wwPDB EM Validation Summary Report (i)

Nov 23, 2022 – 07:02 AM JST

PDB ID	:	7FIY
EMDB ID	:	EMD-31606
Title	:	Cryo-EM structure of the tirzepatide-bound human GIPR-Gs complex
Authors	:	Zhao, F.H.; Zhou, Q.T.; Cong, Z.T.; Hang, K.N.; Zou, X.Y.; Zhang, C.; Chen, Y.; Dai, A.T.; Liang, A.Y.; Ming, Q.Q.; Wang, M.; Chen, L.N.; Xu, P.Y.; Chang, R.L.; Feng, W.B.; Xia, T.; Zhang, Y.; Wu, B.L.; Yang, D.H.; Zhao, L.H.; Xu, H.E.; Wang, M.W.
Deposited on	:	2021-08-01
Resolution	:	3.40 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 (i) 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 (i)) were used in the production of this report:

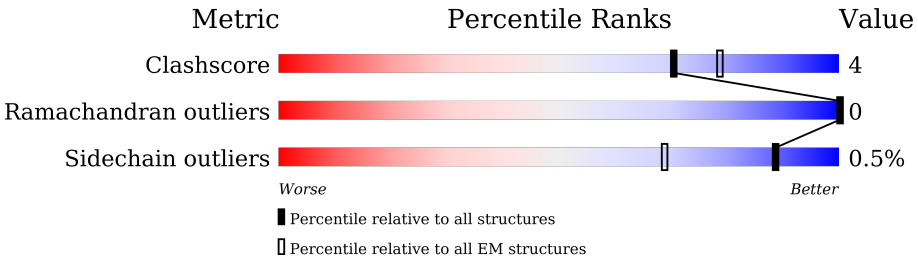
EMDB validation analysis	:	0.0.1.dev43
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.3

1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.40 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	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	R	573	56% 6% 37%
2	P	39	67% 10% 23%
3	A	394	55% 5% 40%
4	B	371	79% 13% 8%
5	G	71	80% 18%
6	N	140	79% 13% 8%

2 Entry composition (i)

There are 7 unique types of molecules in this entry. The entry contains 9367 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 Gastric inhibitory polypeptide receptor,Gastric inhibitory polypeptide receptor,human glucose-dependent insulinotropic polypeptide receptor.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	R	359	Total	C	N	O	S	0	0
			2974	1940	530	487	17		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
R	345	PHE	THR	engineered mutation	UNP P48546

- Molecule 2 is a protein called Tiezepatide.

Mol	Chain	Residues	Atoms				AltConf	Trace
2	P	30	Total	C	N	O	0	0
			233	154	35	44		

- Molecule 3 is a protein called Guanine nucleotide-binding protein G(s) subunit alpha isoforms short.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	A	235	Total	C	N	O	S	0	0
			1948	1226	352	363	7		

There are 9 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	54	ASN	SER	engineered mutation	UNP P04896
A	226	ALA	GLY	engineered mutation	UNP P04896
A	268	ALA	GLU	engineered mutation	UNP P04896
A	271	LYS	ASN	engineered mutation	UNP P04896
A	274	ASP	LYS	engineered mutation	UNP P04896
A	280	LYS	ARG	engineered mutation	UNP P04896
A	284	ASP	THR	engineered mutation	UNP P04896
A	285	THR	ILE	engineered mutation	UNP P04896

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
A	366	SER	ALA	engineered mutation	UNP P04896

- Molecule 4 is a protein called Guanine nucleotide-binding protein G(I)/G(S)/G(T) subunit beta-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	B	341	Total	C	N	O	S	0	0
			2616	1612	470	513	21		

There are 32 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	-4	MET	-	initiating methionine	UNP P54311
B	-3	GLY	-	expression tag	UNP P54311
B	-2	SER	-	expression tag	UNP P54311
B	-1	LEU	-	expression tag	UNP P54311
B	0	LEU	-	expression tag	UNP P54311
B	1	GLN	-	expression tag	UNP P54311
B	341	GLY	-	expression tag	UNP P54311
B	342	SER	-	expression tag	UNP P54311
B	343	SER	-	expression tag	UNP P54311
B	344	GLY	-	expression tag	UNP P54311
B	345	GLY	-	expression tag	UNP P54311
B	346	GLY	-	expression tag	UNP P54311
B	347	GLY	-	expression tag	UNP P54311
B	348	SER	-	expression tag	UNP P54311
B	349	GLY	-	expression tag	UNP P54311
B	350	GLY	-	expression tag	UNP P54311
B	351	GLY	-	expression tag	UNP P54311
B	352	GLY	-	expression tag	UNP P54311
B	353	SER	-	expression tag	UNP P54311
B	354	SER	-	expression tag	UNP P54311
B	355	GLY	-	expression tag	UNP P54311
B	356	VAL	-	expression tag	UNP P54311
B	357	SER	-	expression tag	UNP P54311
B	358	GLY	-	expression tag	UNP P54311
B	359	TRP	-	expression tag	UNP P54311
B	360	ARG	-	expression tag	UNP P54311
B	361	LEU	-	expression tag	UNP P54311
B	362	PHE	-	expression tag	UNP P54311
B	363	LYS	-	expression tag	UNP P54311
B	364	LYS	-	expression tag	UNP P54311

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	365	ILE	-	expression tag	UNP P54311
B	366	SER	-	expression tag	UNP P54311

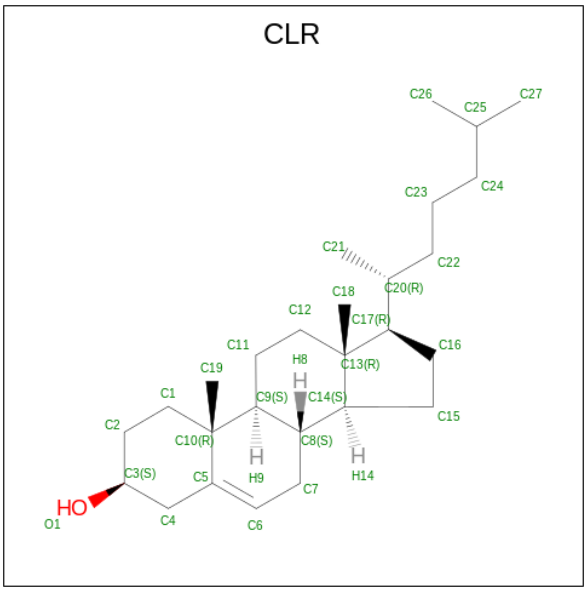
- Molecule 5 is a protein called Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	G	58	Total	C	N	O	S	0	0
			445	278	78	86	3		

- Molecule 6 is a protein called Nanobody-35.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	N	129	Total	C	N	O	S	0	0
			983	611	173	193	6		

- Molecule 7 is CHOLESTEROL (three-letter code: CLR) (formula: $C_{27}H_{46}O$).



Mol	Chain	Residues	Atoms				AltConf
7	R	1	Total	C	O		0
			168	162	6		
7	R	1	Total	C	O		0
			168	162	6		
7	R	1	Total	C	O		0
			168	162	6		

Continued on next page...

