



Full wwPDB EM Validation Report ⓘ

Mar 6, 2026 – 10:05 PM UTC

PDB ID : 5VVR / pdb_00005vvr
EMDB ID : EMD-8735
Title : Ternary complex of RNA Pol II, transcription scaffold and Rad26
Authors : Lahiri, I.; Leschziner, A.E.
Deposited on : 2017-05-19
Resolution : 5.80 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:

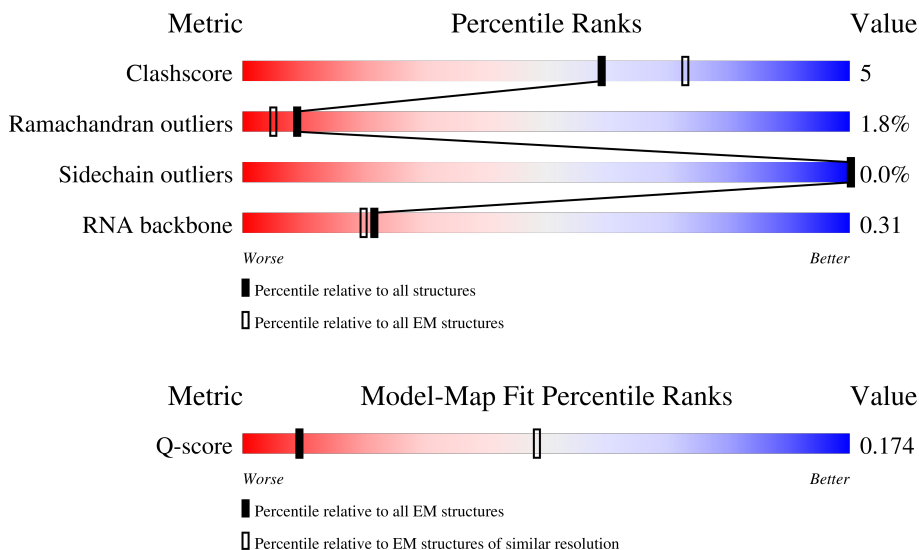
EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

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 5.80 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.



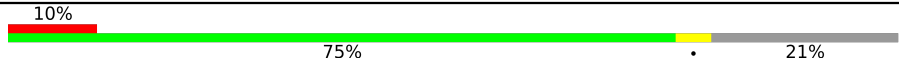

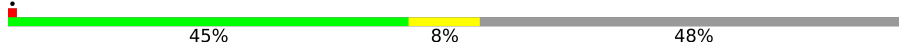




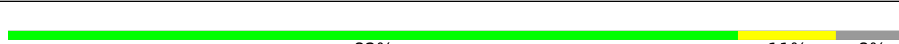
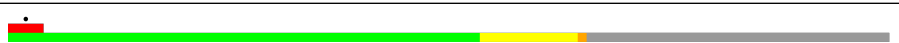

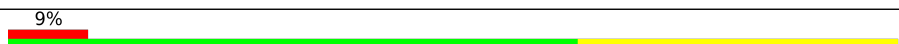
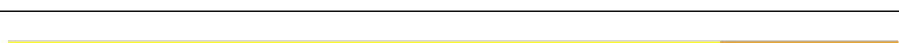
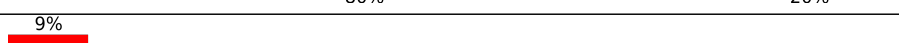
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	511 (5.30 - 6.30)

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 $\leq 5\%$. 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	1733	
2	B	1224	
3	C	318	

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Mol	Chain	Length	Quality of chain
4	D	221	
5	E	215	
6	F	155	
7	G	171	
8	H	146	
9	I	122	
10	J	70	
11	K	120	
12	L	70	
13	M	1085	
14	N	47	
15	R	10	
16	T	47	

2 Entry composition [i](#)

There are 18 unique types of molecules in this entry. The entry contains 38507 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 DNA-directed RNA polymerase II subunit RPB1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1448	11385	7168	1988	2167	62	0	0

- Molecule 2 is a protein called DNA-directed RNA polymerase II subunit RPB2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	1207	9608	6062	1678	1812	56	0	0

- Molecule 3 is a protein called DNA-directed RNA polymerase II subunit RPB3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	270	2125	1336	353	422	14	0	0

- Molecule 4 is a protein called DNA-directed RNA polymerase II subunit RPB4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	175	1409	870	251	286	2	0	0

- Molecule 5 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	215	1760	1116	310	322	12	0	0

- Molecule 6 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	F	81	657	419	111	124	3	0	0

- Molecule 7 is a protein called DNA-directed RNA polymerase II subunit RPB7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	G	171	1340	861	222	249	8	0	0

- Molecule 8 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	H	146	1161	726	195	235	5	0	0

- Molecule 9 is a protein called DNA-directed RNA polymerase II subunit RPB9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	I	122	997	613	182	191	11	0	0

- Molecule 10 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	J	70	578	366	102	104	6	0	0

- Molecule 11 is a protein called DNA-directed RNA polymerase II subunit RPB11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	K	111	895	575	152	166	2	0	0

- Molecule 12 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	L	46	364	224	72	64	4	0	0

- Molecule 13 is a protein called DNA repair and recombination protein RAD26.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	M	503	4087	2620	726	722	19	0	0

- Molecule 14 is a DNA chain called DNA (NTS).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
14	N	47	965	460	176	282	47	0	0

- Molecule 15 is a RNA chain called RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
15	R	10	220	98	45	67	10	0	0

- Molecule 16 is a DNA chain called DNA (TS).

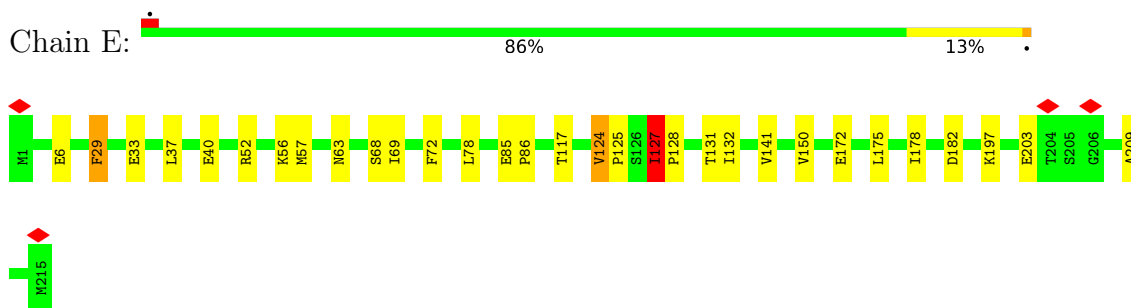
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
16	T	47	947	453	159	288	47	0	0

- Molecule 17 is ZINC ION (CCD ID: ZN) (formula: Zn).

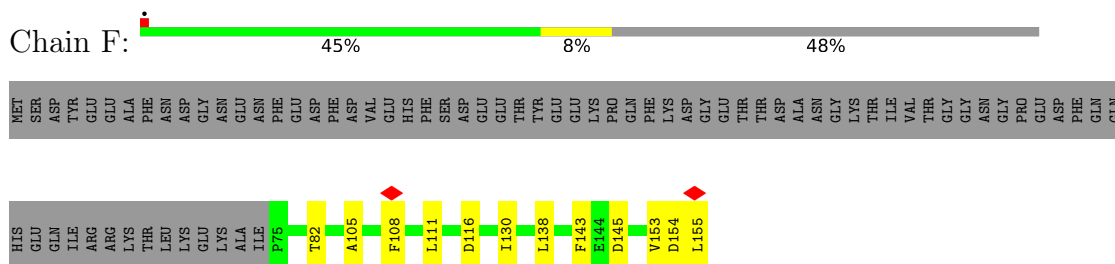
Mol	Chain	Residues	Atoms		AltConf
17	A	2	Total	Zn	0
			2	2	
17	B	1	Total	Zn	0
			1	1	
17	C	1	Total	Zn	0
			1	1	
17	I	2	Total	Zn	0
			2	2	
17	J	1	Total	Zn	0
			1	1	
17	L	1	Total	Zn	0
			1	1	

- Molecule 18 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

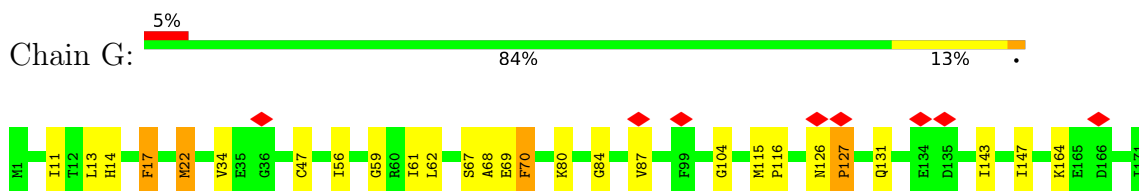
Mol	Chain	Residues	Atoms		AltConf
18	A	1	Total	Mg	0
			1	1	



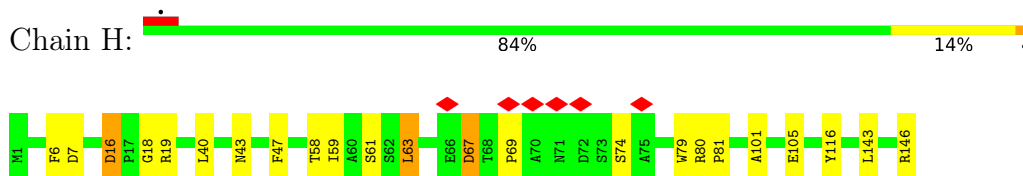
- Molecule 6: DNA-directed RNA polymerases I, II, and III subunit RPABC2



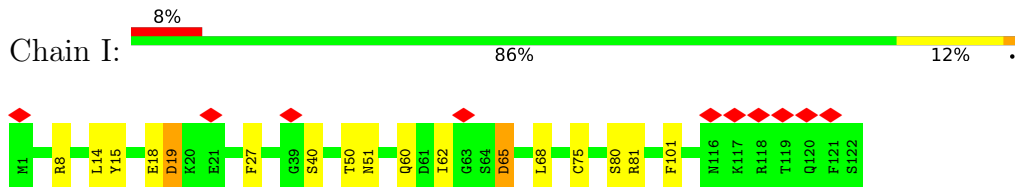
- Molecule 7: DNA-directed RNA polymerase II subunit RPB7



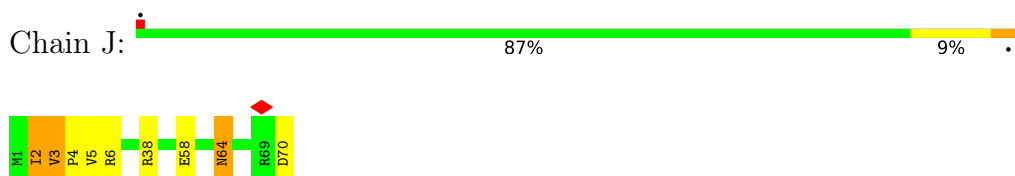
- Molecule 8: DNA-directed RNA polymerases I, II, and III subunit RPABC3



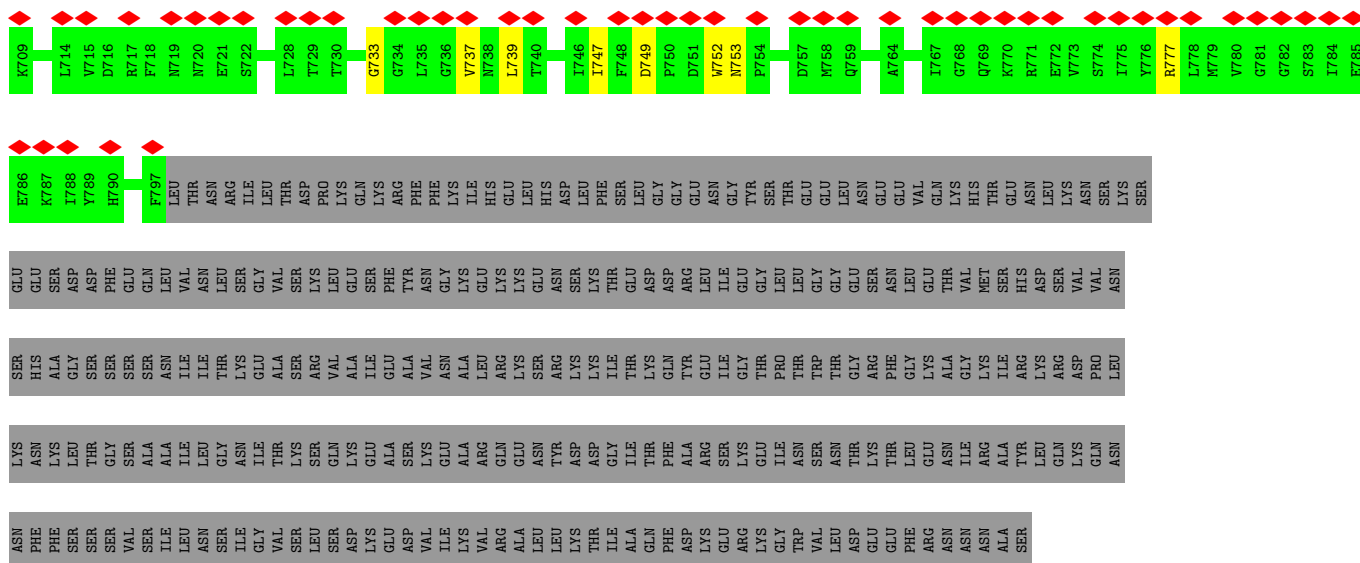
- Molecule 9: DNA-directed RNA polymerase II subunit RPB9



