



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 8, 2023 – 12:14 PM JST

PDB ID : 7YRO
Title : Crystal structure of mango fucosyltransferase 13
Authors : Okada, T.; Teramoto, T.; Ihara, H.; Ikeda, Y.; Kakuta, Y.
Deposited on : 2022-08-10
Resolution : 2.42 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.35
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

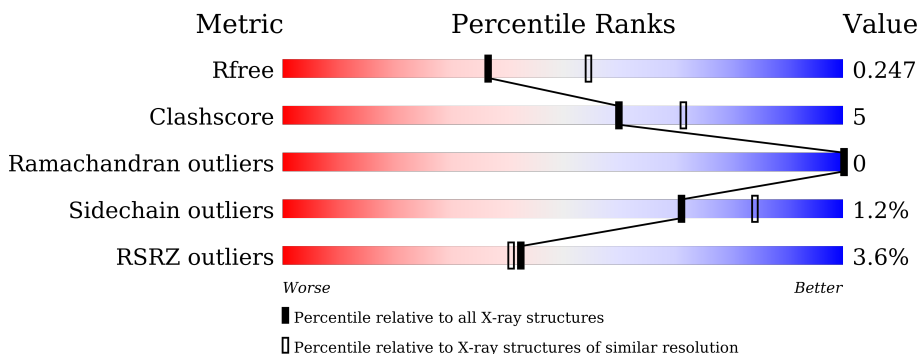
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.42 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.



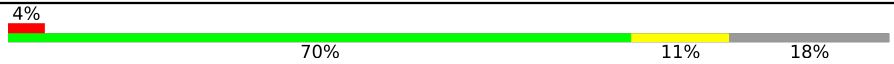

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	4647 (2.44-2.40)
Clashscore	141614	5161 (2.44-2.40)
Ramachandran outliers	138981	5073 (2.44-2.40)
Sidechain outliers	138945	5074 (2.44-2.40)
RSRZ outliers	127900	4543 (2.44-2.40)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	410	 5% 71% 10% 14%
1	B	410	 2% 72% 10% 16%
1	C	410	 2% 74% 8% 16%
1	D	410	 2% 74% 7% 17%
1	E	410	 73% 8% 19%
1	F	410	 3% 72% 9% 16%

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Mol	Chain	Length	Quality of chain
1	G	410	 4% 70% 11% 18%
1	H	410	 5% 72% 10% 18%

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
2	GOL	C	508	-	-	-	X

2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 21872 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 Fucosyltransferase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	335	2629	1672	453	487	17	0	3	0
1	B	335	2656	1688	462	489	17	0	1	0
1	C	336	2638	1677	461	483	17	0	0	0
1	D	334	2638	1678	459	484	17	0	0	0
1	E	334	2656	1690	467	482	17	0	2	0
1	F	335	2648	1682	461	488	17	0	1	0
1	G	335	2639	1678	460	484	17	0	1	0
1	H	337	2605	1654	450	484	17	0	1	0

- Molecule 2 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$) (labeled as "Ligand of Interest" by depositor).



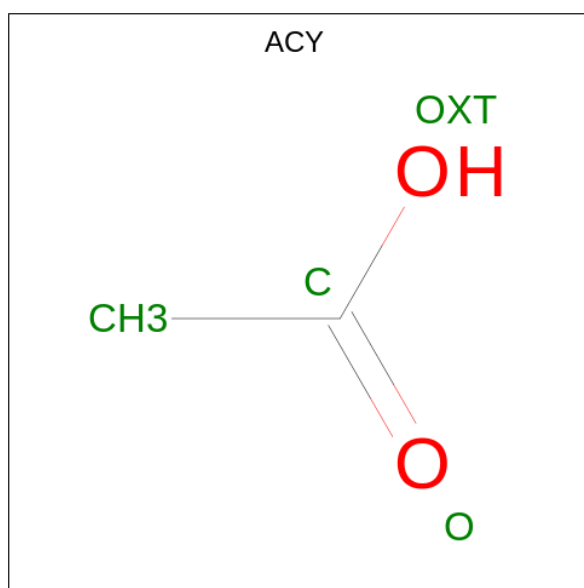
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total C O 6 3 3	0	0
2	B	1	Total C O 6 3 3	0	0
2	B	1	Total C O 6 3 3	0	0
2	C	1	Total C O 6 3 3	0	0
2	C	1	Total C O 6 3 3	0	0
2	C	1	Total C O 6 3 3	0	0
2	C	1	Total C O 6 3 3	0	0
2	C	1	Total C O 6 3 3	0	0
2	C	1	Total C O 6 3 3	0	0
2	D	1	Total C O 6 3 3	0	0
2	D	1	Total C O 6 3 3	0	0
2	D	1	Total C O 6 3 3	0	0
2	D	1	Total C O 6 3 3	0	0
2	E	1	Total C O 6 3 3	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	E	1	Total	C	O	0	0
			6	3	3		
2	E	1	Total	C	O	0	0
			6	3	3		
2	F	1	Total	C	O	0	0
			6	3	3		
2	F	1	Total	C	O	0	0
			6	3	3		
2	F	1	Total	C	O	0	0
			6	3	3		
2	G	1	Total	C	O	0	0
			6	3	3		
2	H	1	Total	C	O	0	0
			6	3	3		

- Molecule 3 is ACETIC ACID (three-letter code: ACY) (formula: C₂H₄O₂) (labeled as "Ligand of Interest" by depositor).



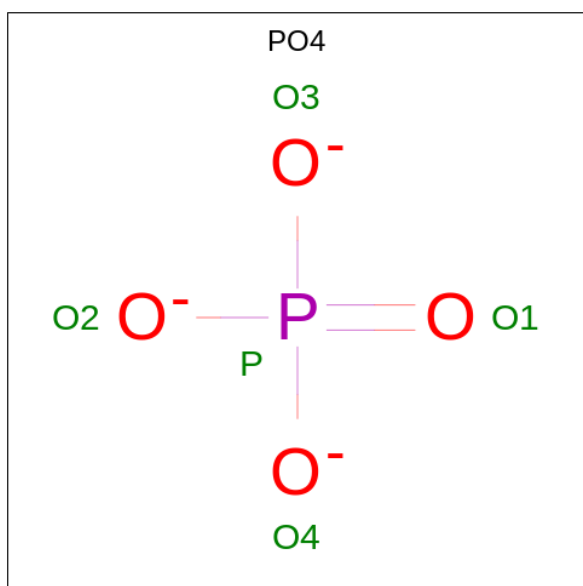
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			4	2	2		
3	B	1	Total	C	O	0	0
			4	2	2		
3	C	1	Total	C	O	0	0
			4	2	2		
3	E	1	Total	C	O	0	0
			4	2	2		

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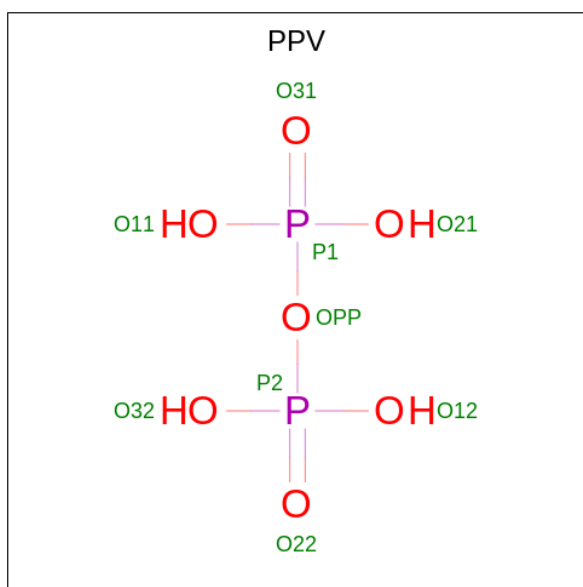
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	F	1	Total	C	O	0	0
			4	2	2		
3	G	1	Total	C	O	0	0
			4	2	2		
3	H	1	Total	C	O	0	0
			4	2	2		

- Molecule 4 is PHOSPHATE ION (three-letter code: PO4) (formula: O₄P) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	O	P	0	0
			5	4	1		

- Molecule 5 is PYROPHOSPHATE (three-letter code: PPV) (formula: H₄O₇P₂) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	B	1	Total O P 9 7 2	0	0
5	C	1	Total O P 9 7 2	0	0
5	D	1	Total O P 9 7 2	0	0
5	E	1	Total O P 9 7 2	0	0
5	F	1	Total O P 9 7 2	0	0
5	G	1	Total O P 9 7 2	0	0
5	H	1	Total O P 9 7 2	0	0

- Molecule 6 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: C₈H₁₅NO₆) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
6	B	1	Total	C	N	O	0	0
			14	8	1	5		
6	C	1	Total	C	N	O	0	0
			14	8	1	5		
6	D	1	Total	C	N	O	0	0
			14	8	1	5		
6	E	1	Total	C	N	O	0	0
			14	8	1	5		
6	F	1	Total	C	N	O	0	0
			14	8	1	5		

- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	26	Total	O	0	0
			26	26		
7	B	50	Total	O	0	0
			50	50		
7	C	92	Total	O	0	0
			92	92		
7	D	83	Total	O	0	0
			83	83		
7	E	90	Total	O	0	0
			90	90		
7	F	59	Total	O	0	0
			59	59		
7	G	39	Total	O	0	0
			39	39		

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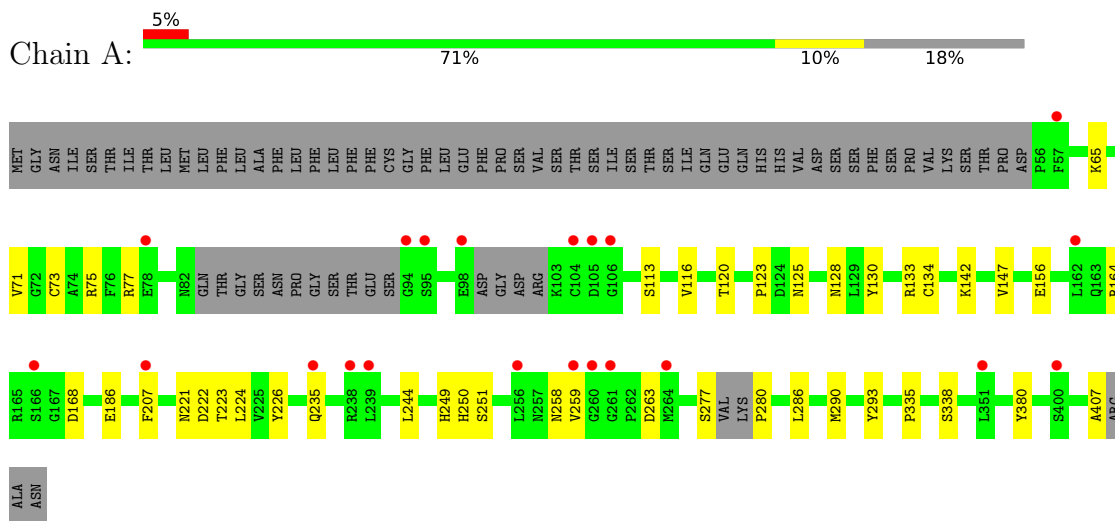
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	H	32	Total 32	O 32	0	0

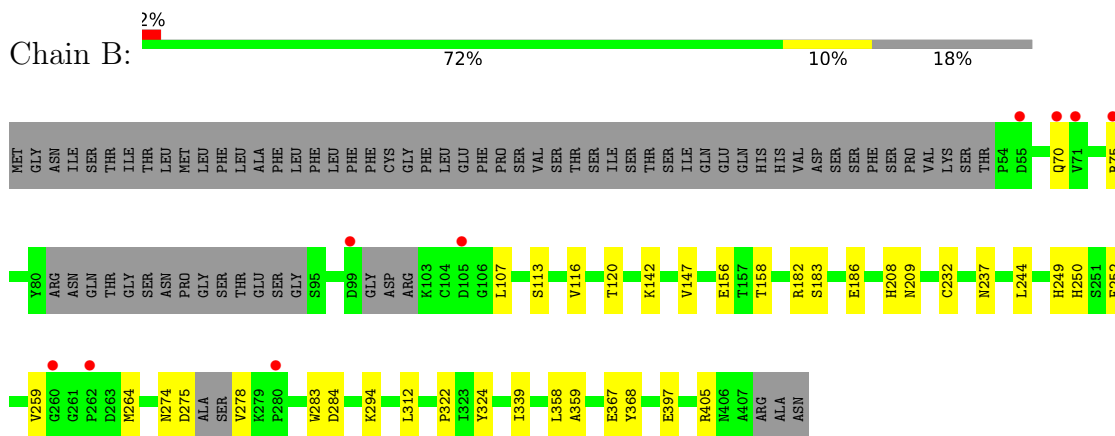
3 Residue-property plots

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.

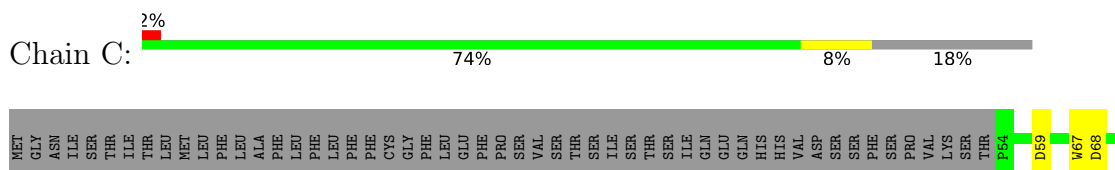
- Molecule 1: Fucosyltransferase

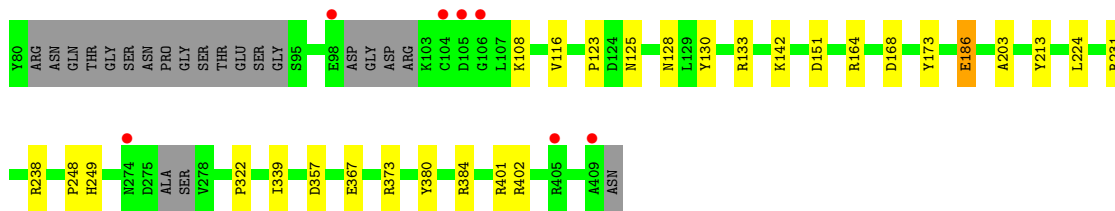


- Molecule 1: Fucosyltransferase

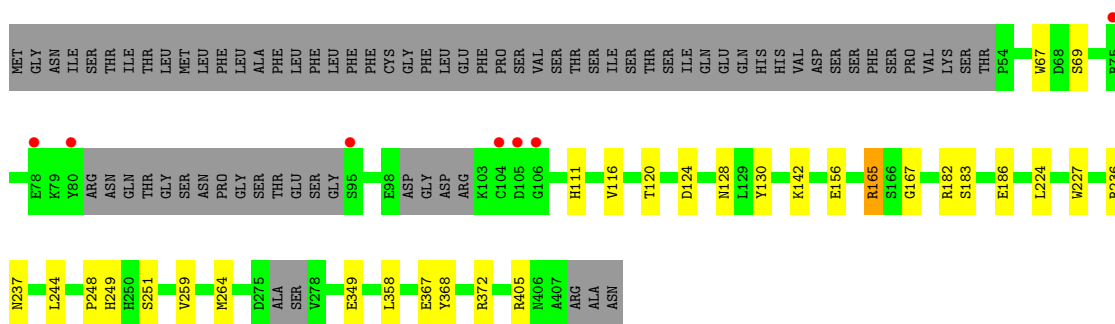
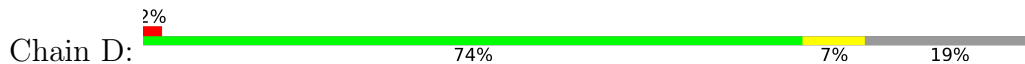


- Molecule 1: Fucosyltransferase

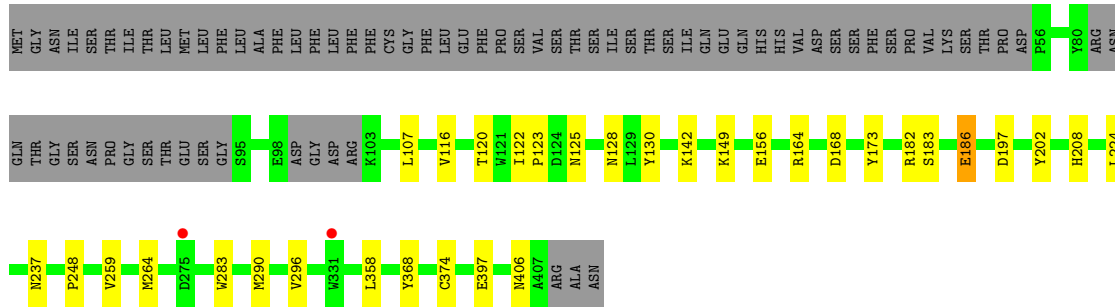
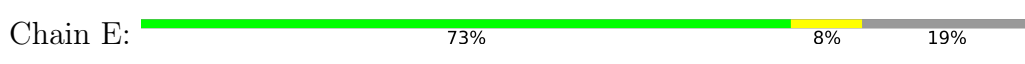




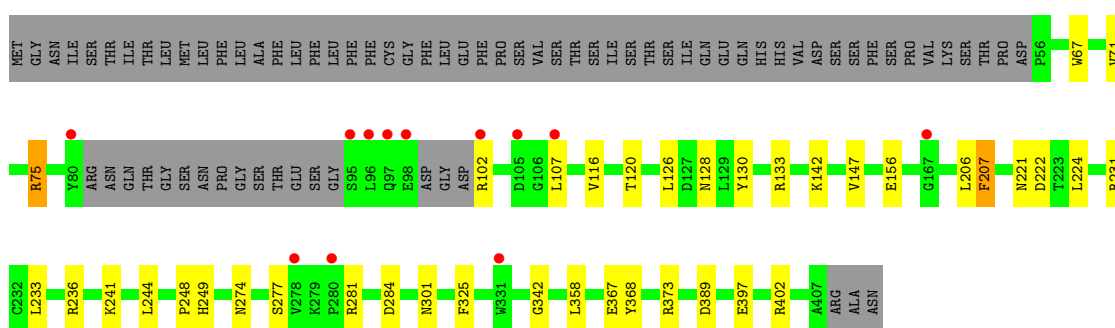
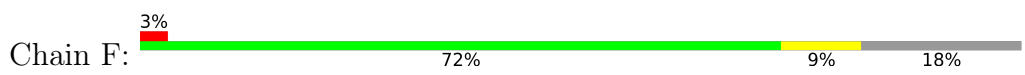
• Molecule 1: Fucosyltransferase



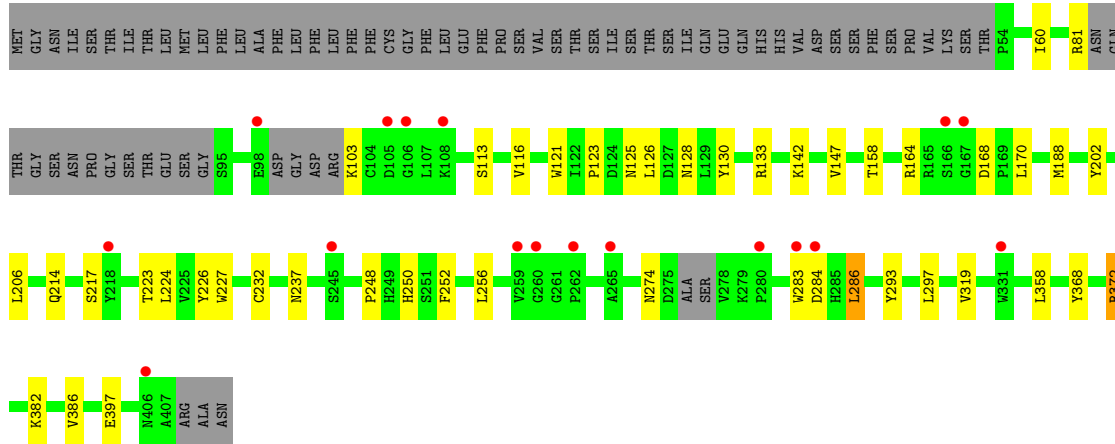
• Molecule 1: Fucosyltransferase



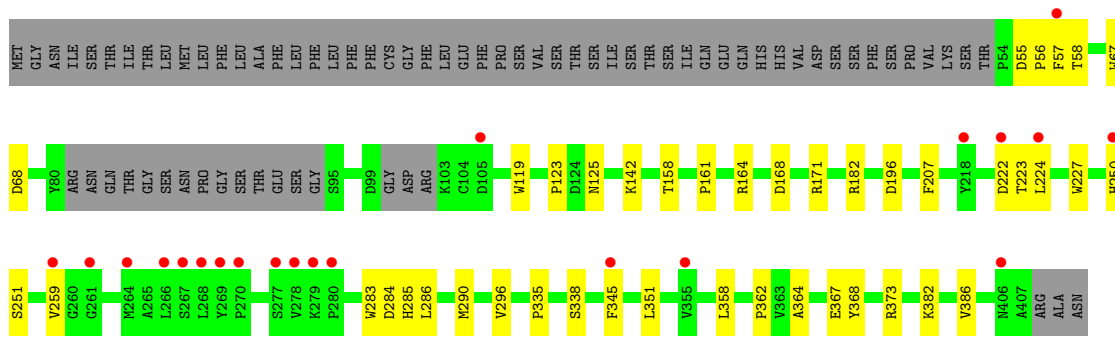
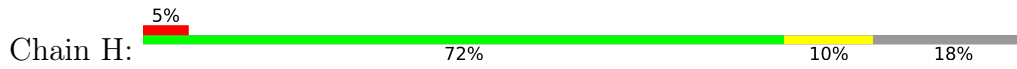
• Molecule 1: Fucosyltransferase



• Molecule 1: Fucosyltransferase



● Molecule 1: Fucosyltransferase



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	86.70Å 163.61Å 274.90Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	46.86 – 2.42 46.86 – 2.42	Depositor EDS
% Data completeness (in resolution range)	100.0 (46.86-2.42) 91.7 (46.86-2.42)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	0.82 (at 2.42Å)	Xtrriage
Refinement program	PHENIX (1.19.2_4158: ???)	Depositor
R, R_{free}	0.210 , 0.248 0.209 , 0.247	Depositor DCC
R_{free} test set	2000 reflections (1.34%)	wwPDB-VP
Wilson B-factor (Å ²)	43.9	Xtrriage
Anisotropy	0.391	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 46.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	21872	wwPDB-VP
Average B, all atoms (Å ²)	58.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.66% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: ACY, GOL, NAG, PO4, PPV

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	0.28	0/2710	0.54	0/3691
1	B	0.27	0/2730	0.53	0/3709
1	C	0.29	0/2709	0.54	0/3683
1	D	0.29	0/2709	0.55	0/3681
1	E	0.29	0/2733	0.55	0/3711
1	F	0.27	0/2722	0.54	0/3701
1	G	0.28	0/2713	0.54	0/3689
1	H	0.28	0/2680	0.55	0/3660
All	All	0.28	0/21706	0.54	0/29525

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2629	0	2467	25	0
1	B	2656	0	2541	20	0
1	C	2638	0	2505	24	0
1	D	2638	0	2523	20	0
1	E	2656	0	2569	24	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	F	2648	0	2528	28	0
1	G	2639	0	2511	24	0
1	H	2605	0	2413	28	0
2	A	6	0	8	0	0
2	B	12	0	16	0	0
2	C	36	0	48	3	0
2	D	24	0	32	2	0
2	E	18	0	24	2	0
2	F	18	0	24	1	0
2	G	6	0	8	1	0
2	H	6	0	8	0	0
3	A	4	0	3	0	0
3	B	4	0	3	0	0
3	C	4	0	3	0	0
3	E	4	0	3	1	0
3	F	4	0	3	1	0
3	G	4	0	3	1	0
3	H	4	0	3	1	0
4	A	5	0	0	0	0
5	B	9	0	0	0	0
5	C	9	0	0	1	0
5	D	9	0	0	1	0
5	E	9	0	0	0	0
5	F	9	0	0	2	0
5	G	9	0	0	0	0
5	H	9	0	0	0	0
6	B	14	0	13	0	0
6	C	14	0	13	1	0
6	D	14	0	13	0	0
6	E	14	0	13	0	0
6	F	14	0	13	0	0
7	A	26	0	0	0	0
7	B	50	0	0	0	0
7	C	92	0	0	3	0
7	D	83	0	0	3	0
7	E	90	0	0	2	0
7	F	59	0	0	1	0
7	G	39	0	0	0	0
7	H	32	0	0	1	0
All	All	21872	0	20311	190	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 5.

All (190) 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:E:173:TYR:HB3	1:E:186:GLU:HG2	1.61	0.81
1:E:182[B]:ARG:NH2	2:E:505:GOL:O2	2.20	0.74
1:C:67:TRP:HE1	1:C:367:GLU:HG2	1.53	0.73
1:D:111:HIS:HD2	2:D:503:GOL:H12	1.54	0.70
1:B:107:LEU:HD11	1:B:397:GLU:HG3	1.74	0.70
1:A:223:THR:HG21	1:A:250:HIS:ND1	2.06	0.70
1:H:182:ARG:NH2	1:H:196:ASP:OD1	2.26	0.69
1:A:133:ARG:NH1	1:A:134:CYS:SG	2.66	0.68
1:E:173:TYR:CB	1:E:186:GLU:HG2	2.25	0.67
1:C:108:LYS:NZ	1:C:401:ARG:O	2.27	0.66
1:C:231:ARG:NH1	5:C:501:PPV:O31	2.30	0.65
1:G:223:THR:HG21	1:G:250:HIS:ND1	2.12	0.64
1:E:116:VAL:HG11	1:E:122:ILE:HD11	1.78	0.64
1:D:67:TRP:HE1	1:D:367:GLU:HG2	1.63	0.64
1:E:164:ARG:NH1	1:E:168:ASP:O	2.31	0.64
6:C:502:NAG:H83	6:C:502:NAG:H3	1.80	0.63
1:A:250:HIS:HD2	1:A:259:VAL:HG12	1.62	0.63
1:H:290:MET:HE3	1:H:296:VAL:HG21	1.81	0.63
1:G:164:ARG:NH1	1:G:168:ASP:O	2.32	0.62
1:C:128:ASN:HD21	2:C:509:GOL:H12	1.65	0.61
1:F:277:SER:OG	1:F:281:ARG:NH2	2.33	0.61
1:H:57:PHE:HB3	1:H:362:PRO:HG3	1.82	0.61
1:E:202:TYR:HA	3:E:504:ACY:H3	1.82	0.61
1:F:133:ARG:NH2	1:F:397:GLU:OE2	2.33	0.61
1:A:73:CYS:O	1:A:77:ARG:HG3	2.00	0.61
1:C:173:TYR:CB	1:C:186:GLU:HG2	2.32	0.59
1:H:284:ASP:OD1	1:H:285:HIS:ND1	2.33	0.59
1:G:133:ARG:NH1	1:G:397:GLU:OE2	2.36	0.59
1:H:223:THR:HG21	1:H:250:HIS:ND1	2.18	0.59
1:E:183:SER:N	1:E:186:GLU:OE2	2.27	0.58
1:F:120:THR:OG1	1:F:156:GLU:OE2	2.22	0.58
1:F:402:ARG:NH2	7:F:601:HOH:O	2.31	0.57
1:C:384:ARG:NH2	1:D:128:ASN:OD1	2.38	0.57
1:H:67:TRP:HE1	1:H:367:GLU:HG2	1.68	0.57
1:G:224:LEU:HD12	1:G:248:PRO:HD2	1.87	0.57
1:E:208:HIS:HB3	1:E:283:TRP:CD1	2.40	0.56
1:C:116:VAL:HB	1:C:142:LYS:HG2	1.88	0.56
1:C:164:ARG:NH1	1:C:168:ASP:O	2.39	0.56
1:F:236:ARG:NH2	5:F:501:PPV:O11	2.38	0.56
1:H:55:ASP:O	1:H:57:PHE:N	2.38	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:107:LEU:HD21	1:E:397:GLU:HG3	1.87	0.55
1:D:165:ARG:NH2	7:D:606:HOH:O	2.38	0.55
1:E:123:PRO:HB2	1:E:125:ASN:OD1	2.07	0.55
1:E:120:THR:OG1	1:E:156:GLU:OE2	2.25	0.54
1:D:182:ARG:HB3	1:D:186:GLU:OE2	2.07	0.54
1:E:237:ASN:ND2	7:E:605:HOH:O	2.40	0.54
1:H:68:ASP:OD2	1:H:373:ARG:NH2	2.35	0.54
1:B:182:ARG:HB3	1:B:186:GLU:OE2	2.08	0.54
1:F:67:TRP:HE1	1:F:367:GLU:HG2	1.72	0.54
1:F:231:ARG:HH22	1:F:301:ASN:HB3	1.71	0.54
1:F:224:LEU:HD12	1:F:248:PRO:HD2	1.90	0.53
1:D:236:ARG:NH2	5:D:501:PPV:O21	2.42	0.53
1:F:231:ARG:HH22	1:F:301:ASN:CB	2.21	0.53
1:D:259:VAL:HG23	1:D:264:MET:HG3	1.92	0.52
1:D:120:THR:OG1	1:D:156:GLU:OE2	2.27	0.52
1:C:68:ASP:CG	1:C:373:ARG:HH22	2.13	0.52
1:F:221:ASN:OD1	1:F:222:ASP:N	2.40	0.52
1:H:358:LEU:HD21	1:H:368:TYR:CE2	2.43	0.52
1:E:224:LEU:HD12	1:E:248:PRO:HD2	1.91	0.52
1:D:224:LEU:HD12	1:D:248:PRO:HD2	1.92	0.52
1:G:202:TYR:HA	3:G:503:ACY:H3	1.91	0.51
1:H:164:ARG:NH1	1:H:168:ASP:O	2.43	0.51
1:G:283:TRP:HA	1:G:286:LEU:CD2	2.40	0.51
1:G:123:PRO:HB2	1:G:125:ASN:OD1	2.11	0.51
1:A:116:VAL:HB	1:A:142:LYS:HG2	1.93	0.51
1:D:237:ASN:ND2	7:D:608:HOH:O	2.44	0.51
1:G:283:TRP:HA	1:G:286:LEU:HD23	1.93	0.50
1:B:70:GLN:O	1:B:75:ARG:NH1	2.42	0.50
1:F:126:LEU:HD23	1:F:206:LEU:HD13	1.93	0.50
1:C:173:TYR:HB2	1:C:186:GLU:HG2	1.94	0.50
1:H:182:ARG:NH1	7:H:603:HOH:O	2.34	0.50
1:C:173:TYR:HB3	1:C:186:GLU:HG2	1.93	0.50
1:A:164:ARG:NH1	1:A:168:ASP:O	2.45	0.49
1:B:274:ASN:HB2	1:B:284:ASP:HB3	1.94	0.49
1:H:250:HIS:HD2	1:H:259:VAL:HG12	1.76	0.49
1:G:274:ASN:HB2	1:G:284:ASP:HB3	1.95	0.49
1:B:232:CYS:HB3	1:B:237:ASN:ND2	2.28	0.49
1:E:290:MET:HE3	1:E:296:VAL:HG21	1.95	0.49
1:C:224:LEU:HD12	1:C:248:PRO:HD2	1.95	0.48
1:C:322:PRO:HG2	1:C:339:ILE:HG22	1.96	0.48
1:F:107:LEU:HD21	1:F:397:GLU:HG3	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:67:TRP:NE1	1:C:367:GLU:HG2	2.27	0.48
1:C:380:TYR:CZ	1:C:384:ARG:HD3	2.49	0.48
1:G:250:HIS:HB3	1:G:252:PHE:CE1	2.49	0.47
1:B:208:HIS:HB3	1:B:283:TRP:CD1	2.50	0.47
1:A:120:THR:OG1	1:A:156:GLU:OE2	2.32	0.47
1:F:358:LEU:HD21	1:F:368:TYR:CE2	2.49	0.47
1:C:128:ASN:ND2	2:C:509:GOL:H12	2.28	0.47
1:E:374:CYS:HA	2:F:502:GOL:H31	1.97	0.47
1:B:116:VAL:HB	1:B:142:LYS:HG2	1.97	0.47
1:C:123:PRO:HB2	1:C:125:ASN:OD1	2.14	0.47
1:B:120:THR:OG1	1:B:156:GLU:OE2	2.33	0.47
1:D:128:ASN:HB3	1:D:130:TYR:CE1	2.50	0.47
1:F:206:LEU:HD12	1:F:389:ASP:HA	1.96	0.47
1:H:119:TRP:CH2	1:H:142:LYS:HD3	2.50	0.46
1:A:186:GLU:OE1	1:A:186:GLU:N	2.48	0.46
1:A:71:VAL:O	1:A:75:ARG:HD2	2.15	0.46
1:F:207:PHE:HA	3:F:506:ACY:H2	1.98	0.46
1:H:382:LYS:O	1:H:386:VAL:HG22	2.14	0.46
1:E:358:LEU:HD21	1:E:368:TYR:CE2	2.50	0.46
1:G:103:LYS:C	1:G:133:ARG:HH22	2.18	0.46
1:H:161:PRO:HD2	1:H:171:ARG:HG2	1.98	0.46
1:C:128:ASN:HB3	1:C:130:TYR:CE1	2.51	0.46
1:D:167:GLY:O	1:D:405:ARG:HD3	2.15	0.46
1:A:65:LYS:HA	1:A:65:LYS:HD3	1.80	0.46
1:B:259:VAL:HG23	1:B:264:MET:HG3	1.97	0.46
1:F:128:ASN:HB3	1:F:130:TYR:CE1	2.51	0.46
1:C:231:ARG:NH2	7:C:604:HOH:O	2.36	0.45
1:D:111:HIS:CD2	2:D:503:GOL:H12	2.43	0.45
1:E:122:ILE:O	1:E:122:ILE:HG13	2.16	0.45
1:E:182[A]:ARG:NH1	7:E:607:HOH:O	2.45	0.45
1:G:60:ILE:HG22	1:G:217:SER:O	2.17	0.45
1:B:244:LEU:HB3	1:B:249:HIS:CE1	2.52	0.45
1:C:151:ASP:OD2	2:C:503:GOL:H11	2.17	0.45
1:F:244:LEU:HB3	1:F:249:HIS:CE1	2.52	0.45
1:G:382:LYS:O	1:G:386:VAL:HG22	2.17	0.45
1:B:232:CYS:HB3	1:B:237:ASN:HD21	1.81	0.45
1:D:116:VAL:HB	1:D:142:LYS:HG2	1.98	0.45
1:E:149:LYS:HE2	1:F:373:ARG:NH2	2.32	0.45
1:B:275:ASP:O	1:B:278:VAL:N	2.50	0.44
1:H:283:TRP:HA	1:H:286:LEU:HD13	1.99	0.44
1:H:335:PRO:HG2	1:H:338:SER:HB3	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:259:VAL:O	1:E:264:MET:HG3	2.18	0.44
1:A:335:PRO:HD3	1:A:380:TYR:CG	2.53	0.44
1:F:147:VAL:HG23	1:F:147:VAL:O	2.18	0.44
1:H:335:PRO:HG2	1:H:338:SER:CB	2.47	0.44
1:A:123:PRO:HG3	1:A:207[A]:PHE:CD1	2.52	0.44
1:F:231:ARG:HH12	1:F:233:LEU:HD11	1.83	0.44
1:A:250:HIS:CD2	1:A:259:VAL:HG12	2.48	0.44
1:B:113:SER:HB2	1:B:147:VAL:HG11	1.99	0.44
1:G:319:VAL:HG13	1:G:372:ARG:NH2	2.32	0.44
1:A:286:LEU:HG	1:A:290:MET:CE	2.48	0.43
1:G:232:CYS:HB3	1:G:237:ASN:OD1	2.18	0.43
1:H:67:TRP:NE1	1:H:367:GLU:HG2	2.32	0.43
1:C:59:ASP:OD1	7:C:601:HOH:O	2.21	0.43
1:E:290:MET:HE3	1:E:290:MET:HB3	1.70	0.43
1:G:113:SER:HB2	1:G:147:VAL:HG11	1.99	0.43
1:B:183:SER:OG	1:B:186:GLU:OE1	2.23	0.43
1:B:250:HIS:HB3	1:B:252:PHE:CE1	2.53	0.43
1:C:213:TYR:CD1	1:D:124:ASP:HB3	2.53	0.43
1:H:358:LEU:HD21	1:H:368:TYR:HE2	1.83	0.43
1:H:345:PHE:CD2	1:H:351:LEU:HD12	2.53	0.43
1:A:277:SER:HB3	1:A:280:PRO:HA	1.99	0.43
1:A:128:ASN:HB3	1:A:130:TYR:CE1	2.54	0.42
1:A:221:ASN:OD1	1:A:222:ASP:N	2.52	0.42
1:A:335:PRO:HG2	1:A:338:SER:HB3	2.02	0.42
1:D:358:LEU:HD21	1:D:368:TYR:CE2	2.54	0.42
1:E:197:ASP:OD1	2:E:505:GOL:H2	2.19	0.42
1:A:226:TYR:HB2	1:A:293:TYR:CD2	2.55	0.42
1:D:244:LEU:HB3	1:D:249:HIS:CE1	2.55	0.42
1:F:102:ARG:HA	1:F:102:ARG:HD2	1.91	0.42
1:F:274:ASN:HD22	1:F:284:ASP:HB2	1.84	0.42
1:G:170:LEU:HD13	1:G:188:MET:HE1	2.01	0.42
1:G:358:LEU:HD21	1:G:368:TYR:CE2	2.55	0.42
1:H:227:TRP:O	1:H:251:SER:HA	2.20	0.42
1:A:125:ASN:HB3	1:B:209:ASN:HD21	1.85	0.42
1:G:116:VAL:HB	1:G:142:LYS:HG2	2.01	0.42
1:G:227:TRP:HD1	1:G:297:LEU:O	2.03	0.42
1:F:221:ASN:OD1	1:F:221:ASN:N	2.53	0.42
1:H:123:PRO:HB2	1:H:125:ASN:OD1	2.19	0.42
1:B:312:LEU:HD12	1:B:324:TYR:CD1	2.54	0.42
1:D:372:ARG:NH1	7:D:618:HOH:O	2.52	0.41
1:F:231:ARG:NH2	5:F:501:PPV:O32	2.44	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:325:PHE:CZ	1:F:342:GLY:HA3	2.54	0.41
1:A:244:LEU:HB3	1:A:249:HIS:CD2	2.54	0.41
1:A:164:ARG:NH2	1:A:407:ALA:O	2.54	0.41
1:C:203:ALA:HB1	1:C:384:ARG:HD2	2.02	0.41
1:H:222:ASP:O	1:H:224:LEU:HD12	2.21	0.41
1:H:207:PHE:CD2	3:H:503:ACY:H1	2.55	0.41
1:D:183:SER:OG	1:D:186:GLU:OE1	2.24	0.41
1:B:358:LEU:HD21	1:B:368:TYR:CE1	2.56	0.41
1:E:128:ASN:HB3	1:E:130:TYR:CE1	2.55	0.41
1:B:294:LYS:NZ	1:B:359:ALA:O	2.53	0.41
1:C:249:HIS:HE1	7:C:657:HOH:O	2.01	0.41
1:G:126:LEU:HD23	1:G:206:LEU:HD23	2.03	0.41
1:F:206:LEU:HD23	1:F:206:LEU:HA	1.90	0.41
1:G:121:TRP:CD2	2:G:502:GOL:H11	2.56	0.41
1:A:251:SER:N	1:A:258:ASN:OD1	2.54	0.40
1:A:113:SER:HB2	1:A:147:VAL:HG11	2.02	0.40
1:B:322:PRO:HG2	1:B:339:ILE:HG22	2.03	0.40
1:F:71:VAL:O	1:F:75:ARG:HG3	2.21	0.40
1:E:116:VAL:HB	1:E:142:LYS:HG2	2.04	0.40
1:G:128:ASN:HB3	1:G:130:TYR:CE1	2.57	0.40
1:G:226:TYR:HB2	1:G:293:TYR:CD2	2.57	0.40
1:H:290:MET:HE3	1:H:290:MET:HB3	1.85	0.40
1:D:227:TRP:O	1:D:251:SER:HA	2.22	0.40
1:F:116:VAL:HB	1:F:142:LYS:HG2	2.04	0.40
1:H:56:PRO:O	1:H:58:THR:HG23	2.22	0.40
1:H:364:ALA:O	1:H:367:GLU:HB2	2.21	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	330/410 (80%)	325 (98%)	5 (2%)	0	100	100
1	B	328/410 (80%)	319 (97%)	9 (3%)	0	100	100
1	C	328/410 (80%)	318 (97%)	10 (3%)	0	100	100
1	D	326/410 (80%)	315 (97%)	11 (3%)	0	100	100
1	E	330/410 (80%)	321 (97%)	9 (3%)	0	100	100
1	F	330/410 (80%)	320 (97%)	10 (3%)	0	100	100
1	G	328/410 (80%)	318 (97%)	10 (3%)	0	100	100
1	H	332/410 (81%)	320 (96%)	12 (4%)	0	100	100
All	All	2632/3280 (80%)	2556 (97%)	76 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	280/360 (78%)	277 (99%)	3 (1%)	73	86
1	B	288/360 (80%)	285 (99%)	3 (1%)	76	87
1	C	281/360 (78%)	276 (98%)	5 (2%)	59	75
1	D	285/360 (79%)	282 (99%)	3 (1%)	73	86
1	E	288/360 (80%)	286 (99%)	2 (1%)	84	92
1	F	286/360 (79%)	283 (99%)	3 (1%)	76	87
1	G	283/360 (79%)	277 (98%)	6 (2%)	53	71
1	H	273/360 (76%)	272 (100%)	1 (0%)	91	96
All	All	2264/2880 (79%)	2238 (99%)	26 (1%)	71	86

