wwPDB X-ray Structure Validation Summary Report (i)

Oct 11, 2021 – 12:42 AM EDT

PDB ID	:	2QD1
Title	:	2.2 Angstrom Structure of the human ferrochelatase variant E343K with substrate bound
Authors	:	Medlock, A.E.; Dailey, T.A.; Ross, T.A.; Dailey, H.A.; Lanzilotta, W.N.
Deposited on	:	2007-06-20
Resolution	:	2.20 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

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

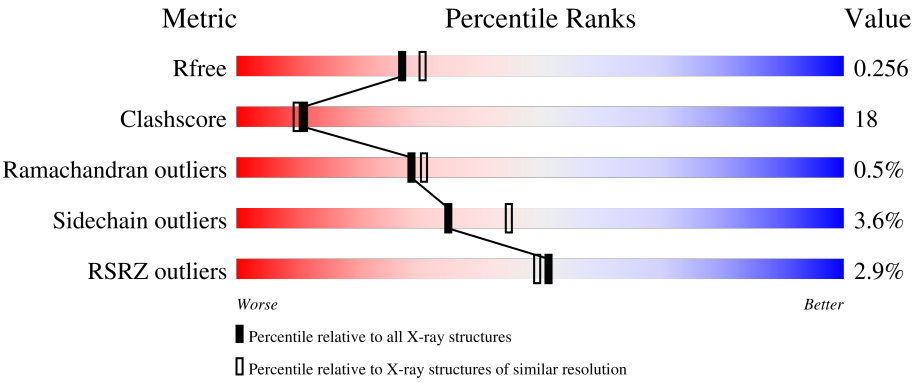
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.23.2
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.23.2

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.20 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	4898 (2.20-2.20)
Clashscore	141614	5594 (2.20-2.20)
Ramachandran outliers	138981	5503 (2.20-2.20)
Sidechain outliers	138945	5504 (2.20-2.20)
RSRZ outliers	127900	4800 (2.20-2.20)

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 <=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	359	2% 73% 26%
1	B	359	2% 68% 29%
1	C	359	3% 68% 30%
1	D	359	4% 62% 35%

2 Entry composition (i)

There are 6 unique types of molecules in this entry. The entry contains 12677 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.

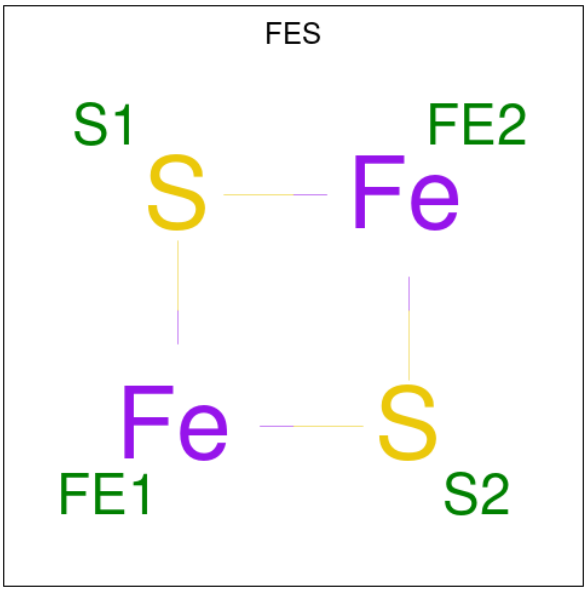
- Molecule 1 is a protein called Ferrochelatase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	359	Total	C	N	O	S	0	0	0
			2891	1842	504	527	18			
1	B	359	Total	C	N	O	S	0	4	0
			2927	1865	512	531	19			
1	C	359	Total	C	N	O	S	0	2	0
			2911	1854	510	529	18			
1	D	359	Total	C	N	O	S	0	4	0
			2931	1864	514	535	18			

There are 4 discrepancies between the modelled and reference sequences:

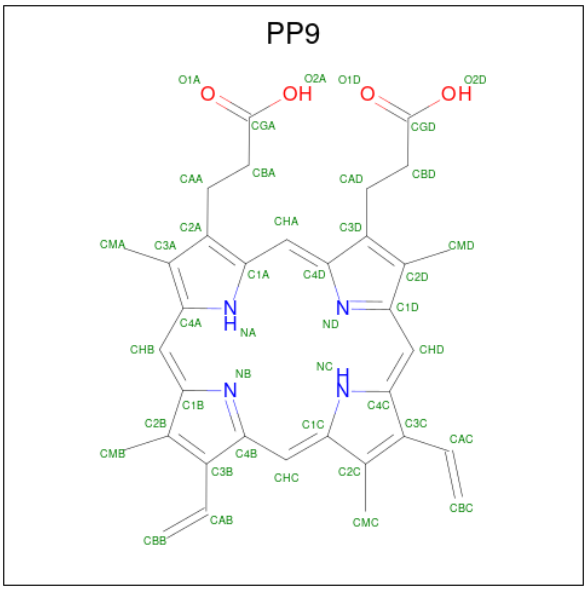
Chain	Residue	Modelled	Actual	Comment	Reference
A	343	LYS	GLU	engineered mutation	UNP P22830
B	343	LYS	GLU	engineered mutation	UNP P22830
C	343	LYS	GLU	engineered mutation	UNP P22830
D	343	LYS	GLU	engineered mutation	UNP P22830

- Molecule 2 is FE2/S2 (INORGANIC) CLUSTER (three-letter code: FES) (formula: Fe_2S_2).



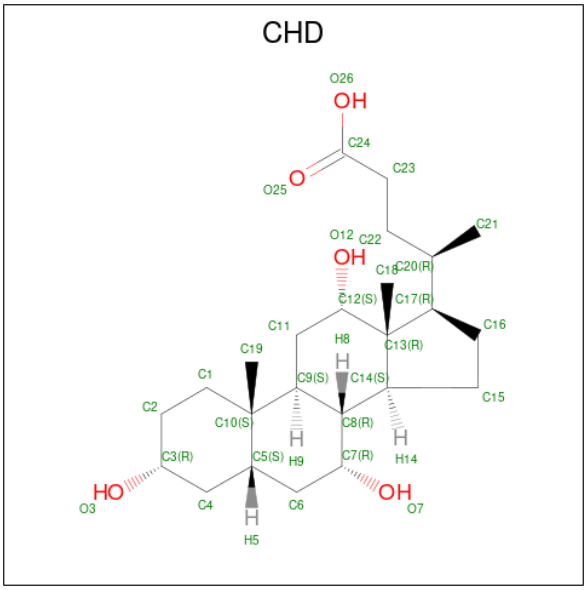
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total Fe S 4 2 2	0	0
2	B	1	Total Fe S 4 2 2	0	0
2	C	1	Total Fe S 4 2 2	0	0
2	D	1	Total Fe S 4 2 2	0	0

- Molecule 3 is PROTOPORPHYRIN IX (three-letter code: PP9) (formula: $C_{34}H_{34}N_4O_4$).



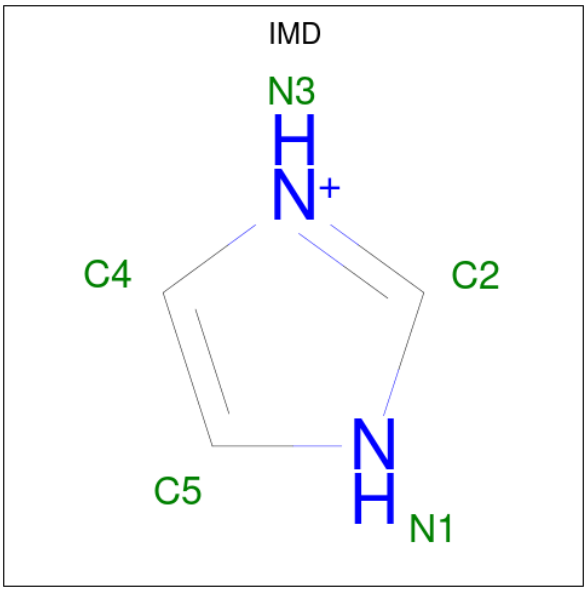
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C N O 42 34 4 4	0	0
3	B	1	Total C N O 42 34 4 4	0	0
3	C	1	Total C N O 42 34 4 4	0	0
3	D	1	Total C N O 42 34 4 4	0	0
3	D	1	Total C N O 42 34 4 4	0	0
3	D	1	Total C N O 42 34 4 4	0	0

- Molecule 4 is CHOLIC ACID (three-letter code: CHD) (formula: $C_{24}H_{40}O_5$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	D	1	Total C O 29 24 5	0	0
4	D	1	Total C O 29 24 5	0	0

- Molecule 5 is IMIDAZOLE (three-letter code: IMD) (formula: $C_3H_5N_2$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	D	1	Total C N 5 3 2	0	0

- Molecule 6 is water.

