



## Full wwPDB EM Validation Report ⓘ

Aug 26, 2024 – 03:38 PM EDT

PDB ID : 8TJN  
EMDB ID : EMD-41305  
Title : Crosslinked 6-deoxyerythronolide B synthase (DEBS) Module 1 in complex with antibody fragment 1B2: Crosslinked State 1  
Authors : Cogan, D.P.; Soohoo, A.M.; Chen, M.; Brodsky, K.L.; Liu, Y.; Khosla, C.  
Deposited on : 2023-07-23  
Resolution : 3.73 Å(reported)  
Based on initial model : 7M7F

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

We welcome your comments at [validation@mail.wwpdb.org](mailto: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>.

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

EMDB validation analysis : 0.0.1.dev112  
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) : 2.38.3

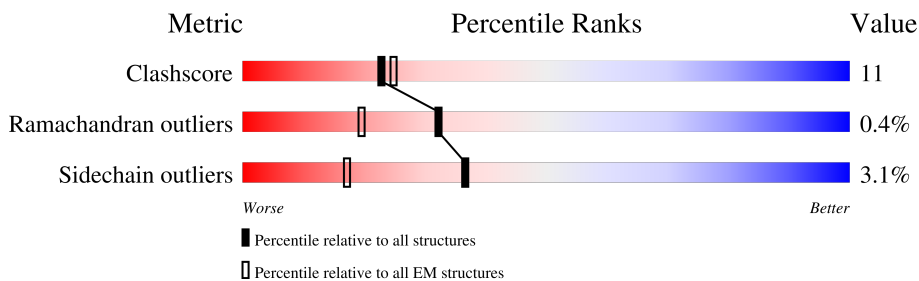
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.73 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  $\geq 3$ , 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	1784	
1	B	1784	
2	C	249	
2	E	249	
3	D	236	
3	F	236	

## 2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 21903 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 EryAI,6-deoxyerythronolide-B synthase EryA3, modules 5 and 6.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	N	O	P			S
1	B	883	6556	4088	1194	1250	1	23	0	0
1	A	1257	9300	5790	1705	1775	30		0	0

There are 100 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	1	MET	-	expression tag	UNP Q5UNP6
B	2	ALA	-	expression tag	UNP Q5UNP6
B	3	SER	-	expression tag	UNP Q5UNP6
B	4	THR	-	expression tag	UNP Q5UNP6
B	5	ASP	-	expression tag	UNP Q5UNP6
B	6	SER	-	expression tag	UNP Q5UNP6
B	7	GLU	-	expression tag	UNP Q5UNP6
B	8	LYS	-	expression tag	UNP Q5UNP6
B	9	VAL	-	expression tag	UNP Q5UNP6
B	10	ALA	-	expression tag	UNP Q5UNP6
B	11	GLU	-	expression tag	UNP Q5UNP6
B	12	TYR	-	expression tag	UNP Q5UNP6
B	13	LEU	-	expression tag	UNP Q5UNP6
B	14	ARG	-	expression tag	UNP Q5UNP6
B	15	ARG	-	expression tag	UNP Q5UNP6
B	16	ALA	-	expression tag	UNP Q5UNP6
B	17	THR	-	expression tag	UNP Q5UNP6
B	18	LEU	-	expression tag	UNP Q5UNP6
B	19	ASP	-	expression tag	UNP Q5UNP6
B	20	LEU	-	expression tag	UNP Q5UNP6
B	21	ARG	-	expression tag	UNP Q5UNP6
B	22	ALA	-	expression tag	UNP Q5UNP6
B	23	ALA	-	expression tag	UNP Q5UNP6
B	24	ARG	-	expression tag	UNP Q5UNP6
B	25	GLN	-	expression tag	UNP Q5UNP6

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Chain	Residue	Modelled	Actual	Comment	Reference
B	26	ARG	-	expression tag	UNP Q5UNP6
B	27	ILE	-	expression tag	UNP Q5UNP6
B	28	ARG	-	expression tag	UNP Q5UNP6
B	29	GLU	-	expression tag	UNP Q5UNP6
B	30	LEU	-	expression tag	UNP Q5UNP6
B	31	GLU	-	expression tag	UNP Q5UNP6
B	1486	THR	ALA	conflict	UNP Q5UNP6
B	1487	SER	ALA	conflict	UNP Q5UNP6
B	1768	SER	-	expression tag	UNP Q03133
B	1769	SER	-	expression tag	UNP Q03133
B	1770	VAL	-	expression tag	UNP Q03133
B	1771	ASP	-	expression tag	UNP Q03133
B	1772	LYS	-	expression tag	UNP Q03133
B	1773	LEU	-	expression tag	UNP Q03133
B	1774	ALA	-	expression tag	UNP Q03133
B	1775	ALA	-	expression tag	UNP Q03133
B	1776	ALA	-	expression tag	UNP Q03133
B	1777	LEU	-	expression tag	UNP Q03133
B	1778	GLU	-	expression tag	UNP Q03133
B	1779	HIS	-	expression tag	UNP Q03133
B	1780	HIS	-	expression tag	UNP Q03133
B	1781	HIS	-	expression tag	UNP Q03133
B	1782	HIS	-	expression tag	UNP Q03133
B	1783	HIS	-	expression tag	UNP Q03133
B	1784	HIS	-	expression tag	UNP Q03133
A	1	MET	-	expression tag	UNP Q5UNP6
A	2	ALA	-	expression tag	UNP Q5UNP6
A	3	SER	-	expression tag	UNP Q5UNP6
A	4	THR	-	expression tag	UNP Q5UNP6
A	5	ASP	-	expression tag	UNP Q5UNP6
A	6	SER	-	expression tag	UNP Q5UNP6
A	7	GLU	-	expression tag	UNP Q5UNP6
A	8	LYS	-	expression tag	UNP Q5UNP6
A	9	VAL	-	expression tag	UNP Q5UNP6
A	10	ALA	-	expression tag	UNP Q5UNP6
A	11	GLU	-	expression tag	UNP Q5UNP6
A	12	TYR	-	expression tag	UNP Q5UNP6
A	13	LEU	-	expression tag	UNP Q5UNP6
A	14	ARG	-	expression tag	UNP Q5UNP6
A	15	ARG	-	expression tag	UNP Q5UNP6
A	16	ALA	-	expression tag	UNP Q5UNP6
A	17	THR	-	expression tag	UNP Q5UNP6

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Chain	Residue	Modelled	Actual	Comment	Reference
A	18	LEU	-	expression tag	UNP Q5UNP6
A	19	ASP	-	expression tag	UNP Q5UNP6
A	20	LEU	-	expression tag	UNP Q5UNP6
A	21	ARG	-	expression tag	UNP Q5UNP6
A	22	ALA	-	expression tag	UNP Q5UNP6
A	23	ALA	-	expression tag	UNP Q5UNP6
A	24	ARG	-	expression tag	UNP Q5UNP6
A	25	GLN	-	expression tag	UNP Q5UNP6
A	26	ARG	-	expression tag	UNP Q5UNP6
A	27	ILE	-	expression tag	UNP Q5UNP6
A	28	ARG	-	expression tag	UNP Q5UNP6
A	29	GLU	-	expression tag	UNP Q5UNP6
A	30	LEU	-	expression tag	UNP Q5UNP6
A	31	GLU	-	expression tag	UNP Q5UNP6
A	1486	THR	ALA	conflict	UNP Q5UNP6
A	1487	SER	ALA	conflict	UNP Q5UNP6
A	1768	SER	-	expression tag	UNP Q03133
A	1769	SER	-	expression tag	UNP Q03133
A	1770	VAL	-	expression tag	UNP Q03133
A	1771	ASP	-	expression tag	UNP Q03133
A	1772	LYS	-	expression tag	UNP Q03133
A	1773	LEU	-	expression tag	UNP Q03133
A	1774	ALA	-	expression tag	UNP Q03133
A	1775	ALA	-	expression tag	UNP Q03133
A	1776	ALA	-	expression tag	UNP Q03133
A	1777	LEU	-	expression tag	UNP Q03133
A	1778	GLU	-	expression tag	UNP Q03133
A	1779	HIS	-	expression tag	UNP Q03133
A	1780	HIS	-	expression tag	UNP Q03133
A	1781	HIS	-	expression tag	UNP Q03133
A	1782	HIS	-	expression tag	UNP Q03133
A	1783	HIS	-	expression tag	UNP Q03133
A	1784	HIS	-	expression tag	UNP Q03133

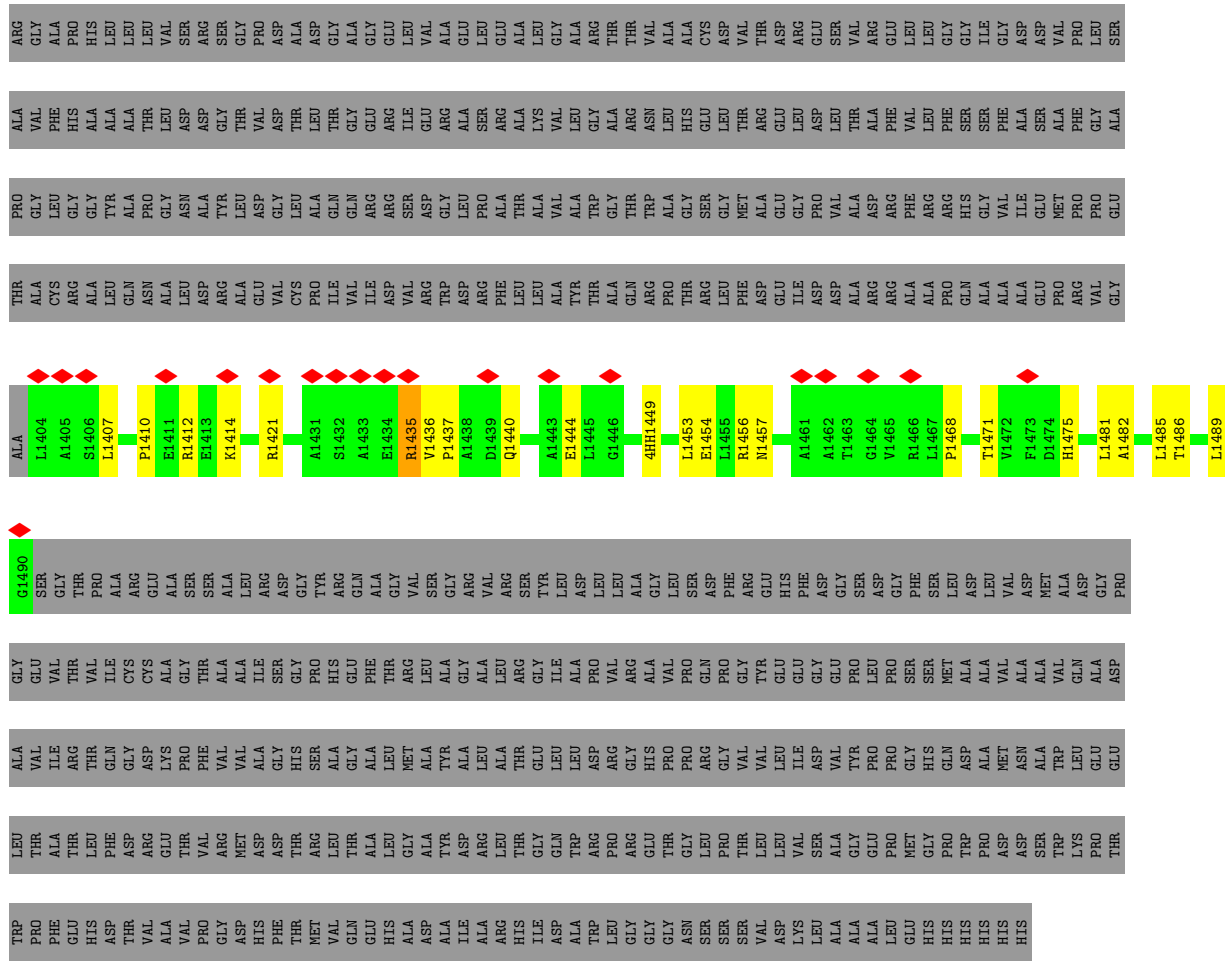
- Molecule 2 is a protein called Antibody Fragment 1B2, Heavy Chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	C	192	1450	919	243	282	6	0	0
2	E	205	1539	978	257	298	6	0	0

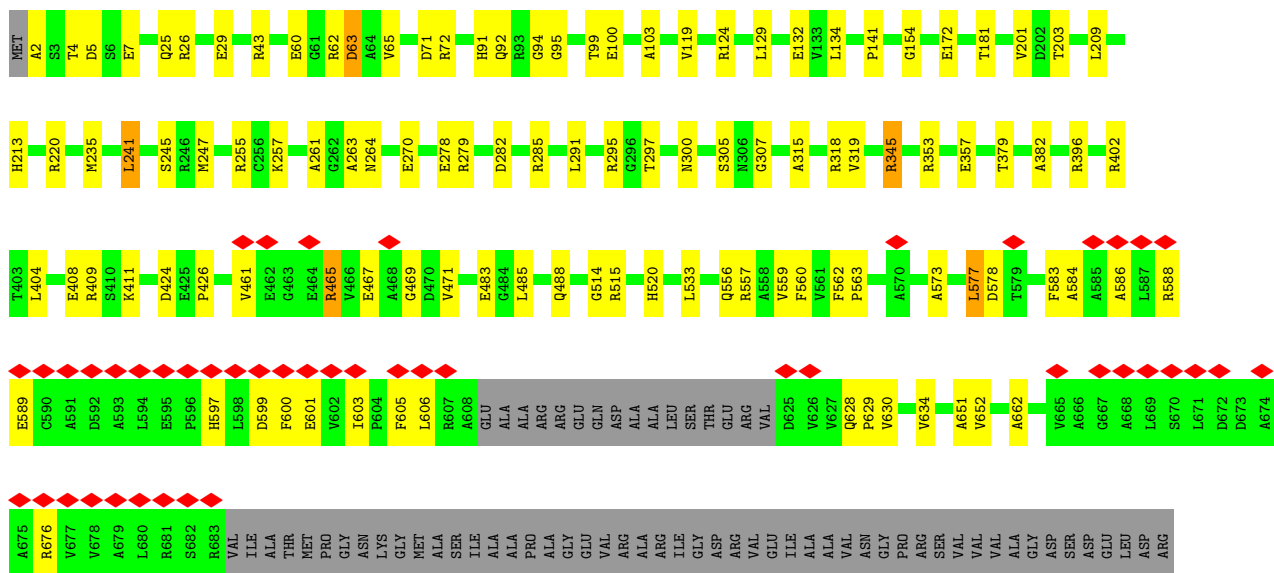
- Molecule 3 is a protein called Antibody Fragment 1B2, Light Chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	D	206	1565	982	262	315	6	0	0
3	F	196	1493	941	249	297	6	0	0





