Full wwPDB X-ray Structure Validation Report ⓘ

Apr 7, 2025 – 02:28 PM JST

PDB ID	:	8Z20 / pdb_00008z20
Title	:	Crystal structure analysis of thermotolerant Oscillatoria Phycocyanin
Authors	:	Patel, S.N.; Sonani, R.R.; Gupta, G.D.; Upadhyaya, C.T.; Sonavane, B.P.; Singh, N.K.; Kumar, V.; Madamwar, D.
Deposited on	:	2024-04-12
Resolution	:	2.50 Å(reported)

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

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

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

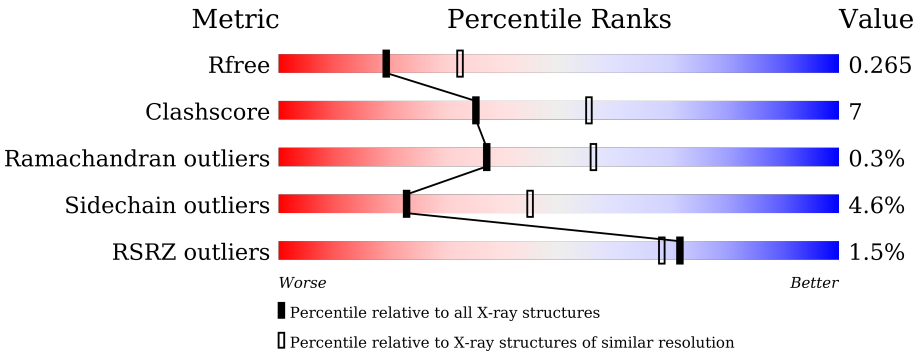
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	2.0rc1
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.006 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.42

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 2.50 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}	164625	5504 (2.50-2.50)
Clashscore	180529	6282 (2.50-2.50)
Ramachandran outliers	177936	6191 (2.50-2.50)
Sidechain outliers	177891	6193 (2.50-2.50)
RSRZ outliers	164620	5504 (2.50-2.50)

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	B	172	2% 85% 14%
1	D	172	2% 83% 16%
1	F	172	2% 85% 14%
1	H	172	2% 78% 20%
1	J	172	2% 87% 11%
1	L	172	2% 83% 15%

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Mol	Chain	Length	Quality of chain
2	A	162	88% 11%
2	C	162	85% 14%
2	E	162	3% 86% 14%
2	G	162	2% 80% 17%
2	I	162	81% 19%
2	K	162	88% 12%

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 16110 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.

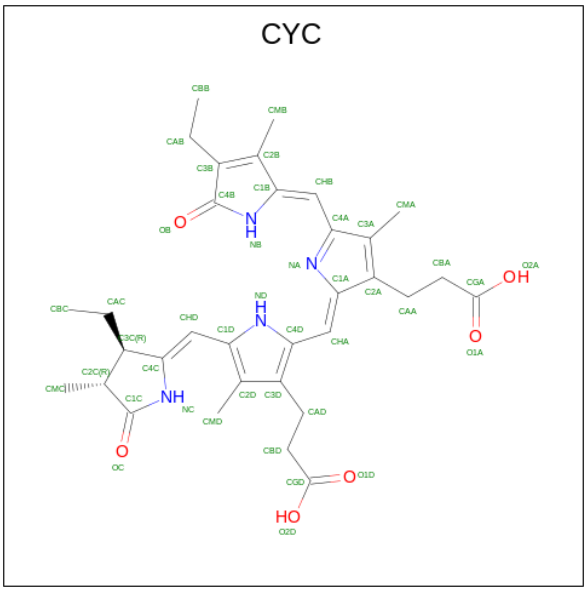
- Molecule 1 is a protein called Phycocyanin subunit beta.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	F	172	Total	C	N	O	S	0	0	0
			1270	783	225	253	9			
1	H	172	Total	C	N	O	S	0	0	0
			1270	783	225	253	9			
1	B	172	Total	C	N	O	S	0	0	0
			1270	783	225	253	9			
1	D	172	Total	C	N	O	S	0	0	0
			1270	783	225	253	9			
1	J	172	Total	C	N	O	S	0	0	0
			1270	783	225	253	9			
1	L	172	Total	C	N	O	S	0	0	0
			1270	783	225	253	9			

- Molecule 2 is a protein called Phycocyanin subunit alpha.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	K	162	Total	C	N	O	S	0	0	0
			1233	768	213	245	7			
2	A	162	Total	C	N	O	S	0	0	0
			1229	765	212	245	7			
2	C	162	Total	C	N	O	S	0	0	0
			1229	765	212	245	7			
2	E	162	Total	C	N	O	S	0	0	0
			1229	765	212	245	7			
2	G	162	Total	C	N	O	S	0	0	0
			1229	765	212	245	7			
2	I	162	Total	C	N	O	S	0	0	0
			1229	765	212	245	7			

- Molecule 3 is PHYCOCYANOBILIN (CCD ID: CYC) (formula: $C_{33}H_{40}N_4O_6$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	F	1	Total	C	N	O	0	0
			43	33	4	6		
3	F	1	Total	C	N	O	0	0
			43	33	4	6		
3	K	1	Total	C	N	O	0	0
			43	33	4	6		
3	H	1	Total	C	N	O	0	0
			43	33	4	6		
3	H	1	Total	C	N	O	0	0
			43	33	4	6		
3	B	1	Total	C	N	O	0	0
			43	33	4	6		
3	B	1	Total	C	N	O	0	0
			43	33	4	6		
3	D	1	Total	C	N	O	0	0
			43	33	4	6		
3	D	1	Total	C	N	O	0	0
			43	33	4	6		
3	J	1	Total	C	N	O	0	0
			43	33	4	6		
3	J	1	Total	C	N	O	0	0
			43	33	4	6		
3	L	1	Total	C	N	O	0	0
			43	33	4	6		
3	L	1	Total	C	N	O	0	0
			43	33	4	6		
3	A	1	Total	C	N	O	0	0
			43	33	4	6		

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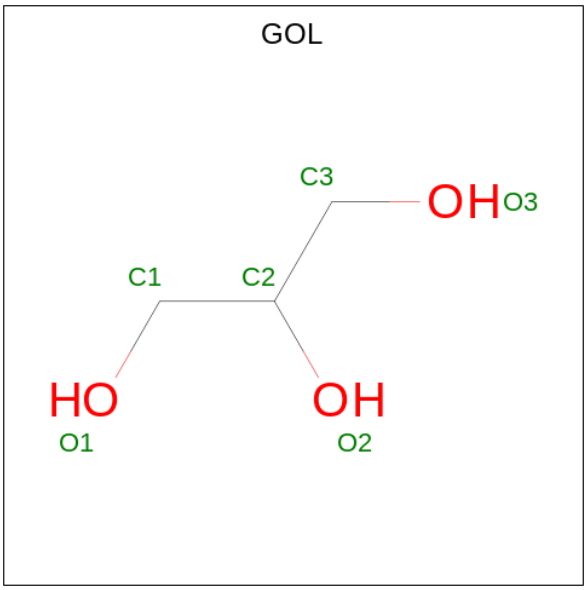
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	C	1	Total C N O 43 33 4 6	0	0
3	E	1	Total C N O 43 33 4 6	0	0
3	G	1	Total C N O 43 33 4 6	0	0
3	I	1	Total C N O 43 33 4 6	0	0

- Molecule 4 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).



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

- Molecule 5 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	F	16	Total O 16 16	0	0
5	K	42	Total O 42 42	0	0
5	H	26	Total O 26 26	0	0

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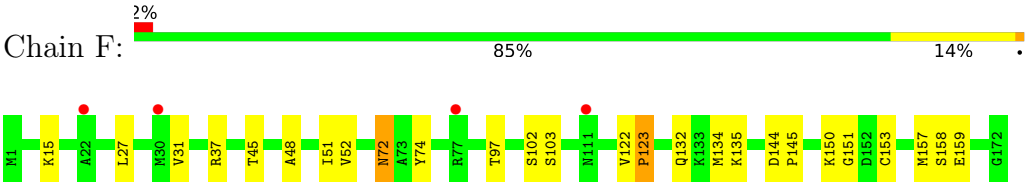
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	B	31	Total O 31 31	0	0
5	D	31	Total O 31 31	0	0
5	J	6	Total O 6 6	0	0
5	L	18	Total O 18 18	0	0
5	A	35	Total O 35 35	0	0
5	C	26	Total O 26 26	0	0
5	E	26	Total O 26 26	0	0
5	G	32	Total O 32 32	0	0
5	I	37	Total O 37 37	0	0

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.

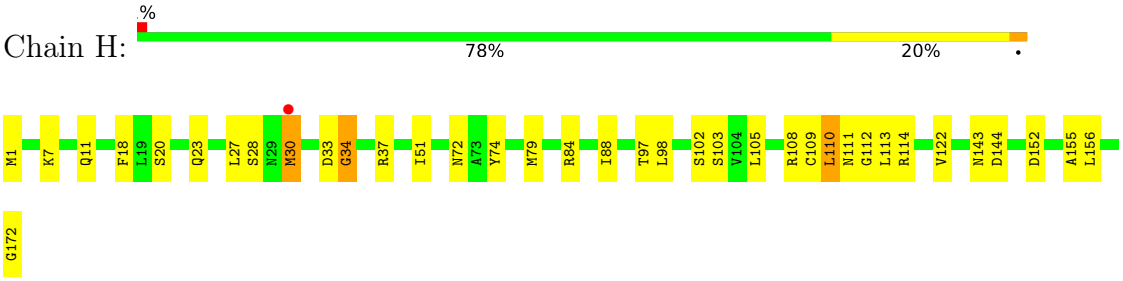
• Molecule 1: Phycocyanin subunit beta

Chain F:



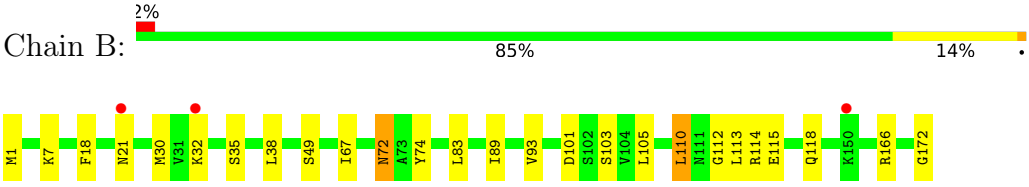
• Molecule 1: Phycocyanin subunit beta

Chain H:



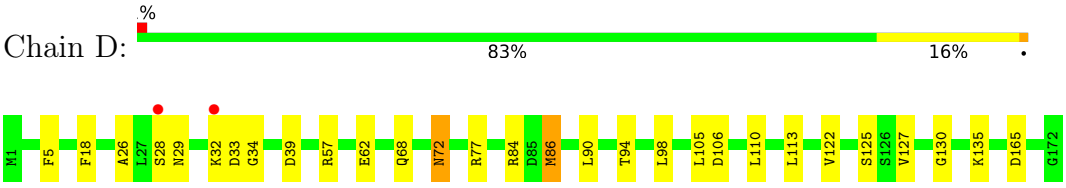
• Molecule 1: Phycocyanin subunit beta

Chain B:



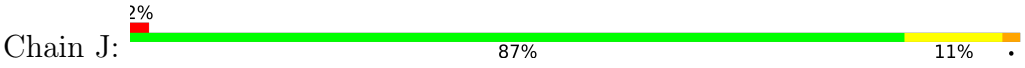
• Molecule 1: Phycocyanin subunit beta

Chain D:

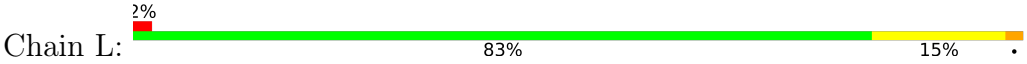


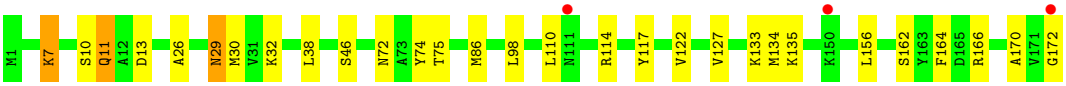
• Molecule 1: Phycocyanin subunit beta

Chain J:

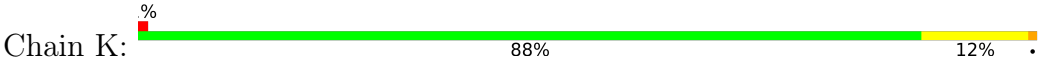


• Molecule 1: Phycocyanin subunit beta

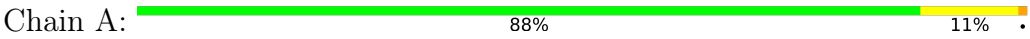




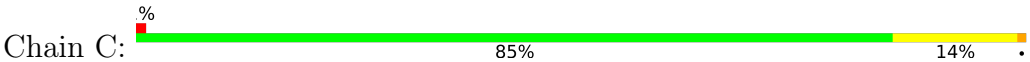
• Molecule 2: Phycocyanin subunit alpha



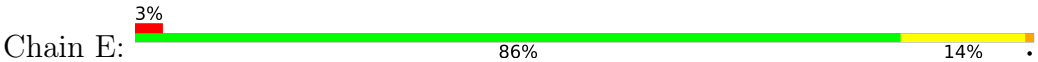
• Molecule 2: Phycocyanin subunit alpha



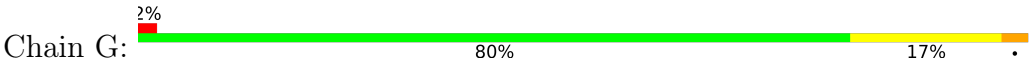
• Molecule 2: Phycocyanin subunit alpha

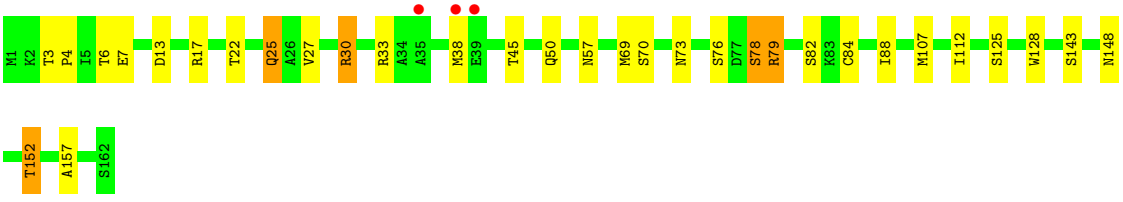


• Molecule 2: Phycocyanin subunit alpha



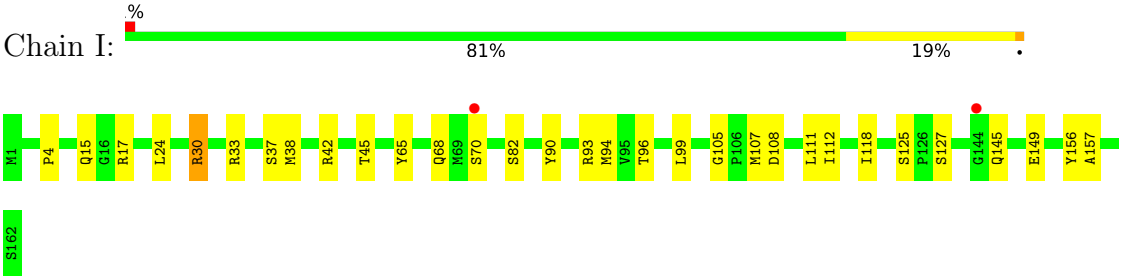
• Molecule 2: Phycocyanin subunit alpha





• Molecule 2: Phycocyanin subunit alpha

Chain I:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	84.01Å 153.73Å 207.03Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	40.01 – 2.50 40.01 – 2.50	Depositor EDS
% Data completeness (in resolution range)	99.9 (40.01-2.50) 99.9 (40.01-2.50)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.51 (at 2.51Å)	Xtriage
Refinement program	REFMAC 5.8.0415	Depositor
R, R_{free}	0.197 , 0.260 0.203 , 0.265	Depositor DCC
R_{free} test set	4634 reflections (4.96%)	wwPDB-VP
Wilson B-factor (Å^2)	37.1	Xtriage
Anisotropy	0.211	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 35.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.46$, $< L^2 > = 0.29$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	16110	wwPDB-VP
Average B, all atoms (Å^2)	42.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 32.94 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 8.6649e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

[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: CYC, MEN, GOL

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	B	0.44	0/1273	0.81	0/1717
1	D	0.43	0/1273	0.85	2/1717 (0.1%)
1	F	0.47	0/1273	0.77	0/1717
1	H	0.44	0/1273	0.87	0/1717
1	J	0.39	0/1273	0.77	0/1717
1	L	0.38	0/1273	0.80	0/1717
2	A	0.41	0/1250	0.84	1/1694 (0.1%)
2	C	0.44	0/1250	0.85	1/1694 (0.1%)
2	E	0.49	0/1250	0.90	1/1694 (0.1%)
2	G	0.48	0/1250	0.90	0/1694
2	I	0.44	0/1250	0.84	0/1694
2	K	0.45	0/1254	0.83	1/1698 (0.1%)
All	All	0.44	0/15142	0.84	6/20470 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	D	0	1
2	C	0	1
2	G	0	1
All	All	0	3

There are no bond length outliers.

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	57	ARG	NE-CZ-NH1	5.72	123.16	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	97	TYR	CB-CG-CD1	5.71	124.42	121.00
2	E	97	TYR	CB-CG-CD1	5.54	124.33	121.00
2	K	90	TYR	CB-CG-CD1	5.33	124.20	121.00
2	C	96	THR	CA-CB-OG1	-5.23	98.01	109.00
1	D	62	GLU	CB-CA-C	-5.14	100.11	110.40

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	C	30	ARG	Sidechain
1	D	84	ARG	Sidechain
2	G	17	ARG	Sidechain

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	1270	0	1263	12	0
1	D	1270	0	1263	23	0
1	F	1270	0	1263	20	0
1	H	1270	0	1263	27	0
1	J	1270	0	1263	15	0
1	L	1270	0	1263	16	0
2	A	1229	0	1183	11	0
2	C	1229	0	1183	17	0
2	E	1229	0	1183	21	0
2	G	1229	0	1183	27	0
2	I	1229	0	1183	20	0
2	K	1233	0	1194	14	0
3	A	43	0	37	4	0
3	B	86	0	74	7	0
3	C	43	0	37	4	0
3	D	86	0	74	7	0
3	E	43	0	37	4	0
3	F	86	0	74	4	0
3	G	43	0	37	3	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	H	86	0	74	9	0
3	I	43	0	37	3	0
3	J	86	0	74	8	0
3	K	43	0	37	2	0
3	L	86	0	74	2	0
4	A	12	0	16	0	0
5	A	35	0	0	1	0
5	B	31	0	0	1	0
5	C	26	0	0	0	0
5	D	31	0	0	4	0
5	E	26	0	0	0	0
5	F	16	0	0	1	0
5	G	32	0	0	1	0
5	H	26	0	0	2	0
5	I	37	0	0	1	0
5	J	6	0	0	0	0
5	K	42	0	0	0	0
5	L	18	0	0	0	0
All	All	16110	0	15369	227	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 7.

