



Full wwPDB EM Validation Report ⓘ

Oct 6, 2024 – 06:55 am BST

PDB ID : 6SNI
EMDB ID : EMD-10258
Title : Cryo-EM structure of nanodisc reconstituted yeast ALG6 in complex with 6AG9 Fab
Authors : Bloch, J.S.; Pesciullesi, G.; Boilevin, J.; Nosol, K.; Irobalieva, R.N.; Darbre, T.; Aebi, M.; Kossiakoff, A.A.; Reymond, J.L.; Locher, K.P.
Deposited on : 2019-08-24
Resolution : 3.00 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev113
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4.02b-467
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) : 2.39

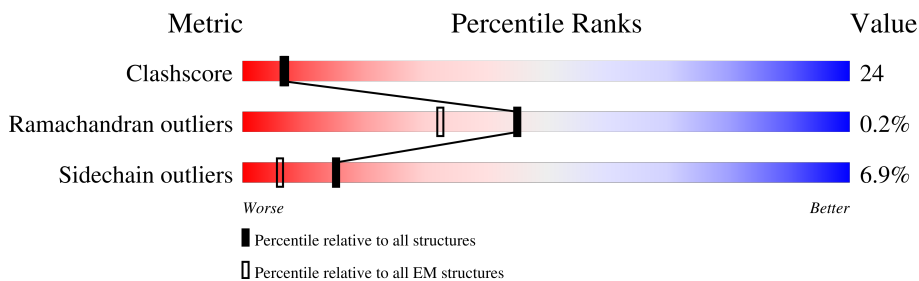
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.00 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	X	562	
2	H	234	
3	L	217	

2 Entry composition i

There are 6 unique types of molecules in this entry. The entry contains 7510 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 Dolichyl pyrophosphate Man9GlcNAc2 alpha-1,3-glucosyltransferase.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	X	479	3924	2658	604	642	20	0	0

There are 18 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
X	-17	GLY	-	expression tag	UNP Q12001
X	-16	PRO	-	expression tag	UNP Q12001
X	-15	GLY	-	expression tag	UNP Q12001
X	-14	GLY	-	expression tag	UNP Q12001
X	-13	SER	-	expression tag	UNP Q12001
X	-12	THR	-	expression tag	UNP Q12001
X	-11	GLY	-	expression tag	UNP Q12001
X	-10	ARG	-	expression tag	UNP Q12001
X	-9	LEU	-	expression tag	UNP Q12001
X	-8	ALA	-	expression tag	UNP Q12001
X	-7	GLY	-	expression tag	UNP Q12001
X	-6	ALA	-	expression tag	UNP Q12001
X	-5	GLY	-	expression tag	UNP Q12001
X	-4	GLY	-	expression tag	UNP Q12001
X	-3	GLU	-	expression tag	UNP Q12001
X	-2	PHE	-	expression tag	UNP Q12001
X	-1	VAL	-	expression tag	UNP Q12001
X	0	ASP	-	expression tag	UNP Q12001

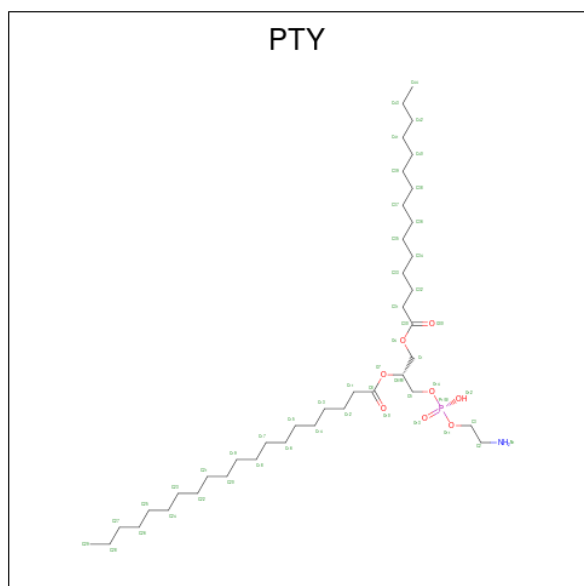
- Molecule 2 is a protein called 6AG9-Fab heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	H	225	1687	1068	277	336	6	1	0

- Molecule 3 is a protein called 6AG9-Fab light chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	L	214	1659	1042	275	337	5	6	0

- Molecule 4 is PHOSPHATIDYLETHANOLAMINE (three-letter code: PTY) (formula: $C_{40}H_{80}NO_8P$).



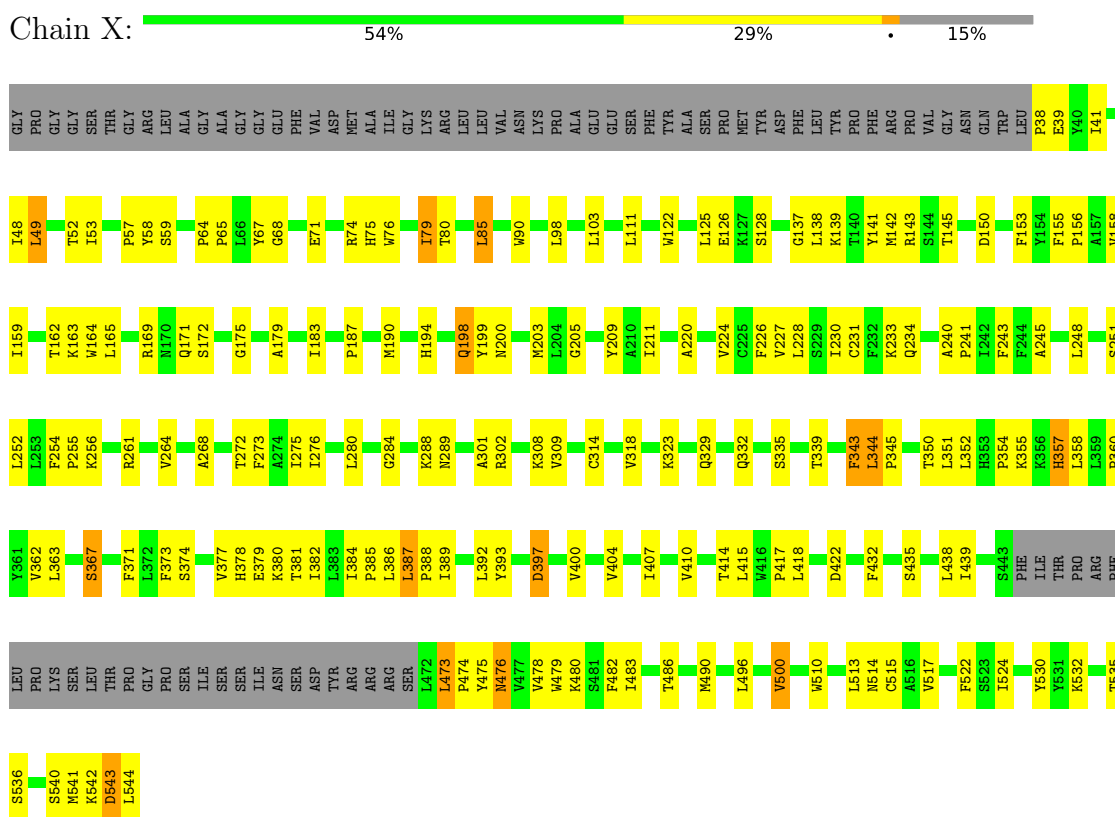
Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
4	X	1	36	27	8	1	0
4	X	1	17	15	2		0
4	X	1	20	17	3		0
4	X	1	21	17	4		0
4	X	1	34	30	4		0

- Molecule 5 is CHOLESTEROL HEMISUCCINATE (three-letter code: Y01) (formula: $C_{31}H_{50}O_4$).

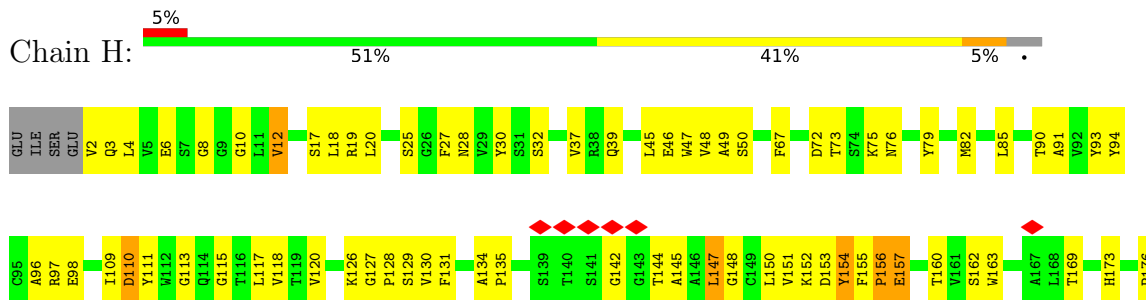
3 Residue-property plots [i](#)

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: Dolichyl pyrophosphate Man9GlcNAc2 alpha-1,3-glucosyltransferase



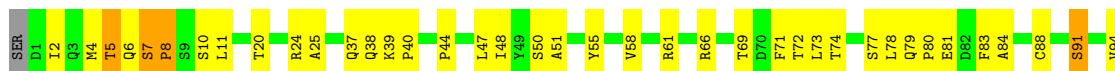
- Molecule 2: 6AG9-Fab heavy chain





• Molecule 3: 6AG9-Fab light chain

Chain L: 46% 49%



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	171764	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 ($e^-/\text{\AA}^2$)	2.3	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.144	Depositor
Minimum map value	-0.092	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.00768	Depositor
Map size (Å)	251.99998, 251.99998, 251.99998	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.84, 0.84, 0.84	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: Y01, PTY

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	X	0.34	0/4065	0.43	0/5542
2	H	0.50	2/1735 (0.1%)	0.55	1/2368 (0.0%)
3	L	0.37	0/1714	0.57	2/2329 (0.1%)
All	All	0.39	2/7514 (0.0%)	0.49	3/10239 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	156	PRO	N-CA	13.50	1.70	1.47
2	H	155	PHE	C-N	5.99	1.45	1.34

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	H	156	PRO	CA-N-CD	-9.49	98.22	111.50
3	L	10[A]	SER	CA-C-O	5.14	130.90	120.10
3	L	10[B]	SER	CA-C-O	5.14	130.90	120.10

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	X	3924	0	3935	144	0
2	H	1687	0	1629	102	0
3	L	1659	0	1631	115	0
4	X	128	0	175	6	0
5	H	70	0	84	8	0
5	X	35	0	42	5	0
6	H	1	0	0	0	0
6	X	6	0	0	1	0
All	All	7510	0	7496	363	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 24.

