00035FCC00 UniRef90_M4Z172 UniRef90_TOIYW5
UniRef90_Z9JVP7

E GHDFF LGGGLDLSKD GRWMLYGVDVAGDERYDFRDRDLET


 D G S T F V
 A Q N WVWQ G A TVVLR P G H D R C L V S L S R G G S D A TVVV R E F D L V R E EKWAWAGSRVLAPEHRHALVLLSRDGADACVVREFDLEA
KENWVWKGASCVHPDNDRCLLS LSRGGGDAVVIREFDDTK RNDFFSIGTFCI SNDGKYLLYGIMNDGSERYTLRVRNI ET K G H D F F I G G M D I S K D G R WL L Y G I D T R G D E R Y D F R I R D L
 $K$ S E F Y T L G GLGGI APNNQLMAVAEDYGSRRQYGLRFCDLSN YKNNYRLTA FKVVSNNKLVAFRENCG D DE WVWA GA QVLYPEYRRALVRLSPDGSDAVVVREFDLAT DENWVWQGATVL RPSFRRCLVELSRGGADATVVREFDLER



 A HGFQ F VA GMK S P DAKK LL LVM ENDNE Q CRAVLDR D Q T


A A P WVYHG $\square Q A L A P D F Q R G L V H L S P D G G D A S S V R E F D L T T$
 QENWVWGGAAVLRPDQSLALI SLSRGGADAKVVREFDMAA AKEWVYGGMTCLIPPDGTRCMVYLSDGGKDASI AREFDLDT E GTNWTWGGATVVRPGY D R CVI S L A A R G G S D A VVVVRE F DVVA


 K A N WU WK G S N C L L P P A D R C L V S L S N G GK D A V ELLREA DAA A EDENWVWAGADVDEPGNLALI ALLSRGGADATVVREFDMET
 $P T G R T T L D A W E P D P T G T L V A L Q T S S N G V E R G G L R V V R V S D$ DTNWVWAGADVIEPDHSL ALI S LISRGGADAVVVREFDMRT E GREWVV G GS T C Y K D T P L C MV A L S D G G K D A NV L R E F N R K T E ENWVYKGADCFRPKGSKCM』SLSNGGKDA』VRREFDLAT

 E G $\square E W V F R G S R L R R D Y D R A L I A L S P D G G D A V A H R E F D L D S$
 AK K WVFSGASRLYPDFNLCLVAMSPDGGDASEMREFDDET D GRKWVWAGAVI EPDHTLALVSLSPGGSDASVVREFDMRT D GHYF A L L A G L L L G D D E H TVV V V G V V D T D G S E Q L L R L V V V R Q H D Y LVGGEIA S P DEA L L A WT LDDTR G DE R Y D L Y V Q S L P H

 E H H Y L E L G D L A DS P DE GW L A WT E D R R G DE Y F E L Y L R R L PE


 G E A T D WV F A G S L F L L R P E Y R R A L L L R L S P D G S D A A T L R E F D V E E
 QGTYYRTTGHQASPDHRYYAWAEDVIGNDRHRICMKDMTT E Q Y Y VHVGTCRDSPDHLYLAYT LDDTKGNEX
DGPHTTLDAWEPSPDGALVAVQTSSGGVERGSLRVLRADT NQNNYYINYFNPSWNNAKIVI SLSKDDQEDSELIVLDAKT DENWVWGGAAVLRPEQS LALI SLSRGGADAKVI REFDMT T S Q Y F KD E G G WA CPP S G R L L A Y Y A V D G S G Y E T Y TV R L K E L G S
 K E N WV WK GASTVYPNHELALVYLSRGGKDAVVVREFNMRT K D H Q K WV H GA IV SPNDNLS MI GLSAGGEDANTLREFDLKS
 GED WVWKGATCLAPGWRRALVQLSRGGADATVVREFDLDA G R D WV WK G A G C
 K K K WVW WK G A T I L L D P P E E R L L A L L


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UniRef90-V6S5.j9
UniRef90_V6S5J9
UniRef90 Q8KCV9 UniRef90_UPI00035DFC47 UniRef90_UPI000476B9F5 UniRef90-TVVKG6 UniRef90 C4RNK0 UniRef90-A0A024YVQ4 UniRef90_UPIO002B41112 UniRef90_UPI0003B5B3C8 UniRef90-Q83G37 UniRef90_D2Q627
UniRef90 S2KMW0 UniRef90-Q73SX2 UniRef90-W1H6D7 UniRef90-UPI0003D7756B UniRef90_UPI000376DBE3 UniRef90_C7MVA7 UniRef90-K4A3A5 UniRef90-A0A024F023
UniRef90-F6A332
UniRef90-X6D1G1
UniRef90_L8DEA0
UniRef90-M5BAT5
UniRef90-H3H2D9
UniRef90-G2IV81
UniRef90_V9EDY6
UniRef90-A0A058Z4Y3
UniRef90_UPIO0036B36C8
UniRef90-E9SZG7
UniRef90_UPI00046567EC
UniRef90-UPI0001DD0E5F
UniRef90-IOHOD4
UniRef90-N9WCR9
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UniRef90-Z5XGU7
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UniRef90-S2IWC9
UniRef90-UPIO004704C0E
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UniRef90-I0QTC4
UniRef90-D1BVV2
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 HRPSKVFHHVLGTPQSEDRLVYEEADAGFFMGVGGS LD DSWRPLAVWRHRVGTAVESDVCVYRETDERFWVGGVGD LTNSGYPRVVKRWTRGTPLESAVTVFAGSVEDVAVQ AMY LTHSGYPRMVKEWKRGTPLAAAKVVYEGKADDMYI AAGH LTDSGYPRTARRWERGQPLEEAKI I FAGQTKDVLVHWADR

## E LD S

QLYYHKMGES LTSSGYPRGLMKEWRAGAPLSEAVTVFEGK PDDVSVSAGH LTDSGYPRLAQRWKRGTPLSSAETVYEGQATDVVALSASH LTTSGYPRVIRRWQRGTPLASAEVVFEGEQNDVSAYASYD MSASGYPLQVRRWRRGTPLEDAELVYQGYRPGDLSASGWH T LLPPYQVWRHTVGTDDSADDELVVYEEKDETFYV S LIHK LD A WRPDKI WQHTLGSGVEHLVFH DSEYWLGFEV

L
L

TQRP
TSGYP
TTLP
$\qquad$
TT S GYPRTVRRWRRG
$\qquad$

## 



## N

 MDDIGYP    MTDSGYPRQVRLLWKRGTDL
    M
MTESGYP
$M T D S G Y P ~$
T L I $N$

 LTESQYPFVTKDWTRGSDLADAQEFYRGAPNDVSAGAYP L LTASGYPFIVKRWDRGTPAAEEVIRGEVDDVGVWPMTLEL
 $M S E A G Y P D T V R V W K R G E P S A K E D F R G N V K D N G Y G D A A D T M$
$M T Q S G Y P R I A K R W R R G T P L S A A E T V F E V A R P K D L G V F A Y H$
 A AMRPYRVLAHDLTADPGAPDAVLW DADERDEHFTTTVV T $\square F D \| Q R P Y Q V Y A H V I G T E Q$
LIF D\|Q
$R P C R \square Y C S M \square G S$
MTTSGYPR\|AK TWQRGTPLE TTTSGYPRTVRLWRRG

ATQRPSSVWRL
DTQRPATVWR RHR ${ }^{\text {D }}$ ALDA TQF
 MTESGYPFVVKTWRRGTPLEDAEEVIRGDQT DVGVWPFAII ATASGYSRTVRLWRRGQPVANAGVYEGKPTDLAVSAYAD MTESGYPRIAKRWRRGEPLLENAETVFAAEPTDVRVIGASV AMHRPSRVFRYRHNSGSLPDTLVFEEHNPSVYVDVV L QMDKEFRHYA R DGEEIVLATHDDQHVWPRLAYH




## LKND

 QTVLYKI GSNPKRLNVYFSKENNPEINMNSGD L K R HRPFE LE K VTEKTLNQEVFYHKVGTSQDEDQLVFK PROKDWRGTPLSNAKLI LEGQATPMSVFD N MTASGYPFVAKVWKRGTPLSQAKEVYRGTPADVAVDPGTGL

 ATPSGYARTVRRWQRGQSIAEAQVIFA $M T A S G Y P F E V K T D K R G E P G U A A K E V Y R G E E S D Q V G V Y P G V$
$L T$

UniRef90 UPIO0036987B4 UniRef90-UPIOOO35D1187 UniRef90-D6D9R9 UniRef90-UPIO0035F1ED6 UniRef90-G7UWC7 UniRef90_D6Z912
UniRef90 V6S5J9
UniRef90-V6S5J9
UniRef90 O8KCV9 UniRef90OUPIO0035DFC47 UniRef90-UPIo00476B9F5 UniRef90-T1VKG6 UniRef90 C4RNKO UniRef90-A0A024YVQ4 UniRef90_UPIOOO2B41112 UniRef90-UPI0003B5B3C8 UniRef90-Q83G37 UniRef90-D20627 UniRef90_S2KMW0 UniRef90-Q73SX2 UniRef90_W1H6D7
UniRef90_UP10003D7756B UniRef90_UPIO00376DBE3 UniRef90-C7MVA7 UniRef90-K4A3A5 UniRef90-AоАо24F023 UniRef90-F6A332 UniRef90-X6D1G1 UniRef90-L8DEA0 UniRef90-M5BAT5 UniRef90- ${ }^{-}$- 3 H2D9 UniRef90-G2IV81 UniRef90_V9EDY6 UniRef90-A0A058Z4Y3 UniRef90-UPIO0036B36C8 UniRef90-E9SZG7 UniRef90-UPIO0046567EC UniRef90-UP10001DD0E5F UniRef90 10 OHOD 4
UniRef90
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UniRef90-A0QQW4 UniRef90-Z5XGU7 UniRef90-K4B612 UniRef90-B6IX27 UniRef90-UPIOOO36490D0 UniRef90 UPIIOOOO3755DF5 UniRef90_UPIOOO2881B57 UniRef90-J7LBM4 UniRef90_V5X887 UniRef90-UPIO003B3FE76 UniRef90-A0A059E2R6 UniRef90-UPIO004796EFC UniRef90-UPIO0047D6B08 UniRef90-W0HZT2 UniRef90-UPI00031C029E UniRef90-R1G2M8 UniRef90-A3WAN7 UniRef90-×5XNR9 UniRef90_U5WVA2 UniRef90-C7M3A9 UniRef90-S21WC9 UniRef90 UPIOOO4704C0E UniRef90_M5VUE2
UniRef90 $100 \mathrm{TCC4}$ UniRef90-10QTC4
UniRef90-D1BVV2 UniRef90_UPIO00380BC25 UniRef90_UPIO00365637A UniRef90-UPIO003B350B4 UniRef90_14W395 UniRef90-J310HO UniRef90-UP100035C3A1A UniRef90_A0A024USK UniRef90-MONON5 UniRef90-N1UZX9 UniRef90-TOIEQ5 UniRef90-UPIOOO46DBF36 UniRef90_UPIO00475660F UniRef90-A9EDQ4 UniRef90_UPI00035E8FF1 UniRef90-R1DVM7 UniRef90-UPIO004701DC1 UniRef90-W5WZ84 UniRet90-W5X5R6 UniRef90-UPIO004793CA2 UniRef90-E8TGN7 UniRef90-B1Y8D6 UniRef90-U2ZDN3 UniRef90-UPIOOO35FCC00 UniRef90-M4Z172 UniRef90_OIYW5
UniRef90_Z9JVP7

 PTPGWERDTVRRATDFYRSEV
TKDFKYMTVFVMESDNVREGLWPDR


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UniRef90_C7M3A9
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UniRef90_Z9JVP7

S DIIT 290
Q
300
 D DIE Y DVSFA C F E G
A H T SVHRQWLLVFTRSPWELNENQAYPTGTLLVFDHDAY L SARKSVHRQWL GLELREPWTVGGRTYQAGSFLVTRFDAFM D A DS SVVHEDWIFI R PRSPWAYGGTTHPEGSLLVVDYEQFM

 D A D V

 $\square \mathrm{G} \square \mathrm{WQ}$ N D V L Y T P
 EADVE Y DVVS FACFE G

REPGVEYAlEHRPGYFYVLHNREAPHFRLDST DASVSLHRRWLLVELRS DWTLGTRTYAAGSLLAADYEEFE RRKDHEYSLDDHYQHAFY LRRSNREGKN FGGY RTVLRD $L G \square$
$D A T$ M F D A VA Y A H R Q WLIV DPR S P WL


K R HREWLLVRTRSPWTVGGR
 DASTSVHENWLLVRTMTPWTIGDTTHPAGALLAAEFDEFM $D V D V D L H R E W L V L R P R T D T E I G G V V H A A G S L L A A R L D D F L$ E TEA P EAGTLYFADHAAGQFYIVTNDGALNYKIATSKWQS L R K REA GTLYFADHAA GQFFIVVTND GALDNYKIATCDQAA
 D A R $\square$ S A Y R E WLLVVRPRS P WTVVGDTTYP AGASLLVATDFRAAM
 P Y G I ID GQ I LF S TDVD WETQ GQTFPADS LVSADLE EWKA D D A D F DVVHE WMLI R L R T P WREF
 D S TLLS L H Q E WML I A L R T E WQVVGEVT Y PA GS L LAATTM DE Y L


 GAEVSFFKNHILLTTLRK D WVTPNQTYKAGSLLASEELTA Y L V G $V$ GH $A$ AETEVRRGP G EAETEVRRGPDGLLYLRTTLGAARRRVCAARPDA $V R F D A P T D A S L S V H R D W L L I D E L A T D W D N Y R A G S L A A A A D Y D$
 S SPEGIHEGRLLVSLKQDWTPAGQETTFKSGDLVAFDVET GPDDRIVVD D D L K GEELYFRTHKDAPLYKVMK LDLR Q



 P FAPPREE GRLGYQLDHGPDGFYGIESRRDDAEFRRLFRTACD

 $P$ Q DARFST WRQWWLL LSSLS S E WTVVGE ETY S S GSSL LVTTEFDM SAE V

S $\square T$ D $\square$ HE GQLLVVALQE DWAPESSGGAFTS GQSFDDDQY LET DAEADAHQAWLLVRTRSPWTVNGTTYPAGALLATTQFDRFM G I WMQA D G D WF AMKLRRKDWSVEGRTYVTDTVLGLSLLSAF L

 S L Q G

$R$ VS GVQF F L E H H H G L F Y V LT NWS GEGYY L A S CR LQ D

 LLMK F PDDDDN VGACN GKF IAAKTWHNS QNGUVVE DDPK N $\square T G F F Q N K \| F I E L R Q D L G K F K A G S V V F M P V S E I S K G I E A$ SQ Q E G L LD NRLIVVTLN ED WK QA GLLK Q G SVVASLDLDAARR D
 $P$ Q D A E LDDLHDDWVA LLK LR SA WRVGA DLHPS GALLV A K LD A
 D AVVS LHREWL LVVHPRSDWGEYP T G


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UniRef90-S2KMW0 UniRef90_Q73SX2 UniRef90_W1H6D7 UniRef90_UPI0003D7756B UniRef90_UPI000376DBE3 UniRef90 C7MVA7 UniRef90_K4A3A5 UniRef90_A0A024F023 UniRef90_F6A332 UniRef90_X6D1G1 UniRef90_L8DEA0 UniRef90_M5BAT5 UniRef90-H3H2D9 UniRef90_G2IV81 UniRef90_V9EDY6 UniRef90_A0A058Z4Y3 UniRef90_UPI00036B36C8 UniRef90_E9SZG7 UniRef90_UPI00046567EC UniRef90_UPI0001DD0E5F UniRef90-IOH0D4 UniRef90-N9WCR9 UniRef90_A0QQW4 UniRef90_Z5XGU7 UniRef90_K4B612 UniRef90_B6IX27 UniRef90_UPIO0036490D0 UniRef90_UPI0003755DF5 UniRef90_UPI0002881B57 UniRef90_J7LBM4 UniRef90_V5X887 UniRef90_UPI0003B3FE76 UniRef90 A0A059E2R6 UniRef90_UPI0004796EFC UniRef90_UPI00047D6B08 UniRef90_WOHZT2 UniRef90_UPI00031C029E UniRef90_R1G2M8
UniRef90-A3WAN7 UniRef90_X5XNR9 UniRef90_U5WVA2 UniRef90_C7M3A9
UniRef90- S2IWC9 UniRef90_UPI0004704C0E UniRef90-M5VUE2 UniRef90_IOQTC4 UniRef90_UPIO00380BC25 UniRef90_UPI000365637A UniRef90_UPI0003B350B4 UniRef90_I4W395 UniRef90-J3IOH0 UniRef90_UPI00035C3A1A UniRef90_A0A024USK UniRef90_M0N9N5 UniRef90_N1UZX9 UniRef90-Q0C0A0 UniRef90_UPI00046DBF36 UniRef90_UPI000475660F UniRef90_A9EDQ4 UniRef90_UPI00035E8FF1 UniRef90-R1DVM7 UniRef90_UPI0004701DC1 UniRef90_W5WZ84 UniRef90_W5X5R6 UniRef90_UPI0004793CA2 UniRef90_E8TGN7 UniRef90_B1Y8D6 UniRef90-U2ZDN3 UniRef90_UPIO0035FCC00 UniRef90_M4Z172 UniRef90_TOIYW5
UniRef90_Z9JVP7
 PGKENWREVVPHKPGTLI DSHMAY ARHLL WLERKDGLPQ


SFTSDHLVLVTLRDVQTE TFTADHIVLNVMHDVKNR
 LT NE G L F YT DS T N GVVRE E AD R P EL L VARTRLGV S S L TWTRD H L L L V V L A WT RHHLI LATLADVRSR SWTRNHLVLGTRLDVVS G
 $P L \quad Q C V P I I P H N L E R N I T D I E A \quad F E D Y L T V S Y R Q D G L P K$
$T T L D D W Q P L I A H R R E Q T L E G V D A F D W G L V I T E R D H D A Q V H$ SGARDFRVVFEPDEHTALNHYAW TEDRLLMVTLVDVASR E E Q WT TLI PPASR
T F E ERET $T T V L D P H R E R V R V E E V R D F A D H D A V Y E L E E G L P K$ AGDREGQVLFAPDERTALAGHAWTR HHLVLETLRDVSTR AGDRSMTVLEEPDAHTSSGDYYAWTRNHLLLGTLVDVTTH
 R SMESMPFNI GEGDCVVQGSPYGCKNGDLL



 GTVVDK S K DVV P E N P T D P L E S Y T CVVD G N K L I L G Y L H NVVS S A
 DGARDFEVVFTPDAHTALHGYGWTENHLLLITTLEDVQTR PNGAKKTLVWKPADRQTKRGASSTKSS LYVSILDNVRGQ

 SGTAELAVVFKPDEHSSLHQY SWTLDRLLLVSLVDVASR $\square$ @ A T TVLLPHRPRH
GAAPKTAELI LDAPTDTVA DQSVA $\square A K D A V Y A A L L D D V K G R$ PAKAKPTLLFQPGARQALESVAATRGQVLVSLYGDVKGA A GNRDLSVVFEPDDHSSMQNFAWTR DRLLLQTLVDVDGH DGKRDLSVLFFPSKRTS LDDFSS TKNCLLIVNVLDNVRNR $\square S \square S D \square D V V I D H N S N D F I N D$ PGPEHWREIVPEDAGATLDAFTPDGGTALFVARTRLGDSE




 $P N G A A K T L V W A P A E R Q T K R G G A L T A G G A L V V G M L D N V V G K$


## 1


 A GSRDLAVVLEEPTPTTSLAGATVTRHHLVLVVLDDVVNR

$$
F D H W Q Q Q L
$$

A GKREFTVLFKPDAHTSSLDSYA WTR HHLL L NL M D DVK SR

 ATPQ ETLVAHPR GS Q LIEVVFPFEK ALVVRLERQD GLLH Q LLSSSNWQNI FLDPSKDFSSI QDMD MF DGHLVLDSLDSKK GSSM
 S GARDFDVVFTPDEHTSLHGYGW TENYLVLDTDEDVQTR
 RKS L K L L F A P T D K K Y F Q WMDT T K N Y I V L NVID N I L S K PAHLKKPTLI FAPTQKEFAQQVGLTR HRLILATMANVQGR
 A GRAD WQRVV T P GERRSLD HWAWTRSQ LLLDNVLDQVSNR