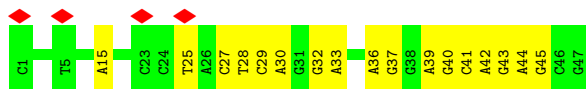
- Molecule 10: DNA-directed RNA polymerases I, II, and III subunit RPABC5



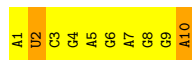
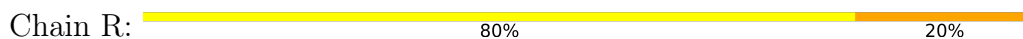
- Molecule 11: DNA-directed RNA polymerase II subunit RPB11



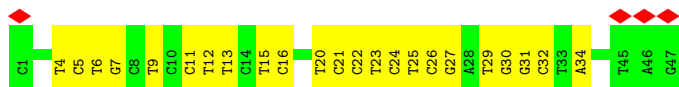
• Molecule 14: DNA (NTS)



• Molecule 15: RNA



• Molecule 16: DNA (TS)



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	19331	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	7.7	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	0.087	Depositor
Minimum map value	-0.020	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.0244	Depositor
Map size (\AA)	460.80002, 460.80002, 460.80002	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.2, 1.2, 1.2	Depositor

5 Model quality i

5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: MG, ZN

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	0.87	1/11592 (0.0%)	1.20	123/15682 (0.8%)
2	B	0.86	0/9799	1.17	96/13221 (0.7%)
3	C	0.88	0/2163	1.18	22/2930 (0.8%)
4	D	0.78	0/1419	1.00	6/1903 (0.3%)
5	E	0.88	0/1796	1.20	23/2416 (1.0%)
6	F	0.89	0/669	1.21	11/903 (1.2%)
7	G	0.84	0/1368	1.30	20/1844 (1.1%)
8	H	0.89	0/1181	1.12	7/1602 (0.4%)
9	I	0.81	0/1016	1.25	10/1365 (0.7%)
10	J	0.87	0/587	1.09	3/786 (0.4%)
11	K	0.88	0/913	1.18	8/1232 (0.6%)
12	L	0.84	0/366	1.17	1/485 (0.2%)
13	M	0.70	0/4180	1.20	35/5644 (0.6%)
14	N	0.30	0/1082	0.61	0/1668
15	R	0.43	0/247	0.65	0/384
16	T	0.37	0/1056	0.61	0/1624
All	All	0.82	1/39434 (0.0%)	1.15	365/53689 (0.7%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1084	PHE	CA-C	-5.68	1.50	1.53

All (365) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	I	75	CYS	CA-C-N	10.98	130.58	119.82
9	I	75	CYS	C-N-CA	10.98	130.58	119.82
1	A	241	VAL	CA-C-N	9.91	126.79	119.66
1	A	241	VAL	C-N-CA	9.91	126.79	119.66

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	38	PHE	CA-CB-CG	-9.79	104.01	113.80
1	A	37	PHE	CA-C-N	9.55	129.29	119.64
1	A	37	PHE	C-N-CA	9.55	129.29	119.64
13	M	691	ASP	CA-C-N	9.44	130.08	119.32
13	M	691	ASP	C-N-CA	9.44	130.08	119.32
1	A	491	VAL	CA-C-N	9.36	129.42	119.78
1	A	491	VAL	C-N-CA	9.36	129.42	119.78
13	M	646	ASP	CA-C-N	9.24	128.87	119.82
13	M	646	ASP	C-N-CA	9.24	128.87	119.82
1	A	909	ASP	CA-C-N	9.14	129.37	119.87
1	A	909	ASP	C-N-CA	9.14	129.37	119.87
1	A	157	ASP	CA-C-N	9.10	128.73	119.82
1	A	157	ASP	C-N-CA	9.10	128.73	119.82
1	A	638	GLY	CA-C-N	8.97	129.15	119.28
1	A	638	GLY	C-N-CA	8.97	129.15	119.28
2	B	1045	SER	CA-C-N	8.95	129.08	120.31
2	B	1045	SER	C-N-CA	8.95	129.08	120.31
11	K	22	ASP	CA-C-N	8.88	128.95	119.90
11	K	22	ASP	C-N-CA	8.88	128.95	119.90
6	F	130	ILE	CA-C-N	8.82	129.91	120.12
6	F	130	ILE	C-N-CA	8.82	129.91	120.12
1	A	956	LEU	CA-C-N	8.78	129.33	119.32
1	A	956	LEU	C-N-CA	8.78	129.33	119.32
11	K	3	ALA	CA-C-N	8.76	128.70	120.03
11	K	3	ALA	C-N-CA	8.76	128.70	120.03
2	B	1013	ASN	CA-C-N	8.74	129.61	119.47
2	B	1013	ASN	C-N-CA	8.74	129.61	119.47
2	B	1109	GLY	CA-C-N	8.74	128.78	119.78
2	B	1109	GLY	C-N-CA	8.74	128.78	119.78
5	E	63	ASN	CA-C-N	8.71	128.77	119.89
5	E	63	ASN	C-N-CA	8.71	128.77	119.89
4	D	195	ILE	CA-C-N	8.52	129.35	119.47
4	D	195	ILE	C-N-CA	8.52	129.35	119.47
1	A	513	SER	CA-C-N	8.50	128.71	119.87
1	A	513	SER	C-N-CA	8.50	128.71	119.87
1	A	9	ALA	CA-C-N	8.49	128.63	120.31
1	A	9	ALA	C-N-CA	8.49	128.63	120.31
1	A	1301	GLU	CA-C-N	8.46	128.50	119.78
1	A	1301	GLU	C-N-CA	8.46	128.50	119.78
1	A	243	PRO	CA-C-N	8.46	129.09	120.38
1	A	243	PRO	C-N-CA	8.46	129.09	120.38
1	A	1293	SER	CA-C-N	8.33	127.98	119.82

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1293	SER	C-N-CA	8.33	127.98	119.82
1	A	242	PRO	CA-C-N	8.32	128.95	120.38
1	A	242	PRO	C-N-CA	8.32	128.95	120.38
1	A	1155	ASP	CA-C-N	8.31	127.95	119.56
1	A	1155	ASP	C-N-CA	8.31	127.95	119.56
1	A	560	ILE	CA-C-N	8.24	128.27	119.78
1	A	560	ILE	C-N-CA	8.24	128.27	119.78
3	C	41	ILE	CA-C-N	8.22	128.28	119.90
3	C	41	ILE	C-N-CA	8.22	128.28	119.90
1	A	264	PHE	CA-CB-CG	-8.16	105.64	113.80
5	E	117	THR	CA-C-N	8.16	128.94	119.47
5	E	117	THR	C-N-CA	8.16	128.94	119.47
2	B	610	ASN	CA-C-N	8.12	128.89	119.47
2	B	610	ASN	C-N-CA	8.12	128.89	119.47
2	B	1007	VAL	CA-C-N	8.10	128.05	120.03
2	B	1007	VAL	C-N-CA	8.10	128.05	120.03
13	M	347	GLY	CA-C-N	8.07	128.07	119.76
13	M	347	GLY	C-N-CA	8.07	128.07	119.76
8	H	16	ASP	CA-C-N	8.05	128.81	119.47
8	H	16	ASP	C-N-CA	8.05	128.81	119.47
1	A	88	LYS	CA-C-N	8.04	128.53	119.93
1	A	88	LYS	C-N-CA	8.04	128.53	119.93
2	B	523	CYS	CA-C-N	8.00	127.72	119.56
2	B	523	CYS	C-N-CA	8.00	127.72	119.56
1	A	247	ARG	CA-C-N	7.99	127.99	119.76
1	A	247	ARG	C-N-CA	7.99	127.99	119.76
1	A	567	LYS	CA-C-N	7.96	129.79	119.84
1	A	567	LYS	C-N-CA	7.96	129.79	119.84
3	C	181	ASP	CA-C-N	7.93	128.37	119.32
3	C	181	ASP	C-N-CA	7.93	128.37	119.32
2	B	162	SER	N-CA-C	7.91	120.14	110.41
2	B	592	ASN	CA-C-N	7.91	127.55	119.56
2	B	592	ASN	C-N-CA	7.91	127.55	119.56
13	M	476	ASN	CA-C-N	7.89	128.62	119.47
13	M	476	ASN	C-N-CA	7.89	128.62	119.47
13	M	749	ASP	CA-C-N	7.88	129.69	119.84
13	M	749	ASP	C-N-CA	7.88	129.69	119.84
1	A	1157	ASP	CA-C-N	7.88	127.54	119.82
1	A	1157	ASP	C-N-CA	7.88	127.54	119.82
2	B	876	LYS	CA-C-N	7.84	129.32	120.85
2	B	876	LYS	C-N-CA	7.84	129.32	120.85
7	G	80	LYS	CA-C-N	7.82	127.97	120.31

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	G	80	LYS	C-N-CA	7.82	127.97	120.31
5	E	72	PHE	CA-C-N	7.81	128.53	119.47
5	E	72	PHE	C-N-CA	7.81	128.53	119.47
1	A	553	VAL	CA-C-N	7.78	127.42	119.56
1	A	553	VAL	C-N-CA	7.78	127.42	119.56
7	G	14	HIS	CA-C-N	7.75	127.47	119.56
7	G	14	HIS	C-N-CA	7.75	127.47	119.56
13	M	753	ASN	CA-C-N	7.75	128.47	119.47
13	M	753	ASN	C-N-CA	7.75	128.47	119.47
3	C	238	ILE	CA-C-N	7.75	127.81	119.90
3	C	238	ILE	C-N-CA	7.75	127.81	119.90
1	A	356	ASP	CA-C-N	7.73	127.40	119.82
1	A	356	ASP	C-N-CA	7.73	127.40	119.82
1	A	977	LYS	CA-C-N	7.67	127.66	119.76
1	A	977	LYS	C-N-CA	7.67	127.66	119.76
13	M	289	ILE	CA-C-N	7.65	128.09	119.83
13	M	289	ILE	C-N-CA	7.65	128.09	119.83
1	A	395	GLY	CA-C-N	7.64	128.93	120.45
1	A	395	GLY	C-N-CA	7.64	128.93	120.45
2	B	756	ILE	CA-C-N	7.64	127.62	119.76
2	B	756	ILE	C-N-CA	7.64	127.62	119.76
9	I	40	SER	CA-C-N	7.64	127.35	119.64
9	I	40	SER	C-N-CA	7.64	127.35	119.64
3	C	211	ASP	CA-C-N	7.62	128.23	120.38
3	C	211	ASP	C-N-CA	7.62	128.23	120.38
3	C	217	ASP	CA-C-N	7.62	127.80	119.87
3	C	217	ASP	C-N-CA	7.62	127.80	119.87
7	G	70	PHE	CA-CB-CG	7.62	121.42	113.80
1	A	582	ILE	CA-C-N	7.61	127.62	119.78
1	A	582	ILE	C-N-CA	7.61	127.62	119.78
7	G	62	LEU	CA-C-N	7.60	128.25	120.04
7	G	62	LEU	C-N-CA	7.60	128.25	120.04
13	M	577	LEU	CA-C-N	7.57	129.08	120.98
13	M	577	LEU	C-N-CA	7.57	129.08	120.98
2	B	817	LEU	CA-C-N	7.56	129.29	119.84
2	B	817	LEU	C-N-CA	7.56	129.29	119.84
1	A	152	VAL	CA-C-N	7.53	127.99	119.93
1	A	152	VAL	C-N-CA	7.53	127.99	119.93
2	B	570	VAL	CA-C-N	7.53	129.25	119.84
2	B	570	VAL	C-N-CA	7.53	129.25	119.84
3	C	70	ILE	CA-C-N	7.52	128.12	120.14
3	C	70	ILE	C-N-CA	7.52	128.12	120.14

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	999	MET	CA-C-N	7.46	127.47	119.78
2	B	999	MET	C-N-CA	7.46	127.47	119.78
1	A	1163	ILE	CA-C-N	7.43	129.13	119.84
1	A	1163	ILE	C-N-CA	7.43	129.13	119.84
1	A	673	GLY	CA-C-N	7.41	128.07	119.47
1	A	673	GLY	C-N-CA	7.41	128.07	119.47
13	M	516	PHE	CA-C-N	7.40	127.11	119.56
13	M	516	PHE	C-N-CA	7.40	127.11	119.56
2	B	195	CYS	CA-C-N	7.38	129.06	119.84
2	B	195	CYS	C-N-CA	7.38	129.06	119.84
13	M	369	TRP	CA-C-N	7.35	127.95	120.38
13	M	369	TRP	C-N-CA	7.35	127.95	120.38
5	E	175	LEU	CA-C-N	7.35	127.35	119.78
5	E	175	LEU	C-N-CA	7.35	127.35	119.78
2	B	1088	GLY	CA-C-N	7.34	127.93	120.14
2	B	1088	GLY	C-N-CA	7.34	127.93	120.14
1	A	463	ILE	CA-C-N	7.34	129.02	119.84
1	A	463	ILE	C-N-CA	7.34	129.02	119.84
1	A	793	SER	CA-C-N	7.34	127.69	119.32
1	A	793	SER	C-N-CA	7.34	127.69	119.32
1	A	1323	ASP	CA-C-N	7.33	127.04	119.56
1	A	1323	ASP	C-N-CA	7.33	127.04	119.56
2	B	280	ILE	CA-C-N	7.32	127.30	119.76
2	B	280	ILE	C-N-CA	7.32	127.30	119.76
9	I	68	LEU	CA-C-N	7.31	127.29	119.76
9	I	68	LEU	C-N-CA	7.31	127.29	119.76
1	A	366	VAL	CA-C-N	7.30	127.75	119.93
1	A	366	VAL	C-N-CA	7.30	127.75	119.93
1	A	784	LEU	CA-C-N	7.30	128.23	120.12
1	A	784	LEU	C-N-CA	7.30	128.23	120.12
1	A	1319	VAL	CA-C-N	7.29	127.25	120.03
1	A	1319	VAL	C-N-CA	7.29	127.25	120.03
1	A	1189	SER	CA-C-N	7.27	126.98	119.56
1	A	1189	SER	C-N-CA	7.27	126.98	119.56
6	F	105	ALA	CA-C-N	7.22	127.20	119.76
6	F	105	ALA	C-N-CA	7.22	127.20	119.76
1	A	599	SER	CA-C-N	7.21	127.83	120.04
1	A	599	SER	C-N-CA	7.21	127.83	120.04
1	A	545	GLN	N-CA-C	-7.18	104.15	113.12
11	K	65	HIS	CA-C-N	7.18	127.79	119.47
11	K	65	HIS	C-N-CA	7.18	127.79	119.47
1	A	1244	ARG	CA-C-N	7.17	126.85	119.82

