



# wwPDB X-ray Structure Validation Summary Report ⓘ

May 13, 2020 – 04:38 am BST

PDB ID : 5VYP  
Title : Crystal structure of the Plant Defensin NsD7 bound to PIP2  
Authors : Jarva, M.; Lay, F.T.; Hulett, M.; Kvansakul, M.  
Deposited on : 2017-05-25  
Resolution : 2.60 Å(reported)

This is a wwPDB X-ray Structure 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/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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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 : 2.11  
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) : 2.11

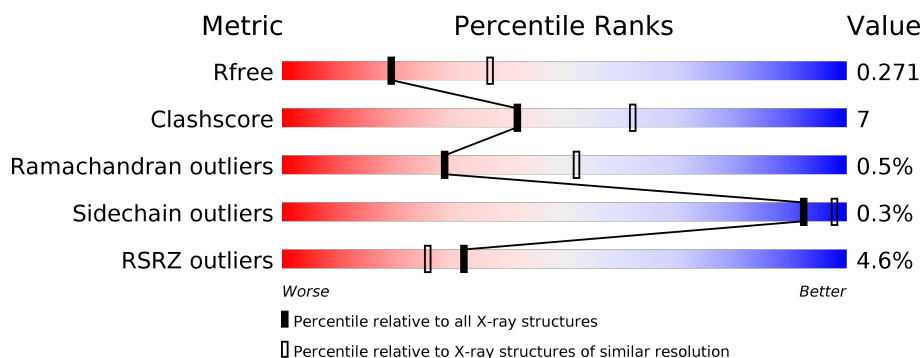
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

## *X-RAY DIFFRACTION*

The reported resolution of this entry is 2.60 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	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)
RSRZ outliers	127900	3104 (2.60-2.60)

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 on the lower 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 electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	48	<div> <div>2%</div> <div> <div></div> <div>85%</div> <div>13%</div> <div></div> </div> </div>
1	B	48	<div> <div>2%</div> <div> <div></div> <div>88%</div> <div>13%</div> <div></div> </div> </div>
1	C	48	<div> <div></div> <div> <div></div> <div>85%</div> <div>15%</div> <div></div> </div> </div>
1	D	48	<div> <div></div> <div> <div></div> <div>85%</div> <div>15%</div> <div></div> </div> </div>
1	E	48	<div> <div>2%</div> <div> <div></div> <div>85%</div> <div>15%</div> <div></div> </div> </div>
1	F	48	<div> <div>2%</div> <div> <div></div> <div>83%</div> <div>17%</div> <div></div> </div> </div>

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Mol	Chain	Length	Quality of chain
1	G	48	
1	H	48	
1	I	48	
1	J	48	
1	K	48	
1	L	48	
1	M	48	
1	N	48	
1	O	48	
1	P	48	
1	Q	48	
1	R	48	
1	S	48	
1	T	48	
1	U	48	
1	V	48	
1	W	48	
1	X	48	

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 criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	GOL	Q	102	-	-	X	X

## 2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 10341 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 Defensin NsD7.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	47	Total	C	N	O	S	0	0	0
			370	227	72	63	8			
1	B	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			
1	C	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			
1	D	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			
1	E	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			
1	F	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			
1	G	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			
1	H	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			
1	I	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			
1	J	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			
1	K	47	Total	C	N	O	S	0	0	0
			368	227	72	62	7			
1	L	45	Total	C	N	O	S	0	0	0
			354	218	69	60	7			
1	M	47	Total	C	N	O	S	0	0	0
			370	227	72	63	8			
1	N	47	Total	C	N	O	S	0	0	0
			370	227	72	63	8			
1	O	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			
1	P	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	Q	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			
1	R	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			
1	S	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			
1	T	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			
1	U	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			
1	V	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			
1	W	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			
1	X	48	Total	C	N	O	S	0	0	0
			375	230	73	64	8			

There are 24 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	0	ALA	-	expression tag	UNP C0HK49
B	0	ALA	-	expression tag	UNP C0HK49
C	0	ALA	-	expression tag	UNP C0HK49
D	0	ALA	-	expression tag	UNP C0HK49
E	0	ALA	-	expression tag	UNP C0HK49
F	0	ALA	-	expression tag	UNP C0HK49
G	0	ALA	-	expression tag	UNP C0HK49
H	0	ALA	-	expression tag	UNP C0HK49
I	0	ALA	-	expression tag	UNP C0HK49
J	0	ALA	-	expression tag	UNP C0HK49
K	0	ALA	-	expression tag	UNP C0HK49
L	0	ALA	-	expression tag	UNP C0HK49
M	0	ALA	-	expression tag	UNP C0HK49
N	0	ALA	-	expression tag	UNP C0HK49
O	0	ALA	-	expression tag	UNP C0HK49
P	0	ALA	-	expression tag	UNP C0HK49
Q	0	ALA	-	expression tag	UNP C0HK49
R	0	ALA	-	expression tag	UNP C0HK49
S	0	ALA	-	expression tag	UNP C0HK49
T	0	ALA	-	expression tag	UNP C0HK49
U	0	ALA	-	expression tag	UNP C0HK49
V	0	ALA	-	expression tag	UNP C0HK49
W	0	ALA	-	expression tag	UNP C0HK49

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Chain	Residue	Modelled	Actual	Comment	Reference
X	0	ALA	-	expression tag	UNP C0HK49

- # PIO

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total 47	C 25	O 19	P 3	0	0
2	B	1	Total 47	C 25	O 19	P 3	0	0
2	C	1	Total 47	C 25	O 19	P 3	0	0
2	D	1	Total 47	C 25	O 19	P 3	0	0
2	E	1	Total 47	C 25	O 19	P 3	0	0
2	F	1	Total 47	C 25	O 19	P 3	0	0
2	G	1	Total 47	C 25	O 19	P 3	0	0
2	H	1	Total 47	C 25	O 19	P 3	0	0
2	I	1	Total 47	C 25	O 19	P 3	0	0
2	J	1	Total 47	C 25	O 19	P 3	0	0



WORLD WIDE  
PDB  
PROTEIN DATA BANK

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	K	1	Total	C	O	P	0	0
			47	25	19	3		
2	L	1	Total	C	O	P	0	0
			47	25	19	3		
2	M	1	Total	C	O	P	0	0
			47	25	19	3		
2	N	1	Total	C	O	P	0	0
			47	25	19	3		
2	O	1	Total	C	O	P	0	0
			47	25	19	3		
2	P	1	Total	C	O	P	0	0
			47	25	19	3		
2	Q	1	Total	C	O	P	0	0
			47	25	19	3		
2	R	1	Total	C	O	P	0	0
			47	25	19	3		
2	S	1	Total	C	O	P	0	0
			47	25	19	3		
2	T	1	Total	C	O	P	0	0
			47	25	19	3		
2	U	1	Total	C	O	P	0	0
			47	25	19	3		
2	V	1	Total	C	O	P	0	0
			47	25	19	3		
2	W	1	Total	C	O	P	0	0
			47	25	19	3		
2	X	1	Total	C	O	P	0	0
			47	25	19	3		

- Molecule 3 is SULFATE ION (three-letter code: SO4) (formula: O<sub>4</sub>S).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	O	S	0	0
			5	4	1		
3	A	1	Total	O	S	0	0
			5	4	1		
3	D	1	Total	O	S	0	0
			5	4	1		
3	G	1	Total	O	S	0	0
			5	4	1		
3	R	1	Total	O	S	0	0
			5	4	1		
3	U	1	Total	O	S	0	0
			5	4	1		
3	U	1	Total	O	S	0	0
			5	4	1		

- Molecule 4 is GLYCEROL (three-letter code: GOL) (formula: C<sub>3</sub>H<sub>8</sub>O<sub>3</sub>).





Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	C	1	Total	C	O	0	0
			6	3	3		
4	I	1	Total	C	O	0	0
			6	3	3		
4	M	1	Total	C	O	0	0
			6	3	3		
4	M	1	Total	C	O	0	0
			6	3	3		
4	P	1	Total	C	O	0	0
			6	3	3		
4	Q	1	Total	C	O	0	0
			6	3	3		
4	S	1	Total	C	O	0	0
			6	3	3		
4	T	1	Total	C	O	0	0
			6	3	3		
4	U	1	Total	C	O	0	0
			6	3	3		
4	U	1	Total	C	O	0	0
			6	3	3		
4	W	1	Total	C	O	0	0
			6	3	3		
4	W	1	Total	C	O	0	0
			6	3	3		

- Molecule 5 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	6	Total O 6 6	0	0
5	B	8	Total O 8 8	0	0
5	C	8	Total O 8 8	0	0
5	D	7	Total O 7 7	0	0
5	E	5	Total O 5 5	0	0
5	F	11	Total O 11 11	0	0
5	G	2	Total O 2 2	0	0
5	H	3	Total O 3 3	0	0
5	I	2	Total O 2 2	0	0
5	J	3	Total O 3 3	0	0
5	K	2	Total O 2 2	0	0
5	L	1	Total O 1 1	0	0
5	M	2	Total O 2 2	0	0
5	N	1	Total O 1 1	0	0
5	O	2	Total O 2 2	0	0
5	P	5	Total O 5 5	0	0
5	Q	7	Total O 7 7	0	0
5	R	9	Total O 9 9	0	0
5	S	12	Total O 12 12	0	0
5	T	14	Total O 14 14	0	0
5	U	18	Total O 18 18	0	0
5	V	8	Total O 8 8	0	0

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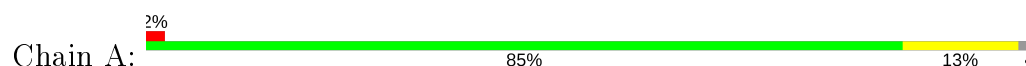
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	W	4	Total	O	0	0
			4	4		
5	X	4	Total	O	0	0
			4	4		

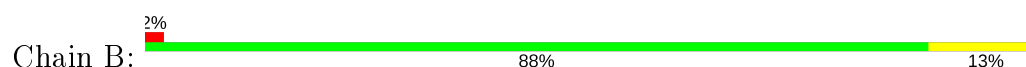
### 3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA 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.

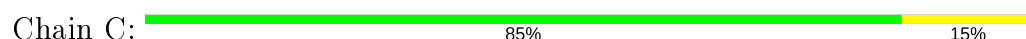
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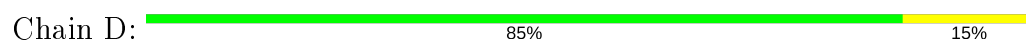
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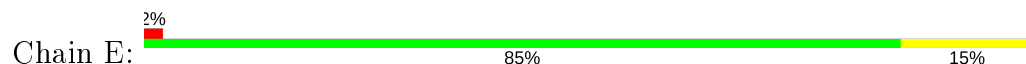
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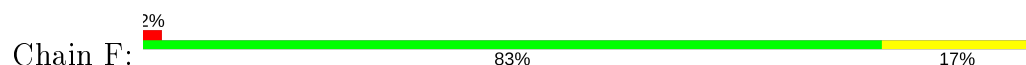
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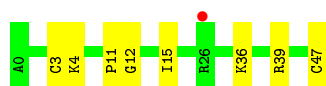


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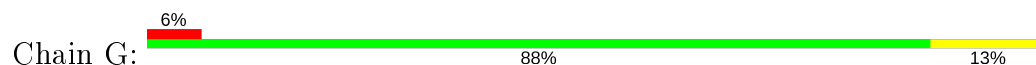


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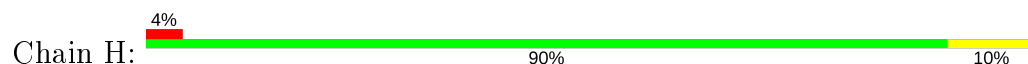




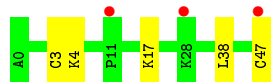
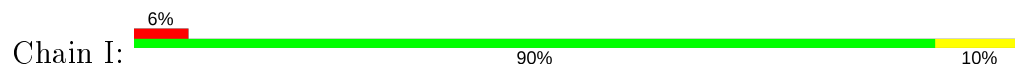
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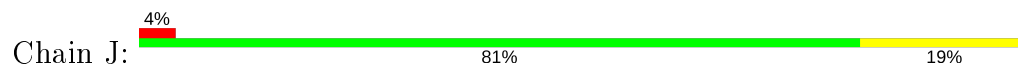
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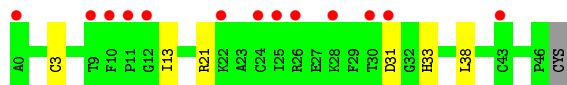
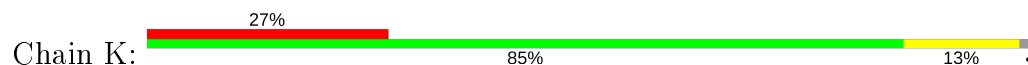
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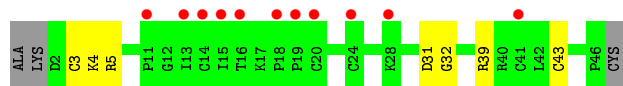
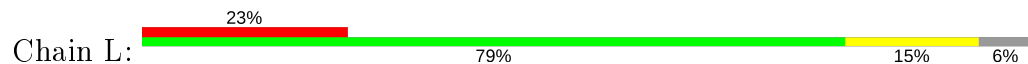
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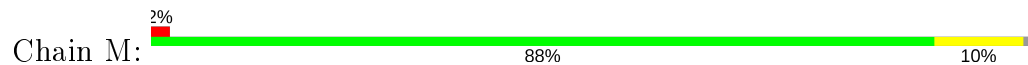
- Molecule 1: Defensin NsD7



- Molecule 1: Defensin NsD7

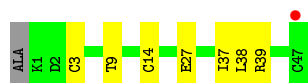
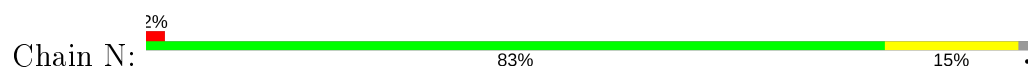


- Molecule 1: Defensin NsD7





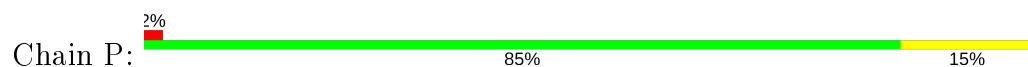
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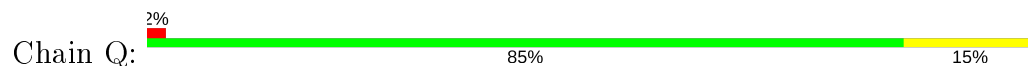
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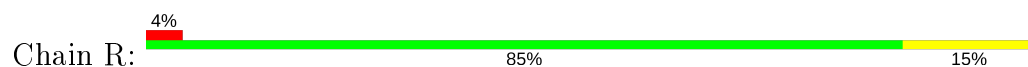
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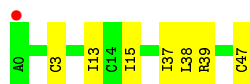
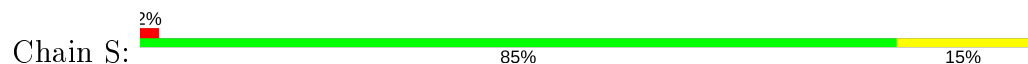
- Molecule 1: Defensin NsD7



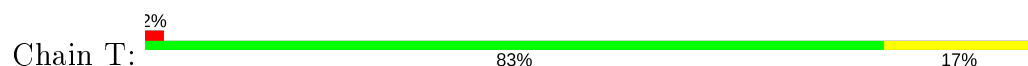
- Molecule 1: Defensin NsD7



- Molecule 1: Defensin NsD7

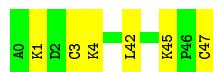
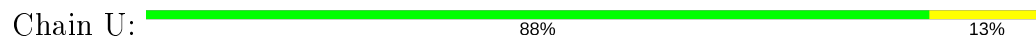


- Molecule 1: Defensin NsD7

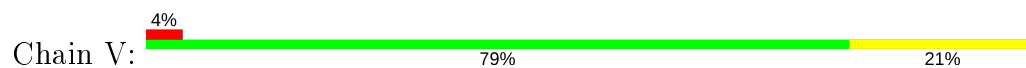




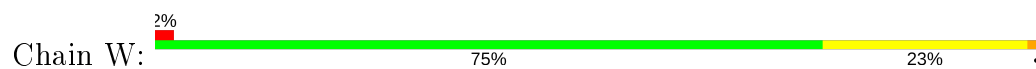
- Molecule 1: Defensin NsD7



- Molecule 1: Defensin NsD7



- Molecule 1: Defensin NsD7



- Molecule 1: Defensin NsD7



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	75.61Å 83.49Å 105.19Å 90.00° 93.99° 90.00°	Depositor
Resolution (Å)	38.79 – 2.60 48.36 – 2.60	Depositor EDS
% Data completeness (in resolution range)	95.6 (38.79-2.60) 95.7 (48.36-2.60)	Depositor EDS
$R_{merge}$	0.10	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.32 (at 2.61Å)	Xtriage
Refinement program	PHENIX	Depositor
R, $R_{free}$	0.214 , 0.270 0.215 , 0.271	Depositor DCC
$R_{free}$ test set	1869 reflections (4.84%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	48.2	Xtriage
Anisotropy	0.212	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.30 , 36.9	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.93	EDS
Total number of atoms	10341	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	55.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.04% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical 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: GOL, SO4, PIO

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	0.23	0/376	0.43	0/499
1	B	0.24	0/381	0.42	0/506
1	C	0.30	0/381	0.43	0/506
1	D	0.23	0/381	0.43	0/506
1	E	0.24	0/381	0.44	0/506
1	F	0.24	0/381	0.42	0/506
1	G	0.27	0/381	0.45	0/506
1	H	0.24	0/381	0.43	0/506
1	I	0.24	0/381	0.43	0/506
1	J	0.25	0/381	0.42	0/506
1	K	0.24	0/374	0.46	0/498
1	L	0.23	0/360	0.43	0/480
1	M	0.24	0/376	0.43	0/499
1	N	0.23	0/376	0.44	0/499
1	O	0.22	0/381	0.41	0/506
1	P	0.25	0/381	0.43	0/506
1	Q	0.24	0/381	0.43	0/506
1	R	0.24	0/381	0.42	0/506
1	S	0.24	0/381	0.43	0/506
1	T	0.23	0/381	0.43	0/506
1	U	0.23	0/381	0.42	0/506
1	V	0.24	0/381	0.42	0/506
1	W	0.25	0/381	0.42	0/506
1	X	0.24	0/381	0.43	0/506
All	All	0.24	0/9101	0.43	0/12089