 A G S R D F V V R L F E P G P R R A L L G G L


UniRef90_UPIooo36987B4 UniRef90_UPIO0035D1187 UniRef90_D6D9R9 UniRef90_UPI00035F1ED6 UniRef90_G7UWC7 UniRef90_D6Z912 UniRef90_V6S5J9 UniRef90 Q8KCV9 UniRef90-UPI00035DFC47 UniRef90_UPI000476B9F5 UniRef90_T1VKG6 UniRef90_C4RNK0 UniRef90_A0A024YVQ4 UniRef90-UPI0002B41112 UniRef90_UPI0003B5B3C8 UniRef90_Q83G37 UniRef90_D2Q627 UniRef90_S2KMW0 UniRef90_Q73SX2 UniRef90_W1H6D7 UniRef90-UPI0003D7756B UniRef90_UPI000376DBE3 UniRef90 C7MVA7 UniRef90-K4A3A5 UniRef90_A0A024F023 UniRef90_F6A332 UniRef90_X6D1G1 UniRef90-L8DEAO UniRef90_M5BAT5 UniRef90_H3H2D9 UniRef90_G2IV81 UniRef90_V9EDY6 UniRef90_A0A058Z4Y3 UniRef90_UPI00036B36C8 UniRef90_E9SZG7 UniRef90_UPI00046567EC UniRef90 UPI0001DD0E5F UniRef90_IOHOD4 UniRef90-N9WCR9 UniRef90_A0QQW4 UniRef90_Z5XGU7 UniRef90-K4B612 UniRef90 Q1CXE5 UniRef90_UPIO0036490D0 UniRef90-UPIOOO3755DF5 UniRef90_UPI0002881B57 UniRef90_J7LBM4 UniRef90_V5X887 UniRef90_UPI0003B3FE76 UniRef90 A0A059E2R6 UniRef90_UPIO004796EFC UniRef90_UPI00047D6B08 UniRef90 ${ }^{-}$WOHZT2 UniRef90_UPI00031C029E UniRef90-R1G2M8
UniRef90-A3WAN7 UniRef90-X5XNR9 UniRef90_U5WVA2 UniRef90_C7M3A9
UniRef90-S2IWC9 UniRef90_S2IWC9 UniRef90_UPI0004704C0E UniRef90-M5VUE2
UniRef90 IOQTC4 UniRef90_D1BVV2 UniRef90_UPI000380BC25 UniRef90_UPIO00365637A UniRef90_UPI0003B350B4 UniRef90_14W395 UniRef90_J3IOH0 UniRef90_UPIO0035C3A1A UniRef90_A0A024USK1 UniRef90_M0N9N5 UniRef90-N1UZX9 UniRef90-TOIEQ5 UniRef90_Q0C0A0 UniRef90-UPI00046DBF36 UniRef90_UPIO00475660F UniRef90_A9EDQ4 UniRef90_UPI00035E8FF1 UniRef90_R1DVM7 UniRef90_UPI0004701DC1 UniRef90_W5WZ84 UniRef90_W5X5R6 UniRef90_UPIO004793CA2 UniRef90_E8TGN7 UniRef90_B1Y8D6 UniRef90-U2ZDN3 UniRef90_UPI00035FCC00 UniRef90_M4Z172 UniRef90_T0IYW5
UniRef90_Z9JVP7
 1 MIRDRLS GEEHAUAFDEEAYSLGLS GEYDTDVIRFSYSS


LRVIE DDSDER LPDPEAPCS LMLGDTPHFDARRLRLREES VEIVRPGDWRREPVAGDPAATTVVVSADDTGDEFFLDSSG
 LRVITPSTEGWSDEPMAEPGTVVDLTDPDDSDEFF


$L T A L T P D G W V R K D V A L P E A G S V R D V S T D S F S T D V L V N F A S$




A AVHD A S T G R R L Y R V E LP G E G MVST PVEAP D G TVVH L G Y A D
 MRAAAS DAGWMLEISLDPGTGQASVAFASDEEDTVFDNYED GLREYAA GDVVGRAIALDP TGAADLHDDPAH GDWLYT LA G
 LRALRLDDFSEVVPAPAAPANHVIGDGAVDADDDVWLTISSG
 $V V V A E R S G D R W K P V A L P E N G N V G I A H A E H F G S S V S F S T T D$








, A A V H D A R S G A L L Y V E L P G E G MV S T P E A A P D G S V V L GY A D


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UniRef90 V6S5.J9 UniRef90-Q8KCV9 UniRef90-UPIO0035DFC47 UniRef90_UPIO00476B9F5 UniRef90_T1VKG6 UniRef90_C4RNK0
UniRef90_A0A024YVQ4 UniRef90_UPIO002B41112 UniRef90_UPI0003B5B3C8 UniRef90- Q83G37
UniRef90-D2Q627
UniRef90_S2KMW0
UniRef90_Q73SX2
UniRef90-W1H6D7
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UniRef90_C7MVA7
UniRef90-K4A3A5
UniRef90-A0A024F023
UniRef90 F6A332
UniRef90-X6D1G1
UniRef90-L8DEAO
UniRef90_M5BAT5
UniRef90-H3H2D9
UniRef90-G2IV81
UniRef90_V9EDY6 UniRef90_A0A058Z4Y3
UniRef90-UPI00036B36C8
UniRef90-E9SZG7
UniRef90_UPI00046567EC
UniRef90 UPI0001DD0E5F UniRef90-IOHOD4
UniRef90-N9WCRs
UniRef90 ${ }^{-}$A0QQW4
UniRef90-Z5XGU7
UniRef90-K4B612
UniRef90_B61X27
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UniRef90_UPIO003755DF5
UniRef90_UPI0002881B57
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UniRef90-R1G2M8
UniRef90-A3WAN7
UniRef90 X5XNR9
UniRef90-U5WVA2
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UniRef90 S2IWC9
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Y L N P S S LIWLAA A ATGAVD QVVK
MTTPSQLYDYNMVTRERTLLKTQEVP
F T T P P S L L H
Y
FTAPSS LLAGSPETG $\quad \square H V V K Q S P$
RTIPNQNYT 1 N $\operatorname{LLLTGE}$
WNHDYRRYRYDAK
VATPQGVLLLDPGSARPRPW
YTEPATLRYGHLGGARVEILKQAP YTSPATLLHGVI GETEPTALKQAP FRQPATL
F LUQPSTLYR
$M T T P D T L F E L D M D T G Q R Q \quad V I K Q A E V R G F$ FLTPTSLHYAVLGKPGSEQLK
FKLDPKATYMYEVKSKRFTK

MRMPFSAYDYDMNTG $\square$ SVLKK KET $\| L G G F$
Y L QP S T LVRGE 1 HAGGETVK
YLTPPTLSRGEVGGELETLK

FLTPSSIIWSD DDGATLETVKSQP
YLTPATLL
FLTPPTLLHGVV GQGAPRPVKEQP

PLVPEGVYDYDMKN RKDHVLKETEGLING
F LQPTSLYYGVLGDEQTSSE! $\square K Q A P$
YLTPA TLE
F TTPATL L L A S VGGRTETLR
FLSPGTYYY AENGVDLEVVKESP
FLQPASL
$M L D P P T L Y A V \quad T D S A A P R V V Q S L P$
F $\square$ T P S R L
F LQPDTLY
FLAPTSLWLADAKAGTVKKVK
F DSPSRL
$F L T P A S L Y \square G S \square H T G D Q \quad R \square I K S Q P \quad G F$
VASQQRV $\square$ S L PP GERTP


WTTSARTFRLSVDTGLRPPVKLPDAP
FLNPPSLMLGDGADGSLKKAKEQKP
FLQPTSLHLGNLDGDGVERLK
FTTPTTLARGELGSTAEPQVVRTSP
LSAPPRHHRLSLLRTGAHE LLPPPAVTGF
FLLNPTTLYYTDGSTDPMPLK
FLTPSSI I WS D DDGVTLATVKSQP
FDRPSRLLR
LVEPATVWSYMPTTETTTQRWRQRV
PFTHESTYEYDMSTRKGHPDRVQTI
FVTPPRCVAYDDDSGERT LLKQQPLYG
$P V M P D A V V D Y D S N G E W N V V Q Q N I L$
$F L Q P T S L Y Y G V L G E Q D G K A E I I K Q A P$
YLTPSTLSLATIGSPDAGLDPLKAAP
FTLPVRWVEHDLNSDTR KVLKRMPDHG
FTTPPRWVEDDLDSGARQ VVARQQPVHG
$M L T P D T L Y A V D L T T B E P S V A A Q D$

FTRPSRLLH GTAGGADHKLKSAP
PLVPEIVVQYNLHTRHLE VVLKE
IERPA SVVHADLETE TTRTVREP
FLTPSTLSR
FLAPTTLWAMNAADPAPAQVK
$P R L P V Q W M D V D L E T G A D S L$
$P V M P D V V V D Y D M S S R R F$ SVVQQEEV
VATQQRVL R LSPGERLPVPW
WTTNEVRYKYNSEENTFT
FTTPGTLLASSVGGDTTPLK
$M T Q Q R E Y D V G A G Y S H A T$
FTLPRVLFSLNLYNYENKP VKEQPVP
FLTPTSIYI GDFSKKDNALKLEKQSPL
F i TPSTLLLGDASRASLVVAKTRRPQ
FLTPATLLLAQAGTDGSELLKQR
PI TPSKLLLLDLLNDAPPAPVVLKRSP


$P L T P P S L W R Q L I E G F G A P T \| L K Q A P$


TEPPTPSGAASAPVPEPALLAPEP A A D
 YPPAEARPEAV AFGDRYV

VS F T F H D E T WE D P WH WLDE

GDALD
 D P Y A WL E DVDSEAAL D P Y L W L E E I E G E N A L PVAKKVEFEATAHGASWQDPYHWMS DVRDPD FI $P$ TLLP R K D T E F R L H GEEWT D P Y E WVR G

D TLLS GS PVA D P WH W L E A RET P D DV S
QSFTFHDATWEDPYSWMSKLEDKVAM T P A E D P L L W W E D R T S K P A L

PDSR $\square$
ADPRAYLL
VS F S L H GES WED EYN WMS QLL N DKVA M
TCHDPFAALENLHDPATR
 $P P I A P K R Y R \ R D T H G Q H F D D P W D W L R D A D D P E V I$ ASPTPPIAPKRYRVRDQFGQHFDDPWDWLRDGENPEVR D P Y L W L E A V D GP D AL
MSTFTLPPVAERRYR $\quad$ TRD $\square H G D H F D D G W D W L V D E S N A D V V$
PDPRAFLDE DIDGA DAM
MHDPAPPSTPQRPVTVDVHGTEVVDEYRWLEDGADPRVL


HS DDETDSFAWL QDVAHQQUR
VEVID TLH GMEVA DPFRWLLEDRTIDPETE


DLA GA D A P D P Y L WL
E D P Y L W W E E DVV E G D R A L
EDPYYYVRDDNGTRAL
HDEN L WL E EDT GDAPL
P P $\square$ A P K RYR VR D $\quad$ HG Q HFDDP WD WL R DADDPEVI
P DAKK $\square P Y$ Y M S L H GE T R VD N Y Y W W L

| $D$ | $Y$ | $T$ | $F$ | $L$ | $E$ | $D$ | $D$ | $T$ | $P$ | $E$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $D$ | $A$ |  |  |  |  |  |  |  |  |  |




| $H D P Y E W M E N L$ |
| :---: |
| $D P F$ |
| $L$ |

$F$ LWLDEVEGERA L
D P Y I WMENL E D ERVL

MGPPPAYPKN LTPAGVAAADDHLALEQVDGAEAM

A S E P E P AVVD L L H GRPDVP D P Y R WL E S A D S P E T L


E DPY I WME NLTM
DPYLWHEDIE GERAL
ID SKT GETPED LIF L WLEEEL D SERA M TMNDPYLHLEELNDAN M S T T DQHS G PP D H D E F L WL E D I Y G E S P L TSPPHFPRD LTPAGVAAADDHLALEQVDGAEAM VEDP Y I WME NL QDNR VR H D P H R WL E EI E S A EAL E D P Y L WME NL N D E R V L T D QF L Y L E EIN S K K SL


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UniRef90 J0VXU2 UniRef90_A0Z6G5 UniRef90_K6ZNX1 UniRef90_LOLTA8 UniRef90_A0A022RZC9 UniRef90_UPI0004224329 UniRef90_I6WS55 UniRef90-F7R9L8 UniRef90_UPI00040FA674 UniRef90_U1QYX9 UniRef90_E8M1C3 UniRef90_B1M8Q1 UniRef90-X8D2K8
UniRef90 K0Z6I2 UniRef90_V4Q850 UniRef90_S5SZZ9 UniRef90_T1DBF7 UniRef90-V8QUH3 UniRef90_G4M2G6 UniRef90_UPI000472DE6E UniRef90_H2G5C8 UniRef90_UPI0003B43AFF UniRef90_UPI0003829D0D UniRef90_E8YIX3 UniRef90_S3J8Z8 UniRef90_M2TPD1 UniRef90-W4FB39 UniRef90_UPI0003825D29 UniRef90_U1S769 UniRef90_H3RFN9 UniRef90_A4QAZ0 UniRef90_UPI00036EF527 UniRef90_UPI00028843E4 UniRef90_UPI00036364DD UniRef90_B2T5Q5 UniRef90_UPI0004728DB1 UniRef90_I3REV9 UniRef90_L0J903
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R Y M E Q E E K Y T E A V V M D S E R L
 S WVK E Q N A R T D D ML LIS A E Y EA L E R S V L EVVL D S T D R I P M V T D WV R E R N A R T DE L L L T E D Y L A L E G SV L E A L N S K D R I A F V S

 D F V E R Q N S L T T L Q A F G G K I F F E R D R DL L A A A I Y D R P D N DP Y V A WQRA Q D DLA RA H L A S L P R R Y Q E F LDA A V ESSMGA S E D F ML P A




A WVE ERNAETVAELT A DPGFAADRREVREVLDDTARDPYV RYI DEENSYTHAFMRTEKMQKILYSEMVSRLPAEVTTAPE EAL R L E E E Y A S R H L ERYE DAARRLAEAVKDDEFGDPQ AFLESSANQQQEKWFAPPLAEADYKGHLARRELSSVTS LETP DWVRERNSRAEADPDGAPLAETVQGQUREDLDDAKDRIPGV
 S WV EK QNKRTTERFATGERFQQMRGA ILQSLDDKTNI P WN D WV R K Q N A R T SVVRLQGDARYESLMAAA QTLYESDDRI PY G
 RYME QEEKYTEAVMDTDR LQQSK LQQSEI AS RLAA EDATPP L




 NWVREHNADT TSEFS G ARFEEMRDEALA I L NTDAQI P Y V V
 A WAENWSDATEAAHP RWSRAQDRRAADWLGKSP LHR T HLLATEMKYAED ILLSPAPLVA QYQSLMMHARAMHEAVSSDA A WV D A Q NRRTEAAFGETPDARALAARLEAAYTSKDRIVAC



 T Q V R E WN D E T A A K L T A T P S F E D Y K Q R A F E I L D H L K A ENAYTKA AL S H DS LQQDELY KEVLDSHVQETD QNVP Y

 D YLRAENNYGQKIMSQEPLQNRILHEIIDRLPPQDHSVPY






 $N W V R E H N A A S R K L L E A E P G F A Q T R Q S L Q A \square L D S K E R \square P A V$
 D WAR A RNEVVGRRFAATDRFADLLERR LAAMLDDDK DAYPG D WVRA A S DPTVEEFAGDAF, EAMRAAAREVLDTAARIPYV AFVAEENRKSLAALTGDPRYETHRAEAQAILTATDRIPS P
 R WLLE E R D R E Y A A E A L T WP L R D R L A GL I R S L V D T D L WS P PV $R W V T A D Q E G F T R Q Y$ LDD Q NA EN Q S L E D E I R N N EK FAAKA S A P S

 K FVNE ENTRFREF $\square$ GELPDR

 A WAS G L S D AT $\square$ A R F GG P E F S Q R Q Q E L DT I L S A K D K L I VA A
 EII I ERENKK K REFI G D WV HR R NAA A EAEL A DEEFE P L L R D DLLR E I L L D A A K F I E E E N KRRFREFA A E D L P P E K L D WV QKENTLTTSEKLTQNQFFKETYVGLEKVLDVEA Q


## A WARAQSEATVAGVDDTSDRTNLEQRTLAALNTDARTAYP


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UniRef90-D8RZ79 UniRef90_D8RZZ9 UniRef90_G6XIH8
UniRef90_F0EZH2


TRRGHLYNFWRDATHVRGVWRRYRRAEPRWDTVVDVDALA $R W G P W L Y Y Q Y$ IP E GKEYPVLYRESALEGRGQVLLDWNEIA
 LD HYTFWSETGSEDDYPRWWRYLNGHPEQRECFFDVQARA $V$ K R GEHLY NVWT D A E HERGLLWRYRTDEPEWE LLLDVDALN RWGP WLYYR RVE E GK QYPVLCRYTS GKRDEQKLLD YNQEA
 H YRNEVVYNWQDDEHPRGIWRRTTTTAAPEWETVLDVDR LN SYYGGFVWNFWQDSTFTHGLWRRTTMTPEWEVIIDLDALA
 GFAHWQDGTHVQGLWRRTSWEAYRS GSPQWRVI LDDVEALS RWGP WL Y Y R RVVE GK QYTVLCRFTS GKK DE QKLLD YNQEA QEHRAKMYHFHQSAEHPKGVYRVCSSASYRAGIPDWQVLF VR RGDQLYNFWT DAE HPRGLWWRTSMDSYRTEEPD WEVLI $\square K N G Y R Y R H D Y E P G C E Y A D Y Q R Q S A E W D E W E T L L D A N K R A$ RHADHWYFSRTHEDSDYATHHRVPASSPGEQLLIDENREA REGEFWYFRRFAEGQSYATHHRAPVERDEEELLVDENEWA
 RRRGEYLYNFWRGLWRRTTLDRYRRHDPEWDVVI DVVALE LD G DYWYFRK WHK GDSYATHHRVVA DRPGETLI L DENA L A A HGGGVQNFWQDGEHTHGDWRQYKTATMKWDTILDDDALS TRRGEHLYNFWRDGEHPRGLWRRTTEEPEWEVLVDVDKLE $\square$ WSPRVFLLRSDPRHPRPCLWAYPADARRGELLLDPSRLG DSHGWHYGHRVPEGATRRVFYR ISPEGQEQQLFNEAARAA SRYGEWAYNTWQDDAHP LGIVR RTPWDAWWETILDVDALD ARDGREFLQTRDVGE RVLRMRKAGSEEAS LLLNI EARAA T R R GE Y L Y N F WRD R D H P R GVVWRRTT LE P Q WQVLI DVD R L E
 K D GNY L Y GYKYNKNSEYP IYYRKNTTNNSEEIILDCEKKS R WKE WAYD LWWQD GLWRRRTPWAAWRAGNPDWQNLID FDALG HYREMVYNFRQDDEHPRGDWRRYRTPNPEWETVLDDDDR L N QILGGQVTNFRSTAENPQGLWRVAADDPMWRTLIDDLDKLS AVQNDRVVNFWQDASHVRGLWRVASLDGFWRTLIDDLDALA
 KHGPHYYNFWRDAEHPRGVFRRWLGGDTEWEVLLDVDALV RRGDHWYFSRTHEGSDYATHHRVPADAPGEQLLI DENREA VKNGYRYQSRYESGNEYAAYYRQPAETDEWTLLLDANQRA

 SKVGEHYYNFWQDAGHQRGLWRRTTGDPE WEIVLDLDALA R WK DWA Y D L WQDERNPKG GWRRWRGGKPEWQNLLDEDAL G SRHGDWGYNTWT DAQHPTPWQAWLDGEPRWQSVLDVDALA $\square Y$ Q A R DT E R G I I VA L R E K D R Q V I K W $~ D N G D V I V D S K E L E K E$ SRCGEYLYNFWQDADHPRGVWRRDSPKWDVVIDVDA LAAA G GS A ELVLDDPNALDP
VR R GDWLYNFWRDEKNT R G L WWRRTT LESFQQLDLDT LA H D
 RRRGEYLYNFWRDAANPRGLWRRDSPEWDVVI DLDELARA S F LGDGIGNFWQDATNPKGVWRRTTGDPQWETLLDDDALS
 FKHD R WY WTHNT GLQ GHA II YRSKDEGPGGEVVFDP NLLS PAGD LLS GTPQGLGRPVYRLESGTGS EVVLDENARA Q G R H WWLYSVVHRAGMQYRRYCRRR DDDPQEVVLLDQDELA


 KRGDYAYNFYVDGEHPRGLWRRTPETEPEWDVLVDVDALG

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 $M 1 D D A N E A A$

130
140
160
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UniRef90-A0Z6G5 UniRef90_K6ZNX1 UniRef90_LOLTA8 UniRef90_A0A022RZC9 UniRef90-UPI0004224329 UniRef90_I6WS55 UniRef90_F7R9L8 UniRef90_UPI00040FA674 UniRef90_U1QYX9 UniRef90_E8M1C3 UniRef90_B1M8Q1 UniRef90 K0Z6I2 UniRef90_K0Z6I2
UniRef90_V4Q850 UniRef90_S5SZZ9 UniRef90_T1DBF7 UniRef90_V8QUH3 UniRef90_G4M2G6 UniRef90_UPI000472DE6E UniRef90_H2G5C8 UniRef90_UPI0003B43AFF UniRef90_UPI0003829D0D UniRef90_E8YIX3 UniRef90_S3J8Z8 UniRef90_M2TPD1 UniRef90 Q094I0 UniRef90_W4FB39 UniRef90_UPI0003825D29 UniRef90_U1S769 UniRef90_H3RFN9 UniRef90_A4QAZ0 UniRef90_UPI00036EF527 UniRef90_UPI00028843E4 UniRef90_UPI00036364DD UniRef90_B2T5Q5 UniRef90_UPI0004728DB1 UniRef90_I3REV9 UniRef90_L0J903
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150
E G GYAYEELSEVSPNHQFLAYTMYDKDNDYFKDSVRNLINS K K T WVVFA G G D S L P P A N N L RLI S LIS D G GK D A NVVREFDIA K K S N WV WH G A A C L A P E D RLLCLV V L S N G G K D A A V V R E F D A V A E DVE WV F A GAS L R P EFTRALI SLSPDGGDAKAVREFDVDS EDTEWVWAGASVGDEYRLAMVALSPDGGDAVAYREFDLAA N A N WVWK GAE C L A P DE R L C L V S L S D G GK DAVVMRE F DRE T


