Full wwPDB X-ray Structure Validation Report (i)

Mar 18, 2024 – 12:07 PM JST

PDB ID	:	5Z9J
Title	:	Identification of the functions of unusual cytochrome p450-like monooxygenases involved in microbial secondary metablism
Authors	:	Lu, M.; Lin, L.; Zhang, C.; Chen, Y.
Deposited on	:	2018-02-03
Resolution	:	2.00 Å(reported)

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

|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
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)	:	2.36

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 2.00 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.
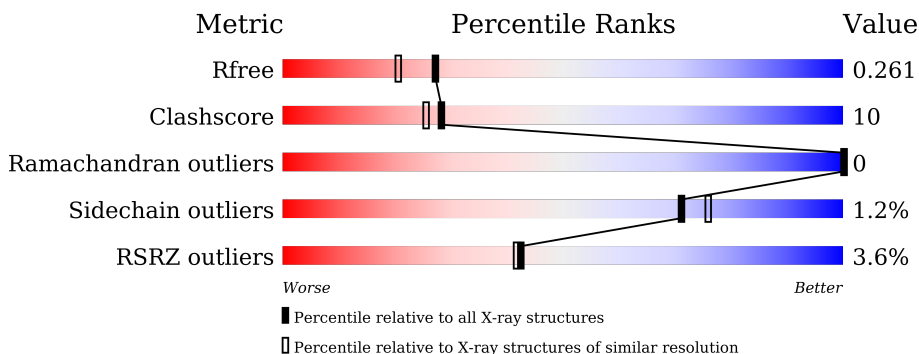
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	8085 (2.00-2.00)
Clashscore	141614	9178 (2.00-2.00)
Ramachandran outliers	138981	9054 (2.00-2.00)
Sidechain outliers	138945	9053 (2.00-2.00)
RSRZ outliers	127900	7900 (2.00-2.00)

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

Mol	Chain	Length	Quality of chain
1	A	398	2% / 84% / 14% / ·
1	B	398	6% / 73% / 17% / · / 8%
1	C	398	3% / 79% / 19% / ··
1	D	398	3% / 76% / 17% / 6%

2 Entry composition ⓘ

There are 4 unique types of molecules in this entry. The entry contains 12486 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.
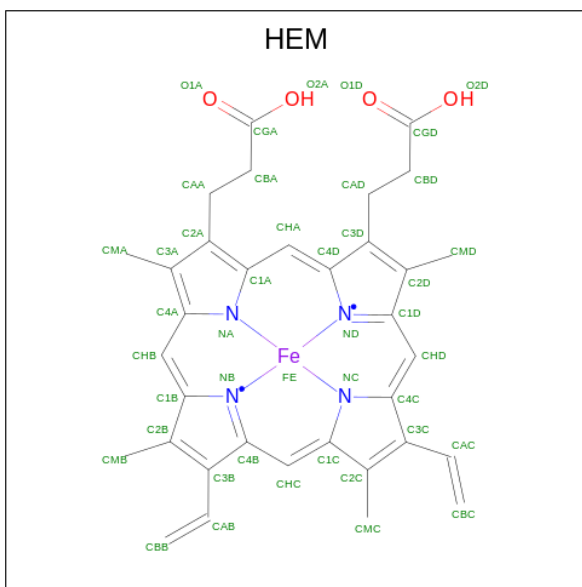
- Molecule 1 is a protein called Putative P450-like enzyme.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	391	Total	C	N	O	S	0	0	0
			3046	1920	541	570	15			
1	B	367	Total	C	N	O	S	0	0	0
			2803	1769	494	526	14			
1	C	392	Total	C	N	O	S	0	0	0
			3005	1896	523	571	15			
1	D	373	Total	C	N	O	S	0	0	0
			2873	1814	509	536	14			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	GLY	-	expression tag	UNP G0LWB2
A	2	SER	-	expression tag	UNP G0LWB2
B	1	GLY	-	expression tag	UNP G0LWB2
B	2	SER	-	expression tag	UNP G0LWB2
C	1	GLY	-	expression tag	UNP G0LWB2
C	2	SER	-	expression tag	UNP G0LWB2
D	1	GLY	-	expression tag	UNP G0LWB2
D	2	SER	-	expression tag	UNP G0LWB2

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

HEM

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
2	B	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
2	C	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
2	D	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		

- Molecule 3 is TRIS(HYDROXYETHYL)AMINOMETHANE (three-letter code: TAM) (formula: $C_7H_{17}NO_3$).

