



Full wwPDB X-ray Structure Validation Report ⓘ

Sep 16, 2023 – 09:31 PM EDT

PDB ID : 4TNW
Title : C. elegans glutamate-gated chloride channel (GluCl) in complex with Fab and POPC in a lipid-modulated conformation
Authors : Althoff, T.; Hibbs, R.E.; Banerjee, S.; Gouaux, E.
Deposited on : 2014-06-05
Resolution : 3.20 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

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

A user guide is available at

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

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:

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.35.1
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.35.1

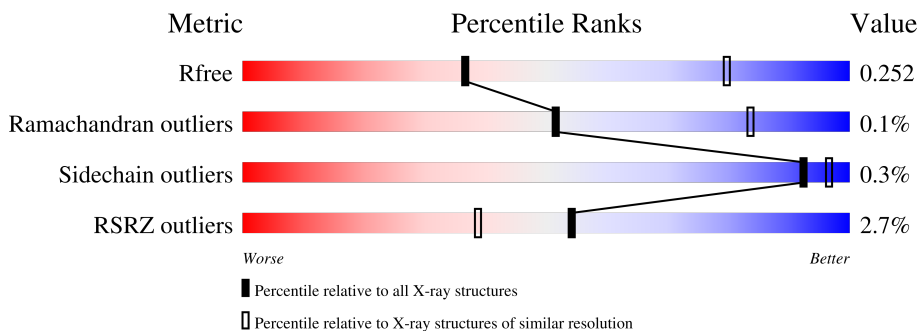
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

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)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1133 (3.20-3.20)
Ramachandran outliers	138981	1234 (3.20-3.20)
Sidechain outliers	138945	1233 (3.20-3.20)
RSRZ outliers	127900	1095 (3.20-3.20)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower 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 electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	347	98% .
1	B	347	98% .
1	C	347	98% .
1	D	347	97% ..
1	E	347	98% .
1	P	347	98% .

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Mol	Chain	Length	Quality of chain
1	Q	347	98%
1	R	347	98%
1	S	347	98%
1	T	347	98%
2	F	224	98%
2	G	224	99%
2	H	224	99%
2	I	224	99%
2	J	224	98%
2	U	224	98%
2	V	224	100%
2	W	224	100%
2	X	224	100%
2	Y	224	98%
3	K	215	97%
3	L	215	98%
3	M	215	97%
3	N	215	98%
3	O	215	97%
3	Z	215	99%
3	f	215	99%
3	g	215	97%
3	h	215	98%
3	i	215	98%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit crite-

ria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
5	POV	A	402	-	-	-	X
5	POV	D	401	-	-	-	X
5	POV	P	403	-	-	-	X
5	POV	R	401	-	-	-	X
5	POV	T	401	-	-	-	X
6	CL	A	403	-	-	-	X
8	LMT	B	403	-	-	-	X
8	LMT	D	403	-	-	-	X
8	LMT	E	402	-	-	-	X
8	LMT	P	402	-	-	-	X
8	LMT	S	402	-	-	-	X

2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 60818 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, 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 Avermectin-sensitive glutamate-gated chloride channel GluCl alpha.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	342	Total	C	N	O	S	0	0	0
			2744	1786	449	494	15			
1	B	341	Total	C	N	O	S	0	0	0
			2734	1780	446	493	15			
1	C	340	Total	C	N	O	S	0	0	0
			2724	1774	443	492	15			
1	D	340	Total	C	N	O	S	0	0	0
			2724	1774	443	492	15			
1	E	340	Total	C	N	O	S	0	0	0
			2724	1774	443	492	15			
1	P	340	Total	C	N	O	S	0	0	0
			2724	1774	443	492	15			
1	Q	340	Total	C	N	O	S	0	0	0
			2724	1774	443	492	15			
1	R	340	Total	C	N	O	S	0	0	0
			2724	1774	443	492	15			
1	S	340	Total	C	N	O	S	0	0	0
			2724	1774	443	492	15			
1	T	340	Total	C	N	O	S	0	0	0
			2724	1774	443	492	15			

There are 110 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	303	ALA	-	linker	UNP G5EBR3
A	304	GLY	-	linker	UNP G5EBR3
A	305	THR	-	linker	UNP G5EBR3
A	340	HIS	-	expression tag	UNP G5EBR3
A	341	HIS	-	expression tag	UNP G5EBR3
A	342	HIS	-	expression tag	UNP G5EBR3
A	343	HIS	-	expression tag	UNP G5EBR3
A	344	HIS	-	expression tag	UNP G5EBR3

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Chain	Residue	Modelled	Actual	Comment	Reference
A	345	HIS	-	expression tag	UNP G5EBR3
A	346	HIS	-	expression tag	UNP G5EBR3
A	347	HIS	-	expression tag	UNP G5EBR3
B	303	ALA	-	linker	UNP G5EBR3
B	304	GLY	-	linker	UNP G5EBR3
B	305	THR	-	linker	UNP G5EBR3
B	340	HIS	-	expression tag	UNP G5EBR3
B	341	HIS	-	expression tag	UNP G5EBR3
B	342	HIS	-	expression tag	UNP G5EBR3
B	343	HIS	-	expression tag	UNP G5EBR3
B	344	HIS	-	expression tag	UNP G5EBR3
B	345	HIS	-	expression tag	UNP G5EBR3
B	346	HIS	-	expression tag	UNP G5EBR3
B	347	HIS	-	expression tag	UNP G5EBR3
C	303	ALA	-	linker	UNP G5EBR3
C	304	GLY	-	linker	UNP G5EBR3
C	305	THR	-	linker	UNP G5EBR3
C	340	HIS	-	expression tag	UNP G5EBR3
C	341	HIS	-	expression tag	UNP G5EBR3
C	342	HIS	-	expression tag	UNP G5EBR3
C	343	HIS	-	expression tag	UNP G5EBR3
C	344	HIS	-	expression tag	UNP G5EBR3
C	345	HIS	-	expression tag	UNP G5EBR3
C	346	HIS	-	expression tag	UNP G5EBR3
C	347	HIS	-	expression tag	UNP G5EBR3
D	303	ALA	-	linker	UNP G5EBR3
D	304	GLY	-	linker	UNP G5EBR3
D	305	THR	-	linker	UNP G5EBR3
D	340	HIS	-	expression tag	UNP G5EBR3
D	341	HIS	-	expression tag	UNP G5EBR3
D	342	HIS	-	expression tag	UNP G5EBR3
D	343	HIS	-	expression tag	UNP G5EBR3
D	344	HIS	-	expression tag	UNP G5EBR3
D	345	HIS	-	expression tag	UNP G5EBR3
D	346	HIS	-	expression tag	UNP G5EBR3
D	347	HIS	-	expression tag	UNP G5EBR3
E	303	ALA	-	linker	UNP G5EBR3
E	304	GLY	-	linker	UNP G5EBR3
E	305	THR	-	linker	UNP G5EBR3
E	340	HIS	-	expression tag	UNP G5EBR3
E	341	HIS	-	expression tag	UNP G5EBR3
E	342	HIS	-	expression tag	UNP G5EBR3

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Chain	Residue	Modelled	Actual	Comment	Reference
E	343	HIS	-	expression tag	UNP G5EBR3
E	344	HIS	-	expression tag	UNP G5EBR3
E	345	HIS	-	expression tag	UNP G5EBR3
E	346	HIS	-	expression tag	UNP G5EBR3
E	347	HIS	-	expression tag	UNP G5EBR3
P	303	ALA	-	linker	UNP G5EBR3
P	304	GLY	-	linker	UNP G5EBR3
P	305	THR	-	linker	UNP G5EBR3
P	340	HIS	-	expression tag	UNP G5EBR3
P	341	HIS	-	expression tag	UNP G5EBR3
P	342	HIS	-	expression tag	UNP G5EBR3
P	343	HIS	-	expression tag	UNP G5EBR3
P	344	HIS	-	expression tag	UNP G5EBR3
P	345	HIS	-	expression tag	UNP G5EBR3
P	346	HIS	-	expression tag	UNP G5EBR3
P	347	HIS	-	expression tag	UNP G5EBR3
Q	303	ALA	-	linker	UNP G5EBR3
Q	304	GLY	-	linker	UNP G5EBR3
Q	305	THR	-	linker	UNP G5EBR3
Q	340	HIS	-	expression tag	UNP G5EBR3
Q	341	HIS	-	expression tag	UNP G5EBR3
Q	342	HIS	-	expression tag	UNP G5EBR3
Q	343	HIS	-	expression tag	UNP G5EBR3
Q	344	HIS	-	expression tag	UNP G5EBR3
Q	345	HIS	-	expression tag	UNP G5EBR3
Q	346	HIS	-	expression tag	UNP G5EBR3
Q	347	HIS	-	expression tag	UNP G5EBR3
R	303	ALA	-	linker	UNP G5EBR3
R	304	GLY	-	linker	UNP G5EBR3
R	305	THR	-	linker	UNP G5EBR3
R	340	HIS	-	expression tag	UNP G5EBR3
R	341	HIS	-	expression tag	UNP G5EBR3
R	342	HIS	-	expression tag	UNP G5EBR3
R	343	HIS	-	expression tag	UNP G5EBR3
R	344	HIS	-	expression tag	UNP G5EBR3
R	345	HIS	-	expression tag	UNP G5EBR3
R	346	HIS	-	expression tag	UNP G5EBR3
R	347	HIS	-	expression tag	UNP G5EBR3
S	303	ALA	-	linker	UNP G5EBR3
S	304	GLY	-	linker	UNP G5EBR3
S	305	THR	-	linker	UNP G5EBR3
S	340	HIS	-	expression tag	UNP G5EBR3

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Chain	Residue	Modelled	Actual	Comment	Reference
S	341	HIS	-	expression tag	UNP G5EBR3
S	342	HIS	-	expression tag	UNP G5EBR3
S	343	HIS	-	expression tag	UNP G5EBR3
S	344	HIS	-	expression tag	UNP G5EBR3
S	345	HIS	-	expression tag	UNP G5EBR3
S	346	HIS	-	expression tag	UNP G5EBR3
S	347	HIS	-	expression tag	UNP G5EBR3
T	303	ALA	-	linker	UNP G5EBR3
T	304	GLY	-	linker	UNP G5EBR3
T	305	THR	-	linker	UNP G5EBR3
T	340	HIS	-	expression tag	UNP G5EBR3
T	341	HIS	-	expression tag	UNP G5EBR3
T	342	HIS	-	expression tag	UNP G5EBR3
T	343	HIS	-	expression tag	UNP G5EBR3
T	344	HIS	-	expression tag	UNP G5EBR3
T	345	HIS	-	expression tag	UNP G5EBR3
T	346	HIS	-	expression tag	UNP G5EBR3
T	347	HIS	-	expression tag	UNP G5EBR3

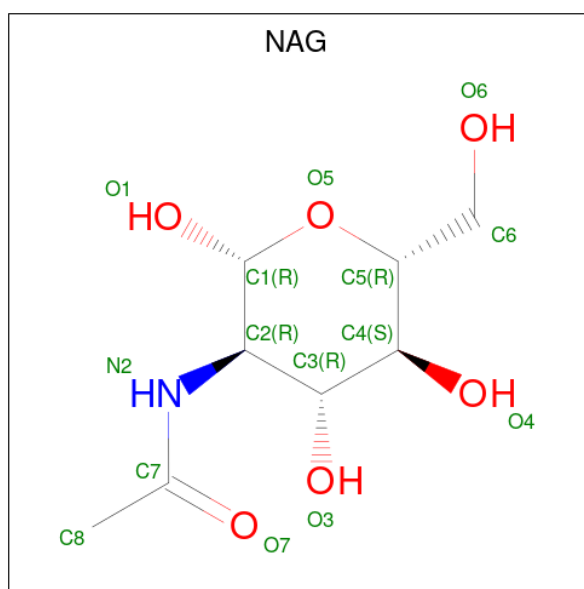
- Molecule 2 is a protein called Mouse monoclonal Fab fragment, heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	F	221	1682	1067	273	334	8	0	0	0
2	G	222	1693	1073	277	335	8	0	0	0
2	H	223	1701	1077	278	338	8	0	0	0
2	I	222	1693	1073	277	335	8	0	0	0
2	U	221	1682	1067	273	334	8	0	0	0
2	V	224	1707	1080	279	339	9	0	0	0
2	W	224	1707	1080	279	339	9	0	0	0
2	X	224	1707	1080	279	339	9	0	0	0
2	Y	221	1682	1067	273	334	8	0	0	0
2	J	222	1693	1073	277	335	8	0	0	0

- Molecule 3 is a protein called Mouse monoclonal Fab fragment, light chain.

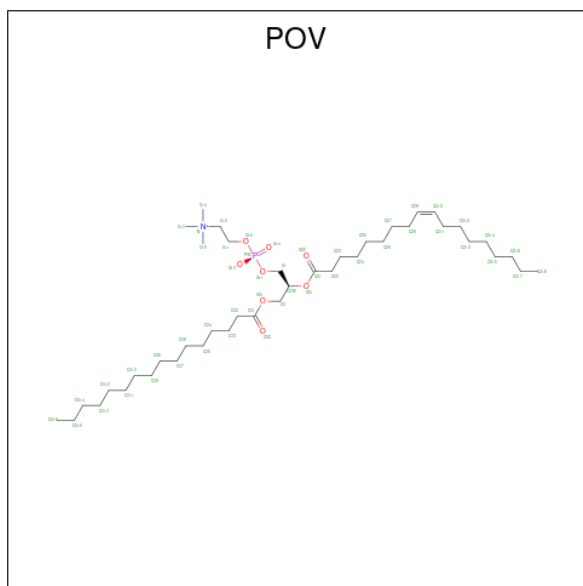
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	K	210	Total	C	N	O	S	0	0	0
			1590	999	266	319	6			
3	L	211	Total	C	N	O	S	0	0	0
			1601	1005	270	320	6			
3	N	211	Total	C	N	O	S	0	0	0
			1601	1005	270	320	6			
3	O	211	Total	C	N	O	S	0	0	0
			1601	1005	270	320	6			
3	Z	215	Total	C	N	O	S	0	0	0
			1626	1018	274	327	7			
3	f	215	Total	C	N	O	S	0	0	0
			1626	1018	274	327	7			
3	g	211	Total	C	N	O	S	0	0	0
			1601	1005	270	320	6			
3	h	211	Total	C	N	O	S	0	0	0
			1601	1005	270	320	6			
3	i	214	Total	C	N	O	S	0	0	0
			1620	1015	273	325	7			
3	M	210	Total	C	N	O	S	0	0	0
			1590	999	266	319	6			

- Molecule 4 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	N	O	0	0
			14	8	1	5		
4	B	1	Total	C	N	O	0	0
			14	8	1	5		
4	C	1	Total	C	N	O	0	0
			14	8	1	5		
4	D	1	Total	C	N	O	0	0
			14	8	1	5		
4	E	1	Total	C	N	O	0	0
			14	8	1	5		
4	P	1	Total	C	N	O	0	0
			14	8	1	5		
4	Q	1	Total	C	N	O	0	0
			14	8	1	5		
4	S	1	Total	C	N	O	0	0
			14	8	1	5		
4	T	1	Total	C	N	O	0	0
			14	8	1	5		

- Molecule 5 is (2S)-3-(hexadecanoyloxy)-2-[(9Z)-octadec-9-enoyloxy]propyl 2-(trimethylamm onio)ethyl phosphate (three-letter code: POV) (formula: C₄₂H₈₂NO₈P).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
5	A	1	Total	C	N	O	P	0	0
			23	14	1	7	1		
5	D	1	Total	C	N	O	P	0	0
			26	16	1	8	1		

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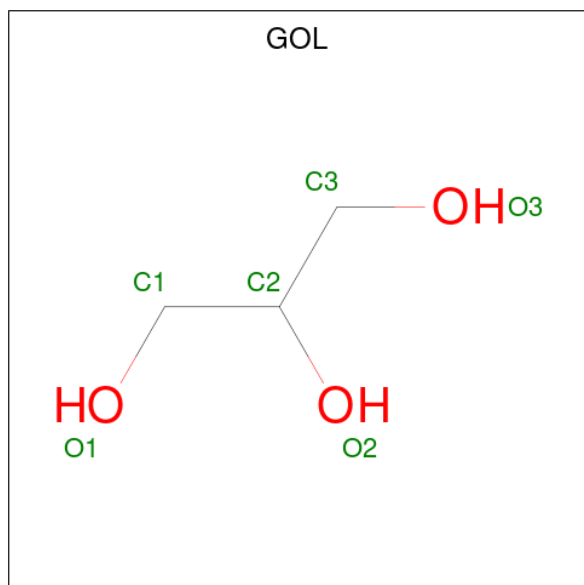
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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
5	P	1	Total	C	N	O	P	0	0
			42	32	1	8	1		
5	Q	1	Total	C	N	O	P	0	0
			46	36	1	8	1		
5	R	1	Total	C	N	O	P	0	0
			34	24	1	8	1		
5	R	1	Total	C	O	P		0	0
			35	26	8	1			
5	T	1	Total	C	N	O	P	0	0
			43	33	1	8	1		

- Molecule 6 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	1	Total	Cl	0	0
			1	1		
6	P	1	Total	Cl	0	0
			1	1		

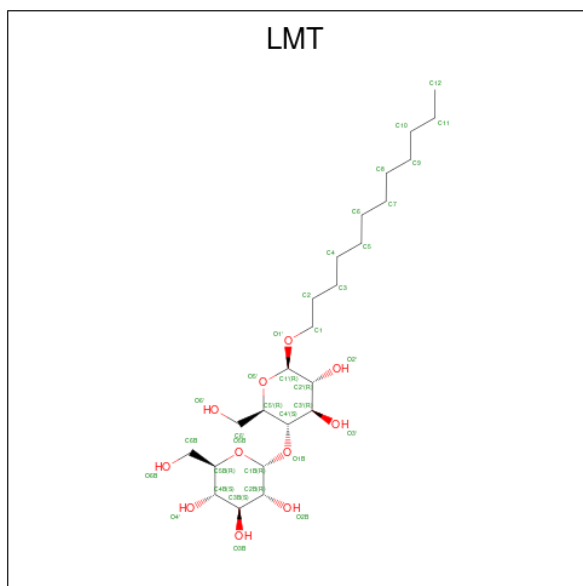
- Molecule 7 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	B	1	Total	C	O	0	0
			6	3	3		

- Molecule 8 is DODECYL-BETA-D-MALTOSE (three-letter code: LMT) (formula:

C₂₄H₄₆O₁₁).



