



## wwPDB EM Validation Summary Report ⓘ

Nov 16, 2022 – 10:58 PM EST

PDB ID : 6WIV  
EMDB ID : EMD-21685  
Title : Structure of human GABA(B) receptor in an inactive state  
Authors : Park, J.; Fu, Z.; Frangaj, A.; Liu, J.; Mosyak, L.; Shen, T.; Slavkovich, V.N.; Ray, K.M.; Taura, J.; Cao, B.; Geng, Y.; Zuo, H.; Kou, Y.; Grassucci, R.; Chen, S.; Liu, Z.; Lin, X.; Williams, J.P.; Rice, W.J.; Eng, E.T.; Huang, R.K.; Soni, R.K.; Kloss, B.; Yu, Z.; Javitch, J.A.; Hendrickson, W.A.; Slesinger, P.A.; Quick, M.; Graziano, J.; Yu, H.; Fiehn, O.; Clarke, O.B.; Frank, J.; Fan, Q.R.  
Deposited on : 2020-04-10  
Resolution : 3.30 Å (reported)  
Based on initial model : 4MQE

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.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)

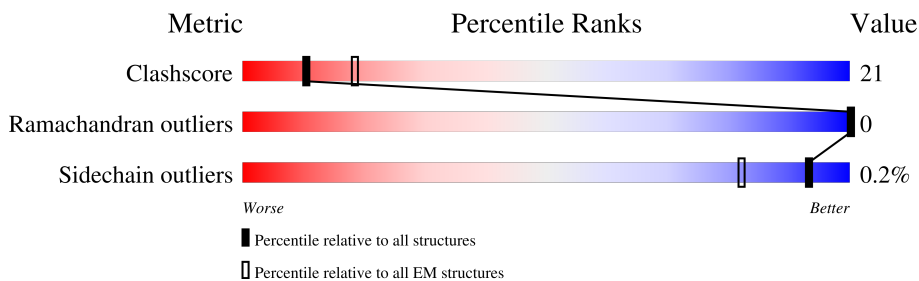
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.30 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  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	810	
2	B	827	

Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
 Validation Pipeline (wwPDB-VP) : 2.31.2

## 2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 11206 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 Gamma-aminobutyric acid type B receptor subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	681	5427	3514	903	985	25	0	0

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	803	ASP	-	expression tag	UNP Q9UBS5
A	804	TYR	-	expression tag	UNP Q9UBS5
A	805	LYS	-	expression tag	UNP Q9UBS5
A	806	ASP	-	expression tag	UNP Q9UBS5
A	807	ASP	-	expression tag	UNP Q9UBS5
A	808	ASP	-	expression tag	UNP Q9UBS5
A	809	ASP	-	expression tag	UNP Q9UBS5
A	810	LYS	-	expression tag	UNP Q9UBS5

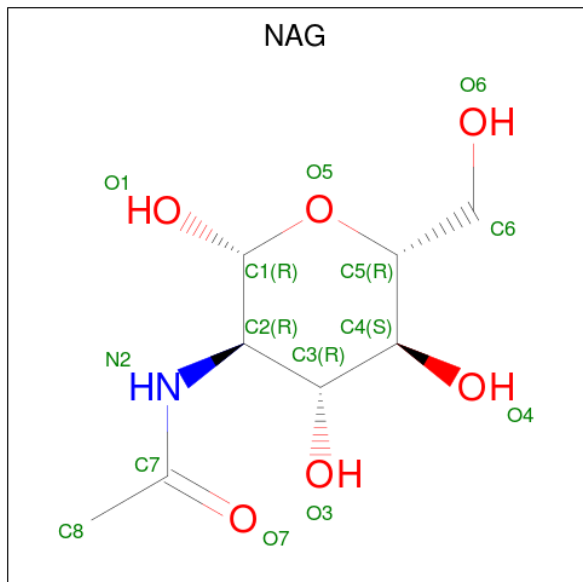
- Molecule 2 is a protein called Gamma-aminobutyric acid type B receptor subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	671	5333	3456	882	959	36	0	0

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	820	ASP	-	expression tag	UNP O75899
B	821	TYR	-	expression tag	UNP O75899
B	822	LYS	-	expression tag	UNP O75899
B	823	ASP	-	expression tag	UNP O75899
B	824	ASP	-	expression tag	UNP O75899
B	825	ASP	-	expression tag	UNP O75899
B	826	ASP	-	expression tag	UNP O75899
B	827	LYS	-	expression tag	UNP O75899

- Molecule 3 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula:  $C_8H_{15}NO_6$ ) (labeled as "Ligand of Interest" by depositor).

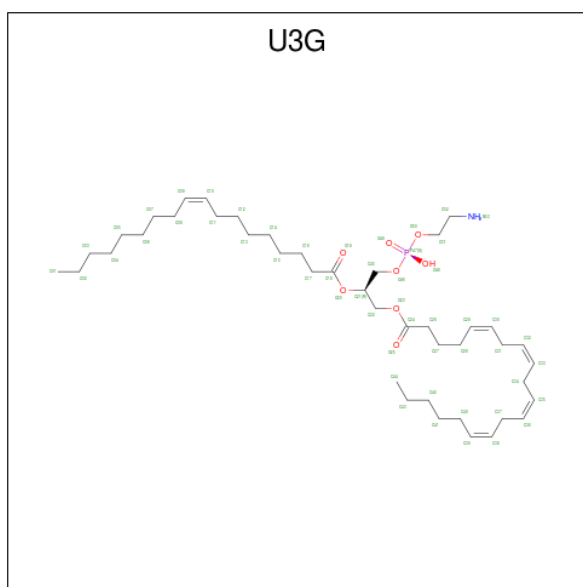


Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
3	A	1	42	24	3	15	0
3	A	1	42	24	3	15	0
3	A	1	42	24	3	15	0
3	B	1	14	8	1	5	0

- Molecule 4 is CALCIUM ION (three-letter code: CA) (formula: Ca) (labeled as "Ligand of Interest" by depositor).

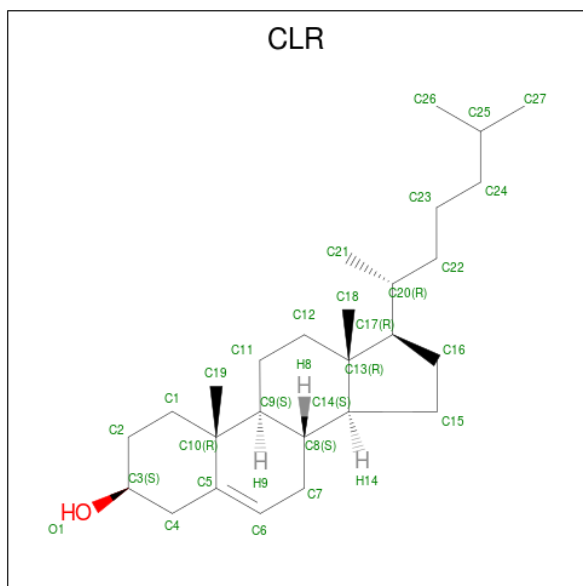
Mol	Chain	Residues	Atoms		AltConf
			Total	Ca	
4	A	1	1	1	0

- Molecule 5 is (2R)-3-{[(S)-(2-aminoethoxy)(hydroxy)phosphoryl]oxy}-2-{[(9Z)-octadec-9-enoyl]oxy}propyl (5Z,8Z,11Z,14Z)-icosa-5,8,11,14-tetraenoate (three-letter code: U3G) (formula:  $C_{43}H_{76}NO_8P$ ) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
5	A	1	53	43	1	8	1	0

- Molecule 6 is CHOLESTEROL (three-letter code: CLR) (formula:  $C_{27}H_{46}O$ ) (labeled as "Ligand of Interest" by depositor).



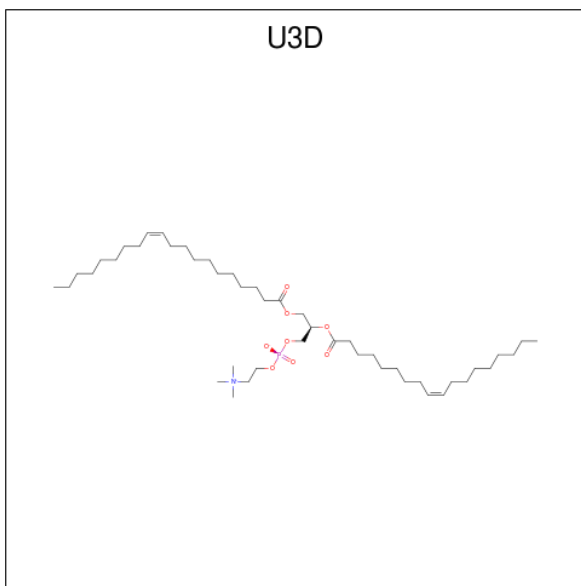
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
6	A	1	112	108	4	0
6	A	1	112	108	4	0

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Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
6	A	1	112	108	4	0
6	A	1	112	108	4	0
6	B	1	168	162	6	0
6	B	1	168	162	6	0
6	B	1	168	162	6	0
6	B	1	168	162	6	0
6	B	1	168	162	6	0
6	B	1	168	162	6	0

- Molecule 7 is [(2R)-3-[(Z)-icos-11-enoyl]oxy-2-[(Z)-octadec-9-enoyl]oxypropyl] 2-(trimethylazaniumyl)ethyl phosphate (three-letter code: U3D) (formula: C<sub>46</sub>H<sub>88</sub>NO<sub>8</sub>P) (labeled as "Ligand of Interest" by depositor).