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	370	0	384	6	0
1	B	375	0	389	5	0
1	C	375	0	389	6	0
1	D	375	0	389	5	0
1	E	375	0	389	8	0
1	F	375	0	389	6	0
1	G	375	0	389	4	0
1	H	375	0	389	4	0
1	I	375	0	389	5	0
1	J	375	0	389	8	0
1	K	368	0	386	5	0
1	L	354	0	365	5	0
1	M	370	0	384	5	0
1	N	370	0	384	6	0
1	O	375	0	389	7	0
1	P	375	0	389	6	0
1	Q	375	0	389	7	0
1	R	375	0	389	5	0
1	S	375	0	389	6	0
1	T	375	0	389	8	0
1	U	375	0	389	5	0
1	V	375	0	389	10	0
1	W	375	0	389	10	0
1	X	375	0	389	12	0
2	A	47	0	44	2	0
2	B	47	0	44	3	0
2	C	47	0	44	7	0
2	D	47	0	44	5	0
2	E	47	0	44	1	0
2	F	47	0	44	4	0
2	G	47	0	44	1	0
2	H	47	0	44	1	0
2	I	47	0	44	2	0
2	J	47	0	44	4	0
2	K	47	0	42	2	0
2	L	47	0	44	2	0
2	M	47	0	44	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	N	47	0	44	3	0
2	O	47	0	44	4	0
2	P	47	0	44	2	0
2	Q	47	0	44	1	0
2	R	47	0	44	3	0
2	S	47	0	44	2	0
2	T	47	0	44	4	0
2	U	47	0	44	2	0
2	V	47	0	44	5	0
2	W	47	0	43	4	0
2	X	47	0	44	3	0
3	A	10	0	0	0	0
3	D	5	0	0	0	0
3	G	5	0	0	0	0
3	R	5	0	0	0	0
3	U	15	0	0	0	0
4	C	6	0	8	0	0
4	I	6	0	8	0	0
4	M	12	0	16	3	0
4	P	6	0	8	0	0
4	Q	6	0	7	4	0
4	S	6	0	8	0	0
4	T	6	0	8	2	0
4	U	12	0	16	0	0
4	W	12	0	15	2	0
5	A	6	0	0	0	0
5	B	8	0	0	0	0
5	C	8	0	0	0	0
5	D	7	0	0	0	0
5	E	5	0	0	0	0
5	F	11	0	0	0	0
5	G	2	0	0	0	0
5	H	3	0	0	1	0
5	I	2	0	0	0	0
5	J	3	0	0	0	0
5	K	2	0	0	0	0
5	L	1	0	0	0	0
5	M	2	0	0	0	0
5	N	1	0	0	0	0
5	O	2	0	0	0	0
5	P	5	0	0	0	0
5	Q	7	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	R	9	0	0	0	0
5	S	12	0	0	0	0
5	T	14	0	0	0	0
5	U	18	0	0	0	0
5	V	8	0	0	1	0
5	W	4	0	0	0	0
5	X	4	0	0	0	0
All	All	10341	0	10441	144	0

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

The worst 5 of 144 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:13:ILE:HD11	1:N:38:LEU:HD21	1.69	0.74
1:J:15:ILE:HD13	1:M:39:ARG:HD3	1.70	0.74
1:G:45:LYS:NZ	1:H:47:CYS:O	2.21	0.74
1:K:38:LEU:HD21	1:Q:13:ILE:HD11	1.67	0.73
1:O:38:LEU:HB3	4:Q:102:GOL:H12	1.68	0.72

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 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	45/48 (94%)	42 (93%)	3 (7%)	0	100	100
1	B	46/48 (96%)	45 (98%)	0	1 (2%)	6	12
1	C	46/48 (96%)	45 (98%)	0	1 (2%)	6	12
1	D	46/48 (96%)	44 (96%)	2 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	E	46/48 (96%)	44 (96%)	2 (4%)	0	100	100
1	F	46/48 (96%)	44 (96%)	1 (2%)	1 (2%)	6	12
1	G	46/48 (96%)	45 (98%)	1 (2%)	0	100	100
1	H	46/48 (96%)	44 (96%)	2 (4%)	0	100	100
1	I	46/48 (96%)	44 (96%)	2 (4%)	0	100	100
1	J	46/48 (96%)	43 (94%)	3 (6%)	0	100	100
1	K	45/48 (94%)	43 (96%)	2 (4%)	0	100	100
1	L	43/48 (90%)	41 (95%)	2 (5%)	0	100	100
1	M	45/48 (94%)	44 (98%)	1 (2%)	0	100	100
1	N	45/48 (94%)	44 (98%)	1 (2%)	0	100	100
1	O	46/48 (96%)	43 (94%)	3 (6%)	0	100	100
1	P	46/48 (96%)	44 (96%)	2 (4%)	0	100	100
1	Q	46/48 (96%)	44 (96%)	2 (4%)	0	100	100
1	R	46/48 (96%)	44 (96%)	1 (2%)	1 (2%)	6	12
1	S	46/48 (96%)	44 (96%)	2 (4%)	0	100	100
1	T	46/48 (96%)	43 (94%)	3 (6%)	0	100	100
1	U	46/48 (96%)	43 (94%)	3 (6%)	0	100	100
1	V	46/48 (96%)	45 (98%)	1 (2%)	0	100	100
1	W	46/48 (96%)	45 (98%)	0	1 (2%)	6	12
1	X	46/48 (96%)	43 (94%)	3 (6%)	0	100	100
All	All	1097/1152 (95%)	1050 (96%)	42 (4%)	5 (0%)	29	52

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	11	PRO
1	F	11	PRO
1	R	11	PRO
1	B	11	PRO
1	W	11	PRO

### 5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	44/44 (100%)	44 (100%)	0	100	100
1	B	44/44 (100%)	44 (100%)	0	100	100
1	C	44/44 (100%)	43 (98%)	1 (2%)	50	75
1	D	44/44 (100%)	44 (100%)	0	100	100
1	E	44/44 (100%)	44 (100%)	0	100	100
1	F	44/44 (100%)	44 (100%)	0	100	100
1	G	44/44 (100%)	43 (98%)	1 (2%)	50	75
1	H	44/44 (100%)	44 (100%)	0	100	100
1	I	44/44 (100%)	44 (100%)	0	100	100
1	J	44/44 (100%)	44 (100%)	0	100	100
1	K	43/44 (98%)	43 (100%)	0	100	100
1	L	42/44 (96%)	42 (100%)	0	100	100
1	M	44/44 (100%)	44 (100%)	0	100	100
1	N	44/44 (100%)	44 (100%)	0	100	100
1	O	44/44 (100%)	44 (100%)	0	100	100
1	P	44/44 (100%)	44 (100%)	0	100	100
1	Q	44/44 (100%)	44 (100%)	0	100	100
1	R	44/44 (100%)	44 (100%)	0	100	100
1	S	44/44 (100%)	44 (100%)	0	100	100
1	T	44/44 (100%)	44 (100%)	0	100	100
1	U	44/44 (100%)	44 (100%)	0	100	100
1	V	44/44 (100%)	44 (100%)	0	100	100
1	W	44/44 (100%)	43 (98%)	1 (2%)	50	75
1	X	44/44 (100%)	44 (100%)	0	100	100
All	All	1053/1056 (100%)	1050 (100%)	3 (0%)	92	98

All (3) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	47	CYS

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Mol	Chain	Res	Type
1	G	47	CYS
1	W	47	CYS

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

### 5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates ⓘ

There are no carbohydrates in this entry.

## 5.6 Ligand geometry ⓘ

44 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	PIO	M	101	-	47,47,47	1.17	6 (12%)	61,65,65	0.99	2 (3%)
3	SO4	R	102	-	4,4,4	0.14	0	6,6,6	0.05	0
4	GOL	Q	102	2	5,5,5	0.33	0	5,5,5	0.32	0
2	PIO	V	101	-	47,47,47	1.17	6 (12%)	61,65,65	0.98	2 (3%)
2	PIO	G	101	-	47,47,47	1.18	6 (12%)	61,65,65	0.97	2 (3%)
2	PIO	D	101	-	47,47,47	1.18	6 (12%)	61,65,65	0.98	3 (4%)
4	GOL	M	102	-	5,5,5	0.36	0	5,5,5	0.22	0
3	SO4	D	102	-	4,4,4	0.14	0	6,6,6	0.05	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	PIO	W	101	4	47,47,47	1.20	6 (12%)	61,65,65	1.06	3 (4%)
2	PIO	T	101	-	47,47,47	1.16	6 (12%)	61,65,65	0.97	2 (3%)
2	PIO	O	101	-	47,47,47	1.18	6 (12%)	61,65,65	0.99	3 (4%)
3	SO4	G	102	-	4,4,4	0.13	0	6,6,6	0.06	0
4	GOL	U	106	-	5,5,5	0.38	0	5,5,5	0.22	0
4	GOL	W	102	2	5,5,5	0.45	0	5,5,5	0.25	0
2	PIO	E	101	-	47,47,47	1.17	6 (12%)	61,65,65	0.93	3 (4%)
3	SO4	A	103	-	4,4,4	0.14	0	6,6,6	0.04	0
2	PIO	X	101	-	47,47,47	1.16	6 (12%)	61,65,65	1.03	3 (4%)
4	GOL	T	102	-	5,5,5	0.37	0	5,5,5	0.24	0
2	PIO	F	101	-	47,47,47	1.17	6 (12%)	61,65,65	0.98	3 (4%)
3	SO4	U	102	-	4,4,4	0.14	0	6,6,6	0.05	0
2	PIO	R	101	-	47,47,47	1.18	6 (12%)	61,65,65	0.97	3 (4%)
2	PIO	S	101	-	47,47,47	1.17	6 (12%)	61,65,65	1.13	3 (4%)
2	PIO	L	101	-	47,47,47	1.18	6 (12%)	61,65,65	1.03	3 (4%)
2	PIO	J	101	-	47,47,47	1.17	6 (12%)	61,65,65	0.99	3 (4%)
4	GOL	U	105	-	5,5,5	0.37	0	5,5,5	0.26	0
2	PIO	A	101	-	47,47,47	1.17	6 (12%)	61,65,65	0.98	2 (3%)
2	PIO	N	101	-	47,47,47	1.17	6 (12%)	61,65,65	0.91	2 (3%)
4	GOL	C	102	-	5,5,5	0.36	0	5,5,5	0.27	0
4	GOL	M	103	-	5,5,5	0.36	0	5,5,5	0.30	0
2	PIO	P	101	-	47,47,47	1.17	6 (12%)	61,65,65	0.96	2 (3%)
2	PIO	Q	101	-	47,47,47	1.16	6 (12%)	61,65,65	0.98	2 (3%)
4	GOL	W	103	-	5,5,5	0.38	0	5,5,5	0.28	0
4	GOL	S	102	-	5,5,5	0.38	0	5,5,5	0.25	0
2	PIO	K	101	4	47,47,47	1.17	6 (12%)	61,65,65	0.94	2 (3%)
2	PIO	H	101	-	47,47,47	1.19	6 (12%)	61,65,65	0.95	3 (4%)
2	PIO	I	101	-	47,47,47	1.17	6 (12%)	61,65,65	0.93	3 (4%)
3	SO4	U	104	-	4,4,4	0.14	0	6,6,6	0.04	0
3	SO4	U	103	-	4,4,4	0.14	0	6,6,6	0.05	0
2	PIO	B	101	-	47,47,47	1.18	6 (12%)	61,65,65	1.04	2 (3%)
2	PIO	C	101	-	47,47,47	1.17	6 (12%)	61,65,65	0.97	3 (4%)
4	GOL	I	102	-	5,5,5	0.37	0	5,5,5	0.27	0
2	PIO	U	101	-	47,47,47	1.18	6 (12%)	61,65,65	0.97	3 (4%)
4	GOL	P	102	-	5,5,5	0.36	0	5,5,5	0.25	0
3	SO4	A	102	-	4,4,4	0.14	0	6,6,6	0.04	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral



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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	PIO	M	101	-	-	22/44/68/68	0/1/1/1
4	GOL	Q	102	2	-	4/4/4/4	-
2	PIO	V	101	-	-	12/44/68/68	0/1/1/1
2	PIO	G	101	-	-	17/44/68/68	0/1/1/1
2	PIO	D	101	-	-	17/44/68/68	0/1/1/1
4	GOL	M	102	-	-	2/4/4/4	-
4	GOL	P	102	-	-	2/4/4/4	-
2	PIO	W	101	4	-	16/44/68/68	0/1/1/1
2	PIO	T	101	-	-	11/44/68/68	0/1/1/1
2	PIO	O	101	-	-	20/44/68/68	0/1/1/1
4	GOL	U	106	-	-	0/4/4/4	-
4	GOL	W	102	2	-	2/4/4/4	-
2	PIO	E	101	-	-	14/44/68/68	0/1/1/1
2	PIO	X	101	-	-	17/44/68/68	0/1/1/1
4	GOL	T	102	-	-	3/4/4/4	-
2	PIO	F	101	-	-	17/44/68/68	0/1/1/1
2	PIO	R	101	-	-	15/44/68/68	0/1/1/1
2	PIO	S	101	-	-	16/44/68/68	0/1/1/1
2	PIO	L	101	-	-	15/44/68/68	0/1/1/1
2	PIO	J	101	-	-	13/44/68/68	0/1/1/1
4	GOL	U	105	-	-	2/4/4/4	-
2	PIO	A	101	-	-	13/44/68/68	0/1/1/1
2	PIO	N	101	-	-	9/44/68/68	0/1/1/1
4	GOL	C	102	-	-	0/4/4/4	-
4	GOL	M	103	-	-	4/4/4/4	-
2	PIO	P	101	-	-	19/44/68/68	0/1/1/1
2	PIO	Q	101	-	-	18/44/68/68	0/1/1/1
4	GOL	W	103	-	-	2/4/4/4	-
4	GOL	S	102	-	-	2/4/4/4	-
2	PIO	K	101	4	-	14/44/68/68	0/1/1/1
2	PIO	H	101	-	-	21/44/68/68	0/1/1/1
2	PIO	I	101	-	-	16/44/68/68	0/1/1/1
2	PIO	B	101	-	-	15/44/68/68	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	PIO	C	101	-	-	17/44/68/68	0/1/1/1
4	GOL	I	102	-	-	2/4/4/4	-
2	PIO	U	101	-	-	17/44/68/68	0/1/1/1

The worst 5 of 144 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	R	101	PIO	P4-O4	3.29	1.65	1.59
2	W	101	PIO	P4-O4	3.27	1.65	1.59
2	H	101	PIO	P4-O4	3.26	1.65	1.59
2	U	101	PIO	P5-O5	3.24	1.65	1.59
2	D	101	PIO	P4-O4	3.24	1.65	1.59

The worst 5 of 62 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	S	101	PIO	O2C-C1A-C2A	5.68	123.75	111.50
2	B	101	PIO	O2C-C1A-C2A	4.91	122.09	111.50
2	W	101	PIO	O2C-C1A-C2A	4.28	120.72	111.50
2	L	101	PIO	O2C-C1A-C2A	4.27	120.71	111.50
2	Q	101	PIO	O2C-C1A-C2A	4.26	120.68	111.50

There are no chirality outliers.

5 of 406 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	M	101	PIO	O1A-C1A-O2C-C2C
2	M	101	PIO	C2A-C1A-O2C-C2C
4	Q	102	GOL	O1-C1-C2-C3
4	Q	102	GOL	C1-C2-C3-O3
2	V	101	PIO	C1C-O13-P1-O12

There are no ring outliers.

30 monomers are involved in 69 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	M	101	PIO	2	0
4	Q	102	GOL	4	0
2	V	101	PIO	5	0
2	G	101	PIO	1	0

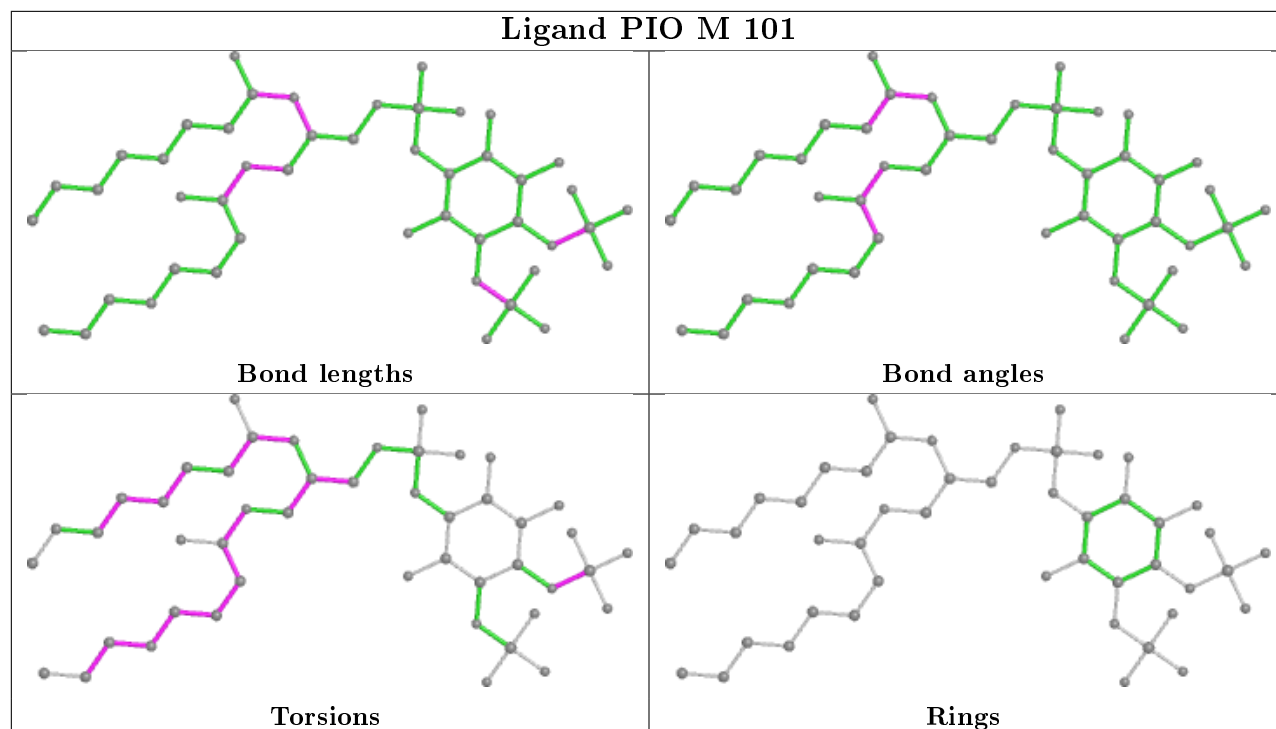
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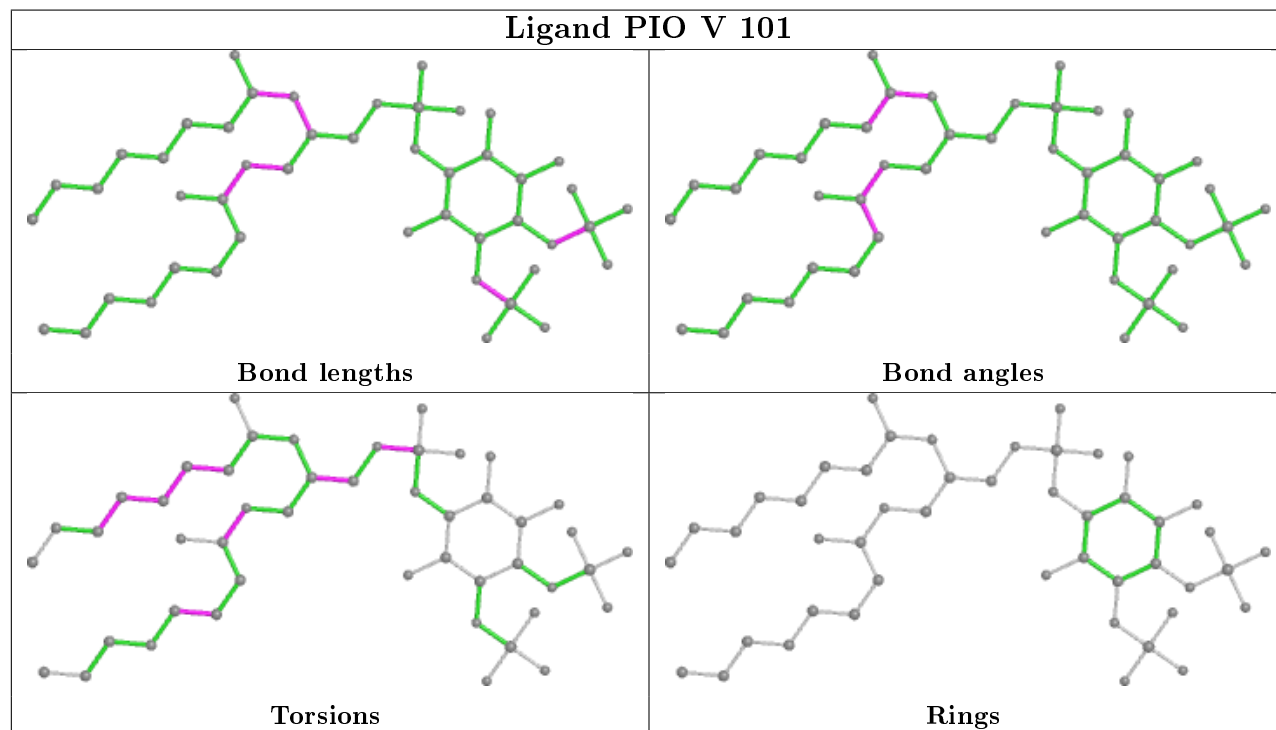
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	101	PIO	5	0
4	M	102	GOL	1	0
2	W	101	PIO	4	0
2	T	101	PIO	4	0
2	O	101	PIO	4	0
4	W	102	GOL	1	0
2	E	101	PIO	1	0
2	X	101	PIO	3	0
4	T	102	GOL	2	0
2	F	101	PIO	4	0
2	R	101	PIO	3	0
2	S	101	PIO	2	0
2	L	101	PIO	2	0
2	J	101	PIO	4	0
2	A	101	PIO	2	0
2	N	101	PIO	3	0
4	M	103	GOL	2	0
2	P	101	PIO	2	0
2	Q	101	PIO	1	0
4	W	103	GOL	1	0
2	K	101	PIO	2	0
2	H	101	PIO	1	0
2	I	101	PIO	2	0
2	B	101	PIO	3	0
2	C	101	PIO	7	0
2	U	101	PIO	2	0

