



# Full wwPDB X-ray Structure Validation Report ⓘ

Oct 14, 2023 – 11:10 PM EDT

PDB ID : 8F5W  
Title : Dihydropyrimidine Dehydrogenase (DPD) C671S Mutant Soaked with Dihydrothymine and NADPH Quasi-Anaerobically  
Authors : Kaley, N.; Smith, M.; Forouzesh, D.; Liu, D.; Moran, G.  
Deposited on : 2022-11-15  
Resolution : 1.97 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](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.

The types of validation reports are described at

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

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

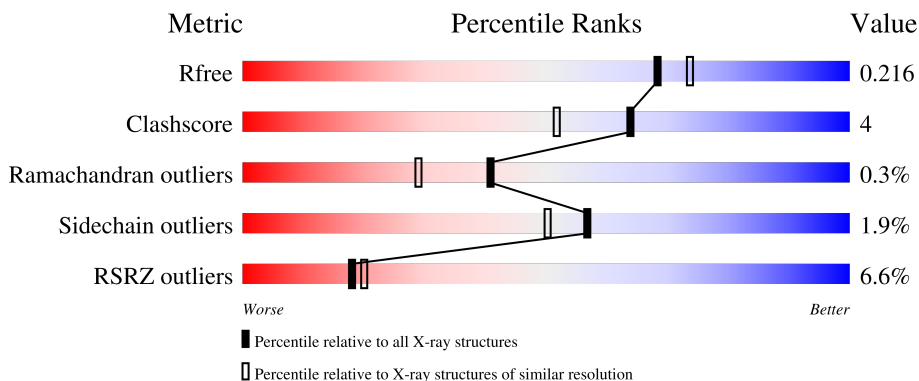
MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.36  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36

# 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 1.97 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	11647 (2.00-1.96)
Clashscore	141614	1014 (1.98-1.98)
Ramachandran outliers	138981	1006 (1.98-1.98)
Sidechain outliers	138945	1006 (1.98-1.98)
RSRZ outliers	127900	11410 (2.00-1.96)

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  $\geq 3$ , 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	1025	 7% 88% 10% ..
1	B	1025	 5% 88% 10% .
1	C	1025	 8% 89% 10% ..
1	D	1025	 6% 88% 10% .

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	NAP	A	1106	X	-	-	-
4	NAP	B	1106	X	-	-	-
4	NAP	C	1106	X	-	-	-
4	NAP	D	1106	X	-	-	-
5	FNR	A	1107	-	X	-	-
5	FNR	B	1108	-	X	-	-
5	FNR	C	1107	-	X	-	-
5	FNR	D	1107	-	X	-	-

## 2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 32519 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 Dihydropyrimidine dehydrogenase [NADP(+)].

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	1010	7702	4889	1303	1458	52	0	0	0
1	B	1012	7713	4896	1306	1458	53	30	0	0
1	C	1018	7735	4909	1311	1462	53	0	0	0
1	D	1010	7700	4887	1302	1458	53	30	0	0

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	60	ASP	GLY	conflict	UNP Q28943
A	671	SER	CYS	engineered mutation	UNP Q28943
B	60	ASP	GLY	conflict	UNP Q28943
B	671	SER	CYS	engineered mutation	UNP Q28943
C	60	ASP	GLY	conflict	UNP Q28943
C	671	SER	CYS	engineered mutation	UNP Q28943
D	60	ASP	GLY	conflict	UNP Q28943
D	671	SER	CYS	engineered mutation	UNP Q28943

- Molecule 2 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe<sub>4</sub>S<sub>4</sub>) (labeled as "Ligand of Interest" by depositor).



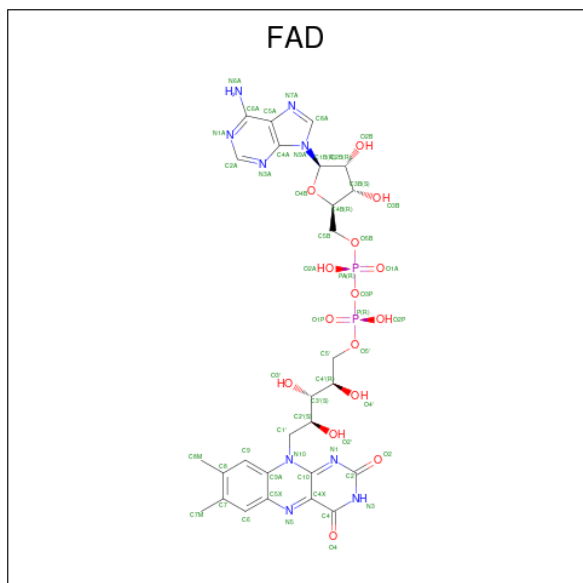
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	Fe	S	0	0
			8	4	4		
2	A	1	Total	Fe	S	0	0
			8	4	4		
2	A	1	Total	Fe	S	0	0
			8	4	4		
2	A	1	Total	Fe	S	0	0
			8	4	4		
2	B	1	Total	Fe	S	0	0
			8	4	4		
2	B	1	Total	Fe	S	0	0
			8	4	4		
2	B	1	Total	Fe	S	0	0
			8	4	4		
2	B	1	Total	Fe	S	0	0
			8	4	4		
2	C	1	Total	Fe	S	0	0
			8	4	4		
2	C	1	Total	Fe	S	0	0
			8	4	4		
2	C	1	Total	Fe	S	0	0
			8	4	4		
2	D	1	Total	Fe	S	0	0
			8	4	4		
2	D	1	Total	Fe	S	0	0
			8	4	4		

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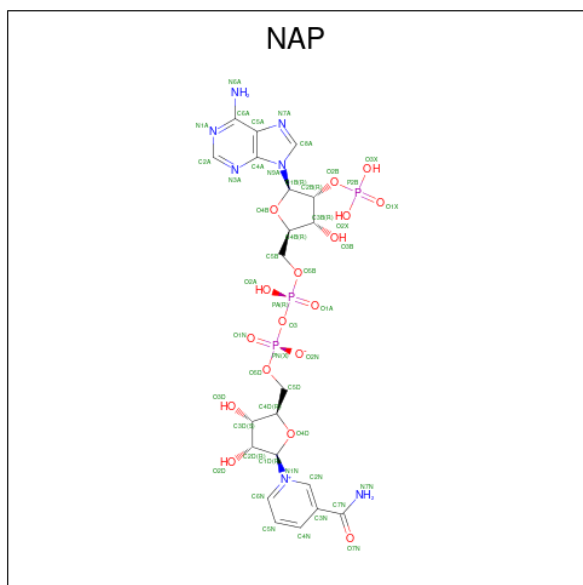
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	D	1	Total	Fe	S	0	0
			8	4	4		
2	D	1	Total	Fe	S	0	0
			8	4	4		

- Molecule 3 is FLAVIN-ADENINE DINUCLEOTIDE (three-letter code: FAD) (formula:  $C_{27}H_{33}N_9O_{15}P_2$ ) (labeled as "Ligand of Interest" by depositor).



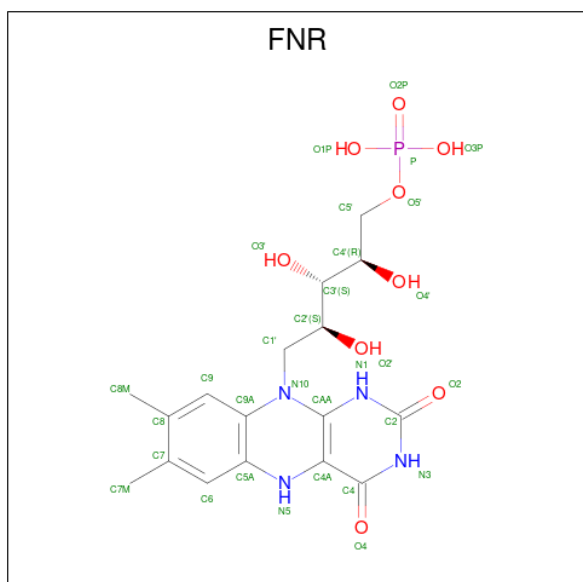
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
3	A	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
3	B	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
3	C	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
3	D	1	Total	C	N	O	P	0	0
			53	27	9	15	2		

- Molecule 4 is NADP NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (three-letter code: NAP) (formula:  $C_{21}H_{28}N_7O_{17}P_3$ ) (labeled as "Ligand of Interest" by depositor).



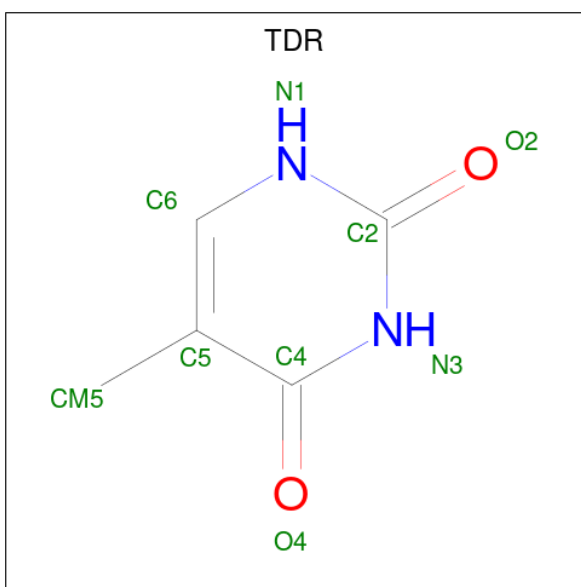
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
4	A	1	Total 48	C 21	N 7	O 17	P 3	0	0
4	B	1	Total 48	C 21	N 7	O 17	P 3	0	0
4	C	1	Total 48	C 21	N 7	O 17	P 3	0	0
4	D	1	Total 48	C 21	N 7	O 17	P 3	0	0

- Molecule 5 is 1-DEOXY-1-(7,8-DIMETHYL-2,4-DIOXO-3,4-DIHYDRO-2H-BENZO[G]P  
TERIDIN-1-ID-10(5H)-YL)-5-O-PHOSPHONATO-D-RIBITOL (three-letter code: FNR)  
(formula:  $C_{17}H_{23}N_4O_9P$ ) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
5	A	1	Total	C	N	O	P	0	0
			31	17	4	9	1		
5	B	1	Total	C	N	O	P	0	0
			31	17	4	9	1		
5	C	1	Total	C	N	O	P	0	0
			31	17	4	9	1		
5	D	1	Total	C	N	O	P	0	0
			31	17	4	9	1		

- Molecule 6 is THYMINE (three-letter code: TDR) (formula:  $C_5H_6N_2O_2$ ) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
6	A	1	Total	C	N	O	0	0
			9	5	2	2		
6	B	1	Total	C	N	O	0	0
			9	5	2	2		
6	C	1	Total	C	N	O	0	0
			9	5	2	2		
6	D	1	Total	C	N	O	0	0
			9	5	2	2		

- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	248	Total	O	0	0
			248	248		

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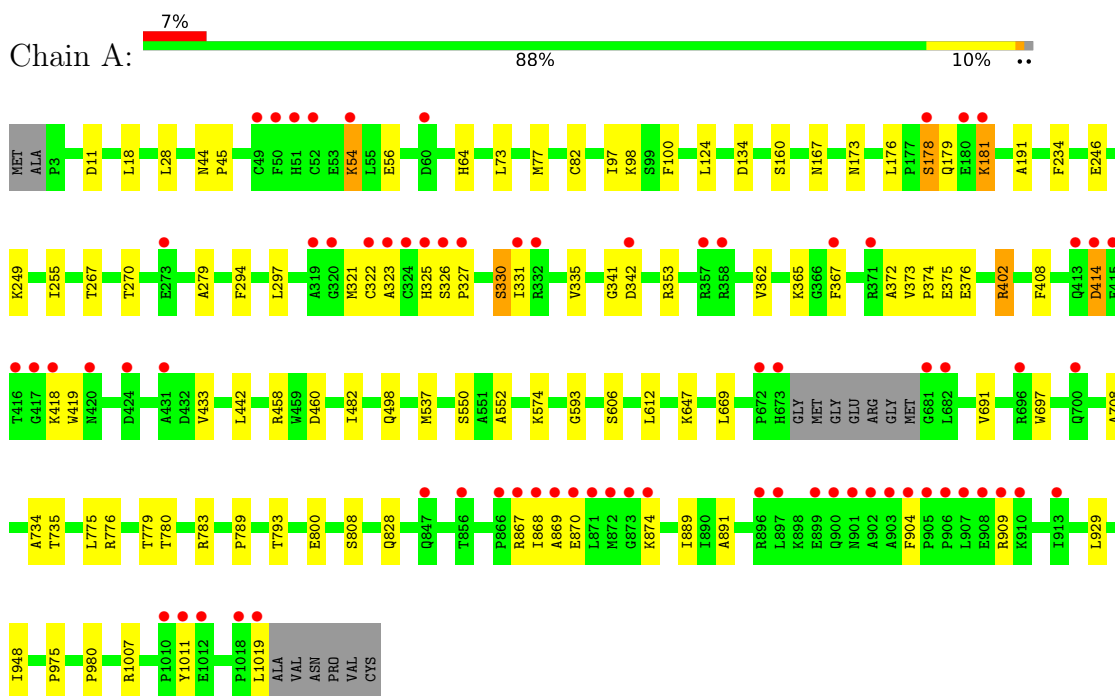
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<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>		<b>ZeroOcc</b>	<b>AltConf</b>
7	B	229	Total 229	O 229	0	0
7	C	266	Total 266	O 266	0	0
7	D	234	Total 234	O 234	0	0

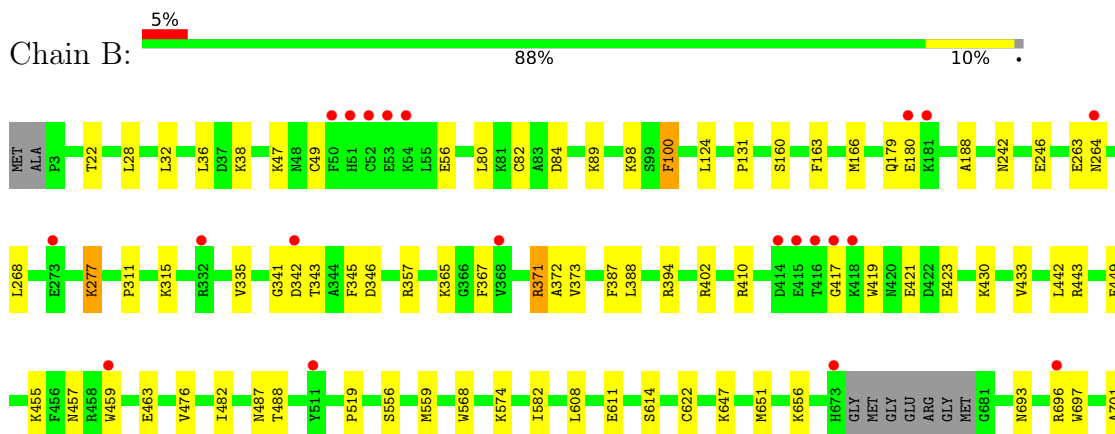
### 3 Residue-property plots [i](#)

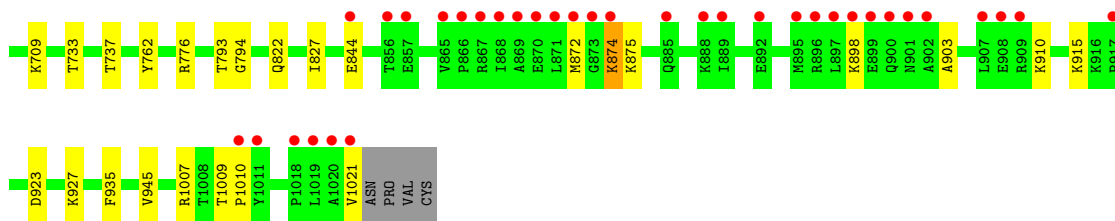
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: Dihydropyrimidine dehydrogenase [NADP(+)]



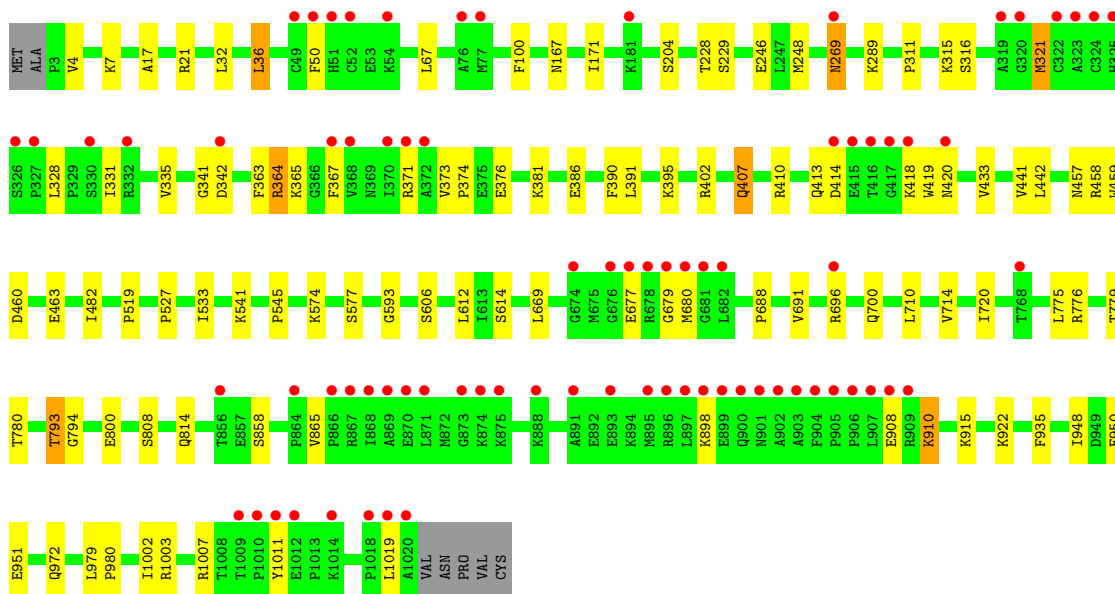
- Molecule 1: Dihydropyrimidine dehydrogenase [NADP(+)]





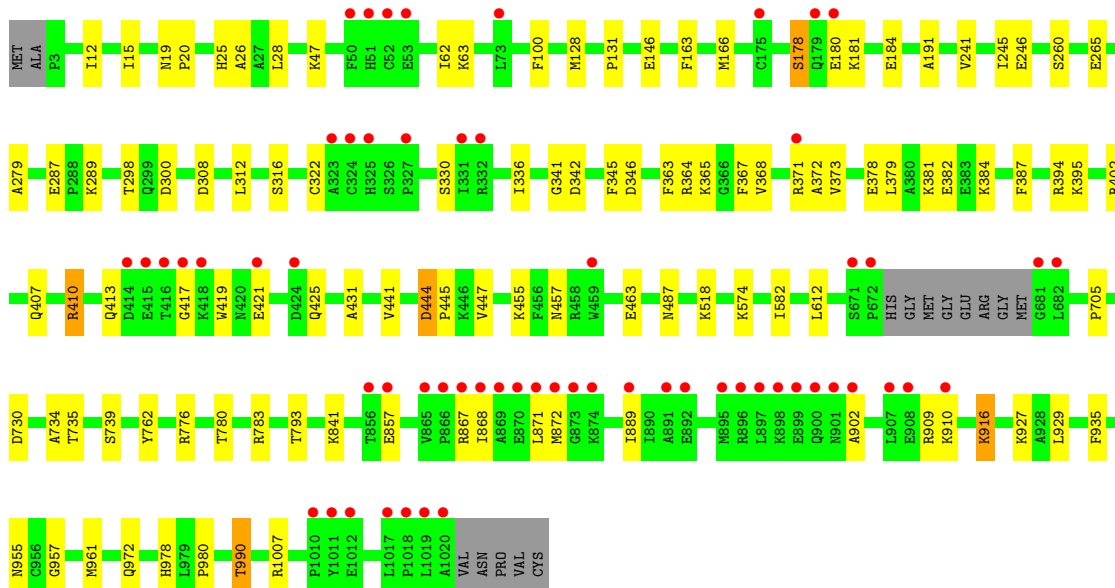
• Molecule 1: Dihydropyrimidine dehydrogenase [NADP(+)]

Chain C: 8% 89% 10% ..



• Molecule 1: Dihydropyrimidine dehydrogenase [NADP(+)]

Chain D: 6% 88% 10% ..



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	81.73Å 158.00Å 162.40Å 90.00° 96.06° 90.00°	Depositor
Resolution (Å)	47.23 – 1.97 52.27 – 1.97	Depositor EDS
% Data completeness (in resolution range)	98.5 (47.23-1.97) 98.6 (52.27-1.97)	Depositor EDS
$R_{merge}$	0.13	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.44 (at 1.97Å)	Xtrriage
Refinement program	PHENIX 1.20.1_4487	Depositor
R, $R_{free}$	0.179 , 0.217 0.178 , 0.216	Depositor DCC
$R_{free}$ test set	14079 reflections (4.97%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	26.4	Xtrriage
Anisotropy	0.378	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.38 , 44.1	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.96	EDS
Total number of atoms	32519	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	32.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.75% 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

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: NAP, FNR, SF4, TDR, FAD

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	0.42	0/7862	0.64	0/10658
1	B	0.41	0/7874	0.63	0/10676
1	C	0.42	0/7896	0.64	1/10705 (0.0%)
1	D	0.43	2/7860 (0.0%)	0.68	5/10656 (0.0%)
All	All	0.42	2/31492 (0.0%)	0.65	6/42695 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	C	0	1
All	All	0	2

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	445	PRO	CB-CG	-8.56	1.07	1.50
1	D	445	PRO	CG-CD	-8.39	1.23	1.50

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	445	PRO	N-CD-CG	-18.70	75.14	103.20
1	D	445	PRO	CA-CB-CG	-17.54	70.67	104.00
1	D	445	PRO	CA-N-CD	-7.17	101.46	111.50
1	C	36	LEU	CA-CB-CG	6.49	130.22	115.30
1	D	445	PRO	N-CA-CB	-5.40	96.66	102.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	444	ASP	C-N-CD	5.01	138.91	128.40

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	325	HIS	Peptide
1	C	1003	ARG	Sidechain

## 5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	7702	0	7728	71	0
1	B	7713	0	7738	65	0
1	C	7735	0	7754	71	0
1	D	7700	0	7726	65	0
2	A	32	0	0	0	0
2	B	32	0	0	0	0
2	C	32	0	0	0	0
2	D	32	0	0	0	0
3	A	53	0	31	4	0
3	B	53	0	31	3	0
3	C	53	0	31	2	0
3	D	53	0	31	2	0
4	A	48	0	17	8	0
4	B	48	0	17	9	0
4	C	48	0	17	11	0
4	D	48	0	17	7	0
5	A	31	0	22	6	0
5	B	31	0	22	4	0
5	C	31	0	22	3	0
5	D	31	0	22	2	0
6	A	9	0	6	0	0
6	B	9	0	6	1	0
6	C	9	0	6	0	0
6	D	9	0	6	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
7	A	248	0	0	2	0
7	B	229	0	0	2	0
7	C	266	0	0	5	0
7	D	234	0	0	1	0
All	All	32519	0	31250	266	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 4.

All (266) 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:C:342:ASP:HB2	4:C:1106:NAP:C5N	1.97	0.94
1:D:574:LYS:HZ2	5:D:1107:FNR:H5	1.18	0.91
1:A:179:GLN:NE2	7:A:1201:HOH:O	2.04	0.91
1:B:875:LYS:HE3	1:B:875:LYS:HA	1.58	0.83
1:B:342:ASP:HB2	4:B:1106:NAP:C4N	2.12	0.80
1:B:342:ASP:HB2	4:B:1106:NAP:C5N	2.13	0.79
1:A:342:ASP:HB2	4:A:1106:NAP:C6N	2.14	0.78
1:D:298:THR:OG1	1:D:300:ASP:OD1	2.01	0.77
1:D:574:LYS:NZ	5:D:1107:FNR:H5	1.82	0.76
1:C:776:ARG:NH2	7:C:1202:HOH:O	2.19	0.75
1:D:342:ASP:HB2	4:D:1106:NAP:C5N	2.16	0.75
1:B:131:PRO:HB2	1:B:373:VAL:HG11	1.70	0.73
1:A:178:SER:HB3	1:A:181:LYS:HE2	1.70	0.73
1:D:342:ASP:HB2	4:D:1106:NAP:C4N	2.18	0.72
1:C:342:ASP:HB2	4:C:1106:NAP:C6N	2.19	0.72
1:C:269:ASN:OD1	7:C:1201:HOH:O	2.07	0.71
1:C:341:GLY:H	4:C:1106:NAP:H52A	1.56	0.71
1:D:131:PRO:HB2	1:D:373:VAL:HG11	1.74	0.70
1:B:394:ARG:NH1	1:B:423:GLU:OE1	2.23	0.69
1:C:402:ARG:HG3	1:C:402:ARG:HH11	1.59	0.68
1:C:775:LEU:O	1:C:779:THR:HG23	1.95	0.68
1:A:775:LEU:O	1:A:779:THR:HG23	1.94	0.67
1:A:779:THR:HG22	1:A:808:SER:HB3	1.77	0.66
1:A:179:GLN:OE1	7:A:1202:HOH:O	2.13	0.66
1:A:341:GLY:H	4:A:1106:NAP:H52A	1.61	0.65
1:C:246:GLU:OE1	1:C:908:GLU:HB2	1.97	0.65
1:A:1007:ARG:HD3	1:A:1011:TYR:HB2	1.79	0.65
1:A:870:GLU:HG3	1:A:889:ILE:HD13	1.80	0.64
1:B:442:LEU:HD22	1:B:482:ILE:HD11	1.79	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:321:MET:HG2	1:A:322:CYS:N	2.12	0.63
1:C:335:VAL:HG22	1:C:433:VAL:HB	1.81	0.63
1:C:342:ASP:HB2	4:C:1106:NAP:C4N	2.28	0.63
1:D:289:LYS:HG3	1:D:441:VAL:HG13	1.81	0.62
1:C:67:LEU:HD23	1:D:146:GLU:HG2	1.80	0.62
1:A:783:ARG:HG3	1:A:929:LEU:HD22	1.82	0.62
1:A:342:ASP:HB2	4:A:1106:NAP:C5N	2.30	0.61
1:C:442:LEU:HD22	1:C:482:ILE:HD11	1.84	0.60
1:C:779:THR:HG22	1:C:808:SER:HB3	1.82	0.60
1:D:783:ARG:HH11	1:D:783:ARG:HG2	1.67	0.60
1:B:776:ARG:NH1	7:B:1201:HOH:O	2.24	0.60
1:B:874:LYS:HE2	1:B:874:LYS:N	2.17	0.60
1:C:1007:ARG:HD3	1:C:1011:TYR:HB2	1.84	0.60
3:A:1105:FAD:C5X	4:A:1106:NAP:C5N	2.80	0.59
1:C:371:ARG:NH1	4:C:1106:NAP:O1A	2.37	0.58
1:B:844:GLU:HG3	1:B:915:LYS:HD3	1.86	0.58
1:C:167:ASN:ND2	1:C:910:LYS:O	2.31	0.57
5:B:1108:FNR:H9	5:B:1108:FNR:C2'	2.33	0.57
1:A:365:LYS:HG2	1:A:419:TRP:CZ2	2.39	0.57
1:B:693:ASN:OD1	1:B:696:ARG:NH2	2.38	0.56
1:B:342:ASP:OD2	1:B:372:ALA:HA	2.05	0.56
1:C:17:ALA:O	1:C:21:ARG:NH2	2.39	0.56
1:C:395:LYS:HE2	1:C:407:GLN:OE1	2.05	0.56
1:D:308:ASP:O	1:D:312:LEU:HG	2.06	0.56
1:B:487:ASN:O	4:B:1106:NAP:H2N	2.05	0.56
1:A:647:LYS:HG3	1:A:697:TRP:CD1	2.40	0.56
1:C:228:THR:HG23	1:C:321:MET:HG3	1.87	0.55
1:C:948:ILE:HG12	1:C:1002:ILE:HG12	1.88	0.55
1:D:12:ILE:HA	1:D:15:ILE:HG22	1.89	0.55
3:C:1105:FAD:C5X	4:C:1106:NAP:C5N	2.85	0.55
1:B:345:PHE:HE1	1:B:387:PHE:HE2	1.55	0.55
1:D:246:GLU:OE1	1:D:909:ARG:HB2	2.06	0.55
1:B:488:THR:HG22	4:B:1106:NAP:N7N	2.22	0.54
1:C:32:LEU:O	1:C:36:LEU:HD22	2.08	0.54
1:A:73:LEU:O	1:A:77:MET:HG3	2.08	0.54
1:A:828:GLN:HG3	1:B:22:THR:HG23	1.89	0.54
1:D:487:ASN:O	4:D:1106:NAP:H2N	2.07	0.54
1:A:362:VAL:HG11	1:A:408:PHE:CE2	2.42	0.54
1:B:32:LEU:O	1:B:36:LEU:HD13	2.08	0.53
1:D:342:ASP:OD1	1:D:372:ALA:HA	2.08	0.53
1:A:249:LYS:HE3	1:A:255:ILE:HD12	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:163:PHE:O	1:D:166:MET:HB2	2.08	0.53
1:D:857:GLU:OE1	1:D:867:ARG:NH2	2.41	0.53
1:B:574:LYS:NZ	5:B:1108:FNR:H5	2.07	0.53
1:A:442:LEU:HD22	1:A:482:ILE:HD11	1.91	0.53
1:D:287:GLU:OE2	7:D:1201:HOH:O	2.19	0.53
1:A:246:GLU:OE2	1:A:909:ARG:N	2.39	0.53
1:D:783:ARG:HG2	1:D:783:ARG:NH1	2.23	0.53
1:A:780:THR:HG22	1:B:762:TYR:CZ	2.44	0.52
1:B:263:GLU:OE1	1:B:449:GLU:HG2	2.10	0.52
1:D:410:ARG:HD3	1:D:425:GLN:OE1	2.09	0.52
1:A:178:SER:H	1:A:181:LYS:CE	2.23	0.52
1:C:402:ARG:HG3	1:C:402:ARG:NH1	2.25	0.52
1:C:311:PRO:O	1:C:315:LYS:HD2	2.10	0.52
1:C:1019:LEU:HD11	1:D:582:ILE:HG12	1.92	0.52
1:C:950:GLU:HG2	1:C:979:LEU:HD22	1.91	0.51
1:D:444:ASP:OD2	1:D:447:VAL:HG23	2.10	0.51
1:A:342:ASP:CB	4:A:1106:NAP:C5N	2.88	0.51
1:C:342:ASP:HB3	1:C:376:GLU:HG2	1.92	0.51
1:A:498:GLN:HA	1:B:28:LEU:HD11	1.92	0.51
1:A:948:ILE:HD13	1:A:980:PRO:HG2	1.93	0.51
1:B:188:ALA:HB1	1:B:277:LYS:HG3	1.92	0.51
1:C:386:GLU:OE2	1:D:368:VAL:HG22	2.11	0.51
1:D:972:GLN:O	1:D:980:PRO:HA	2.11	0.51
1:B:574:LYS:HB3	1:B:614:SER:HB2	1.93	0.51
1:B:371:ARG:NH1	4:B:1106:NAP:O1X	2.44	0.50
1:B:556:SER:O	1:B:559:MET:HB2	2.11	0.50
1:A:574:LYS:NZ	5:A:1107:FNR:H5	2.09	0.50
1:C:364:ARG:HD3	4:C:1106:NAP:N3A	2.26	0.50
1:B:242:ASN:O	1:B:246:GLU:HG2	2.12	0.50
1:C:780:THR:HG22	1:D:762:TYR:CZ	2.46	0.50
1:D:25:HIS:HD2	1:D:26:ALA:O	1.95	0.50
1:A:82:CYS:O	1:A:98:LYS:HD2	2.13	0.49
1:C:364:ARG:HD3	4:C:1106:NAP:C2A	2.43	0.49
1:D:868:ILE:O	1:D:872:MET:HG3	2.12	0.49
1:A:1019:LEU:HD21	1:B:582:ILE:HD13	1.94	0.49
1:B:647:LYS:HG3	1:B:697:TRP:CD1	2.47	0.49
1:C:574:LYS:NZ	5:C:1107:FNR:H5	2.11	0.49
1:C:457:ASN:HB3	1:C:463:GLU:HG2	1.94	0.49
1:D:62:ILE:HD13	1:D:379:LEU:HD22	1.94	0.49
1:C:4:VAL:HG11	1:C:7:LYS:HD2	1.94	0.49
1:A:173:ASN:HB3	1:A:176:LEU:HG	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:341:GLY:H	4:D:1106:NAP:H52A	1.78	0.49
1:B:341:GLY:H	4:B:1106:NAP:H52A	1.78	0.48
1:B:180:GLU:CD	1:B:180:GLU:H	2.17	0.48
1:B:311:PRO:O	1:B:315:LYS:HG3	2.12	0.48
1:C:948:ILE:HD13	1:C:980:PRO:HG2	1.95	0.48
1:A:54:LYS:HD2	1:A:56:GLU:H	1.77	0.48
1:A:54:LYS:HG2	1:A:891:ALA:HB1	1.96	0.48
1:A:874:LYS:HD3	1:A:874:LYS:N	2.28	0.48
1:D:365:LYS:HG2	1:D:419:TRP:CZ2	2.49	0.48
1:A:167:ASN:HD21	1:A:909:ARG:HD3	1.78	0.47
1:B:737:THR:HG23	5:B:1108:FNR:H1'2	1.96	0.47
1:B:82:CYS:O	1:B:98:LYS:HD2	2.14	0.47
1:A:54:LYS:CG	1:A:891:ALA:HB1	2.44	0.47
1:A:342:ASP:OD1	1:A:372:ALA:HA	2.14	0.47
1:D:457:ASN:HB3	1:D:463:GLU:HG2	1.96	0.47
1:D:12:ILE:O	1:D:15:ILE:HG22	2.15	0.47
1:D:260:SER:O	1:D:265:GLU:HG2	2.15	0.47
1:A:776:ARG:O	1:A:780:THR:HG23	2.15	0.46
1:D:19:ASN:OD1	1:D:20:PRO:HD2	2.16	0.46
1:C:577:SER:HB2	7:C:1257:HOH:O	2.15	0.46
1:C:229:SER:HA	1:C:321:MET:HE3	1.96	0.46
3:C:1105:FAD:N5	4:C:1106:NAP:C4N	2.78	0.46
1:C:680:MET:CE	1:C:688:PRO:HD2	2.46	0.46
1:A:1007:ARG:CD	1:A:1011:TYR:HB2	2.45	0.46
1:B:394:ARG:NH2	1:B:421:GLU:OE1	2.49	0.46
1:B:709:LYS:HA	1:B:733:THR:HB	1.97	0.46
1:A:550:SER:O	5:A:1107:FNR:CAA	2.64	0.46
1:B:346:ASP:OD2	3:B:1105:FAD:H6	2.16	0.46
3:B:1105:FAD:C5X	4:B:1106:NAP:C5N	2.94	0.46
5:A:1107:FNR:H1'2	5:A:1107:FNR:H9	1.83	0.46
1:B:915:LYS:HD2	7:B:1203:HOH:O	2.16	0.46
1:A:331:ILE:HG22	1:A:331:ILE:O	2.16	0.45
1:B:124:LEU:HD13	1:B:160:SER:HB2	1.99	0.45
1:B:365:LYS:HE2	4:B:1106:NAP:O2X	2.17	0.45
1:C:915:LYS:HG2	7:C:1227:HOH:O	2.16	0.45
1:D:63:LYS:HE3	1:D:128:MET:HB3	1.98	0.45
1:C:413:GLN:HG3	1:C:419:TRP:CE2	2.52	0.45
1:A:574:LYS:HZ3	5:A:1107:FNR:H5	1.64	0.44
1:D:776:ARG:O	1:D:780:THR:HG23	2.17	0.44
1:B:343:THR:HA	3:B:1105:FAD:HM73	1.98	0.44
1:D:957:GLY:O	1:D:961:MET:HG3	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:418:LYS:HE3	1:C:420:ASN:OD1	2.17	0.44
1:A:373:VAL:HG13	1:A:375:GLU:HG2	1.99	0.44
1:C:696:ARG:O	1:C:700:GLN:HG3	2.18	0.44
1:D:178:SER:HB3	1:D:180:GLU:OE2	2.18	0.44
1:A:669:LEU:HD11	1:A:708:ALA:HB1	2.00	0.44
1:A:868:ILE:HG22	1:A:870:GLU:H	1.83	0.44
1:C:865:VAL:HG11	1:C:951:GLU:OE1	2.17	0.44
1:A:537:MET:HG3	1:A:789:PRO:HB3	2.00	0.44
1:A:869:ALA:O	1:A:874:LYS:HE3	2.18	0.44
1:C:289:LYS:HG3	1:C:441:VAL:HG13	1.99	0.44
1:A:267:THR:OG1	1:A:270:THR:HG23	2.18	0.44
1:B:1009:THR:HB	1:B:1010:PRO:HD2	1.98	0.44
1:C:331:ILE:HG22	1:C:331:ILE:O	2.16	0.44
1:C:935:PHE:CE1	1:D:612:LEU:HD11	2.53	0.44
1:A:867:ARG:C	1:A:868:ILE:HD13	2.39	0.43
1:A:18:LEU:HD21	1:A:975:PRO:HA	1.99	0.43
1:A:191:ALA:O	1:A:279:ALA:HA	2.17	0.43
1:B:611:GLU:O	6:B:1107:TDR:H6	2.18	0.43
1:A:402:ARG:HD2	1:A:402:ARG:HA	1.86	0.43
1:C:533:ILE:O	1:C:545:PRO:HD3	2.18	0.43
1:C:612:LEU:HD11	1:D:935:PHE:CE1	2.53	0.43
1:D:394:ARG:NH1	1:D:421:GLU:OE1	2.49	0.43
1:A:669:LEU:HD13	1:A:691:VAL:HG22	2.00	0.43
1:C:458:ARG:HD2	1:C:459:TRP:CZ2	2.54	0.43
1:A:134:ASP:O	1:B:38:LYS:HD2	2.19	0.43
1:B:84:ASP:OD1	1:B:89:LYS:NZ	2.48	0.43
1:C:972:GLN:O	1:C:980:PRO:HA	2.19	0.43
1:B:80:LEU:HB2	1:B:82:CYS:SG	2.58	0.43
1:D:345:PHE:HE2	1:D:387:PHE:HE2	1.64	0.43
1:A:552:ALA:HB2	5:A:1107:FNR:H7M3	2.00	0.43
1:A:294:PHE:HA	1:A:297:LEU:HD12	2.01	0.43
1:C:574:LYS:HB3	1:C:614:SER:HB2	2.01	0.43
1:C:793:THR:HG22	1:C:814:GLN:HB2	2.01	0.43
1:D:241:VAL:O	1:D:245:ILE:HG12	2.18	0.43
1:D:413:GLN:HG3	1:D:419:TRP:CE2	2.54	0.43
1:A:330:SER:O	1:A:330:SER:OG	2.36	0.42
1:B:651:MET:HG2	1:B:701:ALA:HB2	2.01	0.42
1:C:574:LYS:HZ2	5:C:1107:FNR:H5	1.67	0.42
1:C:367:PHE:CZ	1:D:367:PHE:CZ	3.08	0.42
1:C:593:GLY:HA3	1:C:606:SER:OG	2.19	0.42
1:D:384:LYS:HA	1:D:384:LYS:HD3	1.83	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:367:PHE:CZ	1:B:367:PHE:CE2	3.06	0.42
1:A:414:ASP:OD2	1:A:418:LYS:HB3	2.19	0.42
1:D:364:ARG:HD3	4:D:1106:NAP:C2A	2.49	0.42
1:B:430:LYS:HB2	1:B:430:LYS:HE2	1.90	0.42
1:C:342:ASP:CB	4:C:1106:NAP:C4N	2.96	0.42
1:A:28:LEU:HD22	1:B:519:PRO:HB3	2.02	0.42
1:A:365:LYS:HG2	1:A:419:TRP:CE2	2.54	0.42
5:B:1108:FNR:C2'	5:B:1108:FNR:C9	2.96	0.42
1:D:871:LEU:HG	1:D:889:ILE:HG21	2.02	0.42
1:D:990:THR:HG22	1:D:990:THR:O	2.19	0.42
3:A:1105:FAD:N5	4:A:1106:NAP:C5N	2.83	0.42
1:C:342:ASP:CB	4:C:1106:NAP:C5N	2.85	0.42
1:C:669:LEU:HD13	1:C:691:VAL:HG22	2.01	0.42
1:D:178:SER:HB2	1:D:181:LYS:HG3	2.02	0.42
1:A:234:PHE:CE2	1:A:353:ARG:HD3	2.55	0.42
1:D:705:PRO:HA	1:D:730:ASP:OD2	2.20	0.42
1:A:44:ASN:HB2	1:A:45:PRO:HD2	2.01	0.42
1:A:373:VAL:HG22	1:A:374:PRO:HD2	2.01	0.42
1:B:357:ARG:HG2	1:B:357:ARG:HH11	1.84	0.42
1:C:367:PHE:CZ	1:D:367:PHE:CE2	3.08	0.42
1:D:394:ARG:NH2	1:D:421:GLU:OE1	2.52	0.42
3:A:1105:FAD:N5	4:A:1106:NAP:C4N	2.82	0.41
1:C:519:PRO:HB3	1:D:28:LEU:HD22	2.01	0.41
1:D:342:ASP:CB	4:D:1106:NAP:C4N	2.93	0.41
1:A:335:VAL:HG22	1:A:433:VAL:HB	2.02	0.41
1:A:612:LEU:HD11	1:B:935:PHE:CE1	2.56	0.41
1:C:228:THR:CG2	1:C:321:MET:HG3	2.50	0.41
1:A:323:ALA:HB2	1:A:904:PHE:HE2	1.84	0.41
1:A:326:SER:OG	1:A:327:PRO:HD2	2.19	0.41
1:A:734:ALA:HA	1:A:735:THR:HA	1.86	0.41
1:B:163:PHE:HA	1:B:166:MET:HG3	2.02	0.41
1:C:21:ARG:NH1	7:C:1215:HOH:O	2.50	0.41
1:C:776:ARG:HE	1:D:739:SER:HB3	1.85	0.41
1:C:316:SER:HB2	1:C:328:LEU:HD23	2.03	0.41
5:C:1107:FNR:H1'2	5:C:1107:FNR:H9	1.67	0.41
1:B:268:LEU:HD13	1:B:476:VAL:HG21	2.02	0.41
1:C:390:PHE:O	1:C:391:LEU:HD23	2.20	0.41
1:C:710:LEU:HD22	1:C:720:ILE:HG22	2.02	0.41
1:C:171:ILE:HG23	1:C:527:PRO:HD3	2.03	0.41
1:C:365:LYS:NZ	1:C:419:TRP:NE1	2.68	0.41
1:D:378:GLU:O	1:D:382:GLU:HG2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:1105:FAD:C5X	4:D:1106:NAP:C5N	2.99	0.41
1:A:1019:LEU:HD11	1:B:582:ILE:HD13	2.03	0.41
1:C:373:VAL:HG22	1:C:374:PRO:HD2	2.03	0.41
1:D:734:ALA:HA	1:D:735:THR:HA	1.79	0.41
1:B:100:PHE:CD1	1:B:100:PHE:C	2.94	0.41
1:B:945:VAL:HG13	1:B:1007:ARG:HG2	2.03	0.41
1:D:330:SER:O	1:D:330:SER:OG	2.39	0.41
1:B:488:THR:HG22	4:B:1106:NAP:H72N	1.83	0.41
1:B:568:TRP:CE2	1:B:827:ILE:HB	2.56	0.41
1:B:622:CYS:SG	1:B:656:LYS:HD3	2.61	0.41
1:D:783:ARG:HG3	1:D:929:LEU:HD22	2.02	0.41
1:D:191:ALA:O	1:D:279:ALA:HA	2.21	0.41
3:A:1105:FAD:C4X	4:A:1106:NAP:C4N	3.00	0.40
1:B:875:LYS:HE3	1:B:875:LYS:CA	2.41	0.40
1:D:955:ASN:HB3	1:D:978:HIS:HB3	2.01	0.40
1:A:593:GLY:HA3	1:A:606:SER:OG	2.20	0.40
5:A:1107:FNR:HN1	5:A:1107:FNR:H1'1	1.64	0.40
1:B:335:VAL:HG22	1:B:433:VAL:HB	2.04	0.40
1:C:204:SER:OG	1:C:248:MET:HG3	2.20	0.40
1:D:336:ILE:HD12	1:D:431:ALA:HB2	2.03	0.40
1:B:56:GLU:OE2	1:B:898:LYS:NZ	2.48	0.40
1:B:387:PHE:O	1:B:388:LEU:HD23	2.22	0.40
1:D:841:LYS:O	1:D:916:LYS:HE2	2.22	0.40
1:A:124:LEU:HD13	1:A:160:SER:HB2	2.02	0.40
1:B:365:LYS:HD3	1:B:419:TRP:CE2	2.56	0.40
1:B:457:ASN:HB3	1:B:463:GLU:HG3	2.03	0.40
1:B:923:ASP:O	1:B:927:LYS:HE3	2.21	0.40
1:C:381:LYS:HE3	1:C:381:LYS:HB2	1.81	0.40
1:C:714:VAL:HG11	1:C:720:ILE:HD13	2.04	0.40
1:D:346:ASP:OD2	3:D:1105:FAD:H6	2.20	0.40
1:D:927:LYS:HD2	1:D:927:LYS:HA	1.72	0.40
1:A:97:ILE:HA	1:A:100:PHE:CD2	2.57	0.40

