



Full wwPDB X-ray Structure Validation Report ⓘ

Jul 5, 2022 – 02:44 pm BST

PDB ID : 7R3B
Title : S-adenosylmethionine synthetase from *Lactobacillus plantarum* complexed with AMPPNP, methionine and SAM
Authors : Shahar, A.; Kleiner, D.; Bershtein, S.; Zarivach, R.
Deposited on : 2022-02-07
Resolution : 2.82 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 : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.29
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0267
CCP4 : 7.1.010 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.29

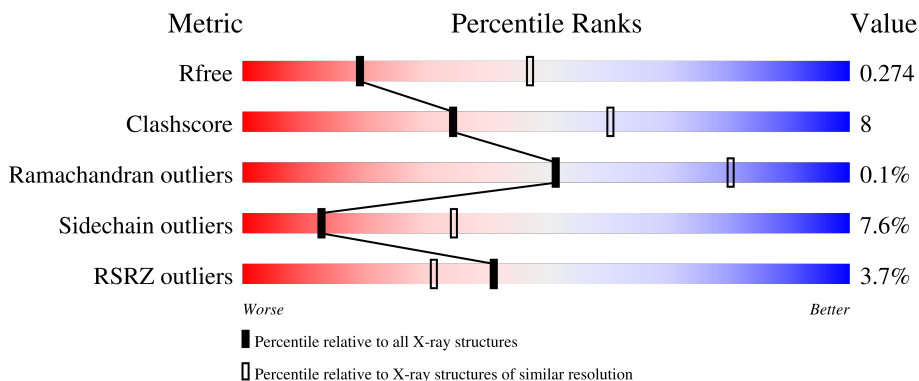
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.82 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.



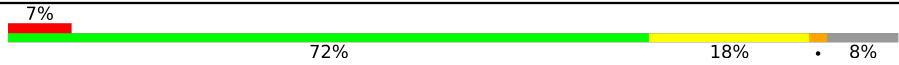
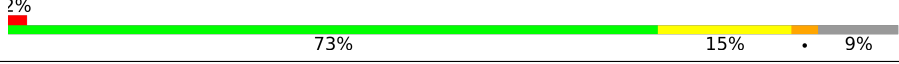

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3617 (2.84-2.80)
Clashscore	141614	4060 (2.84-2.80)
Ramachandran outliers	138981	3978 (2.84-2.80)
Sidechain outliers	138945	3980 (2.84-2.80)
RSRZ outliers	127900	3552 (2.84-2.80)

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	401	 4% 76% 12% • 9%
1	B	401	 % 75% 13% • 10%
1	C	401	 4% 78% 12% • 7%
1	D	401	 3% 73% 16% • 8%
1	E	401	 3% 71% 18% • 7%

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Mol	Chain	Length	Quality of chain
1	F	401	
1	G	401	
1	H	401	

2 Entry composition

There are 8 unique types of molecules in this entry. The entry contains 22699 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 S-adenosylmethionine synthase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	364	Total 2778	C 1745	N 480	O 546	S 7	0	0	0
1	B	362	Total 2763	C 1737	N 477	O 542	S 7	0	0	0
1	C	371	Total 2827	C 1780	N 488	O 552	S 7	0	0	0
1	D	369	Total 2810	C 1768	N 486	O 549	S 7	0	0	0
1	E	371	Total 2832	C 1781	N 491	O 553	S 7	0	0	0
1	F	369	Total 2807	C 1768	N 482	O 550	S 7	0	0	0
1	G	366	Total 2787	C 1753	N 482	O 545	S 7	0	0	0
1	H	364	Total 2776	C 1744	N 480	O 545	S 7	0	0	0

There are 48 discrepancies between the modelled and reference sequences:

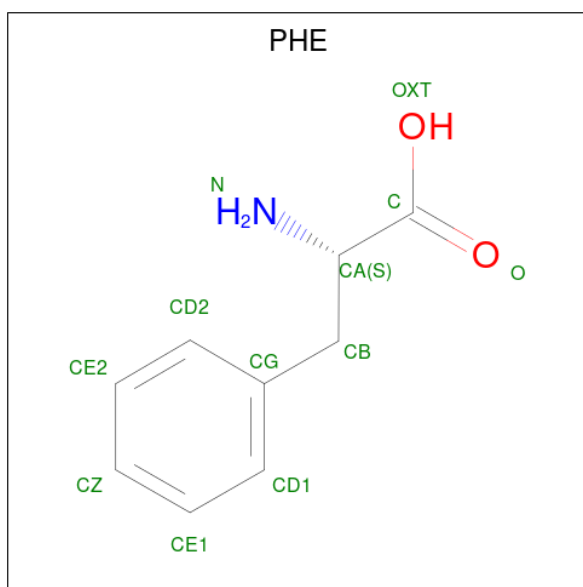
Chain	Residue	Modelled	Actual	Comment	Reference
A	396	HIS	-	expression tag	UNP A0A0G9F5E5
A	397	HIS	-	expression tag	UNP A0A0G9F5E5
A	398	HIS	-	expression tag	UNP A0A0G9F5E5
A	399	HIS	-	expression tag	UNP A0A0G9F5E5
A	400	HIS	-	expression tag	UNP A0A0G9F5E5
A	401	HIS	-	expression tag	UNP A0A0G9F5E5
B	396	HIS	-	expression tag	UNP A0A0G9F5E5
B	397	HIS	-	expression tag	UNP A0A0G9F5E5
B	398	HIS	-	expression tag	UNP A0A0G9F5E5
B	399	HIS	-	expression tag	UNP A0A0G9F5E5
B	400	HIS	-	expression tag	UNP A0A0G9F5E5
B	401	HIS	-	expression tag	UNP A0A0G9F5E5
C	396	HIS	-	expression tag	UNP A0A0G9F5E5

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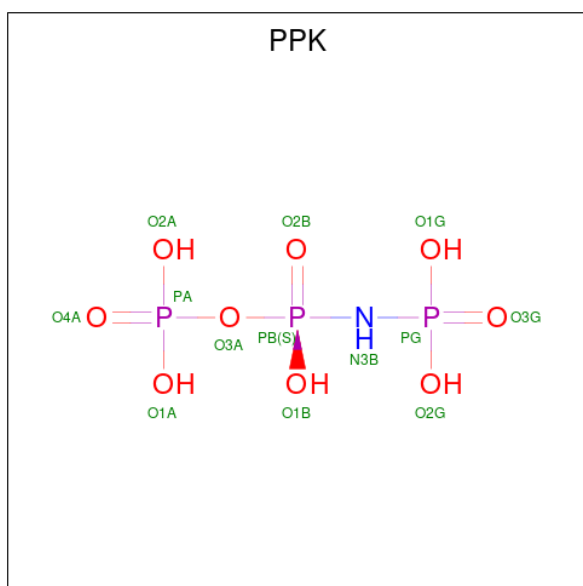
Chain	Residue	Modelled	Actual	Comment	Reference
C	397	HIS	-	expression tag	UNP A0A0G9F5E5
C	398	HIS	-	expression tag	UNP A0A0G9F5E5
C	399	HIS	-	expression tag	UNP A0A0G9F5E5
C	400	HIS	-	expression tag	UNP A0A0G9F5E5
C	401	HIS	-	expression tag	UNP A0A0G9F5E5
D	396	HIS	-	expression tag	UNP A0A0G9F5E5
D	397	HIS	-	expression tag	UNP A0A0G9F5E5
D	398	HIS	-	expression tag	UNP A0A0G9F5E5
D	399	HIS	-	expression tag	UNP A0A0G9F5E5
D	400	HIS	-	expression tag	UNP A0A0G9F5E5
D	401	HIS	-	expression tag	UNP A0A0G9F5E5
E	396	HIS	-	expression tag	UNP A0A0G9F5E5
E	397	HIS	-	expression tag	UNP A0A0G9F5E5
E	398	HIS	-	expression tag	UNP A0A0G9F5E5
E	399	HIS	-	expression tag	UNP A0A0G9F5E5
E	400	HIS	-	expression tag	UNP A0A0G9F5E5
E	401	HIS	-	expression tag	UNP A0A0G9F5E5
F	396	HIS	-	expression tag	UNP A0A0G9F5E5
F	397	HIS	-	expression tag	UNP A0A0G9F5E5
F	398	HIS	-	expression tag	UNP A0A0G9F5E5
F	399	HIS	-	expression tag	UNP A0A0G9F5E5
F	400	HIS	-	expression tag	UNP A0A0G9F5E5
F	401	HIS	-	expression tag	UNP A0A0G9F5E5
G	396	HIS	-	expression tag	UNP A0A0G9F5E5
G	397	HIS	-	expression tag	UNP A0A0G9F5E5
G	398	HIS	-	expression tag	UNP A0A0G9F5E5
G	399	HIS	-	expression tag	UNP A0A0G9F5E5
G	400	HIS	-	expression tag	UNP A0A0G9F5E5
G	401	HIS	-	expression tag	UNP A0A0G9F5E5
H	396	HIS	-	expression tag	UNP A0A0G9F5E5
H	397	HIS	-	expression tag	UNP A0A0G9F5E5
H	398	HIS	-	expression tag	UNP A0A0G9F5E5
H	399	HIS	-	expression tag	UNP A0A0G9F5E5
H	400	HIS	-	expression tag	UNP A0A0G9F5E5
H	401	HIS	-	expression tag	UNP A0A0G9F5E5

- Molecule 2 is PHENYLALANINE (three-letter code: PHE) (formula: C₉H₁₁NO₂) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	N	O	0	0
			11	9	1	1		
2	H	1	Total	C	N	O	0	0
			11	9	1	1		

- Molecule 3 is (DIPHOSPHONO)AMINOPHOSPHONIC ACID (three-letter code: PPK) (formula: $\text{H}_6\text{NO}_9\text{P}_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	N	O	P	0	0
			13	1	9	3		

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	B	1	Total	N	O	P	0	0
			13	1	9	3		
3	G	1	Total	N	O	P	0	0
			13	1	9	3		
3	H	1	Total	N	O	P	0	0
			13	1	9	3		

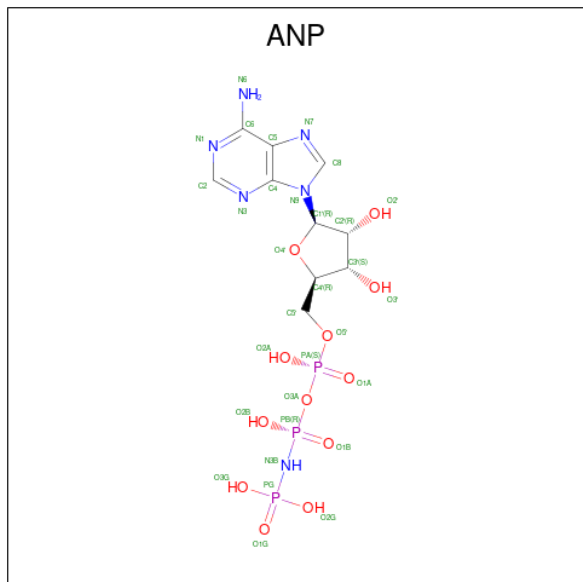
- Molecule 4 is MAGNESIUM ION (three-letter code: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	3	Total	Mg	0	0
			3	3		
4	B	1	Total	Mg	0	0
			1	1		
4	C	2	Total	Mg	0	0
			2	2		
4	D	2	Total	Mg	0	0
			2	2		
4	E	1	Total	Mg	0	0
			1	1		
4	F	3	Total	Mg	0	0
			3	3		
4	G	2	Total	Mg	0	0
			2	2		
4	H	2	Total	Mg	0	0
			2	2		

- Molecule 5 is POTASSIUM ION (three-letter code: K) (formula: K) (labeled as "Ligand of Interest" by depositor).

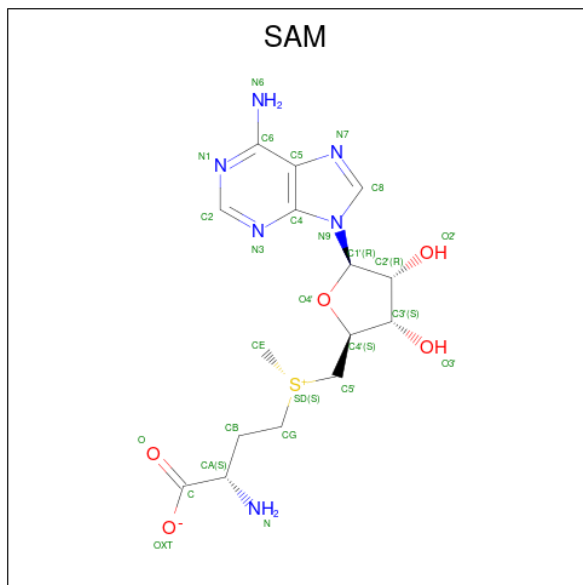
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	1	Total	K	0	0
			1	1		
5	C	1	Total	K	0	0
			1	1		
5	D	1	Total	K	0	0
			1	1		
5	F	1	Total	K	0	0
			1	1		
5	H	1	Total	K	0	0
			1	1		

- Molecule 6 is PHOSPHOAMINOPHOSPHONIC ACID-ADENYLATE ESTER (three-letter code: ANP) (formula: $C_{10}H_{17}N_6O_{12}P_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
6	C	1	Total	C	N	O	P	0	0
			31	10	6	12	3		
6	D	1	Total	C	N	O	P	0	0
			31	10	6	12	3		
6	E	1	Total	C	N	O	P	0	0
			31	10	6	12	3		
6	F	1	Total	C	N	O	P	0	0
			31	10	6	12	3		

- Molecule 7 is S-ADENOSYLMETHIONINE (three-letter code: SAM) (formula: $C_{15}H_{22}N_6O_5S$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
7	G	1	Total	C	N	O	S	0	0
			27	15	6	5	1		
7	H	1	Total	C	N	O	S	0	0
			27	15	6	5	1		

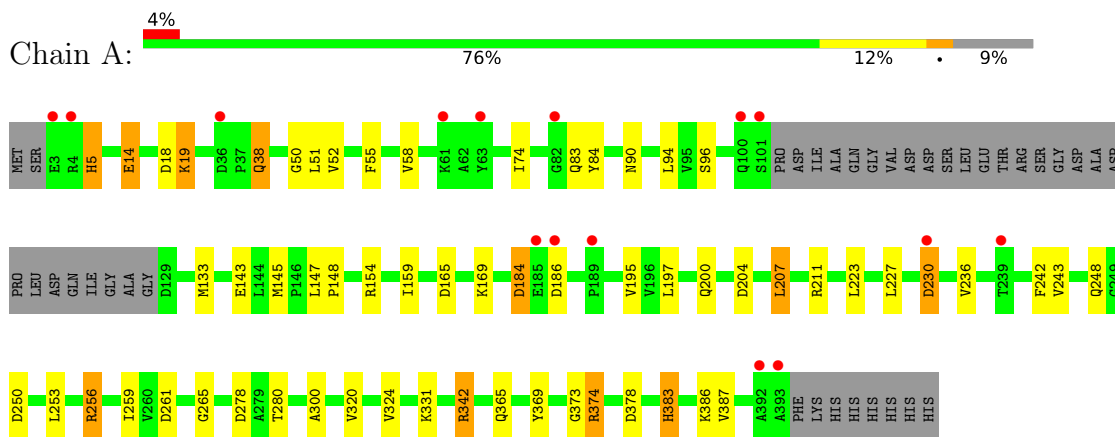
- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	6	Total	O	0	0
			6	6		
8	B	5	Total	O	0	0
			5	5		
8	C	6	Total	O	0	0
			6	6		
8	D	6	Total	O	0	0
			6	6		
8	E	4	Total	O	0	0
			4	4		
8	F	7	Total	O	0	0
			7	7		
8	G	6	Total	O	0	0
			6	6		
8	H	6	Total	O	0	0
			6	6		

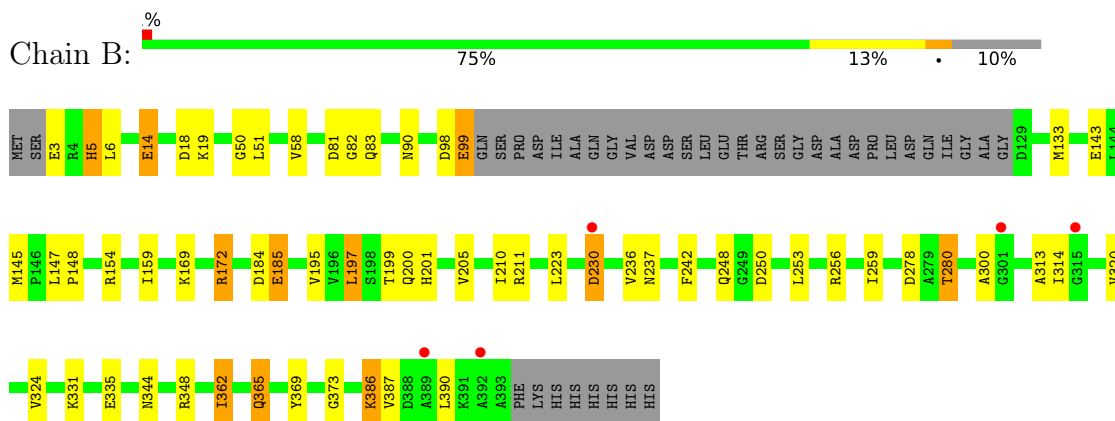
3 Residue-property plots i

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.

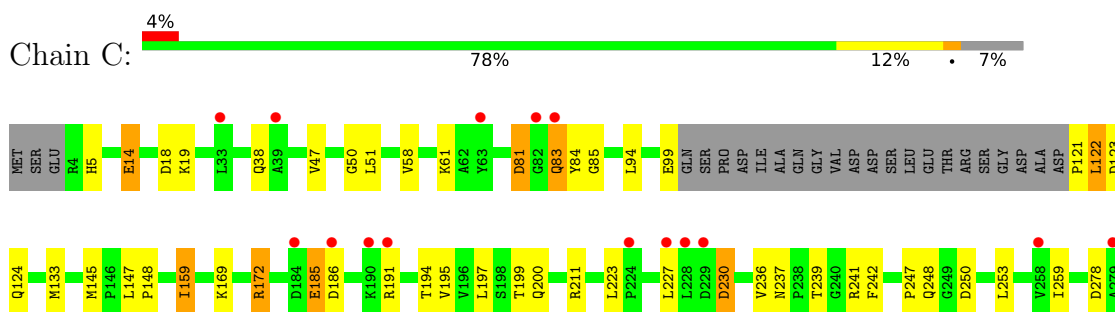
- Molecule 1: S-adenosylmethionine synthase



- Molecule 1: S-adenosylmethionine synthase

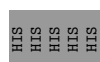
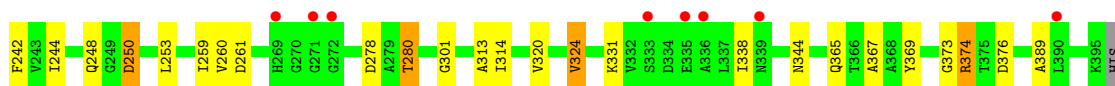
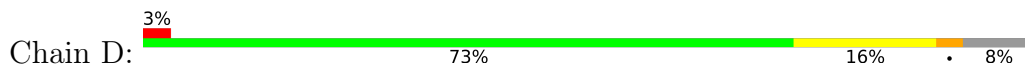


- Molecule 1: S-adenosylmethionine synthase

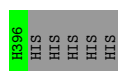
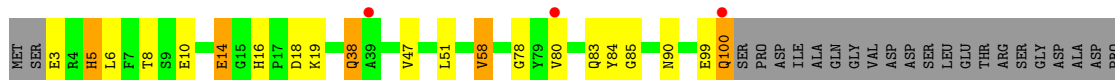
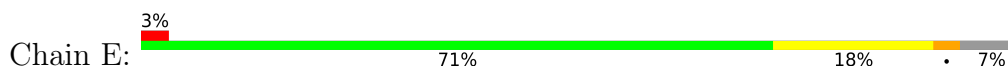




- Molecule 1: S-adenosylmethionine synthase

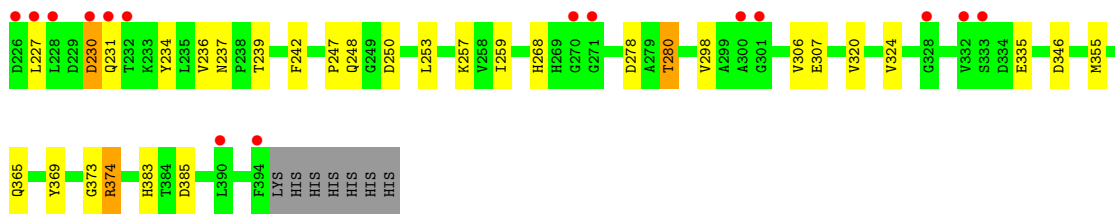


- Molecule 1: S-adenosylmethionine synthase

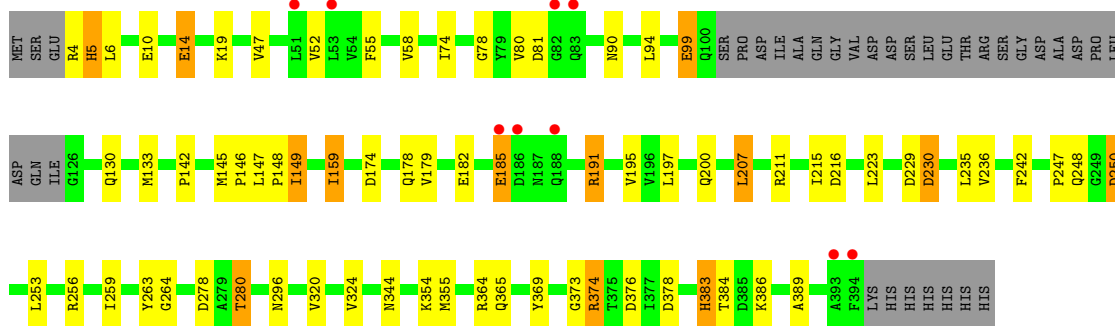


- Molecule 1: S-adenosylmethionine synthase

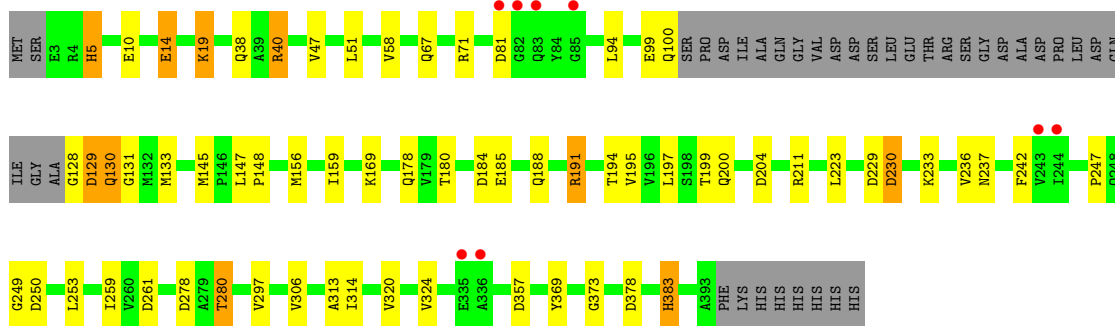
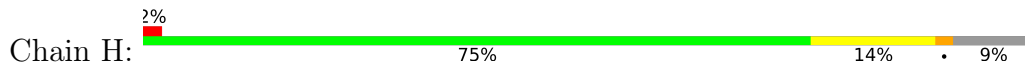




● Molecule 1: S-adenosylmethionine synthase



● Molecule 1: S-adenosylmethionine synthase



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	58.43Å 110.93Å 112.66Å 93.82° 104.03° 99.59°	Depositor
Resolution (Å)	29.41 – 2.82 29.39 – 2.82	Depositor EDS
% Data completeness (in resolution range)	94.9 (29.41-2.82) 95.0 (29.39-2.82)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.07 (at 2.80Å)	Xtrriage
Refinement program	REFMAC 5.8.0267	Depositor
R, R_{free}	0.156 , 0.275 0.153 , 0.274	Depositor DCC
R_{free} test set	3108 reflections (5.05%)	wwPDB-VP
Wilson B-factor (Å ²)	54.7	Xtrriage
Anisotropy	0.924	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	(Not available) , (Not available)	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.97	EDS
Total number of atoms	22699	wwPDB-VP
Average B, all atoms (Å ²)	73.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.73% 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: PPK, ANP, SAM, K, MG

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	0.70	0/2824	0.88	2/3836 (0.1%)
1	B	0.69	0/2809	0.87	3/3816 (0.1%)
1	C	0.69	0/2875	0.83	1/3904 (0.0%)
1	D	0.68	0/2857	0.87	4/3879 (0.1%)
1	E	0.69	0/2880	0.88	4/3910 (0.1%)
1	F	0.73	2/2855 (0.1%)	0.88	2/3879 (0.1%)
1	G	0.70	0/2834	0.88	4/3849 (0.1%)
1	H	0.70	0/2822	0.85	2/3833 (0.1%)
All	All	0.70	2/22756 (0.0%)	0.87	22/30906 (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	C	0	2
1	E	0	1
1	F	0	1
All	All	0	4

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	F	335	GLU	CD-OE2	9.85	1.36	1.25
1	F	143	GLU	CD-OE1	-6.56	1.18	1.25

All (22) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	165	ASP	CB-CA-C	-10.66	89.08	110.40
1	D	172	ARG	CG-CD-NE	9.54	131.84	111.80
1	A	256	ARG	CG-CD-NE	9.39	131.52	111.80
1	B	172	ARG	CG-CD-NE	8.71	130.08	111.80
1	G	191	ARG	NE-CZ-NH1	-8.06	116.27	120.30
1	B	348	ARG	CG-CD-NE	7.92	128.42	111.80
1	A	374	ARG	CG-CD-NE	-7.68	95.68	111.80
1	C	172	ARG	CG-CD-NE	7.63	127.83	111.80
1	D	374	ARG	CG-CD-NE	-7.32	96.44	111.80
1	G	374	ARG	CG-CD-NE	-7.21	96.66	111.80
1	E	172	ARG	CG-CD-NE	7.13	126.78	111.80
1	F	374	ARG	CG-CD-NE	-6.71	97.70	111.80
1	F	385	ASP	CB-CA-C	-6.55	97.30	110.40
1	G	191	ARG	NE-CZ-NH2	6.27	123.43	120.30
1	H	250	ASP	CB-CG-OD1	-5.75	113.12	118.30
1	B	365	GLN	CB-CA-C	-5.70	99.00	110.40
1	D	71	ARG	NE-CZ-NH1	-5.38	117.61	120.30
1	H	250	ASP	CB-CG-OD2	5.27	123.04	118.30
1	E	169	LYS	CB-CG-CD	5.23	125.20	111.60
1	E	378	ASP	CB-CG-OD2	-5.21	113.61	118.30
1	D	183	TYR	C-N-CA	5.13	134.51	121.70
1	G	256	ARG	CB-CG-CD	5.10	124.85	111.60

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	81	ASP	Peptide
1	C	83	GLN	Peptide
1	E	271	GLY	Peptide
1	F	143	GLU	Sidechain

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

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2778	0	2762	37	2
1	B	2763	0	2749	41	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	2827	0	2818	34	0
1	D	2810	0	2800	61	0
1	E	2832	0	2816	70	0
1	F	2807	0	2792	62	0
1	G	2787	0	2771	71	0
1	H	2776	0	2760	47	2
2	A	11	0	8	0	0
2	H	11	0	8	0	0
3	A	13	0	1	1	0
3	B	13	0	1	1	0
3	G	13	0	1	0	0
3	H	13	0	1	0	0
4	A	3	0	0	0	0
4	B	1	0	0	0	0
4	C	2	0	0	0	0
4	D	2	0	0	0	0
4	E	1	0	0	0	0
4	F	3	0	0	0	0
4	G	2	0	0	0	0
4	H	2	0	0	0	0
5	A	1	0	0	0	0
5	C	1	0	0	0	0
5	D	1	0	0	0	0
5	F	1	0	0	0	0
5	H	1	0	0	0	0
6	C	31	0	13	2	0
6	D	31	0	13	2	0
6	E	31	0	13	6	0
6	F	31	0	13	3	0
7	G	27	0	22	2	0
7	H	27	0	22	4	0
8	A	6	0	0	1	0
8	B	5	0	0	0	0
8	C	6	0	0	1	0
8	D	6	0	0	1	0
8	E	4	0	0	0	0
8	F	7	0	0	0	0
8	G	6	0	0	1	0
8	H	6	0	0	0	0
All	All	22699	0	22384	375	2

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 8.