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1244	ARG	C-N-CA	7.17	126.85	119.82
9	I	65	ASP	CA-C-N	7.17	126.87	119.56
9	I	65	ASP	C-N-CA	7.17	126.87	119.56
13	M	275	HIS	CA-C-N	7.17	126.80	119.56
13	M	275	HIS	C-N-CA	7.17	126.80	119.56
13	M	353	CYS	CA-C-N	7.14	127.14	119.78
13	M	353	CYS	C-N-CA	7.14	127.14	119.78
2	B	798	TYR	CA-C-N	7.14	127.11	119.76
2	B	798	TYR	C-N-CA	7.14	127.11	119.76
6	F	82	THR	CA-C-N	7.14	127.75	120.04
6	F	82	THR	C-N-CA	7.14	127.75	120.04
1	A	518	LYS	CA-C-N	7.13	127.10	119.76
1	A	518	LYS	C-N-CA	7.13	127.10	119.76
2	B	758	PHE	CA-C-N	7.12	126.83	119.56
2	B	758	PHE	C-N-CA	7.12	126.83	119.56
8	H	6	PHE	CA-CB-CG	-7.08	106.72	113.80
7	G	69	GLU	N-CA-C	7.02	121.11	109.46
2	B	916	THR	CA-C-N	7.00	127.42	119.93
2	B	916	THR	C-N-CA	7.00	127.42	119.93
6	F	116	ASP	CA-C-N	6.98	127.57	119.47
6	F	116	ASP	C-N-CA	6.98	127.57	119.47
3	C	201	TRP	CA-C-N	6.97	126.94	119.76
3	C	201	TRP	C-N-CA	6.97	126.94	119.76
1	A	23	SER	CA-C-N	6.96	128.54	119.84
1	A	23	SER	C-N-CA	6.96	128.54	119.84
2	B	550	ASP	CA-C-N	6.96	127.56	120.04
2	B	550	ASP	C-N-CA	6.96	127.56	120.04
5	E	124	VAL	CA-C-N	6.93	126.61	119.82
5	E	124	VAL	C-N-CA	6.93	126.61	119.82
7	G	17	PHE	CA-CB-CG	6.93	120.73	113.80
1	A	460	VAL	N-CA-C	6.91	117.93	109.30
2	B	900	ALA	CA-C-N	6.89	126.85	119.76
2	B	900	ALA	C-N-CA	6.89	126.85	119.76
1	A	1121	GLU	CA-C-N	6.87	128.43	119.84
1	A	1121	GLU	C-N-CA	6.87	128.43	119.84
2	B	232	SER	CA-C-N	6.79	126.93	119.87
2	B	232	SER	C-N-CA	6.79	126.93	119.87
1	A	77	CYS	CA-C-N	6.78	126.70	119.85
1	A	77	CYS	C-N-CA	6.78	126.70	119.85
5	E	182	ASP	CA-C-N	6.75	127.01	119.32
5	E	182	ASP	C-N-CA	6.75	127.01	119.32
2	B	142	VAL	CA-C-N	6.73	128.25	119.84

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	142	VAL	C-N-CA	6.73	128.25	119.84
5	E	150	VAL	CA-C-N	6.70	128.15	120.98
5	E	150	VAL	C-N-CA	6.70	128.15	120.98
2	B	113	TYR	CA-C-N	6.64	128.14	119.84
2	B	113	TYR	C-N-CA	6.64	128.14	119.84
11	K	82	ASP	CA-C-N	6.64	127.17	119.47
11	K	82	ASP	C-N-CA	6.64	127.17	119.47
1	A	809	THR	CA-C-N	6.63	126.88	119.32
1	A	809	THR	C-N-CA	6.63	126.88	119.32
1	A	562	THR	CA-C-N	6.59	126.51	119.85
1	A	562	THR	C-N-CA	6.59	126.51	119.85
2	B	527	THR	CA-C-N	6.58	126.49	119.85
2	B	527	THR	C-N-CA	6.58	126.49	119.85
3	C	5	GLY	CA-C-N	6.57	128.06	119.84
3	C	5	GLY	C-N-CA	6.57	128.06	119.84
1	A	381	THR	CA-C-N	6.56	126.25	119.82
1	A	381	THR	C-N-CA	6.56	126.25	119.82
4	D	173	HIS	CA-C-N	6.53	128.00	119.84
4	D	173	HIS	C-N-CA	6.53	128.00	119.84
2	B	500	THR	CA-C-N	6.52	126.49	120.03
2	B	500	THR	C-N-CA	6.52	126.49	120.03
2	B	557	PHE	CA-CB-CG	-6.49	107.31	113.80
1	A	60	SER	N-CA-C	6.46	116.77	108.24
10	J	3	VAL	CA-C-N	6.46	126.37	119.85
10	J	3	VAL	C-N-CA	6.46	126.37	119.85
2	B	795	ILE	N-CA-C	6.45	117.16	107.75
1	A	524	VAL	N-CA-C	6.43	117.38	107.99
1	A	1084	PHE	N-CA-C	-6.42	102.58	108.75
1	A	230	ARG	CA-C-N	6.39	127.83	119.84
1	A	230	ARG	C-N-CA	6.39	127.83	119.84
6	F	138	LEU	CA-C-N	6.39	126.08	119.56
6	F	138	LEU	C-N-CA	6.39	126.08	119.56
5	E	52	ARG	CA-C-N	6.31	127.72	119.84
5	E	52	ARG	C-N-CA	6.31	127.72	119.84
2	B	273	LEU	CA-C-N	6.30	127.71	119.84
2	B	273	LEU	C-N-CA	6.30	127.71	119.84
13	M	278	ILE	CA-C-N	6.27	127.68	119.84
13	M	278	ILE	C-N-CA	6.27	127.68	119.84
2	B	401	PHE	CA-CB-CG	-6.23	107.57	113.80
2	B	706	GLN	CA-C-N	6.23	127.62	119.84
2	B	706	GLN	C-N-CA	6.23	127.62	119.84
2	B	292	ILE	CA-C-N	6.22	126.55	119.83

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	292	ILE	C-N-CA	6.22	126.55	119.83
2	B	99	LYS	CA-C-N	6.21	127.60	119.84
2	B	99	LYS	C-N-CA	6.21	127.60	119.84
3	C	145	CYS	N-CA-C	6.19	118.57	108.55
2	B	70	ILE	N-CA-C	6.17	117.00	108.12
13	M	523	LEU	CA-C-N	6.14	125.82	119.56
13	M	523	LEU	C-N-CA	6.14	125.82	119.56
2	B	1117	GLN	CA-C-N	6.10	126.12	119.90
2	B	1117	GLN	C-N-CA	6.10	126.12	119.90
7	G	104	GLY	CA-C-N	6.09	128.26	120.89
7	G	104	GLY	C-N-CA	6.09	128.26	120.89
2	B	744	HIS	CA-C-N	6.09	127.45	119.84
2	B	744	HIS	C-N-CA	6.09	127.45	119.84
2	B	552	MET	CA-C-N	6.05	126.21	119.32
2	B	552	MET	C-N-CA	6.05	126.21	119.32
8	H	80	ARG	CA-C-N	6.03	126.59	120.38
8	H	80	ARG	C-N-CA	6.03	126.59	120.38
2	B	170	LEU	CA-C-N	6.01	127.35	119.84
2	B	170	LEU	C-N-CA	6.01	127.35	119.84
1	A	1113	THR	CA-C-N	6.01	127.35	119.84
1	A	1113	THR	C-N-CA	6.01	127.35	119.84
7	G	47	CYS	N-CA-C	5.99	118.04	107.61
1	A	346	ASP	N-CA-C	5.97	120.29	112.89
1	A	1311	VAL	N-CA-C	5.97	116.60	107.77
1	A	320	ARG	CA-C-N	5.94	125.85	119.85
1	A	320	ARG	C-N-CA	5.94	125.85	119.85
1	A	376	TYR	CA-C-N	5.91	126.81	120.13
1	A	376	TYR	C-N-CA	5.91	126.81	120.13
2	B	635	ARG	CA-C-N	5.88	127.20	119.84
2	B	635	ARG	C-N-CA	5.88	127.20	119.84
10	J	64	ASN	N-CA-C	5.87	119.26	108.69
8	H	81	PRO	CA-C-N	5.86	127.16	119.84
8	H	81	PRO	C-N-CA	5.86	127.16	119.84
2	B	410	GLY	CA-C-N	5.86	125.40	119.19
2	B	410	GLY	C-N-CA	5.86	125.40	119.19
2	B	801	LYS	CA-C-N	5.83	126.32	120.14
2	B	801	LYS	C-N-CA	5.83	126.32	120.14
2	B	1017	ILE	CA-C-N	5.83	125.50	119.56
2	B	1017	ILE	C-N-CA	5.83	125.50	119.56
13	M	562	SER	CA-C-N	5.82	125.92	119.87
13	M	562	SER	C-N-CA	5.82	125.92	119.87
6	F	143	PHE	CA-CB-CG	5.79	119.59	113.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	966	VAL	N-CA-C	5.77	115.97	108.35
1	A	171	GLN	CA-C-N	5.74	125.50	119.76
1	A	171	GLN	C-N-CA	5.74	125.50	119.76
3	C	7	GLN	N-CA-C	5.73	117.61	110.91
7	G	127	PRO	CA-C-N	5.73	127.00	119.84
7	G	127	PRO	C-N-CA	5.73	127.00	119.84
1	A	954	TRP	CA-C-N	5.73	125.91	119.90
1	A	954	TRP	C-N-CA	5.73	125.91	119.90
2	B	18	PHE	CA-CB-CG	5.72	119.52	113.80
1	A	1329	THR	N-CA-C	5.70	115.92	107.88
5	E	127	ILE	N-CA-C	5.65	121.09	108.88
5	E	85	GLU	CA-C-N	5.63	126.88	119.84
5	E	85	GLU	C-N-CA	5.63	126.88	119.84
1	A	284	ALA	CA-C-N	5.62	125.95	119.93
1	A	284	ALA	C-N-CA	5.62	125.95	119.93
1	A	1059	HIS	CA-C-N	5.62	126.86	119.84
1	A	1059	HIS	C-N-CA	5.62	126.86	119.84
12	L	29	TYR	N-CA-C	5.60	116.65	108.14
3	C	131	HIS	CA-C-N	5.54	125.30	119.76
3	C	131	HIS	C-N-CA	5.54	125.30	119.76
13	M	352	VAL	N-CA-C	5.54	115.86	108.11
2	B	361	LEU	CA-C-N	5.53	126.76	119.84
2	B	361	LEU	C-N-CA	5.53	126.76	119.84
3	C	232	VAL	N-CA-C	5.53	116.08	108.12
1	A	569	LYS	CA-C-N	5.52	126.73	119.84
1	A	569	LYS	C-N-CA	5.52	126.73	119.84
4	D	8	PHE	CA-CB-CG	-5.51	108.29	113.80
2	B	724	ASP	C-N-CD	-5.46	108.58	120.60
7	G	87	VAL	N-CA-C	5.46	115.56	108.35
7	G	17	PHE	CB-CA-C	-5.43	103.77	111.76
1	A	507	VAL	CA-C-N	5.43	126.63	119.84
1	A	507	VAL	C-N-CA	5.43	126.63	119.84
5	E	127	ILE	CA-C-N	5.42	125.96	120.38
5	E	127	ILE	C-N-CA	5.42	125.96	120.38
13	M	370	PRO	N-CA-C	5.41	117.30	110.70
2	B	1073	TYR	N-CA-C	5.37	117.23	109.07
7	G	22	MET	N-CA-C	5.34	116.79	111.07
2	B	230	ALA	CA-C-N	5.32	125.13	119.28
2	B	230	ALA	C-N-CA	5.32	125.13	119.28
2	B	873	THR	N-CA-C	5.31	117.33	108.99
7	G	56	ILE	N-CA-C	5.28	116.75	111.00
2	B	855	PHE	CA-CB-CG	-5.24	108.56	113.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	195	ASP	N-CA-C	5.24	117.47	110.35
1	A	491	VAL	N-CA-C	5.21	113.18	107.60
13	M	733	GLY	N-CA-C	-5.21	106.48	112.73
2	B	280	ILE	N-CA-C	5.19	113.79	107.61
1	A	1210	GLY	N-CA-C	-5.16	106.24	112.49
2	B	806	THR	N-CA-C	-5.15	103.59	110.55
7	G	34	VAL	N-CA-C	5.15	115.37	110.53
2	B	259	TYR	N-CA-C	5.14	117.93	108.58
4	D	202	ILE	N-CA-C	5.13	115.69	108.36
9	I	15	TYR	CA-C-N	5.12	125.92	119.98
9	I	15	TYR	C-N-CA	5.12	125.92	119.98
2	B	973	ILE	CA-C-N	5.12	126.23	119.84
2	B	973	ILE	C-N-CA	5.12	126.23	119.84
5	E	37	LEU	CA-C-N	5.10	126.22	119.84
5	E	37	LEU	C-N-CA	5.10	126.22	119.84
7	G	61	ILE	N-CA-C	5.10	115.57	108.84
1	A	1098	VAL	CA-C-N	5.09	124.53	119.24
1	A	1098	VAL	C-N-CA	5.09	124.53	119.24
1	A	348	SER	N-CA-C	5.07	115.22	108.38
1	A	1291	VAL	CA-C-N	5.06	126.16	119.84
1	A	1291	VAL	C-N-CA	5.06	126.16	119.84
13	M	273	ARG	CA-C-N	5.05	124.54	119.19
13	M	273	ARG	C-N-CA	5.05	124.54	119.19
2	B	39	ARG	N-CA-C	-5.03	105.80	111.28
3	C	219	PHE	CA-CB-CG	-5.02	108.78	113.80

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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	11385	0	11443	73	0
2	B	9608	0	9577	68	0
3	C	2125	0	2091	18	0
4	D	1409	0	1423	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	E	1760	0	1788	13	0
6	F	657	0	673	7	0
7	G	1340	0	1357	10	0
8	H	1161	0	1124	14	0
9	I	997	0	961	8	0
10	J	578	0	591	8	0
11	K	895	0	903	7	0
12	L	364	0	389	5	0
13	M	4087	0	4145	18	0
14	N	965	0	531	29	0
15	R	220	0	110	26	0
16	T	947	0	532	41	0
17	A	2	0	0	0	0
17	B	1	0	0	0	0
17	C	1	0	0	0	0
17	I	2	0	0	0	0
17	J	1	0	0	0	0
17	L	1	0	0	0	0
18	A	1	0	0	0	0
All	All	38507	0	37638	328	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 5.

