wwPDB EM Validation Summary Report

Jul 21, 2025 – 05:19 PM EDT

PDB ID	:	9NO1 / pdb_00009no1
EMDB ID	:	EMD-49591
Title	:	Cryo-ET map of the VZV capsid vertex (5-fold axis).
Authors	:	Oliver, S.L.; Chen, M.
Deposited on	:	2025-03-07
Resolution	:	8.30 Å(reported)

This is a wwPDB EM Validation Summary Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references ⓘ) were used in the production of this report:

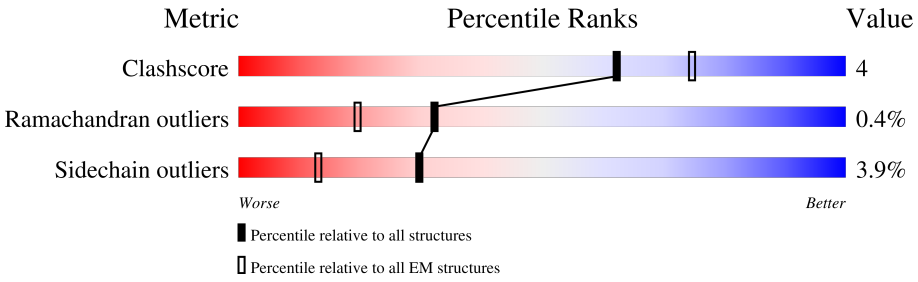
EMDB validation analysis	:	0.0.1.dev118
MolProbity	:	4-5-2 with Phenix2.0rc1
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.44

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 8.30 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	1396	40% 70% 13% 16%
1	B	1396	45% 84% 11% • 5%
1	D	1396	42% 83% 12% • •
1	F	1396	43% 85% 10% • •
1	H	1396	39% 80% 11% 8%
1	J	1396	46% 78% 13% • 8%
1	L	1396	46% 80% 13% • 6%
2	C	235	10% 40% • 57%

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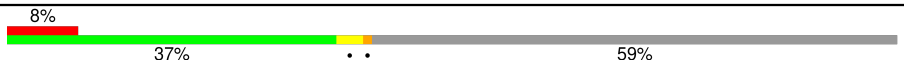
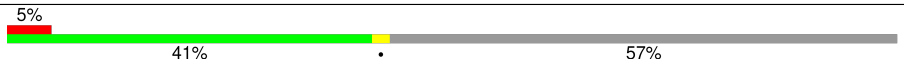
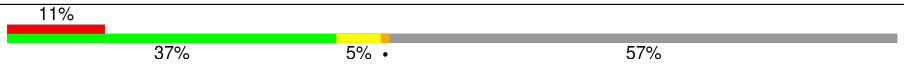
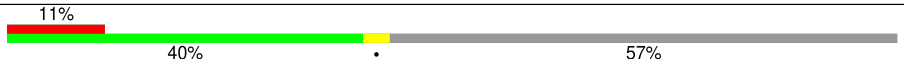
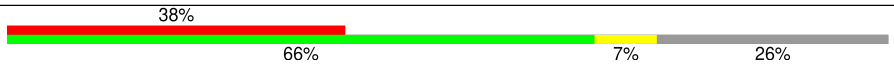
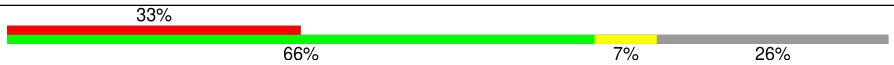
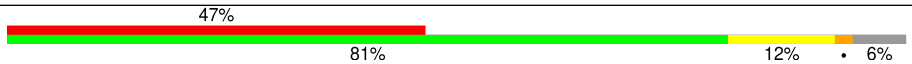
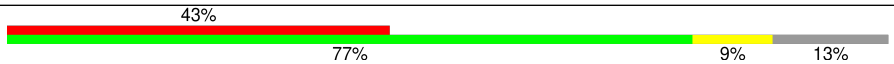
Mol	Chain	Length	Quality of chain
2	E	235	
2	G	235	
2	I	235	
2	K	235	
2	M	235	
3	N	483	
3	Q	483	
4	O	316	
4	P	316	
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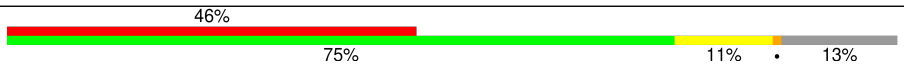
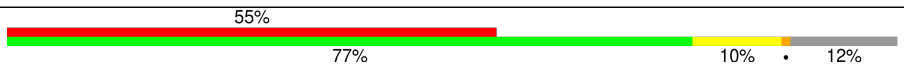
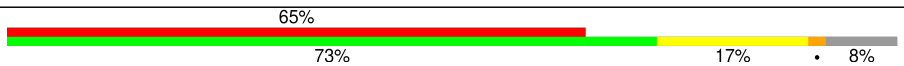
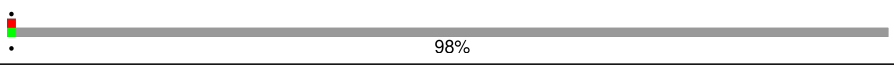
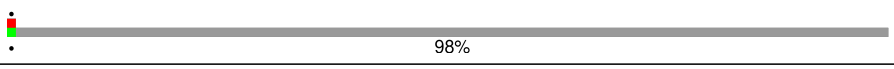
4	S	316	
5	T	676	
6	U	579	
6	V	579	
7	W	2763	
7	X	2763	

2 Entry composition (i)

There are 7 unique types of molecules in this entry. The entry contains 102113 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called ORF40.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1166	Total	C	N	O	S	0	0
			9043	5744	1576	1664	59		
1	B	1332	Total	C	N	O	S	0	0
			10283	6529	1786	1900	68		
1	D	1337	Total	C	N	O	S	0	0
			10245	6510	1760	1909	66		
1	F	1337	Total	C	N	O	S	0	0
			10328	6558	1786	1916	68		
1	H	1281	Total	C	N	O	S	0	0
			9821	6246	1690	1819	66		
1	J	1279	Total	C	N	O	S	0	0
			9850	6242	1714	1829	65		
1	L	1314	Total	C	N	O	S	0	0
			10181	6461	1766	1888	66		

- Molecule 2 is a protein called Small capsomere-interacting protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	C	101	Total	C	N	O	S	0	0
			724	461	123	138	2		
2	E	97	Total	C	N	O	S	0	0
			712	452	126	132	2		
2	G	101	Total	C	N	O	S	0	0
			736	467	129	138	2		
2	I	101	Total	C	N	O	S	0	0
			742	470	132	138	2		
2	K	101	Total	C	N	O	S	0	0
			742	470	132	138	2		
2	M	101	Total	C	N	O	S	0	0
			721	459	122	138	2		

- Molecule 3 is a protein called ORF20.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	N	357	Total	C	N	O	S	0	0
			2767	1753	483	515	16		
3	Q	357	Total	C	N	O	S	0	0
			2770	1754	484	516	16		

- Molecule 4 is a protein called ORF41.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	O	298	Total	C	N	O	S	0	0
			2288	1458	397	422	11		
4	P	275	Total	C	N	O	S	0	0
			2080	1333	354	384	9		
4	R	298	Total	C	N	O	S	0	0
			2288	1458	397	422	11		
4	S	275	Total	C	N	O	S	0	0
			2083	1334	354	386	9		

- Molecule 5 is a protein called ORF43.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	T	593	Total	C	N	O	S	0	0
			4593	2943	782	843	25		

- Molecule 6 is a protein called ORF34.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	U	531	Total	C	N	O	S	0	0
			4200	2636	745	799	20		
6	V	531	Total	C	N	O	S	0	0
			4200	2636	745	799	20		

- Molecule 7 is a protein called Large tegument protein deneddylase.

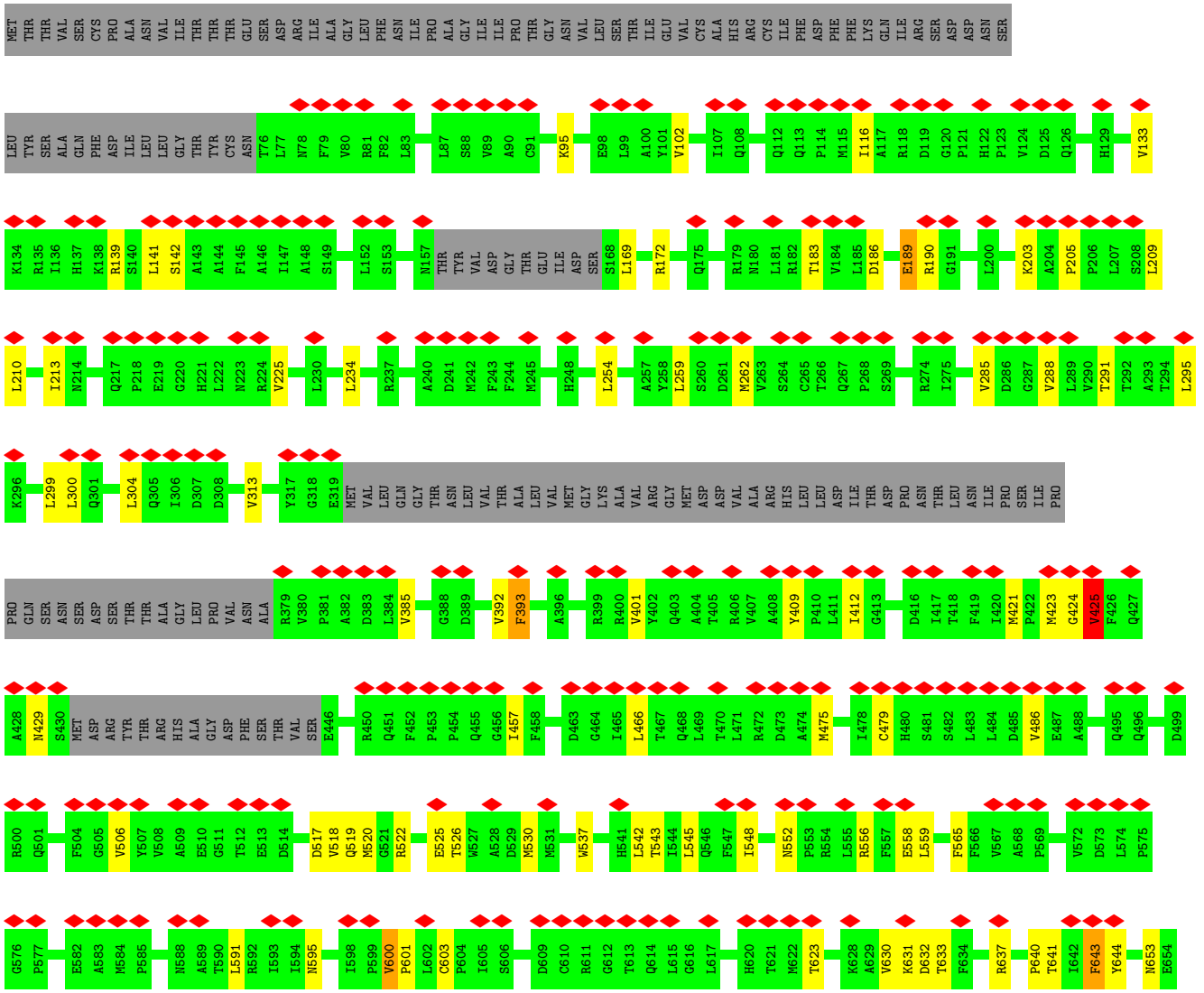
Mol	Chain	Residues	Atoms					AltConf	Trace
7	W	45	Total	C	N	O	S	0	0
			358	228	64	63	3		
7	X	45	Total	C	N	O	S	0	0
			358	228	64	63	3		

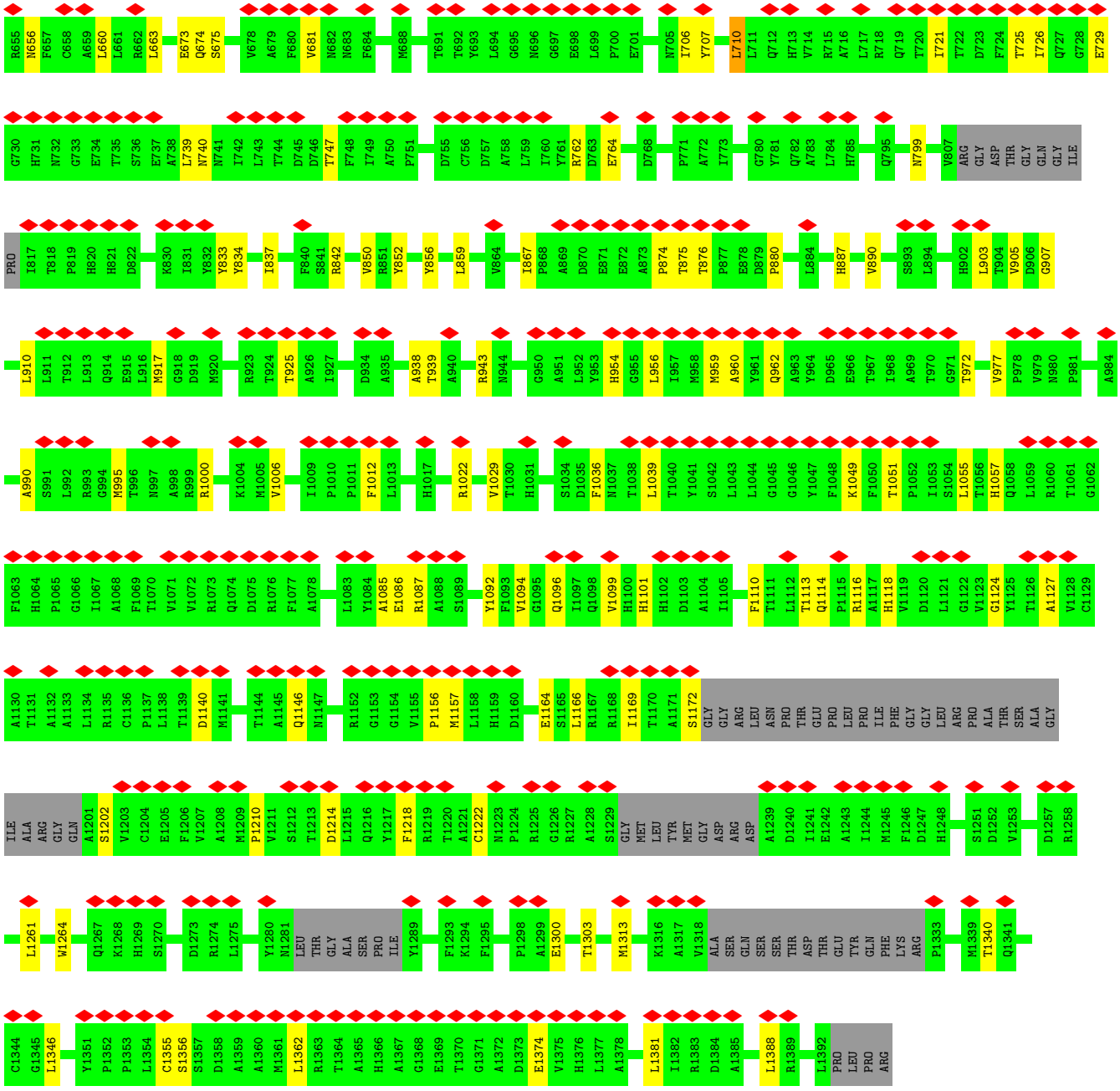
3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: ORF40

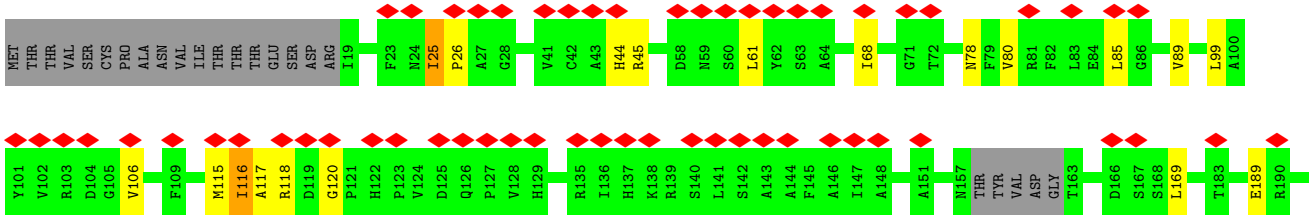
Chain A:

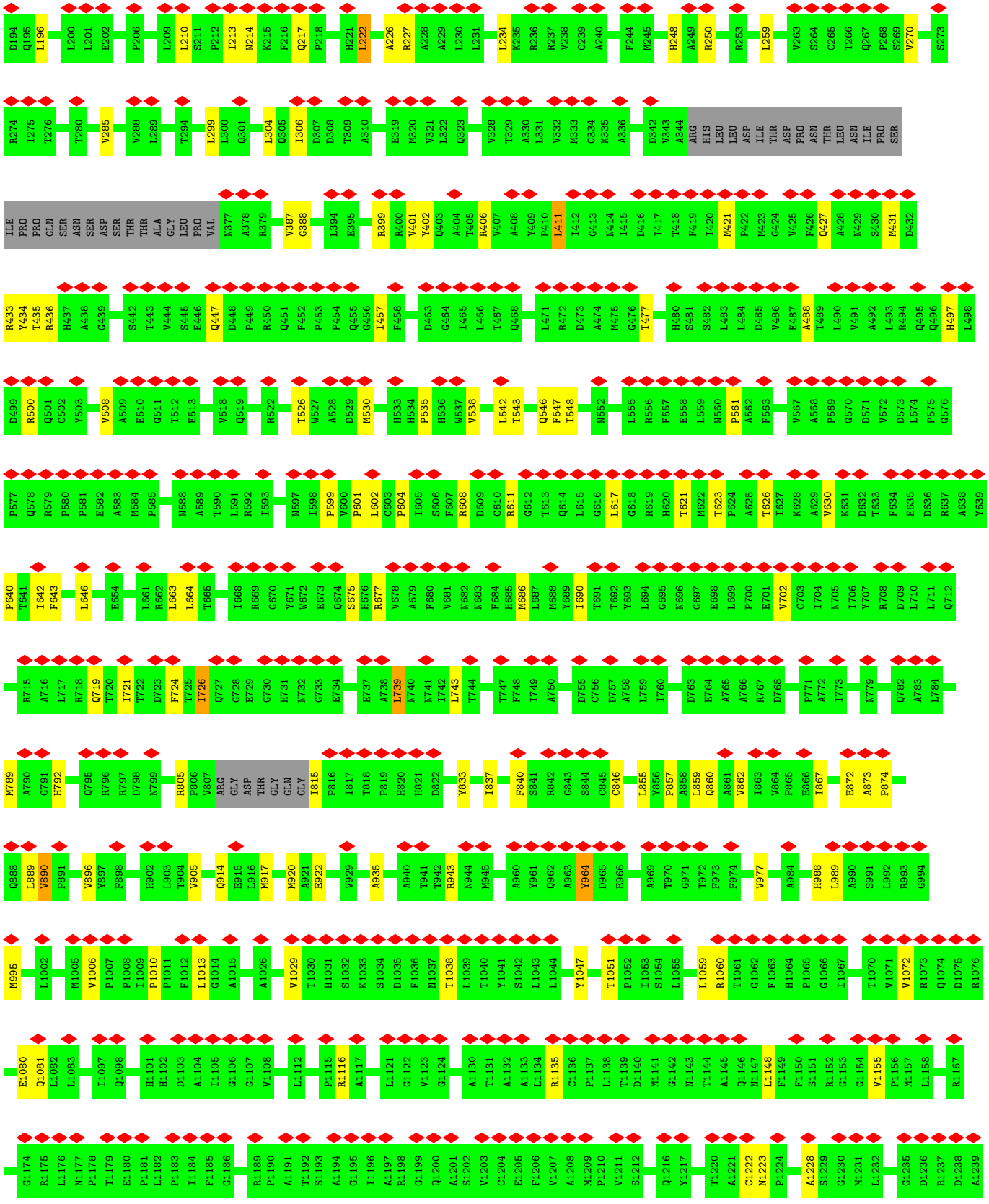


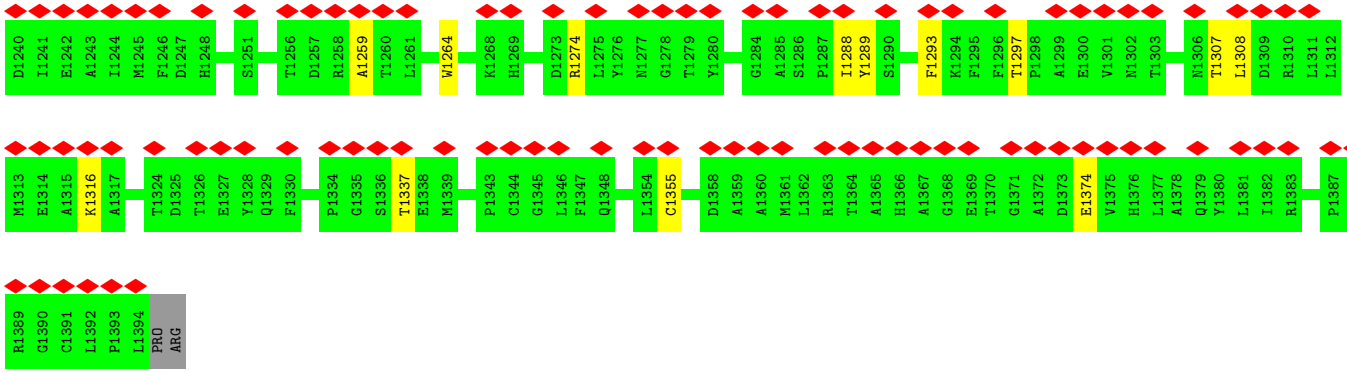


• Molecule 1: ORF40

Chain B:

