



# wwPDB X-ray Structure Validation Summary Report ⓘ

Aug 14, 2023 – 10:32 am BST

PDB ID : 8CGS  
Title : Crystal structure of arsenite oxidase from *Alcaligenes faecalis* (Af Aio) bound to antimony oxyanion  
Authors : Engrola, F.; Correia, M.A.S.; Romao, M.J.; Santos-Silva, T.  
Deposited on : 2023-02-06  
Resolution : 1.84 Å (reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

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 : 1.8.4, CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.35  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.35

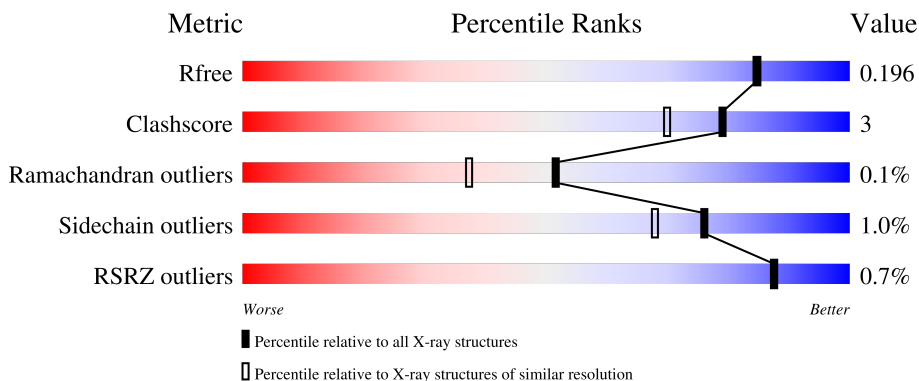
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 1.84 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.



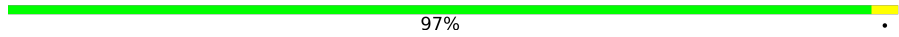
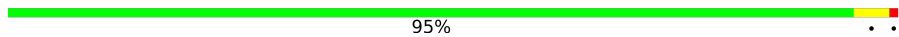
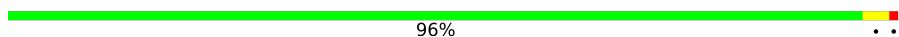
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	4003 (1.86-1.82)
Clashscore	141614	4233 (1.86-1.82)
Ramachandran outliers	138981	4185 (1.86-1.82)
Sidechain outliers	138945	4186 (1.86-1.82)
RSRZ outliers	127900	3957 (1.86-1.82)

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	822	91% 9%
1	C	822	93% 7%
1	E	822	93% 6%
1	G	822	93% 7%
2	B	133	97% ..

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Mol	Chain	Length	Quality of chain
2	D	133	 97% .
2	F	133	 95% . .
2	H	133	 96% . .

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
13	TRS	A	5017	-	-	X	-
13	TRS	C	5112	-	X	X	-
13	TRS	G	5006	-	X	X	-
15	EDO	E	5010	-	-	X	-
15	EDO	E	5012	-	-	X	-
8	ACT	A	5009	-	-	X	-

## 2 Entry composition [i](#)

There are 18 unique types of molecules in this entry. The entry contains 33900 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.

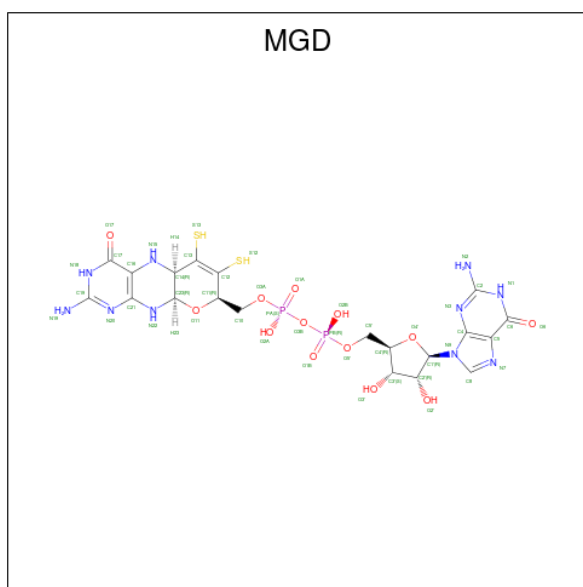
- Molecule 1 is a protein called Arsenite oxidase subunit AioA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	822	Total 6509	C 4096	N 1153	O 1219	S 41	0	7	0
1	C	822	Total 6491	C 4084	N 1152	O 1215	S 40	0	4	0
1	E	822	Total 6502	C 4093	N 1152	O 1215	S 42	0	6	0
1	G	822	Total 6484	C 4080	N 1147	O 1217	S 40	0	3	0

- Molecule 2 is a protein called AioB.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	133	Total 998	C 625	N 167	O 197	S 9	0	2	0
2	D	133	Total 1001	C 627	N 167	O 198	S 9	0	2	0
2	F	133	Total 995	C 623	N 167	O 196	S 9	0	1	0
2	H	133	Total 995	C 623	N 167	O 196	S 9	0	1	0

- Molecule 3 is 2-AMINO-5,6-DIMERCAPTO-7-METHYL-3,7,8A,9-TETRAHYDRO-8-OXA-1,3,9,10-TETRAAZA-ANTHRACEN-4-ONE GUANOSINE DINUCLEOTIDE (three-letter code: MGD) (formula: C<sub>20</sub>H<sub>26</sub>N<sub>10</sub>O<sub>13</sub>P<sub>2</sub>S<sub>2</sub>) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	
			Total	C	N	O	P			S
3	A	1	Total 47	C 20	N 10	O 13	P 2	S 2	0	0
3	A	1	Total 47	C 20	N 10	O 13	P 2	S 2	0	0
3	C	1	Total 47	C 20	N 10	O 13	P 2	S 2	0	0
3	C	1	Total 47	C 20	N 10	O 13	P 2	S 2	0	0
3	E	1	Total 47	C 20	N 10	O 13	P 2	S 2	0	0
3	E	1	Total 47	C 20	N 10	O 13	P 2	S 2	0	0
3	G	1	Total 47	C 20	N 10	O 13	P 2	S 2	0	0
3	G	1	Total 47	C 20	N 10	O 13	P 2	S 2	0	0

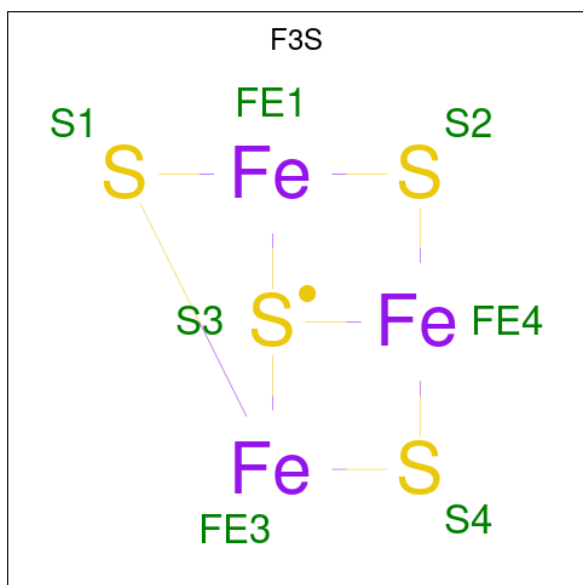
- Molecule 4 is OXYGEN ATOM (three-letter code: O) (formula: O).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total 1 O 1	0	0
4	C	1	Total 1 O 1	0	0
4	E	1	Total 1 O 1	0	0
4	G	1	Total 1 O 1	0	0

- Molecule 5 is MOLYBDENUM(IV) ION (three-letter code: 4MO) (formula: Mo) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total Mo 1 1	0	0
5	C	1	Total Mo 1 1	0	0
5	E	1	Total Mo 1 1	0	0
5	G	1	Total Mo 1 1	0	0

- Molecule 6 is FE3-S4 CLUSTER (three-letter code: F3S) (formula: Fe<sub>3</sub>S<sub>4</sub>) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total Fe S 7 3 4	0	0
6	C	1	Total Fe S 7 3 4	0	0
6	E	1	Total Fe S 7 3 4	0	0
6	G	1	Total Fe S 7 3 4	0	0

- Molecule 7 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: C<sub>4</sub>H<sub>10</sub>O<sub>3</sub>).



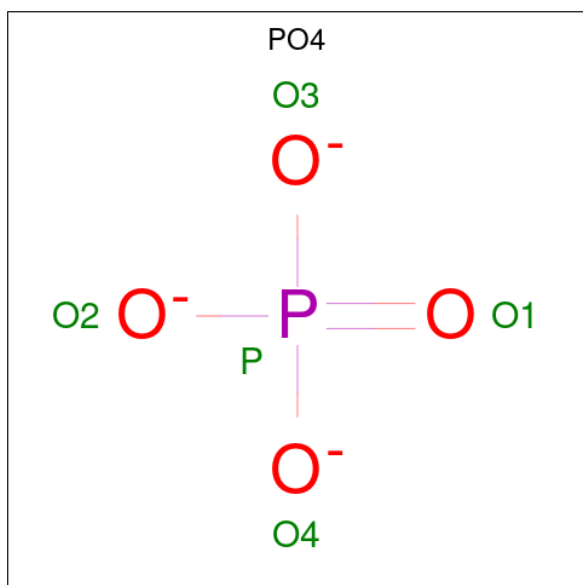
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	1	Total C O 7 4 3	0	0
7	A	1	Total C O 7 4 3	0	0
7	A	1	Total C O 7 4 3	0	0
7	C	1	Total C O 7 4 3	0	0
7	E	1	Total C O 7 4 3	0	0
7	G	1	Total C O 7 4 3	0	0

- Molecule 8 is ACETATE ION (three-letter code: ACT) (formula: C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
8	A	1	Total	C	O	0	0
			4	2	2		
8	A	1	Total	C	O	0	0
			4	2	2		
8	G	1	Total	C	O	0	0
			4	2	2		
8	G	1	Total	C	O	0	0
			4	2	2		

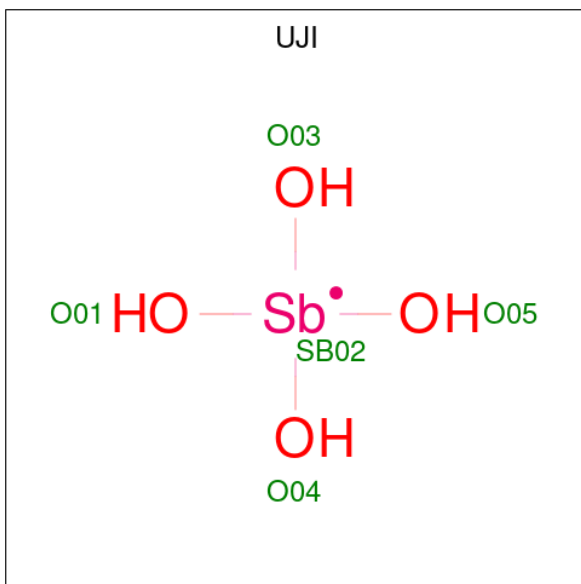
- Molecule 9 is PHOSPHATE ION (three-letter code: PO4) (formula: O<sub>4</sub>P).





Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
9	A	1	Total	O	P	0	0
			5	4	1		
9	C	1	Total	O	P	0	0
			5	4	1		
9	C	1	Total	O	P	0	0
			5	4	1		
9	E	1	Total	O	P	0	0
			5	4	1		
9	E	1	Total	O	P	0	0
			5	4	1		
9	G	1	Total	O	P	0	0
			5	4	1		

- Molecule 10 is tetrakis(oxidanyl)antimony (three-letter code: UJI) (formula:  $H_4O_4Sb$ ) (labeled as "Ligand of Interest" by depositor).

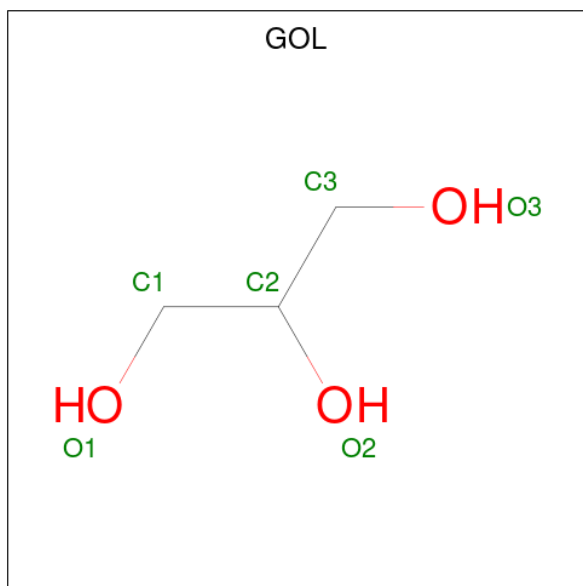


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
10	A	1	Total	O	Sb	0	0
			5	4	1		
10	C	1	Total	O	Sb	0	0
			5	4	1		
10	E	1	Total	O	Sb	0	0
			5	4	1		
10	G	1	Total	O	Sb	0	0
			5	4	1		

- Molecule 11 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

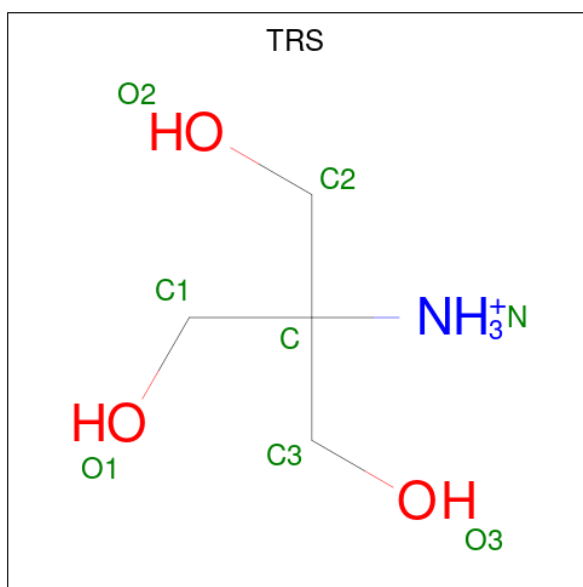
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
11	A	2	Total Cl 2 2	0	0
11	C	1	Total Cl 1 1	0	0
11	E	2	Total Cl 2 2	0	0

- Molecule 12 is GLYCEROL (three-letter code: GOL) (formula: C<sub>3</sub>H<sub>8</sub>O<sub>3</sub>).



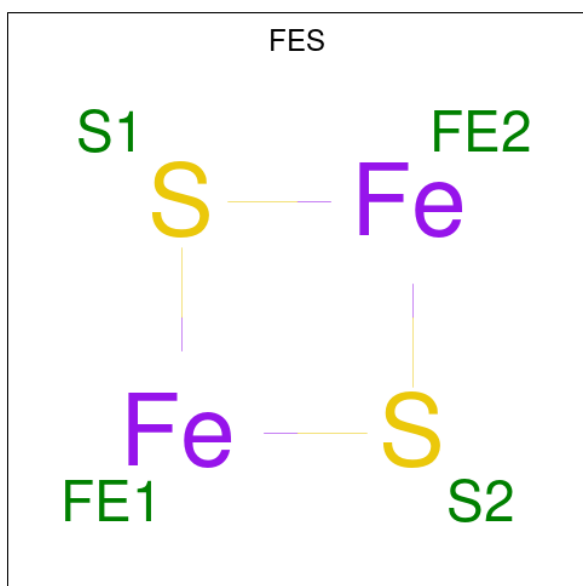
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
12	A	1	Total C O 6 3 3	0	0
12	A	1	Total C O 6 3 3	0	0
12	C	1	Total C O 6 3 3	0	0
12	E	1	Total C O 6 3 3	0	0

- Molecule 13 is 2-AMINO-2-HYDROXYMETHYL-PROPANE-1,3-DIOL (three-letter code: TRS) (formula: C<sub>4</sub>H<sub>12</sub>NO<sub>3</sub>).



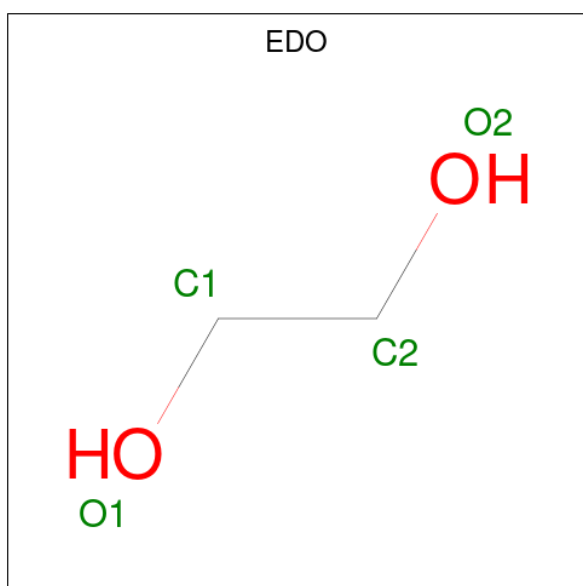
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
13	A	1	8	4	1	3	0	0
13	C	1	8	4	1	3	0	0
13	G	1	8	4	1	3	0	0

- Molecule 14 is FE2/S2 (INORGANIC) CLUSTER (three-letter code: FES) (formula: Fe<sub>2</sub>S<sub>2</sub>) (labeled as "Ligand of Interest" by depositor).



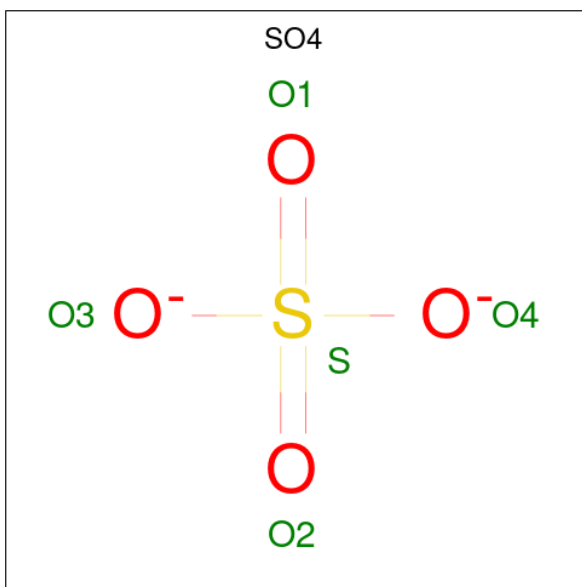
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
14	B	1	Total	Fe	S	0	0
			4	2	2		
14	D	1	Total	Fe	S	0	0
			4	2	2		
14	F	1	Total	Fe	S	0	0
			4	2	2		
14	H	1	Total	Fe	S	0	0
			4	2	2		

- Molecule 15 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: C<sub>2</sub>H<sub>6</sub>O<sub>2</sub>).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
15	E	1	Total	C	O	0	0
			4	2	2		
15	E	1	Total	C	O	0	0
			4	2	2		

- Molecule 16 is SULFATE ION (three-letter code: SO<sub>4</sub>) (formula: O<sub>4</sub>S).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
16	E	1	Total	O S	0	0
			5	4 1		

- Molecule 17 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
17	G	1	Total	Na	0	0
			1	1		

- Molecule 18 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
18	A	738	Total	O	0	0
			738	738		
18	B	116	Total	O	0	0
			116	116		
18	C	726	Total	O	0	0
			726	726		
18	D	121	Total	O	0	0
			121	121		
18	E	692	Total	O	0	0
			692	692		
18	F	115	Total	O	0	0
			115	115		
18	G	687	Total	O	0	0
			687	687		

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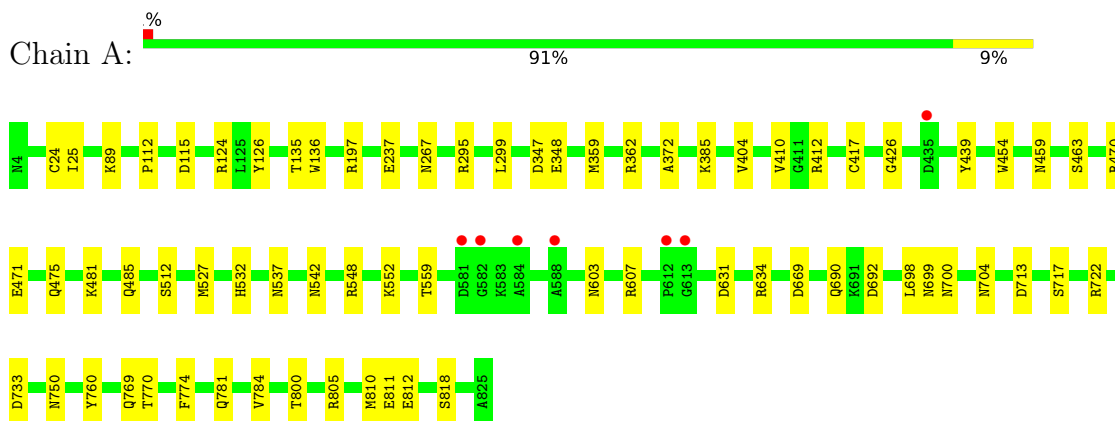
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<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>		<b>ZeroOcc</b>	<b>AltConf</b>
18	H	127	Total 127	O 127	0	0

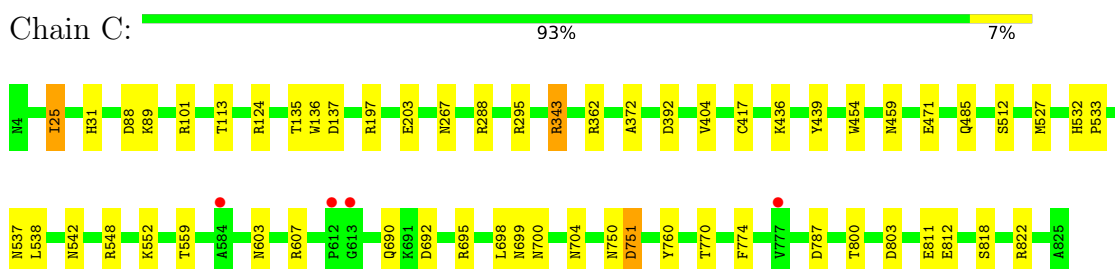
### 3 Residue-property plots [i](#)

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.