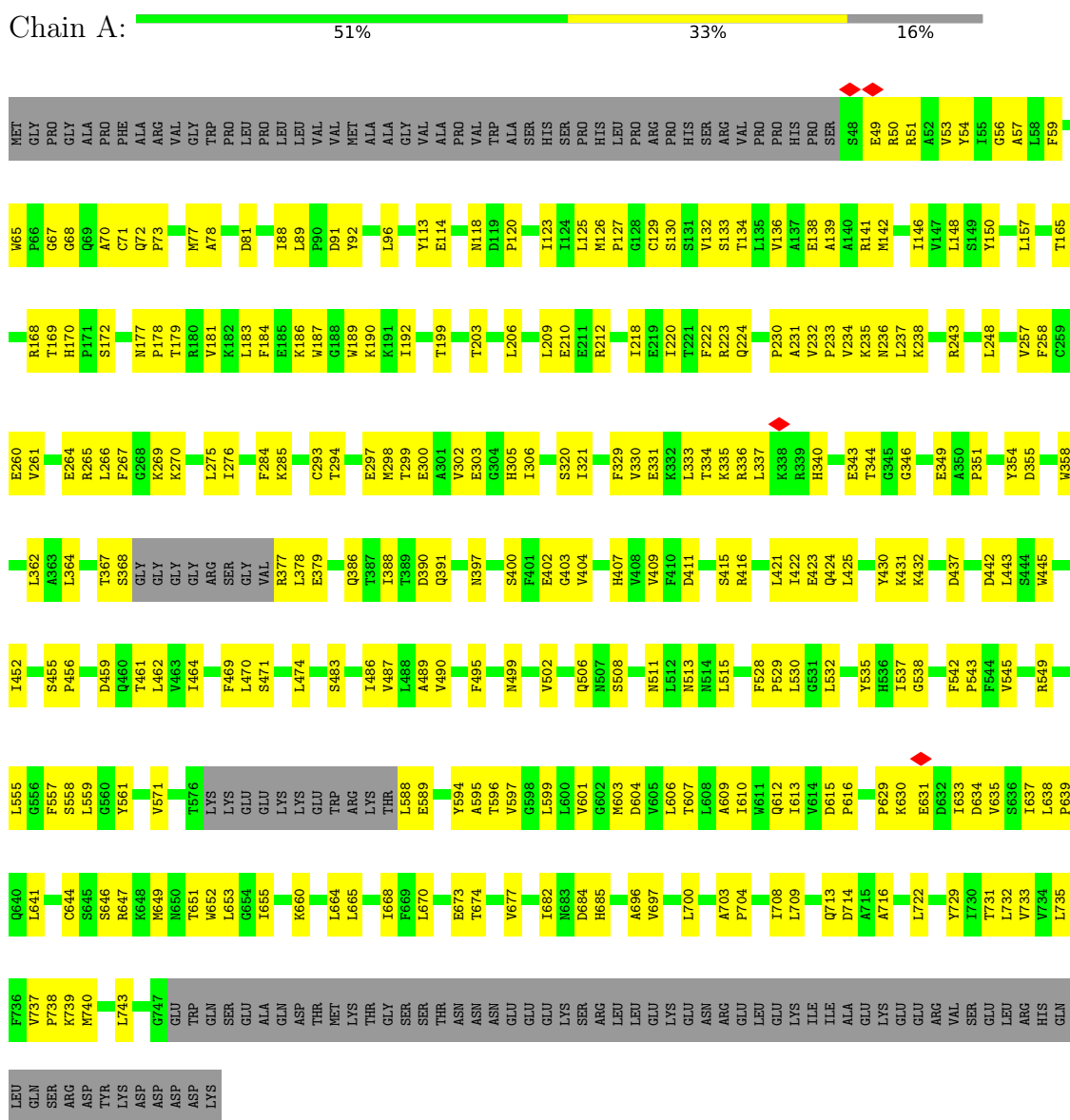


Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
7	B	1	56	46	1	8	1	0

### 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: Gamma-aminobutyric acid type B receptor subunit 1



- Molecule 2: Gamma-aminobutyric acid type B receptor subunit 2



MET	L61	C937	L307	I398	H493	H579	M650	L744	LEU
ALA	M62	T238	L308	I407	L500	M584	T651	L747	ASP
SER	P63	S239	M311	T412	N503	VAL	M652	R748	LYS
PRO	L64	V240	E312	T414	N503	LYS	M653	T749	ASP
ARG	T65	K241	G313	G413	M512	MET	T654	ASN	LEU
SER	K66	K242	Y314	Q414	S516	LYS	I655	PRO	GLU
SER	E67	K244	E320	R422	M519	LYS	T659	ASP	VAL
GLY	V68	Q245	L322	T425	L523	ILE	Y663	ALA	THR
GLN	G74	N246	L322	T426	L524	ILE	K664	ALA	MET
PRO	V77	D247	K325	K427	L525	LYS	G665	THR	GLN
PRO	V81	V248	Q326	T427	M521	ASP	L666	GLN	LEU
PRO	V81	R249	Q326	K427	L522	ASP	G666	ASN	GLN
PRO	V81	I250	K325	K427	L522	ARG	G666	ARG	ASP
PRO	A84	F255	I327	F428	L523	THR	T678	THR	THR
PRO	I85	D256	K328	T429	L524	PHE	R679	ARG	THR
PRO	I85	V163	K328	T429	L524	GLN	M680	ASP	ASP
PRO	E86	Q257	K333	Q430	L525	LYS	N680	THR	THR
PRO	Q87	N258	T334	F431	G526	LYS	V681	PHE	LYS
ALA	I88	M259	T334	Q432	F531	THR	G601	THR	ASP
ALA	R89	A260	Q337	D433	A532	GLN	G602	THR	ASP
ARG	N90	F263	E341	K438	S533	ASN	M604	GLN	ASP
ARG	E91	F264	E341	V439	L534	GLN	L605	GLN	ASP
LEU	S92	F172	F264	V439	F535	LYS	L606	LYS	ASP
LEU	S92	F172	F264	V439	L536	LYS	L607	LYS	LYS
LEU	L93	T175	C266	Y442	F537	GLU	I607	GLU	GLU
LEU	L94	T175	C266	Y442	F537	ASP	M608	ASP	ASP
LEU	L95	A267	H443	M443	L609	SER	L609	SER	SER
LEU	R95	A267	H443	A444	C610	LYS	C610	LYS	LYS
LEU	P96	N180	P351	A444	L611	THR	I611	THR	THR
LEU	Y87	N180	P351	L449	L612	THR	L612	THR	THR
PRO	F98	N183	H855	E450	S545	SER	M701	SER	SER
LEU	L99	P184	H855	E450	E546	SER	M702	THR	THR
LEU	D100	N184	Y359	I451	K547	VAL	G703	SER	SER
LEU	L101	K191	D360	I456	T548	THR	I704	VAL	VAL
LEU	R102	S275	G361	I456	F549	THR	I705	THR	THR
LEU	L103	Q278	I362	Q459	E550	SER	V709	SER	SER
ALA	Y104	Q278	H863	G460	T551	VAL	V709	VAL	VAL
PRO	D109	I281	V364	K465	L552	ASN	D715	ASN	ASN
ALA	N110	Y285	I365	D466	V555	GLN	Q716	GLN	GLN
TRP	A111	E286	T368	K467	R556	ALA	P717	ALA	ALA
GLY	A111	E286	T368	K467	T557	SER	Q716	SER	SER
TRP	L114	P287	Q370	T468	L558	THR	I723	THR	THR
ALA	F117	S288	R371	I469	L559	ARG	V724	ARG	ARG
GLY	Y118	M289	T375	L470	L560	LEU	A725	LEU	LEU
ALA	I121	F294	T375	L471	T561	GLU	E631	GLU	GLU
ARG	I121	F294	L376	E472	G563	GLY	P632	GLY	GLY
PRO	M126	THR	ALA	Q473	Y564	LEU	G636	LEU	LEU
PRO	H127	GLU	SER	L474	T566	GLN	R637	GLN	GLN
PRO	L128	ALA	ARG	R475	T566	SER	G636	SER	SER
SER	M129	ALA	HIS	I477	T566	GLU	R637	GLU	GLU
SER	V130	ASN	HIS	S478	A567	ASN	D638	ASN	ASN
SER	F131	SER	GLN	L479	F568	ARG	I639	ARG	ARG
P54	G132	SER	ARG	P480	M571	LEU	I641	LEU	LEU
P55	G132	ARG	C302	L484	F572	ARG	R642	ARG	ARG
S87	G133	L303	Q386	L485	A573	MET	P643	MET	MET
I58	G133	R304	Q387	S486	K574	LYS	L644	LYS	LYS
M59	C135	K305	F388	S486	R577	ILE	L645	ILE	ILE
G60	P136	N306	T394	I490	V578	GLU	E646	THR	THR
							E649	GLU	GLU



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	233737	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 ( $e^-/\text{\AA}^2$ )	85	Depositor
Minimum defocus (nm)	-500	Depositor
Maximum defocus (nm)	-2000	Depositor
Magnification	130000	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	5.170	Depositor
Minimum map value	-0.294	Depositor
Average map value	0.017	Depositor
Map value standard deviation	0.080	Depositor
Recommended contour level	0.5	Depositor
Map size (Å)	281.6, 281.6, 281.6	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.1, 1.1, 1.1	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: NAG, U3D, CA, CLR, U3G

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	A	0.30	0/5562	0.42	0/7554
2	B	0.29	0/5452	0.42	0/7386
All	All	0.29	0/11014	0.42	0/14940

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	A	5427	0	5425	221	0
2	B	5333	0	5401	253	0
3	A	42	0	39	2	0
3	B	14	0	13	0	0
4	A	1	0	0	0	0
5	A	53	0	0	1	0
6	A	112	0	184	12	0
6	B	168	0	276	6	0
7	B	56	0	0	1	0
All	All	11206	0	11338	475	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 21.

The worst 5 of 475 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)
2:B:628:TYR:HB2	2:B:643:PRO:HG2	1.45	0.97
2:B:526:GLY:HA3	2:B:567:ALA:HB2	1.48	0.96
1:A:146:ILE:HD13	1:A:165:THR:HB	1.48	0.94
2:B:198:VAL:HG12	2:B:250:ILE:HB	1.51	0.92
2:B:522:LEU:HD21	2:B:601:VAL:HG11	1.54	0.90

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

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

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	675/810 (83%)	653 (97%)	22 (3%)	0	100	100
2	B	663/827 (80%)	643 (97%)	20 (3%)	0	100	100
All	All	1338/1637 (82%)	1296 (97%)	42 (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	A	592/703 (84%)	591 (100%)	1 (0%)	93	97
2	B	586/725 (81%)	585 (100%)	1 (0%)	93	97
All	All	1178/1428 (82%)	1176 (100%)	2 (0%)	93	97

All (2) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	293	CYS
2	B	547	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 17 such sidechains are listed below:

Mol	Chain	Res	Type
2	B	616	GLN
2	B	698	ASN
1	A	514	ASN
2	B	206	GLN
2	B	246	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 monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 17 ligands modelled in this entry, 1 is monoatomic - leaving 16 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
6	CLR	B	907	-	31,31,31	0.79	1 (3%)	48,48,48	1.20	4 (8%)
3	NAG	B	901	2	14,14,15	0.17	0	17,19,21	0.38	0
6	CLR	B	908	-	31,31,31	0.80	0	48,48,48	1.06	4 (8%)
6	CLR	A	907	-	31,31,31	0.75	0	48,48,48	1.08	3 (6%)
6	CLR	B	906	-	31,31,31	0.82	1 (3%)	48,48,48	1.19	5 (10%)
7	U3D	B	902	-	55,55,55	1.38	8 (14%)	61,63,63	0.87	3 (4%)
3	NAG	A	902	1	14,14,15	0.20	0	17,19,21	0.49	0
6	CLR	B	905	-	31,31,31	0.66	0	48,48,48	1.04	2 (4%)
6	CLR	B	903	-	31,31,31	0.70	0	48,48,48	1.12	4 (8%)
6	CLR	A	908	-	31,31,31	0.65	0	48,48,48	1.02	3 (6%)
6	CLR	A	909	-	31,31,31	0.71	0	48,48,48	1.05	2 (4%)
3	NAG	A	901	1	14,14,15	0.21	0	17,19,21	0.45	0
6	CLR	B	904	-	31,31,31	0.72	0	48,48,48	1.02	3 (6%)
6	CLR	A	906	-	31,31,31	0.80	1 (3%)	48,48,48	1.23	5 (10%)
3	NAG	A	903	1	14,14,15	0.36	0	17,19,21	0.46	0
5	U3G	A	905	-	52,52,52	1.15	3 (5%)	55,57,57	0.82	2 (3%)

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
6	CLR	B	907	-	-	2/10/68/68	0/4/4/4
3	NAG	B	901	2	-	4/6/23/26	0/1/1/1
6	CLR	B	908	-	-	3/10/68/68	0/4/4/4
6	CLR	A	907	-	-	3/10/68/68	0/4/4/4
6	CLR	B	906	-	-	0/10/68/68	0/4/4/4
7	U3D	B	902	-	-	28/59/59/59	-
3	NAG	A	902	1	-	2/6/23/26	0/1/1/1
6	CLR	B	905	-	-	0/10/68/68	0/4/4/4
6	CLR	B	903	-	-	1/10/68/68	0/4/4/4
6	CLR	A	908	-	-	3/10/68/68	0/4/4/4
6	CLR	A	909	-	-	0/10/68/68	0/4/4/4

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAG	A	901	1	-	2/6/23/26	0/1/1/1
6	CLR	B	904	-	-	1/10/68/68	0/4/4/4
6	CLR	A	906	-	-	0/10/68/68	0/4/4/4
3	NAG	A	903	1	-	3/6/23/26	0/1/1/1
5	U3G	A	905	-	-	24/56/56/56	-

The worst 5 of 14 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	B	902	U3D	O37-C38	3.92	1.45	1.34
7	B	902	U3D	O22-C20	3.50	1.43	1.33
5	A	905	U3G	O23-C24	3.25	1.42	1.33
7	B	902	U3D	C40-C38	2.89	1.59	1.50
5	A	905	U3G	O20-C21	-2.84	1.39	1.46

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

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	B	902	U3D	O37-C38-C40	4.10	120.34	111.50
5	A	905	U3G	O20-C18-C17	3.33	118.68	111.50
6	A	906	CLR	C8-C7-C6	-3.05	108.35	112.73
6	B	907	CLR	C8-C7-C6	-3.02	108.39	112.73
6	A	906	CLR	C10-C9-C8	-3.00	108.24	112.73

There are no chirality outliers.