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	1006/1025 (98%)	971 (96%)	33 (3%)	2 (0%)	47	38
1	B	1008/1025 (98%)	965 (96%)	39 (4%)	4 (0%)	34	22
1	C	1016/1025 (99%)	975 (96%)	37 (4%)	4 (0%)	34	22
1	D	1006/1025 (98%)	965 (96%)	38 (4%)	3 (0%)	41	29
All	All	4036/4100 (98%)	3876 (96%)	147 (4%)	13 (0%)	41	29

All (13) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	677	GLU
1	D	902	ALA
1	B	417	GLY
1	C	414	ASP
1	A	414	ASP
1	A	458	ARG
1	B	903	ALA
1	D	990	THR
1	B	822	GLN
1	D	417	GLY
1	B	794	GLY
1	C	679	GLY
1	C	794	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	841/854 (98%)	830 (99%)	11 (1%)	69	64
1	B	842/854 (99%)	824 (98%)	18 (2%)	53	47
1	C	840/854 (98%)	824 (98%)	16 (2%)	57	50

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	D	841/854 (98%)	822 (98%)	19 (2%)	50	44
All	All	3364/3416 (98%)	3300 (98%)	64 (2%)	57	50

All (64) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	11	ASP
1	A	54	LYS
1	A	64	HIS
1	A	178	SER
1	A	181	LYS
1	A	330	SER
1	A	376	GLU
1	A	402	ARG
1	A	460	ASP
1	A	793	THR
1	A	800	GLU
1	B	47	LYS
1	B	49	CYS
1	B	100	PHE
1	B	179	GLN
1	B	264	ASN
1	B	277	LYS
1	B	371	ARG
1	B	402	ARG
1	B	410	ARG
1	B	443	ARG
1	B	455	LYS
1	B	459	TRP
1	B	608	LEU
1	B	793	THR
1	B	872	MET
1	B	874	LYS
1	B	910	LYS
1	B	1021	VAL
1	C	50	PHE
1	C	100	PHE
1	C	269	ASN
1	C	321	MET
1	C	363	PHE
1	C	364	ARG
1	C	407	GLN

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Mol	Chain	Res	Type
1	C	410	ARG
1	C	460	ASP
1	C	541	LYS
1	C	793	THR
1	C	800	GLU
1	C	858	SER
1	C	898	LYS
1	C	910	LYS
1	C	922	LYS
1	D	47	LYS
1	D	100	PHE
1	D	178	SER
1	D	184	GLU
1	D	316	SER
1	D	322	CYS
1	D	363	PHE
1	D	371	ARG
1	D	381	LYS
1	D	395	LYS
1	D	402	ARG
1	D	407	GLN
1	D	410	ARG
1	D	455	LYS
1	D	518	LYS
1	D	793	THR
1	D	910	LYS
1	D	916	LYS
1	D	1007	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	C	930	GLN
1	D	25	HIS
1	D	179	GLN
1	D	693	ASN
1	D	859	HIS

### 5.3.3 RNA

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](#)

32 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
4	NAP	C	1106	-	45,52,52	3.13	15 (33%)	56,80,80	2.60	18 (32%)
6	TDR	C	1108	-	9,9,9	0.49	0	12,12,12	0.61	0
2	SF4	B	1104	1	0,12,12	-	-	-		
3	FAD	B	1105	-	53,58,58	0.47	0	68,89,89	0.54	1 (1%)
3	FAD	A	1105	-	53,58,58	0.49	0	68,89,89	0.54	1 (1%)
2	SF4	C	1102	1	0,12,12	-	-	-		
5	FNR	D	1107	-	32,33,33	5.60	16 (50%)	40,50,50	7.88	25 (62%)
3	FAD	D	1105	-	53,58,58	0.53	0	68,89,89	0.54	1 (1%)
3	FAD	C	1105	-	53,58,58	0.52	0	68,89,89	0.59	1 (1%)
5	FNR	A	1107	-	32,33,33	5.70	17 (53%)	40,50,50	7.86	28 (70%)
2	SF4	D	1102	1	0,12,12	-	-	-		
2	SF4	D	1103	1	0,12,12	-	-	-		
2	SF4	A	1101	1	0,12,12	-	-	-		
2	SF4	A	1104	1	0,12,12	-	-	-		
2	SF4	C	1103	1	0,12,12	-	-	-		
2	SF4	D	1104	1	0,12,12	-	-	-		
2	SF4	B	1101	1	0,12,12	-	-	-		
2	SF4	B	1103	1	0,12,12	-	-	-		
2	SF4	C	1101	1	0,12,12	-	-	-		
2	SF4	A	1102	1	0,12,12	-	-	-		
5	FNR	B	1108	-	32,33,33	5.66	17 (53%)	40,50,50	8.01	26 (65%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
5	FNR	C	1107	-	32,33,33	5.62	15 (46%)	40,50,50	7.99	22 (55%)
4	NAP	A	1106	1	45,52,52	3.13	15 (33%)	56,80,80	2.56	18 (32%)
4	NAP	D	1106	-	45,52,52	3.34	14 (31%)	56,80,80	2.82	18 (32%)
2	SF4	D	1101	1	0,12,12	-	-	-	-	-
6	TDR	B	1107	-	9,9,9	0.61	0	12,12,12	0.68	0
6	TDR	A	1108	-	9,9,9	0.43	0	12,12,12	0.57	0
6	TDR	D	1108	-	9,9,9	0.62	0	12,12,12	0.85	0
2	SF4	B	1102	1	0,12,12	-	-	-	-	-
2	SF4	A	1103	1	0,12,12	-	-	-	-	-
4	NAP	B	1106	-	45,52,52	3.40	14 (31%)	56,80,80	2.80	18 (32%)
2	SF4	C	1104	1	0,12,12	-	-	-	-	-

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
4	NAP	C	1106	-	8/8/12/12	9/31/67/67	0/5/5/5
6	TDR	C	1108	-	-	-	0/1/1/1
2	SF4	B	1104	1	-	-	0/6/5/5
3	FAD	B	1105	-	-	2/30/50/50	0/6/6/6
3	FAD	A	1105	-	-	2/30/50/50	0/6/6/6
2	SF4	C	1102	1	-	-	0/6/5/5
5	FNR	D	1107	-	-	4/18/18/18	0/3/3/3
3	FAD	D	1105	-	-	2/30/50/50	0/6/6/6
3	FAD	C	1105	-	-	2/30/50/50	0/6/6/6
5	FNR	A	1107	-	-	9/18/18/18	0/3/3/3
2	SF4	D	1102	1	-	-	0/6/5/5
2	SF4	D	1103	1	-	-	0/6/5/5
2	SF4	A	1101	1	-	-	0/6/5/5
2	SF4	A	1104	1	-	-	0/6/5/5
2	SF4	C	1103	1	-	-	0/6/5/5
2	SF4	D	1104	1	-	-	0/6/5/5
2	SF4	B	1101	1	-	-	0/6/5/5
2	SF4	B	1103	1	-	-	0/6/5/5
2	SF4	C	1101	1	-	-	0/6/5/5
2	SF4	A	1102	1	-	-	0/6/5/5
2	SF4	A	1103	1	-	-	0/6/5/5
5	FNR	B	1108	-	-	8/18/18/18	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	FNR	C	1107	-	-	8/18/18/18	0/3/3/3
4	NAP	A	1106	1	8/8/12/12	13/31/67/67	0/5/5/5
2	SF4	D	1101	1	-	-	0/6/5/5
6	TDR	B	1107	-	-	-	0/1/1/1
6	TDR	A	1108	-	-	-	0/1/1/1
6	TDR	D	1108	-	-	-	0/1/1/1
2	SF4	B	1102	1	-	-	0/6/5/5
4	NAP	D	1106	-	8/8/12/12	12/31/67/67	0/5/5/5
4	NAP	B	1106	-	8/8/12/12	13/31/67/67	0/5/5/5
2	SF4	C	1104	1	-	-	0/6/5/5

All (123) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	B	1108	FNR	C5A-C9A	-12.84	1.26	1.40
5	D	1107	FNR	C5A-C9A	-12.18	1.26	1.40
5	A	1107	FNR	C5A-C9A	-11.94	1.27	1.40
5	B	1108	FNR	C9-C9A	-11.91	1.20	1.39
5	C	1107	FNR	C5A-C9A	-11.77	1.27	1.40
5	B	1108	FNR	C6-C5A	-11.71	1.21	1.39
5	A	1107	FNR	C5A-N5	11.52	1.59	1.39
5	A	1107	FNR	C9-C9A	-11.32	1.21	1.39
5	C	1107	FNR	C5A-N5	11.29	1.59	1.39
4	B	1106	NAP	O4D-C1D	-11.21	1.25	1.41
5	D	1107	FNR	C6-C5A	-11.02	1.22	1.39
5	C	1107	FNR	C6-C5A	-10.89	1.22	1.39
5	D	1107	FNR	C9-C9A	-10.85	1.22	1.39
5	C	1107	FNR	C9-C9A	-10.81	1.22	1.39
5	A	1107	FNR	C4A-N5	10.79	1.58	1.35
5	D	1107	FNR	C5A-N5	10.69	1.58	1.39
5	D	1107	FNR	C9A-N10	10.64	1.59	1.41
5	C	1107	FNR	C9A-N10	10.61	1.59	1.41
5	B	1108	FNR	C5A-N5	10.44	1.57	1.39
5	B	1108	FNR	C4A-N5	10.44	1.57	1.35
5	C	1107	FNR	C4A-N5	10.40	1.57	1.35
5	A	1107	FNR	C6-C5A	-10.36	1.23	1.39
5	D	1107	FNR	C4A-N5	10.31	1.57	1.35
4	D	1106	NAP	O4D-C1D	-10.28	1.26	1.41
5	A	1107	FNR	C9A-N10	10.00	1.58	1.41
5	B	1108	FNR	C9A-N10	9.38	1.57	1.41
5	D	1107	FNR	CAA-N10	8.56	1.54	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	1106	NAP	C2D-C1D	-8.37	1.41	1.53
4	C	1106	NAP	C2D-C1D	-8.25	1.41	1.53
5	A	1107	FNR	CAA-N10	8.15	1.53	1.38
5	C	1107	FNR	CAA-N10	7.93	1.52	1.38
4	A	1106	NAP	O4D-C1D	-7.89	1.30	1.41
5	B	1108	FNR	CAA-N10	7.74	1.52	1.38
4	C	1106	NAP	O4D-C1D	-7.60	1.30	1.41
4	B	1106	NAP	O4D-C4D	-7.57	1.28	1.45
5	A	1107	FNR	C2-N3	7.48	1.50	1.37
5	C	1107	FNR	C2-N1	7.38	1.50	1.37
5	C	1107	FNR	C2-N3	7.32	1.50	1.37
4	D	1106	NAP	O4B-C1B	-7.28	1.30	1.41
4	D	1106	NAP	O4D-C4D	-7.17	1.29	1.45
5	A	1107	FNR	C2-N1	7.10	1.49	1.37
4	B	1106	NAP	O4B-C1B	-7.00	1.31	1.41
4	D	1106	NAP	C2D-C1D	-6.89	1.43	1.53
5	D	1107	FNR	C2-N1	6.89	1.49	1.37
4	C	1106	NAP	O4B-C1B	-6.88	1.31	1.41
4	A	1106	NAP	O4B-C1B	-6.87	1.31	1.41
4	B	1106	NAP	C2D-C1D	-6.82	1.43	1.53
5	B	1108	FNR	C2-N3	6.80	1.49	1.37
5	D	1107	FNR	C2-N3	6.78	1.49	1.37
4	D	1106	NAP	O4B-C4B	-6.61	1.30	1.45
5	B	1108	FNR	C2-N1	6.42	1.48	1.37
4	D	1106	NAP	C7N-N7N	6.38	1.45	1.33
4	B	1106	NAP	O4B-C4B	-6.29	1.30	1.45
4	C	1106	NAP	C7N-N7N	6.25	1.44	1.33
4	A	1106	NAP	O4D-C4D	-6.19	1.31	1.45
4	C	1106	NAP	O4D-C4D	-6.02	1.31	1.45
4	B	1106	NAP	C7N-N7N	6.00	1.44	1.33
4	A	1106	NAP	O4B-C4B	-5.99	1.31	1.45
4	A	1106	NAP	C7N-N7N	5.88	1.44	1.33
4	C	1106	NAP	C3B-C4B	-5.73	1.38	1.53
4	C	1106	NAP	O4B-C4B	-5.72	1.32	1.45
4	B	1106	NAP	C3N-C7N	5.71	1.59	1.50
4	B	1106	NAP	C3D-C4D	-5.68	1.38	1.53
5	D	1107	FNR	CAA-N1	5.62	1.47	1.37
4	D	1106	NAP	C3B-C4B	-5.58	1.38	1.53
5	B	1108	FNR	CAA-N1	5.52	1.47	1.37
4	D	1106	NAP	C3D-C4D	-5.50	1.38	1.53
4	B	1106	NAP	C3B-C4B	-5.29	1.39	1.53
4	A	1106	NAP	C3B-C4B	-5.25	1.39	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	1107	FNR	CAA-N1	5.18	1.46	1.37
5	C	1107	FNR	C4-N3	5.17	1.48	1.38
4	D	1106	NAP	C3N-C7N	5.17	1.58	1.50
5	C	1107	FNR	CAA-N1	5.16	1.46	1.37
4	C	1106	NAP	C3D-C4D	-5.00	1.40	1.53
5	A	1107	FNR	C4-N3	4.96	1.48	1.38
4	A	1106	NAP	C3D-C4D	-4.86	1.40	1.53
4	C	1106	NAP	C3N-C7N	4.68	1.57	1.50
5	A	1107	FNR	C4A-C4	4.66	1.54	1.42
4	A	1106	NAP	C3N-C7N	4.53	1.57	1.50
5	B	1108	FNR	C4-N3	4.40	1.47	1.38
5	D	1107	FNR	C4-N3	4.29	1.46	1.38
4	C	1106	NAP	C3B-C2B	-4.20	1.43	1.52
4	D	1106	NAP	C3B-C2B	-4.08	1.43	1.52
5	A	1107	FNR	C7M-C7	4.07	1.59	1.51
5	C	1107	FNR	C7M-C7	4.04	1.59	1.51
4	B	1106	NAP	C3B-C2B	-3.98	1.44	1.52
5	C	1107	FNR	C4A-C4	3.96	1.52	1.42
4	A	1106	NAP	C3B-C2B	-3.85	1.44	1.52
5	B	1108	FNR	C4'-C3'	-3.82	1.46	1.53
5	A	1107	FNR	C4'-C3'	-3.67	1.46	1.53
5	A	1107	FNR	C5'-C4'	3.65	1.57	1.51
5	D	1107	FNR	C4A-C4	3.61	1.51	1.42
5	D	1107	FNR	C7M-C7	3.58	1.58	1.51
5	B	1108	FNR	C5'-C4'	3.57	1.56	1.51
5	B	1108	FNR	C8M-C8	3.53	1.58	1.51
5	D	1107	FNR	C8M-C8	3.37	1.57	1.51
5	B	1108	FNR	C4A-C4	3.36	1.51	1.42
5	B	1108	FNR	C7M-C7	3.33	1.57	1.51
4	A	1106	NAP	PA-O5B	3.22	1.72	1.59
4	C	1106	NAP	C6A-N6A	3.18	1.45	1.34
5	A	1107	FNR	C8M-C8	3.14	1.57	1.51
4	D	1106	NAP	C6A-N6A	3.13	1.45	1.34
4	A	1106	NAP	C6A-N6A	3.13	1.45	1.34
5	C	1107	FNR	C8M-C8	3.10	1.57	1.51
4	C	1106	NAP	PA-O5B	3.04	1.71	1.59
4	B	1106	NAP	C6A-N6A	2.96	1.44	1.34
4	D	1106	NAP	PA-O5B	2.88	1.70	1.59
4	A	1106	NAP	C2D-C3D	-2.83	1.45	1.53
4	B	1106	NAP	PA-O5B	2.83	1.70	1.59
4	B	1106	NAP	P2B-O2B	2.82	1.64	1.59
4	A	1106	NAP	PN-O5D	2.81	1.70	1.59

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	D	1107	FNR	O5'-C5'	-2.68	1.34	1.44
4	C	1106	NAP	C2D-C3D	-2.63	1.46	1.53
4	C	1106	NAP	P2B-O2B	2.62	1.64	1.59
5	C	1107	FNR	O5'-C5'	-2.58	1.34	1.44
4	D	1106	NAP	P2B-O2B	2.52	1.64	1.59
4	C	1106	NAP	PN-O5D	2.50	1.69	1.59
4	B	1106	NAP	C2D-C3D	-2.45	1.46	1.53
4	D	1106	NAP	C2D-C3D	-2.35	1.46	1.53
4	A	1106	NAP	P2B-O2B	2.27	1.63	1.59
5	B	1108	FNR	O4-C4	-2.20	1.19	1.23
5	A	1107	FNR	O4-C4	-2.19	1.19	1.23
5	D	1107	FNR	O2'-C2'	-2.07	1.39	1.43

All (177) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	1107	FNR	C9-C9A-N10	-25.72	87.06	121.84
5	C	1107	FNR	C9-C9A-N10	-25.21	87.75	121.84
5	B	1108	FNR	C9-C9A-N10	-24.92	88.16	121.84
5	D	1107	FNR	C9-C9A-N10	-24.62	88.56	121.84
5	D	1107	FNR	C6-C5A-N5	-19.32	84.92	119.84
5	B	1108	FNR	C6-C5A-N5	-19.04	85.42	119.84
5	C	1107	FNR	C6-C5A-N5	-18.72	86.00	119.84
5	A	1107	FNR	C6-C5A-N5	-18.08	87.16	119.84
5	D	1107	FNR	C6-C5A-C9A	17.67	138.32	119.67
5	C	1107	FNR	C6-C5A-C9A	16.79	137.38	119.67
5	B	1108	FNR	C6-C5A-C9A	16.63	137.22	119.67
5	A	1107	FNR	C6-C5A-C9A	15.46	135.98	119.67
5	C	1107	FNR	C5'-C4'-C3'	-14.96	83.30	112.20
5	C	1107	FNR	C9A-C9-C8	-14.72	89.69	119.30
5	A	1107	FNR	C9A-C9-C8	-14.53	90.07	119.30
5	B	1108	FNR	C9A-C9-C8	-14.28	90.57	119.30
5	D	1107	FNR	C9A-C9-C8	-14.14	90.84	119.30
5	B	1108	FNR	C5A-C6-C7	-13.68	91.23	120.01
5	A	1107	FNR	C5A-C6-C7	-13.48	91.65	120.01
5	C	1107	FNR	C5A-C6-C7	-13.43	91.75	120.01
5	D	1107	FNR	C5A-C6-C7	-13.33	91.95	120.01
5	D	1107	FNR	C5'-C4'-C3'	-12.38	88.28	112.20
5	C	1107	FNR	C9-C9A-C5A	12.18	138.00	120.04
5	B	1108	FNR	C9-C9A-C5A	12.14	137.95	120.04
5	D	1107	FNR	C9-C9A-C5A	11.72	137.32	120.04
5	A	1107	FNR	C9-C9A-C5A	11.12	136.44	120.04

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	1107	FNR	C1'-N10-C9A	9.85	136.94	120.51
5	B	1108	FNR	C1'-N10-C9A	9.64	136.58	120.51
5	C	1107	FNR	C7M-C7-C6	-9.61	101.72	119.49
5	B	1108	FNR	C7M-C7-C6	-9.58	101.78	119.49
5	D	1107	FNR	C7M-C7-C6	-9.48	101.97	119.49
5	D	1107	FNR	C9A-C5A-N5	9.01	131.61	119.56
5	A	1107	FNR	C7M-C7-C6	-8.81	103.21	119.49
5	C	1107	FNR	C1'-N10-C9A	8.68	134.99	120.51
5	A	1107	FNR	C5'-C4'-C3'	-8.64	95.51	112.20
5	C	1107	FNR	C9A-C5A-N5	8.46	130.87	119.56
5	D	1107	FNR	C5A-N5-C4A	-8.42	101.11	121.02
5	B	1108	FNR	C9A-C5A-N5	8.36	130.74	119.56
5	D	1107	FNR	C1'-N10-C9A	8.11	134.03	120.51
5	C	1107	FNR	C5A-N5-C4A	-7.98	102.16	121.02
5	B	1108	FNR	C5'-C4'-C3'	-7.97	96.80	112.20
5	B	1108	FNR	C5A-N5-C4A	-7.82	102.53	121.02
5	B	1108	FNR	C1'-C2'-C3'	-7.71	88.24	109.79
5	A	1107	FNR	C1'-C2'-C3'	-7.63	88.47	109.79
5	C	1107	FNR	C9-C8-C7	7.42	130.31	119.67
5	A	1107	FNR	C5A-N5-C4A	-7.19	104.02	121.02
5	D	1107	FNR	C9-C8-C7	7.00	129.71	119.67
5	A	1107	FNR	O2'-C2'-C3'	6.99	126.09	109.10
5	A	1107	FNR	C9-C8-C7	6.93	129.60	119.67
5	B	1108	FNR	O4'-C4'-C5'	6.88	125.37	109.92
5	A	1107	FNR	C9A-C5A-N5	6.86	128.74	119.56
4	A	1106	NAP	O3D-C3D-C4D	6.51	129.87	111.05
5	B	1108	FNR	C9-C8-C7	6.48	128.95	119.67
4	C	1106	NAP	O2B-C2B-C1B	6.48	133.42	110.10
4	B	1106	NAP	O5D-C5D-C4D	-6.21	87.61	108.99
5	B	1108	FNR	O2'-C2'-C3'	6.18	124.13	109.10
5	B	1108	FNR	C4'-C3'-C2'	-6.12	100.64	113.36
4	D	1106	NAP	O3B-C3B-C2B	6.09	128.46	111.17
4	B	1106	NAP	O2B-C2B-C1B	5.93	131.44	110.10
4	A	1106	NAP	O3B-C3B-C2B	5.89	127.89	111.17
4	B	1106	NAP	O3B-C3B-C2B	5.87	127.85	111.17
5	A	1107	FNR	O4'-C4'-C5'	5.86	123.09	109.92
4	C	1106	NAP	O3D-C3D-C4D	5.82	127.87	111.05
4	C	1106	NAP	O4B-C4B-C5B	5.78	128.40	109.37
4	C	1106	NAP	O3B-C3B-C2B	5.74	127.48	111.17
4	B	1106	NAP	O3D-C3D-C4D	5.73	127.61	111.05
4	B	1106	NAP	O3B-C3B-C4B	5.72	127.58	111.05
4	D	1106	NAP	O3D-C3D-C4D	5.70	127.53	111.05

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	C	1107	FNR	C7M-C7-C8	5.69	132.40	120.74
4	C	1106	NAP	O3B-C3B-C4B	5.68	127.48	111.05
4	B	1106	NAP	O3D-C3D-C2D	5.64	130.07	111.82
4	B	1106	NAP	C5D-C4D-C3D	5.63	136.28	115.18
4	A	1106	NAP	O3B-C3B-C4B	5.60	127.25	111.05
4	D	1106	NAP	O2B-C2B-C1B	5.59	130.22	110.10
4	D	1106	NAP	O5D-C5D-C4D	-5.56	89.85	108.99
4	D	1106	NAP	O3D-C3D-C2D	5.55	129.79	111.82
4	B	1106	NAP	O2D-C2D-C1D	5.54	131.31	110.85
5	D	1107	FNR	C7M-C7-C8	5.53	132.07	120.74
5	B	1108	FNR	C7M-C7-C8	5.48	131.96	120.74
4	A	1106	NAP	O4B-C4B-C5B	5.48	127.39	109.37
4	D	1106	NAP	O2D-C2D-C1D	5.44	130.94	110.85
4	D	1106	NAP	O4B-C4B-C5B	5.43	127.24	109.37
4	D	1106	NAP	O3B-C3B-C4B	5.43	126.74	111.05
4	B	1106	NAP	O4B-C4B-C5B	5.40	127.15	109.37
4	A	1106	NAP	O2B-C2B-C1B	5.37	129.45	110.10
4	D	1106	NAP	C5D-C4D-C3D	5.37	135.31	115.18
4	C	1106	NAP	O2D-C2D-C3D	5.08	128.25	111.82
5	C	1107	FNR	C8M-C8-C9	-4.97	110.30	119.49
4	D	1106	NAP	N3A-C2A-N1A	-4.95	120.94	128.68
4	C	1106	NAP	O3D-C3D-C2D	4.94	127.80	111.82
5	A	1107	FNR	C7M-C7-C8	4.91	130.80	120.74
5	B	1108	FNR	C8M-C8-C9	-4.71	110.78	119.49
4	A	1106	NAP	O2D-C2D-C3D	4.71	127.04	111.82
4	B	1106	NAP	N3A-C2A-N1A	-4.70	121.33	128.68
4	C	1106	NAP	N3A-C2A-N1A	-4.68	121.36	128.68
4	A	1106	NAP	O2D-C2D-C1D	4.66	128.05	110.85
5	A	1107	FNR	O3'-C3'-C2'	4.64	120.02	108.81
5	B	1108	FNR	C6-C7-C8	4.60	126.27	119.67
5	A	1107	FNR	C8M-C8-C9	-4.59	111.01	119.49
4	C	1106	NAP	O2D-C2D-C1D	4.43	127.22	110.85
5	A	1107	FNR	C6-C7-C8	4.40	125.98	119.67
5	D	1107	FNR	C6-C7-C8	4.39	125.95	119.67
4	A	1106	NAP	O3D-C3D-C2D	4.34	125.88	111.82
5	C	1107	FNR	C6-C7-C8	4.33	125.88	119.67
4	D	1106	NAP	PN-O3-PA	-4.33	117.98	132.83
5	D	1107	FNR	O1P-P-O5'	-4.32	95.23	106.73
5	A	1107	FNR	O4'-C4'-C3'	-4.32	98.60	109.10
5	C	1107	FNR	O3P-P-O5'	-4.32	95.24	106.73
4	A	1106	NAP	N3A-C2A-N1A	-4.24	122.05	128.68
5	D	1107	FNR	C8M-C8-C9	-4.17	111.77	119.49

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	B	1108	FNR	O4'-C4'-C3'	-4.07	99.20	109.10
4	C	1106	NAP	O4D-C4D-C5D	3.98	122.47	109.37
4	B	1106	NAP	O2D-C2D-C3D	3.98	124.69	111.82
4	D	1106	NAP	O2D-C2D-C3D	3.96	124.62	111.82
5	A	1107	FNR	C4'-C3'-C2'	-3.92	105.21	113.36
4	A	1106	NAP	C5D-C4D-C3D	3.90	129.79	115.18
4	D	1106	NAP	O5B-C5B-C4B	-3.89	95.61	108.99
5	B	1108	FNR	P-O5'-C5'	3.81	128.78	118.30
4	D	1106	NAP	C2N-N1N-C1D	3.73	127.44	119.14
5	B	1108	FNR	O3'-C3'-C2'	3.72	117.79	108.81
4	D	1106	NAP	O2B-C2B-C3B	3.71	125.12	111.68
4	A	1106	NAP	O2B-C2B-C3B	3.68	125.02	111.68
4	A	1106	NAP	C1B-N9A-C4A	3.57	132.92	126.64
4	B	1106	NAP	O4D-C4D-C3D	3.47	111.98	105.11
5	A	1107	FNR	O5'-C5'-C4'	-3.45	100.14	109.36
4	A	1106	NAP	O4D-C4D-C5D	3.39	120.53	109.37
4	B	1106	NAP	O5B-C5B-C4B	-3.33	97.52	108.99
5	A	1107	FNR	C4-N3-C2	-3.30	121.58	126.34
4	B	1106	NAP	O2B-C2B-C3B	3.27	123.53	111.68
4	C	1106	NAP	C5D-C4D-C3D	3.26	127.42	115.18
5	A	1107	FNR	C4A-C4-N3	3.25	121.99	112.31
5	C	1107	FNR	C4A-C4-N3	3.24	121.97	112.31
5	D	1107	FNR	C4-N3-C2	-3.20	121.72	126.34
5	C	1107	FNR	O4'-C4'-C3'	3.15	116.76	109.10
5	C	1107	FNR	O4-C4-C4A	-3.14	120.03	127.24
4	D	1106	NAP	O4D-C4D-C3D	3.14	111.33	105.11
4	B	1106	NAP	PN-O3-PA	-3.11	122.17	132.83
5	A	1107	FNR	P-O5'-C5'	3.10	126.85	118.30
5	B	1108	FNR	O4-C4-C4A	-3.09	120.16	127.24
5	D	1107	FNR	O4-C4-C4A	-3.05	120.24	127.24
5	B	1108	FNR	C4A-C4-N3	3.03	121.35	112.31
5	D	1107	FNR	O4'-C4'-C3'	3.01	116.42	109.10
5	D	1107	FNR	C4A-C4-N3	2.99	121.22	112.31
4	C	1106	NAP	C1B-N9A-C4A	2.89	131.72	126.64
5	D	1107	FNR	O5'-C5'-C4'	-2.88	101.66	109.36
5	D	1107	FNR	O3P-P-O5'	2.85	114.31	106.73
5	C	1107	FNR	C4-N3-C2	-2.84	122.24	126.34
4	B	1106	NAP	O4B-C4B-C3B	2.81	110.68	105.11
4	D	1106	NAP	O4B-C4B-C3B	2.74	110.54	105.11
5	B	1108	FNR	C4-N3-C2	-2.69	122.47	126.34
4	B	1106	NAP	C2N-N1N-C1D	2.63	124.99	119.14
4	A	1106	NAP	C3D-C2D-C1D	2.60	104.89	100.98