All (375) 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:297:VAL:HG21	1:E:306:VAL:HG11	1.33	1.08
1:G:191:ARG:HD2	1:G:229:ASP:OD2	1.56	1.06
1:B:90:ASN:HD21	1:D:244:ILE:HD11	1.23	1.03
1:G:149:ILE:HD12	1:G:149:ILE:H	1.24	0.98
1:F:13:SER:HB3	1:F:156:MET:HE1	1.46	0.98
1:G:47:VAL:HG12	1:G:247:PRO:HB3	1.46	0.98
1:G:191:ARG:CD	1:G:229:ASP:OD2	2.13	0.96
1:C:47:VAL:HG12	1:C:247:PRO:HB3	1.49	0.94
1:F:47:VAL:HG12	1:F:247:PRO:HB3	1.51	0.93
1:H:47:VAL:HG12	1:H:247:PRO:HB3	1.50	0.92
1:F:13:SER:HB3	1:F:156:MET:CE	2.01	0.90
1:G:149:ILE:HG13	1:G:264:GLY:HA3	1.53	0.90
1:B:90:ASN:ND2	1:D:244:ILE:HD11	1.86	0.89
1:D:212:GLN:NE2	1:D:215:ILE:HD11	1.87	0.89
1:G:149:ILE:CG1	1:G:264:GLY:HA3	2.06	0.85
1:C:278:ASP:OD2	1:C:280:THR:HB	1.77	0.85
1:E:248:GLN:HA	1:E:248:GLN:OE1	1.76	0.85
1:D:278:ASP:OD2	1:D:280:THR:HB	1.77	0.85
1:E:297:VAL:CG2	1:E:306:VAL:HG11	2.07	0.85
1:B:90:ASN:HD21	1:D:244:ILE:CD1	1.89	0.84
1:A:195:VAL:HG21	1:A:223:LEU:HD11	1.59	0.84
1:G:278:ASP:OD2	1:G:280:THR:HB	1.78	0.84
1:E:278:ASP:OD2	1:E:280:THR:HB	1.76	0.84
1:A:278:ASP:OD2	1:A:280:THR:HB	1.77	0.84
1:F:278:ASP:OD2	1:F:280:THR:HB	1.77	0.84
1:B:195:VAL:HG21	1:B:223:LEU:HD11	1.61	0.83
1:H:278:ASP:OD2	1:H:280:THR:HB	1.79	0.83
1:E:195:VAL:HG21	1:E:223:LEU:HD11	1.61	0.83
1:F:12:VAL:CG1	1:F:16:HIS:HB3	2.09	0.82
1:B:278:ASP:OD2	1:B:280:THR:HB	1.78	0.82
1:E:6:LEU:HD12	1:F:320:VAL:HG12	1.62	0.82
1:F:12:VAL:HG13	1:F:16:HIS:HB3	1.61	0.81
1:F:12:VAL:HG13	1:F:16:HIS:CB	2.11	0.81
1:C:84:TYR:CE2	1:C:172:ARG:HD3	2.15	0.80
1:G:253:LEU:HD23	1:H:253:LEU:HD23	1.64	0.80
1:H:195:VAL:HG21	1:H:223:LEU:HD11	1.63	0.80
1:C:346:ASP:H	1:C:355:MET:HE3	1.44	0.80
1:F:195:VAL:HG21	1:F:223:LEU:HD11	1.61	0.80
1:G:149:ILE:HG12	1:G:263:TYR:C	2.04	0.79
1:B:362:ILE:HG13	1:B:365:GLN:NE2	1.98	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:324:VAL:HB	1:D:338:ILE:HD11	1.65	0.78
1:G:47:VAL:HG12	1:G:247:PRO:CB	2.14	0.78
1:G:195:VAL:HG21	1:G:223:LEU:HD11	1.66	0.77
1:C:47:VAL:HG12	1:C:247:PRO:CB	2.14	0.77
1:E:294:ALA:O	1:E:297:VAL:HG22	1.84	0.77
1:F:47:VAL:HG12	1:F:247:PRO:CB	2.15	0.77
1:D:71:ARG:NH1	1:D:91:CYS:O	2.19	0.76
1:G:4:ARG:HD3	1:G:182:GLU:OE1	1.86	0.76
1:F:346:ASP:H	1:F:355:MET:HE3	1.49	0.76
1:C:195:VAL:HG21	1:C:223:LEU:HD11	1.66	0.76
1:H:47:VAL:HG12	1:H:247:PRO:CB	2.16	0.75
1:E:84:TYR:CE2	1:E:172:ARG:HD3	2.22	0.75
1:F:80:VAL:HG12	1:F:80:VAL:O	1.87	0.74
1:D:195:VAL:HG21	1:D:223:LEU:HD11	1.66	0.74
1:H:194:THR:HG22	1:H:233:LYS:HB2	1.68	0.74
1:E:244:ILE:HD11	1:G:90:ASN:HD21	1.53	0.74
1:D:215:ILE:HD12	1:D:216:ASP:OD1	1.88	0.73
1:E:252:GLY:O	1:E:253:LEU:HD23	1.87	0.73
1:E:8:THR:OG1	1:E:180:THR:HG22	1.89	0.73
1:G:146:PRO:HB2	1:G:149:ILE:CD1	2.19	0.72
1:C:253:LEU:HD23	1:D:253:LEU:HD23	1.72	0.71
1:E:253:LEU:HD21	1:F:55:PHE:HZ	1.54	0.71
1:D:12:VAL:HG23	1:D:19:LYS:HG3	1.73	0.71
1:G:191:ARG:HD2	1:G:229:ASP:CG	2.11	0.70
1:G:248:GLN:OE1	1:G:248:GLN:HA	1.91	0.70
1:C:185:GLU:OE2	1:C:185:GLU:HA	1.91	0.69
1:G:146:PRO:HB2	1:G:149:ILE:HD13	1.74	0.69
1:G:296:ASN:HD21	1:G:386:LYS:H	1.40	0.69
1:G:384:THR:O	1:G:384:THR:HG22	1.93	0.69
1:H:199:THR:H	1:H:237:ASN:HD21	1.41	0.69
1:E:85:GLY:C	1:E:248:GLN:HE21	1.95	0.68
1:F:12:VAL:CG1	1:F:16:HIS:CB	2.69	0.68
1:F:65:ASP:OD2	1:G:99:GLU:HG3	1.94	0.68
1:E:85:GLY:O	1:E:248:GLN:NE2	2.27	0.68
1:E:253:LEU:HD21	1:F:55:PHE:CZ	2.29	0.68
1:E:313:ALA:HB3	1:E:316:VAL:CG2	2.24	0.68
1:B:199:THR:H	1:B:237:ASN:HD21	1.41	0.66
1:C:199:THR:H	1:C:237:ASN:HD21	1.41	0.66
1:F:199:THR:H	1:F:237:ASN:HD21	1.43	0.66
1:E:47:VAL:HG12	1:E:247:PRO:HB3	1.76	0.66
1:E:130:GLN:NE2	1:F:196:VAL:HG21	2.11	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:378:ASP:OD2	1:G:383:HIS:HE1	1.78	0.65
1:H:378:ASP:OD2	1:H:383:HIS:HE1	1.80	0.65
1:A:378:ASP:OD2	1:A:383:HIS:HE1	1.79	0.65
1:D:231:GLN:OE1	1:D:231:GLN:HA	1.97	0.65
1:G:344:ASN:ND2	1:G:389:ALA:HB1	2.11	0.65
1:H:297:VAL:HG11	1:H:306:VAL:HG21	1.80	0.64
1:D:48:THR:OG1	8:D:601:HOH:O	2.15	0.64
1:B:154:ARG:HD2	1:E:206:ASP:OD1	1.98	0.63
1:F:156:MET:HE1	1:F:175:ALA:HB3	1.81	0.63
1:H:249:GLY:HA3	7:H:501:SAM:N1	2.13	0.63
1:C:239:THR:HG21	6:C:501:ANP:N1	2.14	0.63
1:B:83:GLN:NE2	1:D:83:GLN:HE21	1.95	0.63
1:D:212:GLN:O	1:D:215:ILE:HG13	1.99	0.63
1:E:313:ALA:HB3	1:E:316:VAL:HG22	1.80	0.63
1:A:253:LEU:HD23	1:B:253:LEU:HD23	1.81	0.62
1:C:18:ASP:OD2	6:C:501:ANP:O2B	2.17	0.62
1:D:206:ASP:HA	1:G:216:ASP:OD1	1.99	0.62
1:E:6:LEU:HD12	1:F:320:VAL:CG1	2.30	0.62
1:G:6:LEU:CD1	1:H:320:VAL:HG12	2.30	0.61
1:G:191:ARG:HD3	1:G:229:ASP:OD2	2.00	0.61
1:C:84:TYR:CD2	1:C:172:ARG:HD3	2.35	0.61
1:E:47:VAL:HG12	1:E:247:PRO:CB	2.30	0.61
1:D:80:VAL:HG12	1:D:80:VAL:O	2.00	0.60
1:G:149:ILE:HG12	1:G:264:GLY:HA3	1.83	0.60
1:F:18:ASP:OD2	6:F:501:ANP:O2B	2.20	0.60
1:G:149:ILE:HG12	1:G:264:GLY:N	2.16	0.60
1:G:296:ASN:ND2	1:G:386:LYS:H	1.98	0.60
1:G:250:ASP:OD2	7:G:502:SAM:H8	2.02	0.59
1:C:83:GLN:HB3	1:C:84:TYR:CD2	2.38	0.59
1:F:80:VAL:O	1:F:80:VAL:CG1	2.51	0.59
1:E:125:ILE:O	1:E:125:ILE:HG13	2.03	0.58
1:F:122:LEU:O	1:F:122:LEU:HG	2.04	0.58
1:E:80:VAL:HG22	1:E:80:VAL:O	2.04	0.57
1:A:83:GLN:HB2	1:A:84:TYR:CD2	2.39	0.57
1:E:90:ASN:HD22	1:G:248:GLN:HE21	1.52	0.57
1:E:16:HIS:CD2	6:E:501:ANP:H4'	2.40	0.57
1:D:212:GLN:HE21	1:D:215:ILE:HD11	1.69	0.56
1:H:249:GLY:HA3	7:H:501:SAM:HN62	1.71	0.56
1:G:149:ILE:HG12	1:G:264:GLY:CA	2.36	0.56
1:B:18:ASP:OD2	3:B:501:PPK:O2B	2.24	0.55
1:C:159:ILE:HG23	8:C:605:HOH:O	2.06	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:90:ASN:HD22	1:G:248:GLN:NE2	2.04	0.55
1:F:12:VAL:HG13	1:F:16:HIS:HB2	1.88	0.54
1:A:14:GLU:CG	1:A:369:TYR:OH	2.56	0.54
1:G:149:ILE:H	1:G:149:ILE:CD1	2.06	0.54
1:H:14:GLU:CG	1:H:369:TYR:OH	2.56	0.54
1:D:344:ASN:ND2	1:D:389:ALA:HB1	2.22	0.54
1:F:87:ASP:OD1	1:F:90:ASN:ND2	2.40	0.54
1:F:156:MET:CE	1:F:175:ALA:HB3	2.38	0.54
1:A:94:LEU:HD21	1:C:51:LEU:HD22	1.89	0.53
1:F:47:VAL:CG1	1:F:247:PRO:HB3	2.34	0.53
1:G:14:GLU:CG	1:G:369:TYR:OH	2.56	0.53
1:B:14:GLU:CG	1:B:369:TYR:OH	2.56	0.53
1:E:297:VAL:CG2	1:E:306:VAL:CG1	2.85	0.53
1:G:47:VAL:CG1	1:G:247:PRO:HB3	2.29	0.53
1:B:83:GLN:NE2	1:D:83:GLN:NE2	2.56	0.53
1:G:149:ILE:HD12	1:G:149:ILE:N	2.07	0.53
1:C:14:GLU:CG	1:C:369:TYR:OH	2.57	0.53
1:C:199:THR:H	1:C:237:ASN:ND2	2.07	0.53
1:G:149:ILE:HG12	1:G:263:TYR:O	2.08	0.53
1:G:384:THR:O	1:G:384:THR:CG2	2.55	0.53
1:H:199:THR:H	1:H:237:ASN:ND2	2.07	0.53
1:H:249:GLY:CA	7:H:501:SAM:N1	2.72	0.53
1:F:13:SER:CB	1:F:156:MET:HE1	2.30	0.53
1:H:47:VAL:CG1	1:H:247:PRO:HB3	2.33	0.53
1:E:130:GLN:HB3	1:F:178:GLN:OE1	2.08	0.52
1:H:99:GLU:C	1:H:100:GLN:HG3	2.30	0.52
1:D:75:LYS:HE2	1:D:89:ASP:OD2	2.09	0.52
1:E:253:LEU:HD13	1:F:253:LEU:HD23	1.91	0.52
1:F:197:LEU:O	1:F:236:VAL:HA	2.10	0.52
1:D:197:LEU:O	1:D:236:VAL:HA	2.10	0.52
1:G:197:LEU:O	1:G:236:VAL:HA	2.09	0.52
1:D:14:GLU:CG	1:D:369:TYR:OH	2.57	0.52
1:D:130:GLN:HG2	1:D:313:ALA:HA	1.92	0.52
1:E:197:LEU:O	1:E:236:VAL:HA	2.10	0.52
1:F:14:GLU:CG	1:F:369:TYR:OH	2.57	0.52
1:E:14:GLU:CG	1:E:369:TYR:OH	2.58	0.52
1:E:99:GLU:O	1:E:100:GLN:C	2.48	0.52
1:B:143:GLU:OE1	1:E:208:ASP:OD2	2.28	0.51
1:F:12:VAL:HG11	1:F:16:HIS:HB3	1.89	0.51
1:H:313:ALA:HB3	1:H:320:VAL:HG21	1.92	0.51
1:C:47:VAL:CG1	1:C:247:PRO:HB3	2.32	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:197:LEU:O	1:B:236:VAL:HA	2.10	0.51
1:B:362:ILE:HG13	1:B:365:GLN:HE22	1.72	0.51
1:F:199:THR:H	1:F:237:ASN:ND2	2.07	0.51
1:G:235:LEU:CD1	1:H:314:ILE:HG21	2.40	0.51
1:B:98:ASP:O	1:B:99:GLU:OE2	2.27	0.51
1:H:197:LEU:O	1:H:236:VAL:HA	2.10	0.51
1:A:342:ARG:HH21	1:A:342:ARG:HG3	1.75	0.51
1:A:5:HIS:ND1	1:A:5:HIS:N	2.59	0.51
1:H:313:ALA:CB	1:H:320:VAL:HG21	2.41	0.51
1:G:6:LEU:HD12	1:H:320:VAL:HG12	1.93	0.51
1:H:5:HIS:ND1	1:H:5:HIS:N	2.59	0.50
1:C:197:LEU:O	1:C:236:VAL:HA	2.10	0.50
1:E:239:THR:OG1	6:E:501:ANP:N6	2.36	0.50
1:E:293:ILE:HG23	1:E:341:ILE:HD12	1.92	0.50
1:H:38:GLN:O	1:H:40:ARG:NH1	2.44	0.50
1:E:6:LEU:CD1	1:F:320:VAL:CG1	2.88	0.50
1:E:313:ALA:HB3	1:E:316:VAL:HG21	1.92	0.50
1:A:197:LEU:O	1:A:236:VAL:HA	2.11	0.50
1:E:230:ASP:OD2	1:E:230:ASP:N	2.42	0.50
1:G:4:ARG:CD	1:G:182:GLU:OE1	2.59	0.50
1:D:313:ALA:HB2	1:D:320:VAL:HG21	1.94	0.50
1:E:51:LEU:HD22	1:G:94:LEU:HD21	1.94	0.49
1:G:235:LEU:HD12	1:H:314:ILE:HG21	1.95	0.49
1:H:230:ASP:OD1	1:H:230:ASP:N	2.44	0.49
1:B:200:GLN:HA	1:B:242:PHE:O	2.13	0.49
1:C:122:LEU:HD12	1:C:351:GLY:HA2	1.93	0.49
1:A:96:SER:HB2	1:D:94:LEU:HD23	1.95	0.49
1:B:230:ASP:OD1	1:B:230:ASP:N	2.46	0.49
1:C:230:ASP:OD1	1:C:230:ASP:N	2.45	0.49
1:D:230:ASP:OD1	1:D:230:ASP:N	2.45	0.49
1:E:294:ALA:O	1:E:297:VAL:CG2	2.59	0.49
1:A:143:GLU:OE1	1:A:154:ARG:NH1	2.45	0.49
1:A:378:ASP:OD2	1:A:383:HIS:CE1	2.64	0.49
1:D:200:GLN:HA	1:D:242:PHE:O	2.13	0.49
1:D:19:LYS:NZ	1:D:261:ASP:OD1	2.45	0.49
1:E:313:ALA:HB2	1:E:320:VAL:HG21	1.94	0.49
1:B:154:ARG:CD	1:E:206:ASP:OD1	2.60	0.48
1:E:90:ASN:ND2	1:G:248:GLN:HE21	2.10	0.48
1:E:244:ILE:HD11	1:G:90:ASN:ND2	2.24	0.48
1:H:180:THR:HB	1:H:194:THR:OG1	2.12	0.48
1:B:199:THR:H	1:B:237:ASN:ND2	2.08	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:200:GLN:HA	1:A:242:PHE:O	2.13	0.48
1:G:5:HIS:ND1	1:G:5:HIS:N	2.61	0.48
1:E:18:ASP:OD2	6:E:501:ANP:O1B	2.32	0.48
1:D:324:VAL:HB	1:D:338:ILE:CD1	2.42	0.48
1:E:200:GLN:HA	1:E:242:PHE:O	2.13	0.48
1:E:239:THR:HG1	6:E:501:ANP:HN61	1.59	0.48
1:F:230:ASP:OD1	1:F:230:ASP:N	2.44	0.48
1:H:19:LYS:HE2	1:H:19:LYS:HA	1.95	0.48
1:B:184:ASP:OD1	1:B:185:GLU:O	2.31	0.48
1:F:122:LEU:O	1:F:122:LEU:CG	2.62	0.48
1:G:10:GLU:HB3	1:G:178:GLN:HG2	1.95	0.48
1:H:191:ARG:NH2	1:H:229:ASP:OD1	2.46	0.48
1:H:200:GLN:HA	1:H:242:PHE:O	2.13	0.48
1:F:145:MET:HG3	1:F:373:GLY:HA3	1.95	0.47
1:G:200:GLN:HA	1:G:242:PHE:O	2.14	0.47
1:H:14:GLU:HG2	1:H:369:TYR:OH	2.14	0.47
1:A:19:LYS:NZ	1:A:261:ASP:OD1	2.47	0.47
1:C:200:GLN:HA	1:C:242:PHE:O	2.14	0.47
1:A:50:GLY:H	1:A:248:GLN:HE22	1.62	0.47
1:B:145:MET:HG3	1:B:373:GLY:HA3	1.97	0.47
1:D:10:GLU:HB3	1:D:178:GLN:HG2	1.97	0.47
1:D:12:VAL:HG23	1:D:19:LYS:CG	2.43	0.47
1:H:19:LYS:NZ	1:H:261:ASP:OD1	2.47	0.47
1:H:38:GLN:HE21	1:H:38:GLN:HA	1.79	0.47
1:A:145:MET:HG3	1:A:373:GLY:HA3	1.95	0.47
1:A:300:ALA:HA	1:A:387:VAL:HG23	1.96	0.47
1:F:200:GLN:HA	1:F:242:PHE:O	2.14	0.47
1:E:145:MET:HG3	1:E:373:GLY:HA3	1.96	0.47
1:D:211:ARG:HG2	1:D:236:VAL:HB	1.97	0.47
1:E:78:GLY:O	1:E:80:VAL:HG12	2.14	0.47
1:G:230:ASP:OD1	1:G:230:ASP:N	2.44	0.47
1:G:179:VAL:HG23	1:G:179:VAL:O	2.13	0.47
1:A:342:ARG:HH22	1:B:3:GLU:CD	2.17	0.47
1:D:145:MET:HG3	1:D:373:GLY:HA3	1.97	0.47
1:D:241:ARG:HG3	1:G:216:ASP:HB3	1.97	0.47
1:E:80:VAL:O	1:E:80:VAL:CG2	2.63	0.47
1:A:51:LEU:HD22	1:C:94:LEU:HD21	1.97	0.46
1:G:174:ASP:H	1:G:200:GLN:HE21	1.64	0.46
1:G:378:ASP:OD2	1:G:383:HIS:CE1	2.64	0.46
1:D:19:LYS:HD3	1:D:367:ALA:O	2.15	0.46
1:E:211:ARG:HG2	1:E:236:VAL:HB	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:14:GLU:HG2	1:A:369:TYR:OH	2.15	0.46
1:D:5:HIS:ND1	1:D:5:HIS:N	2.63	0.46
1:E:277:LYS:HD3	1:E:281:LYS:HE2	1.97	0.46
1:F:257:LYS:NZ	6:F:501:ANP:O2B	2.45	0.46
1:E:5:HIS:ND1	1:E:5:HIS:N	2.63	0.46
1:F:14:GLU:HG2	1:F:369:TYR:OH	2.16	0.46
1:E:14:GLU:HG2	1:E:369:TYR:OH	2.16	0.46
1:H:145:MET:HG3	1:H:373:GLY:HA3	1.98	0.46
1:H:211:ARG:HG2	1:H:236:VAL:HB	1.97	0.46
1:B:14:GLU:HG3	1:B:369:TYR:OH	2.16	0.46
1:B:50:GLY:H	1:B:248:GLN:HE22	1.63	0.46
1:G:365:GLN:O	1:G:374:ARG:NH2	2.49	0.46
1:A:342:ARG:NH2	1:B:3:GLU:OE1	2.50	0.45
1:A:365:GLN:O	1:A:374:ARG:NH1	2.49	0.45
1:D:14:GLU:HG2	1:D:369:TYR:OH	2.15	0.45
1:F:51:LEU:HD22	1:H:94:LEU:HD21	1.98	0.45
1:F:148:PRO:HG3	1:F:181:VAL:HG13	1.98	0.45
1:F:170:TRP:CG	1:F:205:VAL:HG21	2.51	0.45
1:G:78:GLY:O	1:G:80:VAL:HG22	2.16	0.45
1:G:159:ILE:HG23	8:G:606:HOH:O	2.16	0.45
1:A:211:ARG:HG2	1:A:236:VAL:HB	1.97	0.45
1:B:211:ARG:HG2	1:B:236:VAL:HB	1.99	0.45
1:E:38:GLN:HE21	1:E:38:GLN:HA	1.81	0.45
1:G:344:ASN:HD22	1:G:389:ALA:HB1	1.78	0.45
1:D:250:ASP:OD2	6:D:501:ANP:H8	2.15	0.45
1:E:58:VAL:O	1:E:99:GLU:HB2	2.16	0.45
1:G:211:ARG:HG2	1:G:236:VAL:HB	1.98	0.45
1:C:145:MET:HG3	1:C:373:GLY:HA3	1.98	0.45
1:F:94:LEU:HD21	1:H:51:LEU:HD22	1.99	0.45
1:B:5:HIS:N	1:B:5:HIS:ND1	2.63	0.45
1:G:14:GLU:HG3	1:G:369:TYR:OH	2.17	0.45
1:C:211:ARG:HG2	1:C:236:VAL:HB	1.98	0.45
1:D:170:TRP:CG	1:D:205:VAL:HG21	2.51	0.45
1:H:378:ASP:OD2	1:H:383:HIS:CE1	2.66	0.45
1:A:19:LYS:HE2	1:A:19:LYS:HA	1.99	0.45
1:F:12:VAL:HG11	1:F:16:HIS:CG	2.52	0.45
1:F:50:GLY:H	1:F:248:GLN:HE22	1.64	0.45
1:B:172:ARG:HD3	1:B:201:HIS:C	2.37	0.45
1:D:50:GLY:H	1:D:248:GLN:HE22	1.64	0.45
1:G:250:ASP:HB2	7:G:502:SAM:H2 [?]	1.98	0.45
1:H:128:GLY:O	1:H:314:ILE:HG13	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:50:GLY:H	1:C:248:GLN:HE22	1.65	0.44
1:F:211:ARG:HG2	1:F:236:VAL:HB	1.99	0.44
1:G:14:GLU:HG2	1:G:369:TYR:OH	2.17	0.44
1:H:249:GLY:HA3	7:H:501:SAM:N6	2.32	0.44
1:C:14:GLU:HG3	1:C:369:TYR:OH	2.17	0.44
1:D:172:ARG:HD3	1:D:201:HIS:C	2.37	0.44
1:F:156:MET:HB3	1:F:156:MET:HE2	1.90	0.44
1:E:170:TRP:CG	1:E:205:VAL:HG21	2.52	0.44
1:F:191:ARG:NH2	1:F:231:GLN:HB2	2.31	0.44
6:E:501:ANP:H5'1	6:E:501:ANP:N3	2.33	0.44
1:G:145:MET:HG3	1:G:373:GLY:HA3	1.99	0.44
1:A:38:GLN:HE21	1:A:38:GLN:HA	1.82	0.44
1:B:14:GLU:HG2	1:B:369:TYR:OH	2.18	0.44
1:C:124:GLN:HE21	1:G:142:PRO:HG3	1.82	0.44
1:F:298:VAL:HG23	1:F:306:VAL:HG12	2.00	0.44
1:B:313:ALA:CB	1:B:320:VAL:HG11	2.48	0.44
1:A:14:GLU:HG3	1:A:369:TYR:OH	2.18	0.43
1:H:10:GLU:HB3	1:H:178:GLN:HG2	2.00	0.43
1:F:179:VAL:HG23	1:F:179:VAL:O	2.17	0.43
1:D:16:HIS:CE1	6:D:501:ANP:HO3'	2.36	0.43
1:H:14:GLU:HG3	1:H:369:TYR:OH	2.19	0.43
1:A:147:LEU:N	1:A:148:PRO:CD	2.82	0.43
1:A:230:ASP:OD1	1:A:230:ASP:N	2.46	0.43
1:C:14:GLU:HG2	1:C:369:TYR:OH	2.18	0.43
1:B:82:GLY:HA3	1:D:82:GLY:O	2.19	0.43
1:F:12:VAL:HG11	1:F:16:HIS:CB	2.46	0.43
1:D:80:VAL:O	1:D:80:VAL:CG1	2.67	0.43
1:F:365:GLN:O	1:F:374:ARG:NH2	2.51	0.43
1:H:147:LEU:N	1:H:148:PRO:CD	2.81	0.43
1:B:83:GLN:HE21	1:D:83:GLN:NE2	2.17	0.42
1:E:277:LYS:NZ	6:F:501:ANP:O2G	2.23	0.42
1:F:268:HIS:HD1	1:F:307:GLU:CD	2.23	0.42
1:B:205:VAL:HG13	1:B:210:ILE:HD11	2.01	0.42
1:B:344:ASN:O	1:B:386:LYS:HE3	2.20	0.42
1:D:365:GLN:O	1:D:374:ARG:NH2	2.53	0.42
1:F:143:GLU:HG2	1:F:373:GLY:O	2.20	0.42
1:A:52:VAL:HG21	1:A:74:ILE:HD11	2.01	0.42
1:C:147:LEU:N	1:C:148:PRO:CD	2.83	0.42
1:C:147:LEU:HD21	1:C:227:LEU:HD13	2.01	0.42
1:C:194:THR:HG21	1:D:130:GLN:NE2	2.34	0.42
1:D:301:GLY:O	1:D:331:LYS:HG3	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:18:ASP:OD2	3:A:502:PPK:O1B	2.38	0.42
1:D:130:GLN:HG2	1:D:314:ILE:H	1.84	0.42
1:E:16:HIS:NE2	6:E:501:ANP:H4'	2.35	0.42
1:B:147:LEU:N	1:B:148:PRO:CD	2.81	0.42
1:H:184:ASP:OD1	1:H:185:GLU:O	2.37	0.42
1:B:300:ALA:HA	1:B:387:VAL:HG23	2.01	0.42
1:E:130:GLN:HE21	1:F:196:VAL:HG21	1.83	0.42
1:E:172:ARG:HH21	1:E:243:VAL:HG13	1.85	0.42
1:G:52:VAL:HG21	1:G:74:ILE:HD11	2.01	0.42
1:A:90:ASN:HB3	1:C:85:GLY:O	2.19	0.41
1:H:129:ASP:O	1:H:131:GLY:N	2.53	0.41
1:A:265:GLY:HA2	8:A:603:HOH:O	2.20	0.41
1:D:147:LEU:N	1:D:148:PRO:CD	2.83	0.41
1:G:147:LEU:N	1:G:148:PRO:CD	2.83	0.41
1:E:10:GLU:HB3	1:E:178:GLN:HG2	2.01	0.41
1:E:147:LEU:N	1:E:148:PRO:CD	2.84	0.41
1:B:51:LEU:HB2	1:D:92:ALA:HB2	2.01	0.41
1:A:207:LEU:HD12	1:A:207:LEU:HA	1.83	0.41
1:D:374:ARG:NH1	1:D:376:ASP:OD1	2.54	0.41
1:F:147:LEU:N	1:F:148:PRO:CD	2.83	0.41
1:D:215:ILE:CD1	1:D:216:ASP:OD1	2.64	0.41
1:E:210:ILE:O	1:E:214:VAL:HG23	2.20	0.41
1:A:147:LEU:HD21	1:A:227:LEU:HD13	2.02	0.41
1:F:215:ILE:HD13	1:F:234:TYR:HB3	2.02	0.41
1:D:14:GLU:HG3	1:D:369:TYR:OH	2.21	0.41
1:F:14:GLU:HG3	1:F:369:TYR:OH	2.20	0.41
1:G:207:LEU:HD12	1:G:207:LEU:HA	1.84	0.41
1:A:96:SER:HB2	1:D:94:LEU:CD2	2.51	0.41
1:B:313:ALA:HB2	1:B:320:VAL:HG11	2.03	0.41
1:G:191:ARG:HD2	1:G:229:ASP:OD1	2.20	0.41
1:F:143:GLU:OE1	1:F:154:ARG:NH1	2.54	0.41
1:H:67:GLN:O	1:H:71:ARG:HG3	2.21	0.41
1:D:11:SER:HA	1:D:260:VAL:HG13	2.03	0.40
1:D:52:VAL:HG21	1:D:74:ILE:HD11	2.03	0.40
1:E:172:ARG:HH21	1:E:243:VAL:CG1	2.34	0.40
1:G:185:GLU:H	1:G:185:GLU:HG2	1.73	0.40
1:D:344:ASN:HD22	1:D:389:ALA:HB1	1.85	0.40
1:E:14:GLU:HG3	1:E:369:TYR:OH	2.20	0.40
1:E:224:PRO:HG2	1:E:227:LEU:HD12	2.03	0.40
1:G:374:ARG:NH1	1:G:376:ASP:OD1	2.54	0.40
1:H:156:MET:CE	1:H:156:MET:HA	2.50	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:320:VAL:HG12	1:B:6:LEU:HD12	2.03	0.40
1:C:124:GLN:HB3	1:G:142:PRO:HG3	2.04	0.40
1:D:125:ILE:HG22	1:D:126:GLY:N	2.37	0.40
1:E:156:MET:CE	1:E:156:MET:HA	2.51	0.40
1:D:156:MET:CE	1:D:156:MET:HA	2.52	0.40
1:F:182:GLU:OE2	1:F:191:ARG:HD3	2.22	0.40
1:E:172:ARG:NH2	1:E:203:PRO:HD3	2.36	0.40

