



wwPDB EM Validation Summary Report ⓘ

Oct 27, 2024 – 07:56 AM EDT

PDB ID : 7MOA
EMDB ID : EMD-23922
Title : Cryo-EM structure of the c-MET II/HGF I complex bound with HGF II in a rigid conformation
Authors : Uchikawa, E.; Chen, Z.M.; Xiao, G.Y.; Zhang, X.W.; Bai, X.C.
Deposited on : 2021-05-01
Resolution : 4.90 Å(reported)

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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.dev113
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4.02b-467
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) : 2.39

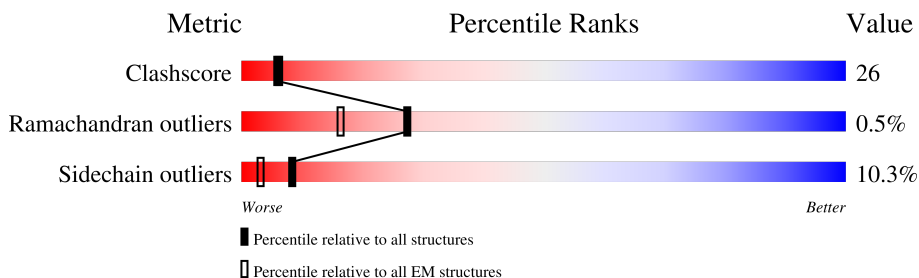
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.90 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	728	
1	D	728	
2	E	1390	
3	F	6	
3	J	6	

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 12511 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.

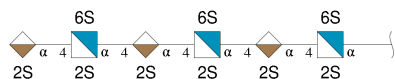
- Molecule 1 is a protein called Hepatocyte growth factor.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	254	Total	C	N	O	S	0	0
			2047	1283	370	373	21		
1	D	638	Total	C	N	O	S	0	0
			4946	3104	882	909	51		

- Molecule 2 is a protein called Hepatocyte growth factor receptor.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	E	688	Total	C	N	O	S	0	0
			5324	3373	905	1006	40		

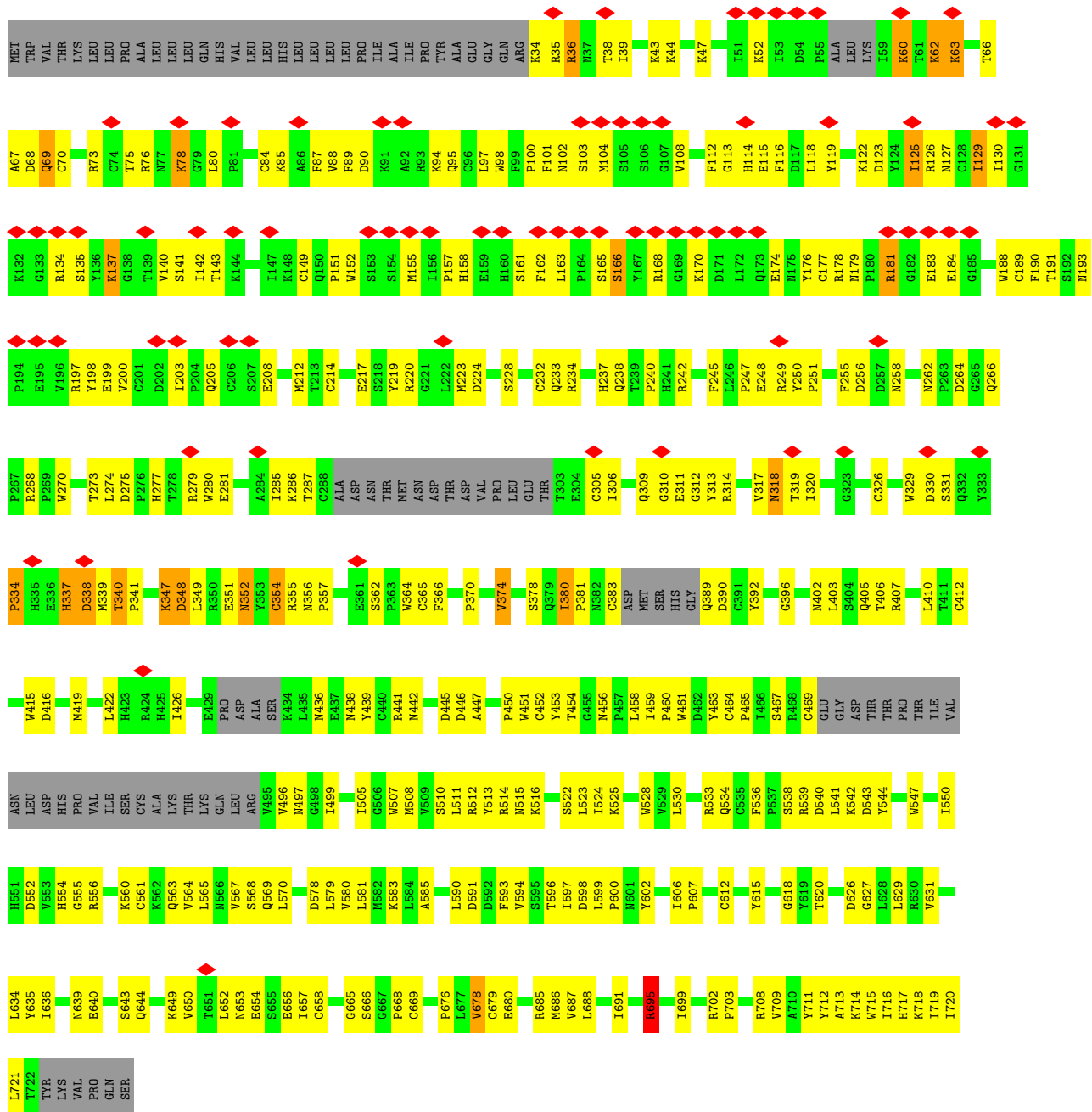
- Molecule 3 is an oligosaccharide called 2-O-sulfo-alpha-L-idopyranuronic acid-(1-4)-2-deoxy-6-O-sulfo-2-(sulfoamino)-alpha-D-glucopyranose-(1-4)-2-O-sulfo-alpha-L-idopyranuronic acid-(1-4)-2-deoxy-6-O-sulfo-2-(sulfoamino)-alpha-D-glucopyranose-(1-4)-2-O-sulfo-alpha-L-idopyranuronic acid-(1-4)-2-deoxy-6-O-sulfo-2-(sulfoamino)-alpha-D-glucopyranose.