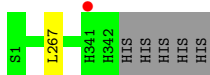
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	B	1	Total C O 23 12 11	0	0
8	C	1	Total C O 23 12 11	0	0
8	D	1	Total C O 23 12 11	0	0
8	E	1	Total C O 23 12 11	0	0
8	P	1	Total C O 23 12 11	0	0
8	S	1	Total C O 23 12 11	0	0
8	T	1	Total C O 23 12 11	0	0

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 electron 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 dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). 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.

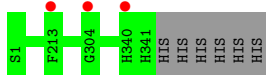
- Molecule 1: Avermectin-sensitive glutamate-gated chloride channel GluCl alpha

Chain A:  98%



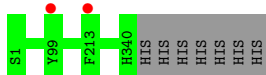
- Molecule 1: Avermectin-sensitive glutamate-gated chloride channel GluCl alpha

Chain B:  98%



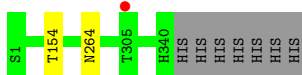
- Molecule 1: Avermectin-sensitive glutamate-gated chloride channel GluCl alpha

Chain C:  98%



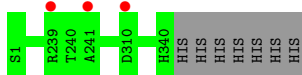
- Molecule 1: Avermectin-sensitive glutamate-gated chloride channel GluCl alpha

Chain D:  97%



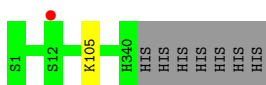
- Molecule 1: Avermectin-sensitive glutamate-gated chloride channel GluCl alpha

Chain E:  98%



- Molecule 1: Avermectin-sensitive glutamate-gated chloride channel GluCl alpha

Chain P:  98%



- Molecule 1: Avermectin-sensitive glutamate-gated chloride channel GluCl alpha

Chain Q:  98%



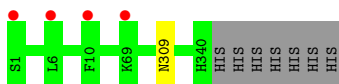
- Molecule 1: Avermectin-sensitive glutamate-gated chloride channel GluCl alpha

Chain R:  98%



- Molecule 1: Avermectin-sensitive glutamate-gated chloride channel GluCl alpha

Chain S:  98%



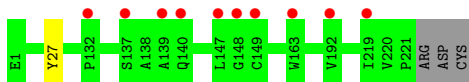
- Molecule 1: Avermectin-sensitive glutamate-gated chloride channel GluCl alpha

Chain T:  98%



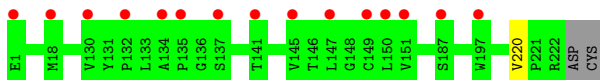
- Molecule 2: Mouse monoclonal Fab fragment, heavy chain

Chain F:  98%

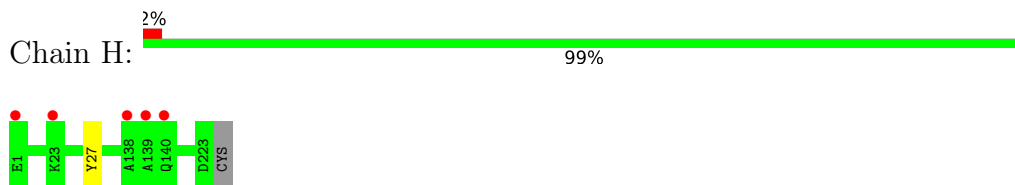


- Molecule 2: Mouse monoclonal Fab fragment, heavy chain

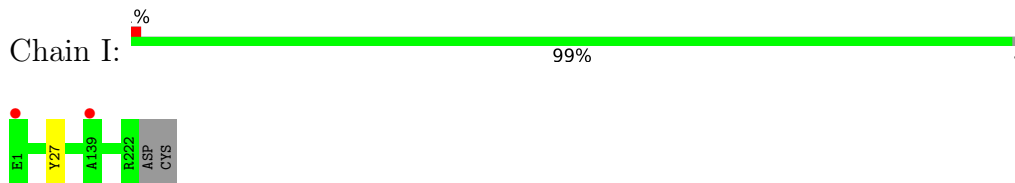
Chain G:  99%



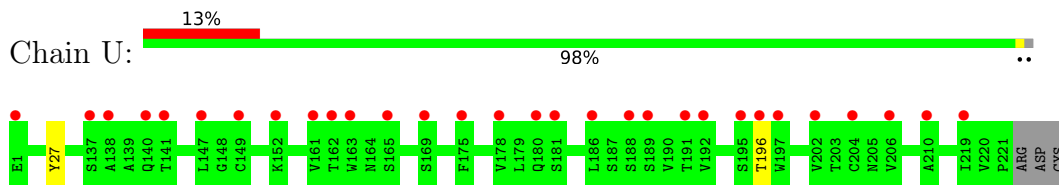
- Molecule 2: Mouse monoclonal Fab fragment, heavy chain



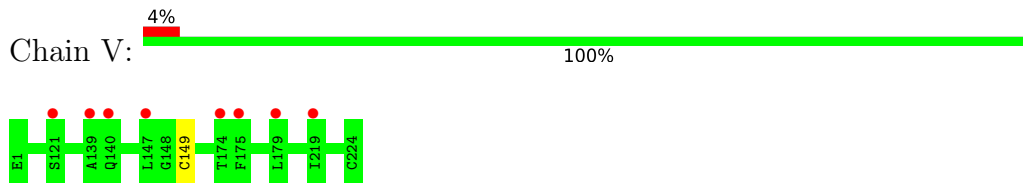
- Molecule 2: Mouse monoclonal Fab fragment, heavy chain



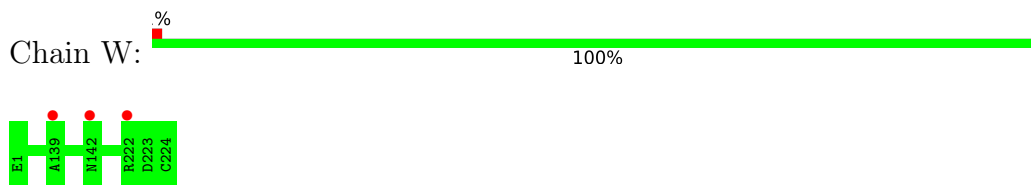
- Molecule 2: Mouse monoclonal Fab fragment, heavy chain



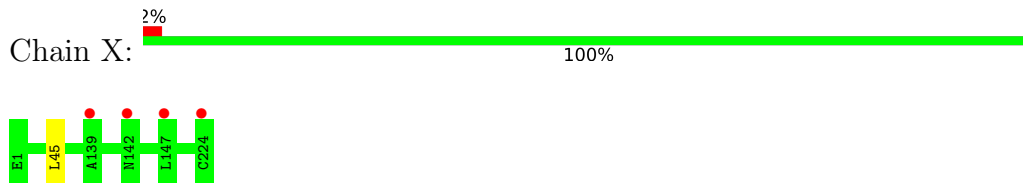
- Molecule 2: Mouse monoclonal Fab fragment, heavy chain



- Molecule 2: Mouse monoclonal Fab fragment, heavy chain

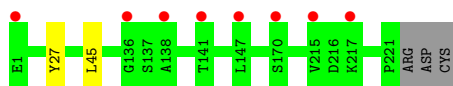


- Molecule 2: Mouse monoclonal Fab fragment, heavy chain

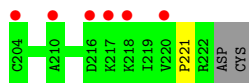
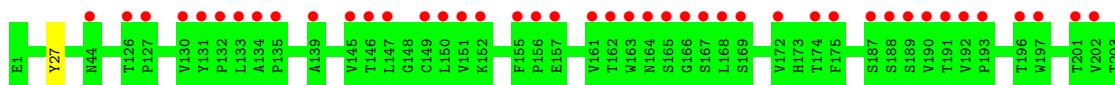


- Molecule 2: Mouse monoclonal Fab fragment, heavy chain

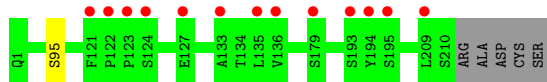




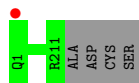
- Molecule 2: Mouse monoclonal Fab fragment, heavy chain



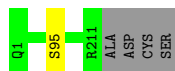
- Molecule 3: Mouse monoclonal Fab fragment, light chain



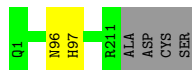
- Molecule 3: Mouse monoclonal Fab fragment, light chain



- Molecule 3: Mouse monoclonal Fab fragment, light chain



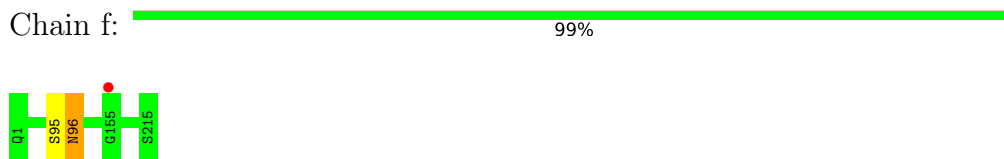
- Molecule 3: Mouse monoclonal Fab fragment, light chain



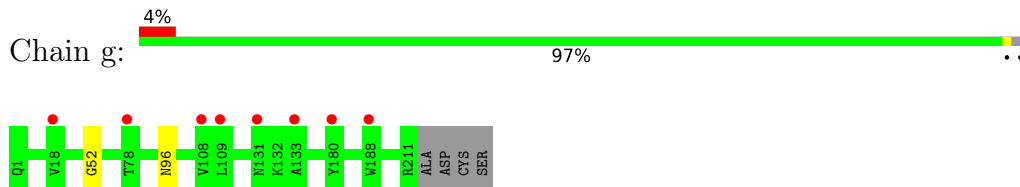
- Molecule 3: Mouse monoclonal Fab fragment, light chain



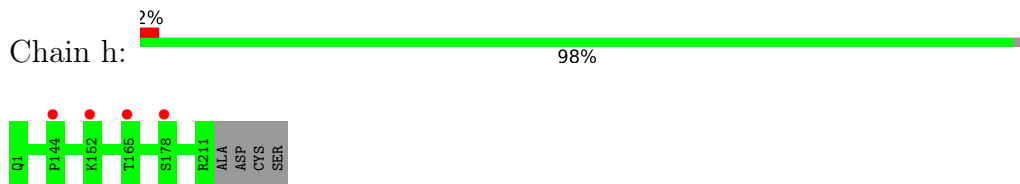
- Molecule 3: Mouse monoclonal Fab fragment, light chain



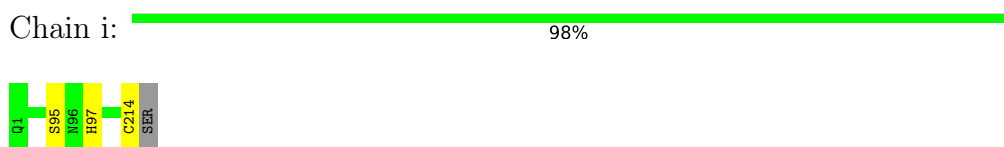
- Molecule 3: Mouse monoclonal Fab fragment, light chain



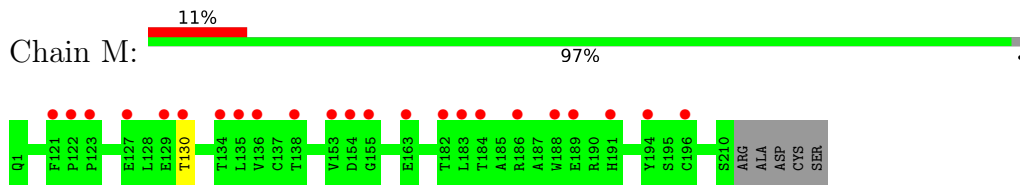
- Molecule 3: Mouse monoclonal Fab fragment, light chain



- Molecule 3: Mouse monoclonal Fab fragment, light chain



- Molecule 3: Mouse monoclonal Fab fragment, light chain



4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	453.75Å 192.87Å 196.14Å 90.00° 92.27° 90.00°	Depositor
Resolution (Å)	58.70 – 3.20 59.51 – 3.00	Depositor EDS
% Data completeness (in resolution range)	77.6 (58.70-3.20) 88.8 (59.51-3.00)	Depositor EDS
R_{merge}	0.13	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.25 (at 3.01Å)	Xtrriage
Refinement program	PHENIX (phenix.refine: 1.8.4_1496)	Depositor
R, R_{free}	0.227 , 0.251 0.230 , 0.252	Depositor DCC
R_{free} test set	14870 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å ²)	84.0	Xtrriage
Anisotropy	0.036	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.27 , 48.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.43$, $\langle L^2 \rangle = 0.26$	Xtrriage
Estimated twinning fraction	0.021 for -h,-k,l	Xtrriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	60818	wwPDB-VP
Average B, all atoms (Å ²)	115.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.31% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

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, GOL, CL, LMT, POV

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	0.24	0/2819	0.44	0/3847
1	B	0.23	0/2808	0.43	0/3832
1	C	0.23	0/2797	0.43	0/3817
1	D	0.25	0/2797	0.48	0/3817
1	E	0.24	0/2797	0.44	0/3817
1	P	0.24	0/2797	0.45	0/3817
1	Q	0.24	0/2797	0.45	0/3817
1	R	0.24	0/2797	0.43	0/3817
1	S	0.23	0/2797	0.43	0/3817
1	T	0.24	0/2797	0.45	0/3817
2	F	0.21	0/1728	0.40	0/2360
2	G	0.22	0/1739	0.41	0/2374
2	H	0.22	0/1747	0.41	0/2385
2	I	0.21	0/1739	0.40	0/2374
2	J	0.23	0/1739	0.42	0/2374
2	U	0.21	0/1728	0.40	0/2360
2	V	0.21	0/1753	0.40	0/2393
2	W	0.21	0/1753	0.40	0/2393
2	X	0.22	0/1753	0.42	0/2393
2	Y	0.21	0/1728	0.41	0/2360
3	K	0.22	0/1628	0.42	0/2226
3	L	0.22	0/1639	0.43	0/2240
3	M	0.22	0/1628	0.43	0/2226
3	N	0.23	0/1639	0.43	0/2240
3	O	0.22	0/1639	0.42	0/2240
3	Z	0.23	0/1664	0.43	0/2274
3	f	0.22	0/1664	0.42	0/2274
3	g	0.22	0/1639	0.42	0/2240
3	h	0.22	0/1639	0.41	0/2240
3	i	0.22	0/1658	0.43	0/2266
All	All	0.23	0/61847	0.43	0/84447

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](#)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

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 X-ray entries followed by that with respect to entries of similar resolution.

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	340/347 (98%)	327 (96%)	13 (4%)	0	100	100
1	B	339/347 (98%)	325 (96%)	14 (4%)	0	100	100
1	C	338/347 (97%)	324 (96%)	14 (4%)	0	100	100
1	D	338/347 (97%)	328 (97%)	10 (3%)	0	100	100
1	E	338/347 (97%)	325 (96%)	13 (4%)	0	100	100
1	P	338/347 (97%)	326 (96%)	12 (4%)	0	100	100
1	Q	338/347 (97%)	326 (96%)	12 (4%)	0	100	100
1	R	338/347 (97%)	326 (96%)	12 (4%)	0	100	100
1	S	338/347 (97%)	325 (96%)	12 (4%)	1 (0%)	41	74
1	T	338/347 (97%)	326 (96%)	12 (4%)	0	100	100
2	F	219/224 (98%)	206 (94%)	13 (6%)	0	100	100
2	G	220/224 (98%)	203 (92%)	17 (8%)	0	100	100
2	H	221/224 (99%)	206 (93%)	15 (7%)	0	100	100
2	I	220/224 (98%)	206 (94%)	14 (6%)	0	100	100
2	J	220/224 (98%)	203 (92%)	16 (7%)	1 (0%)	29	67
2	U	219/224 (98%)	205 (94%)	14 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	V	222/224 (99%)	203 (91%)	19 (9%)	0	100	100
2	W	222/224 (99%)	209 (94%)	13 (6%)	0	100	100
2	X	222/224 (99%)	206 (93%)	16 (7%)	0	100	100
2	Y	219/224 (98%)	202 (92%)	17 (8%)	0	100	100
3	K	208/215 (97%)	193 (93%)	14 (7%)	1 (0%)	29	67
3	L	209/215 (97%)	198 (95%)	11 (5%)	0	100	100
3	M	208/215 (97%)	193 (93%)	15 (7%)	0	100	100
3	N	209/215 (97%)	194 (93%)	14 (7%)	1 (0%)	29	67
3	O	209/215 (97%)	194 (93%)	15 (7%)	0	100	100
3	Z	213/215 (99%)	193 (91%)	19 (9%)	1 (0%)	29	67
3	f	213/215 (99%)	195 (92%)	16 (8%)	2 (1%)	17	56
3	g	209/215 (97%)	196 (94%)	11 (5%)	2 (1%)	15	54
3	h	209/215 (97%)	194 (93%)	15 (7%)	0	100	100
3	i	212/215 (99%)	199 (94%)	12 (6%)	1 (0%)	29	67
All	All	7686/7860 (98%)	7256 (94%)	420 (6%)	10 (0%)	51	83

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	K	95	SER
3	N	95	SER
3	i	95	SER
3	f	95	SER
1	S	309	ASN
3	f	96	ASN
2	J	221	PRO
3	g	96	ASN
3	g	52	GLY
3	Z	52	GLY

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 X-ray entries followed by that with respect to entries of similar resolution.