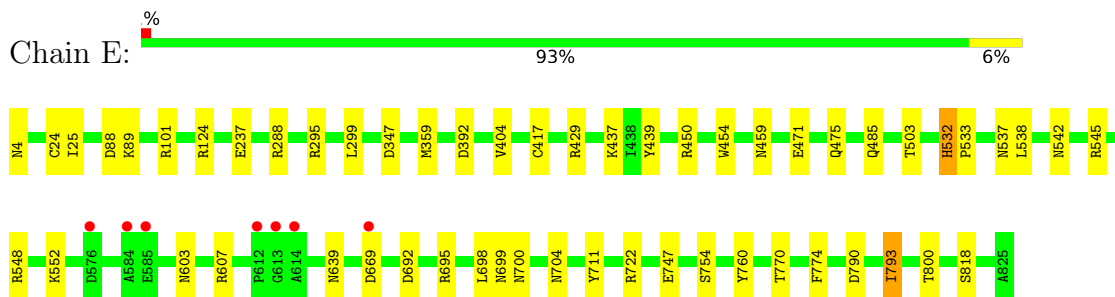
- Molecule 1: Arsenite oxidase subunit AioA



- Molecule 1: Arsenite oxidase subunit AioA



- Molecule 1: Arsenite oxidase subunit AioA



- Molecule 1: Arsenite oxidase subunit AioA

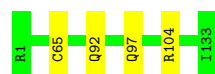




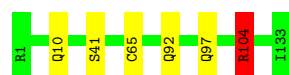
- Molecule 2: AioB



- Molecule 2: AioB



- Molecule 2: AioB



- Molecule 2: AioB





## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	90.38Å 109.21Å 117.34Å 97.71° 90.06° 96.28°	Depositor
Resolution (Å)	116.27 – 1.84 48.57 – 1.84	Depositor EDS
% Data completeness (in resolution range)	95.3 (116.27-1.84) 95.3 (48.57-1.84)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.41 (at 1.84Å)	Xtrriage
Refinement program	REFMAC 5.8.0135	Depositor
R, $R_{free}$	0.154 , 0.189 0.165 , 0.196	Depositor DCC
$R_{free}$ test set	18174 reflections (4.97%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	18.5	Xtrriage
Anisotropy	0.091	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.38 , 50.0	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.96	EDS
Total number of atoms	33900	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	20.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.76% of the height of the origin peak. No significant pseudotranslation is detected.*

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

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

## 5 Model quality i

### 5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: PEG, NA, UJI, MGD, SO4, 4MO, FES, F3S, PO4, ACT, TRS, EDO, GOL, CL, O

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	0.83	1/6688 (0.0%)	0.89	13/9063 (0.1%)
1	C	0.86	0/6664	0.90	13/9032 (0.1%)
1	E	0.85	0/6681	0.88	12/9053 (0.1%)
1	G	0.86	1/6654 (0.0%)	0.88	15/9020 (0.2%)
2	B	0.83	0/1025	0.83	0/1396
2	D	0.87	0/1028	0.89	0/1400
2	F	0.83	0/1019	0.87	1/1388 (0.1%)
2	H	0.85	0/1019	0.91	1/1388 (0.1%)
All	All	0.85	2/30778 (0.0%)	0.89	55/41740 (0.1%)

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	E	0	1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	348	GLU	CD-OE1	5.89	1.32	1.25
1	G	348	GLU	CD-OE1	5.41	1.31	1.25

The worst 5 of 55 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	295	ARG	NE-CZ-NH2	-10.01	115.30	120.30
1	C	295	ARG	NE-CZ-NH1	9.87	125.23	120.30
1	E	295	ARG	NE-CZ-NH2	-9.71	115.44	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	295	ARG	NE-CZ-NH1	9.56	125.08	120.30
1	G	295	ARG	NE-CZ-NH1	9.39	124.99	120.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	E	4	ASN	Peptide

## 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	6509	0	6308	45	0
1	C	6491	0	6287	41	0
1	E	6502	0	6307	28	2
1	G	6484	0	6270	28	2
2	B	998	0	984	6	0
2	D	1001	0	985	5	0
2	F	995	0	979	7	0
2	H	995	0	979	7	0
3	A	94	0	44	2	0
3	C	94	0	44	2	0
3	E	94	0	44	3	0
3	G	94	0	44	1	0
4	A	1	0	0	0	0
4	C	1	0	0	0	0
4	E	1	0	0	0	0
4	G	1	0	0	0	0
5	A	1	0	0	0	0
5	C	1	0	0	0	0
5	E	1	0	0	0	0
5	G	1	0	0	0	0
6	A	7	0	0	0	0
6	C	7	0	0	0	0
6	E	7	0	0	0	0
6	G	7	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
7	A	21	0	30	5	0
7	C	7	0	10	1	0
7	E	7	0	10	2	0
7	G	7	0	10	0	0
8	A	8	0	6	3	0
8	G	8	0	6	0	0
9	A	5	0	0	0	0
9	C	10	0	0	0	0
9	E	10	0	0	1	0
9	G	5	0	0	0	0
10	A	5	0	0	0	0
10	C	5	0	0	1	0
10	E	5	0	0	0	0
10	G	5	0	0	0	0
11	A	2	0	0	1	0
11	C	1	0	0	0	0
11	E	2	0	0	1	0
12	A	12	0	16	0	0
12	C	6	0	8	0	0
12	E	6	0	8	2	0
13	A	8	0	11	13	0
13	C	8	0	12	7	0
13	G	8	0	12	7	0
14	B	4	0	0	0	0
14	D	4	0	0	0	0
14	F	4	0	0	0	0
14	H	4	0	0	0	0
15	E	8	0	8	9	0
16	E	5	0	0	0	0
17	G	1	0	0	0	0
18	A	738	0	0	5	0
18	B	116	0	0	2	0
18	C	726	0	0	5	0
18	D	121	0	0	2	0
18	E	692	0	0	5	1
18	F	115	0	0	3	0
18	G	687	0	0	4	0
18	H	127	0	0	2	1
All	All	33900	0	29422	166	3

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 3.

The worst 5 of 166 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)
15:E:5010:EDO:C1	15:E:5012:EDO:O1	1.67	1.41
15:E:5010:EDO:C1	15:E:5012:EDO:C1	2.14	1.26
15:E:5010:EDO:C1	15:E:5012:EDO:C2	2.14	1.24
15:E:5010:EDO:C1	15:E:5012:EDO:H22	1.58	1.21
15:E:5010:EDO:C2	15:E:5012:EDO:C1	2.35	1.04

All (3) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:471:GLU:OE1	1:G:485[B]:GLN:OE1[1_654]	2.09	0.11
1:E:485:GLN:OE1	1:G:471:GLU:OE1[1_654]	2.13	0.07
18:E:5682:HOH:O	18:H:307:HOH:O[1_654]	2.14	0.06

## 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	827/822 (101%)	801 (97%)	25 (3%)	1 (0%)	51	37
1	C	824/822 (100%)	794 (96%)	28 (3%)	2 (0%)	47	33
1	E	826/822 (100%)	798 (97%)	26 (3%)	2 (0%)	47	33
1	G	823/822 (100%)	797 (97%)	26 (3%)	0	100	100
2	B	133/133 (100%)	128 (96%)	5 (4%)	0	100	100
2	D	133/133 (100%)	126 (95%)	7 (5%)	0	100	100
2	F	132/133 (99%)	128 (97%)	4 (3%)	0	100	100
2	H	132/133 (99%)	125 (95%)	7 (5%)	0	100	100
All	All	3830/3820 (100%)	3697 (96%)	128 (3%)	5 (0%)	51	37

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	392	ASP
1	E	392	ASP
1	C	25	ILE
1	E	793	ILE
1	A	426	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	682/675 (101%)	674 (99%)	8 (1%)	71	61
1	C	679/675 (101%)	673 (99%)	6 (1%)	78	71
1	E	681/675 (101%)	674 (99%)	7 (1%)	76	68
1	G	678/675 (100%)	672 (99%)	6 (1%)	78	71
2	B	113/111 (102%)	112 (99%)	1 (1%)	78	71
2	D	113/111 (102%)	112 (99%)	1 (1%)	78	71
2	F	112/111 (101%)	110 (98%)	2 (2%)	59	44
2	H	112/111 (101%)	111 (99%)	1 (1%)	78	71
All	All	3170/3144 (101%)	3138 (99%)	32 (1%)	76	68

5 of 32 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	G	548	ARG
1	G	760	TYR
1	C	695	ARG
1	C	548	ARG
1	G	774	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 61 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	700	ASN
1	G	638	ASN
1	E	409	ASN
1	G	572	ASN
2	H	62	HIS

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

### 5.6 Ligand geometry [i](#)

Of 60 ligands modelled in this entry, 14 are monoatomic - leaving 46 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
15	EDO	E	5010	-	3,3,3	1.41	0	2,2,2	1.62	1 (50%)
3	MGD	E	5001	5	41,52,52	1.41	6 (14%)	40,81,81	1.47	6 (15%)
8	ACT	A	5007	-	3,3,3	0.83	0	3,3,3	0.61	0
7	PEG	E	5006	-	6,6,6	0.29	0	5,5,5	0.78	0
9	PO4	G	5008	-	4,4,4	0.80	0	6,6,6	0.73	0
15	EDO	E	5012	-	3,3,3	1.34	0	2,2,2	0.64	0
7	PEG	A	5012	-	6,6,6	1.33	1 (16%)	5,5,5	1.92	1 (20%)
9	PO4	E	5007	-	4,4,4	0.83	0	6,6,6	0.66	0
7	PEG	G	5007	-	6,6,6	0.51	0	5,5,5	0.74	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
3	MGD	A	5002	5	41,52,52	1.63	8 (19%)	40,81,81	1.67	10 (25%)
13	TRS	G	5006	-	7,7,7	1.49	1 (14%)	9,9,9	2.13	4 (44%)
14	FES	B	201	2	0,4,4	-	-	-	-	-
10	UJI	C	5109	-	0,4,4	-	-	-	-	-
10	UJI	G	5010	-	0,4,4	-	-	-	-	-
14	FES	D	201	2	0,4,4	-	-	-	-	-
9	PO4	C	5107	-	4,4,4	0.74	0	6,6,6	0.65	0
3	MGD	G	5001	5	41,52,52	1.30	4 (9%)	40,81,81	1.55	9 (22%)
9	PO4	C	5110	-	4,4,4	1.08	0	6,6,6	0.69	0
7	PEG	C	5106	-	6,6,6	1.09	0	5,5,5	1.48	1 (20%)
12	GOL	E	5008	-	5,5,5	0.26	0	5,5,5	1.15	0
8	ACT	G	5009	-	3,3,3	0.69	0	3,3,3	1.48	1 (33%)
6	F3S	A	5005	1	0,9,9	-	-	-	-	-
10	UJI	E	5009	-	0,4,4	-	-	-	-	-
13	TRS	A	5017	-	7,7,7	1.98	3 (42%)	9,9,9	1.50	2 (22%)
13	TRS	C	5112	-	7,7,7	1.57	2 (28%)	9,9,9	2.01	4 (44%)
12	GOL	C	5108	-	5,5,5	0.17	0	5,5,5	0.48	0
9	PO4	A	5008	-	4,4,4	0.84	0	6,6,6	0.81	0
16	SO4	E	5015	-	4,4,4	1.22	1 (25%)	6,6,6	0.54	0
14	FES	F	201	2	0,4,4	-	-	-	-	-
3	MGD	E	5002	5	41,52,52	1.65	5 (12%)	40,81,81	1.39	7 (17%)
9	PO4	E	5011	-	4,4,4	1.35	0	6,6,6	0.92	0
3	MGD	C	5102	5	41,52,52	1.34	7 (17%)	40,81,81	1.57	6 (15%)
6	F3S	C	5105	1	0,9,9	-	-	-	-	-
3	MGD	G	5002	5	41,52,52	1.71	9 (21%)	40,81,81	1.37	6 (15%)
3	MGD	A	5001	5	41,52,52	1.51	6 (14%)	40,81,81	1.46	7 (17%)
6	F3S	E	5005	1	0,9,9	-	-	-	-	-
12	GOL	A	5015	-	5,5,5	0.26	0	5,5,5	0.19	0
8	ACT	A	5009	-	3,3,3	0.95	0	3,3,3	0.95	0
3	MGD	C	5101	5	41,52,52	1.49	7 (17%)	40,81,81	1.34	4 (10%)
7	PEG	A	5006	-	6,6,6	0.84	0	5,5,5	0.91	0
10	UJI	A	5010	-	0,4,4	-	-	-	-	-
8	ACT	G	5011	-	3,3,3	0.97	0	3,3,3	1.33	0
7	PEG	A	5011	-	6,6,6	0.52	0	5,5,5	0.83	0
12	GOL	A	5016	-	5,5,5	0.80	0	5,5,5	1.48	1 (20%)
6	F3S	G	5005	1	0,9,9	-	-	-	-	-
14	FES	H	201	2	0,4,4	-	-	-	-	-

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
15	EDO	E	5010	-	-	1/1/1/1	-
3	MGD	E	5001	5	-	3/18/66/66	0/6/6/6
15	EDO	E	5012	-	-	1/1/1/1	-
7	PEG	E	5006	-	-	2/4/4/4	-
7	PEG	A	5012	-	-	1/4/4/4	-
7	PEG	G	5007	-	-	4/4/4/4	-
3	MGD	A	5002	5	-	4/18/66/66	0/6/6/6
13	TRS	G	5006	-	-	6/9/9/9	-
14	FES	B	201	2	-	-	0/1/1/1
14	FES	D	201	2	-	-	0/1/1/1
3	MGD	G	5001	5	-	3/18/66/66	0/6/6/6
7	PEG	C	5106	-	-	1/4/4/4	-
12	GOL	E	5008	-	-	4/4/4/4	-
6	F3S	A	5005	1	-	-	0/3/3/3
13	TRS	A	5017	-	-	4/9/9/9	-
13	TRS	C	5112	-	-	5/9/9/9	-
12	GOL	C	5108	-	-	0/4/4/4	-
14	FES	F	201	2	-	-	0/1/1/1
3	MGD	E	5002	5	-	4/18/66/66	0/6/6/6
3	MGD	C	5102	5	-	4/18/66/66	0/6/6/6
6	F3S	C	5105	1	-	-	0/3/3/3
3	MGD	G	5002	5	-	4/18/66/66	0/6/6/6
3	MGD	A	5001	5	-	2/18/66/66	0/6/6/6
12	GOL	A	5015	-	-	3/4/4/4	-
6	F3S	E	5005	1	-	-	0/3/3/3
3	MGD	C	5101	5	-	4/18/66/66	0/6/6/6
7	PEG	A	5006	-	-	2/4/4/4	-
7	PEG	A	5011	-	-	1/4/4/4	-
12	GOL	A	5016	-	-	1/4/4/4	-
6	F3S	G	5005	1	-	-	0/3/3/3
14	FES	H	201	2	-	-	0/1/1/1

The worst 5 of 60 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	G	5002	MGD	C16-C21	5.99	1.48	1.38
3	E	5002	MGD	C16-C21	5.32	1.47	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	5001	MGD	C16-C21	5.13	1.47	1.38
3	E	5001	MGD	C16-C21	4.95	1.47	1.38
3	G	5001	MGD	C16-C21	4.71	1.46	1.38

The worst 5 of 70 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	E	5001	MGD	O11-C23-C14	4.41	111.91	108.96
3	C	5102	MGD	O11-C23-N22	-4.28	104.16	108.57
3	A	5002	MGD	O11-C23-C14	3.92	111.58	108.96
3	C	5102	MGD	O17-C17-C16	-3.88	118.36	127.24
3	A	5002	MGD	O17-C17-C16	-3.85	118.41	127.24

There are no chirality outliers.

5 of 64 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	5001	MGD	C5'-O5'-PB-O1B
3	A	5002	MGD	C5'-O5'-PB-O1B
3	A	5002	MGD	C5'-O5'-PB-O3B
3	C	5101	MGD	C5'-O5'-PB-O1B
3	C	5102	MGD	PA-O3B-PB-O5'

There are no ring outliers.

19 monomers are involved in 58 short contacts:

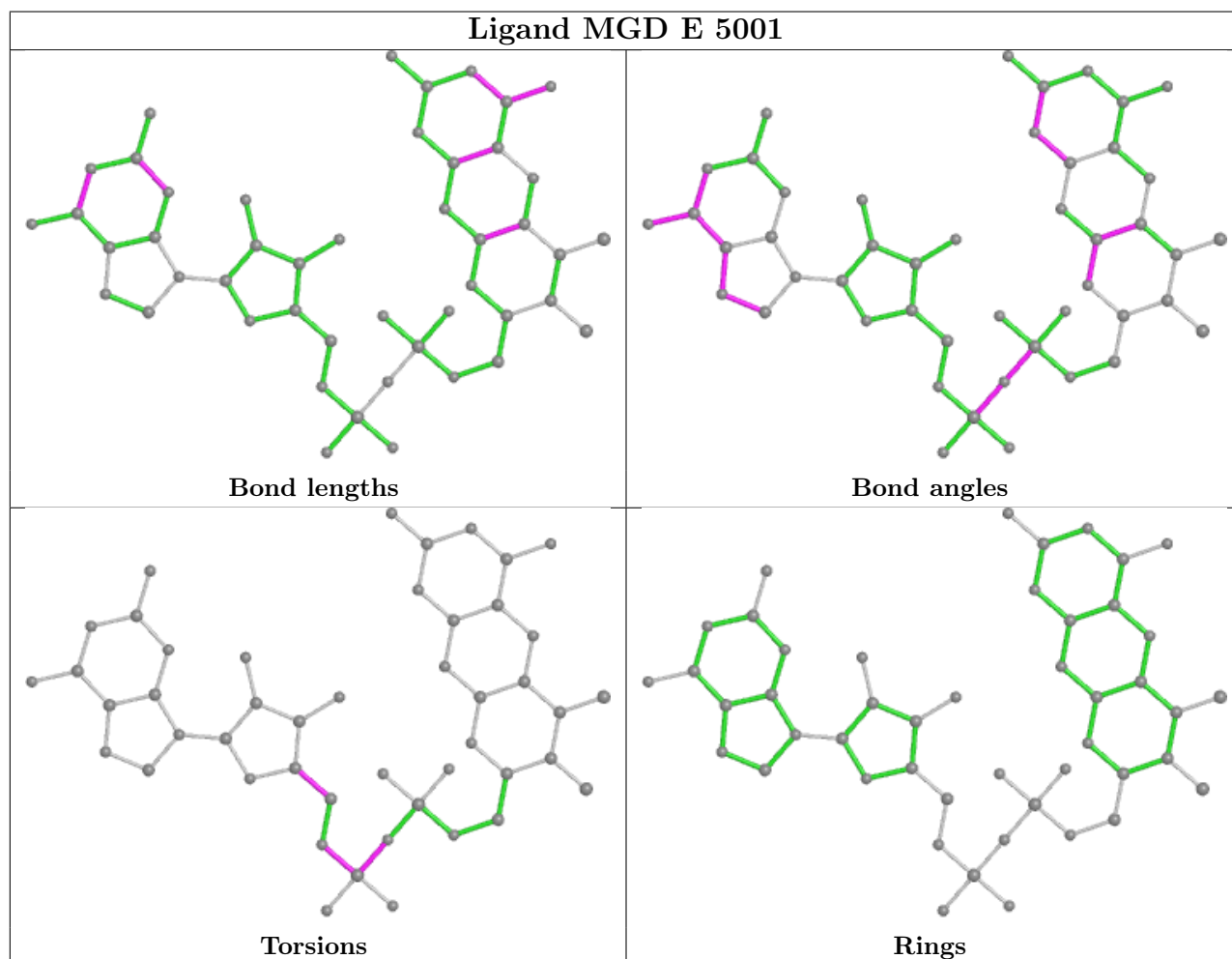
Mol	Chain	Res	Type	Clashes	Symm-Clashes
15	E	5010	EDO	9	0
3	E	5001	MGD	2	0
7	E	5006	PEG	2	0
15	E	5012	EDO	9	0
7	A	5012	PEG	3	0
13	G	5006	TRS	7	0
10	C	5109	UJI	1	0
3	G	5001	MGD	1	0
7	C	5106	PEG	1	0
12	E	5008	GOL	2	0
13	A	5017	TRS	13	0
13	C	5112	TRS	7	0
3	E	5002	MGD	1	0
9	E	5011	PO4	1	0