 H H D F M E V A D M A lia P D E S WL A W W E D T N G D E N F D L L



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 D R N WVWRGAD CLLTPKYDRCLITTLSKGGSDAAVRREFSLSD NKNWVYK GSTCYD K N Y D MCMMS L S D G GK DA K E L K K WN HA T $K L E D K T W S E N C D P P V D N L C L L S L D D G G K D A D V V R E F D I A R$ E GGYAYE E L S EVVSPD HRYLA YTMYDK DNDYF KL SVVRDL N F ANDDVY LDDGVSHYVERERVLLSLSAGGGDAAYTLEFDLAS
 AHEFFRLAD LVVPSPDGRLDASARDTRGDERYTWVVQDAAT
 A ED WVWA GAA ILLK G DLLDRALV RLS RGGKDAAVI REFDLDT DENWVWAGAAVLRPDFQRALVSLSRGGSDAVVVREFDLET

 GRSGLS $\quad$ DDLVSPSPD GSRVALCLSRGGSEQGPLRVLDLHS


 K THTYFVASISHSHDHRHVAYNIDTNGSEYFSIF IEDI QK E A E GTP WVCVVELDPD G D R A L I T L S P G G S D A LVVVREF D I DA
 K K N WV WK GA L CL R P A Y DRCLI A L S D G GKDA HL WREFDTVS E GHQCSVRRVEVVSPDHKLLAYSVDFTGYETYDIYDKDLAT E GVDWVWGGAR L L R P HR RALLDSLSPDGGDAKRVREF DLDE SHSDFYMGAL HIDSPDNQVMALAEDFLSRRQYGIRFRNLEN
 E GVD WV WG G ATVID T H D R A L L





 D DENWVWGGGANVEPHHTRALI SLSRGGSDAVVVREFDMAT

 EDRPYYRTTGHQRGGSRWFVWAED VGGADEFRIVARDLD S A GHSFFMAGPSFSPDEHLVAYGVDTAGSEVYTLFVRNLTS

 D GED WI WG GA S DE P ERRRERAF L R S R G G S DA V V HR E F D L K S

 $K K D W V F K G A D C L A P D E T R C L I N L D D G G K D A V V V R E F D L T T$


E

## L



## UniRef90_UPI00032AC7B9

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UniRef90_J9VY98 UniRef90_UPIO0046AB004 UniRef90-BOSVNO UniRef90_UPIOO0225ECFB UniRef90-F617D3 UniRef90-A0A024PSA4 UniRef90_A0A024GSG9 UniRef90_UPI0002E9AB26 UniRef90_UP100030B10EC UniRef90_A0A056LGV3 UniRef90-S3B9X3 UniRef90-S8CCT3 UniRef90_U1R606 UniRef90_UPI00035CD930 UniRef90_UPI00026C6B81 UniRef90-Q9FGD4 UniRef90_W8IC38
UniRef90-J0VXU2 UniRef90_JOVXU2
UniRef90_A0Z6G5 UniRef90_K6ZNX1 UniRef90-LOLTA8 UniRef90-A0A022RZC9 UniRef90_UPIO004224329 UniRef90-I6WS55 UniRef90_F7R9L8 UniRef90-UPI00040FA674 UniRef90-U1QYX9 UniRef90-E8M1C3 UniRef90-B1M8Q1
UniRef90_X8D2K8 UniRef90-K0Z612 UniRef90-V4Q850 UniRef90-S5SZZ9 UniRef90-T1DBF7
UniRef90-V8QUH3 UniRef90-G4M2G6 UniRef90-UPI000472DE6E UniRef90-H2G5C8 UniRef90_UPI0003B43AFF UniRef90_UPI0003829D0D UniRef90-E8YIX3 UniRef90-S3J8Z8 UniRef90-M2TPD1 UniRef90-Q094IO UniRef90-W4FB39 UniRef90_UPIO003825D29 UniRef90_U1S769 UniRef90-H3RFN9 UniRef90-A4QAZ0 UniRef90_UPI00036EF527 UniRef90-UPIO0028843E4 UniRef90_UPIO0036364DD UniRef90-B2T5Q5 UniRef90_UPI0004728DB1 UniRef90_I3REV9 UniRef90_LOJ903
UniRef90 X5VYK3 UniRef90_UPIOOO34BB477 UniRef90-GOHLQ6 UniRef90-U5EAT0 UniRef90_UPI000463C8D2 UniRef90_UPIO003764C5E UniRef90_UPIO00429434D
UniRef90_UPI0003471B6A UniRef90-UPIO003
UniRef90_B8PD97 UniRef90-M2U9H8 UniRef90-E1ZHU4
UniRef90-W9H421
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UniRef90-D8RZ79 UniRef90-D8RZZ9
UniRef90 E2MXV0 UniRef90-G6XIH8
UniRef90_F0EZH2

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RPYR ${ }^{211} Y$ Y S LI G S T DEDVLLLEESDEN
$\mathrm{V} \boldsymbol{H} \square \mathrm{G} \square \mathrm{RH}$ VTVSGYAYVTKVLKRGQGDDQAV EIFRGDKKDVSGRGVLR LT DSGYPRQVKRWRRGRPLADAETVFAGAATDVVVSAGR $L T D S G Y P R T V R R W R R G T R V G D A P V V F A G A A D D V S V G A W H D$
$L D A A W R D T V W R Y R D G S G E S S E R V Y H E A D D$
L LTASGYPRTVRCWRRGTPDEAAPVVFEGRHEDVSVAAWHD
 SKNQRPDS IWRVS $\square$ PREAPEKHAEPARED T TEFWLGUGK MTSSGYARQAR $\square$ WRRGTP $\square$ A DAELVHE $\square P A S D M A V F A A H D$ $\square_{T}^{T}$ RPCR\YCSTDGSTDEDVLLHEEFEGN

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NKKRPFRIYCSMIIGS

 $\qquad$ VHVND | $\square A$ |
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| $M A$ |

G G SL
AWH D SGYPREVWLMRRGQTFE SSGYPGQVRRHRGMPMPEADLVYQGEPTDMQVGAGRDH EA WRSCEVWAHRVGTGAPQDLLLLAEPDGAFDLVIAPS DAWRACDVWLHRLGTPREADELLLVEPDEGFEMGFA
ATRSGYARTVRLWPRGTDPRDAPVL F ETAETSMDVWGAS D LT DS GYPRLVKRWKRGQS LDDAELVFSGEASDVTVGASFD DA WRACEVWWHQLGTGRDQDRLLLVDPDERF
VTESSYAYITKSLKRGQ
LTSSGYPGQARUWRRGE
EADRAFFQRVYYHPWGS RTTVD VA EAEVLA

LT T S G F P R E A R R WKRGTPDLERAPVVFEGN PA R R DVVA G V TARPYQLFRHEDGE I GSDTLVYEE DDPAWLLSAYR LT ES GYPARVVVWR RGTNLDAEAEEFFCGLDS DLDAVSA WA E VA G T E H A I M H F L S L L L G D Q E E R V V F T C K R Q G A S K L S L I G D
LTRSG


LT T A GYGRQVVRRWKRGTPGAEAPVVVEAHPSDVWAVSMTE
 MTT

EAWRSCEVWAHRVGTGAPQDLLLLAEPDGAFDLVVA
$T L L S Y$ QL WR HELLGTPQSDD QLVYEEKDDTTHLSSIHKT
 L N G K A VV H K L
 LTVA GHPRYTRYWRRGQPLA DAPIVETCPPAADSAB A WF

 $L T D S G Y P R V V K K W Q R G T P D S A A C T V V Y E G Q K T D D V A A F A T V V H$
 LT D S GYPRMVKR WRR GQELLA QA ETVVFT GSATDDVVVVAAGR D MTESGYPFIVKTLKRGQTQATEVYRGEQGDGGYGVPSVYR
 LRRVLDGAETLVHAC ETDSDKNATLYYHRLGT DQAEDVLVHKDEAHPEWMWGTEI RTPLL

DTHRPDKVWFHLWWSTPTKA GRTVDSHRRRVVRYVPRLL YQ ATNSGYGRAVRRWARGTDPGAAPVIFETPRESMSVWGAID
 A ATTGYARTVRGWRRGTHVDNAAVI FETKAA HVSVGC

 $M M T T S S S Y P R T V R R T L Q R G Q S S L A D A E E L Y D \square P E H H M M A V V M R D$
 DPPAER
$V F W K D K E G E K M V F G E G L T S$ GYFMT L RK

 ATSSSGYARTVRLDWRRGQPADRAQVIDETTADHMAVSGMAD K A PAVRL

FWK GE D GE R L V F G E G L G S G H F IV S L R K VA HR P H R VLL WN LR S

K D D DI A I Y LT D S GYPRQVRRWRRGMPSSSADVIFSGHSDDVAVGGGWF $L T H C S G Y P Y V V R D H R G E A P G Q A R E V F R G T P A D M D V S P V V L R$

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| :---: | :---: |
| UniRef90 W6S155 | D ${ }^{\text {D }}$ DGKY ${ }^{\text {d }}$ |
| UniRef90-B4R975 | PDGQVAAVIAGRG |
| UniRef90-UPI000478B522 | TPGFKRDIA ${ }^{\text {a }}$ D |
| UniRef90-UPIO0040718A4 | V |
| UniRef90-U2Y | RDADGVVHAEMVDRAVTFFETESYFLTDAGAVRUNLPARR |
| UniRef90-HOS | W |
|  | N |
| UniRef90 UPI00046AB004 | GSEPRVWIADQID |
|  | ( ${ }^{\text {a }}$ |
|  | GTIHAR GYRGISFHEREYFVLDLPAKAGPFG\\|I DGHM |
|  | 俍 |
|  | GKTRSRVWLVLETASKDTSECHLIPAAAPDA |
| UniR | SRSKDEKYLFINCNSKTMS |
| UniRef90-UP10002E9AB26 UniRef90-UPIO0030B10EC | DRTPGFERTLVSRAVDFFNDEVY |
| UniRef90-A0A056L | TRSNAYLLI AA GSSDTSEVRYAHAADPTAQFSVVLPRR |
| UniRef90-\s3B9X | PSPGFERRLAVRHRDFWHSERFVLY EDADPVR\\|EVPD |
| UniRe | KDGKF TLNSNSRTSSEVYV |
| UniRef90-U1R6 | SRSSSGELVFVTAASRGVTKNFYLVADDPSNR |
| UniRef90_UP100035CD930 | TRSRQW |
|  | R |
| UniRef90-09FG | RHK |
| UniRef90_w8iC38 | EFDGDAQYLVVTR |
|  |  |
|  | DGDSE\LMGYRSTSTFKS |
| OLTA8 | GKYVMDI SYRDLDS FNTEL |
| AOA | YLTV NVIS TQS SK |
|  | , |
| UniRet90-16WS55 |  |
| UniRet90- UPIOOO40FA674 | FPGHVI |
|  | ${ }_{-}^{A} \mathrm{~A}^{\mathrm{A}}$ |
| UniRet90-E8M1C3 | ASDERYAVIQVNSESATEQRILDLSTGELSK |
| UniRet90-81M801 | RQTGTERUTVVERLGFFDAAIHIGDRTGVHVRL |
| UniRe990-x802K8 | DTPGFERTLSSATDFFNSEVHELDTA |
| $\begin{aligned} & \text { UniRef90_K0_6I2 } \\ & \text { UniRef90_V4Q850 } \end{aligned}$ | DVSGAYVMDYAYRGLDFFHSQQLFYVGDKPVELPLPQSSN |
| UniRef90-s5SZZ9 | PVGGHTVMTRALDFYHARVSV ${ }^{\text {dVGGKLQPLEПPE }}$ |
| UniRef90_T1DBF7 |  |
| UniRef90-V8QUH3 | AAGGFIALTLAGPETSEVRV |
| UniRet90-G4M2G6 | KLHLASRAVJTFYDTLNYWLDETANEWRQY |
| UniRet90_UP100047 |  |
| UniRet90_L2G5C8 |  |
| PI |  |
| Unil | SKTKNY LFIRTADHETSEYLGUNLKLLNEITPTLFKK |
| UniRef90-E8YIX3 | PVEKRHTVVSSVDFFDSHTYYLERADGMPVAADAWRRYDV |
| UniRef90-S3 | - |
| UniRef9o-M2TPD | Rel |
| UniRef90 W4FB3 | TS SGRFLVIPTSSMTKETSEVRVLDLIPDPQPSLAVPAPAD |
| UniRef90-UPIO003825D29 | HTPGFVRDVAVDVADFFASRTYLVR |
|  |  |
| UniRef90-A4QAZO | FYNSETYLETAD GLV |
| UniRef90 UPIOOO36EF527 |  |
| UniRef99-UP100028843E4 | ( ${ }^{\text {a }}$ |
| $\begin{aligned} & \text { UniRet90_UPI00036 } \\ & \text { UniRef90 } \end{aligned}$ | DPVEQRHTVVSSVDFFDSHTYYLDDAHGATD |
| UniRef90-UPI0004728DB1 | DHDACRHLAVIYLGMW RAQWLWRDAPDAPWQRYDIPD |
| UniR | DEKFALVTVTYGWN KGEVWLGPIDSPEE |
| UniRef90-LOJ903 | RYPGQERTEFYRKVDFYNRETFELR |
|  | SASGAWLFVDVKCVHRGAVEVWCLPADQPGVG |
| UniRef90 GOHLQ6 | NTDGKWAMVTVTFGWNRADITYI |
| UniRef90-U5EA | DRHPGYERHWAGRATDFFNEE VSLLGPDGTWQLLDTPT |
| Uni | RTPGFERTLVSRA ${ }^{\text {d }}$ DFFNDE |
| UniRef90-UPI | DKDGKVTAVI TR T PLDTERSETWVMAHDGSTVKLALPDRV |
|  | RTGRSERLWFERPAFEKIS |
| P10 |  |
| UniRef90 B8PD97 | DKAGGLIVLSAYSPDRTETWTVDAKTPQAEPQRV |
|  | KKAAGGL VLSAYSPDRTEIWTVDAKTPQAEPQRV |
| $\begin{aligned} & \text { UniRef90-E1ZHU4 } \\ & \text { UniRef90_W9H421 } \end{aligned}$ | EKDEAFHLVVYLIRGSSDTTHYLYYMSTNSSGDDAN |
| UniRef90 C6A0U2 | TKDKKHALVTLSFGWN KNDTYFGPLSEPEKWKKVYSSEV |
| UniRef90-UPI00037C189E | SVDDTVVPPRIWFLDATDVSNCVVWLGDETGAKTRLDDPS |
| UniRef90 X6AGT6 | FUATPAFFEMIGHTGDRSGPKIQSDLPRDA |
| UniRef90-M7N606 UniRef90-D7BLY1 | DPTPGFERDVAHDVIDFYNSKTFLLRDNQWVYI |
| UniRet90-UPIOOO2E64080 | QTPGFERDAVDTDDFYSSRTHLRN NGE |
|  | K GKVTAVIITRPLLDTFRSETWQLVGERT |
| UniRef90-O58 | SSDDKFAMLTLNYGWNQG EIYVGPIDKPQEWRKVYSATV |
| e900-UP1000255C7CF |  |
| OLJW8 | STDGKWAMLTVTFGWN KADUYLGPTDEPEKWRKVYSSDV |
| AOAl | NFYESEYFV |
| Q88 | A |
| UniRet90_13ZRC7 | DGK |
| Un | TKNWQYVLNVNSTS |
|  | D |
| niRef90-FOEZH2 | LDAQGAPLLDVEANTSFFHDYFYVNAQNEAVPLALPSDSE |

\begin{abstract}
UniRef90 UPI00032AC7B9 UniRef90_W6S155 UniRef90-B4R975 UniRef90-UPIO00478B522 UniRef90-UPI00040718A4 UniRef90-U2YUN6 UniRef90-HOS7B1 UniRef90-J9VY98 UniRef90-UPIO0046AB004 UniRef90-BoSVNO UniRef90-UPIO00225ECFB UniRef90- F617D3 UniRef90-A0A024PSA4 UniRef90-A0A024GSG9 UniRef90_UPI0002E9AB26 UniRef90_UPIO0030B10EC UniRef90-A0A056LGV3 UniRef90_S3B9x3 UniRef90-S8CCT3 UniRef90-U1R606 UniRef90-UPIO0035CD930 UniRef90-UPI00026C6B81 UniRef90-Q9FGD4 UniRef90_W81C38
UniRef90 JovXU2 UniRef90 A0Z6G5 UniRef90-K6ZNX1 UniRef90-LOLTA8 UniRef90-A0A022RZC9 UniRef90-UPIO004224329 UniRef90-16WS55
 UniRef90-F7R9L8 UniRef90-UPIO0040FA674 UniRef90-U1QYX9 UniRef90-E8M1C3 UniRef90-B1M8Q1 UniRef90-X802K
UniRef90
KOZ6612 UniRef90-V4Q850 UniRef90-S5SZZ9 UniRef90 T1DBE7 UniRef90-V8QUH3
UniRef9 UniRef90-G4M2G6
UniRef90 UPIOOO472DE6E UniRef90-H2G5C8 UniRef90-UPI0003B43AFF UniRef90-UPIOOO3829DOD UniRef90-E8YIX3 UniRef90-S3J8Z8 UniRef90 ${ }^{-} 009410$ UniRef90-W4FB39 UniRef90-UPIO003825D29 UniRet90_U1S769 UniRet90_H3RFN9 UniRef90-A4QAZO UniRef90_UPIO0036EF527 UniRef90-UPIO0028843E4 UniRef90_UPIOOO36364DD UniRef90-B2T5Q5 UniRef90_UPIo004728DB1 UniRef90_I3REV9 UniRef90-LOJ903
UniRef90 X 5 VY 33 UniRef90-B8PD97 UniRef90-M2U9H8 UniRef90-E1ZHU4 UniRef90 W9H421 UniRef90_UPIOOO37C189E UniRef90-X6AGT6 UniRef90-M7N606 UniRef90_D7BLY1 UniRef90-UPIo002E64080 UniRet90_B4W5S2 UniRef90 O58991 UniRef90-UPIO00255C7CF UniRef90-FoLJW8 UniRef90-A0A031LQK4 UniRet90 O89VM9 UniRef90-13ZRC7 UniRef90-D8RZ7Z9 UniRef90 E2MXVO UniRef90-G6XIH8
UniRef90_FOEZH2
LIGAESAGDHLLVVHPDGALASLAPEAGPGRSRAALGARD PVSADSAGDRLFIVHTGARLGVTSSSAYSRQALADRTPGT VQDTRKDNEYYADDAGGELYUNSNHQGKFYKAKLAQVALL DASASDHREWLLIEGKSSWQVGDIEYSAGTLLAARYRDYV MVTVDSAGDHAVATYPSDLISLATPVDADYSRADEGDETA
FAGFMDGQAMYTLKEDWTSAGGKAFKSAVLVFDLKGALAA
 AEVEHWNG WLIFVTPRRHWNAGGRRHAPGTLTVIRRDAFL VEYYLDQTDDALLWMLSNHQGTKQFYRAAVVT DCTVVVHREWMYVLPREEYAGDSGGVGA ILFEDFL KVFAGADRSAFPLLYRDRLYTLRAAAVPGASLVECDRHGN RVKKПEYDLEHHEKFFLISTNDNAKNFK $P S H V A V S G W Q G W L L L E P R L D W H C R D V V Y P G G A L L A D R E D A$
$D A S C R F F K D W L L V T L N S D W L I P D K T W P A G S L L A D D F A T F Q Q$ AEMEDLFAGKALVKLNEDW