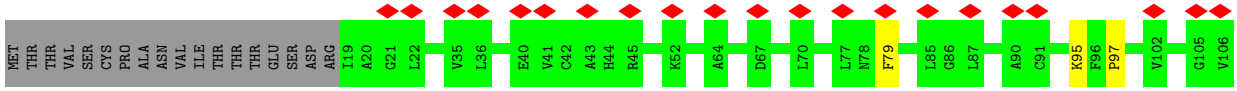


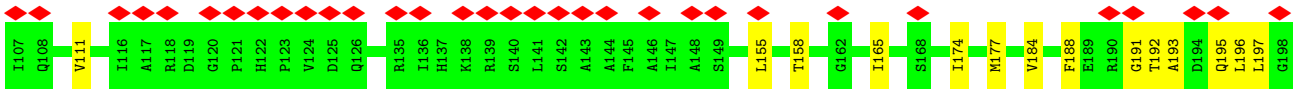

D194 Q195 L196 L200 L201 E202 P206 L209 L210 S211 P212 I213 N214 K215 F216 Q217 P218 H221 L222 A226 R227 A228 A229 L230 L231 L234 K235 R236 R237 V238 C239 A240 F244 M245 H248 A249 R250 R253 L259 V263 S264 C265 T266 Q267 P268 S269 V270 S273
R274 I275 T276 T280 V285 V288 L289 T294 L299 L300 Q301 L304 Q305 T306 D307 D308 T309 A310 E319 M320 V321 L322 Q323 V328 T329 A330 L331 V332 M333 G334 K335 A336 D342 V343 A344 ARG HIS LEU LEU ASP ILE THR ASP PRO ASN THR LEU ASN ILE PRO SER
ILE PRO PRO GLN SER ASN SER ASP SER THR THR ALA GLY LEU PRO VAL N377 A378 R379 V387 G388 L394 E395 R399 R400 V401 Y402 Q403 A404 T405 R406 V407 A408 Y409 P410 L411 I412 G413 N414 I415 D416 I417 T418 F419 I420 N421 P422 M423 G424 V425 F426 Q427 A428 N429 S430 M431 D432
R433 Y434 T435 R436 H437 A438 G439 S442 T443 V444 S445 E446 Q447 D448 P449 R450 Q451 F452 P453 P454 Q455 G456 I457 F458 D463 G464 I465 L466 T467 Q468 L471 R472 D473 A474 M475 G476 T477 H480 S481 S482 L483 L484 D485 V486 E487 A488 T489 L490 V491 A492 L493 R494 Q495 Q496 H497 L498
D499 R500 Q501 C502 Y503 V508 A509 E510 G511 T512 E513 V518 Q519 R522 T526 W527 A528 D529 M530 H533 H534 P535 H536 W537 V538 L542 T543 Q546 F547 I548 N552 L555 R556 F557 E558 L559 N560 P561 A562 F563 V567 A568 P569 G570 D571 V572 D573 L574 P575 G576
P577 Q578 R579 P580 P581 E582 A583 M584 P585 N588 A589 T590 L591 R592 I593 N597 I598 P599 V600 P601 L602 C603 P604 I605 S606 F607 R608 D609 C610 R611 G612 T613 Q614 L615 G616 L617 G618 R619 H620 T621 M622 T623 P624 A625 T626 I627 K628 A629 V630 K631 D632 T633 F634 E635 D636 R637 A638 Y639
P640 T641 I642 F643 L646 E654 L661 R662 L663 L664 T665 I668 R669 G670 Y671 W672 E673 Q674 S675 H676 R677 V678 A679 F680 V681 N682 N683 F684 H685 M686 L687 M688 Y689 I690 T691 T692 Y693 L694 G695 N696 G697 E698 L699 P700 E701 V702 C703 I704 N705 I706 Y707 R708 D709 L710 L711 Q712
R715 A716 L717 R718 Q719 T720 I721 T722 D723 F724 T725 I726 Q727 G728 E729 G730 H731 N732 G733 E734 E737 A738 L739 N740 N741 I742 L743 T744 T747 F748 I749 A750 D755 C756 D757 A758 L759 I760 D763 E764 A765 A766 R767 D768 P771 A772 I773 N779 Q782 A783 L784
M789 A790 G791 H792 Q795 R796 R797 D798 N799 R805 P806 V807 ARG GLY ASP THR GLY GLN GLY I815 P816 I817 T818 P819 H820 H821 D822 Y833 I837 F840 S841 R842 G843 S844 C845 C846 L855 Y856 P857 A858 L859 Q860 A861 V862 I863 V864 P865 E866 I867 E872 A873 P874
Q888 L889 V890 P891 V896 Y897 F898 H902 L903 T904 V905 Q914 E915 L916 M917 M920 A921 E922 V929 A935 A940 T941 T942 R943 N944 M945 A960 Y961 Q962 A963 Y964 D965 E966 A969 T970 G971 T972 F973 F974 V977 A984 H988 L989 A990 S991 L992 R993 G994
M995 L1002 M1005 V1006 P1007 P1008 I1009 P1010 P1011 F1012 L1013 G1014 A1015 A1026 V1029 T1030 H1031 S1032 K1033 S1034 D1035 F1036 N1037 T1038 L1039 T1040 Y1041 S1042 L1043 L1044 Y1047 T1051 D1052 I1053 S1054 L1055 L1059 R1060 T1061 G1062 F1063 H1064 P1065 G1066 I1067 T1070 V1071 V1072 R1073 Q1074 D1075 R1076
E1080 Q1081 L1082 L1083 I1097 Q1098 H1101 H1102 D1103 A1104 I1105 G1106 G1107 V1108 L1112 P1115 R1116 A1117 L1121 G1122 V1123 G1124 A1130 T1131 A1132 A1133 L1134 R1135 C1136 P1137 L1138 T1139 D1140 M1141 G1142 N1143 T1144 A1145 Q1146 N1147 L1148 F1149 F1150 S1151 R1152 G1153 G1154 V1155 P1156 M1157 L1158 R1167
G1174 R1175 L1176 N1177 P1178 T1179 E1180 P1181 L1182 P1183 I1184 F1185 G1186 R1189 P1190 A1191 T1192 S1193 A1194 G1195 I1196 A1197 R1198 G1199 Q1200 A1201 S1202 V1203 C1204 E1205 F1206 V1207 A1208 M1209 P1210 V1211 S1212 Q1216 Y1217 T1220 A1221 C1222 N1223 P1224 A1228 S1229 G1230 M1231 L1232 G1235 D1236 R1237 D1238 A1239

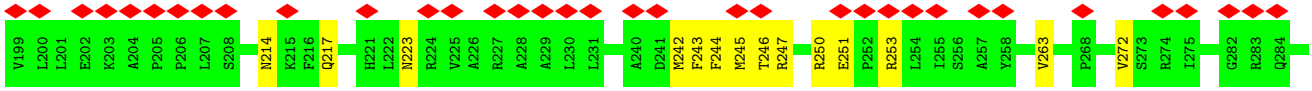


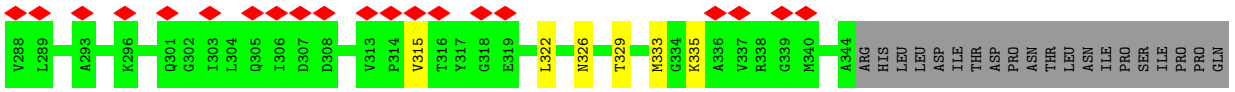
- Molecule 1: ORF40

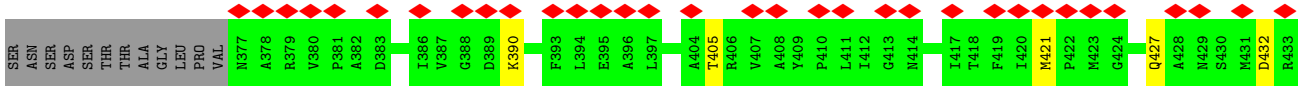
Chain D:

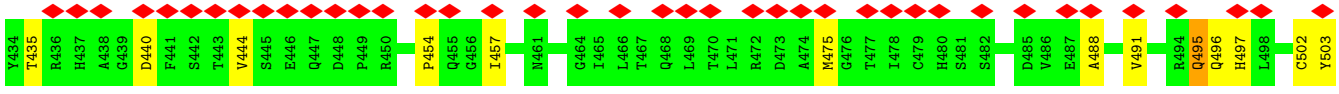


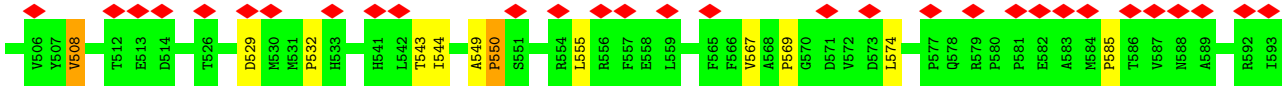


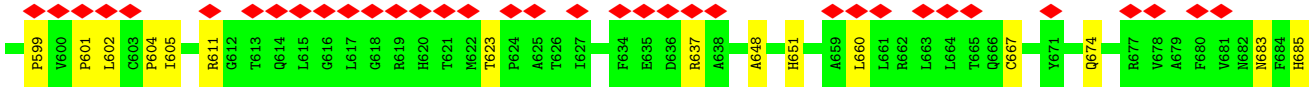


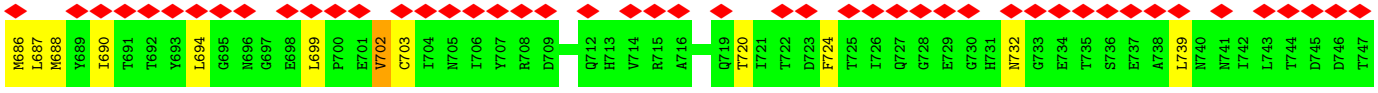


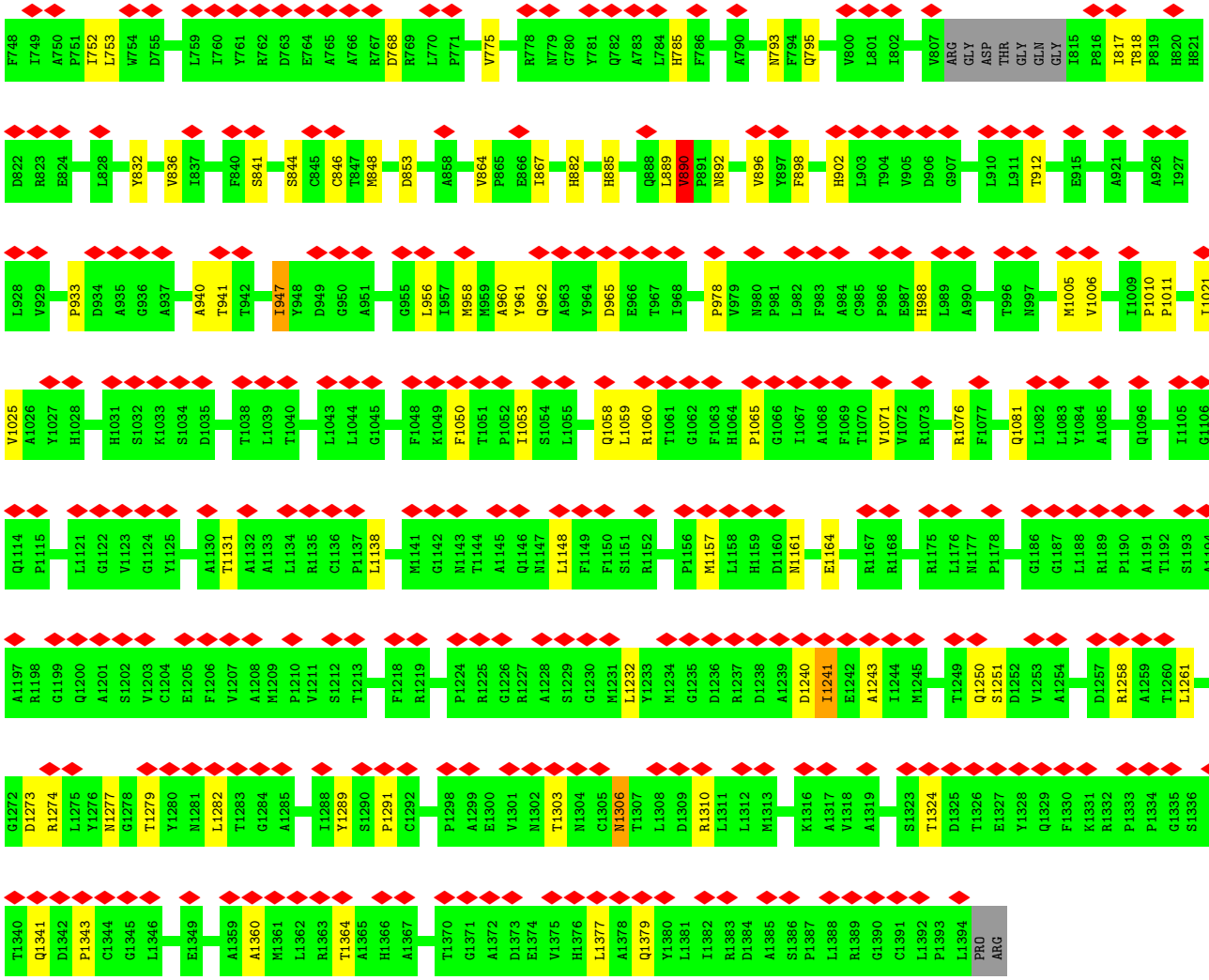






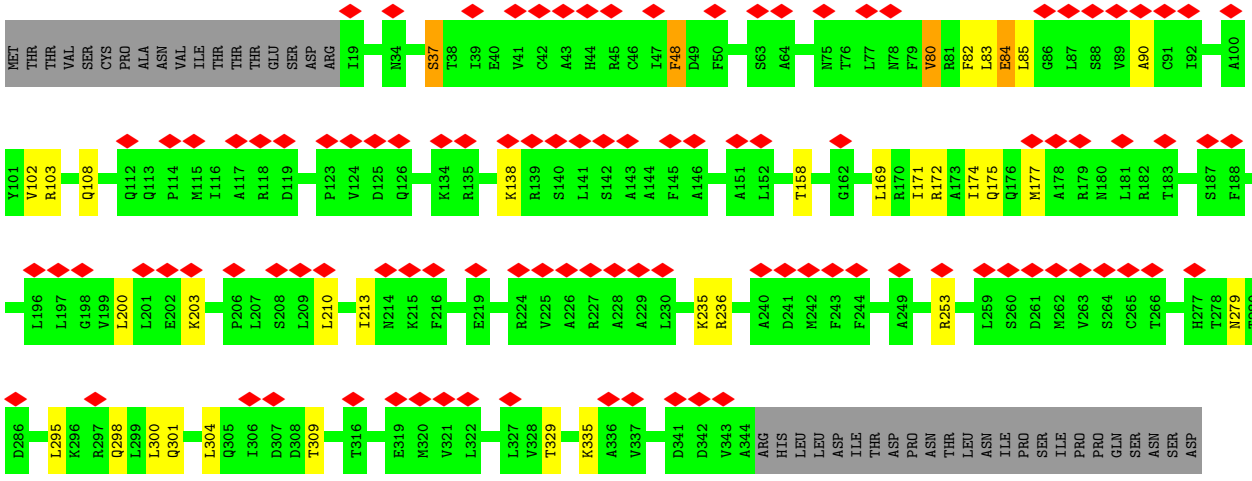


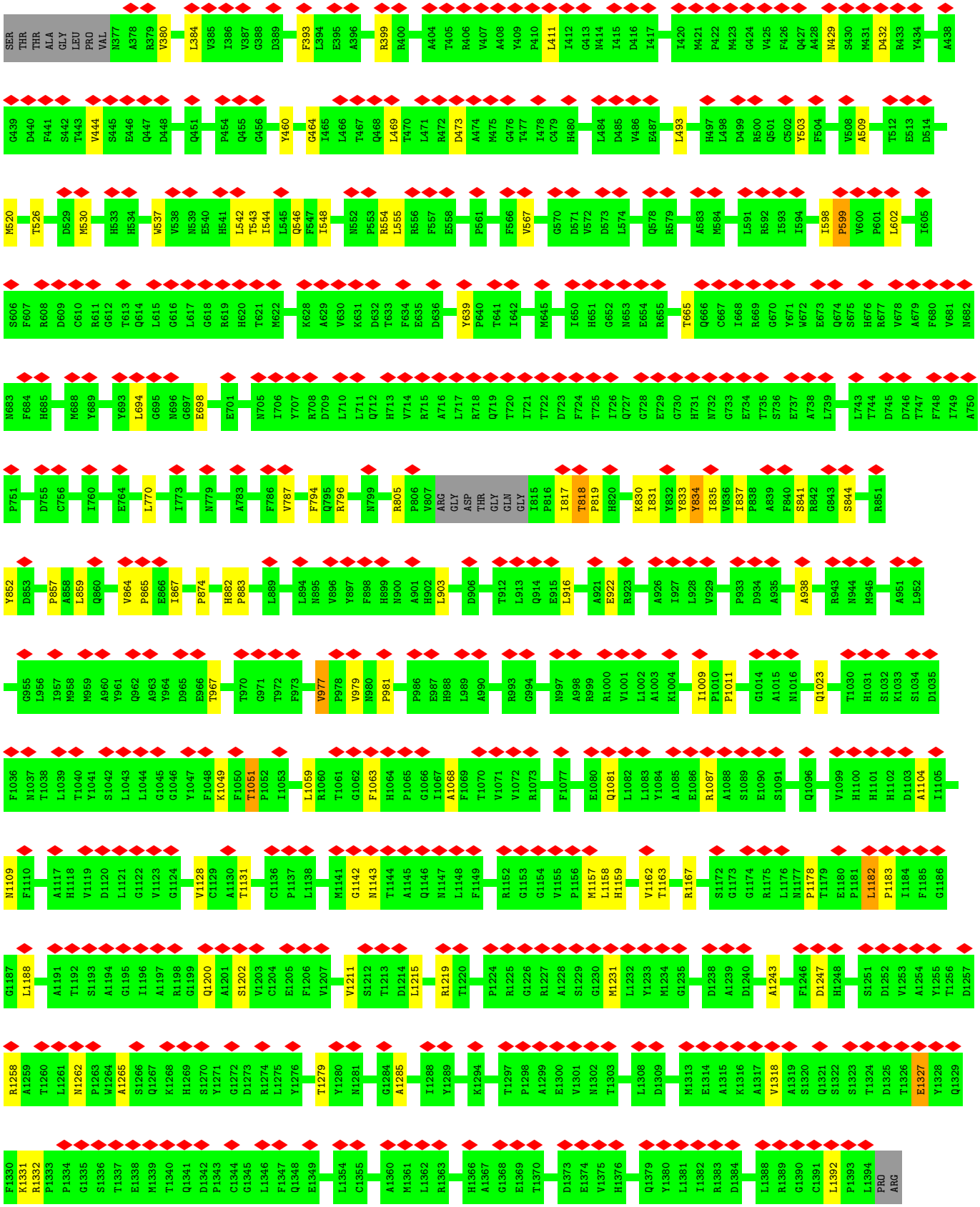




• Molecule 1: ORF40

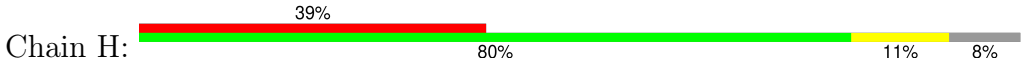
Chain F:





- Molecule 1: ORF40

Chain H:


39%
80%
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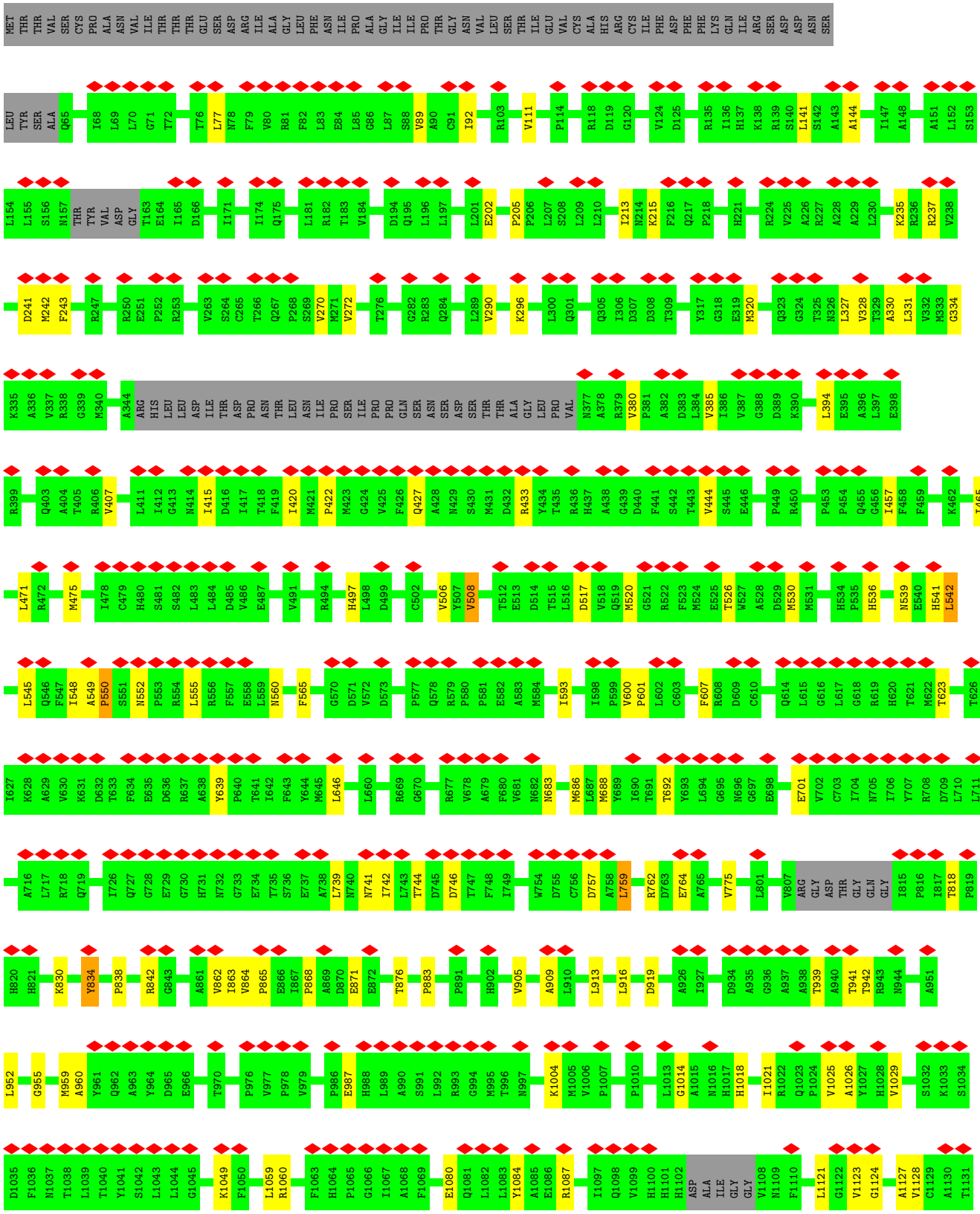
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L154 L155 S156 N157 THR TYR VAL ASP GLY T163 E164 I165 D166 I171 I174 Q175 L181 R182 T183 V184 D194 Q195 L196 L197 L201 E202 P205 P206 L207 S208 L209 L210 I213 N214 K215 F216 Q217 P218 H221 R224 V225 A226 R227 A228 A229 L230 K235 R236 R237 V238
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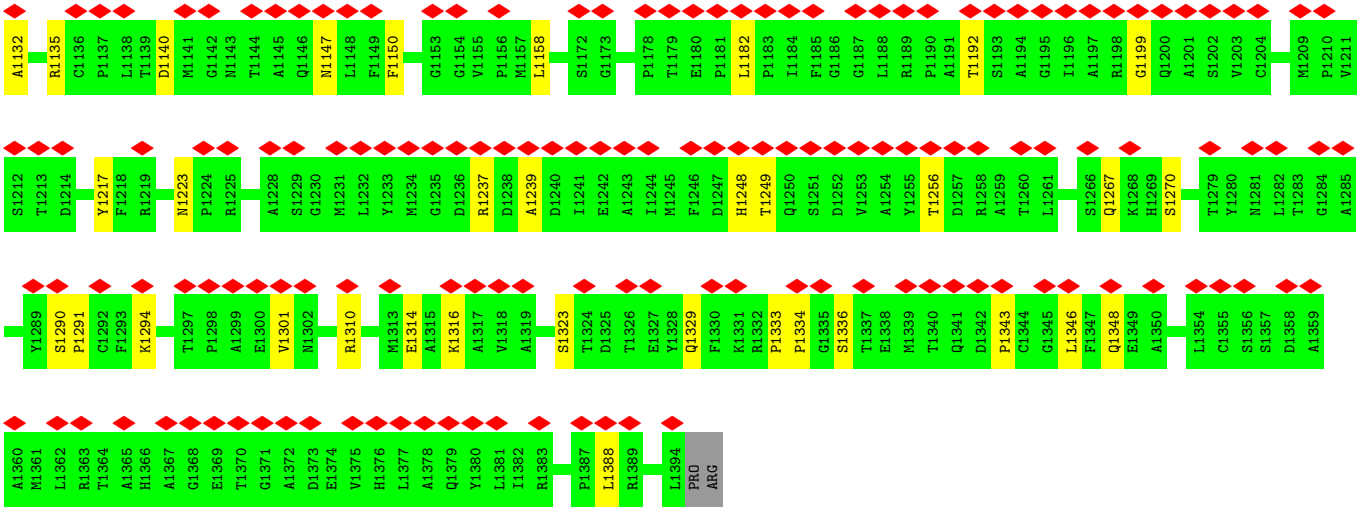