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	311/316 (98%)	310 (100%)	1 (0%)	92	96
1	B	310/316 (98%)	310 (100%)	0	100	100
1	C	309/316 (98%)	309 (100%)	0	100	100
1	D	309/316 (98%)	307 (99%)	2 (1%)	86	94
1	E	309/316 (98%)	309 (100%)	0	100	100
1	P	309/316 (98%)	308 (100%)	1 (0%)	92	96
1	Q	309/316 (98%)	308 (100%)	1 (0%)	92	96
1	R	309/316 (98%)	309 (100%)	0	100	100
1	S	309/316 (98%)	309 (100%)	0	100	100
1	T	309/316 (98%)	309 (100%)	0	100	100
2	F	190/193 (98%)	189 (100%)	1 (0%)	88	95
2	G	191/193 (99%)	190 (100%)	1 (0%)	88	95
2	H	192/193 (100%)	191 (100%)	1 (0%)	88	95
2	I	191/193 (99%)	190 (100%)	1 (0%)	88	95
2	J	191/193 (99%)	190 (100%)	1 (0%)	88	95
2	U	190/193 (98%)	188 (99%)	2 (1%)	73	88
2	V	193/193 (100%)	192 (100%)	1 (0%)	88	95
2	W	193/193 (100%)	193 (100%)	0	100	100
2	X	193/193 (100%)	192 (100%)	1 (0%)	88	95
2	Y	190/193 (98%)	188 (99%)	2 (1%)	73	88
3	K	178/182 (98%)	178 (100%)	0	100	100
3	L	179/182 (98%)	179 (100%)	0	100	100
3	M	178/182 (98%)	177 (99%)	1 (1%)	86	94
3	N	179/182 (98%)	179 (100%)	0	100	100
3	O	179/182 (98%)	177 (99%)	2 (1%)	73	88
3	Z	182/182 (100%)	181 (100%)	1 (0%)	88	95
3	f	182/182 (100%)	181 (100%)	1 (0%)	88	95
3	g	179/182 (98%)	179 (100%)	0	100	100
3	h	179/182 (98%)	179 (100%)	0	100	100
3	i	181/182 (100%)	179 (99%)	2 (1%)	73	88
All	All	6803/6910 (98%)	6780 (100%)	23 (0%)	92	96

All (23) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	267	LEU
1	D	154	THR
1	D	264	ASN
2	F	27	TYR
2	G	220	VAL
2	H	27	TYR
2	I	27	TYR
3	O	96	ASN
3	O	97	HIS
1	P	105	LYS
1	Q	264	ASN
2	U	27	TYR
2	U	196	THR
2	V	149	CYS
2	X	45	LEU
2	Y	27	TYR
2	Y	45	LEU
3	Z	56	ARG
3	f	96	ASN
3	i	97	HIS
3	i	214	CYS
2	J	27	TYR
3	M	130	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (15) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	46	ASN
1	A	219	GLN
1	E	259	GLN
2	H	140	GLN
3	K	170	GLN
3	L	200	HIS
3	N	170	GLN
3	O	97	HIS
1	P	73	GLN
1	Q	299	HIS
1	S	264	ASN
3	Z	97	HIS
3	f	39	GLN
3	h	39	GLN

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Mol	Chain	Res	Type
3	h	170	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](#)

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 26 ligands modelled in this entry, 2 are monoatomic - leaving 24 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
7	GOL	B	401	-	5,5,5	0.36	0	5,5,5	0.26	0
5	POV	R	401	-	33,33,51	1.17	2 (6%)	39,41,59	1.12	3 (7%)
4	NAG	C	401	1	14,14,15	0.39	0	17,19,21	0.85	1 (5%)
4	NAG	Q	402	1	14,14,15	0.26	0	17,19,21	0.66	0
8	LMT	S	402	-	24,24,36	1.06	2 (8%)	35,35,47	1.22	3 (8%)
5	POV	P	403	-	41,41,51	1.06	2 (4%)	47,49,59	1.10	4 (8%)
4	NAG	B	402	1	14,14,15	0.26	0	17,19,21	0.80	0
8	LMT	B	403	-	24,24,36	1.03	1 (4%)	35,35,47	1.42	6 (17%)
8	LMT	T	403	-	24,24,36	1.05	2 (8%)	35,35,47	1.23	5 (14%)
4	NAG	P	401	1	14,14,15	0.33	0	17,19,21	0.80	1 (5%)
8	LMT	C	402	-	24,24,36	1.11	2 (8%)	35,35,47	1.11	4 (11%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
8	LMT	P	402	-	24,24,36	1.05	2 (8%)	35,35,47	1.16	2 (5%)
8	LMT	D	403	-	24,24,36	1.09	2 (8%)	35,35,47	1.14	2 (5%)
5	POV	A	402	-	22,22,51	1.10	1 (4%)	27,29,59	1.18	2 (7%)
5	POV	Q	401	-	45,45,51	1.02	2 (4%)	51,53,59	1.04	3 (5%)
4	NAG	T	402	1	14,14,15	0.35	0	17,19,21	0.82	1 (5%)
5	POV	T	401	-	42,42,51	1.04	2 (4%)	48,50,59	1.12	4 (8%)
4	NAG	A	401	1	14,14,15	0.29	0	17,19,21	1.06	1 (5%)
8	LMT	E	402	-	24,24,36	1.05	2 (8%)	35,35,47	1.13	2 (5%)
4	NAG	E	401	1	14,14,15	0.26	0	17,19,21	0.63	0
4	NAG	D	402	1	14,14,15	0.35	0	17,19,21	1.38	2 (11%)
4	NAG	S	401	1	14,14,15	0.34	0	17,19,21	1.34	1 (5%)
5	POV	D	401	-	25,25,51	1.35	2 (8%)	31,33,59	1.30	3 (9%)
5	POV	R	402	-	34,34,51	1.14	2 (5%)	38,39,59	1.30	5 (13%)

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. '2' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
7	GOL	B	401	-	-	2/4/4/4	-
5	POV	R	401	-	-	18/37/37/55	-
4	NAG	C	401	1	-	6/6/23/26	0/1/1/1
4	NAG	Q	402	1	-	0/6/23/26	0/1/1/1
8	LMT	S	402	-	-	1/8/48/61	0/2/2/2
5	POV	P	403	-	-	15/45/45/55	-
4	NAG	B	402	1	-	0/6/23/26	0/1/1/1
8	LMT	B	403	-	-	4/8/48/61	0/2/2/2
8	LMT	T	403	-	-	2/8/48/61	0/2/2/2
4	NAG	P	401	1	-	4/6/23/26	0/1/1/1
8	LMT	C	402	-	-	6/8/48/61	0/2/2/2
8	LMT	P	402	-	-	1/8/48/61	0/2/2/2
8	LMT	D	403	-	-	4/8/48/61	0/2/2/2
5	POV	A	402	-	-	5/25/25/55	-
5	POV	Q	401	-	-	16/49/49/55	-
4	NAG	T	402	1	-	3/6/23/26	0/1/1/1
5	POV	T	401	-	-	17/46/46/55	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	A	401	1	-	2/6/23/26	0/1/1/1
8	LMT	E	402	-	-	3/8/48/61	0/2/2/2
4	NAG	E	401	1	-	2/6/23/26	0/1/1/1
4	NAG	D	402	1	-	3/6/23/26	0/1/1/1
4	NAG	S	401	1	-	0/6/23/26	0/1/1/1
5	POV	D	401	-	-	12/29/29/55	-
5	POV	R	402	-	-	12/36/36/55	-

All (26) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	D	401	POV	O31-C31	4.47	1.46	1.33
5	P	403	POV	O31-C31	4.34	1.46	1.33
5	Q	401	POV	O31-C31	4.32	1.46	1.33
5	R	401	POV	O31-C31	4.25	1.45	1.33
5	T	401	POV	O31-C31	4.21	1.45	1.33
5	R	402	POV	O31-C31	4.19	1.45	1.33
5	R	402	POV	O21-C21	4.15	1.46	1.34
5	A	402	POV	O21-C21	4.12	1.45	1.34
5	Q	401	POV	O21-C21	4.07	1.45	1.34
5	T	401	POV	O21-C21	4.07	1.45	1.34
5	P	403	POV	O21-C21	4.06	1.45	1.34
5	R	401	POV	O21-C21	4.03	1.45	1.34
5	D	401	POV	O21-C21	3.95	1.45	1.34
8	C	402	LMT	O5B-C1B	3.01	1.49	1.41
8	D	403	LMT	O5B-C1B	2.97	1.49	1.41
8	B	403	LMT	O5B-C1B	2.88	1.49	1.41
8	P	402	LMT	O5B-C1B	2.85	1.49	1.41
8	S	402	LMT	O5B-C1B	2.71	1.48	1.41
8	T	403	LMT	O5B-C1B	2.66	1.48	1.41
8	E	402	LMT	O5B-C1B	2.58	1.48	1.41
8	S	402	LMT	O5'-C1'	2.30	1.48	1.42
8	T	403	LMT	O5'-C1'	2.28	1.48	1.42
8	C	402	LMT	O5'-C1'	2.28	1.48	1.42
8	P	402	LMT	O5'-C1'	2.20	1.48	1.42
8	D	403	LMT	O5'-C1'	2.14	1.48	1.42
8	E	402	LMT	O5'-C1'	2.10	1.48	1.42

All (55) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	S	401	NAG	C1-O5-C5	4.52	118.32	112.19
4	D	402	NAG	C1-O5-C5	-4.36	106.29	112.19
5	R	402	POV	O21-C21-C22	4.31	120.79	111.50
5	T	401	POV	O21-C21-C22	4.19	120.53	111.50
5	A	402	POV	O21-C21-C22	4.07	120.28	111.50
5	D	401	POV	O21-C21-C22	4.05	120.23	111.50
5	P	403	POV	O21-C21-C22	3.83	119.76	111.50
8	E	402	LMT	O5'-C5'-C4'	3.59	117.32	109.75
4	A	401	NAG	C1-O5-C5	-3.53	107.41	112.19
8	S	402	LMT	C1B-O1B-C4'	-3.44	109.45	117.96
8	P	402	LMT	C1B-O1B-C4'	-3.41	109.52	117.96
5	D	401	POV	C2-O21-C21	-3.28	109.72	117.79
5	R	401	POV	O21-C21-C22	3.27	118.55	111.50
5	Q	401	POV	O21-C21-C22	3.26	118.53	111.50
5	R	401	POV	C2-O21-C21	-3.25	109.79	117.79
5	Q	401	POV	O31-C31-C32	2.94	121.15	111.91
8	T	403	LMT	C1B-O1B-C4'	-2.93	110.71	117.96
5	P	403	POV	C2-O21-C21	-2.86	110.75	117.79
5	T	401	POV	C2-O21-C21	-2.76	110.99	117.79
8	B	403	LMT	C2'-C3'-C4'	2.75	115.97	109.68
8	B	403	LMT	O5B-C5B-C4B	2.73	114.65	109.69
8	B	403	LMT	C1'-C2'-C3'	2.71	115.93	110.31
5	R	401	POV	O31-C31-C32	2.69	120.35	111.91
8	D	403	LMT	C1B-O1B-C4'	-2.67	111.35	117.96
5	R	402	POV	O31-C31-C32	2.66	120.25	111.91
5	D	401	POV	O31-C31-C32	2.65	120.21	111.91
4	D	402	NAG	O5-C5-C6	2.61	111.30	107.20
5	P	403	POV	O31-C31-C32	2.54	119.89	111.91
5	R	402	POV	C2-O21-C21	-2.50	111.62	117.79
8	P	402	LMT	C2'-C3'-C4'	2.49	115.37	109.68
5	A	402	POV	C2-O21-C21	-2.45	111.75	117.79
5	T	401	POV	O31-C31-C32	2.41	119.45	111.91
8	T	403	LMT	O5'-C5'-C4'	2.36	114.72	109.75
8	S	402	LMT	C4B-C3B-C2B	2.34	114.90	110.82
8	T	403	LMT	O5B-C5B-C4B	2.32	113.90	109.69
5	R	402	POV	O13-P-O14	2.31	119.72	110.68
8	C	402	LMT	C1B-O1B-C4'	-2.28	112.33	117.96
8	T	403	LMT	C2'-C3'-C4'	2.26	114.84	109.68
5	Q	401	POV	C2-O21-C21	-2.26	112.24	117.79
4	C	401	NAG	C1-O5-C5	2.21	115.19	112.19
5	T	401	POV	C11-C12-N	-2.18	108.50	115.78
5	P	403	POV	C11-C12-N	-2.17	108.53	115.78
8	E	402	LMT	C1B-O1B-C4'	-2.16	112.62	117.96

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	P	401	NAG	O5-C5-C6	2.16	110.59	107.20
8	C	402	LMT	C1B-C2B-C3B	2.16	114.49	110.00
8	B	403	LMT	C3B-C4B-C5B	2.16	114.09	110.24
8	B	403	LMT	O3'-C3'-C2'	-2.13	105.42	110.35
4	T	402	NAG	C1-O5-C5	2.10	115.04	112.19
8	C	402	LMT	C4B-C3B-C2B	2.08	114.46	110.82
8	C	402	LMT	O5B-C5B-C4B	2.04	113.41	109.69
5	R	402	POV	O21-C21-O22	-2.03	118.79	123.70
8	B	403	LMT	C1B-C2B-C3B	2.02	114.21	110.00
8	D	403	LMT	C1'-C2'-C3'	2.01	114.48	110.31
8	S	402	LMT	C1B-C2B-C3B	2.01	114.17	110.00
8	T	403	LMT	O5'-C1'-C2'	2.00	113.86	110.28

There are no chirality outliers.

All (138) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	C	401	NAG	C8-C7-N2-C2
4	C	401	NAG	O7-C7-N2-C2
4	D	402	NAG	C8-C7-N2-C2
4	D	402	NAG	O7-C7-N2-C2
4	T	402	NAG	C8-C7-N2-C2
4	T	402	NAG	O7-C7-N2-C2
5	A	402	POV	C11-O12-P-O14
5	A	402	POV	O12-C11-C12-N
5	A	402	POV	C22-C21-O21-C2
5	D	401	POV	C11-O12-P-O14
5	D	401	POV	O12-C11-C12-N
5	P	403	POV	C1-O11-P-O12
5	P	403	POV	C11-O12-P-O14
5	P	403	POV	O12-C11-C12-N
5	R	401	POV	C1-O11-P-O14
5	R	401	POV	O22-C21-O21-C2
5	R	402	POV	C1-O11-P-O12
5	T	401	POV	C1-O11-P-O13
5	T	401	POV	C11-O12-P-O13
5	T	401	POV	O12-C11-C12-N
7	B	401	GOL	O1-C1-C2-C3
8	B	403	LMT	O5B-C1B-O1B-C4'
5	A	402	POV	O22-C21-O21-C2
5	R	401	POV	C22-C21-O21-C2
4	A	401	NAG	C8-C7-N2-C2

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Mol	Chain	Res	Type	Atoms
4	A	401	NAG	O7-C7-N2-C2
8	C	402	LMT	C4B-C5B-C6B-O6B
5	R	402	POV	C22-C21-O21-C2
8	C	402	LMT	O5B-C5B-C6B-O6B
8	D	403	LMT	O5'-C5'-C6'-O6'
4	P	401	NAG	C4-C5-C6-O6
8	D	403	LMT	C4B-C5B-C6B-O6B
4	C	401	NAG	C1-C2-N2-C7
5	R	402	POV	O22-C21-O21-C2
4	P	401	NAG	C8-C7-N2-C2
4	P	401	NAG	O5-C5-C6-O6
5	Q	401	POV	C22-C21-O21-C2
8	D	403	LMT	O5B-C5B-C6B-O6B
8	C	402	LMT	C2B-C1B-O1B-C4'
5	R	401	POV	C1-O11-P-O12
5	T	401	POV	C1-O11-P-O12
5	T	401	POV	C11-O12-P-O11
5	R	401	POV	C32-C31-O31-C3
4	P	401	NAG	O7-C7-N2-C2
5	Q	401	POV	O22-C21-O21-C2
8	E	402	LMT	C4'-C5'-C6'-O6'
5	R	401	POV	C22-C23-C24-C25
5	T	401	POV	C34-C35-C36-C37
4	C	401	NAG	O5-C5-C6-O6
5	Q	401	POV	C22-C23-C24-C25
5	Q	401	POV	C211-C212-C213-C214
5	R	401	POV	C21-C22-C23-C24
8	C	402	LMT	O5B-C1B-O1B-C4'
5	R	401	POV	O32-C31-O31-C3
8	T	403	LMT	C4B-C5B-C6B-O6B
5	T	401	POV	C22-C21-O21-C2
5	T	401	POV	C24-C25-C26-C27
5	P	403	POV	C22-C21-O21-C2
5	R	402	POV	O11-C1-C2-O21
5	P	403	POV	O22-C21-O21-C2
4	D	402	NAG	O5-C5-C6-O6
5	T	401	POV	O22-C21-O21-C2
5	D	401	POV	C11-O12-P-O11
8	E	402	LMT	O5B-C5B-C6B-O6B
5	Q	401	POV	O11-C1-C2-C3
5	R	402	POV	C26-C27-C28-C29
8	S	402	LMT	O5'-C5'-C6'-O6'

