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UniRef90_Q98ZJ0	P Q I T L W Q R P I V S I V K I I G G Q Q L X E A L L D T G A D D T V L E E M N L P G				
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UniRef90_W6CGM8	P Q I V T L W Q R P F V T V K I V G G Q Q L T E A L L D T G A D D T I F E D I N L P G				
UniRef90_A0F6B9	P Q I T L W Q R P X V T A K I I G G Q Q L R E A V L D T G A D D T V I E D I E L P G				
UniRef90_A0F5M7	P Q I T L W Q R P F V T V K I V G G Q Q L X E A L L D T G A D D T V F Q D E L P G				
UniRef90_E0YEF0	P Q I T L W Q R P F V T I K I V G G Q Q L V E A L L D T G A D D T V L Q E M N L P G				
UniRef90_Q51YG6	P Q I T L W Q R P F V T I K X E G Q Q L K E A L L D T G A D D T X L E D X N L P G				
UniRef90_Q5MYY8	P Q I T L W Q R P L I P V R I I E G Q Q L C E A L L D T G A D D T V I Q D I Q L Q G				
UniRef90_E0YGA9	P Q I T L W Q R P I V I A K I V G G Q Q L I K E A L L D T G A D D T V L E D I K S G				
UniRef90_A0F649	P Q I T L W Q R P V I T V K I V G G Q Q L K E A L L D T G A D D T V X E E M N L P G				
UniRef90_B2MR70	P Q I T L W Q R P F V T V K I V G G Q Q L R E E A L L D T G A D D T I F E X X X L P G				
UniRef90_E0YFW5	P Q I T L W Q R P F V T V R X G G E L I K E A A L L D T G A D D T V L Q E M N W X G				
UniRef90_B8Y738	P Q I T L W Q R P L V T V K I I G G Q Q L T E E A L L D T G A D D T V I E D I D L P G				
UniRef90_C8BK33	P Q I T L W Q R P F V T V K I I G G Q Q L K E A A L L D T G A D D T V L E E M H L P G				
UniRef90_Q5RYC6	P Q I T L W Q R P I V T I K I I G G Q Q L K E A A L L D T G A D D T V L E E D M S L P G				
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UniRef90_R4JPV5	P Q I T L W Q R P F I V T V K X A G Q Q L K E A A L L D T G A D D T I F X E E M N L P G				
UniRef90_E9LK22	P Q I T L W Q R P F I V X V X V G G X X I E A L L D T G A D D T V L E E M N L P G				
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UniRef90_E0YED9	P Q I T L W Q R P I V T I K V G G Q Q L R E E A L L D T G A D D T V L E E D I T L P G				
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UniRef90_B2MTM5	P Q I S L W Q R P I V E A R I I G G Q Q L V E V L D T G A D D T V I E D I N L P G				
UniRef90_B6RNZ4	P Q I T L W Q R P L V K V K V G G Q Q L T E A L L D T G A D D T V L E D I E L P G				
UniRef90_B2MEV3	P Q I T L W Q R P F V T T X X I G G Q Q L X E A L L D T G A D D T I F Z D L N L P G				
UniRef90_Q9IW43	P Q I T L W Q R P L F K V R I G E Q Q L I K P L L N T G A N D T V L E K I N L P G				
UniRef90_A0F6E4	P Q I T L W Q R P I V Q M R I I G G Q Q L I E A A L L D T G A D D T V L E X I N L P G				
UniRef90_I0CCF1	P Q I T L W Q R P V T V K V E G Q Q L R E E A L L D T G A D D T V L E D I K L T G				
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UniRef90_Q98YI3	P Q I T L W Q R P I V T I K X G G Q Q L R E E A L L D T G A D D T V L E X I N L P G				
UniRef90_U3MXD1	P Q I T L W Q R P I V T I K V G G H H R E E A I L D T G A D D T V L F E D I D L P G				
UniRef90_C5J0M2	P Q I T L W Q R P X X I L I G G H H R E E A I L D T G A D D T V I E B I D L P G				
UniRef90_B2MHG8	P Q I T L W Q R P I V T X K I I G G Q Q L R E E A L L D T G A D D T V F E D X N L P G				
UniRef90_B2MNR0	P Q I T L W Q R P F V T V K X G G Q Q L I E A A L L D T G A D D T V L E D I S L P G				
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UniRef90_G5DHK8	P Q I T L W R P F V T I K V G G H H V I E A A L L D T G A D D T V L K D I N L P G				
UniRef90_A0F0K6	P Q I T L W Q R P I V T V K I I G G Q Q L K E A A L L D T G A D D T V F E E E M S L P G				