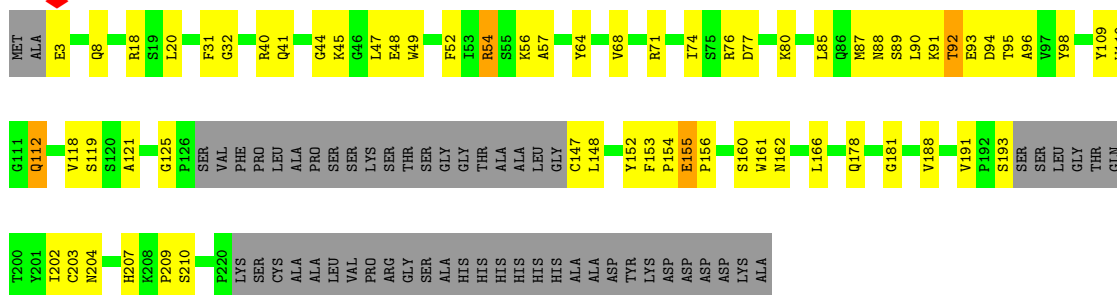
• Molecule 1: EryAI,6-deoxyerythronolide-B synthase EryA3, modules 5 and 6



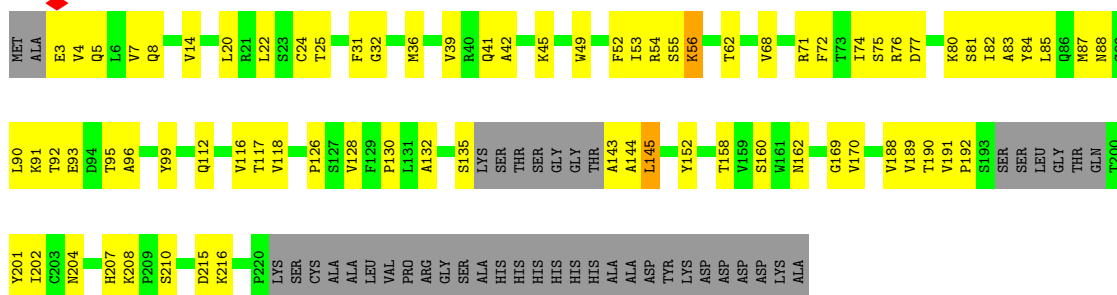




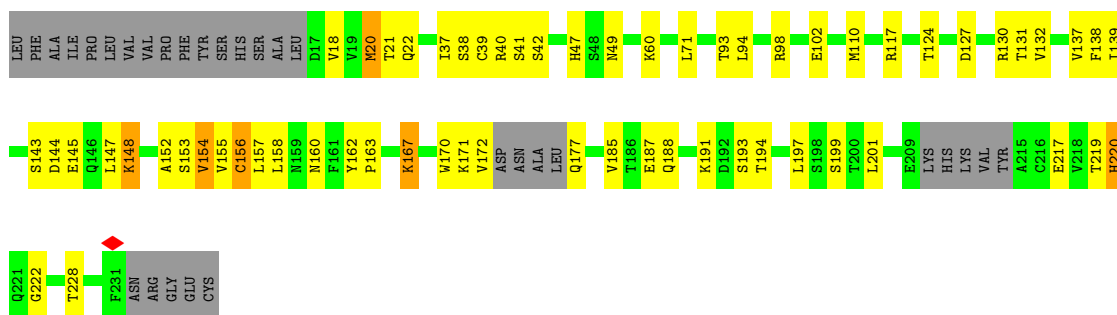
• Molecule 2: Antibody Fragment 1B2, Heavy Chain



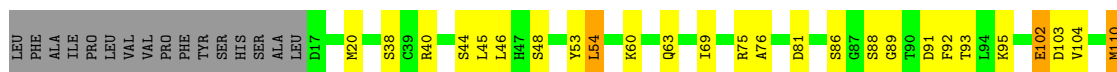
• Molecule 2: Antibody Fragment 1B2, Heavy Chain

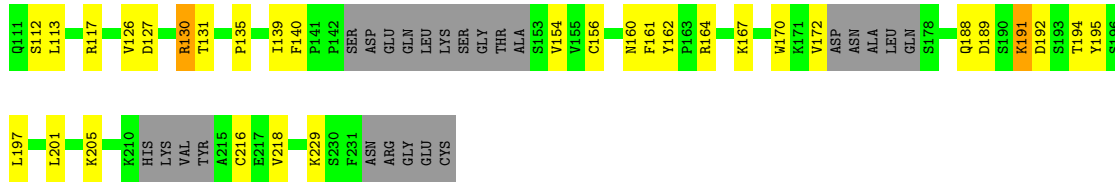


• Molecule 3: Antibody Fragment 1B2, Light Chain



• Molecule 3: Antibody Fragment 1B2, Light Chain





## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	84420	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	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	81000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	1.362	Depositor
Minimum map value	-0.286	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.028	Depositor
Recommended contour level	0.416	Depositor
Map size (Å)	563.2, 563.2, 563.2	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.1, 1.1, 1.1	Depositor

## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: 4HH

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	0.25	0/9483	0.53	0/12908
1	B	0.25	0/6660	0.53	0/9060
2	C	0.26	0/1483	0.54	0/2015
2	E	0.26	0/1575	0.53	0/2141
3	D	0.26	0/1598	0.52	0/2171
3	F	0.26	0/1525	0.51	0/2071
All	All	0.25	0/22324	0.53	0/30366

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

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	9300	0	9156	198	0
1	B	6556	0	6449	108	0
2	C	1450	0	1413	44	0
2	E	1539	0	1511	55	0
3	D	1565	0	1526	42	0
3	F	1493	0	1459	40	0
All	All	21903	0	21514	476	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 11.

