Full wwPDB EM Validation Report ⓘ

Aug 21, 2025 – 04:37 pm BST

PDB ID	:	9HJ3 / pdb_00009hj3
EMDB ID	:	EMD-52209
Title	:	Bacteroides thetaiotaomicron BAM complex
Authors	:	Silale, A.; van den Berg, B.
Deposited on	:	2024-11-27
Resolution	:	3.46 Å(reported)
Based on initial models	:	9HIV, 9HIS

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

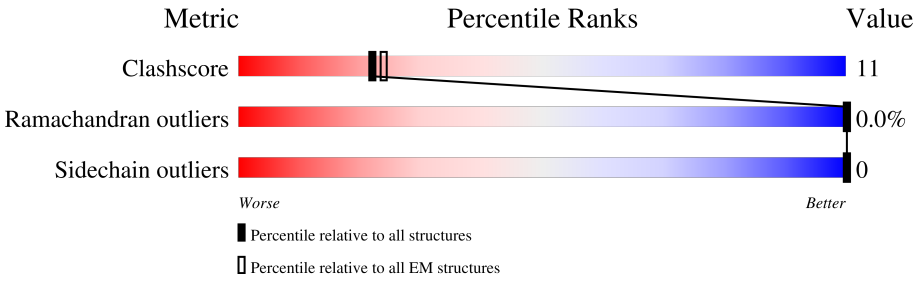
EMDB validation analysis	:	0.0.1.dev126
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.45.1

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 3.46 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 <=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	885	12% 43% 16% 41%
2	D	267	28% 51% 21% 28%
3	F	431	76% 18% 6%
4	H	493	75% 16% 9%
5	I	196	8% 65% 21% 14%
6	J	214	82% 6% 12%
7	G	525	87% 12%

2 Entry composition

There are 9 unique types of molecules in this entry. The entry contains 19521 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 Outer membrane protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	520	Total	C	N	O	S	0	0
			4201	2697	708	781	15		

- Molecule 2 is a protein called Lipoprotein protein, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	D	193	Total	C	N	O	S	0	0
			1622	1042	259	313	8		

- Molecule 3 is a protein called Outer membrane protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	F	406	Total	C	N	O	S	0	0
			3181	2023	535	612	11		

- Molecule 4 is a protein called DUF6242 domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	H	448	Total	C	N	O	S	0	0
			3522	2241	580	690	11		

- Molecule 5 is a protein called Peptidyl-prolyl cis-trans isomerase.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	I	169	Total	C	N	O	S	0	0
			1337	856	214	263	4		

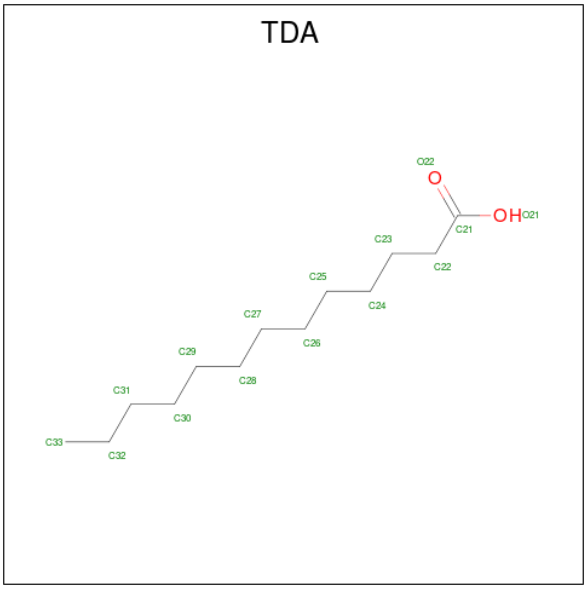
- Molecule 6 is a protein called DUF4827 domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	J	188	Total	C	N	O	S	0	0
			1547	991	250	300	6		

- Molecule 7 is a protein called DUF4270 domain-containing protein.

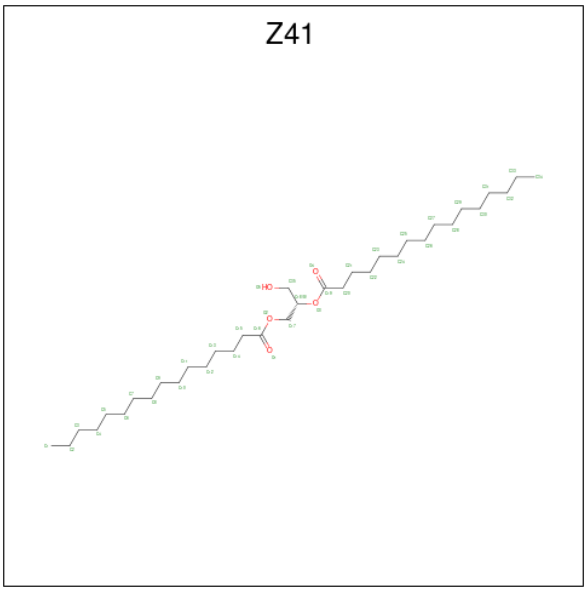
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	G	520	4065	2567	669	819	10	0	0

- Molecule 8 is N-TRIDECANOIC ACID (CCD ID: TDA) (formula: $C_{13}H_{26}O_2$).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	O		
8	G	1	14	13	1		0

- Molecule 9 is (2S)-3-hydroxypropane-1,2-diyl dihexadecanoate (CCD ID: Z41) (formula: $C_{35}H_{68}O_5$).

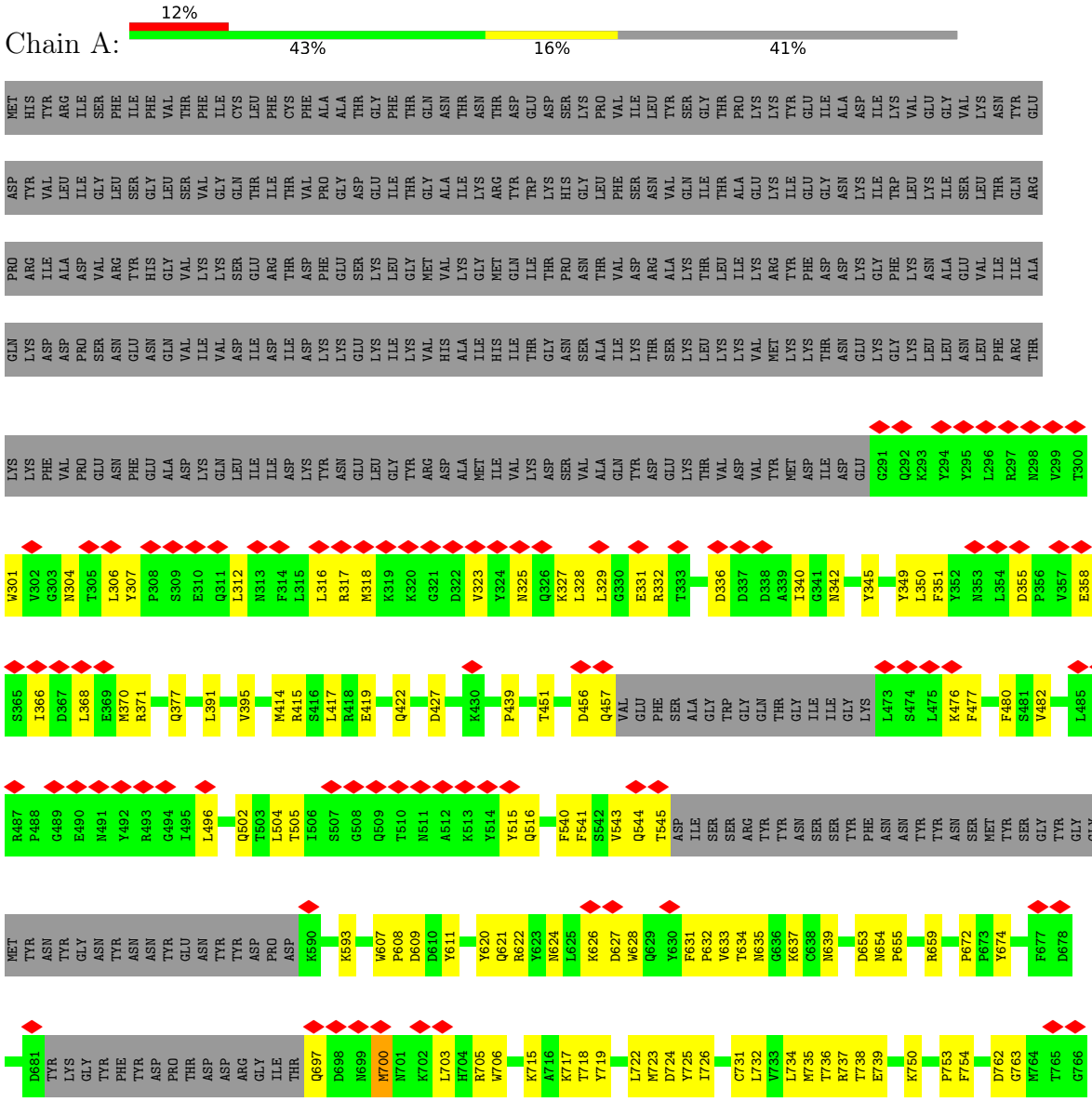


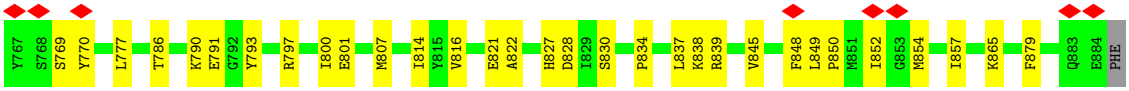
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
9	G	1	32	28	4	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

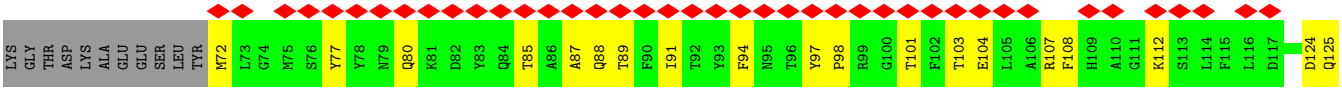
- Molecule 1: Outer membrane protein

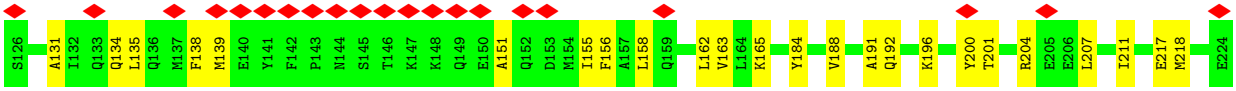


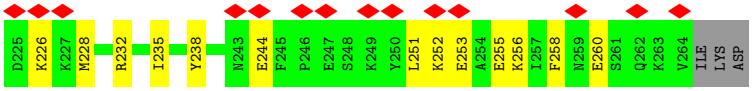


• Molecule 2: Lipoprotein protein, putative

Chain D:

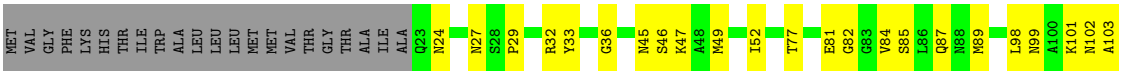


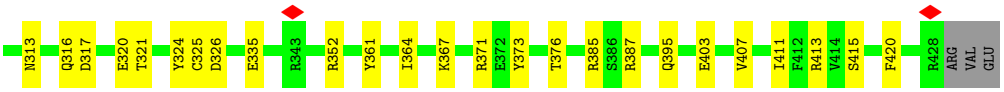




• Molecule 3: Outer membrane protein

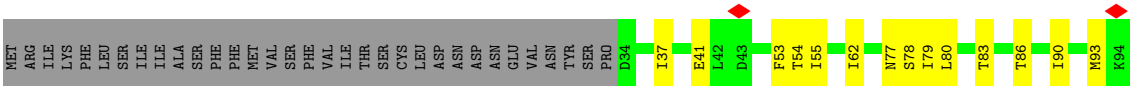
Chain F:

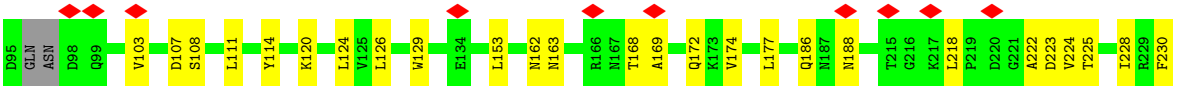


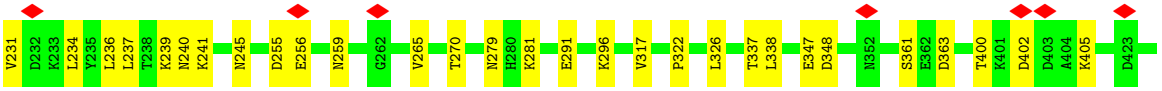


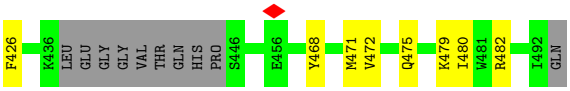
• Molecule 4: DUF6242 domain-containing protein

Chain H:

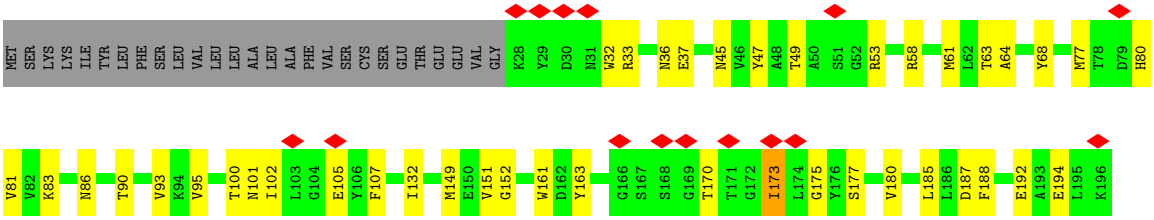




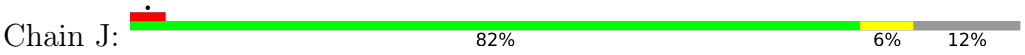


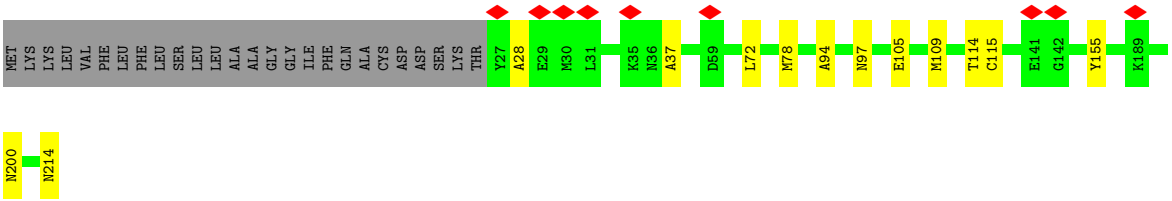


• Molecule 5: Peptidyl-prolyl cis-trans isomerase

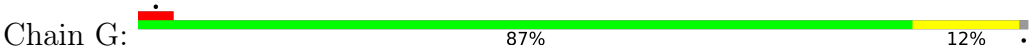


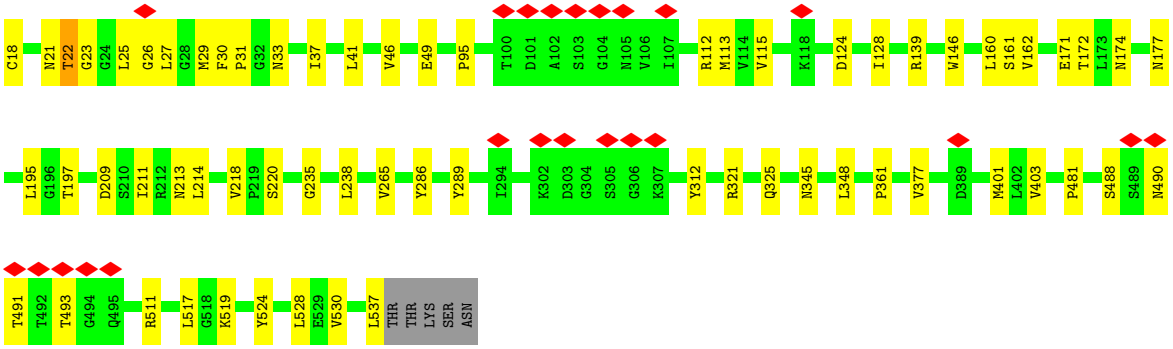
• Molecule 6: DUF4827 domain-containing protein





• Molecule 7: DUF4270 domain-containing protein





4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	105155	Depositor
Resolution determination method	OTHER	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	35	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	165000	Depositor
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	45.320	Depositor
Minimum map value	-30.860	Depositor
Average map value	0.003	Depositor
Map value standard deviation	1.051	Depositor
Recommended contour level	5.93	Depositor
Map size (Å)	331.52002, 331.52002, 331.52002	wwPDB
Map dimensions	448, 448, 448	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.74000007, 0.74000007, 0.74000007	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: Z41, TDA

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	0.27	0/4310	0.56	1/5828 (0.0%)
2	D	0.22	0/1660	0.55	0/2238
3	F	0.26	0/3257	0.53	1/4408 (0.0%)
4	H	0.25	0/3593	0.49	0/4885
5	I	0.29	0/1372	0.50	1/1863 (0.1%)
6	J	0.19	0/1587	0.41	0/2160
7	G	0.25	1/4141 (0.0%)	0.48	3/5610 (0.1%)
All	All	0.25	1/19920 (0.0%)	0.51	6/26992 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
3	F	0	2
7	G	1	0
All	All	1	3

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	G	18	CYS	C-N	5.26	1.40	1.33

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
7	G	18	CYS	CB-CA-C	13.73	136.19	110.10
1	A	700	MET	CG-SD-CE	-7.60	84.18	100.90

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
7	G	18	CYS	CA-C-O	-5.66	111.18	120.80
3	F	415	SER	N-CA-C	5.61	117.10	107.28
5	I	173	ILE	CB-CG1-CD1	-5.29	102.70	113.80
7	G	18	CYS	N-CA-C	-5.23	96.36	111.00

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
7	G	18	CYS	CA

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	797	ARG	Sidechain
3	F	188	ARG	Sidechain
3	F	413	ARG	Sidechain

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	4201	0	4094	143	0
2	D	1622	0	1564	46	0
3	F	3181	0	3073	87	0
4	H	3522	0	3486	72	0
5	I	1337	0	1269	42	0
6	J	1547	0	1455	13	0
7	G	4065	0	3984	64	0
8	G	14	0	25	1	0
9	G	32	0	0	0	0
All	All	19521	0	18950	433	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 (433) 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:F:87:GLN:HE21	3:F:102:ASN:HB3	1.19	1.06
1:A:593:LYS:HB3	1:A:624:ASN:HB2	1.40	1.00
1:A:516:GLN:HB3	1:A:543:VAL:HG12	1.49	0.94
4:H:169:ALA:HB2	4:H:475:GLN:NE2	1.83	0.94
2:D:163:VAL:HG21	2:D:201:THR:HG21	1.49	0.93
1:A:849:LEU:HD23	1:A:852:ILE:HB	1.50	0.93
7:G:128:ILE:HD11	7:G:238:LEU:HD23	1.51	0.90
3:F:317:ASP:OD1	7:G:33:ASN:HB2	1.72	0.90
1:A:659:ARG:HD2	1:A:725:TYR:CE1	2.07	0.89
1:A:477:PHE:HE2	1:A:496:LEU:HD13	1.35	0.88
1:A:323:VAL:HG13	1:A:325:ASN:HD21	1.39	0.86
1:A:703:LEU:HD13	1:A:750:LYS:HE3	1.57	0.84
1:A:839:ARG:NH1	3:F:24:ASN:OD1	2.12	0.82
1:A:457:GLN:HG3	1:A:476:LYS:HD3	1.61	0.81
3:F:364:ILE:HD13	7:G:29:MET:HB2	1.61	0.81
5:I:101:ASN:ND2	5:I:105:GLU:OE2	2.14	0.80
5:I:61:MET:HE1	5:I:163:TYR:CZ	2.16	0.79
1:A:626:LYS:HG2	6:J:28:ALA:HB1	1.62	0.79
4:H:93:MET:HE1	4:H:103:VAL:HG23	1.63	0.79
1:A:349:TYR:CE2	1:A:377:GLN:HB2	2.19	0.78
5:I:86:ASN:ND2	5:I:149:MET:O	2.13	0.78
3:F:376:THR:HG22	3:F:395:GLN:HG2	1.66	0.76
4:H:402:ASP:N	4:H:405:LYS:HE3	2.01	0.76
7:G:95:PRO:HB3	7:G:115:VAL:HG21	1.68	0.75
2:D:125:GLN:HE21	2:D:165:LYS:HD2	1.51	0.74
2:D:97:TYR:CD1	2:D:98:PRO:HD2	2.23	0.74
5:I:107:PHE:CZ	5:I:173:ILE:HD11	2.23	0.73
3:F:87:GLN:NE2	3:F:102:ASN:HB3	2.02	0.72
1:A:355:ASP:HB3	1:A:371:ARG:HG2	1.71	0.72
1:A:327:LYS:HD3	1:A:327:LYS:N	2.04	0.72
4:H:162:ASN:HD21	4:H:479:LYS:NZ	1.88	0.72
1:A:327:LYS:O	1:A:331:GLU:HG2	1.89	0.72
6:J:72:LEU:HD11	6:J:78:MET:HE3	1.71	0.71
6:J:109:MET:HG2	6:J:200:ASN:OD1	1.88	0.71
1:A:477:PHE:HE2	1:A:496:LEU:CD1	2.04	0.70
7:G:401:MET:HE3	7:G:403:VAL:HB	1.72	0.70
1:A:735:MET:HG2	1:A:736:THR:H	1.57	0.70
4:H:169:ALA:HB2	4:H:475:GLN:CD	2.17	0.69
4:H:402:ASP:H	4:H:405:LYS:HE3	1.54	0.69
4:H:107:ASP:OD2	4:H:108:SER:N	2.25	0.69
1:A:329:LEU:HD11	1:A:368:LEU:HD13	1.74	0.68
3:F:89:MET:HE2	3:F:411:ILE:HD12	1.74	0.68