TAM
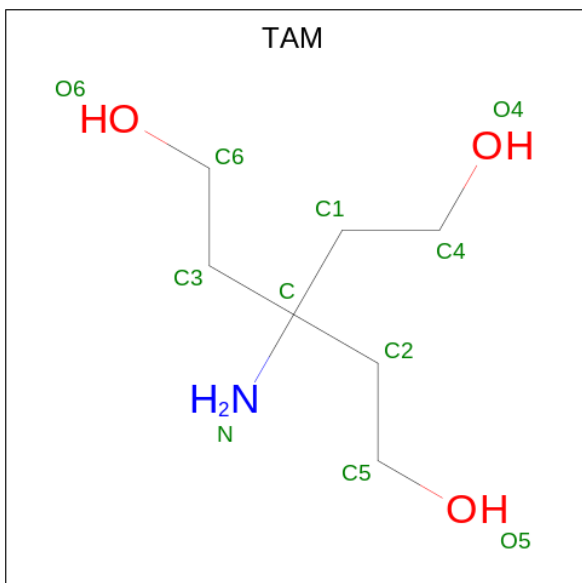
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total 11	C 7	N 1	O 3	0	0
3	C	1	Total 11	C 7	N 1	O 3	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	165	Total 165	O 165	0	0
4	B	116	Total 116	O 116	0	0
4	C	123	Total 123	O 123	0	0
4	D	161	Total 161	O 161	0	0

3 Residue-property plots ⓘ

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 se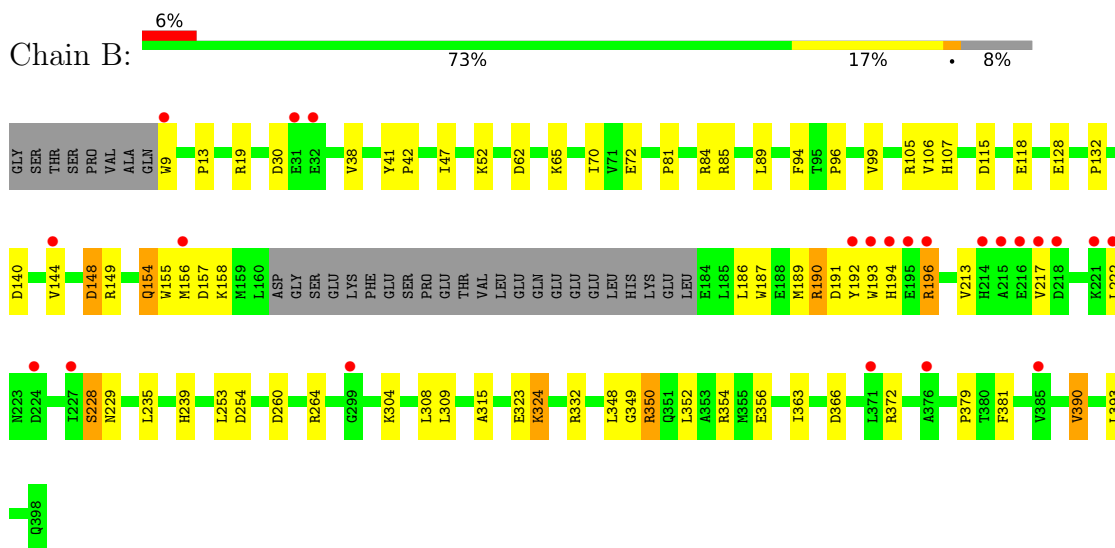cond graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above 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.
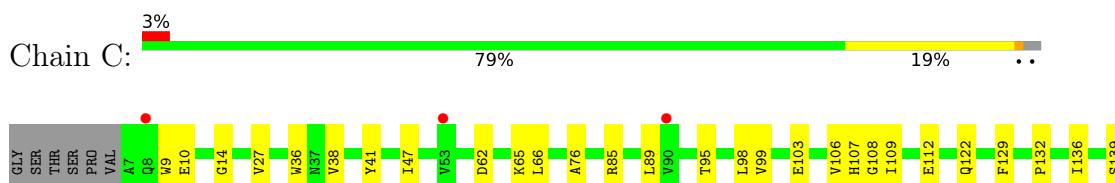
- Molecule 1: Putative P450-like enzyme

