



Full wwPDB X-ray Structure Validation Report ⓘ

Dec 14, 2021 – 04:08 PM EST

PDB ID : 6XA2
Title : Structure of the tirandamycin C-bound P450 monooxygenase TamI
Authors : Newmister, S.A.; Srivastava, K.R.; Espinoza, R.V.; Haatveit, K.C.; Khatri, Y.; Martini, R.M.; Garcia-Borras, M.; Podust, L.M.; Houk, K.N.; Sherman, D.H.
Deposited on : 2020-06-03
Resolution : 2.64 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.24
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) : 2.24

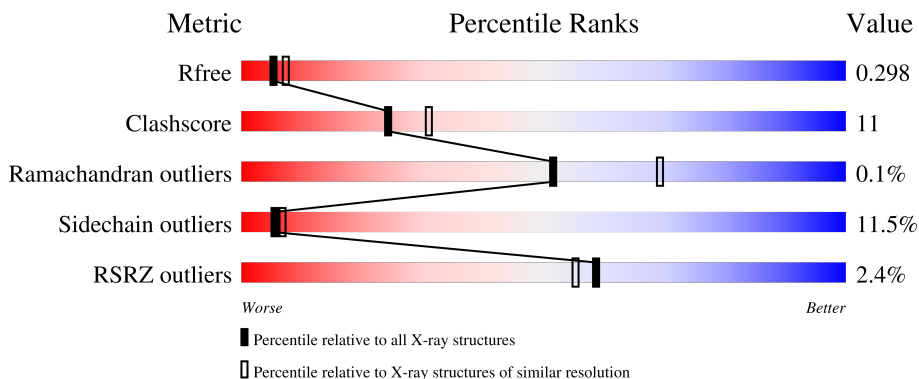
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.64 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	1426 (2.66-2.62)
Clashscore	141614	1472 (2.66-2.62)
Ramachandran outliers	138981	1446 (2.66-2.62)
Sidechain outliers	138945	1446 (2.66-2.62)
RSRZ outliers	127900	1408 (2.66-2.62)

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

Mol	Chain	Length	Quality of chain
1	A	414	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 72%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 22%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">72% 22% . .</p>
1	B	414	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 66%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 29%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">66% 29% . .</p>
1	C	414	<div style="display: flex; align-items: center;"> <div style="width: 5%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 59%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 32%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">5% 59% 32% . 5%</p>
1	D	414	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 66%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 26%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">2% 66% 26% . .</p>
1	E	414	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 71%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 23%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">2% 71% 23% . .</p>

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Mol	Chain	Length	Quality of chain
1	F	414	 74% 21% . .
1	G	414	 5% 67% 25% . .
1	H	414	 2% 66% 27% . .

2 Entry composition i

There are 4 unique types of molecules in this entry. The entry contains 25091 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 TamI.

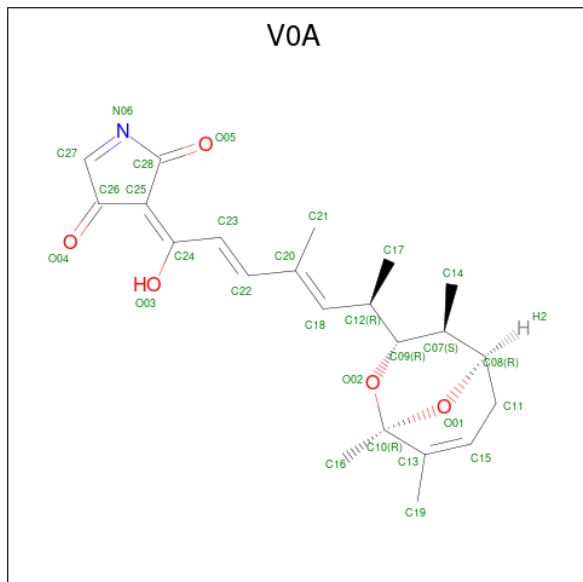
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	399	Total 3056	C 1930	N 542	O 570	S 14	0	0	0
1	B	399	Total 3060	C 1932	N 542	O 572	S 14	0	0	0
1	C	393	Total 2974	C 1874	N 531	O 555	S 14	0	0	0
1	D	398	Total 3042	C 1918	N 541	O 569	S 14	0	0	0
1	E	399	Total 3058	C 1931	N 545	O 568	S 14	0	0	0
1	F	399	Total 3059	C 1932	N 545	O 568	S 14	0	0	0
1	G	399	Total 3016	C 1904	N 534	O 564	S 14	0	0	0
1	H	399	Total 3037	C 1921	N 536	O 566	S 14	0	0	0

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	0	ALA	-	expression tag	UNP D3Y1J3
A	1	VAL	-	expression tag	UNP D3Y1J3
B	0	ALA	-	expression tag	UNP D3Y1J3
B	1	VAL	-	expression tag	UNP D3Y1J3
C	0	ALA	-	expression tag	UNP D3Y1J3
C	1	VAL	-	expression tag	UNP D3Y1J3
D	0	ALA	-	expression tag	UNP D3Y1J3
D	1	VAL	-	expression tag	UNP D3Y1J3
E	0	ALA	-	expression tag	UNP D3Y1J3
E	1	VAL	-	expression tag	UNP D3Y1J3
F	0	ALA	-	expression tag	UNP D3Y1J3
F	1	VAL	-	expression tag	UNP D3Y1J3
G	0	ALA	-	expression tag	UNP D3Y1J3

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dione (three-letter code: V0A) (formula: C₂₂H₂₇NO₅) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	
			Total	C	N			O
3	A	1	Total	C	N	O	0	0
			28	22	1	5		
3	B	1	Total	C	N	O	0	0
			28	22	1	5		
3	C	1	Total	C	N	O	0	0
			28	22	1	5		
3	D	1	Total	C	N	O	0	0
			28	22	1	5		
3	E	1	Total	C	N	O	0	0
			28	22	1	5		
3	F	1	Total	C	N	O	0	0
			28	22	1	5		
3	G	1	Total	C	N	O	0	0
			28	22	1	5		
3	H	1	Total	C	N	O	0	0
			28	22	1	5		

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	39	Total	O	0	0
			39	39		
4	B	30	Total	O	0	0
			30	30		

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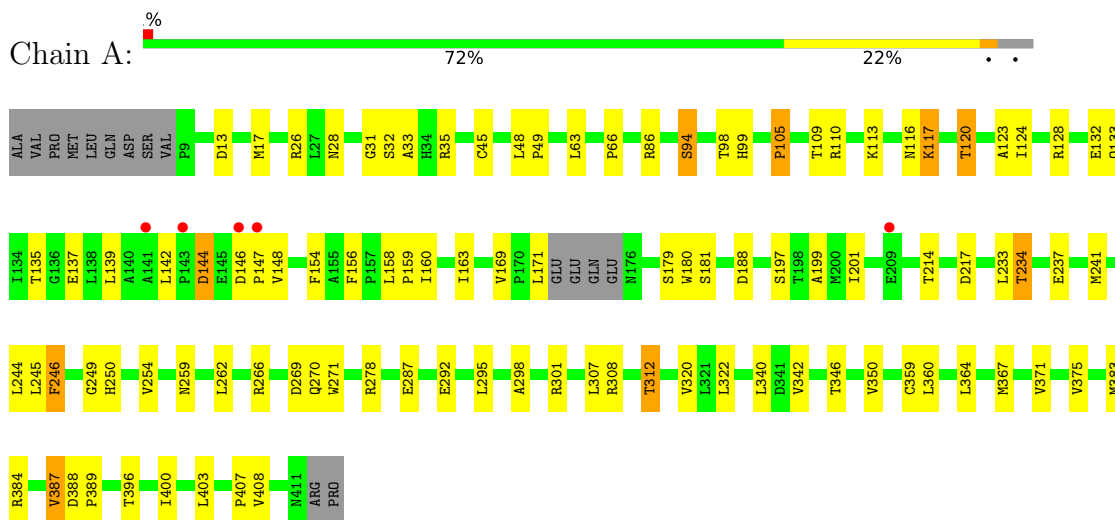
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	C	23	Total 23	O 23	0	0
4	D	24	Total 24	O 24	0	0
4	E	24	Total 24	O 24	0	0
4	F	41	Total 41	O 41	0	0
4	G	19	Total 19	O 19	0	0
4	H	21	Total 21	O 21	0	0

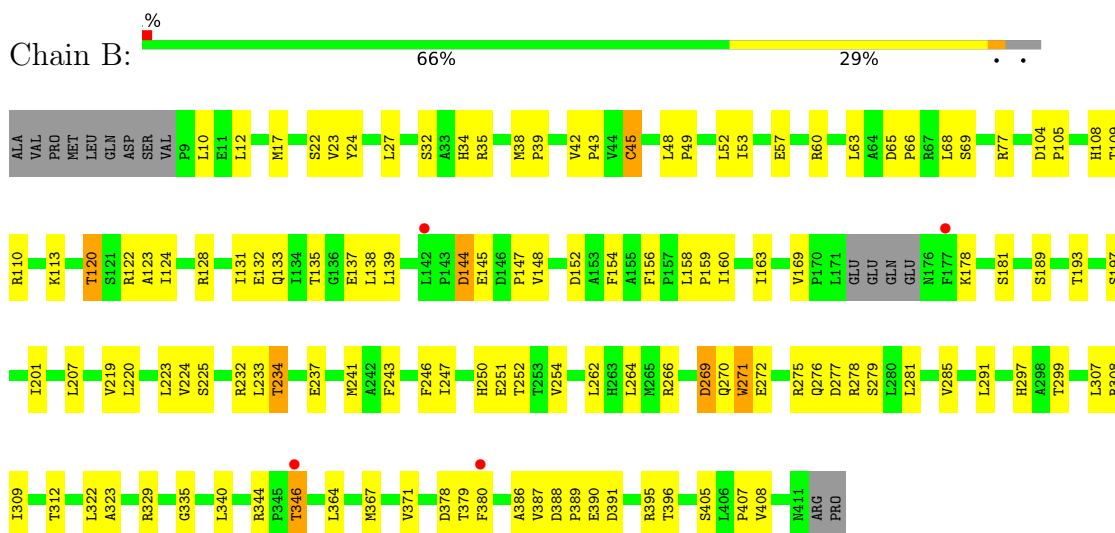
3 Residue-property plots [i](#)

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: TamI

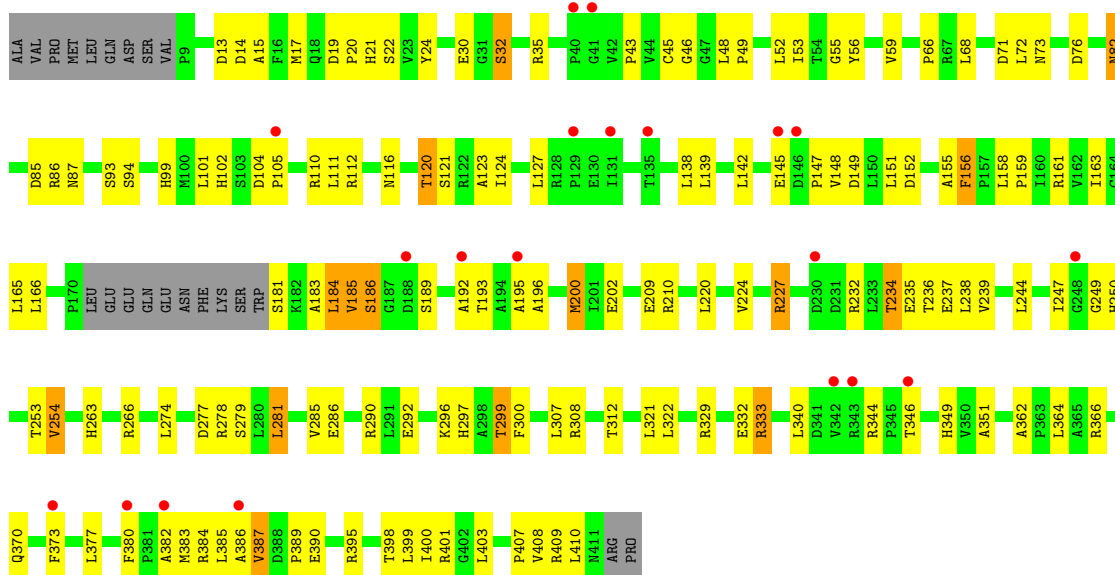


- Molecule 1: TamI

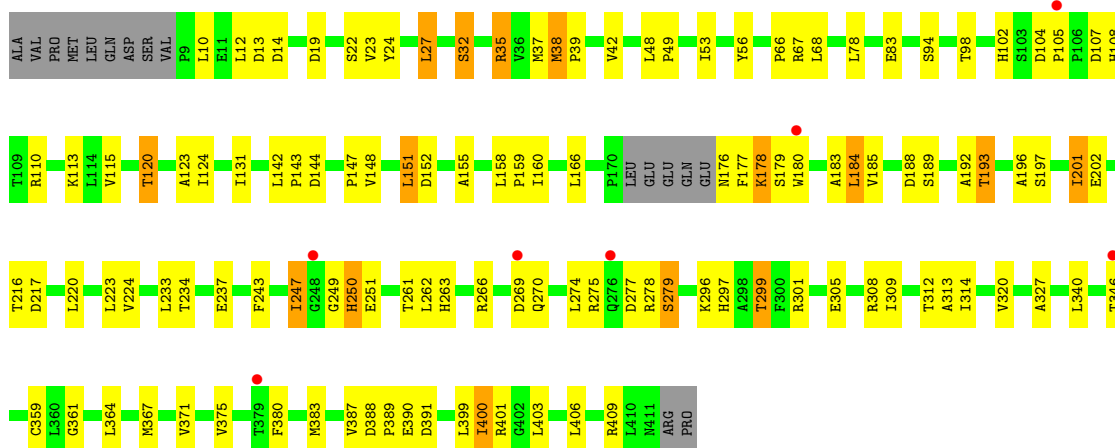


- Molecule 1: TamI

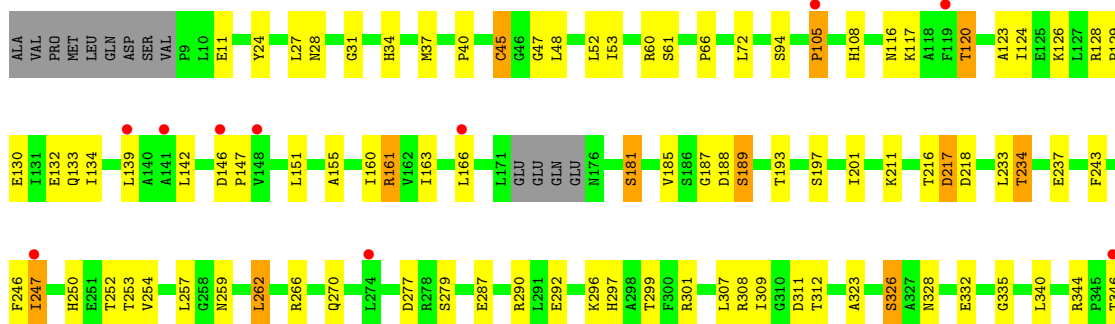




• Molecule 1: TamI

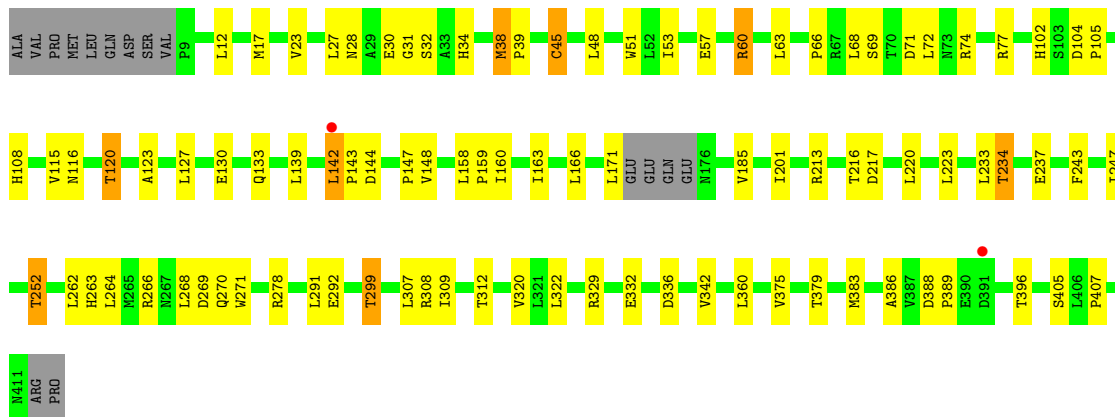


• Molecule 1: TamI

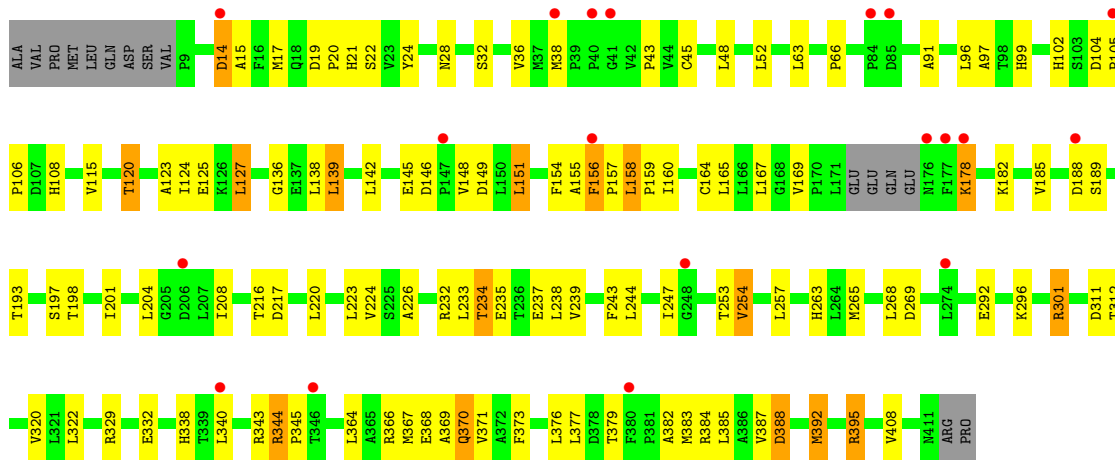




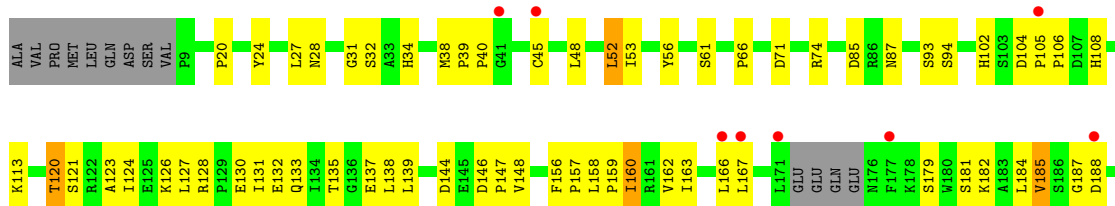
• Molecule 1: TamI

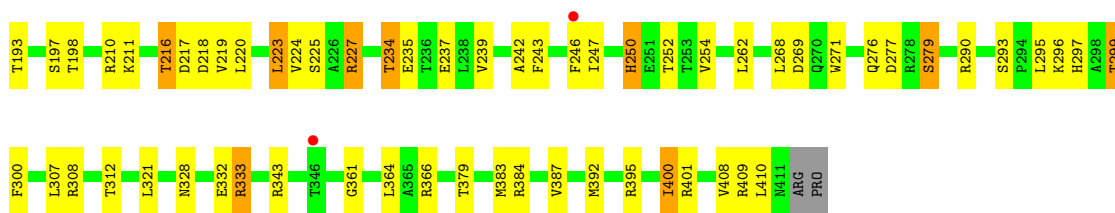


• Molecule 1: TamI



• Molecule 1: TamI





4 Data and refinement statistics i

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	224.55Å 57.16Å 282.66Å 90.00° 90.89° 90.00°	Depositor
Resolution (Å)	48.55 – 2.64 48.55 – 2.64	Depositor EDS
% Data completeness (in resolution range)	99.6 (48.55-2.64) 95.4 (48.55-2.64)	Depositor EDS
R_{merge}	0.24	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.66 (at 2.65Å)	Xtrriage
Refinement program	PHENIX 1.18_3845	Depositor
R, R_{free}	0.252 , 0.299 0.251 , 0.298	Depositor DCC
R_{free} test set	2001 reflections (1.87%)	wwPDB-VP
Wilson B-factor (Å ²)	48.9	Xtrriage
Anisotropy	0.578	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 23.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.42$, $\langle L^2 \rangle = 0.25$	Xtrriage
Estimated twinning fraction	0.238 for -h,-k,l	Xtrriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	25091	wwPDB-VP
Average B, all atoms (Å ²)	51.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 40.54 % 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 2.6931e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

¹Intensities estimated from amplitudes.

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

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: V0A, HEM

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	0.46	0/3123	0.58	2/4255 (0.0%)
1	B	0.36	0/3127	0.53	1/4260 (0.0%)
1	C	0.45	0/3037	0.62	1/4141 (0.0%)
1	D	0.46	0/3108	0.60	1/4235 (0.0%)
1	E	0.38	0/3125	0.56	1/4257 (0.0%)
1	F	0.41	0/3126	0.56	1/4258 (0.0%)
1	G	0.46	0/3080	0.65	0/4199
1	H	0.43	0/3104	0.55	0/4232
All	All	0.43	0/24830	0.58	7/33837 (0.0%)

There are no bond length outliers.

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	105	PRO	N-CA-C	6.45	128.88	112.10
1	F	142	LEU	CA-CB-CG	6.10	129.33	115.30
1	A	139	LEU	CA-CB-CG	5.79	128.61	115.30
1	A	105	PRO	N-CA-C	5.67	126.84	112.10
1	D	142	LEU	CA-CB-CG	5.34	127.59	115.30
1	B	346	THR	N-CA-C	5.30	125.31	111.00
1	C	184	LEU	N-CA-C	-5.21	96.93	111.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen

atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3056	0	3026	55	0
1	B	3060	0	3030	71	0
1	C	2974	0	2933	94	0
1	D	3042	0	3008	75	0
1	E	3058	0	3033	58	0
1	F	3059	0	3035	50	0
1	G	3016	0	2972	78	0
1	H	3037	0	2998	77	0
2	A	43	0	30	5	0
2	B	43	0	30	3	0
2	C	43	0	30	5	0
2	D	43	0	30	5	0
2	E	43	0	30	4	0
2	F	43	0	30	3	0
2	G	43	0	30	4	0
2	H	43	0	30	4	0
3	A	28	0	0	0	0
3	B	28	0	0	0	0
3	C	28	0	0	8	0
3	D	28	0	0	1	0
3	E	28	0	0	0	0
3	F	28	0	0	0	0
3	G	28	0	0	2	0
3	H	28	0	0	2	0
4	A	39	0	0	1	0
4	B	30	0	0	0	0
4	C	23	0	0	1	0
4	D	24	0	0	0	0
4	E	24	0	0	0	0
4	F	41	0	0	1	0
4	G	19	0	0	1	0
4	H	21	0	0	1	0
All	All	25091	0	24275	541	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 11.

