



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 4, 2021 – 12:24 PM EDT

PDB ID : 6UDL
Title : Structure of Human Cytochrome P450 1A1 with Duocarmycin Prodrug (S)
ICT-2700
Authors : Bart, A.G.; Scott, E.E.
Deposited on : 2019-09-19
Resolution : 2.85 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 : 2.23.2
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.23.2

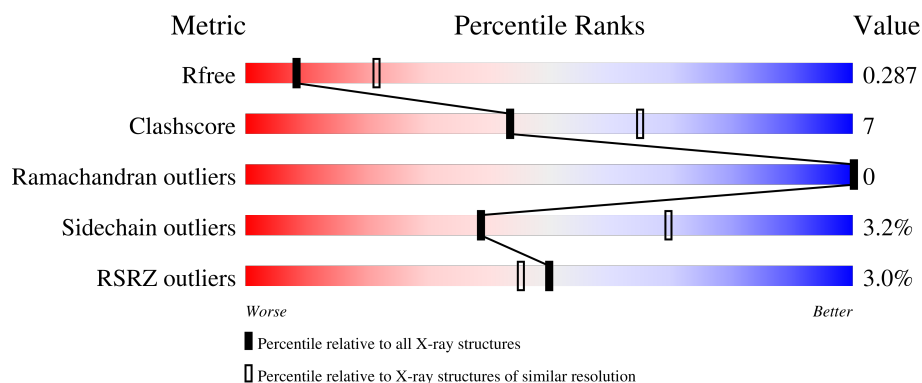
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.85 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	3168 (2.90-2.82)
Clashscore	141614	3438 (2.90-2.82)
Ramachandran outliers	138981	3348 (2.90-2.82)
Sidechain outliers	138945	3351 (2.90-2.82)
RSRZ outliers	127900	3103 (2.90-2.82)

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	491	<div> <div>0%</div> <div>82% 13% . .</div> </div>
1	B	491	<div> <div>2%</div> <div>86% 11% .</div> </div>
1	C	491	<div> <div>4%</div> <div>76% 18% . 5%</div> </div>
1	D	491	<div> <div>5%</div> <div>80% 14% . 5%</div> </div>

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 30414 atoms, of which 15172 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 Cytochrome P450 1A1.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	469	Total	C	H	N	O	S	0	0	0
			7510	2406	3756	653	674	21			
1	B	477	Total	C	H	N	O	S	0	0	0
			7627	2442	3811	664	689	21			
1	C	466	Total	C	H	N	O	S	0	0	0
			7456	2390	3729	648	668	21			
1	D	465	Total	C	H	N	O	S	0	0	0
			7438	2385	3720	646	666	21			

There are 52 discrepancies between the modelled and reference sequences:

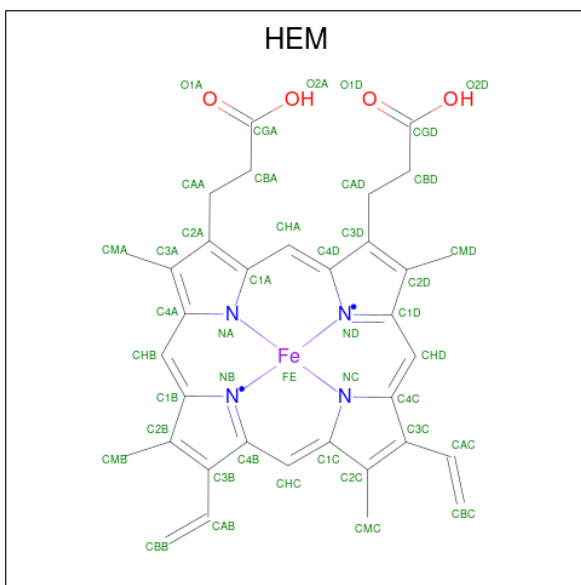
Chain	Residue	Modelled	Actual	Comment	Reference
A	28	MET	-	expression tag	UNP P04798
A	29	ALA	-	expression tag	UNP P04798
A	30	LYS	-	expression tag	UNP P04798
A	31	LYS	-	expression tag	UNP P04798
A	32	THR	-	expression tag	UNP P04798
A	33	SER	-	expression tag	UNP P04798
A	34	SER	-	expression tag	UNP P04798
A	513	HIS	-	expression tag	UNP P04798
A	514	HIS	-	expression tag	UNP P04798
A	515	HIS	-	expression tag	UNP P04798
A	516	HIS	-	expression tag	UNP P04798
A	517	HIS	-	expression tag	UNP P04798
A	518	HIS	-	expression tag	UNP P04798
B	28	MET	-	expression tag	UNP P04798
B	29	ALA	-	expression tag	UNP P04798
B	30	LYS	-	expression tag	UNP P04798
B	31	LYS	-	expression tag	UNP P04798
B	32	THR	-	expression tag	UNP P04798
B	33	SER	-	expression tag	UNP P04798
B	34	SER	-	expression tag	UNP P04798
B	513	HIS	-	expression tag	UNP P04798

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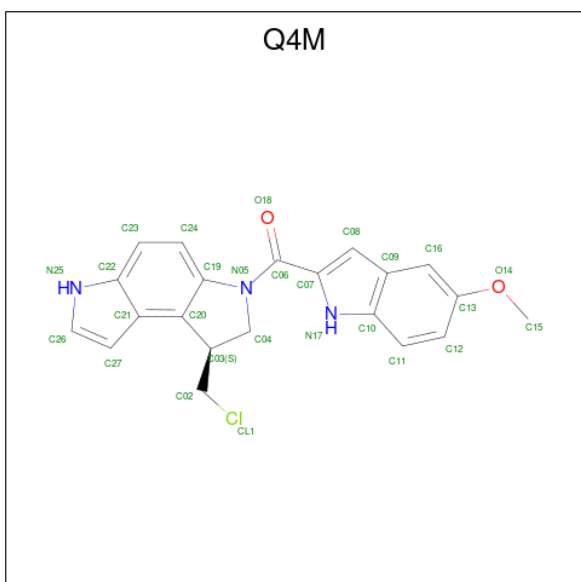
Chain	Residue	Modelled	Actual	Comment	Reference
B	514	HIS	-	expression tag	UNP P04798
B	515	HIS	-	expression tag	UNP P04798
B	516	HIS	-	expression tag	UNP P04798
B	517	HIS	-	expression tag	UNP P04798
B	518	HIS	-	expression tag	UNP P04798
C	28	MET	-	expression tag	UNP P04798
C	29	ALA	-	expression tag	UNP P04798
C	30	LYS	-	expression tag	UNP P04798
C	31	LYS	-	expression tag	UNP P04798
C	32	THR	-	expression tag	UNP P04798
C	33	SER	-	expression tag	UNP P04798
C	34	SER	-	expression tag	UNP P04798
C	513	HIS	-	expression tag	UNP P04798
C	514	HIS	-	expression tag	UNP P04798
C	515	HIS	-	expression tag	UNP P04798
C	516	HIS	-	expression tag	UNP P04798
C	517	HIS	-	expression tag	UNP P04798
C	518	HIS	-	expression tag	UNP P04798
D	28	MET	-	expression tag	UNP P04798
D	29	ALA	-	expression tag	UNP P04798
D	30	LYS	-	expression tag	UNP P04798
D	31	LYS	-	expression tag	UNP P04798
D	32	THR	-	expression tag	UNP P04798
D	33	SER	-	expression tag	UNP P04798
D	34	SER	-	expression tag	UNP P04798
D	513	HIS	-	expression tag	UNP P04798
D	514	HIS	-	expression tag	UNP P04798
D	515	HIS	-	expression tag	UNP P04798
D	516	HIS	-	expression tag	UNP P04798
D	517	HIS	-	expression tag	UNP P04798
D	518	HIS	-	expression tag	UNP P04798

- Molecule 2 is PROTOPORPHYRIN IX CONTAINING FE (three-letter code: HEM) (formula: $C_{34}H_{32}FeN_4O_4$).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	A	1	Total 73	C 34	Fe 1	H 30	N 4	O 4	0	0
2	B	1	Total 73	C 34	Fe 1	H 30	N 4	O 4	0	0
2	C	1	Total 73	C 34	Fe 1	H 30	N 4	O 4	0	0
2	D	1	Total 73	C 34	Fe 1	H 30	N 4	O 4	0	0

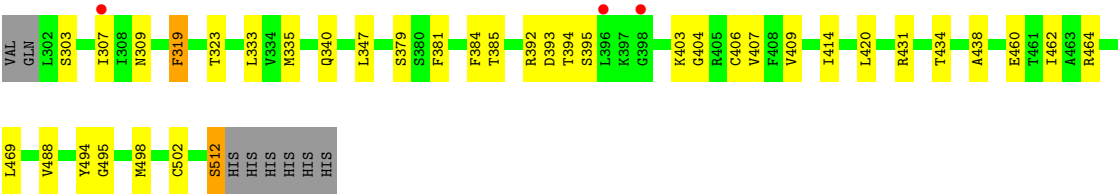
- Molecule 3 is [(1S)-1-(chloromethyl)-1,6-dihydropyrrolo[3,2-e]indol-3(2H)-yl](5-methoxy-1H-indol-2-yl)methanone (three-letter code: Q4M) (formula: C₂₁H₁₈ClN₃O₂) (labeled as "Ligand of Interest" by depositor).



