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UniRef90 - 3 BRF70
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UniRef90- $\mathbf{- 1 8 В 3 6 6}$
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UniRef90 F6Z2L5 UniRef90-B3VTP5
UniRef90 ${ }^{-1}$ B3VTP5 UniRef90-b3VTP5 UniRef90 ${ }^{-16 D U H 1}$ UniRef90-B6DUH1 UniRet90_B6DUH1 UniRef90 UPIOO038FOF4C UniRef90-UPIo0038FOF4C UniRef90-B2KIF7 UniRef90-B2KIF7 UniRef90-B2KIF7 UniRef90 BESSNQ3 UniRet90_B5SNQ3 UniRef90-B5SNQ3
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 | L | $A$ | $F$ | $Q$ | $M$ |
| :--- | :--- | :--- | :--- | :--- |

 SKLQTDMTDAKE SKLQTDMTDAKE RSTKYLQELK
 RSTQY LQELK
LELVKQKVQPYLDDFQ KKWQEEVEVVTQYRQEVVK
LELVKQKVQPYLDDFQ KKWQEEVEV YRQKVA QNTDDVRNRISTYTHKLKKRLNKDTEEI RNTVATGELQ
 Q N A D D $\operatorname{V}$ K


ERRGARQKLQ
TELREGARQKLQ

S QVSTQAEQLRRQL
S QVSTQAEQLRRQL
QKKWQEEVERYRQKVEPLSERREGARQKLQ QKKWQEEVERYRQKVEPLSELREGARQKLQ QKKWQEEVERYRQKVEPLSELREGARQKLQ NTQAEQFRNQLTP LAQRMETVLRENVDNLQASPYADELKK NTQAEQFRNQLTPLAQRMETVLRENVDNLQASPYADELK NTQAEQFRNQLTPLAQRMETVLRENVDNLQASPYADELK
 $N T Q A E Q F R N Q L T P L A Q R M E T V L R E N V D N L Q A S P Y A D E L K$
$Q K K W H E E V E L Y R Q K V A P M G E E F R D N A R Q$ QKKWHEEVELYRQKVAPLGEEFRDNARQ KLQE

| $E$ | $L$ | $Q$ | $E$ | $K$ |
| :--- | :--- | :--- | :--- | :--- |

T P YAQRME
P Y A Q R M E
$P Y A Q R M E$
$E L G E K$
$L$
$L$

| E | $L$ | $H$ | $E$ | $K$ | $L$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $L$ | $H$ | $E$ | $K$ | $L$ | $V$ |  | QKKWH

## K L Q T D M N D A K E <br> KLQTEMNDAKE

RTTQYRQNLA
RTTQYLQELK RTTQQYLQELK K RSTQYL GELK


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A

ALMDETMKE ${ }^{50}$ KAYKSELEE ${ }^{60}$ T PVAEETRARTSKELQAA 80 MK EVKAYKAEL VLMDETMKEVKAYKAELDSQLGPMAEETRAR AKEVQAAQ
 PFAQDVQEKLNRQLEGLSFQMKKNADQLQAKLSASSTDELRR PFAQDVQEKLNRQLEGLSFQMKKNADQLQAKLSASTDELR

 KNVQELKGRLQPHTEGLKVKIDQSVEELRRSLAPYVQDAQ K NVQELKGRLQPHTEGLKVKI DQSVEELRRSLAPYVQDAQ KNVQELKGRLQPHTEGLKVKI DQSVEELRRSLAPYVQDAQ KNVQELKGRLQPHTEGLKVKIDQSVEELRRSLAPYVQDAQ $P$ L G E D L
 P Y A D DLK AKI D Q NV E DL R R SLAP Y A Q DMQEKLNRQLEGL R PYADDLKAKI DQNVEDLRRSLAPYAQDMQEKLNRQLEGLR
 P Y A D D L K A K I D Q N V E D L R R S L A P Y A Q D M Q E K L N R QL PRANELKAKI DQNVEELRHNLAPFAKEAQDKLNKNAEELQ PRANELLKAKI DQNVEEELRHNLAPFAKEAQDKLNKNAEELQQ P R A N E L K A K I D Q N V E E L R H N L A P P F A K E A Q D K L PRANELKKAKI DQNVEELRHNLAPFAKEAQDKLNKNAEEGLQ PRANELKAKI $K N V E Q L Q A K I T A N A N Q L Q Q R L M P V V E D V R S K L K S N T E G L Q$



 $T Y L G E L Q S R A S Q N A G A M K D R F E P Y V Q Q A H Q G V S Q Q A Q G V S$
 $T Y L G E L Q S R A S Q N A G A M K D R F E P Y V Q Q A H Q G V S Q Q A Q G V S$ PLGAELRDGARQKLQELQEKLTPLGEDLRDRMRHHVDAL R
 PLGAELREGAR QKLQDLQERLVPVGEDIRRDRMRTHVVALR
 TMMME Q N A D D V $K$ K T Y T T R K L L K K K R L


 S R T S Q N L D TVV K V H V V E P Y V Q Q A G D T A T D I S S L L R T Q A E G L G SRTS QNLDTVKVHVEPYVQQAGDTATDDSSLLRTQA EGLGG
 TYLGELLQSRAS QNADAVKDRLEPYLTQAQDGANQKLGGAI S PLGEDLRDRAREHVDTLRTQLAPYSDDMRQRLTQRLEALR PLGEDLRDRAREHVDTLRTQLAPYSDDMRQRLTQRLEALR

 TVLRENVDNLQTYADELKAKIDQNVAELKGRLTPYADELK

 PLGEDLRDRARAHVDTLRTQLAPYSDDLRQRLATRLEALK PLGEDLRRRARAHVDTLRTQLAPYSDDLRQRLATRLLEALK A KID Q N V E E L K K P Y S A E L K T K I I D Q N V E E L R R S L A P Y A Q D V AKI D Q NVEELLKPYSAELKTKIDDQNVEELRRSLAPYACDVQ A K I D Q N V E E L K P Y S A E L L K T K I

 P L G E E



T M M E Q N A D DVN T Y T R K L K K R L N K D T E
$P$ L R A E LQ E GAR QKLLHELUQEKLLS P L G

P Y A Q DVQ GK L NHQLEGLAFQMKKHAEELKAK\|SAKAEELR
P Y A Q DVVQ GKL N H QL E GL A F Q M K K H A E E L K A K I S A K A E E L R
P Y A Q DVV Q G K L N H QL
P Y A Q DV Q GKL N H QLE GL AF Q MKKHAEELKKAKI SAKAEEELR

A
A K L S E S A E EL N P Y T E E L K E K L R T D A E GLL R Q S L G P Y V E GL



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## QUERY

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UniRef90 Q32PJ2 UniRef90_Q32PJ2 UniRef90-M7BAX7 UniRef90_M7BAX7 UniRef90-M7BAX7 UniRef90_M7BAX7 UniRef90-M7BAX7 UniRef90_M7BAX7 UniRef90_P15497
 ARLSGDMEDVRNRLTQYRSEVQTMLGQSTEELRARFATHL ARLGADMQDVRNRLAQYRSELEAVLGRNTEELRTRFTLHLC QRLEPLTENVRGKLAPYGESFNKVMVQQVEELRQKLGPYA QRLEPLTENVRGKLAPYGESFNKVMVQQVEELRQKLGPYA QRLEPLTENVRGKLAPYGESFNKVMVQQVEELRQKLGPYA
 GNLKQDMESI KGRMIQYTEDVNLMMQQNAEDVRQRVNDYT EKLNPMVEDI QSKLQK SLA QLS SHLDQQVEEFQRTVQPYG



$\qquad$ SPSLAVYHAKASEHLKTLSEKAKPALEDLRQGLMPVL QKLAPVAEDVRSKLPGNSEDLQKHLDRQVEEFRRNVEPYG QKLAPVAEDVRSKLPGNSEDLQKHLDRQVEEFRRNVEPYG QKLAPVAEDVRSKLPGNSEDLQKHLDRQVEEFRRNVEPYG QKLAPVAEDVRSKLPGNSEDLQKHLDRQVEEFRRNVEPYG QKLAPVAEDVRSKLPGNSEDLQKHLDRQVEEFRRNVEPYG AKISANADQLWQKLNPLVKDVHSKLQGNTEGLQQSLA AKI SANADQLWQKLNPLVKDVHSKLQGNTEGLQQSLA
 AKI SANADQLWQKLNPLVKDVHSKLQGNTEGLQQSLA AKI SANADQLWQKLNPLVKDVHSKLQGNTEGLQQSLA KHLDQQVEEFQTSVKPYGETMNTALVQHMEQLRQQLGPYA $K H L D Q Q V V E F R Q T S V K P Y G E T M N T A$
$K$ KHLDQQVEEFQTSVKPYGETMNTALVQHMEQLRQQLGPYA NKLQNDMLDAKERSTEYLGEDKTMMEQNTDDVRNRMSSYT SRASQNAEAVKDRFEPYVNQAHNGASQKLGAI SELMKSQA

 QQLEAQAGVLKEQLEQTAETLRTSLEGRIDELTSLLNPYT TKMTPYSDQMRDRLAERLAQLKEKAKPALEDLRQGLMPVF TKMTPYSDQMRDRLAERLAQLKEKAKPALEDLRQGLMPVF SNLSPYSDKMRERLA QHLAKLKEKAKPALEDLRQGLTPML SNLSPYSDKMRERLAQHLAKLKEKAKPALEDLRQGLTPML
 SRASQNADAVKDRFQPYMSQAQDGATQKLGAISELMKAQA
$V N L A P R S E E L R Q R L A S R L Q A L K D G G G A S L A E Y H S K A S E H L$
 Q Q L E LIMKS QA QEMGEQLEVQAGALKEKLVQTAEELRTSLLEGRV
 STT DSTT FADYQAKASEHLKTFSEKAKPALEDLRQGLLPVL V K $\quad$ I D Q N N V VKI DQNVEELRRSLAPYAQDVQDKLNHQLDGLAFQLVPVA VKUDQNVEELRRSLAPYAQDVQDKLNHQLDGLAFQLVPVA EGGTAS LADYHAKASEHLSALGEKAKPALEDLRQGLMPVL EGGTASLADYHAKASEHLSALGEKAKPALEDLRQGLMPVL EGGTASLADYHAKASEHLSALGEKAKPALEDLRQGLMPVL EKLNHQLEGLRQTLVPMAEDVRGKLRGNTEEFRRNVGPYG EKLNHQLEGLRQTLVPMAEDVRGKLRGNTEEFRRNVGPYG EKLNHQLEGLRQTLVPMAEDVRGKLRGNTEEFRRNVGPYG EKLNHQLEGLRQTLVPMAEDVRGKLRGNTEEFRRNVGPYG
 TKASEHLSALREKASPALEDFRQGLMPVLESLKASFMSMM
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| S |
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, SRASQNAETVKDRFEPYVSQAQDGAGQKLGALSELMKSQA
 SRTS QNMDLVKERVEPFVSQAHDTAAQQRGGFT THLAP Y S D ELL R QRLLA A RLEALLKENGGARLAEYHAKATEHL T H L A P Y S D E L R Q R L A A R L E A L K E N G G A R L A E Y H A A K A T E H L






 $G Q M E Q K I D E F R R T V G P Y G E A F N K Q L V Q K V E E M K Q K G L G Y A$
GQME QKIE EFRRTVGPYGEAFNKQLVQKVEEMKQKGLGYA

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$R K L R K R L L R D A D D L Q K R L A V^{140} Q A G$
RKLRKRLMRDWEDLQKRLAVYRAG
 GDMEDHLSFLEKDLRDKV
GDMEDHLSFLEKDLRDKV

GDMEDHLLSFLEKKDLIRDKV





A
RDVEGHLRFLEKDLRDQVS
NKLKKRLNKDTEGI RNTVTTY
QEMSKQLEVQAGAL
DK I REQLQ NVMMEKIKE

ES FKTRIMSMVEEASKKL








DELTSLLTTPYSEKI REQL
E SLKKA SI LS S DDQATKQLT
 EDVRNKLKGNTEGGLQKSLA EDVRNKLKGNTEGLQKSLA EDVRNKLKGNTEGLQKSLA ESFKVSLLSALDDEAKKL ESFKVSLLSALDEAAKKL ESFKVSLLSALDDEAAKKL
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PLLGEEFREGARQKIVQELLQDKLISPILAQELLRDRARAHIVETLIR PLIDSTRDKGQQRLGALSQAMGEQSQKVHDSLGTRAQELQ PLIDSURDKGQQRLGALSQAMGEQSQKVHDSLGTRAQELQ ERSAELQGRLEGGVEELRARLSPHADELRARIEQRVQEFR ERSAELQGRLEGGVEELRARLSPHADELRARIEQRVEFR
 GNVDDLRQTITPYTSELNSKINQQLEVFHQNMSPYTETLN GNVDDLRQTVTPYTSELNSKINQQLEVFHQNMSPYTETLN
 GNVDDLRQTVTPYTSELNSKINQQLEVFHQNMSPYTETLN KDUE EIRNTVATYMGE:QSRASQNLDTVKEHVEPYVQQAN PYAQDTQEKLNHQLEGLTFQMKKNAEELKARISASAEELR PYAQDTQEKLNHQLEGLTFQMKKNAEELKARISASAEELR PYAQDTQEKLNHQLEGLTFQMKKNAEELKARISASAEELR PYAQDTQEKLNHQLEGLTFQMKKNAEELKARISASAEELR
 PYANEFRERVKTNVDVLQQKLTLYTDTVRETINQRLEEFR PYANEFRERVKTNVDVLQQKLTLYTDTVRETVNRLEEFR PYANEFRERVKTNVDVLQQKLTLYTD
PLLAEELRDSARTHVDTLRTKLAPYS
PLAEELRDSARTHVDTLRTKLAPYSNELQRLAARLESIK LNLLDNWDTLGSTVGRLQEQLGPVTQEFWANLEKETDWLR PYAQDVQEKLNHQLEGLAFQMNKNAEELKTKIEAQADELR PYAQDVQEKLNHQLEGLAFQMNKNAEELKTKIEAQADELR PYAQDVQEKLNHQLEGLAFQMNKNAEELKTK EAQADELR PYAQDVQEKLNHQLEGLAFQMNKNAEELKTKIIEAQADELR KNVEELKAKIFAKAEELQQRLTPMVEDVRSRLRGNTEGLQ KNVEELKAKIFAKAEELQQRLTPMVEDVRSRLRGNTEG KNVEELKAKIFAKAEELQQRLTPMVEDVRSRLRGNTEGLQ PLIDSIRDKGQRLEALSQAMGEQSQKVRESLGTRAQELH PLIDSI RDKGQQRLEALSQAMGEQSQKVRESLGGTAQELH PLGKELHEGASQKLQELQEKLSPLGEEFRDRARTHVDALR PLGKELHEGASQKLQELQEKLSPLGEEFRDRARTHVDALR PLAQDVQDKLNHQLEGLSFQMKKNVDQLKAQLSSNAEELR PLAQDVQDKLNHQLEGLSFQMKKNVDQLKAQLSSNAEELR PLAQDVQDKLNHQLEGLSFQMKKNVDQLKAQLSSNAEELR PLAQDVQDKLNHQLEGLSFQMKKNVDQLKAQLSSNAEELR PLAEDLRDRARTHVDSLRTHLAPYSDEMYDRMVKRLEAI K PLAEDLRDRARTHVDSLRTHLAPYSDEMYDRMVKRLEAI K PLAEDLRDRARTHVDSLRTHLAPYSDEMYDRMVKRLEAIK MLMEETMKEVKAYKSELEEQLSPMAQEHRARLSKELQGVA DSTEELRQKLSPYAEELKEKLRTDAEGLRQSGGOYVEGLS俭 DSTEELRQKLSPYAEELKEKLRTDAEGLRQSLGOYVEGLS

 ELI L E S M K E V K A Y R E E L E A Q L G P V T Q E T Q A R L S K E L Q A A Q





 $T$ LIDT D T M S E L L S M Y T D D M K T K L G P L T K E A A E R L G N D V Q V L A






 $P L R T E L Q E G A L Q K L Q D L Q E K L S S L G E Q V R D R A R V H V D T R R$ $P$ L R T E L Q E G A L Q K L Q D L Q E K L S S L G E Q V R D R A R V


