



wwPDB EM Validation Summary Report ⓘ

May 20, 2026 – 08:16 PM JST

PDB ID : 9WQL / pdb_00009wql
EMDB ID : EMD-66175
Title : GRM5-Gq Complex Structure
Authors : Lu, Y.; Wen, T.L.; Shen, Y.Q.; Yang, X.
Deposited on : 2025-09-11
Resolution : 3.20 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev132
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

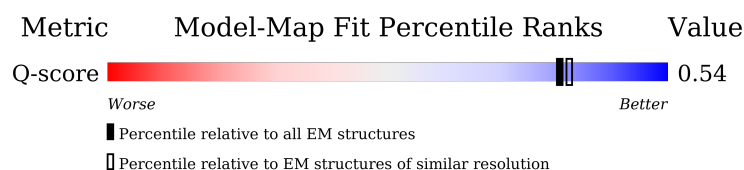
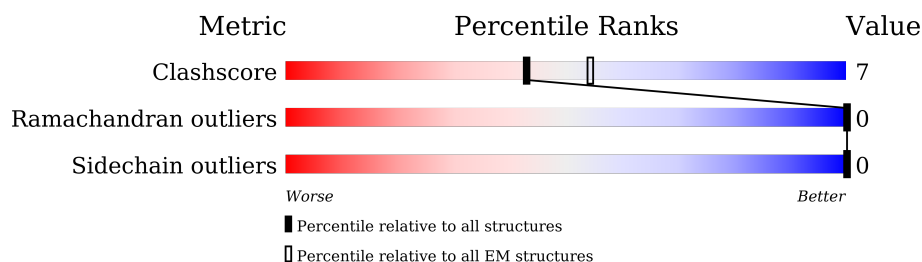
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.20 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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	15020 (2.70 - 3.70)

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	850	
1	Y	850	
2	A	246	
3	B	340	

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Mol	Chain	Length	Quality of chain
4	G	80	
5	F	260	

2 Entry composition

There are 10 unique types of molecules in this entry. The entry contains 19387 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 Metabotropic glutamate receptor 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	X	792	Total	C	N	O	S	0	0
			6247	4014	1045	1129	59		
1	Y	771	Total	C	N	O	S	0	0
			6081	3910	1009	1104	58		

There are 62 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
X	-10	MET	-	initiating methionine	UNP P41594
X	-9	TRP	-	expression tag	UNP P41594
X	-8	SER	-	expression tag	UNP P41594
X	-7	HIS	-	expression tag	UNP P41594
X	-6	PRO	-	expression tag	UNP P41594
X	-5	GLN	-	expression tag	UNP P41594
X	-4	PHE	-	expression tag	UNP P41594
X	-3	GLU	-	expression tag	UNP P41594
X	-2	LYS	-	expression tag	UNP P41594
X	-1	GLY	-	expression tag	UNP P41594
X	0	GLY	-	expression tag	UNP P41594
X	1	GLY	-	expression tag	UNP P41594
X	2	SER	-	expression tag	UNP P41594
X	3	GLY	-	expression tag	UNP P41594
X	4	GLY	-	expression tag	UNP P41594
X	5	GLY	-	expression tag	UNP P41594
X	6	SER	-	expression tag	UNP P41594
X	7	GLY	-	expression tag	UNP P41594
X	8	GLY	-	expression tag	UNP P41594
X	9	SER	-	expression tag	UNP P41594
X	10	ALA	-	expression tag	UNP P41594
X	11	TRP	-	expression tag	UNP P41594
X	12	SER	-	expression tag	UNP P41594
X	13	HIS	-	expression tag	UNP P41594
X	14	PRO	-	expression tag	UNP P41594
X	15	GLN	-	expression tag	UNP P41594

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Chain	Residue	Modelled	Actual	Comment	Reference
X	16	PHE	-	expression tag	UNP P41594
X	17	GLU	-	expression tag	UNP P41594
X	18	LYS	-	expression tag	UNP P41594
X	19	GLY	-	expression tag	UNP P41594
X	20	SER	-	expression tag	UNP P41594
Y	-10	MET	-	initiating methionine	UNP P41594
Y	-9	TRP	-	expression tag	UNP P41594
Y	-8	SER	-	expression tag	UNP P41594
Y	-7	HIS	-	expression tag	UNP P41594
Y	-6	PRO	-	expression tag	UNP P41594
Y	-5	GLN	-	expression tag	UNP P41594
Y	-4	PHE	-	expression tag	UNP P41594
Y	-3	GLU	-	expression tag	UNP P41594
Y	-2	LYS	-	expression tag	UNP P41594
Y	-1	GLY	-	expression tag	UNP P41594
Y	0	GLY	-	expression tag	UNP P41594
Y	1	GLY	-	expression tag	UNP P41594
Y	2	SER	-	expression tag	UNP P41594
Y	3	GLY	-	expression tag	UNP P41594
Y	4	GLY	-	expression tag	UNP P41594
Y	5	GLY	-	expression tag	UNP P41594
Y	6	SER	-	expression tag	UNP P41594
Y	7	GLY	-	expression tag	UNP P41594
Y	8	GLY	-	expression tag	UNP P41594
Y	9	SER	-	expression tag	UNP P41594
Y	10	ALA	-	expression tag	UNP P41594
Y	11	TRP	-	expression tag	UNP P41594
Y	12	SER	-	expression tag	UNP P41594
Y	13	HIS	-	expression tag	UNP P41594
Y	14	PRO	-	expression tag	UNP P41594
Y	15	GLN	-	expression tag	UNP P41594
Y	16	PHE	-	expression tag	UNP P41594
Y	17	GLU	-	expression tag	UNP P41594
Y	18	LYS	-	expression tag	UNP P41594
Y	19	GLY	-	expression tag	UNP P41594
Y	20	SER	-	expression tag	UNP P41594

- Molecule 2 is a protein called miniGq.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	A	233	Total	C	N	O	S	0	0
			1876	1186	332	350	8		

- Molecule 3 is a protein called Guanine nucleotide-binding protein G(I)/G(S)/G(T) subunit beta-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	B	338	Total	C	N	O	S	0	0
			2601	1604	467	509	21		

- Molecule 4 is a protein called Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	G	57	Total	C	N	O	S	0	0
			438	274	77	84	3		

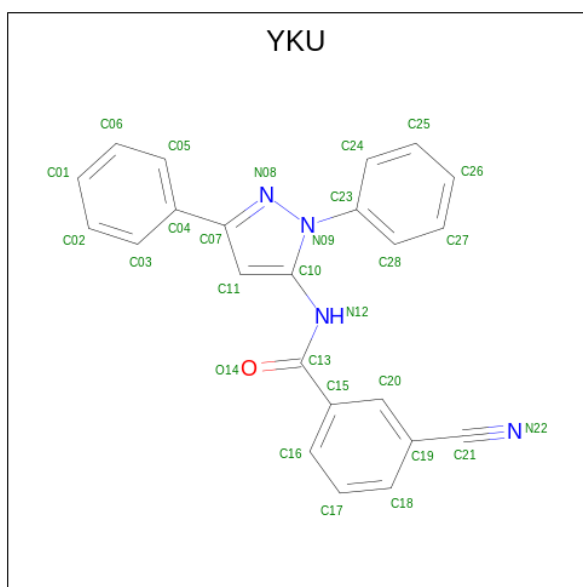
There are 9 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	72	GLY	-	expression tag	UNP P59768
G	73	SER	-	expression tag	UNP P59768
G	74	ALA	-	expression tag	UNP P59768
G	75	GLY	-	expression tag	UNP P59768
G	76	SER	-	expression tag	UNP P59768
G	77	ALA	-	expression tag	UNP P59768
G	78	GLY	-	expression tag	UNP P59768
G	79	SER	-	expression tag	UNP P59768
G	80	ALA	-	expression tag	UNP P59768

- Molecule 5 is a protein called scFv16.