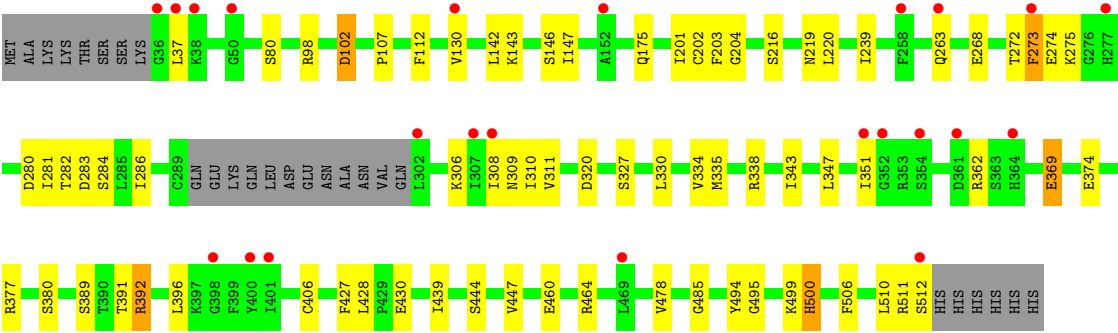
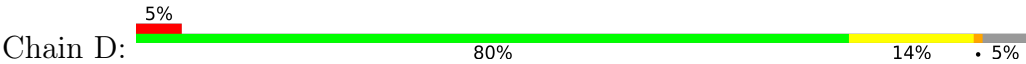
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
3	A	1	Total	C	Cl	H	N	O	0	0
			45	21	1	18	3	2		
3	B	1	Total	C	Cl	H	N	O	0	0
			45	21	1	18	3	2		

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	B	1	Total	O	0	0
			1	1		



● Molecule 1: Cytochrome P450 1A1



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	65.37Å 196.15Å 237.22Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.80 – 2.85 49.04 – 2.85	Depositor EDS
% Data completeness (in resolution range)	99.1 (48.80-2.85) 88.2 (49.04-2.85)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	0.68 (at 2.86Å)	Xtriage
Refinement program	PHENIX 1.16_3549	Depositor
R, R_{free}	0.238 , 0.287 0.238 , 0.287	Depositor DCC
R_{free} test set	1990 reflections (2.76%)	wwPDB-VP
Wilson B-factor (Å ²)	55.9	Xtriage
Anisotropy	0.234	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 24.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	30414	wwPDB-VP
Average B, all atoms (Å ²)	75.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.71% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: HEM, Q4M

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	0.36	1/3848 (0.0%)	0.47	0/5212
1	B	0.37	1/3911 (0.0%)	0.47	1/5300 (0.0%)
1	C	0.36	0/3821	0.50	1/5177 (0.0%)
1	D	0.44	0/3812	0.50	0/5165
All	All	0.38	2/15392 (0.0%)	0.48	2/20854 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	122	SER	CA-CB	-6.30	1.43	1.52
1	A	234	ALA	C-O	-5.24	1.13	1.23

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	309	ASN	CB-CA-C	-8.41	93.58	110.40
1	B	122	SER	CB-CA-C	-5.26	100.11	110.10