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	1105	FAD	C5A-C6A-N6A	2.56	124.24	120.35
5	A	1107	FNR	O3P-P-O5'	2.55	113.51	106.73
4	C	1106	NAP	C5N-C4N-C3N	-2.50	117.39	120.34
4	C	1106	NAP	O4D-C4D-C3D	2.50	110.05	105.11
3	A	1105	FAD	C5A-C6A-N6A	2.49	124.13	120.35
4	A	1106	NAP	C5N-C4N-C3N	-2.47	117.43	120.34
4	C	1106	NAP	O2B-C2B-C3B	2.46	120.59	111.68
5	B	1108	FNR	O5'-C5'-C4'	-2.46	102.81	109.36
5	A	1107	FNR	O4-C4-C4A	-2.45	121.61	127.24
4	B	1106	NAP	O7N-C7N-N7N	-2.40	119.16	122.58
4	C	1106	NAP	C3D-C2D-C1D	2.35	104.52	100.98
5	C	1107	FNR	O5'-P-O2P	2.34	113.03	106.47
4	C	1106	NAP	O4B-C4B-C3B	2.34	109.74	105.11
4	D	1106	NAP	C3D-C2D-C1D	2.29	104.42	100.98
4	A	1106	NAP	O4D-C4D-C3D	2.27	109.60	105.11
5	D	1107	FNR	O4'-C4'-C5'	-2.23	104.91	109.92
4	A	1106	NAP	O4B-C4B-C3B	2.22	109.51	105.11
5	D	1107	FNR	C1'-C2'-C3'	-2.19	103.67	109.79
4	C	1106	NAP	PN-O3-PA	-2.17	125.39	132.83
5	D	1107	FNR	N3-C2-N1	2.15	119.26	115.80
3	D	1105	FAD	C5A-C6A-N6A	2.10	123.55	120.35
4	A	1106	NAP	C5B-C4B-C3B	2.09	123.02	115.18
5	C	1107	FNR	O2'-C2'-C1'	2.08	114.83	109.80
3	B	1105	FAD	C5A-C6A-N6A	2.08	123.51	120.35
5	A	1107	FNR	C4-C4A-N5	2.03	122.18	116.63

All (32) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
4	A	1106	NAP	C1B
4	A	1106	NAP	C3B
4	A	1106	NAP	C4B
4	A	1106	NAP	C2D
4	A	1106	NAP	C4D
4	A	1106	NAP	C2B
4	A	1106	NAP	C3D
4	A	1106	NAP	C1D
4	B	1106	NAP	C1B
4	B	1106	NAP	C3B
4	B	1106	NAP	C4B
4	B	1106	NAP	C2D
4	B	1106	NAP	C4D

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Mol	Chain	Res	Type	Atom
4	B	1106	NAP	C2B
4	B	1106	NAP	C3D
4	B	1106	NAP	C1D
4	C	1106	NAP	C1B
4	C	1106	NAP	C3B
4	C	1106	NAP	C4B
4	C	1106	NAP	C2D
4	C	1106	NAP	C4D
4	C	1106	NAP	C2B
4	C	1106	NAP	C3D
4	C	1106	NAP	C1D
4	D	1106	NAP	C1B
4	D	1106	NAP	C3B
4	D	1106	NAP	C4B
4	D	1106	NAP	C2D
4	D	1106	NAP	C4D
4	D	1106	NAP	C2B
4	D	1106	NAP	C3D
4	D	1106	NAP	C1D

All (84) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	1105	FAD	PA-O3P-P-O5'
3	C	1105	FAD	PA-O3P-P-O5'
4	A	1106	NAP	C5B-O5B-PA-O2A
4	A	1106	NAP	C5B-O5B-PA-O3
4	A	1106	NAP	O4B-C4B-C5B-O5B
4	A	1106	NAP	PA-O3-PN-O5D
4	A	1106	NAP	C4D-C5D-O5D-PN
4	A	1106	NAP	C2D-C1D-N1N-C2N
4	A	1106	NAP	C2D-C1D-N1N-C6N
4	B	1106	NAP	C5B-O5B-PA-O1A
4	B	1106	NAP	C5B-O5B-PA-O2A
4	B	1106	NAP	C5B-O5B-PA-O3
4	B	1106	NAP	O4D-C4D-C5D-O5D
4	B	1106	NAP	O4D-C1D-N1N-C2N
4	B	1106	NAP	O4D-C1D-N1N-C6N
4	C	1106	NAP	C5B-O5B-PA-O1A
4	C	1106	NAP	C5B-O5B-PA-O2A
4	C	1106	NAP	C5B-O5B-PA-O3
4	C	1106	NAP	O4B-C4B-C5B-O5B

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Mol	Chain	Res	Type	Atoms
4	C	1106	NAP	C4D-C5D-O5D-PN
4	C	1106	NAP	C2D-C1D-N1N-C2N
4	C	1106	NAP	C2D-C1D-N1N-C6N
4	D	1106	NAP	C5B-O5B-PA-O1A
4	D	1106	NAP	C5B-O5B-PA-O2A
4	D	1106	NAP	C5B-O5B-PA-O3
4	D	1106	NAP	O4D-C4D-C5D-O5D
4	D	1106	NAP	O4D-C1D-N1N-C2N
4	D	1106	NAP	O4D-C1D-N1N-C6N
5	A	1107	FNR	N10-C1'-C2'-O2'
5	A	1107	FNR	N10-C1'-C2'-C3'
5	A	1107	FNR	C1'-C2'-C3'-O3'
5	A	1107	FNR	C1'-C2'-C3'-C4'
5	A	1107	FNR	O2'-C2'-C3'-C4'
5	A	1107	FNR	C3'-C4'-C5'-O5'
5	A	1107	FNR	O4'-C4'-C5'-O5'
5	B	1108	FNR	N10-C1'-C2'-O2'
5	B	1108	FNR	N10-C1'-C2'-C3'
5	B	1108	FNR	C1'-C2'-C3'-O3'
5	B	1108	FNR	C1'-C2'-C3'-C4'
5	B	1108	FNR	O2'-C2'-C3'-O3'
5	B	1108	FNR	O2'-C2'-C3'-C4'
5	B	1108	FNR	C3'-C4'-C5'-O5'
5	B	1108	FNR	O4'-C4'-C5'-O5'
5	C	1107	FNR	C2'-C3'-C4'-O4'
5	C	1107	FNR	O3'-C3'-C4'-O4'
5	C	1107	FNR	C5'-O5'-P-O2P
5	C	1107	FNR	C5'-O5'-P-O3P
5	D	1107	FNR	C2'-C3'-C4'-O4'
5	D	1107	FNR	C2'-C3'-C4'-C5'
5	D	1107	FNR	O3'-C3'-C4'-O4'
5	A	1107	FNR	O2'-C2'-C3'-O3'
4	C	1106	NAP	C3B-C2B-O2B-P2B
5	C	1107	FNR	O3'-C3'-C4'-C5'
5	D	1107	FNR	O3'-C3'-C4'-C5'
5	C	1107	FNR	C2'-C3'-C4'-C5'
4	B	1106	NAP	O4B-C4B-C5B-O5B
4	D	1106	NAP	O4B-C4B-C5B-O5B
4	A	1106	NAP	C3B-C2B-O2B-P2B
4	B	1106	NAP	C3B-C2B-O2B-P2B
4	D	1106	NAP	C3B-C2B-O2B-P2B
4	B	1106	NAP	C3D-C4D-C5D-O5D

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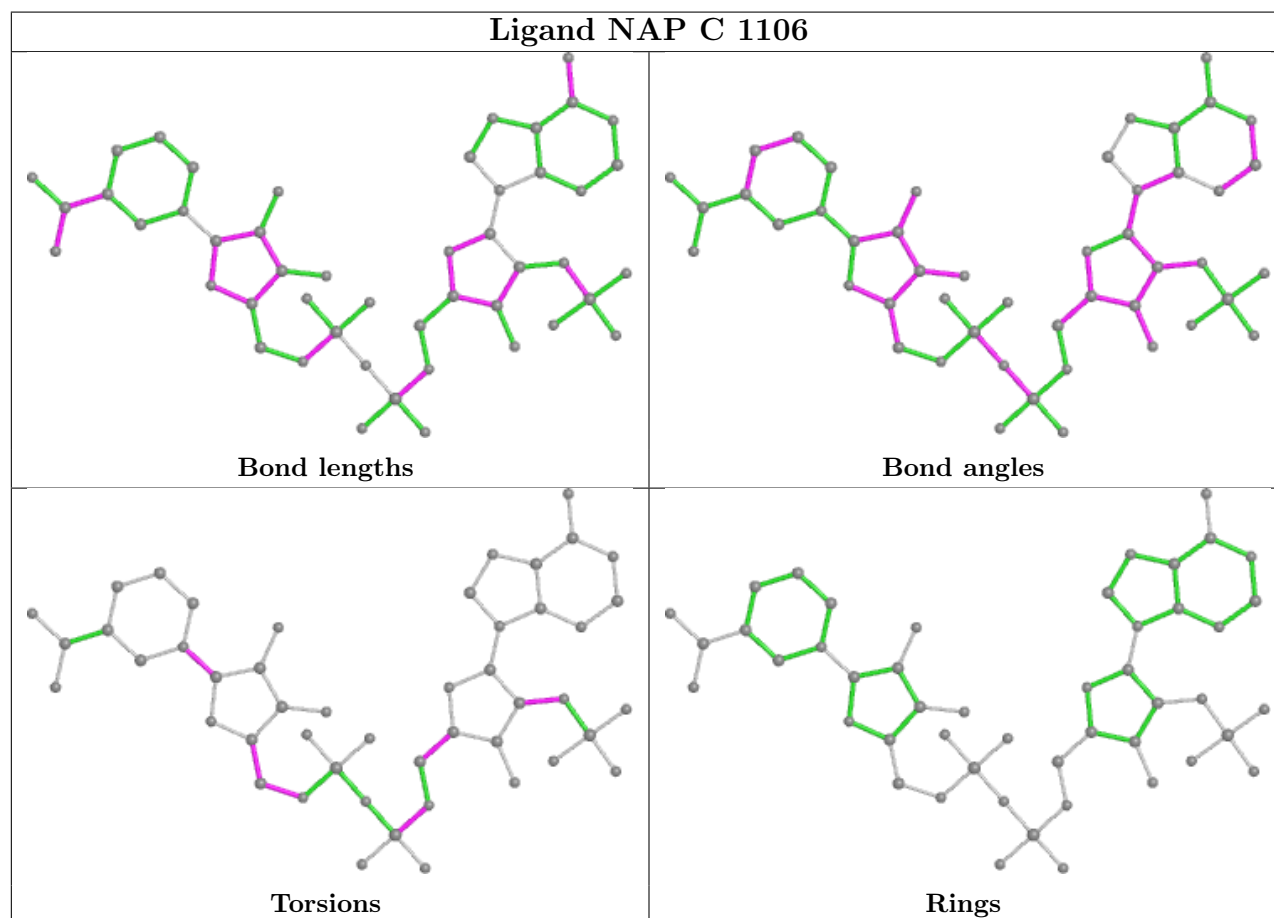
Mol	Chain	Res	Type	Atoms
4	C	1106	NAP	O4D-C4D-C5D-O5D
4	A	1106	NAP	O4D-C4D-C5D-O5D
5	A	1107	FNR	O3'-C3'-C4'-C5'
3	B	1105	FAD	PA-O3P-P-O5'
3	D	1105	FAD	PA-O3P-P-O5'
4	B	1106	NAP	PA-O3-PN-O5D
4	D	1106	NAP	PA-O3-PN-O5D
4	A	1106	NAP	C2B-O2B-P2B-O2X
4	B	1106	NAP	PN-O3-PA-O2A
4	D	1106	NAP	PN-O3-PA-O2A
5	C	1107	FNR	C4'-C5'-O5'-P
4	A	1106	NAP	C5B-O5B-PA-O1A
4	D	1106	NAP	C3D-C4D-C5D-O5D
5	C	1107	FNR	O4'-C4'-C5'-O5'
4	D	1106	NAP	C4D-C5D-O5D-PN
4	B	1106	NAP	C4D-C5D-O5D-PN
4	A	1106	NAP	C3D-C4D-C5D-O5D
3	A	1105	FAD	O4B-C4B-C5B-O5B
4	A	1106	NAP	C2B-O2B-P2B-O3X
3	B	1105	FAD	O4B-C4B-C5B-O5B
3	C	1105	FAD	O4B-C4B-C5B-O5B
3	D	1105	FAD	O4B-C4B-C5B-O5B
4	B	1106	NAP	PN-O3-PA-O1A

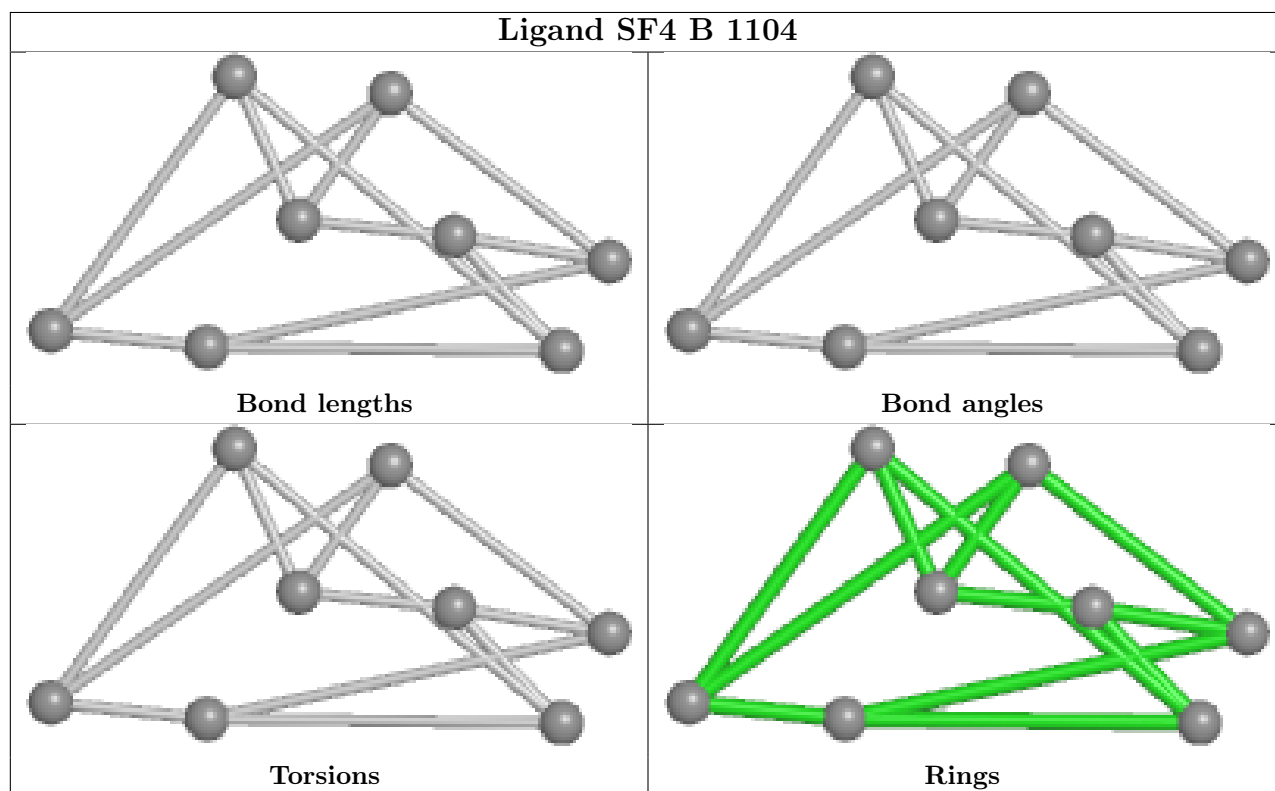
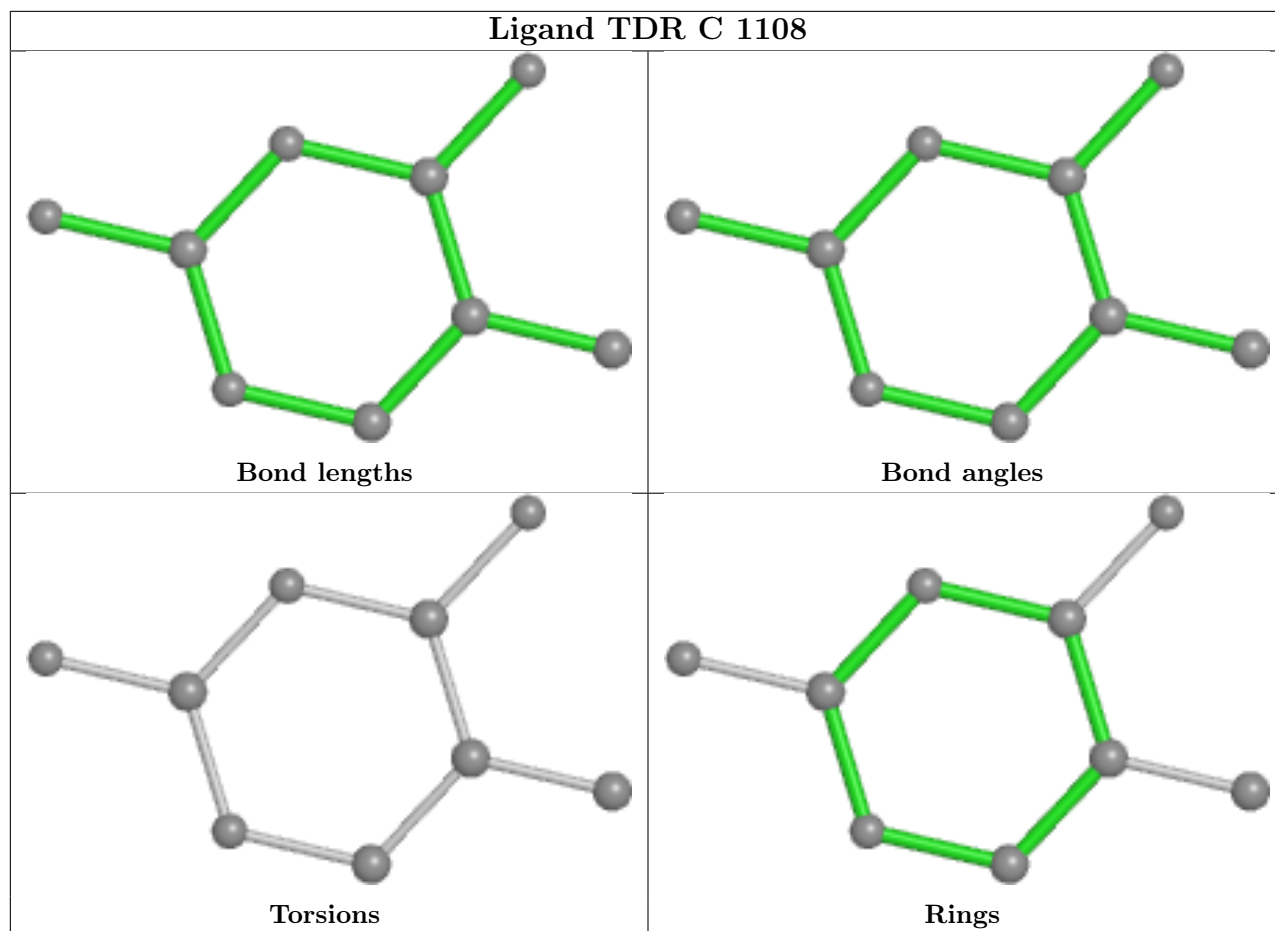
There are no ring outliers.

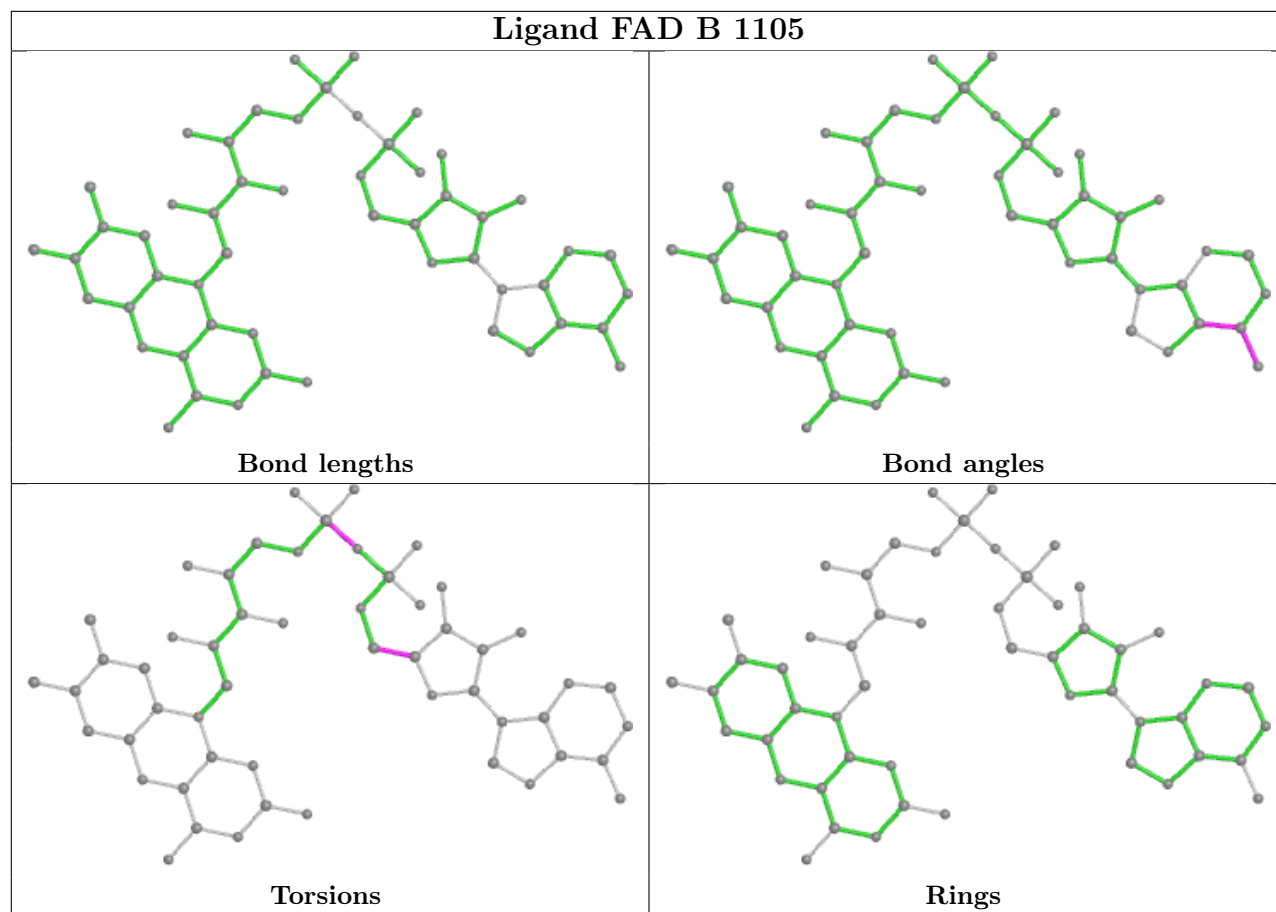
13 monomers are involved in 54 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	C	1106	NAP	11	0
3	B	1105	FAD	3	0
3	A	1105	FAD	4	0
5	D	1107	FNR	2	0
3	D	1105	FAD	2	0
3	C	1105	FAD	2	0
5	A	1107	FNR	6	0
5	B	1108	FNR	4	0
5	C	1107	FNR	3	0
4	A	1106	NAP	8	0
4	D	1106	NAP	7	0
6	B	1107	TDR	1	0
4	B	1106	NAP	9	0

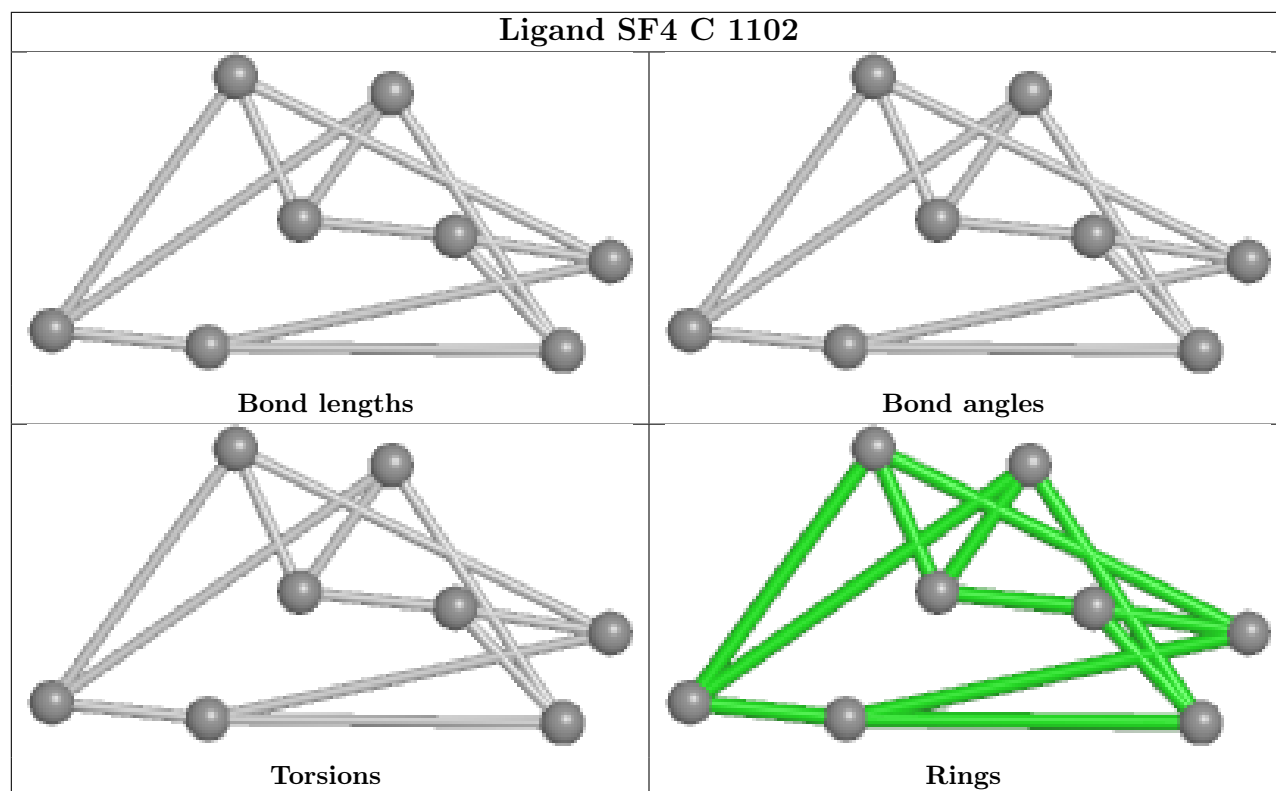
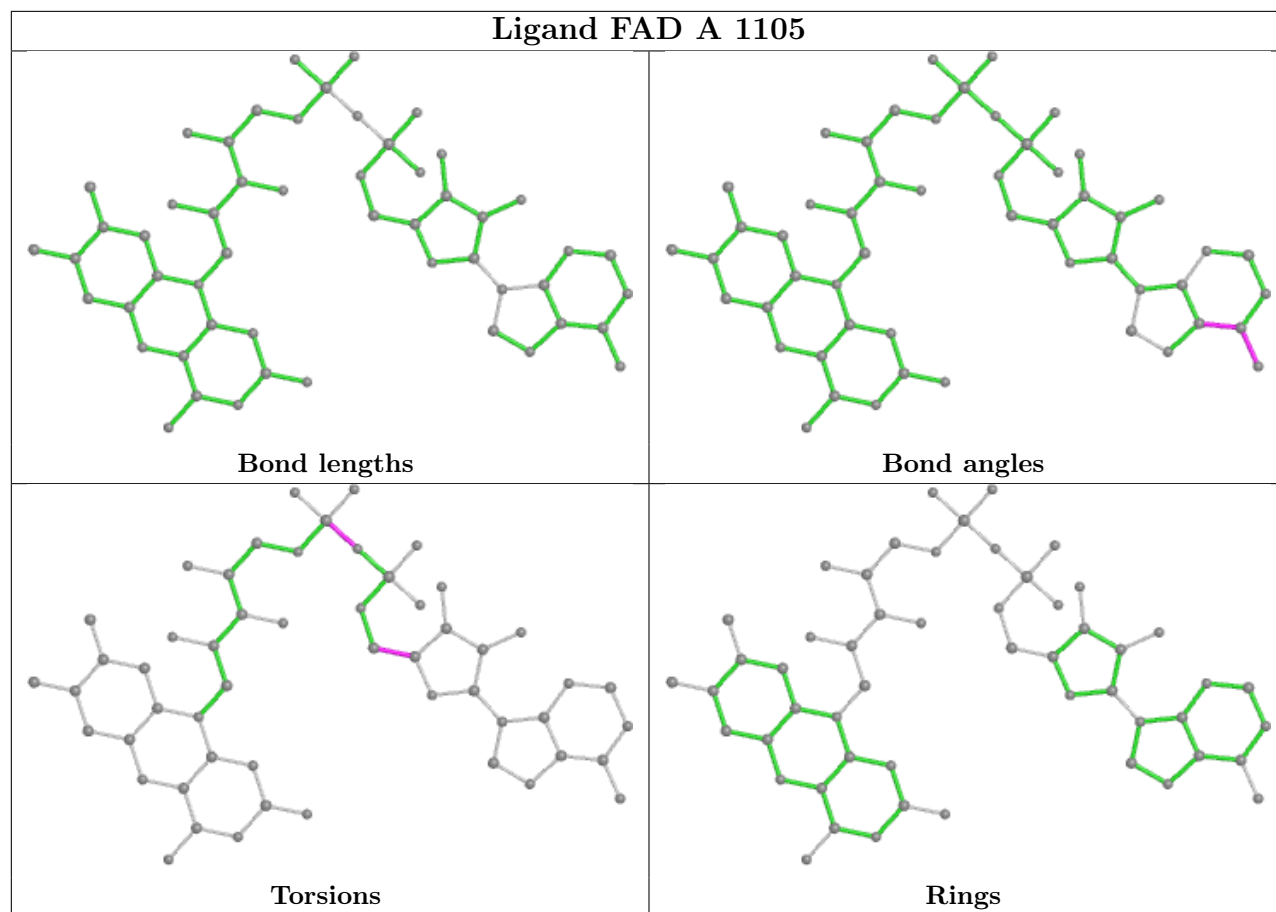
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