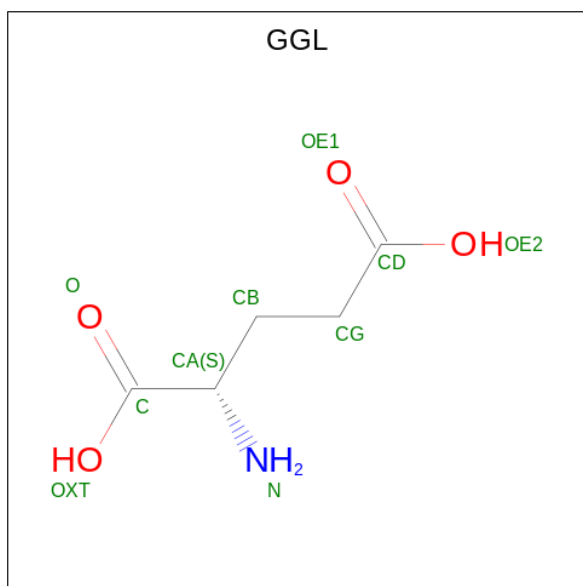
Mol	Chain	Residues	Atoms					AltConf	Trace
5	F	235	Total	C	N	O	S	0	0
			1786	1133	295	348	10		

- Molecule 6 is 3-cyano-N-(1,3-diphenyl-1H-pyrazol-5-yl)benzamide (CCD ID: YKU) (formula: C₂₃H₁₆N₄O).



Mol	Chain	Residues	Atoms				AltConf
6	X	1	Total	C	N	O	0
			28	23	4	1	

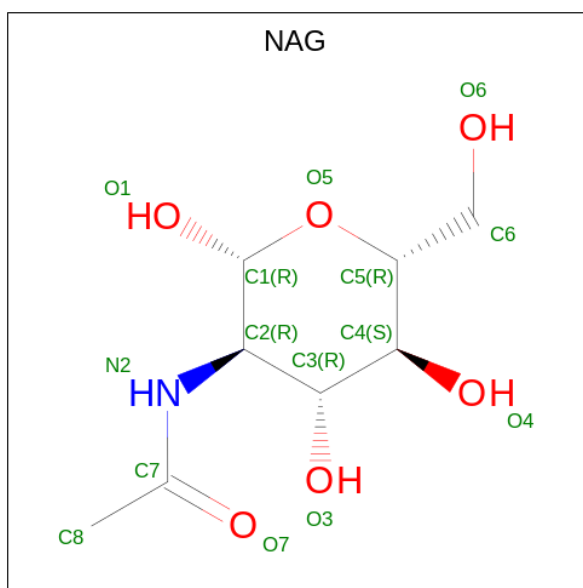
- Molecule 7 is GAMMA-L-GLUTAMIC ACID (CCD ID: GGL) (formula: $C_5H_9NO_4$).



Mol	Chain	Residues	Atoms				AltConf
7	X	1	Total	C	N	O	0
			10	5	1	4	
7	Y	1	Total	C	N	O	0
			10	5	1	4	

- Molecule 8 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula:

C₈H₁₅NO₆).

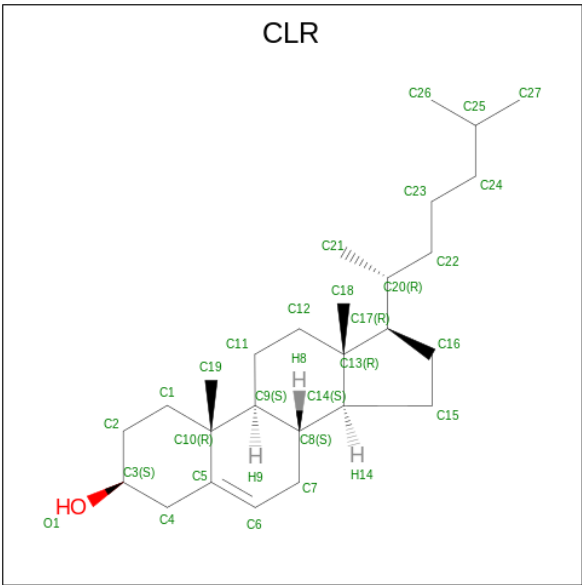


Mol	Chain	Residues	Atoms				AltConf
8	X	1	Total	C	N	O	0
			14	8	1	5	
8	X	1	Total	C	N	O	0
			14	8	1	5	
8	X	1	Total	C	N	O	0
			14	8	1	5	
8	X	1	Total	C	N	O	0
			14	8	1	5	
8	Y	1	Total	C	N	O	0
			14	8	1	5	
8	Y	1	Total	C	N	O	0
			14	8	1	5	
8	Y	1	Total	C	N	O	0
			14	8	1	5	

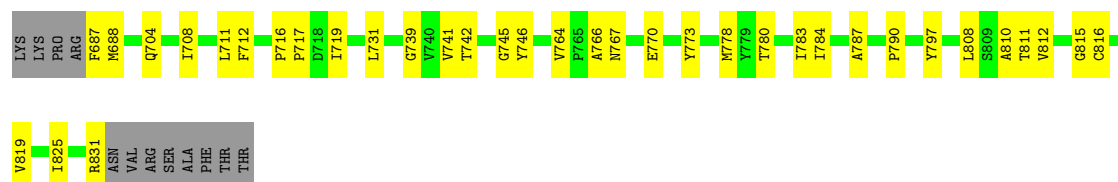
- Molecule 9 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		AltConf
9	X	1	Total	Cl	0
			1	1	
9	Y	1	Total	Cl	0
			1	1	

- Molecule 10 is CHOLESTEROL (CCD ID: CLR) (formula: C₂₇H₄₆O).

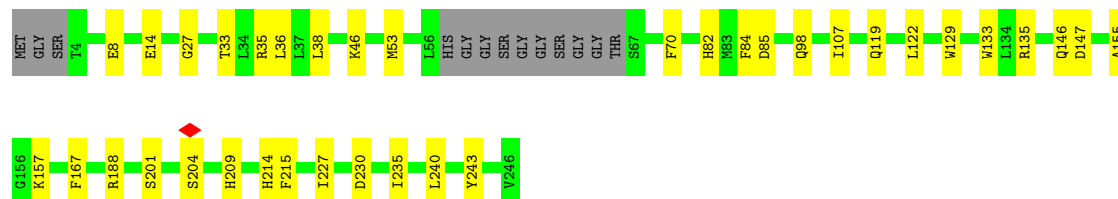


Mol	Chain	Residues	Atoms			AltConf
10	X	1	Total	C	O	0
			28	27	1	
10	X	1	Total	C	O	0
			28	27	1	
10	X	1	Total	C	O	0
			28	27	1	
10	X	1	Total	C	O	0
			28	27	1	
10	Y	1	Total	C	O	0
			28	27	1	
10	Y	1	Total	C	O	0
			28	27	1	
10	Y	1	Total	C	O	0
			28	27	1	



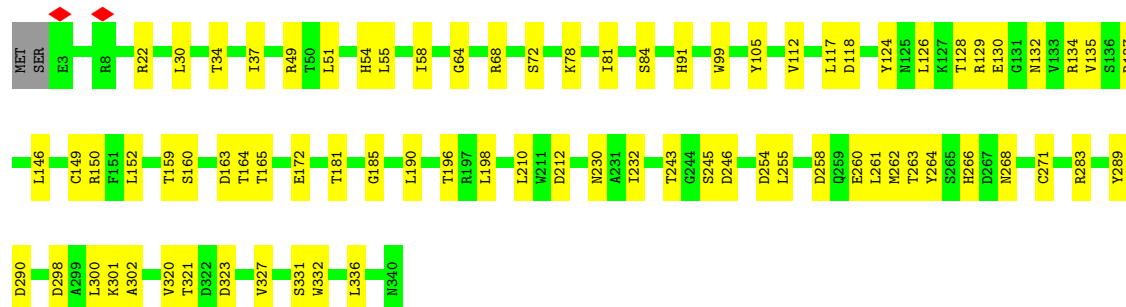
• Molecule 2: miniGq

Chain A: 80% 15% 5%



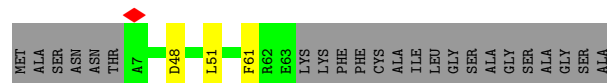
• Molecule 3: Guanine nucleotide-binding protein G(I)/G(S)/G(T) subunit beta-1

Chain B: 77% 23%



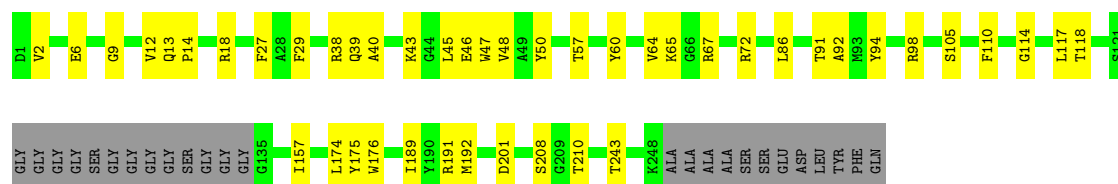
• Molecule 4: Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-2