All (541) 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:H:120:THR:HG22	1:H:123:ALA:H	1.33	0.93
1:G:120:THR:HG22	1:G:123:ALA:H	1.33	0.93
1:C:185:VAL:HG22	3:C:502:V0A:C22	1.99	0.92
1:C:185:VAL:HG22	3:C:502:V0A:C23	1.98	0.92
1:C:120:THR:HG22	1:C:123:ALA:H	1.34	0.90
1:B:120:THR:HG22	1:B:123:ALA:H	1.41	0.85
1:G:265:MET:HE1	1:G:384:ARG:HA	1.59	0.84
1:E:129:PRO:O	1:E:133:GLN:HG3	1.78	0.83
1:F:234:THR:HG22	1:F:237:GLU:H	1.46	0.80
1:G:234:THR:HG22	1:G:237:GLU:H	1.47	0.80
1:C:263:HIS:HB3	1:C:340:LEU:HD22	1.64	0.79
1:H:185:VAL:HG22	3:H:502:V0A:C23	2.12	0.79
1:F:105:PRO:HG3	1:H:66:PRO:HG2	1.66	0.78
1:B:66:PRO:HG2	1:C:105:PRO:HG3	1.66	0.77
1:A:120:THR:HG22	1:A:123:ALA:H	1.49	0.77
1:F:120:THR:HG22	1:F:123:ALA:H	1.52	0.75
1:F:71:ASP:HB3	1:F:74:ARG:HG3	1.68	0.74
1:F:66:PRO:HG2	1:H:105:PRO:HG3	1.69	0.73
1:B:234:THR:HG22	1:B:237:GLU:H	1.56	0.71
1:H:71:ASP:HB3	1:H:74:ARG:HG3	1.72	0.70
1:D:262:LEU:HD12	1:D:403:LEU:HD11	1.71	0.70
1:B:275:ARG:O	1:B:278:ARG:NH2	2.25	0.69
1:B:156:PHE:HB3	1:B:178:LYS:HD3	1.74	0.69
1:E:66:PRO:HG2	1:G:105:PRO:HG3	1.75	0.69
1:G:91:ALA:HB3	3:G:502:V0A:C21	2.24	0.68
1:E:234:THR:HG22	1:E:237:GLU:H	1.58	0.68
1:A:105:PRO:HG3	1:D:66:PRO:HG2	1.76	0.68
1:G:329:ARG:HH21	1:G:338:HIS:HA	1.59	0.67
1:D:48:LEU:HD13	1:D:78:LEU:HG	1.76	0.67
1:E:24:TYR:OH	1:E:297:HIS:NE2	2.28	0.67
1:D:296:LYS:HG2	1:D:401:ARG:HB2	1.75	0.67
1:A:66:PRO:HG2	1:D:105:PRO:HG3	1.77	0.66
1:B:105:PRO:HG3	1:C:66:PRO:HG2	1.79	0.65
1:G:96:LEU:HD11	1:G:201:ILE:HG12	1.79	0.65
1:E:262:LEU:HD12	1:E:403:LEU:HD11	1.79	0.64
1:B:65:ASP:HB3	1:B:68:LEU:HD23	1.79	0.64
1:H:124:ILE:HG21	1:H:364:LEU:HA	1.79	0.64
1:G:157:PRO:O	1:G:160:ILE:HG22	1.97	0.64
1:H:234:THR:HG22	1:H:237:GLU:H	1.62	0.64
1:C:32:SER:O	1:C:53:ILE:HA	1.98	0.64
1:G:96:LEU:CD1	1:G:201:ILE:HG12	2.27	0.64
1:E:130:GLU:O	1:E:133:GLN:HB2	1.99	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:197:SER:O	1:G:201:ILE:HG13	1.98	0.63
1:C:184:LEU:HG	1:C:196:ALA:HB1	1.81	0.63
1:A:63:LEU:HG	1:A:322:LEU:HD23	1.81	0.62
1:A:17:MET:HG2	1:A:396:THR:HA	1.80	0.62
2:C:501:HEM:HBB2	2:C:501:HEM:HMB2	1.81	0.62
1:A:234:THR:HG22	1:A:237:GLU:H	1.65	0.62
1:H:211:LYS:HE2	1:H:220:LEU:HD23	1.81	0.62
2:D:501:HEM:HBB2	2:D:501:HEM:HMB2	1.82	0.62
1:H:160:ILE:HA	1:H:163:ILE:HG22	1.80	0.62
1:C:24:TYR:OH	1:C:297:HIS:NE2	2.32	0.61
1:A:26:ARG:HH11	1:A:26:ARG:HB3	1.65	0.61
1:G:263:HIS:HB3	1:G:340:LEU:HD22	1.81	0.61
1:B:133:GLN:NE2	1:B:137:GLU:OE1	2.33	0.61
1:C:290:ARG:HH12	1:C:344:ARG:HE	1.49	0.61
1:D:67:ARG:HG2	1:D:305:GLU:HG2	1.82	0.61
1:H:128:ARG:O	1:H:132:GLU:HG3	1.99	0.61
1:G:243:PHE:O	1:G:247:ILE:HG22	2.00	0.61
2:A:501:HEM:HBB2	2:A:501:HEM:HMB2	1.83	0.61
1:D:309:ILE:HD12	1:D:314:ILE:HD12	1.83	0.61
1:A:124:ILE:HD12	1:A:364:LEU:HD13	1.83	0.60
1:D:23:VAL:O	1:D:27:LEU:HD12	2.01	0.60
2:E:501:HEM:HBB2	2:E:501:HEM:HMB2	1.83	0.60
2:F:501:HEM:HMC2	2:F:501:HEM:HBC2	1.84	0.60
1:B:386:ALA:HB3	1:B:407:PRO:HB2	1.84	0.60
1:B:278:ARG:NH1	1:B:378:ASP:OD1	2.29	0.60
1:C:186:SER:HB3	1:C:395:ARG:HH11	1.67	0.60
1:F:51:TRP:HB2	1:F:320:VAL:HG22	1.84	0.59
1:C:55:GLY:O	1:C:59:VAL:HG23	2.01	0.59
1:E:105:PRO:HA	1:E:108:HIS:HB3	1.82	0.59
1:E:123:ALA:HA	1:E:126:LYS:HE2	1.83	0.59
1:B:270:GLN:NE2	1:B:340:LEU:O	2.35	0.59
1:D:39:PRO:HB2	1:D:42:VAL:HG23	1.83	0.59
1:F:263:HIS:NE2	1:F:292:GLU:HG3	2.17	0.59
2:G:501:HEM:HMC2	2:G:501:HEM:HBC2	1.83	0.59
1:H:156:PHE:HD1	1:H:250:HIS:HE2	1.50	0.59
1:C:20:PRO:HD2	1:C:21:HIS:CE1	2.37	0.59
1:C:185:VAL:CG2	3:C:502:V0A:C23	2.76	0.59
1:E:277:ASP:OD1	1:E:279:SER:OG	2.20	0.59
1:F:270:GLN:HG2	1:F:342:VAL:HG22	1.84	0.59
1:B:169:VAL:HG21	1:B:246:PHE:HZ	1.66	0.59
1:C:382:ALA:HB1	1:G:382:ALA:HB1	1.84	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:184:LEU:HG	1:D:196:ALA:CB	2.33	0.59
1:B:291:LEU:O	1:B:329:ARG:NH1	2.30	0.59
1:C:46:GLY:O	1:C:82:ASN:ND2	2.35	0.58
1:C:192:ALA:O	1:C:195:ALA:HB3	2.04	0.58
1:E:124:ILE:HG21	1:E:364:LEU:HA	1.85	0.58
1:G:124:ILE:HG21	1:G:364:LEU:HA	1.86	0.58
1:H:32:SER:O	1:H:53:ILE:HA	2.04	0.58
1:C:124:ILE:HA	1:C:127:LEU:HD23	1.85	0.58
1:G:301:ARG:NH1	2:G:501:HEM:O1A	2.32	0.58
2:F:501:HEM:HMB2	2:F:501:HEM:HBB2	1.85	0.57
2:D:501:HEM:HBC2	2:D:501:HEM:HMC2	1.85	0.57
1:G:14:ASP:O	1:G:17:MET:N	2.38	0.57
1:C:234:THR:HG22	1:C:237:GLU:H	1.69	0.57
1:E:335:GLY:O	1:E:344:ARG:NH1	2.35	0.57
1:C:71:ASP:OD1	1:C:73:ASN:N	2.35	0.57
1:C:184:LEU:HG	1:C:196:ALA:CB	2.35	0.57
1:E:116:ASN:HA	1:E:360:LEU:HD11	1.85	0.56
1:E:134:ILE:HD13	1:E:161:ARG:HB3	1.86	0.56
1:G:265:MET:CE	1:G:384:ARG:HA	2.34	0.56
1:B:387:VAL:HG22	1:B:407:PRO:HG2	1.88	0.56
1:D:10:LEU:HD22	1:D:12:LEU:HD23	1.87	0.56
1:E:151:LEU:HD12	1:E:155:ALA:HB3	1.88	0.56
1:C:56:TYR:CD2	1:C:333:ARG:HG3	2.40	0.56
1:E:181:SER:HB3	1:E:247:ILE:HD11	1.87	0.56
1:H:361:GLY:HA3	2:H:501:HEM:C3C	2.41	0.56
1:D:275:ARG:HA	1:D:278:ARG:HH12	1.71	0.56
1:H:24:TYR:OH	1:H:297:HIS:NE2	2.32	0.55
1:H:268:LEU:HA	1:H:271:TRP:HB3	1.88	0.55
1:H:87:ASN:HA	1:H:93:SER:HB3	1.88	0.55
1:G:124:ILE:HD12	1:G:364:LEU:HB2	1.87	0.55
1:C:76:ASP:OD2	1:C:86:ARG:NH1	2.38	0.55
1:F:278:ARG:HG2	1:F:278:ARG:HH11	1.71	0.55
1:B:390:GLU:CD	1:B:390:GLU:H	2.10	0.55
1:D:115:VAL:HG13	1:D:223:LEU:HD11	1.89	0.55
1:H:45:CYS:HA	1:H:48:LEU:HD12	1.88	0.55
2:G:501:HEM:HMB1	2:G:501:HEM:HBB2	1.88	0.55
1:H:219:VAL:O	1:H:223:LEU:HD12	2.06	0.55
1:E:11:GLU:OE1	1:E:40:PRO:HD3	2.07	0.54
1:C:149:ASP:HB3	1:C:152:ASP:HB3	1.89	0.54
1:G:91:ALA:CB	3:G:502:V0A:C21	2.85	0.54
1:G:99:HIS:CD2	1:G:244:LEU:HD22	2.42	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:501:HEM:HMB1	2:B:501:HEM:HBB2	1.90	0.54
1:B:148:VAL:HG23	1:B:408:VAL:O	2.07	0.54
1:G:366:ARG:O	1:G:370:GLN:HB2	2.07	0.54
1:H:163:ILE:HG13	1:H:167:LEU:HD22	1.90	0.54
1:G:115:VAL:CG1	1:G:223:LEU:HD11	2.38	0.54
1:A:124:ILE:HG21	1:A:364:LEU:HA	1.90	0.54
1:B:128:ARG:O	1:B:132:GLU:HG3	2.08	0.54
1:D:269:ASP:OD1	1:D:270:GLN:N	2.41	0.54
1:B:144:ASP:OD1	1:B:144:ASP:N	2.41	0.54
1:C:184:LEU:HD11	1:C:200:MET:HG3	1.89	0.54
1:A:133:GLN:O	1:A:137:GLU:HG3	2.07	0.53
1:C:383:MET:HA	1:C:409:ARG:O	2.09	0.53
1:G:383:MET:SD	1:G:408:VAL:HG21	2.48	0.53
1:H:252:THR:HB	2:H:501:HEM:HAB	1.90	0.53
1:C:373:PHE:O	1:C:377:LEU:HD22	2.07	0.53
1:A:109:THR:O	1:A:113:LYS:HG3	2.07	0.53
1:C:249:GLY:HA2	2:C:501:HEM:C2C	2.43	0.53
1:D:158:LEU:HB3	1:D:159:PRO:HD3	1.91	0.53
1:F:139:LEU:O	1:F:142:LEU:HG	2.08	0.53
1:C:158:LEU:HB3	1:C:159:PRO:HD3	1.90	0.53
1:D:115:VAL:CG1	1:D:223:LEU:HD11	2.39	0.53
1:F:53:ILE:HD12	1:F:309:ILE:HG21	1.89	0.53
1:C:387:VAL:HG23	1:C:407:PRO:HG2	1.91	0.53
1:H:131:ILE:O	1:H:135:THR:OG1	2.27	0.53
1:G:158:LEU:HB3	1:G:159:PRO:HD3	1.91	0.52
1:H:102:HIS:NE2	1:H:299:THR:HG21	2.23	0.52
1:H:243:PHE:O	1:H:247:ILE:HG22	2.09	0.52
1:D:269:ASP:OD1	1:D:270:GLN:HG2	2.08	0.52
1:G:235:GLU:O	1:G:239:VAL:HG23	2.10	0.52
1:E:262:LEU:O	1:E:266:ARG:HG3	2.10	0.52
1:G:45:CYS:HA	1:G:48:LEU:HD12	1.91	0.52
1:B:27:LEU:HB3	1:B:34:HIS:CE1	2.45	0.52
1:A:371:VAL:O	1:A:375:VAL:HG23	2.09	0.51
1:E:105:PRO:HG3	1:G:66:PRO:HG2	1.90	0.51
1:E:146:ASP:HB3	1:E:147:PRO:HD3	1.91	0.51
1:H:235:GLU:O	1:H:239:VAL:HG23	2.10	0.51
1:C:185:VAL:CG2	3:C:502:V0A:C20	2.87	0.51
1:D:124:ILE:HG21	1:D:364:LEU:HA	1.91	0.51
1:A:158:LEU:HB3	1:A:159:PRO:HD3	1.92	0.51
1:C:185:VAL:HG22	3:C:502:V0A:C20	2.40	0.51
1:C:235:GLU:O	1:C:239:VAL:HG23	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:19:ASP:OD2	1:C:22:SER:OG	2.25	0.51
1:C:227:ARG:HG3	1:C:238:LEU:HD12	1.92	0.51
1:D:220:LEU:O	1:D:224:VAL:HG23	2.11	0.51
1:F:158:LEU:HB3	1:F:159:PRO:HD3	1.92	0.51
1:A:66:PRO:CG	1:D:105:PRO:HG3	2.40	0.51
1:G:154:PHE:HE1	1:G:158:LEU:HD13	1.76	0.51
1:A:26:ARG:HB3	1:A:26:ARG:NH1	2.25	0.51
1:B:158:LEU:HB3	1:B:159:PRO:HD3	1.92	0.50
1:C:382:ALA:CB	1:G:382:ALA:HB1	2.41	0.50
1:D:131:ILE:HG22	1:D:371:VAL:HG11	1.93	0.50
1:B:169:VAL:HG22	1:B:207:LEU:HD11	1.93	0.50
1:F:105:PRO:HA	1:F:108:HIS:HB3	1.93	0.50
1:G:344:ARG:HG2	1:G:345:PRO:HD2	1.93	0.50
1:H:105:PRO:HG2	1:H:106:PRO:HD3	1.93	0.50
1:G:156:PHE:CE1	1:G:254:VAL:HG11	2.46	0.50
1:D:184:LEU:HG	1:D:196:ALA:HB3	1.94	0.50
1:A:160:ILE:HA	1:A:163:ILE:HG22	1.92	0.50
1:A:270:GLN:HG2	1:A:342:VAL:HG22	1.94	0.50
1:B:63:LEU:HG	1:B:322:LEU:HD23	1.93	0.50
1:F:386:ALA:HB3	1:F:407:PRO:HB2	1.93	0.50
1:A:148:VAL:HG23	1:A:408:VAL:O	2.11	0.50
1:D:184:LEU:HG	1:D:196:ALA:HB1	1.94	0.50
1:C:21:HIS:HE1	1:C:401:ARG:NH2	2.09	0.50
1:C:43:PRO:HB3	1:C:193:THR:HG21	1.94	0.50
1:E:139:LEU:HD21	1:E:375:VAL:HG12	1.93	0.50
1:B:160:ILE:HA	1:B:163:ILE:HG22	1.92	0.50
1:H:252:THR:HB	2:H:501:HEM:C3B	2.47	0.50
1:B:145:GLU:HG2	1:B:147:PRO:HD2	1.93	0.50
1:F:104:ASP:HB3	1:F:105:PRO:HD2	1.93	0.50
1:F:105:PRO:HG3	1:H:66:PRO:CG	2.39	0.50
1:F:160:ILE:HA	1:F:163:ILE:HG22	1.92	0.50
1:B:43:PRO:HB3	1:B:193:THR:HG21	1.94	0.49
1:B:105:PRO:HG3	1:C:66:PRO:CG	2.41	0.49
1:F:127:LEU:HD11	1:F:166:LEU:HD13	1.94	0.49
1:H:242:ALA:O	1:H:246:PHE:HD1	1.95	0.49
1:A:259:ASN:HB3	1:A:292:GLU:HB3	1.94	0.49
1:E:250:HIS:O	1:E:254:VAL:HG12	2.12	0.49
1:F:243:PHE:CE1	1:F:247:ILE:HG13	2.46	0.49
1:C:56:TYR:CE2	1:C:333:ARG:HG3	2.47	0.49
1:D:399:LEU:HD12	3:D:502:V0A:C22	2.43	0.49
1:E:66:PRO:CG	1:G:105:PRO:HG3	2.42	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:139:LEU:HD21	1:E:375:VAL:CG1	2.42	0.49
1:F:120:THR:HG21	1:H:332:GLU:HG3	1.95	0.49
1:F:332:GLU:OE1	1:H:120:THR:HG21	2.12	0.49
1:B:66:PRO:CG	1:C:105:PRO:HG3	2.38	0.49
1:B:113:LYS:NZ	1:C:308:ARG:HH11	2.11	0.49
1:B:66:PRO:HB3	1:C:66:PRO:HB3	1.93	0.49
1:D:160:ILE:HD12	1:D:250:HIS:HB2	1.95	0.49
1:D:249:GLY:HA2	2:D:501:HEM:C2C	2.48	0.49
1:D:250:HIS:CE1	1:D:251:GLU:HG2	2.48	0.49
1:C:286:GLU:OE1	1:C:349:HIS:NE2	2.42	0.49
1:D:234:THR:HG22	1:D:237:GLU:HB2	1.95	0.49
1:C:87:ASN:HA	1:C:93:SER:HB3	1.95	0.49
1:C:104:ASP:HB3	1:C:105:PRO:HD2	1.93	0.49
1:E:301:ARG:HH22	2:E:501:HEM:CGA	2.26	0.49
1:H:277:ASP:OD1	1:H:279:SER:OG	2.31	0.49
1:C:13:ASP:OD1	1:C:15:ALA:N	2.46	0.49
1:D:197:SER:O	1:D:201:ILE:HG23	2.13	0.49
1:D:277:ASP:OD1	1:D:279:SER:OG	2.22	0.49
1:H:296:LYS:HG2	1:H:401:ARG:HB2	1.94	0.49
1:B:57:GLU:OE2	1:C:112:ARG:NE	2.40	0.48
1:F:234:THR:HG21	4:F:641:HOH:O	2.12	0.48
1:C:124:ILE:HG21	1:C:364:LEU:HA	1.95	0.48
1:G:151:LEU:HA	1:G:155:ALA:HB3	1.95	0.48
1:H:160:ILE:HD12	1:H:250:HIS:HB2	1.95	0.48
1:E:187:GLY:HA3	1:E:193:THR:HG22	1.96	0.48
1:A:262:LEU:HD12	1:A:403:LEU:HD11	1.96	0.48
1:D:56:TYR:HA	1:D:327:ALA:HB1	1.95	0.48
1:B:24:TYR:HE1	1:B:52:LEU:HD21	1.78	0.48
1:D:32:SER:O	1:D:53:ILE:HA	2.13	0.48
1:E:270:GLN:NE2	1:E:340:LEU:O	2.46	0.48
1:F:45:CYS:HA	1:F:48:LEU:HD12	1.95	0.48
1:G:63:LEU:HG	1:G:322:LEU:HD13	1.95	0.48
1:G:364:LEU:O	1:G:368:GLU:HG3	2.14	0.48
1:D:183:ALA:O	1:D:193:THR:HA	2.14	0.48
1:H:104:ASP:HB3	1:H:105:PRO:HD2	1.95	0.48
1:F:115:VAL:HG13	1:F:223:LEU:HD21	1.96	0.48
1:G:164:CYS:SG	1:G:169:VAL:HB	2.54	0.48
1:C:386:ALA:HB3	1:C:407:PRO:HB2	1.95	0.48
1:D:104:ASP:HB3	1:D:105:PRO:HD2	1.95	0.48
1:D:278:ARG:HG2	1:D:278:ARG:HH11	1.79	0.48
1:G:19:ASP:OD2	1:G:22:SER:OG	2.26	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:301:ARG:HH12	2:G:501:HEM:CGA	2.24	0.48
1:B:45:CYS:HA	1:B:48:LEU:HD12	1.95	0.48
1:B:251:GLU:OE1	1:B:395:ARG:NH1	2.45	0.48
1:C:99:HIS:CD2	1:C:244:LEU:HD22	2.48	0.48
1:C:124:ILE:HD12	1:C:364:LEU:HD13	1.95	0.48
1:A:28:ASN:HA	1:A:31:GLY:O	2.13	0.47
1:E:28:ASN:HA	1:E:31:GLY:O	2.13	0.47
1:A:146:ASP:HB3	1:A:147:PRO:HD3	1.95	0.47
1:D:185:VAL:HG13	1:D:400:ILE:HG13	1.96	0.47
1:G:385:LEU:HD21	1:G:392:MET:HE1	1.95	0.47
1:H:56:TYR:CD1	1:H:333:ARG:HG3	2.49	0.47
1:B:250:HIS:O	1:B:254:VAL:HG12	2.14	0.47
1:C:296:LYS:HE3	1:C:400:ILE:O	2.14	0.47
1:D:263:HIS:HB3	1:D:340:LEU:HD22	1.96	0.47
1:D:120:THR:CG2	1:D:123:ALA:H	2.27	0.47
1:G:226:ALA:O	1:G:232:ARG:HB2	2.14	0.47
1:B:17:MET:HG2	1:B:396:THR:HA	1.97	0.47
1:D:38:MET:H	1:D:38:MET:HG2	1.27	0.47
1:E:45:CYS:HA	1:E:48:LEU:HD12	1.96	0.47
1:E:163:ILE:HD12	1:E:163:ILE:HA	1.73	0.47
1:G:154:PHE:CE1	1:G:158:LEU:HD13	2.50	0.47
1:H:252:THR:HB	2:H:501:HEM:CAB	2.44	0.47
1:H:296:LYS:HE2	1:H:400:ILE:O	2.15	0.47
1:B:124:ILE:HG21	1:B:364:LEU:HA	1.97	0.47
1:C:234:THR:CG2	1:C:237:GLU:H	2.27	0.47
1:D:266:ARG:HE	1:D:389:PRO:HB3	1.80	0.47
2:B:501:HEM:HMC1	2:B:501:HEM:HBC2	1.96	0.47
1:H:293:SER:OG	1:H:328:ASN:ND2	2.47	0.47
1:H:295:LEU:HD23	1:H:295:LEU:HA	1.79	0.47
1:G:105:PRO:HG2	1:G:106:PRO:HD3	1.97	0.46
1:C:59:VAL:HG13	1:C:322:LEU:HB3	1.97	0.46
1:C:274:LEU:HD23	1:C:274:LEU:HA	1.69	0.46
1:E:234:THR:CG2	1:E:237:GLU:H	2.27	0.46
1:A:116:ASN:HA	1:A:360:LEU:HD11	1.96	0.46
1:C:383:MET:SD	1:C:408:VAL:HG21	2.55	0.46
1:F:220:LEU:HA	1:F:223:LEU:HD12	1.96	0.46
1:H:216:THR:OG1	1:H:217:ASP:N	2.47	0.46
1:F:262:LEU:O	1:F:266:ARG:HG2	2.16	0.46
1:G:189:SER:O	1:G:193:THR:HG23	2.15	0.46
1:C:21:HIS:CD2	1:C:329:ARG:HE	2.34	0.46
1:C:151:LEU:HA	1:C:155:ALA:HB3	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:281:LEU:O	1:C:285:VAL:HG23	2.15	0.46
1:C:300:PHE:CE1	1:C:321:LEU:HD13	2.50	0.46
1:G:220:LEU:O	1:G:224:VAL:HG23	2.16	0.46
1:H:383:MET:SD	1:H:408:VAL:HG21	2.56	0.46
1:A:128:ARG:O	1:A:132:GLU:HG3	2.15	0.46
1:B:138:LEU:HD23	1:B:138:LEU:HA	1.78	0.46
1:D:233:LEU:HD11	1:D:237:GLU:HB3	1.98	0.46
1:E:259:ASN:HB3	1:E:292:GLU:HB3	1.97	0.46
1:E:297:HIS:HD2	1:E:323:ALA:HA	1.80	0.46
1:D:216:THR:OG1	1:D:217:ASP:N	2.49	0.46
1:D:275:ARG:C	1:D:278:ARG:HH12	2.19	0.46
1:D:308:ARG:HG2	1:D:313:ALA:HA	1.98	0.46
1:H:383:MET:HA	1:H:409:ARG:O	2.16	0.46
1:A:298:ALA:HB1	2:A:501:HEM:O1A	2.15	0.46
1:F:28:ASN:HA	1:F:31:GLY:O	2.16	0.46
1:B:220:LEU:HA	1:B:223:LEU:HD12	1.98	0.46
1:C:398:THR:HG22	1:C:399:LEU:HD23	1.96	0.46
1:D:234:THR:CG2	1:D:237:GLU:H	2.29	0.46
2:E:501:HEM:HMC1	2:E:501:HEM:HBC2	1.98	0.46
1:E:189:SER:O	1:E:193:THR:HG23	2.16	0.45
1:D:299:THR:OG1	2:D:501:HEM:O1A	2.35	0.45
1:G:373:PHE:O	1:G:377:LEU:HG	2.17	0.45
1:D:275:ARG:CA	1:D:278:ARG:HH12	2.29	0.45
1:E:299:THR:HG22	2:E:501:HEM:O1A	2.15	0.45
1:D:151:LEU:HA	1:D:155:ALA:HB3	1.98	0.45
1:A:99:HIS:CD2	1:A:244:LEU:HD22	2.51	0.45
1:A:117:LYS:HD3	1:A:117:LYS:HA	1.69	0.45
1:C:292:GLU:OE2	1:C:329:ARG:NH2	2.50	0.45
1:D:19:ASP:OD2	1:D:22:SER:OG	2.27	0.45
1:G:329:ARG:HH21	1:G:338:HIS:CA	2.29	0.45
1:F:233:LEU:HD11	1:F:237:GLU:HB3	1.98	0.45
1:G:263:HIS:NE2	1:G:292:GLU:HG2	2.32	0.45
1:H:184:LEU:HD23	1:H:184:LEU:HA	1.72	0.45
1:B:104:ASP:HB3	1:B:105:PRO:HD2	1.98	0.45
1:B:110:ARG:HD3	1:B:232:ARG:O	2.15	0.45
1:C:43:PRO:CB	1:C:193:THR:HG21	2.47	0.45
1:H:158:LEU:O	1:H:162:VAL:HG23	2.17	0.45
1:D:261:THR:HB	1:D:406:LEU:HD21	1.98	0.45
1:G:216:THR:OG1	1:G:217:ASP:N	2.49	0.45
1:G:233:LEU:HD23	1:G:238:LEU:HD23	1.99	0.45
1:A:249:GLY:HA2	2:A:501:HEM:C2C	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:250:HIS:O	1:A:254:VAL:HG12	2.17	0.45
1:C:14:ASP:O	1:C:17:MET:N	2.50	0.45
1:C:399:LEU:HD12	3:C:502:V0A:C22	2.47	0.45
1:E:257:LEU:HD21	1:E:372:ALA:HB3	1.99	0.45
1:F:216:THR:OG1	1:F:217:ASP:N	2.49	0.45
1:G:387:VAL:HG22	1:G:388:ASP:N	2.32	0.45
1:B:105:PRO:HA	1:B:108:HIS:HB3	2.00	0.44
1:B:233:LEU:HD12	1:B:233:LEU:HA	1.79	0.44
1:C:112:ARG:O	1:C:116:ASN:HB3	2.17	0.44
1:E:24:TYR:HB3	1:E:326:SER:HB2	1.98	0.44
1:D:234:THR:HG23	1:D:237:GLU:H	1.82	0.44
1:C:244:LEU:HD21	2:C:501:HEM:HMD2	1.99	0.44
1:D:361:GLY:HA3	2:D:501:HEM:C3C	2.52	0.44
1:E:211:LYS:NZ	1:E:218:ASP:OD2	2.47	0.44
1:H:133:GLN:O	1:H:137:GLU:HG3	2.17	0.44
1:H:366:ARG:HD3	4:H:613:HOH:O	2.17	0.44
1:A:387:VAL:HG22	1:A:407:PRO:HG2	1.99	0.44
1:B:264:LEU:HD13	1:B:271:TRP:HE3	1.82	0.44
1:G:367:MET:O	1:G:371:VAL:HG23	2.18	0.44
1:H:139:LEU:HD11	1:H:379:THR:OG1	2.18	0.44
2:A:501:HEM:HBC2	2:A:501:HEM:HMC1	2.00	0.44
1:E:296:LYS:HG3	1:E:297:HIS:CG	2.52	0.44
1:F:139:LEU:HD21	1:F:375:VAL:CG1	2.47	0.44
1:A:156:PHE:HD1	1:A:250:HIS:NE2	2.15	0.44
1:D:105:PRO:HA	1:D:108:HIS:HB3	1.99	0.44
1:D:166:LEU:HD23	1:D:166:LEU:HA	1.87	0.44
1:D:274:LEU:O	1:D:278:ARG:NH1	2.51	0.44
1:E:105:PRO:HG3	1:G:66:PRO:CG	2.47	0.44
1:A:135:THR:HG23	1:A:154:PHE:HZ	1.83	0.44
1:H:20:PRO:HB2	1:H:24:TYR:CE2	2.53	0.44
1:A:287:GLU:HG3	1:A:340:LEU:HD12	2.00	0.44
1:A:388:ASP:HA	1:A:389:PRO:HD2	1.85	0.44
1:C:183:ALA:HA	1:C:186:SER:O	2.18	0.44
1:C:185:VAL:CG2	3:C:502:V0A:C22	2.84	0.44
1:C:400:ILE:HD11	3:C:502:V0A:C18	2.48	0.44
1:D:178:LYS:H	1:D:178:LYS:HG3	1.47	0.44
1:F:102:HIS:NE2	1:F:299:THR:HG21	2.33	0.44
1:G:156:PHE:HE2	1:G:395:ARG:HH22	1.64	0.44
1:H:27:LEU:HB3	1:H:34:HIS:CD2	2.53	0.44
1:B:120:THR:HG23	1:C:332:GLU:O	2.18	0.44
1:B:252:THR:HB	2:B:501:HEM:C3B	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:151:LEU:HD11	1:C:403:LEU:HB2	2.00	0.44
1:D:180:TRP:O	1:D:196:ALA:HB2	2.17	0.44
1:H:243:PHE:CZ	1:H:247:ILE:HG21	2.53	0.44
1:A:144:ASP:OD1	1:A:144:ASP:N	2.51	0.43
1:B:291:LEU:O	1:B:329:ARG:HD2	2.18	0.43
2:C:501:HEM:HMC1	2:C:501:HEM:HBC2	1.98	0.43
1:G:20:PRO:HB2	1:G:24:TYR:CE2	2.53	0.43
1:G:165:LEU:HD23	1:G:165:LEU:HA	1.86	0.43
1:B:39:PRO:HD2	1:B:42:VAL:HG21	2.00	0.43
1:B:277:ASP:OD1	1:B:279:SER:OG	2.24	0.43
1:B:281:LEU:O	1:B:285:VAL:HG23	2.18	0.43
1:C:220:LEU:O	1:C:224:VAL:HG23	2.18	0.43
1:E:387:VAL:HG22	1:E:407:PRO:HG2	1.99	0.43
1:F:264:LEU:HD13	1:F:271:TRP:HE3	1.83	0.43
1:H:124:ILE:HA	1:H:127:LEU:HD13	1.99	0.43
1:B:269:ASP:OD1	1:B:269:ASP:N	2.51	0.43
1:D:266:ARG:HE	1:D:389:PRO:CB	2.31	0.43
1:H:105:PRO:HA	1:H:108:HIS:HB3	1.99	0.43
1:H:234:THR:CG2	1:H:237:GLU:H	2.28	0.43
1:H:384:ARG:O	1:H:408:VAL:HG23	2.18	0.43
1:A:66:PRO:HB3	1:D:66:PRO:HB3	2.01	0.43
1:A:308:ARG:HD3	1:D:113:LYS:NZ	2.34	0.43
1:B:270:GLN:OE1	1:B:340:LEU:HG	2.18	0.43
1:E:233:LEU:HD12	1:E:233:LEU:HA	1.66	0.43
1:E:290:ARG:HG2	1:E:328:ASN:HB3	2.00	0.43
1:G:243:PHE:CZ	1:G:247:ILE:HG21	2.53	0.43
1:B:52:LEU:HD11	1:B:323:ALA:HB2	2.00	0.43
1:A:105:PRO:HG3	1:D:66:PRO:CG	2.45	0.43
1:C:163:ILE:HD12	1:C:163:ILE:HA	1.73	0.43
1:C:380:PHE:CD1	1:C:410:LEU:HB3	2.53	0.43
1:F:12:LEU:O	1:F:39:PRO:HG3	2.19	0.43
1:F:130:GLU:O	1:F:133:GLN:HB2	2.17	0.43
1:H:27:LEU:HB3	1:H:34:HIS:NE2	2.33	0.43
1:C:124:ILE:HA	1:C:127:LEU:CD2	2.48	0.43
1:E:373:PHE:O	1:E:377:LEU:HG	2.19	0.43
1:H:250:HIS:O	1:H:254:VAL:HG12	2.19	0.43
1:D:250:HIS:CG	1:D:251:GLU:N	2.86	0.43
1:F:291:LEU:O	1:F:329:ARG:NH1	2.39	0.43
1:H:163:ILE:HD12	1:H:163:ILE:HA	1.85	0.43
1:H:300:PHE:CD1	1:H:321:LEU:HD13	2.53	0.43
1:A:48:LEU:HA	1:A:49:PRO:HD3	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:48:LEU:HA	1:C:49:PRO:HD3	1.92	0.43
1:C:351:ALA:O	2:C:501:HEM:HMA1	2.19	0.43
1:F:12:LEU:HD12	1:F:38:MET:SD	2.59	0.43
1:F:116:ASN:HA	1:F:360:LEU:HD11	2.00	0.43
1:G:97:ALA:HA	1:G:99:HIS:CE1	2.54	0.43
1:H:148:VAL:HG21	1:H:410:LEU:HD13	2.01	0.43
1:A:278:ARG:HH11	1:A:278:ARG:HD2	1.69	0.42
1:A:301:ARG:HH22	2:A:501:HEM:CGA	2.30	0.42
1:B:139:LEU:HD22	1:B:380:PHE:HE2	1.83	0.42
1:C:101:LEU:HD12	1:C:101:LEU:O	2.19	0.42
1:D:24:TYR:OH	1:D:297:HIS:NE2	2.49	0.42
1:D:102:HIS:NE2	1:D:299:THR:HG21	2.34	0.42
1:A:241:MET:O	1:A:245:LEU:HG	2.19	0.42
1:D:98:THR:HG22	1:D:237:GLU:HG3	2.00	0.42
1:F:142:LEU:HB2	1:F:143:PRO:CD	2.48	0.42
1:F:278:ARG:HG2	1:F:278:ARG:NH1	2.35	0.42
1:A:163:ILE:HD12	1:A:163:ILE:HA	1.83	0.42
1:B:135:THR:HG23	1:B:154:PHE:HZ	1.84	0.42
1:D:35:ARG:NH1	1:D:49:PRO:HB2	2.34	0.42
1:E:120:THR:OG1	1:G:332:GLU:HG3	2.19	0.42
1:G:43:PRO:CB	1:G:193:THR:HG21	2.49	0.42
1:G:233:LEU:HD12	1:G:234:THR:H	1.84	0.42
1:G:376:LEU:HD13	1:G:376:LEU:HA	1.79	0.42
1:H:138:LEU:HD23	1:H:138:LEU:HA	1.77	0.42
1:D:23:VAL:HG12	1:D:27:LEU:CD1	2.50	0.42
1:F:139:LEU:HD21	1:F:375:VAL:HG12	2.01	0.42
1:A:33:ALA:HB3	1:A:312:THR:HG21	2.01	0.42
1:B:272:GLU:OE1	1:B:272:GLU:HA	2.19	0.42
1:B:297:HIS:HD2	1:B:323:ALA:HA	1.84	0.42
1:B:335:GLY:O	1:B:344:ARG:NH1	2.47	0.42
1:D:278:ARG:HG2	1:D:278:ARG:NH1	2.35	0.42
1:E:37:MET:HG2	1:E:47:GLY:HA2	2.01	0.42
1:E:287:GLU:OE1	1:E:287:GLU:HA	2.20	0.42
1:G:28:ASN:ND2	4:G:602:HOH:O	2.49	0.42
1:G:104:ASP:HB3	1:G:105:PRO:HD2	2.00	0.42
1:H:227:ARG:HH21	1:H:235:GLU:HB2	1.85	0.42
1:B:120:THR:HG21	1:C:332:GLU:OE1	2.20	0.42
1:B:262:LEU:O	1:B:266:ARG:HG2	2.20	0.42
1:C:156:PHE:HD1	1:C:254:VAL:HG21	1.85	0.42
1:C:189:SER:O	1:C:193:THR:HG23	2.20	0.42
1:D:107:ASP:CG	1:D:110:ARG:HH21	2.23	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:53:ILE:HD12	1:E:309:ILE:HG21	2.01	0.42
1:E:66:PRO:HB3	1:G:66:PRO:HB3	2.02	0.42
1:F:27:LEU:HB3	1:F:34:HIS:CE1	2.55	0.42
1:F:66:PRO:HB3	1:H:66:PRO:HB3	2.01	0.42
1:G:36:VAL:HG21	1:G:52:LEU:HB2	2.00	0.42
1:G:96:LEU:HD13	1:G:201:ILE:HG12	2.00	0.42
1:H:52:LEU:HD23	1:H:321:LEU:HB3	2.01	0.42
1:H:138:LEU:HD13	1:H:157:PRO:HG2	2.00	0.42
1:H:400:ILE:HD11	3:H:502:V0A:C17	2.50	0.42
1:B:139:LEU:HD23	1:B:139:LEU:HA	1.70	0.42
1:C:68:LEU:HD23	1:C:68:LEU:HA	1.88	0.42
1:C:362:ALA:O	1:C:366:ARG:HG3	2.18	0.42
1:D:189:SER:HB3	1:D:192:ALA:HB3	2.02	0.42
1:F:63:LEU:HG	1:F:322:LEU:HD23	2.00	0.42
1:F:291:LEU:O	1:F:329:ARG:HD2	2.19	0.42
1:G:97:ALA:HB1	1:G:102:HIS:HD1	1.84	0.42
1:G:257:LEU:HD21	1:G:369:ALA:HA	2.00	0.42
1:A:266:ARG:CD	1:A:389:PRO:HB3	2.50	0.42
1:B:234:THR:CG2	1:B:237:GLU:H	2.29	0.42
1:C:21:HIS:HA	1:C:24:TYR:CD2	2.55	0.42
1:C:185:VAL:HG11	1:C:400:ILE:HD12	2.02	0.42
1:D:243:PHE:CZ	1:D:247:ILE:HG21	2.55	0.42
1:H:187:GLY:HA3	1:H:193:THR:CG2	2.49	0.42
1:A:86:ARG:HB3	1:A:94:SER:OG	2.19	0.42
1:C:181:SER:O	1:C:184:LEU:HB2	2.19	0.42
1:F:23:VAL:O	1:F:27:LEU:HG	2.20	0.42
1:G:178:LYS:HG2	1:G:182:LYS:HE3	2.02	0.42
1:E:252:THR:OG1	1:E:253:THR:N	2.53	0.42
1:F:60:ARG:HE	1:F:60:ARG:HB3	1.70	0.42
1:G:124:ILE:HA	1:G:127:LEU:HD12	2.01	0.42
1:H:166:LEU:HD23	1:H:166:LEU:HA	1.74	0.42
1:E:187:GLY:HA3	1:E:193:THR:CG2	2.50	0.41
1:E:243:PHE:CZ	1:E:247:ILE:HG21	2.55	0.41
1:H:28:ASN:HA	1:H:31:GLY:O	2.20	0.41
1:H:126:LYS:HB2	1:H:126:LYS:HE2	1.73	0.41
1:A:180:TRP:CZ2	1:A:199:ALA:HB1	2.55	0.41
1:C:266:ARG:HE	1:C:389:PRO:HG3	1.85	0.41
1:C:384:ARG:O	1:C:408:VAL:HG23	2.21	0.41
1:B:223:LEU:HD22	1:B:241:MET:HG2	2.03	0.41
1:D:23:VAL:HG12	1:D:27:LEU:HD11	2.03	0.41
1:H:290:ARG:HG2	1:H:328:ASN:HB3	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:12:LEU:O	1:B:39:PRO:HG3	2.20	0.41
1:B:48:LEU:HA	1:B:49:PRO:HD3	1.93	0.41
1:D:383:MET:HA	1:D:409:ARG:O	2.20	0.41
1:E:216:THR:OG1	1:E:217:ASP:N	2.52	0.41
1:G:105:PRO:HA	1:G:108:HIS:HB3	2.03	0.41
1:H:276:GLN:OE1	1:H:277:ASP:HB2	2.20	0.41
1:A:262:LEU:O	1:A:266:ARG:HG2	2.21	0.41
1:E:332:GLU:HG3	1:G:120:THR:HG21	2.01	0.41
1:G:204:LEU:O	1:G:208:ILE:HD12	2.21	0.41
1:A:269:ASP:OD1	1:A:269:ASP:N	2.53	0.41
1:A:371:VAL:HA	4:A:629:HOH:O	2.21	0.41
1:A:400:ILE:HD13	1:A:400:ILE:HA	1.87	0.41
1:F:17:MET:HG2	1:F:396:THR:HA	2.01	0.41
1:F:252:THR:HB	2:F:501:HEM:C3B	2.56	0.41
1:B:131:ILE:HG22	1:B:371:VAL:HG11	2.03	0.41
1:H:158:LEU:HB3	1:H:159:PRO:HD3	2.03	0.41
1:A:94:SER:O	1:A:98:THR:OG1	2.32	0.41
1:B:163:ILE:HD12	1:B:163:ILE:HA	1.90	0.41
1:E:270:GLN:HE22	1:E:340:LEU:C	2.24	0.41
1:E:328:ASN:OD1	1:E:350:VAL:HG12	2.21	0.41
1:F:332:GLU:HG3	1:H:120:THR:HG21	2.02	0.41
1:G:265:MET:HE3	1:G:265:MET:HA	2.01	0.41
1:H:39:PRO:HA	1:H:40:PRO:HD3	1.99	0.41
1:B:220:LEU:O	1:B:224:VAL:HG23	2.20	0.41
1:C:35:ARG:NH2	4:C:601:HOH:O	2.33	0.41
1:C:151:LEU:O	1:C:156:PHE:HB2	2.21	0.41
1:C:366:ARG:O	1:C:370:GLN:HG3	2.21	0.41
1:D:301:ARG:HB2	1:D:320:VAL:HG13	2.02	0.41
1:F:234:THR:CG2	1:F:237:GLU:H	2.24	0.41
1:G:21:HIS:NE2	1:G:292:GLU:OE1	2.53	0.41
1:G:383:MET:O	1:G:384:ARG:HD2	2.21	0.41
1:H:146:ASP:CB	1:H:147:PRO:HD3	2.50	0.41
1:H:220:LEU:O	1:H:224:VAL:HG23	2.21	0.41
1:B:219:VAL:O	1:B:223:LEU:HD12	2.21	0.41
1:G:136:GLY:HA2	1:G:139:LEU:HD23	2.03	0.40
1:H:296:LYS:CG	1:H:401:ARG:HB2	2.51	0.40
1:A:169:VAL:HG21	1:A:246:PHE:HZ	1.86	0.40
1:B:243:PHE:CE1	1:B:247:ILE:HG13	2.57	0.40
1:E:27:LEU:HB3	1:E:34:HIS:NE2	2.36	0.40
1:E:128:ARG:O	1:E:132:GLU:HG3	2.21	0.40
1:E:166:LEU:HD12	1:E:166:LEU:HA	1.91	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:14:ASP:O	1:G:15:ALA:C	2.59	0.40
1:A:233:LEU:HD12	1:A:233:LEU:HA	1.86	0.40
1:B:23:VAL:O	1:B:27:LEU:HD22	2.20	0.40
1:C:102:HIS:NE2	1:C:299:THR:HG21	2.35	0.40
1:D:184:LEU:HA	1:D:184:LEU:HD23	1.80	0.40
1:A:234:THR:CG2	1:A:237:GLU:H	2.33	0.40
1:B:53:ILE:HD12	1:B:309:ILE:HG21	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	395/414 (95%)	388 (98%)	7 (2%)	0	100	100
1	B	395/414 (95%)	389 (98%)	6 (2%)	0	100	100
1	C	389/414 (94%)	373 (96%)	15 (4%)	1 (0%)	41	56
1	D	394/414 (95%)	383 (97%)	10 (2%)	1 (0%)	41	56
1	E	395/414 (95%)	386 (98%)	9 (2%)	0	100	100
1	F	395/414 (95%)	388 (98%)	6 (2%)	1 (0%)	41	56
1	G	395/414 (95%)	384 (97%)	10 (2%)	1 (0%)	41	56
1	H	395/414 (95%)	385 (98%)	10 (2%)	0	100	100
All	All	3153/3312 (95%)	3076 (98%)	73 (2%)	4 (0%)	51	69