All (26) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	224	LEU
1	A	235	GLN

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Mol	Chain	Res	Type
1	A	263	ASP
1	B	158	THR
1	B	367	GLU
1	B	405	ARG
1	C	133	ARG
1	C	186	GLU
1	C	238	ARG
1	C	357	ASP
1	C	402	ARG
1	D	69	SER
1	D	165	ARG
1	D	349	GLU
1	E	186	GLU
1	E	406	ASN
1	F	75	ARG
1	F	207	PHE
1	F	241	LYS
1	G	81	ARG
1	G	158	THR
1	G	214	GLN
1	G	256	LEU
1	G	286	LEU
1	G	372	ARG
1	H	158	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	250	HIS
1	B	163	GLN
1	B	209	ASN
1	D	70	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

41 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	GOL	C	509	-	5,5,5	0.96	0	5,5,5	0.92	0
2	GOL	B	503	-	5,5,5	0.86	0	5,5,5	1.05	0
6	NAG	E	502	1	14,14,15	0.22	0	17,19,21	0.51	0
2	GOL	E	503	-	5,5,5	0.86	0	5,5,5	1.05	0
2	GOL	F	503	-	5,5,5	0.85	0	5,5,5	1.05	0
5	PPV	H	501	-	6,8,8	0.71	0	13,13,13	1.08	1 (7%)
2	GOL	C	504	-	5,5,5	0.92	0	5,5,5	0.95	0
2	GOL	D	506	-	5,5,5	0.96	0	5,5,5	0.94	0
2	GOL	C	507	-	5,5,5	0.99	0	5,5,5	0.96	0
3	ACY	F	506	-	3,3,3	0.96	0	3,3,3	0.80	0
2	GOL	H	502	-	5,5,5	0.87	0	5,5,5	0.99	0
3	ACY	B	505	-	3,3,3	0.92	0	3,3,3	0.86	0
2	GOL	D	503	-	5,5,5	0.88	0	5,5,5	1.01	0
5	PPV	C	501	-	6,8,8	0.71	0	13,13,13	1.08	0
2	GOL	F	504	-	5,5,5	0.92	0	5,5,5	0.99	0
2	GOL	G	502	-	5,5,5	0.91	0	5,5,5	0.99	0
3	ACY	H	503	-	3,3,3	0.92	0	3,3,3	0.84	0
2	GOL	D	504	-	5,5,5	0.91	0	5,5,5	1.00	0
6	NAG	C	502	1	14,14,15	0.83	1 (7%)	17,19,21	1.46	2 (11%)
2	GOL	A	601	-	5,5,5	0.90	0	5,5,5	0.97	0
2	GOL	C	503	-	5,5,5	0.95	0	5,5,5	0.83	0
3	ACY	A	602	-	3,3,3	0.96	0	3,3,3	0.79	0
5	PPV	F	501	-	6,8,8	0.68	0	13,13,13	1.09	1 (7%)
5	PPV	D	501	-	6,8,8	0.70	0	13,13,13	1.03	1 (7%)
2	GOL	C	508	-	5,5,5	0.82	0	5,5,5	1.02	0
3	ACY	E	504	-	3,3,3	0.98	0	3,3,3	0.74	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	GOL	E	505	-	5,5,5	0.97	0	5,5,5	0.95	0
3	ACY	G	503	-	3,3,3	0.97	0	3,3,3	0.68	0
2	GOL	F	502	-	5,5,5	0.88	0	5,5,5	0.99	0
5	PPV	G	501	-	6,8,8	0.70	0	13,13,13	1.01	0
2	GOL	E	506	-	5,5,5	0.92	0	5,5,5	0.99	0
6	NAG	D	502	1	14,14,15	0.25	0	17,19,21	0.39	0
6	NAG	F	505	1	14,14,15	0.64	1 (7%)	17,19,21	0.70	0
2	GOL	B	504	-	5,5,5	0.90	0	5,5,5	0.97	0
5	PPV	B	501	-	6,8,8	0.69	0	13,13,13	1.08	0
4	PO4	A	603	-	4,4,4	0.88	0	6,6,6	0.48	0
5	PPV	E	501	-	6,8,8	0.68	0	13,13,13	1.11	1 (7%)
6	NAG	B	502	1	14,14,15	0.28	0	17,19,21	0.35	0
2	GOL	C	505	-	5,5,5	0.84	0	5,5,5	1.03	0
3	ACY	C	506	-	3,3,3	0.99	0	3,3,3	0.75	0
2	GOL	D	505	-	5,5,5	0.93	0	5,5,5	0.89	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	GOL	C	509	-	-	4/4/4/4	-
2	GOL	B	503	-	-	1/4/4/4	-
6	NAG	E	502	1	-	4/6/23/26	0/1/1/1
2	GOL	E	503	-	-	2/4/4/4	-
2	GOL	F	503	-	-	0/4/4/4	-
5	PPV	H	501	-	-	2/6/6/6	-
2	GOL	C	504	-	-	0/4/4/4	-
2	GOL	D	506	-	-	0/4/4/4	-
2	GOL	C	507	-	-	2/4/4/4	-
2	GOL	H	502	-	-	2/4/4/4	-
2	GOL	D	503	-	-	0/4/4/4	-
5	PPV	C	501	-	-	1/6/6/6	-
2	GOL	F	504	-	-	0/4/4/4	-
2	GOL	G	502	-	-	3/4/4/4	-
2	GOL	D	504	-	-	2/4/4/4	-
6	NAG	C	502	1	-	5/6/23/26	0/1/1/1
2	GOL	A	601	-	-	2/4/4/4	-
2	GOL	C	503	-	-	2/4/4/4	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	PPV	F	501	-	-	2/6/6/6	-
5	PPV	D	501	-	-	3/6/6/6	-
2	GOL	C	508	-	-	2/4/4/4	-
2	GOL	E	505	-	-	2/4/4/4	-
2	GOL	F	502	-	-	4/4/4/4	-
5	PPV	G	501	-	-	2/6/6/6	-
2	GOL	E	506	-	-	3/4/4/4	-
6	NAG	D	502	1	-	0/6/23/26	0/1/1/1
6	NAG	F	505	1	-	4/6/23/26	0/1/1/1
2	GOL	B	504	-	-	2/4/4/4	-
5	PPV	B	501	-	-	0/6/6/6	-
5	PPV	E	501	-	-	2/6/6/6	-
6	NAG	B	502	1	-	0/6/23/26	0/1/1/1
2	GOL	C	505	-	-	0/4/4/4	-
2	GOL	D	505	-	-	2/4/4/4	-

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	C	502	NAG	C1-C2	2.55	1.56	1.52
6	F	505	NAG	O5-C1	-2.19	1.40	1.43

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	C	502	NAG	C2-N2-C7	4.07	128.69	122.90
6	C	502	NAG	C1-O5-C5	3.54	116.99	112.19
5	H	501	PPV	P2-OPP-P1	-2.54	124.10	132.83
5	E	501	PPV	P2-OPP-P1	-2.42	124.52	132.83
5	F	501	PPV	P2-OPP-P1	-2.25	125.10	132.83
5	D	501	PPV	P2-OPP-P1	-2.00	125.95	132.83

There are no chirality outliers.

All (60) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	C	503	GOL	C1-C2-C3-O3
2	C	507	GOL	C1-C2-C3-O3
2	C	508	GOL	C1-C2-C3-O3

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Mol	Chain	Res	Type	Atoms
2	C	509	GOL	O1-C1-C2-O2
2	C	509	GOL	O1-C1-C2-C3
2	D	504	GOL	C1-C2-C3-O3
2	E	503	GOL	C1-C2-C3-O3
2	E	505	GOL	O1-C1-C2-O2
2	E	505	GOL	O1-C1-C2-C3
2	E	506	GOL	O2-C2-C3-O3
2	F	502	GOL	O1-C1-C2-C3
2	G	502	GOL	C1-C2-C3-O3
2	H	502	GOL	O1-C1-C2-C3
5	D	501	PPV	P2-OPP-P1-O21
5	F	501	PPV	P2-OPP-P1-O11
6	C	502	NAG	C4-C5-C6-O6
6	E	502	NAG	C4-C5-C6-O6
6	C	502	NAG	C8-C7-N2-C2
6	C	502	NAG	O7-C7-N2-C2
6	E	502	NAG	C8-C7-N2-C2
6	E	502	NAG	O7-C7-N2-C2
6	C	502	NAG	O5-C5-C6-O6
2	A	601	GOL	O1-C1-C2-O2
2	B	504	GOL	O1-C1-C2-O2
2	C	503	GOL	O2-C2-C3-O3
6	E	502	NAG	O5-C5-C6-O6
2	A	601	GOL	O1-C1-C2-C3
2	B	504	GOL	O1-C1-C2-C3
2	E	506	GOL	O1-C1-C2-C3
2	E	506	GOL	C1-C2-C3-O3
2	F	502	GOL	C1-C2-C3-O3
2	G	502	GOL	O1-C1-C2-C3
6	F	505	NAG	C1-C2-N2-C7
2	D	504	GOL	O2-C2-C3-O3
2	E	503	GOL	O2-C2-C3-O3
2	G	502	GOL	O2-C2-C3-O3
2	H	502	GOL	O1-C1-C2-O2
6	F	505	NAG	C4-C5-C6-O6
2	C	507	GOL	O2-C2-C3-O3
2	F	502	GOL	O1-C1-C2-O2
5	C	501	PPV	P1-OPP-P2-O22
5	H	501	PPV	P2-OPP-P1-O31
5	G	501	PPV	P2-OPP-P1-O11
5	G	501	PPV	P2-OPP-P1-O21
5	H	501	PPV	P2-OPP-P1-O21

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Mol	Chain	Res	Type	Atoms
2	C	508	GOL	O2-C2-C3-O3
2	C	509	GOL	O2-C2-C3-O3
2	D	505	GOL	O1-C1-C2-O2
2	D	505	GOL	O1-C1-C2-C3
6	F	505	NAG	O5-C5-C6-O6
6	C	502	NAG	C3-C2-N2-C7
2	C	509	GOL	C1-C2-C3-O3
2	F	502	GOL	O2-C2-C3-O3
5	E	501	PPV	P1-OPP-P2-O22
5	D	501	PPV	P2-OPP-P1-O11
5	E	501	PPV	P1-OPP-P2-O12
5	F	501	PPV	P2-OPP-P1-O21
6	F	505	NAG	C3-C2-N2-C7
2	B	503	GOL	O1-C1-C2-C3
5	D	501	PPV	P2-OPP-P1-O31

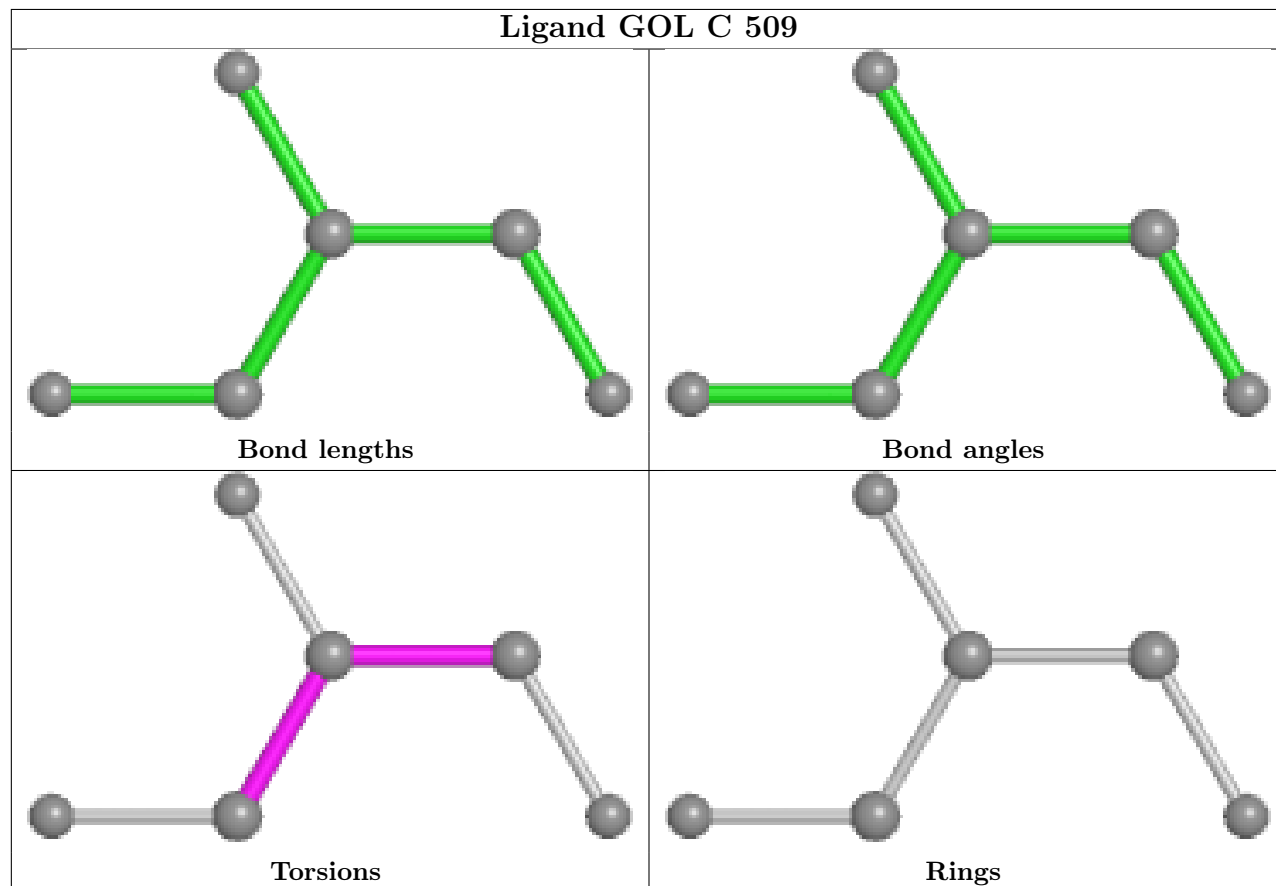
There are no ring outliers.

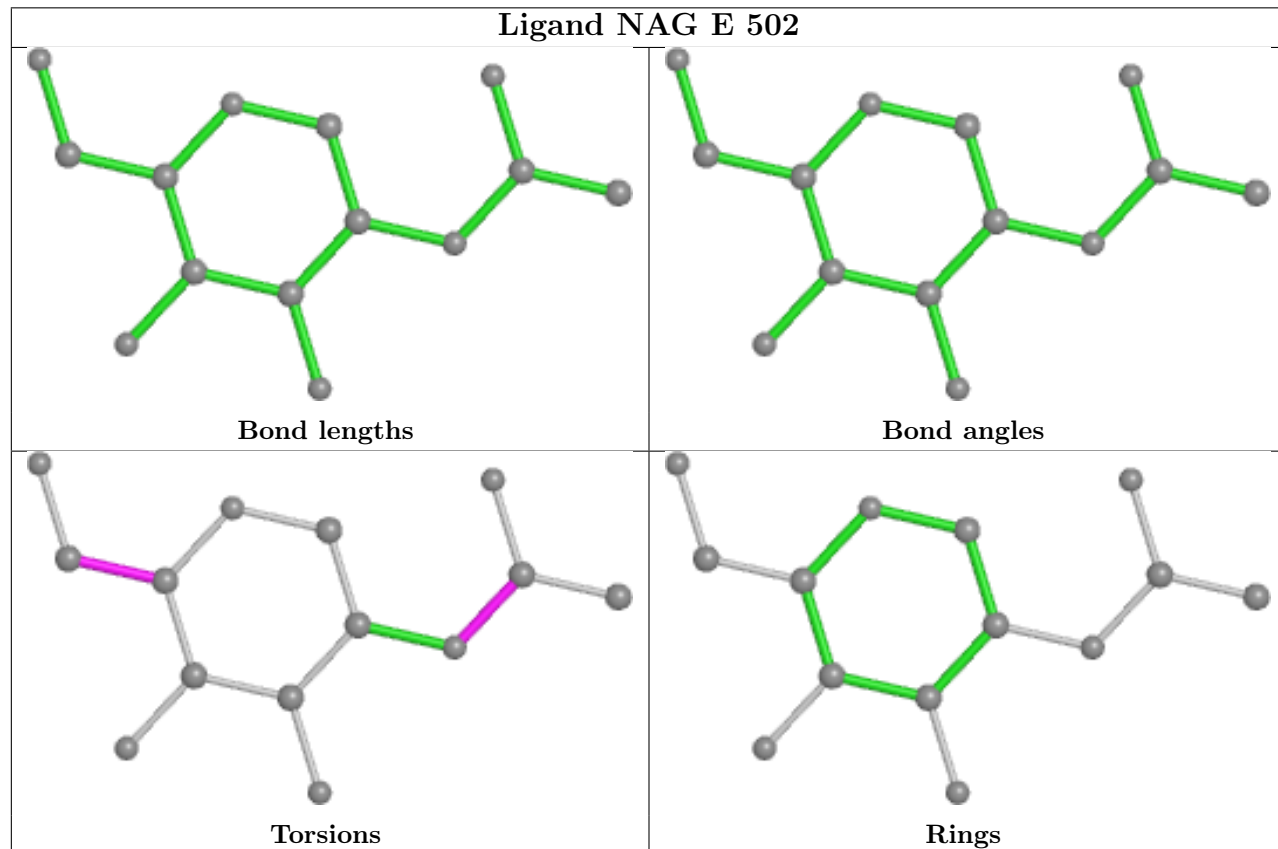
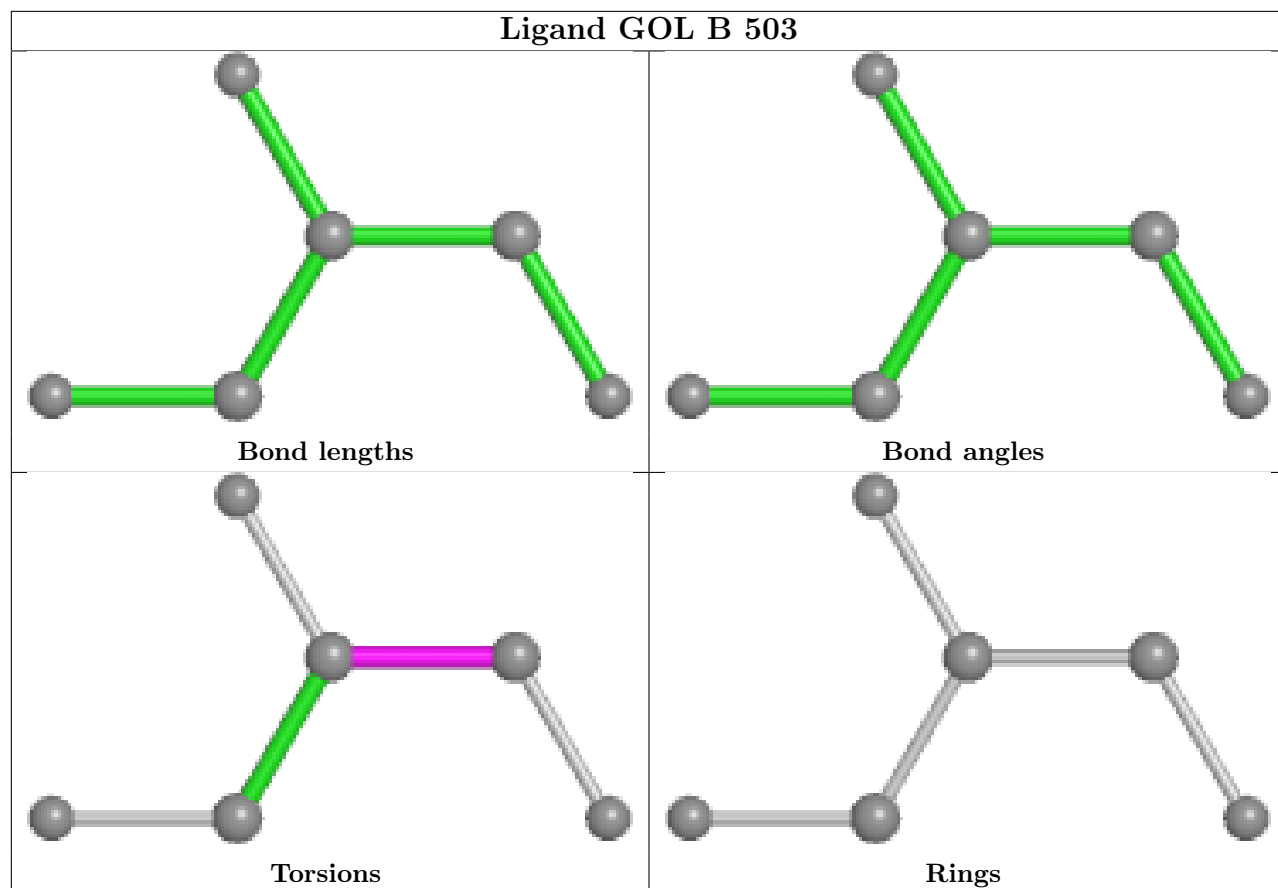
14 monomers are involved in 18 short contacts:

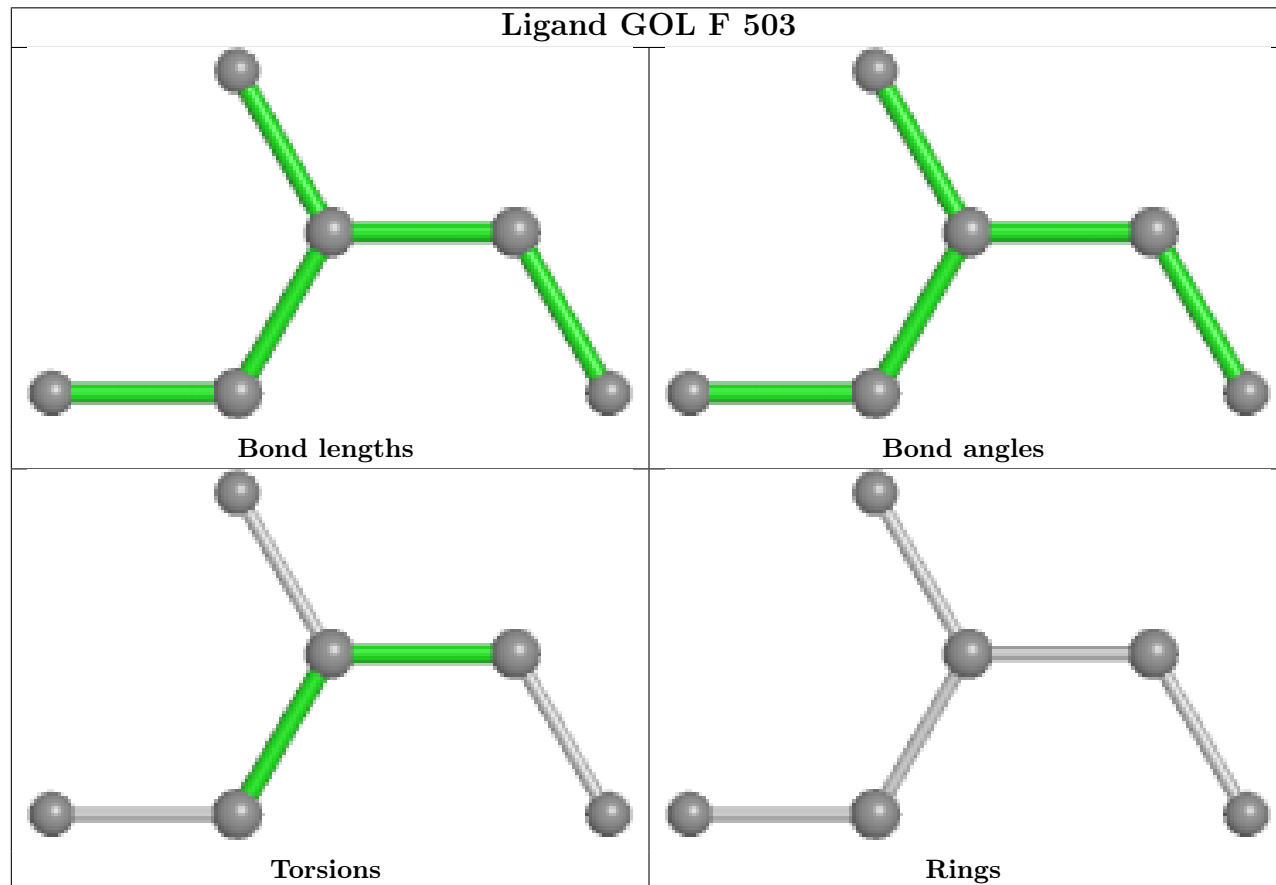
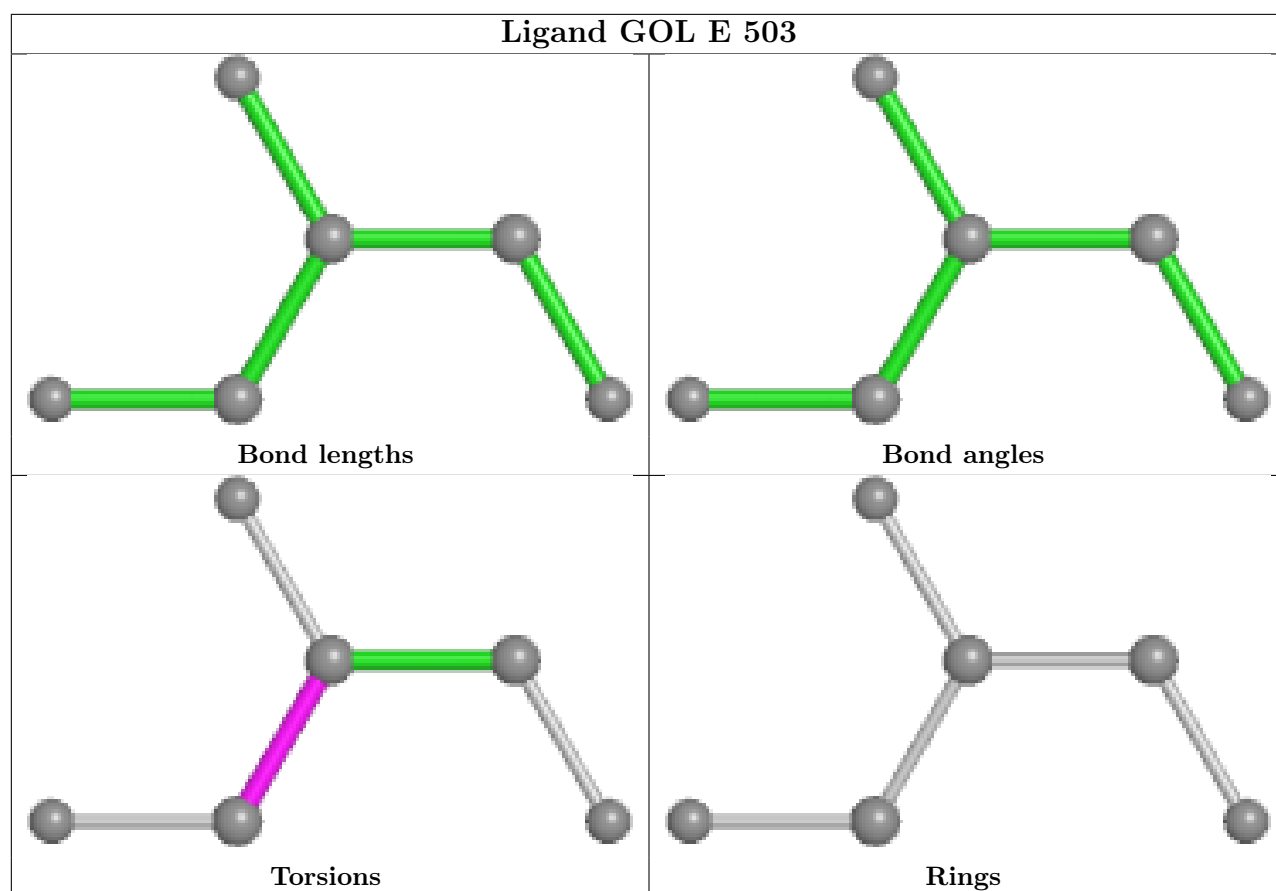
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	509	GOL	2	0
3	F	506	ACY	1	0
2	D	503	GOL	2	0
5	C	501	PPV	1	0
2	G	502	GOL	1	0
3	H	503	ACY	1	0
6	C	502	NAG	1	0
2	C	503	GOL	1	0
5	F	501	PPV	2	0
5	D	501	PPV	1	0
3	E	504	ACY	1	0
2	E	505	GOL	2	0
3	G	503	ACY	1	0
2	F	502	GOL	1	0

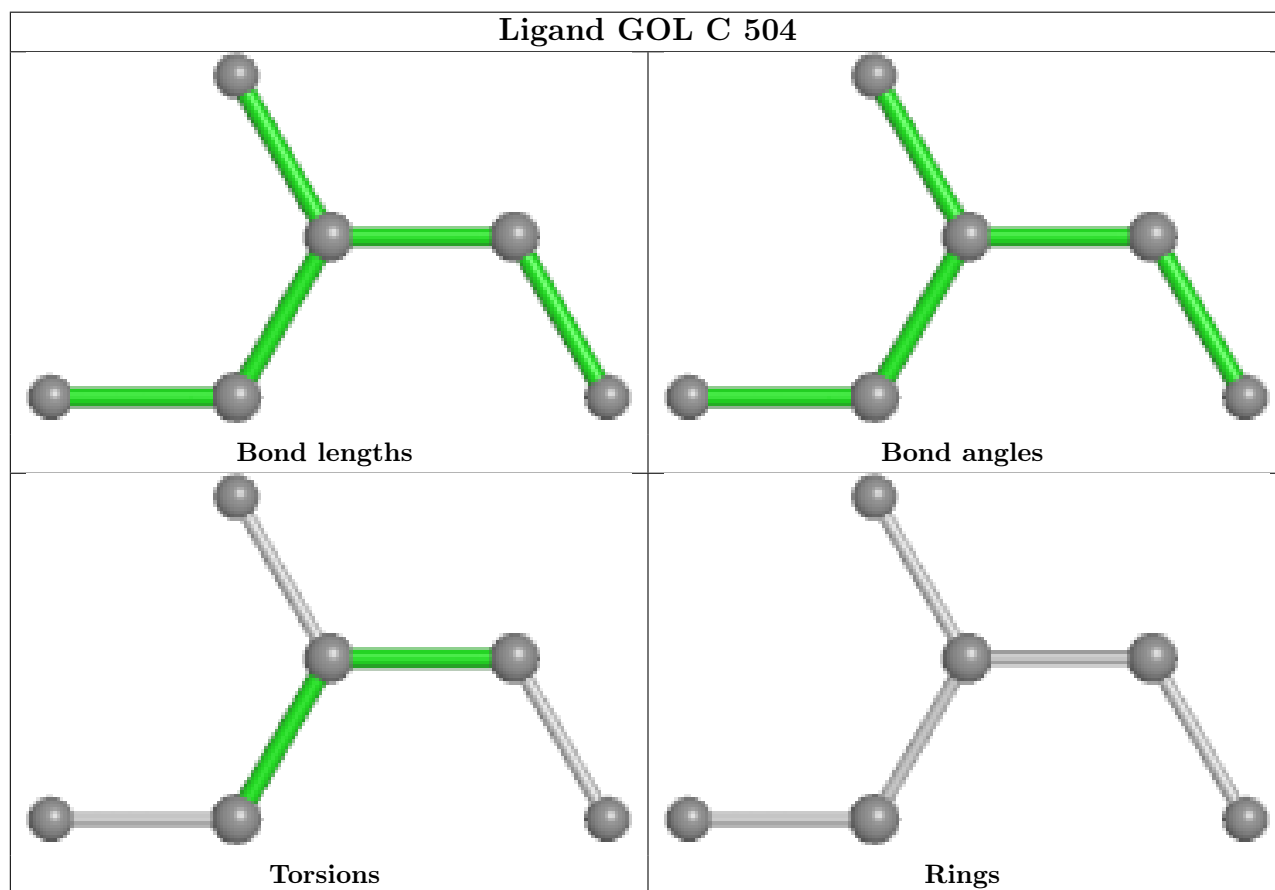
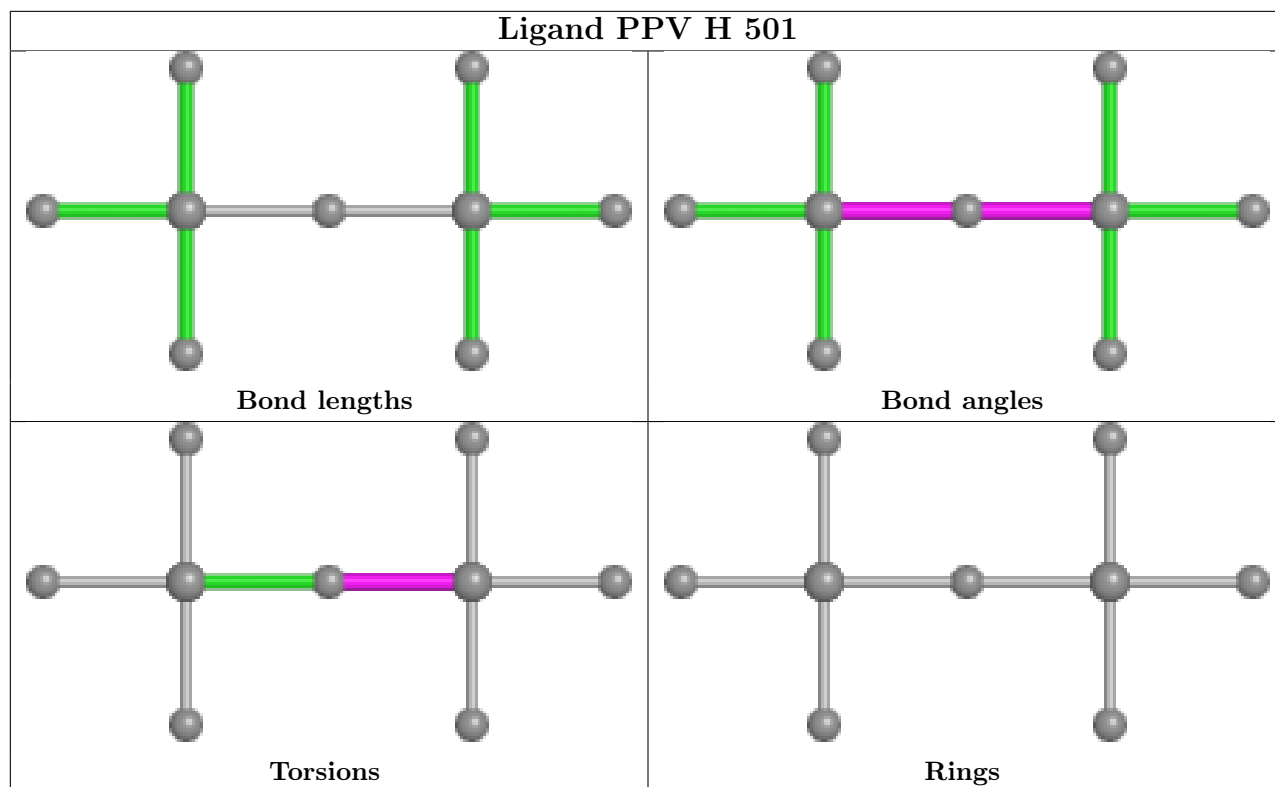
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring

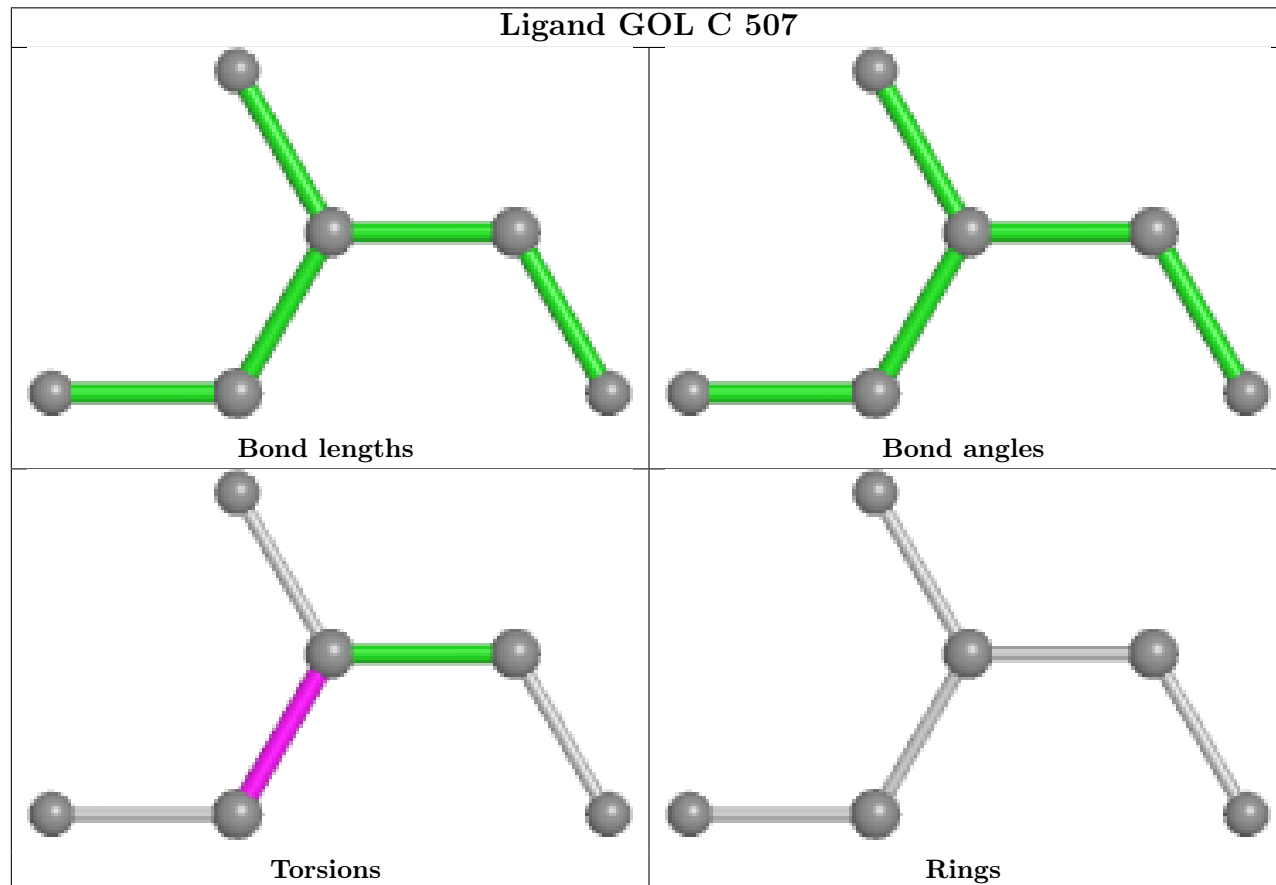
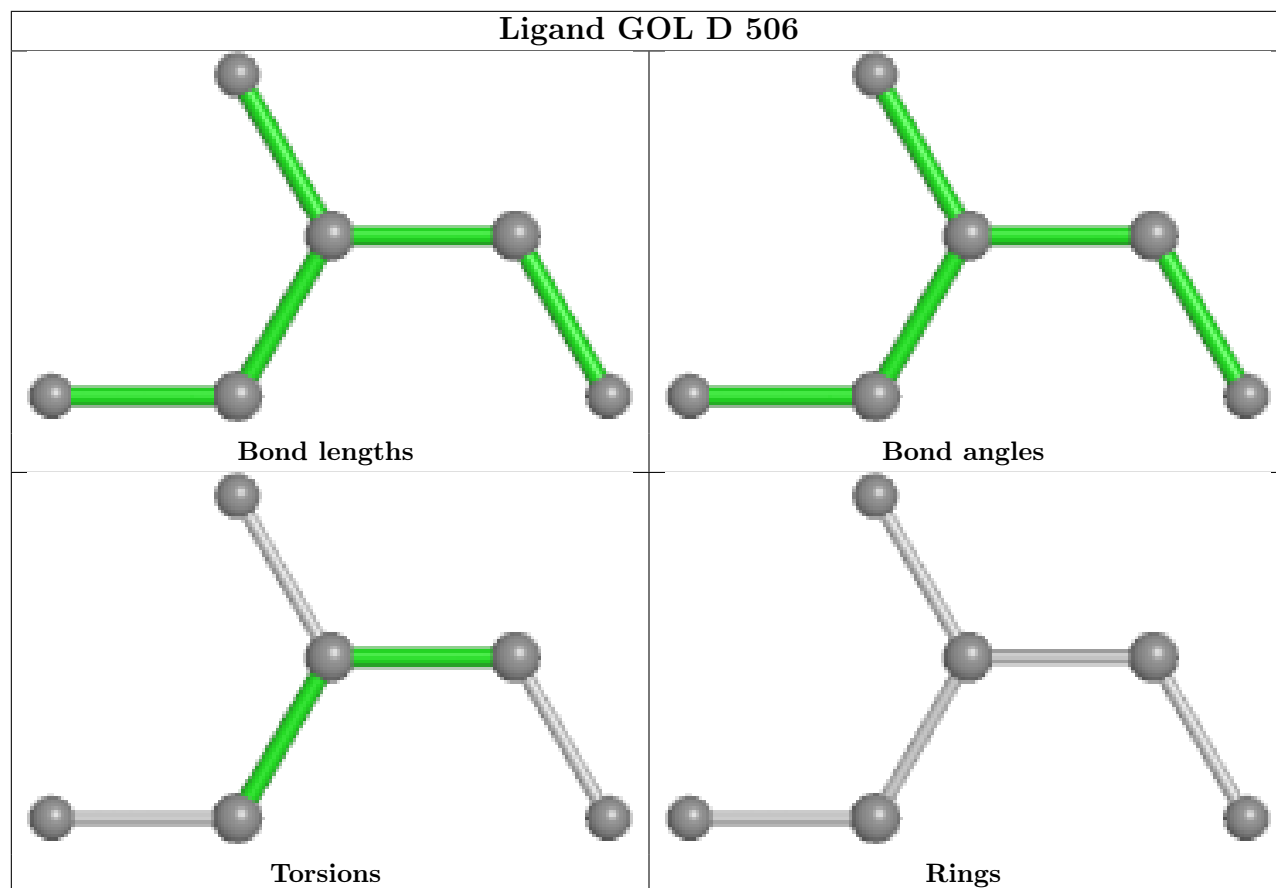
in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

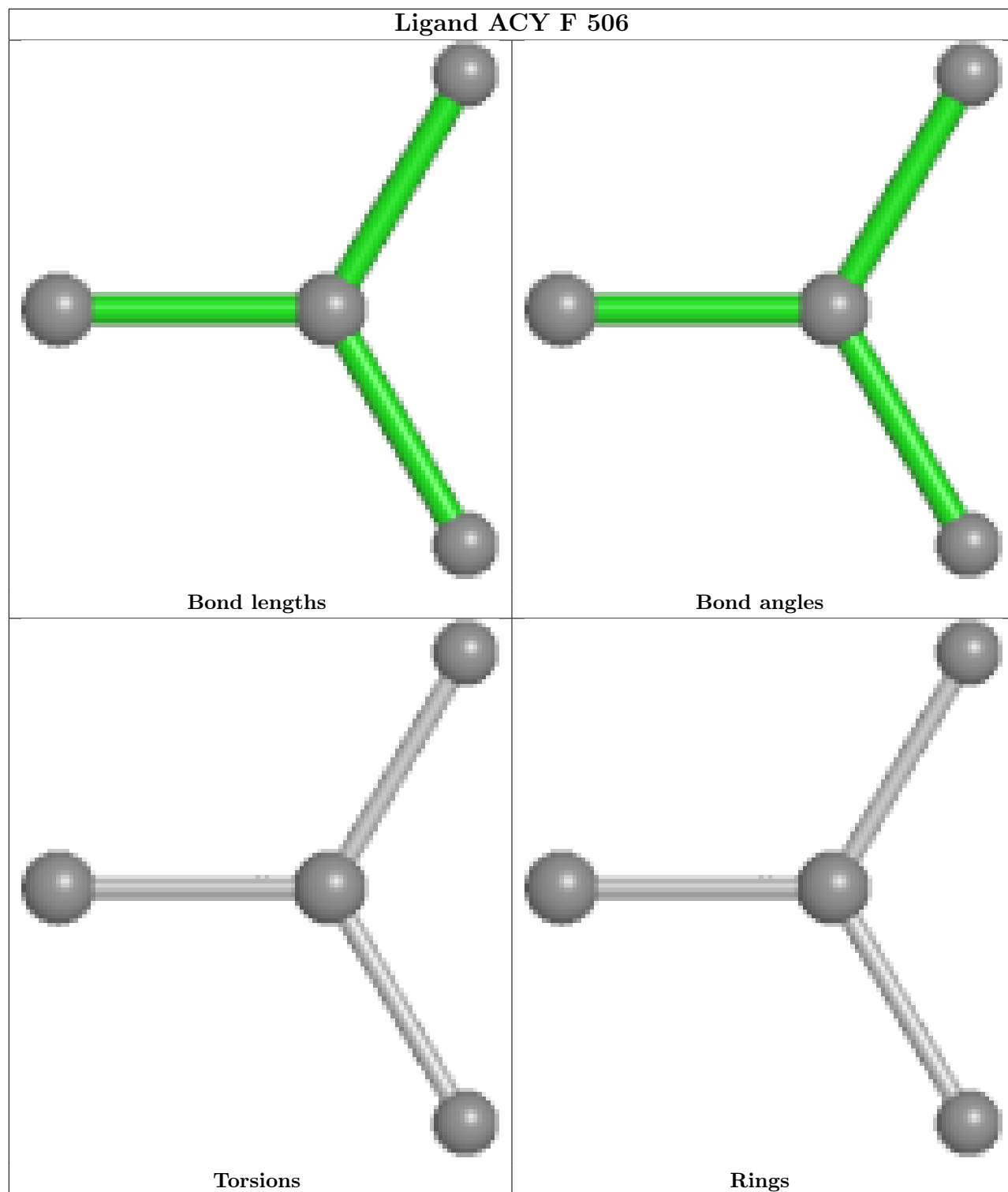


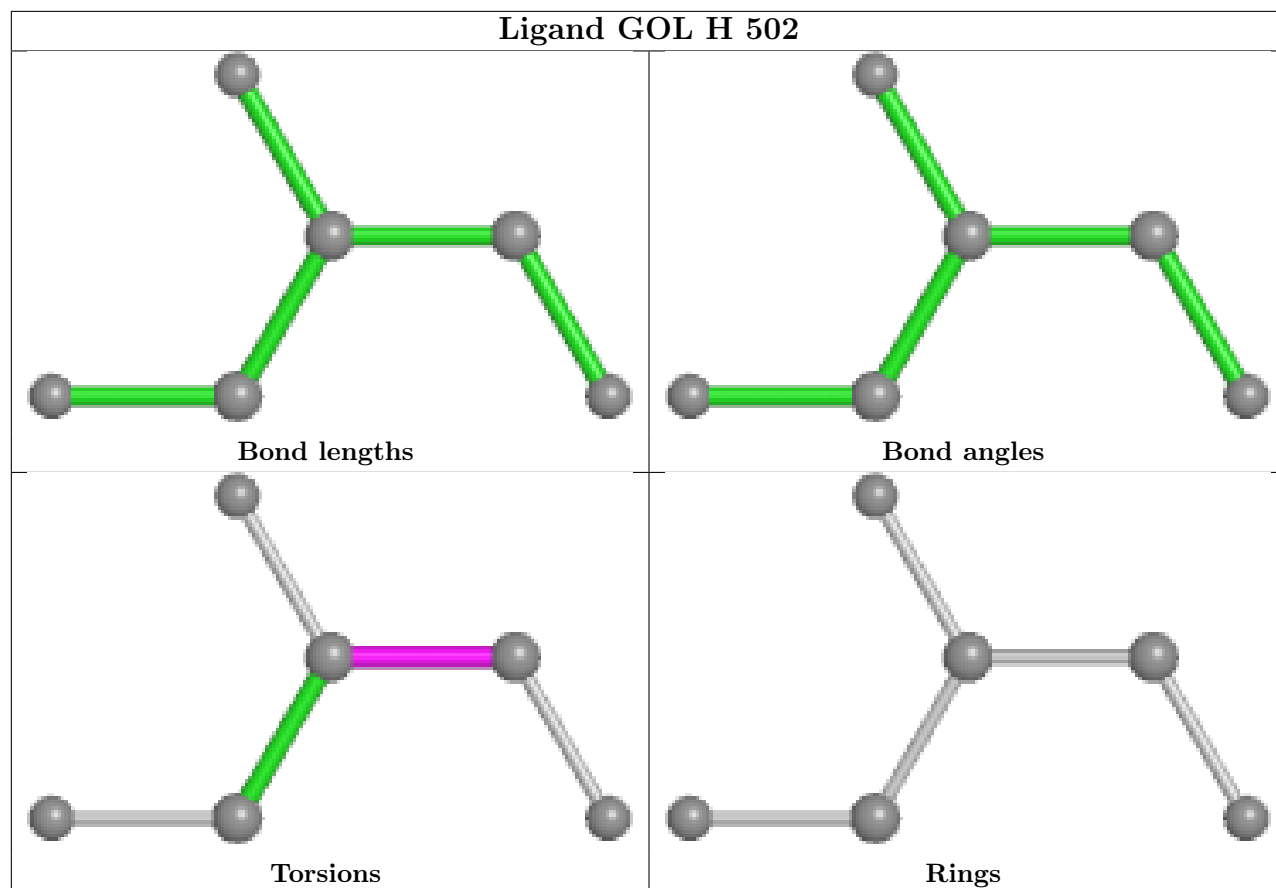


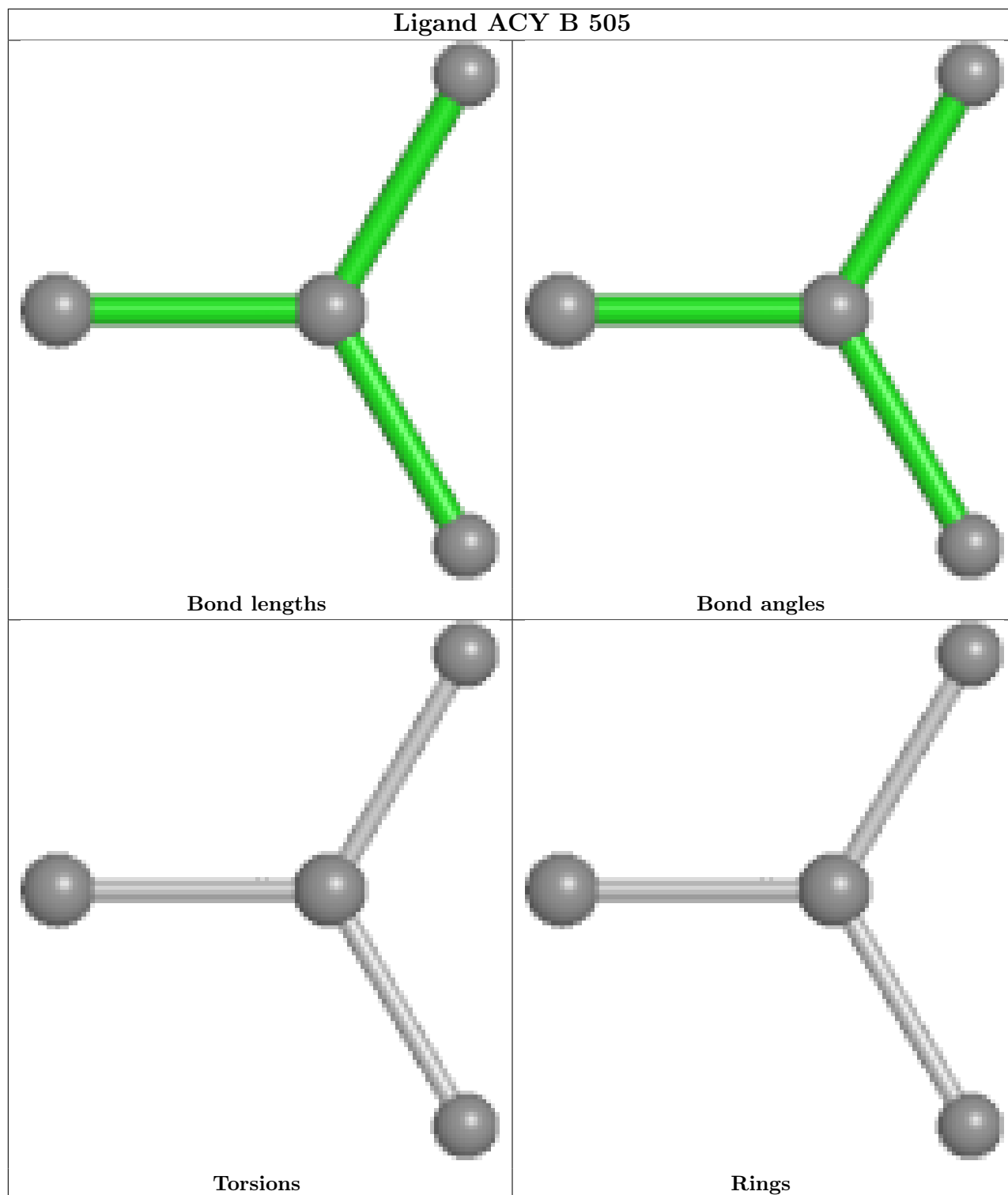


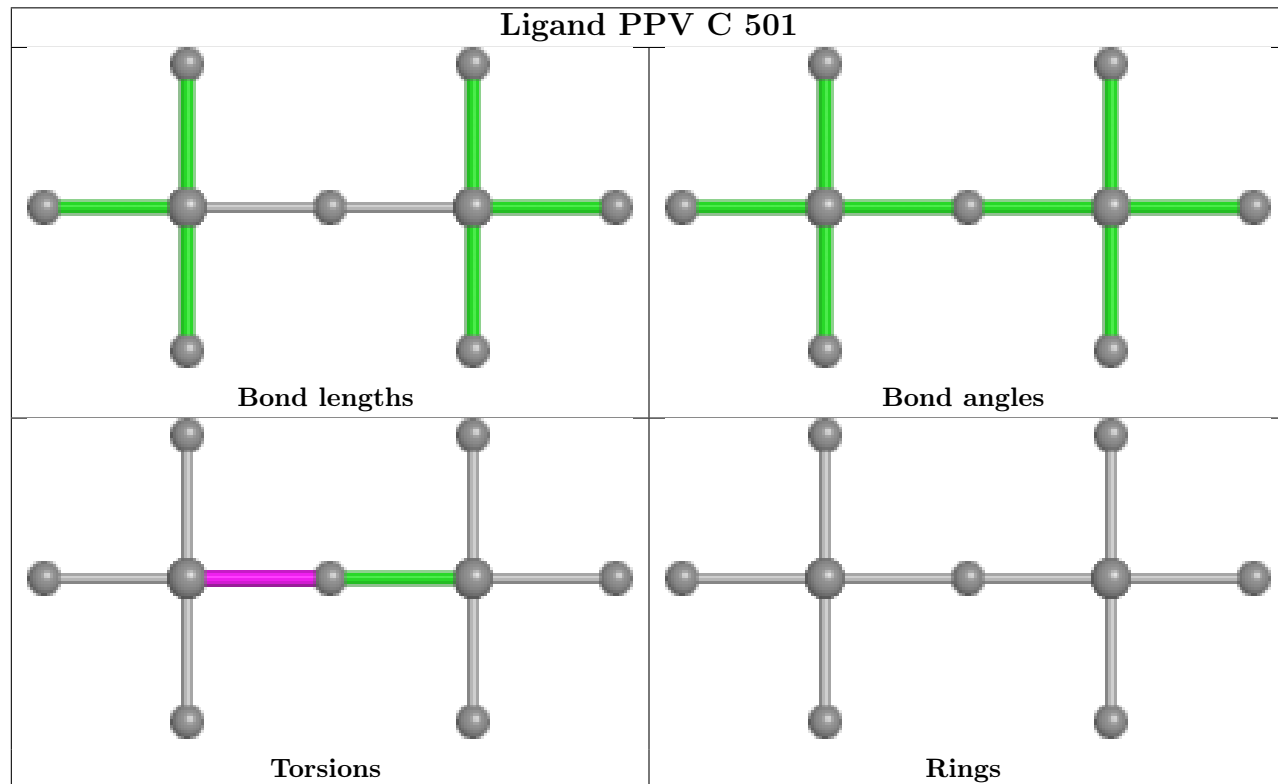
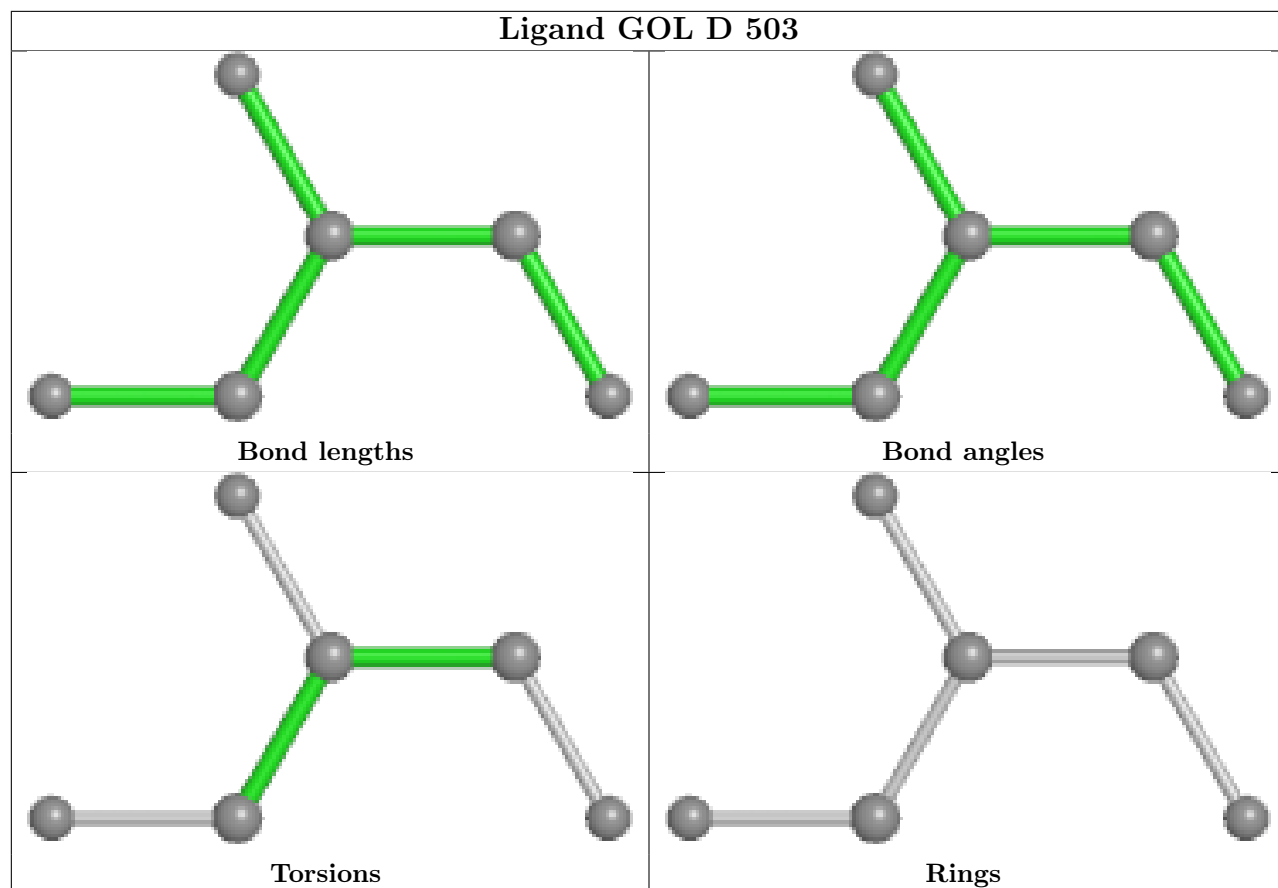


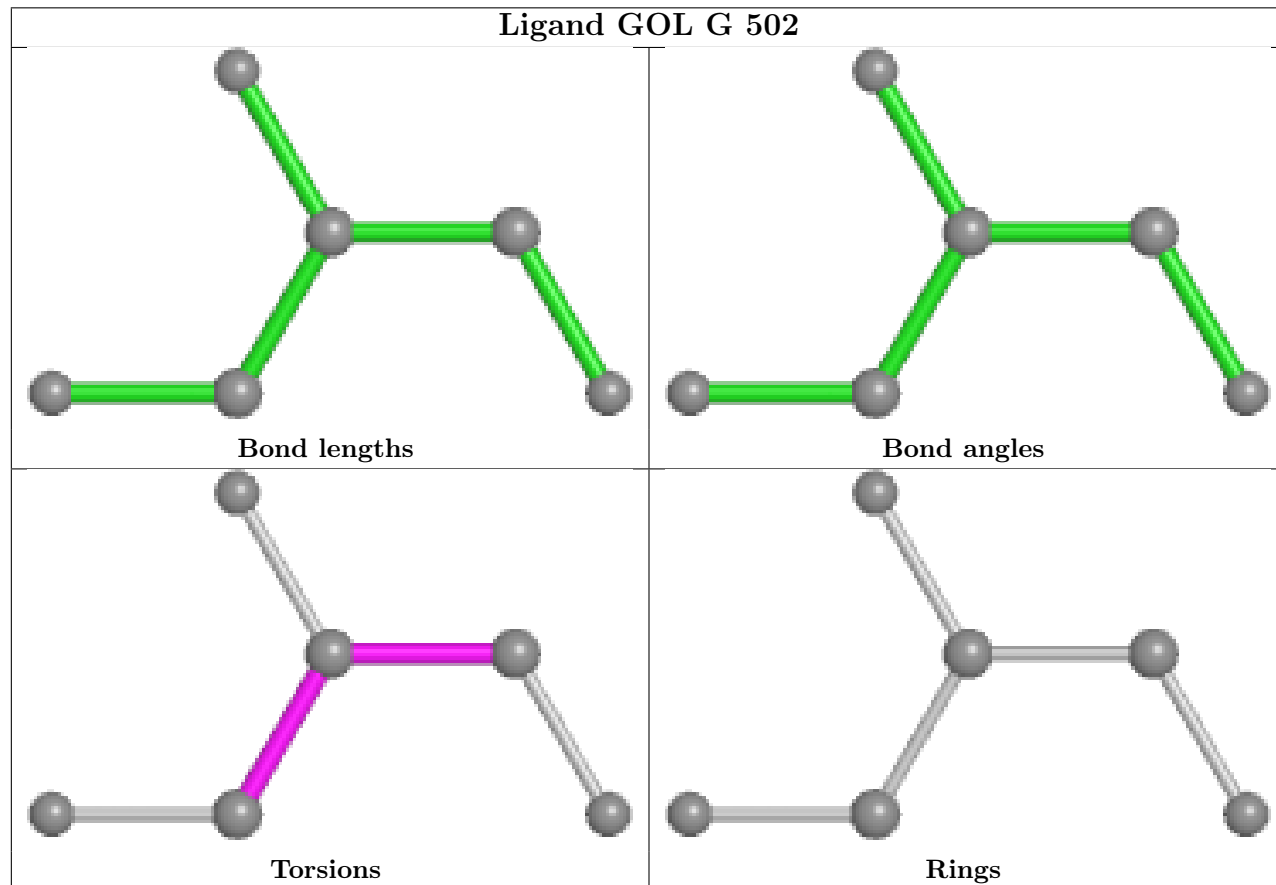
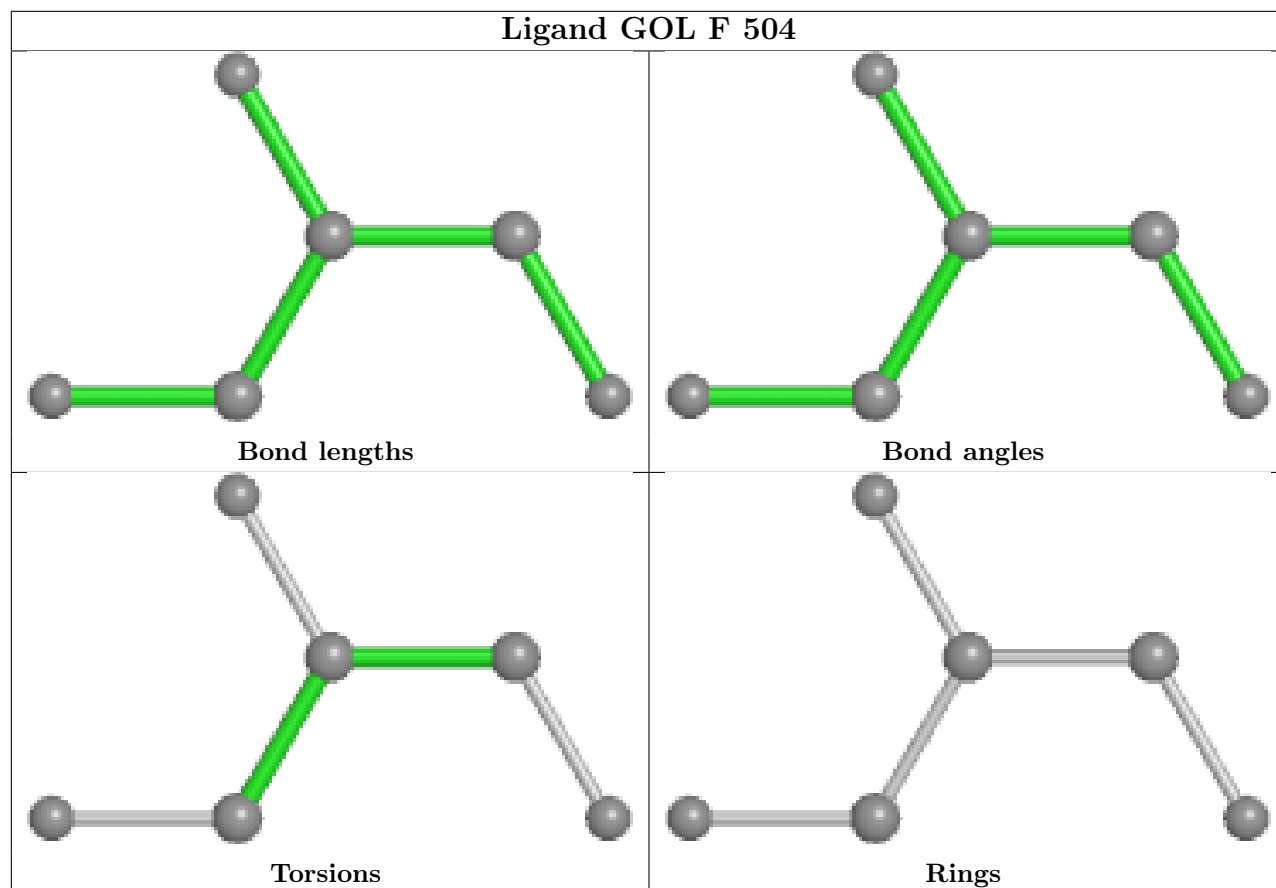


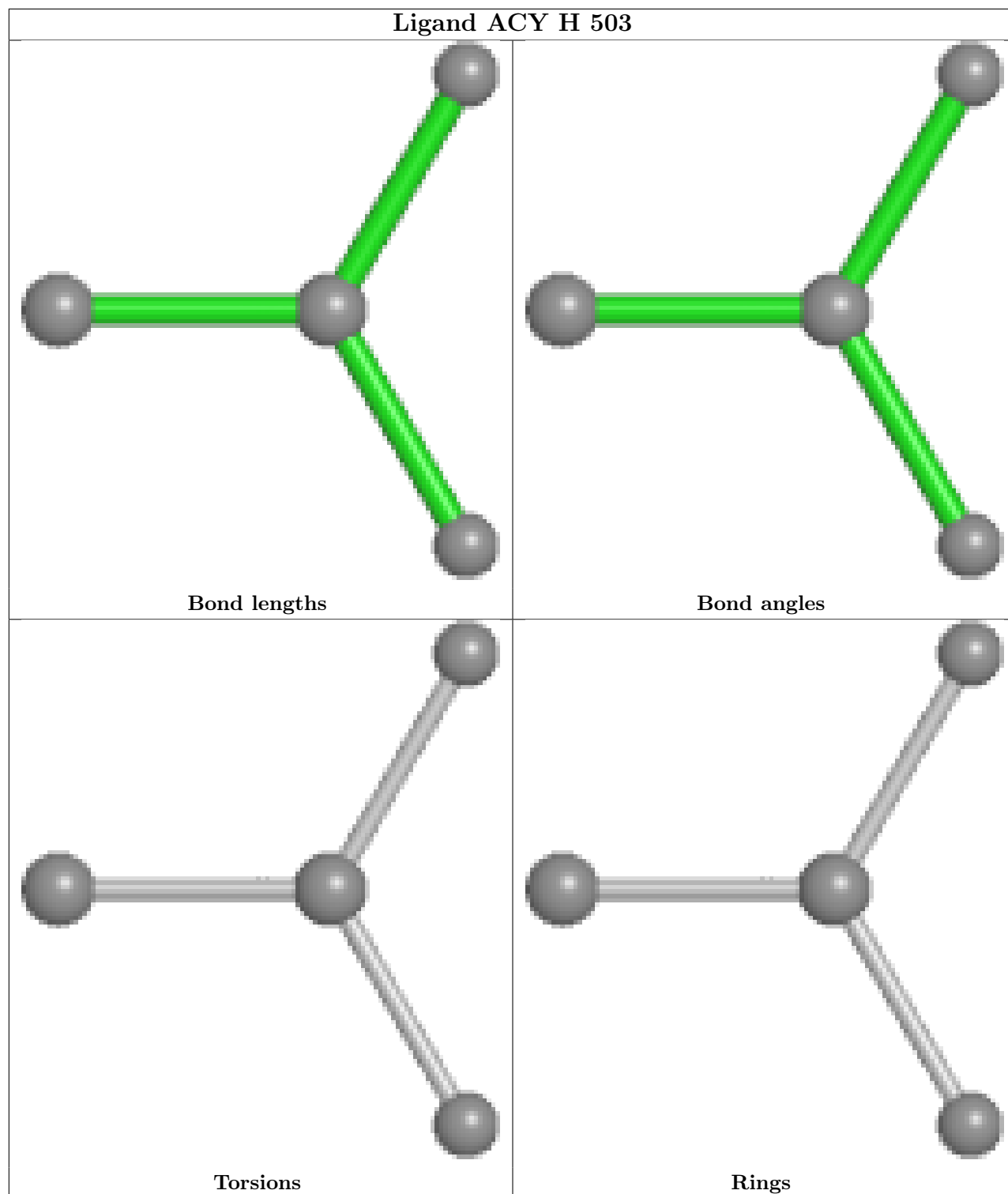


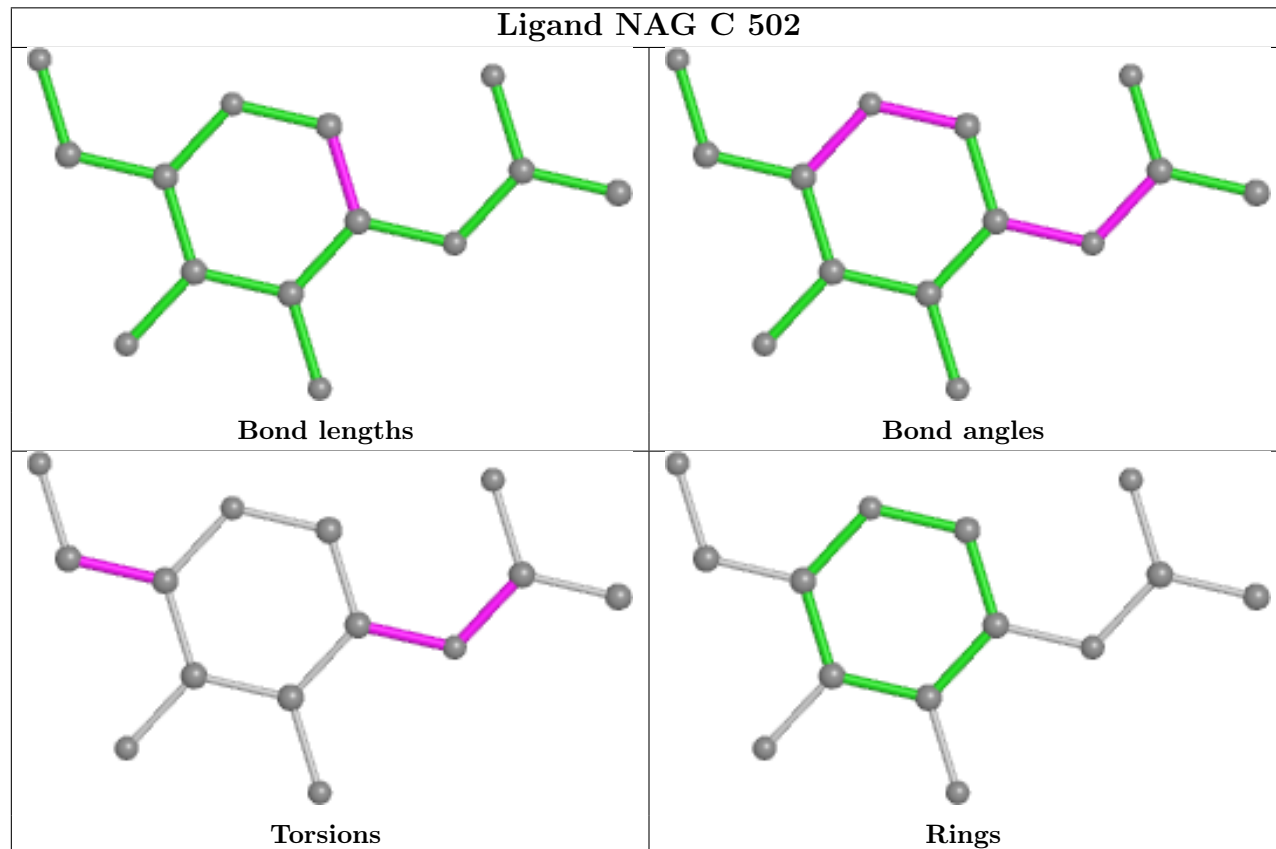
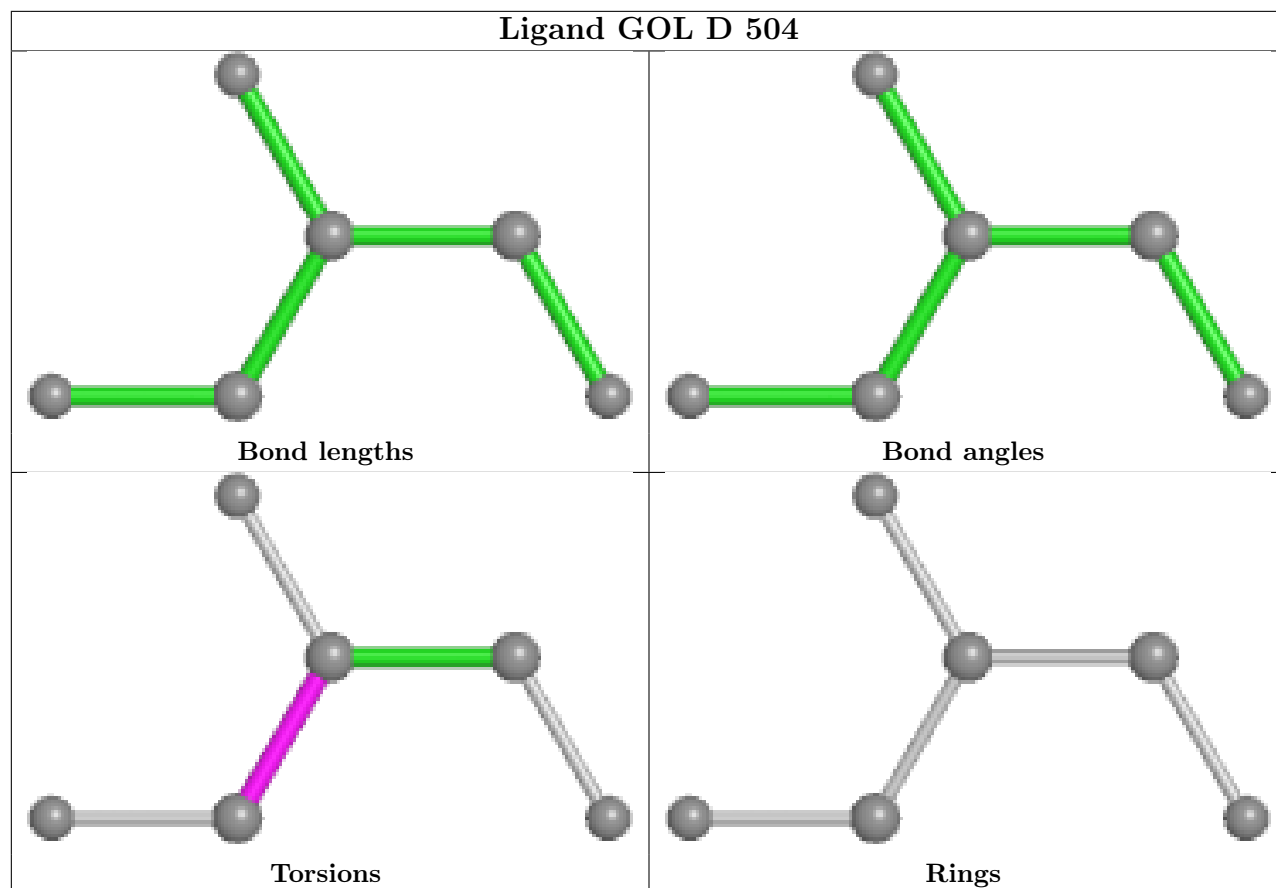