- Molecule 1: ORF40

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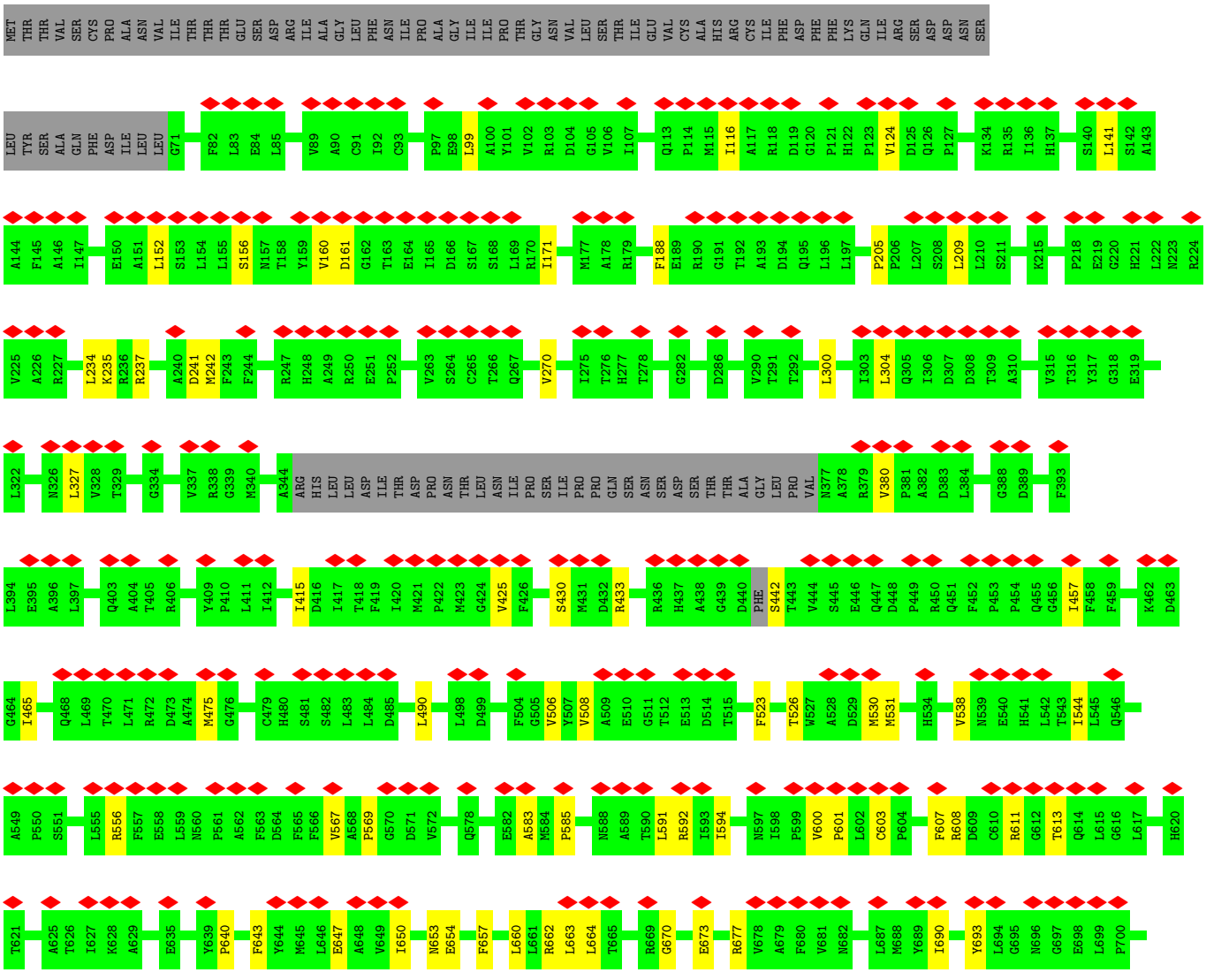

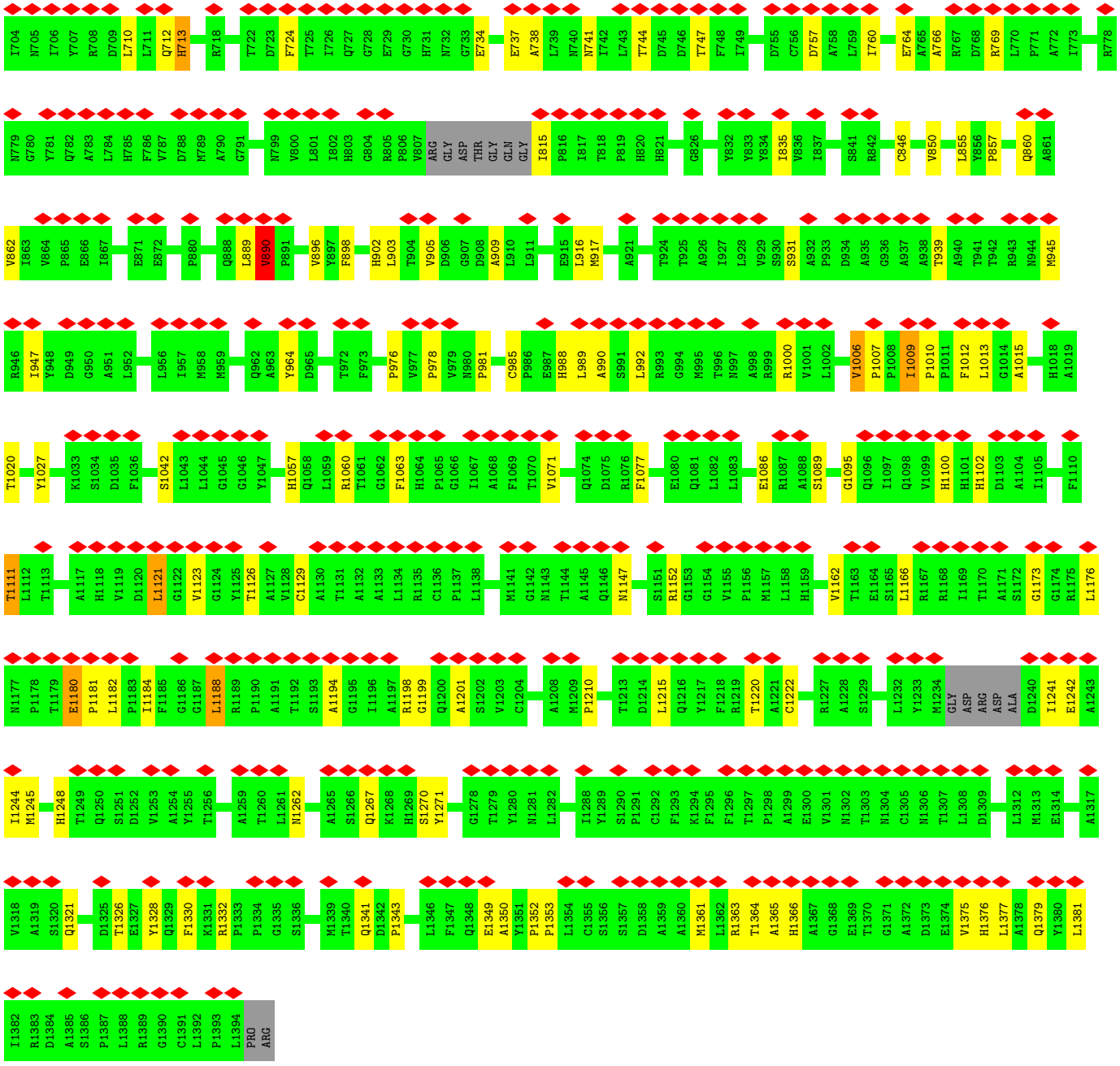

- Molecule 1: ORF40

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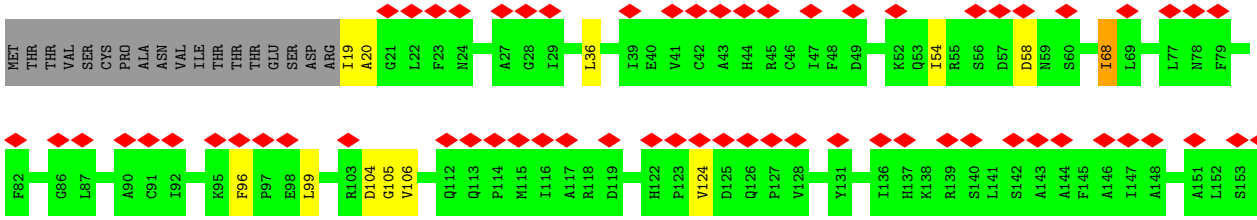

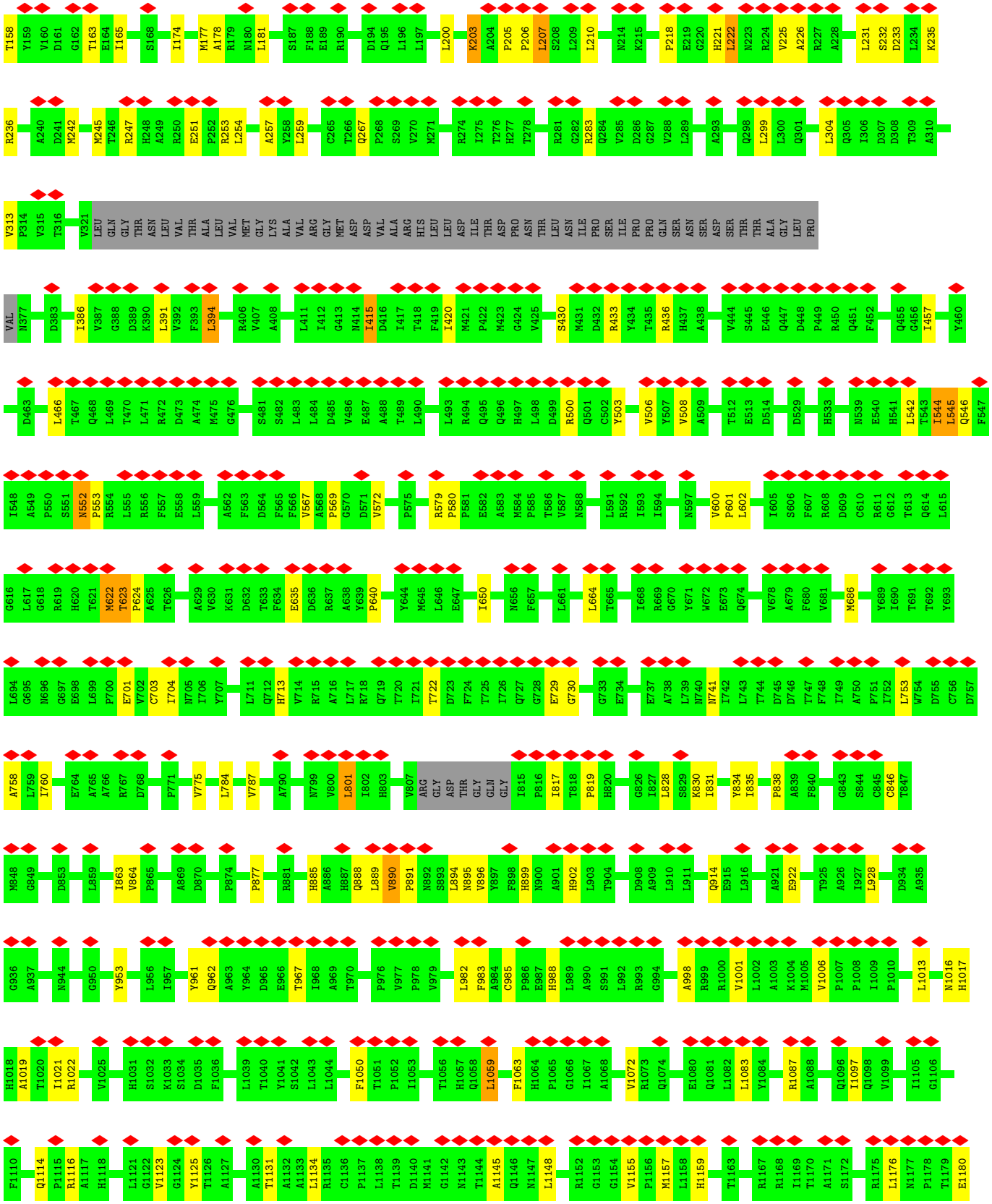
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V313 P314 V315 T316 V321 LEU GLN GLY THR ASN LEU VAL THR ALA LEU VAL MET GLY LYS ALA VAL ARG GLY MET ASP ASP VAL ALA ARG HIS LEU LEU ASP ILE THR ASP PRO ASN THR LEU ASN ILE PRO SER ILE PRO PRO GLN SER ASN SER ASP SER THR THR ALA GLY LEU PRO
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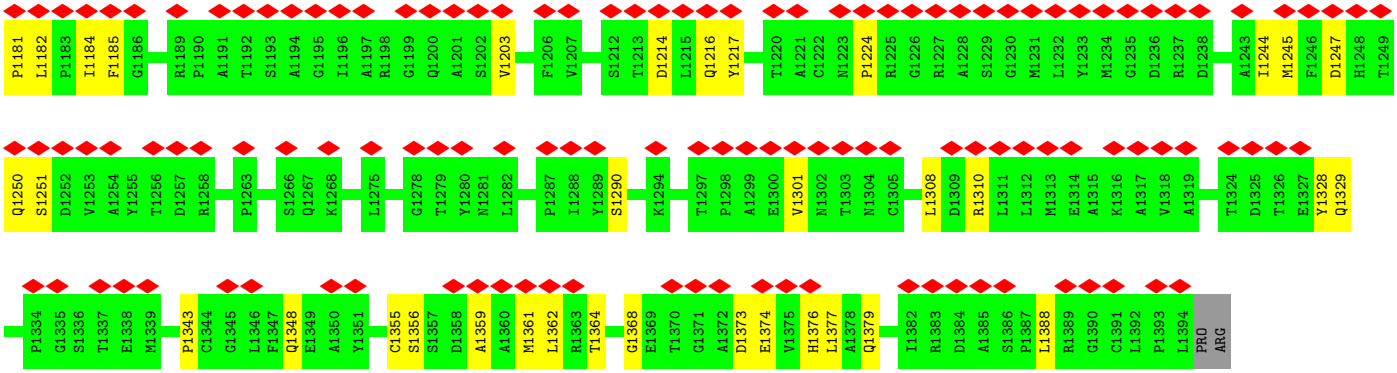

• Molecule 2: Small capsomere-interacting protein

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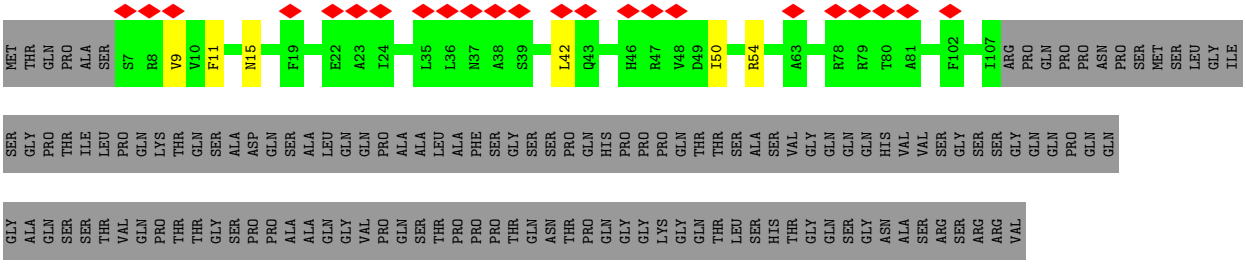

• Molecule 2: Small capsomere-interacting protein

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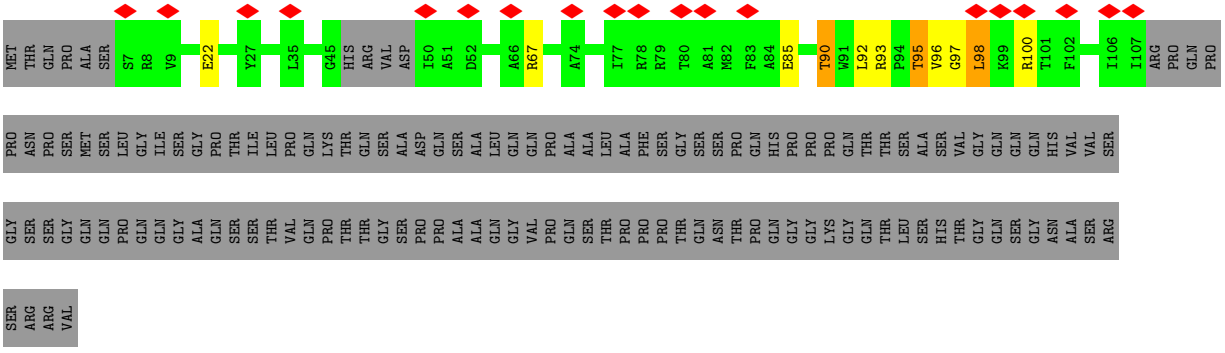

• Molecule 2: Small capsomere-interacting protein

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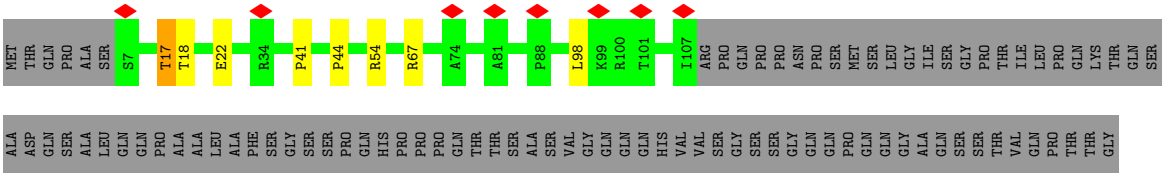
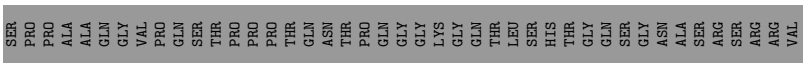
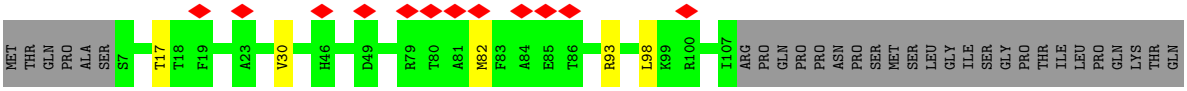
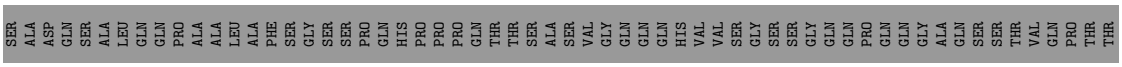


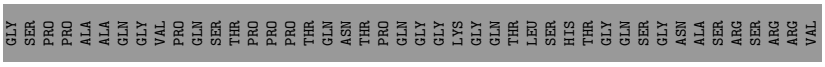


• Molecule 2: Small capsomere-interacting protein

Chain I:







• Molecule 2: Small capsomere-interacting protein

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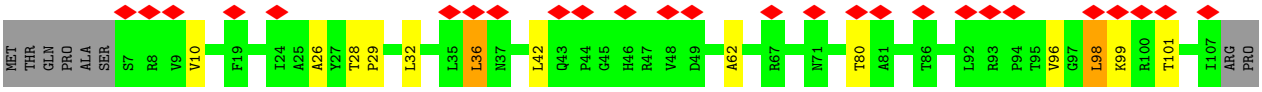

• Molecule 2: Small capsomere-interacting protein

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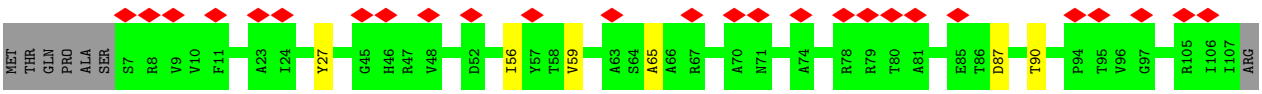