Chain A:

- Molecule 1: Putative P450-like enzyme

Chain B:

- Molecule 1: Putative P450-like enzyme

Chain C:

D140 L141 L142 R149 A150 L151 Q154 K158 M159 L160 D161 S168 E177 E178 L179 H180 K181 L185 L186 W187 E188 M189 W193 H194 E195 R201 K202 I209 S210 Q211 L212 V213 H214 A215 D218 K221 D224 S228 N232 D260 R264 R267

M278 M281 S282 P283 V297 I302 L308 A315 L340 G341 R342 C347 L348 G349 R350 Q351 L352 E356 S357 K358 E362 R367 T370 Q383 P394 V395 V396 T397 Q398

• Molecule 1: Putative P450-like enzyme

Chain D:

3%

76% 17% 6%

GLY SER THR SER PRO VAL ALA GLN W9 W17 M18 R19 I26 Q34 V38 I47 K52 D57 L66 D67 E68 A69 I70 G88 D91 H92 L98 K101 H107 G108 H111 E112 D115 K120 S121 Q122 E128 P134 S139 V144

S147 Q154 W155 M156 G162 SER GLU LYS PHE GLU SER PRO GLU THR VAL LEU GLU GLN GLU GLU LEU H180 K181 E182 L185 L186 W187 E188 M189 E199 R203 L208 L212 V213 H214 V217 K221 N232 R233 L234 L253 F256 D260 R264

E275 E276 M281 L308 W311 T312 G313 A314 A315 N316 E323 K324 V327 F346 G349 R350 R354 M355 E356 I363 A373 A376 T380 F381 V385 S388 G389 V390 V396 T397 Q398

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	56.96Å 78.47Å 97.68Å 78.27° 72.63° 69.46°	Depositor
Resolution (Å)	46.33 – 2.00 46.33 – 1.98	Depositor EDS
% Data completeness (in resolution range)	83.8 (46.33-2.00) 83.9 (46.33-1.98)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	0.78 (at 1.98Å)	Xtriage
Refinement program	PHENIX 1.8.4_1496	Depositor
R, R_{free}	0.222 , 0.262 0.223 , 0.261	Depositor DCC
R_{free} test set	1875 reflections (2.15%)	wwPDB-VP
Wilson B-factor (Å²)	31.5	Xtriage
Anisotropy	0.182	Xtriage
Bulk solvent k_{sol}(e/Å³), B_{sol}(Å²)	0.36 , 56.2	EDS
L-test for twinning[2]	$< |L| > = 0.48, < L^2 > = 0.31$	Xtriage
Estimated twinning fraction	0.005 for h,h-k,h-l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	12486	wwPDB-VP
Average B, all atoms (Å²)	43.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 37.99 % 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 3.9473e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: TAM, 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	0.62	0/3113	0.72	2/4230 (0.0%)
1	B	0.61	0/2864	0.75	4/3899 (0.1%)
1	C	0.52	0/3072	0.65	0/4186
1	D	0.67	1/2935 (0.0%)	0.73	0/3990
All	All	0.61	1/11984 (0.0%)	0.71	6/16305 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	276	GLU	CD-OE2	6.07	1.32	1.25

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	148	ASP	CB-CG-OD2	-8.13	110.98	118.30
1	A	89	LEU	CA-CB-CG	6.58	130.42	115.30
1	B	196	ARG	NE-CZ-NH1	-5.49	117.56	120.30
1	B	190	ARG	CA-CB-CG	5.24	124.92	113.40
1	B	196	ARG	NE-CZ-NH2	-5.13	117.74	120.30
1	A	274	LEU	CB-CG-CD2	-5.08	102.37	111.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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

the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3046	0	2978	43	1
1	B	2803	0	2700	70	1
1	C	3005	0	2881	64	0
1	D	2873	0	2796	50	0
2	A	43	0	30	4	0
2	B	43	0	30	2	0
2	C	43	0	30	5	0
2	D	43	0	30	4	0
3	A	11	0	17	3	0
3	C	11	0	17	2	0
4	A	165	0	0	13	0
4	B	116	0	0	8	0
4	C	123	0	0	17	0
4	D	161	0	0	14	0
All	All	12486	0	11509	229	1

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 10.