All (476) 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)
1:B:683:ARG:HG2	1:B:685:ILE:H	1.31	0.96
2:E:3:GLU:HG2	2:E:4:VAL:H	1.42	0.83
2:E:128:VAL:HG13	2:E:130:PRO:HD3	1.61	0.81
1:B:670:SER:HB3	1:B:673:ASP:HB3	1.64	0.80
3:F:53:TYR:HB3	3:F:112:SER:HB2	1.65	0.78
1:B:40:MET:HE1	1:B:389:ILE:HG12	1.65	0.78
3:D:160:ASN:HA	3:D:194:THR:HB	1.67	0.77
3:F:189:ASP:HB3	3:F:194:THR:H	1.52	0.74
1:B:597:HIS:HB2	1:B:676:ARG:HH21	1.55	0.71
2:C:154:PRO:HB3	2:C:209:PRO:HG3	1.72	0.71
2:C:152:TYR:HD1	2:C:154:PRO:HD2	1.56	0.70
3:D:185:VAL:HG12	3:D:197:LEU:HD12	1.72	0.70
2:E:75:SER:HB3	2:E:84:TYR:HB2	1.74	0.69
1:A:1270:PHE:HB3	1:A:1309:ALA:HA	1.75	0.69
3:D:187:GLU:OE1	3:D:187:GLU:N	2.25	0.69
1:A:1059:VAL:O	1:A:1301:GLN:NE2	2.27	0.68
2:E:128:VAL:HG21	2:E:216:LYS:HG3	1.76	0.68
1:B:683:ARG:HG2	1:B:685:ILE:N	2.06	0.67
1:B:587:LEU:HD12	1:B:602:VAL:HG12	1.77	0.67
1:A:263:ALA:O	1:A:345:ARG:NH1	2.27	0.67
1:B:845:GLY:HA3	1:B:852:LEU:HB2	1.77	0.67
1:B:246:ARG:HD3	1:A:172:GLU:HB3	1.76	0.67
1:A:934:TRP:HB3	1:A:1121:TYR:HB3	1.77	0.67
1:A:1171:VAL:HA	1:A:1198:ALA:HB2	1.76	0.67
3:D:188:GLN:HG2	3:D:193:SER:HA	1.77	0.66
1:A:1174:SER:HB2	1:A:1178:ALA:HB2	1.77	0.66
1:B:683:ARG:C	1:B:685:ILE:H	1.99	0.65
3:F:135:PRO:HB3	3:F:161:PHE:HB3	1.78	0.65
2:E:202:ILE:HD11	2:E:215:ASP:HB3	1.78	0.65
1:A:119:VAL:O	1:A:124:ARG:NH2	2.30	0.65
1:A:1148:GLY:HA3	1:A:1172:SER:HB2	1.79	0.65
1:A:1019:LEU:HD23	1:A:1245:GLU:HA	1.79	0.64
1:B:213:HIS:ND1	1:B:297:THR:OG1	2.30	0.64
1:B:669:LEU:HD23	1:B:674:ALA:HA	1.79	0.64
3:D:139:ILE:HG22	3:D:156:CYS:HB2	1.80	0.64
1:A:1379:THR:HG22	1:A:1381:LEU:H	1.63	0.63
2:C:207:HIS:ND1	2:C:210:SER:OG	2.32	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:8:GLN:H	2:E:112:GLN:HE22	1.44	0.63
3:D:162:TYR:HB2	3:D:194:THR:HA	1.81	0.63
2:E:32:GLY:O	2:E:56:LYS:NZ	2.32	0.63
2:E:55:SER:HA	2:E:76:ARG:HH12	1.63	0.63
3:D:147:LEU:O	3:D:148:LYS:HG2	1.99	0.62
3:D:144:ASP:HA	3:D:147:LEU:HB2	1.81	0.62
1:A:556:GLN:HG2	1:A:881:ALA:HB2	1.80	0.62
2:E:158:THR:OG1	2:E:208:LYS:NZ	2.33	0.62
1:A:43:ARG:NH2	1:A:132:GLU:OE2	2.33	0.62
1:A:4:THR:OG1	1:A:5:ASP:N	2.33	0.62
3:F:60:LYS:HB2	3:F:63:GLN:HB2	1.82	0.62
1:B:666:ALA:HA	1:B:782:VAL:HG12	1.82	0.61
1:A:7:GLU:OE2	2:C:54:ARG:NH1	2.33	0.61
1:B:565:GLN:OE1	1:B:657:GLN:NE2	2.33	0.61
1:A:60:GLU:OE2	1:A:62:ARG:NH1	2.31	0.61
1:A:1125:TRP:HD1	1:A:1381:LEU:HD11	1.64	0.61
1:A:220:ARG:NH2	1:A:295:ARG:O	2.33	0.61
1:A:1020:ALA:HB2	1:A:1245:GLU:HG3	1.82	0.61
3:F:75:ARG:NH1	3:F:81:ASP:OD1	2.33	0.61
1:B:39:ALA:HB2	1:B:137:ALA:HB2	1.82	0.61
2:E:93:GLU:OE2	2:E:93:GLU:N	2.33	0.60
1:A:557:ARG:HH12	1:A:825:TYR:HA	1.65	0.60
1:A:1317:TRP:HB2	1:A:1320:SER:HB3	1.83	0.60
2:C:44:GLY:O	2:C:45:LYS:NZ	2.31	0.60
1:B:514:GLY:O	1:B:515:ARG:NH1	2.31	0.60
2:E:170:VAL:HA	2:E:189:VAL:HG22	1.84	0.60
2:C:92:THR:OG1	2:C:93:GLU:OE1	2.20	0.60
1:A:1159:TRP:HA	1:A:1162:ARG:HE	1.66	0.60
1:A:2:ALA:N	1:A:7:GLU:OE1	2.35	0.59
1:B:15:ARG:HH21	3:F:76:ALA:HB1	1.66	0.59
1:A:979:LEU:HD11	1:A:993:ARG:HD2	1.82	0.59
3:D:217:GLU:OE1	3:D:228:THR:OG1	2.20	0.59
1:A:255:ARG:O	1:A:257:LYS:NZ	2.36	0.59
3:D:102:GLU:OE2	3:D:102:GLU:N	2.24	0.59
1:A:514:GLY:O	1:A:515:ARG:NH1	2.32	0.59
1:A:1169:LEU:HG	1:A:1171:VAL:HG23	1.85	0.59
2:E:42:ALA:HB3	2:E:45:LYS:HB2	1.84	0.59
1:B:104:PHE:HB2	1:B:124:ARG:HD3	1.85	0.58
3:F:93:THR:HB	3:F:95:LYS:HZ1	1.67	0.58
1:B:598:LEU:HB2	1:B:676:ARG:HH22	1.68	0.58
1:A:1231:LEU:HB2	1:A:1288:TYR:HE2	1.68	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:788:VAL:HG13	1:B:789:THR:HG23	1.86	0.58
1:A:1136:GLU:OE2	1:A:1163:ARG:NH2	2.33	0.58
2:C:191:VAL:HG22	2:C:193:SER:H	1.68	0.58
3:D:143:SER:HB2	3:D:152:ALA:HB3	1.85	0.58
1:B:591:ALA:HB1	1:B:601:GLU:HA	1.86	0.58
1:A:557:ARG:NH1	1:A:824:GLY:O	2.37	0.58
1:A:990:LEU:HD23	1:A:990:LEU:H	1.68	0.58
2:C:92:THR:OG1	2:C:93:GLU:N	2.36	0.58
1:B:60:GLU:HG3	1:B:62:ARG:HG3	1.86	0.58
1:B:344:THR:HG23	1:B:347:GLY:H	1.69	0.58
1:A:1149:THR:O	1:A:1154:GLY:N	2.36	0.57
1:A:264:ASN:HA	1:A:345:ARG:HH12	1.69	0.57
1:A:483:GLU:CD	1:A:483:GLU:H	2.07	0.57
1:A:1072:ARG:HH12	1:A:1123:ARG:HE	1.53	0.57
2:E:190:THR:HG22	2:E:192:PRO:HD3	1.85	0.57
1:A:411:LYS:N	1:A:411:LYS:HD3	2.20	0.57
2:E:3:GLU:HG2	2:E:4:VAL:N	2.15	0.57
3:F:139:ILE:HD12	3:F:229:LYS:HB2	1.87	0.57
1:A:949:TRP:N	1:A:975:ARG:O	2.36	0.57
2:C:71:ARG:HH12	2:C:91:LYS:HG3	1.69	0.57
3:F:110:MET:HE2	3:F:110:MET:HA	1.87	0.57
1:B:263:ALA:O	1:B:345:ARG:NH2	2.37	0.57
1:B:683:ARG:C	1:B:685:ILE:N	2.57	0.57
1:B:902:PRO:O	1:B:904:GLN:NE2	2.34	0.57
3:F:160:ASN:HA	3:F:194:THR:HB	1.87	0.57
3:F:188:GLN:HG3	3:F:195:TYR:CZ	2.40	0.57
1:A:1098:ARG:NH1	1:A:1117:ALA:O	2.38	0.57
1:A:950:LEU:N	1:A:1002:GLY:O	2.37	0.56
1:A:1075:ALA:HB1	1:A:1377:ARG:HH21	1.68	0.56
2:E:7:VAL:HG22	2:E:25:THR:HB	1.87	0.56
1:B:624:VAL:HG12	1:B:628:GLN:HG3	1.87	0.56
1:B:679:ALA:HB1	1:B:682:SER:HA	1.86	0.56
2:E:132:ALA:HB2	2:E:145:LEU:HD11	1.87	0.56
2:E:144:ALA:HB1	2:E:188:VAL:HB	1.87	0.56
1:B:788:VAL:O	1:B:812:ARG:NH1	2.38	0.56
1:A:60:GLU:HG3	1:A:62:ARG:HG3	1.88	0.56
2:C:40:ARG:NE	2:C:48:GLU:OE2	2.37	0.56
1:B:329:LEU:HA	3:D:98:ARG:HH22	1.70	0.56
1:A:278:GLU:OE2	1:A:279:ARG:N	2.39	0.56
1:A:949:TRP:CE2	1:A:1002:GLY:HA3	2.40	0.56
1:B:195:GLU:OE1	1:A:318:ARG:NH2	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:291:LEU:HD12	1:A:396:ARG:HD2	1.87	0.55
2:E:92:THR:OG1	2:E:93:GLU:OE2	2.20	0.55
2:C:155:GLU:HB3	2:C:156:PRO:HD3	1.87	0.55
1:B:601:GLU:HG3	1:B:602:VAL:H	1.72	0.54
1:B:669:LEU:HB3	1:B:674:ALA:HB2	1.89	0.54
1:A:99:THR:OG1	1:A:100:GLU:OE2	2.25	0.54
1:A:1006:LEU:HD12	1:A:1046:VAL:HG11	1.89	0.54
2:C:77:ASP:OD2	2:C:80:LYS:NZ	2.38	0.54
1:A:1274:SER:OG	1:A:1275:SER:N	2.40	0.54
2:E:14:VAL:HG23	2:E:118:VAL:HG22	1.89	0.54
2:C:31:PHE:O	2:C:76:ARG:NH2	2.41	0.54
1:B:821:ALA:O	1:B:826:ARG:NH1	2.41	0.54
1:A:63:ASP:OD1	1:A:63:ASP:N	2.39	0.53
1:A:1333:ARG:HH11	1:A:1334:HIS:HD2	1.55	0.53
1:A:599:ASP:OD1	1:A:599:ASP:N	2.41	0.53
2:E:39:VAL:HG12	2:E:99:TYR:HB2	1.91	0.53
3:F:130:ARG:NH1	3:F:131:THR:OG1	2.42	0.53
1:A:402:ARG:HD2	1:A:426:PRO:HD3	1.90	0.53
1:A:931:ARG:HG3	1:A:1128:ALA:HB2	1.91	0.53
1:A:830:GLU:OE1	1:A:831:VAL:N	2.42	0.53
1:A:1075:ALA:HB2	1:A:1082:TRP:CD1	2.43	0.53
1:A:1143:VAL:H	1:A:1168:LEU:HA	1.74	0.53
2:C:188:VAL:HG11	3:D:157:LEU:HD11	1.91	0.53
3:D:220:HIS:CE1	3:D:222:GLY:H	2.27	0.53
1:B:683:ARG:O	1:B:685:ILE:N	2.41	0.52
1:B:1407:LEU:HA	1:B:1412:ARG:HD3	1.92	0.52
1:A:1231:LEU:HB2	1:A:1288:TYR:CE2	2.45	0.52
2:E:56:LYS:HZ1	2:E:56:LYS:H	1.56	0.52
1:A:25:GLN:O	1:A:29:GLU:HG2	2.10	0.52
2:C:71:ARG:NH2	2:C:94:ASP:OD2	2.43	0.52
2:E:189:VAL:O	2:E:190:THR:OG1	2.26	0.52
1:B:67:GLY:HA2	1:B:94:GLY:HA2	1.92	0.52
1:A:1173:ARG:HH22	1:A:1229:ALA:HB3	1.75	0.52
2:E:87:MET:HB3	2:E:90:LEU:HD11	1.92	0.52
1:A:1334:HIS:O	1:A:1334:HIS:ND1	2.42	0.52
1:B:328:GLY:O	3:D:98:ARG:NH2	2.43	0.52
1:A:282:ASP:OD1	1:A:285:ARG:NH2	2.42	0.52
3:D:154:VAL:HG22	3:D:155:VAL:N	2.25	0.52
3:D:132:VAL:HG23	3:D:163:PRO:HD3	1.92	0.51
1:A:835:PRO:HG3	1:A:856:HIS:HD2	1.75	0.51
1:A:1205:ARG:NE	1:A:1260:GLU:OE2	2.42	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:102:GLU:HG2	3:F:103:ASP:H	1.76	0.51
1:B:175:LEU:O	1:B:179:THR:OG1	2.22	0.51
2:E:95:THR:HG23	2:E:117:THR:HA	1.92	0.51
3:F:156:CYS:HB2	3:F:170:TRP:HZ2	1.76	0.51
2:E:24:CYS:HB3	2:E:83:ALA:HB3	1.93	0.51
3:F:154:VAL:HG23	3:F:201:LEU:HD13	1.92	0.51
1:A:1111:ASP:OD1	1:A:1111:ASP:N	2.42	0.51
1:A:467:GLU:O	1:A:469:GLY:N	2.43	0.51
1:A:471:VAL:HG11	1:A:865:LEU:HD23	1.93	0.51
2:E:3:GLU:HB3	2:E:5:GLN:HE22	1.75	0.51
3:D:138:PHE:O	3:D:157:LEU:N	2.30	0.51
1:B:786:SER:OG	1:B:791:ARG:O	2.29	0.50
2:E:36:MET:HE3	2:E:36:MET:HA	1.92	0.50
1:A:821:ALA:HA	1:A:826:ARG:HH12	1.76	0.50
1:A:1127:ARG:NH1	1:A:1387:ASP:OD2	2.44	0.50
1:A:1063:ALA:O	1:A:1067:LEU:HG	2.11	0.50
2:C:118:VAL:HG22	2:C:119:SER:N	2.26	0.50
2:E:31:PHE:CG	2:E:81:SER:HB2	2.46	0.50
1:B:1453:LEU:O	1:B:1457:ASN:ND2	2.33	0.50
1:B:35:VAL:HG23	1:B:294:LEU:HB2	1.94	0.50
3:D:158:LEU:HD12	3:D:197:LEU:HD22	1.93	0.50
2:E:54:ARG:O	2:E:76:ARG:NH1	2.45	0.50
1:A:1280:PHE:HE2	1:A:1282:ALA:HB2	1.76	0.50
1:B:340:HIS:CE1	1:B:443:PHE:H	2.30	0.50
1:A:1098:ARG:NH2	1:A:1118:ASP:O	2.40	0.50
3:D:154:VAL:HG22	3:D:155:VAL:H	1.76	0.50
1:A:315:ALA:O	1:A:319:VAL:HG23	2.12	0.50
2:E:87:MET:HG3	2:E:90:LEU:HD21	1.95	0.49
2:E:126:PRO:HB3	2:E:152:TYR:HB3	1.94	0.49
1:A:1148:GLY:N	1:A:1171:VAL:O	2.46	0.49
1:A:573:ALA:HB3	1:A:606:LEU:HD22	1.94	0.49
1:A:601:GLU:HB3	1:A:603:ILE:HD12	1.94	0.49
3:F:191:LYS:HD2	3:F:191:LYS:C	2.33	0.49
1:A:1234:GLY:O	1:A:1286:GLY:N	2.40	0.49
1:B:1421:ARG:HH12	1:B:1436:VAL:H	1.61	0.49
1:A:925:VAL:HA	1:A:928:LEU:HB2	1.94	0.49
1:A:966:ARG:HH12	1:A:975:ARG:HH12	1.61	0.49
1:A:379:THR:HB	1:A:382:ALA:HB3	1.95	0.49
1:A:933:GLU:OE2	1:A:935:ARG:NH1	2.45	0.49
2:C:74:ILE:HG12	2:C:85:LEU:HD13	1.95	0.49
2:E:77:ASP:OD1	2:E:82:ILE:N	2.42	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1444:GLU:OE1	1:B:1444:GLU:N	2.46	0.49
1:B:102:THR:HG22	1:B:907:ARG:HG3	1.94	0.49
1:B:562:PHE:HB2	1:B:654:GLY:HA2	1.95	0.49
1:A:1152:VAL:HG12	1:A:1317:TRP:CD2	2.48	0.48
2:C:68:VAL:HG13	2:C:71:ARG:HB2	1.95	0.48
3:D:21:THR:HG23	3:D:39:CYS:HB2	1.94	0.48
3:D:153:SER:HB3	3:D:201:LEU:O	2.13	0.48
2:E:162:ASN:HA	2:E:202:ILE:HG23	1.95	0.48
2:E:39:VAL:HG23	2:E:49:TRP:HA	1.94	0.48
2:E:72:PHE:CD1	2:E:87:MET:HE3	2.49	0.48
1:B:291:LEU:HD22	1:B:396:ARG:HH22	1.79	0.48
1:B:1421:ARG:HH12	1:B:1435:ARG:HA	1.78	0.48
1:A:1062:ALA:HB1	1:A:1294:TYR:HA	1.94	0.48
1:A:1079:PRO:HB3	1:A:1377:ARG:HD3	1.96	0.48
1:A:1361:VAL:HG23	1:A:1361:VAL:O	2.13	0.48
2:E:144:ALA:H	2:E:190:THR:HA	1.78	0.48
3:F:161:PHE:CZ	3:F:197:LEU:HB2	2.48	0.48
1:A:1024:LEU:HD12	1:A:1025:ALA:N	2.28	0.48
3:D:187:GLU:CD	3:D:187:GLU:H	2.17	0.48
2:E:74:ILE:HD12	2:E:85:LEU:HA	1.95	0.48
2:C:18:ARG:O	2:C:89:SER:N	2.44	0.48
3:F:164:ARG:HB2	3:F:195:TYR:CE1	2.49	0.48
1:A:241:LEU:HD23	1:A:241:LEU:H	1.79	0.48
2:E:143:ALA:N	2:E:191:VAL:H	2.12	0.48
1:A:465:ARG:NE	1:A:892:GLY:O	2.46	0.48
1:A:1143:VAL:O	1:A:1169:LEU:N	2.45	0.48
1:A:1334:HIS:HA	1:A:1368:ARG:HD2	1.95	0.48
1:B:1468:PRO:O	1:B:1471:THR:OG1	2.23	0.47
1:A:65:VAL:HG21	1:A:255:ARG:HD3	1.96	0.47
1:A:586:ALA:HA	1:A:589:GLU:OE1	2.14	0.47
1:A:1095:GLU:OE1	1:A:1095:GLU:N	2.42	0.47
2:C:202:ILE:HG23	2:C:204:ASN:HB3	1.96	0.47
1:A:1096:LEU:O	1:A:1100:LEU:HG	2.14	0.47
1:A:465:ARG:O	1:A:465:ARG:NH1	2.38	0.47
1:A:931:ARG:N	1:A:1126:VAL:O	2.40	0.47
1:A:1318:ALA:HB3	1:A:1341:PRO:HD3	1.97	0.47
2:C:202:ILE:O	2:C:204:ASN:N	2.48	0.47
1:B:640:SER:HA	1:B:643:ARG:HG2	1.96	0.47
1:B:800:ALA:HA	1:B:803:TRP:CD1	2.50	0.47
1:A:92:GLN:NE2	1:A:94:GLY:O	2.47	0.47
1:A:577:LEU:HA	1:A:583:PHE:HB3	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1026:ASP:O	1:A:1030:LEU:HG	2.14	0.47
