



Full wwPDB EM Validation Report ⓘ

Jun 26, 2025 – 02:27 PM JST

PDB ID : 5Z3L / pdb_00005z3l
EMDB ID : EMD-6879
Title : Structure of Snf2-nucleosome complex in apo state
Authors : Li, M.; Xia, X.; Liu, X.; Li, X.; Chen, Z.
Deposited on : 2018-01-08
Resolution : 4.31 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.dev118
MolProbity : 4-5-2 with Phenix2.0rc1
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.44

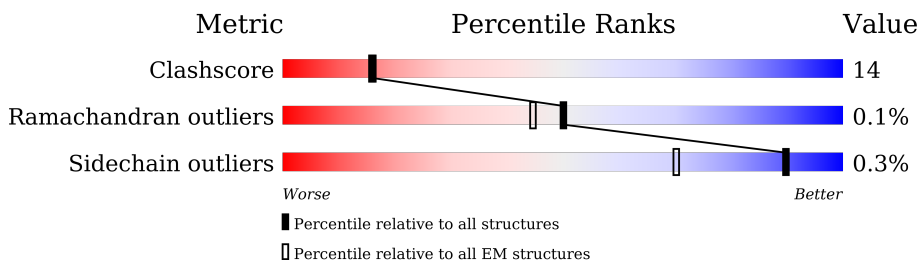
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.31 Å.

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



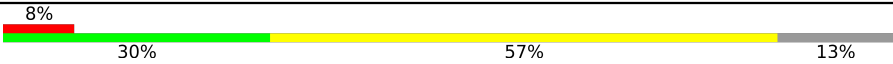
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	135	6% 51% 21% 27%
1	E	135	16% 47% 23% 30%
2	B	102	10% 58% 27% 15%
2	F	102	12% 66% 19% 16%
3	C	129	21% 61% 22% 17%
3	G	129	• 60% 23% 17%
4	D	122	6% 56% 20% 24%
4	H	122	• 57% 19% 24%

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Mol	Chain	Length	Quality of chain
5	I	167	
6	J	167	
7	O	735	

2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 16783 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 Histone H3.2.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	98	Total	C	N	O	S	0	0
			801	506	153	139	3		
1	E	95	Total	C	N	O	S	0	0
			779	492	148	136	3		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	102	ALA	GLY	see sequence details	UNP P84233
E	102	ALA	GLY	see sequence details	UNP P84233

- Molecule 2 is a protein called Histone H4.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	87	Total	C	N	O	S	0	0
			703	443	142	117	1		
2	F	86	Total	C	N	O	S	0	0
			672	424	130	117	1		

- Molecule 3 is a protein called Histone H2A.

Mol	Chain	Residues	Atoms				AltConf	Trace
3	C	107	Total	C	N	O	0	0
			811	510	158	143		
3	G	107	Total	C	N	O	0	0
			815	513	159	143		

- Molecule 4 is a protein called Histone H2B 1.1.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	D	93	Total	C	N	O	S	0	0
			718	451	128	137	2		

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Mol	Chain	Residues	Atoms					AltConf	Trace
4	H	93	Total	C	N	O	S	0	0
			726	457	130	137	2		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	29	THR	SER	see sequence details	UNP P02281
H	29	THR	SER	see sequence details	UNP P02281

- Molecule 5 is a DNA chain called DNA (167-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
5	I	146	Total	C	N	O	P	0	0
			2975	1413	540	876	146		

- Molecule 6 is a DNA chain called DNA (167-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
6	J	146	Total	C	N	O	P	0	0
			3011	1425	564	876	146		

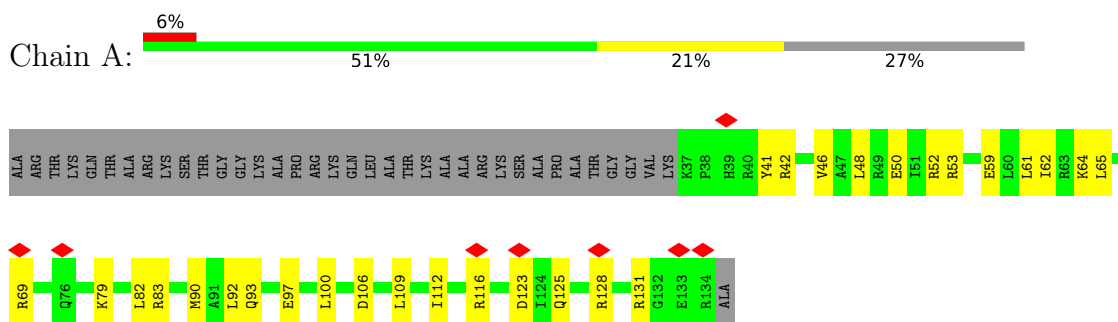
- Molecule 7 is a protein called Transcription regulatory protein SNF2.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	O	581	Total	C	N	O	S	0	0
			4772	3036	839	880	17		

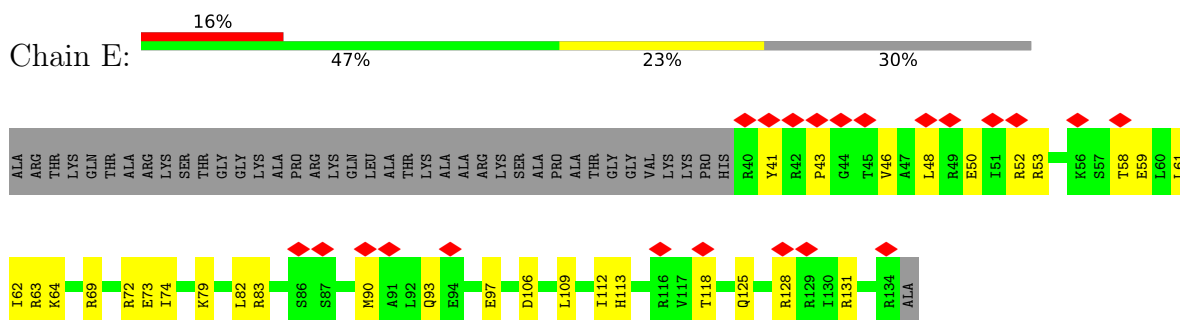
3 Residue-property plots [i](#)

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.