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	3754	3756	3753	40	0
1	B	3816	3811	3809	31	0
1	C	3727	3729	3727	67	0
1	D	3718	3720	3719	51	0
2	A	43	30	30	6	0
2	B	43	30	30	6	0
2	C	43	30	30	4	0
2	D	43	30	30	5	0
3	A	27	18	0	0	0
3	B	27	18	0	0	0
4	B	1	0	0	0	0
All	All	15242	15172	15128	203	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 (203) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:216:SER:HA	1:D:220:LEU:HD22	1.66	0.77
1:D:362:ARG:NH2	1:D:369:GLU:HG3	2.04	0.71
1:D:362:ARG:HH21	1:D:369:GLU:HG3	1.56	0.69
1:A:335:MET:CE	1:A:488:VAL:HG21	2.23	0.69
1:D:219:ASN:O	1:D:220:LEU:HD12	1.92	0.68
2:B:601:HEM:HBC2	2:B:601:HEM:HMC2	1.76	0.67
1:C:257:LYS:HA	1:C:260:SER:HB3	1.76	0.67
1:C:335:MET:SD	1:C:488:VAL:HG21	2.34	0.67
1:D:343:ILE:O	1:D:347:LEU:HD12	1.94	0.66
1:D:320:ASP:OD1	1:D:499:LYS:NZ	2.28	0.66
1:D:175:GLN:HE21	1:D:510:LEU:HD11	1.61	0.64
1:A:335:MET:HE1	1:A:488:VAL:HG21	1.78	0.64
1:A:488:VAL:HG22	1:D:485:GLY:CA	2.28	0.64
1:B:476:GLN:HG2	1:B:476:GLN:O	1.98	0.64
1:D:146:SER:OG	1:D:147:ILE:N	2.28	0.64
1:D:204:GLY:N	1:D:280:ASP:OD2	2.32	0.63
1:C:205:ARG:HA	1:C:205:ARG:HE	1.64	0.63
1:C:488:VAL:HG23	1:C:488:VAL:O	1.98	0.62
1:C:143:LYS:HA	1:C:146:SER:OG	1.99	0.62
1:C:239:ILE:HD12	1:C:239:ILE:H	1.64	0.62
1:C:48:LEU:H	1:C:48:LEU:HD23	1.64	0.61
1:C:74:LEU:HD11	1:C:85:VAL:HB	1.81	0.61
1:A:106:ARG:NH2	2:A:601:HEM:O2A	2.33	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:601:HEM:HMB2	2:C:601:HEM:HBB2	1.83	0.60
1:B:239:ILE:H	1:B:239:ILE:HD12	1.68	0.59
1:C:46:TRP:HD1	1:C:49:ILE:HD11	1.66	0.59
1:A:265:MET:O	1:A:269:HIS:ND1	2.35	0.59
1:A:106:ARG:NH1	1:A:122:SER:O	2.35	0.59
1:D:391:THR:HG23	1:D:392:ARG:HD3	1.84	0.59
1:D:439:ILE:HG13	1:D:439:ILE:O	2.02	0.59
1:C:260:SER:OG	1:C:261:PHE:N	2.35	0.59
1:B:382:VAL:HG21	2:B:601:HEM:HMB1	1.85	0.58
1:A:488:VAL:HG22	1:D:485:GLY:HA2	1.86	0.58
1:C:460:GLU:OE1	1:C:464:ARG:NH1	2.37	0.57
1:D:327:SER:OG	1:D:500:HIS:NE2	2.36	0.57
1:C:207:TYR:HB2	1:C:214:LEU:HD22	1.87	0.57
1:C:102:ASP:OD1	1:C:392:ARG:NH1	2.37	0.57
1:D:447:VAL:HG23	1:D:447:VAL:O	2.04	0.57
1:B:234:ALA:O	1:B:241:ARG:NH1	2.39	0.56
1:C:133:ALA:O	1:C:137:LEU:HD12	2.05	0.56
1:A:269:HIS:NE2	1:A:280:ASP:OD2	2.38	0.56
2:B:601:HEM:HBB2	2:B:601:HEM:HMB2	1.88	0.56
2:D:601:HEM:HMB2	2:D:601:HEM:HBB2	1.87	0.56
1:C:46:TRP:CD1	1:C:49:ILE:HD11	2.40	0.56
1:C:333:LEU:HD22	1:C:340:GLN:HG3	1.87	0.56
2:A:601:HEM:HBB2	2:A:601:HEM:HMB2	1.88	0.55
1:D:330:LEU:O	1:D:334:VAL:HG13	2.06	0.54
1:A:488:VAL:O	1:A:488:VAL:HG23	2.08	0.54
1:A:188:ARG:NH1	1:A:209:HIS:O	2.40	0.54
1:A:205:ARG:NH2	1:A:268:GLU:OE1	2.40	0.54
1:C:213:GLU:HA	1:C:216:SER:HB2	1.89	0.53
1:C:227:VAL:O	1:C:232:ASN:ND2	2.41	0.53
1:C:92:ILE:HD12	1:C:414:ILE:HD11	1.91	0.53
1:C:195:THR:HA	1:C:198:ILE:HG22	1.91	0.53
1:B:327:SER:HG	1:B:500:HIS:HE2	1.55	0.52
1:C:74:LEU:HD11	1:C:85:VAL:CG2	2.40	0.52
1:C:146:SER:OG	1:C:147:ILE:N	2.42	0.52
1:A:460:GLU:OE2	1:A:464:ARG:NH1	2.42	0.52
1:C:462:ILE:H	1:C:462:ILE:HD12	1.74	0.52
1:C:278:ILE:HG23	1:C:283:ASP:HB3	1.92	0.52
2:A:601:HEM:HMC2	2:A:601:HEM:HBC2	1.90	0.52
1:B:308:ILE:O	1:B:311:VAL:HG22	2.09	0.52
1:B:303:SER:HB2	1:B:306:LYS:H	1.75	0.52
2:B:601:HEM:HBC2	2:B:601:HEM:CMC	2.39	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:175:GLN:OE1	1:A:510:LEU:HD11	2.10	0.51
2:A:601:HEM:HBB2	2:A:601:HEM:CMB	2.41	0.51
1:D:239:ILE:HD12	1:D:239:ILE:H	1.76	0.51
1:C:142:LEU:O	1:C:146:SER:N	2.44	0.51
1:C:205:ARG:HE	1:C:206:ARG:H	1.58	0.51
2:D:601:HEM:HMC2	2:D:601:HEM:HBC2	1.92	0.51
1:B:223:ASN:ND2	1:B:247:SER:O	2.44	0.51
1:A:188:ARG:NH2	1:A:210:ASN:OD1	2.38	0.51
1:A:214:LEU:O	1:A:217:LEU:N	2.41	0.50
1:B:92:ILE:HD12	1:B:414:ILE:HD11	1.93	0.50
1:D:268:GLU:O	1:D:272:THR:HG22	2.11	0.50
1:A:174:LEU:HD22	1:A:184:PHE:CE2	2.47	0.50
2:B:601:HEM:HBB2	2:B:601:HEM:CMB	2.41	0.50
1:C:434:THR:HG23	1:C:438:ALA:O	2.12	0.50
1:C:512:SER:O	1:C:512:SER:OG	2.23	0.50
1:A:361:ASP:O	1:A:365:LEU:HD12	2.12	0.50
1:B:320:ASP:OD1	1:B:499:LYS:NZ	2.44	0.50
1:D:362:ARG:HH21	1:D:369:GLU:CG	2.25	0.50
1:C:392:ARG:O	1:C:394:THR:OG1	2.30	0.50
1:A:463:ALA:O	1:A:467:VAL:HG23	2.12	0.49
1:B:120:SER:O	1:B:124:SER:HB3	2.11	0.49
1:C:273:PHE:HD1	1:C:274:GLU:N	2.10	0.49
2:C:601:HEM:HBC2	2:C:601:HEM:HMC2	1.93	0.49
1:D:478:VAL:HG12	1:D:510:LEU:HA	1.95	0.48
2:D:601:HEM:HHA	2:D:601:HEM:HBD1	1.95	0.48
1:B:460:GLU:OE1	1:B:464:ARG:NH1	2.47	0.48
1:D:201:ILE:HG22	1:D:281:ILE:HD12	1.96	0.48
1:B:331:MET:HA	1:B:334:VAL:HG22	1.96	0.48
2:D:601:HEM:HBB2	2:D:601:HEM:CMB	2.43	0.48
1:B:331:MET:HE3	1:B:490:MET:SD	2.54	0.48
1:C:217:LEU:HD23	1:C:258:PHE:CE2	2.49	0.48
1:A:192:VAL:HG11	1:A:209:HIS:HA	1.96	0.48
1:B:422:VAL:HG23	1:B:423:ASN:N	2.29	0.47
2:C:601:HEM:HBB2	2:C:601:HEM:CMB	2.43	0.47
1:D:202:CYS:O	1:D:282:THR:HG23	2.14	0.47
1:C:84:VAL:O	1:C:407:VAL:HA	2.15	0.47
1:C:278:ILE:HD11	1:C:287:GLU:OE1	2.15	0.47
1:D:219:ASN:O	1:D:220:LEU:CD1	2.59	0.47
1:B:369:GLU:HA	1:B:372:ILE:HG12	1.97	0.47
2:D:601:HEM:HBC2	2:D:601:HEM:CMC	2.44	0.47
1:D:427:PHE:O	1:D:428:LEU:HD23	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:488:VAL:HG22	1:D:485:GLY:HA3	1.95	0.46
1:D:143:LYS:HA	1:D:146:SER:OG	2.15	0.46
1:A:394:THR:OG1	1:A:395:SER:N	2.48	0.46
1:C:216:SER:HB3	1:C:217:LEU:HD12	1.97	0.46
1:A:269:HIS:CD2	1:A:280:ASP:OD2	2.69	0.46
1:A:367:TYR:HD1	1:A:433:LEU:HD11	1.81	0.46
1:D:142:LEU:HD23	1:D:281:ILE:CD1	2.45	0.46
1:D:107:PRO:HB3	1:D:406:CYS:HB2	1.97	0.46
1:A:494:TYR:HA	1:A:498:MET:SD	2.55	0.46
1:C:248:LEU:HD23	1:C:252:LYS:HD2	1.98	0.46
1:D:308:ILE:O	1:D:311:VAL:HG12	2.16	0.46
1:C:205:ARG:HE	1:C:205:ARG:CA	2.29	0.45
1:C:143:LYS:HD2	1:C:147:ILE:HD12	1.99	0.45
1:D:273:PHE:CE1	1:D:275:LYS:HA	2.51	0.45
1:B:334:VAL:HG11	1:B:506:PHE:CE2	2.52	0.45
1:D:273:PHE:CE2	1:D:286:ILE:HG23	2.52	0.45
1:D:374:GLU:OE1	1:D:377:ARG:NE	2.44	0.45
1:B:163:VAL:HG11	1:B:469:LEU:HB3	1.99	0.45
1:B:190:VAL:O	1:B:194:VAL:HG23	2.17	0.45
1:D:102:ASP:N	1:D:102:ASP:OD1	2.49	0.45
2:A:601:HEM:HBC2	2:A:601:HEM:CMC	2.46	0.45
1:D:362:ARG:NH2	1:D:369:GLU:CG	2.76	0.45
1:B:422:VAL:HG23	1:B:423:ASN:OD1	2.17	0.44
1:D:203:PHE:CD1	1:D:282:THR:HG21	2.52	0.44
1:A:145:PHE:HZ	1:A:278:ILE:HG22	1.82	0.44
1:A:308:ILE:O	1:A:311:VAL:HG12	2.18	0.44
2:C:601:HEM:HBC2	2:C:601:HEM:CMC	2.47	0.44
1:C:187:TYR:O	1:C:191:VAL:HB	2.17	0.44
1:C:385:THR:HG23	1:C:409:VAL:HB	1.99	0.44
1:C:394:THR:HG22	1:C:395:SER:N	2.32	0.44
1:D:37:LEU:HD23	1:D:37:LEU:HA	1.76	0.44
1:B:327:SER:OG	1:B:500:HIS:NE2	2.44	0.44
1:C:278:ILE:HG23	1:C:283:ASP:CB	2.48	0.44
1:D:239:ILE:HD12	1:D:239:ILE:N	2.33	0.44
1:D:494:TYR:CG	1:D:495:GLY:N	2.85	0.44
1:B:331:MET:HG2	1:B:506:PHE:CZ	2.53	0.43
1:C:74:LEU:CD1	1:C:85:VAL:HB	2.46	0.43
1:C:319:PHE:O	1:C:323:THR:OG1	2.24	0.43
1:B:191:VAL:HG13	1:B:192:VAL:HG13	2.01	0.43
1:D:334:VAL:HG11	1:D:506:PHE:CE2	2.53	0.43
1:C:257:LYS:O	1:C:257:LYS:HG2	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:353:ARG:NH1	1:A:512:SER:HB3	2.34	0.43
1:B:382:VAL:HG11	2:B:601:HEM:HMA2	1.99	0.43
1:C:347:LEU:HD12	1:C:347:LEU:N	2.34	0.43
1:C:74:LEU:HD11	1:C:85:VAL:CB	2.46	0.43
1:D:309:ASN:OD1	1:D:310:ILE:N	2.52	0.43
1:C:74:LEU:HG	1:C:85:VAL:O	2.19	0.43
1:A:251:PHE:O	1:A:255:ASN:ND2	2.49	0.42
1:B:109:LEU:HD12	1:B:112:PHE:CZ	2.54	0.42
1:B:391:THR:O	1:B:391:THR:HG22	2.17	0.42
1:C:63:LEU:HD12	1:C:384:PHE:HZ	1.84	0.42
1:C:248:LEU:CD2	1:C:252:LYS:HD2	2.49	0.42
1:D:334:VAL:HG23	1:D:335:MET:CG	2.50	0.42
1:A:92:ILE:HD12	1:A:414:ILE:HD11	2.01	0.42
1:C:303:SER:O	1:C:307:ILE:HG12	2.20	0.42
1:C:213:GLU:O	1:C:213:GLU:CG	2.67	0.42
1:D:112:PHE:N	1:D:112:PHE:CD1	2.82	0.42
1:D:201:ILE:HG22	1:D:281:ILE:CD1	2.50	0.42
1:C:213:GLU:O	1:C:216:SER:HB3	2.20	0.42
1:C:237:ILE:HD11	1:C:240:LEU:HD11	2.02	0.42
1:C:236:PHE:CD1	1:C:236:PHE:N	2.88	0.42
1:C:403:LYS:HG2	1:C:404:GLY:N	2.35	0.42
1:A:470:PHE:O	1:A:474:LEU:HD13	2.20	0.42
1:C:213:GLU:O	1:C:213:GLU:HG2	2.19	0.42
1:C:243:LEU:HD23	1:C:243:LEU:N	2.34	0.42
1:C:48:LEU:HD23	1:C:48:LEU:N	2.30	0.41
1:D:334:VAL:HG11	1:D:506:PHE:CZ	2.55	0.41
1:A:234:ALA:O	1:A:241:ARG:NH1	2.53	0.41
1:C:385:THR:CG2	1:C:409:VAL:HB	2.50	0.41
1:D:478:VAL:HG12	1:D:510:LEU:HG	2.03	0.41
1:A:216:SER:OG	1:A:257:LYS:HE2	2.20	0.41
1:B:174:LEU:HD22	1:B:184:PHE:CZ	2.55	0.41
1:D:283:ASP:HA	1:D:286:ILE:HG22	2.02	0.41
1:C:239:ILE:HD12	1:C:239:ILE:N	2.34	0.41
1:A:382:VAL:HG11	2:A:601:HEM:HMA2	2.02	0.41
1:B:211:HIS:NE2	1:B:213:GLU:HB3	2.36	0.41
1:C:420:LEU:N	1:C:420:LEU:HD23	2.36	0.41
1:C:205:ARG:HA	1:C:205:ARG:NE	2.33	0.41
1:C:494:TYR:CG	1:C:495:GLY:N	2.88	0.41
1:A:167:ALA:O	1:A:171:ILE:HG13	2.21	0.41
1:B:259:TYR:O	1:B:263:GLN:HG3	2.21	0.41
1:D:306:LYS:HA	1:D:309:ASN:ND2	2.36	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:338:ARG:NH1	1:D:430:GLU:OE2	2.54	0.41
1:D:351:ILE:O	1:D:351:ILE:HG22	2.21	0.41
1:C:195:THR:HA	1:C:198:ILE:CG2	2.51	0.41
1:C:381:PHE:HA	1:C:498:MET:HG2	2.01	0.41
1:D:460:GLU:OE2	1:D:464:ARG:NH1	2.54	0.41
1:A:367:TYR:CD1	1:A:433:LEU:HD11	2.55	0.40
1:C:269:HIS:CD2	1:C:280:ASP:OD2	2.75	0.40
1:A:263:GLN:HA	1:A:266:VAL:HG12	2.02	0.40
1:B:367:TYR:HD1	1:B:433:LEU:HD11	1.86	0.40
1:D:377:ARG:O	1:D:380:SER:OG	2.40	0.40
1:A:456:LYS:HZ3	1:A:456:LYS:HG3	1.77	0.40
1:C:114:LEU:HD13	1:C:252:LYS:HG2	2.02	0.40
1:A:207:TYR:HB2	1:A:214:LEU:HD22	2.03	0.40
1:A:285:LEU:HD22	1:A:307:ILE:O	2.21	0.40
1:A:383:PRO:HD3	1:A:498:MET:HG3	2.03	0.40
1:B:265:MET:O	1:B:269:HIS:ND1	2.53	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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	465/491 (95%)	452 (97%)	13 (3%)	0	100	100
1	B	475/491 (97%)	457 (96%)	18 (4%)	0	100	100
1	C	462/491 (94%)	442 (96%)	20 (4%)	0	100	100
1	D	461/491 (94%)	441 (96%)	20 (4%)	0	100	100
All	All	1863/1964 (95%)	1792 (96%)	71 (4%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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	419/439 (95%)	407 (97%)	12 (3%)	42	72
1	B	426/439 (97%)	418 (98%)	8 (2%)	57	81
1	C	416/439 (95%)	399 (96%)	17 (4%)	30	61
1	D	415/439 (94%)	399 (96%)	16 (4%)	32	63
All	All	1676/1756 (95%)	1623 (97%)	53 (3%)	39	69