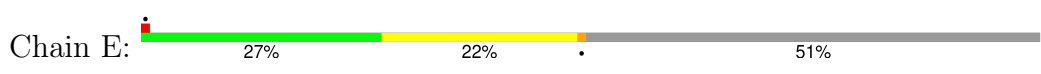
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	F	6	Total	C	N	O	S	0	0
			97	35	3	51	8		
3	J	6	Total	C	N	O	S	0	0
			97	35	3	51	8		

GLY	CYS	TRP	ALA	THR	PRO	ASN	ARG	PRO	GLY	PHE	VAL	ARG	VAL	ALA	TRP	LEU	TYR	LEU	ALA	LEU	LEU	TRP	LEU	HIS	LYS	LEU	ILE	ILE	LEU	THR	LYS	VAL	PRO	GLN	SER
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● Molecule 1: Hepatocyte growth factor



● Molecule 2: Hepatocyte growth factor receptor



LEU VAL	HIS THR	ILE THR	ARG VAL	ALA ILE	ASN GLU	SER ASN	S734 I735	Y654	Q559	R469	L386	ARG SER	F226	R138	I70	MET
VAL THR	THR THR	THR SER	HIS THR	SER SER	ASN VAL	GLU VAL	F736	I659	C561	S470	Q387	THR THR	M227	G139	Y71	LYS
PRO THR	PRO THR	LEU THR	PRO THR	LEU THR	LEU VAL	ILE THR	S737	T660	C562	G471	H388	LYS THR	F228	T140	V72	ALA
THR THR	HIS THR	ASP THR	HIS THR	ASP THR	GLU VAL	ILE THR	Y738	S661	L562	G471	F389	LYS THR	L229	C141	L73	PRO
LEU THR	LEU THR	SER THR	LEU THR	LEU THR	GLU VAL	CYS THR	ARG	Y666	Y666	V477	N393	LYS THR	I235	R142	N74	VAL
ALA THR	ASP THR	ASP THR	ASP THR	ASP THR	ILE THR	CYS THR	ASP	Y666	Y666	M478	H394	ALA THR	D77	H144	E75	LEU
ARG THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	F669	D482	E395	ALA THR	L238	N149	D78	ALA
LEU THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	P570	V492	N315	ALA THR	L239	N150	L77	ALA
ALA THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	P570	T495	H396	ALA THR	R242	N151	K80	PRO
VAL THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	L575	L496	E397	ALA THR	Y245	T156	V81	PRO
LEU THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	E576	M497	F398	ALA THR	P246	S156	V81	LEU
ALA THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	R680	L402	N316	ALA THR	S163	K85	K85	LEU
VAL THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	T582	Q498	E399	ALA THR	G87	T86	T86	LEU
LEU THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	I583	L503	F399	ALA THR	P88	G87	G87	PHE
ALA THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	C584	V504	R400	ALA THR	S170	P88	P88	THR
VAL THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	F590	I505	N405	ALA THR	Q171	V89	V89	LEU
LEU THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	R591	K509	S406	ALA THR	D174	E91	E91	VAL
ALA THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	R592	I510	S406	ALA THR	C175	H92	H92	ARG
VAL THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	R593	K509	C409	ALA THR	V176	P93	P93	SER
LEU THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	M594	I513	R412	ALA THR	A179	D94	D94	ASN
ALA THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	K595	F514	R413	ALA THR	L180	C95	C95	GLY
VAL THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	F596	L515	D414	ALA THR	G181	F96	F96	GLY
LEU THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	D597	L516	E415	ALA THR	Q99	Q99	C26	
ALA THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	L598	M516	Y416	ALA THR	D100	D100	K27	
VAL THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	K599	G517	R417	ALA THR	C101	C101	L30	
LEU THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	K600	L518	T418	ALA THR	K104	K104	A31	
ALA THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	T601	F523	T422	ALA THR	A105	A105	K32	
VAL THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	R602	Q524	A423	ALA THR	N106	N106	M35	
LEU THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	T611	S525	F274	ALA THR	LEU	LEU	N36	
ALA THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	M619	C526	L424	ALA THR	SER	SER	V37	
VAL THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	S617	S527	R426	ALA THR	GLY	GLY	N38	
LEU THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	T618	Q528	V427	ALA THR	G110	G110	M39	
ALA THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	M619	P633	F430	ALA THR	V111	V111	K40	
VAL THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	L622	F534	M431	ALA THR	T200	T200	Y41	
LEU THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	K623	F535	L438	ALA THR	I201	I201	F46	
ALA THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	T624	V536	L439	ALA THR	N202	N202	T47	
VAL THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	C537	Q537	L439	ALA THR	S203	S203	A48	
LEU THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	V626	C538	L439	ALA THR	F206	F206	E49	
ALA THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	GLY	G539	T444	ALA THR	L211	L211	I52	
VAL THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	ALA	H540	F445	ALA THR	H212	H212	Q53	
LEU THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	MET	H541	F445	ALA THR	S213	S213	I56	
ALA THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	ASN	D543	D449	ALA THR	V216	V216	H60	
VAL THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	LYS	K544	D449	ALA THR	R217	R217	H61	
LEU THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	HIS	C545	I452	ALA THR	I62	I62	H61	
ALA THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	F546	K544	I452	ALA THR	F63	F63	H61	
VAL THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	R547	L455	L455	ALA THR	F63	F63	H61	
LEU THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	S548	R547	L455	ALA THR	Q129	Q129	F63	
ALA THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	E549	E549	G460	ALA THR	L130	L130	L64	
VAL THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	E550	E550	R461	ALA THR	C133	C133	G65	
LEU THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	I640	I640	F462	ALA THR	T222	T222	A66	
ALA THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	T647	T647	M463	ALA THR	K223	K223	T67	
VAL THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	T651	T651	M463	ALA THR	D224	D224	H68	
LEU THR	ARG THR	ARG THR	ARG THR	ARG THR	GLN THR	CYS THR	ASP	Y666	T733	T733	V466	ALA THR	G225	G225	Y69	

GLU
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LYS
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ASP
PRO
GLY
TYR
LEU
ALA
ARG
ASP
MET
TYR
PHE
ASP
LYS
GLU
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TYR
SER
VAL
VAL
HIS
ASN
LYS
THR
GLY
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ALA
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TRP
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PRO
SER
PHE
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- Molecule 3: 2-O-sulfo-alpha-L-idopyranuronic acid-(1-4)-2-deoxy-6-O-sulfo-2-(sulfoamino)-alpha-D-glucopyranose-(1-4)-2-O-sulfo-alpha-L-idopyranuronic acid-(1-4)-2-deoxy-6-O-sulfo-2-(sulfoamino)-alpha-D-glucopyranose-(1-4)-2-O-sulfo-alpha-L-idopyranuronic acid-(1-4)-2-deoxy-6-O-sulfo-2-(sulfoamino)-alpha-D-glucopyranose