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Mol	Chain	Res	Type	Atoms
5	D	401	POV	C1-C2-C3-O31
8	D	403	LMT	C4'-C5'-C6'-O6'
4	T	402	NAG	O5-C5-C6-O6
8	B	403	LMT	C3'-C4'-O1B-C1B
5	R	402	POV	C1-O11-P-O14
5	P	403	POV	C311-C310-C39-C38
5	Q	401	POV	C215-C216-C217-C218
4	E	401	NAG	C8-C7-N2-C2
5	R	402	POV	O11-C1-C2-C3
8	B	403	LMT	C5'-C4'-O1B-C1B
5	Q	401	POV	O21-C21-C22-C23
5	T	401	POV	C32-C31-O31-C3
5	R	402	POV	C1-C2-C3-O31
5	T	401	POV	C1-C2-C3-O31
7	B	401	GOL	O1-C1-C2-O2
5	Q	401	POV	O11-C1-C2-O21
5	R	402	POV	C32-C31-O31-C3
5	R	401	POV	C2-C1-O11-P
8	B	403	LMT	C4B-C5B-C6B-O6B
5	D	401	POV	O11-C1-C2-O21
5	T	401	POV	C311-C310-C39-C38
5	D	401	POV	O21-C2-C3-O31
5	P	403	POV	C39-C310-C311-C312
5	T	401	POV	O32-C31-O31-C3
4	C	401	NAG	C4-C5-C6-O6
8	C	402	LMT	C4'-C5'-C6'-O6'
5	A	402	POV	C11-O12-P-O11
5	P	403	POV	C11-O12-P-O11
5	Q	401	POV	C11-O12-P-O11
5	Q	401	POV	C23-C24-C25-C26
4	E	401	NAG	O7-C7-N2-C2
5	T	401	POV	C37-C38-C39-C310
5	P	403	POV	C1-O11-P-O13
5	R	401	POV	C1-O11-P-O13
5	D	401	POV	O11-C1-C2-C3
5	R	401	POV	O11-C1-C2-C3
5	R	401	POV	O11-C1-C2-O21
5	R	402	POV	O32-C31-O31-C3
5	R	401	POV	O12-C11-C12-N
5	R	401	POV	O21-C2-C3-O31
5	R	402	POV	O21-C2-C3-O31
5	Q	401	POV	C24-C25-C26-C27

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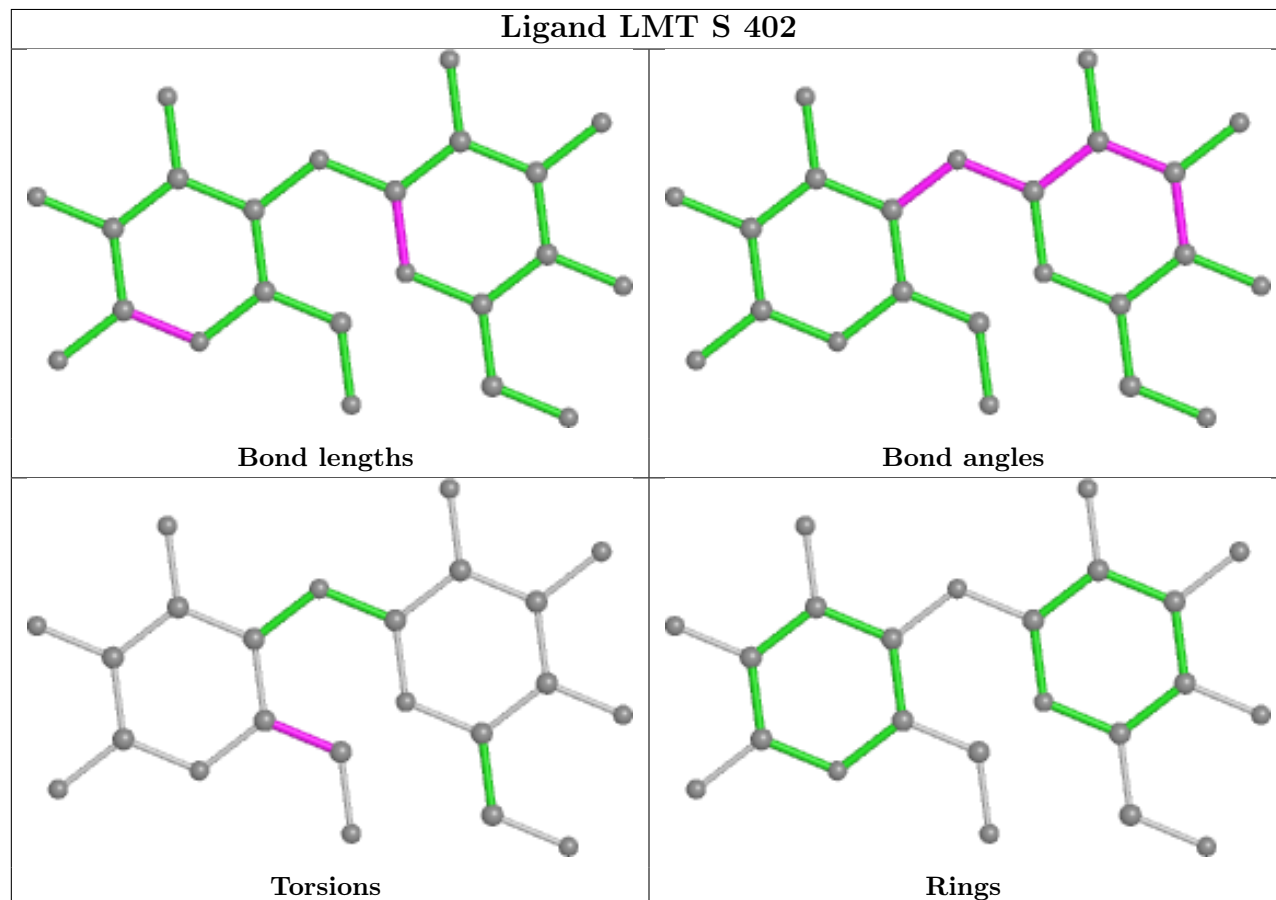
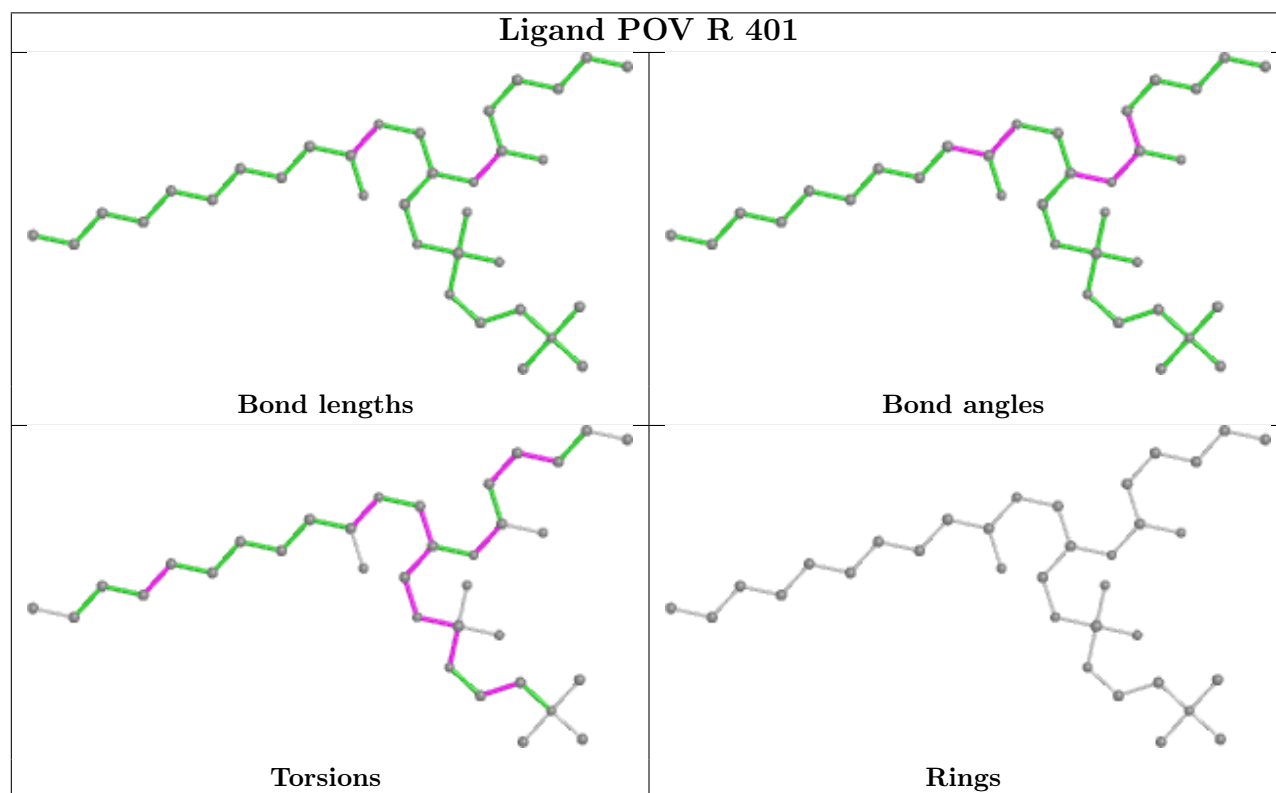
Mol	Chain	Res	Type	Atoms
5	P	403	POV	C32-C31-O31-C3
5	D	401	POV	C1-O11-P-O12
5	Q	401	POV	C1-O11-P-O12
5	R	401	POV	C11-O12-P-O11
5	P	403	POV	O32-C31-O31-C3
4	C	401	NAG	C3-C2-N2-C7
8	P	402	LMT	O5B-C5B-C6B-O6B
5	P	403	POV	C31-C32-C33-C34
5	Q	401	POV	C26-C27-C28-C29
5	P	403	POV	C33-C34-C35-C36
5	D	401	POV	O22-C21-O21-C2
5	R	402	POV	C23-C24-C25-C26
5	Q	401	POV	C27-C28-C29-C210
5	D	401	POV	O32-C31-O31-C3
8	T	403	LMT	O5B-C5B-C6B-O6B
5	Q	401	POV	O22-C21-C22-C23
5	T	401	POV	O21-C2-C3-O31
5	D	401	POV	C22-C21-O21-C2
5	D	401	POV	C32-C31-O31-C3
8	C	402	LMT	O5'-C5'-C6'-O6'
5	R	401	POV	C1-C2-C3-O31
5	R	401	POV	C11-O12-P-O14
5	Q	401	POV	C31-C32-C33-C34
8	E	402	LMT	O5'-C5'-C6'-O6'
5	P	403	POV	C12-C11-O12-P
5	T	401	POV	C313-C314-C315-C316
5	R	401	POV	C35-C36-C37-C38
5	P	403	POV	O31-C31-C32-C33
5	T	401	POV	O31-C31-C32-C33

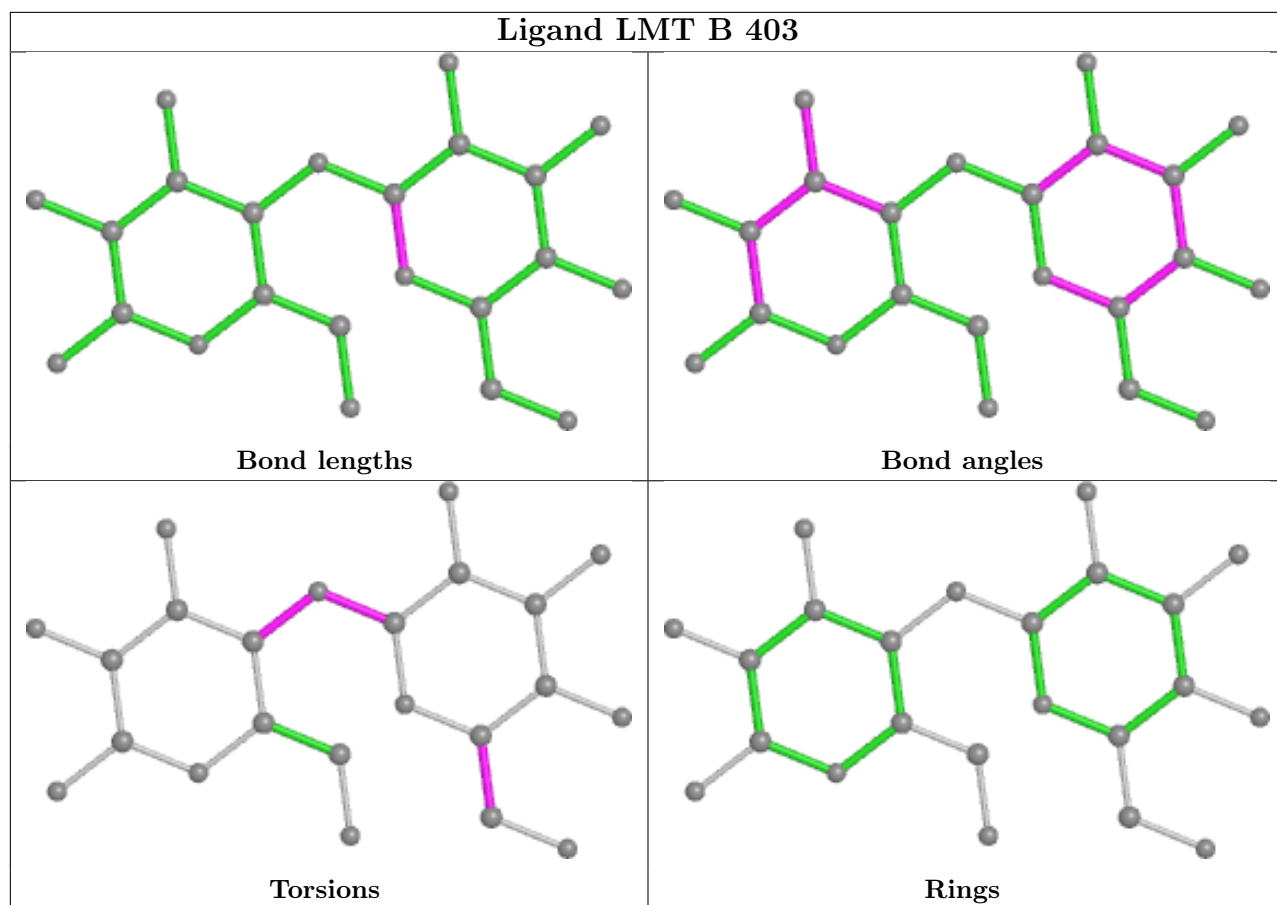
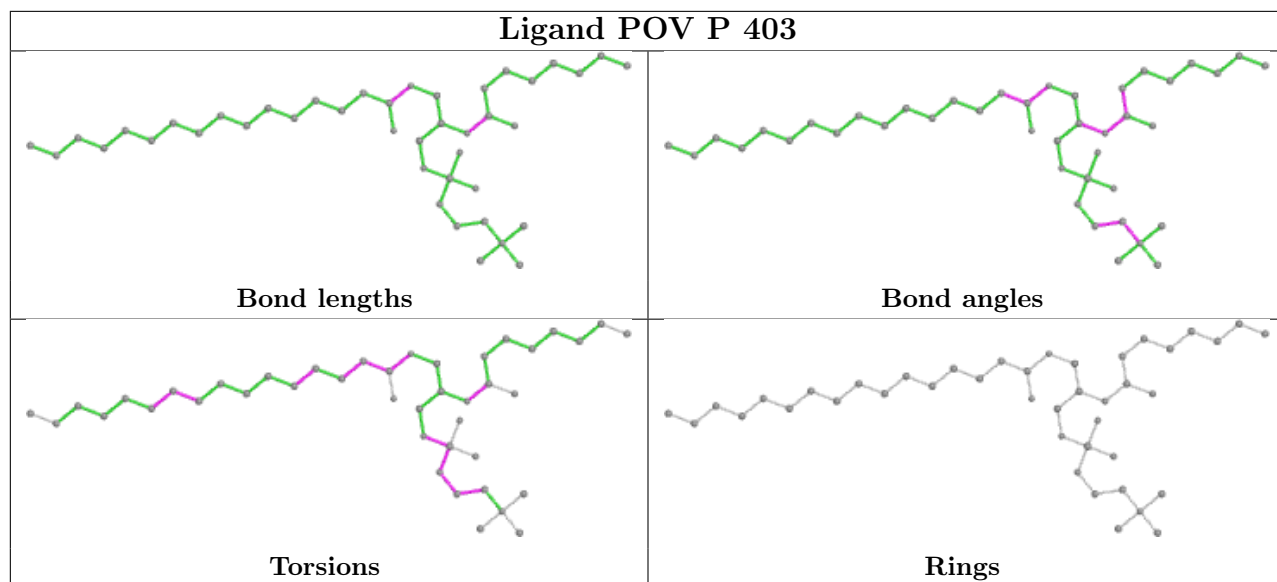
There are no ring outliers.