5 of 76 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	905	U3G	C45-O46-P47-O49
7	B	902	U3D	C25-O26-P27-O29
7	B	902	U3D	C31-O30-P27-O28
5	A	905	U3G	O25-C24-O23-C22
5	A	905	U3G	C26-C24-O23-C22

There are no ring outliers.

13 monomers are involved in 22 short contacts:

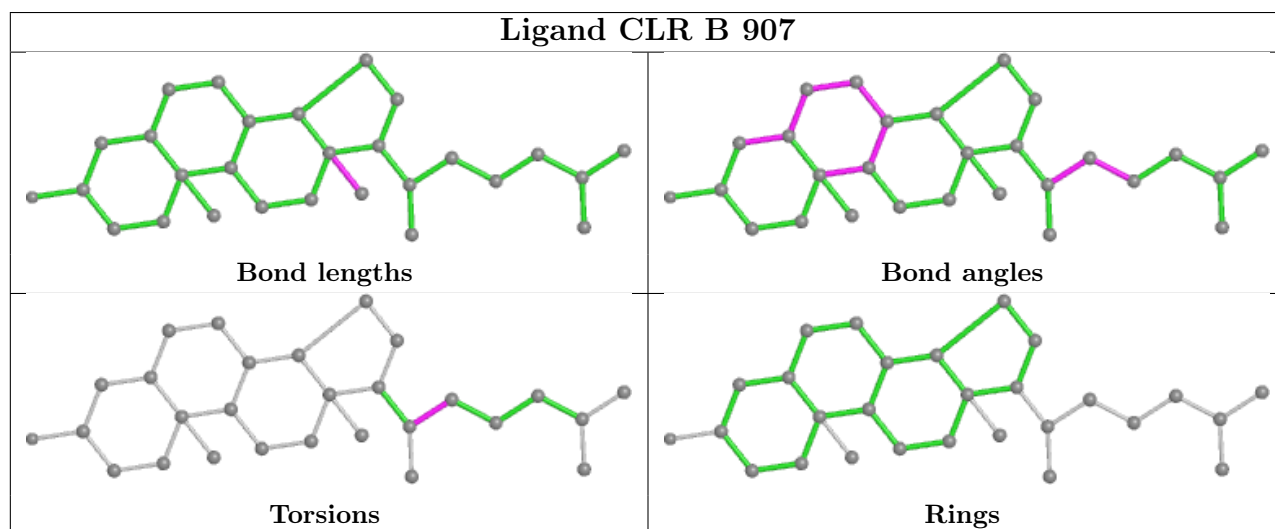
Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	B	907	CLR	1	0
6	B	908	CLR	1	0

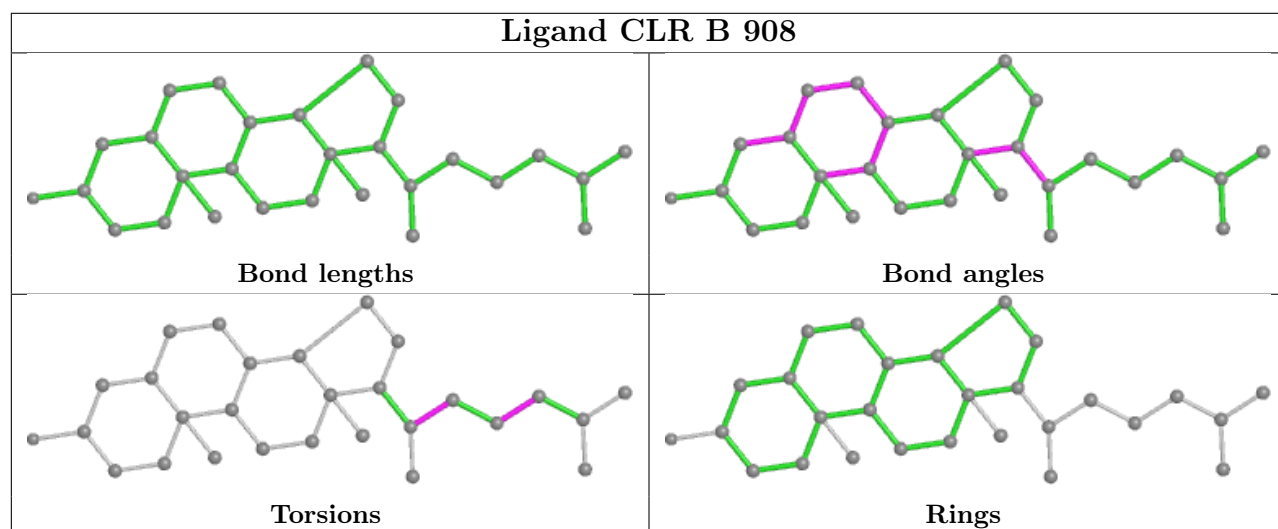
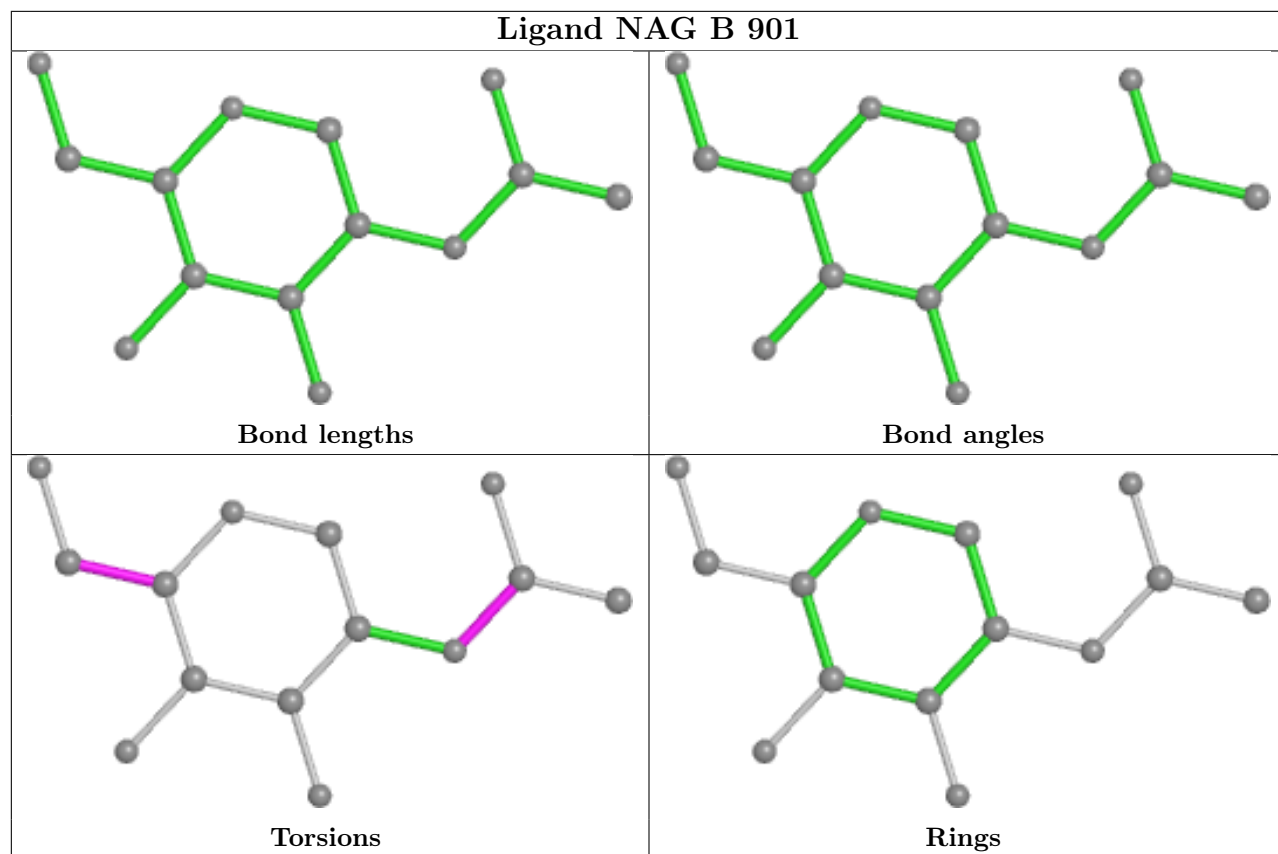
Continued on next page...