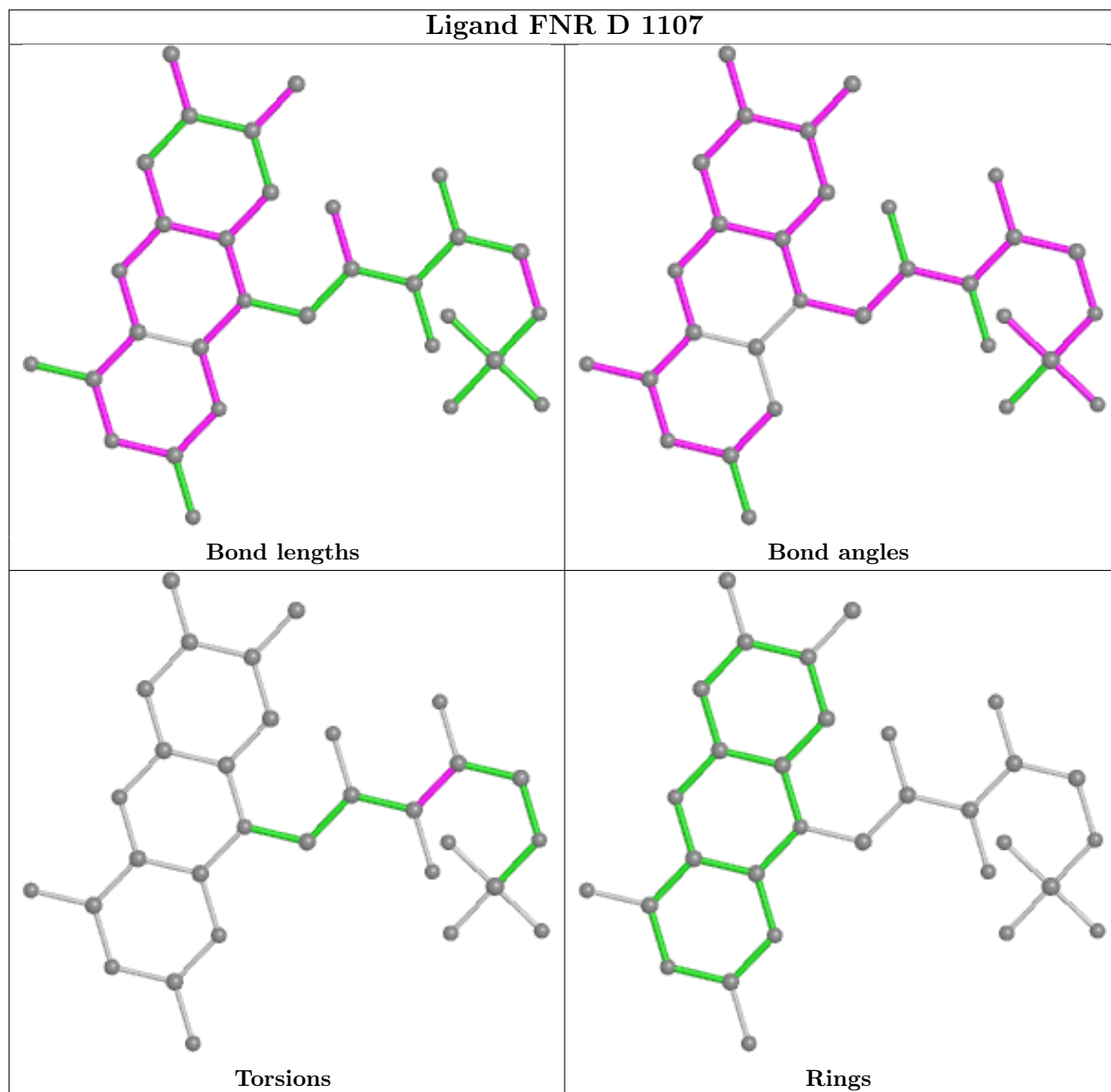


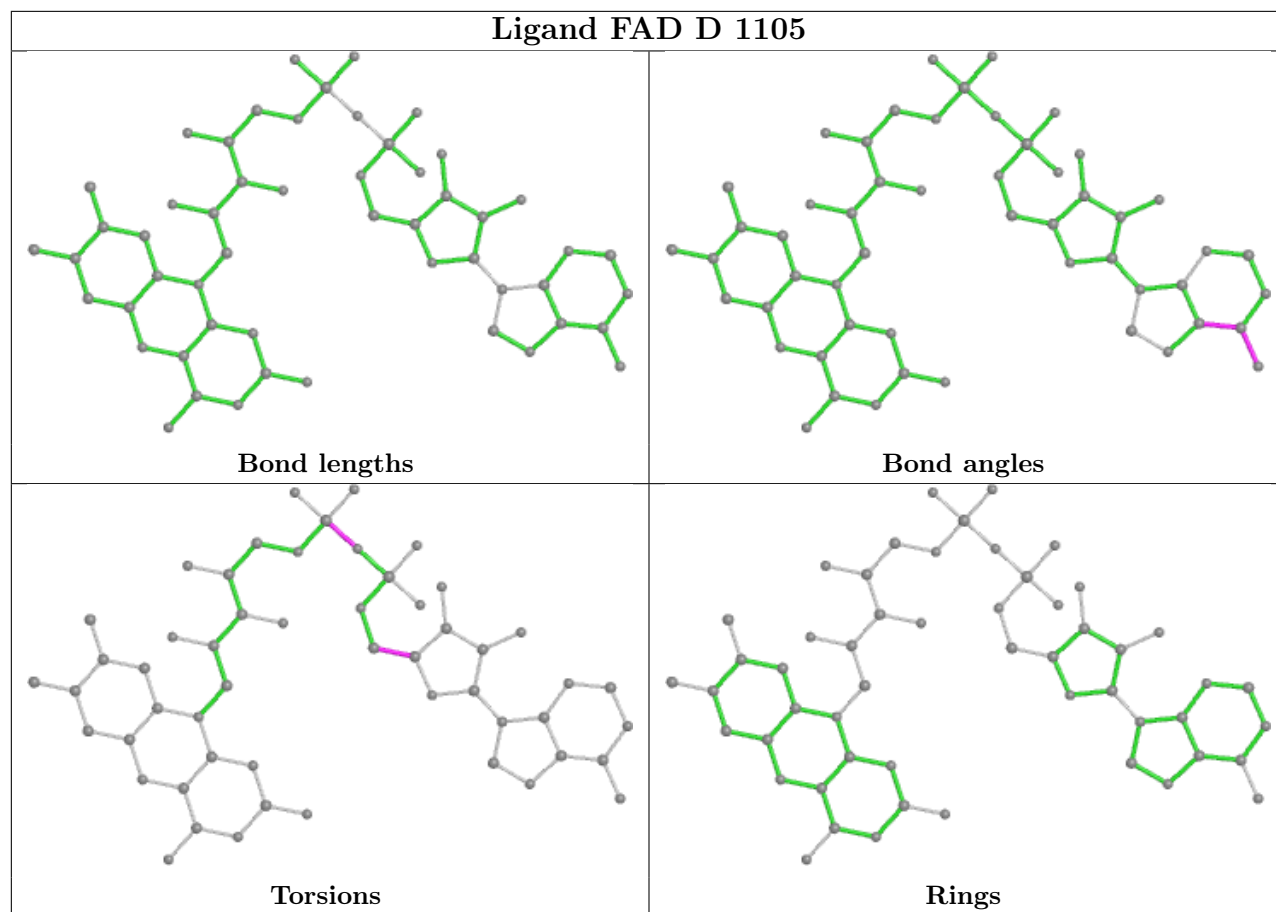


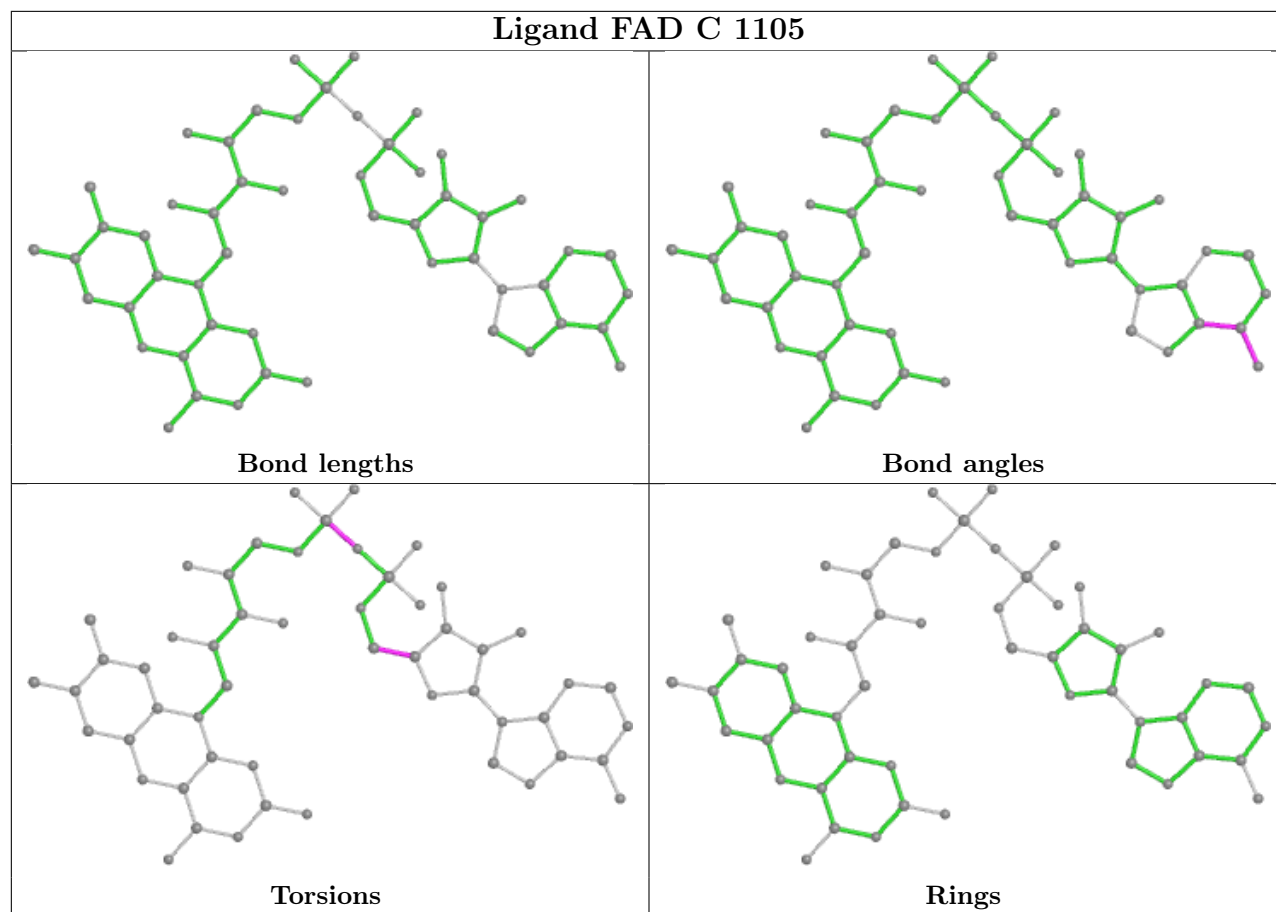


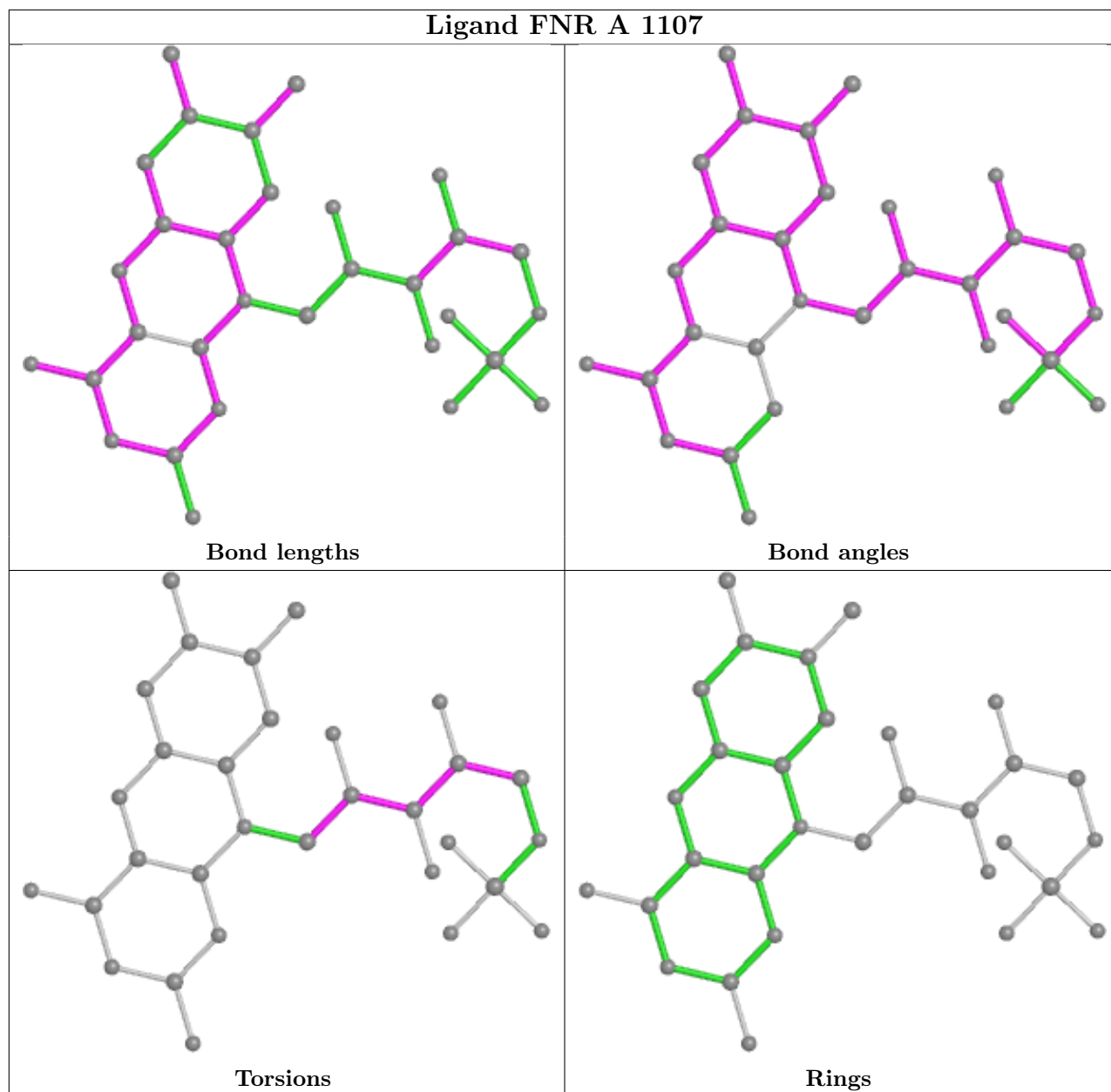


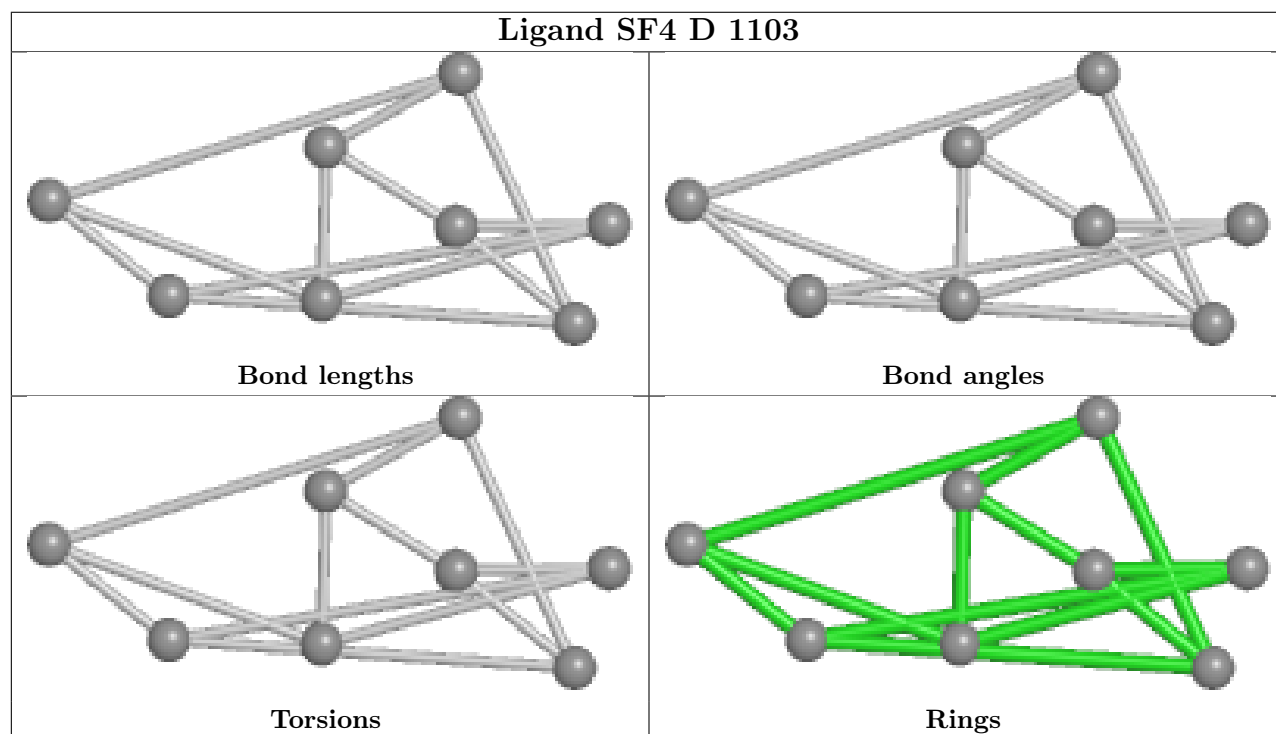
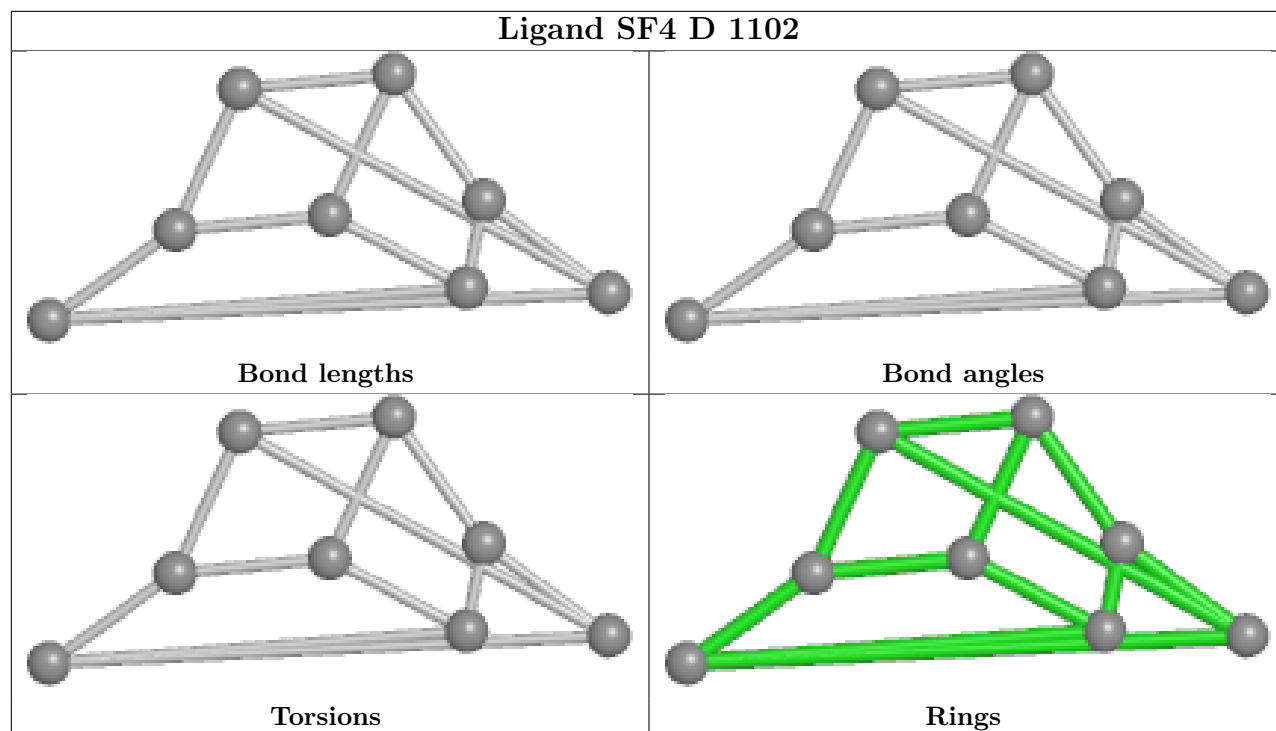


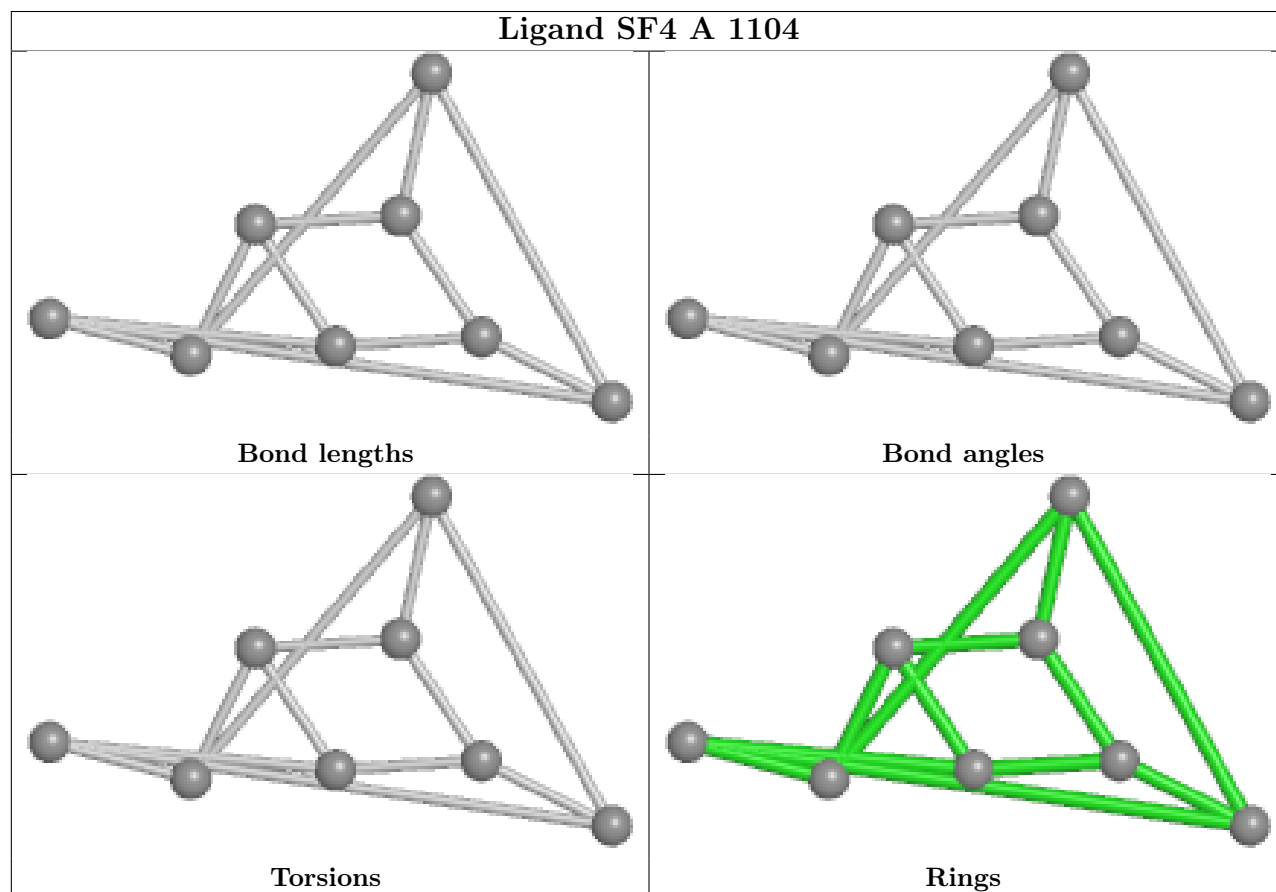
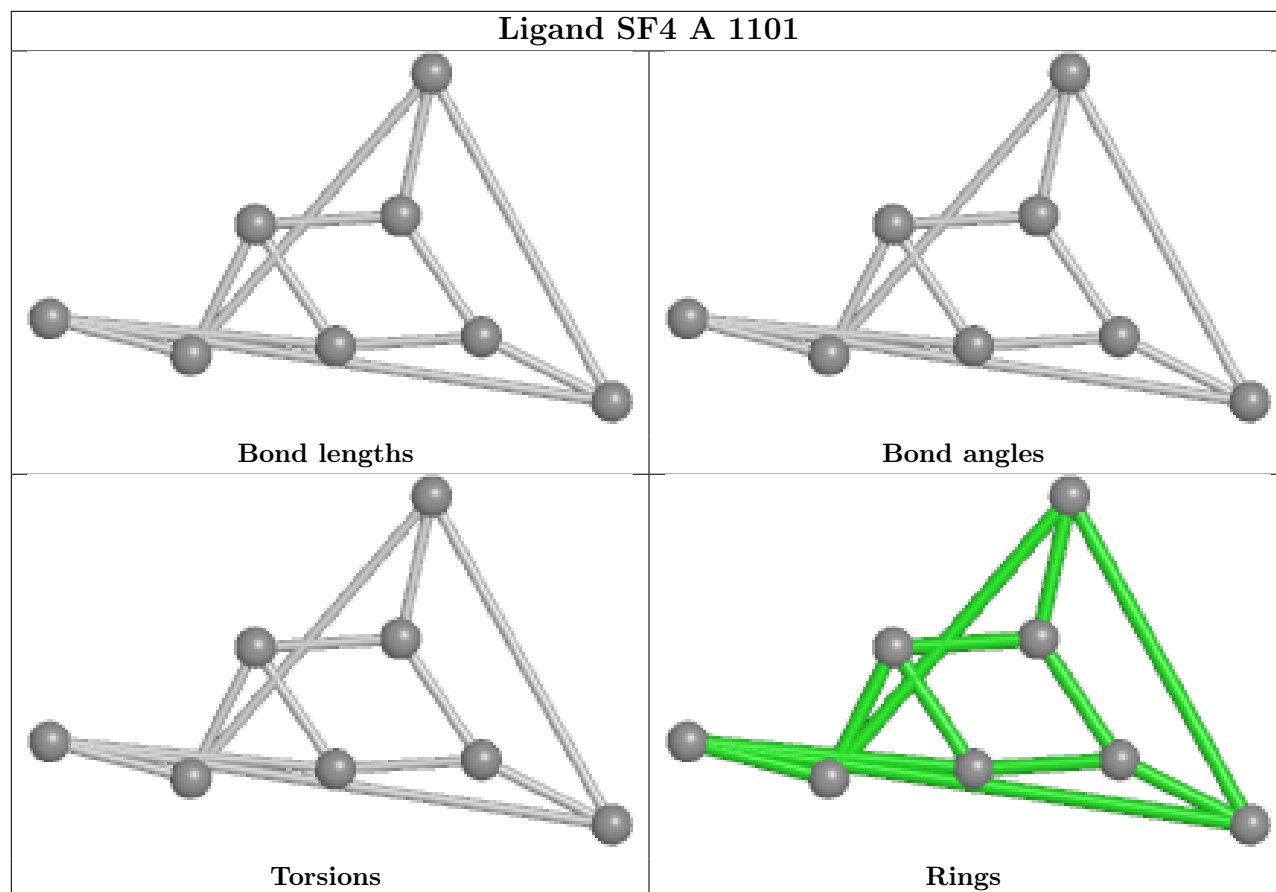


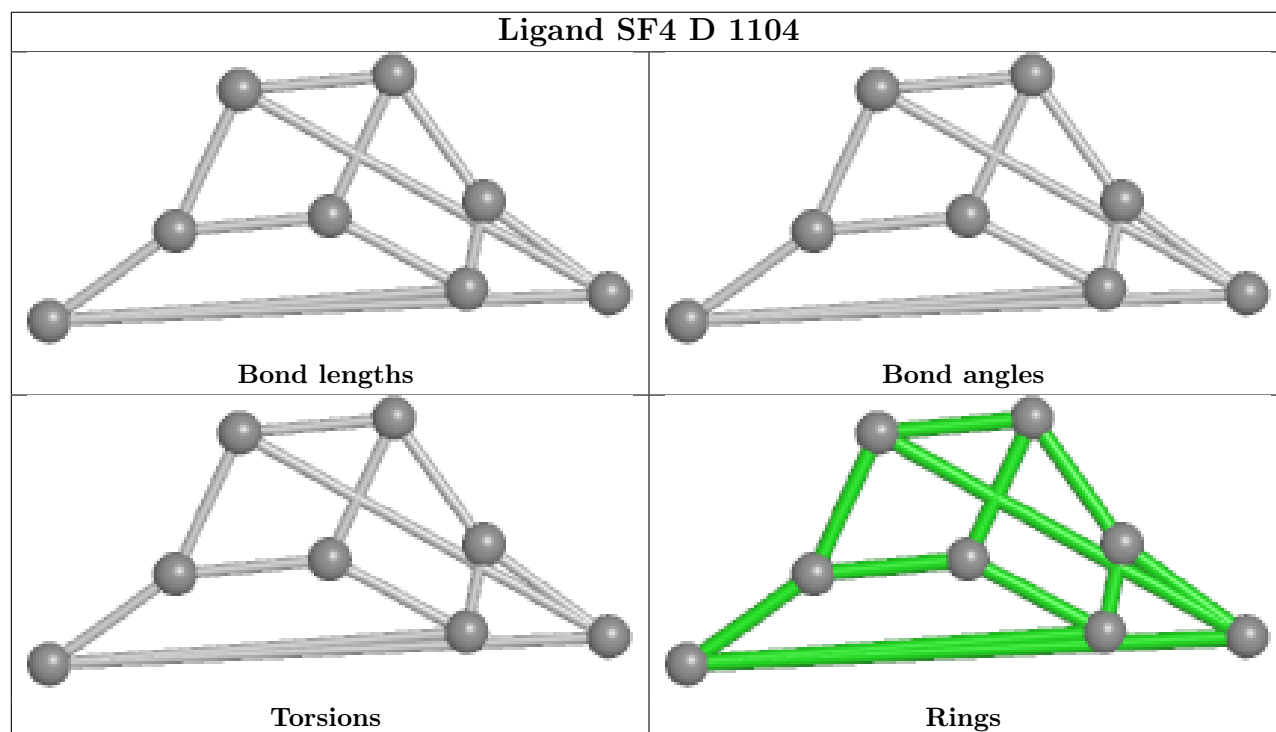
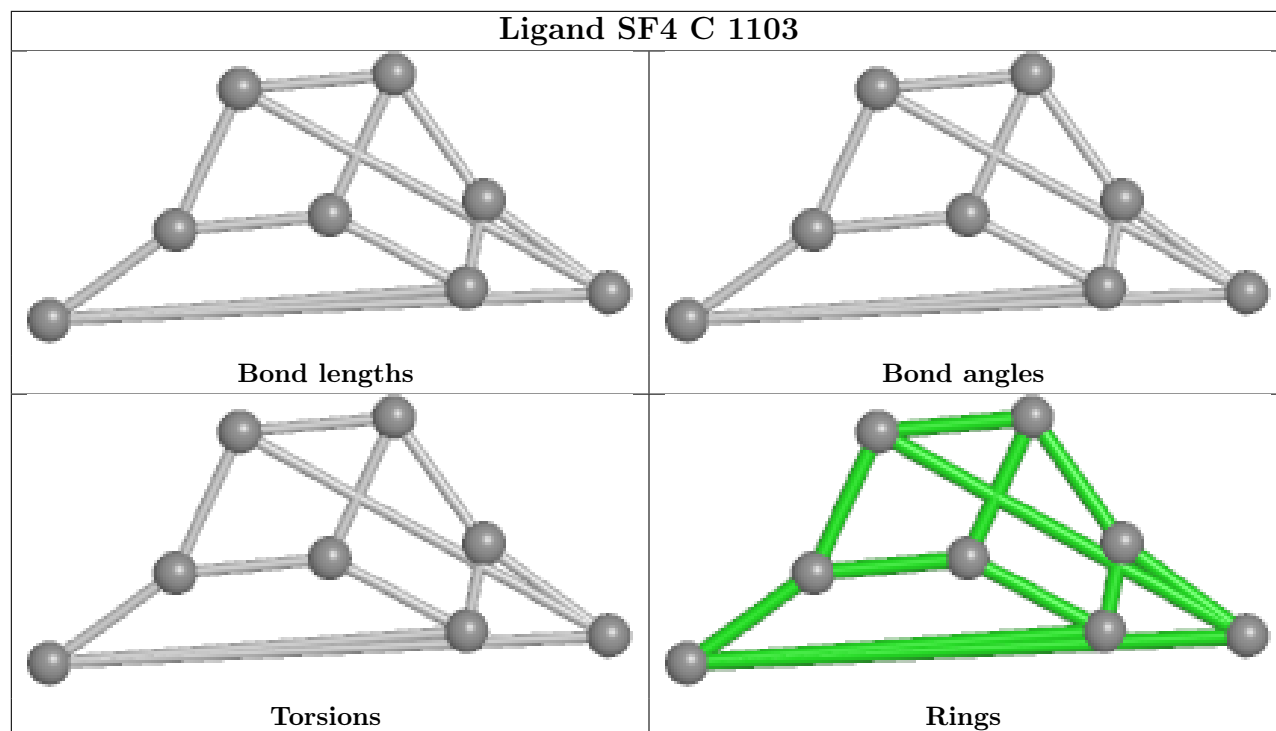




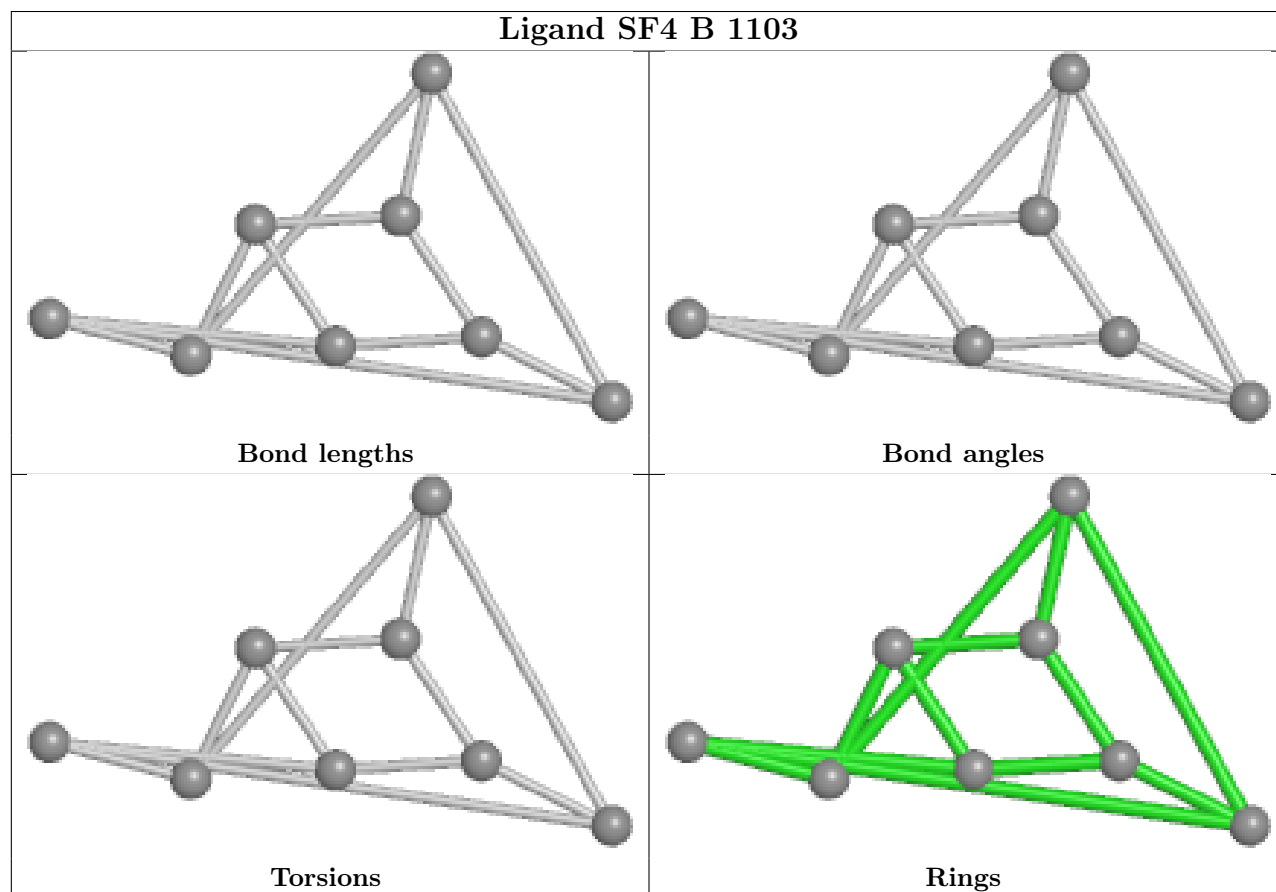
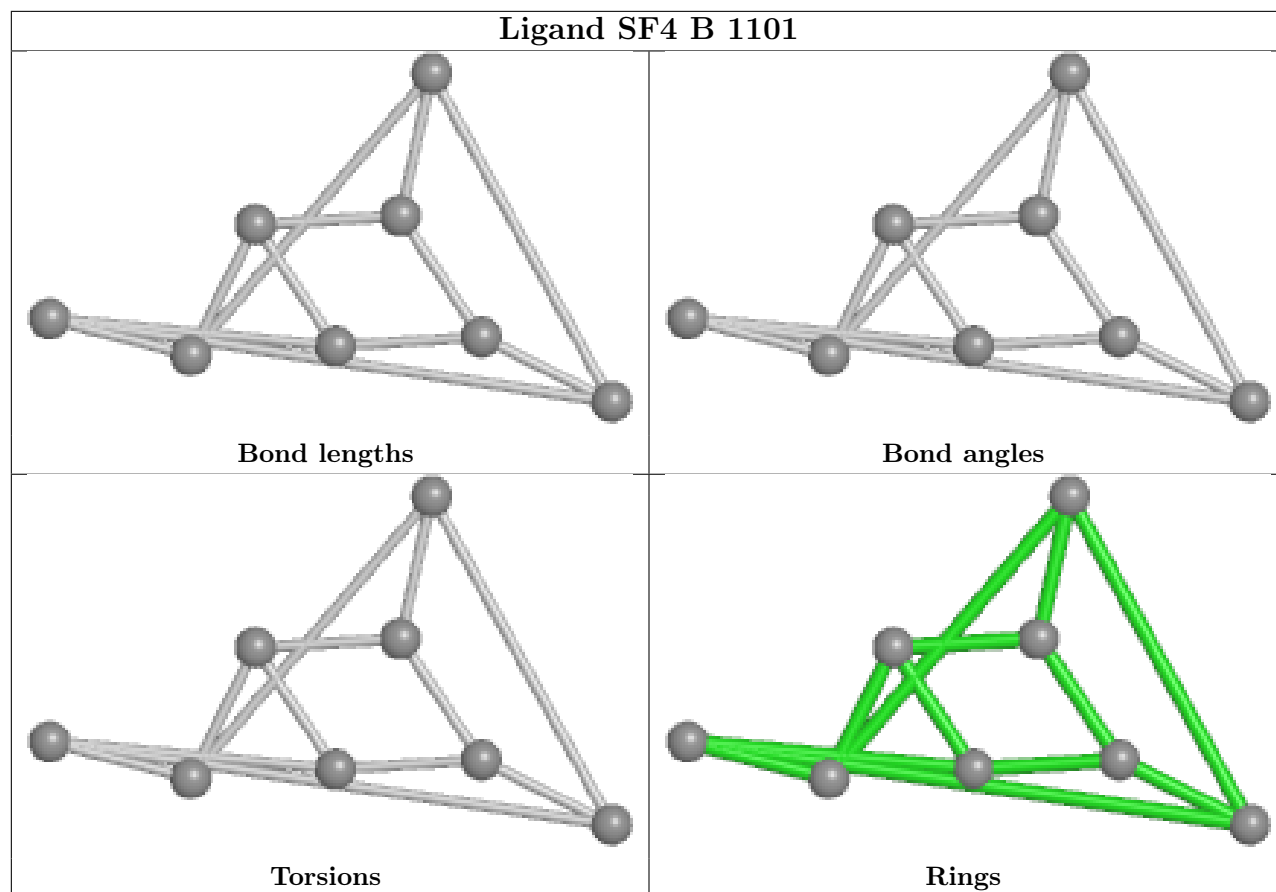