## SVTVDLHRQWLLLRPQEE品回DGTVPAGSLLVAELEAFL



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UniRef90_UPIO0032AC7B9 UniRef90_W6S155
UniRef90-B4R975 UniRef90_UPI000478B522 UniRef90-UPIO0040718A4 UniRef90-U2YUN6 UniRef90_HOS7B1 UniRef90-J9VY98 UniRef90_UPIO0046AB004 UniRef90-BOSVNO UniRef90_UPIO00225ECFB UniRef90-F617D3 UniRef90_A0A024PSA4 UniRef90-A0A024GSG9 UniRef90_UPI0002E9AB26 UniRef90-UPI00030B10EC UniRef90_A0A056LGV3 UniRef90-S3B9X3 UniRef90-S8CCT3 UniRef90-U1R606 UniRef90_UP100035CD930 UniRef90_UPI00026C6B81 UniRef90-Q9FGD4 UniRef90_W8IC38
UniRef90-J0VXU2 UniRef90_JOVXU2
UniRef90_AOZ6G5 UniRef90_K6ZNX1 UniRef90-LOLTA8 UniRef90-A0A022RZC9 UniRef90_UPIO004224329 UniRef90-I6WS55 UniRef90-F7R9L8 UniRef90_UPI00040FA674 UniRef90-U1QYX9 UniRef90-E8M1C3 UniRef90-B1M8Q1 UniRef90-K0Z612 UniRef90-V4Q850 UniRef90-S5SZZ9 UniRef90-T1DBF7 UniRef90-V8QUH3 UniRef90_G4M2G6 UniRef90_UPI000472DE6E UniRef90-H2G5C8 UniRef90_UPI0003B43AFF UniRef90_UPI0003829D0D UniRef90-E8YIX3 UniRef90-S3J8Z8 UniRef90-M2TPD1 UniRef90-Q094I0 UniRef90-W4FB39 UniRef90_UPIO003825D29 UniRef90_U1S769 UniRef90_H3RFN9 UniRef90-A4QAZO UniRef90_UPI00036EF527 UniRef90-UPIO0028843E4 UniRef90_UPIO0036364DD UniRef90-B2T5Q5 UniRef90_UPIO004728DB1 UniRef90_I3REV9 UniRef90-LOJ903
UniRef90 X5VYK3 UniRef90-X5VYK3
UniRef90-UPIO0034BB477 UniRef90-G0HLQ6 UniRef90-U5EAT0 UniRef90_UPI000463C8D2 UniRef90_UPI0003764C5E UniRef90_UPIO00429434D
UniRef90_UPI0003471B6A UniRef90-B8PD97 UniRef90-M2U9H8 UniRef90-E1ZHU4 UniRef90-W9H421 UniRef90-C6A0U2 UniRef90_UPI00037C189E UniRef90-X6AGT6 UniRef90-M7N606 UniRef90-D7BLY1 UniRef90_UPIO002E64080 UniRef90-B4W5S2 UniRef90-O58991 UniRef90_UPI000255C7CF UniRef90-FOLJW8 UniRef90-A0A031LQK4 UniRef90_Q89VM9 UniRef90-13ZRC7
UniRef90 UniRef90-D8RZZ9 UniRef90_G6XIH8 UniRef90-F0EZH2

 APREEWLTLLAHSEDRRLA SALALDKDHLLVGVRHNGRNV LGGKA WWQPLIEPRDDVTLEGDDAFSWG LI I AERDHTQAQ AGEPELHMLVEPTASTSLADMATDTRTAVVLISILEDVVHR
 GD $\square$ S AVNTLY VIPSPTESIGSVAAMTKSALLVTVDNNVIGG WMKSNT!TLVYQPNAKSTDSRVS TTKSKVLKSI TENVVGN

 PGWERVRVLFAPSELTS S A DFFVTR NF VVITAQEDVRTY
PPPSTWVALRGARAGERTAHVEAHAS FLALTMRSGSLTQ P L P E S WEPLRSPGPGERITDVEAHAG YVALS LRSGSLTQ
 A GRRAFTVLWRPDERRALQGVFWSAGR LVVDVLEDLRPT A GDRTLTPVFVPDEHASLHHYAWTR DRLTVAILRDVASE A

FVIES E LVPHCEGVSDISVMPFAA A LVTDERENGQHR A GSRHFTALFTPSERLVLAGIDFTKHWVIVSQMDDSAPR PNDWQVI YAPESGAELNTFYLFKDG IVLTEQREGEQW

FMRGEREVTPDFMPTSQTSACEWHTRNQLIVSYDEDVQNR RGGREFITLLFTPNSRTSLDGFSTTR DYLLLNLTQDAVEK F IERGVEPVFTPSGSQADQGVSA GADRLYITLDDDVSGR GKAPGIETVYQPSASEAUEEVAL GKQTVYVKLLDNVAGK
AGDRSVTAVFVPDARTSLQSW SWTADRLILNLLRDVSSV
GGARDFAAVFTPSASTSLQGLATTKNFLVLTLLNNVSTE DGDRAFTVLWTPSDRRALQNV SWAGPRLIVDALDDLRPS

 SENGKEEIVPEGEFPLEWAAIVDNKII AGRLVHASHK $A G T A D L R V V F Q P G G G G D F F A G G A F S G D R F V S V K L R D V A T V$
$P S P S G W E E V V P H A G V L L E E V H V L$
$K$ $K G E R Q F T A L F T P T A T V S L D A Y T T T D Q Q I L V V A W R Q N A Q G Q$ GENVTEVDPEDE FPLEWAVIADGKILAGRLVHASYR
 LS $\square S N Q A Y L D Y E P A A R Q S L G D V R V L D R Q V V A S L S E N V A G R$ AGGRRFETLFQPGERRSMQSFFWNDGKLIIDSYLVNLAPR

LAS EPLLPHRPGVPDEMVMPFASALVWLERQDALPV ASSSYWALLQPHSRTVEIVDLAVVSSRWLAVLERKNGTLA AGGRTFALLFEPAPRRAMQGYFLLSGGTLVLSILDDGKPVV T A GSRQFE LLEPGPRRALQSFFWSAG KLVLCDLDELRPVV A GEHSLAALFESGDRRSLQSFDWNDGKLII SHLVNLVPH AGTATLHEIFVPGPSTSLQSIDNFTANYILLNVLQDVSSQ PSASDI HVLYQPSETSSLLSMSPVADG IVFTTLDNVQQR
 GPSHQAA QVFVPTPRQA ADVRVLSDRVVVAVNDNVSGR
 NGDREF DVIFKSSTCKILNNYTFTQDFLI LDIMKDVSNY A GSRDFAVLFEPGPRRALQGLFW AGSKLVLS LDELKPQ GEVKEVIPGEGDFPLEWAVLVDGKILAGRLVHASHR




VRCADLGSGGARFTA DDPWGDADAMTPEWDAEE LIARTS $V V L R R W V L D A H Q H D P E Q P C S Q L L E D A P H F D T Q L L R L R E E S$
 V V DLIP LK TKKPRYLPLPKHVSQIGTNYDFNSPTMRFTISS VVFAERGEGGWTPLAGPENGNVGGSHDNQFGSSVSFSFTD V EVVK IDGGQRHCI KLPDFTNVSAGGUDDESNRYRLVSHG LMAFHVDAGEWETI PAPDNLTVI S LSSASREADVAFI NAEG
 YSVA H LK EFN LQQKLCPLPDHVSQIGPNYDFNSSTMRFT DTS

VEVRLRRSGAPRAERPGPVRTLSAEEGRYWDTVLRVEYQS V DVWDRSEQAWQRVEVDAPVRTITTVPTPWADPLRVEFQS
 YRVFEPGPGGWTEAGLPALGSVLDGDPERADGALLALAHD ILVVFTPEAGAPNRTTPQLRSSPSMISVTRYSSTLRVSLS V RPRPLS GDELGELWEAPVRTDDSVDGPRFDDHFRVRVQS


LVLRDP TGAVRPDTFDEPAYVIEDGQAYDARKVRFVHQT VTLLDFAGAWI SREFALPEASQSYVDSSERDDTVLVHVEH FVLLNMDGERVVKQPLAEQGQVAWFSGDYASNQLFI RSMS 1 EVVDRGGAASRRINVGDMVTARVVAADSESDELWLGASS I HE WS LASQNGRRVENFEHGSVKVAKGVSCGESLFLVGED

TLLFAPSWQWQQRVFPSREDGQADVSPVESTDEVFVDTDD VEIMK $D E G G Q P Q Q L K K D P D F T N V S A G G D D R E S N R Y L L V S H G$ MLALD SS WNASDVEVPENGVVS LAAAGGKQDDAFFTAES $L V R L T R G A Q G R W T P K P V P L A A I H L V S V G G S S D M A F A S V E G$
VRVAEPGPWTSSELPAPALHSVDAYADDDEDPEYWLVATG
$\square V S V P \square A D P E P T R M E D P D H V T A H V V A T S P D G D E D W V Q A A S$ YSVFEPEEGGWNRMGLPGLPEDGSVSVWPFDSELLAMVQD LYIVKNNNKTEEIKLPFAAGRLVIYTKGREQDYLSIKIRG LHVLTPPDAEWVRSELPDGGVGVGAVDVVDSDDVWVVTTG TLLLTPAWHWQQRIFPTRDDTQADVSPV EPDDEVFVDTDD 1 KL WHPPGDASHASYPLPAQGSIVI SAVDSDDTVLI DVDD I E Y Y LEGRK LKEIT FKVPGSVYPL HKNDKRAII RYES VVVLTP GDWEPQPLAGVPANTTTNLAGDAFGDEVFLHSSG LVSRNGSGRVGDTIVPDEPSCTVGLSAPFRSSKLTYSVSS


FRVVTPDGWAASGLIADSPAMSSTSVSNADDTDETFLDSSG LA IVDNRGWRRQDVAVPQNDAVGLGDSSKSKGEVFVSTQG FEMFTPGHQEWTRRTLPAEGTVNVWSFDETNGEVLICAQD


 S DSFHWPDGP DPFKF L E S L D S R R AR L
ADRYAVFENLNAPETA
T L PPRRVAKKVPFTVSAHGRSWSDPYHWMRDTSDPDFA

TPHDDLYRHFEQLTHPDTE
TPPDPHGWLDED DEGDDAL
REPHE $\square R Q \square G R V R T D A Y A W M R D T L P P R Q R$
TYTDPYA WLETPDSPDALL
DQFSWLRDDSRSKVL
PYPT $\square$ NKK $\square$ VTEN $\square$ CDTTVNDYYRNLENAEDSLVN
$M T S S T V A K V V P Q V V E V A G$
GHTL
A


GVGASDQFSWLRGDSRSEVL
PAAAKKPTTKTVFGRQWVDEYAWMQQGFSEKFL PA $\square$ T APHAAPQDHWDEQL GRRRNDDFAWLKMDNDPEPL P P T HK K QE YVR DTNGNQWQD NYEY FR N L D D C G DV Q PPLAQPKEYQFEDHNTVIEDPYHWLQNFNDPNVQ
YPN INGE 1 KH E $\square K F G V K V T D D F Y N L N D \square E N E K I K$
VDEN DWDE E $\square Y G D E Q L$
PACKTVDVVENWHGDELADPYAWLRDKDDPEVR

$R \square D P Y G G W R D D S D P A L L$
TDENAWLEDTHGEEQL
HAWLEEVSGDAALL
ADPFRFLEALDSKRAR
$\begin{aligned} & A W Q \\ & Q \mathrm{~V} Q\end{aligned}$
A DPYSWLEGTRDESAL
VADPHLDLEQVDGAKAM
DEFLWLEDIHGERPL
HFNRFRYDEYQS LK DSQFK LAL

VDCNQYLEDLRSEKSL TTGDDPYLWLEDVTGESAL MEADTPERVT

T DEN $\square \mathrm{W}$ LEE $\square$ Y GEAP $\square$ L E A D E D P R T R
A WLLDEVEGEQAL

RLDPYGGWRDDSRPELL

Q W L E D R R Q P K VR

PPQYARVEHMMEHFGDVRVDPYYWLRDRCNAEVR PPTNVPPTPRRDAGS DPYA WMESPRSQEML

MAYNYPKFEKSD FSEEFFGH!LPDPYCEDKQADNPKVL

UniRef90 B8GVW3 UniRef90-F8AIX6 UniRef90-F2LBR3 UniRef90-V7IDA2 UniRef90-W5FRL9 UniRef90-W4FRZ0 UniRef90-I1BZC8 UniRef90 F3FMT1 UniRef90-G4CKU1 UniRef90_B8BQ57 UniRef90 UPI00030C0727 UniRef90-W8X2Z4 UniRef90_G1XY56 UniRef90-A6CAX9 UniRef90_G3TK46 UniRef90-A3ULJ6 UniRef90-A9DW42 UniRef90 UPI0003B542BC UniRef90-V8AAM9 UniRef90-X2HDH4 UniRef90_UPI0003FCDCB1 UniRef90_Q3JLM7 UniRef90-R1E995 UniRef90-B7G1L4 UniRef90 UPI000255E5CA UniRef90- X6FPI0 UniRef90_A0A023D4U6 UniRef90_UPI0003872AC3 UniRef90 UPI0002D9882F UniRef90_UPI0003B4EFFD UniRef90-W4YKM3 UniRef90_UPI000395DA25 UniRef90- D3BSR4 UniRef90_UPI0002D9C16D UniRef90_F0Z822 UniRef90_H2BTL1 UniRef90-F6W5D5 UniRef90-UPI000462B09E UniRef90 X2HCl9 UniRef90-UPI0003464406 UniRef90_UPI00037FA3C6 UniRef90-R1BRH1
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UniRef90_L8JX98 UniRef90 UPIO0047B48D9 UniRef90_V9ZW50 UniRef90-M8A1D1 UniRef90_Q7NNY4 UniRef90_L9PKA2 UniRef90-T1Y535
UniRef90_L8D8L9 UniRef90 F4R2E2 UniRef90_G0UM68 UniRef90-W7TQ83 UniRef90-LODQA9 UniRef90 TOLEB1 UniRef90-X6B383
UniRef90 F6ZSD2 UniRef90_R6CA37 UniRef90 A0A021VZ96 UniRef90-R0ER24 UniRef90-UPI0003663B1A UniRef90_U1M703 UniRef90-UPI000418FD9B


AFAEAEHRRTQSWLEQQPDYAALRQD LLTMDQDEKQDPFC DHLHAENEYREQMTRHDNEHEELYQEFLSSIHETDYTTPV A WVDAQNRRTLDAFFDADAQATSDA DRAALDSEDRDPGVS A HLAA EMRYARDVLGPDEPAVRWFYELAGGAPEVREPLSD A WVARQNQRTLAELTTQDASDFDSTATLLAHEASEEGGSGA DWVKEQNKLTLQALTSDPRFEEYQSEALQULTASDRITYG
 NWYKQQGDYASNILSKISGKDGLAKSMQDLSNRKSYRVRR TQVKAWNAETEALLTKDRRYEQDRARAKAILDDKAQIADA DWVKAQNSRSAGLLQSDKRYQKFYDDVLAVEQAPGRLPDP TFI QQADAAAQAEFASSDEYTAVRDDIVVTMLQDEQQIPFC E WVNQNRRTSNTLESDPRYKGFYDDALAVGQSQDRLPKP $G W V D A Q N A R T H D W L D E A H Y R A L V E R F T R A L L P R E R P V I P Q$
$A H L E A E N A Y C K D F L A S G G L Q E A F F Q T M K G R M K L T D R T I E V$
 D WAASQSARTLE HFGGTQFERDHDALIA I FDRPDRIPLS GWVRAQNARTTADLQSDMRYKHFYNEVLKVEQSPRLALPE WNVISARYNAMTKRIKEKLEEDHKYVFCS S Y LHQQNEKT LLYYKKN DQLSESLQQNWQDNRPDQAEKPWK A WARERNSEAEHALGGPIFDDLKRNDFEVLTSPDRDPGVR SLLQAERDYAQQMAPQAASAQRFYDAMAAHVCSTAGAAPA
 E Y I HQENNYAESYQNDHLKK LDSRKIRDYKRVFVDHPDDSE E WFKLQDSLAEAYFDTIESMQKYLERFKQLQNITQSKVSM

A WVREQNARTEELLEDPDYAGLESS\|LEVLDSTDRDAMVG EWL LT KSHETQKILNADPWKASVVKRFNTLTAYDSQSFVR DFVARENAYTDAYFATLGVDEKIAQLKATQLPENYMTVEP
 AWVRSRGEGTGAALTVGARPEAMHERALQDLDATDRDAWP $K Y L N N E N K L T Y K F K T K V K P K T D A L L E E W Q H N Q P D K S E S P W$
$\square Q C Q U R Q E M A S R M E K E L A S P P E$

LLREQNRWTEQQAGQVP LVQRDQTEWQGRERGDPVPD DDW A WVREQNARTEELLEDADYAAVESGILEVLDSTDRIAMVN GWAKAQNEATFAALGDPAASPTYGRILEVLESKEKIPGVS TWVDEQNARTRAARDDDAYRADTARLAKAYDPRERPVIPT K LLDSERRRWQRASAKYQGLVTTLEKRLGYMHEHYSNLEA

 EWVRRQNARTEAQLDTEGFRRDRDQVTEVLDAPDRLPHVS

QSKHEKKNFQNVLKQFEKDEFQKFFEKSSKRQDRRSSPER


A WVAEQNERTLQELFSPDENEPLHAELLEVFDDKNRTPTV DWVRQHNAVTEGQLTDNERFDRLQSDVREILDTDARIPYV ENLVMENDPD【PASVKEKDRQYQNVRTHGFSDWTDEGV

A WVREQNARTEDLLEDADYARDESRTLEVLDSTDKDAMVG QFI DEHNRASDAALRTPEFTEDRDAIKALI ERQDRLIVPM EWVRERNEATRATYEDAPGFEQLRAD DEE LDSADKUPGV
$T \square L R E Q N R W T E Q Q \square A G \quad Q Q P \square A K T \square Q A E W Q A R E R G E P \frac{\square}{M} P$

A H LIE DHNKKTQQWLNQATPLSNALVKTWSESKSVKAPTPW

RLLKRENASMESAFAAYGGKRLCYHEMKARWKEDDVSLPY VYLNAENEYAHKAMQSTHFREMYTFFQSNRAKHLQFPENG

VKQENEKPDPENMDAFEKDRTK LETQPQEEYE $\square \mathrm{DV}$ VEV DWVKQENEFTDRWFDQKELAD KMTELKSQKRRPLYT


UniRef90 B8GVW3 UniRef90_F8AIX6 UniRef90-F2LBR3 UniRef90-D8KKB2
UniRef90-V7IDA2 UniRef90-W5FRL9 UniRef90-W4FRZ0 UniRef90-I1BZC8 UniRef90_F3FMT1 UniRef90-G4CKU1 UniRef90-UPI00030C0727 UniRef90-W8X2Z4 UniRef90-G1XY56 UniRef90_G3TK46 UniRef90-A3ULJ6 UniRef90-A9DW42 UniRef90_UPI0003B542BC UniRef90_V8AAM9 UniRef90-X2HDH4 UniRef90_UPI0003FCDCB1 UniRef90_Q3JLM7 UniRef90-R1E995 UniRef90-B7G1L4 UniRef90-UPI000255E5CA UniRef90- X6FPIO UniRef90_A0A023D4U6 UniRef90_UPIO003872AC3 UniRef90 UPI0002D9882F UniRef90-UPI0003B4EFFD UniRef90-W4YKM3 UniRef90_UPIO00395DA25 UniRef90-D3BSR4 UniRef90_UPI0002D9C16D UniRef90-F0Z822 UniRef90-H2BTL1 UniRef90-F6W5D5 UniRef90_UPI000462B09E UniRef90 X 2 HCl 9 UniRef90-UPIOO03464406 UniRef90_UPIO0037FA3C6 UniRef90-R1BRH1 UniRef90_UPI00029AAE2D UniRef90-B5ETA8
UniRef90-D8RZV8 UniRef90_UPI000378A992 UniRef90-H3AP90 UniRef90_UPIOOO21986B6 UniRef90-UPI000377A495 UniRef90 F0Y5K5 UniRef90-A0K8S0 UniRef90-F7D012 UniRef90-V9KBS3 UniRef90_UPI0003B61D13 UniRef90_UPIO003B4A376 UniRef90-UPI000255F3B7 UniRef90-D9VMM8 UniRef90 U5QJF4 UniRef90_UPI00006CB43A UniRef90-K7FHY3 UniRef90_R7VSQ9 UniRef90-K8EPC1 UniRef90-U0ELC6 UniRef90-UPI00037A882F UniRef90-UPI0002F9690A UniRef90-K9RHD5 UniRef90-AOJSQ4 UniRet90-B30W477 UniRef90_L8JX98 UniRef90_UPI00047B48D9 UniRef90_V9ZW50 UniRef90-M8A1D1
UniRef90 ${ }^{-}$ONNNY4 UniRef90-L9PKA2 UniRef90_T1Y535 UniRef90-L8D8L5 UniRef90_F4R2E2 UniRef90_G0UM68 UniRef90-W7TQ83 UniRef90-TOLEB1 UniRef90-X6B383 UniRef90-F6ZSD2 UniRef90-R6CA37 UniRef90-A0A021VZ96 UniRef90-R0ER24 UniRef90_UPI0003663B1A UniRef90_U1M703 UniRef90_UPIO00418FD9B