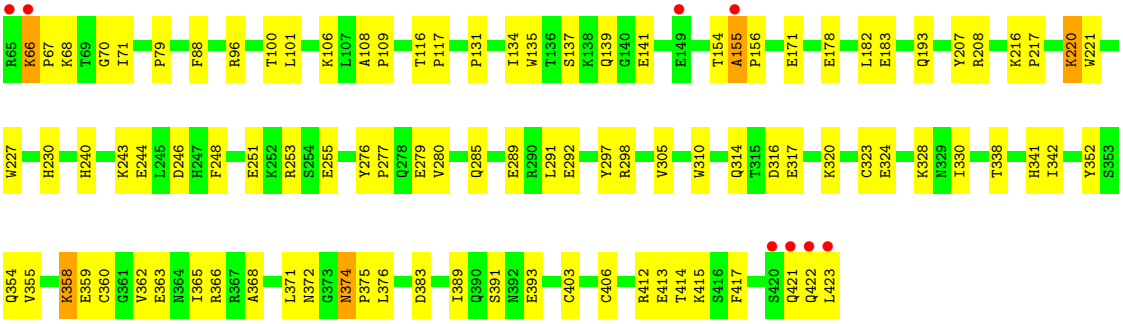
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	188	Total O 188 188	0	0
6	B	175	Total O 175 175	0	0
6	C	167	Total O 167 167	0	0
6	D	156	Total O 156 156	0	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

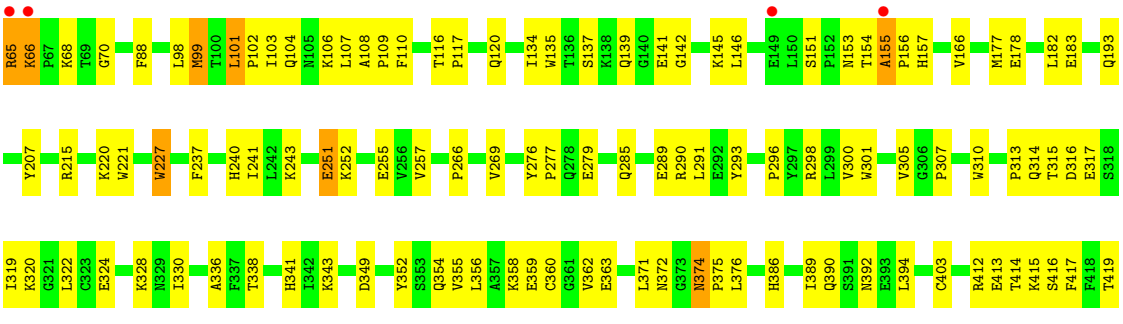
• Molecule 1: Ferrochelatase

Chain A:



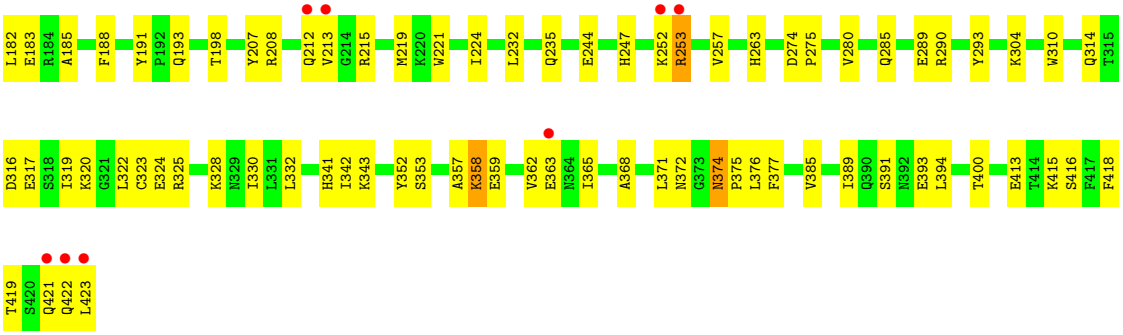
• Molecule 1: Ferrochelatase

Chain B:

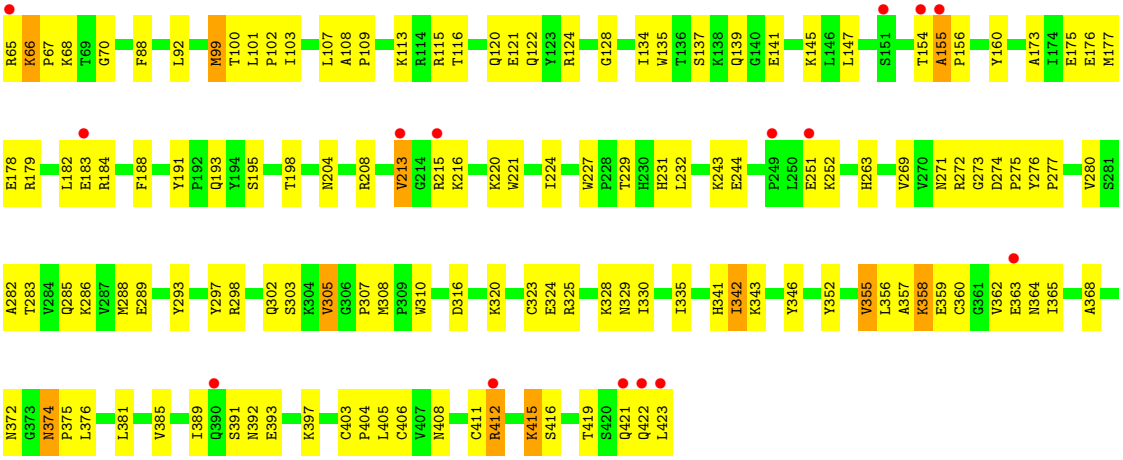


• Molecule 1: Ferrochelatase

Chain C:



• Molecule 1: Ferrochelatase



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	61.89Å 88.45Å 93.10Å 102.49° 108.99° 105.55°	Depositor
Resolution (Å)	42.08 – 2.20 42.07 – 2.00	Depositor EDS
% Data completeness (in resolution range)	95.4 (42.08-2.20) 93.9 (42.07-2.00)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	0.06	Depositor
$< I/\sigma(I) >$ [1]	4.20 (at 2.00Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.222 , 0.261 0.215 , 0.256	Depositor DCC
R_{free} test set	5530 reflections (5.04%)	wwPDB-VP
Wilson B-factor (Å^2)	22.6	Xtriage
Anisotropy	0.429	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.38 , 58.0	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	12677	wwPDB-VP
Average B, all atoms (Å^2)	27.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.16% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: IMD, CHD, PP9, FES

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	0.40	0/2961	0.60	0/4010
1	B	0.38	0/2997	0.59	0/4056
1	C	0.39	0/2981	0.59	1/4035 (0.0%)
1	D	0.40	0/3001	0.60	1/4062 (0.0%)
All	All	0.39	0/11940	0.59	2/16163 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	224	ILE	N-CA-C	-5.20	96.96	111.00
1	D	224	ILE	N-CA-C	-5.11	97.20	111.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2891	0	2906	90	0
1	B	2927	0	2949	125	0
1	C	2911	0	2930	100	0
1	D	2931	0	2940	117	0
2	A	4	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	4	0	0	0	0
2	C	4	0	0	0	0
2	D	4	0	0	0	0
3	A	42	0	32	5	0
3	B	42	0	32	13	0
3	C	42	0	32	15	0
3	D	126	0	96	12	0
4	D	58	0	78	2	0
5	D	5	0	5	0	0
6	A	188	0	0	2	0
6	B	175	0	0	3	0
6	C	167	0	0	6	0
6	D	156	0	0	5	0
All	All	12677	0	12000	429	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 18.

The worst 5 of 429 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:D:155:ALA:HB1	1:D:156:PRO:HD2	1.35	1.03
1:A:155:ALA:HB1	1:A:156:PRO:HD2	1.36	1.02
1:B:403:CYS:HA	1:D:298:ARG:HH12	1.25	1.01
1:B:392:ASN:HD21	1:B:423:LEU:HD12	1.31	0.93
1:A:221:TRP:N	1:A:421:GLN:HE21	1.67	0.92

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	357/359 (99%)	343 (96%)	13 (4%)	1 (0%)	41	46
1	B	361/359 (101%)	344 (95%)	16 (4%)	1 (0%)	41	46
1	C	359/359 (100%)	336 (94%)	19 (5%)	4 (1%)	14	12
1	D	361/359 (101%)	345 (96%)	14 (4%)	2 (1%)	25	26
All	All	1438/1436 (100%)	1368 (95%)	62 (4%)	8 (1%)	29	26

5 of 8 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	155	ALA
1	B	155	ALA
1	C	155	ALA
1	C	253[A]	ARG
1	C	253[B]	ARG

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	324/324 (100%)	315 (97%)	9 (3%)	43	56
1	B	328/324 (101%)	317 (97%)	11 (3%)	37	47
1	C	326/324 (101%)	317 (97%)	9 (3%)	43	56
1	D	328/324 (101%)	308 (94%)	20 (6%)	18	21
All	All	1306/1296 (101%)	1257 (96%)	49 (4%)	35	42