SGN1
IDS2
SGN3
IDS4
SGN5
IDS6

- Molecule 3: 2-O-sulfo-alpha-L-idopyranuronic acid-(1-4)-2-deoxy-6-O-sulfo-2-(sulfoamino)-alpha-D-glucopyranose-(1-4)-2-O-sulfo-alpha-L-idopyranuronic acid-(1-4)-2-deoxy-6-O-sulfo-2-(sulfoamino)-alpha-D-glucopyranose-(1-4)-2-O-sulfo-alpha-L-idopyranuronic acid-(1-4)-2-deoxy-6-O-sulfo-2-(sulfoamino)-alpha-D-glucopyranose



SGN1
IDS2
SGN3
IDS4
SGN5
IDS6

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	12513	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 ($e^-/\text{\AA}^2$)	60	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.041	Depositor
Minimum map value	-0.019	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.012	Depositor
Map size (Å)	291.6, 291.6, 291.6	wwPDB
Map dimensions	270, 270, 270	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.08, 1.08, 1.08	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: IDS, SGN

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	0.48	0/2105	0.68	0/2840
1	D	0.50	0/5081	0.62	2/6901 (0.0%)
2	E	0.53	0/5444	0.64	0/7397
All	All	0.51	0/12630	0.64	2/17138 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	441	ARG	C-N-CA	-5.66	107.56	121.70
1	D	390	ASP	CB-CG-OD2	5.18	122.97	118.30

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	2047	0	1933	155	0
1	D	4946	0	4584	265	0
2	E	5324	0	5126	224	0
3	F	97	0	34	3	0
3	J	97	0	34	3	0
All	All	12511	0	11711	633	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 26.

The worst 5 of 633 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:402:LEU:HB3	2:E:404:ARG:HG3	1.15	1.10
2:E:189:LYS:O	2:E:192:PHE:HB2	1.55	1.04
1:D:415:TRP:HB2	1:D:438:ASN:H	1.35	0.91
2:E:176:VAL:HA	2:E:217:ARG:HH21	1.35	0.91
2:E:402:LEU:HB3	2:E:404:ARG:CG	2.01	0.87

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	250/728 (34%)	227 (91%)	23 (9%)	0	100	100
1	D	626/728 (86%)	569 (91%)	52 (8%)	5 (1%)	16	54
2	E	678/1390 (49%)	618 (91%)	58 (9%)	2 (0%)	37	72
All	All	1554/2846 (55%)	1414 (91%)	133 (9%)	7 (0%)	27	64

5 of 7 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	E	593	ASN
1	D	695	ARG
1	D	63	LYS
2	E	496	LEU
1	D	162	PHE

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	224/646 (35%)	206 (92%)	18 (8%)	10	29
1	D	525/646 (81%)	467 (89%)	58 (11%)	5	19
2	E	598/1246 (48%)	535 (90%)	63 (10%)	5	20
All	All	1347/2538 (53%)	1208 (90%)	139 (10%)	8	21

5 of 139 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	285	ILE
1	D	318	ASN
1	D	354	CYS
2	E	373	PHE
2	E	350	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 8 such sidechains are listed below:

Mol	Chain	Res	Type
1	D	644	GLN
1	D	497	ASN
1	D	158	HIS
1	D	114	HIS
1	D	233	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

12 monosaccharides 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
3	SGN	F	1	3	15,18,20	0.93	0	20,26,31	1.30	2 (10%)
3	IDS	F	2	3	16,16,17	1.20	1 (6%)	16,24,26	0.89	1 (6%)
3	SGN	F	3	3	19,19,20	3.35	3 (15%)	23,29,31	1.63	2 (8%)
3	IDS	F	4	3	16,16,17	0.96	0	16,24,26	0.93	1 (6%)
3	SGN	F	5	3	13,13,20	3.98	2 (15%)	12,19,31	1.64	1 (8%)
3	IDS	F	6	3	15,15,17	1.19	1 (6%)	14,22,26	1.48	2 (14%)
3	SGN	J	1	3	15,18,20	0.95	0	20,26,31	1.46	3 (15%)
3	IDS	J	2	3	16,16,17	0.99	0	16,24,26	1.24	2 (12%)
3	SGN	J	3	3	19,19,20	3.38	2 (10%)	23,29,31	1.82	5 (21%)
3	IDS	J	4	3	16,16,17	1.16	1 (6%)	16,24,26	0.91	0
3	SGN	J	5	3	13,13,20	3.97	2 (15%)	12,19,31	1.63	2 (16%)
3	IDS	J	6	3	15,15,17	1.18	1 (6%)	14,22,26	1.40	2 (14%)

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
3	SGN	F	1	3	-	5/8/27/31	0/1/1/1
3	IDS	F	2	3	-	3/9/26/29	0/1/1/1
3	SGN	F	3	3	-	6/11/28/31	0/1/1/1
3	IDS	F	4	3	-	3/9/26/29	0/1/1/1
3	SGN	F	5	3	-	3/5/19/31	1/1/1/1
3	IDS	F	6	3	-	4/9/22/29	1/1/1/1
3	SGN	J	1	3	-	6/8/27/31	0/1/1/1
3	IDS	J	2	3	-	1/9/26/29	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	SGN	J	3	3	-	2/11/28/31	0/1/1/1
3	IDS	J	4	3	-	0/9/26/29	0/1/1/1
3	SGN	J	5	3	-	2/5/19/31	0/1/1/1
3	IDS	J	6	3	-	1/9/22/29	0/1/1/1

The worst 5 of 13 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	J	5	SGN	O1S-S1	10.04	1.53	1.42
3	J	3	SGN	O1S-S1	9.96	1.53	1.42
3	J	5	SGN	O2S-S1	9.95	1.53	1.42
3	F	3	SGN	O1S-S1	9.90	1.53	1.42
3	F	5	SGN	O1S-S1	9.90	1.53	1.42

The worst 5 of 23 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	F	3	SGN	O1S-S1-O2S	-5.08	109.07	120.36
3	J	5	SGN	O1S-S1-O2S	-4.92	109.41	120.36
3	F	5	SGN	O1S-S1-O2S	-4.84	109.59	120.36
3	J	3	SGN	O1S-S1-O2S	-4.82	109.64	120.36
3	J	3	SGN	C1-O5-C5	-4.01	106.81	112.19

There are no chirality outliers.