QEHRRMYHFHDSAEFPKGVYRVCSAASPEWEVLFSVADFD AKGSFWYYSRYEEGVSYPRTEDGTSLQPGEEVYLDVPLLA KLGEHYYNFWRDGLWRRTTWDSYTTDAPQWEVLLDVDALA SPAGWRYHAAVPEGGAHRVFAR TGVDGRTQRLLDEAARA
 EVKHGGFVYYQEGCCL V VRSKDEEA DNDNYEVL FNMEQL QEDGGYEYAILNHKGKRALLSRLVGSEDLTELLEDDDARSA DAVGDRVTNLWRDAKNPRGLWRIAAGDGYWRTLIDVDAGG EQSGGKLWNYWQDANHPKGIWRVTSPDPDWT TMLDDI DA G E QRMYHFYQSAEFPKGVYRVCSAASYRAGLPEWEI DFDSLEL RFLDAGQDWNFWQDAGHPRGVWRQTTLDAYRQQFI SWVTRL
 SQYGKLFNFWKDSKNPKGLWRKYKSGTPA WEI NLDEDAKT AQAGDHLYGFWTDADHPRGVWRRTSWDPEWEVLVDVDADA RRRGQYLYNFWQDARNPRGLWRRTTWAAYMKVDLQWEAAS
QIDGGIYNFWQDAEHPRGIWRVSKPAAPEWTTIFDVDRLD

 IRGEWAYNFWTDESHPRGLWRRQNSDEDQWEVLI DVDADA KVIGDYAYYPD ISESGYSIFCRRNDRTGEDQVLLDSNRLMM ALQGWVY SSQPGAGGQRVFVRSHSDGRVQTLVDEAVQSQ EAPESYKDFEEEGDGFQYVYYRRQCSSNSSSSSNDMDNGY
RRGGLLYNFWQDAGRPRGLWRRTDPAWEDLLDLDALAAAE
 NETGNYFYLKKDDSLGMEKLFYKQKLDAEEKELFDPNHYA
KHGEWYYNFWKDGLWRRTRWDSYRGGSPDWDVLLDVDA LIA $N D Q G D N C F Y D K E T A D H P Y N R D F V K D R F G K E K L L V D P P V G Y$ FGEGYVTSRSTDGGGYD DADLDADFNETGTLKDLPGLGDL $G K H G E W Y Y N F W K D R D N P R G L W R R T S W D P Q W D V L L D V D A D A ~$
$A D G Y E Y W S R T T K G K S F R V Y L R R P R G S A G E E Q T I L D V Y F K D$ VLRGRYAYTLWRDGDHPRGLWRRVSWHPAWETLLDVDADA K I G D S E Y TETQYNGLRQILSRSLKTKK DTVLFNDSNRAN $R W G D W Y Y F V H P Q G K Q F P \square Y S R R R A R Q G G$
$\square H \square G E Y V Y F E E K G \quad Y \square Y R C K \square D N G N E \square P E V L V S V K H L$ LSQAGSQWRMEADG
 KRGDFYYNFWKDQEHPKGLWWRTTWEDPEWDVLLDVDALV K IGGDFYYNFWTDEANPRGLLRRVPSLEPPWETVLDVDALE RWRDWAYDLWQDDLHPKGLWRRTRWADWRWETLLDIDALG KGMDRYDDYTYFEENGCGYRCKQNTGEDSWEVLLSSEDVG

 KRGGMYYNFWRDAEHPRGVWRRTDWEDPDWEVLLDVDRLA

YDNYEYYTQFARMGEFY LVMRREDGDKSKQDEEKVIDLD $\square R F G D C V Y F E E N G C$ IVRSKADDDEGSVEFLLSIVDLGG

SVRDF $\square Y$ NF WQDED HVKG $\square W R R T T W E D P E W E T V L D \square D A \square A$ R RRGEFLYNFWRDSTHVRGLWRRDDPEWDVLVDLDALAEA $L 1$ Y T RFGEVS Q $\square H$ SVREPMGARRQVTFYDEP

P L G S R Q Q M
KHGDWYYNFWRDGQNPKGLWRRYKSGEPAWDVLLDVDALA R RGGWLFDFRQSKDNPLGVWLRLDADEADWEVVFDLDAFC A $\square$ A A GKLYNFWTDAEHPRGLWRRTTWESYWEVLLDLDALG

KEWDTEAGSQWRMAADGSLWQRSDARSAPRQ R LAPRQPD WGPWLYYRRADEGKQYPVLCRRSAALHGEFVSYSDPSAGF
$L I Q Y$ Q N Y Y H D Q V $\quad$ K GERFVVKK TAEDSP $\square E R L V N \square S V R Q Q$
RDRSYWYYTRNVPNADHPDFCRRDATAGTATAADDPVPLT GDGY LYYSRRSRGHNFPVYYRRPDGDDGFETVLDDQNRMP

## PK Q LT




UniRef90_B8GVW3 UniRef90_F8AIX6
UniRef90_F2LBR3 UniRef90-D8KKB2 UniRef90-V7IDA2 UniRef90-W5FRL9 UniRef90-W4FRZ0 UniRef90-I1BZC8 UniRef90_F3FMT1 UniRef90_G4CKU1 UniRef90-UPIO0030C0727 UniRef90-W8X2Z4 UniRef90-G1XY56 UniRef90-A6CAX9 UniRet90_G3TK46
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 FGDEVLLQGFTADREGRKLAYSFS DGGADEGITRDTDLES AHERESWHDA ILYPDGDRALLSLSPGGADAVVVREFDLER ENESWVWKGAHVRPHHDRALVQLSRGGADAVEIREFDLCA EGEDVYLD GVSHYVEQNRVLLSLSPSGGDAAFTLEFDLET


DGADVY LEGVSHHPERALLF LSPD GGDACFTV EFDLAA QNKTYAVGVIAVSPNEEYIAYSLDLTGRETCLLFDRNIAT A A D WVFHGARVRRTDRRRALILLSPDGGDAHEVREFDLTT GGHYYRATDHQPSPDDRYFAWAEDVVGDDRHRICVLDTES PAP EENWDYKGVDSLGPAHERCI I ELAPGGTDTAVYREFDIPS K LDQPFIDS $\square$ RVAPDEKYVAAKIRTEDSEASTCIVVKLSD EHDYYQL GDWALDSTKTKLADIAEDDTGTEAQYRVSVVVDKKT PEHDYVINYIRPSWNGQYVVVAALTYEGREVAEMIIIDMKTT KHDWVFQGADCLEPDATRCLVTLS LSGEDAASYREFDTKT
 DKNVGGADCLAPKDRCLVALSNGGEDAQTLREYDTHM

 DGEDWIWRGASLIE ERRERAVLLSRRGGSDAVVHREFDLGS HADWVFQGAECLEPHAERCLI ALSDSGEDANTLREFDLGR EHDYYQL GGWALDSTKTKLAA ALEDGTGTEQFRVSVMDLKT EQENRSLGASVLFPQRNRALVDGSEAGSDADETREFDLDT EYNQVVITGGFKISPCQRYLG AVVEGSPDEYDGHIVKMEV
GHRYYRATDHQASPDDRYYAWAEDLIGNDR KLTTNDVVSFKFAEDNSTYMYVADVVGQEKYHCFVVRVET
 S G

 E DF R A LDPAPGRTDIIGAQHMGAARPSVVVYDLER A QDWVFHGANFLRPAHRRALLAFSPDGGDANRHREFDVEA EGGWDAVHAVETSPSGRLLAYAVDGSGYETYTVRLKELGS QF DYYHLGGGWDLSNDHNKLVITVDLTGTEQYQAS IVVDLRT

RLKAFFTS
PEDERMLF
EMDNN GDEUYHIYLMDGEG DVHDASVQRIRLSSNQKYLAATVKSSLCEESLCVVVKLGN E GYYE LAA WALHPDGHLLA LAEDRRGDRDYRDTLLDLAS EWVFHGAGFLRPSDEYRFAMVSLSPDGGDTDRHREFDVET GESWVYKGSASYDEKHRLVLVSLSPGGSDADVRREFDLAA AEEGESWQEAILYPDGDRVLLSLSPGGADAVVVREFDLVE
 EGQEWHFAGSTLSEPYERALIRLSPDGGDQVRIREFDLID KAEGKAWGATCCLSPAYVKCMVALSNGGGDAVVEREFDMAK EEPWVFSGARLLRPDWDRALVRLSPDGGDAVAVREFDLTA SRDGADACVVREFDLHT
 FHDAl I QRIRTISPDQGYMATSINNSNTEESVCIVMKLEK FIRQI RISPDQRYMAlSLKSENSEEITCVIMKLGQ
 E GENWVWKGTQLRPHRNRALISLSRGGADAAVVREFDUDK TFFPERVGGGTFQPTGDYFVFSKD $\square G G N E F N Q N Y R Y D L A T$ VRGASFQPDGNYFVFSKDAGGNEFNQNYRYDLDT AEEWVFHGANFLRPAHRLALLALSPDGGDANRYREFDVET L GR WTWRGVVTCPWEPTRVLFTLSDGGSDLVRLLEFDAES
 FPERI A GASWQPT GDYFIFSKDVGGGEWYQYYRYDVDT QGYYE IAAWALHPDGRLLALAEDHRGDRDYRTTLLDLVS DFTAERFGGYSVSPDHRFIAYTMYDKDKDSFTLMVRDLVTV T DYAEPVRGASFQPKHKFFVFDKDSGGNEVFRAYRRDVAG QS DYY QLANWAVAKGDRFIALSEDLTGEEHYTLTLLDRVS PNDERILLTHDKGGNELYHVYVRELDG ASTTNATFAQSYFPDGRRVLVAADQGGNELTHI YVREI DG AGDPNALGDIEVSPDEKHFAAT 1 DCSGREVFTVFVME ITN
 NETKNTILFVTWCPNRDSMIYGQDEGGNENFHIFIMPAKG DGEDWUWGGASLEPERRERAVLRSRGGSDAVVHREFDLGT
 VF GKDVGGNEFWQLHWFDLAS
 $\square G E P E A D F M F E A S P N G S Y V A V G W L V N G E Q R G R L V A Y A T A T$
$D F Q D S T Y A V R Y F P N D E R V I F T K D S G G N E R F H V Y V R E V D G$ SFFAVDYVPNSDDILYSADKGGNEDSHIYLLKPDG


## UniRef90 B8GVW3

 UniRef90-F8AlX6UniRef90-F2LBR3 UniRef90-D8KKB2 UniRef90_V7IDA2 UniRef90 W5FRL9
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$K P F S L Q A R E V W R H R D G S S Q Q G E L V E E M D E R F F V D V L S H$ RSALQGGQPVLVH
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VVDPGKAQSDRK乌A VDP RYDVLSKQTKTLWE WAD KVDA KTYERTSDYNNDNGLVSVYDL AYDA ATYERKLMFQNPGGMDVAAV EGDENSRPVSKDHKPGKRCSRGGVNRPSWPSGGAANTGSG LYYTKVDSYGRPHQVWAVQAPRLLHSDRREQKAVFLSLAA IVDPASPQSARRDK ATRGGTGQSMLY TQASESFADWSDDEKKLAFSLFYV ATRCGHARTVRLWERGADPLTAPVIFESGSESLGVSGHLD VSDSQ AQTCRSRVCAYDVYTDTGRVLMEDRGNADLGSVN VMDATRKPRAVVTEGGSWDAADF SPDGKQLLVSKFVV DNGTHRLRFVPVADGAQKRDDVVLAGDLVPS I HGGLTP

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ARTK GVIYHVEHRNDELY LLTTYGEPAYKLVKTPVAS



RER G I R Y E V N E WN G S L V A L T N A G G A T D R $\quad$ Q $\quad L R \square G$
 P A G G A E L E G W L A L WP R T P WT V A G K T H A P D T L L GI R L A D F L
 RNS G DMYHI EHRNN ELYILTNNFGEPAYKLMM TSSIS S $D V N L S A H R D W L L F R P Q R D W A L G T T T Y P A G S L L A A A G E A A G L$ K I I D R K Q N VT NF L LR D N WL Y L A K Y N N F S G Y T L S R L D L N H EA WQYIIDSTAD GHCFVVSTSENDHGEVVAVANDG DVNLSSHREWLLFRPQRDWTVNGTTHPAGSLLAAGFEDF L

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 D A EVDDVHRQWLVL FD WDRHLPD GTTVRRHPSGS LLVCTVVAL DAGAGI HRGWLJTVQPRTPWL $G L P E K I A Y G D A R F S G D G R G L Y L T S D R G S E F L Q L G Q Q D$

 $C R \square Q \quad T$ F K K K V S L L S C D F E T F V K E G H L D A V F L G A GA R T V G E

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 S A E V S A A WD Y L L I
S A A D SAAD
 GEA P VA Y G D A K F A R D G K G L WV TA D R D A E F K H L A Y $\square D D A S$

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UniRef90 LODQA9 UniRef90-ToLEB1 UniRef90-X6B383 UniRef90-F6ZSD2 UniRef90 R6CA37 UniRef90-A0AO21VZ96 UniRef90-ROER24 UniRef90-UPI0003663B1A UniRef90-U1M703 UniRef90-UP1000418FD9B

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#### Abstract

TDKTVWNNLITMKPTEKDEDVDL FQNHAVIYGRRDCLPV PVRDDWLTLVAHDDKVMLEGVSLNAKG SLS RREGGLP GVLGEACCLFEPQHGQSVESVET TKRFVVASLDDNVSGS SNMTNWKDVVLKSKGISLFDGG  ATLAVRDEVVPRRPGVPVVAVRPFAEALARLERVDGLLR GEIGEVLTVFDPGESGTVSQV RCAKDAVYVTGDEHVSSQ PA MNWDLFFTMKKNTKVIDLDDMFKDHCVLFGKYSNLLY PDFKSPTDIVPENDDEIIGEFKEMPNSLFFTTTKNGVQAK GRHPKGELVMVPGERQAVEEVSASDGGVLWVKLLDDVSGR ASNKAPALVFKPEASETTTDIGVTSKGUIAVVYR DVHPS GKLGAAELIFLPTETQADENETTRRFVLVSILDNVHSR AGERAFAALFEPNERTSACGWTHTRRYVLVSWUDDVLTR GGRSEDLLLLSYLDALLSHAAFSGATDYVVVLDTPSLVTMT PTSAPWARLVTPDDRSALVDVTWTAHQLVTTTLRDVRHT AGERSFADLFEPGDRRSLQSFFWNNGKLIXFCH PEQAV QTVFVPNSRESTGDDDUGKGGVLAVVYENVQPR APH NWRAVFEPTDESR1SNFYDFESGAVVVSQSGASQS


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 DGTEEPQPAFVPGPEATLSSWSWTRS HLVLTVLRHVASS
$A G G R E H E V L F T P D E R T A L A G Y S W T R N H L L L S T R A D V S S R$ LATRRYRSLSAADPWDVESFEDSQDGRHLAFVTNEAGISSR PSSKNDQDFYDPEEGEVDREDGMEEDCLVLYMYKEGSVY DGRENWQVYYALEDKTKLVDLEMFSDHCIMFLKNAGQLY

## PSLDETTПYTGDTNWDVESYDLSPDGSTVVFTVNEGGLGT

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 GARYQDVTGTLRWDVSA $\quad$ D $\quad$ NREGSQLAFLVNEAGVMR VAAGPWQPLWS GEGRELEKWRL FAHHTVLQYRKAGDDW PGPKSWKNVFLEEPGDILEDVDFCNTHMVLIDRQGRKDR PAGNTTKILSGGTPWDIESFELSPDGRLLAFVANEDG\|AK MKS TVLTADIPWDIDGVALSEDNKLLAFVANEDGTSV NENPWQLFYAPDDHSTLDNFYLYQAG VVVKTNQAQHSQ NVSKA YLKDQWDIDFVYFSESGQYRVVGVNEDASTR KAHNRTT QADWDVMYVSYSPNGRYRVTAVNADASTE DDNSDDTDTDCYEESDEAFWIFSADERYAMFTAASSSHTQ T KAVETVEETNWDVTSAGFSFNGRYFVTGDNEDGSTK AGKRDFSTLFELGDRRSLQSFFWSDG KLI ISYLADLVPR PADMNWD LFFTMKRNTKVIDDDMFKDHCVLFLKHSNLDY GGK VIVSADIPWDVGGVSLSQDGKHLLFVSNEDGISK $S Q D T T W R E L V P E E G$ FVSWAGVVAGRIYVGDLVDVSVR GEHR LALKDEWDVNFUYFSKSGRYQVSGVNADASTK QESEVLYETNWDVMYSSLSKNDTYRVIALNEDGANK
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370
380
390
400




##  I EVRPQALPTYRVQLPDAAYSLYVQDTEFDSEKDRLRYQS   LVLMHPD GRETPDGFDEPACSSLELAASYGAKRVRIDTHQT    LVLRRQA D GRWT PVALPDNSTLHLGATAGQRNAAFVTVEG   T MLLWRQD D GA WR WHARPFPADVSPVEPTFDD EVYVSVD D  

 LS VFT PHD GKWHKVK LP A NTSAT IVS ASVDDRTAYVESQG LDVIS F $\square$ S H SVQS I KL P T WA CEFEL ESHPETSTCYFQLTS L N F L D K D N R Y R S S QLLAD A GQVA WV S G DYQSNKLHURSMSLVLLQRDGAQTTVRFDEPAYTDDLLPGHWDASHVRDKHQT 1 RVIS FDPNHSKSIDQPEVSSILGGNQGKNKKHI RVLASS
 IR I F D P T N E K I V K F P Q E I I Q Q I S L G V N D DN Y N D D E F S L T Y T T

 LI DVATGEAIEL PDPMGELSVAG KD DARAFLLSF QS $\square H V L D P A W A A T V L D A C P P L H D V N A F A V D D E D D$

PAAGDGDWAPLAVEGLPAHVSVDVLSCDR
LIY L N TA GE DRLRRTSLSTSGQVAWUSGDFNS DTFY LRRSMS





 VRVISLHED F S ES QMPDP MLSVVSVGAVDDED
L L A L K R S T W S G Q A A A L A A D K S T V $V L V L P L Q T P N P A D P Y L T L S V G A V D D E D E D C G D D L W D T A T G$
 L H L L D TA T GRTRAVPKLPVGLIDANDWRANNQELAFNLST



## $\square K L L D \square E T G E V M D G P Q L P T G \square A S G V T F D D T G S R V G F T F V G$


 I RVLDDPERP GTESAWCPPLUHDVNAFAEHDD DNDFWWVAT G

 L H L L D VAA A K ELLPVP QLP DG S L L G V K F H P N G H D L A L T Y V G L DV L D A G G RLLTHSLAALTEGA GTAWUQQ GPA GA RV LI R R Q G
 L R V $V$ M R T A D R K L L LP P A F K L L P K G Tilla

 $V F\|I P C D A G A R R C V T G V P\| V N F G G$
L A L D R P F S S F HR L S L P P EA ETGGGLN Q DYRAHA L R F S L S S I H L L DVA S G GE LP GPALPA GQVGGGIQFRRHSREFA Y S L T S I K I T D L Q Q N K E V P L P Q L P N G E I K G L E F S R S E R Y L I Y Y F N G FEMFTPGRQEWKR QALEPAGGTVHLWPHESNGEVLVSAQD VNVI G LAA D D S V R S L K D

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UniRef90-BODWE2
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UniRef90_XOUEJ7
UniRef90_B5W906

$K S V E G G F D T P P A R C H A T W \square S R D E D A Y F \quad G S \square D R D S$ EEI DLTPGEQERAEFYSWSQDGKSFFYGSNKRNPSYMDVY GIAQPLTEPVTRNQAPVFAKDGSLLVWSRATKGSADYAIMM LHEDQVFPAEDGAFDFGADGQTIVFASTARNNLDFDIY GAEVGEVIPRVQYGDLAWSADGKGFWYTRYPGEERP
GNKVALTNFKDTTYPVMWFPNDDRVLLTQDNGGNREDDGT GEDENTAMPDAKHRWGGWSHDGERFAFTSNRRDEAVFDVY GRQD DQASHQSVGELVWAGDSRSFYYDQAGQNGGAS VPFLEGAGGESERPSEMVAHVADVDVDVAWGSDDSEYYAS GEEQRTLTGHTTVTGVSISPDGQTVVSASWGKTLKVWDLA GGVRADHQPDSMDYVVDVHPDGRLLIASTRAGQLGTFA AVTDLTPGVKEKADFFNWNHPKTAFYYSSNVRDARFFDDY GEVMPVVYHPRNVRSHDGDVRGSWVYYASNKRDRSTFD GEVKQTLKGHDYVLSAAFSPDGKLIASGSEDETDKLWDAA SEFRATEKPEVMHSFGGWSPDGERIVYNSNERDARFFDVYY V GEDT DTDRPEAKHRWGGWDSEGDRFAFASNRRDTSVFDIVY GEVEQWSDGDVPKSTLEWDADGDRMFFHHDQAGNEQFDVY GTEQRLTEPETRNSPPVLSDDGHLAVWAKAVRGTARYEL GDLRRLATPSGGSAWFVRWTGRGDVLLVAEVSAAGLTEAL GAl EQVTRTDD GAPDPLQGHGDSVSSVGYSPDGRYVVSGSYDKWDASTGAP EALVLPAVDGGFRAFGDFGADGKTIAFASTERNGEDFDDY GPERUTDRPDVQYSLGGFSPCGRYLAFAGNAANPQDVDIY
 GTLQQTLKGHTPVNSMVFSPDGRLLASGSDDNTVRLWDGT RSILPPHY ILLELQSVFEWATDDVLFYTTLEGLSSSS GE I AMTERPAAKHLWGGWGPDGDRFAFAANRRQGDTFDVY
GKALLESMQGHWVTSVAFSPDGSCIAFGSHDNTIRVWDAY KQUAEFTGHHSGVWSVCISPDGRTLAATGSNDRTARLWDAYS GRPVVLEGHKALITSAVFSPDGQRVVTASWDGTARVWRA
$R T D Q L T D R P D A G H E W G G W S P D G D R I ~ A F T A N R R S T A D F D V Y ~$ GETRPG LPDTHPGYPAGDEDGDRSVIFGVGMSTDDADVDVYV SSRDLTPYSGAKAEFMGWSQDLNS FFFLSNHRDPKYMDLY GRELRQLTGHTNVLSVSFSPDGQTLASGSYDKTVRLWDGR GDEVRDVAVEGFNNLGAWSPDGSRLAYTSTVERPEDFSDYY GELLFALAGPSDSISAVAWSPDGTRLLTAAEDHSVRVWDAT GQSVMDNGHDHWVTSVAFSPDGRHIASGSHDKTVRVWDA $K P V A E F K G H N S A V W G V S F S P D G K Y L A T A S A D G K A R L W D D S ~$
$G E Q L T Q C E G H T R V N S A G F S P D G T R V V S G S G E T Y G K N D D N T$ $G E Q L T Q C E G H T R V N S A G F S P D G T R V V S G S G E T Y G K N D D N T$
$G R K I R K F R G H T P V S S V A D S P D G R Y I V S G G R D N T V K D W D I T$ GEAHD GRLLTLLTDGKSRNALGPWSDDGRLVAYGSNLRSGVYNDI GNEVRDTAPDTRNQSFVFSKDGRLVAWSQVNRGDPNYDDMM