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	147	PRO
1	G	145	GLU
1	F	147	PRO

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Mol	Chain	Res	Type
1	D	147	PRO

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	324/345 (94%)	292 (90%)	32 (10%)	8	10
1	B	325/345 (94%)	291 (90%)	34 (10%)	7	9
1	C	311/345 (90%)	264 (85%)	47 (15%)	3	3
1	D	322/345 (93%)	282 (88%)	40 (12%)	4	5
1	E	324/345 (94%)	289 (89%)	35 (11%)	6	8
1	F	324/345 (94%)	293 (90%)	31 (10%)	8	11
1	G	316/345 (92%)	279 (88%)	37 (12%)	5	7
1	H	320/345 (93%)	281 (88%)	39 (12%)	5	6
All	All	2566/2760 (93%)	2271 (88%)	295 (12%)	5	7

All (295) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	13	ASP
1	A	32	SER
1	A	35	ARG
1	A	45	CYS
1	A	94	SER
1	A	110	ARG
1	A	117	LYS
1	A	120	THR
1	A	142	LEU
1	A	144	ASP
1	A	171	LEU
1	A	179	SER
1	A	181	SER
1	A	188	ASP

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Mol	Chain	Res	Type
1	A	197	SER
1	A	201	ILE
1	A	214	THR
1	A	217	ASP
1	A	234	THR
1	A	246	PHE
1	A	271	TRP
1	A	295	LEU
1	A	307	LEU
1	A	312	THR
1	A	320	VAL
1	A	346	THR
1	A	350	VAL
1	A	359	CYS
1	A	367	MET
1	A	383	MET
1	A	384	ARG
1	A	387	VAL
1	B	10	LEU
1	B	22	SER
1	B	32	SER
1	B	35	ARG
1	B	38	MET
1	B	45	CYS
1	B	60	ARG
1	B	69	SER
1	B	77	ARG
1	B	109	THR
1	B	120	THR
1	B	122	ARG
1	B	144	ASP
1	B	152	ASP
1	B	181	SER
1	B	189	SER
1	B	197	SER
1	B	201	ILE
1	B	225	SER
1	B	234	THR
1	B	269	ASP
1	B	271	TRP
1	B	276	GLN
1	B	299	THR

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Mol	Chain	Res	Type
1	B	307	LEU
1	B	308	ARG
1	B	312	THR
1	B	346	THR
1	B	367	MET
1	B	379	THR
1	B	388	ASP
1	B	389	PRO
1	B	391	ASP
1	B	405	SER
1	C	30	GLU
1	C	32	SER
1	C	45	CYS
1	C	52	LEU
1	C	72	LEU
1	C	82	ASN
1	C	85	ASP
1	C	94	SER
1	C	110	ARG
1	C	111	LEU
1	C	120	THR
1	C	121	SER
1	C	138	LEU
1	C	139	LEU
1	C	142	LEU
1	C	145	GLU
1	C	148	VAL
1	C	156	PHE
1	C	161	ARG
1	C	165	LEU
1	C	166	LEU
1	C	185	VAL
1	C	186	SER
1	C	200	MET
1	C	202	GLU
1	C	209	GLU
1	C	210	ARG
1	C	227	ARG
1	C	232	ARG
1	C	234	THR
1	C	236	THR
1	C	247	ILE