5 of 36 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	F	2	IDS	C2-O2-S-O2S
3	F	2	IDS	C2-O2-S-O3S
3	F	3	SGN	O5-C5-C6-O6
3	F	3	SGN	C2-N2-S1-O2S
3	F	4	IDS	C1-C2-O2-S

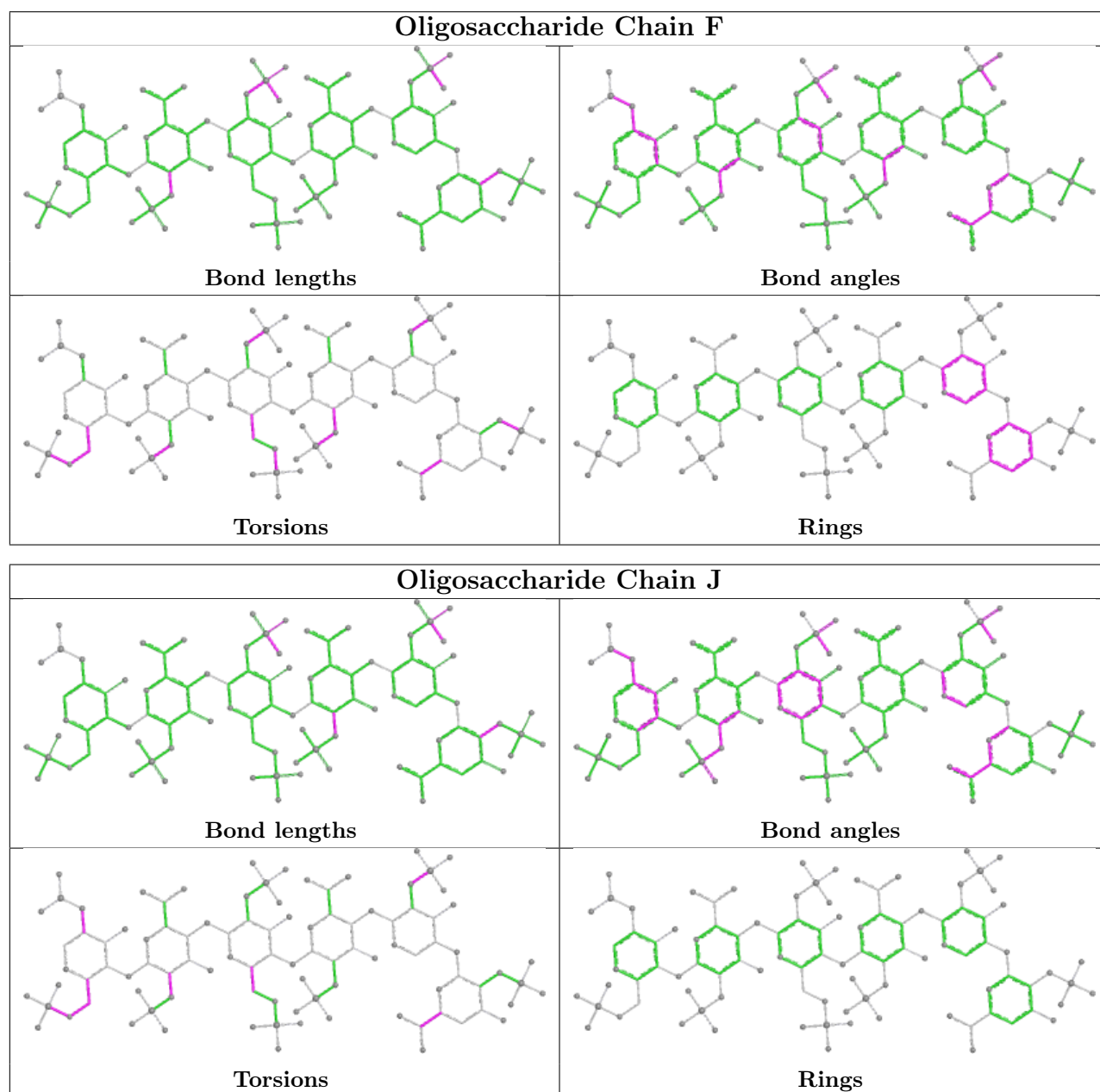
All (2) ring outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	F	6	IDS	C1-C2-C3-C4-C5-O5
3	F	5	SGN	C1-C2-C3-C4-C5-O5

4 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	F	4	IDS	1	0
3	F	3	SGN	2	0
3	J	4	IDS	2	0
3	J	3	SGN	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.



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.

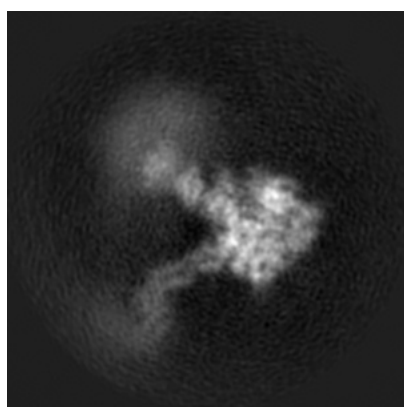
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-23922. These allow visual inspection of the internal detail of the map and identification of artifacts.

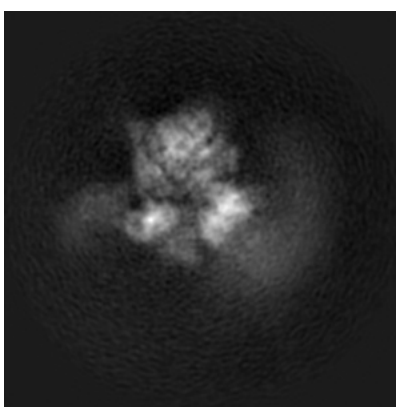
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

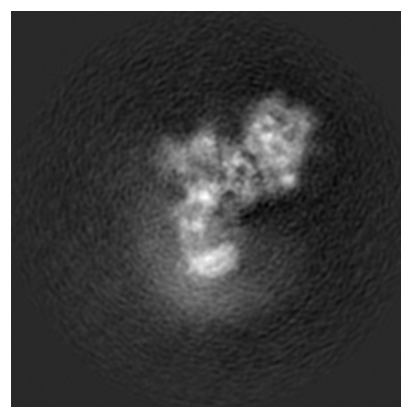
6.1.1 Primary map



X



Y

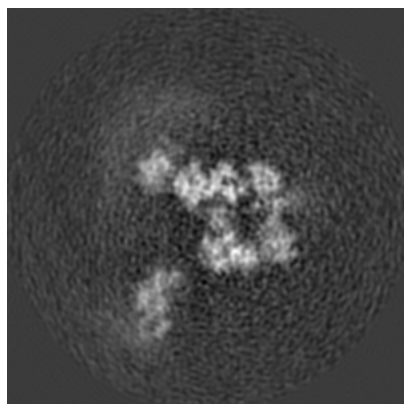


Z

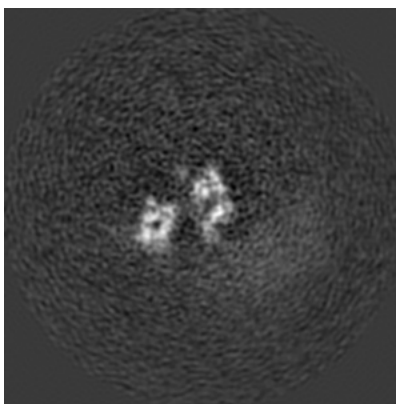
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