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:516:GLN:HB3	1:A:543:VAL:CG1	2.22	0.68
2:D:107:ARG:HG2	2:D:138:PHE:CD1	2.29	0.67
1:A:325:ASN:HD22	1:A:328:LEU:HD22	1.59	0.67
5:I:58:ARG:HD2	5:I:68:TYR:CD2	2.30	0.67
2:D:232:ARG:HA	2:D:235:ILE:HG12	1.75	0.67
4:H:168:THR:C	4:H:475:GLN:HG3	2.20	0.67
3:F:134:VAL:HA	7:G:23:GLY:O	1.94	0.67
6:J:94:ALA:H	6:J:97:ASN:HD22	1.43	0.67
1:A:593:LYS:HA	1:A:593:LYS:HE2	1.76	0.66
3:F:407:VAL:HG12	7:G:25:LEU:HD12	1.76	0.66
1:A:807:MET:HE2	1:A:814:ILE:HG12	1.77	0.66
1:A:477:PHE:CE2	1:A:496:LEU:HD13	2.25	0.66
4:H:402:ASP:OD2	4:H:405:LYS:NZ	2.19	0.66
1:A:456:ASP:C	1:A:476:LYS:HZ3	2.03	0.66
2:D:125:GLN:NE2	2:D:165:LYS:HD2	2.11	0.66
2:D:85:THR:HA	2:D:88:GLN:HE21	1.60	0.65
1:A:515:TYR:CE1	1:A:544:GLN:HG3	2.32	0.65
3:F:144:LEU:HD22	7:G:41:LEU:HB2	1.77	0.65
3:F:36:GLY:O	3:F:361:TYR:OH	2.11	0.65
2:D:188:VAL:HG23	2:D:211:ILE:HG23	1.78	0.64
2:D:184:TYR:HB2	2:D:218:MET:CE	2.28	0.64
1:A:849:LEU:HD23	1:A:852:ILE:CB	2.24	0.64
2:D:218:MET:HE2	2:D:218:MET:HA	1.80	0.64
3:F:188:ARG:NH1	3:F:203:ARG:HH21	1.95	0.64
4:H:186:GLN:HE22	4:H:223:ASP:HA	1.63	0.63
4:H:347:GLU:HG3	4:H:348:ASP:H	1.63	0.63
5:I:61:MET:CE	5:I:64:ALA:HB3	2.28	0.63
2:D:253:GLU:OE1	2:D:253:GLU:N	2.27	0.63
3:F:188:ARG:CZ	7:G:37:ILE:HG21	2.29	0.63
4:H:163:ASN:HD21	4:H:172:GLN:HE22	1.47	0.63
1:A:541:PHE:CE1	1:A:593:LYS:HD2	2.34	0.63
4:H:162:ASN:HD21	4:H:479:LYS:HZ3	1.46	0.63
4:H:281:LYS:HG2	4:H:337:THR:HG23	1.79	0.63
4:H:402:ASP:CA	4:H:405:LYS:HE3	2.28	0.63
2:D:226:LYS:HD2	2:D:226:LYS:O	1.99	0.63
7:G:174:ASN:ND2	7:G:177:ASN:OD1	2.31	0.63
2:D:103:THR:HG22	2:D:104:GLU:H	1.65	0.62
2:D:97:TYR:HD1	2:D:98:PRO:HD2	1.63	0.62
2:D:228:MET:SD	2:D:228:MET:N	2.73	0.62
4:H:322:PRO:HB2	4:H:326:LEU:HD21	1.79	0.62
1:A:543:VAL:CA	1:A:593:LYS:HZ3	2.12	0.62

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:J:214:ASN:HD22	7:G:325:GLN:HB3	1.64	0.62
1:A:626:LYS:HG2	6:J:28:ALA:CB	2.28	0.62
3:F:33:TYR:CE1	7:G:29:MET:O	2.52	0.62
3:F:231:THR:OG1	3:F:282:THR:OG1	2.17	0.62
1:A:456:ASP:HA	1:A:476:LYS:HG2	1.81	0.62
3:F:367:LYS:HE2	3:F:403:GLU:OE2	1.98	0.62
3:F:24:ASN:C	3:F:102:ASN:HD21	2.06	0.62
1:A:653:ASP:OD1	1:A:654:ASN:N	2.32	0.62
1:A:307:TYR:HB2	1:A:312:LEU:HD11	1.82	0.61
1:A:336:ASP:O	1:A:342:ASN:ND2	2.31	0.61
5:I:33:ARG:HD3	5:I:37:GLU:OE2	2.01	0.61
3:F:32:ARG:HG2	7:G:30:PHE:CD1	2.35	0.61
2:D:238:TYR:OH	2:D:255:GLU:HG2	2.01	0.61
5:I:173:ILE:N	5:I:173:ILE:HD12	2.16	0.61
1:A:543:VAL:HB	1:A:593:LYS:HZ3	1.65	0.60
4:H:402:ASP:HA	4:H:405:LYS:HE3	1.84	0.60
4:H:347:GLU:HG3	4:H:348:ASP:N	2.16	0.60
4:H:296:LYS:HB2	4:H:317:VAL:CG1	2.30	0.60
1:A:717:LYS:HE3	1:A:719:TYR:OH	2.01	0.59
1:A:391:LEU:HD11	1:A:395:VAL:HG11	1.83	0.59
1:A:632:PRO:C	1:A:700:MET:HE1	2.27	0.59
2:D:77:TYR:HD1	2:D:80:GLN:NE2	2.00	0.59
3:F:376:THR:CG2	3:F:395:GLN:HG2	2.32	0.59
4:H:223:ASP:OD1	4:H:225:THR:HG22	2.02	0.59
1:A:715:LYS:HD3	1:A:739:GLU:HG2	1.84	0.59
1:A:821:GLU:HG2	1:A:822:ALA:N	2.17	0.59
2:D:72:MET:HE2	2:D:101:THR:HG23	1.84	0.59
4:H:169:ALA:CB	4:H:475:GLN:NE2	2.61	0.59
5:I:83:LYS:HB2	5:I:151:VAL:HG11	1.83	0.59
4:H:222:ALA:HB1	4:H:236:LEU:HD21	1.85	0.59
4:H:169:ALA:N	4:H:475:GLN:HG3	2.18	0.59
7:G:139:ARG:HG3	7:G:312:TYR:CE1	2.38	0.59
1:A:848:PHE:HD1	1:A:854:MET:HE2	1.67	0.59
3:F:32:ARG:HG2	7:G:30:PHE:CG	2.38	0.59
1:A:722:LEU:HD11	1:A:734:LEU:HB2	1.85	0.58
2:D:204:ARG:HD3	2:D:244:GLU:OE2	2.02	0.58
3:F:150:PHE:CE2	7:G:27:LEU:HD11	2.37	0.58
4:H:114:TYR:CD2	4:H:124:LEU:HB2	2.39	0.58
1:A:515:TYR:CD1	1:A:544:GLN:HG3	2.39	0.58
7:G:161:SER:CB	7:G:197:THR:HG22	2.34	0.58
4:H:37:ILE:O	4:H:86:THR:HG22	2.04	0.58

