Full wwPDB EM Validation Report ⓘ

Mar 10, 2024 – 11:12 PM EDT

PDB ID	:	6OJ5
EMDB ID	:	EMD-20088
Title	:	In situ structure of rotavirus VP1 RNA-dependent RNA polymerase (TLP_RNA)
Authors	:	Jenni, S.; Salgado, E.N.; Herrmann, T.; Li, Z.; Grant, T.; Grigorieff, N.; Trapani, S.; Estrozi, L.F.; Harrison, S.C.
Deposited on	:	2019-04-10
Resolution	:	5.20 Å(reported)

This is a Full wwPDB EM Validation 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:

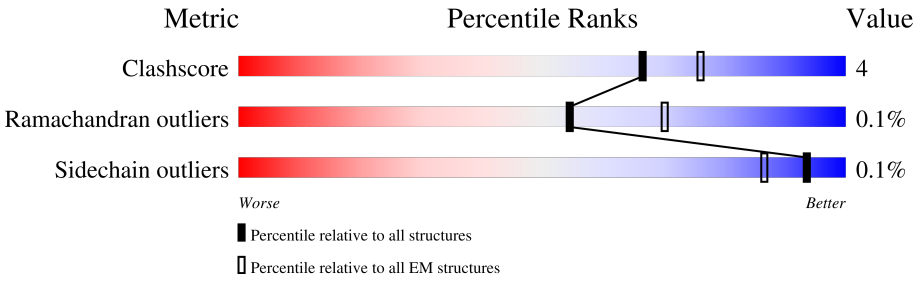
EMDB validation analysis	:	0.0.1.dev70
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 5.20 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	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	887	52% 76% 12% 12%
1	B	887	46% 75% 13% 12%
1	C	887	41% 75% 13% 12%
1	D	887	50% 81% 12% 7%
1	E	887	50% 78% 11% • 10%
1	F	887	53% 81% 8% • 10%
1	G	887	44% 81% 9% 10%
1	H	887	42% 78% 12% 10%

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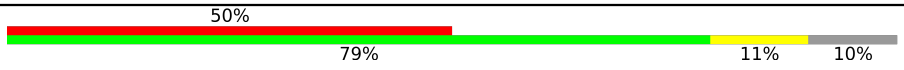
Mol	Chain	Length	Quality of chain
1	I	887	
1	J	887	
2	P	1088	

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 148557 atoms, of which 74462 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 Inner capsid protein VP2.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	A	781	Total	C	H	N	O	S	0	0
			12787	4052	6408	1101	1190	36		
1	B	781	Total	C	H	N	O	S	0	0
			12787	4052	6408	1101	1190	36		
1	C	780	Total	C	H	N	O	S	0	0
			12772	4047	6400	1100	1189	36		
1	D	827	Total	C	H	N	O	S	0	0
			13574	4297	6809	1163	1269	36		
1	E	795	Total	C	H	N	O	S	0	0
			13028	4132	6529	1118	1213	36		
1	F	802	Total	C	H	N	O	S	0	0
			13151	4170	6588	1130	1227	36		
1	G	802	Total	C	H	N	O	S	0	0
			13151	4170	6588	1130	1227	36		
1	H	802	Total	C	H	N	O	S	0	0
			13151	4170	6588	1130	1227	36		
1	I	800	Total	C	H	N	O	S	0	0
			13114	4159	6569	1127	1223	36		
1	J	816	Total	C	H	N	O	S	0	0
			13391	4242	6713	1149	1251	36		

- Molecule 2 is a protein called RNA-directed RNA polymerase.

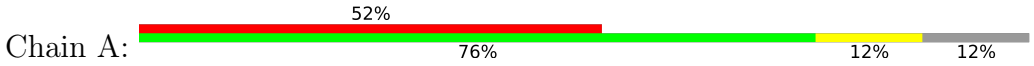
Mol	Chain	Residues	Atoms						AltConf	Trace
2	P	1086	Total	C	H	N	O	S	0	0
			17651	5633	8862	1455	1662	39		

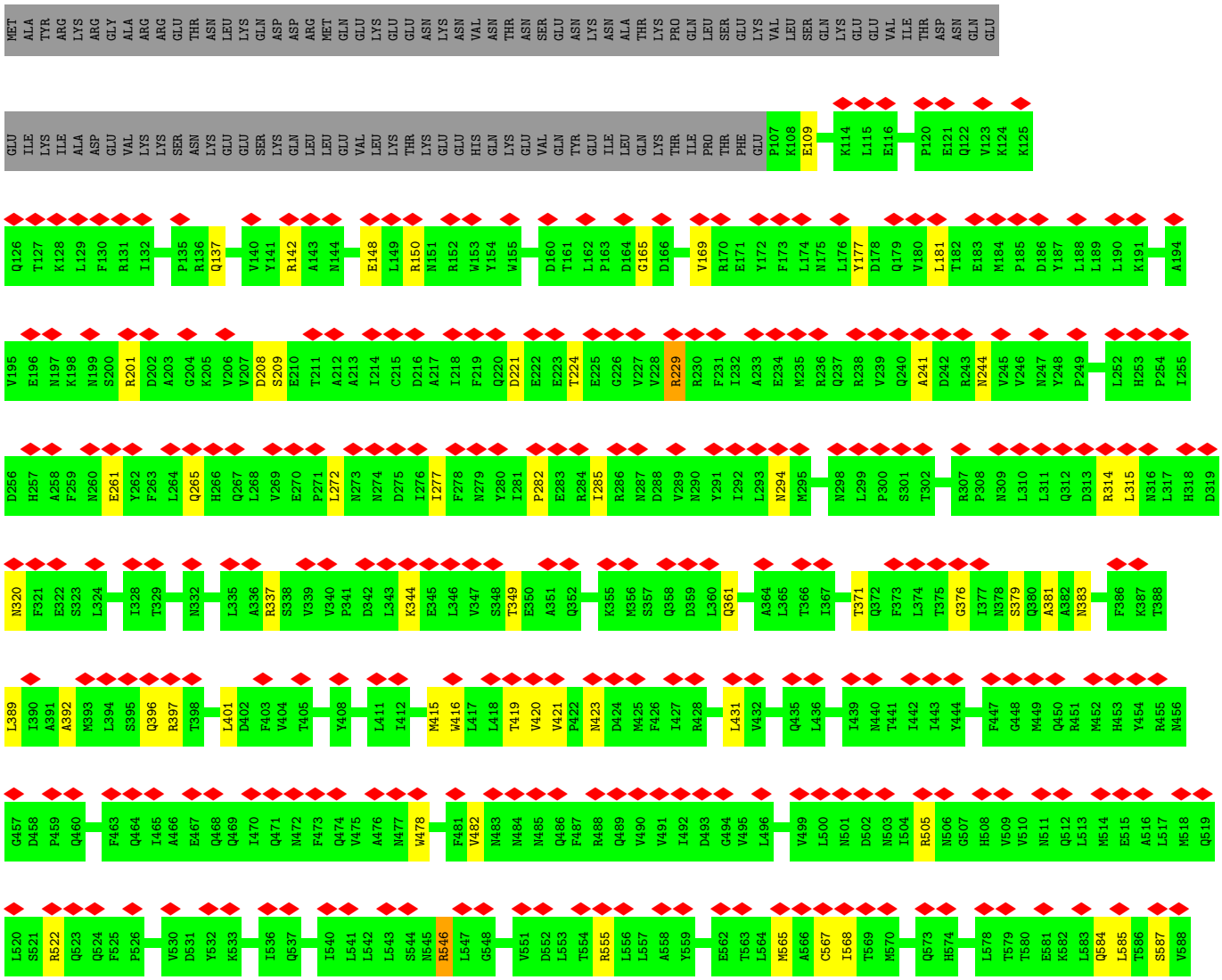
3 Residue-property plots (i)

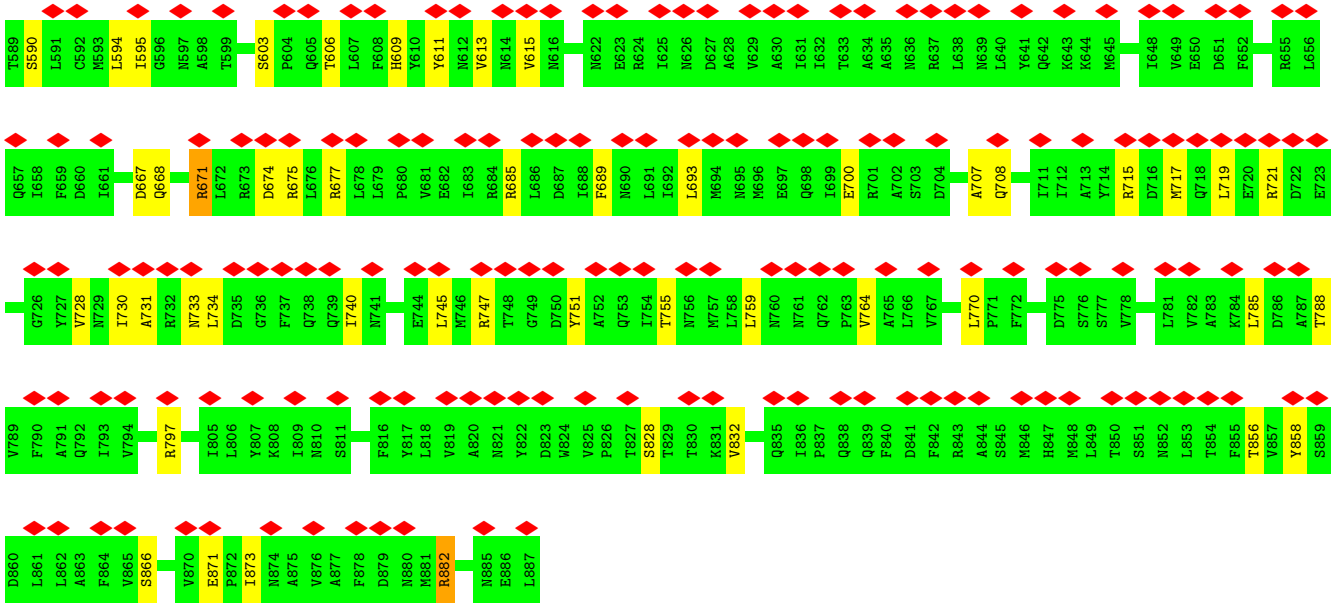
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: Inner capsid protein VP2

Chain A:

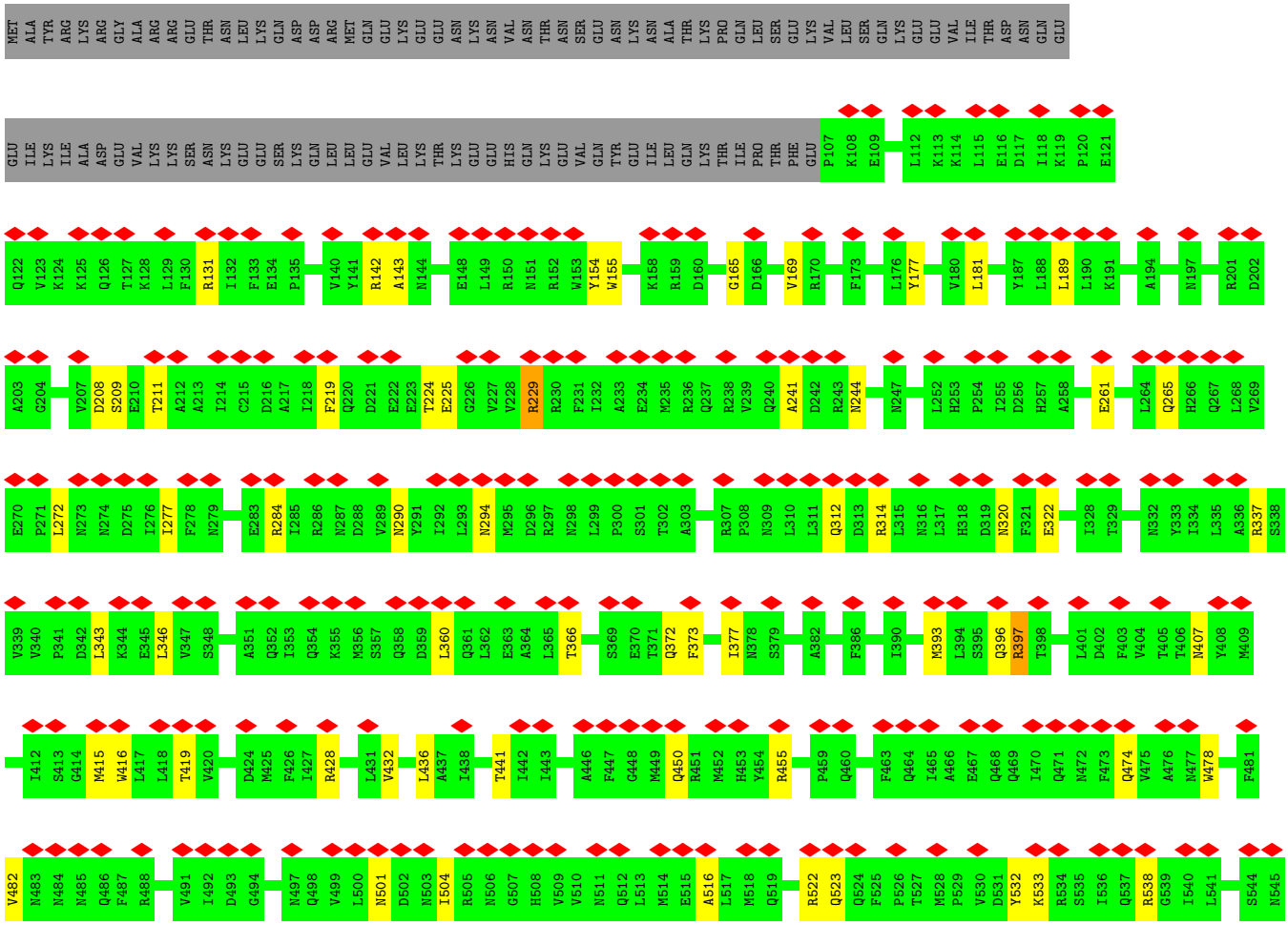


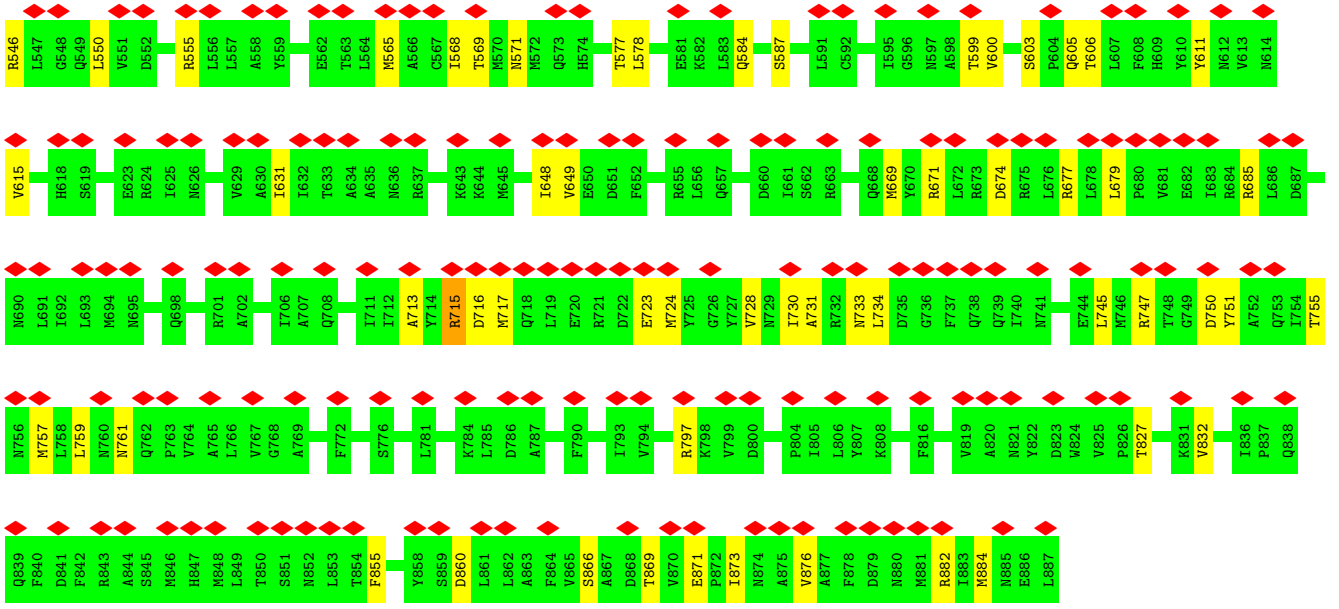




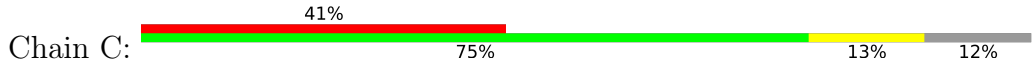
- Molecule 1: Inner capsid protein VP2

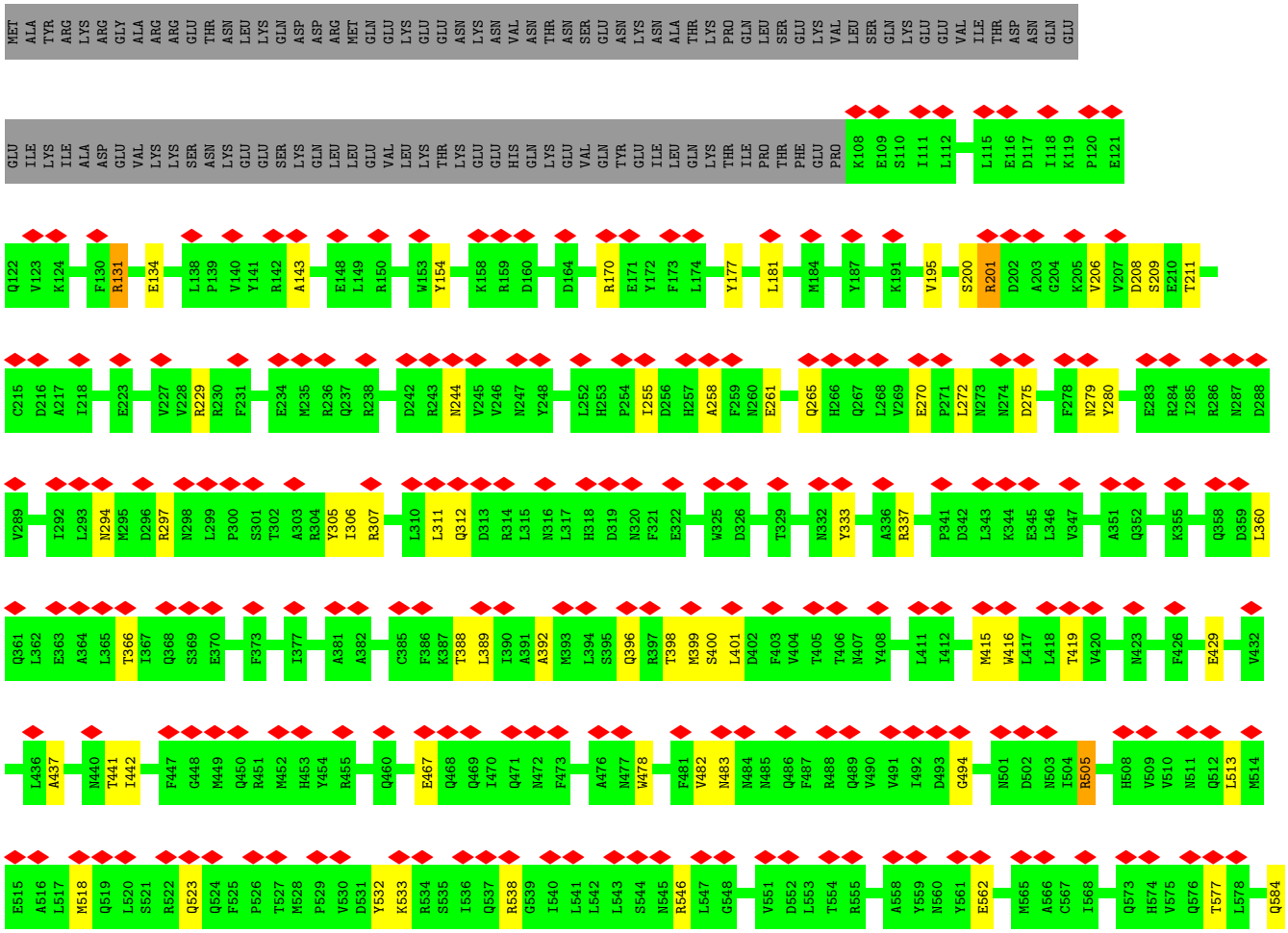
Chain B:

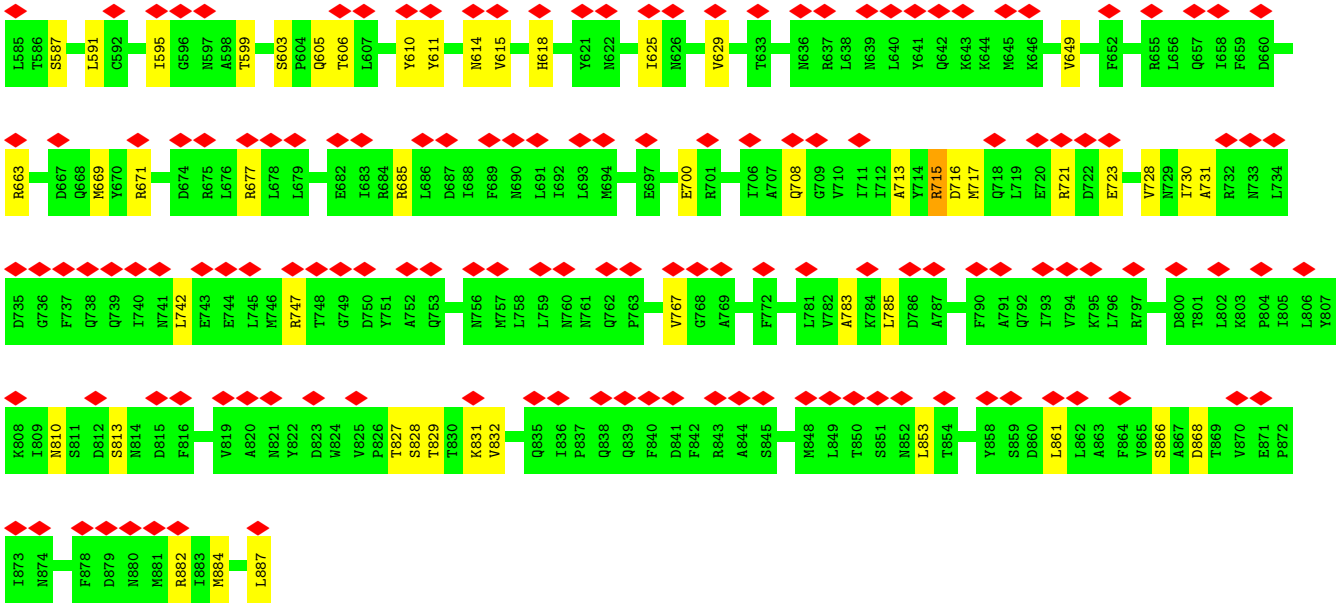




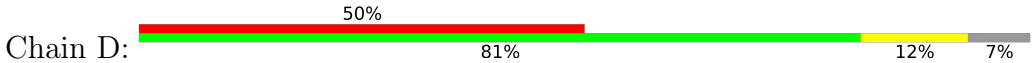
• Molecule 1: Inner capsid protein VP2

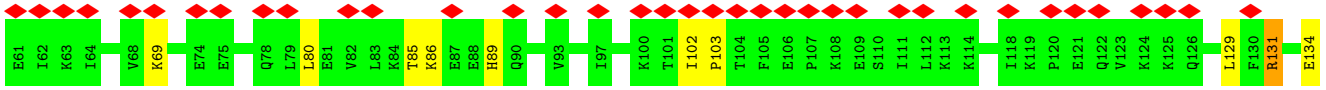


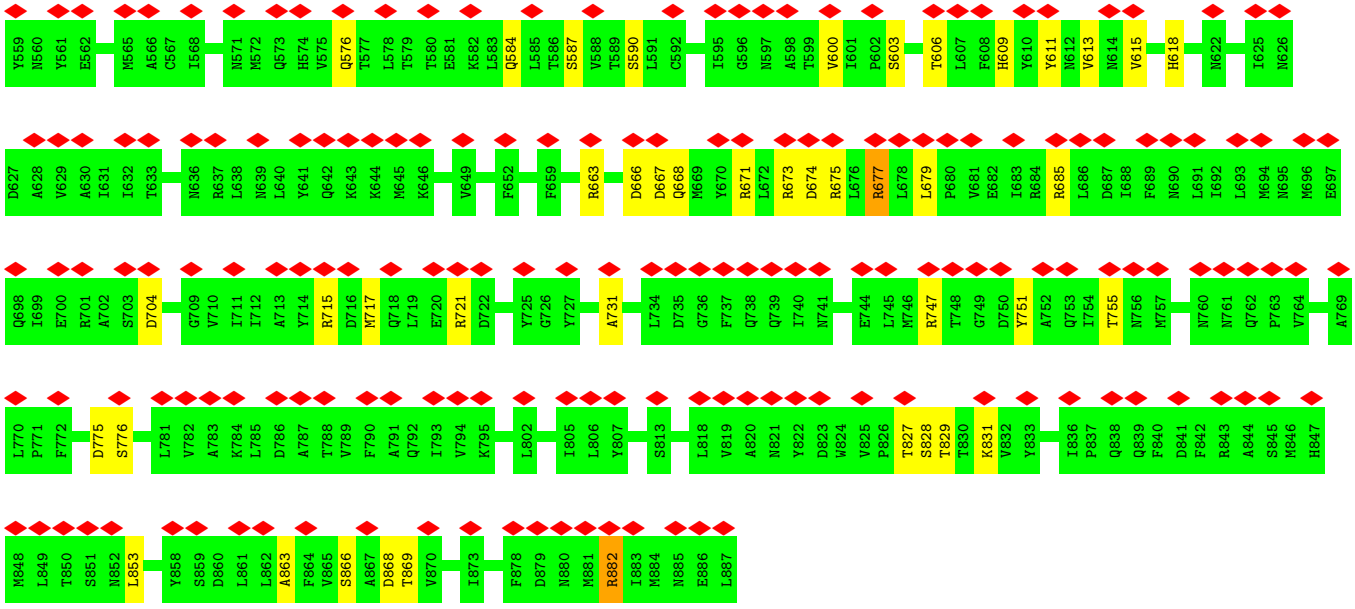




• Molecule 1: Inner capsid protein VP2

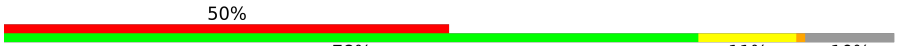


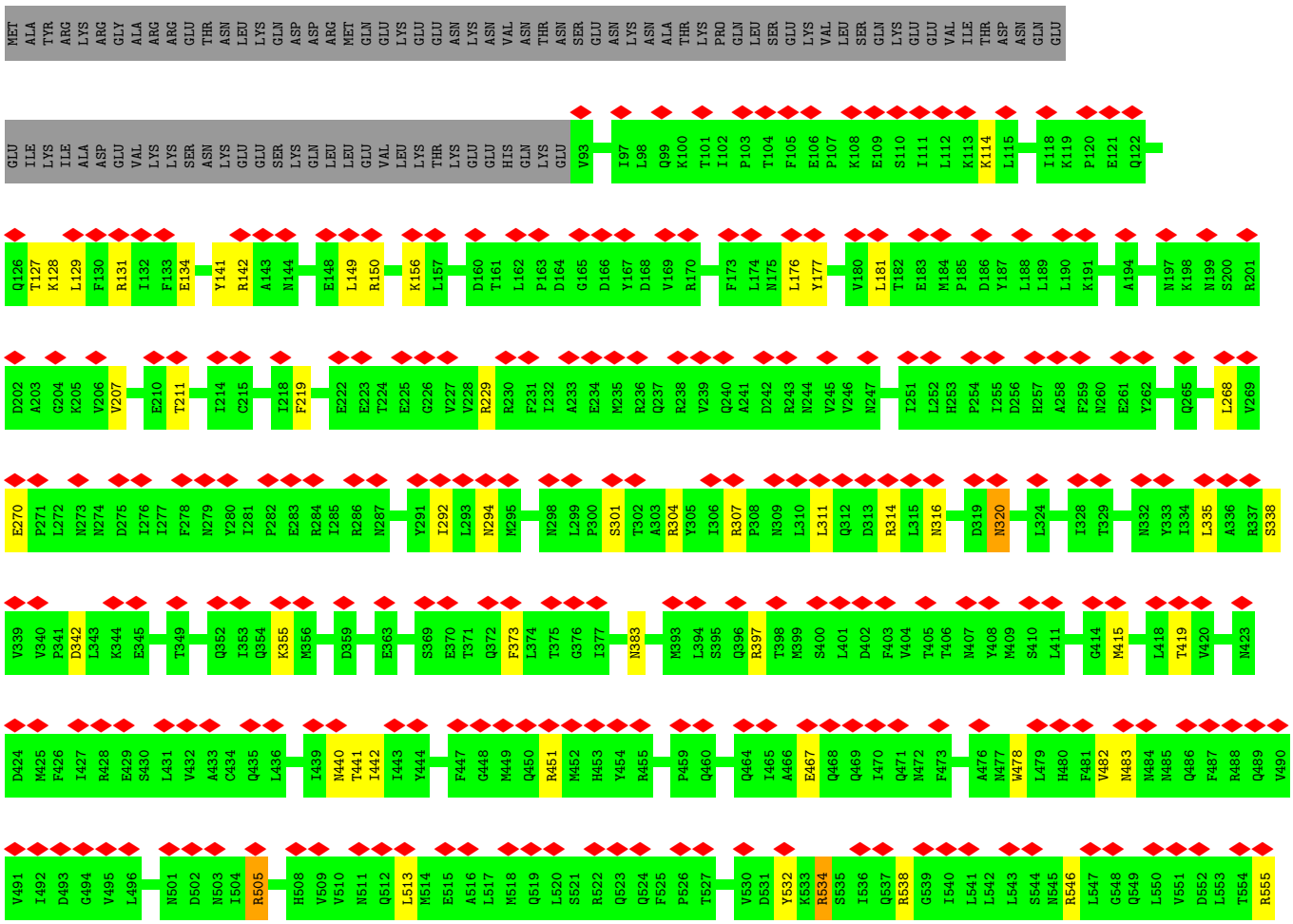


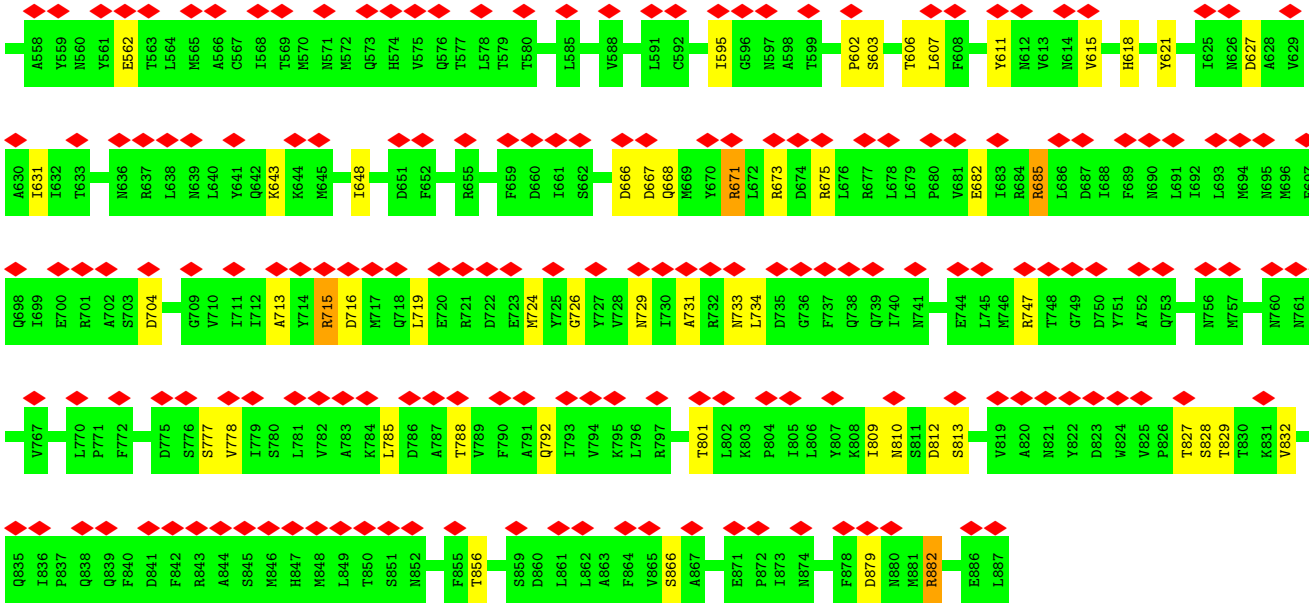


- Molecule 1: Inner capsid protein VP2

Chain E:

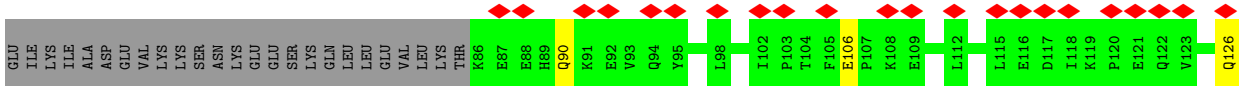


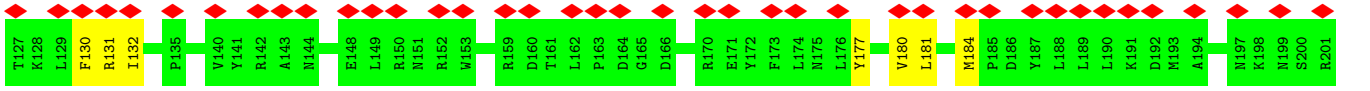


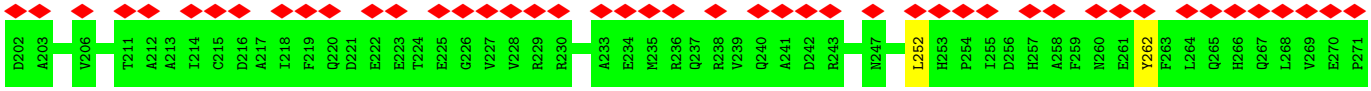


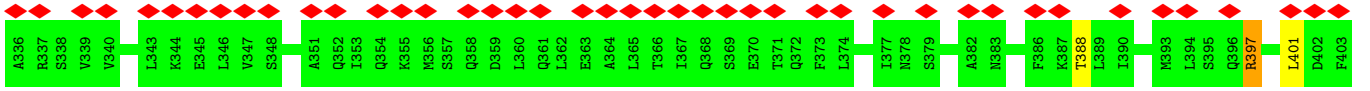
• Molecule 1: Inner capsid protein VP2

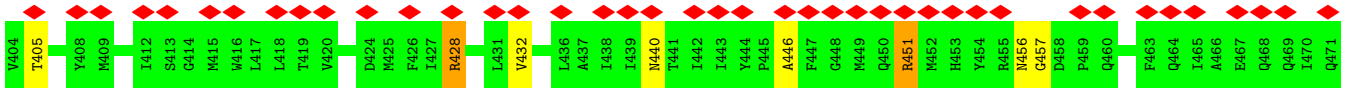
Chain F:

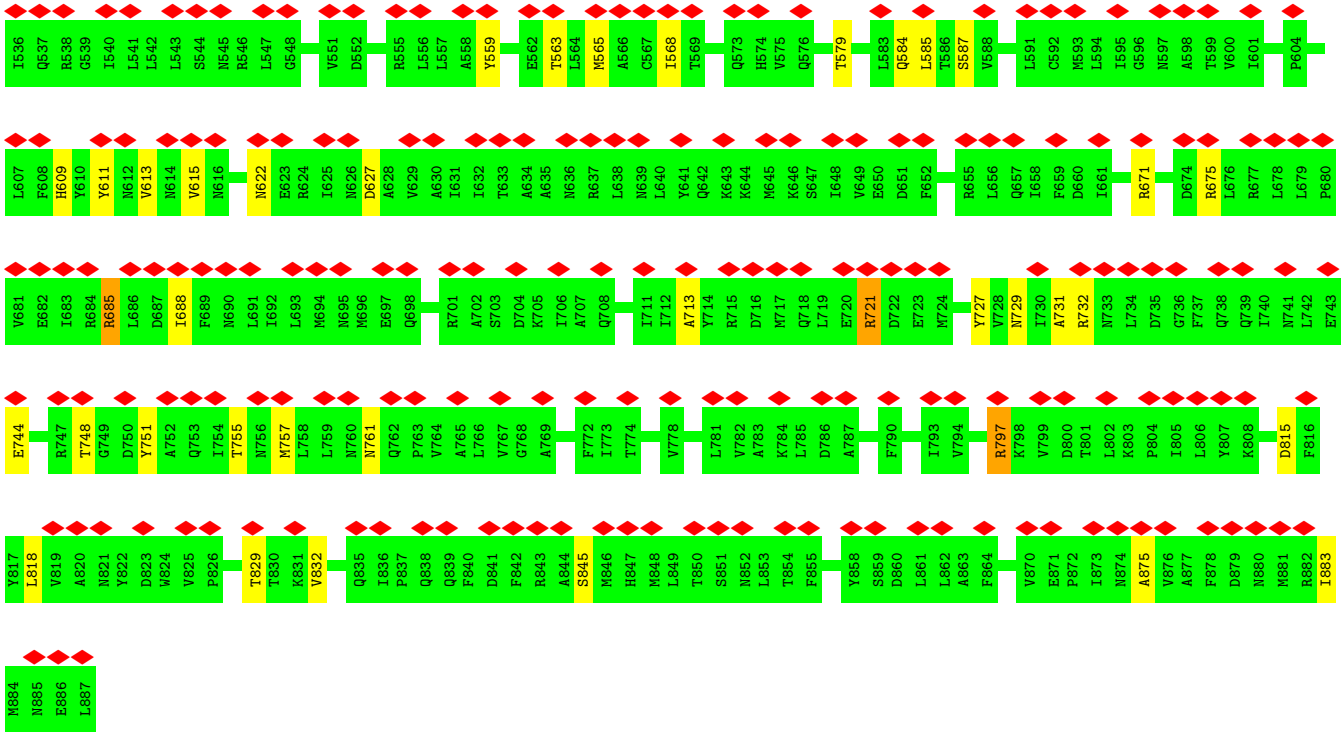




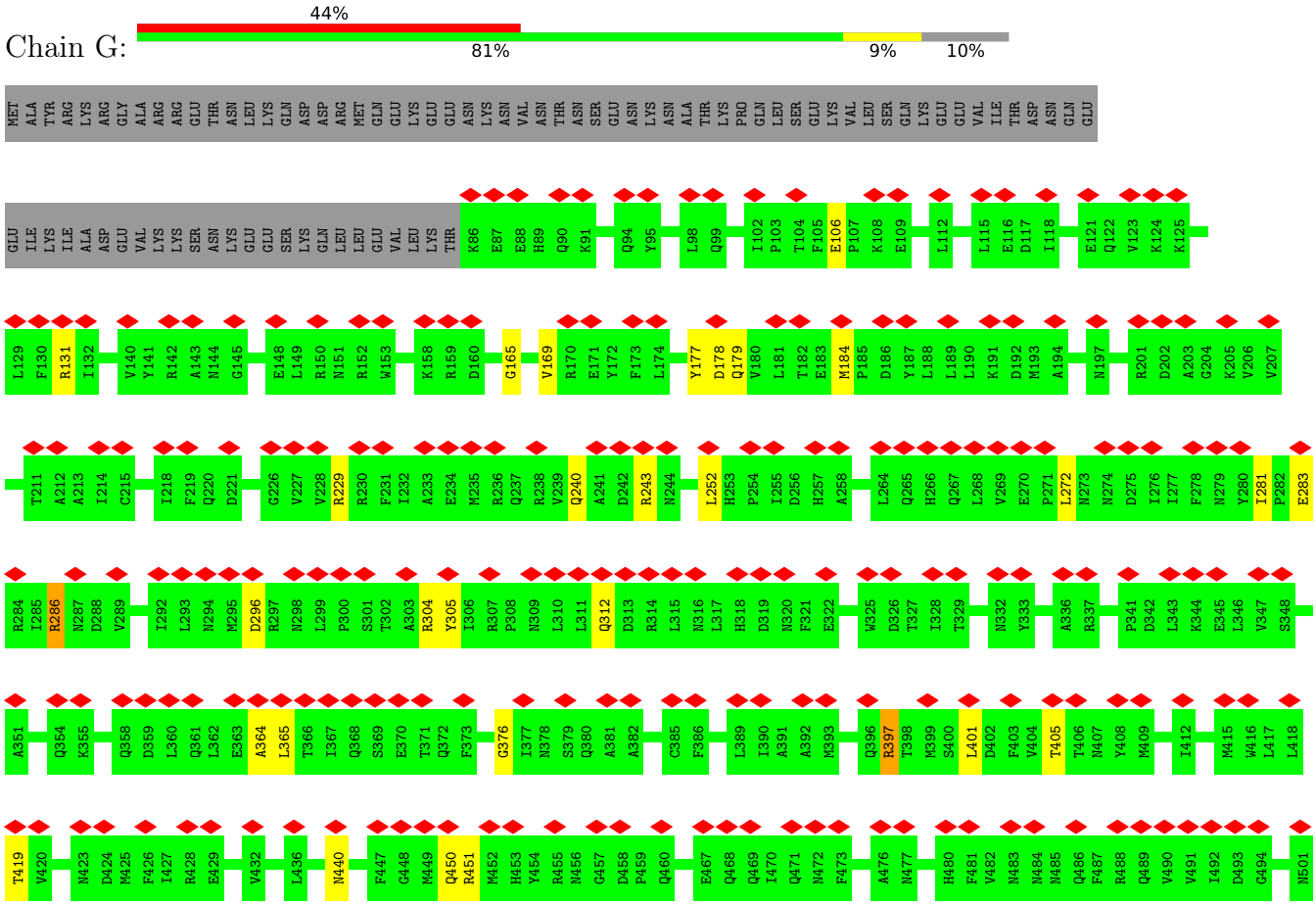


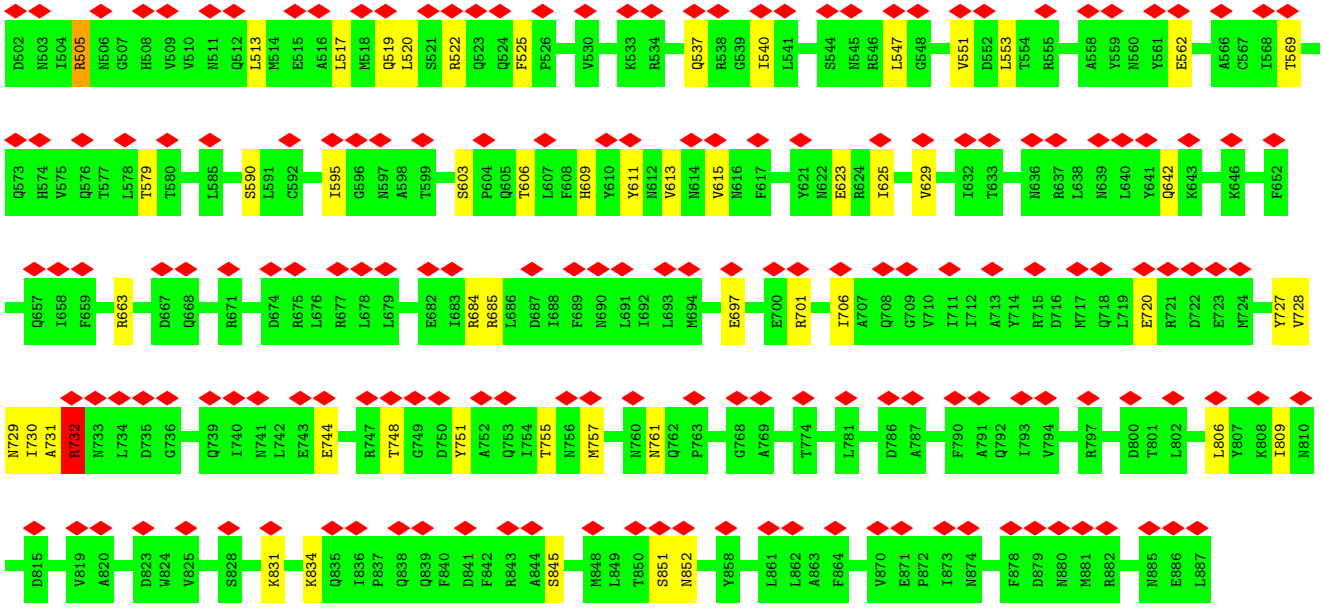






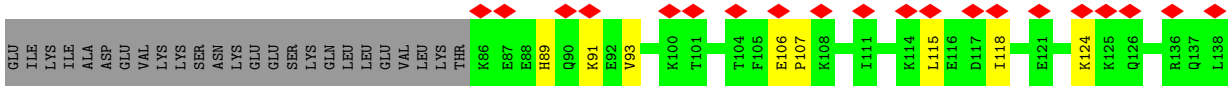
• Molecule 1: Inner capsid protein VP2

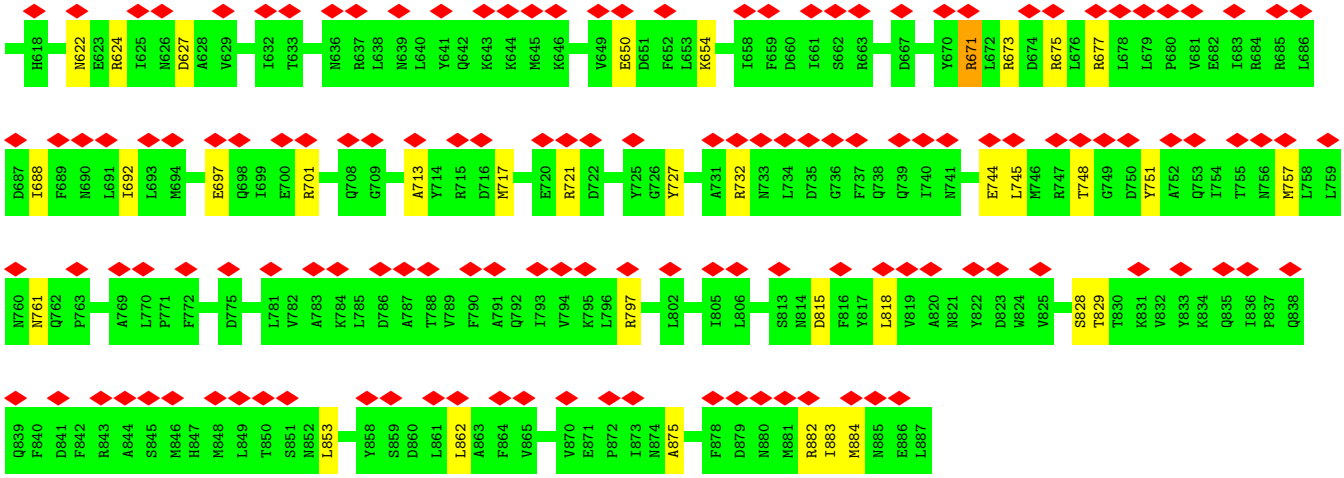




- Molecule 1: Inner capsid protein VP2

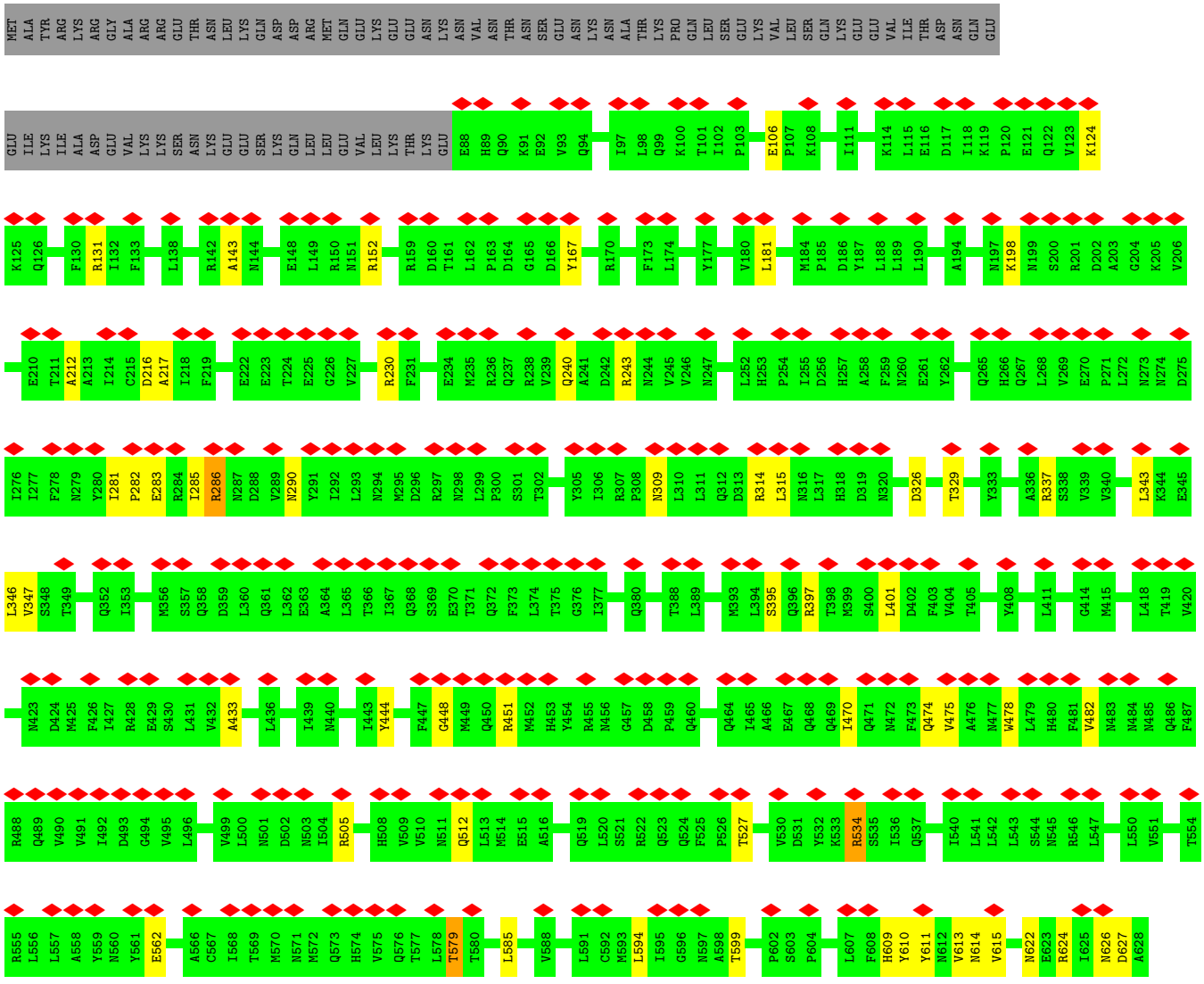
Chain H:

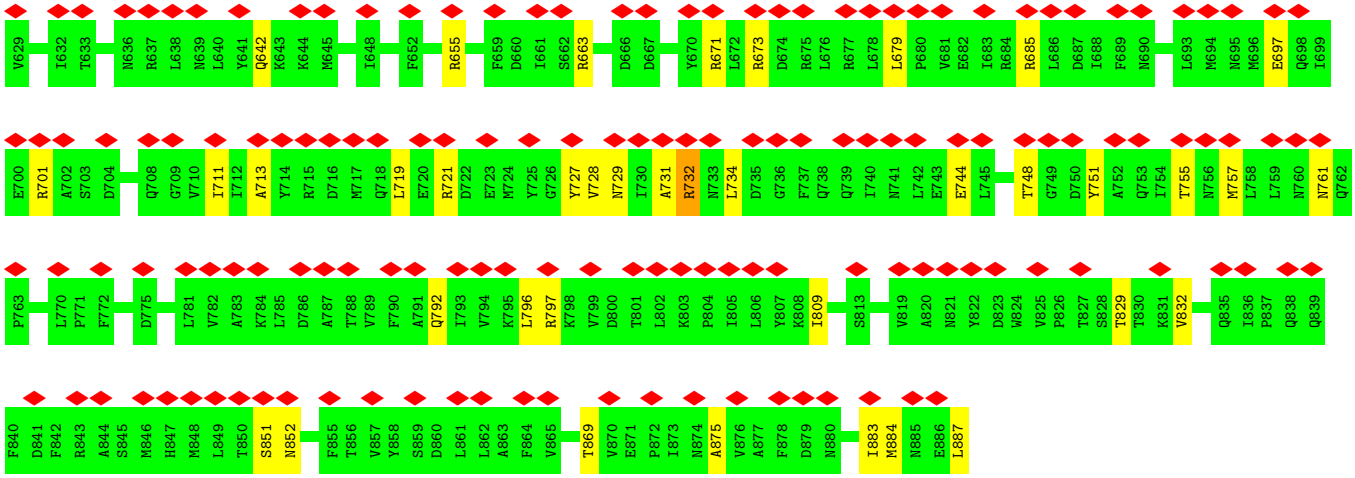




• Molecule 1: Inner capsid protein VP2

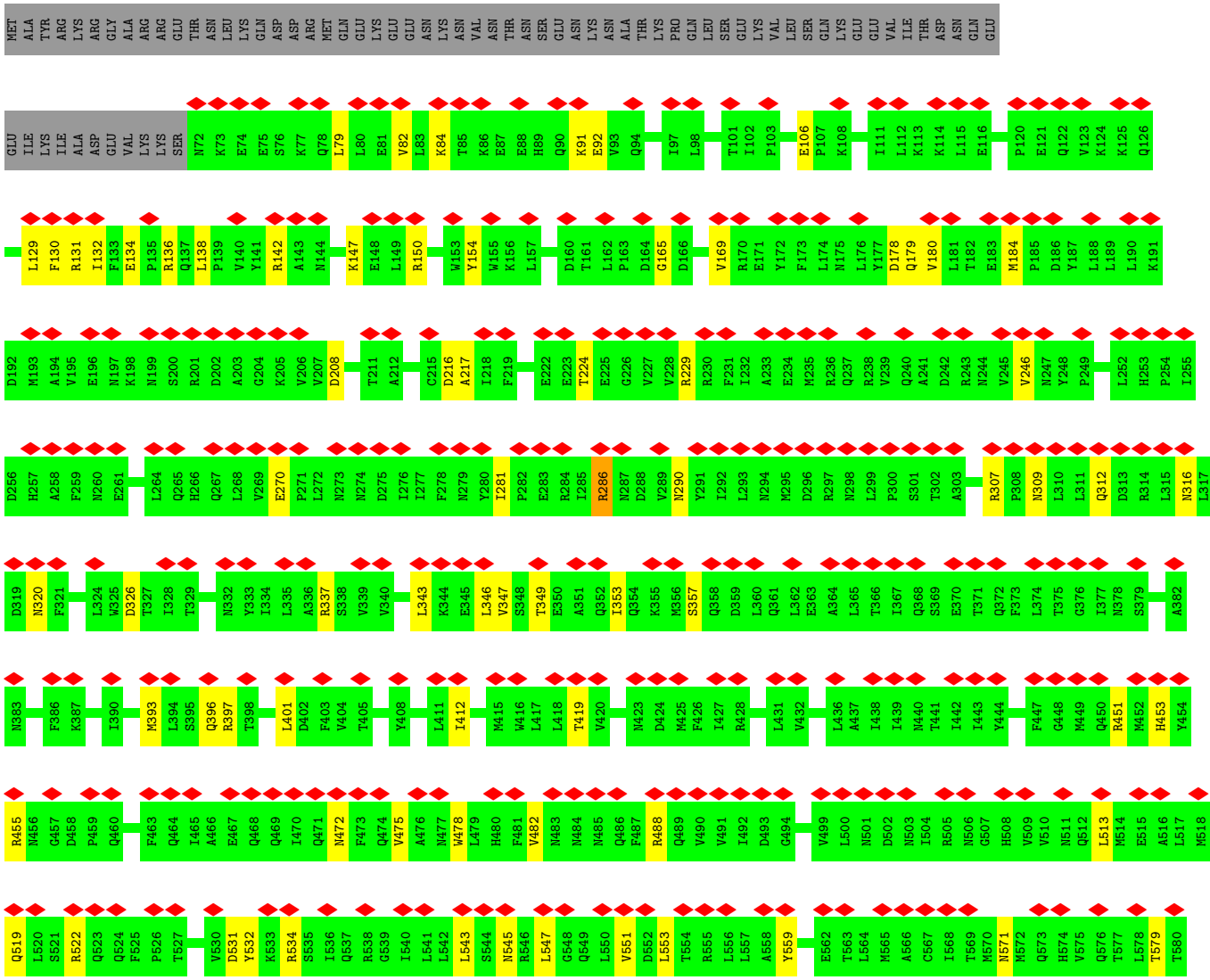
Chain I:

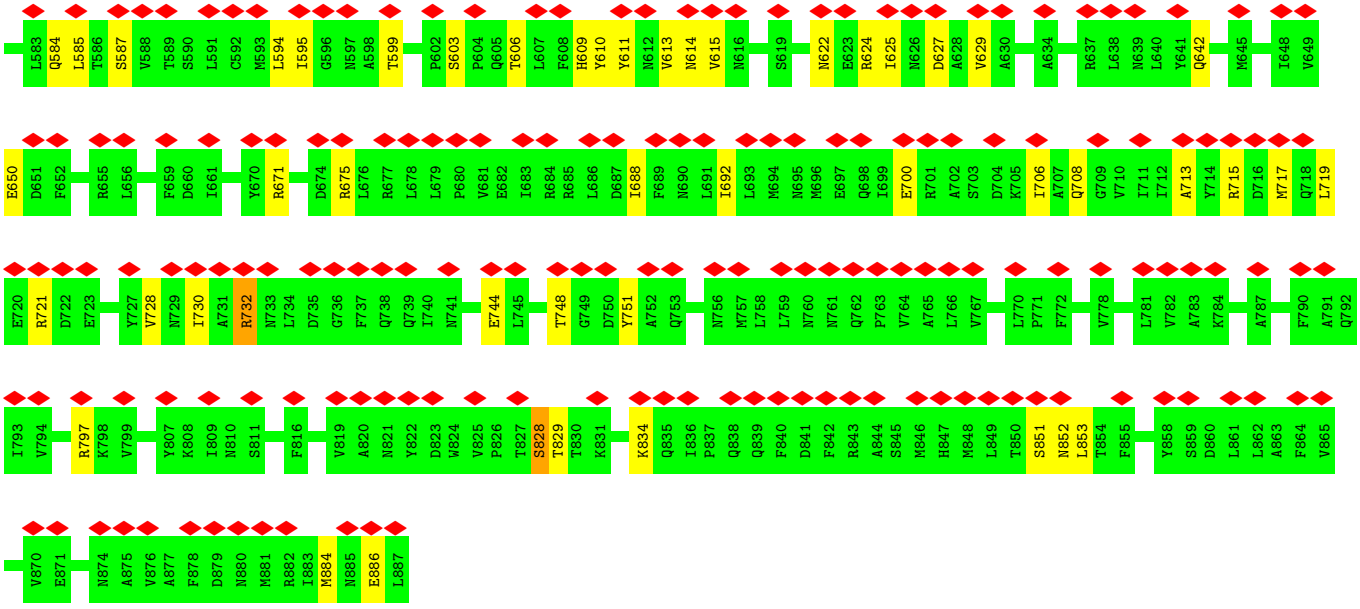




• Molecule 1: Inner capsid protein VP2

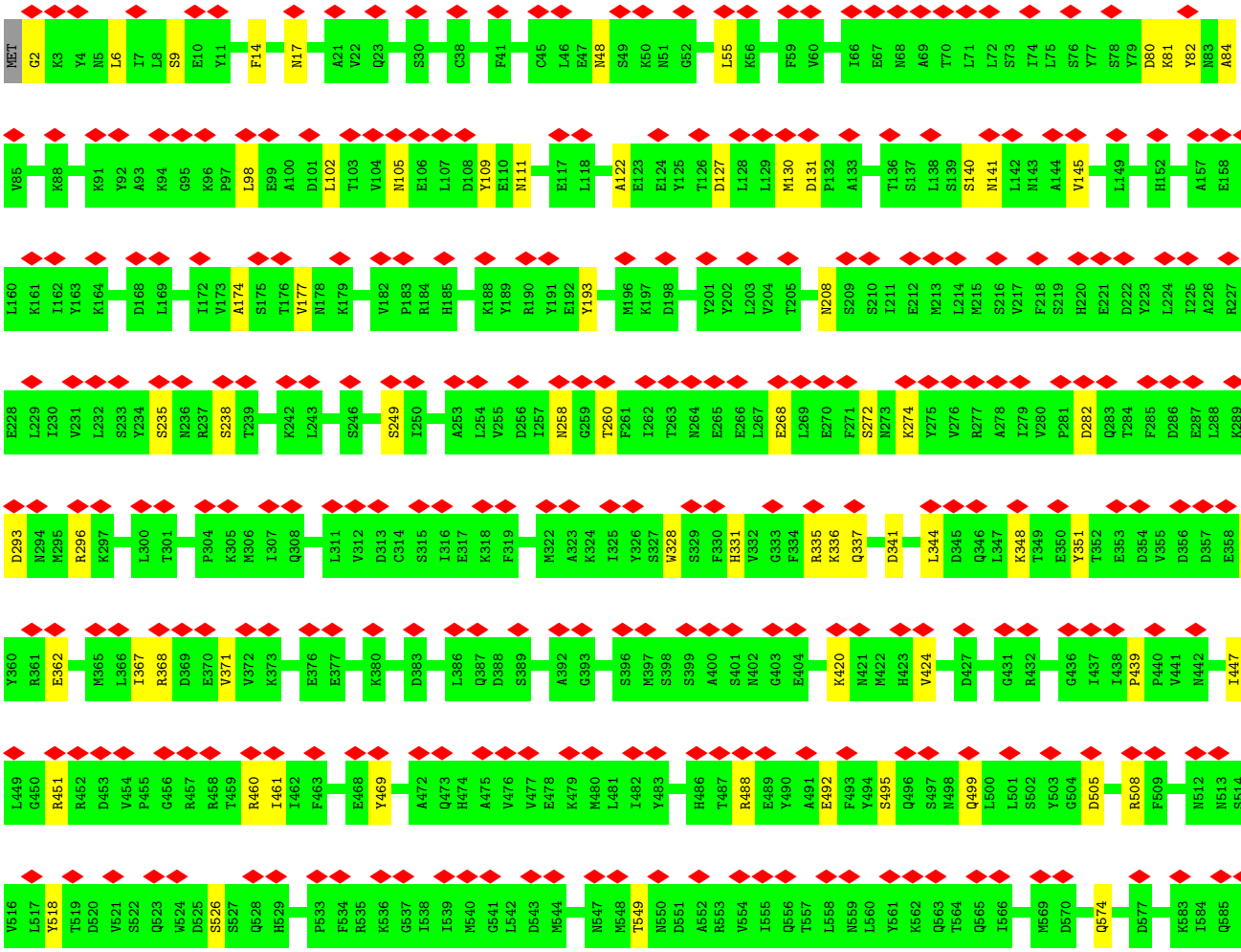
Chain J:

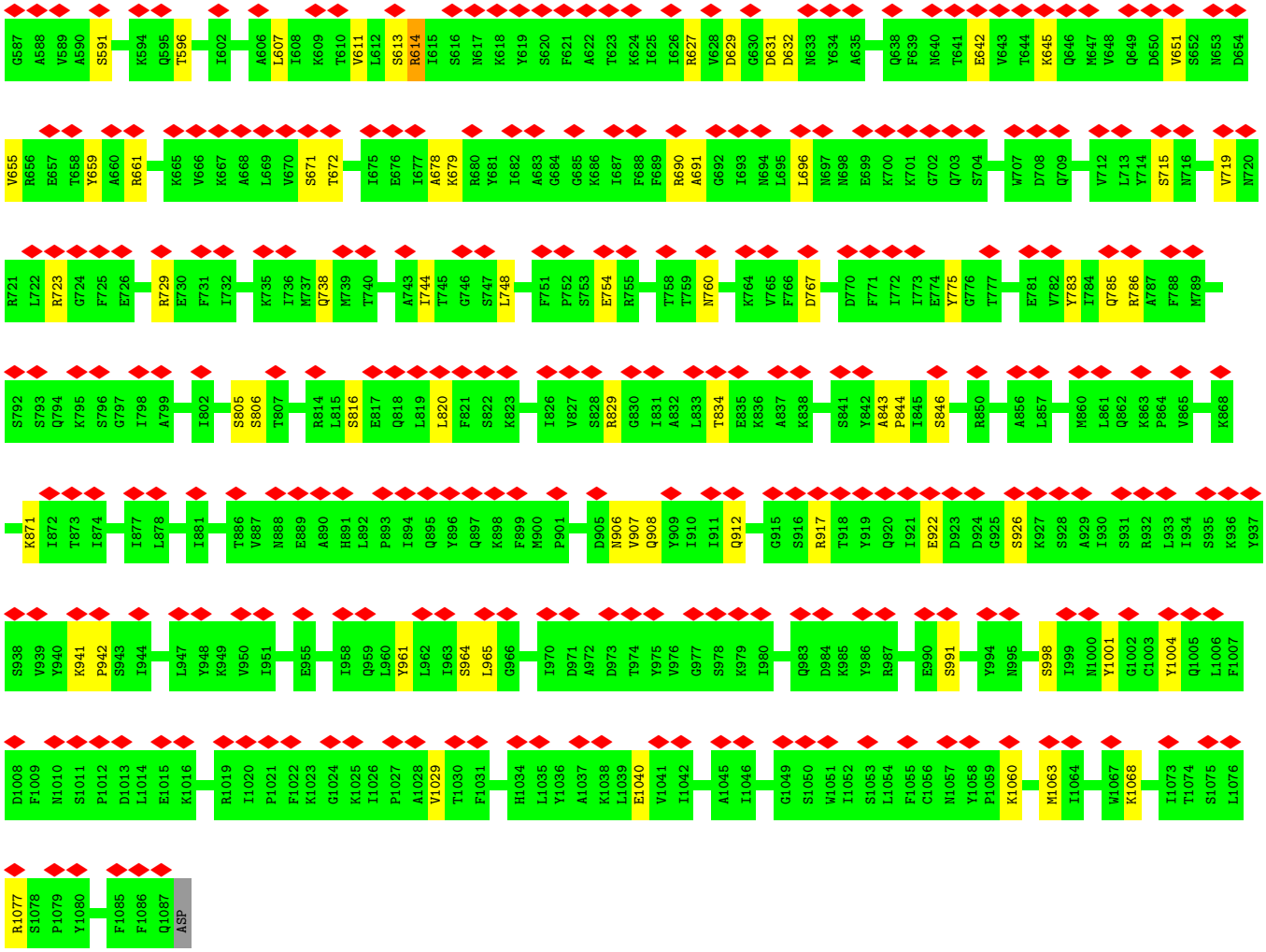




• Molecule 2: RNA-directed RNA polymerase

Chain P:




G587 A588 V589 A590 S591 K594 Q595 T596 I602 A606 L607 I608 K609 T610 V611 L612 S613 R614 I615 S616 N617 K618 Y619 S620 F621 A622 T623 K624 I625 I626 R627 V628 D629 G630 D631 D632 N633 Y634 A635 Q638 F639 N640 T641 E642 V643 T644 K645 Q646 M647 V648 Q649 D650 V651 S652 N653 D654
V655 R656 E657 T658 Y659 A660 R661 K665 V666 K667 A668 L669 V670 S671 T672 I675 E676 I677 A678 K679 R680 Y681 I682 A683 G684 G685 K686 I687 F688 F689 R690 A691 G692 I693 N694 L695 L696 N697 N698 E699 K700 K701 G702 Q703 S704 W707 D708 Q709 V712 L713 Y714 S715 M716 V719 M720
R721 L722 R723 G724 F725 E726 R729 E730 F731 I732 K735 I736 M737 Q738 M739 T740 A743 I744 T745 G746 S747 L748 F751 P752 S753 E754 R755 T758 T759 N760 K764 V765 F766 D767 D770 F771 I772 I773 E774 Y775 G776 T777 E781 V782 Y783 I784 Q785 R786 A787 F788 M789
S792 S793 Q794 K795 S796 G797 I798 A799 I802 S805 S806 T807 R814 L815 S816 E817 Q818 L819 L820 F821 S822 K823 I826 V827 S828 R829 G830 I831 A832 L833 T834 E835 K836 A837 K838 S841 Y842 A843 P844 I845 S846 R850 A856 L857 M860 L861 Q862 K863 P864 V865 K868
K871 I872 T873 I874 I877 L878 I881 T886 V887 N888 E889 A890 H891 L892 P893 I894 Q895 Y896 Q897 K898 F899 M900 P901 D905 N906 V907 Q908 Y909 I910 I911 Q912 G915 S916 R917 T918 Y919 Q920 I921 E922 D923 D924 G925 S926 K927 S928 A929 I930 S931 R932 L933 I934 S935 K936 Y937
S938 V939 Y940 K941 P942 S943 I944 L947 Y948 K949 V950 I951 E955 I958 Q959 L960 Y961 L962 I963 S964 L965 G966 I970 D971 A972 D973 T974 Y975 V976 G977 S978 K979 I980 Q983 D984 K985 Y986 R987 E990 S991 Y994 N995 S998 I999 N1000 Y1001 G1002 C1003 Y1004 Q1005 L1006 F1007
D1008 F1009 N1010 S1011 P1012 D1013 L1014 E1015 K1016 R1019 I1020 P1021 F1022 K1023 G1024 K1025 I1026 P1027 A1028 V1029 T1030 F1031 H1034 L1035 Y1036 A1037 K1038 L1039 E1040 V1041 I1042 A1045 I1046 G1049 S1050 W1051 I1052 S1053 L1054 F1055 C1056 N1057 Y1058 P1059 K1060 M1063 I1064 W1067 K1068 I1073 T1074 S1075 L1076
R1077 S1078 P1079 Y1080 F1085 F1086 Q1087 ASP

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	82008	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI POLARA 300	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	64	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	10.245	Depositor
Minimum map value	-6.056	Depositor
Average map value	0.015	Depositor
Map value standard deviation	0.486	Depositor
Recommended contour level	2.0	Depositor
Map size (Å)	369.0, 369.0, 369.0	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.23, 1.23, 1.23	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	0.50	0/6495	0.91	16/8810 (0.2%)
1	B	0.48	0/6495	0.90	18/8810 (0.2%)
1	C	0.49	1/6487 (0.0%)	0.90	15/8799 (0.2%)
1	D	0.48	0/6885	0.89	15/9332 (0.2%)
1	E	0.49	0/6618	0.91	16/8979 (0.2%)
1	F	0.48	0/6683	0.88	12/9064 (0.1%)
1	G	0.47	0/6683	0.86	9/9064 (0.1%)
1	H	0.48	0/6683	0.88	8/9064 (0.1%)
1	I	0.48	0/6665	0.87	14/9041 (0.2%)
1	J	0.48	0/6798	0.87	9/9217 (0.1%)
2	P	0.48	0/8963	0.85	8/12120 (0.1%)
All	All	0.48	1/75455 (0.0%)	0.88	140/102300 (0.1%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	B	0	1
1	C	0	1
1	D	0	2
1	F	0	1
1	G	0	3
1	H	0	1
1	I	0	3
1	J	0	3
2	P	0	2
All	All	0	18

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	306	ILE	C-N	-5.05	1.22	1.34

All (140) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	882	ARG	NE-CZ-NH1	7.65	124.13	120.30
1	C	671	ARG	NE-CZ-NH1	7.54	124.07	120.30
1	B	671	ARG	NE-CZ-NH1	7.48	124.04	120.30
1	D	882	ARG	NE-CZ-NH1	7.46	124.03	120.30
1	G	397	ARG	NE-CZ-NH2	-7.10	116.75	120.30
1	D	671	ARG	NE-CZ-NH1	6.85	123.72	120.30
1	E	671	ARG	NE-CZ-NH1	6.79	123.69	120.30
1	H	514	MET	CG-SD-CE	6.72	110.95	100.20
1	F	451	ARG	NE-CZ-NH1	6.65	123.63	120.30
2	P	614	ARG	NE-CZ-NH1	6.54	123.57	120.30
1	E	534	ARG	NE-CZ-NH1	6.49	123.55	120.30
1	C	882	ARG	NE-CZ-NH1	6.47	123.54	120.30
1	F	397	ARG	NE-CZ-NH2	-6.43	117.09	120.30
1	F	451	ARG	NE-CZ-NH2	-6.27	117.16	120.30
1	A	759	LEU	CA-CB-CG	6.26	129.69	115.30
1	E	176	LEU	CA-CB-CG	6.21	129.57	115.30
1	E	882	ARG	NE-CZ-NH1	6.20	123.40	120.30
1	I	451	ARG	NE-CZ-NH1	6.11	123.36	120.30
1	A	389	LEU	CA-CB-CG	6.10	129.33	115.30
2	P	1077	ARG	NE-CZ-NH1	6.09	123.35	120.30
1	H	451	ARG	NE-CZ-NH1	6.09	123.34	120.30
1	B	882	ARG	NE-CZ-NH1	6.01	123.30	120.30
1	B	550	LEU	CA-CB-CG	5.99	129.08	115.30
1	B	747	ARG	NE-CZ-NH1	5.99	123.30	120.30
1	D	747	ARG	NE-CZ-NH1	5.99	123.30	120.30
1	B	522	ARG	NE-CZ-NH1	5.99	123.29	120.30
1	E	685	ARG	NE-CZ-NH1	5.97	123.28	120.30
1	A	337	ARG	NE-CZ-NH1	5.88	123.24	120.30
1	A	747	ARG	NE-CZ-NH1	5.86	123.23	120.30
1	A	229	ARG	NE-CZ-NH1	5.84	123.22	120.30
1	H	673	ARG	NE-CZ-NH1	5.84	123.22	120.30
1	C	747	ARG	NE-CZ-NH1	5.79	123.19	120.30
1	E	715	ARG	NE-CZ-NH1	5.79	123.19	120.30
1	B	546	ARG	NE-CZ-NH1	5.78	123.19	120.30
1	B	685	ARG	NE-CZ-NH1	5.75	123.17	120.30
1	F	797	ARG	NE-CZ-NH1	5.74	123.17	120.30
1	B	715	ARG	NE-CZ-NH1	5.71	123.15	120.30
1	A	671	ARG	NE-CZ-NH1	5.70	123.15	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	546	ARG	NE-CZ-NH1	5.69	123.14	120.30
1	I	685	ARG	NE-CZ-NH1	5.68	123.14	120.30
2	P	829	ARG	NE-CZ-NH1	5.66	123.13	120.30
1	J	150	ARG	CB-CA-C	5.66	121.72	110.40
1	G	304	ARG	NE-CZ-NH1	5.66	123.13	120.30
1	C	229	ARG	NE-CZ-NH1	5.65	123.12	120.30
1	D	685	ARG	NE-CZ-NH1	5.61	123.10	120.30
1	C	685	ARG	NE-CZ-NH1	5.59	123.10	120.30
1	B	455	ARG	NE-CZ-NH1	5.59	123.09	120.30
1	E	747	ARG	NE-CZ-NH1	5.57	123.08	120.30
1	C	677	ARG	NE-CZ-NH1	5.56	123.08	120.30
1	C	505	ARG	NE-CZ-NH1	5.56	123.08	120.30
1	C	721	ARG	NE-CZ-NH1	5.56	123.08	120.30
1	B	397	ARG	NE-CZ-NH1	5.53	123.07	120.30
1	J	451	ARG	NE-CZ-NH1	5.52	123.06	120.30
1	A	505	ARG	NE-CZ-NH1	5.51	123.05	120.30
1	I	337	ARG	NE-CZ-NH1	5.51	123.05	120.30
1	E	142	ARG	NE-CZ-NH1	5.48	123.04	120.30
1	D	304	ARG	NE-CZ-NH1	5.45	123.03	120.30
1	F	131	ARG	NE-CZ-NH2	-5.44	117.58	120.30
1	F	131	ARG	NE-CZ-NH1	5.44	123.02	120.30
1	I	671	ARG	NE-CZ-NH1	5.44	123.02	120.30
1	J	534	ARG	NE-CZ-NH1	5.42	123.01	120.30
1	D	284	ARG	NE-CZ-NH1	5.42	123.01	120.30
1	J	732	ARG	NE-CZ-NH1	5.41	123.00	120.30
1	G	663	ARG	NE-CZ-NH1	5.39	123.00	120.30
2	P	783	TYR	CA-CB-CG	5.38	123.61	113.40
1	F	721	ARG	NE-CZ-NH1	5.36	122.98	120.30
1	F	685	ARG	NE-CZ-NH1	5.36	122.98	120.30
1	A	546	ARG	NE-CZ-NH1	5.36	122.98	120.30
1	I	534	ARG	NE-CZ-NH1	5.33	122.97	120.30
1	E	671	ARG	NE-CZ-NH2	-5.33	117.64	120.30
1	I	732	ARG	NE-CZ-NH1	5.32	122.96	120.30
1	H	286	ARG	NE-CZ-NH1	5.31	122.96	120.30
1	J	721	ARG	NE-CZ-NH1	5.30	122.95	120.30
1	G	131	ARG	NE-CZ-NH1	5.29	122.95	120.30
1	E	229	ARG	NE-CZ-NH1	5.28	122.94	120.30
1	J	131	ARG	NE-CZ-NH1	5.28	122.94	120.30
1	B	284	ARG	NE-CZ-NH2	-5.26	117.67	120.30
1	D	715	ARG	NE-CZ-NH1	5.26	122.93	120.30
1	D	150	ARG	NE-CZ-NH1	5.25	122.93	120.30
1	C	715	ARG	NE-CZ-NH1	5.25	122.93	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	I	655	ARG	NE-CZ-NH1	5.25	122.92	120.30
1	C	297	ARG	NE-CZ-NH1	5.24	122.92	120.30
1	C	131	ARG	NE-CZ-NH1	5.23	122.92	120.30
1	D	131	ARG	NE-CZ-NH1	5.23	122.91	120.30
1	H	882	ARG	NE-CZ-NH2	-5.22	117.69	120.30
1	I	131	ARG	NE-CZ-NH1	5.22	122.91	120.30
1	G	229	ARG	NE-CZ-NH1	5.21	122.91	120.30
2	P	627	ARG	NE-CZ-NH1	5.21	122.90	120.30
1	F	304	ARG	NE-CZ-NH1	5.20	122.90	120.30
1	I	230	ARG	NE-CZ-NH1	5.20	122.90	120.30
1	F	286	ARG	NE-CZ-NH1	5.19	122.90	120.30
1	D	677	ARG	NE-CZ-NH1	5.18	122.89	120.30
1	F	534	ARG	NE-CZ-NH1	5.18	122.89	120.30
1	I	451	ARG	NE-CZ-NH2	-5.18	117.71	120.30
1	D	663	ARG	NE-CZ-NH1	5.17	122.89	120.30
1	A	522	ARG	NE-CZ-NH1	5.17	122.88	120.30
1	I	152	ARG	NE-CZ-NH1	5.17	122.88	120.30
1	C	201	ARG	NE-CZ-NH1	5.16	122.88	120.30
1	E	505	ARG	NE-CZ-NH1	5.16	122.88	120.30
1	J	337	ARG	NE-CZ-NH1	5.16	122.88	120.30
1	A	685	ARG	NE-CZ-NH1	5.16	122.88	120.30
1	E	149	LEU	CA-CB-CG	5.16	127.17	115.30
1	A	397	ARG	NE-CZ-NH1	5.16	122.88	120.30
1	D	721	ARG	NE-CZ-NH1	5.16	122.88	120.30
1	C	337	ARG	NE-CZ-NH1	5.16	122.88	120.30
1	D	675	ARG	NE-CZ-NH1	5.16	122.88	120.30
1	G	286	ARG	NE-CZ-NH1	5.16	122.88	120.30
1	A	882	ARG	NE-CZ-NH2	-5.13	117.74	120.30
1	B	142	ARG	NE-CZ-NH1	5.12	122.86	120.30
1	H	546	ARG	NE-CZ-NH1	5.11	122.85	120.30
1	B	555	ARG	NE-CZ-NH1	5.10	122.85	120.30
1	I	673	ARG	NE-CZ-NH1	5.10	122.85	120.30
1	E	397	ARG	NE-CZ-NH1	5.10	122.85	120.30
1	E	621	TYR	CB-CG-CD2	-5.10	117.94	121.00
1	B	229	ARG	NE-CZ-NH1	5.09	122.84	120.30
1	G	505	ARG	NE-CZ-NH1	5.08	122.84	120.30
1	F	428	ARG	NE-CZ-NH1	5.08	122.84	120.30
1	I	663	ARG	NE-CZ-NH1	5.08	122.84	120.30
2	P	98	LEU	CB-CG-CD1	5.08	119.63	111.00
1	C	170	ARG	NE-CZ-NH1	5.06	122.83	120.30
1	A	721	ARG	NE-CZ-NH1	5.06	122.83	120.30
1	I	286	ARG	NE-CZ-NH1	5.06	122.83	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	397	ARG	NE-CZ-NH2	-5.05	117.77	120.30
1	J	286	ARG	NE-CZ-NH1	5.05	122.83	120.30
1	B	337	ARG	NE-CZ-NH1	5.05	122.83	120.30
1	G	732	ARG	NE-CZ-NH1	5.05	122.83	120.30
2	P	661	ARG	NE-CZ-NH1	5.05	122.83	120.30
1	D	297	ARG	NE-CZ-NH1	5.04	122.82	120.30
1	A	150	ARG	NE-CZ-NH1	5.04	122.82	120.30
2	P	368	ARG	NE-CZ-NH1	5.03	122.82	120.30
1	B	155	TRP	CA-CB-CG	5.03	123.25	113.70
1	H	677	ARG	NE-CZ-NH1	5.02	122.81	120.30
1	B	759	LEU	CA-CB-CG	5.02	126.84	115.30
1	H	671	ARG	NE-CZ-NH1	5.02	122.81	120.30
1	J	488	ARG	NE-CZ-NH1	5.01	122.81	120.30
1	A	715	ARG	NE-CZ-NH1	5.01	122.81	120.30
1	E	150	ARG	NE-CZ-NH1	5.01	122.81	120.30
1	E	373	PHE	CB-CG-CD1	5.01	124.31	120.80
1	G	397	ARG	NE-CZ-NH1	5.01	122.80	120.30
1	C	591	LEU	CA-CB-CG	5.00	126.81	115.30

There are no chirality outliers.

All (18) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	371	THR	Peptide
1	B	143	ALA	Peptide
1	C	143	ALA	Peptide
1	D	102	ILE	Peptide
1	D	143	ALA	Peptide
1	F	106	GLU	Peptide
1	G	106	GLU	Peptide
1	G	450	GLN	Peptide
1	G	525	PHE	Peptide
1	H	106	GLU	Peptide
1	I	106	GLU	Peptide
1	I	143	ALA	Peptide
1	I	579	THR	Peptide
1	J	106	GLU	Peptide
1	J	650	GLU	Mainchain
1	J	828	SER	Peptide
2	P	328	TRP	Mainchain
2	P	941	LYS	Peptide

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	6379	6408	6408	56	0
1	B	6379	6408	6408	62	0
1	C	6372	6400	6399	63	0
1	D	6765	6809	6809	57	0
1	E	6499	6529	6529	59	0
1	F	6563	6588	6588	50	0
1	G	6563	6588	6588	44	0
1	H	6563	6588	6588	59	0
1	I	6545	6569	6569	50	0
1	J	6678	6713	6713	67	0
2	P	8789	8862	8861	77	0
All	All	74095	74462	74460	597	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.