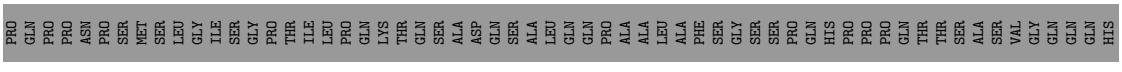

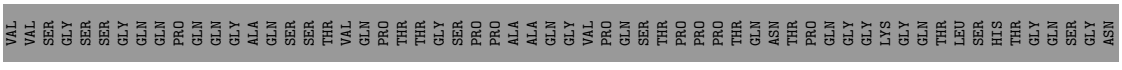

• Molecule 3: ORF20

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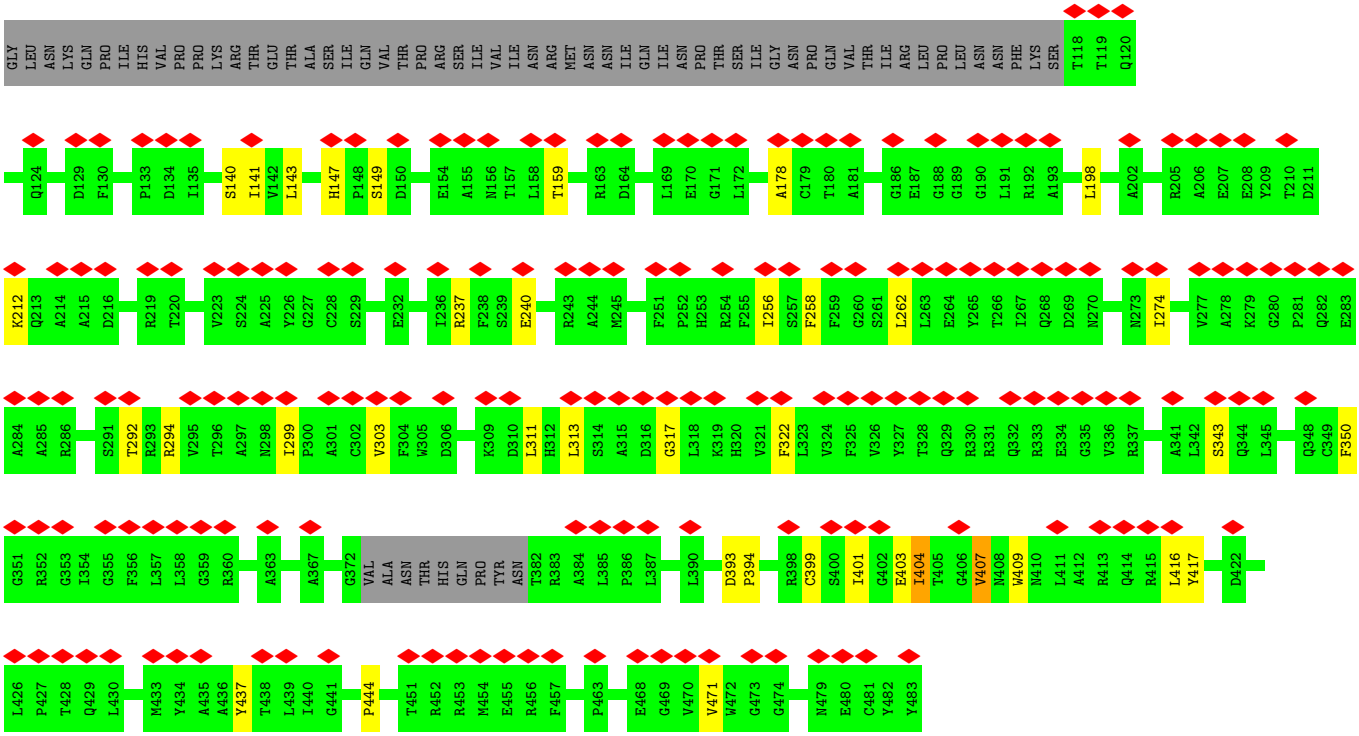
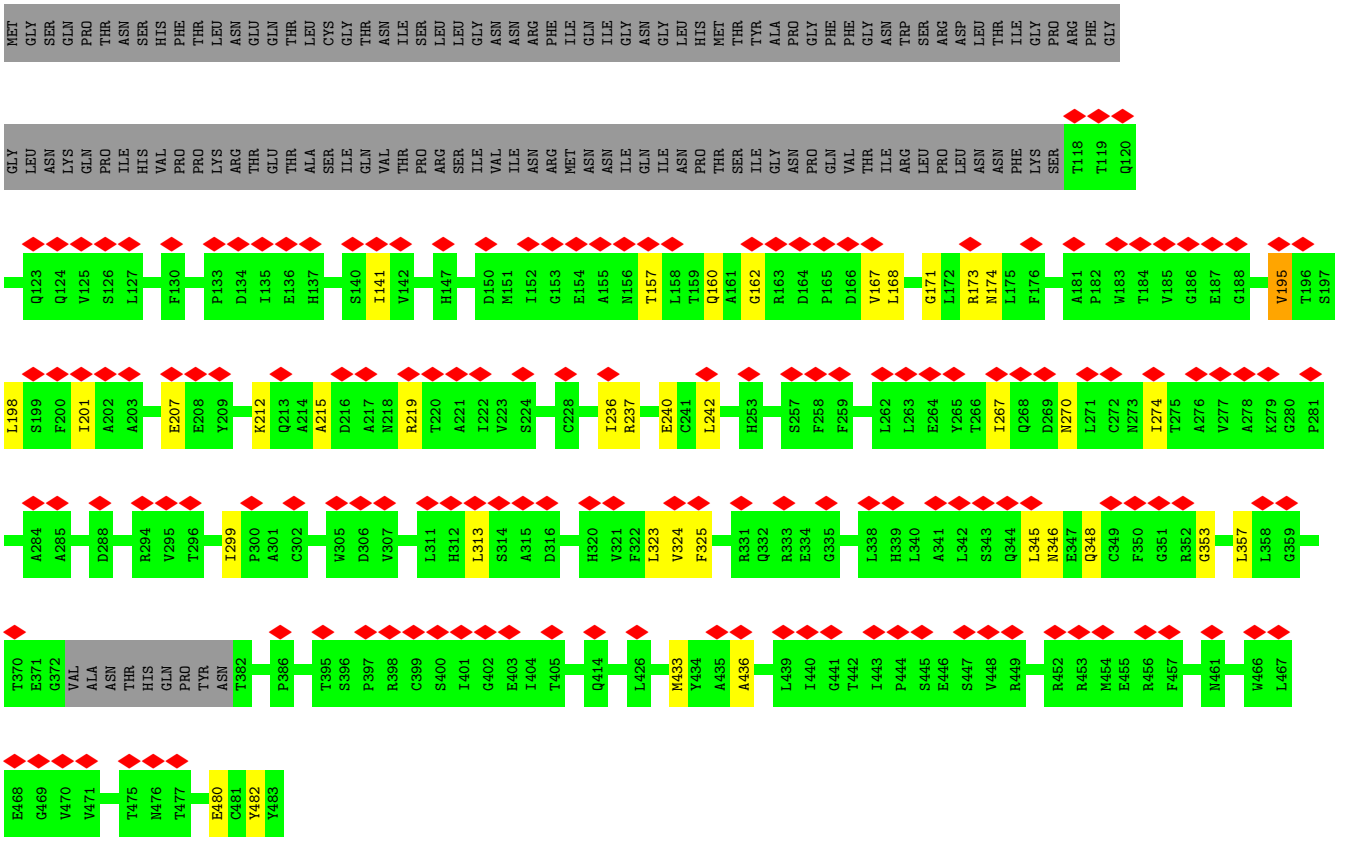


• Molecule 3: ORF20

Chain Q:



• Molecule 4: ORF41

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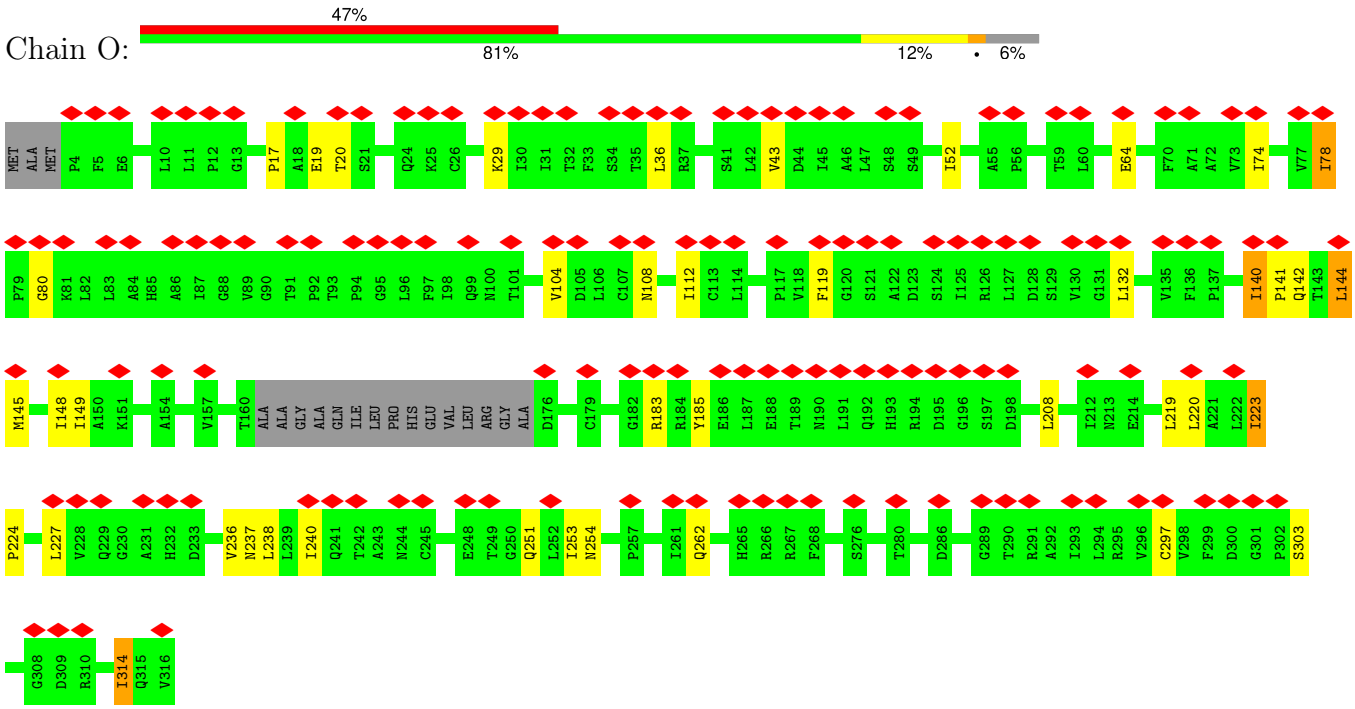

• Molecule 4: ORF41

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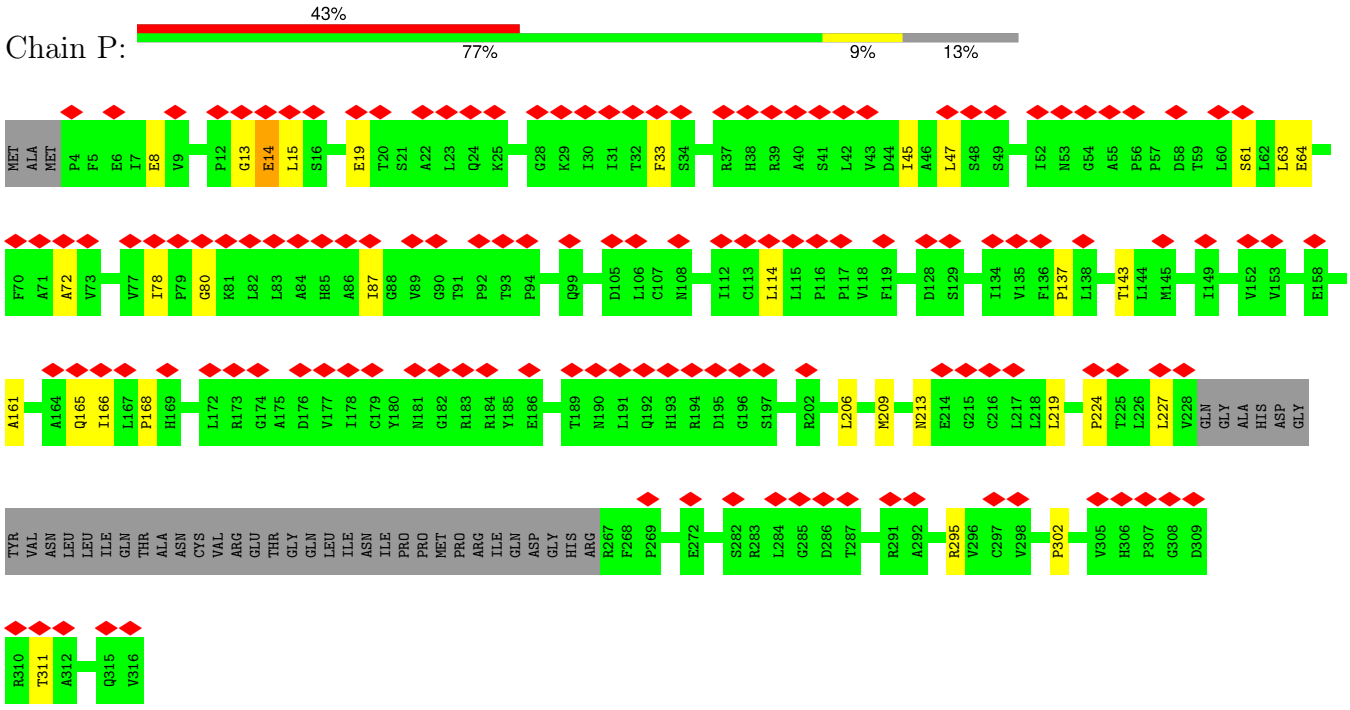

• Molecule 4: ORF41

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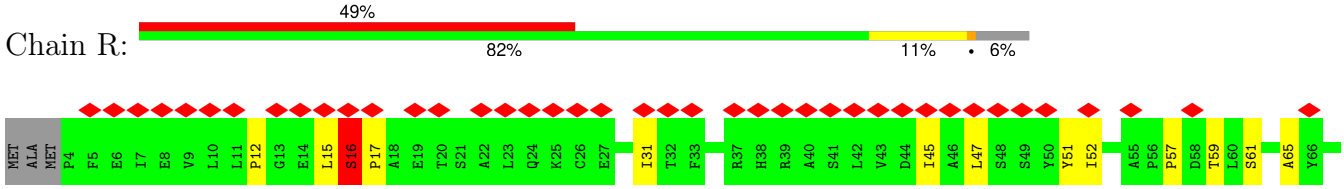

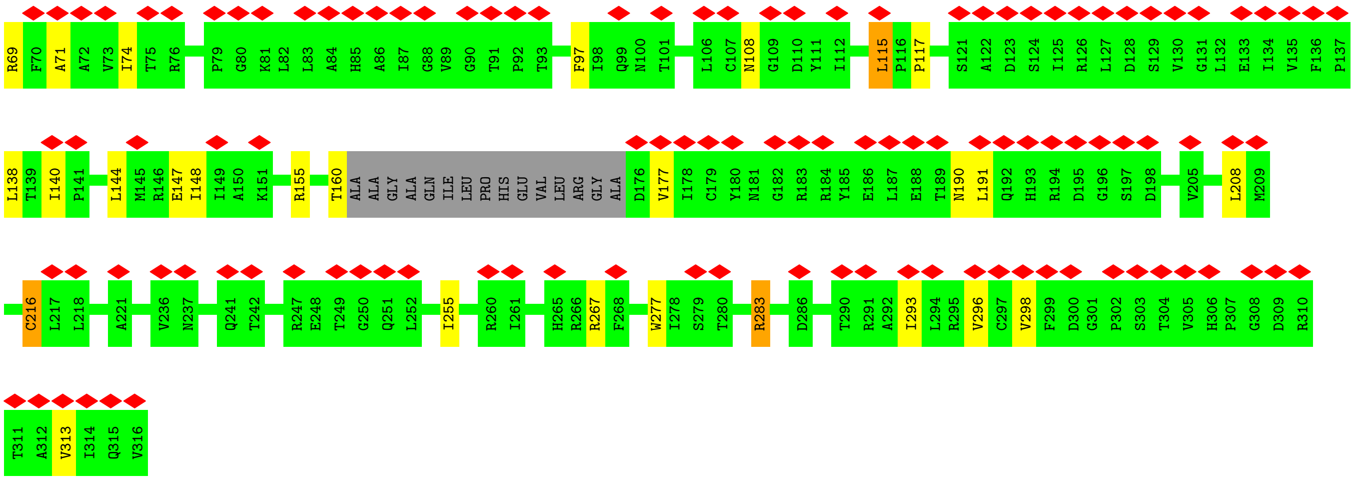

- Molecule 4: ORF41

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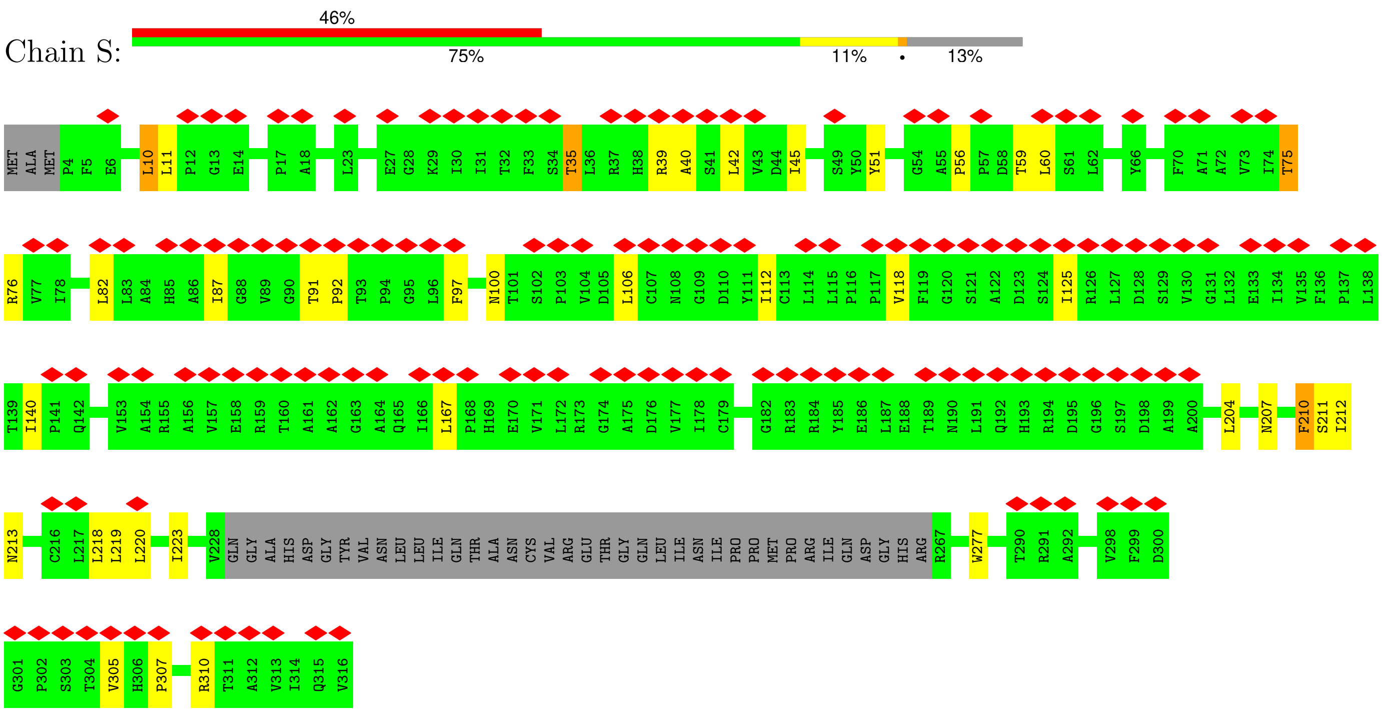