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:H:41:GLU:HB3	4:H:83:THR:HB	1.85	0.58
4:H:54:THR:HA	5:I:90:THR:CG2	2.33	0.58
4:H:163:ASN:HD21	4:H:172:GLN:NE2	2.01	0.58
7:G:128:ILE:HD12	7:G:235:GLY:HA2	1.86	0.58
2:D:156:PHE:CD1	2:D:200:TYR:HE1	2.22	0.57
2:D:88:GLN:NE2	2:D:89:THR:HG23	2.19	0.57
1:A:543:VAL:HB	1:A:593:LYS:NZ	2.20	0.57
7:G:345:ASN:ND2	7:G:511:ARG:HD2	2.19	0.57
1:A:632:PRO:HB2	1:A:700:MET:HE1	1.86	0.57
5:I:86:ASN:HD22	5:I:149:MET:C	2.09	0.57
1:A:777:LEU:HD12	1:A:821:GLU:CD	2.30	0.57
1:A:634:THR:HG22	1:A:635:ASN:OD1	2.05	0.56
1:A:723:MET:O	1:A:723:MET:HG2	2.04	0.56
1:A:839:ARG:NH1	3:F:24:ASN:CG	2.63	0.56
2:D:191:ALA:HB3	2:D:211:ILE:HD11	1.87	0.56
7:G:112:ARG:HD2	7:G:289:TYR:O	2.05	0.56
7:G:160:LEU:HD21	7:G:265:VAL:HG13	1.88	0.56
1:A:735:MET:O	1:A:736:THR:OG1	2.22	0.56
6:J:37:ALA:HB2	6:J:109:MET:HE1	1.88	0.56
3:F:84:VAL:HG12	3:F:85:SER:N	2.21	0.56
1:A:607:TRP:HB3	1:A:608:PRO:HD3	1.88	0.56
3:F:98:LEU:HD23	3:F:99:ASN:N	2.21	0.56
7:G:161:SER:HB3	7:G:197:THR:HG22	1.87	0.56
4:H:296:LYS:HB2	4:H:317:VAL:HG12	1.86	0.56
6:J:115:CYS:HA	6:J:155:TYR:CE2	2.41	0.56
3:F:211:ASP:OD1	3:F:212:TYR:N	2.27	0.55
1:A:837:LEU:H	3:F:24:ASN:HD22	1.54	0.55
4:H:162:ASN:ND2	4:H:479:LYS:NZ	2.54	0.55
4:H:120:LYS:O	4:H:120:LYS:HG3	2.06	0.55
7:G:21:ASN:C	7:G:23:GLY:H	2.14	0.55
2:D:184:TYR:HB2	2:D:218:MET:HE3	1.88	0.55
1:A:628:TRP:O	1:A:634:THR:HG23	2.07	0.55
7:G:377:VAL:HG13	7:G:528:LEU:HD21	1.89	0.55
5:I:107:PHE:CE1	5:I:173:ILE:HD11	2.42	0.54
1:A:777:LEU:HD12	1:A:821:GLU:OE2	2.07	0.54
2:D:207:LEU:O	2:D:211:ILE:HG12	2.06	0.54
3:F:191:PHE:HZ	3:F:202:GLN:HE21	1.52	0.54
7:G:26:GLY:CA	7:G:29:MET:HE3	2.38	0.54
1:A:672:PRO:HB2	1:A:674:TYR:CE1	2.43	0.54
3:F:188:ARG:NH2	7:G:37:ILE:HG21	2.23	0.54
4:H:322:PRO:HB2	4:H:326:LEU:CD2	2.38	0.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:I:101:ASN:CG	5:I:105:GLU:HG2	2.32	0.54
4:H:79:ILE:HG21	4:H:111:LEU:HD12	1.90	0.54
7:G:517:LEU:HD23	7:G:524:TYR:CE1	2.43	0.54
3:F:324:TYR:HD1	3:F:361:TYR:HD2	1.55	0.54
4:H:239:LYS:HD2	4:H:240:ASN:N	2.23	0.54
1:A:849:LEU:HD12	1:A:850:PRO:HD2	1.89	0.54
3:F:102:ASN:CG	3:F:103:ALA:H	2.16	0.54
7:G:128:ILE:CD1	7:G:238:LEU:HD23	2.34	0.54
1:A:697:GLN:HE21	1:A:700:MET:H	1.57	0.53
1:A:631:PHE:HD2	1:A:754:PHE:HE1	1.56	0.53
1:A:838:LYS:NZ	1:A:865:LYS:O	2.33	0.53
1:A:456:ASP:C	1:A:476:LYS:NZ	2.66	0.53
1:A:837:LEU:H	3:F:24:ASN:ND2	2.06	0.53
3:F:188:ARG:HE	7:G:37:ILE:HD13	1.72	0.53
7:G:211:ILE:HA	7:G:214:LEU:HD13	1.90	0.53
4:H:169:ALA:N	4:H:475:GLN:HE21	2.06	0.53
2:D:103:THR:HG22	2:D:104:GLU:N	2.23	0.53
7:G:377:VAL:HG22	7:G:530:VAL:HG23	1.89	0.53
1:A:317:ARG:HG3	1:A:332:ARG:HH12	1.73	0.53
4:H:241:LYS:HG2	4:H:265:VAL:O	2.09	0.53
1:A:791:GLU:HG2	1:A:793:TYR:CE1	2.44	0.52
3:F:52:ILE:HG13	3:F:52:ILE:O	2.09	0.52
1:A:724:ASP:O	1:A:725:TYR:HB3	2.08	0.52
1:A:318:MET:HE2	1:A:329:LEU:CD2	2.39	0.52
3:F:188:ARG:O	3:F:202:GLN:HA	2.09	0.52
1:A:370:MET:HE2	1:A:370:MET:HA	1.91	0.52
1:A:457:GLN:HG3	1:A:476:LYS:CD	2.33	0.52
1:A:325:ASN:HD22	1:A:328:LEU:CD2	2.23	0.52
1:A:504:LEU:HD12	1:A:505:THR:H	1.75	0.52
1:A:620:TYR:OH	1:A:622:ARG:HD3	2.10	0.52
2:D:135:LEU:O	2:D:139:MET:HG3	2.10	0.52
3:F:24:ASN:CA	3:F:102:ASN:HD21	2.23	0.52
3:F:102:ASN:OD1	3:F:103:ALA:N	2.35	0.52
3:F:203:ARG:NH2	3:F:317:ASP:OD2	2.40	0.52
4:H:90:ILE:HG13	4:H:129:TRP:HB2	1.91	0.52
5:I:170:THR:OG1	5:I:173:ILE:HD13	2.10	0.52
7:G:26:GLY:C	7:G:29:MET:HE3	2.35	0.52
7:G:26:GLY:HA2	7:G:29:MET:HE3	1.91	0.52
1:A:543:VAL:CB	1:A:593:LYS:HZ3	2.21	0.51
2:D:238:TYR:CE2	2:D:258:PHE:HB2	2.46	0.51
4:H:169:ALA:H	4:H:475:GLN:HE21	1.57	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:I:61:MET:HG2	5:I:63:THR:HG22	1.92	0.51
1:A:543:VAL:HA	1:A:593:LYS:HZ3	1.75	0.51
1:A:632:PRO:HB2	1:A:700:MET:SD	2.49	0.51
3:F:27:ASN:HB3	7:G:22:THR:OG1	2.11	0.51
3:F:45:ASN:OD1	3:F:46:SER:N	2.43	0.51
5:I:32:TRP:NE1	5:I:36:ASN:HD21	2.08	0.51
6:J:214:ASN:OD1	7:G:321:ARG:HA	2.10	0.51
4:H:256:GLU:OE2	4:H:256:GLU:N	2.41	0.51
2:D:151:ALA:O	2:D:155:ILE:HG23	2.11	0.51
1:A:737:ARG:O	1:A:738:THR:OG1	2.27	0.51
1:A:323:VAL:HG13	1:A:325:ASN:ND2	2.19	0.51
5:I:37:GLU:CD	5:I:161:TRP:HE1	2.18	0.51
7:G:21:ASN:O	7:G:23:GLY:N	2.44	0.51
3:F:324:TYR:HD1	3:F:361:TYR:CD2	2.28	0.51
4:H:188:ASN:HA	4:H:218:LEU:HG	1.93	0.51
1:A:724:ASP:OD1	1:A:725:TYR:O	2.29	0.50
3:F:77:THR:HG21	3:F:387:ARG:HH12	1.76	0.50
5:I:83:LYS:H	5:I:151:VAL:HG21	1.75	0.50
7:G:46:VAL:HG22	7:G:361:PRO:HD3	1.93	0.50
1:A:482:VAL:H	1:A:502:GLN:HE22	1.58	0.50
2:D:192:GLN:O	2:D:196:LYS:HD3	2.11	0.50
4:H:400:THR:HA	4:H:405:LYS:CD	2.42	0.50
2:D:91:ILE:HA	2:D:94:PHE:CZ	2.47	0.50
7:G:490:ASN:OD1	7:G:493:THR:OG1	2.29	0.50
2:D:134:GLN:OE1	2:D:135:LEU:HD22	2.12	0.50
4:H:83:THR:O	4:H:83:THR:HG22	2.12	0.50
5:I:61:MET:HE3	5:I:64:ALA:HB3	1.94	0.50
1:A:316:LEU:HG	1:A:318:MET:HG2	1.93	0.49
4:H:468:TYR:CD2	4:H:482:ARG:HD2	2.47	0.49
1:A:849:LEU:HD12	1:A:850:PRO:CD	2.41	0.49
7:G:162:VAL:HG13	7:G:195:LEU:HB2	1.94	0.49
1:A:422:GLN:OE1	1:A:655:PRO:HG3	2.13	0.49
7:G:139:ARG:HG3	7:G:312:TYR:CD1	2.48	0.49
7:G:124:ASP:OD2	7:G:312:TYR:OH	2.29	0.49
1:A:624:ASN:HD22	1:A:637:LYS:NZ	2.10	0.49
1:A:361:ILE:HG12	1:A:366:ILE:HG12	1.95	0.49
1:A:609:ASP:OD1	1:A:611:TYR:N	2.42	0.49
3:F:191:PHE:CZ	3:F:202:GLN:NE2	2.74	0.49
4:H:53:PHE:O	5:I:90:THR:HG21	2.12	0.49
2:D:256:LYS:O	2:D:260:GLU:HG2	2.12	0.48
3:F:84:VAL:HG12	3:F:85:SER:H	1.76	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:I:102:ILE:HD12	5:I:102:ILE:H	1.78	0.48
1:A:415:ARG:O	1:A:419:GLU:HG2	2.13	0.48
1:A:762:ASP:OD1	1:A:763:GLY:N	2.46	0.48
1:A:301:TRP:CH2	1:A:312:LEU:HB3	2.48	0.48
5:I:170:THR:OG1	5:I:173:ILE:CD1	2.61	0.48
6:J:214:ASN:HD22	7:G:325:GLN:CB	2.25	0.48
4:H:400:THR:HA	4:H:405:LYS:HD3	1.96	0.48
3:F:33:TYR:CZ	7:G:29:MET:O	2.66	0.48
5:I:83:LYS:NZ	5:I:188:PHE:O	2.22	0.48
7:G:488:SER:O	7:G:491:THR:OG1	2.31	0.48
1:A:351:PHE:CE1	1:A:439:PRO:HA	2.49	0.47
1:A:355:ASP:HB3	1:A:371:ARG:CG	2.40	0.47
1:A:848:PHE:CD1	1:A:854:MET:HE2	2.48	0.47
4:H:79:ILE:CG2	4:H:111:LEU:HD12	2.44	0.47
7:G:146:TRP:CE3	7:G:218:VAL:HG13	2.49	0.47
3:F:371:ARG:HD2	3:F:373:TYR:OH	2.13	0.47
7:G:113:MET:O	7:G:115:VAL:HG23	2.14	0.47
5:I:101:ASN:OD1	5:I:105:GLU:HG2	2.15	0.47
1:A:306:LEU:HD22	1:A:349:TYR:CE1	2.50	0.47
1:A:735:MET:HG2	1:A:736:THR:N	2.27	0.47
2:D:125:GLN:HG3	2:D:165:LYS:HD2	1.97	0.47
3:F:136:ASP:OD1	3:F:137:SER:N	2.48	0.47
3:F:32:ARG:NH1	3:F:321:THR:OG1	2.43	0.47
3:F:227:LYS:HD3	3:F:286:ASP:OD1	2.15	0.47
4:H:77:ASN:OD1	4:H:78:SER:N	2.48	0.47
1:A:544:GLN:NE2	1:A:628:TRP:HH2	2.13	0.47
5:I:81:VAL:O	5:I:81:VAL:HG12	2.14	0.47
3:F:101:LYS:HB2	3:F:101:LYS:HE2	1.64	0.46
6:J:105:GLU:HB3	6:J:115:CYS:HB3	1.96	0.46
1:A:626:LYS:HD2	1:A:627:ASP:OD1	2.15	0.46
1:A:834:PRO:HG3	3:F:124:LEU:HD11	1.98	0.46
2:D:135:LEU:HD12	2:D:151:ALA:CB	2.46	0.46
4:H:255:ASP:OD2	4:H:259:ASN:ND2	2.49	0.46
2:D:87:ALA:O	2:D:91:ILE:HG23	2.14	0.46
3:F:407:VAL:CG1	7:G:25:LEU:HD12	2.43	0.46
1:A:622:ARG:HH11	1:A:639:ASN:HB3	1.80	0.46
1:A:725:TYR:O	1:A:726:ILE:HB	2.15	0.46
4:H:79:ILE:HG13	4:H:80:LEU:H	1.80	0.46
1:A:624:ASN:HD22	1:A:637:LYS:HZ3	1.63	0.46
4:H:400:THR:C	4:H:405:LYS:HE2	2.41	0.46
7:G:21:ASN:C	7:G:23:GLY:N	2.72	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:639:ASN:OD1	1:A:706:TRP:HA	2.15	0.46
4:H:186:GLN:OE1	4:H:224:VAL:HG12	2.16	0.46
3:F:175:VAL:HG12	3:F:216:PHE:CD1	2.51	0.46
4:H:296:LYS:HB2	4:H:317:VAL:HG11	1.98	0.46
5:I:83:LYS:HD3	5:I:187:ASP:OD1	2.16	0.46
6:J:94:ALA:H	6:J:97:ASN:ND2	2.09	0.46
1:A:800:ILE:O	1:A:801:GLU:HG2	2.16	0.46
4:H:291:GLU:OE2	4:H:296:LYS:HD3	2.16	0.46
1:A:504:LEU:HD12	1:A:505:THR:N	2.31	0.45
7:G:95:PRO:HB3	7:G:115:VAL:CG2	2.43	0.45
7:G:146:TRP:CE3	7:G:220:SER:HB3	2.52	0.45
1:A:358:GLU:HG3	1:A:361:ILE:HD11	1.98	0.45
3:F:49:MET:HE2	3:F:52:ILE:HD11	1.99	0.45
1:A:414:MET:HE2	1:A:414:MET:HA	1.99	0.45
5:I:36:ASN:OD1	5:I:102:ILE:HD13	2.16	0.45
3:F:252:MET:HE3	3:F:252:MET:HB3	1.84	0.45
1:A:325:ASN:ND2	1:A:328:LEU:HD22	2.27	0.45
1:A:632:PRO:HB2	1:A:700:MET:CE	2.47	0.45
4:H:162:ASN:HD21	4:H:479:LYS:HZ2	1.64	0.45
7:G:49:GLU:OE1	7:G:519:LYS:NZ	2.36	0.45
8:G:601:TDA:H321	8:G:601:TDA:H291	1.67	0.45
1:A:632:PRO:HG2	1:A:753:PRO:HB3	1.99	0.45
1:A:849:LEU:HD23	1:A:852:ILE:CG1	2.47	0.45
2:D:238:TYR:CD2	2:D:258:PHE:HB2	2.52	0.45
3:F:84:VAL:O	3:F:85:SER:OG	2.30	0.45
3:F:32:ARG:NH1	3:F:32:ARG:O	2.39	0.45
3:F:367:LYS:CE	3:F:403:GLU:OE2	2.64	0.45
1:A:631:PHE:CD2	1:A:754:PHE:HE1	2.35	0.45
5:I:86:ASN:ND2	5:I:149:MET:C	2.73	0.45
4:H:239:LYS:HD2	4:H:239:LYS:C	2.42	0.45
5:I:173:ILE:HG22	5:I:175:GLY:H	1.80	0.44
2:D:91:ILE:HA	2:D:94:PHE:CE2	2.52	0.44
1:A:414:MET:HE2	1:A:417:LEU:HD12	1.99	0.44
1:A:821:GLU:CG	1:A:822:ALA:N	2.81	0.44
3:F:29:PRO:HB2	7:G:26:GLY:HA3	2.00	0.44
3:F:77:THR:CG2	3:F:387:ARG:HH12	2.30	0.44
3:F:191:PHE:HE1	3:F:202:GLN:HE21	1.57	0.44
3:F:325:CYS:SG	3:F:326:ASP:N	2.91	0.44
4:H:93:MET:HG3	4:H:126:LEU:HB3	1.99	0.44
1:A:731:CYS:SG	1:A:732:LEU:N	2.89	0.44
5:I:100:THR:HG1	5:I:180:VAL:HG23	1.82	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:108:PHE:CE2	2:D:112:LYS:HE2	2.52	0.44
3:F:222:GLN:HA	3:F:222:GLN:OE1	2.18	0.44
1:A:540:PHE:HZ	1:A:621:GLN:CD	2.26	0.44
4:H:177:LEU:HD22	4:H:234:LEU:HD23	1.99	0.44
5:I:152:GLY:N	5:I:185:LEU:O	2.42	0.44
1:A:422:GLN:OE1	1:A:422:GLN:HA	2.18	0.44
5:I:61:MET:HB3	5:I:61:MET:HE2	1.84	0.44
1:A:480:PHE:O	1:A:502:GLN:HB2	2.17	0.44
2:D:251:LEU:O	2:D:255:GLU:HG3	2.17	0.44
1:A:816:VAL:HG23	1:A:845:VAL:HG12	2.00	0.43
3:F:188:ARG:NH1	3:F:203:ARG:NH2	2.64	0.43
5:I:107:PHE:CE1	5:I:173:ILE:CD1	3.01	0.43
1:A:541:PHE:CZ	1:A:593:LYS:HD2	2.54	0.43
1:A:622:ARG:NH1	1:A:639:ASN:HB3	2.33	0.43
1:A:791:GLU:CD	1:A:827:HIS:HE1	2.26	0.43
2:D:135:LEU:HD12	2:D:151:ALA:HB1	2.00	0.43
3:F:29:PRO:HG3	7:G:25:LEU:O	2.17	0.43
3:F:313:ASN:HB2	7:G:537:LEU:HD11	2.01	0.43
5:I:61:MET:HE1	5:I:163:TYR:OH	2.18	0.43
3:F:285:TYR:CE1	3:F:286:ASP:HB2	2.53	0.43
1:A:800:ILE:HG22	1:A:801:GLU:N	2.34	0.43
3:F:29:PRO:HB2	7:G:26:GLY:CA	2.49	0.43
1:A:718:THR:HG23	3:F:420:PHE:CD2	2.54	0.43
1:A:340:ILE:HD12	1:A:340:ILE:H	1.84	0.43
1:A:725:TYR:CG	1:A:726:ILE:N	2.85	0.43
3:F:133:THR:O	7:G:21:ASN:O	2.35	0.43
3:F:241:LYS:HE3	3:F:270:THR:OG1	2.18	0.43
1:A:327:LYS:O	1:A:331:GLU:N	2.48	0.43
3:F:188:ARG:HD3	3:F:203:ARG:HB3	2.00	0.43
5:I:77:MET:O	5:I:80:HIS:NE2	2.52	0.43
3:F:175:VAL:HG12	3:F:216:PHE:HD1	1.82	0.42
7:G:113:MET:HE2	7:G:286:TYR:CG	2.54	0.42
1:A:316:LEU:HG	1:A:318:MET:CG	2.50	0.42
5:I:32:TRP:NE1	5:I:177:SER:OG	2.49	0.42
1:A:715:LYS:HZ2	1:A:739:GLU:HG2	1.84	0.42
3:F:188:ARG:HD3	3:F:203:ARG:HE	1.85	0.42
4:H:245:ASN:ND2	4:H:255:ASP:HB3	2.34	0.42
4:H:281:LYS:CG	4:H:337:THR:HG23	2.48	0.42
7:G:171:GLU:HG2	7:G:172:THR:H	1.85	0.42
1:A:718:THR:HG23	3:F:420:PHE:CE2	2.55	0.42
3:F:122:VAL:HG23	3:F:161:VAL:HG22	2.00	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:H:230:PHE:CD2	4:H:231:VAL:HG22	2.54	0.42
4:H:361:SER:OG	4:H:363:ASP:O	2.30	0.42
7:G:348:LEU:HD11	7:G:481:PRO:HD3	2.02	0.42
1:A:545:THR:C	1:A:628:TRP:HZ3	2.28	0.42
2:D:124:ASP:OD1	2:D:125:GLN:N	2.53	0.42
2:D:158:LEU:O	2:D:162:LEU:HD23	2.19	0.42
1:A:639:ASN:OD1	1:A:705:ARG:O	2.37	0.42
4:H:168:THR:OG1	4:H:475:GLN:HG2	2.20	0.42
4:H:230:PHE:CE2	4:H:231:VAL:HG22	2.55	0.42
5:I:93:VAL:HG12	5:I:95:VAL:HG13	2.01	0.42
1:A:674:TYR:CE2	1:A:706:TRP:HB3	2.55	0.42
1:A:697:GLN:NE2	1:A:700:MET:H	2.16	0.42
2:D:85:THR:CA	2:D:88:GLN:HE21	2.28	0.42
4:H:169:ALA:N	4:H:475:GLN:NE2	2.67	0.42
1:A:857:ILE:HD12	1:A:879:PHE:HE1	1.85	0.42
7:G:209:ASP:OD1	7:G:213:ASN:ND2	2.53	0.42
1:A:304:ASN:ND2	1:A:307:TYR:O	2.52	0.42
1:A:345:TYR:CE1	1:A:350:LEU:HG	2.54	0.42
1:A:633:VAL:N	1:A:700:MET:HE1	2.35	0.42
5:I:47:TYR:CD1	5:I:53:ARG:HG3	2.54	0.42
3:F:82:GLY:O	3:F:107:TYR:CE2	2.73	0.41
3:F:316:GLN:O	3:F:320:GLU:HG3	2.20	0.41
3:F:320:GLU:HB3	7:G:31:PRO:HB3	2.02	0.41
5:I:45:ASN:O	5:I:49:THR:HG22	2.20	0.41
4:H:472:VAL:HG22	4:H:480:ILE:HD12	2.02	0.41
2:D:184:TYR:CZ	2:D:217:GLU:HG2	2.55	0.41
1:A:427:ASP:OD2	1:A:451:THR:HB	2.21	0.41
7:G:377:VAL:CG1	7:G:528:LEU:HD21	2.51	0.41
1:A:477:PHE:HD1	1:A:477:PHE:H	1.67	0.41
1:A:777:LEU:HA	1:A:821:GLU:OE2	2.21	0.41
3:F:81:GLU:HG2	3:F:107:TYR:HE2	1.85	0.41
3:F:335:GLU:HB3	3:F:352:ARG:HG2	2.02	0.41
4:H:153:LEU:HD22	4:H:426:PHE:CD1	2.56	0.41
4:H:236:LEU:HD23	4:H:237:LEU:N	2.36	0.41
4:H:279:ASN:HB3	4:H:338:LEU:HG	2.02	0.41
2:D:252:LYS:HD3	2:D:252:LYS:HA	1.84	0.41
5:I:194:GLU:HG2	5:I:194:GLU:O	2.21	0.41
1:A:515:TYR:HE1	1:A:544:GLN:HG3	1.83	0.41
1:A:544:GLN:NE2	1:A:628:TRP:CH2	2.88	0.41
1:A:786:THR:HG23	1:A:790:LYS:O	2.21	0.41
2:D:131:ALA:O	2:D:135:LEU:HD23	2.20	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:84:VAL:CG1	3:F:85:SER:N	2.84	0.41
4:H:55:ILE:HG12	4:H:62:ILE:HD12	2.03	0.41
4:H:471:MET:HE2	4:H:471:MET:HB3	1.90	0.41
5:I:132:ILE:HG21	5:I:192:GLU:HG2	2.03	0.41
1:A:307:TYR:CB	1:A:312:LEU:HD11	2.48	0.41
1:A:828:ASP:OD1	1:A:830:SER:N	2.53	0.41
3:F:47:LYS:HG2	3:F:395:GLN:NE2	2.35	0.41
5:I:33:ARG:C	5:I:33:ARG:HD2	2.46	0.41
7:G:22:THR:HG22	7:G:22:THR:O	2.21	0.41
1:A:332:ARG:HH11	1:A:332:ARG:HG3	1.86	0.40
1:A:593:LYS:HE2	1:A:593:LYS:CA	2.45	0.40
1:A:659:ARG:NE	1:A:725:TYR:OH	2.54	0.40
1:A:769:SER:C	1:A:770:TYR:CD1	2.99	0.40
4:H:228:ILE:HD11	4:H:270:THR:HA	2.03	0.40
3:F:205:MET:HE3	3:F:246:TYR:OH	2.21	0.40
3:F:281:PHE:CD2	3:F:281:PHE:C	2.98	0.40
3:F:385:ARG:HE	3:F:385:ARG:HB3	1.51	0.40
3:F:207:THR:HG23	3:F:207:THR:O	2.21	0.40
3:F:324:TYR:CD1	3:F:361:TYR:CD2	3.09	0.40
6:J:114:THR:O	6:J:155:TYR:OH	2.33	0.40
4:H:174:VAL:HG21	4:H:472:VAL:HG21	2.04	0.40
7:G:27:LEU:HD23	7:G:27:LEU:HA	1.76	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	512/885 (58%)	473 (92%)	39 (8%)	0	100	100
2	D	191/267 (72%)	180 (94%)	11 (6%)	0	100	100
3	F	404/431 (94%)	382 (95%)	22 (5%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	H	442/493 (90%)	407 (92%)	35 (8%)	0	100	100
5	I	167/196 (85%)	162 (97%)	5 (3%)	0	100	100
6	J	186/214 (87%)	170 (91%)	16 (9%)	0	100	100
7	G	518/525 (99%)	489 (94%)	28 (5%)	1 (0%)	44	76
All	All	2420/3011 (80%)	2263 (94%)	156 (6%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
7	G	22	THR