All (53) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	168	GLU
1	A	177	LEU
1	A	188	ARG
1	A	259	TYR
1	A	284	SER
1	A	292	LYS
1	A	313	ASP
1	A	319	PHE
1	A	354	SER
1	A	395	SER
1	A	469	LEU
1	A	512	SER
1	B	220	LEU
1	B	256	GLU
1	B	259	TYR
1	B	292	LYS
1	B	319	PHE
1	B	331	MET
1	B	354	SER
1	B	484	LEU
1	C	101	ASP
1	C	154	SER
1	C	168	GLU
1	C	188	ARG

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Mol	Chain	Res	Type
1	C	206	ARG
1	C	244	PRO
1	C	259	TYR
1	C	270	TYR
1	C	273	PHE
1	C	319	PHE
1	C	379	SER
1	C	393	ASP
1	C	406	CYS
1	C	431	ARG
1	C	469	LEU
1	C	502	CYS
1	C	512	SER
1	D	80	SER
1	D	98	ARG
1	D	102	ASP
1	D	130	VAL
1	D	263	GLN
1	D	273	PHE
1	D	274	GLU
1	D	284	SER
1	D	369	GLU
1	D	389	SER
1	D	392	ARG
1	D	396	LEU
1	D	444	SER
1	D	500	HIS
1	D	511	ARG
1	D	512	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	D	175	GLN

5.3.3 RNA ⓘ

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](#)

6 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	A	601	-	27,50,50	1.82	4 (14%)	17,82,82	1.60	4 (23%)
3	Q4M	B	602	-	27,31,31	2.01	9 (33%)	31,46,46	3.62	13 (41%)
2	HEM	C	601	-	27,50,50	1.84	5 (18%)	17,82,82	1.50	3 (17%)
2	HEM	B	601	1	27,50,50	1.84	5 (18%)	17,82,82	1.42	2 (11%)
2	HEM	D	601	-	27,50,50	1.83	4 (14%)	17,82,82	1.50	4 (23%)
3	Q4M	A	602	-	27,31,31	2.42	14 (51%)	31,46,46	2.91	12 (38%)

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	A	601	-	-	2/6/54/54	-
3	Q4M	B	602	-	-	4/9/24/24	0/5/5/5
2	HEM	C	601	-	-	2/6/54/54	-
2	HEM	B	601	1	-	2/6/54/54	-
2	HEM	D	601	-	-	0/6/54/54	-
3	Q4M	A	602	-	-	2/9/24/24	0/5/5/5

All (41) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	602	Q4M	C20-C03	-5.22	1.46	1.52
3	A	602	Q4M	C07-C06	-4.10	1.43	1.50
2	D	601	HEM	C3C-C2C	-4.06	1.34	1.40
2	B	601	HEM	C3B-C2B	-4.06	1.34	1.40
3	A	602	Q4M	C19-C20	4.06	1.41	1.37
2	A	601	HEM	C3B-C2B	-4.04	1.34	1.40
2	B	601	HEM	C3C-C2C	-3.96	1.34	1.40
2	C	601	HEM	C3B-C2B	-3.96	1.34	1.40
2	C	601	HEM	C3C-C2C	-3.95	1.34	1.40
2	D	601	HEM	C3B-C2B	-3.94	1.34	1.40
2	A	601	HEM	C3C-C2C	-3.92	1.34	1.40
3	A	602	Q4M	C02-C03	-3.77	1.43	1.52
2	C	601	HEM	C3C-CAC	3.71	1.55	1.47
3	B	602	Q4M	C12-C13	-3.70	1.31	1.38
2	D	601	HEM	C3C-CAC	3.69	1.55	1.47
2	B	601	HEM	C3C-CAC	3.67	1.55	1.47
2	A	601	HEM	C3C-CAC	3.67	1.55	1.47
2	D	601	HEM	C3B-CAB	3.66	1.55	1.47
2	C	601	HEM	C3B-CAB	3.66	1.55	1.47
3	B	602	Q4M	C23-C22	-3.60	1.35	1.41
2	A	601	HEM	C3B-CAB	3.57	1.55	1.47
3	B	602	Q4M	O14-C13	-3.56	1.30	1.37
2	B	601	HEM	C3B-CAB	3.54	1.55	1.47
3	B	602	Q4M	C02-CL1	3.37	1.96	1.78
3	A	602	Q4M	O14-C13	-3.31	1.30	1.37
3	A	602	Q4M	C12-C13	-3.05	1.32	1.38
3	A	602	Q4M	C19-N05	2.99	1.45	1.39
3	B	602	Q4M	C11-C10	-2.84	1.36	1.41
3	A	602	Q4M	C04-C03	-2.77	1.47	1.53
3	B	602	Q4M	C22-N25	-2.71	1.30	1.38
3	A	602	Q4M	C16-C09	-2.68	1.35	1.42
3	B	602	Q4M	O14-C15	-2.45	1.35	1.42
3	A	602	Q4M	C21-C22	-2.38	1.36	1.42
3	A	602	Q4M	C20-C21	-2.38	1.39	1.43
3	B	602	Q4M	C19-C20	2.27	1.39	1.37
3	B	602	Q4M	C20-C21	-2.23	1.39	1.43
3	A	602	Q4M	C11-C10	-2.14	1.38	1.41
3	A	602	Q4M	C23-C24	2.12	1.41	1.36
2	B	601	HEM	CAA-C2A	2.06	1.55	1.52
3	A	602	Q4M	C10-N17	-2.03	1.32	1.38
2	C	601	HEM	CAA-C2A	2.02	1.55	1.52

All (38) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	602	Q4M	C07-C06-N05	12.50	133.93	118.39
3	A	602	Q4M	C07-C06-N05	10.23	131.11	118.39
3	B	602	Q4M	O18-C06-N05	-7.74	111.44	121.69
3	B	602	Q4M	C19-C20-C21	-6.95	115.10	120.48
3	B	602	Q4M	C24-C23-C22	-6.00	113.28	120.84
3	A	602	Q4M	O18-C06-N05	-5.68	114.17	121.69
3	A	602	Q4M	C03-C02-CL1	-5.31	101.39	111.47
3	A	602	Q4M	C24-C19-C20	-5.20	115.91	122.22
3	B	602	Q4M	C24-C19-C20	-4.19	117.14	122.22
3	B	602	Q4M	C23-C24-C19	3.95	127.66	119.95
3	B	602	Q4M	C03-C02-CL1	3.49	118.09	111.47
3	B	602	Q4M	C07-N17-C10	3.20	111.12	104.45
2	A	601	HEM	CAA-CBA-CGA	-3.09	107.49	112.67
3	A	602	Q4M	C24-C23-C22	-3.05	117.00	120.84
3	B	602	Q4M	C07-C08-C09	3.01	110.31	106.55
3	A	602	Q4M	C07-N17-C10	3.01	110.73	104.45
3	A	602	Q4M	C12-C11-C10	-2.83	117.28	120.84
3	A	602	Q4M	C15-O14-C13	-2.65	111.77	117.51
2	C	601	HEM	CAA-CBA-CGA	-2.62	108.28	112.67
3	B	602	Q4M	C12-C11-C10	-2.50	117.69	120.84
3	B	602	Q4M	C08-C07-C06	2.38	136.65	128.33
2	D	601	HEM	CAA-CBA-CGA	-2.33	108.76	112.67
3	B	602	Q4M	O18-C06-C07	-2.32	114.52	119.00
2	B	601	HEM	CMA-C3A-C4A	-2.32	124.90	128.46
3	A	602	Q4M	O18-C06-C07	-2.30	114.56	119.00
2	A	601	HEM	CMA-C3A-C4A	-2.30	124.93	128.46
2	B	601	HEM	CAA-CBA-CGA	-2.29	108.83	112.67
2	C	601	HEM	CMD-C2D-C1D	-2.25	125.01	128.46
2	D	601	HEM	CMD-C2D-C1D	-2.24	125.02	128.46
3	A	602	Q4M	O14-C13-C16	-2.16	118.54	124.43
2	C	601	HEM	CMA-C3A-C4A	-2.15	125.17	128.46
3	B	602	Q4M	C03-C20-C21	2.14	135.18	129.84
3	A	602	Q4M	C23-C24-C19	2.14	124.13	119.95
3	A	602	Q4M	C04-N05-C19	-2.12	106.77	109.21
2	D	601	HEM	CBD-CAD-C3D	-2.06	108.67	112.48
2	A	601	HEM	CMD-C2D-C1D	-2.06	125.29	128.46
2	D	601	HEM	CMA-C3A-C4A	-2.04	125.33	128.46
2	A	601	HEM	CMC-C2C-C3C	2.03	128.47	124.68

There are no chirality outliers.