UniRef90 U2SQW5
UniRef90 I3YZR7 UniRef90_WOJN24 UniRef90_C1EDT5 UniRef90_UPI000411DA93 UniRef90-UPI0004729417 UniRef90 U1Q7D6 UniRef90 UPI000344FFB2 UniRef90-F4QSB3 UniRef90-H3NRH7 UniRef90 A0M3H6 UniRef90_UPI0003B4DE48 UniRef90-D2RZL4 UniRef90_UPI0003B37CD1 UniRef90- M0M867 UniRef90_UPI00040C531B UniRef90-H3NUB5 UniRef90-A1S2K2 UniRef90-W5K9W0 UniRef90-W0JXB1 UniRef90-L8WHF8 UniRef90-V4XH72 UniRef90-E4NRA7 UniRef90-W9A2J5 UniRef90-D2PRW4 UniRef90-J2DCC5 UniRef90-U1RON3 UniRet90_D4GUG3 UniRef90_UPIO00382EB34 UniRef90-B0DF52 UniRef90-M0CZF7 UniRef90_B1KKW3 UniRef90-A2SHW0 UniRef90_IOHPK3 UniRef90-U2Z9A3 UniRef90-L1NNJ9 UniRef90_V4W6J5 UniRef90-B9JCE5 UniRef90-V6SZG8
UniRef90 W9BXE8 UniRef90-A3UGQ1 UniRef90-G1Y1E6 UniRef90-A8FQD8 UniRef90 ${ }^{-}$F8B6I0 UniRef90 M0A5J8 UniRef90-W0PHQ4 UniRef90-R1BEC6 UniRef90 A8ZQX9 UniRef90_LOAOV1 UniRef90-G8TCC1 UniRef90-UPI0003689339 UniRef90 B8LTB2 UniRef90-D6TNW7 UniRef90-B9LTP9 UniRef90_UPI000475BA36 UniRef90-R4W5W5 UniRef90-M2U2C1 UniRef90-W2E157 UniRef90 UPI0002F340D2 UniRef90_UPI0004409A56 UniRef90-UPI0003819252 UniRef90-Q67MK6 UniRef90-C5BXT4 UniRef90_G4TYS4 UniRef90-KOSJ25 UniRef90 UPI0001F2A43F UniRef90_UPI000444167D UniRef90_G2MNK2 UniRef90-A8P8Z3 UniRef90_UPI00034D5419 UniRef90-S9Q793 UniRef90-M0A409 UniRef90-UPI0002379E95 UniRef90-F8L007 UniRef90-W6SPC1 UniRef90-K9WGI7 UniRef90-F2L552
UniRef90 ${ }^{-}$T5LSV9 UniRef90-E7N6F0 UniRef90 B0E4G5 UniRef90_UPI000349AA9D UniRef90-F2UCY0 UniRef90_E4TH64 UniRef90_UPI0001FFDA67 UniRef90_UPI00037164FA UniRef90-BODWE2 UniRef90-B4RHB8 UniRef90_XOUEJ7 UniRef90_B5W906

R Y D A K T Y AR | 210 |
| :--- |

 MSPSGYPDADGQNSTARESSSPADATLVFEGDGWLTLSGW
 MTTSGYPRTVREWKRGTKIE KMDTGTW KMK $\square$ GD WKPEMDYQNNDGDETPTLLYENKDG

ATGDDAKLVAEGD GWLSLGGWS PLDRTAPGGSRASVDTTLWLSDPLHPEGRRAVATLPGTGW II DPRDPASNRLVAQ VK G G GWRLSDF QGS $\square$ S SGETELIFEGSYGNFARAL
KME $\square G K$ WE PNMLYENNE

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AYDA
AYD
RDETGDD
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AANL
ETYERSLVFENADALSMSAE
ADLVY

VQA

## RDETGDDAEVVY

TMQDAK WVY E LLYEGNGWGSLSGW
YSAADYSRSMLYENSEGLDLGAG
RYDASTYERTLV FQNDEGYS LGD DDRSGRFVALNK
$H V F R L H L T N G N Q S E L L Y E E K D$
$D E T G E D E L V L E G D Q F S R I V E A C S R W$
VQDR
VYTQVRDATGDDAELVHEGDG
WLT VA G F
VQGRQTGTADRVH
$V Q G$ RDETGDAAEMVH SQLT YRPYKVESDNDVTGTKKEMV (TKKHVFESD PKWLVSSYV $N R R N D V D F D L V A L D L G T G T$
$V M D A N G V V R V L$
VQGR
VQA R RDGTGTE TERGVDAELVHEGDGWLDSVVG
 VMDP $\quad$ HKYH SEDYKRQLVFSNNDGYGISAV
VMDPLKGHDDWVTSVAFSPD

RAT PTTTGWLVDPLQPSSRRRDAEDPGTGWF
RAA $\square \mathrm{DTTLWLM}$ DPLS
AYDAATY
VWFHK LGEEQS
ATRSGWPRVGRRLKRGQAPANATCLYRTREDDLFDLTLEA

AADPADPKSRRLVWQGAGA
TADLL
ETGERSMVYEGSYANYPGA EA D RHFYMQVYWHPLGGDPRNDSYVGGRDFPRDAEVELDN
$\square$ T DTDSENTRANFVNFTNDGEFFYATTNERDPKFMDLYRY EPDSRQPRRIIDHAHGSHGA HEAHDSHRSHDAYDS $V$ V A L WHQVPGARDEHGNDATLLH MDETGRPWRLHRLRGPSATRAD TGEEQRT

LT GHTNSVYGVS $\square$ Y DLQARENAWTQLTHFTAPASPVKW
 TGEVN

H TLEGHSDI I S SVAFSPDRKFI AS G
 $\mathrm{V} Q \mathrm{DRD}$ FTTNRRNQVDFDLVMDDLASGTETVL YDGGGYLGSAHV

LVDAATGGR
 I GEPLRRGHEDCVTNVVGVLEAGSVRLLTDEKDPQWNWQAVA TADLSSGETTRLY DKT
$E G T D W G A P G$
$F$ $\square \mathrm{Y} \mathrm{DL}$ ETKETRQLTPGGGLRYAFSF
 $R V V S G S H D K T V R L G W D \prod E T G K Q \square G R S F E G H A S F V L S V I F$
$L T D S G Y P R V V K S W R R G T P I E D A A T V F E G E R D D I A A S M Y A Y$ LQQTLEGHTGWVKTMVFSPDGRLLVSGSDDNTVRLDW W VFRLDLASEGSGKVTSVHEETQPDVFVEVAD
VQER $\qquad$
SGKALLEP
GNQ VMDDDTGEDGTAHGDAADATEPTVVCEGDG RDSVVGW ARDGGRPEVLYQHEQDGGLSAM
EME I S GHTNSVLSVSFSPEDFTSKLLFKNEQGFEVDCD ELRQLSGHTNSVLSVSFSPDGQTLASGSYDKTVRLWDVPT CLCVLKGHSQWIWKAFWSPDGRQVASCSEDQTIRIUWDVET VFDGGGARKVADLQGINAAVDWCDEG\|

TGQPRLTVDNGARELSEVVWSPDGTRDATSSY L GAVAWSPDSTRDLTSFDDASARQVVRTLSGHTEHLTAVSW GKLLREFKGHKDSVGSVSTGQSVMDPLNGHDHWVTSVAF V R VWDARTGESF TGREIRTFKGH TNDVTSVADSPDRMYVRSVGF VFADAVQEGIRVWRQFDGQPAEAIYHHDQDGMSGPLSADA IM DPPRDRMLLSTESGGWAADDFAPNGRDLLVFNYISVTD QTVAFSPDGRH\|VS

| UniRef90_U2SQW5 |
| :---: |
| UniRef90-I3YZR |
| UniRet90-WoJN24 |
| UniRef90-C1EDT5 |
| UniRef90 B8C6U |
| UniRet90_UP1000411 |
| UniRet90_UPI0004729417 |
| UniRef90 U1Q7D6 |
| UniRef90-UPI |
| UniRef90 ${ }^{-} 4$ QSB3 |
| UniRef90_H3NRI |
| UniRet90_A0M3 |
| UniRet90_UPI0003B4DE48 |
| UniRef90 D2RZL4 |
| UniRe990 UPI0003B37CD1 |
| UniRef90-M0N |
| UniRef90 |
| UniRef90-H3NU |
| Ref90 A1S |
| UniRee90-W5k9wo |

 SADKNYMLLSKSITTND SDLYLLNLKTNQKTKINETISK
 DETHRMYEMQSRATT FYDSEYFARKNADAEFVKLAVAKNT $\square$ DNNDQYVALTQEITADKSELFAKYDNKTKTSK



$D P V T G T L Q Q T L K G H T D P V N S M V F \quad S P D G R L L A S G S D D$ SRDRQILTINCNSRTS SEVMLIDVTKSRLEPFVIDPRQ WHPDGDALILQEAHSSSDQLLYWLDIPSGDUEPISDPAEE SPDGRTLATGSDDGTAR LWDLSG WRSDGTGEPVVLDRGHKERVQ SAAFSPGGQSIVTASWDGT SPSGDRLLI RNAHASSD S WDESMVVISHSEHGDSRHPALRVLRVDGS EVAEKWD SPDKRSD VIVKIIKNNNYQLFLHDVATKGLKADMPHA
 HESSRDGD $\backslash Y$ L $\quad$ ASGGEVKNDTK
SPDASTGDVVQALTAGEDDVNDTAWSPDSERDLTGLGDDR SPDGTRVATASDDGTAR IWDVTTGTELLRVGPMAF SPDGRHIVSGSRDKT VRVWDAQTGQS
$\square T E F K V N Q G V V L S V S F S R N G K R I A T A S D V D G K V R D W D L S G$ SPDGTC VVVSAGGTTVHEPDYSYSWVEVSGVGMNDRDW DDTVKLWDDTTGREDKTFSGHTVADSPDGRYIVSGSWDNT T SQ RVALHLVDVETGATRQVTRDATPVAYGNLQFAPDG VAFSPDGRHIVSGSCDKTVRVWDAQAFSPDGRHIVSGSYD SADGRHLLVSRYNSAA HVELFVLDVETGKIAPVGPTG SEDGKYLLVQQYDKVTD SRI YLLDLKSNEMRILAGDAGS

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UniRef90_B8C6U2 UniRef90_UPI000411DA93 UniRef90-UPI0004729417 UniRef90 U1Q7D6 UniRef90_UPI000344FFB2 UniRef90-F4QSB3 UniRef90-H3NRH7
UniRef90- АОМЗН6 UniRef90_UPIO003B4DE48 UniRef90-D2RZL4 UniRef90_UPI0003B37CD1 UniRef90- M0M867
UniRef90_UPIO0040C531B
UniRef90-H3NUB5
UniRef90-A1S2K2
UniRef90_W5K9W0
UniRef90-W0JXB1
UniRef90-L8WHF8
UniRef90-M0MHA7
UniRef90-V4XH72
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UniRef90_V4W6J5
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290
310
320
HWK A A T
NTPED FS P DE
F D P S S S S L 100 LT NEGSEF
NTPEDFSPDE
GDVRYQSASWAP I P PDGE

 RIS S DNEANWNPVTFDNTALLYYTYN DDNEFNALYKYD I A S


 SRANH GDGGFA W S S D GGTVLF LSSNANNREFAAVVA Y DI G S $\square$ SKP GFNYSPTGFSKDETELYYTTNHGGEFSRLMSFNLDT




P GLIEAAEEVFSFAHN GQTLYYGSDAKSEFNEVWAYDIA S
 A D TR F

D G D A L Y C L T D R DGDTLSLARLDLGS
NDVR F M G V E W G P HRGVE W
 L V RA R L S GVEYY VDSVQN QRFI KSNK DGS FAI YRVGKHN $\overline{D E T C A L L E L S W L P}$ TVYTAADA G QARFQSVEWGP GTVRF Q S PE WGP $\mathrm{KN} \|$
$G N \square S \quad D G E N V Y M V T D$
 SVMDPLKGHDGYVTSVAFSPDGRHIVSGSCDKTVRVWDAD GTVRFQSASWGP DGESVYLVSDRDGDTMDLWRVRVDS
 GETTKASHFPVAFRPDGSGLLFLSDRAGEFRELLMLSLAD
 E E G WTMMVPETASVVSCDGS FLLVVLVKDDWEVGRVVAVVQLES FLPPWHLGDDMFVSHRGNQFFIRRSDGGFHSDVLTCPVDN
 K AKARFEDPR F DEGGKA VADTNAGTDTRRLVRDDTAT APERRAA QGS IA WQDDSSGFYLVSNRGREYSALMRYDVFT A DKVVAVAP GPD GA LYL I S R L N A P A GRRLRLAPGD



T GHTNSVYGVS $\square$ SPD GQTVVSGS LDK T LKVWDLA $G S Q D R V G A W H \quad P D G K R V A V T S D A S G S G B R V G V L T$ YSPQSFE $\quad$ LDNSAFYYATNEGSEFTY LLKYDLAT MEDSP VWLEDGSGFYFDSDREREFKRVMFWDRKT KT $\square$ K LDWDA AT GEVKHKGHDDTVWS DAFSPDGKLDASGSR D LGEGAALDAATPFWSADRKGLYLLCNRERDFLSLAY LDLAA








NTVRLWDPVTGTLQQEGHTGWVKTVAFSPDGRLLVSGSDD LDLLY HVEHWKGS LLILANTGPGQEYQVMQSPTSE A RYSHVTHFGPA GGLYAVT DYERETTY DGC $\square G G G A A A B D A B$ C $\square$ WD A HS GK A LLEEPMQGHTD WVT S VAFSPDGSCDAT GSND NQIA EF R GHQDWVWSVC IS PD GRTLATGSNDGTARLWDLS | $A R V W R A D$ |  |
| :--- | :--- |
| $P$ | $T$ |







 $K L L K E F Q A H Q G W V W S V$ S S F S P K G HL DA TA S T D GKA R L WD
 LLCPLGFAP AAPD DARLLVRHERYGRDELLLWDTDTG
 $K T V R V W D A Q T V A$

PSANRASGG
$\square \mathrm{S} \mathrm{V} \mathrm{N}$



UniRef90_U2SQW5 UniRef90-I3YZR7 UniRef90-WOJN24 UniRef90-C1EDT5
UniRef90 B8C6U2 UniRef90_UPIO00411DA93 UniRef90-UPI0004729417 UniRef90 U1Q7D6 UniRef90-UPI000344FFB2 UniRef90-F4QSB3 UniRef90-H3NRH7 UniRef90 A0M3H6 UniRef90_UPIO003B4DE48 UniRef90-D2RZL4 UniRef90_UPI0003B37CD1 UniRef90- M0M867 UniRef90_UPI00040C531B UniRef90-H3NUB5 UniRef90-A1S2K2 UniRef90-W5K9W0 UniRef90-W0JXB1 UniRef90_MOMHA7 UniRef90-V4XH72
UniRef90 E4NRRA7 UniRef90-W9A2J5 UniRef90_D2PRW4 UniRef90-J2DCC5 UniRef90-U1RON3 UniRef90-D4GUG3
UniRef90 ${ }^{\text {V8PD }}$ UniRef90_V8PD32
UniRef90_UPIO00382EB34 UniRef90-B0DF52 UniRef90-M0CZF7 UniRef90 B1KKW3 UniRef90-IOHPK3 UniRef90_U2Z9A3 UniRef90-L1JNJ9 UniRef90-V4W6J5 UniRef90_B9JCE5
UniRef90 V6SZG8 UniRef90-W9BXE8 UniRef90-A3UGQ1 UniRef90-G1Y1E6 UniRef90_A8FQD8 UniRef90-F8B6IO UniRef90-M0A5J8 UniRef90-W0PHQ4
UniRef90 R1BEC6 UniRef90-A8ZQX9 UniRef90-LOAOV1 UniRef90-G8TCC1 UniRef90-UPI0003689339 UniRef90_B8LTB2 UniRef90-D6TNW7 UniRef90-B9LTP9 UniRef90_UPI000475BA36 UniRef90-R4W5W5 UniRef90-M2U2C1 UniRef90-W2E157 UniRef90_UPI0002F340D2 UniRef90_UPI0004409A56 UniRef90_UPI0003819252 UniRef90-Q67MK6 UniRef90-C5BXT4 UniRef90-G4TYS4 UniRef90-KOSJ25 UniRef90 UPI0001F2A43F UniRef90-UPIO00444167D UniRef90_G2MNK2 UniRef90-A8P8Z3 UniRef90_UPIO0034D5419 UniRef90_-S9Q793 UniRef90-M0A409 UniRef90_UPIO002379E95 UniRef90-F8L007 UniRef90-W6SPC1 UniRef90-K9WGI7 UniRef90_F2L552
UniRef90_T5LSV9 UniRef90-E7N6F0 UniRef90_B0E4G5 UniRef90_UPIO00349AA9D UniRef90-F2UCYo UniRef90_E4TH64 UniRef90_UPIO001FFDA67 UniRef90_UPI00037164FA UniRef90-BODWE2 UniRef90-B4RHB8 UniRef90-X0UEJ7 UniRef90-B5W906


TGEEQ RTLT GHTSPV EGVS DSPDGQTVVSGSWD KT LGS GE WRWLSPESATDEQVGEFSPDGTLLSVLRNREATLL GKQQK G $\quad \square T E E I Y E V N W D V T H D A L S G Q D R Y L A V V V N E D G D S R$
 GEFSGGSPVKPGGDDGWNVDGVAVHSRRVVYSRNVDGYTE A AWSDLLVDDKHD LAGWVCPDGEHLLVGTTDDGVVT PATGEERADTPDUEWNVEAFDASKDGRVLAYAVNEGGYSR EP EVLAERPDAELDLFALGADGRAVLVWNAGGRSE SGKDRW LLPATPWEQTSGAMSPDGKSLLVRTNEDGRST TGVSDGEP RGGHEDSVLSVGYS PDGHCVVSGSDD ST GEM M TTVKEADYDLGGIDLCGEGGQFMVSTENVDGFET

$N T V R \square W D P V T G T G H T D P V N S M V F S P D G R L L A S G S D D \quad D T$ PSTASWASLFVPKPDSAIKDMDVVGDYCLLVLKTPANEDA GGESGEVEVVGRTKWNVDSLHLDDDTGRVVYTWNVDGYTD

 GECDPVAVGDQERSWSUDEFELDAATGRIAYARNVDGYSE GHD I E DEKYDWDDKSCYFSHYGKYRVTIVNEDGCAV TGREVLRQLTGHTDYVNSVSFSSPDGQTLASGSSDN GEAKPLVQQLTHTYTGNREDELVDDWGNYLAYVANEDGYSG $G T A R I W D E V I H T Y T G N W V R D V V W T Q G G P R V V T G S A D G A A H$
$A E P R V W E V L S L H G R E R R W V S V V S W S P D G S R I T I T D D D S G T A$ TGGQSVMDPLKKGDSWVTSSVAFSPDGRHGV K
 EQCEIT IDLPGQ LDAIWLDADNLAVRHTHHGRAT TGQSVMDPLKGHDHHVT SVAFSPDGRHIVSGSNEAGFSR G KVRDLDSGAKWGAEEMDVSPDGRTIAYAVNEEGYSK