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	453/775 (58%)	453 (100%)	0	100	100
2	D	174/237 (73%)	174 (100%)	0	100	100
3	F	340/360 (94%)	340 (100%)	0	100	100
4	H	396/438 (90%)	396 (100%)	0	100	100
5	I	139/163 (85%)	139 (100%)	0	100	100
6	J	165/186 (89%)	165 (100%)	0	100	100
7	G	449/454 (99%)	449 (100%)	0	100	100
All	All	2116/2613 (81%)	2116 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (27) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	325	ASN
1	A	425	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	498	GLN
1	A	502	GLN
1	A	509	GLN
1	A	533	ASN
1	A	544	GLN
1	A	624	ASN
2	D	88	GLN
2	D	125	GLN
2	D	183	ASN
2	D	216	HIS
2	D	243	ASN
3	F	23	GLN
3	F	27	ASN
3	F	87	GLN
3	F	316	GLN
4	H	50	ASN
4	H	162	ASN
4	H	172	GLN
4	H	475	GLN
5	I	147	GLN
6	J	97	ASN
7	G	83	GLN
7	G	133	GLN
7	G	184	ASN
7	G	213	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

2 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	$\#\|Z\| > 2$
9	Z41	G	602	7	31,31,39	1.14	3 (9%)	33,33,41	1.20	2 (6%)
8	TDA	G	601	7	13,13,14	0.36	0	12,12,14	0.64	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
9	Z41	G	602	7	-	16/32/32/41	-
8	TDA	G	601	7	-	7/10/11/12	-

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
9	G	602	Z41	O3-C18	-4.10	1.40	1.47
9	G	602	Z41	O2-C16	2.46	1.40	1.33
9	G	602	Z41	O3-C19	2.16	1.40	1.34

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	G	602	Z41	O3-C19-C20	3.75	119.58	111.50
9	G	602	Z41	O2-C16-C15	2.98	121.25	111.91

There are no chirality outliers.