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UniRef90_V5MZ59	P Q I V T L R A R P V V T V K K I E G Q Q L K E A A V L E T G A D D T V L E D I D L P G				
UniRef90_A0F509	P Q I A L W Q R P V X T V K I I A G Q Q P M A M A L L D T G A D D T V F F E D I N L P G				
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UniRef90_D7RT56	P Q I T L W Q R P V L T I K I I G G Q Q L K E A A L L D T G A D D T I F Q D L T L P G				
UniRef90_A0F4I7	P Q I T L W Q R P V V E V K I I G G Q Q L R E E A L L D T G A D D T V I E D I N L P G				
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UniRef90_A0F354	P Q I T L W Q R P I V T I K V I V X G G H R E E A L L D T G A D D T V F E D I N L P G				
UniRef90_Q6EFA8	P Q I T L W Q R P I V E V K I I G G Q Q L K E A A L L D T G A D D T V L F Q E M N L P G				
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UniRef90_E0YFG7	P Q I T L W Q R P L V T I K V I V X G G Q Q L K E A A L L D T G A D D T V L E E M E L P G				
UniRef90_C8C7H4	P Q I T L W Q R P L V T I K X G G Q Q L X E E X A L L D T G A D D T V L E E I X L P G				
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UniRef90_A1Z1F3	P Q I T F W Q X P X V T X K V I V G G Q Q L R E E A L L X T G A D D T V L E E D I N L P G				
UniRef90_A6MXP0	T L W Q R P V V T V K I I E G Q Q L K E A A L L D T G A D D T V F E E E M D L P G				
UniRef90_Q8AI11	P Q V N L W Q R P M M T V K V Q G Q V C Q A L L D T G A D D T V F C N I K L K G				
UniRef90_A0F4B9	T L W Q R P I I A I R V G G H H L I E A L L D T G A D D T V L E E I I N L P G				
UniRef90_E0YGS2	T L W Q R P L V T V K V G G H E L T E A L L D T G A D D T V I E E D I N L P G				
UniRef90_A0F2J4	T L W Q R P I V T I R I I G G Q Q L K E A A L L D T G A D D T V F E E E I N L P G				
UniRef90_W0NWR9	T L W Q R P L V T I X X G G X L K L K E A A L L D T G A D D T V L E D X X X X G				
UniRef90_Q98Y98	P Q I N X X Q X X P I V T I K I I G G Q Q V R E E X X D T G A D D T V X E D I N X P G				
UniRef90_B2M66	P Q I T L W Q R P V V T V K I I G G X X X E E A L L D T G A D D T V L E E D X N L P G				
UniRef90_C8B442	P Q I T L W Q R P X V T I K I I G G Q Q L K E A A L L D T G A D D T V L E E E M N L P G				
UniRef90_A0F2Z8	P Q I T L W Q R P F X X V X V I I G G Q Q V R E E A L L D T G A D D T I F E E E I N L P G				
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UniRef90_A0F0W3	P Q I T L W Q R P I I S I K I I G G Q Q V M E A L L D T G A D D T V L E E E I N L P G				
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P	F	N	V	I	G	R	N	M	M	T	Q	I	G	C	T	L	N	F		
P	A	N	I	I	G	R	N	L	L	T	Q	X	G	C	T	L	N	F		
P	V	N	V	I	G	R	N	V	L	T	Q	I	G	C	T	L	N	F		
P	V	N	I	I	X	R	N	L	L	T	Q	I	G	C	T	L	N	F		
P	V	N	I	I	G	R	D	L	M	T	Q	L	G	C	T	L	N	F		
P	V	N	V	I	G	R	N	L	M	T	R	I	G	C	T	L	N	F		
P	C	N	I	V	G	R	N	L	M	T	Q	I	G	C	T	L	N	F		
P	V	N	I	I	G	R	D	M	L	T	Q	L	G	C	T	L	K	F		
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P	V	B	I	I	G	R	D	L	M	T	Q	L	G	C	T	L	N	F		
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P	V	N	V	I	G	R	G	M	L	T	Q	L	G	C	T	L	N	F		
P	V	N	V	I	G	R	N	L	M	T	Q	L	G	C	T	L	N	F		
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 UniRef90_A8JQ38
 UniRef90_Q09RP4
 UniRef90_A8JQB5
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 UniRef90_Q08GQ0
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 UniRef90_UP10004411C7
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 UniRef90_P11283
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50 60 70 80