All (2) 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:A:204:ASP:OD2	1:H:357:ASP:OD2[1_565]	1.70	0.50
1:A:165:ASP:OD2	1:H:204:ASP:OD2[1_665]	1.95	0.25

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	360/401 (90%)	335 (93%)	24 (7%)	1 (0%)	41	70
1	B	358/401 (89%)	335 (94%)	23 (6%)	0	100	100
1	C	367/401 (92%)	345 (94%)	22 (6%)	0	100	100
1	D	365/401 (91%)	340 (93%)	24 (7%)	1 (0%)	41	70
1	E	367/401 (92%)	342 (93%)	25 (7%)	0	100	100
1	F	365/401 (91%)	342 (94%)	23 (6%)	0	100	100
1	G	362/401 (90%)	340 (94%)	22 (6%)	0	100	100
1	H	360/401 (90%)	334 (93%)	25 (7%)	1 (0%)	41	70
All	All	2904/3208 (90%)	2713 (93%)	188 (6%)	3 (0%)	51	80

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	H	130	GLN
1	A	184	ASP
1	D	184	ASP

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	295/325 (91%)	273 (92%)	22 (8%)	13	35
1	B	293/325 (90%)	270 (92%)	23 (8%)	12	33
1	C	299/325 (92%)	275 (92%)	24 (8%)	12	32
1	D	297/325 (91%)	281 (95%)	16 (5%)	22	51
1	E	299/325 (92%)	271 (91%)	28 (9%)	8	25
1	F	297/325 (91%)	273 (92%)	24 (8%)	11	32
1	G	294/325 (90%)	270 (92%)	24 (8%)	11	31
1	H	294/325 (90%)	276 (94%)	18 (6%)	18	46
All	All	2368/2600 (91%)	2189 (92%)	179 (8%)	13	35

All (179) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	5	HIS
1	A	14	GLU
1	A	19	LYS
1	A	38	GLN
1	A	55	PHE
1	A	58	VAL
1	A	133	MET
1	A	159	ILE
1	A	169	LYS
1	A	184	ASP
1	A	186	ASP

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Mol	Chain	Res	Type
1	A	207	LEU
1	A	230	ASP
1	A	243	VAL
1	A	250	ASP
1	A	256	ARG
1	A	259	ILE
1	A	324	VAL
1	A	331	LYS
1	A	342	ARG
1	A	383	HIS
1	A	386	LYS
1	B	5	HIS
1	B	14	GLU
1	B	19	LYS
1	B	58	VAL
1	B	81	ASP
1	B	99	GLU
1	B	133	MET
1	B	159	ILE
1	B	169	LYS
1	B	185	GLU
1	B	197	LEU
1	B	230	ASP
1	B	250	ASP
1	B	256	ARG
1	B	259	ILE
1	B	280	THR
1	B	314	ILE
1	B	324	VAL
1	B	331	LYS
1	B	335	GLU
1	B	362	ILE
1	B	386	LYS
1	B	390	LEU
1	C	5	HIS
1	C	14	GLU
1	C	19	LYS
1	C	38	GLN
1	C	58	VAL
1	C	61	LYS
1	C	81	ASP
1	C	99	GLU

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Mol	Chain	Res	Type
1	C	121	PRO
1	C	122	LEU
1	C	123	ASP
1	C	133	MET
1	C	159	ILE
1	C	169	LYS
1	C	185	GLU
1	C	186	ASP
1	C	191	ARG
1	C	230	ASP
1	C	241	ARG
1	C	250	ASP
1	C	259	ILE
1	C	280	THR
1	C	324	VAL
1	C	395	LYS
1	D	5	HIS
1	D	14	GLU
1	D	58	VAL
1	D	81	ASP
1	D	130	GLN
1	D	133	MET
1	D	159	ILE
1	D	169	LYS
1	D	184	ASP
1	D	185	GLU
1	D	230	ASP
1	D	241	ARG
1	D	250	ASP
1	D	259	ILE
1	D	280	THR
1	D	324	VAL
1	E	3	GLU
1	E	5	HIS
1	E	14	GLU
1	E	19	LYS
1	E	38	GLN
1	E	58	VAL
1	E	83	GLN
1	E	100	GLN
1	E	124	GLN
1	E	125	ILE

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Mol	Chain	Res	Type
1	E	130	GLN
1	E	133	MET
1	E	159	ILE
1	E	169	LYS
1	E	190	LYS
1	E	207	LEU
1	E	230	ASP
1	E	241	ARG
1	E	248	GLN
1	E	250	ASP
1	E	259	ILE
1	E	280	THR
1	E	310	LEU
1	E	314	ILE
1	E	324	VAL
1	E	335	GLU
1	E	378	ASP
1	E	395	LYS
1	F	12	VAL
1	F	14	GLU
1	F	19	LYS
1	F	57	GLU
1	F	58	VAL
1	F	99	GLU
1	F	122	LEU
1	F	130	GLN
1	F	133	MET
1	F	159	ILE
1	F	169	LYS
1	F	185	GLU
1	F	186	ASP
1	F	190	LYS
1	F	197	LEU
1	F	208	ASP
1	F	227	LEU
1	F	230	ASP
1	F	239	THR
1	F	250	ASP
1	F	259	ILE
1	F	280	THR
1	F	324	VAL
1	F	383	HIS

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Mol	Chain	Res	Type
1	G	5	HIS
1	G	14	GLU
1	G	19	LYS
1	G	55	PHE
1	G	58	VAL
1	G	81	ASP
1	G	99	GLU
1	G	130	GLN
1	G	133	MET
1	G	149	ILE
1	G	159	ILE
1	G	185	GLU
1	G	207	LEU
1	G	215	ILE
1	G	230	ASP
1	G	250	ASP
1	G	259	ILE
1	G	280	THR
1	G	320	VAL
1	G	324	VAL
1	G	354	LYS
1	G	355	MET
1	G	364	ARG
1	G	383	HIS
1	H	5	HIS
1	H	14	GLU
1	H	19	LYS
1	H	40	ARG
1	H	58	VAL
1	H	81	ASP
1	H	129	ASP
1	H	130	GLN
1	H	133	MET
1	H	159	ILE
1	H	169	LYS
1	H	188	GLN
1	H	191	ARG
1	H	230	ASP
1	H	259	ILE
1	H	280	THR
1	H	324	VAL
1	H	383	HIS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (64) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	23	GLN
1	A	38	GLN
1	A	90	ASN
1	A	248	GLN
1	A	268	HIS
1	A	269	HIS
1	A	305	GLN
1	A	309	GLN
1	A	383	HIS
1	B	83	GLN
1	B	90	ASN
1	B	201	HIS
1	B	237	ASN
1	B	248	GLN
1	B	268	HIS
1	B	269	HIS
1	B	305	GLN
1	B	365	GLN
1	C	38	GLN
1	C	90	ASN
1	C	124	GLN
1	C	187	ASN
1	C	237	ASN
1	C	248	GLN
1	C	268	HIS
1	C	305	GLN
1	D	90	ASN
1	D	130	GLN
1	D	212	GLN
1	D	248	GLN
1	D	268	HIS
1	D	269	HIS
1	D	344	ASN
1	E	38	GLN
1	E	90	ASN
1	E	130	GLN
1	E	268	HIS
1	E	269	HIS
1	E	309	GLN
1	E	396	HIS
1	F	124	GLN

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Mol	Chain	Res	Type
1	F	231	GLN
1	F	237	ASN
1	F	248	GLN
1	F	305	GLN
1	F	309	GLN
1	F	383	HIS
1	G	90	ASN
1	G	130	GLN
1	G	200	GLN
1	G	268	HIS
1	G	269	HIS
1	G	296	ASN
1	G	305	GLN
1	G	309	GLN
1	G	344	ASN
1	G	383	HIS
1	H	38	GLN
1	H	90	ASN
1	H	130	GLN
1	H	231	GLN
1	H	237	ASN
1	H	305	GLN
1	H	383	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 33 ligands modelled in this entry, 21 are monoatomic - leaving 12 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
2	PHE	H	502	-	10,11,12	0.40	0	10,13,15	0.35	0
6	ANP	E	501	4	29,33,33	1.48	3 (10%)	31,52,52	1.25	5 (16%)
3	PPK	G	501	4	11,12,12	2.07	4 (36%)	15,20,20	1.68	4 (26%)
3	PPK	A	502	5,4	11,12,12	2.06	4 (36%)	15,20,20	1.50	3 (20%)
3	PPK	H	503	5,4	11,12,12	1.86	4 (36%)	15,20,20	1.54	2 (13%)
7	SAM	G	502	-	24,29,29	0.67	1 (4%)	23,42,42	1.07	4 (17%)
2	PHE	A	501	-	10,11,12	0.50	0	10,13,15	0.51	0
6	ANP	D	501	5,4	29,33,33	1.44	4 (13%)	31,52,52	1.54	8 (25%)
6	ANP	F	501	5,4	29,33,33	1.34	5 (17%)	31,52,52	1.39	3 (9%)
6	ANP	C	501	5,4	29,33,33	1.36	4 (13%)	31,52,52	1.47	5 (16%)
3	PPK	B	501	4	11,12,12	2.31	3 (27%)	15,20,20	1.87	5 (33%)
7	SAM	H	501	-	24,29,29	0.74	1 (4%)	23,42,42	1.46	3 (13%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	PHE	H	502	-	-	3/5/6/8	0/1/1/1
6	ANP	E	501	4	-	6/14/38/38	0/3/3/3
3	PPK	G	501	4	-	5/8/12/12	-
3	PPK	A	502	5,4	-	1/8/12/12	-
3	PPK	H	503	5,4	-	2/8/12/12	-
7	SAM	G	502	-	-	7/12/33/33	0/3/3/3
2	PHE	A	501	-	-	4/5/6/8	0/1/1/1
6	ANP	D	501	5,4	-	4/14/38/38	0/3/3/3
6	ANP	F	501	5,4	-	6/14/38/38	0/3/3/3
6	ANP	C	501	5,4	-	6/14/38/38	0/3/3/3
3	PPK	B	501	4	-	2/8/12/12	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
7	SAM	H	501	-	-	8/12/33/33	0/3/3/3

All (33) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	502	PPK	PG-O3G	4.06	1.52	1.46
6	D	501	ANP	PG-O1G	3.99	1.52	1.46
3	B	501	PPK	PG-O3G	3.98	1.52	1.46
3	B	501	PPK	PB-O3A	3.98	1.64	1.59
3	G	501	PPK	PG-O3G	3.97	1.52	1.46
6	C	501	ANP	PG-O1G	3.93	1.52	1.46
6	E	501	ANP	PB-O3A	3.83	1.63	1.59
6	F	501	ANP	PG-O1G	3.64	1.51	1.46
6	E	501	ANP	PB-O1B	3.61	1.51	1.46
6	E	501	ANP	PG-O1G	3.56	1.51	1.46
3	H	503	PPK	PG-O3G	3.52	1.51	1.46
6	D	501	ANP	PB-O3A	3.33	1.63	1.59
3	B	501	PPK	PB-O2B	3.25	1.51	1.46
6	F	501	ANP	PB-O1B	3.21	1.51	1.46
6	C	501	ANP	PB-O1B	3.20	1.51	1.46
3	G	501	PPK	PB-O2B	3.10	1.51	1.46
6	D	501	ANP	PB-O1B	3.08	1.51	1.46
3	A	502	PPK	PB-O2B	3.04	1.51	1.46
3	H	503	PPK	PB-O2B	2.98	1.50	1.46
3	A	502	PPK	PB-O3A	2.73	1.62	1.59
6	F	501	ANP	PB-O3A	2.61	1.62	1.59
3	G	501	PPK	PB-O3A	2.61	1.62	1.59
6	F	501	ANP	PB-O2B	-2.33	1.50	1.56
6	C	501	ANP	PB-O2B	-2.30	1.50	1.56
6	C	501	ANP	PB-O3A	2.20	1.61	1.59
3	G	501	PPK	PB-O1B	-2.16	1.50	1.56
3	H	503	PPK	PB-O1B	-2.16	1.50	1.56
7	H	501	SAM	C8-N7	-2.09	1.31	1.34
7	G	502	SAM	OXT-C	-2.07	1.23	1.30
6	D	501	ANP	PB-O2B	-2.05	1.51	1.56
6	F	501	ANP	PG-O2G	-2.04	1.51	1.56
3	H	503	PPK	PB-O3A	2.01	1.61	1.59
3	A	502	PPK	PB-O1B	-2.01	1.51	1.56

All (42) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	F	501	ANP	O2G-PG-O1G	-4.33	102.56	113.45
7	H	501	SAM	OXT-C-O	-3.90	115.23	124.09
6	F	501	ANP	O2B-PB-O1B	3.88	118.06	109.92
6	C	501	ANP	O3G-PG-O1G	-3.88	103.71	113.45
3	B	501	PPK	O1G-PG-O3G	-3.87	103.71	113.45
6	D	501	ANP	O2B-PB-O1B	3.81	117.91	109.92
3	A	502	PPK	O1B-PB-O2B	3.76	117.81	109.92
6	C	501	ANP	O2B-PB-O1B	3.61	117.50	109.92
3	H	503	PPK	O1B-PB-O2B	3.57	117.40	109.92
3	H	503	PPK	O2G-PG-O3G	-3.55	104.54	113.45
3	G	501	PPK	O2G-PG-O3G	-3.49	104.67	113.45
6	C	501	ANP	O2G-PG-O1G	-3.47	104.72	113.45
3	G	501	PPK	O1B-PB-O2B	3.44	117.14	109.92
6	E	501	ANP	O3G-PG-O1G	-3.29	105.18	113.45
6	D	501	ANP	O3G-PG-O1G	-3.29	105.19	113.45
6	D	501	ANP	O2G-PG-O1G	-3.22	105.36	113.45
6	E	501	ANP	O2G-PG-O1G	-3.10	105.66	113.45
3	G	501	PPK	O1G-PG-O3G	-3.01	105.89	113.45
3	B	501	PPK	O3G-PG-N3B	2.94	116.10	111.77
6	E	501	ANP	O2B-PB-O1B	2.79	115.78	109.92
6	C	501	ANP	C5-C6-N6	2.77	124.56	120.35
6	C	501	ANP	C2'-C3'-C4'	-2.71	97.38	102.64
6	E	501	ANP	C5-C6-N6	2.69	124.44	120.35
3	A	502	PPK	O1G-PG-O3G	-2.64	106.82	113.45
6	E	501	ANP	PB-O3A-PA	2.61	141.80	132.62
3	B	501	PPK	O2G-PG-O3G	-2.59	106.94	113.45
3	B	501	PPK	PB-O3A-PA	2.58	141.69	132.62
7	H	501	SAM	OXT-C-CA	2.50	121.91	113.38
3	B	501	PPK	O1B-PB-O2B	2.44	115.04	109.92
6	D	501	ANP	PB-O3A-PA	2.43	141.17	132.62
6	F	501	ANP	C5-C6-N6	2.41	124.02	120.35
7	G	502	SAM	OXT-C-O	-2.31	118.85	124.09
6	D	501	ANP	C5-C6-N6	2.30	123.84	120.35
6	D	501	ANP	C2'-C3'-C4'	-2.29	98.19	102.64
6	D	501	ANP	C3'-C2'-C1'	-2.21	97.65	100.98
7	G	502	SAM	C3'-C2'-C1'	2.13	104.19	100.98
3	G	501	PPK	PB-O3A-PA	2.10	140.01	132.62
3	A	502	PPK	PB-O3A-PA	2.10	140.00	132.62
7	G	502	SAM	CG-SD-C5'	-2.10	98.06	103.40
7	H	501	SAM	O2'-C2'-C3'	2.06	118.48	111.82
6	D	501	ANP	O3'-C3'-C4'	2.03	116.91	111.05
7	G	502	SAM	C5-C6-N6	2.02	123.42	120.35

There are no chirality outliers.