All (363) 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)
5:X:1606:Y01:CAP	5:X:1606:Y01:CAQ	1.79	1.58
5:H:2201:Y01:CAP	5:H:2201:Y01:CAQ	1.79	1.55
5:H:2202:Y01:CAP	5:H:2202:Y01:CAQ	1.80	1.54
2:H:156:PRO:N	2:H:156:PRO:CA	1.70	1.46
2:H:154:TYR:HE1	2:H:157:GLU:OE2	1.26	1.18
3:L:115:PRO:HB3	3:L:141:PHE:HB3	1.12	1.09
2:H:154:TYR:CE1	2:H:157:GLU:OE2	2.06	1.08
1:X:254:PHE:HB3	1:X:255:PRO:HD3	1.39	1.04
3:L:115:PRO:CB	3:L:141:PHE:HB3	1.99	0.92
3:L:5:THR:HG21	3:L:24:ARG:NH2	1.85	0.90
3:L:5:THR:HG21	3:L:24:ARG:CZ	2.02	0.89
1:X:335:SER:O	1:X:339:THR:HG23	1.77	0.85
1:X:379:GLU:HG2	1:X:415:LEU:HD23	1.58	0.84
2:H:204:ILE:HG12	2:H:219:LYS:HB2	1.61	0.81
2:H:96:ALA:HB1	2:H:109:ILE:HG23	1.62	0.80
5:X:1606:Y01:HAC1	5:X:1606:Y01:HAE2	1.63	0.79
1:X:387:LEU:HB3	1:X:388:PRO:HD3	1.62	0.79
2:H:154:TYR:HE1	2:H:157:GLU:CD	1.86	0.78
1:X:227:VAL:HG11	1:X:272:THR:HG23	1.66	0.77
1:X:496:LEU:HA	1:X:500:VAL:HG13	1.66	0.77
3:L:122:PRO:HB3	3:L:132:ALA:HB1	1.67	0.77
2:H:134:ALA:HB2	2:H:223:LYS:HE2	1.67	0.76
1:X:228:LEU:HD23	1:X:276:ILE:HD11	1.68	0.75
3:L:121:PRO:HB3	3:L:211:PHE:CE2	2.21	0.75
2:H:193:VAL:HG12	2:H:194:PRO:HD2	1.67	0.75
2:H:28:ASN:HA	2:H:76:ASN:HD21	1.50	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:L:66:ARG:HD2	3:L:71:PHE:HE1	1.50	0.75
1:X:380:LYS:O	1:X:381:THR:OG1	2.04	0.74
2:H:96:ALA:HB1	2:H:109:ILE:CG2	2.16	0.74
2:H:153:ASP:OD1	2:H:180:GLN:NE2	2.21	0.74
1:X:410:VAL:HG22	1:X:490:MET:CE	2.18	0.73
3:L:186:ALA:O	3:L:190:LYS:HG3	1.88	0.73
2:H:6:GLU:N	2:H:6:GLU:OE1	2.21	0.73
2:H:173:HIS:HB2	2:H:190:VAL:HG23	1.70	0.73
3:L:127:LEU:HD21	3:L:132:ALA:HB2	1.70	0.73
3:L:152:VAL:H	3:L:157:GLN:HE21	1.36	0.73
3:L:155:ALA:HB3	3:L:157:GLN:NE2	2.04	0.73
1:X:384:ILE:HB	1:X:385:PRO:HD3	1.69	0.72
1:X:400:VAL:O	1:X:404:VAL:HG23	1.90	0.72
1:X:474:PRO:HG2	1:X:479:TRP:HB3	1.72	0.71
2:H:37:VAL:HG13	2:H:46:GLU:O	1.90	0.71
1:X:58:TYR:HB3	1:X:143:ARG:HH21	1.56	0.71
3:L:39:LYS:HB3	3:L:40:PRO:HD2	1.73	0.71
3:L:79:GLN:HB3	3:L:80:PRO:HD2	1.73	0.70
3:L:5:THR:CG2	3:L:24:ARG:CZ	2.69	0.70
3:L:203:LEU:HD13	3:L:207:VAL:HG23	1.73	0.70
3:L:144:ARG:NH2	3:L:165:VAL:HG21	2.08	0.69
1:X:75:HIS:O	1:X:79:ILE:HG22	1.93	0.69
2:H:176:PRO:HD2	3:L:165:VAL:O	1.94	0.68
1:X:358:LEU:O	1:X:362:VAL:HG22	1.93	0.68
2:H:195:SER:HA	2:H:198:LEU:HG	1.75	0.68
3:L:127:LEU:CD2	3:L:132:ALA:HB2	2.24	0.68
1:X:153:PHE:O	1:X:205:GLY:HA3	1.93	0.67
3:L:122:PRO:CB	3:L:132:ALA:HB1	2.25	0.67
3:L:161:SER:HB3	3:L:181:LEU:CD1	2.25	0.67
1:X:226:PHE:CE2	1:X:230:ILE:HD11	2.29	0.67
2:H:4:LEU:HD21	2:H:27:PHE:CZ	2.30	0.67
2:H:12:VAL:HG21	2:H:85:LEU:HD23	1.78	0.66
1:X:179:ALA:O	1:X:183:ILE:HG13	1.95	0.66
3:L:61:ARG:HD2	3:L:77:SER:O	1.96	0.66
1:X:397:ASP:N	1:X:397:ASP:OD1	2.27	0.66
3:L:66:ARG:HD2	3:L:71:PHE:CE1	2.31	0.66
1:X:355:LYS:HE2	1:X:357:HIS:NE2	2.11	0.66
1:X:350:THR:CG2	1:X:362:VAL:HG11	2.27	0.65
1:X:374:SER:HB3	1:X:377:VAL:CG2	2.26	0.65
1:X:76:TRP:HA	1:X:79:ILE:HG22	1.79	0.64
1:X:159:ILE:O	1:X:163:LYS:HG2	1.97	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:X:344:LEU:HB3	1:X:345:PRO:HD3	1.79	0.63
3:L:83:PHE:CZ	3:L:108:ILE:HG22	2.33	0.63
1:X:187:PRO:HG3	1:X:435:SER:OG	1.99	0.63
1:X:254:PHE:HB3	1:X:255:PRO:CD	2.23	0.63
2:H:197:SER:O	2:H:201:GLN:HB2	1.99	0.63
3:L:2:ILE:O	3:L:99:THR:HG21	1.98	0.63
3:L:160:ASN:O	3:L:181:LEU:HD12	1.99	0.63
1:X:473:LEU:HB3	1:X:474:PRO:HD2	1.80	0.62
3:L:20:THR:HG23	3:L:72:THR:CG2	2.29	0.62
3:L:138:LEU:HD21	3:L:198:VAL:HG13	1.80	0.62
1:X:76:TRP:O	1:X:80:THR:HG23	2.00	0.62
1:X:541:MET:SD	1:X:544:LEU:HB2	2.39	0.62
1:X:169:ARG:HH21	1:X:171:GLN:NE2	1.98	0.62
2:H:135:PRO:HD2	2:H:221:GLU:O	2.00	0.62
3:L:203:LEU:HD13	3:L:207:VAL:CG2	2.30	0.61
1:X:209:TYR:CE1	4:X:1605:PTY:O30	2.53	0.61
2:H:91:ALA:O	2:H:117:LEU:HD12	1.99	0.61
3:L:192:LYS:O	3:L:213:ARG:HB2	2.00	0.61
3:L:161:SER:HB3	3:L:181:LEU:HD13	1.82	0.61
1:X:58:TYR:HB3	1:X:143:ARG:NH2	2.14	0.61
1:X:245:ALA:HB1	1:X:351:LEU:HB2	1.82	0.61
2:H:4:LEU:HD21	2:H:27:PHE:HZ	1.66	0.61
3:L:108:ILE:HD11	3:L:173:SER:CB	2.30	0.61
1:X:228:LEU:CD2	1:X:276:ILE:HD11	2.29	0.61
1:X:234:GLN:OE1	1:X:234:GLN:N	2.21	0.60
2:H:179:LEU:HD23	2:H:179:LEU:O	2.01	0.60
1:X:329:GLN:OE1	1:X:329:GLN:N	2.31	0.60
3:L:121:PRO:HB3	3:L:211:PHE:CZ	2.37	0.60
3:L:152:VAL:HG22	3:L:194:TYR:HD1	1.66	0.60
3:L:177:LEU:HD23	3:L:178:SER:N	2.16	0.60
1:X:209:TYR:CD1	4:X:1605:PTY:O30	2.54	0.60
3:L:4:MET:SD	3:L:25:ALA:HB2	2.41	0.60
2:H:152:LYS:HG3	2:H:186:SER:OG	2.02	0.60
1:X:141:TYR:O	1:X:145:THR:HG23	2.01	0.60
3:L:147:LYS:HB3	3:L:199:THR:HB	1.82	0.60
1:X:172:SER:O	1:X:175:GLY:N	2.35	0.59
2:H:195:SER:HA	2:H:198:LEU:CD1	2.33	0.59
3:L:153:ASP:OD2	3:L:191:HIS:HB3	2.03	0.59
3:L:160:ASN:OD1	3:L:160:ASN:N	2.35	0.59
1:X:59:SER:O	1:X:68:GLY:HA3	2.01	0.59
3:L:24:ARG:HA	3:L:69:THR:O	2.03	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:L:187:ASP:OD1	3:L:191:HIS:HE1	1.85	0.59
3:L:183:LEU:HD22	3:L:187:ASP:OD2	2.03	0.59
2:H:148:GLY:HA2	2:H:163:TRP:CZ2	2.38	0.59
2:H:204:ILE:HG12	2:H:219:LYS:CB	2.32	0.59
1:X:496:LEU:HD13	1:X:510:TRP:CZ3	2.38	0.58
1:X:374:SER:HB3	1:X:377:VAL:HG23	1.84	0.58
1:X:76:TRP:HA	1:X:79:ILE:CG2	2.32	0.58
2:H:12:VAL:CG2	2:H:85:LEU:HD23	2.33	0.58
2:H:195:SER:HA	2:H:198:LEU:CG	2.32	0.58
3:L:192:LYS:HA	3:L:213:ARG:HB2	1.84	0.58
1:X:57:PRO:HG2	1:X:422:ASP:O	2.04	0.57
1:X:474:PRO:HD2	1:X:483:ILE:HD12	1.85	0.57
1:X:153:PHE:CZ	4:X:1605:PTY:H443	2.39	0.57
2:H:148:GLY:HA2	2:H:163:TRP:CH2	2.38	0.57
3:L:5:THR:HG22	3:L:5:THR:O	2.03	0.57
2:H:142:GLY:H	2:H:195:SER:HB2	1.69	0.57
2:H:134:ALA:CB	2:H:223:LYS:HE2	2.34	0.57
1:X:486:THR:O	1:X:490:MET:HG3	2.04	0.56
3:L:168:GLN:NE2	3:L:173:SER:HB3	2.19	0.56
3:L:78:LEU:HD21	3:L:83:PHE:CE1	2.40	0.56
3:L:80:PRO:HG2	3:L:81:GLU:OE1	2.05	0.56
2:H:39:GLN:HB2	2:H:45:LEU:HD23	1.87	0.56
3:L:11:LEU:HD12	3:L:11:LEU:O	2.05	0.56
3:L:115:PRO:HD3	3:L:200:HIS:ND1	2.20	0.56
3:L:137:LEU:HD12	3:L:177:LEU:O	2.06	0.56
2:H:208:ASN:OD1	2:H:215:LYS:HE2	2.05	0.56
3:L:169:ASP:OD2	3:L:171:LYS:N	2.35	0.56
3:L:117:VAL:O	3:L:209:LYS:HE3	2.06	0.55
1:X:410:VAL:HG22	1:X:490:MET:HE1	1.89	0.55
1:X:198:GLN:HG2	1:X:200:ASN:HD21	1.72	0.55
3:L:192:LYS:O	3:L:213:ARG:N	2.40	0.55
2:H:193:VAL:HG12	2:H:194:PRO:CD	2.35	0.55
3:L:11:LEU:HD12	3:L:11:LEU:C	2.27	0.55
3:L:96:TYR:CG	3:L:97:PRO:HD2	2.42	0.55
1:X:308:LYS:HD2	1:X:308:LYS:N	2.22	0.55
1:X:199:TYR:O	1:X:233:LYS:HE2	2.07	0.54
2:H:97:ARG:HE	2:H:111:TYR:HD2	1.53	0.54
1:X:169:ARG:HH21	1:X:171:GLN:HE22	1.55	0.54
2:H:10:GLY:O	2:H:12:VAL:HG12	2.06	0.54
1:X:230:ILE:HG22	5:H:2201:Y01:CAA	2.37	0.54
1:X:280:LEU:O	1:X:284:GLY:HA3	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:X:85:LEU:CD2	1:X:280:LEU:HD13	2.37	0.54
1:X:111:LEU:O	1:X:141:TYR:OH	2.24	0.54
1:X:169:ARG:HD2	1:X:543:ASP:HA	1.89	0.54
1:X:524:ILE:HD11	4:X:1601:PTY:H392	1.89	0.54
3:L:5:THR:HG22	3:L:24:ARG:NH1	2.22	0.54
1:X:354:PRO:O	1:X:355:LYS:HG3	2.08	0.53
1:X:90:TRP:CZ3	2:H:73:THR:HG21	2.43	0.53
2:H:2:VAL:HA	2:H:25:SER:O	2.08	0.53
3:L:48:ILE:HD12	3:L:73:LEU:CD1	2.37	0.53
1:X:473:LEU:HB2	1:X:480:LYS:HG2	1.89	0.53
2:H:67:PHE:CZ	2:H:82:MET:HG2	2.43	0.53
3:L:136:CYS:HB2	3:L:150:TRP:CH2	2.43	0.53
2:H:173:HIS:HB2	2:H:190:VAL:CG2	2.38	0.53
3:L:38:GLN:HG2	3:L:39:LYS:O	2.09	0.53
2:H:210:LYS:N	2:H:211:PRO:CD	2.72	0.53
3:L:116[B]:SER:OG	3:L:139:ASN:HB3	2.08	0.53
2:H:177:ALA:HB2	2:H:187:LEU:HD23	1.90	0.53
1:X:74:ARG:HG3	1:X:142:MET:CE	2.39	0.53
1:X:513:LEU:O	1:X:517:VAL:HG12	2.08	0.53
2:H:2:VAL:HG23	2:H:27:PHE:HD1	1.73	0.53
1:X:379:GLU:HG2	1:X:415:LEU:CD2	2.36	0.53
1:X:155:PHE:O	1:X:159:ILE:HG13	2.09	0.52
2:H:195:SER:HA	2:H:198:LEU:HD11	1.92	0.52
2:H:150:LEU:HD12	2:H:187:LEU:O	2.10	0.52
1:X:248:LEU:HD11	1:X:252:LEU:HD21	1.91	0.52
1:X:268:ALA:O	1:X:272:THR:HG22	2.10	0.52
2:H:85:LEU:HG	2:H:120:VAL:CG2	2.39	0.52
1:X:532:LYS:O	1:X:536:SER:HB2	2.10	0.52
3:L:110:ARG:NH1	3:L:172:ASP:O	2.43	0.52
3:L:142:TYR:CD1	3:L:143:PRO:HA	2.45	0.52
1:X:255:PRO:C	1:X:256:LYS:HG3	2.29	0.52
3:L:37:GLN:HB2	3:L:47:LEU:HD11	1.92	0.52
3:L:83:PHE:CE2	3:L:108:ILE:HG22	2.44	0.52
2:H:2:VAL:HG11	2:H:111:TYR:CZ	2.46	0.51