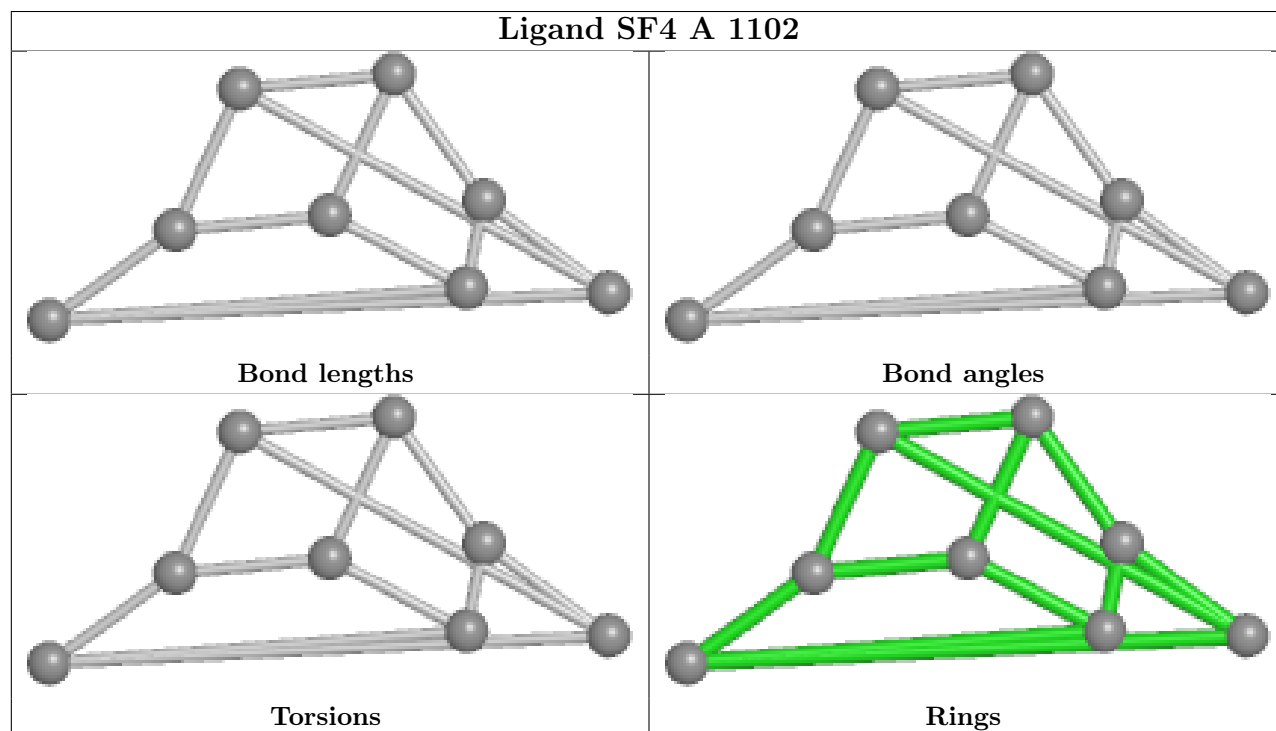
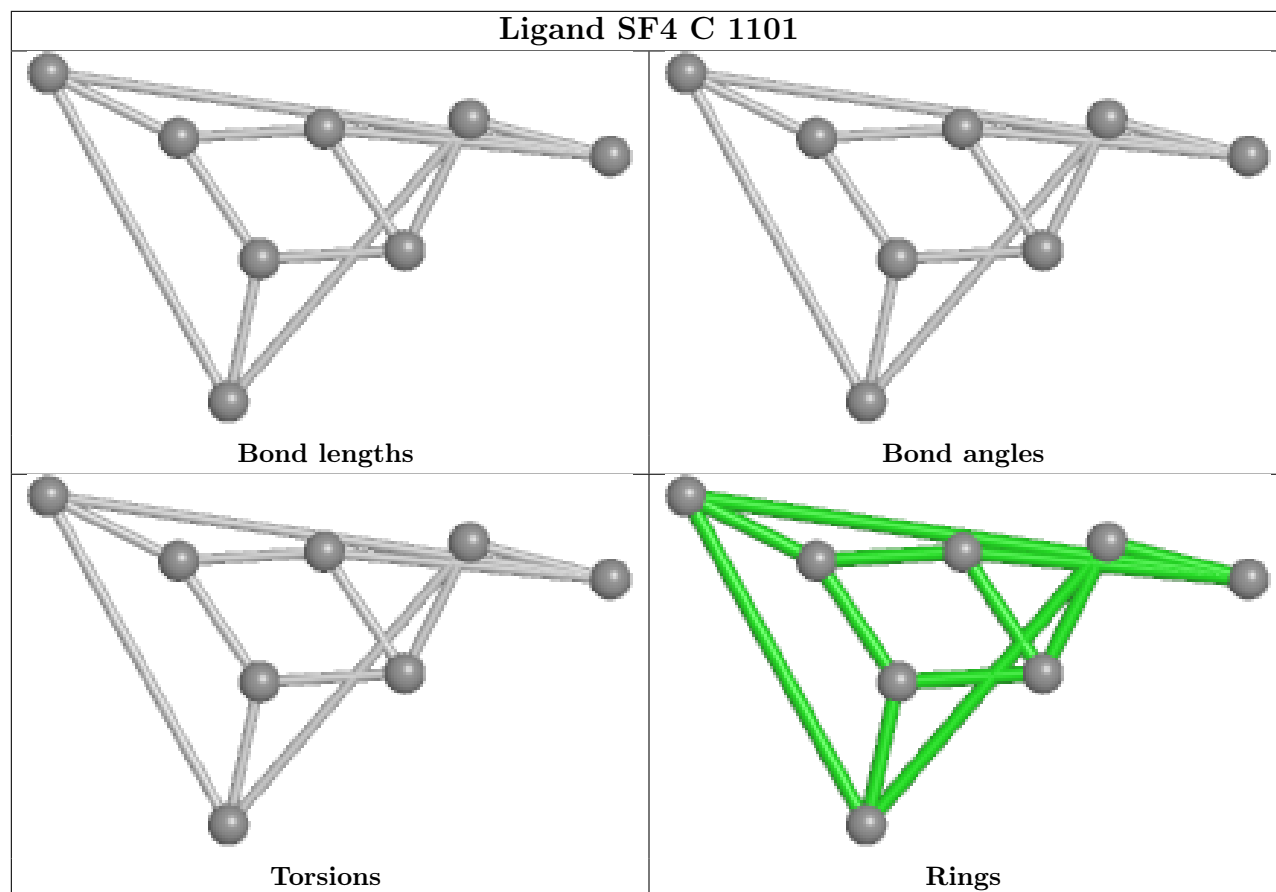


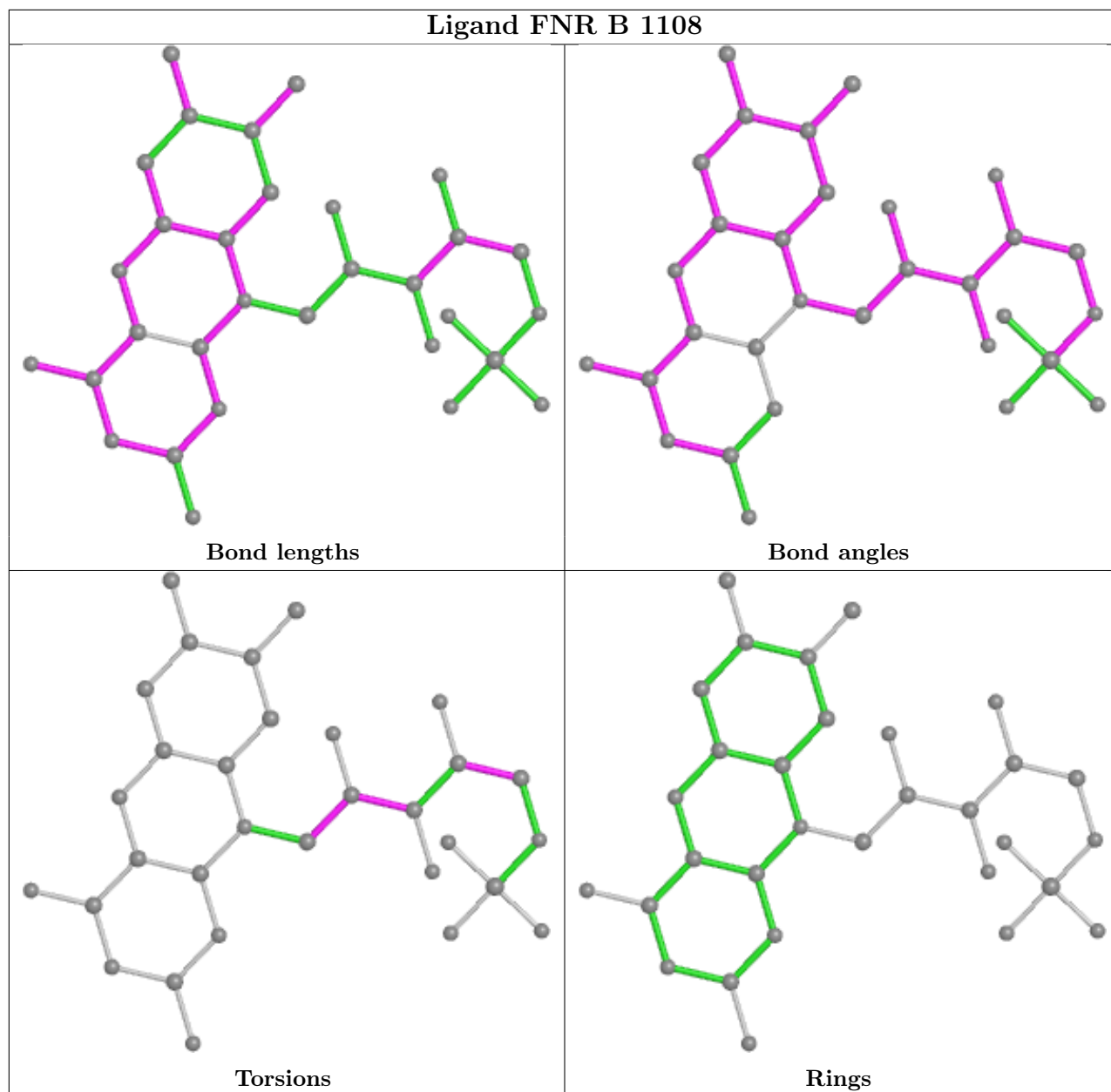


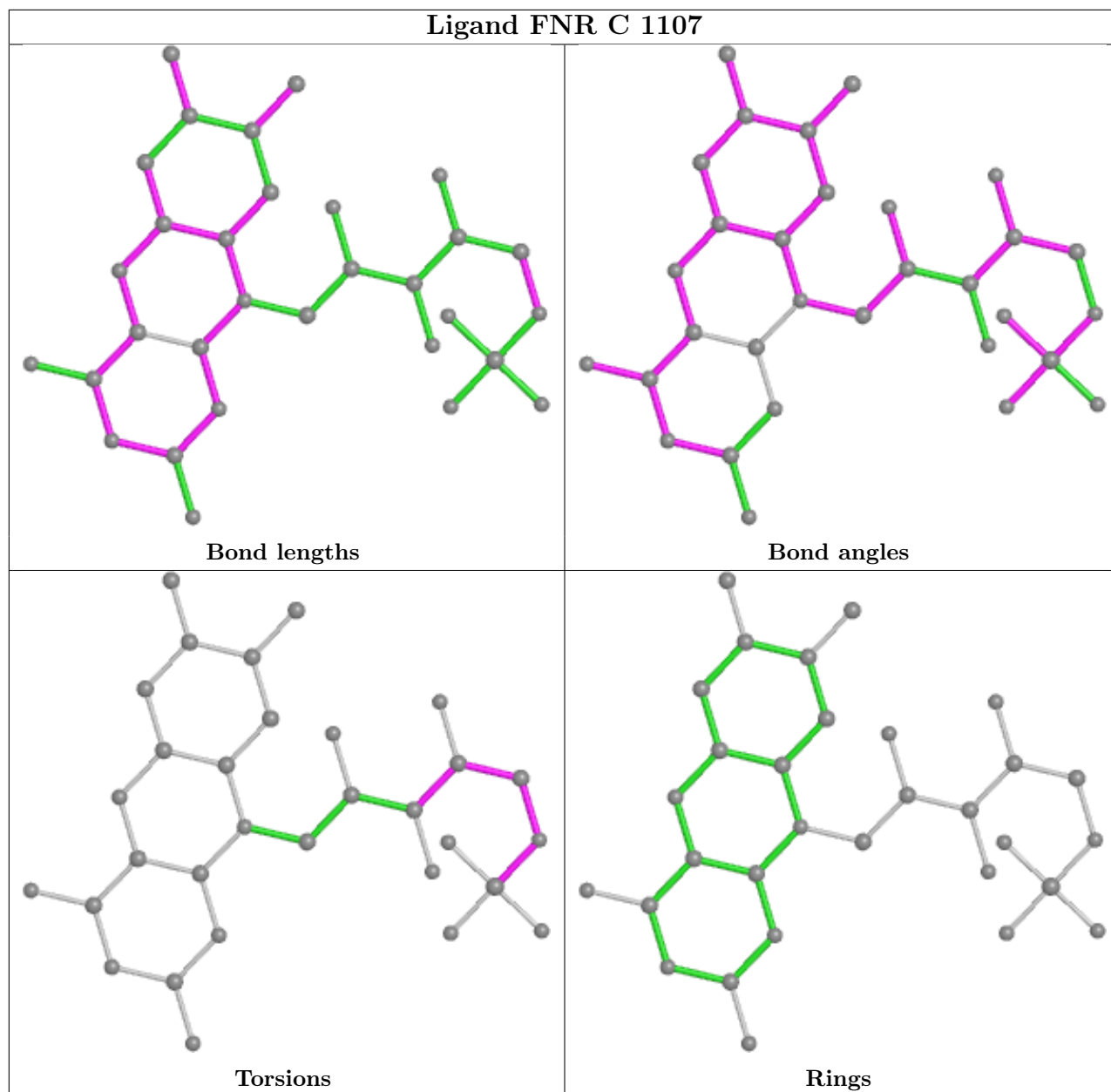


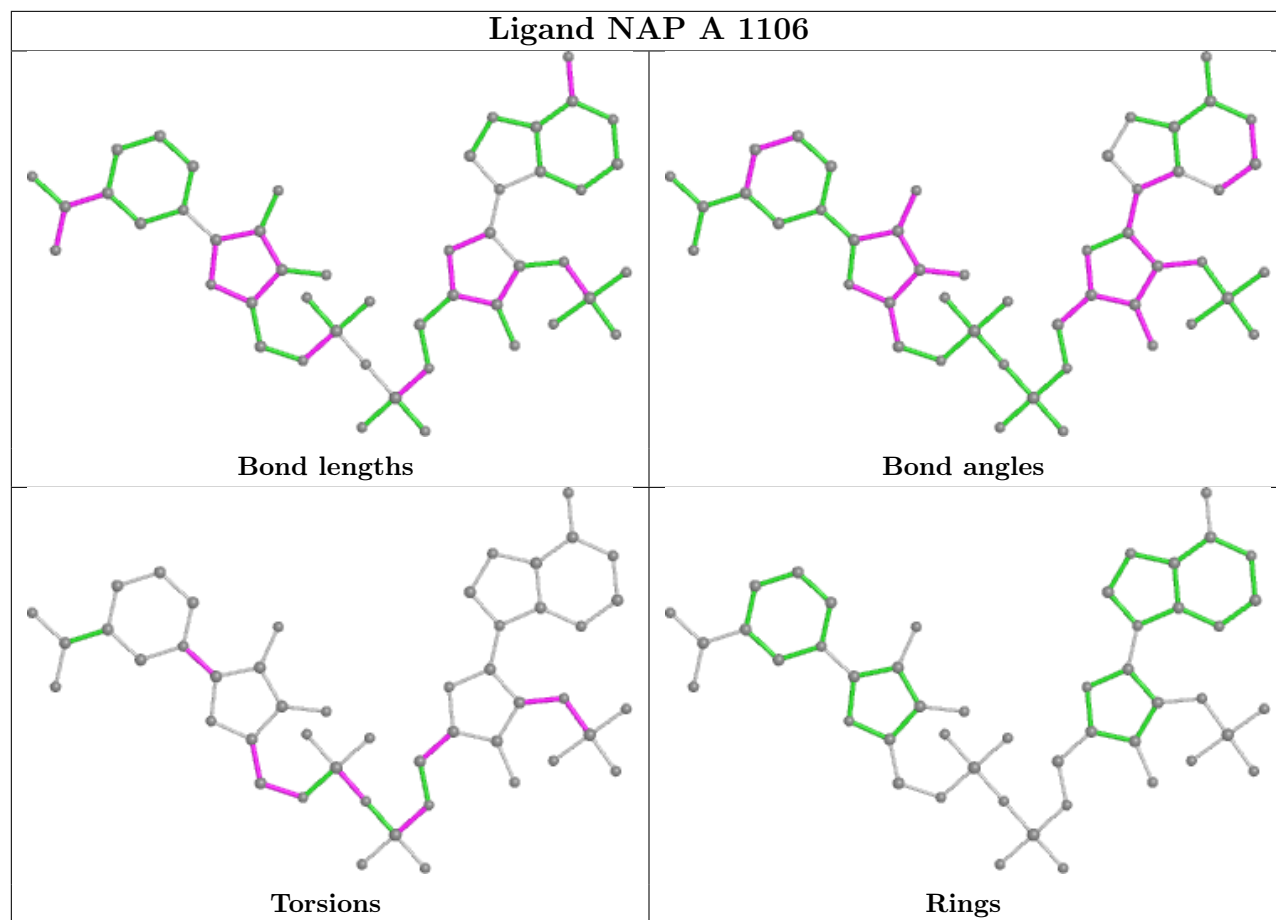


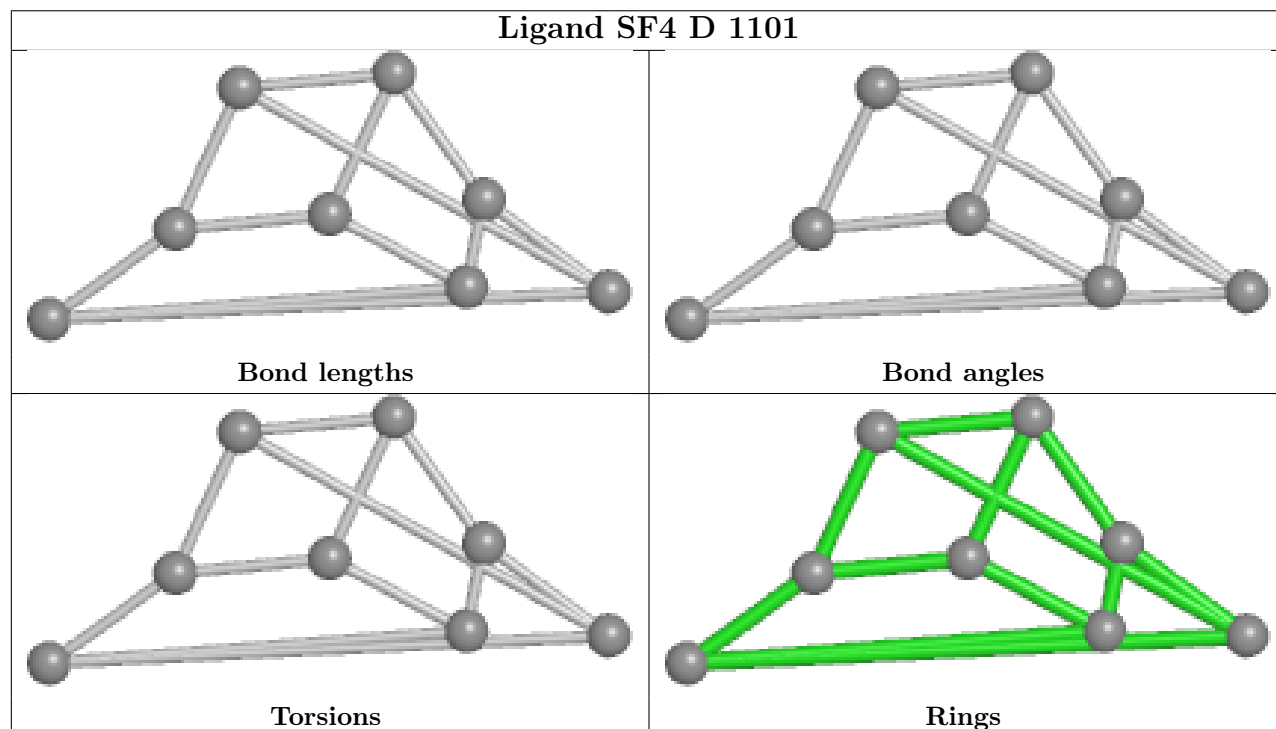
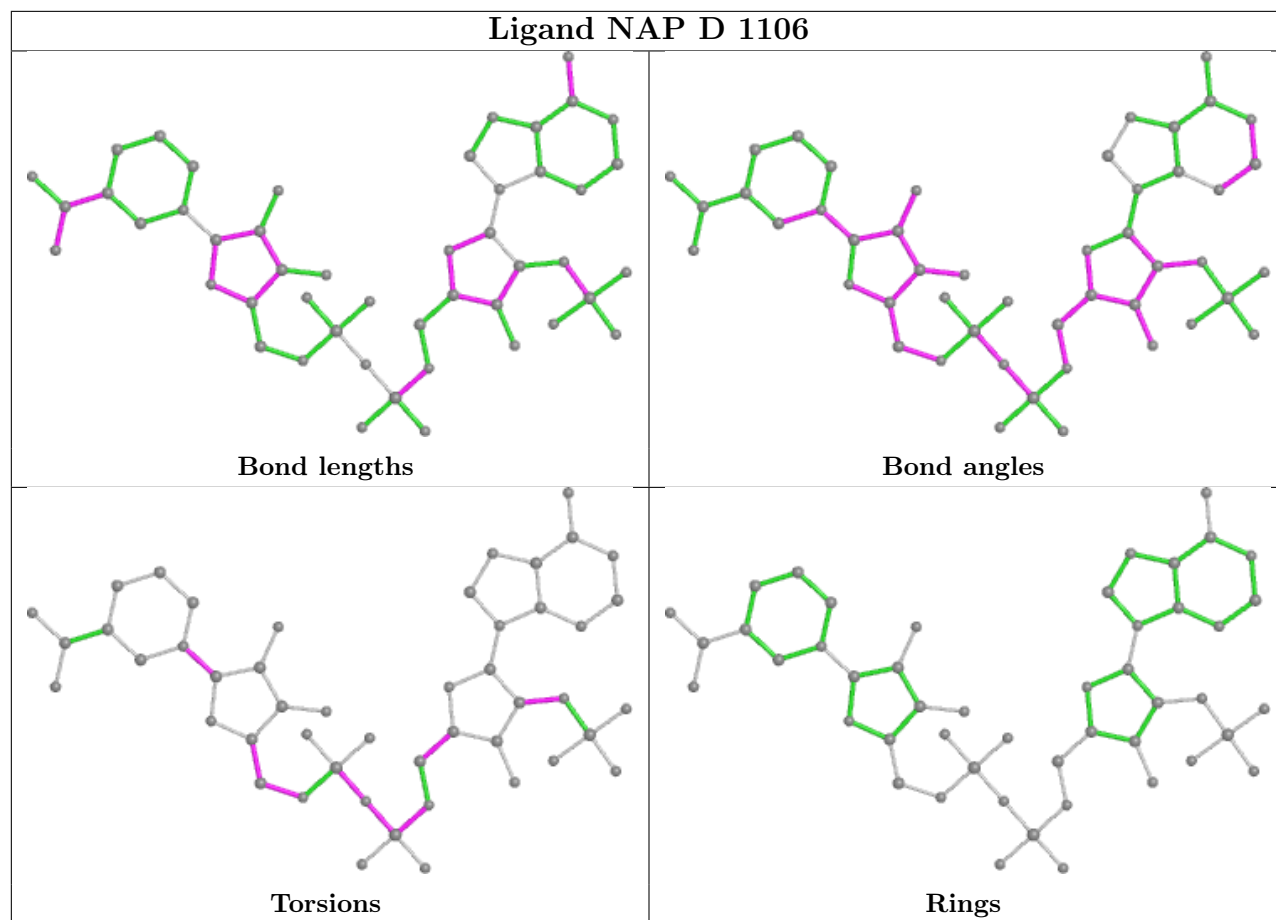


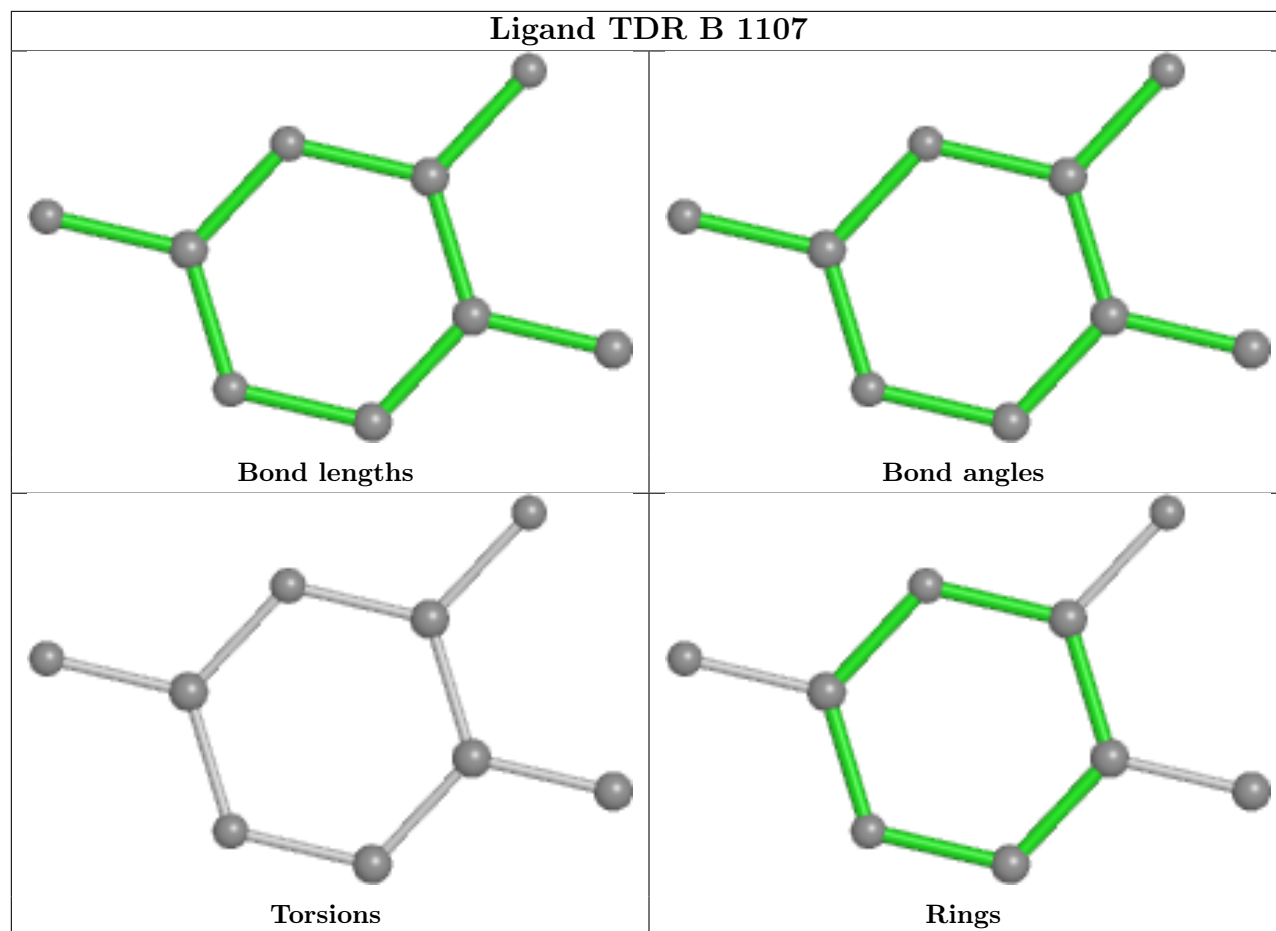


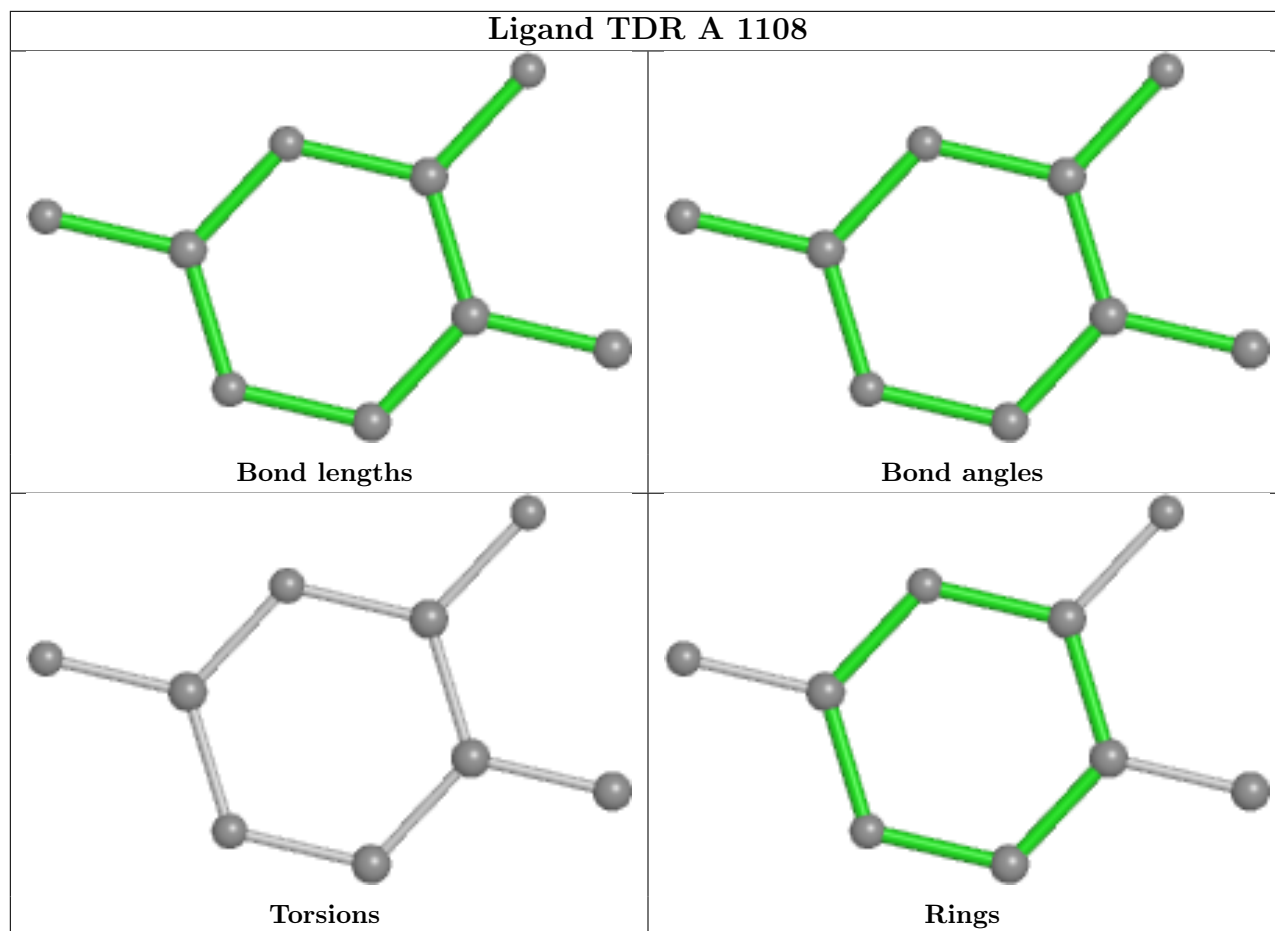




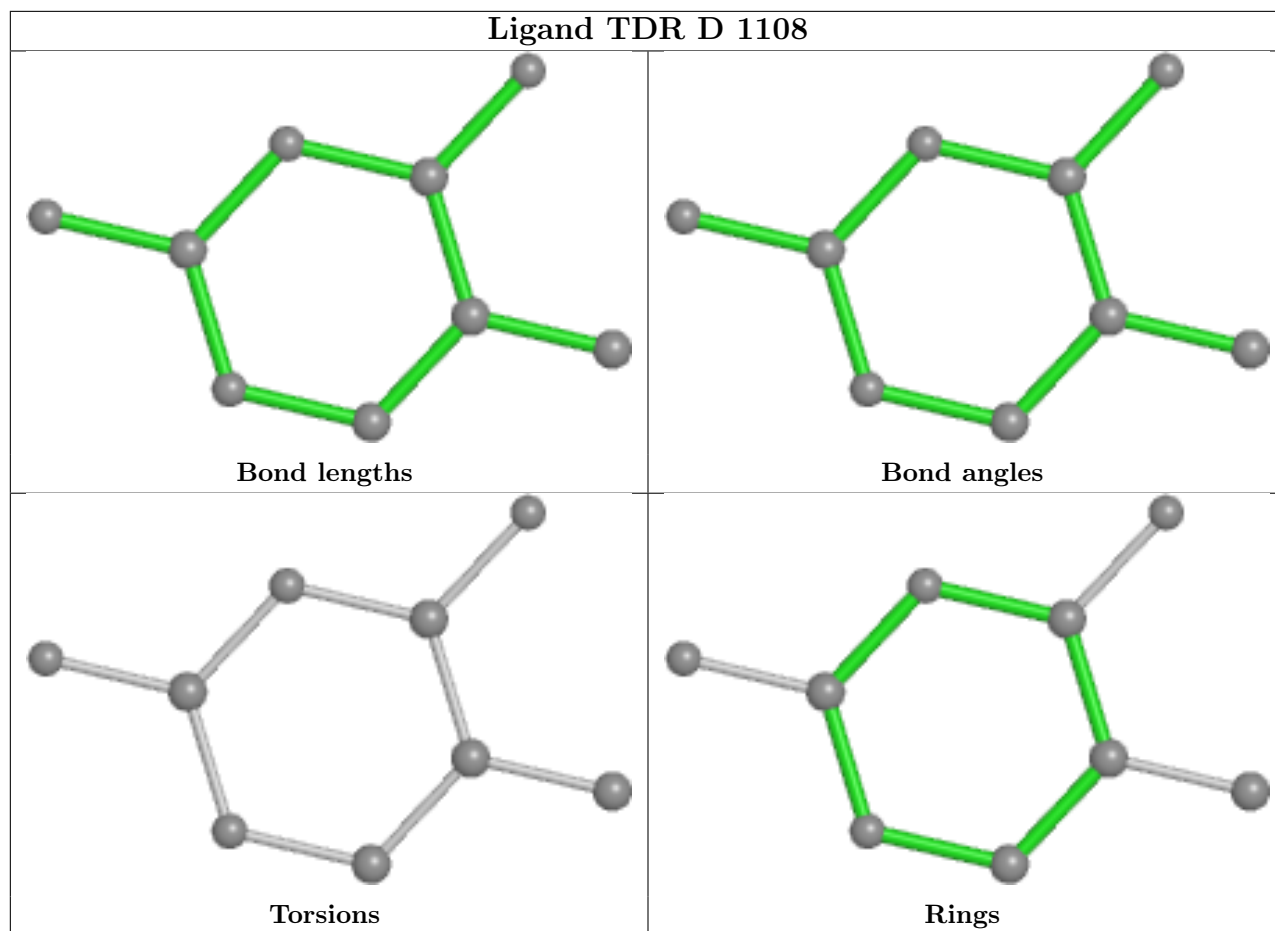


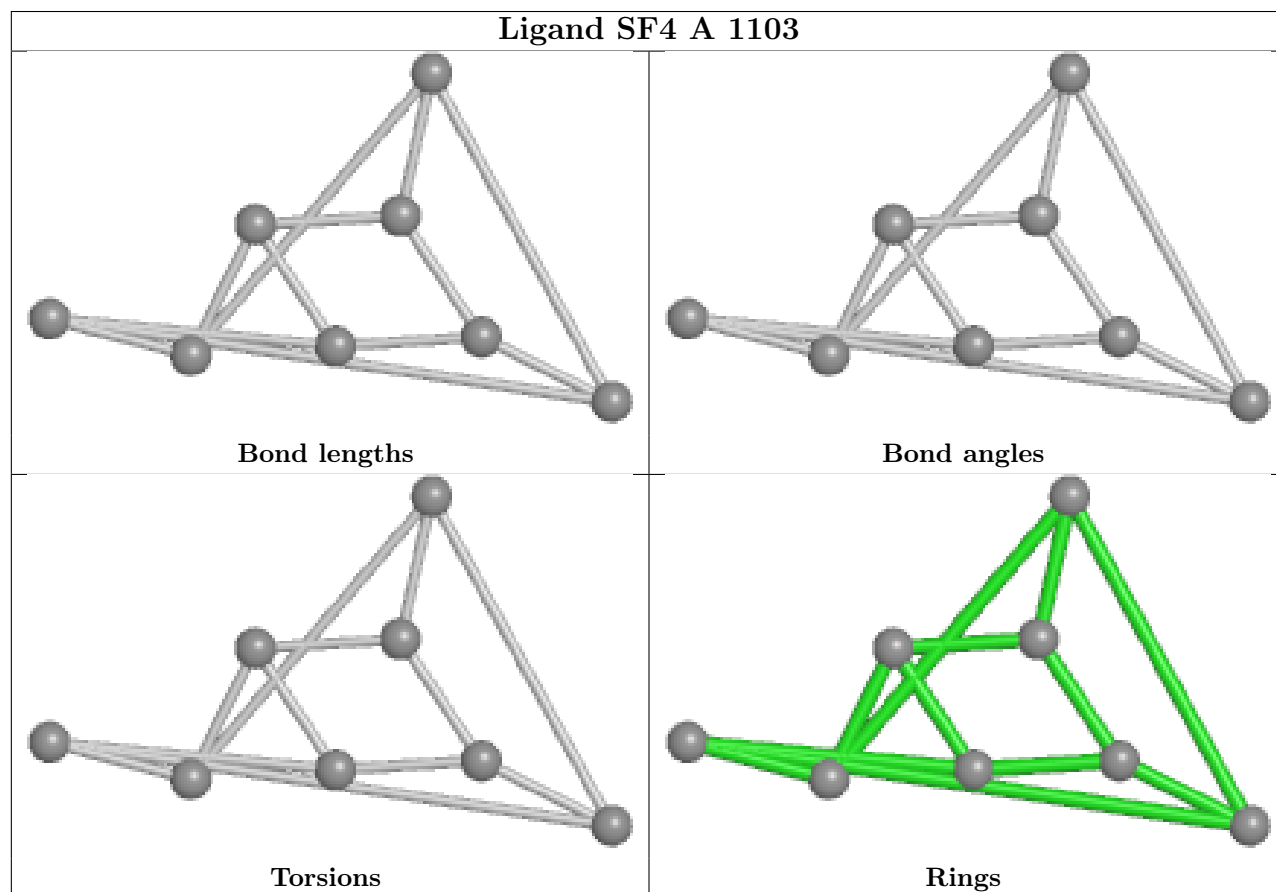
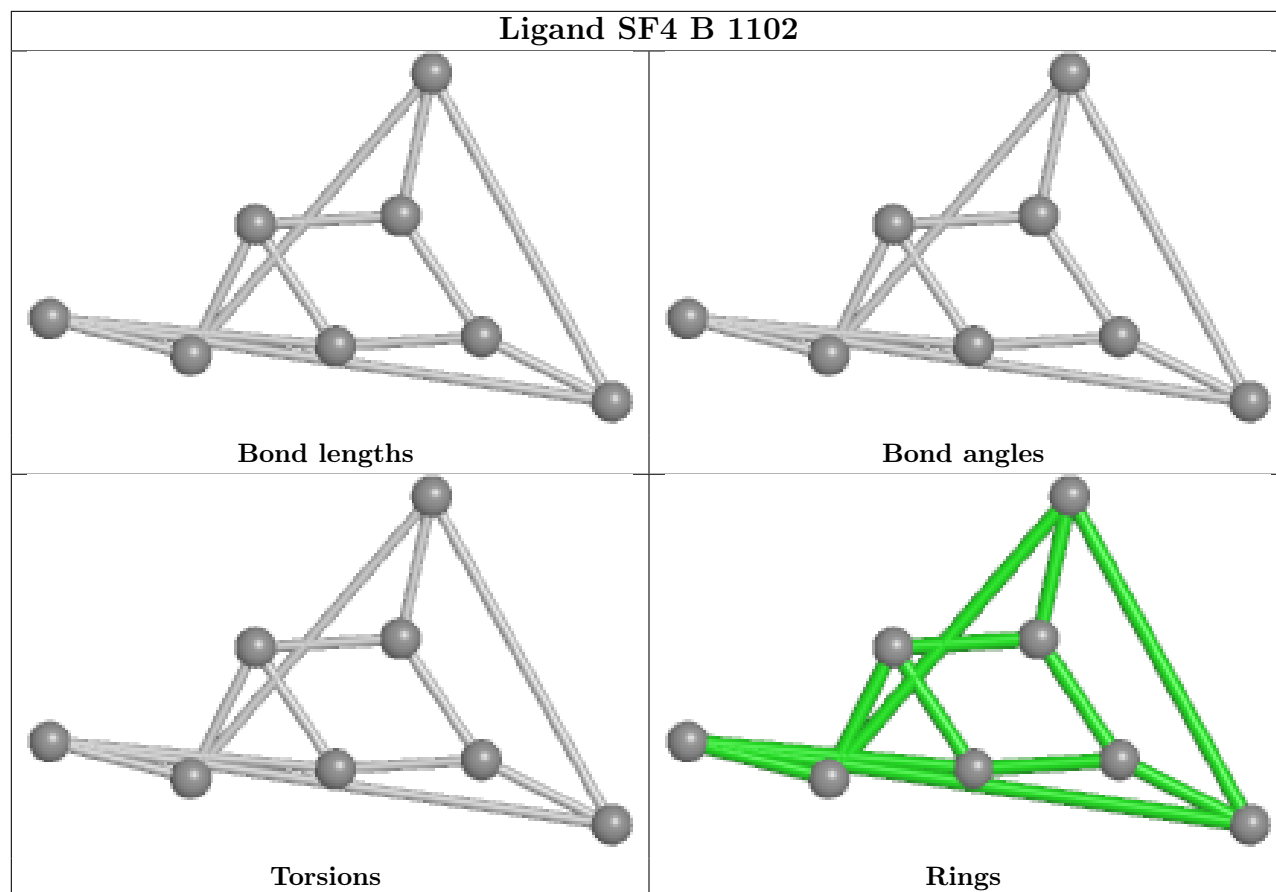