All (23) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
9	G	602	Z41	C20-C19-O3-C18
9	G	602	Z41	O4-C19-O3-C18
9	G	602	Z41	C23-C24-C25-C26
9	G	602	Z41	C25-C26-C27-C28
8	G	601	TDA	C24-C25-C26-C27
9	G	602	Z41	C15-C16-O2-C17
9	G	602	Z41	O1-C16-O2-C17
8	G	601	TDA	C23-C24-C25-C26
8	G	601	TDA	C22-C23-C24-C25
9	G	602	Z41	C19-C20-C21-C22
8	G	601	TDA	C28-C29-C30-C31
9	G	602	Z41	C12-C13-C14-C15
8	G	601	TDA	C26-C27-C28-C29
8	G	601	TDA	C29-C30-C31-C32
9	G	602	Z41	C11-C12-C13-C14
9	G	602	Z41	C9-C10-C11-C12
8	G	601	TDA	C27-C28-C29-C30
9	G	602	Z41	C13-C14-C15-C16
9	G	602	Z41	C20-C21-C22-C23
9	G	602	Z41	C31-C32-C33-C34
9	G	602	Z41	C11-C10-C9-C8
9	G	602	Z41	C29-C30-C31-C32
9	G	602	Z41	C22-C23-C24-C25

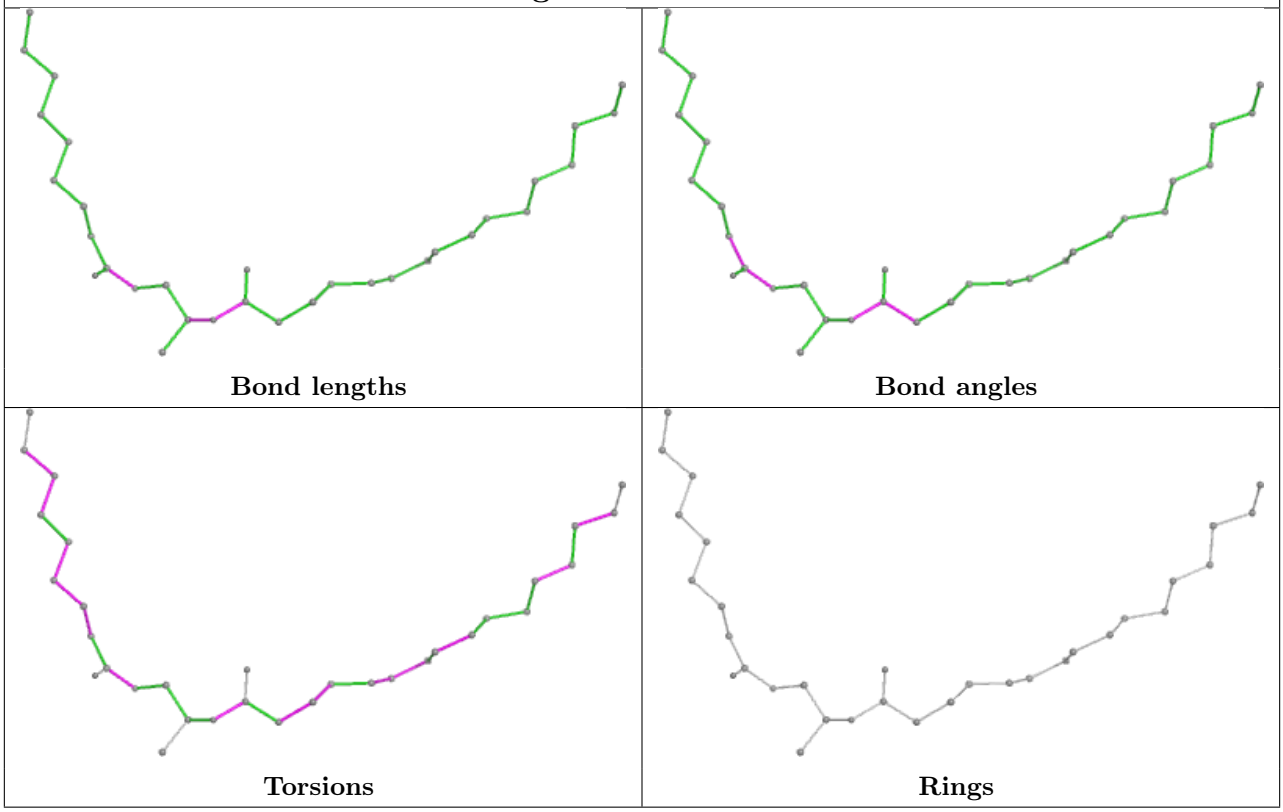
There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	G	601	TDA	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 all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

Ligand Z41 G 602



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.

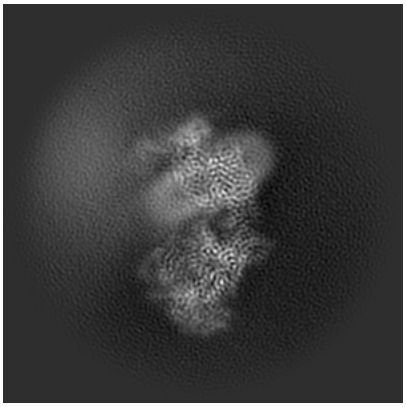
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-52209. These allow visual inspection of the internal detail of the map and identification of artifacts.

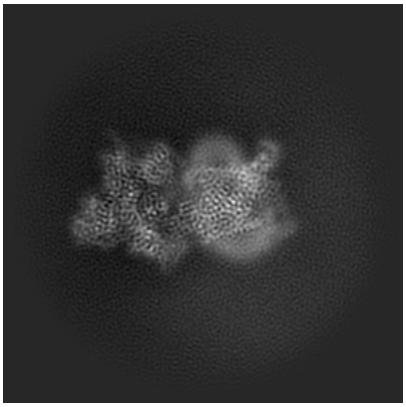
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

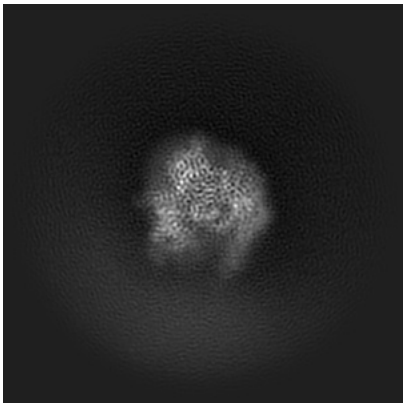
6.1.1 Primary map



X



Y

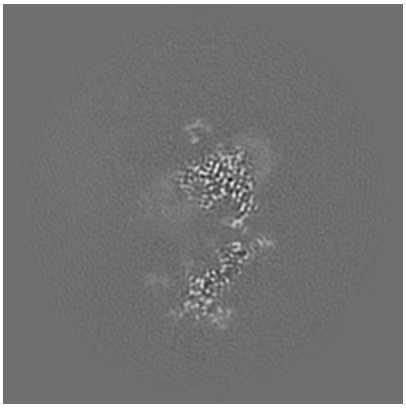


Z

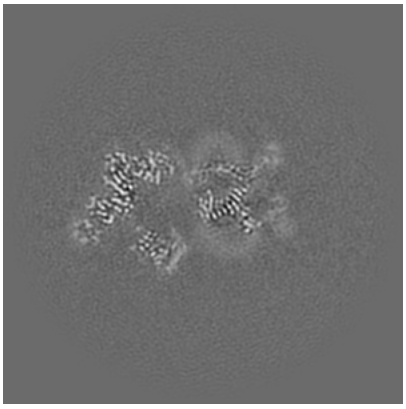
The images above show the map projected in three orthogonal directions.

6.2 Central slices

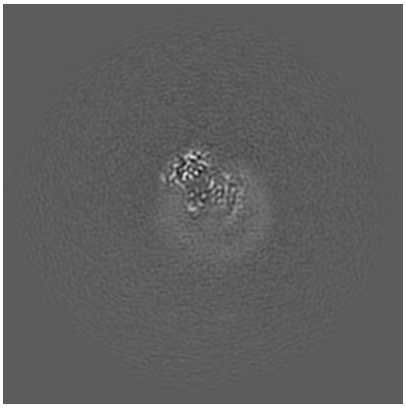
6.2.1 Primary map



X Index: 224



Y Index: 224

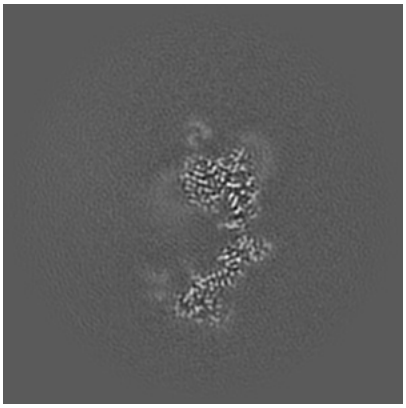


Z Index: 224

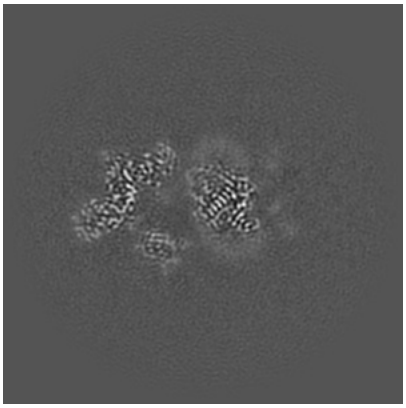
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

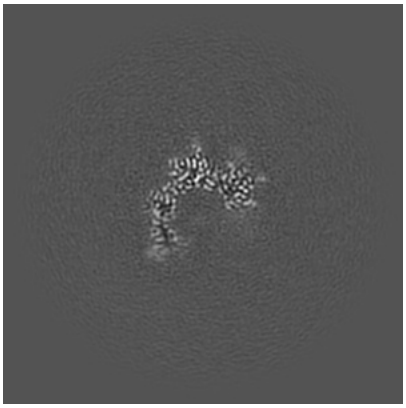
6.3.1 Primary map



X Index: 216



Y Index: 233

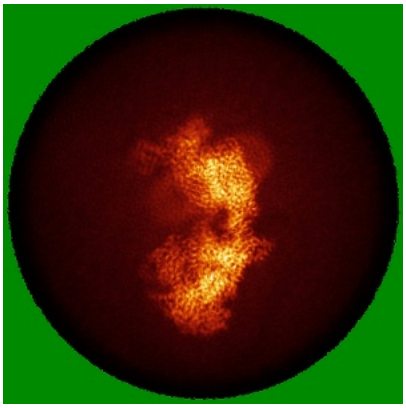


Z Index: 165

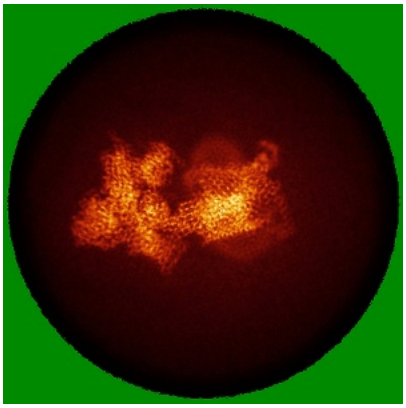
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