2:H:145:ALA:HB3	2:H:198:LEU:HD21	1.91	0.51
3:L:141:PHE:HB2	3:L:200:HIS:CE1	2.45	0.51
3:L:145:GLU:OE1	3:L:145:GLU:N	2.44	0.51
1:X:139:LYS:O	1:X:139:LYS:HD3	2.10	0.51
2:H:93:TYR:O	2:H:115:GLY:HA2	2.11	0.51
3:L:55:TYR:HB3	3:L:58:VAL:CG2	2.40	0.51
1:X:227:VAL:HG11	1:X:272:THR:CG2	2.38	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:X:309:VAL:HG21	1:X:377:VAL:O	2.10	0.51
3:L:151:LYS:HG2	3:L:155:ALA:O	2.11	0.51
2:H:47:TRP:CH2	3:L:97:PRO:HB3	2.46	0.51
3:L:189:GLU:HA	3:L:213:ARG:NH1	2.26	0.51
2:H:82:MET:HB3	2:H:85:LEU:HD13	1.91	0.51
2:H:12:VAL:HG21	2:H:85:LEU:CD2	2.40	0.51
1:X:517:VAL:HG22	1:X:517:VAL:O	2.12	0.50
2:H:131:PHE:CD1	3:L:126:GLN:HB2	2.45	0.50
2:H:148:GLY:HA3	2:H:189:SER:O	2.11	0.50
3:L:152:VAL:H	3:L:157:GLN:NE2	2.05	0.50
3:L:2:ILE:HG12	3:L:99:THR:OG1	2.12	0.50
3:L:172:ASP:N	3:L:172:ASP:OD1	2.44	0.50
1:X:137:GLY:O	1:X:138:LEU:HB3	2.11	0.50
6:X:1702:HOH:O	5:H:2202:Y01:HAM1	2.11	0.50
1:X:53:ILE:HG22	1:X:194:HIS:O	2.12	0.50
2:H:206:ASN:ND2	2:H:217:ASP:OD1	2.45	0.50
3:L:6:GLN:NE2	3:L:104:THR:OG1	2.44	0.50
1:X:103:LEU:HB2	1:X:231:CYS:O	2.12	0.50
2:H:208:ASN:HD21	2:H:215:LYS:HD3	1.77	0.50
1:X:343:PHE:CD1	1:X:343:PHE:C	2.85	0.49
3:L:55:TYR:HB3	3:L:58:VAL:HG23	1.93	0.49
1:X:351:LEU:C	1:X:351:LEU:HD23	2.32	0.49
2:H:128:PRO:HB2	2:H:151:VAL:HG13	1.94	0.49
1:X:363:LEU:O	1:X:367:SER:OG	2.31	0.49
2:H:126:LYS:HG2	2:H:127:GLY:N	2.28	0.49
2:H:210:LYS:N	2:H:211:PRO:HD3	2.27	0.49
2:H:90:THR:HA	2:H:118:VAL:O	2.12	0.49
1:X:138:LEU:O	1:X:138:LEU:HG	2.12	0.49
1:X:385:PRO:O	1:X:389:ILE:HG13	2.13	0.48
3:L:5:THR:CG2	3:L:24:ARG:NH1	2.77	0.48
1:X:272:THR:HA	1:X:275:ILE:HG12	1.95	0.48
1:X:67:TYR:HB2	1:X:71:GLU:HB2	1.94	0.48
1:X:251:SER:HA	1:X:261:ARG:HD2	1.96	0.48
2:H:154:TYR:CD1	2:H:154:TYR:C	2.85	0.48
3:L:192:LYS:HA	3:L:213:ARG:CB	2.43	0.48
1:X:410:VAL:HG22	1:X:490:MET:HE2	1.95	0.48
3:L:121:PRO:HB2	3:L:122:PRO:HD2	1.95	0.48
1:X:254:PHE:CB	1:X:255:PRO:HD3	2.26	0.48
2:H:209:HIS:CD2	2:H:211:PRO:HD2	2.48	0.48
1:X:203:MET:HG3	1:X:233:LYS:HB2	1.95	0.48
1:X:220:ALA:HB2	1:X:264:VAL:CG1	2.43	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:85:LEU:HG	2:H:120:VAL:HG21	1.94	0.47
1:X:200:ASN:OD1	1:X:233:LYS:HE3	2.13	0.47
2:H:131:PHE:CZ	3:L:126:GLN:HG3	2.48	0.47
1:X:48:ILE:O	1:X:52:THR:HG23	2.14	0.47
2:H:2:VAL:HG13	2:H:2:VAL:O	2.14	0.47
2:H:19:ARG:HE	2:H:79:TYR:HB3	1.78	0.47
2:H:169:THR:HG22	2:H:169:THR:O	2.14	0.47
2:H:204:ILE:HA	2:H:219:LYS:HA	1.95	0.47
3:L:91:SER:HB3	3:L:98:ILE:HG22	1.95	0.47
2:H:94:TYR:HD1	2:H:113:GLY:O	1.97	0.47
3:L:188:TYR:O	3:L:213:ARG:NH1	2.47	0.47
2:H:3:GLN:O	2:H:3:GLN:HG3	2.14	0.47
1:X:371:PHE:CD1	1:X:377:VAL:HG11	2.50	0.47
4:X:1605:PTY:H382	4:X:1605:PTY:H412	1.33	0.47
2:H:47:TRP:CZ3	3:L:97:PRO:HB3	2.49	0.47
2:H:147:LEU:CD1	2:H:191:VAL:HG13	2.45	0.47
3:L:151:LYS:NZ	3:L:197:GLU:OE1	2.41	0.47
3:L:161:SER:HB3	3:L:181:LEU:HD12	1.96	0.47
1:X:49:LEU:HD13	1:X:190:MET:SD	2.55	0.47
1:X:496:LEU:HA	1:X:500:VAL:CG1	2.41	0.47
3:L:163:GLU:HA	3:L:179:SER:HA	1.97	0.47
2:H:72:ASP:OD2	2:H:75:LYS:HD2	2.15	0.47
5:H:2201:Y01:CAU	5:H:2201:Y01:HAC1	2.45	0.47
3:L:108:ILE:HD12	3:L:109:LYS:O	2.15	0.47
1:X:252:LEU:HD12	1:X:252:LEU:C	2.36	0.46
1:X:103:LEU:HD23	1:X:103:LEU:HA	1.77	0.46
1:X:474:PRO:CD	1:X:483:ILE:HD12	2.45	0.46
2:H:179:LEU:HB2	2:H:185:TYR:CE2	2.50	0.46
2:H:131:PHE:HB3	3:L:123:SER:OG	2.15	0.46
2:H:135:PRO:HG2	2:H:222:PRO:HA	1.96	0.46
1:X:360:PRO:HB2	1:X:392:LEU:HD21	1.98	0.46
3:L:117:VAL:CG2	3:L:198:VAL:HG21	2.46	0.46
1:X:224:VAL:CG2	1:X:268:ALA:HB1	2.46	0.45
3:L:110:ARG:NH1	3:L:174:THR:HG23	2.32	0.45
1:X:541:MET:O	1:X:542:LYS:HB3	2.16	0.45
3:L:195:ALA:HB2	3:L:210:SER:CB	2.46	0.45
1:X:357:HIS:CD2	1:X:357:HIS:H	2.35	0.45
1:X:438:LEU:HD12	1:X:439:ILE:N	2.32	0.45
1:X:357:HIS:CE1	1:X:540:SER:HB3	2.52	0.45
3:L:7:SER:HA	3:L:8:PRO:HA	1.79	0.45
2:H:130:VAL:HG22	2:H:151:VAL:HG22	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:147:LEU:HD12	2:H:191:VAL:HG13	1.99	0.45
1:X:379:GLU:OE1	1:X:418:LEU:HB2	2.17	0.45
2:H:129:SER:O	2:H:151:VAL:HA	2.17	0.45
1:X:301:ALA:HB3	1:X:332:GLN:NE2	2.32	0.45
3:L:39:LYS:HB3	3:L:40:PRO:CD	2.46	0.45
1:X:410:VAL:O	1:X:414:THR:HG23	2.16	0.44
1:X:541:MET:CB	1:X:543:ASP:H	2.29	0.44
1:X:351:LEU:HD23	1:X:351:LEU:O	2.17	0.44
5:X:1606:Y01:HAE2	5:X:1606:Y01:CAC	2.35	0.44
1:X:387:LEU:HB3	1:X:388:PRO:CD	2.41	0.44
1:X:318:VAL:HG22	1:X:318:VAL:O	2.18	0.44
3:L:189:GLU:HA	3:L:213:ARG:HH12	1.81	0.44
3:L:197:GLU:HG3	3:L:208:THR:OG1	2.18	0.44
1:X:198:GLN:HG2	1:X:200:ASN:ND2	2.33	0.44
3:L:38:GLN:O	3:L:84:ALA:HB1	2.18	0.44
1:X:76:TRP:CA	1:X:79:ILE:HG22	2.48	0.44
1:X:90:TRP:CZ2	1:X:288:LYS:HG2	2.53	0.44
1:X:211:ILE:HD12	1:X:243:PHE:HZ	1.83	0.44
1:X:323:LYS:O	1:X:323:LYS:HG2	2.17	0.43
2:H:72:ASP:HB2	2:H:79:TYR:HE2	1.83	0.43
2:H:219:LYS:HE3	2:H:221:GLU:OE1	2.18	0.43
1:X:438:LEU:HD12	1:X:438:LEU:C	2.38	0.43
2:H:45:LEU:HD11	3:L:44:PRO:HG3	2.00	0.43
3:L:191:HIS:O	3:L:213:ARG:NH1	2.52	0.43
5:X:1606:Y01:HAD2	5:X:1606:Y01:HAS2	1.87	0.43
3:L:117:VAL:HG12	3:L:209:LYS:HG3	2.01	0.43
3:L:149:GLN:NE2	3:L:150:TRP:O	2.52	0.43
1:X:158:VAL:O	1:X:162:THR:HG23	2.19	0.43
1:X:309:VAL:O	1:X:314:CYS:HB3	2.19	0.43
1:X:382:ILE:O	1:X:386:LEU:HG	2.17	0.43
5:X:1606:Y01:HAE2	5:H:2202:Y01:HAP2	2.00	0.43
2:H:18:LEU:HD23	2:H:18:LEU:HA	1.81	0.43
1:X:64:PRO:N	1:X:65:PRO:HD2	2.33	0.43
1:X:478:VAL:HG12	1:X:478:VAL:O	2.18	0.43
1:X:169:ARG:HE	1:X:171:GLN:HE21	1.66	0.43
2:H:202:THR:HG23	2:H:219:LYS:NZ	2.33	0.43
2:H:110:ASP:OD1	2:H:110:ASP:N	2.49	0.43
3:L:122:PRO:HG3	3:L:188:TYR:CE1	2.53	0.43
3:L:50:SER:O	3:L:51:ALA:HB3	2.19	0.43
3:L:152:VAL:HG13	3:L:194:TYR:CD1	2.53	0.43
1:X:164:TRP:HE3	1:X:165:LEU:HD22	1.84	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:45:LEU:HD11	3:L:44:PRO:CG	2.49	0.43
2:H:177:ALA:HA	2:H:187:LEU:HB3	2.01	0.43
1:X:125:LEU:O	1:X:126:GLU:HB2	2.18	0.42
1:X:343:PHE:HD1	1:X:343:PHE:O	2.02	0.42
2:H:187:LEU:HD12	2:H:187:LEU:C	2.39	0.42
2:H:216:VAL:HG12	2:H:217:ASP:N	2.34	0.42
2:H:30:TYR:CD1	2:H:30:TYR:O	2.73	0.42
1:X:339:THR:HG22	1:X:373:PHE:HB2	2.01	0.42
2:H:4:LEU:HD21	2:H:27:PHE:CE1	2.54	0.42
1:X:38:PRO:HG2	1:X:39:GLU:H	1.85	0.42
1:X:228:LEU:HD23	1:X:276:ILE:CD1	2.46	0.42
3:L:207:VAL:HG12	3:L:208:THR:N	2.34	0.42
2:H:17:SER:HB2	2:H:82:MET:O	2.20	0.42
1:X:377:VAL:HG12	1:X:378:HIS:N	2.35	0.42
1:X:407:ILE:HD11	1:X:522:PHE:HD1	1.84	0.42
2:H:109:ILE:O	2:H:109:ILE:HG22	2.20	0.42
1:X:230:ILE:HG22	5:H:2201:Y01:HAA1	2.02	0.41
3:L:117:VAL:HG22	3:L:198:VAL:HG21	2.01	0.41
1:X:85:LEU:HD23	1:X:85:LEU:O	2.19	0.41
2:H:85:LEU:HD12	2:H:85:LEU:HA	1.78	0.41
2:H:134:ALA:HB1	2:H:135:PRO:HD2	2.03	0.41
1:X:323:LYS:HE2	1:X:323:LYS:HB3	1.79	0.41
2:H:152:LYS:HA	2:H:186:SER:OG	2.21	0.41
1:X:352:LEU:O	1:X:352:LEU:HG	2.21	0.41
3:L:126:GLN:O	3:L:129:SER:OG	2.20	0.41
3:L:152:VAL:CG2	3:L:194:TYR:HD1	2.32	0.41
1:X:122:TRP:O	1:X:128:SER:OG	2.24	0.41
1:X:482:PHE:CE2	1:X:524:ILE:HD12	2.55	0.41
2:H:8:GLY:O	2:H:20:LEU:HD23	2.21	0.41
2:H:32:SER:O	2:H:98:GLU:O	2.39	0.41
4:X:1605:PTY:H391	4:X:1605:PTY:H352	2.02	0.41
3:L:83:PHE:CE1	3:L:108:ILE:HG22	2.55	0.41
1:X:85:LEU:HD22	1:X:280:LEU:HD13	2.01	0.41
1:X:350:THR:HG22	1:X:362:VAL:HG11	2.02	0.41
1:X:483:ILE:O	1:X:486:THR:OG1	2.33	0.41
3:L:110:ARG:NE	3:L:111:THR:O	2.54	0.41
3:L:194:TYR:HB2	3:L:211:PHE:CE1	2.56	0.41
1:X:475:TYR:O	1:X:476:ASN:HB2	2.22	0.40
1:X:417:PRO:CG	1:X:514:ASN:HD22	2.34	0.40
1:X:156:PRO:HG2	1:X:209:TYR:OH	2.20	0.40
2:H:134:ALA:CB	2:H:223:LYS:HG3	2.51	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:L:120:PHE:HD2	3:L:135:VAL:HB	1.84	0.40
1:X:240:ALA:HB3	1:X:241:PRO:HD3	2.04	0.40
2:H:48:VAL:HG23	2:H:49:ALA:N	2.36	0.40
1:X:230:ILE:HG22	5:H:2201:Y01:HAA2	2.02	0.40
3:L:20:THR:HG23	3:L:72:THR:HG23	2.02	0.40
3:L:108:ILE:HD11	3:L:173:SER:OG	2.21	0.40
3:L:168:GLN:HG2	3:L:173:SER:HA	2.02	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	X	475/562 (84%)	444 (94%)	31 (6%)	0	100	100
2	H	224/234 (96%)	195 (87%)	28 (12%)	1 (0%)	30	66
3	L	218/217 (100%)	192 (88%)	25 (12%)	1 (0%)	25	61
All	All	917/1013 (90%)	831 (91%)	84 (9%)	2 (0%)	45	77