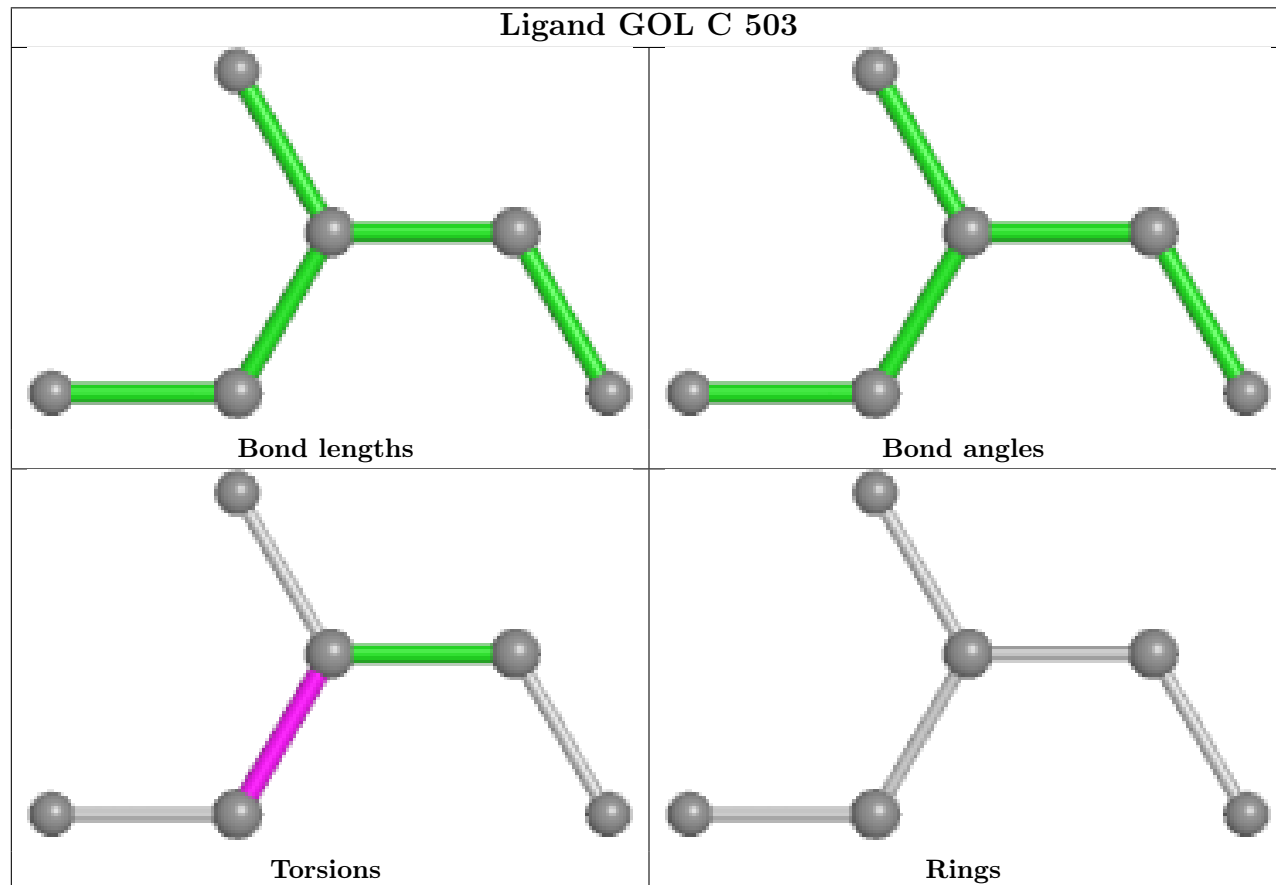
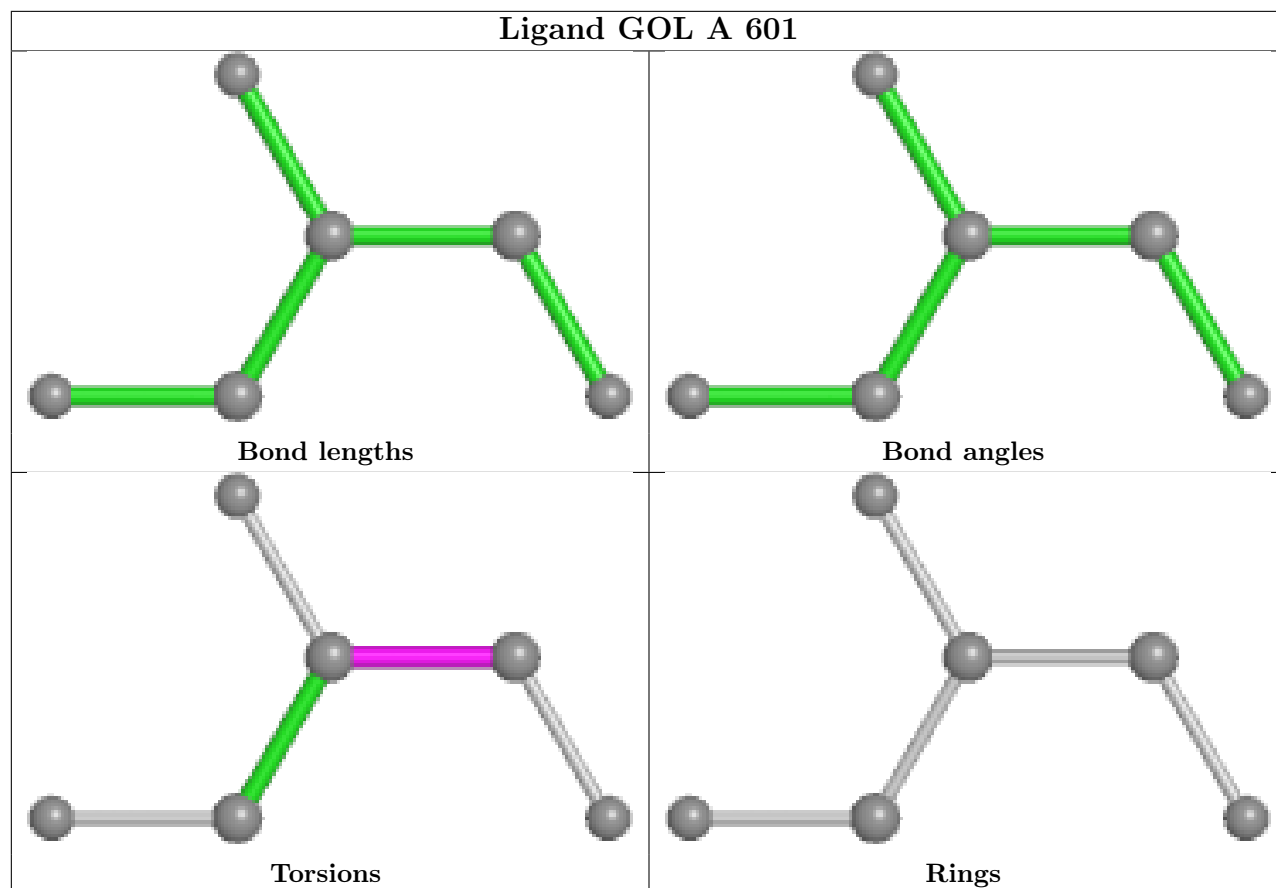


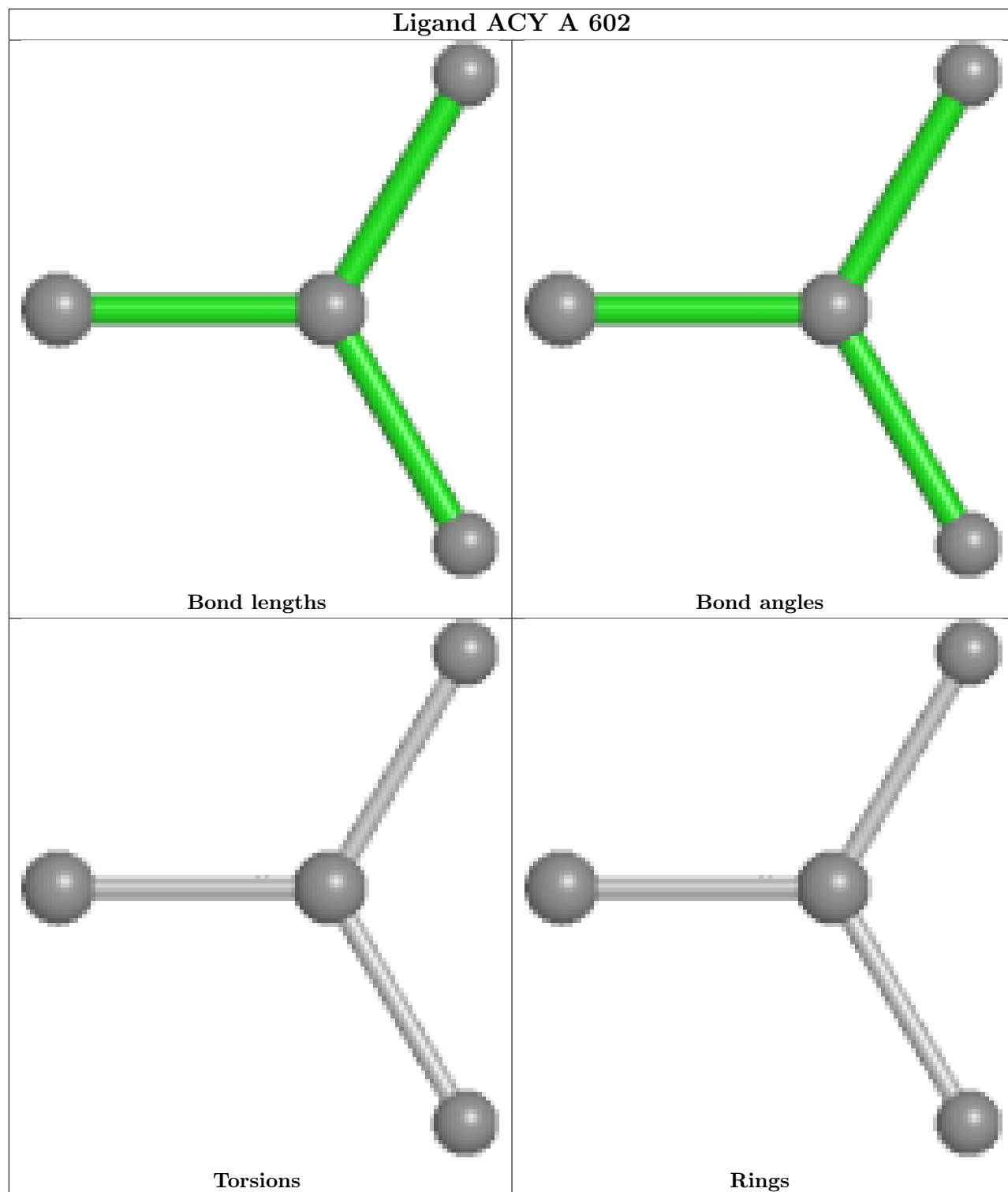


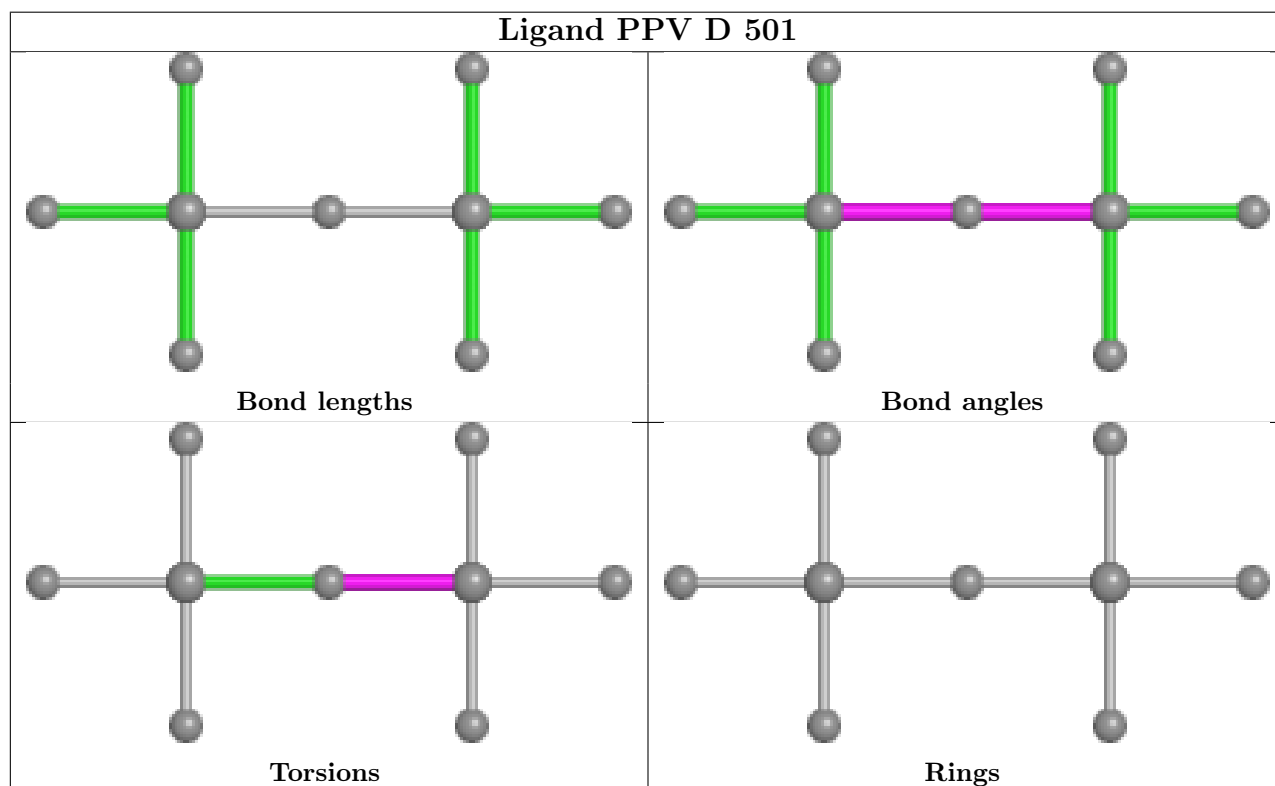
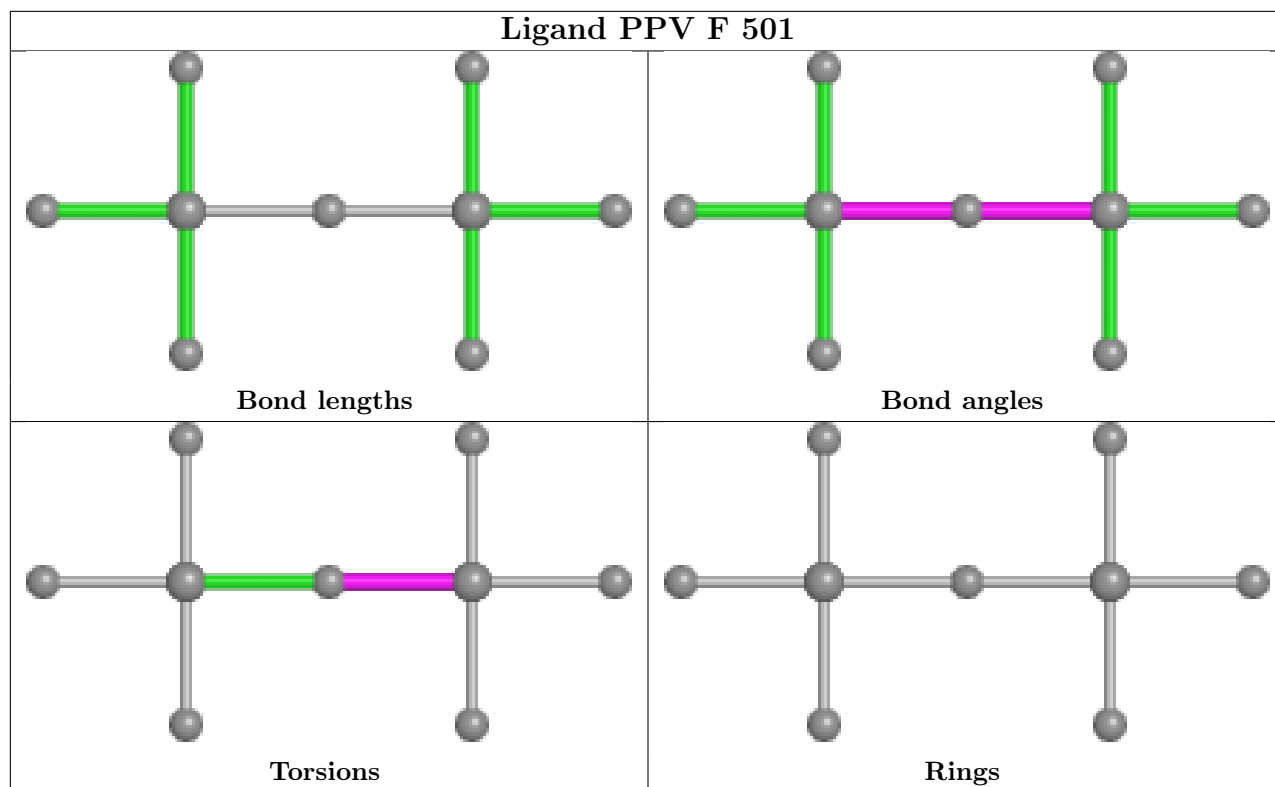


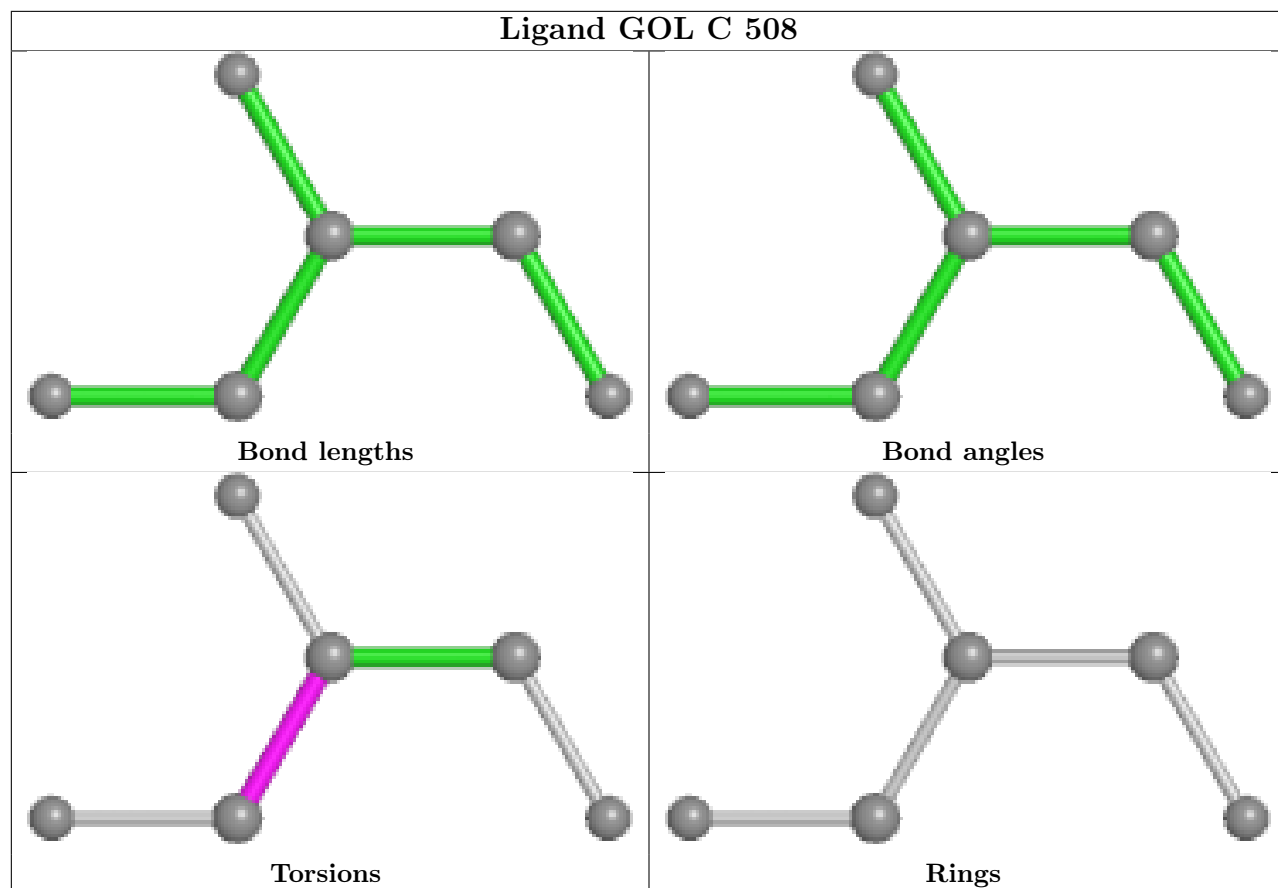


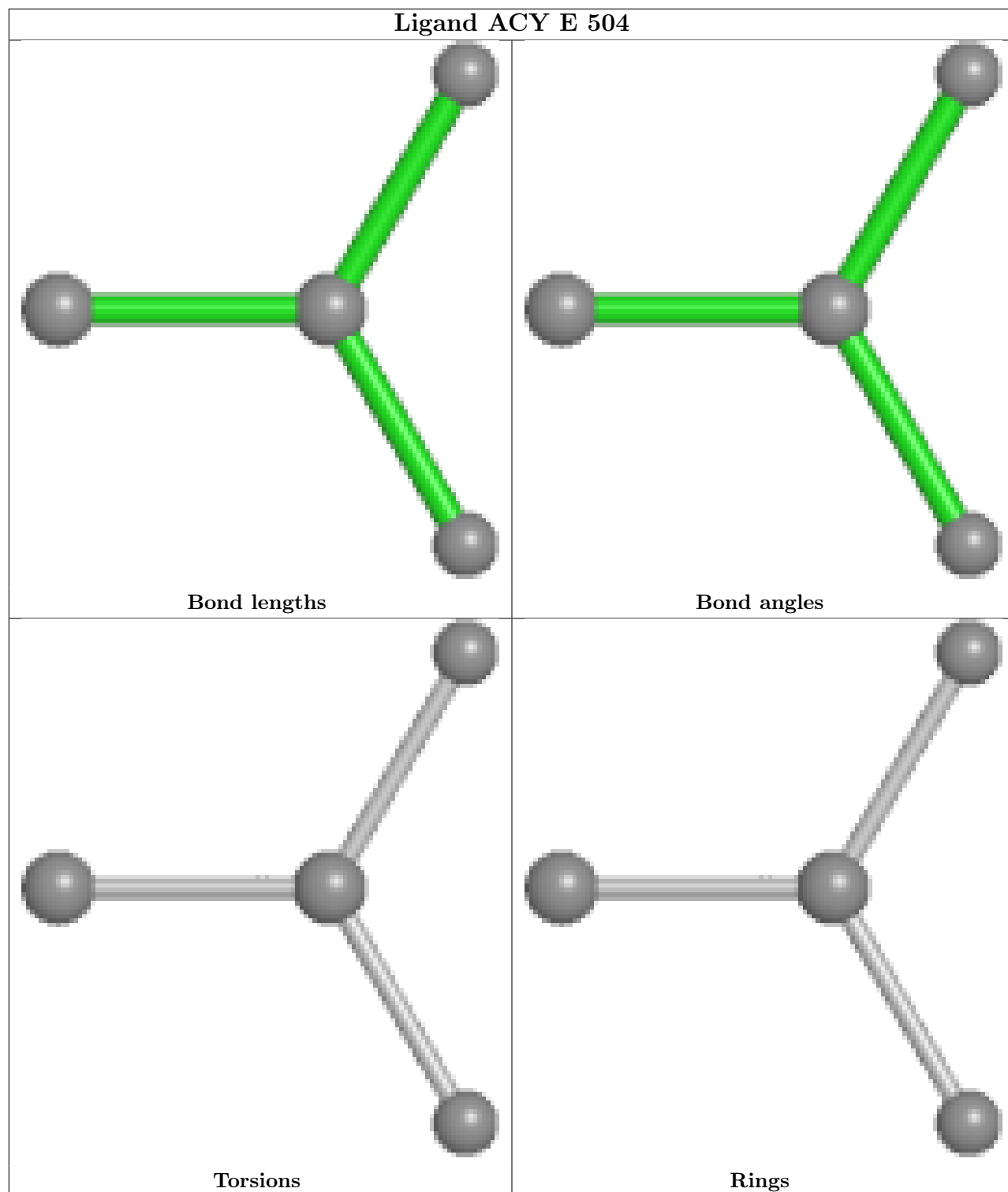


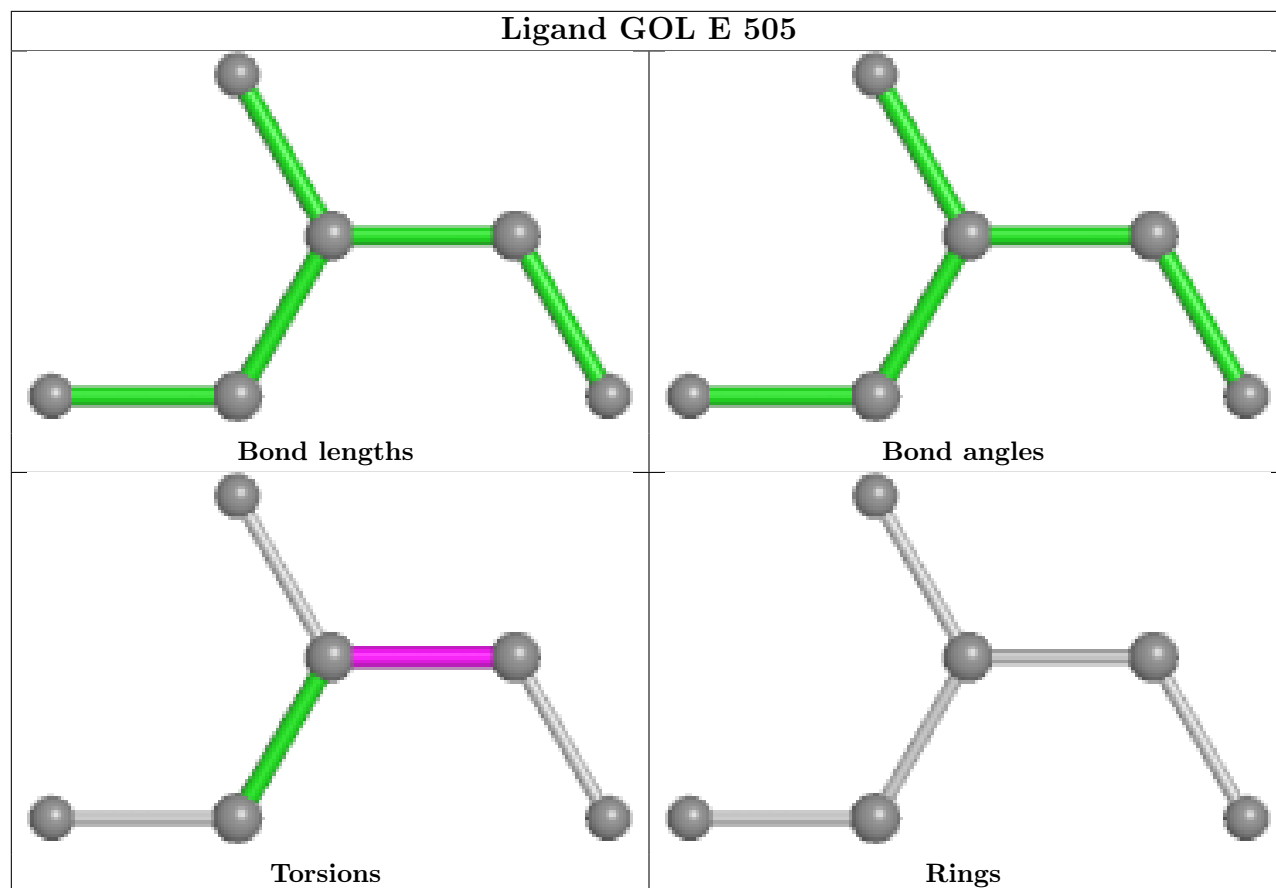


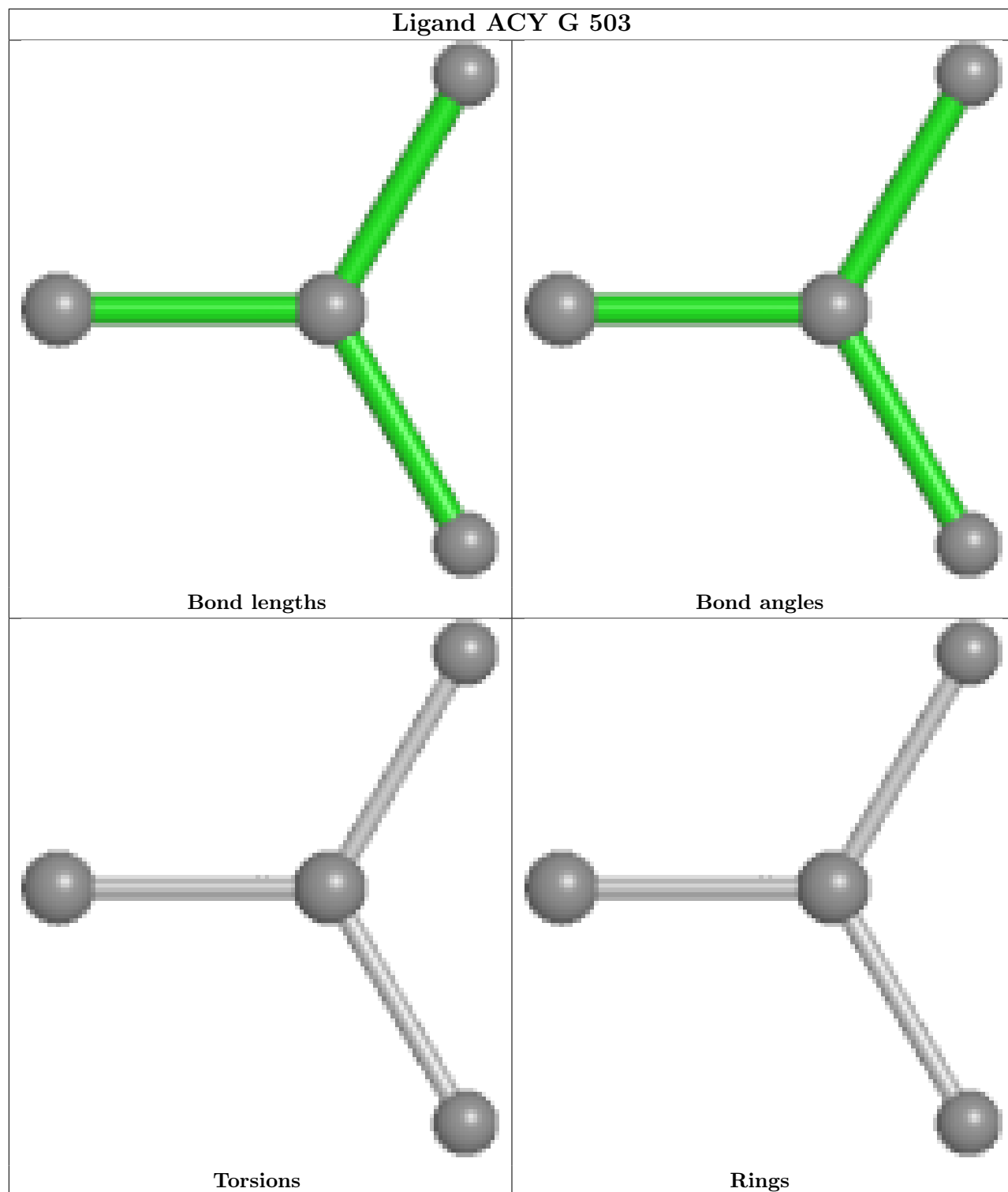


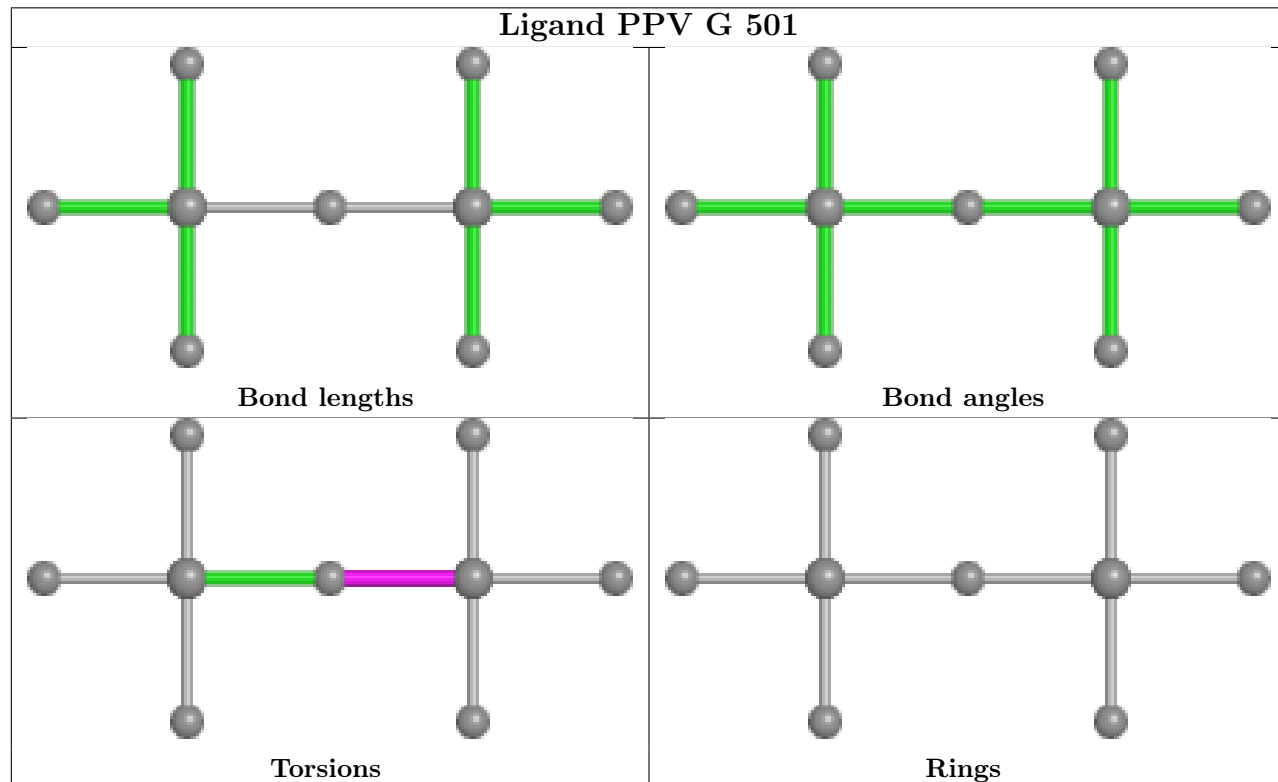
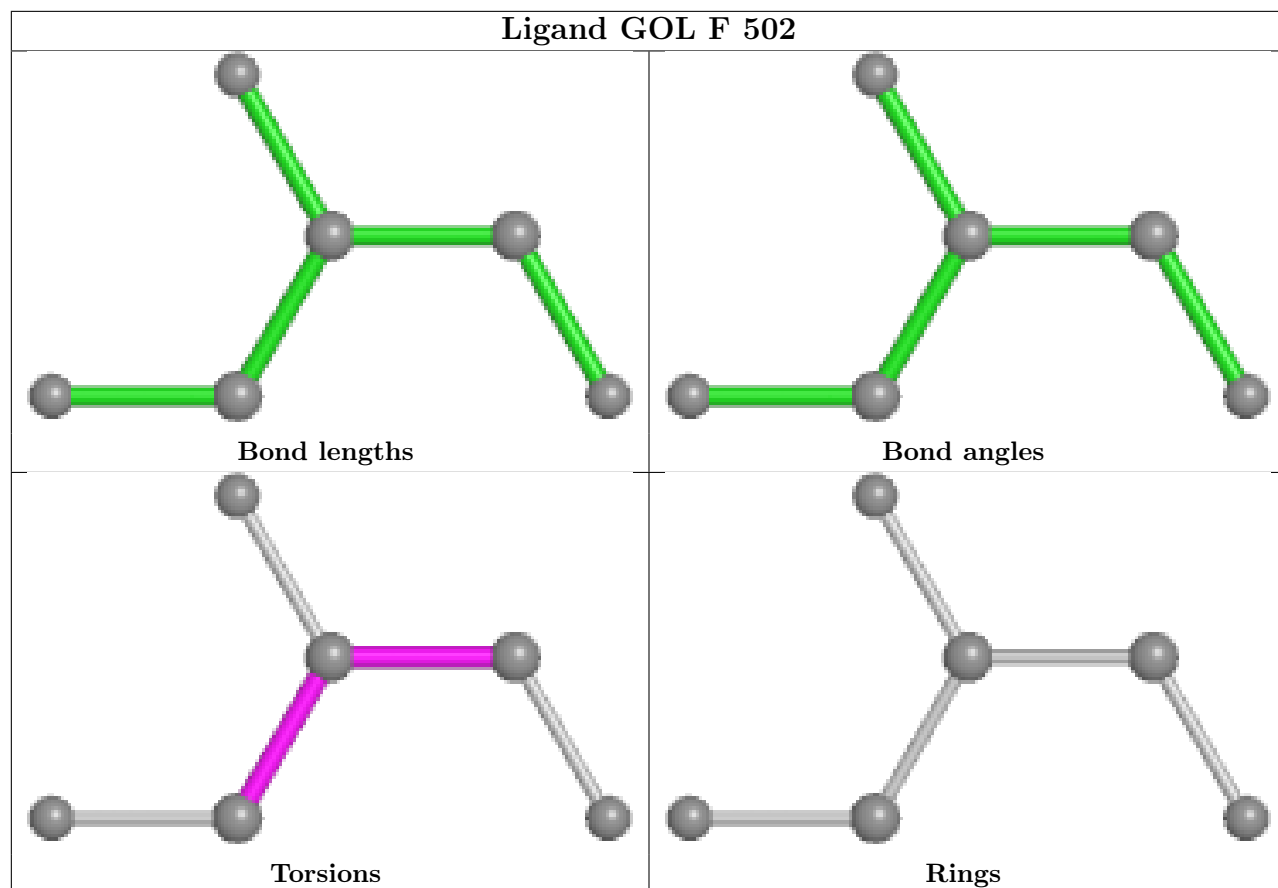