All (227) 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:L:72:MEN:HE21	1:L:122:VAL:HG22	1.27	1.11
1:D:72:MEN:HE21	1:D:122:VAL:HG22	1.05	1.03
1:D:72:MEN:CE2	1:D:122:VAL:HG22	1.94	0.97
1:F:72:MEN:HE21	1:F:122:VAL:HG22	1.45	0.96
1:D:72:MEN:HE21	1:D:122:VAL:CG2	1.98	0.94
2:E:33:ARG:NH2	2:G:25:GLN:HG3	1.88	0.88
1:H:72:MEN:HE21	1:H:122:VAL:HG22	1.54	0.87
1:H:72:MEN:CE2	1:H:122:VAL:HG22	2.07	0.84
2:I:4:PRO:HG2	2:I:30:ARG:HG3	1.59	0.84
1:L:72:MEN:CE2	1:L:122:VAL:HG22	2.07	0.82
1:D:113:LEU:HD13	3:D:201:CYC:HMB3	1.62	0.80
1:F:72:MEN:CE2	1:F:122:VAL:HG22	2.13	0.79
3:L:201:CYC:HMD2	3:L:201:CYC:HC	1.47	0.79
2:G:30:ARG:HG2	2:G:30:ARG:HH11	1.47	0.79
1:J:7:LYS:O	1:J:11:GLN:HG2	1.83	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:77:ARG:NH1	5:D:301:HOH:O	2.18	0.77
2:K:15:GLN:HB2	2:K:17:ARG:HH11	1.52	0.75
1:H:114:ARG:NH2	1:H:172:GLY:O	2.22	0.73
1:F:27:LEU:O	1:F:31:VAL:HG23	1.90	0.72
2:G:107:MET:HE2	2:G:112:ILE:HD11	1.71	0.71
2:E:33:ARG:CZ	2:G:25:GLN:HG3	2.21	0.71
2:K:84:CYS:O	2:K:88:ILE:HG13	1.90	0.71
3:B:201:CYC:HMD2	3:B:201:CYC:HC	1.55	0.70
1:J:113:LEU:HD13	3:J:201:CYC:HMB3	1.73	0.70
2:G:79:ARG:NH1	3:G:201:CYC:O2D	2.25	0.70
1:B:74:TYR:OH	2:E:93:ARG:NH2	2.25	0.69
2:A:4:PRO:HG2	2:A:30:ARG:HG3	1.74	0.67
3:H:202:CYC:OB	2:E:33:ARG:NH1	2.28	0.67
1:B:113:LEU:HD13	3:B:201:CYC:HMB3	1.78	0.65
2:G:4:PRO:HG2	2:G:30:ARG:HG3	1.77	0.65
1:D:113:LEU:CD1	3:D:201:CYC:HMB3	2.27	0.65
2:E:107:MET:HE2	2:E:112:ILE:HD11	1.78	0.64
3:C:201:CYC:HMD2	3:C:201:CYC:HC	1.62	0.64
2:I:37:SER:OG	2:I:149:GLU:OE2	2.16	0.63
1:L:114:ARG:NH2	1:L:172:GLY:O	2.32	0.62
2:A:42:ARG:NH2	5:A:301:HOH:O	2.26	0.62
1:H:1:MET:HG3	2:G:6:THR:HG22	1.80	0.62
1:D:77:ARG:CZ	5:D:301:HOH:O	2.48	0.62
3:I:201:CYC:HMA1	3:I:201:CYC:NB	2.15	0.62
2:C:37:SER:OG	2:C:149:GLU:OE2	2.17	0.61
3:E:201:CYC:HMA1	3:E:201:CYC:NB	2.15	0.61
1:H:155:ALA:HB3	5:H:316:HOH:O	2.01	0.60
1:J:18:PHE:HB3	2:I:45:THR:HG23	1.82	0.60
1:J:72:MEN:HE21	3:J:201:CYC:HBD2	1.83	0.60
2:E:15:GLN:HB2	2:E:17:ARG:HH11	1.66	0.59
2:K:12:ALA:HA	2:K:17:ARG:NH1	2.19	0.58
1:B:21:ASN:ND2	5:B:301:HOH:O	2.37	0.57
3:K:201:CYC:HMA1	3:K:201:CYC:NB	2.18	0.57
2:E:15:GLN:HB2	2:E:17:ARG:NH1	2.20	0.57
2:I:111:LEU:C	2:I:111:LEU:HD23	2.24	0.57
1:H:113:LEU:HD13	3:H:201:CYC:HMB3	1.87	0.57
3:D:201:CYC:HC	3:D:201:CYC:HMD2	1.70	0.57
1:B:101:ASP:OD2	1:B:103:SER:HB3	2.04	0.56
2:I:33:ARG:NH1	2:I:145:GLN:OE1	2.32	0.56
1:H:27:LEU:HD23	1:H:30:MET:HE1	1.86	0.56
2:K:93:ARG:O	2:K:96:THR:HB	2.05	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:201:CYC:HMA1	3:B:201:CYC:NB	2.21	0.55
2:E:33:ARG:C	2:E:35:ALA:H	2.10	0.55
1:F:15:LYS:NZ	5:F:301:HOH:O	2.36	0.55
1:B:114:ARG:NH2	1:B:172:GLY:O	2.39	0.55
2:K:15:GLN:HB2	2:K:17:ARG:NH1	2.21	0.54
1:H:18:PHE:HB3	2:G:45:THR:HG23	1.89	0.54
1:H:72:MEN:HE22	1:H:122:VAL:HG22	1.88	0.54
2:K:25:GLN:HE21	2:C:30:ARG:HA	1.72	0.54
1:D:26:ALA:O	1:D:29:ASN:HB2	2.08	0.54
1:L:72:MEN:HE23	3:L:201:CYC:HBD2	1.89	0.54
1:L:74:TYR:O	1:L:75:THR:OG1	2.22	0.54
1:B:112:GLY:HA2	1:B:115:GLU:OE1	2.08	0.54
2:A:4:PRO:CG	2:A:30:ARG:HG3	2.38	0.53
1:F:37:ARG:NH1	1:F:97:THR:O	2.39	0.53
3:A:201:CYC:NB	3:A:201:CYC:HMA1	2.23	0.53
2:G:148:ASN:O	2:G:152:THR:OG1	2.26	0.53
1:H:108:ARG:NH1	2:G:13:ASP:OD2	2.37	0.52
2:K:107:MET:HE2	2:K:112:ILE:HD11	1.91	0.52
1:H:27:LEU:HA	1:H:30:MET:HE2	1.92	0.52
1:H:37:ARG:NH1	1:H:97:THR:O	2.39	0.52
3:F:202:CYC:HMA1	3:F:202:CYC:NB	2.24	0.52
2:A:153:TYR:O	2:A:156:TYR:HB3	2.09	0.52
1:L:135:LYS:HB2	1:L:164:PHE:CG	2.45	0.52
3:H:202:CYC:HMD2	3:H:202:CYC:HC	1.74	0.51
1:D:90:LEU:O	1:D:94:THR:HG23	2.10	0.51
2:I:107:MET:CE	2:I:157:ALA:HB2	2.41	0.51
2:E:25:GLN:NE2	2:G:30:ARG:HA	2.25	0.51
3:H:202:CYC:HMA2	2:E:145:GLN:HE22	1.75	0.51
3:E:201:CYC:HMD2	3:E:201:CYC:HC	1.76	0.51
3:I:201:CYC:HMD2	3:I:201:CYC:HC	1.75	0.50
1:F:150:LYS:HG2	1:F:151:GLY:N	2.27	0.50
3:H:202:CYC:HMA1	3:H:202:CYC:NB	2.27	0.50
2:E:94:MET:HE2	2:E:107:MET:HA	1.94	0.50
2:G:78:SER:O	2:G:82:SER:HB3	2.12	0.50
2:G:125:SER:HB3	2:G:128:TRP:CE2	2.46	0.50
1:H:98:LEU:HD21	2:G:27:VAL:HG21	1.95	0.49
1:J:18:PHE:CB	2:I:45:THR:HG23	2.43	0.49
1:B:105:LEU:HG	1:B:110:LEU:HD22	1.93	0.49
2:I:107:MET:HE2	2:I:156:TYR:HD2	1.78	0.49
2:G:69:MET:O	2:G:76:SER:HB3	2.12	0.49
1:H:37:ARG:HA	1:H:156:LEU:HD21	1.93	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:77:ARG:HD3	5:D:311:HOH:O	2.13	0.49
3:G:201:CYC:HMA1	3:G:201:CYC:NB	2.26	0.49
3:H:202:CYC:HBB3	2:E:33:ARG:NH2	2.28	0.49
3:D:202:CYC:HMA1	3:D:202:CYC:NB	2.27	0.49
2:I:93:ARG:O	2:I:96:THR:HB	2.13	0.49
2:K:19:LEU:HD13	1:L:98:LEU:HD22	1.95	0.48
3:H:202:CYC:HMD2	3:H:202:CYC:NC	2.28	0.48
2:E:125:SER:HB3	2:E:128:TRP:CE2	2.49	0.48
1:D:5:PHE:CD2	2:C:30:ARG:NH2	2.81	0.48
1:H:84:ARG:HG2	1:H:88:ILE:HD12	1.95	0.48
1:H:105:LEU:O	1:H:109:CYS:HB3	2.13	0.48
1:J:77:ARG:HG2	1:J:77:ARG:HH21	1.79	0.48
3:A:201:CYC:HC	3:A:201:CYC:HMD2	1.78	0.48
2:A:37:SER:OG	2:A:149:GLU:OE2	2.28	0.48
1:D:135:LYS:NZ	1:D:165:ASP:OD1	2.46	0.47
2:K:27:VAL:HG21	1:L:98:LEU:HD21	1.96	0.47
2:A:95:VAL:O	2:A:96:THR:C	2.53	0.47
1:J:26:ALA:O	1:J:29:ASN:HB2	2.15	0.47
1:J:72:MEN:HB2	3:J:201:CYC:OC	2.15	0.47
2:E:33:ARG:O	2:E:35:ALA:N	2.48	0.47
3:E:201:CYC:HMA1	3:E:201:CYC:HB	1.77	0.47
1:B:18:PHE:HB3	2:A:45:THR:HG23	1.96	0.47
3:B:202:CYC:NB	3:B:202:CYC:HMA1	2.30	0.47
3:J:202:CYC:HMB3	2:A:148:ASN:HD21	1.80	0.47
2:I:17:ARG:HG3	2:I:17:ARG:HH11	1.78	0.47
1:F:150:LYS:HA	3:F:202:CYC:OC	2.15	0.47
1:H:72:MEN:HD2	3:H:201:CYC:HC	1.63	0.47
1:D:106:ASP:HA	1:D:110:LEU:HB2	1.96	0.47
2:G:107:MET:HE3	2:G:157:ALA:HA	1.96	0.47
2:G:30:ARG:HG2	2:G:30:ARG:NH1	2.24	0.47
1:J:105:LEU:HG	1:J:110:LEU:HD22	1.96	0.46
2:G:73:ASN:HA	3:G:201:CYC:HBD2	1.97	0.46
2:C:28:ASN:O	2:C:32:GLU:HG2	2.15	0.46
2:A:65:TYR:CD2	2:C:65:TYR:CD2	3.03	0.46
2:G:107:MET:CE	2:G:157:ALA:HA	2.46	0.46
2:I:15:GLN:NE2	2:I:17:ARG:HE	2.14	0.46
1:D:105:LEU:HG	1:D:110:LEU:HD22	1.99	0.45
1:J:46:SER:HB3	2:A:155:ASP:HB3	1.97	0.45
2:G:33:ARG:HH22	2:G:148:ASN:ND2	2.14	0.45
1:H:7:LYS:O	1:H:11:GLN:HG2	2.16	0.45
1:L:117:TYR:CE2	1:L:127:VAL:HG21	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:125:SER:HB3	2:C:128:TRP:CE2	2.52	0.45
1:H:74:TYR:OH	1:J:13:ASP:OD1	2.25	0.45
1:D:33:ASP:O	1:D:34:GLY:C	2.56	0.45
3:C:201:CYC:NB	3:C:201:CYC:HMA1	2.32	0.45
3:F:201:CYC:HC	3:F:201:CYC:HMD2	1.82	0.44
1:D:127:VAL:HG22	3:D:201:CYC:H3C	1.99	0.44
1:D:98:LEU:HD22	2:C:19:LEU:HD13	1.99	0.44
3:J:202:CYC:O1A	3:J:202:CYC:HHA	2.18	0.44
1:L:7:LYS:O	1:L:11:GLN:HG2	2.17	0.44
3:I:201:CYC:HMC1	3:I:201:CYC:HBC2	1.98	0.44
1:L:72:MEN:CE2	1:L:122:VAL:CG2	2.88	0.44
3:A:201:CYC:HMA1	3:A:201:CYC:HB	1.82	0.44
2:K:84:CYS:HA	3:K:201:CYC:HHD	1.99	0.44
2:I:65:TYR:HA	2:I:68:GLN:HE21	1.83	0.44
1:F:51:ILE:HG22	1:F:134:MET:HE3	2.00	0.44
1:H:110:LEU:O	1:H:112:GLY:N	2.51	0.44
3:A:201:CYC:HB	3:A:201:CYC:CMA	2.31	0.44
1:F:37:ARG:NH2	1:F:159:GLU:OE1	2.43	0.43
1:F:72:MEN:CE2	3:F:201:CYC:HMD2	2.48	0.43
2:C:107:MET:CE	2:C:112:ILE:HD11	2.47	0.43
3:E:201:CYC:HB	3:E:201:CYC:CMA	2.31	0.43
2:E:33:ARG:C	2:E:35:ALA:N	2.67	0.43
2:G:107:MET:CE	2:G:112:ILE:HD11	2.45	0.43
2:G:152:THR:HA	5:G:327:HOH:O	2.18	0.43
1:D:72:MEN:HE23	3:D:201:CYC:HBD2	2.01	0.43
1:J:112:GLY:HA2	1:J:115:GLU:OE1	2.19	0.43
2:G:33:ARG:HH22	2:G:148:ASN:HD22	1.66	0.43
1:F:132:GLN:O	1:F:135:LYS:HB3	2.19	0.43
1:L:86:MET:O	1:L:134:MET:HE1	2.19	0.43
2:I:107:MET:CE	2:I:156:TYR:HD2	2.31	0.43
1:B:72:MEN:HE21	3:B:201:CYC:HBD2	2.01	0.43
2:C:73:ASN:HA	3:C:201:CYC:HBD2	2.00	0.43
2:C:107:MET:HG2	2:C:112:ILE:HD11	2.01	0.43
1:H:1:MET:HG3	2:G:6:THR:CG2	2.48	0.42
1:B:1:MET:HB2	1:B:1:MET:HE3	1.57	0.42
2:G:3:THR:O	2:G:7:GLU:HG3	2.19	0.42
1:B:89:ILE:O	1:B:93:VAL:HG23	2.19	0.42
1:H:143:ASN:HA	3:H:202:CYC:HMC1	2.01	0.42
1:D:86:MET:HE3	1:D:130:GLY:HA3	2.00	0.42
2:C:36:ALA:O	2:C:146:ALA:HA	2.20	0.42
1:F:74:TYR:OH	1:L:13:ASP:OD1	2.30	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:38:MET:O	2:I:42:ARG:HG3	2.19	0.42
2:K:30:ARG:HH11	2:K:30:ARG:HG2	1.84	0.42
1:H:33:ASP:O	1:H:34:GLY:C	2.58	0.42
1:D:98:LEU:HD22	2:C:19:LEU:CD1	2.49	0.42
3:J:201:CYC:HMA1	3:J:201:CYC:NB	2.35	0.42
1:F:27:LEU:HD13	2:E:100:VAL:HG13	2.02	0.42
1:F:48:ALA:O	1:F:52:VAL:HG23	2.19	0.42
2:K:40:ALA:CB	2:K:142:LEU:HD13	2.50	0.42
1:H:20:SER:OG	1:H:23:GLN:HG3	2.20	0.42
1:H:79:MET:HG3	2:I:118:ILE:HD11	2.02	0.42
1:H:51:ILE:HA	5:H:305:HOH:O	2.19	0.42
2:I:37:SER:HB3	2:I:99:LEU:O	2.20	0.42
3:J:202:CYC:HHD	3:J:202:CYC:HAC1	1.82	0.42
2:G:84:CYS:O	2:G:88:ILE:HG13	2.20	0.42
1:D:39:ASP:OD2	3:D:202:CYC:NA	2.53	0.41
1:J:43:ARG:NH1	1:J:142:ALA:O	2.52	0.41
1:F:122:VAL:HA	1:F:123:PRO:HD2	1.93	0.41
1:J:82:CYS:HA	3:J:201:CYC:CHD	2.50	0.41
2:I:107:MET:HE2	2:I:156:TYR:CD2	2.55	0.41
3:B:201:CYC:OB	3:B:201:CYC:CBB	2.68	0.41
2:C:67:THR:O	2:C:76:SER:HA	2.20	0.41
1:F:51:ILE:HG22	1:F:134:MET:CE	2.49	0.41
1:L:26:ALA:O	1:L:29:ASN:HB2	2.21	0.41
1:L:110:LEU:HG	1:L:170:ALA:CB	2.50	0.41
2:E:94:MET:HE2	2:E:106:PRO:O	2.20	0.41
1:H:102:SER:O	1:H:103:SER:C	2.59	0.41
2:E:94:MET:HE1	2:E:110:TYR:HD2	1.85	0.41
1:D:33:ASP:OD2	5:D:302:HOH:O	2.21	0.41
3:B:201:CYC:OB	3:B:201:CYC:HBB2	2.20	0.41
2:E:94:MET:CE	2:E:110:TYR:HB2	2.51	0.41
1:D:18:PHE:HB3	2:C:45:THR:HG23	2.03	0.41
1:J:61:GLU:OE1	2:C:79:ARG:NH2	2.54	0.41
2:I:90:TYR:O	2:I:94:MET:HG2	2.21	0.40
1:F:45:THR:HG23	2:E:18:PHE:HB3	2.02	0.40
1:F:102:SER:O	1:F:103:SER:C	2.60	0.40
1:F:153:CYS:O	1:F:157:MET:HG2	2.21	0.40
1:B:49:SER:HB2	5:I:317:HOH:O	2.21	0.40
2:C:107:MET:HE2	2:C:112:ILE:HD11	2.02	0.40
2:E:94:MET:CE	2:E:106:PRO:C	2.90	0.40
2:K:43:ALA:HB3	2:K:142:LEU:HD21	2.03	0.40
2:C:84:CYS:HA	3:C:201:CYC:HHD	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:3:THR:HB	2:G:4:PRO:HD2	2.04	0.40
1:F:144:ASP:HA	1:F:145:PRO:HD3	1.90	0.40
2:K:87:ASP:O	2:K:90:TYR:HB2	2.22	0.40
1:L:162:SER:O	1:L:166:ARG:HB2	2.22	0.40
2:A:111:LEU:C	2:A:111:LEU:HD23	2.42	0.40
2:I:108:ASP:HA	2:I:112:ILE:HB	2.04	0.40
2:I:125:SER:HG	2:I:127:SER:HG	1.69	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	169/172 (98%)	165 (98%)	4 (2%)	0	100	100
1	D	169/172 (98%)	160 (95%)	9 (5%)	0	100	100
1	F	169/172 (98%)	160 (95%)	8 (5%)	1 (1%)	22	39
1	H	169/172 (98%)	164 (97%)	3 (2%)	2 (1%)	11	21
1	J	169/172 (98%)	165 (98%)	4 (2%)	0	100	100
1	L	169/172 (98%)	165 (98%)	4 (2%)	0	100	100
2	A	160/162 (99%)	156 (98%)	4 (2%)	0	100	100
2	C	160/162 (99%)	154 (96%)	5 (3%)	1 (1%)	22	39
2	E	160/162 (99%)	146 (91%)	14 (9%)	0	100	100
2	G	160/162 (99%)	147 (92%)	13 (8%)	0	100	100
2	I	160/162 (99%)	153 (96%)	6 (4%)	1 (1%)	22	39
2	K	160/162 (99%)	156 (98%)	4 (2%)	0	100	100
All	All	1974/2004 (98%)	1891 (96%)	78 (4%)	5 (0%)	37	56

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	H	34	GLY
2	C	16	GLY
2	I	105	GLY
1	F	123	PRO
1	H	111	ASN

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	B	129/130 (99%)	119 (92%)	10 (8%)	10	21
1	D	129/130 (99%)	124 (96%)	5 (4%)	27	52
1	F	129/130 (99%)	128 (99%)	1 (1%)	79	91
1	H	129/130 (99%)	124 (96%)	5 (4%)	27	52
1	J	129/130 (99%)	123 (95%)	6 (5%)	22	44
1	L	129/130 (99%)	119 (92%)	10 (8%)	10	21
2	A	122/123 (99%)	117 (96%)	5 (4%)	26	50
2	C	122/123 (99%)	118 (97%)	4 (3%)	33	59
2	E	122/123 (99%)	115 (94%)	7 (6%)	17	35
2	G	122/123 (99%)	111 (91%)	11 (9%)	8	16
2	I	122/123 (99%)	118 (97%)	4 (3%)	33	59
2	K	123/123 (100%)	121 (98%)	2 (2%)	58	80
All	All	1507/1518 (99%)	1437 (95%)	70 (5%)	23	45

All (70) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	F	158	SER
2	K	23	GLU
2	K	70	SER
1	H	28	SER
1	H	30	MET
1	H	110	LEU

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Mol	Chain	Res	Type
1	H	144	ASP
1	H	152	ASP
1	B	7	LYS
1	B	30	MET
1	B	32	LYS
1	B	35	SER
1	B	38	LEU
1	B	67	ILE
1	B	83	LEU
1	B	110	LEU
1	B	118	GLN
1	B	166	ARG
1	D	28	SER
1	D	32	LYS
1	D	68	GLN
1	D	86	MET
1	D	125	SER
1	J	7	LYS
1	J	28	SER
1	J	46	SER
1	J	125	SER
1	J	144	ASP
1	J	158	SER
1	L	7	LYS
1	L	10	SER
1	L	11	GLN
1	L	29	ASN
1	L	30	MET
1	L	32	LYS
1	L	38	LEU
1	L	46	SER
1	L	133	LYS
1	L	156	LEU
2	A	1	MET
2	A	30	ARG
2	A	38	MET
2	A	78	SER
2	A	82	SER
2	C	20	SER
2	C	78	SER
2	C	79	ARG
2	C	162	SER

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Mol	Chain	Res	Type
2	E	3	THR
2	E	23	GLU
2	E	76	SER
2	E	81	LYS
2	E	125	SER
2	E	127	SER
2	E	152	THR
2	G	22	THR
2	G	25	GLN
2	G	30	ARG
2	G	38	MET
2	G	50	GLN
2	G	57	ASN
2	G	70	SER
2	G	78	SER
2	G	79	ARG
2	G	143	SER
2	G	152	THR
2	I	24	LEU
2	I	30	ARG
2	I	70	SER
2	I	82	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (31) such sidechains are listed below:

Mol	Chain	Res	Type
1	F	63	GLN
2	K	25	GLN
2	K	46	ASN
2	K	57	ASN
1	H	63	GLN
1	B	63	GLN
1	B	68	GLN
1	D	21	ASN
1	D	63	GLN
1	D	132	GLN
1	J	63	GLN
1	L	63	GLN
2	A	25	GLN
2	A	49	GLN
2	A	57	ASN
2	A	139	ASN

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Mol	Chain	Res	Type
2	C	25	GLN
2	C	46	ASN
2	C	47	ASN
2	C	68	GLN
2	E	25	GLN
2	E	139	ASN
2	E	145	GLN
2	G	47	ASN
2	G	50	GLN
2	G	148	ASN
2	I	15	GLN
2	I	46	ASN
2	I	57	ASN
2	I	68	GLN
2	I	139	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)

6 non-standard protein/DNA/RNA residues 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	$\#\|Z\| > 2$
1	MEN	B	72	1	7,8,9	0.61	0	6,9,11	1.69	2 (33%)
1	MEN	J	72	1	7,8,9	0.61	0	6,9,11	1.30	1 (16%)
1	MEN	L	72	1	7,8,9	0.52	0	6,9,11	0.79	0
1	MEN	H	72	1	7,8,9	0.69	0	6,9,11	1.13	0
1	MEN	D	72	1	7,8,9	0.45	0	6,9,11	1.41	1 (16%)
1	MEN	F	72	1	7,8,9	0.65	0	6,9,11	1.01	1 (16%)

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
1	MEN	B	72	1	-	2/7/8/10	-
1	MEN	J	72	1	-	4/7/8/10	-
1	MEN	L	72	1	-	0/7/8/10	-
1	MEN	H	72	1	-	2/7/8/10	-
1	MEN	D	72	1	-	2/7/8/10	-
1	MEN	F	72	1	-	1/7/8/10	-

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	72	MEN	CB-CG-ND2	3.06	119.60	115.48
1	D	72	MEN	CB-CG-ND2	2.76	119.20	115.48
1	B	72	MEN	CA-CB-CG	-2.35	106.02	112.70
1	J	72	MEN	CA-CB-CG	-2.10	106.73	112.70
1	F	72	MEN	CA-CB-CG	-2.07	106.80	112.70

There are no chirality outliers.

All (11) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	F	72	MEN	O-C-CA-CB
1	B	72	MEN	N-CA-CB-CG
1	B	72	MEN	C-CA-CB-CG
1	D	72	MEN	C-CA-CB-CG
1	J	72	MEN	O-C-CA-CB
1	J	72	MEN	C-CA-CB-CG
1	D	72	MEN	N-CA-CB-CG
1	J	72	MEN	N-CA-CB-CG
1	J	72	MEN	CB-CG-ND2-CE2
1	H	72	MEN	C-CA-CB-CG
1	H	72	MEN	N-CA-CB-CG

There are no ring outliers.