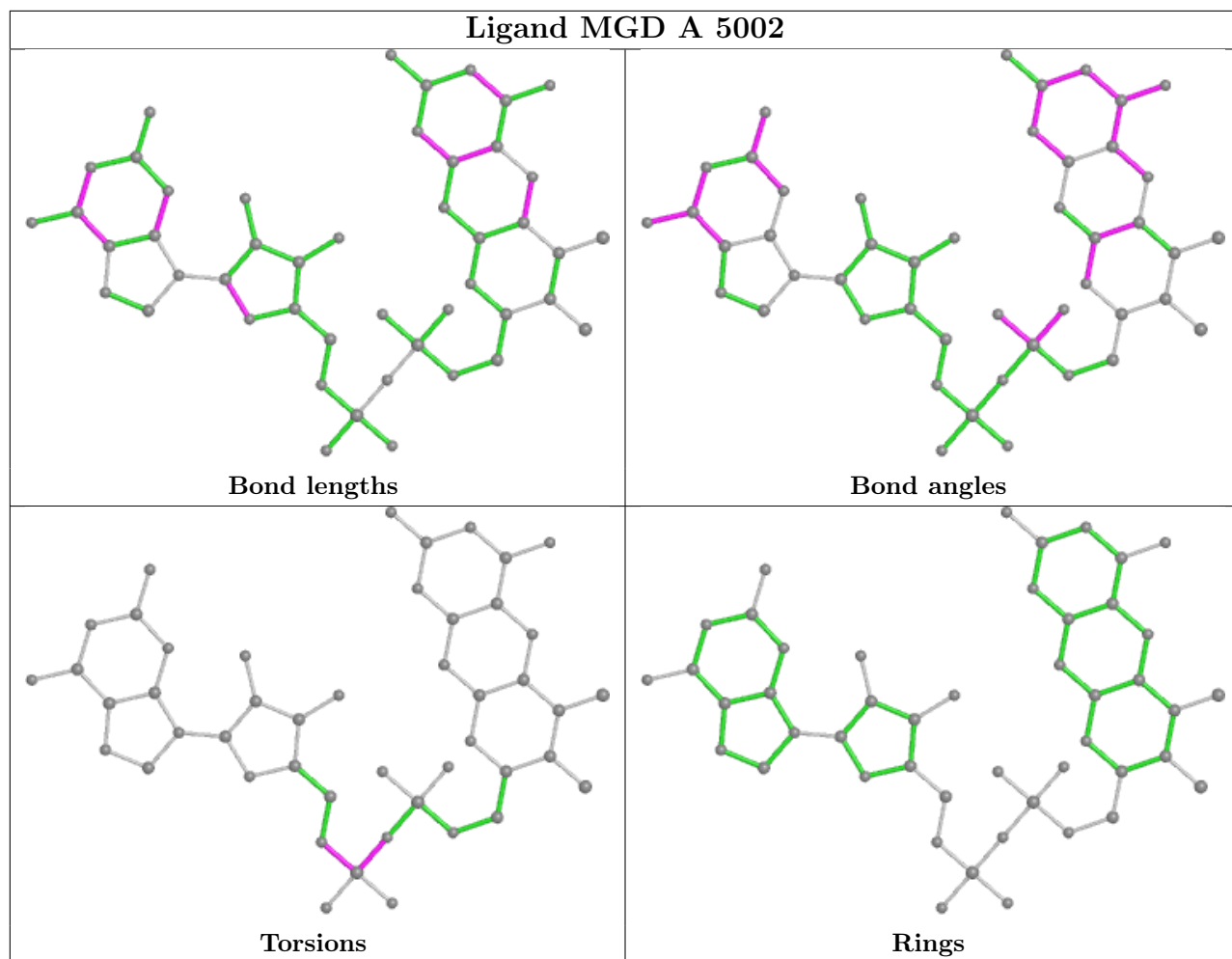
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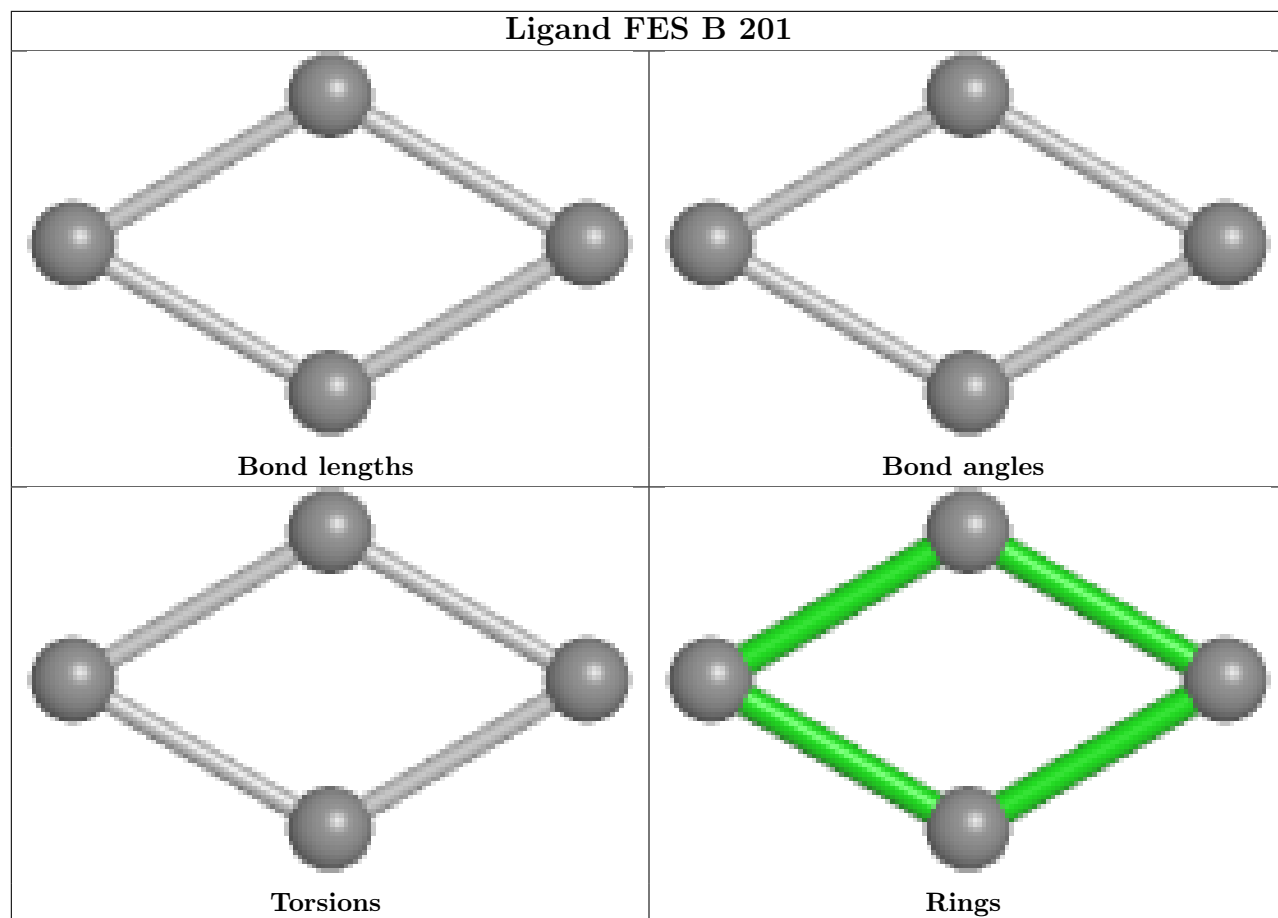
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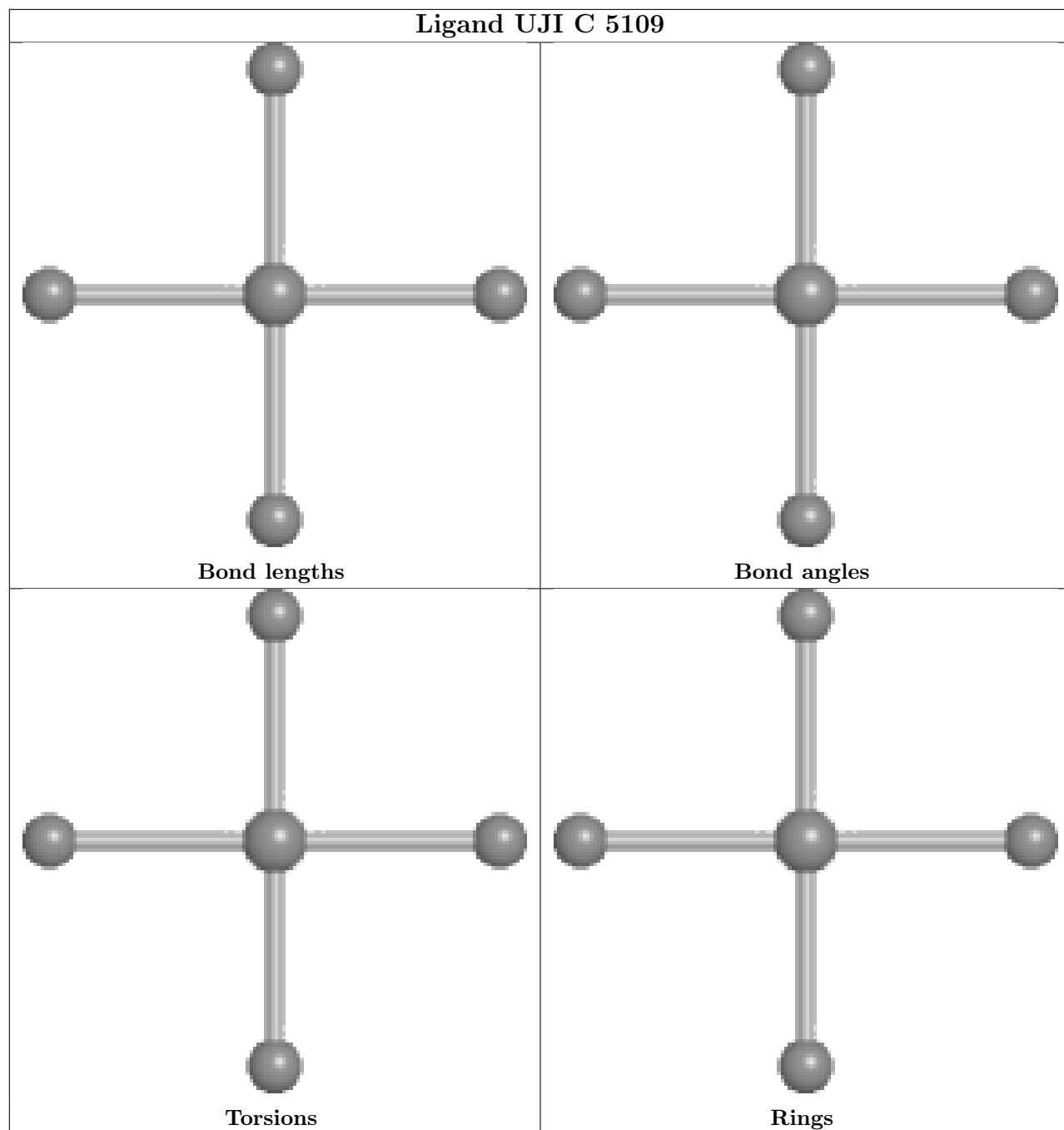
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	C	5102	MGD	1	0
3	A	5001	MGD	2	0
8	A	5009	ACT	3	0
3	C	5101	MGD	1	0
7	A	5011	PEG	2	0

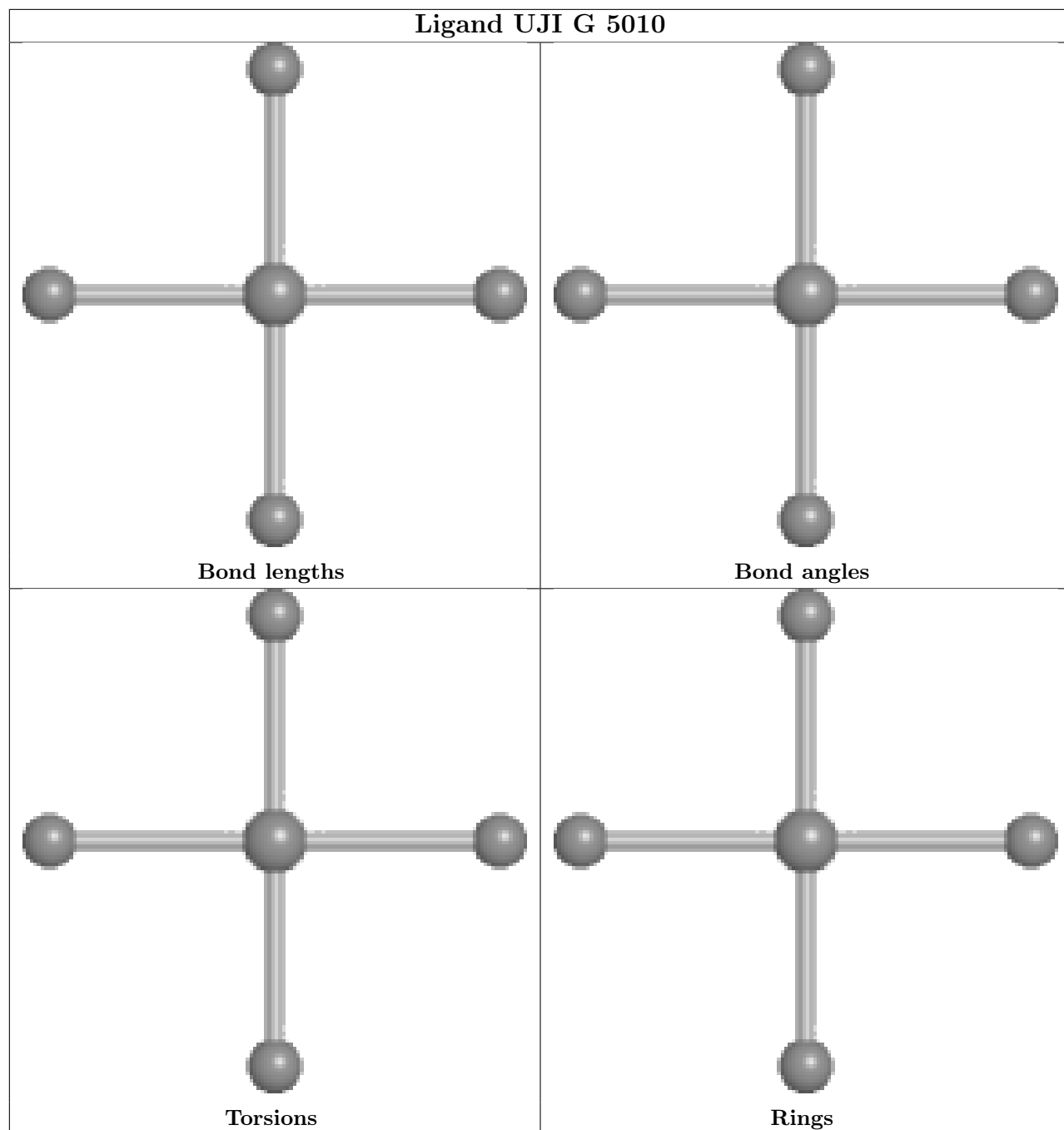
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