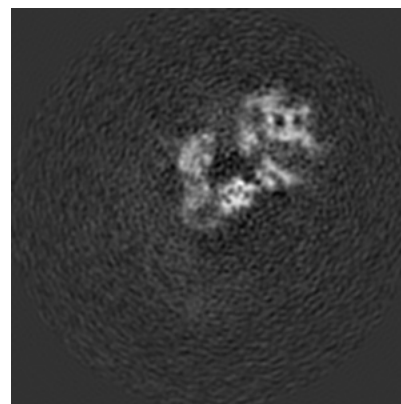
6.2.1 Primary map



X Index: 135



Y Index: 135

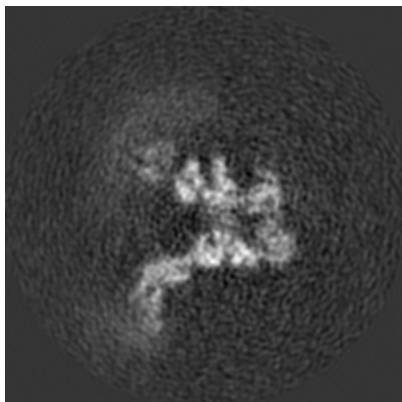


Z Index: 135

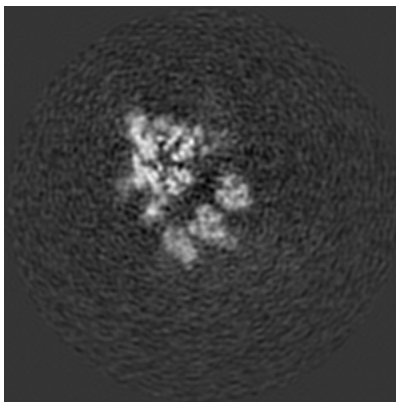
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

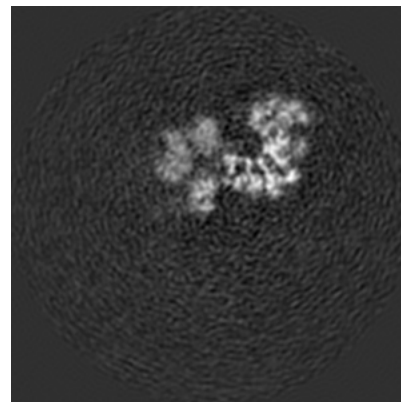
6.3.1 Primary map



X Index: 129



Y Index: 167

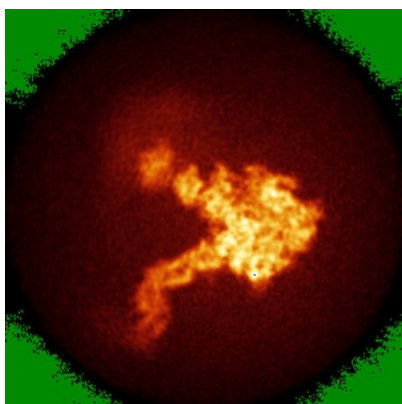


Z Index: 113

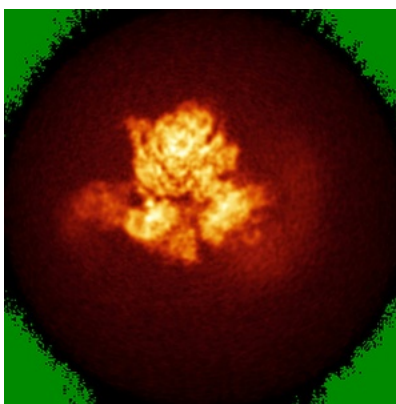
The images above show the largest variance slices of the map in three orthogonal directions.