6 monomers are involved in 18 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	B	72	MEN	1	0
1	J	72	MEN	2	0
1	L	72	MEN	4	0
1	H	72	MEN	4	0
1	D	72	MEN	4	0
1	F	72	MEN	3	0

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

20 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	$\#\|Z\| > 2$
3	CYC	B	202	1	42,46,46	0.90	1 (2%)	50,67,67	1.33	7 (14%)
3	CYC	B	201	1	42,46,46	0.91	1 (2%)	50,67,67	1.30	8 (16%)
3	CYC	J	202	1	42,46,46	0.87	2 (4%)	50,67,67	1.17	4 (8%)
3	CYC	J	201	1	42,46,46	1.20	1 (2%)	50,67,67	1.25	5 (10%)
3	CYC	C	201	2	42,46,46	1.10	1 (2%)	50,67,67	1.19	3 (6%)
4	GOL	A	203	-	5,5,5	0.08	0	5,5,5	0.22	0
3	CYC	L	202	1	42,46,46	1.55	1 (2%)	50,67,67	1.11	3 (6%)
3	CYC	A	201	2	42,46,46	1.27	2 (4%)	50,67,67	1.17	7 (14%)
3	CYC	E	201	2	42,46,46	0.97	3 (7%)	50,67,67	1.25	6 (12%)
4	GOL	A	202	-	5,5,5	0.15	0	5,5,5	0.36	0
3	CYC	F	201	1	42,46,46	1.01	2 (4%)	50,67,67	1.36	8 (16%)
3	CYC	H	201	1	42,46,46	1.23	2 (4%)	50,67,67	1.24	5 (10%)
3	CYC	D	202	1	42,46,46	1.32	1 (2%)	50,67,67	1.17	3 (6%)
3	CYC	H	202	1	42,46,46	1.01	1 (2%)	50,67,67	1.10	3 (6%)
3	CYC	K	201	2	42,46,46	1.06	2 (4%)	50,67,67	1.12	5 (10%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
3	CYC	I	201	2	42,46,46	0.94	3 (7%)	50,67,67	1.26	7 (14%)
3	CYC	F	202	1	42,46,46	0.82	2 (4%)	50,67,67	1.20	4 (8%)
3	CYC	D	201	1	42,46,46	0.97	2 (4%)	50,67,67	1.40	11 (22%)
3	CYC	L	201	1	42,46,46	1.57	1 (2%)	50,67,67	1.22	4 (8%)
3	CYC	G	201	2	42,46,46	1.55	5 (11%)	50,67,67	1.16	3 (6%)

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	CYC	B	202	1	-	6/25/74/74	0/4/4/4
3	CYC	B	201	1	-	10/25/74/74	0/4/4/4
3	CYC	J	202	1	-	6/25/74/74	0/4/4/4
3	CYC	J	201	1	-	8/25/74/74	0/4/4/4
3	CYC	C	201	2	-	10/25/74/74	0/4/4/4
4	GOL	A	203	-	-	2/4/4/4	-
3	CYC	L	202	1	-	9/25/74/74	0/4/4/4
3	CYC	A	201	2	-	9/25/74/74	0/4/4/4
3	CYC	E	201	2	-	10/25/74/74	0/4/4/4
4	GOL	A	202	-	-	2/4/4/4	-
3	CYC	F	201	1	-	8/25/74/74	0/4/4/4
3	CYC	H	201	1	-	5/25/74/74	0/4/4/4
3	CYC	D	202	1	-	6/25/74/74	0/4/4/4
3	CYC	H	202	1	-	6/25/74/74	0/4/4/4
3	CYC	K	201	2	-	13/25/74/74	0/4/4/4
3	CYC	I	201	2	-	11/25/74/74	0/4/4/4
3	CYC	F	202	1	-	10/25/74/74	0/4/4/4
3	CYC	D	201	1	-	9/25/74/74	0/4/4/4
3	CYC	L	201	1	-	9/25/74/74	0/4/4/4
3	CYC	G	201	2	-	8/25/74/74	0/4/4/4

All (33) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	L	201	CYC	CHA-C1A	8.95	1.42	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	L	202	CYC	CHA-C1A	8.88	1.42	1.35
3	G	201	CYC	CHA-C1A	7.55	1.41	1.35
3	D	202	CYC	CHA-C1A	7.46	1.41	1.35
3	A	201	CYC	CHA-C1A	6.05	1.40	1.35
3	J	201	CYC	CHA-C1A	5.72	1.39	1.35
3	H	201	CYC	CHA-C1A	5.70	1.39	1.35
3	C	201	CYC	CHA-C1A	4.93	1.39	1.35
3	H	202	CYC	CHA-C1A	4.71	1.39	1.35
3	K	201	CYC	CHA-C1A	4.12	1.38	1.35
3	F	201	CYC	CHA-C1A	3.13	1.37	1.35
3	E	201	CYC	CHA-C1A	3.12	1.37	1.35
3	D	201	CYC	CHB-C4A	-2.94	1.33	1.40
3	B	201	CYC	CHA-C1A	2.83	1.37	1.35
3	K	201	CYC	C1B-C2B	-2.79	1.40	1.45
3	G	201	CYC	CHB-C4A	-2.65	1.34	1.40
3	E	201	CYC	C1B-C2B	-2.55	1.40	1.45
3	B	202	CYC	CHA-C1A	2.54	1.37	1.35
3	I	201	CYC	C1B-C2B	-2.47	1.40	1.45
3	G	201	CYC	O2D-CGD	-2.37	1.22	1.30
3	J	202	CYC	CHA-C1A	2.27	1.37	1.35
3	F	202	CYC	C1B-C2B	-2.24	1.41	1.45
3	F	202	CYC	CHA-C1A	2.21	1.37	1.35
3	G	201	CYC	C1B-C2B	-2.19	1.41	1.45
3	G	201	CYC	O1A-CGA	2.14	1.29	1.22
3	I	201	CYC	O2D-CGD	-2.11	1.23	1.30
3	F	201	CYC	C1B-C2B	-2.08	1.41	1.45
3	D	201	CYC	C2C-C1C	-2.05	1.50	1.52
3	I	201	CYC	O1A-CGA	2.05	1.28	1.22
3	A	201	CYC	C2C-C1C	-2.04	1.50	1.52
3	J	202	CYC	O1D-CGD	2.03	1.28	1.22
3	H	201	CYC	C2C-C1C	-2.02	1.50	1.52
3	E	201	CYC	O1D-CGD	2.01	1.28	1.22

All (96) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	L	201	CYC	CMB-C2B-C1B	4.72	130.07	124.17
3	H	201	CYC	CMB-C2B-C1B	4.65	129.98	124.17
3	H	202	CYC	CMB-C2B-C1B	4.43	129.70	124.17
3	C	201	CYC	CMB-C2B-C1B	4.14	129.34	124.17
3	J	202	CYC	CMB-C2B-C1B	3.95	129.09	124.17
3	B	201	CYC	CHD-C4C-NC	3.79	129.71	125.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	F	201	CYC	CMB-C2B-C1B	3.55	128.60	124.17
3	E	201	CYC	CMB-C2B-C1B	3.54	128.59	124.17
3	J	201	CYC	CMB-C2B-C1B	3.47	128.50	124.17
3	J	201	CYC	CAC-C3C-C4C	3.25	121.03	112.67
3	B	202	CYC	CHD-C4C-NC	3.21	129.02	125.20
3	G	201	CYC	CAC-C3C-C4C	3.13	120.70	112.67
3	L	202	CYC	CMB-C2B-C1B	3.10	128.04	124.17
3	F	201	CYC	CHA-C1A-NA	-3.01	124.66	128.83
3	D	201	CYC	OC-C1C-C2C	-2.96	123.82	126.17
3	D	201	CYC	C1B-NB-C4B	-2.96	106.91	110.67
3	I	201	CYC	CAC-C3C-C4C	2.91	120.15	112.67
3	I	201	CYC	CHD-C4C-NC	2.90	128.65	125.20
3	B	201	CYC	CMB-C2B-C1B	2.90	127.79	124.17
3	F	201	CYC	CAC-C3C-C4C	2.90	120.11	112.67
3	F	201	CYC	C2C-C3C-C4C	2.87	105.64	101.34
3	B	202	CYC	CHB-C1B-C2B	-2.85	121.31	126.95
3	F	202	CYC	C3B-C4B-NB	-2.81	104.50	106.78
3	B	201	CYC	OC-C1C-C2C	-2.72	124.01	126.17
3	B	202	CYC	CAC-C3C-C2C	2.72	121.06	114.26
3	F	201	CYC	OC-C1C-C2C	-2.72	124.01	126.17
3	E	201	CYC	CMA-C3A-C4A	2.71	129.23	125.06
3	H	201	CYC	C2C-C3C-C4C	2.70	105.39	101.34
3	F	201	CYC	CAC-C3C-C2C	-2.66	107.62	114.26
3	J	201	CYC	C2C-C3C-C4C	2.65	105.31	101.34
3	F	202	CYC	CHA-C1A-NA	-2.63	125.18	128.83
3	D	201	CYC	O1D-CGD-CBD	-2.62	114.68	123.08
3	A	201	CYC	CAC-C3C-C4C	2.60	119.34	112.67
3	E	201	CYC	OC-C1C-C2C	2.59	128.23	126.17
3	K	201	CYC	O1D-CGD-CBD	-2.58	114.79	123.08
3	I	201	CYC	CMB-C2B-C1B	2.57	127.37	124.17
3	D	202	CYC	CAC-C3C-C2C	2.57	120.67	114.26
3	B	202	CYC	C4D-CHA-C1A	2.56	131.87	128.81
3	F	201	CYC	CBD-CAD-C3D	2.53	116.94	112.62
3	D	202	CYC	CMB-C2B-C1B	2.52	127.31	124.17
3	J	201	CYC	CHA-C1A-NA	-2.51	125.34	128.83
3	D	201	CYC	C3B-C4B-NB	-2.50	104.75	106.78
3	B	201	CYC	O1D-CGD-CBD	-2.48	115.10	123.08
3	J	201	CYC	CHD-C4C-NC	2.47	128.14	125.20
3	J	202	CYC	CHA-C1A-NA	-2.46	125.41	128.83
3	D	201	CYC	CMA-C3A-C4A	2.46	128.85	125.06
3	L	202	CYC	CHA-C1A-NA	-2.45	125.42	128.83
3	E	201	CYC	OB-C4B-C3B	2.44	130.69	128.04

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	J	202	CYC	CAC-C3C-C2C	2.44	120.36	114.26
3	D	201	CYC	CHA-C1A-NA	-2.43	125.46	128.83
3	D	201	CYC	CMB-C2B-C1B	2.41	127.18	124.17
3	K	201	CYC	CHA-C1A-NA	-2.40	125.49	128.83
3	I	201	CYC	CMA-C3A-C4A	2.37	128.71	125.06
3	G	201	CYC	CMA-C3A-C4A	2.36	128.69	125.06
3	H	201	CYC	C1B-NB-C4B	-2.35	107.67	110.67
3	D	201	CYC	C2C-C3C-C4C	2.34	104.85	101.34
3	F	202	CYC	OB-C4B-C3B	2.34	130.58	128.04
3	A	201	CYC	O1D-CGD-CBD	-2.34	115.56	123.08
3	I	201	CYC	C4D-CHA-C1A	2.33	131.59	128.81
3	B	201	CYC	C2C-C3C-C4C	2.33	104.83	101.34
3	D	201	CYC	CAB-C3B-C2B	2.31	131.48	127.53
3	A	201	CYC	C4D-CHA-C1A	2.31	131.57	128.81
3	B	202	CYC	CAC-C3C-C4C	-2.30	106.75	112.67
3	B	201	CYC	CMA-C3A-C4A	2.29	128.60	125.06
3	D	201	CYC	O2D-CGD-CBD	2.29	121.38	114.03
3	K	201	CYC	C4D-CHA-C1A	2.28	131.53	128.81
3	F	202	CYC	CMB-C2B-C1B	2.28	127.01	124.17
3	K	201	CYC	CHB-C1B-C2B	-2.28	122.44	126.95
3	H	201	CYC	CHA-C1A-NA	-2.27	125.68	128.83
3	D	201	CYC	CHD-C4C-NC	2.27	127.90	125.20
3	D	202	CYC	CHD-C4C-NC	2.24	127.87	125.20
3	I	201	CYC	CHA-C1A-NA	-2.20	125.77	128.83
3	K	201	CYC	CMB-C2B-C1B	2.20	126.92	124.17
3	B	201	CYC	O2D-CGD-CBD	2.20	121.10	114.03
3	A	201	CYC	CMA-C3A-C4A	2.20	128.45	125.06
3	L	201	CYC	C2C-C3C-C4C	2.17	104.58	101.34
3	E	201	CYC	C3B-C4B-NB	-2.16	105.03	106.78
3	L	201	CYC	CHA-C1A-NA	-2.15	125.85	128.83
3	H	201	CYC	C3B-C4B-NB	-2.13	105.05	106.78
3	F	201	CYC	CAB-C3B-C2B	2.10	131.12	127.53
3	B	202	CYC	CHB-C1B-NB	2.10	130.56	126.06
3	C	201	CYC	CHA-C1A-NA	-2.09	125.92	128.83
3	L	202	CYC	CHD-C4C-NC	2.09	127.69	125.20
3	B	202	CYC	C2C-C3C-C4C	2.09	104.47	101.34
3	I	201	CYC	CHB-C1B-C2B	-2.09	122.81	126.95
3	A	201	CYC	O2D-CGD-CBD	2.08	120.71	114.03
3	J	202	CYC	CAC-C3C-C4C	-2.08	107.34	112.67
3	H	202	CYC	CMA-C3A-C4A	2.07	128.26	125.06
3	B	201	CYC	CHA-C1A-NA	-2.07	125.95	128.83
3	C	201	CYC	C4D-CHA-C1A	2.06	131.27	128.81

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	G	201	CYC	CMB-C2B-C1B	2.04	126.72	124.17
3	E	201	CYC	CHA-C1A-NA	-2.04	125.99	128.83
3	A	201	CYC	O1A-CGA-CBA	-2.04	116.54	123.08
3	L	201	CYC	CBD-CAD-C3D	2.03	116.09	112.62
3	A	201	CYC	CHA-C1A-NA	-2.02	126.03	128.83
3	H	202	CYC	CBD-CAD-C3D	2.01	116.04	112.62

There are no chirality outliers.

All (157) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	F	201	CYC	NA-C4A-CHB-C1B
3	F	201	CYC	C3A-C4A-CHB-C1B
3	F	201	CYC	ND-C1D-CHD-C4C
3	F	201	CYC	C2D-C1D-CHD-C4C
3	K	201	CYC	NA-C4A-CHB-C1B
3	K	201	CYC	C3A-C4A-CHB-C1B
3	K	201	CYC	C4C-C3C-CAC-CBC
3	H	201	CYC	NA-C4A-CHB-C1B
3	H	201	CYC	C3A-C4A-CHB-C1B
3	H	201	CYC	ND-C1D-CHD-C4C
3	H	201	CYC	C2D-C1D-CHD-C4C
3	H	202	CYC	NA-C4A-CHB-C1B
3	H	202	CYC	C3A-C4A-CHB-C1B
3	H	202	CYC	ND-C1D-CHD-C4C
3	B	201	CYC	NA-C4A-CHB-C1B
3	B	201	CYC	C3A-C4A-CHB-C1B
3	B	201	CYC	C2B-C3B-CAB-CBB
3	B	201	CYC	ND-C1D-CHD-C4C
3	B	201	CYC	C2D-C1D-CHD-C4C
3	B	202	CYC	ND-C4D-CHA-C1A
3	B	202	CYC	NA-C4A-CHB-C1B
3	B	202	CYC	C3A-C4A-CHB-C1B
3	B	202	CYC	C4C-C3C-CAC-CBC
3	D	201	CYC	NA-C4A-CHB-C1B
3	D	201	CYC	C3A-C4A-CHB-C1B
3	D	201	CYC	ND-C1D-CHD-C4C
3	D	201	CYC	C2D-C1D-CHD-C4C
3	D	202	CYC	NA-C4A-CHB-C1B
3	D	202	CYC	C3A-C4A-CHB-C1B
3	J	201	CYC	NA-C4A-CHB-C1B
3	J	201	CYC	C3A-C4A-CHB-C1B

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Mol	Chain	Res	Type	Atoms
3	J	201	CYC	C4B-C3B-CAB-CBB
3	J	201	CYC	ND-C1D-CHD-C4C
3	J	201	CYC	C2D-C1D-CHD-C4C
3	J	202	CYC	ND-C4D-CHA-C1A
3	J	202	CYC	NA-C4A-CHB-C1B
3	J	202	CYC	C3A-C4A-CHB-C1B
3	J	202	CYC	C2D-C1D-CHD-C4C
3	L	201	CYC	ND-C4D-CHA-C1A
3	L	201	CYC	NA-C4A-CHB-C1B
3	L	201	CYC	C3A-C4A-CHB-C1B
3	L	201	CYC	ND-C1D-CHD-C4C
3	L	201	CYC	C2D-C1D-CHD-C4C
3	L	202	CYC	NA-C4A-CHB-C1B
3	L	202	CYC	C3A-C4A-CHB-C1B
3	A	201	CYC	NA-C4A-CHB-C1B
3	A	201	CYC	C3A-C4A-CHB-C1B
3	A	201	CYC	ND-C1D-CHD-C4C
3	C	201	CYC	NA-C4A-CHB-C1B
3	C	201	CYC	C3A-C4A-CHB-C1B
3	C	201	CYC	C2C-C3C-CAC-CBC
3	C	201	CYC	C4C-C3C-CAC-CBC
3	E	201	CYC	NA-C4A-CHB-C1B
3	E	201	CYC	C3A-C4A-CHB-C1B
3	E	201	CYC	C2C-C3C-CAC-CBC
3	E	201	CYC	C4C-C3C-CAC-CBC
3	E	201	CYC	ND-C1D-CHD-C4C
3	E	201	CYC	C2D-C1D-CHD-C4C
3	G	201	CYC	C4C-C3C-CAC-CBC
3	I	201	CYC	NA-C4A-CHB-C1B
3	I	201	CYC	C3A-C4A-CHB-C1B
3	I	201	CYC	C4C-C3C-CAC-CBC
3	I	201	CYC	ND-C1D-CHD-C4C
4	A	203	GOL	O1-C1-C2-C3
3	K	201	CYC	C2B-C3B-CAB-CBB
3	J	201	CYC	C2B-C3B-CAB-CBB
3	G	201	CYC	C2B-C3B-CAB-CBB
3	I	201	CYC	C2B-C3B-CAB-CBB
3	L	202	CYC	C2B-C3B-CAB-CBB
3	G	201	CYC	C3A-C4A-CHB-C1B
3	A	201	CYC	C2B-C3B-CAB-CBB
3	F	201	CYC	C2B-C3B-CAB-CBB
3	F	201	CYC	C4B-C3B-CAB-CBB

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Mol	Chain	Res	Type	Atoms
3	K	201	CYC	C4B-C3B-CAB-CBB
3	B	201	CYC	C4B-C3B-CAB-CBB
3	L	201	CYC	C2B-C3B-CAB-CBB
3	F	202	CYC	NA-C4A-CHB-C1B
3	G	201	CYC	NA-C4A-CHB-C1B
3	H	201	CYC	C2B-C3B-CAB-CBB
3	F	202	CYC	C3A-C4A-CHB-C1B
4	A	202	GOL	O1-C1-C2-C3
3	L	201	CYC	C4B-C3B-CAB-CBB
4	A	202	GOL	O1-C1-C2-O2
4	A	203	GOL	O1-C1-C2-O2
3	F	202	CYC	NB-C1B-CHB-C4A
3	E	201	CYC	C2B-C3B-CAB-CBB
3	K	201	CYC	NC-C4C-CHD-C1D
3	G	201	CYC	C2C-C3C-CAC-CBC
3	E	201	CYC	NA-C1A-CHA-C4D
3	A	201	CYC	C4B-C3B-CAB-CBB
3	A	201	CYC	C4C-C3C-CAC-CBC
3	I	201	CYC	NA-C1A-CHA-C4D
3	I	201	CYC	C4B-C3B-CAB-CBB
3	K	201	CYC	C2C-C3C-CAC-CBC
3	K	201	CYC	NA-C1A-CHA-C4D
3	F	202	CYC	C2B-C1B-CHB-C4A
3	K	201	CYC	C2A-C1A-CHA-C4D
3	F	202	CYC	C4B-C3B-CAB-CBB
3	F	201	CYC	CAA-CBA-CGA-O1A
3	L	201	CYC	CAA-CBA-CGA-O1A
3	K	201	CYC	CAA-CBA-CGA-O2A
3	J	201	CYC	CAA-CBA-CGA-O1A
3	A	201	CYC	CAA-CBA-CGA-O2A
3	F	202	CYC	C2B-C3B-CAB-CBB
3	L	202	CYC	C4B-C3B-CAB-CBB
3	B	201	CYC	CAA-CBA-CGA-O1A
3	D	201	CYC	CAA-CBA-CGA-O1A
3	D	202	CYC	CAA-CBA-CGA-O1A
3	E	201	CYC	CAA-CBA-CGA-O1A
3	E	201	CYC	CAA-CBA-CGA-O2A
3	F	201	CYC	CAA-CBA-CGA-O2A
3	K	201	CYC	CAA-CBA-CGA-O1A
3	H	202	CYC	CAA-CBA-CGA-O1A
3	L	201	CYC	CAA-CBA-CGA-O2A
3	D	201	CYC	CAA-CBA-CGA-O2A

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Mol	Chain	Res	Type	Atoms
3	A	201	CYC	CAA-CBA-CGA-O1A
3	C	201	CYC	CAA-CBA-CGA-O2A
3	B	201	CYC	CAA-CBA-CGA-O2A
3	J	201	CYC	CAA-CBA-CGA-O2A
3	I	201	CYC	CAA-CBA-CGA-O2A
3	C	201	CYC	NC-C4C-CHD-C1D
3	B	201	CYC	CAD-CBD-CGD-O2D
3	D	201	CYC	CAD-CBD-CGD-O2D
3	G	201	CYC	CAA-CBA-CGA-O1A
3	G	201	CYC	CAA-CBA-CGA-O2A
3	I	201	CYC	CAA-CBA-CGA-O1A
3	D	202	CYC	CAA-CBA-CGA-O2A
3	H	202	CYC	CAA-CBA-CGA-O2A
3	F	202	CYC	CAA-CBA-CGA-O2A
3	D	201	CYC	C2B-C3B-CAB-CBB
3	B	201	CYC	CAD-CBD-CGD-O1D
3	D	201	CYC	CAD-CBD-CGD-O1D
3	B	202	CYC	CAA-CBA-CGA-O2A
3	C	201	CYC	CAA-CBA-CGA-O1A
3	J	202	CYC	CAA-CBA-CGA-O2A
3	F	202	CYC	CAA-CBA-CGA-O1A
3	L	202	CYC	CAD-CBD-CGD-O2D
3	B	202	CYC	CAA-CBA-CGA-O1A
3	C	201	CYC	C2A-CAA-CBA-CGA
3	L	202	CYC	CAD-CBD-CGD-O1D
3	J	202	CYC	CAA-CBA-CGA-O1A
3	C	201	CYC	C2B-C3B-CAB-CBB
3	L	202	CYC	C2A-CAA-CBA-CGA
3	K	201	CYC	CAD-CBD-CGD-O2D
3	D	202	CYC	CAD-CBD-CGD-O2D
3	L	202	CYC	CAA-CBA-CGA-O2A
3	I	201	CYC	CAD-CBD-CGD-O2D
3	I	201	CYC	C2A-CAA-CBA-CGA
3	H	202	CYC	CAD-CBD-CGD-O2D
3	L	202	CYC	CAA-CBA-CGA-O1A
3	K	201	CYC	CAD-CBD-CGD-O1D
3	D	202	CYC	CAD-CBD-CGD-O1D
3	C	201	CYC	CAD-CBD-CGD-O2D
3	F	202	CYC	C2A-CAA-CBA-CGA
3	G	201	CYC	C2A-CAA-CBA-CGA
3	A	201	CYC	CAD-CBD-CGD-O2D
3	F	202	CYC	CAD-CBD-CGD-O1D

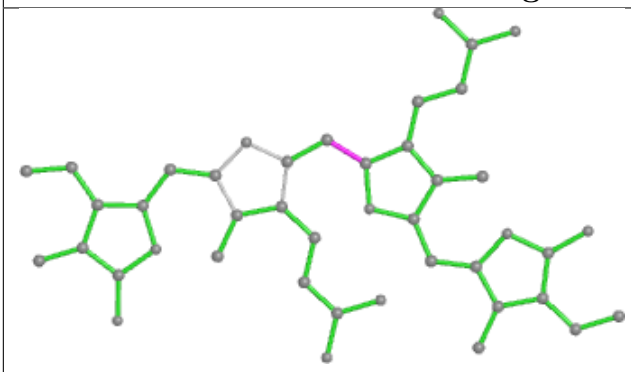
There are no ring outliers.