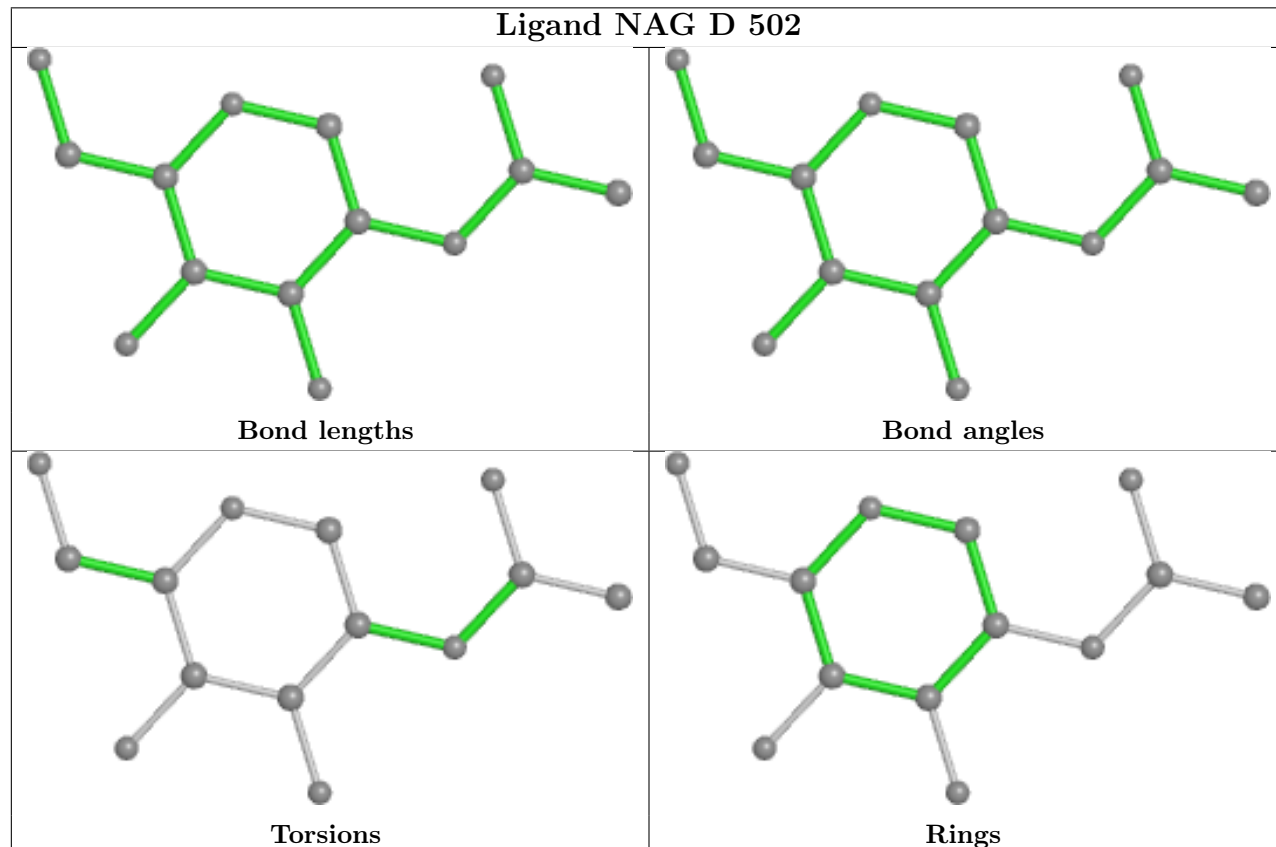
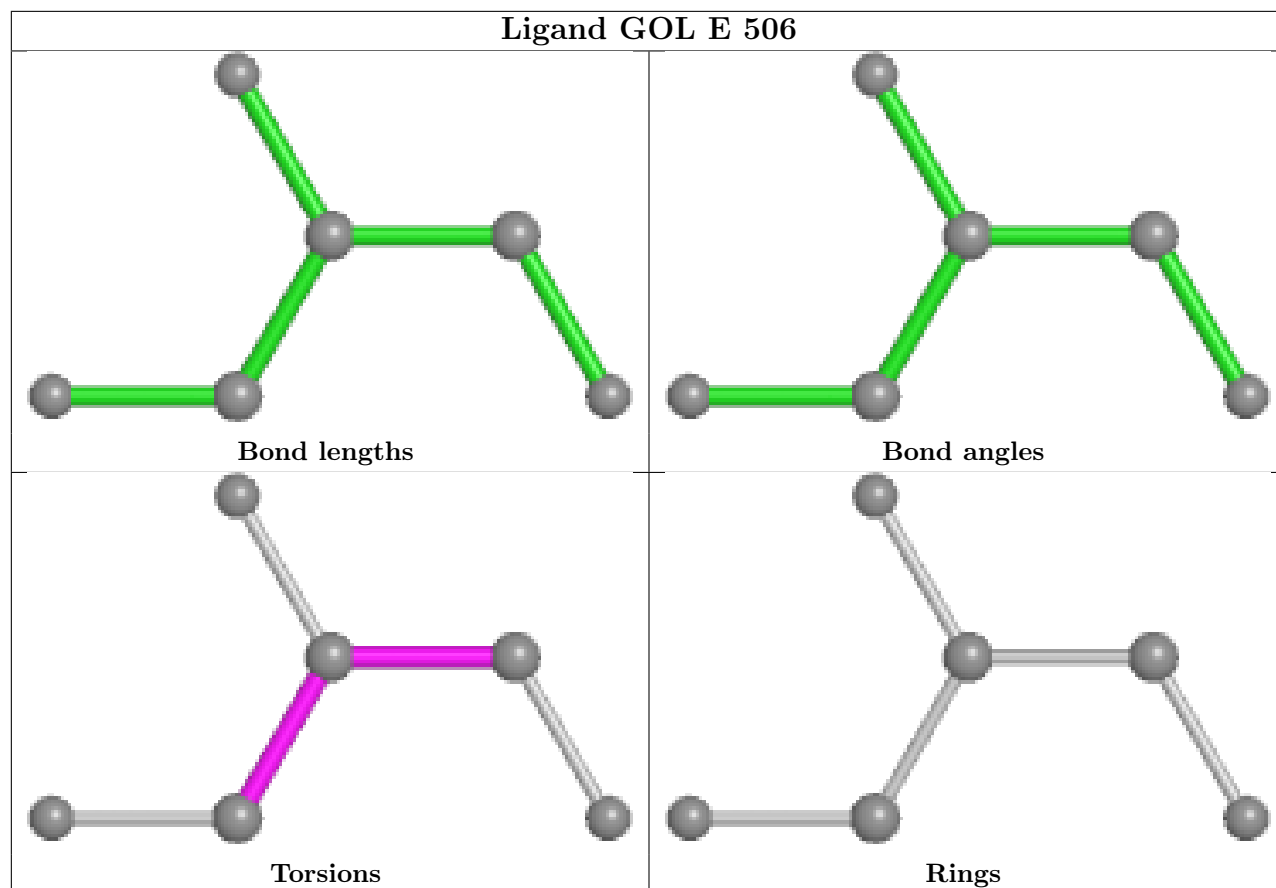


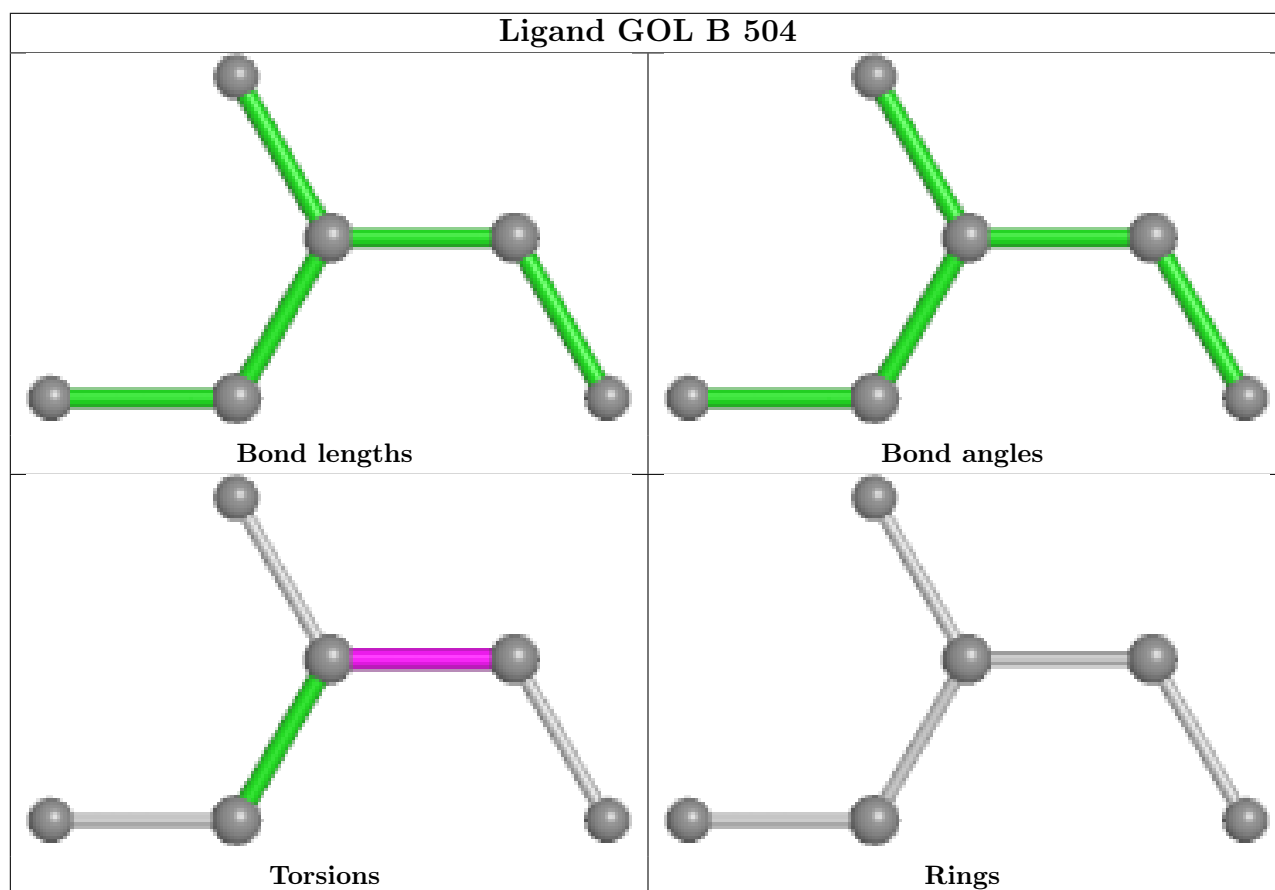
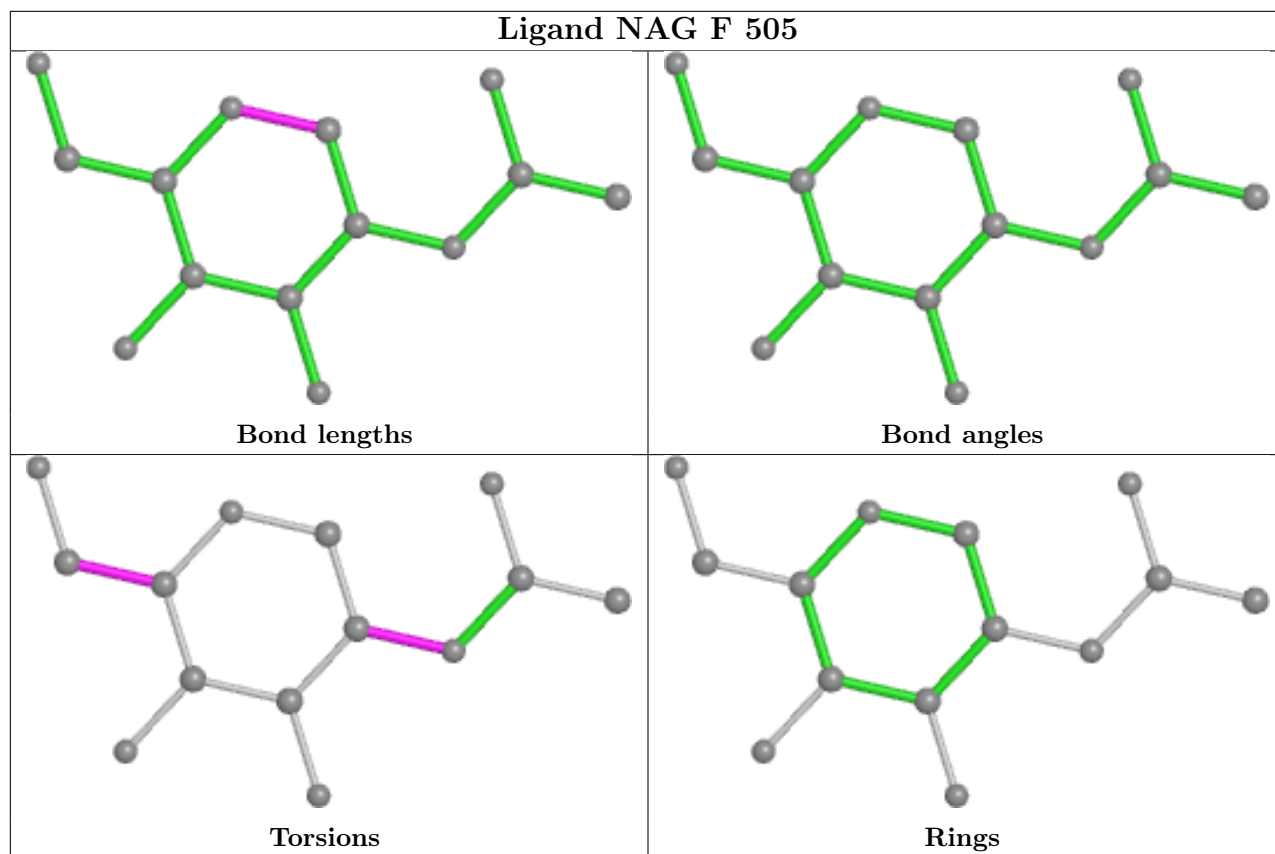


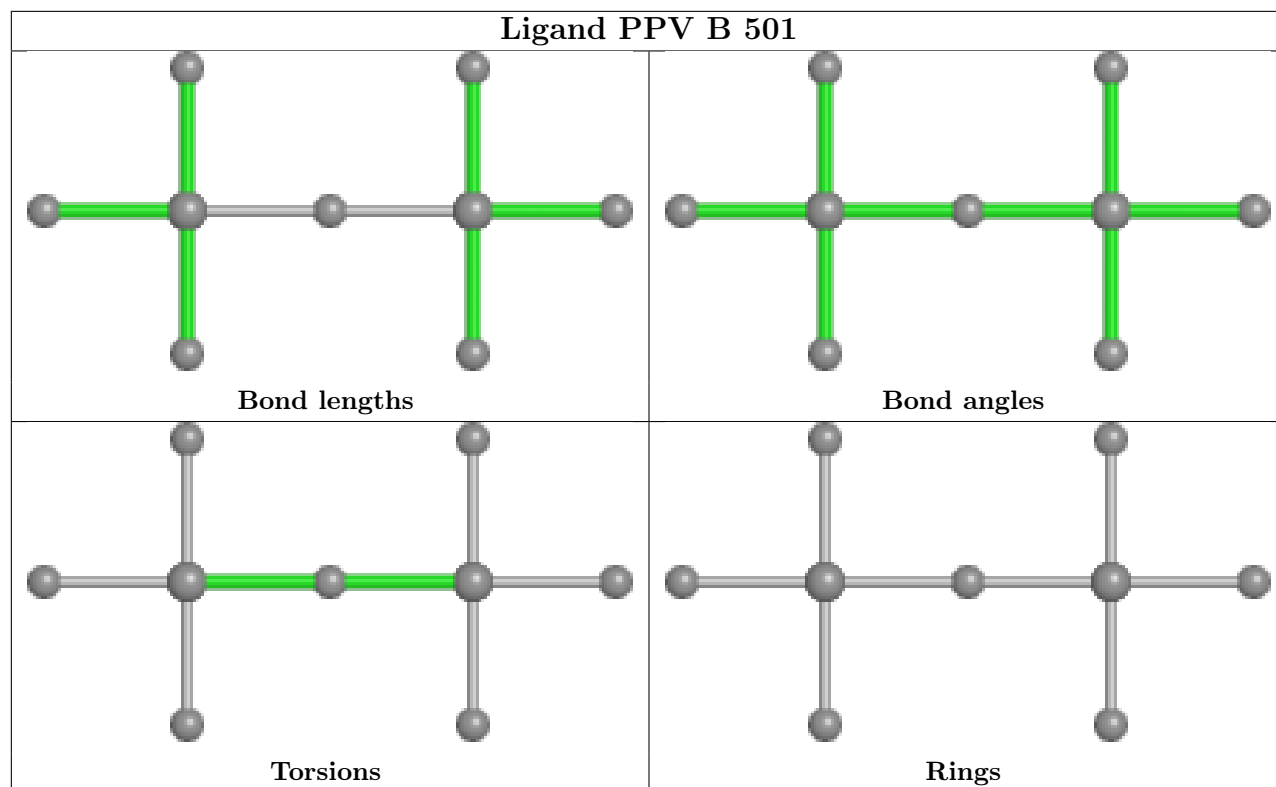


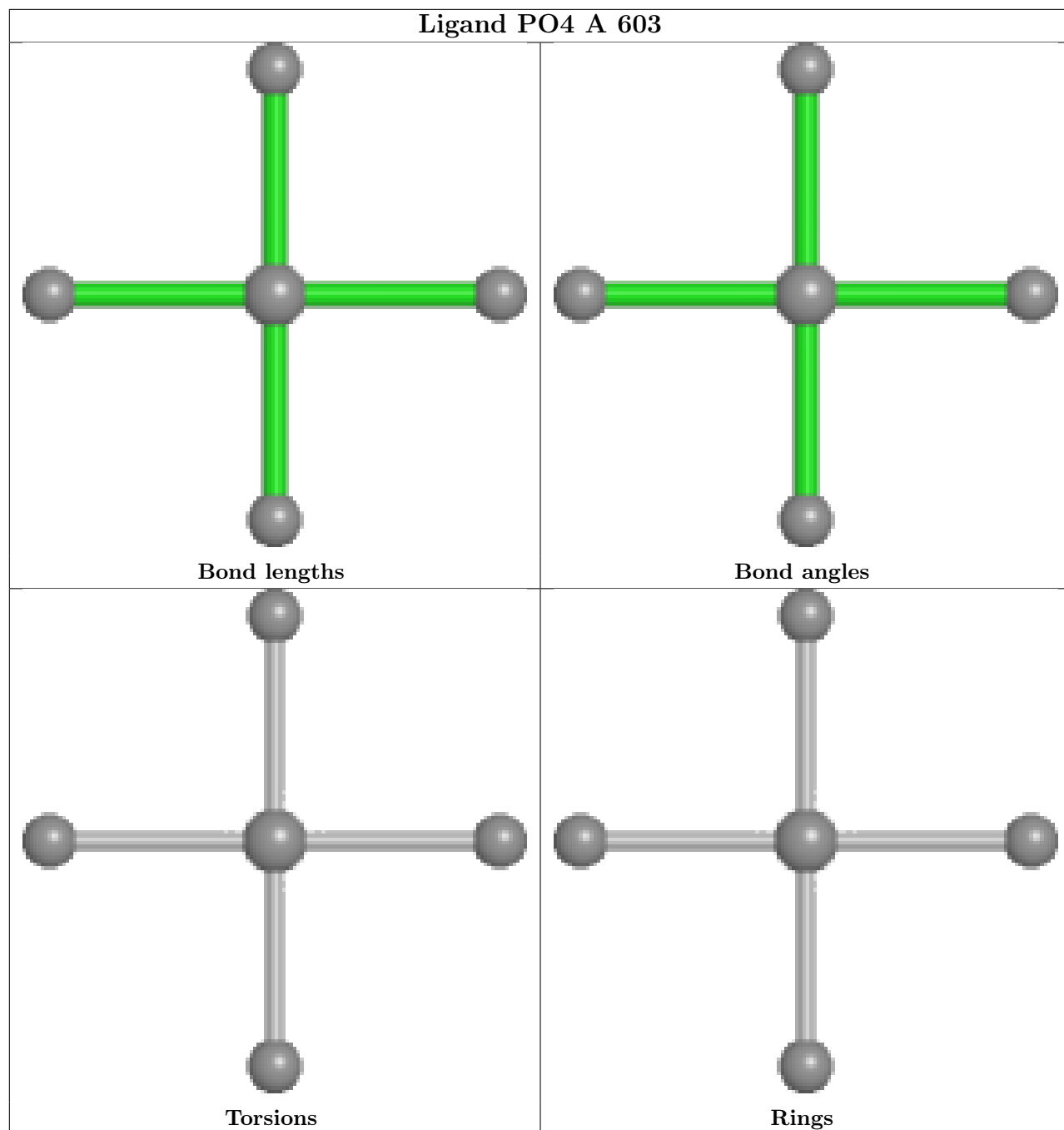


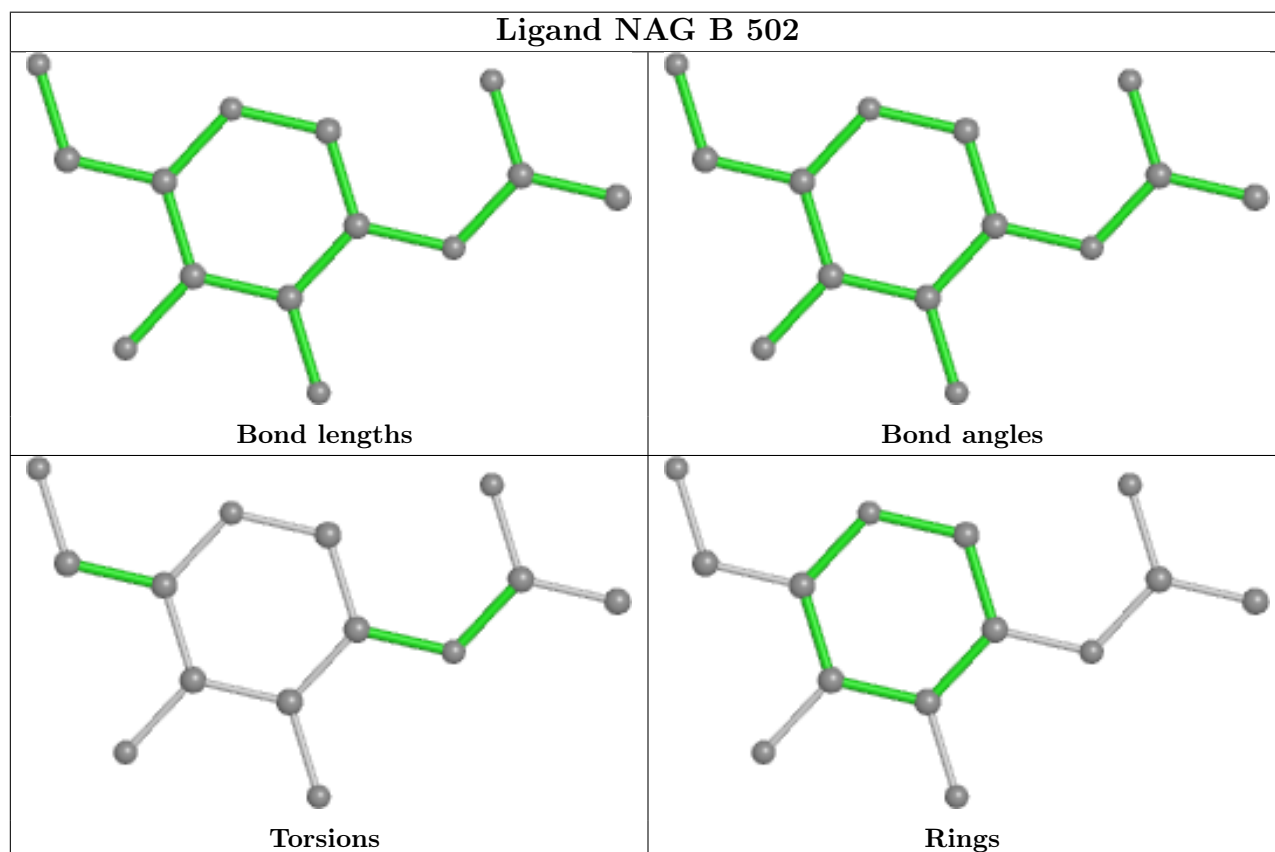
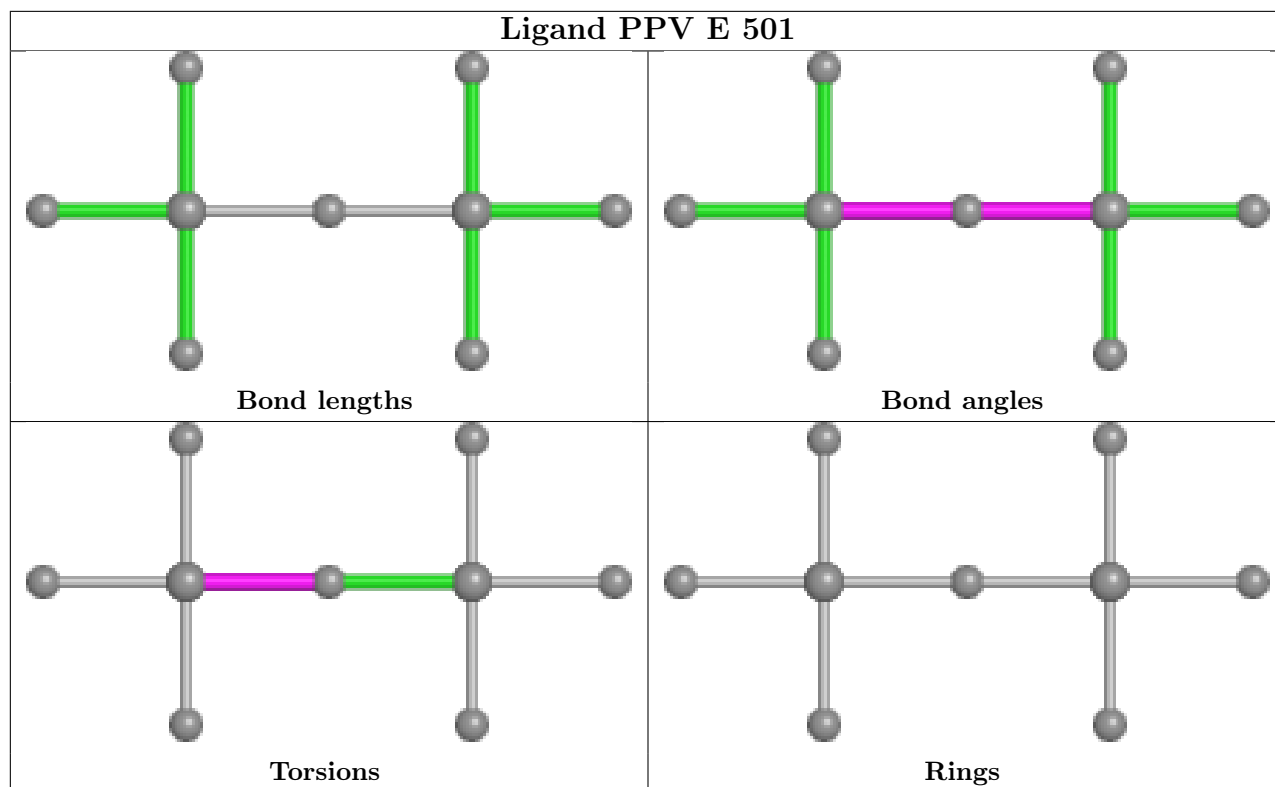


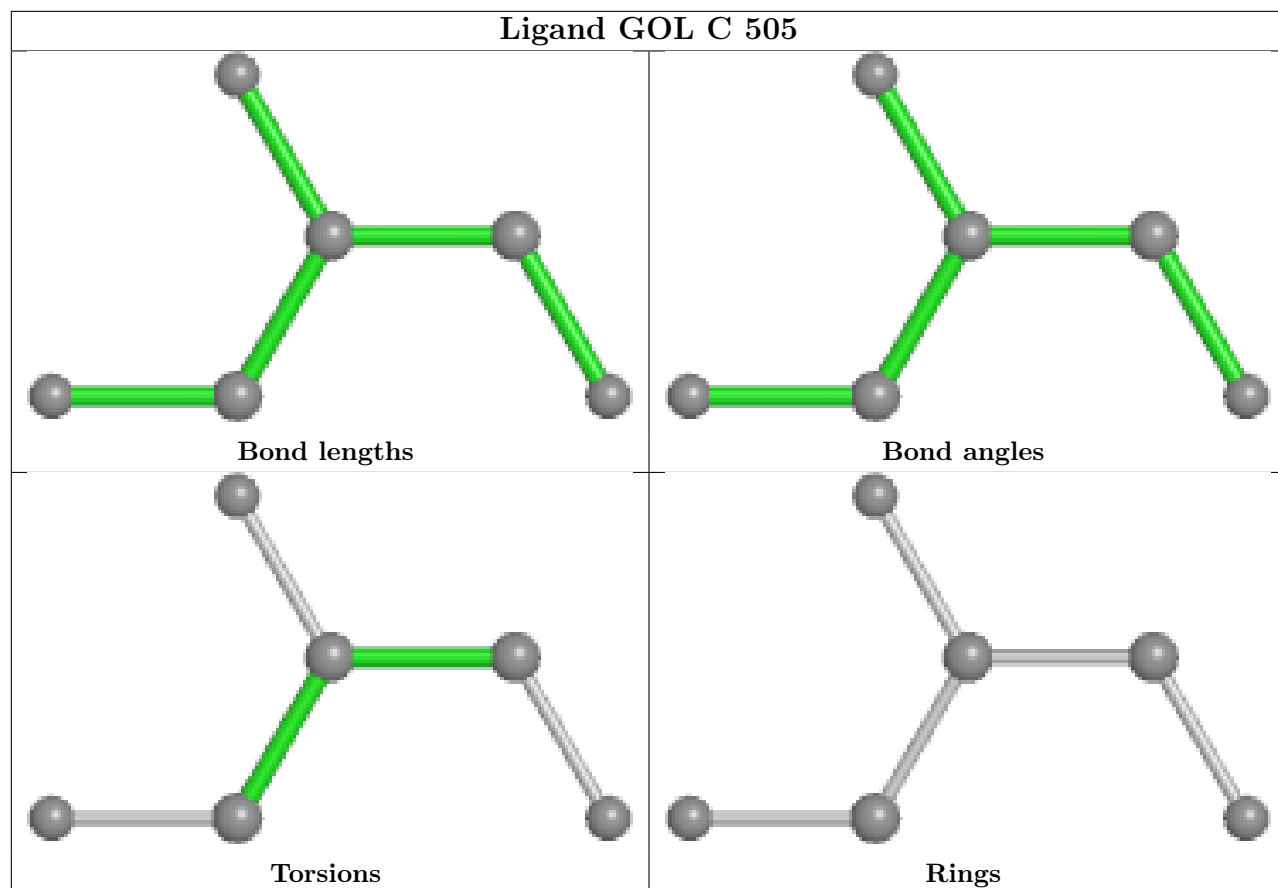


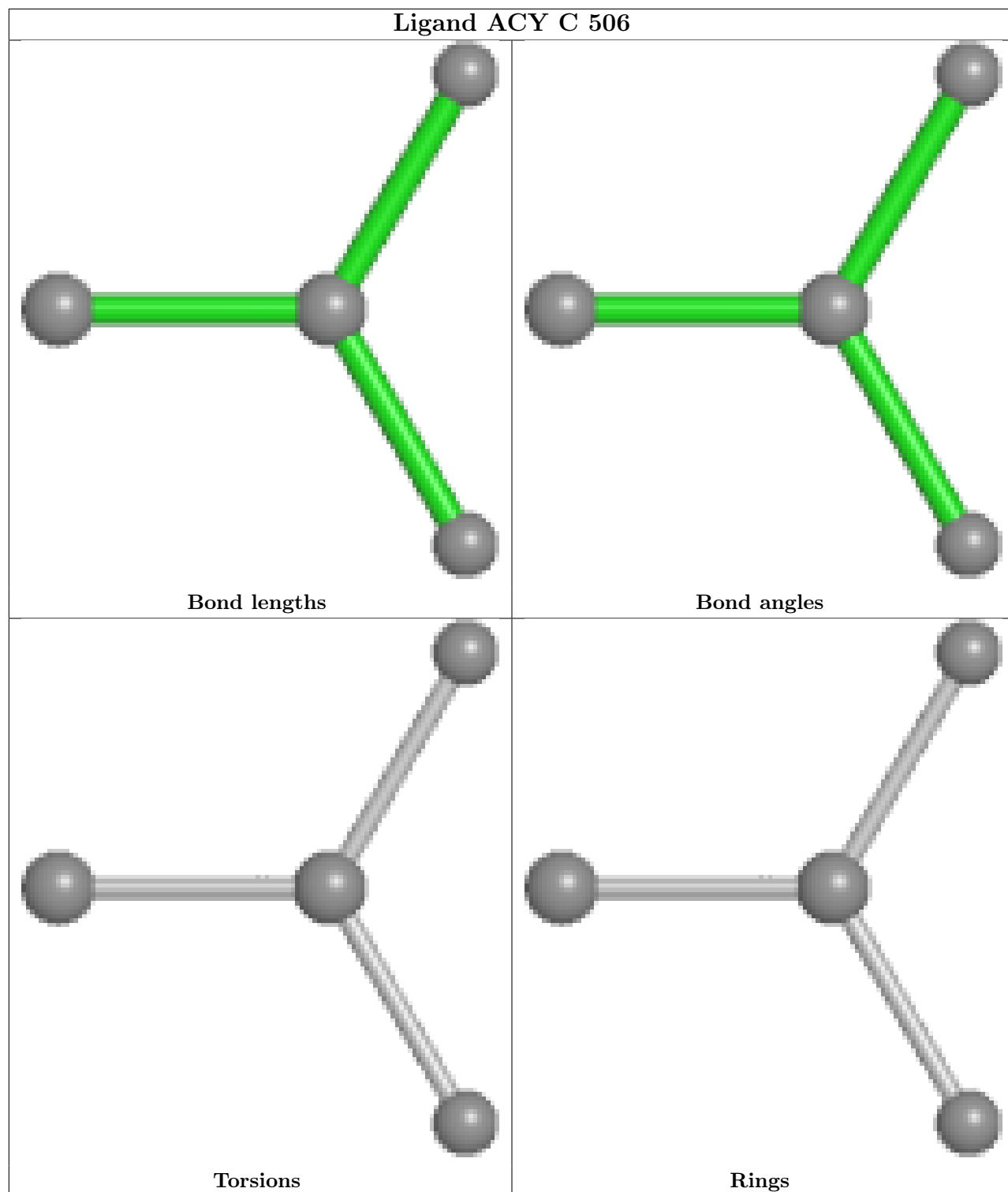


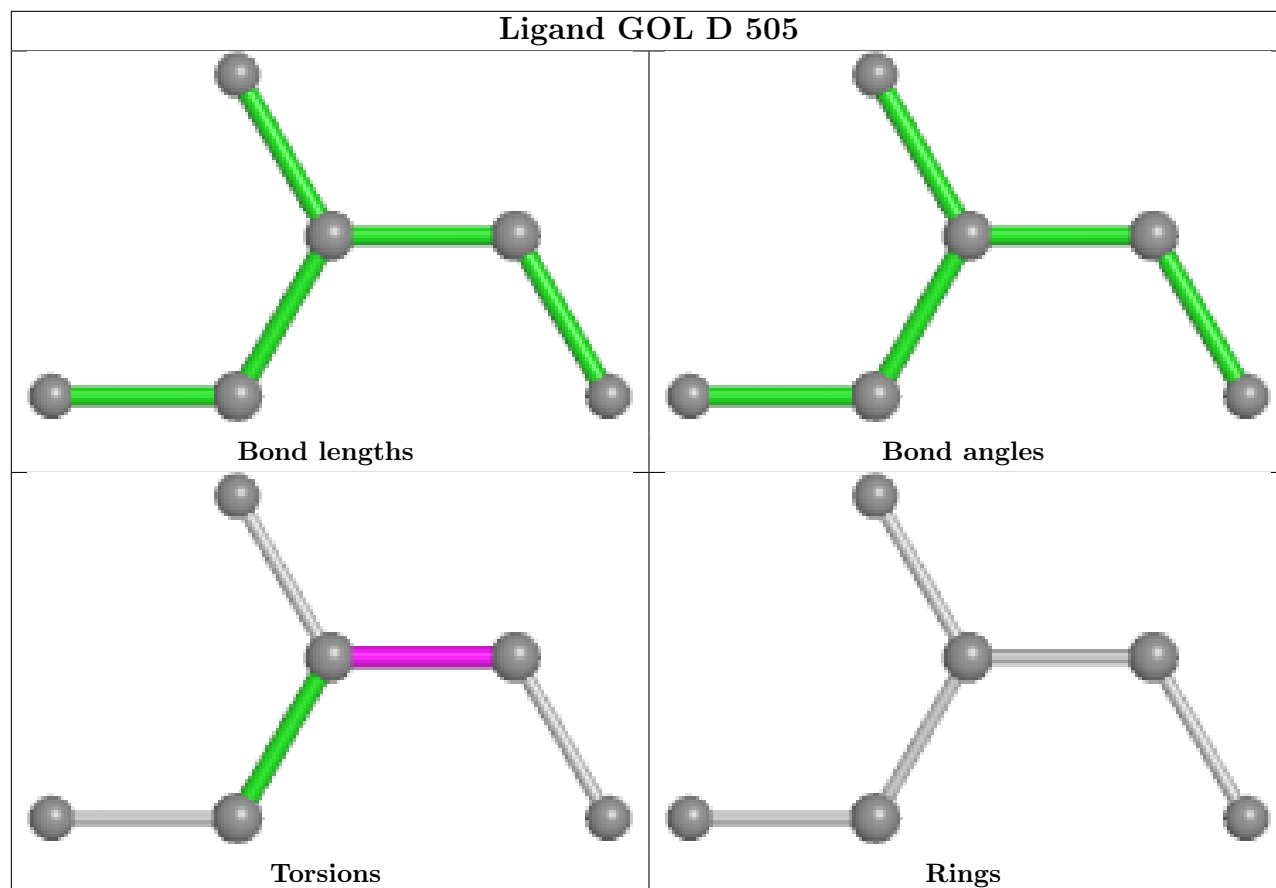












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 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, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	335/410 (81%)	0.26	21 (6%) 20 18	50, 69, 93, 110	0
1	B	335/410 (81%)	0.01	9 (2%) 54 52	41, 59, 83, 106	0
1	C	336/410 (81%)	-0.09	7 (2%) 63 60	37, 47, 78, 100	0
1	D	334/410 (81%)	-0.10	7 (2%) 63 60	33, 49, 76, 127	0
1	E	334/410 (81%)	-0.22	2 (0%) 89 88	31, 45, 75, 120	0
1	F	335/410 (81%)	-0.17	12 (3%) 42 41	36, 50, 78, 101	0
1	G	335/410 (81%)	0.11	17 (5%) 28 26	42, 59, 84, 113	0
1	H	337/410 (82%)	0.30	21 (6%) 20 19	41, 67, 93, 121	0
All	All	2681/3280 (81%)	0.01	96 (3%) 42 41	31, 55, 87, 127	0