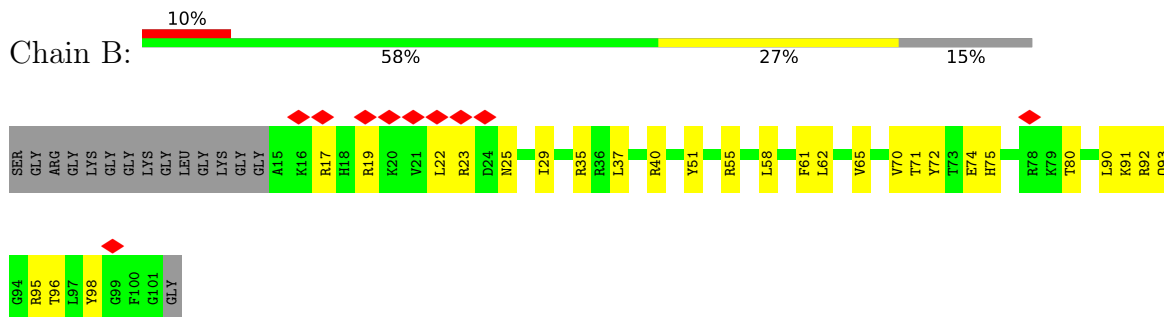
• Molecule 1: Histone H3.2



• Molecule 1: Histone H3.2

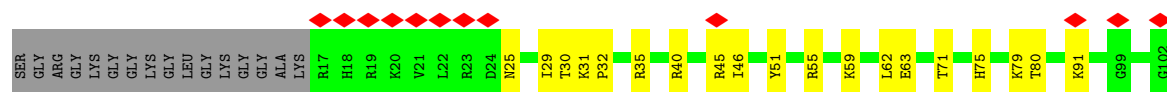


• Molecule 2: Histone H4

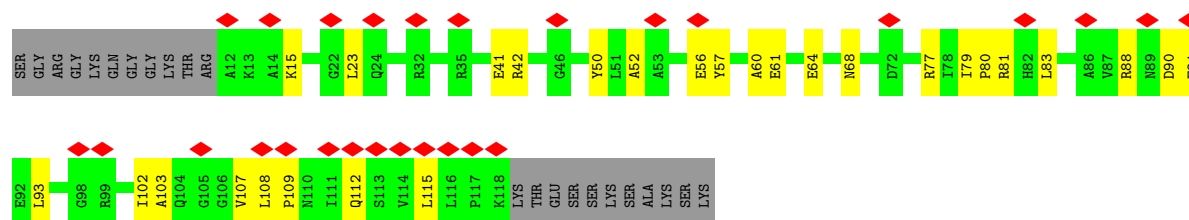


• Molecule 2: Histone H4

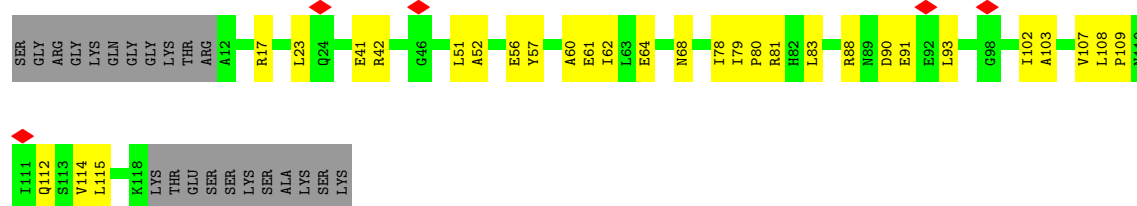




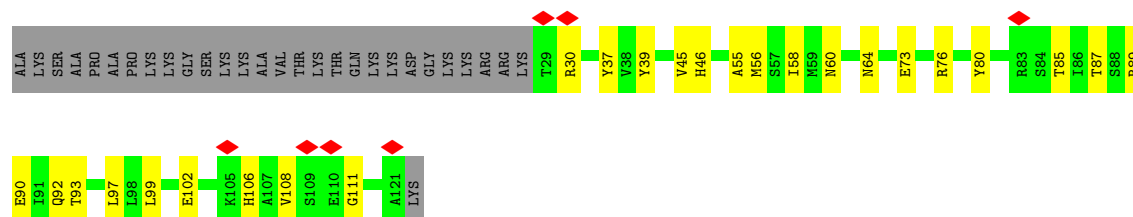
- Molecule 3: Histone H2A



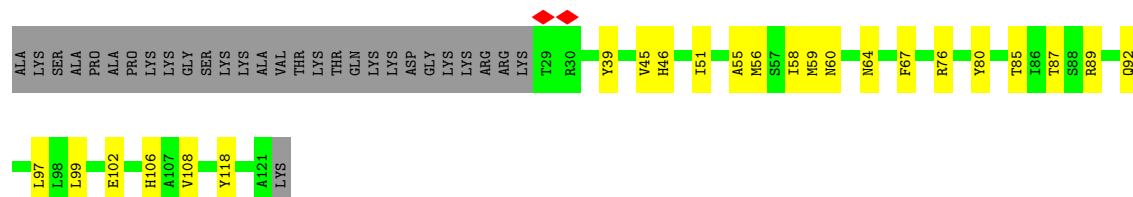
- Molecule 3: Histone H2A



- Molecule 4: Histone H2B 1.1



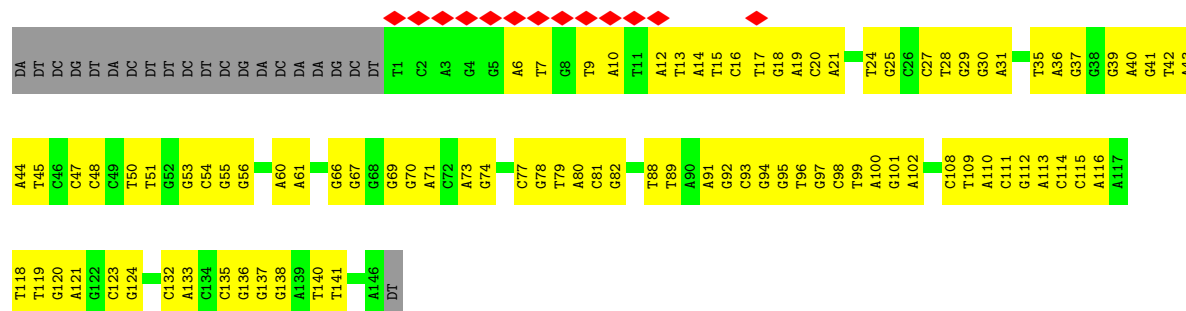
- Molecule 4: Histone H2B 1.1



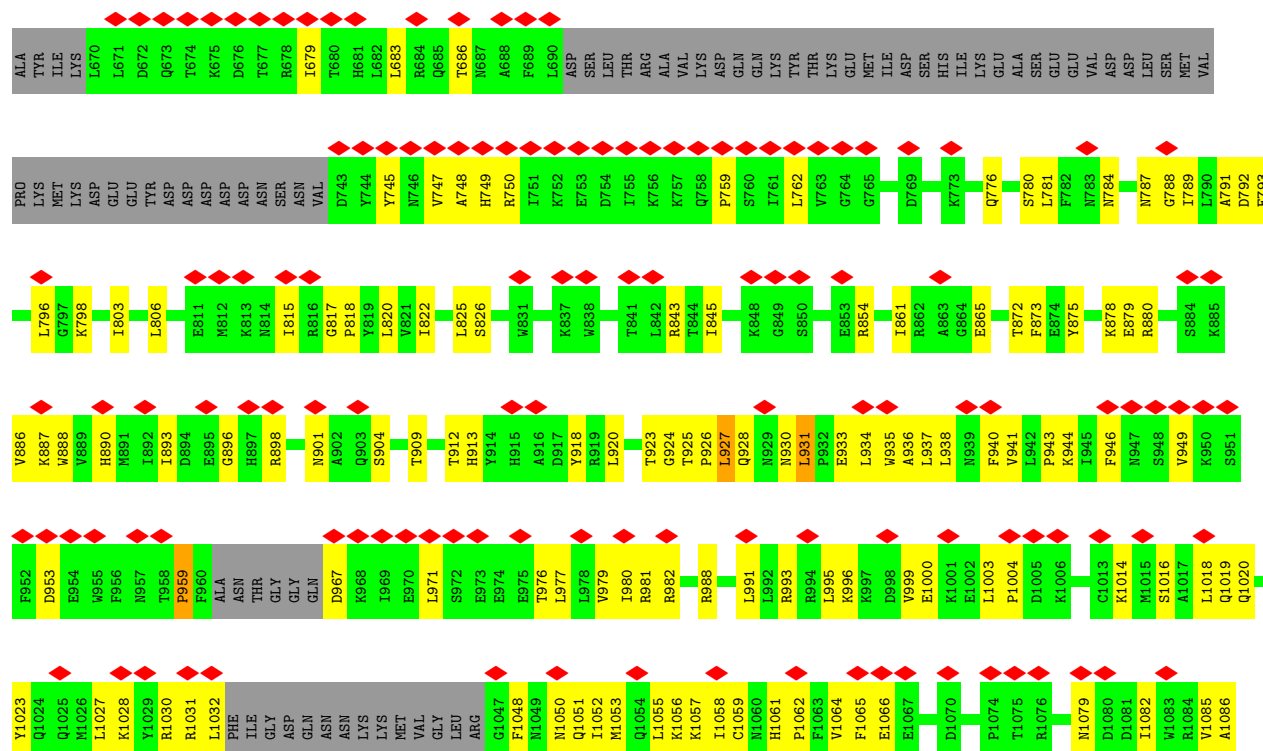
- Molecule 5: DNA (167-MER)



- Molecule 6: DNA (167-MER)



- Molecule 7: Transcription regulatory protein SNF2



ASP	ASP	GLU	LYS	ASN	ASP	LYS	GLN	ALA	ARG	LYS	GLU	PRO	ASP	ASP	THR	LYS	LYS	GLU	ASP	LYS	SER	GLY	ALA	GLU	ALA	ILE	LEU	ASP	GLY	K1336	R1337	E1338	E1341	S1342	V1345	Y1346	N1347	G1348	ARG	GLY	ALA	ARG	GLU	ARG	LYS	THR	ALA	THR	TYR	ASN	ASP	ASN	ASN	MET	SER	GLU	GLU	GLN	TRP	LEU	ARG	GLN	PHE	GLU	VAL	SER
K1314	S1315	R1316	L1317	L1318	E1319	K1320	SER	GLU	LEU	ASP	PRO	ASP	ILE	TYR	SER	ARG	ASP	ILE	GLY	ALA	GLU	LEU	K1336	R1337	E1338	E1341	S1342	V1345	Y1346	N1347	G1348	ARG	GLY	ALA	ARG	GLU	ARG	LYS	THR	ALA	THR	TYR	ASN	ASP	ASN	ASN	MET	SER	GLU	GLU	GLN	TRP	LEU	ARG	GLN	PHE	GLU	VAL	SER							
S1245	T1246	S1247	E1248	E1249	Q1250	E1251	A1252	R1255	L1258	E1262	E1263	R1264	K1267	R1268	E1269	SER	GLY	VAL	GLU	GLU	GLU	E1277	L1278	K1279	D1280	S1281	E1282	E1285	R1289	M1290	D1291	E1292	E1293	M1294	A1295	V1296	R1299	M1300	D1301	E1302	D1303	R1304	S1305	K1306	K1307	E1308	E1309	GLU	LEU	GLY	VAL															
L1168	G1169	L1170	A1175	D1176	T1177	V1178	I1179	I1180	F1181	D1182	T1183	D1184	W1185	N1186	P1187	H1188	Q1189	D1190	L1191	Q1192	A1193	Q1194	H1198	E1205	V1206	R1207	I1208	L1209	R1210	L1211	N1215	S1216	V1217	E1218	E1219	E1223	R1224	A1225	Y1226	K1227	K1228	L1229	G1233	K1234	V1235	I1236	Q1237	A1238	G1239	K1240	F1241	D1242														
G1087	K1088	L1092	D1093	R1094	T1095	L1096	P1097	K1098	L1099	K1100	A1101	R1105	V1106	L1107	F1110	Q1111	M1112	T1113	Q1114	I1118	L1123	R1124	I1128	K1129	Y1130	L1131	R1132	L1133	K1138	S1139	D1140	E1141	R1142	S1143	E1144	L1145	L1146	R1147	L1148	F1149	D1153	S1154	E1155	Y1156	I1160	L1161	S1162	T1163	R1164																	

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	42383	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50.0	Depositor
Minimum defocus (nm)	1800	Depositor
Maximum defocus (nm)	3300	Depositor
Magnification	22500	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.211	Depositor
Minimum map value	-0.119	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.011	Depositor
Recommended contour level	0.05	Depositor
Map size (Å)	211.20001, 211.20001, 211.20001	wwPDB
Map dimensions	160, 160, 160	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.32, 1.32, 1.32	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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	0.11	0/813	0.36	0/1093
1	E	0.12	0/789	0.37	0/1059
2	B	0.11	0/711	0.35	0/950
2	F	0.11	0/680	0.34	0/912
3	C	0.11	0/821	0.32	0/1112
3	G	0.11	0/825	0.32	0/1116
4	D	0.08	0/729	0.28	0/985
4	H	0.09	0/737	0.27	0/993
5	I	0.17	0/3333	0.38	0/5137
6	J	0.16	0/3381	0.36	0/5221
7	O	0.11	0/4847	0.38	1/6515 (0.0%)
All	All	0.13	0/17666	0.36	1/25093 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	O	959	PRO	N-CA-CB	6.39	109.96	103.25

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	801	0	831	23	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	E	779	0	815	26	0
2	B	703	0	757	26	0
2	F	672	0	698	25	0
3	C	811	0	849	21	0
3	G	815	0	860	23	0
4	D	718	0	725	22	0
4	H	726	0	747	23	0
5	I	2975	0	1639	85	0
6	J	3011	0	1639	80	0
7	O	4772	0	4866	151	0
All	All	16783	0	14426	437	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 14.