17 monomers are involved in 57 short contacts:

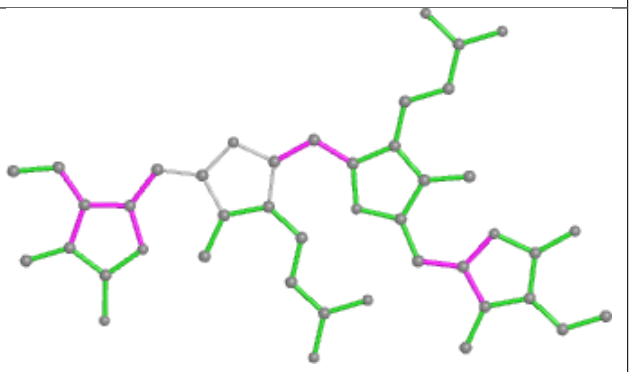
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	202	CYC	1	0
3	B	201	CYC	6	0
3	J	202	CYC	3	0
3	J	201	CYC	5	0
3	C	201	CYC	4	0
3	A	201	CYC	4	0
3	E	201	CYC	4	0
3	F	201	CYC	2	0
3	H	201	CYC	2	0
3	D	202	CYC	2	0
3	H	202	CYC	7	0
3	K	201	CYC	2	0
3	I	201	CYC	3	0
3	F	202	CYC	2	0
3	D	201	CYC	5	0
3	L	201	CYC	2	0
3	G	201	CYC	3	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.

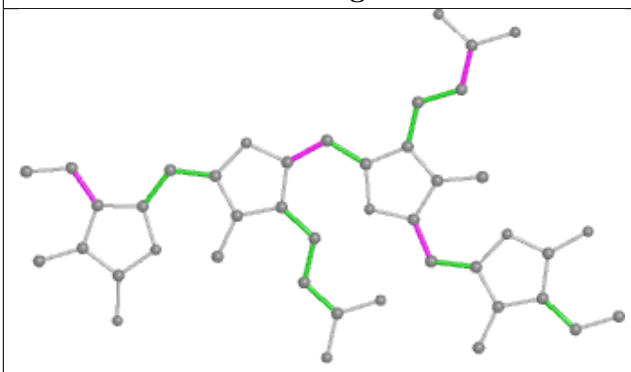
Ligand CYC B 202



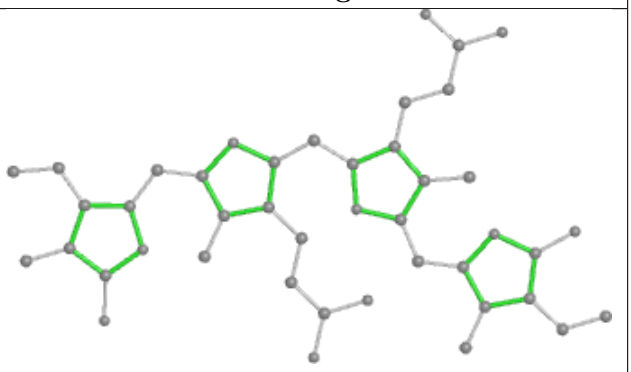
Bond lengths



Bond angles

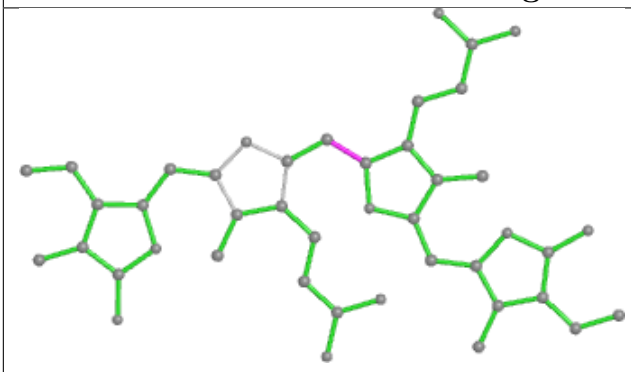


Torsions

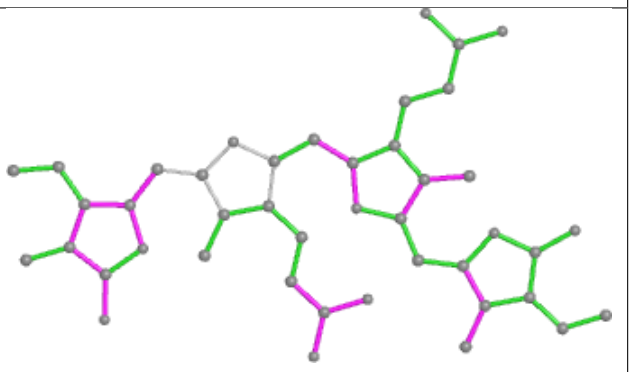


Rings

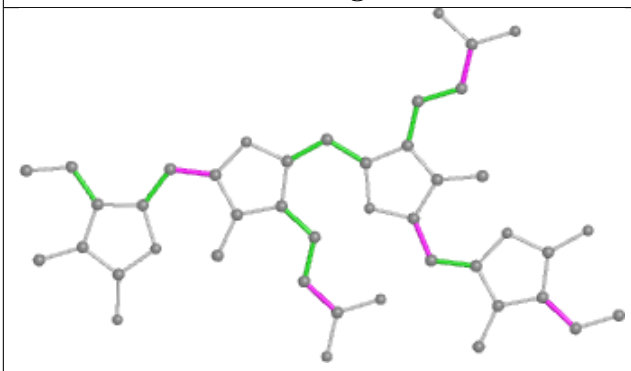
Ligand CYC B 201



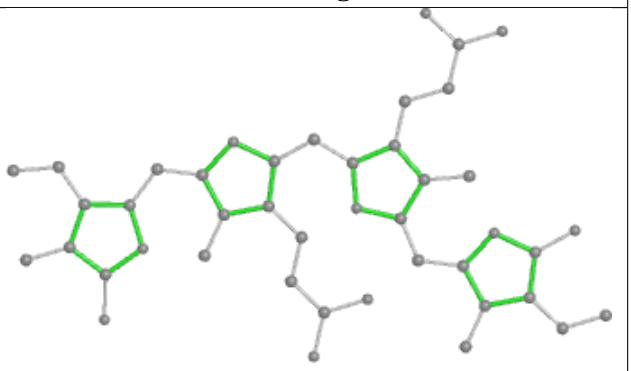
Bond lengths



Bond angles

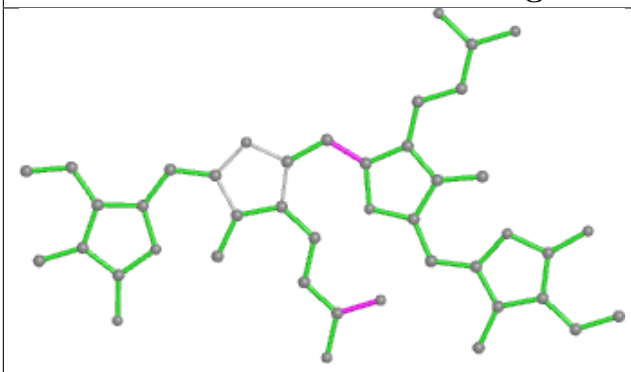


Torsions

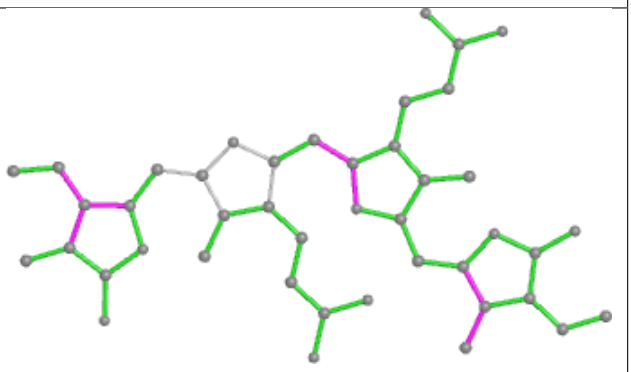


Rings

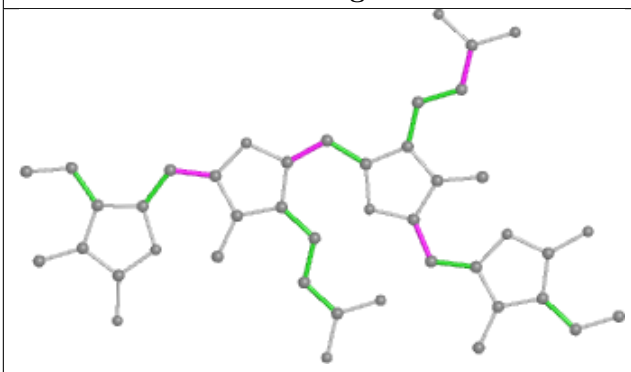
Ligand CYC J 202



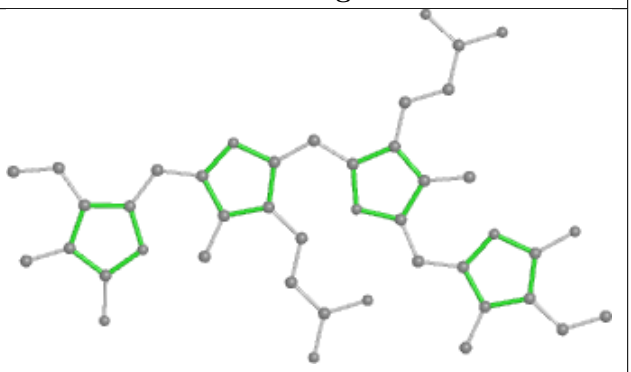
Bond lengths



Bond angles

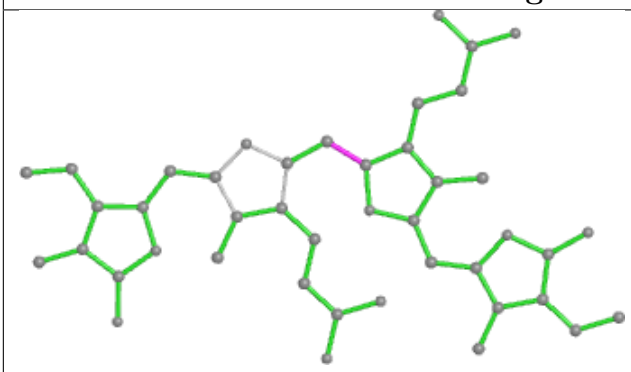


Torsions

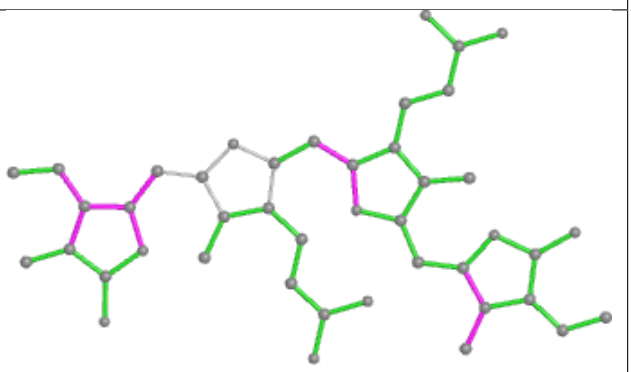


Rings

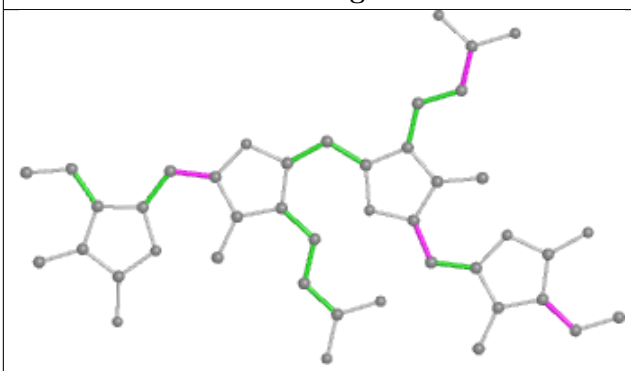
Ligand CYC J 201



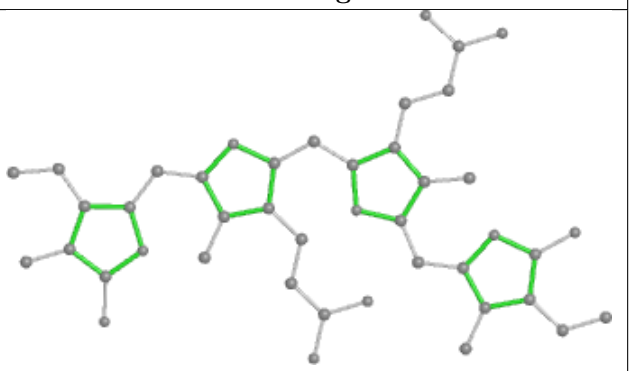
Bond lengths



Bond angles

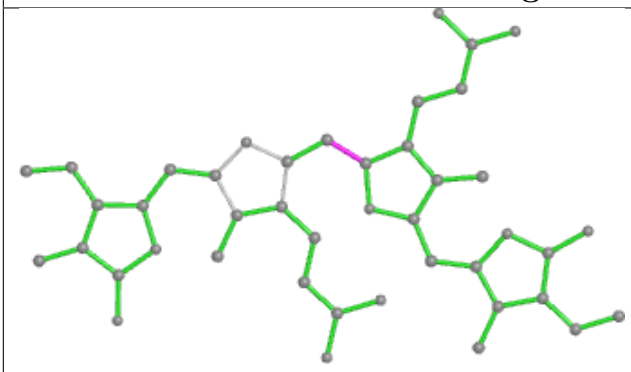


Torsions

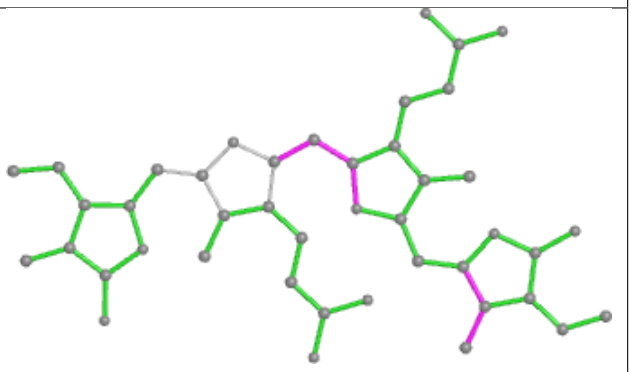


Rings

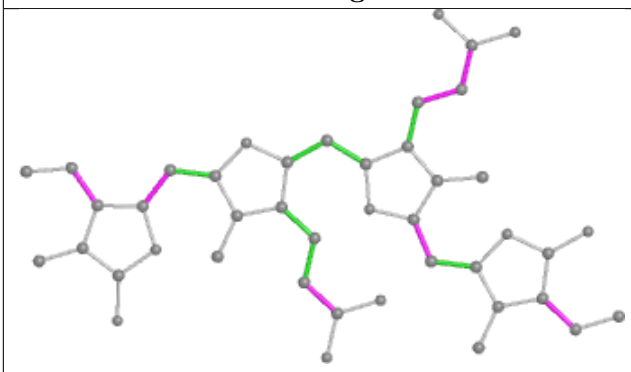
Ligand CYC C 201



Bond lengths



Bond angles



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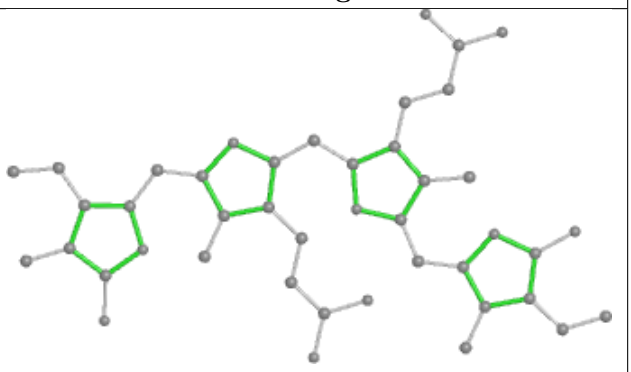
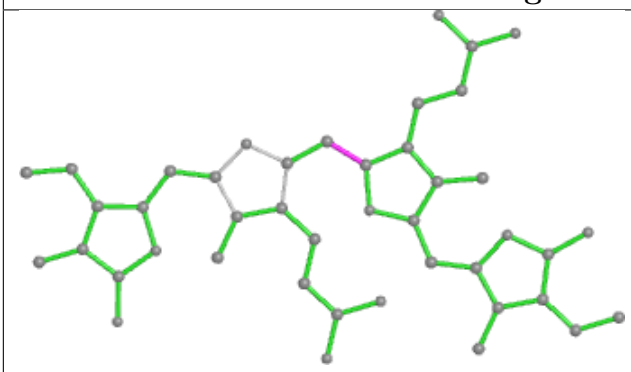
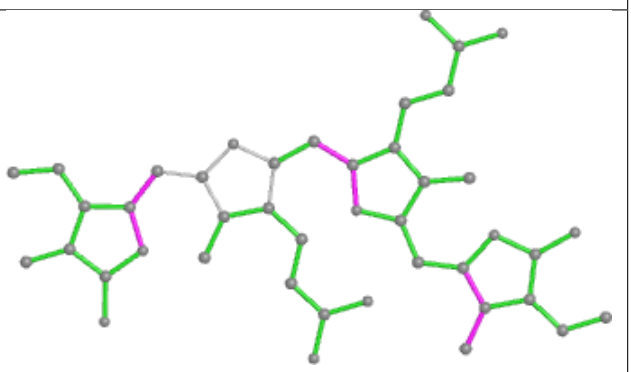


Rings

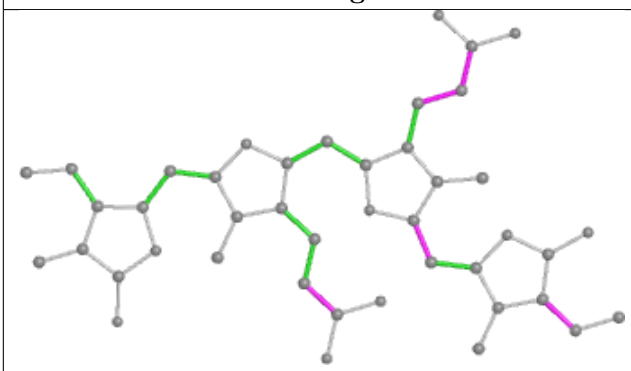
Ligand CYC L 202



Bond lengths



Bond angles



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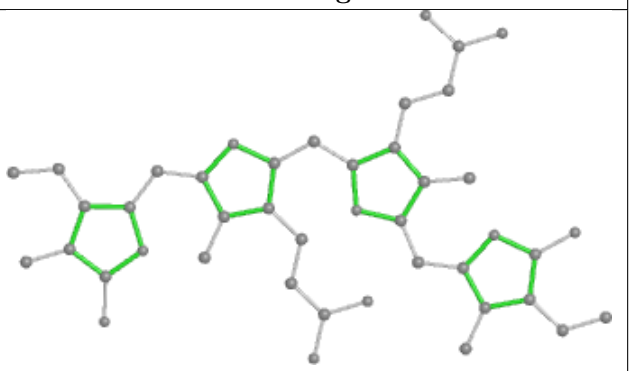
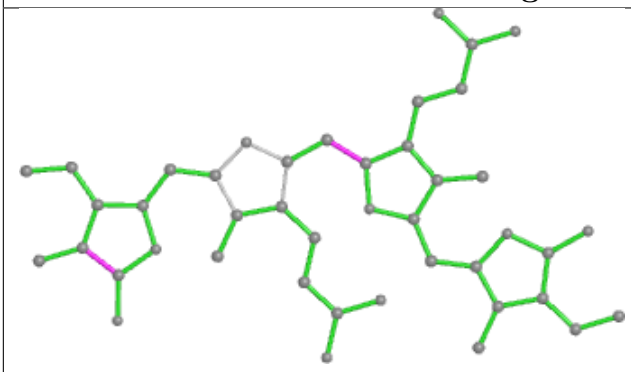
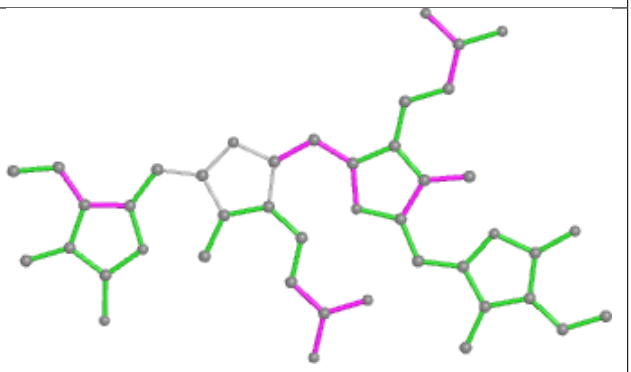