Continued from previous page...

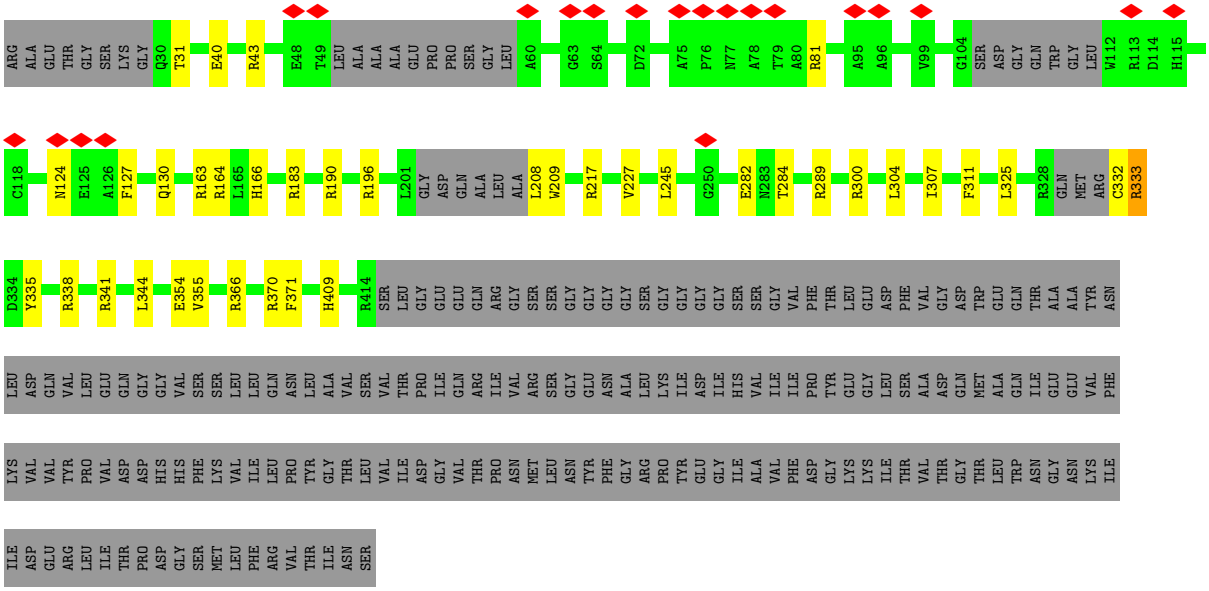
Mol	Chain	Residues	Atoms			AltConf
7	R	1	Total 168	C 162	O 6	0
7	R	1	Total 168	C 162	O 6	0
7	R	1	Total 168	C 162	O 6	0

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.

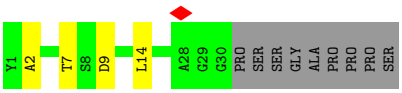
• Molecule 1: Gastric inhibitory polypeptide receptor,Gastric inhibitory polypeptide receptor,human glucose-dependent insulinotropic polypeptide receptor

Chain R:



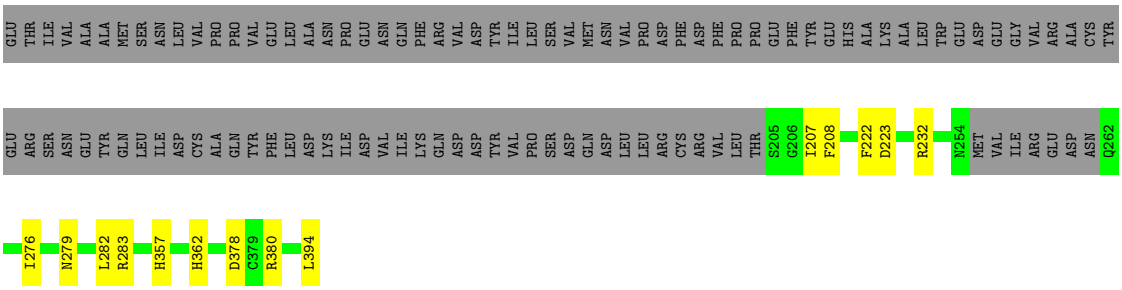
• Molecule 2: Tiezepatide

Chain P:

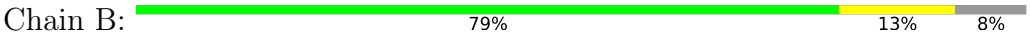


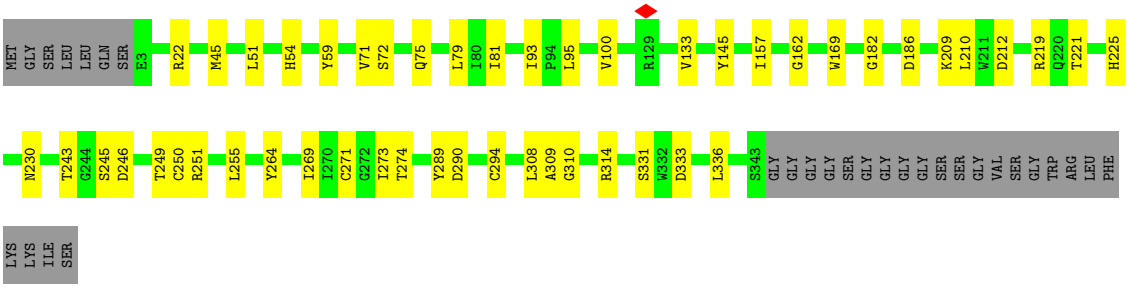
• Molecule 3: Guanine nucleotide-binding protein G(s) subunit alpha isoforms short

Chain A:

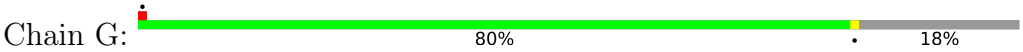


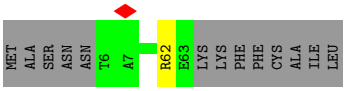
• Molecule 4: Guanine nucleotide-binding protein G(I)/G(S)/G(T) subunit beta-1



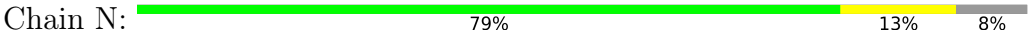


• Molecule 5: Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-2





• Molecule 6: Nanobody-35



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	511557	Depositor
Resolution determination method	DIFFRACTION PATTERN/LAYERLINES	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	80	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	5.413	Depositor
Minimum map value	-3.408	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.083	Depositor
Recommended contour level	0.241	Depositor
Map size (Å)	274.176, 274.176, 274.176	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.071, 1.071, 1.071	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: AIB, CLR

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	R	0.26	0/3054	0.46	0/4147
2	P	0.25	0/226	0.37	0/305
3	A	0.27	0/1984	0.46	0/2666
4	B	0.28	0/2663	0.52	0/3610
5	G	0.23	0/451	0.43	0/609
6	N	0.29	0/1004	0.48	0/1360
All	All	0.27	0/9382	0.48	0/12697

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	R	2974	0	2987	22	0
2	P	233	0	230	3	0
3	A	1948	0	1921	12	0
4	B	2616	0	2518	27	0
5	G	445	0	454	0	0
6	N	983	0	945	10	0
7	R	168	0	276	4	0
All	All	9367	0	9331	68	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 4.