All (437) 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)
7:O:1168:LEU:HD21	7:O:1192:GLN:HA	1.45	0.98
1:E:41:TYR:HA	5:I:144:DC:H4'	1.54	0.89
7:O:1168:LEU:HD21	7:O:1192:GLN:CA	2.02	0.88
7:O:1168:LEU:HD21	7:O:1192:GLN:CB	2.09	0.82
2:F:51:TYR:HB3	2:F:55:ARG:HH12	1.47	0.80
7:O:1168:LEU:CD2	7:O:1192:GLN:HA	2.11	0.79
3:G:23:LEU:HD22	3:G:56:GLU:HG3	1.68	0.76
7:O:1055:LEU:HD13	7:O:1217:VAL:HG21	1.68	0.75
3:C:23:LEU:HD22	3:C:56:GLU:HG3	1.68	0.75
3:C:81:ARG:HD3	1:E:58:THR:HB	1.69	0.74
7:O:791:ALA:O	7:O:993:ARG:NH1	2.24	0.70
7:O:995:LEU:HD21	7:O:1236:ILE:HD11	1.73	0.70
3:G:88:ARG:HH12	3:G:107:VAL:HG13	1.56	0.70
6:J:140:DT:H2''	6:J:141:DT:H5'	1.73	0.69
3:C:88:ARG:HH12	3:C:107:VAL:HG13	1.56	0.69
7:O:1057:LYS:HB3	7:O:1064:VAL:HG21	1.74	0.69
1:E:63:ARG:HE	6:J:91:DA:H4'	1.59	0.67
1:E:93:GLN:O	1:E:97:GLU:HB2	1.94	0.67
7:O:1168:LEU:HD11	7:O:1192:GLN:HG2	1.76	0.67
6:J:56:DG:H5'	7:O:825:LEU:HD23	1.76	0.67
7:O:1095:ILE:HG22	7:O:1099:LEU:HD23	1.75	0.67
1:A:93:GLN:O	1:A:97:GLU:HB2	1.94	0.66
2:F:29:ILE:HB	2:F:55:ARG:HE	1.60	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:J:20:DC:H2''	6:J:21:DA:C8	2.30	0.66
7:O:1183:THR:HG22	7:O:1210:ARG:HH11	1.61	0.66
2:F:29:ILE:O	2:F:55:ARG:NH2	2.28	0.66
7:O:747:VAL:O	7:O:750:ARG:NH1	2.29	0.65
1:E:83:ARG:HB2	2:F:80:THR:HG23	1.79	0.65
7:O:901:ASN:HB3	7:O:904:SER:HB3	1.78	0.65
1:E:106:ASP:OD2	1:E:131:ARG:NH2	2.31	0.64
6:J:51:DT:H2''	7:O:1052:ILE:HG21	1.79	0.64
7:O:1105:ARG:NH2	7:O:1149:PHE:O	2.28	0.64
1:A:116:ARG:HD2	6:J:71:DA:H3'	1.79	0.63
1:A:106:ASP:OD2	1:A:131:ARG:NH2	2.31	0.63
6:J:135:DC:H2''	6:J:136:DG:H5''	1.81	0.62
1:E:63:ARG:NH2	6:J:91:DA:O3'	2.32	0.62
1:A:42:ARG:NH2	6:J:69:DG:OP1	2.32	0.62
7:O:1320:LYS:O	7:O:1337:ARG:NH1	2.33	0.61
1:E:73:GLU:HG2	2:F:25:ASN:HB3	1.83	0.61
1:E:43:PRO:HG2	5:I:69:DA:H5'	1.83	0.61
7:O:1279:LYS:HG3	7:O:1281:SER:H	1.65	0.60
4:D:60:ASN:O	4:D:64:ASN:ND2	2.34	0.60
7:O:988:ARG:HH12	7:O:1241:PHE:HD1	1.48	0.60
5:I:53:DC:H2''	5:I:54:DC:H5'	1.83	0.60
7:O:1223:GLU:HG3	7:O:1227:LYS:HD3	1.83	0.60
2:B:51:TYR:HB3	2:B:55:ARG:HH12	1.65	0.60
1:E:50:GLU:OE1	1:E:53:ARG:NH2	2.34	0.60
6:J:111:DC:H2''	6:J:112:DG:C8	2.37	0.60
5:I:84:DC:H2'	5:I:85:DG:C8	2.36	0.60
7:O:927:LEU:HD11	7:O:1235:VAL:HG21	1.83	0.60
1:A:41:TYR:N	5:I:84:DC:OP1	2.35	0.60
1:A:50:GLU:OE1	1:A:53:ARG:NH2	2.34	0.60
7:O:1184:ASP:HB2	7:O:1189:GLN:HB2	1.84	0.60
6:J:91:DA:H2''	6:J:92:DG:H5''	1.84	0.59
4:H:60:ASN:O	4:H:64:ASN:ND2	2.34	0.59
2:B:91:LYS:HD2	4:D:76:ARG:HH22	1.66	0.59
5:I:75:DT:H2''	5:I:76:DG:C8	2.37	0.59
6:J:118:DT:H2''	6:J:119:DT:H5''	1.85	0.59
2:F:91:LYS:HG2	4:H:76:ARG:HH22	1.66	0.59
6:J:9:DT:H2''	6:J:10:DA:C6	2.38	0.59
1:E:97:GLU:OE2	2:F:40:ARG:NH1	2.36	0.59
5:I:42:DC:H2''	5:I:43:DA:H5'	1.83	0.59
1:A:62:ILE:HG13	1:A:93:GLN:HE21	1.68	0.58
1:E:62:ILE:HG13	1:E:93:GLN:HE21	1.68	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:I:45:DC:H2''	5:I:46:DT:H5''	1.85	0.58
5:I:113:DA:H2''	5:I:114:DG:H5'	1.85	0.58
7:O:1055:LEU:HB3	7:O:1217:VAL:HG11	1.85	0.58
5:I:132:DG:H22	6:J:16:DC:H42	1.50	0.58
7:O:1003:LEU:HD12	7:O:1004:PRO:HD2	1.84	0.58
7:O:1129:LYS:HB3	7:O:1156:TYR:CD1	2.39	0.58
5:I:5:DA:H2'	5:I:6:DG:C8	2.38	0.58
7:O:988:ARG:NH1	7:O:1241:PHE:O	2.37	0.58
6:J:93:DC:H2''	6:J:94:DG:C8	2.39	0.58
4:H:39:TYR:OH	5:I:22:DG:OP2	2.20	0.58
6:J:6:DA:H2'	6:J:7:DT:H71	1.84	0.57
7:O:999:VAL:HG23	7:O:1000:GLU:H	1.69	0.57
7:O:791:ALA:HB3	7:O:993:ARG:HB2	1.86	0.57
7:O:1107:LEU:HB2	7:O:1178:VAL:HG22	1.86	0.57
5:I:85:DG:H2'	5:I:86:DT:C6	2.40	0.57
2:B:17:ARG:HD2	7:O:1118:ILE:HG12	1.86	0.57
6:J:28:DT:H2''	6:J:29:DG:N7	2.20	0.56
6:J:40:DA:H2''	6:J:41:DG:C8	2.39	0.56
7:O:1052:ILE:HD13	7:O:1056:LYS:HD2	1.87	0.56
6:J:98:DC:H2'	6:J:99:DT:C6	2.41	0.56
7:O:996:LYS:NZ	7:O:1198:HIS:O	2.34	0.56
7:O:1188:HIS:HA	7:O:1191:LEU:HB2	1.87	0.56
7:O:1014:LYS:HD3	7:O:1277:GLU:HB2	1.89	0.56
7:O:1129:LYS:HD2	7:O:1155:GLU:HB2	1.88	0.56
7:O:1018:LEU:HD13	7:O:1062:PRO:HB2	1.87	0.55
7:O:1226:TYR:HD2	7:O:1227:LYS:HG3	1.71	0.55
3:G:51:LEU:HD13	4:H:67:PHE:HE1	1.71	0.55
7:O:1062:PRO:HD3	7:O:1086:ALA:HB2	1.87	0.55
7:O:1052:ILE:HG22	7:O:1057:LYS:HE3	1.88	0.55
2:F:51:TYR:HB3	2:F:55:ARG:NH1	2.20	0.55
5:I:30:DA:H2'	5:I:31:DT:H71	1.88	0.55
6:J:99:DT:H2''	6:J:100:DA:N7	2.21	0.55
7:O:1129:LYS:HB3	7:O:1156:TYR:HD1	1.71	0.55
5:I:86:DT:H2'	5:I:87:DT:C6	2.41	0.55
6:J:42:DT:O4	6:J:43:DA:N6	2.40	0.55
7:O:934:LEU:HA	7:O:938:LEU:HB3	1.88	0.55
7:O:1020:GLN:O	7:O:1023:TYR:N	2.33	0.55
7:O:933:GLU:HG3	7:O:935:TRP:CE2	2.42	0.55
6:J:50:DT:H2'	6:J:51:DT:C6	2.42	0.55
7:O:1239:GLY:HA2	7:O:1242:ASP:HB3	1.89	0.55
1:E:59:GLU:O	2:F:40:ARG:NH2	2.40	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:65:LEU:HB3	5:I:91:DA:H3'	1.90	0.54
6:J:24:DT:H2''	6:J:25:DG:C8	2.42	0.54
5:I:92:DC:H2''	5:I:93:DC:H5''	1.90	0.54
5:I:131:DA:H2''	5:I:132:DG:C8	2.42	0.54
5:I:110:DC:H2''	5:I:111:DC:C4	2.43	0.54
2:F:31:LYS:O	2:F:35:ARG:HB2	2.08	0.54
6:J:140:DT:H2'	6:J:141:DT:C6	2.43	0.54
7:O:925:THR:HB	7:O:1191:LEU:HD13	1.89	0.54
7:O:938:LEU:HD21	7:O:949:VAL:HG11	1.88	0.54
7:O:1019:GLN:NE2	7:O:1059:CYS:O	2.40	0.54
7:O:1111:GLN:NE2	7:O:1163:THR:OG1	2.41	0.54
5:I:8:DA:C8	5:I:8:DA:H5'	2.43	0.53
5:I:7:DA:H2''	5:I:8:DA:C8	2.43	0.53
2:B:35:ARG:NH2	2:B:51:TYR:OH	2.38	0.53
3:C:64:GLU:OE2	3:C:68:ASN:ND2	2.41	0.53
5:I:121:DG:H2''	5:I:122:DG:N7	2.23	0.53
6:J:14:DA:H4'	6:J:15:DT:OP1	2.09	0.53
7:O:745:TYR:O	7:O:749:HIS:N	2.41	0.53
5:I:52:DA:H2'	5:I:53:DC:C6	2.43	0.53
5:I:67:DG:H2''	5:I:68:DT:C5	2.44	0.53
6:J:39:DG:H2''	6:J:40:DA:C8	2.44	0.53
7:O:759:PRO:HG2	7:O:762:LEU:HB2	1.89	0.53
7:O:1123:LEU:HD11	7:O:1128:ILE:HD11	1.90	0.53
2:F:79:LYS:HB2	6:J:101:DG:H5''	1.91	0.53
7:O:781:LEU:HD13	7:O:788:GLY:HA3	1.89	0.53
7:O:937:LEU:HD23	7:O:991:LEU:HD11	1.91	0.52
7:O:1227:LYS:HE3	7:O:1264:ARG:HD2	1.90	0.52
1:A:83:ARG:HB2	2:B:80:THR:HA	1.90	0.52
5:I:9:DT:H2''	5:I:10:DC:C5	2.44	0.52
3:C:42:ARG:HB2	4:D:85:THR:HA	1.92	0.52
7:O:1027:LEU:HD21	7:O:1055:LEU:HD21	1.90	0.52
7:O:1061:HIS:ND1	7:O:1062:PRO:HD2	2.24	0.52
7:O:1180:ILE:HD13	7:O:1189:GLN:HE21	1.74	0.52
3:G:79:ILE:HG22	3:G:81:ARG:H	1.74	0.52
7:O:1238:ALA:O	7:O:1242:ASP:N	2.43	0.52
1:E:48:LEU:HB3	1:E:52:ARG:HH12	1.75	0.52
3:G:64:GLU:OE2	3:G:68:ASN:ND2	2.41	0.51
3:C:79:ILE:HG22	3:C:81:ARG:H	1.74	0.51
6:J:60:DA:H2''	6:J:61:DA:H8	1.75	0.51
5:I:38:DT:H2''	5:I:39:DA:N7	2.25	0.51
2:B:70:VAL:O	2:B:74:GLU:HB2	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:O:1064:VAL:C	7:O:1066:GLU:H	2.19	0.51
5:I:8:DA:H5'	5:I:8:DA:H8	1.76	0.51