All (12) torsion outliers are listed below:

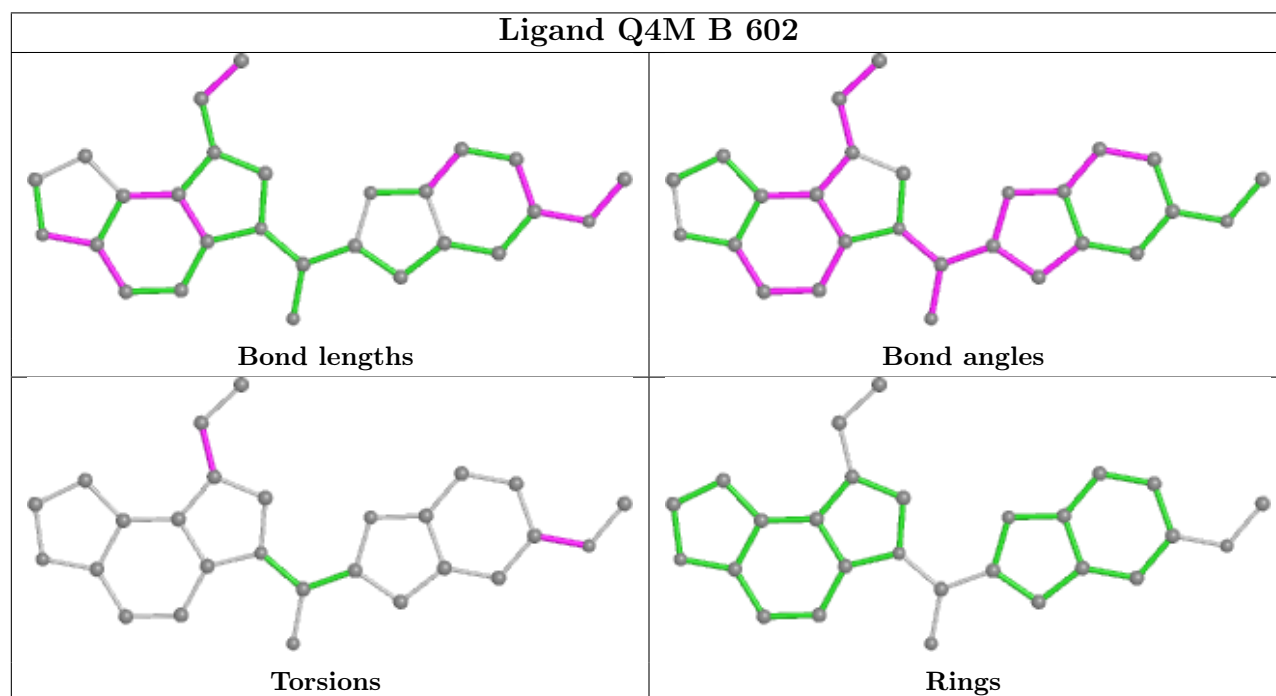
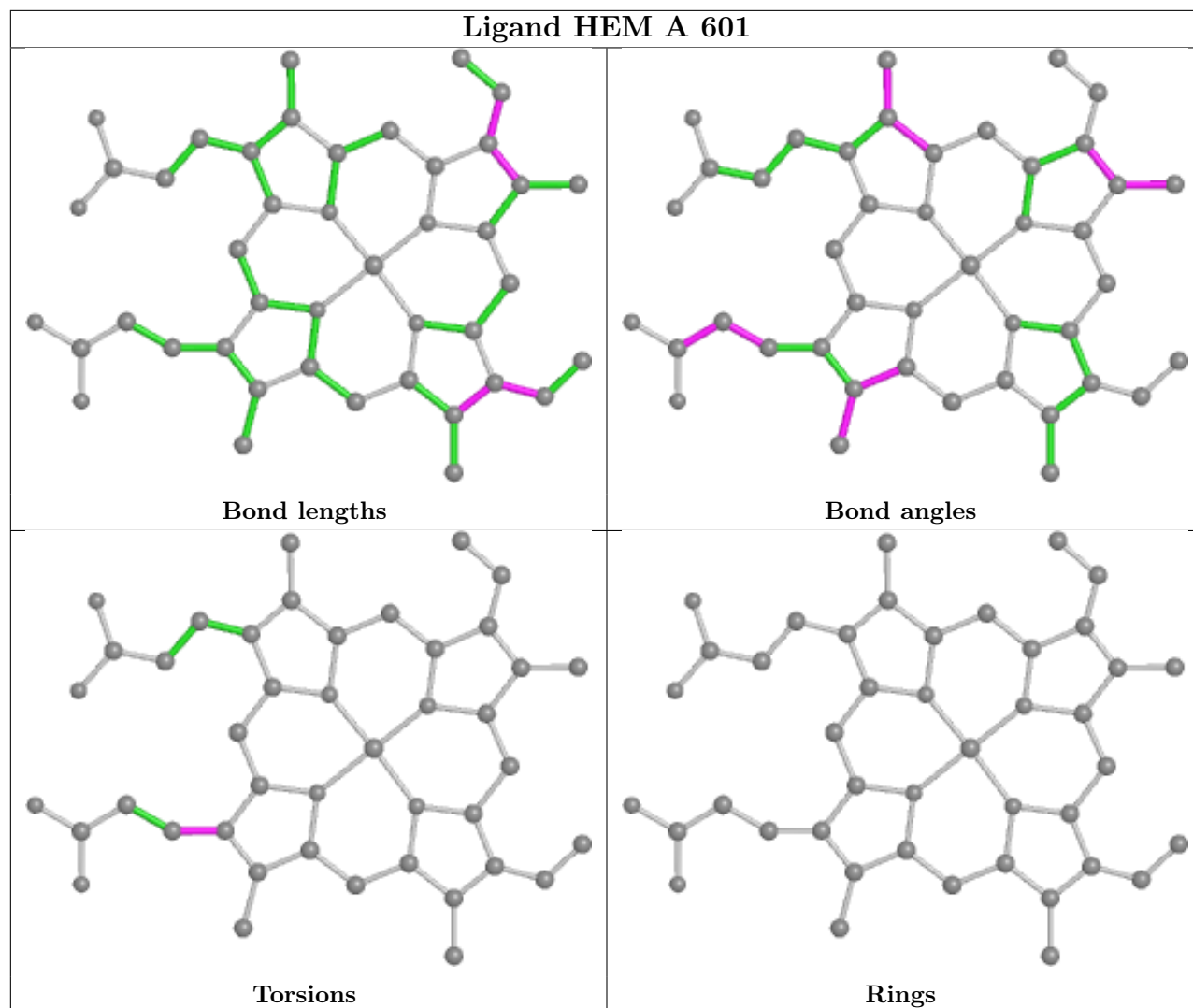
Mol	Chain	Res	Type	Atoms
2	A	601	HEM	C1A-C2A-CAA-CBA
2	A	601	HEM	C3A-C2A-CAA-CBA
2	B	601	HEM	C1A-C2A-CAA-CBA
2	B	601	HEM	C3A-C2A-CAA-CBA
3	B	602	Q4M	CL1-C02-C03-C04
3	A	602	Q4M	C16-C13-O14-C15
3	B	602	Q4M	C16-C13-O14-C15
3	A	602	Q4M	C12-C13-O14-C15
3	B	602	Q4M	C12-C13-O14-C15
3	B	602	Q4M	CL1-C02-C03-C20
2	C	601	HEM	C1A-C2A-CAA-CBA
2	C	601	HEM	C3A-C2A-CAA-CBA

