

## QUERY

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GEFKDAQVVS
GEFKDAQVVSRNEEKNTR GE F K D A Q V V GEFKDAQVVSRNEEKNTR K N G S F VNAKVLSENKEKNTK K NGSFVNAKVLSENKEKNTK
 $K D G A F V D A K V V V E D K E K A T R$
 KKARMTNHS S WVTEEKVPS $K D G S F V D A K V$ K D G S F V D A K V V S E DKEKNTR
 K K A T V $T$ LTTDNAS:IKNFQTE
 KKATVTLTDNASIKNFQTE


K D G S F V D A K V V
NGDFVVDAKVVVSE DK EK NTR
A ATVKIRMNHSAWI K Y V A M T L K N S A WI TK F Q TE S KKA F V T ${ }^{\text {K }}$ K KKAFVTLKSSSLI KNFQTE KKAFVTLKSSSLI KNFQTE K K A F V T L K K S S S L


N Y L L L HVI D E E N
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N Y L L L L H NYLLLHVIDDE N K Y V SFTVTTNSSWDTKF K Y V SFTTTNSSWITKFEFE
 K Y V S F T LTN S S WI T K FEEFE RFVGLKLQNSNEVKALRIDNASGDYRDAEVTVEDAAASNT
 RFVGLKLQNSNEVKALRIDNASGDYRDAEVTQEAAASNTK RFVGLKKLQNSNEVKALRIDNASGDYRDAEVTGEDAASNTK
 R F V G L K L Q N S N E V K A L RI D N A S G D Y R D A EVVTGEDAA S NTK HFVVYTVK N S S AI T S F QV H F V S Y TVVK N S S A I T S F Q V
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K N GAFVDAKVLG

| $K$ | $N$ | $G A$ | $F$ | $V$ | $D$ | $A$ |
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K NGA F V D A K VLGG
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GTGGKFE ETVLVAKTDQKSDTR GTGGKFEETVVAKTDQKSDTR
 Y DGEFKS GELV $\begin{array}{llllllllllll}Y & D & G & E & F & S & G & E & V \\ Y & D & G & E & F & K & S & G & E & L & V\end{array}$ $\begin{array}{lllllllll}Y & D & G & E & F & K & S & G & E \\ L & V \\ Y & D & G & E & F & K & S & G & E \\ L & V\end{array}$



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

 VLSDGTTENSPAQRFITNPAQLVVEGDK
 $V L S D G T T E N S P A Q R F I T N P A Q L V V E G D K$

T NEPAQLVVEGDK
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EDGKYTINMWAMRDDNENVSSADQDLVKPAKLEVSNGK ED GKYTINMWAMRLDNENVSSADQDLVKPAKLEVSNGK

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R F $V|G| L|K| L|Q N S N E| V A|L| R|D N A S G G Y Q D A E| V \mid T R E D A A S N T K$ RFVGLKLQNSNEVKALRIDNASGGYQDAEVTREDAASNTK $R F V G L K L Q N S N E V K A L R I D D A S G G Y Q D A E V T R E D A A S N T K$ RFVGGLKLQNSNEVKALRI DNASGGYQDAEVTREDAASNTK RFVGLKLQNSNEVKALRIDNASGGYQDAEVTREDAASNTK
 RFVGLKLQNSNEVKALRIDNASGGYQDAEVTREDAASNTK RFVGLLKLQNSNEVKALRIDNASGGYQDAEVTREDAASNTK A Y A Y V T L K N S S WI T K FQQVE Q N GQY VNAEVIDSTNPTANTR


 RFVGGLKLQNSNEVKALRIDNASGDYRDAEVTQEDAASNTK K Y A S F TVVKD S S SI T K L K I G VGGGKYVDTHVAAVDK KANTR KYASFTVKDSSSITKLLKI GVGGKYVDTHVAAVDKKANTR
 MDVQMTINHSSWVTEFKVHNQ D DVRVLSTDQSNDKR Q Y V S FKVV K S A SI K SFQVVE K DGQFVETTVLSENKKDNTR RFVGLKLQNSNEVKALRIDNASGDYRDAEVTQEDAASNTK RFVGGLKLQNSNEVKALRI DNASGDYRDAEVTQEDAASNTK $R F V G L K L Q N S N E V K A L R I D N A S G D Y R D A E V T Q E D A A S N T K$ R F V G L K L Q N S NEVK A L RI D NASGDYR DAEVVTQEDAASNTK
 R F V G L K L Q N S N EVVKAL RI D NASGDYR DAEVVTQEDAASNTK RFVGLKLQNSNEVKALRIDNASGDYRDAEVTQEDAASNTK R F V G L K L Q N S N E V K A L R I D N A S G D Y R D A E V T Q E D A A S N T K $R F V G L K L Q N S N E V K A L G R I D N V S G G Y Q D A E V T E E A A A S N T K$ R F V G L K L Q N S NEVK AL RI D NV S G GYQ DAEVVTEEDAA SNTK RFVGLKLLQNSNEVKALRIDNVSGGYQDAEVTEEDAASNTK


 MTAQIT L N Q S E WI K S L HFVSYTVVKSSAI TSSGQV GTGGKFEETLVAKADQKADTR HFVVSYTVVKNSSAITTSFQVVGTGGKFEETGVAKADQRADTAR
 RFVGLKLQNSNEVKALRIDNASGGYKDAEVTQEDAASNTK RFVGGLK L Q N S NEVKALLRI DNAS GGYK DAEVVTQEDAA SNT K $R F V G L K L Q N S N E V K A L R I D N A S G G Y K D A E V T Q E D A A S N T K$ RFVGLKLQNSNEVKALRIDNASGGYKDAEVTQEDAASNTK RFVGLKLQNSNEVKALRIDNASGGYKDAEVTQEDAASNTK
 $R F V G L K L Q N S N E V K A L R Z D N A S G G Y Q D A E V T R E D A A S N T T$
 $R F V G L K L Q N S N E V K A L R I D N A S G G Y Q D A E V T R E D A A S N T K$ RFVGLKLQNSNEVKALRIDNASGGYQDAEVTREDAASNTK RFVGLKKLQNSNEVKALRIDNASGGYQDAEVTREDAASNTK R F V G L K L Q N S NEVVK AL RI D NAS GGY Q DAEVVTREDAASNTK