All (597) 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)
2:P:359:MET:SD	2:P:614:ARG:NH2	2.61	0.73
1:F:744:GLU:O	1:F:748:THR:OG1	2.06	0.72
1:G:281:ILE:O	1:G:286:ARG:NH1	2.23	0.72
1:F:281:ILE:O	1:F:286:ARG:NH1	2.23	0.71
1:F:309:ASN:O	1:F:622:ASN:ND2	2.23	0.71
1:H:326:ASP:OD1	1:H:397:ARG:NH1	2.24	0.71
1:B:219:PHE:O	1:F:797:ARG:NH2	2.24	0.70
2:P:998:SER:OG	2:P:1001:TYR:O	2.08	0.70
1:E:114:LYS:NZ	2:P:549:THR:O	2.24	0.70
1:C:294:ASN:OD1	1:C:866:SER:OG	2.07	0.70
1:I:281:ILE:O	1:I:286:ARG:NH1	2.25	0.70
1:C:360:LEU:O	1:C:538:ARG:NH1	2.25	0.70
1:J:744:GLU:O	1:J:748:THR:OG1	2.08	0.70
1:E:219:PHE:O	1:I:797:ARG:NH2	2.25	0.69
1:B:523:GLN:O	1:B:533:LYS:NZ	2.25	0.69
2:P:131:ASP:O	2:P:336:LYS:NZ	2.25	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:546:ARG:NH2	1:A:595:ILE:O	2.26	0.69
1:C:366:THR:O	1:D:86:LYS:NZ	2.24	0.69
1:B:366:THR:O	2:P:1060:LYS:NZ	2.26	0.69
1:J:281:ILE:O	1:J:286:ARG:NH1	2.26	0.69
1:A:584:GLN:O	1:A:587:SER:OG	2.08	0.68
1:A:294:ASN:OD1	1:A:866:SER:OG	2.10	0.68
2:P:293:ASP:OD1	2:P:296:ARG:NH2	2.26	0.68
1:H:281:ILE:O	1:H:286:ARG:NH1	2.26	0.68
1:D:294:ASN:OD1	1:D:866:SER:OG	2.11	0.68
1:E:294:ASN:OD1	1:E:866:SER:OG	2.11	0.67
1:I:474:GLN:OE1	1:I:512:GLN:NE2	2.28	0.67
1:J:326:ASP:OD1	1:J:397:ARG:NH1	2.27	0.67
2:P:249:SER:O	2:P:518:TYR:OH	2.13	0.67
1:B:154:TYR:OH	1:B:723:GLU:OE2	2.13	0.67
1:I:744:GLU:O	1:I:748:THR:OG1	2.12	0.67
1:G:519:GLN:OE1	1:G:522:ARG:NH2	2.27	0.67
1:F:440:ASN:O	1:F:451:ARG:NH2	2.28	0.67
1:J:134:GLU:OE2	1:J:136:ARG:NH2	2.26	0.67
1:A:379:SER:OG	2:P:268:GLU:OE1	2.12	0.67
1:E:731:ALA:N	1:E:832:VAL:O	2.28	0.66
1:I:624:ARG:NH2	1:I:627:ASP:OD2	2.29	0.66
1:E:440:ASN:O	1:E:451:ARG:NH1	2.27	0.66
1:D:244:ASN:OD1	1:H:671:ARG:NH1	2.29	0.66
1:I:326:ASP:OD1	1:I:397:ARG:NH1	2.29	0.66
1:C:294:ASN:ND2	1:G:401:LEU:O	2.29	0.66
1:B:294:ASN:OD1	1:B:866:SER:OG	2.12	0.66
1:C:523:GLN:O	1:C:533:LYS:NZ	2.28	0.66
1:D:523:GLN:O	1:D:533:LYS:NZ	2.27	0.66
1:H:316:ASN:O	1:H:675:ARG:NH1	2.28	0.65
1:H:751:TYR:OH	1:H:797:ARG:O	2.13	0.65
1:B:603:SER:OG	1:B:605:GLN:OE1	2.14	0.65
1:C:270:GLU:OE1	1:C:307:ARG:NH2	2.29	0.65
1:F:751:TYR:OH	1:F:797:ARG:O	2.11	0.65
1:F:326:ASP:OD1	1:F:397:ARG:NH1	2.29	0.65
1:E:467:GLU:OE1	1:E:483:ASN:ND2	2.29	0.65
2:P:460:ARG:NH1	2:P:631:ASP:OD1	2.30	0.65
2:P:922:GLU:OE1	2:P:926:SER:OG	2.13	0.65
1:C:599:THR:OG1	1:C:884:MET:SD	2.53	0.65
2:P:109:TYR:OH	2:P:341:ASP:OD2	2.15	0.65
1:D:376:GLY:O	1:D:590:SER:OG	2.15	0.65
1:C:441:THR:O	1:C:532:TYR:OH	2.14	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:270:GLU:OE1	1:E:307:ARG:NH2	2.30	0.64
1:F:584:GLN:O	1:F:587:SER:OG	2.12	0.64
1:J:270:GLU:OE2	1:J:307:ARG:NH1	2.30	0.64
1:I:697:GLU:OE2	1:I:701:ARG:NE	2.28	0.64
2:P:344:LEU:O	2:P:348:LYS:NZ	2.29	0.64
1:C:546:ARG:NH2	1:C:595:ILE:O	2.30	0.64
1:D:426:PHE:O	1:D:576:GLN:NE2	2.31	0.64
1:B:603:SER:O	1:B:606:THR:OG1	2.15	0.64
1:C:603:SER:O	1:C:606:THR:OG1	2.14	0.64
2:P:461:ILE:O	2:P:591:SER:OG	2.15	0.64
1:C:131:ARG:NH2	1:C:211:THR:OG1	2.31	0.64
1:E:505:ARG:NH2	1:E:562:GLU:OE1	2.31	0.63
1:G:603:SER:O	1:G:606:THR:OG1	2.12	0.63
1:J:343:LEU:HD13	1:J:346:LEU:HD21	1.79	0.63
1:B:584:GLN:O	1:B:587:SER:OG	2.11	0.63
1:H:519:GLN:OE1	1:H:522:ARG:NH2	2.31	0.63
1:A:241:ALA:HB1	1:J:671:ARG:HG2	1.81	0.63
1:E:342:ASP:OD1	1:E:383:ASN:ND2	2.32	0.63
1:J:599:THR:OG1	1:J:884:MET:SD	2.53	0.63
1:E:810:ASN:OD1	1:E:813:SER:OG	2.15	0.63
1:I:309:ASN:O	1:I:622:ASN:ND2	2.32	0.62
1:J:246:VAL:HG11	1:J:853:LEU:HD21	1.80	0.62
2:P:922:GLU:O	2:P:991:SER:OG	2.16	0.62
1:G:697:GLU:OE2	1:G:701:ARG:NE	2.33	0.62
2:P:447:ILE:O	2:P:574:GLN:N	2.32	0.62
1:J:309:ASN:O	1:J:622:ASN:ND2	2.33	0.61
1:J:751:TYR:OH	1:J:797:ARG:O	2.17	0.61
1:I:401:LEU:HD22	1:I:585:LEU:HD21	1.81	0.61
2:P:843:ALA:O	2:P:846:SER:OG	2.11	0.61
1:F:401:LEU:HD22	1:F:585:LEU:HD21	1.82	0.61
1:F:731:ALA:N	1:F:832:VAL:O	2.33	0.61
1:J:142:ARG:NH1	1:J:147:LYS:O	2.33	0.61
1:J:224:THR:O	1:J:229:ARG:NH1	2.34	0.61
1:B:441:THR:HG1	1:B:532:TYR:HH	1.48	0.61
1:C:467:GLU:OE1	1:C:483:ASN:ND2	2.34	0.61
1:D:360:LEU:HD11	1:D:542:LEU:HD11	1.83	0.60
1:D:180:VAL:O	1:D:184:MET:N	2.34	0.60
1:J:412:ILE:HG22	1:J:543:LEU:HD22	1.83	0.60
1:J:478:TRP:O	1:J:482:VAL:HG23	2.01	0.60
1:A:361:GLN:OE1	1:E:534:ARG:NH2	2.34	0.60
1:F:713:ALA:O	1:F:829:THR:OG1	2.15	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:P:729:ARG:NH2	2:P:767:ASP:O	2.34	0.60
1:G:397:ARG:HH22	1:G:579:THR:HG23	1.65	0.60
1:B:716:ASP:OD1	1:B:827:THR:OG1	2.10	0.60
2:P:14:PHE:O	2:P:17:ASN:ND2	2.34	0.60
2:P:331:HIS:NE2	2:P:691:ALA:O	2.35	0.60
1:C:603:SER:OG	1:C:605:GLN:OE1	2.19	0.59
1:A:315:LEU:O	1:A:675:ARG:NH1	2.34	0.59
1:A:717:MET:N	1:A:828:SER:O	2.35	0.59
1:A:376:GLY:O	1:A:590:SER:OG	2.20	0.59
1:A:381:ALA:HB1	1:A:587:SER:HB3	1.83	0.59
2:P:488:ARG:NH2	2:P:505:ASP:OD2	2.36	0.59
1:H:650:GLU:O	1:H:654:LYS:N	2.35	0.59
1:B:272:LEU:HD11	1:B:277:ILE:HD11	1.84	0.59
1:B:717:MET:O	1:B:827:THR:OG1	2.21	0.59
1:D:717:MET:O	1:D:827:THR:OG1	2.20	0.58
1:B:261:GLU:OE2	1:B:265:GLN:NE2	2.36	0.58
1:E:792:GLN:NE2	1:E:801:THR:O	2.35	0.58
1:B:131:ARG:NH2	1:B:211:THR:OG1	2.37	0.58
1:C:584:GLN:O	1:C:587:SER:OG	2.18	0.58
1:C:717:MET:N	1:C:828:SER:O	2.36	0.58
1:H:244:ASN:OD1	1:H:853:LEU:N	2.37	0.58
2:P:786:ARG:NE	2:P:871:LYS:O	2.36	0.58
1:I:314:ARG:NH2	1:I:626:ASN:OD1	2.37	0.58
1:H:697:GLU:OE2	1:H:701:ARG:NE	2.37	0.58
1:J:624:ARG:NH2	1:J:627:ASP:OD2	2.37	0.57
2:P:351:TYR:OH	2:P:526:SER:O	2.20	0.57
1:A:478:TRP:O	1:A:482:VAL:HG23	2.05	0.57
1:H:309:ASN:O	1:H:622:ASN:ND2	2.35	0.57
1:I:444:TYR:O	1:I:448:GLY:N	2.37	0.57
1:I:713:ALA:O	1:I:829:THR:OG1	2.12	0.57
1:D:129:LEU:HD11	1:D:207:VAL:HG21	1.85	0.57
1:D:478:TRP:O	1:D:482:VAL:HG23	2.04	0.57
1:E:129:LEU:HD11	1:E:207:VAL:HG22	1.87	0.57
1:I:397:ARG:NH1	1:I:579:THR:O	2.37	0.57
1:J:316:ASN:O	1:J:675:ARG:NH1	2.38	0.57
1:J:349:THR:OG1	2:P:362:GLU:OE2	2.13	0.57
1:A:603:SER:O	1:A:606:THR:OG1	2.19	0.57
1:G:252:LEU:O	1:G:845:SER:OG	2.18	0.57
1:G:720:GLU:OE2	1:G:732:ARG:NE	2.38	0.57
2:P:632:ASP:OD1	2:P:632:ASP:N	2.37	0.57
1:H:624:ARG:NH2	1:H:627:ASP:OD2	2.38	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:283:GLU:OE1	1:I:286:ARG:NH2	2.37	0.57
1:E:785:LEU:O	1:E:788:THR:OG1	2.17	0.57
1:C:261:GLU:OE2	1:C:265:GLN:NE2	2.38	0.56
2:P:2:GLY:N	2:P:754:GLU:OE2	2.38	0.56
1:D:219:PHE:O	1:H:797:ARG:NH2	2.38	0.56
1:A:719:LEU:HD11	1:A:828:SER:HB3	1.88	0.56
1:D:717:MET:N	1:D:828:SER:O	2.38	0.56
1:A:261:GLU:OE2	1:A:265:GLN:NE2	2.39	0.56
1:E:546:ARG:NH2	1:E:595:ILE:O	2.37	0.56
1:F:474:GLN:O	1:F:512:GLN:NE2	2.38	0.56
2:P:439:PRO:O	2:P:469:TYR:OH	2.23	0.56
1:D:863:ALA:O	1:H:91:LYS:NZ	2.37	0.56
1:E:311:LEU:O	1:E:618:HIS:NE2	2.38	0.56
1:D:751:TYR:O	1:D:755:THR:OG1	2.13	0.56
1:A:785:LEU:O	1:A:788:THR:OG1	2.16	0.56
1:B:860:ASP:OD2	1:F:90:GLN:NE2	2.39	0.56
1:C:700:GLU:O	1:C:708:GLN:NE2	2.39	0.56
1:C:810:ASN:OD1	1:C:813:SER:OG	2.17	0.56
1:H:124:LYS:NZ	1:H:182:THR:O	2.38	0.56
1:E:441:THR:O	1:E:532:TYR:OH	2.24	0.56
1:H:599:THR:OG1	1:H:884:MET:SD	2.50	0.56
1:A:201:ARG:O	1:J:642:GLN:NE2	2.39	0.56
1:H:343:LEU:HA	1:H:600:VAL:HG11	1.88	0.56
1:B:373:PHE:O	1:B:377:ILE:HD11	2.06	0.55
1:A:282:PRO:HD2	1:A:285:ILE:HD12	1.87	0.55
2:P:274:LYS:NZ	2:P:508:ARG:O	2.38	0.55
1:A:320:ASN:O	1:A:671:ARG:NH1	2.39	0.55
1:B:343:LEU:HA	1:B:600:VAL:HG11	1.88	0.55
1:B:450:GLN:NE2	1:C:518:MET:SD	2.79	0.55
1:E:627:ASP:O	1:E:631:ILE:HD12	2.07	0.55
1:F:316:ASN:O	1:F:675:ARG:NH1	2.40	0.55
1:G:706:ILE:O	1:G:834:LYS:NZ	2.37	0.55
1:D:177:TYR:CZ	1:D:181:LEU:HD11	2.41	0.55
1:J:603:SER:O	1:J:606:THR:OG1	2.20	0.55
1:E:603:SER:O	1:E:606:THR:OG1	2.22	0.55
1:I:240:GLN:OE1	1:I:243:ARG:NH2	2.41	0.54
1:J:478:TRP:NE1	1:J:513:LEU:HD13	2.23	0.54
1:C:272:LEU:HD13	1:C:305:TYR:CD1	2.42	0.54
1:E:478:TRP:O	1:E:482:VAL:HG23	2.06	0.54
1:C:717:MET:O	1:C:827:THR:OG1	2.17	0.54
1:B:674:ASP:OD1	1:B:677:ARG:NH1	2.39	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:420:VAL:HG23	1:D:421:VAL:HG23	1.88	0.54
2:P:174:ALA:HA	2:P:177:VAL:HG22	1.88	0.54
1:H:343:LEU:HD13	1:H:346:LEU:HD21	1.89	0.54
1:C:333:TYR:OH	1:C:388:THR:HG23	2.08	0.54
1:E:141:TYR:OH	1:E:812:ASP:OD2	2.19	0.54
1:F:177:TYR:OH	1:F:685:ARG:O	2.26	0.54
1:B:441:THR:OG1	1:B:532:TYR:OH	2.21	0.54
1:G:165:GLY:O	1:G:169:VAL:HG23	2.07	0.54
2:P:908:GLN:O	2:P:912:GLN:N	2.40	0.54
1:A:751:TYR:O	1:A:755:THR:OG1	2.16	0.54
1:C:429:GLU:OE1	1:H:534:ARG:NH1	2.41	0.54
1:J:700:GLU:O	1:J:708:GLN:NE2	2.41	0.54
1:D:241:ALA:HB1	1:H:671:ARG:HG2	1.88	0.53
1:H:335:LEU:HD11	1:H:613:VAL:HG11	1.90	0.53
1:I:599:THR:OG1	1:I:884:MET:SD	2.59	0.53
2:P:238:SER:O	2:P:335:ARG:NH1	2.41	0.53
1:C:200:SER:O	1:G:642:GLN:NE2	2.41	0.53
1:G:751:TYR:O	1:G:755:THR:HG23	2.07	0.53
1:H:721:ARG:NH2	1:H:727:TYR:OH	2.41	0.53
1:A:555:ARG:NH1	1:A:882:ARG:O	2.42	0.53
1:J:728:VAL:HG23	1:J:730:ILE:HG22	1.91	0.53
1:D:131:ARG:NH2	1:D:211:THR:OG1	2.40	0.53
1:B:360:LEU:O	1:B:538:ARG:NH1	2.41	0.53
1:G:537:GLN:HA	1:G:540:ILE:HD12	1.90	0.53
1:I:721:ARG:NH2	1:I:727:TYR:OH	2.42	0.53
1:C:201:ARG:O	1:G:642:GLN:NE2	2.42	0.53
1:J:719:LEU:HD21	1:J:828:SER:HB3	1.89	0.53
1:H:246:VAL:HG11	1:H:853:LEU:HD21	1.91	0.53
1:H:514:MET:CG	1:H:547:LEU:HD13	2.39	0.53
1:J:180:VAL:O	1:J:184:MET:N	2.41	0.53
1:F:262:TYR:CD2	1:F:688:ILE:HD11	2.44	0.53
1:B:478:TRP:O	1:B:482:VAL:HG23	2.09	0.52
1:E:134:GLU:OE1	1:E:134:GLU:N	2.42	0.52
1:G:184:MET:SD	1:G:684:ARG:NH2	2.82	0.52
1:D:237:GLN:OE1	1:D:239:VAL:HG13	2.10	0.52
1:G:757:MET:O	1:G:761:ASN:N	2.43	0.52
1:I:343:LEU:HD13	1:I:346:LEU:HD21	1.90	0.52
1:F:757:MET:O	1:F:761:ASN:N	2.43	0.52
1:I:731:ALA:N	1:I:832:VAL:O	2.43	0.52
1:J:419:THR:HG21	1:J:513:LEU:HD22	1.91	0.52
1:I:397:ARG:HH22	1:I:579:THR:HG23	1.75	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:478:TRP:O	1:I:482:VAL:HG23	2.10	0.52
1:J:349:THR:HG22	1:J:594:LEU:HD11	1.91	0.52
1:C:478:TRP:NE1	1:C:513:LEU:HD13	2.25	0.52
1:C:611:TYR:O	1:C:615:VAL:HG23	2.10	0.52
1:E:335:LEU:O	1:E:338:SER:OG	2.21	0.52
1:F:126:GLN:N	1:F:126:GLN:OE1	2.43	0.52
1:H:207:VAL:HG12	1:H:211:THR:HG21	1.92	0.52
1:D:134:GLU:N	1:D:134:GLU:OE1	2.42	0.52
2:P:834:THR:CG2	2:P:965:LEU:HD23	2.40	0.52
1:B:751:TYR:O	1:B:755:THR:OG1	2.14	0.51
1:G:729:ASN:OD1	1:G:806:LEU:HD12	2.10	0.51
1:H:444:TYR:O	1:H:448:GLY:N	2.43	0.51
1:A:165:GLY:O	1:A:169:VAL:HG23	2.11	0.51
1:H:89:HIS:O	1:H:93:VAL:HG23	2.10	0.51
1:B:177:TYR:CZ	1:B:181:LEU:HD11	2.45	0.51
1:B:312:GLN:OE1	1:B:571:ASN:N	2.43	0.51
1:F:875:ALA:O	1:F:883:ILE:HG22	2.10	0.51
1:D:584:GLN:O	1:D:587:SER:OG	2.12	0.51
1:J:713:ALA:HB1	1:J:715:ARG:NH1	2.25	0.51
1:C:134:GLU:N	1:C:134:GLU:OE1	2.44	0.51
1:C:177:TYR:CE2	1:C:181:LEU:HD11	2.46	0.51
1:C:625:ILE:O	1:C:629:VAL:HG23	2.10	0.51
1:J:353:ILE:O	1:J:357:SER:OG	2.18	0.51
2:P:775:TYR:OH	2:P:1040:GLU:OE2	2.26	0.51
2:P:917:ARG:NH2	2:P:1004:TYR:O	2.42	0.51
1:D:69:LYS:HA	1:D:80:LEU:HD21	1.92	0.51
1:G:553:LEU:HD13	1:G:595:ILE:HD13	1.91	0.51
1:H:875:ALA:O	1:H:883:ILE:HG22	2.10	0.51
1:E:177:TYR:CZ	1:E:181:LEU:HD11	2.45	0.51
1:B:290:ASN:ND2	1:B:876:VAL:O	2.43	0.50
2:P:127:ASP:O	2:P:131:ASP:N	2.43	0.50
1:B:372:GLN:O	1:B:407:ASN:ND2	2.45	0.50
1:D:291:TYR:CE1	1:D:869:THR:HG22	2.45	0.50
1:F:333:TYR:OH	1:F:388:THR:HG23	2.11	0.50
1:G:744:GLU:O	1:G:748:THR:OG1	2.09	0.50
1:H:165:GLY:O	1:H:169:VAL:HG23	2.11	0.50
1:H:510:VAL:HG11	1:H:551:VAL:HG22	1.92	0.50
1:H:610:TYR:O	1:H:614:ASN:ND2	2.44	0.50
1:H:815:ASP:HB2	1:H:818:LEU:HD12	1.93	0.50
1:C:610:TYR:O	1:C:614:ASN:ND2	2.44	0.50
2:P:1029:VAL:HG11	2:P:1063:MET:SD	2.52	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:344:LYS:O	2:P:508:ARG:NH1	2.45	0.50
1:D:85:THR:OG1	2:P:1068:LYS:NZ	2.44	0.50
1:H:713:ALA:O	1:H:829:THR:OG1	2.14	0.50
1:I:875:ALA:O	1:I:883:ILE:HG22	2.11	0.50
1:C:478:TRP:O	1:C:482:VAL:HG23	2.12	0.50
2:P:744:ILE:HD13	2:P:748:LEU:HD22	1.94	0.50
1:B:869:THR:O	1:F:405:THR:OG1	2.29	0.50
1:F:301:SER:O	1:F:304:ARG:NH1	2.45	0.50
2:P:760:ASN:O	2:P:785:GLN:NE2	2.45	0.50
1:B:343:LEU:HD13	1:B:346:LEU:HD21	1.93	0.50
1:D:156:LYS:NZ	1:D:704:ASP:OD2	2.45	0.50
1:J:91:LYS:NZ	2:P:642:GLU:O	2.26	0.50
2:P:140:SER:OG	2:P:738:GLN:OE1	2.17	0.50
1:B:224:THR:OG1	1:B:229:ARG:NH2	2.44	0.49
1:D:531:ASP:OD2	1:E:538:ARG:NH2	2.45	0.49
1:E:713:ALA:O	1:E:829:THR:HG23	2.12	0.49
1:H:416:TRP:O	1:H:420:VAL:HG22	2.12	0.49
1:H:611:TYR:O	1:H:615:VAL:HG23	2.12	0.49
2:P:678:ALA:O	2:P:690:ARG:NE	2.36	0.49
1:I:610:TYR:O	1:I:614:ASN:ND2	2.45	0.49
1:J:553:LEU:HD13	1:J:595:ILE:HD13	1.95	0.49
1:D:406:THR:HG22	1:E:355:LYS:HG3	1.94	0.49
1:E:729:ASN:O	1:E:832:VAL:N	2.42	0.49
1:D:416:TRP:O	1:D:419:THR:OG1	2.30	0.49
1:A:392:ALA:O	1:A:396:GLN:N	2.45	0.49
1:B:177:TYR:CE1	1:B:181:LEU:HD11	2.48	0.49
1:A:797:ARG:NH1	1:F:296:ASP:OD2	2.45	0.49
1:A:871:GLU:HG2	1:A:873:ILE:HG22	1.95	0.49
1:D:828:SER:OG	1:D:829:THR:N	2.46	0.49
1:J:393:MET:O	1:J:396:GLN:NE2	2.46	0.49
1:H:744:GLU:O	1:H:748:THR:OG1	2.15	0.49
1:A:728:VAL:HG23	1:A:730:ILE:HG22	1.95	0.49
1:A:109:GLU:O	2:P:258:ASN:ND2	2.46	0.48
1:E:724:MET:SD	1:E:724:MET:N	2.86	0.48
1:F:815:ASP:HB2	1:F:818:LEU:HD12	1.94	0.48
1:G:397:ARG:NH1	1:G:579:THR:O	2.46	0.48
1:I:792:GLN:O	1:I:796:LEU:N	2.45	0.48
