



wwPDB EM Validation Summary Report ⓘ

Jun 25, 2025 – 04:10 PM JST

PDB ID : 7WOB / pdb_00007wob
EMDB ID : EMD-32647
Title : SARS-CoV-2 Spike in complex with IgG 553-60 (2-up trimer)
Authors : Zhan, W.Q.; Zhang, X.; Chen, Z.G.; Sun, L.
Deposited on : 2022-01-21
Resolution : 3.25 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

EMDB validation analysis : 0.0.1.dev118
Mogul : 1.8.5 (274361), CSD as541be (2020)
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

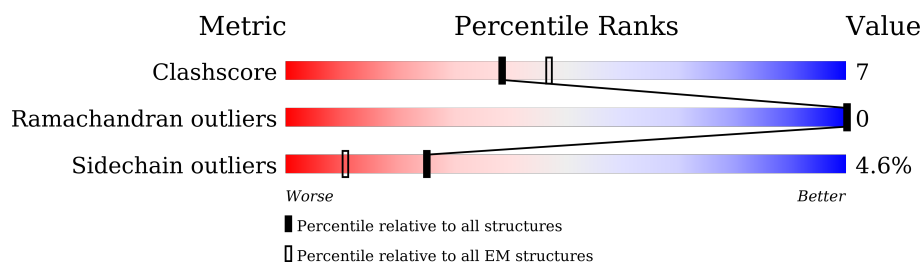
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.25 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	1288	 68% 14% • 16%
1	C	1288	 70% 13% • 16%
1	E	1288	 68% 15% • 16%
2	D	226	 64% 25% • 10%
2	F	226	 7% 71% 18% • 10%
2	H	226	 13% 64% 24% • 10%
3	B	215	 74% 21% • •
3	G	215	 7% 74% 23% • •

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Mol	Chain	Length	Quality of chain
3	I	215	18% 62% 31% 6%

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 35134 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 Spike glycoprotein.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1076	Total	C	N	O	S	0	0
			8338	5318	1396	1586	38		
1	C	1076	Total	C	N	O	S	0	0
			8338	5318	1396	1586	38		
1	E	1076	Total	C	N	O	S	0	0
			8338	5318	1396	1586	38		