All (96) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	H	278	VAL	8.7
1	H	266	LEU	4.9
1	A	105	ASP	4.8
1	C	105	ASP	4.5
1	H	279	LYS	4.1
1	G	280	PRO	4.0
1	A	98	GLU	4.0
1	D	105	ASP	4.0
1	A	264	MET	3.8
1	H	218	TYR	3.8
1	F	96	LEU	3.6
1	C	409	ALA	3.6
1	G	167	GLY	3.6
1	D	75	ARG	3.5
1	A	207[A]	PHE	3.4
1	H	269	TYR	3.4

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Mol	Chain	Res	Type	RSRZ
1	H	222	ASP	3.3
1	C	104	CYS	3.3
1	G	106	GLY	3.3
1	G	105	ASP	3.3
1	H	280	PRO	3.2
1	A	57	PHE	3.2
1	H	57	PHE	3.2
1	G	259	VAL	3.2
1	H	277	SER	3.2
1	H	355	VAL	3.2
1	D	106	GLY	3.2
1	G	98	GLU	3.2
1	G	262	PRO	3.2
1	G	218	TYR	3.2
1	H	250	HIS	3.1
1	A	259	VAL	3.1
1	F	98	GLU	3.1
1	F	280	PRO	3.1
1	F	102	ARG	3.1
1	A	106	GLY	3.1
1	A	235	GLN	3.1
1	A	94	GLY	3.0
1	H	345	PHE	2.9
1	F	331	TRP	2.9
1	F	107	LEU	2.9
1	F	105	ASP	2.9
1	H	268	LEU	2.8
1	H	264	MET	2.8
1	A	238	ARG	2.8
1	D	78	GLU	2.7
1	B	260	GLY	2.7
1	A	104	CYS	2.7
1	B	70	GLN	2.7
1	A	78	GLU	2.7
1	A	166	SER	2.7
1	A	261	GLY	2.7
1	F	97	GLN	2.7
1	H	105	ASP	2.7
1	F	278	VAL	2.6
1	B	262	PRO	2.6
1	A	351	LEU	2.6
1	G	406	ASN	2.6

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Mol	Chain	Res	Type	RSRZ
1	G	283	TRP	2.6
1	E	275	ASP	2.6
1	B	75	ARG	2.5
1	C	405	ARG	2.5
1	F	167	GLY	2.5
1	A	95	SER	2.5
1	E	331	TRP	2.5
1	C	98	GLU	2.5
1	B	71	VAL	2.4
1	C	274	ASN	2.4
1	B	105	ASP	2.4
1	B	99	ASP	2.3
1	H	267	SER	2.3
1	A	256	LEU	2.3
1	G	166	SER	2.3
1	H	259	VAL	2.3
1	G	245	SER	2.3
1	A	239	LEU	2.3
1	F	95	SER	2.3
1	H	224	LEU	2.3
1	G	108	LYS	2.2
1	F	80	TYR	2.2
1	B	55	ASP	2.2
1	A	260	GLY	2.2
1	A	162	LEU	2.2
1	C	106	GLY	2.2
1	D	104	CYS	2.2
1	H	261	GLY	2.2
1	G	331	TRP	2.2
1	G	265	ALA	2.1
1	G	284	ASP	2.1
1	H	406	ASN	2.1
1	B	280	PRO	2.1
1	D	95	SER	2.1
1	H	270	PRO	2.1
1	G	260	GLY	2.1
1	A	400	SER	2.0
1	D	80	TYR	2.0

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

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

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

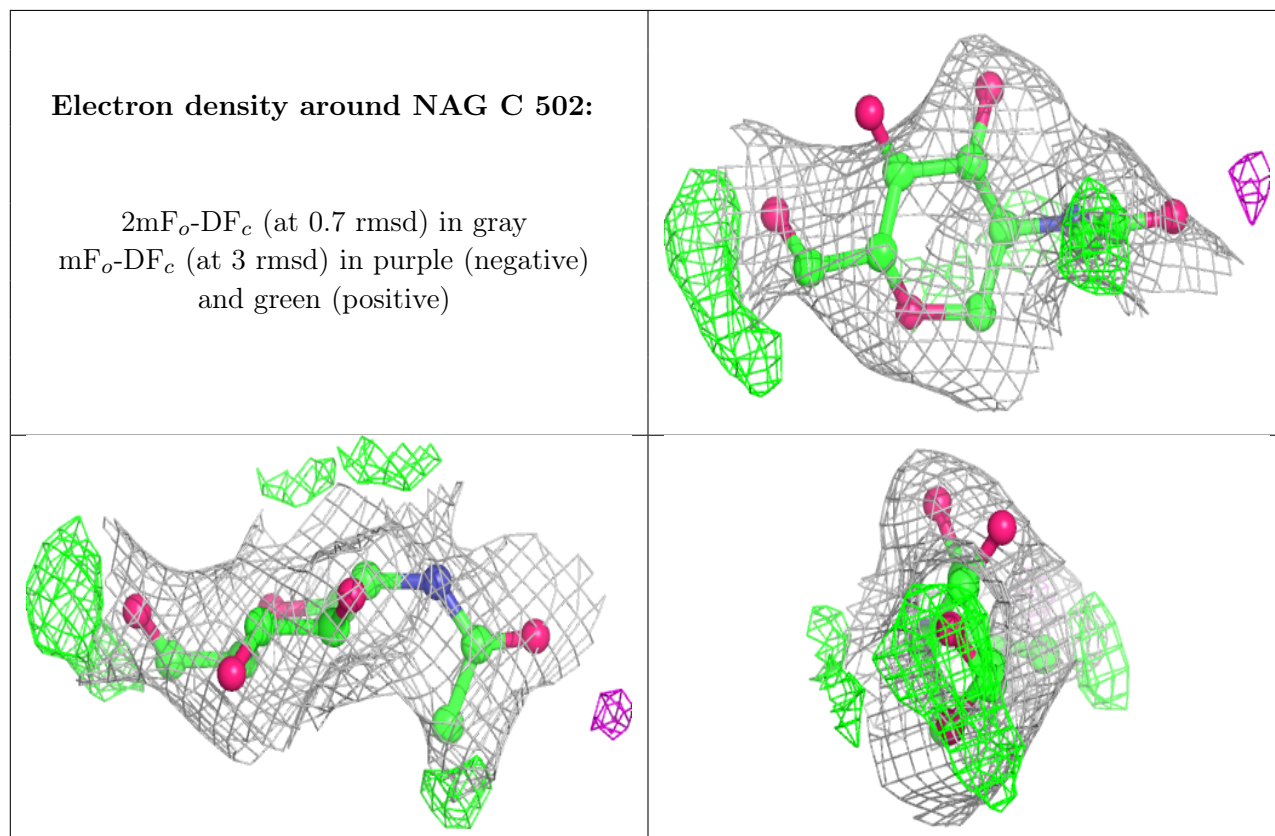
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
6	NAG	C	502	14/15	0.55	0.31	84,95,101,103	0
6	NAG	F	505	14/15	0.60	0.26	98,110,115,117	0
2	GOL	C	508	6/6	0.73	0.42	63,67,73,74	0
4	PO4	A	603	5/5	0.74	0.33	90,96,104,111	0
5	PPV	G	501	9/9	0.74	0.29	91,97,111,111	0
6	NAG	D	502	14/15	0.78	0.21	57,75,85,87	0
3	ACY	F	506	4/4	0.80	0.45	61,66,70,71	0
2	GOL	E	505	6/6	0.81	0.17	59,63,64,65	0
5	PPV	F	501	9/9	0.81	0.31	74,92,106,106	0
6	NAG	B	502	14/15	0.82	0.26	75,94,103,113	0
2	GOL	B	504	6/6	0.84	0.20	57,73,74,76	0
2	GOL	E	506	6/6	0.85	0.25	61,63,68,68	0
5	PPV	E	501	9/9	0.85	0.26	59,73,85,93	0
3	ACY	A	602	4/4	0.86	0.15	63,70,71,72	0
2	GOL	C	503	6/6	0.86	0.25	54,61,66,67	0
3	ACY	B	505	4/4	0.87	0.20	53,60,68,74	0
2	GOL	D	503	6/6	0.87	0.21	55,64,67,70	0
2	GOL	D	506	6/6	0.88	0.19	50,54,61,62	0
5	PPV	D	501	9/9	0.88	0.38	69,83,90,102	0
6	NAG	E	502	14/15	0.88	0.19	78,88,95,95	0
2	GOL	D	505	6/6	0.88	0.20	46,49,52,72	0
3	ACY	H	503	4/4	0.89	0.20	60,62,64,66	0
3	ACY	C	506	4/4	0.89	0.18	43,54,57,61	0
5	PPV	C	501	9/9	0.89	0.35	67,86,93,99	0
2	GOL	F	502	6/6	0.90	0.20	51,63,63,69	0
5	PPV	B	501	9/9	0.90	0.30	73,92,98,105	0
2	GOL	A	601	6/6	0.90	0.17	62,68,75,87	0
2	GOL	E	503	6/6	0.91	0.19	41,46,58,65	0
3	ACY	E	504	4/4	0.91	0.12	39,47,54,54	0
5	PPV	H	501	9/9	0.91	0.28	88,105,108,122	0
2	GOL	C	504	6/6	0.91	0.18	49,52,58,61	0
3	ACY	G	503	4/4	0.92	0.18	52,58,62,69	0

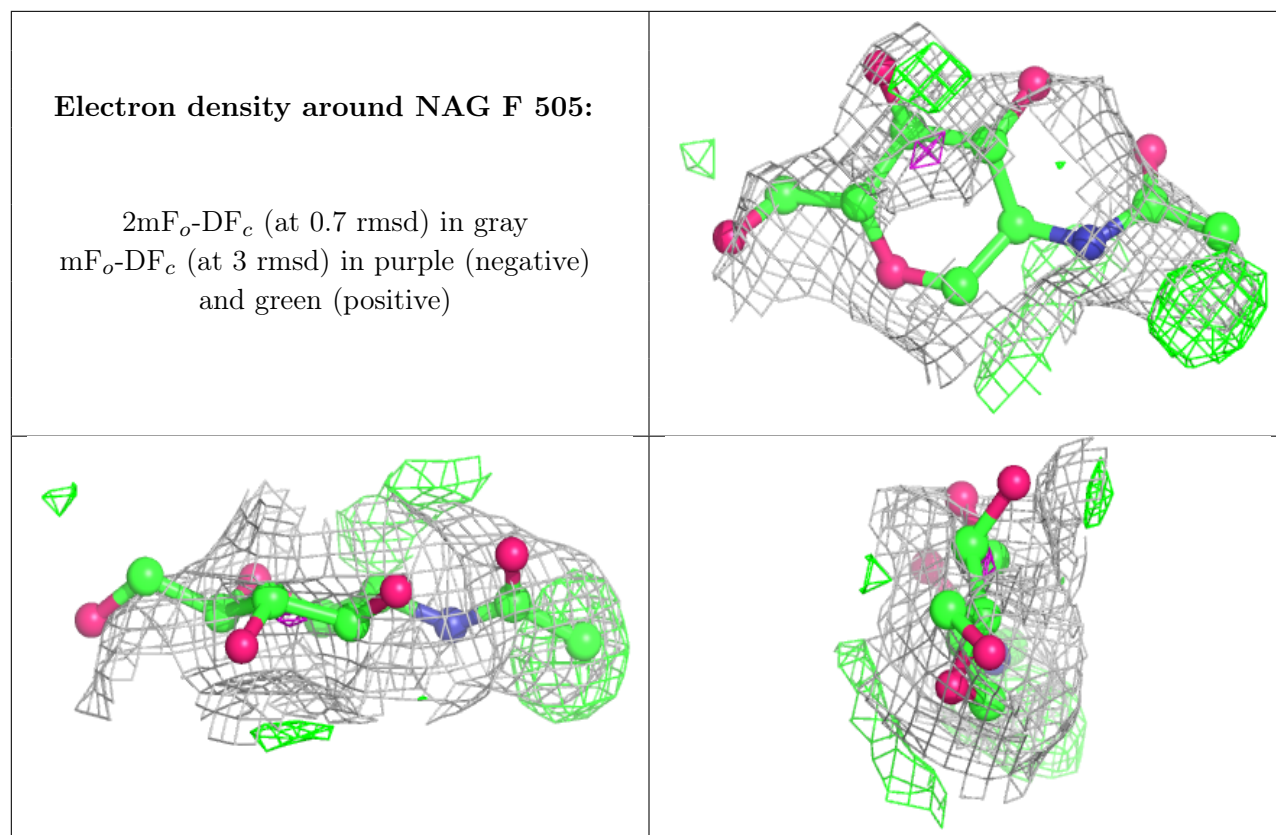
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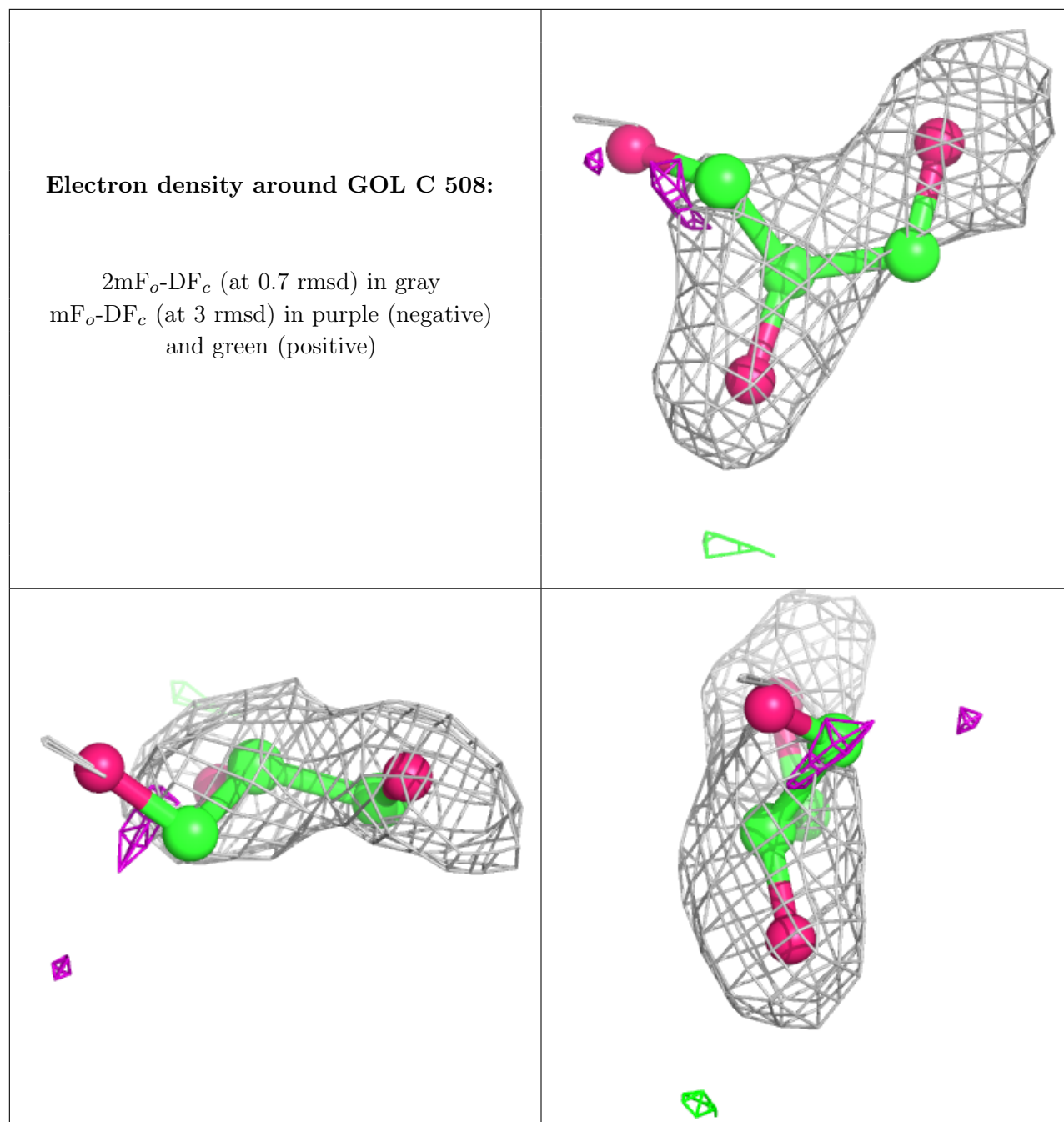
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
2	GOL	F	503	6/6	0.92	0.12	52,57,64,69	0
2	GOL	C	509	6/6	0.92	0.15	45,53,57,60	0
2	GOL	C	505	6/6	0.93	0.20	54,59,62,69	0
2	GOL	C	507	6/6	0.93	0.24	59,60,63,72	0
2	GOL	B	503	6/6	0.93	0.15	51,55,59,67	0
2	GOL	H	502	6/6	0.93	0.12	52,60,65,76	0
2	GOL	D	504	6/6	0.94	0.17	54,58,62,70	0
2	GOL	F	504	6/6	0.94	0.10	47,51,54,64	0
2	GOL	G	502	6/6	0.94	0.20	48,51,57,65	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.

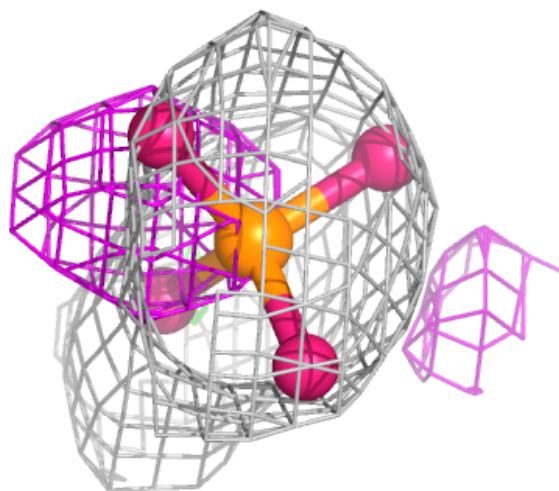
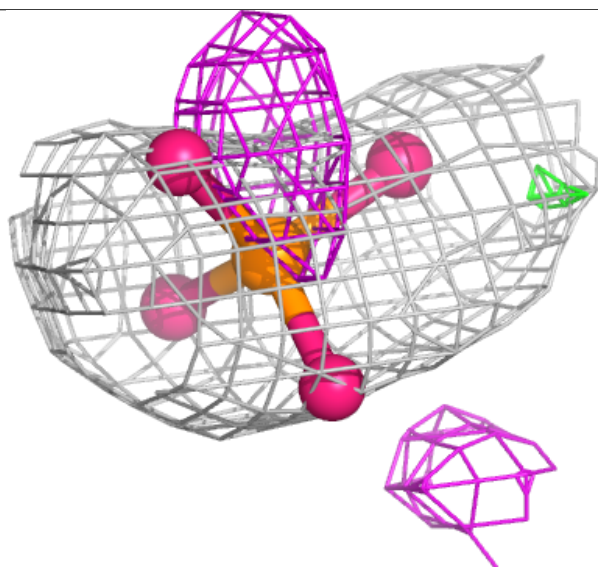
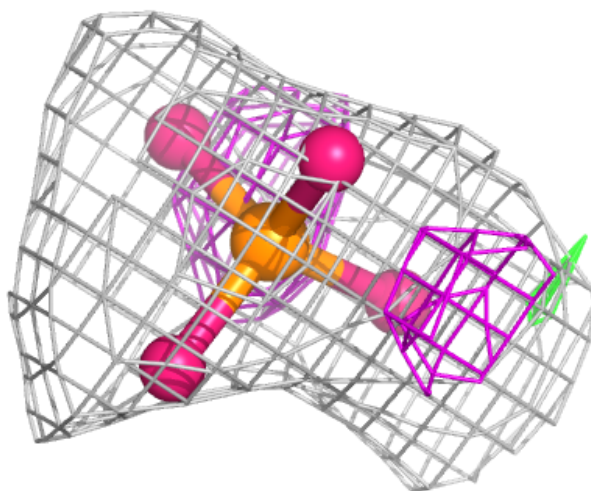






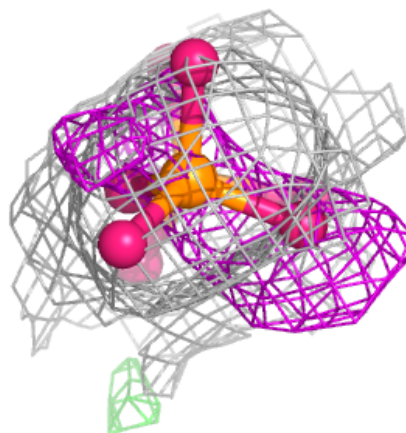
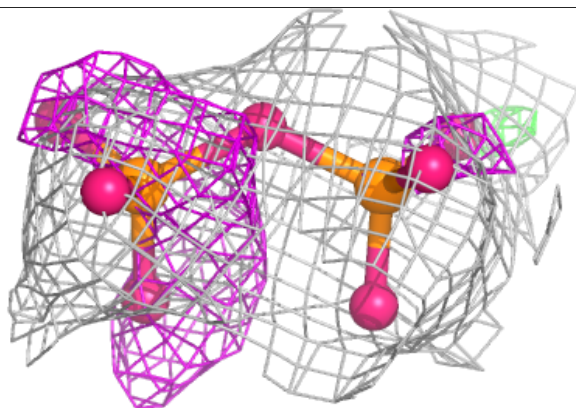
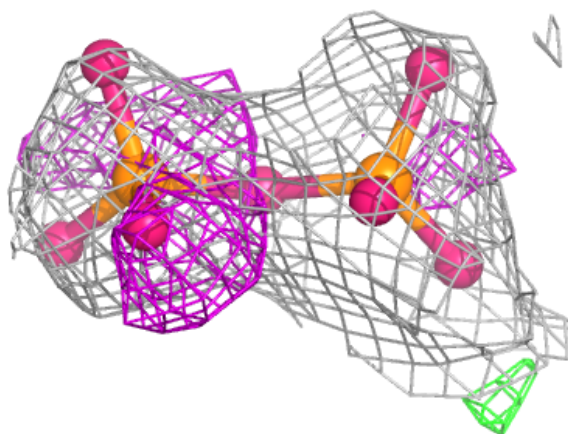
Electron density around PO4 A 603:

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

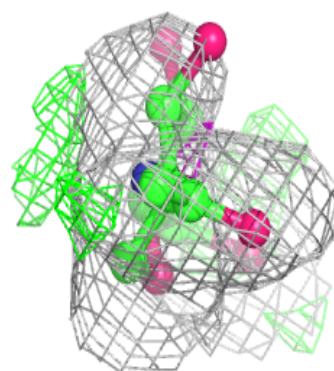
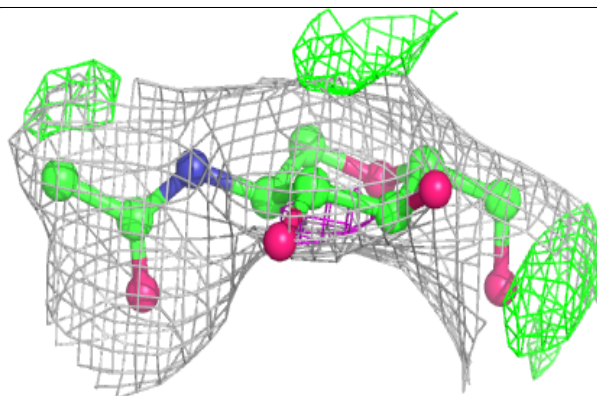
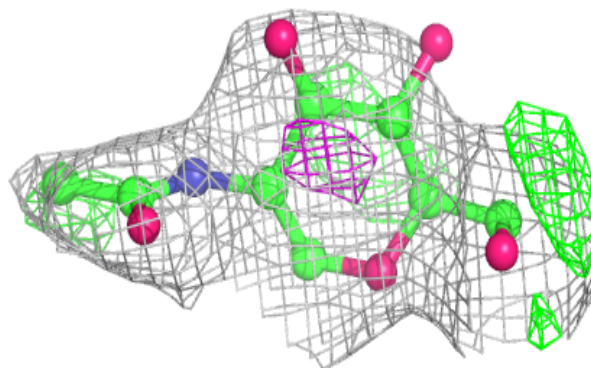


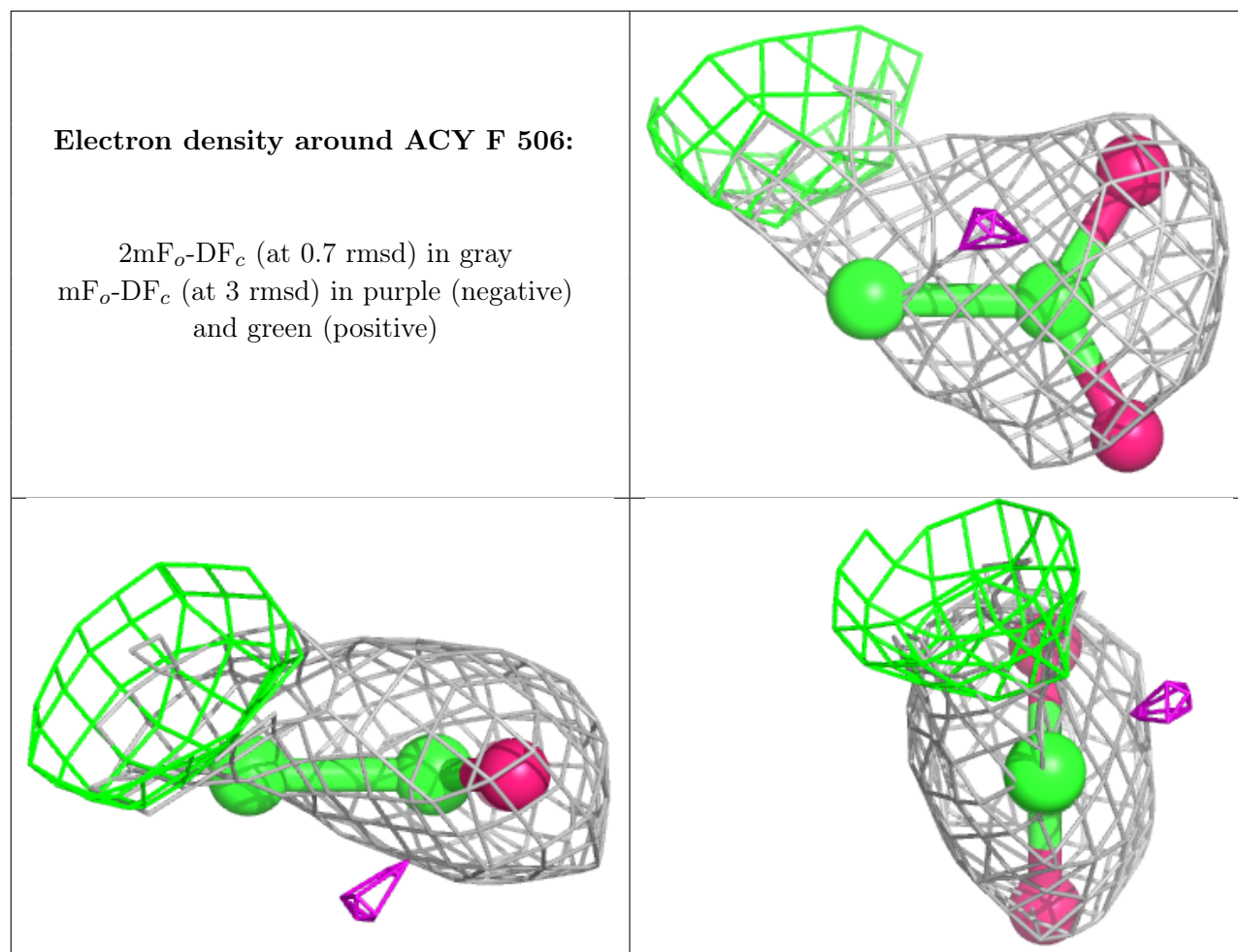
Electron density around PPV G 501:

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

**Electron density around NAG D 502:**

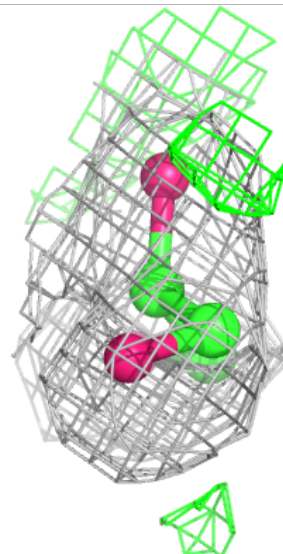
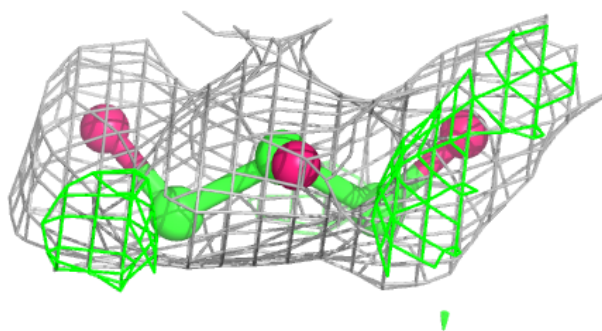
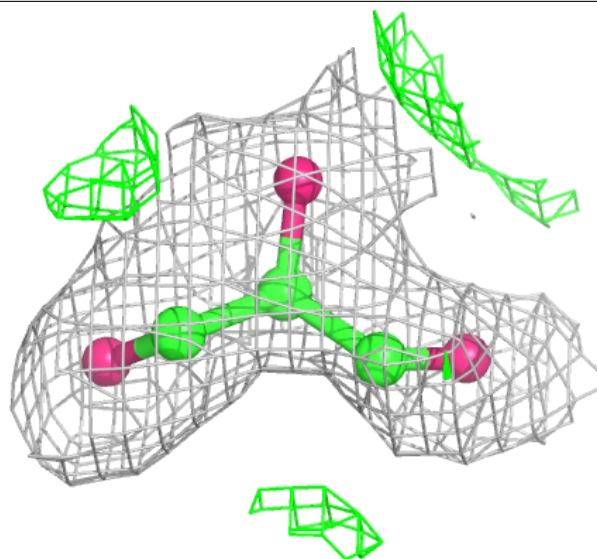
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





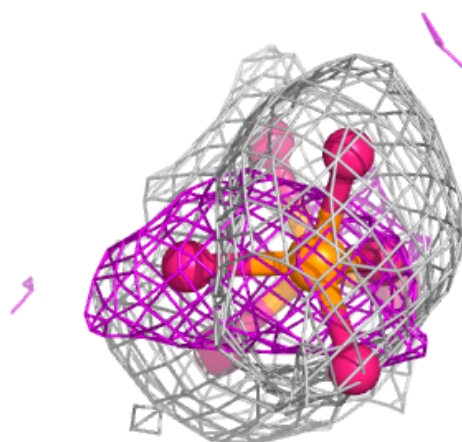
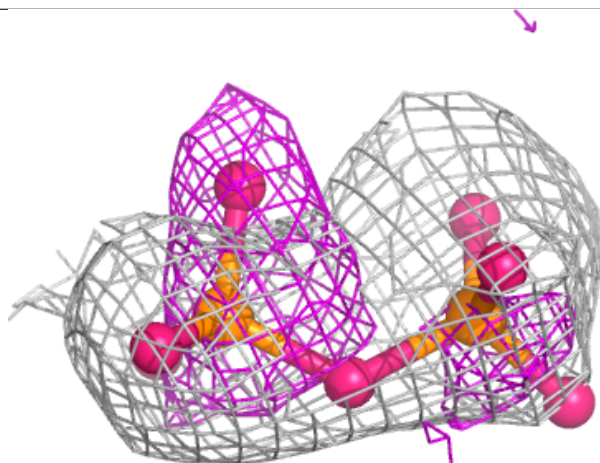
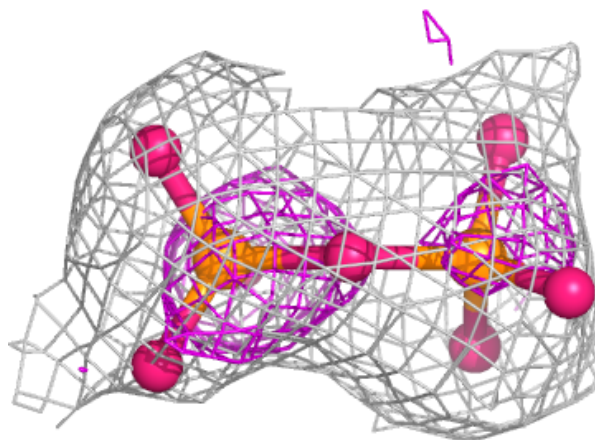
Electron density around GOL E 505:

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



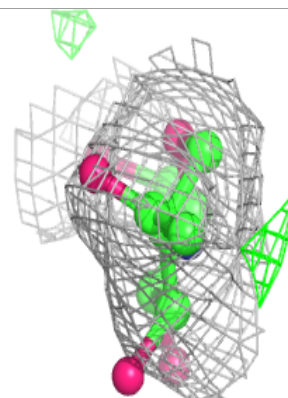
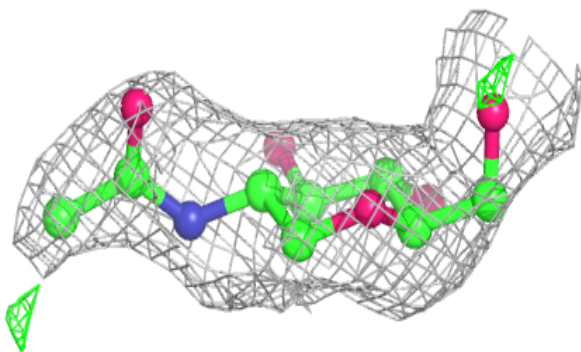
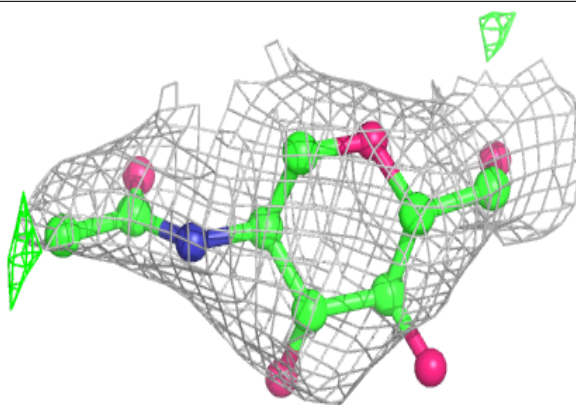
Electron density around PPV F 501:

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

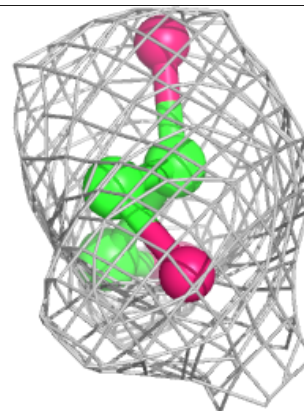
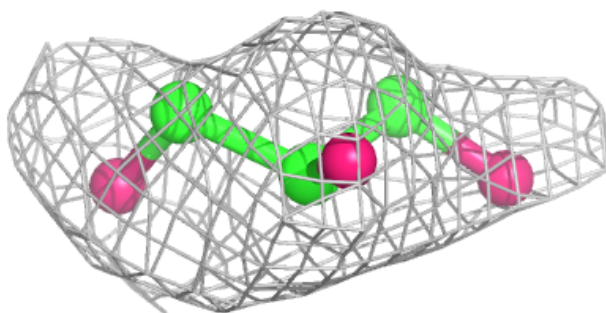
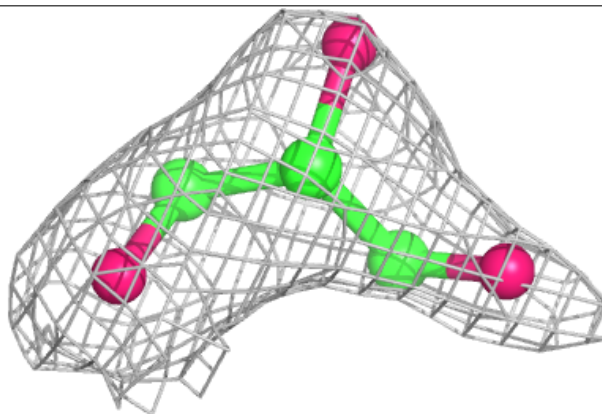