Chain G: 68% 29%



• Molecule 5: scFv16

Chain F: 73% 17% 10%



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	294087	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	6000	Depositor
Maximum defocus (nm)	19000	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	0.034	Depositor
Minimum map value	-0.001	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.00426	Depositor
Map size (\AA)	357.12, 357.12, 357.12	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	0.93, 0.93, 0.93	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: YKU, NAG, CLR, CL, GGL

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	0.12	0/6391	0.24	0/8655
1	Y	0.13	0/6222	0.25	0/8431
2	A	0.09	0/1909	0.19	0/2571
3	B	0.12	0/2648	0.29	0/3589
4	G	0.07	0/444	0.18	0/599
5	F	0.11	0/1830	0.26	0/2483
All	All	0.12	0/19444	0.25	0/26328

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	X	6247	0	6252	77	0
1	Y	6081	0	6054	73	0
2	A	1876	0	1854	23	0
3	B	2601	0	2505	45	0
4	G	438	0	447	2	0
5	F	1786	0	1710	29	0
6	X	28	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
7	X	10	0	7	0	0
7	Y	10	0	7	0	0
8	X	56	0	52	0	0
8	Y	56	0	52	0	0
9	X	1	0	0	0	0
9	Y	1	0	0	1	0
10	X	112	0	184	13	0
10	Y	84	0	138	13	0
All	All	19387	0	19262	255	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 7.

The worst 5 of 255 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:F:40:ALA:HB3	5:F:43:LYS:HB2	1.69	0.74
3:B:160:SER:HB3	3:B:190:LEU:HD23	1.69	0.73
1:X:764:VAL:HB	1:X:769:ASN:HB2	1.71	0.72
3:B:271:CYS:HB2	3:B:290:ASP:HB2	1.71	0.71
1:X:778:MET:O	1:X:781:THR:HG22	1.94	0.68

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	788/850 (93%)	771 (98%)	17 (2%)	0	100	100
1	Y	765/850 (90%)	745 (97%)	20 (3%)	0	100	100
2	A	229/246 (93%)	227 (99%)	2 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	B	336/340 (99%)	323 (96%)	13 (4%)	0	100	100
4	G	55/80 (69%)	55 (100%)	0	0	100	100
5	F	231/260 (89%)	225 (97%)	6 (3%)	0	100	100
All	All	2404/2626 (92%)	2346 (98%)	58 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	X	688/735 (94%)	688 (100%)	0	100	100
1	Y	670/735 (91%)	670 (100%)	0	100	100
2	A	201/213 (94%)	201 (100%)	0	100	100
3	B	281/283 (99%)	281 (100%)	0	100	100
4	G	46/61 (75%)	46 (100%)	0	100	100
5	F	195/209 (93%)	195 (100%)	0	100	100
All	All	2081/2236 (93%)	2081 (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. 5 of 9 such sidechains are listed below:

Mol	Chain	Res	Type
1	Y	412	HIS
1	Y	667	ASN
1	X	364	GLN
1	Y	30	HIS
1	Y	101	HIS

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 ⓘ

Of 20 ligands modelled in this entry, 2 are monoatomic - leaving 18 for Mogul analysis.

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$
10	CLR	Y	2007	-	31,31,31	4.26	11 (35%)	48,48,48	2.71	16 (33%)
8	NAG	X	906	1	14,14,15	1.99	6 (42%)	17,19,21	1.12	0
6	YKU	X	901	-	31,31,31	1.89	6 (19%)	40,42,42	1.87	8 (20%)
8	NAG	Y	2005	1	14,14,15	1.99	6 (42%)	17,19,21	1.16	1 (5%)
10	CLR	X	910	-	31,31,31	4.27	11 (35%)	48,48,48	2.70	15 (31%)
8	NAG	X	903	1	14,14,15	2.01	6 (42%)	17,19,21	1.26	1 (5%)
8	NAG	X	905	1	14,14,15	2.02	6 (42%)	17,19,21	0.90	0
8	NAG	Y	2004	1	14,14,15	2.01	6 (42%)	17,19,21	0.98	0
10	CLR	X	908	-	31,31,31	4.26	11 (35%)	48,48,48	2.65	15 (31%)
10	CLR	X	909	-	31,31,31	4.25	11 (35%)	48,48,48	2.69	16 (33%)
10	CLR	Y	2009	-	31,31,31	4.24	11 (35%)	48,48,48	2.76	16 (33%)
10	CLR	X	911	-	31,31,31	4.27	11 (35%)	48,48,48	2.70	15 (31%)
7	GGL	X	902	-	8,9,9	1.01	0	10,11,11	1.20	0
7	GGL	Y	2001	-	8,9,9	1.02	0	10,11,11	1.23	0
8	NAG	Y	2003	1	14,14,15	1.98	6 (42%)	17,19,21	0.93	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
10	CLR	Y	2008	-	31,31,31	4.23	11 (35%)	48,48,48	2.83	17 (35%)
8	NAG	X	904	1	14,14,15	1.98	6 (42%)	17,19,21	0.98	0
8	NAG	Y	2002	1	14,14,15	2.01	6 (42%)	17,19,21	0.93	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
10	CLR	Y	2007	-	-	7/10/68/68	0/4/4/4
8	NAG	X	906	1	-	4/6/23/26	0/1/1/1
6	YKU	X	901	-	-	0/18/18/18	0/4/4/4
8	NAG	Y	2005	1	-	2/6/23/26	0/1/1/1
10	CLR	X	910	-	-	4/10/68/68	0/4/4/4
8	NAG	X	903	1	-	4/6/23/26	0/1/1/1
8	NAG	X	905	1	-	4/6/23/26	0/1/1/1
8	NAG	Y	2004	1	-	3/6/23/26	0/1/1/1
10	CLR	X	908	-	-	6/10/68/68	0/4/4/4
10	CLR	X	909	-	-	8/10/68/68	0/4/4/4
10	CLR	Y	2009	-	-	7/10/68/68	0/4/4/4
10	CLR	X	911	-	-	6/10/68/68	0/4/4/4
7	GGL	X	902	-	-	1/9/9/9	-
7	GGL	Y	2001	-	-	6/9/9/9	-
8	NAG	Y	2003	1	-	3/6/23/26	0/1/1/1
10	CLR	Y	2008	-	-	6/10/68/68	0/4/4/4
8	NAG	X	904	1	-	3/6/23/26	0/1/1/1
8	NAG	Y	2002	1	-	4/6/23/26	0/1/1/1

The worst 5 of 131 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	X	908	CLR	C6-C5	15.09	1.66	1.33
10	Y	2007	CLR	C6-C5	15.07	1.66	1.33
10	X	911	CLR	C6-C5	15.06	1.66	1.33
10	X	910	CLR	C6-C5	15.05	1.66	1.33
10	X	909	CLR	C6-C5	15.02	1.66	1.33

The worst 5 of 120 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	Y	2008	CLR	C10-C5-C6	-7.92	110.78	122.90
10	Y	2008	CLR	C4-C5-C6	-7.80	109.37	120.61
10	X	909	CLR	C10-C5-C6	-7.79	110.99	122.90
10	Y	2009	CLR	C10-C5-C6	-7.74	111.06	122.90
10	Y	2009	CLR	C7-C6-C5	-7.69	110.87	125.06

There are no chirality outliers.