There are 258 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	614	GLY	ASP	variant	UNP P0DTC2
A	682	GLY	ARG	conflict	UNP P0DTC2
A	683	SER	ARG	conflict	UNP P0DTC2
A	685	SER	ARG	conflict	UNP P0DTC2
A	986	PRO	LYS	conflict	UNP P0DTC2
A	987	PRO	VAL	conflict	UNP P0DTC2
A	1209	GLY	-	expression tag	UNP P0DTC2
A	1210	SER	-	expression tag	UNP P0DTC2
A	1211	GLY	-	expression tag	UNP P0DTC2
A	1212	TYR	-	expression tag	UNP P0DTC2
A	1213	ILE	-	expression tag	UNP P0DTC2
A	1214	PRO	-	expression tag	UNP P0DTC2
A	1215	GLU	-	expression tag	UNP P0DTC2
A	1216	ALA	-	expression tag	UNP P0DTC2
A	1217	PRO	-	expression tag	UNP P0DTC2
A	1218	ARG	-	expression tag	UNP P0DTC2
A	1219	ASP	-	expression tag	UNP P0DTC2
A	1220	GLY	-	expression tag	UNP P0DTC2
A	1221	GLN	-	expression tag	UNP P0DTC2
A	1222	ALA	-	expression tag	UNP P0DTC2
A	1223	TYR	-	expression tag	UNP P0DTC2
A	1224	VAL	-	expression tag	UNP P0DTC2
A	1225	ARG	-	expression tag	UNP P0DTC2
A	1226	LYS	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
A	1227	ASP	-	expression tag	UNP P0DTC2
A	1228	GLY	-	expression tag	UNP P0DTC2
A	1229	GLU	-	expression tag	UNP P0DTC2
A	1230	TRP	-	expression tag	UNP P0DTC2
A	1231	VAL	-	expression tag	UNP P0DTC2
A	1232	PHE	-	expression tag	UNP P0DTC2
A	1233	LEU	-	expression tag	UNP P0DTC2
A	1234	SER	-	expression tag	UNP P0DTC2
A	1235	THR	-	expression tag	UNP P0DTC2
A	1236	PHE	-	expression tag	UNP P0DTC2
A	1237	LEU	-	expression tag	UNP P0DTC2
A	1238	SER	-	expression tag	UNP P0DTC2
A	1239	GLY	-	expression tag	UNP P0DTC2
A	1240	LEU	-	expression tag	UNP P0DTC2
A	1241	GLU	-	expression tag	UNP P0DTC2
A	1242	VAL	-	expression tag	UNP P0DTC2
A	1243	LEU	-	expression tag	UNP P0DTC2
A	1244	PHE	-	expression tag	UNP P0DTC2
A	1245	GLN	-	expression tag	UNP P0DTC2
A	1246	GLY	-	expression tag	UNP P0DTC2
A	1247	PRO	-	expression tag	UNP P0DTC2
A	1248	GLY	-	expression tag	UNP P0DTC2
A	1249	GLY	-	expression tag	UNP P0DTC2
A	1250	TRP	-	expression tag	UNP P0DTC2
A	1251	SER	-	expression tag	UNP P0DTC2
A	1252	HIS	-	expression tag	UNP P0DTC2
A	1253	PRO	-	expression tag	UNP P0DTC2
A	1254	GLN	-	expression tag	UNP P0DTC2
A	1255	PHE	-	expression tag	UNP P0DTC2
A	1256	GLU	-	expression tag	UNP P0DTC2
A	1257	LYS	-	expression tag	UNP P0DTC2
A	1258	GLY	-	expression tag	UNP P0DTC2
A	1259	GLY	-	expression tag	UNP P0DTC2
A	1260	GLY	-	expression tag	UNP P0DTC2
A	1261	SER	-	expression tag	UNP P0DTC2
A	1262	GLY	-	expression tag	UNP P0DTC2
A	1263	GLY	-	expression tag	UNP P0DTC2
A	1264	GLY	-	expression tag	UNP P0DTC2
A	1265	SER	-	expression tag	UNP P0DTC2
A	1266	GLY	-	expression tag	UNP P0DTC2
A	1267	GLY	-	expression tag	UNP P0DTC2
A	1268	SER	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
A	1269	ALA	-	expression tag	UNP P0DTC2
A	1270	TRP	-	expression tag	UNP P0DTC2
A	1271	SER	-	expression tag	UNP P0DTC2
A	1272	HIS	-	expression tag	UNP P0DTC2
A	1273	PRO	-	expression tag	UNP P0DTC2
A	1274	GLN	-	expression tag	UNP P0DTC2
A	1275	PHE	-	expression tag	UNP P0DTC2
A	1276	GLU	-	expression tag	UNP P0DTC2
A	1277	LYS	-	expression tag	UNP P0DTC2
A	1278	GLY	-	expression tag	UNP P0DTC2
A	1279	GLY	-	expression tag	UNP P0DTC2
A	1280	SER	-	expression tag	UNP P0DTC2
A	1281	HIS	-	expression tag	UNP P0DTC2
A	1282	HIS	-	expression tag	UNP P0DTC2
A	1283	HIS	-	expression tag	UNP P0DTC2
A	1284	HIS	-	expression tag	UNP P0DTC2
A	1285	HIS	-	expression tag	UNP P0DTC2
A	1286	HIS	-	expression tag	UNP P0DTC2
A	1287	HIS	-	expression tag	UNP P0DTC2
A	1288	HIS	-	expression tag	UNP P0DTC2
C	614	GLY	ASP	variant	UNP P0DTC2
C	682	GLY	ARG	conflict	UNP P0DTC2
C	683	SER	ARG	conflict	UNP P0DTC2
C	685	SER	ARG	conflict	UNP P0DTC2
C	986	PRO	LYS	conflict	UNP P0DTC2
C	987	PRO	VAL	conflict	UNP P0DTC2
C	1209	GLY	-	expression tag	UNP P0DTC2
C	1210	SER	-	expression tag	UNP P0DTC2
C	1211	GLY	-	expression tag	UNP P0DTC2
C	1212	TYR	-	expression tag	UNP P0DTC2
C	1213	ILE	-	expression tag	UNP P0DTC2
C	1214	PRO	-	expression tag	UNP P0DTC2
C	1215	GLU	-	expression tag	UNP P0DTC2
C	1216	ALA	-	expression tag	UNP P0DTC2
C	1217	PRO	-	expression tag	UNP P0DTC2
C	1218	ARG	-	expression tag	UNP P0DTC2
C	1219	ASP	-	expression tag	UNP P0DTC2
C	1220	GLY	-	expression tag	UNP P0DTC2
C	1221	GLN	-	expression tag	UNP P0DTC2
C	1222	ALA	-	expression tag	UNP P0DTC2
C	1223	TYR	-	expression tag	UNP P0DTC2
C	1224	VAL	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
C	1225	ARG	-	expression tag	UNP P0DTC2
C	1226	LYS	-	expression tag	UNP P0DTC2
C	1227	ASP	-	expression tag	UNP P0DTC2
C	1228	GLY	-	expression tag	UNP P0DTC2
C	1229	GLU	-	expression tag	UNP P0DTC2
C	1230	TRP	-	expression tag	UNP P0DTC2
C	1231	VAL	-	expression tag	UNP P0DTC2
C	1232	PHE	-	expression tag	UNP P0DTC2
C	1233	LEU	-	expression tag	UNP P0DTC2
C	1234	SER	-	expression tag	UNP P0DTC2
C	1235	THR	-	expression tag	UNP P0DTC2
C	1236	PHE	-	expression tag	UNP P0DTC2
C	1237	LEU	-	expression tag	UNP P0DTC2
C	1238	SER	-	expression tag	UNP P0DTC2
C	1239	GLY	-	expression tag	UNP P0DTC2
C	1240	LEU	-	expression tag	UNP P0DTC2
C	1241	GLU	-	expression tag	UNP P0DTC2
C	1242	VAL	-	expression tag	UNP P0DTC2
C	1243	LEU	-	expression tag	UNP P0DTC2
C	1244	PHE	-	expression tag	UNP P0DTC2
C	1245	GLN	-	expression tag	UNP P0DTC2
C	1246	GLY	-	expression tag	UNP P0DTC2
C	1247	PRO	-	expression tag	UNP P0DTC2
C	1248	GLY	-	expression tag	UNP P0DTC2
C	1249	GLY	-	expression tag	UNP P0DTC2
C	1250	TRP	-	expression tag	UNP P0DTC2
C	1251	SER	-	expression tag	UNP P0DTC2
C	1252	HIS	-	expression tag	UNP P0DTC2
C	1253	PRO	-	expression tag	UNP P0DTC2
C	1254	GLN	-	expression tag	UNP P0DTC2
C	1255	PHE	-	expression tag	UNP P0DTC2
C	1256	GLU	-	expression tag	UNP P0DTC2
C	1257	LYS	-	expression tag	UNP P0DTC2
C	1258	GLY	-	expression tag	UNP P0DTC2
C	1259	GLY	-	expression tag	UNP P0DTC2
C	1260	GLY	-	expression tag	UNP P0DTC2
C	1261	SER	-	expression tag	UNP P0DTC2
C	1262	GLY	-	expression tag	UNP P0DTC2
C	1263	GLY	-	expression tag	UNP P0DTC2
C	1264	GLY	-	expression tag	UNP P0DTC2
C	1265	SER	-	expression tag	UNP P0DTC2
C	1266	GLY	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
C	1267	GLY	-	expression tag	UNP P0DTC2
C	1268	SER	-	expression tag	UNP P0DTC2
C	1269	ALA	-	expression tag	UNP P0DTC2
C	1270	TRP	-	expression tag	UNP P0DTC2
C	1271	SER	-	expression tag	UNP P0DTC2
C	1272	HIS	-	expression tag	UNP P0DTC2
C	1273	PRO	-	expression tag	UNP P0DTC2
C	1274	GLN	-	expression tag	UNP P0DTC2
C	1275	PHE	-	expression tag	UNP P0DTC2
C	1276	GLU	-	expression tag	UNP P0DTC2
C	1277	LYS	-	expression tag	UNP P0DTC2
C	1278	GLY	-	expression tag	UNP P0DTC2
C	1279	GLY	-	expression tag	UNP P0DTC2
C	1280	SER	-	expression tag	UNP P0DTC2
C	1281	HIS	-	expression tag	UNP P0DTC2
C	1282	HIS	-	expression tag	UNP P0DTC2
C	1283	HIS	-	expression tag	UNP P0DTC2
C	1284	HIS	-	expression tag	UNP P0DTC2
C	1285	HIS	-	expression tag	UNP P0DTC2
C	1286	HIS	-	expression tag	UNP P0DTC2
C	1287	HIS	-	expression tag	UNP P0DTC2
C	1288	HIS	-	expression tag	UNP P0DTC2
E	614	GLY	ASP	variant	UNP P0DTC2
E	682	GLY	ARG	conflict	UNP P0DTC2
E	683	SER	ARG	conflict	UNP P0DTC2
E	685	SER	ARG	conflict	UNP P0DTC2
E	986	PRO	LYS	conflict	UNP P0DTC2
E	987	PRO	VAL	conflict	UNP P0DTC2
E	1209	GLY	-	expression tag	UNP P0DTC2
E	1210	SER	-	expression tag	UNP P0DTC2
E	1211	GLY	-	expression tag	UNP P0DTC2
E	1212	TYR	-	expression tag	UNP P0DTC2
E	1213	ILE	-	expression tag	UNP P0DTC2
E	1214	PRO	-	expression tag	UNP P0DTC2
E	1215	GLU	-	expression tag	UNP P0DTC2
E	1216	ALA	-	expression tag	UNP P0DTC2
E	1217	PRO	-	expression tag	UNP P0DTC2
E	1218	ARG	-	expression tag	UNP P0DTC2
E	1219	ASP	-	expression tag	UNP P0DTC2
E	1220	GLY	-	expression tag	UNP P0DTC2
E	1221	GLN	-	expression tag	UNP P0DTC2
E	1222	ALA	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
E	1223	TYR	-	expression tag	UNP P0DTC2
E	1224	VAL	-	expression tag	UNP P0DTC2
E	1225	ARG	-	expression tag	UNP P0DTC2
E	1226	LYS	-	expression tag	UNP P0DTC2
E	1227	ASP	-	expression tag	UNP P0DTC2
E	1228	GLY	-	expression tag	UNP P0DTC2
E	1229	GLU	-	expression tag	UNP P0DTC2
E	1230	TRP	-	expression tag	UNP P0DTC2
E	1231	VAL	-	expression tag	UNP P0DTC2
E	1232	PHE	-	expression tag	UNP P0DTC2
E	1233	LEU	-	expression tag	UNP P0DTC2
E	1234	SER	-	expression tag	UNP P0DTC2
E	1235	THR	-	expression tag	UNP P0DTC2
E	1236	PHE	-	expression tag	UNP P0DTC2
E	1237	LEU	-	expression tag	UNP P0DTC2
E	1238	SER	-	expression tag	UNP P0DTC2
E	1239	GLY	-	expression tag	UNP P0DTC2
E	1240	LEU	-	expression tag	UNP P0DTC2
E	1241	GLU	-	expression tag	UNP P0DTC2
E	1242	VAL	-	expression tag	UNP P0DTC2
E	1243	LEU	-	expression tag	UNP P0DTC2
E	1244	PHE	-	expression tag	UNP P0DTC2
E	1245	GLN	-	expression tag	UNP P0DTC2
E	1246	GLY	-	expression tag	UNP P0DTC2
E	1247	PRO	-	expression tag	UNP P0DTC2
E	1248	GLY	-	expression tag	UNP P0DTC2
E	1249	GLY	-	expression tag	UNP P0DTC2
E	1250	TRP	-	expression tag	UNP P0DTC2
E	1251	SER	-	expression tag	UNP P0DTC2
E	1252	HIS	-	expression tag	UNP P0DTC2
E	1253	PRO	-	expression tag	UNP P0DTC2
E	1254	GLN	-	expression tag	UNP P0DTC2
E	1255	PHE	-	expression tag	UNP P0DTC2
E	1256	GLU	-	expression tag	UNP P0DTC2
E	1257	LYS	-	expression tag	UNP P0DTC2
E	1258	GLY	-	expression tag	UNP P0DTC2
E	1259	GLY	-	expression tag	UNP P0DTC2
E	1260	GLY	-	expression tag	UNP P0DTC2
E	1261	SER	-	expression tag	UNP P0DTC2
E	1262	GLY	-	expression tag	UNP P0DTC2
E	1263	GLY	-	expression tag	UNP P0DTC2
E	1264	GLY	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
E	1265	SER	-	expression tag	UNP P0DTC2
E	1266	GLY	-	expression tag	UNP P0DTC2
E	1267	GLY	-	expression tag	UNP P0DTC2
E	1268	SER	-	expression tag	UNP P0DTC2
E	1269	ALA	-	expression tag	UNP P0DTC2
E	1270	TRP	-	expression tag	UNP P0DTC2
E	1271	SER	-	expression tag	UNP P0DTC2
E	1272	HIS	-	expression tag	UNP P0DTC2
E	1273	PRO	-	expression tag	UNP P0DTC2
E	1274	GLN	-	expression tag	UNP P0DTC2
E	1275	PHE	-	expression tag	UNP P0DTC2
E	1276	GLU	-	expression tag	UNP P0DTC2
E	1277	LYS	-	expression tag	UNP P0DTC2
E	1278	GLY	-	expression tag	UNP P0DTC2
E	1279	GLY	-	expression tag	UNP P0DTC2
E	1280	SER	-	expression tag	UNP P0DTC2
E	1281	HIS	-	expression tag	UNP P0DTC2
E	1282	HIS	-	expression tag	UNP P0DTC2
E	1283	HIS	-	expression tag	UNP P0DTC2
E	1284	HIS	-	expression tag	UNP P0DTC2
E	1285	HIS	-	expression tag	UNP P0DTC2
E	1286	HIS	-	expression tag	UNP P0DTC2
E	1287	HIS	-	expression tag	UNP P0DTC2
E	1288	HIS	-	expression tag	UNP P0DTC2

- Molecule 2 is a protein called mAb60 VH.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	D	204	Total	C	N	O	S	0	0
			1560	997	262	295	6		
2	F	204	Total	C	N	O	S	0	0
			1560	997	262	295	6		
2	H	204	Total	C	N	O	S	0	0
			1560	997	262	295	6		

- Molecule 3 is a protein called mAb60 VL.