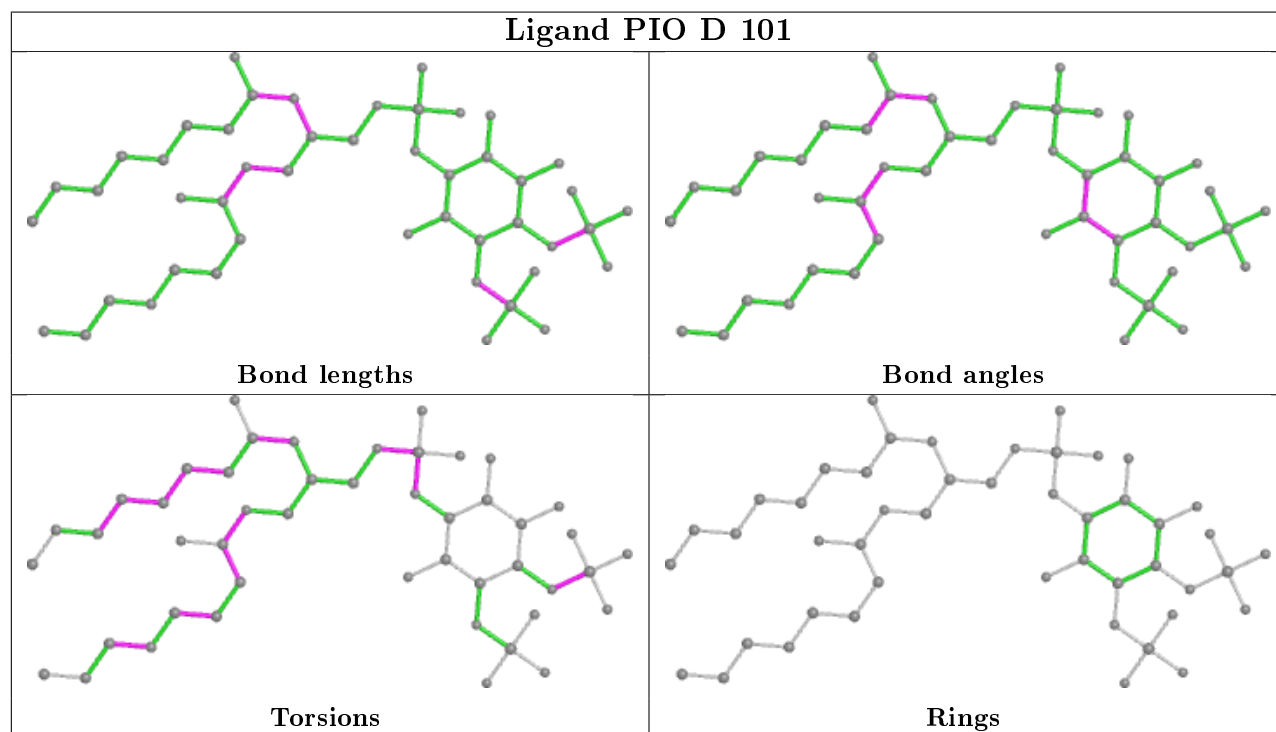
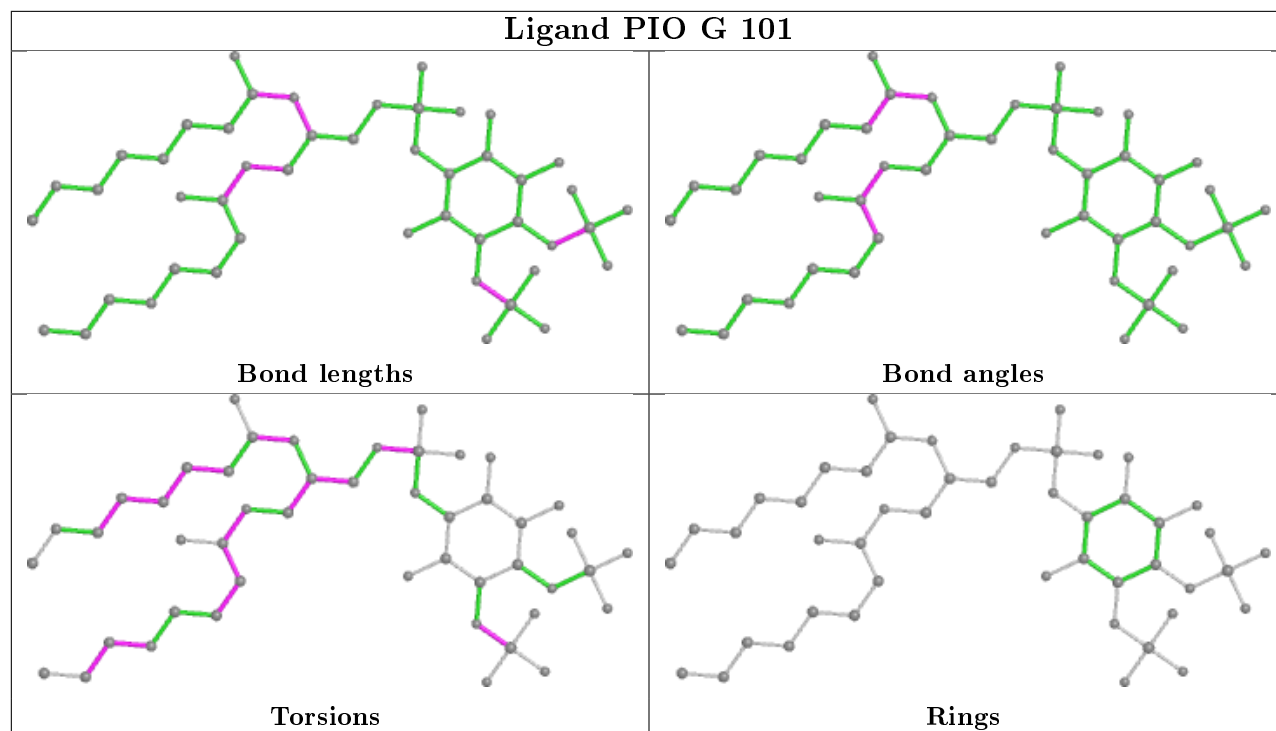
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