- Molecule 5: ORF43

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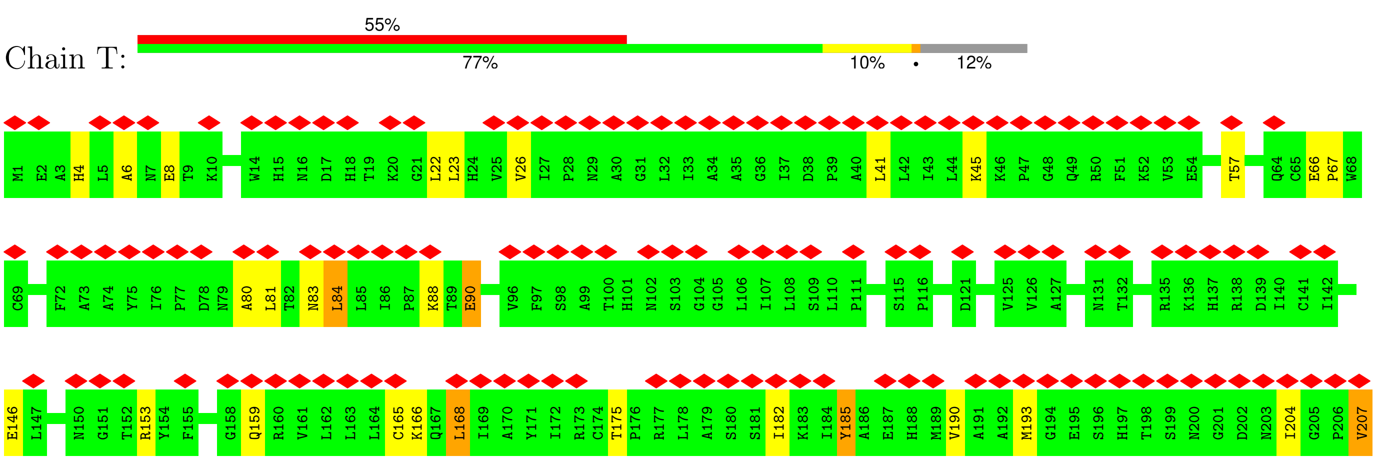
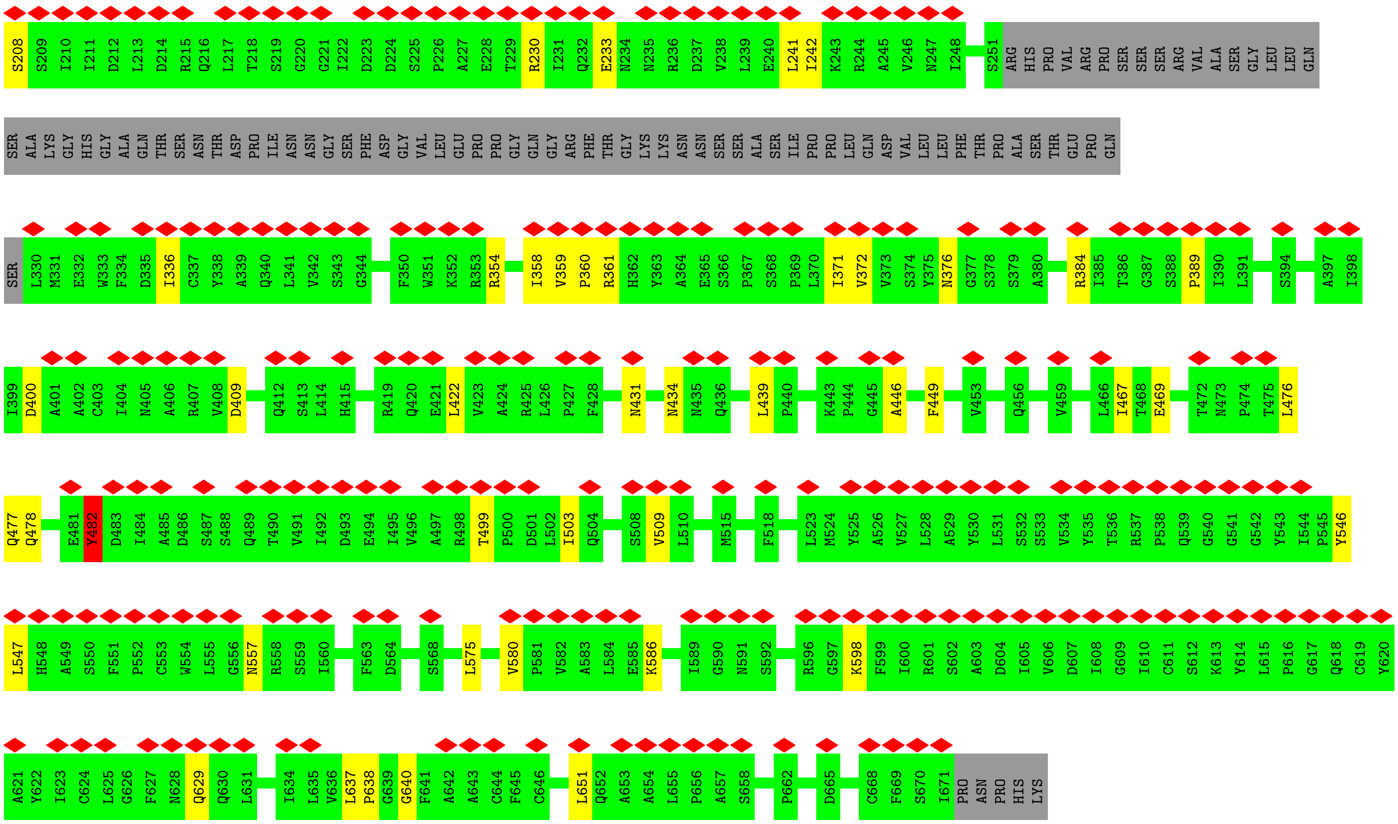
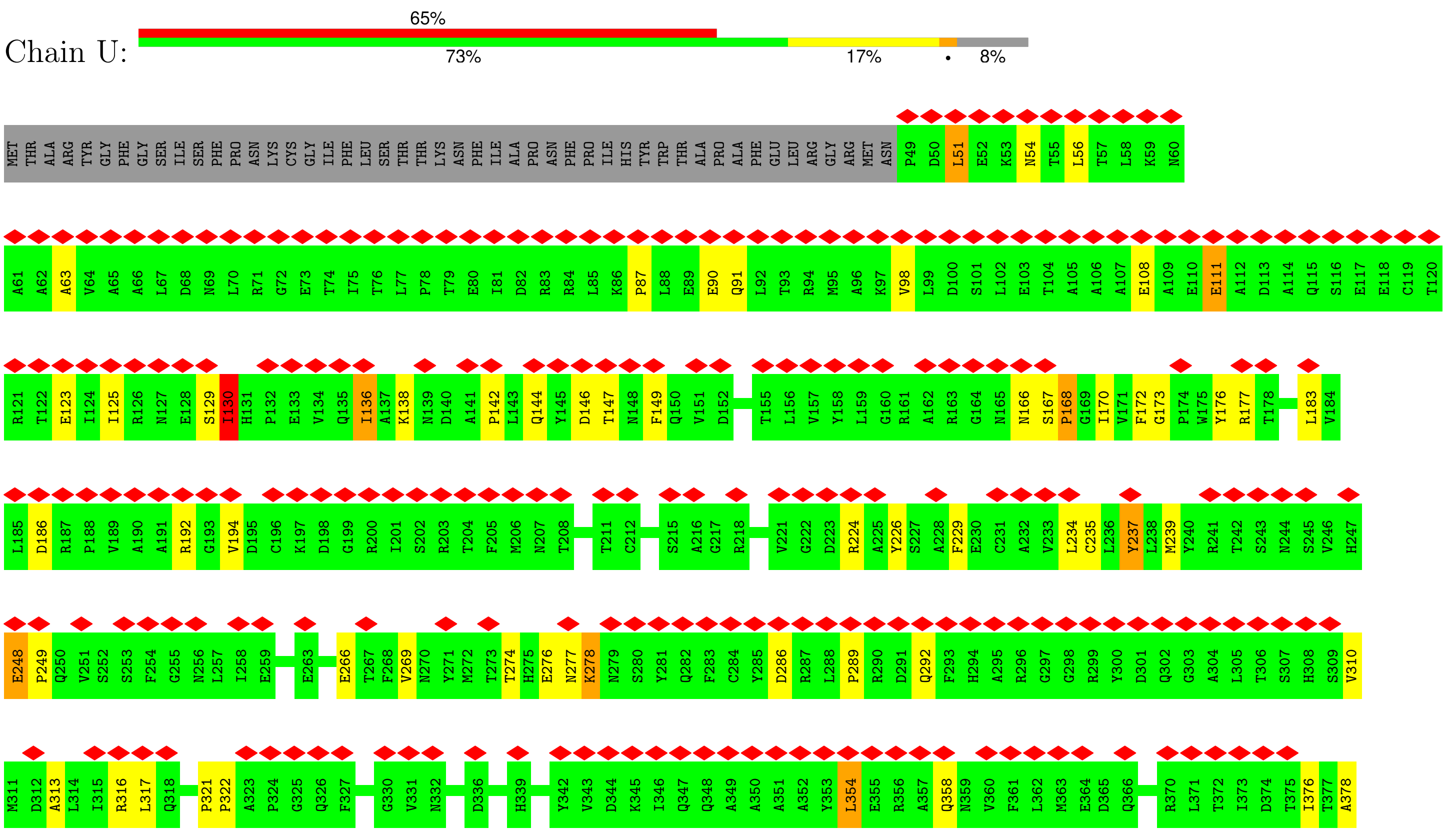
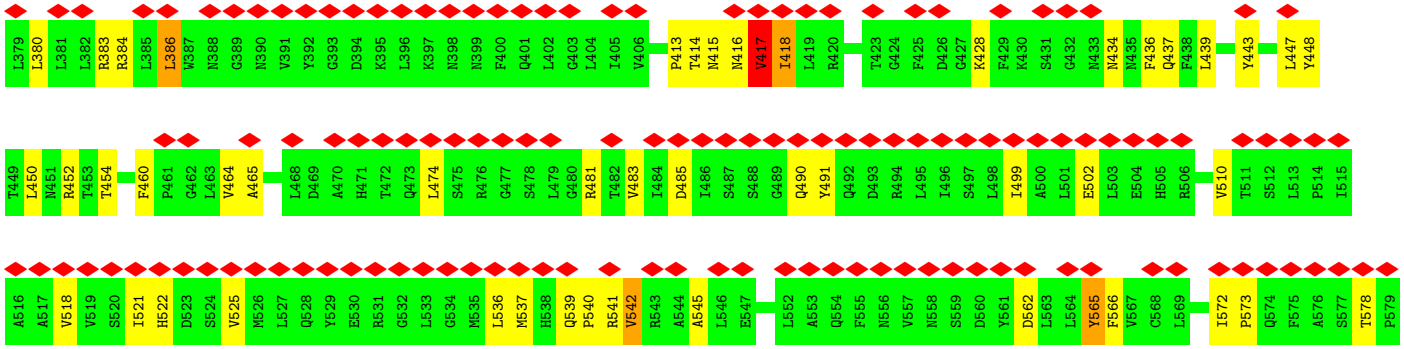




• Molecule 6: ORF34

Chain U:





• Molecule 6: ORF34

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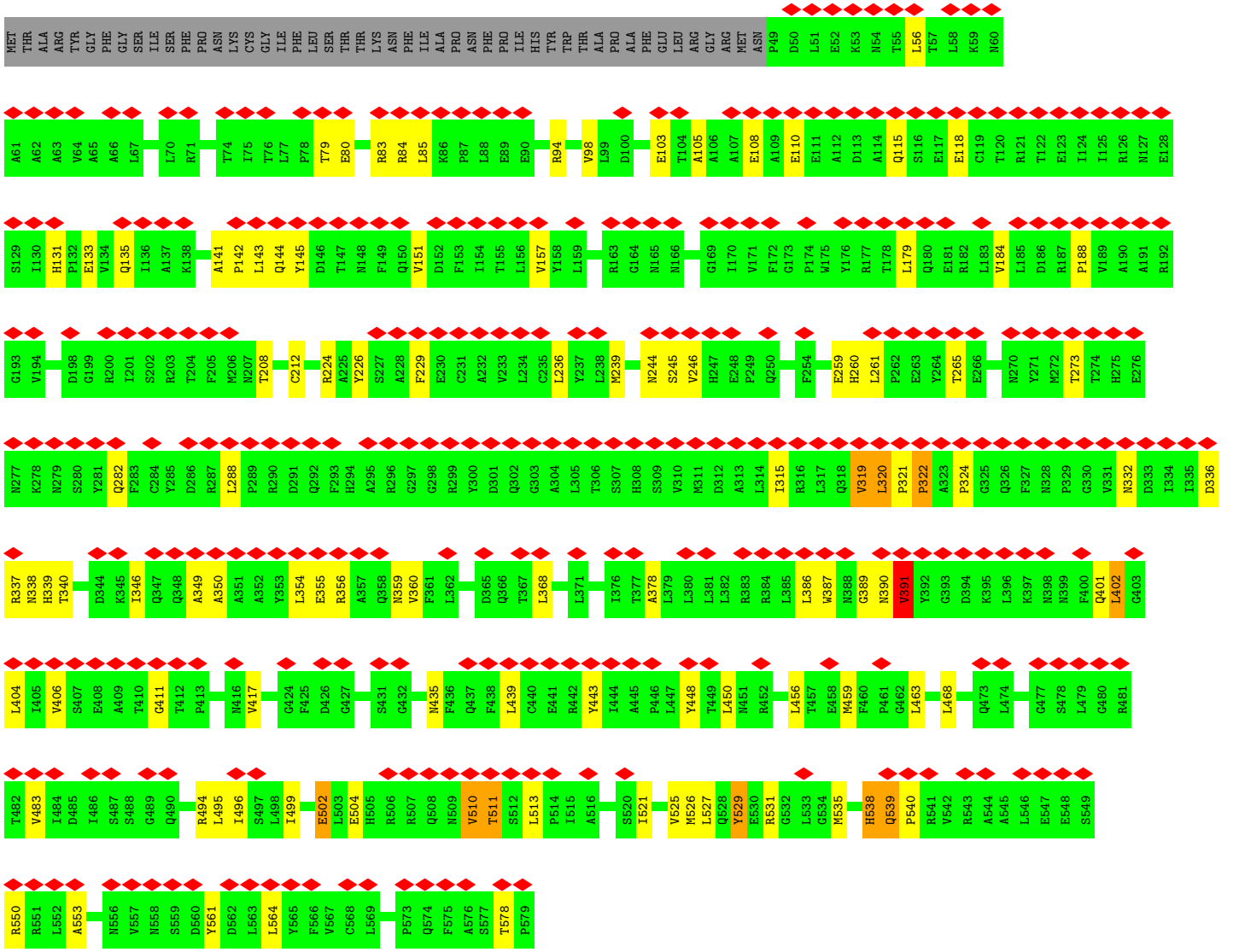
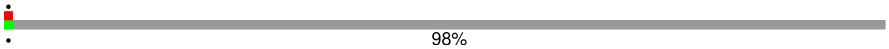


• Molecule 7: Large tegument protein deneddylase

Chain W:



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LEU GLN GLU GLY ALA ALA TRP THR THR ASP LEU SER ASN MET GLY ARG GLY VAL PRO ASP MET CYS ALA LEU VAL ASP LEU PRO ASN ARG ILE SER TYR ILE LYS LEU GLY ASP THR THR SER THR CYS CYS VAL LEU SER ARG ILE TYR GLY ASP SER HIS PHE PHE THR VAL PRO ASP

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TRP VAL THR ARG PRO LEU VAL MET PRO ASP GLU LYS ASP PRO LEU GLU LEU PHE ILE ASN LEU THR ILE LEU ARG LEU THR GLY PHE VAL VAL GLU ASN GLY THR ARG THR HIS HIS GLY ALA THR SER VAL VAL SER ASP PHE ILE GLY PRO LEU GLY GLU ILE LEU THR GLY PHE PRO

SER ALA ALA GLU LEU ILE ARG VAL THR SER LEU ILE LEU THR ASN MET PRO GLY ALA GLU TYR ALA ILE LYS THR VAL LEU ARG LYS LYS CYS THR ILE GLY MET LEU ILE ILE ALA LYS PHE GLY LEU VAL ALA MET ARG VAL GLN ASP THR THR GLY ALA LEU HIS ALA GLU LEU ASP

VAL LEU GLU ALA ASP LEU GLY GLY SER SER PRO ILE ASP LEU TYR SER ARG LEU SER THR GLY LEU ILE SER ILE LEU ASN SER PRO ILE ILE SER HIS PRO GLY LEU PHE ALA GLU LEU ILE PRO THR ARG THR GLY SER LEU SER GLU ARG ILE ARG LEU LEU CYS GLU LEU VAL SER

ALA ARG GLU THR ARG TYR MET ARG GLU HIS THR ALA LEU VAL SER SER VAL LYS ALA LEU GLU ASN ALA LEU ARG SER THR ARG ASN LYS ILE ASP ALA ILE GLN ILE PRO GLU VAL PRO GLN GLU PRO PRO GLU GLU THR ASP ILE PRO PRO GLU GLU LEU ILE ARG ARG VAL TYR GLU

ILE ARG SER GLU VAL THR MET LEU LEU THR SER ALA VAL THR GLU TYR PHE THR ARG GLY VAL LEU TYR SER THR ARG ALA LEU ILE ALA GLU GLN SER PRO ARG ARG PHE ARG VAL ALA THR ALA SER THR ALA PRO ILE GLN ARG LEU LEU ASP SER LEU PRO GLU PHE ASP ALA LYS

LEU THR ALA ILE ILE SER SER LEU SER ILE HIS PRO PRO GLU THR ILE GLN ASN LEU PRO VAL VAL SER LEU LEU LYS GLU LEU ILE LYS GLU GLY GLU ASP LEU ASN THR ASP THR ALA LEU VAL SER TRP LEU SER VAL VAL GLY GLU ALA GLN THR ALA GLY TYR LEU SER ARG

ARG GLU PHE ASP GLU LEU SER ARG THR ILE LYS THR ILE ASN THR ARG ALA THR GLN ARG ALA SER ALA GLU ALA GLU LEU SER CYS PHE ASN THR LEU SER ALA ALA VAL ASP GLN ALA VAL LYS ASP TYR GLU THR TYR ASN ASN GLY GLU VAL LYS TYR PRO GLU ILE THR ARG ASP

ASP LEU LEU ALA THR ILE VAL ARG ALA THR ASP ASP LEU VAL ARG GLN ILE LYS ILE LEU SER ASP PRO MET ILE GLN SER GLY LEU GLN PRO SER ILE LYS ARG ARG LEU GLU THR ARG LEU LYS GLU VAL GLN THR TYR ALA ASN GLU ALA ARG THR THR GLN ASP THR ILE LYS SER

ARG LYS GLN ALA ALA TYR ASN LYS LEU GLY GLY LEU LEU ARG PRO VAL THR GLY PHE VAL GLY LEU ARG ALA ALA VAL ASP LEU LEU PRO GLU LEU ALA SER GLU LEU ASP VAL GLN GLY ALA LEU VAL ASN LEU ARG THR LYS VAL LEU GLU ALA PRO VAL GLU ILE ARG SER GLN LEU

THR GLY ASP PHE TRP ALA LEU PHE ASN GLN TYR ARG ASP ILE LEU GLU HIS PRO GLY ASN ALA ARG THR SER VAL LEU GLY GLY LEU GLY ALA CYS PHE THR ALA ILE ILE GLU ILE VAL PRO ILE PRO THR GLU TYR ARG PRO SER LEU LEU ALA PHE PHE GLY ASP VAL ALA ASP VAL

LEU ALA SER ASP ILE ALA THR VAL SER THR ASN PRO GLU SER GLU SER ALA ILE ASN ALA VAL VAL ALA THR LEU SER LYS ALA THR LEU VAL SER SER THR VAL PRO ALA LEU SER PHE VAL LEU SER LEU TYR LYS LYS TYR GLN ALA LEU GLN GLN GLU ILE THR ASN THR HIS LYS

LEU THR GLU LEU GLN LYS GLN LEU GLY ASP ASP PHE SER THR LEU ALA VAL SER SER GLY HIS LEU LYS PHE ILE SER SER SER ASN VAL ASP ASP TYR GLU ILE ASN ASP ALA ILE LEU SER ILE GLN THR ASN VAL HIS ALA LEU MET ASP THR VAL LYS LEU VAL GLU VAL GLU LEU

GLN LYS LEU PRO PRO HIS CYS ILE ALA GLY THR SER THR LEU SER ARG VAL VAL LYS ASP LEU HIS LYS LEU VAL THR MET ALA HIS GLU LYS LYS GLU GLN ALA LYS VAL LEU ILE THR ASP CYS GLU ARG ALA HIS LYS GLN GLN THR THR ARG VAL LEU TYR GLU ARG TRP THR ARG

ASP ILE ILE ALA CYS LEU GLU ALA MET GLU THR ARG HIS VAL PHE ASN GLY THR GLU LEU ALA ARG LEU ARG ASP MET ALA ALA ALA GLY GLY PHE ASP ILE HIS ALA VAL TYR PRO GLN ALA ARG GLN VAL VAL ALA ALA CYS GLU THR THR ALA VAL THR ALA LEU ASP THR VAL PHE

ARG HIS ASN PRO HIS THR PRO GLU ASN THR ASN ILE PRO PRO PRO LEU ALA LEU LEU ARG GLY LEU THR TRP PHE ASP ASP PHE SER ILE THR ALA PRO VAL PHE THR VAL MET PHE PRO GLY VAL SER ILE GLU GLY LEU LEU LEU LEU MET ARG ILE ARG ALA VAL VAL LEU LEU SER

ALA ASP THR SER ILE ASN GLY ILE PRO ASN TYR ARG ASP MET ILE LEU ARG THR SER GLY ASP LEU LEU GLN ILE PRO ALA LEU ALA GLY TYR VAL ASP PHE TYR THR ARG SER TYR ASP GLN PHE ILE THR GLU SER VAL THR LEU SER GLU LEU ARG ALA ASP ILE ARG GLN ALA ALA

GLY ALA LYS LEU THR GLU ALA ASN LYS ALA LEU GLU GLU VAL THR HIS VAL ARG ALA HIS GLU THR ALA LYS LEU ALA LEU LYS GLU GLY VAL PHE ILE THR LEU PRO SER GLU GLY LEU LEU ILE ARG ALA ILE GLU TYR PHE THR THR PHE ASP HIS LYS ARG PHE ILE GLY THR ALA

TYR GLU ARG VAL LEU GLN THR MET VAL ASP ARG ASP LEU LYS GLU ALA ASN ALA GLU LEU ALA GLN PHE ARG MET VAL CYS GLN ALA THR LYS ASN ARG ALA ILE GLN ILE LEU GLN ASN ILE VAL ASP THR ALA ASN ALA THR GLU GLN GLN GLU ASP VAL ASP PHE THR ASN LEU LYS

THR LEU LEU LYS LEU THR PRO PRO LYS THR ILE ALA LEU ALA ILE ASP ARG SER THR SER VAL GLN ASP ILE VAL THR GLN PHE ALA LEU LEU LEU GLY ARG LEU GLU GLU GLU THR GLY THR LEU ASP ILE GLN ALA VAL ASP TRP MET TYR GLN ALA ARG ASN ILE ILE ASP SER

HIS PRO LEU SER VAL ARG ILE ASP GLY THR GLY PRO LEU HIS THR TYR LYS ASP ARG VAL ASP LYS LEU TYR ALA LEU ARG THR LYS LEU ASP LEU LEU ARG ARG ARG ILE GLU THR GLY GLU VAL THR TRP ASP ASP ALA TRP THR THR PHE LYS ARG GLU THR GLY ASP MET LEU ALA

SER GLY ASP THR TYR ALA THR SER VAL ASP SER ILE LYS ALA LEU GLN ALA SER ALA SER VAL VAL ASP MET LEU CYS SER GLU PRO GLU PHE PHE LEU LEU PRO VAL GLU THR LYS ASN ARG LEU GLN LYS LYS GLN GLN GLU ARG LYS THR ALA LEU ASP VAL VAL LEU GLN LYS GLN

ARG GLN PHE GLU GLU THR ALA SER ARG LEU ARG ALA LEU ILE GLU ARG ILE PRO THR GLU SER ASP HIS ASP VAL LEU ARG MET LEU LEU HIS ASP PHE ASP GLN PHE THR HIS LEU PRO ILE TRP ILE LYS THR GLN TYR MET THR PHE ARG ASN LEU LEU MET VAL ARG LEU GLY LEU

TYR ALA SER TYR ALA GLU ILE PHE PRO PRO ALA SER PRO ASN GLY VAL PHE ALA PRO ILE PRO ALA MET SER GLY VAL CYS LEU GLU ASP GLN SER ARG CYS ILE ARG ALA ARG VAL ALA ALA PHE MET GLY GLU ALA SER VAL VAL GLN THR PHE ARG GLU ALA ARG SER SER ILE ASP

ALA LEU PHE GLY LYS ASN LEU THR PHE TYR LEU ASP THR ASP GLY VAL PRO LEU ARG TYR ARG VAL CYS TYR LYS SER VAL GLY VAL LYS LEU GLY THR MET LEU CYS SER GLN GLY GLY LEU SER LEU ARG PRO ALA LEU PRO ASP GLU GLY ILE VAL GLU GLU THR THR LEU SER ALA

LEU ARG VAL ALA ASN GLU VAL ASN GLU LEU ARG ILE GLU TYR GLU SER ALA ILE LYS SER GLY PHE SER ALA PHE SER THR PHE VAL ARG HIS ARG HIS ALA GLU TRP GLY LYS THR ASN ALA ARG ARG ALA ILE ALA GLU ILE TYR ALA GLY LEU ILE THR THR THR LEU THR ARG GLN