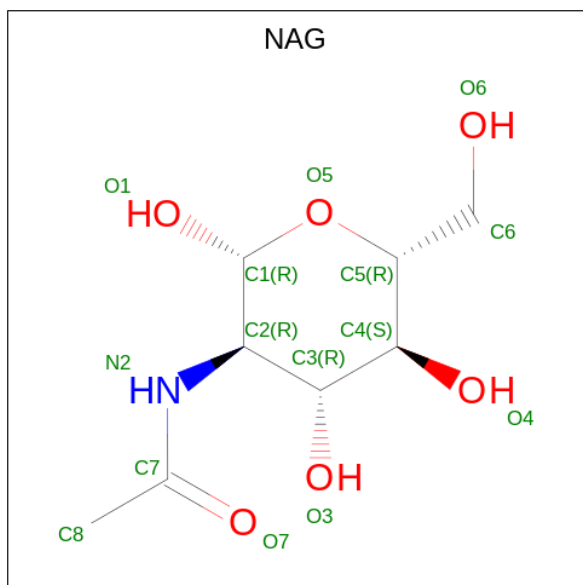
Mol	Chain	Residues	Atoms					AltConf	Trace
3	B	212	Total	C	N	O	S	0	0
			1636	1022	285	325	4		
3	G	212	Total	C	N	O	S	0	0
			1636	1022	285	325	4		

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Mol	Chain	Residues	Atoms					AltConf	Trace
3	I	212	Total	C	N	O	S	0	0
			1636	1022	285	325	4		

- Molecule 4 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$).



Mol	Chain	Residues	Atoms				AltConf
4	A	1	Total	C	N	O	0
			14	8	1	5	
4	A	1	Total	C	N	O	0
			14	8	1	5	
4	A	1	Total	C	N	O	0
			14	8	1	5	
4	A	1	Total	C	N	O	0
			14	8	1	5	
4	A	1	Total	C	N	O	0
			14	8	1	5	
4	A	1	Total	C	N	O	0
			14	8	1	5	
4	A	1	Total	C	N	O	0
			14	8	1	5	
4	A	1	Total	C	N	O	0
			14	8	1	5	

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Mol	Chain	Residues	Atoms				AltConf
4	A	1	Total 14	C 8	N 1	O 5	0
4	A	1	Total 14	C 8	N 1	O 5	0
4	A	1	Total 14	C 8	N 1	O 5	0
4	C	1	Total 14	C 8	N 1	O 5	0
4	C	1	Total 14	C 8	N 1	O 5	0
4	C	1	Total 14	C 8	N 1	O 5	0
4	C	1	Total 14	C 8	N 1	O 5	0
4	C	1	Total 14	C 8	N 1	O 5	0
4	C	1	Total 14	C 8	N 1	O 5	0
4	C	1	Total 14	C 8	N 1	O 5	0
4	C	1	Total 14	C 8	N 1	O 5	0
4	C	1	Total 14	C 8	N 1	O 5	0
4	C	1	Total 14	C 8	N 1	O 5	0
4	C	1	Total 14	C 8	N 1	O 5	0
4	C	1	Total 14	C 8	N 1	O 5	0
4	C	1	Total 14	C 8	N 1	O 5	0
4	E	1	Total 14	C 8	N 1	O 5	0
4	E	1	Total 14	C 8	N 1	O 5	0
4	E	1	Total 14	C 8	N 1	O 5	0
4	E	1	Total 14	C 8	N 1	O 5	0
4	E	1	Total 14	C 8	N 1	O 5	0

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Mol	Chain	Residues	Atoms				AltConf
4	E	1	Total	C	N	O	0
			14	8	1	5	
4	E	1	Total	C	N	O	0
			14	8	1	5	
4	E	1	Total	C	N	O	0
			14	8	1	5	
4	E	1	Total	C	N	O	0
			14	8	1	5	
4	E	1	Total	C	N	O	0
			14	8	1	5	
4	E	1	Total	C	N	O	0
			14	8	1	5	

Chain C:



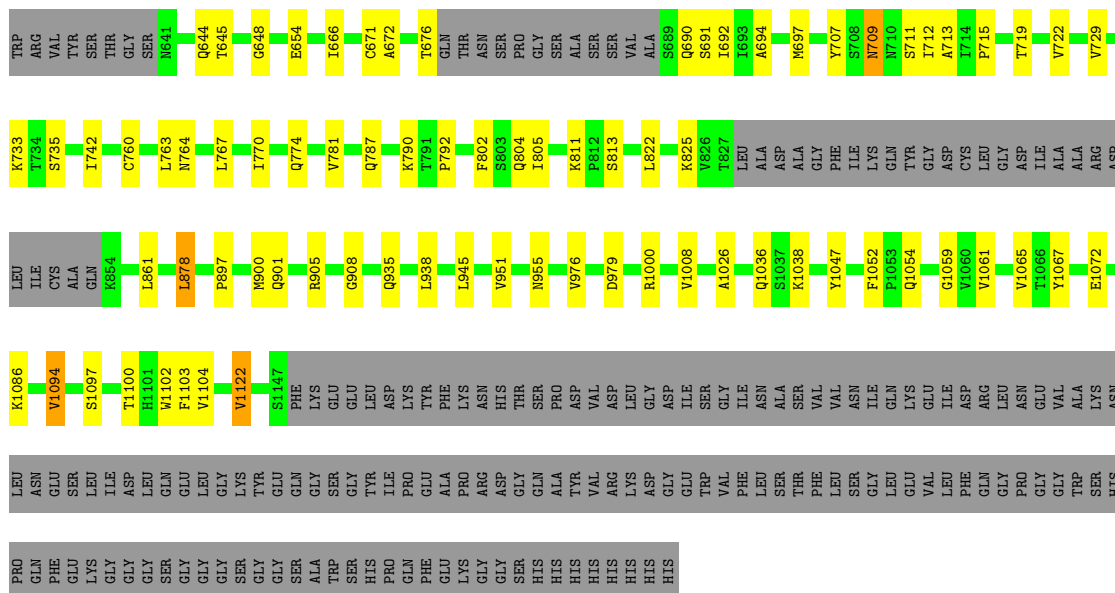
HIS	HIS	HIS	LYS	LEU	GLY	ASP	R1019	ASP	SER	T531	K356	V193	MET
HIS	HIS	HIS	GLY	ASP	ILE	K1028	PHE	SER	L533	R357	F201	VAL	VAL
VAL	PHE	VAL	TRP	SER	GLY	Q1036	LYS	SER	G545	F374	I210	VAL	VAL
PHE	LEU	LEU	SER	ASN	ILE	S1037	GLN	SER	S555	K378	I211	LEU	LEU
SER	THR	SER	SER	ALA	GLY	K1038	TYR	VAL	N556	C379	V213	PRO	PRO
THR	PHE	VAL	SER	SER	CYS	Y1047	ASP	SER	S689	Y380	G381	LEU	VAL
LEU	LEU	VAL	SER	VAL	GLY	F1052	CYS	SER	F562	G381	P217	SER	SER
SER	SER	GLY	ASN	ASN	GLY	P1053	LEU	SER	Y695	T696	L216	SER	SER
GLY	LEU	GLN	LEU	GLN	ILE	Q1054	ASP	SER	F565	N697	L223	SER	SER
VAL	GLU	VAL	GLY	LYS	GLY	V1061	ALA	SER	S698	T393	L240	SER	SER
LEU	LEU	ILE	GLU	GLU	ARG	Y1065	ARG	SER	Y707	Q580	R403	SER	SER
PHE	PHE	GLN	ASN	ASP	LEU	T1066	ASP	SER	I712	T581	E406	SER	SER
GLY	GLY	GLY	ASN	LEU	ILE	Y1067	ILE	SER	V722	I584	R408	SER	SER
PRO	PRO	ASN	ASN	GLY	CYS	K1073	CYS	SER	I726	D586	L425	SER	SER
GLY	GLY	VAL	GLY	GLU	GLN	K1086	GLN	SER	L727	V615	P426	SER	SER
TRP	ALA	SER	SER	LYS	ALA	R954	K854	SER	P728	N616	D427	SER	SER
SER	SER	HIS	HIS	ASN	ASN	R1091	F855	SER	S735	C617	D428	SER	SER
PRO	LEU	LEU	PRO	LEU	ASN	V1104	T859	SER	S735	V620	S247	SER	SER
GLN	GLN	ASN	GLN	ASN	ASN	T1120	A876	PRO	C738	VAL	G432	SER	SER
PHE	GLU	SER	GLU	SER	LEU	F1121	L877	VAL	T739	C432	F275	SER	SER
LYS	SER	LYS	LYS	SER	LEU	V1122	L878	ALA	M740	C432	F275	SER	SER
GLY	GLY	ILE	GLY	ILE	HIS	I742	HIS	SER	I742	W436	L277	SER	SER
GLY	ASP	GLY	GLY	ASP	ASN	C1126	M900	ALA	I742	N439	I285	SER	SER
LEU	LEU	LEU	GLN	LEU	GLN	V1129	Q901	ASP	L752	N440	I285	SER	SER
GLY	GLY	GLY	GLY	GLY	LEU	I1132	R905	LEU	C760	L441	A288	SER	SER
GLY	GLY	LYS	SER	SER	LYS	L1141	G908	PRO	L763	N448	C291	SER	SER
GLY	TYR	TYR	GLY	GLY	TYR	S1147	K921	TRP	I770	L452	D294	SER	SER
SER	SER	GLN	GLY	GLY	GLN	PHE	L945	VAL	E773	R457	C301	SER	SER
ALA	ALA	TRP	ALA	SER	SER	LYS	G946	TYR	Q774	K459	E132	SER	SER
TRP	SER	GLY	SER	GLY	SER	GLU	K947	SER	D775	R466	F133	SER	SER
SER	SER	GLY	SER	GLY	SER	LEU	V976	THR	K304	Y145	SER	SER	SER
HIS	HIS	PRO	HIS	TYR	TYR	ASP	LYS	SER	I788	GLY	L472	SER	SER
PRO	GLN	GLN	PRO	ILE	PRO	ASP	LYS	SER	I788	GLY	L492	SER	SER
GLN	PHE	GLU	GLY	GLU	GLU	TYR	TYR	TYR	Y789	K493	V308	SER	SER
PHE	GLU	ALA	PHE	ALA	ALA	PHE	D985	TYR	K790	S494	N149	SER	SER
LYS	PRO	LYS	PRO	LYS	PRO	LYS	D985	TYR	K790	S494	N149	SER	SER
GLY	GLY	ARG	GLY	ARG	ASN	ASN	E990	ASN	P792	Y495	F318	SER	SER
GLY	ASP	GLY	ASP	ASN	HIS	HIS	D820	HIS	D820	F497	R319	SER	SER
SER	SER	GLY	SER	GLY	SER	THR	THR	THR	L821	R329	N165	SER	SER
HIS	HIS	HIS	HIS	GLN	GLN	SER	SER	SER	L822	T523	C166	SER	SER
HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	V524	T167	SER	SER
HIS	HIS	HIS	HIS	TYR	TYR	ASP	ASP	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000	C525	S172	SER	SER
HIS	HIS	HIS	HIS	VAL	VAL	ASP	VAL	VAL	R1000				