5 of 78 torsion outliers are listed below:

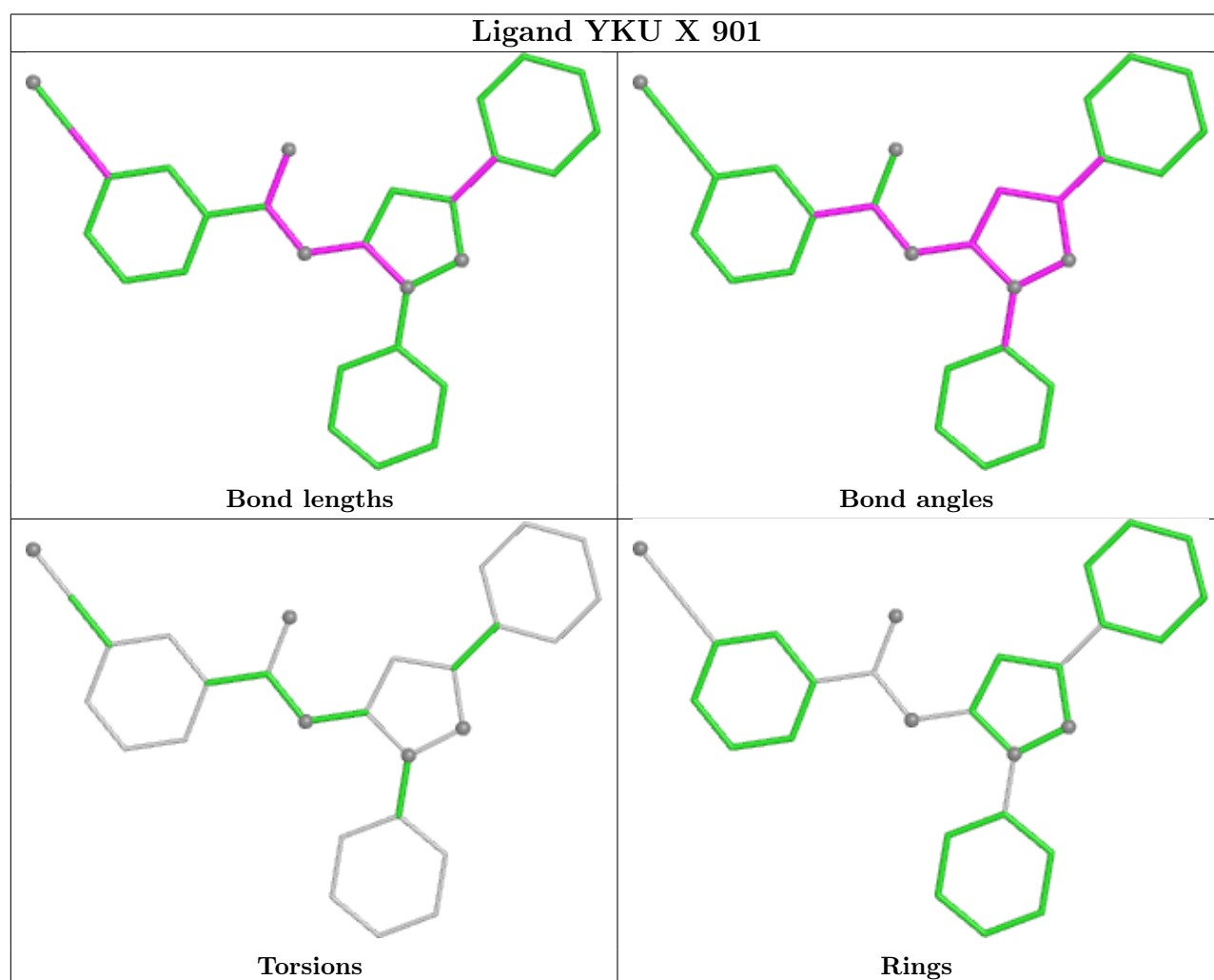
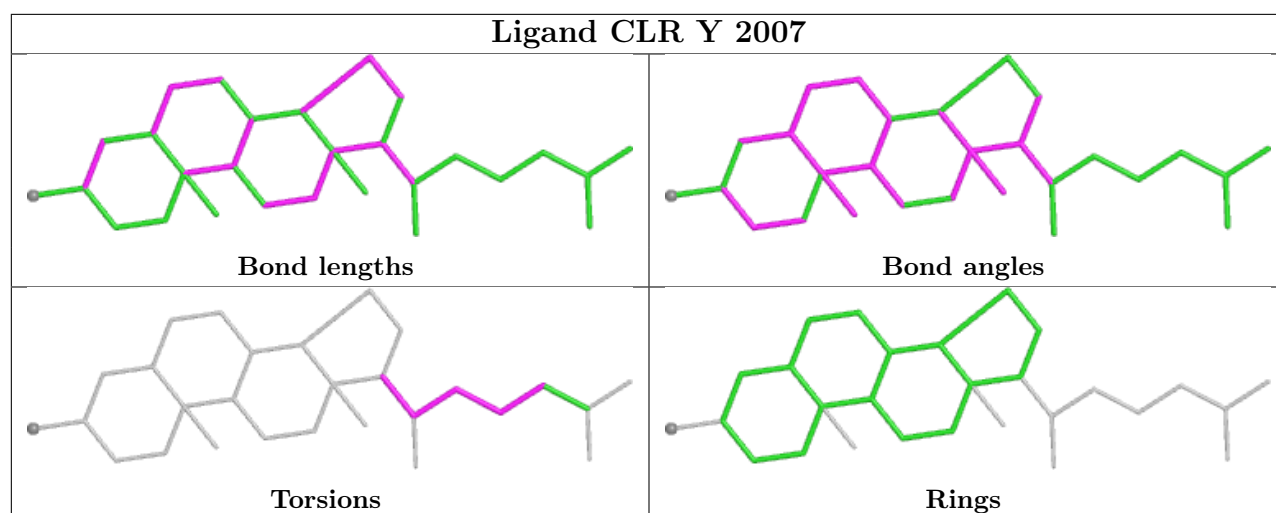
Mol	Chain	Res	Type	Atoms
10	X	911	CLR	C13-C17-C20-C21
10	Y	2008	CLR	C13-C17-C20-C21
10	Y	2008	CLR	C16-C17-C20-C22
10	X	911	CLR	C16-C17-C20-C21
10	Y	2008	CLR	C16-C17-C20-C21

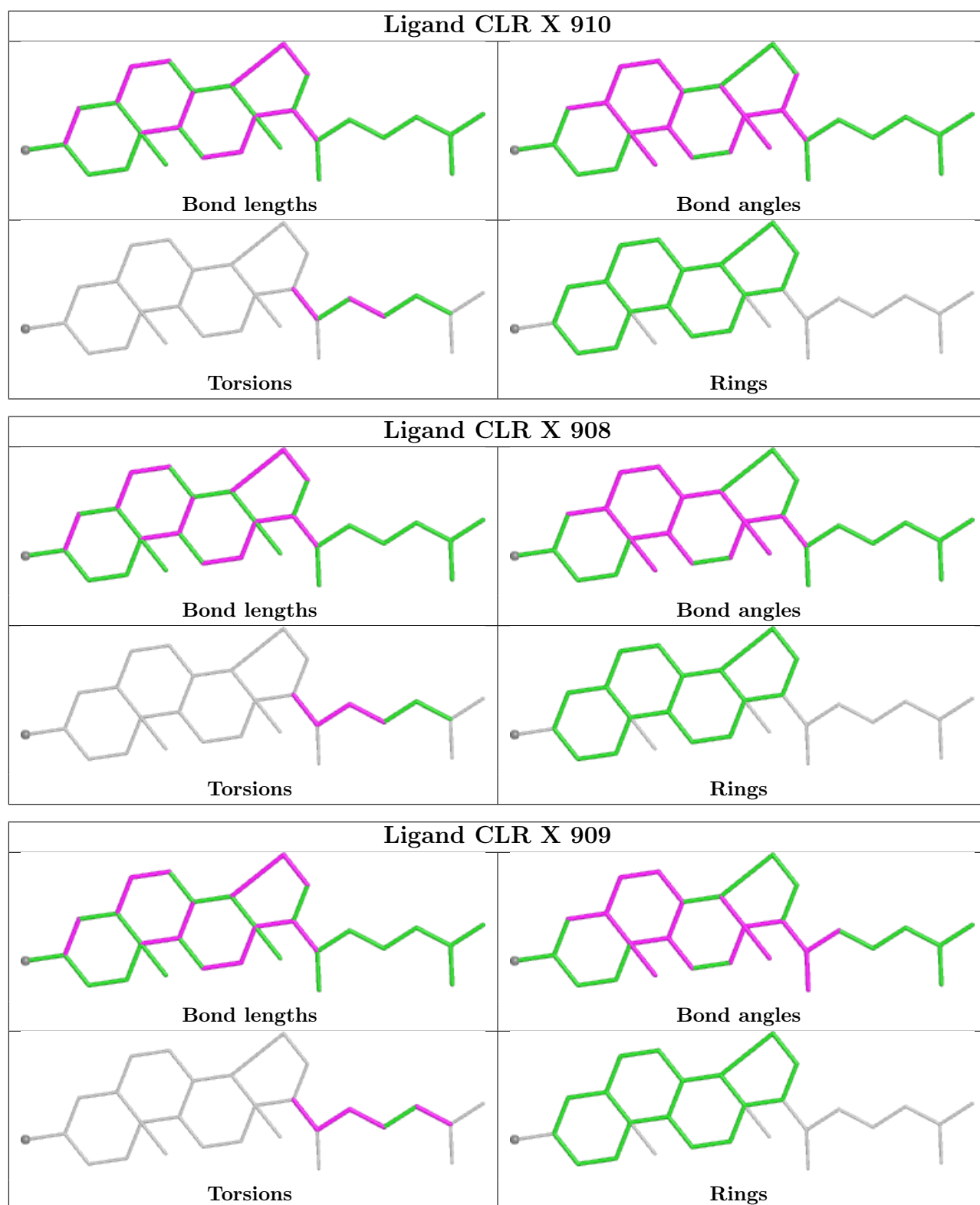
There are no ring outliers.