 P YAQDVQQEKLNHQLEGLAFQMRKNAEELKAKIATNAEELIR


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Q Q|L|APYS D D|L|RQR|L|TAR|L|EA|L|KEKAKP|VL|ED|L|RQG|LL|P|VL GHLQEKAEEVRGSL GHLQQEKAEEVRGSLL $S G M A P Y A R S L Q E R L A Q S L A$ S GMAPYARSLQERLAQSLA S GMAPYARSLQERLAQSLA
 S R TVQ NLDTVKENVEPYLA DI STILES Q
 K M I T T Q N I E E E M K Q K L T
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D NTNKKLS DITTAMLQ T QAEGLGQQLET QAE
 QR L A P L A E DVVRE GLLQK S LA E L G GHLLDQQV E EFRRRRVEP Y G QRLAPLAE DVREGLQKSLAELGGHLDQQVEEFRRRVEPY G Q R L A P L A E DVVRE GLLQK S LA E L G GHLLDQQVEEFRRRVVEPYG Q QNASPYASDFHEKLVVNME QNASPYASDFHE QNASPYASDFHEKLVVNMEEMKQRMNPLAKSIKERLTMLT
 E GGGGAS L A E Y Q A K A R E H L E GGGASSLAEYQAKAREHLSVLSEKARPALEDLRQGLLLPVL NEMNK DLENVK QKMQP HLDEFQEKWNE EVVA YR QKLLEPL G Q R L Q S V A E VV R G K L Q E S L A E L S S QLLDR QV E E F R R N V Q R L Q S V $\operatorname{A}$



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## Q


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IA A QKLS DI STLMTQAEGLGKQLEDQAEGUKTQLEATA

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

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|  | QDVSAQLQALVEK |
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| UniRef90-UP10003EA8DB2 | QDLRAQLSSL |
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| UniRet90-UPP0003C10838 QDV H Q S S NL W |  |
| UniRef90 UPIOOO3C10838 | QDVHTQLSNLWESFKQNL |
| UniRef90-UP10003C10838 Q D V H Q L S NL WE S F K Q NL |  |
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| UniRef90-P06727 | ENFNKALV |
| UniRet90-P06727 EN F K ALVQQMEQLRQK |  |
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| UniRef90-G5BQH3 G DVE G |  |
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| UniRet90-L5KMA9 |  |
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| UniRef90-UP1000443E963 D A F N K |  |
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| UniRef90-K7G3N7 |  |
| UnRef90-K7G3N7 GEVEDHLSFLEKDVRDKVA |  |
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| UniRef90-HOVUA6 |  |
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| UniRef90-F5BZM3 QDLRTSLEGK\DELTQMLSP |  |
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TLT Q N|V|E E|I K Q N|V|E D|L|RRS|L|AP|L|AQD|V|QEK|L|NHQ|L|E G|L|A

 $P$ L GEEE L R D S A R Q
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 P Y A E D A Q E K L N R QL E GLLAF QMKK SAE ELLKAKLLVALA E DV H P Y A E D A Q E K L



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 PYA Q DVQEKLNHQLEGLAFQMKKNAEELKAKISANADELR PYAQDVQEKLNHQLEGGLAFQMKKNAEELKKAKMISANADELLR PYAQDVQEKLNHQLEGLRQKLTPVAEDVQEGLQKSLAELS PYAQDVQEKLNHQLEGLRQKLTPVAEDVQEGLQKSLAELS S

 TLIT DAMAELTKYREDUQTKLAPFTDSSSGLLTQDMQLLIF S ALR RNVGQL QAYADEFRAKI EENVEEVKGRLMPYAEELK SALRQNVGQLQAYADEFRAKI EENVEEVKGRLMPYAEELK SALRRQNVGQLQAYADEFRAKI EENVEEVVGRLMPYAEELK S A L R Q N V G Q L S A L R Q NVGGLLQAYADEFRAKIEENVEEVVGGRLMPYAEELK

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F Q MKKNAD Q|L|QTQ|ISAGAEKMRQK|L|EP|L|AEVV|RGK|L|QGNT $F$ QMKKNADQLQTQI SAGAEKMRQKLEPLAEEVRGKLLQGNT
 $T Q L T P Y S E E L R Q R L A R R L E T L K E K T K P V L E D F R Q G L L P V L$




 QKLA
E S ES NLLA E Y H TKA S E HLL S QKLVPVAFDVRGRLQGNTEFLMENAKPALERFRQGGLMPVL QKLVPVAEDVRGRLQGNTEELSSQLDRQVEEFRSSVVGSYG Q


SAALLS EYY T K A T E H HLLT
GKLRGNPD GLQK SLA
GKLRGNPDGLQKSLA
GKL R GNPD GLLQK SLLA
GK L R G N P D GL Q K S L A
AR L G A D M E E V V N R L L S Y R S
A R L G A D M E E V R R N R L
GNLQGNAQELQKSLA
$G N L Q G N A Q E L Q K S L A$
GNLQGNAQELQKSLA
GNL Q G NA QELLQK SLLA

T KI D Q N VE DL K R RLA A Y S E

 ARLQSDMEDVRTRLTQYRN
S KLRDNTEGLQKSLT


NRVAHHTSRVKALFHPYA
NRVA HHTSRVKALFHPYAERRVTGIGRHVQELHRSVAPHA
N R V A H H T S R V K A L F H P Y A E R L V T G I G R H V Q E L L R R S V A P H A
NRVAHHTSRVKALFHPYAERLVTGI GRHVQELHRSVAPHA NRVVA H H T S R V K A L F H P Y A ERRLV TGGI GRHVVQELHRSVVAPHA
 E K L N H QL E GLLT E ELLQK S LA A EL S S HLL D Q QV E E FRRRNV GP Y G E KL NH QL E GLLTE ELLQKSLA ELLSSHLDQQQVEFRRNVGPYG E K L N N H Q L E G L T E E L Q K S L A A E L S S H L D Q Q V E E F R R N V G P Y G EKLN H QLE GLT E ELQQK SLAELSSHLDQQVEEFRRNVGPYG EKLNHQLE GLLTEELQKSLAELSSHLDQQVEEFRRNVGPYG QNLAPFAE GAQEKLNHQLEALAWQMKKDADFLKNKLQADA Q N L A P F A E G A Q E K L N H Q L E A L A W W M K K D A D F L K K N K L L A A D A QNLAPFAEGAQEKLNHQLEALAWQMKKDADFLKNKLUADA Q NLAPFAEGAQEKLNHQLEALAWQMKKDADFLKNKLQADA
 QKLVPVABNVH GHLKK NTEELRSHLDQQVEEFRLKVVEPYG Q K L V P V A E N V H G HLLK G N T E E L R S H L D Q Q V E E F R L K V Q K L V PV A E N V H G H L K G N T E E L R S H L D Q Q V E E F R L K V V P P G
 ERLEQDLGSVK GKLEPYAEEMKTQVQQRVEQLKQDLAPYA V $V$ K L S R Y L E E L L P A A P E R Y T E E L A R R E V Q R R V V E F R K A T Y L EKVRGNLRSNTEGLQKSLAELSSHLDRQVEEFRRNVQPYG E KVVRGNLRSNTEGLQKSLAELSSHLDRQVEEFRRNVQPYG E K V R G N L L R S N T E GLL Q K S L A E L L S S H L D R Q Q V E E F R R N V V Q P Y G Q R L G P V A E DV R G K L Q K S L A QRLGPVAEDVRGKL QKSLAELDSHLDRQVEEFRRSVGPYGG の

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 A KLS P LA HELLREKLQPY LD GLGGQI E GRI E EFRRAVGPH G


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UniRef90 G3SQG7 UniRef90-B7NZM0 UniRef90-B7NZMO
UniRef90 B7NZMO UniRef90 B7NZM0 UniRef90-B7NZMO UniRef90-HOVVW3 UniRef90-V9KPY3 UniRef90-V9KPY3 UniRef90-V9KPY3 UniRef90 - VKPYY UniRef90-V9KPY3 UniRef90-V9KPY3 UniRef90_Q8HZ97 UniRef90-Q8HZ97 UniRef90_UPI0003834DDE UniRef90 UPI0003834DDE UniRef90_M4AW02 UniRef90-M4AW02 UniRef90 UPIO003C82506 UniRef90 U3JSQ8 UniRef90-U3JSQ
UniRef90 U3JSQ8
UniRef90 U3JSo8 UniRef90-UPI000359C0AD UniRef90_UPIO00359C0AD UniRef90_M7C3T6
UniRef90 M7C3T6
UniRef90-UPIO0034441DC UniRef90-UPIOOO34441DC UniRef90_UPIO0034441DC UniRef90 UPIO0034441DC UniRef90_UPIOOO38BC9D0 UniRet90_UP100038BC9D0 UniRef90 UPI00038BC9D0 UniRef90-UPIo0038BC9D0 UniRef90-F1SWE5 UniRef90_F1SWE5 UniRef90 Q3UF21 UniRef90-P02651 UniRef90 P02651 UniRef90 P02651 UniRef90-P02651 UniRef90 G3TLG4 UniRef90 ${ }^{-}$F1QHRO UniRef90-F1QHRO UniRef90-W5K2N8 UniRef90 W5K2N8 UniRef90 Q5KSU1 UniRef90-Q5KSU1 UniRef90 C3PSW9 UniRet90_C3PSW9 UniRef90-C3PSW9 UniRef90-UPI000440FE7A UniRef90 UPI000440FE7A UniRet90 UPIO00440FE7A UniRef90-UPIO00440FE7A UniRef90_F7EJB4 UniRef90 F7EJB4 UniRef90-Q661L6 UniRef90_Q66IL6 UniRef90 Q66IL6 UniRef90 Q661L6 UniRef90-Q661LL6 UniRef90_O66IL6 UniRef90 I3KGU6 UniRef90-13KGU6 UniRef90_UPI000441B004 UniRef90 Q5XHD2 UniRef90 O5XHD2 UniRef90-O5XHD2 UniRet90_O5XHD2 UniRef90 H2MFZ1 UniRef90_M7BHK3
UniRef90 M7BHK UniRef90- М7ВНКЗ UniRef90 UPI00042AC8BD UniRef90-UPIO0042AC8BD UniRef90 UPI00042AC8BD UniRef90 UPI00042AC8BD UniRef90-I3KGU7 UniRef90-I3KGU UniRef90 I3KGU7 UniRef90 M3W955 UniRef90-M3W955 UniRef90_M3W955 UniRef90 O18759 UniRef90_O18759 UniRef90G3NCY2

1
N A Q A E Q|L|RS Q|L|T P|L|A QRMETM|L|RENMDN|L|QAS Q K V G


$\stackrel{40}{ }$ LEE E V K K A K V V Q P Y LDQVSLKARELRRQLMP KKWQEAQ $\mathrm{N} Q \mathrm{Q}$
$\mathrm{N} Q$
$\mathrm{~N} Q$
N DQVSLKARELRRQLMP



## VT QQF WDNLEKETAGLRQELSQ

 VTQQFWDNLEKETAGLRQELSQ $V T Q Q F W D N L E K E T A G L R Q E L S Q$| VQ E | K Q K M Q |
| :---: | :---: |
| D V Q E | K Q K M |
|  | K Q K |
| S P | A Q D |
| S P | A Q DI |
| S P | A Q D |
|  | A Q |
|  | R | A QDAQQRFTEEVSALADKLKSDMEDTKSGDLRMMFD A QDAQQRFTEEVSALADKLKSDMEDTKSGDLRMMFD | Q | L | $K$ |
| :--- | :--- | :--- |
| Q | K |  |
| Q | K |  |
| Q | $K$ | $K$ |
| Q | K | $K$ |
| Q | $K$ |  |



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UniRef90 HOVVW3 UniRef90-HOVVW3 UniRef90-V9KPY3 UniRef90-V9KPY3 UniRef90-V9KPY3 UniRef90-V9KPY3 UniRef90-V9KPY3 UniRef90-Q8HZ97 UniRef90-Q8HZ97 UniRef90_UPI0003834DDE UniRef90 UPI0003834DDE UniRef90-M4AW02 UniRef90-M4AW02 UniRef90_UPI0003C82506 UniRef90_U3JSQ8 UniRef90-U3JSQ8 UniRef90-U3JSQ8 UniRef90_U3JSQ8 UniRef90_UPI000359C0AD UniRef90_UPI000359C0AD UniRef90_M7C3T6 UniRef90-M7C3T6 UniRef90_UPI00034441DC UniRef90_UPIO0034441DC UniRef90_UPI00034441DC UniRef90-UPI00034441DC UniRef90_UPI00038BC9D0 UniRef90_UPI00038BC9D0 UniRef90_UPI00038BC9D0 UniRef90_UP100038BC9D0 UniRef90-F1SWE5 UniRef90-F1SWE5 UniRef90-Q3UF21 UniRef90-P02651 UniRef90-P02651 UniRef90-P02651 UniRef90-G3TLG4 UniRef90-M3W2V0 UniRef90_F1QHRO
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 PFTQQLQEQLNANAEQLKAQLAPFAAELKAKLNPRAEALN PFTQQLQEQLNANAEQLKAQLAPFAAELKAKLNPRAEALCN PFTQQLQEQLNANAEQLKAQLAPFAAELKAKLNPRAEALN PFTQQLQEQLNANAEQLKAQLAPFAAELKAKLNPRAEALN PFTQQLQEQLNANAEQLKAQLAPFAAELKAKLNPRAEALN
 PXRAELQEGARQKLHELQEKLSPLGEEXRDRARAHVDALR P XRAELQEGARQKLHELQQKLSPLGEEXRDRARAHVDALR
 QKSEELKTNLEQSVKDLQAQLGPYTDDLKQKVDLHLDAFQ QKSEELKTNLEQSVKDLQAQLGPYTDDLKQKVDLHLEAFQ PYAQELTLDQERAAEELRGRLATSSEELRARQLSRELARAR


 A QF LE GVYEVQRFVAQYANKIAFHTDQVKEVFHPYAARLV
 GKLRRDNTQQELQKSLCNELSSQQLDRQVVEEFRRNVGPYGETFN GKLRDNTQELQKSLTELSSQLDRQVEEFRRNVGPYGETFN
 PFANEFKDKFNQNVEELKARLTPRASELKATI DQNLQELR


LTBPYT E E
ALLMEDTMTEVKAYKKELEEQLGPVAEETRARLGKEVQAAQ PRANELKATI DQNLEDLRSRLAPLAEGVQEKLNKNAEELQQ PRANELKATI DQNLEDLRSRLAPLAEGVQEKLNKNAEELQ PRANELKATI DQNLEDLRSRLAPLAEGVQEKLNKNAEELQQ


 Q S V K E L Q A Q L E P Y T A E L K E K V D Q H L Q E F Q K TVV S P L A E D L Q | $Q$ | $S$ | $V$ | $K$ | $E$ | $L$ | $Q$ | $A$ | $Q$ | $L$ | $E$ | $P$ | $Y$ | $T$ | $A$ | $E$ | $L$ | $K$ | $E$ | $K$ | $V$ | $D$ | $Q$ | $H$ | $L$ | $Q$ | $E$ | $F$ | $Q$ | $K$ | $T$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $V$ | $S$ | $P$ | $L$ | $A$ | $E$ | $D$ | $L$ | $Q$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $Q$ | $K$ | $T$ | $E$ | $E$ | $L$ | $R$ | $G$ | $T$ | $L$ | $E$ | $E$ | $R$ | $V$ | $K$ | $E$ | $L$ | $Q$ | $S$ | $Q$ | $L$ | $G$ | $P$ | $Y$ | $T$ | $D$ | $E$ | $L$ | $R$ | $Q$ | $K$ | QKTEELRGTLEERVKELQSQLGPYTDE