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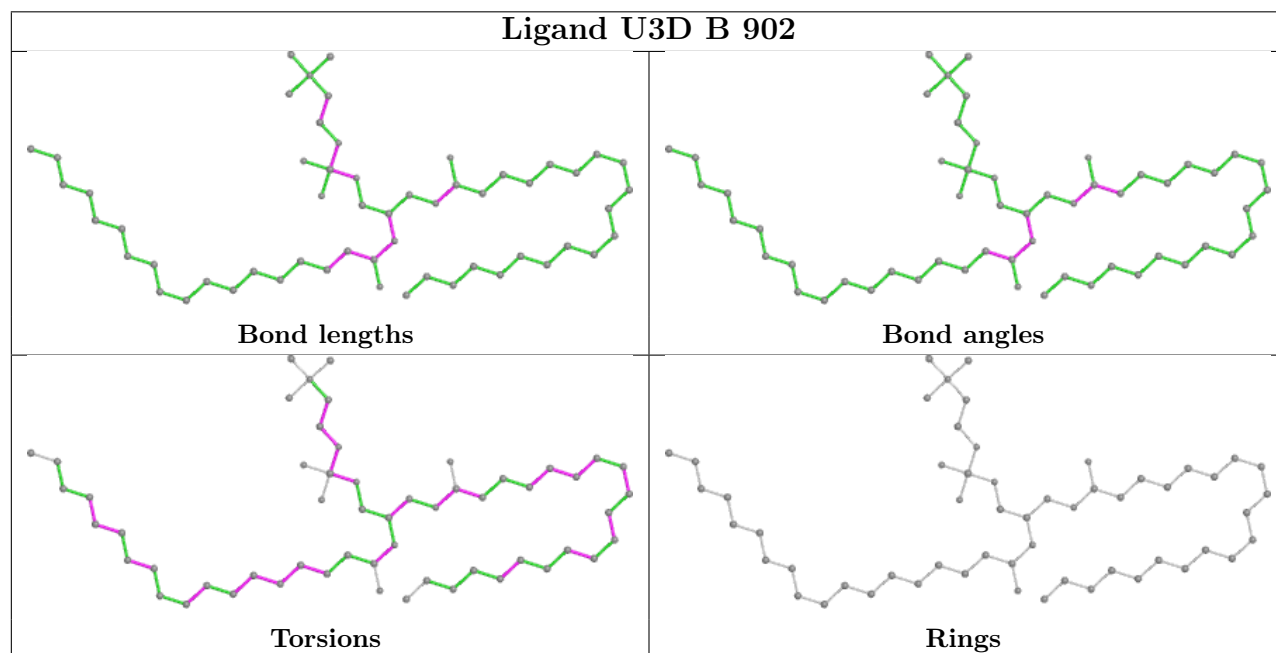
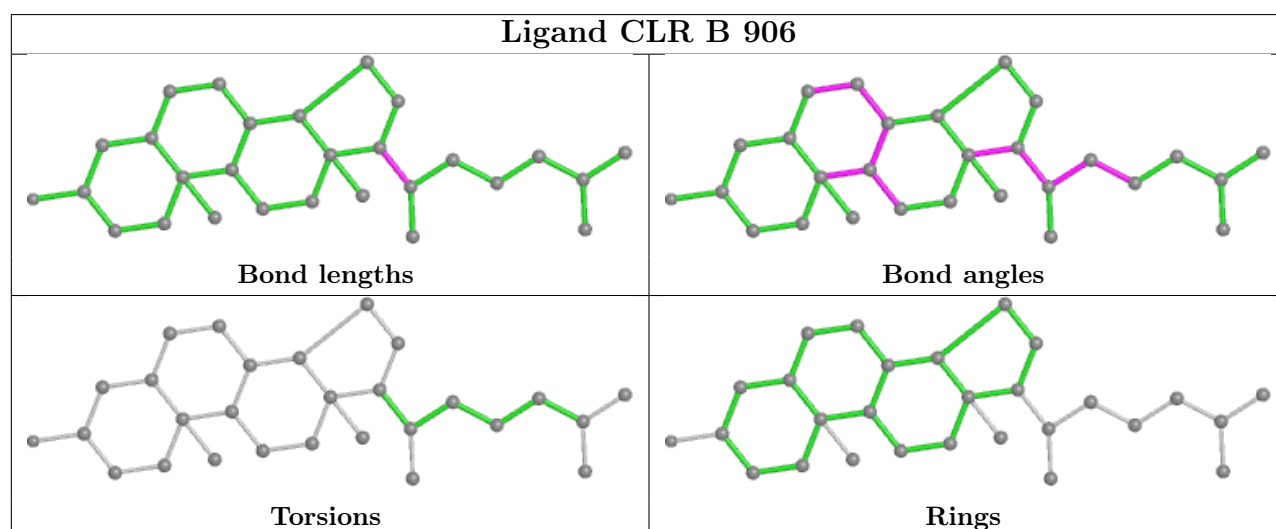
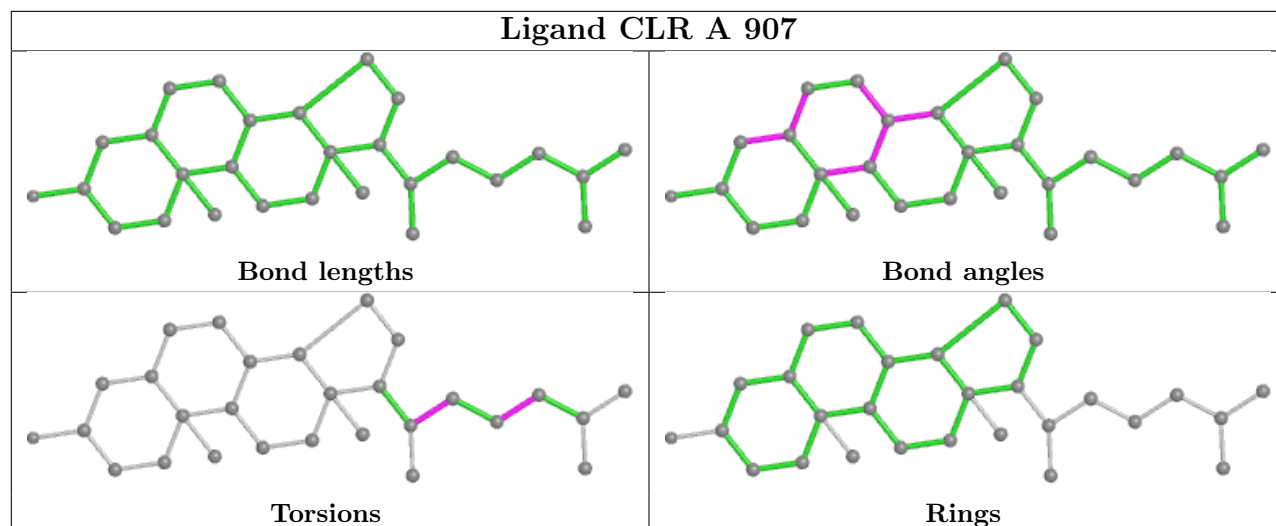
Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	A	907	CLR	3	0
6	B	906	CLR	1	0
7	B	902	U3D	1	0
3	A	902	NAG	1	0
6	B	903	CLR	2	0
6	A	908	CLR	1	0
6	A	909	CLR	3	0
6	B	904	CLR	1	0
6	A	906	CLR	5	0
3	A	903	NAG	1	0
5	A	905	U3G	1	0

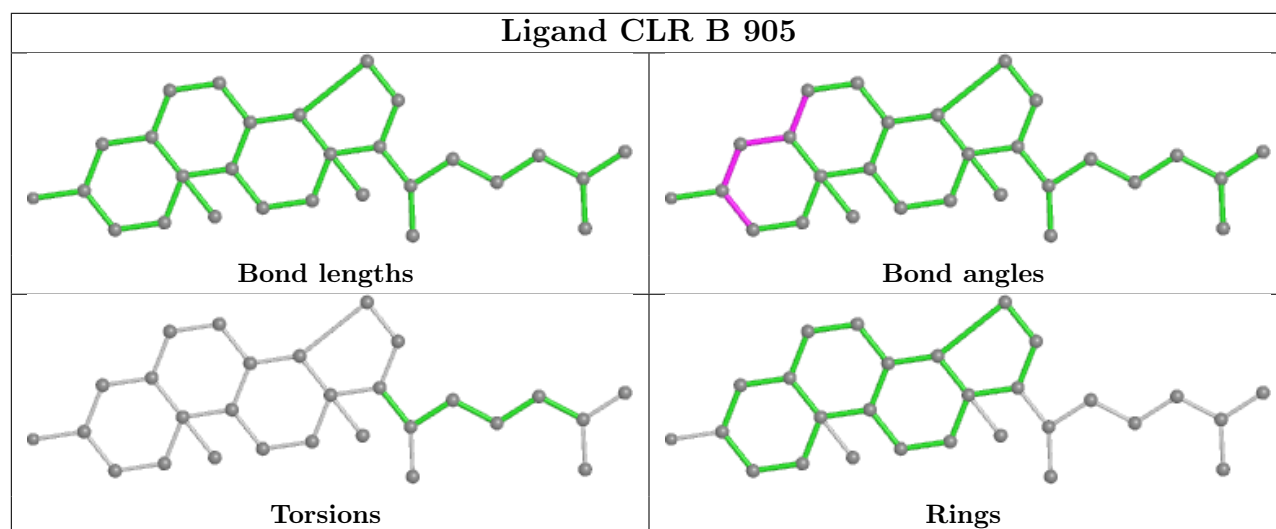
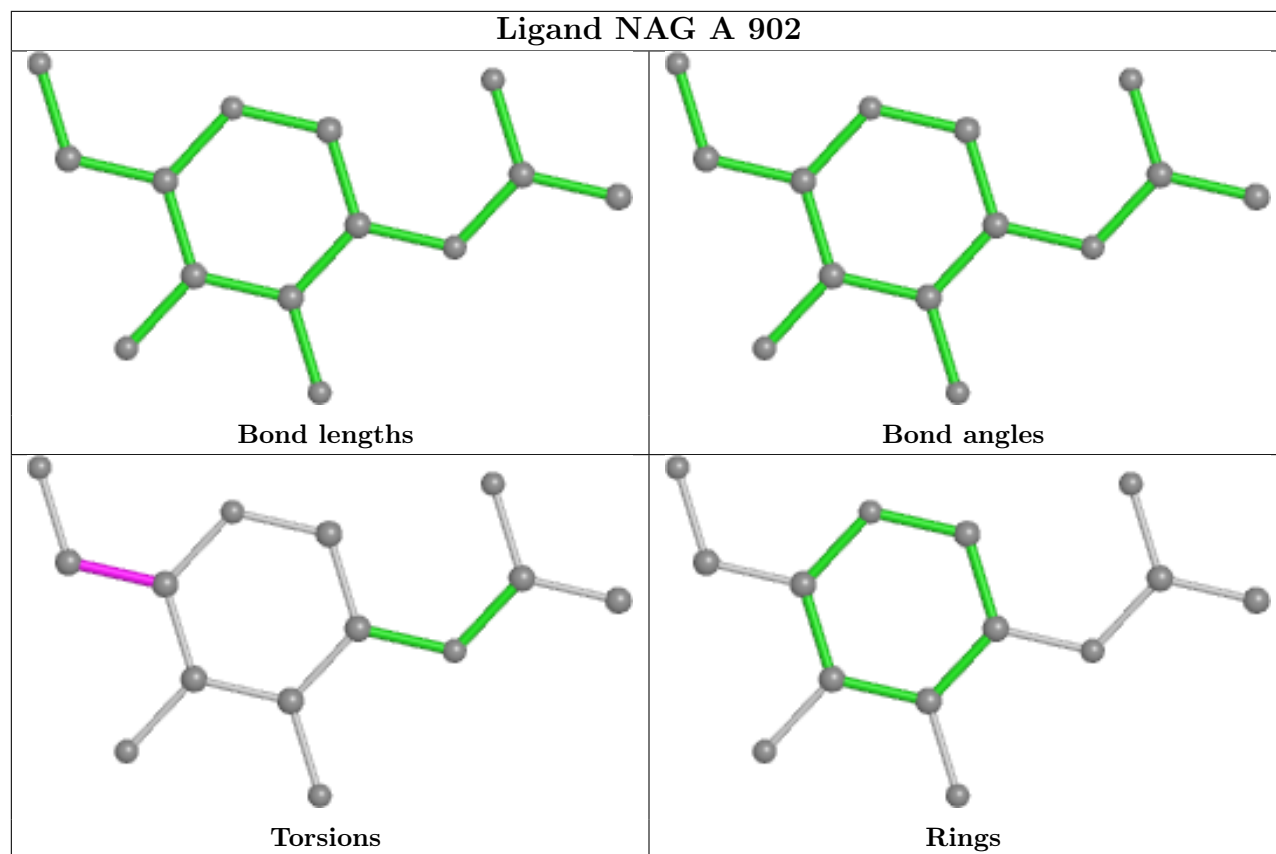
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