K W K P K I V G G I G G F V X V K Q Y D N V P I E I C G H K A G S V L I G P T
 R W T P K I I G G I G G F L R V R Q Y E Q V P I E X C E H X V I G T V L X G P T
 K W K P R I V G G I G G F I R V K Q Y D Q I T L E F C G L K V I T T V V V G P T
 K W K P K M I G G I G G F I K V P R Q Y D Q I T P I E I C G K K G C R Y S V S R T H
 X W K P K M I G X I G G F I K V R Q Y Z Q V T X E I X G H K A I G T V L V G P T
 K W K P K I X G G I G G F I K V R Q Y D Q X X E I C G H K T X X T V L I G P T
 R W K P T M I G G I G G F I K V R Q Y E Q I P I E I C G H K T V T G A V L G P T
 H W K P K M I G G I G G F I K V R Q Y D Q I N I E I C G H K T V T G T V L I G P T
 R W K P K I I G G I G G F V R V K Q Y D Q I P I E I C G H K V I G T V L I G P T
 R W K P K I V G G I G G L M K V R Q Y E Q V P V E I C C G H K I T A T V L I G P T
 R W K P K M I G G I G G F I K V K Q Y D Q I T I E X C G H K A T G T V L V G P X
 R W T P K M I M G I G G L V K V K E Y X N V T V E I E G R K V X G T V L V G P T
 R W K P R M I G G I G G F I X X X X X X X X V T V D I C C G H K V I G T V L I G P T
 X W K P N X I G G I G G X V X V R Q Y D X V T V D I C C G H K A V G T V L V G P T
 K W K P K M I V G I G G F T K V R Q Y D N I Q I E I C C G H K A T G A V L V G P T
 S C N P R T I G G I G G F V P Q E Y Y N V P I T I A G K T V K T K V L I G P T
 R W K P K I X G G I G G F V K V K Q Y D Q V X V E I C C G K K T L G T V L V G P T
 K W T P K I I G G I A G F V X V R Q Y X Q V P I E I X G H X V L A T V V V G P T
 K W K P K X I G G I G G F I K V R Q Y D Q V S I E X C G H K I I G T V L I G P X
 X W K P K X X G G I G G F L K V R Q Y D Q I L E I C C G H K V I X T V L V G P T
 R W K P K I X G G I G G X V K V R Q Y D Q I P I E I C C G H K V I G T V L V G P T
 X W K P K M I X X R S F I K V K Q Y D Q I P I E I D X H K A I X T V L I R P T
 R W K P K X I G G I G G F L K V R Q Y D Q I C I E I Y G H K X I G T I L V G P T
 K W K P R M I G G I G G F A K V R Q Y D Q I P I E I C C G H K V I S T V L V G P T
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 R W T P T M I G G I G G F I T V R Q Y A Q I L T E P G K P A L G T V L V G P P
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 R W K P K M I G G X G G F I K V R Q Y D Q I T V E X C G N K V R G T V L V G P T
 N Y T P K I A G G I I G G F I N V X E Y K N V K I E V L G K R I R T T L M V G D T
 K X K X K M I G G I G G F I X X R Q Y D Q L X I E I C C G K X A X G T V X V X X X
 X W K P K X I G G I G G F I K V R Q Y D Q X P I E I C C X H K X G V X L I G P T
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 X W K P K X I G G I G G X I K V X Q Y D Q V C V E I C C G X K A I G T V L V G P T
 K W K P K M I G G I G G F I K V R P Y D Q I L I E I C C X H K A I G T V L V G P A
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 R W K P R M I G G I G G F I K F G Q F D Q I P I E I C C G H S T V G T V L I G A T
 N W K P R I G G I G G C I N V K A Y H N Q E V K I E D K T C K A T I L V G E T
 D G X P K I X G G I G G L I K V R Q Y D Q I P I E I C C G H K A I C T V L V G P T
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 E W T P K V V G G I G G F L I N V K Q Y K A V K V E F N D K R I I A T V L L V G P T
 R W K P K M I G G I X X F I K V R Q Y D Q I P I E I X X H K A I G X V L V G P T