All (54) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	501	PHE	C-CA-CB-CG
2	H	502	PHE	O-C-CA-CB
2	H	502	PHE	N-CA-CB-CG
2	H	502	PHE	C-CA-CB-CG
3	A	502	PPK	PB-N3B-PG-O3G
3	B	501	PPK	PB-N3B-PG-O3G
3	B	501	PPK	PA-O3A-PB-O2B
3	G	501	PPK	PG-N3B-PB-O2B
3	G	501	PPK	PG-N3B-PB-O3A
3	G	501	PPK	PB-O3A-PA-O1A
3	H	503	PPK	PB-N3B-PG-O3G
3	H	503	PPK	PG-N3B-PB-O2B
6	C	501	ANP	PB-N3B-PG-O1G
6	C	501	ANP	C5'-O5'-PA-O1A
6	C	501	ANP	C5'-O5'-PA-O2A
6	C	501	ANP	C5'-O5'-PA-O3A
6	D	501	ANP	C5'-O5'-PA-O3A
6	E	501	ANP	PB-N3B-PG-O1G
6	E	501	ANP	PG-N3B-PB-O1B
6	F	501	ANP	PG-N3B-PB-O1B
6	F	501	ANP	C5'-O5'-PA-O1A
6	F	501	ANP	C5'-O5'-PA-O2A
6	F	501	ANP	C5'-O5'-PA-O3A
6	F	501	ANP	C3'-C4'-C5'-O5'
7	G	502	SAM	O-C-CA-N
7	G	502	SAM	CA-CB-CG-SD
7	G	502	SAM	O4'-C4'-C5'-SD
7	G	502	SAM	C3'-C4'-C5'-SD
7	H	501	SAM	CA-CB-CG-SD
7	H	501	SAM	CB-CG-SD-CE
7	H	501	SAM	O4'-C4'-C5'-SD
7	H	501	SAM	C3'-C4'-C5'-SD
6	C	501	ANP	C3'-C4'-C5'-O5'
7	G	502	SAM	OXT-C-CA-N
6	F	501	ANP	O4'-C4'-C5'-O5'
6	C	501	ANP	O4'-C4'-C5'-O5'
2	A	501	PHE	N-CA-CB-CG
2	A	501	PHE	CA-CB-CG-CD1
2	A	501	PHE	CA-CB-CG-CD2
3	G	501	PPK	PB-O3A-PA-O2A
6	E	501	ANP	C5'-O5'-PA-O3A
7	H	501	SAM	N-CA-CB-CG

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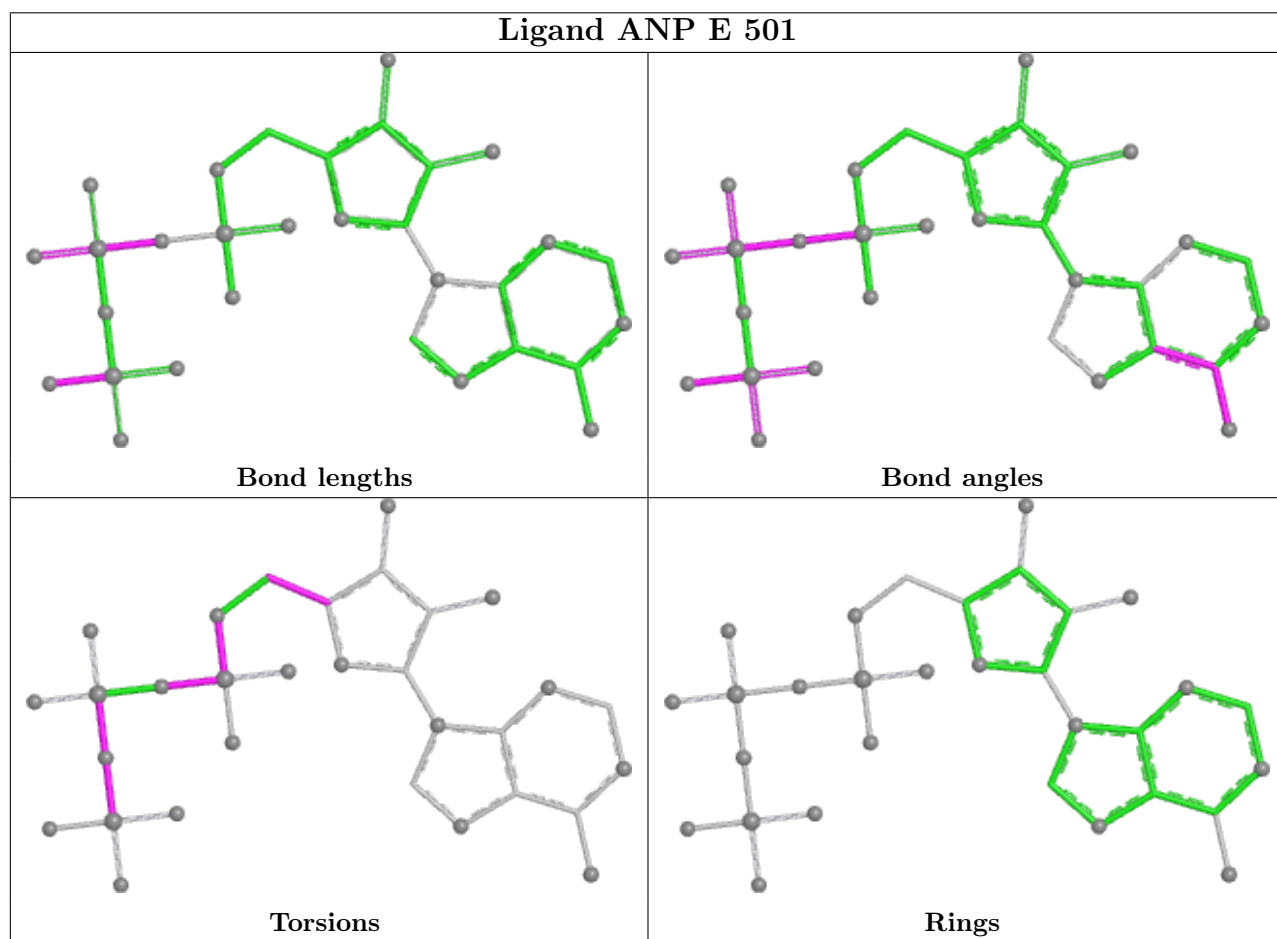
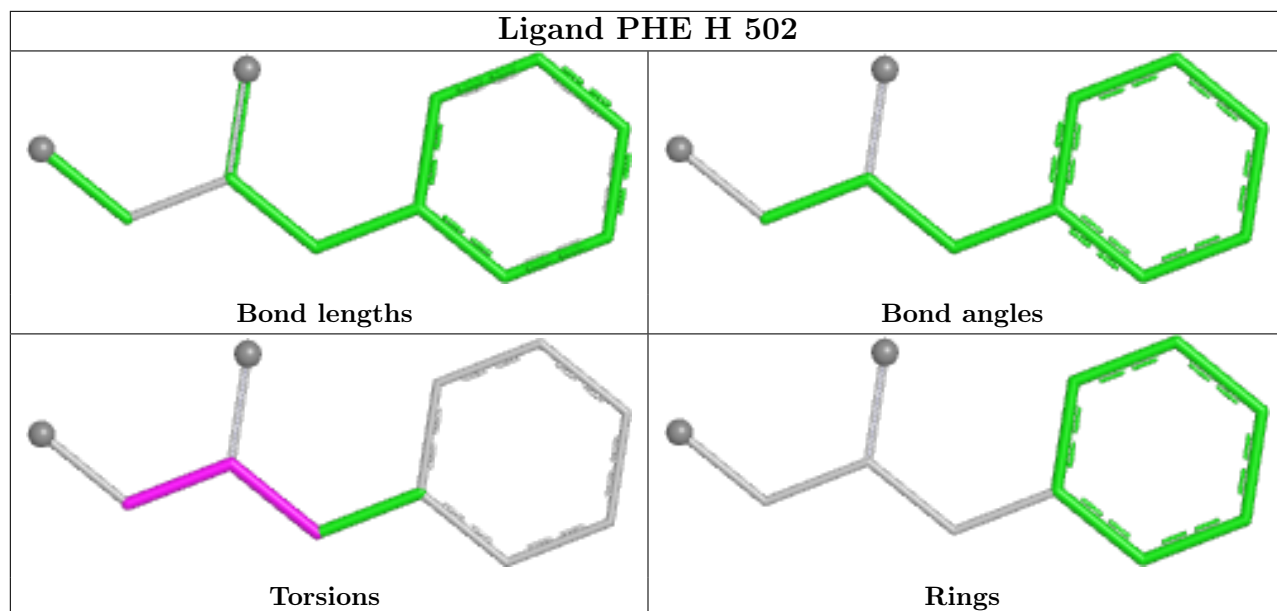
Mol	Chain	Res	Type	Atoms
6	D	501	ANP	C5'-O5'-PA-O1A
6	D	501	ANP	C5'-O5'-PA-O2A
6	E	501	ANP	C5'-O5'-PA-O2A
6	E	501	ANP	PB-O3A-PA-O1A
7	H	501	SAM	O-C-CA-CB
7	H	501	SAM	OXT-C-CA-CB
7	G	502	SAM	OXT-C-CA-CB
6	D	501	ANP	C3'-C4'-C5'-O5'
7	G	502	SAM	O-C-CA-CB
3	G	501	PPK	PB-O3A-PA-O4A
6	E	501	ANP	O4'-C4'-C5'-O5'
7	H	501	SAM	CB-CG-SD-C5'

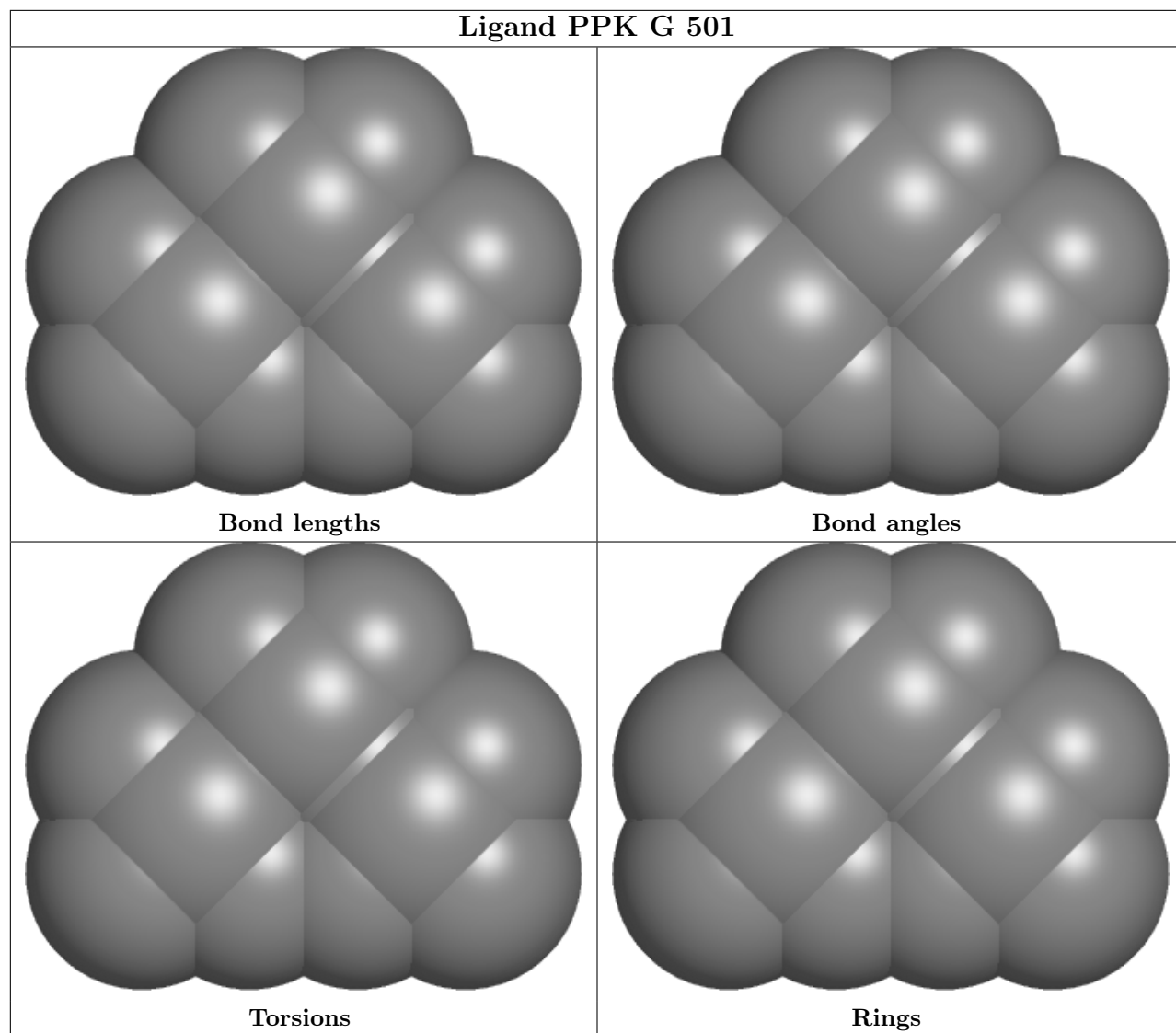
There are no ring outliers.

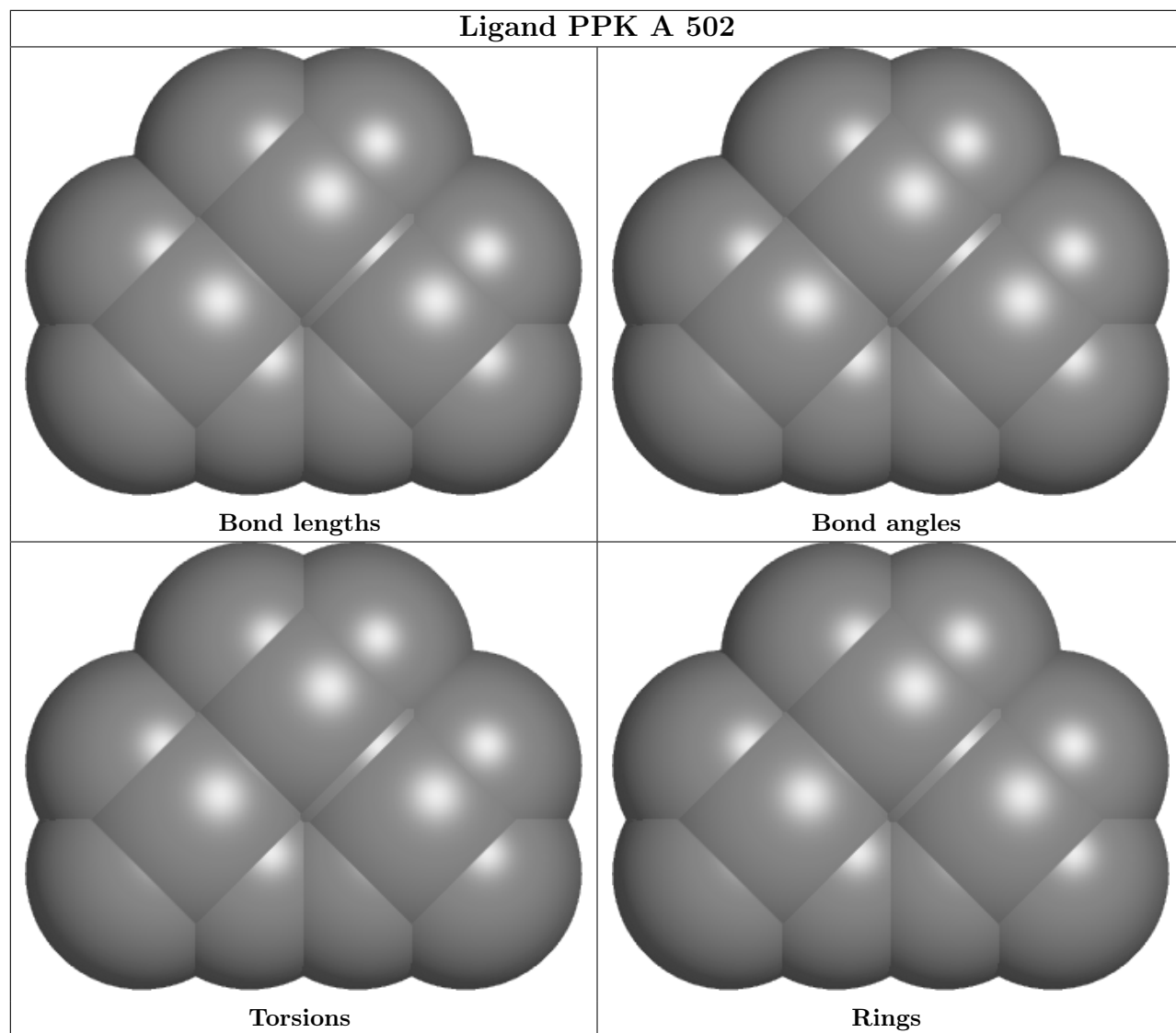
8 monomers are involved in 21 short contacts:

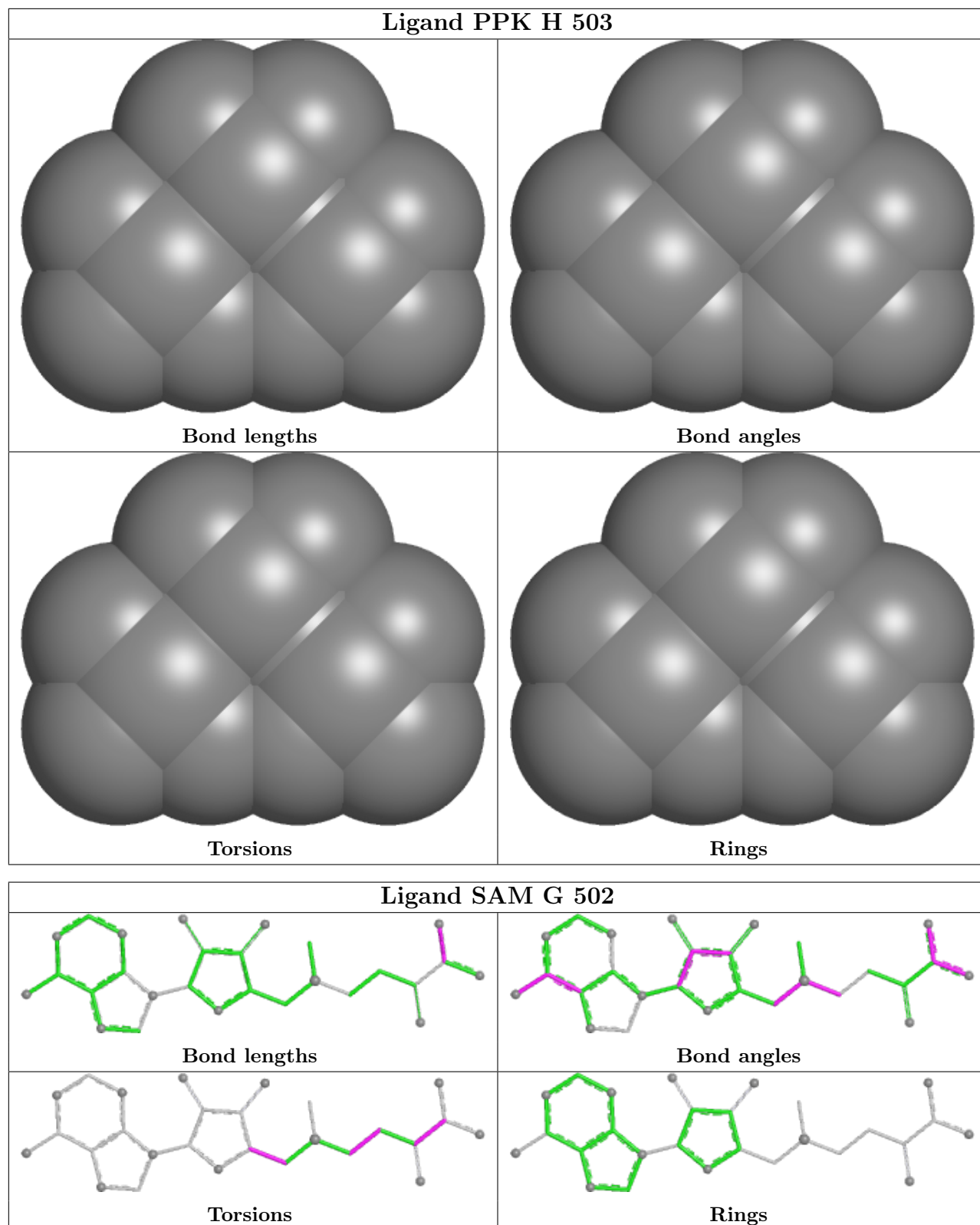
Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	E	501	ANP	6	0
3	A	502	PPK	1	0
7	G	502	SAM	2	0
6	D	501	ANP	2	0
6	F	501	ANP	3	0
6	C	501	ANP	2	0
3	B	501	PPK	1	0
7	H	501	SAM	4	0

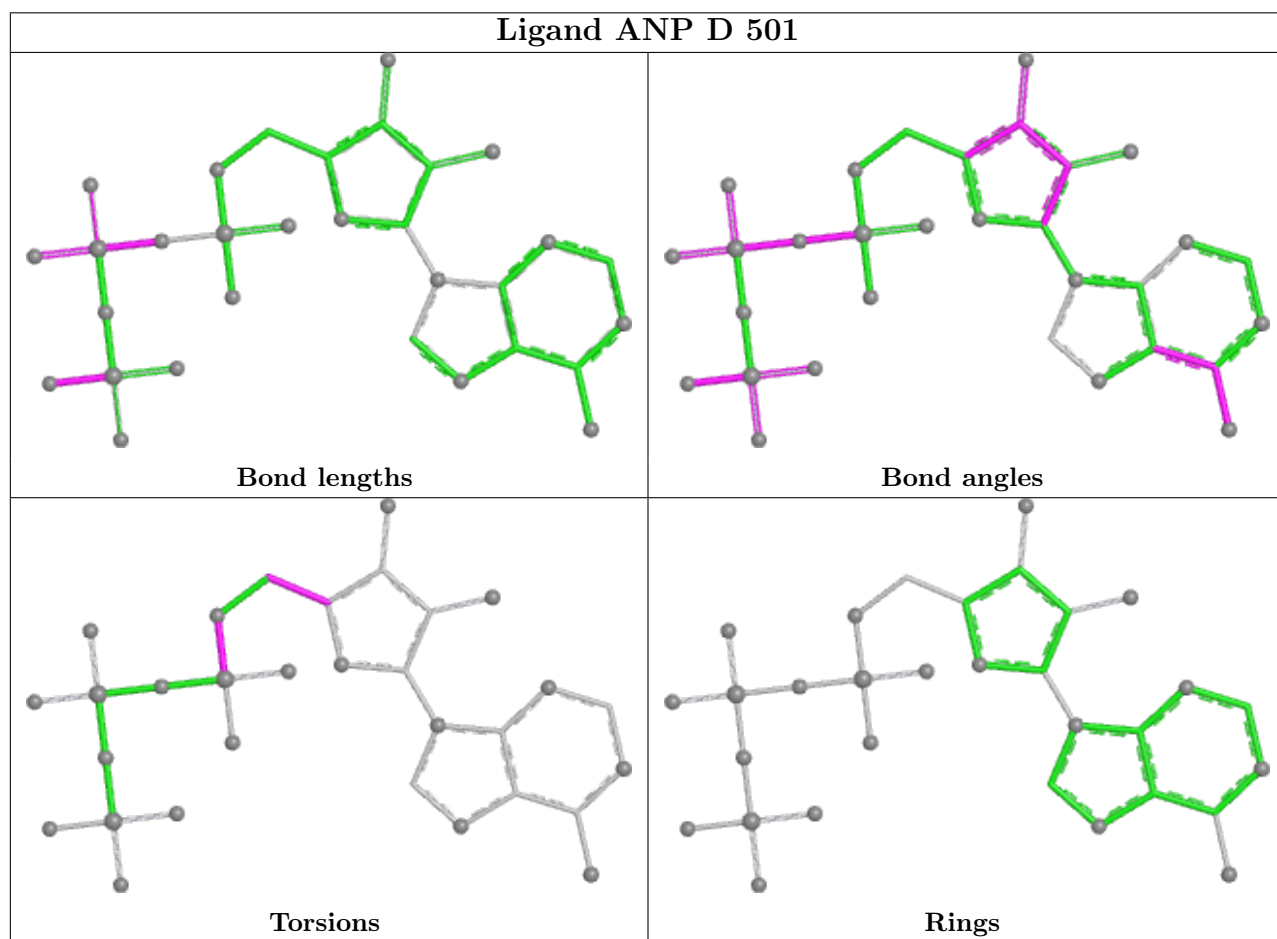
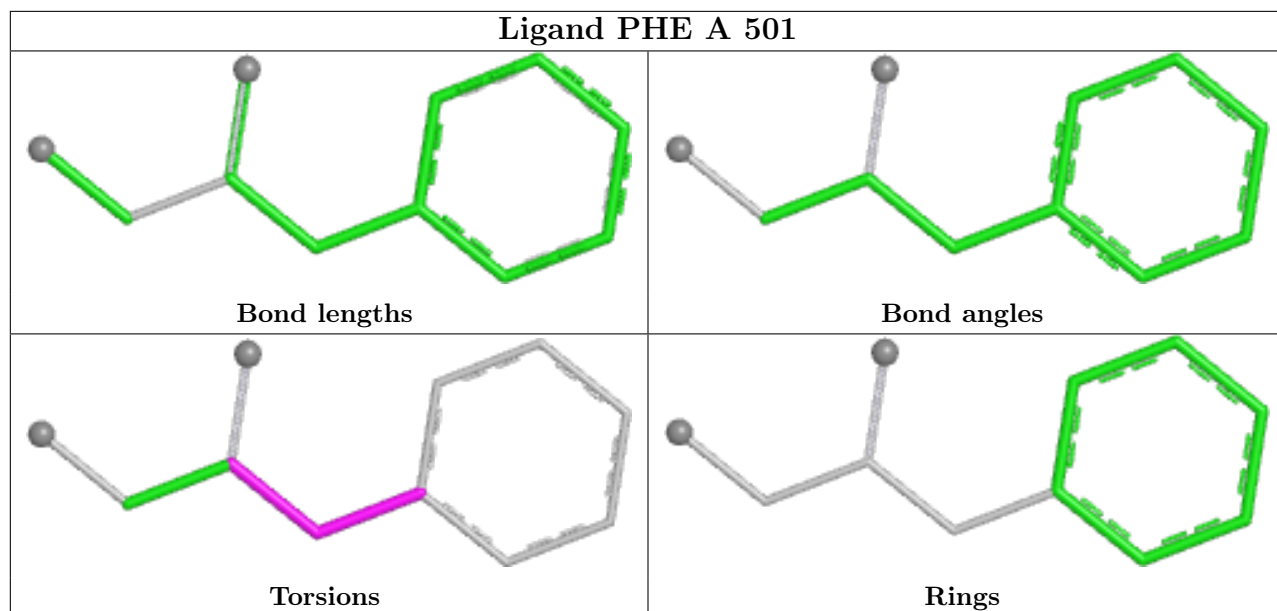
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