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 $H V R F S V N D F K N N V K G Q L V V Y$
$H V R F S V N D F K N N V K G Q L V V Y$
HVRFSVNDFKNNVKGQLVVV
HVRFSVNDFKNNVKGQLVVY


 $H V R F S V N D F K N N V K G Q L V V Y$ | $H$ | $V$ | $R$ | $S$ | $V$ | $N$ | $D$ | $F$ | $K$ | $N$ | $N$ | $V$ | $K$ | $G$ | $Q$ | $L$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $H$ | $V$ | $R$ | $F$ | $S$ | $V$ | $K$ | $D$ | $F$ | $K$ | $N$ | $N$ | $V$ | $K$ | $G$ | $L$ |  | H V $\quad$ R $F$ F $S$ HVRFSVKDFKNNVKGQLVVYAAPMVFKAEYDFEFKFDTS HVRFSVKDFKNNVKGQLVVYAAPMVFKAEYDFEFKFDTS

 $H \vee R F S V K D F K N N V K G Q L V V Y$



## 

 NVAFSNSDEKNNVKGOLVY $N \vee R F S V$ S D F K N NVVKGQLVV | $N$ | $V$ | $R$ | $F$ | $S$ | $V$ | $S$ | $D$ | $F$ | $K$ | $N$ | $N$ | $V$ | $K$ | $G$ | $Q$ | $L$ | $V$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $N$ | $V$ | $R$ | $F$ | $S$ | $V$ | $S$ | $D$ | $F$ | $K$ | $N$ | $N$ | $V$ | $K$ | $G$ | $Q$ | $L$ | $V$ | $V$ | $N V R F S V$ S D F K N N V K G Q L V V $N V R F S V$ S D F K N N V K G QL $L V V$ $N \left\lvert\, \begin{array}{lllllllllll}N & R & F & S & V & S & D & F & K & N & N \\ N & V & K & G & Q & L & V & V & Y \\ V & F & S & V & S & D & F & K & N & N & V \\ K & G & Q & L & V & V & Y\end{array}\right.$

 VRFSVSDFKNNVKGQLVVYAPKVASSAVYDFEFKFDTS
 DVRFSVSDFKNNVKGQLVVYAPKVASSAVYDFEFKFDTS $D V R F S V S D F K N N V K G Q L V V Y$


T
 TVKK S S V S Y T K NV P A Q A S T S

v $\begin{array}{lllllllllllllllllllllllll}V & E & F & E & V & G & D & T & A & K & K & I & N & A & R & V & K & V & D & I & P & G & M & N & Y \\ V & H & H & A & D & V & Q & L & A & F & K & L & D & T \\ V & V & F & V & V & K & D & I & G & Q & P & V & I & S & K & I & H & V & T & V & P & A & D & Y & D\end{array}$



 $T$ T R V E V A S GT Q QLI I S K V HII I V P V I N Y D H E Y T T Q I A F A K P V
 V V K F P V S D L T A K T N V Y T H V K I T T F P Y D H K Y N V QI Q Y N T S T


 $T V Q F E V E D L S Q L L H A Y T E V Y F E E F L Y D G K Y E V Q I A F D$

 $V$ V M F P L V D N Q Y V Y D A K V S I N A P G F G I $V$ V MF PLV D N Q Y V Y D A K V S I N A P GF G I
 $V$ V E F E V A D L N A K V N A Y A E I T I P V I G Y T G K Y D V Q L Q F D E

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

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UniRef90 K8F618 UniRef90-K8E618
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QD G TYS $\operatorname{CV}|N Y T| V|Y| V|G T D T P S Q M D T F M D K E A K| V|R| I \mid A N G E$ QDGTYSVNYTVYKVGTDTPSQMDTFMDKEAKVRIANGE A K G T Y T I D Y D I L R A E D N S V S I A N D Y F E K P A K L Y V T G S K A D GQY S I D Y AVLLHA TEEK D S SMKGYF SNPAVLVTVDK GE A DGQYS I DYAVLHATEEKDSSMKGYFSNPAVLTVVDKGE


 MNDYVVNPAKLIVKDGK ADGQYSAQYVVWKADSDSTSTANTYFEKPAKLVVKDGK LK D G G E Y Q V Q V N N F Y K D N T K E S S E A A D K Y IV H H TA T I K V V L K D G G E Y Q V Q V $V$ N F Y K D N T K E S S E A D K QQQE K A T S T L G Y M V Y K N G S S E Il S Y M D D Q Y M V K P A A R I V QQEKA TSTLGYMVYKNGSS K A S SMQKYFNNPVYLQIKEGK KASSMQKYFNNPVYLQQIKEGK KASSMQKYFNNPVYLQUKEGK K A S SMQ K Y FNNPVVY Q I K E G K
 Y NV EIK I Y K D Q K D EPSMVS Q Y I K D P K V K I E N G K AEGQSLNYEVLKYNTNDTSDANDYFNKPATVVERNGK Y TI PFVAKKANDDTNSSMQNYFDNPAWLKVKNGK Y TI PFVVAKKANDDTNSSMQNYFDNPAWLKVKNGK
S E GT