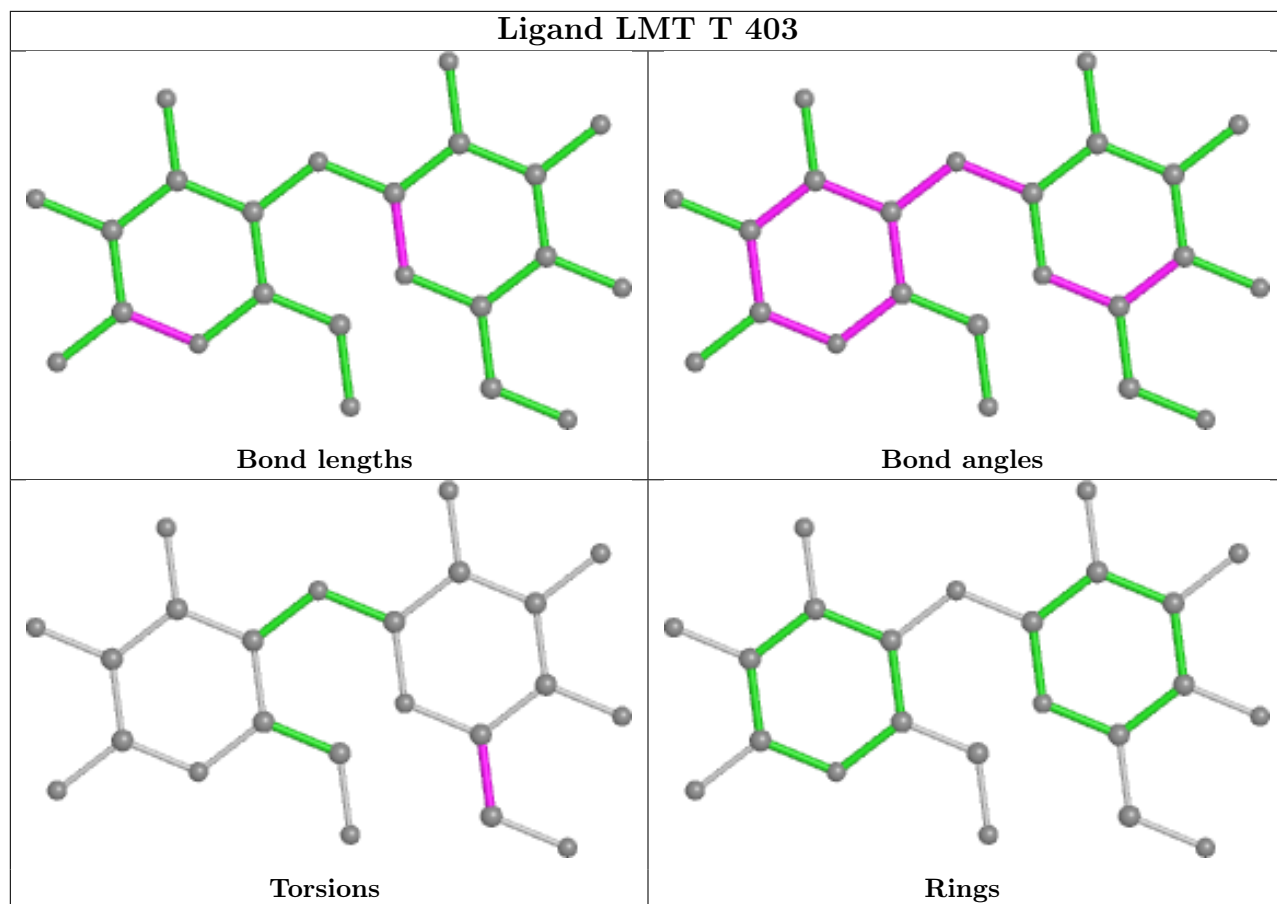
No monomer is involved in short contacts.

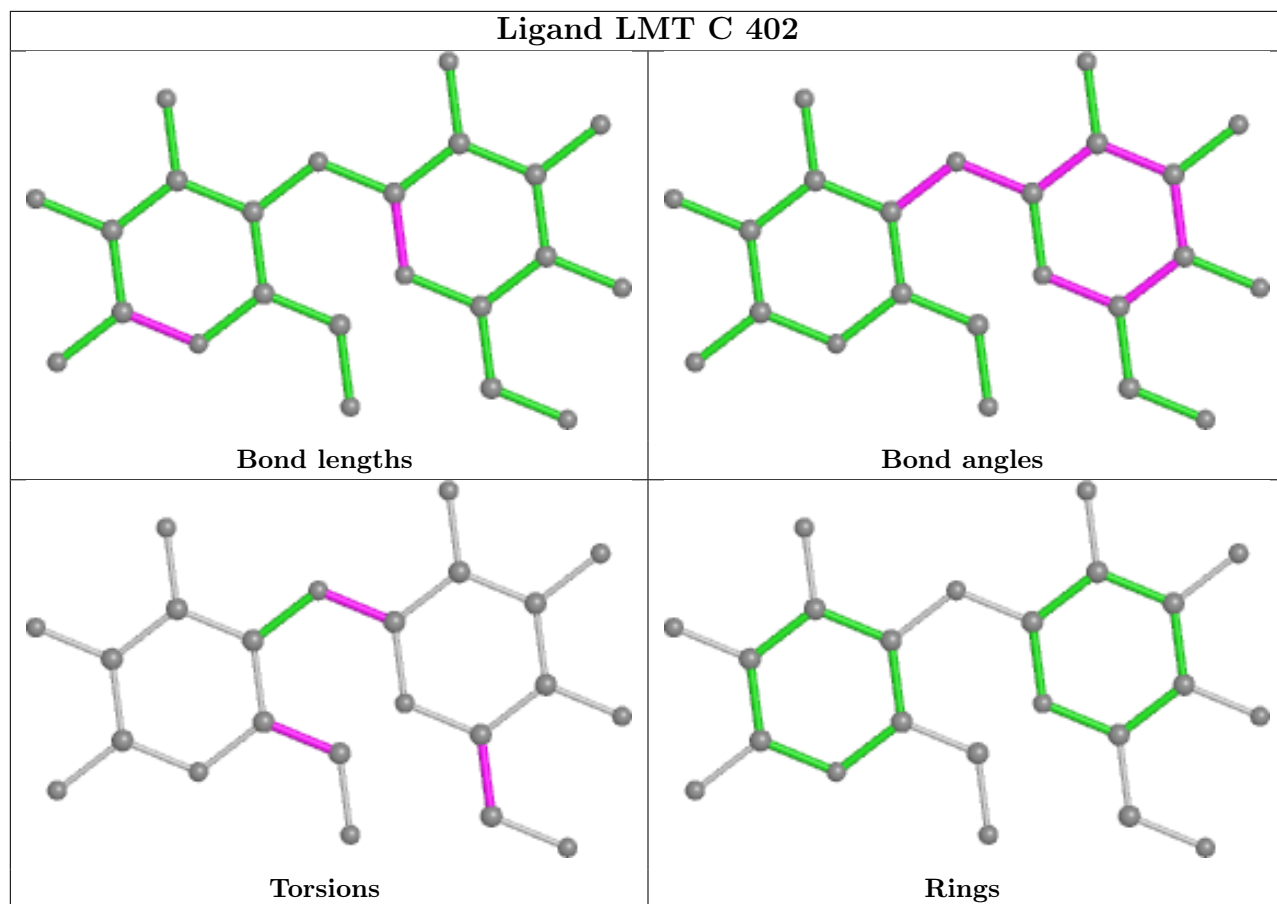
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

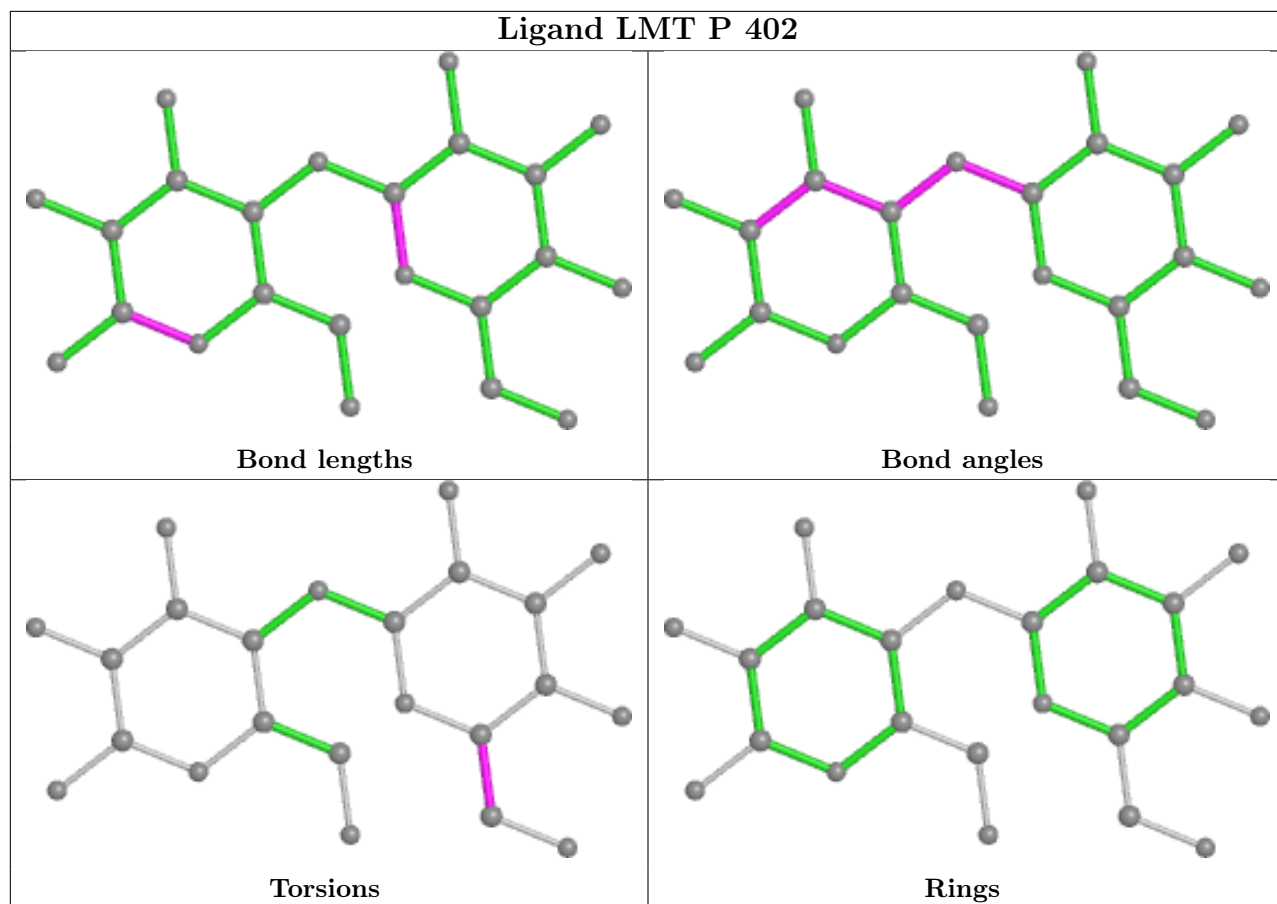
The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