The worst 5 of 68 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:R:31:THR:HG22	1:R:289:ARG:HH22	1.62	0.64
3:A:283:ARG:HH22	6:N:105:ARG:HH21	1.47	0.63
4:B:51:LEU:HB2	4:B:336:LEU:HB2	1.81	0.63
1:R:325:LEU:HB3	1:R:335:TYR:HB2	1.83	0.61
4:B:71:VAL:HG22	4:B:81:ILE:HG12	1.81	0.60

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	R	349/573 (61%)	341 (98%)	8 (2%)	0	100	100
2	P	26/39 (67%)	26 (100%)	0	0	100	100
3	A	229/394 (58%)	223 (97%)	6 (3%)	0	100	100
4	B	339/371 (91%)	330 (97%)	9 (3%)	0	100	100
5	G	56/71 (79%)	55 (98%)	1 (2%)	0	100	100
6	N	127/140 (91%)	122 (96%)	5 (4%)	0	100	100
All	All	1126/1588 (71%)	1097 (97%)	29 (3%)	0	100	100

There are no Ramachandran outliers to report.

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	R	312/483 (65%)	308 (99%)	4 (1%)	69 84
2	P	22/29 (76%)	22 (100%)	0	100 100
3	A	211/351 (60%)	211 (100%)	0	100 100
4	B	283/302 (94%)	283 (100%)	0	100 100
5	G	47/58 (81%)	46 (98%)	1 (2%)	53 76
6	N	107/116 (92%)	107 (100%)	0	100 100
All	All	982/1339 (73%)	977 (100%)	5 (0%)	89 94

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	R	81	ARG
1	R	333	ARG
1	R	341	ARG
1	R	366	ARG
5	G	62	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 7 such sidechains are listed below:

Mol	Chain	Res	Type
3	A	23	ASN
3	A	41	HIS
4	B	91	HIS
4	B	88	ASN
3	A	19	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

2 non-standard protein/DNA/RNA residues 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	$\#\|Z\| > 2$
2	AIB	P	13	2	1,5,6	1.10	0	2,7,9	1.23	0
2	AIB	P	2	2	1,5,6	1.12	0	2,7,9	1.66	1 (50%)

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
2	AIB	P	13	2	-	0/2/3/6	-
2	AIB	P	2	2	-	0/2/3/6	-

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	P	2	AIB	CB1-CA-C	-2.29	100.34	108.99

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

6 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	$\#\|Z\| > 2$
7	CLR	R	605	-	31,31,31	0.60	0	48,48,48	1.32	7 (14%)
7	CLR	R	604	-	31,31,31	0.60	0	48,48,48	1.34	6 (12%)
7	CLR	R	601	-	31,31,31	0.62	1 (3%)	48,48,48	1.34	7 (14%)
7	CLR	R	606	-	31,31,31	0.58	0	48,48,48	1.28	7 (14%)
7	CLR	R	603	-	31,31,31	0.60	0	48,48,48	1.27	6 (12%)
7	CLR	R	602	-	31,31,31	0.62	1 (3%)	48,48,48	1.35	7 (14%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
7	CLR	R	605	-	-	4/10/68/68	0/4/4/4
7	CLR	R	604	-	-	4/10/68/68	0/4/4/4
7	CLR	R	601	-	-	4/10/68/68	0/4/4/4
7	CLR	R	606	-	-	4/10/68/68	0/4/4/4
7	CLR	R	603	-	-	4/10/68/68	0/4/4/4
7	CLR	R	602	-	-	4/10/68/68	0/4/4/4

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	R	602	CLR	C10-C9	-2.04	1.52	1.56
7	R	601	CLR	C10-C9	-2.02	1.52	1.56

The worst 5 of 40 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
7	R	602	CLR	C13-C17-C20	-3.26	114.38	119.49
7	R	604	CLR	C13-C17-C20	-3.24	114.41	119.49
7	R	601	CLR	C19-C10-C9	-3.20	107.86	111.68
7	R	606	CLR	C7-C8-C14	-2.96	106.62	110.91
7	R	605	CLR	C13-C17-C20	-2.88	114.98	119.49

There are no chirality outliers.

5 of 24 torsion outliers are listed below:

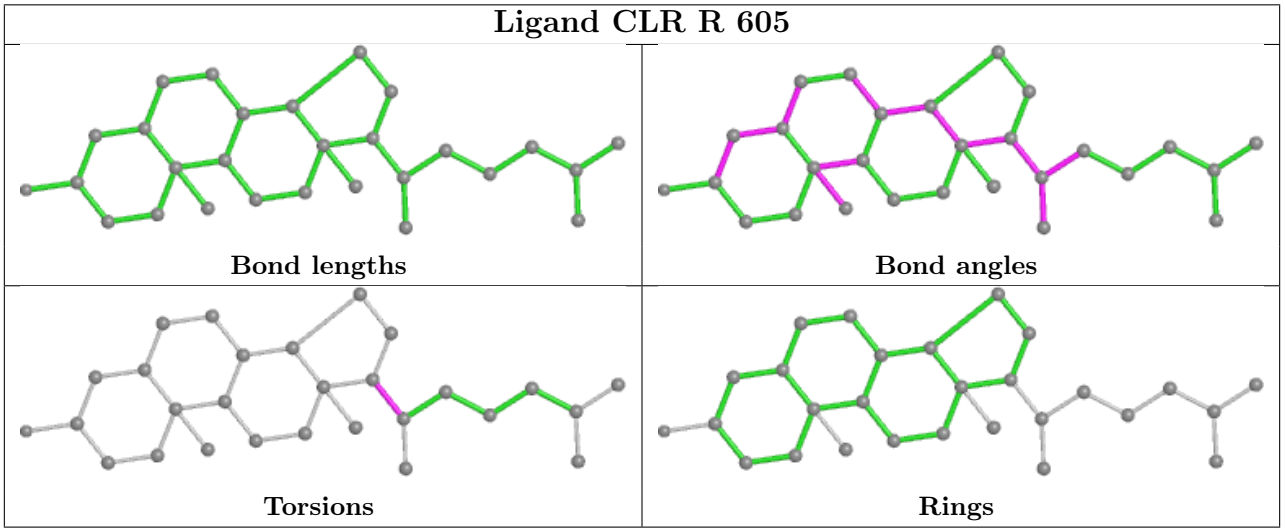
Mol	Chain	Res	Type	Atoms
7	R	602	CLR	C13-C17-C20-C21
7	R	602	CLR	C16-C17-C20-C21
7	R	602	CLR	C13-C17-C20-C22
7	R	604	CLR	C13-C17-C20-C21
7	R	602	CLR	C16-C17-C20-C22

There are no ring outliers.