All (229) 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:A:124:ASP:HB3	4:A:626:HOH:O	1.50	1.09
1:C:350:ARG:NH1	4:C:501:HOH:O	1.90	1.02
1:C:149:ARG:NH1	4:C:502:HOH:O	1.93	1.01
1:D:88:GLY:O	4:D:501:HOH:O	1.84	0.95
1:D:52:LYS:NZ	4:D:503:HOH:O	2.07	0.86
1:B:105:ARG:NH2	1:B:140:ASP:OD2	2.09	0.85
1:B:81:PRO:O	4:B:501:HOH:O	1.95	0.85
1:B:156:MET:HB2	1:B:239:HIS:HE1	1.42	0.83
1:B:140:ASP:OD1	1:B:149:ARG:NH2	2.12	0.83
1:C:103:GLU:O	4:C:503:HOH:O	1.98	0.81
1:C:213:VAL:O	4:C:504:HOH:O	1.99	0.81
1:D:101:LYS:NZ	4:D:505:HOH:O	2.15	0.80
1:B:192:TYR:OH	1:B:196:ARG:NH2	2.15	0.80
1:B:72:GLU:OE1	4:B:502:HOH:O	1.99	0.80
1:C:106:VAL:HG12	4:C:503:HOH:O	1.82	0.79
1:D:115:ASP:OD2	4:D:502:HOH:O	1.99	0.79
1:C:264:ARG:NH1	4:C:505:HOH:O	2.01	0.79
1:A:81:PRO:O	4:A:501:HOH:O	2.01	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:38:VAL:HG23	1:D:308:LEU:HD11	1.65	0.77
1:A:157:ASP:OD2	1:B:84:ARG:NH1	2.17	0.74
1:B:191:ASP:HA	1:B:194:HIS:CE1	2.22	0.74
1:B:350:ARG:HH11	1:B:354:ARG:HH11	1.35	0.74
1:B:193:TRP:HZ2	1:B:235:LEU:HD11	1.52	0.74
1:A:22:ARG:NH1	1:A:319:GLU:OE2	2.20	0.73
1:D:260:ASP:OD1	1:D:264:ARG:NH1	2.22	0.73
1:B:154:GLN:OE1	1:B:155:TRP:N	2.21	0.73
2:D:401:HEM:HBB2	2:D:401:HEM:HHC	1.71	0.73
1:B:47:ILE:HD13	1:B:308:LEU:HD21	1.68	0.73
1:D:47:ILE:HD13	1:D:308:LEU:HD21	1.70	0.73
3:A:402:TAM:N	3:A:402:TAM:O5	2.16	0.72
1:C:260:ASP:OD2	1:C:264:ARG:NH2	2.23	0.72
1:D:19:ARG:NH1	4:D:508:HOH:O	2.23	0.71
1:A:38:VAL:HG23	1:A:308:LEU:HD11	1.69	0.71
1:C:10:GLU:OE1	4:C:506:HOH:O	2.07	0.71
1:C:210:SER:O	1:C:214:HIS:ND1	2.22	0.71
1:C:189:MET:SD	1:C:232:ASN:ND2	2.64	0.71
1:A:204:PRO:O	1:A:205:ARG:NH1	2.24	0.71
1:C:383:GLN:NE2	4:C:509:HOH:O	2.23	0.70
1:B:187:TRP:O	1:B:190:ARG:HB3	1.92	0.69
1:B:379:PRO:O	4:B:503:HOH:O	2.11	0.68
1:C:267:ARG:O	4:C:507:HOH:O	2.10	0.68
1:D:122:GLN:HG2	1:D:396:VAL:HG12	1.75	0.68
1:B:148:ASP:OD2	1:B:192:TYR:OH	2.08	0.67
1:D:324:LYS:HD2	1:D:327:VAL:HB	1.75	0.67
1:B:30:ASP:OD2	4:B:504:HOH:O	2.12	0.67
1:D:128:GLU:OE1	4:D:504:HOH:O	2.13	0.66
1:C:342:ARG:HD2	1:D:376:ALA:O	1.94	0.66
1:C:158:LYS:O	1:C:161:ASP:HB3	1.97	0.65
1:B:156:MET:HB2	1:B:239:HIS:CE1	2.28	0.65
1:C:62:ASP:O	1:C:65:LYS:NZ	2.29	0.65