## Ligand PIO M 101

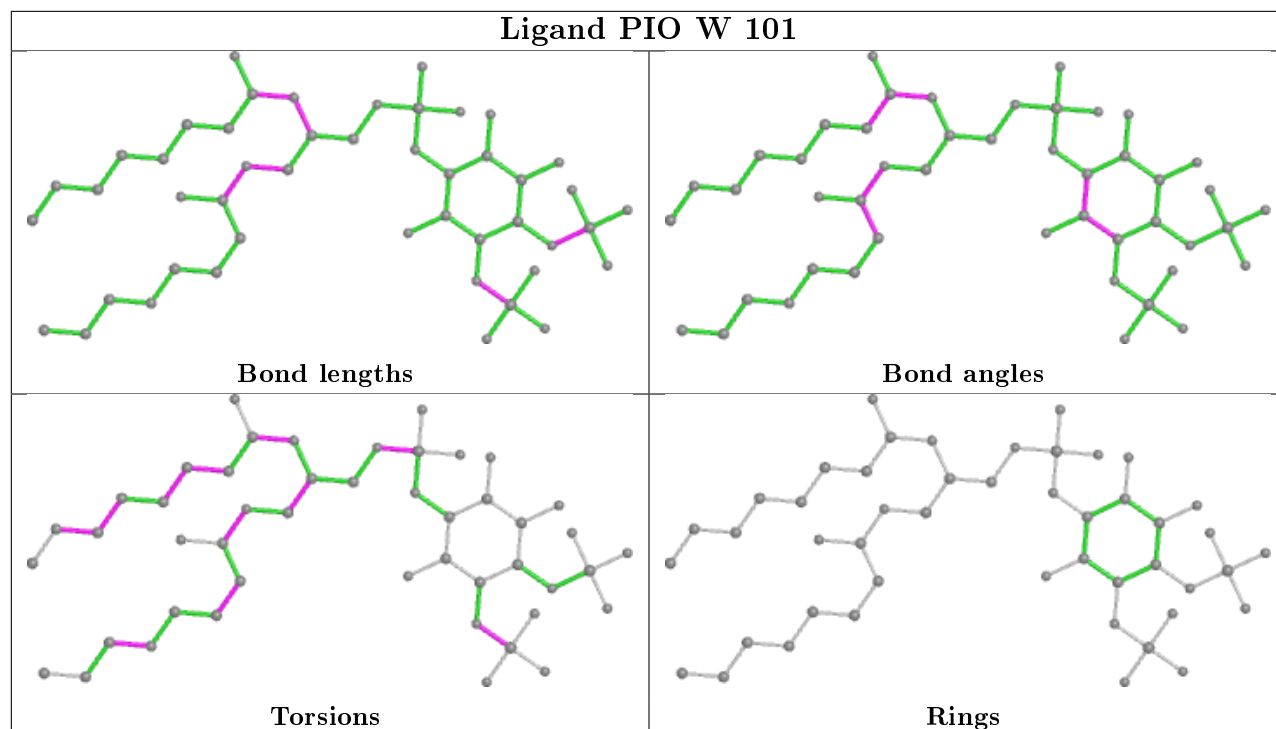


## Ligand PIO V 101

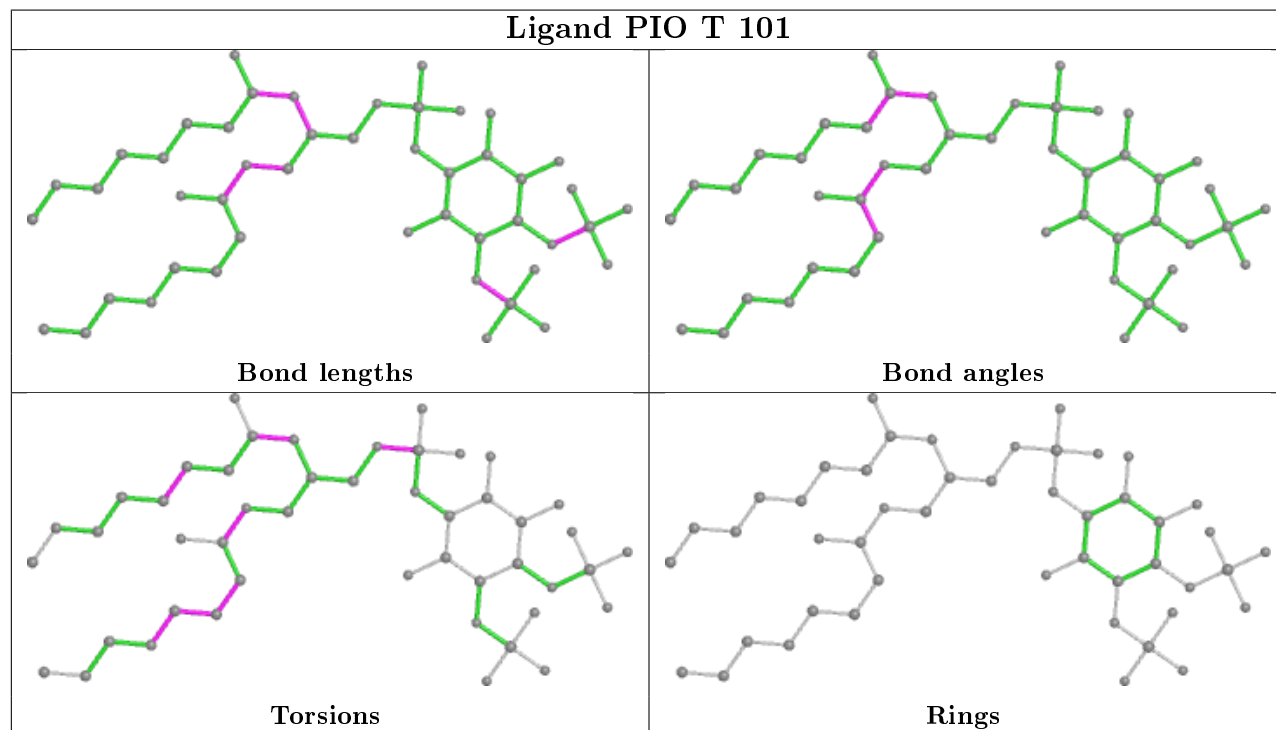




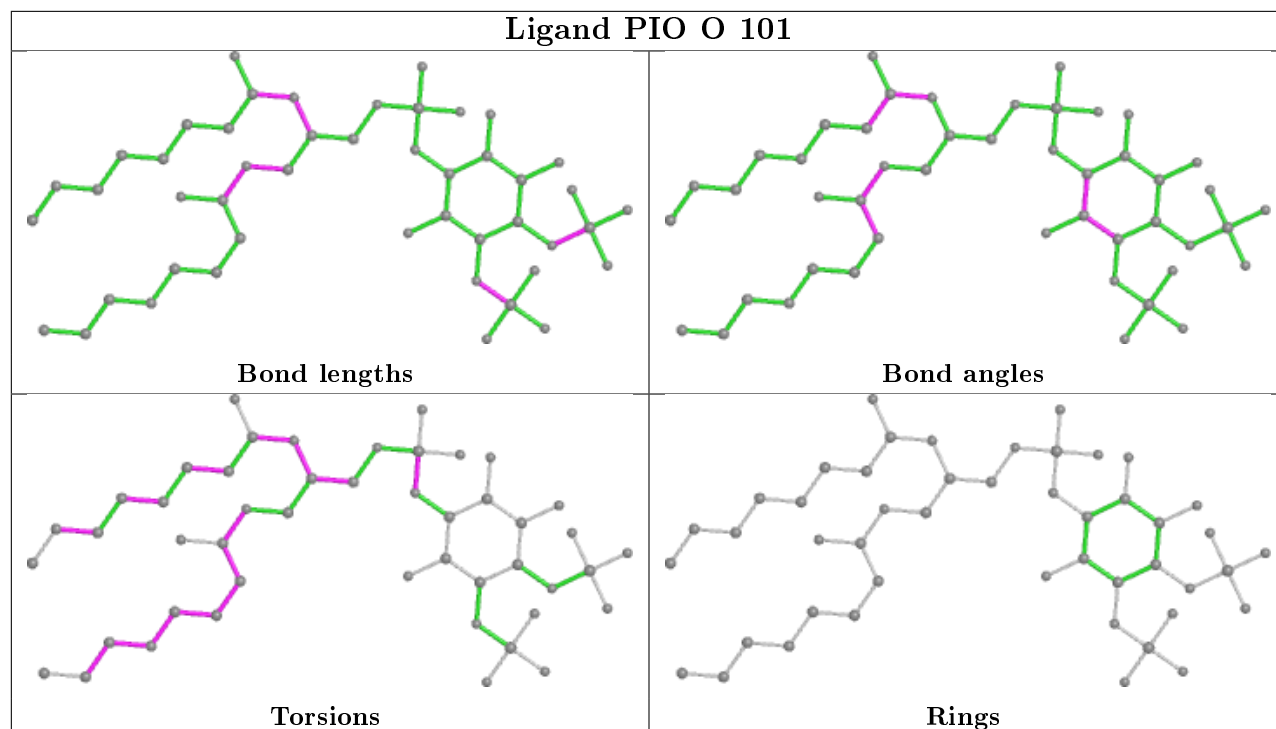
## Ligand PIO W 101



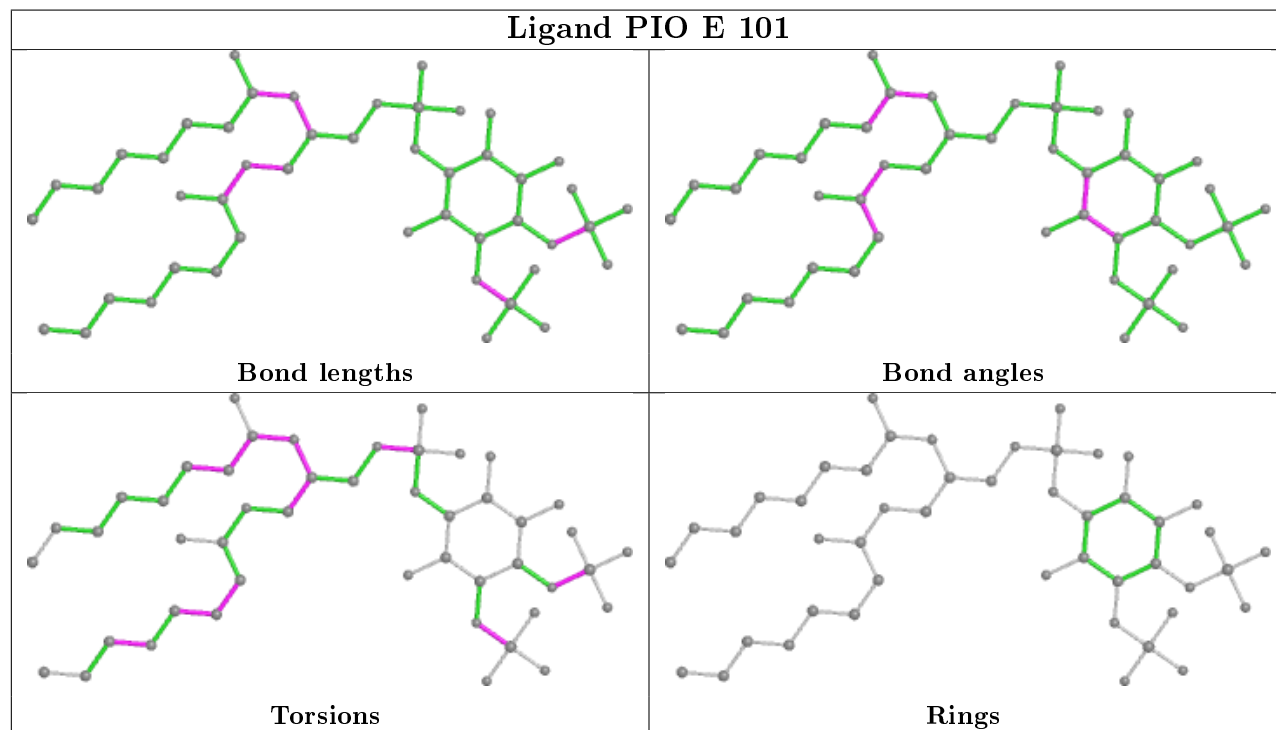
## Ligand PIO T 101



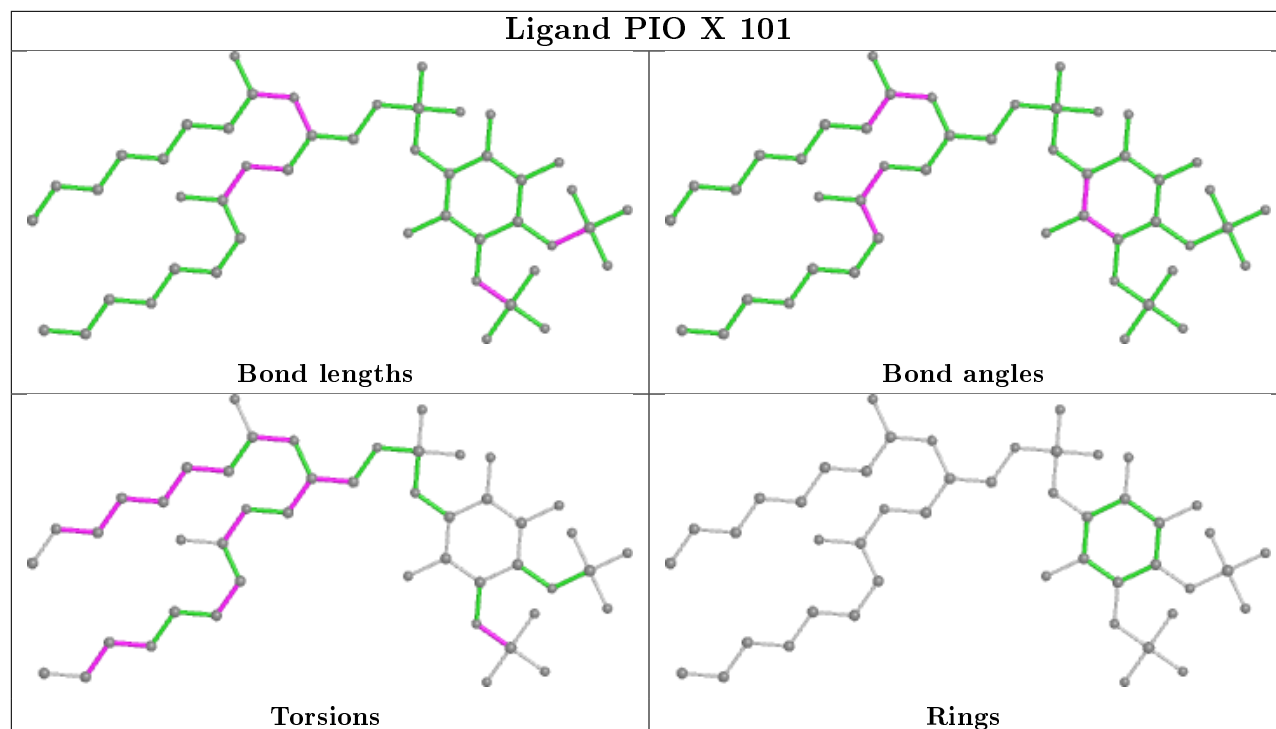
## Ligand PIO O 101



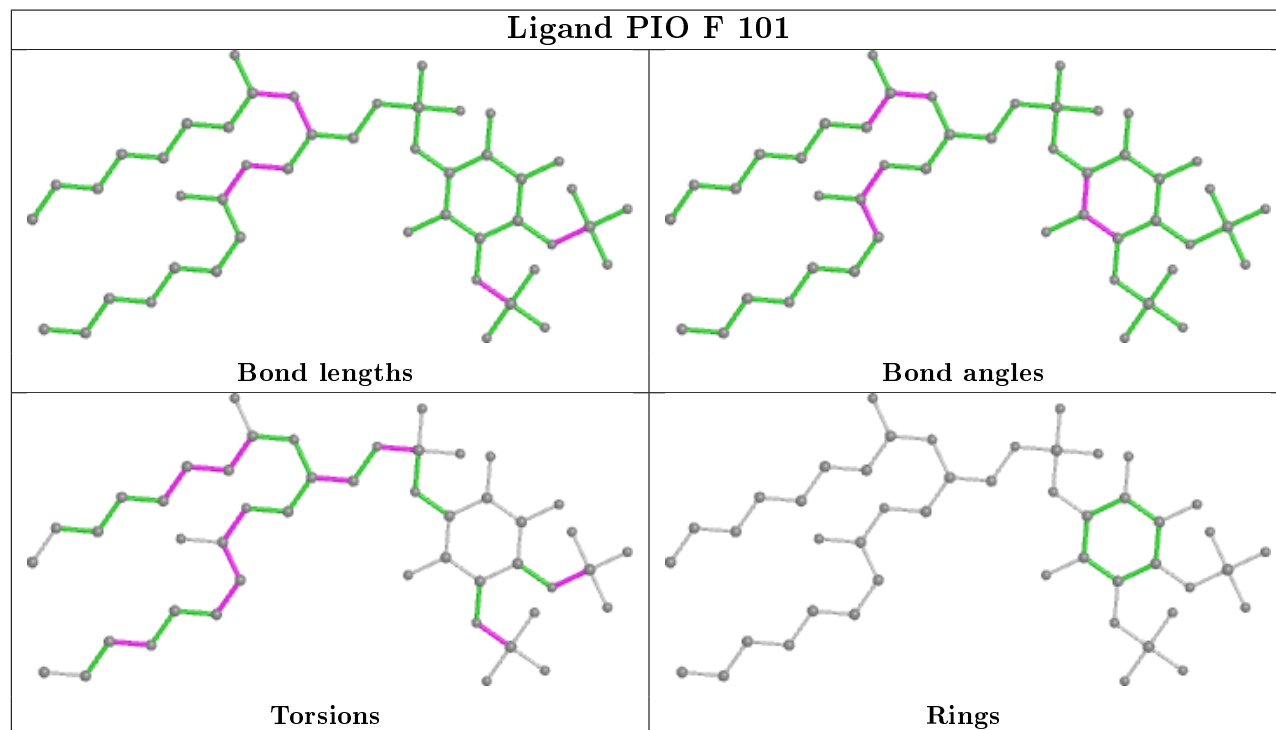
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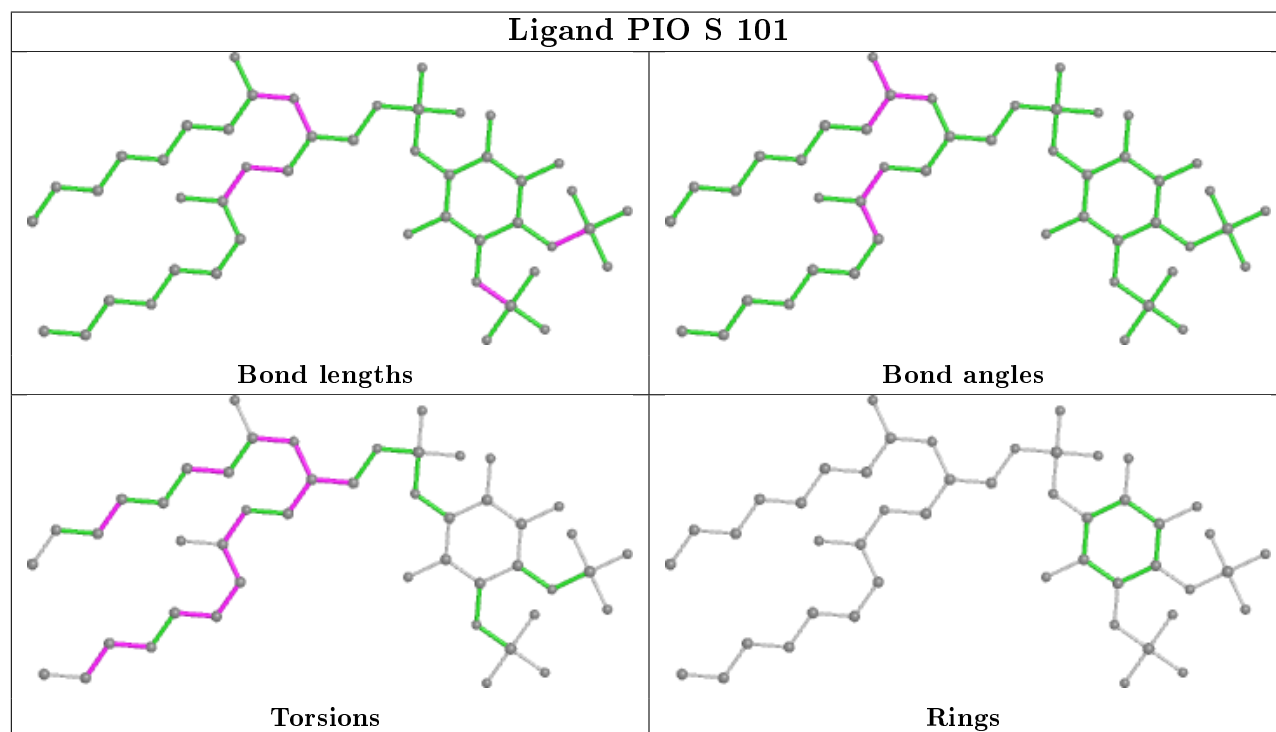
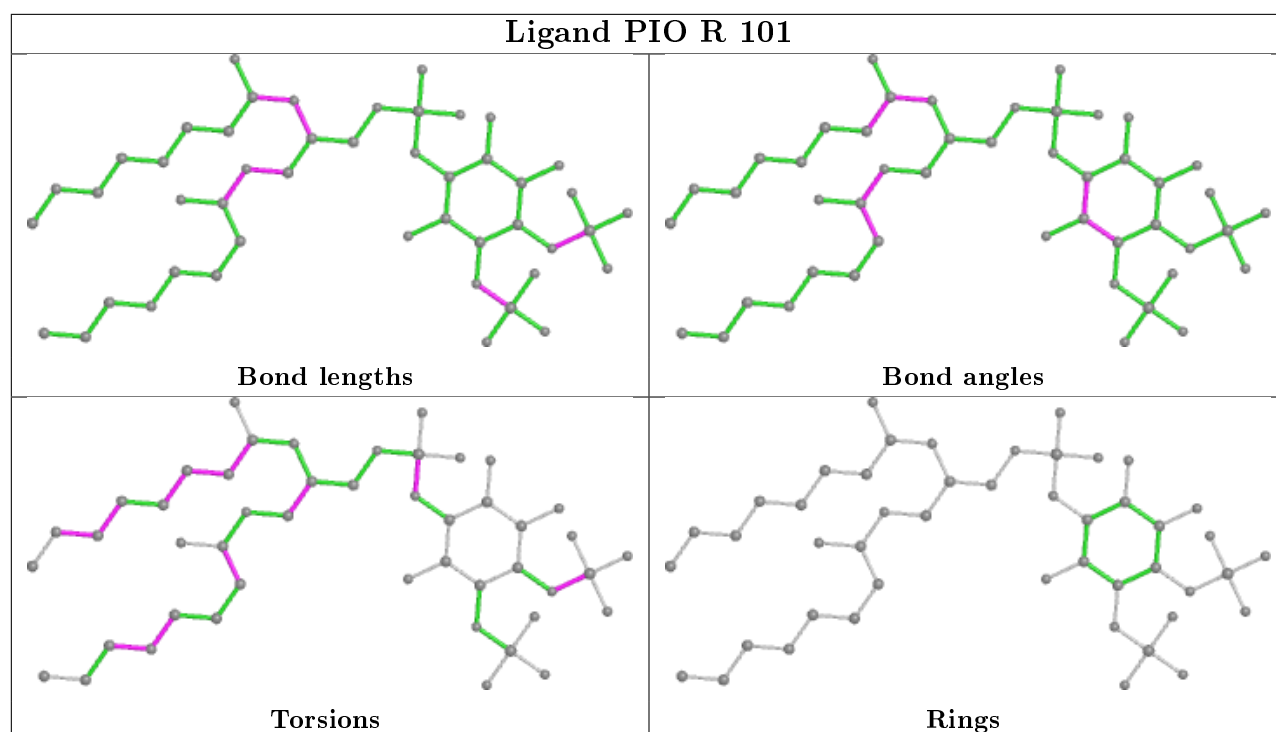
## Ligand PIO X 101