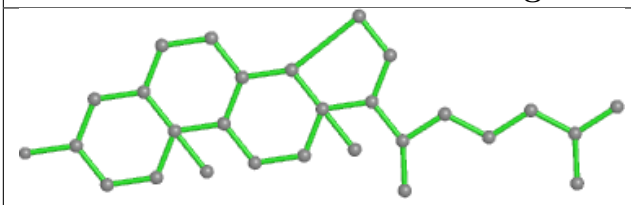
3 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	R	604	CLR	1	0
7	R	601	CLR	2	0
7	R	606	CLR	1	0

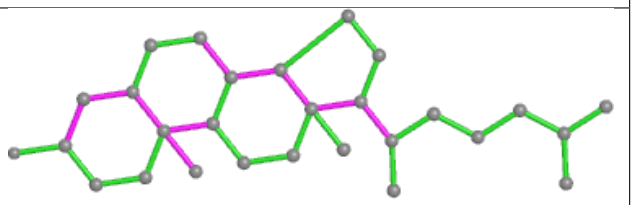
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.



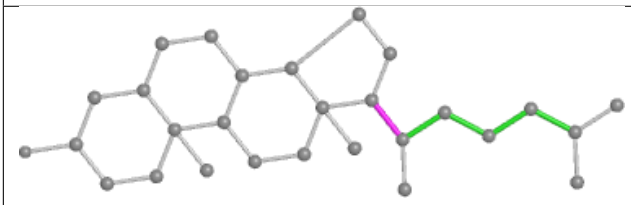
Ligand CLR R 604



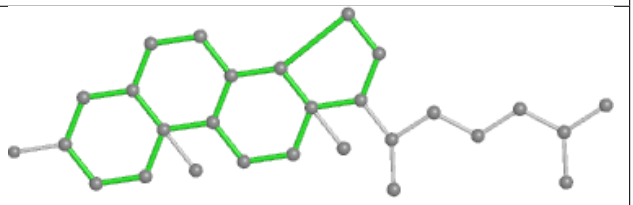
Bond lengths



Bond angles

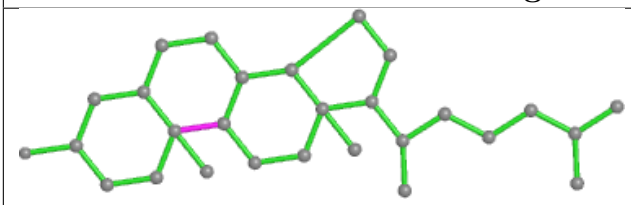


Torsions

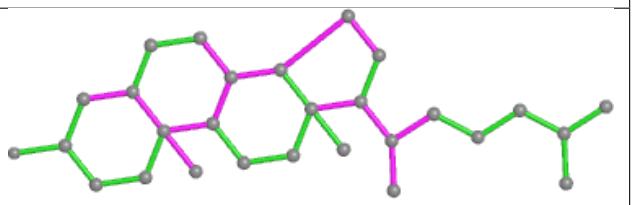


Rings

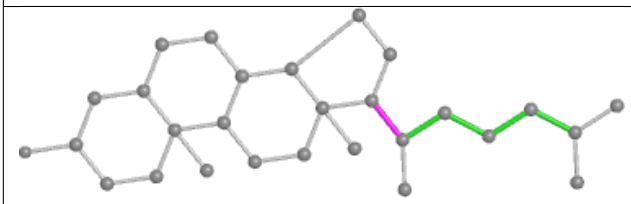
Ligand CLR R 601



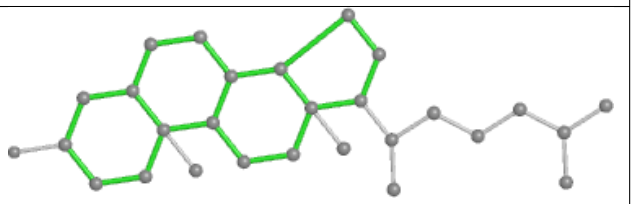
Bond lengths



Bond angles

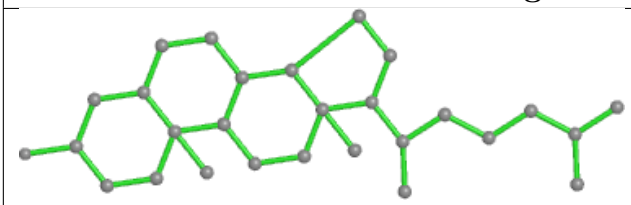


Torsions

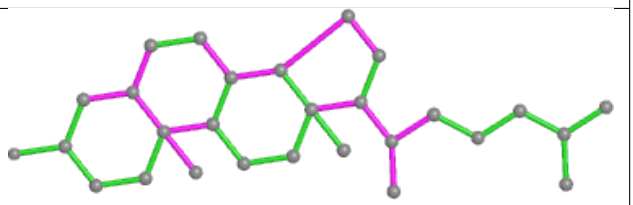


Rings

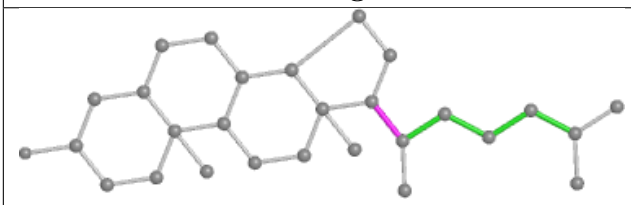
Ligand CLR R 606



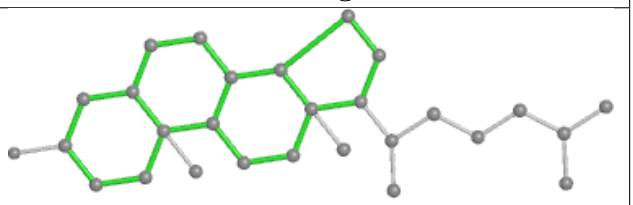
Bond lengths



Bond angles

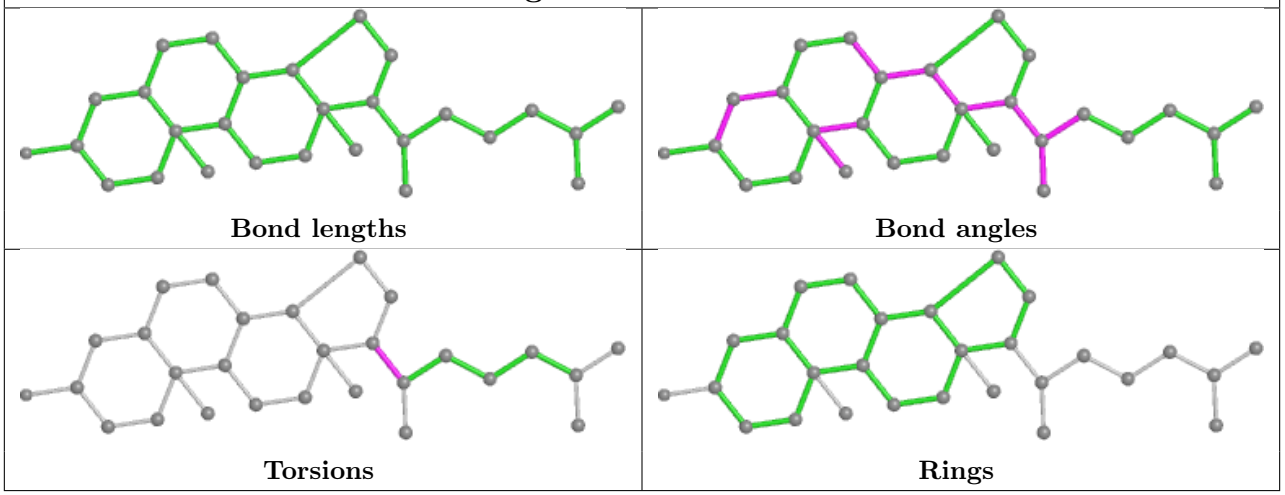


Torsions