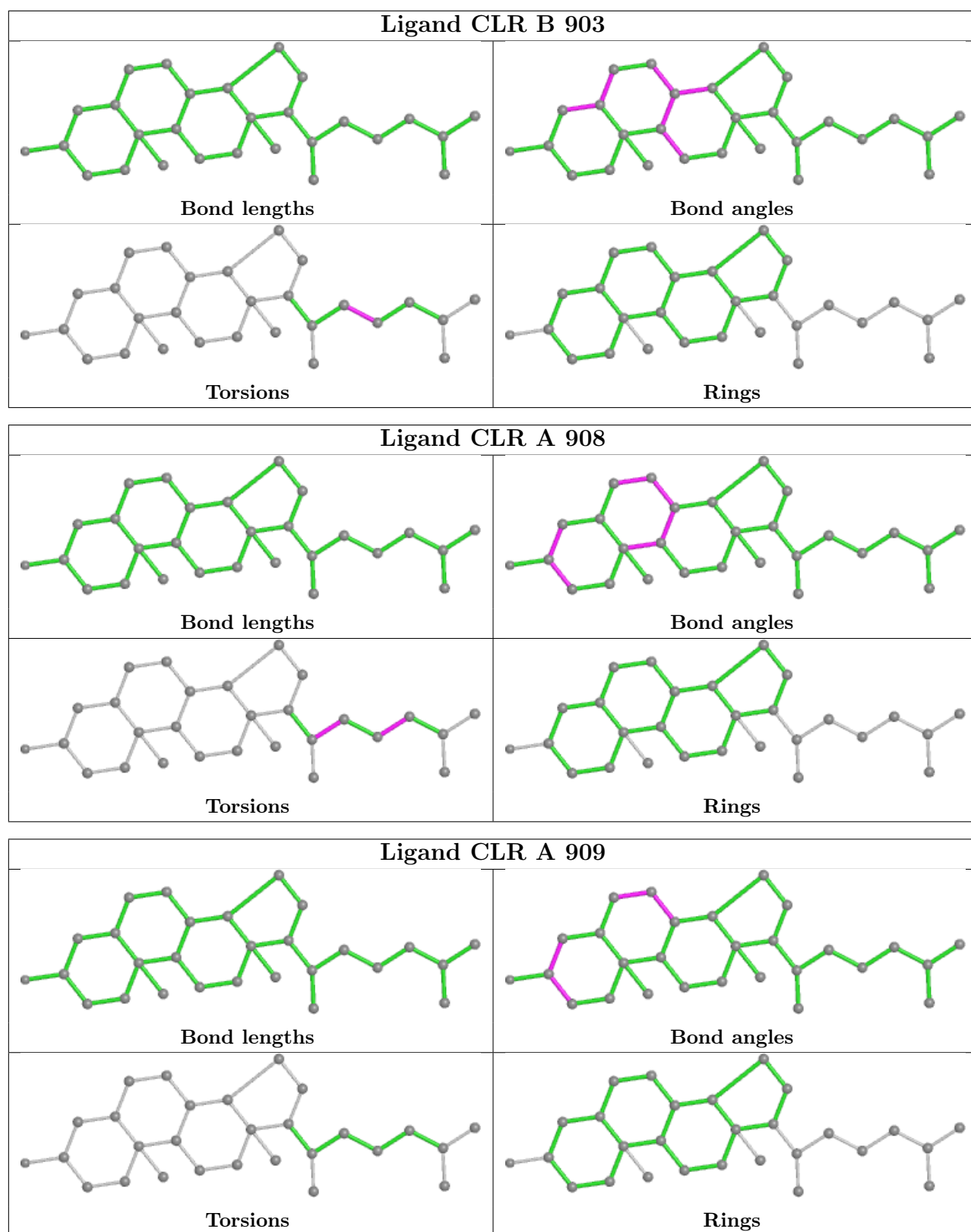


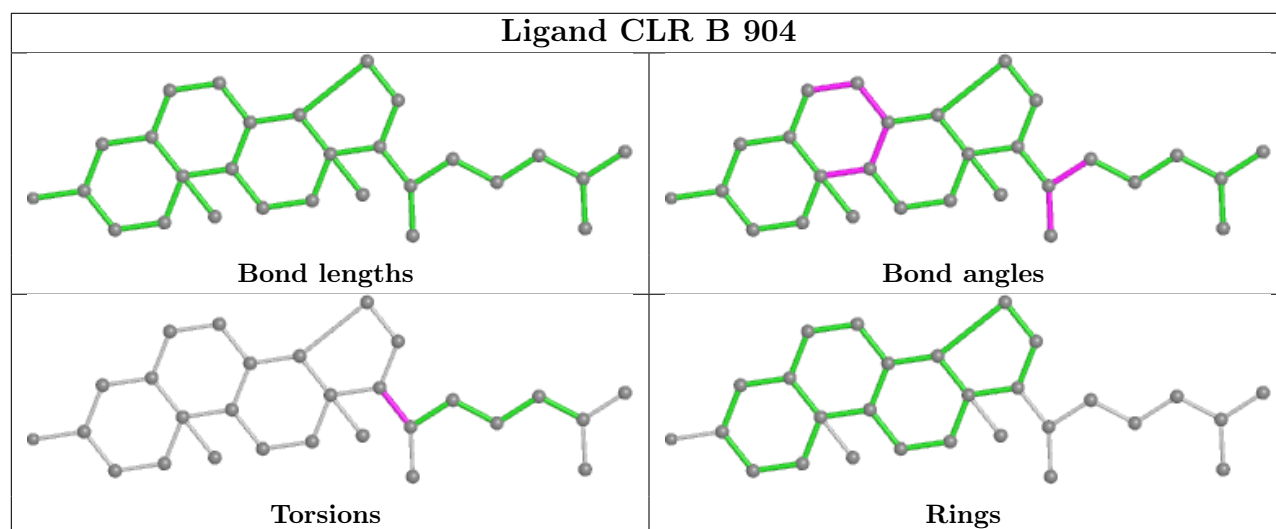
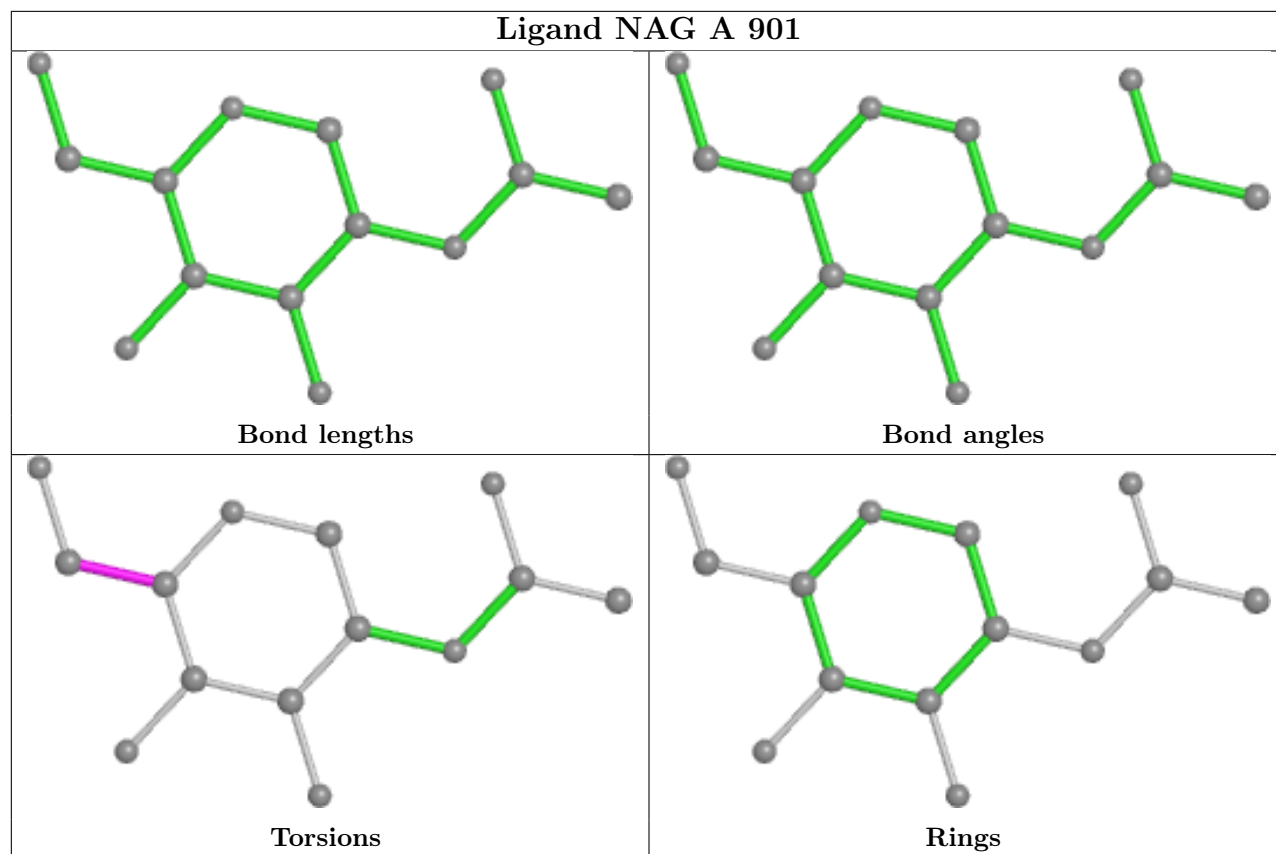