 PY LDDFQKKWQETAEELQGQLGELGQEVRDSVRTYVDLLR P Y L D D F QK K WQETAEELQGQLGEL GQEVRDSVRTYVDLLR
 TKI TKEAEVLKERLETMKDKLEPYADDLKAQVQQRVEELR

 QNIEDVQGKVNMYMKKLKKRLSKDSEDL $\left.\begin{array}{l|lllllllllllll|lll|l|l|lllll}Q & T & T & E & Q & L & K & A & Q & L & S & P & Y & A & D & D & L & K & E & K & L & Q & V & N\end{array}\right)$ Q I T

Q 1 T E LDSE ALKA QLSPYADDLKEKL QVNARDAK QTLEPYLTEEL N


 N KII D E S V D QL N P Y T D E V R E Kil G H QV Q K L R E S L S P Y A E E M Q A RLTESATLANEYATSSLHEQLTP EAQQLDTKVTTEAEVLR
 P V R NVE ELK GRLNPHASELKATIDRNLE ELRSNLAPBAE GMQ



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




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UniRef90 B7NZMO UniRef90_B7NZMO UniRef90-B7NZMO
UniRef90 HOVVW3 UniRef90-HOVVW3 UniRef90-V9KPY3 UniRefofo-VVKPY3 UniRef90- V9KPY3 UniRef90-V9KPY3 UniRef90-V9KPY3 UniRef90- Q8HZ97 UniRef90-Q8HZ97 UniRee90-UPIO003834DDE UniRef90 UPI0003834DDE UniRef90-M4AW02 UniRef90-M4AW02 UniRet90 UPI0003C82506 UniRef90 U3JSQ8 UniRef90-U3JSQ8 UniRef90-U3JSQ8 UniRe99-U3JSO8 UniRef90-UPIO00359C0AD UniRef90_M7C3T6 UniRef90 ${ }^{-}$M7С3T6 UniRef90_UPIO0034441DC UniRef90_UPIO0034441DC UniRef90-UPIO0034441DC UniRef90-UPIO0034441DC UniRef90-UPIO0038BC9D0 UniRef90-UPI00038BC9D0 UniRef90 UPI00038BC9D0 UniRef90-UPIooo38BC9D0 UniRef90-F1SWE5 UniRet90_F1SWE5 UniRef90-Q3UF21 UniRefgo-Po2651
UniRefol -po2651 UniRef90 ${ }^{-}$P02651 UniRef90_P02651 UniRef90-G3TLG4 UniRef90-F1QHRO UniRef90-F1QHRO
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UniRef90 W5K2N8 UniRef90-Q5KSU1 UniRef90_-a5KSU1 UniRef90_C3PSW9 UniRef90_C3PSW9
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UniRef90
O5XH2 UniRef90-H2MFZ1 UniRef90-M7BHK3 UniRef90-M7BHK3 UniRef90-UPI00042AC8BD UniRef90-UP100042AC8BD UniRef90-UP100042AC8BD UniRef90-I3KGU7 UniRef90-13KGU7 UniRet90_13KGU7 UniRef90-M3W955 UniRef90-M3W955
UniRef90 M3W955 UniRef90-018759 UniRef90_O18759
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 SKLSGNGEGLQKSLA SKLSGNGEGLQKSLA ELSGRLSRQVEEFRRKVEPYG

 DSAT LAD Y HAKASEHLK NQVNQR NQVNQRI NQVNQRi NQVNQRI NQVNQRI


ERRNMAPYTE
LAPYSDELRQRLAARLEALKENGGARLAEYHAKATAEHL TH L A P Y S D E L L R Q R L A A R L E A L K E N G GA R L A E Y HA A A T E H L T EI HR NVVE ELHRDVVP H S Q A SP E QL N Q Y I Q E LLS S K LTT R S A TEI HRNVEELHRDVVPHSQASPEQLNQYI QELSSKLTRSA

 A RLGTD ME DL R SRRLA HYRNEVVQAML GQTTDELLRNRLLASHLD


 RFMAHY A D Q V K D I F H P Y T D R L L S E I H R NV E E L H R S VA P H A

 K A L L Q Q V E ELLR Q K L G P Y A G DV E D H L L F F L E K D L R D K V N S F F K A L L Q Q V E E L R Q K L G P Y A G D V E D H L S F L E K D L R D K V N S F F K A L L Q Q V E E L R Q K L G P Y A G D V E D H L S F L E K D L R D K V N N K A L L Q Q V E E L R Q K L G P Y A G DVVEDHLS FLLEKDLRDKVNS F F
 S S L A P L A E G V Q Q E K L K K K N A E E L Q T T K V

 ARLGADMEDLRNRLGQYRNNI H IQQ
T K V
$T K V S T N I D Q L Q K N L A P L V E D V Q S K L K G N T E G L Q K S L$
$T K V S T N I D Q L Q K N L A P L V E D V Q S K L K G N T E G L Q K S L$

QEMNKDLEEVRQKVQPYLDDFQKKWQEEVELYRHKVGPDG ARLGSDMEDVRNRLARYRSEVQAMLGQSAEELRGRLASXF VQI RERA QIVQQSLTPYAEDLKEKLDPYAQNLKDQLIS LY
 $K$ TV T P L A E D L Q T Q V A Q R A E MVVQ Q S L A P Y A E D L R R K L Q NLAPMAEKVQQTELNQRAQQVKDMAAPFVVEELRDKLDDPYA

 VA $\operatorname{V}$ A P Y A E S L Q S QL E P Y T A E L K Q K V D E R L Q E F Q K I V A P L G
 $V$ A V A P Y A E S L Q S QL E P Y T A E L K K Q K V $\operatorname{D}$ D E R L L Q E F Q K I $V$ V $V$ A P Y A E S K S TEDKVENLRKAVEPYLSNVKDK GQQRLMNLKDABDEQG K S T E D K V E NL R K A V E P Y L S NVVK D K GQQRRLMNLKDA D D E Q G


Q

## 

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|  | 130140 |
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| UniRef90-B7NZM0 | ETYNKALVQQVVEQFRQMLGPYA |
| UniRef90-H0VVW3 | E NLKASILSSI D Q A S K Q L A |
| UniRef90-H0VVW3 | E NLK K S I L S S I D Q A S K QL A |
| UniRef90_V9KPY3 | D KV R Q T L T P VEMQLRA HLT |
| UniRef90_V9KPY3 | DKVVRQTLT PVEMQL R A HLT |
| UniRef90_V9KPY3 | DKVVRQTLT PVEEMQLRAHLT |
| UniRef90_V9KPY3 | D K V R Q T L T PVEMQL R A HLT |
| UniRef90_V9KPY3 | D K V R Q T L T P V EMQL R A HL T |
| UniRef90_V9KPY3 | D K V R Q T L T P V EMQL R A HL T |
| UniRef90_V9KPY3 | D KV R Q TLT PVEMQLRAHLT |
| UniRef90-Q8HZ97 | S T L |
| UniRef90-Q8HZ97 | S T L |
| UniRef90-UPI0003834DDE | $R \mathrm{D}$ L HRNDQ G N L E Q L A K L S L |
| UniRef90_UPI0003834DDE |  |
| UniRef90-M4AW02 | Q D Q S QLM S L Y S F |
| UniRef90-M4AW02 | Q DLQ S QLM SLYQ S F |
| UniRef90_UPI0003C82506 | T Q |
| UniRef90_U3JSQ8 | ET F G K Q L V Q R Le EMR G K LET GA A G |
| UniRef90_U3JSQ8 | ETFGKQLVQRLEEMRGKLETGAAG |
| UniRef90_U3JSQ8 | ETFGKQLVQRLEEMRGKLETGAAG |
| UniRef90_U3JSQ8 | ET F GKQLVVQRLEEMRGKLETGAAG |
| UniRef90_UPI000359C0AD | R A S PEQL NQHI QELSAKL |
| UniRef90_UPI000359C0AD | RASPEQLNQHI Q ELSAKL |
| UniRef90-M7C3T6 | $R D L H$ QKI QRNL NHLKE Q L R L P P S G |
| UniRef90-M7C3T6 | $R \mathrm{D}$ L H Q K I Q R NL N HL K E Q L R L Y P S G |
| UniRef90 UPI00034441DC | S T L K E T ENQD |
| UniRef90-UPI00034441DC | S T L K E T E NQD T |
| UniRef90-UPI00034441DC | S T L K E T E NQD T |
| UniRef90_UPI00034441DC | S T L K E T ENQD T |
| UniRef90_UPI00038BC9D0 | E DVVHSKLK G N T E GLQK SLE |
| UniRef90_UPI00038BC9D0 | E DVVHSKLK G N T E GLQ L S L E |
| UniRef90_UPI00038BC9D0 | E DV H S K L K G N T E G L Q K S L E |
| UniRef90_UPI00038BC9D0 | E DV H S K L K G N T E GLQ K L E |
| UniRef90-F1SWE5 | Q D L K S QLT ALWES F A K S |
| UniRef90-F1SWE5 | QDLK S QLT ALWESFAKS |
| UniRef90 Q3UF21 |  |
| UniRef90-P02651 | $E D L N K Q L D Q Q V E V F R R A V E P$ |
| UniRef90-P02651 | EDLNK QLDQQVEVFRRAVEP |
| UniRef90-P02651 | EDLNK QLD Q QVEVFRRAVEP |
| UniRef90-P02651 | E DL NK QLD Q Q V EVFFR R AVEP |
| UniRef90_G3TLG4 | DELLRDRARVVHVDALRRSQLT P Y S E |
| UniRef90-M3W2V0 | EPLVQDMQRQWAGLVEKL |
| UniRef90-F1QHR0 | DS F TKR |
| UniRef90-F1QHR0 | DS F T K R |
| UniRef90-W5K2N8 | Q NLK D QLA T L Y E S F S K T |
| UniRef90-W5K2N8 | Q NLK D QLA T L Y ESFSK T |
| UniRef90-Q5KSU1 | Q DL Q A RLA SLYES F |
| UniRef90_Q5KSU1 | Q DLQA RLAASLYESF |
| UniRef90_C3PSW9 | RELGEKAKPAFEDFRQGLLPVLE |
| UniRef90_C3PSW9 | RELGEKAKPAFEDFRQGLLPVLE |
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| UniRef90_UPI000440FE7A | EDLQTSVLQRTK MVQQSLAPYAE |
| UniRef90_UPI000440FE7A | E DLQ T SVLQ R TKMVQQSLAPYAE |
| UniRef90_UPI000440FE7A | $E D L Q T S V L Q R T K M V Q Q S L A P Y A E$ |
| UniRef90_UPI000440FE7A | EDLQ TSVLQQRTKMVQQSLAPYAE |
| UniRef90_F7EJB4 | K QL R D RFVSVAK D A Q A K M |
| UniRef90_F7EJB4 | KQLRDRFVSVAKDAQAKM |
| UniRef90-Q66IL6 | V TVQQD Q M E Y E K D IR D K |
| UniRef90-Q66IL6 | $V T V Q D Q M E Y$ E K DI R D K |
| UniRef90-Q66IL6 | $V T V Q D Q M E Y$ L EK DI R D K |
| UniRef90-Q66IL6 | $V T V Q D Q M E Y$ L EKDI R D K |
| UniRef90-Q66IL6 | $V T V Q D Q M E Y$ E K DI R D K |
| UniRef90-Q66IL6 | V TVQD Q MEYLEK DI R D K |
| UniRef90-I3KGU6 | EDLK EKLLD P Y Q DL Q A Q L |
| UniRef90-I3KGU6 | E DLKKEKLDD P Y A Q DLQ A QL |
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| UniRef90-Q5XHD2 | DELKKVKLQ V N A R D A K Q T L E P Y |
| UniRef90-H2MFZ1 | DS L D S T L R |
| UniRef90-M7BHK3 | E SLK T R F L NLLD NLR K NLA |
| UniRef90-M7BHK3 | ESLK T R F L NLLD D L R K NLA |
| UniRef90-M7BHK3 | ES L K T R F L NLL D NL R K NL A |
| UniRef90_UPI00042AC8BD | EDVQSKLKGNTEGLQKSLE |
| UniRef90_UPI00042AC8BD | EDVQSKLK G N T E GL Q K S L E |
| UniRef90_UPI00042AC8BD | E DVQ S KLK G N T E GL Q K S L E |
| UniRef90_UPI00042AC8BD | E DVQS KLKK G N E GLLQK SLE |
| UniRef90-I3KGU7 | E S YVKK |
| UniRef90-I3KGU7 | E S Y V K |
| UniRef90-I3KGU7 | E S YVK |
| UniRef90-M3W955 | DTFNRALVQQVEELRQKLGPYAGG |
| UniRef90-M3W955 | DTFNRALVQQVEEL R Q K L GPYA G G |
| UniRef90-M3W955 | D T F NRALVQQVEELLRQKLGPYAGG |
| UniRef90_O18759 | ESFKTGVLNVI DEAAKKLT |
| UniRef90 O18759 | ESFKTGVLNVIDEAAKKLT |
| UniRef90 G3NCY2 |  |

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UniRef90 - I3N1R3
UniRef90_I3N1R3
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#### Abstract

   D EVVQRF I A QYAN K I A F H T D Q V  A QS Y W D R    EDMKAKVQQRVE EDMKAKVQQRVEQLKQELAPYAESVDTE D Q V K E V V D QVKEVVHPYVARLVTEIHRNME   




S R WEKAVDQFWNHVSELTSKAEEMRDNDKATQLGRELD

| $D$ | $L$ | $R$ | $R$ | $A$ | $L$ | $Q$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $D$ | $L$ | $R$ | $R$ | $A$ | $L$ | $Q$ |
| $D$ | $L$ | $R$ | $R$ | $A$ | $L$ | $Q$ |
| K | $L$ | $A$ | $Q$ | $E$ | $P$ |  |
| $A$ | $S$ | $G$ | $Q$ | $Q$ | $V$ | $N$ |
| $E$ | $L$ | $G$ | $Q$ | $E$ | $M$ | $N$ |

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UniRefo-UP100046BE8 UniRef90_UPIOOO46BBE8D ARLTESADVASRYAVALQEQLSPAAQDMMNRITKEADVLK PYAQELTAQMEKATEELRSRLAASSEELRTKLSPLAEELR P Y A Q E L T A Q M E K A T E E L R S R L A A S S E E L R T K L


 | $R$ | $N$ | $V$ | $E$ | $E$ | $L$ | $H$ | $R$ | $X$ | $V$ | $V$ | $P$ | $H$ | $T$ | $T$ | $A$ | $S$ | $P$ | $E$ | $K$ | $V$ | $D$ | $Q$ | $Y$ | $I$ | $Q$ | $E$ | $L$ | $S$ | $E$ | $K$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $R$ | $L$ | $T$ | $Q$ | $N$ | $A$ | $R$ | $G$ | $L$ | $H$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $R$ | $E$ | $E$ | $L$ | $H$ | $R$ | $X$ | $V$ | $V$ | $P$ | $H$ | $T$ | $T$ | $A$ | $S$ | $P$ | $E$ | $K$ | $V$ | $D$ | $Q$ | $Y$ | $I$ | $Q$ | $E$ | $L$ | $S$ | $E$ | $K$ | $L$ | $T$ |
| $Q$ | $N$ | $A$ | $R$ | $G$ | $L$ | $H$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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 QK SEELKTNLEQSVKDLQAQLGPYTDDLKLKVDQHLQDFK QK SEELKKTNLE QSVKDLQAQLGPYTDDLKLKVVQHLQDFK | $P$ | $H$ | $T$ | $K$ | $V$ | $S$ | $P$ | $E$ | $K$ | $L$ | $N$ | $H$ | $Y$ | $I$ | $Q$ | $E$ | $L$ | $S$ | $E$ | $K$ | $L$ | $T$ | $Q$ | $N$ | $A$ | $K$ | $E$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | PHTKVVSEKLNHYI QELSEKLTQNAKELHQKIQRNVDHLKM P HTKVVSPEKLNHYI QE L S EKKLTQNAKEELHQKIIQRNVVHLK GLMTDTMTELNAYKAEMDQELNPAAEETRARLAKELAAAQ TIKENVDNLHTLATNLKDKFNRNMEELKGHLTPRANELK T T I K E NV D N L H T L A T N L K D K F N R N M E E L K G H L T P R A N E L K T T I K K E N V D DVR S RI S TYTRKMKKRLSKDTQEIIKKHVAEYFEELQQ