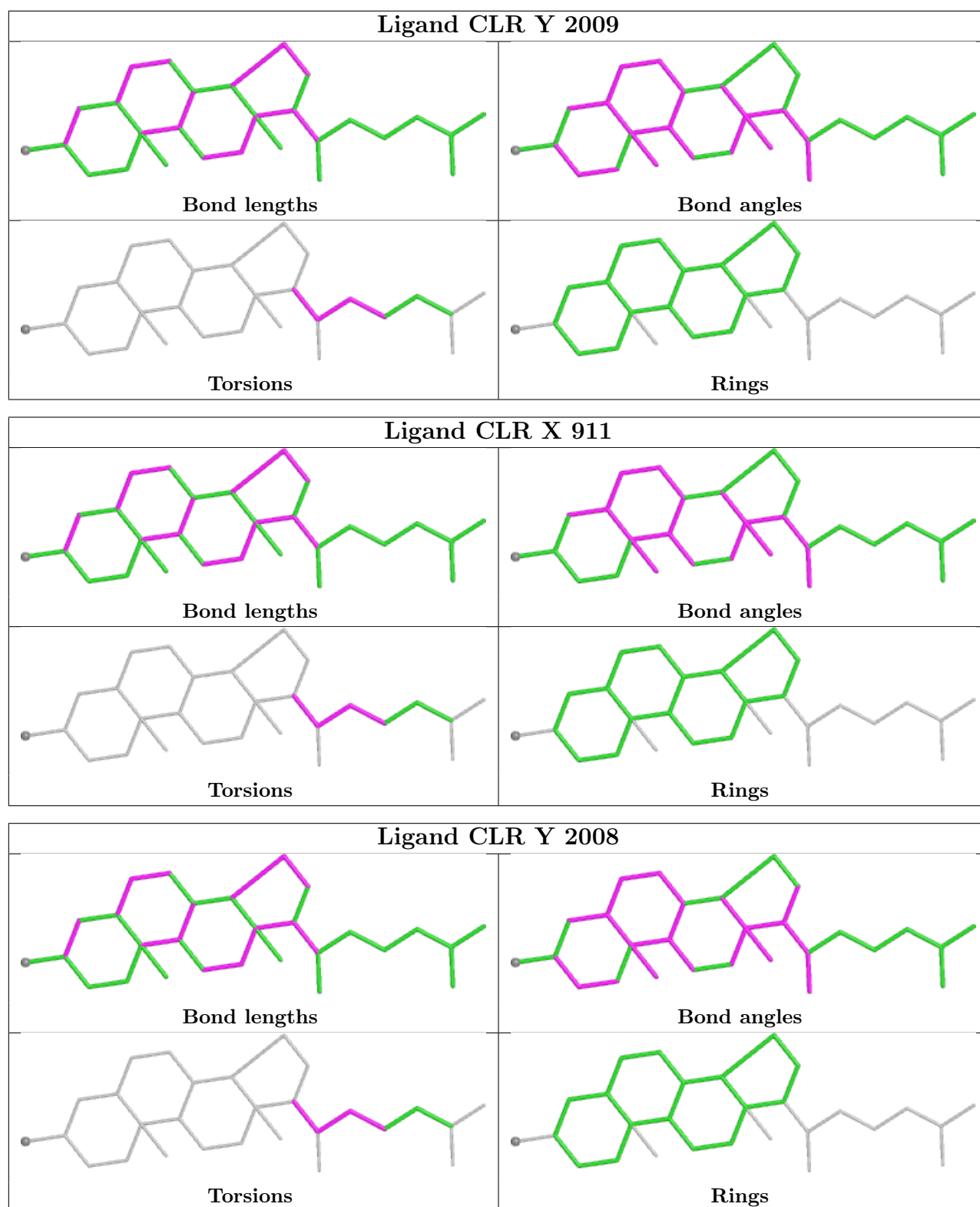
7 monomers are involved in 23 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
10	Y	2007	CLR	6	0
10	X	910	CLR	2	0
10	X	908	CLR	3	0
10	X	909	CLR	4	0
10	Y	2009	CLR	3	0
10	X	911	CLR	4	0
10	Y	2008	CLR	4	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 ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

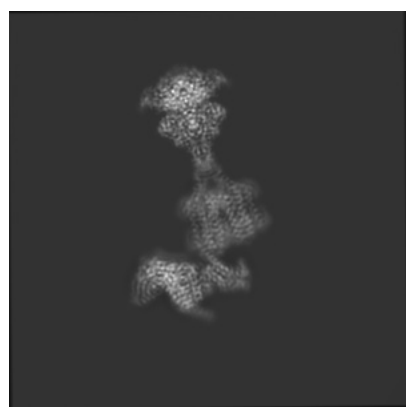
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-66175. These allow visual inspection of the internal detail of the map and identification of artifacts.

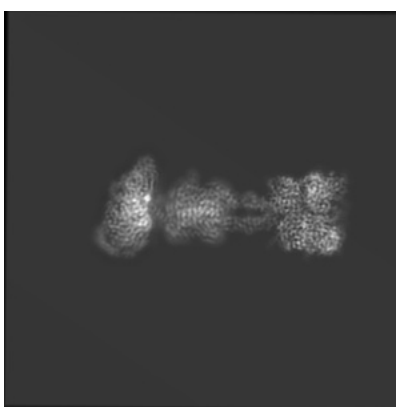
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

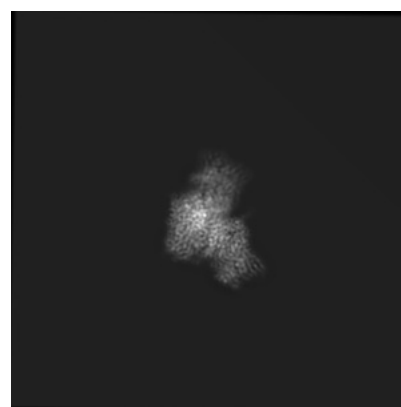
6.1.1 Primary map



X



Y

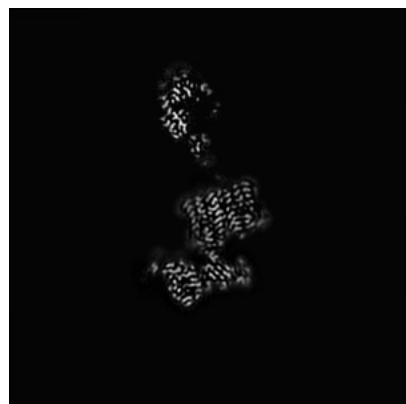


Z

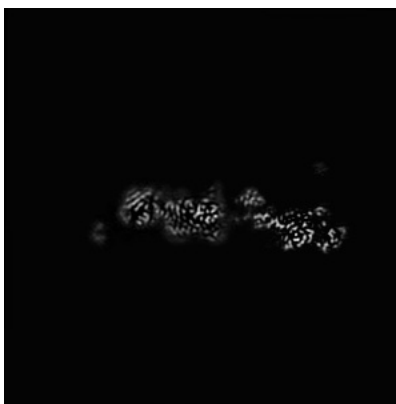
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

6.2.1 Primary map



X Index: 192



Y Index: 192



Z Index: 192

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

6.3 Largest variance slices [i](#)

6.3.1 Primary map



X Index: 192



Y Index: 176

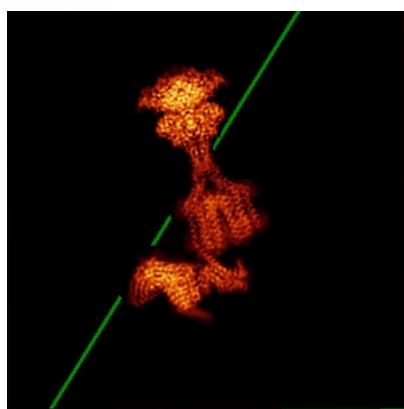


Z Index: 127

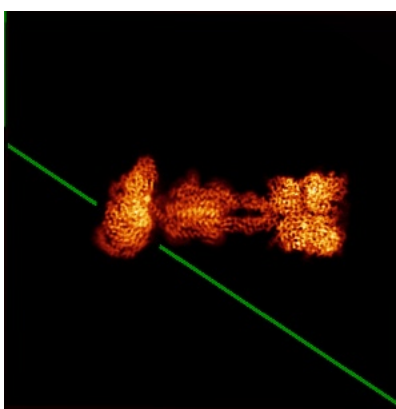
The images above show the largest variance slices of the map in three orthogonal directions.