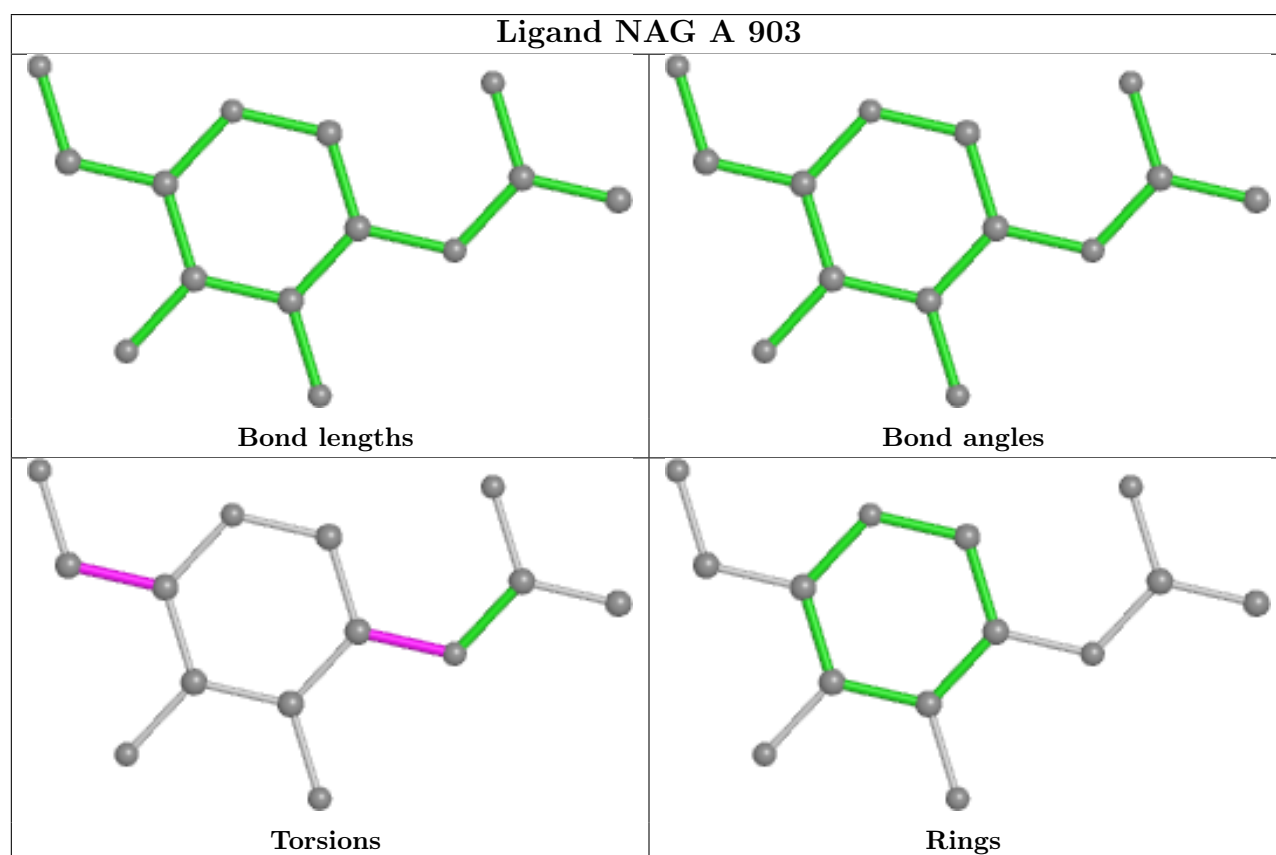
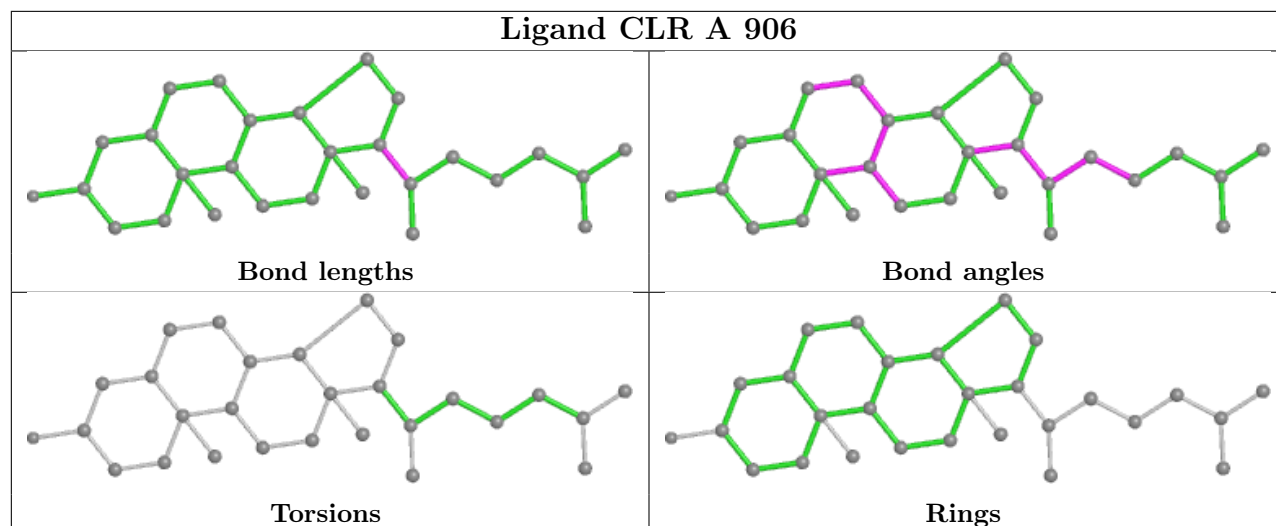


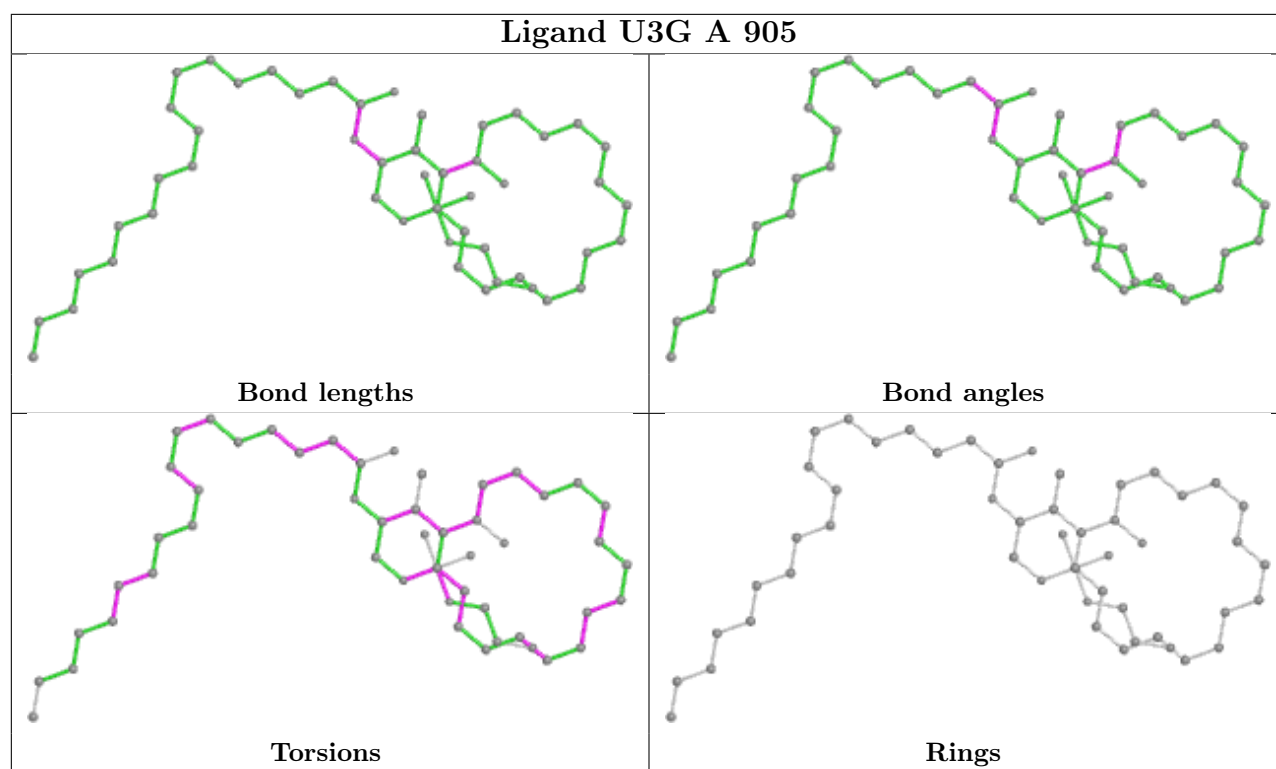












## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

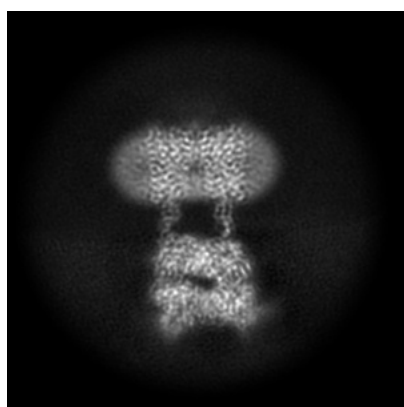
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-21685. These allow visual inspection of the internal detail of the map and identification of artifacts.

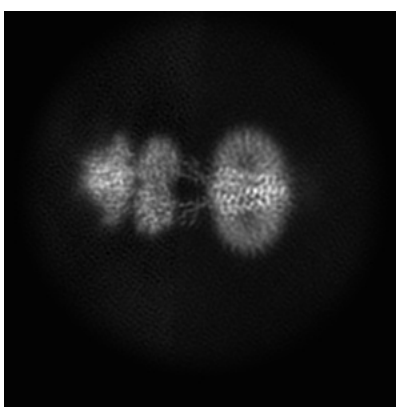
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

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

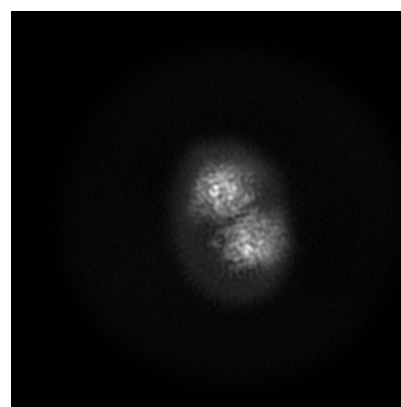
#### 6.1.1 Primary map



X



Y



Z

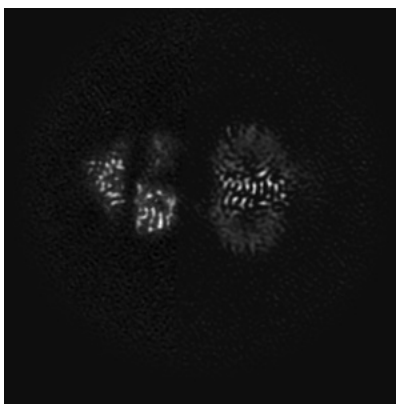
The images above show the map projected in three orthogonal directions.

### 6.2 Central slices [i](#)

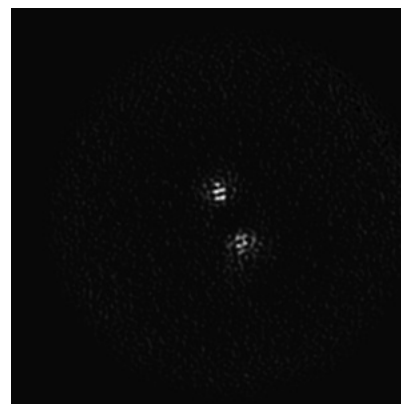
#### 6.2.1 Primary map



X Index: 128



Y Index: 128

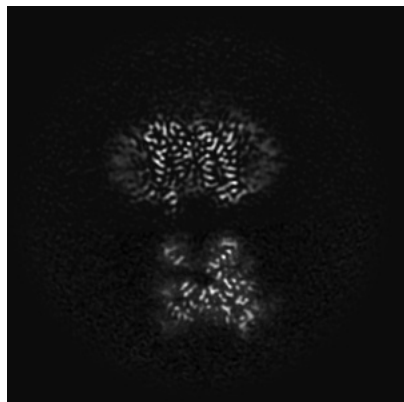


Z Index: 128

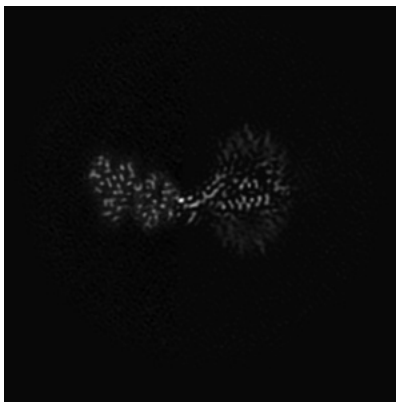
The images above show central slices of the map in three orthogonal directions.