 Y S V S F TI LIKANSSEPPSMMN DYVTN E GTVLTI ENGK YS L D Y VI L HAETDSAS DANDYFEKPA ILIVRGEE MK DGT $M K D G T$
$M K D G T$ MK D G T QDLGFVVVKKEKTEDKSVMDDYDEHPSKVKHENDK






$K Y T \prod D Y T V Y K D G T D Q A S Y M N G Y V A K P A T L I V T N G Q$

 T Y S VD Y K V L A D G S T S T S R LDD S YVVVK PATVVVA D GV TYSI NYTVVQQGDGGSASMANEYFDKPATVVVANGQQ A D G NYT I E F QVWK D S T D E P S S L G N Y L S K P A QL V V E N Q K A D GNYTI EFQQVWKDSTDEPSSSLGNYGSKPAQLVVENQK A D G N Y T I EFQQVWKDSTTDEPSSSLGNYQLSKPAQLVVVENQK

 A D GTYKVPFTAKHATEEKASSMQKYFDNPVWLKVVENGK Q N L N F K V L K H Q T N E R S V M D Q Y M V QNLNFKVLKHQTNERSVMDQYMVNPAKVTYHNQQQ Y TVNFKVLKEKSTE LSMMDGYTQKPAVI KVEKNQ Y TVVNFKVLK K K S TEELSMMDGYTQQKPAVI K V E K NQ A D GKYTVVNKVLQQSSNDNESRMNNYVKSPATLLTVKNNK A EKE WTMNY VLLVDGKKESS DMNTYVVKDVAKMIEKE GK

T Y S I N Y TVVL Q GD S G S A S M A N D YF D K P A TVTIDN G G K
KSI NFEVLKKYNTNDTSMANDYFEKPAKLI EK DGK
 AD GTYDVSYQVNKPGSNSASMANDYFLKPAKLIVNNGK A D GTY KV PFAAAKATQDKASSMMKYF DNPVVYQVKDGK A D GTY K V $\operatorname{P}$ P A A A K H A T Q D K A S S M Q K Y F D N P


 QV $V$ N K R A V N F Y V R K K E E N K L S S H M D D Y K D GTY DVVLKAYNEKTNEESRATTY I KEP K V T I I ENGK A D GTYSVVDTVLQGGSDSVSMANDYFDKPATVTVSGGE K AKDRNFKVLHSSKDEQSHMDFEVVHPAKVVEYDGK K AKDRNFKVLHSSKDEQSHMDFEVVEPAKVVEYDGK PANAQTVAYHPLRYGTNQTSMADGYFVKPANVVVKNHLL K K QAVQFYVRRQNDKEPSHMNDYVDHPGFLVNIDGK A Q SVVSY QTYKY GT STTSMADGYVARPATVVTVSNGA
$R R P \square E F S$
 S A S S Y Q V QTI EFYV RK QNNRDVSHMDEYVKHPGY VNDGNQ


UniRef90 UPIO003603535 UniRef90-UP10003603535 UniRef90_UPIO0035DD5F7 UniRef90-C6CUV7 UniRef90- UPIOOO374512C UniRef90-UPIO00374512C UniRef90_UPIO00374512C UniRef90-C5QRU1 UniRef90-C6CXI6 UniRef90-C6CX16 UniRef90-C6CXI6 UniRef90 C3E9C2 UniRef90-W8R1D0 UniRef90-S5JUP3
UniRef90 $55 J U P 3$ UniRef90- $55 \mathrm{JUP3} 3$ UniRef90-A0А033UIVO UniRef90-A0A033UIVO UniRef90-W7CR80 UniRef90-W7CR80 UniRef90-W7CR80 UniRef90 ${ }^{-}$W7CR80 UniRef90 10 CY 18 UniRef90-R8LPDO UniRef90-D3OF11 UniRef90-E3ZIV2 UniRef90-E3ZIV2 UniRef90-J8FD83 UniRef90-E3ZSP5 UniRef90-UPIO00469E7CE UniRef90-UP100037CC51C UniRef90-W7ZLD9 UniRet90_W7ZLD9 UniRef90 W7ZLD9
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TWVITVVLINQAKWWVISLEVVIDSGDEGPDVITVVISEDPAANKB TWVTVVLNQAKWWVSLEVDSGDEKGPDVTVVSEDPAANKR MTMQUTVNHSAWTTKFKVKYK GK VDTKVIKTNTAKDTR YTVTLRLTQSKETTGFKVNG KTISFSIKDSSVVKNVYTANDGTNYVPVTNVSEDKTANTR
 YYFQDTLENASWWKSFQFFDESETELPTTVVDDNTEKDTK AVFEHQVTKDNYFEYFTATGLDGYTQAVSRDAASPNTDNV AVFEHQVTKDNYFEYFTATGLDGYTQAVSRDAASPNTDNV KYIUMTLKNSAWITKFQTEN NELLFADAKVVAEDKNVNTR DKAQVTLTNSSWITSFKTDDQGVYKDAKVISTNTAANKR
 PYMYLTVTNSTWWQTMAVSKNGDRYEDVQTVSTDAAKDTR QYVELTLKSASYWKSFELFDHD K
 KYVAMTINDSKTVTSFQTTVGDA KYVAMTINDSKTVTS KIVTLTVQDSSYFQYLRVEDTNGTFHDVKVIS KVVTATVQDSDYFQYLRI EDKNGVFHDVKVLSEDKANNTK KYVQITVNHSHWHTGMSIEGKNEK IINTNKAKDER KTIAMTVNDNKTVTALLKTQ LAGALQDVKIISEDKDANTR $K T I A M T V$
$K$
$K$
$K$ KTVAMTVNDNKTVTALKTQ LAGALQDVKVVSEDKDANTR KTVAMTVNDNKTVTALKTQ LAGALQDVKVVSEDKDANTR KYMTFTLTESAALTGEKV DQNGTLVDTKILNSNPAKNTR