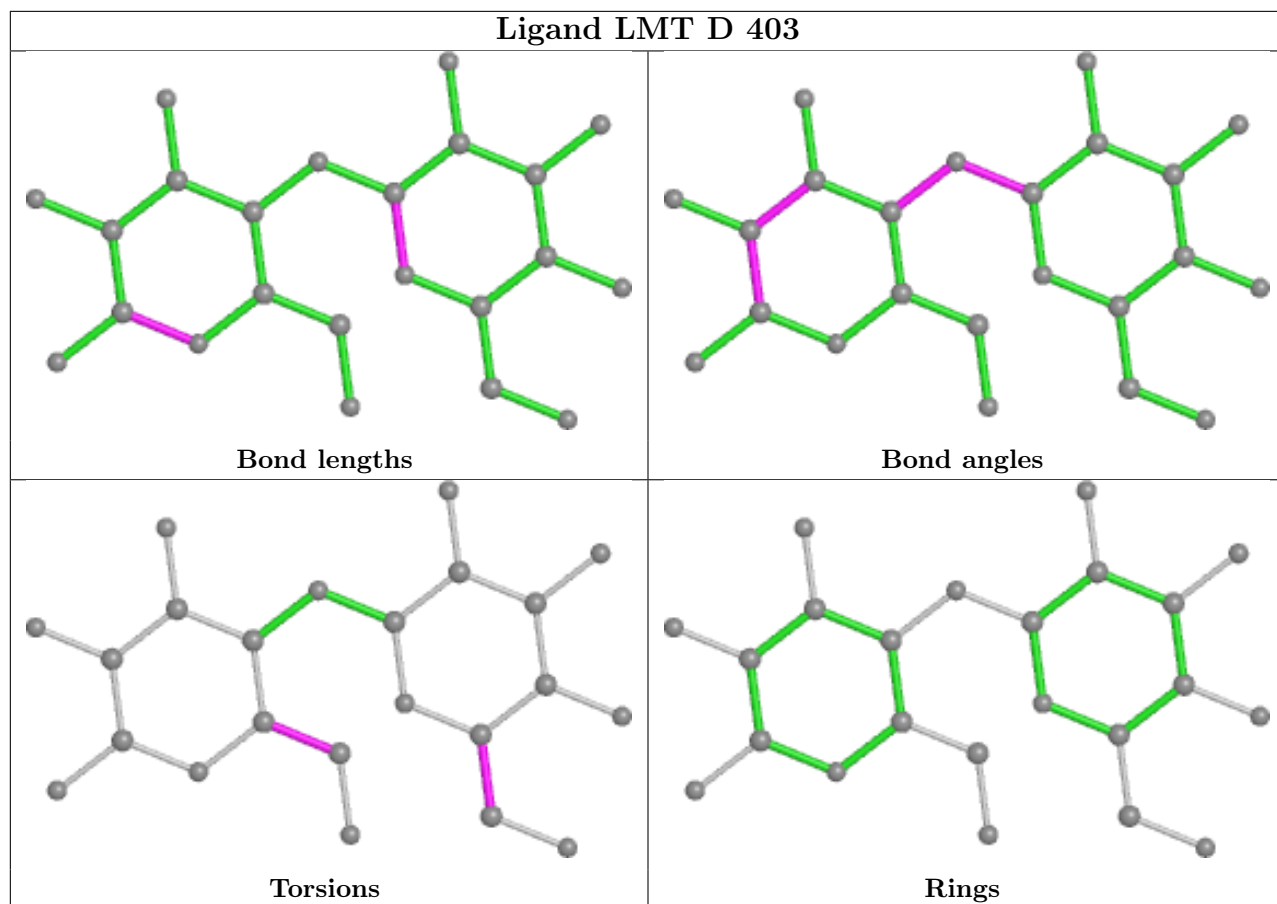


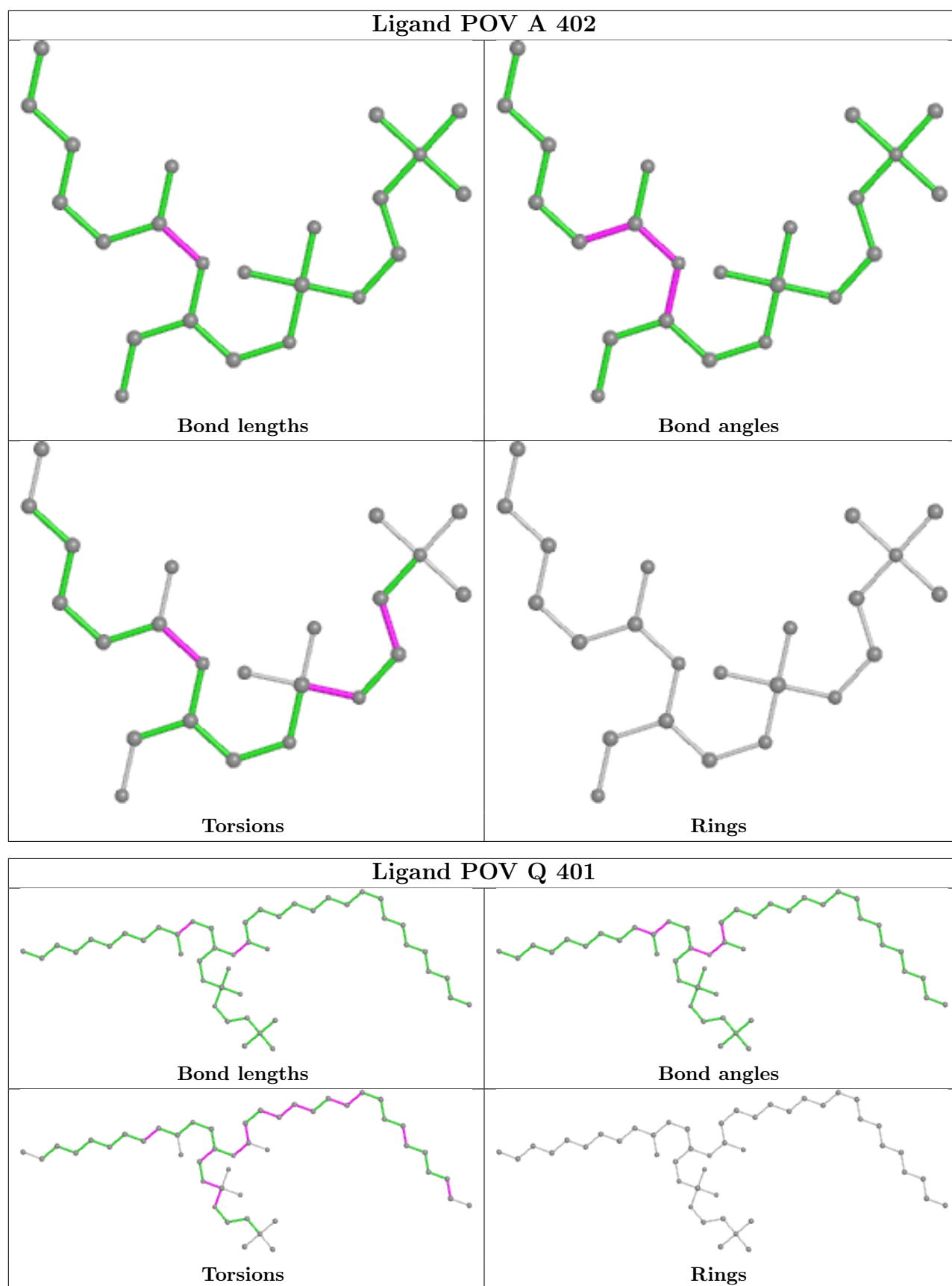


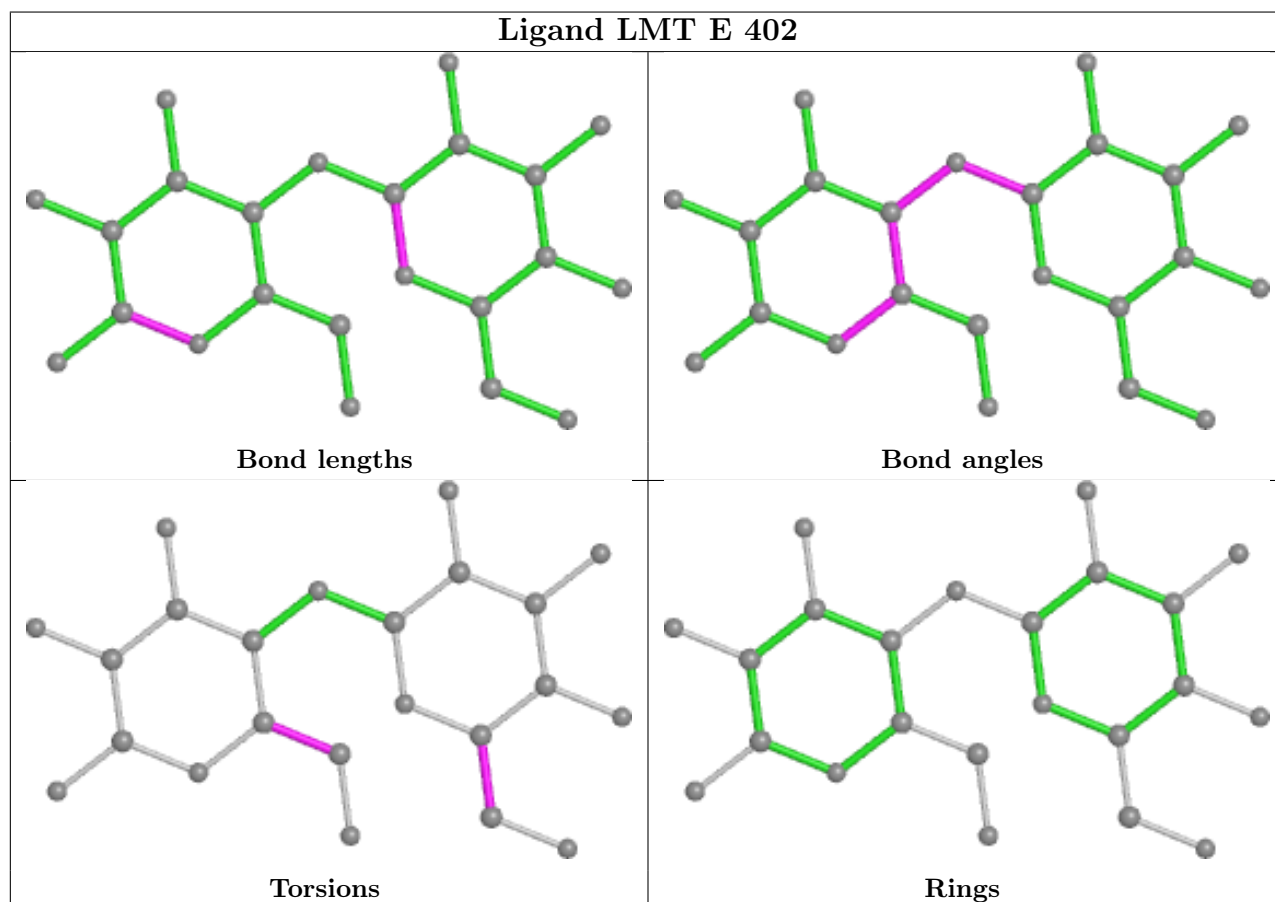
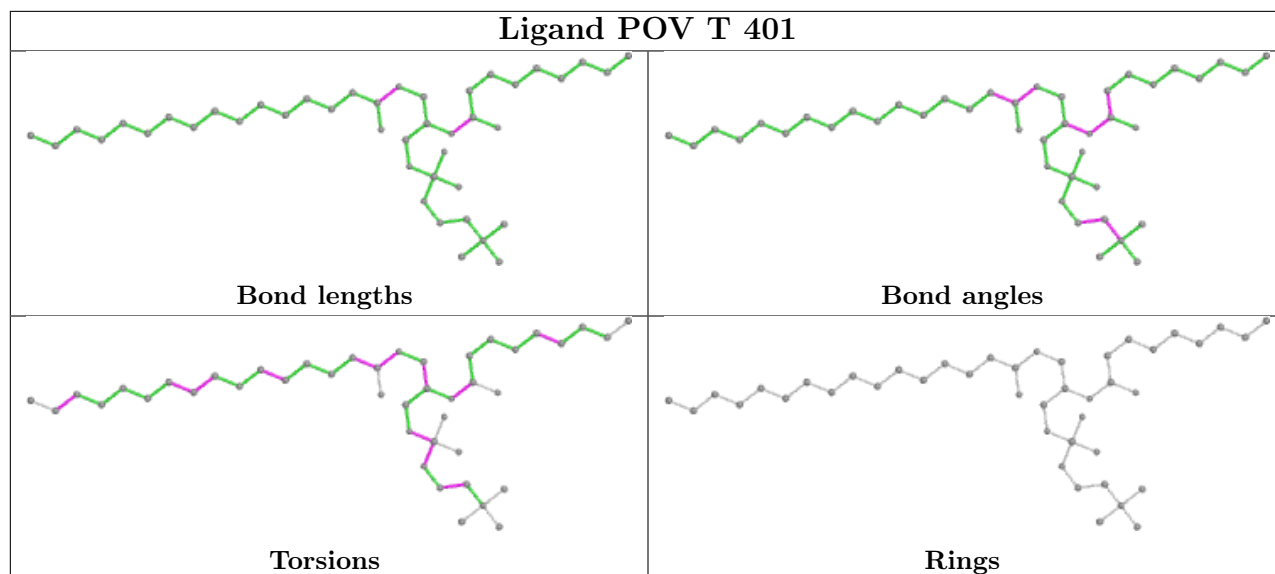


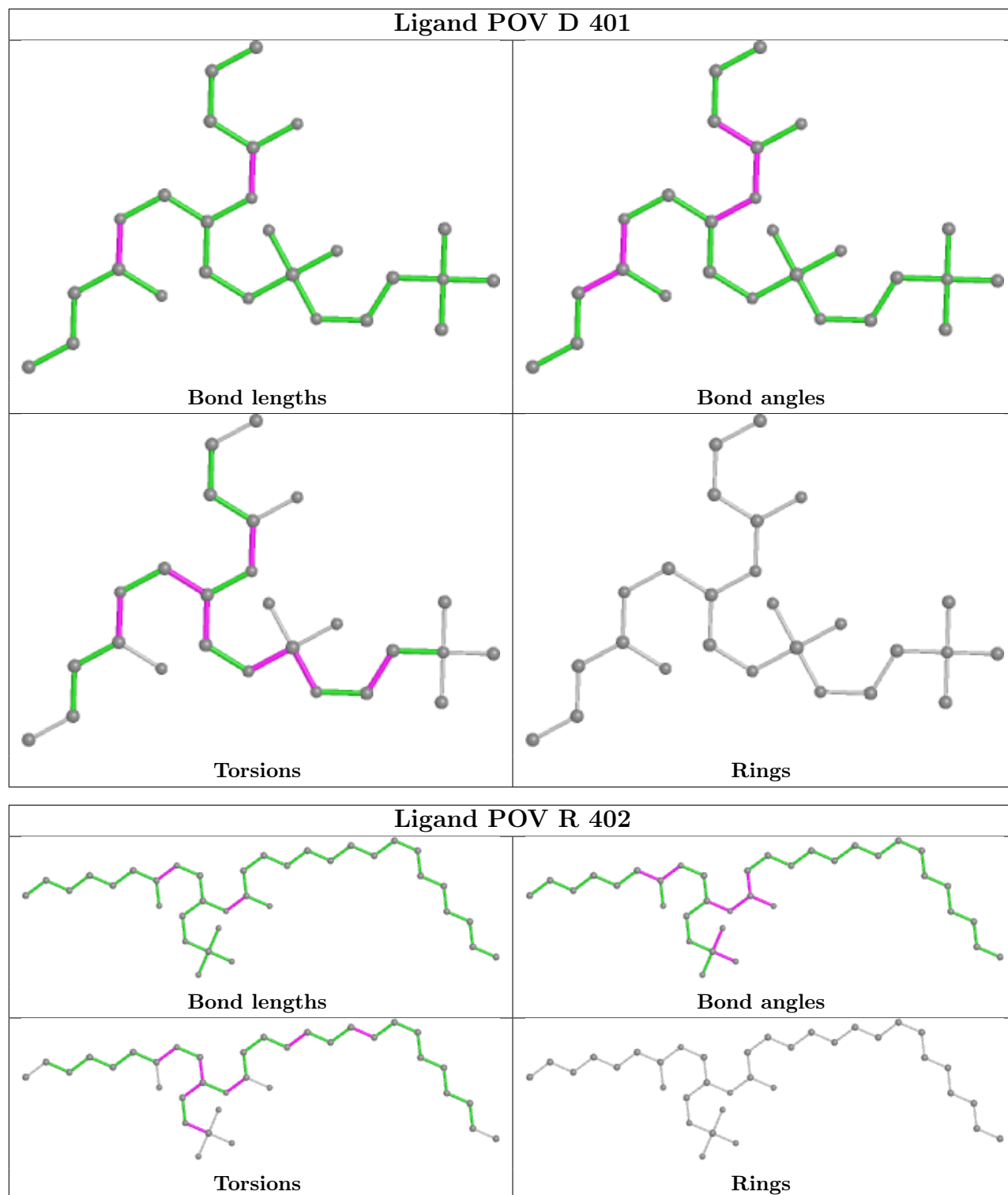












5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data i

6.1 Protein, DNA and RNA chains i

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	342/347 (98%)	0.05	1 (0%) 94 92	56, 102, 165, 226	0
1	B	341/347 (98%)	0.03	3 (0%) 84 75	58, 109, 175, 270	0
1	C	340/347 (97%)	0.02	2 (0%) 89 83	58, 106, 185, 251	0
1	D	340/347 (97%)	-0.02	1 (0%) 94 92	54, 106, 170, 263	0
1	E	340/347 (97%)	0.02	3 (0%) 84 75	57, 105, 170, 230	0
1	P	340/347 (97%)	-0.03	1 (0%) 94 92	51, 93, 156, 239	0
1	Q	340/347 (97%)	-0.05	1 (0%) 94 92	58, 99, 167, 242	0
1	R	340/347 (97%)	-0.07	4 (1%) 79 67	58, 97, 158, 274	0
1	S	340/347 (97%)	0.08	4 (1%) 79 67	53, 89, 144, 247	0
1	T	340/347 (97%)	-0.01	1 (0%) 94 92	49, 88, 151, 210	0
2	F	221/224 (98%)	0.12	10 (4%) 33 21	68, 113, 202, 265	0
2	G	222/224 (99%)	0.39	15 (6%) 17 10	75, 142, 230, 309	0
2	H	223/224 (99%)	-0.00	5 (2%) 62 48	52, 100, 158, 275	0
2	I	222/224 (99%)	-0.02	2 (0%) 84 75	63, 105, 192, 239	0
2	J	222/224 (99%)	0.81	49 (22%) 0 0	64, 146, 281, 313	0
2	U	221/224 (98%)	0.64	30 (13%) 3 2	75, 131, 220, 317	0
2	V	224/224 (100%)	0.12	8 (3%) 42 27	70, 117, 169, 269	0
2	W	224/224 (100%)	-0.06	3 (1%) 77 65	68, 102, 155, 257	0
2	X	224/224 (100%)	0.00	4 (1%) 68 55	57, 98, 169, 249	0
2	Y	221/224 (98%)	0.23	8 (3%) 42 27	64, 127, 195, 277	0
3	K	210/215 (97%)	0.15	13 (6%) 20 11	59, 114, 222, 295	0
3	L	211/215 (98%)	-0.09	1 (0%) 91 86	49, 91, 170, 224	0
3	M	210/215 (97%)	0.46	23 (10%) 5 3	69, 130, 248, 270	0
3	N	211/215 (98%)	-0.07	0 100 100	66, 116, 158, 200	0

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
3	O	211/215 (98%)	-0.05	0 100 100	65, 108, 143, 157	0
3	Z	215/215 (100%)	0.19	2 (0%) 84 75	71, 120, 160, 199	0
3	f	215/215 (100%)	-0.12	1 (0%) 91 86	69, 104, 153, 231	0
3	g	211/215 (98%)	0.23	8 (3%) 40 26	71, 127, 173, 218	0
3	h	211/215 (98%)	0.25	4 (1%) 66 53	75, 137, 177, 249	0
3	i	214/215 (99%)	-0.06	0 100 100	60, 99, 135, 165	0
All	All	7746/7860 (98%)	0.09	207 (2%) 54 39	49, 107, 191, 317	0

All (207) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	J	165	SER	8.9
2	V	140	GLN	8.6
2	X	142	ASN	7.0
2	J	147	LEU	6.7
2	J	218	LYS	5.8
2	J	151	VAL	5.5
3	M	122	PRO	5.5
2	J	166	GLY	5.5
2	G	149	CYS	5.3
3	M	123	PRO	5.2
2	J	134	ALA	5.1
2	U	138	ALA	4.9
2	J	168	LEU	4.9
2	J	149	CYS	4.9
2	J	150	LEU	4.8
2	U	191	THR	4.7
3	K	123	PRO	4.6
1	B	304	GLY	4.5
2	J	161	VAL	4.5
2	Y	136	GLY	4.5
3	M	130	THR	4.4
3	M	136	VAL	4.4
3	M	188	TRP	4.4
2	U	192	VAL	4.3
2	J	197	TRP	4.3
2	V	139	ALA	4.2
2	J	187	SER	4.1
2	J	188	SER	4.1
3	M	183	LEU	4.0

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Mol	Chain	Res	Type	RSRZ
2	J	174	THR	4.0
3	M	194	TYR	4.0
2	G	150	LEU	4.0
2	U	140	GLN	4.0
2	F	192	VAL	4.0
2	U	161	VAL	4.0
2	J	190	VAL	3.9
2	U	149	CYS	3.9
3	M	134	THR	3.9
1	R	12	SER	3.8
3	M	189	GLU	3.8
2	J	133	LEU	3.8
2	J	172	VAL	3.8
2	U	147	LEU	3.8
2	J	201	THR	3.7
2	U	137	SER	3.7
2	J	220	VAL	3.7
2	J	192	VAL	3.7
3	K	194	TYR	3.7
2	F	147	LEU	3.7
2	J	163	TRP	3.6
2	X	224	CYS	3.6
2	J	217	LYS	3.6
2	G	137	SER	3.6
2	J	189	SER	3.5
3	M	153	VAL	3.5
2	F	149	CYS	3.5
2	U	1	GLU	3.5
2	J	132	PRO	3.4
2	U	175	PHE	3.4
3	Z	205	VAL	3.4
2	G	135	PRO	3.4
2	U	165	SER	3.3
2	F	139	ALA	3.2
2	V	121	SER	3.2
3	h	144	PRO	3.2
2	J	167	SER	3.2
2	J	157	GLU	3.2
3	K	122	PRO	3.2
2	F	140	GLN	3.2
3	M	135	LEU	3.0
2	F	137	SER	3.0

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Mol	Chain	Res	Type	RSRZ
3	K	195	SER	3.0
2	G	132	PRO	3.0
3	g	188	TRP	3.0
2	J	204	CYS	3.0
1	S	69	LYS	2.9
2	Y	147	LEU	2.9
3	M	186	ARG	2.9
2	G	134	ALA	2.9
2	V	219	ILE	2.9
1	B	213	PHE	2.9
2	H	1	GLU	2.9
3	h	165	THR	2.9
2	H	138	ALA	2.8
2	U	206	VAL	2.8
2	F	163	TRP	2.8
3	Z	144	PRO	2.8
2	U	141	THR	2.8
3	M	127	GLU	2.8
1	B	340	HIS	2.8
2	U	196	THR	2.7
2	J	162	THR	2.7
2	U	188	SER	2.7
2	J	193	PRO	2.7
3	K	193	SER	2.7
3	K	121	PHE	2.7
3	M	121	PHE	2.7
2	J	146	THR	2.7
3	K	135	LEU	2.7
2	U	162	THR	2.7
2	U	195	SER	2.6
2	G	141	THR	2.6
2	W	139	ALA	2.6
3	M	182	THR	2.6
2	Y	138	ALA	2.6
3	K	124	SER	2.6
1	S	10	PHE	2.6
3	g	133	ALA	2.6
2	X	147	LEU	2.6
2	V	175	PHE	2.5
2	J	175	PHE	2.5
2	I	1	GLU	2.5
1	C	213	PHE	2.5