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	H	212	SER
3	L	8	PRO

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	X	422/490 (86%)	397 (94%)	25 (6%)	16	47
2	H	189/197 (96%)	173 (92%)	16 (8%)	8	33
3	L	194/191 (102%)	180 (93%)	14 (7%)	12	39
All	All	805/878 (92%)	750 (93%)	55 (7%)	15	42

All (55) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	X	41	ILE
1	X	49	LEU
1	X	79	ILE
1	X	85	LEU
1	X	98	LEU
1	X	150	ASP
1	X	198	GLN
1	X	273	PHE
1	X	289	ASN
1	X	302	ARG
1	X	343	PHE
1	X	344	LEU
1	X	357	HIS
1	X	367	SER
1	X	387	LEU
1	X	393	TYR
1	X	397	ASP
1	X	432	PHE
1	X	473	LEU
1	X	476	ASN
1	X	500	VAL
1	X	515	CYS
1	X	530	TYR
1	X	535	THR
1	X	543	ASP
2	H	12	VAL
2	H	50	SER
2	H	110	ASP
2	H	144	THR
2	H	147	LEU
2	H	154	TYR
2	H	157	GLU

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Mol	Chain	Res	Type
2	H	160	THR
2	H	162	SER
2	H	179	LEU
2	H	193	VAL
2	H	203	TYR
2	H	205	CYS
2	H	208	ASN
2	H	210	LYS
2	H	212	SER
3	L	5	THR
3	L	7	SER
3	L	74	THR
3	L	88	CYS
3	L	91	SER
3	L	94	VAL
3	L	99	THR
3	L	102	GLN
3	L	108	ILE
3	L	110	ARG
3	L	147	LYS
3	L	160	ASN
3	L	167	GLU
3	L	201	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12) such sidechains are listed below:

Mol	Chain	Res	Type
1	X	81	GLN
1	X	171	GLN
1	X	198	GLN
1	X	213	ASN
1	X	291	HIS
1	X	476	ASN
2	H	76	ASN
3	L	79	GLN
3	L	102	GLN
3	L	157	GLN
3	L	191	HIS
3	L	212	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

8 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	PTY	X	1603	-	19,19,49	1.15	2 (10%)	20,20,54	1.35	2 (10%)
4	PTY	X	1605	-	33,33,49	1.05	4 (12%)	35,35,54	1.32	3 (8%)
5	Y01	H	2201	-	38,38,38	7.99	21 (55%)	57,57,57	1.98	17 (29%)
4	PTY	X	1601	-	35,35,49	1.08	3 (8%)	39,40,54	1.03	1 (2%)
5	Y01	H	2202	-	38,38,38	8.03	22 (57%)	57,57,57	2.04	17 (29%)
4	PTY	X	1604	-	20,20,49	1.21	2 (10%)	19,21,54	1.34	1 (5%)
5	Y01	X	1606	-	38,38,38	8.04	22 (57%)	57,57,57	2.08	19 (33%)
4	PTY	X	1602	-	16,16,49	0.83	1 (6%)	16,16,54	1.00	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	PTY	X	1603	-	-	13/19/19/53	-
4	PTY	X	1605	-	-	19/34/34/53	-
5	Y01	H	2201	-	-	7/19/77/77	0/4/4/4
4	PTY	X	1601	-	-	18/37/37/53	-
5	Y01	H	2202	-	-	8/19/77/77	0/4/4/4
4	PTY	X	1604	-	-	9/20/20/53	-
5	Y01	X	1606	-	-	7/19/77/77	0/4/4/4
4	PTY	X	1602	-	-	4/14/14/53	-

All (77) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	H	2202	Y01	CAK-CBD	-21.71	1.16	1.53
5	X	1606	Y01	CAK-CBD	-21.60	1.16	1.53
5	H	2201	Y01	CAK-CBD	-21.20	1.17	1.53
5	H	2202	Y01	CAU-CBI	-20.66	1.17	1.54
5	X	1606	Y01	CAU-CBI	-20.32	1.17	1.54
5	H	2201	Y01	CAU-CBI	-20.18	1.17	1.54
5	X	1606	Y01	CBD-CBG	-19.08	1.17	1.53
5	H	2201	Y01	CBD-CBG	-18.92	1.17	1.53
5	H	2202	Y01	CBD-CBG	-18.53	1.18	1.53
5	H	2201	Y01	CBH-CAZ	-15.48	1.22	1.52
5	H	2202	Y01	CBH-CAZ	-15.23	1.22	1.52
5	X	1606	Y01	CBH-CAZ	-15.17	1.22	1.52
5	H	2201	Y01	CBD-CBF	-13.43	1.28	1.53
5	X	1606	Y01	CBD-CBF	-13.39	1.28	1.53
5	H	2202	Y01	CBD-CBF	-13.36	1.28	1.53
5	X	1606	Y01	CAU-CAS	-11.21	1.29	1.53
5	H	2201	Y01	CAU-CAS	-11.20	1.29	1.53
5	H	2202	Y01	CAU-CAS	-11.19	1.29	1.53
5	H	2202	Y01	CAQ-CAP	9.54	1.80	1.54
5	H	2201	Y01	CAQ-CAP	9.41	1.79	1.54
5	X	1606	Y01	CAQ-CAP	9.33	1.79	1.54
5	H	2201	Y01	CBB-CBE	-8.83	1.39	1.54
5	H	2201	Y01	CAK-CAI	8.80	1.69	1.50
5	X	1606	Y01	CAK-CAI	8.78	1.69	1.50
5	H	2202	Y01	CAK-CAI	8.72	1.69	1.50
5	H	2202	Y01	CBB-CBE	-8.62	1.39	1.54
5	H	2202	Y01	CBH-CBF	8.59	1.70	1.56
5	X	1606	Y01	CBB-CBE	-8.54	1.39	1.54
5	X	1606	Y01	CBH-CBF	8.22	1.69	1.56

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	H	2201	Y01	CBH-CBF	8.17	1.69	1.56
5	X	1606	Y01	CBI-CBE	8.03	1.70	1.55
5	H	2201	Y01	CBI-CBE	7.55	1.69	1.55
5	H	2202	Y01	CBI-CBG	7.35	1.69	1.55
5	H	2202	Y01	CAR-CBC	-7.33	1.31	1.51
5	H	2201	Y01	CAR-CBC	-7.30	1.31	1.51
5	X	1606	Y01	CBI-CBG	7.24	1.68	1.55
5	X	1606	Y01	CAR-CBC	-7.21	1.31	1.51
5	H	2202	Y01	CBI-CBE	7.17	1.68	1.55
5	H	2201	Y01	CBI-CBG	7.15	1.68	1.55
5	H	2201	Y01	CAQ-CBG	7.07	1.69	1.54
5	H	2202	Y01	CAQ-CBG	7.00	1.68	1.54
5	X	1606	Y01	CAQ-CBG	6.77	1.68	1.54
5	X	1606	Y01	CAT-CBH	6.43	1.66	1.54
5	H	2202	Y01	CAT-CBH	5.91	1.65	1.54
5	H	2201	Y01	CAT-CBH	5.88	1.65	1.54
5	X	1606	Y01	CAS-CBF	5.55	1.63	1.53
5	X	1606	Y01	CAP-CBE	5.15	1.65	1.54
5	H	2201	Y01	CAP-CBE	5.12	1.65	1.54
5	H	2202	Y01	CAP-CBE	4.95	1.64	1.54
5	H	2201	Y01	CAS-CBF	4.79	1.61	1.53
5	H	2202	Y01	CAS-CBF	4.69	1.61	1.53
5	H	2202	Y01	CAV-CAZ	4.13	1.60	1.51
4	X	1603	PTY	O7-C6	-4.01	1.40	1.47
4	X	1604	PTY	O7-C6	-3.84	1.40	1.47
4	X	1605	PTY	O7-C6	-3.67	1.40	1.47
5	H	2201	Y01	CAV-CAZ	3.60	1.59	1.51
5	X	1606	Y01	CAV-CAZ	3.51	1.59	1.51
5	H	2202	Y01	CAO-CBB	3.25	1.62	1.54
5	H	2201	Y01	CAO-CBB	3.23	1.62	1.54
5	X	1606	Y01	CAO-CBB	3.00	1.62	1.54
4	X	1601	PTY	O7-C6	-2.80	1.39	1.46
4	X	1602	PTY	O7-C8	2.80	1.40	1.30
4	X	1601	PTY	P1-O11	2.67	1.65	1.54
4	X	1601	PTY	O4-C30	2.64	1.41	1.33
5	H	2202	Y01	OAW-CAY	2.59	1.41	1.34
5	X	1606	Y01	OAW-CAY	2.41	1.41	1.34
4	X	1605	PTY	O4-C30	2.36	1.40	1.33
5	H	2202	Y01	OAW-CBC	2.30	1.52	1.46
5	H	2201	Y01	OAW-CAY	2.30	1.40	1.34
4	X	1605	PTY	O4-C1	-2.21	1.40	1.45
5	H	2202	Y01	CAV-CBC	2.20	1.57	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	X	1606	Y01	CAL-CAX	2.16	1.55	1.50
5	X	1606	Y01	OAW-CBC	2.11	1.51	1.46
4	X	1605	PTY	O7-C8	2.10	1.40	1.34
4	X	1604	PTY	O7-C8	2.09	1.40	1.34
4	X	1603	PTY	O7-C8	2.06	1.40	1.34
5	H	2201	Y01	CAI-CAZ	-2.04	1.28	1.33

All (60) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	X	1606	Y01	CBG-CBI-CBE	5.92	107.08	100.07
5	H	2202	Y01	CAK-CAI-CAZ	-4.73	116.34	125.06
5	H	2202	Y01	OAW-CAY-CAM	4.54	121.29	111.50
5	H	2201	Y01	CAK-CAI-CAZ	-4.54	116.69	125.06
5	H	2202	Y01	CBF-CBH-CAZ	4.31	116.40	109.65
5	H	2201	Y01	CBH-CAZ-CAI	-4.26	116.39	122.90
4	X	1605	PTY	O7-C8-C11	4.21	120.58	111.50
5	H	2201	Y01	CAK-CBD-CBF	4.18	114.78	109.71
5	X	1606	Y01	OAW-CAY-CAM	4.02	120.17	111.50
5	H	2201	Y01	CAS-CBF-CBH	-3.94	107.89	113.08
4	X	1604	PTY	O7-C8-C11	3.90	119.91	111.50
5	H	2201	Y01	CAE-CBI-CBE	-3.88	104.47	111.71
5	H	2201	Y01	OAW-CAY-CAM	3.80	119.68	111.50
5	H	2202	Y01	CAE-CBI-CBE	-3.77	104.69	111.71
4	X	1603	PTY	O7-C8-C11	3.62	119.30	111.50
5	X	1606	Y01	CAC-CBB-CAO	-3.60	104.72	110.36
5	X	1606	Y01	CAS-CBF-CBH	-3.56	108.38	113.08
5	X	1606	Y01	CAK-CAI-CAZ	-3.56	118.49	125.06
5	X	1606	Y01	CAE-CBI-CBE	-3.55	105.09	111.71
5	H	2202	Y01	CAP-CBE-CBB	-3.49	106.74	112.15
4	X	1601	PTY	O7-C8-C11	3.46	118.96	111.50
5	H	2202	Y01	CAU-CBI-CBG	3.39	112.53	107.27
5	X	1606	Y01	CAT-CBH-CAZ	3.38	114.94	108.75
5	H	2202	Y01	CAQ-CBG-CBD	3.37	124.63	119.08
5	X	1606	Y01	CAP-CBE-CBB	-3.37	106.93	112.15
5	H	2201	Y01	CAU-CBI-CBE	3.37	121.61	116.57
5	H	2201	Y01	CAU-CBI-CBG	3.29	112.37	107.27
5	X	1606	Y01	CAE-CBI-CBG	-3.23	105.69	111.71
5	H	2202	Y01	CAU-CBI-CBE	3.18	121.33	116.57
4	X	1603	PTY	C6-O7-C8	-3.09	113.90	117.88
5	H	2202	Y01	CAK-CBD-CBG	2.86	115.05	110.91
5	H	2202	Y01	CBH-CBF-CBD	2.84	116.99	112.73

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	X	1606	Y01	CBF-CBD-CBG	2.77	112.80	109.09
5	H	2202	Y01	CAE-CBI-CBG	-2.74	106.60	111.71
5	H	2202	Y01	CAS-CBF-CBD	-2.70	107.86	111.75
5	X	1606	Y01	CAS-CAU-CBI	2.68	117.38	112.78
5	H	2202	Y01	CAQ-CBG-CBI	-2.62	100.69	103.84
5	X	1606	Y01	CBH-CAZ-CAI	-2.62	118.90	122.90
5	H	2201	Y01	CAE-CBI-CBG	-2.61	106.85	111.71
4	X	1605	PTY	O4-C30-C31	2.56	119.96	111.91
5	H	2201	Y01	CAD-CBH-CAT	-2.55	105.40	109.43
5	X	1606	Y01	CAD-CBH-CAT	-2.48	105.50	109.43
4	X	1605	PTY	O7-C6-C1	2.40	111.69	106.13
5	H	2201	Y01	CBI-CBE-CBB	-2.40	115.73	119.49
5	H	2202	Y01	CBH-CAZ-CAI	-2.39	119.25	122.90
5	H	2202	Y01	CAD-CBH-CBF	-2.38	108.85	111.68
5	H	2201	Y01	CAQ-CBG-CBD	2.33	122.92	119.08
5	X	1606	Y01	CAS-CBF-CBD	2.28	115.04	111.75
5	X	1606	Y01	CAU-CBI-CBG	2.27	110.80	107.27
5	X	1606	Y01	CAK-CBD-CBG	2.21	114.11	110.91
5	X	1606	Y01	CBC-OAW-CAY	-2.21	112.35	117.79
5	X	1606	Y01	CAP-CBE-CBI	2.20	106.50	103.84
5	H	2201	Y01	CBC-OAW-CAY	-2.16	112.48	117.79
5	H	2201	Y01	CAT-CBH-CAZ	2.14	112.68	108.75
5	H	2202	Y01	CAT-CBH-CBF	-2.14	105.74	108.73
5	H	2202	Y01	CAK-CBD-CBF	2.10	112.25	109.71
5	H	2201	Y01	CBG-CBI-CBE	2.10	102.56	100.07
5	H	2201	Y01	CAD-CBH-CBF	-2.04	109.24	111.68
5	X	1606	Y01	CAQ-CBG-CBD	2.03	122.42	119.08
5	H	2201	Y01	CBH-CBF-CBD	2.00	115.74	112.73

There are no chirality outliers.