• Molecule 1: Spike glycoprotein

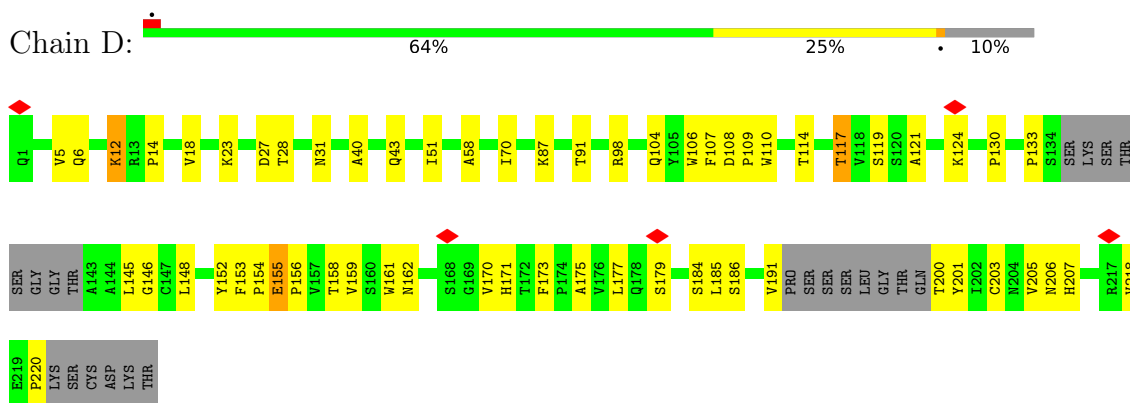
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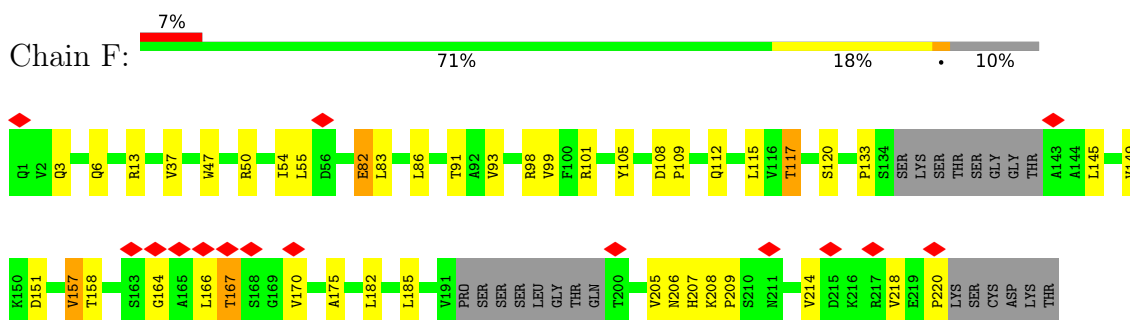
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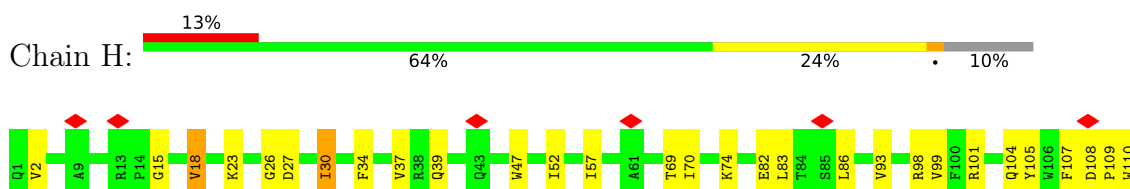
• Molecule 2: mAb60 VH

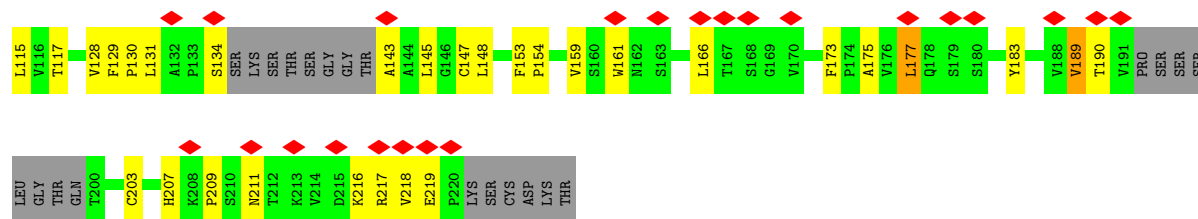


• Molecule 2: mAb60 VH

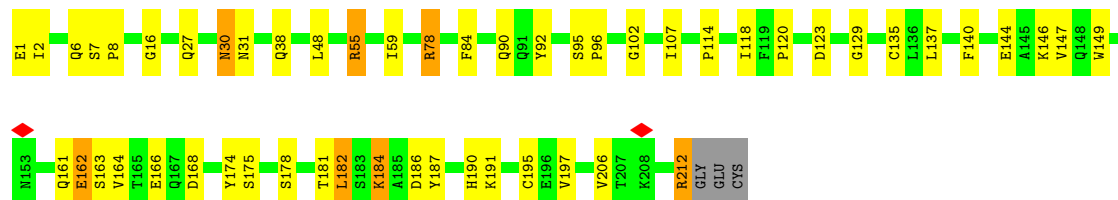
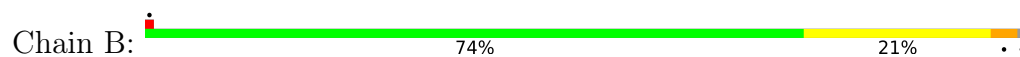


• Molecule 2: mAb60 VH

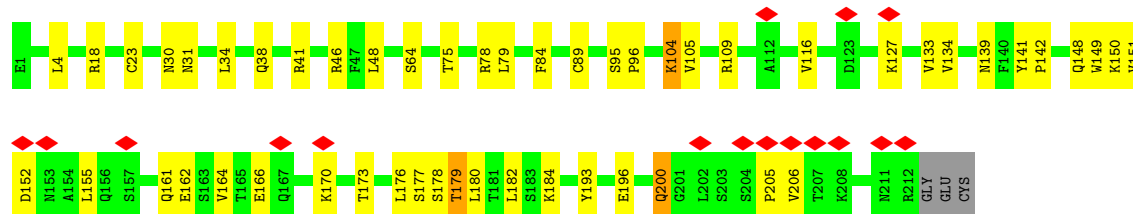
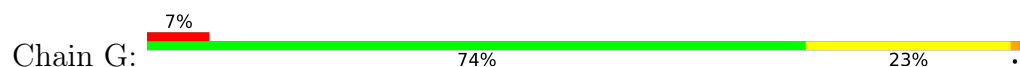