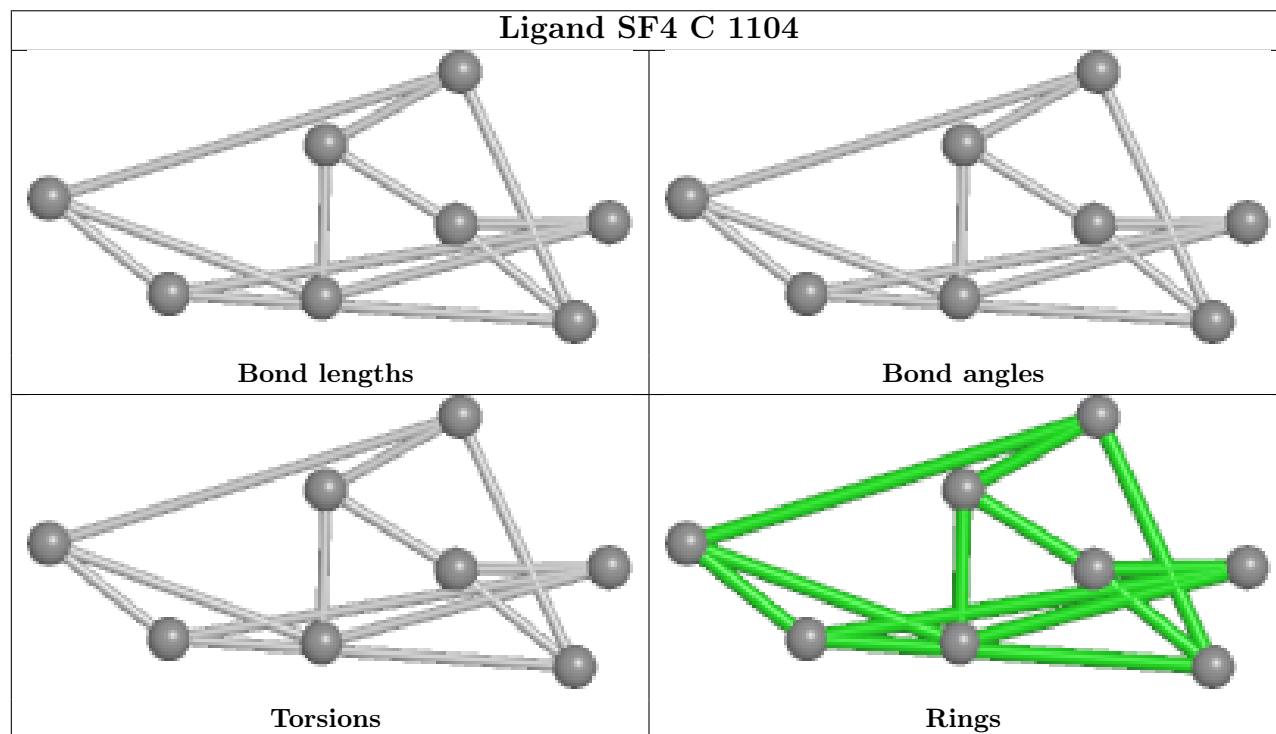
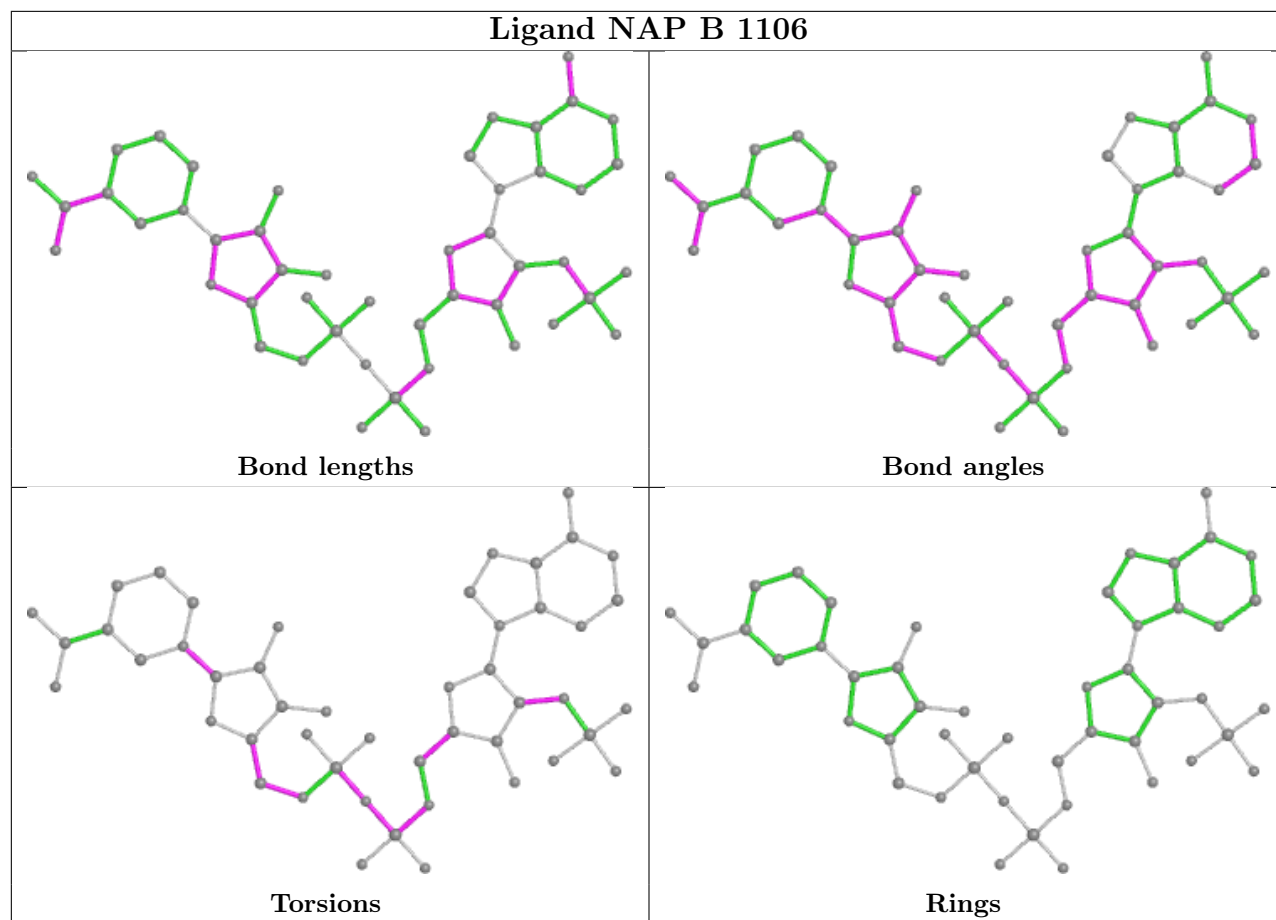












## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

## 6 Fit of model and data

### 6.1 Protein, DNA and RNA chains

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	1010/1025 (98%)	0.36	71 (7%) 16 18	19, 28, 53, 83	0
1	B	1008/1025 (98%)	0.29	56 (5%) 24 26	20, 29, 52, 88	0
1	C	1018/1025 (99%)	0.46	78 (7%) 13 15	20, 28, 59, 101	0
1	D	1006/1025 (98%)	0.41	60 (5%) 21 23	19, 30, 55, 99	0
All	All	4042/4100 (98%)	0.38	265 (6%) 18 20	19, 29, 55, 101	0

All (265) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	907	LEU	21.8
1	C	324	CYS	17.4
1	C	902	ALA	16.4
1	D	902	ALA	16.3
1	C	904	PHE	15.8
1	D	907	LEU	14.5
1	C	903	ALA	12.8
1	D	897	LEU	12.0
1	D	901	ASN	11.6
1	A	319	ALA	11.3
1	A	324	CYS	10.8
1	B	902	ALA	9.5
1	A	52	CYS	9.4
1	D	324	CYS	9.2
1	A	907	LEU	9.1
1	B	901	ASN	8.8
1	D	899	GLU	8.6
1	B	52	CYS	8.6
1	C	52	CYS	8.6
1	B	900	GLN	8.1
1	B	907	LEU	8.0

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	D	871	LEU	8.0
1	D	867	ARG	8.0
1	A	415	GLU	8.0
1	C	867	ARG	7.7
1	C	900	GLN	7.7
1	C	322	CYS	7.4
1	D	900	GLN	7.4
1	D	870	GLU	7.3
1	C	868	ILE	7.3
1	A	904	PHE	7.2
1	D	869	ALA	7.1
1	B	869	ALA	7.0
1	A	322	CYS	7.0
1	D	52	CYS	7.0
1	C	905	PRO	6.8
1	C	906	PRO	6.7
1	B	867	ARG	6.7
1	D	908	GLU	6.6
1	C	1018	PRO	6.5
1	C	326	SER	6.5
1	A	320	GLY	6.5
1	D	51	HIS	6.5
1	B	870	GLU	6.5
1	B	416	THR	6.4
1	C	897	LEU	6.4
1	C	1019	LEU	6.3
1	B	871	LEU	6.3
1	C	901	ASN	6.2
1	A	903	ALA	6.2
1	A	416	THR	6.2
1	B	51	HIS	6.1
1	C	679	GLY	6.1
1	C	323	ALA	6.0
1	C	325	HIS	6.0
1	C	908	GLU	5.9
1	D	416	THR	5.8
1	C	415	GLU	5.8
1	B	415	GLU	5.8
1	C	680	MET	5.7
1	C	678	ARG	5.7
1	A	867	ARG	5.6
1	B	868	ILE	5.5

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Mol	Chain	Res	Type	RSRZ
1	D	1019	LEU	5.5
1	C	414	ASP	5.5
1	D	873	GLY	5.5
1	B	909	ARG	5.3
1	A	325	HIS	5.3
1	D	896	ARG	5.3
1	D	868	ILE	5.3
1	A	323	ALA	5.3
1	A	681	GLY	5.3
1	B	418	LYS	5.3
1	D	415	GLU	5.3
1	A	1010	PRO	5.3
1	C	870	GLU	5.3
1	B	873	GLY	5.2
1	A	866	PRO	5.2
1	D	1018	PRO	5.2
1	B	459	TRP	5.2
1	C	873	GLY	5.1
1	D	895	MET	5.1
1	B	897	LEU	5.1
1	D	898	LYS	5.1
1	C	869	ALA	5.1
1	C	50	PHE	5.1
1	B	866	PRO	5.1
1	A	326	SER	5.0
1	D	1020	ALA	5.0
1	B	1021	VAL	5.0
1	D	323	ALA	5.0
1	C	51	HIS	4.8
1	D	874	LYS	4.7
1	B	899	GLU	4.7
1	A	51	HIS	4.6
1	C	871	LEU	4.6
1	B	50	PHE	4.6
1	C	1020	ALA	4.5
1	C	342	ASP	4.5
1	A	50	PHE	4.5
1	C	371	ARG	4.4
1	C	899	GLU	4.4
1	C	417	GLY	4.4
1	C	896	ARG	4.4
1	D	50	PHE	4.3

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Mol	Chain	Res	Type	RSRZ
1	B	872	MET	4.3
1	A	870	GLU	4.2
1	A	869	ALA	4.2
1	C	681	GLY	4.2
1	C	332	ARG	4.2
1	C	416	THR	4.2
1	B	1020	ALA	4.2
1	A	49	CYS	4.1
1	D	418	LYS	4.1
1	D	459	TRP	4.1
1	A	901	ASN	4.1
1	A	906	PRO	4.1
1	C	676	GLY	4.1
1	B	856	THR	4.1
1	C	909	ARG	4.1
1	B	417	GLY	4.0
1	B	908	GLU	4.0
1	A	332	ARG	4.0
1	A	902	ALA	4.0
1	C	891	ALA	4.0
1	C	866	PRO	3.9
1	A	414	ASP	3.8
1	A	672	PRO	3.8
1	A	871	LEU	3.8
1	B	917	PRO	3.7
1	A	908	GLU	3.7
1	B	1010	PRO	3.6
1	D	417	GLY	3.6
1	D	892	GLU	3.6
1	B	1019	LEU	3.6
1	D	1011	TYR	3.5
1	B	865	VAL	3.4
1	B	896	ARG	3.4
1	A	905	PRO	3.4
1	D	866	PRO	3.4
1	A	371	ARG	3.4
1	D	856	THR	3.4
1	C	856	THR	3.3
1	D	891	ALA	3.3
1	A	900	GLN	3.3
1	A	1019	LEU	3.3
1	B	874	LYS	3.3

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Mol	Chain	Res	Type	RSRZ
1	C	1009	THR	3.3
1	B	888	LYS	3.2
1	D	857	GLU	3.2
1	A	899	GLU	3.2
1	D	175	CYS	3.2
1	D	1010	PRO	3.2
1	D	681	GLY	3.2
1	A	413	GLN	3.2
1	A	897	LEU	3.2
1	A	1018	PRO	3.2
1	A	331	ILE	3.2
1	A	1012	GLU	3.1
1	C	864	PRO	3.1
1	D	371	ARG	3.1
1	D	325	HIS	3.1
1	A	872	MET	3.1
1	A	673	HIS	3.1
1	A	367	PHE	3.1
1	B	1018	PRO	3.1
1	D	865	VAL	3.1
1	A	418	LYS	3.1
1	A	327	PRO	3.0
1	B	857	GLU	3.0
1	A	909	ARG	3.0
1	D	1012	GLU	3.0
1	C	874	LYS	3.0
1	C	54	LYS	3.0
1	B	264	ASN	3.0
1	C	319	ALA	2.9
1	A	342	ASP	2.9
1	D	889	ILE	2.9
1	A	357	ARG	2.9
1	A	873	GLY	2.9
1	B	414	ASP	2.8
1	C	677	GLU	2.8
1	C	372	ALA	2.8
1	B	180	GLU	2.8
1	D	180	GLU	2.8
1	D	1017	LEU	2.8
1	B	1011	TYR	2.8
1	B	53	GLU	2.8
1	D	327	PRO	2.8

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	A	180	GLU	2.8
1	A	874	LYS	2.8
1	C	875	LYS	2.8
1	C	1012	GLU	2.8
1	A	896	ARG	2.7
1	B	332	ARG	2.7
1	A	910	LYS	2.7
1	C	895	MET	2.7
1	A	913	ILE	2.7
1	B	895	MET	2.7
1	D	872	MET	2.7
1	C	330	SER	2.7
1	D	414	ASP	2.6
1	D	331	ILE	2.6
1	D	424	ASP	2.6
1	D	332	ARG	2.6
1	A	1011	TYR	2.5
1	B	342	ASP	2.5
1	A	420	ASN	2.5
1	A	417	GLY	2.5
1	C	898	LYS	2.5
1	C	418	LYS	2.5
1	B	511	TYR	2.5
1	C	888	LYS	2.4
1	C	1014	LYS	2.4
1	B	673	HIS	2.4
1	C	682	LEU	2.4
1	D	179	GLN	2.4
1	C	320	GLY	2.4
1	D	910	LYS	2.3
1	C	696	ARG	2.3
1	C	77	MET	2.3
1	C	1011	TYR	2.3
1	D	53	GLU	2.3
1	A	847	GLN	2.3
1	D	73	LEU	2.3
1	C	327	PRO	2.3
1	A	181	LYS	2.3
1	C	269	ASN	2.3
1	C	181	LYS	2.3
1	B	696	ARG	2.3
1	B	181	LYS	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	696	ARG	2.3
1	B	885	GLN	2.2
1	B	898	LYS	2.2
1	D	682	LEU	2.2
1	C	893	GLU	2.2
1	D	672	PRO	2.2
1	A	700	GLN	2.2
1	B	273	GLU	2.2
1	A	54	LYS	2.2
1	A	682	LEU	2.2
1	A	856	THR	2.2
1	B	889	ILE	2.2
1	C	370	ILE	2.2
1	A	60	ASP	2.2
1	B	892	GLU	2.2
1	C	420	ASN	2.2
1	A	431	ALA	2.1
1	B	368	VAL	2.1
1	A	424	ASP	2.1
1	B	844	GLU	2.1
1	B	54	LYS	2.1
1	D	421	GLU	2.1
1	C	768	THR	2.1
1	A	358	ARG	2.1
1	A	178	SER	2.1
1	A	868	ILE	2.1
1	C	367	PHE	2.0
1	C	674	GLY	2.0
1	A	273	GLU	2.0
1	C	368	VAL	2.0
1	C	76	ALA	2.0
1	C	1010	PRO	2.0
1	D	671	SER	2.0
1	C	49	CYS	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](#)

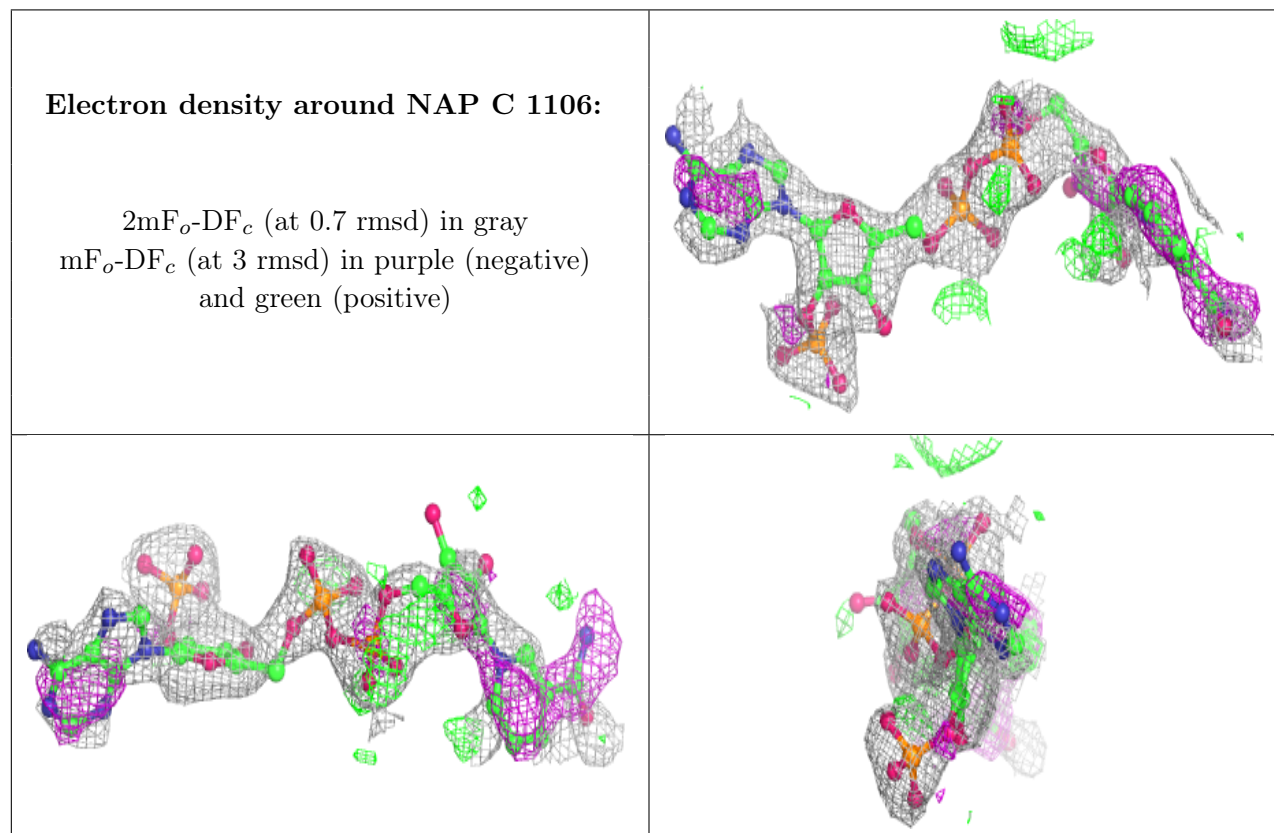
There are no monosaccharides in this entry.

### 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, 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.

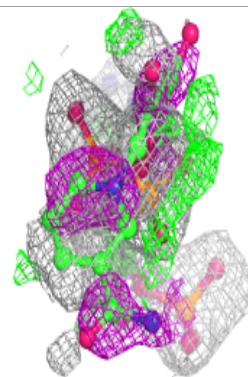
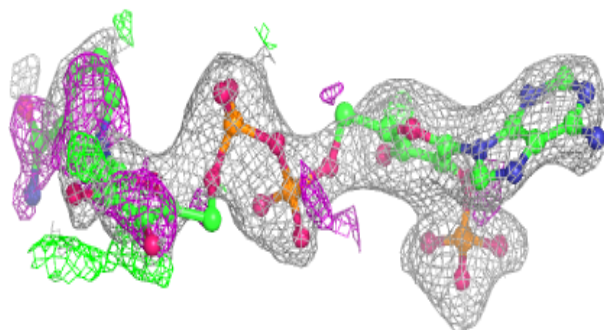
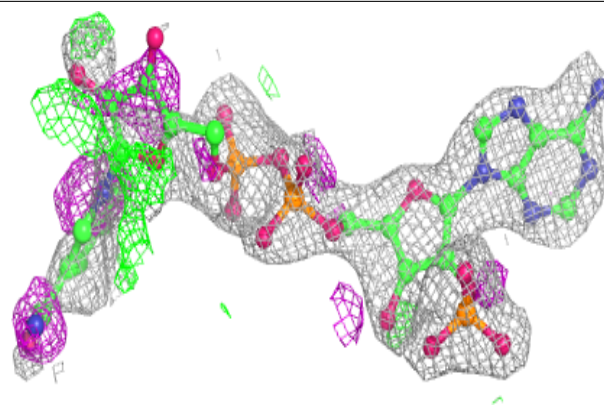
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
4	NAP	C	1106	48/48	0.84	0.33	44,55,63,66	0
4	NAP	D	1106	48/48	0.85	0.23	38,49,56,58	0
4	NAP	A	1106	48/48	0.86	0.28	41,55,60,67	0
4	NAP	B	1106	48/48	0.88	0.23	39,48,54,55	0
5	FNR	A	1107	31/31	0.94	0.15	19,22,26,30	0
5	FNR	D	1107	31/31	0.94	0.15	21,23,28,30	0
5	FNR	C	1107	31/31	0.95	0.14	18,22,26,32	0
5	FNR	B	1108	31/31	0.95	0.15	19,23,26,29	0
6	TDR	C	1108	9/9	0.96	0.10	20,22,25,25	0
6	TDR	D	1108	9/9	0.96	0.10	25,26,28,31	0
6	TDR	B	1107	9/9	0.97	0.10	22,24,27,29	0
3	FAD	C	1105	53/53	0.97	0.11	21,26,33,35	0
3	FAD	D	1105	53/53	0.97	0.10	24,29,33,34	0
3	FAD	A	1105	53/53	0.98	0.12	21,25,34,36	0
3	FAD	B	1105	53/53	0.98	0.09	22,27,32,32	0
6	TDR	A	1108	9/9	0.98	0.09	21,22,24,25	0
2	SF4	B	1103	8/8	0.99	0.07	18,21,21,21	0
2	SF4	B	1104	8/8	0.99	0.07	22,22,23,24	0
2	SF4	C	1101	8/8	0.99	0.07	19,22,24,24	0
2	SF4	C	1102	8/8	0.99	0.05	23,23,25,26	0
2	SF4	C	1104	8/8	0.99	0.07	21,22,23,23	0
2	SF4	D	1102	8/8	0.99	0.07	19,22,23,23	0
2	SF4	D	1103	8/8	0.99	0.08	19,21,22,24	0
2	SF4	D	1104	8/8	0.99	0.09	22,22,24,25	0
2	SF4	A	1101	8/8	0.99	0.06	20,21,22,23	0
2	SF4	A	1102	8/8	0.99	0.06	20,22,23,23	0
2	SF4	A	1103	8/8	0.99	0.09	19,20,22,22	0
2	SF4	B	1101	8/8	0.99	0.08	20,23,24,25	0
2	SF4	D	1101	8/8	1.00	0.06	22,23,24,25	0
2	SF4	B	1102	8/8	1.00	0.08	21,22,23,24	0
2	SF4	C	1103	8/8	1.00	0.09	20,21,22,24	0
2	SF4	A	1104	8/8	1.00	0.09	22,23,24,24	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.

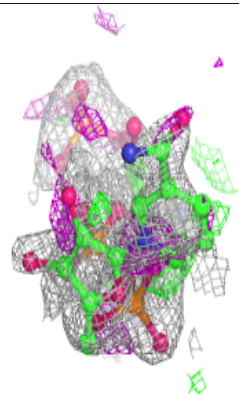
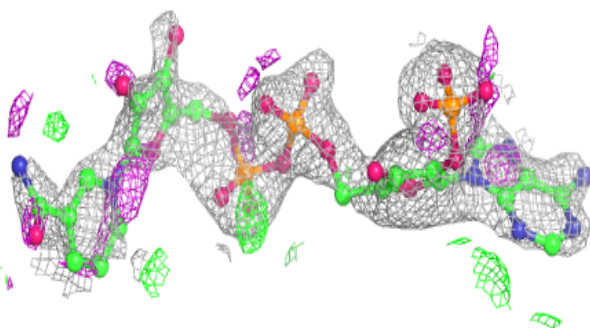
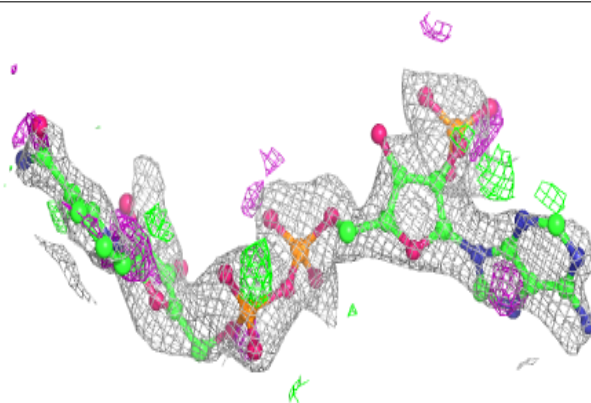


**Electron density around NAP D 1106:**

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

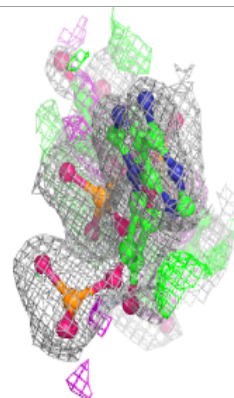
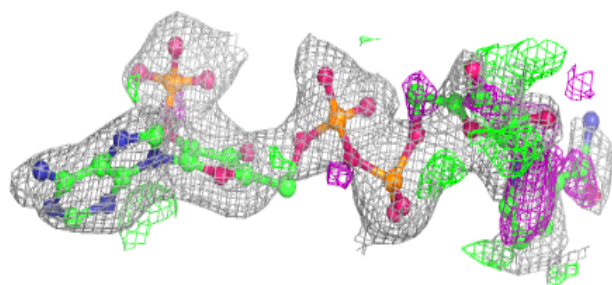
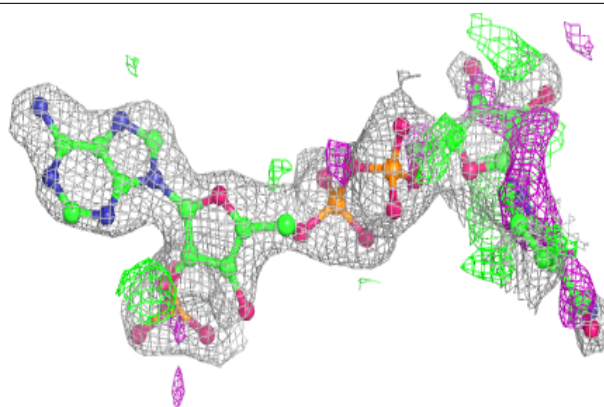
**Electron density around NAP A 1106:**

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



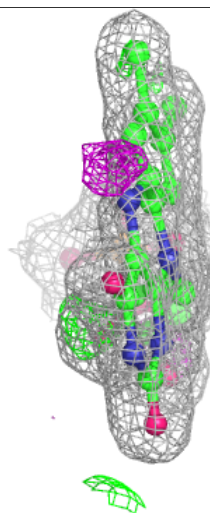
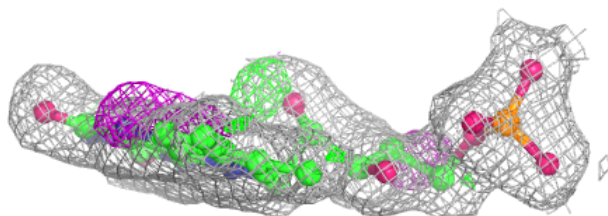
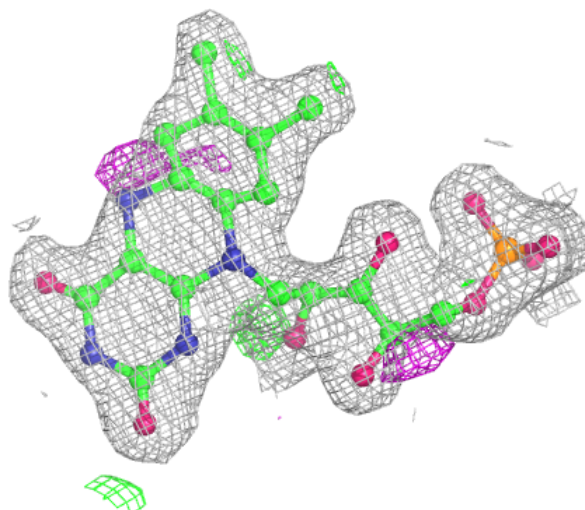
**Electron density around NAP B 1106:**

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



**Electron density around FNR A 1107:**

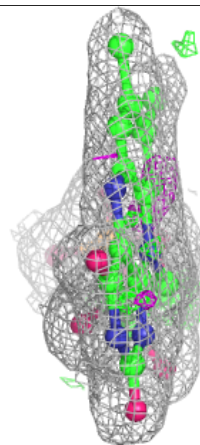
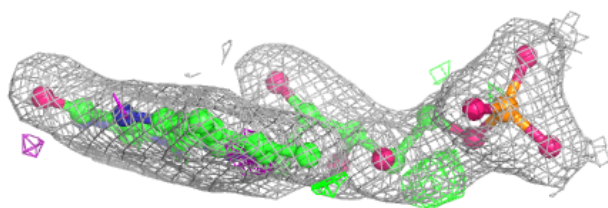
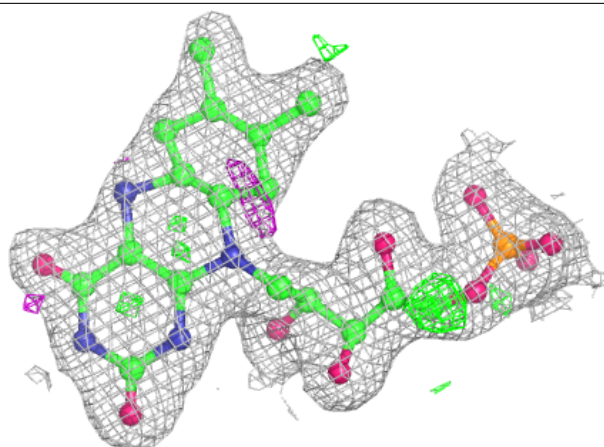
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