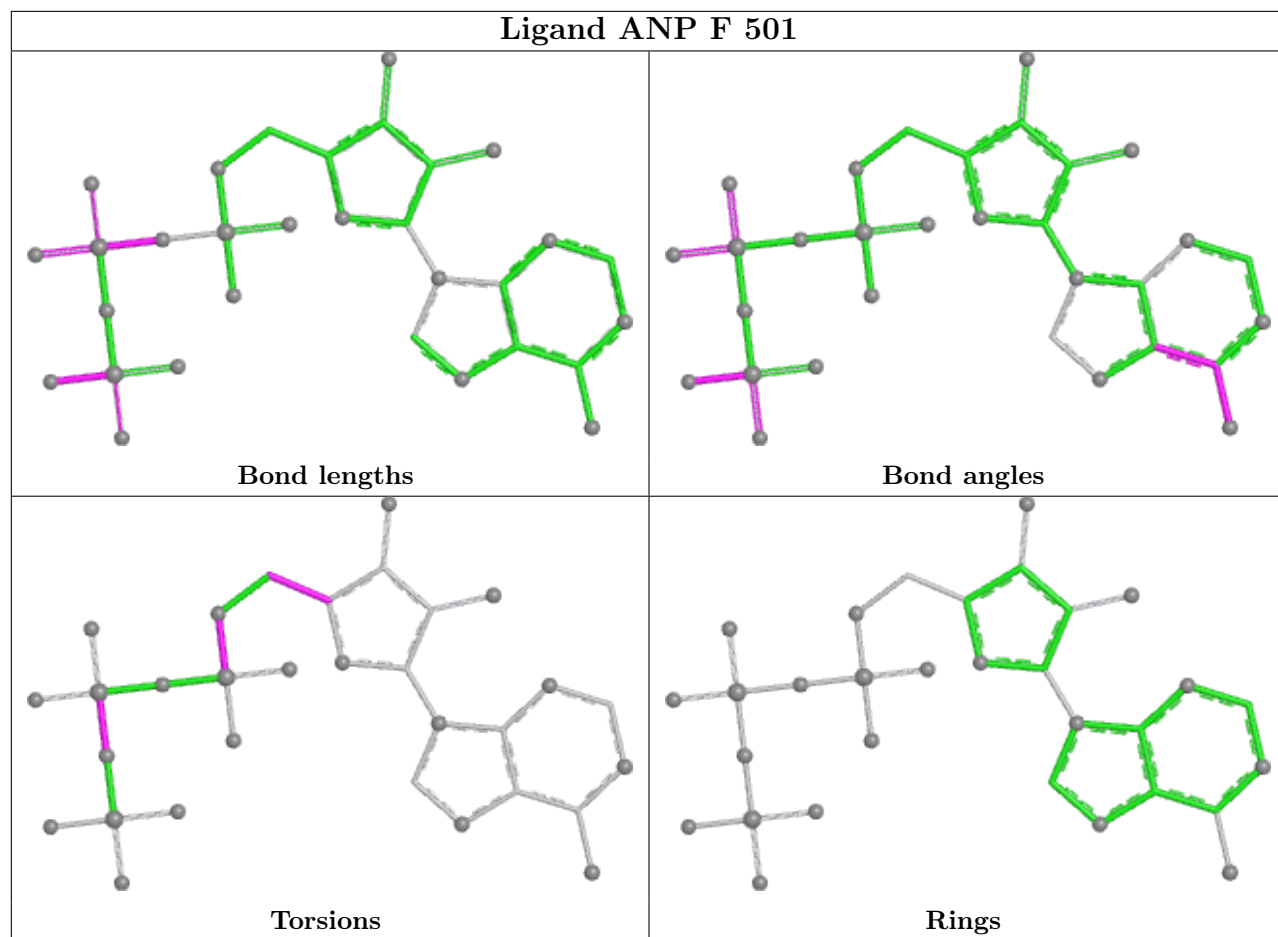


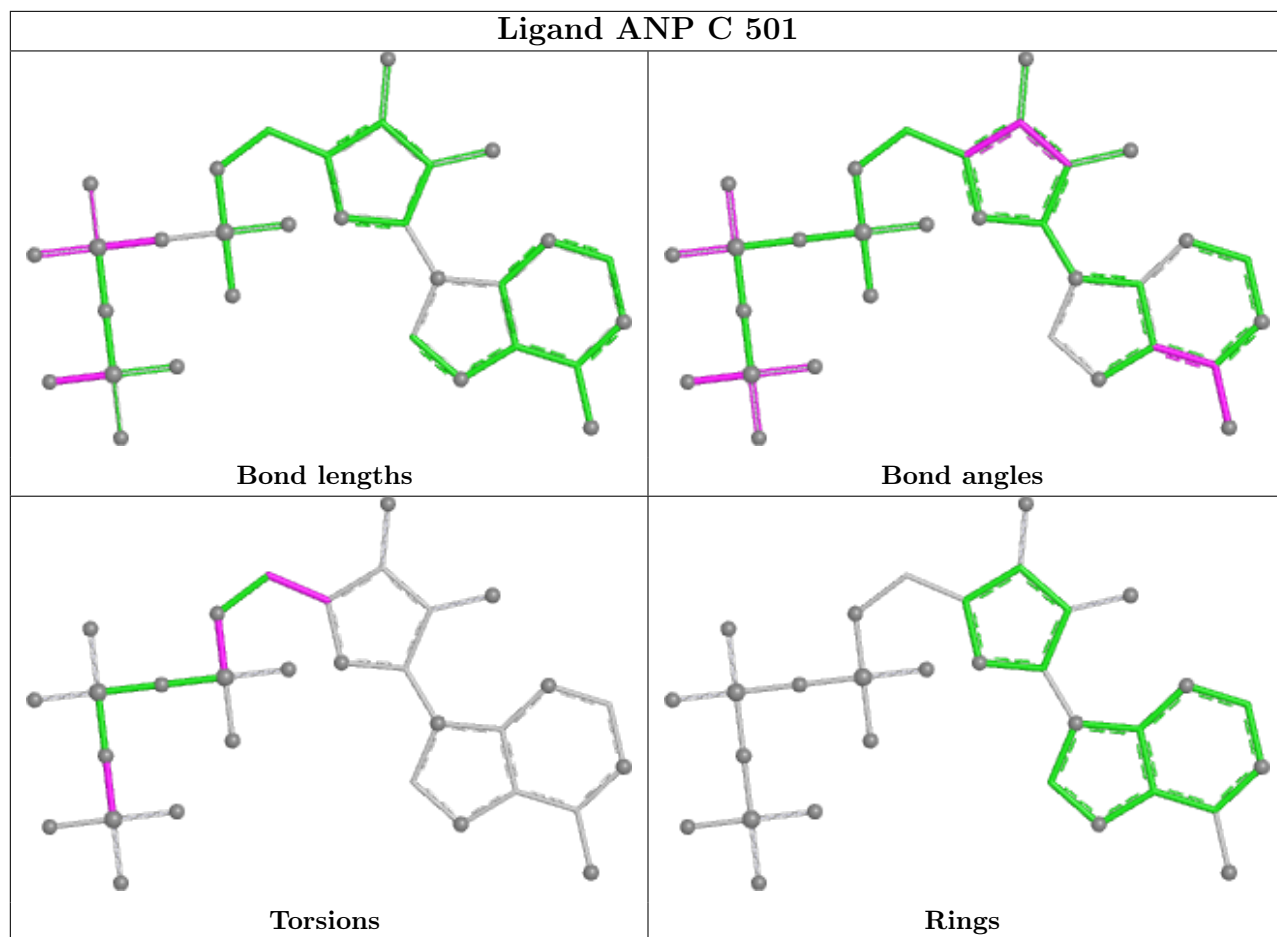


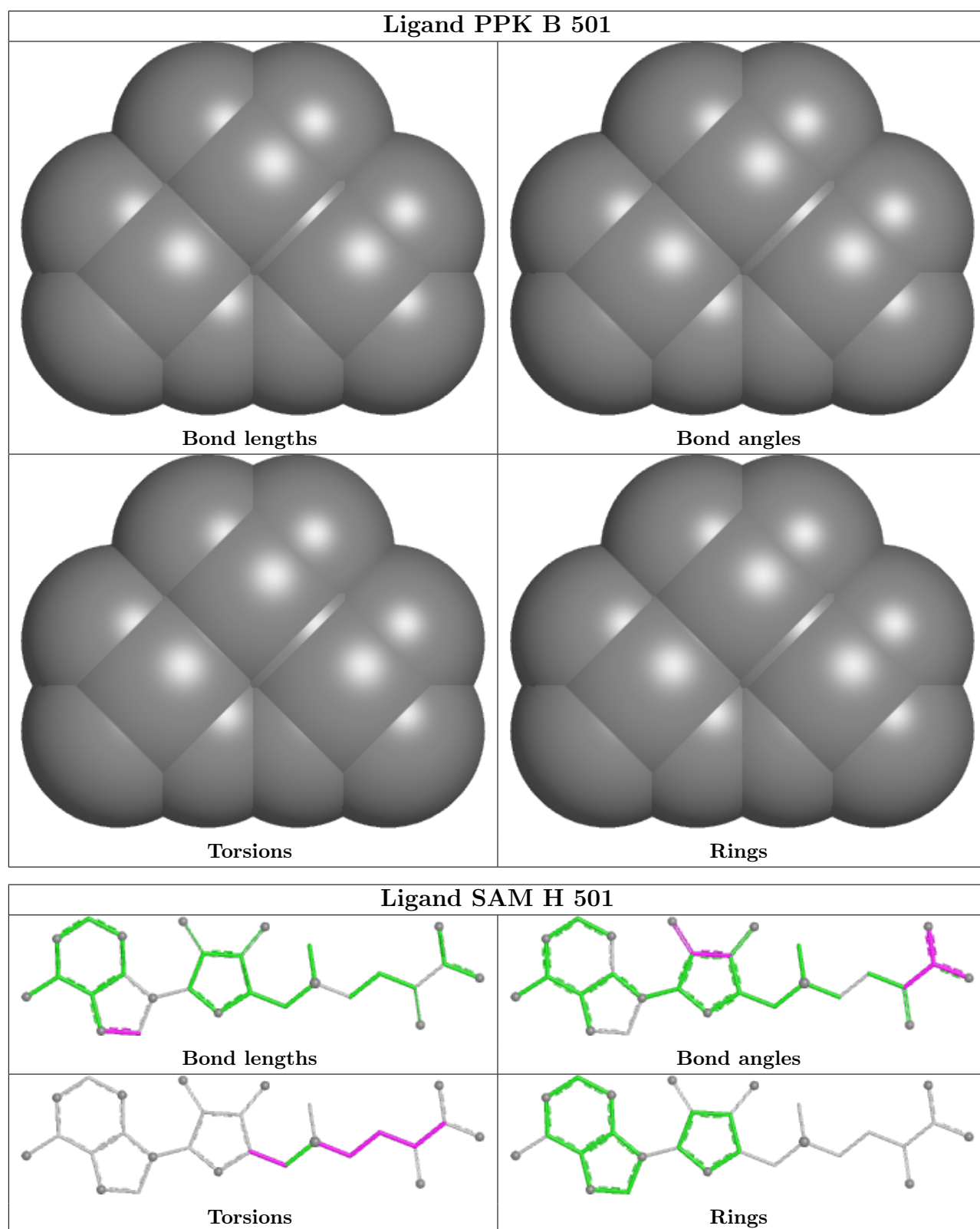












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

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

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	364/401 (90%)	-0.19	15 (4%) 37 27	47, 68, 97, 125	0
1	B	362/401 (90%)	-0.08	5 (1%) 75 69	49, 72, 95, 129	0
1	C	371/401 (92%)	0.08	18 (4%) 29 20	55, 75, 101, 121	0
1	D	369/401 (92%)	0.03	13 (3%) 44 34	51, 76, 109, 122	0
1	E	371/401 (92%)	-0.05	13 (3%) 44 34	44, 69, 96, 137	0
1	F	369/401 (92%)	0.16	29 (7%) 12 7	46, 72, 107, 125	0
1	G	366/401 (91%)	-0.16	9 (2%) 57 47	47, 66, 90, 117	0
1	H	364/401 (90%)	-0.30	8 (2%) 62 52	47, 63, 91, 116	0
All	All	2936/3208 (91%)	-0.06	110 (3%) 41 31	44, 70, 101, 137	0

All (110) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	82	GLY	7.2
1	E	394	PHE	4.6
1	G	186	ASP	4.5
1	F	228	LEU	4.4
1	F	183	TYR	4.4
1	F	328	GLY	4.4
1	F	84	TYR	4.2
1	F	190	LYS	4.0
1	F	231	GLN	3.8
1	D	339	ASN	3.8
1	A	100	GLN	3.7
1	E	328	GLY	3.5
1	C	33	LEU	3.4
1	A	82	GLY	3.4
1	F	223	LEU	3.4
1	A	185	GLU	3.4

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Mol	Chain	Res	Type	RSRZ
1	D	390	LEU	3.2
1	D	226	ASP	3.2
1	H	83	GLN	3.2
1	F	225	ALA	3.1
1	B	230	ASP	3.1
1	C	83	GLN	3.1
1	F	394	PHE	3.1
1	E	228	LEU	3.0
1	H	82	GLY	3.0
1	F	124	GLN	3.0
1	F	226	ASP	3.0
1	D	336	ALA	3.0
1	C	224	PRO	3.0
1	G	393	ALA	3.0
1	C	390	LEU	2.9
1	A	101	SER	2.9
1	F	81	ASP	2.9
1	D	271	GLY	2.9
1	E	124	GLN	2.9
1	A	230	ASP	2.9
1	D	333	SER	2.9
1	D	269	HIS	2.9
1	F	230	ASP	2.9
1	E	39	ALA	2.8
1	B	301	GLY	2.8
1	F	192	ILE	2.8
1	B	315	GLY	2.8
1	E	80	VAL	2.7
1	F	83	GLN	2.7
1	C	333	SER	2.7
1	F	390	LEU	2.7
1	D	101	SER	2.7
1	D	272	GLY	2.7
1	C	279	ALA	2.6
1	F	271	GLY	2.6
1	F	227	LEU	2.6
1	F	184	ASP	2.6
1	F	301	GLY	2.6
1	H	244	ILE	2.6
1	F	186	ASP	2.6
1	C	227	LEU	2.6
1	C	39	ALA	2.6

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Mol	Chain	Res	Type	RSRZ
1	H	335	GLU	2.5
1	F	80	VAL	2.5
1	C	63	TYR	2.5
1	G	394	PHE	2.5
1	C	229	ASP	2.5
1	E	390	LEU	2.5
1	F	333	SER	2.5
1	F	208	ASP	2.4
1	C	190	LYS	2.4
1	C	184	ASP	2.4
1	C	394	PHE	2.4
1	F	270	GLY	2.4
1	A	392	ALA	2.4
1	D	335	GLU	2.4
1	A	63	TYR	2.4
1	H	85	GLY	2.4
1	C	82	GLY	2.4
1	A	186	ASP	2.4
1	F	232	THR	2.4
1	H	243	VAL	2.3
1	B	389	ALA	2.3
1	D	125	ILE	2.3
1	E	100	GLN	2.3
1	A	3	GLU	2.3
1	G	51	LEU	2.3
1	G	188	GLN	2.2
1	C	228	LEU	2.2
1	G	185	GLU	2.2
1	A	4	ARG	2.2
1	A	239	THR	2.2
1	E	226	ASP	2.2
1	A	189	PRO	2.2
1	E	231	GLN	2.2
1	A	61	LYS	2.2
1	C	191	ARG	2.2
1	G	82	GLY	2.1
1	G	53	LEU	2.1
1	E	125	ILE	2.1
1	H	336	ALA	2.1
1	E	225	ALA	2.1
1	A	36	ASP	2.1
1	D	63	TYR	2.1

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Mol	Chain	Res	Type	RSRZ
1	B	392	ALA	2.1
1	F	332	VAL	2.1
1	C	258	VAL	2.1
1	H	81	ASP	2.0
1	G	83	GLN	2.0
1	C	186	ASP	2.0
1	F	300	ALA	2.0
1	A	393	ALA	2.0
1	D	83	GLN	2.0
1	E	223	LEU	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
4	MG	C	503	1/1	0.56	0.25	82,82,82,82	0
7	SAM	G	502	27/27	0.70	0.36	78,125,150,153	0
6	ANP	C	501	31/31	0.71	0.29	89,134,164,167	0
2	PHE	H	502	11/12	0.77	0.34	95,100,104,108	0
7	SAM	H	501	27/27	0.77	0.30	74,133,145,156	0
6	ANP	E	501	31/31	0.79	0.24	92,129,173,191	0
2	PHE	A	501	11/12	0.80	0.39	84,89,106,106	0
4	MG	D	502	1/1	0.80	0.33	95,95,95,95	0
4	MG	F	502	1/1	0.85	0.45	91,91,91,91	0
6	ANP	D	501	31/31	0.86	0.22	93,135,167,185	0
6	ANP	F	501	31/31	0.86	0.24	103,134,163,177	0
4	MG	A	505	1/1	0.88	0.32	98,98,98,98	0
3	PPK	A	502	13/13	0.88	0.15	97,126,152,159	0

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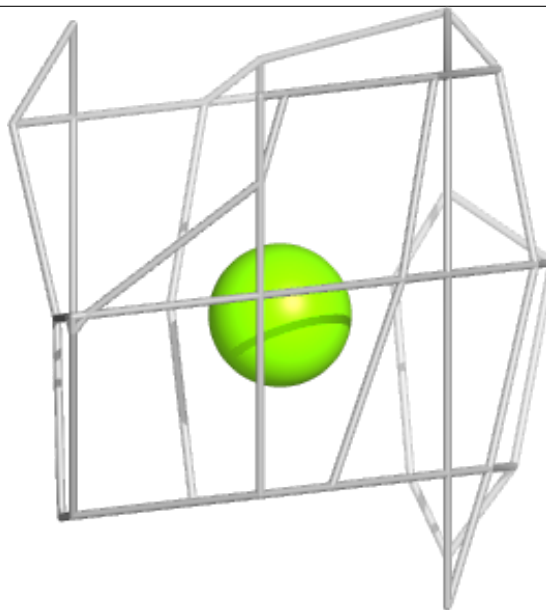
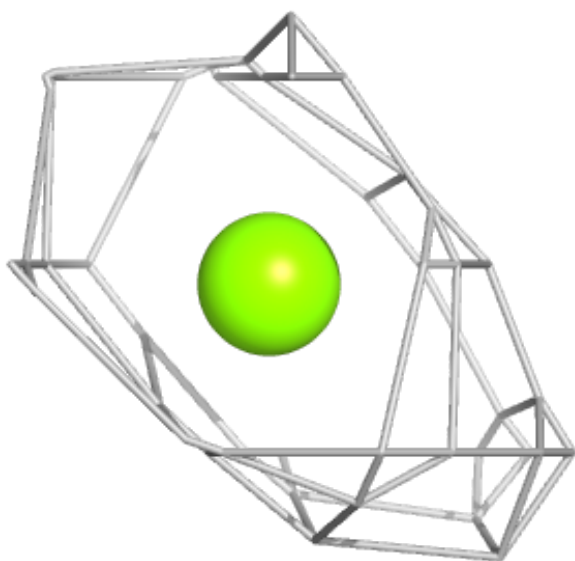
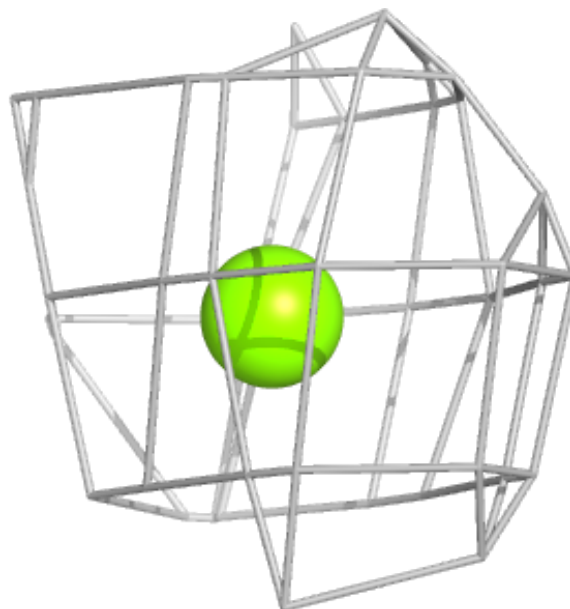
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
3	PPK	B	501	13/13	0.89	0.16	89,119,149,152	0
3	PPK	G	501	13/13	0.90	0.16	109,144,173,176	0
4	MG	A	504	1/1	0.90	0.21	82,82,82,82	0
4	MG	G	503	1/1	0.91	0.64	90,90,90,90	0
3	PPK	H	503	13/13	0.92	0.16	90,136,172,183	0
4	MG	C	502	1/1	0.92	0.28	86,86,86,86	0
5	K	F	505	1/1	0.92	0.19	121,121,121,121	0
5	K	C	504	1/1	0.93	0.10	121,121,121,121	0
4	MG	G	504	1/1	0.93	0.18	77,77,77,77	0
4	MG	H	505	1/1	0.95	0.20	95,95,95,95	0
4	MG	A	503	1/1	0.95	0.13	97,97,97,97	0
4	MG	F	504	1/1	0.95	0.33	83,83,83,83	0
4	MG	D	503	1/1	0.97	0.16	80,80,80,80	0
4	MG	F	503	1/1	0.97	0.24	82,82,82,82	0
4	MG	H	504	1/1	0.97	0.17	92,92,92,92	0
4	MG	E	502	1/1	0.97	0.18	84,84,84,84	0
5	K	D	504	1/1	0.98	0.09	92,92,92,92	0
5	K	H	506	1/1	0.98	0.16	113,113,113,113	0
4	MG	B	502	1/1	0.99	0.18	70,70,70,70	0
5	K	A	506	1/1	0.99	0.21	110,110,110,110	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.

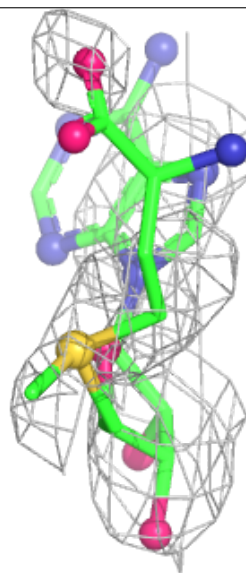
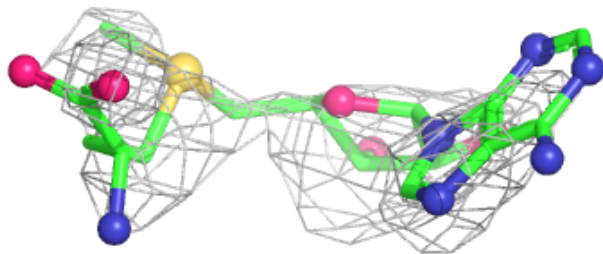
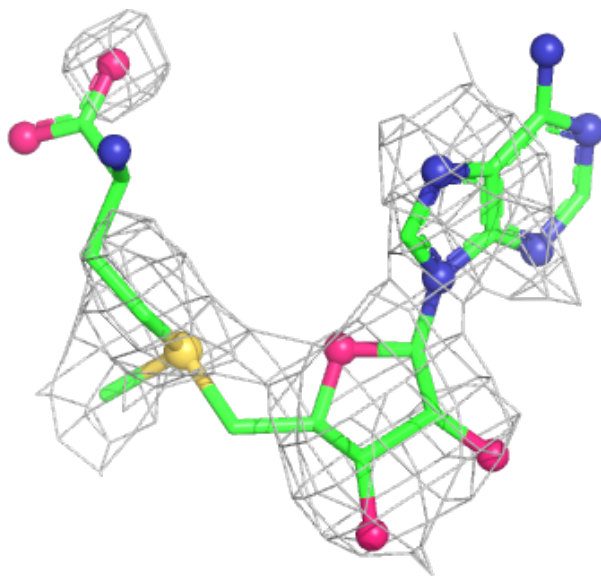
Electron density around MG C 503:

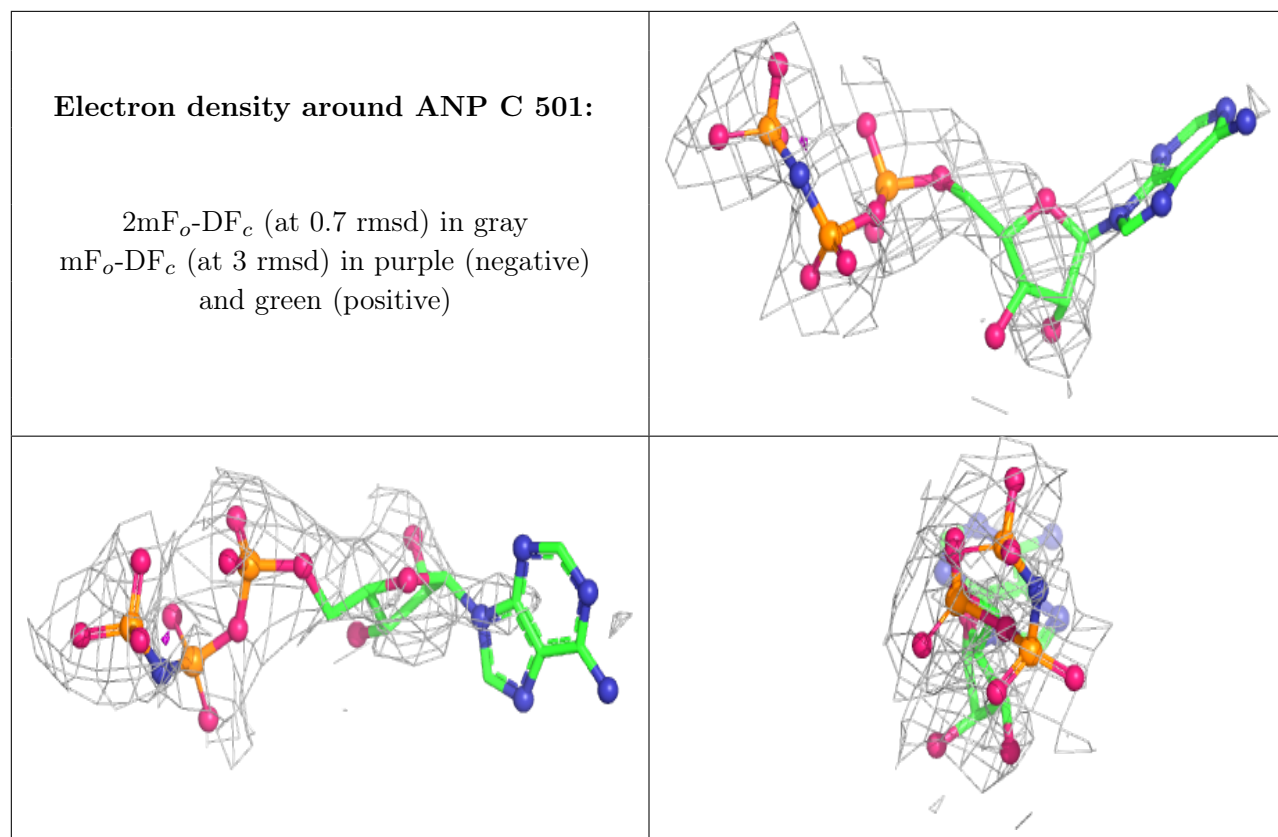
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