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

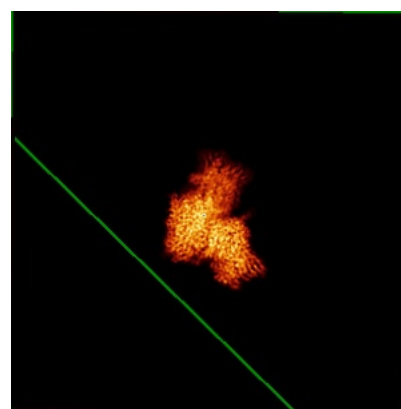
6.4.1 Primary map



X



Y

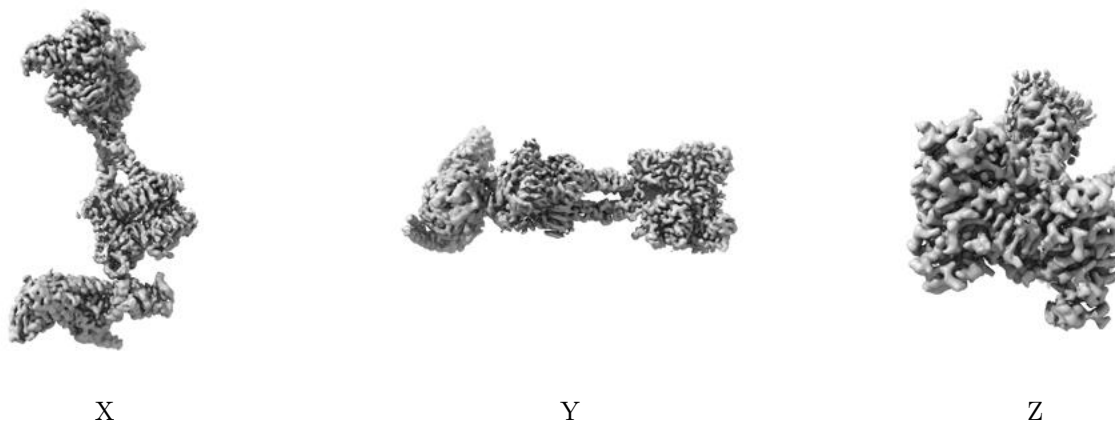


Z

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 0.00426. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

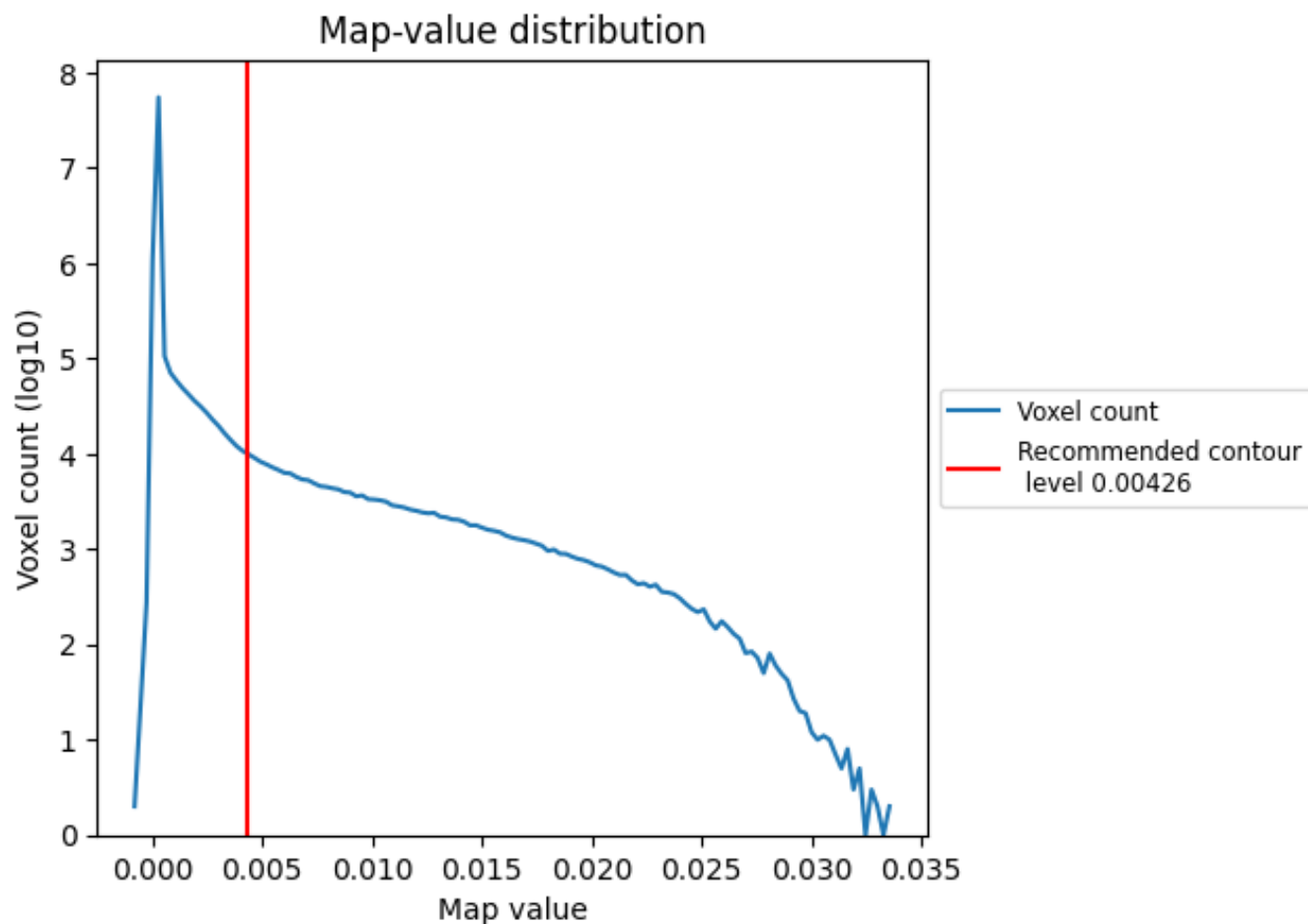
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