 YQVDLTITNSSWYEDFTVEGKR SYVQFTLKNPSWWKMFELYDGTNK PEVI GQFTKNPSWWKMFELYDGTNK LNTETLSEDKDGKR VQARVTLNRSSSVKDFTVLQGD SYVSPEVSANDETRDKR VQARVTLNRSSSVKDFTVLQGD SYVSPEVSANDETRDQR
$V Q A R V T L N R S S V K D F T V G Q D S V S P E S A N D E T R D R R ~$ VQARVTLNRSSVKDFTVLQGD

 VQARVTLNRSSSVKDFTVLQGDSYVVSEVSANDETRDQR KIVTLTATDSNYFKEFKVENPNGTYQDVKVISESAANNTK YFAQMTHLKSSWVTS STVEQRGEQVAPTLVSDNDKKNVR TKARLTITSSNLTTAFKAE QNGQLVDATVVSTNTANNTR SSIQLQLNHSKWI TGLLWVDAGNGLQSE QIISTDDSLDTR KYMVVGLSSSQFITAFKTE FNGQLVDAEVVKEDTENQLR KYMVVTLSSSQFITAFKTE FNGQLVDAEVVKEDTENQLR KTAAMNLNDSTVTSFQTE VGGSLVETGUVSKDEAQNSR
 KTIAMNLNDSKTVTSFQTE VGGSLVETGIVSKDEAQNSR ATVQMTLKNAVWWKSFEMFNGETRIMVKVVSEDSQQDQR AYAYVTLKNSHWIKTFET KQNGKFVAAQVVSKDAKKDTR AYAYVTLKNSHWIKTFETKKNGKFVAAQVVSKDAKKDTR KYGSFKVNSSSYIKSURTKKGNKFVDTAVLEKNDQENSR FTVSLQVNHSKWITGGWVEGSAVSVTSSS STM TANDTR $K V L Q T V N H S H W I T G M S I D G \quad H K E K D N K D A S K D D R$ MYAMEI DQSSWI KVLTVERQ GKMVEPKVISQ SDNTR RTAAMT NDTDTVKEFQTTGGDGAFKEAKVISSNESSDHR RTAAMTI NDTDTVKEFQTT VDGAFKETTTLST RTAAMTI NDTDTVKEFQTT VDGAFKETTTLST A VQLLINDHKTVTSFMVE QNGELVEATNVSVNADANTR
 A VQLLI NDHKTVTSFMVE QNGELVEATNVSVNADANTR RYFEMTLTHDDWWQSYQFYHQNTK LQHEVIYENSDTQEA K VVTATLNDSDFFQYMKVEDSQGTLHDVKVLSEDKRKNTK KMLAVTLKHDSMWKDFQVEGEDGYKRPD I I EKDSEKDTR KMLAVTLKHDSMWKDFQVEGEDGYKRPI II EKDSEKDTR YYVTMQI RTAKSLSSFKVNWVNGKAPNVRRIKDRAGNSHM TYFEDTI LINRKWWQSFHFYQKN KELLKITTDEDKDKDTI YVVTMTI RTATNLSAVVVNSDDGQAPQNVTKTQSGGYYLY RLITATLKDSDFFDYLKVEDSKGVFHDVKVLSEDKRKGTK AKVEFEVQTADSFEKFEVYNGDTK LPVNLVSFDSEKDYA AKVEFEVQTADSFEKFEVYNGDTK LPVNLVSFDSEKDYA AKVEFEVQTADSFEKFEVYNGDTKGLPVNLVSFDSEKDYA TYFVMTLLNREWWESYKFY QHDKELKVKGVNEDKEQDTV



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| UniRef90_UPI0003603535 | 1 PL L A |
| UniRef90_UPI00035DD5F7 |  |
| UniRef90 C6CUV7 |  |
| UniRef90-UPI000374512C | 1 T A A |
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| UniRef90-C3E9C2 |  |
| UniRef90 W8R1D0 |  |
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| UniRef90-UPI00046E9ACC |  |
| UniRef90-UPI00046E9ACC |  |
| UniRef90-G7W1E7 | A |
| UniRef90-Q73C71 |  |
| UniRef90-X2GHZ5 | $\checkmark \mathrm{A}$ |
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| UniRef90-K8EV07 | AS L |
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| UniRef90-R9BZ36 | L T V V |
| UniRef90-R9BZ36 | L T V V |
| UniRef90-K8E618 | A |
| UniRef90-K8E618 | A |
| UniRef90-K8E618 | A |
| UniRef90-K8E618 | A |
| UniRef90- U7PC35 |  |
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| UniRef90-C1EK69 | F P 1 V |
| UniRef90-R7ZHJ8 |  |
| UniRef90-G2ZE08 | A |
| UniRef90-C5QRU3 |  |
| UniRef90-F9DUX9 | A |
| UniRef90-F2F866 |  |
| UniRef90-W7C9Q2 | A T K V |
| UniRef90-W7C9Q2 | A T K V |
| UniRef90-W7C9Q2 | A T K V |
| UniRef90-UPI000361C3D1 |  |
| UniRef90-UPI000361C3D1 |  |
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| UniRef90-Q73DV3 |  |
| UniRef90 ${ }^{\text {W }}$ WCD82 |  |
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| UniRef90-A0A033U6Y8 |  |
| UniRef90-S4NEU7 | P S $\square$ G |
| UniRef90-C5QRU4 |  |
| UniRef90-R4RUG6 | $\square \mathrm{P}$ |
| UniRef90-FOPYB3 |  |
| UniRef90-F9L8N7 |  |
| UniRef90-F9L8N7 |  |
| UniRef90-F9L8N7 |  |
| UniRef90-UPI00024927AF | VP |
| UniRef90-U6FYN9 |  |
| UniRef90-D5SZP2 | LP |
| UniRef90_UPI00030E994C | PS |