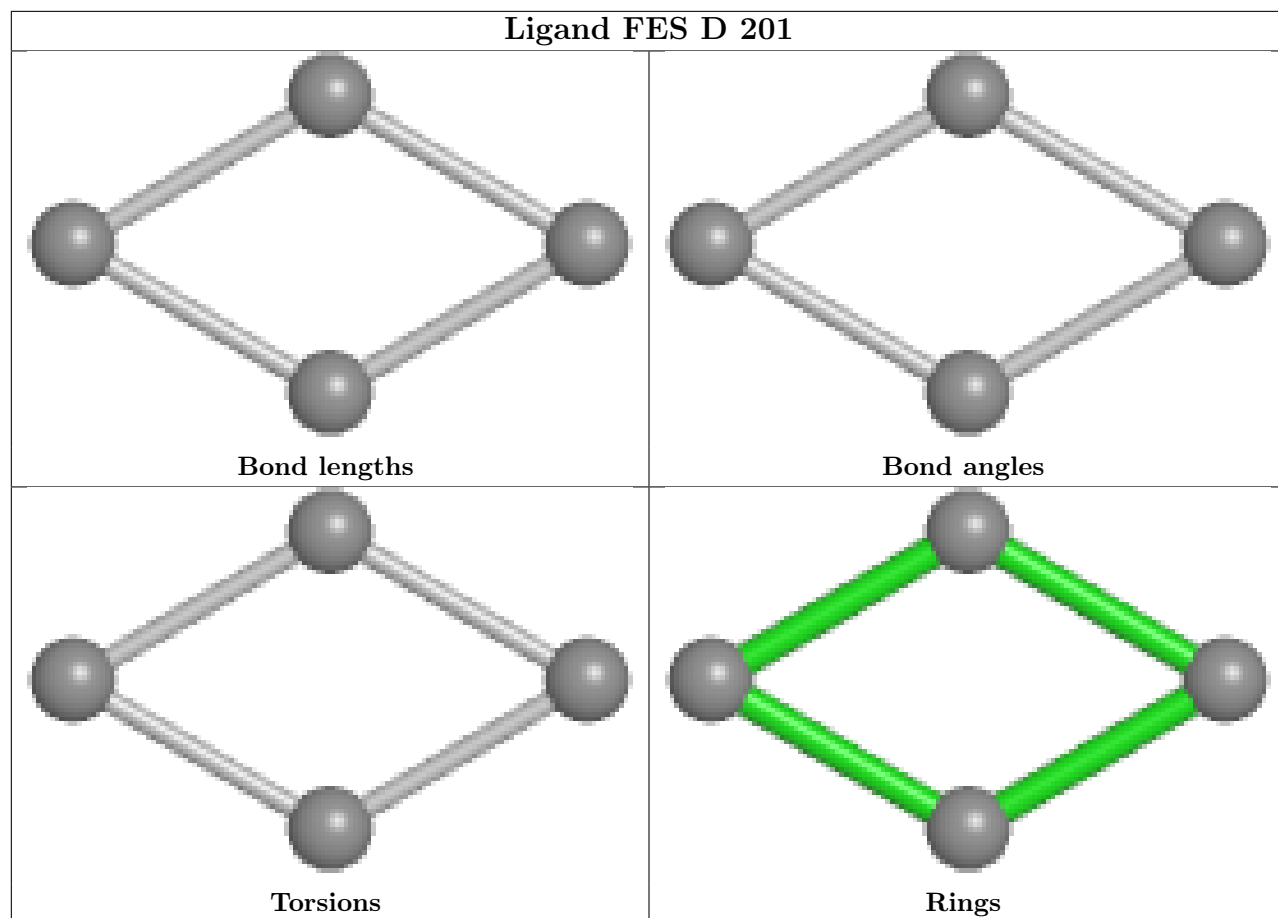




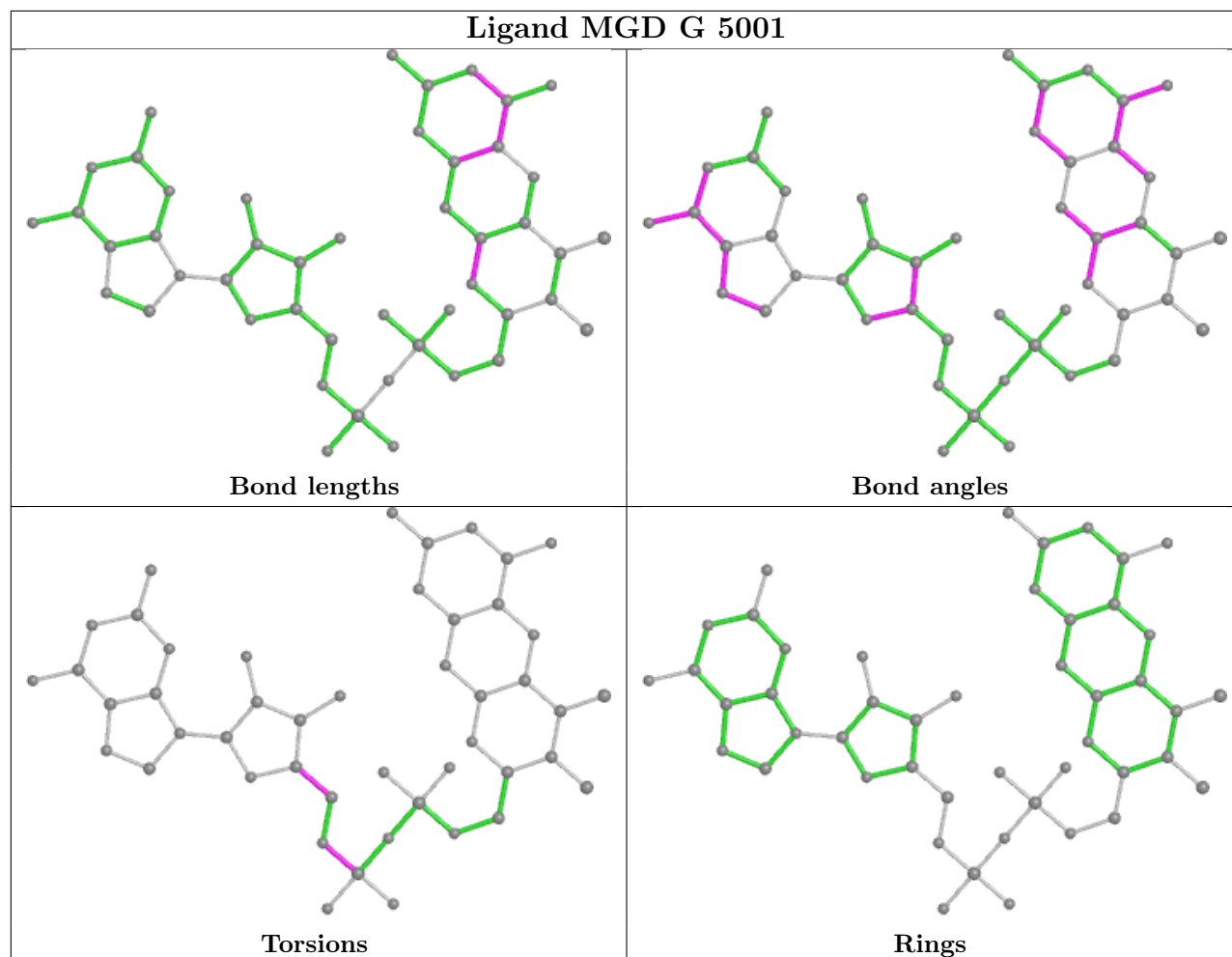


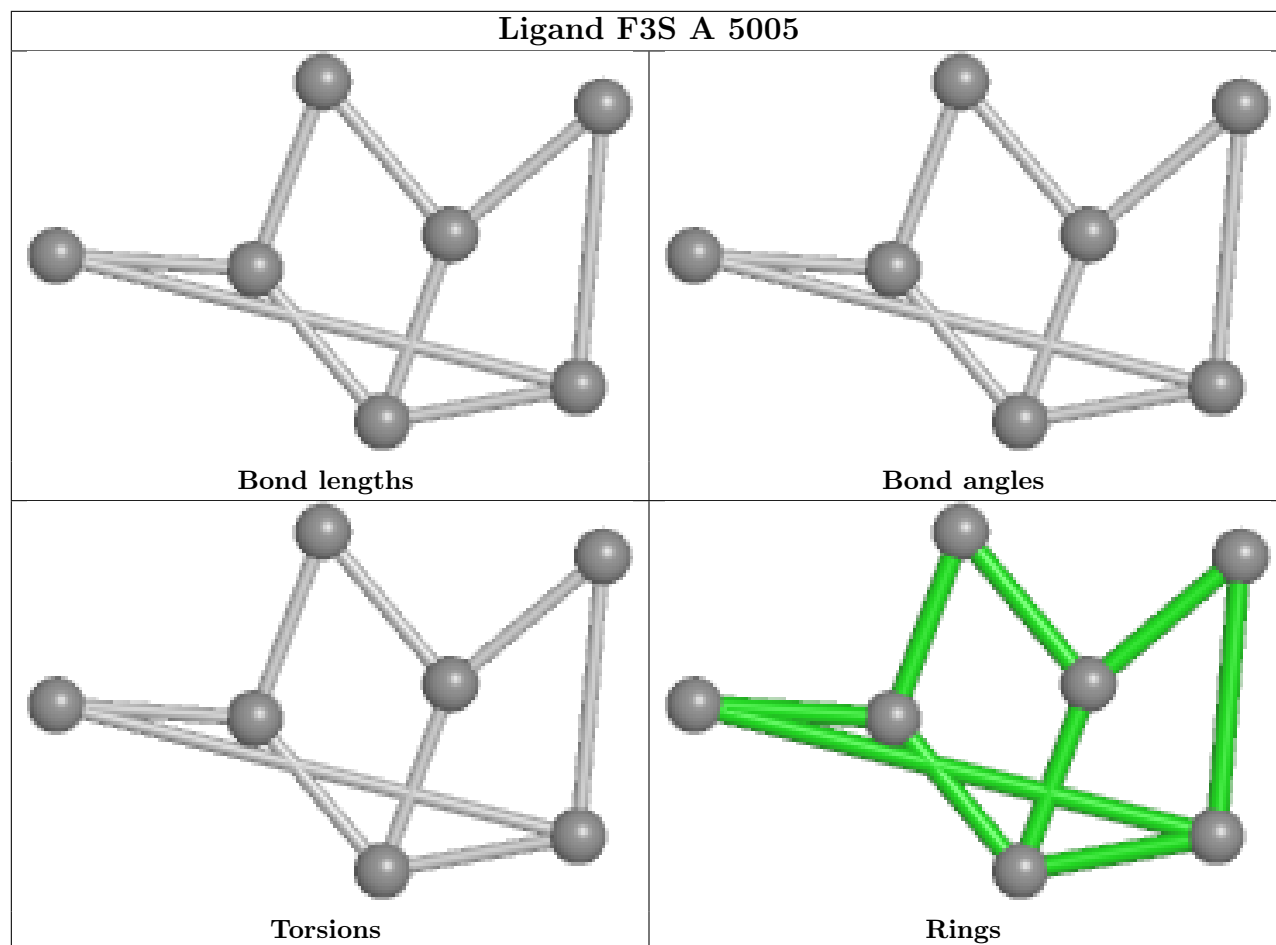


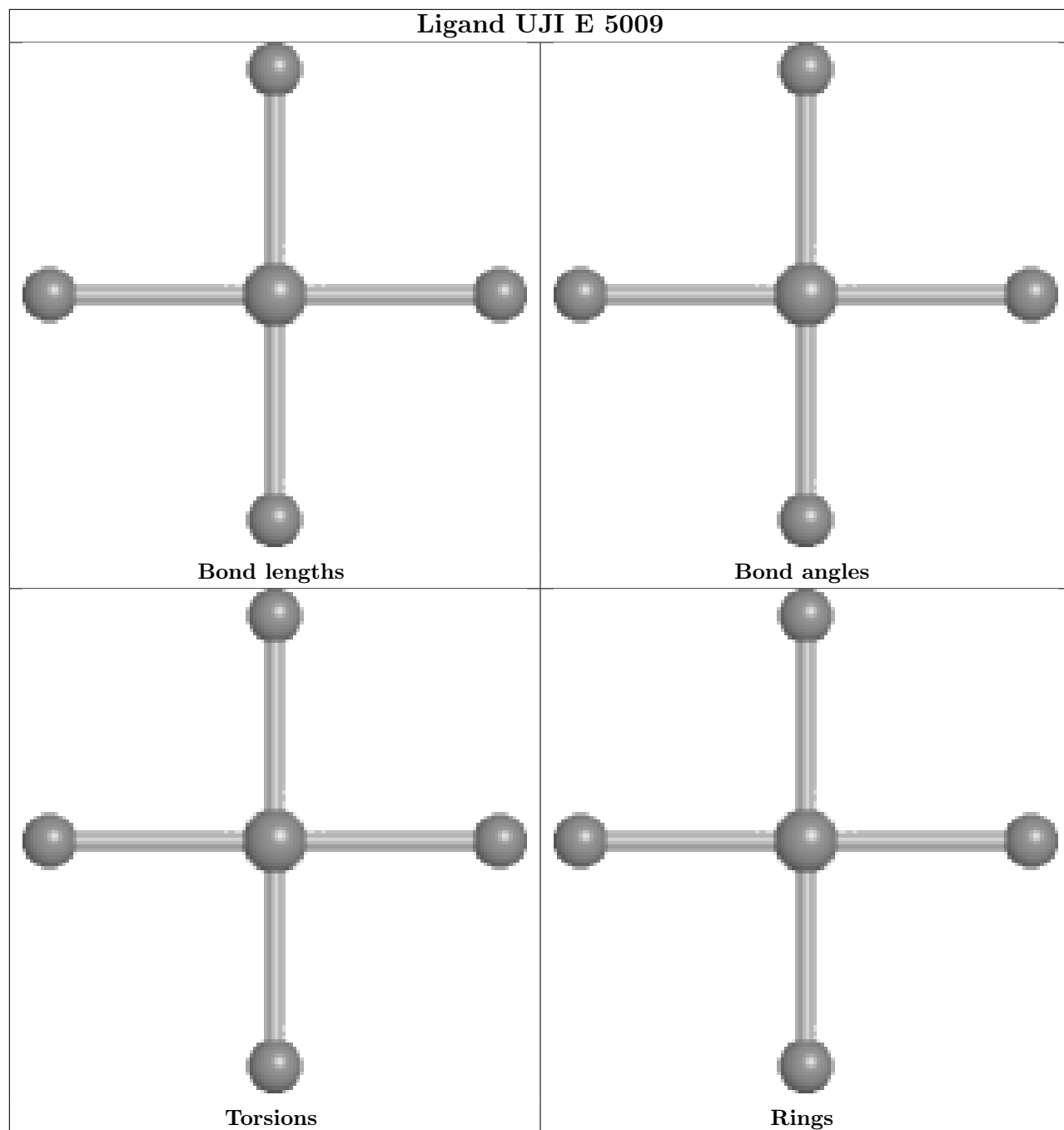


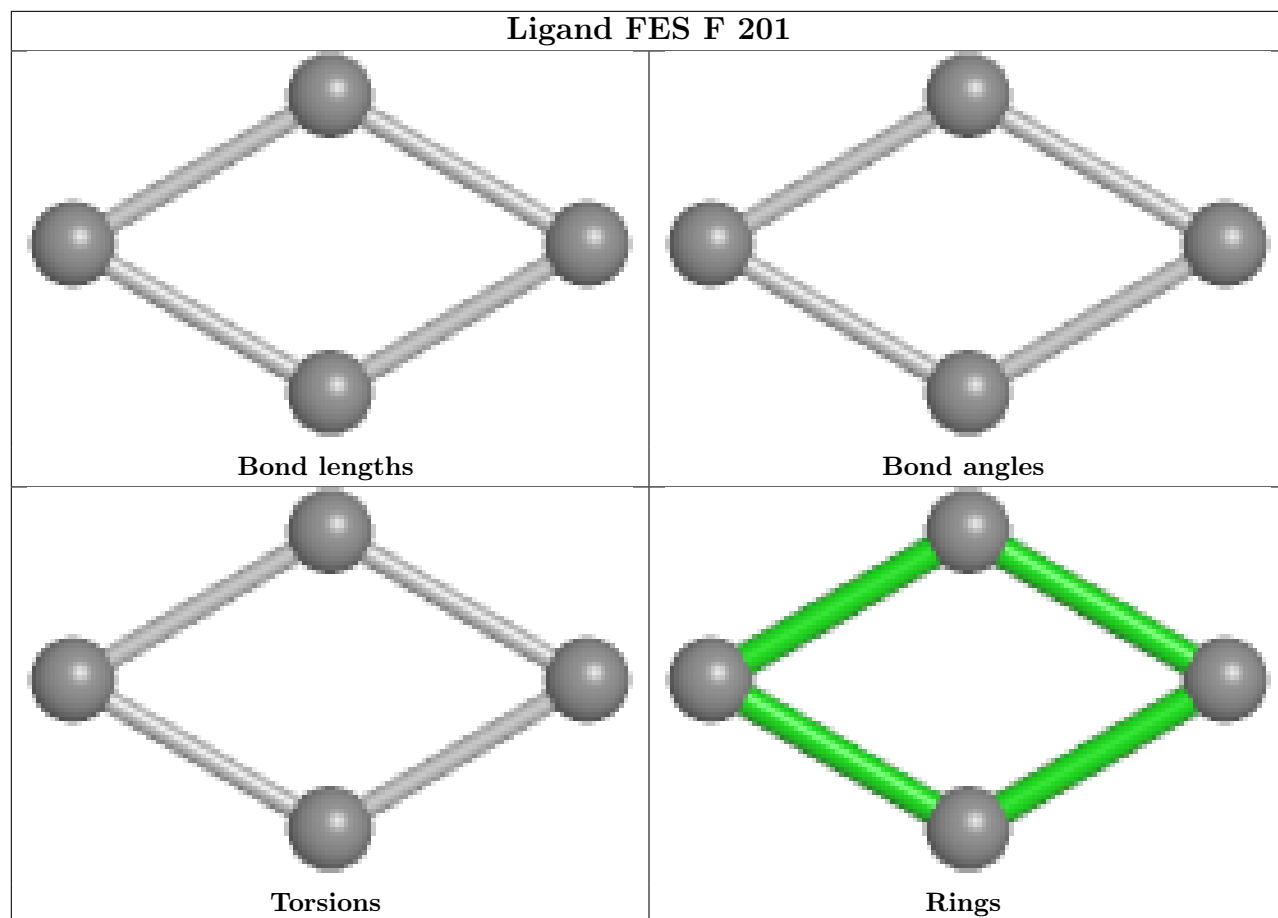


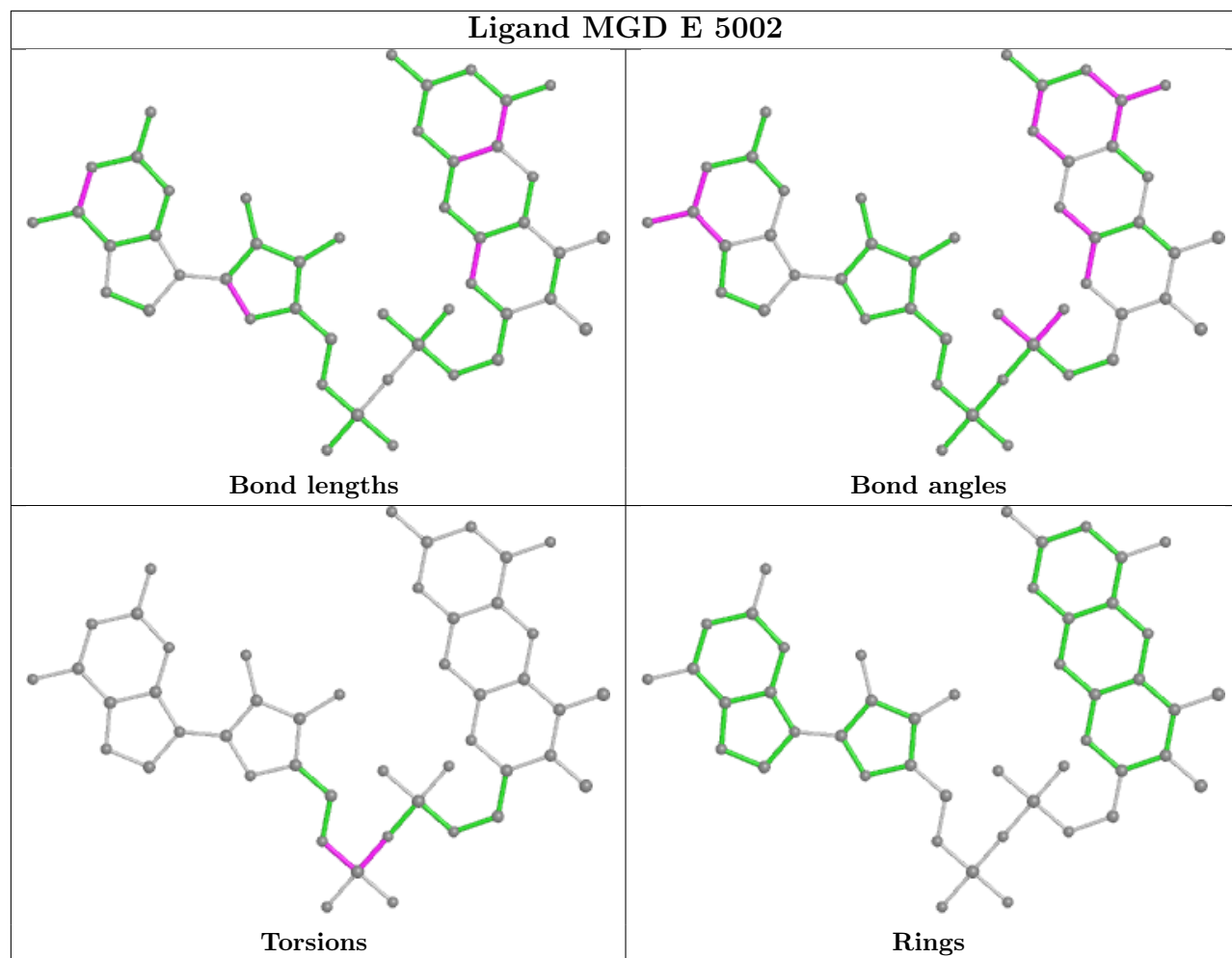


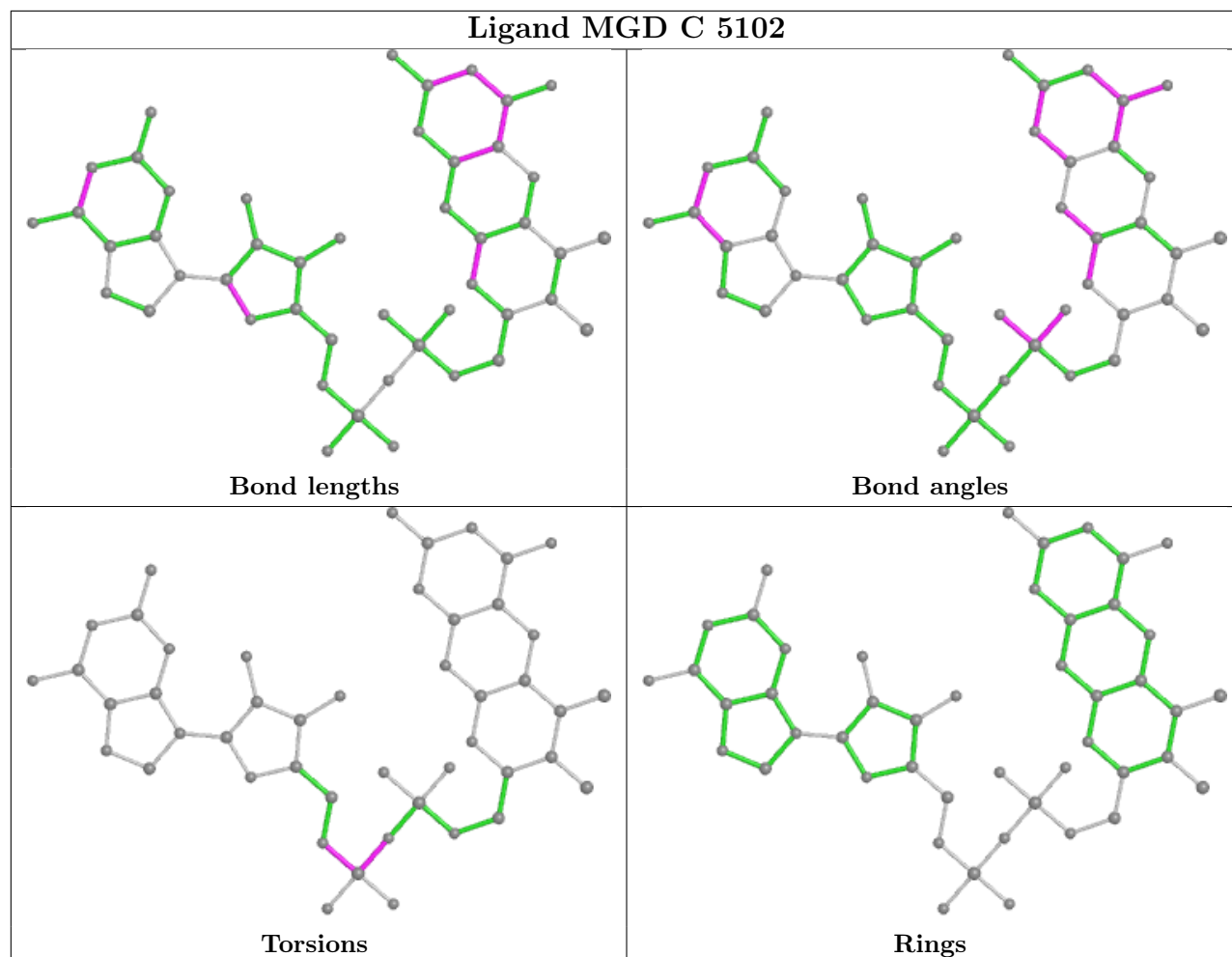


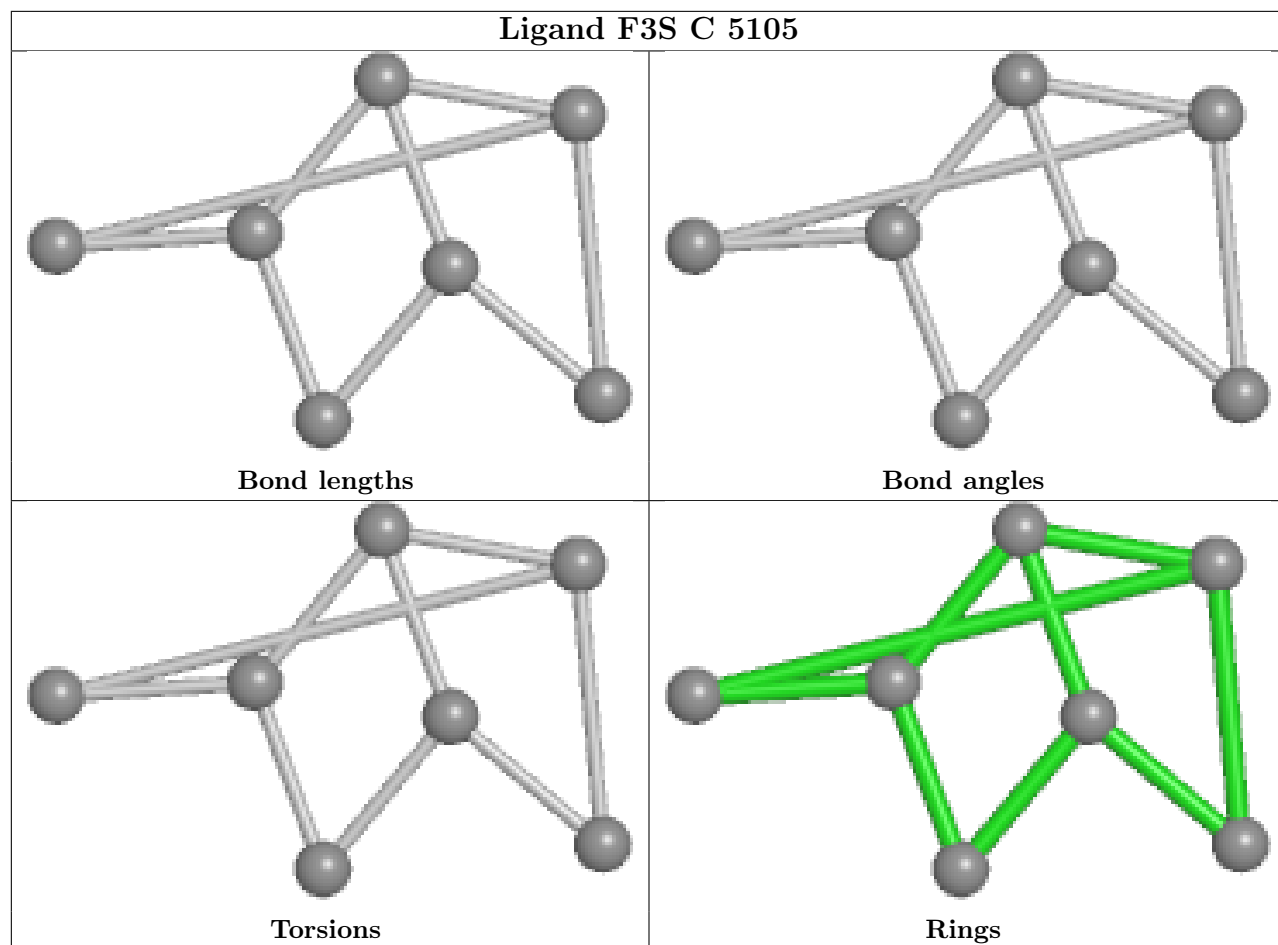


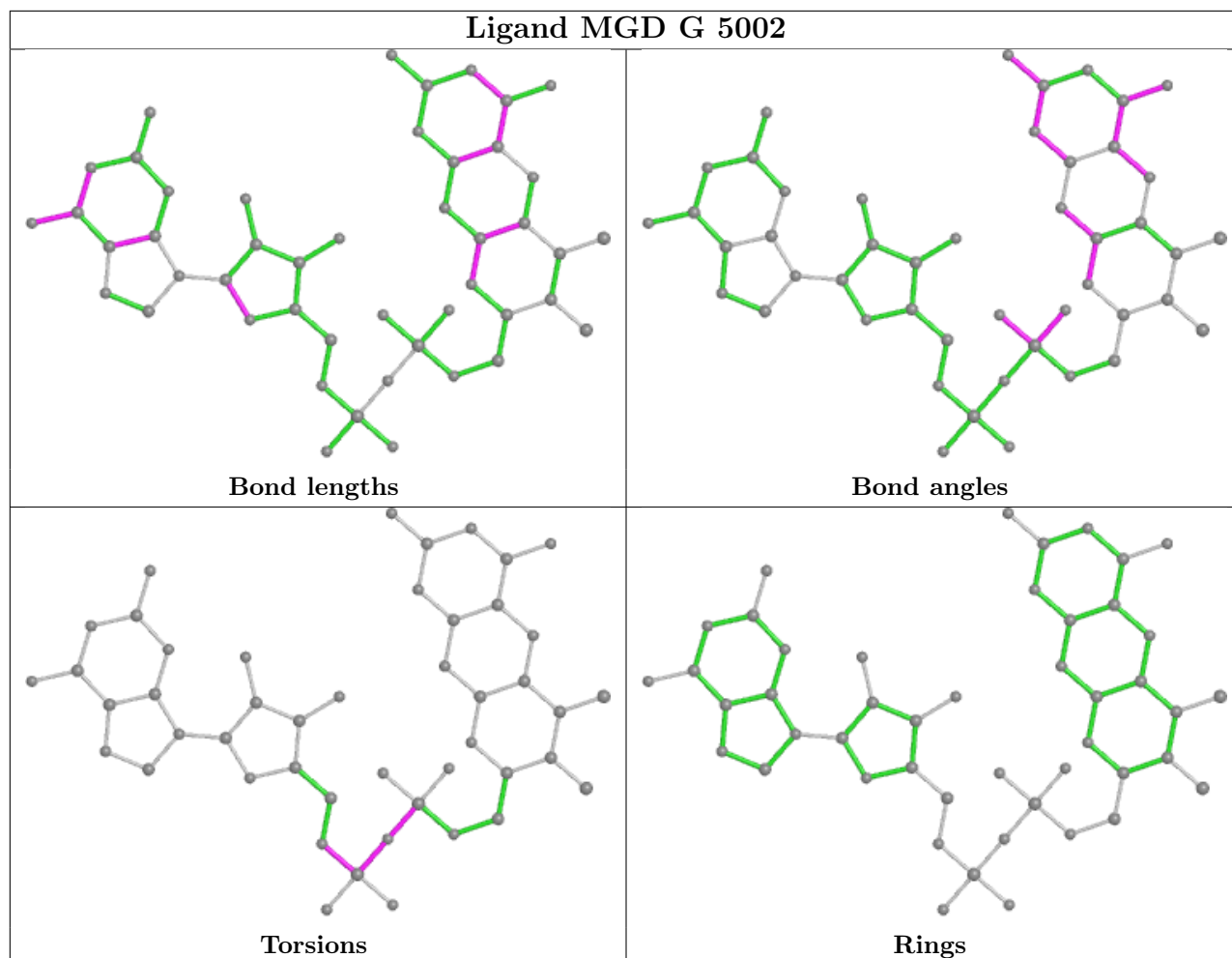