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

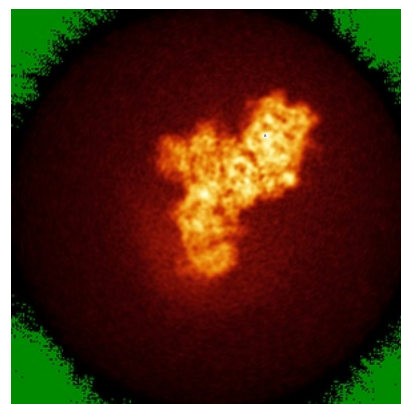
6.4.1 Primary map



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

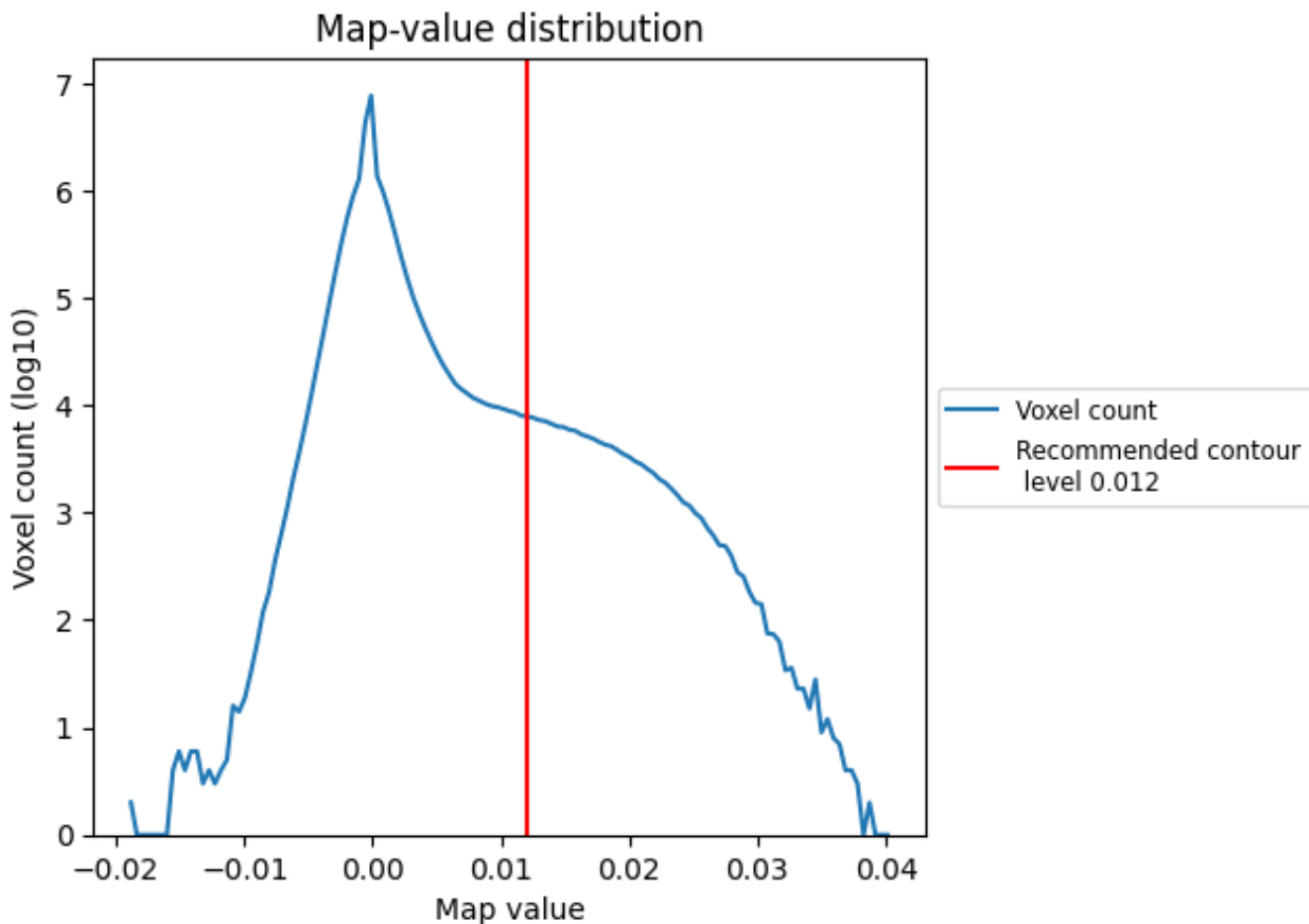
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

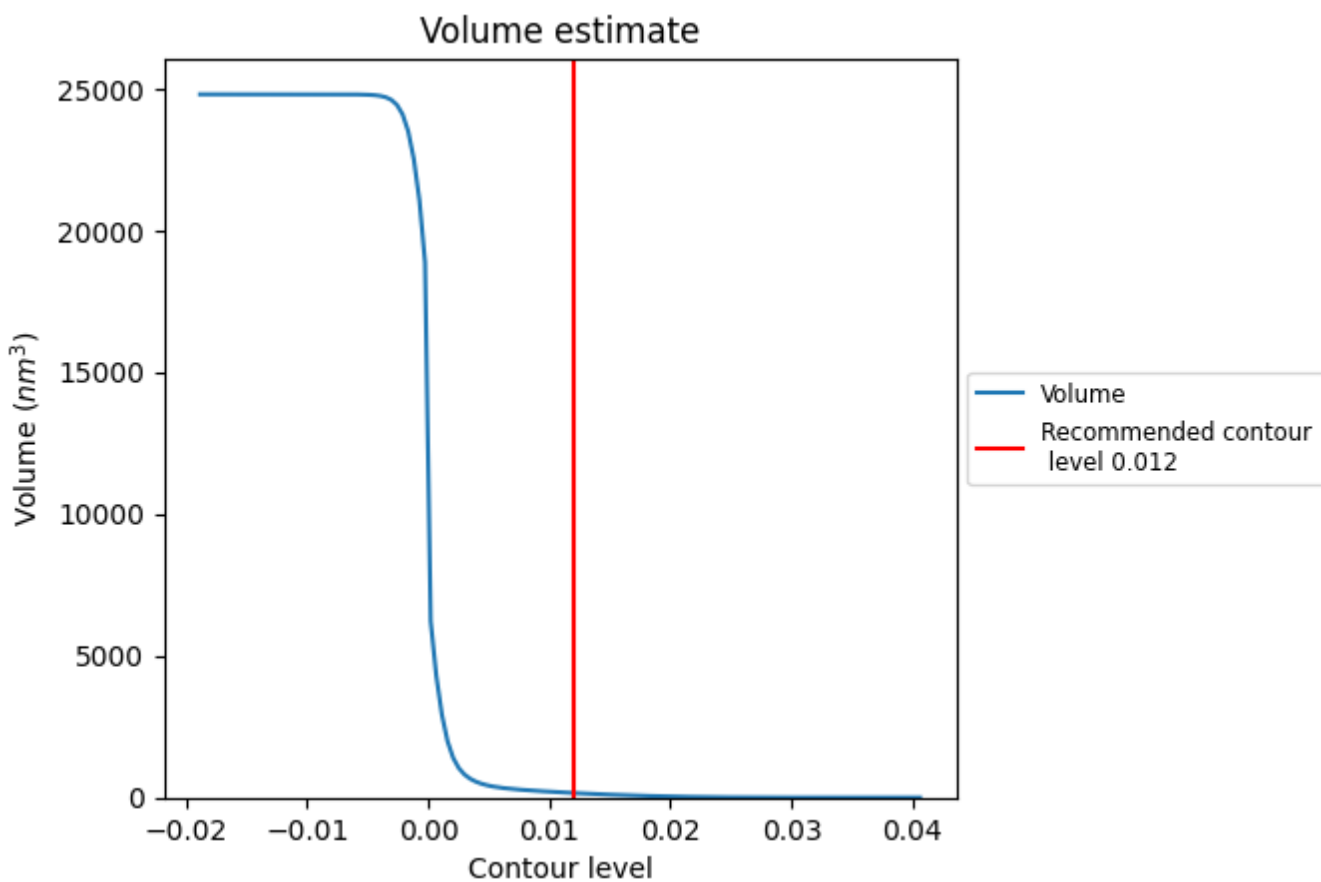
This section contains the results of statistical analysis of the map.

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.