P Y A D DVRSRI STYTRKMK

| $D$ | $D$ | $V$ | $R$ | $S$ | $R$ | $I$ | $S$ | $T$ | $T$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $R$ | $K$ | $M$ | $K$ |  |  |  |  |  |  |
| $Q$ | $D$ | $V$ | $Q$ | $G$ | $K$ | $L$ | $N$ | $H$ | $Q$ |
| $L$ | $E$ | $G$ | $L$ | $A$ |  |  |  |  |  |

(AQDVGKLNQLEGLAF
 PLGHQLRTSAQDHI ETI RE PLGHQLRTTSAQDHIETI REFVSPYQEKLKDNLSQKLLQELR
 A

## $P$ K

 K K LLA D $L$


 PYMAEAHEQVGWNLEGL RRQLKPYTAELMEQVALVRVQELQR P Y A Q DVQEKL NHQLE GL RQKLTPVAEDVQE GLQKSLA EL S


 SLVEELLQAQLARGTEELRGQLSPYTEELQGNLRQTLEGLGG

 PFAQDVQEKLNHQLEGLRQRLAPVAEKVRGNLRSNTEGR P F A Q D V Q E K L N H QL P F A Q DV Q E K L N H QL E G L R Q R L A P V A E K V R G N L R S N T E G L Q $P F A Q D V Q E K L N H Q L E G L R Q R L A P V A E K V R G N L R S N T E G L Q$ D Y I E E L Q S R A S D N M E S M K T R L D P Y F T Q V R D N A E A K I T T L N
 $P$ Y A E K L R E K I N Q H I E E F Q K KL V P Y T E T L Q S R LiF E K V Q E V R
 P Y A E K L R E K I N Q H I E E F Q K K L V P Y T E T L Q S R L F E K V Q E V R

 $P$ YAQDAQEKLNHQLEGLAFQMKKNAEELKARLAPVVEDVB


 R E R S A E L Q G R L E G G V E E L R A R L S P H A D E L R A R I E Q R V Q E F R ERSA E L Q GRL E G G V E E L R A A R L S P H A D E L R A R I E Q R V Q E F R
 T F I A T S T D A I N T V T N T L H T QVVA P L A Q D FM S K F S Q E A E K L K LNGLEGLAFQMKNADLLKTKLSADAEQLR


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 E K V A P A T Q K V Q S E L T Q R A Q Q V











## .


 E A A S G D A E S L L R Q R L A P $A$
 GKLSHQLQQGLAFQMKKNADDLKGKLTAKAEELRQKLGPAA $G K L S H Q L Q G L A F Q M K K N A D D L K G K L T A K A E E L R Q K L G P A A$
 GK L S H Q L Q G L A F Q M K K N A D D L K G K L TA A K A E E E L R Q K L G P A A

 GRRLD R QVVE E F R R S M E P Y G E D F N R A L V Q Q M E Q L R Q K L G P Y A



 ERMDRI I ERMDRII DDFRQHVAP

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KSLAEQVEEFRRNVQPYGETFNKALVQQVEELKQKLGPYT K SLAEQV EEFRRNVQPYGETFNKALVQQVEELKQKLGPYT $K$ SLA E QVEEFRRNVQPYGETFNKALVQQVEEGKQKGGPYT


 $L N L A A P Y$ A E D L Q D K L T P Y A D K L P E K L Q S L W A S F R Q S F N


$L N L A P P Y A E D L Q D K L T P Y A D K L P E K L Q S L W A S F R Q S F N$

 $G N L R A N T E E L Q K S L A$ GNLRANTEELQKS LA
$G N L R A N T E E L Q K S L A$
$V Q M T P$ F S Q E L R Q R L A S R L


S GMA P Y A R S LQ E R LA Q S L A
S GMA P Y A R S L Q E R L A Q S L A
S GMAP Y A R S L Q E RLLA Q S L A






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UniRef90 UPI000443B800 UniRef90_UPI000443B800 UniRef90-UPI000443B800
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UniRef90_G3T5B6
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UniRef90- W5NWM2 UniRef90 ${ }^{-}$W5NWM2 UniRef90_W5NWM2 UniRef90_G3WJB6 UniRef90-G3WJB6 UniRef90_G3WJB6 UniRef90_UPI000395691A UniRef90 UPI000395691A UniRef90-UPI000395691A UniRef90_UPI000395691A UniRef90_Q9TS49 UniRef90_C3PSW8 UniRef90_C3PSW8
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D
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 E A L F T R A L L R H E T E E M R R L K L L RAFTRA L D H E T E E M R L K L S

 | $T$ | $Q$ | $V$ | $R$ | $E$ | $H$ | $L$ | $E$ | $N$ | $V$ | $M$ | $Q$ | $K$ | $V$ | $K$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $T$ | $Q$ | $T$ | $A$ | $T$ |  |  |  |  |  |  |  |  |  |  |
| $R$ | $E$ | $H$ | $L$ | $E$ | $N$ | $V$ | $M$ | $Q$ | $K$ | $V$ | $K$ | $E$ | $T$ | $A$ | T Q V R E HL E NVVMQKV K ETAT ERLVTGUGHHVQQLHRSVAPHA ERLVTGIGHHVQQLHRSVAPHA

 Q D L Q A Q L DF TRTDDRETEEI KFKLS P DFTRTIDRETEEIKKKLSP


 | $E$ | $E$ | $L$ | $Q$ | $T$ | $K$ | $V$ | $S$ | $A$ | $K$ | $I$ | $D$ | $Q$ | $L$ | $Q$ | $K$ | $N$ | $L$ | $A$ | $P$ | $L$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $E$ | $E$ | $E$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $L$ | $Q$ | $T$ | $K$ | $V$ | $S$ | $A$ | $K$ | $I$ | $D$ | $Q$ | $L$ | $Q$ | $K$ | $N$ | $L$ | $A$ | $P$ | $L$ | $V$ | $E$ |  |

ENMKLKIQ NTAEDI
 ETFNKAMVQQLDA L R QK L G P L A ETFNKAMVQQLDALRQKLGPLA

 QKFKTEFLTMLEEARKTLTT Q K F K T E F F L Tr M L ETF GK QLV QRL E EMRDKLD S GAA G E TFGGKQLVQRLDEMRDKLDSGAA G


DLMHDKV K G NV E GL Q K S L A
DL M H D K V K G NV E GLLQK S L A
D L M H D K V K G N V E GLL Q K S L A
D L $M$ M H $\quad D \quad K$
 QRLV S GI GRHVQELHRSVAPHA QRLVSGI GRHVQELHRSVAPHA G D V E G H L S F L E K D L R D K K V G DVV E G H L S F L E K K D L R R D K V S G DVVE G H L S F L E K D L R D K V S

 GSVVED HLAF L E R DL R Q QL S


G NVGGHLSFLEKDLRDKV G NVGG G H L S F L E K D L R D K V
 $G N V G G H L S F L E K D L R D K V$
T MI R E S M
T M I $\operatorname{RES}$ M
TMIRESM

VE LME QVALRVQELQEQLRVVGE
NKLKK RLNKDTEEI RNTVATY ESFNKALVQQMEQLRQKLGPH ESFNKALV QQMEQLLRQKLGBH ESFNKALVVQQMEQL RQKLGPH $K A L S E K A Q P P L E D L R Q G L Q P M L E$ K A L S E K A QP P L E DL R Q GL Q P ML E K K L R K R F NK D I Q E I NKKMSTYFE GSMKEGFEKTTEDL RSALEDKME GSMKEGFEKTTEDLRSALEDKME Q D L R A QL S S L WD S F QK S

 ESLDTRALERA
E D
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UniRef90 A8G611 Uniref90_A8E611
 PFAQDAQEKLNHQLEGLAFQMKKNADLLKTKLSADAEQLR QLSEETMKELKASLAEVEAQLGPVAEETKTRLCKELQAAQ DYVTELQTRASDNVEDMRTRLDPYFSQVRDNLQSHVEDMK DYITELQTRASDNVEDMRTRLDPYFSQVRDNLQSHVEDMK PLTQDLKDSTKQKFDELHQKLSPMGKE:IRDRAQGH:ETVQ PLTQDLKDSTKQKFDELHQKLSPGGKELRDRAQGHILETVQ PFATGAQDQLNRQESLAFQMKKNVEQLRTK SENTEDLK PFATGAQDQLNRQLESLAFQMKKNVEQLRTKISENTEDLK TLMDETMKELSAYKAELKTQLGPVAEQTRVRLAKELQAAQ

 TKURENAGNLNPYSEELQNTVDKNVEELRKQLSPFTTEVR

 PYAQELTAQMEKATEELRSRLAASSEELRTKLSPLAEELR

 H N A K E L Q A Q M V P Y T E E M K N K M E Q S L E D F H S S H N A K E L Q A Q MVV Y T E E M K N K M E Q S L E D F H S S L M P I A Q S F E $P$ Y MA E V H E R V G WN L E GLL R R Q L Q P Y Y T V

 Q A V V E
 PRRAN E L K A T I D Q Q L E D L R S R L A P L A E G V Q E K L N K N A E E L Q


 V PYMAEAHARVGWNLEGLRRRLEPYTSA PYMAEAHARVGWNLEGLRRRLEPYTSALMEQVALRVQELQ PYADQLQEKI NQHI AELQKTLCPFAKGAQEQLNKNVDQLR PYADQLQEKINQHIAELQKTLCPFAKGAQEQLNKNVDQLR PYADQLQEKINQHI AELQKTLCPFAKGAQEQLNKNVDQLR PYADQLQEKINQHIAELQKTLCPFAKGAQEQLNKNVDQLR
 P PAEEVRDKVRVDVDALRSRLTPYSDEVRQKLVAKLEEKK PUAEEVRDKVRVDVDALRSRLTPYSDEIRQKLVAKLEELK TKLISQSANTVXQYVVALKTQAGPLLSQDLLTQUTQQTETLK
 PLGEQVRDRARTHVEALRQVLEPYSDKVRERLAERLQALR PYAQGAQTKLNLQLEGLAVQMKKNAEEFQGKISTNADEL
 PYAQGAQTKLNLQLGLAVQMKKNAEEFQGKISTNADELQ

 PVAEEARDRLRGHVEELRKNLAPYSDE HNTKKSTDAKMVKYTLIA MQSQVTPLLTQ HNTKELQAKMVPYTEEMKQKMEQSLEDFQSSLLPMAQSFQ HNTKELQAKMVPYTEEMKQKMEQSLEDFQSSLLPMAQSFQ MDSEALKATLLQKSEEMRAGLEKSMREMQAQLEPQAEELK MDSEALKATLLQKSEEMRAGLEKSMREMQAQLLEPQAEELK P G GEEKKEMTKQKMEVLQQKLTPVAEEARDRMRGHVEELR SL KDSLEQDLSNMDALLEKLGPLSGQGKEPPRGHDVAMR TPLAEEAQGRMRGHVDELR

UniRef90_UPIO0046BBF8D UniRef90_UPIOOO46BBF8D
UniRet90_UPIO003314649 UniRef90-G3GJY2 UniRef90-G3GJY2 UniRef90-G3GJY2 UniRef90-F6TE34 UniRef90-F6TE34 UniRef90-F6TE34
UniRef90-O503V2 UniRef90 F6TDB8 UniRef90-F6TDB8 UniRet90-F6TDB8 UniRef90-UPIO003F062CB UniRef90-G5DZQ3 UniRef90-G5DZQ3 UniRef90-G5DZQ3 UniRef90-G5DZQ3 UniRet90_UPIO003990376 UniRef90 UPIOOO3990376 UniRef90-UPIO003990376 UniRef90-UPIO00387146E UniRef90_UPIO00387146E UniRef90-UP100033371C3 UniRef90-H2LZF9 UniRef90-H2LZF9 UniRef90-Q5KSU4 UniRef90-Q5KSU4 UniRet90_O5KSU4 UniRef90-A4FUZ9 UniRef90_UPIOOO4419158 UniRef90-UPIOOO4419158 UniRef90-UPIOOO4419158 UniRef90-UPIO004419158 UniRet90_MOR8A9 UniRet90_MOR8A9 UniRef90-MOR8A9
UniRef90 MOR8A9 UniRef90-M4ANU1 UniRef90-M4ANU1 UniRef90-UPI0003AF43D6 UniRef90-UPIO002A48910 UniRef90_UPIO002A48910 UniRef90-UPIO002A48910 UniRef90-UPI0002A48910 UniRef90-H2DJB3 UniRef90-H2DJB3 UniRef90_H2DJB3 UniRef90 H2DJB3 UniRef90-H2MG05 UniRef90-UPIOO0386F849 UniRef90_UPIO00386F849 UniRef90_UPI000386F849 UniRef90-Q6DDC5 UniRef90-Q6DDC5 UniRet90_Q6DDC5 UniRef90-L5M0Q1 UniRef90-L5MOQ1 UniRef90-G3WJK9 UniRef90-G3WJK9 UniRef90-G3WJK9 UniRet90_UP1000388AB28 UniRef90-Q7SZA1
UniRef90 Q7SZA1 UniRet90_Q7SZA1 UniReego-Q9DFQ3
UniRef90-UPI00046B8FOA UniRef90-UP1000046B880A UniRef90-UPIo0046B8FOA UniRef90_HOWBC9 UniRef90-HOWBC9 UniRef90-HOWBC9 UniRef90-HOWBC9 UniR Ref90-P08250 UniRef90-P08250 UniRef90-F1QCG1 UniRef90_Q4T823 UniRet90_Q4T823 UniRef90_UPIOOO440CF93 UniRef90_UPIO00440CF93 UniRet90 K7FZD8 UniRef90-K7FZD8 UniRef90-UPIO00443D3A6 UniRef90_UP10003C29728
UniRef90 UPIOOO3C29728 UniRef90_A8E611 3

RSLIAPLLAQDVIRGKLLQQSLAQLGSQLIDRKVEEFRRSVIEPHG RSLAPLAQDVRGKLQQSLAQLGSQLDRKVEEFRRSVEPHG ARLETDMEDLRSRLSQYRTDVQSMLGQSTEELRNRLSSHL AKI QTAAEDIKGRLESKTGDLGSTLGEKMEEMRNWFKPYV AKIQTAA
 EFVKPYHEQKTSV
 QKLTPFAEDIQGKLYQSTKVRGQMNQHIEEFRRNDGPQG QKLTPFAEDIQGKLYQS TKVRGQMNQHMERRNMPQG DRLAADMEDVRNRLVQYRSEAQTVLGQSAEEMRARLASHG

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f
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 GQLRVVGEGTKAQFLGLLQELQNRVAHHTGRVKALFHPYA GKLLAESEQLREKLDTHLASLKKGDFGKQUEEFRQRVGSYGG GKLLAESEQLREKLDTHLASSKGDFGKQUEEFRQRVGSYG TKVSTNDDQLQKNLAPLVEDVQSKLKGNTEGLQKSL TKVSTNIDQLQKNLAPLVEDVQSKLKGNTEGLQKSLA GKMEQSLEDFQQNVVPLAQSFETQVAQKAQELQQSLVQNG QEMHKDLEEVRQKVQPYLDEFQEGARQKVQELQDKLSPLA NWFQPYVSMVKEQLG
NWFQPYVSMVKEQLG
NWFQPYVSMVKEQLG
NWFQPYVSMVKEQLG
GNLRANTEELQKSLA
GNLRANTEELQKSLA
GNLRANTEELQKSLA
GNLRANTEELQKSLA
SRASQNADSVRVQVEPYDTELGGHLDRQVEEFRRQVEPYG解 SRASQNADSVRVQVEPYLTDLASVLDAQGDTIRTQLESSM AQLLEGADEVQRFMAHYAD KIVGFHTDQVKDIFQPYA AQLLEGADEVQRFMAHYAD KITFHTDQVKDIFQPYA AQLSQHTENLKEKYGPLAQSTRERLVPHAEEARNNLAKDW AQLSQHIENLKEKYGPLAQSI RERLVPHAEEARNNLAKI W AQLSQHIENLKEKYGPLAQSIRERLVPHAEEARNNLAKUW EQLRVVGEDTKAQLLGLLKELQSCLLHHTGRVKQLFHPYA EQLRVVGEDTKAQLLGLLKELQSCLLHHTGRVKQLFHPYA