1:G:283:GLU:OE1	1:G:286:ARG:NH2	2.47	0.48
1:H:281:ILE:HG22	1:H:282:PRO:O	2.14	0.48
1:I:751:TYR:O	1:I:755:THR:HG23	2.13	0.48
1:J:312:GLN:OE1	1:J:571:ASN:ND2	2.47	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:797:ARG:NH1	1:G:296:ASP:OD2	2.45	0.48
1:E:673:ARG:NH2	1:J:886:GLU:OE2	2.46	0.48
1:C:389:LEU:HD23	1:C:399:MET:CE	2.44	0.48
1:E:478:TRP:NE1	1:E:513:LEU:HD13	2.28	0.48
1:B:728:VAL:HG23	1:B:730:ILE:HG22	1.95	0.48
1:D:412:ILE:HG22	1:D:543:LEU:HD22	1.95	0.48
1:F:397:ARG:HH22	1:F:579:THR:HG23	1.77	0.48
1:G:312:GLN:NE2	1:G:569:THR:O	2.45	0.48
1:H:488:ARG:O	1:H:499:VAL:HG22	2.14	0.48
1:G:611:TYR:O	1:G:615:VAL:HG23	2.14	0.48
1:C:154:TYR:OH	1:C:723:GLU:OE2	2.26	0.48
1:E:555:ARG:NH2	1:E:879:ASP:OD2	2.46	0.48
1:G:419:THR:HG21	1:G:513:LEU:HD22	1.95	0.48
1:A:381:ALA:HB1	1:A:587:SER:CB	2.44	0.48
1:H:115:LEU:HD23	1:H:118:ILE:HD12	1.96	0.48
1:H:346:LEU:HD22	1:H:594:LEU:O	2.14	0.48
1:J:610:TYR:O	1:J:614:ASN:ND2	2.47	0.48
1:A:423:ASN:HB3	1:A:431:LEU:HD11	1.95	0.47
1:D:311:LEU:O	1:D:618:HIS:NE2	2.46	0.47
1:J:397:ARG:NH1	1:J:579:THR:O	2.47	0.47
1:B:731:ALA:N	1:B:832:VAL:O	2.47	0.47
1:C:398:THR:OG1	1:C:577:THR:OG1	2.21	0.47
1:D:666:ASP:OD2	1:I:347:VAL:HG22	2.13	0.47
1:E:131:ARG:NH2	1:E:211:THR:OG1	2.47	0.47
1:E:611:TYR:O	1:E:615:VAL:HG23	2.14	0.47
1:F:130:PHE:CZ	1:F:132:ILE:HD11	2.49	0.47
1:I:346:LEU:HD22	1:I:594:LEU:O	2.14	0.47
2:P:80:ASP:OD1	2:P:81:LYS:N	2.45	0.47
1:B:415:MET:O	1:B:419:THR:HG23	2.14	0.47
1:B:757:MET:O	1:B:761:ASN:N	2.47	0.47
1:F:483:ASN:O	1:F:486:GLN:NE2	2.46	0.47
1:C:244:ASN:O	1:C:853:LEU:N	2.47	0.47
1:E:320:ASN:ND2	1:J:545:ASN:OD1	2.48	0.47
1:E:682:GLU:OE2	1:E:685:ARG:NE	2.45	0.47
1:J:84:LYS:NZ	2:P:282:ASP:OD1	2.48	0.47
1:A:745:LEU:HD21	1:A:751:TYR:CE1	2.49	0.47
1:F:319:ASP:O	1:F:675:ARG:NH2	2.46	0.47
1:A:177:TYR:CE2	1:A:181:LEU:HD11	2.49	0.47
1:B:322:GLU:HB3	1:B:578:LEU:HD11	1.94	0.47
1:C:312:GLN:NE2	1:C:494:GLY:O	2.48	0.47
1:A:674:ASP:OD1	1:A:677:ARG:NH1	2.46	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:241:ALA:HB1	1:F:671:ARG:HG2	1.96	0.47
1:B:312:GLN:NE2	1:B:569:THR:O	2.47	0.47
1:B:397:ARG:HA	1:B:577:THR:HG21	1.96	0.47
1:D:603:SER:O	1:D:606:THR:OG1	2.27	0.47
1:E:415:MET:O	1:E:419:THR:HG23	2.15	0.47
2:P:208:ASN:O	2:P:696:LEU:HD12	2.14	0.47
1:H:584:GLN:O	1:H:587:SER:OG	2.13	0.47
1:A:142:ARG:NE	1:A:148:GLU:OE2	2.47	0.47
1:C:280:TYR:CD2	1:C:861:LEU:HD23	2.50	0.47
1:C:416:TRP:O	1:C:419:THR:OG1	2.28	0.47
1:E:643:LYS:HE3	1:E:648:ILE:HD11	1.97	0.47
1:H:688:ILE:HG22	1:H:692:ILE:HD12	1.97	0.47
1:J:519:GLN:OE1	1:J:522:ARG:NH2	2.48	0.47
2:P:691:ALA:HB2	2:P:723:ARG:HB2	1.96	0.47
1:A:137:GLN:NE2	1:A:221:ASP:OD2	2.48	0.47
1:B:599:THR:OG1	1:B:884:MET:SD	2.62	0.47
1:D:244:ASN:O	1:D:853:LEU:N	2.47	0.47
1:E:301:SER:O	1:E:304:ARG:NH1	2.45	0.47
1:G:609:HIS:O	1:G:613:VAL:HG23	2.15	0.47
1:G:728:VAL:HG23	1:G:730:ILE:HG22	1.97	0.47
1:C:730:ILE:O	1:C:831:LYS:NZ	2.31	0.46
1:E:882:ARG:NH1	1:I:527:THR:O	2.48	0.46
1:C:649:VAL:HG11	1:C:669:MET:HG2	1.95	0.46
1:E:719:LEU:HD11	1:E:828:SER:HB3	1.96	0.46
1:J:453:HIS:O	1:J:455:ARG:NH1	2.48	0.46
1:J:713:ALA:HB3	1:J:717:MET:CE	2.46	0.46
1:D:611:TYR:O	1:D:615:VAL:HG23	2.15	0.46
2:P:495:SER:OG	2:P:499:GLN:O	2.27	0.46
1:G:623:GLU:OE1	1:G:685:ARG:NH2	2.48	0.46
1:I:505:ARG:NH2	1:I:562:GLU:OE2	2.47	0.46
1:F:565:MET:HA	1:F:568:ILE:HD12	1.97	0.46
2:P:611:VAL:HG21	2:P:659:TYR:CE1	2.51	0.46
2:P:651:VAL:O	2:P:655:VAL:HG23	2.16	0.46
1:B:314:ARG:HB3	1:B:679:LEU:HD21	1.98	0.46
1:B:745:LEU:HD12	1:B:750:ASP:H	1.81	0.46
1:E:316:ASN:O	1:E:675:ARG:NH1	2.44	0.46
1:J:165:GLY:O	1:J:169:VAL:HG23	2.15	0.46
1:J:713:ALA:HB3	1:J:717:MET:HE1	1.97	0.46
2:P:105:ASN:ND2	2:P:235:SER:O	2.48	0.46
1:C:716:ASP:OD1	1:C:827:THR:OG1	2.34	0.46
1:C:828:SER:OG	1:C:829:THR:N	2.49	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:416:TRP:O	1:D:420:VAL:HG22	2.16	0.46
1:F:397:ARG:NH1	1:F:579:THR:O	2.48	0.46
1:F:479:LEU:O	1:F:483:ASN:ND2	2.49	0.46
1:G:177:TYR:OH	1:G:685:ARG:O	2.31	0.46
1:I:167:TYR:OH	1:I:642:GLN:N	2.47	0.46
2:P:629:ASP:OD1	2:P:629:ASP:N	2.46	0.46
1:A:611:TYR:O	1:A:615:VAL:HG23	2.16	0.46
1:E:719:LEU:HD11	1:E:828:SER:CB	2.45	0.46
1:E:777:SER:OG	1:E:778:VAL:N	2.49	0.46
2:P:420:LYS:O	2:P:424:VAL:HG23	2.15	0.46
1:A:285:ILE:HD11	1:A:567:CYS:SG	2.56	0.46
1:G:376:GLY:O	1:G:590:SER:OG	2.34	0.46
2:P:816:SER:O	2:P:820:LEU:N	2.48	0.46
1:E:127:THR:HG22	1:E:128:LYS:H	1.81	0.45
2:P:260:THR:N	2:P:272:SER:O	2.46	0.45
1:C:731:ALA:HB2	1:C:831:LYS:HE3	1.98	0.45
1:J:178:ASP:OD1	1:J:179:GLN:N	2.50	0.45
1:J:828:SER:OG	1:J:829:THR:O	2.21	0.45
1:A:420:VAL:HG23	1:A:421:VAL:HG23	1.99	0.45
1:C:415:MET:O	1:C:419:THR:HG23	2.16	0.45
1:C:728:VAL:HG23	1:C:730:ILE:HG22	1.98	0.45
1:D:360:LEU:HD23	1:D:538:ARG:HB3	1.99	0.45
1:G:272:LEU:HD13	1:G:305:TYR:CD1	2.51	0.45
1:G:547:LEU:O	1:G:551:VAL:HG23	2.16	0.45
1:H:609:HIS:O	1:H:613:VAL:HG23	2.17	0.45
1:J:547:LEU:O	1:J:551:VAL:HG23	2.16	0.45
1:B:165:GLY:O	1:B:169:VAL:HG23	2.17	0.45
1:F:283:GLU:OE1	1:F:286:ARG:NH2	2.49	0.45
1:A:401:LEU:HD23	1:A:585:LEU:HD21	1.99	0.45
1:E:666:ASP:OD2	1:J:347:VAL:HG22	2.17	0.45
1:H:745:LEU:HD11	1:H:751:TYR:CD1	2.51	0.45
1:I:719:LEU:HD22	1:I:728:VAL:C	2.37	0.45
1:J:609:HIS:O	1:J:613:VAL:HG23	2.17	0.45
2:P:337:GLN:O	2:P:451:ARG:NH1	2.49	0.45
1:C:868:ASP:OD2	1:G:405:THR:HG22	2.16	0.45
1:J:584:GLN:O	1:J:587:SER:OG	2.15	0.45
1:A:707:ALA:N	1:A:770:LEU:O	2.47	0.45
1:D:475:VAL:HG22	1:D:516:ALA:HB1	1.98	0.45
1:J:129:LEU:HD12	1:J:208:ASP:HB2	1.99	0.45
2:P:6:LEU:O	2:P:9:SER:OG	2.29	0.45
1:A:667:ASP:OD1	1:A:668:GLN:N	2.49	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:208:ASP:OD1	1:B:209:SER:N	2.49	0.45
1:F:177:TYR:CZ	1:F:181:LEU:HD11	2.51	0.45
1:H:283:GLU:OE1	1:H:286:ARG:NH2	2.50	0.45
1:I:315:LEU:CD2	1:I:679:LEU:HD11	2.47	0.45
1:C:505:ARG:NH2	1:C:562:GLU:OE1	2.50	0.44
1:D:775:ASP:OD1	1:D:776:SER:N	2.48	0.44
1:J:706:ILE:O	1:J:834:LYS:NZ	2.48	0.44
1:A:416:TRP:O	1:A:420:VAL:HG22	2.18	0.44
1:C:195:VAL:O	1:C:206:VAL:N	2.50	0.44
1:G:517:LEU:HD23	1:G:520:LEU:HD12	1.98	0.44
1:H:376:GLY:O	1:H:590:SER:OG	2.34	0.44
1:C:275:ASP:O	1:C:279:ASN:ND2	2.50	0.44
1:C:663:ARG:NH1	1:H:358:GLN:OE1	2.50	0.44
1:H:456:ASN:OD1	1:H:457:GLY:N	2.50	0.44
1:A:609:HIS:O	1:A:613:VAL:HG23	2.17	0.44
1:B:244:ASN:OD1	1:F:671:ARG:NH1	2.51	0.44
1:J:79:LEU:HA	1:J:82:VAL:HG22	1.99	0.44
1:J:92:GLU:OE2	2:P:645:LYS:N	2.44	0.44
1:J:130:PHE:CZ	1:J:132:ILE:HD11	2.53	0.44
1:C:731:ALA:N	1:C:832:VAL:O	2.48	0.44
1:B:416:TRP:O	1:B:419:THR:OG1	2.30	0.44
1:D:372:GLN:O	1:D:407:ASN:ND2	2.50	0.44
1:D:868:ASP:OD2	1:H:405:THR:HG22	2.18	0.44
1:J:246:VAL:CG1	1:J:853:LEU:HD21	2.45	0.44
1:G:240:GLN:OE1	1:G:243:ARG:NH2	2.47	0.44
1:G:851:SER:OG	1:G:852:ASN:N	2.51	0.44
1:I:611:TYR:O	1:I:615:VAL:HG23	2.17	0.44
1:J:138:LEU:HD12	1:J:154:TYR:HB2	2.00	0.44
1:J:401:LEU:HD22	1:J:585:LEU:HD21	2.00	0.44
2:P:744:ILE:HB	2:P:748:LEU:HD22	1.99	0.44
1:D:441:THR:HG23	1:D:442:ILE:HD12	2.00	0.44
1:J:851:SER:OG	1:J:852:ASN:N	2.50	0.44
2:P:906:ASN:OD1	2:P:907:VAL:N	2.51	0.44
1:B:649:VAL:HG11	1:B:669:MET:HG2	2.00	0.44
1:A:731:ALA:N	1:A:832:VAL:O	2.51	0.43
1:B:501:ASN:HB2	1:B:504:ILE:HD12	2.00	0.43
1:H:608:PHE:CG	1:H:862:LEU:HD13	2.53	0.43
1:B:436:LEU:HD22	1:C:887:LEU:OXT	2.18	0.43
1:D:241:ALA:HB1	1:H:671:ARG:CG	2.49	0.43
1:E:602:PRO:HB2	1:E:607:LEU:HD21	1.99	0.43
1:I:282:PRO:HB2	1:I:285:ILE:HD12	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:625:ILE:O	1:G:629:VAL:HG23	2.19	0.43
1:J:472:ASN:HB3	1:J:475:VAL:HG12	2.00	0.43
1:F:180:VAL:O	1:F:184:MET:N	2.51	0.43
1:C:437:ALA:O	1:C:441:THR:HG22	2.19	0.43
1:F:446:ALA:HB2	1:F:525:PHE:CE1	2.54	0.43
1:C:392:ALA:O	1:C:396:GLN:N	2.51	0.43
1:A:349:THR:HG22	1:A:594:LEU:CD1	2.49	0.43
1:F:252:LEU:O	1:F:845:SER:OG	2.29	0.43
1:F:729:ASN:O	1:F:832:VAL:N	2.49	0.43
1:I:470:ILE:HG21	1:I:475:VAL:HG11	2.00	0.43
1:F:456:ASN:OD1	1:F:457:GLY:N	2.52	0.43
1:A:177:TYR:CZ	1:A:181:LEU:HD11	2.53	0.43
1:B:713:ALA:O	1:B:715:ARG:N	2.52	0.43
1:E:716:ASP:OD1	1:E:827:THR:OG1	2.36	0.43
1:F:721:ARG:NH2	1:F:727:TYR:OH	2.51	0.43
1:G:364:ALA:C	1:G:365:LEU:HD12	2.39	0.43
1:G:744:GLU:N	1:G:744:GLU:OE1	2.52	0.43
1:H:329:THR:HG23	1:H:395:SER:O	2.19	0.43
2:P:282:ASP:OD1	2:P:645:LYS:NZ	2.45	0.43
1:D:268:LEU:HD12	1:D:268:LEU:O	2.19	0.42
1:I:727:TYR:CD2	1:I:809:ILE:HD11	2.54	0.42
1:A:415:MET:O	1:A:419:THR:HG23	2.19	0.42
1:A:565:MET:HA	1:A:568:ILE:HD12	2.02	0.42
1:B:631:ILE:HG21	1:B:648:ILE:HD13	2.00	0.42
1:D:89:HIS:CE1	1:D:364:ALA:HB2	2.54	0.42
1:D:314:ARG:HB3	1:D:679:LEU:HD21	2.01	0.42
1:D:731:ALA:HB2	1:D:831:LYS:HE3	2.01	0.42
1:I:290:ASN:O	1:I:869:THR:OG1	2.34	0.42
2:P:834:THR:HG23	2:P:965:LEU:HD23	2.01	0.42
1:A:208:ASP:OD1	1:A:209:SER:N	2.52	0.42
1:I:216:ASP:OD1	1:I:217:ALA:N	2.52	0.42
1:A:856:THR:HG1	1:A:858:TYR:HE2	1.66	0.42
1:E:292:ILE:CG2	1:I:433:ALA:HB1	2.49	0.42
1:I:711:ILE:HD11	1:I:734:LEU:HD12	2.01	0.42
2:P:671:SER:OG	2:P:672:THR:N	2.51	0.42
1:D:609:HIS:O	1:D:613:VAL:HG23	2.20	0.42
1:D:667:ASP:OD1	1:D:668:GLN:N	2.52	0.42
1:E:320:ASN:O	1:E:671:ARG:NH1	2.49	0.42
2:P:843:ALA:HB3	2:P:844:PRO:HD3	2.02	0.42
1:A:689:PHE:CZ	1:A:693:LEU:HD21	2.55	0.42
1:D:555:ARG:NH1	1:D:882:ARG:O	2.51	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:713:ALA:O	1:E:715:ARG:N	2.53	0.42
1:G:178:ASP:OD1	1:G:179:GLN:N	2.52	0.42
1:G:505:ARG:NE	1:G:562:GLU:OE1	2.49	0.42
2:P:48:ASN:HB3	2:P:55:LEU:HD23	2.00	0.42
2:P:141:ASN:O	2:P:145:VAL:HG23	2.20	0.42
1:B:871:GLU:HG2	1:B:873:ILE:HG22	2.01	0.42
1:I:198:LYS:NZ	1:I:212:ALA:HB1	2.35	0.42
1:J:625:ILE:O	1:J:629:VAL:HG23	2.19	0.42
2:P:961:TYR:O	2:P:964:SER:OG	2.34	0.42
1:F:428:ARG:O	1:F:432:VAL:HG23	2.19	0.42
1:F:611:TYR:O	1:F:615:VAL:HG23	2.19	0.42
1:J:531:ASP:OD1	1:J:532:TYR:N	2.51	0.42
2:P:805:SER:OG	2:P:806:SER:N	2.52	0.42
1:A:272:LEU:HD11	1:A:277:ILE:HD11	2.01	0.42
1:D:208:ASP:OD1	1:D:209:SER:N	2.53	0.42
1:E:726:GLY:N	1:E:809:ILE:O	2.52	0.42
1:I:609:HIS:O	1:I:613:VAL:HG23	2.20	0.42
2:P:607:LEU:O	2:P:611:VAL:HG23	2.19	0.42
1:D:344:LYS:HG2	1:D:600:VAL:HG12	2.01	0.41
1:I:757:MET:O	1:I:761:ASN:N	2.53	0.41
1:J:290:ASN:ND2	1:J:559:TYR:OH	2.49	0.41
2:P:367:ILE:O	2:P:371:VAL:HG23	2.20	0.41
1:A:700:GLU:O	1:A:708:GLN:NE2	2.53	0.41
1:B:393:MET:O	1:B:396:GLN:NE2	2.49	0.41
1:C:400:SER:C	1:C:401:LEU:HD12	2.41	0.41
1:F:609:HIS:O	1:F:613:VAL:HG23	2.20	0.41
1:C:713:ALA:O	1:C:715:ARG:N	2.53	0.41
1:D:674:ASP:OD1	1:D:677:ARG:NH1	2.53	0.41
1:E:733:ASN:OD1	1:E:734:LEU:N	2.53	0.41
1:F:326:ASP:OD2	1:F:579:THR:HG22	2.20	0.41
1:H:333:TYR:OH	1:H:388:THR:HG23	2.20	0.41
1:I:315:LEU:HD21	1:I:679:LEU:HD11	2.02	0.41
1:J:320:ASN:O	1:J:671:ARG:NE	2.54	0.41
2:P:335:ARG:O	2:P:337:GLN:N	2.53	0.41
1:D:441:THR:OG1	1:D:532:TYR:OH	2.10	0.41
1:E:156:LYS:NZ	1:E:704:ASP:OD2	2.53	0.41
1:F:751:TYR:O	1:F:755:THR:HG23	2.20	0.41
1:H:514:MET:HG3	1:H:547:LEU:HD13	2.02	0.41
1:H:603:SER:O	1:H:606:THR:OG1	2.34	0.41
1:I:851:SER:OG	1:I:852:ASN:N	2.53	0.41
1:E:667:ASP:OD1	1:E:668:GLN:N	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:124:LYS:NZ	1:I:181:LEU:O	2.53	0.41
1:I:329:THR:HG23	1:I:395:SER:O	2.21	0.41
1:J:611:TYR:O	1:J:615:VAL:HG23	2.21	0.41
1:B:565:MET:HA	1:B:568:ILE:HD12	2.01	0.41
1:B:611:TYR:O	1:B:615:VAL:HG23	2.21	0.41
1:F:272:LEU:HD13	1:F:305:TYR:CD1	2.55	0.41
1:H:717:MET:O	1:H:828:SER:N	2.49	0.41
2:P:122:ALA:HB2	2:P:193:TYR:CD2	2.54	0.41
1:C:255:ILE:O	1:C:258:ALA:HB3	2.21	0.41
1:C:441:THR:HG23	1:C:442:ILE:HD12	2.02	0.41
1:F:531:ASP:OD1	1:F:532:TYR:N	2.54	0.41
1:G:440:ASN:O	1:G:451:ARG:NE	2.54	0.41
1:H:453:HIS:O	1:H:455:ARG:NH1	2.50	0.41
1:J:688:ILE:HG22	1:J:692:ILE:HD12	2.03	0.41
1:A:224:THR:OG1	1:A:229:ARG:NH2	2.54	0.41
1:A:740:ILE:HD12	1:A:764:VAL:HG21	2.03	0.41
1:B:474:GLN:HB3	1:B:516:ALA:HB2	2.03	0.41
1:C:208:ASP:OD1	1:C:209:SER:N	2.53	0.41
1:E:304:ARG:N	1:E:856:THR:O	2.53	0.41
1:G:731:ALA:HB2	1:G:831:LYS:HB3	2.02	0.41
1:D:673:ARG:NH1	1:I:887:LEU:OXT	2.53	0.41
1:B:189:LEU:HD11	1:B:855:PHE:CZ	2.56	0.40
1:B:733:ASN:OD1	1:B:734:LEU:N	2.54	0.40
1:D:429:GLU:OE1	1:I:534:ARG:NH2	2.48	0.40
1:E:441:THR:HG23	1:E:442:ILE:HD12	2.03	0.40
1:F:627:ASP:OD1	1:F:685:ARG:NH2	2.54	0.40
1:B:428:ARG:O	1:B:432:VAL:HG23	2.21	0.40
1:B:724:MET:SD	1:B:724:MET:N	2.94	0.40
1:C:742:LEU:HD13	1:C:767:VAL:O	2.21	0.40
1:E:268:LEU:HD12	1:E:268:LEU:O	2.20	0.40
1:H:383:ASN:OD1	1:H:384:ASP:N	2.54	0.40
1:H:757:MET:O	1:H:761:ASN:N	2.54	0.40
2:P:102:LEU:O	2:P:111:ASN:ND2	2.55	0.40
2:P:492:GLU:OE2	2:P:679:LYS:NZ	2.52	0.40
2:P:591:SER:HA	2:P:596:THR:HG21	2.03	0.40
1:C:311:LEU:O	1:C:618:HIS:NE2	2.53	0.40
1:I:719:LEU:HD22	1:I:729:ASN:N	2.37	0.40
1:J:216:ASP:OD1	1:J:217:ALA:N	2.54	0.40
1:A:244:ASN:OD1	1:J:671:ARG:NH1	2.54	0.40
1:A:733:ASN:OD1	1:A:734:LEU:N	2.54	0.40
1:F:559:TYR:O	1:F:563:THR:HG23	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:727:TYR:CD2	1:G:809:ILE:HD11	2.57	0.40
1:H:240:GLN:OE1	1:H:243:ARG:NH2	2.50	0.40
2:P:613:SER:OG	2:P:614:ARG:NH1	2.55	0.40
2:P:715:SER:O	2:P:719:VAL:HG23	2.21	0.40
1:B:225:GLU:O	1:B:229:ARG:NH1	2.54	0.40
1:C:783:ALA:HB3	1:C:785:LEU:CD1	2.52	0.40
1:E:478:TRP:CE2	1:E:513:LEU:HD13	2.56	0.40