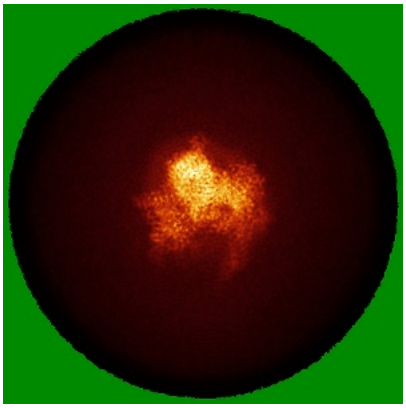
6.4.1 Primary map



X



Y

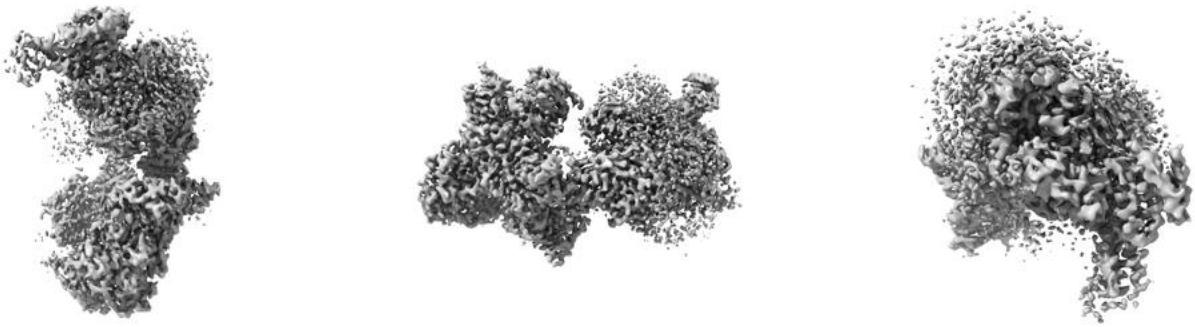


Z

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



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 5.93. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

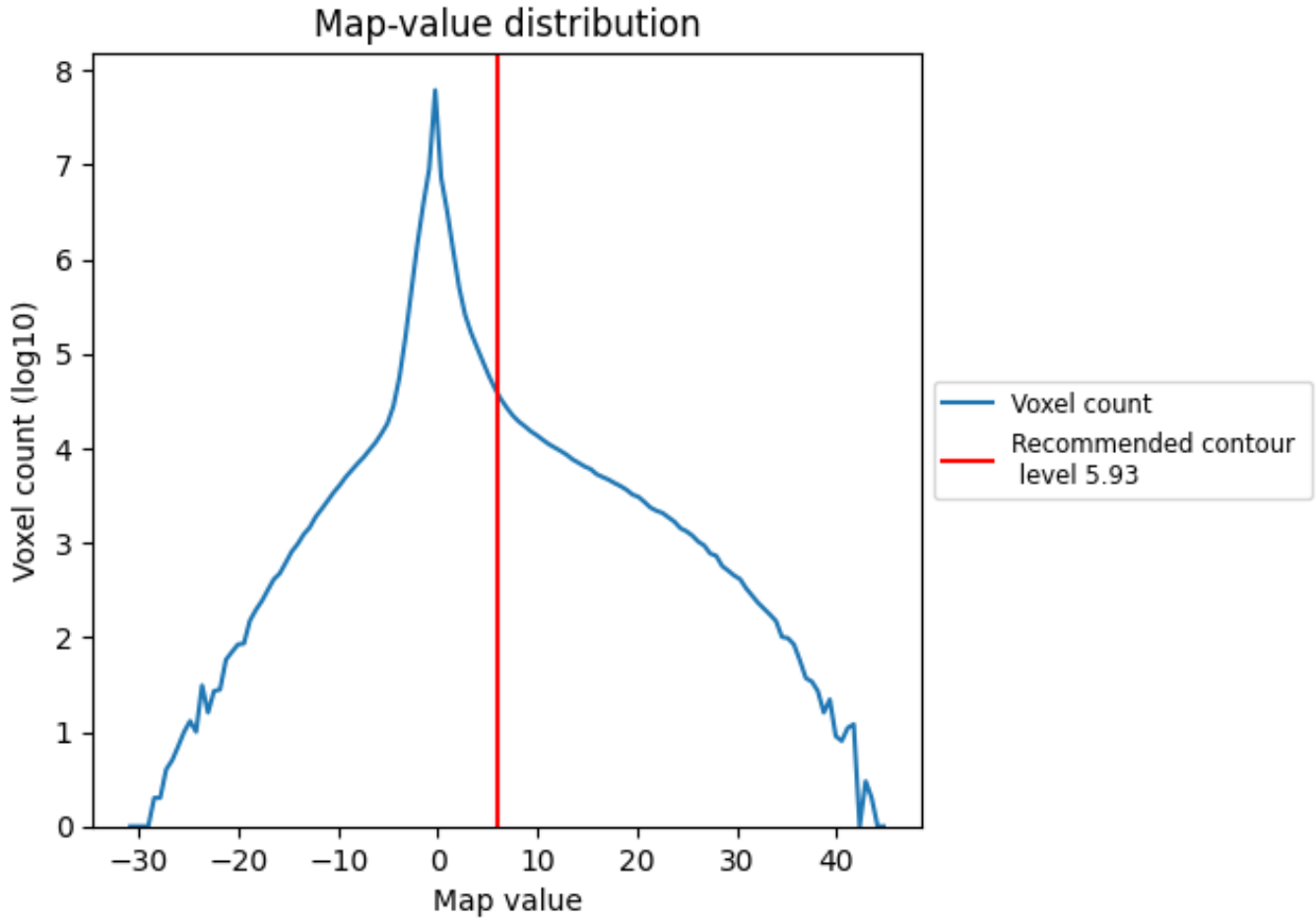
6.6 Mask visualisation (i)

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

7 Map analysis

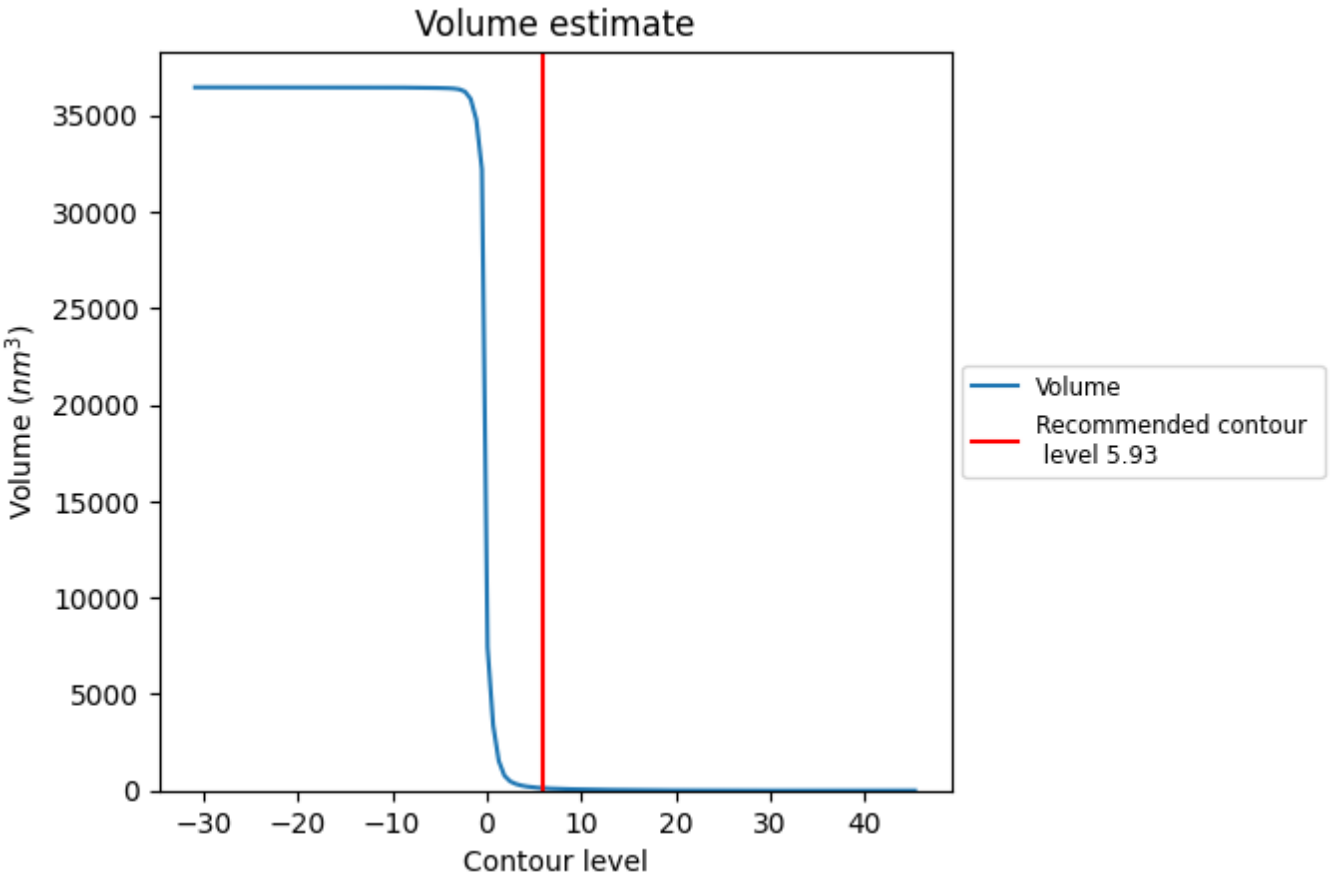
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