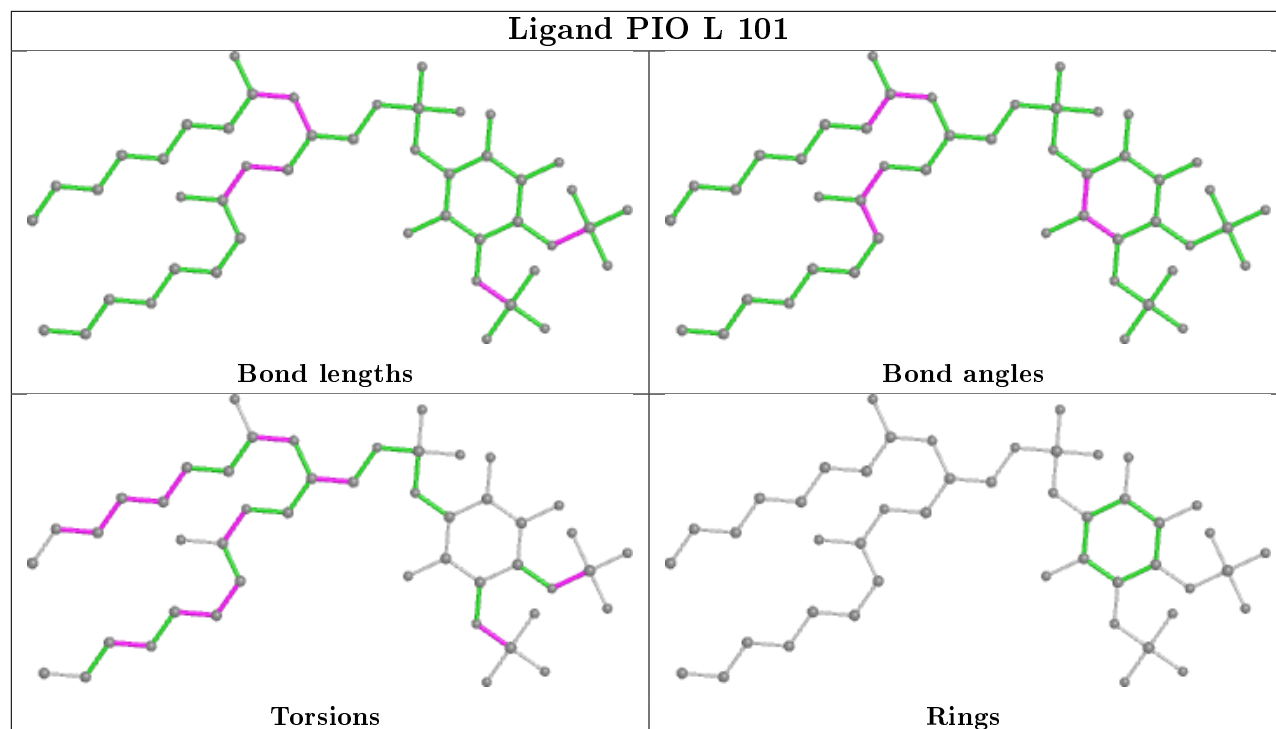
## Ligand PIO F 101



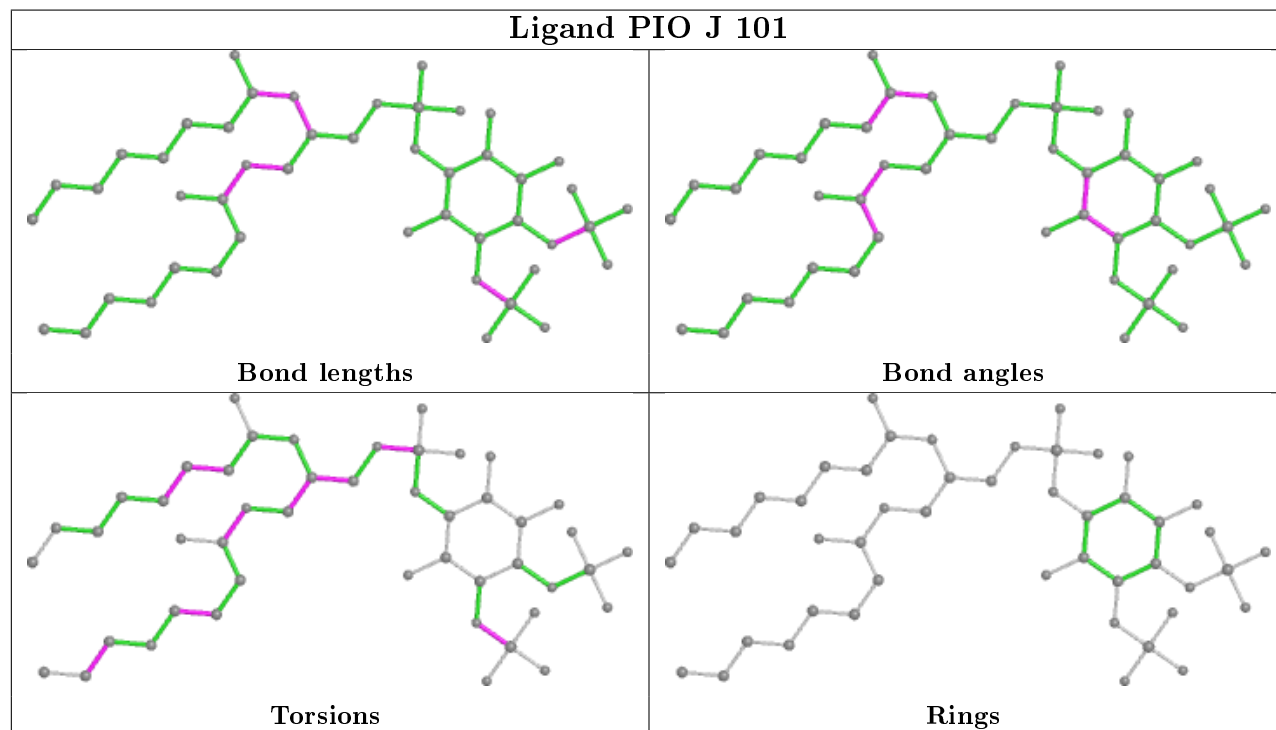




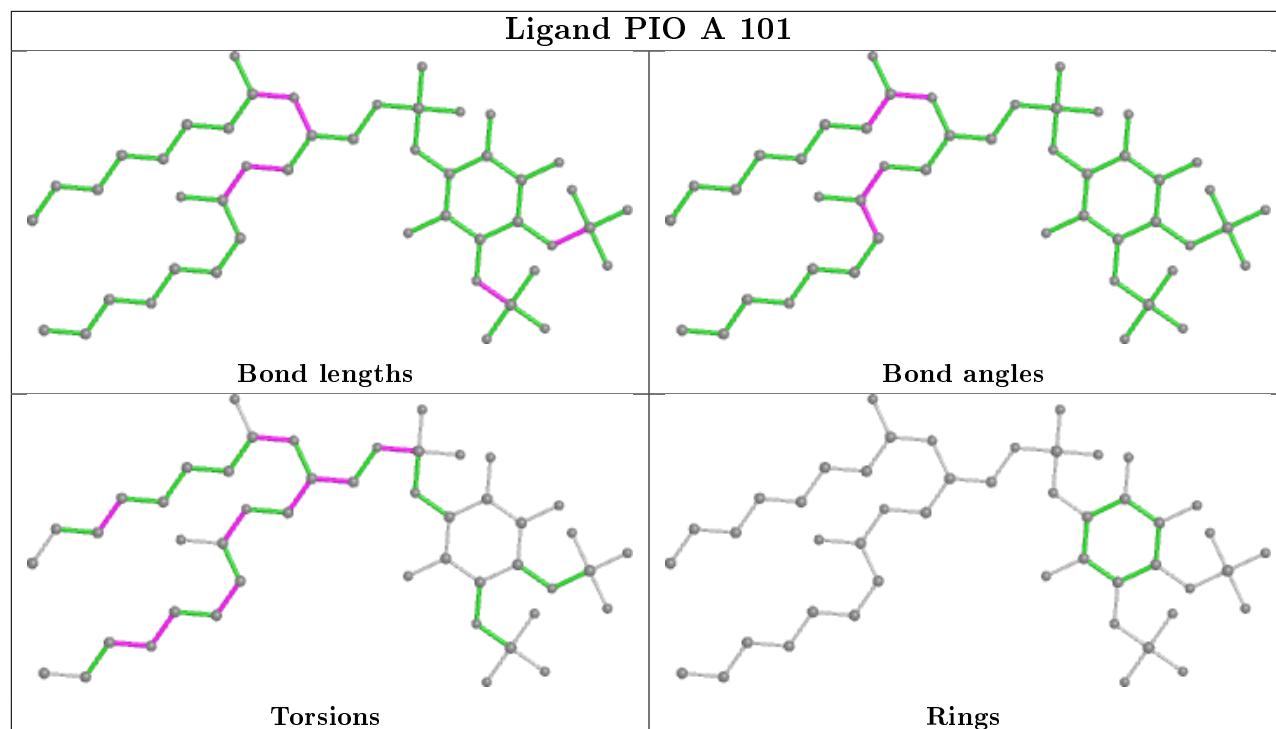
## Ligand PIO L 101



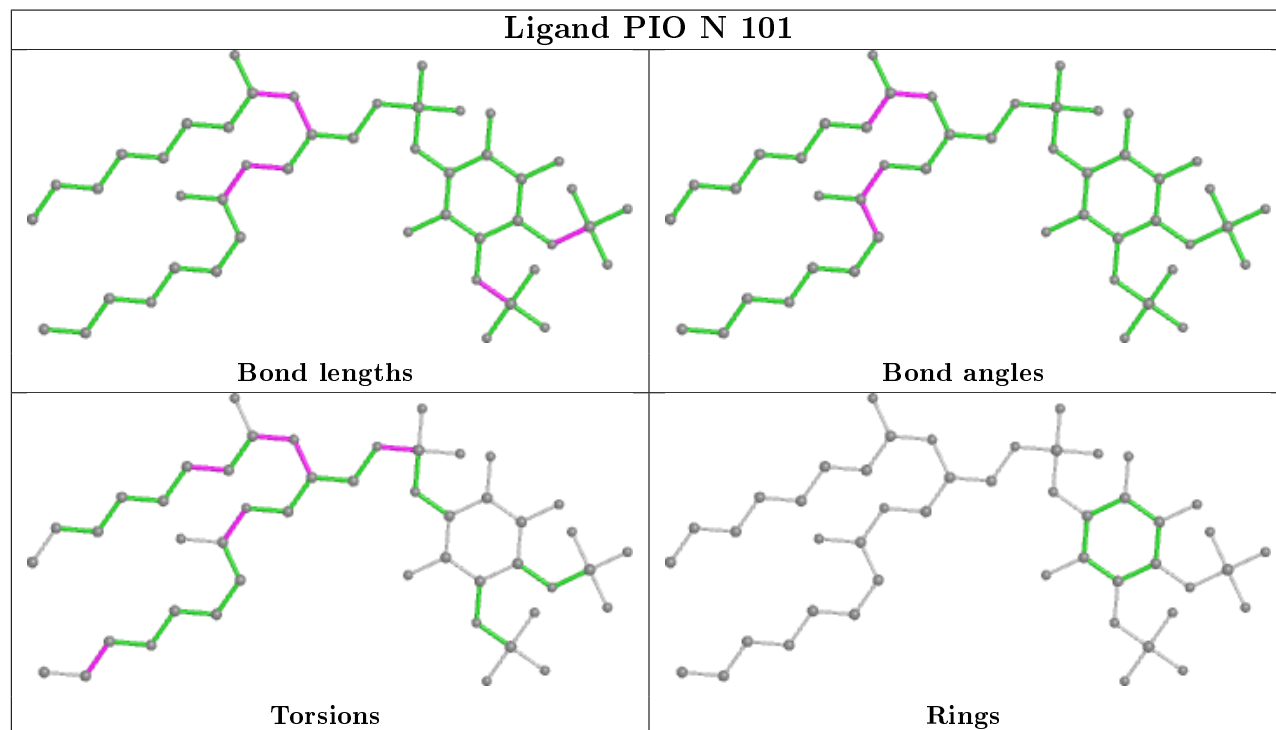
## Ligand PIO J 101



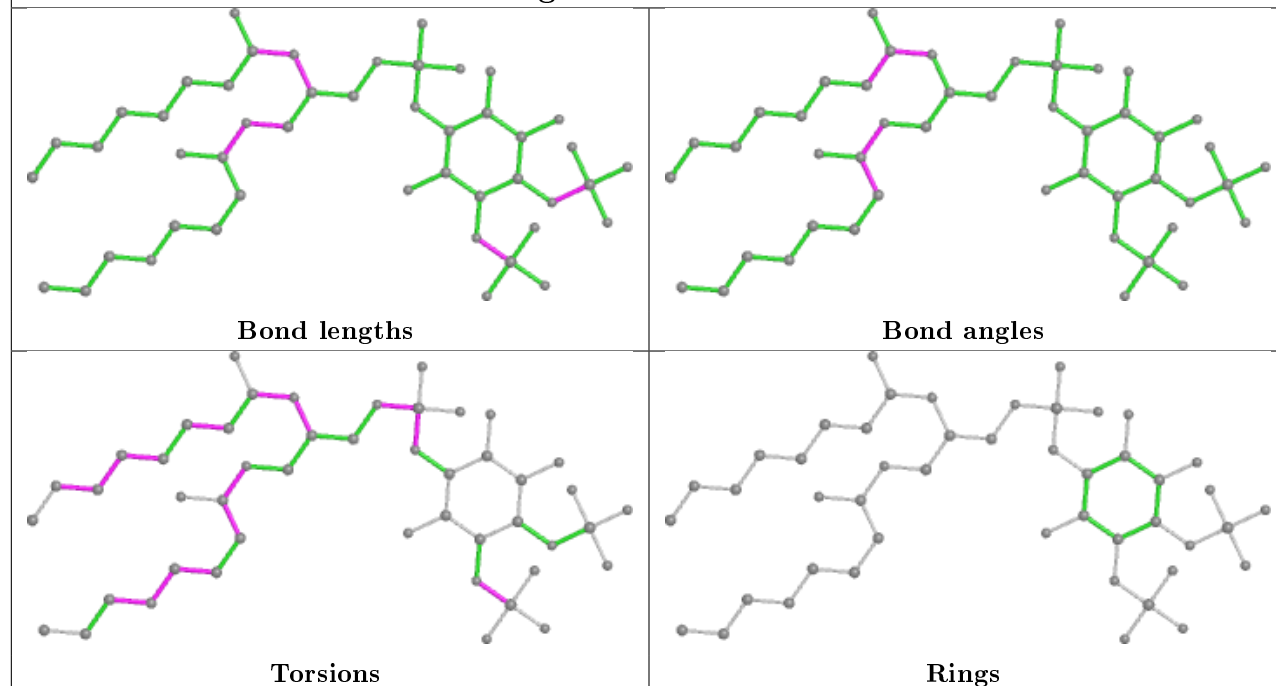
## Ligand PIO A 101



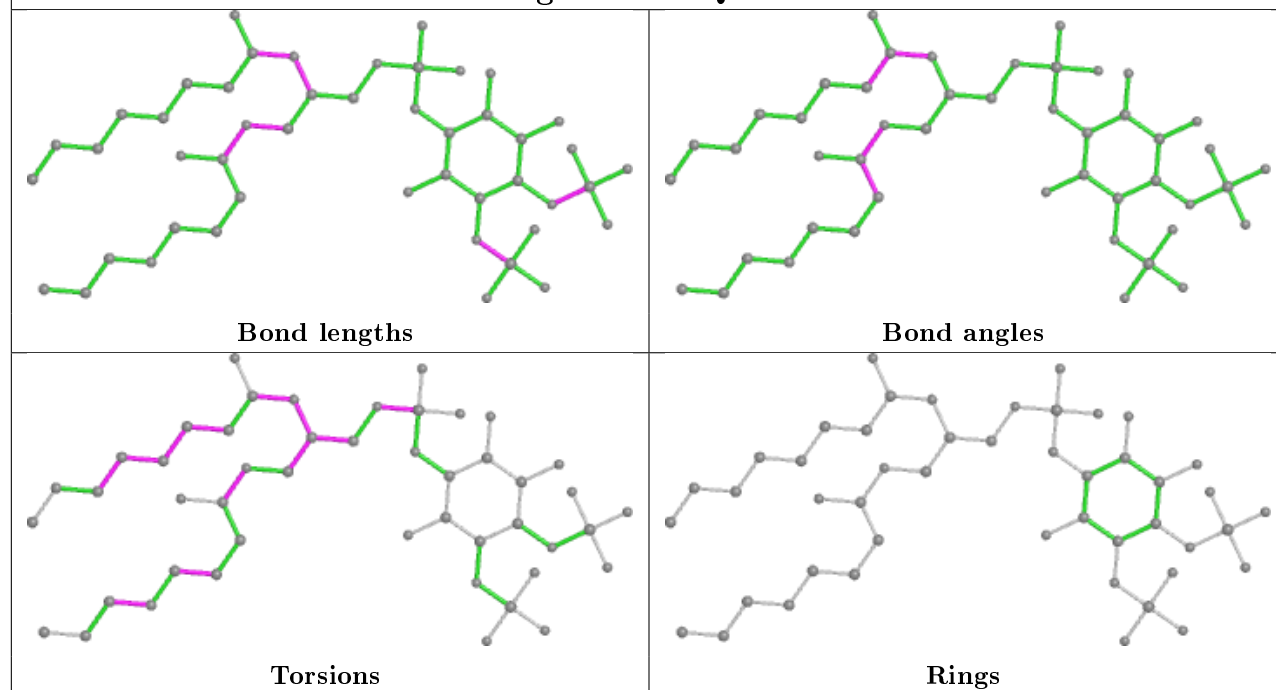
## Ligand PIO N 101

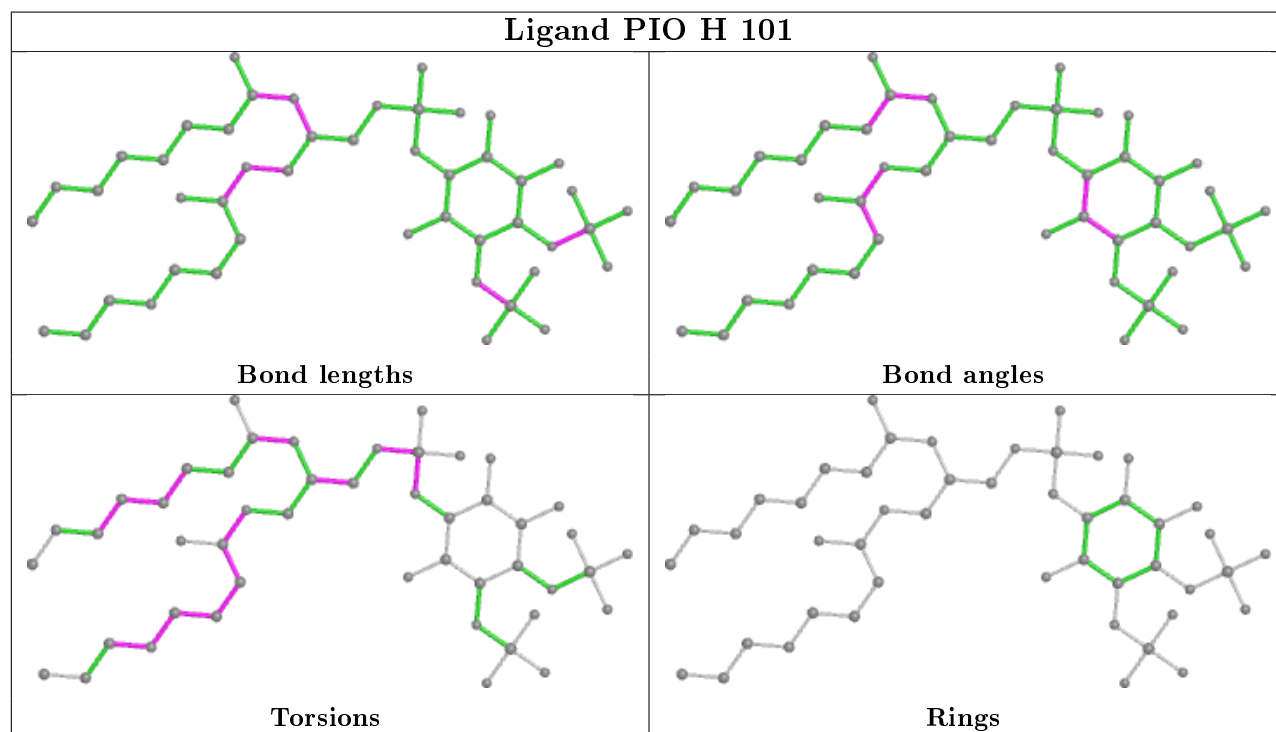
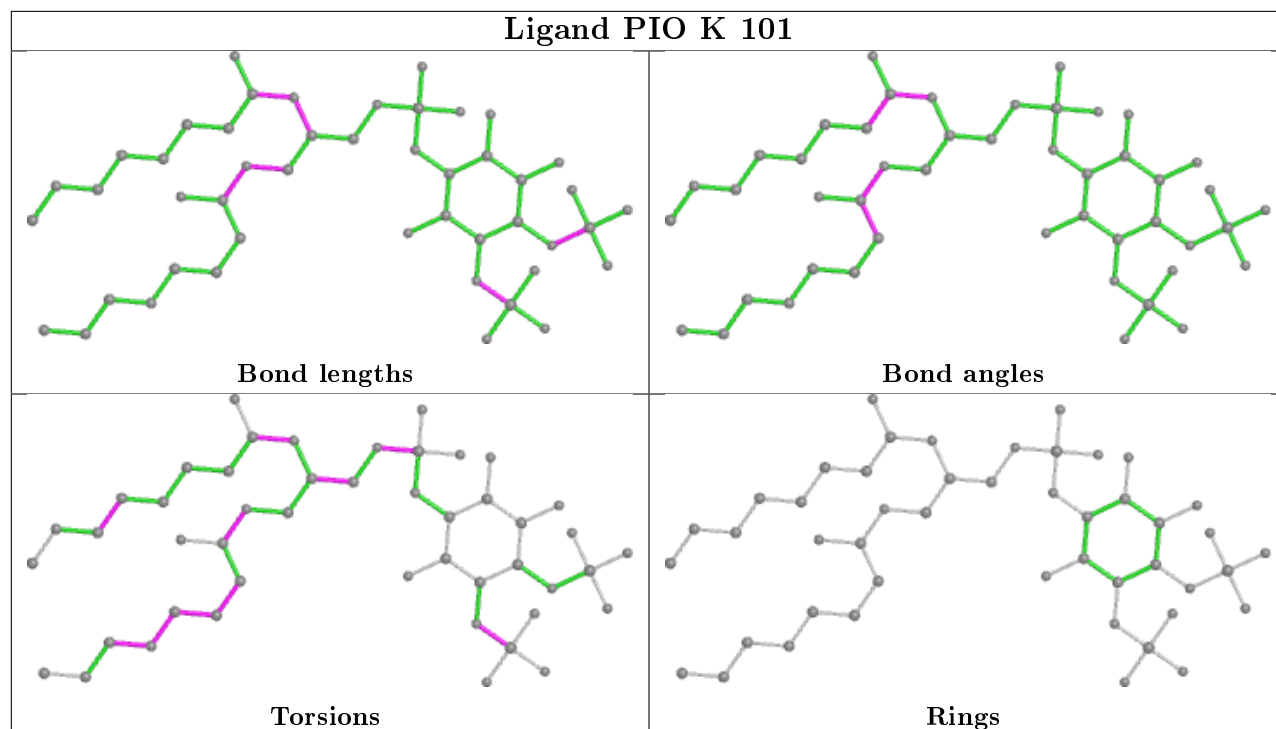