5 of 49 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	374	ASN
1	D	121[B]	GLU
1	D	66	LYS
1	D	107	LEU
1	D	188	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 42 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	374	ASN
1	D	329	ASN
1	C	421	GLN
1	D	235	GLN
1	D	374	ASN

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)

13 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	FES	A	1001	-	0,4,4	-	-	-		
3	PP9	D	706	-	34,46,46	1.91	7 (20%)	33,68,68	2.52	7 (21%)
2	FES	B	1002	-	0,4,4	-	-	-		
2	FES	D	1004	-	0,4,4	-	-	-		
4	CHD	D	802	-	29,32,32	2.12	13 (44%)	48,51,51	1.78	14 (29%)
3	PP9	D	704	-	34,46,46	1.90	7 (20%)	33,68,68	1.99	6 (18%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
3	PP9	C	705	-	34,46,46	1.97	8 (23%)	33,68,68	2.48	7 (21%)
4	CHD	D	801	-	29,32,32	2.00	11 (37%)	48,51,51	1.78	14 (29%)
3	PP9	A	701	-	34,46,46	1.97	8 (23%)	33,68,68	2.35	5 (15%)
3	PP9	D	703	-	34,46,46	1.72	7 (20%)	33,68,68	1.96	5 (15%)
5	IMD	D	901	-	3,5,5	0.27	0	4,5,5	0.59	0
2	FES	C	1003	-	0,4,4	-	-	-		
3	PP9	B	702	-	34,46,46	1.82	8 (23%)	33,68,68	2.53	8 (24%)

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
3	PP9	D	706	-	-	2/20/62/62	0/4/5/5
2	FES	A	1001	-	-	-	0/1/1/1
2	FES	B	1002	-	-	-	0/1/1/1
2	FES	D	1004	-	-	-	0/1/1/1
4	CHD	D	802	-	-	3/7/74/74	0/4/4/4
3	PP9	D	704	-	-	2/20/62/62	0/4/5/5
3	PP9	C	705	-	-	4/20/62/62	0/4/5/5
4	CHD	D	801	-	-	3/7/74/74	0/4/4/4
3	PP9	A	701	-	-	6/20/62/62	0/4/5/5
3	PP9	D	703	-	-	6/20/62/62	0/4/5/5
5	IMD	D	901	-	-	-	0/1/1/1
2	FES	C	1003	-	-	-	0/1/1/1
3	PP9	B	702	-	-	2/20/62/62	0/4/5/5

The worst 5 of 69 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	701	PP9	CHC-C4B	5.05	1.39	1.35
3	D	704	PP9	CBB-CAB	4.50	1.52	1.30
3	D	703	PP9	CBB-CAB	4.50	1.52	1.30
3	B	702	PP9	CBB-CAB	4.49	1.52	1.30
3	A	701	PP9	CBB-CAB	4.43	1.52	1.30

The worst 5 of 66 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	D	706	PP9	CAA-CBA-CGA	9.82	129.15	112.67
3	B	702	PP9	CAA-CBA-CGA	9.65	128.87	112.67
3	A	701	PP9	CAA-CBA-CGA	8.36	126.70	112.67
3	C	705	PP9	CAA-CBA-CGA	8.33	126.64	112.67
3	D	706	PP9	CBA-CAA-C2A	-5.38	102.57	112.48

There are no chirality outliers.

5 of 28 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	701	PP9	C2A-CAA-CBA-CGA
3	B	702	PP9	C2A-CAA-CBA-CGA
3	C	705	PP9	C2B-C3B-CAB-CBB
3	C	705	PP9	C4B-C3B-CAB-CBB
3	D	703	PP9	C1A-C2A-CAA-CBA

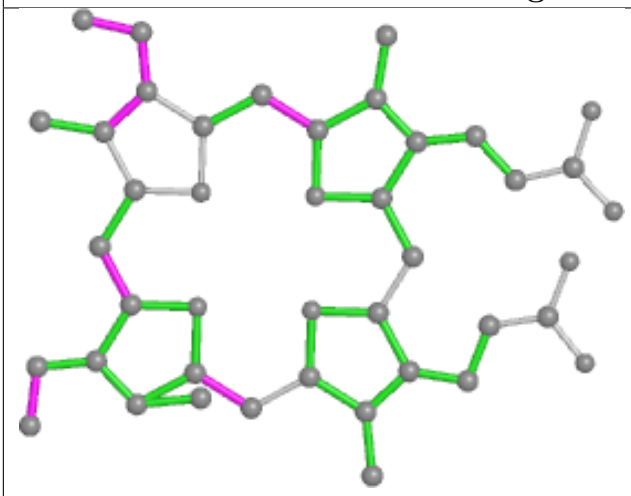
There are no ring outliers.

8 monomers are involved in 46 short contacts:

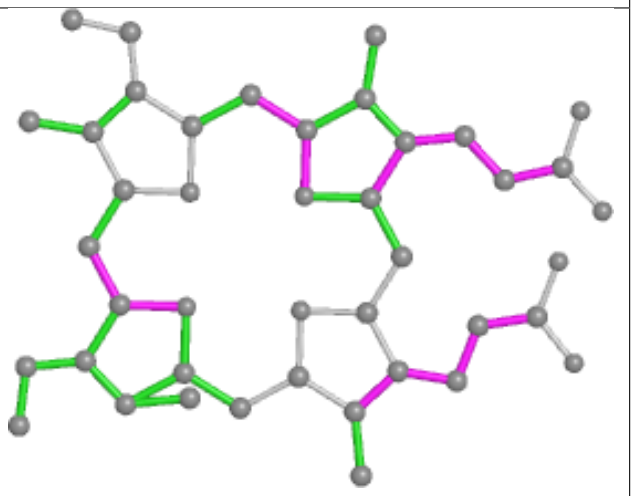
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	D	706	PP9	7	0
4	D	802	CHD	1	0
3	D	704	PP9	3	0
3	C	705	PP9	15	0
4	D	801	CHD	1	0
3	A	701	PP9	5	0
3	D	703	PP9	4	0
3	B	702	PP9	13	0

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 then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