UniRef90 UPI00047364B9 UniRef90-UPIo0047364B9 UniRef90_U7PDS3 UniRefolo- 1 1HP21 UniRef90-H4GJ88 UniRef90-UPIOOO36BD004 UniRef90-UPIOOO20DAOA4 UniRef90_UPIOOO36E2652 UniRef90-UPIO002491620
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UniRef90-J3JC33 UniRef90-G7ZMNO UniRe990_G7ZMNO
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UniRef90 W 7 C 980 UniRef90-W7C980 UniRet90-UPIOOO3195103 UniRef90-B2UZD2 UniRef90 B2UZD2 UniRef90-B2UZD2
UniRef90
B2UZD UniRef90-D8HA42 UniRef90-H1X9G9 UniRef90-C5R9W2 UniRef90_C5R9W2 UniRef90-FOSX01 UniRef90-FOSX01 UniRef90-FOSX01 UniRef90_FOSX01 UniRef90-FOS $\times 01$ UniRef90-UPIO002490EF4 UniRef90-UPIO002490EF4 UniRef90-W4QEC0 UniRef90_C3LAM3 VSEENAHDFGFTVKKEAEDAKSVIMDDYLEHPSKVSHENGK VSEENAHDFGFVVKKEAEDAKSVMDDYLEHPSKVSHENGK
 AAKTDSVINFQIFKTGTTEAQPASSHLVPQGTIVEKDGK LSVAHADS: NYQTFKYGTSTTSMADGYYVKPAQUTVSGNK MTSVQAQAVSYQVLKYGTHDVSYASAYFVTPGDLVPAGDQ PDGEYPIHFRILKDGSEEDSYASAYLEPPGKLIVKNGK ADNYQTNYTILKAGTGQTSYADAYFSKPASVSVNGDS TYLIDYTVYANGTNNASYMDNYSKKPATLIVSGGK ADGNYKVNYTVLDSEASSASMANDYFDKPAALTVTDGK SASNAKSISYKALLYGTNKTSMASGYFVKPATVRISHQK SATNSRPIDFEMKKENGERQFYHYASTVKPAKVIFDKNK SATNSRPIDFEMKKENGERQFYHYASTVKPAKVIFDKNK TYELNYEMKEAHSENTSTVDGYFTKPAKLTVKNGV KDGTYKVQYNVMHSSRNAVSYGNDYFQKPA DQ KDGTYKVQYNVMHSSRNAVSYGNDYFQKPAIVYVKKGK LQDGAEYRVDVSLLKPGTKETSAANRYIKQQATIKVENNQ KDGTYKVQYTVINGSNHSVSYGNDYFEKPATVNVKNGK KAVDFSVLKSLKDQPSVLENYTQKPFKVAVEKGN KVGAQSVSYQTYKYGTSENSMASGYYARPAEVTVQNGQ QSISYKSLKYGTNQTSMATGYFVHPAAVVVRDNS

VKFQTFKPDTDEAGYMDKYFTGTGLLIEKDGT QVIDFHVYKPGTNEPQPASGHIVPQGKIVEKDGK QVIDFHVYKPGTNEPQPASGHIVPQGKIVEKDGK RETVNFQLFDQNNETQYYHYFSIKNPADVYYTKTK RETVNFQLFDQNNETQYYHYFSIKNPADVYYTKTK RETVNFQLFDQNNETQYYHYFS $D K N P A D V Y Y T K T K$ AQSVSYRTYKYGTHQTSMADGYYARPAQVVVDDNQ LKDGGEYKVNVNFFKDKTKEKSVADDYINNEATIVVENNQ NSRPVSFEMKNKDGDLQFYHYASTISPANVYKDKNK NSRPVSFEMKNKDGDLQFYHYASTISPANVYKDKNK DTYDNWRPDDFQMKNKKGERQFYHYASTVEPAKVDFTKTQ俭 LTYDNWRPI DFQMKNKKGERQFYHYASTVEPAKVI FTKTQ AETTKELQFEVLKEGSEEVADANEYFEKPAKVIERDGK SYHALRYGTNRTS $\downarrow$ ASGYFVNPANVTVSGNH KDGTYKVNYTVMNAQGNSVSYGNDYFVKPATVVVKNGK ATTDNI NYDTYKYGTHQTSMASTYYLRPAQVKTVGSK SVQAKSLNYQALTYGTTKTSDASGYFVHPASVKVKNHK VSQATSQPI NFQVQKDGSSEKSHMDDYMQHPGKVIKQNNK KQTMAADVNYHTYKYHTKETSMATTYYVTPAQVEVSGGE AAEQTVPDSVLKDGTNDTSYAASYFSNSASVTSNDGLD SEKADTTVNFQIFKPGTTEAQPASSHLVTQGTMVEKNGK SEKADTTVNFQUFKPGTTEAQPASSHLVTQGTMVEKNGK ADAATINFSALKSGTSDTSYADAYMVKPAQLNUVNNK KKDLNYVMLKDNENKDSSAARFFVKPAKI WYENGS KKDLNYVMLKDNENKDSSAARFFVKPAKI WYENGS KKDLNYVMLKDNENKDSSAARFFVKPAKI WYENGS KKDLNYVMLKDNENKDSSAARFFVKPAKI WYENGS
 SLQYQVLQPNG QTSHADQYMDKPANVVIKDGK TYNAPMQVLENGTNSASYASAYFANSATVTPNGDQ VNTNVLKKDSDEPSMAGQY
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 KKEAKETHKVKALKAENNEPSMSGTYLGKEAKYTEENGK KKEAKETUKVKALKAENNEPSMSGTYLGKEAKYTEENGK