All (85) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	X	1601	PTY	C5-O14-P1-O13
4	X	1603	PTY	O4-C1-C6-C5
4	X	1603	PTY	O4-C1-C6-O7
4	X	1603	PTY	O10-C8-O7-C6
4	X	1604	PTY	O30-C30-O4-C1
4	X	1604	PTY	C11-C8-O7-C6
4	X	1605	PTY	O4-C1-C6-C5
4	X	1605	PTY	O4-C1-C6-O7
4	X	1605	PTY	C1-C6-O7-C8

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Mol	Chain	Res	Type	Atoms
4	X	1605	PTY	C11-C8-O7-C6
5	X	1606	Y01	OAG-CAY-OAW-CBC
4	X	1605	PTY	O10-C8-O7-C6
4	X	1603	PTY	C11-C8-O7-C6
5	X	1606	Y01	CAM-CAY-OAW-CBC
4	X	1605	PTY	C31-C30-O4-C1
4	X	1604	PTY	O10-C8-O7-C6
5	H	2202	Y01	CAJ-CAO-CBB-CAC
4	X	1605	PTY	O30-C30-O4-C1
5	H	2201	Y01	CAJ-CAO-CBB-CAC
4	X	1605	PTY	C38-C39-C40-C41
5	H	2201	Y01	CAJ-CAO-CBB-CBE
4	X	1605	PTY	C12-C13-C14-C15
4	X	1603	PTY	C5-C6-O7-C8
4	X	1601	PTY	C8-C11-C12-C13
4	X	1601	PTY	C30-C31-C32-C33
4	X	1604	PTY	C8-C11-C12-C13
4	X	1603	PTY	C1-C6-O7-C8
4	X	1604	PTY	C1-C6-O7-C8
5	H	2202	Y01	CAO-CAJ-CAN-CBA
5	H	2202	Y01	CAX-CAL-CAM-CAY
4	X	1602	PTY	C14-C15-C16-C17
4	X	1603	PTY	C19-C20-C21-C22
4	X	1605	PTY	C16-C17-C18-C19
4	X	1601	PTY	C15-C16-C17-C18
4	X	1605	PTY	C30-C31-C32-C33
4	X	1601	PTY	C13-C14-C15-C16
4	X	1603	PTY	C16-C17-C18-C19
4	X	1604	PTY	C13-C14-C15-C16
4	X	1601	PTY	C33-C34-C35-C36
4	X	1603	PTY	C12-C13-C14-C15
4	X	1605	PTY	C35-C36-C37-C38
4	X	1605	PTY	C37-C38-C39-C40
4	X	1605	PTY	C15-C16-C17-C18
4	X	1603	PTY	C14-C15-C16-C17
4	X	1601	PTY	C38-C39-C40-C41
4	X	1602	PTY	C11-C12-C13-C14
5	H	2201	Y01	CAM-CAY-OAW-CBC
5	H	2201	Y01	OAG-CAY-OAW-CBC
4	X	1601	PTY	C11-C8-O7-C6
4	X	1603	PTY	C18-C19-C20-C21
4	X	1603	PTY	C17-C18-C19-C20

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Mol	Chain	Res	Type	Atoms
4	X	1605	PTY	C41-C42-C43-C44
4	X	1601	PTY	C16-C17-C18-C19
4	X	1601	PTY	C40-C41-C42-C43
4	X	1605	PTY	C17-C18-C19-C20
4	X	1603	PTY	C8-C11-C12-C13
4	X	1602	PTY	C8-C11-C12-C13
4	X	1604	PTY	C17-C18-C19-C20
5	H	2201	Y01	CAX-CAL-CAM-CAY
4	X	1601	PTY	O10-C8-O7-C6
5	X	1606	Y01	CAX-CAL-CAM-CAY
4	X	1601	PTY	C37-C38-C39-C40
4	X	1601	PTY	O14-C5-C6-C1
4	X	1601	PTY	C5-O14-P1-O12
4	X	1601	PTY	C11-C12-C13-C14
4	X	1601	PTY	O14-C5-C6-O7
4	X	1605	PTY	C32-C33-C34-C35
4	X	1604	PTY	C14-C15-C16-C17
4	X	1601	PTY	C6-C5-O14-P1
4	X	1605	PTY	C39-C40-C41-C42
4	X	1604	PTY	C5-C6-O7-C8
5	H	2202	Y01	CAM-CAL-CAX-OAF
4	X	1601	PTY	C32-C33-C34-C35
5	H	2202	Y01	CAJ-CAO-CBB-CBE
5	H	2202	Y01	CAM-CAL-CAX-OAH
5	H	2201	Y01	CAM-CAL-CAX-OAH
5	X	1606	Y01	CAL-CAM-CAY-OAW
5	X	1606	Y01	CAM-CAL-CAX-OAH
5	X	1606	Y01	CAM-CAL-CAX-OAF
5	H	2201	Y01	CAM-CAL-CAX-OAF
5	X	1606	Y01	CAL-CAM-CAY-OAG
4	X	1605	PTY	C13-C14-C15-C16
5	H	2202	Y01	OAG-CAY-OAW-CBC
5	H	2202	Y01	CAL-CAM-CAY-OAW
4	X	1602	PTY	C13-C14-C15-C16

There are no ring outliers.

5 monomers are involved in 18 short contacts:

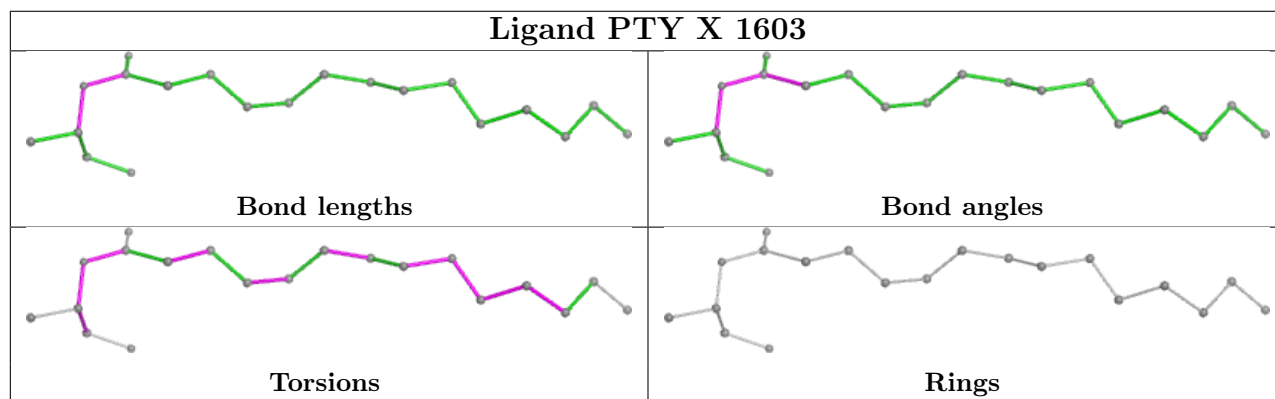
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	X	1605	PTY	5	0
5	H	2201	Y01	5	0
4	X	1601	PTY	1	0

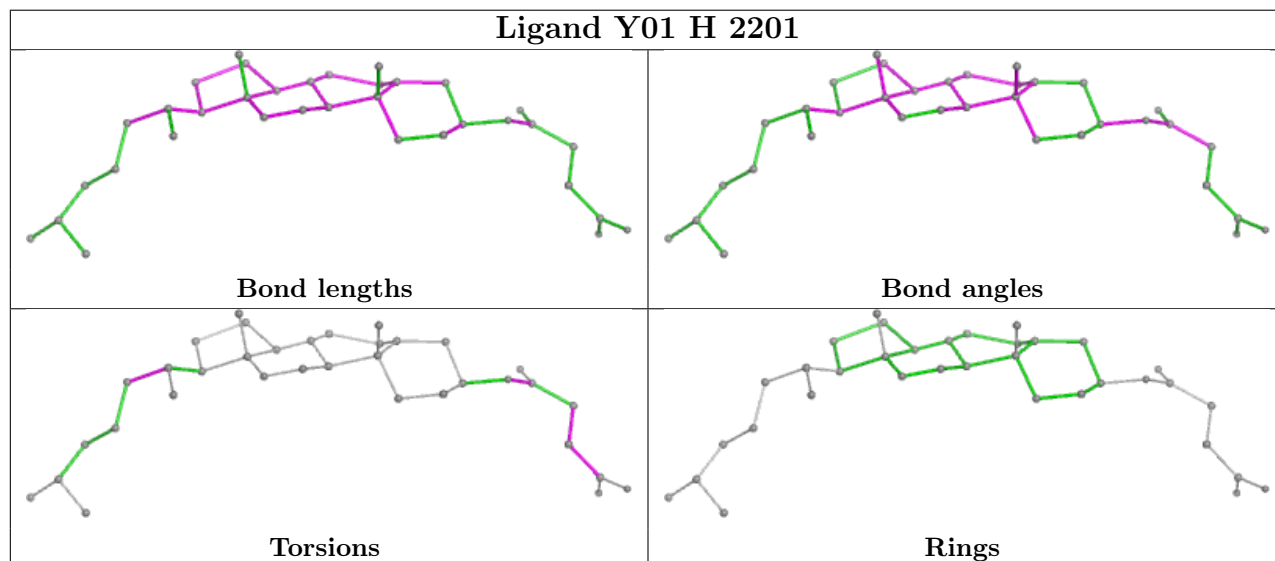
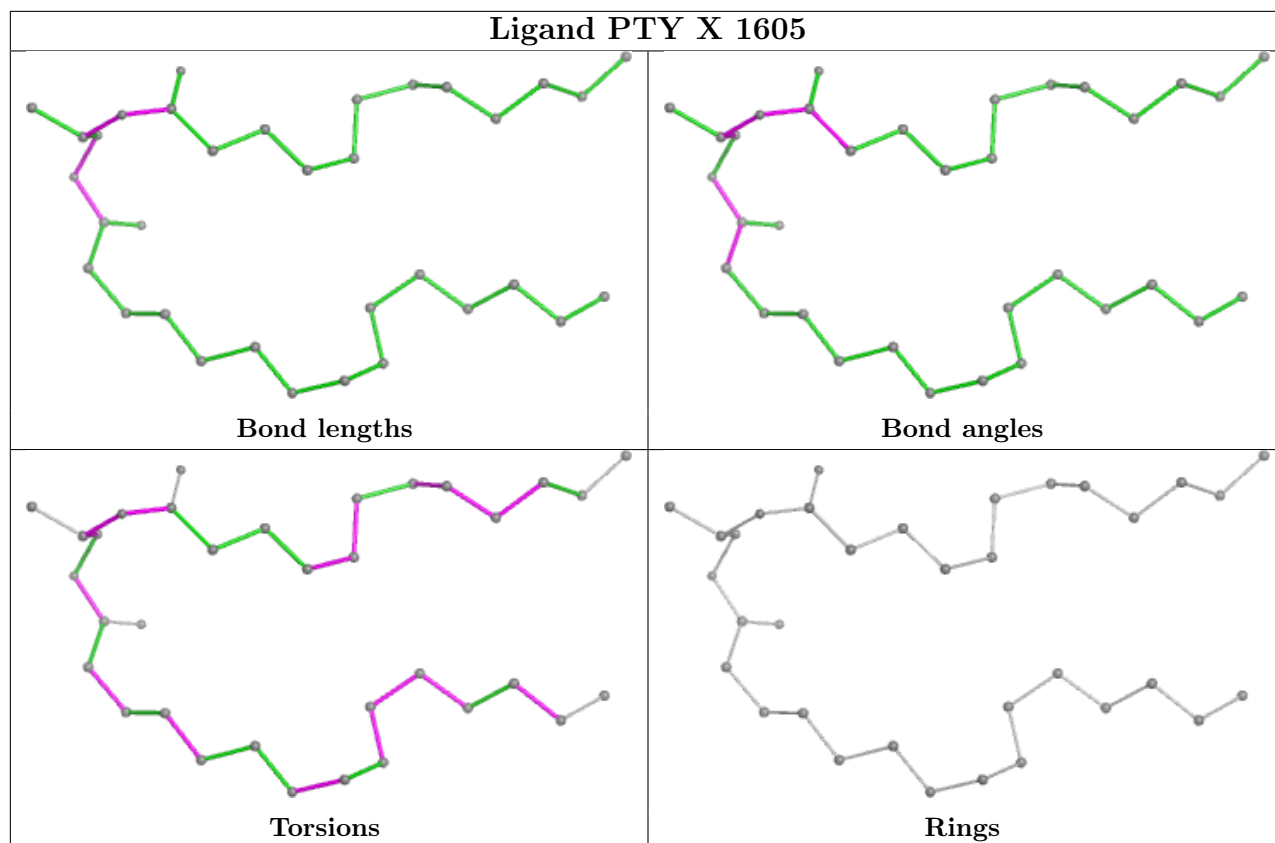
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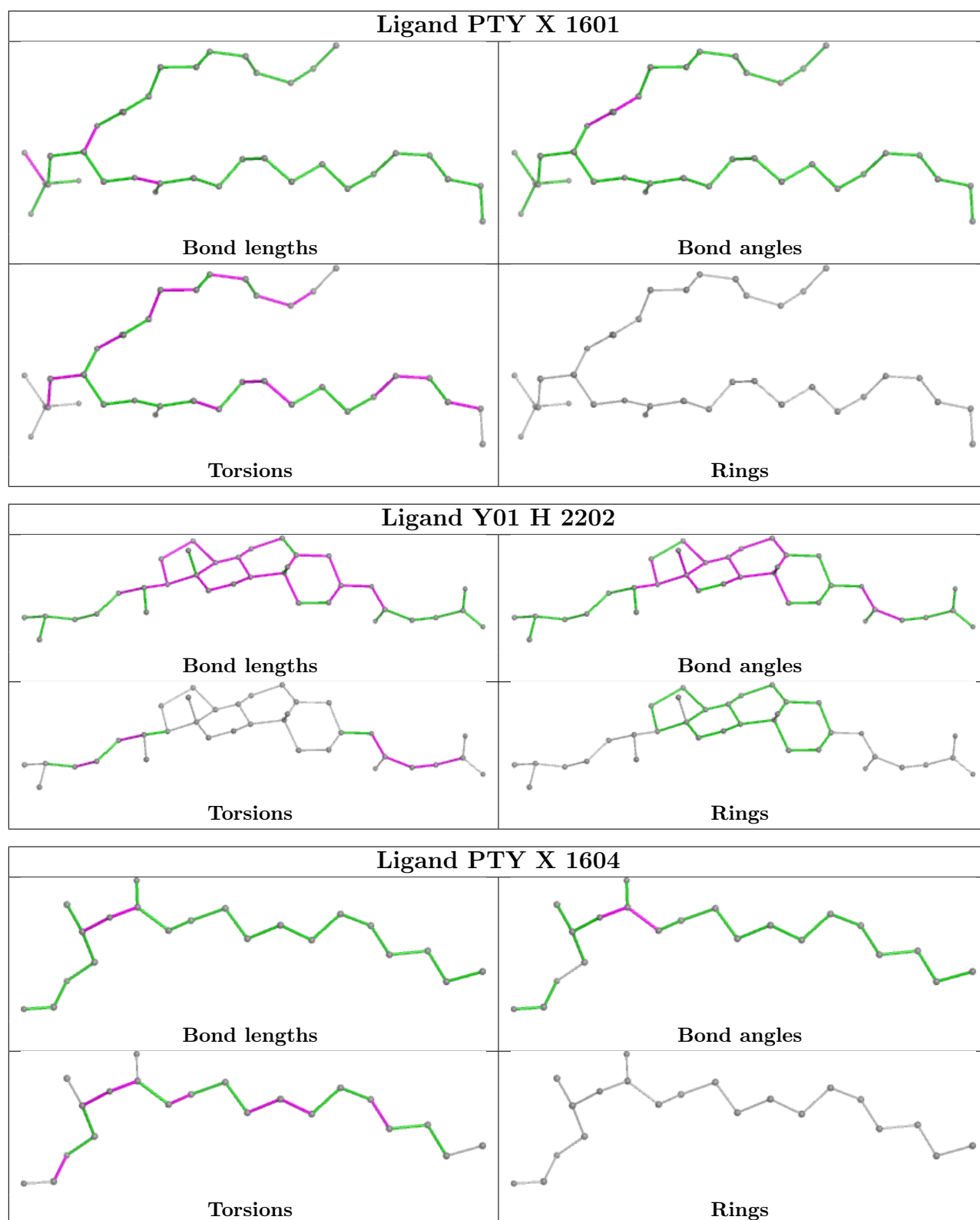
Continued from previous page...