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

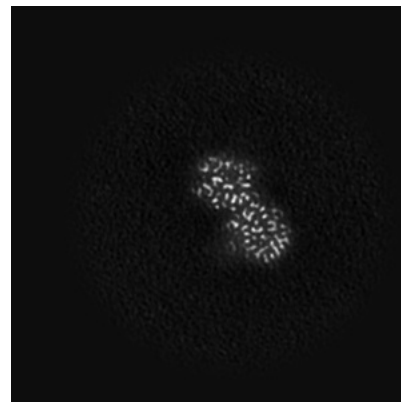
### 6.3.1 Primary map



X Index: 142



Y Index: 139

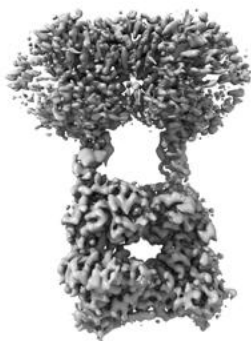


Z Index: 73

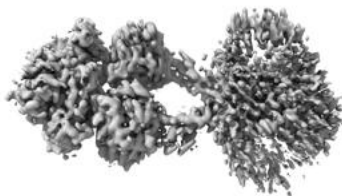
The images above show the largest variance slices of the map in three orthogonal directions.

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

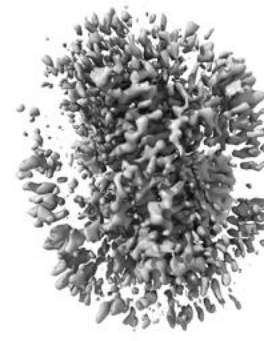
### 6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.5. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.



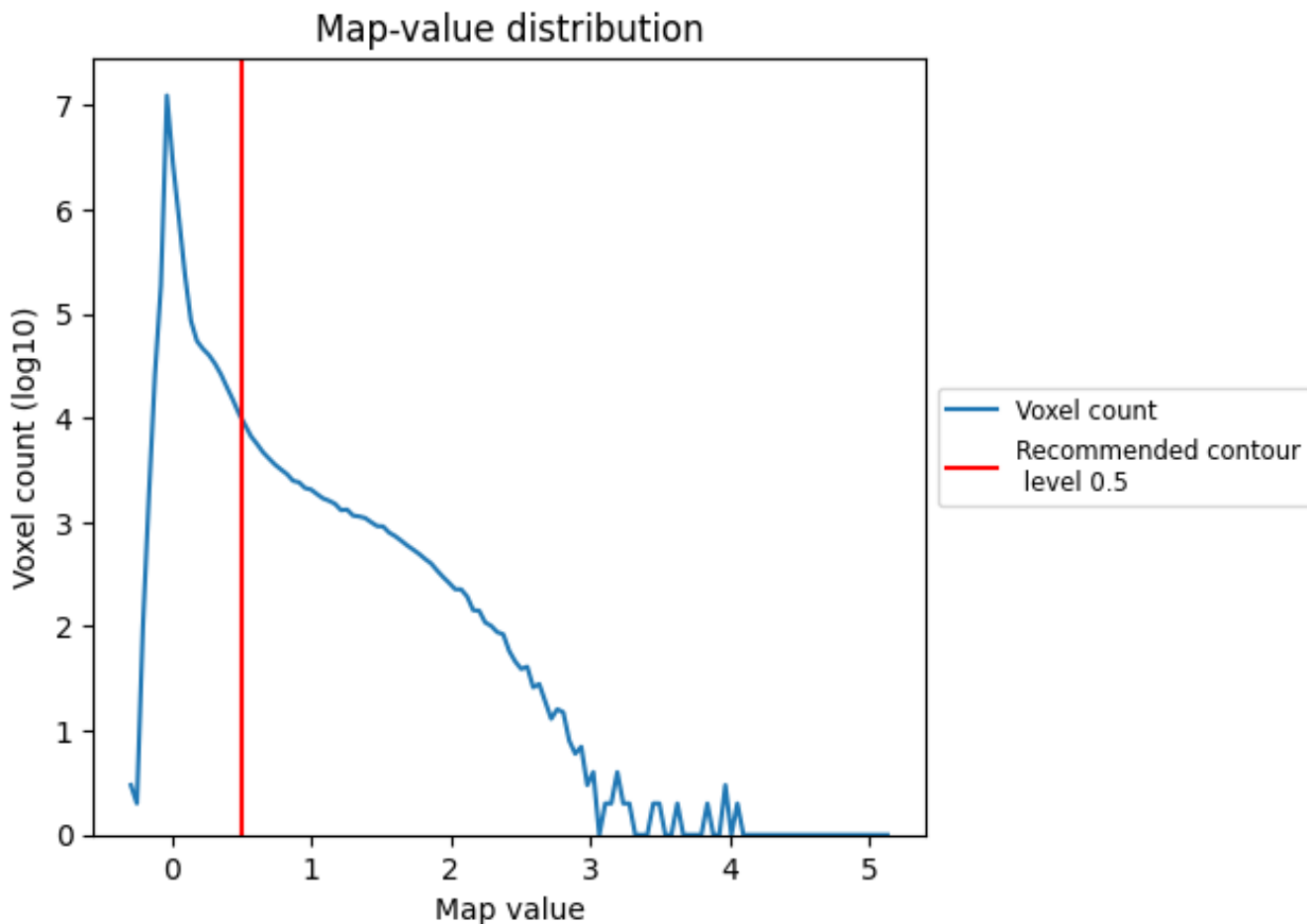
## 6.5 Mask visualisation

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

## 7 Map analysis [i](#)

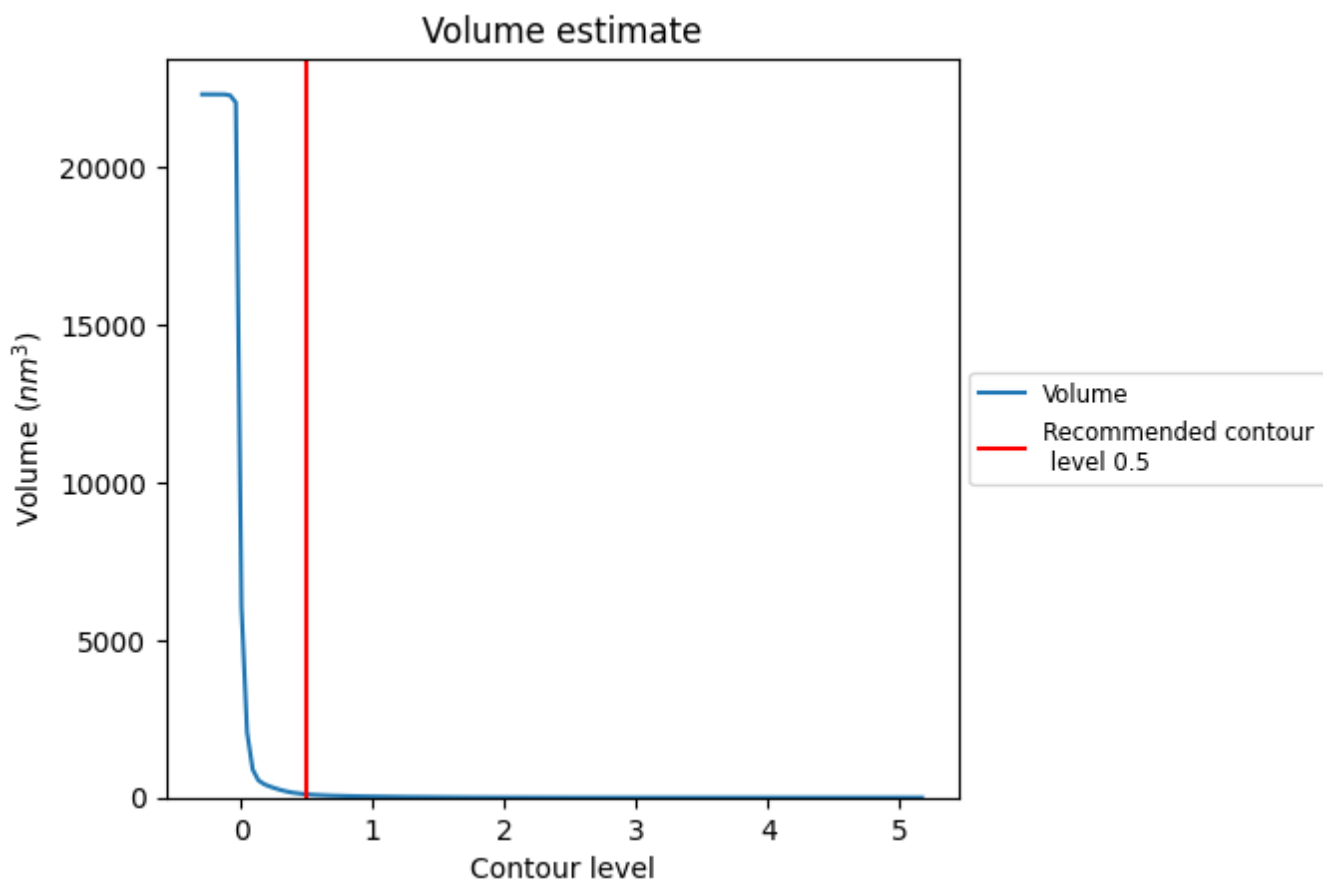
This section contains the results of statistical analysis of the map.

### 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.

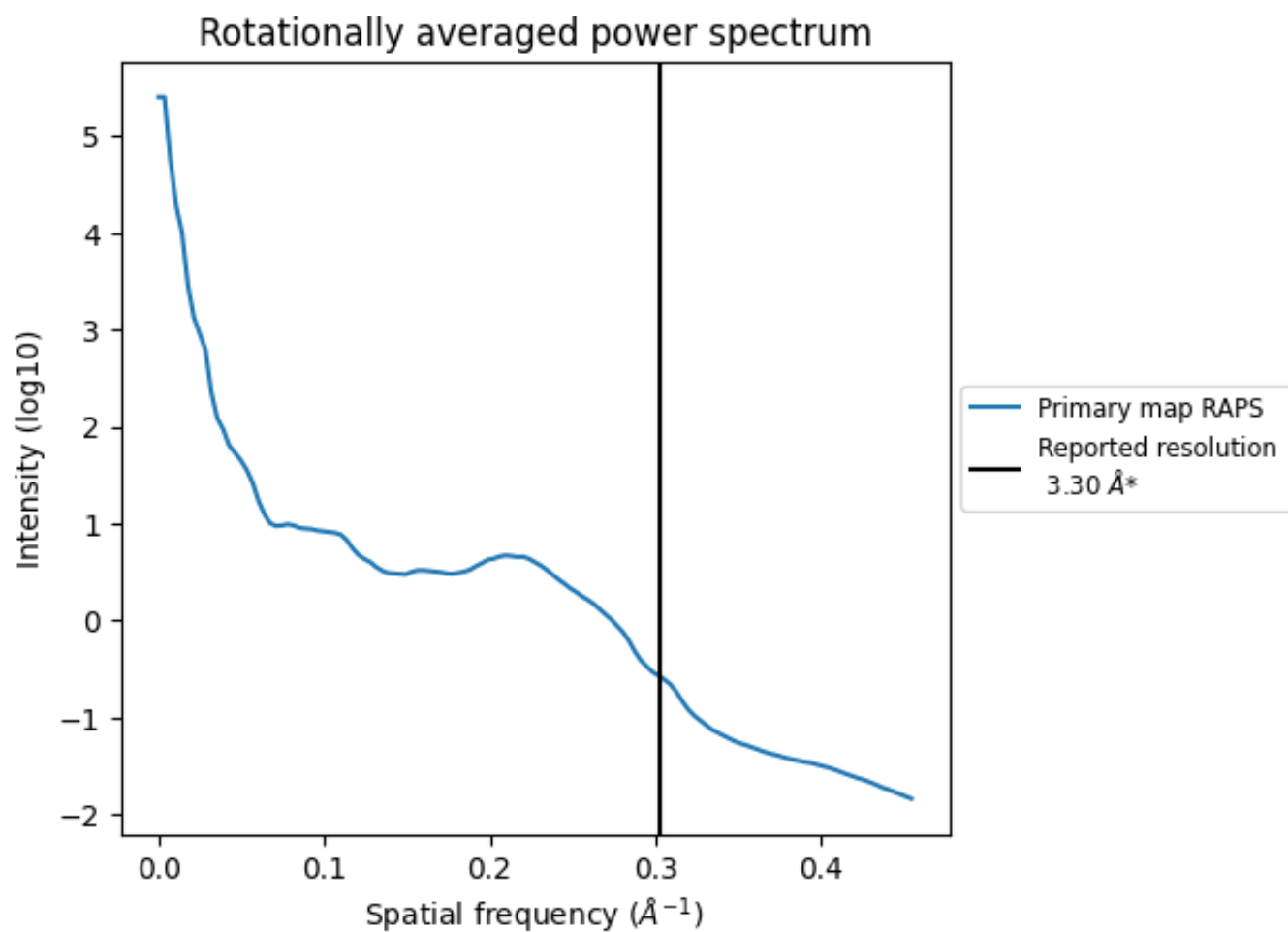
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 103  $\text{nm}^3$ ; this corresponds to an approximate mass of 93 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 0.303 Å<sup>-1</sup>