## Ligand PIO P 101

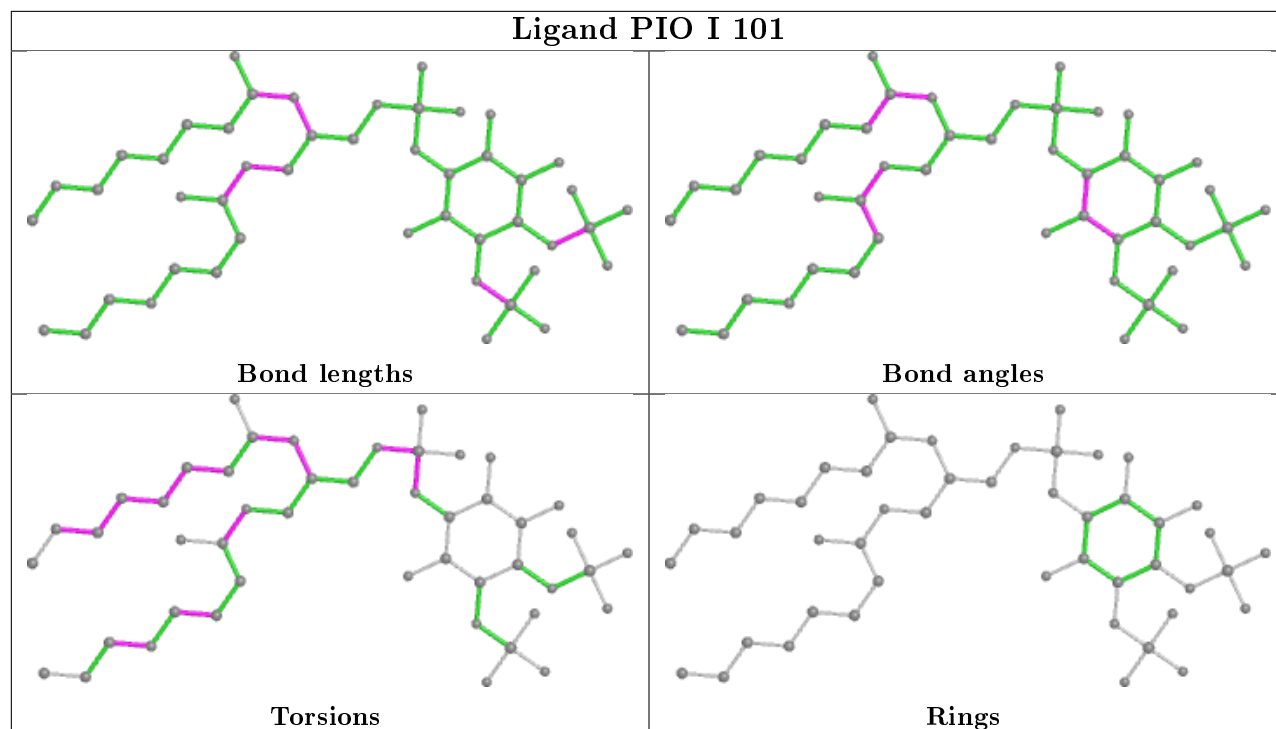


## Ligand PIO Q 101

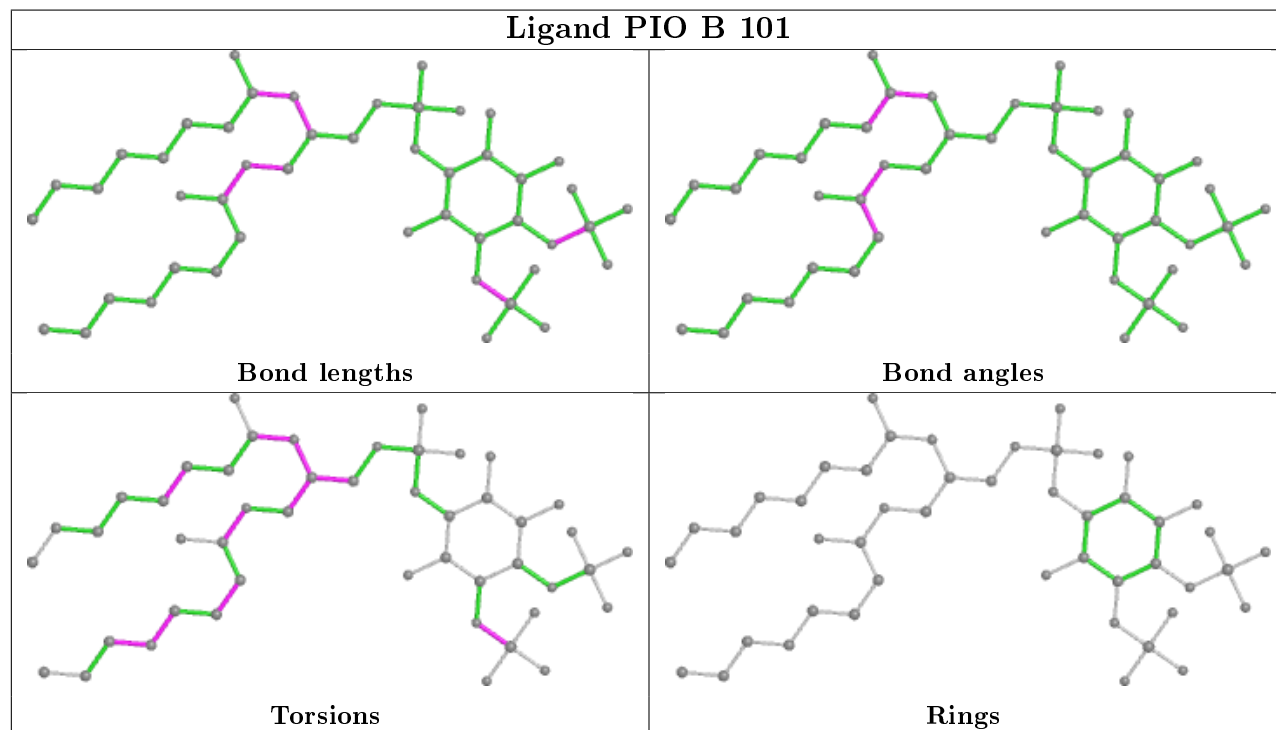


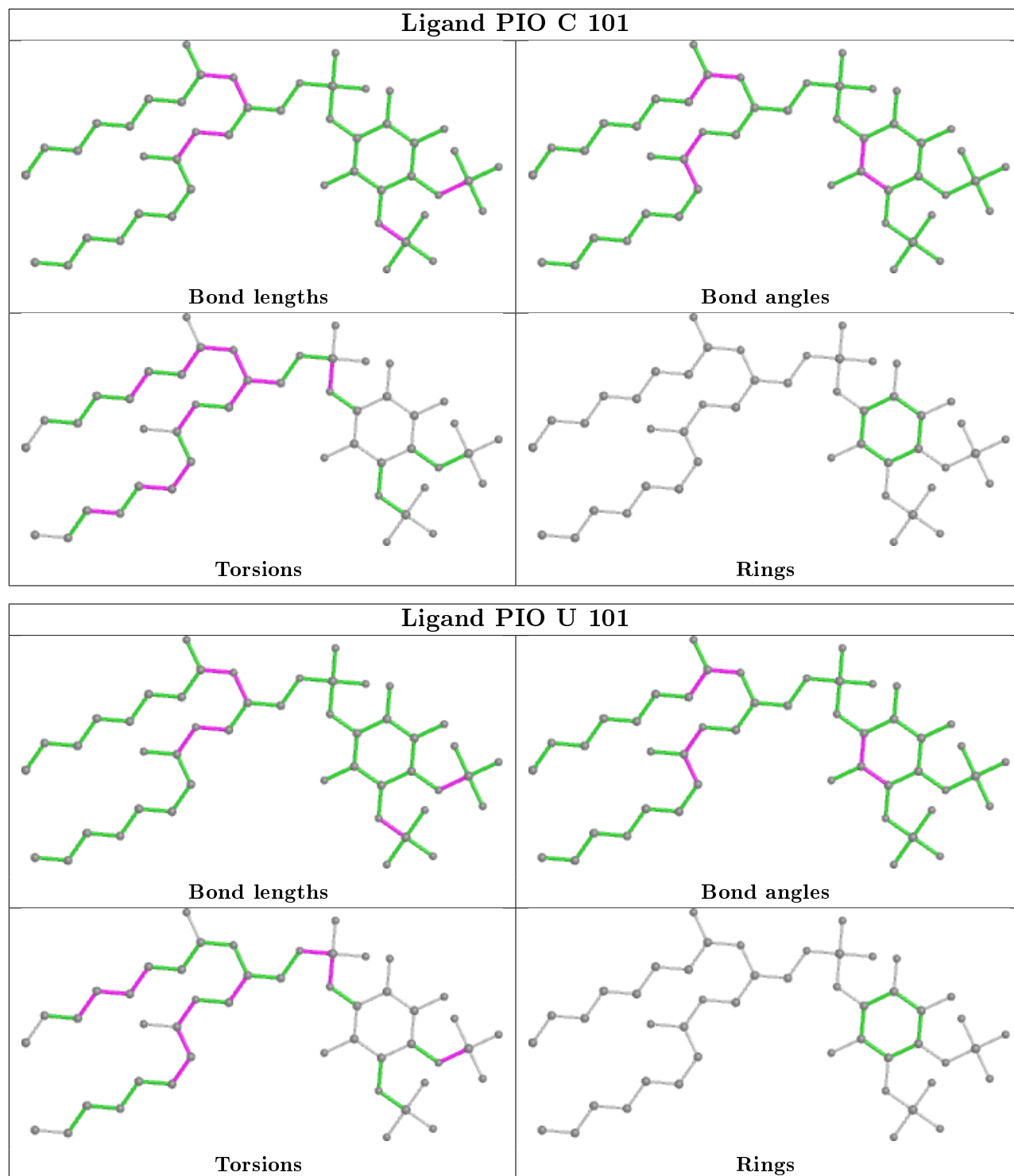


## Ligand PIO I 101



## Ligand PIO B 101





## 5.7 Other polymers ⓘ

There are no such residues in this entry.

## 5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.



## 6 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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	47/48 (97%)	0.06	1 (2%) 63 58	37, 48, 66, 86	0
1	B	48/48 (100%)	-0.21	1 (2%) 63 58	33, 48, 60, 69	0
1	C	48/48 (100%)	-0.19	0 100 100	36, 48, 63, 69	0
1	D	48/48 (100%)	-0.27	0 100 100	37, 49, 62, 65	0
1	E	48/48 (100%)	-0.20	1 (2%) 63 58	39, 53, 64, 71	0
1	F	48/48 (100%)	-0.12	1 (2%) 63 58	38, 48, 59, 77	0
1	G	48/48 (100%)	0.23	3 (6%) 20 15	45, 56, 72, 81	0
1	H	48/48 (100%)	-0.04	2 (4%) 36 29	35, 44, 62, 80	0
1	I	48/48 (100%)	0.18	3 (6%) 20 15	47, 59, 72, 82	0
1	J	48/48 (100%)	0.06	2 (4%) 36 29	44, 60, 78, 95	0
1	K	47/48 (97%)	1.33	13 (27%) 0 0	52, 86, 111, 115	0
1	L	45/48 (93%)	1.17	11 (24%) 0 0	79, 92, 108, 109	0
1	M	47/48 (97%)	0.16	1 (2%) 63 58	42, 56, 68, 84	0
1	N	47/48 (97%)	0.03	1 (2%) 63 58	39, 58, 67, 92	0
1	O	48/48 (100%)	-0.10	0 100 100	43, 54, 63, 74	0
1	P	48/48 (100%)	-0.05	1 (2%) 63 58	38, 49, 65, 70	0
1	Q	48/48 (100%)	-0.24	1 (2%) 63 58	37, 47, 58, 68	0
1	R	48/48 (100%)	-0.17	2 (4%) 36 29	30, 40, 54, 64	0
1	S	48/48 (100%)	-0.21	1 (2%) 63 58	32, 44, 56, 65	0
1	T	48/48 (100%)	-0.20	1 (2%) 63 58	30, 38, 52, 68	0
1	U	48/48 (100%)	-0.29	0 100 100	38, 47, 57, 68	0
1	V	48/48 (100%)	0.01	2 (4%) 36 29	40, 49, 63, 76	0
1	W	48/48 (100%)	-0.20	1 (2%) 63 58	41, 49, 60, 76	0
1	X	48/48 (100%)	0.51	4 (8%) 11 8	48, 62, 75, 84	0

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
All	All	1145/1152 (99%)	0.05	53 (4%) 32 26	30, 52, 88, 115	0

The worst 5 of 53 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	L	15	ILE	5.2
1	K	10	PHE	5.0
1	J	47	CYS	5.0
1	N	47	CYS	4.9
1	V	47	CYS	4.5

## 6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

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

## 6.3 Carbohydrates ⓘ

There are no carbohydrates in this entry.

## 6.4 Ligands ⓘ

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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
4	GOL	Q	102	6/6	0.45	0.49	57,65,67,79	0
4	GOL	U	105	6/6	0.61	0.18	83,89,93,94	0
4	GOL	M	103	6/6	0.66	0.29	61,67,69,70	0
4	GOL	I	102	6/6	0.69	0.21	56,65,71,71	0
3	SO4	U	103	5/5	0.75	0.20	98,105,114,120	0
4	GOL	M	102	6/6	0.77	0.31	67,69,72,74	0
3	SO4	U	104	5/5	0.79	0.20	96,106,110,127	0
3	SO4	R	102	5/5	0.79	0.24	81,86,113,116	0
4	GOL	P	102	6/6	0.79	0.25	62,62,77,88	0
4	GOL	W	102	6/6	0.80	0.28	64,67,75,75	0
3	SO4	D	102	5/5	0.81	0.24	82,94,105,122	0
4	GOL	S	102	6/6	0.83	0.23	56,61,66,68	0
3	SO4	A	103	5/5	0.83	0.28	90,91,110,115	0

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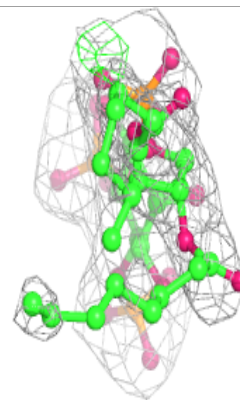
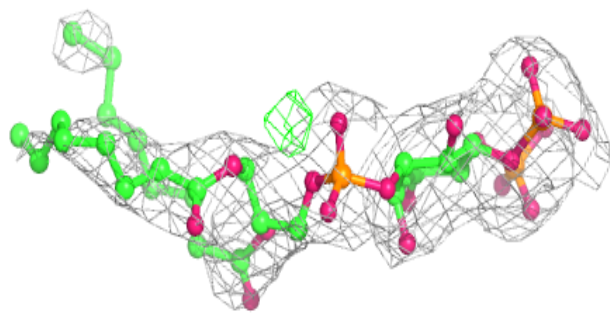
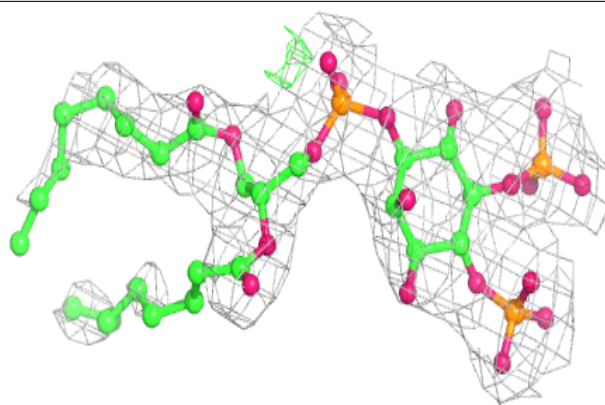
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
3	SO4	U	102	5/5	0.84	0.26	68,74,91,95	0
4	GOL	W	103	6/6	0.85	0.18	64,67,68,70	0
3	SO4	G	102	5/5	0.86	0.20	66,79,91,99	0
4	GOL	C	102	6/6	0.86	0.27	49,55,56,60	0
4	GOL	U	106	6/6	0.89	0.28	49,58,60,62	0
4	GOL	T	102	6/6	0.90	0.21	46,51,53,54	0
3	SO4	A	102	5/5	0.92	0.20	82,93,101,103	0
2	PIO	L	101	47/47	0.94	0.17	47,73,83,86	0
2	PIO	K	101	47/47	0.94	0.19	50,65,77,84	0
2	PIO	I	101	47/47	0.95	0.18	46,56,75,85	0
2	PIO	Q	101	47/47	0.95	0.20	38,53,72,76	0
2	PIO	X	101	47/47	0.95	0.17	51,65,74,82	0
2	PIO	W	101	47/47	0.95	0.18	40,59,72,78	0
2	PIO	F	101	47/47	0.95	0.19	38,56,69,73	0
2	PIO	G	101	47/47	0.96	0.20	41,57,77,80	0
2	PIO	O	101	47/47	0.96	0.20	36,47,70,77	0
2	PIO	A	101	47/47	0.96	0.18	37,51,60,66	0
2	PIO	H	101	47/47	0.96	0.19	42,55,72,86	0
2	PIO	D	101	47/47	0.96	0.17	34,50,66,75	0
2	PIO	M	101	47/47	0.96	0.16	43,54,63,67	0
2	PIO	S	101	47/47	0.96	0.19	37,56,74,83	0
2	PIO	C	101	47/47	0.96	0.17	32,48,65,67	0
2	PIO	P	101	47/47	0.96	0.20	39,50,68,70	0
2	PIO	U	101	47/47	0.96	0.18	27,49,76,82	0
2	PIO	V	101	47/47	0.96	0.20	38,55,65,67	0
2	PIO	R	101	47/47	0.97	0.16	36,50,86,88	0
2	PIO	B	101	47/47	0.97	0.18	34,44,51,55	0
2	PIO	T	101	47/47	0.97	0.19	33,45,69,71	0
2	PIO	E	101	47/47	0.97	0.17	37,53,71,74	0
2	PIO	N	101	47/47	0.97	0.16	36,48,58,61	0
2	PIO	J	101	47/47	0.97	0.18	39,59,77,86	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.

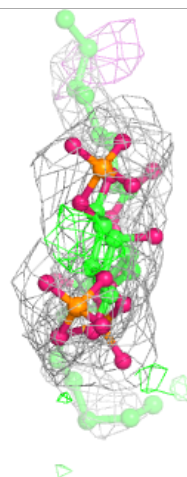
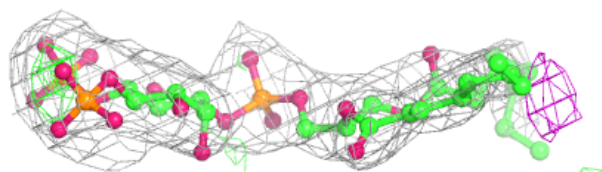
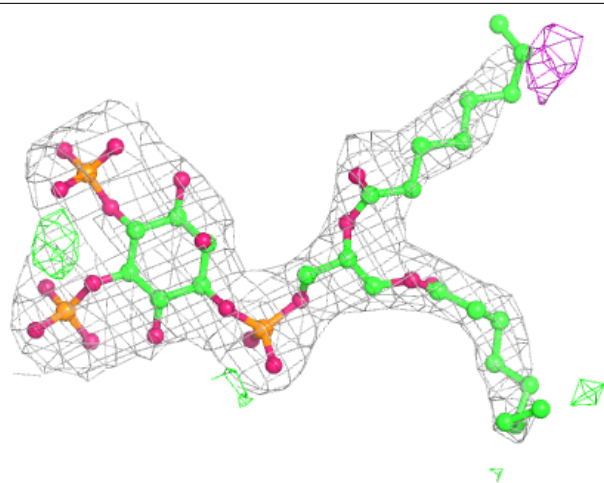
**Electron density around PIO L 101:**

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



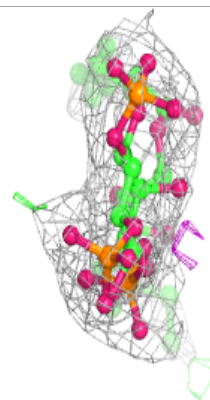
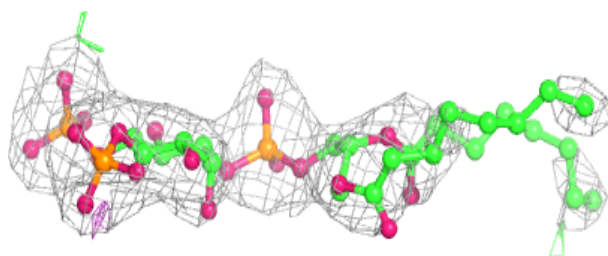
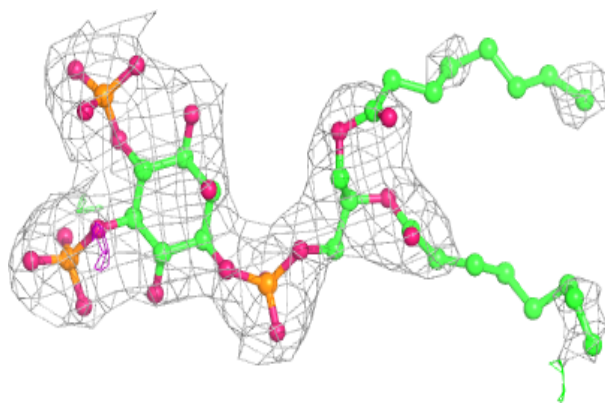
**Electron density around PIO K 101:**