All (328) 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)
15:R:5:A:H2'	15:R:6:G:C8	2.00	0.97
15:R:5:A:H2'	15:R:6:G:H8	1.37	0.89
11:K:49:GLU:OE1	11:K:49:GLU:HA	1.70	0.88
15:R:7:A:H2'	15:R:8:G:C8	2.09	0.88
13:M:345:LEU:O	13:M:345:LEU:HD23	1.74	0.86
1:A:26:GLU:N	1:A:26:GLU:OE1	2.11	0.83
14:N:39:DA:N6	16:T:9:DT:O4	2.13	0.81
2:B:343:ILE:HG22	2:B:343:ILE:O	1.78	0.81
15:R:10:A:H2	16:T:20:DT:H3	1.30	0.79
2:B:542:MET:O	2:B:542:MET:HG2	1.84	0.77
1:A:68:GLN:O	1:A:68:GLN:HG2	1.84	0.76
15:R:1:A:C2	16:T:30:DG:N2	2.54	0.75
10:J:70:ASP:OD1	10:J:70:ASP:O	2.05	0.74
1:A:226:GLU:OE1	1:A:226:GLU:N	2.19	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:203:GLU:OE1	5:E:203:GLU:N	2.24	0.70
13:M:461:VAL:HG12	13:M:461:VAL:O	1.93	0.68
2:B:982:SER:OG	2:B:983:ARG:N	2.25	0.67
2:B:44:VAL:HG12	2:B:44:VAL:O	1.95	0.64
16:T:29:DT:H2'	16:T:30:DG:C8	2.33	0.64
15:R:7:A:H2'	15:R:8:G:H8	1.62	0.63
1:A:1192:LEU:HD23	1:A:1192:LEU:O	1.98	0.62
16:T:24:DC:C4	16:T:25:DT:H73	2.34	0.62
5:E:172:GLU:OE1	5:E:172:GLU:N	2.28	0.61
15:R:1:A:H8	15:R:1:A:OP1	1.83	0.61
14:N:43:DG:N2	16:T:6:DT:O2	2.34	0.61
14:N:39:DA:N1	16:T:9:DT:N3	2.48	0.61
1:A:1407:GLU:CD	1:A:1407:GLU:H	2.08	0.60
3:C:72:LEU:C	3:C:72:LEU:HD12	2.25	0.60
10:J:38:ARG:HA	10:J:38:ARG:NE	2.17	0.60
15:R:9:G:N2	16:T:21:DC:C2	2.71	0.59
2:B:115:GLN:OE1	2:B:115:GLN:N	2.26	0.59
16:T:21:DC:H2'	16:T:22:DC:C6	2.38	0.59
2:B:251:ILE:HG22	2:B:251:ILE:O	2.03	0.58
2:B:1177:HIS:O	2:B:1177:HIS:ND1	2.37	0.58
16:T:21:DC:H2'	16:T:22:DC:H6	1.69	0.58
11:K:49:GLU:OE1	11:K:49:GLU:CA	2.43	0.58
15:R:9:G:O2'	15:R:10:A:H5'	2.04	0.58
2:B:1177:HIS:O	2:B:1177:HIS:CG	2.57	0.57
2:B:20:ASP:C	2:B:20:ASP:OD1	2.44	0.57
14:N:33:DA:N6	16:T:16:DC:H42	2.02	0.57
1:A:1127:ASP:C	1:A:1127:ASP:OD1	2.48	0.57
1:A:535:THR:HG22	1:A:535:THR:O	2.03	0.57
1:A:1288:ASP:OD1	1:A:1288:ASP:C	2.48	0.57
3:C:72:LEU:HD12	3:C:72:LEU:O	2.04	0.57
1:A:55:ASP:CG	1:A:55:ASP:O	2.47	0.56
3:C:55:THR:OG1	3:C:152:GLU:N	2.38	0.56
1:A:1454:MET:O	1:A:1454:MET:HG2	2.06	0.56
13:M:345:LEU:O	13:M:345:LEU:CD2	2.50	0.56
11:K:54:ARG:HA	11:K:54:ARG:NE	2.21	0.55
1:A:247:ARG:O	1:A:247:ARG:HG3	2.05	0.55
1:A:1192:LEU:O	1:A:1192:LEU:CD2	2.55	0.55
1:A:1192:LEU:HD23	1:A:1192:LEU:C	2.31	0.55
1:A:1329:THR:OG1	1:A:1330:ASN:N	2.40	0.54
6:F:155:LEU:HG	6:F:155:LEU:OXT	2.08	0.54
7:G:115:MET:HB2	7:G:116:PRO:HD2	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:F:111:LEU:HD23	6:F:111:LEU:O	2.08	0.54
15:R:3:C:H2'	15:R:4:G:O4'	2.08	0.54
14:N:33:DA:H61	16:T:16:DC:H42	1.56	0.53
15:R:9:G:N2	16:T:21:DC:O2	2.41	0.53
14:N:15:DA:N6	16:T:34:DA:N1	2.55	0.53
1:A:264:PHE:N	1:A:264:PHE:CD1	2.76	0.53
15:R:9:G:N2	16:T:22:DC:C2	2.77	0.53
5:E:178:ILE:HG23	5:E:178:ILE:O	2.08	0.53
16:T:30:DG:H2'	16:T:31:DG:C8	2.44	0.53
14:N:39:DA:OP2	14:N:39:DA:H2'	2.09	0.53
2:B:510:LYS:N	2:B:511:PRO:O	2.42	0.53
14:N:33:DA:H61	16:T:16:DC:N4	2.06	0.53
2:B:711:GLU:CB	2:B:712:PRO:HD2	2.39	0.53
7:G:131:GLN:O	7:G:131:GLN:HG2	2.09	0.53
14:N:43:DG:H8	14:N:43:DG:OP2	1.92	0.52
8:H:143:LEU:C	8:H:143:LEU:HD23	2.33	0.52
1:A:471:ASN:O	1:A:472:LEU:CB	2.58	0.52
2:B:894:ASP:OD1	2:B:894:ASP:C	2.53	0.52
1:A:1046:LEU:HD23	1:A:1046:LEU:C	2.35	0.52
2:B:724:ASP:HB3	2:B:725:PRO:HA	1.92	0.52
2:B:1053:GLU:OE1	2:B:1053:GLU:N	2.38	0.52
4:D:220:LEU:O	4:D:221:TYR:CB	2.58	0.51
1:A:185:TRP:O	1:A:197:PRO:HA	2.10	0.51
2:B:368:GLU:OE1	2:B:368:GLU:N	2.37	0.51
2:B:629:ASP:C	2:B:629:ASP:OD1	2.52	0.51
15:R:7:A:O5'	15:R:7:A:H8	1.93	0.51
2:B:785:TYR:CD1	2:B:785:TYR:C	2.89	0.51
14:N:40:DG:OP2	14:N:40:DG:H8	1.93	0.51
9:I:8:ARG:HA	9:I:8:ARG:NE	2.26	0.51
4:D:5:THR:OG1	4:D:6:SER:N	2.43	0.51
1:A:1107:VAL:HG12	1:A:1107:VAL:O	2.10	0.51
2:B:1150:ARG:HA	2:B:1150:ARG:NE	2.26	0.51
6:F:145:ASP:OD1	6:F:145:ASP:C	2.54	0.51
14:N:42:DA:H2'	14:N:42:DA:OP2	2.10	0.51
1:A:53:LEU:O	1:A:54:ASN:HB2	2.11	0.51
1:A:1342:GLU:OE1	1:A:1342:GLU:HA	2.11	0.51
16:T:6:DT:H2''	16:T:7:DG:C8	2.46	0.51
1:A:1004:ASN:OD1	1:A:1004:ASN:C	2.54	0.50
14:N:45:DG:N2	16:T:4:DT:O2	2.44	0.50
5:E:127:ILE:N	5:E:128:PRO:CD	2.75	0.50
11:K:29:ASN:ND2	11:K:77:THR:OG1	2.45	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:44:VAL:O	2:B:44:VAL:CG1	2.60	0.50
5:E:78:LEU:C	5:E:78:LEU:HD23	2.36	0.50
14:N:32:DG:O6	16:T:16:DC:C4	2.64	0.50
16:T:26:DC:C2	16:T:27:DG:N7	2.80	0.50
13:M:629:HIS:HB2	13:M:630:PRO:HA	1.92	0.50
16:T:12:DT:OP2	16:T:12:DT:H2'	2.12	0.49
1:A:55:ASP:N	1:A:56:PRO:CD	2.75	0.49
1:A:150:THR:HA	1:A:165:GLY:HA3	1.94	0.49
2:B:137:TYR:N	2:B:137:TYR:CD1	2.79	0.49
8:H:146:ARG:HG2	8:H:146:ARG:O	2.12	0.49
1:A:453:MET:O	1:A:454:SER:CB	2.60	0.49
13:M:469:ASP:C	13:M:469:ASP:OD1	2.54	0.49
13:M:561:ILE:HG22	13:M:561:ILE:O	2.12	0.49
16:T:7:DG:OP2	16:T:7:DG:H8	1.95	0.49
2:B:1004:GLU:H	2:B:1004:GLU:CD	2.20	0.49
8:H:47:PHE:CD1	8:H:47:PHE:C	2.91	0.49
9:I:14:LEU:HB3	9:I:27:PHE:HB3	1.95	0.49
16:T:5:DC:OP2	16:T:5:DC:H2'	2.12	0.49
1:A:567:LYS:O	1:A:569:LYS:N	2.46	0.48
3:C:29:MET:SD	3:C:29:MET:C	2.96	0.48
13:M:577:LEU:N	13:M:577:LEU:HD23	2.28	0.48
1:A:49:LYS:HB2	1:A:55:ASP:HB2	1.95	0.48
14:N:37:DG:H2'	14:N:37:DG:OP2	2.13	0.48
3:C:270:VAL:HG12	3:C:270:VAL:O	2.12	0.48
16:T:22:DC:H2'	16:T:23:DT:H6	1.78	0.48
5:E:56:LYS:O	5:E:57:MET:HB2	2.14	0.48
13:M:469:ASP:O	13:M:470:GLU:C	2.57	0.48
3:C:210:GLU:OE1	3:C:210:GLU:N	2.43	0.47
14:N:28:DT:H72	14:N:29:DC:H42	1.78	0.47
7:G:126:ASN:HA	7:G:127:PRO:C	2.39	0.47
7:G:143:ILE:HG23	7:G:143:ILE:O	2.12	0.47
2:B:711:GLU:CB	2:B:712:PRO:CD	2.92	0.47
1:A:1312:ASN:OD1	1:A:1312:ASN:O	2.32	0.47
8:H:63:LEU:O	8:H:63:LEU:HG	2.13	0.47
16:T:6:DT:OP2	16:T:6:DT:H2'	2.14	0.47
1:A:507:VAL:HB	1:A:508:PRO:HD3	1.97	0.47
2:B:694:ASP:C	2:B:694:ASP:OD1	2.55	0.47
14:N:40:DG:OP2	14:N:40:DG:H2'	2.15	0.47
12:L:51:CYS:O	12:L:53:HIS:N	2.48	0.47
1:A:1248:LEU:O	1:A:1249:ASP:C	2.58	0.47
2:B:842:ASN:OD1	2:B:842:ASN:C	2.58	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1004:GLU:CD	2:B:1004:GLU:N	2.73	0.47
14:N:41:DC:OP2	14:N:41:DC:H2'	2.15	0.47
15:R:3:C:N4	16:T:27:DG:C6	2.79	0.47
15:R:8:G:H2'	15:R:9:G:C8	2.50	0.47
1:A:414:ASP:C	1:A:414:ASP:OD1	2.55	0.46
4:D:220:LEU:O	4:D:221:TYR:HB2	2.15	0.46
2:B:134:LYS:N	2:B:134:LYS:HD3	2.30	0.46
10:J:3:VAL:O	10:J:3:VAL:HG13	2.14	0.46
3:C:23:SER:OG	3:C:24:ASN:N	2.48	0.46
9:I:18:GLU:O	9:I:19:ASP:HB3	2.16	0.46
6:F:111:LEU:HD23	6:F:111:LEU:C	2.41	0.46
16:T:13:DT:H2'	16:T:13:DT:OP2	2.16	0.46
1:A:184:SER:O	1:A:185:TRP:C	2.59	0.46
8:H:40:LEU:HD23	8:H:40:LEU:N	2.30	0.46
1:A:43:GLU:N	1:A:49:LYS:O	2.49	0.46
2:B:592:ASN:OD1	2:B:592:ASN:C	2.57	0.46
10:J:5:VAL:O	10:J:6:ARG:HB2	2.16	0.46
8:H:7:ASP:OD1	8:H:7:ASP:C	2.57	0.46
7:G:84:GLY:N	7:G:147:ILE:O	2.48	0.45
3:C:46:ILE:HA	3:C:159:ALA:HA	1.99	0.45
16:T:31:DG:H1'	16:T:32:DC:N3	2.30	0.45
10:J:58:GLU:OE1	10:J:58:GLU:N	2.44	0.45
2:B:542:MET:O	2:B:542:MET:CG	2.57	0.45
1:A:795:GLU:H	1:A:795:GLU:CD	2.23	0.45
3:C:217:ASP:OD1	3:C:217:ASP:C	2.59	0.45
2:B:711:GLU:HB3	2:B:712:PRO:CD	2.47	0.45
2:B:957:ASN:OD1	2:B:957:ASN:C	2.58	0.45
14:N:33:DA:N6	16:T:15:DT:C4	2.84	0.45
11:K:61:TYR:CD1	11:K:61:TYR:C	2.95	0.45
2:B:19:GLU:OE1	2:B:19:GLU:N	2.40	0.45
2:B:343:ILE:O	2:B:343:ILE:CG2	2.50	0.45
3:C:73:GLN:N	3:C:131:HIS:O	2.42	0.45
3:C:184:ASN:OD1	3:C:184:ASN:O	2.35	0.45
1:A:1323:ASP:OD1	1:A:1323:ASP:C	2.59	0.45
14:N:44:DA:H8	14:N:44:DA:OP2	2.00	0.45
2:B:1177:HIS:O	2:B:1178:ASN:CB	2.64	0.44