Rings

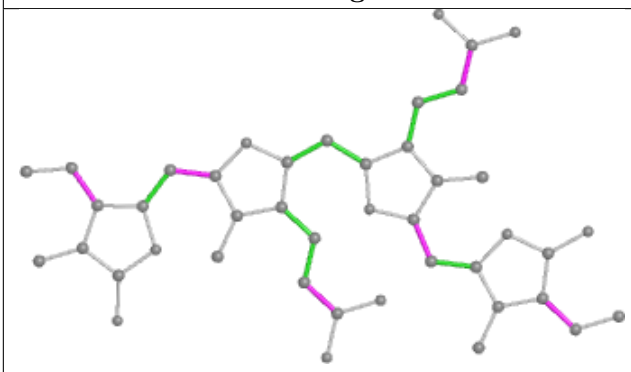
Ligand CYC A 201



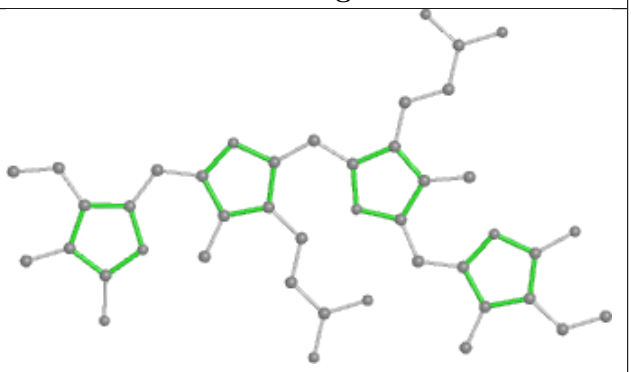
Bond lengths



Bond angles

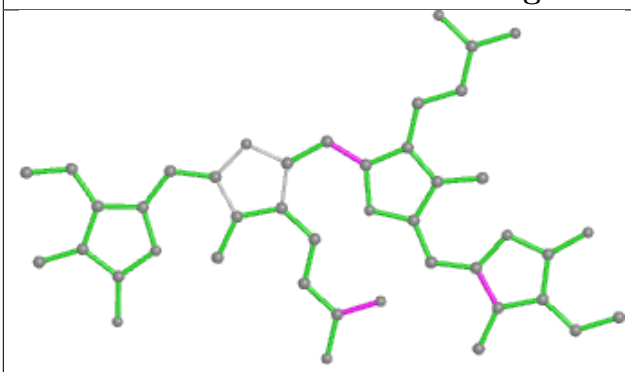


Torsions

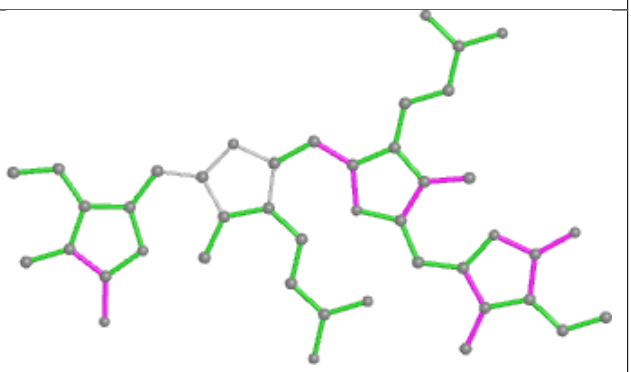


Rings

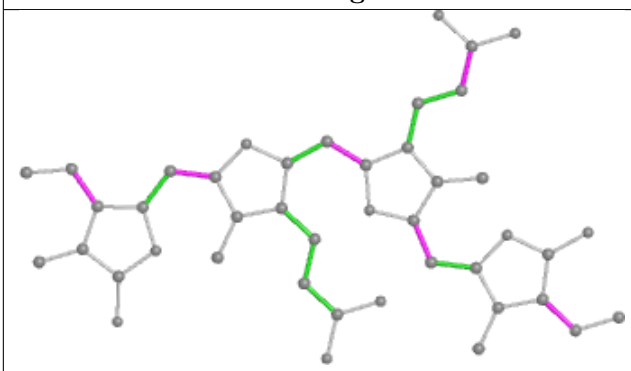
Ligand CYC E 201



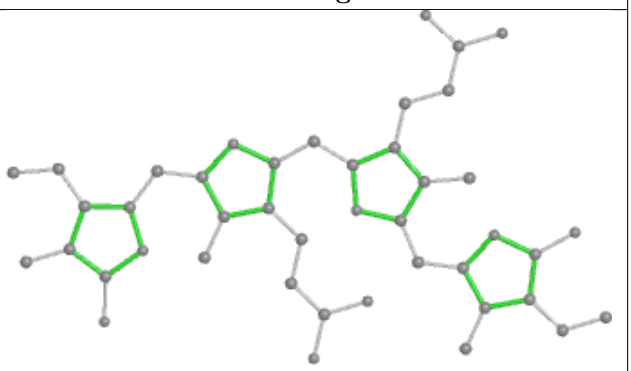
Bond lengths



Bond angles

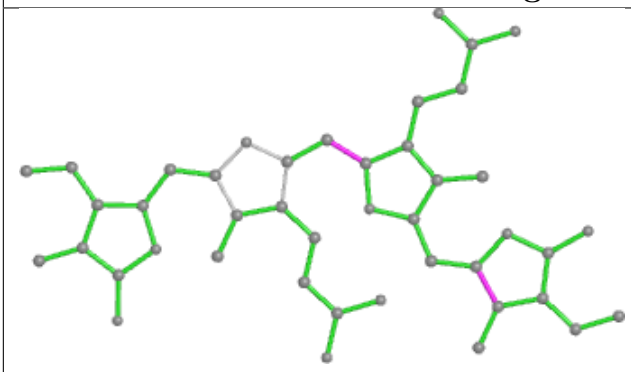


Torsions

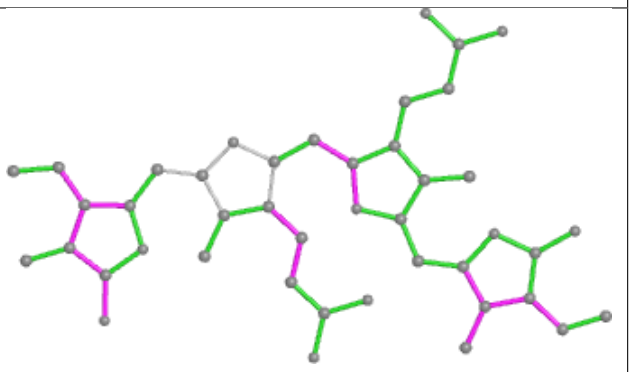


Rings

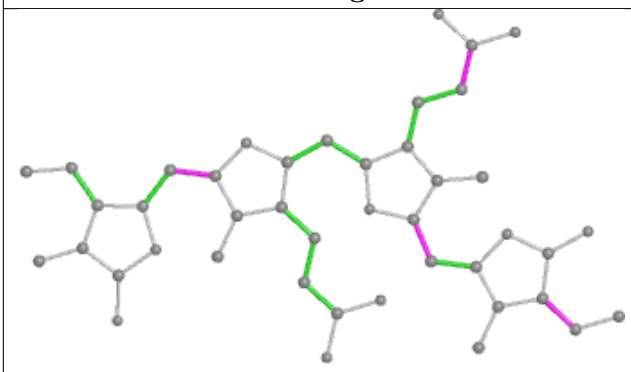
Ligand CYC F 201



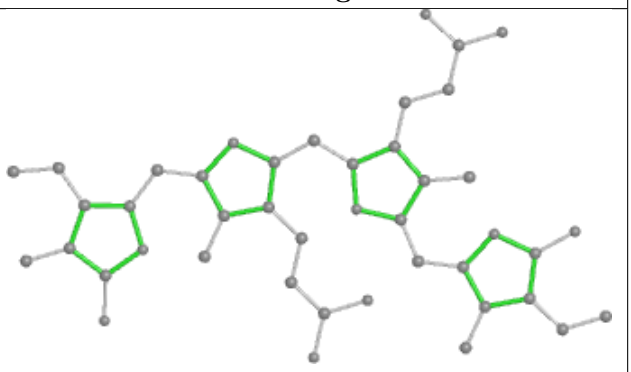
Bond lengths



Bond angles

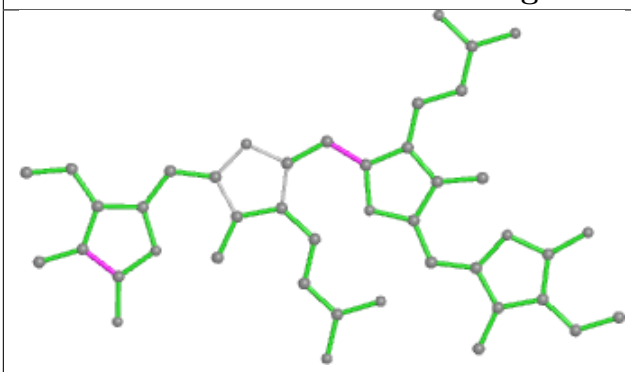


Torsions

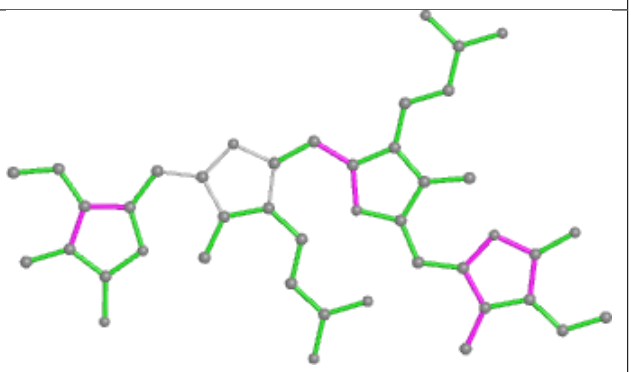


Rings

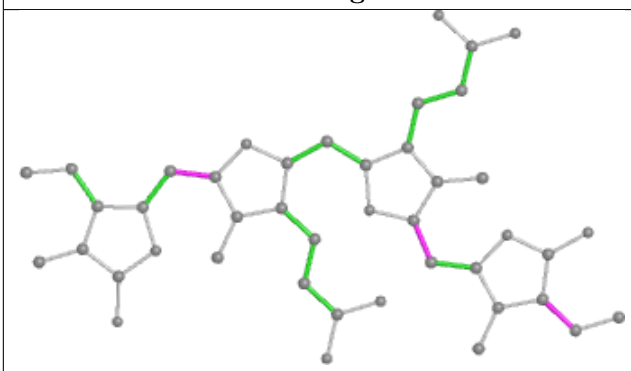
Ligand CYC H 201



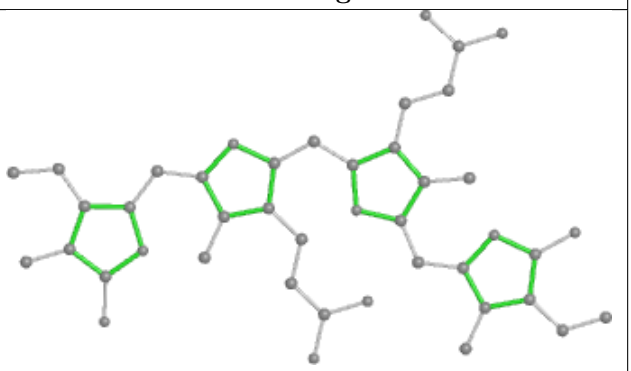
Bond lengths



Bond angles

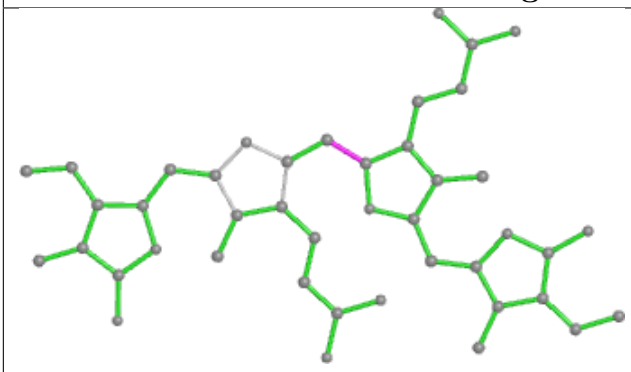


Torsions

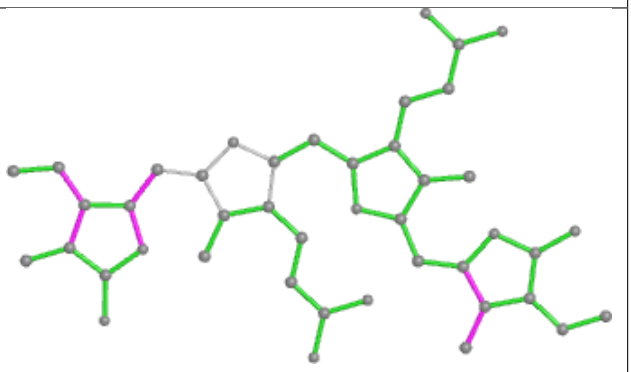


Rings

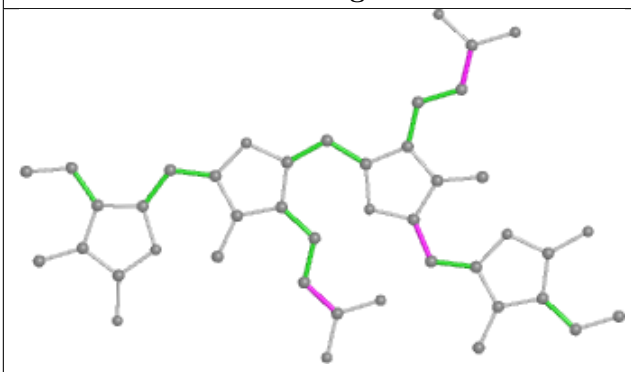
Ligand CYC D 202



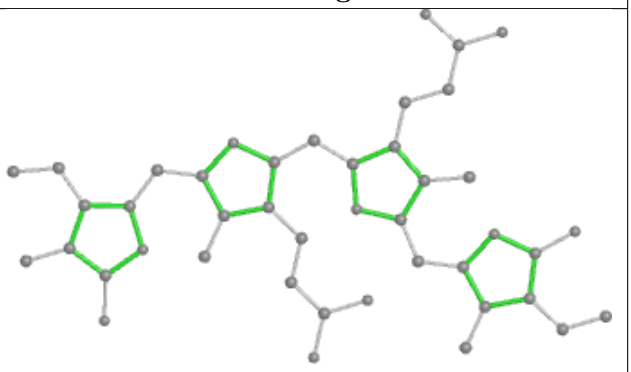
Bond lengths



Bond angles

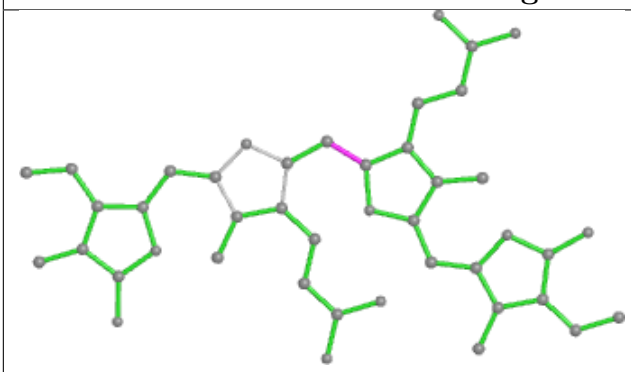


Torsions

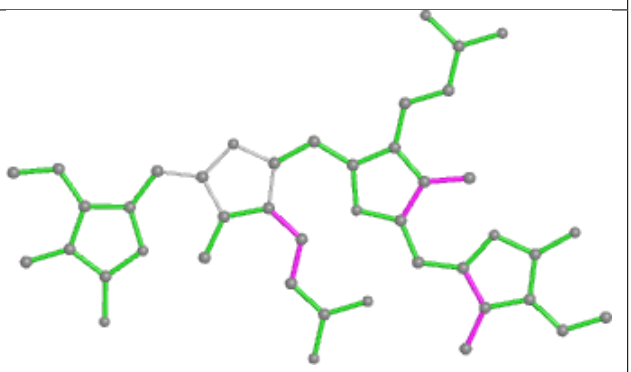


Rings

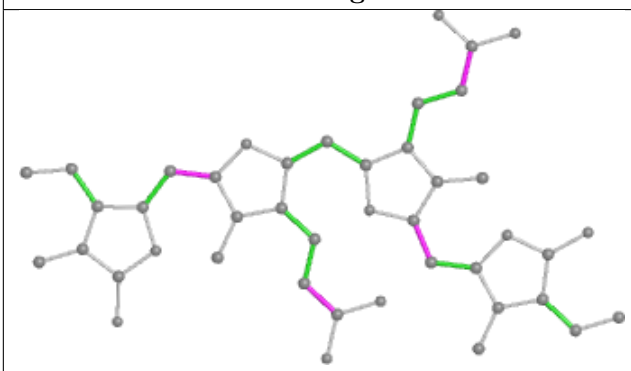
Ligand CYC H 202



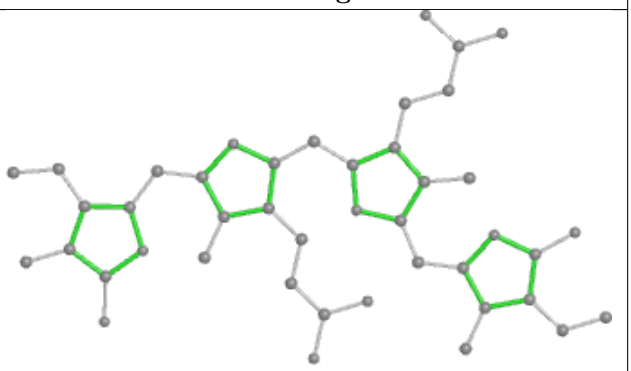
Bond lengths



Bond angles

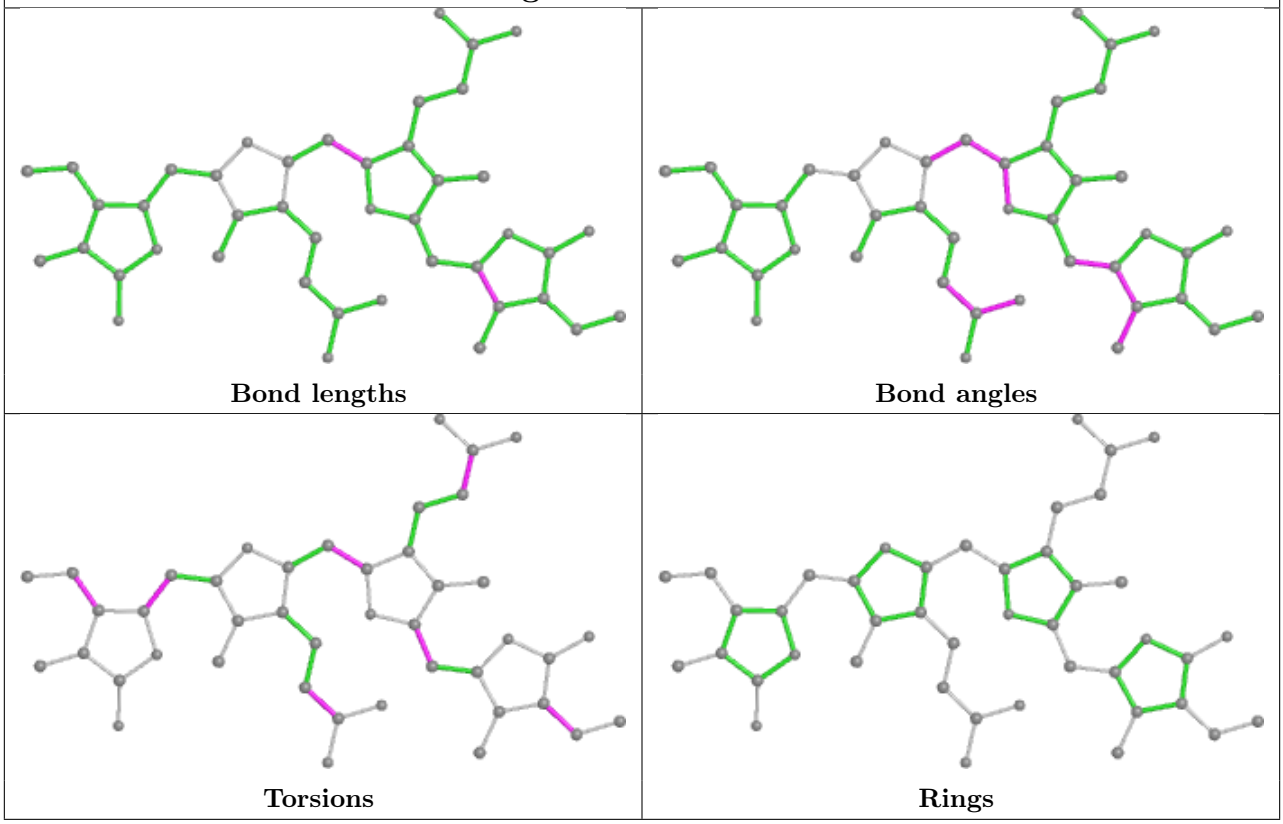


Torsions

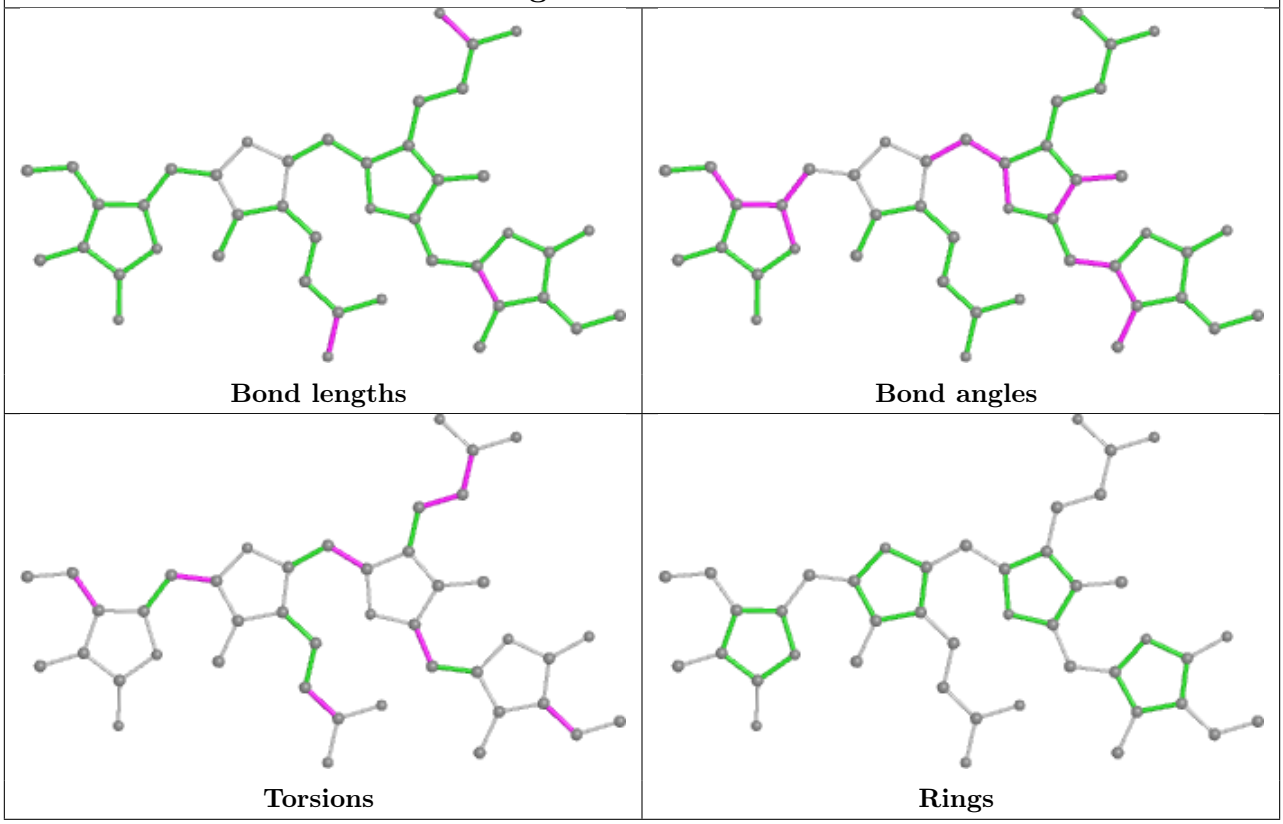


Rings

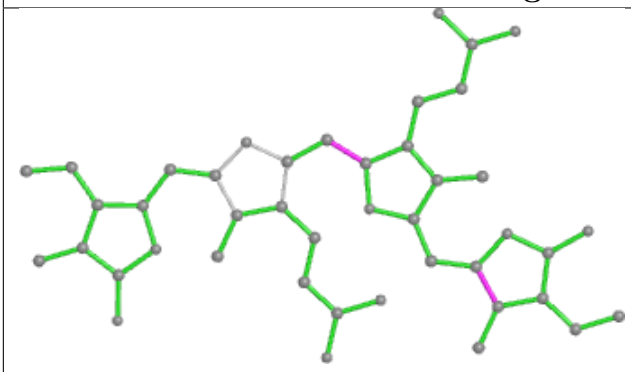
Ligand CYC K 201



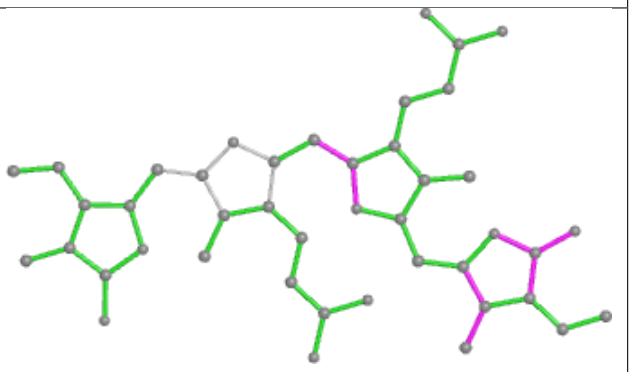
Ligand CYC I 201



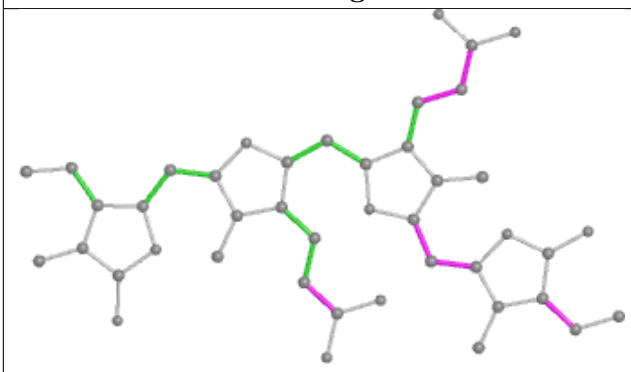
Ligand CYC F 202



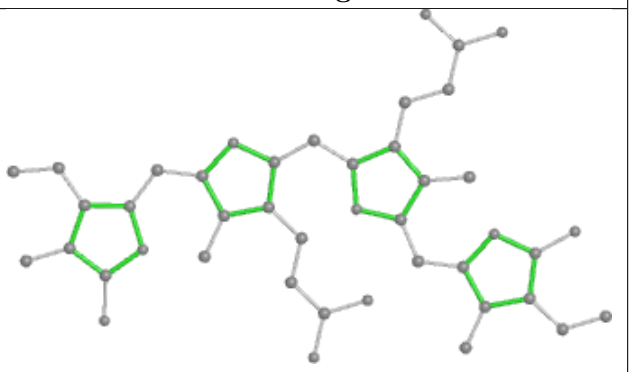
Bond lengths



Bond angles

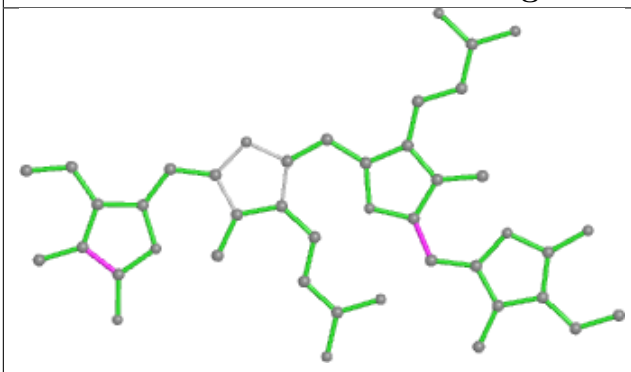


Torsions

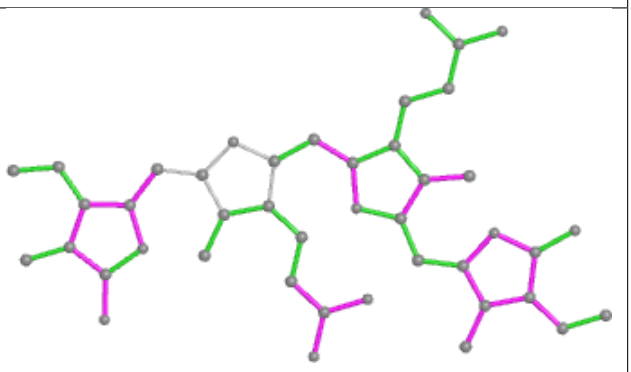


Rings

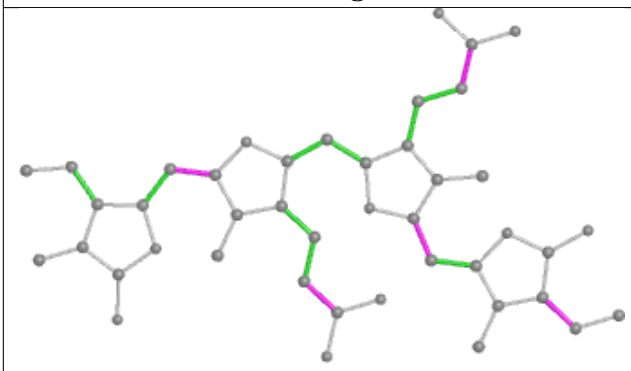
Ligand CYC D 201



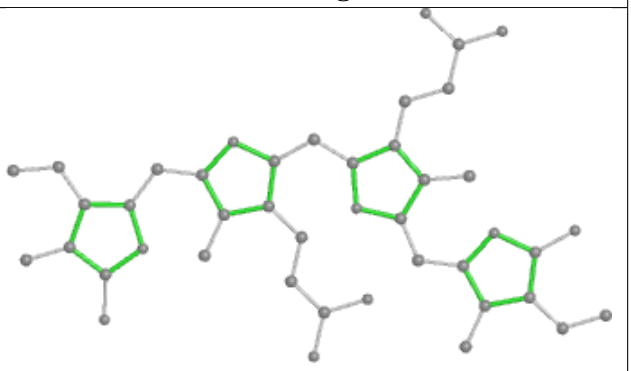
Bond lengths



Bond angles

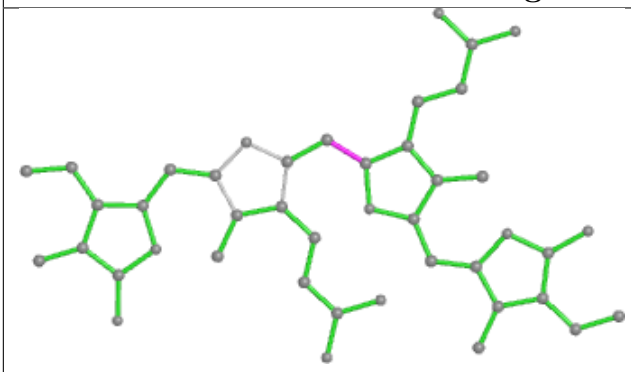


Torsions

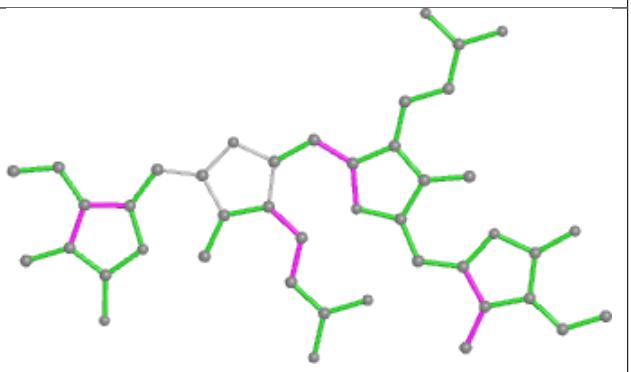


Rings

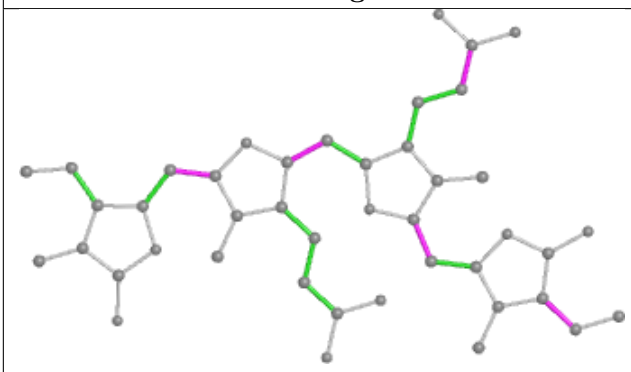
Ligand CYC L 201



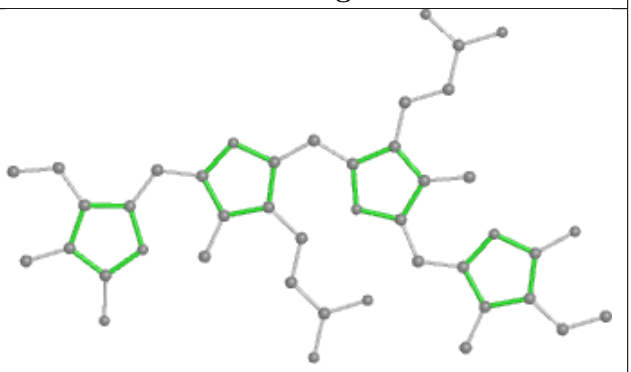
Bond lengths



Bond angles

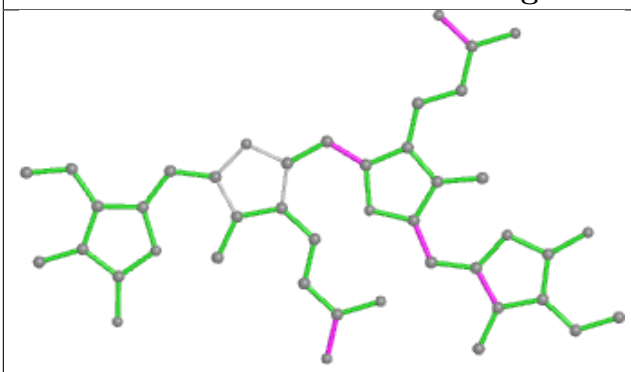


Torsions

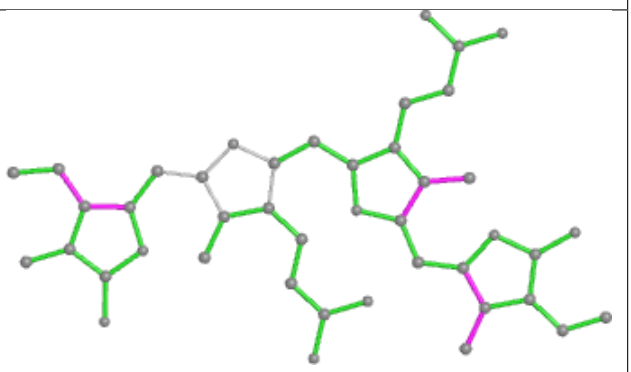


Rings

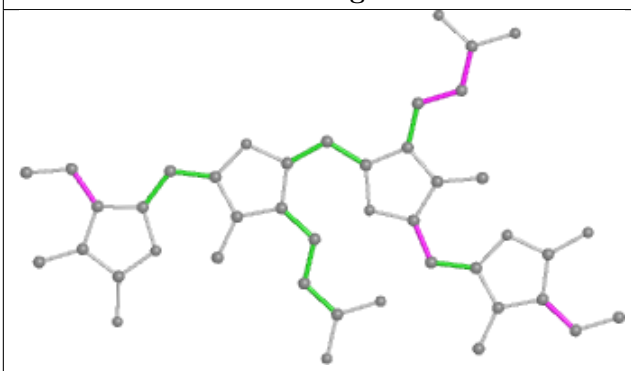
Ligand CYC G 201



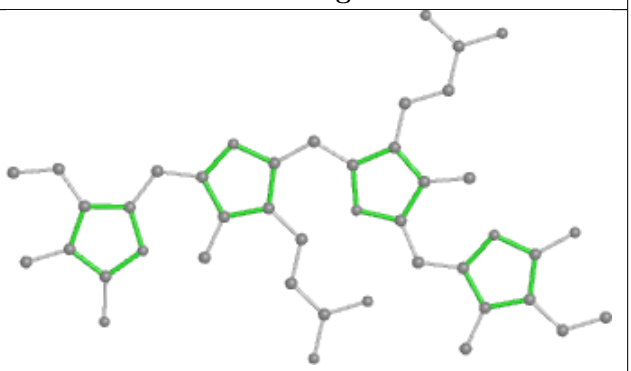
Bond lengths



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	B	171/172 (99%)	-0.32	3 (1%)	67	64	21, 38, 63, 88	0
1	D	171/172 (99%)	-0.34	2 (1%)	76	73	18, 38, 64, 84	0
1	F	171/172 (99%)	-0.04	4 (2%)	61	58	27, 44, 69, 98	0
1	H	171/172 (99%)	-0.24	1 (0%)	85	83	25, 40, 65, 83	0
1	J	171/172 (99%)	-0.04	3 (1%)	67	64	31, 50, 72, 100	0
1	L	171/172 (99%)	0.05	3 (1%)	67	64	29, 50, 75, 95	0
2	A	162/162 (100%)	-0.15	0	100	100	28, 40, 60, 80	0
2	C	162/162 (100%)	-0.02	2 (1%)	76	73	30, 43, 69, 87	0
2	E	162/162 (100%)	-0.09	5 (3%)	51	48	16, 36, 64, 101	0