MD F E VKR R VQVVIEQD GK KRYTVNNEVLSNSTTGRTMARKYLNETSII EEDDGK KRYTVNNEVLSNSTI GRTMARKYLNETSII EEI DGK KRYTVNNEVLSNSTIGRTMARKYLNETS:I EEIDGK KRYTVNNEVLSNSTIGRTMARKYLNETSUI EEIDGK SYTVPMOMQSSNDNESRMNSYVKSPATLTVKNNK SYTVPMQLENGTNKTSYAAAYFAGSATVTPSDNG THLQGNSNSTSVAAQYFLPTRQLVKNNGS
SGHEYEVLQGNSNSTSVAAQYFLPTLQLVKNNGS TSGHEYEVQLKIGQKASNSGSMAAAYVDKTGT VQDGE TSGHEYEVQLKILQKASNSGSMAAAYVDKTGTIEVQDGE TSGHEYEVQLKILQKASNSGSMAAAYVDKTGTVEVQDGE TSGHEYEVQLKILQKASNSGSMAAAYVDKTGTVEVQDGE TSGHEYEVQLKILQKASNSGSMAAAYVDKTGTIEVQDGE
 ADGTYTVPVSLLKQGTETASVANQYFPKPAVVVIKNGN

UniRef90 UPI00047364B9 UniRef90＿UPI00047364B9 UniRef90－U7PDS3 UniRef90＿B1HP21 UniRef90＿H4GJ88 UniRef90＿UPIO0036BD004 UniRef90＿UPIO0020DA0A4 UniRef90＿UPIO0036E2652 UniRef90－UPI0002491620 UniRef90－UPI00038297F7 UniRef90－W7CE54 UniRef90＿C2D1J3
UniRef90－J3JC33
UniRef90－G7ZMNO UniRef90－G7ZMN0 UniRef90＿UPIO0040BE172 UniRef90＿UPI000287F807 UniRef90－W7Cl47 UniRef90－W7Cl47 UniRef90－UPIO002894088 UniRef90－C5QRU0 UniRef90＿K0NX35 UniRef90－H1LIT0
UniRef90 X2GP25 UniRef90－X2GP25 UniRef90－F9DUY0 UniRef90－F9DUY0 UniRef90－UPI00031CE5FF UniRef90＿UPIO0031CE5FF UniRef90＿UPI00031
UniRef90＿C7XGU2 UniRef90－W7C6R1 UniRef90－D3QF06 UniRef90－D3QF06 UniRef90－G7ZPC4 UniRef90＿G7ZPC4 UniRef90－G7ZPC4
UniRef90－K9B5M9 UniRef90＿G9ZQ92 UniRef90＿UPI0002884FD4 UniRef90－I7J216 UniRef90＿UPIO002490EF3
UniRef90-H0C566
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UniRef90-M5JCD0
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 ATLDLQVNHSTWI TGLTVAGSQGQ VLSSSKSADTR YVVTMQUKTAKSLSSFPVNWVNGEKPKNVRKAKDRAGNHY


 MTAKITINHSNWVKSFKATTGGNKVVSKN KKKNTR PYLYI TLNNQTYWQTLQVPSPESNYTDVTDVSTDEANNTK
 QLVVLTLNNDSYWKEFKVEGTRATATIAKKEHDTR YLVTMTI KTKKALTAWPVTSVAGQSPSNVKKTKDSNFYYY Y YVTMQIKTAKSLSAFKVLWVDGQTPRAIRKVRDRAGNSR


 A N V



 P E I \begin{tabular}{l|l|l|l|lllllll}
$P$ \& $E$ \& $I$ \& $E$ \& $L$ \& $G$ \& $L$ \& $K$ \& $T$ \& $A$ \& $S$ <br>
$P$ \& $E$ \& $I$ \& $W$ \& $K$ \& $K$ \& $F$ \& $E$ \& $V$ \& $Y$ \& $E$ <br>
$L$ \& $G$ \& $L$ \& $K$ \& $T$ \& $A$ \& $S$ \& $T$ \& $W$ \& $K$ \& $K$ <br>
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$S$ \& $F$ \& $I$ \& $R$ \& $F$ \& $D$ \& $I$ \& $N$ \& $H$ <br>
$S$ \& $H$ <br>
$Y$ \& $V$ \& $V$ \& $T$ \& $M$ \& $Q$ \& $I$ \& $K$ \& $T$ <br>
$A$ \& $K$
\end{tabular} MTAKDTIKRSNWLIMSFPTVNWVNGQKPKNVRKVKDRA GNSR


 YYFQAVLNNASFWKEYKFYNVNNQELATTVVNDDKK




## 都

 Y T V T S T V T T D T S L G D Y P V Q M L S I D G S G V T T S S Q S G N K Q T KYLTLTLNRMDWMKNVAVY KYLTLTLRMDWMKNVAVY KYLTLTLRMDWMKNVAVY TYCEVNLLALDWMONIK TYCEVNLLALLDWMQN：KI E
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$$ YTGYY YTGYVTTHTPAMMGSAPATFMDGTHHVTRMSNKTGNYYQA YTGYVTTHTPAMMGSAPITFMDGTHHVTRMSNKTGNYYQA