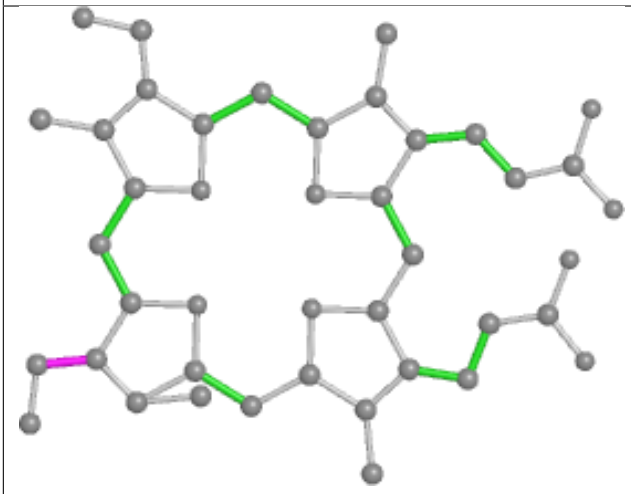
Ligand PP9 D 706



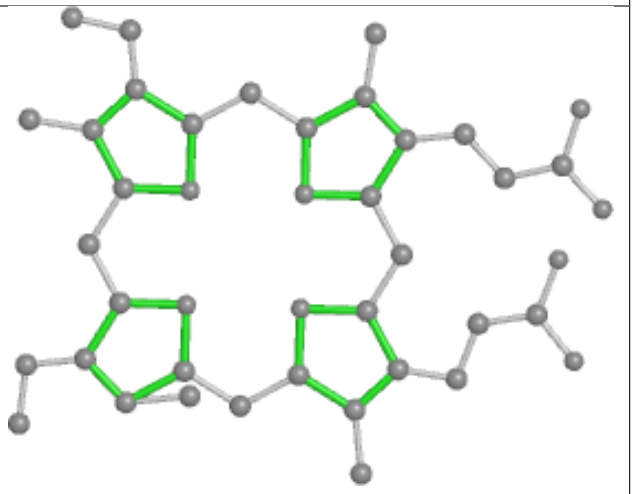
Bond lengths



Bond angles

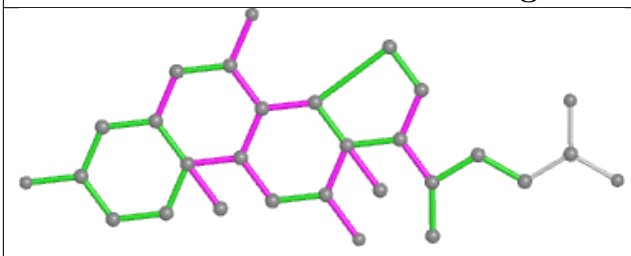


Torsions

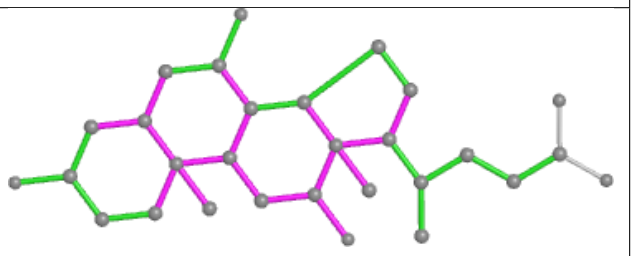


Rings

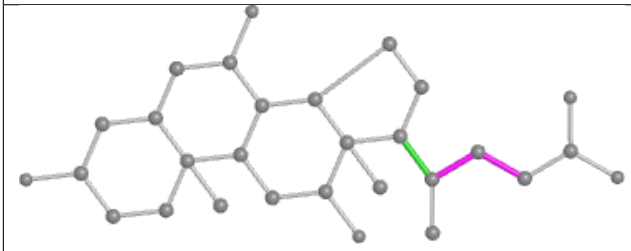
Ligand CHD D 802



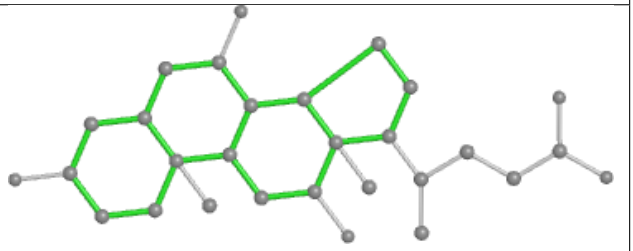
Bond lengths



Bond angles

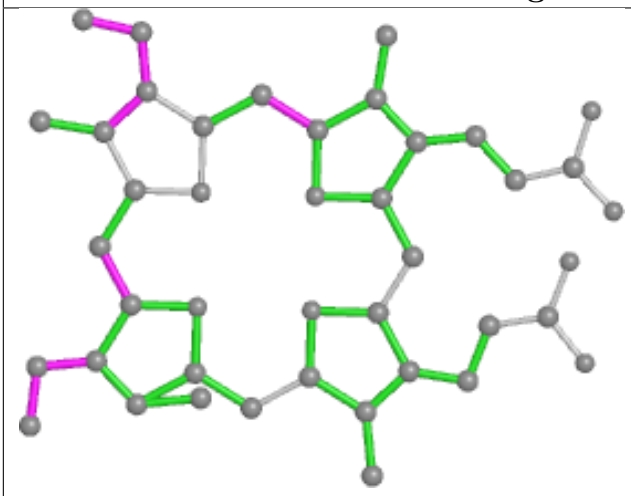


Torsions

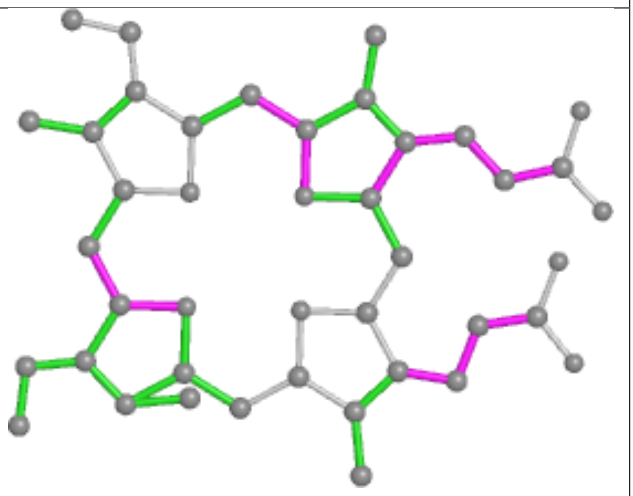


Rings

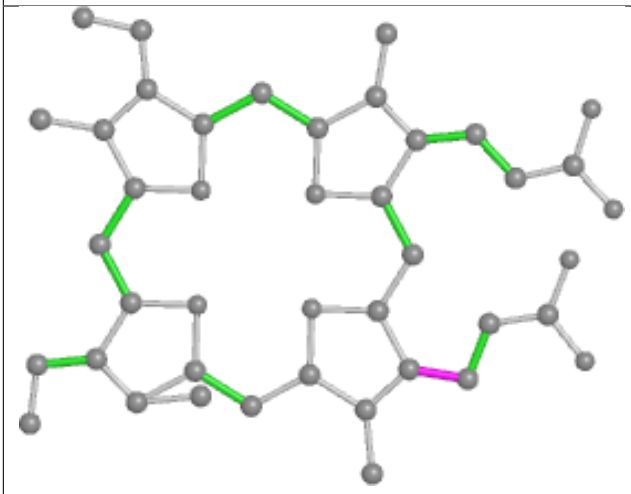
Ligand PP9 D 704



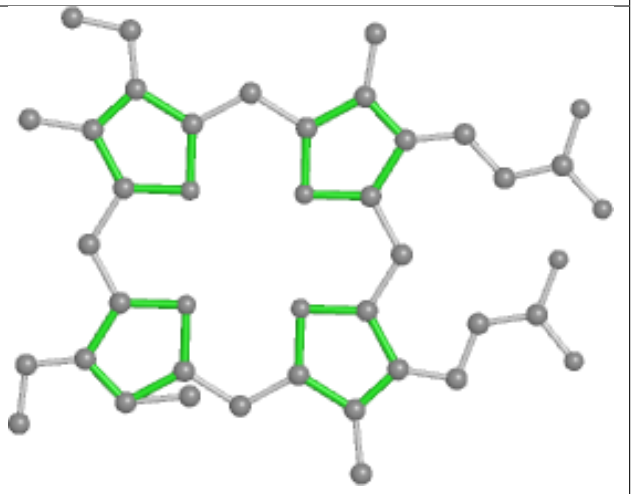
Bond lengths



Bond angles

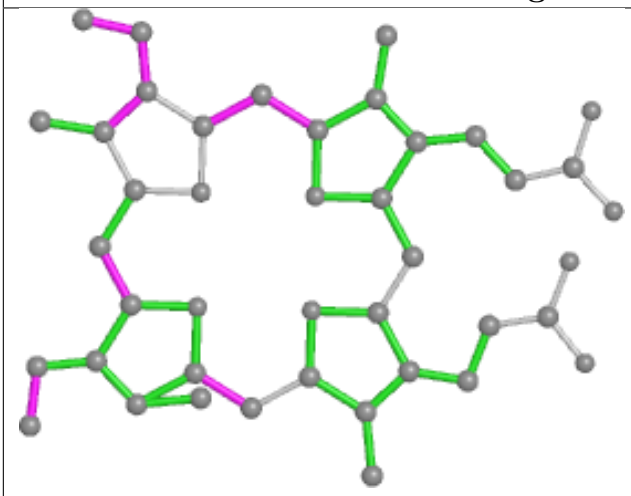


Torsions

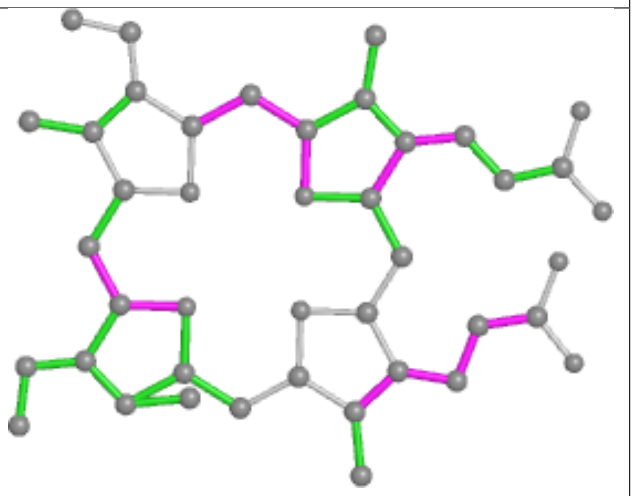


Rings

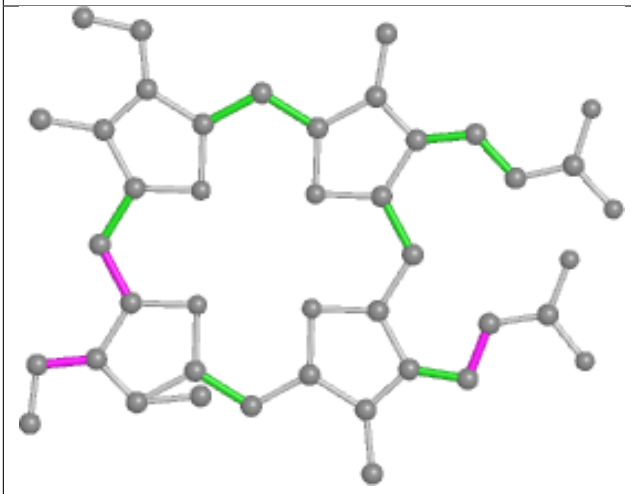
Ligand PP9 C 705



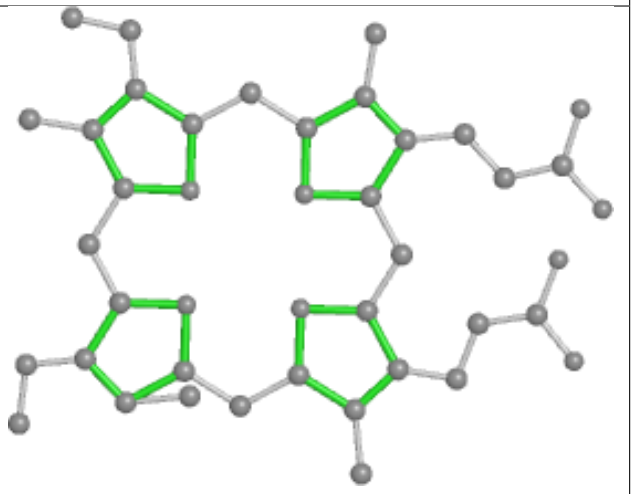
Bond lengths