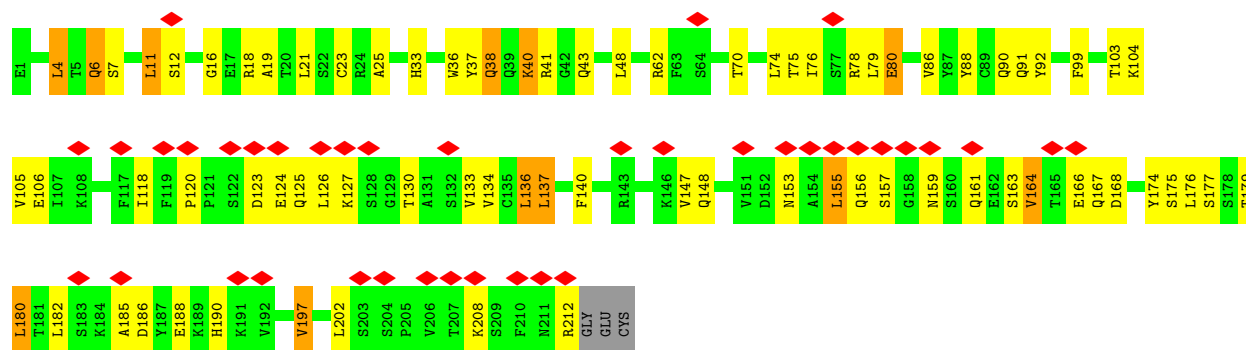
• Molecule 3: mAb60 VL



• Molecule 3: mAb60 VL



• Molecule 3: mAb60 VL



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	99762	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 ($e^-/\text{\AA}^2$)	61	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.074	Depositor
Minimum map value	0.000	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.006	Depositor
Map size ($\text{\AA}$)	314.88, 314.88, 314.88	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	0.82, 0.82, 0.82	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: NAG

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	0.08	0/8534	0.24	0/11626
1	C	0.09	0/8534	0.24	0/11626
1	E	0.08	0/8534	0.24	0/11626
2	D	0.11	0/1599	0.28	0/2178
2	F	0.12	0/1599	0.26	0/2178
2	H	0.10	0/1599	0.27	0/2178
3	B	0.09	0/1672	0.27	0/2269
3	G	0.10	0/1672	0.30	0/2269
3	I	0.11	0/1672	0.33	0/2269
All	All	0.09	0/35415	0.25	0/48219

There are no bond length outliers.

There are no bond angle outliers.

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	8338	0	8067	112	0
1	C	8338	0	8067	99	0
1	E	8338	0	8068	105	0
2	D	1560	0	1538	32	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	F	1560	0	1538	25	0
2	H	1560	0	1538	34	0
3	B	1636	0	1591	31	0
3	G	1636	0	1591	26	0
3	I	1636	0	1591	52	0
4	A	182	0	169	2	0
4	C	182	0	169	0	0
4	E	168	0	156	4	0
All	All	35134	0	34083	491	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 7.

The worst 5 of 491 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)
3:B:6:GLN:HG3	3:B:102:GLY:H	1.53	0.73
1:C:132:GLU:HB3	1:C:164:ASN:HB2	1.70	0.71
1:E:103:GLY:HA3	1:E:120:VAL:HA	1.74	0.70
3:B:55:ARG:H	3:B:55:ARG:HE	1.37	0.70
2:D:133:PRO:HA	3:B:120:PRO:HD2	1.74	0.70

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	1068/1288 (83%)	1030 (96%)	38 (4%)	0	100	100
1	C	1068/1288 (83%)	1028 (96%)	40 (4%)	0	100	100
1	E	1068/1288 (83%)	1030 (96%)	38 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	D	198/226 (88%)	186 (94%)	12 (6%)	0	100	100
2	F	198/226 (88%)	188 (95%)	10 (5%)	0	100	100
2	H	198/226 (88%)	186 (94%)	12 (6%)	0	100	100
3	B	210/215 (98%)	195 (93%)	15 (7%)	0	100	100
3	G	210/215 (98%)	182 (87%)	28 (13%)	0	100	100
3	I	210/215 (98%)	182 (87%)	28 (13%)	0	100	100
All	All	4428/5187 (85%)	4207 (95%)	221 (5%)	0	100	100

There are no Ramachandran outliers to report.

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	922/1111 (83%)	891 (97%)	31 (3%)	32	57
1	C	922/1111 (83%)	885 (96%)	37 (4%)	27	53
1	E	922/1111 (83%)	889 (96%)	33 (4%)	30	55
2	D	173/192 (90%)	165 (95%)	8 (5%)	23	50
2	F	173/192 (90%)	165 (95%)	8 (5%)	23	50
2	H	173/192 (90%)	158 (91%)	15 (9%)	8	28
3	B	182/185 (98%)	168 (92%)	14 (8%)	10	32
3	G	182/185 (98%)	172 (94%)	10 (6%)	18	44
3	I	182/185 (98%)	163 (90%)	19 (10%)	5	21
All	All	3831/4464 (86%)	3656 (95%)	175 (5%)	25	50

5 of 175 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	B	166	GLU
2	H	30	ILE

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Mol	Chain	Res	Type
3	B	190	HIS
2	F	218	VAL
2	H	159	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 120 such sidechains are listed below:

Mol	Chain	Res	Type
1	E	115	GLN
2	H	162	ASN
1	E	675	GLN
2	H	112	GLN
3	I	156	GLN

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](#)

38 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
4	NAG	C	1308	1	14,14,15	0.22	0	17,19,21	0.41	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	NAG	C	1313	1	14,14,15	0.23	0	17,19,21	0.43	0
4	NAG	A	1312	1	14,14,15	0.20	0	17,19,21	0.42	0
4	NAG	A	1305	1	14,14,15	0.23	0	17,19,21	0.41	0
4	NAG	E	1309	1	14,14,15	0.22	0	17,19,21	0.42	0
4	NAG	C	1301	1	14,14,15	0.21	0	17,19,21	0.42	0
4	NAG	A	1303	1	14,14,15	0.24	0	17,19,21	0.42	0
4	NAG	C	1302	1	14,14,15	0.29	0	17,19,21	0.53	0
4	NAG	E	1301	1	14,14,15	0.25	0	17,19,21	0.41	0
4	NAG	A	1304	1	14,14,15	0.25	0	17,19,21	0.44	0
4	NAG	C	1304	1	14,14,15	0.22	0	17,19,21	0.41	0
4	NAG	A	1313	1	14,14,15	0.22	0	17,19,21	0.42	0
4	NAG	E	1312	1	14,14,15	0.45	0	17,19,21	1.26	1 (5%)
4	NAG	E	1307	1	14,14,15	0.35	0	17,19,21	0.58	0
4	NAG	C	1310	1	14,14,15	0.23	0	17,19,21	0.42	0
4	NAG	C	1305	1	14,14,15	0.22	0	17,19,21	0.43	0
4	NAG	A	1309	1	14,14,15	0.22	0	17,19,21	0.42	0
4	NAG	E	1310	1	14,14,15	0.27	0	17,19,21	0.54	0
4	NAG	C	1311	1	14,14,15	0.21	0	17,19,21	0.41	0
4	NAG	C	1306	1	14,14,15	0.22	0	17,19,21	0.42	0
4	NAG	E	1304	1	14,14,15	0.21	0	17,19,21	0.42	0
4	NAG	A	1302	1	14,14,15	0.24	0	17,19,21	0.44	0
4	NAG	E	1308	1	14,14,15	0.22	0	17,19,21	0.43	0
4	NAG	A	1307	1	14,14,15	0.22	0	17,19,21	0.41	0
4	NAG	C	1307	1	14,14,15	0.24	0	17,19,21	0.44	0
4	NAG	C	1309	1	14,14,15	0.22	0	17,19,21	0.43	0
4	NAG	A	1301	1	14,14,15	0.35	0	17,19,21	0.40	0
4	NAG	E	1303	1	14,14,15	0.23	0	17,19,21	0.43	0
4	NAG	E	1305	1	14,14,15	0.21	0	17,19,21	0.43	0
4	NAG	C	1312	1	14,14,15	0.22	0	17,19,21	0.43	0
4	NAG	A	1310	1	14,14,15	0.26	0	17,19,21	0.53	0
4	NAG	E	1306	1	14,14,15	0.27	0	17,19,21	0.53	0
4	NAG	E	1311	1	14,14,15	0.24	0	17,19,21	0.55	0
4	NAG	A	1308	1	14,14,15	0.22	0	17,19,21	0.41	0
4	NAG	C	1303	1	14,14,15	0.22	0	17,19,21	0.42	0
4	NAG	A	1306	1	14,14,15	0.24	0	17,19,21	0.43	0
4	NAG	A	1311	1	14,14,15	0.25	0	17,19,21	0.55	0
4	NAG	E	1302	1	14,14,15	0.21	0	17,19,21	0.41	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	C	1308	1	-	2/6/23/26	0/1/1/1
4	NAG	C	1313	1	-	2/6/23/26	0/1/1/1
4	NAG	A	1312	1	-	2/6/23/26	0/1/1/1
4	NAG	A	1305	1	-	0/6/23/26	0/1/1/1
4	NAG	E	1309	1	-	2/6/23/26	0/1/1/1
4	NAG	C	1301	1	-	2/6/23/26	0/1/1/1
4	NAG	A	1303	1	-	2/6/23/26	0/1/1/1
4	NAG	C	1302	1	-	3/6/23/26	0/1/1/1
4	NAG	E	1301	1	-	0/6/23/26	0/1/1/1
4	NAG	A	1304	1	-	0/6/23/26	0/1/1/1
4	NAG	C	1304	1	-	2/6/23/26	0/1/1/1
4	NAG	A	1313	1	-	0/6/23/26	0/1/1/1
4	NAG	E	1312	1	-	5/6/23/26	0/1/1/1
4	NAG	E	1307	1	-	3/6/23/26	0/1/1/1
4	NAG	C	1310	1	-	2/6/23/26	0/1/1/1
4	NAG	C	1305	1	-	2/6/23/26	0/1/1/1
4	NAG	A	1309	1	-	0/6/23/26	0/1/1/1
4	NAG	E	1310	1	-	1/6/23/26	0/1/1/1
4	NAG	C	1311	1	-	2/6/23/26	0/1/1/1
4	NAG	C	1306	1	-	2/6/23/26	0/1/1/1
4	NAG	E	1304	1	-	4/6/23/26	0/1/1/1
4	NAG	A	1302	1	-	2/6/23/26	0/1/1/1
4	NAG	E	1308	1	-	2/6/23/26	0/1/1/1
4	NAG	A	1307	1	-	1/6/23/26	0/1/1/1
4	NAG	C	1307	1	-	0/6/23/26	0/1/1/1
4	NAG	C	1309	1	-	0/6/23/26	0/1/1/1
4	NAG	A	1301	1	-	0/6/23/26	0/1/1/1
4	NAG	E	1303	1	-	0/6/23/26	0/1/1/1
4	NAG	E	1305	1	-	2/6/23/26	0/1/1/1
4	NAG	C	1312	1	-	2/6/23/26	0/1/1/1
4	NAG	A	1310	1	-	1/6/23/26	0/1/1/1
4	NAG	E	1306	1	-	3/6/23/26	0/1/1/1
4	NAG	E	1311	1	-	1/6/23/26	0/1/1/1
4	NAG	A	1308	1	-	2/6/23/26	0/1/1/1
4	NAG	C	1303	1	-	2/6/23/26	0/1/1/1
4	NAG	A	1306	1	-	2/6/23/26	0/1/1/1
4	NAG	A	1311	1	-	3/6/23/26	0/1/1/1
4	NAG	E	1302	1	-	1/6/23/26	0/1/1/1