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| UniRef90 UPI00047364B9 |  |
| UniRef90-UPIO0047364B9 | VVKVEVPTGVSALTSKLHLYIPYGDYDY <br> TSEFLIDKTSGEIPGTIKVYIDEFKYDHNY |
| UniRef90 B1HP21 | TYSFPVVVDEVKSAKI HVVVPSANMDKWYD |
| UniRef90-B1HP21 | TYSFPVVVDEVKSAKI HVVVPSANMDKWYD |
| UniR | SYSFTESDLNKVISSNISINVPGVYTATHN |
| UniRef90-UPIOOO36BDD04 |  |
| UniRet90 UP | KVDVASLNYHHTYD |
| UniRef90-UPIOOO32491620 |  |
| UniRef90-UP100038297F7 | TYTFPVSNLSNKVNAQTRVVVPGQPYDHTYTVQYWFDQAS |
| UniRet90-W7CE | KVRFNDGEAKQSLPAT! KVDID |
| UniR | YYSFTTTNLTKRINAKLAI DVPKV YKAHHLI SFKFSTAG |
| Unip | SYAFQTADLSQUISSSISINVPNV YTAKHDISFKFDTSN |
| UniRef90_G7ZMNO |  |
| UniRef90-UPIOOO40BE | VVKFRVDDLSKPLNMEMHI IVPDL YDMTHTARAVFDVS |
| UniRef90-UPI000287F | TVKFKVNSLSKMTKAKMRVEIPSNNYYHNY |
| UniRef90-W70 | VVK KKFDDVNATIYSYMHINVAEDKYDSWYQADMKMDVS |
| UniR | VVKIKFDDVNALIYSYMHINVAEIKYDSWYQADMKMDVST |
| UniRef90-UPIO002892 | TVKFNVKTLSKPTPVKVRVE |
| UniRet90-K0NX35 | A YSFYSQDLSKAVSSKIKI DVPGTYYQATHQIS |
| UniRef90-H1LITO | NLKKRINAKLAIDVPKV YKAR |
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| 2GP | V VFPVDP KVKTAAKVHVVVPAANMDKWYEFDF |
| UniRef90-F9DU UniRef90 F9DU | TYSFPVTD TVYPGKI HVVVAAANMDHWYDFD |
| UniRef90-UP1000 | Y 1 RFPVTDGTQELKIVSSTQIPETNYDYT |
| UniR | Y\|RFPVTDGTQELKI VSSTQIPETNYDYT |
| UniRef90 UPIO0033 | YIRFPVTDGTQELKIVS |
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|  | YIRFDVSNGTKELVIKSSTQIPETNYDYT KLKMFEQPI |
| UniRef90-D3QF06 | YIRFDVSNGTKELVIKSSTQLPETNYDYT KMVFEQPU |
| UniRef90_G7Z | Y |
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| Uni eefo- | VSEFPLSQGSGKVKGVVKVEVDEFKYDHEYKVEFNDKGDV |
|  | YYSFTTTNTRKRLNAKLAIDVP |
| UniRef90 UPI | $\checkmark Y$ FESTS |
| UniRef90-UPIO002490 |  |
|  |  |
| iRef90-M5JCD | QTNAVTERHAAVIKVDVDNINYHHTYNVGLQLAADS |
|  | VVAG EVLSAK HVDTPKGKMD |
| Unif |  |
| UniRef90_UP10003 | TLTVPKELPEVLYVDMV |
| UniRef90-UP10003FAAD78 | T |
| UniRef9 |  |
| iRet90_UP10003 |  |
| UniR |  |
| UniRef90 ${ }^{-}$AOP | TFEIPMDNFIKPHIGGVIVSASDIGNINKYTV |
| UniRef90-UPI000249264F | DLNKELPVTMHLDVKVANINMDAMVYLKFDLDV |
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| UniRef90-F4A3M7 | dGi GAEVKLEMN |
| B1B7 | VIRFEVPKIN |
|  | VIRFEVPKINSKLVFHMYVV |
| UniRef90-8187 |  |
| ef90 B187C5 | V RFEVPK NSK |
| UniRef90-B187C5 UniRef90 1 B7 1 C |  |
| UniF | TVQFNVPDENADLLAHVNYEAPFNGGVHKAD |
|  | TVQFNVPDENADLLAHVNYEAPFNGGVHKADFRLAFDTTQ |
| UniRef90-W7C | TVQFNVPDENADLLAHVNYEAPFNGGVHKADFRLAFDTTQ |
| UniRef9-B2UZD | SLRFPINNTND ${ }^{\text {d }}$ |
| UniRef90-B2UZD2 | SLRFPINNIND Di RTYiYiKPMKMTIDFG\\|KFLGDTMi |
| UniRef90-B2UZD2 |  |
| UniRef90-B2UZD2 | SLRFPINNND DIRTYIY! KPMKMTUDFGUKFLGDTML |
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| UniRef90-C5R9W2 | VYRFSLNEIKAPTATTIHVHFTALAYDHTYTI |
| UniRef90-C5R9W2 | VYRFSLNE:KAPIATT: HVHFTALL |
| UniRef90-C5R9W2 | H K KPi Sil |
| Unil | H KIPISNITD FVYITGYVVPMGY APEFRLVFDPDT |
| UniRef90-FOSX01 | H K Pi SN:TD FVY:TGYVVPMGY APEFRLVFDPDT |
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| Unil | SNITD FVYITGYVVPMGY APEFRLVFDPDT |
| Ref90_UPIO002490EF4 |  |
| UniRee90- WPIO002490EF4 |  |
| Ref90-C3LAM3 | IQFE\GEFEKKHNMQMHILIPA鸟GYDHKYQVQFE\KDPT |



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| UniRef90＿J9W2H2 |  |
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| UniRef90＿J7TBM8 |  |
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| UniRef90＿J7TBN2 |  |
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| UniRef90－M8JNA9 |  |
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| UniRef90＿F4A3M5 |  | UniRef90＿UPI00047D1602 UniRef90＿UPI00036FAF23 UniRef90＿UPI0002899F79 UniRef90＿KONK27 UniRef90＿R4RUM6 UniRef90＿R4RUM6 UniRef90＿G0UG49 UniRef90－GOUG49 UniRef90－XOPCH2 UniRef90＿A0A024PQX3 UniRef90＿F4A3M8 UniRef90＿A0A023CX91 UniRef90－M5ABY7 UniRef90＿AOPYT7 UniRef90＿A0PYS4 UniRef90＿UPI0002191AEB UniRef90＿UPI0002191AEB