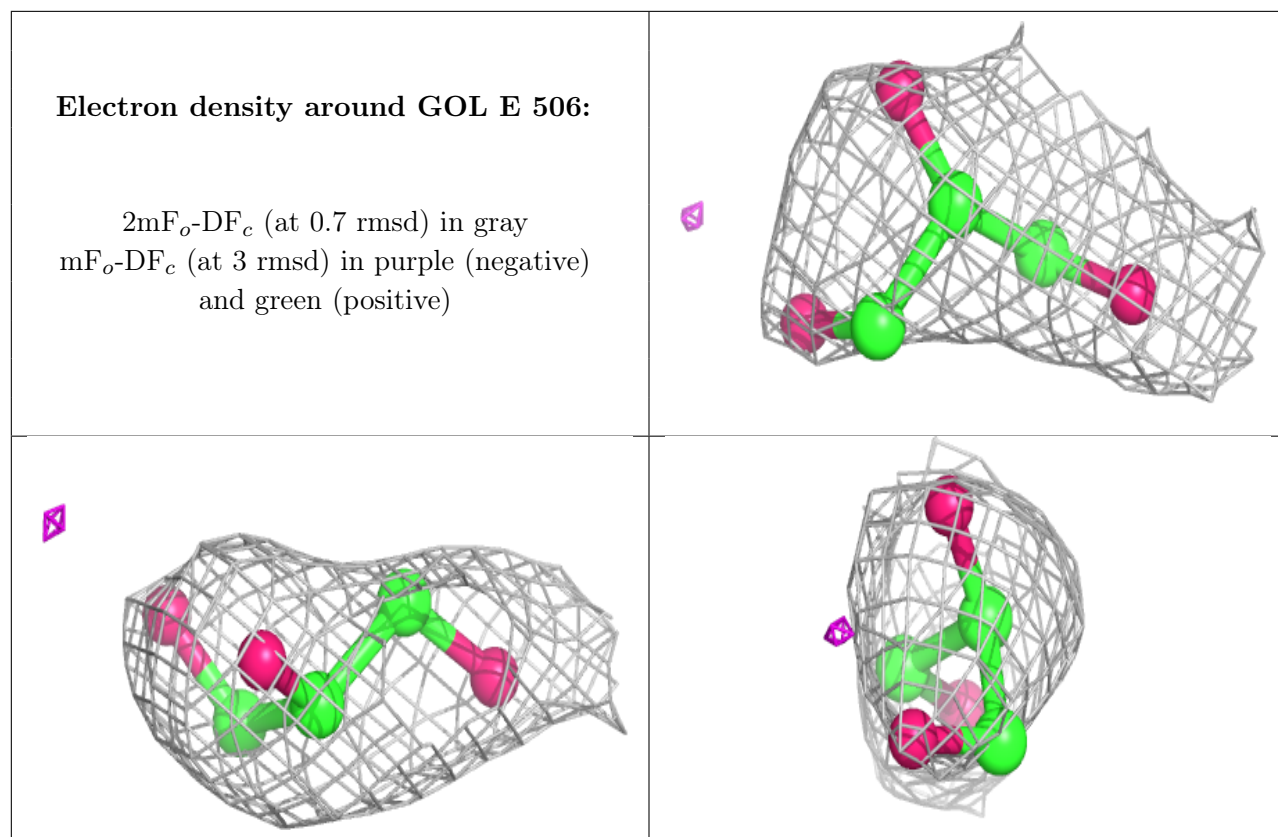
Electron density around NAG B 502:

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

**Electron density around GOL B 504:**

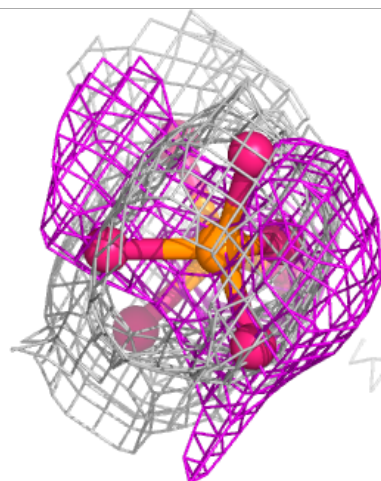
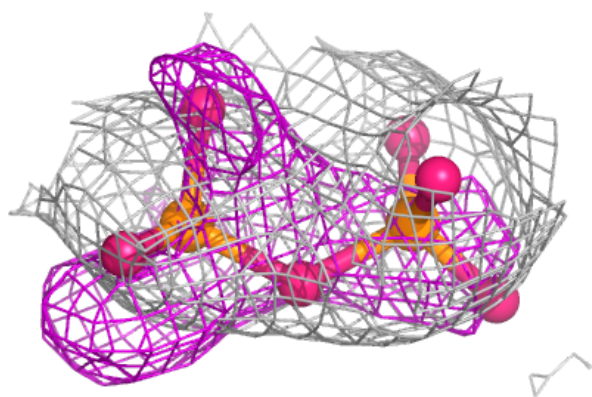
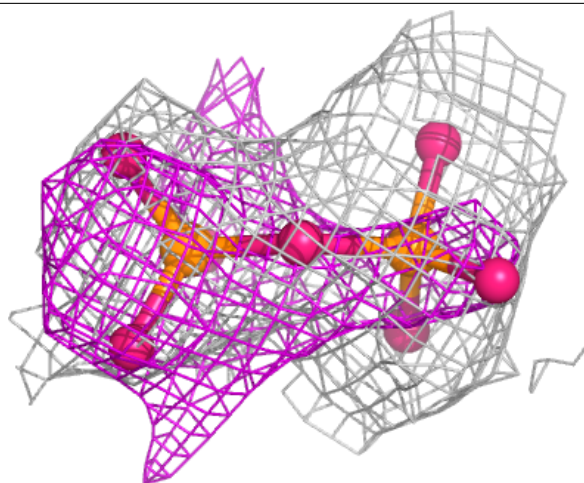
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





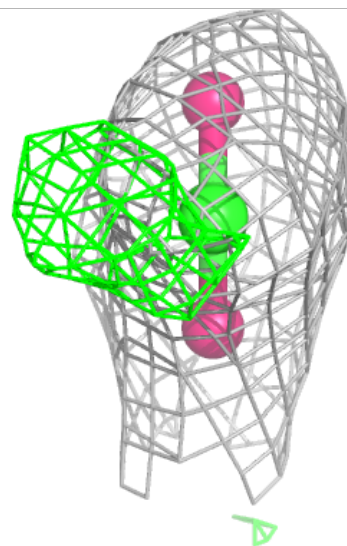
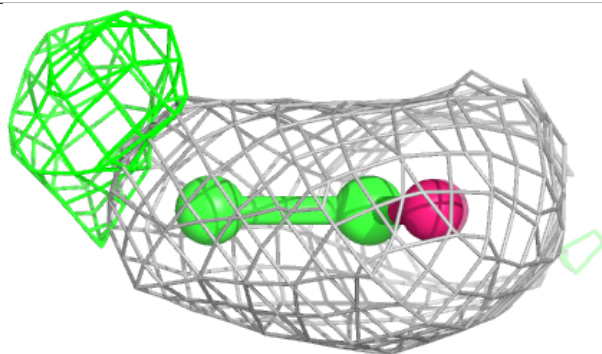
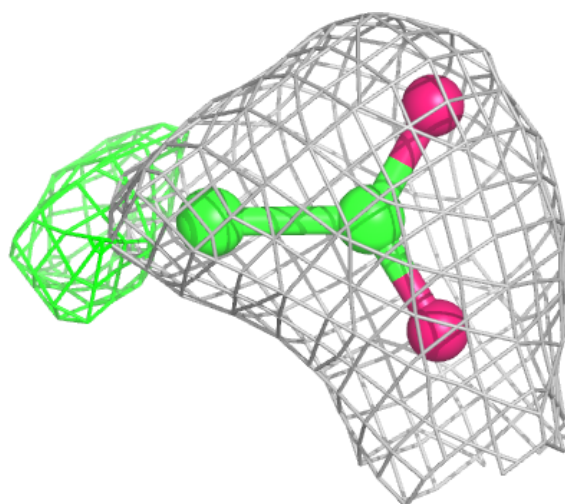
Electron density around PPV E 501:

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



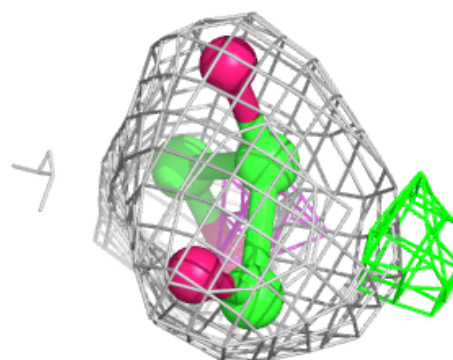
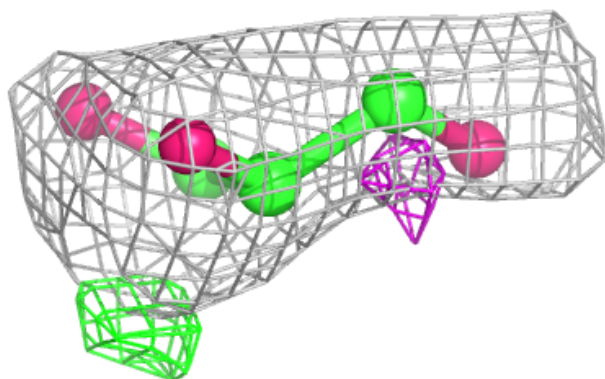
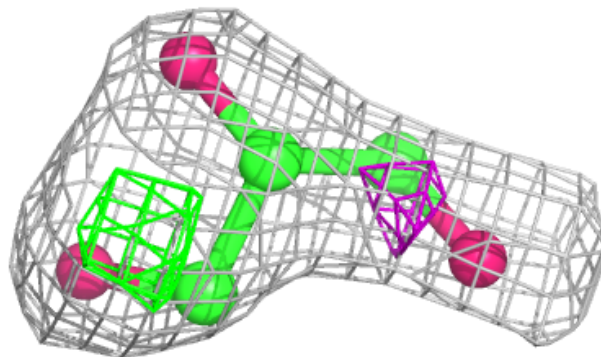
Electron density around ACY A 602:

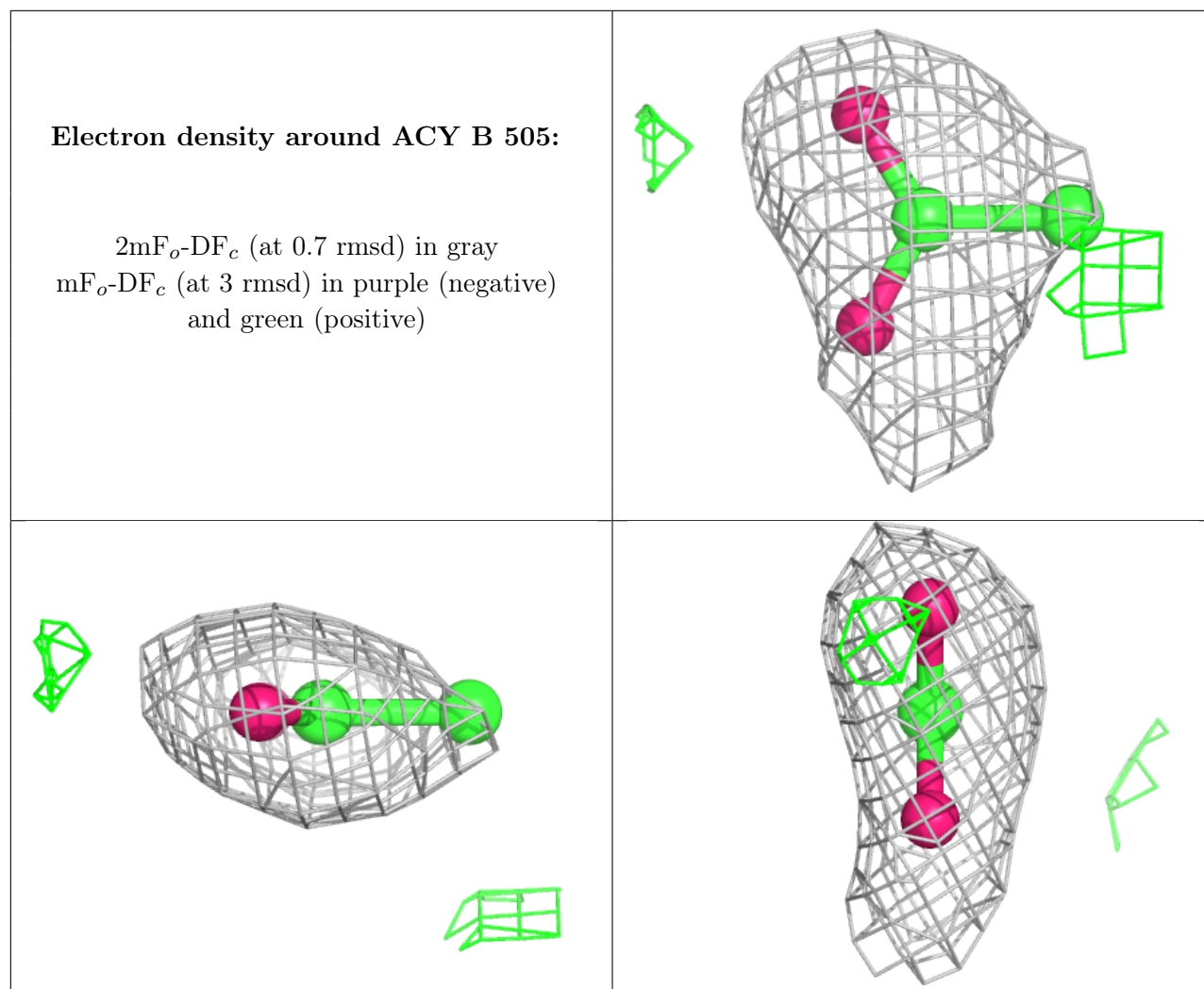
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

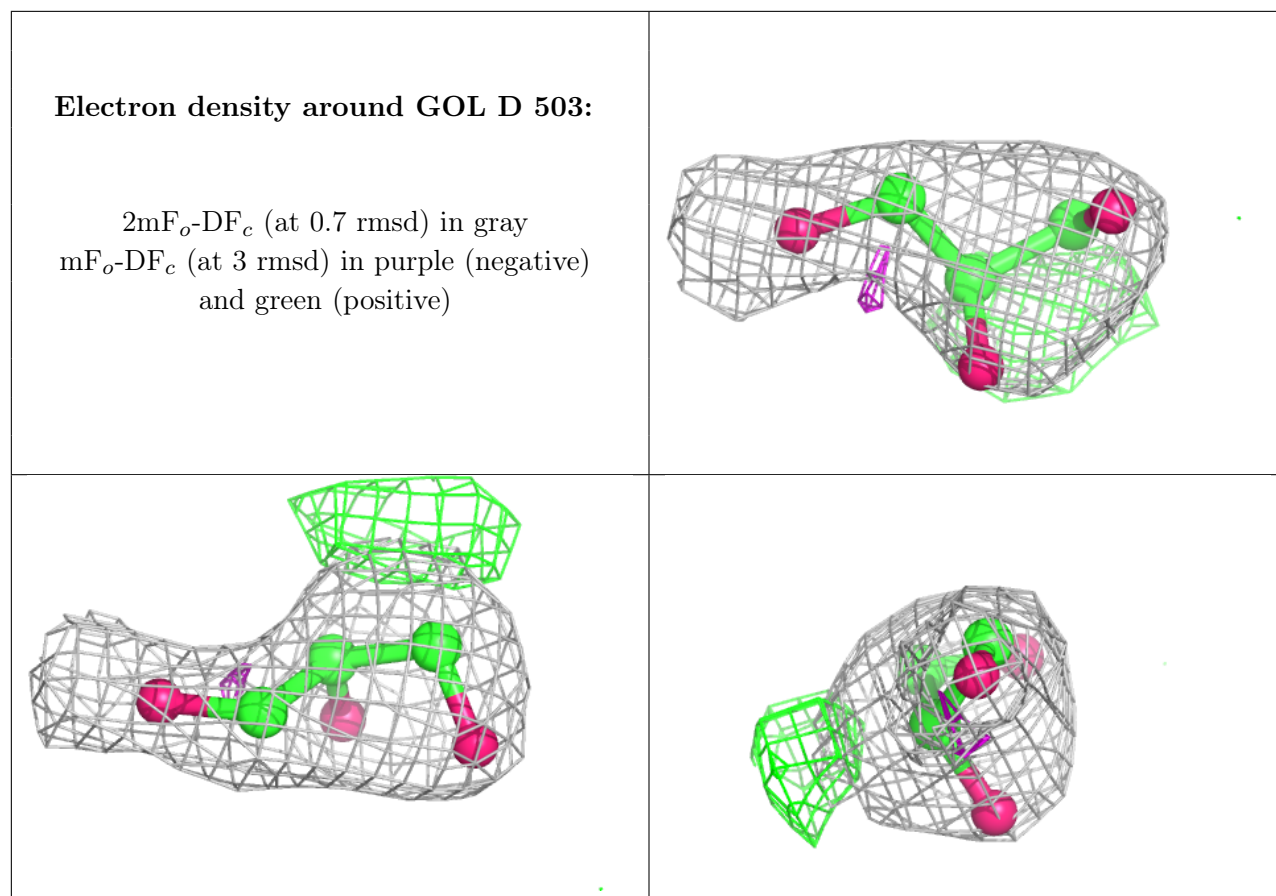


Electron density around GOL C 503:

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

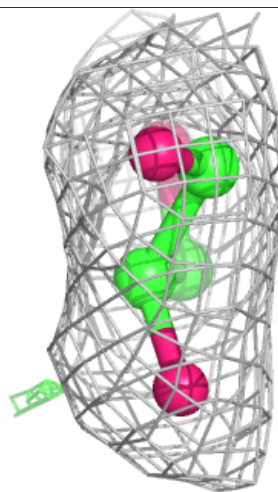
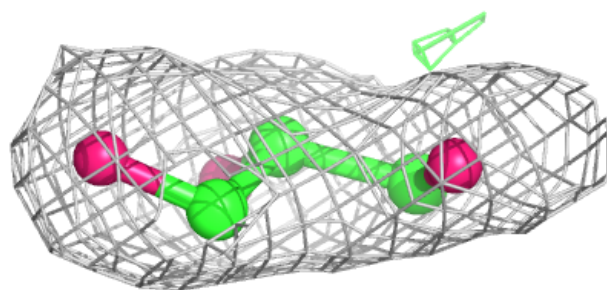
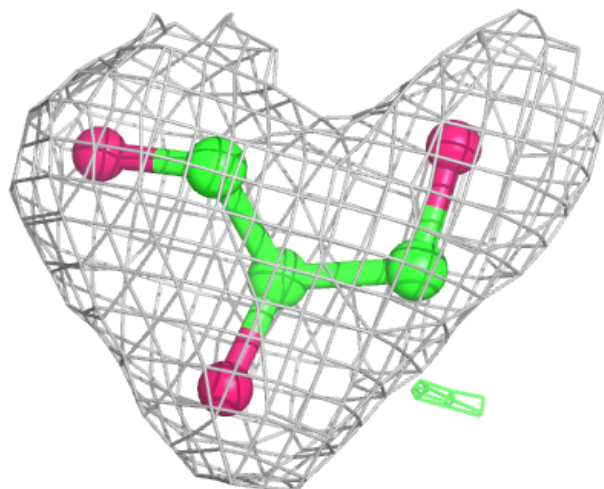


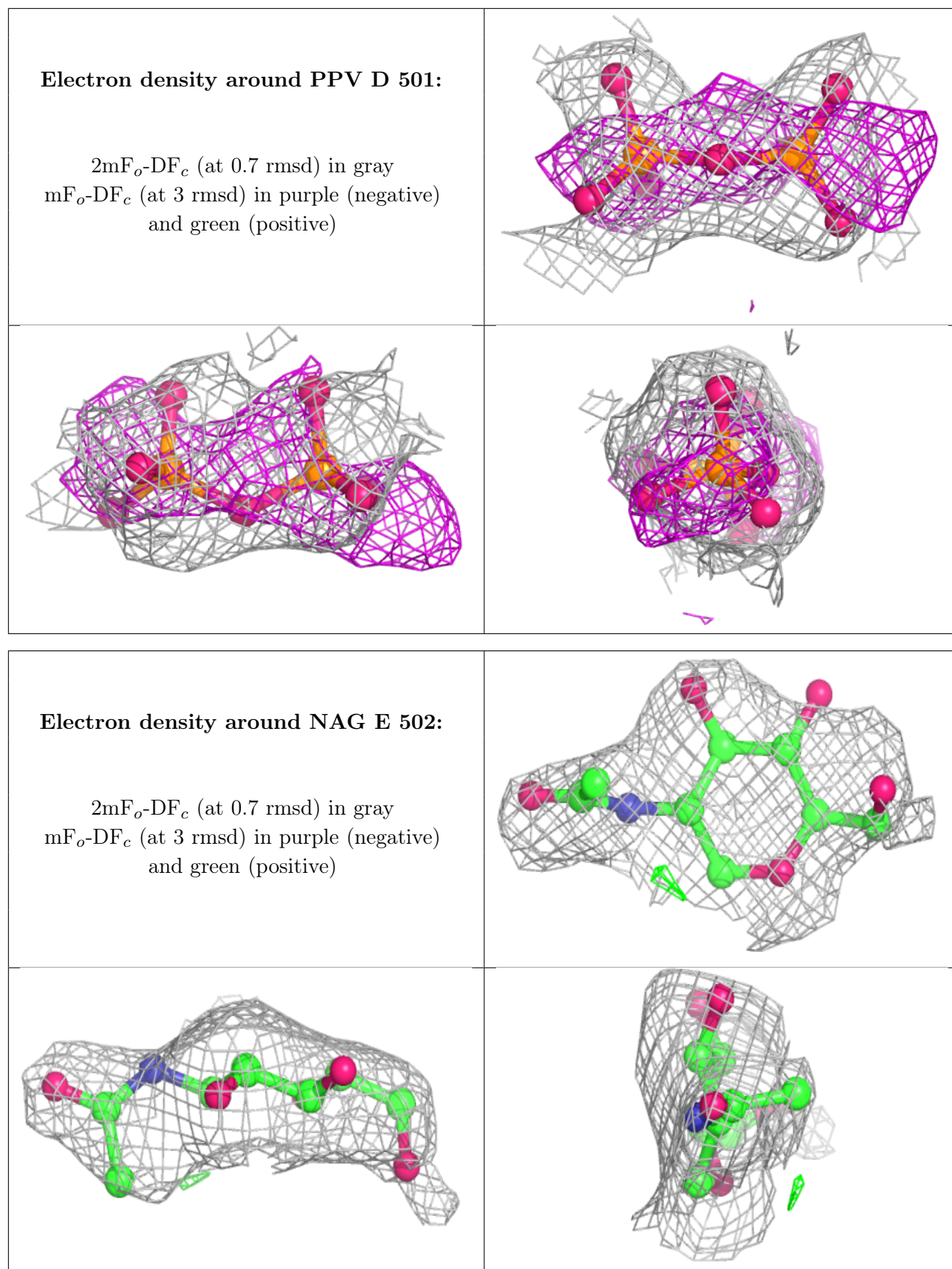


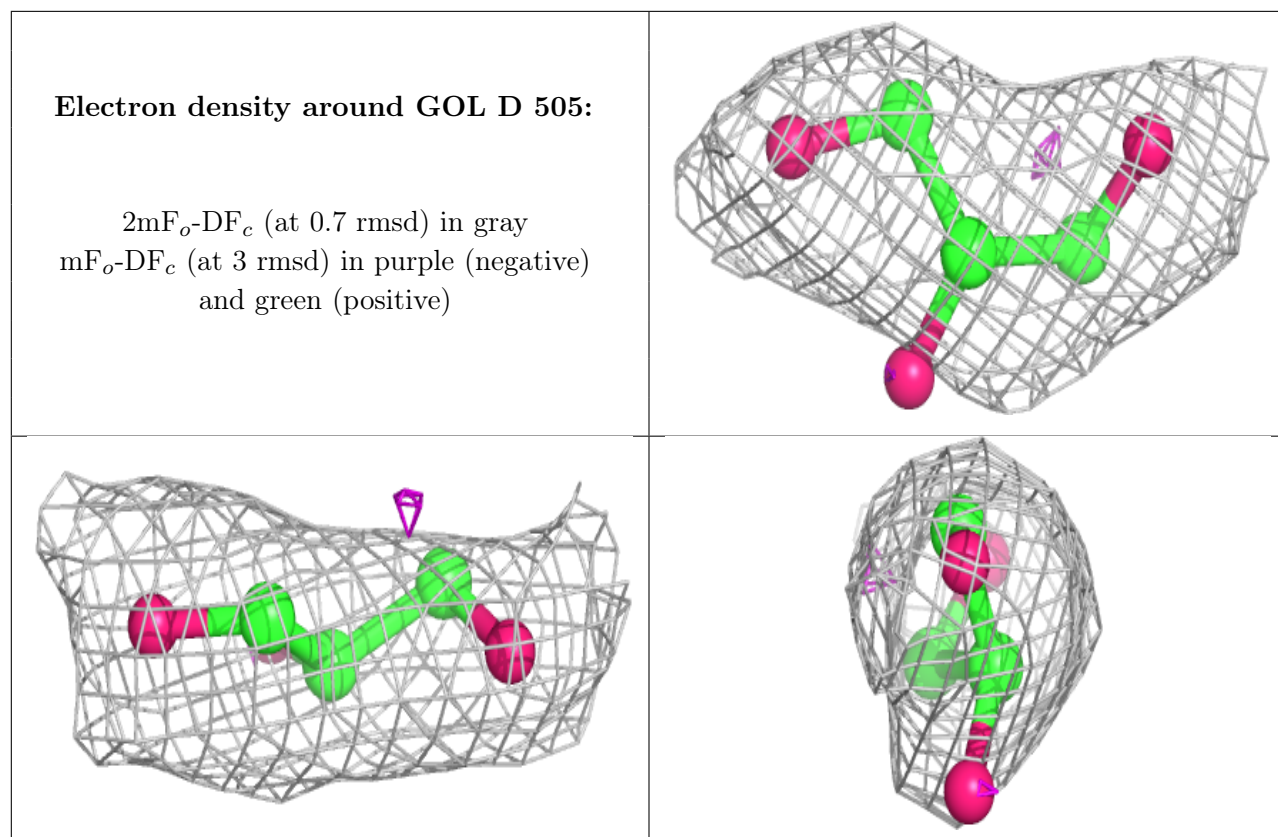


Electron density around GOL D 506:

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

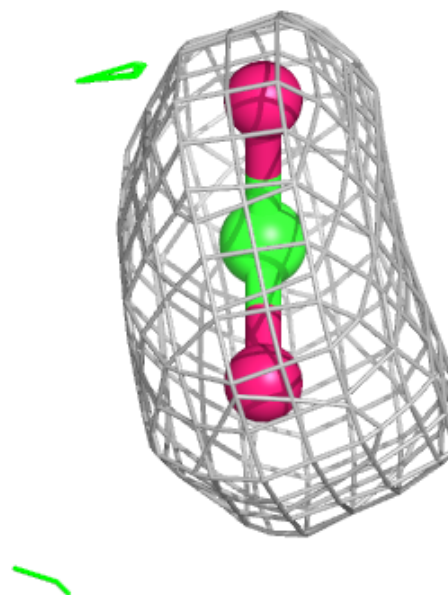
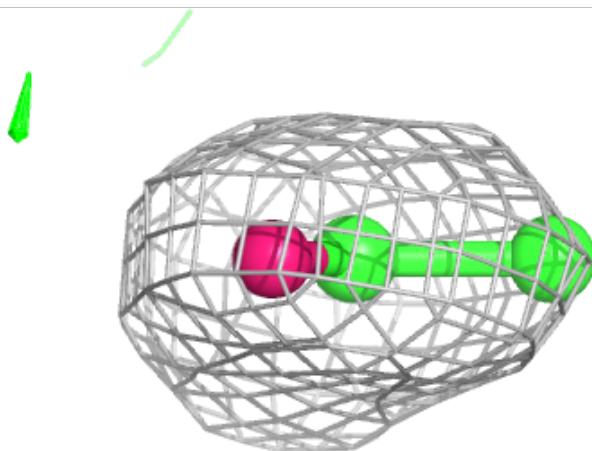
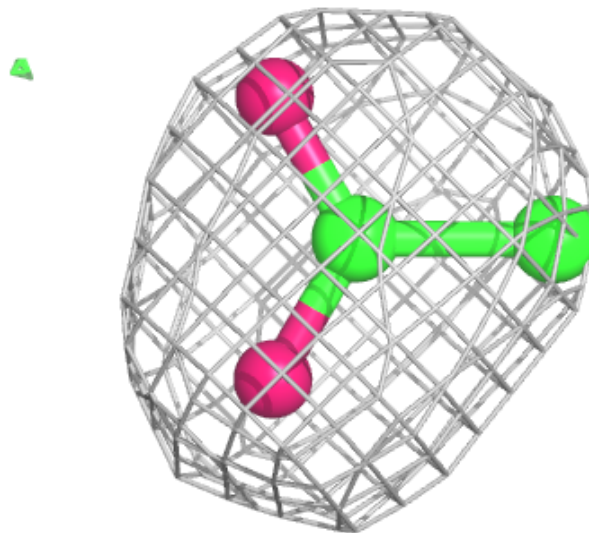


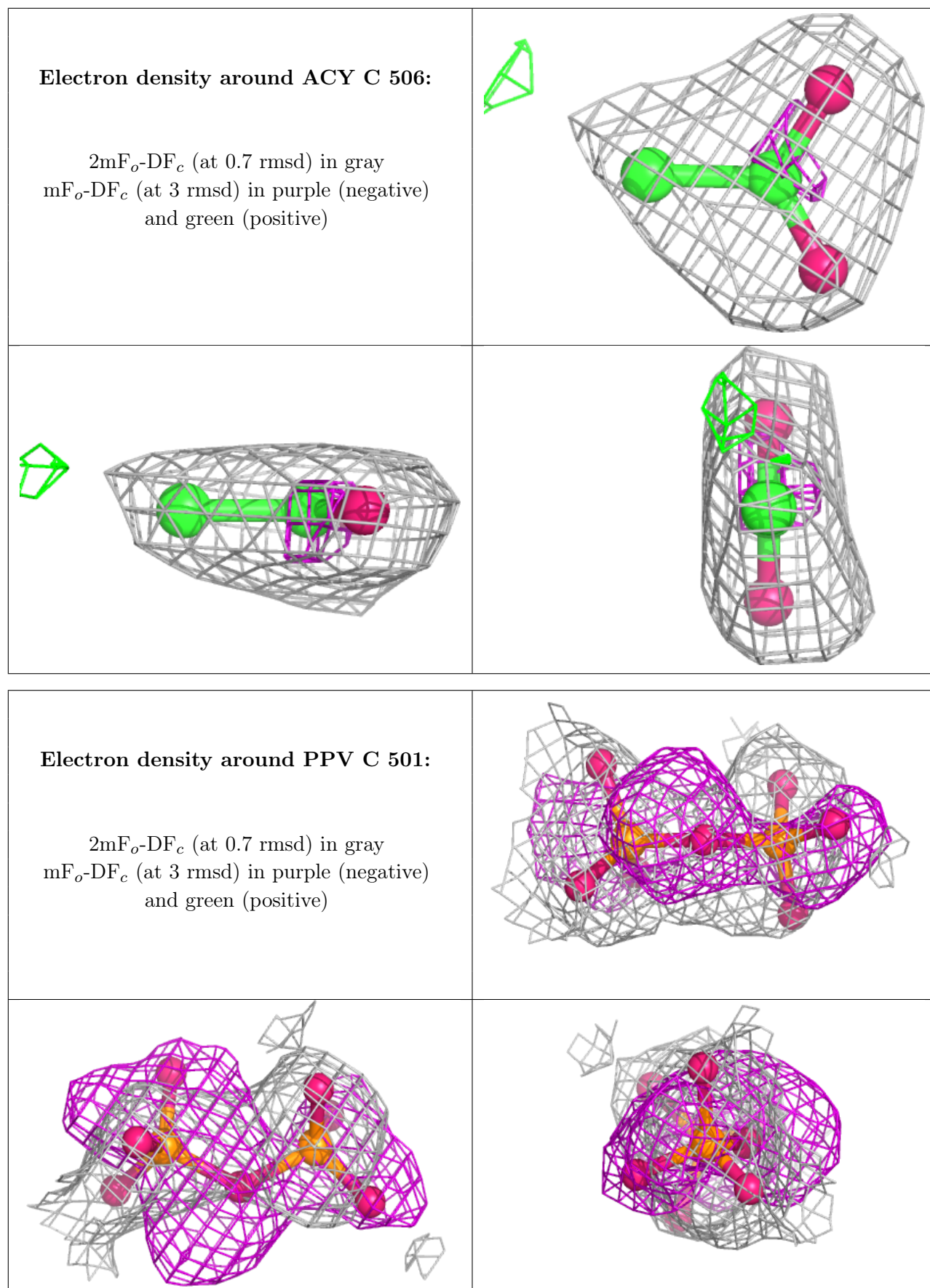




Electron density around ACY H 503:

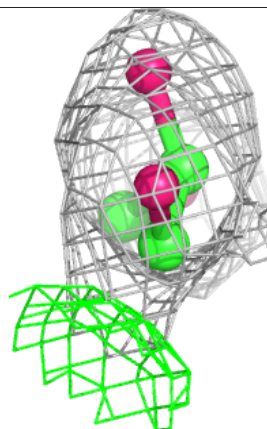
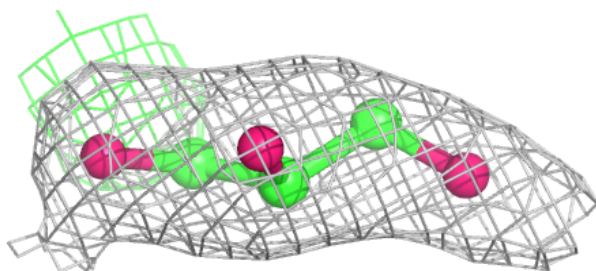
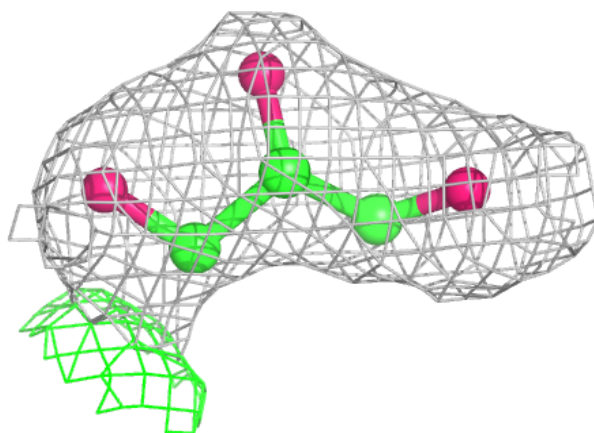
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





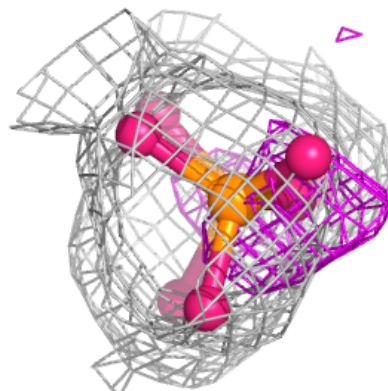
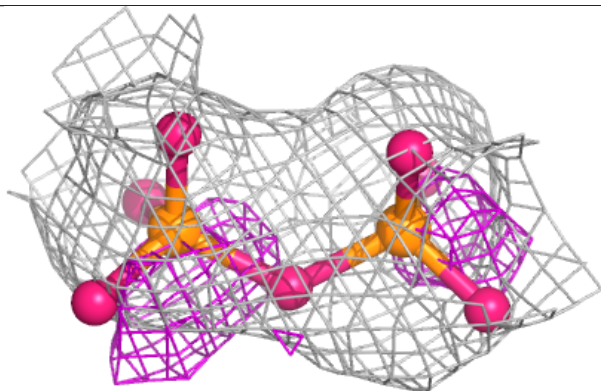
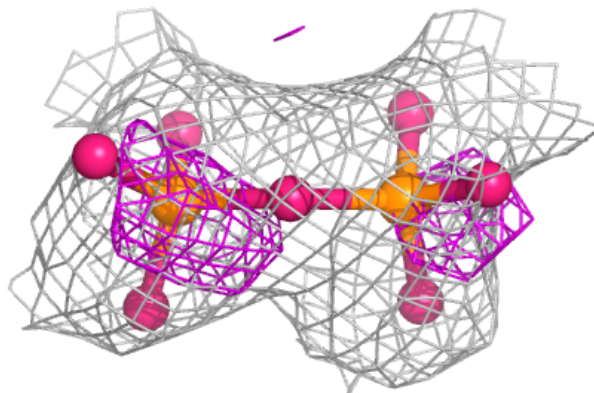
Electron density around GOL F 502:

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

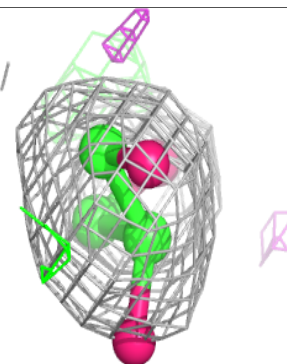
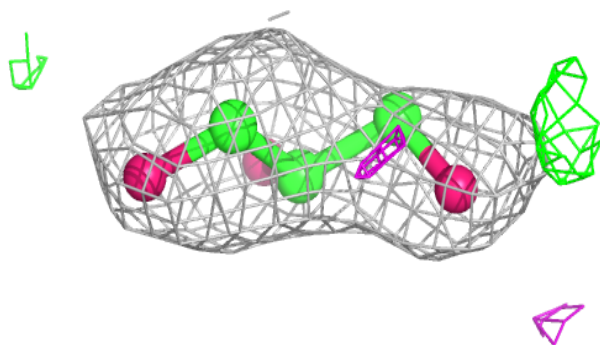
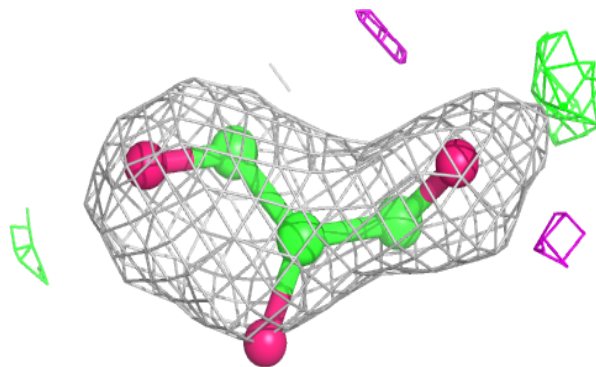