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
4	E	1312	NAG	C2-N2-C7	4.29	129.01	122.90

There are no chirality outliers.

5 of 62 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	1302	NAG	C4-C5-C6-O6
4	C	1310	NAG	O5-C5-C6-O6
4	A	1302	NAG	O5-C5-C6-O6
4	E	1305	NAG	C4-C5-C6-O6
4	E	1306	NAG	C4-C5-C6-O6

There are no ring outliers.

5 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	E	1312	NAG	1	0
4	E	1304	NAG	1	0
4	E	1311	NAG	2	0
4	A	1308	NAG	1	0
4	A	1311	NAG	1	0

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.

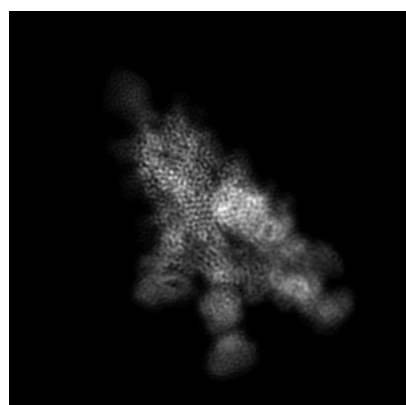
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-32647. These allow visual inspection of the internal detail of the map and identification of artifacts.

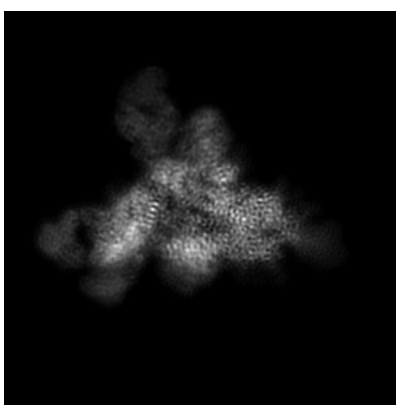
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

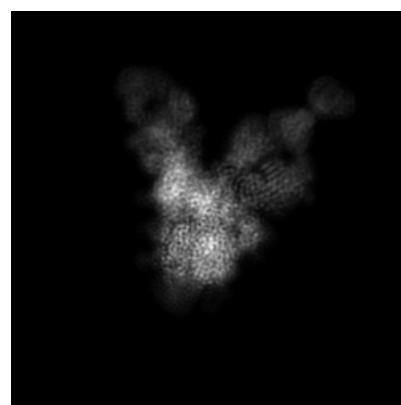
6.1.1 Primary map



X



Y



Z

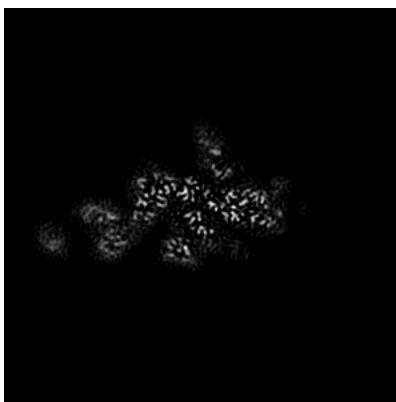
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

6.2.1 Primary map



X Index: 192



Y Index: 192

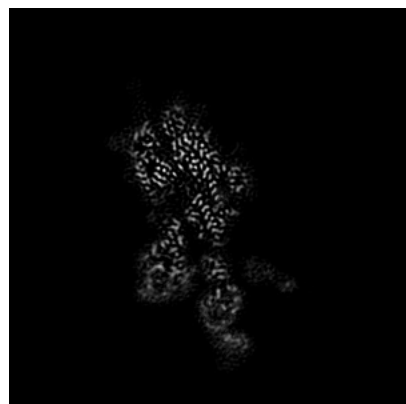


Z Index: 192

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: 164

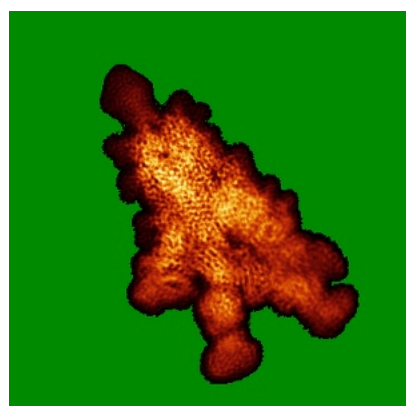


Z Index: 192

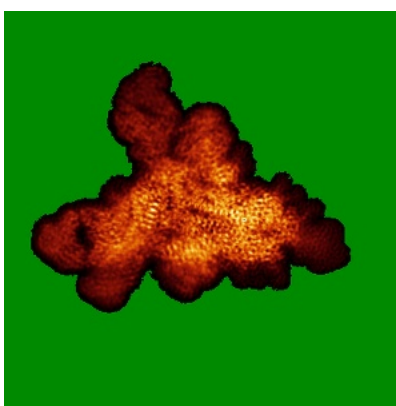
The images above show the largest variance slices of the map in three orthogonal directions.