TYR GLY VAL HIS TRP ASP LYS LEU ILE TYR SER PHE GLU LYS HIS HIS LEU THR SER VAL MET GLY ASN GLY LEU THR LYS PRO ILE GLN ARG ARG GLY ASP VAL ARG VAL LEU GLU LEU THR LEU SER ASP ILE VAL THR ILE LEU VAL ALA THR THR PRO VAL HIS LEU LEU ASN PHE

ALA ARG LEU ASP LEU ILE LYS GLN HIS GLU TYR MET ALA ARG THR LEU ARG PRO VAL ILE GLU ALA ALA PHE ARG GLY ARG LEU LEU VAL ARG SER LEU ASP GLY ASP PRO LYS GLY ASN ALA ARG ALA PHE PHE ASN ALA ALA PRO SER LYS HIS LYS LEU PRO LEU ALA LEU GLY SER

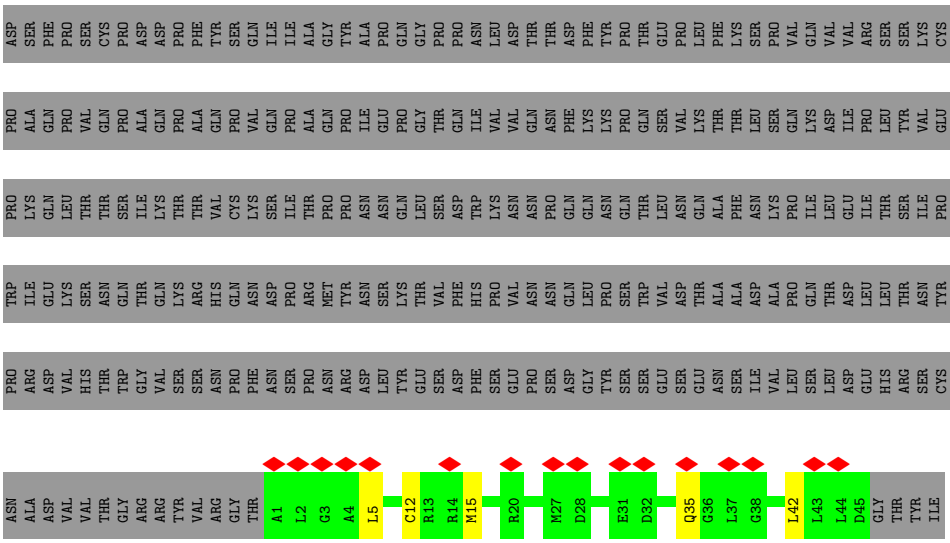
ASN GLN ASP PRO THR GLY GLY ARG ILE PHE ALA PHE ARG MET ALA ASP TRP LYS LEU VAL LYS MET PRO GLN LYS ILE THR ASP PRO PHE ALA PRO TRP GLN LEU SER PRO PRO PRO GLY VAL LYS ALA ASN VAL ASP ALA VAL THR ARG ILE MET ALA THR ASP ARG LEU ALA THR ILE

THR VAL LEU GLY ARG MET CYS LEU PRO PRO ILE SER LEU VAL SER MET TRP ASN THR LEU GLN PRO GLU GLU PHE ALA TYR ARG THR GLN ASP ASP VAL ASP ILE ILE VAL ASP ALA ARG LEU ASP LEU SER SER THR LEU ASN ALA ARG PHE ASP THR ALA PRO SER ASN THR THR LEU

GLU TRP ASN THR ASP ARG LYS VAL ILE THR ASP ALA TYR ILE GLN THR GLY ALA THR THR VAL PHE THR VAL THR GLY ALA ALA PRO THR HIS VAL SER ASN VAL THR ALA PHE ASP ILE ALA THR THR ALA ILE LEU PHE GLY ALA PRO LEU VAL ILE ALA MET GLU LEU THR SER VAL

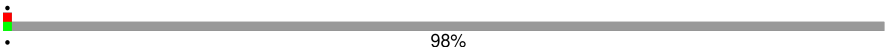
PHE SER GLN ASN SER GLY LEU THR LEU GLY LEU LYS LEU PHE ASP SER ARG HIS MET ALA THR ASP SER GLY ILE SER SER ALA VAL SER PRO ASP ILE VAL SER TRP GLY LEU ARG LEU LEU HIS MET ASP PRO HIS PRO ILE GLU ASN ALA CYS LEU ILE VAL GLN LEU GLU LYS LEU

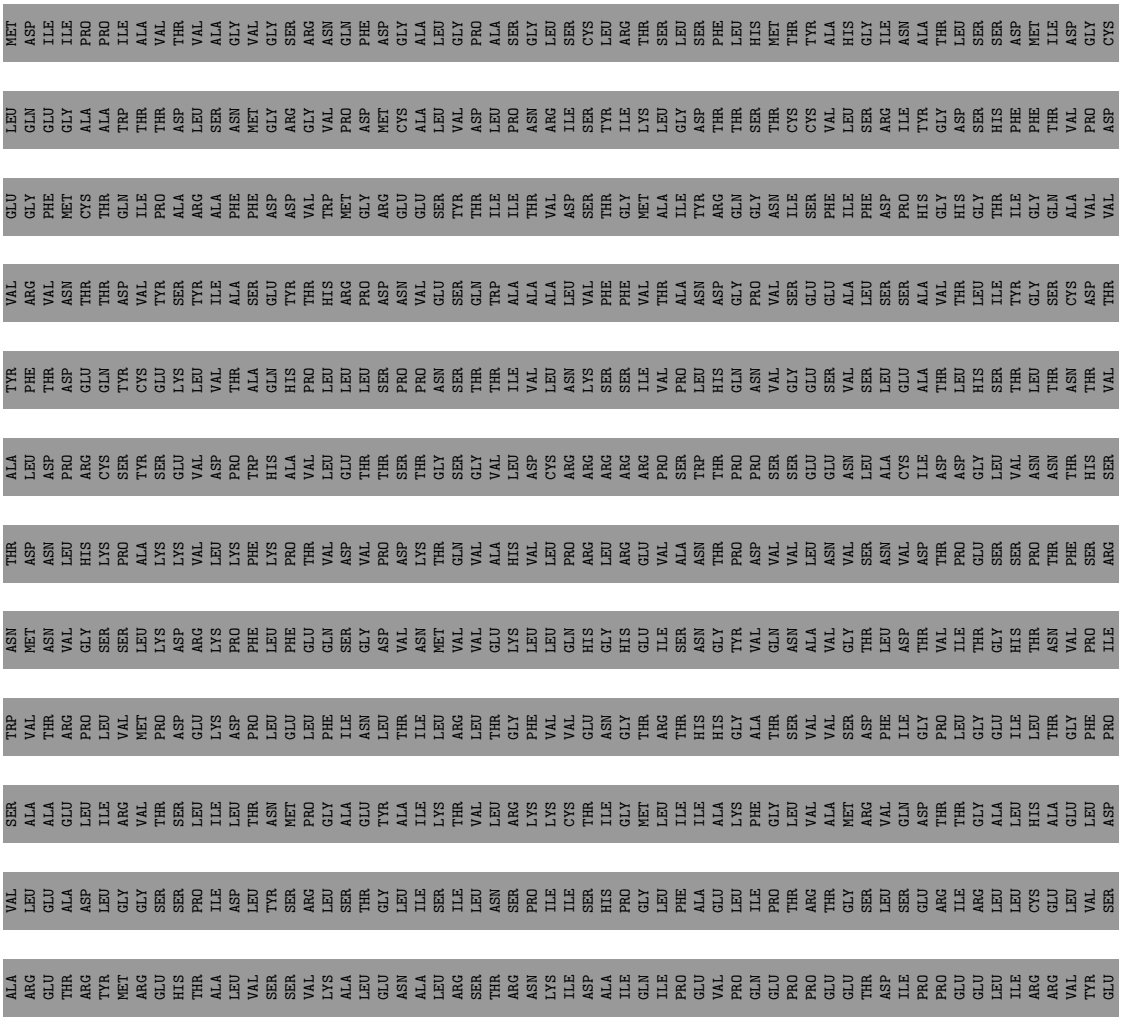
SER ALA LEU ILE ALA ASN LYS PRO LEU THR ASN ASN PRO PRO CYS LEU LEU LEU LEU ASP GLU HIS MET ASN PRO SER TYR VAL LEU TRP GLU ARG LYS ASP SER ILE PRO ALA PRO ASP TYR VAL VAL PHE TRP GLY PRO GLU SER LEU ILE ASP LEU PRO TYR ILE ASP SER ASP GLU

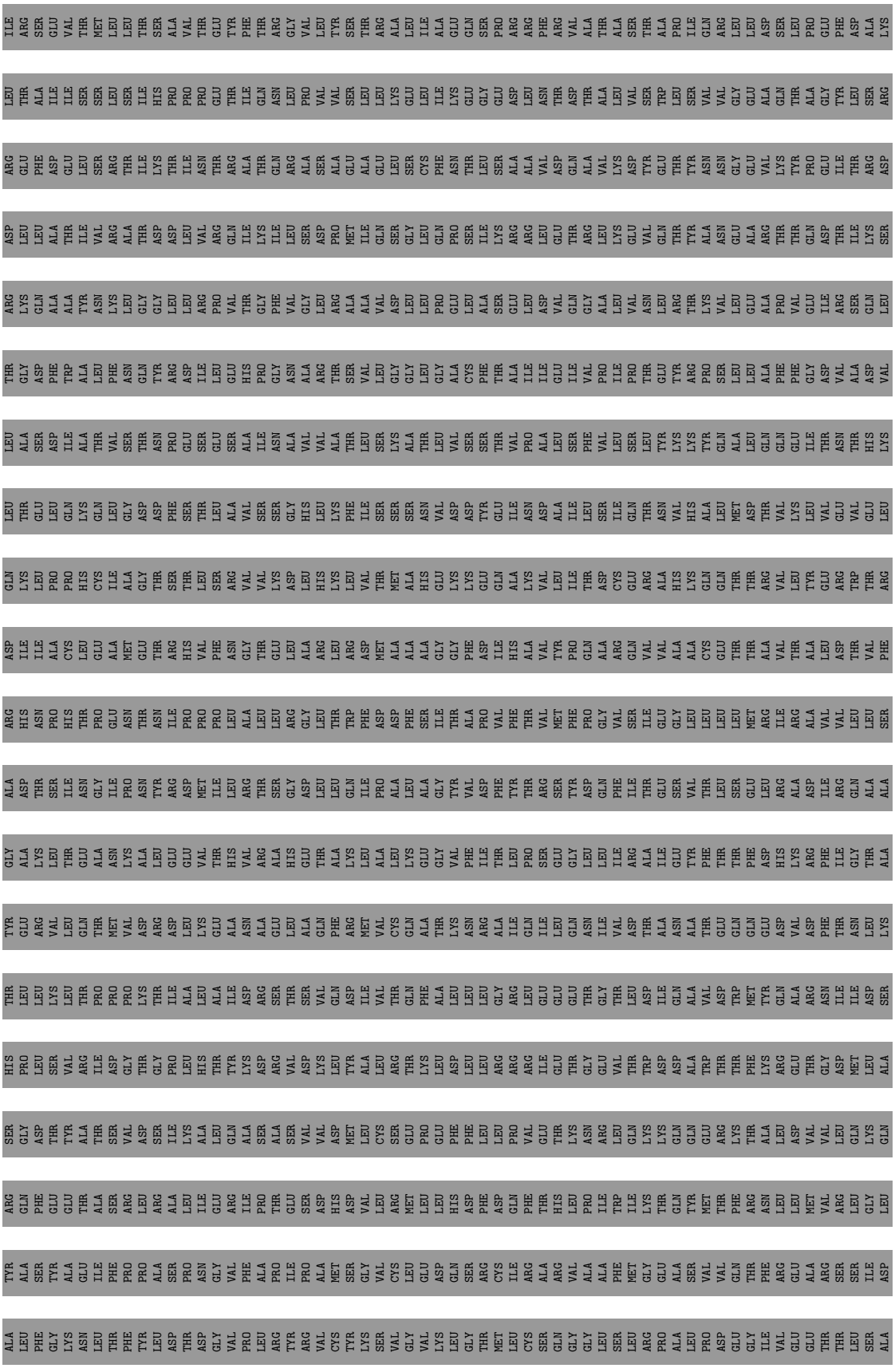


• Molecule 7: Large tegument protein deneddylase

Chain X:







LEU ARG VAL ALA ASN GLU VAL ASN GLU LEU ARG ILE GLU TYR GLU SER ALA ILE LYS SER GLY PHE SER ALA PHE SER THR PHE VAL ARG HIS ARG HIS ALA GLU TRP GLY LYS THR ASN ALA ARG ARG ALA ILE ALA GLU ILE TYR ALA GLY LEU ILE THR THR THR LEU THR ARG GLN

TYR GLY VAL HIS TRP ASP LYS LEU ILE TYR SER PHE GLU LYS HIS HIS LEU THR SER VAL MET GLY ASN GLY LEU THR LYS PRO ILE GLN ARG ARG GLY ASP VAL ARG VAL LEU GLU LEU THR LEU SER ASP ILE VAL THR ILE LEU VAL ALA THR THR PRO VAL HIS LEU LEU ASN PHE

ALA ARG LEU ASP LEU ILE LYS GLN HIS GLU TYR MET ALA ARG THR LEU ARG PRO VAL ILE GLU ALA ALA PHE ARG GLY ARG LEU LEU VAL ARG SER LEU ASP GLY ASP PRO LYS GLY ASN ALA ARG ALA PHE PHE ASN ALA ALA PRO SER LYS HIS LYS LEU PRO LEU ALA LEU GLY SER

ASN GLN ASP PRO THR GLY GLY ARG ILE PHE ALA PHE ARG MET ALA ASP TRP LYS LEU VAL LYS MET PRO GLN LYS ILE THR ASP PRO PHE ALA PRO TRP GLN LEU SER PRO PRO PRO GLY VAL LYS ALA ASN VAL ASP ALA VAL THR ARG ILE MET ALA THR ASP ARG LEU ALA THR ILE

THR VAL LEU GLY ARG MET CYS LEU PRO PRO ILE SER LEU VAL SER MET TRP ASN THR LEU GLN PRO GLU GLU PHE ALA TYR ARG THR GLN ASP ASP VAL ASP ILE ILE VAL ASP ALA ARG LEU ASP LEU SER SER THR LEU ASN ALA ARG PHE ASP THR ALA PRO SER ASN THR THR LEU

GLU TRP ASN THR ASP ARG LYS VAL ILE THR ASP ALA TYR ILE GLN THR GLY ALA THR THR VAL PHE THR VAL THR GLY ALA ALA PRO THR HIS VAL SER ASN VAL THR ALA PHE ASP ILE ALA THR THR ALA ILE LEU PHE GLY ALA PRO LEU VAL ILE ALA MET GLU LEU THR SER VAL

PHE SER GLN ASN SER GLY LEU THR LEU GLY LEU LYS LEU PHE ASP SER ARG HIS MET ALA THR ASP SER GLY ILE SER SER ALA VAL SER PRO ASP ILE VAL SER TRP GLY LEU ARG LEU LEU HIS MET ASP PRO HIS PRO ILE GLU ASN ALA CYS LEU ILE VAL GLN LEU GLU LYS LEU

SER ALA LEU ILE ALA ASN LYS PRO LEU THR ASN ASN PRO PRO CYS LEU LEU LEU LEU ASP GLU HIS MET ASN PRO SER TYR VAL LEU TRP GLU ARG LYS ASP SER ILE PRO ALA PRO ASP TYR VAL VAL PHE TRP GLY PRO GLU SER LEU ILE ASP LEU PRO TYR ILE ASP SER ASP GLU

ASP SER PHE PRO SER CYS PRO ASP ASP PRO PHE TYR SER GLN ILE ILE ALA GLY TYR ALA PRO GLN GLY PRO PRO ASN LEU ASP THR THR ASP PHE TYR PRO THR GLU PRO LEU PHE LYS SER PRO VAL GLN VAL VAL ARG SER SER LYS CYS LYS LYS MET PRO VAL GLN PRO VAL GLN

PRO ALA GLN PRO VAL GLN PRO ALA GLN PRO ALA GLN PRO VAL GLN PRO ALA GLN PRO ILE GLU PRO GLY THR GLN ILE VAL VAL GLN ASN PHE LYS LYS PRO GLN SER VAL LYS THR THR LEU SER GLN LYS ASP ILE PRO LEU TYR VAL GLU THR GLU SER GLU THR ALA VAL LEU ILE

PRO LYS GLN LEU THR THR SER ILE LYS THR THR VAL CYS LYS SER ILE THR PRO PRO ASN ASN GLN LEU SER ASP TRP LYS ASN ASN PRO GLN GLN ASN GLN THR LEU ASN GLN ALA PHE ASN LYS PRO ILE LEU GLU ILE THR SER ILE PRO THR ASP ASP SER ILE SER TYR ARG THR

TRP ILE GLU LYS SER ASN GLN THR GLN LYS ARG HIS GLN ASN ASP PRO ARG MET TYR ASN SER LYS THR VAL PHE HIS PRO VAL ASN ASN GLN LEU PRO SER TRP VAL ASP THR ALA ALA ASP ALA PRO GLN THR ASP LEU LEU THR ASN TYR LYS THR ARG GLN PRO SER PRO ASN PHE

PRO ARG ASP VAL HIS THR TRP GLY VAL SER SER ASN PRO PHE ASN SER PRO ASN ARG ASP LEU TYR GLU SER ASP PHE SER GLU PRO SER ASP GLY TYR SER SER GLU SER GLU ASN SER ILE VAL LEU SER LEU ASP GLU HIS ARG SER CYS ARG VAL PRO ARG HIS VAL ARG VAL VAL

ASN ALA ASP VAL VAL THR GLY ARG ARG TYR VAL ARG GLY THR A1 L2 G3 A4 L5 A6 L7 L8 S9 Q10 A11 C12 R13 R14 M15 I16 D17 N18 V19 R20 Y21 T22 R23 K24 L25 D28 H29 T30 E31 D32 I33 F34 Q35 G36 L37 G38 Y39 V40 K41 L42 L43 L44 D45 GLY THR

TYR ILE

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SUBTOMOGRAM AVERAGING	Depositor
Imposed symmetry	POINT, C5	Depositor
Number of subtomograms used	3804	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	82.3	Depositor
Minimum defocus (nm)	2000	Depositor
Maximum defocus (nm)	5000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	14.690	Depositor
Minimum map value	-7.382	Depositor
Average map value	0.033	Depositor
Map value standard deviation	0.423	Depositor
Recommended contour level	1.05	Depositor
Map size (Å)	660.48, 660.48, 660.48	wwPDB
Map dimensions	192, 192, 192	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	3.4399998, 3.4399998, 3.4399998	Depositor

5 Model quality

5.1 Standard geometry

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\| > 5$	RMSZ	$\#\|Z\| > 5$
1	A	0.09	0/9259	0.23	0/12619
1	B	0.08	0/10530	0.22	0/14358
1	D	0.15	0/10493	0.25	0/14326
1	F	0.08	0/10575	0.21	0/14419
1	H	0.08	0/10059	0.21	0/13730
1	J	0.09	0/10085	0.24	0/13758
1	L	0.13	0/10430	0.26	2/14225 (0.0%)
2	C	0.09	0/741	0.23	0/1022
2	E	0.10	0/727	0.25	0/997
2	G	0.09	0/753	0.22	0/1036
2	I	0.09	0/759	0.23	0/1043
2	K	0.09	0/759	0.20	0/1043
2	M	0.10	0/738	0.25	0/1019
3	N	0.07	0/2829	0.20	0/3850
3	Q	0.08	0/2832	0.21	0/3854
4	O	0.08	0/2331	0.23	0/3178
4	P	0.09	0/2119	0.21	0/2892
4	R	0.08	0/2331	0.22	0/3178
4	S	0.08	0/2122	0.22	0/2896
5	T	0.08	0/4700	0.23	0/6406
6	U	0.11	0/4277	0.30	0/5806
6	V	0.15	0/4277	0.32	0/5806
7	W	0.06	0/361	0.12	0/484
7	X	0.07	0/361	0.15	0/484
All	All	0.10	0/104448	0.24	2/142429 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	L	1377	LEU	CA-C-N	-5.41	115.13	123.14
1	L	1377	LEU	C-N-CA	-5.41	115.13	123.14

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	9043	0	8818	81	0
1	B	10283	0	10047	73	0
1	D	10245	0	9938	83	0
1	F	10328	0	10090	71	0
1	H	9821	0	9535	71	0
1	J	9850	0	9593	101	0
1	L	10181	0	9923	103	0
2	C	724	0	696	2	0
2	E	712	0	706	7	0
2	G	736	0	718	5	0
2	I	742	0	729	4	0
2	K	742	0	729	10	0
2	M	721	0	687	4	0
3	N	2767	0	2675	22	0
3	Q	2770	0	2679	21	0
4	O	2288	0	2352	25	0
4	P	2080	0	2136	16	0
4	R	2288	0	2352	21	0
4	S	2083	0	2138	18	0
5	T	4593	0	4609	39	0
6	U	4200	0	4166	64	0
6	V	4200	0	4166	61	0
7	W	358	0	379	3	0
7	X	358	0	379	9	0
All	All	102113	0	100240	834	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 4.