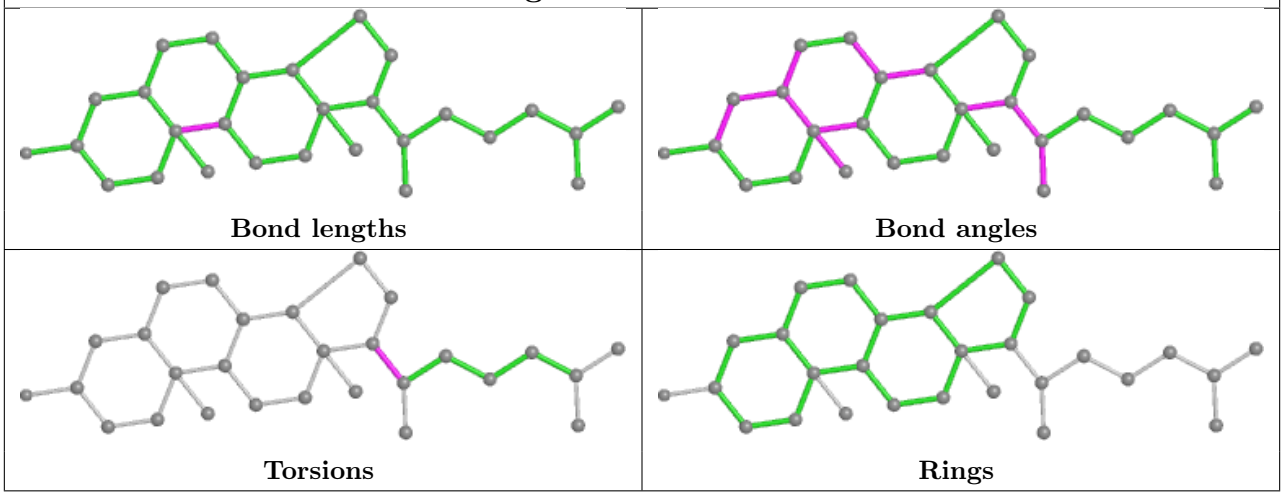


Rings

Ligand CLR R 603



Ligand CLR R 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.

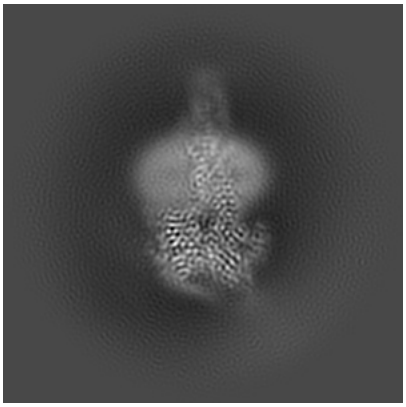
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-31606. These allow visual inspection of the internal detail of the map and identification of artifacts.

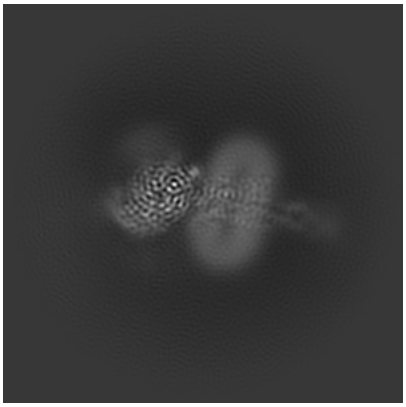
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

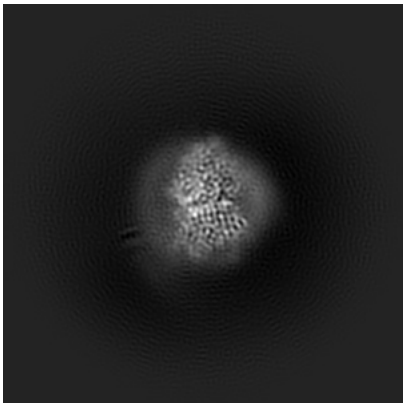
6.1.1 Primary map



X



Y

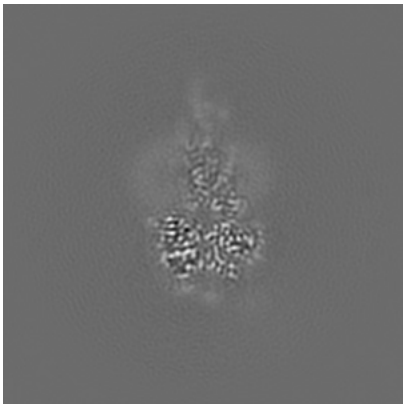


Z

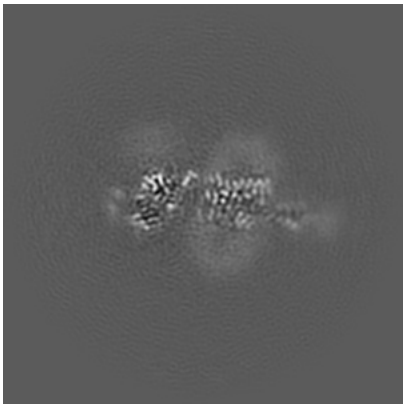
The images above show the map projected in three orthogonal directions.

6.2 Central slices

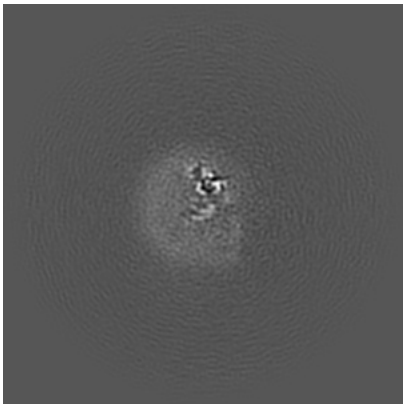
6.2.1 Primary map



X Index: 128



Y Index: 128

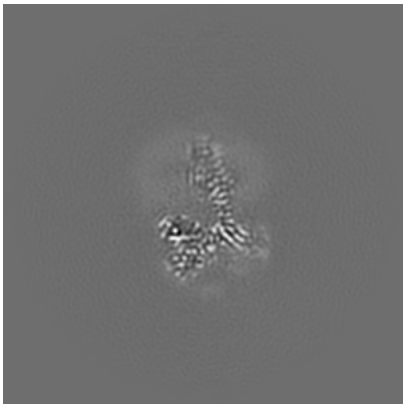


Z Index: 128

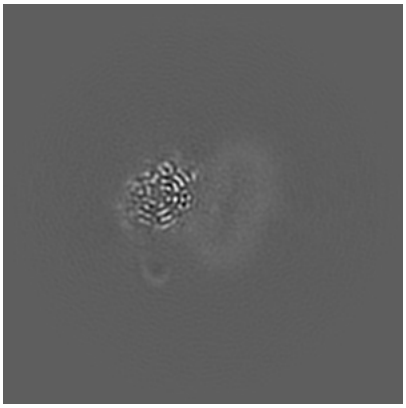
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