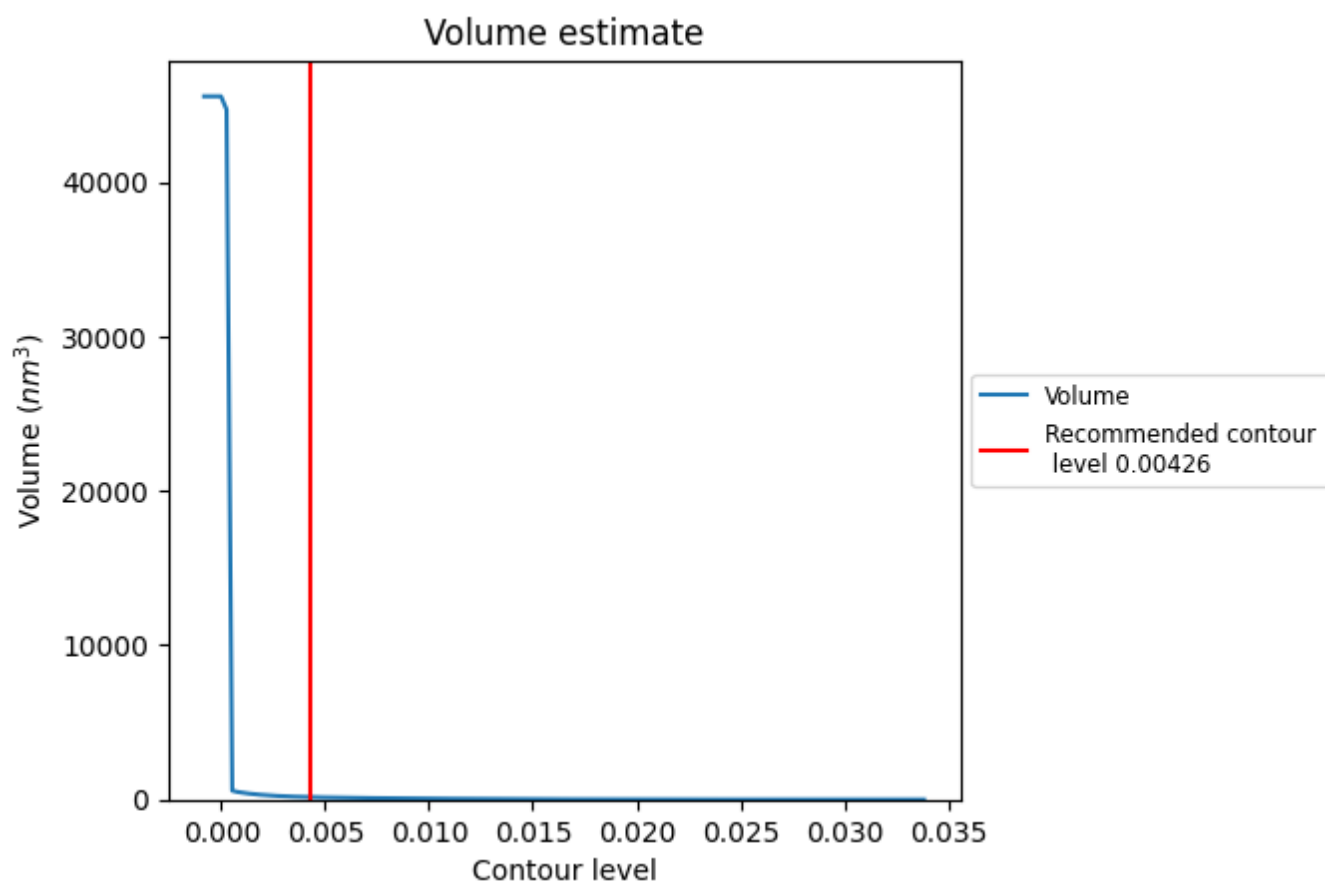
This section contains the results of statistical analysis of the map.

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.

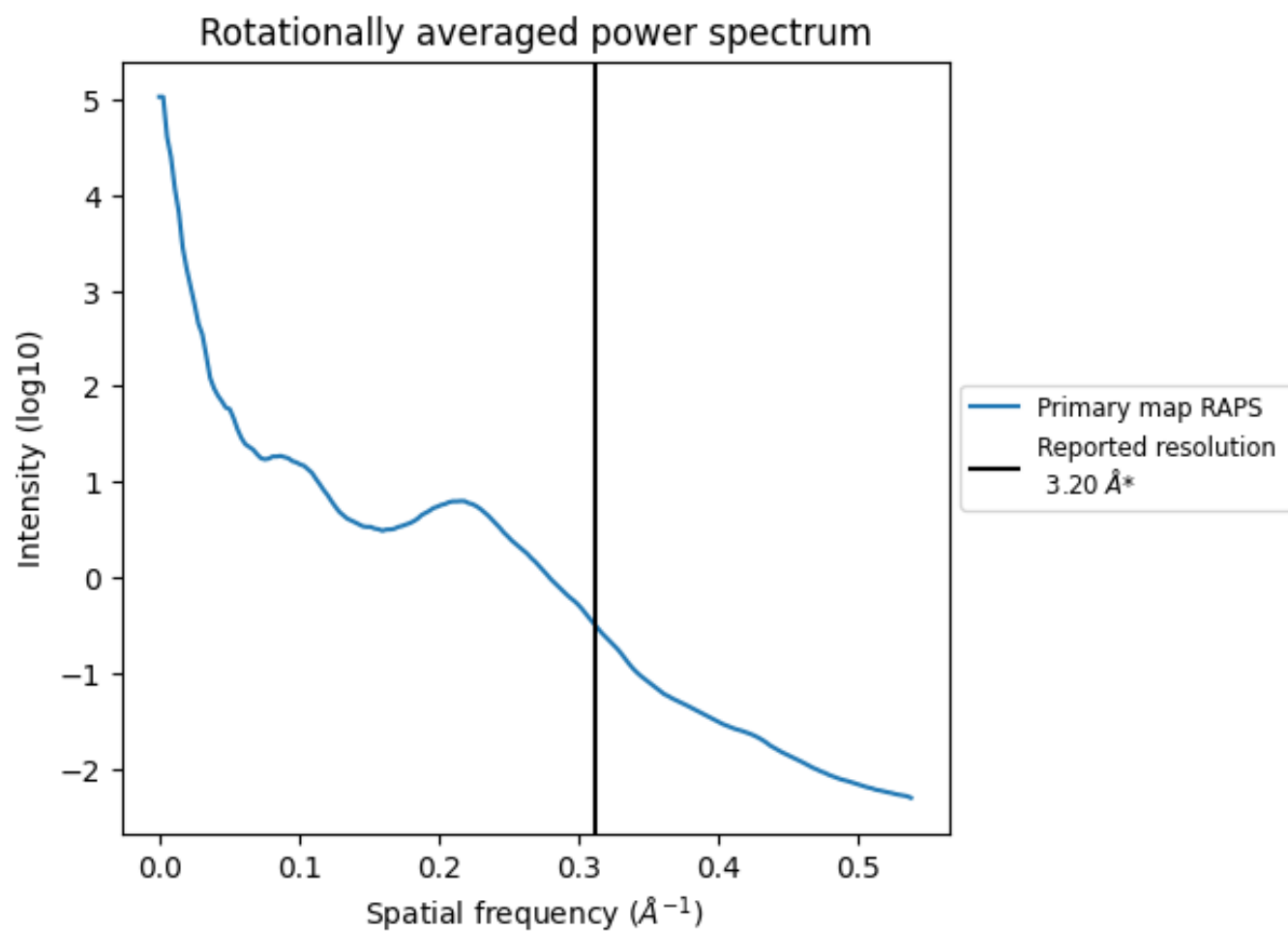
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 160 nm³; this corresponds to an approximate mass of 144 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum ⓘ



*Reported resolution corresponds to spatial frequency of 0.312 Å⁻¹

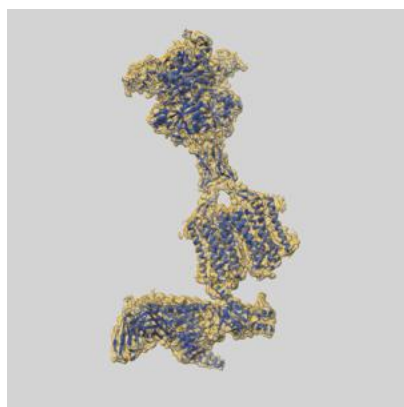
8 Fourier-Shell correlation

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

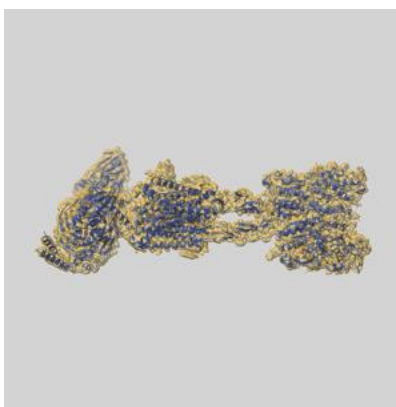
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-66175 and PDB model 9WQL. Per-residue inclusion information can be found in section [3](#) on page [10](#).