1:A:1159:TRP:O	1:A:1163:ARG:HG2	2.15	0.47
2:C:41:GLN:HB2	2:C:47:LEU:HD23	1.96	0.47
1:A:1272:LEU:HD12	1:A:1295:LEU:HD22	1.95	0.47
1:B:577:LEU:HD23	1:B:577:LEU:H	1.80	0.47
1:B:834:HIS:ND1	1:B:835:PRO:HD2	2.30	0.47
1:A:103:ALA:HB1	1:A:905:ARG:HB3	1.97	0.47
1:A:1159:TRP:HA	1:A:1162:ARG:NE	2.30	0.47
1:A:1272:LEU:HB3	1:A:1295:LEU:HD13	1.96	0.47
2:C:92:THR:O	2:C:118:VAL:HG11	2.14	0.47
3:D:130:ARG:NE	3:D:131:THR:O	2.48	0.47
2:E:8:GLN:H	2:E:112:GLN:NE2	2.11	0.47
1:B:120:ASP:HB2	1:B:178:GLY:O	2.15	0.47
1:A:91:HIS:ND1	1:A:245:SER:HB3	2.30	0.47
1:A:597:HIS:CE1	1:A:676:ARG:HG3	2.49	0.47
1:B:25:GLN:OE1	1:B:28:ARG:NH1	2.48	0.46
1:B:528:ASP:OD1	1:B:529:GLU:N	2.49	0.46
1:A:1276:PHE:N	1:A:1314:TRP:O	2.47	0.46
3:F:130:ARG:HD2	3:F:192:ASP:O	2.15	0.46
1:B:598:LEU:HB2	1:B:676:ARG:NH2	2.28	0.46
3:F:45:LEU:HD23	3:F:113:LEU:HG	1.98	0.46
1:A:203:THR:HG22	1:A:203:THR:O	2.15	0.46
1:B:292:ALA:HB1	1:B:454:ILE:HD11	1.97	0.46
1:A:954:TYR:HA	1:A:981:VAL:H	1.80	0.46
1:A:1076:LEU:HD23	1:A:1076:LEU:HA	1.79	0.46
1:A:1159:TRP:CE2	1:A:1345:CYS:HB3	2.51	0.46
1:A:1312:VAL:HG12	1:A:1359:PRO:HG2	1.96	0.46
1:A:1226:HIS:CE1	1:A:1228:ALA:HB2	2.51	0.46
2:C:71:ARG:O	2:C:88:ASN:HB2	2.15	0.46
3:F:110:MET:SD	3:F:117:ARG:HD2	2.55	0.46
1:A:1337:ILE:HG13	1:A:1338:GLU:H	1.80	0.46
2:C:160:SER:C	2:C:204:ASN:HD21	2.17	0.46
3:D:156:CYS:SG	3:D:199:SER:OG	2.74	0.46
1:B:1407:LEU:HD11	1:B:1489:LEU:HB3	1.97	0.46
1:A:913:LYS:O	1:A:913:LYS:NZ	2.30	0.46
3:D:130:ARG:HD2	3:D:131:THR:N	2.31	0.46
1:A:915:VAL:H	1:A:918:ARG:HH21	1.64	0.46
2:C:95:THR:HB	2:C:118:VAL:HG12	1.98	0.46
2:C:178:GLN:HB2	2:C:181:GLY:O	2.16	0.46
3:F:167:LYS:O	3:F:218:VAL:HA	2.16	0.46
2:E:207:HIS:O	2:E:210:SER:N	2.49	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1421:ARG:HH22	1:B:1435:ARG:HA	1.80	0.45
1:B:81:HIS:CD2	1:A:1303:ARG:HH22	2.33	0.45
1:A:559:VAL:HG23	1:A:651:ALA:HB3	1.99	0.45
1:A:845:GLY:HA2	1:A:852:LEU:HD23	1.98	0.45
1:A:1242:GLU:O	1:A:1246:ARG:HG2	2.16	0.45
1:A:1314:TRP:CZ3	1:A:1344:ALA:HB1	2.51	0.45
2:C:8:GLN:NE2	2:C:112:GLN:O	2.50	0.45
3:D:127:ASP:HB2	3:D:188:GLN:HE22	1.81	0.45
3:D:172:VAL:H	3:D:177:GLN:N	2.15	0.45
1:A:134:LEU:HD23	1:A:141:PRO:HA	1.98	0.45
2:C:57:ALA:HB1	3:F:48:SER:HB2	1.98	0.45
1:A:923:ASP:OD1	1:A:923:ASP:N	2.48	0.45
1:A:1159:TRP:O	1:A:1162:ARG:HG2	2.17	0.45
3:F:88:SER:OG	3:F:89:GLY:N	2.49	0.45
3:F:127:ASP:HB2	3:F:188:GLN:NE2	2.32	0.45
1:A:300:ASN:HB3	1:A:319:VAL:HG22	1.99	0.45
1:A:1332:ARG:HA	1:A:1336:VAL:O	2.17	0.45
1:A:305:SER:OG	1:A:307:GLY:O	2.34	0.45
1:A:1148:GLY:HA2	1:A:1170:LEU:HG	1.98	0.45
2:E:160:SER:HB2	2:E:204:ASN:ND2	2.32	0.45
3:F:170:TRP:HD1	3:F:216:CYS:HA	1.81	0.45
3:F:189:ASP:OD2	3:F:192:ASP:HB3	2.16	0.45
1:B:129:LEU:HD23	1:B:129:LEU:HA	1.84	0.45
1:A:1183:GLU:HG2	1:A:1184:LEU:HD12	1.98	0.45
2:C:56:LYS:HE2	2:C:56:LYS:HB2	1.74	0.45
2:E:80:LYS:HG3	2:E:82:ILE:HG12	1.99	0.45
1:B:560:PHE:HE1	1:B:829:LEU:HD13	1.82	0.45
1:B:1475:HIS:HD2	1:B:1481:LEU:HD13	1.82	0.45
2:C:207:HIS:CD2	2:C:209:PRO:HD2	2.51	0.45
3:F:86:SER:OG	3:F:95:LYS:NZ	2.33	0.45
1:B:465:ARG:CZ	1:B:466:VAL:H	2.29	0.44
1:A:26:ARG:HD2	1:A:26:ARG:HA	1.81	0.44
2:C:162:ASN:HB3	2:C:166:LEU:H	1.81	0.44
3:D:18:VAL:HG22	3:D:20:MET:HG3	1.99	0.44
1:B:593:ALA:HB2	1:B:672:ASP:HB2	1.99	0.44
1:A:588:ARG:HA	1:A:588:ARG:HD3	1.80	0.44
1:A:966:ARG:NH1	1:A:975:ARG:HH12	2.15	0.44
1:B:339:ALA:HB2	1:B:369:LEU:HD11	1.99	0.44
3:D:22:GLN:NE2	3:D:124:THR:OG1	2.47	0.44
3:F:44:SER:OG	3:F:46:LEU:HD23	2.18	0.44
2:E:143:ALA:HB3	2:E:191:VAL:HG13	1.97	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:232:VAL:HG23	1:B:272:ALA:HB2	1.99	0.44
1:B:576:LEU:O	1:B:580:SER:N	2.51	0.44
1:B:786:SER:O	1:B:790:GLY:N	2.50	0.44
3:D:41:SER:OG	3:D:42:SER:N	2.51	0.44
2:E:135:SER:C	2:E:143:ALA:HB1	2.38	0.44
3:F:130:ARG:HG2	3:F:131:THR:H	1.82	0.44
1:B:832:SER:O	1:B:857:SER:OG	2.35	0.44
1:A:129:LEU:HD23	1:A:129:LEU:HA	1.86	0.44
1:A:1314:TRP:HE3	1:A:1317:TRP:HE1	1.64	0.44
1:A:600:PHE:HE2	1:A:605:PHE:HB2	1.82	0.44
1:A:934:TRP:CZ2	1:A:1123:ARG:HG3	2.52	0.44
1:A:1149:THR:OG1	1:A:1150:GLY:N	2.50	0.44
1:A:1194:ARG:HA	1:A:1194:ARG:HD2	1.87	0.44
2:E:20:LEU:O	2:E:87:MET:N	2.51	0.44
1:B:602:VAL:HA	1:B:605:PHE:CD2	2.53	0.44
1:A:1021:LEU:HG	1:A:1023:SER:H	1.83	0.44
1:B:601:GLU:HG3	1:B:602:VAL:HG22	2.00	0.43
3:D:170:TRP:CD1	3:D:201:LEU:HD13	2.53	0.43
1:A:977:ARG:HD3	1:A:977:ARG:HA	1.87	0.43
1:A:1048:GLU:HA	1:A:1088:VAL:O	2.19	0.43
3:F:104:VAL:HG12	3:F:126:VAL:HG12	1.98	0.43
1:A:1224:VAL:HG23	1:A:1267:LEU:HD21	1.99	0.43
1:A:71:ASP:OD1	1:A:71:ASP:N	2.52	0.43
1:A:560:PHE:CE1	1:A:829:LEU:HD23	2.53	0.43
1:A:835:PRO:HG3	1:A:856:HIS:CD2	2.52	0.43
1:A:1101:ALA:HA	1:A:1104:VAL:HG12	2.00	0.43
3:D:167:LYS:NZ	3:D:219:THR:HB	2.33	0.43
2:E:68:VAL:HG23	2:E:72:PHE:CZ	2.54	0.43
1:B:479:ALA:O	1:B:520:HIS:HB2	2.18	0.43
1:B:681:ARG:H	1:B:681:ARG:HD3	1.83	0.43
2:C:49:TRP:HZ2	2:C:52:PHE:HD1	1.66	0.43
2:C:121:ALA:HB3	2:C:153:PHE:CD2	2.53	0.43
2:E:160:SER:HB2	2:E:204:ASN:HD21	1.84	0.43
1:B:566:GLY:N	1:B:568:GLN:OE1	2.40	0.43
1:A:577:LEU:HB2	1:A:584:ALA:HA	1.99	0.43
1:B:1485:LEU:HD12	1:B:1486:THR:N	2.33	0.43
1:A:924:GLU:HG2	1:A:925:VAL:H	1.83	0.43
1:A:1314:TRP:CZ2	1:A:1348:LEU:HD12	2.54	0.43
1:B:322:GLN:O	1:B:322:GLN:NE2	2.51	0.43
1:A:1335:GLY:H	1:A:1368:ARG:HH11	1.64	0.43
2:C:32:GLY:O	2:C:56:LYS:NZ	2.44	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:38:SER:HA	3:D:93:THR:HA	2.01	0.43
3:D:130:ARG:HG2	3:D:193:SER:O	2.19	0.43
3:D:171:LYS:HD2	3:D:177:GLN:NE2	2.34	0.43
1:B:134:LEU:HD23	1:B:134:LEU:HA	1.80	0.43
1:A:856:HIS:CE1	1:A:859:ARG:HG2	2.54	0.43
1:A:990:LEU:HA	1:A:993:ARG:HG2	2.01	0.43
1:B:1410:PRO:HB2	1:B:1414:LYS:NZ	2.34	0.43
1:B:1482:ALA:HA	1:B:1485:LEU:HG	2.01	0.43
1:A:1085:LEU:HD12	1:A:1085:LEU:HA	1.85	0.43
1:B:572:MET:SD	1:B:858:LEU:HD13	2.59	0.42
1:B:1437:PRO:HB2	1:B:1440:GLN:HB2	2.01	0.42
1:A:408:GLU:OE2	1:A:409:ARG:N	2.52	0.42
1:A:424:ASP:OD1	1:A:424:ASP:N	2.52	0.42
1:A:1112:GLN:O	1:A:1122:GLY:HA2	2.19	0.42
1:A:1260:GLU:HA	1:A:1263:ARG:HH21	1.84	0.42
2:C:64:TYR:CE1	2:C:74:ILE:HG13	2.54	0.42
1:B:38:VAL:HB	1:B:276:LEU:HD23	2.01	0.42
1:A:209:LEU:HD23	1:A:209:LEU:HA	1.80	0.42
1:A:1320:SER:HB2	1:A:1323:ALA:HB3	2.00	0.42
3:D:37:ILE:O	3:D:94:LEU:N	2.34	0.42
1:B:836:ILE:O	1:B:837:LEU:HG	2.19	0.42
1:A:932:ILE:HD13	1:A:932:ILE:HA	1.82	0.42
1:A:1368:ARG:HA	1:A:1371:LEU:HG	2.01	0.42
3:F:140:PHE:O	3:F:154:VAL:HB	2.20	0.42
2:C:87:MET:HB3	2:C:90:LEU:HD21	2.01	0.42
1:B:794:GLN:N	1:B:797:GLU:OE2	2.51	0.42
1:B:889:LEU:HD23	1:B:890:GLY:H	1.84	0.42
1:A:1147:GLY:N	1:A:1171:VAL:O	2.53	0.42
1:A:1208:VAL:HG21	1:A:1257:ASN:HB3	2.02	0.42
2:E:41:GLN:O	2:E:96:ALA:HB1	2.19	0.42
1:B:588:ARG:HH12	1:B:602:VAL:HG21	1.84	0.42
1:B:1453:LEU:HD12	1:B:1454:GLU:N	2.34	0.42
1:A:533:LEU:HD23	1:A:533:LEU:HA	1.83	0.42
1:A:628:GLN:HB2	1:A:629:PRO:HD3	2.02	0.42
2:C:87:MET:HE2	2:C:87:MET:HA	2.00	0.42
3:F:161:PHE:HZ	3:F:197:LEU:HB2	1.84	0.42
1:A:828:PHE:HE1	1:A:852:LEU:HD12	1.85	0.42
2:C:148:LEU:HD13	3:D:145:GLU:HB2	2.01	0.42
2:E:75:SER:N	2:E:84:TYR:O	2.50	0.42
1:A:1343:THR:O	1:A:1346:ARG:HG2	2.19	0.41
3:F:205:LYS:HD3	3:F:205:LYS:HA	1.78	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:202:ASP:OD2	1:A:181:THR:OG1	2.33	0.41
1:B:209:LEU:HD23	1:B:450:ALA:HB3	2.01	0.41
1:A:1124:ARG:HA	1:A:1381:LEU:HD12	2.01	0.41
1:B:63:ASP:OD1	1:B:63:ASP:N	2.53	0.41
1:B:171:VAL:HG23	1:B:171:VAL:O	2.19	0.41
1:B:333:ASP:HA	1:B:434:ARG:HH12	1.85	0.41
1:B:409:ARG:HD3	1:B:415:TRP:CD1	2.55	0.41
1:B:679:ALA:HA	1:B:681:ARG:NH1	2.35	0.41
1:B:683:ARG:CG	1:B:685:ILE:HG12	2.50	0.41
1:A:652:VAL:HG23	1:A:784:PHE:HD1	1.85	0.41
1:A:1326:PRO:O	1:A:1330:ARG:HG2	2.20	0.41
2:C:20:LEU:O	2:C:87:MET:N	2.53	0.41
2:E:22:LEU:O	2:E:84:TYR:HA	2.20	0.41
1:B:574:VAL:HG23	1:B:575:ASP:OD1	2.20	0.41
1:A:1078:ASN:HB3	1:A:1081:VAL:HG22	2.03	0.41
3:F:40:ARG:NH2	3:F:91:ASP:OD1	2.49	0.41
3:F:162:TYR:HB2	3:F:194:THR:HA	2.01	0.41
1:A:562:PHE:HE2	1:A:662:ALA:HB2	1.85	0.41
1:A:584:ALA:O	1:A:588:ARG:HG2	2.20	0.41
3:D:170:TRP:CG	3:D:201:LEU:HD13	2.55	0.41
1:B:835:PRO:HB3	1:B:856:HIS:HB3	2.02	0.41
1:A:353:ARG:O	1:A:357:GLU:HG2	2.20	0.41
1:A:1096:LEU:HD12	1:A:1096:LEU:H	1.86	0.41
1:A:65:VAL:HG13	1:A:95:GLY:H	1.85	0.41
1:A:865:LEU:HD12	1:A:868:PHE:HB3	2.02	0.41
2:E:169:GLY:C	2:E:189:VAL:HG13	2.40	0.41
3:F:69:ILE:HG12	3:F:75:ARG:HB3	2.03	0.41
1:B:213:HIS:O	1:B:217:GLN:HG2	2.21	0.41
1:B:589:GLU:OE1	1:B:589:GLU:N	2.50	0.41
1:A:213:HIS:ND1	1:A:297:THR:OG1	2.38	0.41
1:A:814:ALA:O	1:A:818:ARG:HG2	2.21	0.41
1:A:1019:LEU:HB3	1:A:1245:GLU:HG2	2.01	0.41
2:C:160:SER:O	2:C:204:ASN:ND2	2.33	0.41
1:B:1410:PRO:C	1:B:1414:LYS:HZ2	2.24	0.41
1:A:1205:ARG:HG3	1:A:1209:ARG:NE	2.36	0.41
2:C:41:GLN:O	2:C:96:ALA:HB1	2.21	0.41
2:C:125:GLY:HA2	2:C:207:HIS:CE1	2.55	0.41
3:D:47:HIS:HB3	3:D:49:ASN:OD1	2.21	0.41
1:A:72:ARG:NH2	1:A:270:GLU:OE2	2.36	0.41
1:A:630:VAL:O	1:A:634:VAL:HG23	2.21	0.41
2:C:40:ARG:HD3	2:C:98:TYR:CZ	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:53:ILE:HA	2:E:62:THR:HG22	2.02	0.41
3:F:54:LEU:HD13	3:F:92:PHE:CD2	2.56	0.41
1:B:359:TYR:O	1:B:363:ARG:HG2	2.20	0.40
1:B:815:ASP:HA	1:B:818:ARG:HG2	2.03	0.40
1:A:261:ALA:HB2	1:A:408:GLU:HG3	2.02	0.40
1:A:485:LEU:HD12	1:A:485:LEU:HA	1.88	0.40
1:A:836:ILE:HG13	1:A:837:LEU:N	2.36	0.40
1:A:837:LEU:HD12	1:A:837:LEU:HA	1.92	0.40
1:A:1280:PHE:CE2	1:A:1282:ALA:HB2	2.55	0.40
3:F:38:SER:HA	3:F:93:THR:HG23	2.03	0.40
1:B:118:ALA:O	1:B:178:GLY:HA3	2.21	0.40
1:B:598:LEU:HD12	1:B:598:LEU:HA	1.92	0.40
1:A:562:PHE:HA	1:A:563:PRO:HD3	1.96	0.40
3:D:154:VAL:CG2	3:D:155:VAL:H	2.34	0.40
1:B:533:LEU:HD23	1:B:533:LEU:HA	1.92	0.40
1:A:154:GLY:HA2	1:A:201:VAL:O	2.21	0.40
1:A:918:ARG:H	1:A:918:ARG:HG2	1.55	0.40
1:A:1028:LEU:HD21	1:A:1239:LEU:O	2.21	0.40
1:A:1031:VAL:HG22	1:A:1043:LEU:HD12	2.04	0.40
1:A:937:THR:HB	1:A:1120:VAL:HG23	2.02	0.40
3:D:60:LYS:HE3	3:D:60:LYS:HB2	1.87	0.40
2:E:8:GLN:HE22	2:E:99:TYR:HA	1.86	0.40
2:E:71:ARG:O	2:E:88:ASN:HB2	2.21	0.40
2:E:91:LYS:HG3	2:E:93:GLU:OE2	2.21	0.40
1:B:312:ASN:OD1	1:B:313:GLY:N	2.54	0.40
1:A:404:LEU:HD23	1:A:404:LEU:HA	1.89	0.40
1:A:992:GLU:HA	1:A:995:ARG:HD2	2.04	0.40
1:A:1088:VAL:HG22	1:A:1115:LEU:HD12	2.04	0.40
3:F:46:LEU:HD23	3:F:89:GLY:HA3	2.03	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	1249/1784 (70%)	1178 (94%)	70 (6%)	1 (0%)	48	78
1	B	872/1784 (49%)	842 (97%)	28 (3%)	2 (0%)	44	72
2	C	186/249 (75%)	157 (84%)	25 (13%)	4 (2%)	5	32
2	E	199/249 (80%)	176 (88%)	22 (11%)	1 (0%)	25	57
3	D	200/236 (85%)	179 (90%)	19 (10%)	2 (1%)	13	44
3	F	188/236 (80%)	157 (84%)	30 (16%)	1 (0%)	25	57
All	All	2894/4538 (64%)	2689 (93%)	194 (7%)	11 (0%)	32	62