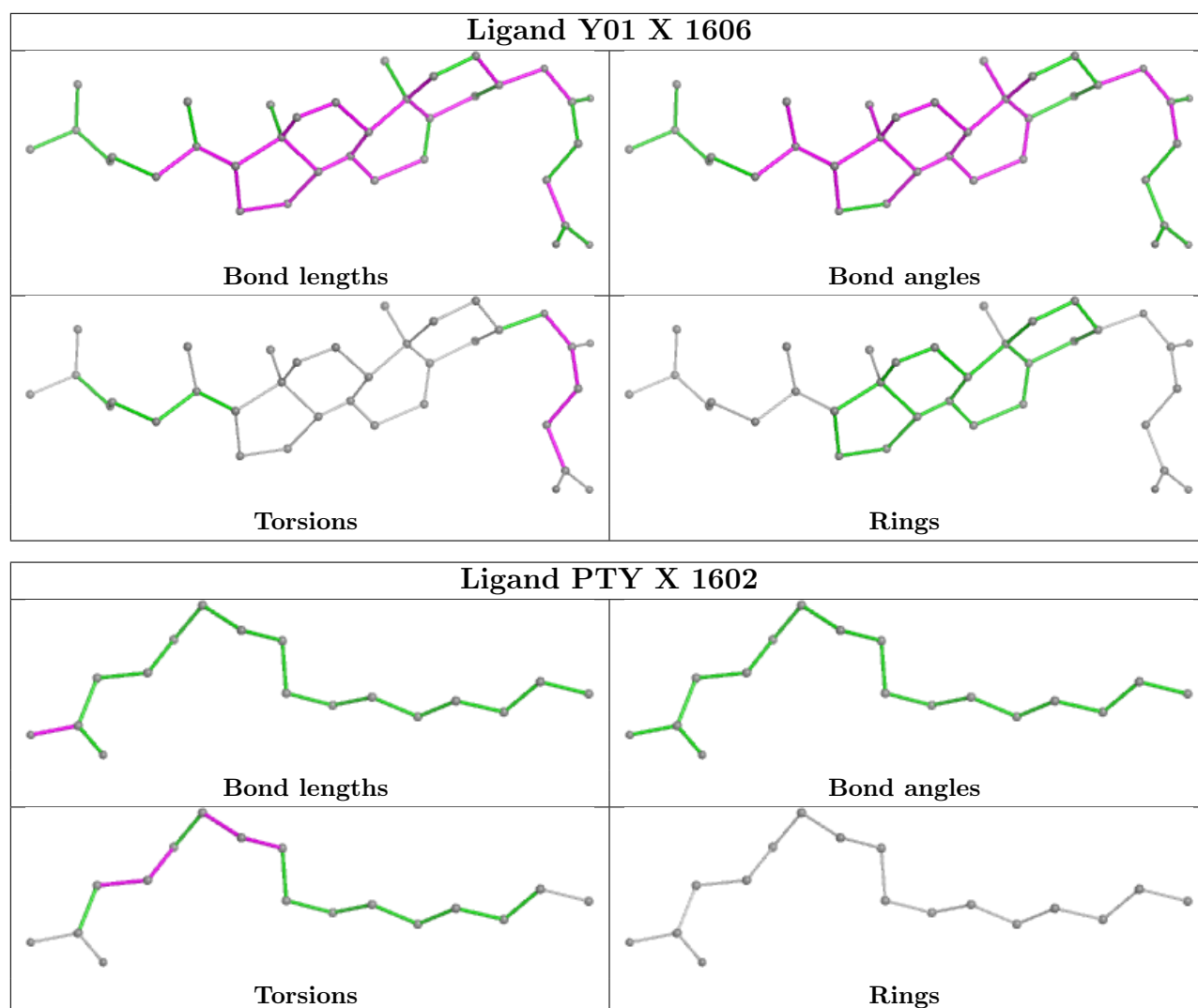
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	H	2202	Y01	3	0
5	X	1606	Y01	5	0

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 than 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.









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.

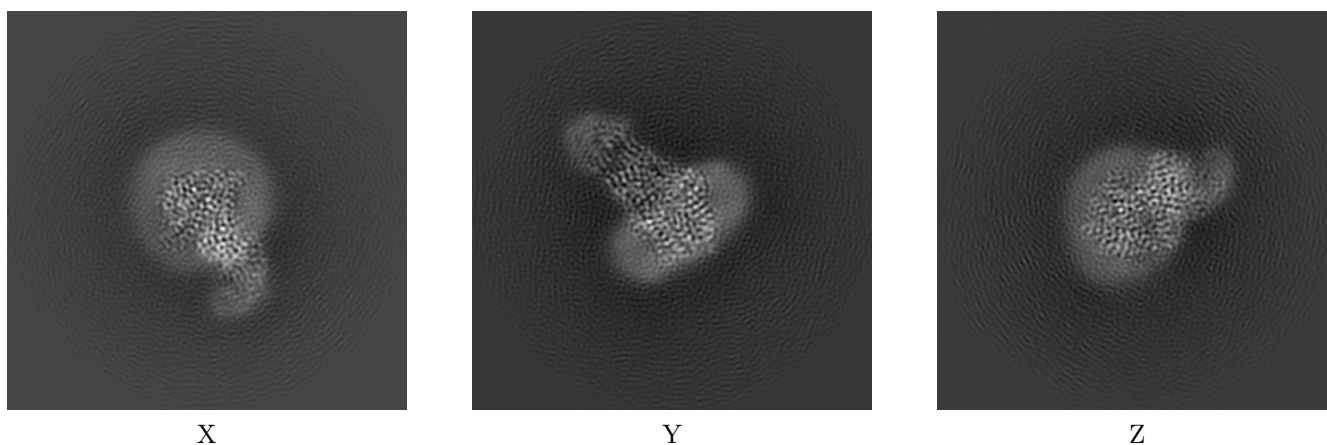
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-10258. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1 Orthogonal projections [i](#)

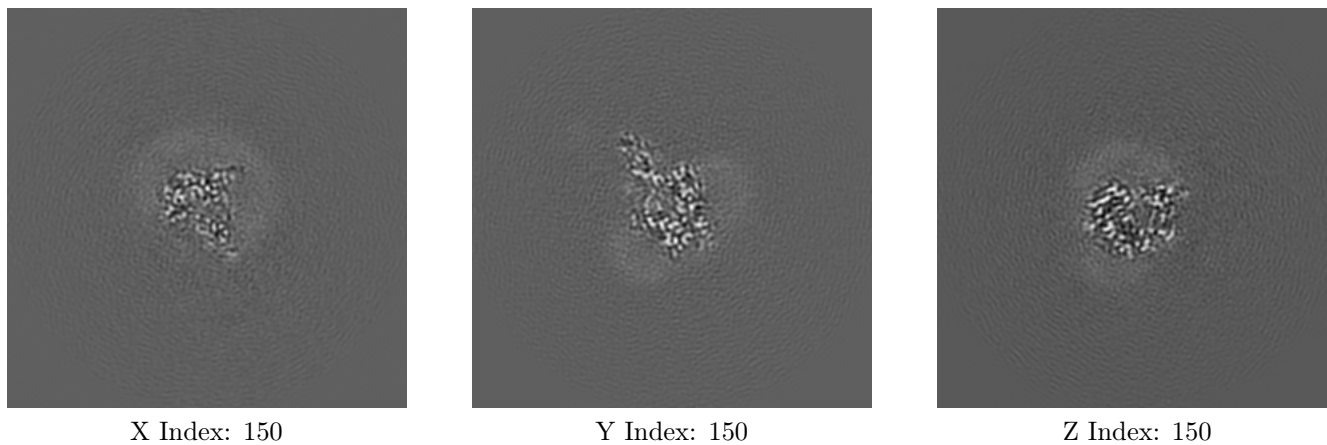
6.1.1 Primary map



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

6.2 Central slices [i](#)

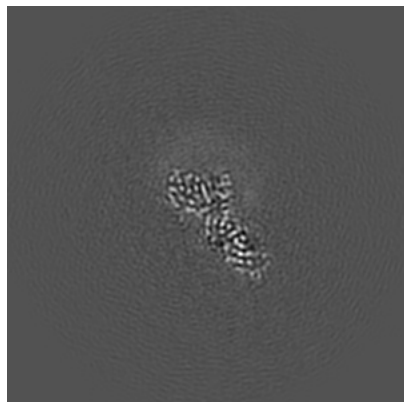
6.2.1 Primary map



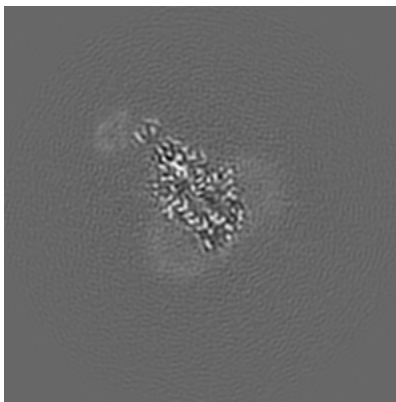
The images above show central slices of the map in three orthogonal directions.

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

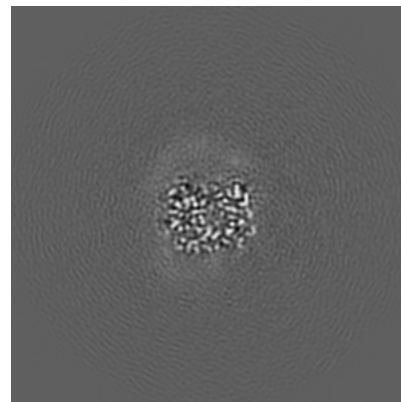
6.3.1 Primary map



X Index: 173



Y Index: 160

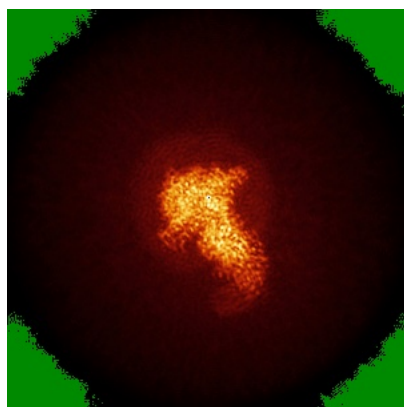


Z Index: 153

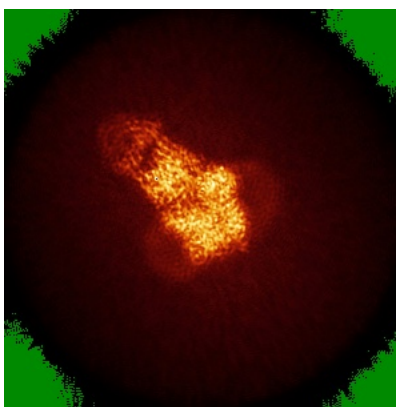
The images above show the largest variance slices of the map in three orthogonal directions.