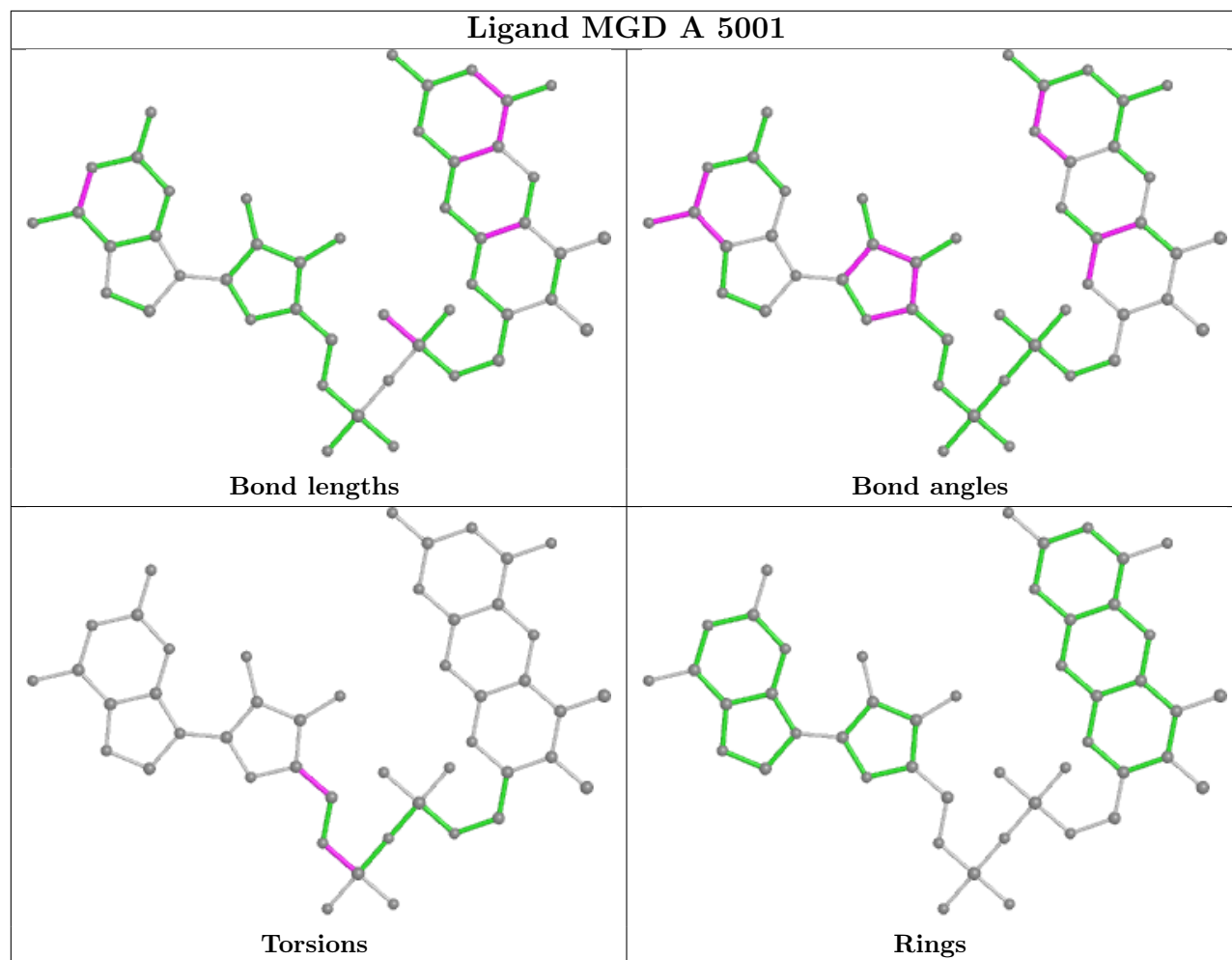


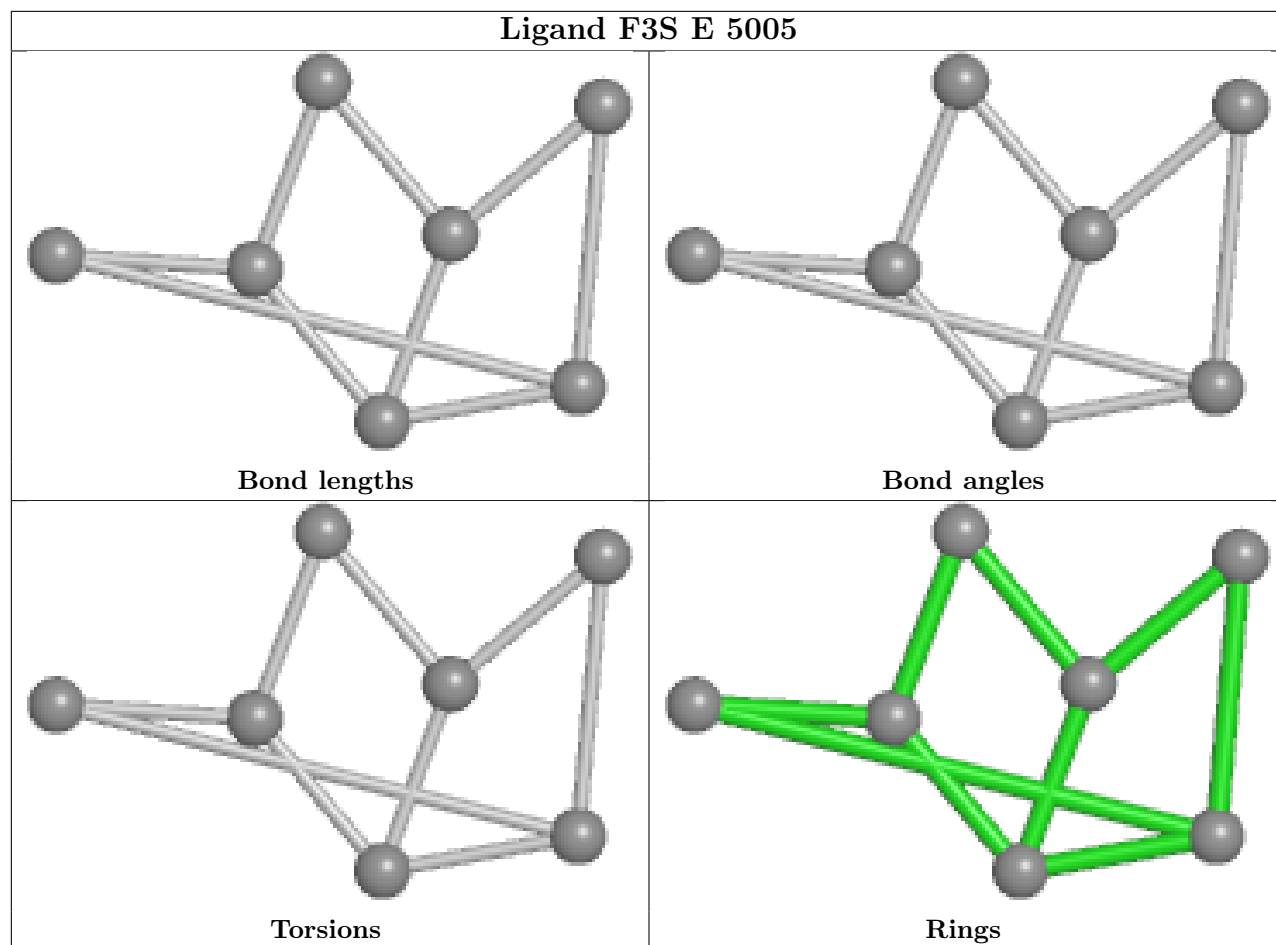


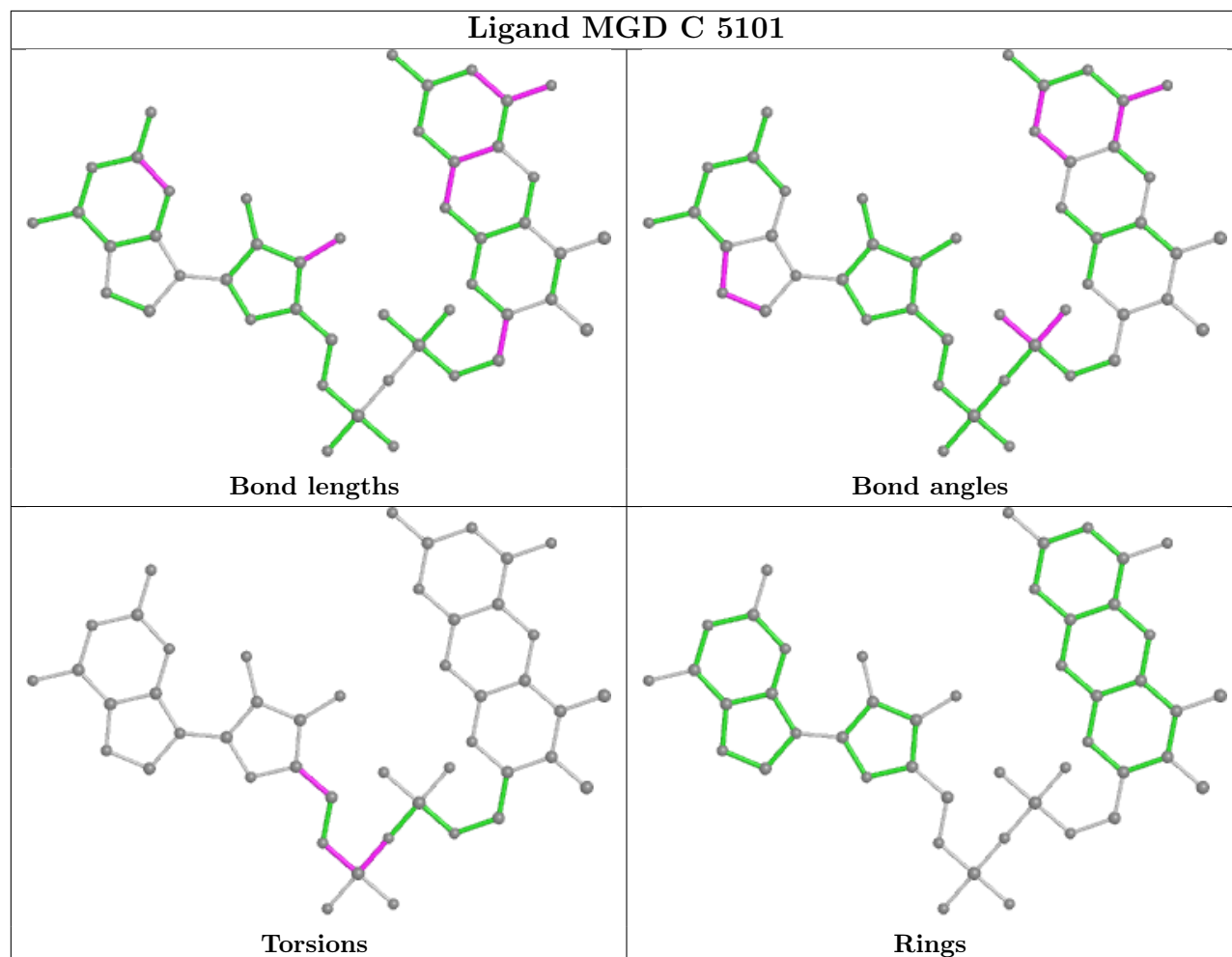


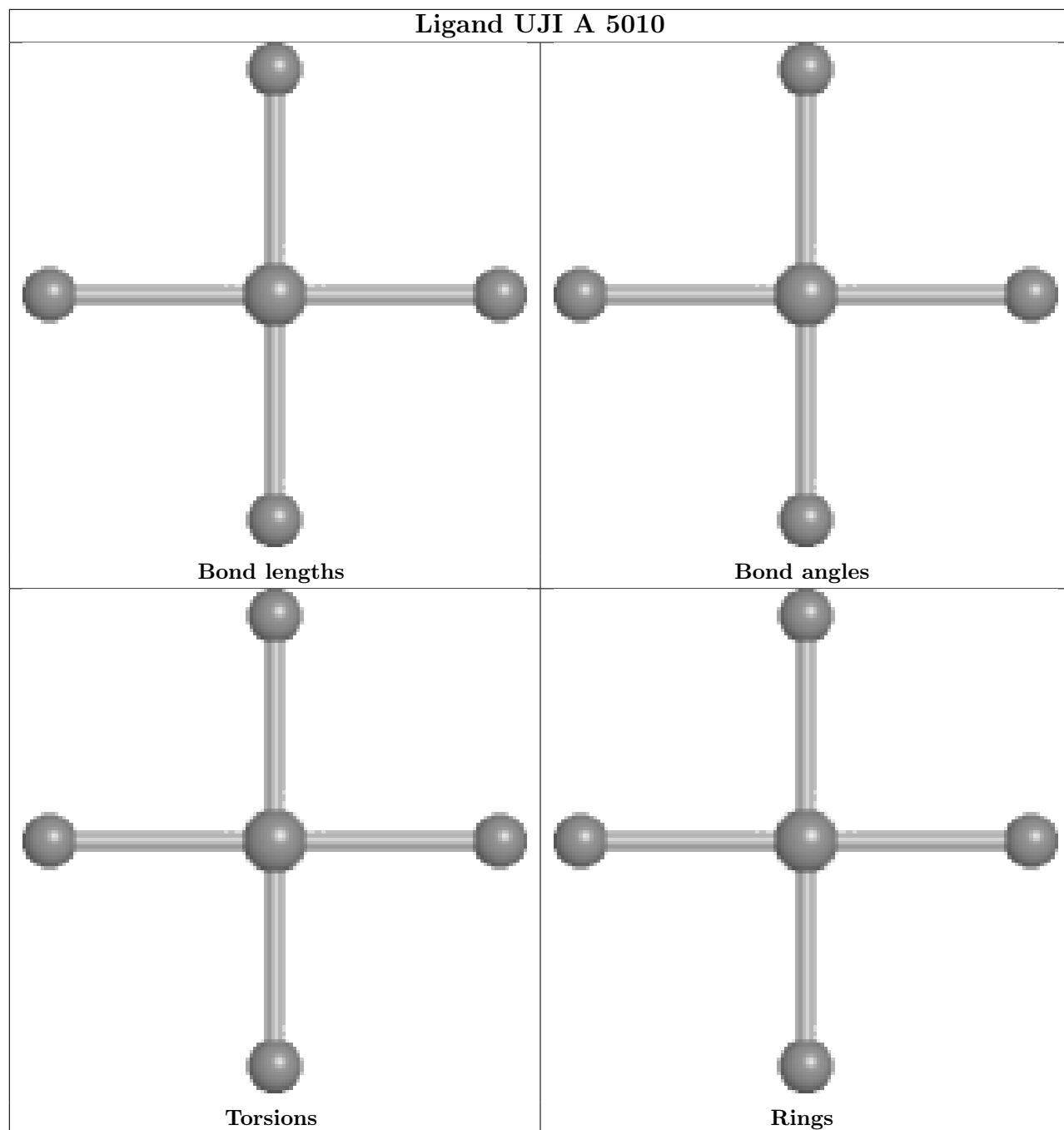


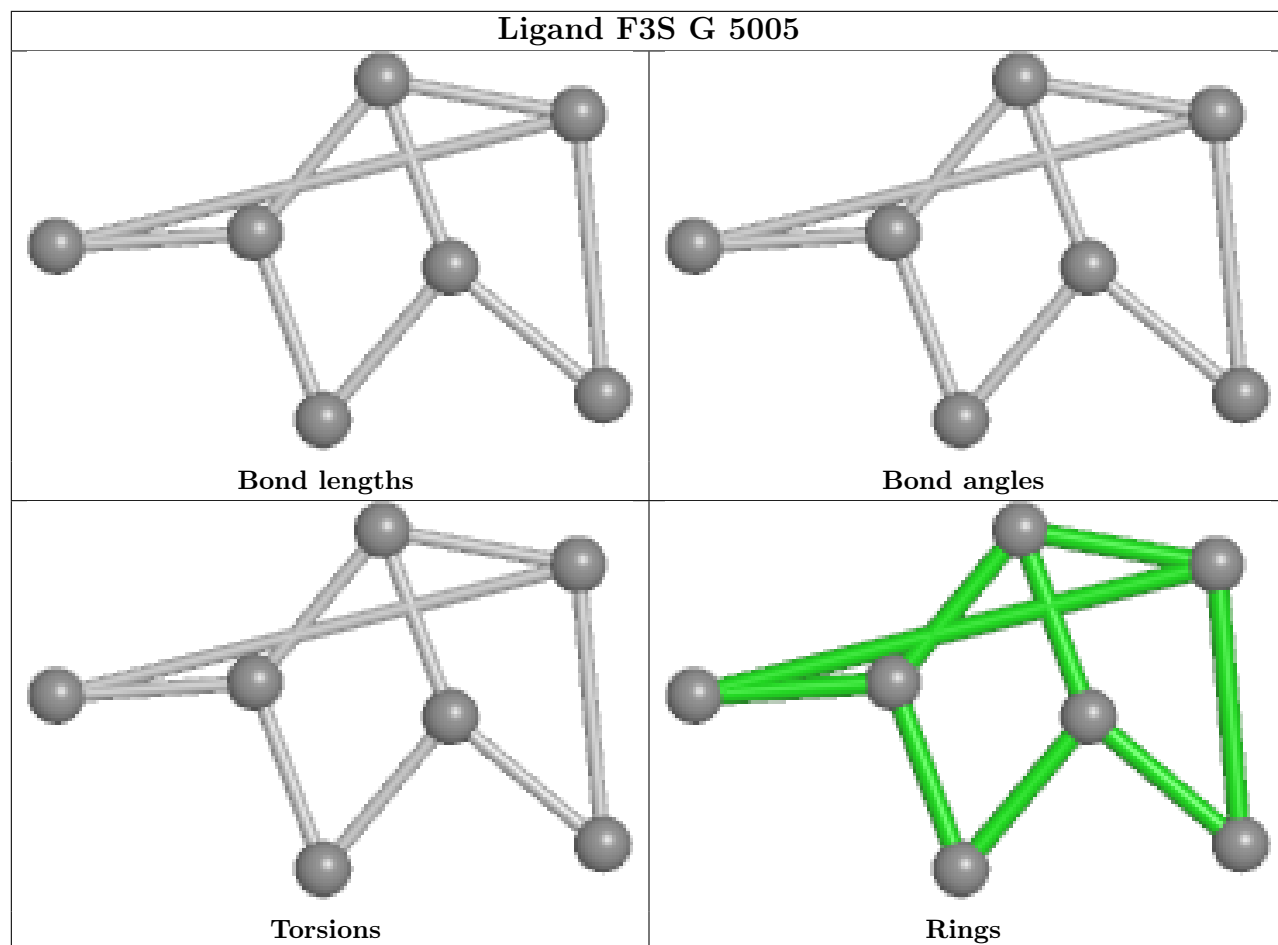


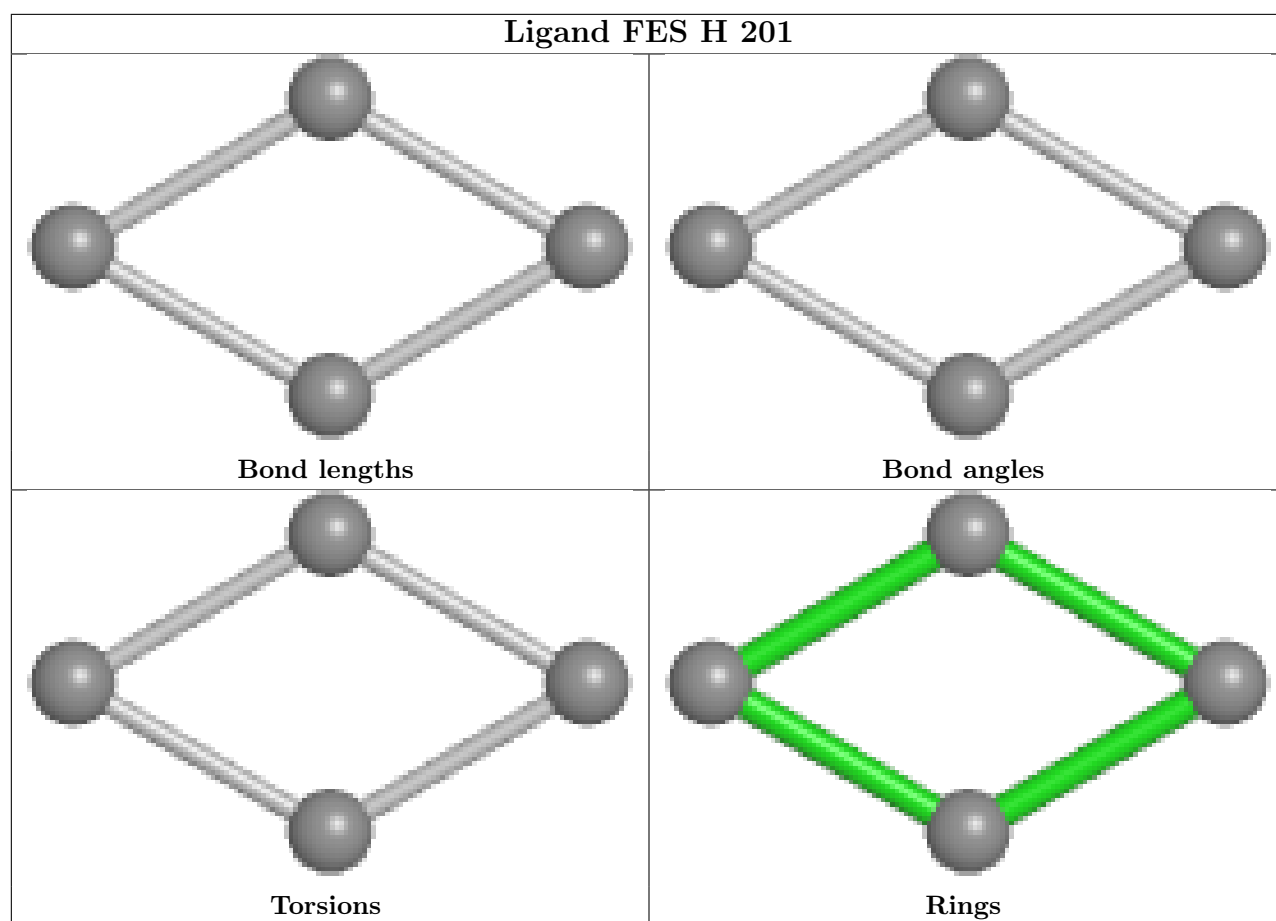












## 5.7 Other polymers [i](#)

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 [i](#)

