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1
10
PEPT 20
30
${ }^{40}$
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 MF HI ALYQPE MDHVVLEEPE
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MFHVVLF PFHVVLVE

HIVLVEP MFNVVLVHP MFHIVLYQPEI MLD VLFEP $M L$
$M F H V A L E E P$
$M$ MFKIVLYQP $\begin{array}{ll}M F N V V L F E P E \\ M L H \\ M & \text { L } \\ M\end{array}$

A
M F

$M \mathrm{~F}$ | $M$ | $L$ | $H$ | $V$ | $L$ | $H$ | $E$ | $P$ | $E$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $Y$ | $I$ | $P$ | $P$ | $P$ |  |  |  |  |
| $P$ | $F$ | $L$ | $L$ | $V$ | $L$ | $D$ | $G$ | $V$ |

## $P$ $P$ $P$ $P$

## $\begin{array}{ll}1 & P \\ 1 & P\end{array}$

## $\begin{array}{ll}1 & P \\ 1 & P\end{array}$

$\begin{array}{lll}M & L & V \\ M & L & L \\ M & V & V \\ M & V\end{array}$
$M F H V V L V A P$
$M F H V V L F Q P$ $M L$
$M F$
$M F$
 MFRL MFFEPRLP
$P F L L L V L D V T D P$ MHIVLIDEPEDPGNLGACLRSADAAGVHAVVVPKDNSAK


 | $M$ | $H$ | $V$ | $L$ | $Y$ | $Q$ | $P$ | $E$ |
| :---: | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $M$ | $P$ | $P$ |  |  |  |  |  |
| $M$ | $A$ | $A$ | $F$ | $E$ | $P$ | $E$ | 1 |
| $A$ |  |  |  |  |  |  |  | MNIVLHEP

 $P L Y L V L D H V Q D P$ MDILLYEPEDPPNTGNIM


 $P \frac{L}{L} L$


 PFLLLVLDGVT DPHNLGAVLRSADAAGVDAVIVPKDKSAS

 SQLHIVVFDNVVIPTNTGNAIIRTAAVTGASLHLIEPDGFNF

 $P L \operatorname{F} L F L D E V Q D P H N L G A D L R T A D A T G V D A V V I P K H N S V G$
 A P

QUERY
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 E D K HMK RA GLLDYWEYATL K I H DNNWEA F
 E EKKL R R A GL D Y S EF A A L QV HRDFSAF QESVV D D K R L R R A GLLDYHEYA P L R R HA S LDD A CLLA ELGIA P P G QP R
 EDAKLRRAGLDYHEFARVKVYKNWA
 EDKYLKRAGLDYWDKVRVIYHENFQELRE KYPEGR
T E S R V K R A GLL D Y WS MLLQL E D DH D S L LD E L
D D K R L R R S GLLDYHEYTYTIKHHQSYAESF LAESEQPKR D T KL R R A GLD Y HE F A TI K FHAHFEAFRNEIIK K K