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	C	155	GLU
3	D	154	VAL
1	B	684	VAL
1	A	461	VAL
2	C	203	CYS
3	F	102	GLU
2	C	109	TYR
1	B	576	LEU
2	C	92	THR
2	E	116	VAL
3	D	137	VAL

### 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	923/1324 (70%)	901 (98%)	22 (2%)	44	64
1	B	653/1324 (49%)	632 (97%)	21 (3%)	34	57
2	C	160/203 (79%)	154 (96%)	6 (4%)	28	54
2	E	170/203 (84%)	166 (98%)	4 (2%)	44	64
3	D	181/208 (87%)	171 (94%)	10 (6%)	18	45
3	F	173/208 (83%)	167 (96%)	6 (4%)	31	56

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	2260/3470 (65%)	2191 (97%)	69 (3%)	37 58

All (69) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	43	ARG
1	B	80	PHE
1	B	86	ARG
1	B	114	ARG
1	B	378	HIS
1	B	577	LEU
1	B	587	LEU
1	B	588	ARG
1	B	600	PHE
1	B	647	VAL
1	B	681	ARG
1	B	683	ARG
1	B	684	VAL
1	B	685	ILE
1	B	785	PHE
1	B	791	ARG
1	B	831	VAL
1	B	837	LEU
1	B	886	SER
1	B	1435	ARG
1	B	1456	ARG
1	A	63	ASP
1	A	235	MET
1	A	241	LEU
1	A	247	MET
1	A	345	ARG
1	A	465	ARG
1	A	488	GLN
1	A	520	HIS
1	A	577	LEU
1	A	578	ASP
1	A	918	ARG
1	A	949	TRP
1	A	990	LEU
1	A	1110	GLU
1	A	1134	ASP
1	A	1205	ARG

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Mol	Chain	Res	Type
1	A	1209	ARG
1	A	1270	PHE
1	A	1333	ARG
1	A	1339	MET
1	A	1358	CYS
1	A	1377	ARG
2	C	3	GLU
2	C	54	ARG
2	C	110	TRP
2	C	112	GLN
2	C	147	CYS
2	C	161	TRP
3	D	20	MET
3	D	40	ARG
3	D	71	LEU
3	D	110	MET
3	D	117	ARG
3	D	148	LYS
3	D	156	CYS
3	D	167	LYS
3	D	191	LYS
3	D	220	HIS
2	E	52	PHE
2	E	56	LYS
2	E	145	LEU
2	E	201	TYR
3	F	20	MET
3	F	54	LEU
3	F	110	MET
3	F	130	ARG
3	F	172	VAL
3	F	191	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
2	E	5	GLN

### 5.3.3 RNA

There are no RNA molecules in this entry.

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

1 non-standard protein/DNA/RNA residue is 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
1	4HH	B	1449	1	22,26,27	1.21	1 (4%)	27,35,37	1.05	2 (7%)

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
1	4HH	B	1449	1	-	19/33/35/37	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	1449	4HH	CL3-NN	2.29	1.39	1.33

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	1449	4HH	OG-CB-CA	2.78	110.85	108.14
1	B	1449	4HH	O1P-P-O2P	2.24	122.86	112.44

There are no chirality outliers.

All (19) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	B	1449	4HH	C-CA-CB-OG
1	B	1449	4HH	N-CA-CB-OG
1	B	1449	4HH	CB-OG-P-O2P
1	B	1449	4HH	O3P-CJ-CK-CL1
1	B	1449	4HH	O3P-CJ-CK-CL2

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Mol	Chain	Res	Type	Atoms
1	B	1449	4HH	O3P-CJ-CK-CM
1	B	1449	4HH	CK-CJ-O3P-P
1	B	1449	4HH	CJ-CK-CM-CL3
1	B	1449	4HH	CL1-CK-CM-CL3
1	B	1449	4HH	CL1-CK-CM-OM
1	B	1449	4HH	CL2-CK-CM-CL3
1	B	1449	4HH	CL2-CK-CM-OM
1	B	1449	4HH	NN-CL3-CM-OM
1	B	1449	4HH	CJ-O3P-P-OG
1	B	1449	4HH	CJ-O3P-P-O1P
1	B	1449	4HH	ON-CL3-CM-OM
1	B	1449	4HH	CB-OG-P-O3P
1	B	1449	4HH	CJ-CK-CM-OM
1	B	1449	4HH	NN-CL3-CM-CK

There are no ring outliers.

No monomer is involved in short contacts.

## 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.

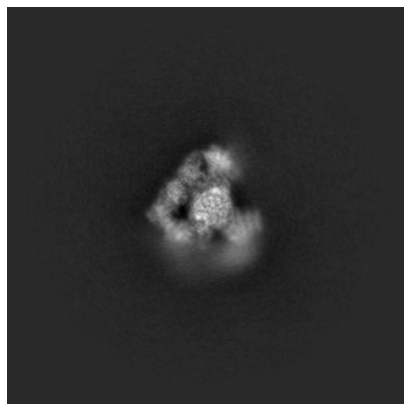
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-41305. These allow visual inspection of the internal detail of the map and identification of artifacts.