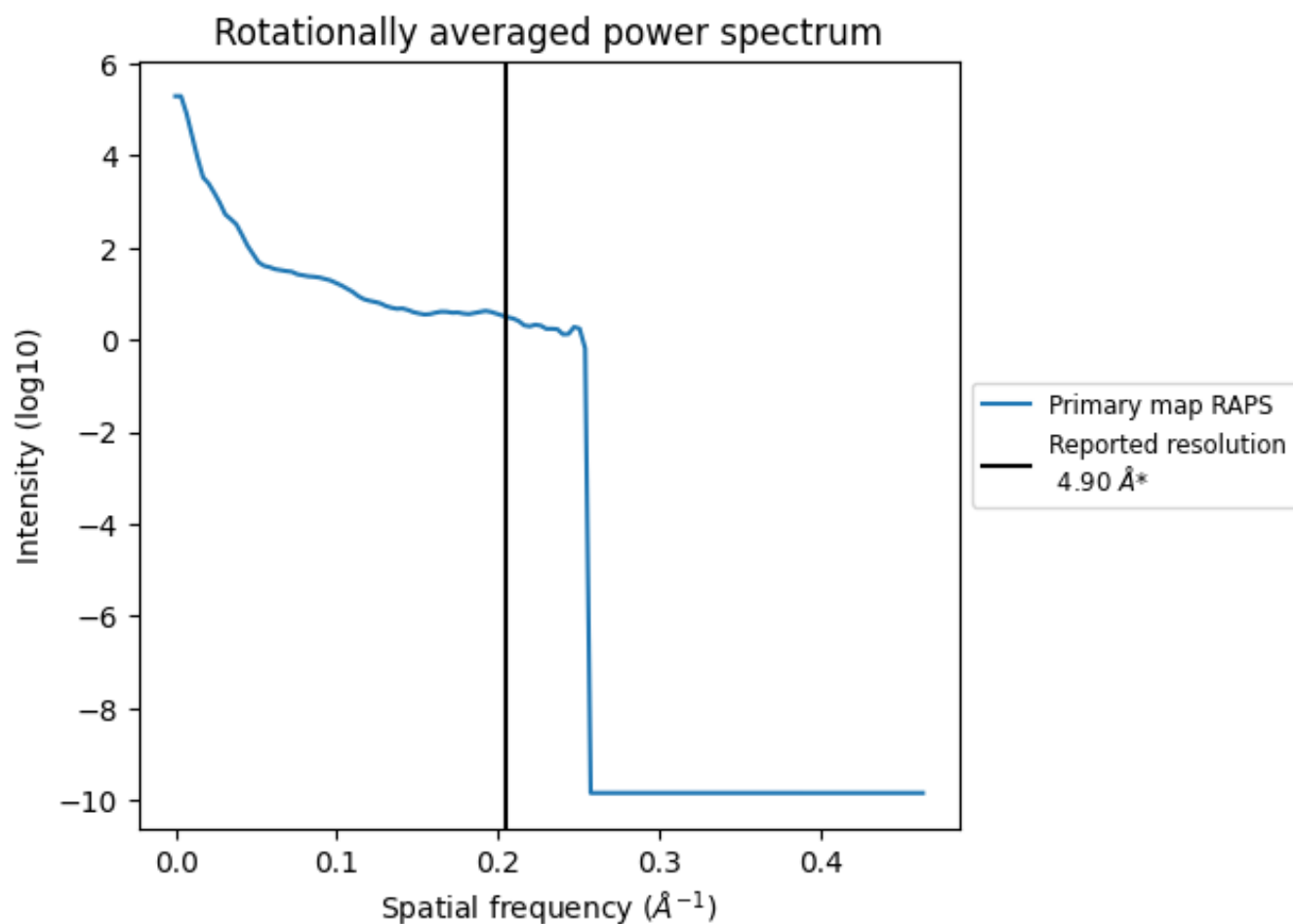
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 161 nm³; this corresponds to an approximate mass of 145 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 0.204 Å⁻¹

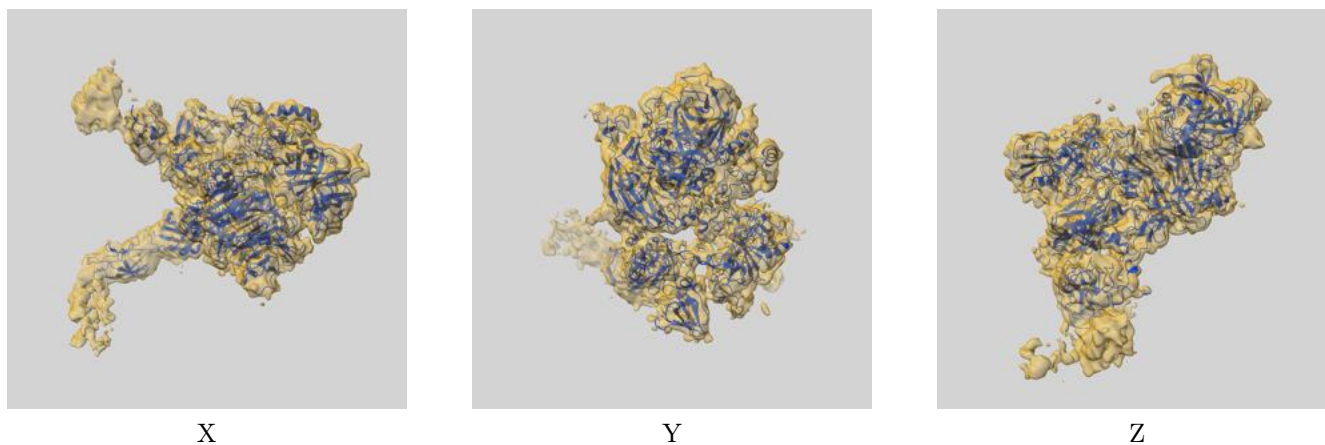
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

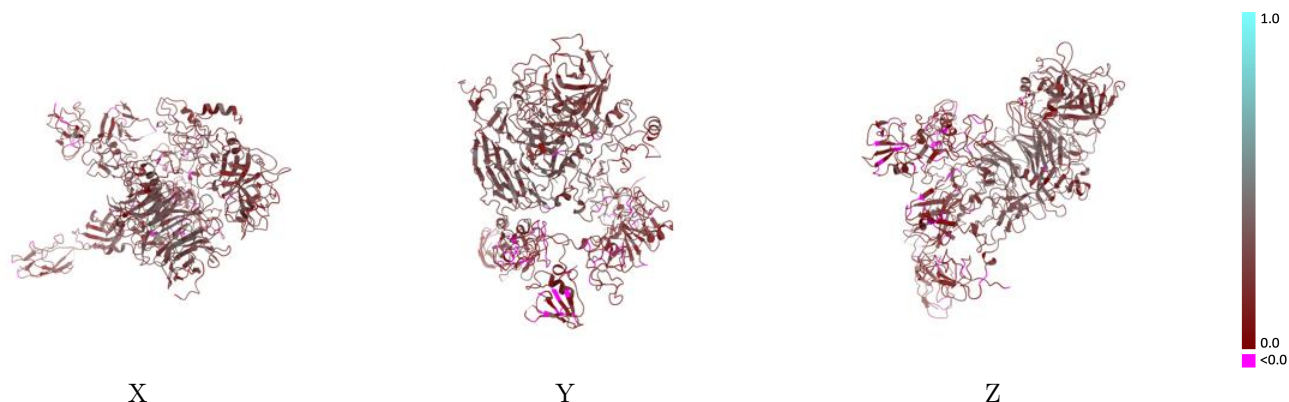
This section contains information regarding the fit between EMDB map EMD-23922 and PDB model 7MOA. Per-residue inclusion information can be found in section [3](#) on page [4](#).