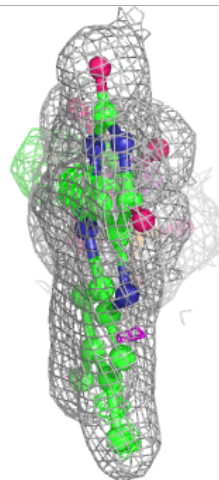
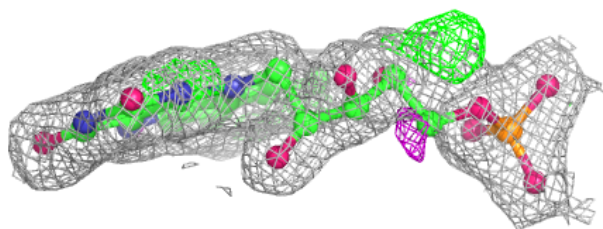
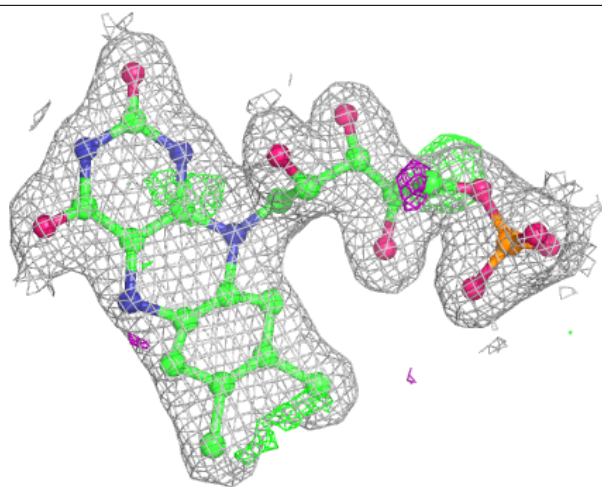
**Electron density around FNR D 1107:**

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



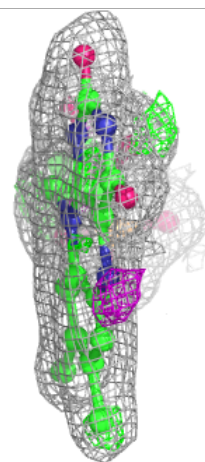
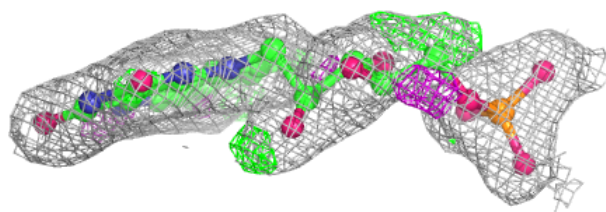
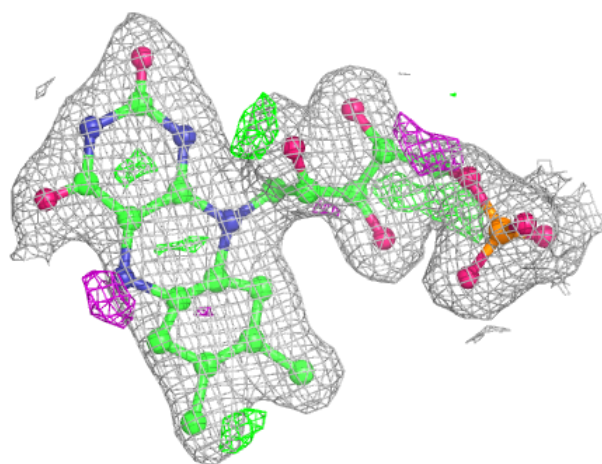
**Electron density around FNR C 1107:**

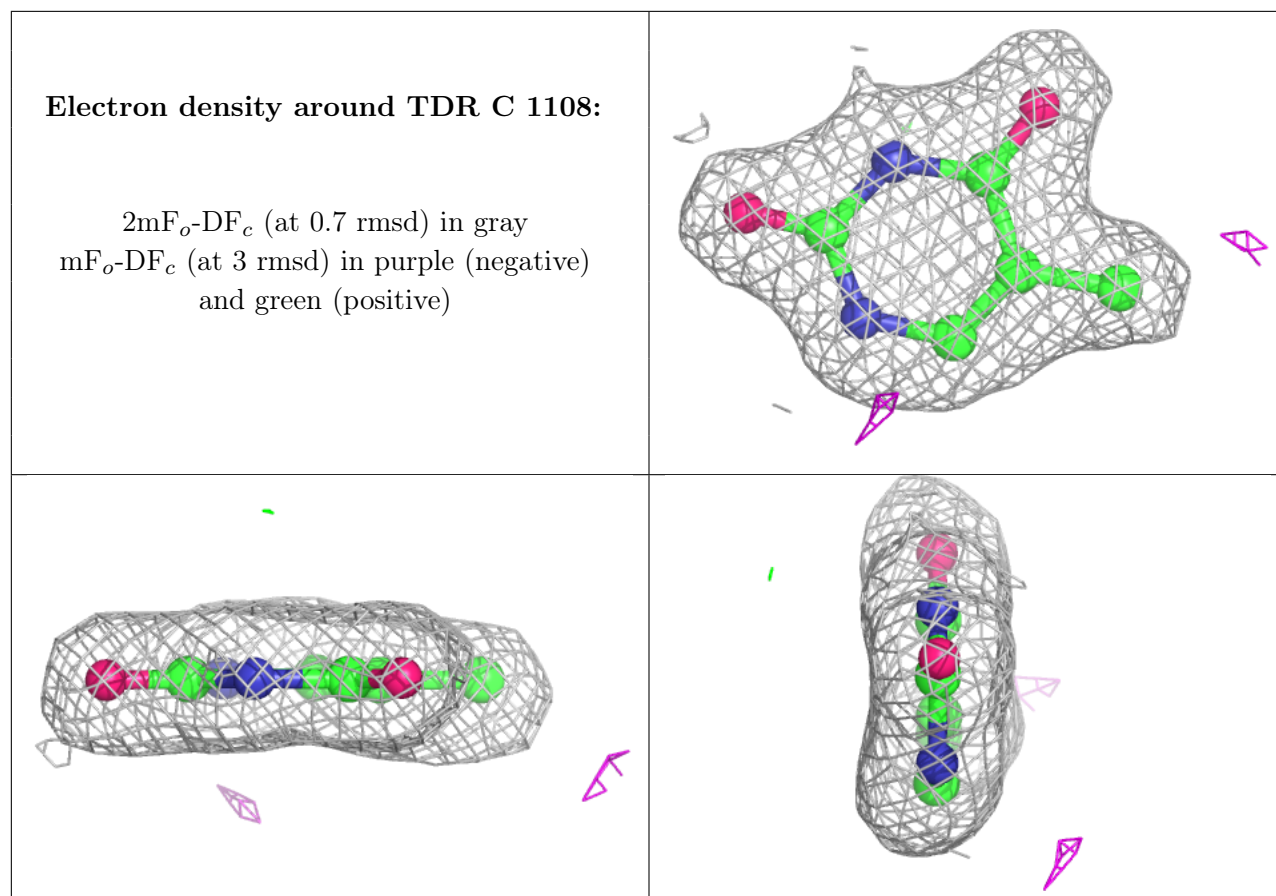
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



**Electron density around FNR B 1108:**

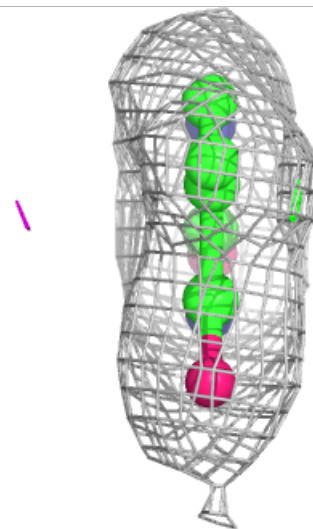
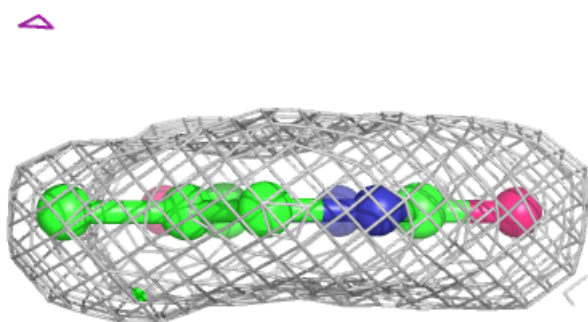
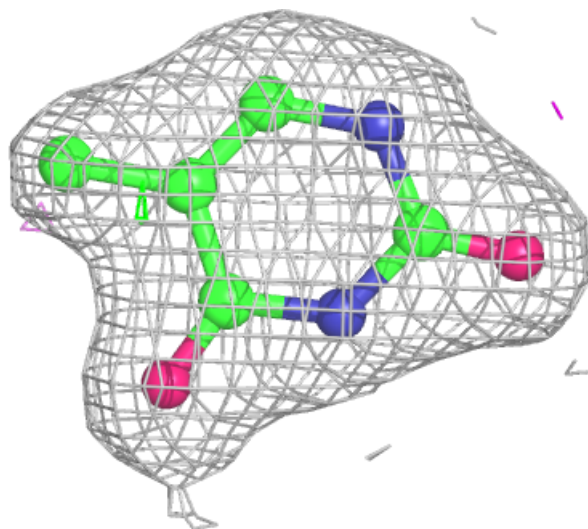
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





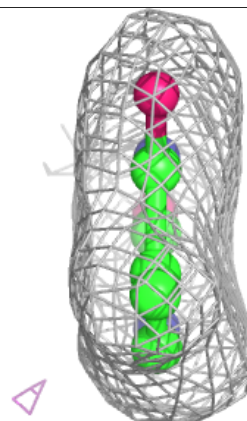
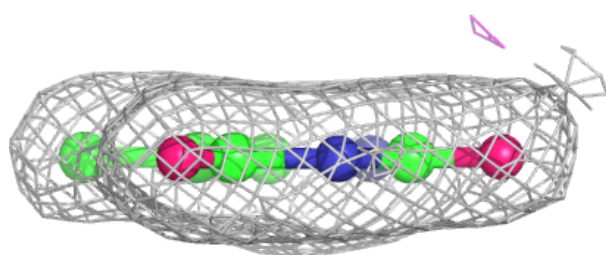
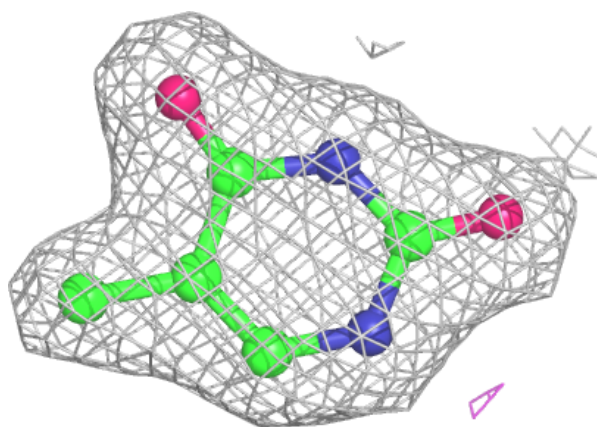
**Electron density around TDR D 1108:**

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

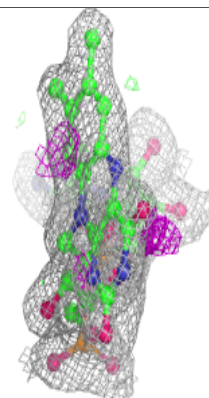
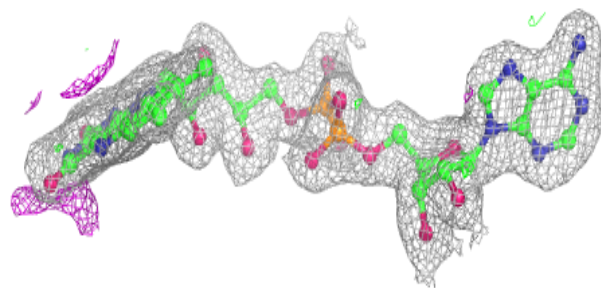
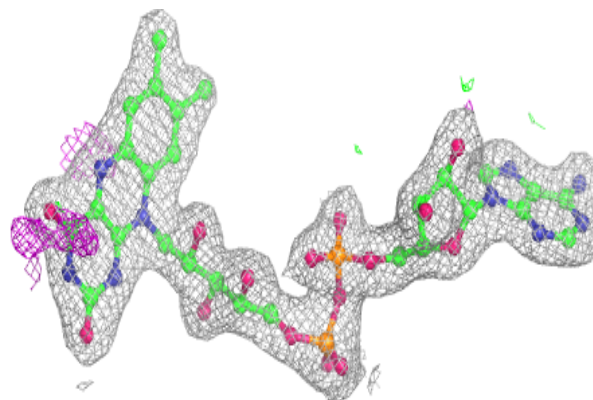


**Electron density around TDR B 1107:**

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

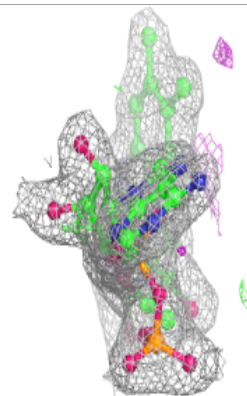
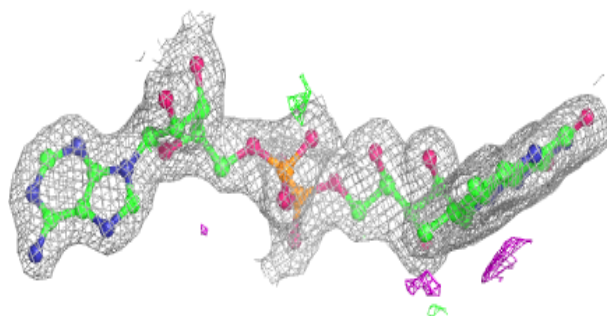
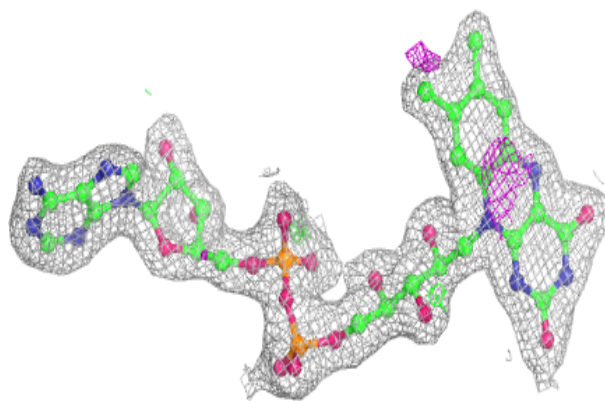
**Electron density around FAD C 1105:**

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

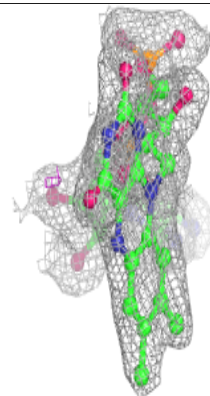
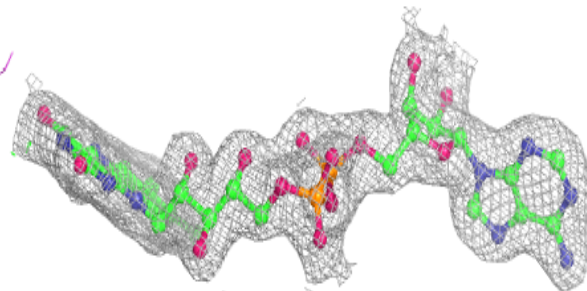
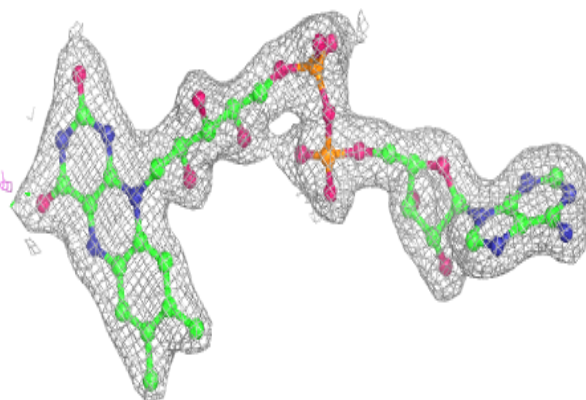


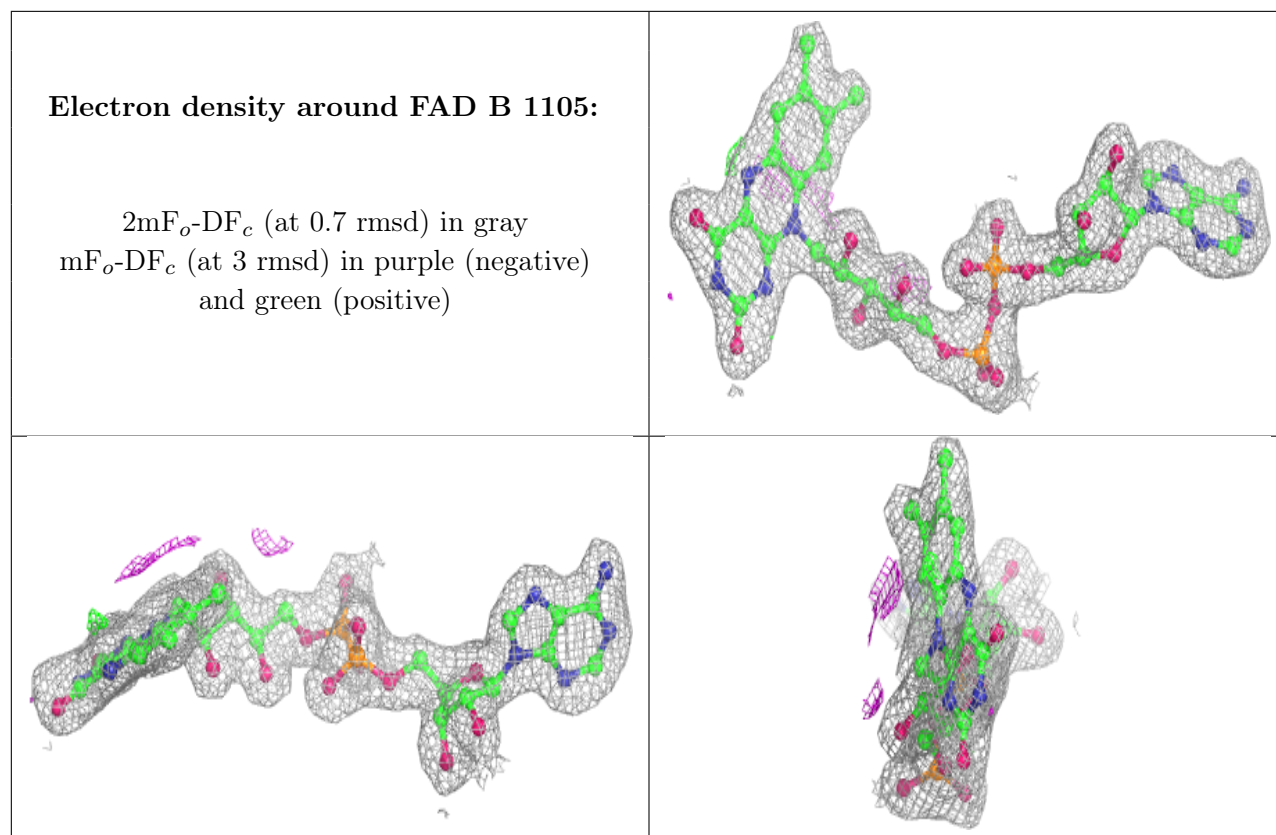
**Electron density around FAD D 1105:**

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

**Electron density around FAD A 1105:**

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

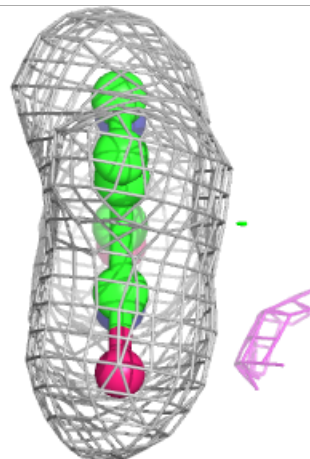
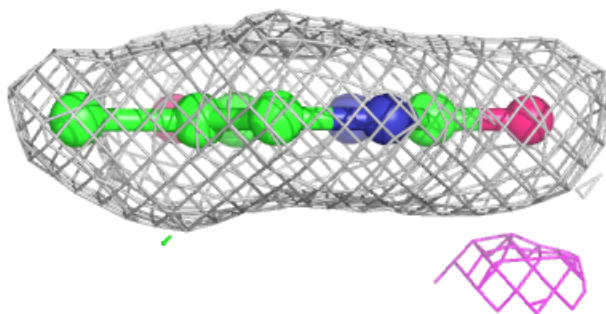
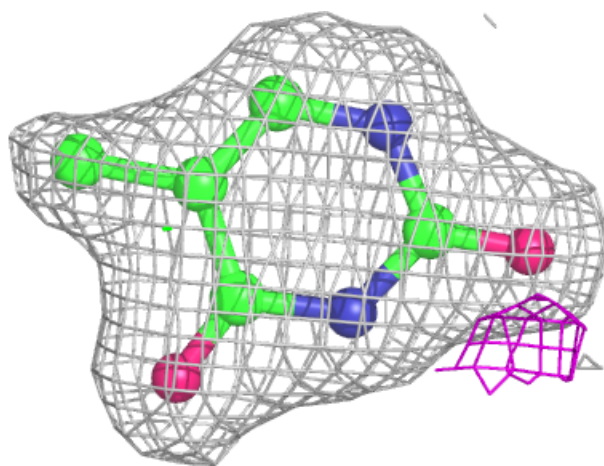






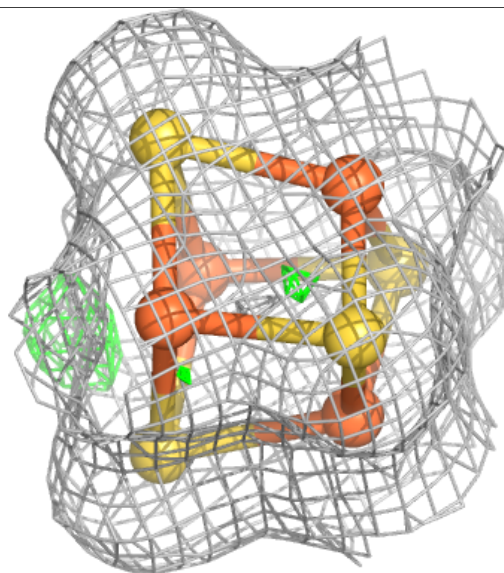
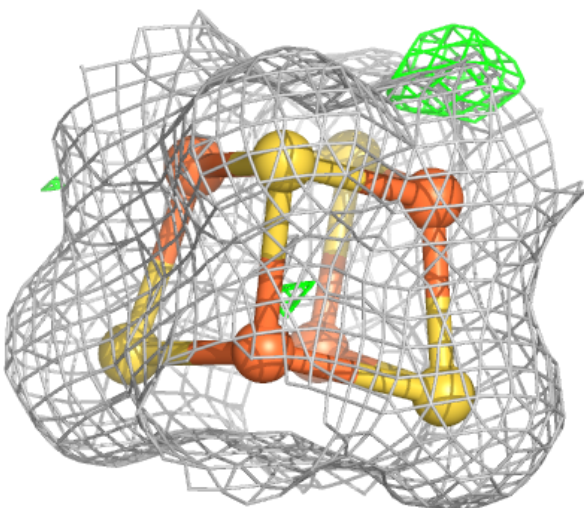
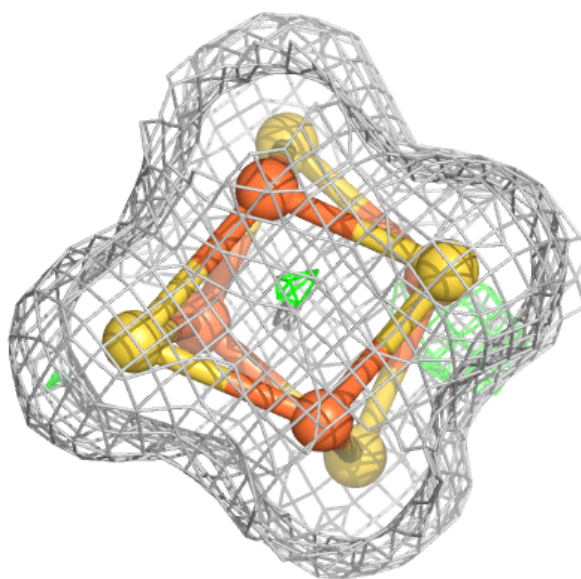
**Electron density around TDR A 1108:**

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



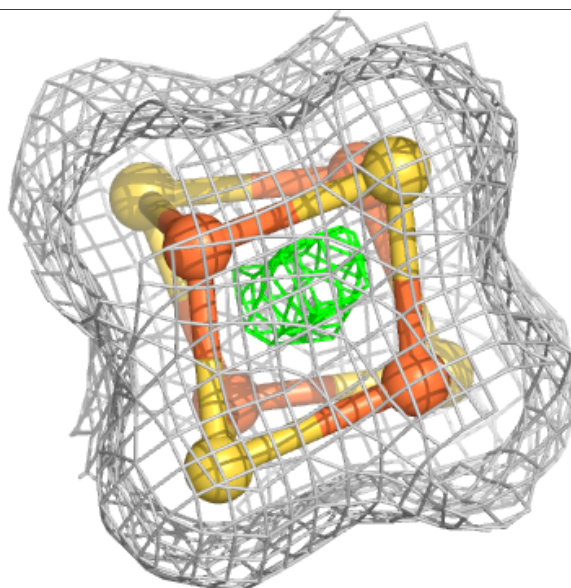
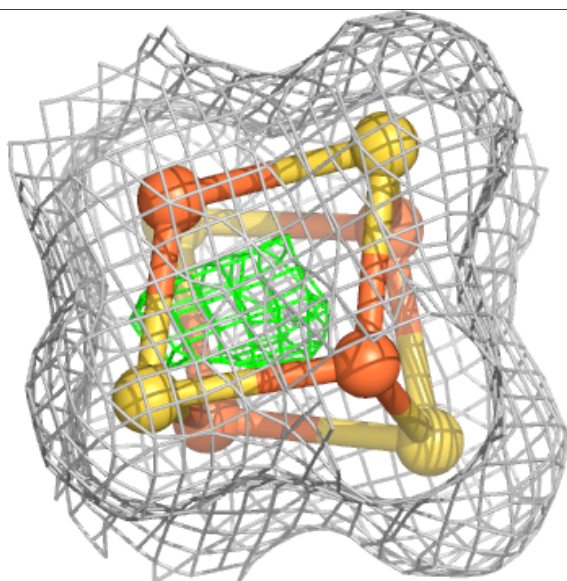
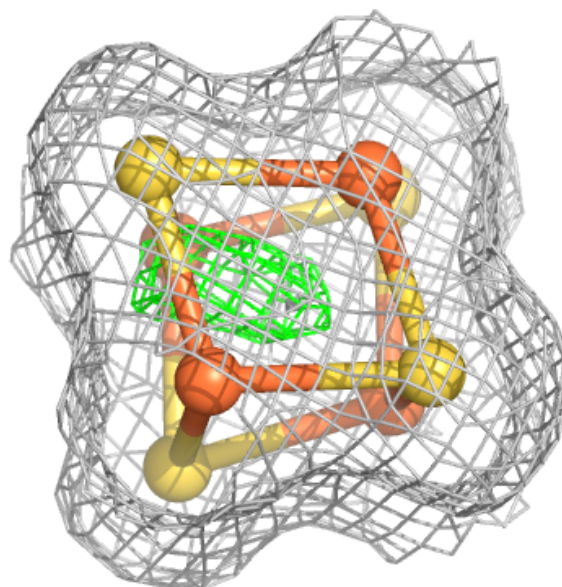
**Electron density around SF4 B 1103:**

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



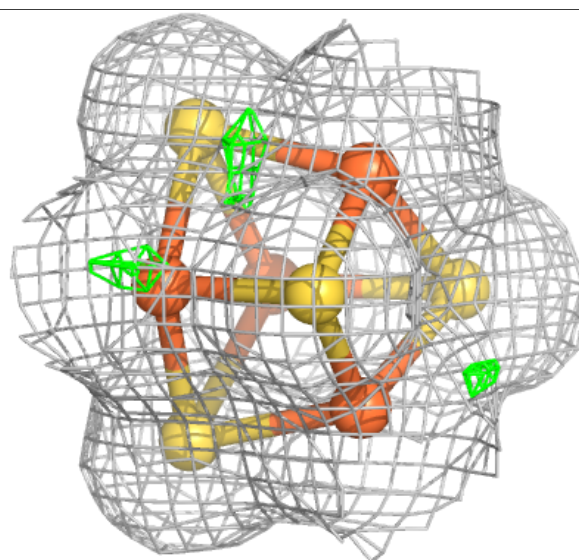
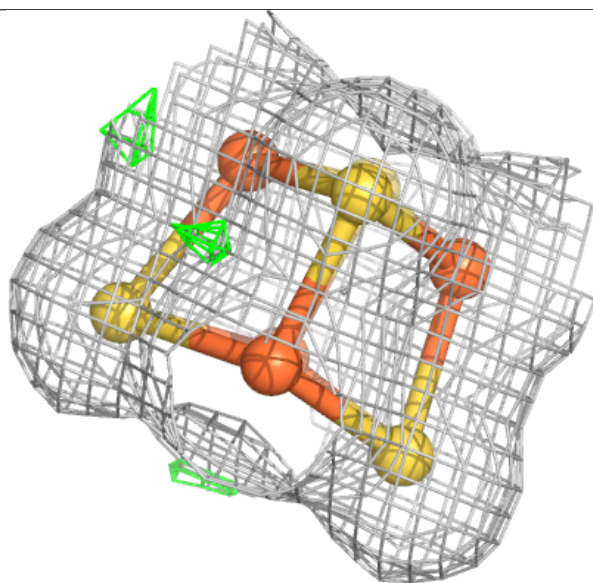
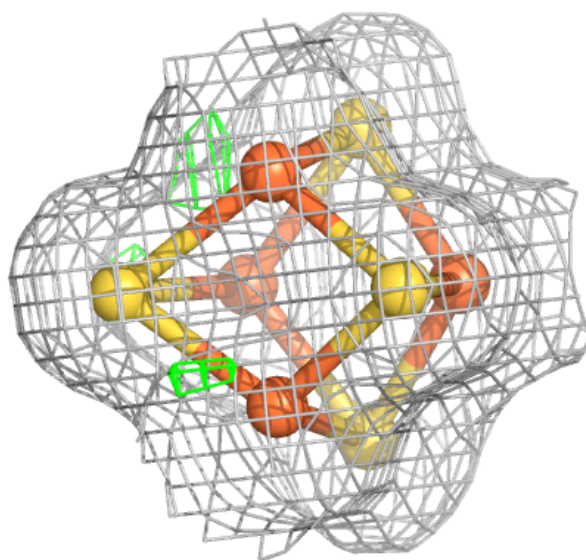
**Electron density around SF4 B 1104:**

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



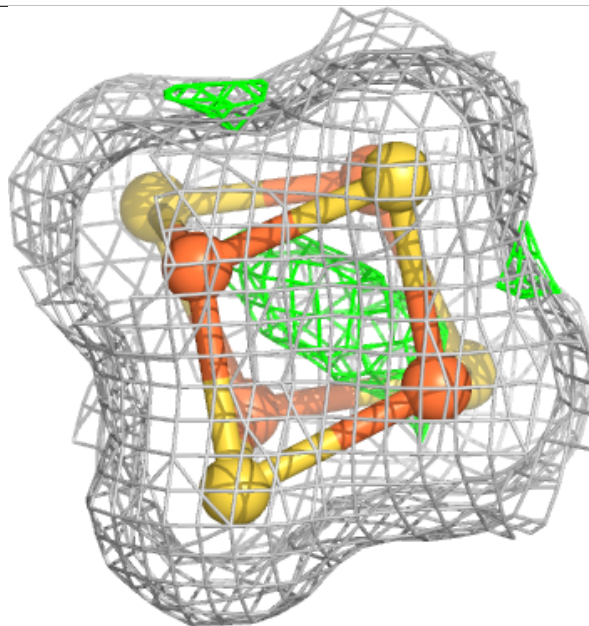
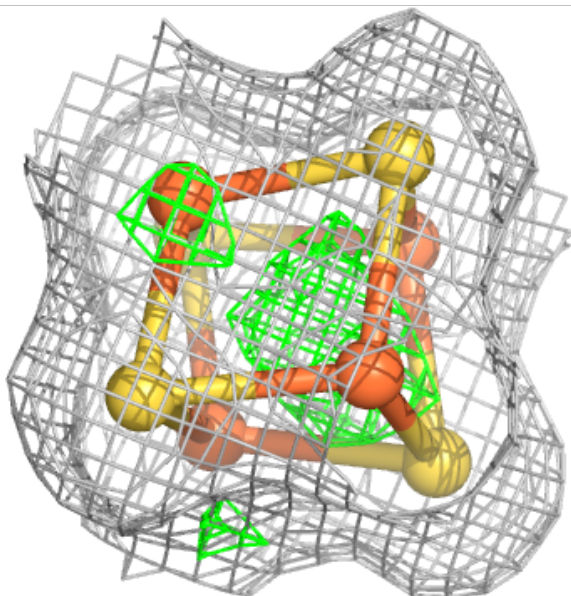
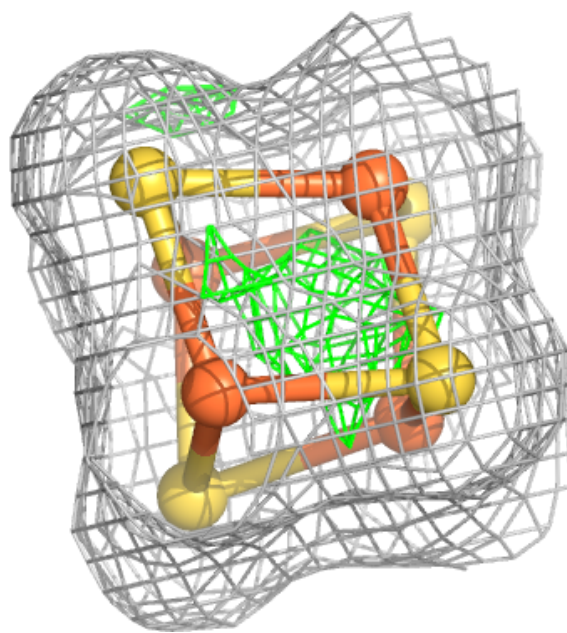
**Electron density around SF4 C 1101:**

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



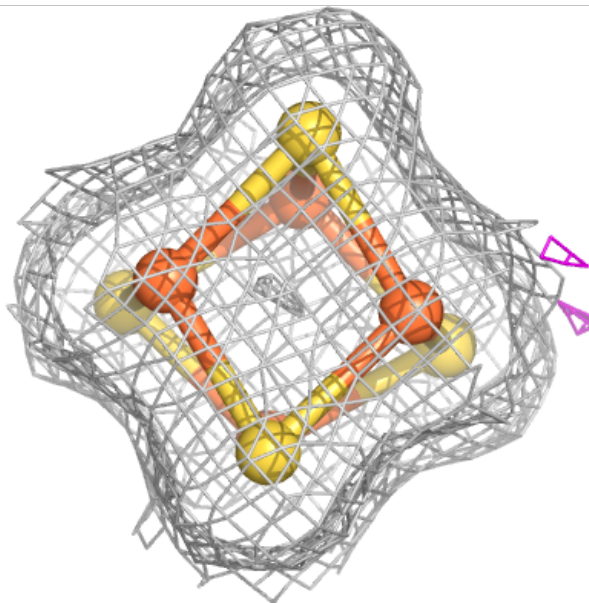
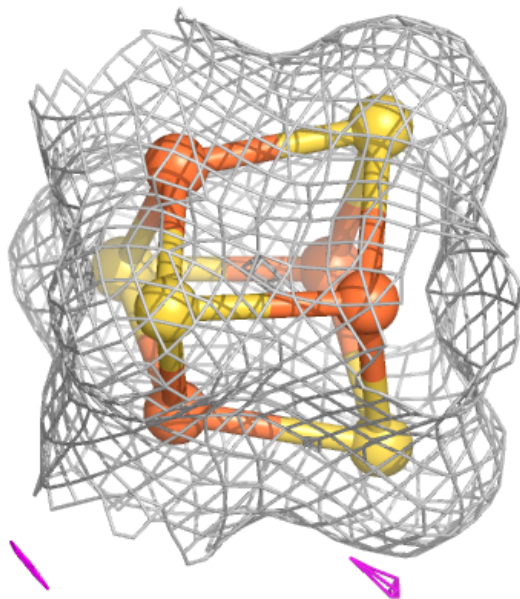
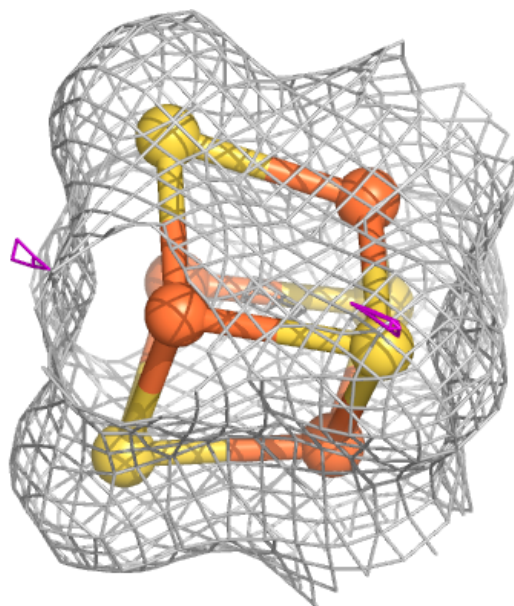
**Electron density around SF4 C 1102:**