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

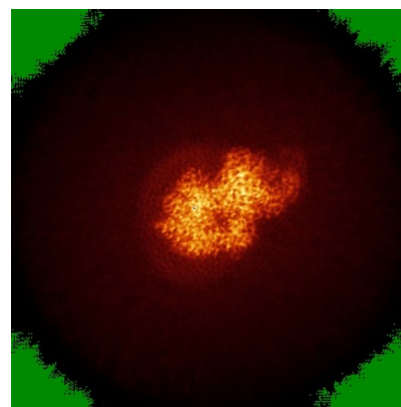
6.4.1 Primary map



X



Y

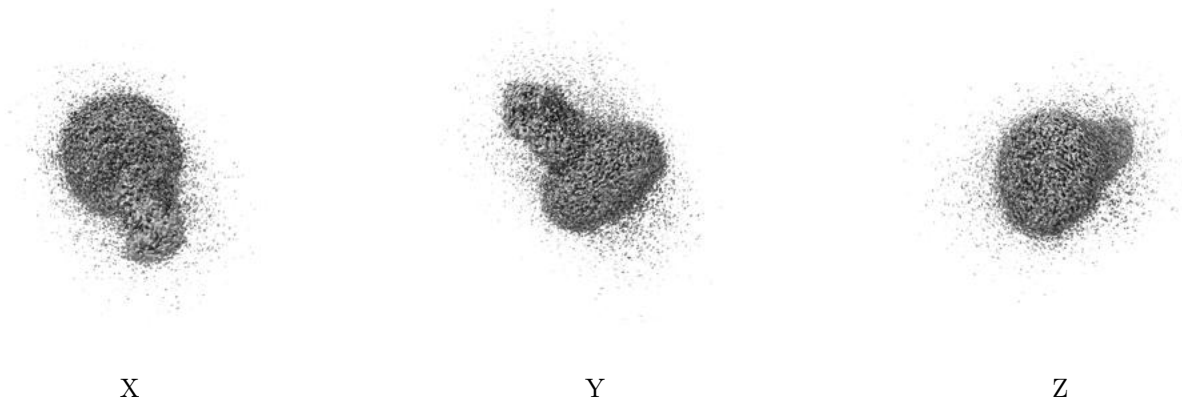


Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.00768. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

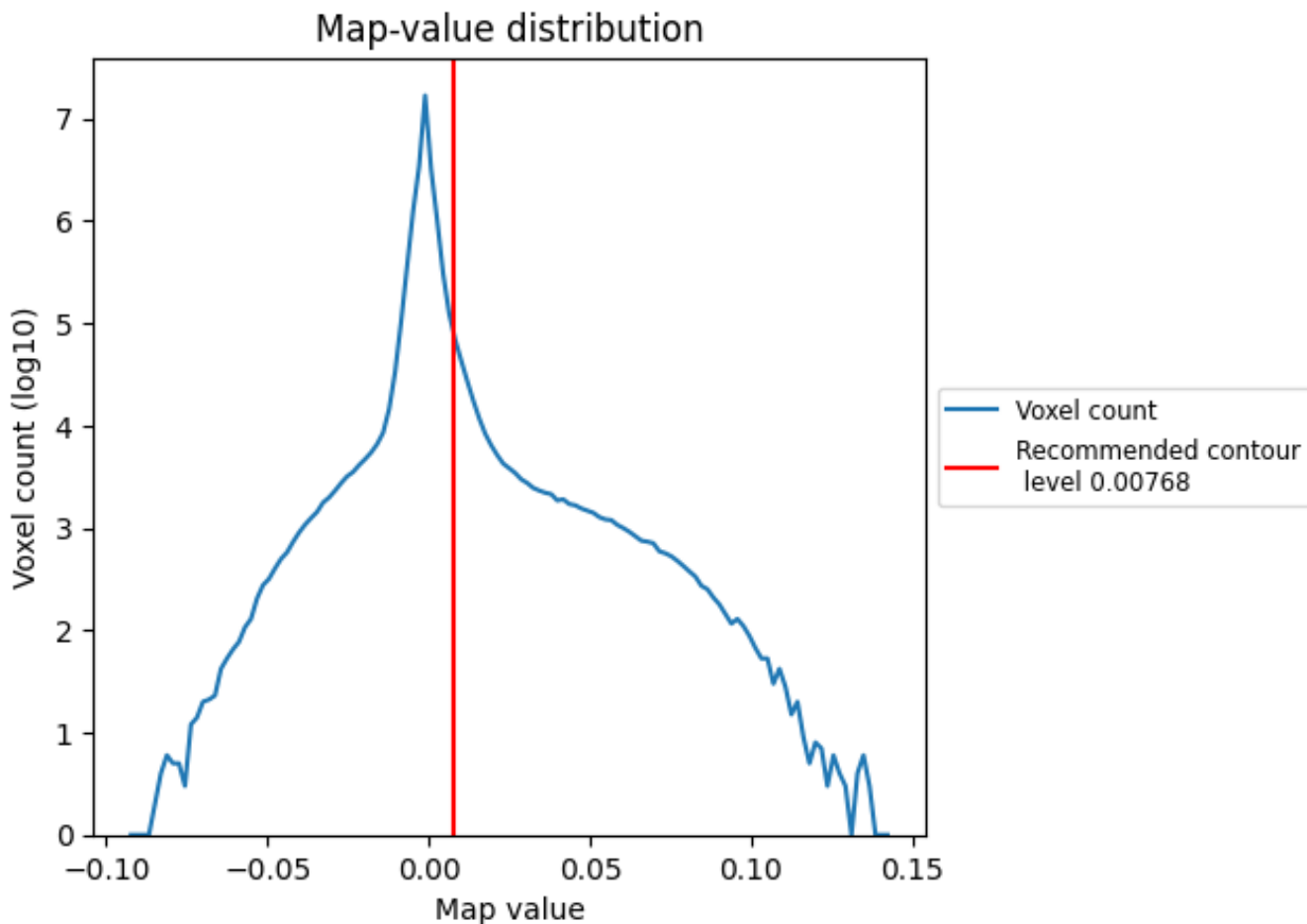
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

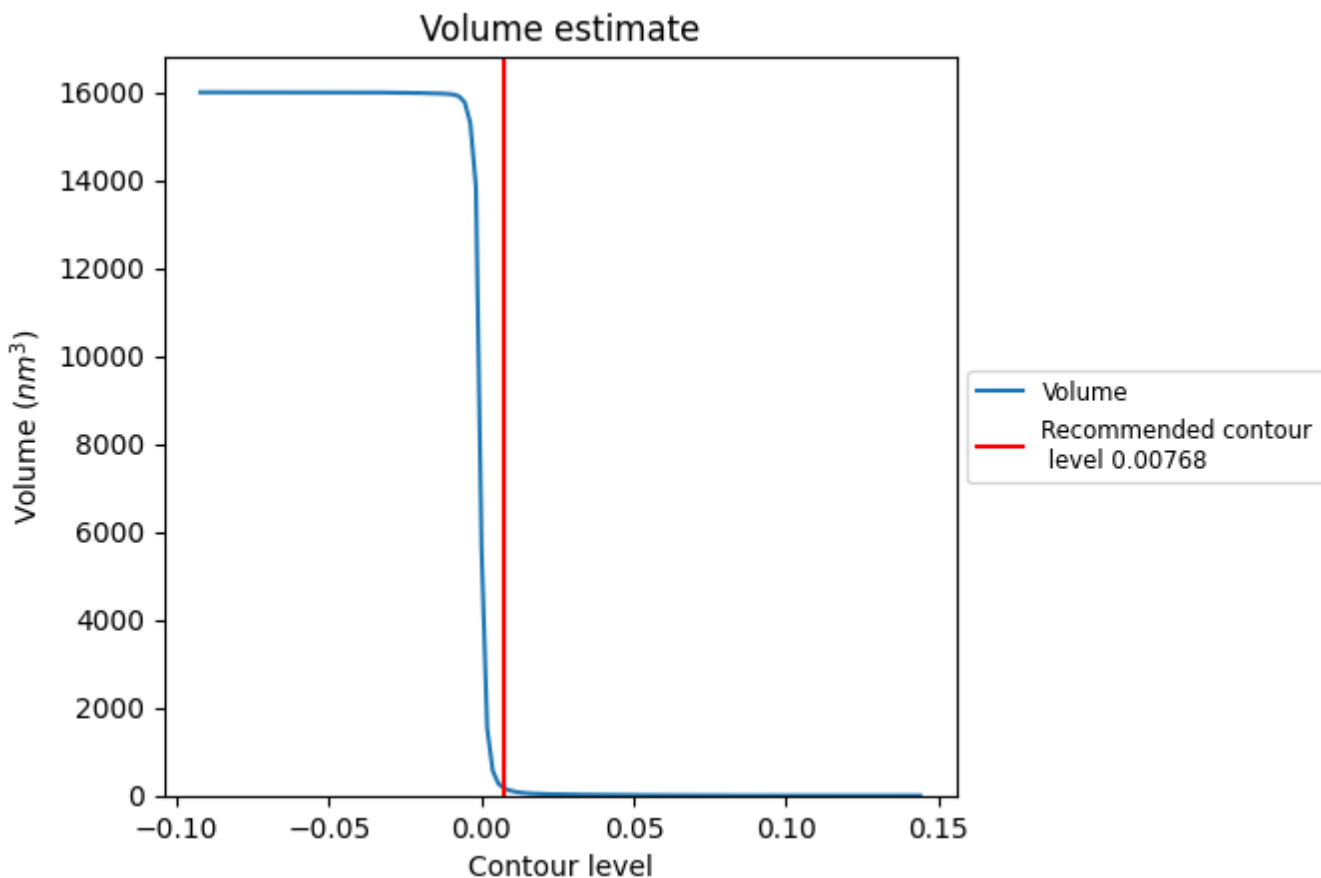
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

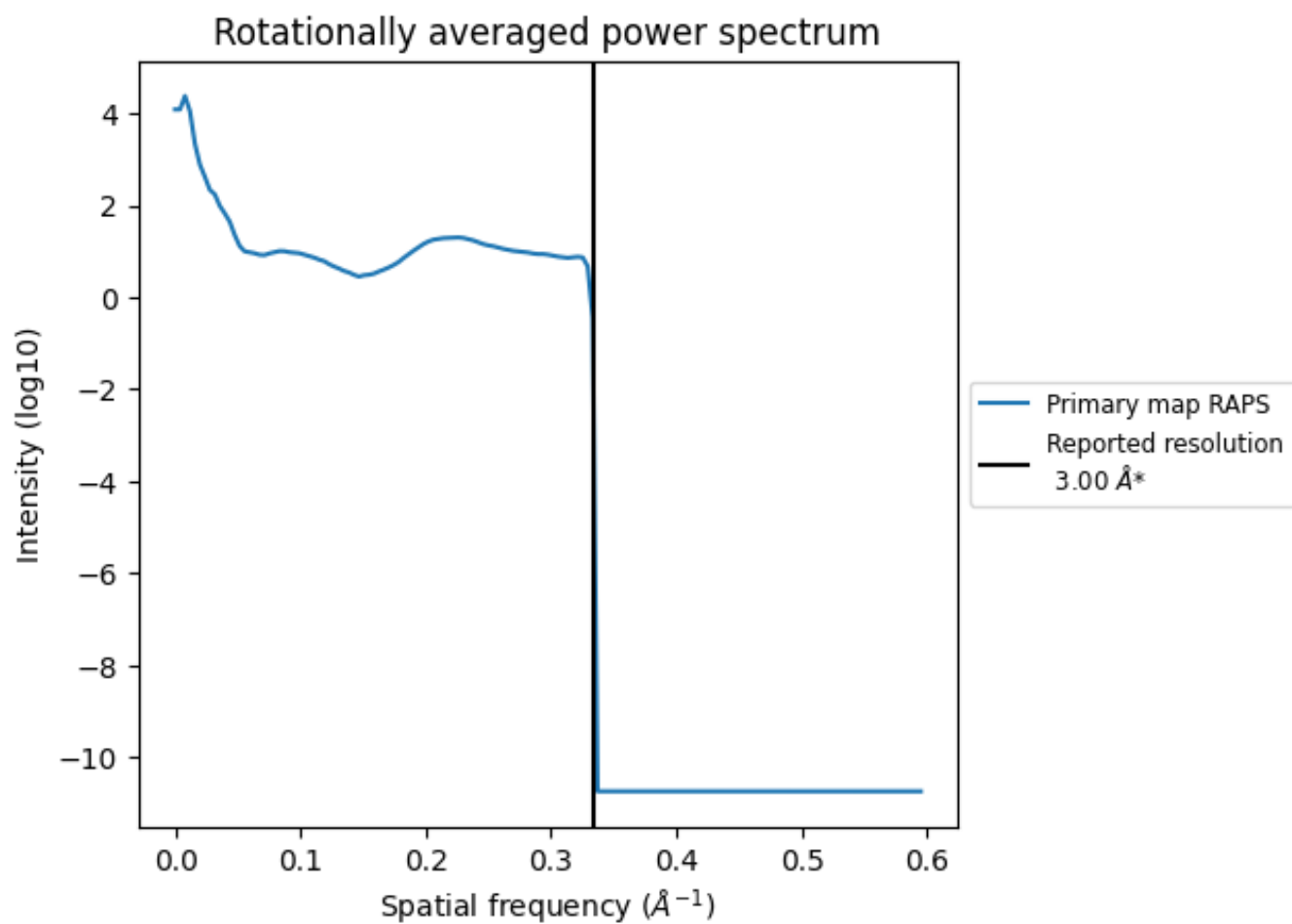
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 163 nm³; this corresponds to an approximate mass of 147 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 [\(i\)](#)