 NKISDNAEDLKQKLCPCAEEMRGRVDRQIDEFRRNMKPCG ANAGPKSEEYRTQLSQYIENVKEKYGPLAQSIRERGVPHA ANAGPKSEEYRTQLSQYVENVKEKYGPLAQSUREREVBA ANAGPKSEEYRTQLSQYIENVKEKYGPLAQSI RERLVPHA SRLIETELSAVNANLQPYAEQLVADLDTKMDALKXDVAPLA DRGGVGLSELRDKAGARLRELREQAQPVLEDLRSGLQPLW


| UniRef90_UPI00046BBF8D | $\text { E A F N K\|I L\|A Q Q\|V\|E E\|L K Q K\|L }{ }^{130} \mathrm{P}^{140}$ |
| :---: | :---: |
| UniRef90_UPI00046BBF8D | EAFNKILLAQQVEELKQKLGP |
| UniRef90-UPI0003314649 | $R K L R K R L L T R A E D L Q K R L A D Y R A$ |
| UniRef90-G3GJY2 | S MIR D G M |
| UniRef90-G3GJY2 | S M I R D G M |
| UniRef90_G3GJY2 | S M I R D G M |
| UniRef90-F6TE34 | K ALK EK F S P ILLEDLKKTSA D P |
| UniRef90-F6TE34 | K ALKEKFSPILEDLKTSADP |
| UniRef90-F6TE34 | K ALK K K F S P L L E DL K T S A D P |
| UniRef90_Q503V2 | E EVQS R A S Q SVE DVK D R L E P Y |
| UniRef90_F6TDB8 | EAFNTALVQHLEELKKKLGSH |
| UniRef90-F6TDB8 | EAFNTALVQHLEELKKKLGSH |
| UniRef90_F6TDB8 | E A F T T A L V Q HL E ELKKKL G S H |
| UniRef90_UPI0003F062CB | RKTRKRLVRD F E D L Q K R L A V Y R N |
| UniRef90-G5DZQ3 | E QLREQLRPYS D ELKEKLE |
| UniRef90-G5DZQ3 | E Q L R E Q L R P Y S D E K K K L E |
| UniRef90-G5DZQ3 | E QL R E Q L R P Y S D EL K E K L E |
| UniRef90-G5DZQ3 | E QLRE QLR P Y S DELKEKLE |
| UniRef90-UPI0003990376 |  |
| UniRef90-UPI0003990376 |  |
| UniRef90-UPI0003990376 |  |
| UniRef90_UPI000387146E | $E T Y G R Q L V E R L E E M R G K L D T G A T$ |
| UniRef90_UPI000387146E | ETYGRQLVERLEEMRGKLDTGAT |
| UniRef90_UPI00033371C3 | QELQE GLR D HARNLVDKL R P Y G E |
| UniRef90_H2LZF9 | E ELRARLDS GAQDLQTQLT |
| UniRef90_H2LZF9 | E ELR A RLD S G A Q DLQ T Q L T |
| UniRef90_Q5KSU4 |  |
| UniRef90-Q5KSU4 |  |
| UniRef90- Q5KSU4 |  |
| UniRef90-A4FUZ9 | $E R L V S G \square G H H V Q E L H R S V A P H A$ |
| UniRef90_A4FUZ9 | ERLVSSGIGHHVQELHRSVAPHA |
| UniRef90-UPI0004419158 | EGFNQFVVEKVQELGLKLQPHAG |
| UniRef90-UPI0004419158 | EGFNQFVVEKVQELGLKLQPHAG |
| UniRef90-UPI0004419158 | EGFNQFVVEKVQELGLKLQPHAG |
| UniRef90-UPI0004419158 | EGFNQFVVEKVQELGLKL Q P H A G |
| UniRef90-M0R8A9 | E DLNK QL D Q QVEVFRRAVEP |
| UniRef90-M0R8A9 | E D L K Q L D Q Q VEVFR R AVEP |
| UniRef90_M0R8A9 | E DL N K Q L D Q Q EVFRR AVEP |
| UniRef90-M0R8A9 | E DL N K Q L D Q VEVFR R AVEP |
| UniRef90-M4ANU1 | E ALRAKLDAGAQDLQAQLT |
| UniRef90-M4ANU1 | EALRAKLDAGAQDLQAQLT |
| UniRef90-UPI0003AF43D6 | QELRDRARAHVETLRQQLAPY |
| UniRef90-UPI0002A48910 |  |
| UniRef90-UPI0002A48910 |  |
| UniRef90-UPI0002A48910 |  |
| UniRef90_UPI0002A48910 |  |
| UniRef90-H2DJB3 | ESFNKALVQQMEQLRQKLGPHA |
| UniRef90-H2DJB3 | ESFNKALVQQMEQLRQKLGPHA |
| UniRef90_H2DJB3 | ESFNKALVQQMEQLRQKLGPHA |
| UniRef90-H2DJB3 | ESFNKALVQQMEQLRQKLGPHA |
| UniRef90-H2MG05 | RELRTTSMDTRLDELTELIVPYA |
| UniRef90-H2MG05 | RELLRTS MD T R L D ELT ELLIVPP P A |
| UniRef90_UPI000386F849 | D R L V T Elo R NVEELHRNVIP H |
| UniRef90-UPI000386F849 | D RLV T EI H R NVEELHRNVIP H |
| UniRef90-UPI000386F849 | D RLVTEI HRNVEELHRNVIPH |
| UniRef90- Q6DDC5 | ENLRAKLQRQ |
| UniRef90- Q6DDC5 | E NLRAKLQRQ |
| UniRef90-Q6DDC5 | E NLRAKLQRQ |
| UniRef90-L5M0Q1 | ERLVS GI GQ HVQELHRSVAPH |
| UniRef90-L5M0Q1 | ERLVS GI GQHVQELHRSVAPH |
| UniRef90-G3WJK9 | ESFNKALVHNLEELKQKLGP |
| UniRef90_G3WJK9 | ESFNKALVHNLEELKQKLGP |
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| UniRef90-G3WJK9 |  |
| UniRef90_UPI000388AB28 | E QLH S QL G P Y A Q L Q G R L |
| UniRef90-Q7SZA1 | E EARSNLAKIWENLKARL |
| UniRef90_Q7SZA1 | E EARSNLAKI WENLKARL |
| UniRef90-Q7SZA1 | EEARSNLAKI WENLKARL |
| UniRef90-Q9DFQ3 | E A M P P T L K TV |
| UniRef90-UPI00046B8F0A | ES L KVGFLLGVGQLSE |
| UniRef90_UPI00046B8F0A | E S L K V G F L L GV GQL S E |
| UniRef90_UPI00046B8F0A | E S L K V G F L L GVGQL S E |
| UniRef90_H0WBC9 | RDAEGHLSFLEKDL R D QV |
| UniRef90_H0WBC9 | RDAEGHLSFLEKDLRDQVS |
| UniRef90_H0WBC9 | RDAEGHLSFLEKDLRDQVS |
| UniRef90_H0WBC9 | RDAEGHLS FLEKDLRDQVS |
| UniRef90_H0WBC9 | RDAEGHLSFLEKDLRDQVS |
| UniRef90-P08250 | ENLK NRLIS FLDDELQK SVA |
| UniRef90-P08250 | ENLKNRLI S F L D ELQ C S C V A |
| UniRef90-P08250 | E NLKNRLI S F L D E L Q K S V A |
| UniRef90-F1QCG1 | E A L R L T L V L R A E ELKA KLE T |
| UniRef90- Q4T823 | E A F SKK |
| UniRef90-Q4T823 | E A F S K |
| UniRef90-Q4T823 | E A FSKK |
| UniRef90_UPI000440CF93 | E DLK A QLT T LTWES F |
| UniRef90-UPI000440CF93 | E DLK A QL T T L WESF |
| UniRef90-K7FZD8 | E N M K T R F L A M D SVRKSME |
| UniRef90_K7FZD8 | ENMKTRFLAFMDSVRKSME |
| UniRef90_UPI000443D3A6 | VELM E Q V A L R V Q E L Q E Q L |
| UniRef90-UPI0003C29728 | QDFRERVKPYTDSVKTHL |
| UniRef90_UPI0003C29728 | QDFRERVKPYTDSVKTHL |
| UniRef90_A8E611 | EDFTRTINKEAEEMQNKLSP |



Q NVEELKGHLT PYTDELKVKDDQNVEELRRS Q N V Q NVE ELLK GHLLTPYT DELKVKIDDQNVEELRRS

| $D$ <br> $T$ <br> $T$ <br> $T$ <br> $T$ <br> $A$ <br> $A$ <br> $A$ |
| :---: |
|  |  |

A D QVATVLWKYFSELGSNAKETVDQLQQAEDTKQ TVN QNVEELKERLTPYADEFKVKDDQTVEELRRSPYAQDAQ

 $\begin{aligned} \text { Q Q N } & \text { E E L K K K R }\end{aligned}$


S GQPWE DA LGRFWDY TRWDQTLSEQVQEELLSPQVTQEDT NAQAEQLRSQUTPLAQRMETMLRENMDNLQAS $\quad$ VM M NAQAEQLRSQLTPLAQRMETMLRENMDNLQAS $\quad$ VMM
 LEEVKQKVQPYLDEFQKKWKEDVEL YRQKVA YRQKVA
YRQKVA YRQKVA SQQQLDMVKDAFWDYVAKATLTAEDTLQKIRQSEVAQEVN NAQAEQLRSQLTPLAQRMETMLRENMDNLQAS




QLAQDPEGMRKQLQLEVRARLE QLAQDPEGMRKQLQLE

QQDMSTVKSQLEPYVQEVMSNVQQQVEQLKK QQDMSTVKSQLEPYVQEVMSNVQQQVEQLKK
 QQDMSTVKSQLEPYVQEVMSNVQQQVEQLKK AKERSTEYLNELKTMVEQNTDDVRTTKVALYYAD $A K E R S T E Y L N E L K T M V E Q N T D D V R T T K K L R K R R L T$
$A$ AKERSTEYGNELKTMVEQNTDDVRTTKLRKRLT

## UniRef90_A8E611 UniRef90-13K841

 UniRef90_W5KQK3 UniRef90_W5KQK3 UniRef90-G3WJLO UniRef90-G3WJLO UniRef90-G3WJLO UniRef90-G3WJLO UniRef90-E2RE76 UniRef90-E2RE76 UniRef90-E2RE76 UniRef90-G3NCW8UniRef90-G3NCW8 UniRef90_UPIO00350B95D UniRef90-H8XWG6 UniRef90-H8XWG6 UniRef90-H8XWG6 UniRef90-H8XWG6 UniRef90 W5MGL6 UniRef90-W5MGL6 UniRef90_W5MGL6 UniRe90_K4G3B5
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UniRef90 W 5 KQL 3 UniRef90-W5KQL3 UniRef90-C3PSW7 UniRef90-C3PSW7 UniRef90 M M ALC2 UniRef90-H3C1G7 UniRef90-H3C1G7 UniRe990_L8IIFO UniRef90-A2V9Z8 UniRef90-G3TYV1 1 UniRef90-G3TYV1 UniRef90-G3TYV1 UniRef90-G3TYV1 UniRef90-Q58EV2 UniRef90-Q58EV2 UniRef90-Q58EV2 UniRef90-B5XCQ3 UniRef90-G3UN60 UniRef90-G3UN60 UniRe99O-G3UN60
UniRef90_G3UN60 UniRef90-G3UN60 UniRef90-G3UN60 UniRef90-G1M247 UniRef90-W5KQL1 UniRef90-W5KQL1 UniRef90-W5KQL1 UniRef90-W5KQL1 UniRef90-W5KQL1 UniRef90-UPIOOO3D07F15 UniRef90-S5GDM7 UniRef90-G31704 UniRef90-G31704
UniRef90 O 042363 UniRef90-O42363 UniR Ref90-O42363 UniReffo-O42363 UniRef90-L9KRF8 UniRef90_L9KRF8 UniRef90-W5KQK7 UniRef90-W5KQK7 UniRef90 W5KQK7 UniRef90-W5KOK7 UniRef90_W5KQK7 UniRef90-M4AVZ5
UniRef90-M4AVZ5 UniRef90-M4AVZ5 UniRef90 M4AVZ5 UniRef90-13K836
UniRef90 $13 k 836$ UniRef90-I3k836 UniRef90-G3RYJ6
UniRef90_G3RYJ6
 TKDSESADTVNQYVATLHTQVAPDTQNFMTQFSQEAEQLR MDAETLKATLLQKSEEMKASMEKTMMEMQAQLGPQAEELK MDAETLKATLLQKSEEMKASMEKTMMEMQAQLGPQAEELK PYADQLQEKI NQHTAELQKTLCPFAKGAQEQLNKNVDQLR PYADQLQEKINQHI AELQKTLCPFAKGAQEQLNKNVDQLR PYADQLQEKI NQHI AELQKTLCPFAKGAQEQLNKNVDQLR PYADQLQEKI NQHI AELQKTLCPFAKGAQEQLNKNVDQLR
 P Y A Q DVQEKLNHQLEGLAFQMKKNAEELKAKISANAEELR VLQRSQELRAQLDKSMSQLQAQMVPYTEEIK VLQRSQELRAQLDKSMSQLQAQMVPYTEE:K TLLQGNLK EKLNHQLEGLAFQMKKNAEELKARTSASAEELRQRLAPLA EKLNHQLEGLAFQMKKNAEELKARISASAEELRQRLAPLA EKLNHQLEGLAFQMKKNAEELKARISASAEELRQRLAPLA
 ANVEEMKTKLTPVEAVRAKLTERLEERRKVAAPYAEEYR A AVEEMKTKLTPIVEAVRAKLTERLEELRKVAAPYAEEYR GMLRTSMTELNTHVQSLQEQMAPYTDGLKERFTSEMGTME RQLEALTAQMERVAEELRARLDASSEELRARLSPRAQELR RQLEALTAQMERVAEELRARLDASSEELRARLSPRLAQELR RQLEALTAQMERVAEELRARLDASSEELRARLLSPLAQELLR SLDDETLTTVIQKSEELKAQLEQSVQELQTHLGGYTDDLK SLDDETLTTVIQKSEELKAQLEQSVQELQTHLGGPYTDDLKK MDAETLKTTLLQKSEEMKASLEKTMMEMQAQLGPQAEELK PYMTEVHQRVGWNLEGLRRQLKPYTAELMEQVALRVEELQ PYMTEVHQRVGWNLEGLRRQLKPYTAELMEQVALRVEELQ SRVSHSLAAANTYRTELQKQLPLVAQELVAKPSKGTEELQ HNTKELQAKMVPYTEEMKQKMEQSLEDFQSSLLPMAQSFQ HNTKELQAKMVP LKLLDNWDTLASTLSKVREQLGPVTQEFWDNLEKETASGR