The worst 5 of 834 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:898:PHE:O	1:J:902:HIS:HB3	1.66	0.96
1:J:737:GLU:O	1:J:741:ASN:HB2	1.69	0.93
1:B:25:ILE:HG13	1:B:26:PRO:HD3	1.59	0.85
1:D:602:LEU:HG	1:D:605:ILE:HD12	1.64	0.80
6:U:248:GLU:H	6:U:249:PRO:HD2	1.50	0.77

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	1148/1396 (82%)	1081 (94%)	63 (6%)	4 (0%)	37 73
1	B	1324/1396 (95%)	1252 (95%)	70 (5%)	2 (0%)	44 78
1	D	1331/1396 (95%)	1238 (93%)	87 (6%)	6 (0%)	25 64
1	F	1331/1396 (95%)	1268 (95%)	58 (4%)	5 (0%)	30 68
1	H	1271/1396 (91%)	1213 (95%)	55 (4%)	3 (0%)	44 78
1	J	1269/1396 (91%)	1189 (94%)	76 (6%)	4 (0%)	37 73
1	L	1308/1396 (94%)	1231 (94%)	72 (6%)	5 (0%)	30 68
2	C	99/235 (42%)	93 (94%)	5 (5%)	1 (1%)	13 49
2	E	93/235 (40%)	90 (97%)	3 (3%)	0	100 100
2	G	99/235 (42%)	93 (94%)	6 (6%)	0	100 100
2	I	99/235 (42%)	95 (96%)	4 (4%)	0	100 100
2	K	99/235 (42%)	94 (95%)	5 (5%)	0	100 100
2	M	99/235 (42%)	90 (91%)	9 (9%)	0	100 100
3	N	353/483 (73%)	337 (96%)	16 (4%)	0	100 100
3	Q	353/483 (73%)	341 (97%)	12 (3%)	0	100 100
4	O	294/316 (93%)	283 (96%)	9 (3%)	2 (1%)	19 57

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
4	P	271/316 (86%)	261 (96%)	9 (3%)	1 (0%)	30 68
4	R	294/316 (93%)	283 (96%)	9 (3%)	2 (1%)	19 57
4	S	271/316 (86%)	263 (97%)	8 (3%)	0	100 100
5	T	589/676 (87%)	558 (95%)	29 (5%)	2 (0%)	37 73
6	U	529/579 (91%)	466 (88%)	55 (10%)	8 (2%)	8 40
6	V	529/579 (91%)	464 (88%)	60 (11%)	5 (1%)	14 52
7	W	43/2763 (2%)	43 (100%)	0	0	100 100
7	X	43/2763 (2%)	43 (100%)	0	0	100 100
All	All	13139/20772 (63%)	12369 (94%)	720 (6%)	50 (0%)	32 68

5 of 50 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	392	VAL
1	A	425	VAL
1	D	550	PRO
1	D	1241	ILE
1	F	599	PRO

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	964/1182 (82%)	918 (95%)	46 (5%)	21 43
1	B	1097/1182 (93%)	1044 (95%)	53 (5%)	21 43
1	D	1087/1182 (92%)	1043 (96%)	44 (4%)	27 47
1	F	1102/1182 (93%)	1066 (97%)	36 (3%)	33 52
1	H	1040/1182 (88%)	1001 (96%)	39 (4%)	28 49
1	J	1050/1182 (89%)	1009 (96%)	41 (4%)	27 48
1	L	1089/1182 (92%)	1048 (96%)	41 (4%)	28 49
2	C	72/189 (38%)	71 (99%)	1 (1%)	62 75

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	E	72/189 (38%)	67 (93%)	5 (7%)	13	33
2	G	74/189 (39%)	73 (99%)	1 (1%)	62	75
2	I	75/189 (40%)	74 (99%)	1 (1%)	65	77
2	K	75/189 (40%)	71 (95%)	4 (5%)	19	40
2	M	71/189 (38%)	71 (100%)	0	100	100
3	N	288/410 (70%)	282 (98%)	6 (2%)	48	66
3	Q	289/410 (70%)	281 (97%)	8 (3%)	38	57
4	O	256/267 (96%)	247 (96%)	9 (4%)	31	51
4	P	229/267 (86%)	224 (98%)	5 (2%)	47	65
4	R	256/267 (96%)	247 (96%)	9 (4%)	31	51
4	S	230/267 (86%)	217 (94%)	13 (6%)	17	38
5	T	503/573 (88%)	487 (97%)	16 (3%)	34	53
6	U	457/497 (92%)	440 (96%)	17 (4%)	29	49
6	V	457/497 (92%)	431 (94%)	26 (6%)	17	38
7	W	38/2413 (2%)	37 (97%)	1 (3%)	41	59
7	X	38/2413 (2%)	37 (97%)	1 (3%)	41	59
All	All	10909/17689 (62%)	10486 (96%)	423 (4%)	30	48

5 of 423 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	J	475	MET
1	L	506	VAL
6	V	157	VAL
1	J	673	GLU
1	J	1166	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 219 such sidechains are listed below:

Mol	Chain	Res	Type
1	J	468	GLN
1	L	414	ASN
5	T	434	ASN
1	J	653	ASN
1	J	1074	GLN

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

There are no ligands in this entry.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

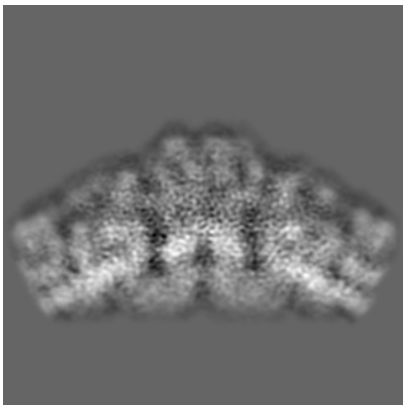
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-49591. These allow visual inspection of the internal detail of the map and identification of artifacts.

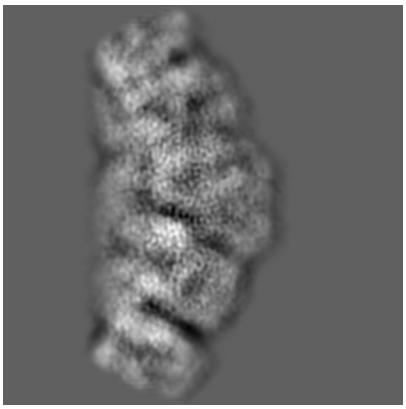
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

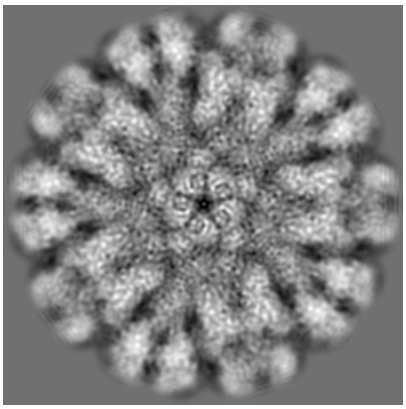
6.1.1 Primary map



X

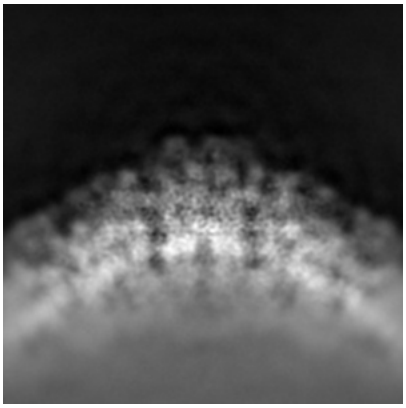


Y

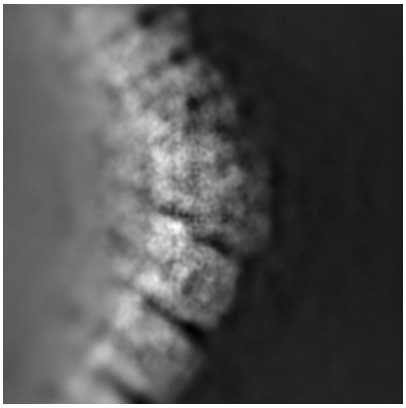


Z

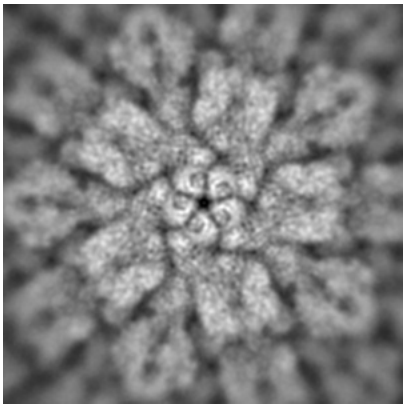
6.1.2 Raw map



X



Y

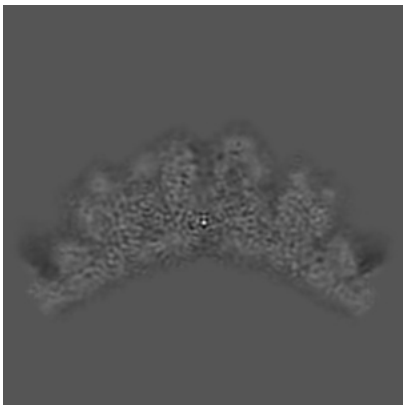


Z

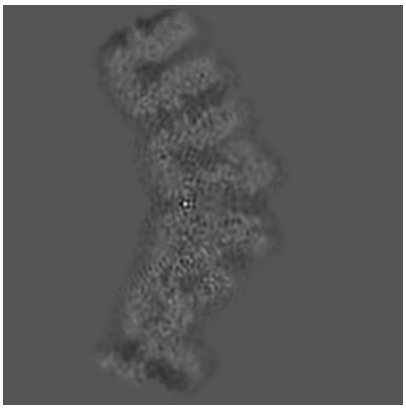
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

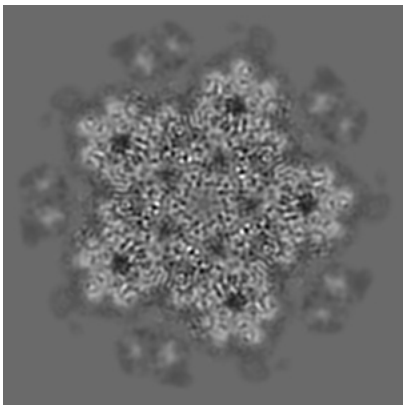
6.2.1 Primary map



X Index: 96

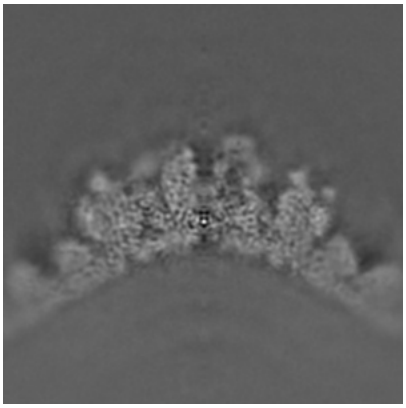


Y Index: 96

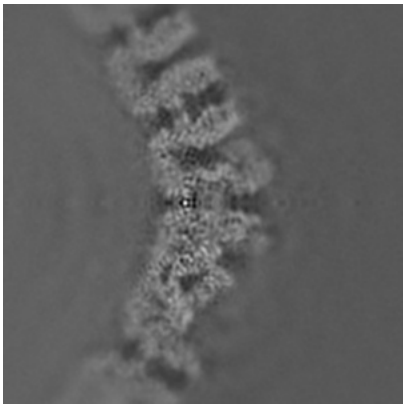


Z Index: 96

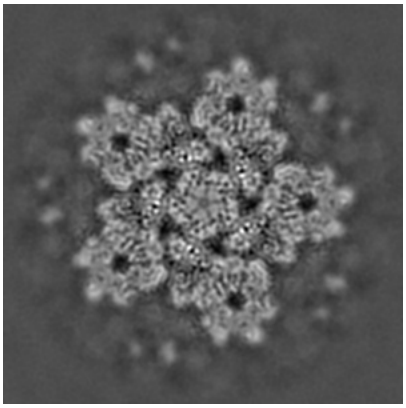
6.2.2 Raw map



X Index: 96



Y Index: 96

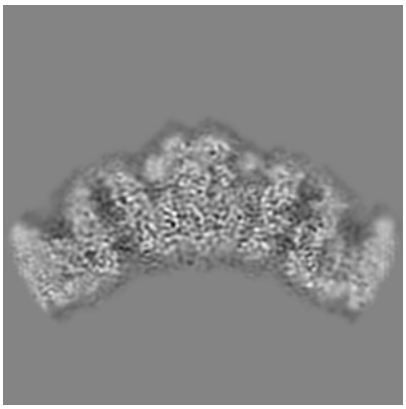


Z Index: 96

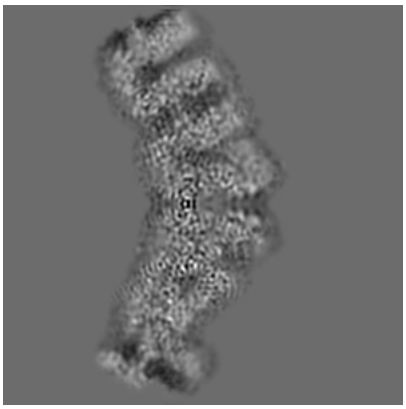
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

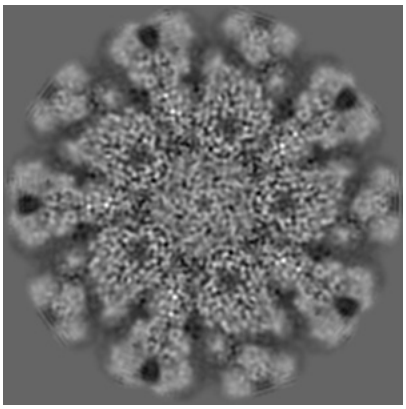
6.3.1 Primary map



X Index: 110

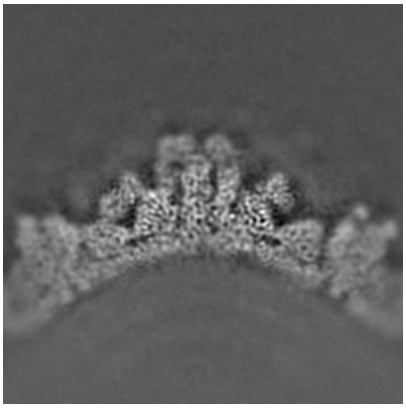


Y Index: 95

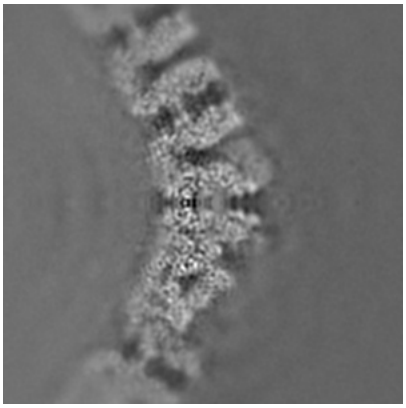


Z Index: 80

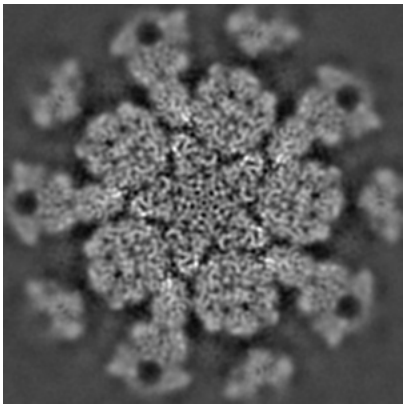
6.3.2 Raw map



X Index: 85



Y Index: 95

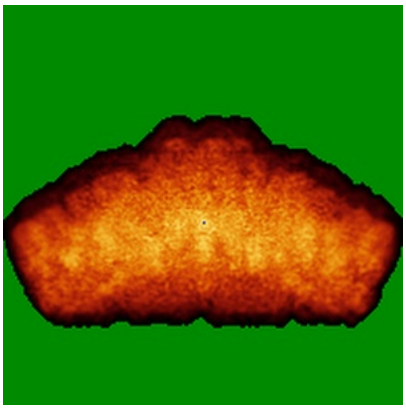


Z Index: 84

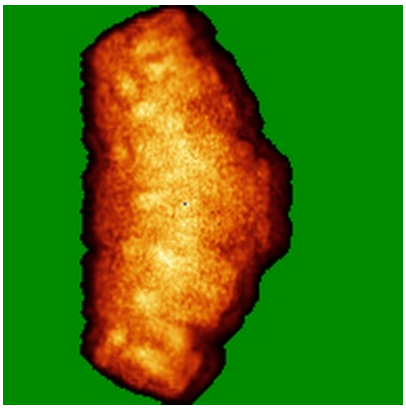
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

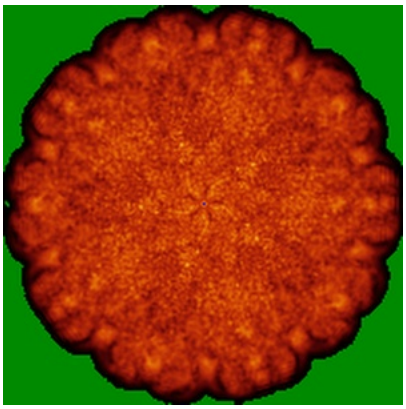
6.4.1 Primary map



X

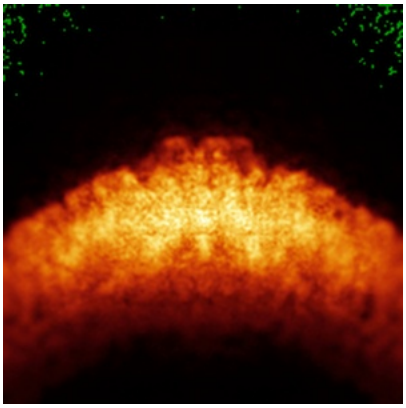


Y

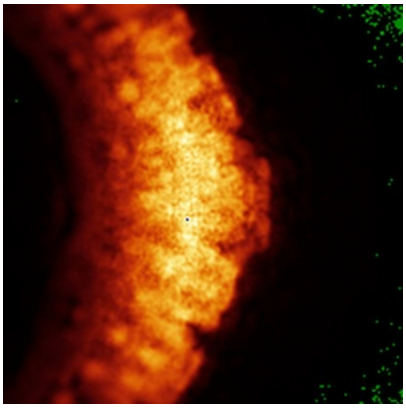


Z

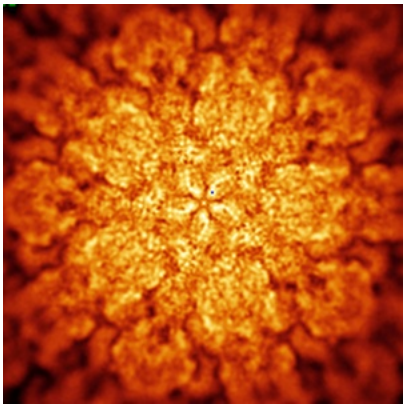
6.4.2 Raw map



X



Y

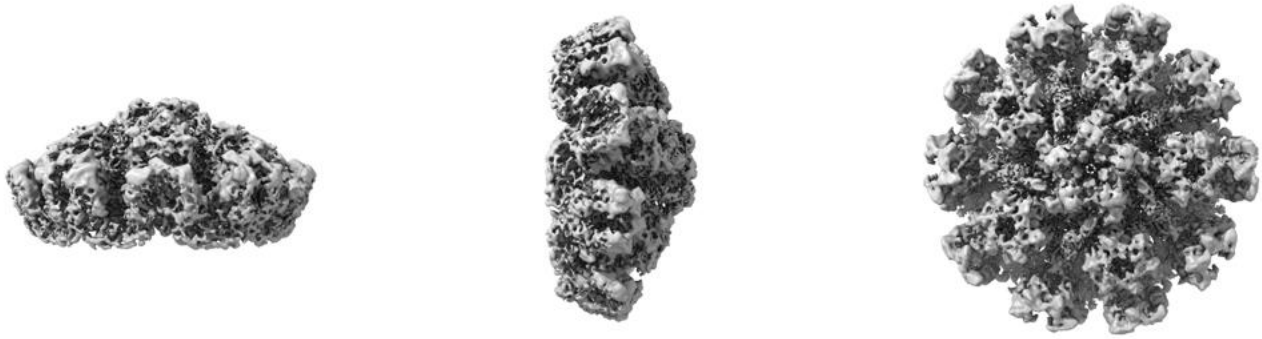


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 1.05. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

X Y Z

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

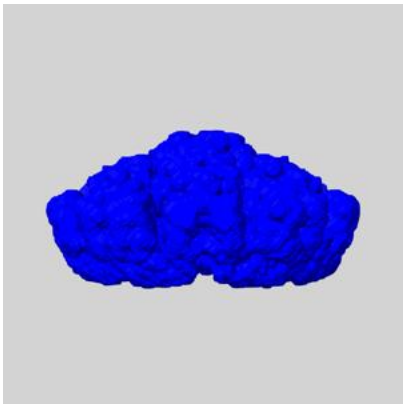
6.6 Mask visualisation

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

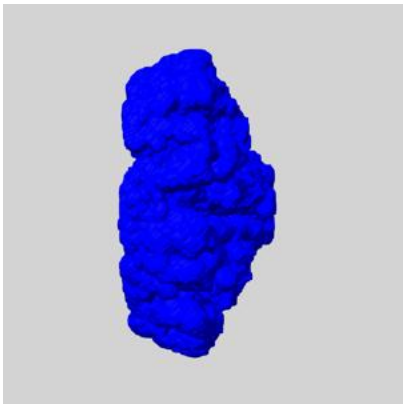
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