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	779/887 (88%)	712 (91%)	67 (9%)	0	100	100
1	B	779/887 (88%)	714 (92%)	65 (8%)	0	100	100
1	C	778/887 (88%)	706 (91%)	72 (9%)	0	100	100
1	D	825/887 (93%)	752 (91%)	72 (9%)	1 (0%)	51	85
1	E	793/887 (89%)	720 (91%)	73 (9%)	0	100	100
1	F	800/887 (90%)	720 (90%)	80 (10%)	0	100	100
1	G	800/887 (90%)	721 (90%)	79 (10%)	0	100	100
1	H	800/887 (90%)	722 (90%)	77 (10%)	1 (0%)	51	85
1	I	798/887 (90%)	724 (91%)	74 (9%)	0	100	100
1	J	814/887 (92%)	739 (91%)	75 (9%)	0	100	100
2	P	1084/1088 (100%)	985 (91%)	96 (9%)	3 (0%)	41	76
All	All	9050/9958 (91%)	8215 (91%)	830 (9%)	5 (0%)	54	85

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	P	82	TYR
2	P	84	ALA
2	P	942	PRO
1	H	107	PRO
1	D	103	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	717/818 (88%)	715 (100%)	2 (0%)	92	95
1	B	717/818 (88%)	716 (100%)	1 (0%)	93	97
1	C	716/818 (88%)	716 (100%)	0	100	100
1	D	762/818 (93%)	762 (100%)	0	100	100
1	E	731/818 (89%)	729 (100%)	2 (0%)	92	95
1	F	738/818 (90%)	737 (100%)	1 (0%)	93	97
1	G	738/818 (90%)	737 (100%)	1 (0%)	93	97
1	H	738/818 (90%)	737 (100%)	1 (0%)	93	97
1	I	736/818 (90%)	735 (100%)	1 (0%)	93	97
1	J	752/818 (92%)	751 (100%)	1 (0%)	93	97
2	P	986/989 (100%)	985 (100%)	1 (0%)	93	97
All	All	8331/9169 (91%)	8320 (100%)	11 (0%)	93	97

All (11) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	314	ARG
1	A	383	ASN
1	B	320	ASN
1	E	314	ARG
1	E	320	ASN
1	F	732	ARG
1	G	732	ARG

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Mol	Chain	Res	Type
1	H	732	ARG
1	I	732	ARG
1	J	732	ARG
2	P	130	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (13) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	614	ASN
1	B	287	ASN
1	B	690	ASN
1	C	497	ASN
1	C	614	ASN
1	D	545	ASN
1	E	571	ASN
1	F	622	ASN
1	H	549	GLN
1	I	614	ASN
1	J	614	ASN
1	J	636	ASN
2	P	785	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 monosaccharides in this entry.

5.6 Ligand geometry

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

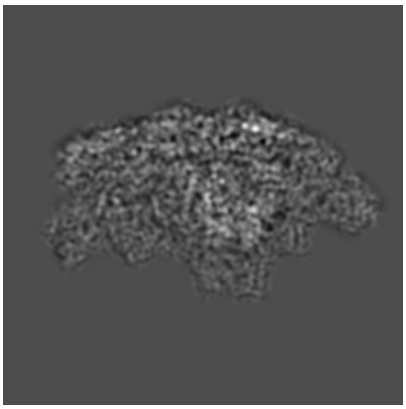
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-20088. 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.

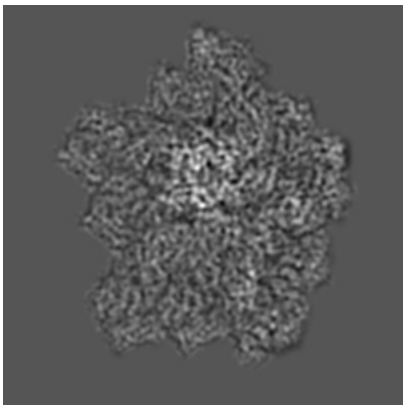
6.1 Orthogonal projections

6.1.1 Primary map



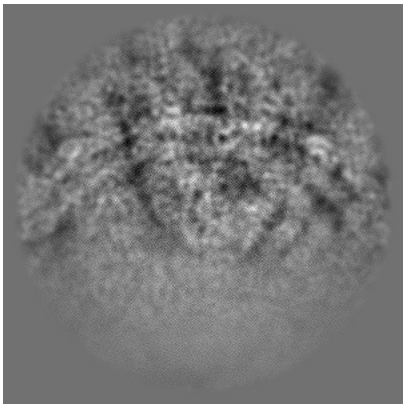
X

Y

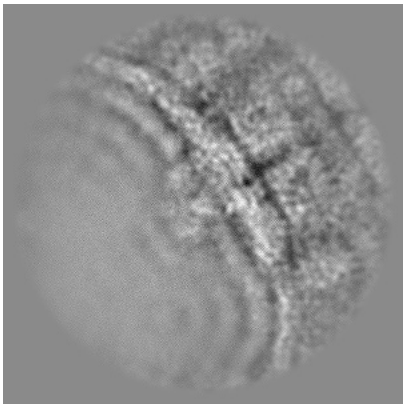


Z

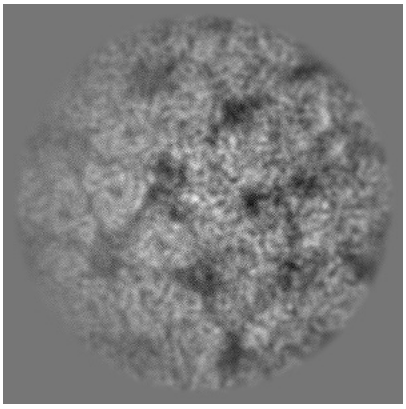
6.1.2 Raw map



X



Y



Z

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

6.2 Central slices (i)

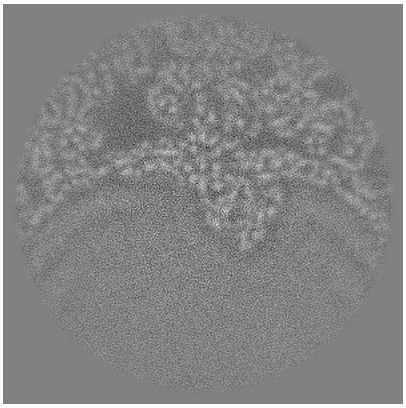
6.2.1 Primary map

X Index: 150

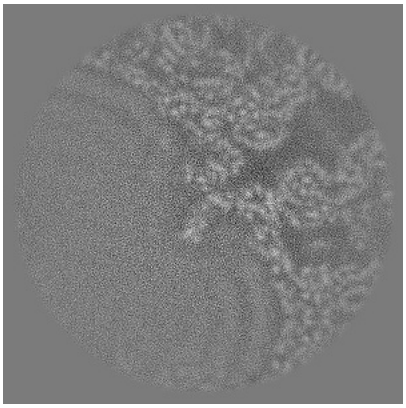
Y Index: 150

Z Index: 150

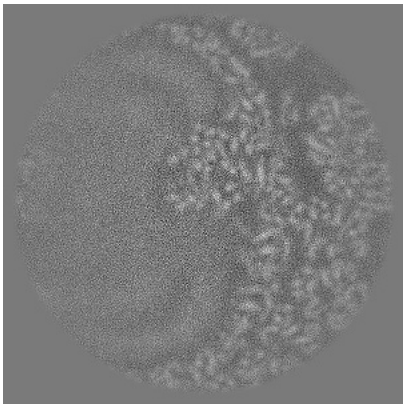
6.2.2 Raw map



X Index: 150



Y Index: 150



Z Index: 150

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

6.3 Largest variance slices (i)

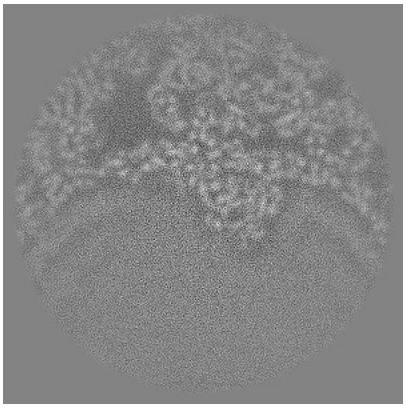
6.3.1 Primary map

X Index: 146

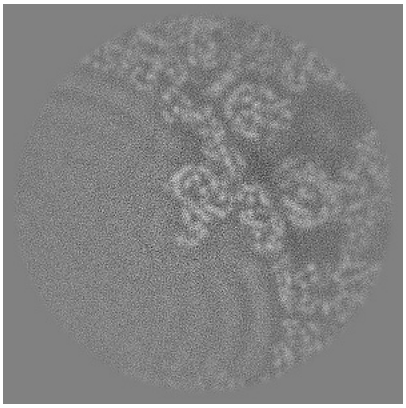
Y Index: 189

Z Index: 147

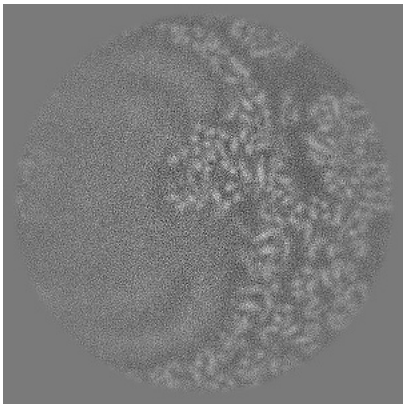
6.3.2 Raw map



X Index: 152



Y Index: 155

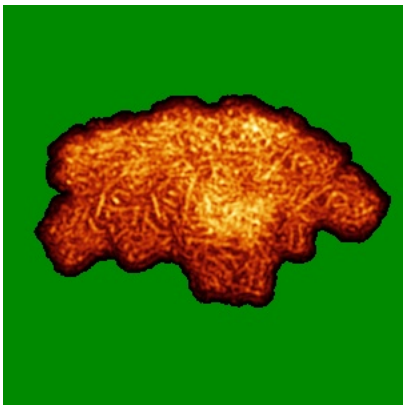


Z Index: 150

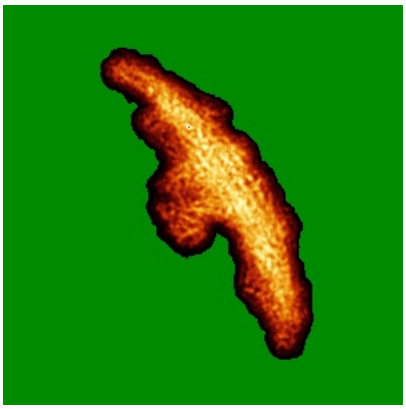
The images above show the largest variance slices of the map in three orthogonal directions.

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

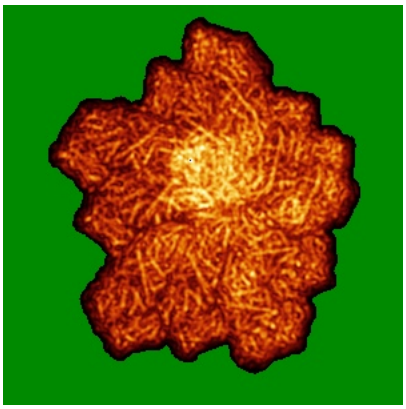
6.4.1 Primary map



X

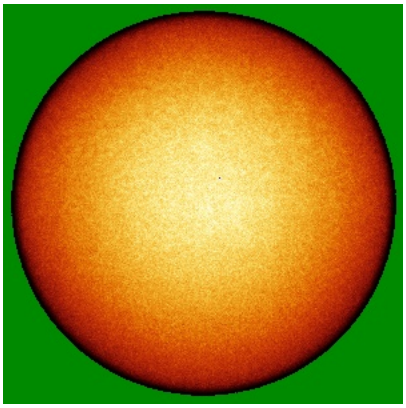


Y

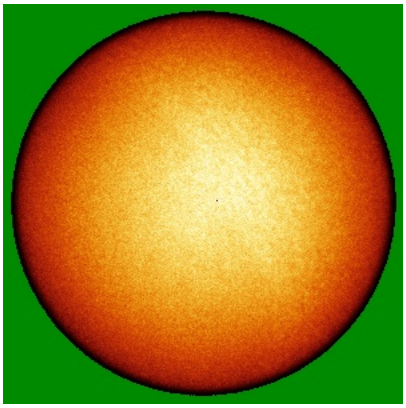


Z

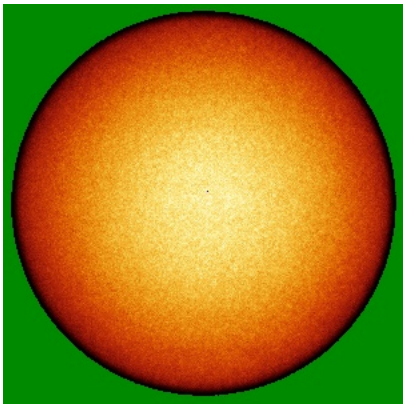
6.4.2 Raw map



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 2.0. 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 (i)

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

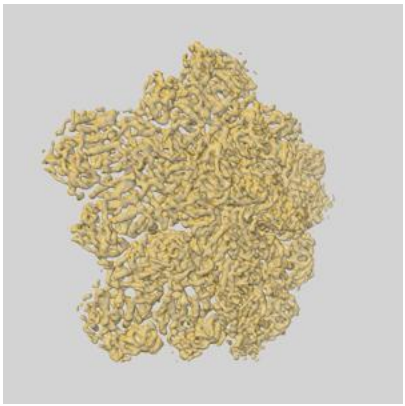
A mask typically either:

- 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_20088_msk_1.map (i)