 G W K P K V I G G I G G F I K V R Q X D Q I L I Q I C C G H K A I R T V L I G P T
 P W T P K T V G G I G G L I Q V K E H R H V E V I F N E K R I K A T V L V G P T
 R W K P K V I G G I G G F I K V R Q Y D Q I L I E I C C G H I A G T V L L G P T
 R W K P K M I G G I G G F V K V K Q Y D Q I P I E I C C G H K I I G T V L V G P T
 X X K X X M I G G I G G F I X X R E X D X I L I E I X G K K A I G T V X V G P T
 P K M I G G I G G F I K V K Q Y E Q I L I E I C C G K K A I G T V L V G P T
 K W K P K M I G G I G G F I K V K I E V L G K V I R E T L M T G D T
 G Y T P R I V G G I G G F I N T K E Y R T V K I E V L G K V I R E T L M T G D T
 R W K P K M I G G I G G F V K V K Q Y D Q V C I N F V A K K A I G T V L V G
 V W Q P K M I G G I G G F I K V R Q Y V Q V I I E L K L M D K V A D T V L V G P T
 G W I P K T V G G I G G Y I N V Q A Y P G I E I X G X K A X G T V L V G P T
 I X K P R M I G G I G G F I K V K X Y Q X I P X E I C C G H K X I S A V L V G P T
 R W K P K G G I G G F I K V R Q X D Q V H I E I C C G H K R A I G T V L V G P T
 K W T P K M I G G I G G F I K V K E Y H N V T V Q I E G K E V Q G X V L V G P T
 K W K P K M I G G M G G F I K V K Q Y D Q I A I E I C C G K R A I G T V L V G P T
 K W K P K M I G G I G G F I K V R Q Y D Q I P I E I C C G H K A I G
 R X X X K I G G I G X F I K V R Q X Y D Q I A I E I C C G X K V I S T V L V G X T
 K W K P R X I X G X G G F I X K V R Q X E E I P I E I X G K K A I G T V L V G P T
 N Y T P K I V G G I G G F I N T K E Y E N V E I X V L N K X V R A T I M T G D T
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 K W R P K M I G G I G G F I K V R Q Y D Q I L I E I C C G N R A I G T V L V G P T
 R W K P K M I G G I G G F I K V R Q Y X H R S X E I C C X H K A I G T V X V G P X
 R W K P K M I G G I G G F V K V R Q Y D Q I L I E I C C G
 R W X P K X X G G X G G F I K V R Q Y E Q V X L X I X G H K X G V V V G X T
 S D K S A W V Q G A T G G K R Y R W T T D R K V L A T G R V S H S F L V P D C C
 K D K K S W V M G A T G Q Q Y P W T T R T V D L G V G R V T H S F L V I P D C C
 A N K K S W V Q G A T G M S Q Y S W T T Q R T V D L G M G Q V S H S F M V I P C C
 D W P V V Q L R G L G F E Q A P S Q S S R K L K W Q D G H M G E F I P Y V L D L
 S S R T S W V Q G A T G R K M H K W T N R T V N L G Q G M V T H S F L V P E C C
 S E K S S W V Q E A T R I K K Y P W T T Q R T V D L R T G K V T H S F L V P D S
 N Y S X K I V G G I G G F I N T K E Y K N V E I K V X G X K A I G X V X V I T
 X W X P K M I G R I G A F I K V K Q Y D X X T I E X G X K A I G X V X V I T
 H W P L T A L R G I Q G S N N P Q V S S R V L R W K D K E G N Q G T V V L P G L
 T W P K Q M I Q G L Q G T T N P E Q S S S L T L W K D K D G H T G P Y I L P Y L
 S K E S V A I I G A T G N I N Y P K S E G R L V D L R G L V T H S F L V I P E C C
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 UniRef90_UP10004411C7
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 A W P T T H L S G I Q G V N H T L Q S S K F L T W R D A E G N T G T Y V K G L
 G S K R T L V M G A T G S K L Y P W T T K R S L K I K K A K X X S F L V I P E C C
 N W P I S S L Q G L L G M A C G V A R S S Q P L R W Q H E D K I I H P F V I P T L
 UniRef90_UP10001CE20A5
 S W L L Q T S V G L G T A V A P S R S A H V L D W Q D G N K G K V Q P Y V C T V