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UniRef90＿R6FSD8 UniRef90＿UPI00036F2D3A UniRef90＿W6RZI3 UniRef90＿W6RZI3 UniRef90＿D5SZP1 UniRef90＿17MRC9 UniRef90＿F3BBI3 UniRef90＿UPI000467F165 UniRef90＿UPI00021972F2 UniRef90＿UPI00021972F2 UniRef90－J2Z6V6 UniRef90＿S6ETQ7 UniRef90＿H1X9G7 UniRef90＿H1X9G7 UniRef90＿M5J8K7 UniRef90＿UPI00038131F7 UniRef90＿UPI00038131F7 UniRef90＿S6FPG5 UniRef90＿R6LPN5 UniRef90＿R6LPN5 UniRef90＿UPI00020DA0A3 UniRef90＿UPI0002E46506 UniRef90＿UPI00046863D8
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EDGTYDAVIKAYKDKTNEQSMAAVY\｜KDP KLLT｜IENGK SDAS YTVPITLLKS GS S S Q SIA NHFFDQTAQVTVSKGT

 $R Q T I S Y S V L K A D K S G K S V A D E Y Y T H Q A E L I D K K D D H$
 Y E V S A K A L K E D S D E E S K S N S Y L D K
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 AD GQYEVQ $\square Q G Y Y D G K P S D$ YAQANDEPTALLTVKDGK QKATTPNSLSYRVYKSDRSGLSIADGYYTHQAAVAKKGSR



A A NTWKY VVLKSNSNAKS $\square$ ANKYYTHAASVKK VNKH E GTYA III QAMKKNEDEPSAMASFILSESADI ENQAGS K D GTYTVGIQVLKEKDNDLSMAGQY GQNDKLDVKNGDV DYTI RQP $\square$ SNKKA E LDDVYFNKPATVI E ENE H AKATAKTWRYQVLQGTKMKKSEADQYYTDLAKVTPTNQG QK $I$ K I QAL KLLNKDEPSMA GQY IE NEVTVYTEENGK K D G TYKVSVQQVLKEKENDLSMA GQY GQQUTVEVKGGQ Y Q T D V TV L K D D GVVTPD H S A GFFA K K A I I T V A N K K


Y QT DV T I L K D D GVVTPSHSAGFFAKKA I TV A NK K TS DDVQEDP YSVVLKA DSSQESVSTQFFTGTAKVSKNDGT TS D DVQ E I P Y SVLLKADSSSQESVSTQFFTGTAKVVKND GT K D G TY K V S $\square Q V$ L K E K E K D L S M A G Q Y DG Q Q $\square T \mathrm{~L}$ E V K G G Q


MARKY L N NVVSVEETNGK MARKYLNNVSKVEETNGK SQNGTYTATAK LYYKSGTTDDSMMASMVSPTAYIVIMDGQ A GTYT LNFRANKENTEESSMLQGAFDKKAKLVVKDGK Y EVV VWWWHATKNQASMAA QSLNNTARIVVVK GV NERTI NYAVYPGNSSLLSPMDAFFTKSADI TSNDGS K ELTY Q I SKNNGDG S LISPYFTNTAKVMQNDGT K E L T Y QI SKNNGD G S L I SPYFTNTAKVMQNDGT Q Y V P Y K V LD E T R S K L S T A N N Y Y T H T A K V V K D A S G ETDSTRSLSI LQADKNDKSMAANYMLDTVKLTKNDGT ETDSTRSLSSLLQADKNDKSMAANYMLDTVKLTKNDGT VSRNNNS QYNYTALKKGTSQSSVMMADYMLNVAHVVIN GD Q $V$ S R N N N S Q Y N Y T A L K Q GTS Q S S V M A D Y ML NVA HVVI NGD Q

TVLKHETDKDSSANRYLQS SKLKTVGNK

 $K V K V Y N V Q N N V T H D N A T G V A M A R K Y G N S D T E I M E B N G K$
 Y V F T A YK E DRNETSMLNNFFDKKAKLEVKDGK
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 $Y K V M M T M T Y P T S F G T Q P V T N G G S V N A D D T K T Y T Q G G K N Y M$
$Y K V M M T M T Y P T S F G T Q P V T N G G S U N D D T K T Y T Q G G K N Y M$ $\square Y A T V D \square T R \square D W M K N D N V N G T D T K Y D K T M S G S Q K G K$ YYVTLTFTGTEFMQNHEVYGVNGSKVSHSVGSS GTGDSV YVVILTFTGAEYMNNHEVYVNGNKVNATATNNN DADEV

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| $T$ | $L$ | $T$ | $F$ | $N$ | $L$ | $T$ | $N$ | $P$ | $S$ | $S$ | $T$ | $M$ | $P$ | $V$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $T$ | $L$ | $T$ | $F$ | $N$ | $L$ | $T$ | $N$ | $P$ | $S$ | $S$ | $T$ | $M$ | $P$ | $V$ |
| $T$ | $Y$ | $A$ | $F$ | $N$ | $V$ | $N$ | $T$ | $L$ | $K$ | $K$ | $I$ | $I$ | $K$ | $G$ |


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| $V$ | $K$ | $F$ | $E$ | $V$ | $N$ | $S$ | $L$ | $D$ | $S$ | $E$ | $V$ | $K$ | $F$ | $N$ | $M$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
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V K F E V N S L L D S


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