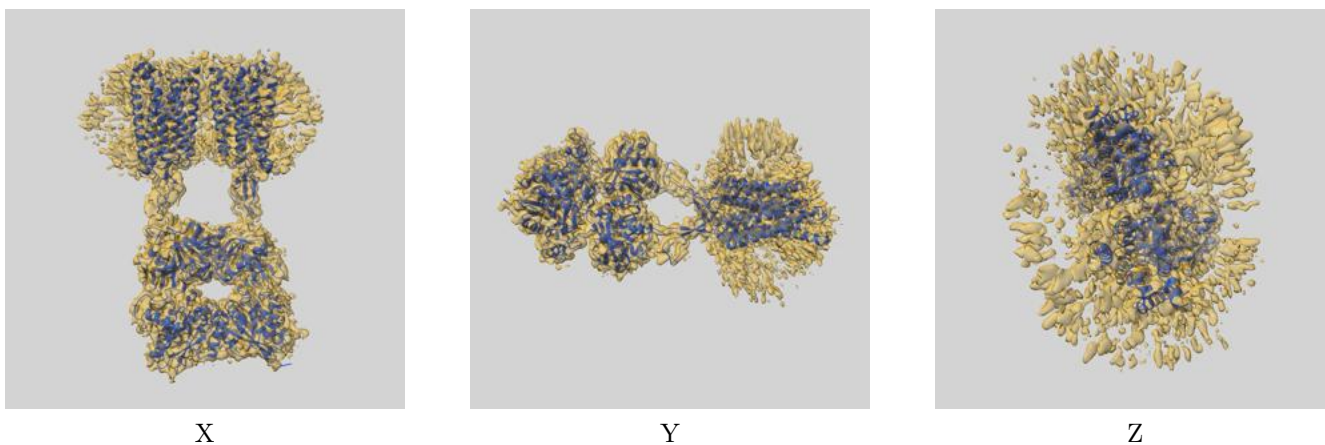
## 8 Fourier-Shell correlation

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

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

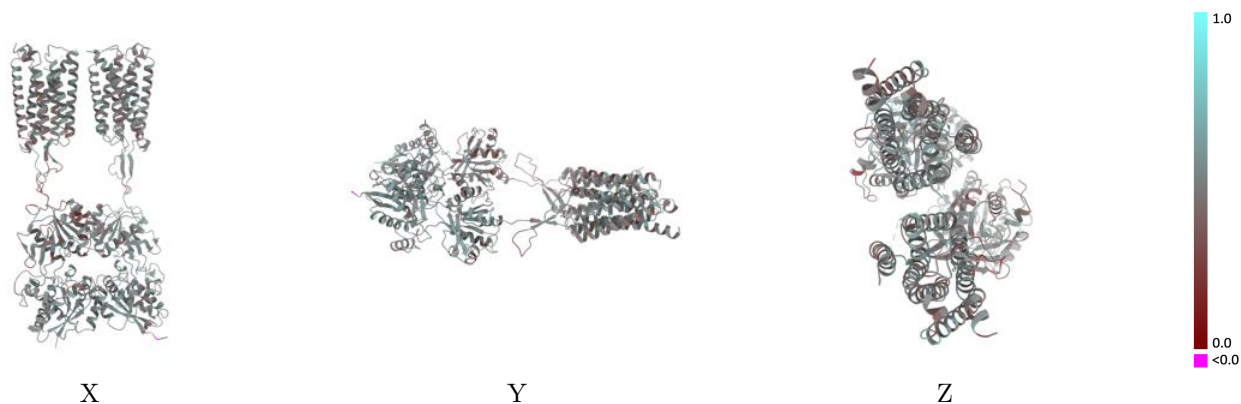
This section contains information regarding the fit between EMDB map EMD-21685 and PDB model 6WIV. Per-residue inclusion information can be found in section 3 on page 7.

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



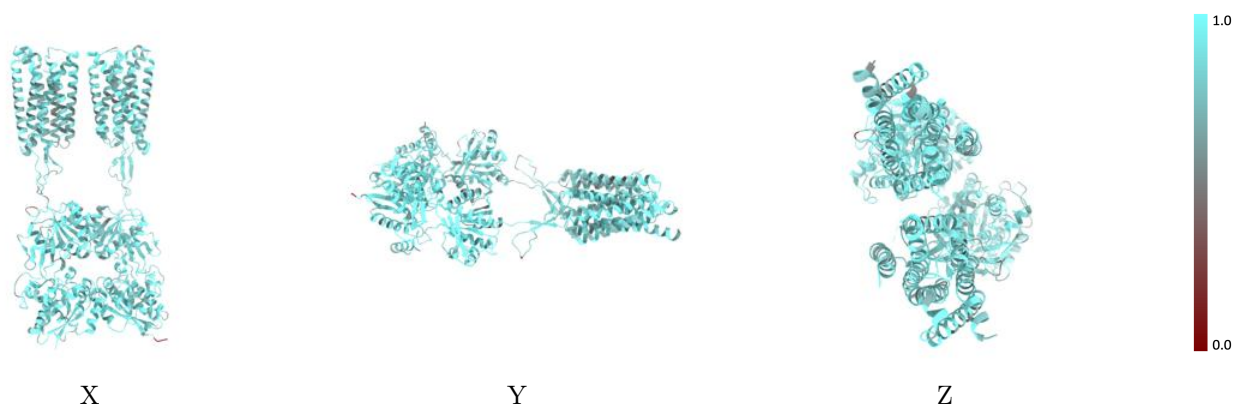
The images above show the 3D surface view of the map at the recommended contour level 0.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



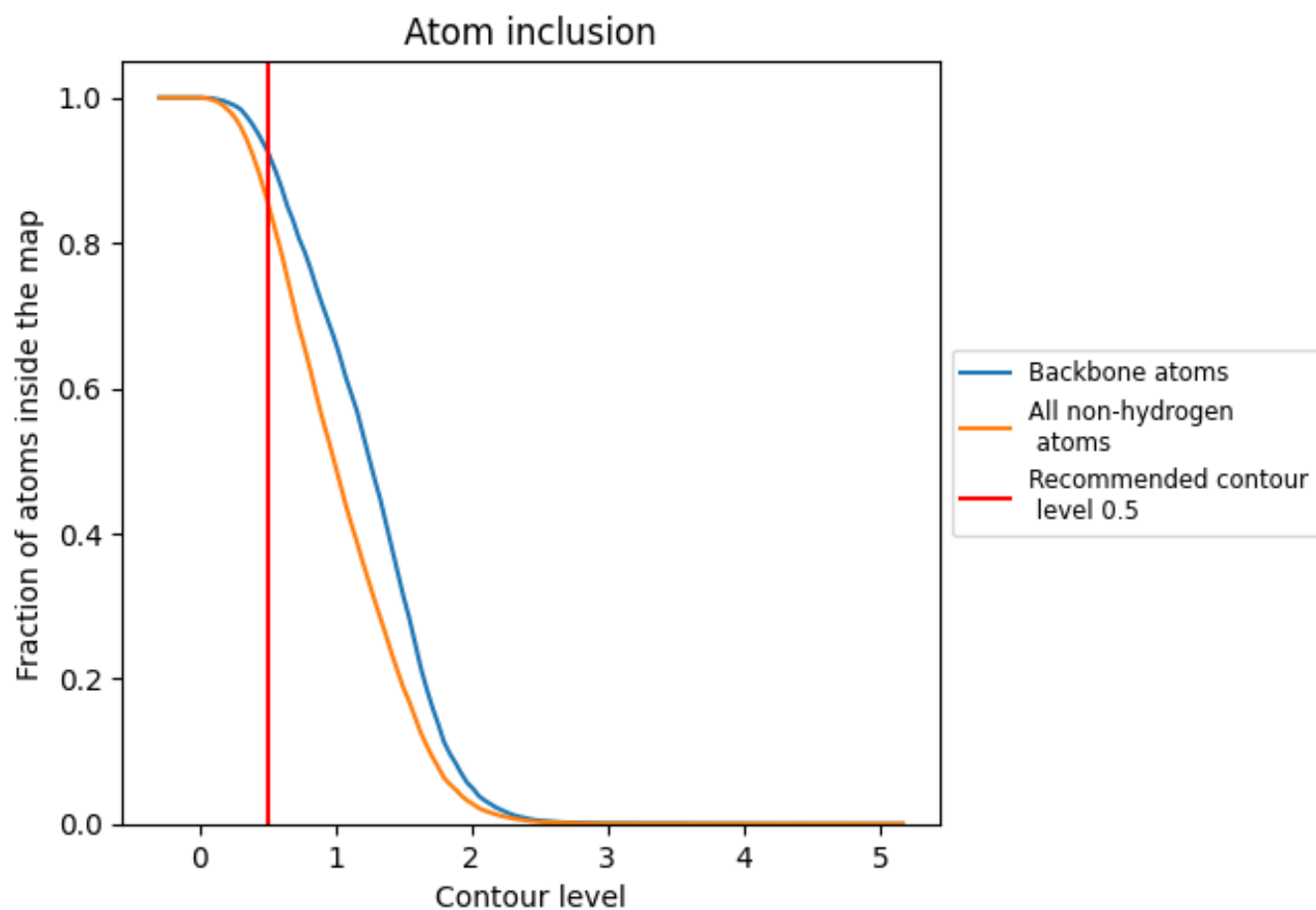
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.5).

## 9.4 Atom inclusion [i](#)









At the recommended contour level, 93% 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 (0.5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8577	 0.4860
A	 0.8729	 0.4960
B	 0.8423	 0.4750