1:A:858:ASN:OD1	1:A:858:ASN:C	2.58	0.44
2:B:570:VAL:HG23	2:B:570:VAL:O	2.18	0.44
5:E:197:LYS:HG3	5:E:209:ALA:HB1	1.99	0.44
16:T:24:DC:OP2	16:T:24:DC:H6	1.99	0.44
2:B:342:GLY:O	2:B:343:ILE:C	2.59	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:54:ASN:OD1	3:C:54:ASN:C	2.58	0.44
15:R:4:G:C6	16:T:27:DG:C6	3.05	0.44
1:A:851:HIS:ND1	1:A:852:TYR:N	2.66	0.44
2:B:563:MET:SD	2:B:590:HIS:HB2	2.57	0.44
2:B:1156:ASP:O	2:B:1157:ALA:CB	2.65	0.44
6:F:153:VAL:HG12	6:F:153:VAL:O	2.17	0.44
11:K:5:ASP:C	11:K:5:ASP:OD1	2.59	0.44
15:R:3:C:H5''	15:R:3:C:H6	1.83	0.44
15:R:7:A:O5'	15:R:7:A:C8	2.70	0.44
1:A:173:THR:OG1	1:A:184:SER:OG	2.25	0.44
1:A:596:THR:O	1:A:597:LEU:HB2	2.18	0.44
2:B:618:ASP:OD1	2:B:618:ASP:C	2.60	0.44
13:M:273:ARG:HB2	13:M:274:PRO:HD3	1.99	0.43
13:M:707:ASN:OD1	13:M:707:ASN:C	2.60	0.43
15:R:5:A:C2'	15:R:6:G:H8	2.20	0.43
1:A:1165:GLU:OE1	1:A:1165:GLU:N	2.39	0.43
3:C:26:ASP:C	3:C:26:ASP:OD1	2.61	0.43
1:A:567:LYS:HB2	1:A:568:PRO:CD	2.48	0.43
2:B:552:MET:SD	2:B:552:MET:C	3.00	0.43
6:F:108:PHE:N	6:F:108:PHE:CD1	2.86	0.43
1:A:55:ASP:N	1:A:56:PRO:HD2	2.34	0.43
2:B:1017:ILE:HB	2:B:1018:PRO:HD3	2.00	0.43
8:H:74:SER:HA	8:H:79:TRP:HA	2.00	0.43
1:A:909:ASP:OD1	1:A:909:ASP:C	2.61	0.43
2:B:357:GLN:O	2:B:365:THR:OG1	2.34	0.43
2:B:929:THR:OG1	2:B:930:ALA:N	2.52	0.43
5:E:40:GLU:OE1	5:E:40:GLU:N	2.33	0.43
14:N:33:DA:OP2	14:N:33:DA:H2'	2.19	0.43
1:A:1170:ILE:O	1:A:1174:PHE:N	2.51	0.43
2:B:950:ASP:OD1	2:B:950:ASP:C	2.62	0.43
3:C:229:TYR:CD1	3:C:229:TYR:C	2.95	0.43
7:G:11:ILE:HB	7:G:70:PHE:HB2	2.01	0.43
8:H:43:ASN:OD1	8:H:43:ASN:C	2.60	0.43
8:H:67:ASP:N	8:H:67:ASP:OD1	2.52	0.43
13:M:353:CYS:SG	13:M:358:MET:SD	3.17	0.43
9:I:50:THR:OG1	9:I:51:ASN:N	2.52	0.43
12:L:53:HIS:ND1	12:L:54:ARG:N	2.58	0.43
15:R:1:A:H2	16:T:30:DG:H21	1.60	0.43
15:R:4:G:N1	16:T:27:DG:C6	2.87	0.43
12:L:27:LEU:O	12:L:27:LEU:HG	2.19	0.43
2:B:150:GLU:OE1	2:B:150:GLU:N	2.39	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:N:32:DG:H2''	14:N:33:DA:OP2	2.19	0.43
1:A:167:CYS:O	1:A:169:ASN:N	2.52	0.42
2:B:264:SER:OG	2:B:265:SER:N	2.52	0.42
16:T:22:DC:H2'	16:T:23:DT:C6	2.54	0.42
1:A:187:LYS:O	1:A:188:ASP:HB3	2.20	0.42
1:A:1186:ASP:O	1:A:1243:VAL:HA	2.18	0.42
2:B:71:LEU:HB3	2:B:432:MET:SD	2.59	0.42
2:B:341:LEU:N	2:B:341:LEU:HD12	2.34	0.42
2:B:365:THR:OG1	2:B:366:GLN:N	2.52	0.42
2:B:615:MET:SD	2:B:615:MET:C	3.02	0.42
5:E:124:VAL:HB	5:E:125:PRO:HD3	2.01	0.42
3:C:24:ASN:O	3:C:24:ASN:CG	2.60	0.42
14:N:43:DG:OP2	14:N:43:DG:H2'	2.20	0.42
15:R:6:G:H2'	15:R:7:A:C8	2.54	0.42
1:A:170:THR:HB	1:A:186:LYS:HB3	2.01	0.42
7:G:164:LYS:O	7:G:164:LYS:HG2	2.18	0.42
9:I:65:ASP:OD1	9:I:65:ASP:C	2.63	0.42
9:I:101:PHE:CD1	9:I:101:PHE:N	2.87	0.42
10:J:64:ASN:OD1	10:J:64:ASN:C	2.60	0.42
1:A:853:ASP:OD1	1:A:853:ASP:C	2.62	0.42
2:B:860:MET:SD	2:B:860:MET:C	3.03	0.42
5:E:33:GLU:H	5:E:33:GLU:CD	2.27	0.42
8:H:105:GLU:O	8:H:105:GLU:HG2	2.20	0.42
1:A:50:ILE:HB	1:A:53:LEU:O	2.20	0.42
12:L:58:LYS:O	12:L:59:ALA:HB3	2.20	0.42
9:I:80:SER:OG	9:I:81:ARG:N	2.52	0.42
14:N:29:DC:H1'	14:N:30:DA:H5'	2.01	0.42
1:A:186:LYS:O	1:A:187:LYS:C	2.63	0.42
2:B:436:VAL:O	2:B:437:GLU:HB2	2.20	0.42
2:B:711:GLU:HB2	2:B:712:PRO:HD2	2.02	0.42
12:L:56:LEU:N	12:L:56:LEU:HD12	2.34	0.42
1:A:46:THR:O	1:A:47:ARG:C	2.60	0.42
1:A:832:ALA:O	1:A:834:THR:N	2.53	0.42
13:M:474:ILE:O	13:M:476:ASN:N	2.53	0.42
1:A:23:SER:HA	1:A:24:PRO:HD3	1.90	0.41
2:B:933:SER:O	2:B:935:ARG:N	2.53	0.41
2:B:1096:ARG:O	2:B:1097:HIS:HB2	2.20	0.41
15:R:5:A:C6	15:R:6:G:C6	3.08	0.41
1:A:465:TYR:O	1:A:466:SER:HB2	2.21	0.41
1:A:584:ASN:C	1:A:584:ASN:OD1	2.63	0.41
1:A:942:PHE:N	1:A:942:PHE:CD1	2.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:552:MET:HB3	2:B:553:PRO:HD3	2.01	0.41
6:F:108:PHE:N	6:F:108:PHE:HD1	2.17	0.41
14:N:25:DT:H2''	14:N:27:DC:C4	2.55	0.41
1:A:116:ASP:OD1	1:A:116:ASP:C	2.63	0.41
1:A:451:HIS:ND1	1:A:452:LYS:N	2.68	0.41
2:B:268:THR:OG1	2:B:269:ILE:N	2.54	0.41
1:A:230:ARG:HA	1:A:231:PRO:HD3	1.96	0.41
1:A:644:LYS:HD3	1:A:644:LYS:HA	1.89	0.41
1:A:795:GLU:CD	1:A:795:GLU:N	2.78	0.41
11:K:35:PHE:HB2	11:K:71:PHE:HB3	2.03	0.41
13:M:353:CYS:HB2	13:M:354:PRO:HD2	2.03	0.41
1:A:205:GLU:H	1:A:205:GLU:CD	2.28	0.41
7:G:22:MET:C	7:G:22:MET:SD	3.03	0.41
13:M:747:ILE:HB	13:M:777:ARG:HA	2.02	0.41
14:N:28:DT:H72	14:N:29:DC:N4	2.36	0.41
15:R:3:C:O2'	15:R:4:G:H5'	2.20	0.41
15:R:4:G:C6	16:T:27:DG:O6	2.74	0.41
1:A:596:THR:O	1:A:597:LEU:CB	2.68	0.41
5:E:68:SER:OG	5:E:69:ILE:N	2.53	0.41
13:M:737:VAL:HG12	13:M:739:LEU:HG	2.02	0.41
14:N:42:DA:OP2	14:N:42:DA:H8	2.04	0.41
16:T:15:DT:OP2	16:T:15:DT:H2'	2.21	0.41
16:T:24:DC:H2'	16:T:25:DT:C6	2.56	0.41
1:A:1365:TYR:CD1	1:A:1365:TYR:C	2.99	0.41
2:B:299:GLU:HB3	2:B:571:PRO:HG2	2.03	0.41
2:B:1156:ASP:O	2:B:1157:ALA:HB3	2.21	0.41
8:H:18:GLY:O	8:H:19:ARG:HB2	2.21	0.41
10:J:2:ILE:O	10:J:3:VAL:C	2.63	0.41
16:T:11:DC:H2''	16:T:12:DT:OP2	2.20	0.41
1:A:1198:ASP:C	1:A:1198:ASP:OD1	2.64	0.41
2:B:198:ASP:OD1	2:B:199:MET:N	2.54	0.41
2:B:298:LEU:O	2:B:302:CYS:N	2.54	0.41
3:C:129:ILE:O	3:C:129:ILE:HG23	2.19	0.41
5:E:131:THR:OG1	5:E:132:ILE:N	2.53	0.41
7:G:13:LEU:HB3	7:G:68:ALA:HB3	2.03	0.41
7:G:13:LEU:O	7:G:67:SER:HA	2.21	0.41
9:I:60:GLN:OE1	9:I:60:GLN:N	2.48	0.41
14:N:41:DC:H2''	14:N:42:DA:C8	2.56	0.41
1:A:406:ILE:HB	1:A:431:LYS:HB2	2.02	0.41
1:A:445:ASN:OD1	1:A:445:ASN:C	2.62	0.41
2:B:74:LEU:HD12	2:B:74:LEU:C	2.45	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:304:ASP:C	2:B:304:ASP:OD1	2.62	0.41
2:B:908:GLU:OE1	2:B:908:GLU:N	2.43	0.41
2:B:1013:ASN:HA	2:B:1014:PRO:HD3	1.94	0.41
13:M:370:PRO:N	13:M:371:PRO:CD	2.84	0.41
16:T:31:DG:H1'	16:T:32:DC:C4	2.56	0.41
4:D:48:ILE:O	4:D:48:ILE:HG22	2.21	0.41
8:H:16:ASP:OD1	8:H:16:ASP:C	2.64	0.41
13:M:752:TRP:HB2	14:N:15:DA:H1'	2.02	0.41
1:A:187:LYS:O	1:A:188:ASP:CB	2.69	0.40
1:A:311:GLN:HB3	1:A:312:PRO:CD	2.50	0.40
2:B:889:THR:HB	2:B:909:ASP:HA	2.03	0.40
5:E:29:PHE:O	5:E:29:PHE:CD2	2.74	0.40
8:H:101:ALA:HA	8:H:116:TYR:HA	2.03	0.40
14:N:36:DA:H2''	14:N:37:DG:OP2	2.22	0.40
15:R:2:U:C5	15:R:2:U:OP2	2.74	0.40
13:M:562:SER:HB3	13:M:563:PRO:HD3	2.04	0.40
16:T:32:DC:H6	16:T:32:DC:H2'	1.74	0.40
1:A:119:ASN:OD1	1:A:119:ASN:C	2.65	0.40
2:B:31:TRP:O	2:B:811:TYR:OH	2.39	0.40
2:B:1073:TYR:CB	2:B:1080:LYS:HA	2.52	0.40
3:C:18:VAL:O	3:C:231:ASN:HA	2.22	0.40
3:C:126:GLY:O	3:C:127:ARG:HB3	2.21	0.40
1:A:567:LYS:HB2	1:A:567:LYS:HE2	1.89	0.40
1:A:959:ASN:C	1:A:959:ASN:OD1	2.64	0.40
2:B:134:LYS:HB2	2:B:160:SER:HB2	2.03	0.40
8:H:58:THR:OG1	8:H:59:ILE:N	2.55	0.40
10:J:3:VAL:HA	10:J:4:PRO:HD2	1.95	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	1446/1733 (83%)	1312 (91%)	109 (8%)	25 (2%)	7	36
2	B	1205/1224 (98%)	1092 (91%)	86 (7%)	27 (2%)	5	28
3	C	268/318 (84%)	238 (89%)	25 (9%)	5 (2%)	6	31
4	D	171/221 (77%)	157 (92%)	14 (8%)	0	100	100
5	E	213/215 (99%)	194 (91%)	14 (7%)	5 (2%)	5	27
6	F	79/155 (51%)	76 (96%)	2 (2%)	1 (1%)	9	41
7	G	169/171 (99%)	156 (92%)	12 (7%)	1 (1%)	21	59
8	H	144/146 (99%)	126 (88%)	14 (10%)	4 (3%)	4	24
9	I	120/122 (98%)	102 (85%)	16 (13%)	2 (2%)	7	36
10	J	68/70 (97%)	60 (88%)	7 (10%)	1 (2%)	8	39
11	K	109/120 (91%)	106 (97%)	2 (2%)	1 (1%)	14	50
12	L	44/70 (63%)	34 (77%)	8 (18%)	2 (4%)	2	16
13	M	497/1085 (46%)	460 (93%)	28 (6%)	9 (2%)	6	34
All	All	4533/5650 (80%)	4113 (91%)	337 (7%)	83 (2%)	9	34