 SFTDEFKANINQNVEELKGSLI PYADEEKKTMMDQNVEELR PLGAELQESARQKLQELQGRLSPVAEEFRDRMRTHVDSLR PLGAELQESARQKLQELQGRLSPVAEEFRDRMRTHVDSLR PLGAELQESARQKLQELQGRLSPVAEEFRDRMRTHVDSLR PLGAELQESARQKLQELQGRLSPVAEEFRDRMRTHVDSLR TMVSESADAVNQYTVAMRGQVTPLTQDLLAKFSQEAEQLK SFTDEFKANI NQNVEELKGSLIPYADELKTMMDQNVEELR
 SFTDEFKANIINQNVELKGSLIPYADELKTMIDQNVEELR ALMEDT四KEVKTYTEEVEEQLGPMTSEMQARVMKELQAAQ KSEEMKASLEKTMMEMQAQLGPQAEELK KSEEMKASLEKTMMEMQAQLGPQAEELK KSEEMKASLEKTMMEMQAQLGPQAEELK KSEEMKASLEKTMMEMQAQLGPQAEELK KSEEMKASLEKTMMEMQAQLGPQAEELK KSEEMKASLEKTMMEMQAQLGPQAEELK MLIKDXVAEDHAYRKDVEERLGPQAVVMRERLHTDVTVGG STAKLSSYSENLQTQMTPYASDAAGQLSKDLQLLA PYMAAKHELVGWNLEGLRQQLKPYTVELMEQVGLSVQELQ PYMAAKHELVGWNLEGLRQQLKPYTVELMEQVGLSVQELQ PLMDDIRKAFESNIEETKSKVVPMVEAVRTKLTERLEDLR PLMDDIRKAFESNI EETKSKVVPMVEAVRTKLTERLEDLR PLMDDIRKAFESNI EETKSKVVPMVEAVRTKLTERLEDLR PLMDDLRKAFESNIEETKSKVVPMVEAVRTKGTERELEDLR PYTVELMEQVALRAQELQEQLRVVGEDTKAHLMGGVDEVR PYTVEEMEQVALRAQELQEQLRVVGEDTKAHLMGGVDEVR MDAETLKATLLQKSEEMKASMEKTMMEMQAQLGPQAEELK MDAETLKATLLQKSEEMKASMEKTMMEMQAQLGPQAEELK MDAETLKATLLQKSEEMKASMEKTMMEMQAQLGPQAEELK MDAETLKATLLQKSEEMKASMEKTMMEMQAQLGPQAEELK KDTEDIRDTVSTYMSETQSRTNQNLDTVKENVEPYMEQAR
 KDTEDIROTVSTYMSEEQQSRTNQNLDTVKENVEPYVEQAR PYTEELKEKMQESLEEFQTKLAPYTQEAADRLGKDLQLMA PYTEEIKEKMQESLEEFQTKLAPYTQEAADRLGKDLQLMA


UniRef90 A8E611 UniRef90 ${ }^{-}$I3K841 UniRef90_W5KQK3 UniRef90_W5KQK3 UniRef90_G3WJL0 UniRef90_G3WJL0 UniRef90_G3WJL0 UniRef90_G3WJL0 UniRef90_E2RE76 UniRef90_E2RE76 UniRef90_E2RE76 UniRef90_G3NCW8 UniRef90_G3NCW8 UniRef90_UPI000350B95D UniRef90_H8XWG6 UniRef90-H8XWG6 UniRef90-H8XWG6
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UniRef90 Q58EV2 UniRef90_Q58EV2 UniRef90_Q58EV2 UniRef90-B5XCQ3
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UniRef90-O42363 UniRef90_O42363
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UniRef90-I3K836 UniRef90_I3K836
UniRef90_I3K836
UniRef90_G3RYJ6
UniRef90_G3RYJ6
V

 QKMEQHMQEFQKTMDPMAENFQERMTQNAQEMKKQQLDPYA QKME QHMQEFQQKTMIPMAENFQERMTQNAQEMKKQLLDPYA NKISDNAEDLKQKLCPCAEEMRGRVDRQDDEFRRNMKPCG
 NKI QRLADNA EDLK QKL CPCAE EMRGRVDRQI DEFRRNMKPCG
 QRLA PVAE DVRGK L K K S L A E L L S S R L D Q QV E EFRRRNVGPY G


 EDMRGNLRGNTEGLQKSLAELGGHLDRHVEEFRLRVEPYG E DMR G N L R G N T E GLL Q K S $\operatorname{L}$ A A E L EDMRGNLRGNTEGLQKSLAELGGHLDRHVEEFRLRVEPYG EDMRGNLRGNTEGLQKSLAELGGHLDRHVEEFRLRVEPYG S K L G D A V S E V R E K V G P M A Q N L R E K L E P Y K E D L S A K L S A L W


 S A A G G D A Q S L R E RLA A P L A QE L E E R V G Q T L E A F RQQ A A P V G
 S A A G G D A Q S L R E R L A P L A Q E L E E R V G Q T L E A FRRQQA A P V G



E QLL R V V V S G GQR SVVEDLQ A GPAP YA E E L S E K L Q Q S V E K L R S QL G P FA

 Q S L V P Y A Q DVV R E K L E N H Q A Q Q
 Q S L V Q S L V P Y A Q DVVP E K L N H QL E GL A F Q M K K N A E MLL K A K I E A Q A
 TQLAP HSEQMRESLA QRLAELKEKARPALEDLRHSLLMPML
 T Q L A P H S E Q M R E S L A Q R L A E L K E K A R P A L E D L R R H S L M P M L
 Q S L V P Y A Q DV P E K L N H QL L Q S L V P P Y A Q D V V P E K L N N H Q L E G L A F Q M K K N A E E M L K A K I I E A Q A
 Q S L V P Y A Q DV $V$ P E K L N H Q L E GL A F Q M K K N A E M L K A K I I

 QK ME Q H M Q E F Q K T M I P P M A E N L Q Q D QL V QKMEQHMQEF QK TMI PMAENLQDQLVHRSQEMKEQLDPYA


## 

## E





## S L L Q

## $S L L Q Q$

E LQ S R V A P Y A E R L V S Gi G R HVQ E L

QKMEQHMQE
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QKMEQHMQEFQQKTMI PMAENFQERMTQNAQEMKKQLLDP YA
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| UniRef90_A8E611 | $\text { ED FTRT } \square \text { NKEAE E MQNKLLS }{ }^{130} \mathrm{P}^{140}$ |
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| UniRef90-I3K841 | Q A M |
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| UniRef90-W5KQK3 | E DLK T Q L T T L We S F |
| UniRef90-G3WJL0 | ES F N K ALVVHNLE ELK Q K L G P |
| UniRef90_G3WJL0 | ESFNKALV HNLEELKQKLGP |
| UniRef90-G3WJL0 | ESFNKALVHNLEELKQKLGP |
| UniRef90-G3WJL0 | ESFNKALVHNLEELKQKLGP |
| UniRef90-E2RE76 | ET F NKALLQQVEELRQKL GPYA |
| UniRef90_E2RE76 | ET F NKALL Q Q V E EL R Q K L GP Y A |
| UniRef90-E2RE76 | ETFNKALLQQQVEELRQKLGPYA |
| UniRef90_G3NCW8 | E ELKAKLEVSAQDLQA QLA |
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| UniRef90_UPI000350B95D | LEL Q Q A L S D A E G R ERL |
| UniRef90-H8XWG6 | ENFNKALVQQMEQLRQKLGPHA |
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| UniRef90-W5MGL6 | E T L A Q S K Q |
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| UniRef90_UPI0003834511 | EAL G Q Q MVQRLE DMRAKLESGTAG |
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| UniRef90_UPI0003834511 | EALGQQQMVQRLEDMRAKL ES GTA G |
| UniRef90-M4AVZ8 | D NLRERLD P Y A Q DLQ T RLT |
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| UniRef90-W5KQL3 | E NLIRA QLTT TLWES F S K S |
| UniRef90-W5KQL3 | E NLIRAQLT T L WESFSKS |
| UniRef90-C3PSW7 | ERLVTS S GR HVQELHRSVAPHA |
| UniRef90_C3PSW7 | ERLVTS I GRHVQELHRSVAPHA |
| UniRef90-M7ALC2 | QELSERLQQPVQEF S Q Q GLEPYMQ |
| UniRef90_H3C1G7 | E A F S K |
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| UniRef90_L8IIF0 | EEFREGARQKVQELLQDKLSPLAQ |
| UniRef90-A2V9Z8 | EDMQRQWA GLVEKVQAAV |
| UniRef90-G3TYV1 | NELWWQRLEPAAEDVRGKL |
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| UniRef90-Q58EV2 | ETLKTKA Q S V I D K A S ETLT |
| UniRef90-Q58EV2 | ETLK T K A Q SVI D K A SETLT |
| UniRef90-Q58EV2 | ETLKK K K A Q SVI D K A S E T L T |
| UniRef90_Q58EV2 | E TLLK T K A Q S V I D K A S E T L T |
| UniRef90-B5XCQ3 | QSFQTQLTTQRTQDLQQNLAPYGE |
| UniRef90_G3UN60 | NELWWQRLEPAAEDVRGKL |
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| UniRef90-G3UN60 | NELWQRLEPAAEDVRGKL |
| UniRef90_G3UN60 | NELWQRRLEPAAEDVRGKL |
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| UniRef90-W5KQL1 | ENLRA QLT T L WESFSKS |
| UniRef90- W5KQL1 | E NLRA Q L T T L WESFSKS |
| UniRef90 ${ }^{-}$W5KQL1 | E NLIRAQLT T L WESFSKS |
| UniRef90-W5KQL1 | E NL R A QLT T L We S F S K S |
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| UniRef90-W5KQL1 | E NLR A QL T T L WES F S K S |
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| UniRef90_S5GDM7 | R K L K K R L N K D TEE $\quad$ TR N T VAA T Y M S |
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| UniRef90_G3I7Q4 | ERLVT Gl G H HVQ ELLHRSVAPHAA |
| UniRef90-O42363 | E NVRT |
| UniRef90-O42363 | E NVRT |
| UniRef90-O42363 | E NVRT |
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| UniRef90-L9KRF8 | PASPKRLSRCVQILSRKLT |
| UniRef90_L9KRF8 | PASPKRLSRCVQ L L S R K L T |
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| UniRef90-W5KQK7 | E DLK T Q L T T L WES F |
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| UniRef90-W5KQK7 | E D L K T Q L T L WES F |
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| UniRef90-M4AVZ5 | T Q V R E |
| UniRef90-I3K836 | E ELQSRTSENVEDLKTRLDPYFA |
| UniRef90-I3K836 | E ELQSRTSENVEDLK TRLDPYFA |
| UniRef90-I3K836 | E ELQSRTSENVEDLK T R L D P Y F A |
| UniRef90_G3RYJ6 | E DVR GNLRGNTE GLQK S L A |
| UniRef90-G3RYJ6 | E D V R G N L R G N T E G L Q K S L A |


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| UniRef90-M3XI83 |  |
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| UniRef9 | H9GQY3 |
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| UniRef90_UPI00032A2C21 |  |
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| UniRef90-C1BLA4 |  |
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| UniRef90_W5KRD4 |  |
| UniRef90_W5KRD4 |  |
| $\begin{aligned} & \text { UniRef90_W5K2L3 } \\ & \text { UniRef90_W5K2L3 } \end{aligned}$ |  |
|  |  |

T N LD MVVK D A F WD YVA K VT VT A E D S L N Q DR EKLSPANKELL QKLRQSELGQQVN E K L S P A N K E L L Q K L I Q T D

$R \square E Q \| H D T \square R E Y \square D K \prod S K S T S D N D Q S \prod R N S$ QPWEQALGRFWEYLRWVQTLSNKVKEELLNS D L M
 EQVALRVQELQEQLRV

| $T$ |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $T$ | $Q V$ | $N$ | $T$ |

TQVNTQAEQLRRQLD
TQVNTQAEQLRRQLD PLAQRME
SHVDQLKDAFEDYVD $K A T A A G H P L S Q l \mid r$ K L T P VA E EARDRLRGHELKRKVA KLTPVAEEARDRLRGHELRKNVA KLTPVABEEARDRLRGHELRKNVA K L KLTPVAEEARDRLRGHELRKNVA

 QTPLERLQGMGQVYLESAKAAVKQAVDQFDSSAMAQEL H A D QVATVMWDYFSQGGSNAKKAVEH LQKXEL



QKKLEPLASELQSQLSQVDSDKEQVLREDSS|  |  |
| :--- | :--- |
| 6B43AE |  |
| 6B43AE |  |
|  |  |
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UniRef90 G3RYJ6 UniRef90-G3RYJ6 UniRef90-G3RYJ6
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UniRef90 Q98TG6 UniRef90-Q98TG6
UniRet90-Q98TG6 UniRef90-H9GQY3 UniRef90_L5KM50 UniRef90-UPIO0046B43AE UniRef90-UPI00046B43AE UniRef90_Q13784 UniRef90-Q13784 UniRef90_Q13784 UniRef90-Q13784
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UniRef90 - 057524 UniRef90-O57524 UniRefofo- ${ }^{\text {B3VTP4 }} 4$ UniRef90-B3VTP44 UniRef90_UPIOOO4541168 UniRef90-UPIOOO4541168 UniRef90 UPIOOOO541168 UniRef90_UPIOO04541168
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R|VL|RENADS|L|RAHADE|L|KAK|I|DQN|V|EE|L|KGR|L|TPYADEFK RVLRENADSLRAHADELKAKI DQNVEELKGRLTPYADEFK
 $P L A Q E L Q Q A L S A D A E A V R Q R L A P D A Q Q L D E R L A Q T V E A F R$ $P L A Q E L Q Q A L S A D A E A V R Q R L A P L A Q Q L D E R L A Q T V E A F R$ $P$ L A Q E L Q Q A L S A D A E A V R Q R R L A P L A A Q Q L D E R L A A T $P$ LA QE L Q Q A L S A DA E A V R QR L A P LA A Q L

 A DI E E I R S QV A P H T K E A FIIKL S S HI L E Y R K N T Q P L I E E L K
 P LVVEYTEKHKQEMEELKTKLQPVVEDLRARDQVNVEETK P L V K E Y T E K H K Q E M E E L K T K L Q P V V E D L R A R I Q V NVVE E T K P L V PLVKEYTEKHKQEMEELKTKLQPVVEDLRARIQVNVE ARVSDSLASAQSYQAELQKHLPPVAQDLL
 T QL L G GVDEAR GLLQ DL Q S R VA HHT GRVVKALDFHP YAE S LV $T Q L L G G V D E A R G L L Q D L Q S R V A H H T G R V K A L F H P Y A E S L V$
 R V L R RVLRENADSLQAHADELKAKIDQNVEELKGRLTPYADEFK RVLRENADSLQAHADELKAKIDDNVEELKGRLTPYADEFK


 P F S D E L R Q K L S Q K L E E I I R P Y T QEVVHQHV GWNLEELRRQLKPYTVELMERLAVGVQQLQ


 $T L F Q D K L G E V N T Y T E D L Q X K L V P F A T E L H E R L T K D X E K M L K$ E P M R A ELR $\left.\begin{array}{lllllllll}\text { I } & E & P & M & R & A & E & L \\ \text { I } & E & P & M & R & A & E \\ L\end{array}\right] R$
GKLRDNTQELQKSLAELSSHLDRQVEEFRRS GKLRDNTQELQKSLAELSSHLDRQVEEFRRSVGPYGETFN

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



| 1 | $R$ | $P$ | $F$ | $L$ | $D$ | $Q$ | $F$ | $S$ | $T$ | $K$ | $W$ | $E$ | $E$ | $L$ | $E$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $I$ | $R$ | $P$ | $F$ | $L$ | $D$ | $Q$ | $F$ | $S$ | $T$ | $K$ | $W$ | $R$ | $E$ | $E$ | $L$ |
|  | $E$ | $Q$ | $Y$ | $R$ |  |  |  |  |  |  |  |  |  |  |  |

PLIKEHDELRRTEMEAFRAKMEPDVEELRAKVADNVEETK P L I K E HI E L R R T E M E A F R A K M E P I V E E L R A K V A I NV E E T K
 P L GK E LHK DA Q Q K LLKE LQEK LAA P L GQDI RQRAREYV DA LR
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 P Y M A A K H Q Q V GWNL E GL R Q QL K P Y T A E L M E QV G L S V Q E LQ P Y M A A K H Q Q V G WN L E GL R Q QL K P Y T A E L M E Q V G L S V Q E L Q
 K H M E E Y R V QL E P I V K K E Y Q A R H T A E M E A L R V K M E P V V A E L R




 $R$ SVQDLQEKLGPYASELQS QVRQLAQQLEEQL
 $R$ S V Q DL Q E K L G P Y A S E L Q S Q V R QL A Q QL $P$ M A D E L $L$ Q G L I P MADEELQ GLI D Q N V K K K L K G QL T P Y A D NL K K Q I D K H V E T L R