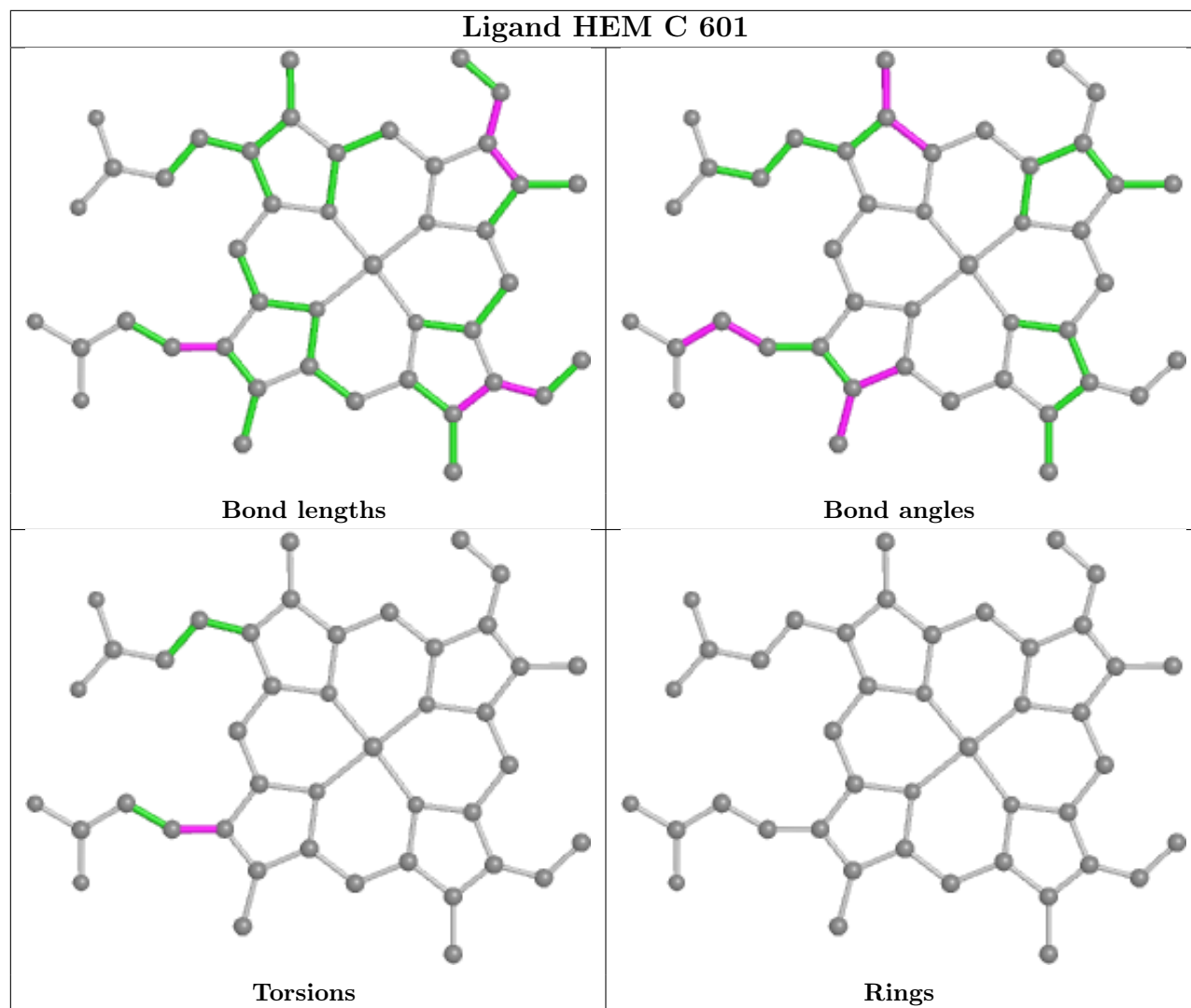
There are no ring outliers.

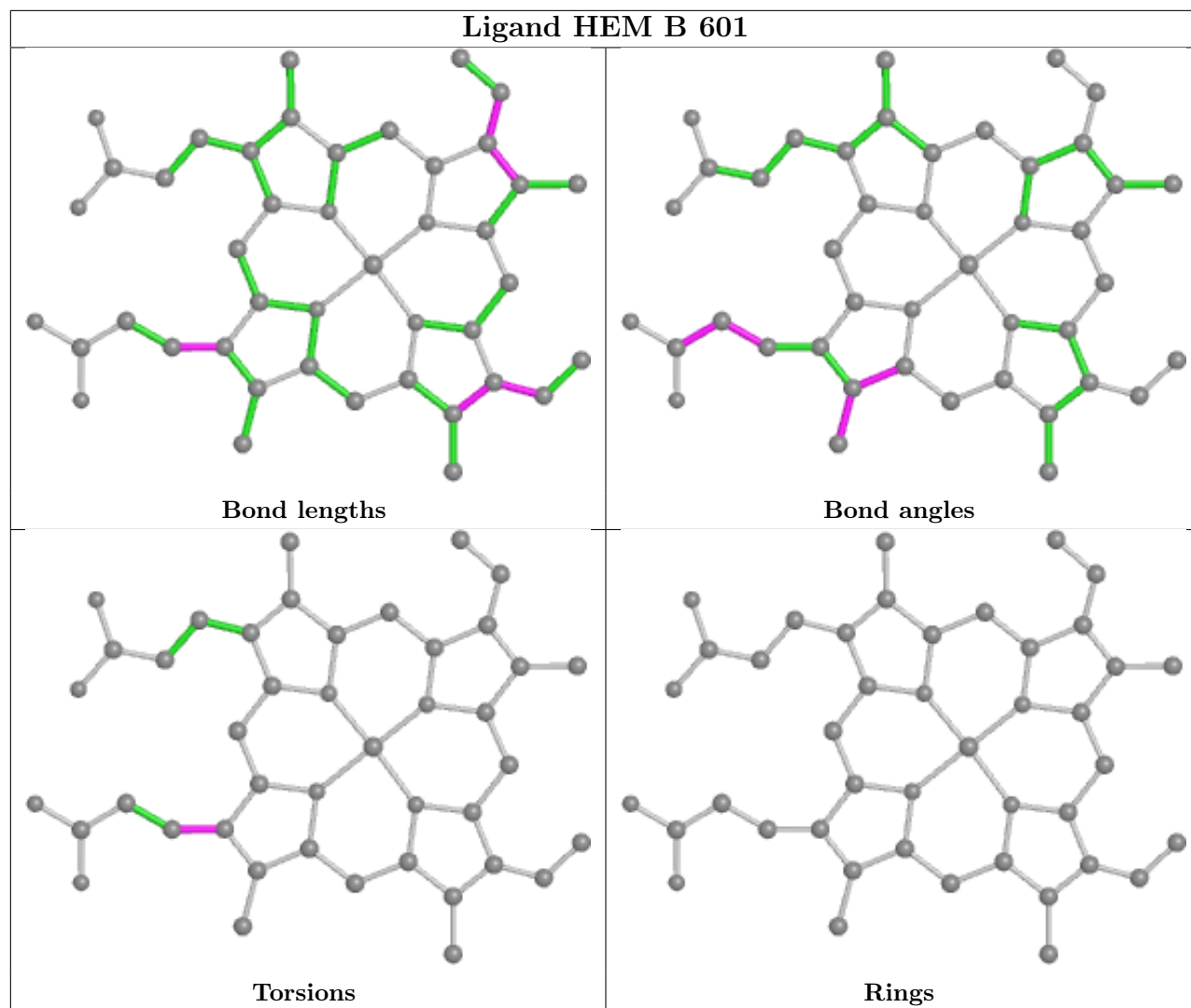
4 monomers are involved in 21 short contacts:

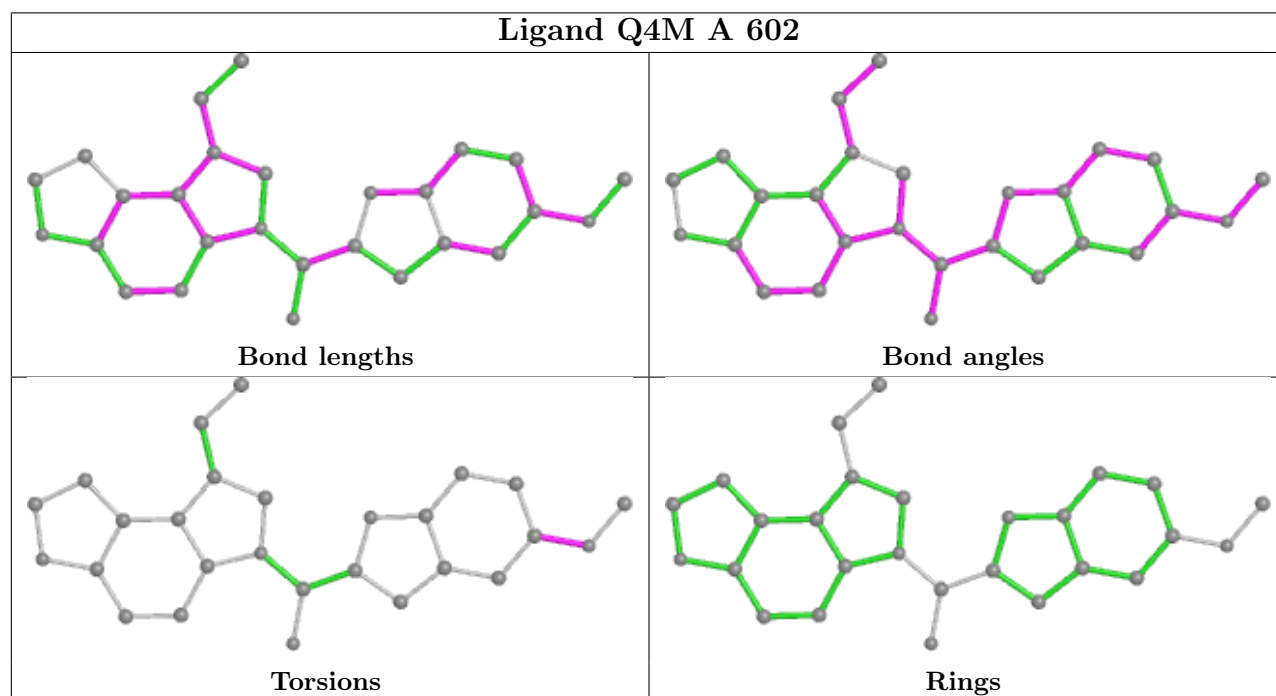
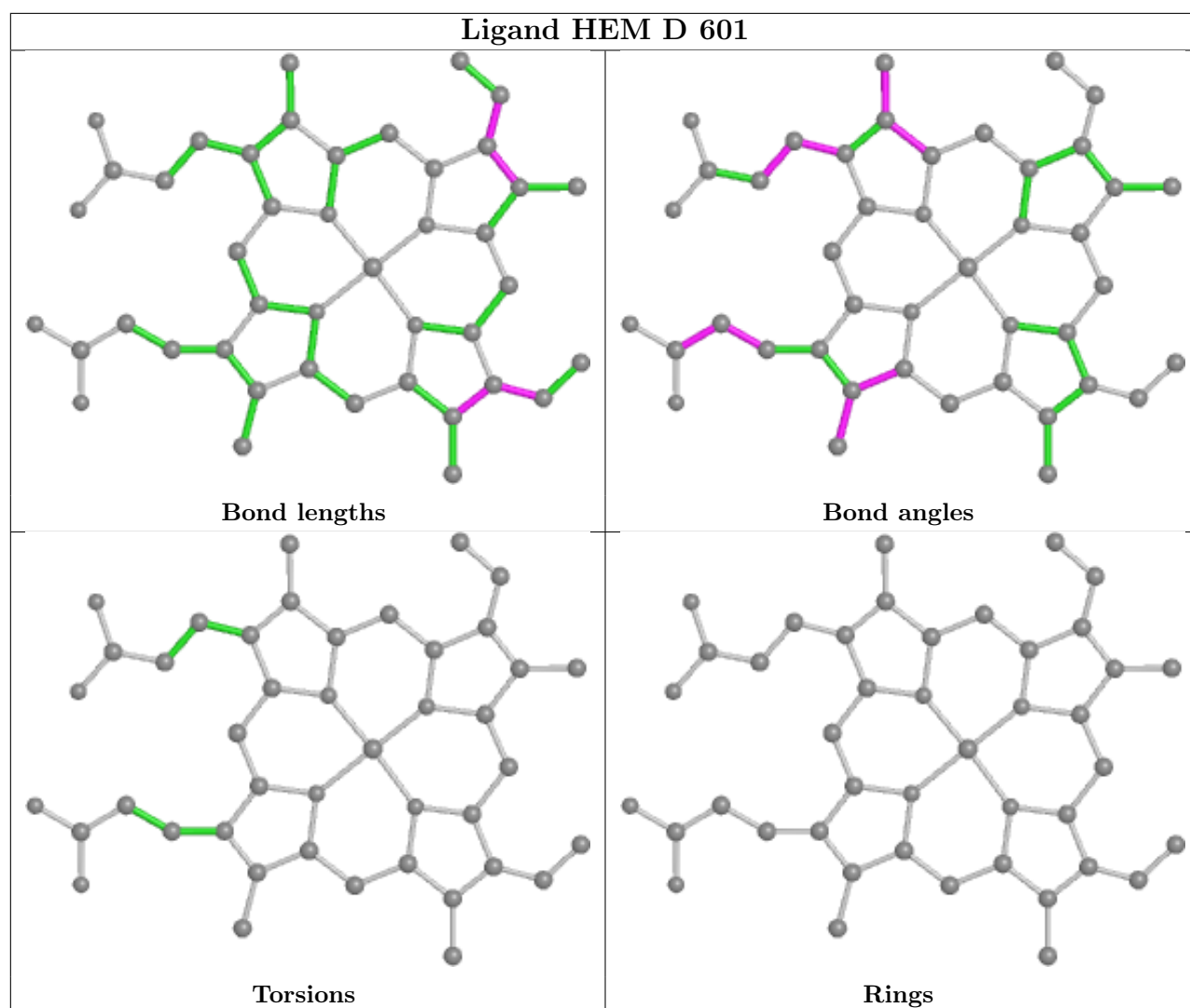
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	601	HEM	6	0
2	C	601	HEM	4	0
2	B	601	HEM	6	0
2	D	601	HEM	5	0

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	469/491 (95%)	0.25	5 (1%) 80 80	40, 58, 81, 97	0
1	B	477/491 (97%)	0.27	10 (2%) 63 60	37, 52, 74, 89	0
1	C	466/491 (94%)	0.45	18 (3%) 39 34	52, 78, 96, 102	0
1	D	465/491 (94%)	0.51	23 (4%) 29 25	64, 84, 96, 107	0
All	All	1877/1964 (95%)	0.37	56 (2%) 50 45	37, 69, 94, 107	0

All (56) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	36	GLY	5.2
1	D	352	GLY	4.4
1	B	36	GLY	4.0
1	D	364	HIS	4.0
1	D	398	GLY	3.6
1	D	351	ILE	3.2
1	C	36	GLY	3.2
1	A	291	GLU	3.1
1	D	37	LEU	3.1
1	D	38	LYS	3.0
1	D	307	ILE	3.0
1	A	212	GLN	2.9
1	B	293	GLN	2.9
1	C	270	TYR	2.9
1	B	151	PRO	2.8
1	B	457	CYS	2.7
1	D	277	HIS	2.7
1	D	354	SER	2.7
1	B	354	SER	2.6
1	C	307	ILE	2.6
1	B	343	ILE	2.6

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Mol	Chain	Res	Type	RSRZ
1	C	398	GLY	2.6
1	C	273	PHE	2.6
1	D	512	SER	2.6
1	C	244	PRO	2.6
1	D	302	LEU	2.5
1	D	361	ASP	2.5
1	C	38	LYS	2.5
1	D	308	ILE	2.5
1	D	400	TYR	2.4
1	C	153	SER	2.4
1	C	396	LEU	2.4
1	D	273	PHE	2.4
1	C	286	ILE	2.4
1	A	352	GLY	2.4
1	B	290	GLN	2.3
1	D	152	ALA	2.3
1	D	263	GLN	2.2
1	C	272	THR	2.2
1	C	275	LYS	2.2
1	C	288	HIS	2.2
1	D	50	GLY	2.1
1	D	469	LEU	2.1
1	B	351	ILE	2.1
1	C	274	GLU	2.1
1	C	277	HIS	2.1
1	A	264	LYS	2.1
1	C	221	ASN	2.1
1	C	218	VAL	2.1
1	D	258	PHE	2.1
1	D	401	ILE	2.1
1	A	244	PRO	2.1
1	D	130	VAL	2.1
1	B	475	LEU	2.0
1	C	37	LEU	2.0
1	B	153	SER	2.0

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

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

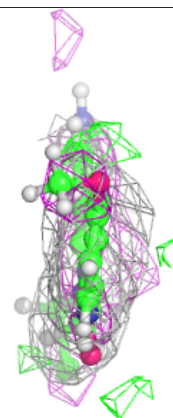
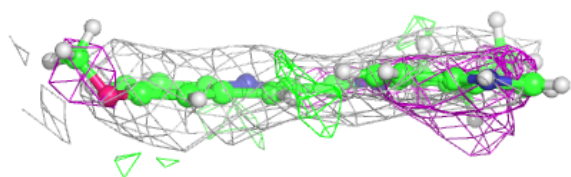
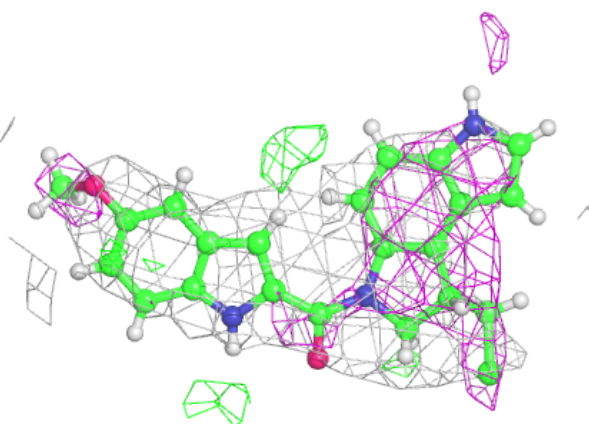
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
3	Q4M	A	602	27/27	0.85	0.36	52,61,68,86	0
3	Q4M	B	602	27/27	0.85	0.33	46,50,60,71	0
2	HEM	C	601	43/43	0.96	0.32	52,58,72,78	0
2	HEM	D	601	43/43	0.96	0.29	66,72,80,85	0
2	HEM	A	601	43/43	0.96	0.30	43,48,53,55	0
2	HEM	B	601	43/43	0.96	0.32	39,44,49,51	0

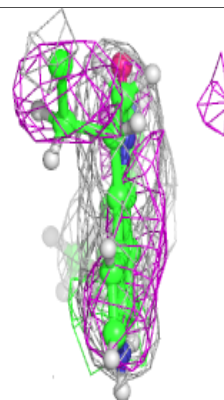
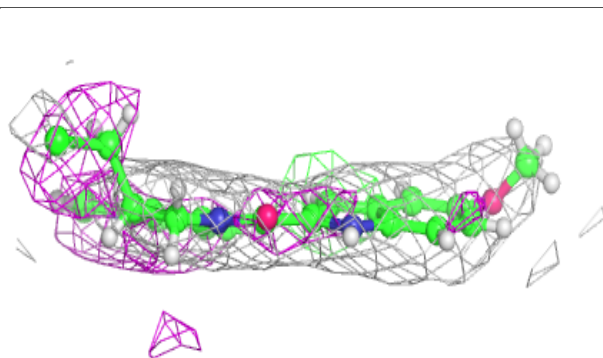
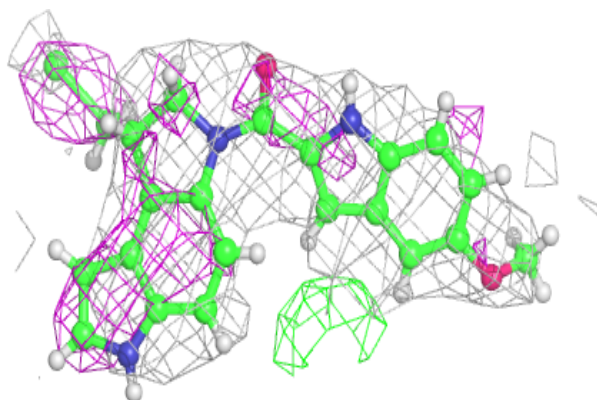
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around Q4M A 602:

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

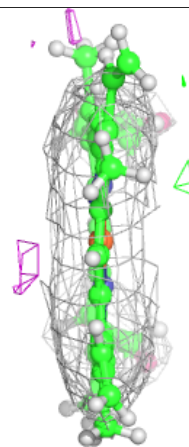
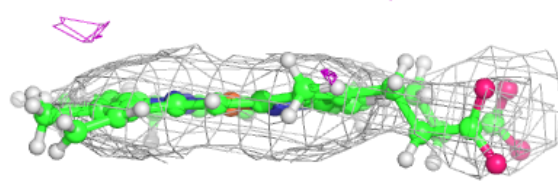
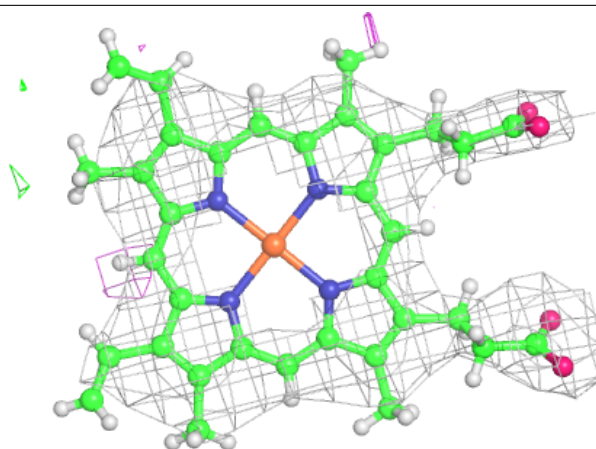
**Electron density around Q4M B 602:**

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



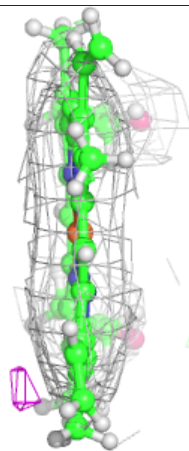
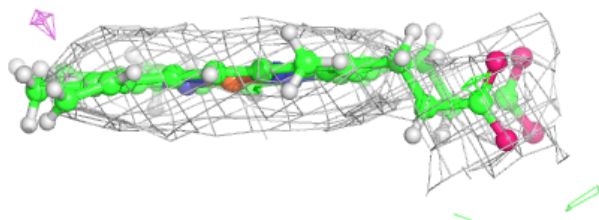
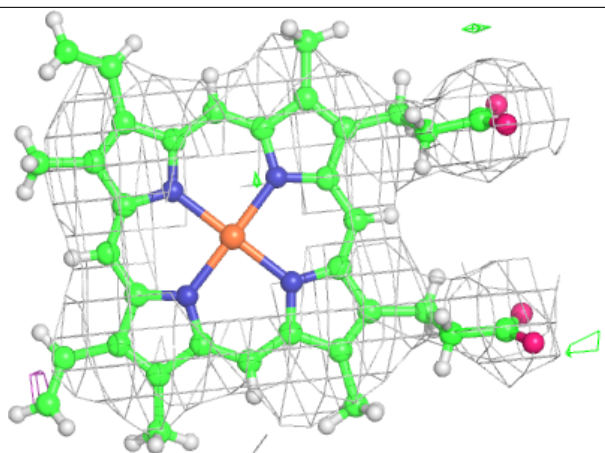
Electron density around HEM C 601:

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



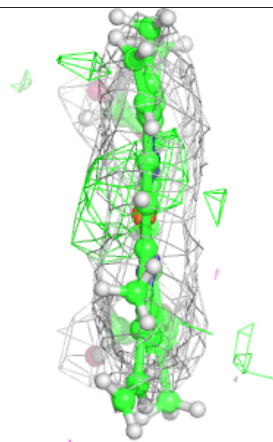
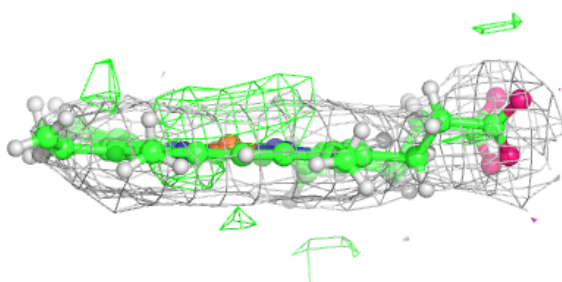
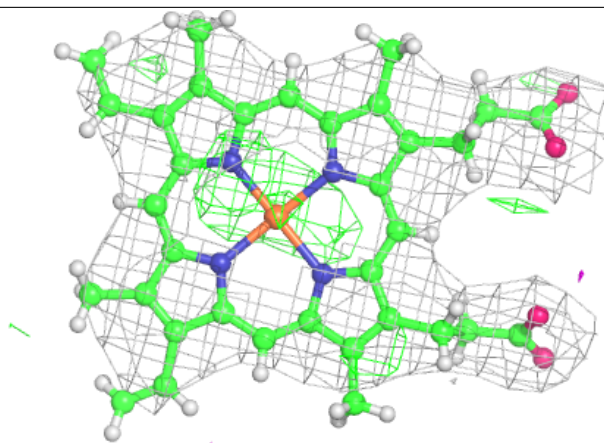
Electron density around HEM D 601:

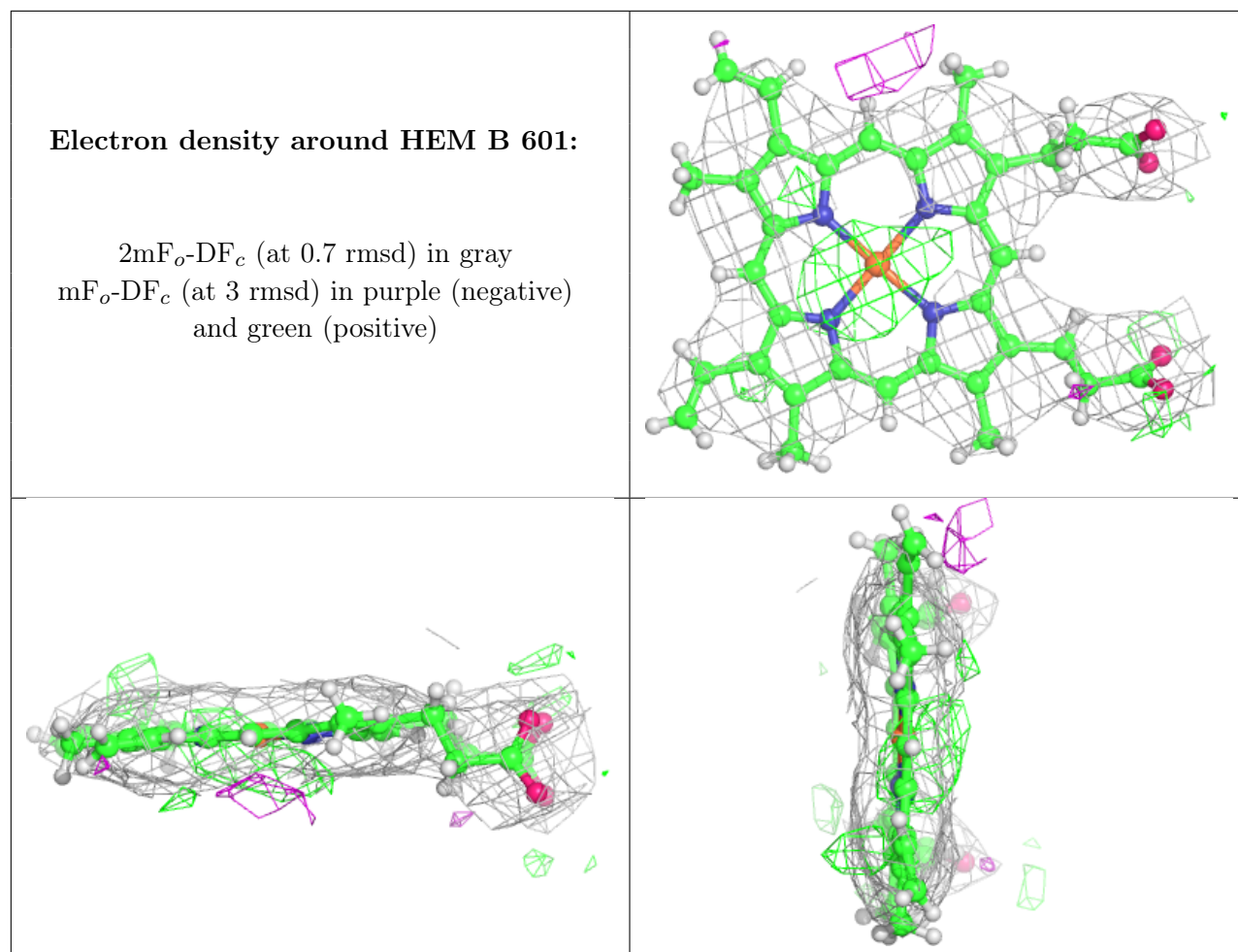
$2mF_o - DF_c$ (at 0.7 rmsd) in gray
 $mF_o - DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around HEM A 601:

$2mF_o - DF_c$ (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.