 LN S TV SKVACGAAEVVPYVVVTNLLARTL $A P Q R$
$R G \square W$ TE K A I K R A GMD YWDQLDDVTRYVNYED



 D D K K L K R S GLD Y HE FVVDIQKY THFD DF ARARAK KR
 S D A QL R R A GLLD Y A EMMACVTVMHPDWAACTRTASL G GAR


 D DKHMRRAGLDYHEYAQVLRHASWQA L LDDSQRPPAGR




 D D R H L S D A AV R R A GMDYWEAVQLTQ HASFAQFEAHFARAFEAG R
 E E K K L R R A GLLDYH DLSSNVKRYP DFAA FK



















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| UniRef90-R6T |  |
| UniRef90-D3FV56 |  |
| Ref90- UP10003 | MFR1 L |
| Re | VLVAPEIPQNTGNIIRLCANTGAKLYLVKPLGFNL |
| UniRet90-F2 |  |
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| UniRef90-M7N8Q5 UniRe 90 D3RTL | HVVLHEPLDPANTGNISRTCAGTGIRLHIVRPLGGFST |
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|  | MFH1VFYEPR1PGNTGAAIRLSACTGAALHLIEPRLGFDL |
| A0A045JBQ1 |  |
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| XORDB5 |  |
|  | V |
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| UniRef90_UPI0002E | Al R Lan |
| UniRef90-G5HRY8 | MMNIVLLEPEMPSNTGNIGRTCVATKTR |
| UniRet90-F9ZQT8 | S WLDVVLFEPEDPPNTGNVIRLCAN |
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| UniRef90-E4RLN1 | NIVLVEPETPQNTGNIARTCAVTDSA |
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| UniRef90-UPIOOO34C | ASLGL |
|  |  |
| Proooz |  |
| K1×40730355 |  |
|  | MLIVILDEMEDPHNLGAIMRSAECAG |
|  | LlLLDGVTDPRNL |
| UniRef90-V5PSM1 | PLLLVLDGVTDPHNLGACLRVADGAGAHAVIAPKDRAVG |
| C0 | R |
| iReet90-R4 | R |
| iRef90-R7K1H5 |  |
|  |  |
|  |  |
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|  |  |
| 0036F254 | $\checkmark$ |
|  | S AG |
|  | QDPHNLGACLRSADAAGVHAV APKDKSVG |
| UniRef90- H 2 Cl 54 | MQ VLIEPKIPQNTGNI RLCACTGASLTIVGEPAFSM |
| UniRef90 N9WCQ4 | II |
| UniRee90-E3DPY8 | LVVV |
|  | VLFQPEDPGNTGS |
| UniRef90-A0A059BJ | QVVLVSPQ ${ }^{\text {P GNTGCIARTCAASA }}$ |
| UniRef90-W2UE47 | ACLRSADGAGV |
|  | L V V |
| UniRe990 UPIO00047E428D | MI HVVLCQPEIPQNTGNIM |
| UniRef90-R5SULO | MINJVLYEPEDPENTGN |
| 220 |  |
| UniRef90-R6HC66 UniRef90-E9FIP0 |  |
| UniRef90-Q9PC00 | LLVLDGVQDPHNLGACLRSAAAAGVAV |
| 04 | N |
| UniRef90_M9LBX5 | L |
| UniRer90 C2KW83 | MRGFLIENTGDPGNLGNLARTAEAAGVNHILILSRNGVDP |
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| UniRef90-D4KMX6 | ILDNIEDPHNLGATIRTANLAGA |
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UniRef90-UPIOOO47C9926 UniRef90-M9LBX5 UniRef90-K9RQU5

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| :---: |
| $V$ |
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N

 DDKKLKRAGLDYWHLLDDRYYATLSDFFKQNTGD
 DDRMLKRAGLDYWEHVDLEYHDRIEDVFSAYPEGEFYYLT



















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 VVGTD MK DARE YREGMYDSPTVLVDGSEGQGDSNLVKKQ


AEA GGKNAFEADLTGSRVIVI GSEGKGISRLLRE




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




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## S

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$\qquad$
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 WS P R VLRA GMGA HF S L N Y Y E NVA I YSPKAVRASVGGLFHLP VLTGAESGSLGEALAARDVT







 E S GA L A K A A S G A L E R V P Will V V N L A A A A L E E I A EA G F W
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 VN A E A l











 $Y$ NPK VV R A M Q G S Q F H M Q L F S G N L L D W L A A $\quad$ L K K H G V K T
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$Y N P K V V R S T A G S L F H V P V V V G V B$


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| $M$ | $T$ | $A$ | $S$ | $V$ | $Y$ | $K$ | $V$ | $A$ | $A$ | $G$ | $A$ | $A$ | $S$ | $R$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $V$ | $R$ | $V$ | $A$ | $Q$ | $V$ | $T$ | $N$ |  |  |  |  |  |  |  |
| $V$ | $T$ | $A$ | $S$ | $A$ | $W$ | $K$ | $V$ | $S$ | $A$ | $G$ | $A$ | $A$ | $A$ | $H$ |
| $L$ | $P$ | $V$ | $A$ | $R$ | $V$ | $V$ | $N$ | $L$ |  |  |  |  |  |  |


T DKNLKRS GLDYWP EL S V TE Y E NF E A WK A Q L S S D E K L P VET









 P H K E I H K T A L G A E E S V E WH YF N KTT D AVVEMLKK E GFFF LI G PNKEIHKTALGATESVDWQYVADTLALVKQLQEENVTVIA Y N AKTLR STMGALFSI PVMEA

Y S R RVLRCSMAAVFALPIVY TFHGAGELLELAFASK QYQG F AP KVVQATMGALGRVRLHRDKDSIAFDRSFDGARDG Y N P KVV R S MQGS QFHI R L FS GD WSPKALRGGQGAQFVLPVVEQVDLSATLTAFQ
$M T A S A W K T S A G A A V R V P V A K A G N L D N R T E A A K K Q G \square F$