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Mol	Chain	Res	Type
1	C	250	HIS
1	C	253	THR
1	C	254	VAL
1	C	277	ASP
1	C	278	ARG
1	C	279	SER
1	C	281	LEU
1	C	299	THR
1	C	307	LEU
1	C	312	THR
1	C	333	ARG
1	C	346	THR
1	C	385	LEU
1	C	387	VAL
1	C	390	GLU
1	D	13	ASP
1	D	14	ASP
1	D	27	LEU
1	D	32	SER
1	D	35	ARG
1	D	37	MET
1	D	38	MET
1	D	68	LEU
1	D	83	GLU
1	D	94	SER
1	D	120	THR
1	D	143	PRO
1	D	144	ASP
1	D	148	VAL
1	D	151	LEU
1	D	152	ASP
1	D	176	ASN
1	D	177	PHE
1	D	178	LYS
1	D	179	SER
1	D	184	LEU
1	D	188	ASP
1	D	193	THR
1	D	201	ILE
1	D	202	GLU
1	D	247	ILE
1	D	250	HIS

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Mol	Chain	Res	Type
1	D	279	SER
1	D	299	THR
1	D	312	THR
1	D	346	THR
1	D	359	CYS
1	D	367	MET
1	D	375	VAL
1	D	380	PHE
1	D	387	VAL
1	D	388	ASP
1	D	390	GLU
1	D	391	ASP
1	D	400	ILE
1	E	45	CYS
1	E	52	LEU
1	E	60	ARG
1	E	61	SER
1	E	72	LEU
1	E	94	SER
1	E	117	LYS
1	E	120	THR
1	E	142	LEU
1	E	160	ILE
1	E	161	ARG
1	E	181	SER
1	E	185	VAL
1	E	188	ASP
1	E	189	SER
1	E	197	SER
1	E	201	ILE
1	E	217	ASP
1	E	234	THR
1	E	246	PHE
1	E	247	ILE
1	E	262	LEU
1	E	307	LEU
1	E	308	ARG
1	E	311	ASP
1	E	312	THR
1	E	326	SER
1	E	346	THR
1	E	359	CYS

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Mol	Chain	Res	Type
1	E	367	MET
1	E	379	THR
1	E	383	MET
1	E	387	VAL
1	E	392	MET
1	E	393	ARG
1	F	30	GLU
1	F	32	SER
1	F	38	MET
1	F	45	CYS
1	F	57	GLU
1	F	60	ARG
1	F	68	LEU
1	F	69	SER
1	F	72	LEU
1	F	77	ARG
1	F	120	THR
1	F	144	ASP
1	F	148	VAL
1	F	171	LEU
1	F	185	VAL
1	F	201	ILE
1	F	213	ARG
1	F	234	THR
1	F	252	THR
1	F	268	LEU
1	F	269	ASP
1	F	299	THR
1	F	307	LEU
1	F	308	ARG
1	F	312	THR
1	F	336	ASP
1	F	379	THR
1	F	383	MET
1	F	388	ASP
1	F	389	PRO
1	F	405	SER
1	G	14	ASP
1	G	32	SER
1	G	38	MET
1	G	120	THR
1	G	125	GLU

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Mol	Chain	Res	Type
1	G	127	LEU
1	G	138	LEU
1	G	139	LEU
1	G	142	LEU
1	G	146	ASP
1	G	148	VAL
1	G	149	ASP
1	G	151	LEU
1	G	156	PHE
1	G	158	LEU
1	G	167	LEU
1	G	178	LYS
1	G	185	VAL
1	G	188	ASP
1	G	198	THR
1	G	234	THR
1	G	253	THR
1	G	254	VAL
1	G	268	LEU
1	G	269	ASP
1	G	296	LYS
1	G	301	ARG
1	G	311	ASP
1	G	312	THR
1	G	320	VAL
1	G	343	ARG
1	G	344	ARG
1	G	370	GLN
1	G	379	THR
1	G	388	ASP
1	G	392	MET
1	G	395	ARG
1	H	38	MET
1	H	52	LEU
1	H	61	SER
1	H	85	ASP
1	H	94	SER
1	H	113	LYS
1	H	120	THR
1	H	121	SER
1	H	130	GLU
1	H	144	ASP

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Mol	Chain	Res	Type
1	H	160	ILE
1	H	179	SER
1	H	181	SER
1	H	182	LYS
1	H	185	VAL
1	H	188	ASP
1	H	197	SER
1	H	198	THR
1	H	210	ARG
1	H	216	THR
1	H	218	ASP
1	H	223	LEU
1	H	225	SER
1	H	227	ARG
1	H	234	THR
1	H	250	HIS
1	H	262	LEU
1	H	269	ASP
1	H	279	SER
1	H	299	THR
1	H	307	LEU
1	H	308	ARG
1	H	312	THR
1	H	333	ARG
1	H	343	ARG
1	H	387	VAL
1	H	392	MET
1	H	395	ARG
1	H	400	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	C	21	HIS
1	C	99	HIS
1	D	176	ASN
1	G	99	HIS
1	H	99	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

16 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	HEM	G	501	-	27,50,50	1.77	4 (14%)	17,82,82	1.65	6 (35%)
2	HEM	E	501	-	27,50,50	1.80	4 (14%)	17,82,82	1.56	4 (23%)
3	V0A	A	502	-	28,30,30	1.91	4 (14%)	32,45,45	3.06	12 (37%)
2	HEM	F	501	-	27,50,50	1.83	4 (14%)	17,82,82	1.50	5 (29%)
3	V0A	G	502	-	28,30,30	1.87	4 (14%)	32,45,45	3.41	15 (46%)
3	V0A	D	502	-	28,30,30	1.89	5 (17%)	32,45,45	2.80	10 (31%)
2	HEM	H	501	-	27,50,50	0.95	1 (3%)	17,82,82	1.77	5 (29%)
2	HEM	D	501	-	27,50,50	1.82	5 (18%)	17,82,82	1.56	6 (35%)
3	V0A	B	502	-	28,30,30	1.89	5 (17%)	32,45,45	3.06	11 (34%)
3	V0A	H	502	-	28,30,30	1.94	5 (17%)	32,45,45	2.57	9 (28%)
2	HEM	C	501	-	27,50,50	1.81	4 (14%)	17,82,82	1.61	4 (23%)
2	HEM	B	501	-	27,50,50	1.80	4 (14%)	17,82,82	1.62	5 (29%)
3	V0A	F	502	-	28,30,30	1.91	4 (14%)	32,45,45	3.01	12 (37%)
3	V0A	C	502	-	28,30,30	1.88	4 (14%)	32,45,45	2.86	12 (37%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	HEM	A	501	-	27,50,50	1.81	4 (14%)	17,82,82	1.63	6 (35%)
3	V0A	E	502	-	28,30,30	1.92	4 (14%)	32,45,45	3.14	14 (43%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	HEM	G	501	-	-	0/6/54/54	-
2	HEM	E	501	-	-	0/6/54/54	-
3	V0A	A	502	-	-	7/17/59/59	0/3/3/3
2	HEM	F	501	-	-	0/6/54/54	-
3	V0A	G	502	-	-	11/17/59/59	0/3/3/3
3	V0A	D	502	-	-	5/17/59/59	0/3/3/3
2	HEM	H	501	-	-	0/6/54/54	-
2	HEM	D	501	-	-	0/6/54/54	-
3	V0A	B	502	-	-	11/17/59/59	0/3/3/3
3	V0A	H	502	-	-	8/17/59/59	0/3/3/3
2	HEM	C	501	-	-	0/6/54/54	-
2	HEM	B	501	-	-	0/6/54/54	-
3	V0A	F	502	-	-	7/17/59/59	0/3/3/3
3	V0A	C	502	-	-	8/17/59/59	0/3/3/3
2	HEM	A	501	-	-	0/6/54/54	-
3	V0A	E	502	-	-	5/17/59/59	0/3/3/3

All (65) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	H	502	V0A	C27-C26	6.36	1.50	1.41
3	A	502	V0A	C27-C26	6.30	1.50	1.41
3	G	502	V0A	C27-C26	6.21	1.50	1.41
3	C	502	V0A	C27-C26	6.18	1.50	1.41
3	F	502	V0A	C27-C26	6.16	1.50	1.41
3	D	502	V0A	C27-C26	6.11	1.49	1.41
3	E	502	V0A	C27-C26	6.10	1.49	1.41
3	B	502	V0A	C27-C26	6.04	1.49	1.41
3	D	502	V0A	C27-N06	5.51	1.48	1.33
3	G	502	V0A	C27-N06	5.50	1.48	1.33
3	C	502	V0A	C27-N06	5.49	1.48	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	E	502	V0A	C27-N06	5.48	1.48	1.33
3	H	502	V0A	C27-N06	5.46	1.48	1.33
3	F	502	V0A	C27-N06	5.45	1.48	1.33
3	A	502	V0A	C27-N06	5.42	1.48	1.33
3	B	502	V0A	C27-N06	5.37	1.48	1.33
2	D	501	HEM	C3C-CAC	4.01	1.56	1.47
2	E	501	HEM	C3C-CAC	3.96	1.55	1.47
2	C	501	HEM	C3C-CAC	3.92	1.55	1.47
2	F	501	HEM	C3C-CAC	3.90	1.55	1.47
2	A	501	HEM	C3C-CAC	3.89	1.55	1.47
2	G	501	HEM	C3C-CAC	3.80	1.55	1.47
2	C	501	HEM	C3B-C2B	-3.78	1.35	1.40
2	G	501	HEM	C3B-C2B	-3.76	1.35	1.40
2	C	501	HEM	C3B-CAB	3.76	1.55	1.47
2	A	501	HEM	C3B-CAB	3.72	1.55	1.47
2	B	501	HEM	C3B-C2B	-3.72	1.35	1.40
2	F	501	HEM	C3B-C2B	-3.72	1.35	1.40
2	E	501	HEM	C3B-CAB	3.72	1.55	1.47
2	F	501	HEM	C3C-C2C	-3.72	1.35	1.40
2	B	501	HEM	C3C-CAC	3.71	1.55	1.47
2	D	501	HEM	C3B-C2B	-3.71	1.35	1.40
2	B	501	HEM	C3C-C2C	-3.69	1.35	1.40
2	F	501	HEM	C3B-CAB	3.67	1.55	1.47
2	D	501	HEM	C3B-CAB	3.65	1.55	1.47
2	G	501	HEM	C3B-CAB	3.62	1.55	1.47
2	E	501	HEM	C3B-C2B	-3.59	1.35	1.40
2	D	501	HEM	C3C-C2C	-3.58	1.35	1.40
2	B	501	HEM	C3B-CAB	3.56	1.55	1.47
2	A	501	HEM	C3B-C2B	-3.54	1.35	1.40
2	C	501	HEM	C3C-C2C	-3.54	1.35	1.40
2	E	501	HEM	C3C-C2C	-3.50	1.35	1.40
2	A	501	HEM	C3C-C2C	-3.48	1.35	1.40
2	G	501	HEM	C3C-C2C	-3.45	1.35	1.40
3	F	502	V0A	C25-C24	3.21	1.50	1.40
3	A	502	V0A	C25-C24	3.19	1.50	1.40
3	B	502	V0A	C25-C24	3.18	1.49	1.40
3	H	502	V0A	C25-C24	3.18	1.49	1.40
3	E	502	V0A	O05-C28	3.18	1.29	1.23
3	F	502	V0A	O05-C28	3.18	1.29	1.23
3	G	502	V0A	O05-C28	3.16	1.29	1.23
3	D	502	V0A	O05-C28	3.15	1.29	1.23
3	C	502	V0A	O05-C28	3.14	1.29	1.23

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	H	502	V0A	O05-C28	3.13	1.29	1.23
3	A	502	V0A	O05-C28	3.10	1.28	1.23
3	D	502	V0A	C25-C24	3.07	1.49	1.40
3	C	502	V0A	C25-C24	3.03	1.49	1.40
3	G	502	V0A	C25-C24	3.03	1.49	1.40
3	E	502	V0A	C25-C24	3.01	1.49	1.40
3	B	502	V0A	O05-C28	2.97	1.28	1.23
2	H	501	HEM	C3B-C2B	-2.58	1.36	1.40
3	B	502	V0A	C23-C24	2.29	1.48	1.45
3	H	502	V0A	C23-C24	2.20	1.48	1.45
3	D	502	V0A	C23-C24	2.10	1.48	1.45
2	D	501	HEM	CAA-C2A	2.03	1.55	1.52

All (136) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	502	V0A	C24-C25-C28	9.02	132.84	120.03
3	E	502	V0A	C24-C25-C28	8.93	132.71	120.03
3	C	502	V0A	C24-C25-C28	8.56	132.18	120.03
3	F	502	V0A	C24-C25-C28	8.42	131.99	120.03
3	D	502	V0A	C24-C25-C28	8.06	131.47	120.03
3	A	502	V0A	C24-C25-C28	7.70	130.96	120.03
3	G	502	V0A	C24-C25-C28	7.67	130.92	120.03
3	C	502	V0A	O04-C26-C25	-7.61	121.76	127.72
3	E	502	V0A	O04-C26-C25	-7.59	121.78	127.72
3	A	502	V0A	O04-C26-C25	-7.47	121.87	127.72
3	B	502	V0A	O04-C26-C25	-7.35	121.96	127.72
3	F	502	V0A	O04-C26-C25	-7.27	122.03	127.72
3	D	502	V0A	O04-C26-C25	-7.10	122.16	127.72
3	G	502	V0A	O04-C26-C25	-7.00	122.24	127.72
3	H	502	V0A	O04-C26-C25	-6.95	122.28	127.72
3	B	502	V0A	C23-C22-C20	-6.57	116.30	126.23
3	G	502	V0A	C23-C24-C25	-6.43	117.93	124.51
3	G	502	V0A	C23-C22-C20	-6.41	116.55	126.23
3	H	502	V0A	C24-C25-C28	6.31	128.99	120.03
3	G	502	V0A	O02-C09-C07	5.82	120.03	109.58
3	A	502	V0A	C23-C24-C25	-5.77	118.61	124.51
3	B	502	V0A	C26-C27-N06	-5.71	100.21	111.72
3	E	502	V0A	C23-C22-C20	-5.65	117.69	126.23
3	E	502	V0A	C26-C27-N06	-5.62	100.41	111.72
3	C	502	V0A	C26-C27-N06	-5.59	100.46	111.72
3	A	502	V0A	C26-C27-N06	-5.57	100.50	111.72

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	502	V0A	C26-C27-N06	-5.54	100.56	111.72
3	G	502	V0A	C26-C27-N06	-5.53	100.59	111.72
3	F	502	V0A	C26-C27-N06	-5.49	100.67	111.72
3	H	502	V0A	C26-C27-N06	-5.41	100.82	111.72
3	A	502	V0A	C23-C22-C20	-4.96	118.74	126.23
3	F	502	V0A	C23-C22-C20	-4.92	118.80	126.23
3	G	502	V0A	C14-C07-C09	-4.41	103.66	112.22
3	F	502	V0A	C09-C07-C08	4.41	117.52	108.23
3	B	502	V0A	C09-C07-C08	4.24	117.16	108.23
3	A	502	V0A	O02-C09-C07	4.24	117.19	109.58
3	H	502	V0A	C09-C07-C08	4.23	117.14	108.23
3	E	502	V0A	O01-C10-O02	4.21	115.33	110.91
3	D	502	V0A	C09-C07-C08	4.21	117.09	108.23
3	C	502	V0A	C09-C07-C08	4.14	116.94	108.23
3	A	502	V0A	C09-C07-C08	4.13	116.94	108.23
3	G	502	V0A	O03-C24-C23	4.11	121.49	115.75
3	F	502	V0A	C23-C24-C25	-4.11	120.31	124.51
3	C	502	V0A	O02-C09-C07	4.04	116.84	109.58
3	H	502	V0A	O02-C09-C07	4.00	116.76	109.58
2	H	501	HEM	CAA-CBA-CGA	-3.89	106.15	112.67
3	D	502	V0A	O02-C09-C07	3.85	116.50	109.58
3	H	502	V0A	C23-C22-C20	-3.78	120.52	126.23
3	F	502	V0A	C12-C09-C07	-3.76	109.36	115.55
3	G	502	V0A	C17-C12-C18	-3.74	103.83	110.05
3	D	502	V0A	C23-C24-C25	-3.70	120.73	124.51
3	E	502	V0A	C09-C07-C08	3.68	115.97	108.23
3	E	502	V0A	C09-C12-C18	-3.66	104.86	111.19
3	F	502	V0A	O02-C09-C07	3.62	116.08	109.58
3	B	502	V0A	O02-C09-C07	3.61	116.06	109.58
3	E	502	V0A	C10-O02-C09	3.37	122.51	114.18
3	A	502	V0A	O03-C24-C23	3.34	120.42	115.75
3	C	502	V0A	C22-C23-C24	-3.25	117.03	122.45
3	G	502	V0A	C09-C07-C08	3.23	115.04	108.23
3	B	502	V0A	O01-C10-O02	3.11	114.17	110.91
2	C	501	HEM	CAA-CBA-CGA	-3.09	107.48	112.67
3	E	502	V0A	C23-C24-C25	-3.07	121.38	124.51
3	D	502	V0A	O03-C24-C23	3.06	120.03	115.75
3	A	502	V0A	C12-C09-C07	-3.03	110.57	115.55
3	G	502	V0A	C12-C18-C20	-2.99	117.21	126.67
3	F	502	V0A	O03-C24-C23	2.98	119.92	115.75
2	H	501	HEM	CBA-CAA-C2A	2.93	117.89	112.49
2	E	501	HEM	CMB-C2B-C3B	2.77	129.87	124.68

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	501	HEM	CMC-C2C-C3C	2.73	129.78	124.68
3	C	502	V0A	C12-C09-C07	-2.71	111.10	115.55
2	G	501	HEM	CMB-C2B-C3B	2.66	129.66	124.68
3	E	502	V0A	O02-C10-C16	2.66	113.50	107.62
2	H	501	HEM	CBD-CAD-C3D	-2.63	107.63	112.48
3	G	502	V0A	C12-C09-C07	-2.60	111.28	115.55
3	E	502	V0A	O02-C09-C12	-2.59	101.15	106.27
2	B	501	HEM	CMC-C2C-C3C	2.59	129.52	124.68
3	A	502	V0A	C14-C07-C08	-2.59	107.18	111.96
3	D	502	V0A	C14-C07-C08	-2.58	107.19	111.96
3	C	502	V0A	C23-C24-C25	-2.55	121.91	124.51
2	C	501	HEM	CMB-C2B-C3B	2.53	129.41	124.68
2	B	501	HEM	CMB-C2B-C3B	2.49	129.34	124.68
3	G	502	V0A	O01-C10-O02	-2.49	108.31	110.91
2	D	501	HEM	C4A-C3A-C2A	2.47	108.72	107.00
2	A	501	HEM	CMC-C2C-C3C	2.47	129.30	124.68
2	D	501	HEM	CMB-C2B-C3B	2.45	129.27	124.68
3	E	502	V0A	O03-C24-C23	2.44	119.16	115.75
2	A	501	HEM	C1D-C2D-C3D	2.44	108.69	107.00
2	A	501	HEM	CMB-C2B-C3B	2.44	129.24	124.68
3	G	502	V0A	O02-C10-C16	-2.43	102.24	107.62
2	G	501	HEM	C1D-C2D-C3D	2.41	108.67	107.00
2	C	501	HEM	CMC-C2C-C3C	2.39	129.15	124.68
3	C	502	V0A	O03-C24-C23	2.38	119.07	115.75
2	E	501	HEM	CAA-CBA-CGA	-2.36	108.70	112.67
3	H	502	V0A	C14-C07-C08	-2.34	107.64	111.96
2	G	501	HEM	CAA-CBA-CGA	-2.33	108.77	112.67
2	D	501	HEM	CMC-C2C-C3C	2.33	129.03	124.68
2	F	501	HEM	CMD-C2D-C1D	-2.32	124.89	128.46
3	D	502	V0A	C10-O02-C09	2.31	119.89	114.18
2	B	501	HEM	CAA-CBA-CGA	-2.31	108.80	112.67
2	D	501	HEM	C1D-C2D-C3D	2.31	108.60	107.00
2	A	501	HEM	CMA-C3A-C4A	-2.28	124.96	128.46
2	H	501	HEM	CMA-C3A-C4A	-2.27	124.97	128.46
3	E	502	V0A	C11-C15-C13	-2.27	121.22	125.21
2	B	501	HEM	C1D-C2D-C3D	2.26	108.57	107.00
3	H	502	V0A	C12-C09-C07	-2.26	111.84	115.55
3	B	502	V0A	C12-C09-C07	-2.25	111.85	115.55
3	B	502	V0A	C22-C23-C24	2.25	126.21	122.45
2	E	501	HEM	CMC-C2C-C3C	2.25	128.89	124.68
3	F	502	V0A	C11-C15-C13	-2.24	121.27	125.21
2	F	501	HEM	C1D-C2D-C3D	2.23	108.54	107.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	H	502	V0A	C10-O02-C09	2.21	119.66	114.18
3	F	502	V0A	O01-C10-O02	2.21	113.23	110.91
2	F	501	HEM	CMB-C2B-C3B	2.21	128.82	124.68
2	G	501	HEM	CMD-C2D-C1D	-2.21	125.07	128.46
2	H	501	HEM	CMD-C2D-C1D	-2.19	125.09	128.46
3	C	502	V0A	C14-C07-C08	-2.18	107.94	111.96
2	F	501	HEM	CMC-C2C-C3C	2.17	128.73	124.68
3	E	502	V0A	C21-C20-C22	-2.16	114.67	118.08
3	G	502	V0A	O01-C08-C07	-2.16	107.37	109.92
3	C	502	V0A	C10-O02-C09	2.14	119.48	114.18
3	B	502	V0A	C11-C15-C13	-2.14	121.44	125.21
2	D	501	HEM	CMD-C2D-C1D	-2.14	125.18	128.46
2	G	501	HEM	CMA-C3A-C4A	-2.13	125.19	128.46
3	B	502	V0A	C10-O02-C09	2.11	119.40	114.18
2	F	501	HEM	CBA-CAA-C2A	-2.11	108.60	112.49
2	B	501	HEM	CMA-C3A-C4A	-2.10	125.23	128.46
3	C	502	V0A	C11-C15-C13	-2.10	121.52	125.21
3	F	502	V0A	C10-O02-C09	2.10	119.37	114.18
3	D	502	V0A	C09-C12-C18	-2.09	107.58	111.19
2	A	501	HEM	CMD-C2D-C1D	-2.08	125.27	128.46
2	D	501	HEM	CMA-C3A-C4A	-2.07	125.28	128.46
3	A	502	V0A	C10-O02-C09	2.05	119.26	114.18
2	A	501	HEM	C4A-C3A-C2A	2.05	108.42	107.00
2	C	501	HEM	C1D-C2D-C3D	2.04	108.41	107.00
2	E	501	HEM	C1D-C2D-C3D	2.03	108.41	107.00
3	A	502	V0A	C11-C15-C13	-2.01	121.67	125.21

There are no chirality outliers.