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Mol	Chain	Res	Type	RSRZ
2	U	181	SER	2.5
3	M	154	ASP	2.5
2	G	147	LEU	2.5
2	G	187	SER	2.5
2	I	139	ALA	2.5
2	G	130	VAL	2.5
2	U	163	TRP	2.5
2	G	18	MET	2.5
2	J	196	THR	2.5
2	W	142	ASN	2.5
2	J	126	THR	2.5
2	J	135	PRO	2.5
1	A	341	HIS	2.4
2	F	148	GLY	2.4
2	J	145	VAL	2.4
2	J	216	ASP	2.4
3	f	155	GLY	2.4
2	G	151	VAL	2.4
1	S	6	LEU	2.4
2	U	210	ALA	2.4
1	T	263	ILE	2.4
2	H	23	LYS	2.4
2	U	152	LYS	2.4
2	U	202	VAL	2.4
2	V	174	THR	2.4
2	J	139	ALA	2.4
3	M	191	HIS	2.4
3	L	1	GLN	2.3
2	J	152	LYS	2.3
2	F	132	PRO	2.3
2	U	169	SER	2.3
2	U	189	SER	2.3
2	J	131	TYR	2.3
2	U	204	CYS	2.3
2	U	186	LEU	2.3
3	K	136	VAL	2.3
3	K	133	ALA	2.3
3	K	179	SER	2.3
2	J	210	ALA	2.3
1	E	241	ALA	2.3
1	D	305	THR	2.3
2	G	1	GLU	2.3

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Mol	Chain	Res	Type	RSRZ
3	K	127	GLU	2.3
1	E	310	ASP	2.3
2	F	219	ILE	2.2
3	h	178	SER	2.2
2	J	164	ASN	2.2
2	Y	170	SER	2.2
2	J	156	PRO	2.2
3	g	18	VAL	2.2
2	X	139	ALA	2.2
2	U	197	TRP	2.2
3	g	78	THR	2.2
1	R	308	TRP	2.2
2	J	155	PHE	2.2
2	V	147	LEU	2.2
1	P	12	SER	2.2
1	R	2	ASP	2.2
2	Y	1	GLU	2.2
2	W	222	ARG	2.2
2	Y	217	LYS	2.2
3	M	129	GLU	2.2
3	M	138	THR	2.2
2	U	180	GLN	2.1
2	J	169	SER	2.1
2	J	44	ASN	2.1
2	H	140	GLN	2.1
2	U	178	VAL	2.1
1	Q	1	SER	2.1
3	K	209	LEU	2.1
2	G	197	TRP	2.1
2	G	145	VAL	2.1
3	M	196	CYS	2.1
3	g	109	LEU	2.1
3	M	155	GLY	2.1
2	J	127	PRO	2.1
3	h	152	LYS	2.1
3	g	108	VAL	2.1
2	Y	141	THR	2.1
3	M	163	GLU	2.1
3	g	180	TYR	2.1
2	J	191	THR	2.0
2	J	202	VAL	2.0
2	Y	215	VAL	2.0

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Mol	Chain	Res	Type	RSRZ
2	U	219	ILE	2.0
1	E	239	ARG	2.0
1	R	182	GLN	2.0
2	H	139	ALA	2.0
2	V	179	LEU	2.0
3	g	131	ASN	2.0
1	S	1	SER	2.0
3	M	184	THR	2.0
1	C	99	TYR	2.0
2	J	130	VAL	2.0

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

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
6	CL	A	403	1/1	0.54	0.61	119,119,119,119	0
8	LMT	P	402	23/35	0.56	0.43	221,221,221,221	0
7	GOL	B	401	6/6	0.58	0.35	115,145,151,167	0
8	LMT	T	403	23/35	0.58	0.38	156,202,217,222	0
8	LMT	S	402	23/35	0.62	0.51	169,214,224,235	0
8	LMT	E	402	23/35	0.63	0.63	218,239,254,257	0
4	NAG	T	402	14/15	0.68	0.34	153,200,210,211	0
8	LMT	B	403	23/35	0.70	0.55	176,217,235,242	0
5	POV	R	401	34/52	0.73	0.43	99,146,200,535	0
5	POV	A	402	23/52	0.73	0.62	137,177,208,241	0
5	POV	D	401	26/52	0.76	0.63	125,176,201,334	0
5	POV	T	401	43/52	0.77	0.47	77,129,177,205	0
5	POV	P	403	42/52	0.78	0.43	82,125,179,206	0

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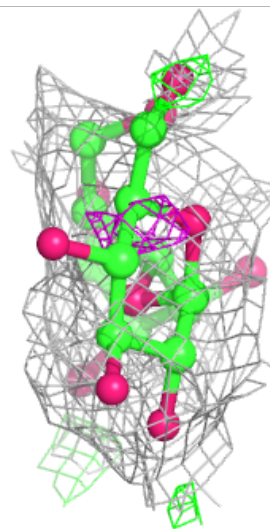
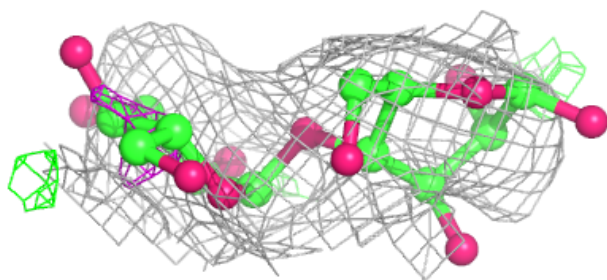
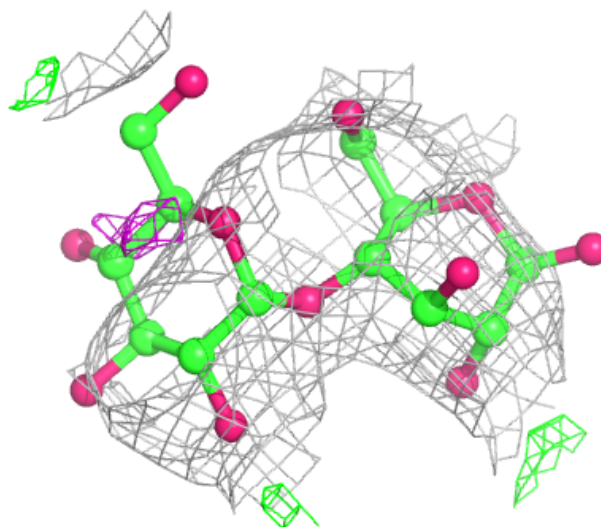
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
8	LMT	C	402	23/35	0.79	0.32	179,179,179,179	0
8	LMT	D	403	23/35	0.79	0.58	196,218,239,247	0
4	NAG	D	402	14/15	0.80	0.19	153,197,214,221	0
4	NAG	S	401	14/15	0.81	0.22	153,184,189,195	0
5	POV	R	402	35/52	0.81	0.50	96,123,186,208	0
5	POV	Q	401	46/52	0.81	0.67	108,149,198,237	0
4	NAG	Q	402	14/15	0.82	0.23	146,184,202,207	0
4	NAG	C	401	14/15	0.84	0.27	191,210,218,223	0
4	NAG	P	401	14/15	0.85	0.24	133,182,192,201	0
4	NAG	A	401	14/15	0.86	0.23	137,181,192,196	0
4	NAG	B	402	14/15	0.87	0.25	139,168,176,177	0
6	CL	P	404	1/1	0.89	0.20	90,90,90,90	0
4	NAG	E	401	14/15	0.90	0.16	157,190,206,212	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

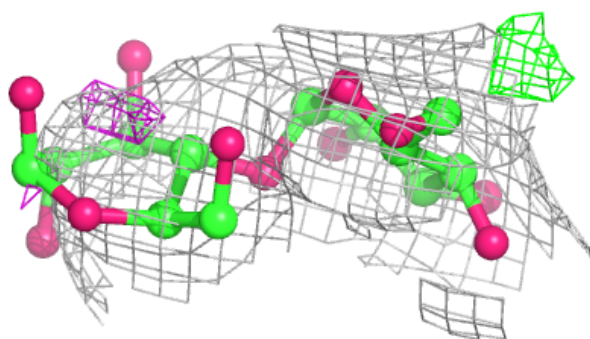
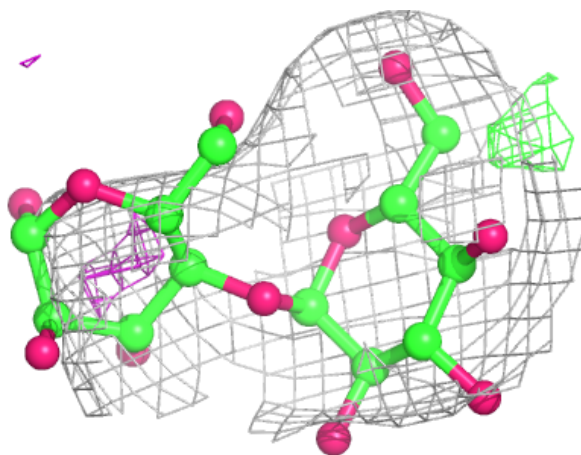
Electron density around LMT P 402:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



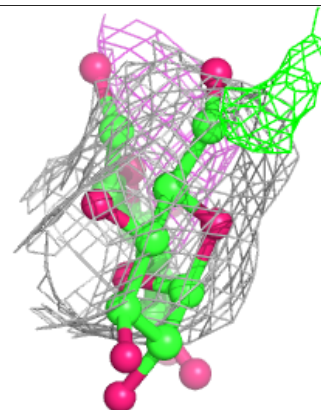
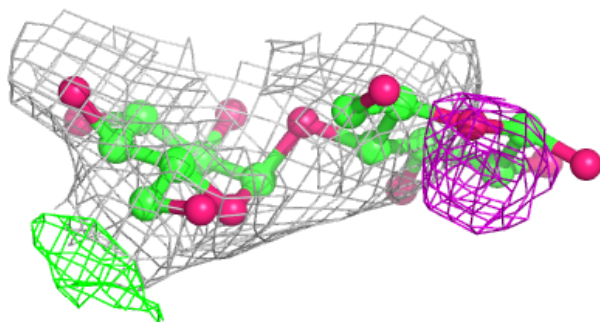
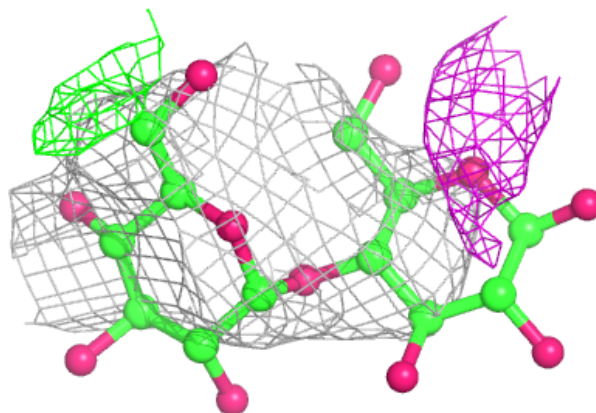
Electron density around LMT T 403:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



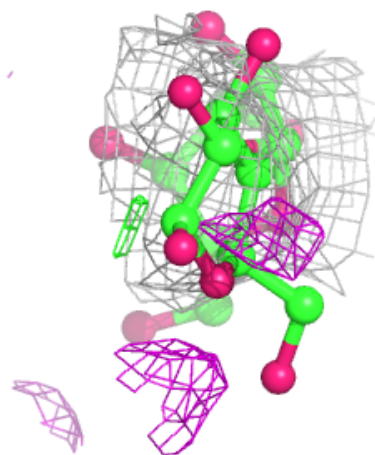
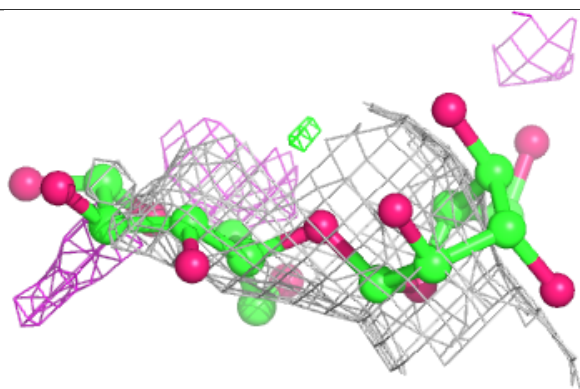
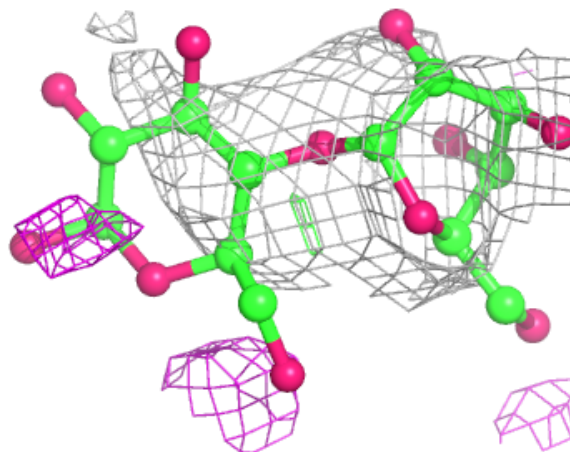
Electron density around LMT S 402:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



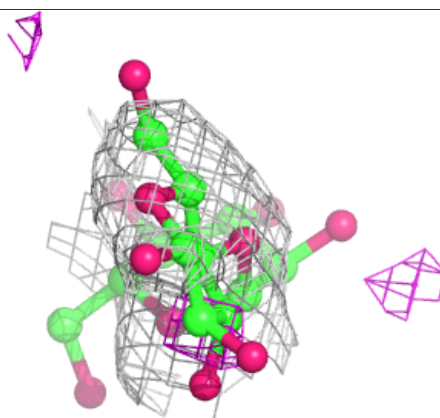
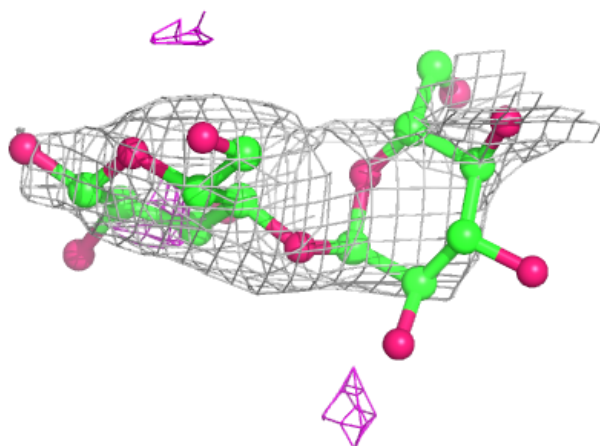
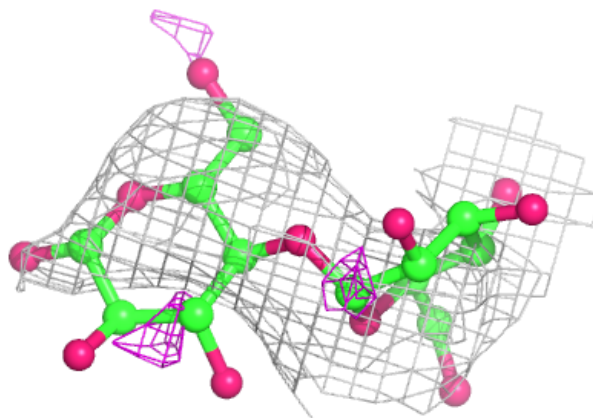
Electron density around LMT E 402:

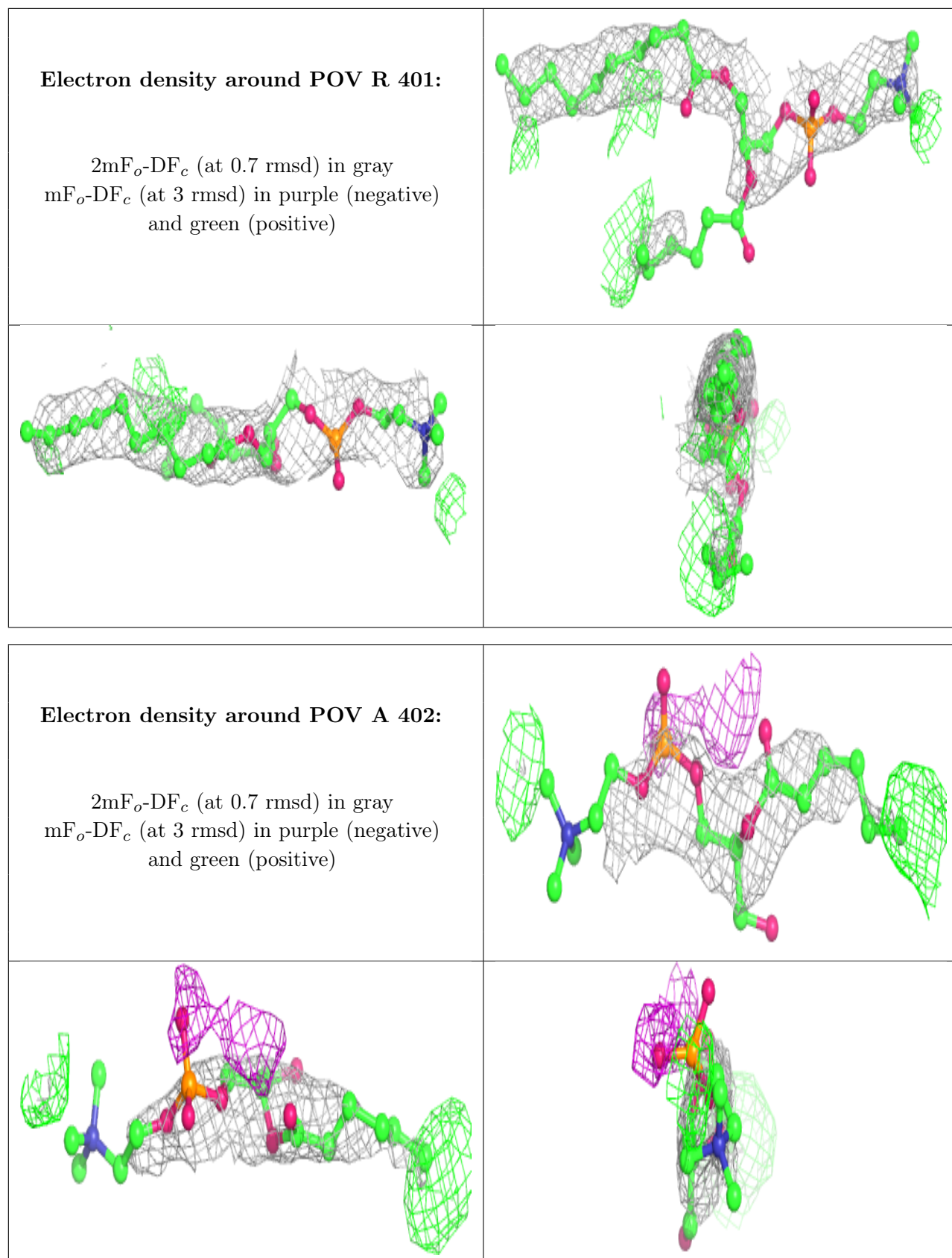
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