Bond angles

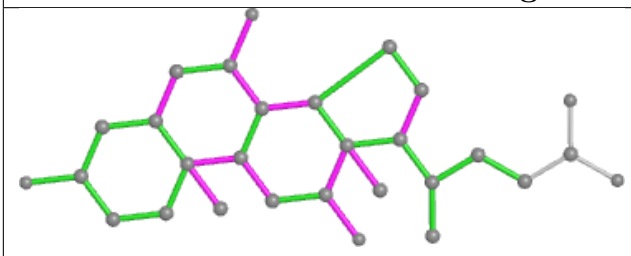


Torsions

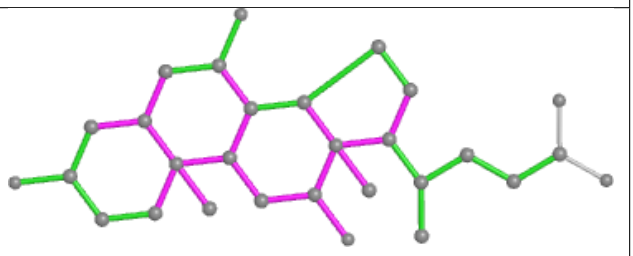


Rings

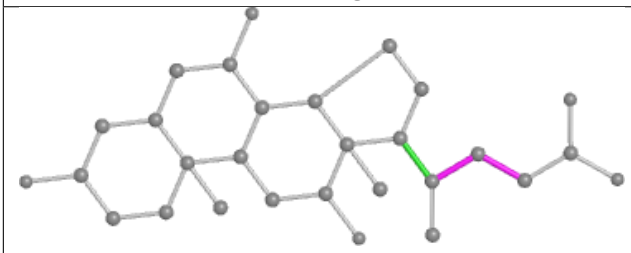
Ligand CHD D 801



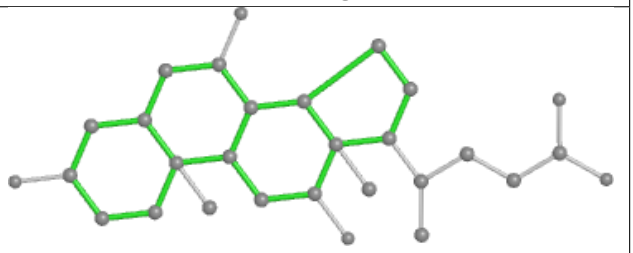
Bond lengths



Bond angles

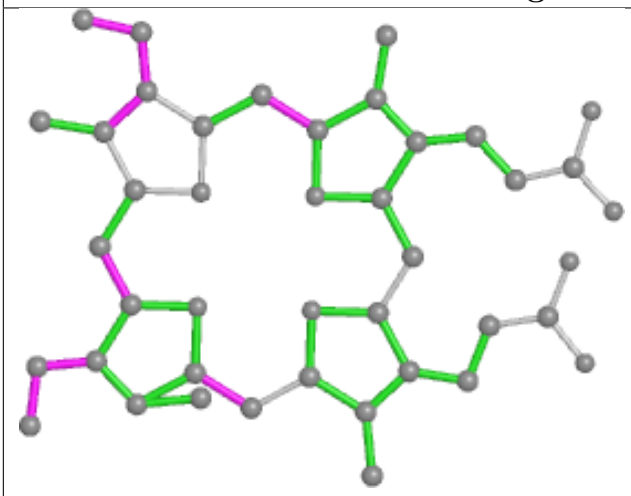


Torsions

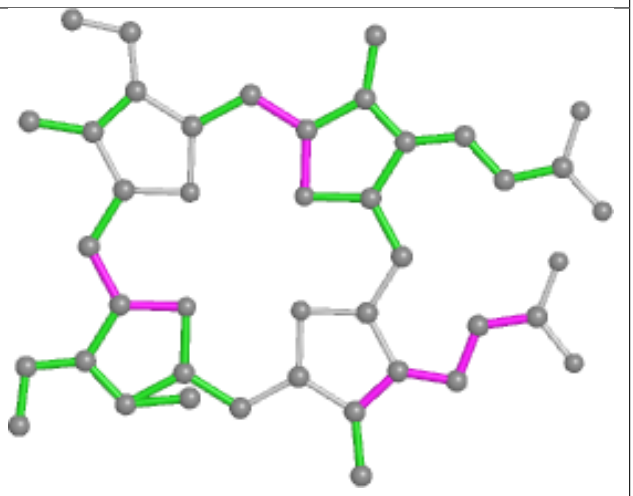


Rings

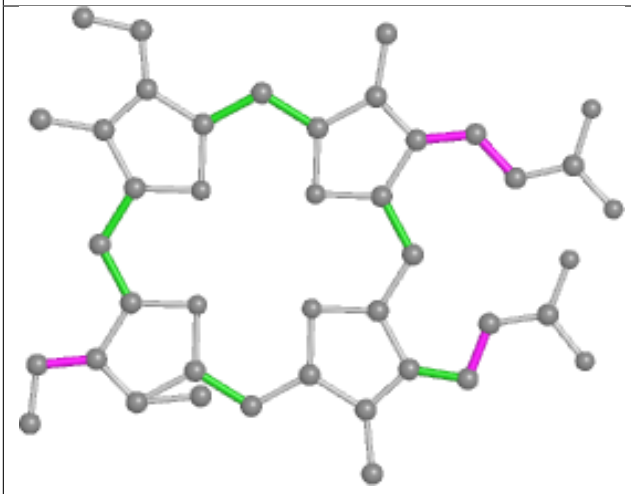
Ligand PP9 A 701



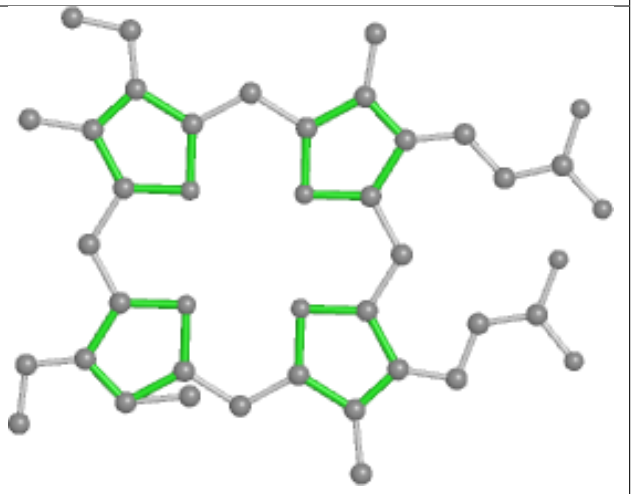
Bond lengths



Bond angles

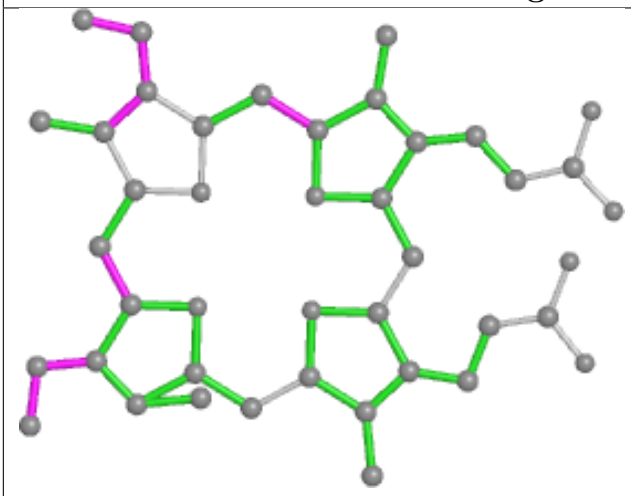


Torsions

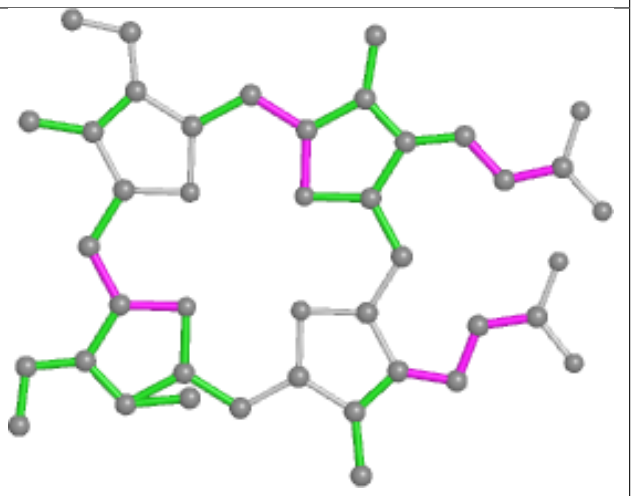


Rings

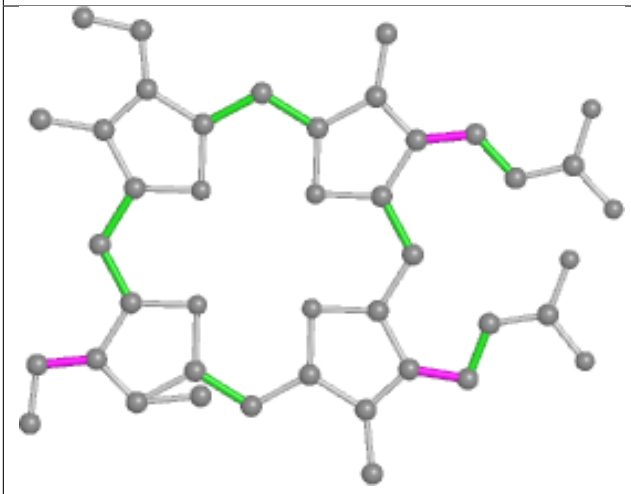
Ligand PP9 D 703



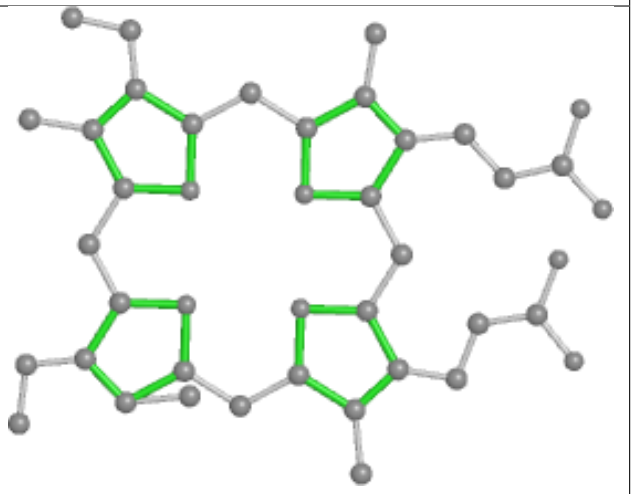
Bond lengths



Bond angles

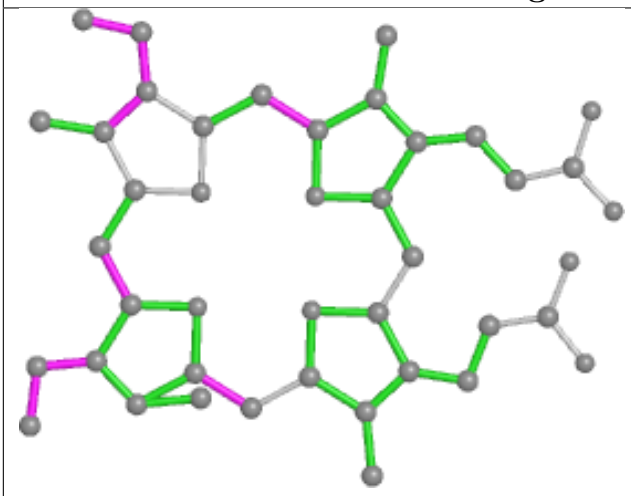


Torsions

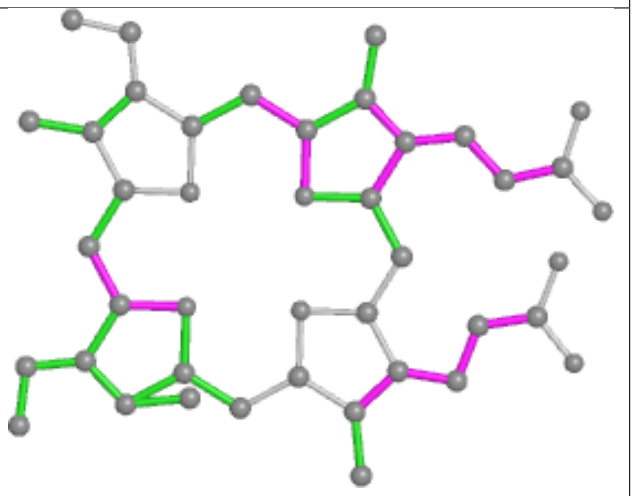