All (62) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	502	V0A	C07-C09-C12-C18
3	A	502	V0A	O02-C09-C12-C17
3	A	502	V0A	O02-C09-C12-C18
3	A	502	V0A	C17-C12-C18-C20
3	B	502	V0A	O02-C09-C12-C17
3	B	502	V0A	O02-C09-C12-C18
3	B	502	V0A	C18-C20-C22-C23
3	B	502	V0A	C21-C20-C22-C23
3	B	502	V0A	C22-C23-C24-C25
3	B	502	V0A	C22-C23-C24-O03
3	B	502	V0A	C23-C24-C25-C26

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Mol	Chain	Res	Type	Atoms
3	B	502	V0A	C23-C24-C25-C28
3	B	502	V0A	O03-C24-C25-C26
3	C	502	V0A	C18-C20-C22-C23
3	C	502	V0A	C21-C20-C22-C23
3	D	502	V0A	O02-C09-C12-C18
3	D	502	V0A	C18-C20-C22-C23
3	D	502	V0A	C21-C20-C22-C23
3	E	502	V0A	O02-C09-C12-C18
3	E	502	V0A	C17-C12-C18-C20
3	F	502	V0A	C07-C09-C12-C18
3	F	502	V0A	O02-C09-C12-C17
3	F	502	V0A	O02-C09-C12-C18
3	F	502	V0A	C17-C12-C18-C20
3	G	502	V0A	C07-C09-C12-C18
3	G	502	V0A	O02-C09-C12-C18
3	G	502	V0A	C18-C20-C22-C23
3	G	502	V0A	C21-C20-C22-C23
3	G	502	V0A	C22-C23-C24-C25
3	G	502	V0A	C22-C23-C24-O03
3	G	502	V0A	C23-C24-C25-C28
3	H	502	V0A	C18-C20-C22-C23
3	H	502	V0A	C21-C20-C22-C23
3	H	502	V0A	C22-C23-C24-C25
3	H	502	V0A	C22-C23-C24-O03
3	H	502	V0A	O03-C24-C25-C26
3	D	502	V0A	O02-C09-C12-C17
3	G	502	V0A	O02-C09-C12-C17
3	G	502	V0A	C07-C09-C12-C17
3	A	502	V0A	C09-C12-C18-C20
3	E	502	V0A	C09-C12-C18-C20
3	F	502	V0A	C09-C12-C18-C20
3	A	502	V0A	C07-C09-C12-C17
3	B	502	V0A	C07-C09-C12-C17
3	C	502	V0A	O02-C09-C12-C17
3	E	502	V0A	O02-C09-C12-C17
3	E	502	V0A	C07-C09-C12-C17
3	F	502	V0A	C07-C09-C12-C17
3	H	502	V0A	C23-C24-C25-C26
3	C	502	V0A	O02-C09-C12-C18
3	H	502	V0A	O02-C09-C12-C17
3	H	502	V0A	O02-C09-C12-C18
3	C	502	V0A	C23-C24-C25-C28

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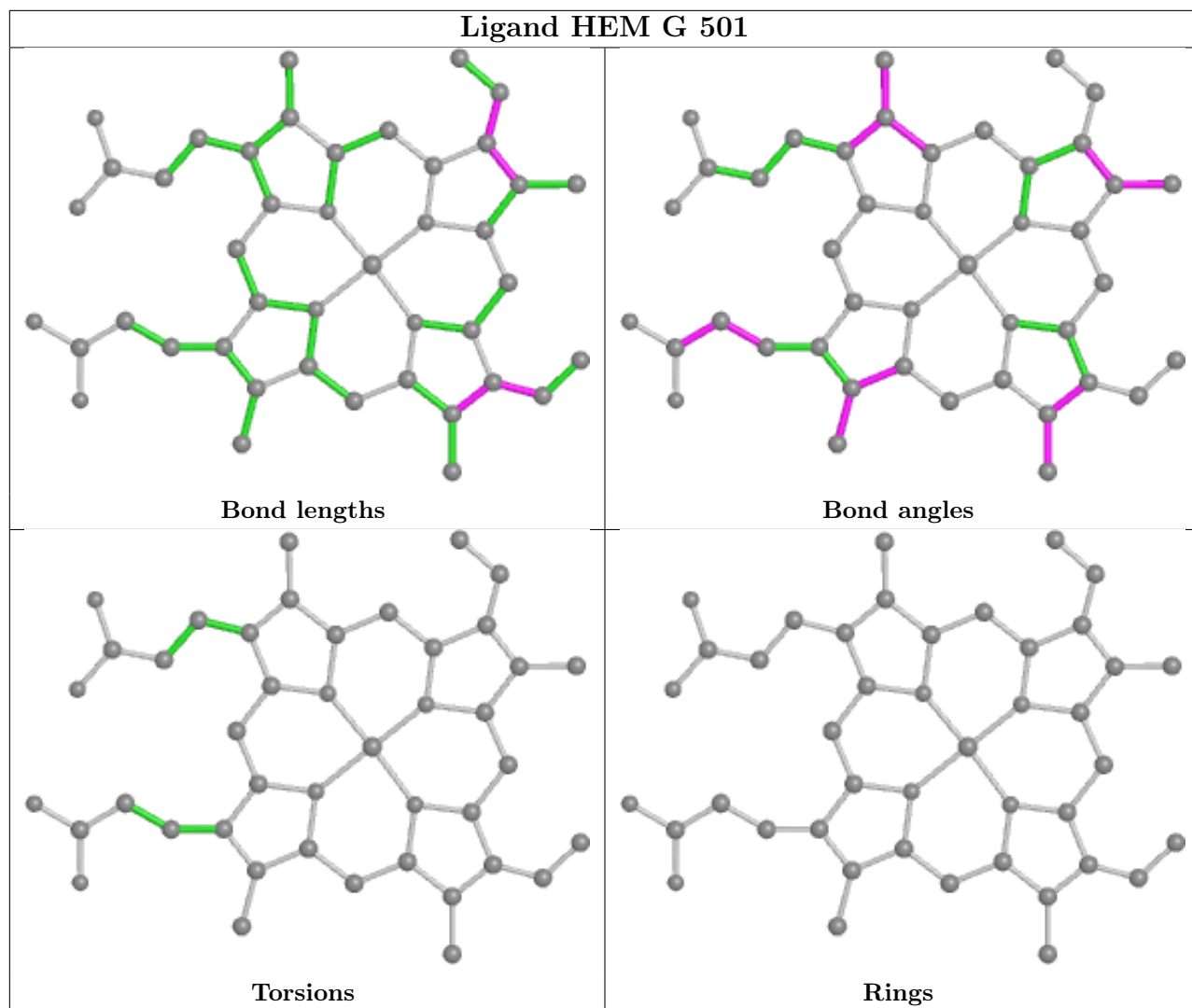
Mol	Chain	Res	Type	Atoms
3	C	502	V0A	O03-C24-C25-C26
3	G	502	V0A	O03-C24-C25-C26
3	A	502	V0A	O03-C24-C25-C28
3	B	502	V0A	O03-C24-C25-C28
3	C	502	V0A	O03-C24-C25-C28
3	F	502	V0A	O03-C24-C25-C28
3	G	502	V0A	O03-C24-C25-C28
3	D	502	V0A	C07-C09-C12-C17
3	C	502	V0A	C07-C09-C12-C17

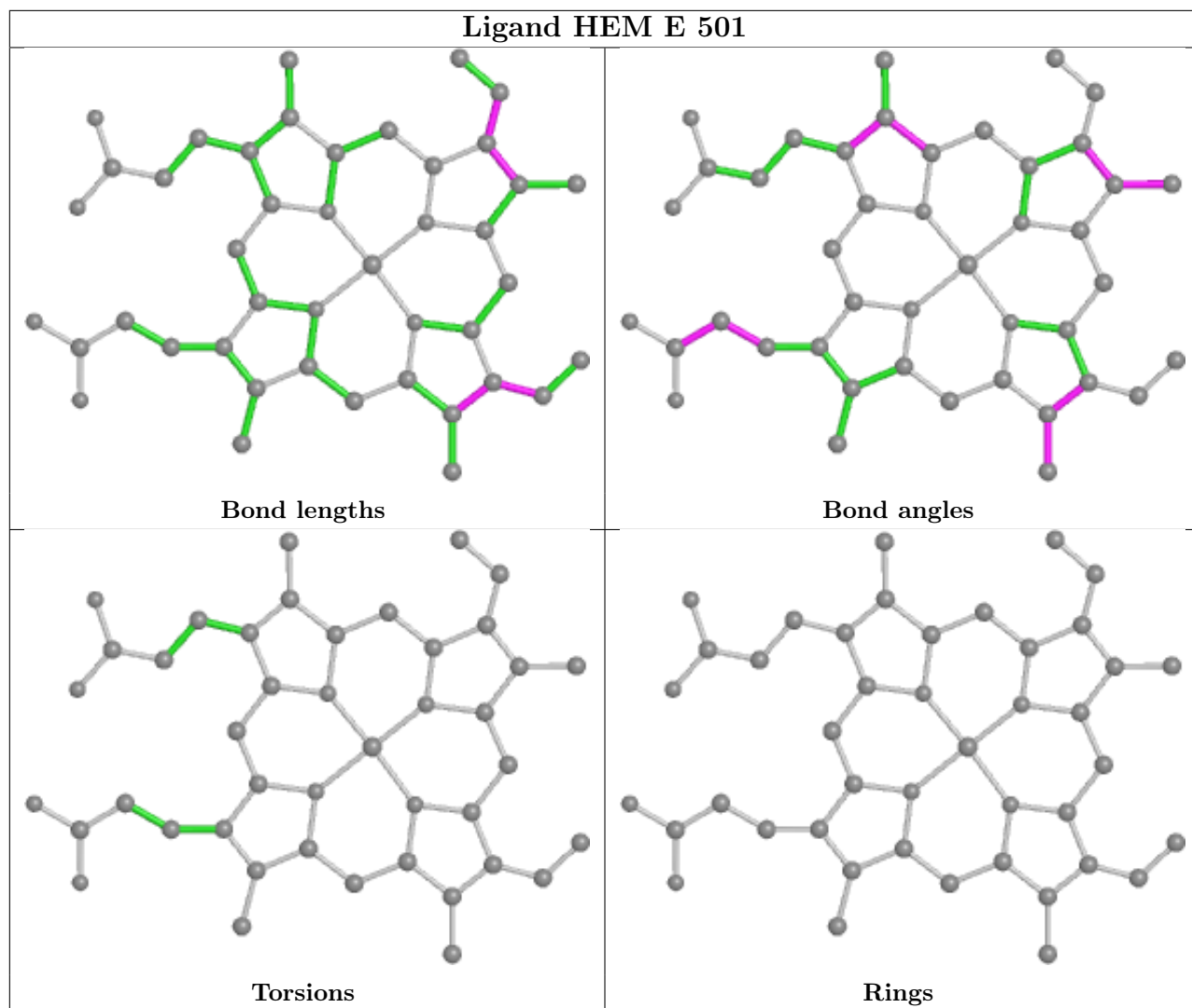
There are no ring outliers.

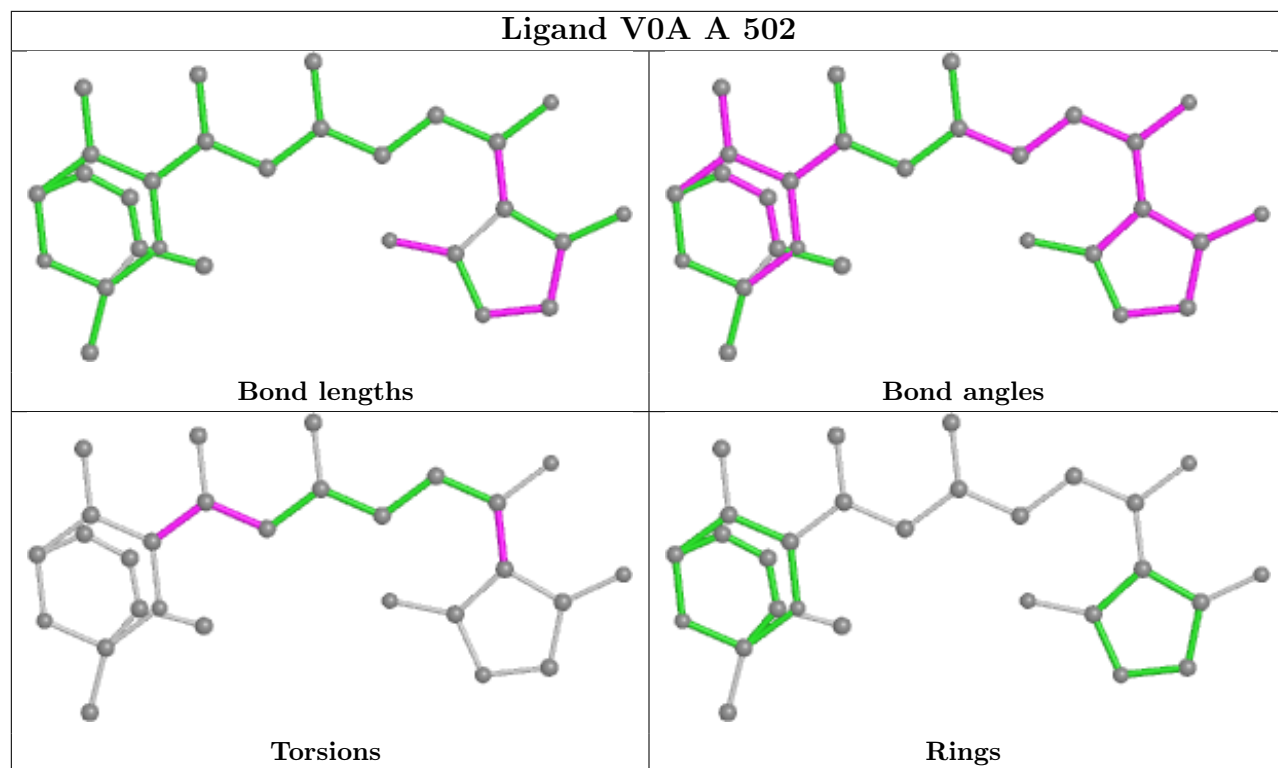
12 monomers are involved in 46 short contacts:

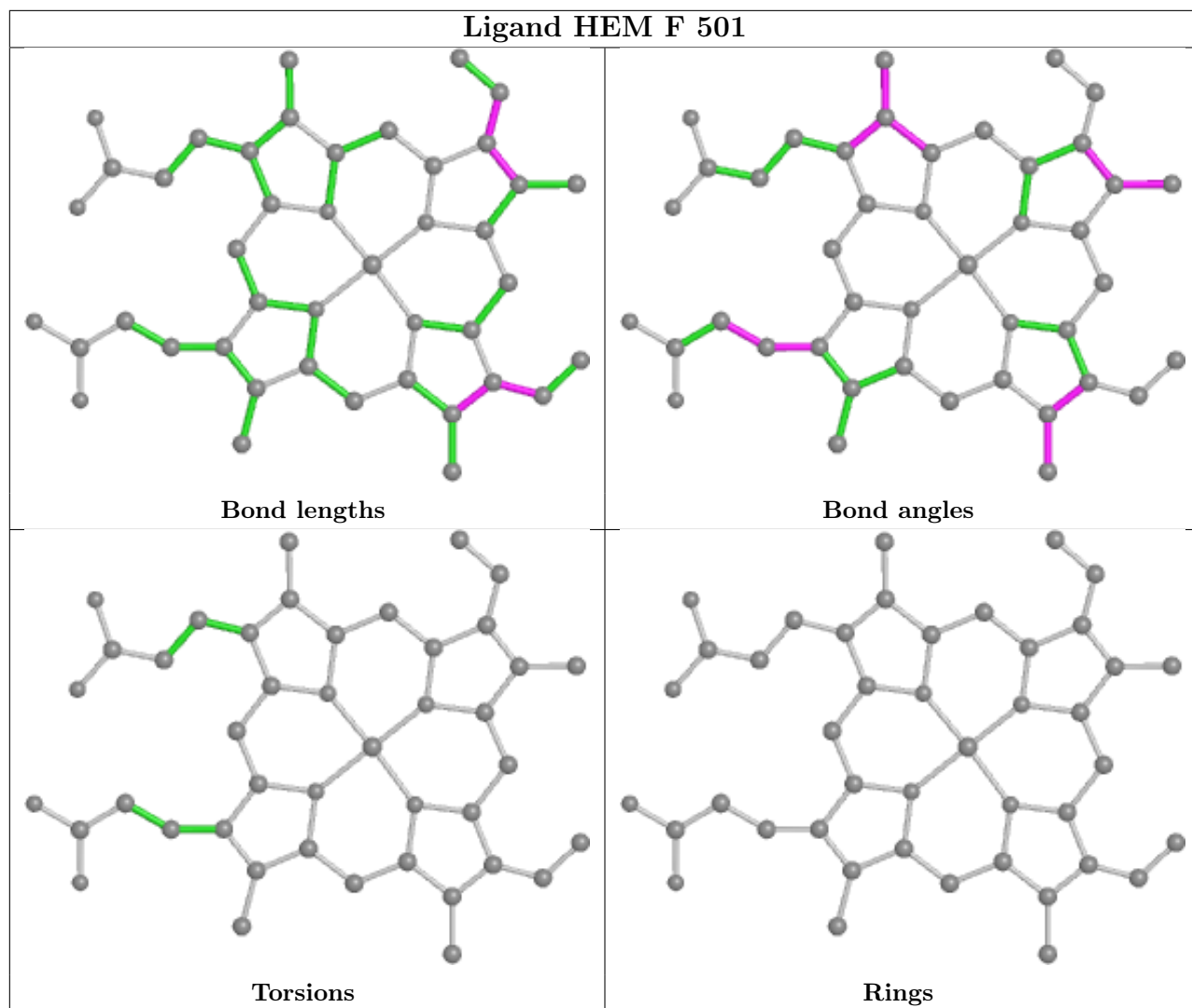
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	G	501	HEM	4	0
2	E	501	HEM	4	0
2	F	501	HEM	3	0
3	G	502	V0A	2	0
3	D	502	V0A	1	0
2	H	501	HEM	4	0
2	D	501	HEM	5	0
3	H	502	V0A	2	0
2	C	501	HEM	5	0
2	B	501	HEM	3	0
3	C	502	V0A	8	0
2	A	501	HEM	5	0

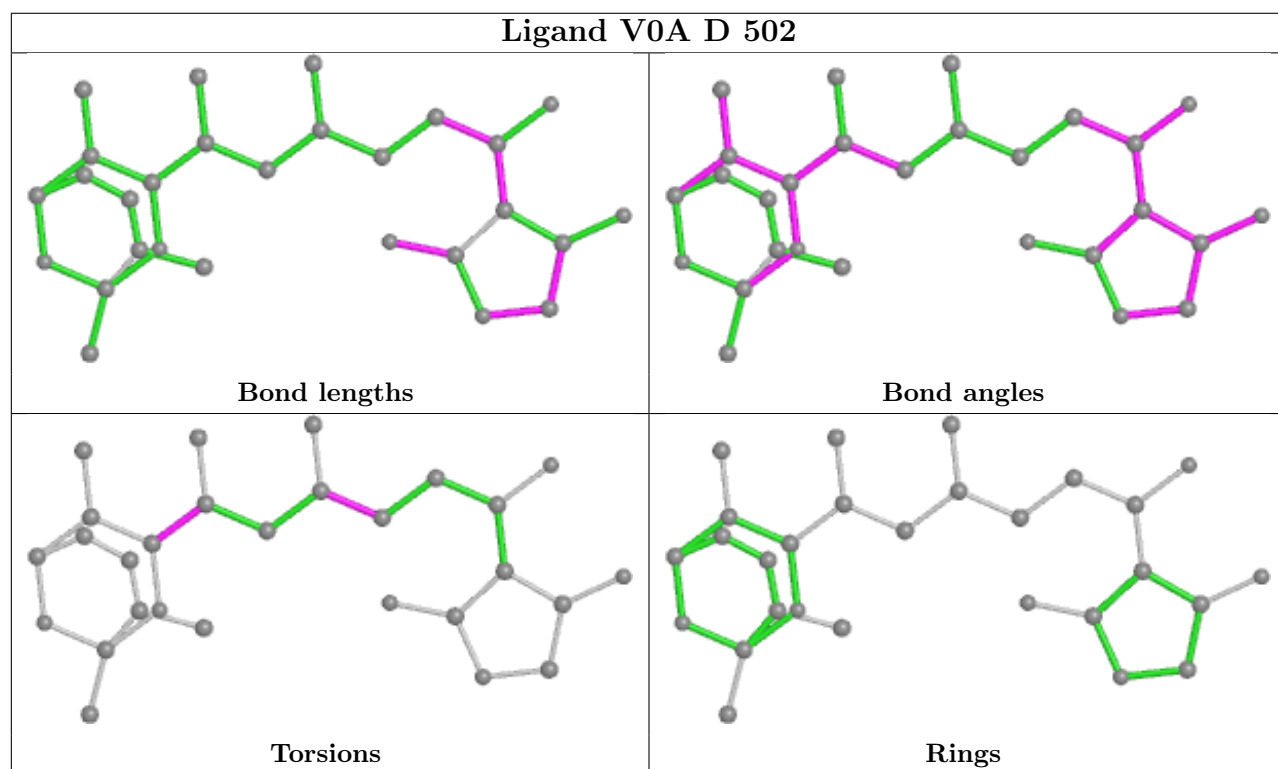
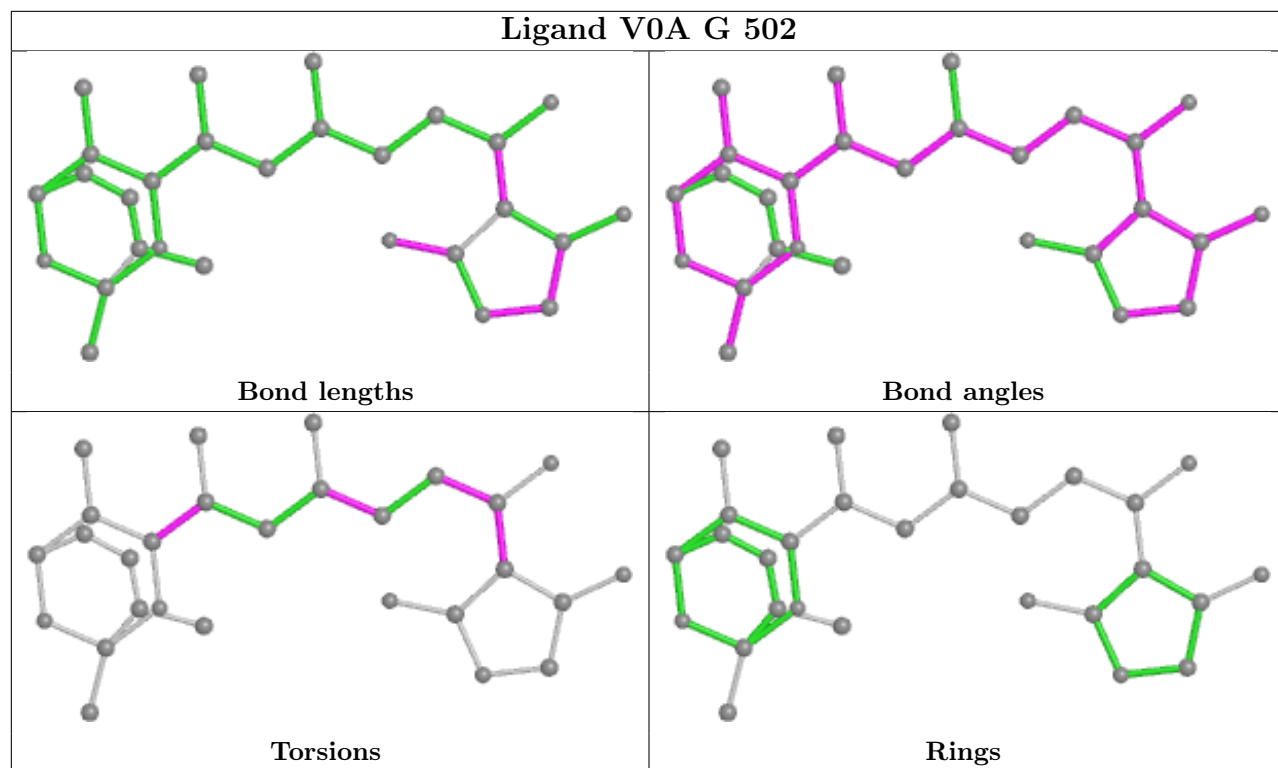
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