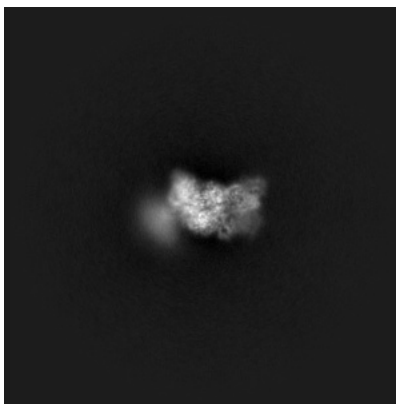
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

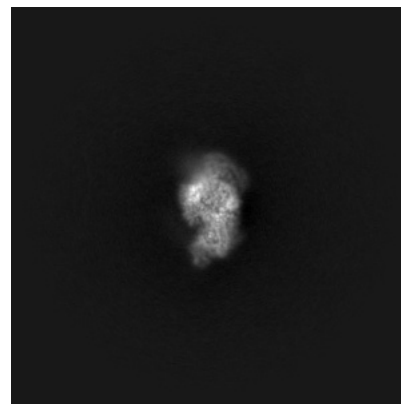
#### 6.1.1 Primary map



X

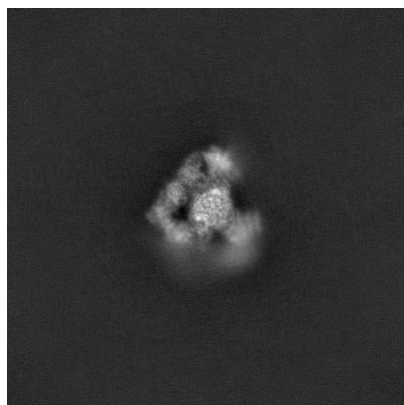


Y

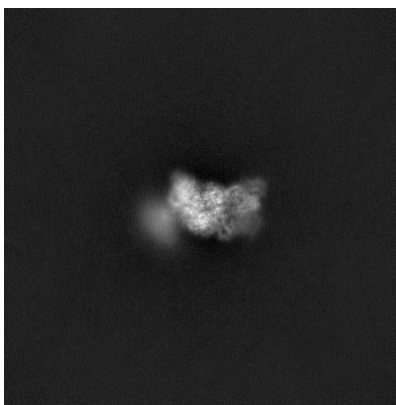


Z

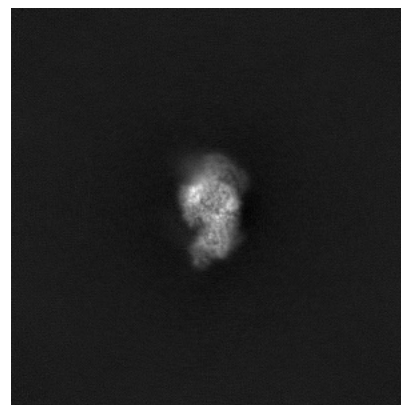
#### 6.1.2 Raw map



X



Y

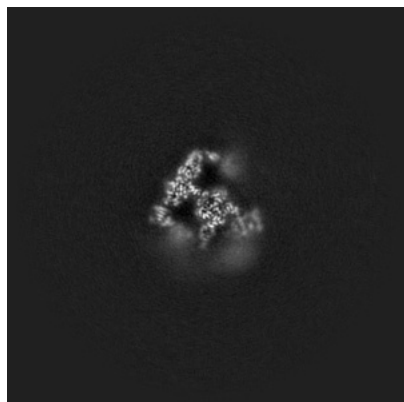


Z

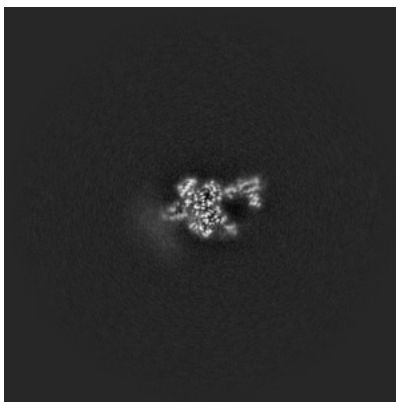
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

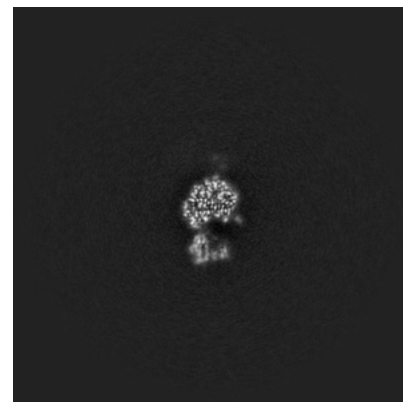
### 6.2.1 Primary map



X Index: 256

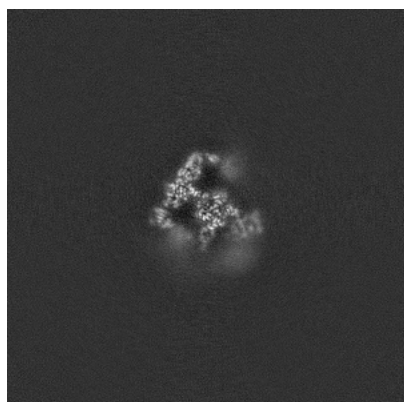


Y Index: 256

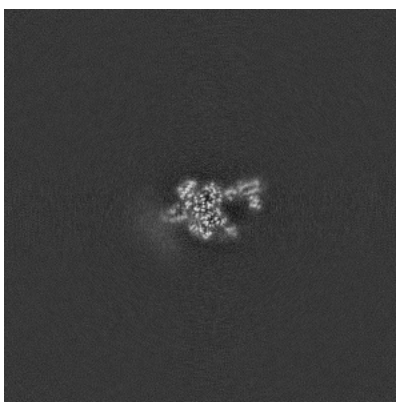


Z Index: 256

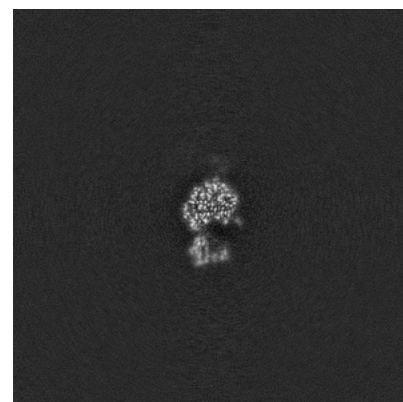
### 6.2.2 Raw map



X Index: 256



Y Index: 256



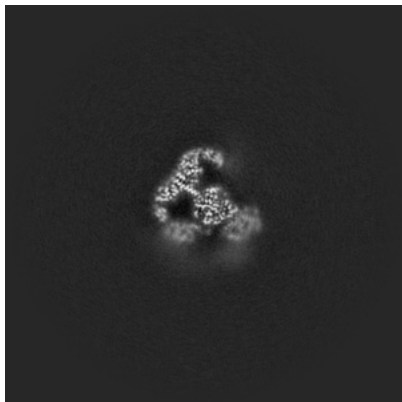
Z Index: 256

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

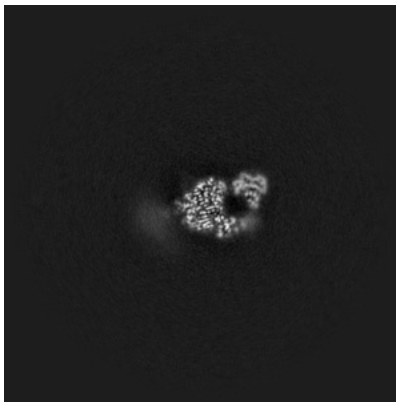


## 6.3 Largest variance slices [i](#)

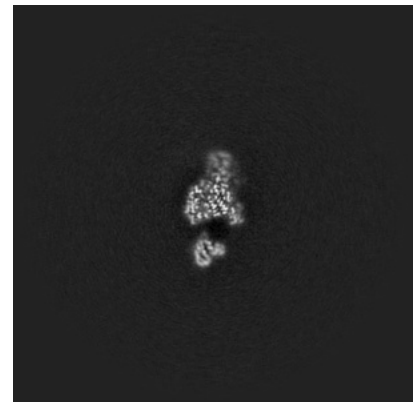
### 6.3.1 Primary map



X Index: 263

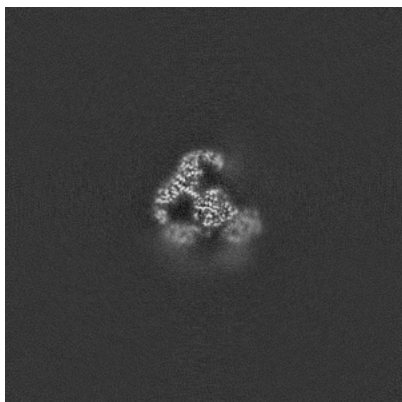


Y Index: 264

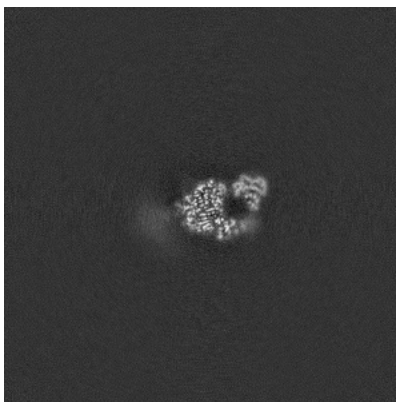


Z Index: 246

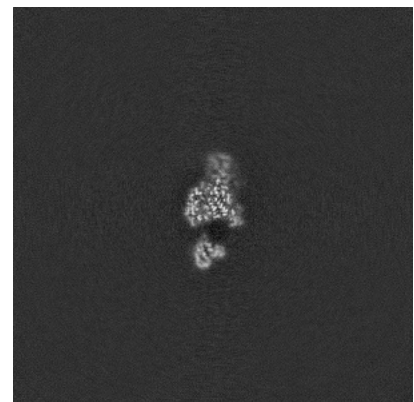
### 6.3.2 Raw map



X Index: 263



Y Index: 264

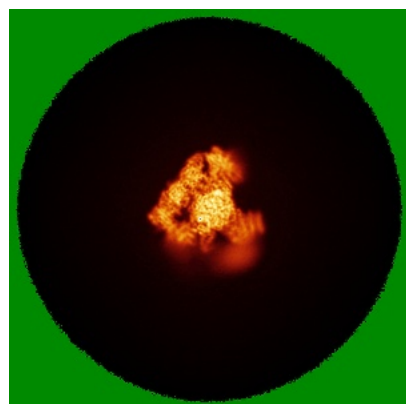


Z Index: 246

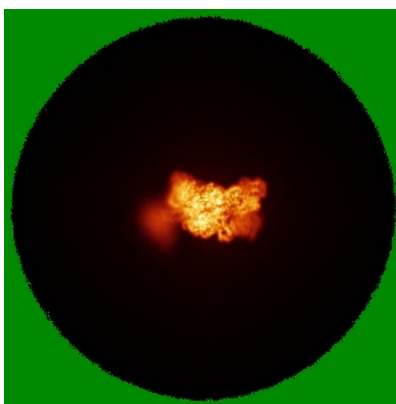
The images above show the largest variance slices of the map in three orthogonal directions.