2	G	162/162 (100%)	-0.12	3 (1%)	66	63	22, 38, 63, 94	0
2	I	162/162 (100%)	-0.33	2 (1%)	76	73	22, 35, 57, 66	0
2	K	162/162 (100%)	-0.36	1 (0%)	85	83	19, 35, 57, 80	0
All	All	1998/2004 (99%)	-0.17	29 (1%)	71	68	16, 41, 67, 101	0

All (29) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	E	146	ALA	4.1
2	C	68	GLN	4.0
2	K	2	LYS	3.3
1	F	30	MET	2.9
2	G	39	GLU	2.9
2	E	145	GLN	2.9
1	B	32	LYS	2.8
1	L	111	ASN	2.6
2	I	144	GLY	2.6
1	F	77	ARG	2.6
2	G	38	MET	2.6

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Mol	Chain	Res	Type	RSRZ
1	F	111	ASN	2.5
1	J	32	LYS	2.5
2	G	35	ALA	2.5
2	I	70	SER	2.5
2	C	120	ARG	2.5
1	J	111	ASN	2.5
2	E	148	ASN	2.5
1	D	32	LYS	2.4
1	F	22	ALA	2.4
1	J	150	LYS	2.3
2	E	143	SER	2.3
2	E	33	ARG	2.2
1	H	30	MET	2.2
1	B	21	ASN	2.2
1	D	28	SER	2.2
1	B	150	LYS	2.2
1	L	172	GLY	2.1
1	L	150	LYS	2.1

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

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{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
1	MEN	J	72	9/10	0.88	0.11	40,43,50,67	0
1	MEN	B	72	9/10	0.89	0.14	26,32,49,77	0
1	MEN	D	72	9/10	0.90	0.15	24,31,51,67	0
1	MEN	F	72	9/10	0.92	0.10	33,39,43,47	0
1	MEN	H	72	9/10	0.93	0.10	33,36,39,55	0
1	MEN	L	72	9/10	0.93	0.10	35,38,50,64	0

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

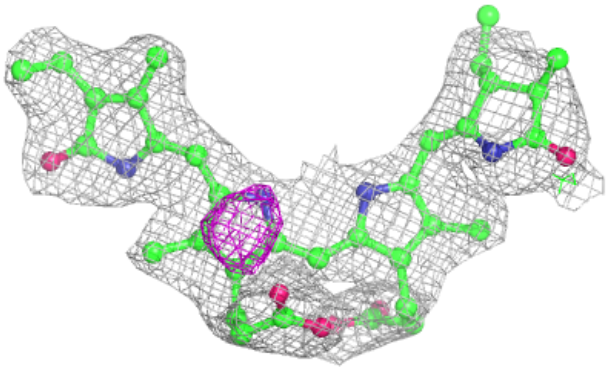
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

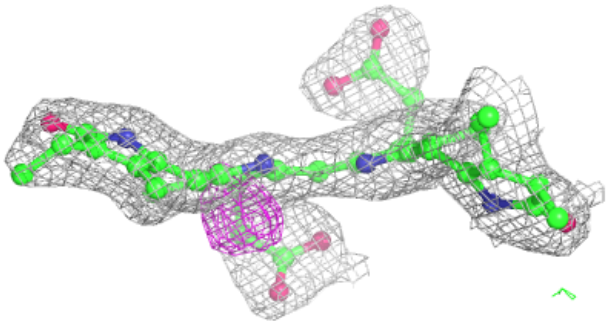
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
4	GOL	A	203	6/6	0.81	0.15	56,70,71,75	0
4	GOL	A	202	6/6	0.85	0.14	52,54,59,61	0
3	CYC	J	202	43/43	0.87	0.13	41,51,60,62	0
3	CYC	L	202	43/43	0.91	0.10	44,52,67,80	0
3	CYC	F	202	43/43	0.92	0.10	36,50,60,64	0
3	CYC	J	201	43/43	0.92	0.11	39,50,62,66	0
3	CYC	F	201	43/43	0.92	0.11	27,39,56,62	0
3	CYC	H	202	43/43	0.93	0.10	32,45,52,58	0
3	CYC	D	202	43/43	0.93	0.09	33,43,52,61	0
3	CYC	L	201	43/43	0.93	0.09	39,45,56,72	0
3	CYC	H	201	43/43	0.94	0.09	31,40,53,62	0
3	CYC	B	202	43/43	0.95	0.08	33,40,55,66	0
3	CYC	D	201	43/43	0.95	0.08	27,36,48,57	0
3	CYC	B	201	43/43	0.95	0.07	22,34,47,53	0
3	CYC	C	201	43/43	0.96	0.07	29,37,43,47	0
3	CYC	G	201	43/43	0.96	0.07	17,21,28,32	0
3	CYC	K	201	43/43	0.96	0.07	20,25,30,36	0
3	CYC	A	201	43/43	0.96	0.06	27,30,36,45	0
3	CYC	E	201	43/43	0.97	0.06	19,24,27,30	0
3	CYC	I	201	43/43	0.97	0.06	21,24,28,31	0

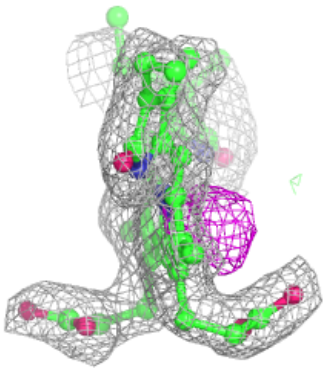
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around CYC J 202:

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

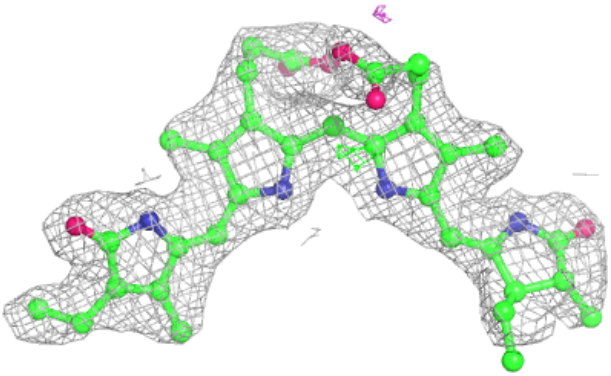


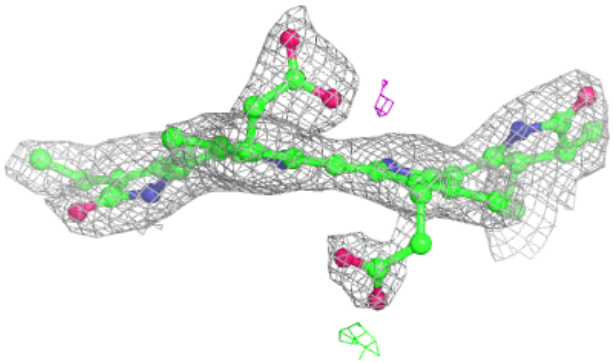


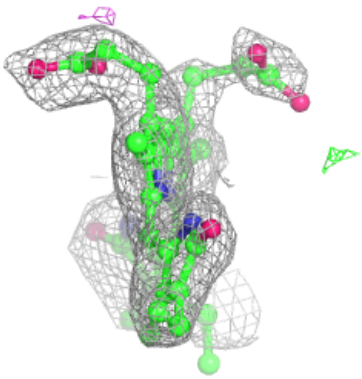


Electron density around CYC L 202:

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

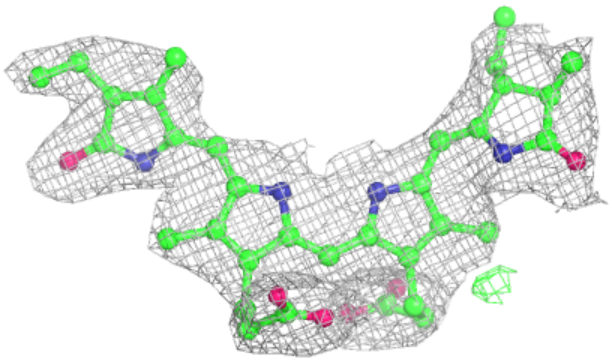


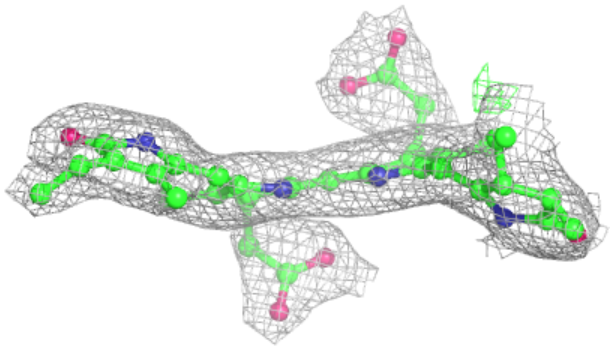


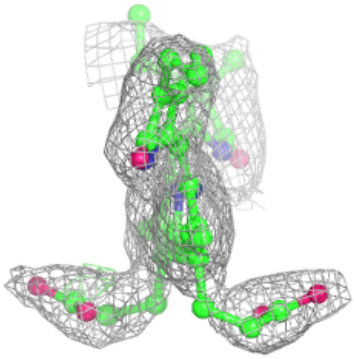


Electron density around CYC F 202:

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

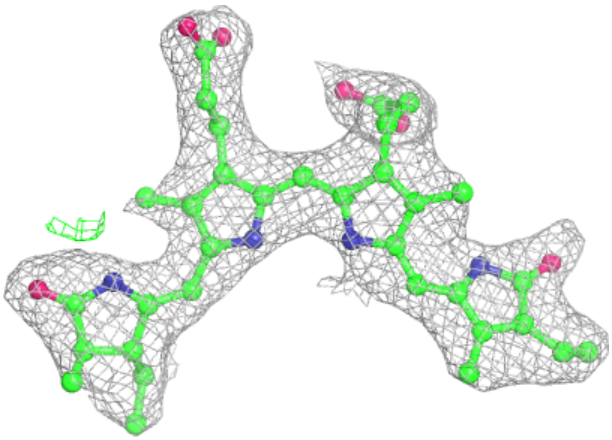


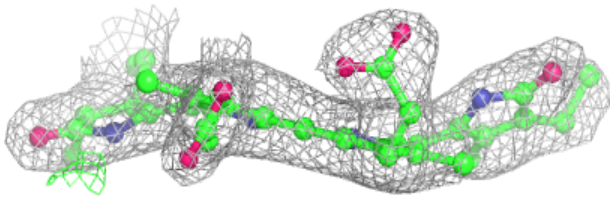


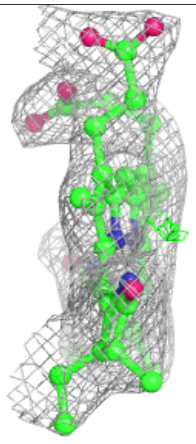


Electron density around CYC J 201:

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

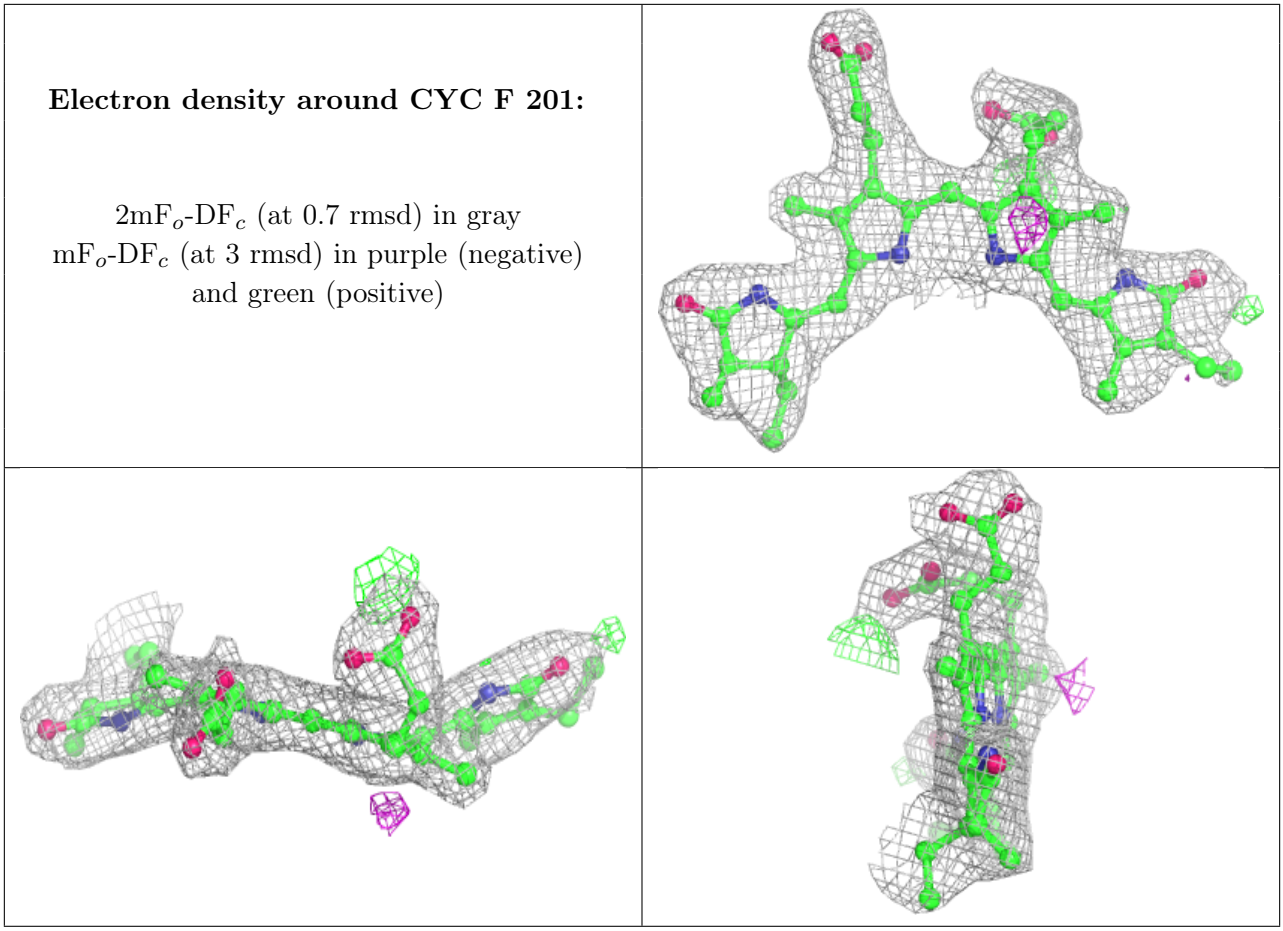






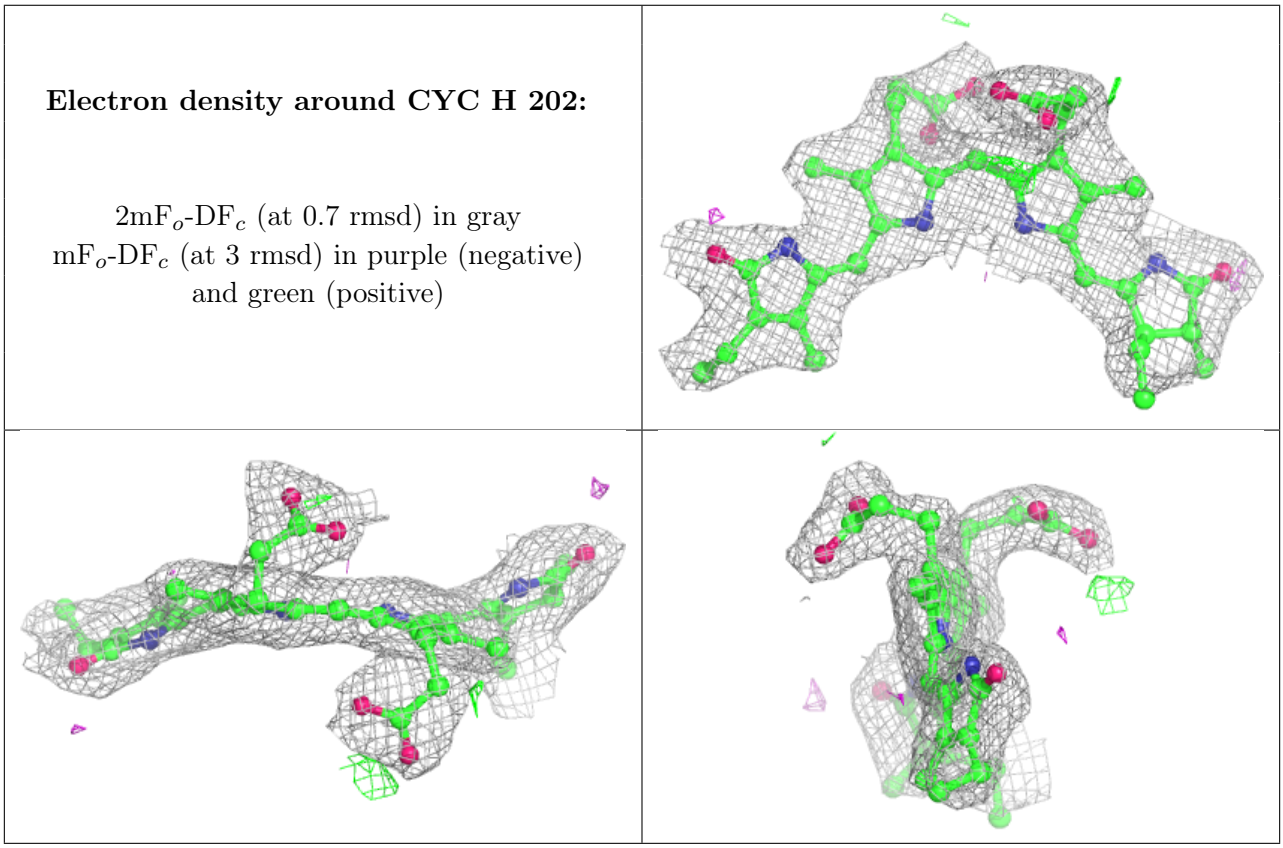
Electron density around CYC F 201:

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



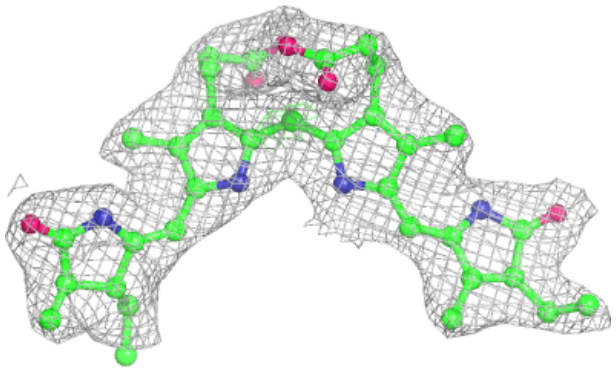
Electron density around CYC H 202:

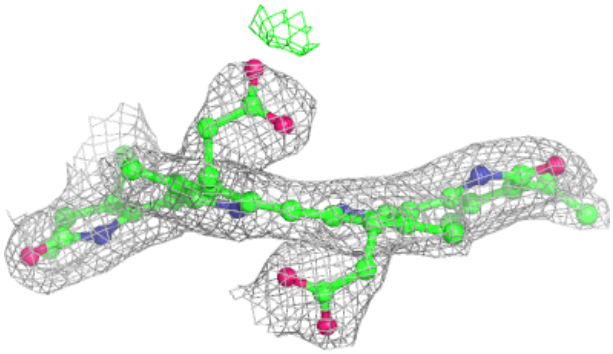
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

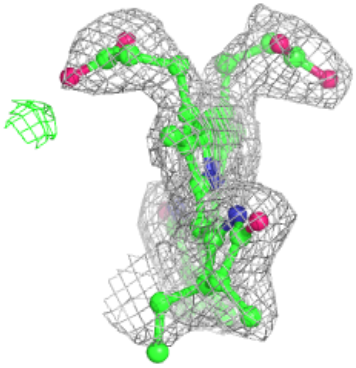


Electron density around CYC D 202:

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

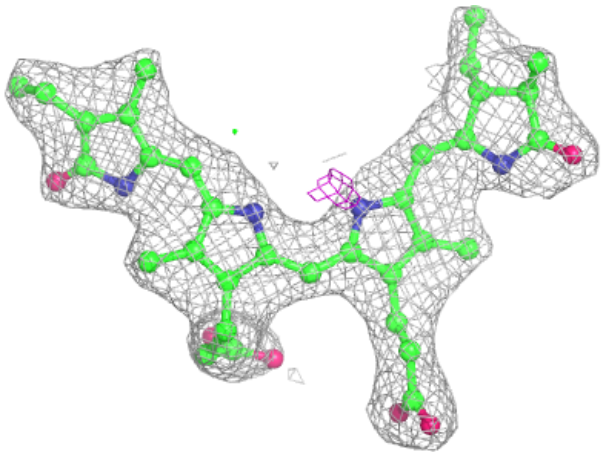


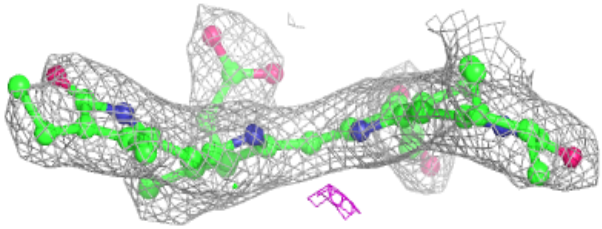


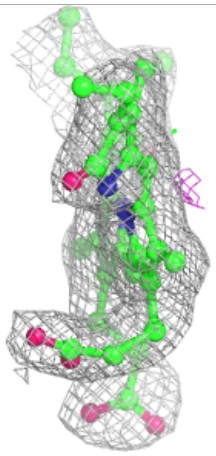


Electron density around CYC L 201:

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

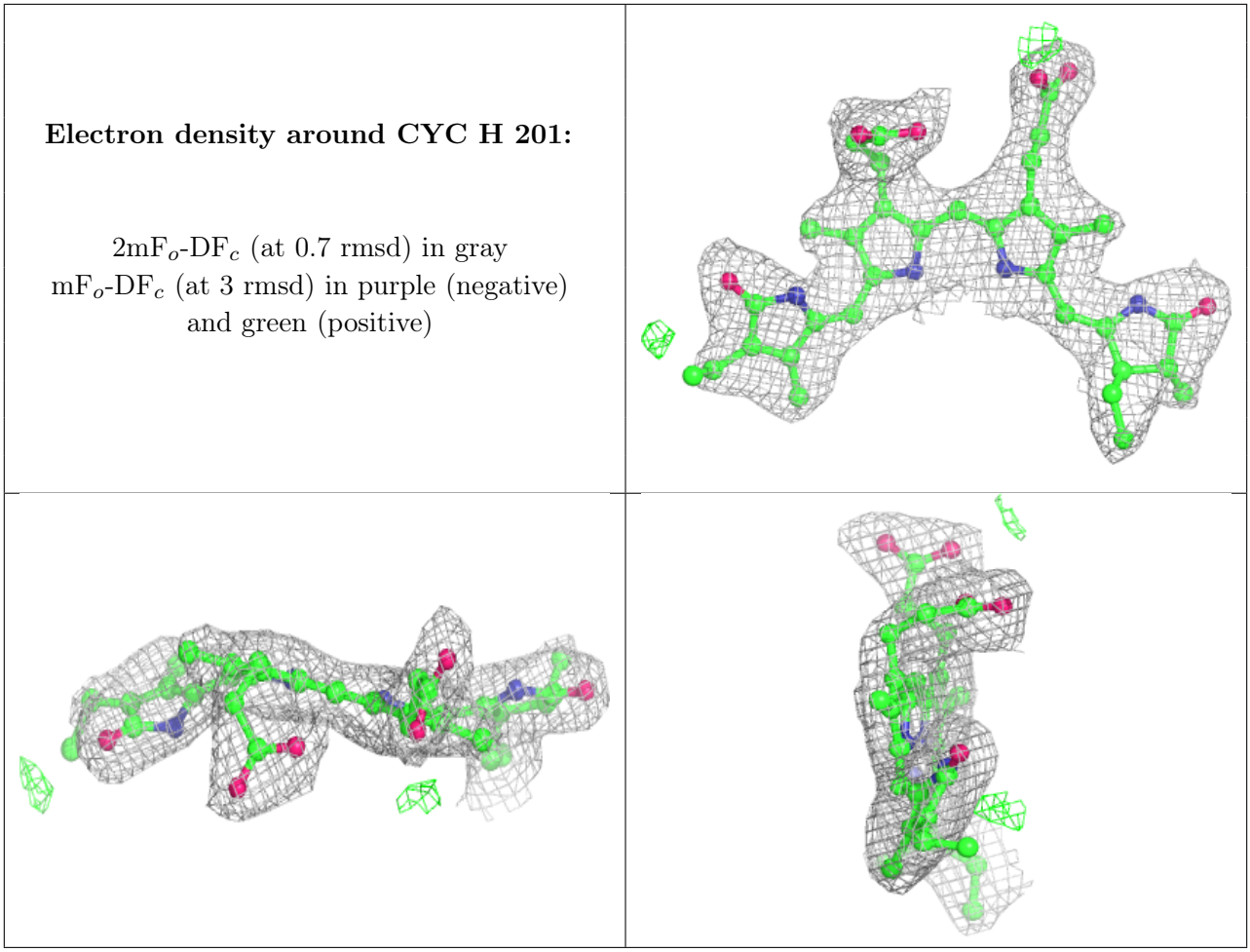






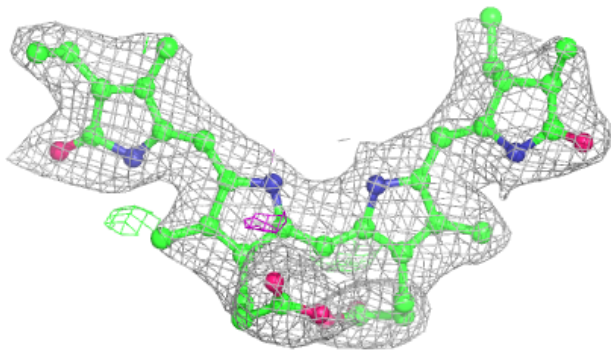
Electron density around CYC H 201:

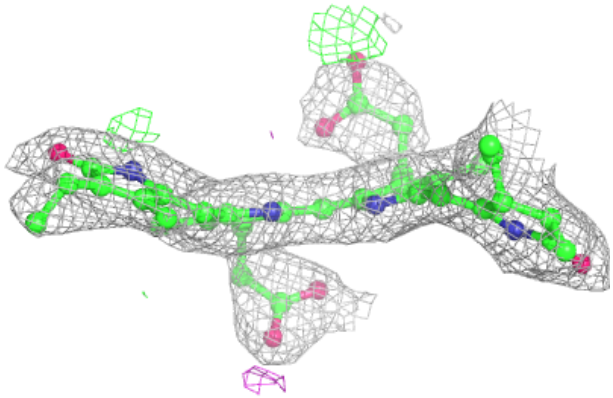
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

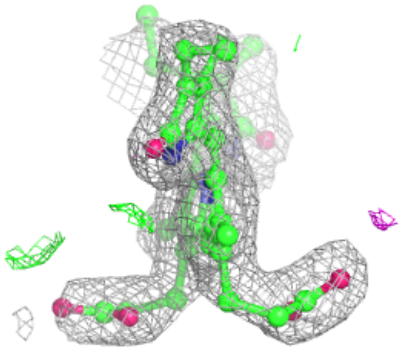


Electron density around CYC B 202:

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

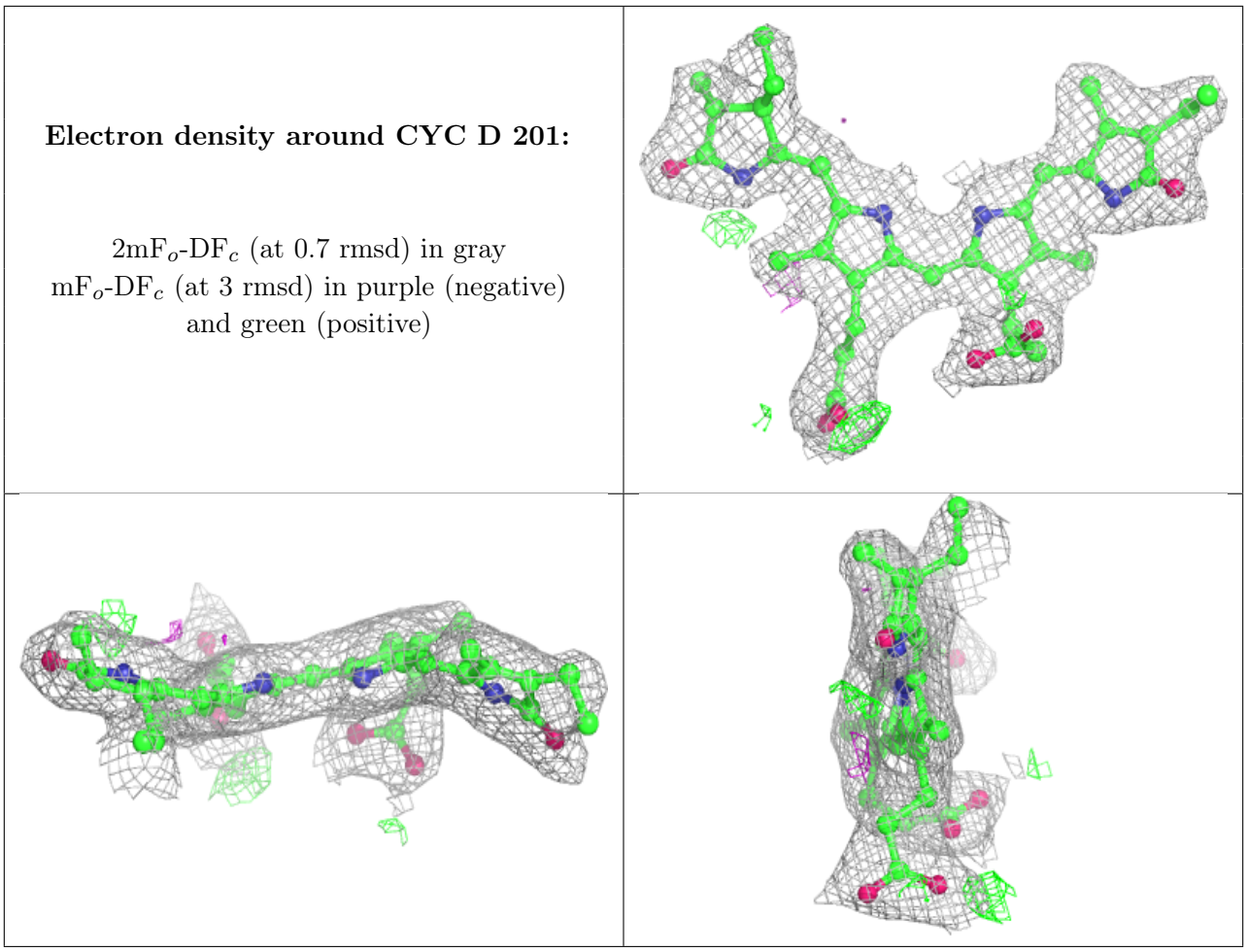






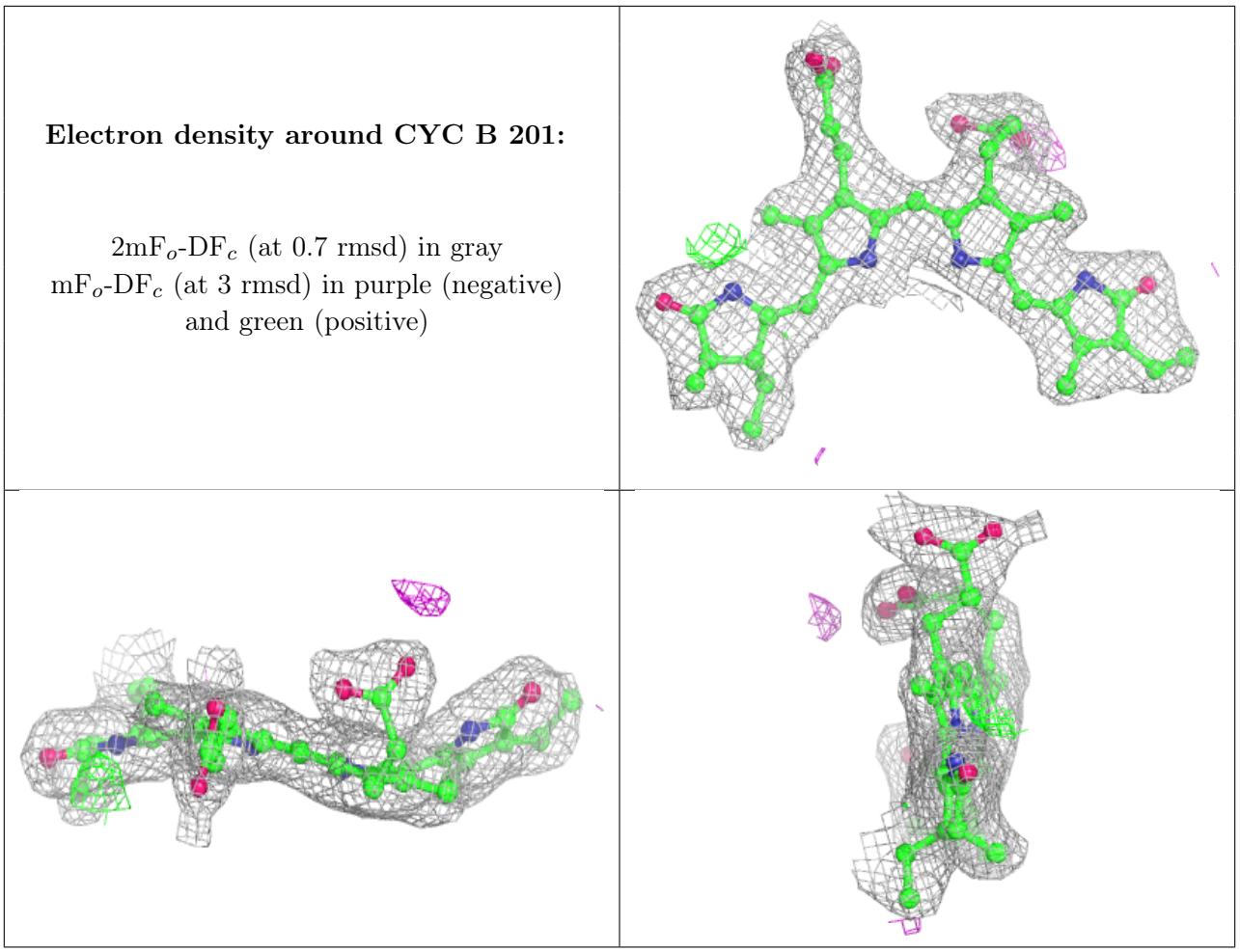
Electron density around CYC D 201:

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



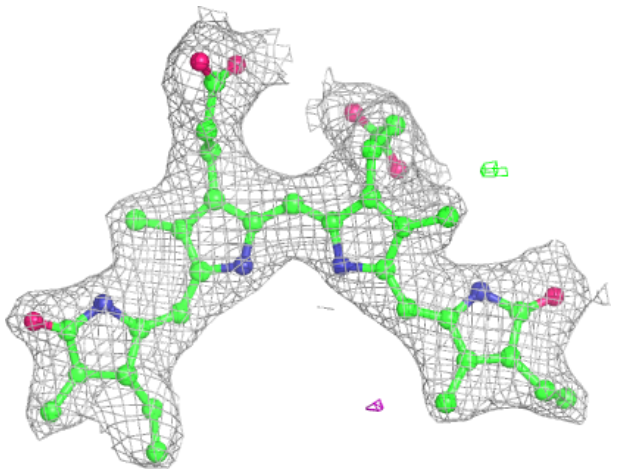
Electron density around CYC B 201:

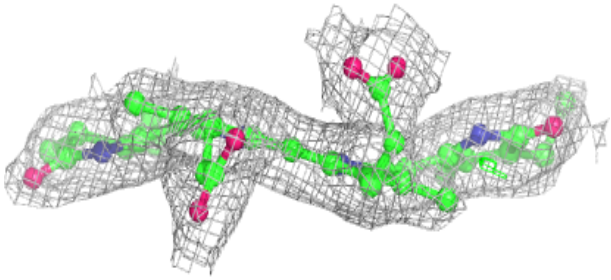
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

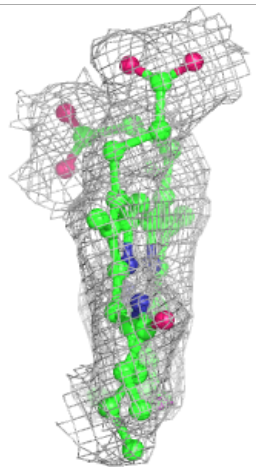


Electron density around CYC C 201:

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

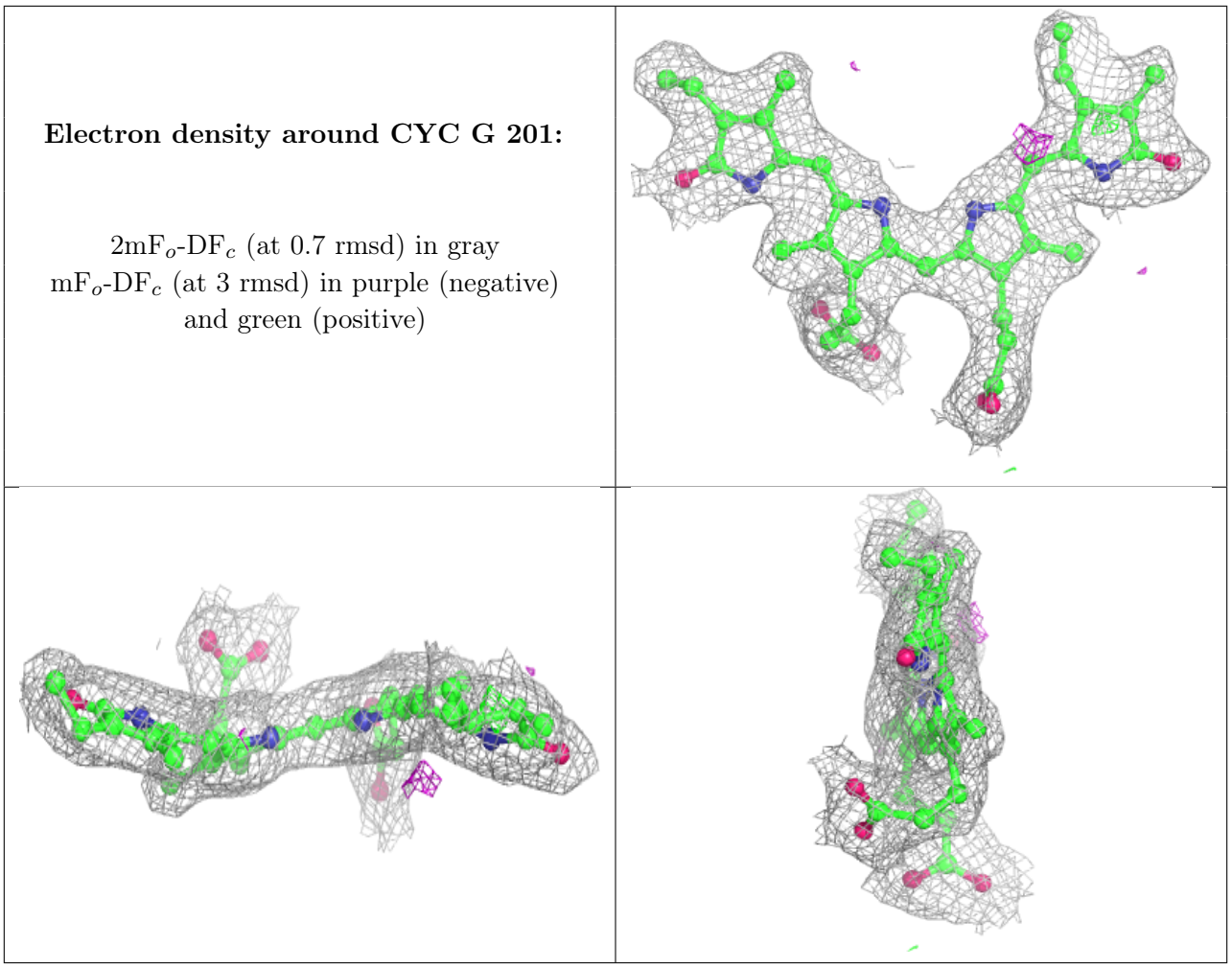






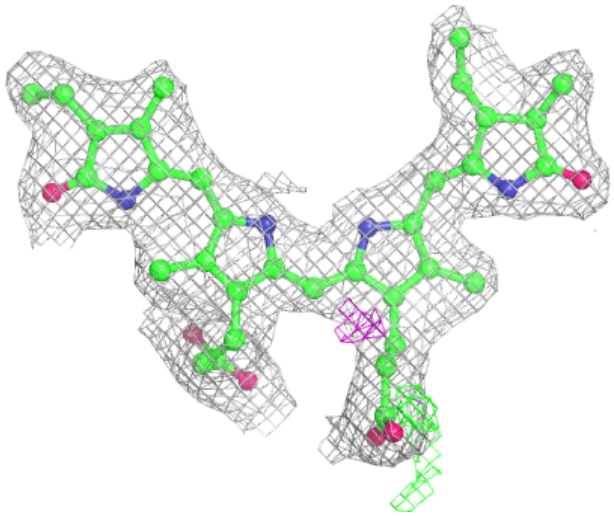
Electron density around CYC G 201:

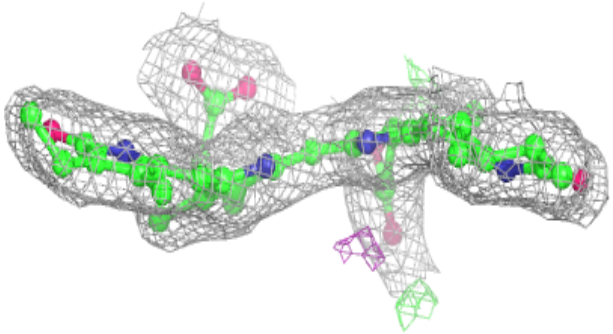
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

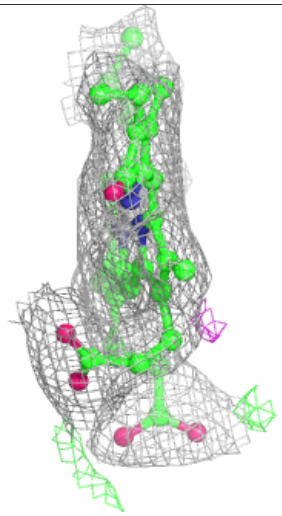


Electron density around CYC K 201:

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

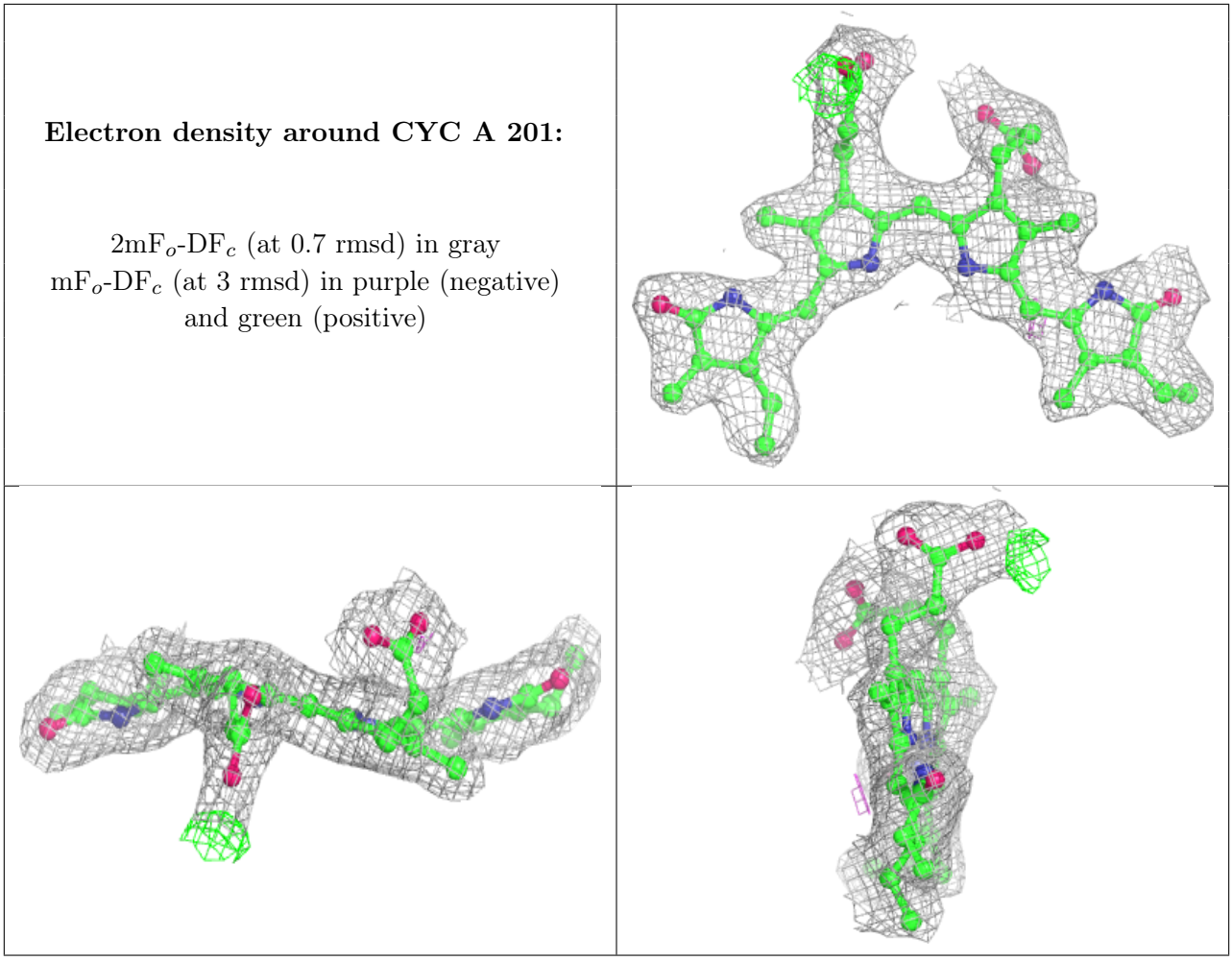






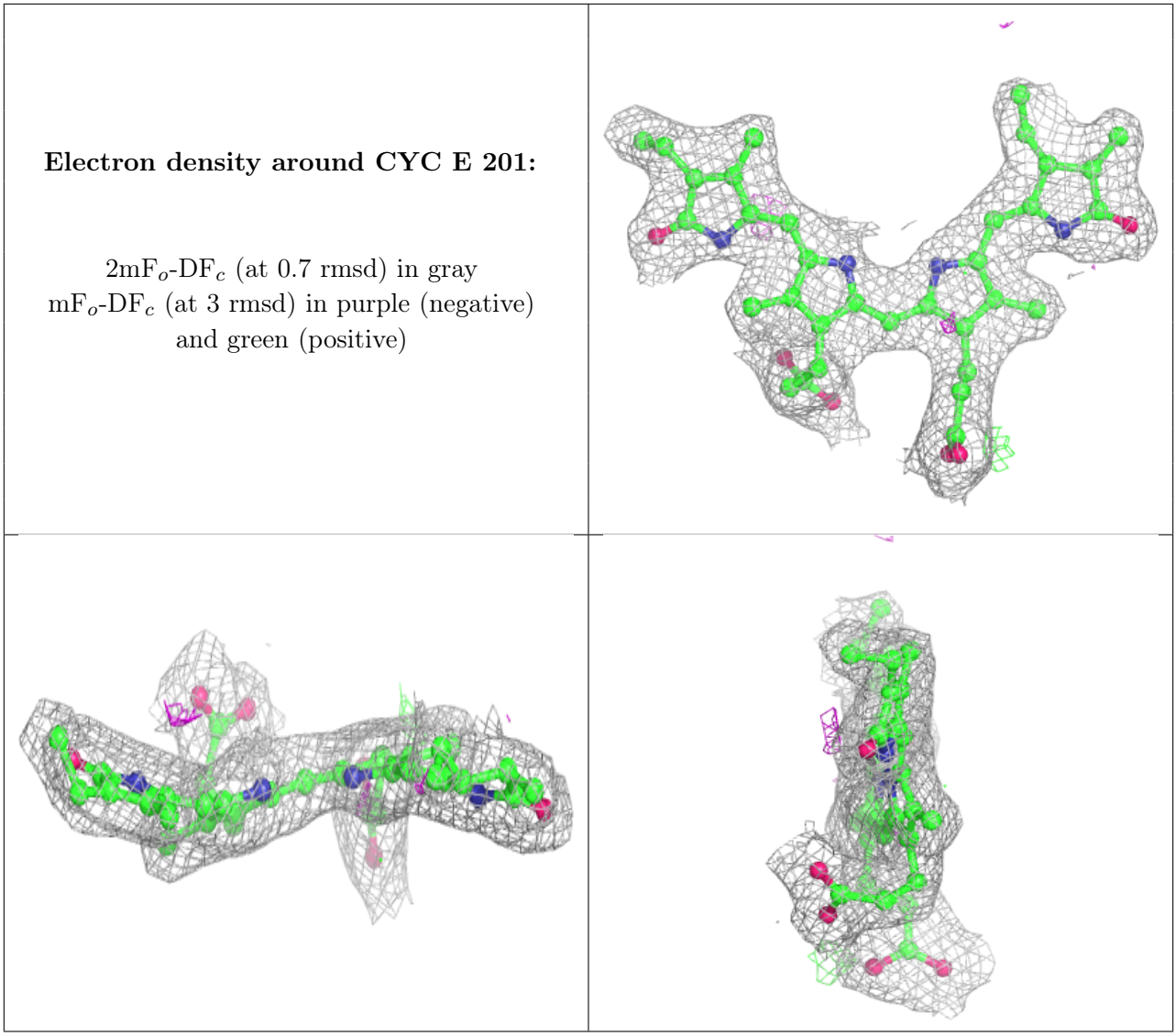
Electron density around CYC A 201:

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



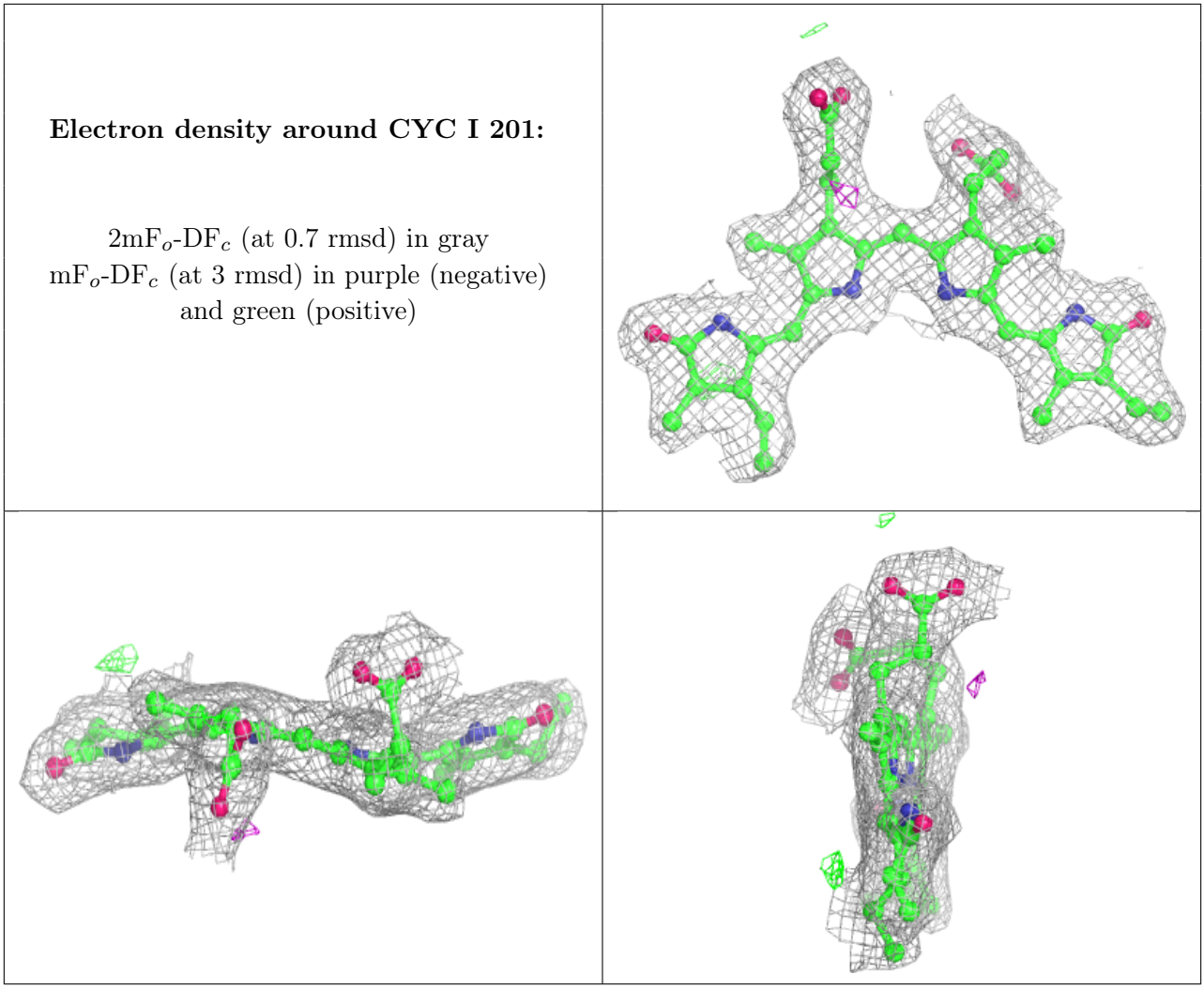
Electron density around CYC E 201:

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



Electron density around CYC I 201:

$2mF_o$-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

There are no such residues in this entry.