 A NVEETKAVLVPMVETVRAKLTERLEELRTMAAPYAEEYK K HLLDE Y R E K L E P L I K E F T E K H R E Q M E QL R V K M E P V M K D L Q K H L D E Y R E K L E P L I K E F T E K H R E Q M E Q L R V K M E P V M K D L Q K H L DEYREKLEEPLIKKETEKHREQMEQLRVKMEPVMKDLQQ



| UniRef90 G3RYJ6 | E D\|V|R G N|L|R G N T E G|L Q K S li $\mathrm{A}^{140}$ |
| :---: | :---: |
| UniRef90-G3RYJ6 | E DVRGNLRGNTEGLQKSLA |
| UniRef90-G3RYJ6 |  |
| UniRef90_G1MVV8 | K EVREKV |
| UniRef90-G1MVV8 | K EVVREKV |
| UniRef90_G1MVV8 | K EV R E K V |
| UniRef90-G1MVV8 | K E V R E K V |
| UniRef90_F5BZM2 |  |
| UniRef90-M3XI83 | DVIQ K K I S S S VE D I WK T VTT P |
| UniRef90-M3XI83 | DVI Q K K I S S SVEEDI WK TVTTP |
| UniRef90-M3XI83 | DVI Q K K I S S SVEEDI WK TVT P |
| UniRef90-Q98TG6 | E ELKTKLVALWESL |
| UniRef90-Q98TG6 | E ELK T K L VAL WES L |
| UniRef90_Q98TG6 | E ELK T K L V A L WES L |
| UniRef90_Q98TG6 | E ELK K K L V A L WES L |
| UniRef90-H9GQY3 | E DLLE QAEQHTQSL R Q A L |
| UniRef90_L5KM50 | R K L R K R L L R DAE DL Q K R L A VY Q A G |
| UniRef90_UPI00046B43AE | R A L H T R I QR NLD QL R E EL S |
| UniRef90_UPI00046B43AE | R ALHTRIQRNLDQLREELS |
| UniRef90_Q13784 | E ELG GHLD Q Q VEEFRRRVEPYGE |
| UniRef90_Q13784 | E ELG G H L D Q Q VEEFRRRVEPYGE |
| UniRef90_Q13784 | E ELGGHLD Q Q V E EFRRRVEPYGE |
| UniRef90_Q13784 | E ELGGHLDQQVEEFRRRVEPYGE |
| UniRef90-G3NCX3 | EEIKKEKMEQSLLDEF QKSMVP |
| UniRef90-UPI000395662B |  |
| UniRef90-UPI000395662B |  |
| UniRef90-UPI000395662B |  |
| UniRef90-UPI000395662B |  |
| UniRef90_UPI000395662B |  |
| UniRef90_UPI0004434201 | $E K \ V T G \square G Q H V Q E \square H R N V A P H A A$ |
| UniRef90_UPI0004434201 | $E K L V T G L G Q H V Q E L H R N V A P H A A$ |
| UniRef90- P0DKW5 |  |
| UniRef90_UPI0004418A79 | E GFRDKVRTHVDEFRKDAA P Y |
| UniRef90_UPI00032A2C21 | T A L K EKI H P LT E D I K A K L |
| UniRef90_UPI00032A2C21 |  |
| UniRef90_Q29258 |  |
| UniRef90-Q98SI3 | K S LREK F G P N WEE T K S K L M P L E |
| UniRef90-Q98SI3 | K S L R E K G P NWEETKSKLMPI L E |
| UniRef90-Q98SI3 | K S L R E K F GP NWEETKS K L M P L L E |
| UniRef90_G1LPZ5 | S TLKEKENQDVSEEQQTLVP |
| UniRef90-G1LPZ5 | STLKKKENQDVSEEQQTLVP |
| UniRef90_G1LPZ5 | STLKKEKENQDV SEEQQTLVPP |
| UniRef90_G1LPZ5 | S TLKKEKENQDVSEEQQTLVP |
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| UniRef90_Q6Y258 | QQASET A NQKLSD\STLLRSQAEG |
| UniRef90_Q6Y258 | QQASETANQKLSDI STLLRSQAEG |
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| UniRef90_B6DUG8 | E NVR A R L A Q |
| UniRef90-B6DUG8 | E NVRARLIA Q |
| UniRef90-B6DUG8 | E NVRARLLA Q |
| UniRef90-B6DUG8 | E NVRARLA Q |
| UniRef90-D9HUC8 | E ELRK NLA P Y S D ELR Q K L S |
| UniRef90-D9HUC8 | E ELRKNLAPYS DELRQKLS |
| UniRef90-D9HUC8 | E ELR K N L A P Y S DELLRQKL S |
| UniRef90_O57523 | GEVREKV S P L S E D F K G Q V GPAAE |
| UniRef90-O57523 | GEVREKVSPLSEDFKGQVGPAAE |
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| UniRef90-G5BQH5 | K T F S EKAKPALLEDLRQGLMPVME |
| UniRef90-G5BQH5 | KTFSEKAKPALLEDLRQGLMPVME |
| UniRef90-M3XYH5 | STLKETENQDATEQQQSLVP |
| UniRef90-M3XYH5 | STLKETENQDATEQQQSLVP |
| UniRef90-M3XYH5 | STLKETENQDATEQQQSLVP |
| UniRef90-M3XYH5 | STLKKETENQDATEQQQSLVP |
| UniRef90-M3XYH5 | S TLKETENQDATEQQQSLVP |
| UniRef90-Q8C7G5 | ERLVT G I G H HVQELLHRSVAPHAA |
| UniRef90-Q8C7G5 | ERLVTGl G H HVQ EL HRSVAPHAA |
| UniRef90-H2MLX9 | E E YKEQMKEDI ENLKAKI T P L S E |
| UniRef90-H2MLX9 | E EYKEQMKEDI ENLK C ( K I T P L S E |
| UniRef90-H2MLX9 | EEYKEQMKEDIE NLKAKI T P L S E |
| UniRef90_O57524 | GEVREKVVPLTTDFKGQL GPAAE |
| UniRef90_O57524 | $G E V R E K V V P L T T M D F K G Q L G P A A E$ |
| UniRef90_O57524 | GEVREKVVPLTTDFKGQLGPAAE |
| UniRef90_B3VTP4 | E E Y K KLVQNTEDLRETIA P L A A |
| UniRef90-B3VTP4 | E E Y K K L V Q T EDLRETI A P L A A |
| UniRef90_B3VTP4 | E E Y K K LVQNTEDLRETI A PLA A |
| UniRef90_UPI0004541168 | D R L GQ DVA KL Q R DLA P Y A |
| UniRef90_UPI0004541168 | D R L GQ DVA KLQ R DLA P Y A |
| UniRef90_UPI0004541168 | D RLG G D V A K L Q R DLA P Y A |
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| UniRef90_G1PKJ5 | ENVRSKMAGGATDLQEALA |
| UniRef90_G1PKJ5 | ENVRSKMAGGATDLQEALA |
| UniRef90-C1BLA4 | E EVKAKLQALLYVAL S E S L |
| UniRef90_C1BLA4 | E EVVK A K L Q A L Y V A L S E S L |
| UniRef90 ${ }^{-}$C1BLA4 | E EVKAKLQAL Y V A L SESL |
| UniRef90-C1BLA4 | E EVKA K L Q A L Y V A L S E S L |
| UniRef90_W5KRD4 | QEYRDHAQTVF GQLQS K |
| UniRef90-W5KRD4 | QEYRDHAQTVFGQLQSK |
| UniRef90_W5KRD4 | QEYRDHAQTVFGQLQSK |
| UniRef90-W5K2L3 | EDLK QK\ET NFEETKSKLVPMVE |
| UniRef90 W5K2L3 | E DLK Q K L E T NFEETKS KLVPMVE |



ARKGFWDYFSQSSGDKGKVEQQQK $\square$ AREPPS $\square$ K


S QP WE QVLGR LDWDY LR WVQT LS DQVQEE LLNTQVDQEL T MKNGFQQRLYQDSDGLRVIHRELQ



| 1 | $P$ |
| :--- | :--- |
| 1 | $P$ |
| 1 | $P$ |
| 1 | $P$ |
| 1 | $P$ |
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| 1 | $P$ |
| 1 | $P$ |
| 1 | $P$ |
| 1 | $P$ |
| 1 | $T$ |
| 1 | $Y$ |
| 1 | $Y$ |
| 1 | $Y$ |

QELSTVRNRLEPYTETMKAKTQERVEQLKQDLATYADS QELSTVRNRLEPYTETMKAKLQERVEQLKQDLATYADS

ARAALDVYLNNLRESAQRSLQGLDDTEY KELK ARAALDVYLNNLRESAQRSLQGLDDTEY KELK ARAALDVYLNNLRESAQRSLQGLDDTEY KELK NAFWTYIFQTVNTSDETSQMTSASQ


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UniRef90 D5G338 UniRef90-O42296 UniRef90-O42296 UniRef90-O42296
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UniRef90 K91X77 UniRef90_F6VGB4 UniRef90-F6VGB4 UniRef90-F6VGB4 UniRef90-F6VGB4
UniRef90-F6VGB4 UniRef90-F6VGB4 UniRef90-GOTS51 UniRef90-GOTS51
UniRet90 GOTS51 UniRef90-GOTS51
UniRef90-GOTS51 UniRef90-GOTS51 UniRefifo-GOTS51 UniRet90-GOTS51 UniRef90-GOTS51 UniRef90-UPI0003C1994E UniRef90-G5E1M6 UniRet90-G5E1M6 UniRef90-G5E1M6 UniRef90-D6R712 UniRef90-D6R712 UniRef90-D6R712 UniRef90-UPIO00443BEA7 UniRef90-UPIOOO443BEA7 UniRef90-M3ZKZ1 UniRef90-M3ZKZ1 UniRef90-M3ZKZ1 UniRef90-P27007 UniRef90-P27007 UniRef90-P27007 UniRef90-13MZ02 UniRef90 13 MZO2
UniRef90 04 SV 27 UniRef90-Q4SV27 UniRet90-D5G335 UniRef90-D5G335 UniRef90-E7E212 UniRef9-E7E212 UniRef90_UPIO0038372B9 UniRef90-D3TJL9 UniRef90_D3TJL9 UniRef90-D3TJL9 UniRef90-B5G356 UniRef90_B5G3566 UniRef90-B5G356 UniRef90-B5G356 UniRef90-B5G356 UniRef90-G317Q3 UniRef90-G317Q3 UniRef90-G5BQH2 UniRef90-V8PGT4 UniRef90-V8PGT4 UniRef90-V8PGT4 UniRef90-U5KLT9 UniRet90-U5KLT9 UniRet90_U5KLT9 UniRef90_U5KLT9
UniRef9O_G3NRQ2

50
 PVISEYYAKHTAEMDELKTKLEPIMTELREKIRTNVEETK
 PVISEYYAKHTAEMDELKTKLEPIMTEEREKIRTNVEETK PIFRDYMVDNQKELESLRQKLQPALEDLKAKVETNFEETK PIFRDYMVDNQKELESLRQKLQPALEDLKAKVETNFEETK PYTQEVHQHVGWNLEGLRRQLKPYTLEEVERLALGVQELQQ L RVSLLTMAADELR


DRLAQRVDDTHSQTKTLQGSVSPTTDS
DRLAQRVDDI HSQLKTLQGSVSPITDS ADMEEVRSRLAOYRSEAQAMLGONVEEVSTISDATSELR ADMEEVRSRLAQYRSEAQAMLGQNVEELRARRTSHLRKLH
PVAEEARDRLRGHVEELRKNLAPYSDE
PVAEEARDRLGGHVELKKNLAPYSDE
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HELVGWNLEGLRQQLKPYTMD
DRLEPDLS DMDKFLEKL RADLEKHFNE
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VLMDTVRELKTERLVKEIHHATEELHLNLLRHTQTNQ
TERLVKE:HHATEELHLNLLPHTQTNQ
TERLVKE1HHATEELHLNLDPTQTNQ
TERLVKE1HHATEELHLNLPHTQTNQ TERLVKEDHHATEELHELNLLPHTQTNQ
P Y ME P MR GA ПP P PGATPPYTGPLR
 P YMEPMRGAI PPYMEPMPGATPPYMEPLPGATPPYTGPL
 P YMEPMRGAI P P YMEPMPGATPPYMEPLPGATPPYTGPGR PYMEPMRGAIPPYMEPMPGATPPYMEPLPGATPPYTGPGLR A LMEETMMKEDLLRNRLAAQYRSEVQATE EL RARMASHLLRK L R P YMDEAHQKVSKHLDNLQSRLI PYTNELKDQVGWGAQELH
P Y M DEAHQKVSKHLDNLQSRLIPYTNELKDQVGWGAQELH
$P$ Y M D E A H Q K V

 RME E I R T K L E P V V K S L K E K I G P N WE E TK K S K L M P I L E A V R

L V Q Y H T DV Q T L V G Q S TEEELRNRLY S HL R K L R $K$ HLEE E Y R T H L E P Y V R E Y Q A K Q N A E M E A L R A K M E P V M T E L R K HL LE Y R T HL E P Y V R EYQAK Q NAEMEALRRAKMEPVMTELR
 PLI K Q H I E L R R T EMDAFRAK IDP PVVEEMRAKVAVNVEETK
 HELVGWNLEGLRQQLKPYTMELMKQVALHAQELQ HELVGGWNLE GLLRQQLK PYTMELLMK QV A L H A Q E L Q Q VDSEALRATLMQKSEELKSSSLEQSVKDLQAQLGPYTDDL K V D S E AL R A TLMQKSEELKSSLEQSVKDLQAQLGPYTDDLK QARLRSDMEDVRNRLTQYRGELQ Q A R L R S D M E DVVRN RLT T Q Y R G E L L Q
 T RLS QRID EIIHNQISALRGSISSTTDNVVSTIAEATADFR TRLSQRIDDEIHN QI S
 K HLE D Y R A QLEPTF NEYSTRHAAEMETLKTKLEPVVETQR K HLLEDYRAQLE PI FNEYSTRHAAEMETLKTKLEPVVVTQR




 P Y M A E V $V$ H E L L P Y M A EVVHELV GWNLE D L R R QL K P Y TVVELME QVALRVVQELQ

 $V$ X T TAENLL K T QLLV P Y V E QLL Q A T T D I L A T Q T G
 PI I NDYSAKHAAEMDTLKTKMEPVMEGLRTKIATNVEETK PI I NDYSAKHAAEMDTLKTKMEPVMEGLRTKIATNVEETK



EKLSQQVQELSQKLTRNARDLHEKTHKNLDELKQQLAPYV EKLSQQVQELSQKLTRNARDLHEKIHKNLDELKQQLAPYV E K L S Q Q V Q E L S Q K L T R N A R D L H E K I H H K N L D E E L K Q Q L A P Y V