Rings

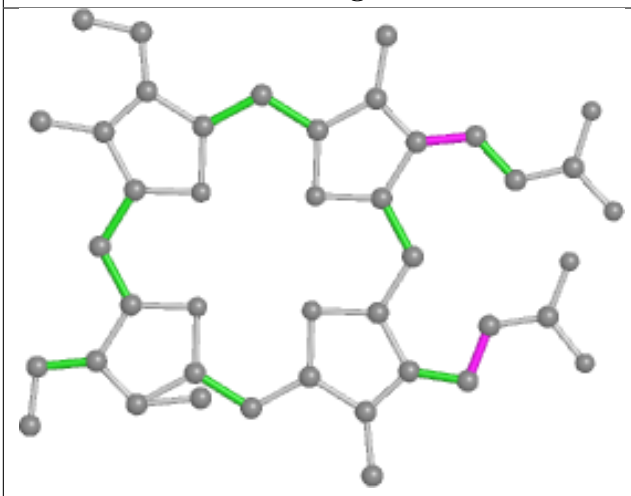
Ligand PP9 B 702



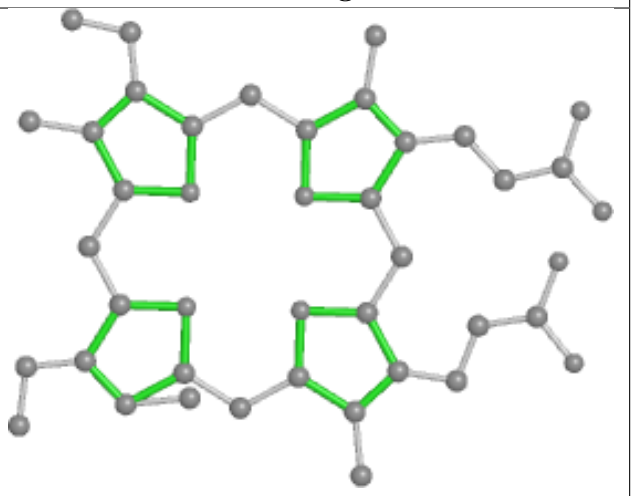
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} 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	359/359 (100%)	-0.04	8 (2%)	62	59	14, 25, 41, 67	0
1	B	359/359 (100%)	-0.05	8 (2%)	62	59	14, 26, 43, 70	0
1	C	359/359 (100%)	0.01	10 (2%)	53	51	11, 26, 45, 73	0
1	D	359/359 (100%)	0.13	15 (4%)	36	34	11, 25, 44, 70	0
All	All	1436/1436 (100%)	0.02	41 (2%)	51	49	11, 26, 44, 73	0

The worst 5 of 41 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	423	LEU	8.3
1	D	423	LEU	7.6
1	A	422	GLN	6.2
1	D	422	GLN	5.8
1	A	155	ALA	5.6

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

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

6.3 Carbohydrates

There are no monosaccharides in this entry.