### 6.1 Protein, DNA and RNA chains [i](#)

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
1	A	822/822 (100%)	-0.34	7 (0%) 84 84	11, 18, 31, 53	1 (0%)
1	C	822/822 (100%)	-0.34	4 (0%) 91 91	11, 17, 29, 50	1 (0%)
1	E	822/822 (100%)	-0.36	7 (0%) 84 84	12, 18, 31, 54	1 (0%)
1	G	822/822 (100%)	-0.29	7 (0%) 84 84	13, 19, 32, 56	2 (0%)
2	B	133/133 (100%)	-0.55	0 100 100	13, 19, 30, 40	0
2	D	133/133 (100%)	-0.37	0 100 100	14, 19, 32, 42	0
2	F	133/133 (100%)	-0.36	0 100 100	14, 19, 31, 40	0
2	H	133/133 (100%)	-0.44	0 100 100	14, 19, 30, 40	0
All	All	3820/3820 (100%)	-0.34	25 (0%) 87 87	11, 18, 31, 56	5 (0%)

The worst 5 of 25 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	584	ALA	3.8
1	C	612	PRO	3.1
1	A	613	GLY	2.9
1	G	576[A]	ASP	2.9
1	E	585	GLU	2.8

### 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(Å <sup>2</sup> )	Q<0.9
8	ACT	A	5009	4/4	0.62	0.26	28,39,40,46	0
7	PEG	C	5106	7/7	0.77	0.26	35,37,41,46	0
7	PEG	A	5011	7/7	0.79	0.16	46,48,51,53	0
11	CL	A	5014	1/1	0.81	0.06	61,61,61,61	0
7	PEG	A	5012	7/7	0.83	0.18	26,27,36,36	0
7	PEG	A	5006	7/7	0.83	0.20	30,36,40,44	0
13	TRS	G	5006	8/8	0.86	0.23	24,25,37,39	0
7	PEG	G	5007	7/7	0.87	0.22	32,41,48,52	0
8	ACT	G	5009	4/4	0.89	0.12	38,42,43,44	0
12	GOL	C	5108	6/6	0.91	0.13	38,39,41,44	0
8	ACT	A	5007	4/4	0.91	0.15	51,56,57,58	0
13	TRS	A	5017	8/8	0.93	0.21	25,28,35,38	0
13	TRS	C	5112	8/8	0.93	0.17	28,30,38,40	0
7	PEG	E	5006	7/7	0.93	0.21	28,35,43,43	0
12	GOL	A	5015	6/6	0.94	0.13	38,41,42,46	0
9	PO4	G	5008	5/5	0.94	0.27	54,55,62,64	0
12	GOL	E	5008	6/6	0.94	0.13	23,34,36,45	0
15	EDO	E	5010	4/4	0.94	0.13	31,33,33,35	0
15	EDO	E	5012	4/4	0.94	0.15	40,43,46,51	0
11	CL	E	5014	1/1	0.95	0.10	40,40,40,40	0
11	CL	A	5013	1/1	0.95	0.06	42,42,42,42	0
12	GOL	A	5016	6/6	0.95	0.12	27,31,34,40	0
9	PO4	C	5107	5/5	0.95	0.24	53,54,57,61	0
11	CL	E	5013	1/1	0.95	0.17	53,53,53,53	0
16	SO4	E	5015	5/5	0.95	0.12	24,25,33,34	0
9	PO4	A	5008	5/5	0.96	0.24	55,58,61,62	0
8	ACT	G	5011	4/4	0.96	0.09	37,37,40,44	0
9	PO4	E	5007	5/5	0.96	0.28	56,59,68,69	0
10	UJI	C	5109	5/5	0.97	0.12	29,33,41,41	1
3	MGD	G	5001	47/47	0.98	0.11	13,15,18,19	0
3	MGD	G	5002	47/47	0.98	0.09	13,15,16,17	0
11	CL	C	5111	1/1	0.98	0.08	42,42,42,42	0
4	O	A	5003	1/1	0.98	0.12	23,23,23,23	0
4	O	C	5103	1/1	0.98	0.10	28,28,28,28	0
4	O	E	5003	1/1	0.98	0.14	26,26,26,26	0
3	MGD	A	5002	47/47	0.98	0.09	12,14,15,16	0
3	MGD	C	5101	47/47	0.98	0.12	11,14,16,17	0

*Continued on next page...*



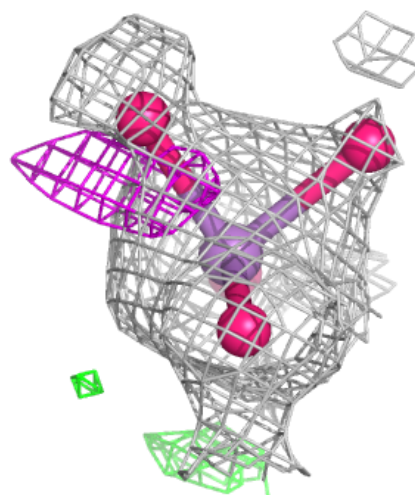
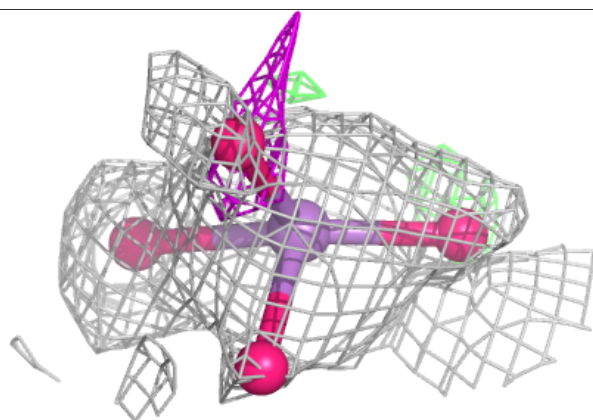
*Continued from previous page...*

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
3	MGD	C	5102	47/47	0.98	0.10	12,13,15,16	0
9	PO4	E	5011	5/5	0.98	0.11	44,44,46,48	0
3	MGD	E	5001	47/47	0.98	0.10	12,14,17,18	0
10	UJI	A	5010	5/5	0.98	0.10	27,28,35,36	1
3	MGD	E	5002	47/47	0.98	0.10	12,14,16,18	0
10	UJI	E	5009	5/5	0.98	0.09	25,28,33,37	1
10	UJI	G	5010	5/5	0.98	0.11	29,34,37,38	1
17	NA	G	5012	1/1	0.98	0.07	32,32,32,32	0
6	F3S	A	5005	7/7	0.99	0.08	10,12,13,13	0
6	F3S	C	5105	7/7	0.99	0.07	12,13,14,15	0
6	F3S	E	5005	7/7	0.99	0.06	12,13,13,15	0
14	FES	B	201	4/4	0.99	0.04	17,18,18,18	0
14	FES	D	201	4/4	0.99	0.03	17,17,18,18	0
14	FES	F	201	4/4	0.99	0.04	16,17,18,18	0
6	F3S	G	5005	7/7	0.99	0.06	13,14,15,17	0
9	PO4	C	5110	5/5	0.99	0.14	41,41,47,50	0
3	MGD	A	5001	47/47	0.99	0.10	12,14,16,17	0
4	O	G	5003	1/1	0.99	0.06	25,25,25,25	0
14	FES	H	201	4/4	1.00	0.03	18,18,19,19	0
5	4MO	G	5004	1/1	1.00	0.04	19,19,19,19	0
5	4MO	A	5004	1/1	1.00	0.04	19,19,19,19	0
5	4MO	C	5104	1/1	1.00	0.04	18,18,18,18	0
5	4MO	E	5004	1/1	1.00	0.04	19,19,19,19	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.

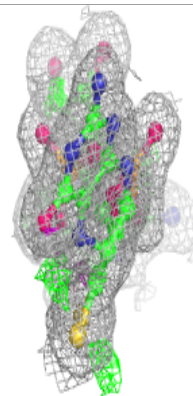
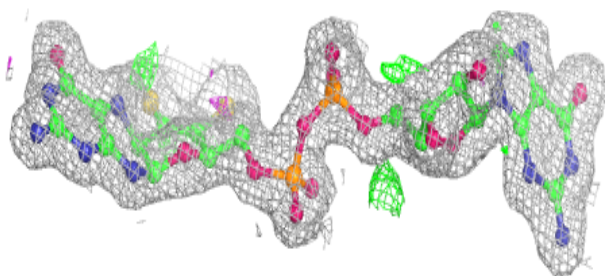
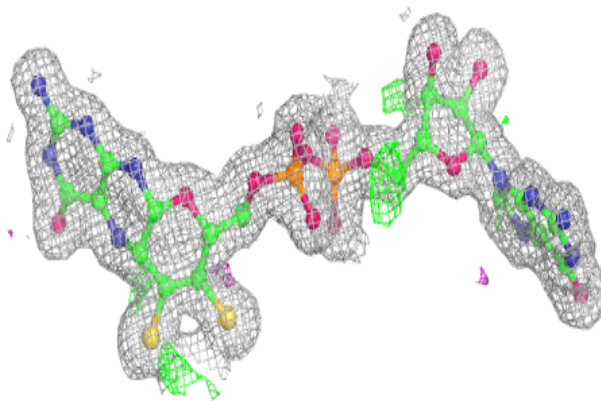
**Electron density around UJI C 5109:**

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

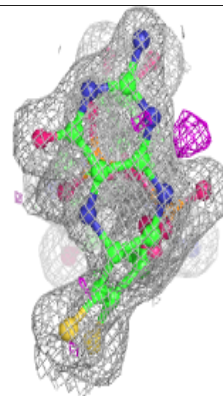
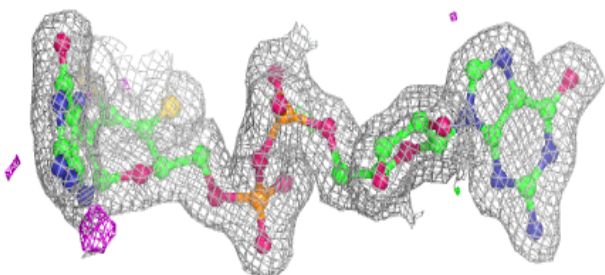
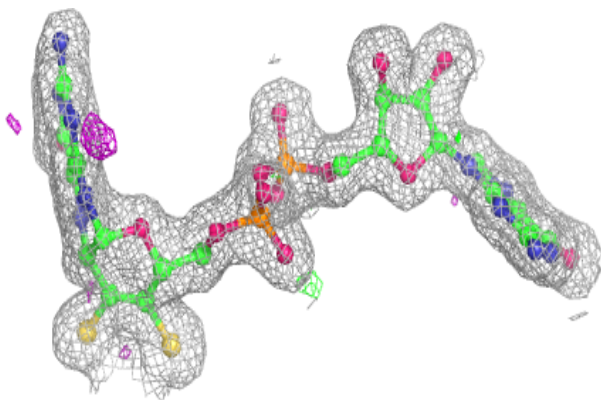


**Electron density around MGD G 5001:**

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

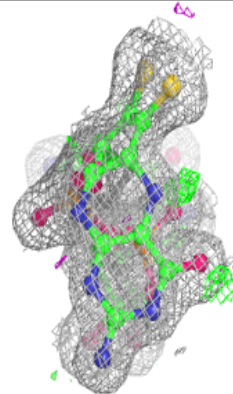
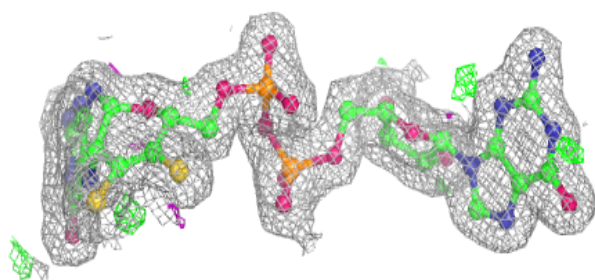
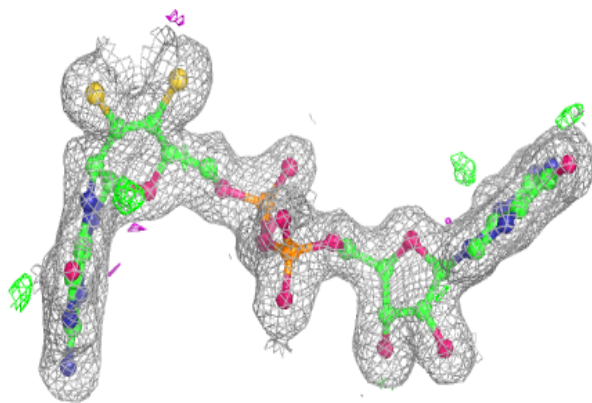
**Electron density around MGD G 5002:**

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

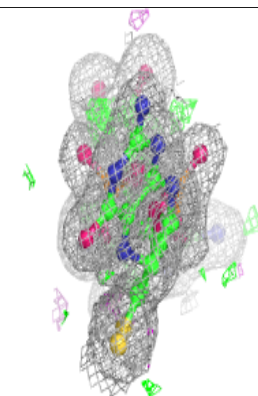
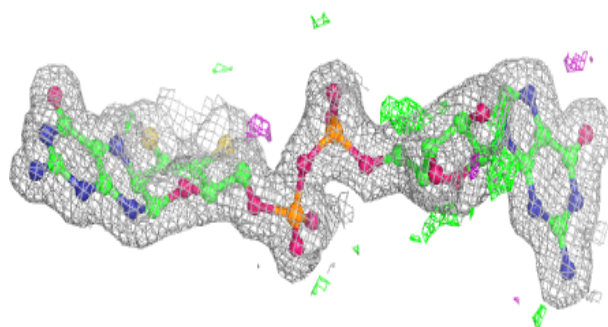
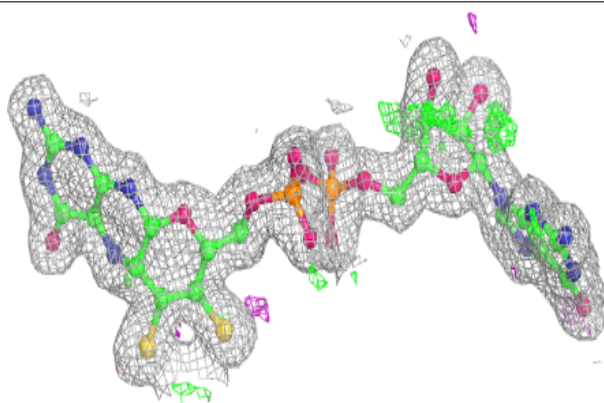


**Electron density around MGD A 5002:**

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

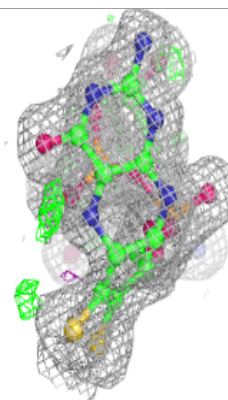
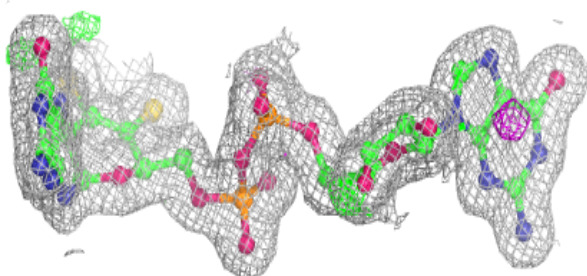
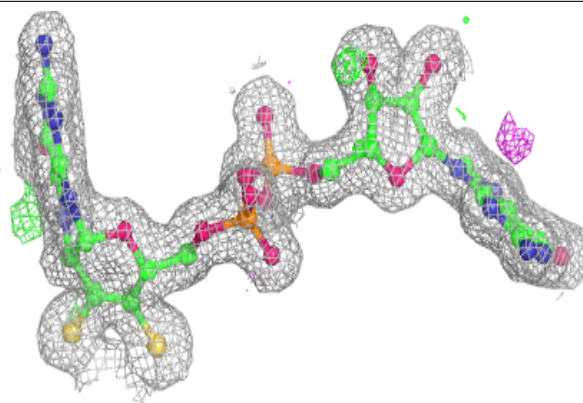
**Electron density around MGD C 5101:**

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

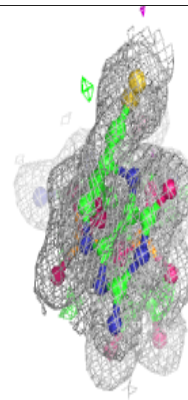
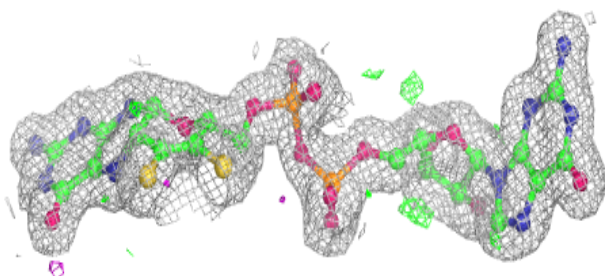
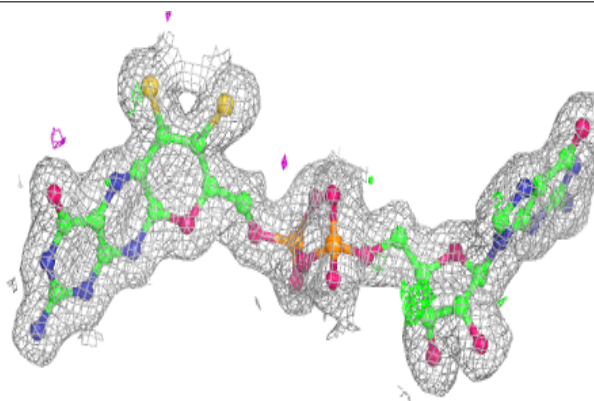


**Electron density around MGD C 5102:**

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

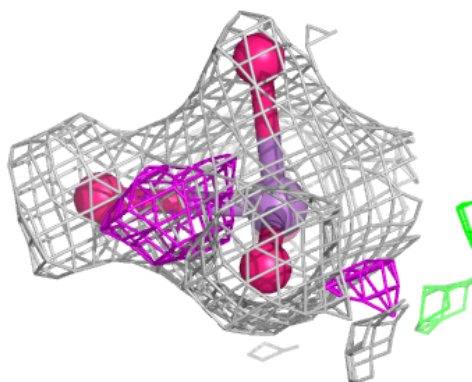
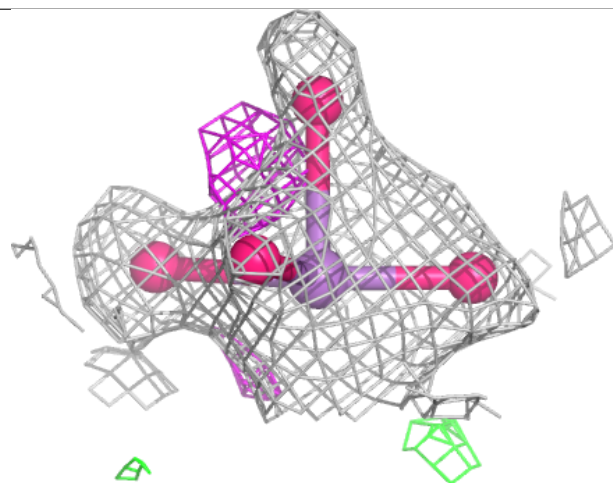
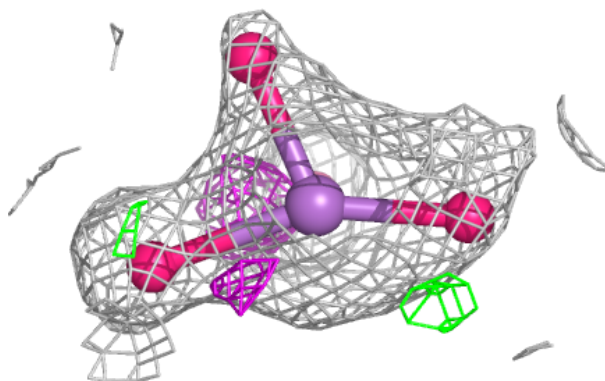
**Electron density around MGD E 5001:**

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



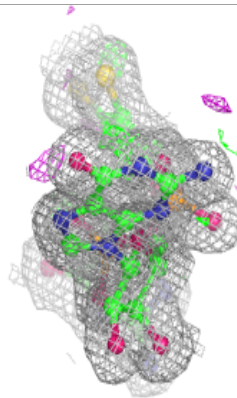
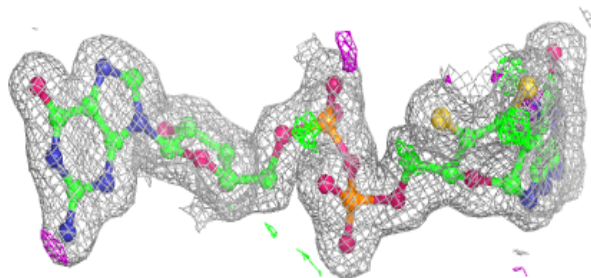
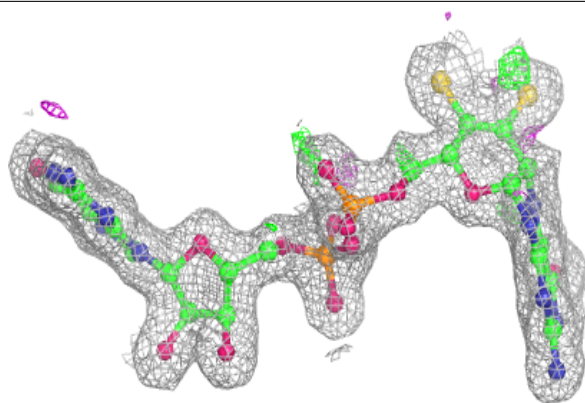
**Electron density around UJI A 5010:**