All (83) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	454	SER
1	A	472	LEU
1	A	568	PRO
1	A	597	LEU
2	B	44	VAL
2	B	572	HIS
2	B	711	GLU
2	B	725	PRO
2	B	934	LYS
2	B	1214	PRO
3	C	172	PRO
3	C	184	ASN
7	G	59	GLY
8	H	61	SER
12	L	52	GLY
13	M	379	SER
13	M	475	ARG
13	M	629	HIS
1	A	54	ASN
1	A	65	LEU

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Mol	Chain	Res	Type
1	A	72	GLU
1	A	164	ARG
1	A	168	GLY
1	A	593	GLU
1	A	833	GLU
1	A	1087	ALA
1	A	1249	ASP
2	B	77	HIS
2	B	82	ASP
2	B	471	LYS
2	B	1157	ALA
5	E	6	GLU
5	E	141	VAL
8	H	63	LEU
8	H	67	ASP
9	I	19	ASP
9	I	62	ILE
11	K	18	LYS
13	M	610	GLN
1	A	66	LYS
1	A	308	ILE
1	A	441	PRO
1	A	525	GLN
2	B	575	PRO
2	B	920	PRO
2	B	922	GLU
2	B	986	GLN
2	B	1065	GLN
2	B	1155	SER
10	J	2	ILE
13	M	277	ASN
1	A	35	ILE
1	A	752	LYS
2	B	437	GLU
2	B	951	GLN
2	B	1177	HIS
3	C	138	GLU
13	M	454	HIS
1	A	188	ASP
1	A	424	ILE
1	A	627	GLY
1	A	1403	GLU

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Mol	Chain	Res	Type
2	B	81	SER
2	B	1097	HIS
3	C	6	PRO
3	C	90	ASP
5	E	29	PHE
6	F	154	ASP
12	L	56	LEU
13	M	469	ASP
2	B	362	PRO
2	B	940	PRO
5	E	86	PRO
1	A	55	ASP
1	A	673	GLY
13	M	461	VAL
2	B	745	PRO
13	M	500	PRO
2	B	24	PRO
2	B	292	ILE
2	B	305	VAL
5	E	127	ILE
8	H	69	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	1264/1520 (83%)	1263 (100%)	1 (0%)	88	89
2	B	1046/1061 (99%)	1046 (100%)	0	100	100
3	C	238/274 (87%)	238 (100%)	0	100	100
4	D	157/200 (78%)	157 (100%)	0	100	100
5	E	197/197 (100%)	197 (100%)	0	100	100
6	F	72/137 (53%)	72 (100%)	0	100	100
7	G	152/152 (100%)	151 (99%)	1 (1%)	76	81
8	H	128/128 (100%)	128 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
9	I	116/116 (100%)	116 (100%)	0	100	100
10	J	65/65 (100%)	65 (100%)	0	100	100
11	K	96/102 (94%)	96 (100%)	0	100	100
12	L	40/57 (70%)	40 (100%)	0	100	100
13	M	449/978 (46%)	449 (100%)	0	100	100
All	All	4020/4987 (81%)	4018 (100%)	2 (0%)	100	100

All (2) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	446	ARG
7	G	17	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (25) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	45	GLN
1	A	171	GLN
1	A	253	ASN
1	A	358	ASN
1	A	493	GLN
1	A	517	ASN
1	A	589	GLN
1	A	906	HIS
1	A	1130	GLN
2	B	83	ASN
2	B	469	GLN
2	B	587	HIS
2	B	648	HIS
2	B	657	HIS
2	B	843	GLN
2	B	878	GLN
3	C	112	ASN
5	E	113	GLN
7	G	57	GLN
7	G	117	GLN
8	H	52	GLN
8	H	139	ASN
12	L	66	GLN

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Mol	Chain	Res	Type
13	M	248	GLN
13	M	664	HIS

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
15	R	9/10 (90%)	2 (22%)	0

All (2) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
15	R	2	U
15	R	10	A

There are no RNA pucker outliers to report.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 9 ligands modelled in this entry, 9 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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.

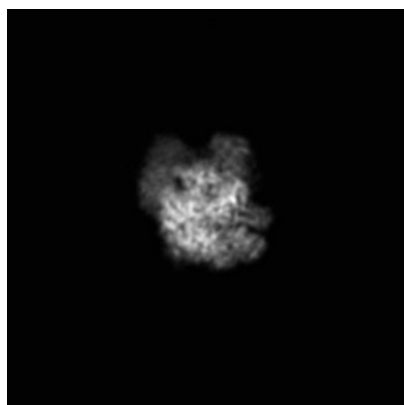
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-8735. These allow visual inspection of the internal detail of the map and identification of artifacts.

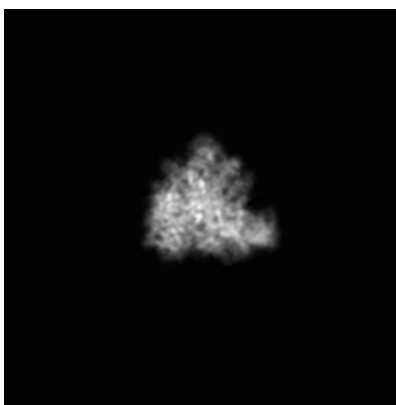
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

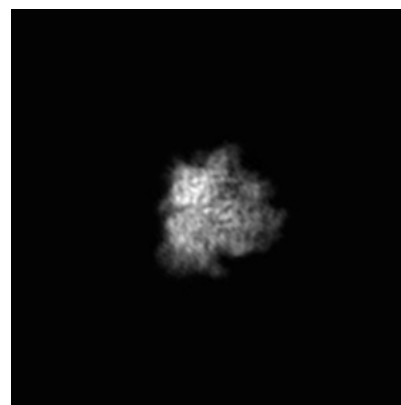
6.1.1 Primary map



X



Y

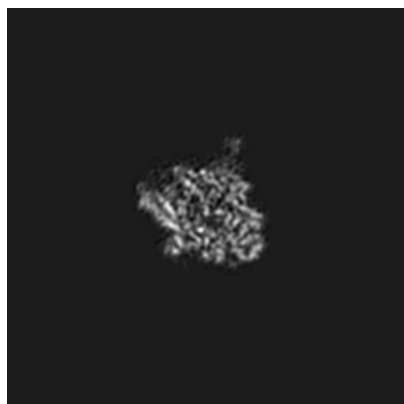


Z

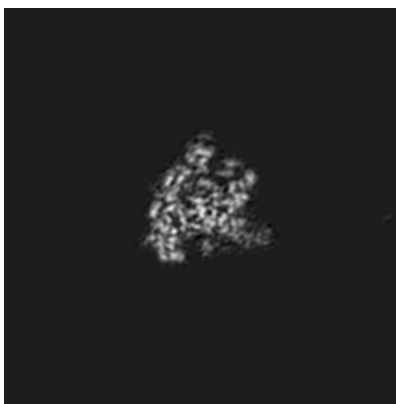
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

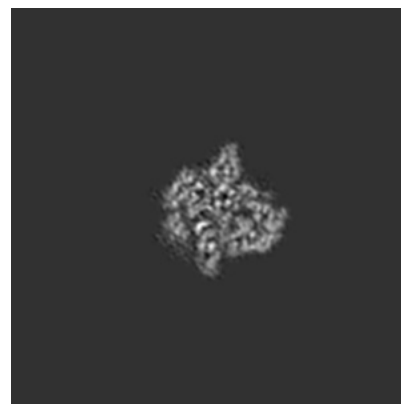
6.2.1 Primary map



X Index: 192



Y Index: 192

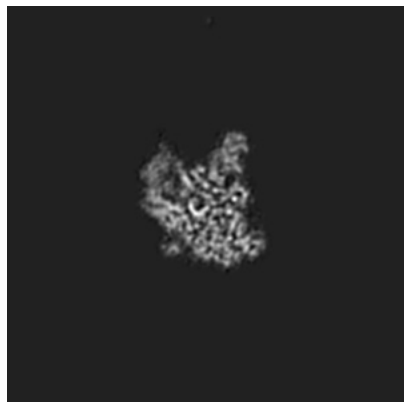


Z Index: 192

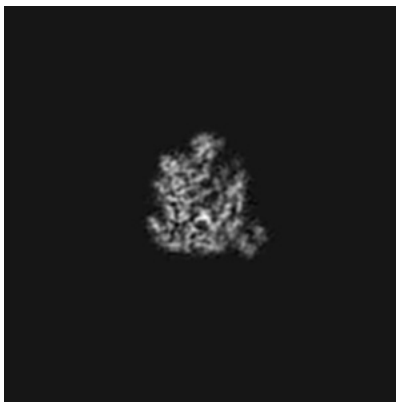
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

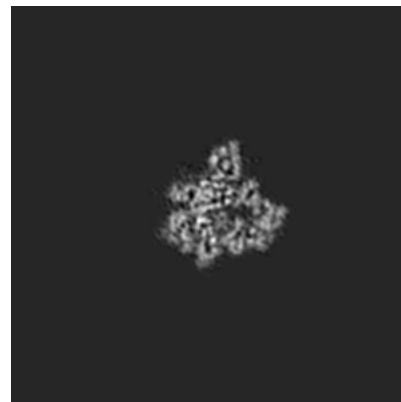
6.3.1 Primary map



X Index: 184



Y Index: 175

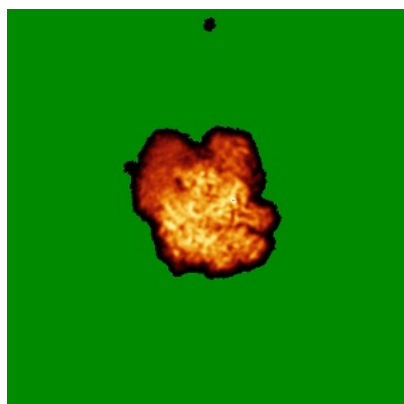


Z Index: 187

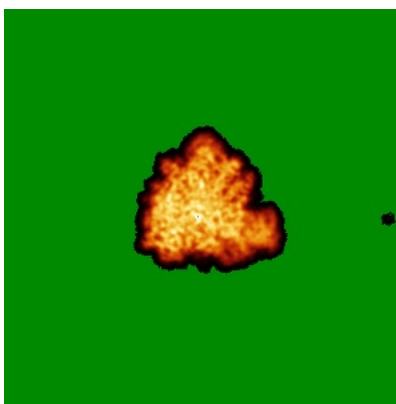
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