7:O:792:ASP:HA	7:O:993:ARG:HG3	1.92	0.51
7:O:686:THR:HB	7:O:918:TYR:HE1	1.74	0.51
3:C:52:ALA:O	3:C:56:GLU:HG2	2.11	0.51
6:J:123:DC:H2''	6:J:124:DG:C8	2.46	0.51
7:O:909:THR:O	7:O:913:HIS:N	2.44	0.51
7:O:1168:LEU:HD21	7:O:1192:GLN:HB3	1.91	0.51
5:I:120:DA:H2	6:J:28:DT:H3	1.56	0.50
6:J:28:DT:H2''	6:J:29:DG:C5	2.46	0.50
7:O:1092:LEU:O	7:O:1096:LEU:HD13	2.11	0.50
7:O:1016:SER:O	7:O:1020:GLN:HG3	2.10	0.50
7:O:1057:LYS:HD3	7:O:1064:VAL:HG11	1.92	0.50
1:A:125:GLN:HA	1:A:128:ARG:HG2	1.93	0.50
5:I:68:DT:H2''	5:I:69:DA:N7	2.27	0.50
5:I:100:DG:H2''	5:I:101:DG:C8	2.47	0.50
3:G:52:ALA:O	3:G:56:GLU:HG2	2.11	0.50
6:J:69:DG:H2''	6:J:70:DG:N7	2.27	0.50
7:O:1186:ASN:HB2	7:O:1188:HIS:ND1	2.26	0.50
5:I:6:DG:H2'	5:I:7:DA:C8	2.46	0.50
1:A:48:LEU:HB3	1:A:52:ARG:HH12	1.75	0.50
1:E:74:ILE:HG21	2:F:62:LEU:HD21	1.93	0.50
7:O:880:ARG:NH1	7:O:912:THR:O	2.45	0.50
4:D:55:ALA:HA	4:D:58:ILE:HG22	1.95	0.49
4:H:55:ALA:HA	4:H:58:ILE:HG22	1.95	0.49
5:I:47:DC:H2''	5:I:48:DT:H72	1.94	0.49
6:J:77:DC:H2''	6:J:78:DG:N7	2.28	0.49
2:B:22:LEU:HD12	2:B:23:ARG:H	1.77	0.49
2:F:59:LYS:O	2:F:63:GLU:HG2	2.13	0.49
6:J:44:DA:H2''	6:J:45:DT:H5'	1.94	0.49
6:J:88:DT:H2''	6:J:89:DT:H5'	1.95	0.49
7:O:886:VAL:HG22	7:O:887:LYS:H	1.77	0.49
2:B:29:ILE:O	2:B:55:ARG:NH2	2.34	0.49
5:I:29:DA:H2''	5:I:30:DA:C8	2.47	0.49
6:J:78:DG:H2''	6:J:79:DT:H5''	1.94	0.49
6:J:94:DG:H2''	6:J:95:DG:O5'	2.12	0.49
7:O:936:ALA:HA	7:O:940:PHE:HB3	1.95	0.49
2:B:71:THR:HG21	4:D:97:LEU:HB2	1.94	0.49
1:E:125:GLN:HA	1:E:128:ARG:HG2	1.93	0.49
7:O:875:TYR:O	7:O:879:GLU:N	2.46	0.49
6:J:137:DG:H4'	6:J:138:DG:OP1	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:I:24:DC:H2''	5:I:25:DG:C8	2.48	0.48
5:I:40:DG:H4'	5:I:41:DA:OP1	2.11	0.48
7:O:949:VAL:O	7:O:953:ASP:N	2.46	0.48
6:J:16:DC:H2'	6:J:17:DT:H71	1.95	0.48
7:O:930:ASN:ND2	7:O:931:LEU:HD12	2.27	0.48
6:J:94:DG:H4'	6:J:95:DG:OP1	2.13	0.48
7:O:815:ILE:HD12	7:O:817:GLY:H	1.79	0.48
2:B:70:VAL:O	2:B:74:GLU:CB	2.62	0.48
4:D:87:THR:HG23	4:D:89:ARG:H	1.79	0.48
3:G:81:ARG:HH22	3:G:108:LEU:HA	1.79	0.48
7:O:1027:LEU:HD23	7:O:1032:LEU:HD22	1.95	0.48
3:C:81:ARG:HH22	3:C:108:LEU:HA	1.79	0.48
5:I:11:DC:H2''	5:I:12:DC:H5''	1.95	0.48
6:J:17:DT:H2''	6:J:18:DG:C8	2.49	0.48
6:J:109:DT:H2''	6:J:110:DA:C5	2.49	0.48
3:C:77:ARG:HH12	5:I:132:DG:H5'	1.79	0.47
6:J:36:DA:H2''	6:J:37:DG:C8	2.48	0.47
7:O:798:LYS:HE2	7:O:924:GLY:HA2	1.96	0.47
7:O:1016:SER:O	7:O:1020:GLN:N	2.47	0.47
7:O:1053:MET:HA	7:O:1057:LYS:HD2	1.95	0.47
4:H:76:ARG:NE	4:H:80:TYR:OH	2.47	0.47
5:I:56:DC:H2'	5:I:57:DT:H71	1.94	0.47
1:E:69:ARG:HH22	6:J:91:DA:P	2.37	0.47
7:O:787:ASN:ND2	7:O:941:VAL:O	2.47	0.47
1:E:48:LEU:HB3	1:E:52:ARG:NH1	2.29	0.47
7:O:1023:TYR:HE1	7:O:1058:ILE:HG13	1.79	0.47
5:I:84:DC:H2'	5:I:85:DG:H8	1.80	0.47
2:B:90:LEU:HB3	2:B:95:ARG:HB2	1.97	0.47
2:B:92:ARG:HE	4:D:73:GLU:HG3	1.80	0.47
3:G:78:ILE:HD11	4:H:51:ILE:HG13	1.97	0.47
5:I:19:DG:H2''	5:I:20:DA:N7	2.29	0.47
5:I:132:DG:H22	6:J:16:DC:N4	2.12	0.47
6:J:97:DG:H2'	6:J:98:DC:C6	2.50	0.47
7:O:843:ARG:NH1	7:O:865:GLU:HG2	2.29	0.47
7:O:1233:GLY:HA2	7:O:1236:ILE:HG22	1.96	0.47
6:J:81:DC:H2''	6:J:82:DG:C8	2.50	0.47
7:O:1051:GLN:HA	7:O:1055:LEU:HD12	1.96	0.47
6:J:119:DT:H2''	6:J:120:DG:C5	2.49	0.47
7:O:890:HIS:NE2	7:O:920:LEU:HD13	2.30	0.47
2:B:75:HIS:HE2	4:D:90:GLU:CD	2.23	0.46
1:E:93:GLN:O	1:E:97:GLU:CB	2.63	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:O:1055:LEU:HD22	7:O:1217:VAL:HG11	1.96	0.46
3:C:80:PRO:HA	3:C:83:LEU:HD12	1.98	0.46
6:J:96:DT:H2'	6:J:97:DG:C8	2.51	0.46
4:D:76:ARG:NE	4:D:80:TYR:OH	2.47	0.46
3:G:80:PRO:HA	3:G:83:LEU:HD12	1.98	0.46
4:H:87:THR:HG23	4:H:89:ARG:H	1.79	0.46
5:I:48:DT:H2''	5:I:49:DA:N7	2.29	0.46
6:J:124:DG:H8	6:J:124:DG:H5''	1.79	0.46
7:O:1052:ILE:HG23	7:O:1112:MET:HE1	1.97	0.46
3:G:60:ALA:O	3:G:64:GLU:HB2	2.15	0.46
6:J:60:DA:H2''	6:J:61:DA:C8	2.51	0.46
7:O:1030:ARG:NH1	7:O:1348:GLY:O	2.48	0.46
7:O:1188:HIS:O	7:O:1192:GLN:N	2.49	0.46
3:C:15:LYS:N	6:J:31:DA:OP1	2.45	0.46
4:D:30:ARG:NH2	6:J:27:DC:OP1	2.46	0.46
5:I:17:DC:H2''	5:I:18:DC:C5	2.51	0.46
7:O:854:ARG:HH12	7:O:878:LYS:HE2	1.81	0.46
1:A:46:VAL:O	1:A:50:GLU:HG2	2.16	0.46
1:A:48:LEU:HB3	1:A:52:ARG:NH1	2.29	0.46
7:O:1031:ARG:HG3	7:O:1050:ASN:HD21	1.80	0.46
3:C:60:ALA:O	3:C:64:GLU:HB2	2.15	0.46
5:I:64:DC:H2''	5:I:65:DA:H8	1.80	0.46
5:I:68:DT:H2''	5:I:69:DA:C8	2.50	0.46
2:B:58:LEU:HD12	2:B:62:LEU:HD13	1.97	0.46
3:G:90:ASP:HB3	3:G:93:LEU:HB3	1.97	0.46
7:O:1019:GLN:HA	7:O:1023:TYR:HB2	1.98	0.46
7:O:1198:HIS:HD2	7:O:1206:VAL:HG21	1.80	0.46
7:O:1238:ALA:HA	7:O:1241:PHE:CZ	2.50	0.46
5:I:62:DC:H2''	5:I:63:DG:C8	2.51	0.46
7:O:1028:LYS:HA	7:O:1032:LEU:C	2.41	0.46
3:C:42:ARG:NH2	5:I:113:DA:OP1	2.49	0.46
2:F:30:THR:HB	5:I:61:DA:H3'	1.98	0.46
5:I:107:DC:H2''	5:I:108:DT:C5	2.51	0.46
6:J:66:DG:H2''	6:J:67:DG:O5'	2.15	0.46
3:C:112:GLN:HB2	3:C:115:LEU:HB2	1.98	0.45
5:I:105:DT:O4	5:I:106:DA:N6	2.49	0.45
6:J:108:DC:H2''	6:J:109:DT:H5''	1.98	0.45
7:O:1215:ASN:N	7:O:1219:GLU:OE2	2.48	0.45
3:C:90:ASP:HB3	3:C:93:LEU:HB3	1.97	0.45
6:J:113:DA:H2''	6:J:114:DC:H5'	1.99	0.45
2:B:51:TYR:HB3	2:B:55:ARG:NH1	2.30	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:118:THR:OG1	2:F:45:ARG:HG2	2.17	0.45
4:H:92:GLN:HE22	4:H:108:VAL:HG22	1.81	0.45
5:I:85:DG:H2'	5:I:86:DT:H6	1.81	0.45
6:J:12:DA:H2''	6:J:13:DT:H5'	1.98	0.45
3:G:17:ARG:HB2	4:H:118:TYR:HE1	1.80	0.45
7:O:976:THR:HG22	7:O:980:ILE:HG12	1.99	0.45
7:O:1139:SER:HA	7:O:1142:ARG:HD2	1.99	0.45
5:I:58:DT:H2''	5:I:59:DA:N7	2.31	0.45
6:J:53:DG:H2'	6:J:54:DC:C6	2.52	0.45
2:B:72:TYR:CZ	4:D:97:LEU:HD21	2.51	0.45
2:B:98:TYR:HB2	4:H:58:ILE:HG13	1.99	0.45
3:C:57:TYR:O	3:C:61:GLU:HB2	2.17	0.45
6:J:80:DA:H2''	6:J:81:DC:C5	2.52	0.45
7:O:928:GLN:HG2	7:O:1187:PRO:HG2	1.99	0.45
2:B:75:HIS:CE1	4:D:89:ARG:HG2	2.51	0.45
1:E:46:VAL:O	1:E:50:GLU:HG2	2.16	0.45
4:D:92:GLN:HE22	4:D:108:VAL:HG22	1.81	0.45
2:F:31:LYS:O	2:F:35:ARG:CB	2.65	0.45
5:I:20:DA:H5'	5:I:20:DA:C8	2.52	0.45
5:I:48:DT:H2''	5:I:49:DA:C8	2.51	0.45
7:O:1168:LEU:HD21	7:O:1192:GLN:CG	2.46	0.45
5:I:21:DG:H2''	5:I:22:DG:H5''	2.00	0.44
7:O:1079:ASN:H	7:O:1082:ILE:HD12	1.82	0.44
7:O:1131:LEU:HD22	7:O:1145:LEU:HD21	1.98	0.44
7:O:1146:LEU:HD11	7:O:1170:LEU:HD22	1.98	0.44
3:G:112:GLN:HB2	3:G:115:LEU:HB2	1.98	0.44
5:I:78:DC:H2''	5:I:79:DC:C6	2.52	0.44
6:J:132:DC:H2''	6:J:133:DA:C8	2.51	0.44
7:O:822:ILE:HD12	7:O:893:ILE:HG22	1.98	0.44
2:F:71:THR:HG21	4:H:97:LEU:HB2	2.00	0.44
7:O:825:LEU:HB2	7:O:872:THR:HG21	1.99	0.44