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



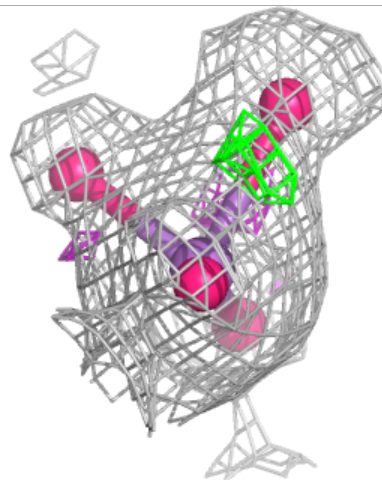
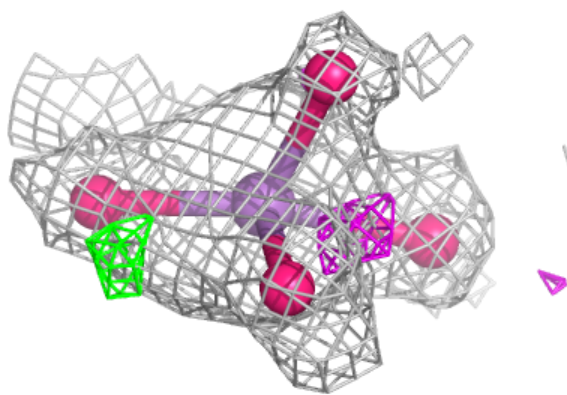
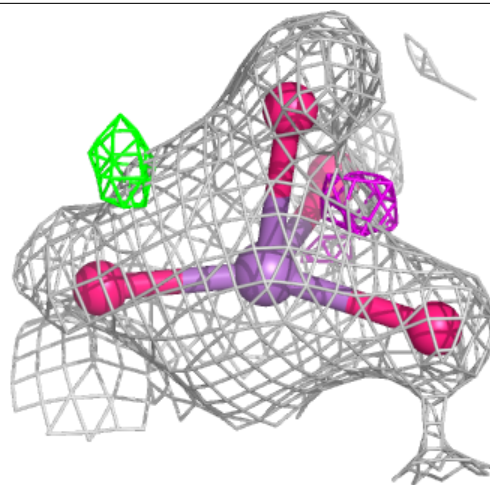
**Electron density around MGD E 5002:**

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and green (positive)



**Electron density around UJI E 5009:**

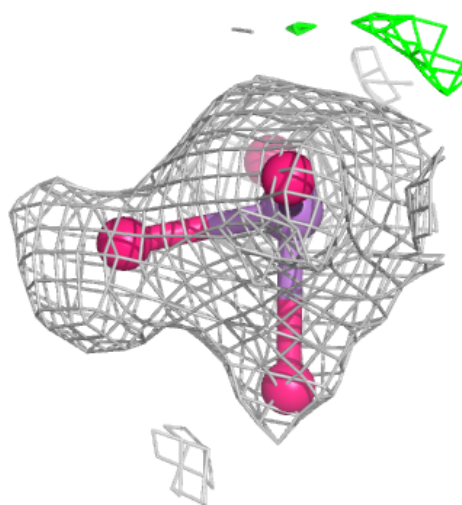
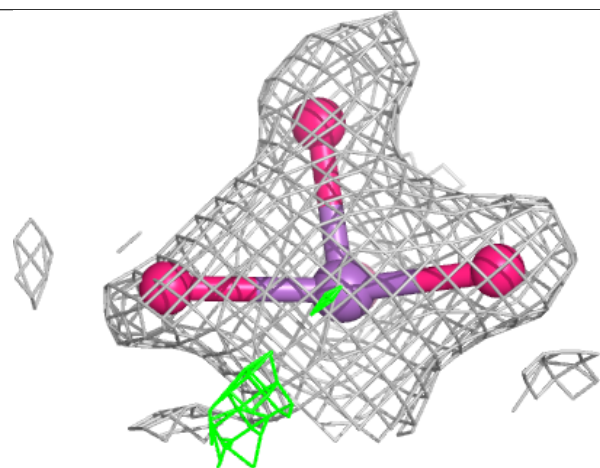
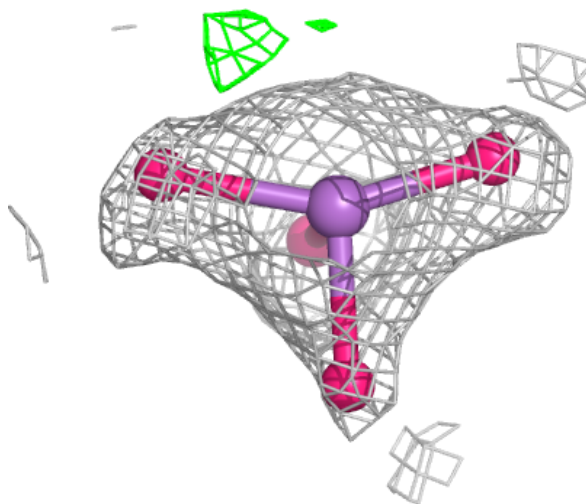
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





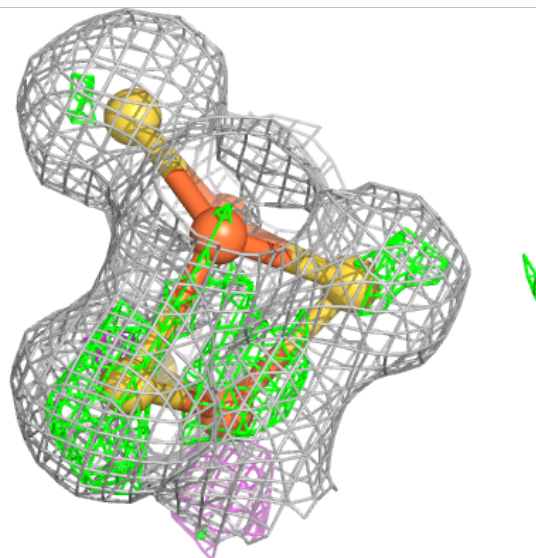
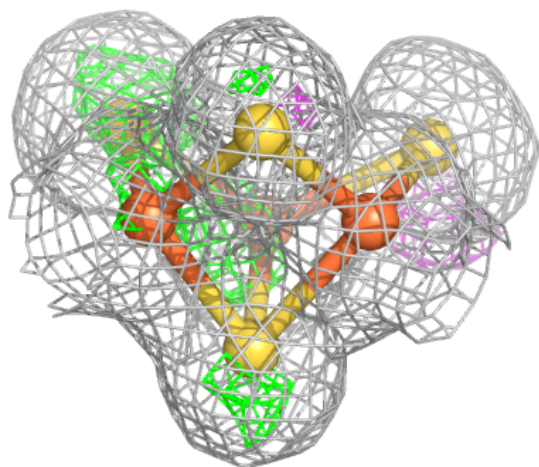
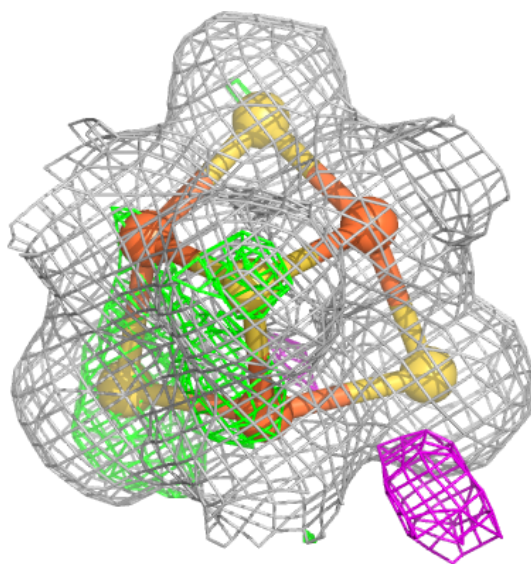
**Electron density around UJI G 5010:**

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



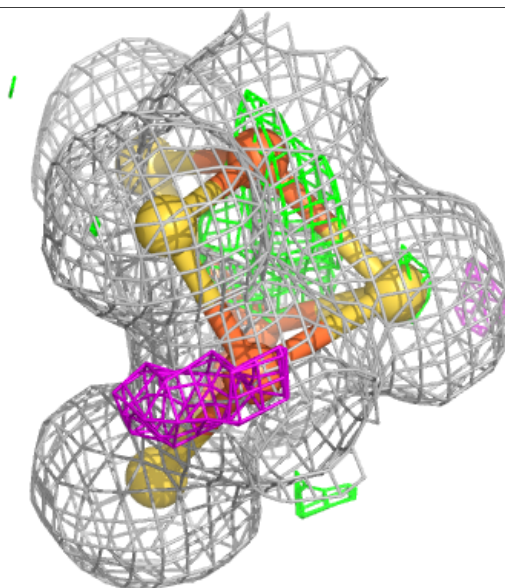
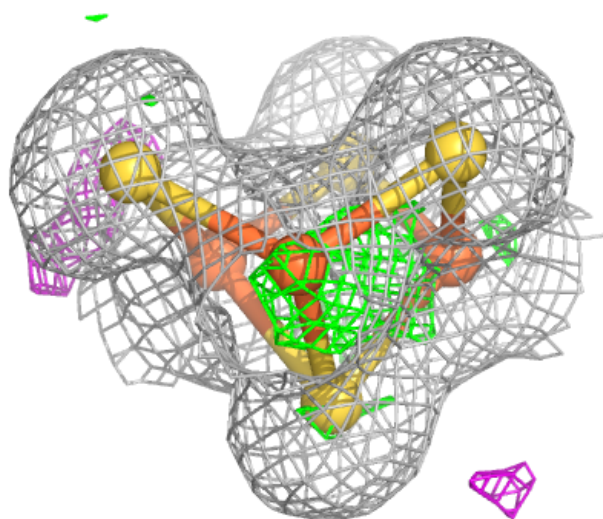
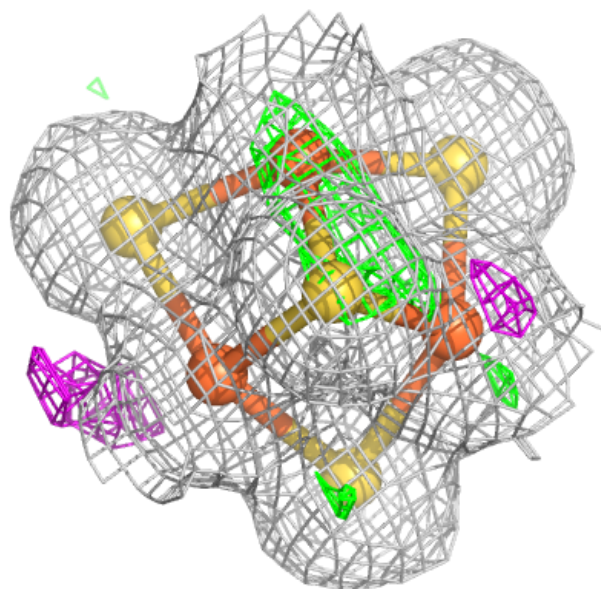
**Electron density around F3S A 5005:**

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and green (positive)



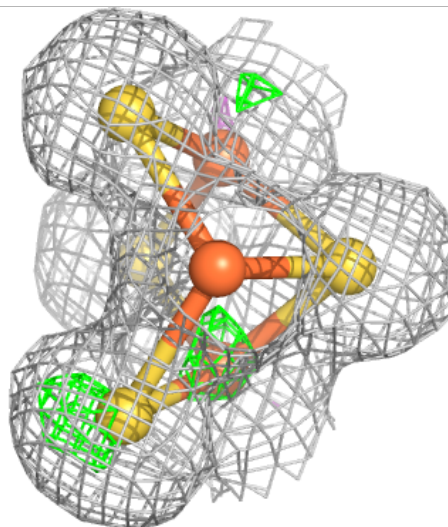
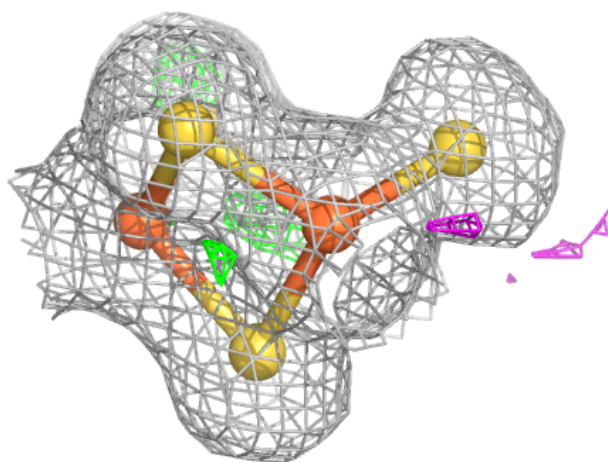
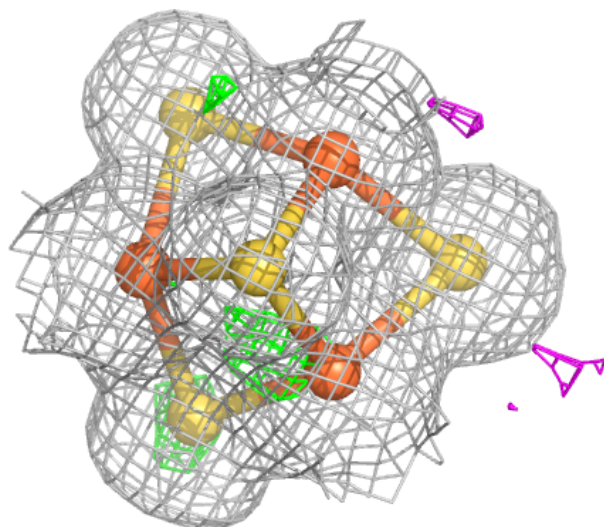
**Electron density around F3S C 5105:**

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and green (positive)



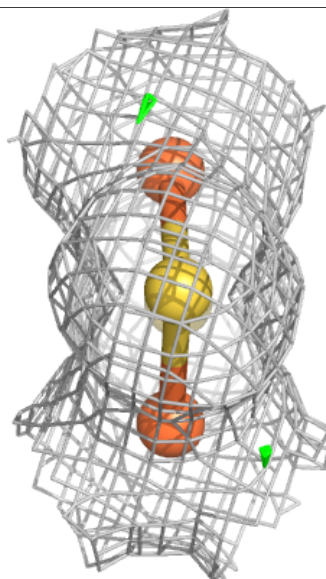
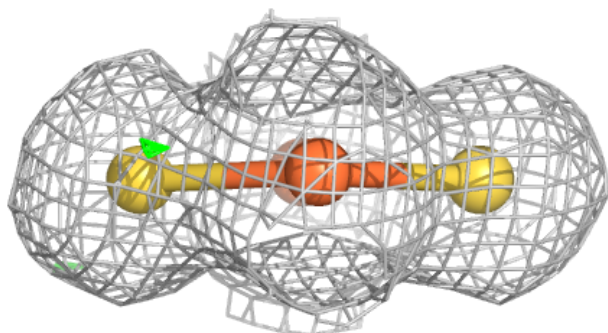
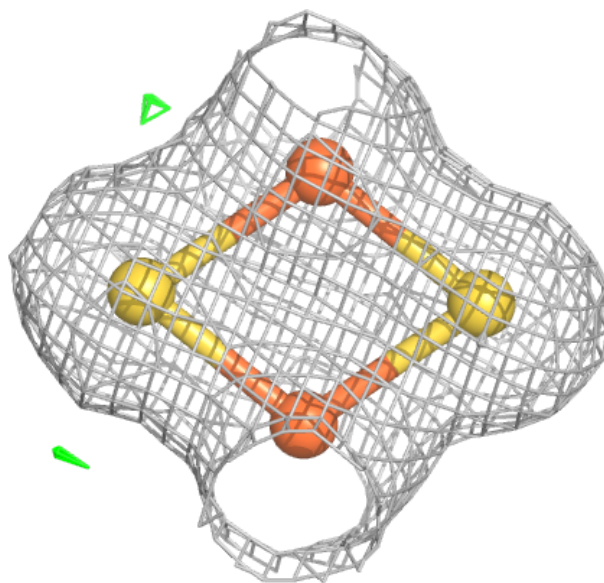
**Electron density around F3S E 5005:**

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



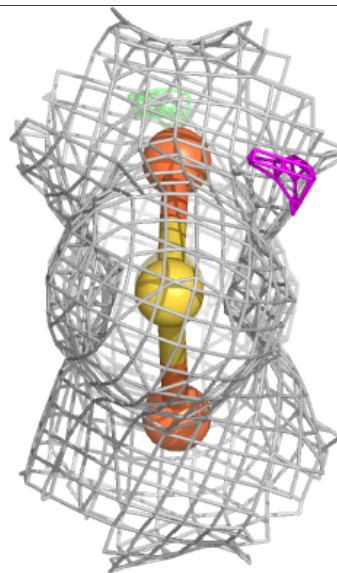
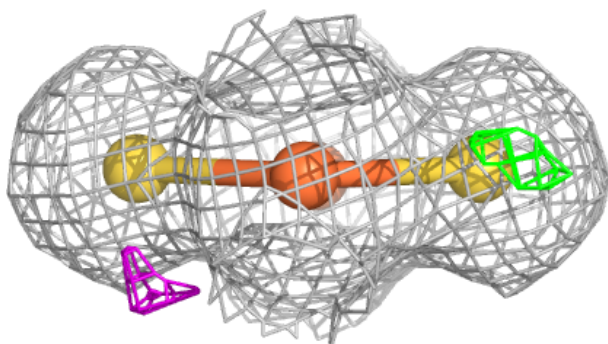
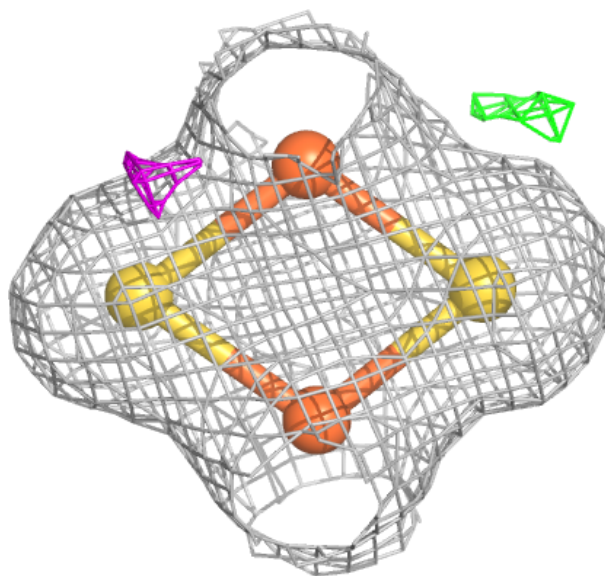
**Electron density around FES B 201:**

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



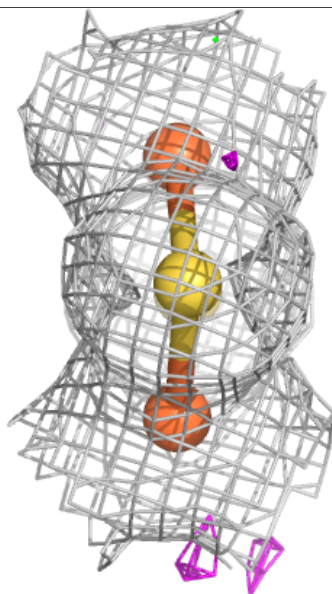
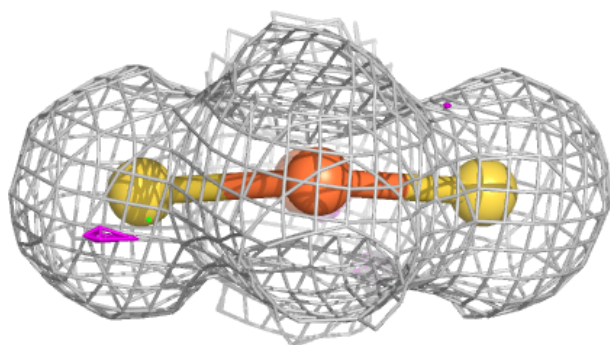
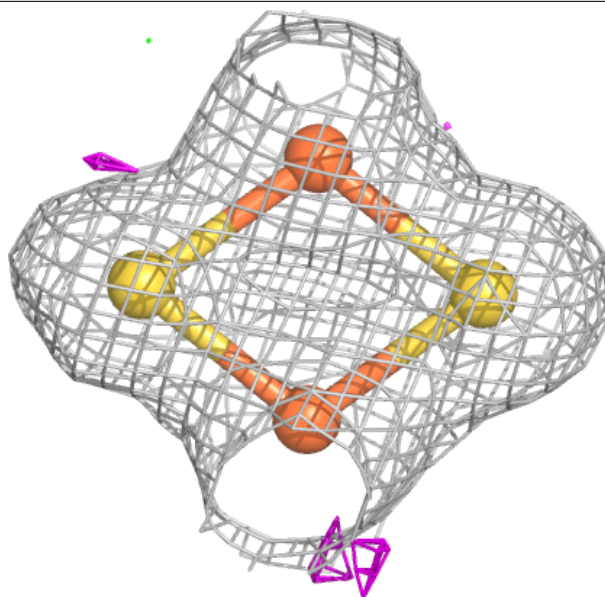
**Electron density around FES D 201:**