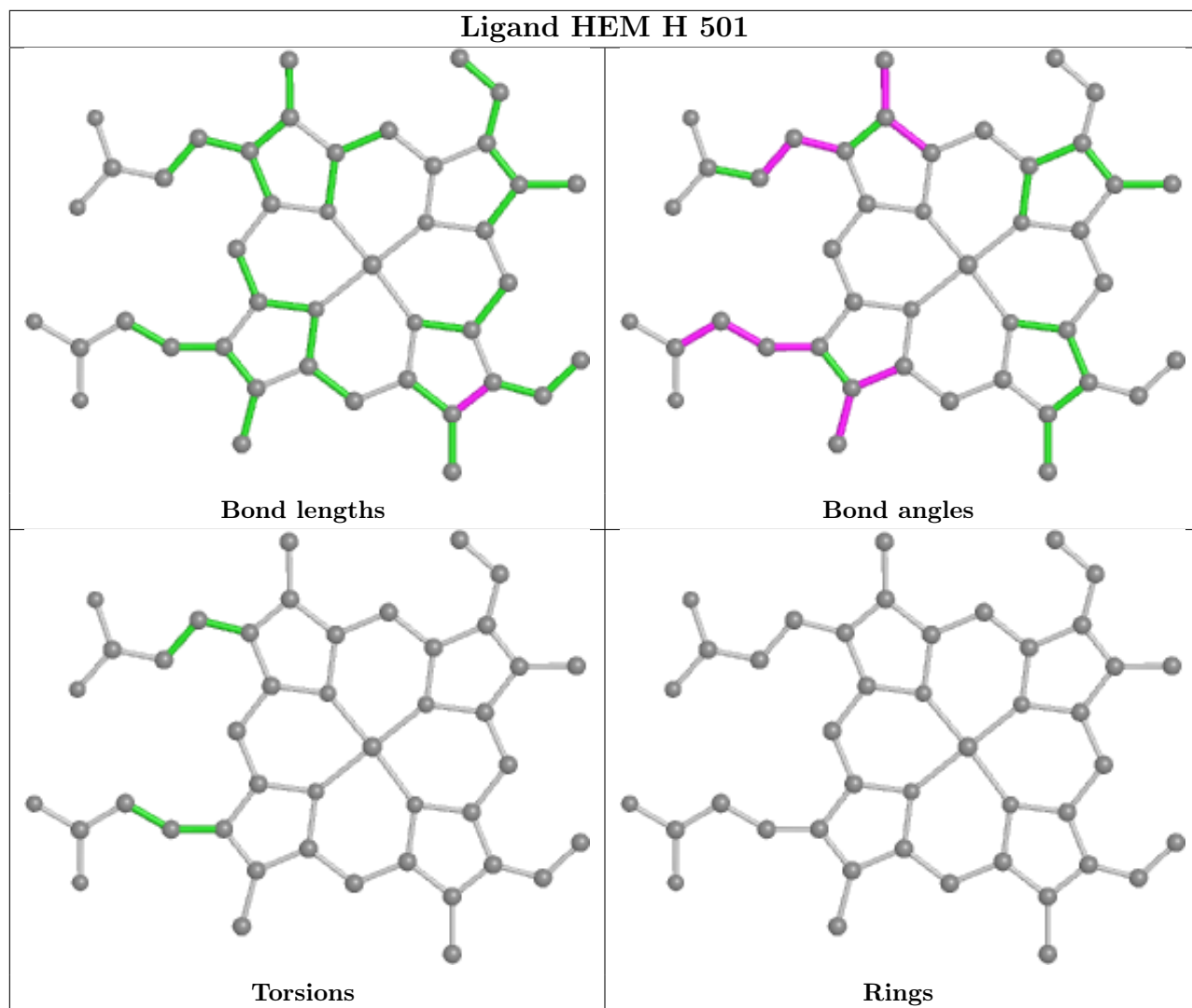


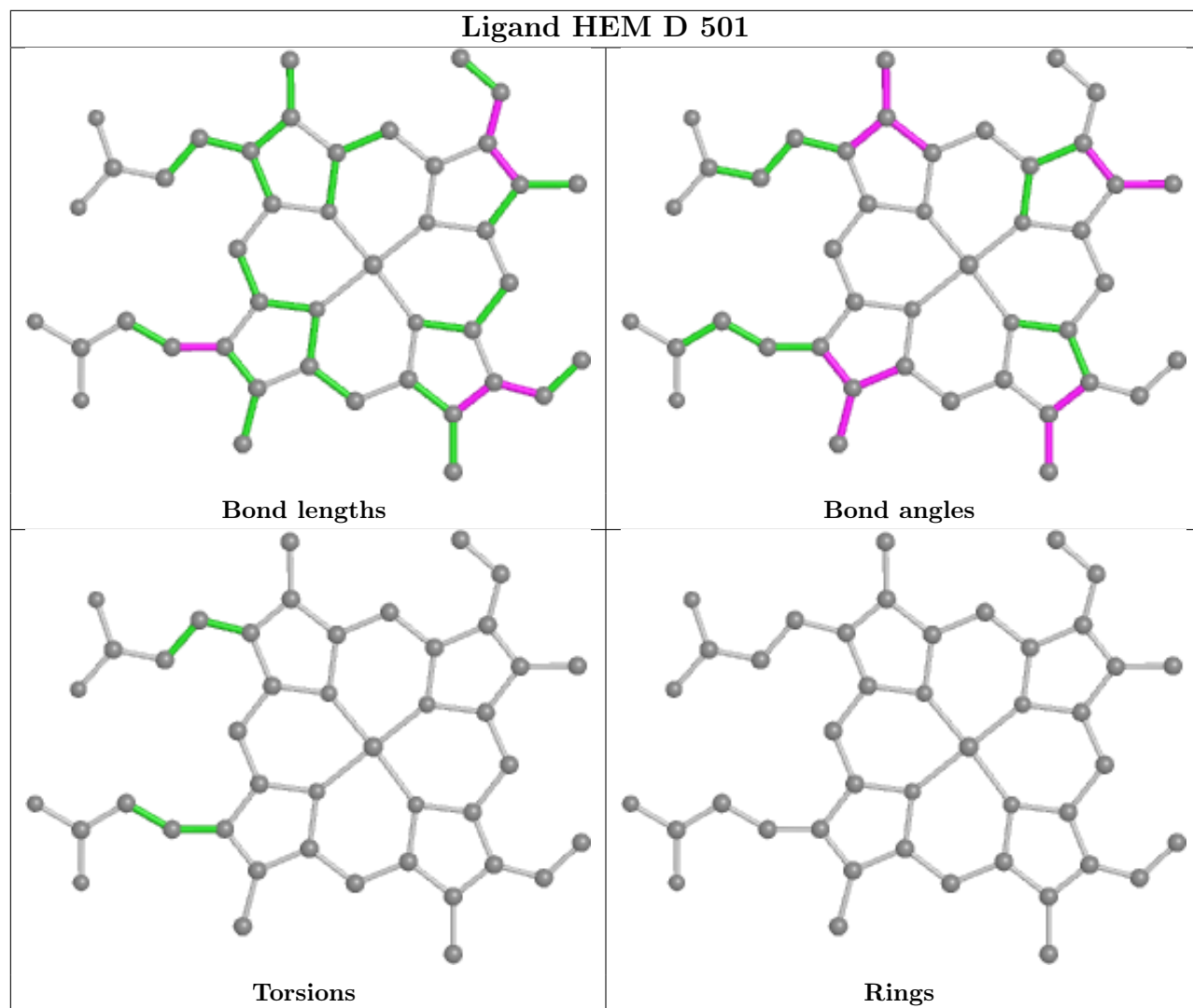


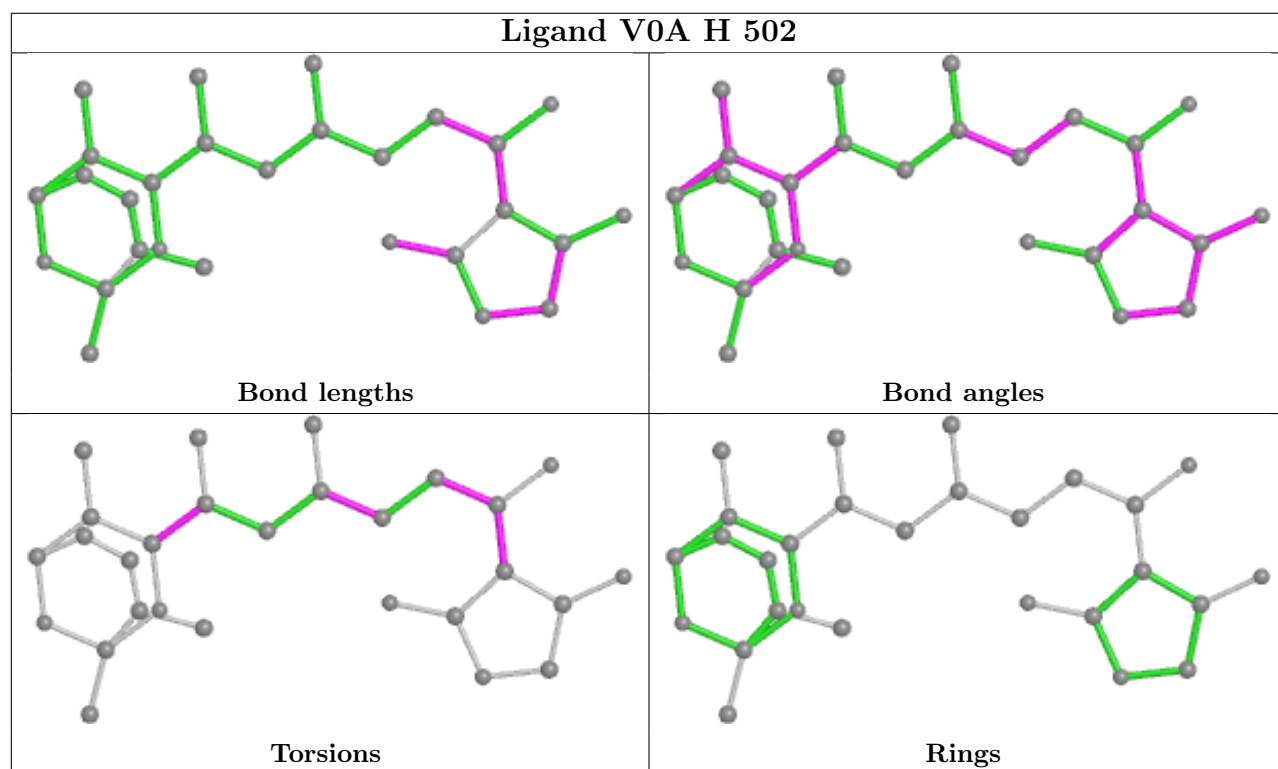
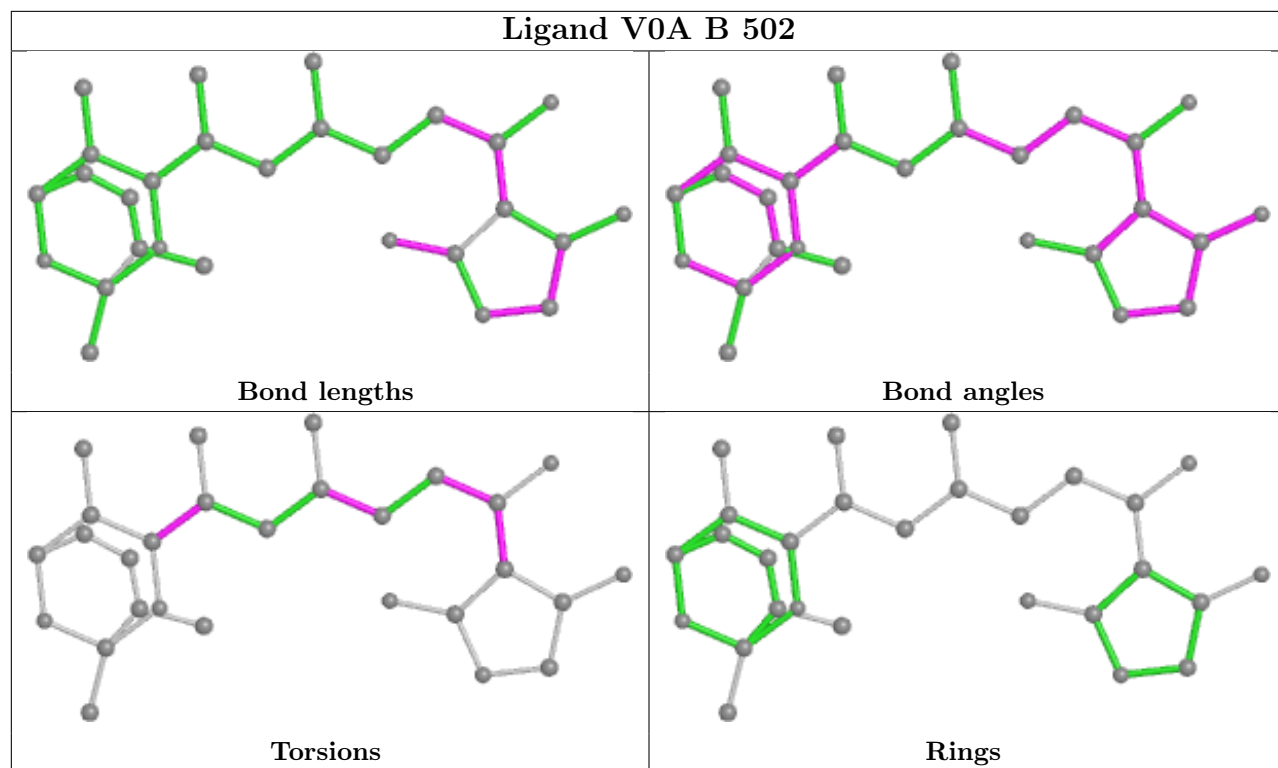


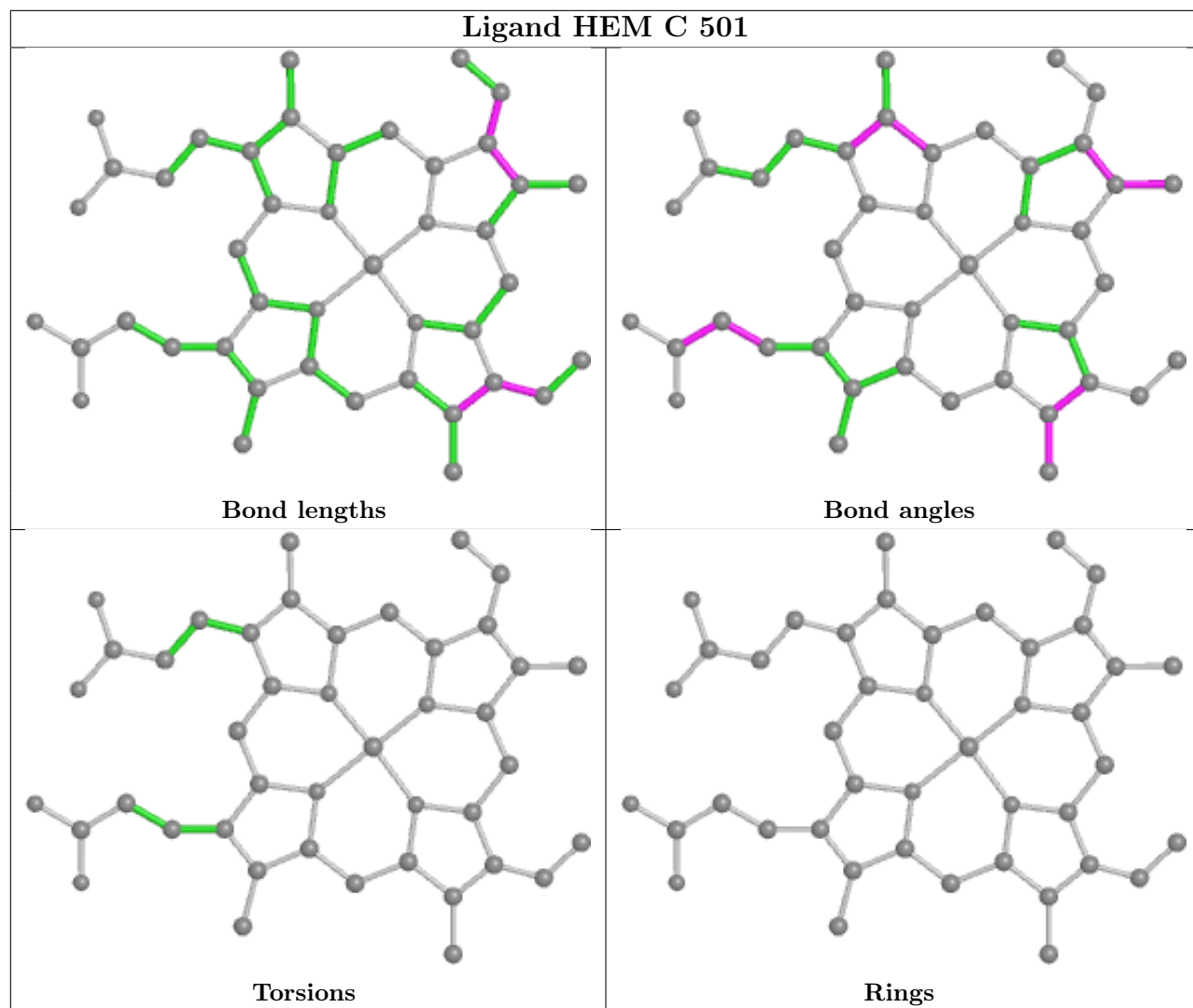


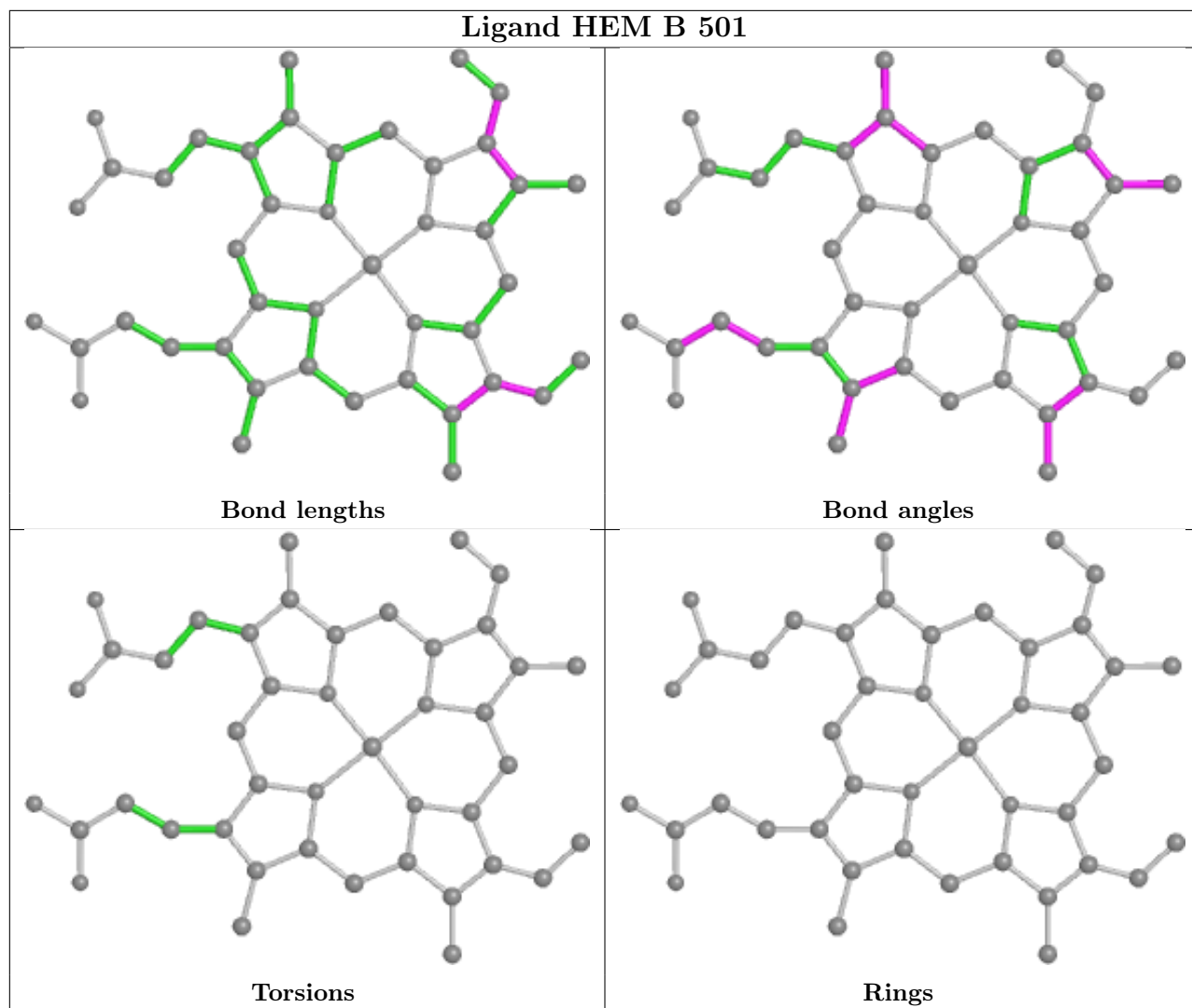


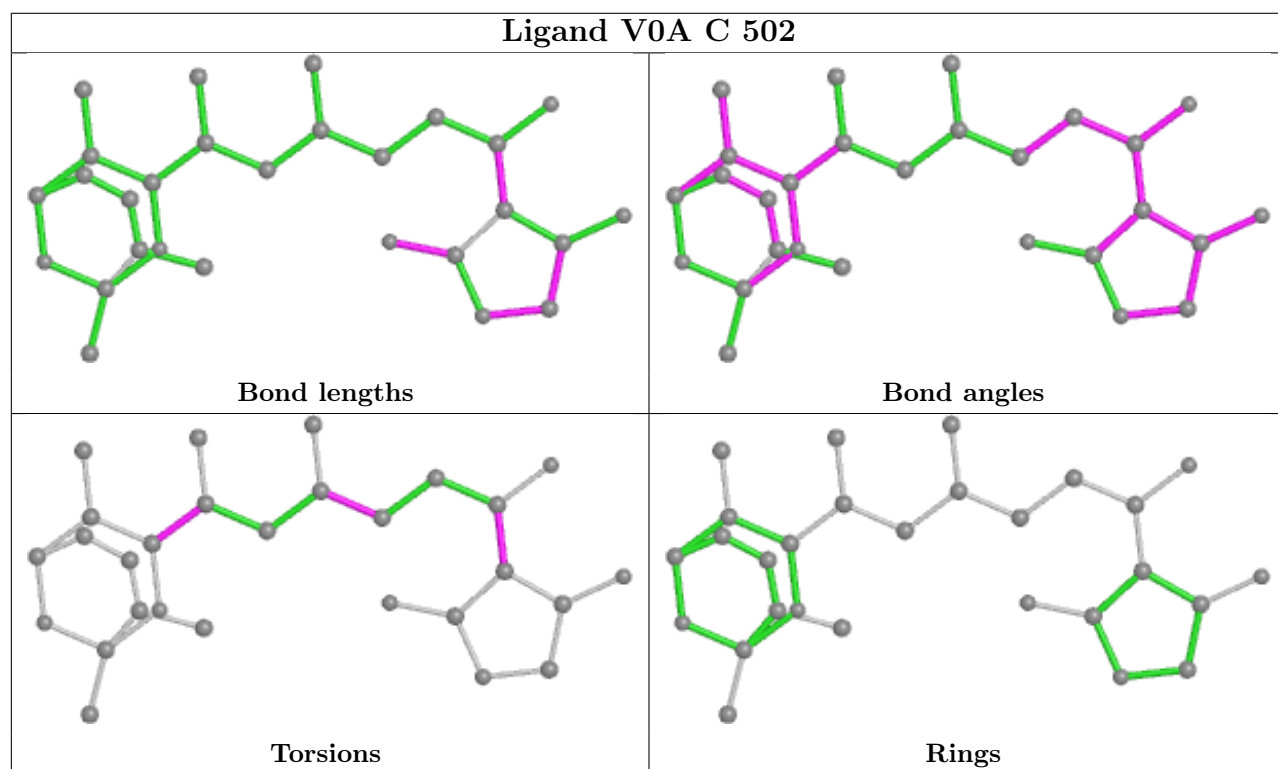
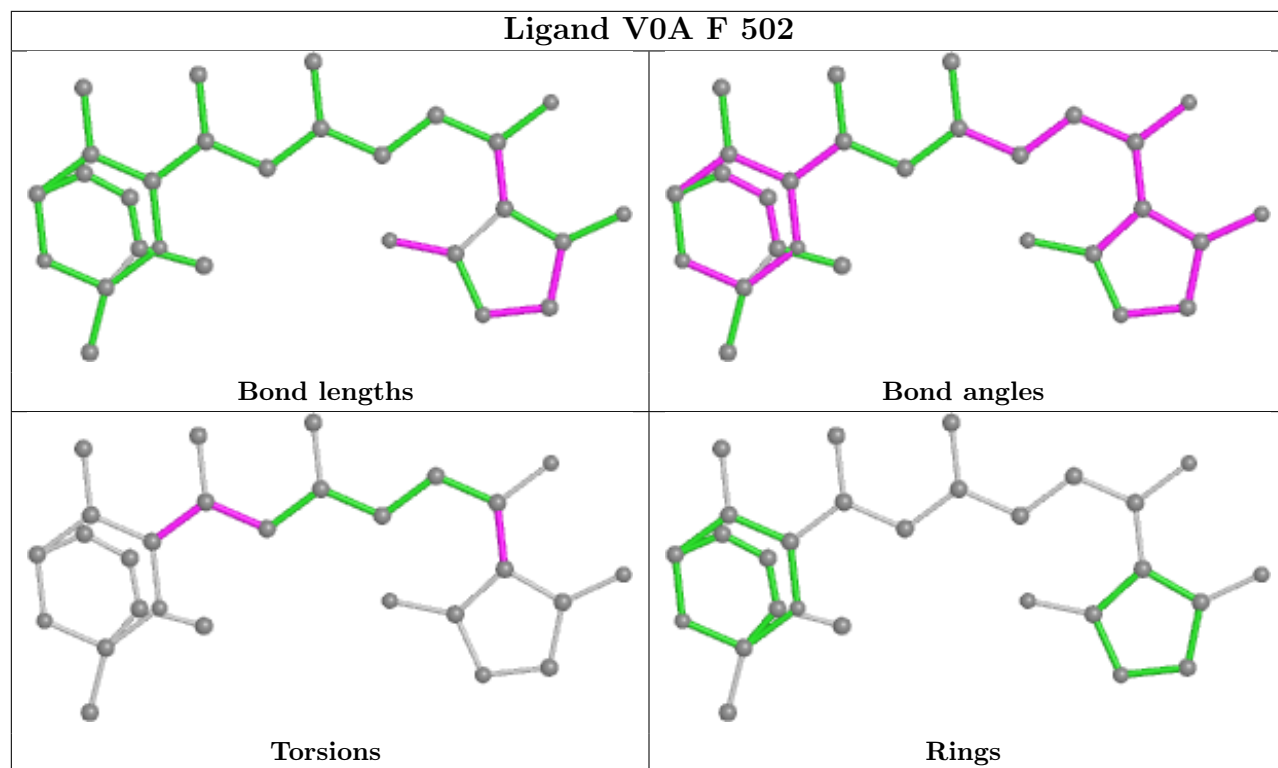