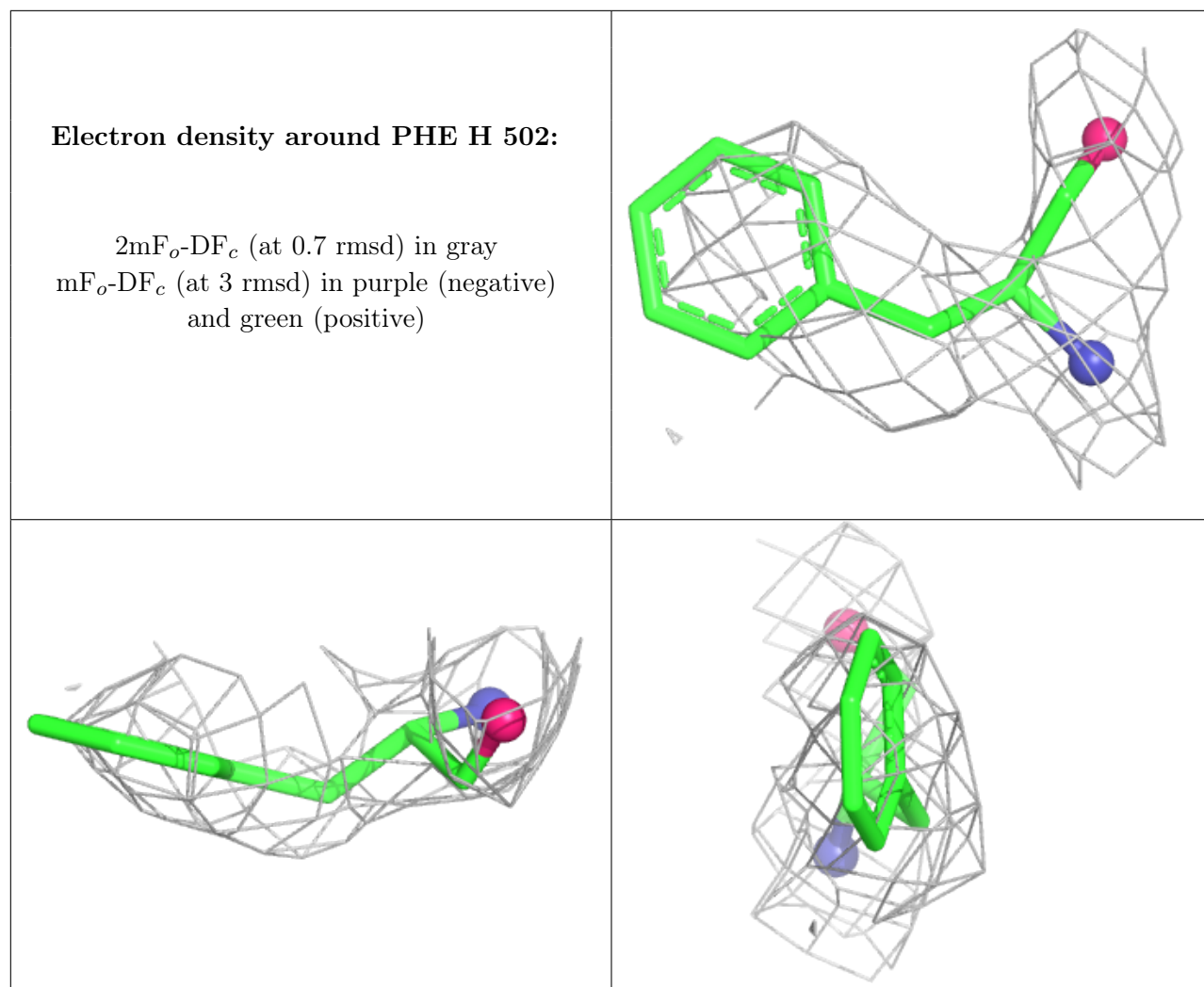


Electron density around SAM G 502:

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and green (positive)

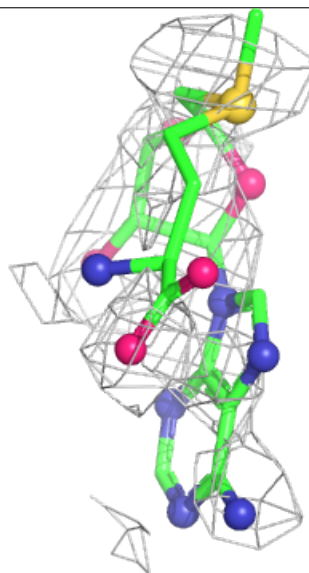
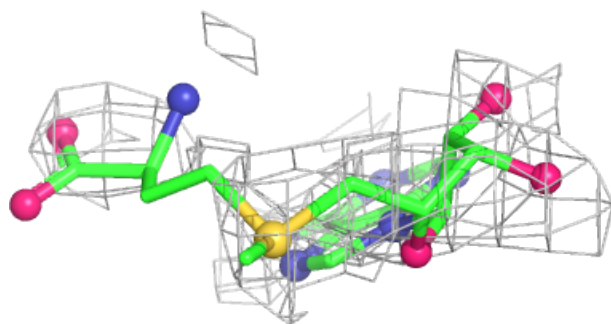
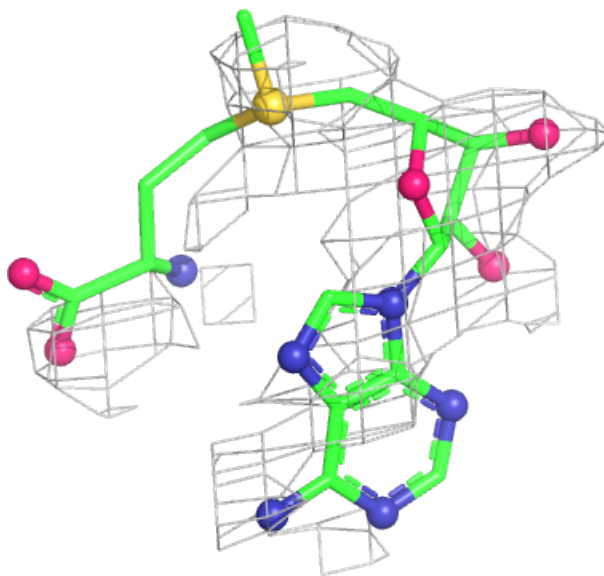


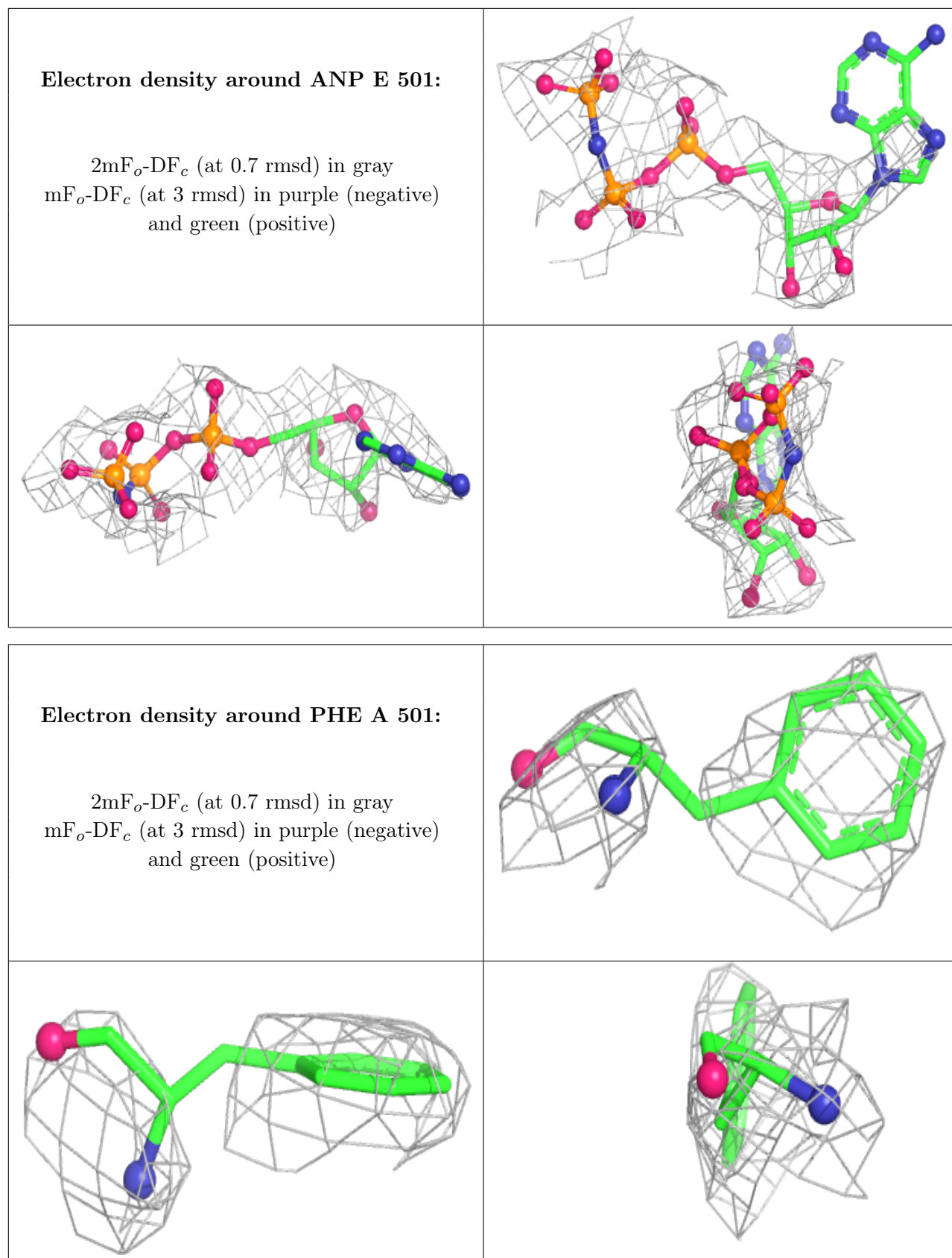




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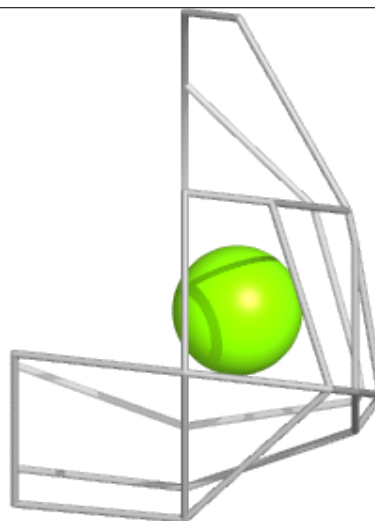
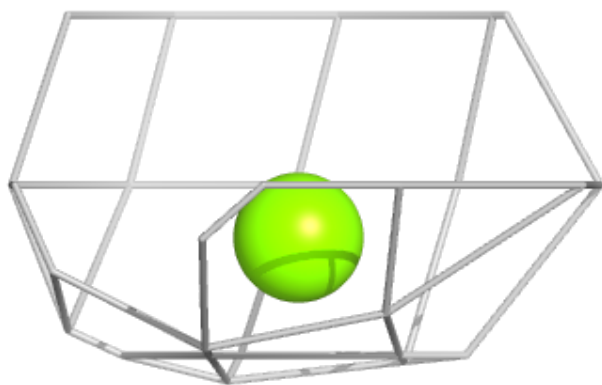
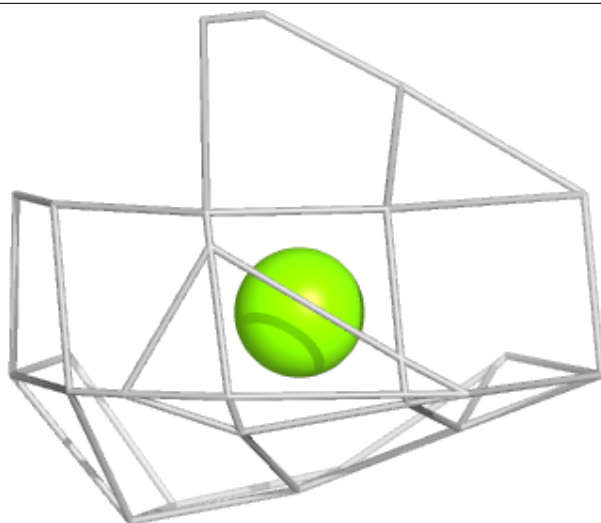
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and green (positive)





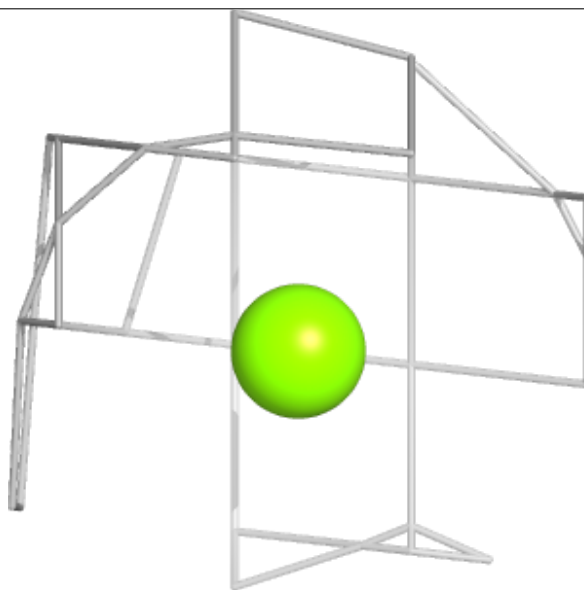
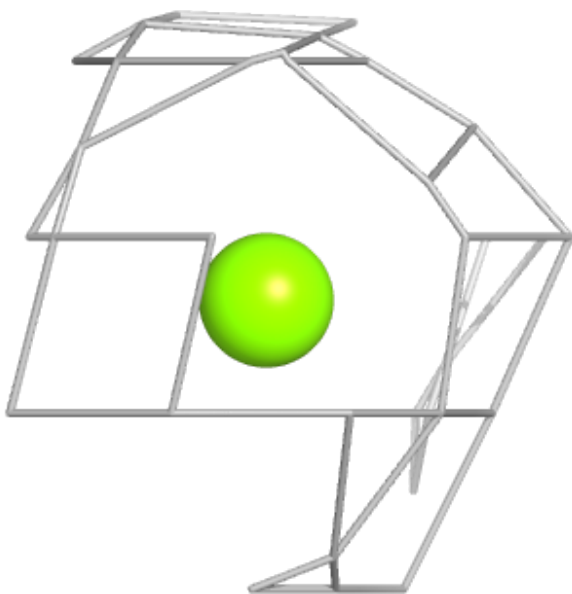
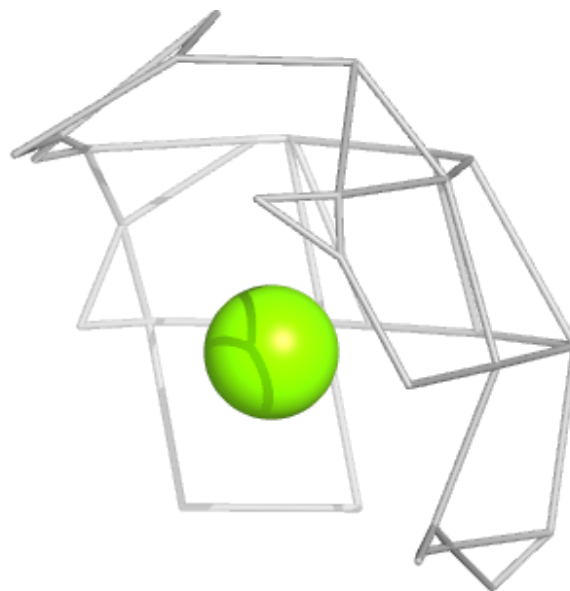
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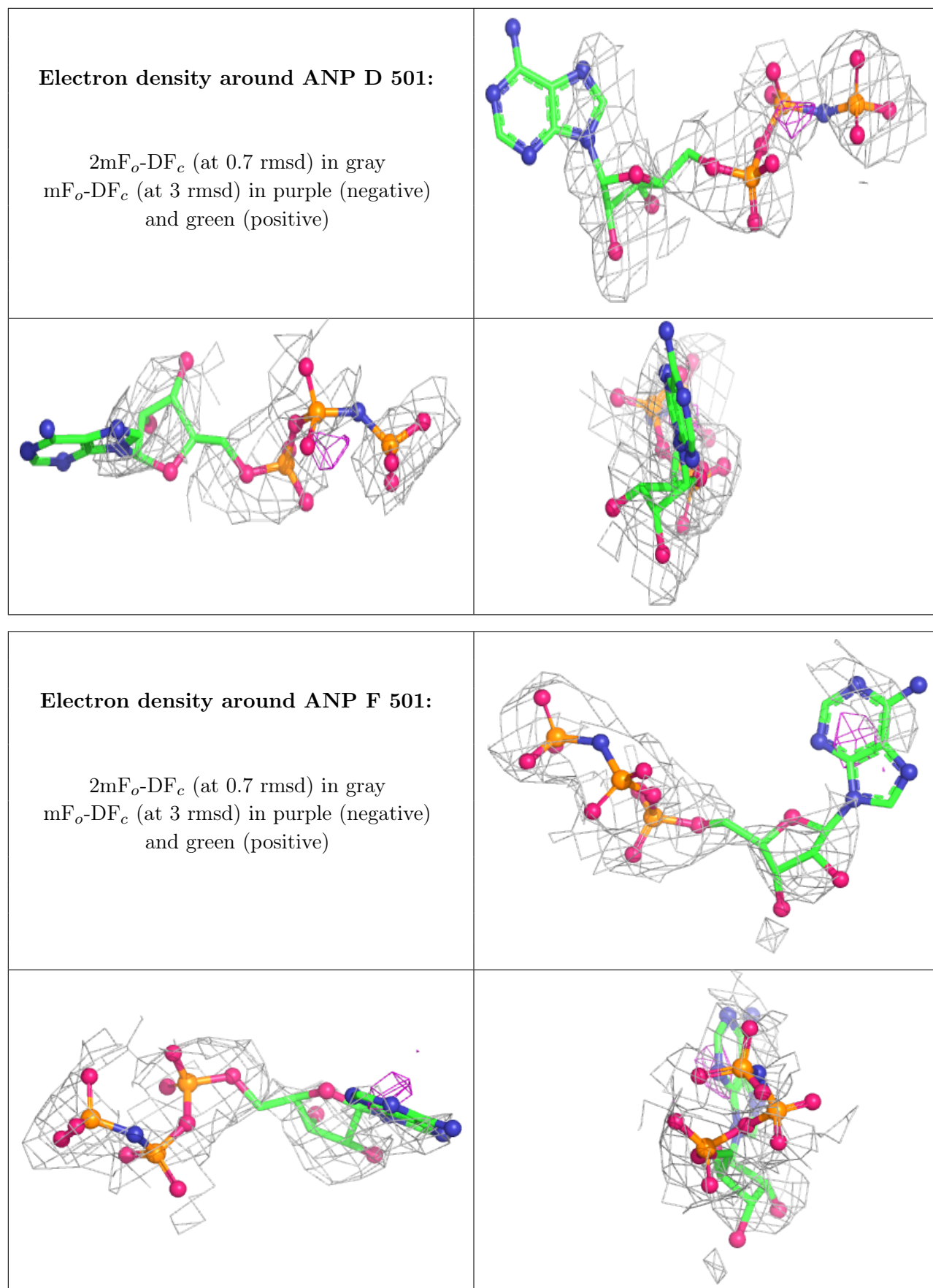
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and green (positive)



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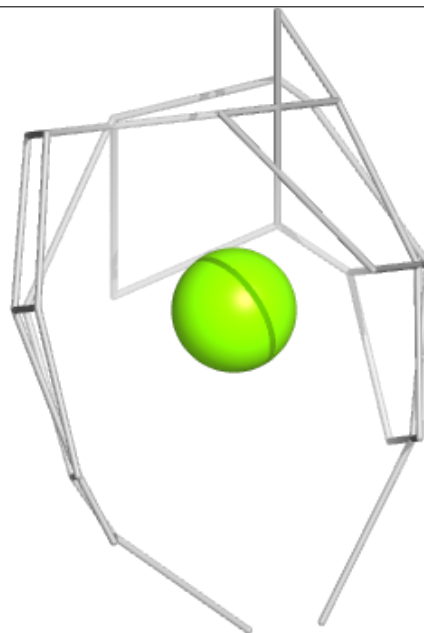
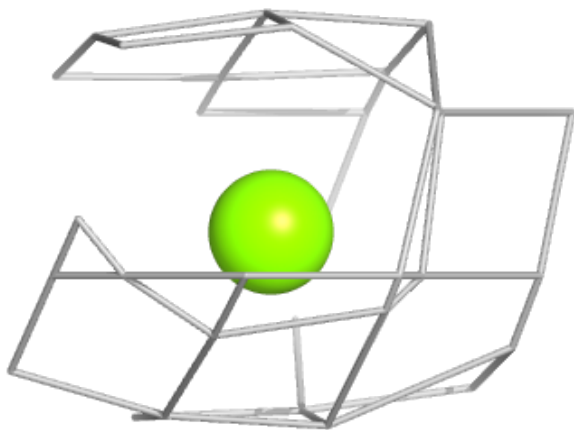
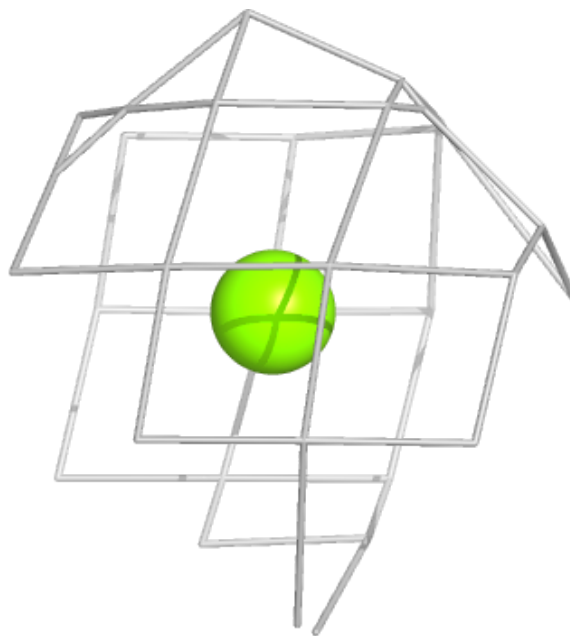
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and green (positive)





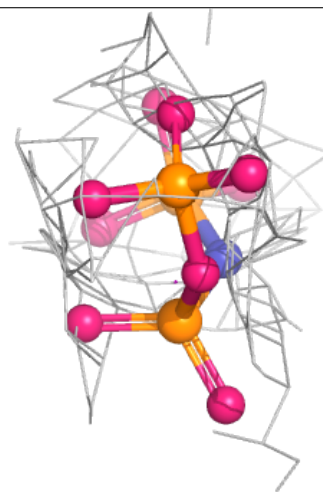
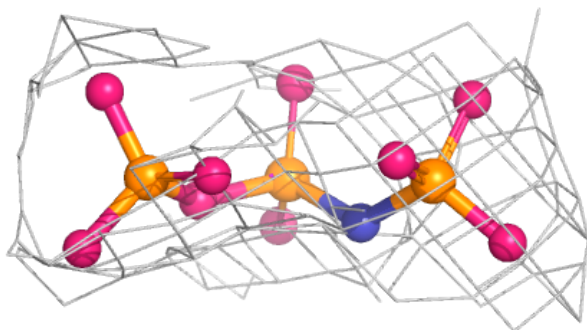
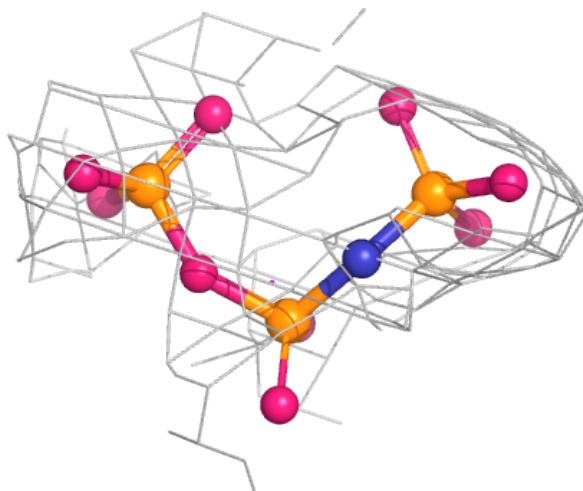
Electron density around MG A 505:

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and green (positive)



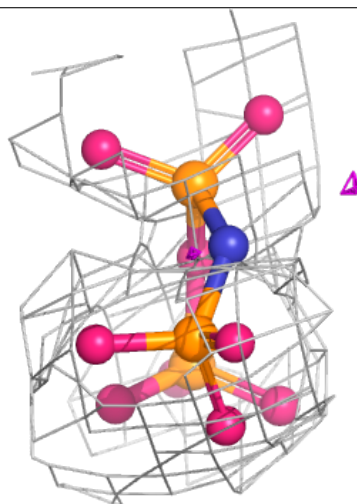
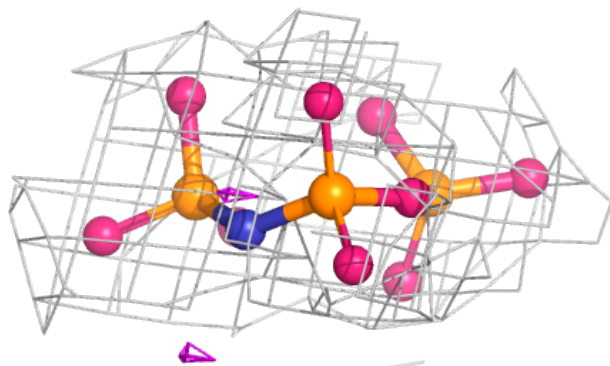
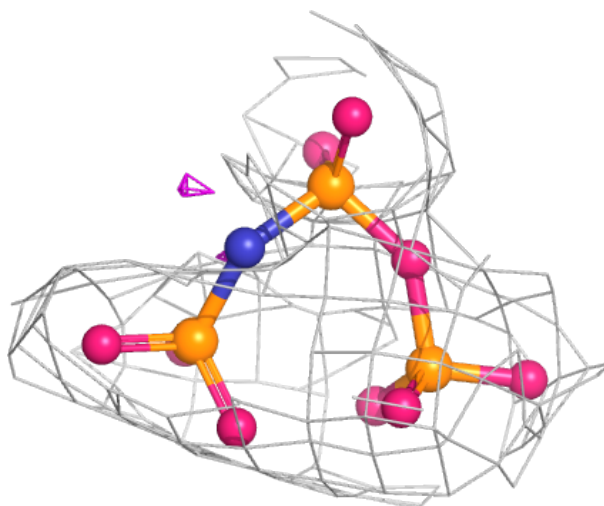
Electron density around PPK A 502:

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and green (positive)