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and green (positive)

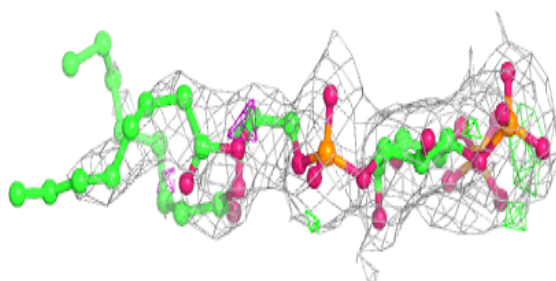
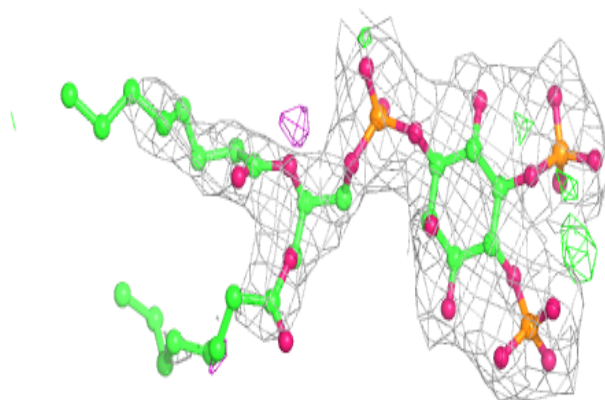


**Electron density around PIO I 101:**

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and green (positive)

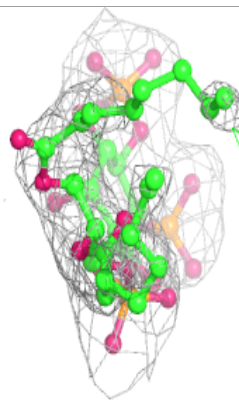
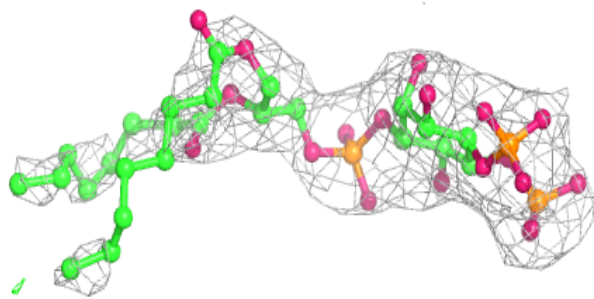
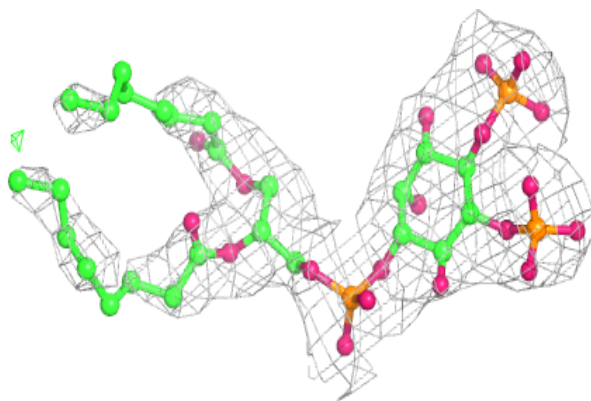
**Electron density around PIO Q 101:**

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and green (positive)



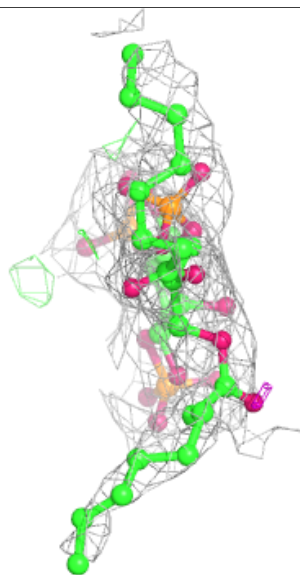
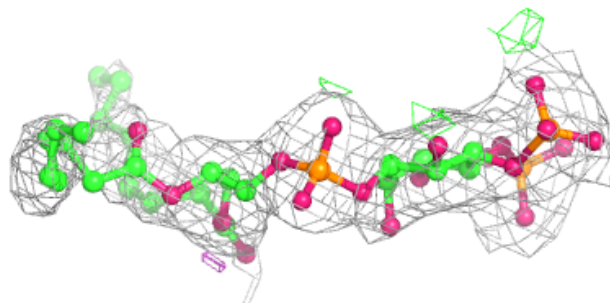
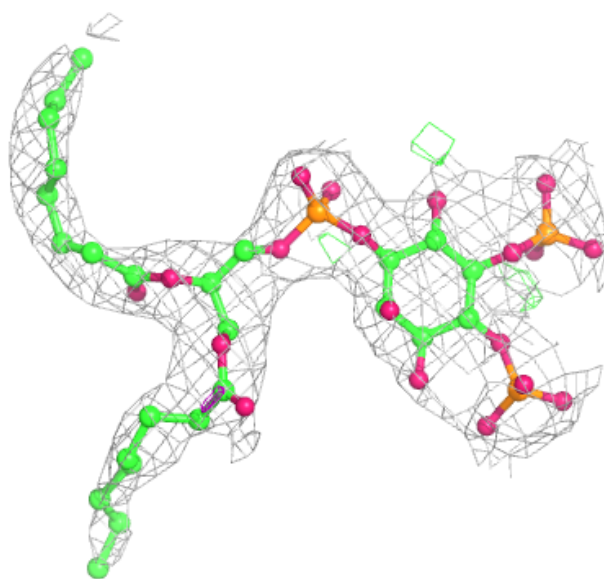
**Electron density around PIO X 101:**

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



**Electron density around PIO W 101:**

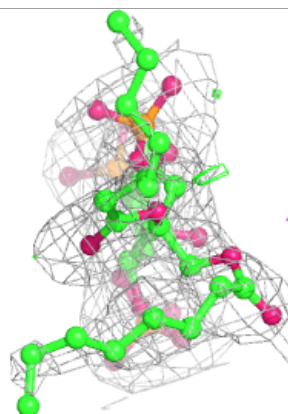
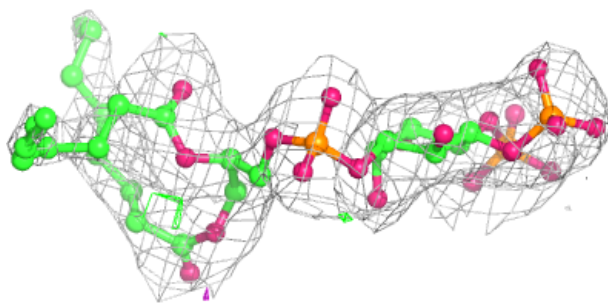
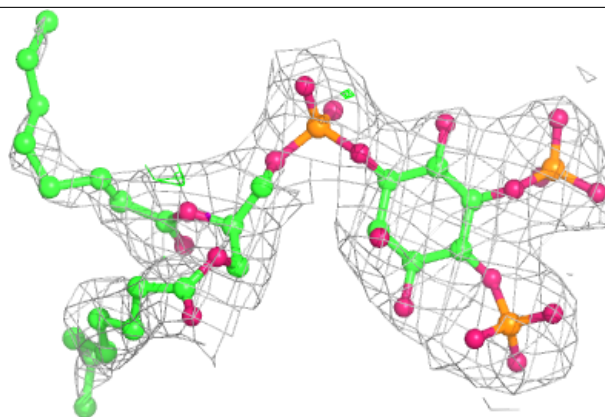
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



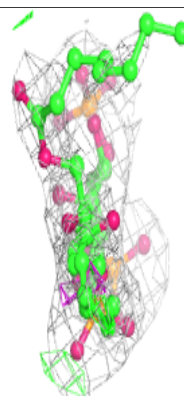
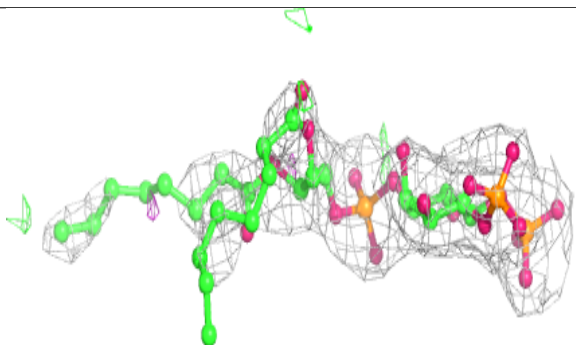
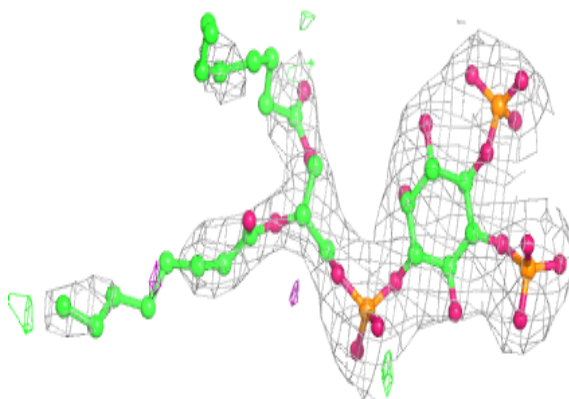


**Electron density around PIO F 101:**

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

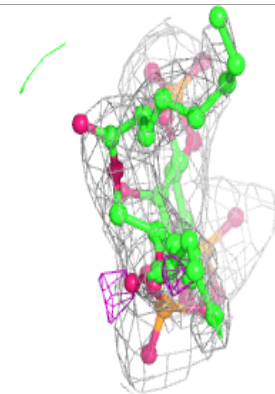
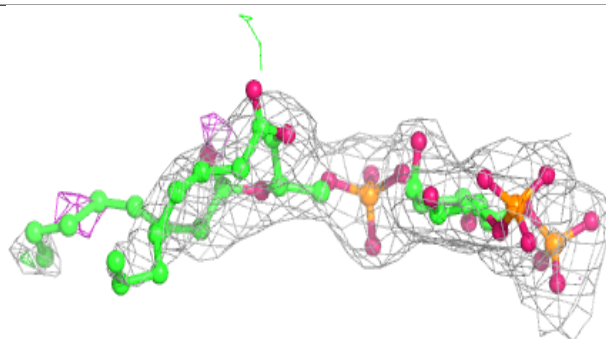
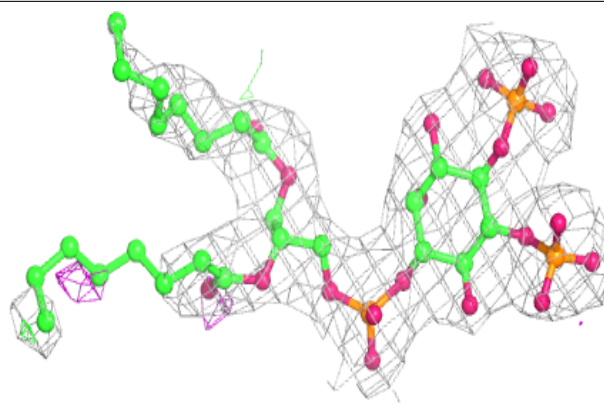
**Electron density around PIO G 101:**

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

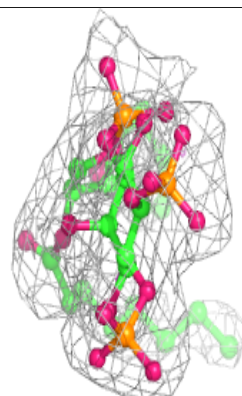
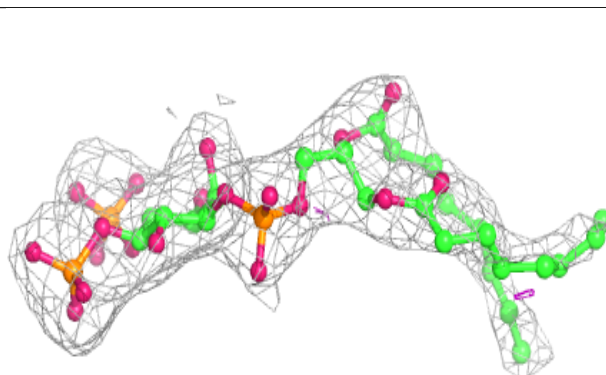
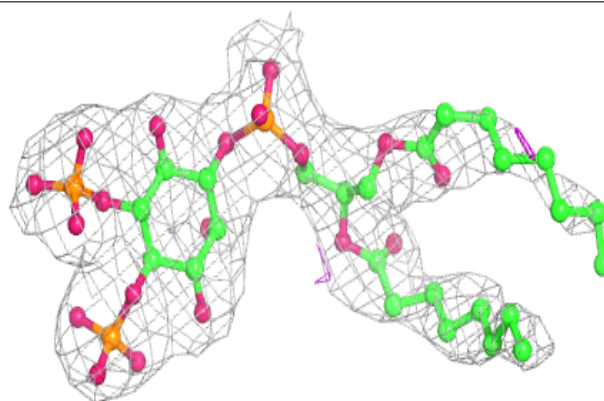


**Electron density around PIO O 101:**

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

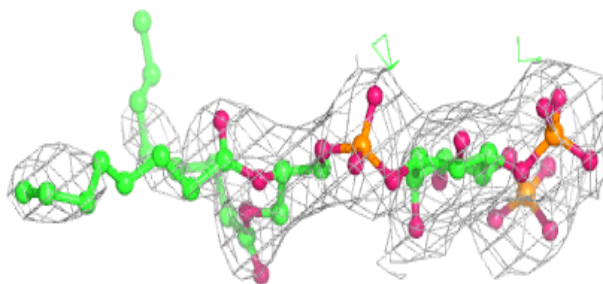
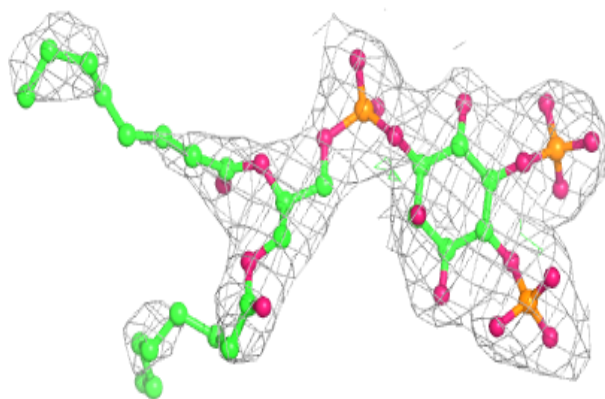
**Electron density around PIO A 101:**

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

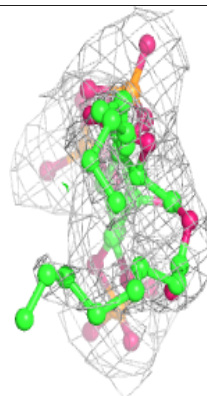
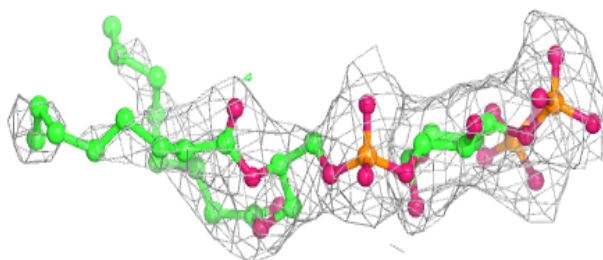
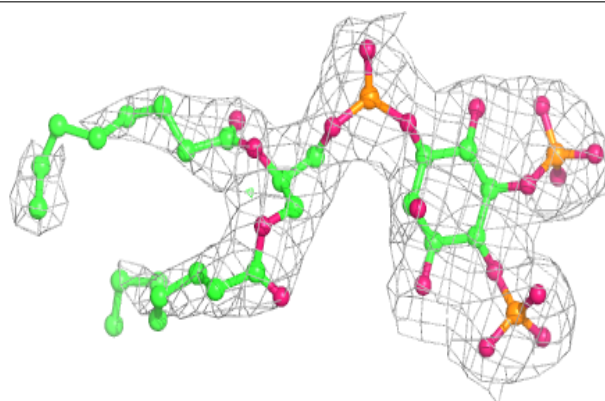


**Electron density around PIO H 101:**

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

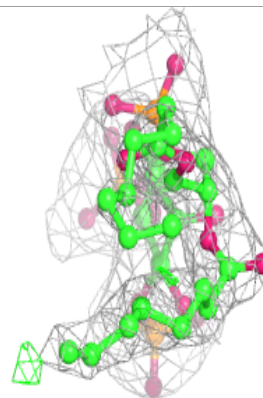
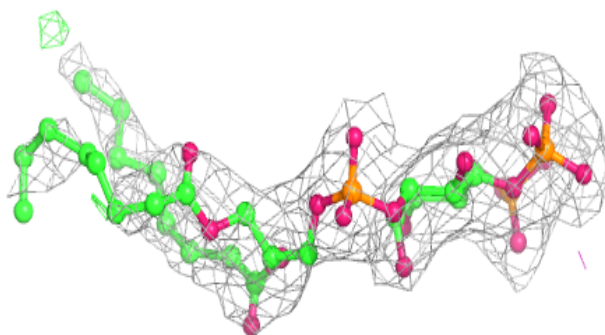
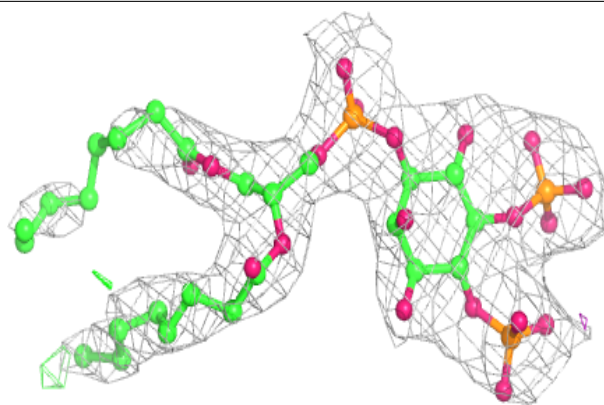
**Electron density around PIO D 101:**

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

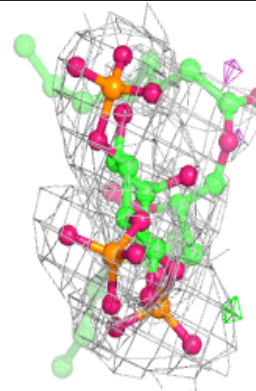
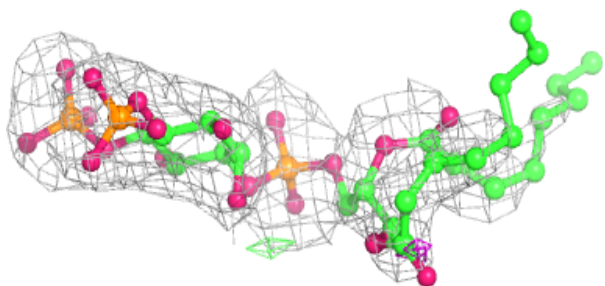
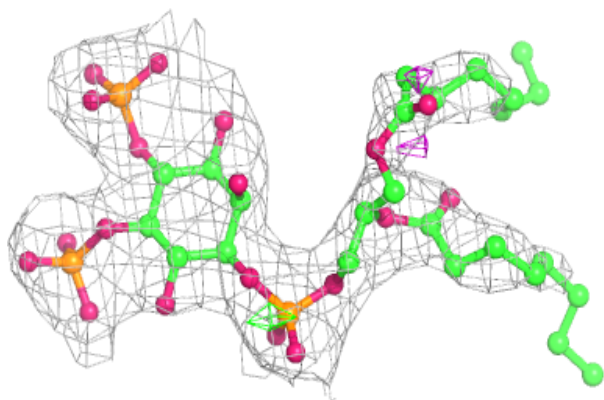