7:O:1061:HIS:CE1	7:O:1118:ILE:HG21	2.52	0.44
7:O:1301:ASP:OD1	7:O:1304:ARG:NH2	2.50	0.44
4:D:92:GLN:NE2	4:D:108:VAL:HG22	2.33	0.44
3:G:57:TYR:O	3:G:61:GLU:HB2	2.17	0.44
4:H:92:GLN:NE2	4:H:108:VAL:HG22	2.33	0.44
5:I:52:DA:H2'	5:I:53:DC:H6	1.83	0.44
3:G:41:GLU:OE1	3:G:42:ARG:HG3	2.18	0.44
2:F:31:LYS:HG3	2:F:32:PRO:HD3	2.00	0.44
6:J:9:DT:H2''	6:J:10:DA:C5	2.53	0.44
7:O:1225:ALA:O	7:O:1229:LEU:HB2	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:93:GLN:O	1:A:97:GLU:CB	2.63	0.43
2:B:91:LYS:HA	2:B:96:THR:OG1	2.17	0.43
2:F:29:ILE:C	2:F:55:ARG:HH21	2.26	0.43
2:B:75:HIS:HB2	4:D:93:THR:HG21	1.99	0.43
3:C:41:GLU:OE1	3:C:42:ARG:HG3	2.18	0.43
5:I:26:DC:H2''	5:I:27:DT:C6	2.53	0.43
6:J:79:DT:H2''	6:J:80:DA:C8	2.54	0.43
7:O:679:ILE:HB	7:O:944:LYS:HD3	2.00	0.43
7:O:1094:ARG:O	7:O:1098:LYS:NZ	2.48	0.43
3:C:90:ASP:OD1	3:C:91:GLU:N	2.51	0.43
6:J:109:DT:H2''	6:J:110:DA:N7	2.33	0.43
7:O:1132:ARG:HA	7:O:1160:ILE:HB	2.00	0.43
3:G:90:ASP:OD1	3:G:91:GLU:N	2.51	0.43
4:H:56:MET:O	4:H:60:ASN:HB2	2.19	0.43
1:E:79:LYS:HB3	1:E:82:LEU:HD11	2.01	0.43
2:F:31:LYS:CG	2:F:32:PRO:HD3	2.49	0.43
5:I:120:DA:H2''	5:I:121:DG:N7	2.33	0.43
7:O:793:GLU:O	7:O:796:LEU:HD13	2.19	0.43
7:O:845:ILE:HD13	7:O:861:ILE:HB	2.00	0.43
7:O:928:GLN:HE21	7:O:1191:LEU:HD12	1.83	0.43
4:D:56:MET:O	4:D:60:ASN:HB2	2.19	0.43
4:H:39:TYR:OH	5:I:21:DG:H3'	2.18	0.43
7:O:896:GLY:H	7:O:923:THR:HA	1.82	0.43
1:A:79:LYS:HB3	1:A:82:LEU:HD11	2.01	0.43
5:I:132:DG:H2''	5:I:133:DA:C8	2.54	0.43
7:O:683:LEU:HD21	7:O:750:ARG:HH12	1.83	0.43
7:O:818:PRO:HB2	7:O:888:TRP:CE3	2.54	0.43
6:J:30:DG:H2''	6:J:31:DA:C8	2.54	0.43
3:G:102:ILE:HG12	3:G:103:ALA:H	1.84	0.43
5:I:97:DA:O5'	7:O:1186:ASN:ND2	2.42	0.43
6:J:66:DG:H2'	6:J:67:DG:C8	2.54	0.43
7:O:776:GLN:O	7:O:780:SER:N	2.49	0.43
7:O:977:LEU:O	7:O:981:ARG:HG2	2.19	0.43
7:O:1099:LEU:HD22	7:O:1106:VAL:HG21	2.01	0.43
7:O:1168:LEU:HD21	7:O:1192:GLN:HG2	2.01	0.43
7:O:1181:PHE:HA	7:O:1211:LEU:HD12	1.99	0.43
6:J:115:DC:H2''	6:J:116:DA:C8	2.54	0.42
4:D:37:TYR:OH	5:I:122:DG:H5''	2.19	0.42
6:J:56:DG:OP2	7:O:826:SER:OG	2.28	0.42
7:O:1176:ASP:HB2	7:O:1289:ARG:HH22	1.83	0.42
1:E:109:LEU:HA	1:E:112:ILE:HG22	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:45:ARG:NH1	2:F:46:ILE:O	2.52	0.42
5:I:59:DA:H2''	5:I:60:DA:H8	1.84	0.42
7:O:1110:PHE:CE2	7:O:1160:ILE:HG23	2.54	0.42
7:O:1223:GLU:O	7:O:1228:LYS:N	2.43	0.42
1:A:109:LEU:HA	1:A:112:ILE:HG22	2.01	0.42
1:A:123:ASP:HB3	1:E:113:HIS:NE2	2.35	0.42
2:F:30:THR:HG21	5:I:61:DA:H5''	2.01	0.42
5:I:128:DG:H2''	5:I:129:DT:H72	2.01	0.42
7:O:993:ARG:HE	7:O:1236:ILE:HD12	1.83	0.42
3:G:78:ILE:HG12	4:H:51:ILE:HA	2.00	0.42
5:I:80:DC:H2''	5:I:81:DC:C6	2.55	0.42
7:O:1062:PRO:HG3	7:O:1085:VAL:HG13	2.02	0.42
2:B:61:PHE:HE1	2:B:93:GLN:HE22	1.68	0.42
5:I:112:DT:H4'	5:I:113:DA:OP2	2.18	0.42
7:O:873:PHE:CD2	7:O:898:ARG:HD3	2.55	0.42
7:O:926:PRO:HD3	7:O:993:ARG:NH1	2.34	0.42
6:J:120:DG:H2''	6:J:121:DA:C8	2.55	0.42
7:O:967:ASP:HB3	7:O:971:LEU:HD12	2.02	0.42
7:O:1132:ARG:HG2	7:O:1133:LEU:N	2.34	0.42
4:H:85:THR:HG22	5:I:40:DG:OP1	2.20	0.42
6:J:50:DT:H2''	7:O:1048:PHE:HE1	1.84	0.42
7:O:748:ALA:O	7:O:784:ASN:ND2	2.53	0.42
7:O:933:GLU:HG3	7:O:935:TRP:CZ2	2.55	0.42
3:C:102:ILE:HG12	3:C:103:ALA:H	1.84	0.42
4:D:102:GLU:OE2	4:D:106:HIS:NE2	2.53	0.42
5:I:104:DT:H2''	5:I:105:DT:C6	2.55	0.42
2:F:80:THR:HB	6:J:102:DA:H5''	2.01	0.41
5:I:60:DA:H2''	5:I:61:DA:C8	2.55	0.41
6:J:35:DT:H2''	6:J:36:DA:C8	2.55	0.41
7:O:1064:VAL:O	7:O:1065:PHE:CG	2.73	0.41
1:A:69:ARG:C	2:B:25:ASN:HD21	2.28	0.41
5:I:88:DT:H1'	5:I:89:DT:H5'	2.02	0.41
7:O:1224:ARG:HA	7:O:1228:LYS:HD3	2.01	0.41
2:B:19:ARG:HH21	7:O:1114:GLN:HG3	1.85	0.41
3:C:50:TYR:CE1	4:D:111:GLY:HA3	2.55	0.41
4:D:45:VAL:HG12	4:D:46:HIS:CD2	2.56	0.41
6:J:54:DC:H2'	6:J:55:DG:C8	2.55	0.41
7:O:803:ILE:HD12	7:O:806:LEU:HD12	2.02	0.41
5:I:7:DA:H2''	5:I:8:DA:H8	1.84	0.41
1:E:64:LYS:HG2	1:E:90:MET:HE1	2.02	0.41
3:G:62:ILE:HG23	4:H:59:MET:HE2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:H:102:GLU:OE2	4:H:106:HIS:NE2	2.53	0.41
5:I:80:DC:H2''	5:I:81:DC:C5	2.56	0.41
6:J:115:DC:H2''	6:J:116:DA:H8	1.84	0.41
2:F:75:HIS:CE1	4:H:89:ARG:HG2	2.56	0.41
5:I:70:DC:H2''	5:I:71:DG:C8	2.55	0.41
6:J:29:DG:H2''	6:J:30:DG:C8	2.56	0.41
7:O:820:LEU:HD22	7:O:888:TRP:CE2	2.55	0.41
7:O:979:VAL:HG22	7:O:982:ARG:NH2	2.36	0.41
1:A:59:GLU:O	2:B:40:ARG:NH2	2.48	0.41
4:D:99:LEU:O	4:D:99:LEU:HD12	2.21	0.41
3:G:42:ARG:HB2	4:H:85:THR:HA	2.02	0.41
4:H:45:VAL:HG12	4:H:46:HIS:CD2	2.56	0.41
1:A:100:LEU:HD23	2:B:37:LEU:HD21	2.03	0.41
4:H:99:LEU:HD12	4:H:99:LEU:O	2.20	0.41
5:I:110:DC:H2''	5:I:111:DC:C5	2.55	0.41
6:J:18:DG:H2''	6:J:19:DA:C8	2.56	0.41
7:O:1293:GLU:HA	7:O:1296:VAL:HG22	2.03	0.41
1:A:112:ILE:HD11	3:G:114:VAL:HG22	2.02	0.41
3:C:81:ARG:NH2	3:C:109:PRO:HD3	2.36	0.41
3:G:81:ARG:NH2	3:G:109:PRO:HD3	2.36	0.41
5:I:53:DC:C2'	5:I:54:DC:H5'	2.50	0.41
7:O:789:ILE:HB	7:O:991:LEU:HA	2.02	0.41
7:O:943:PRO:HA	7:O:946:PHE:CE2	2.56	0.41
7:O:1133:LEU:HD22	7:O:1161:LEU:HD23	2.03	0.41
1:A:92:LEU:HD13	2:B:65:VAL:HG11	2.02	0.40
4:D:39:TYR:OH	6:J:21:DA:OP2	2.31	0.40
1:E:72:ARG:NH2	5:I:51:DC:OP2	2.53	0.40
5:I:101:DG:H2''	5:I:102:DG:C8	2.56	0.40
6:J:47:DC:H2''	6:J:48:DC:C6	2.55	0.40
7:O:1190:ASP:O	7:O:1194:GLN:HB2	2.21	0.40
5:I:130:DC:H2''	5:I:131:DA:N7	2.36	0.40
6:J:30:DG:H2''	6:J:31:DA:H8	1.86	0.40
6:J:73:DA:H2''	6:J:74:DG:H8	1.87	0.40
7:O:930:ASN:CG	7:O:931:LEU:H	2.30	0.40
1:A:64:LYS:HG2	1:A:90:MET:HE1	2.02	0.40
3:G:81:ARG:NH2	3:G:108:LEU:HA	2.36	0.40
5:I:96:DC:OP2	7:O:901:ASN:HB2	2.21	0.40
2:F:45:ARG:NH2	6:J:81:DC:OP1	2.53	0.40
5:I:3:DC:H2''	5:I:4:DG:C8	2.56	0.40
5:I:118:DC:H2''	5:I:119:DC:C5	2.56	0.40
5:I:119:DC:H2''	5:I:120:DA:N7	2.36	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:O:1306:LYS:HG3	7:O:1307:LYS:H	1.87	0.40
5:I:65:DA:H2''	5:I:66:DC:O5'	2.22	0.40
7:O:1141:GLU:HG2	7:O:1145:LEU:HB2	2.03	0.40
7:O:1194:GLN:HE22	7:O:1208:ILE:HD11	1.85	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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	96/135 (71%)	86 (90%)	10 (10%)	0	100	100
1	E	93/135 (69%)	84 (90%)	9 (10%)	0	100	100
2	B	85/102 (83%)	79 (93%)	6 (7%)	0	100	100
2	F	84/102 (82%)	77 (92%)	7 (8%)	0	100	100
3	C	105/129 (81%)	96 (91%)	9 (9%)	0	100	100
3	G	105/129 (81%)	96 (91%)	9 (9%)	0	100	100
4	D	91/122 (75%)	84 (92%)	7 (8%)	0	100	100
4	H	91/122 (75%)	84 (92%)	7 (8%)	0	100	100
7	O	567/735 (77%)	499 (88%)	67 (12%)	1 (0%)	44	78
All	All	1317/1711 (77%)	1185 (90%)	131 (10%)	1 (0%)	50	83