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

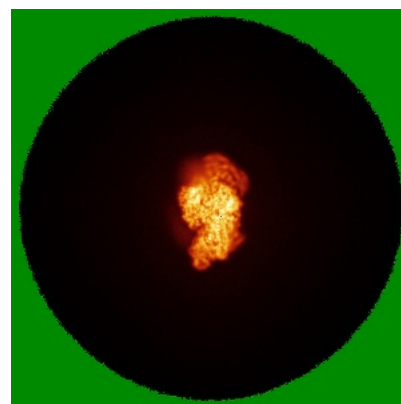
### 6.4.1 Primary map



X

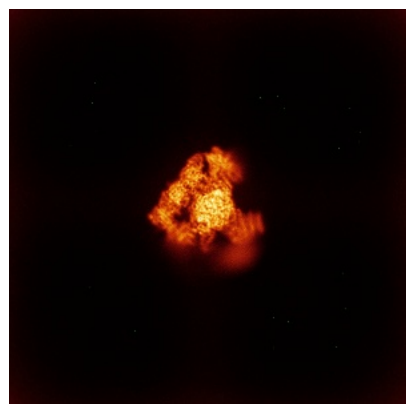


Y

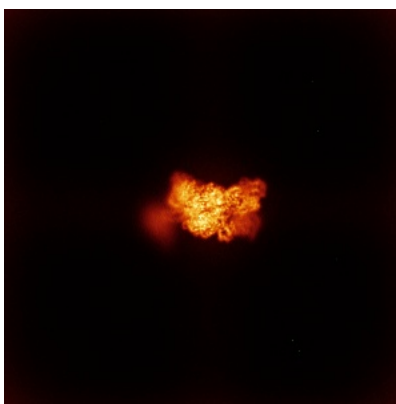


Z

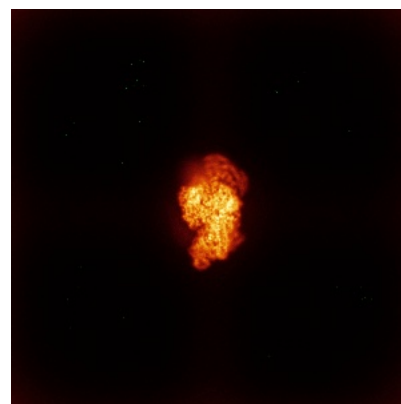
### 6.4.2 Raw map



X



Y

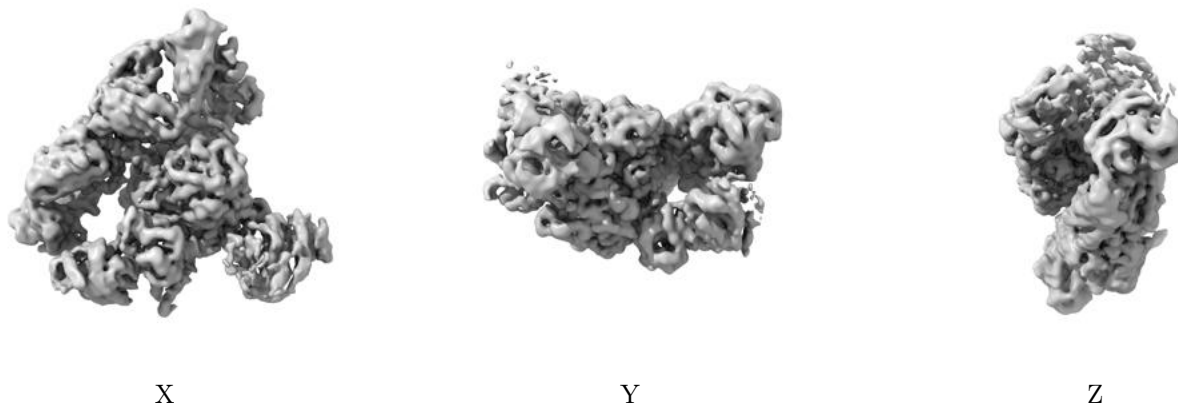


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

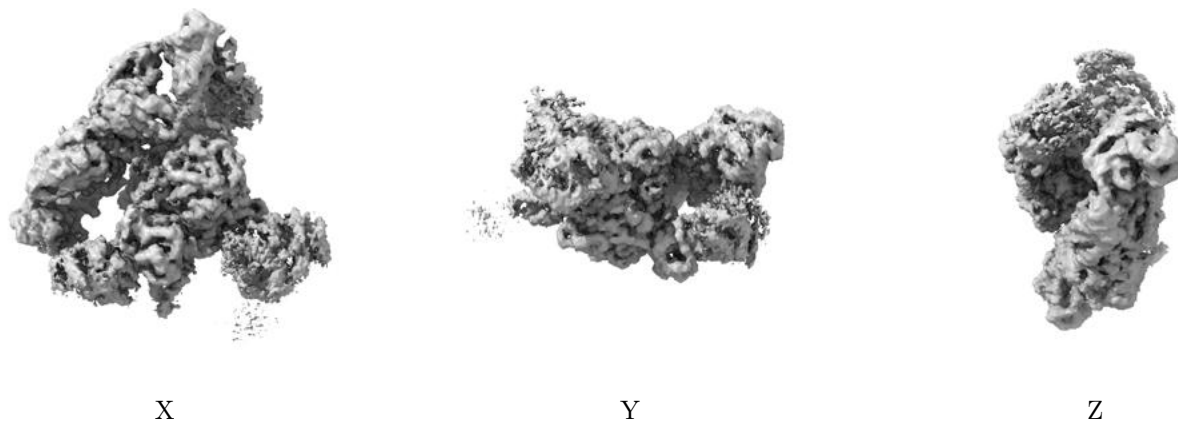
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.416. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

### 6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

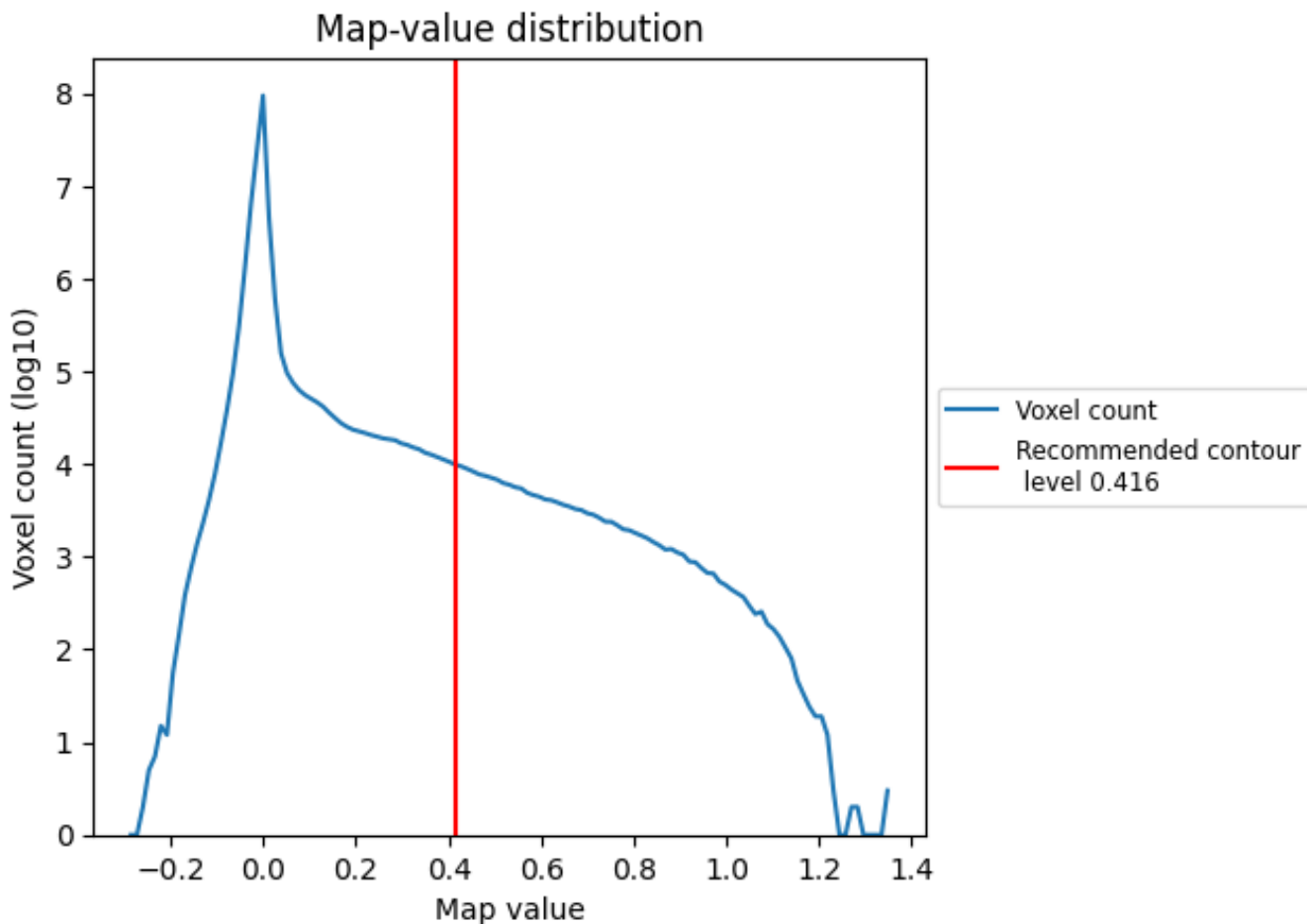
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

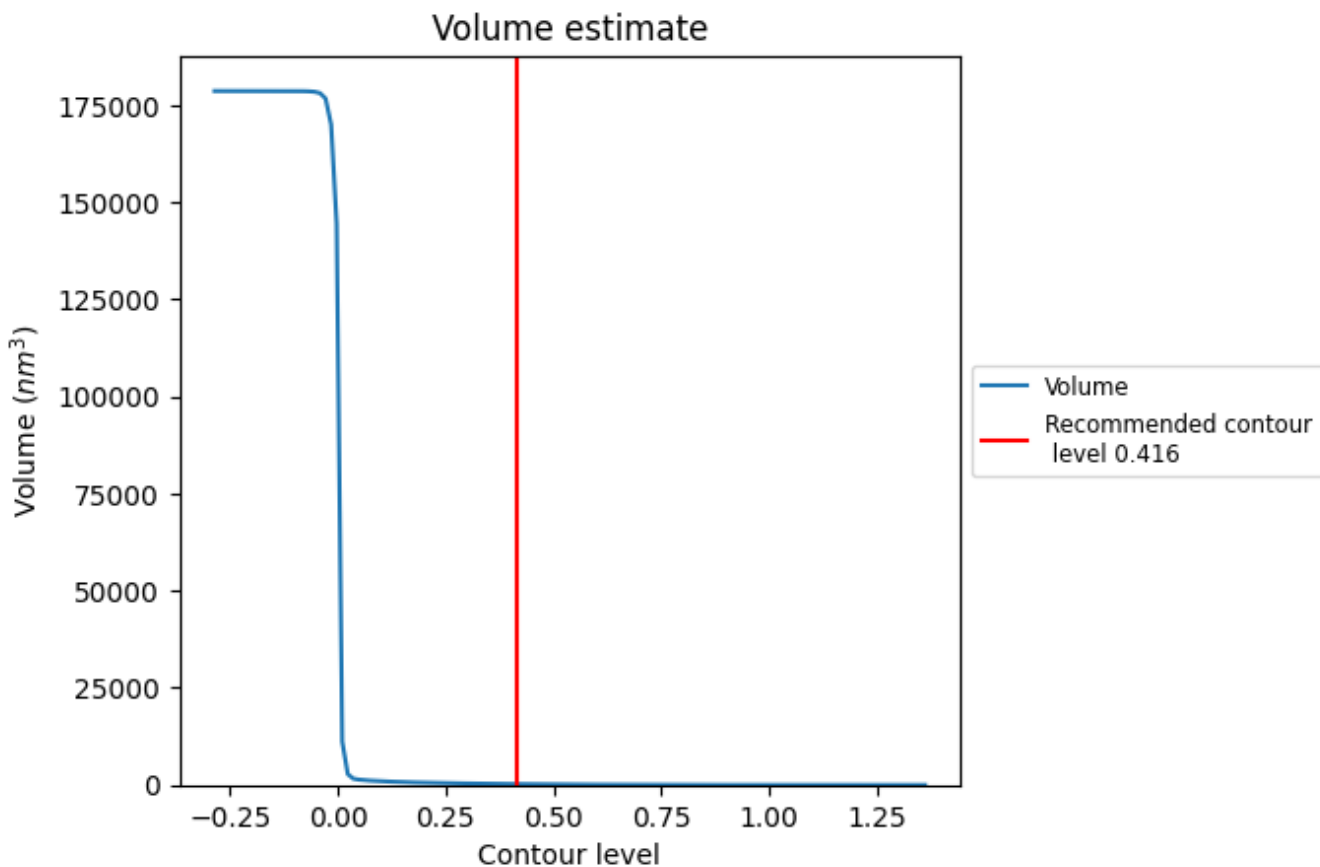
This section contains the results of statistical analysis of the map.

### 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.

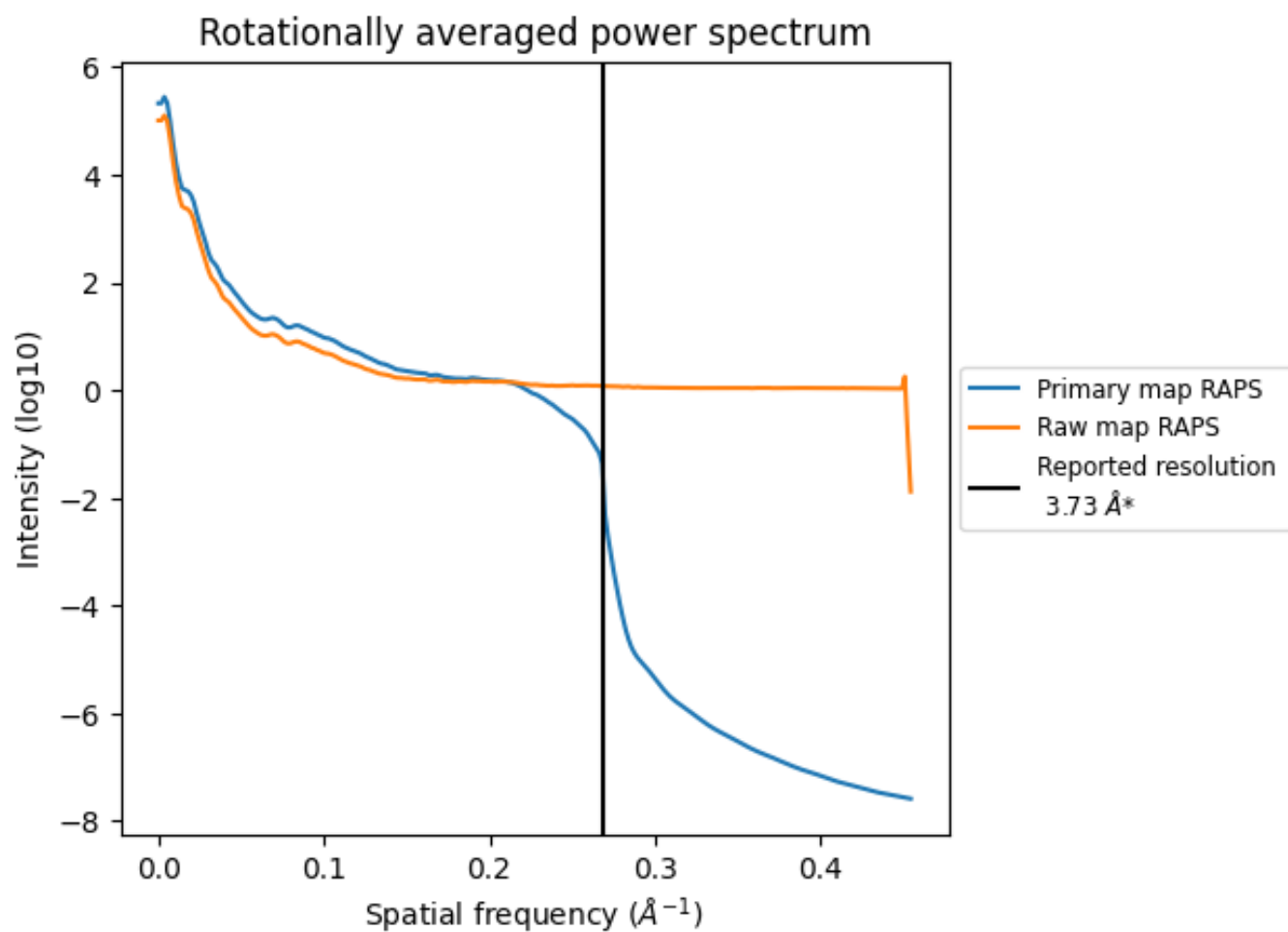
## 7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 223  $\text{nm}^3$ ; this corresponds to an approximate mass of 201 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