Electron density around PPV B 501:

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

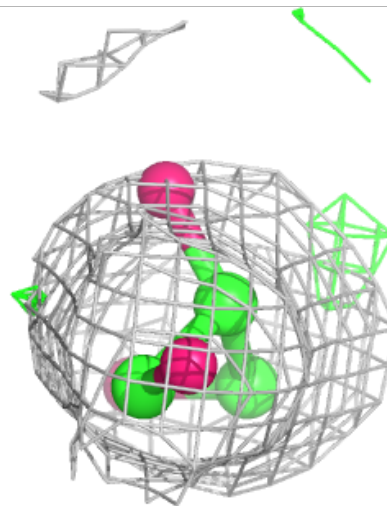
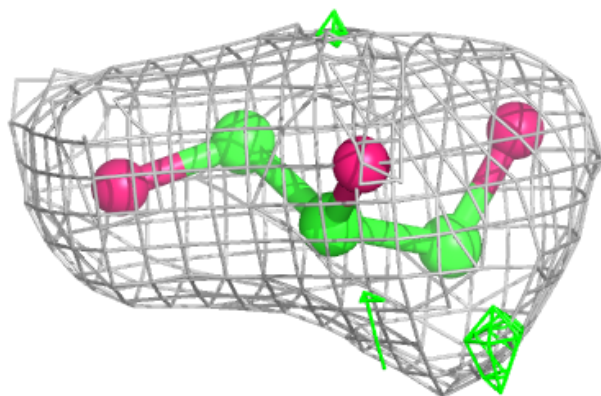
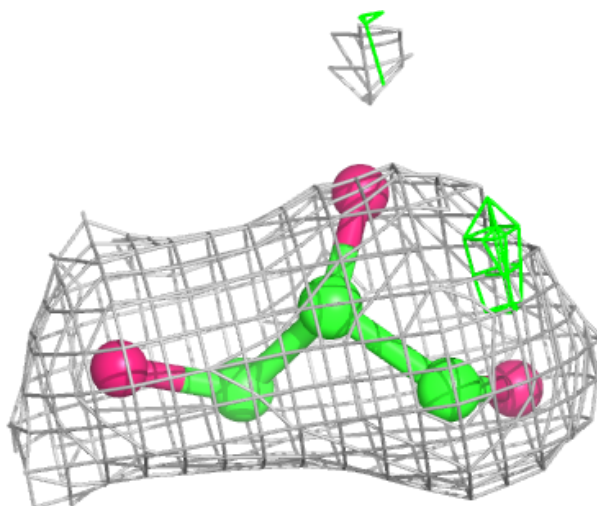
**Electron density around GOL A 601:**

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



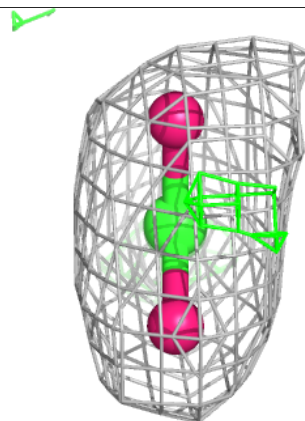
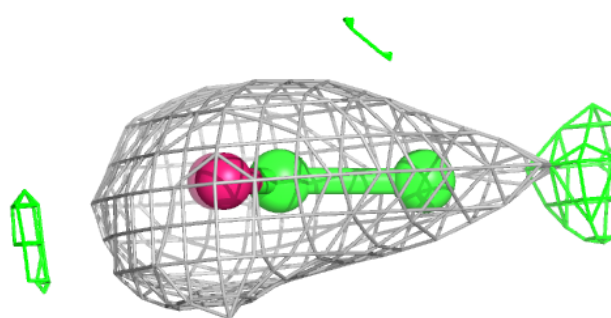
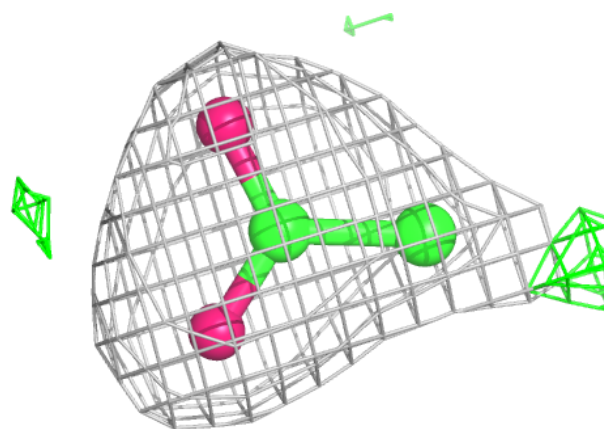
Electron density around GOL E 503:

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

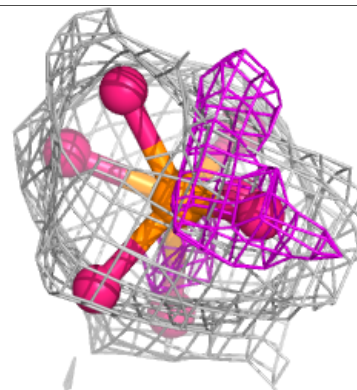
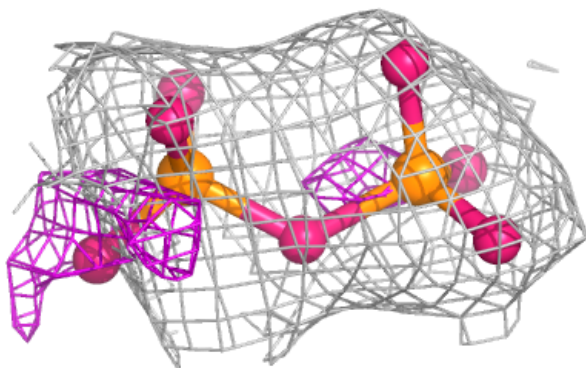
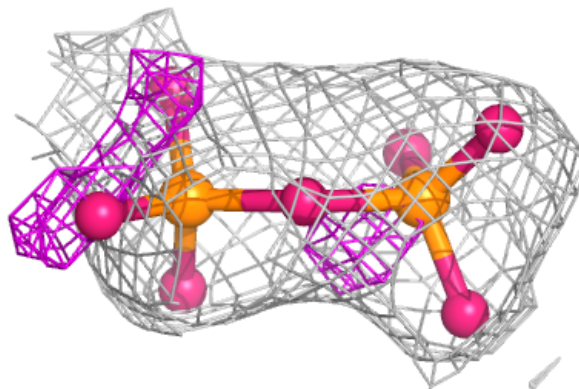


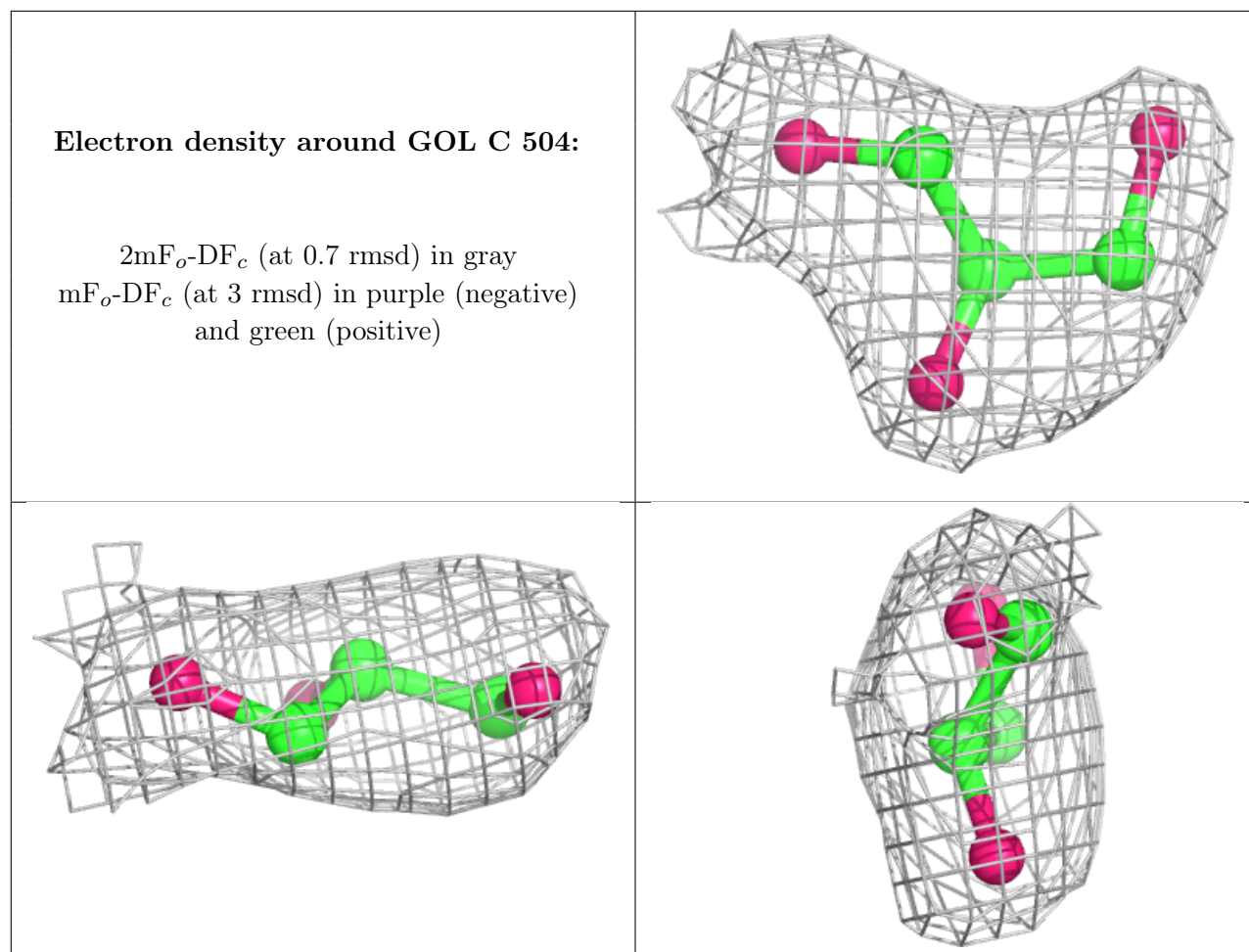
Electron density around ACY E 504:

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

**Electron density around PPV H 501:**

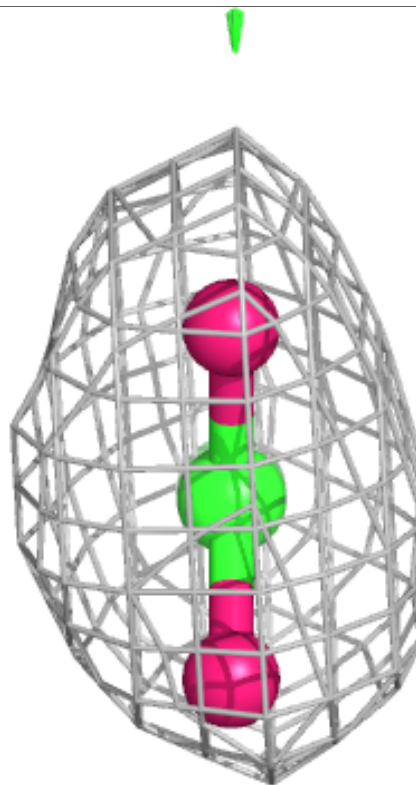
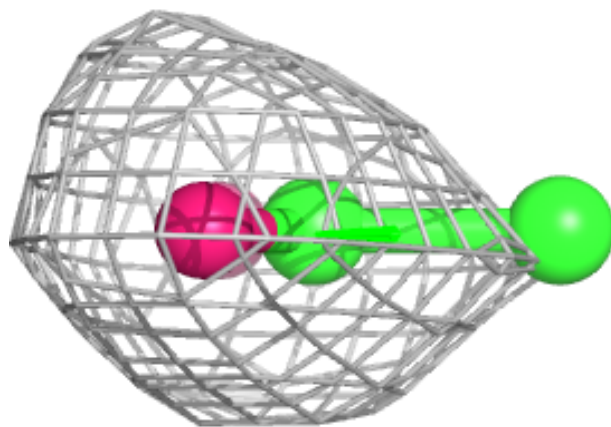
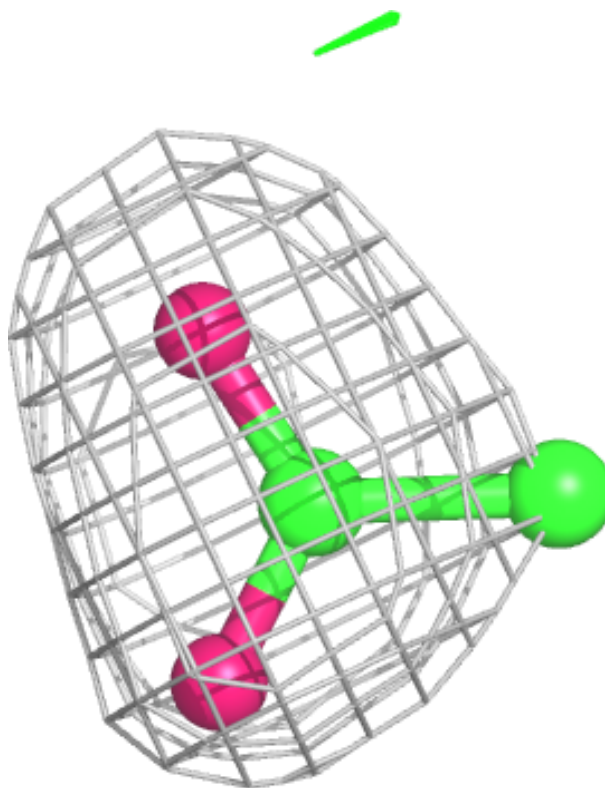
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





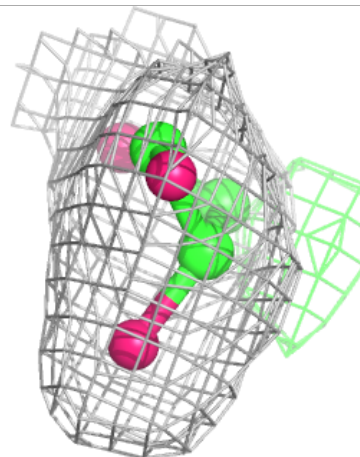
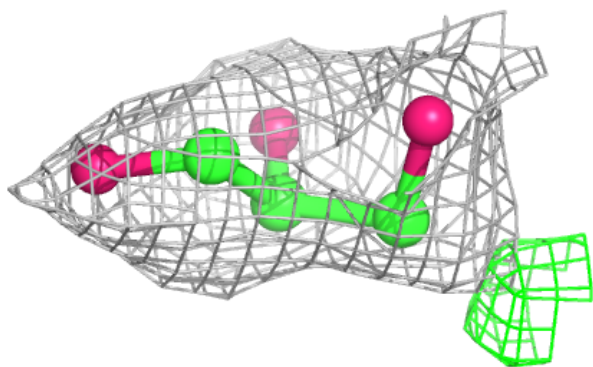
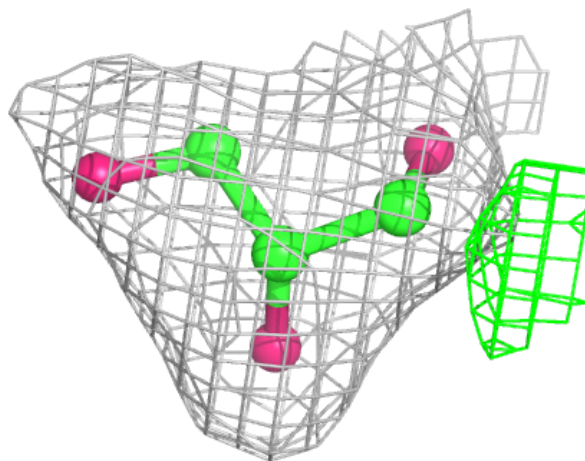
Electron density around ACY G 503:

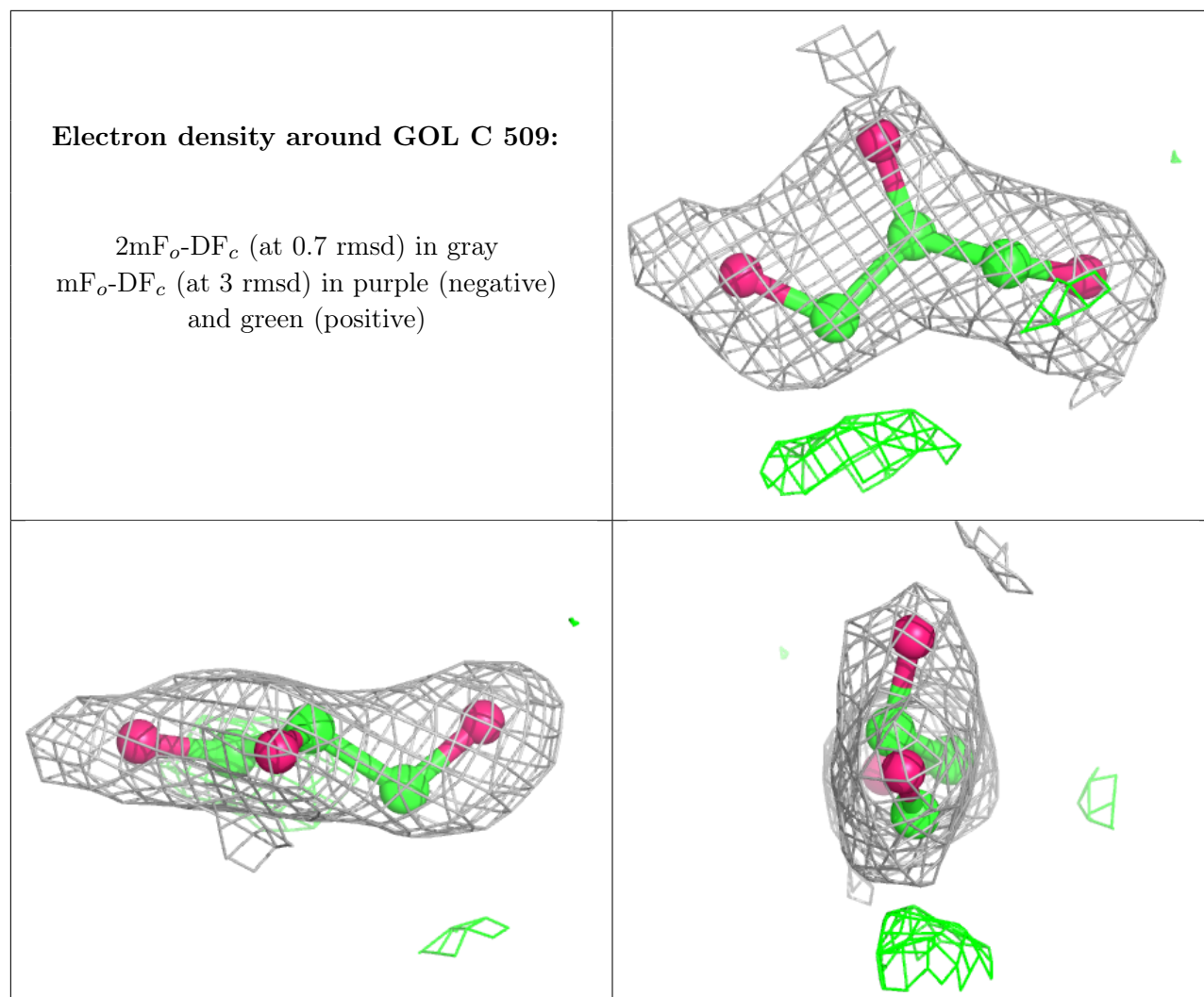
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

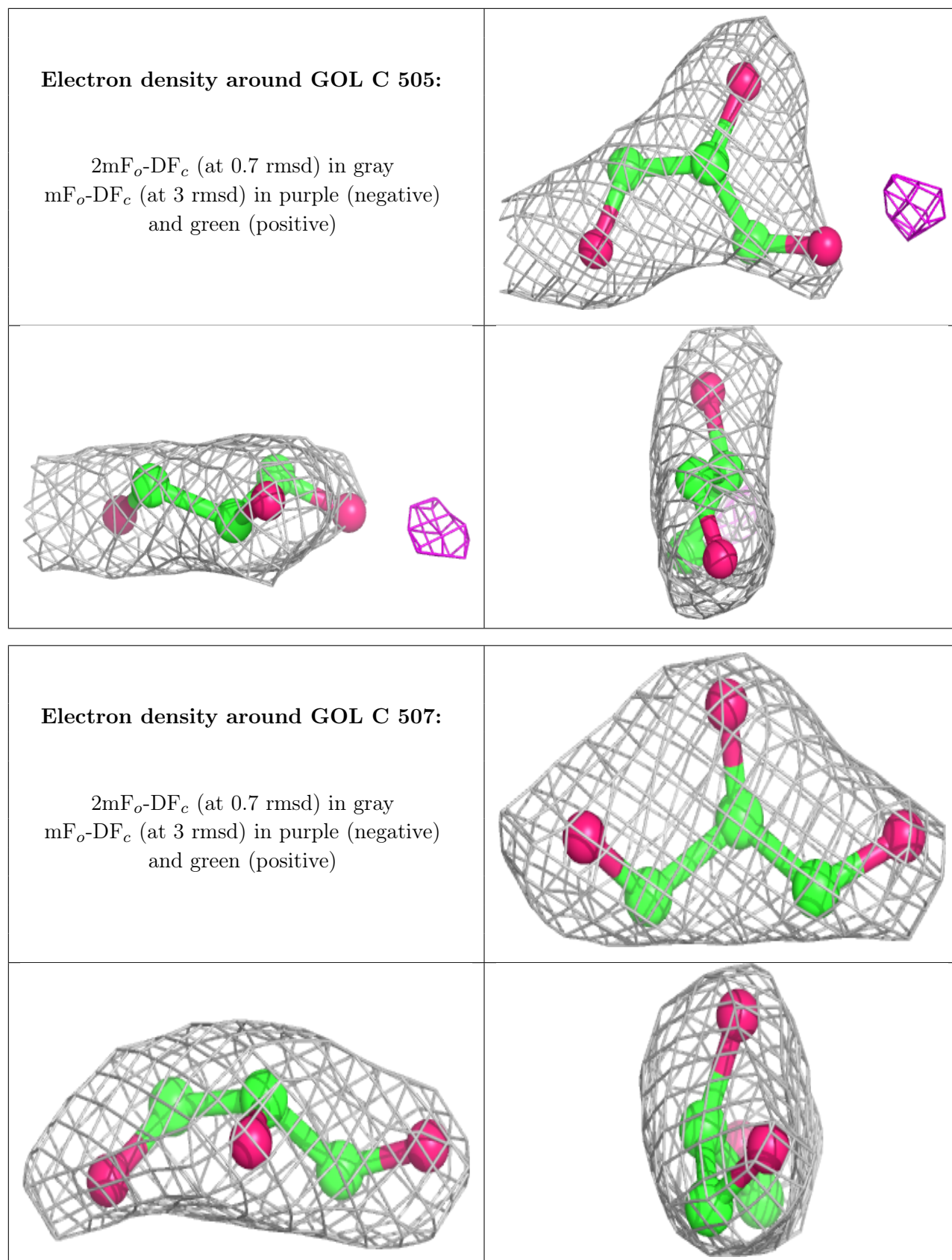


Electron density around GOL F 503:

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

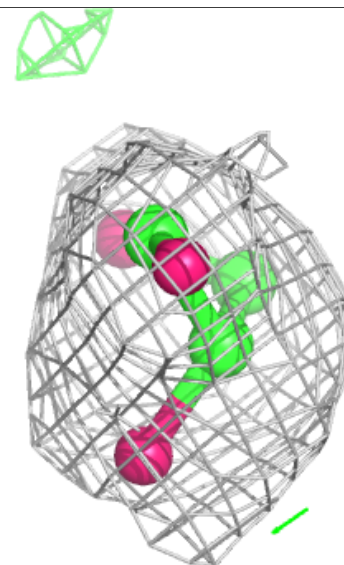
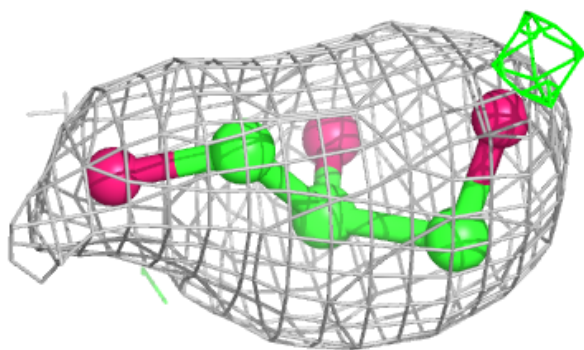
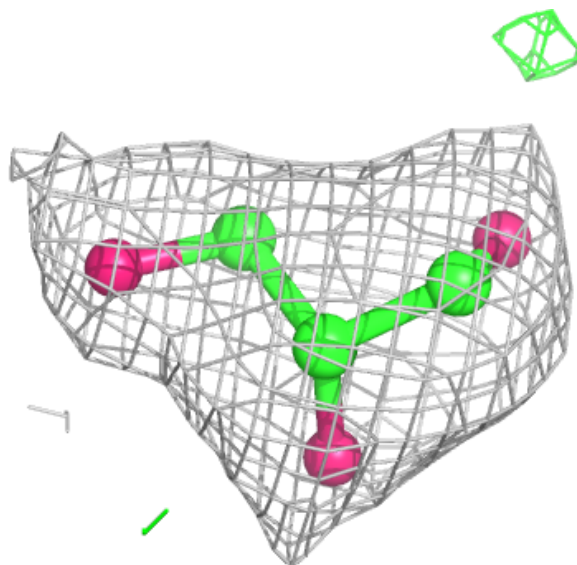


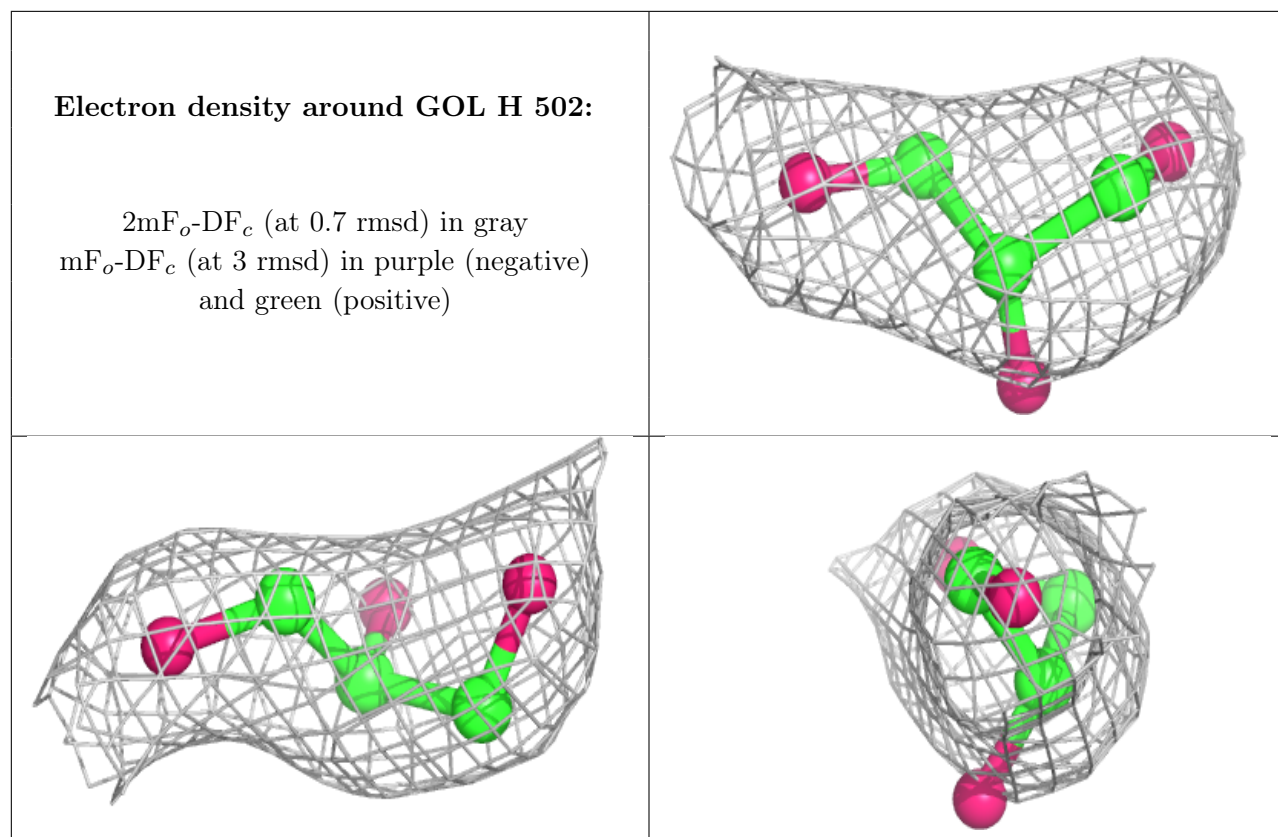


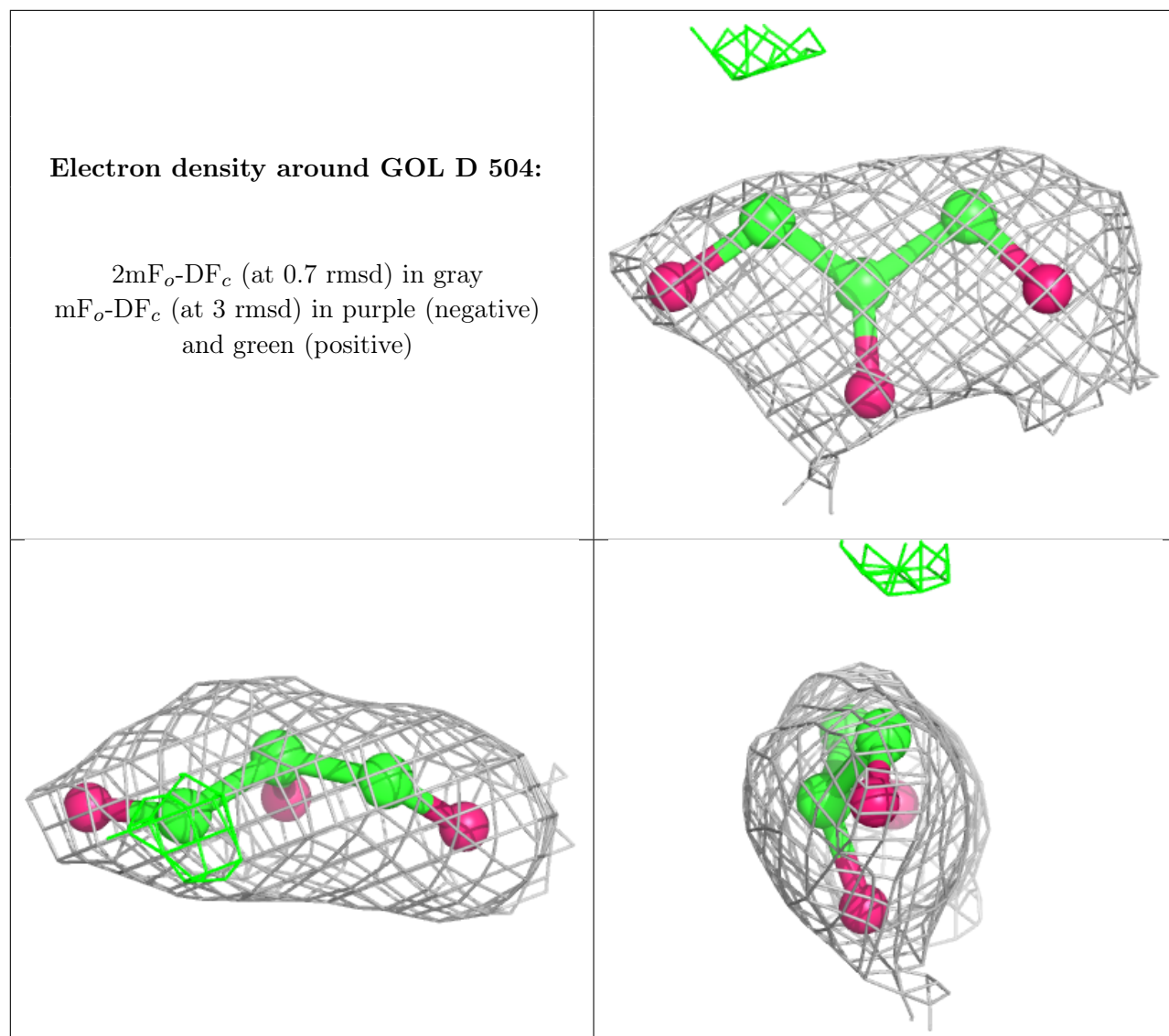


Electron density around GOL B 503:

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

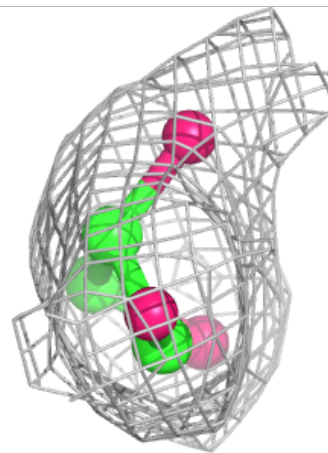
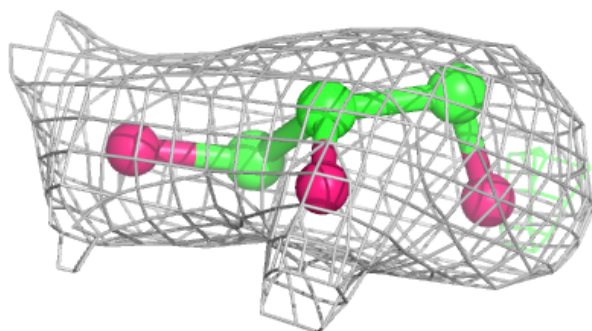
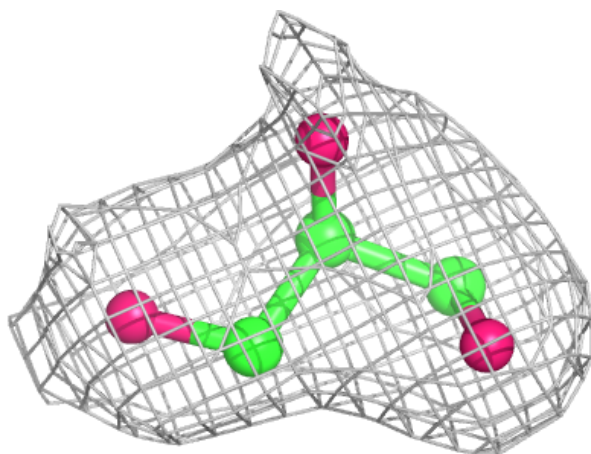


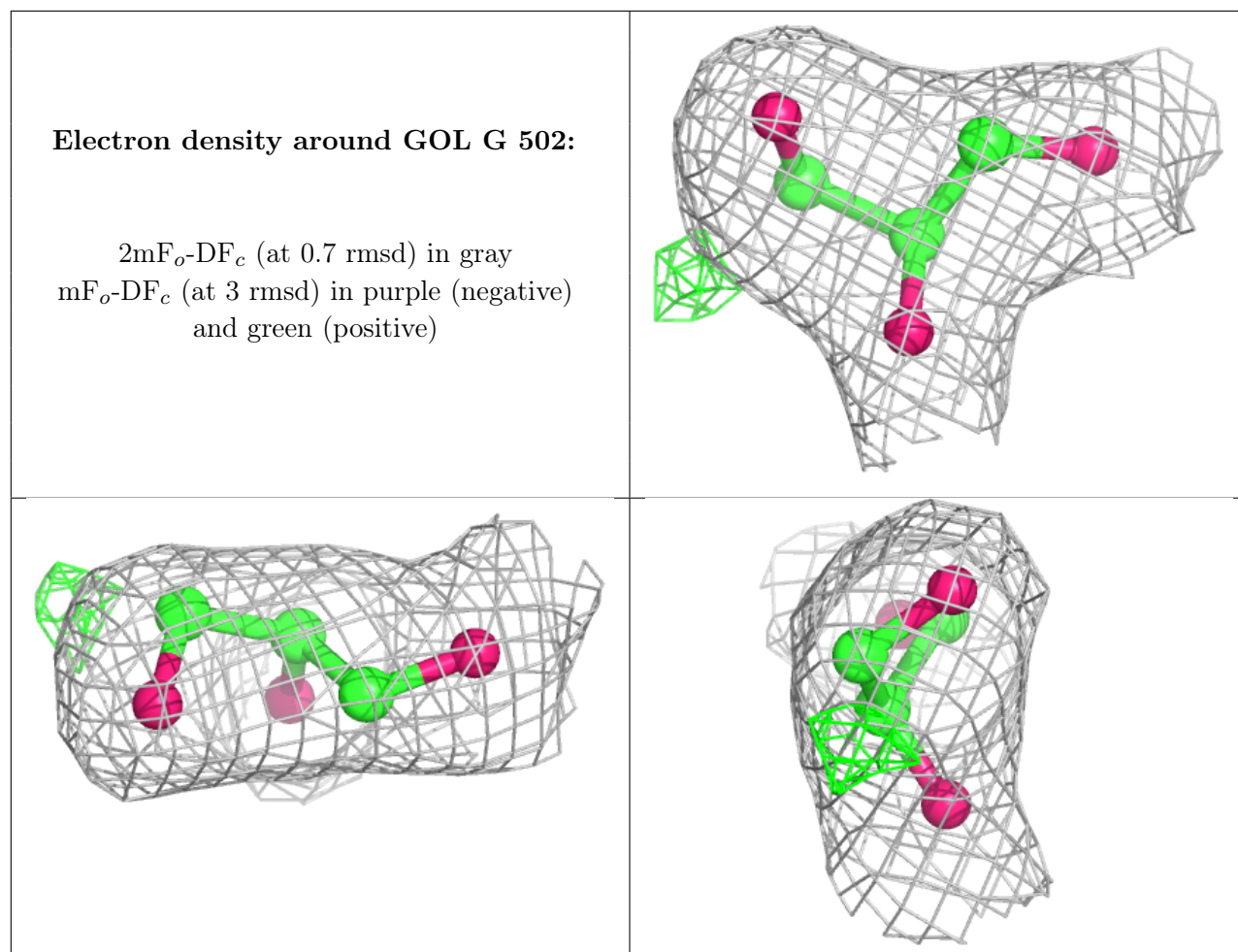




Electron density around GOL F 504:

$2mF_o-DF_c$ (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.