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
7	O	959	PRO

5.3.2 Protein sidechains ⓘ

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	84/110 (76%)	83 (99%)	1 (1%)	67	79
1	E	82/110 (74%)	81 (99%)	1 (1%)	67	79
2	B	72/78 (92%)	72 (100%)	0	100	100
2	F	67/78 (86%)	67 (100%)	0	100	100
3	C	81/101 (80%)	81 (100%)	0	100	100
3	G	82/101 (81%)	82 (100%)	0	100	100
4	D	77/102 (76%)	77 (100%)	0	100	100
4	H	79/102 (78%)	79 (100%)	0	100	100
7	O	525/667 (79%)	523 (100%)	2 (0%)	89	91
All	All	1149/1449 (79%)	1145 (100%)	4 (0%)	90	92

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	61	LEU
1	E	61	LEU
7	O	927	LEU
7	O	931	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (22) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	76	GLN
1	A	93	GLN
4	D	92	GLN
1	E	93	GLN
2	F	64	ASN
4	H	92	GLN
7	O	685	GLN
7	O	687	ASN
7	O	758	GLN

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Mol	Chain	Res	Type
7	O	784	ASN
7	O	897	HIS
7	O	911	ASN
7	O	928	GLN
7	O	930	ASN
7	O	984	HIS
7	O	1024	GLN
7	O	1060	ASN
7	O	1104	HIS
7	O	1111	GLN
7	O	1150	ASN
7	O	1194	GLN
7	O	1198	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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](#)

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.

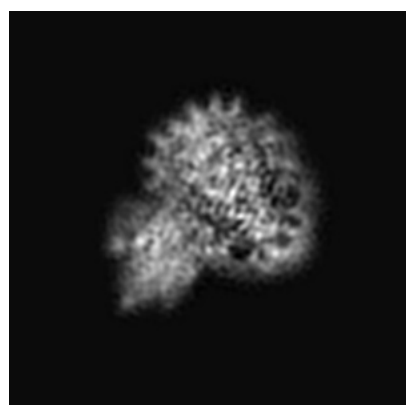
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-6879. These allow visual inspection of the internal detail of the map and identification of artifacts.

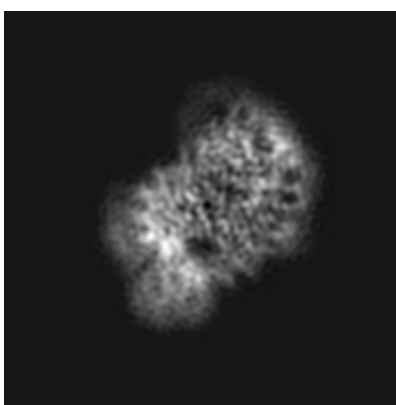
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

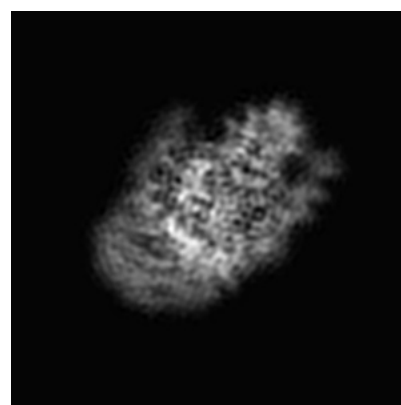
6.1.1 Primary map



X



Y

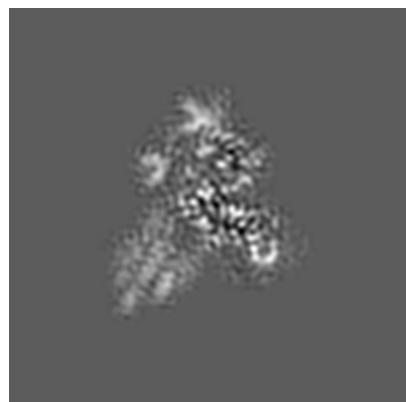


Z

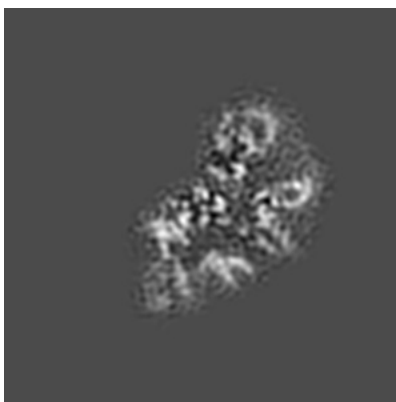
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

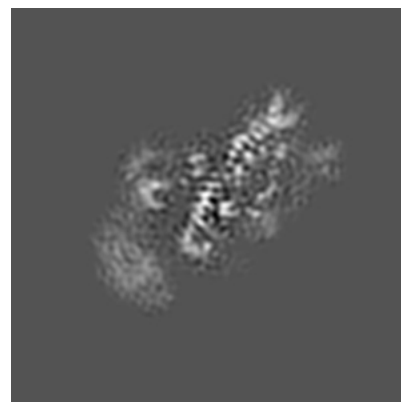
6.2.1 Primary map



X Index: 80



Y Index: 80

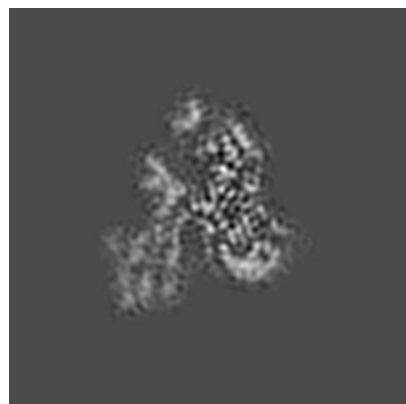


Z Index: 80

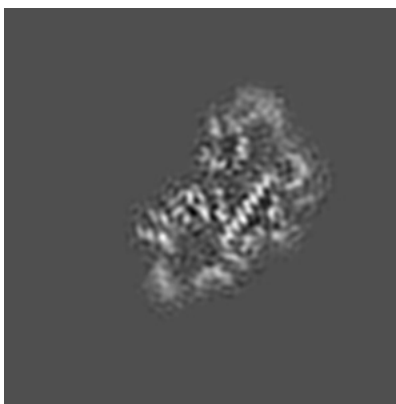
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