X

Y

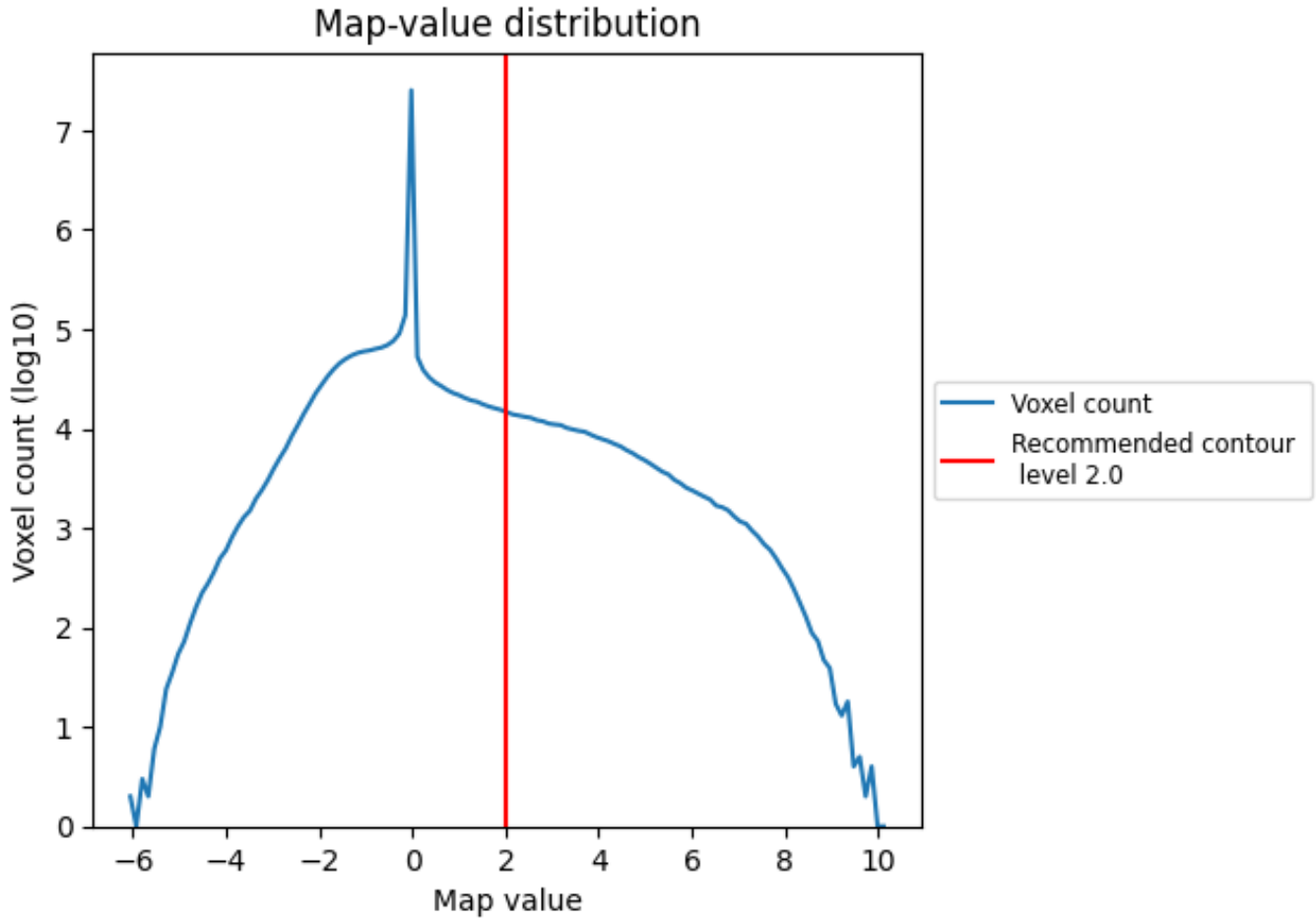


Z

7 Map analysis

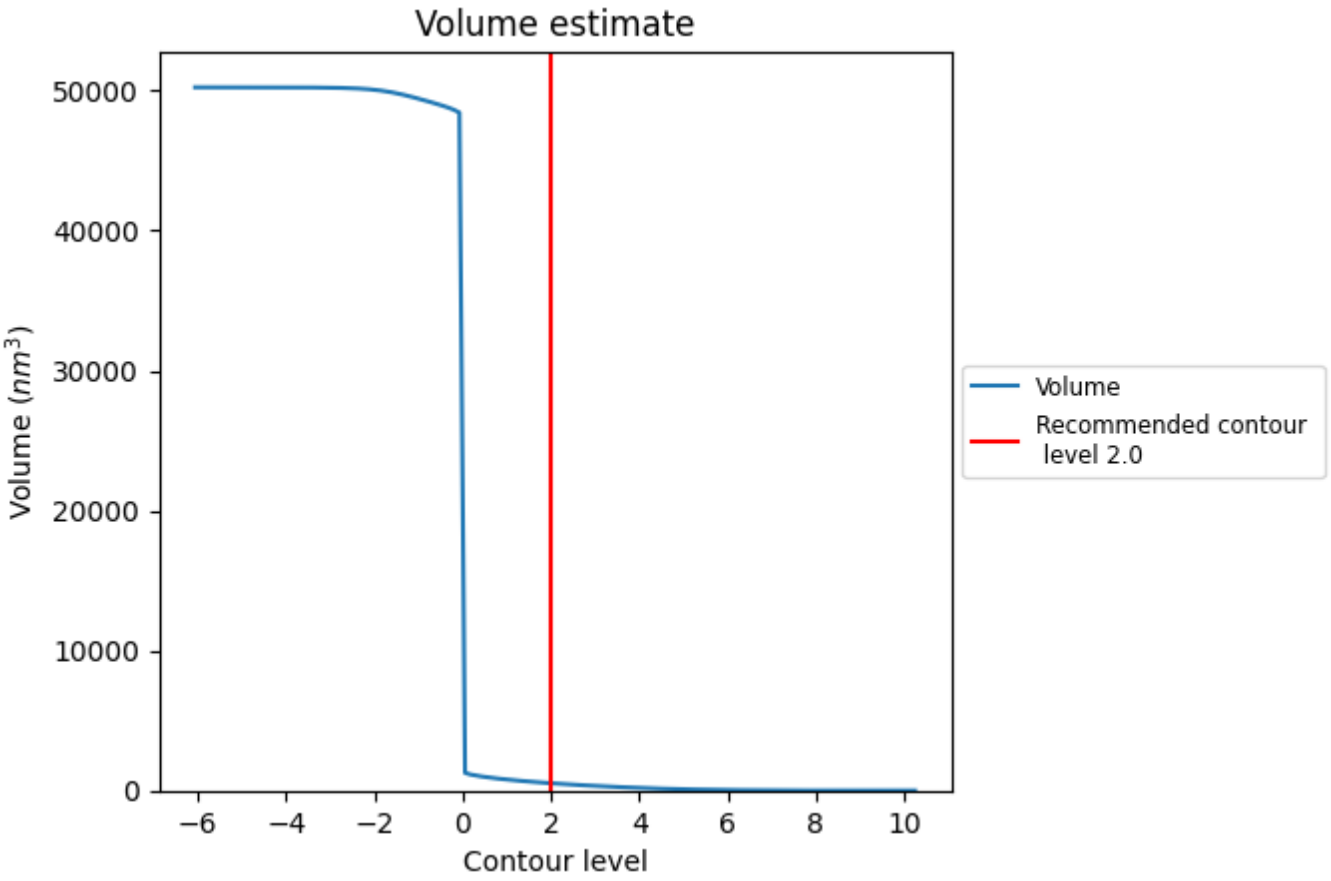
This section contains the results of statistical analysis of the map.

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.

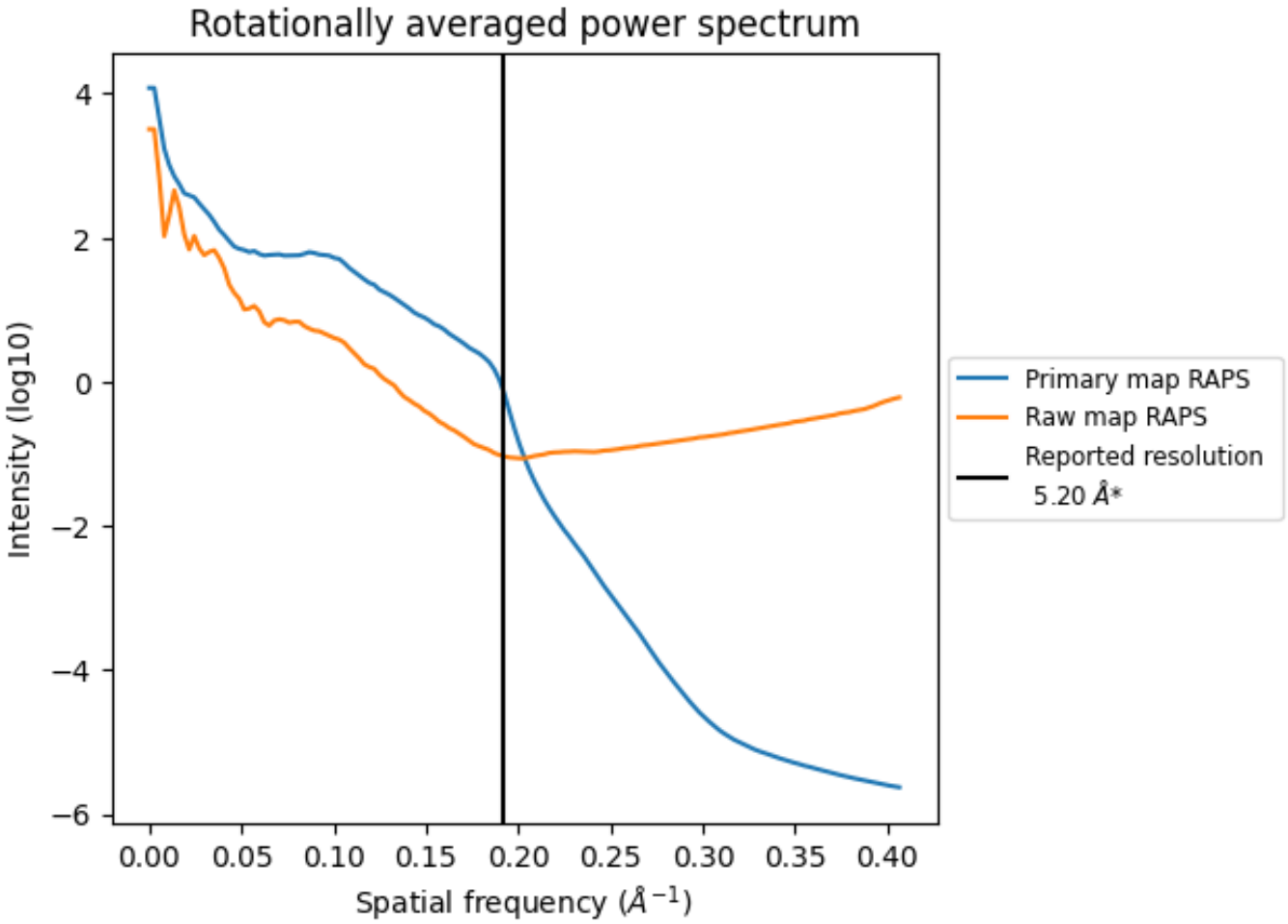
7.2 Volume estimate (i)



The volume at the recommended contour level is 523 nm^3; this corresponds to an approximate mass of 473 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)

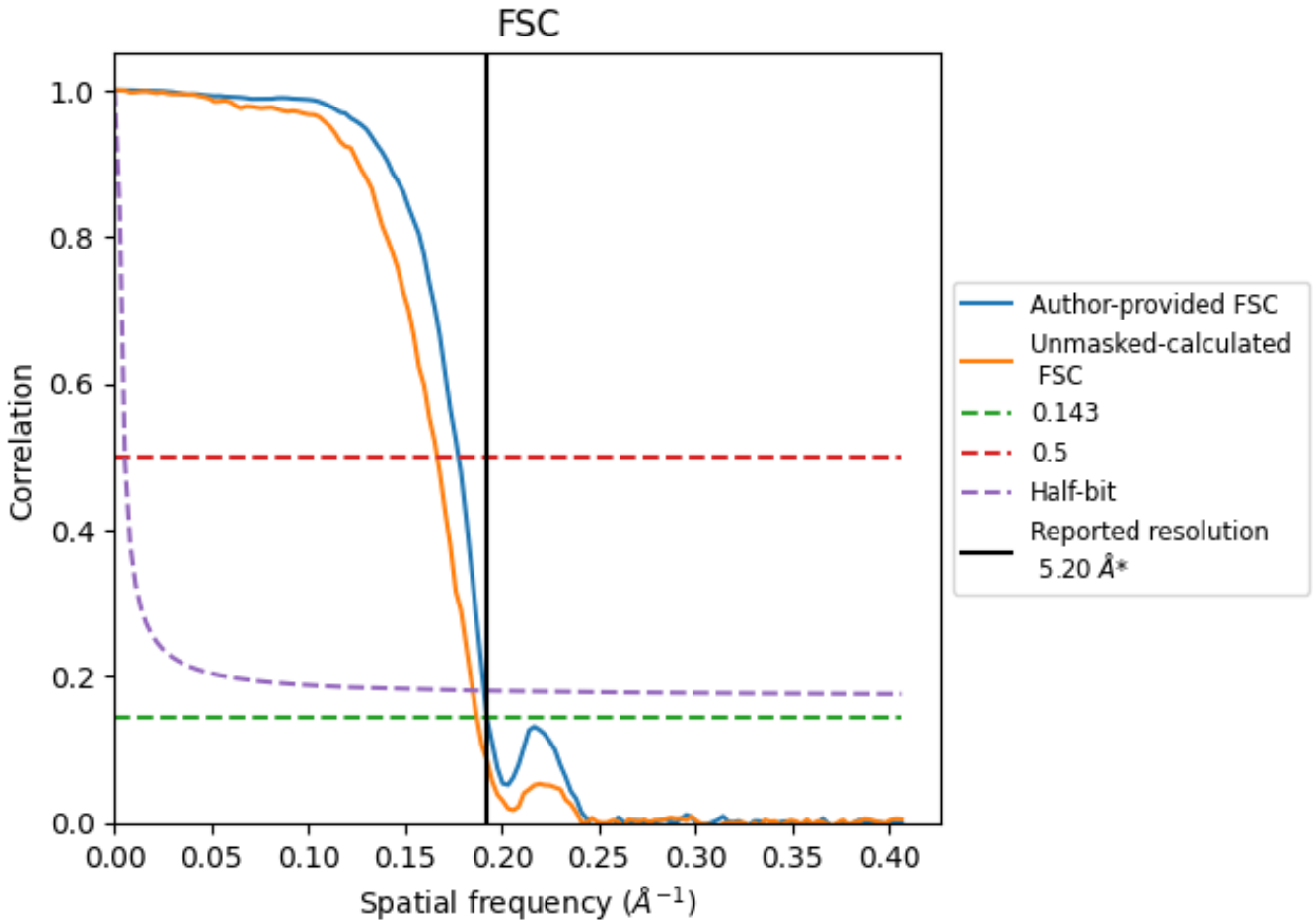


*Reported resolution corresponds to spatial frequency of 0.192 Å^{-1}

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 0.192 Å^{-1}

8.2 Resolution estimates (i)

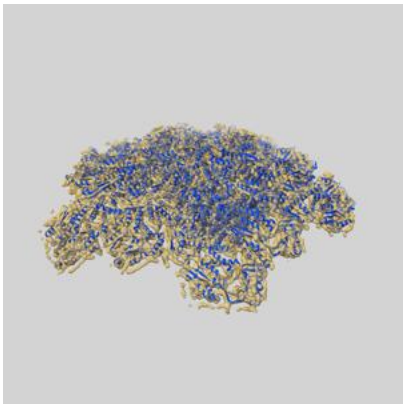
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	5.20	-	-
Author-provided FSC curve	5.20	5.63	5.24
Unmasked-calculated*	5.34	6.00	5.40

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

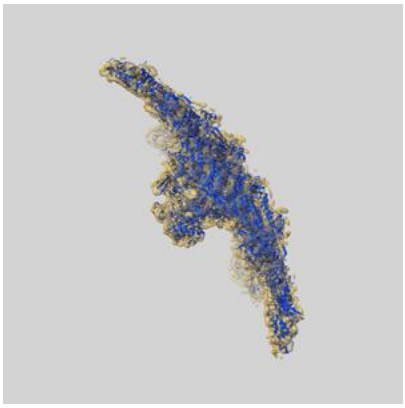
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-20088 and PDB model 6OJ5. Per-residue inclusion information can be found in section 3 on page 5.

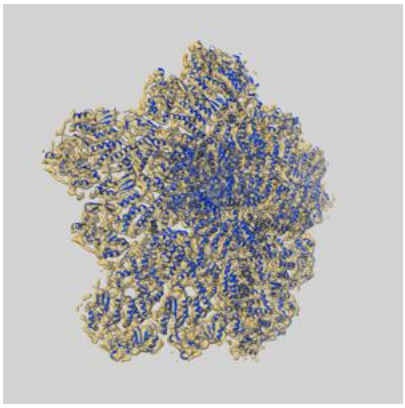
9.1 Map-model overlay



X



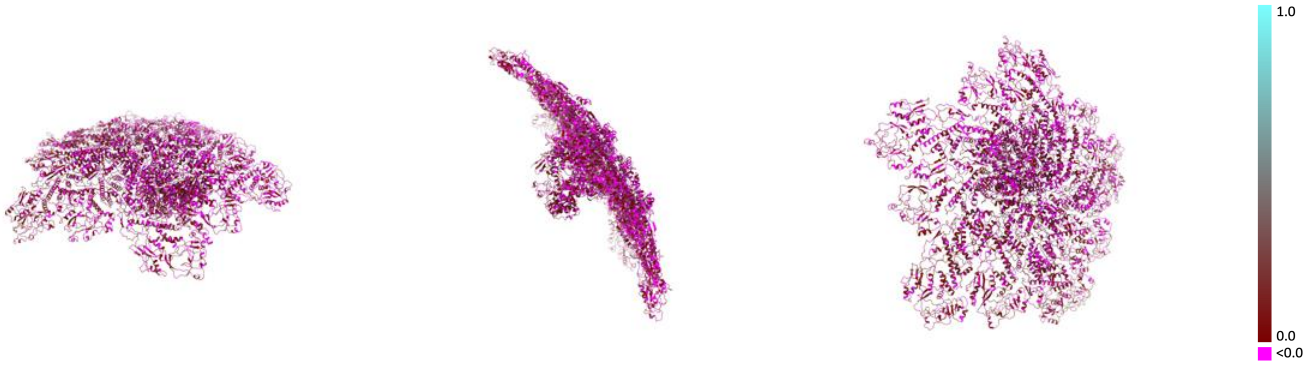
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 2.0 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.

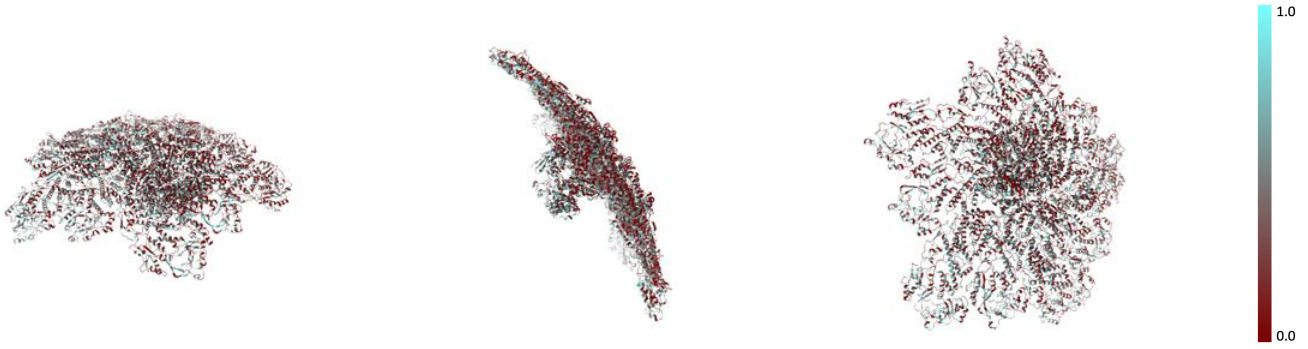
9.2 Q-score mapped to coordinate model (i)



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.

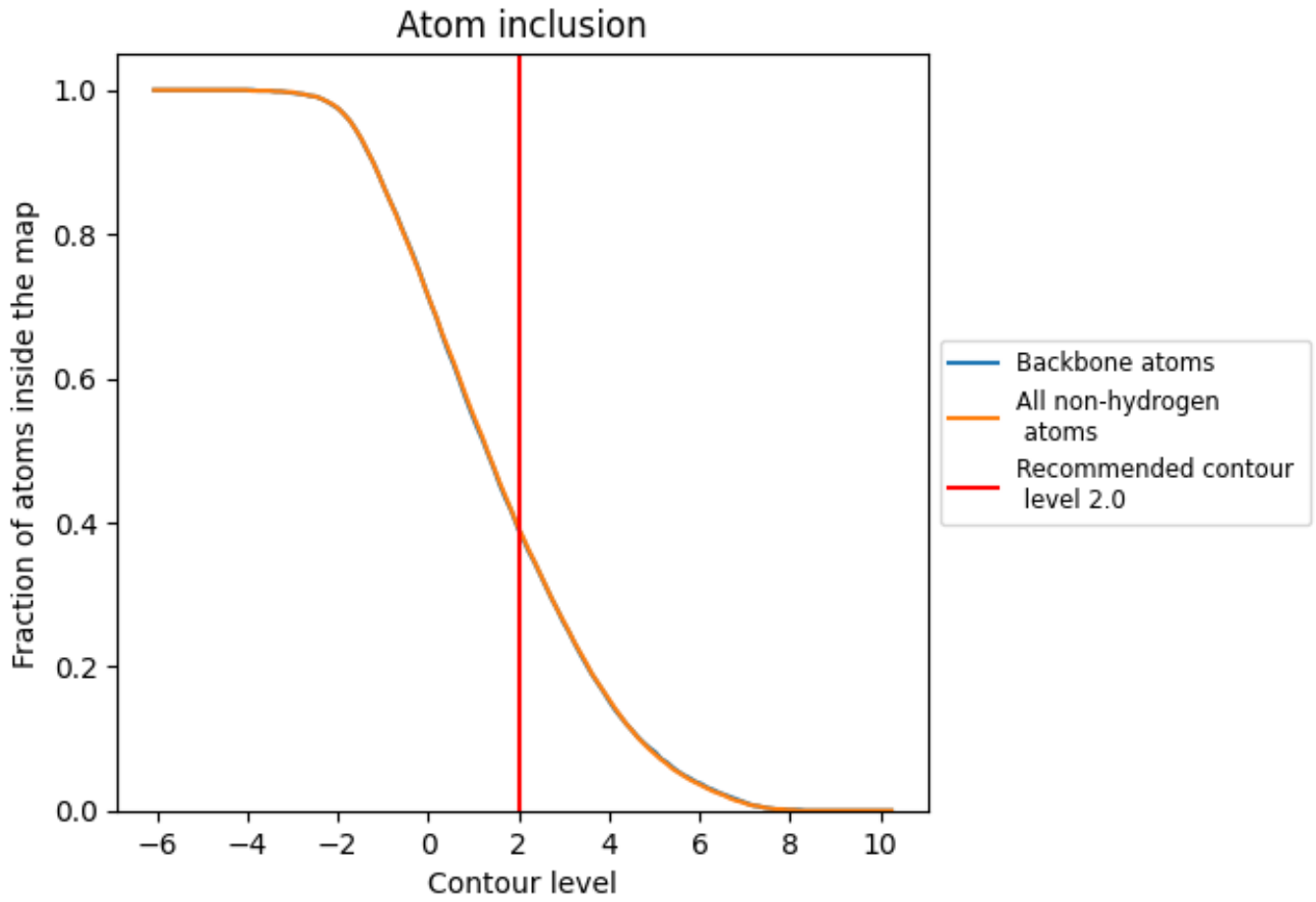
9.3 Atom inclusion mapped to coordinate model (i)



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 (2.0).

9.4 Atom inclusion (i)



At the recommended contour level, 39% of all backbone atoms, 39% 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 (2.0) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.3920	0.0760
A	0.3660	0.0520
B	0.4110	0.0810
C	0.4340	0.1090
D	0.4070	0.0890
E	0.3840	0.0650
F	0.3660	0.0470
G	0.4380	0.1050
H	0.4320	0.1090
I	0.3870	0.0660
J	0.3460	0.0360
P	0.4040	0.0770