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

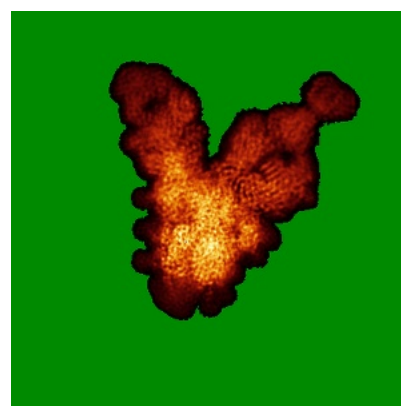
6.4.1 Primary map



X



Y

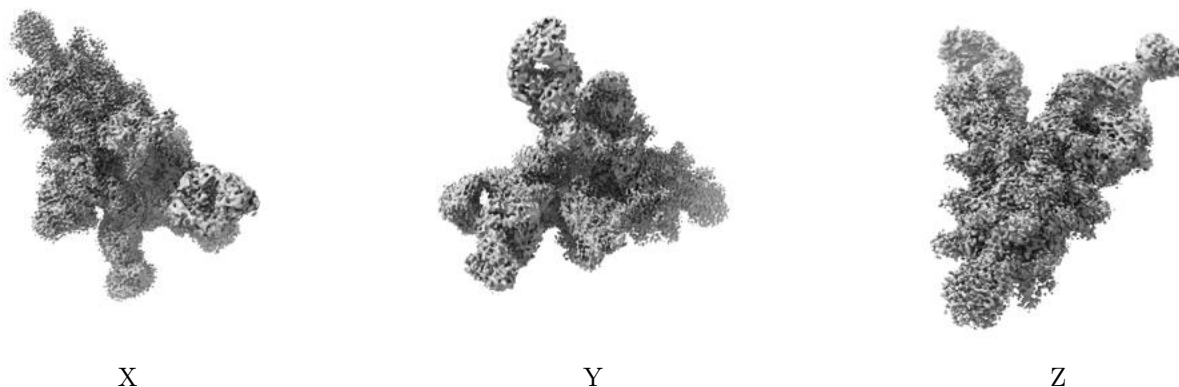


Z

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

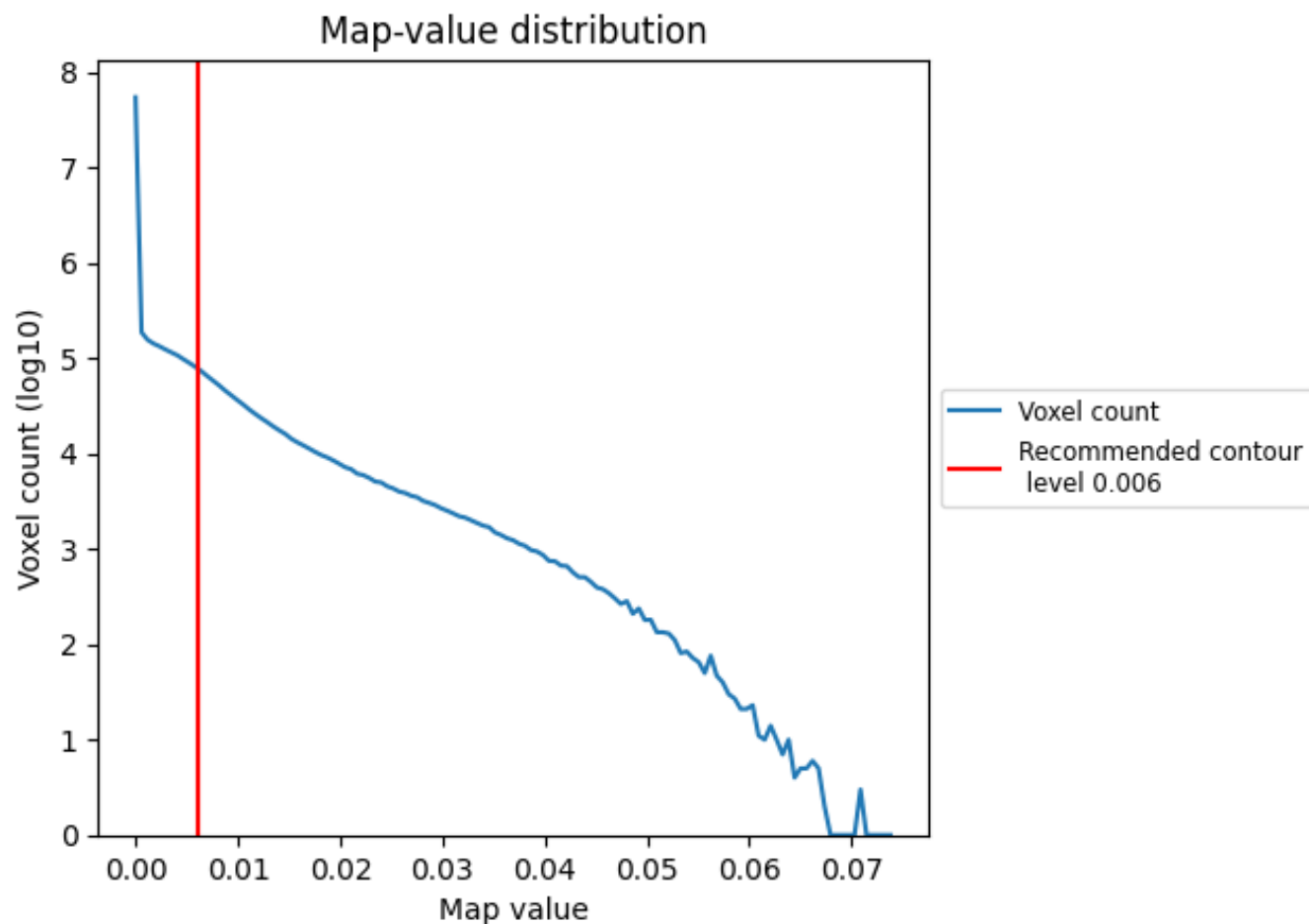
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

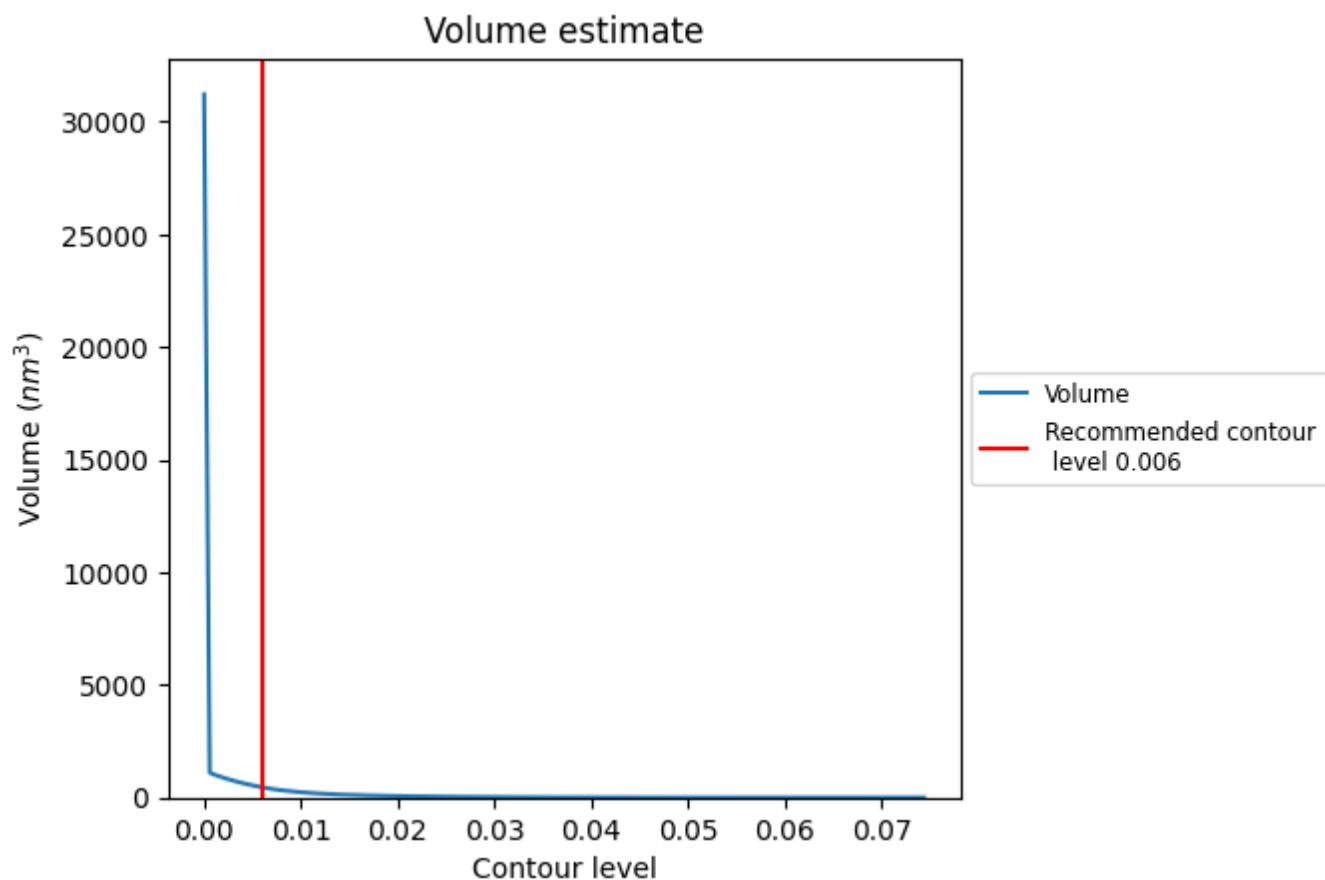
This section contains the results of statistical analysis of the map.

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.