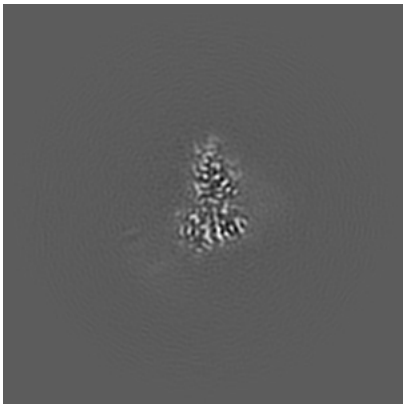
6.3.1 Primary map



X Index: 137



Y Index: 110



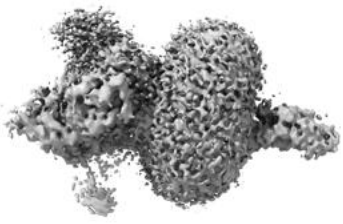
Z Index: 105

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

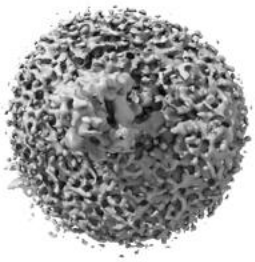
6.4 Orthogonal surface views (i)

6.4.1 Primary map

X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.241. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

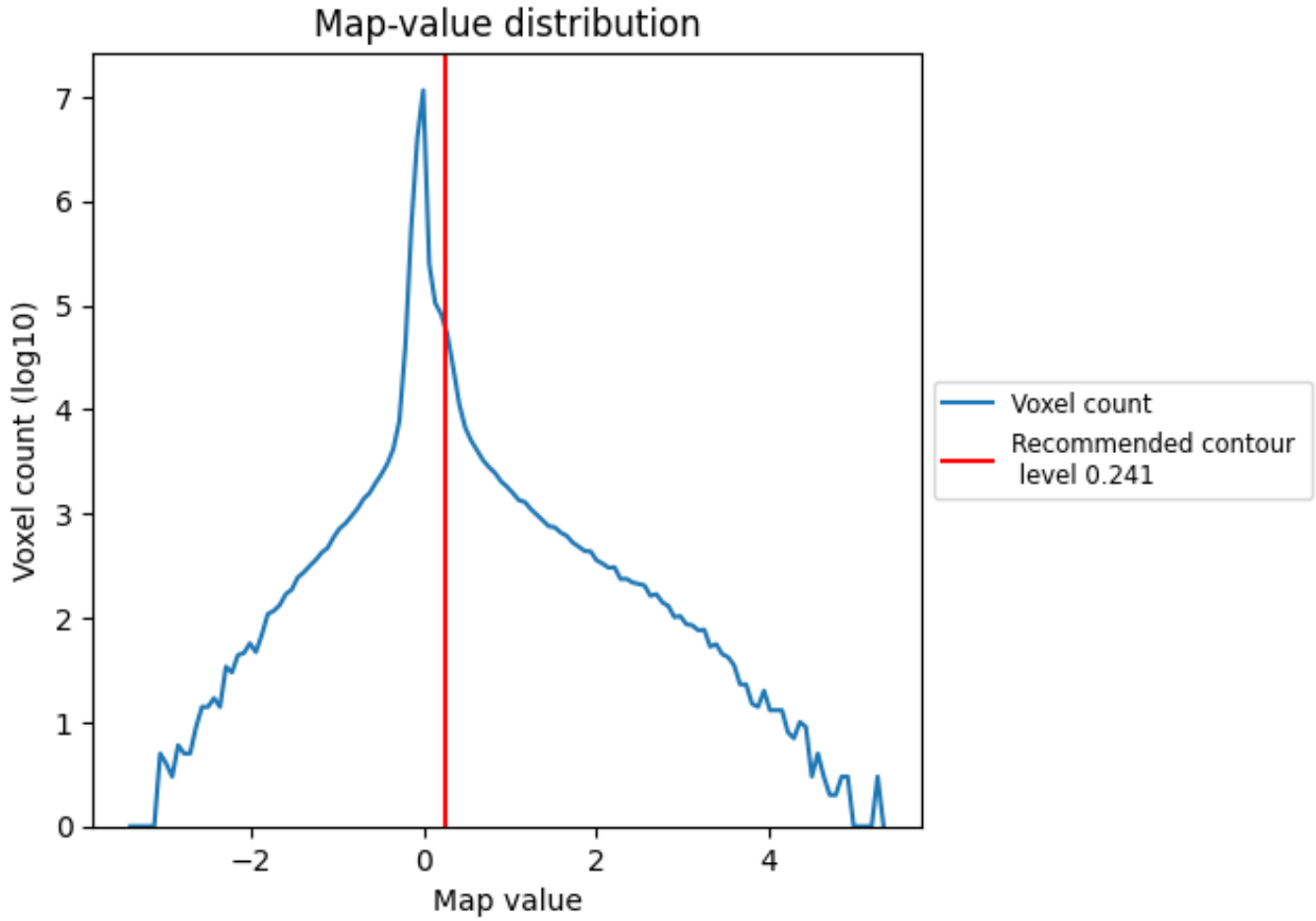
6.5 Mask visualisation (i)