1:A:30:ASP:OD2	4:A:502:HOH:O	2.15	0.64
1:C:267:ARG:HH21	1:C:362:GLU:HG2	1.63	0.64
1:C:122:GLN:HG2	1:C:396:VAL:HG12	1.80	0.64
1:C:341:GLY:O	1:C:342:ARG:HD3	1.98	0.63
1:B:264:ARG:NH2	4:B:510:HOH:O	2.31	0.63
1:A:306:GLN:OE1	4:A:503:HOH:O	2.16	0.62
1:B:189:MET:O	1:B:192:TYR:HB3	1.98	0.62
1:D:185:LEU:O	1:D:189:MET:HG3	1.99	0.62
1:B:193:TRP:CZ2	1:B:235:LEU:HD11	2.35	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:62:ASP:O	1:B:65:LYS:NZ	2.30	0.60
1:B:38:VAL:HG23	1:B:308:LEU:HD11	1.83	0.60
1:C:194:HIS:ND1	1:C:224:ASP:OD2	2.33	0.60
1:C:150:ALA:O	1:C:154:GLN:HG3	2.01	0.60
1:C:185:LEU:O	1:C:189:MET:HG3	2.02	0.60
1:B:323:GLU:O	1:B:324:LYS:HG2	2.02	0.59
1:C:342:ARG:NH1	1:D:376:ALA:HB1	2.17	0.59
1:C:38:VAL:HG23	1:C:308:LEU:HD11	1.83	0.59
1:D:373:ALA:O	4:D:506:HOH:O	2.17	0.58
1:B:196:ARG:NH1	4:B:513:HOH:O	2.33	0.58
1:B:13:PRO:O	1:B:19:ARG:NH2	2.37	0.58
1:C:14:GLY:HA3	3:C:402:TAM:H42	1.87	0.57
1:A:85:ARG:HG2	1:A:85:ARG:HH11	1.70	0.57
1:D:57:ASP:OD2	4:D:507:HOH:O	2.18	0.57
1:C:358:LYS:NZ	4:C:520:HOH:O	2.38	0.56
1:D:67:ASP:HB3	1:D:70:ILE:HG12	1.87	0.56
2:A:401:HEM:HBB2	2:A:401:HEM:HMB2	1.87	0.56
1:A:292:ASN:O	4:A:504:HOH:O	2.18	0.56
1:D:91:ASP:N	4:D:501:HOH:O	2.39	0.55
1:A:164:GLU:HG2	1:A:383:GLN:O	2.06	0.55
1:C:47:ILE:HD13	1:C:308:LEU:HD21	1.88	0.55
1:B:148:ASP:OD2	1:B:192:TYR:CZ	2.60	0.55
1:D:182:GLU:O	1:D:186:LEU:HB2	2.07	0.55
1:A:383:GLN:HB3	1:B:52:LYS:HE2	1.89	0.55
1:B:148:ASP:OD2	1:B:192:TYR:CE1	2.61	0.54
1:A:85:ARG:HG3	4:A:501:HOH:O	2.06	0.54
1:B:390:VAL:HG11	1:B:393:LEU:HB2	1.89	0.54
1:C:193:TRP:HD1	1:C:228:SER:HG	1.55	0.54
1:A:24:ASP:C	1:A:25:LYS:HD3	2.29	0.54
1:B:41:TYR:HA	1:B:315:ALA:HB1	1.89	0.53
1:A:264:ARG:HG2	1:A:264:ARG:HH11	1.73	0.53
1:A:185:LEU:O	1:A:189:MET:HG3	2.09	0.53
1:A:66:LEU:HG	1:A:179:LEU:HD11	1.90	0.53
1:A:72:GLU:OE2	4:A:505:HOH:O	2.19	0.53
1:D:264:ARG:NH2	4:D:516:HOH:O	2.42	0.53
1:B:186:LEU:O	1:B:190:ARG:HB2	2.09	0.53
1:C:95:THR:O	1:C:99:VAL:HG23	2.09	0.53
1:C:218:ASP:HA	1:D:154:GLN:HE21	1.74	0.52
1:C:66:LEU:HG	1:C:179:LEU:HD11	1.92	0.52
1:D:234:LEU:HD23	2:D:401:HEM:HMD1	1.92	0.52
1:B:352:LEU:O	1:B:356:GLU:HG2	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:27:VAL:HG21	1:C:297:VAL:HG23	1.92	0.52