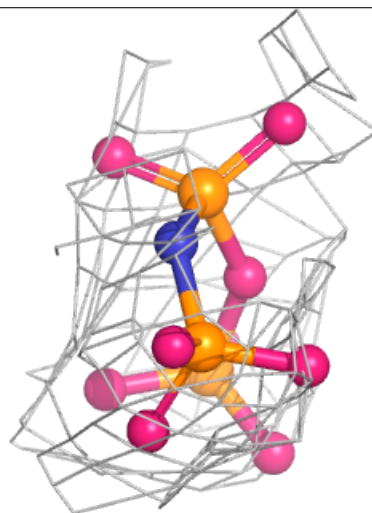
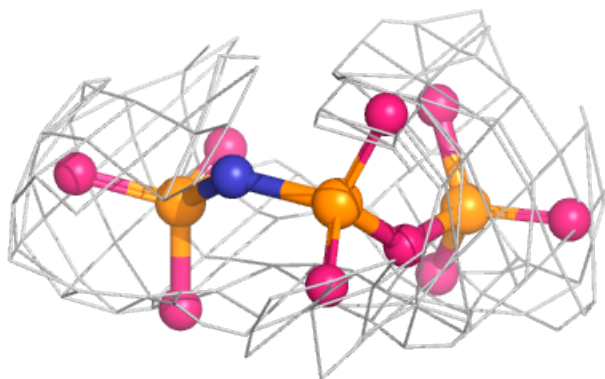
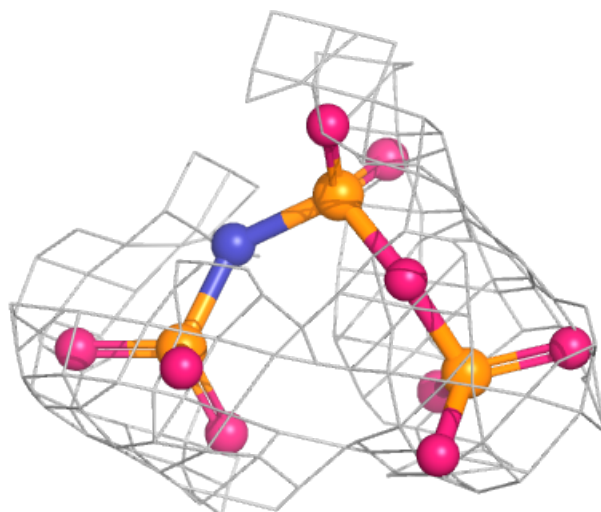
Electron density around PPK B 501:

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and green (positive)



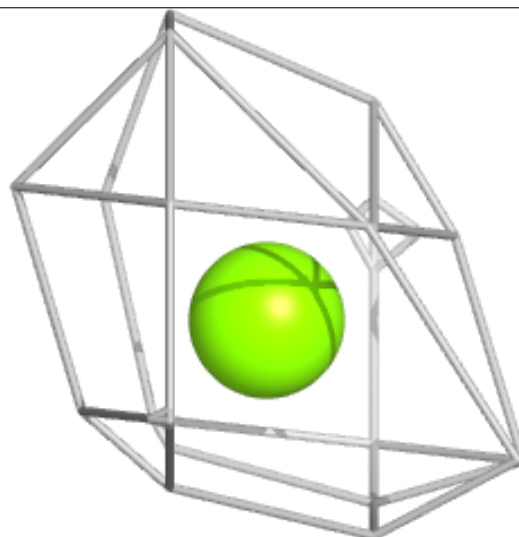
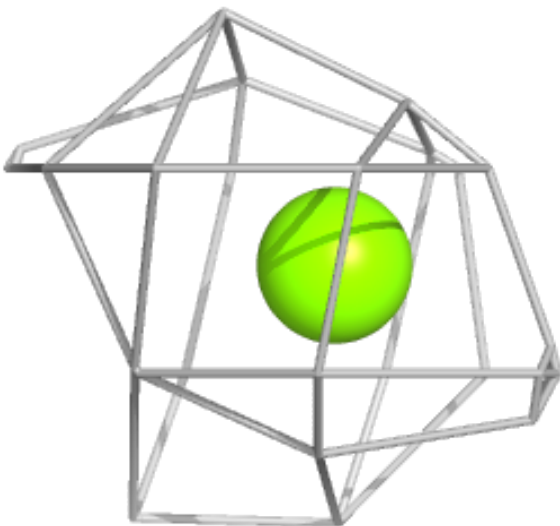
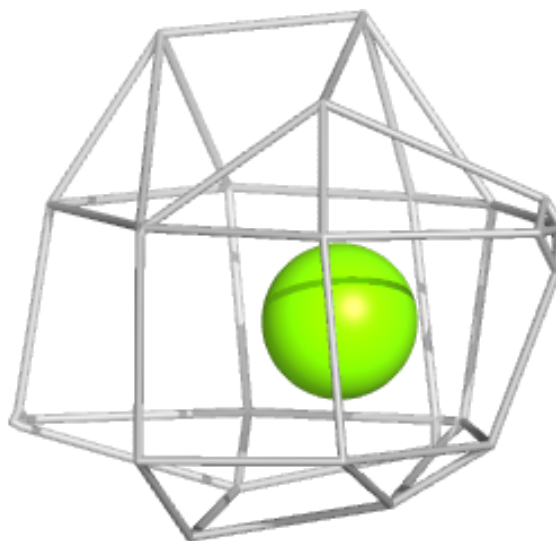
Electron density around PPK G 501:

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and green (positive)



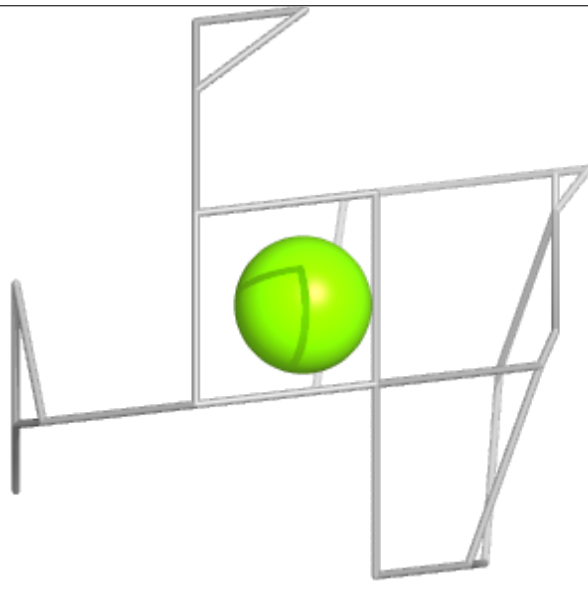
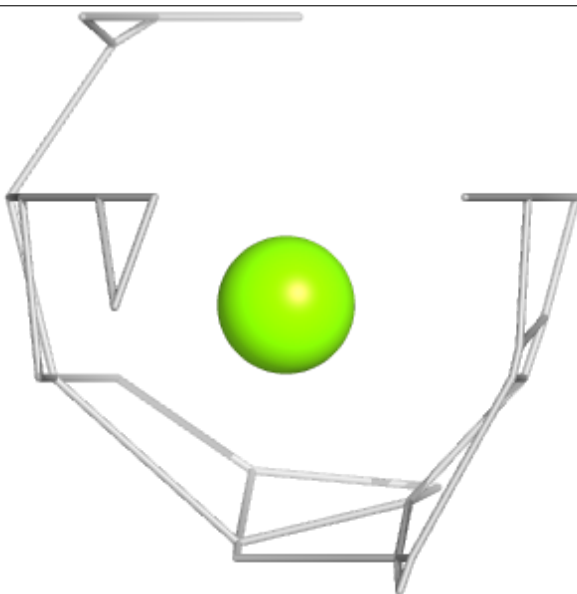
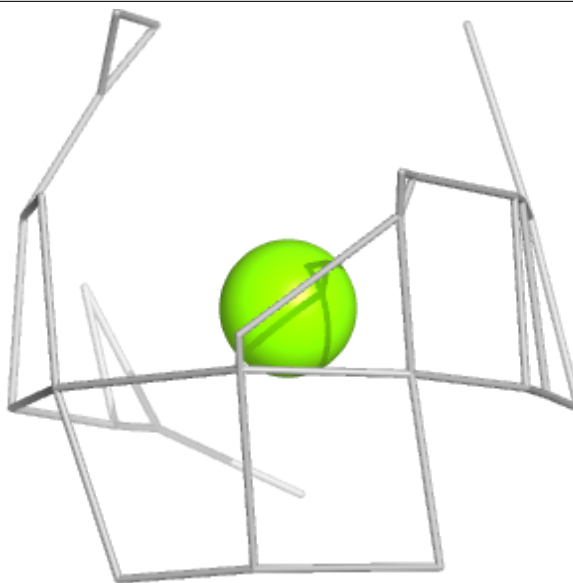
Electron density around MG A 504:

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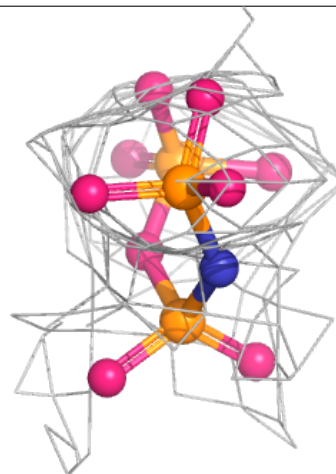
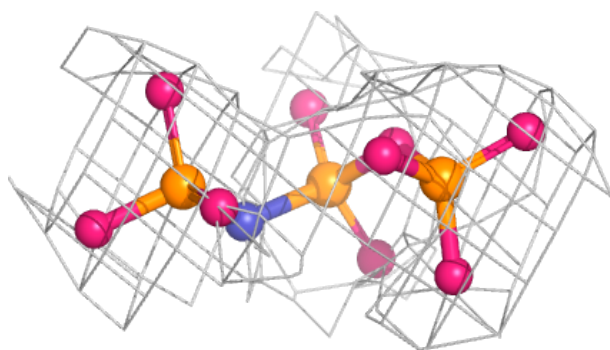
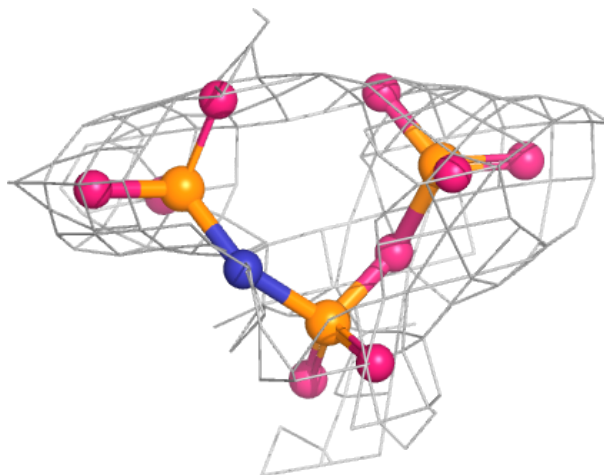
Electron density around MG G 503:

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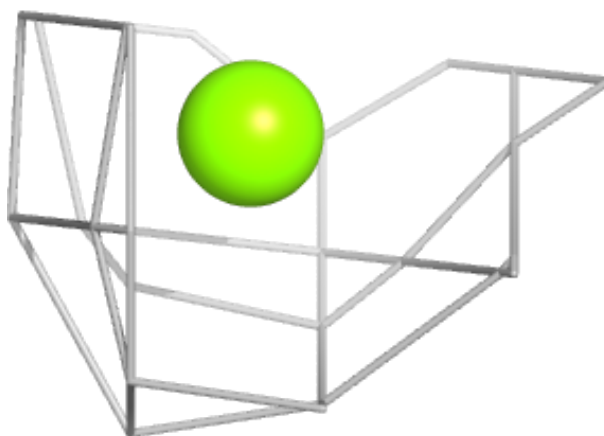
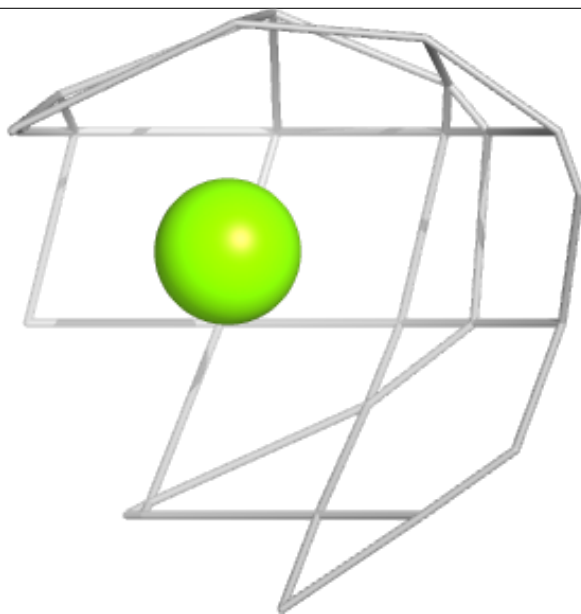
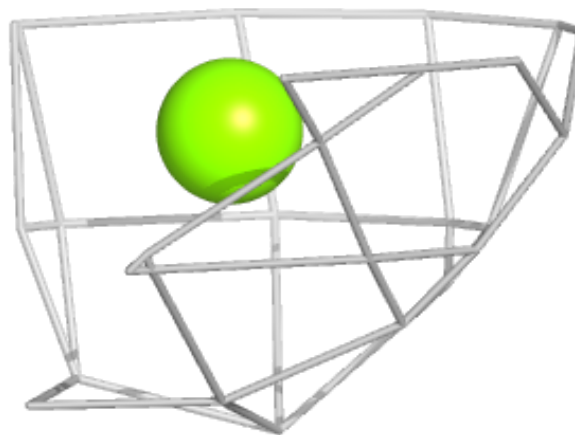
Electron density around PPK H 503:

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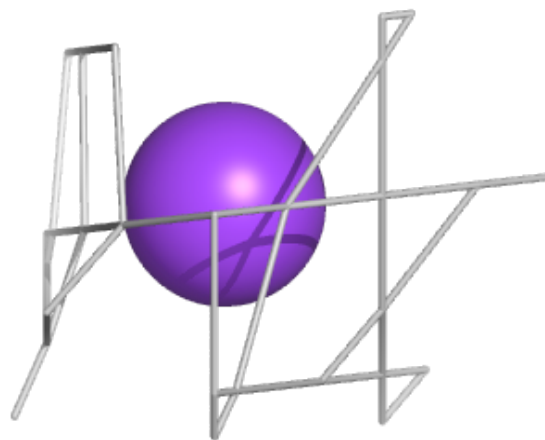
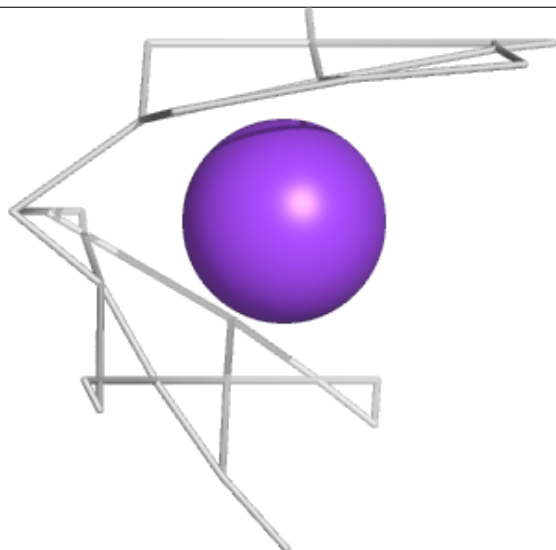
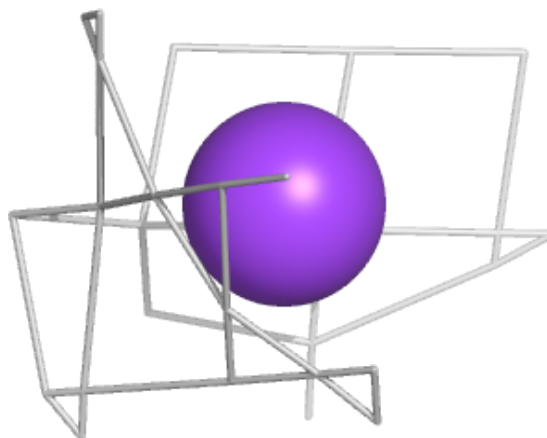
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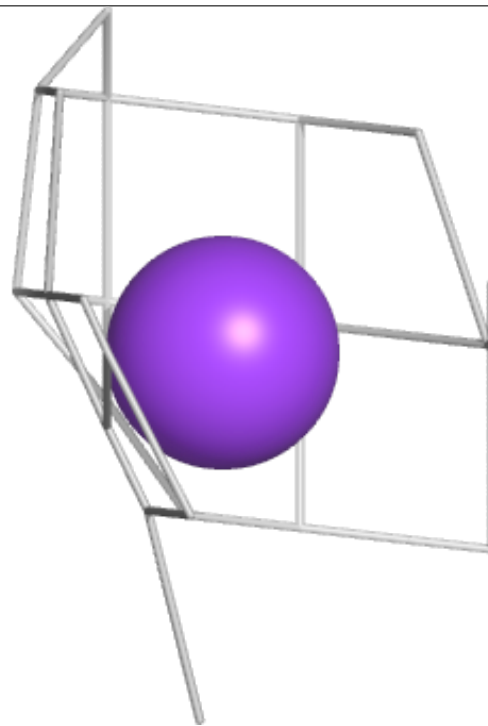
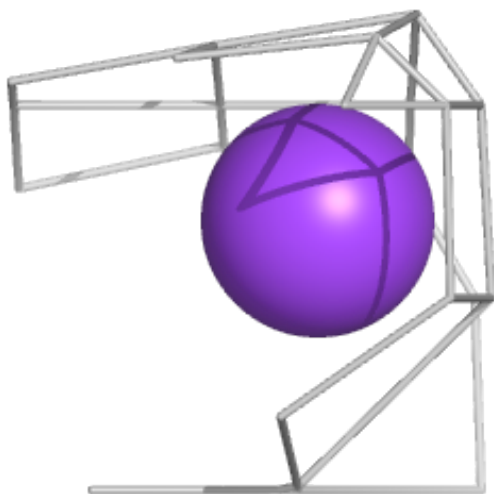
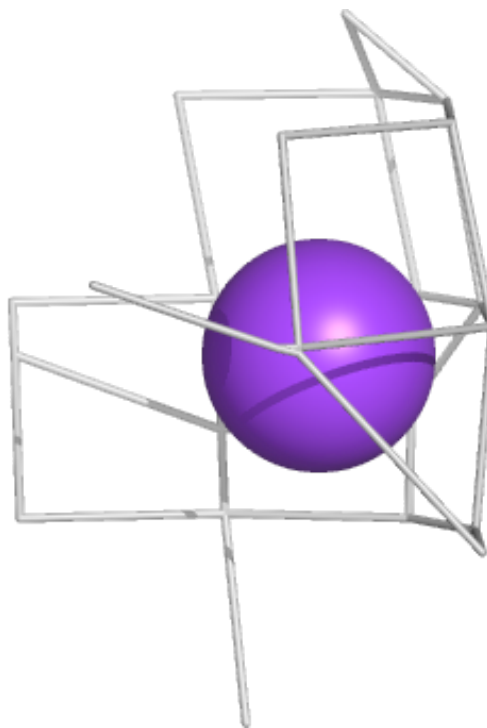
Electron density around K F 505:

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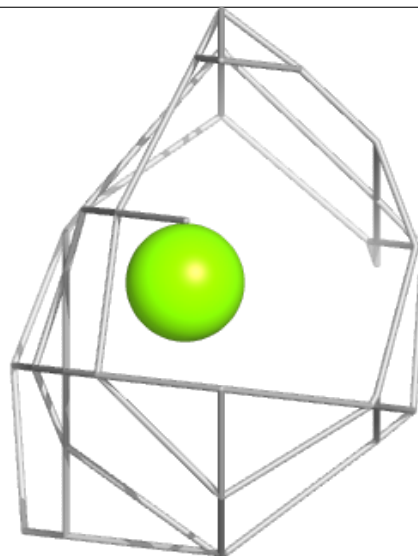
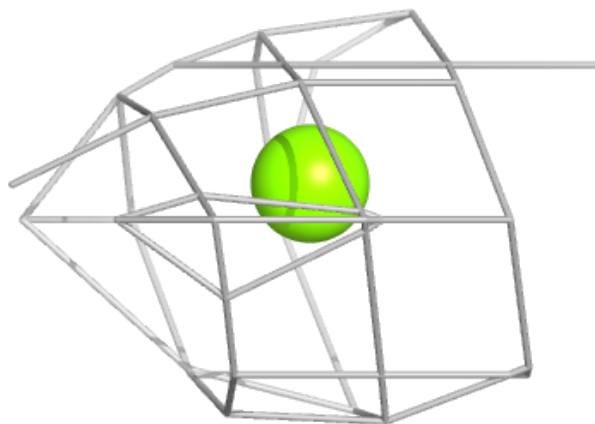
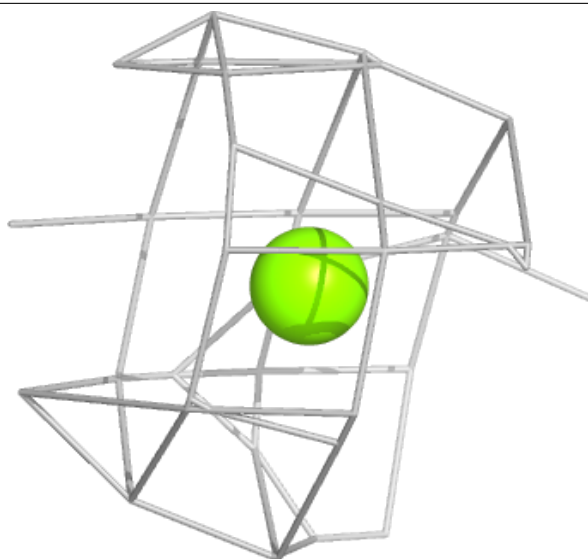
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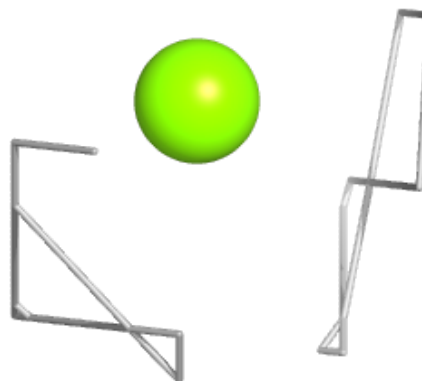
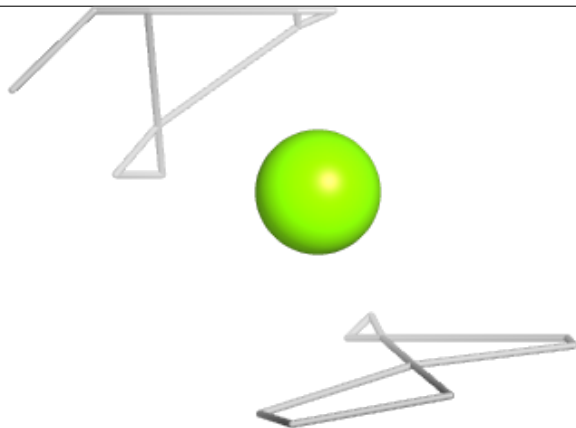
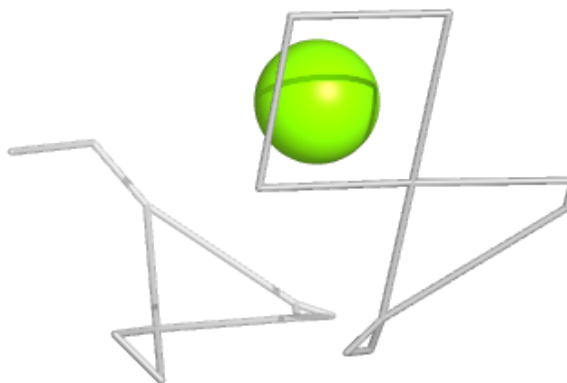
Electron density around MG G 504:

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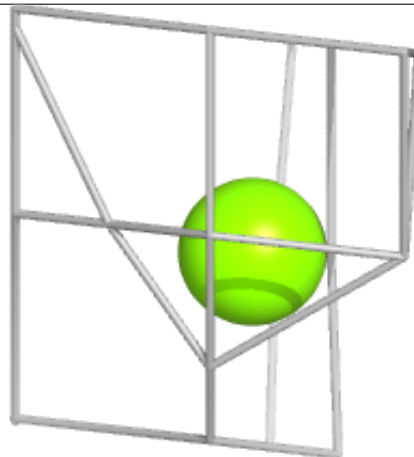
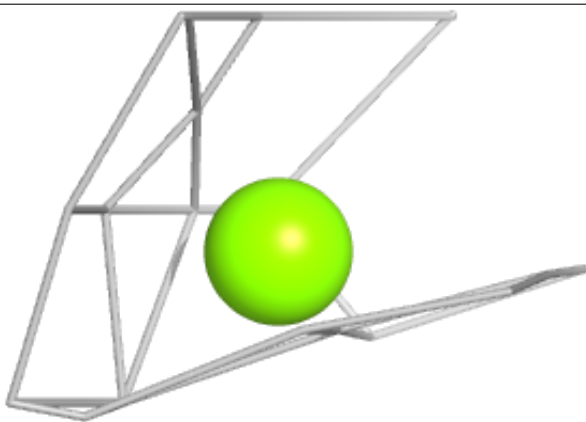
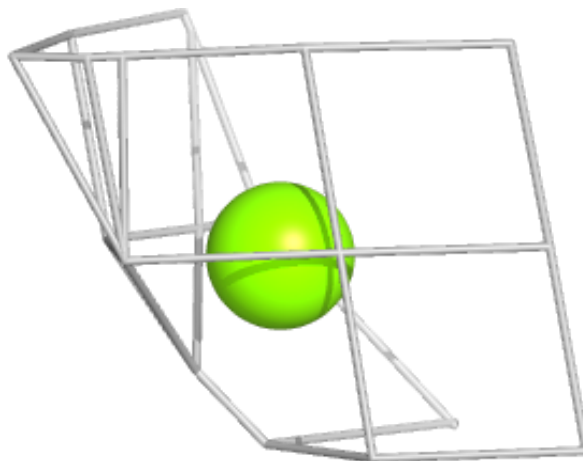
Electron density around MG H 505:

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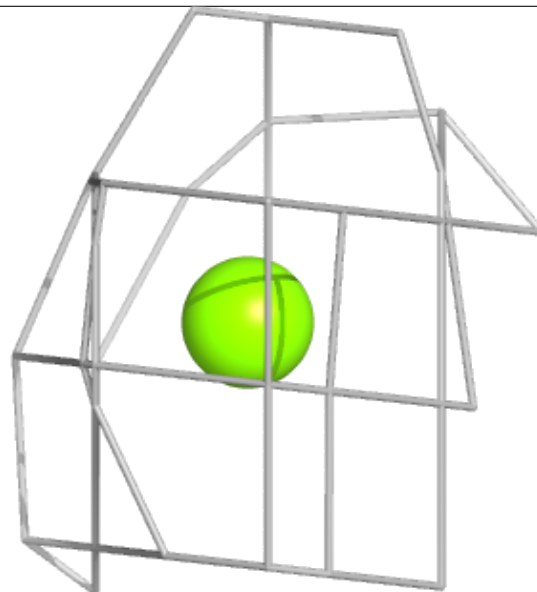
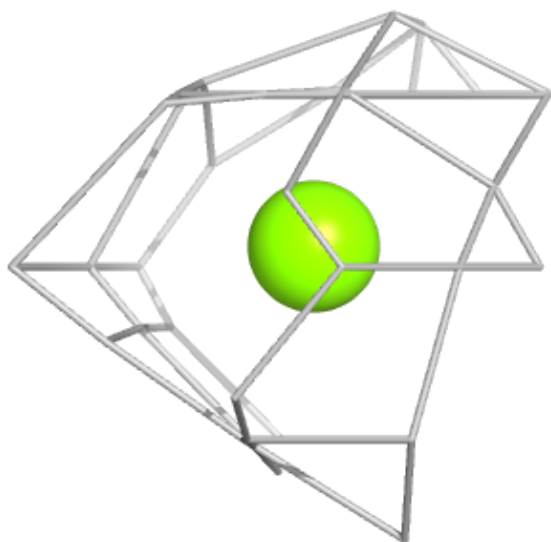
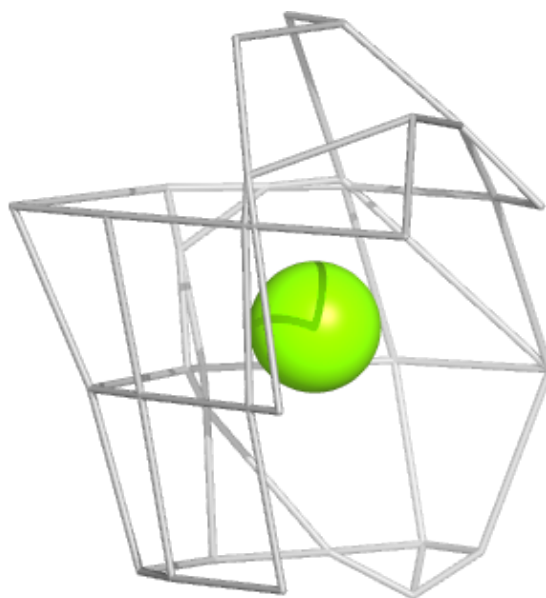
Electron density around MG A 503:

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and green (positive)



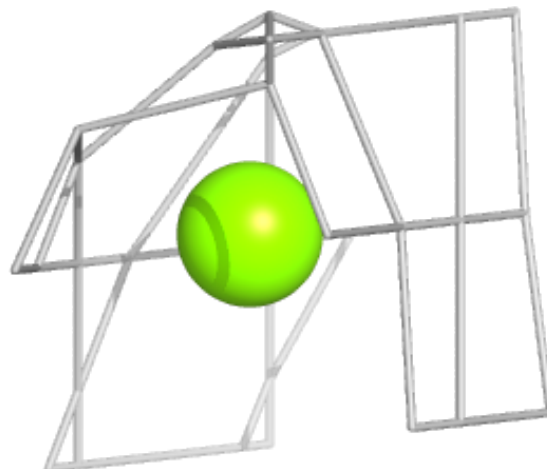
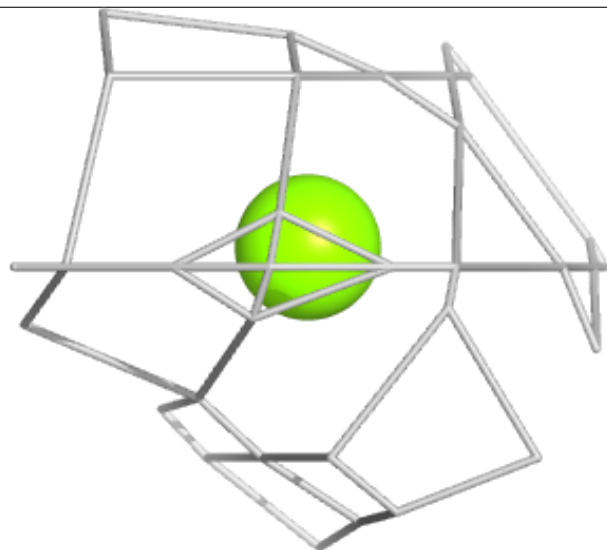
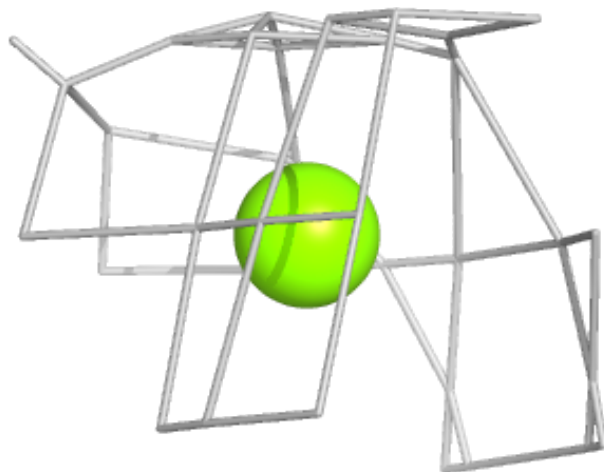
Electron density around MG F 504:

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and green (positive)



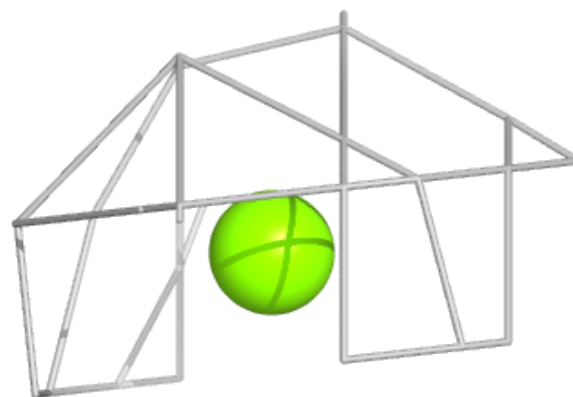
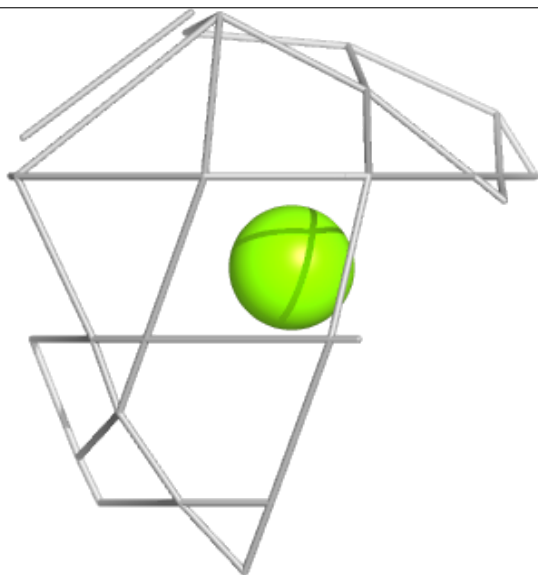
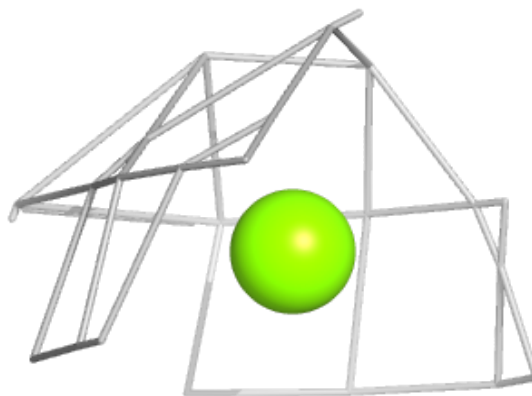
Electron density around MG D 503:

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and green (positive)



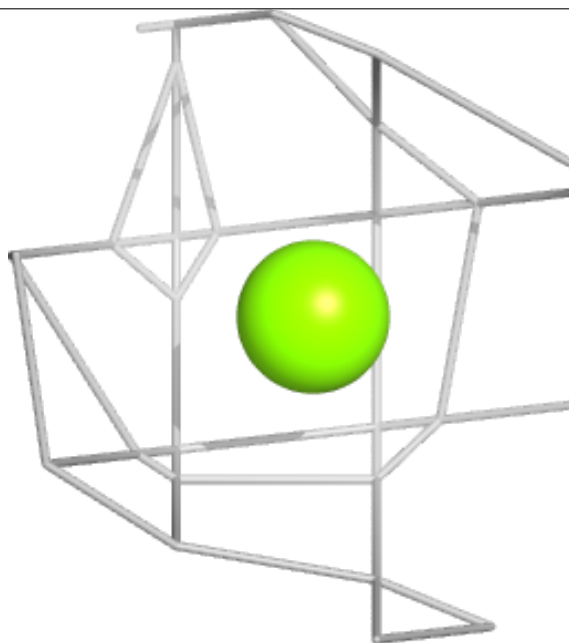
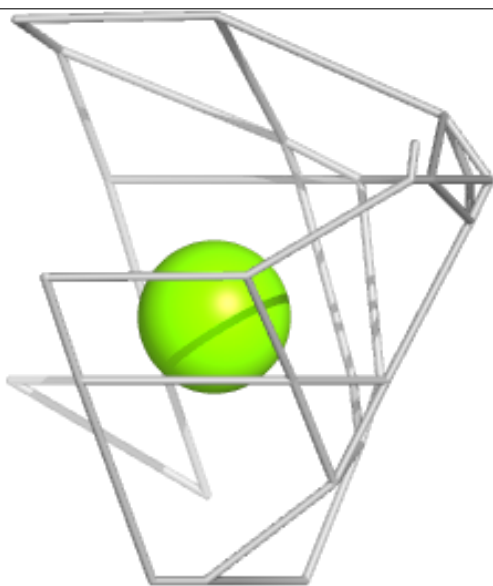
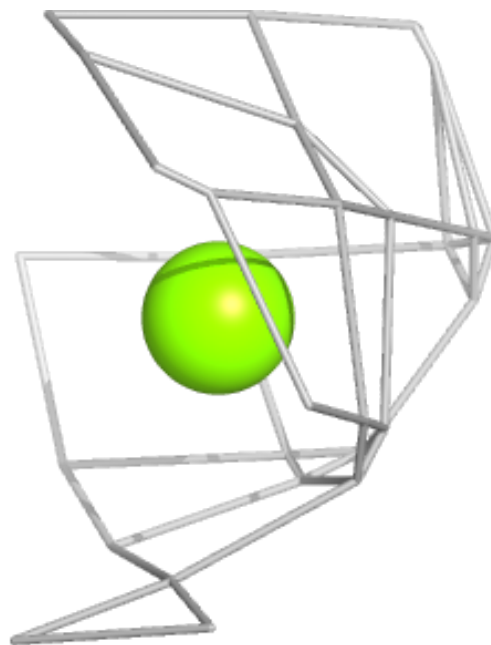
Electron density around MG F 503:

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



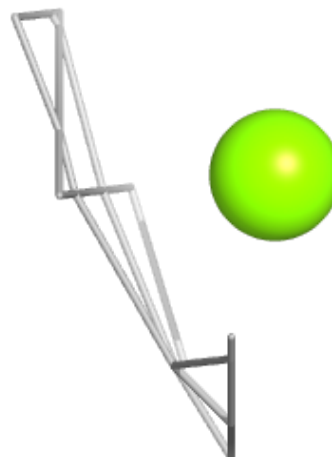
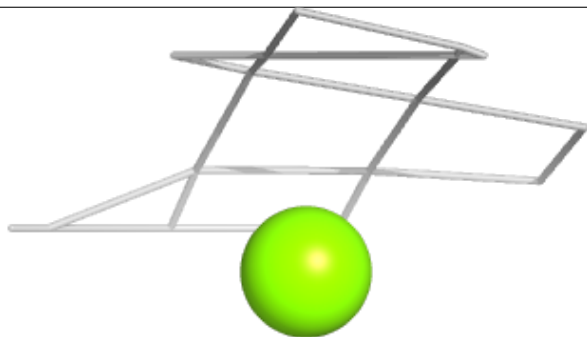
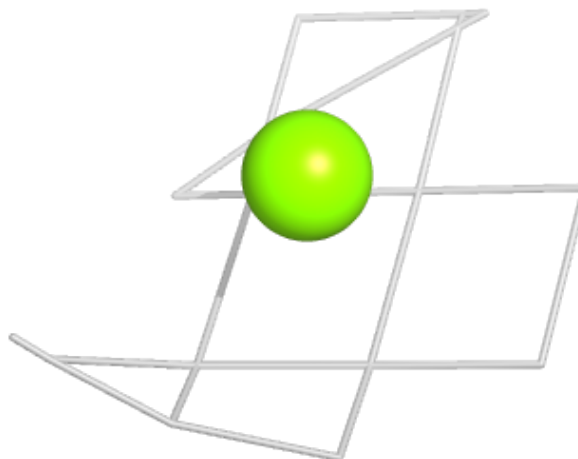
Electron density around MG H 504:

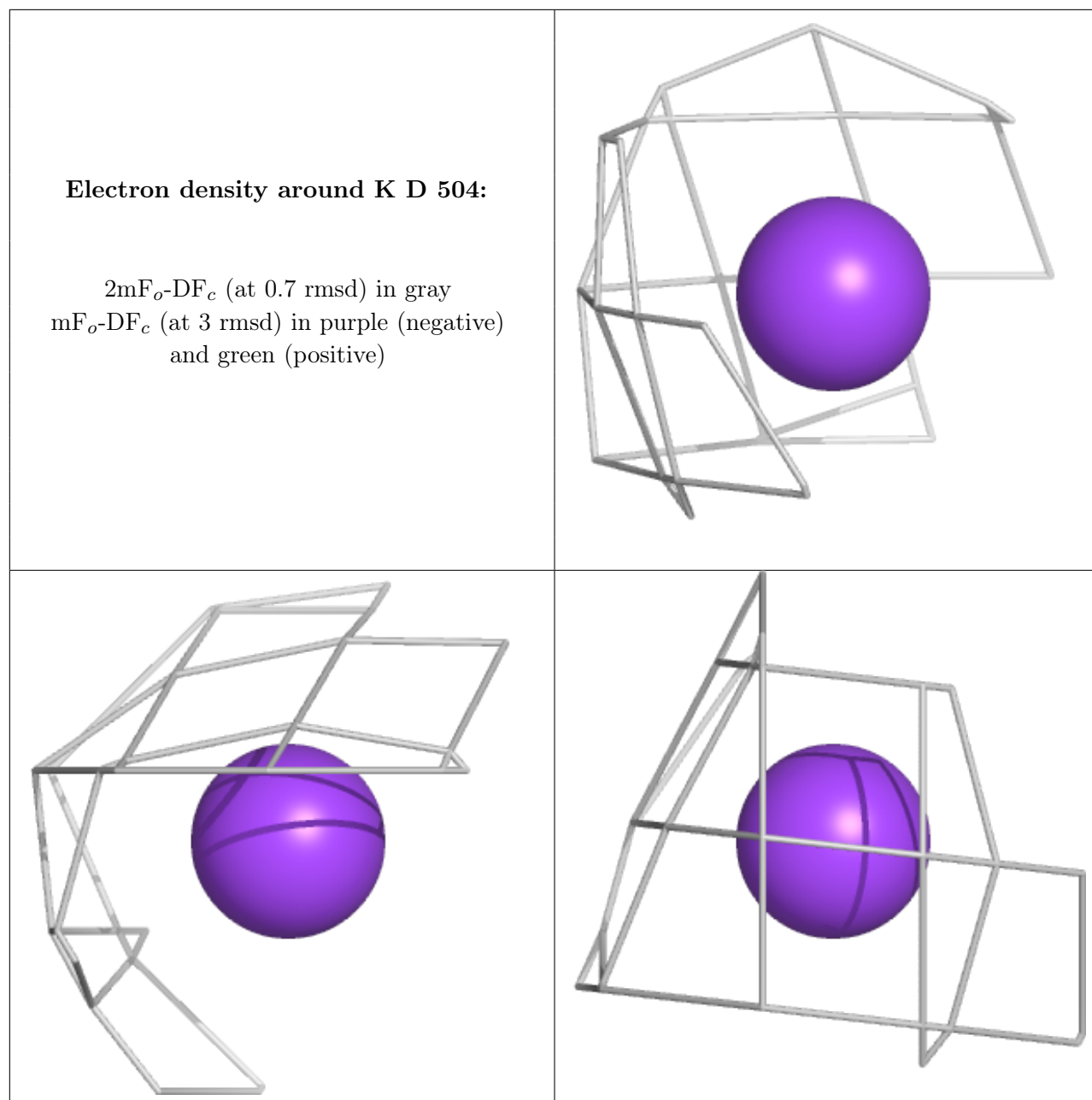
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around MG E 502:

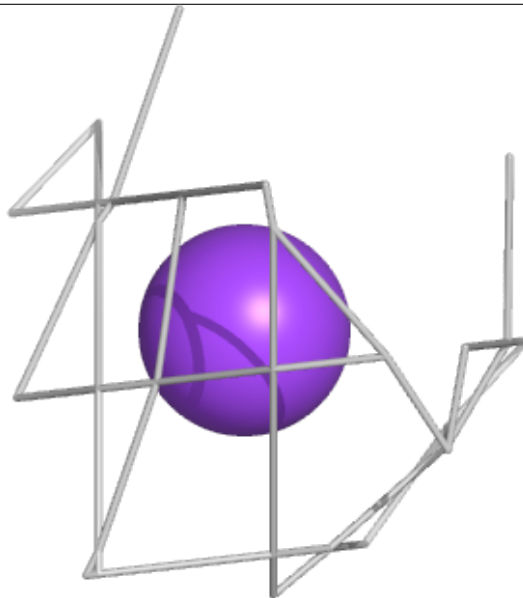
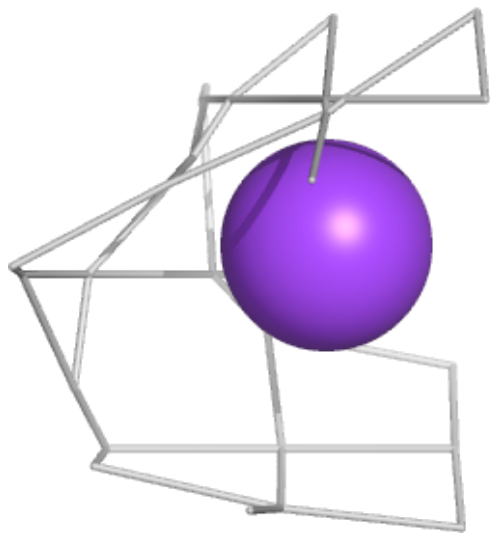
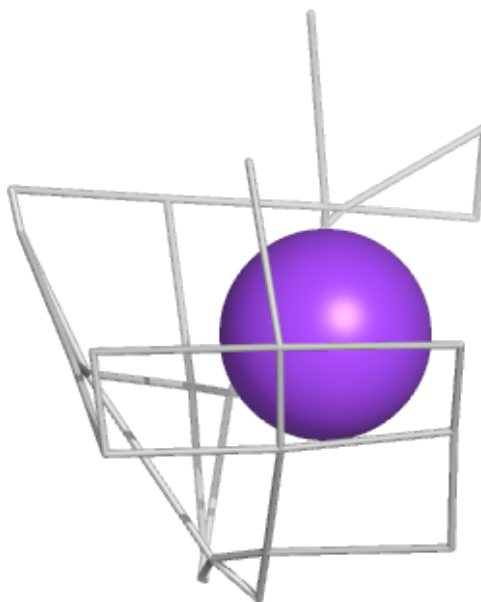
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





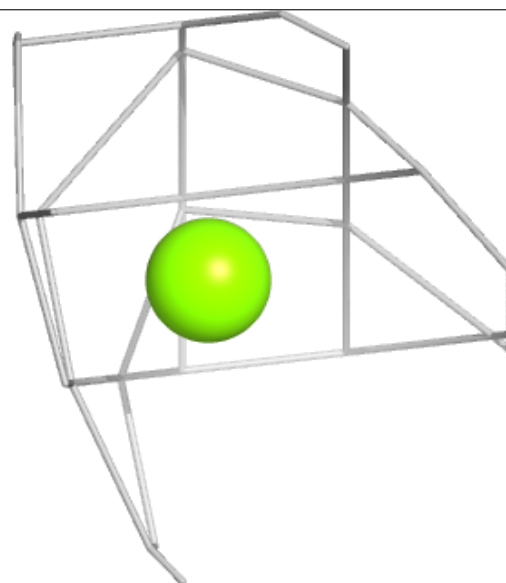
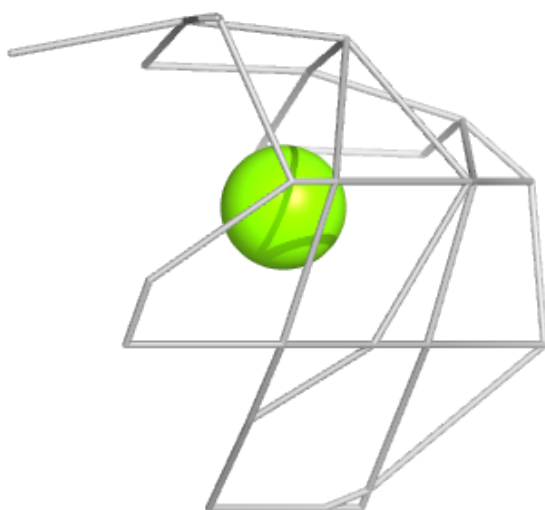
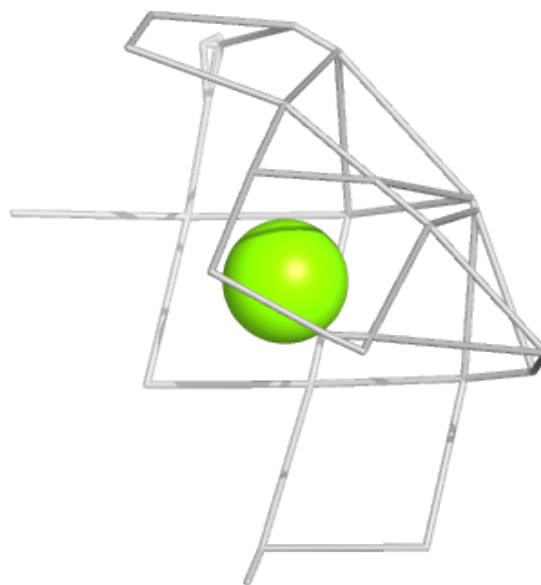
Electron density around K H 506:

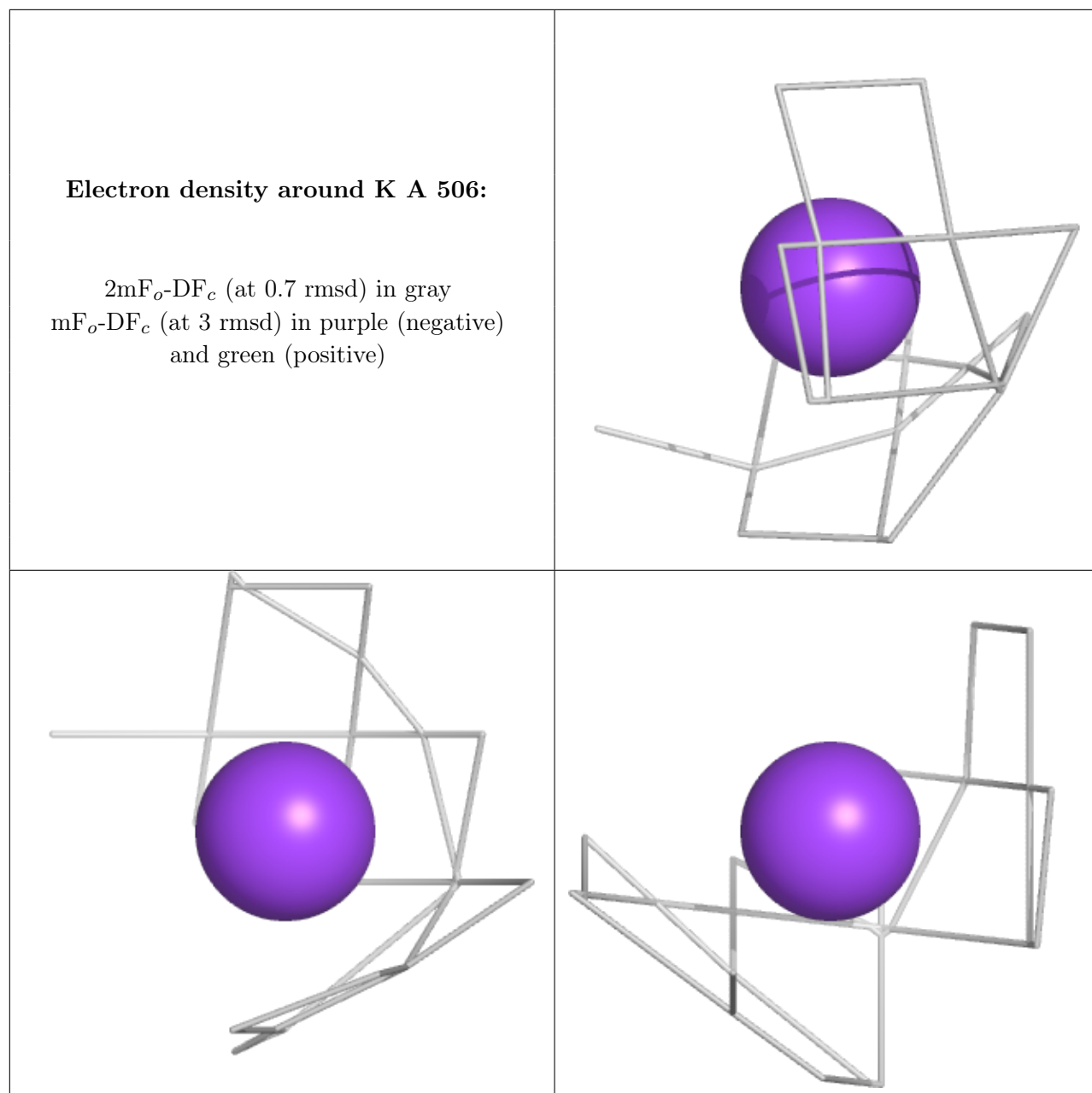
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around MG 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)





6.5 Other polymers [i](#)

There are no such residues in this entry.