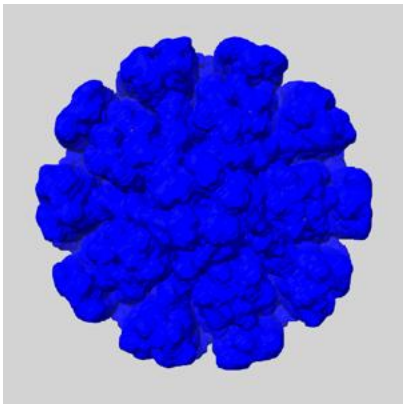
6.6.1 emd_49591_msk_1.map



X



Y

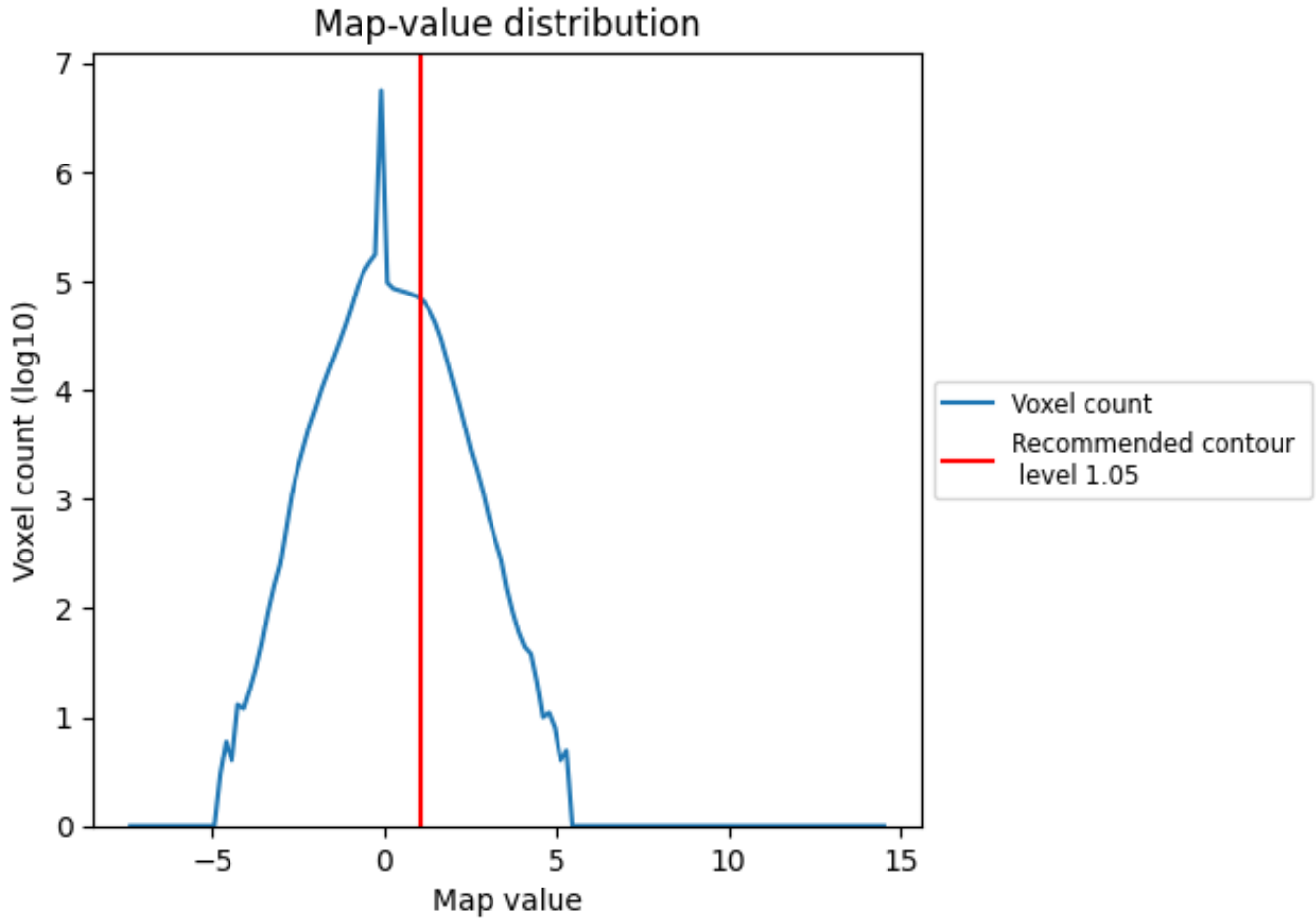


Z

7 Map analysis

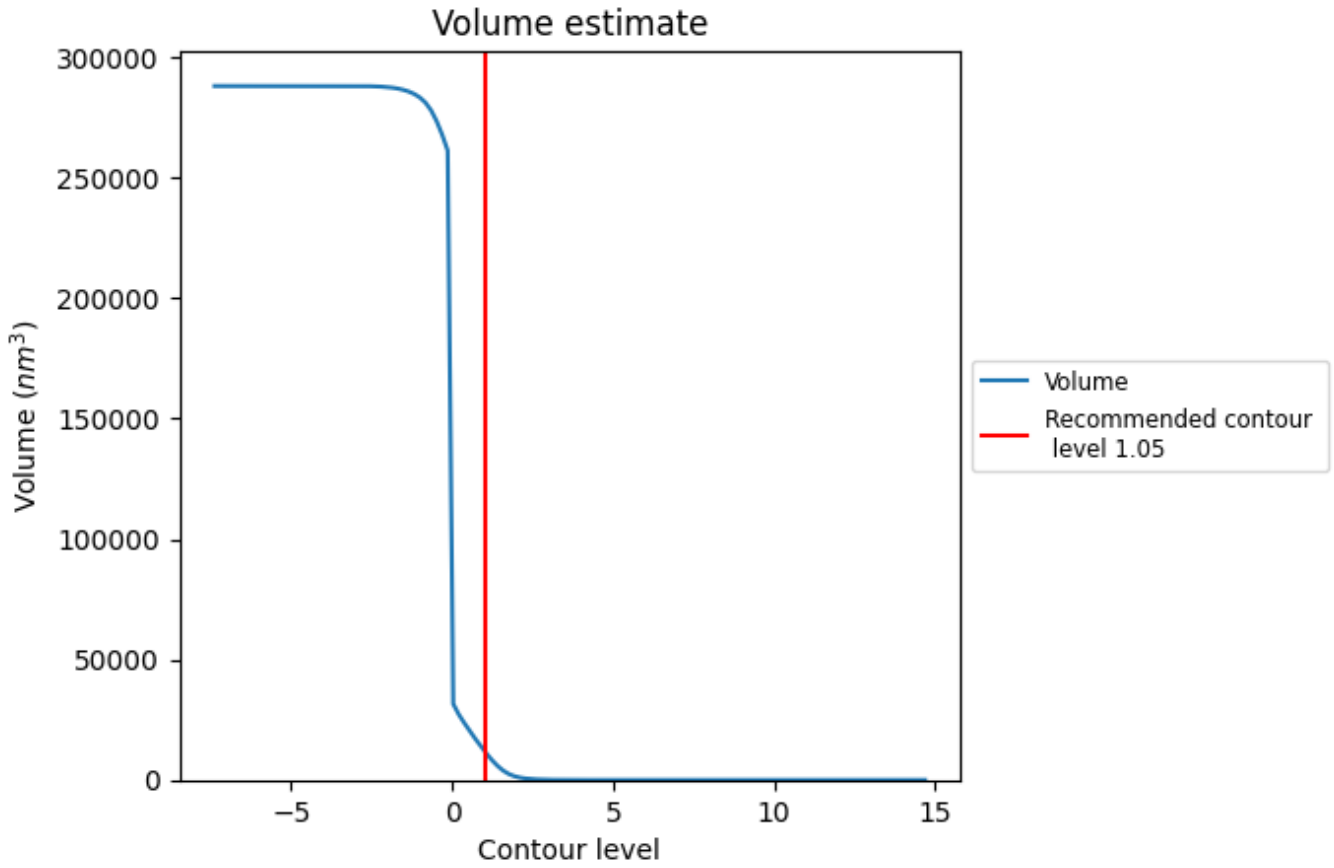
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

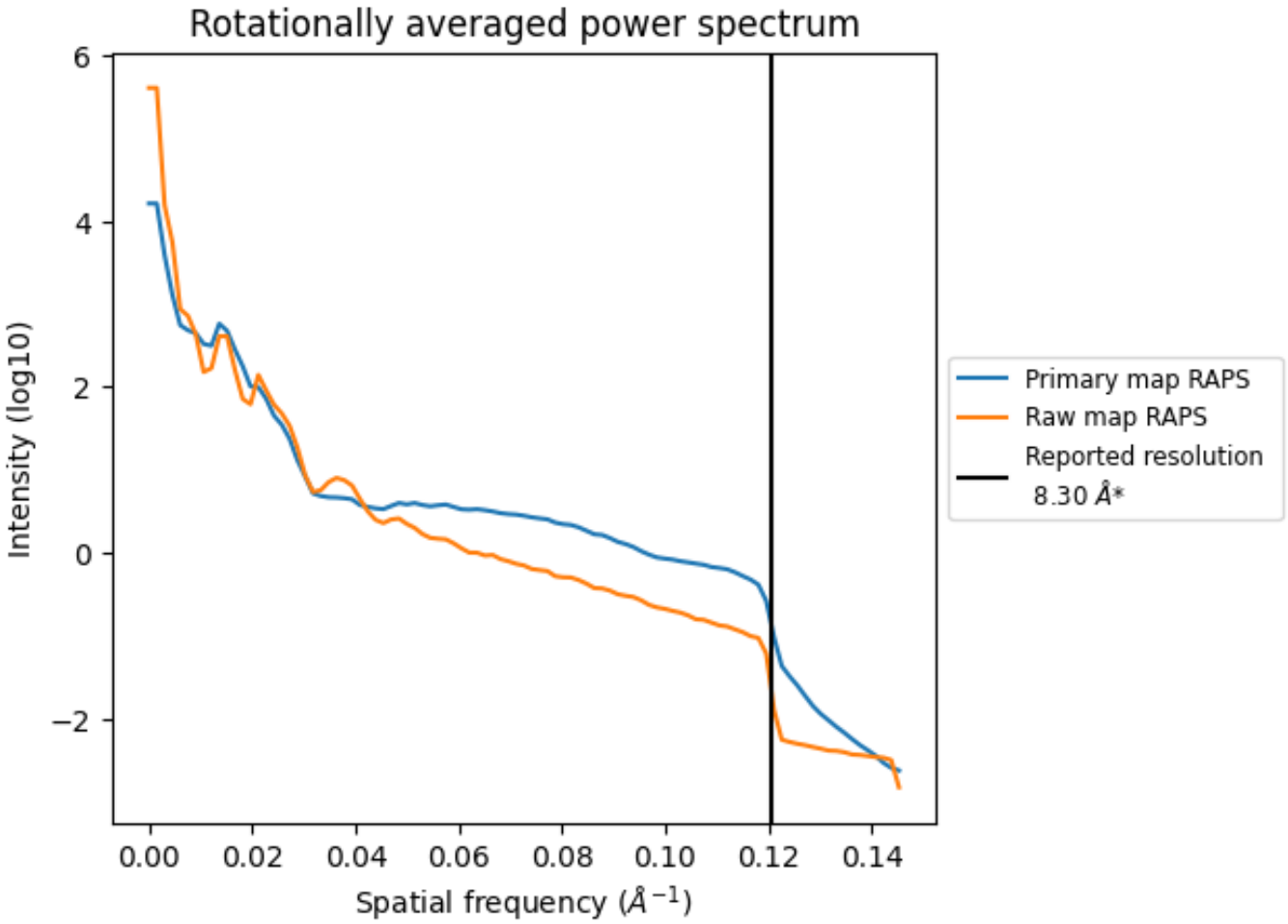
7.2 Volume estimate



The volume at the recommended contour level is 11235 nm^3; this corresponds to an approximate mass of 10149 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum (i)

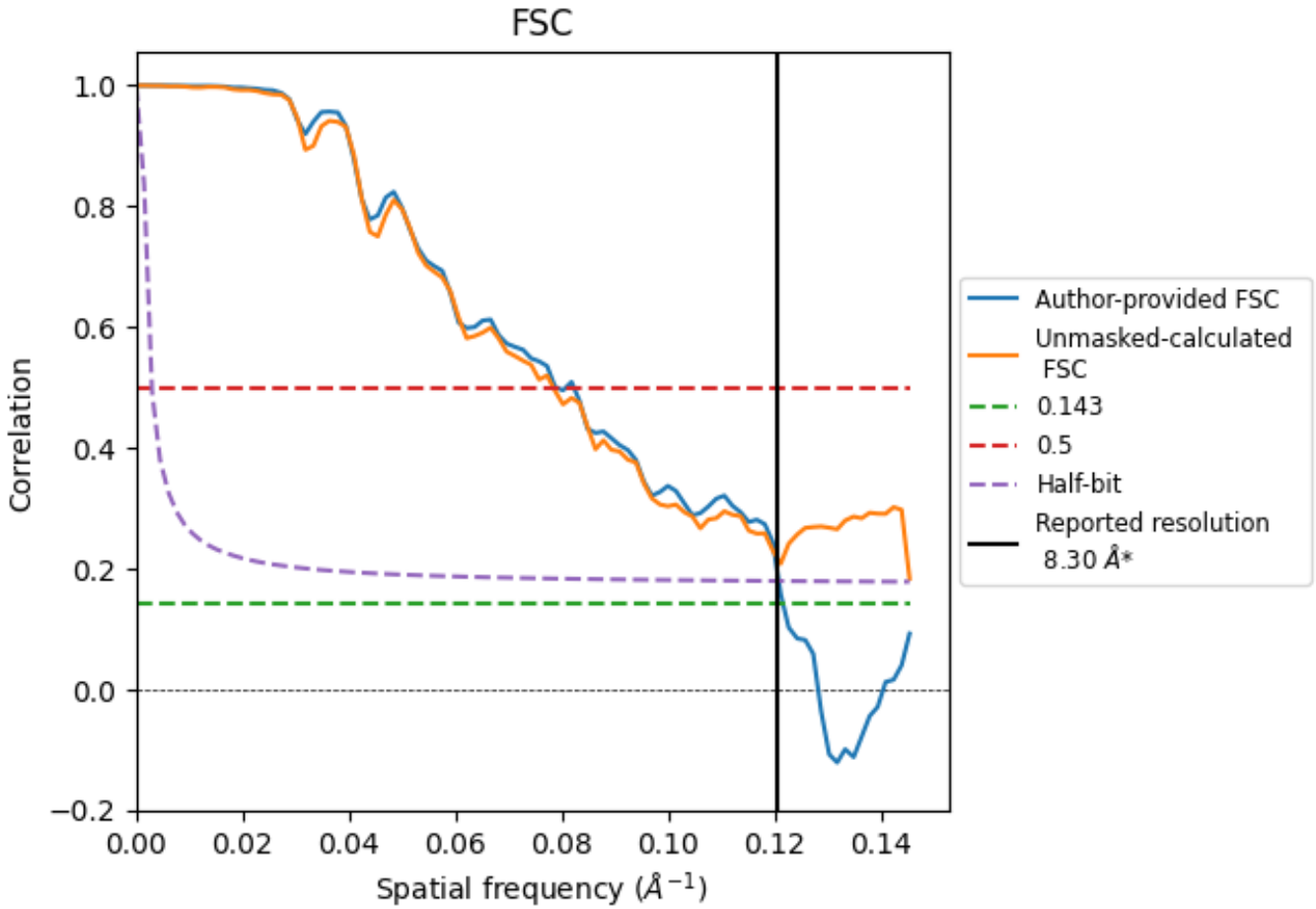


*Reported resolution corresponds to spatial frequency of 0.120 Å^{-1}

8 Fourier-Shell correlation

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.120 Å^{-1}

8.2 Resolution estimates (i)

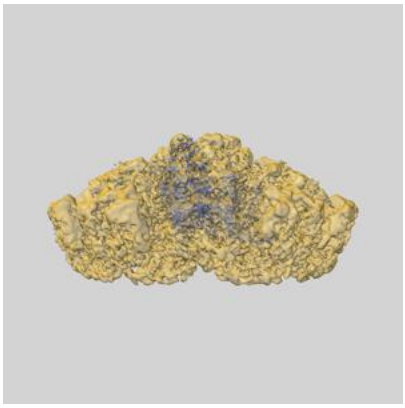
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	8.30	-	-
Author-provided FSC curve	8.23	12.67	8.29
Unmasked-calculated*	-	12.76	-

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

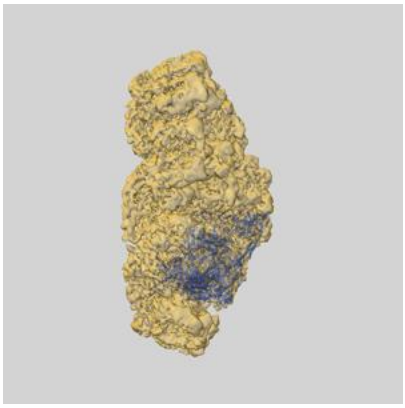
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-49591 and PDB model 9NO1. Per-residue inclusion information can be found in section 3 on page 6.

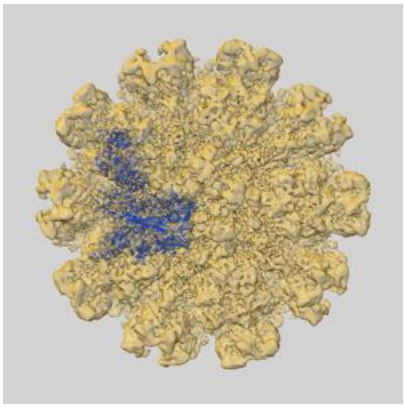
9.1 Map-model overlay



X



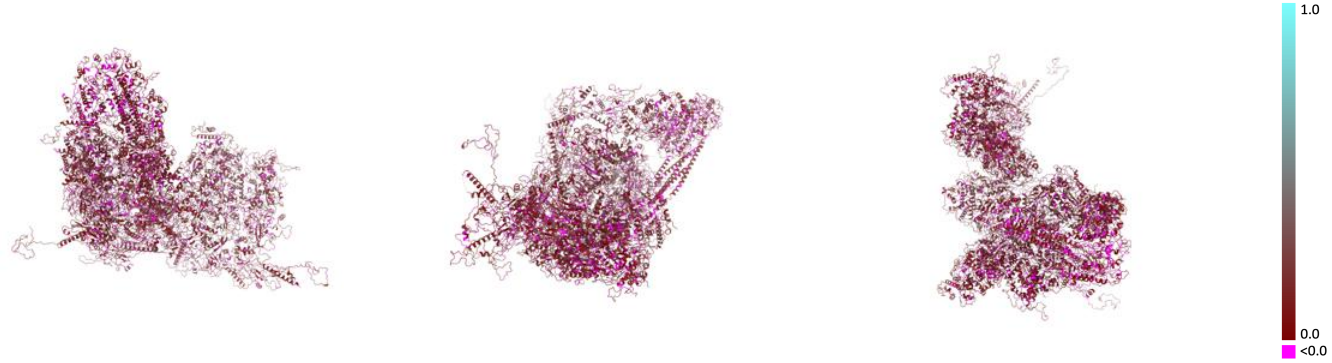
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 1.05 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

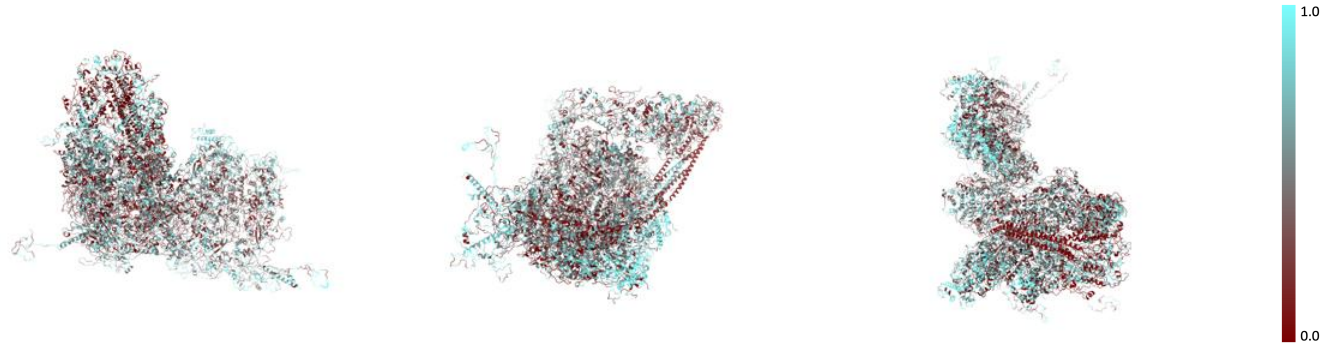
9.2 Q-score mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

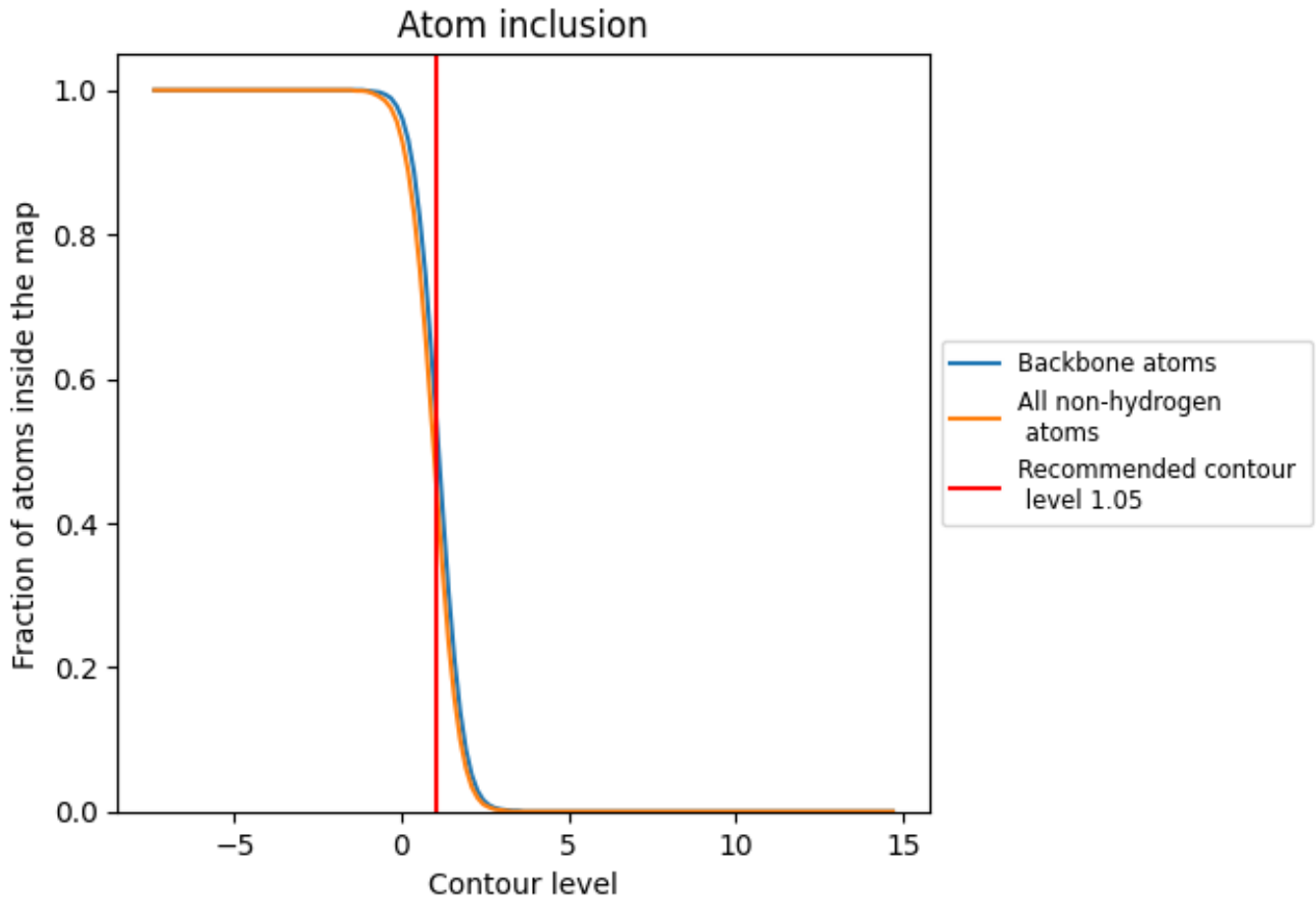
9.3 Atom inclusion mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (1.05).

9.4 Atom inclusion (i)



At the recommended contour level, 54% of all backbone atoms, 45% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (1.05) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.4500	0.1170
A	0.4480	0.1270
B	0.4660	0.1120
C	0.6990	0.1060
D	0.4970	0.1200
E	0.7370	0.1210
F	0.4660	0.1290
G	0.7680	0.1510
H	0.5030	0.1200
I	0.7670	0.1270
J	0.4240	0.1150
K	0.6740	0.1120
L	0.4480	0.1240
M	0.7050	0.1240
N	0.4170	0.1370
O	0.4160	0.1400
P	0.4080	0.1430
Q	0.4900	0.1210
R	0.4150	0.1290
S	0.4190	0.1410
T	0.3260	0.1100
U	0.2520	0.0660
V	0.3440	0.0490
W	0.5400	0.1040
X	0.0920	0.0440