9.1 Map-model overlay [i](#)



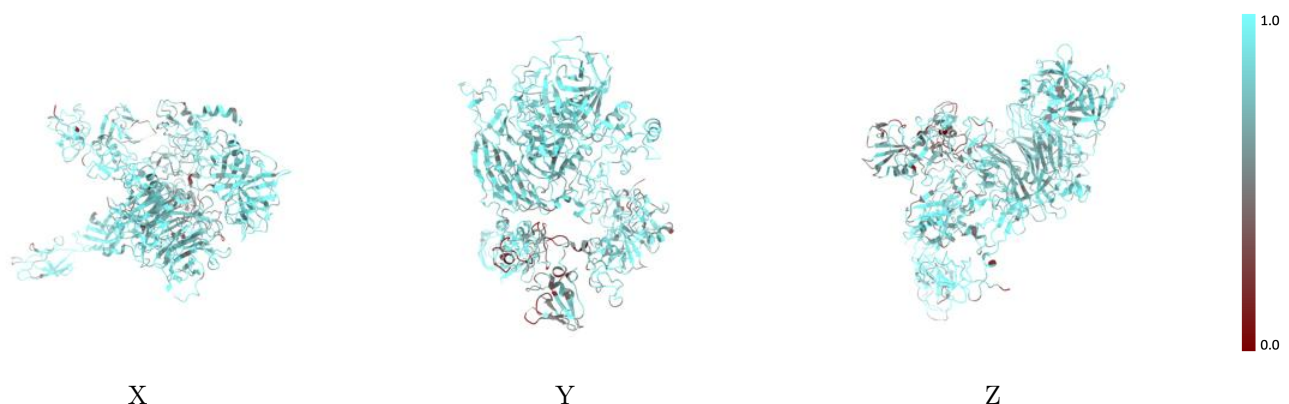
The images above show the 3D surface view of the map at the recommended contour level 0.012 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



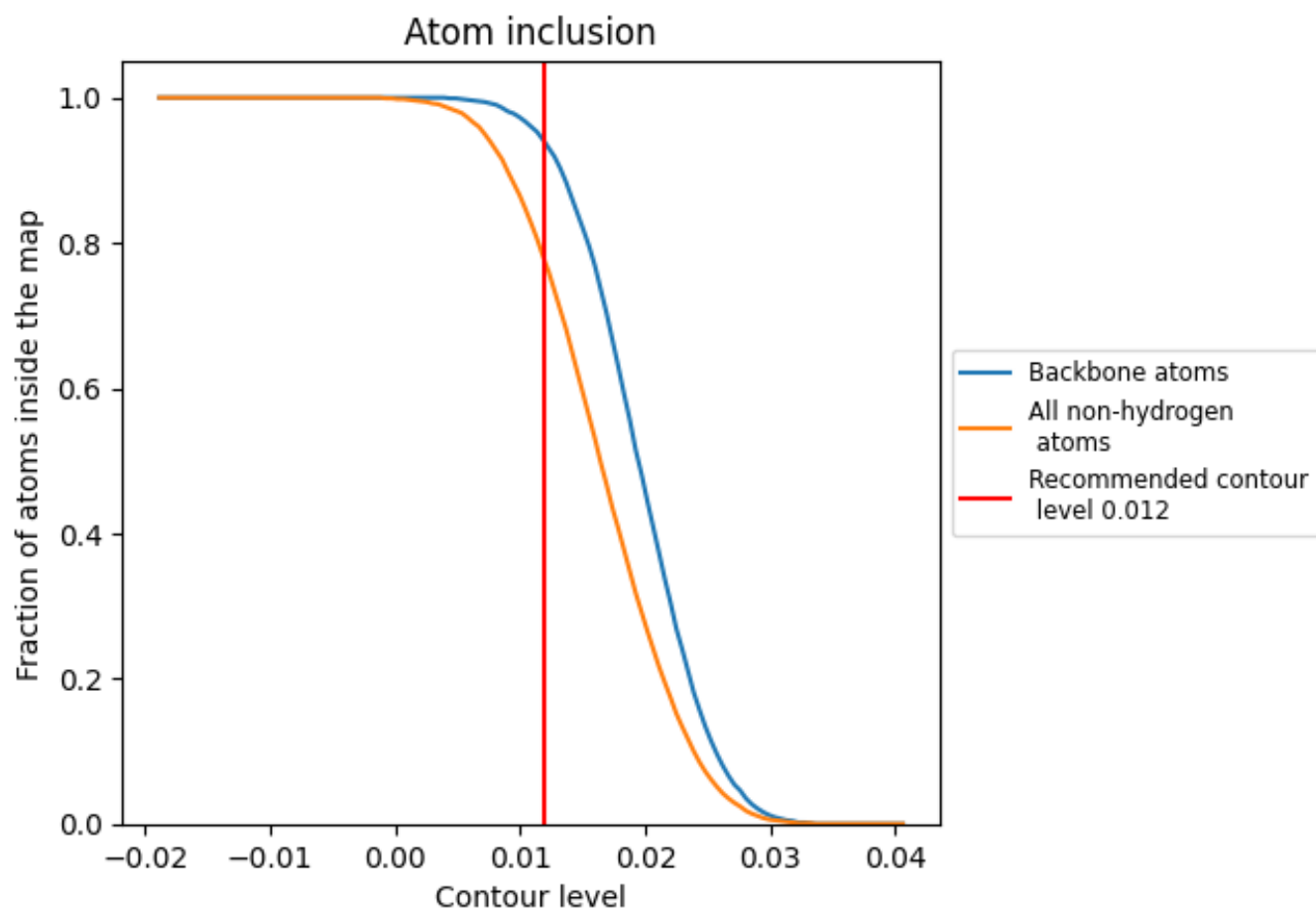
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.012).













9.4 Atom inclusion [i](#)



At the recommended contour level, 94% of all backbone atoms, 77% 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 (0.012) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7730	 0.2300
A	 0.8140	 0.2030
D	 0.7160	 0.2020
E	 0.8170	 0.2670
F	 0.6800	 0.1190
J	 0.5570	 0.2360