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



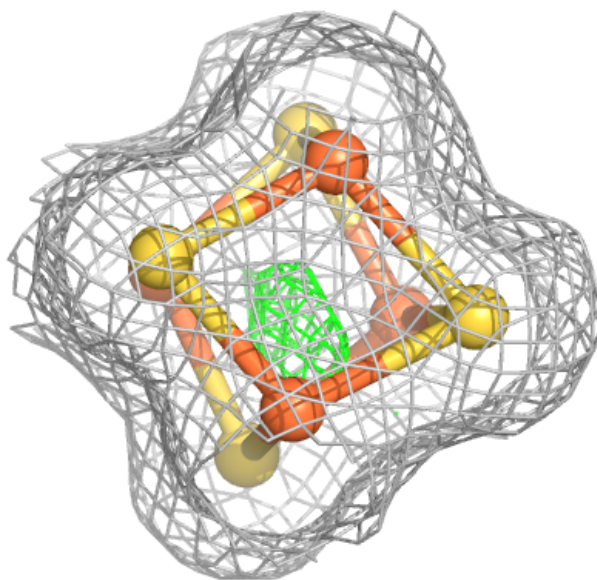
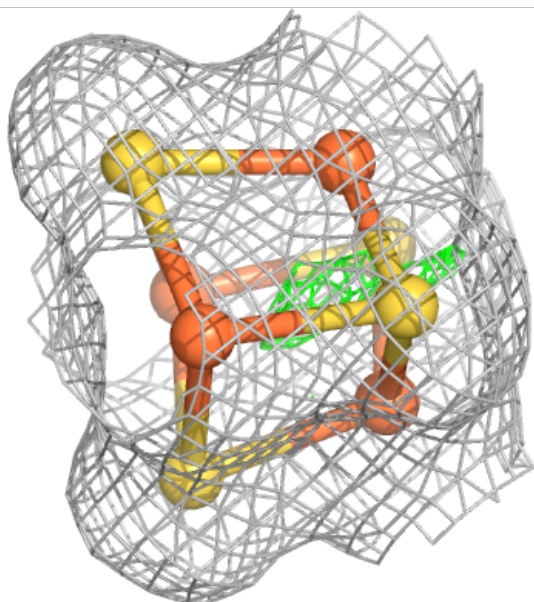
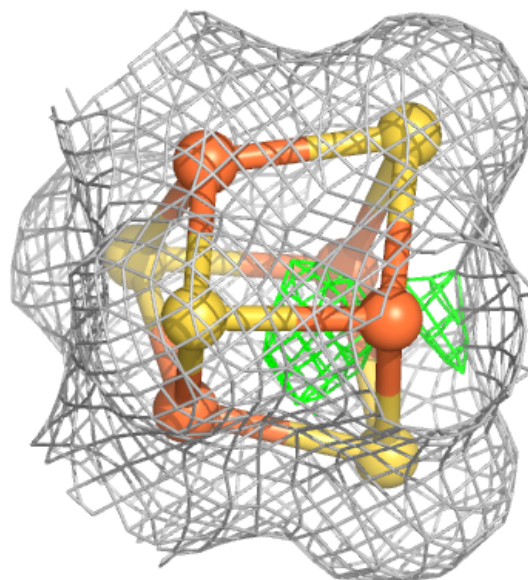
**Electron density around SF4 C 1104:**

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



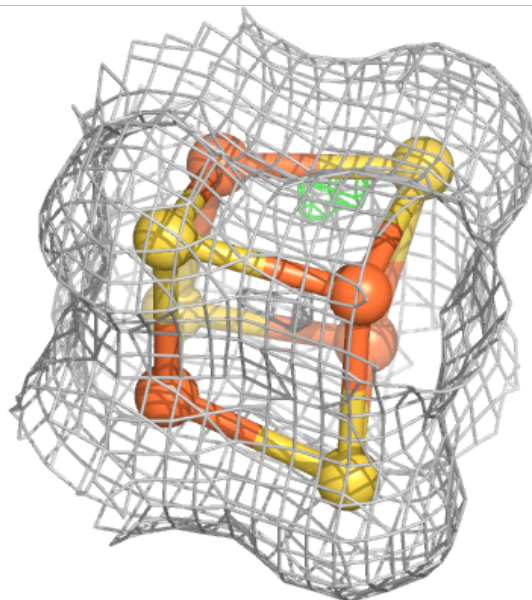
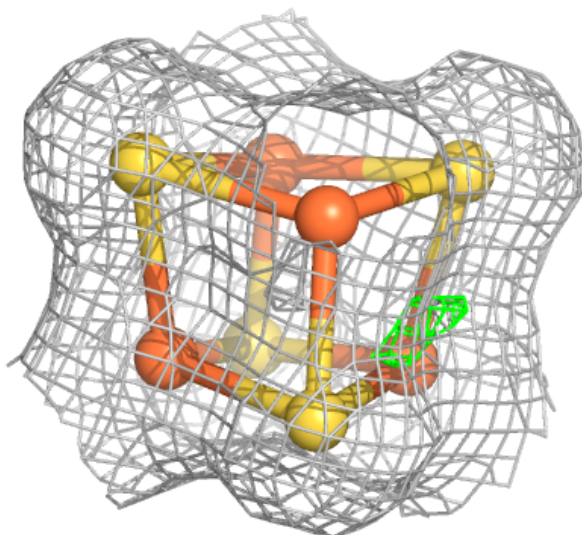
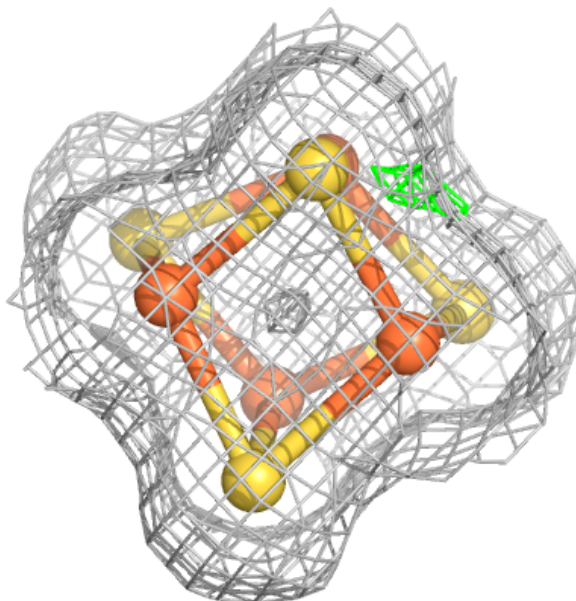
**Electron density around SF4 D 1102:**

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



**Electron density around SF4 D 1103:**

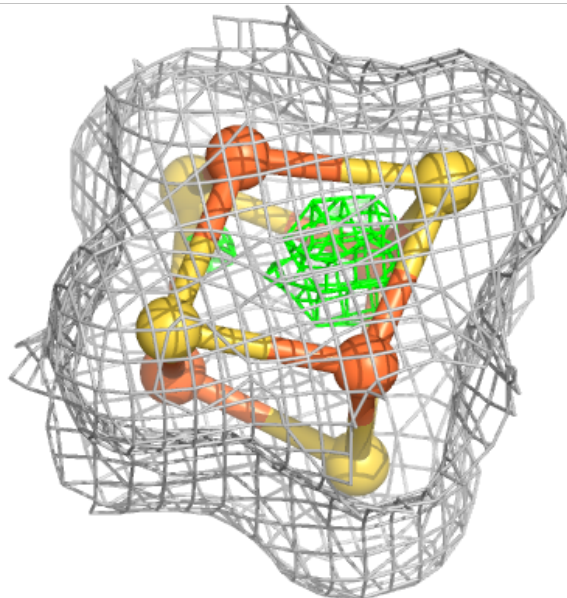
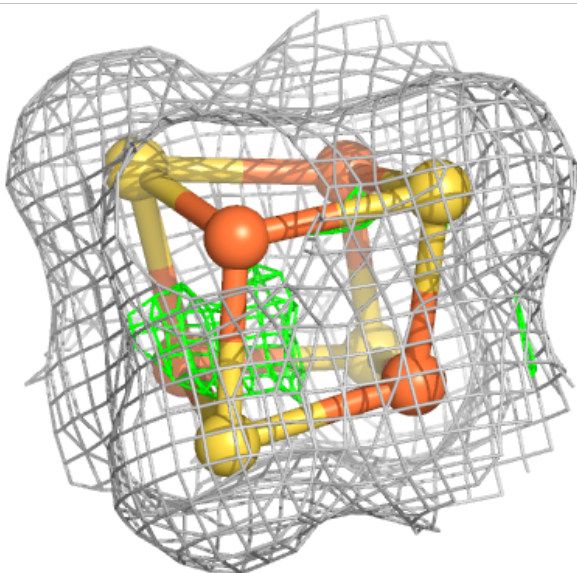
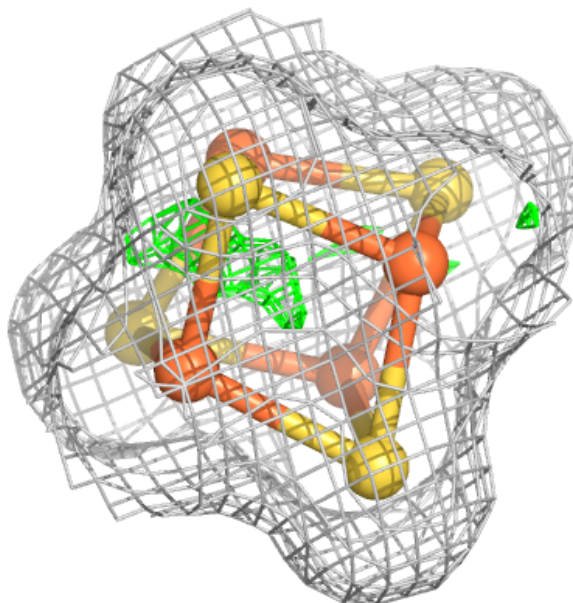
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





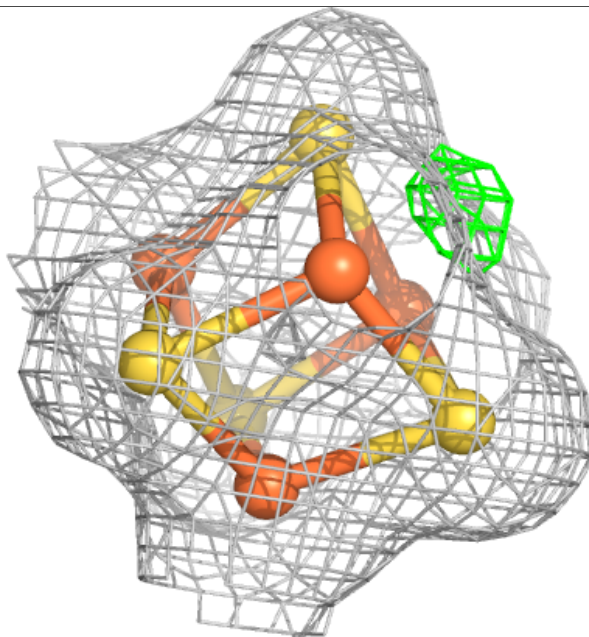
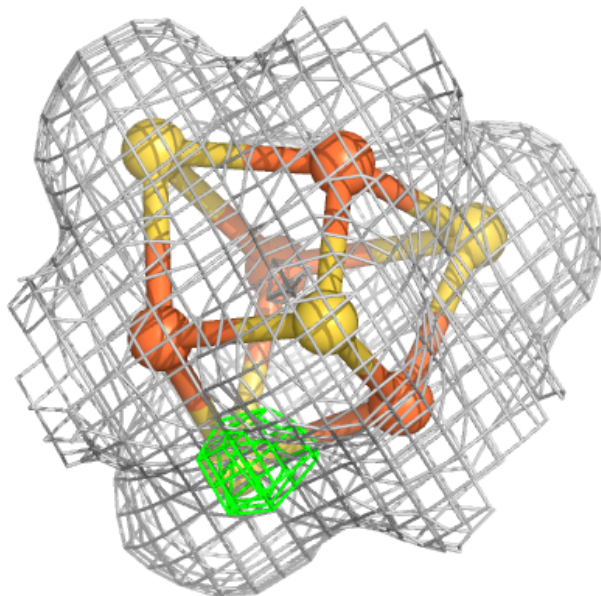
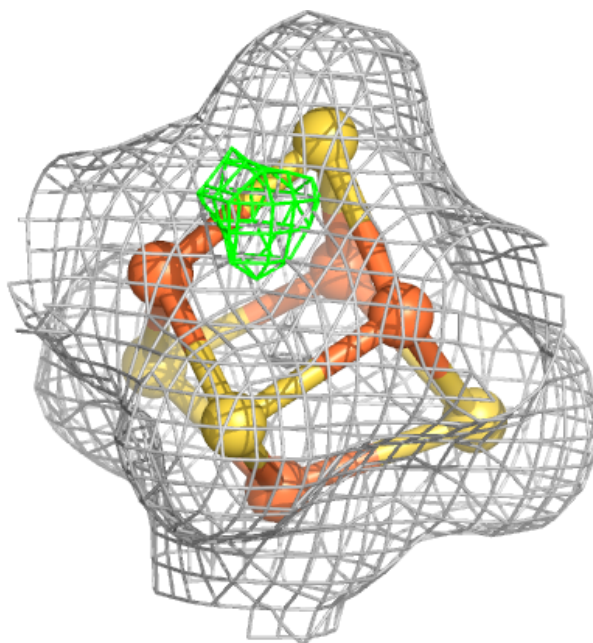
**Electron density around SF4 D 1104:**

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



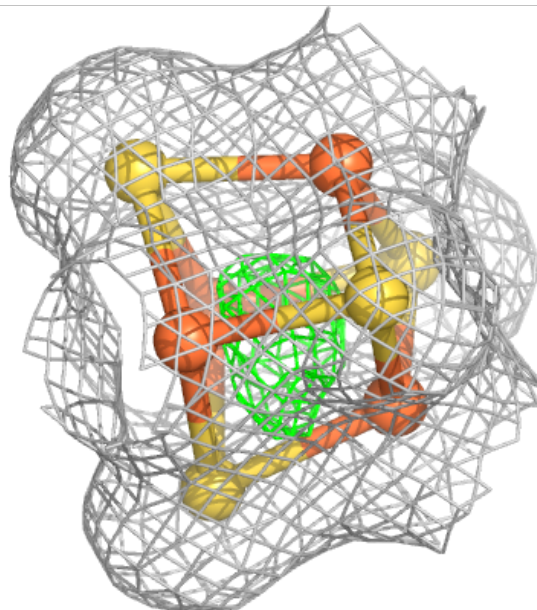
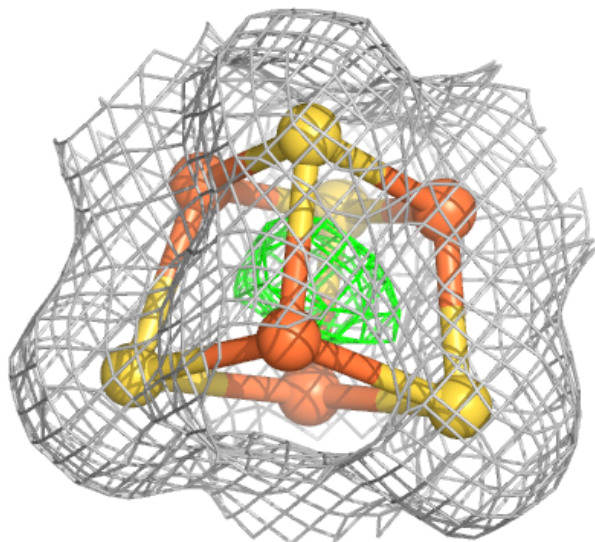
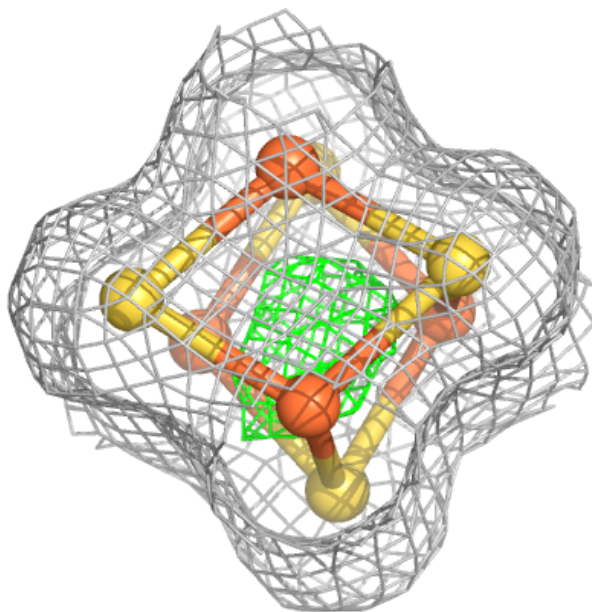
**Electron density around SF4 A 1101:**

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



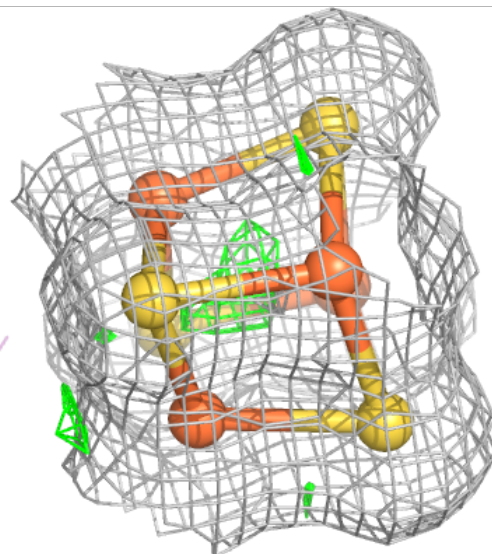
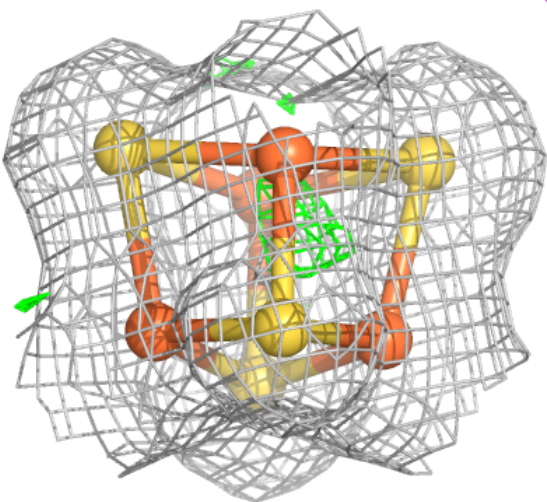
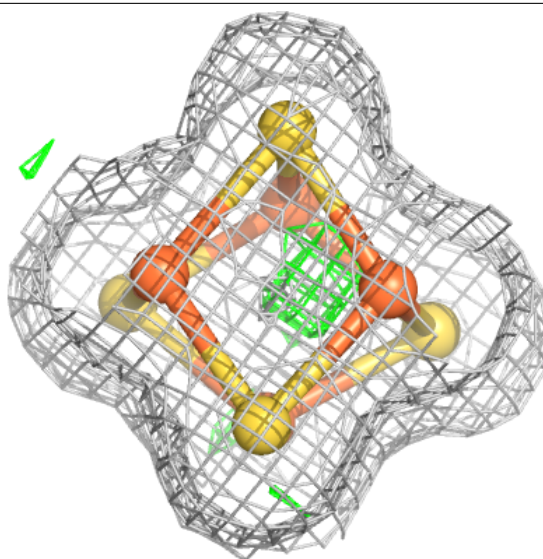
**Electron density around SF4 A 1102:**

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



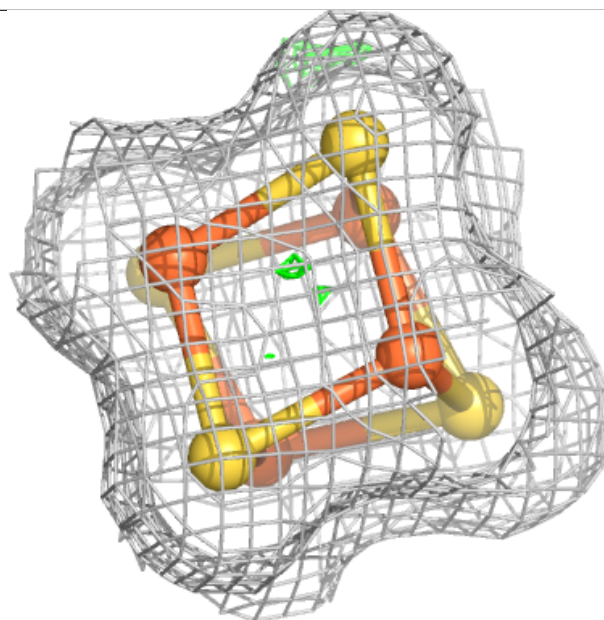
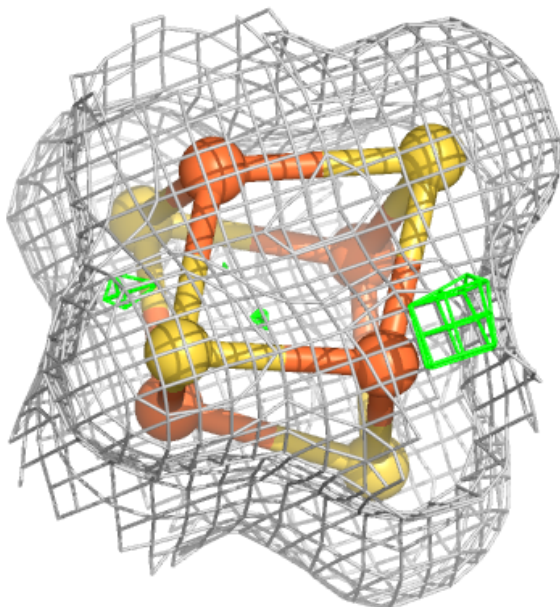
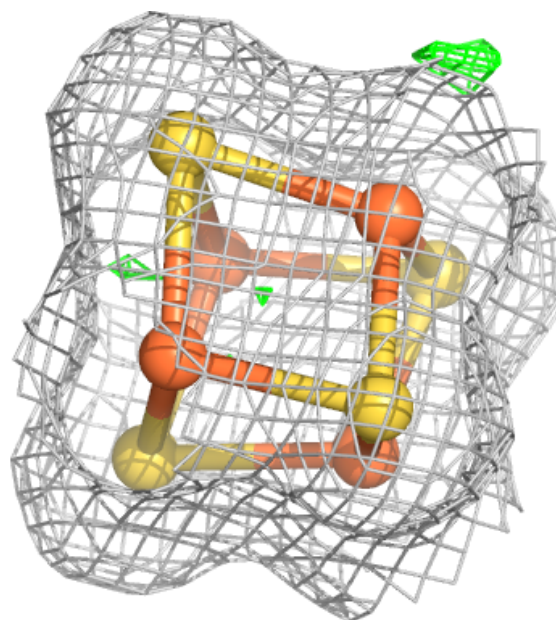
**Electron density around SF4 A 1103:**

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



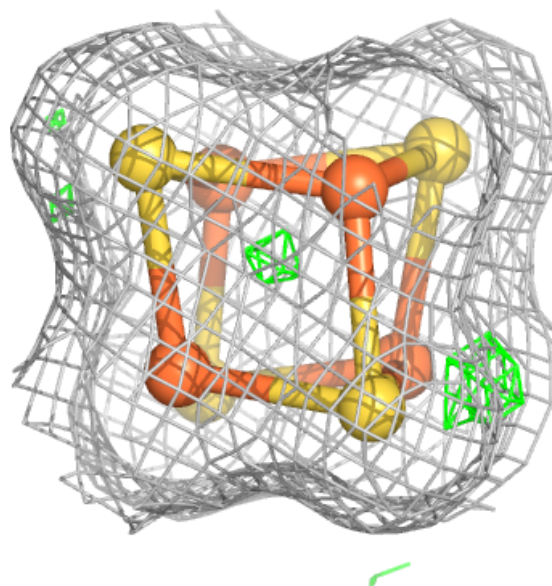
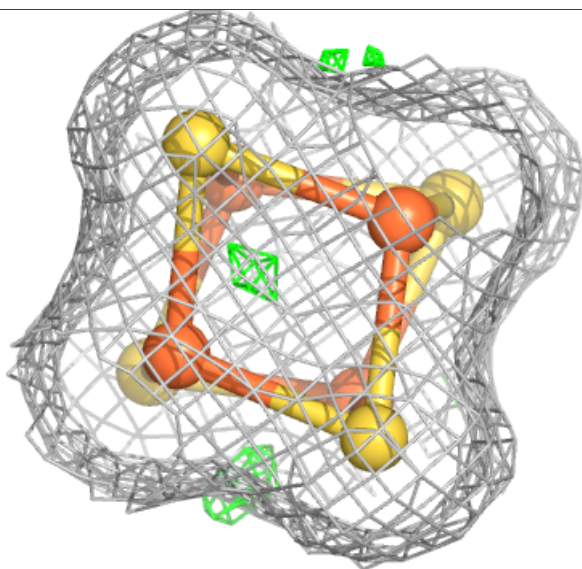
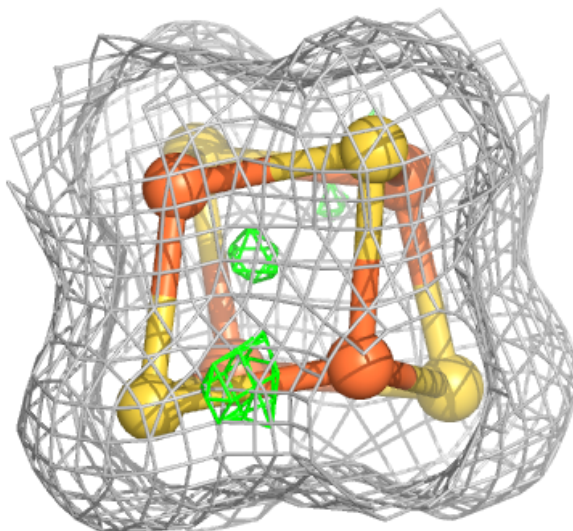
**Electron density around SF4 B 1101:**

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



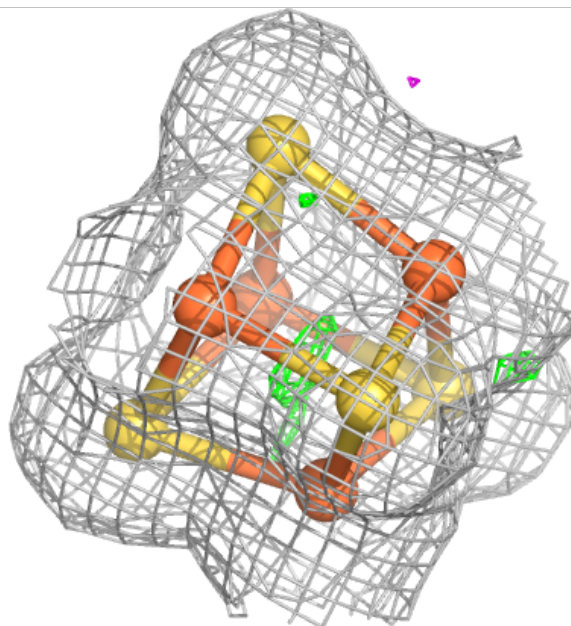
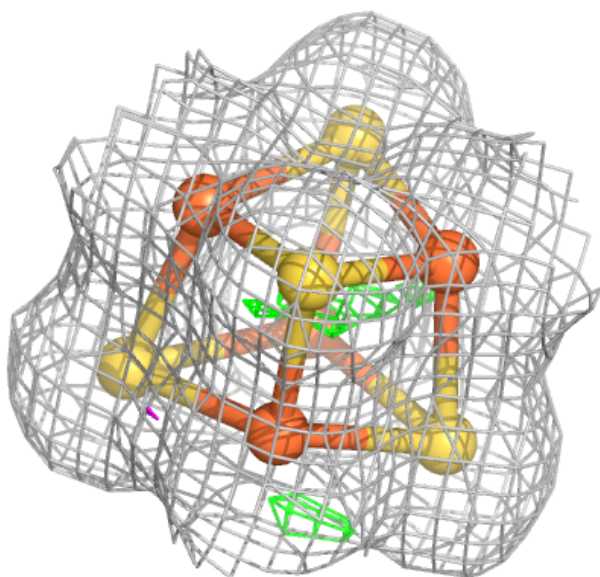
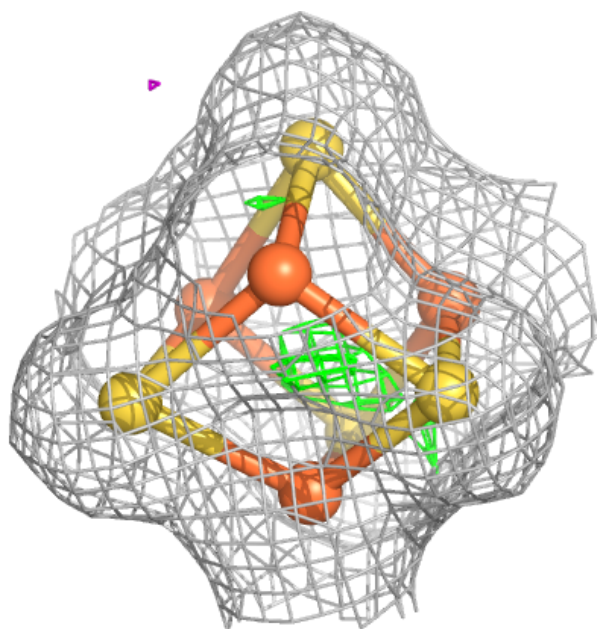
**Electron density around SF4 D 1101:**

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



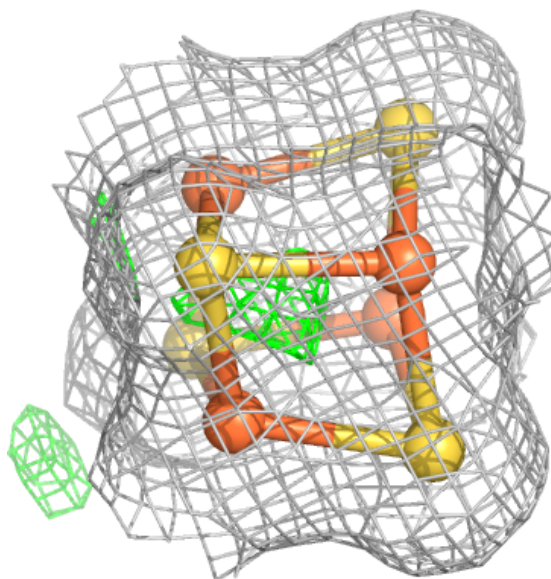
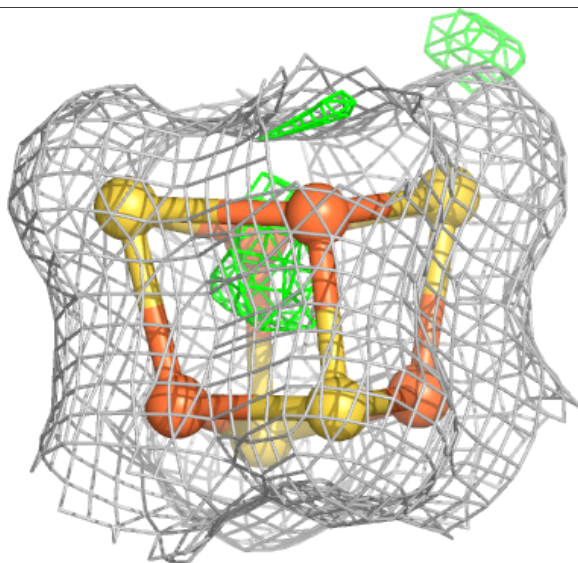
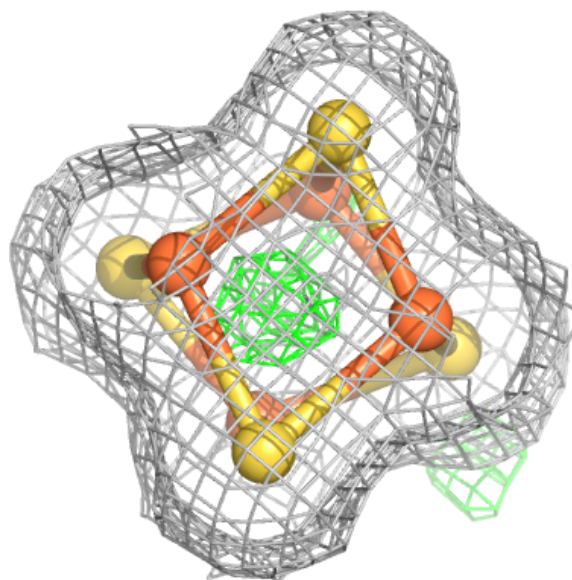
**Electron density around SF4 B 1102:**

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

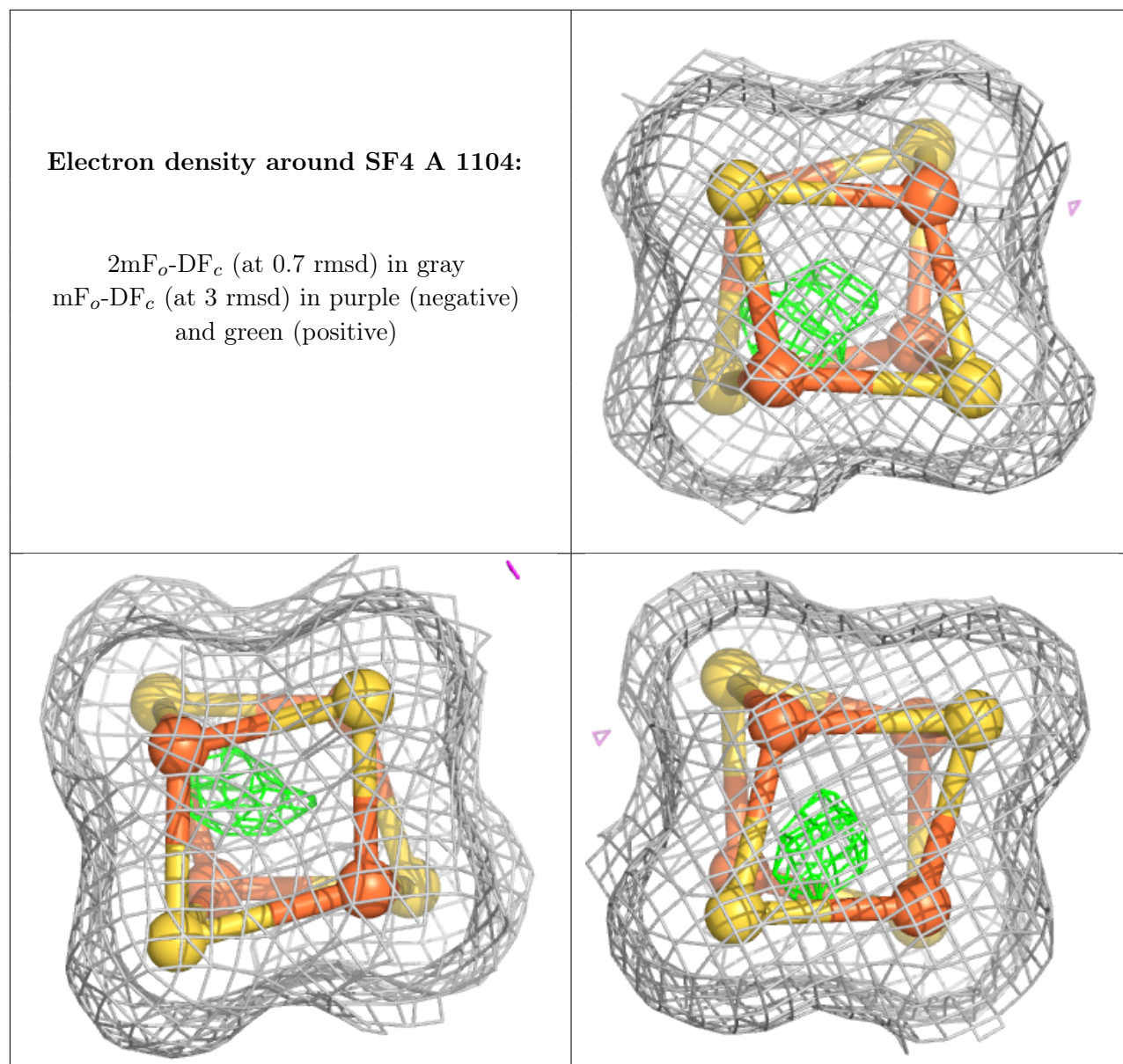


**Electron density around SF4 C 1103:**

$2mF_o-DF_c$  (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.