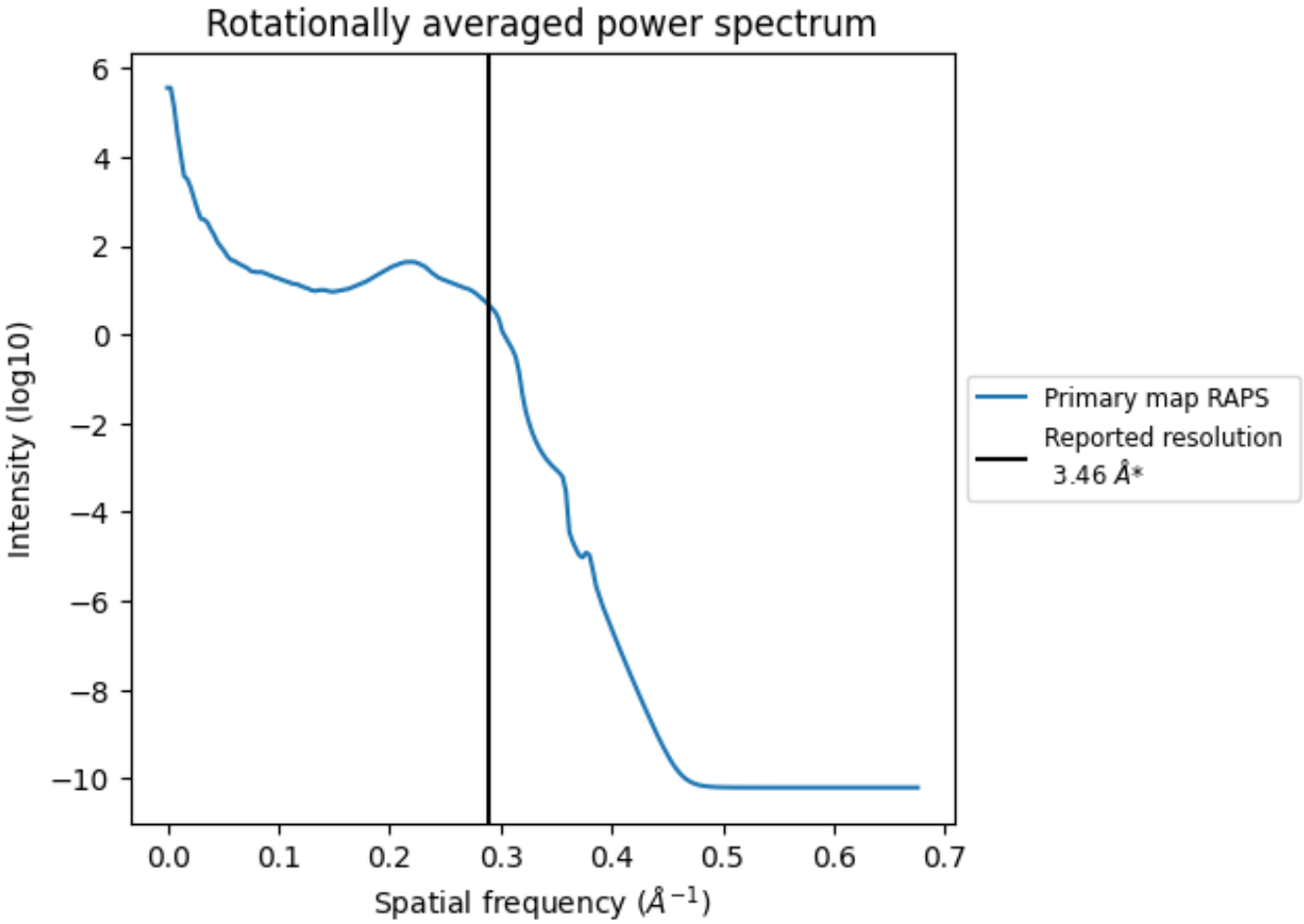
7.2 Volume estimate (i)



The volume at the recommended contour level is 126 nm^3; this corresponds to an approximate mass of 114 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 0.289 $Å^{-1}$

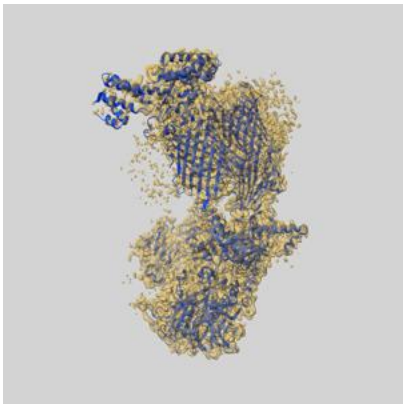
8 Fourier-Shell correlation (i)

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

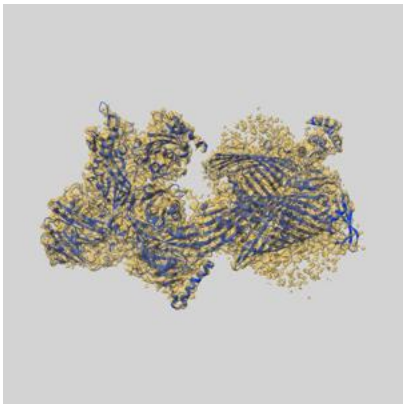
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-52209 and PDB model 9HJ3. Per-residue inclusion information can be found in section 3 on page 6.

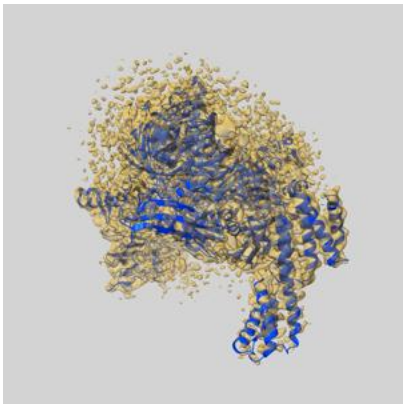
9.1 Map-model overlay



X



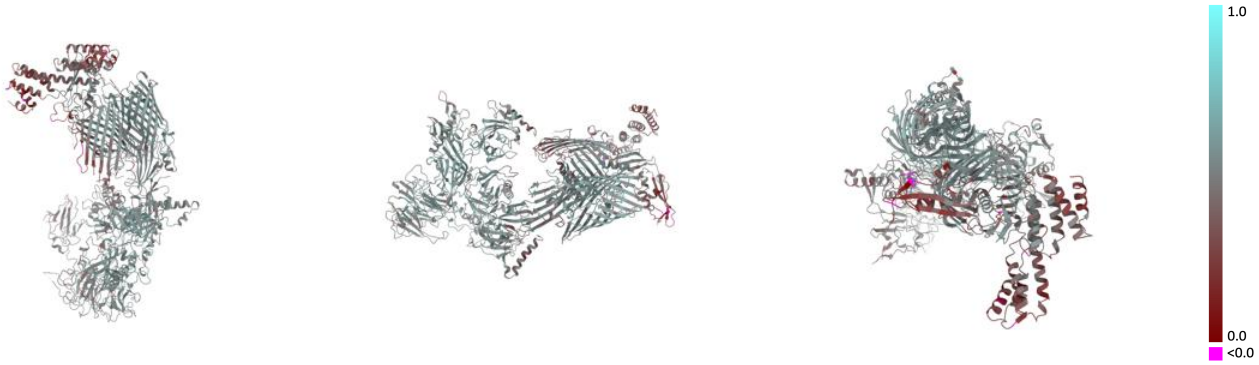
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 5.93 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.

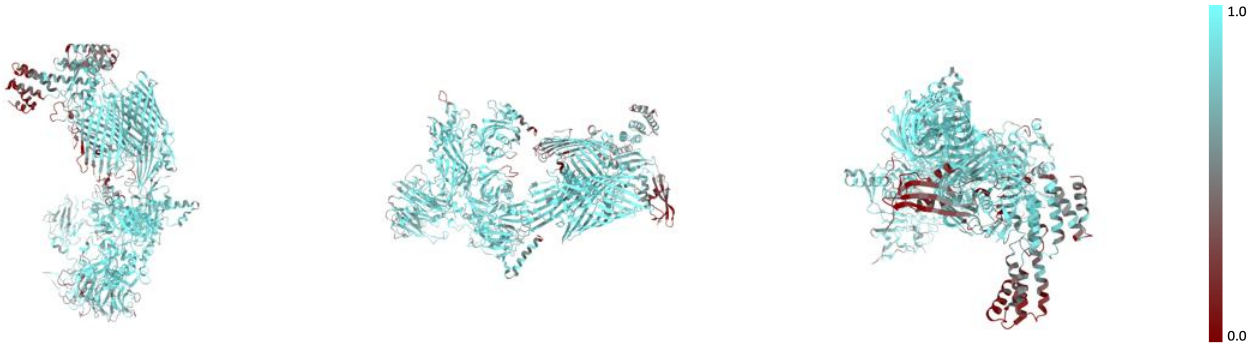
9.2 Q-score mapped to coordinate model (i)



X Y Z

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.

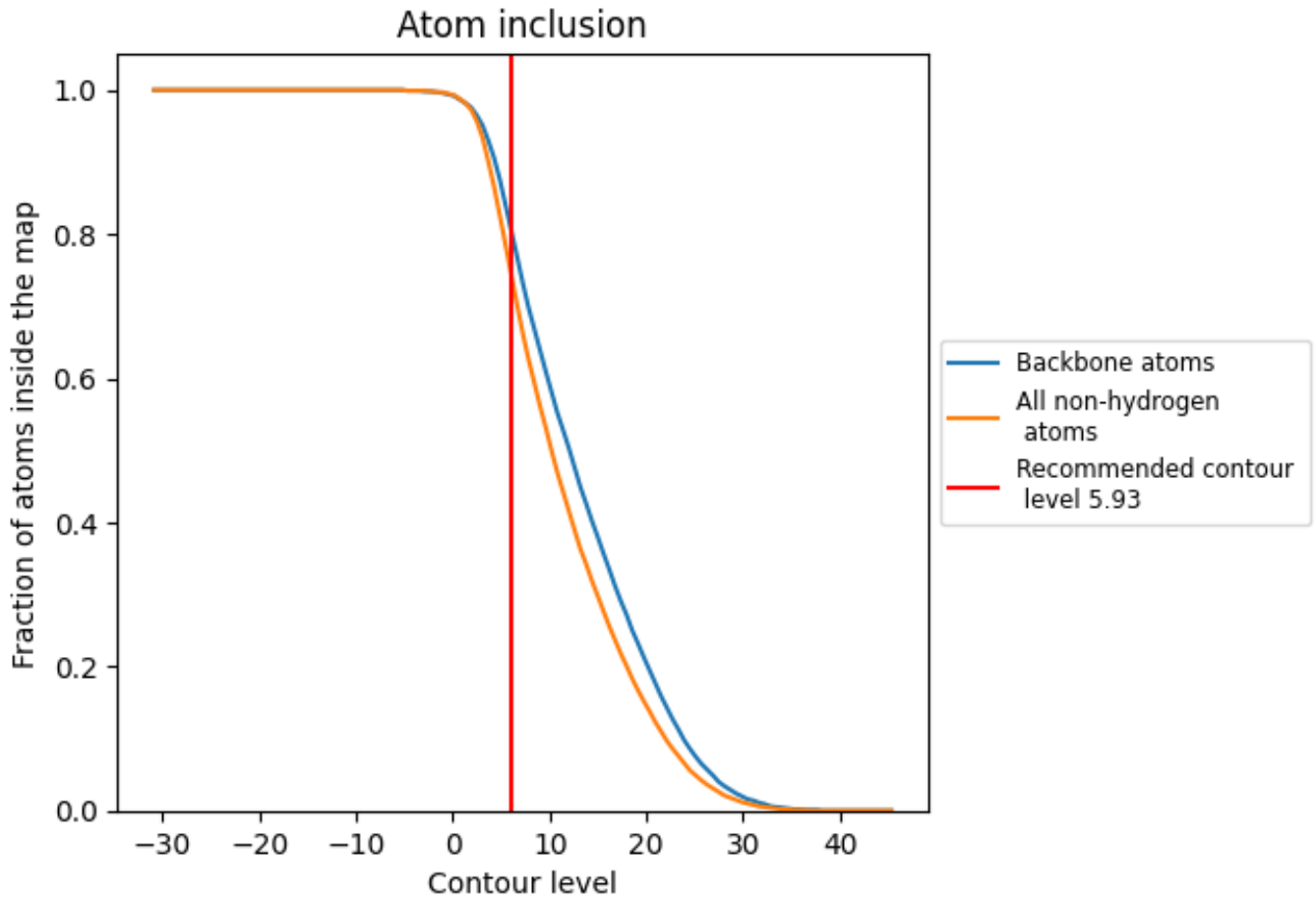
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

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 (5.93).

9.4 Atom inclusion (i)



At the recommended contour level, 81% of all backbone atoms, 75% 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 (5.93) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7500	0.4820
A	0.6690	0.4410
D	0.4840	0.3470
F	0.8620	0.5290
G	0.8270	0.5230
H	0.7580	0.4930
I	0.7410	0.4820
J	0.8030	0.5100