6.4 Ligands

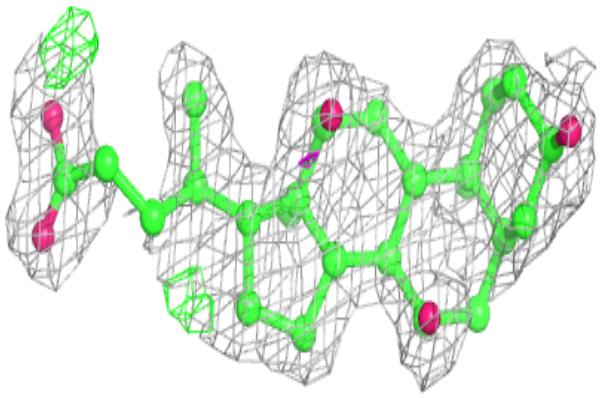
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

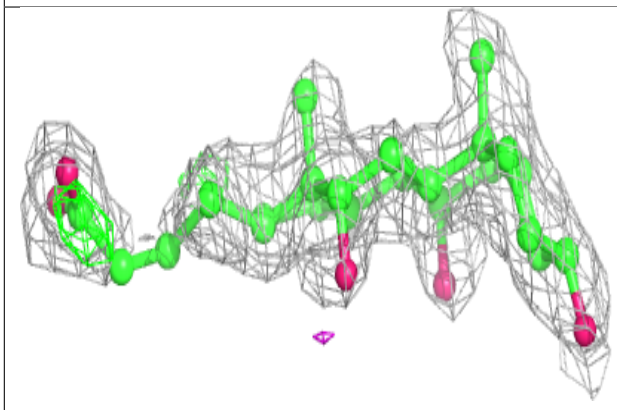
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
4	CHD	D	802	29/29	0.76	0.22	42,43,45,46	0
3	PP9	D	704	42/42	0.77	0.19	43,47,52,54	0
4	CHD	D	801	29/29	0.80	0.24	48,49,53,54	0
3	PP9	D	703	42/42	0.81	0.18	38,41,48,50	0
5	IMD	D	901	5/5	0.82	0.22	26,27,27,28	0
3	PP9	D	706	42/42	0.87	0.20	16,18,21,23	0
3	PP9	C	705	42/42	0.87	0.16	13,16,22,26	0
3	PP9	A	701	42/42	0.88	0.17	17,18,21,24	0
3	PP9	B	702	42/42	0.90	0.15	20,21,23,24	0
2	FES	B	1002	4/4	0.97	0.06	31,31,31,31	0
2	FES	C	1003	4/4	0.97	0.06	28,28,28,29	0
2	FES	D	1004	4/4	0.97	0.06	27,28,28,28	0
2	FES	A	1001	4/4	0.98	0.05	30,30,31,31	0

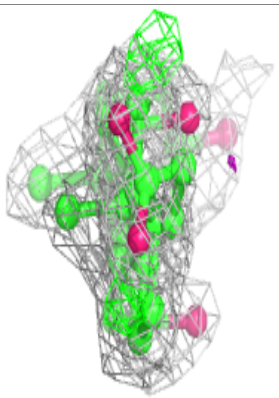
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around CHD D 802:

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

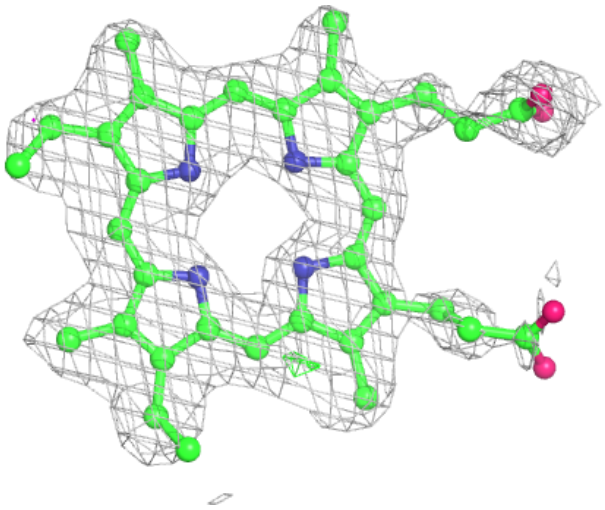


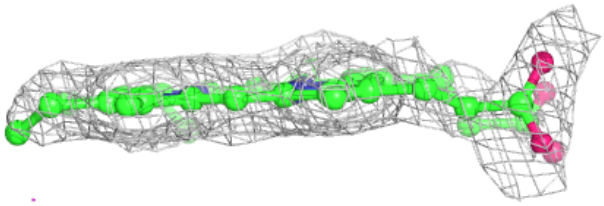


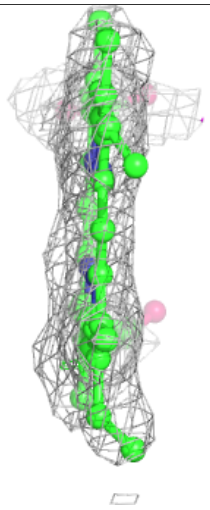


Electron density around PP9 D 704:

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

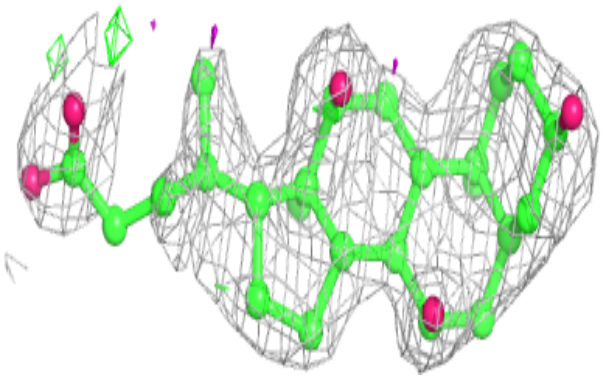


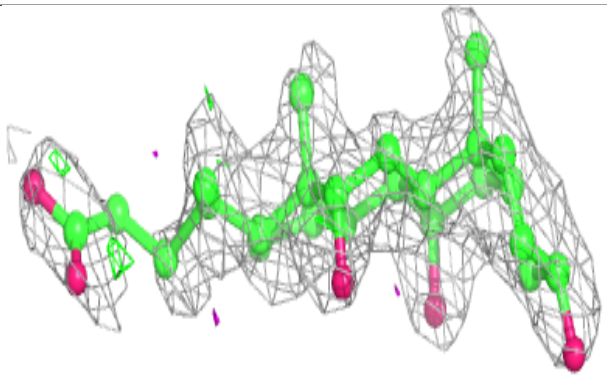


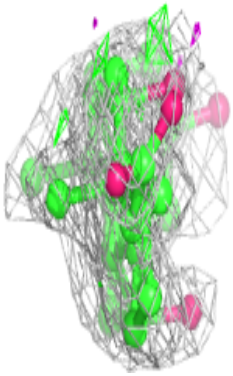


Electron density around CHD D 801:

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

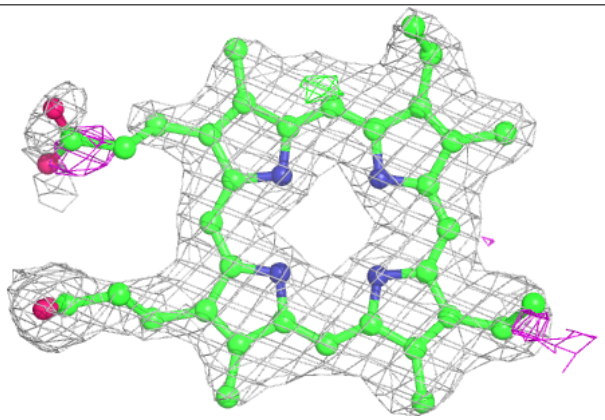


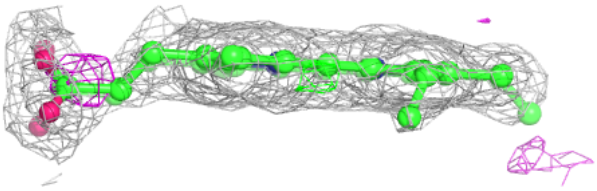


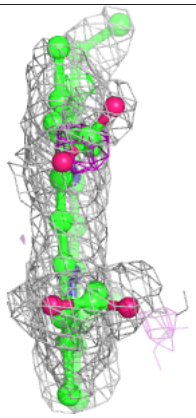


Electron density around PP9 D 703:

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

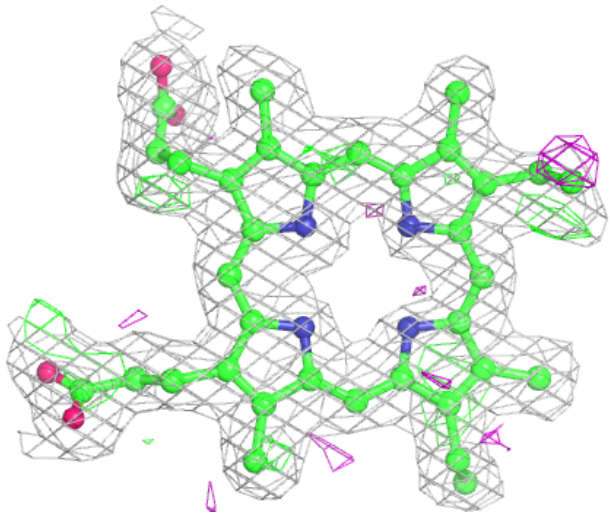


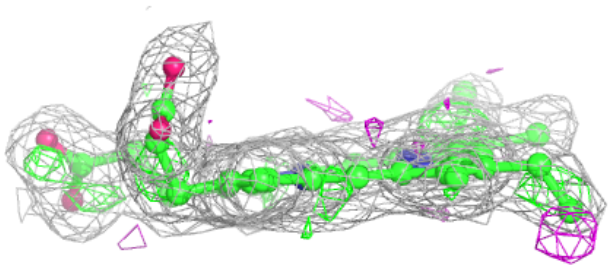


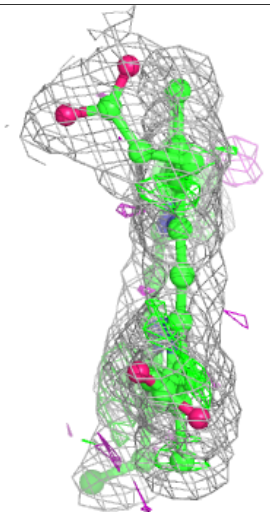


Electron density around PP9 D 706:

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

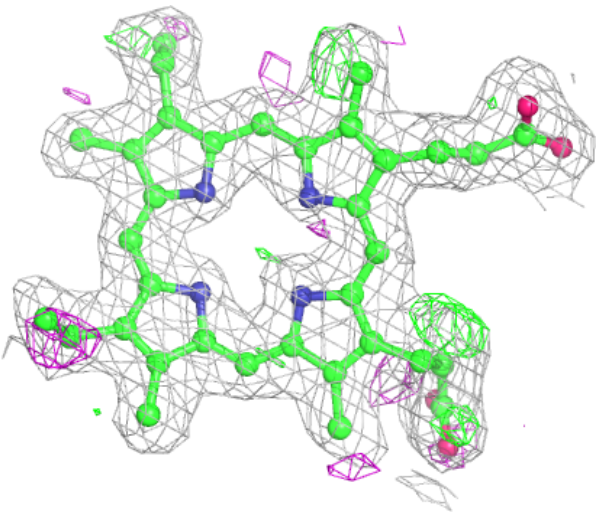


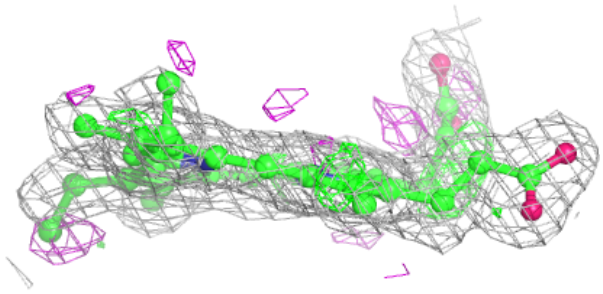


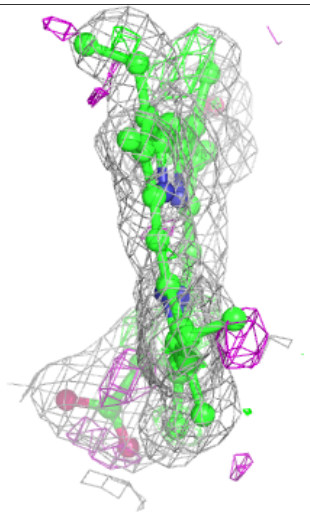


Electron density around PP9 C 705:

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

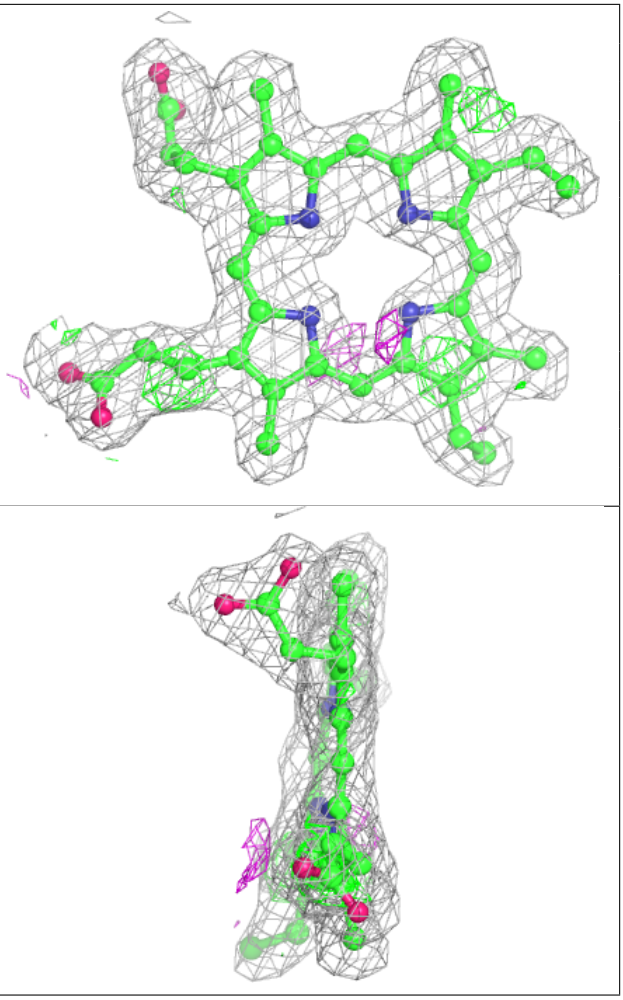






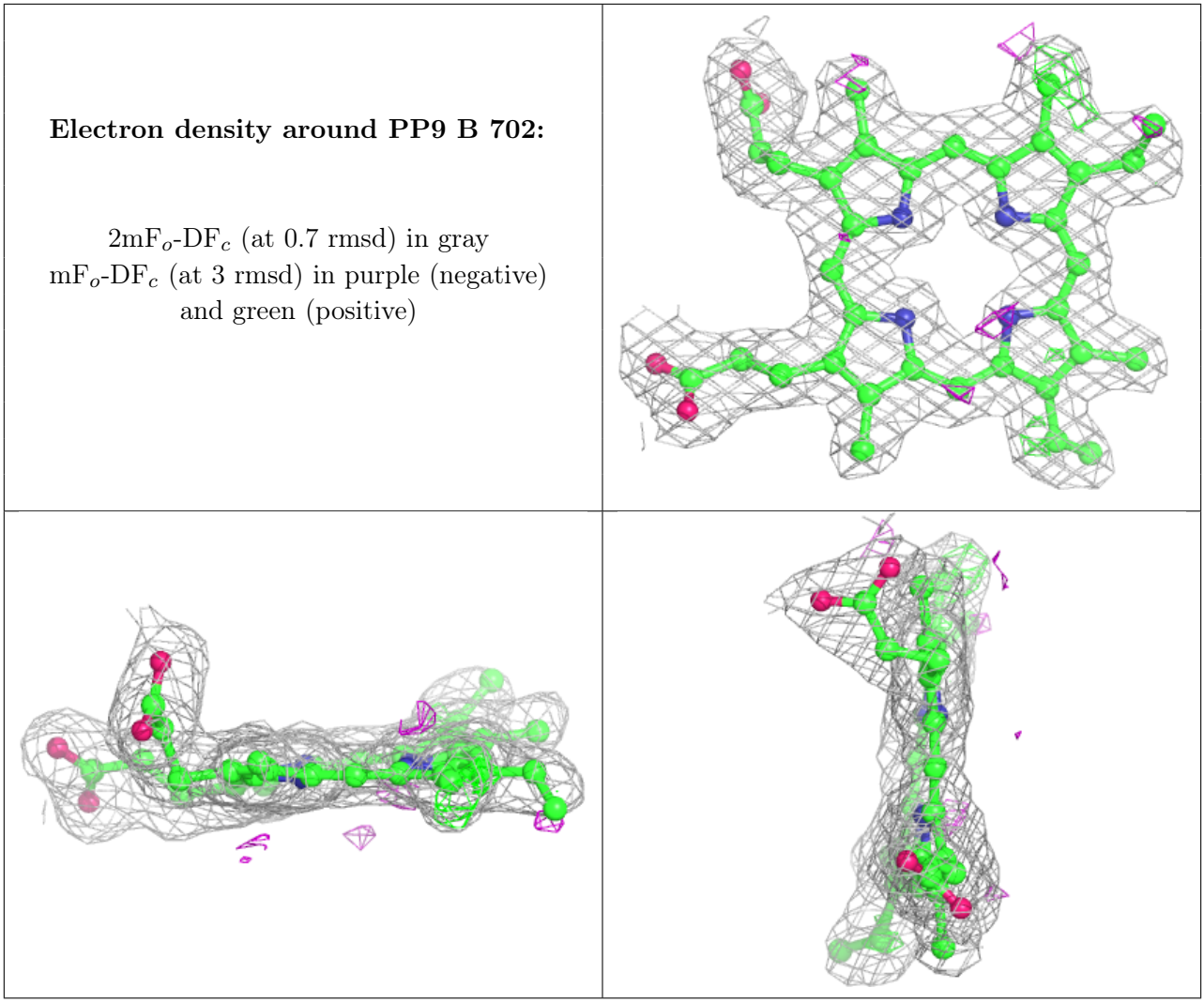
Electron density around PP9 A 701:

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



Electron density around PP9 B 702:

$2mF_o$-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.