1:D:311:TRP:HH2	1:D:385:VAL:HG22	1.75	0.52
1:A:68:GLU:H	1:A:68:GLU:CD	2.14	0.51
1:C:394:PRO:HD2	4:C:572:HOH:O	2.10	0.51
1:B:107:HIS:ND1	1:B:363:ILE:HD11	2.26	0.51
1:B:260:ASP:OD2	1:B:372:ARG:NH2	2.43	0.51
1:A:14:GLY:O	3:A:402:TAM:O6	2.29	0.51
1:A:264:ARG:NH1	1:A:365:LEU:HD22	2.25	0.50
1:D:199:GLU:OE2	1:D:203:ARG:NE	2.36	0.50
1:D:253:LEU:O	1:D:260:ASP:HB2	2.12	0.50
1:C:349:GLY:HA3	2:C:401:HEM:C3C	2.46	0.50
3:C:402:TAM:H11	3:C:402:TAM:O5	2.11	0.50
1:B:144:VAL:HG22	1:B:196:ARG:HH22	1.76	0.50
1:C:109:ILE:HD13	1:C:136:ILE:HG22	1.93	0.50
1:B:222:LEU:HD12	1:B:222:LEU:N	2.27	0.49
1:D:380:THR:HG23	4:D:555:HOH:O	2.10	0.49
1:C:370:THR:OG1	4:C:508:HOH:O	2.19	0.49
1:B:19:ARG:O	4:B:505:HOH:O	2.20	0.49
1:D:139:SER:HB3	1:D:144:VAL:CG2	2.43	0.49
1:D:38:VAL:CG2	1:D:308:LEU:HD11	2.39	0.49
1:B:191:ASP:HA	1:B:194:HIS:NE2	2.28	0.48
1:D:186:LEU:HD13	1:D:232:ASN:OD1	2.14	0.48
1:C:9:TRP:HA	4:C:539:HOH:O	2.13	0.48
1:A:258:ASP:OD1	4:A:506:HOH:O	2.20	0.48
1:A:347:CYS:HA	2:A:401:HEM:CHA	2.44	0.48
2:C:401:HEM:HMC2	2:C:401:HEM:HBC2	1.96	0.47
1:C:201:ARG:CG	1:C:213:VAL:HG21	2.44	0.47
1:C:221:LYS:HD2	4:C:504:HOH:O	2.14	0.47
1:B:253:LEU:O	1:B:260:ASP:HB2	2.15	0.47
1:A:101:LYS:NZ	1:A:206:GLU:O	2.41	0.47
1:C:38:VAL:CG2	1:C:308:LEU:HD11	2.44	0.47
1:C:95:THR:CG2	1:C:211:GLN:HE22	2.28	0.47
1:B:254:ASP:OD1	1:B:372:ARG:HD2	2.15	0.47
1:D:17:TRP:CE3	1:D:314:ALA:HB2	2.49	0.47
1:A:349:GLY:HA3	2:A:401:HEM:C3C	2.51	0.46
1:B:144:VAL:HA	1:B:196:ARG:NH2	2.31	0.46
1:C:177:GLU:O	1:C:181:LYS:HG2	2.16	0.46
2:A:401:HEM:HMC2	2:A:401:HEM:HBC2	1.96	0.46
1:C:76:ALA:HA	2:C:401:HEM:O1D	2.16	0.46
1:D:108:GLY:O	1:D:112:GLU:HG3	2.15	0.46
1:D:121:SER:HA	1:D:397:THR:OG1	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:38:VAL:CG2	1:A:308:LEU:HD11	2.43	0.46
1:B:132:PRO:HA	1:B:156:MET:HE1	1.98	0.45
1:D:68:GLU:HG3	1:D:69:ALA:N	2.31	0.45
1:C:281:MET:O	1:C:283:PRO:HD3	2.16	0.45
1:B:89:LEU:HD23	1:B:222:LEU:HD11	1.98	0.45
1:B:323:GLU:HG2	1:B:324:LYS:HD3	1.98	0.45
1:C:107:HIS:CD2	4:C:529:HOH:O	2.69	0.45
1:D:134:PRO:HA	1:D:356:GLU:OE1	2.17	0.45
1:D:70:ILE:HG21	1:D:187:TRP:CH2	2.52	0.45