**Electron density around PIO M 101:**

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

**Electron density around PIO S 101:**

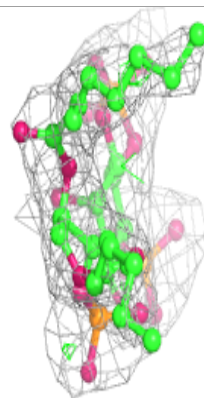
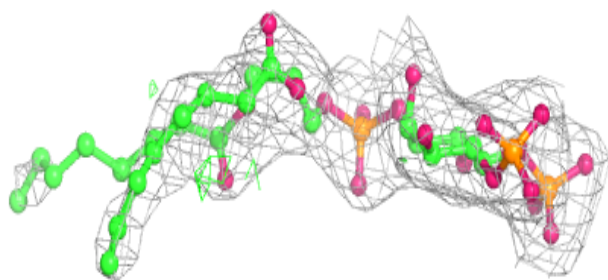
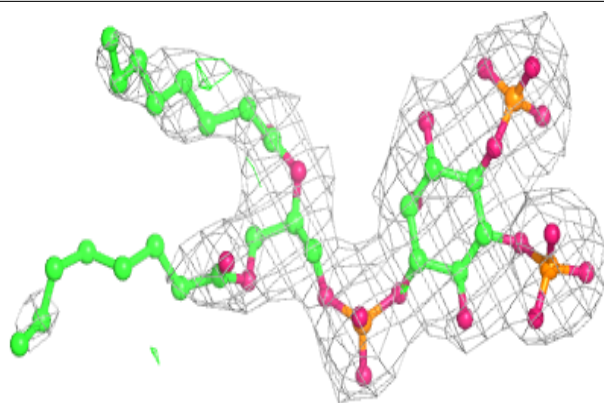
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



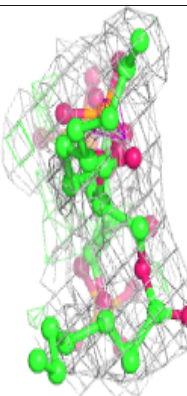
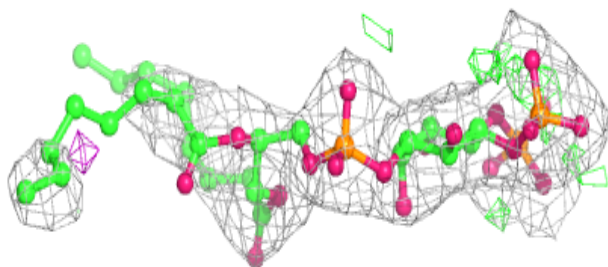
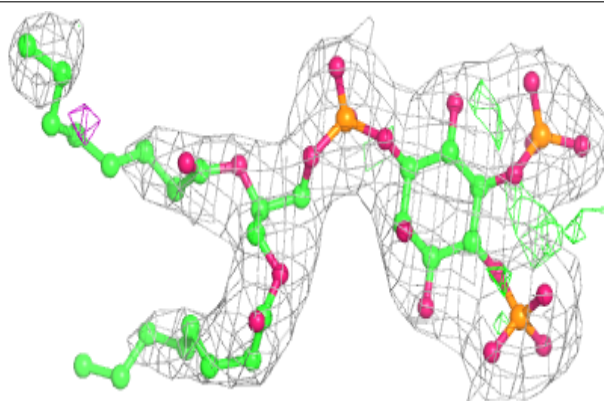


**Electron density around PIO C 101:**

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

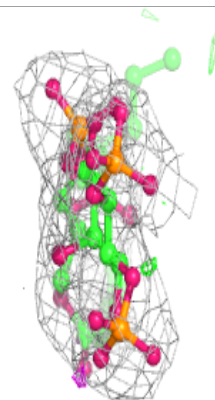
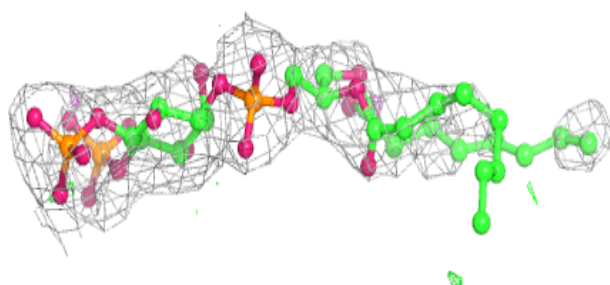
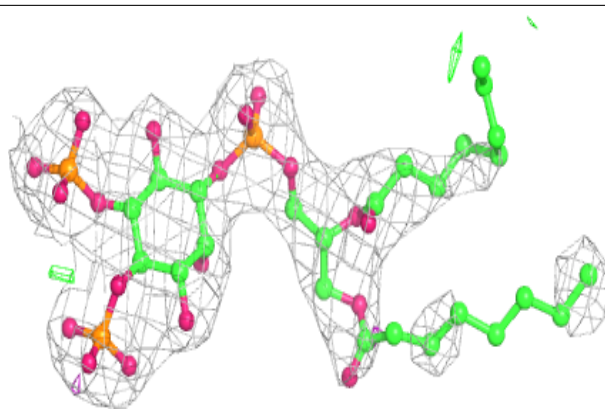
**Electron density around PIO P 101:**

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

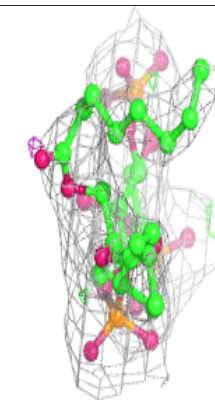
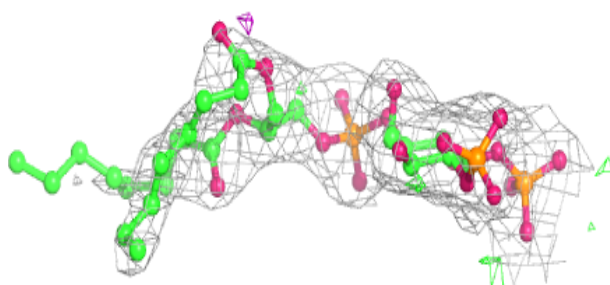
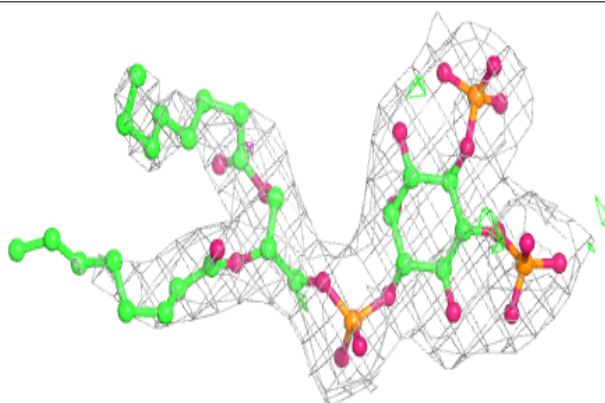


**Electron density around PIO U 101:**

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

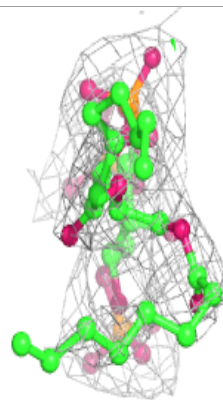
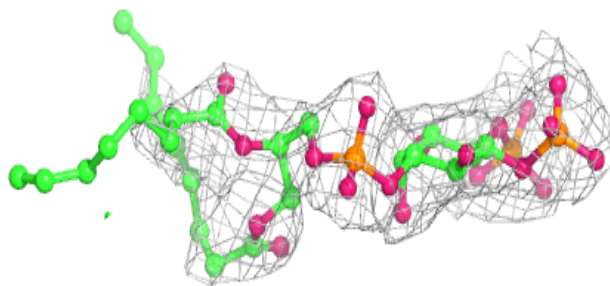
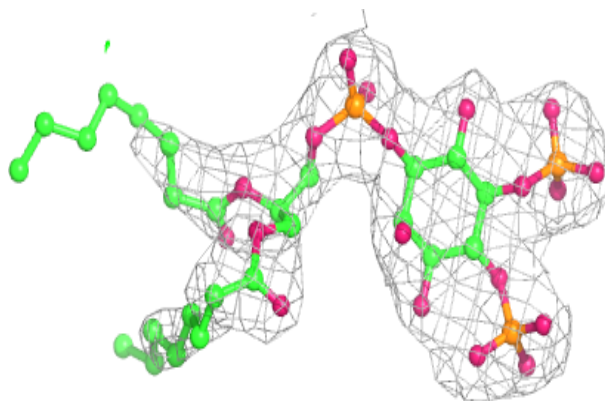
**Electron density around PIO V 101:**

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



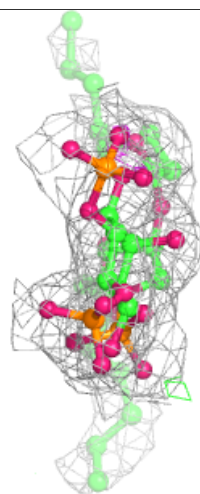
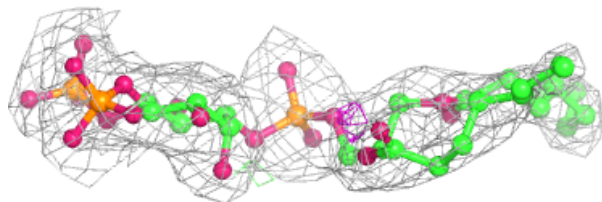
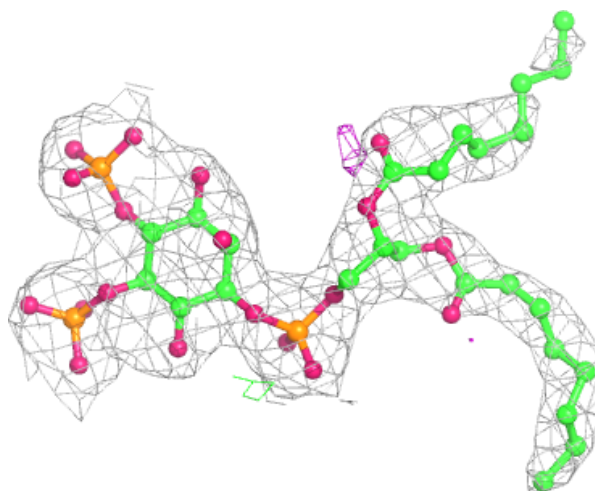
**Electron density around PIO R 101:**

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



**Electron density around PIO B 101:**

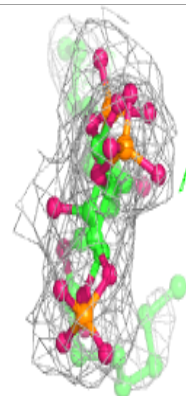
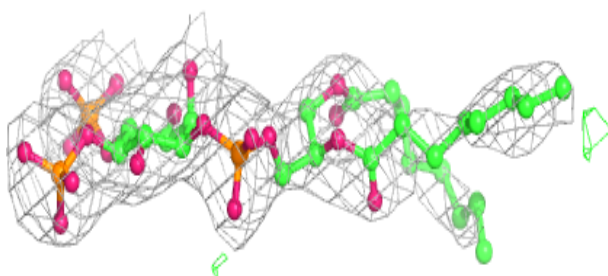
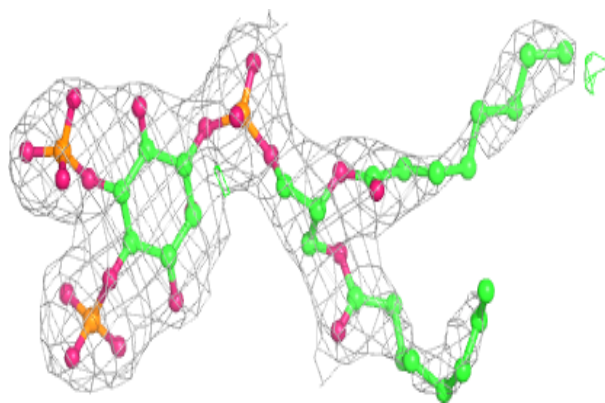
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



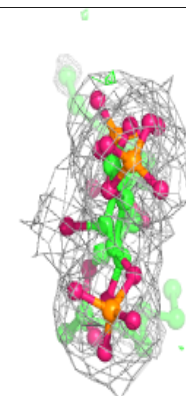
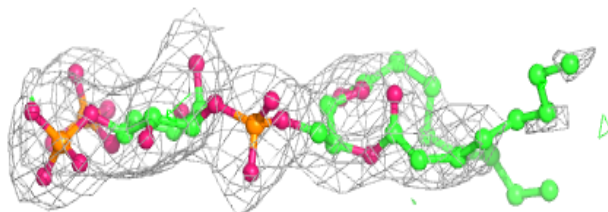
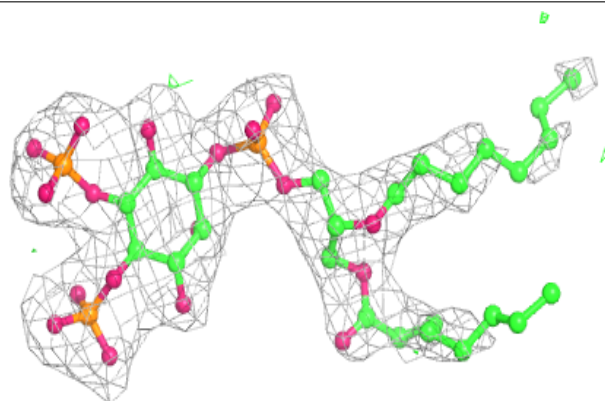


**Electron density around PIO T 101:**

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

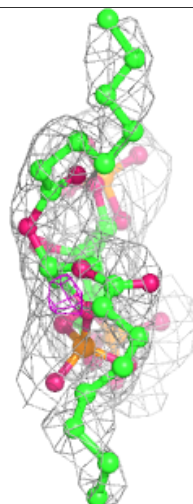
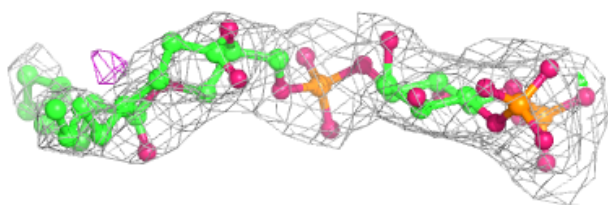
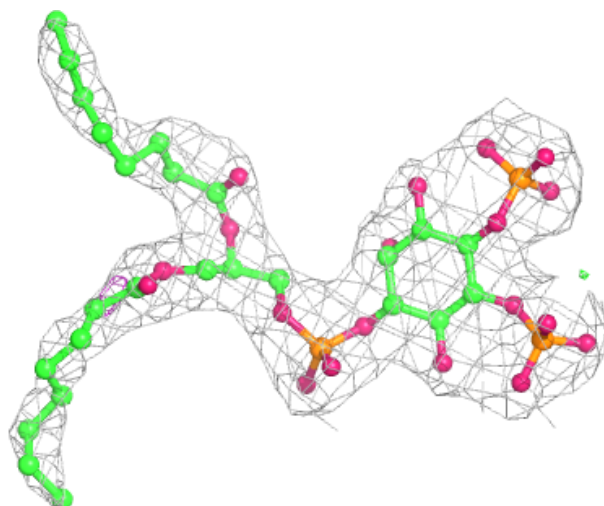
**Electron density around PIO E 101:**

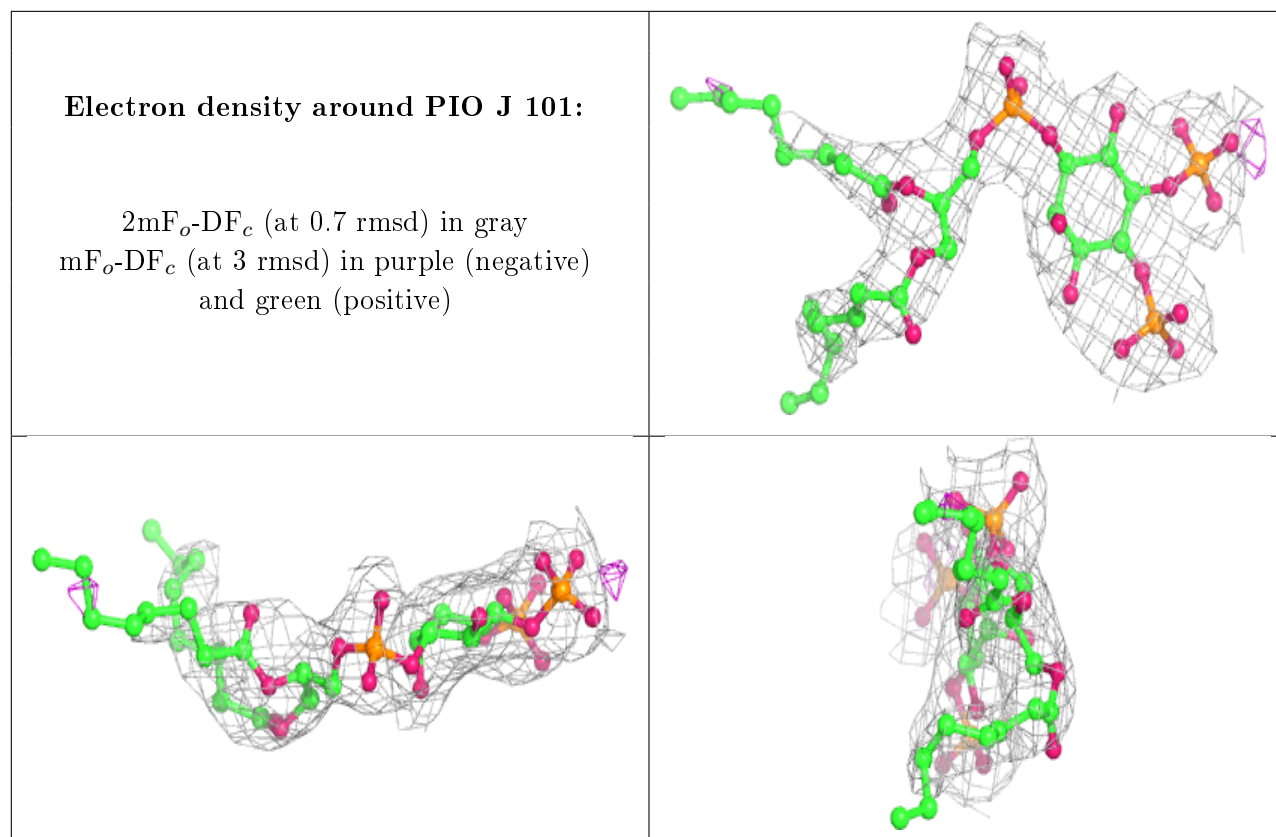
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



**Electron density around PIO N 101:**

$2mF_o-DF_c$  (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.