UniRe90 L8WHF8 UniRef90_MOMHA7 UniRef90-E4NRA7 UniRef90_W9A2J5 UniRef90_D2PRW4 UniRef90-J2DCC5 UniRef90_U1R0N3 UniRef90_D4GUG3 UniRef90_UPI000382EB34 UniRef90_B0DF52 UniRef90_M0CZF7 UniRef90_B1KKW3 UniRef90_A2SHW0
UniRef90 IOHPK3 UniRef90_U2Z9A3 UniRef90-L1JNJ9 UniRef90_V4W6J5 UniRef90_B9JCE5
UniRef90_V6SZG8 UniRef90_W9BXE8 UniRef90_A3UGQ1 UniRef90-G1Y1E6
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UniRef90-F8B6I0 UniRef90_M0A5J8 UniRef90-W0PHQ4 UniRef90-R1BEC6
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UniRef90-B9LTP9 UniRef90_UPI000475BA36 UniRef90_R4W5W5 UniRef90_M2U2C1 UniRef90-W2EI57 UniRef90_UPI0002F340D2 UniRef90_UPI0004409A56
UniRef90 UPI0003819252 UniRef90-Q67MK6 UniRef90_C5BXT4 UniRef90_G4TYS4 UniRef90_K0SJ25 UniRef90_UPI0001F2A43F UniRef90_UPI000444167D UniRef90_G2MNK2 UniRef90-A8P8Z3 UniRef90_UPI00034D5419 UniRef90_S9Q793 UniRef90_M0A409 UniRef90_UPI0002379E95 UniRef90_F8L007
UniRef90 W6SPC1 UniRef90-K9WGI7 UniRef90_F2L552
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LTVGRLT GETTVETFPLPDGLAGADEFDDDAERFADTVTG
 L TV G E L T A P D R I D V P D D L P R GVVA G G V S F S P D G D R F A V T V S R L N S Y D H D G N LLIF S K K L S A DA SA G WL NT DANNNVI NI RTM G L A L H S T E G E RL T P P I E L P P G G C A S A P H W S P D G G QL V I T Y S S
 L A A G R L N G P A S $L$ L E L F A E P S GTA G GV S F GP D G E Q F A L T V
 I T I T D L Q S G K A L Q L P E L P A G D L R G V T F S D D S K Y L S F Y L N A V R V WD A Q T G Q S $V$ V M D P LL K G H H Y V
 LRVVDTRTLRERALPALPAGGVNAVRFQPRTHRLAVAIDS L R L L D G R T L K E V A L P P L P A G S I G S A A F D R R G DEELAF S TN S









LKVWDLAT GEEQRTLTGHTNSVYGVS $\quad$ TSPD GQTVVSSGS D $P$ V L Y DLQ S GEARE LQQLPP GVTSSAQFVLGGEKLLTTLHS S VL L Y D H K T G K Q L A F P A I K E G Y V Q G VR I S P T E K S M V I Y DA G I HI LE A E TKREEVHDPQUP LGGTI GDE EPVT WSN R L L F S FE S

 MA L H K L A A D T S F

 $L A A L D D A T L A A R P L P D P P D N S A P G A A F A P D G R S L I D F T H A G$




## 

 $L$ S V M S L R N P K ET C I I E L P S WA C S I E T K K P G Q DVL E F L L S S L H I G T L A T GVLDD A VSSPDPE GVVA DVT LSS P DA E QV A VT F S A NQSGDLLWD L S G N Q DA EFR GH Q G GVT SVC VS P DGRTL
 $L F V G R L R T P V E A D T V P V E V G V V S G L T I G P A G T R A A M T V S S$ MHRYDLA E ELLTTELATPP GTVAGASVRPDHS VEYVWSS LKVYD QE A QK PVVQFT GMPE GNI TMLAK I S S S E K WMLDF GVN N



$\square W D \square D G T E L A K F Q G H G G T V G S V S F S P D G K M L$
VRIWDAT T GAQLA QRDGHTSGVGSVMFSADGTMRI
I K L W S DT T G R E I $\quad$ R T F R G H $\square$ G WVV N S V $L Q R C R L D G S E L T Q D G P D E G C V L G V A R R P D G A \quad L E Y T W T S$
 $V$ R V WD A Q T G Q S VMM D P L K G H H Y V T S V A F S P D G R Q I V S G S A D



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EKRWLRFHAPR DSVPE

YANDLS YKS $\square$ T A LR DGDRTTAFQ

RQ $\square$ A A ERARADDVAAA $\square$ GAARDAAARVEALVPAAAAGDAW

RNARVWKADMTGEPL
QWN $\square$ S G N Q $\square$ A Q F Q T H Q GMVR S VCFSPNGNY $\square$ A T A S YD ST A MPE WEKRFRAPRVGLPE

VT QGLQED Y S GPPE

RWRDRFTAPRVS LPQ
PAVDYHWSPY $\square$ QS $\square E G H R E E D A T T G K \nabla Q Q T \square K S D K \square I S V A$ WDKTARVWNADGSGEPR

CDDRAARVWRADGTGEPL

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WAEDAPDRSF ${ }^{90} \mathrm{~V}$ SNATGTYE ${ }^{100}$ YA WDRATGVQR ${ }^{110}$ QVTDRPNGT

WAEDAPDRSLFTSNATGTYEYAWDRVSGEQRQVTDRANGT | C |
| :---: |

ACQPYQDAPLPDPKQLTQDEFKLK LLS
WDAQTGQSVMDPL
GQ $\square P \square W \square R R C P \square T P V M W S A E L \quad Q K \square$
GRYFASASDGKVLQ ${ }^{\text {GWDAKTGEAVGKP }}$
F
WARDDANVYVSNGSGVWEVYAWDRATDSHRRVTNRPNGTL
WDLMTSTHQTL
LDPF
MDP $\underset{F}{\text { L }}$
DTHRQV

PA $\square R$ L
dGtarlwdLhgnerat
$\square A \square F A Y Y$ VETGNANVTRALVEA $\square Y$ YNDVPARLTDPWAS $\frac{\square}{F}$
WDVKTGQQK $\square K \square$
LAPPRR■
FSPDGKHDVSGSNDAT RTWDALTGLSVMGP RAFGAWEWRAADDEGFRVWERRRRGSESAPEVALDERSAP WDTATGVLEQTLD
VLRGHENGVSSAAFSPDGRWIVTASWDGTVRVWTGEPLVL K पWD पYGNQSFSPTGEYПATASYDGTARDWDLDGNQUQF WAQDQRCLFVSNETGTYELYYAWDRTADGRRQVTDRPNGTT

QSVLDPFD
T पHGHEDSVRG $\square$ SFSADGSMFVSGSADTT $\square R \square W Q P$ VGEP
RKFFEMDFPKWLSRGPNVE ETWSAHDQAL PKRTL

WAEDNLY LSNSSGVWEVYAWDR
ASDEHRKV VNFGEYPYL FSPD SRY $\quad$ TSGSRDST $\square K \square W D T \square T G K M Q Q T L N$ \|LRGHEDVVYSAAFSPDGER\|VTASWDKTARVWNAEPR\|L

NQVNFGEYGYL

VLRGHYSVAWSPDGKH■ATASSDKTARVWNADGTGEP VE

WD T H T GECQQ L

Y S P D G R H $\square$ A S G S D D K T $\square R \square$ WD S Q T G $\square E \operatorname{VRPPF}$ LL

NHNGWVNNVVFSPDGKYAATASNDNTAR LWDADTGKQ $\square$ FV

WARDGRA LFSSNATGTYE $\square Y$ A WDRDTGGQRQVTDRPNGTT

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TDGV 130
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NGHKAWVQS AFSPDGKYIV LA FSPDGELLA TAFDR DGNENYQFHALRWNG
TD
RLSPDGAWI WWFDDK
EGHSDY円RSVAFSSNGKILA
GHDHWVWSVAFSPDGQMLA
LGHTDAVWSVA
VS P D G S QVAF Y Y DE
KGHDDYVTSVAFSPDGRHIV
GHTDSVGGVACSSDGSRVV
EGHTEWVTAVAFSPDGSLLA
EGHLEREGGVAFSHDDQLLA
KGHTESVSSVAFSPDGTKIV
PGHTDSVRSVSFSPDGKTLA
QGHTDWVTS
H

NGHESYI Y
KGHNDDVTSVAFSHDGKYIV V S
EGNSDWVSAVDFSPDGKRLLI
TDRPNGTMHATTSPDGQWI WWFDDT
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RGHDAMVTSVAFSPDGRYIA
A A LP SAFEGVA $\square$ APDGADLAYTVDA GHSKSVQSVAFSPDGRLLA
EVHQHPVLSVSFSPDGKTLA
RDHERVNSAAFSPDGQR1 A
GWCNWI RSAVSPDGKT A

D G
LTPDGEWI WWF SDT
RGHTSSVRGVA LAFSSDGRRLAYASER
GHTHCVHSVSFSPDGKFI $\square$
RGHTMUS SGSEDTTMRAWDAGT

EGHGHWVT
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ISNYFWSRNGKYI LYSQDK
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| $V T G G A W S P D G S W L A C Q L A P G U$ |
| :--- |
| $V$ |
| $V$ | GHSSYVRAVSFSPDGRHVVCSDDM GHQGTVWCVSFSPDGKH1 A

RGHRDVI QLVAYSPDSRRILTA
GPTNCVNSVVFSPDGTLI A
TGHTRWVTSVSMSGDGKRVA

HGHADCVYSVRWSPDGQTLA
TLSPDGEWI WWFSDT
EGHEDSVWSVFYSPDGRHIV
ThTPDGA WVWWFADT
EGHEGCIS SVA
GHTSTVNSVAFSPDGRRIV
TGHKAAVNSVAFSPDGERI A
RWSPDGSWLAFVSAR
GHEADVKS VAFSPDGKVLA VYY
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 GEVLHTLTGHTWVVGVACSSNGDRVVTGSRDDTALI WDGT GQEVVRKLEGHTD FSAVAFSPDGSLLASASADRTVRLWDVS GECCLHTK GH QD WVWQVA F S P D GQQL L A S G S G D K T I K L W S V T



D S

 GKLVLDDPF E GHYVTSVVAFSPN GKY I V S G S F DK TI
GQIVVDPGHGVYVTSVACSPDGRHIVSGSDDK
$G A Q L Q R D Q G H T D V R G V T F S P D G Q W I V T A A R D$
$G T T A A K A V A D V P D G Y P A G L E D G H S V L A$
GQLLLNFKGHGWVWLVTFSGDGQTLASCSSDKTDRDWD
 GADAP



 GESSL Q T L L G H D A V S S V A F S P D G T K V A S G S D D R T I R L
 GKTDEDISPEHFHQFGGWSPDESKI TYASNRRDPGYFD
GQSAMDPLKGHDKGSVAFSPDGKYIASGSWDK
$A L S D R P P G A A V D A Q V A W A A D G G L Y A L D C D G A G R P C E L W$ GELQQTF DLYSEVQSVAFSPDGRHLASGSNDGTVRLWDGT GEIT S LP GHQ D WV IS V S F S P D G K T L A S G S R D N TVVK L WD GK
 $N Q L A E L K G H Q G E V T S V S F S P T G E Y \| A T A S Y D G T V R L W N D S$ GEDEPAAPGLAPAYSAG $\quad$ A $L G R D G T V I G R S T D E E G T T V H V$

 GQIIP LQGHEHRVSSLAFSPDGSRIVSGSWDFTVRLLWDAD GETQPLCTHEGRFMFCTTSKDGNRI YYS S
GALYQTEGHDDGVTSVVFSPDGRLLASASRD
GKLVVNFAGHGWVWSLAFSPDGQLLASCSSDKTIRLWDGK GEHKGTLTGHTS GVVSVVFSPDGGTLASGSSGE LWDAVTGE


 GKVQQTLK GHS DVNSVAF LDP GRHLTS GSWDNTIK WD GK
 GR A L A T F T G H T R V S GVA F S P D G R T L L T G S WD D A TA R L W



 KLLVVFPGHQDCVWDVSFSPDGQYVATASSDGTARLWAGE



 GE L L Q E HSN WVY A VA WSPD GQTL AS GS C D
GPDAREGLDPSYPAGLALGRDSTVVLGRSTDEDGSTVVVL

 $R K V Y P P K G H Q N W I R S V V Y S P D G R H I V S$

 GEPSCLTDLTNGVDDIVWSPDSTRLAFTRVGGWQEPEDED $R K P L P L R G H E A E V S S V V A F S P D G K V L A S S S W D K T V R D W D V A$ GE WSD GEVPRNA RWHV EWGA DGDRV F F H LDD D D GNE QNDVV GK Q $\square F V L N H G D W V N N V V F S P D G K Y V A T A S N D N T A R D W D A$ GSTQTLAGHRNWVKSVAFSPDSKWVASGSDDSTDKIWDAA




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UniRef90-UPI000428EE7F
UniRef90-L7EB63 UniRef90-A7EJN8 UniRef90-AOBQM8 UniRef90-UPIO0047AEE82 UniRef90_O8ET03 UniRef90-BOE2M6
UniRef90_FOYBT3 UniRef90-W609A6 UniRef90_B7K750 UniRefofo-A9F92929 UniRef90-D4ZVZ4
UniRef90 K9WR4 UniRef90_F8JQ36 UniRet90-G4TES3 UniRet90-U7FPP2 UniRef90 BODYZO
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UniRef90 C7NWE5 UniRef90-Q468D0 UniRet90_B2ADI5 UniRef90-D4TKB9 UniRef90-A3WB02 UniRef90-H2K970 UniRee90_UPI00029A8B45 UniRef90_UPIOOO4407996
 VR QTGHPVEPLKGHEDPVHSVAFSPGGK VTSKGNPSFDNSRVYHDDTKEDHLLHEGEATSTEMCAV TGQCLLPGHTNRVIFVTFPDEQTVVTASEDQTVRVWDVDT SLQTLEGHSDYMRSVAFSSNGKILASGSSDRTI RLWDTAT CRQTWKAHENWVWSVSCRPDGQVLASGSNAVKLW RVTADGTVEPIVSVDGTMDGQTVLYGSDEGEQMNDYRYDT QTGQSVMDP KGGHGWVGMADYVTSVAFSPDGRHIVSG
TGEVL LTSASADRTVRLWDASTGQEVRKL EGHTDFVSAVAF QQKYQY QTGKPDDAPLRSHTDW KTFKGRTDUVNSVSFSPDSASSETVSEGTLKDWDINSGKE FQGTNGVRSVRFSPDGSMLASDALVRDWDWQQETFKALPG VKRKWTLTGHTGEDDSVAFSPDGSTLASAGEYDNTVRLWD DPETGEATVVDRRMGGALVHSDGAALFRVGARGNRELLRIT
 KTVNGREFKRLTGHKGGIRPVVFSADGRWIVTGGDDGTAR AFAANRRDPYAHRDGRTQ RERASEHDADVAALL AFAANRRDPAVFDVYTQGRAERGDEAELVFEGDGWYSVAG CKK乌LTGHRSSIWAIAFSADGQTLASGGDEPTVRLWDIHT HRQTLEGHGHWVSAVAFSPDGNTLASASDDTTVRLWTGAH
SSNARAPHLMDVHLMDVASGAVTTLLEGNG GNERSAHSGPVRSVSFSPDGQTLATTSSDGTARLWEAQGN SGKQTLN GKGHTAGVWSAAFSLDGKRLATGSEDKTAKD ElDTLTGHESW|WWSVAFSPDGQYVASGSEDFTVRLWSVKT
 CTKSRLDEQAARKASGRVYDR

TVRVWNALTGQS
LQD
REGRERLLRSE


SVQALPGDQTYSYTDGD
VMDSLKGHSHWVHSVAFSSDGKY NYEWSPDGEWLLIRTG $\llcorner$

DKDNPTYLCGYVFDLESGEERKLYEGEGGPTVVAAVSD TVIRLWDMVTGALQQTFEGHDEWIEAVAFSTDGQLLASS CLRTLSGHTSSVWSVAFSADGQMLASGGDEPTDRLWNVNT

 SGELERHFQLVLHAQYSFSGHMDVACSKDGNDQFWNSGRA ERWKLNSGECLHELKGHTS NLHTHRSTGVLRGHRGEVYAVAFGPDGKTAATGSADGTAR LQEAATGRRVRALEGHTDAAPDGRLLASGARDSTVRLWDA TGSQLRGHEDSVFSVAFSPDGKILMSGSWDKTVRLWDVAT

SGQQ\|QCFEGHTDCVVSVQFSPSGDKIISG LVDCL EGHSNRTNRTRFSPDGGRSASGDHTLRVWDSTTLQPLGEP QISRFRGHQDVVWSVRFSPNGKYMATASSDRTARVWNLNG VRLIWNLQGQCLRVLKGHTQSVYAVHF S SAPDQQTLTS GEPLVFNDEQGGDVYWAAWSPDRUVTASEDGRARVWNADG
$R T G K E V M E P L A G H T D A \square N S V A D S S E G T R \square A S G S D D N T V R V$ ETGRQUGDTMTGHT IDPATCETTVLDRRSGGRLVDAWVGSATVTGPRGYREISL
TGQVLQ RTVKपWNSHT SKCLQTLQEHNNWVLSLSW RPGSPAPVEVYRHTASAGESAGVGDLSHDSSLLVIEHTE VVRSMMCSPDGRHDASAGVDDMTVRWWDTESAIRNWDAYC TGQCLR R TVEGYRH TVAGWIWSVAFAPDGQTVASG ES GVNADGQLLEEHQGAGQPSRVLKGHQRP ERRLSKPARVRRHVFVVSADGDSEPRQLTDGDWDDNVAF ASTASGQMQLYRHDCATGETTKPLGEPLRGYEEAVGAGVL DTGKQDFVLNHNGSVNNAVFSPDGKYUATASNDNTARL TGSYTQTLEGHGGSVNSVAF $R Q K \| Q R G H E D W V T S V S F S P D G Q N L A T G S R D N T A R L W N W E G$
$R$
ARAGADPVETYRR


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UniRef90-C7NWE5 UniRef90_Q468D0 UniRef90_B2ADI5 UniRef90-D4TKB9 UniRef90-A3WB02 UniRef90_H2K970 UniRef90_UPIO0029A8B45

250 HGDAMHSALRVVRPDGRA VAEDDDTRGGTEEDGDE|V

260
270
280 $H$
$S P D E K T D A Y I V S G S D D N T D R V W D A Q T G Q P V D E P D Q G H E D W$
$M$ $S P D E K T!A Y$
$G R C L R I I$ HGDAMHSALRVLALDGTTVVAELDDTRGGAEELGGLV GESLQQTHSDWVRSVAFSSNGKTLASGSDDKTDRLWDTATG DMETNACDATLQEDEGFVFCLAWSPNGRYFATGSSDHR LWDVDTGQSLRVMEGHTDSVQSVAFSADGRRALSGSSDRT ARDERQQLTAYEHGAFSPDDDRIAYATNESDALENRDAYV SGDKTVRVWDAQTGQSVMDP DKGHDAFSPDGRHIVSGSGD
WNAATGEVIVAGLTGRREPVVEGVASSSNGDRVVVGSRDGT $\begin{array}{ll}S P D G S \\ L Q S F Q G Y G L R A S A S A D R T V R L W D V S T G Q E V Q K L E G G H T H S \\ W & H \\ W\end{array}$ SHDRTLR WWDI ESGEQGEELLEVAISPDGRHVASGSTEKI $\square K T L K G H T S I V S S V S F S P D G K T L A S A S D D S T V K D W D I N T G$ HTDWDWA VAFHPHG HMLASASEDQTIRLWNARDG SMSRDESLLADSHSEHGDSRHPADRVLSTDGFTTVAEKWD AVTGEQKQVFTGHKRGDPSLVFSPDGSTLAGGSRDKTARL VPDGRWWPLLPVDTGATTDAGVILDAGGPERP
$M Q Q T L G T K N F S A P K V A S S Q D G R L L A C T S G S N I I V W N M S T Q$ SPDGKY $\quad$ V AGDLPLDLMMRQSECGMLKQAYCFWDYDKTVRVWDVQTGQ