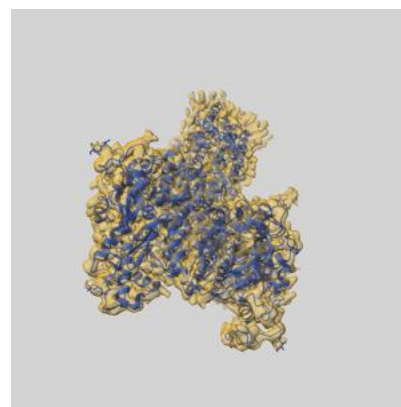
9.1 Map-model overlay [i](#)



X



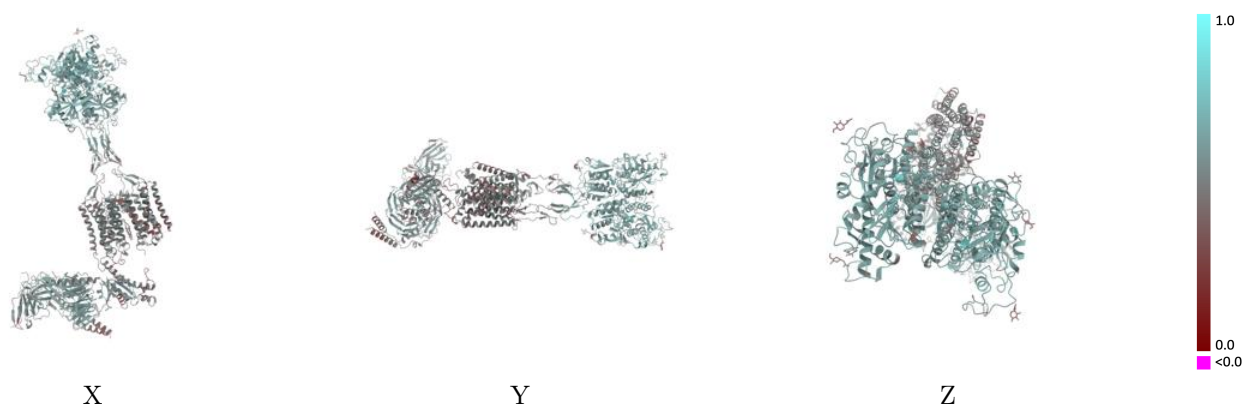
Y



Z

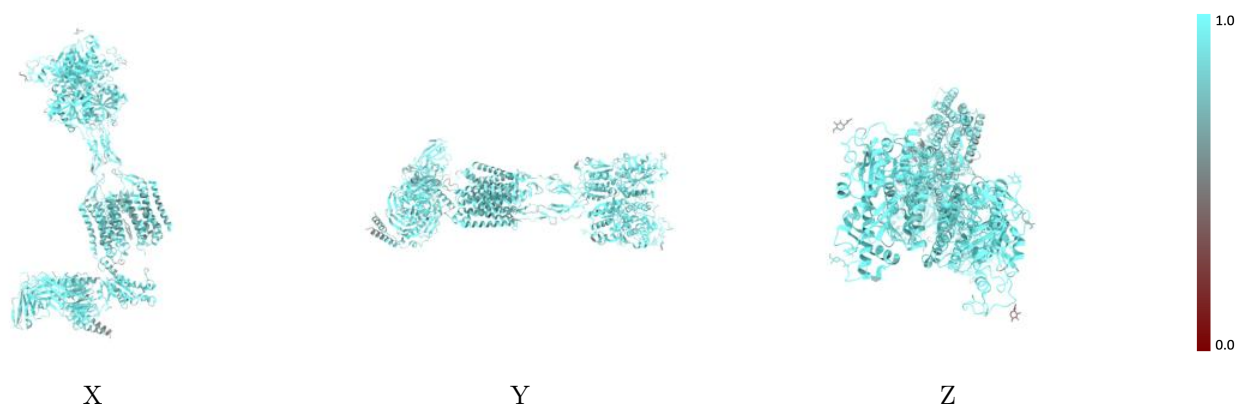
The images above show the 3D surface view of the map at the recommended contour level 0.00426 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



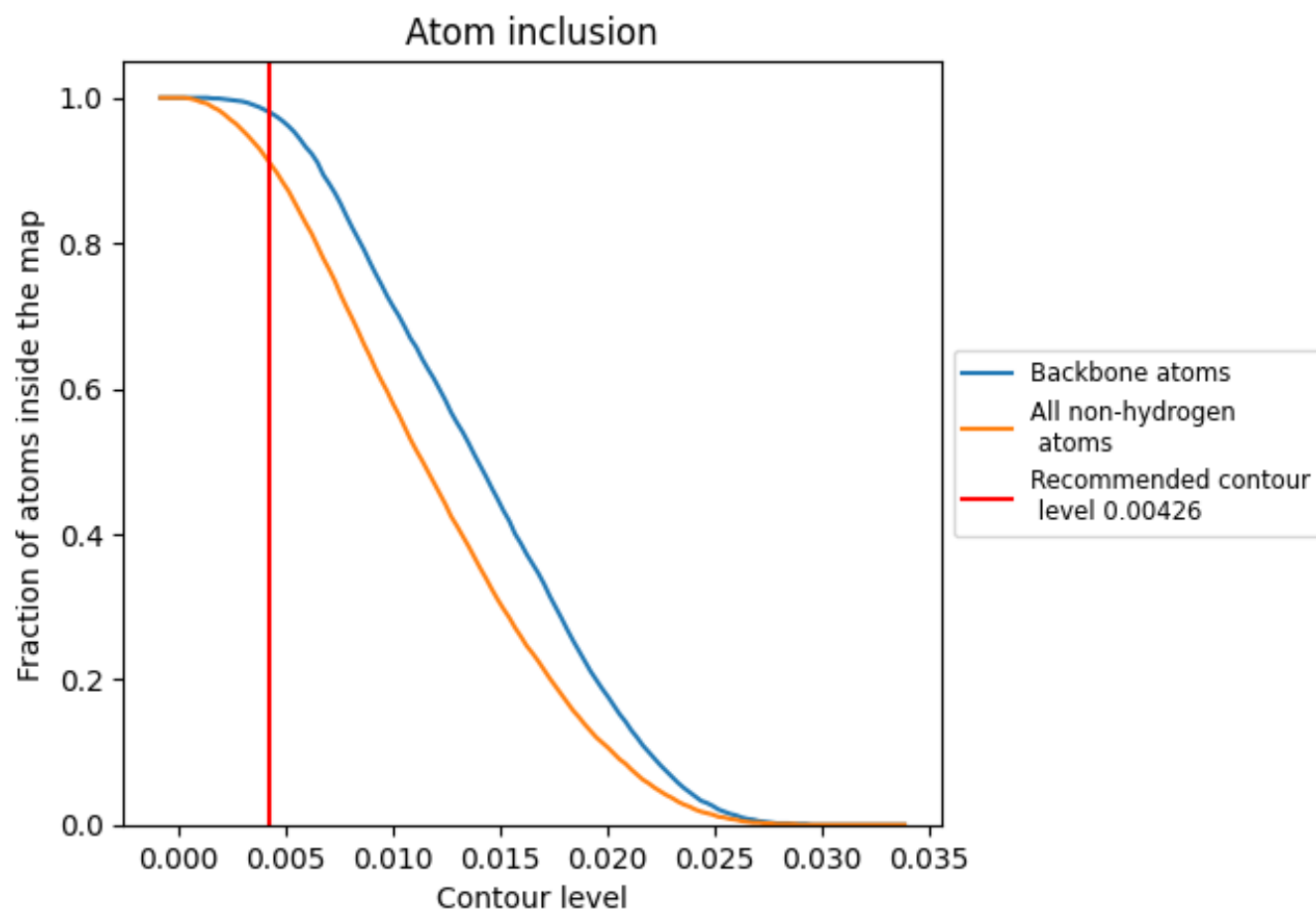
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.00426).

9.4 Atom inclusion [i](#)



At the recommended contour level, 98% of all backbone atoms, 91% 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 (0.00426) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	<div><div></div></div> 0.9110	<div><div></div></div> 0.5400
A	<div><div></div></div> 0.8820	<div><div></div></div> 0.4820
B	<div><div></div></div> 0.9300	<div><div></div></div> 0.5440
F	<div><div></div></div> 0.9270	<div><div></div></div> 0.5400
G	<div><div></div></div> 0.7980	<div><div></div></div> 0.4480
X	<div><div></div></div> 0.9190	<div><div></div></div> 0.5470
Y	<div><div></div></div> 0.9070	<div><div></div></div> 0.5540

1.0

0.0

<0.0