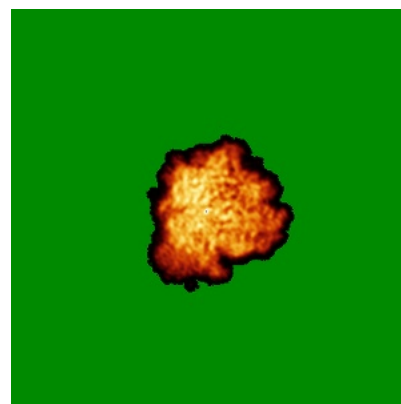
6.4.1 Primary map



X



Y

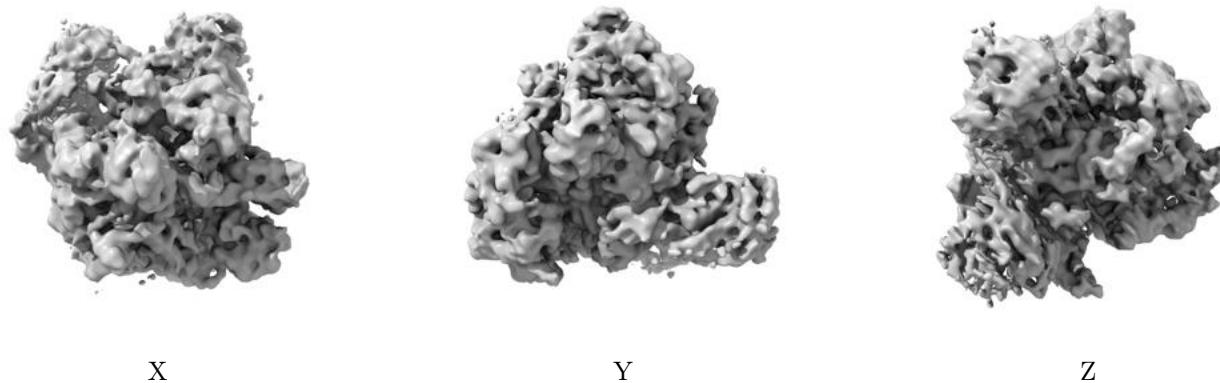


Z

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



The images above show the 3D surface view of the map at the recommended contour level 0.0244. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

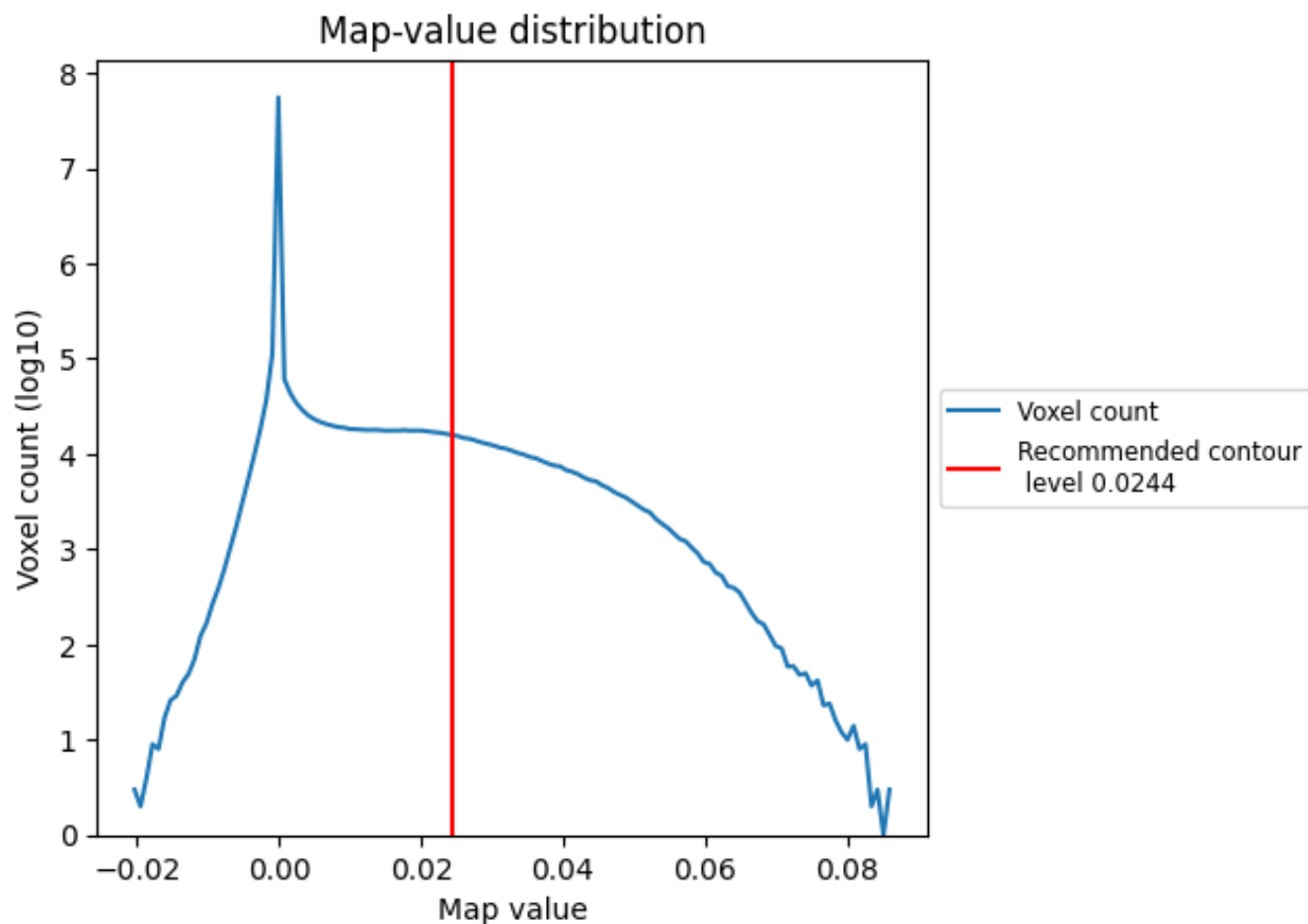
6.6 Mask visualisation [i](#)

This section was not generated. No masks/segmentation were deposited.

7 Map analysis [i](#)

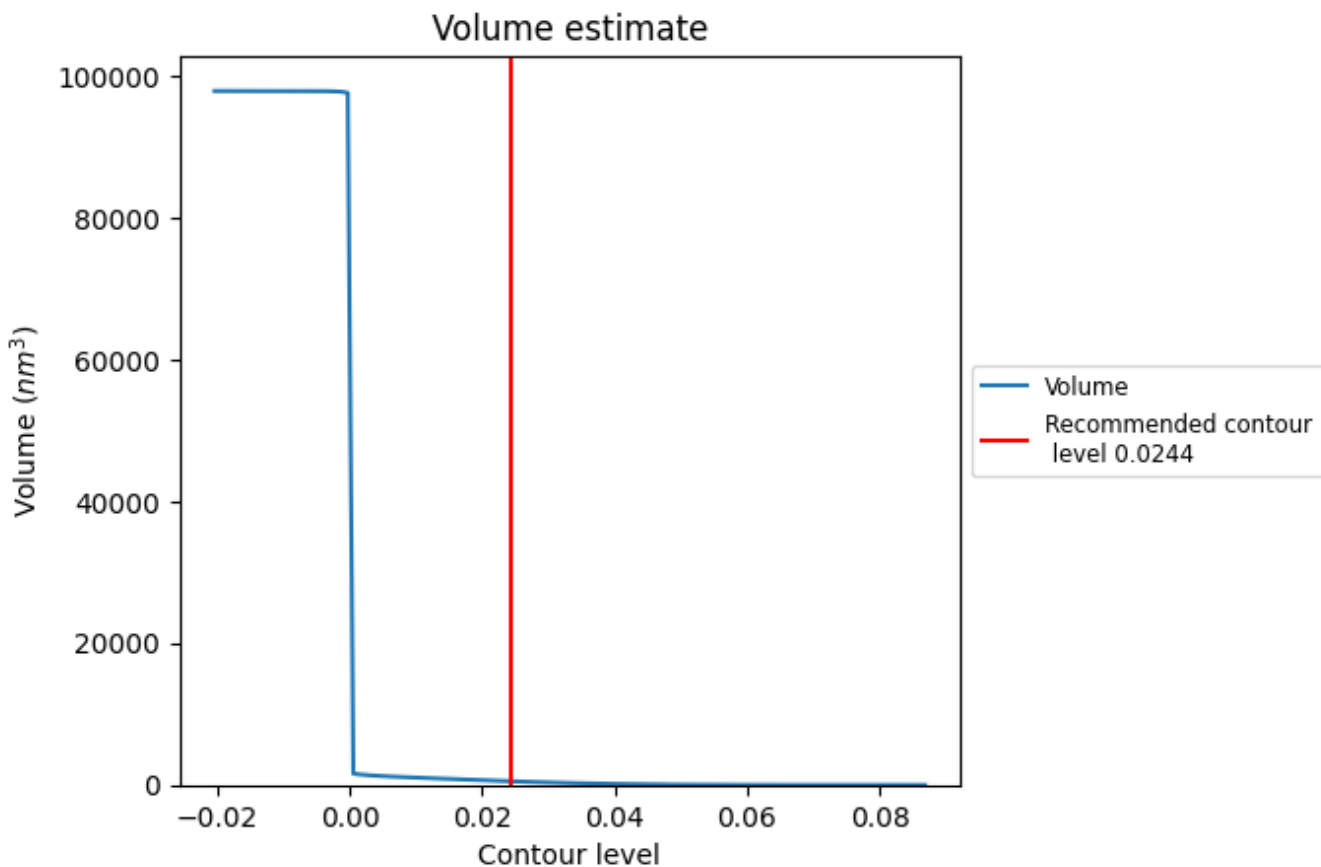
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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.

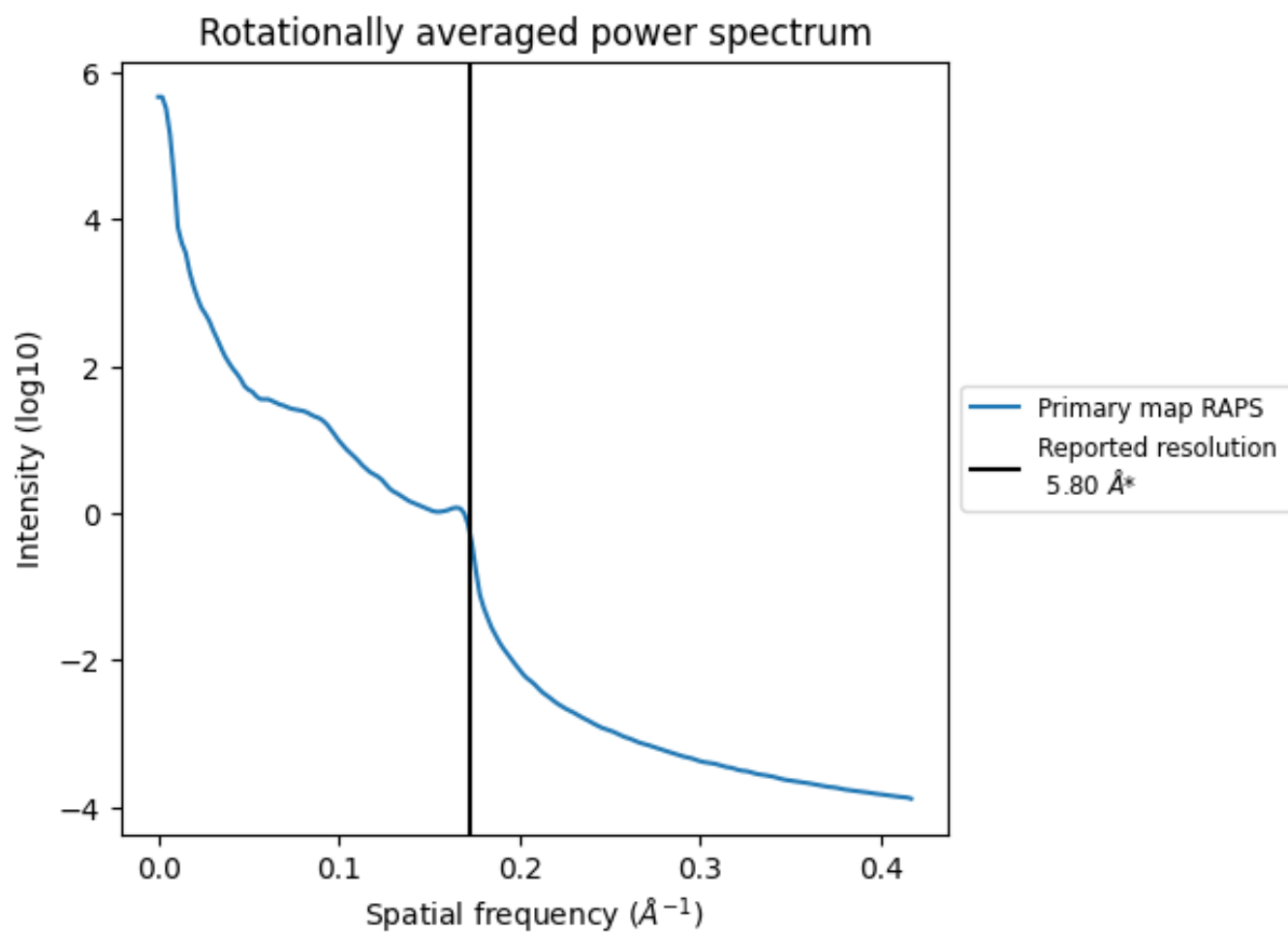
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 517 nm³; this corresponds to an approximate mass of 467 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](#)