6.3.1 Primary map



X Index: 75



Y Index: 85



Z Index: 63

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 0.05. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

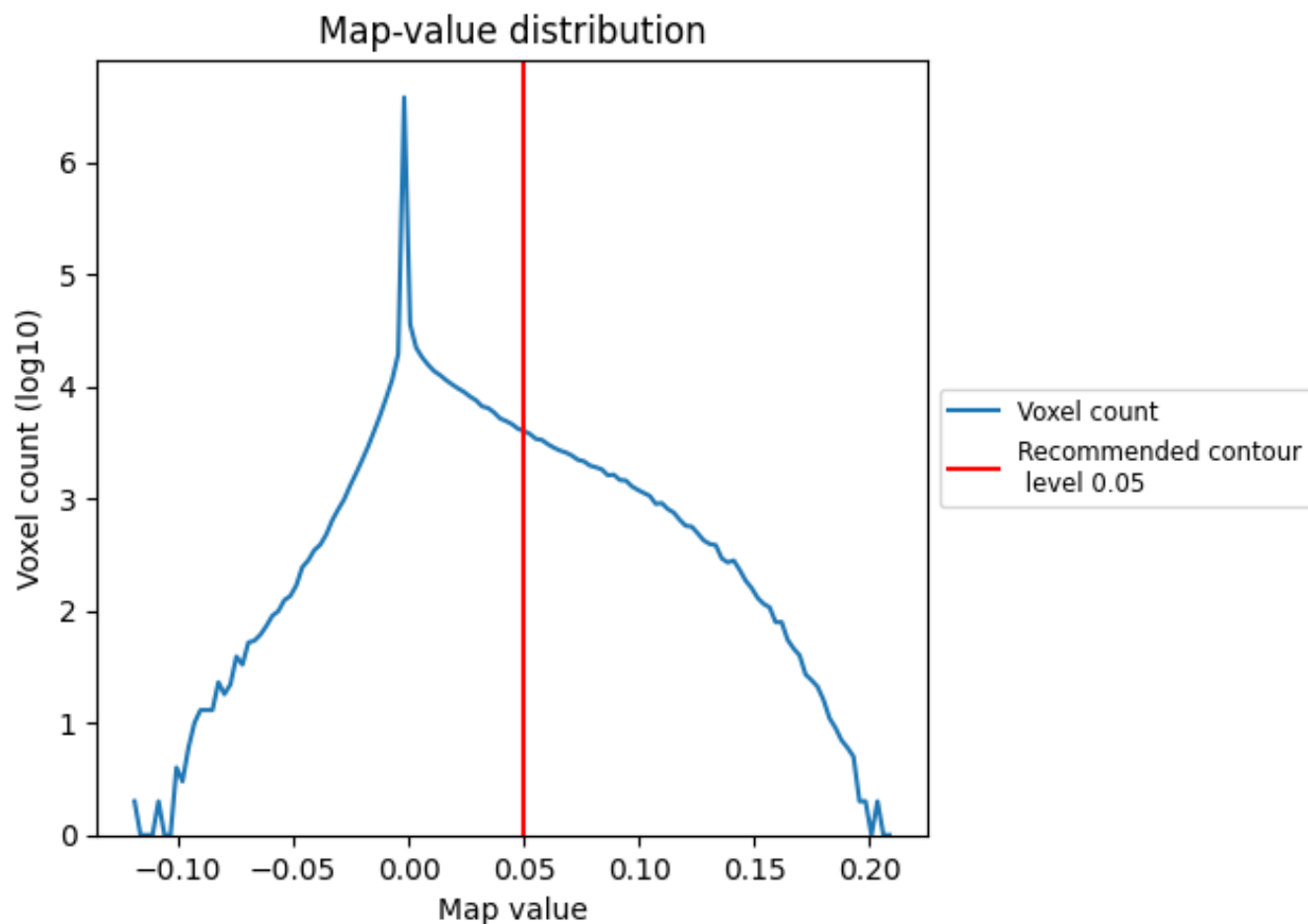
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

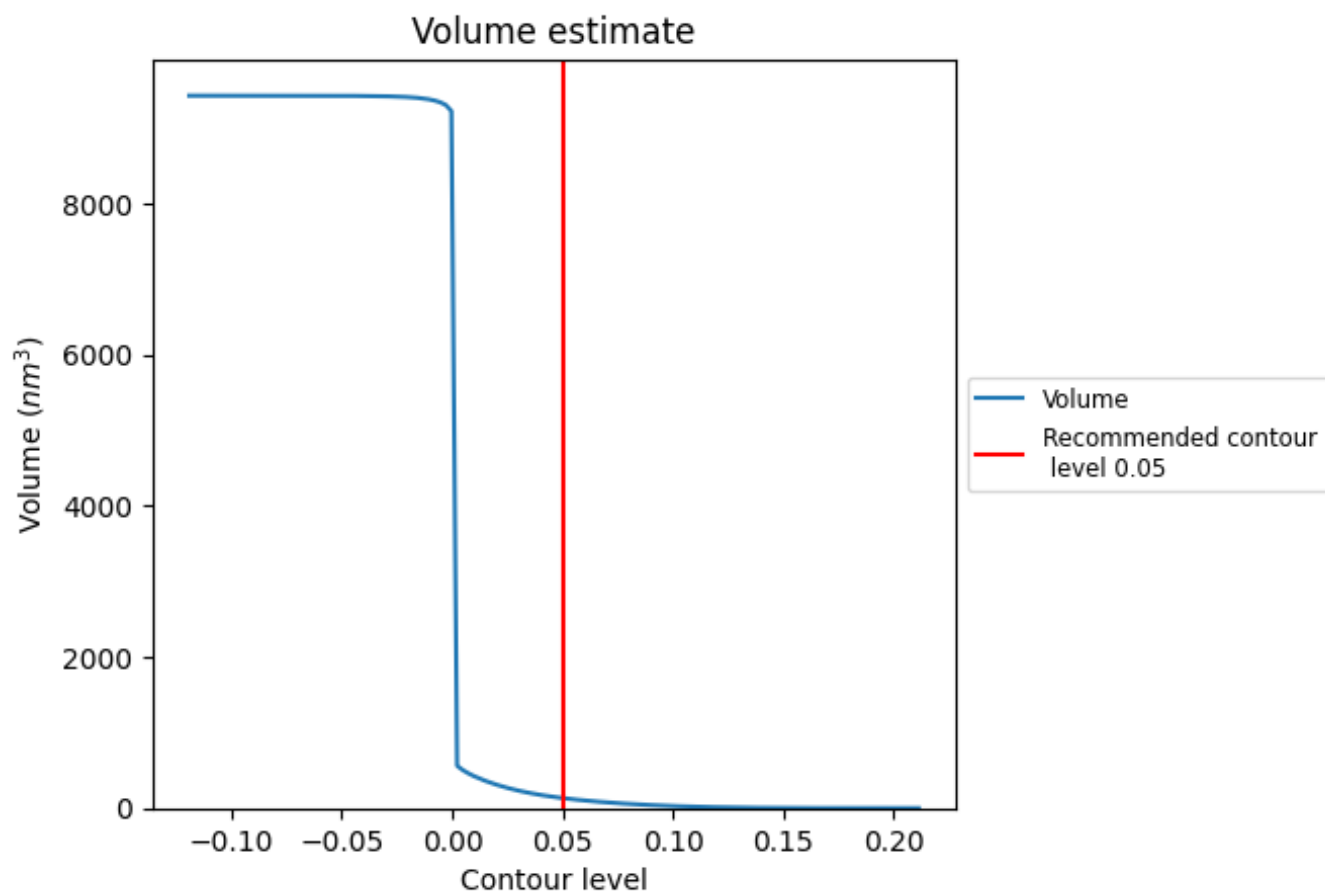
This section contains the results of statistical analysis of the map.

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.

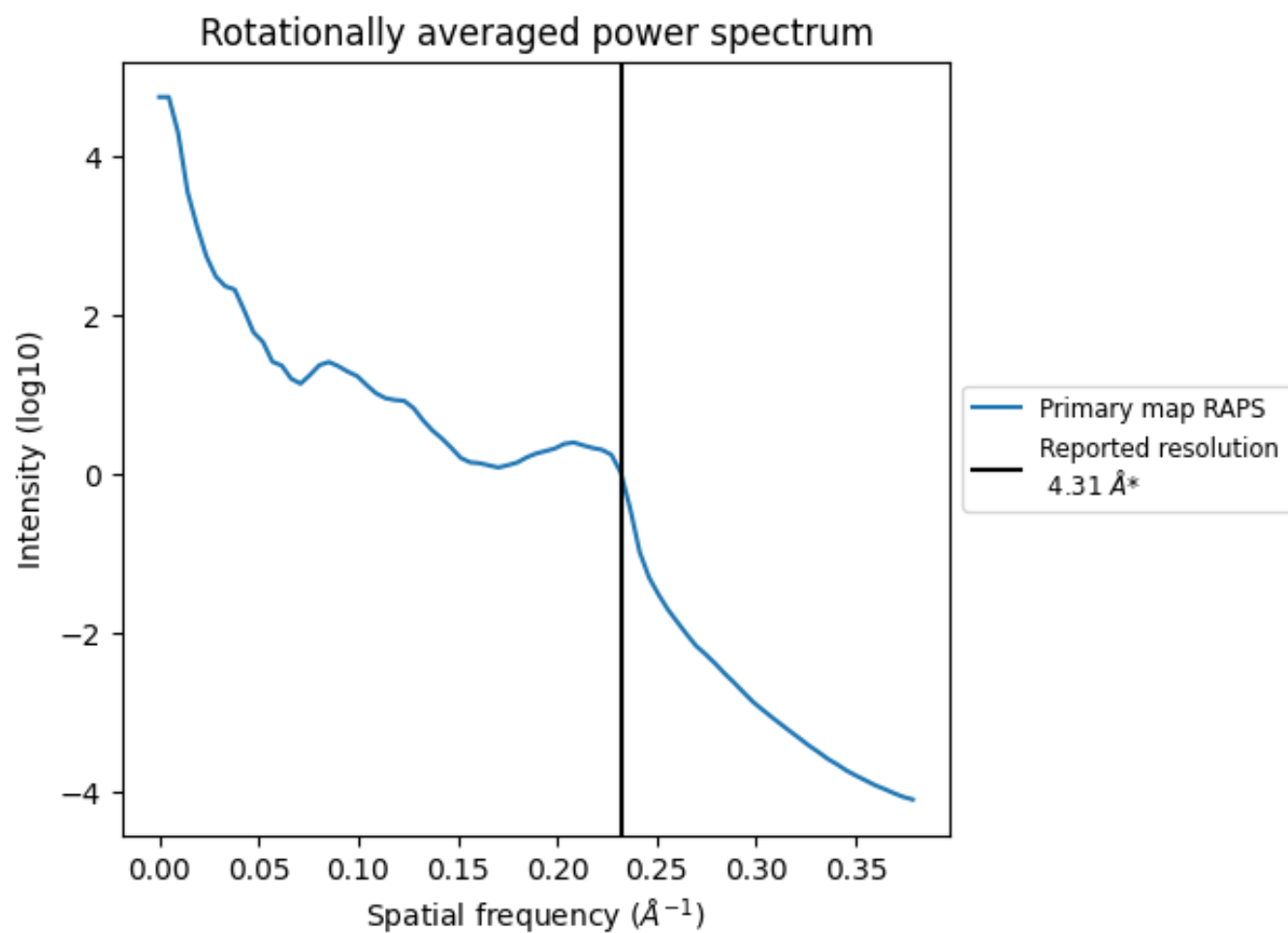
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 133 nm³; this corresponds to an approximate mass of 120 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 ⓘ