 YNPKVI QATMGASVARVVVVYYVM FN P K V V V Q A S M G A FAA R V WT GTVSKVAAGALENLPISRVVNL WN P K V V Q A T M G S I A R V Q L H Y V D
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C
A
R
G TNPKTI RSSVGSVFHLPIVVSDVSDAEAMDWATGRGMQLFA $L D P M V V K A S A G V A F R A P V L R C G S A R E A A E D L T E A$
$F A P K T V R A T M G A C F R L P V W E$ LYRRSIKVSMGAVFRLPWARVDDWASTPELLA DAGFTAVA

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$Y N P K V V Q A T M G S \emptyset T R V R L H Y V S L V S$
$Y$ YNPKVI SSTMGS FTRVVLINVY

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## D

 D




 $Y$ Q P K L V R S M Q G S Q F H I Q L VE G G D L R E WTAA F K K N H F P V F G $F N P K T V Q A T M G S L A R V N V F E A D L P \quad G B G A D N T I P$


 Y N A K AV R A GMGA QF R L EF I IV VE SLLE SLLS Q D F P EA
解 Y




 LYRKAl RVSVGA ALKIPFASFTDT
$\stackrel{4}{4}$

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 FSVEAVRASMGALR GL K Y A D D
 $P$ H P D I HK T A LG A E D S V A WHY F E T A M EAV H Y L Q NK G F R L F A













 $L Y R R A$



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| UniRet90_F1W2 | VLATSSHVAQRVYDI DLTQPVAWLFGHEGQG |
| UniRef90-UP100041A10D8 | PVYGAFLGGDNIUSLEKITPGV |
| UniRef90 UPIO00368378B | VIGTSLINATDYTKTNWQLPFVLAMGNEQQGL |
| UniRef90-FORB81 | VYGAFMDGKNVYKEDFTAQSGVLVMGNEANGV |
| UniRef90-J4KSV9 |  |
| 5M | IFGTFLNGENIYTQ PLPKNGIIIMGNEGNGUSEQAQKV |
| UniRef90-S3h | ADTRGEDLDWLDRAGVLGAPTAWVMGNEAWGLPAEL |
| R4TAB6 | $\checkmark$ |
| UniRet90-U2AH01 |  |
| E2SA00 | MTL GEGAVPIDEVDTDRPLALVVGSEGHGLTRHWESAS |
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| UniRef90-D0LZ96 | AGLAAGEGATSLPAFDATGALCLVLGAEGTGL |
| UniRef90-F4FSV9 | LVSKFANQDYTDPDYSDPYYLLFGKETTGLP |
| UniRef90_A8TLP3 |  |
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| UniRef90-UP10004165C2B | NIYGAALSGENLHRMQLKPEGIVVLGNEANGIRPEV |
| UniRef90-UP1000470F22E | VVGLSGDGQIS SNFQEKGPLVVVVGSEDKGIS |
| UniRef90_H1 ${ }^{\text {d }} 83$ | TQLDPEAAD LFTPPAQQFALIMGNEGQ |
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| UniRef90- UPI0003B32FC9 | V |
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| UniRet90 EOURW | VTPD STPLSSLHVTSKWVLIMGHEGKGI |
| UniRef90-Q7VDF5 | TNL NEQAKDYRLFDYKGPTAFVLGAEKWGL |
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| UniRef90-F8EJJ7 | GKNIHKTAFADTGYIVMGNESNG/ S SAV |
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| UniRet90_UPIO003FEI | DIUKENIVVMGNEGNGI RSYI EP |
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 $Y V \operatorname{R~R~V~I~R~V~S~M~A~S~V~F~N~H~R~F~Y~Q~F~D~Q~P~L~E~Q~I~A~G~L~Q~H~N~G~I~R~F~A~A~}$




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 P H K D 1



 HNGKCVRAS A G S V F TVVPVVR QRALTE G



 Y S P K V $V$ V S T A G S L WHIVPVF E SWR LEE L L N L G L N







 P H P E I HK T A LG A E E S V D WE Y S T S T L EVV D K L








 P HK DI HK T A LG A TEESVAA WEY V E D T V A L V E K L M D D G V I T VA


 Y


 $L Y R K A \| R V S A G A A L T V P F A R A P S$ D S S S V A R S G T R Y W Q F V E $\square$ D $L$ L Y D S W P H R DIIE KTA LGGA T Q S V A WQ Y E K N I E EA I I N L K Q E G K K I I A





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110
120

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