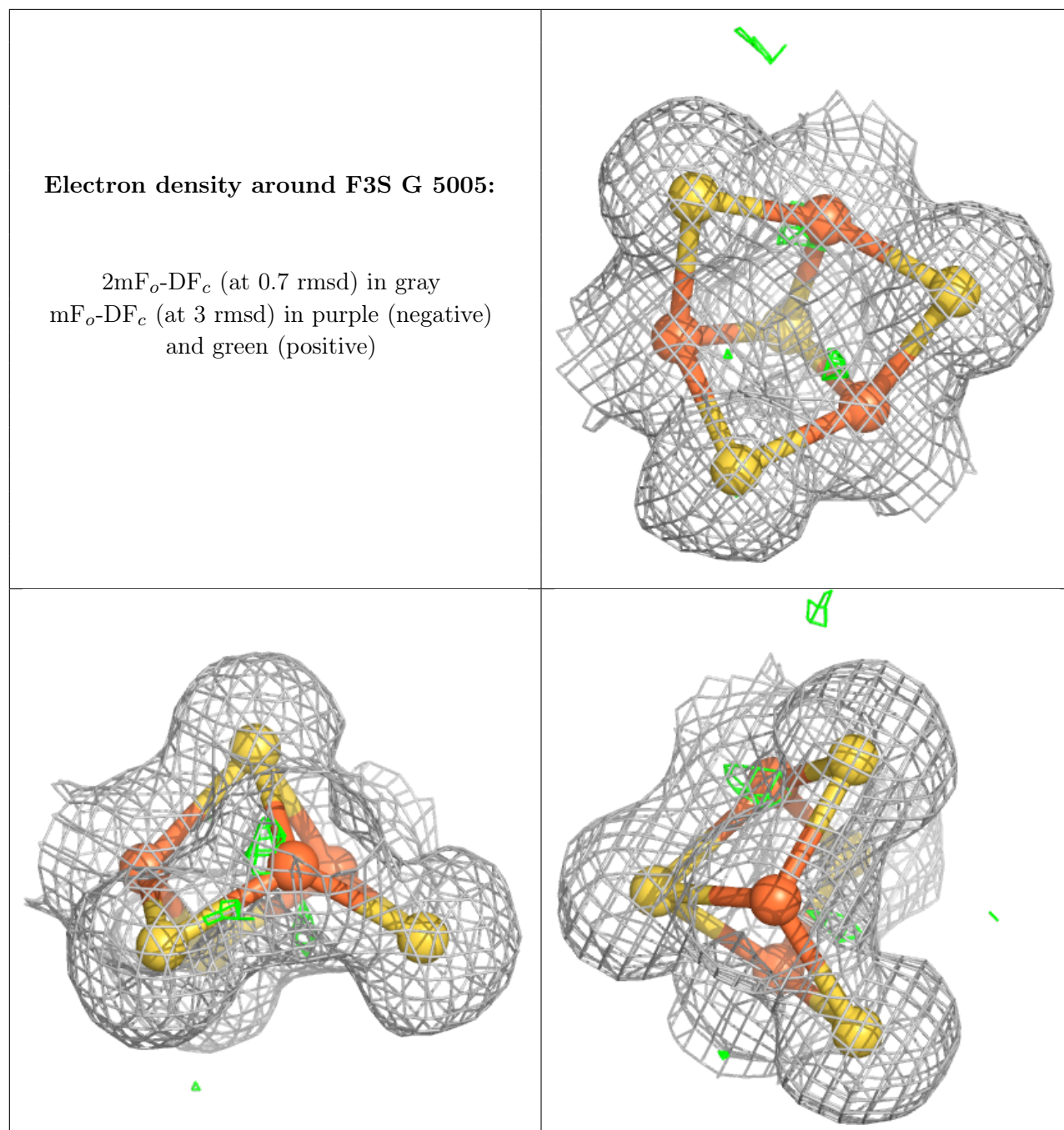
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



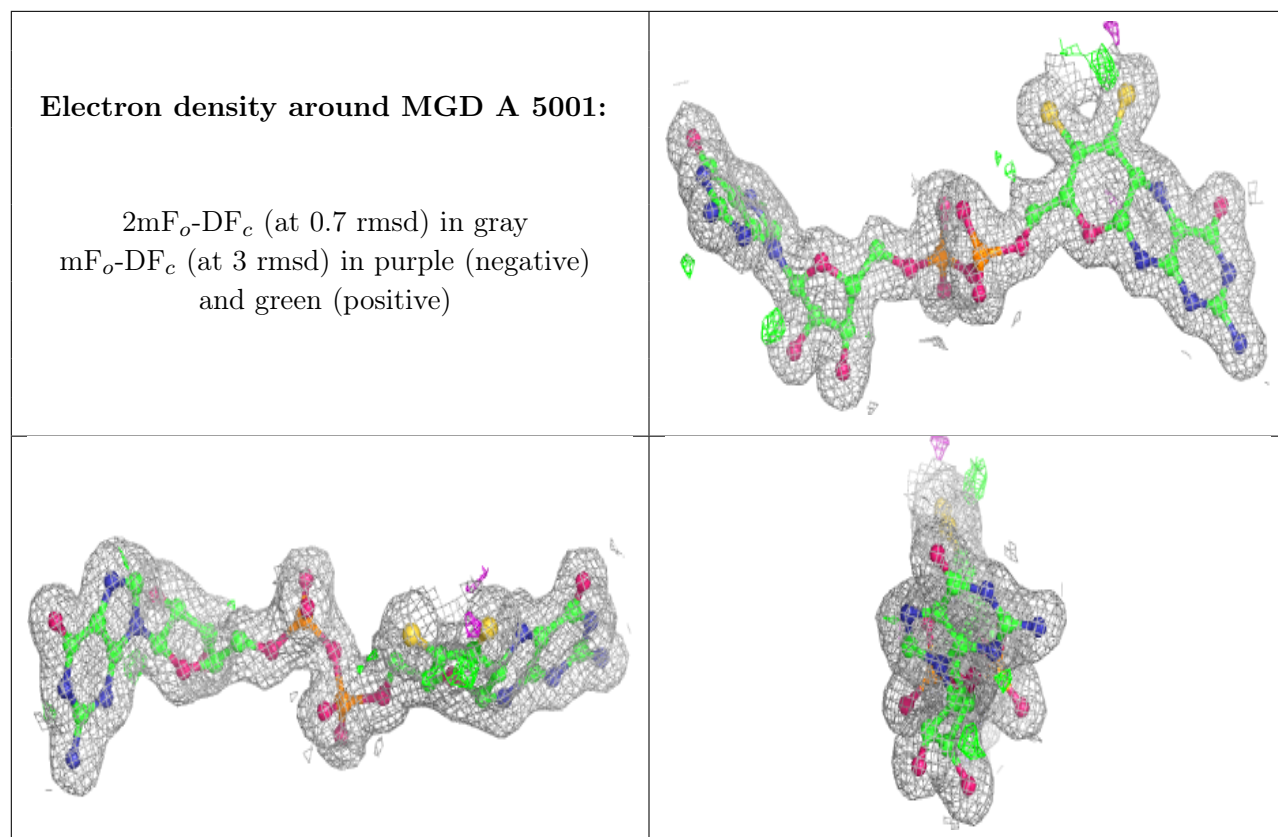
**Electron density around FES F 201:**

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



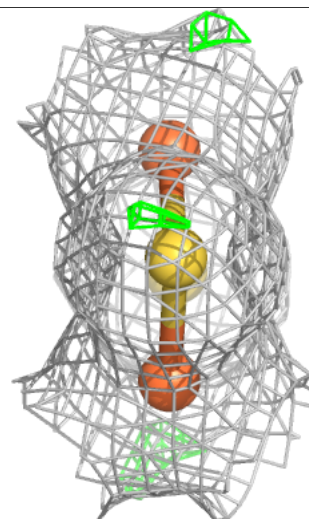
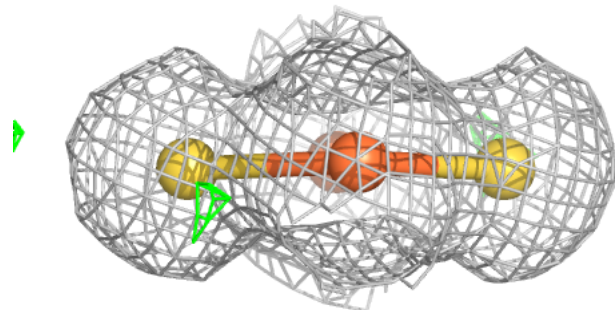
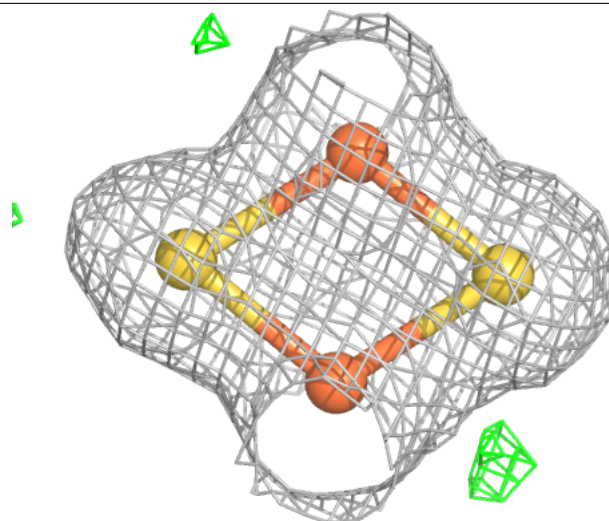


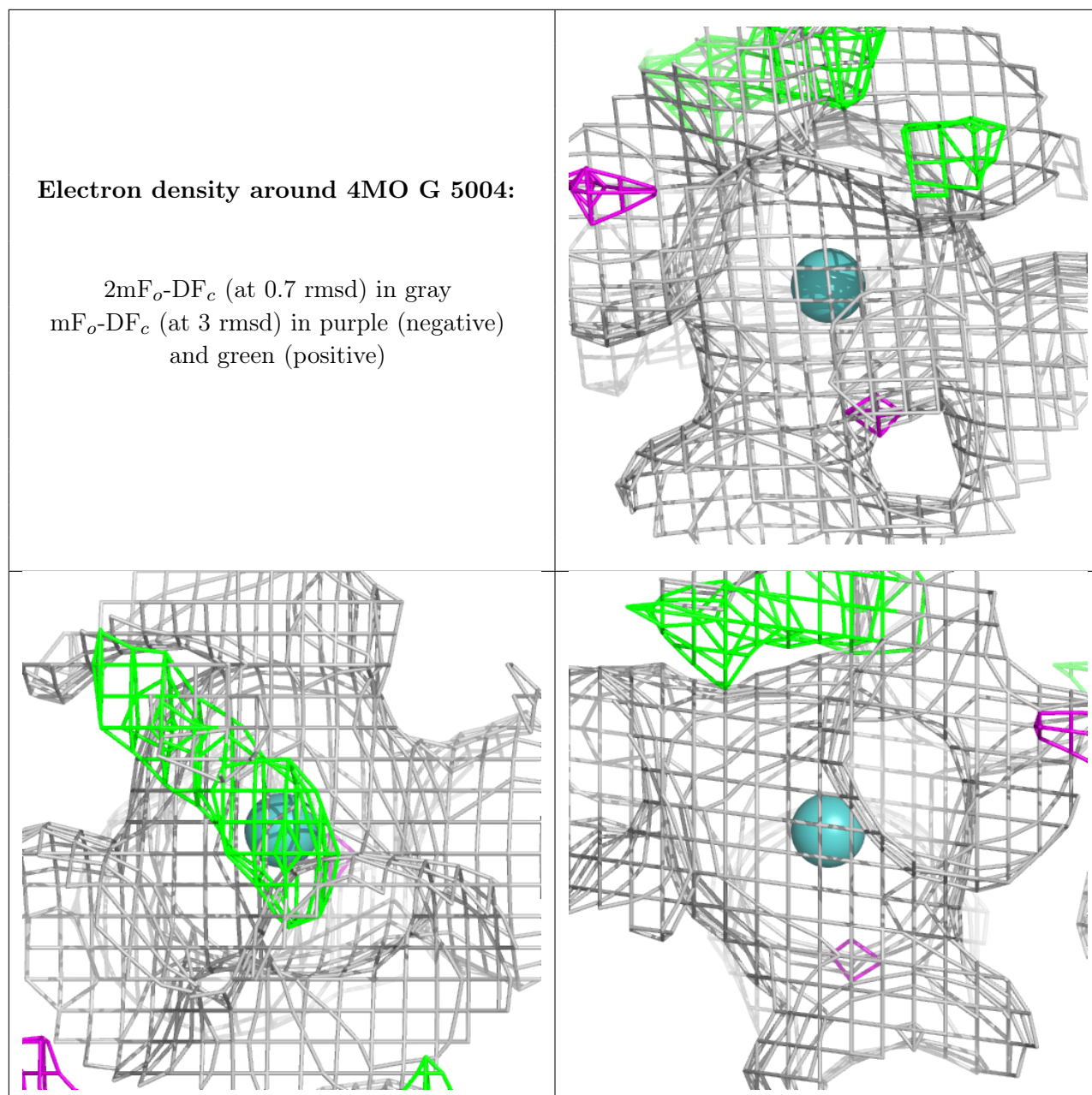




**Electron density around FES H 201:**

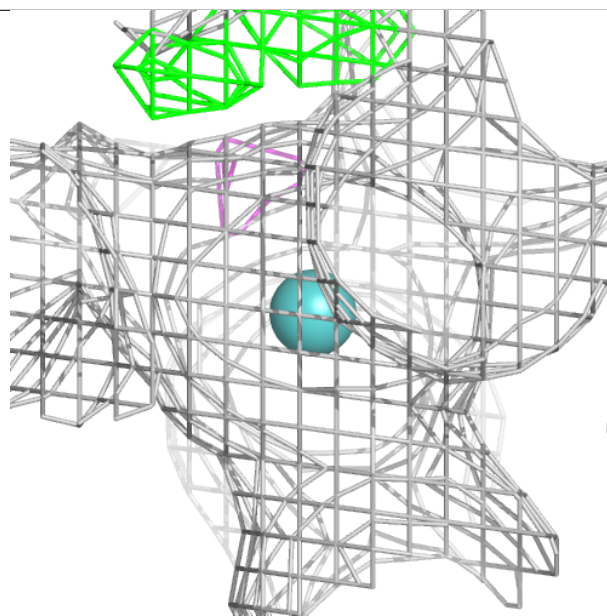
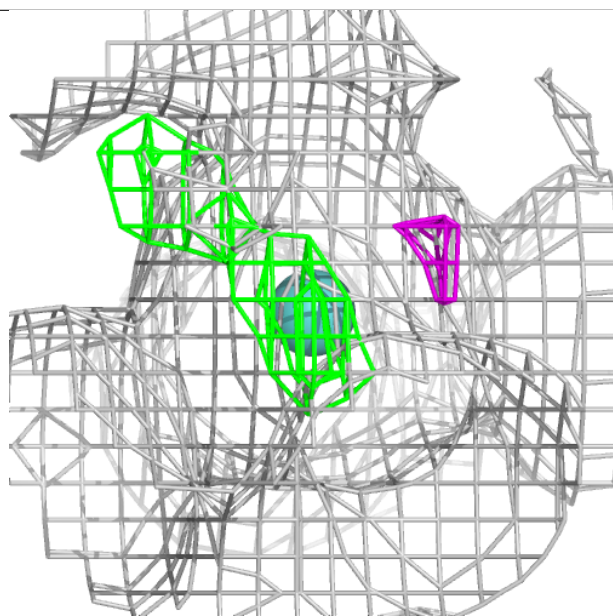
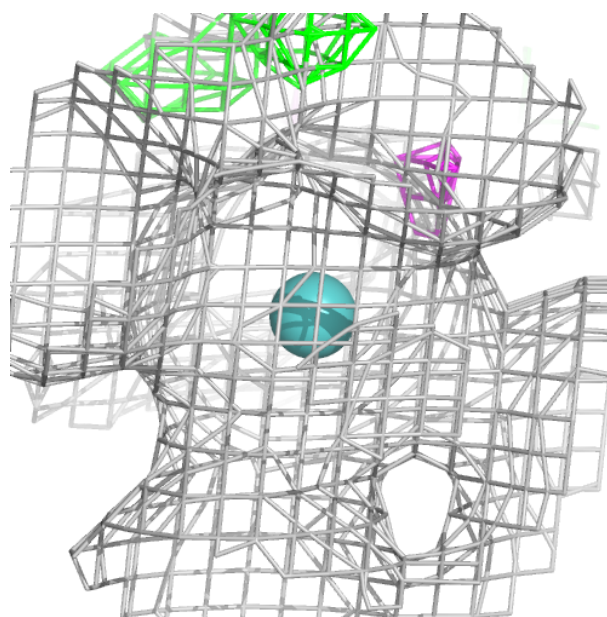
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





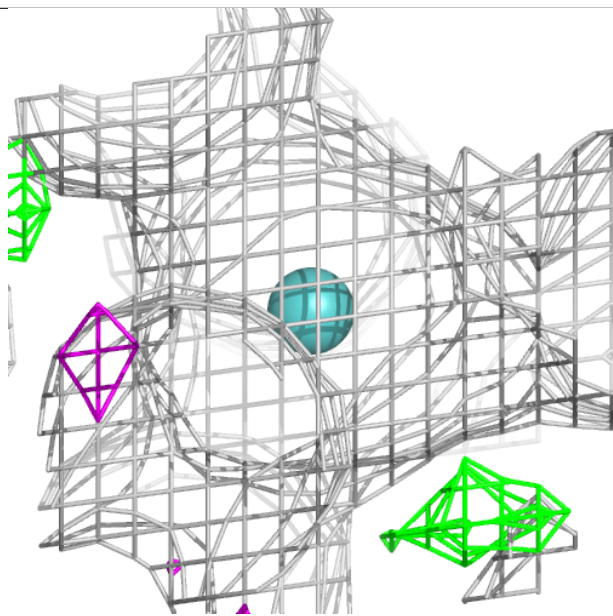
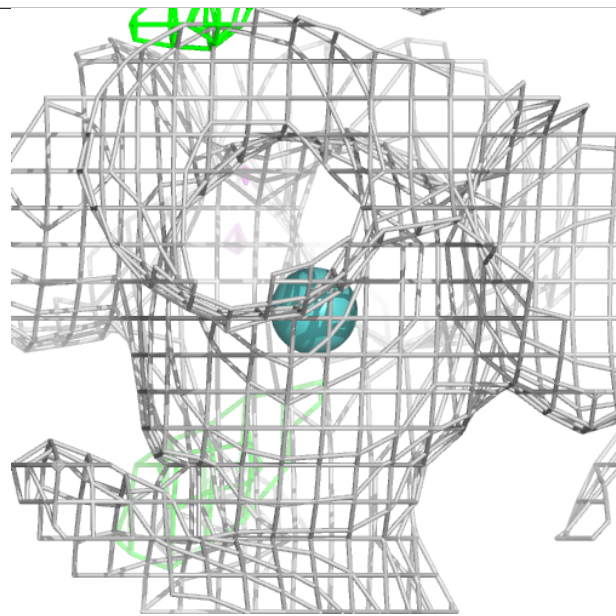
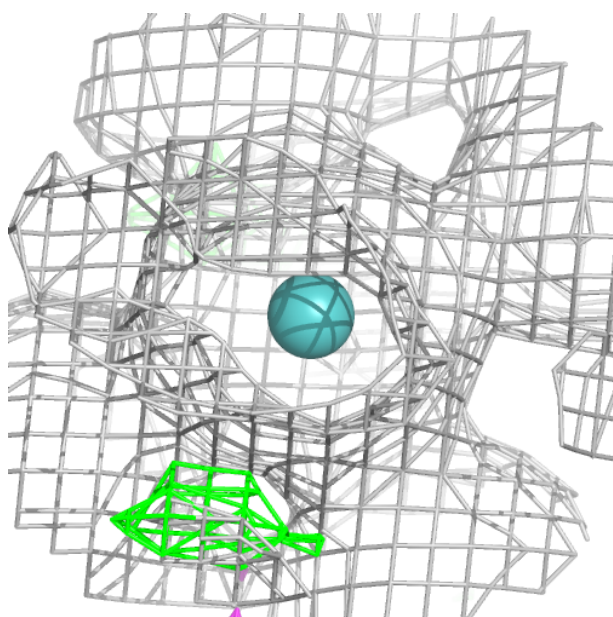
**Electron density around 4MO A 5004:**

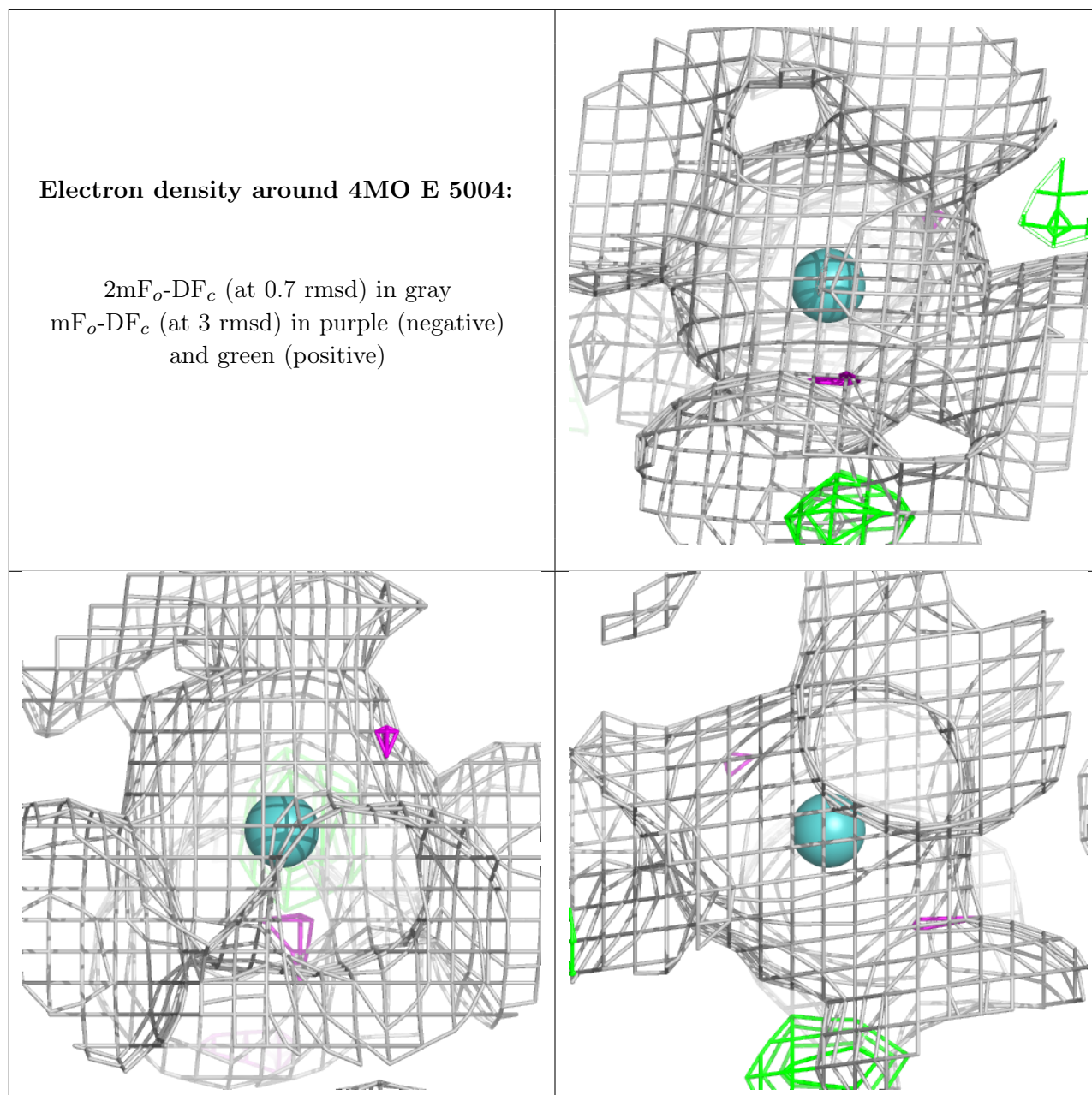
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



**Electron density around 4MO C 5104:**

$2mF_o-DF_c$  (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.