 GECQK ILSGHTGRSVAYSPDGQILASGSDDRTIRLWNHNT RQTLEGHGDSVRAVAFSPDGNTLASASDDKTIRLWDTATG TPDGSALILRDSARGMGDQDLLLLDDATRACAAIMPHDGP WDDSGEQTLNNLQGHTAGVVWSVAFSPDGGKRLATGSDDNS GQGLRTCQGHRNQVWSVFSPQGMILATGALEQTLKLWDVN RECLQCFRGYGNRLSSUTMESQY ILASGSDDRSVRLWDKNH GESLQTHSHWVSSVAFSPDGTKVASGSDDRTIRLWDTATG WSDGRRSRL FVA TDPGEGEGPVDAAQA LSVS DDGDGPSR TADGKG II FTYAVSNIDNQLHILDLESGKTK PDGG SPDGRF $\quad$ S QQTGRGHLDSVHSTAFSPDCLLLASGSRDETGKLWDTDTG GKEFEGHQHLVLSVSFSPDGKVLASGSDDNTVKLWDVDTG
 Q $\square A Q F \square G H Q N R V N S V S F S P T E E Y V V T A S D D R T A R L W D L S G$ HGDAMHAA LRVVTLDGTT VVAELDDTEGGTRELGLES SPDASRD ASASWDKADRDWDANTGQPLGEPDRGHKGW YFSSSEIALVSTDGSHNVSRNGFVDLKPQDGTAVLWQSDR
GHSLGGDPFRHIDASGSSDKT SPN GLLVASSSWDKT RRLWEAETGQPAGEPLRGHESW
DESMWV $\qquad$ CS GSFKLWDVT TRALKQT $\square$ KADWYPVFSPDGRLLAVAFHD GDCHKIFSGHTDRSLSFSSDGQTLASGSADFTIRLWKISG
 HGDAMHSALVRVTMDGAT GVAELDDSRGGTEELGLEV HGDNRHTALRVLTTS GETAAEKWD
 GSDKTVKMWDVSSGTGHTDQDWSLAYHPDGNKIATDDQTVV WNADGTGEPDVIRGHADRVR SAAFSPDGERVVTASFDKT LWDVVRTGRGTTTLRGHTRVVASVAFSPDGRTLLTGSWDDT ASGQLLRTLKGHGSSHGSSVWSVAFSPDGRLLASGSLDNT


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 QQLEQFPHQDYVRSVSFSPDGKYDATASSDRTVRLWYDNK SGEPIVRLSPHGLLGRLSTTYLLSLTVLQGHTSGVRCVRYSP WDMATGMEVTKPLA GHTEALSSVGFSPDGTRIISSGSYDC! LRGGVEMALLPSDPGSTTDVGVILDDHHDLRLPHGAGGTE SNDGS MRLWNVTSGGAFSVDGALLASGGDDGNVTLWDGTS SPDGNT LASSSFDQTIKLDW HGDAMHAALRVVRPDGST VAEDDDSEGGTEELGLTV FKDDRVICITEHTAGTPTTMSTTYSKYPPPSDGWDRTPTG S LDRTVRUWDVPSGTGHGSWVWVAFSPDGRTDASGSFDQT I H G D A MHSALRVVTTDGTKVA ELDDSEGGTKELGLECLG SPDGRCIVSGSWDNT APDGQSLVFTSARHWDYDNAIDLWHVAANGGEPKQLTDTP

 SSDST IK WDAATGSTQTLEGHSGSVNSVAFSPDSKWVAS $R L I Q E F K G H Q S R V T S V N F S D G Q T D G T G S A D K T A R L D N N L Q G$
$S P N G K Y A I V T E T V G E D A D N L Y L L D L A T K E M T T I S K P P V E N$
 H GDAMHASLRVVRPDG

## UniRef90 B5HVP2

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UniRef90－U1P7J4 UniRef90－K9PNS4 Uniinefoo OQGVO4 UniRef90－－F9YBP6 UniRef90－K9TDV4 UniRef90－UPI000428EE7F UniRef90－L7EB63 UniRef90－A7EJN8 UniRef90－AOBQM8 UniRef90－UPIO0047AEE82 UniRef90＿Q8ET03 UniRef90－BOE2M6
UniRef90 FOYBT3 UniRef90－W609A6 UniRef90＿B7K750 UniRef90－A9F9299 UniRef90－D4ZVZ4
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UniRef90 G4TV0 UniRef90－F81FF6 UniRef90－E4UVD4 UniRef90－B2J5X0 UniRef90－UPIOOO3765372 UniRef90＿V6SL52 UniRef90＿D9W115 UniRef90－C6WF66 UniRef90－X6NSA3 UniRef90－G9N288 UniRef90－UPIO0035DB3D1 UniRef90－A9F932 UniRef90＿S5VFA9 UniRef90－A5URP9 UniRef90－UPIOOO379B501 UniRef90－M3BQDO UniRef90 ${ }^{-} \times 6 \mathrm{P} 1 \mathrm{R} 7$ UniRef90－F4CSR3 UniRef90－R7SRG3 UniRef90－Q3мвво UniRef90－UPIO00346A061 UniRef90－A9GC88 UniRef90－M2QY11 UniRef90－R7Q1W0 UniRef90－UPIO003684AOE UniRef90－K9XIR4 UniRef90－K9QSN3 UniRef90－UPI00031C7D08 UniRef90－UPI0004407B04 UniRef90－Q7ND80 UniRef90－UPI00039F50C7 UniRef90＿UPIO0044096FC UniRef90－G4TUL7 UniRef90－M2QYO8 UniRef90－W4LM01 UniRet90－U5N4Y1 UniRef90－C7NWE5 UniRef90－Q468D0 UniRet90＿B2ADI5 UniRef90－D4TKB9 UniRef90－A3WB02 UniRef90－H2K970 UniRet90－UPIO0029A8B45 UniRef90＿UPIOOO4407996

LGFAPVDGDTRLLTGHQRR VRSVAFSPDSKDIVSGSYD PEQVHISGDVLFVSNDQVDFA VKFWDLASGECUKILPGYSSYV保 ESLQTLEGHSGYVFSVAFSPNSKIVASGSHDKTIRLWDTA VRI WKADTQRCLQLLEGHEGWVFQVAWSPNGQSLASCGVD VRLWDVDTGQSLRVMEGHTDYVWSVAFSADGHRALSGSDD MAADGSEKRRLDIGEDGSESTVSGWFPDGERVLVSDNAAD KTVRVWDVQTVAFSPDGRHIVSGSDD ARVWNGTTGEVLHTRTGHTDWIVAVACSSNGDRVVTGSDD VSAVAFSTGQEVRKLEGHTDFVNAVAFSSDGSLLASTSND ECLRQDKGHTNWVCSVVFSPDGKTLMSGSGDQTVRWWSVE DRLWSTSSGKQUQCFEGHNGNVTSVTFSPDCNRIVSGSSD GGATVADARF GV QQFPPFRGHQSTVRSUDFSPDGQQVVTASDDRTVRLWS $\square Q$ D GQQLATGCRDGS\｜RLWSGYLSNNQQ
VWLWNADGTGDPVVLHGHQNVVFVAAWSPDGRHIDSGSWD RLWDAKTGEQA VEPLTGHTDSVRSVAFAPDGDHVLSGSDD Q 1 GDTMTGHTNCVRSVSMSGDGKRVVSGSGDKTVRVWDAE WRFYQPSRSFGFGSDRGYVRAMLRSDNGCEFARLIEVAAT
 LGFAPVDGD PR LLVGHQRHGRWEPMLWDPVAG GLF LDWIPHEYQNG CDDTSVRCI LDNAPGHPVR DWKSVCH $\square K L W D A T G Q C L R T L S G H N N W V R S V A F S P D G R T L A S G S H D$ DPVCCVAYSPDGFHIISTSWERTMCIWDSRSADQDRQLDW WDVETGKGMGQPLNANKQ N L
 GS A LGTPSFSPDGSQIAFLGSRYL NEAGRTRIWDTGTTD GHEADVYITFSPDGKVLASGSMD EDGETGAEVGPVDWGPDGDRLLVTDNTADLGRCGVYDLS GLWDADTGKQIFVLNHGSWVNNVV GSGDDTDK $\square$ WDAATGLCTQTLEGHRDFGNVGSVLARFETL D ILGEFQGHEDWVTSVSFSPNGQULATGSRDKI ARLWSLQ
 MGFAPVDGDQRLLVGHQRR

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UniRef90-L7EB63 UniRef90_A7EJN8 UniRef90-AOBQM8 UniRef90-UPIO0047AEE82 UniRef90_Q8ET03 UniRef90-BOE2M6
UniRet90_FOYBT3 UniRef90-W609A6 UniRef90_B7K750 UniRef90-A9F929
UniRef90 - D4ZVZ4 UniRef90-K9WRP4 UniRef90-F8JQ36 UniRef90-G4TES3 UniRef90-U7FPP2
UniRef90-BODYZO UniRef90-G4TV01 UniRef90-F81FF6 UniRet90_E4UVD4 UniRef90-B2J5X0
UniRef90 UPIO003765372 UniRef90_V6SL52 UniRef90-D9W115 UniRef90-C6WF66 UniRef90-X6NSA3 UniRef90_UPIooo35DB3D1 UniRef90-A9F932 UniRet90_S5VFA9 UniRef90-A5URP9 UniRef90_UPIOOO379B501 UniRef90-M3BQDO UniRef90 ${ }^{-} \times 6 \mathrm{P} 1 \mathrm{R} 7$ UniRef90-F4CSR3 UniRef90-R7SRG3 UniRef90-UPIOOO346A061 UniRef90-A9GC88
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UniRef90 $\times 6$ NSA UniRef90-G9N288 UniRef90-UPIO0035DB3D1 UniR Refo-A9F932 UniRef90_S5VFA9 Unireigo_ALURP9
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RVWDPANSKQVGSADQGHHSTMT TAFSPDGS TFAS LYRVDLRTGSAEKLTAP CDVVGQIKVGDSGRLYLLGGS VTLWDTITGAVQQVLEGHRDS:TEVAFSPDGARLLASSSD

 LHRYDLATGALTALETP HHGSVGSVGVRPDGD VEYSWS S IKIWDI ATGQEQ

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ZWDV TGQMLQQFPGHQGTVWSVNFSPDGQHTA TASS
 VRVRNADGTGTPLILRGHEGRIFSATWSPDGKHIVTTSED $V W D A R M D E E A D K P L D P G H T G S V M S V A F S P D G S R M A S G S S D$
$P G V S D L Q W K A P S V S D M D G S C E T N A H E F E G R M R T T L A D$


VRVWNAATGECLHTLKVDSSQVWSVAFSPDGRILAGGSGN I YRYGLADGELTRLDTPAGSVSGATARPDGTVEFL WS S GLPLRGHQGSVFSVAYSPDGSQ1ASGSEDKTVRDW
VRLWDAETGAQ UGDPDEGHVHDTTTDAFSPDSRRIVSG I RVWDAETGQMVAGPFDQEVAAVAFSPDNK RTVVSGS VYRLDASGRTPAACDIGGECHVTGASLSPDGTQTAYTATD

DKLWDAATGSYTQTLIEGHGGSVNSVAFSPDSKWVASGSSD ARLWNLQ GDLLGKFPGHEGGVTSVSFSPDGQTL
LRGWQVVEKRPI AMPEMPEGTYSLDCEAEGD LLIRVSG LFRYDVAARELTRMPTPP GTVSGATARPDGS VEYLWS


UniRef90_B5HVP2 UniRef90-S7RPC6
UniRef90_D3EDS2 UniRef90-K9X6Y3 UniRef90 UPI00028952A1 UniRef90-M7U2B3
UniRef90 B0C7J1 UniRef90-B0C7J1
UniRef90 B0BZW8 UniRef90-L01915 UniRef90_B0DF85 UniRef90-UPIO003638B24 UniRef90_W9X896 UniRef90-B7KMFO UniRef90-UPIO00440C128 UniRef90-UPI0004407AB6 UniRef90-K9V395 UniRef90_K9U8C3 UniRef90-D9V6I8 UniRef90-UPI0003618F68 UniRef90_UPI00029A1E0A UniRef90_UPI0001F276BE UniRef90_B0DDW2 UniRef90-B0CWJ8 UniRef90_UPI00036A8C75 UniRef90-H5X328 UniRef90-U1P7J4 UniRef90-K9PNS4 UniRef90_Q2GV04 UniRef90_F9YBP6 UniRef90-F4L7Y2 UniRef90-UPIO00428EE7F UniRef90 L7EB63 UniRef90-A7EJN8 UniRef90-AOBQM8 UniRef90-UPIO0047AEE82 UniRef90 Q8ET03 UniRef90-B0E2M6 UniRef90-FOYBT3 UniRef90 W6Q9A6 UniRef90-B7K750 UniRef90-A9F92s UniRef90-D4ZVZ4 UniRef90 K9WRP4 UniRef90-F8JQ36 UniRef90_G4TES3 UniRef90_U7FPP2 UniRef90_B0DYZ0 UniRef90_G4TV01 UniRef90-F8IFF6 UniRef90 E4UVD4 UniRef90-B2J5X0 UniRef90_UPI0003765372 UniRef90_V6SL52 UniRef90 D9W115 UniRef90-C6WF66 UniRef90-X6NSA3 UniRef90 G9N288 UniRef90_UPI00035DB3D1 UniRef90-A9F932 UniRef90_S5VFA9 UniRef90 A5URP9 UniRef90_UPI000379B501 UniRef90-M3BQD0 UniRef90 X6P1R7 UniRef90-F4CSR3 UniRef90-R7SRG3 UniRef90_Q3MBB0 UniRef90 UPI000346A061 UniRef90-A9GC88 UniRef90-M2QY11 UniRef90 R7Q1W0
UniRef90 UPI0003684A0E
UniRef90_K9XIR4
UniRef90-K9QSN3
UniRef90 UPI00031C7D08 UniRef90-UPI0004407B04 UniRef90_Q7ND80 UniRef90-UPI00039F50C7 UniRef90 UPI00044096FC UniRef90_G4TUL7 UniRef90-M2QY08 UniRef90 W4LM01 UniRef90-U5N4Y1 UniRef90-C7NWE5 UniRef90_Q468D0 UniRef90-B2ADI5 UniRef90_D4TKB9 UniRef90_A3WB02 UniRef90 H2K970 UniRef90-UPI00029A8B45 UniRef90_UPI0004407996

AAEPSAV

GSHDKTIRLWDTATGESLQTL
YDLD T K K WDVETGNCQQTL
GSQDRTVRLWDVDTGQTGRVM
P DARKELYEYDLETHEYEVLL
ASDDRTVRDWDVSTGQEVRKK
FDR T $\quad$ RRVWDVESGKEVSKPF
ASDDSTVK DWD INTGK E $\square K T F K$
A AEPAAVVRWNVQDGT
A AEPAAV
Y VVYFDVKTGEQK
$\square D E P P R V V L Y D V V S G$
KT\RDWDSQTGKL
KTVRVWDAQTGQSVMDP LK
ADQTARLW DTATGE
A AQPPVVR VRQPEGTDRVLLEPP
RTENTNVSVID
GS $\square \mathrm{D}$ QTVRLWDVT T G
ASRDKTIRLWDTAT
TTHSCDVWQYTDASGTFT

WT $\quad$ RLWDAATGKSLQTL
NSI YLWDVKTGELKAKLV



WDRTARVWNAD GKGEPLILR
STTRLDDL
A ATPPQV
$\square S P G K \square T R Y E \square A T G Q A Q A \square A Y Q$
GSSDGT R R WWDAK
DNEPGNVWMLDLDD GTWRPDTRVRPMGF
DNT VRLWDMATRAQQTLKGHEQE $\square$
GSTDQTVKLWDVNTG
ATVRLWDAVTGE LKKTL
$D \square N P G S V Y L F D R T T K K T T F Q Y S P R P K \square P$
A AEPAVV
AARPGVVRVLTASGEDRVL
CSVDKTLRRWDAVTKQKLIGLL
DKT TR】WNAD GTGEPLVLR
WT VRLWDVQTGQLVRTL
A QKPPVV

PTVAPRL
D LT ARLWSLD
A GQDNTVRLWHDQSGQS LKTL

FRSPVVTFDMDVERGTV
$P G Q P R T V E V D P R S R T W E P$
A AEPP Q Q
Y A A PSEVVWWDTATGE
$S \square D N T V R \square W D V N T G T Q \square R R L F K$
FDNTVRIWD ATGDSMLDW
PVSPAEVWLCNADTGERPLT
WD DTVRLWDVATRKP
HTTPPELLCYDLATDETEQLI
ST $\square \mathrm{K} \square \mathrm{WDAATGSYTQT} \mathrm{\square}$
WQTPGELWMTNP $\square E$ GTSEK
AAEPPAV
A A V P P AV
$R T \mathrm{~T} \quad \mathrm{~V} V \mathrm{WD} \mathrm{V}$ ESGD

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lupas_21
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UniRef90_G4TUZ7
UniRef90_UPIO0036F5552
UniRef90_UP100041E1FAA
UniRef90_G0LIV8
UniRef90_M5C6C6
UniRef90_G4TVZ5

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sol25
sol0
jhmm
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UniRef90_G4TUZ7 UniRef90_UPIO0036F5552 UniRef90-UPI00041E1FAA UniRef90-GOLIV8 UniRef90-M5C6C6 UniRef90_G4TVZ5
 TGTSLR PTFLNTYKCDLLTGKEELVEEGKGHTGNV R $\square$ SQDGKAEAVVEMDGQVADGDTLI IGGSSRDGQMNLYNHD QTGQTVLGP LTGHSSTASSVSFSPGGAFDASGSWDRTDRV
lupas_21
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UniRef90_G4TUZ7 S P D G|NN\ 250
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UniRef90_UPI00036F5552 UniRef90_UPI00041E1FAA UniRef90-GOLIV8 UniRef90-M5C6C6 UniRef90-G4TVZ5

lupas_21
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sol25
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sol0
jhmm

UniRef90 G4TUZ7 $\quad 370$ RU 380
 VRLWDSTTGESLLRELKKHTMAVKGVSWSPDSRMVRIISS GS LYEYETATGEAREDASPCTASUAKVCCVKSGSLYLLGS S



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lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol
SolO
jhmm
```




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UniRef90 G4TUZ7 \DD A T TRV410 AET GK 4, 420
```


PTRPANIVY YD KSRNEANWRQLTKH VIPGF PTQRPELLI YN NIETHEANKTLVEAE D GTVRMWDVRTGQQTKQLEQE K TI I RLWDAHTREP

$$
\begin{aligned}
& \text { jhmm } \\
& \text { ipssm }
\end{aligned}
$$

jpssm


[^0]:    ,

[^1]:    DQLWDTENGKIVGKFEGHTRWVNAI AFSSDGKYLVSGSDD KEIKTLKGHTSMVYSVSFSPDGKTLASASGDNTVKLWDIN TCCQTLQGHTSWVCAVSFSPNGQMLASGSHDDSVRLWDVQ GEGKGLQALEFSPLPGDQRLLVLHERRGREELLVWDVQAD WDVKTGELKWTLTGHADRVFDVAGTMLATACWDETVWLWD MRMVVRSDHSADRTGLLAVESGE
    RRLUSGSQDATDKTWDLDAPFYE

    \section*{ <br> Cl <br> 0 Roll <br> | 5 |
    | :---: |
    | 5 |
    | 5 |} C EGHRNQVWPD SAMDPLKGHDHYVTSVAF GKLWDVATQRIIRSFKGHTRLVNTVTFSPDGRRILSAGWD akgla aldarsprhada

     AHRQTLEGHGHWVRAVAFSPDGNTLASASDDTTIRLWDTA ARYMNARATVFLLCDQGSDFHQVQQRDLASGALVSCIAAD NERSLFKGHSGPVWSVSFSPDGQTLATASDDRTARLWDLH AK $\square W D L D S G K Q T F N L Q G H A A G V W S V A F S H D G K R D A T G S E D$ $T G Q C L K T L E G H T S W A W S V T F S P D G D L L A S T S T D Q T L R L W S$
    $K C L Q Q I N G H T D W I C S V A F S P D G K T L I S G S G D Q T D R L W S G E$
     $\mathrm{K} V \mathrm{~V}$ S LLC PFGDAADYTWAPDGSHSVRIAGRTEA NVNVPARYHSVQLTKDNLS GYVVTDE PIVPARYHSVQLTKDNLSGYVVTDEGRDTDAIAKGHLEK PLI GHQGGDNSVAFSPDRRYVV IVGSNDRTVRVWEFN RAVSAAD ALRRSLDGHSDSIWYPDWVASVTFSASGSNDRLVR LWDTA A RVWKADGTGEPLVLRGHQ DAVVWAASSPDGKRIVATASYD TSLKFRGHQGEDISPNGELLASSSNDNTVRGWDVKTQECL NLITPFDGHQGWVLSV LGFAPVPGD $P R \boxed{L L V A H Q R R}$ VNAVAFSEDGSRTVSGSSDQTIQLWDVETGQPLGWDTATG YGLRSTEGKPEQVDNRDAWEKAQTTAAERARALTQETAEQ $T L P S T F D P S \quad G V I N V N D T$
    $V N S V A F S$
    $V$

    ## PGTP

    VE S
    NTDRLWDAGTGAPQRKGHRDSVNSDKFSPDGQILASSSDD ECDRILDGHSDRIWSISFSPDGQTLVSGSADFTIRLWEVS
    
     GPGKGLDADAFSPVRGDNRLLVMHERRGREELLVWDVAAD KEVQVFKGHSDLIKTVQYSHDKRTDLSCSTDKTIRDWDVE TLNDHNGQVRSVAFSADGRYLASGADHADK $\square$ WDATTAAHD RIWNDT DGKCLKVIQGYTNWVKSVKFTPNSQQLVSAHQDH ARVWNADGSGEPVTLRGHADRVRSAAFSPDGERIVTASYD IRRWWAASGQLVRTLEGHTSDVNSVAFSPDGRLLASGARD SVCSKLLASGSLDKTVRLWDVASGNKVASRNSVWQFLSNV $R B L A S G S Q D A$
    

[^2]:    

[^3]:    