 GA $A$
 G

|  | 130140 |
| :---: | :---: |
| UniRef90_I3KIR4 |  |
| UniRef90-I3KIR4 | E DIKTKLQQ |
| UniRef90-I3KIR4 | EDIK K K Q Q |
| UniRef90-I3KIR4 | EDIKTKLQQ |
| UniRef90-E3TCY1 | EDIKEKLAPHTAQLQGQ\EPYVE |
| UniRef90-E3TCY1 | EDIKEKLAPHTAQLQGQIEPYVE |
| UniRef90-G3WJV1 | ERLVSEI GQHVQELHRNVAPHAA |
| UniRef90-G3WJV1 | ERLVSEI GQHVQELHRNVAPHAA |
| UniRef90-F7EFC7 | GELSSQIKQNADELRVRLGPYAE |
| UniRef90-F7EFC7 | GELSSQIK Q A DELRVRLGPYAE |
| UniRef90-F7EFC7 | GELSSQIK Q A A ELRVRL GPYAE |
| UniRef90-F7EFC7 | GELS SQIK Q A A ELRVRL GPYAE |
| UniRef90-F7EFC7 | GELSSQIK Q N A E L RVRL GPYAE |
| UniRef90-Q5KSU5 | SEYQAKHKEEMDALKLKLDPVME |
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| UniRef90-O42296 | ENLKTRFISLLDELLQKTVA |
| UniRef90-Q6Q788 | ESLVSGIGRHVQELHRSVAPHA |
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| UniRef90-UPIO0029D66A8 | ERLVSGI GHHVQELHRSVA |
| UniRef90-E7FES0 | EAI RGKVAENVQELRTMLEPYVQ |
| UniRef90-E7FES0 | EAI R GKVAENVQELRTMLEPYVQ |
| UniRef90-A9Z0V6 | Q SLK T Q L E Y I E D Y K Q |
| UniRef90_A9Z0V6 | Q SLK T Q L EPYIEDYKEQME |
| UniRef90-A9Z0V6 | QSLKT QLEPYILEDYKEQME |
| UniRef90_K91X77 |  |
| UniRef90-F6VGB4 | DEMAAQVQKEVEEFQK |
| UniRef90-F6VGB4 | DEMAAQVQKEVEEFQKS |
| UniRef90-F6VGB4 | DEMAAQVQKEVEEFQKS |
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| UniRef90-F6VGB4 | DEMAAQVQKEVEEFQKS |
| UniRef90-F6VGB4 | DEMAAQVQKEVEEFQKS |
| UniRef90_G0TS51 | EPMRGAI P P Y M EPMRGA ${ }^{\text {P P P P M E }}$ |
| UniRef90-G0TS51 | EPMRGAI PPYMEPMRGAI PPYME |
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| UniRef90-G5E1M6 | ERLLSEDHHAAEELHLLNTL |
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| UniRef90-D6R712 | EQVKPHFEKIFEAVQKSLS |
| UniRef90-D6R712 | EQVKPHFEKI F EAVQKSLS |
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| UniRef90-D6R712 | E QVKP HFEKLFEAVQKSLS |
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| UniRef90-M3ZKZ1 | TSLREKLAPL GEEI K E K L |
| UniRef90-M3ZKZ1 | TSLREKLAPLGEE |
| UniRef90-P27007 | GEVREKVAPLSEDFKARWAP |
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| UniRef90-P27007 | GEVREKVAPLSEDFKARW |
| UniRef90-I3MZ02 | ERLVTGI GRHVQELHRSVAPHTA |
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| UniRef90-Q4SV27 | EDLKEKLDPYAQDLQAQL |
| UniRef90-Q4SV27 | EDLKEKLDPYAQDLQAQ |
| UniRef90-D5G335 | A GVREGAERSVSSIRERLWPLLE |
| UniRef90-D5G335 | A GVREGAERSVSSIRERLWPLLE |
| UniRef90-E7E212 | KEYHDQHAANLEALKTKLEPI ME |
| UniRef90-E7E212 | KEYHDQHAANLEALKTKLEPIME |
| UniRef90-E7E212 | KEYHDQHAANLEALKTKLEPIME |
| UniRef90-UPI00038372B9 | ETLKGSLEHSMKDMQTQLEPFTA |
| UniRef90-D3TJL9 | E EYKEQLKQDLNTLKAKI TPLAE |
| UniRef90-D3TJL9 | EEYKEQLKQDLNTLKAKI TPLAE |
| UniRef90-D3TJL9 | EEYKEQLKQDLNTLKAKITPLAE |




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UniRef90-G3NR22 UniRef90 ${ }^{-}$C8CPA4 UniRef90 ${ }^{-}$C8CPA4 UniRef90-UPIoo03314C81 UniReffo-DIMFA6 UniRet90-D1MFA6 UniRef90-D1MFA6
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UniRef90 V9LJR9 UniRef90-V9LJR9 UniRef90-V9LJR9 UniRef90-VGLJR9
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UniRef90 H3DA29 UniRef90-H3DA29
UniRef90 H3DA29 UniRef90-M3ZNP4 UniRef90 - $\mathrm{H} 2 \mathrm{DJB6}$
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UniRefon W6W4C6 Uniref90_W6W4C6 0

90
100
110
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T K|L|SER|L|E Q|L|KTM|V|GPY|V|E E YK D QMRSAY Q Q A Q G|V|KA E D|L



 S K L M M P




 E QL R MV G E D A K A QL L S L L Q E L Q G R V R H H T S R V K E L F H P Y A
E QL R V L G E G T K A QL L G GMMDEMP S R V L H H H T G R VV K E L F F H P Y A




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A V L E K N M
AV L L $\quad$ K K N M E D Y R R Q K M E P L L


TKHDEEMAALKKTRRLEPVMEELRTKIQANVEETKAVLMPMV
TK H D E E M A A L K T R L E P V M E E L R T K I Q A N V E E T K A V L M P MV
AK H T A D M E A L K L K M E P I V E E L R T K I S T N V E E T K T A L M P V



Q Q L Q


A T V E T K V $\operatorname{E}$ E A Q A I A E T E V E E V Q A T V



S R T S E N V V


AKVVSSMAEDTKAVLVPMVESVRAKLNERIDELKMKAAPET
A KVVSSMAAE DTKAVLVVPMVESSVRAKLNERIDDELKMMAAPET
A KVVSSMAE DTKAVLVPMVESVGRAKLNERIDDELKMKAAPET
 T K I S T N $\operatorname{S}$ V $\operatorname{E}$ E T K T A L L M P I V
 Q K V A V N L E E T K A A V T P $\operatorname{C}$

 $Q Q L Q E E L E E V R A R L E P Y R A E V H E R V G W N L E G L R R Q L M P Y T$




 K K M E T N V E E T K A A L S P I V E A V R R K I A E R V E A V K L T L T P WV

 $G P$ EREASE
GP L E R E A


 E K V I K D I E DI R Y Q L E P L R D EL C Q V L Q K H F E E Y R E K L K P F V



| UniRef90 G3NRQ2 | $\text { A A\|L\|REK\|I\|AP\|L\|AED\|I\|K\|V\|KMcc} 140$ |
| :---: | :---: |
| UniRef90-G3NRQ2 | A ALREKI APLAEDI KVK ${ }^{\text {a }}$ |
| UniRef90-G3NRQ2 | A AL R EKI A PLAEDIKVKM |
| UniRef90-C8CPA4 | A XLXXKVATNVDKTKTA |
| UniRef90-C8CPA4 | A XLXXKVATNVDKTKTAL |
| UniRef90_UPI0003314C81 | VELMEQVALRVQELQEQL |
| UniRef90-D1MFA6 | LEFRESV K S GELRKKMT |
| UniRef90-D1MFA6 | LEFRESV KSGELRKKMT |
| UniRef90-D1MFA6 | LEFRESV K G GELRKKMT |
| UniRef90-I1SRT7 | ENLKAKITPLAEEI K E K L |
| UniRef90-I1SRT7 | ENLKAKI TPLAEEI KEKL |
| UniRef90-I1SRT7 | ENLKAKI TPLAEEEIKEKL |
| UniRef90_C3KJ42 | TEYKDQLKQDLA ALKEKI T P L A |
| UniRef90-C3KJ42 | TEYKDQLKQDLA ALKEKI TPLA |
| UniRef90_C3KJ42 | TEYKDQLKQDLAALKEKI T P L A |
| UniRef90-B7NZL9 | ERLLS GI GHHVQELHRSVAPHAA |
| UniRef90-B7NZL9 | ERLLS GI GHHVQELHRSVAPHAA |
| UniRef90_UPI000333D05D | ERLVSGI GHHVQELHRSVAPH |
| UniRef90-UPI000333D05D | ERLVSGI GHHVQELHRSVAPH |
| UniRef90-Q5DVG8 | QALKEKI SPMAEEVKAKV |
| UniRef90_Q5DVG8 | QALKEKI SPMAEEVKAKVT |
| UniRef90-Q5DVG8 | QALKEKI SPMAEEVKAKV |
| UniRef90-Q5DVG8 | QALKEKIS PMAEEVKAKVT |
| UniRef90_Q5KSU3 | E ELRARMDSDAQNLKKQLT |
| UniRef90_V9LJR9 | EDLQRTLQQNADNLQQALVPFAQ |
| UniRef90-V9LJR9 | EDLQRTLQQNADNLQQALVPFAQ |
| UniRef90-V9LJR9 | EDLQRTLQQNADNLQQALVPFAQ |
| UniRef90_V9LJR9 | EDLQRTLQQNADNLQQALVPFAQ |
| UniRef90-V9LJR9 | EDLQRTLQQNADNLQQALVPFAQ |
| UniRef90-Q6Y255 | NDYKTKHDEEMTALKARLEPVM |
| UniRef90-F8K8M3 | VSLREKTEPILDEMRAKVSSMAE |
| UniRef90-F8K8M3 | V SLREKTEPILDEMRAKVSSMAE |
| UniRef90-F8K8M3 | $V$ SLREKTEPILDEMRAKVSSMAE |
| UniRef90-B6DUG7 | TSLKEK $\square$ GPNWEETKSKLLP ${ }^{\text {CVE }}$ |
| UniRef90-V8NF06 | R K L |
| UniRef90-O42175 | E TVRTKVTERLESLREVVQPYVQ |
| UniRef90_O42175 | ETVVRTVVTERLESLREVVQPYVQ |
| UniRef90-O42175 | ETVRTKVTERLESLREVVQPYVQ |
| UniRef90-B5TFN2 | E S V |
| UniRef90_B5TFN2 | E SV |
| UniRef90-L5M2H9 | QELQKKLRQLGETVR |
| UniRef90-UPI00038E9E03 | VELMEQVALRVQELQEHLRVVGEG |
| UniRef90-UPI00038E9E03 | VELMEQVALRVQELQEHLRVVGEG |
| UniRef90-W4EPX7 | EEAQTVVETIVEEVQK |
| UniRef90-W4EPX7 | E EAQTVVETIVEEVQK |
| UniRef90_W4EPX7 | E E A Q TVVETI VEEVQK |
| UniRef90-W4EPX7 | E EAQTVVETIVEEVQK |
| UniRef90-W4EPX7 | E E A Q TVVETI VEEVQK |
| UniRef90-W4EPX7 | E EAQTVVETIVEEVQK |
| UniRef90-E1NZA4 | DQAKVVNTEEMEALKAKLAPMAE |
| UniRef90-E1NZA4 | DQAKVVNTEEMEALKAKLAPMAE |
| UniRef90_D9ZB55 | RKLRRKRLLRDADDL QKRLAVYYA G |
| UniRef90_UPI0003EC4EB8 | ENMKLKI Q T A EDI K D RLE |
| UniRef90-UPI0003EC4EB8 | ENMKLKI Q T A EDI K DRL |
| UniRef90-H2U002 | RKLKKRLSKDTQEIKSQV |
| UniRef90-H2U002 | RKLKKRLSKDTQEIK S QV |
| UniRef90_C1BKM7 | E E |
| UniRef90-C1BKM7 | E E Y |
| UniRef90-C1BKM7 | E E Y |
| UniRef90_B5TFN1 | E E Y K |
| UniRef90-B5TFN1 | E E Y K |
| UniRef90-B5TFN1 | E E Y K |
| UniRef90-D3U1R9 | E EYKDQMKQ |
| UniRef90-D3U1R9 | EEYKDQMKQ |
| UniRef90-D3U1R9 | EEYKDQMKQ |
| UniRef90-UPI0003345D22 | ERLVT G\G R HVQELLHRSVAPHA |
| UniRef90-UPI0003345D22 | ERLVTGI GRHVQELHRSVAPHA |
| UniRef90_L5KJS9 | T DLMEQVALRVQELQEQL |
| UniRef90-L5KJS9 | T DLMEQVALRVQELQEQL |
| UniRef90-UPI0000EDCBAF |  |
| UniRef90_UPI0000EDCBAF |  |
| UniRef90_UPI0000EDCBAF |  |
| UniRef90-B5TFN3 | E E L K D K \T P L A E EVK A K L |
| UniRef90-B5TFN3 | E ELK DKIT PLAEEVKK K L |
| UniRef90-S7MF16 |  |
| UniRef90-I1SRX8 | Q Q $\square$ Q S S $\square$ S S N A Q D L C S Q |
| UniRef90-H3DA29 | E EKKEQFR |
| UniRef90_H3DA29 | EEYKEQFR |
| UniRef90-H3DA29 | EEYKEQFR |
| UniRef90_M3ZNP4 | QQLQD SLS S NTQDLCS QLRLLYLQ G |
| UniRef90-H2DJB6 | ESLVSGI GRHVQELHRRVASHA |
| UniRef90-G3WCV9 | SELRGHLEREASELRGHL |
| UniRef90_G3WCV9 | S ELRGHLEREASELRGHL |
| UniRef90-G3WCV9 | S ELRGHLEREASELRGHL |
| UniRef90-G3WCV9 | SELRGHLEREASELRGHL |
| UniRef90_G3WCV9 | SELRGHLEREASELRGHL |
| UniRef90-G3WCV9 | SELRGHLEREASELRGHL |
| UniRef90-M7AR07 | QELQHGLAAYARDLHQKLSPYAE |
| UniRef90-F1ACD1 | QEYFTKERENMEQFRTKLQP |
| UniRef90_UPI000273DA60 | MDLMEQVALRVQELQEQVA |
| UniRef90-UPI000273DA60 | MDLMEQVALRVQELQEQVA |
| UniRef90_W6W4C6 | SEFQDVI\|ATRTGELHEALLET |



A Q NQTLAAQLVEQNRLLQEKDA
AQNQTLAAQLVEQNRLL LQEKLA

QVKMA QDAYWDYVQKSTLTPKDYVWD $\square R H S H P G Q Y L C$

T D A K D A V
VSK A QE DG
WNN $\square K G F \square T S T W D S \square K S T G E T T W N N \square K T A L A N A T E A$ QS H T VK L VE LIF WS F $\square \mathrm{K}$ QE GN $\square$ S A K N $\square \mathrm{N} \square \mathrm{I}$ K S S T F GK T $\square \mathrm{Y}$

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50
SRSRELLSDALLSARSSEI QDT SRSREALASRATEI

Al VITRTGE
${ }^{80}$ SRSRELSDALSARSSEVQDTLASRATEVQDALVVTRTGEEQQ





 HTKHSADMDALK TATSEKWEVVKQKTSEVKQHVGDAMQQTWNHVSTKSQEDA TRLSNTWDTLSNTWDNLKERGSSTWEALKASLSEKKTNATR VKLQDS $\quad$ QLVAEFS $\square$ Q R R EVVPLRVQNSSTH QDKQVDVD S I Y RKVKENMAKSFDQMVAGGL QDKQVDVDSI YRKVKENMAKSFDQMRPGQEKYAEETV


SASKASVYTKAAYEKADTVRQTLND SLQ

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UniRef90_W5LWM3
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UniRef90_F1ACD2
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UniRef90_UPI0003B4470F
UniRef90_A9TE41
UniRef90_F3YUX8
UniRef90_F9N3S2


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UniRef90-B1VKJ7
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UniRef90 UPI0003B4470F
UniRef90-A9TE41
UniRef90-F3YUX8
UniRef90_F9N3S2


SSFREK LRKFLTESRDSL
QQASDSATKKISDISTILKTQAEG QQASDSATKKISDISTILKTQAEG RGLEEKL R GLEEKL
RGLEEKL
EALDPR
DNAEEQLRPLTDNLQSQLKPLAE DNUEEQLRPLTDNLQSQLKPLAE GQAQSVKPEDLTALKEKI TPMAE QDYAAKDRENTEQFGTKLQP ES IRQNDSDKWDK IR
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EQAAEKGREYAEQAVEKSRPYME EQAAEKGREYAEQAVEKSRPYME EQAAEKGREYAEQAVEKSRPYME QE LREQ $\operatorname{L} A K H \square Q D L H Q Q$ ESGRERAAHAGQSLHSR
QQVEEKASELVQDIREKAEVVKE

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lupas_21
lupas_14
lupas_28
lupas
jnet
jnet conf
sol25 sol5 sol0 jhmm
jpssm


[^0]:    

[^1]:    lupas_21
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    lupas_28
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    sol5
    sol0
    jhmm
    jpssm