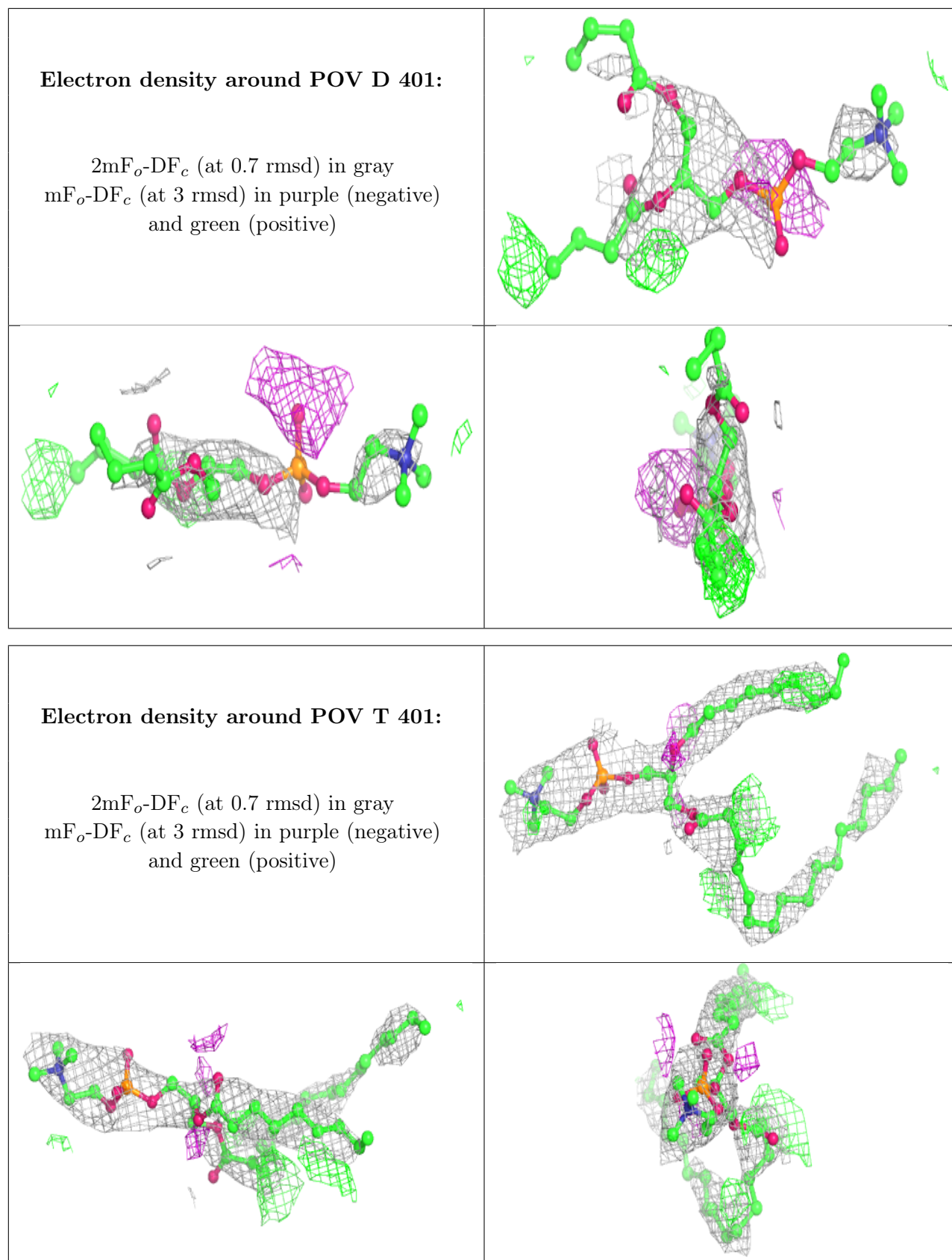


Electron density around LMT B 403:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

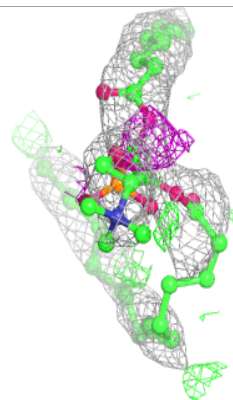
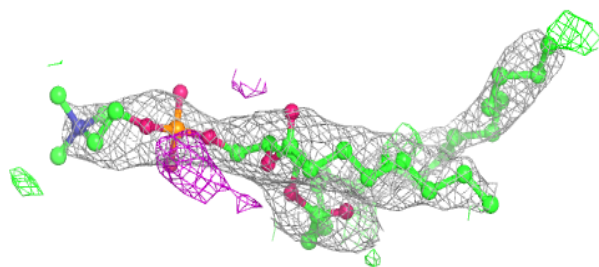
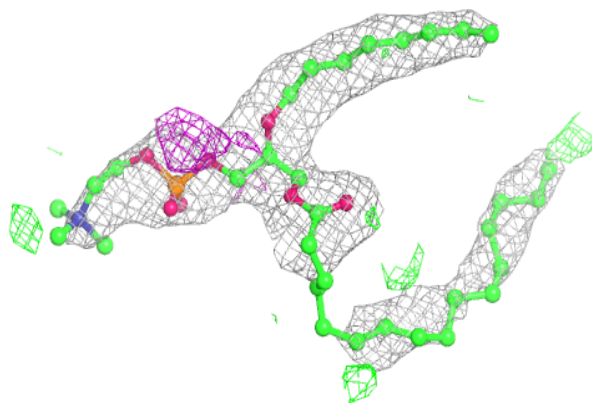




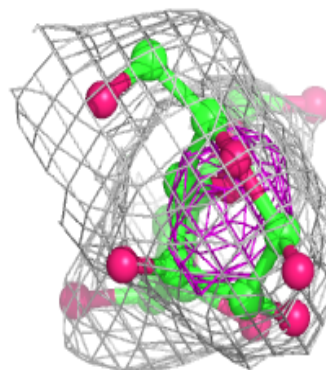
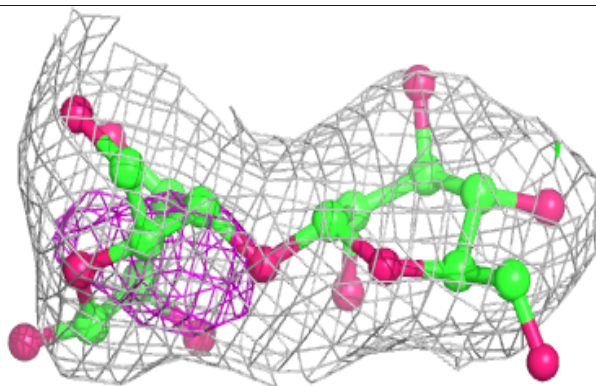
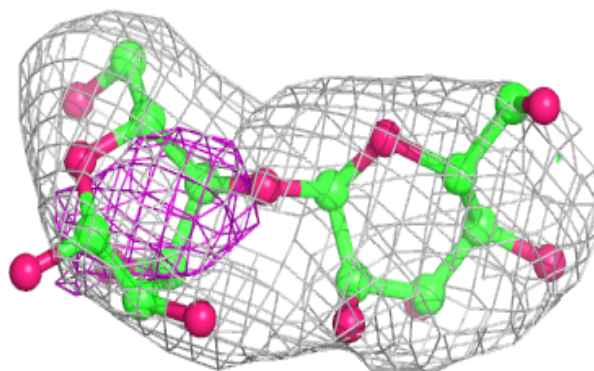


Electron density around POV P 403:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

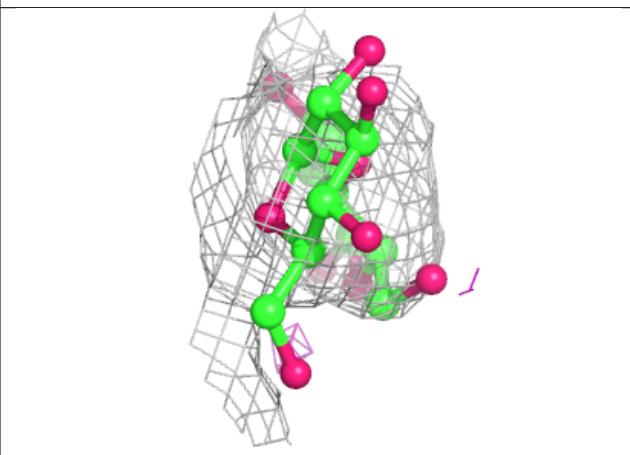
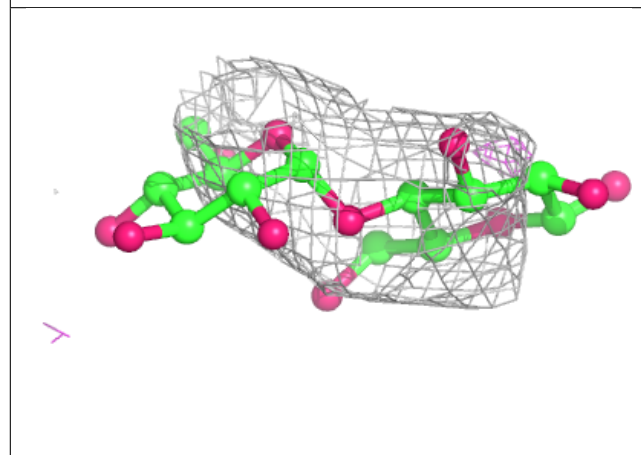
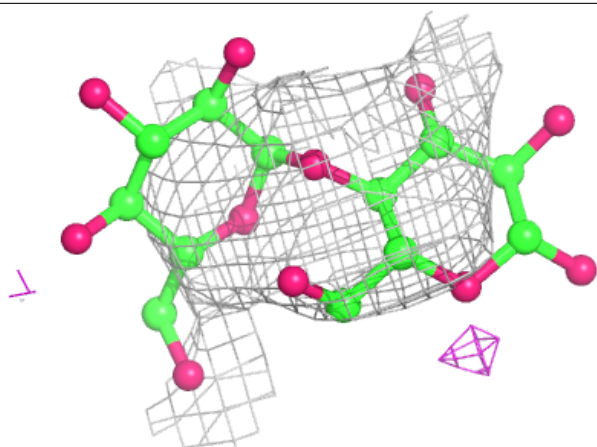
**Electron density around LMT C 402:**

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



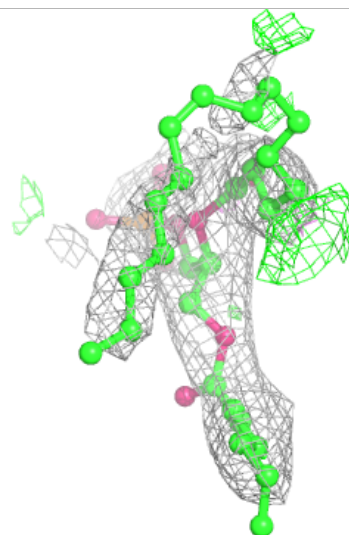
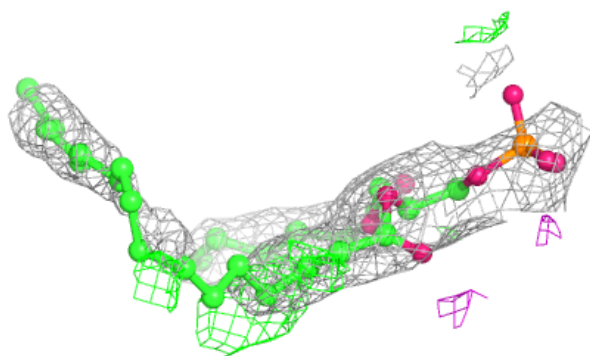
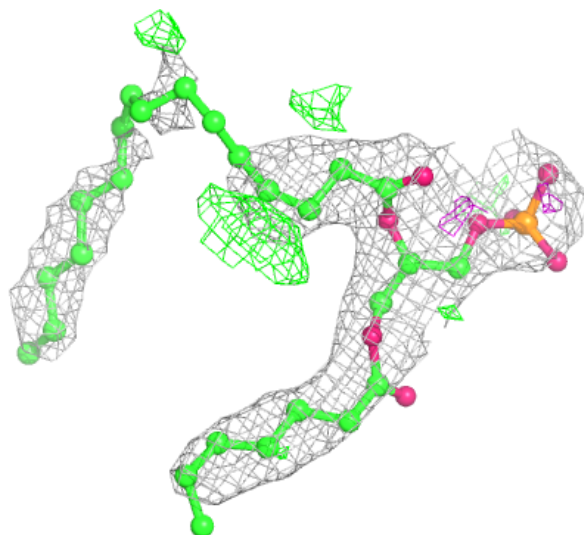
Electron density around LMT D 403:

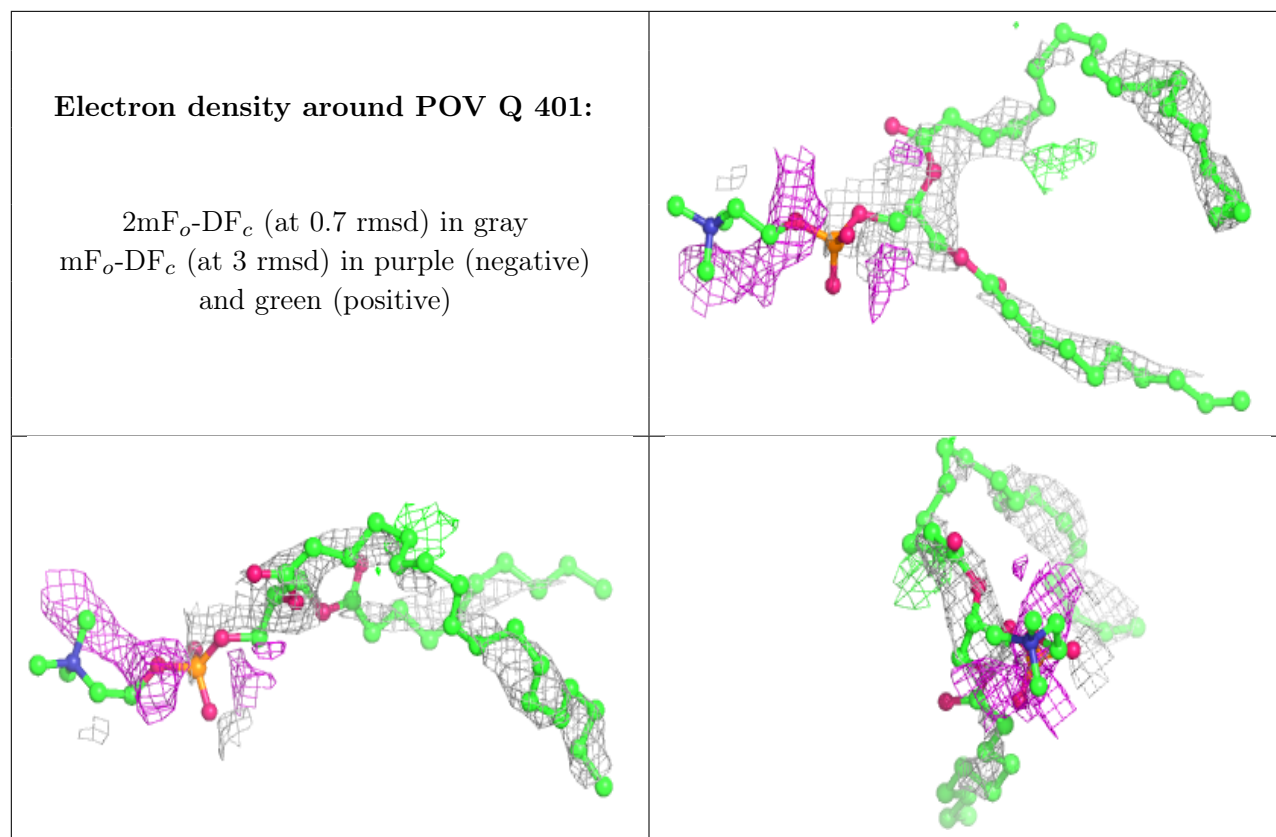
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around POV R 402:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





6.5 Other polymers [i](#)

There are no such residues in this entry.