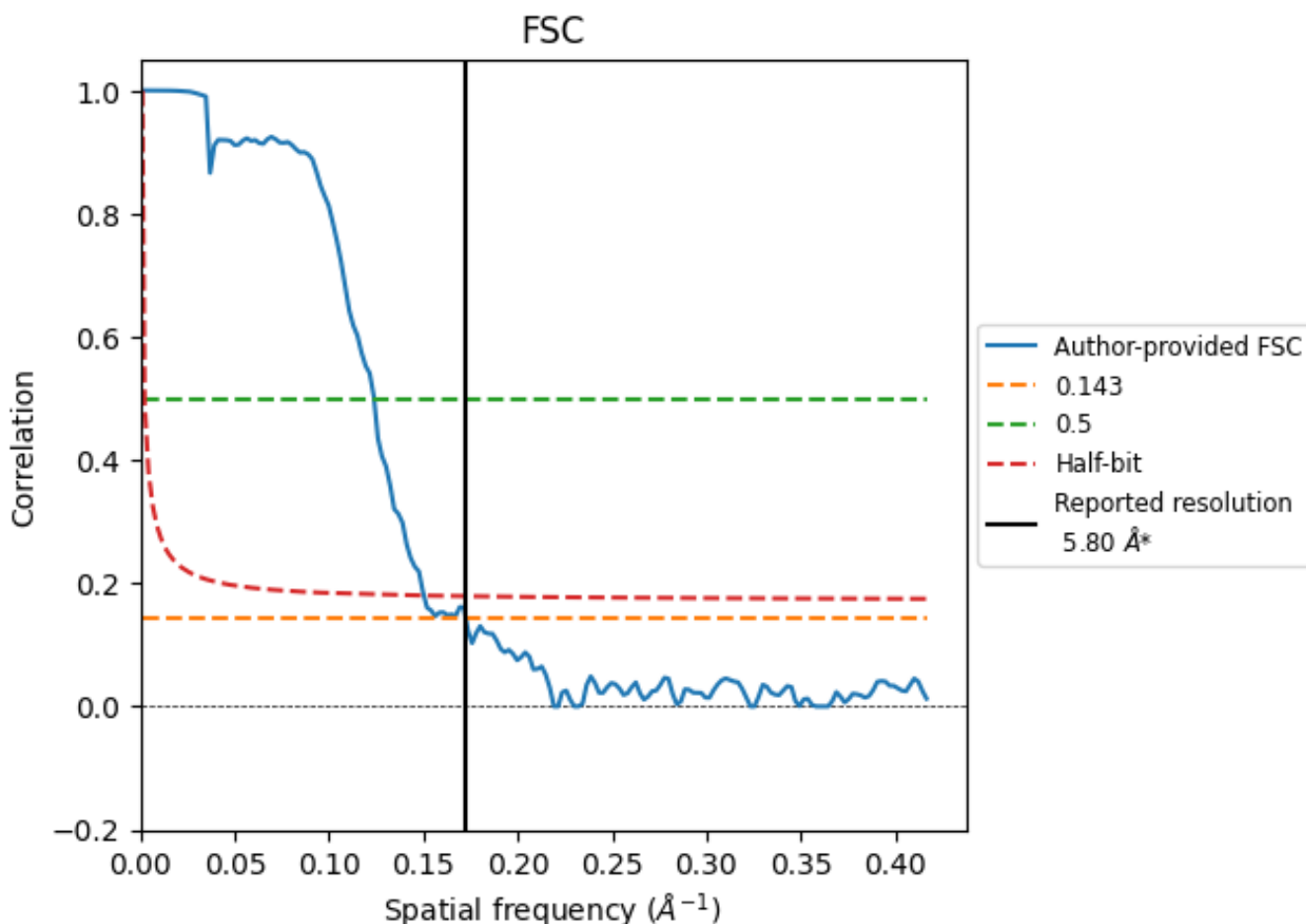


*Reported resolution corresponds to spatial frequency of 0.172\AA^{-1}

8 Fourier-Shell correlation [i](#)

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 [i](#)



*Reported resolution corresponds to spatial frequency of 0.172 Å⁻¹

8.2 Resolution estimates [i](#)

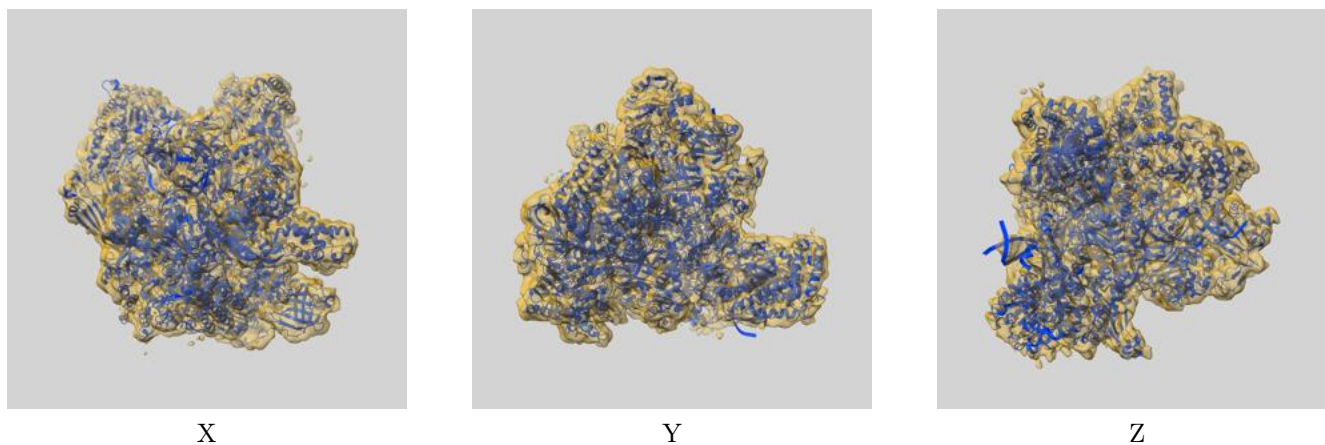
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	5.80	-	-
Author-provided FSC curve	5.80	8.08	6.65
Unmasked-calculated*	-	-	-

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

9 Map-model fit [i](#)

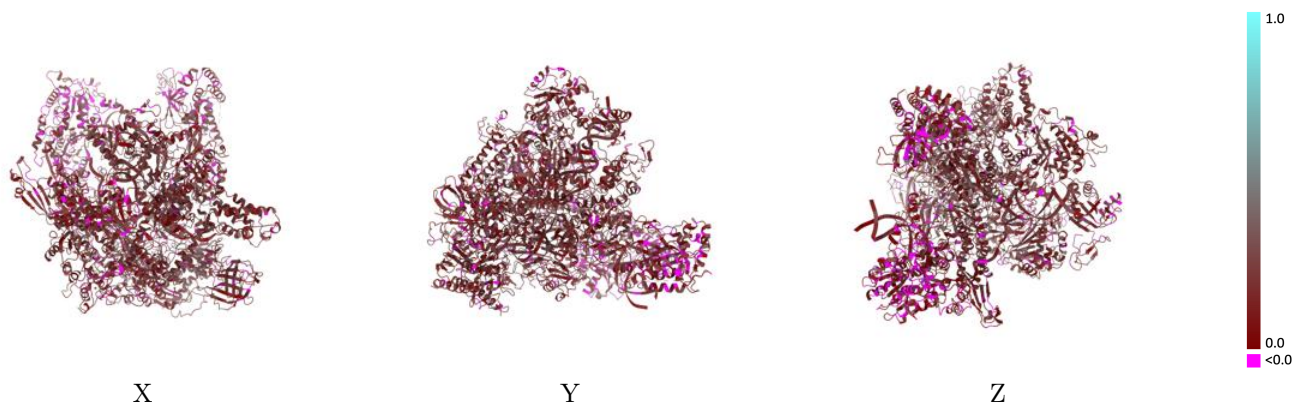
This section contains information regarding the fit between EMDB map EMD-8735 and PDB model 5VVR. Per-residue inclusion information can be found in section 3 on page 7.

9.1 Map-model overlay [i](#)



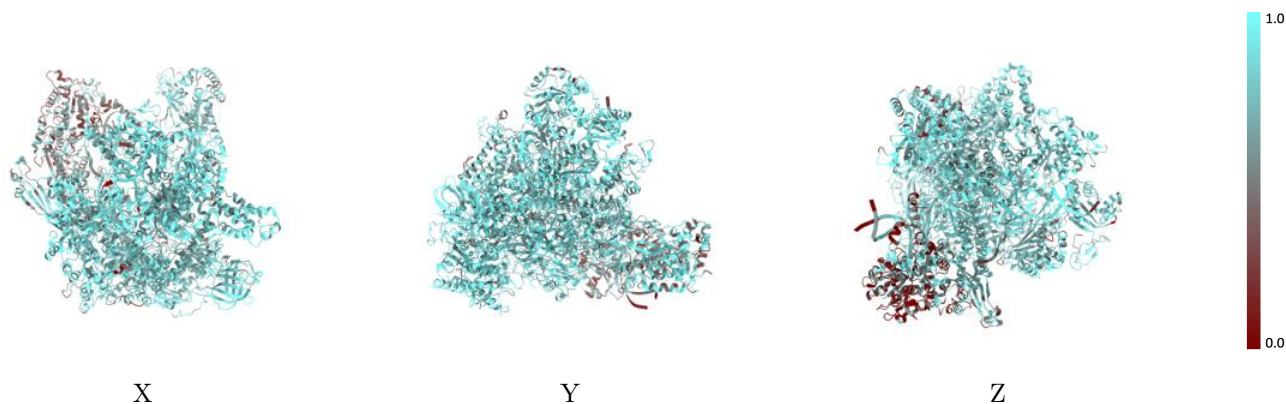
The images above show the 3D surface view of the map at the recommended contour level 0.0244 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [\(i\)](#)



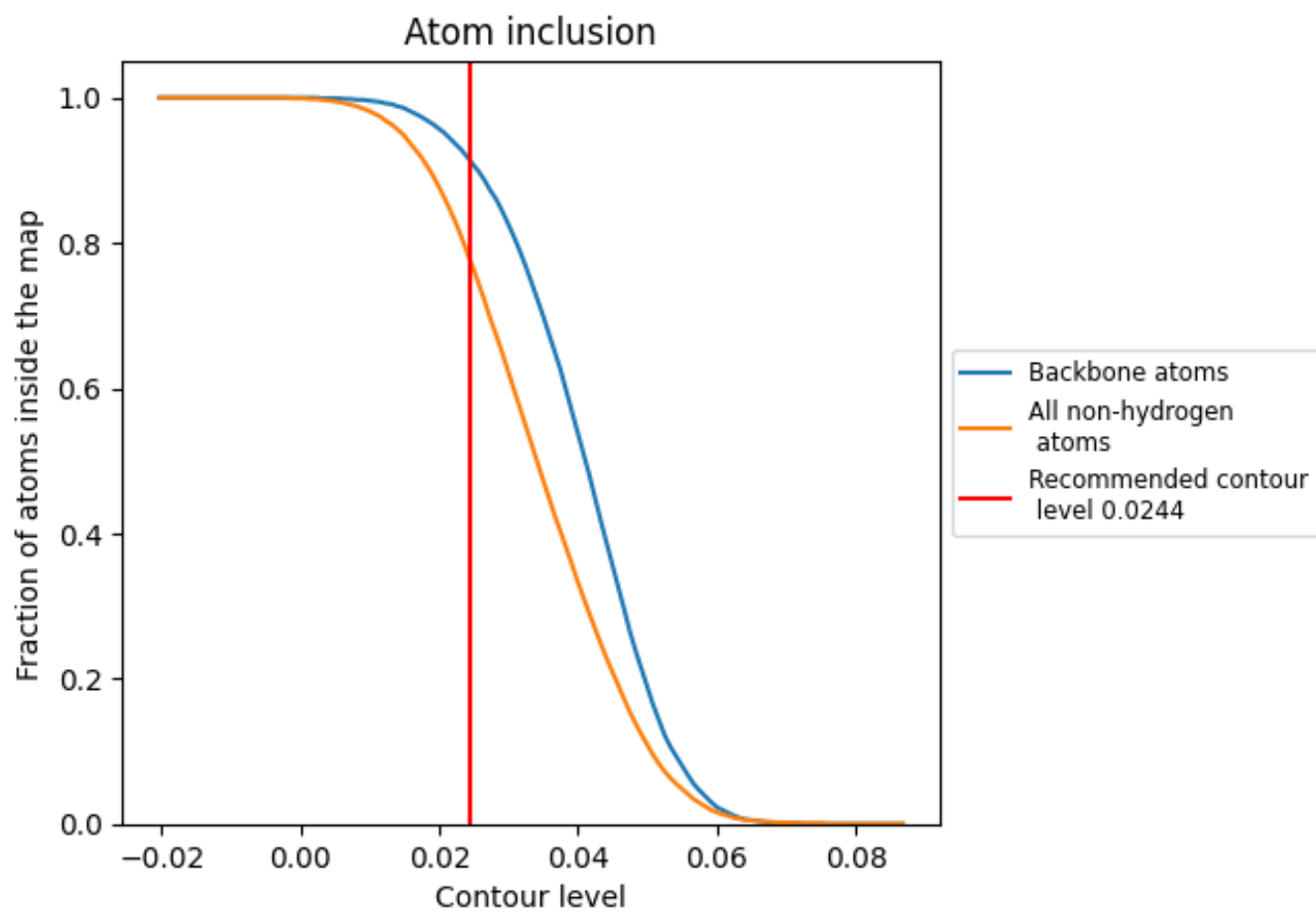
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 [\(i\)](#)



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 (0.0244).



































9.4 Atom inclusion [i](#)



At the recommended contour level, 91% of all backbone atoms, 78% 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 (0.0244) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7770	 0.1740
A	 0.8180	 0.1930
B	 0.8120	 0.1860
C	 0.8550	 0.1950
D	 0.7390	 0.1410
E	 0.8480	 0.1930
F	 0.8390	 0.2010
G	 0.8090	 0.1400
H	 0.8330	 0.1750
I	 0.8240	 0.1640
J	 0.8610	 0.1710
K	 0.8630	 0.1970
L	 0.8470	 0.1820
M	 0.4210	 0.0790
N	 0.7560	 0.1860
R	 0.9860	 0.2630
T	 0.8310	 0.1950