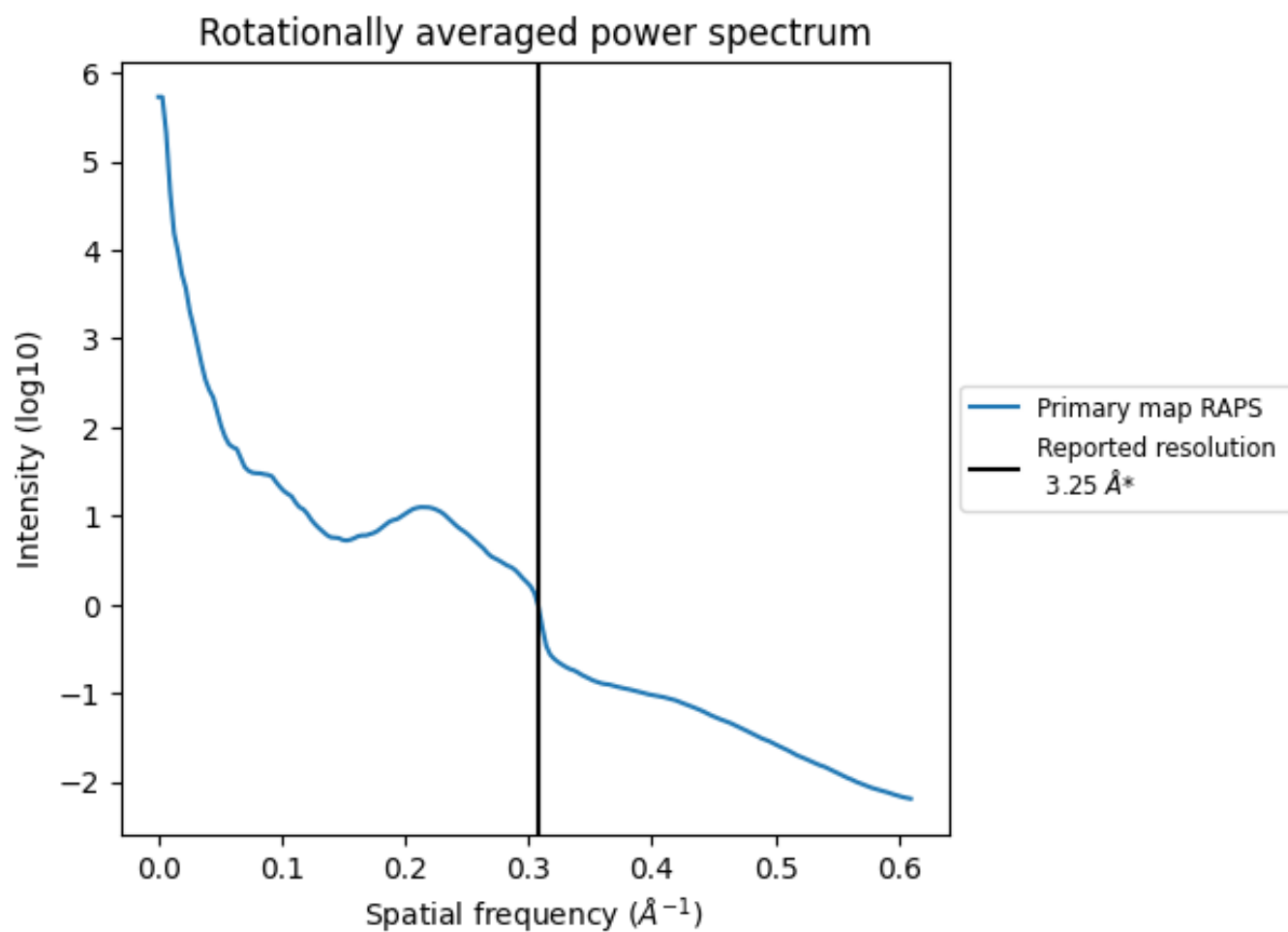
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 456 nm^3 ; this corresponds to an approximate mass of 412 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 0.308 Å⁻¹

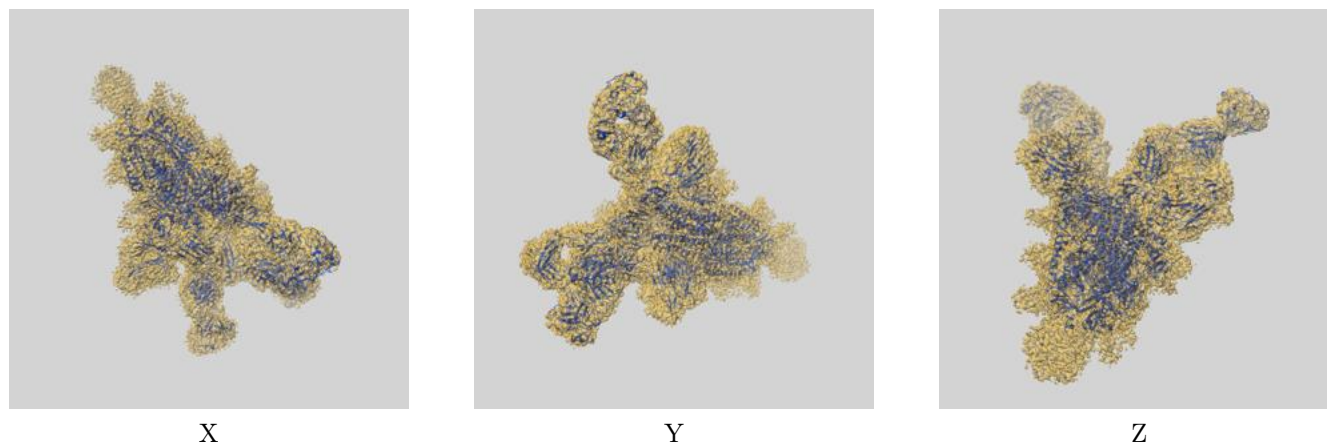
8 Fourier-Shell correlation

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-32647 and PDB model 7WOB. Per-residue inclusion information can be found in section [3](#) on page [14](#).

9.1 Map-model overlay [i](#)



The images above show the 3D surface view of the map at the recommended contour level 0.006 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](#)



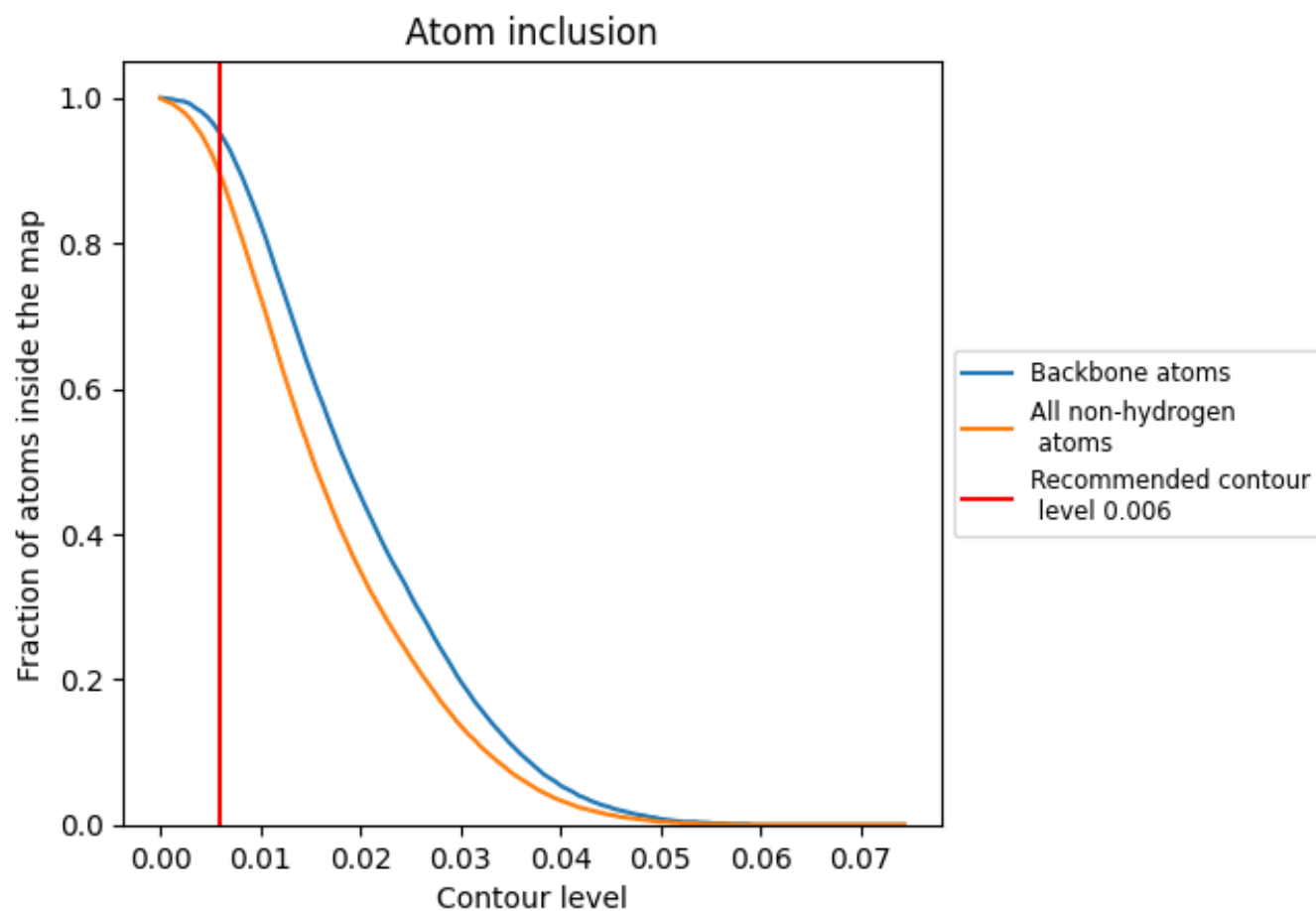
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.006).

9.4 Atom inclusion [i](#)



At the recommended contour level, 95% of all backbone atoms, 89% 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 (0.006) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8930	0.4170
A	0.9320	0.4680
B	0.8810	0.3260
C	0.9390	0.4750
D	0.8890	0.3610
E	0.9310	0.4540
F	0.8140	0.3130
G	0.7550	0.2480
H	0.7140	0.2520
I	0.6530	0.2230

1.0

0.0

<0.0