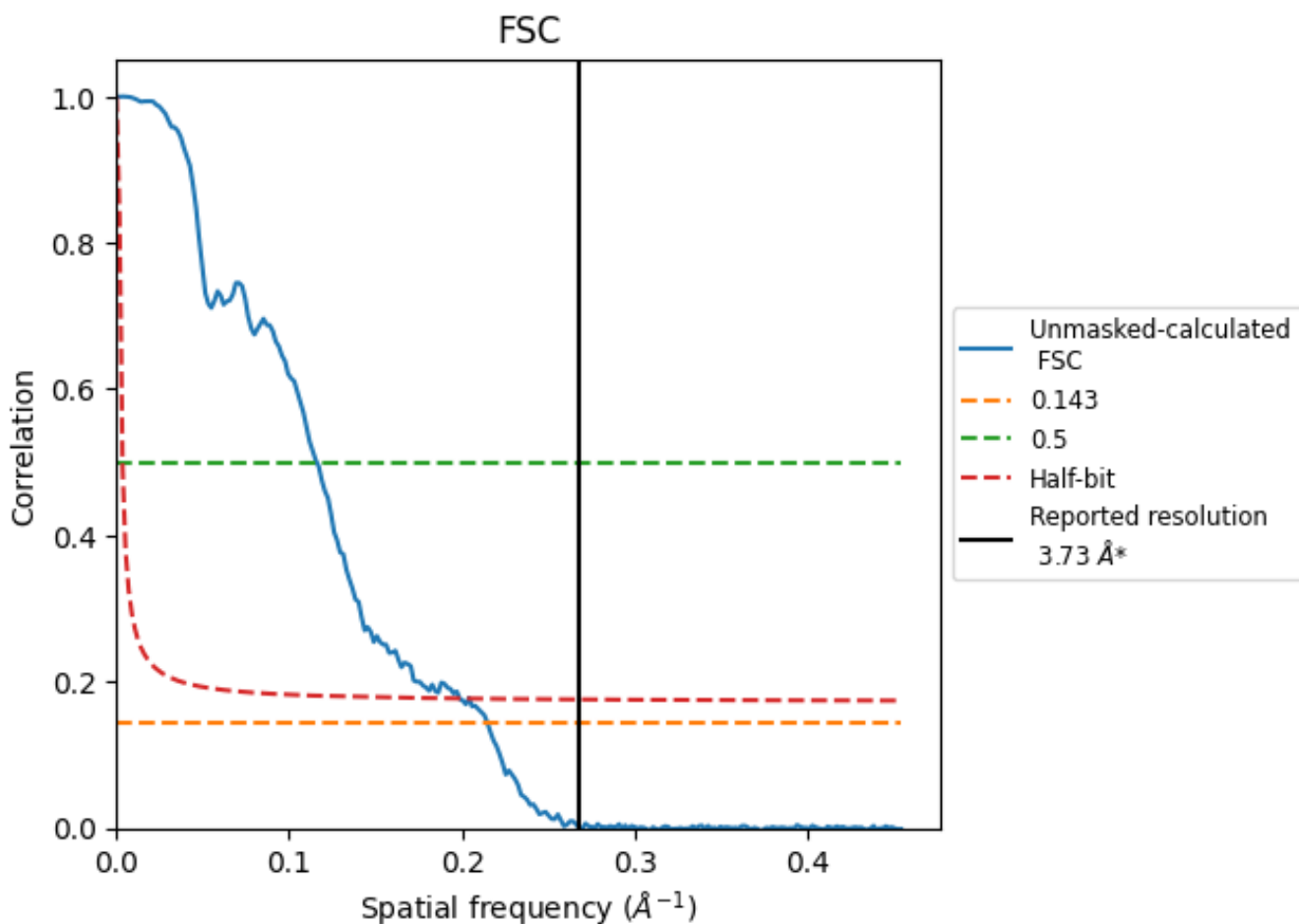


\*Reported resolution corresponds to spatial frequency of 0.268 Å<sup>-1</sup>

## 8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.268  $\text{\AA}^{-1}$

## 8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.73	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.65	8.62	5.03

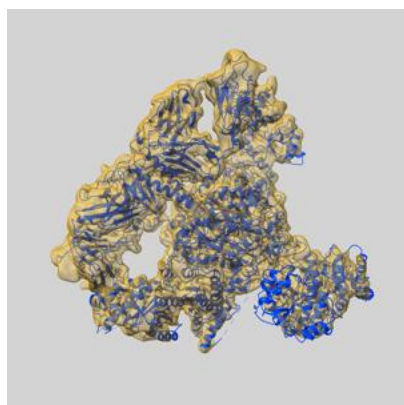
\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.65 differs from the reported value 3.73 by more than 10 %



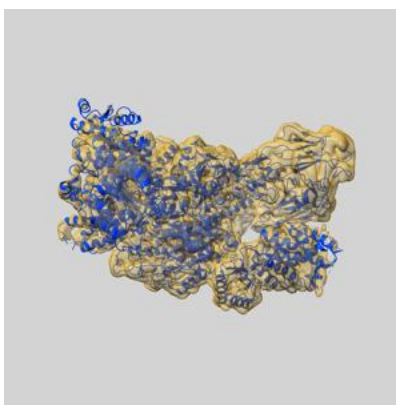
## 9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-41305 and PDB model 8TJN. Per-residue inclusion information can be found in section 3 on page 7.

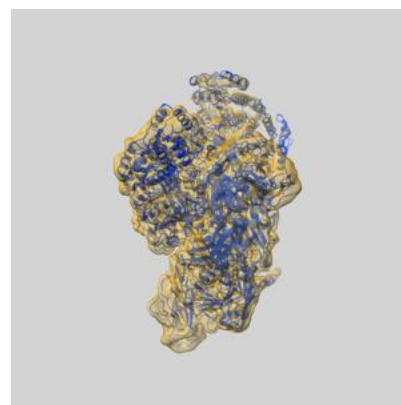
### 9.1 Map-model overlay [i](#)



X



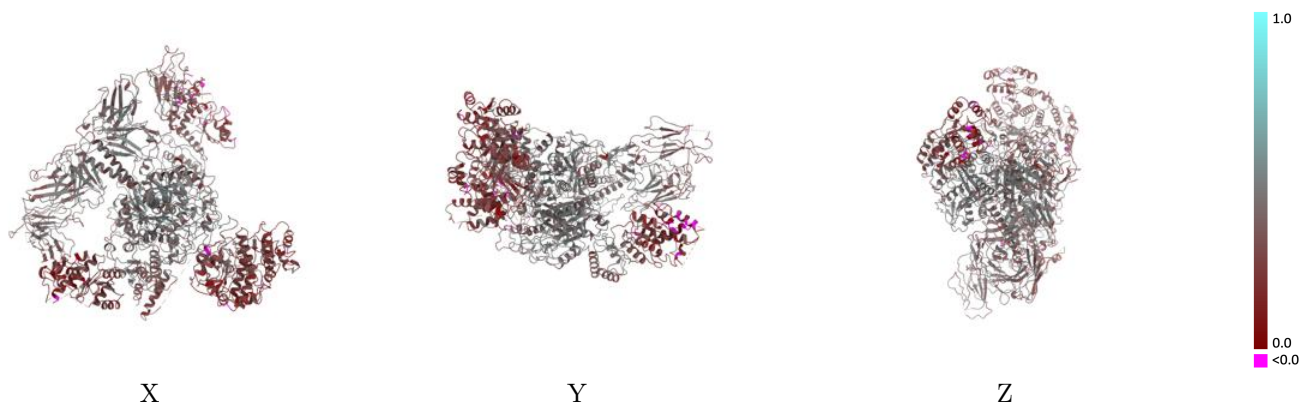
Y



Z

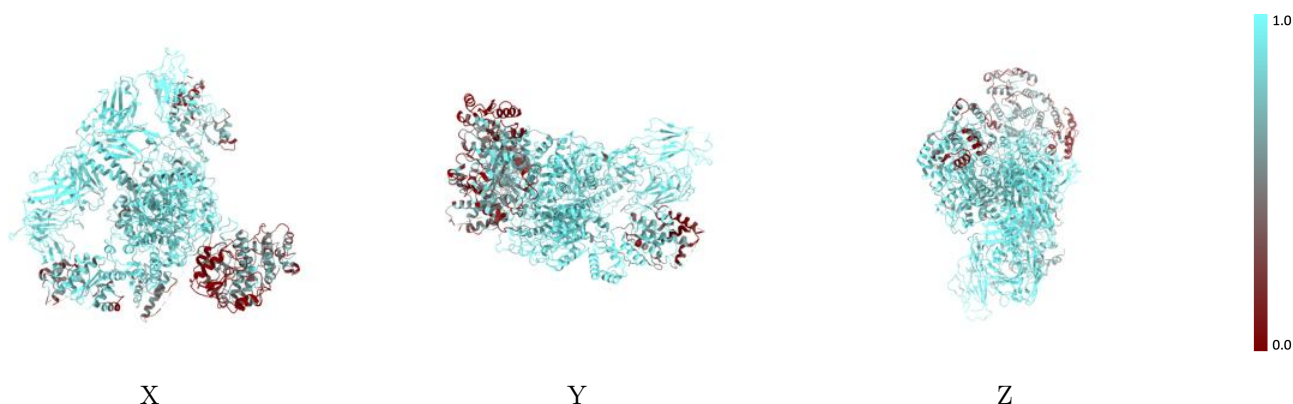
The images above show the 3D surface view of the map at the recommended contour level 0.416 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



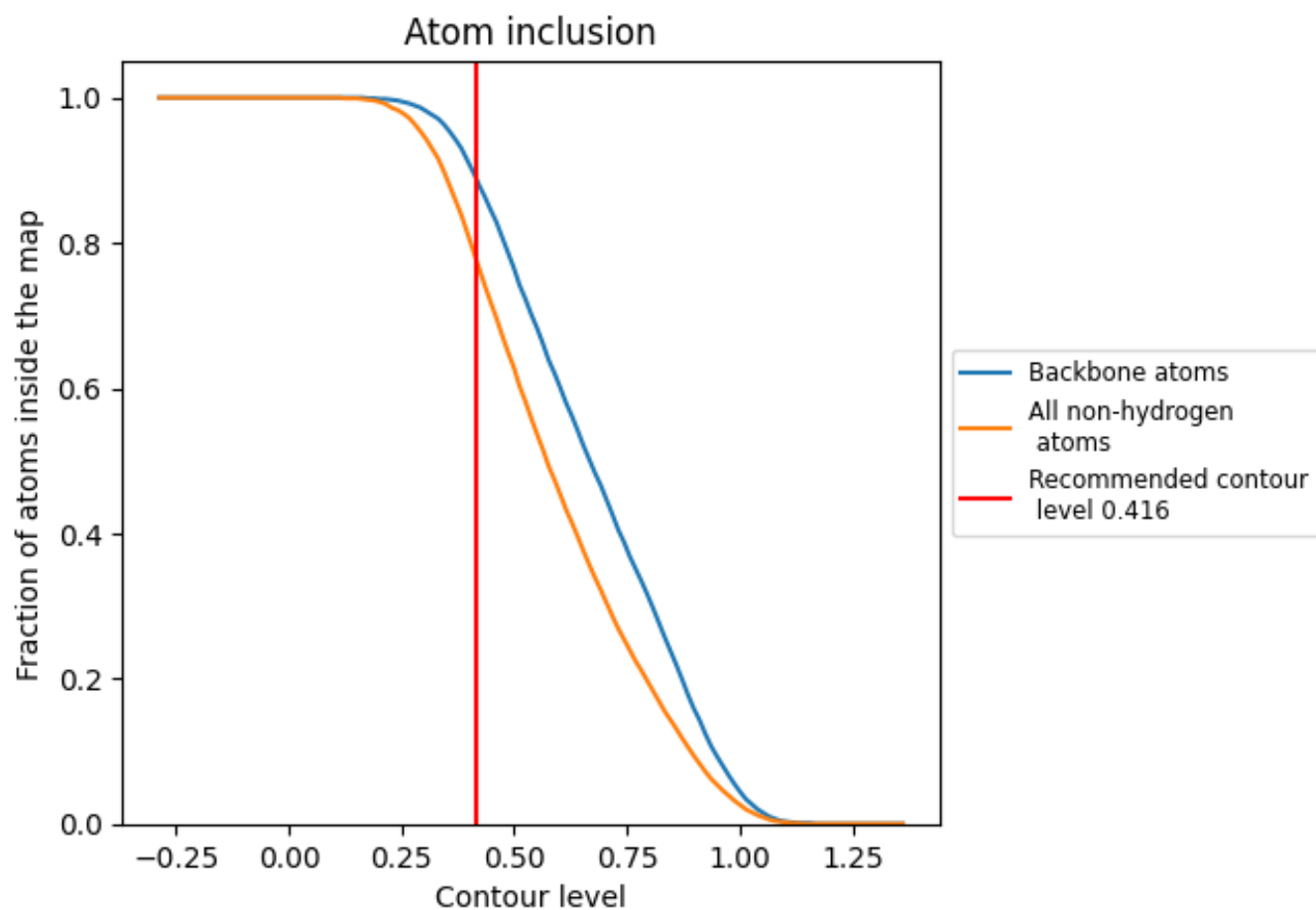
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.416).















## 9.4 Atom inclusion [i](#)



At the recommended contour level, 89% of all backbone atoms, 78% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary [i](#)

The table lists the average atom inclusion at the recommended contour level (0.416) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7770	 0.3640
A	 0.6520	 0.3340
B	 0.8170	 0.3760
C	 0.9180	 0.3980
D	 0.9270	 0.3950
E	 0.9250	 0.3880
F	 0.9280	 0.4050