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

7 Map analysis

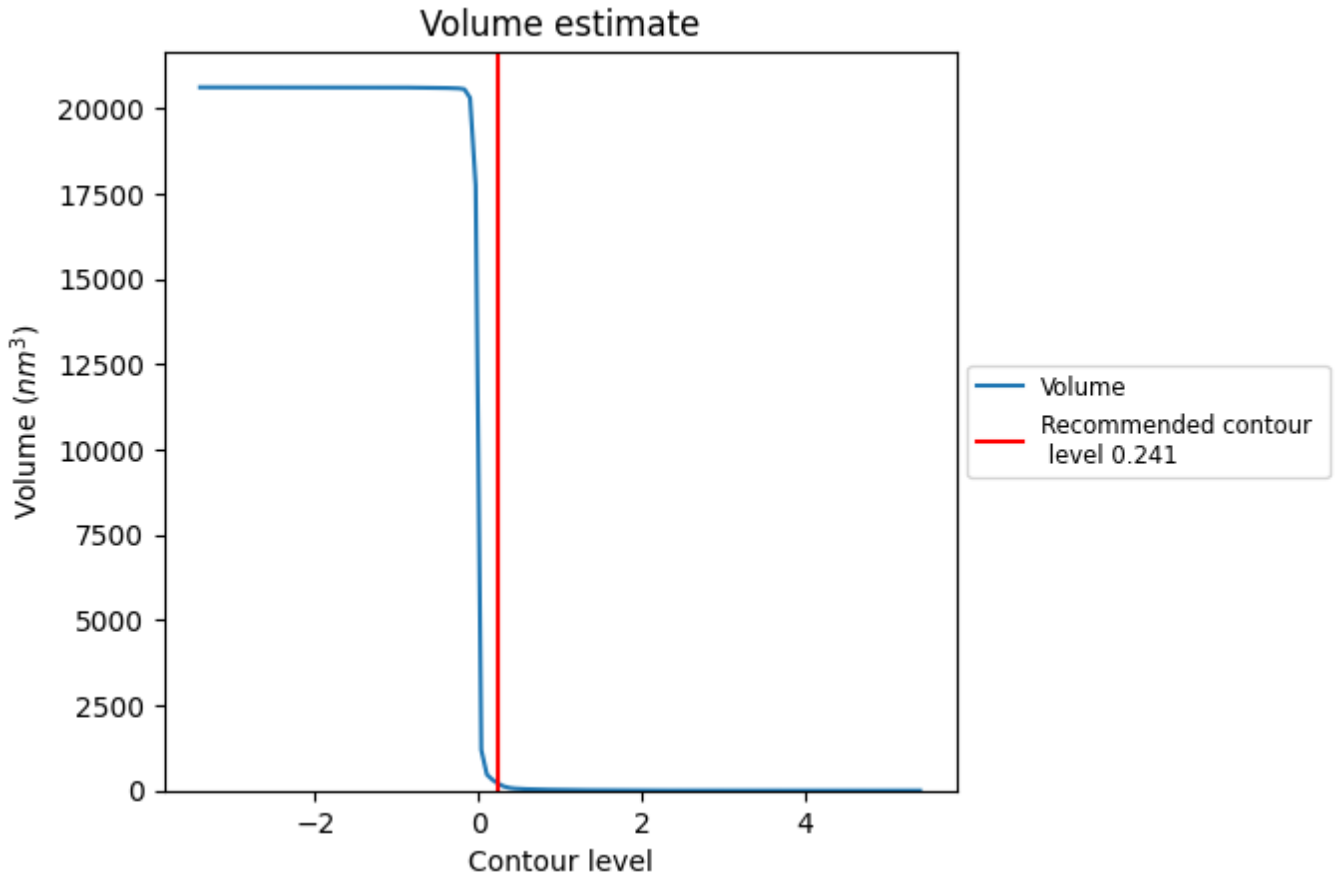
This section contains the results of statistical analysis of the map.

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.

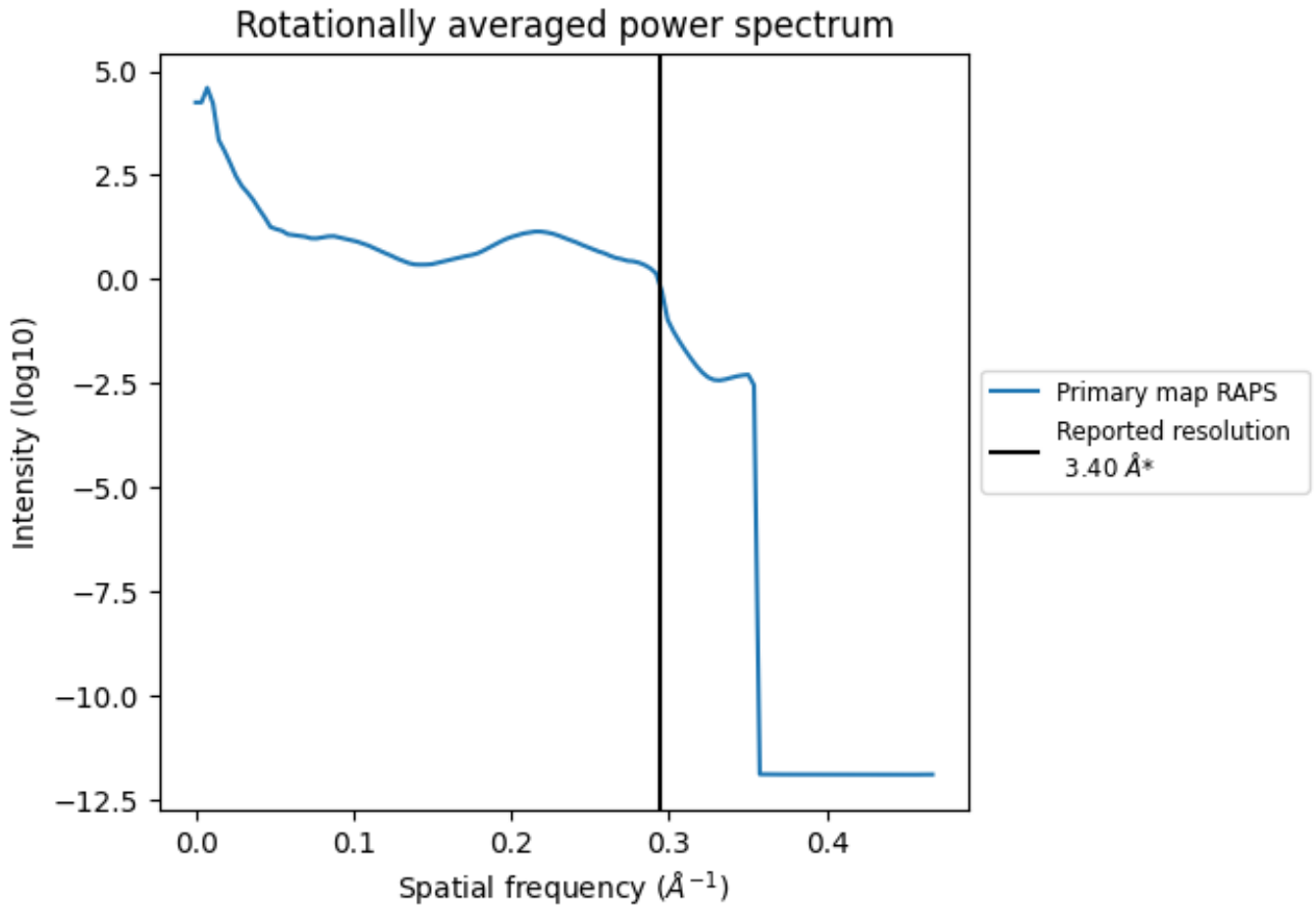
7.2 Volume estimate (i)



The volume at the recommended contour level is 210 nm^3; this corresponds to an approximate mass of 189 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 0.294 $Å^{-1}$

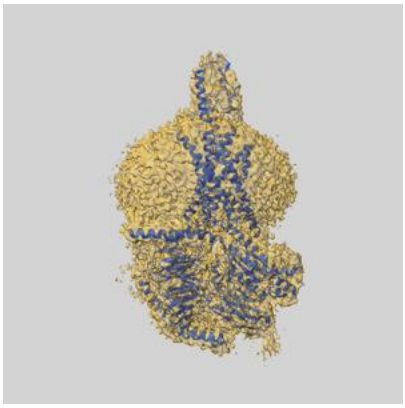
8 Fourier-Shell correlation

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

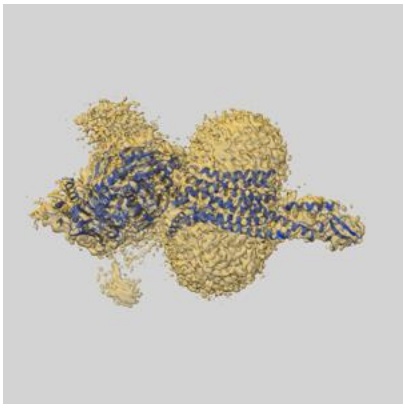
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-31606 and PDB model 7FIY. Per-residue inclusion information can be found in section 3 on page 7.