90

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

UniRef90_UPI0004438186
UniRef90_Q2VF30
UniRef90_L0MXJ8
UniRef90_UPI000274099E
UniRef90_UPI00045DEFE5
UniRef90_Q6SP59
UniRef90_Q9DKV8
UniRef90_UPI0004444D79

Sequence alignment of the SARS-CoV-2 spike protein across various strains. The alignment shows the positions of the N-glycosylation site (red box), the furin cleavage site (blue box), and the receptor-binding domain (yellow box). A red arrow points to a highly conserved residue at position 314. The alignment includes positions 10, 20, 30, and 40.

lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm

	50	60	70	80
UniRef90_UPI0004438186	S K Q K T W V Q G A T G M K Q Y S W T T Q R T V D L G K G L V S H S F M L P K C			
UniRef90_Q2VF30	S M D S I Q V V G V S G R P E T Q L K T Q P L L F R W G P S T H Q F L Y C P N C			
UniRef90_LOMXJ8	N W P T T N L R G I G Q S N N P R Q S S K Y L T W K D K E N N T G P F I I P N L			
UniRef90_UPI000274099E	K W P V T T S I M G V G G L S Q P F R S A T I L H W E D E E G A T G P Y V M Q Y L			
UniRef90_UPI00045DEFE5	S S K T S I V Q G A T V A K Q Y H W T M Q R Q V N L G T K Q V S H S F L V P D C			
UniRef90_Q6SP59	N P A G R I L Q G I G G I V E G E K W T N V I L E Y K G E R K K G T I V V L P T			
UniRef90_Q9DKV8	I P N G R I L L Q G I G G I V E G E K W N K V P M T Y K G E T S C P S L V V R D S			
UniRef90_UPI0004444D79	D N K Q S W V Q G A T G K K I Y K W T T K R R V N L S T G Q V T H S F M V I P C			
UniRef90_Q9JAA5	N W P L T H O E I C Y A S N P K P S S K L I T W P D E F E K S C P Y V M S N L			

lupas_21
lupas_14
lupas_28
jnet
conf
sol25
sol5
sol0
jhmm
jpssm

UniRef90_UPI0004438186 S C P | L L G R D | L L S K M G A T | T F
 UniRef90_Q2VF30 P I N | L L G R D | L L C R | G C F | N
 UniRef90_L0MXJ8 P V N | L W G R D | L L S Q M
 UniRef90_UPI000274099E P L N | L W G R D | V L S Q L
 UniRef90_UPI00045DEF E5 P A A L I | G R D | L S K A Q A H | F F
 UniRef90_Q6SP59 P I E V L | G R D | N M A R F G
 UniRef90_Q9DKV8 P V E V L | G R D | N M E A F G | V T | L
 UniRef90_UPI0004444D79 P A P L | L D X D | L L N K V G A R I | H F
 UniRef90_Q9JIA5 P V T | L W G R D | L L S Q M G V I | L

lupas_21
 lupas_14
 lupas_28
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 conf
 sol25
 sol5
 solo
 jhmm
 jpssm