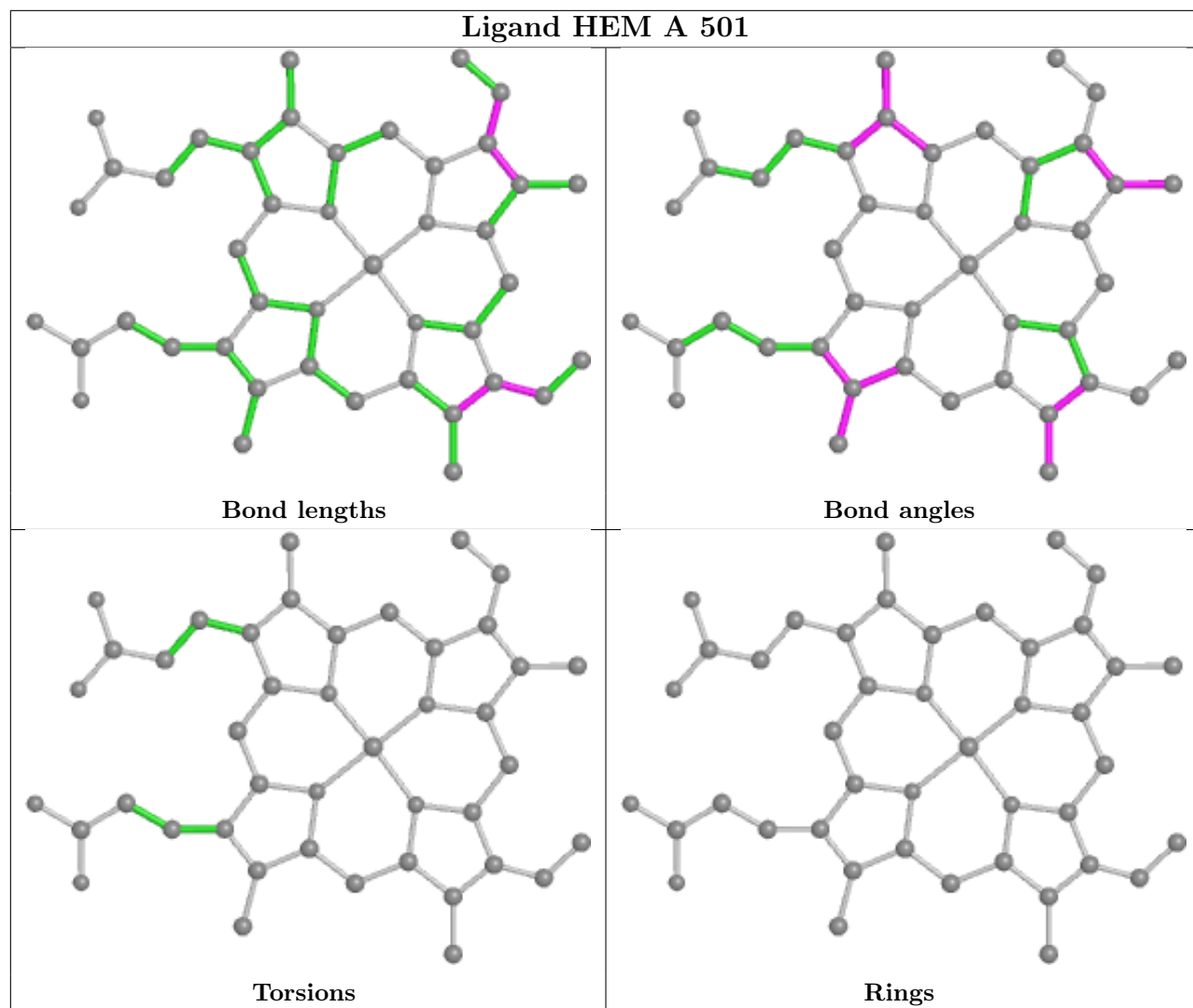


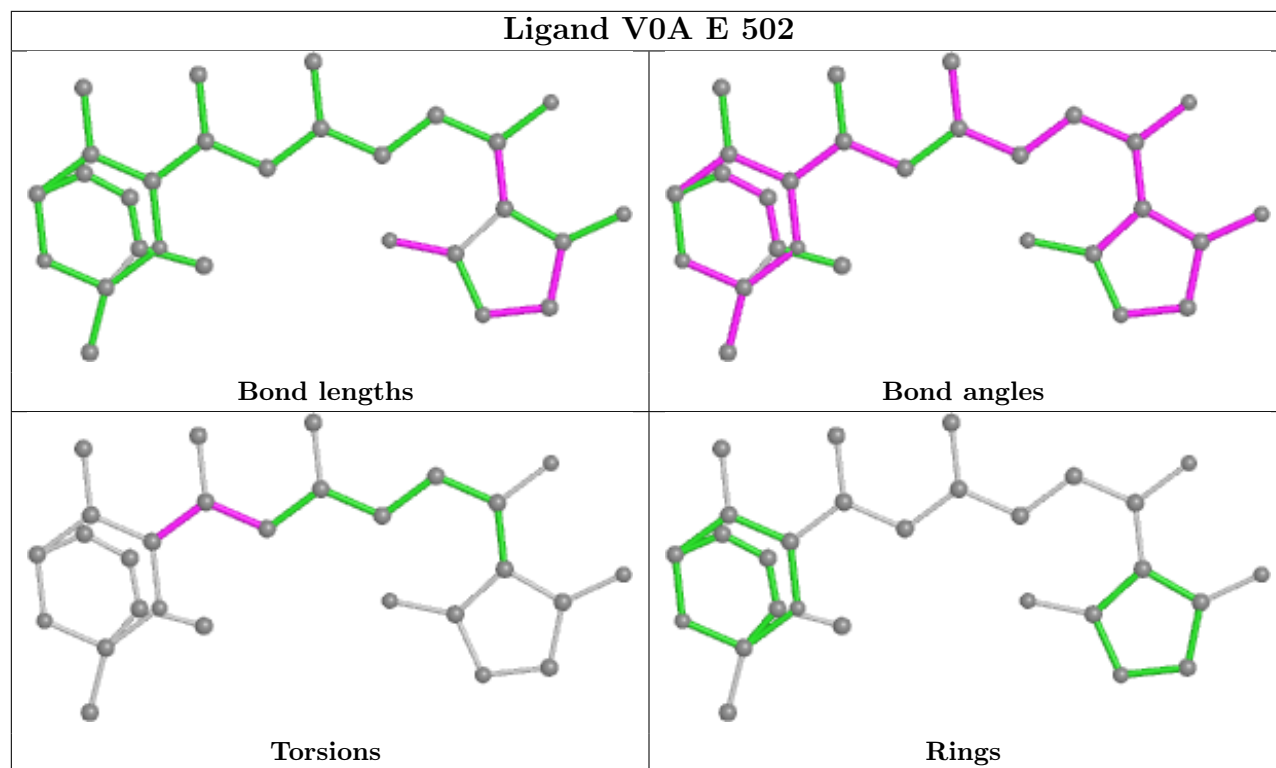












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	399/414 (96%)	-0.10	5 (1%) 77 75	28, 42, 67, 97	0
1	B	399/414 (96%)	-0.02	4 (1%) 82 81	30, 44, 73, 99	0
1	C	393/414 (94%)	0.29	20 (5%) 28 24	33, 58, 83, 103	0
1	D	398/414 (96%)	0.10	7 (1%) 68 66	29, 51, 78, 90	0
1	E	399/414 (96%)	0.08	10 (2%) 57 53	32, 47, 69, 92	0
1	F	399/414 (96%)	-0.11	2 (0%) 91 90	26, 42, 67, 95	0
1	G	399/414 (96%)	0.32	19 (4%) 30 26	37, 59, 85, 103	0
1	H	399/414 (96%)	0.17	10 (2%) 57 53	29, 56, 81, 98	0
All	All	3185/3312 (96%)	0.09	77 (2%) 59 55	26, 50, 78, 103	0

All (77) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	346	THR	7.9
1	H	346	THR	4.7
1	H	177	PHE	4.3
1	D	248	GLY	4.1
1	C	386	ALA	3.9
1	G	248	GLY	3.8
1	F	142	LEU	3.7
1	D	346	THR	3.6
1	C	195	ALA	3.5
1	C	248	GLY	3.5
1	B	142	LEU	3.5
1	C	188	ASP	3.5
1	H	188	ASP	3.5
1	H	105	PRO	3.5
1	C	146	ASP	3.4
1	B	380	PHE	3.4

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Mol	Chain	Res	Type	RSRZ
1	C	380	PHE	3.3
1	C	145	GLU	3.3
1	H	246	PHE	3.2
1	G	147	PRO	3.2
1	H	41	GLY	3.2
1	E	166	LEU	3.2
1	E	146	ASP	3.1
1	G	41	GLY	3.1
1	G	40	PRO	3.1
1	H	167	LEU	3.0
1	D	105	PRO	3.0
1	D	180	TRP	3.0
1	C	382	ALA	2.9
1	E	247	ILE	2.9
1	A	146	ASP	2.9
1	G	14	ASP	2.8
1	C	105	PRO	2.8
1	C	346	THR	2.8
1	G	84	PRO	2.8
1	E	139	LEU	2.7
1	C	40	PRO	2.7
1	G	105	PRO	2.7
1	G	156	PHE	2.6
1	C	131	ILE	2.6
1	A	141	ALA	2.6
1	G	38	MET	2.6
1	H	45	CYS	2.6
1	D	276	GLN	2.5
1	D	269	ASP	2.5
1	C	135	THR	2.5
1	G	380	PHE	2.4
1	G	178	LYS	2.4
1	D	379	THR	2.4
1	E	141	ALA	2.4
1	A	147	PRO	2.4
1	C	373	PHE	2.4
1	E	119	PHE	2.4
1	F	391	ASP	2.3
1	E	274	LEU	2.3
1	C	342	VAL	2.3
1	G	85	ASP	2.3
1	E	346	THR	2.3

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Mol	Chain	Res	Type	RSRZ
1	C	343	ARG	2.3
1	H	171	LEU	2.2
1	C	129	PRO	2.2
1	G	188	ASP	2.2
1	C	192	ALA	2.2
1	B	346	THR	2.1
1	G	177	PHE	2.1
1	G	340	LEU	2.1
1	A	209	GLU	2.1
1	B	177	PHE	2.1
1	G	274	LEU	2.1
1	H	166	LEU	2.1
1	A	143	PRO	2.1
1	C	41	GLY	2.1
1	G	206	ASP	2.1
1	C	230	ASP	2.0
1	E	105	PRO	2.0
1	E	148	VAL	2.0
1	G	176	ASN	2.0

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

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

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

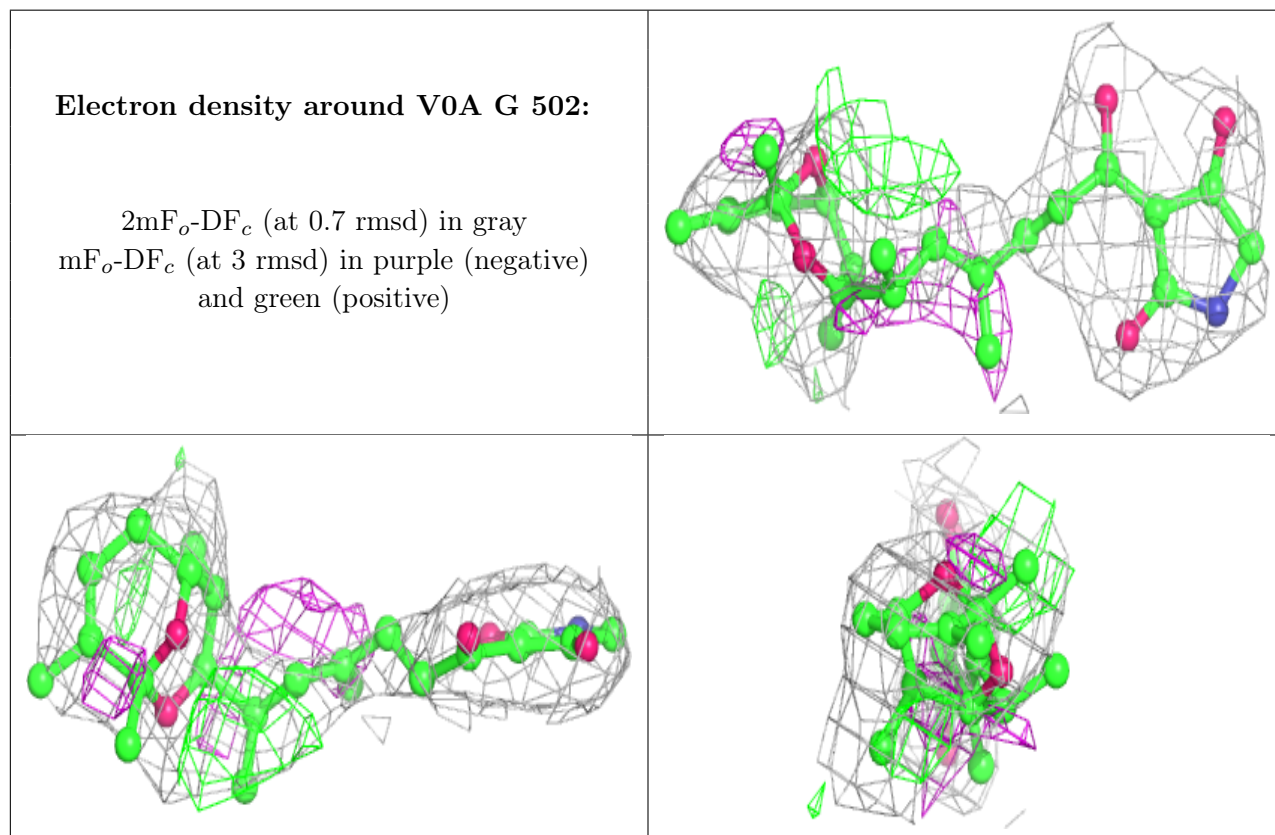
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
3	V0A	G	502	28/28	0.77	0.31	53,60,67,71	0
3	V0A	B	502	28/28	0.84	0.31	39,49,59,59	0
3	V0A	E	502	28/28	0.85	0.27	45,55,66,70	0
3	V0A	F	502	28/28	0.87	0.25	36,46,52,57	0

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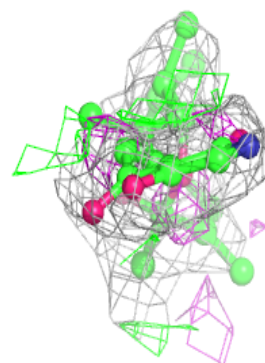
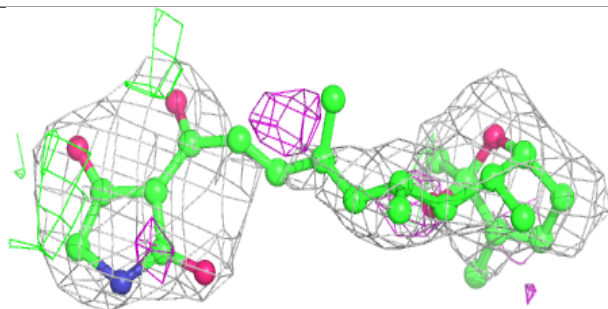
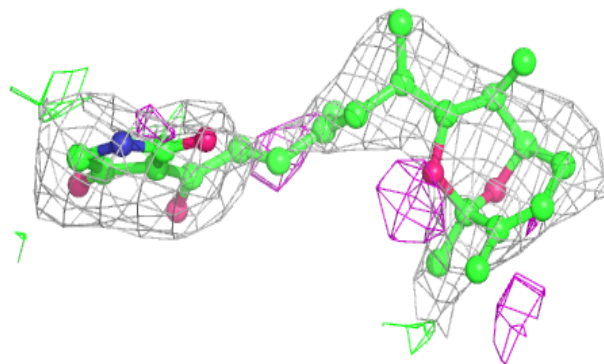
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
3	V0A	A	502	28/28	0.87	0.23	36,47,56,70	0
3	V0A	C	502	28/28	0.88	0.24	42,54,61,66	0
3	V0A	D	502	28/28	0.90	0.21	38,48,55,55	0
2	HEM	G	501	43/43	0.93	0.17	28,42,50,60	0
2	HEM	E	501	43/43	0.93	0.17	28,41,50,52	0
2	HEM	H	501	43/43	0.94	0.16	20,20,20,20	0
3	V0A	H	502	28/28	0.94	0.20	42,49,57,61	0
2	HEM	B	501	43/43	0.95	0.18	24,32,37,40	0
2	HEM	C	501	43/43	0.95	0.19	28,39,45,47	0
2	HEM	D	501	43/43	0.95	0.18	27,35,45,50	0
2	HEM	A	501	43/43	0.95	0.19	24,33,37,41	0
2	HEM	F	501	43/43	0.95	0.16	27,35,39,47	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.

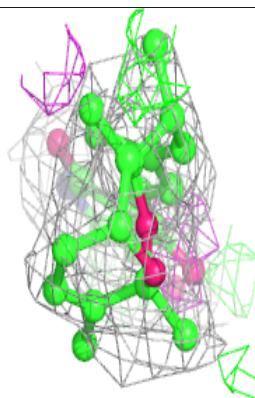
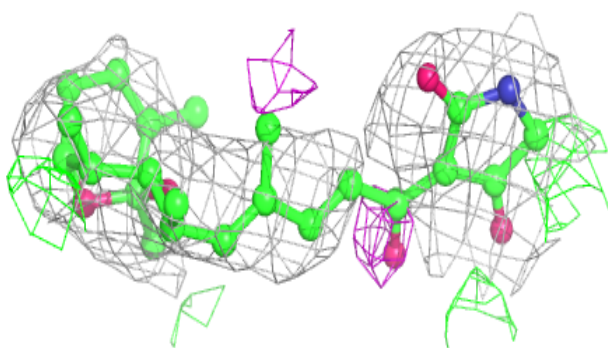
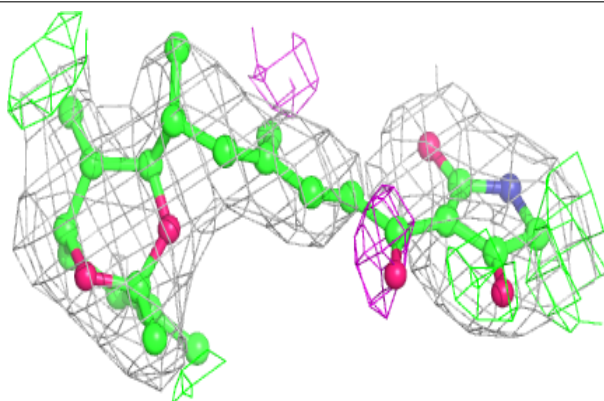


Electron density around V0A B 502:

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

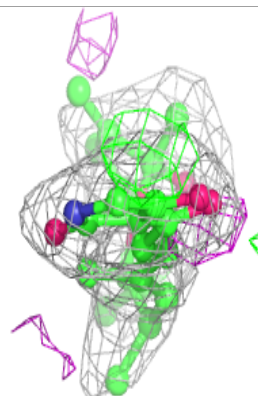
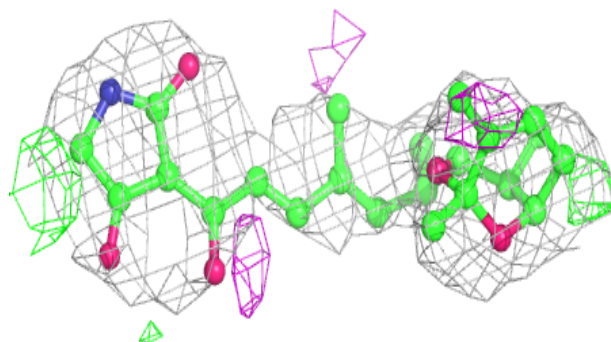
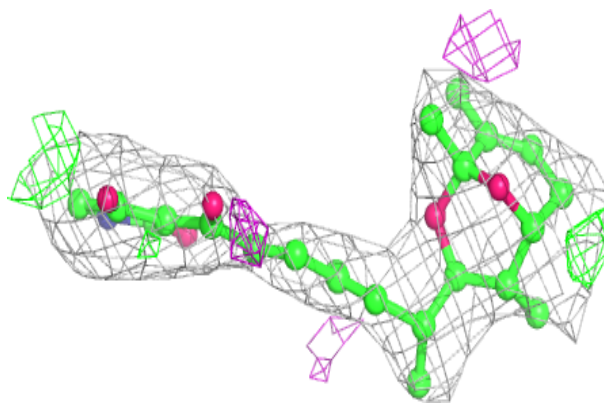
**Electron density around V0A E 502:**

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

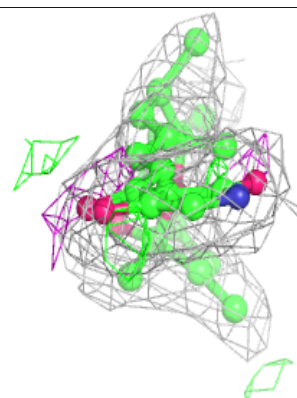
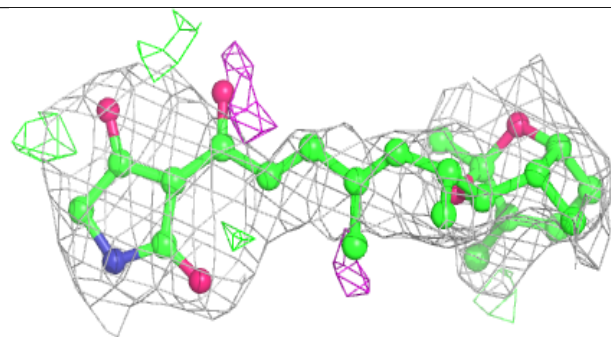
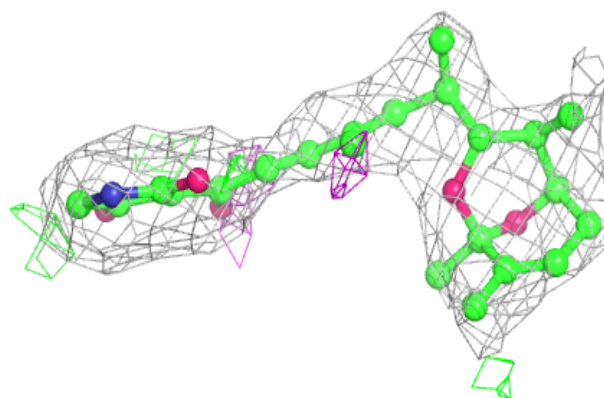