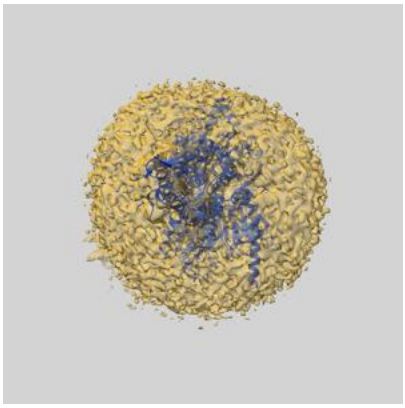
9.1 Map-model overlay



X



Y



Z

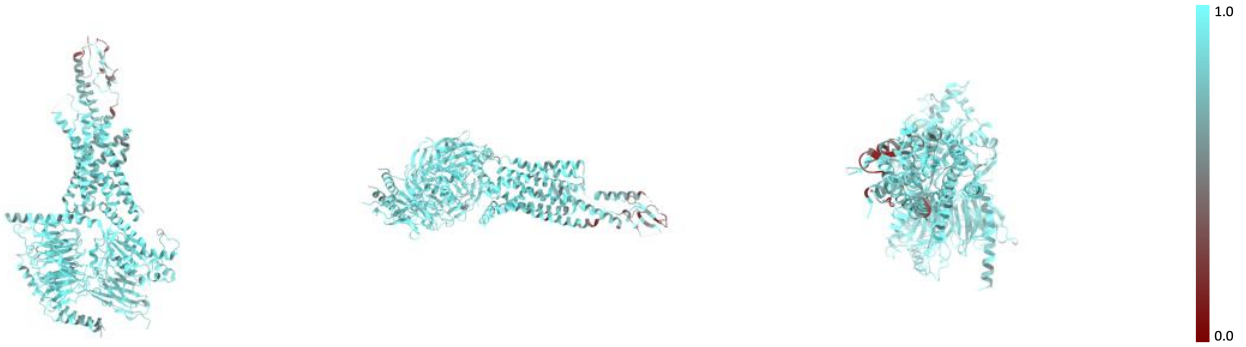
The images above show the 3D surface view of the map at the recommended contour level 0.241 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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.

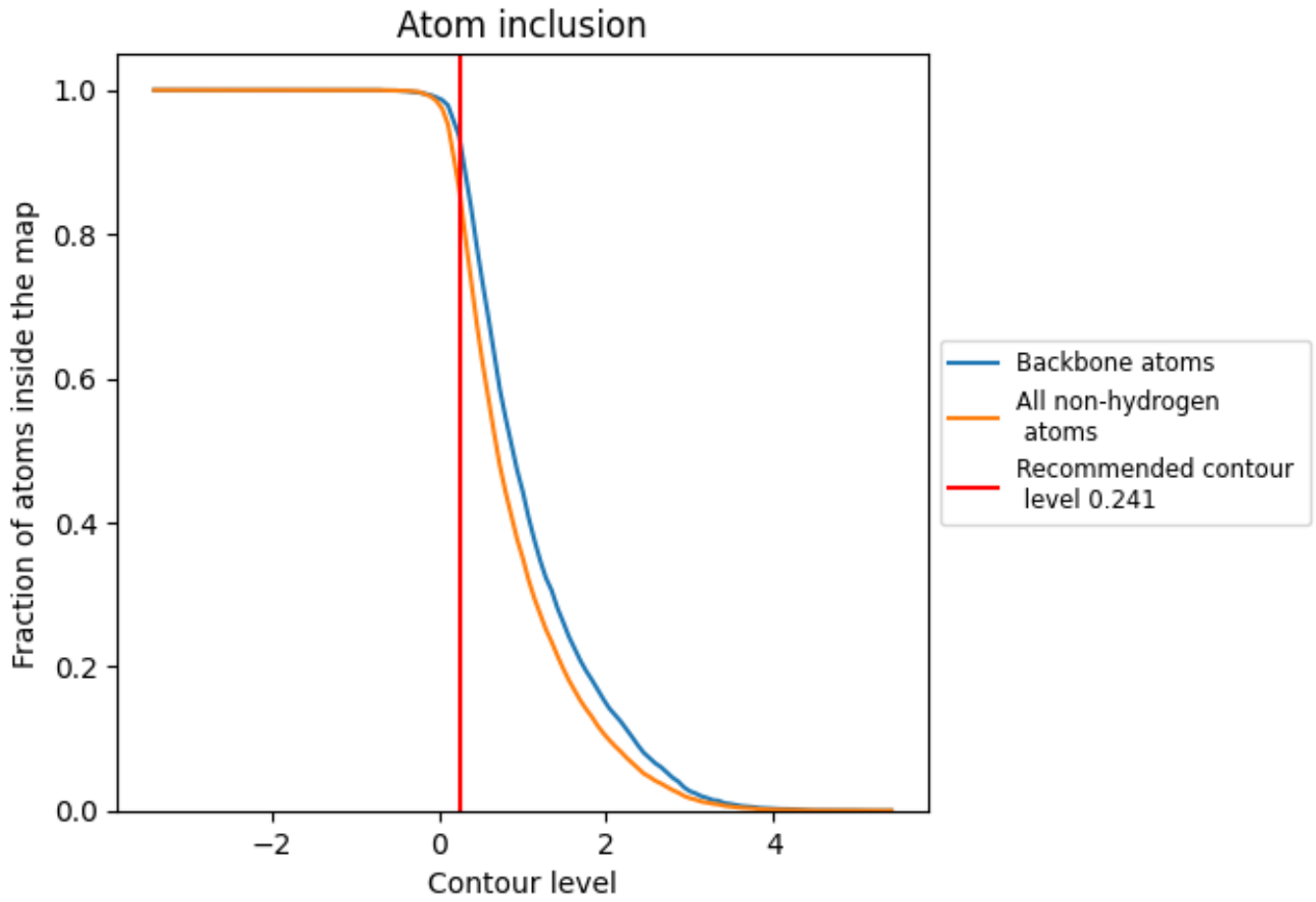
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.241).

9.4 Atom inclusion (i)



At the recommended contour level, 94% of all backbone atoms, 86% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (0.241) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8633	0.4130
A	0.8867	0.4470
B	0.9045	0.4740
G	0.8447	0.3740
N	0.8927	0.4480
P	0.8304	0.3780
R	0.8099	0.3380