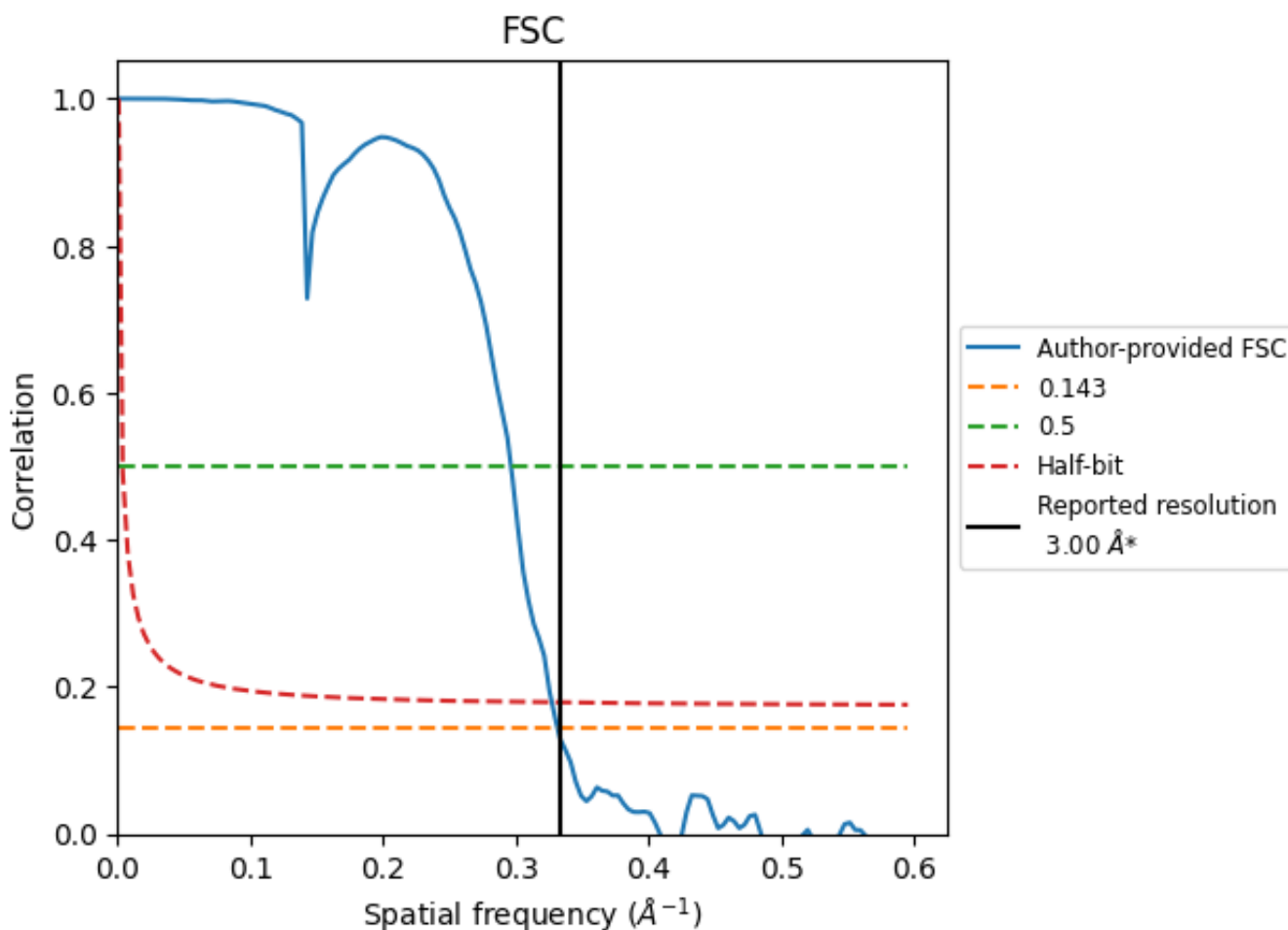


*Reported resolution corresponds to spatial frequency of 0.333 Å⁻¹

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 0.333 Å⁻¹

8.2 Resolution estimates [i](#)

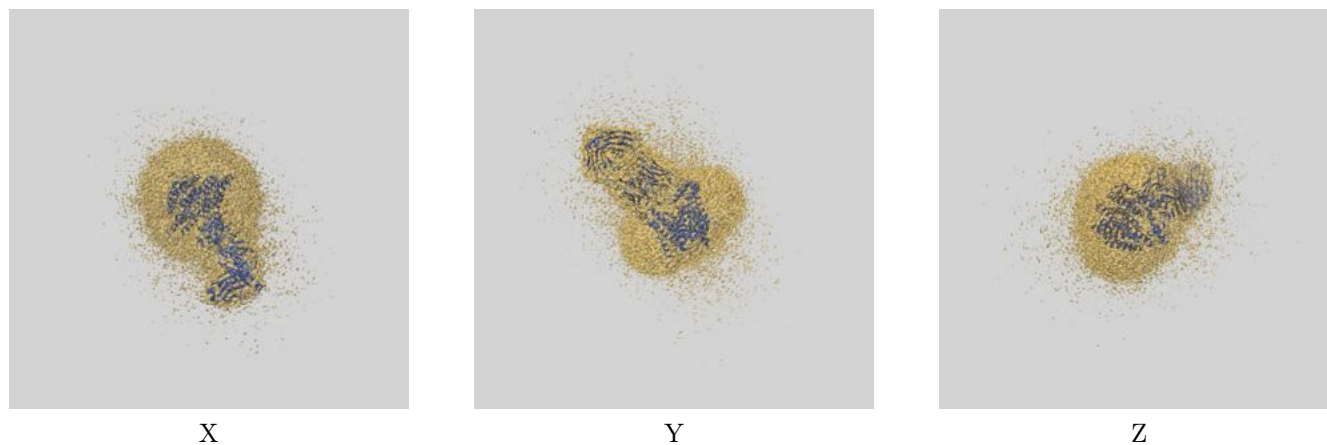
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.00	-	-
Author-provided FSC curve	3.02	3.37	3.06
Unmasked-calculated*	-	-	-

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

9 Map-model fit [i](#)

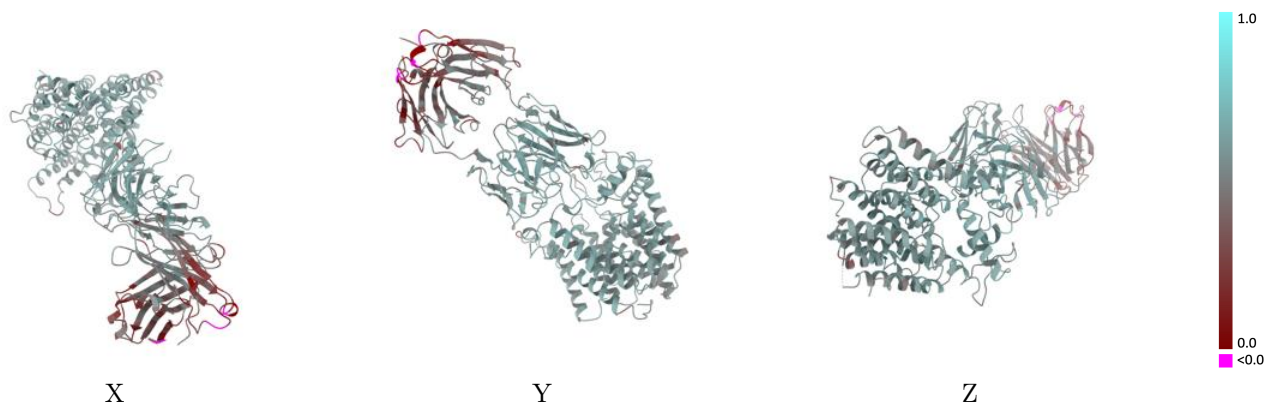
This section contains information regarding the fit between EMDB map EMD-10258 and PDB model 6SNI. Per-residue inclusion information can be found in section 3 on page 6.

9.1 Map-model overlay [i](#)



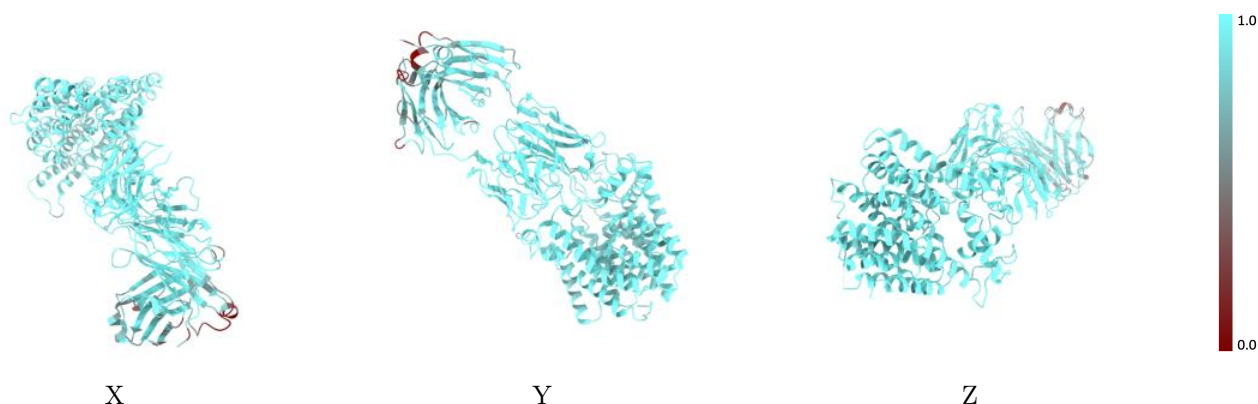
The images above show the 3D surface view of the map at the recommended contour level 0.00768 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



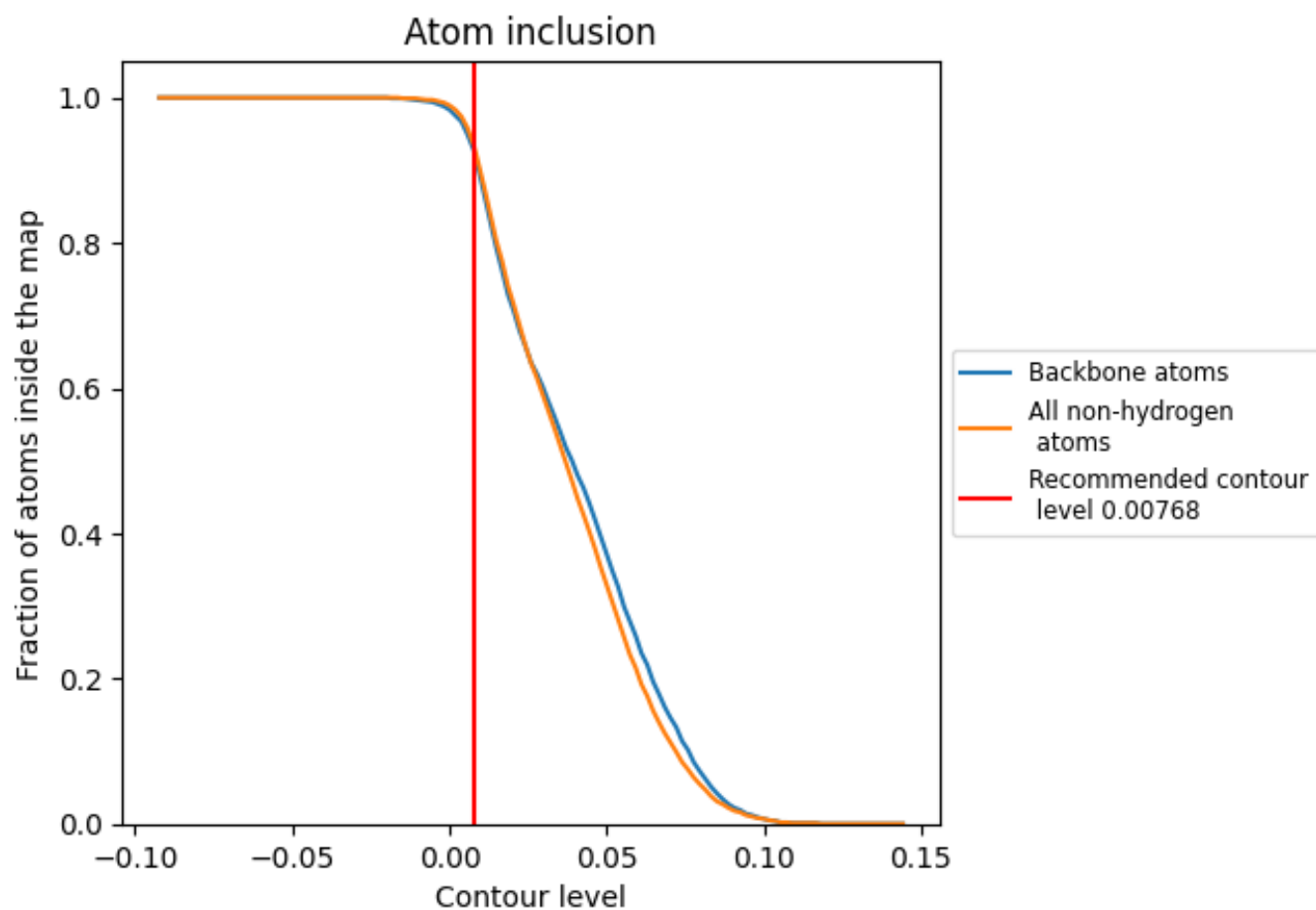
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.00768).





9.4 Atom inclusion [i](#)



At the recommended contour level, 93% of all backbone atoms, 94% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.00768) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9350	 0.5290
H	 0.8960	 0.4860
L	 0.8990	 0.4670
X	 0.9660	 0.5730