Electron density around V0A F 502:

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

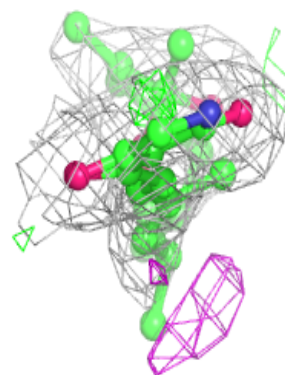
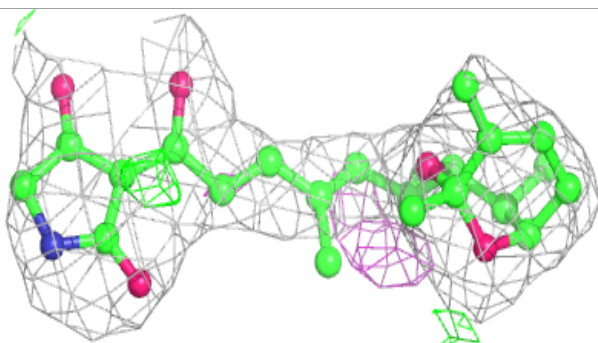
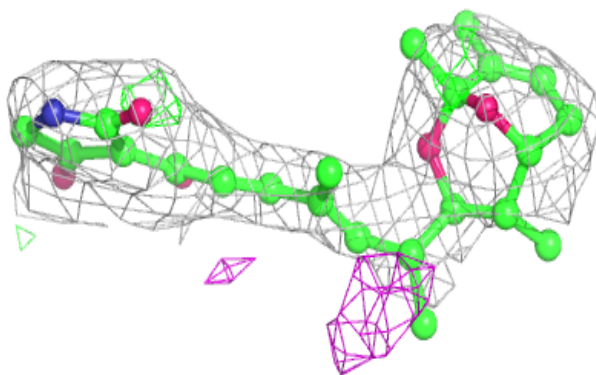
**Electron density around V0A A 502:**

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

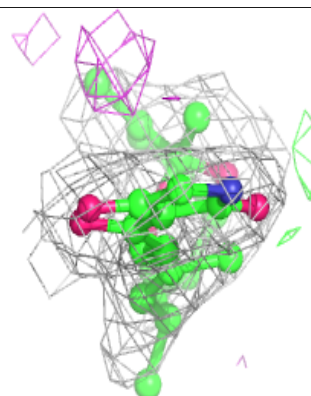
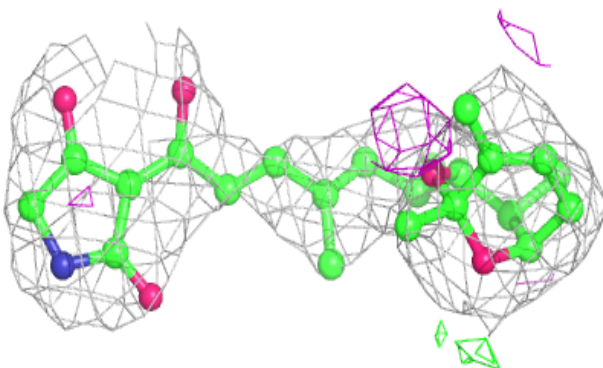
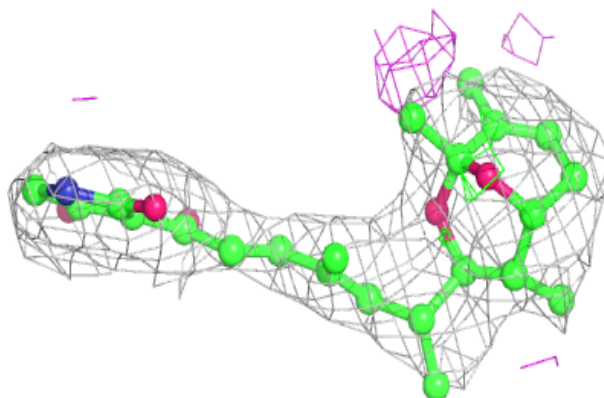


Electron density around V0A C 502:

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

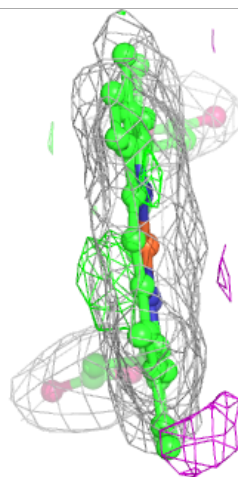
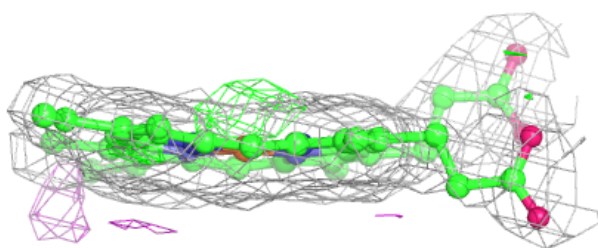
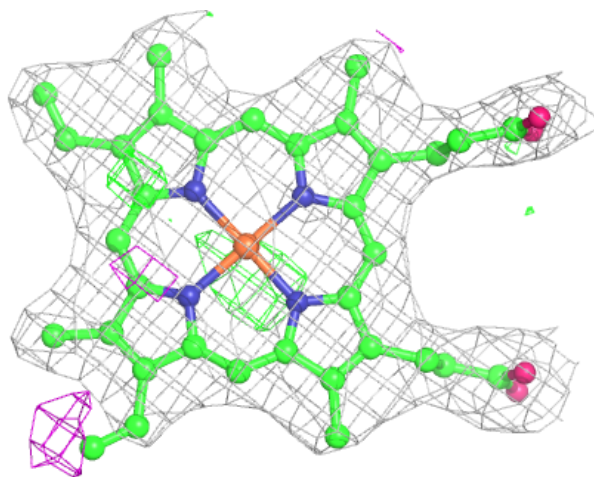
**Electron density around V0A D 502:**

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



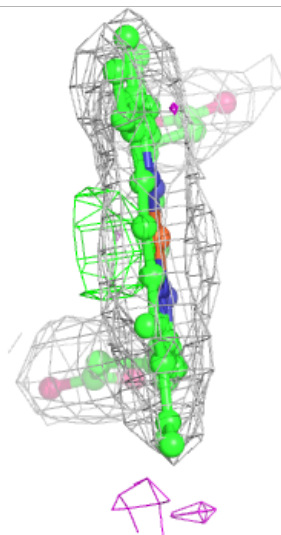
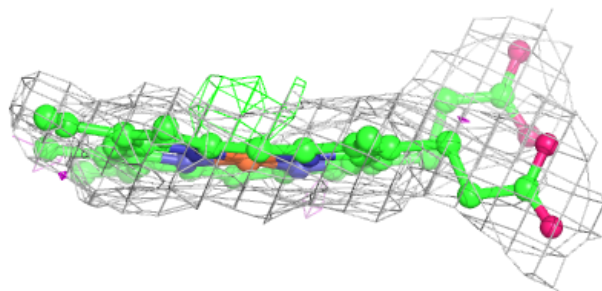
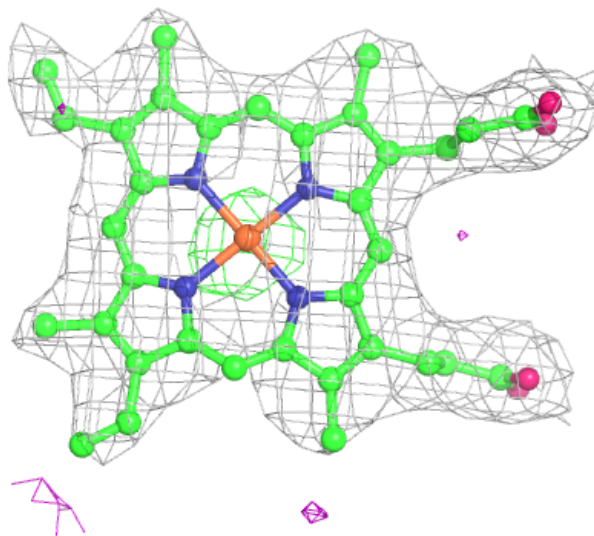
Electron density around HEM G 501:

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



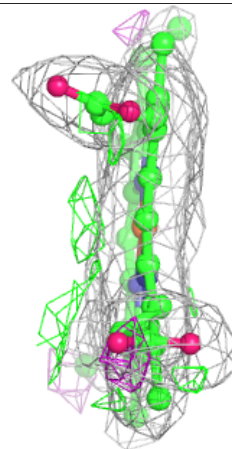
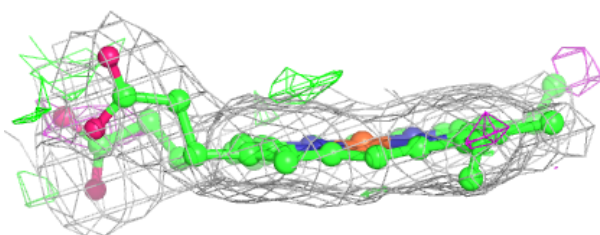
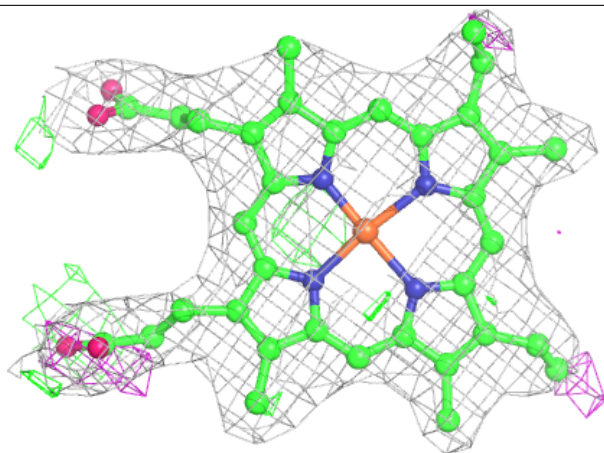
Electron density around HEM E 501:

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

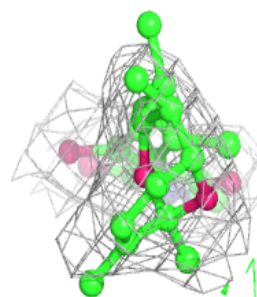
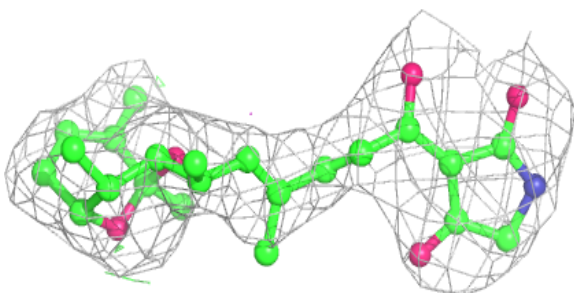
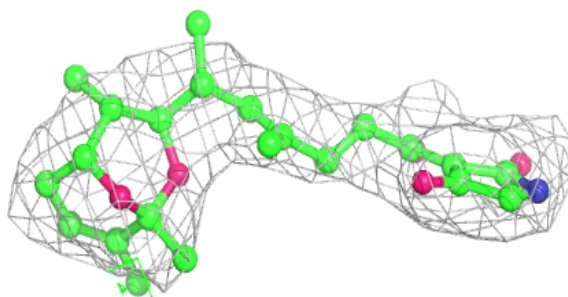


Electron density around HEM H 501:

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

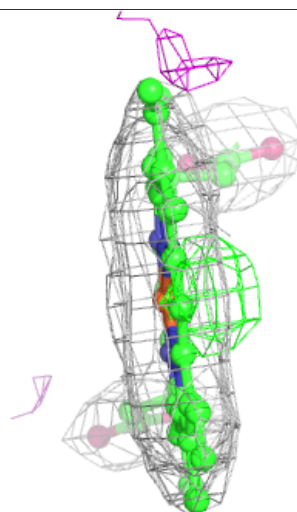
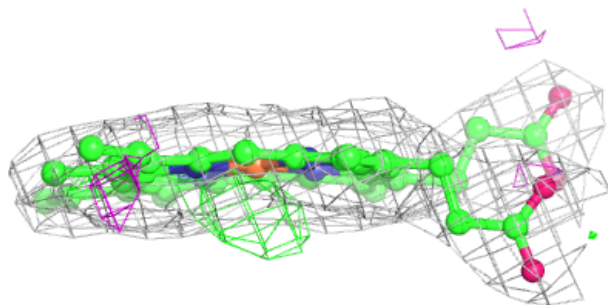
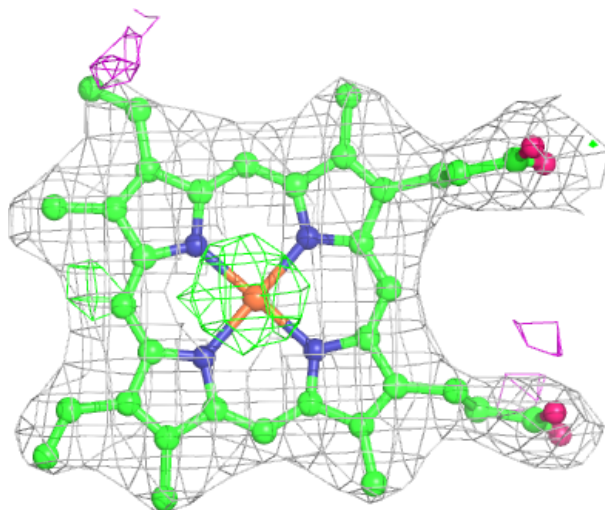
**Electron density around VOA H 502:**

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



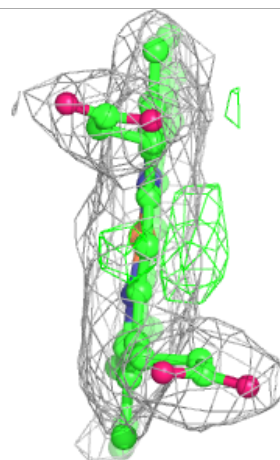
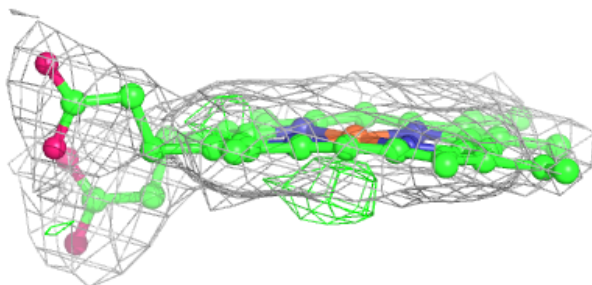
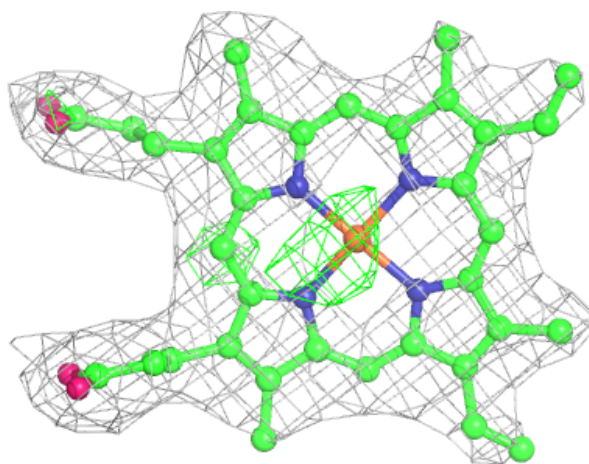
Electron density around HEM B 501:

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



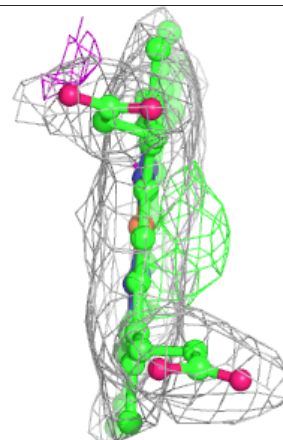
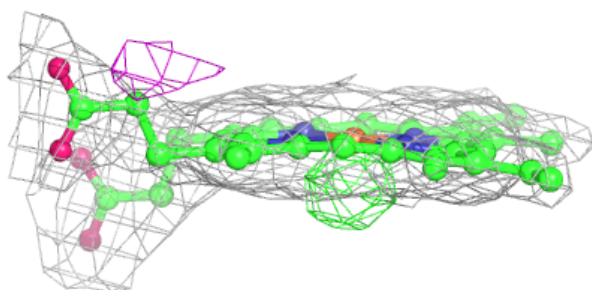
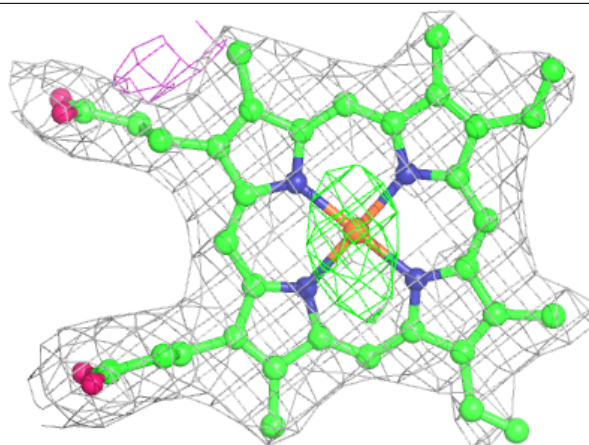
Electron density around HEM C 501:

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



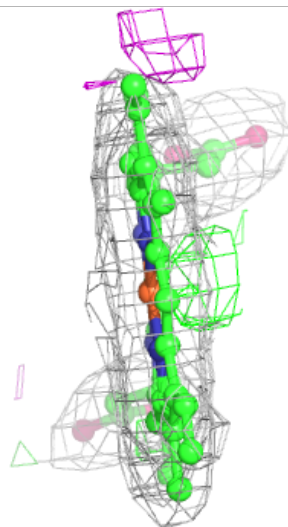
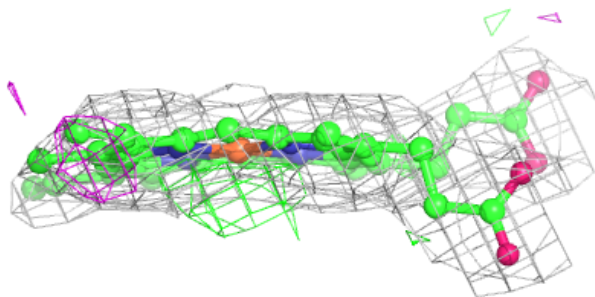
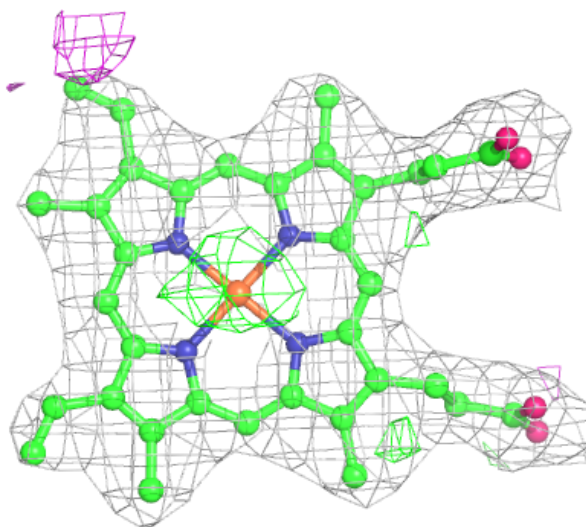
Electron density around HEM D 501:

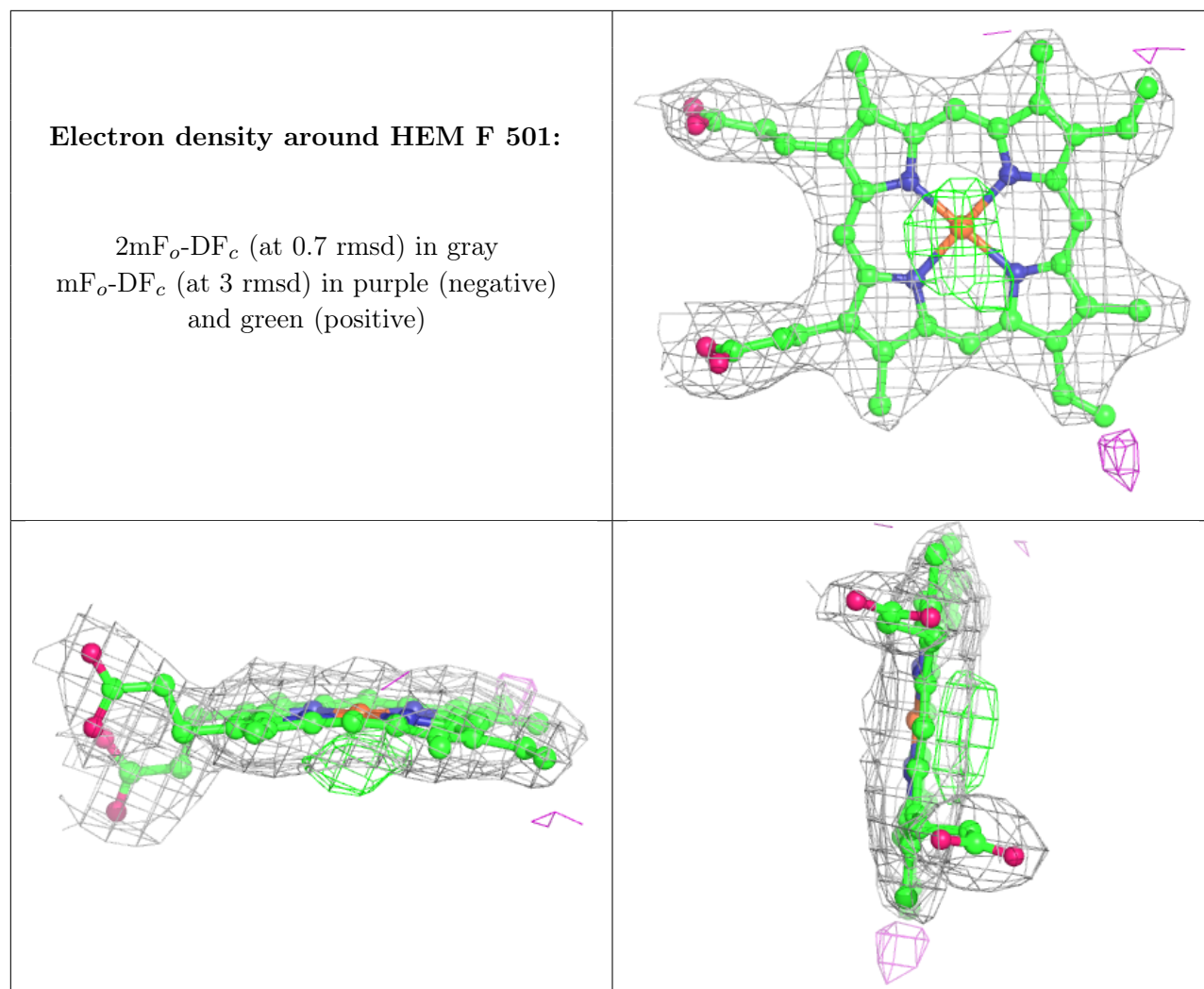
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around HEM A 501:

$2mF_o-DF_c$ (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.