*Reported resolution corresponds to spatial frequency of 0.232 Å⁻¹

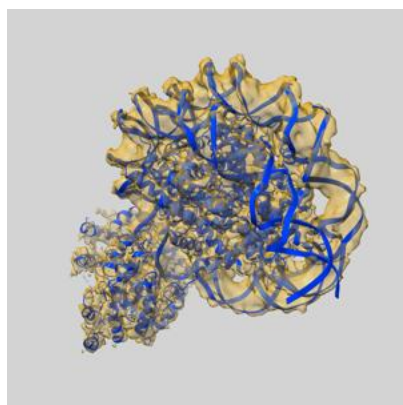
8 Fourier-Shell correlation ⓘ

This section was not generated. No FSC curve or half-maps provided.

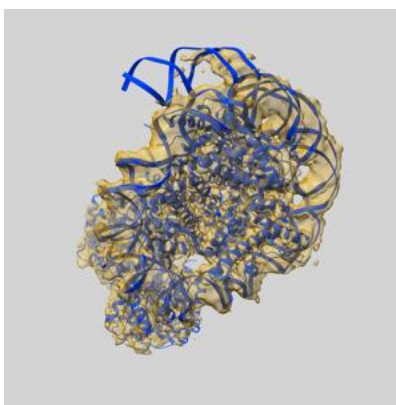
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-6879 and PDB model 5Z3L. Per-residue inclusion information can be found in section [3](#) on page [6](#).

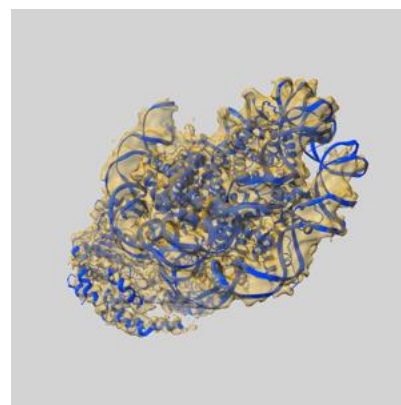
9.1 Map-model overlay [i](#)



X



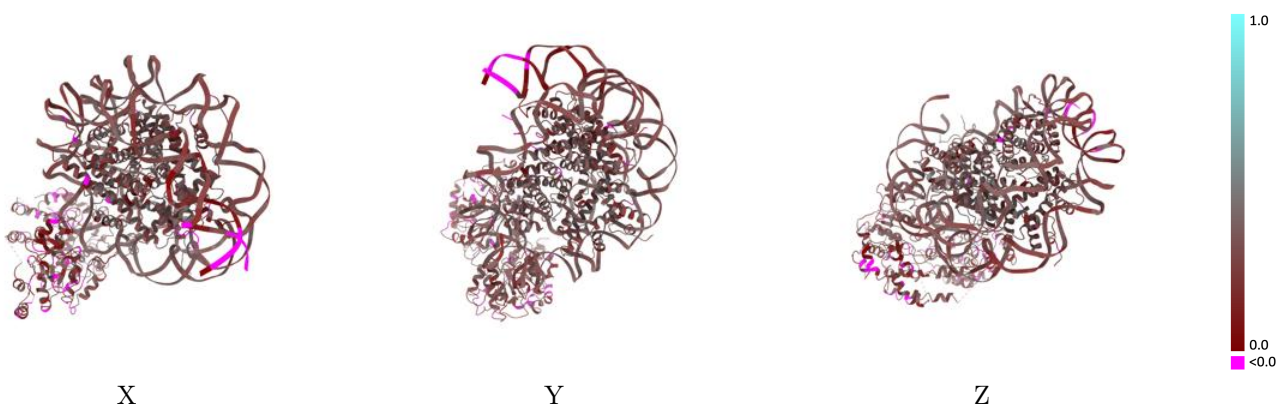
Y



Z

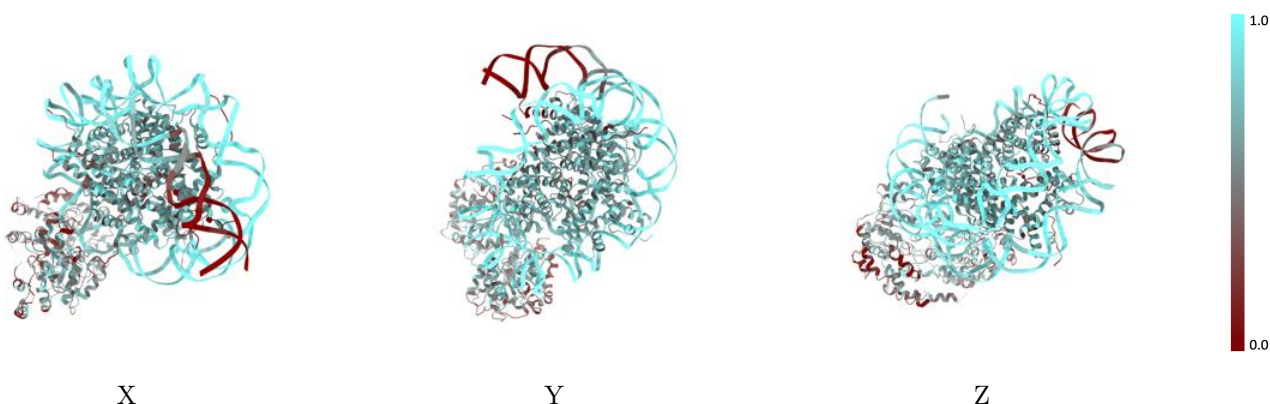
The images above show the 3D surface view of the map at the recommended contour level 0.05 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



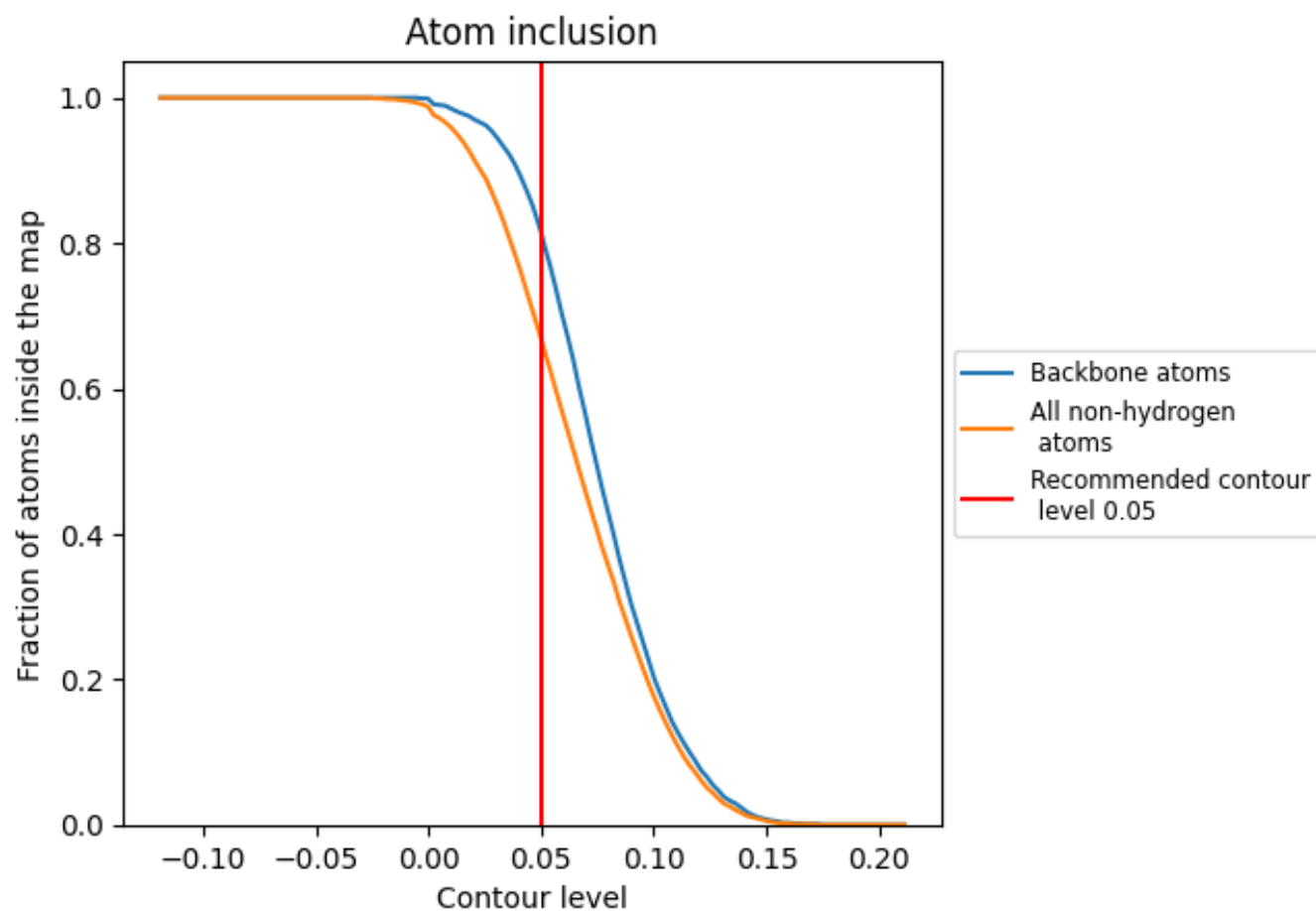
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.05).

9.4 Atom inclusion ⓘ



At the recommended contour level, 82% of all backbone atoms, 67% 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 (0.05) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6680	0.2610
A	0.6810	0.3210
B	0.6520	0.3310
C	0.5760	0.2520
D	0.6690	0.2960
E	0.5870	0.2560
F	0.6390	0.3110
G	0.6940	0.3220
H	0.7210	0.3300
I	0.8240	0.2860
J	0.8240	0.2850
O	0.4870	0.1800

1.0

0.0

<0.0