1:B:260:ASP:OD1	1:B:264:ARG:NH1	2.49	0.45
1:B:309:LEU:HA	1:B:309:LEU:HD23	1.73	0.44
1:B:349:GLY:HA3	2:B:401:HEM:C3C	2.52	0.44
1:C:41:TYR:HA	1:C:315:ALA:HB1	1.99	0.44
1:C:194:HIS:HD1	1:C:224:ASP:CG	2.20	0.44
1:C:195:GLU:HA	1:C:195:GLU:OE1	2.16	0.44
1:C:107:HIS:HD2	4:C:529:HOH:O	2.00	0.44
1:D:346:PHE:HE2	1:D:350:ARG:CD	2.31	0.44
1:B:85:ARG:O	1:B:89:LEU:HD13	2.17	0.44
1:B:38:VAL:CG2	1:B:308:LEU:HD11	2.47	0.44
1:C:98:LEU:HD23	1:C:98:LEU:HA	1.87	0.44
1:A:324:LYS:CE	1:A:327:VAL:HG21	2.48	0.44
1:A:397:THR:O	4:A:507:HOH:O	2.21	0.43
1:A:131:ALA:HA	1:A:243:ALA:HB2	2.01	0.43
1:B:372:ARG:HD3	1:B:372:ARG:HA	1.75	0.43
1:C:85:ARG:O	1:C:89:LEU:HG	2.17	0.43
1:C:178:GLU:HA	1:C:181:LYS:NZ	2.33	0.43
1:D:323:GLU:O	1:D:324:LYS:HG3	2.18	0.43
1:D:381:PHE:HA	1:D:390:VAL:HA	1.99	0.43
1:C:278:MET:SD	1:C:340:LEU:HD13	2.57	0.43
1:D:208:LEU:HD23	1:D:212:LEU:HG	1.99	0.43
1:D:349:GLY:HA3	2:D:401:HEM:C3C	2.53	0.43
1:A:234:LEU:HD23	1:A:234:LEU:HA	1.88	0.43
1:B:9:TRP:HB3	1:B:381:PHE:CE1	2.54	0.43
1:B:128:GLU:O	4:B:506:HOH:O	2.21	0.43
1:D:275:GLU:OE2	1:D:354:ARG:NE	2.51	0.43
1:A:43:GLU:HG2	1:A:298:ALA:HB2	2.01	0.43
1:C:347:CYS:HA	2:C:401:HEM:CHA	2.49	0.43
2:C:401:HEM:HMB2	2:C:401:HEM:HBB2	2.00	0.43
1:C:129:PHE:C	1:C:132:PRO:HD2	2.39	0.43
1:C:352:LEU:O	1:C:356:GLU:HG3	2.19	0.43
1:A:167:GLU:HA	4:A:657:HOH:O	2.18	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:245:LEU:HD13	1:A:278:MET:HG3	2.01	0.42
1:C:151:LEU:HA	1:C:154:GLN:NE2	2.35	0.42
1:C:109:ILE:HD13	1:C:136:ILE:CG2	2.48	0.42
1:B:324:LYS:HG2	1:B:332:ARG:HH22	1.83	0.42
1:B:366:ASP:HB3	1:C:367:ARG:HG2	2.02	0.42
1:B:94:PHE:CE1	1:B:348:LEU:HD21	2.55	0.42
1:B:144:VAL:HG13	1:B:196:ARG:HH22	1.84	0.42
1:B:115:ASP:O	1:B:118:GLU:HG2	2.20	0.42
1:A:148:ASP:OD2	1:A:192:TYR:OH	2.26	0.42
1:D:120:LYS:NZ	4:D:504:HOH:O	2.22	0.42
1:A:137:MET:HG3	1:A:356:GLU:OE1	2.20	0.42
1:B:96:PRO:O	1:B:99:VAL:HG22	2.20	0.42
1:A:342:ARG:NH1	4:A:517:HOH:O	2.37	0.42
3:A:402:TAM:N	4:A:516:HOH:O	2.36	0.42
1:B:228:SER:OG	1:B:229:ASN:N	2.52	0.42
1:B:264:ARG:NH2	1:B:372:ARG:HH12	2.18	0.41
1:A:126:VAL:HA	1:A:130:ALA:HB3	2.01	0.41
1:C:139:SER:OG	1:C:149:ARG:HG2	2.20	0.41
1:B:350:ARG:NH1	1:B:354:ARG:HH11	2.09	0.41
1:D:281:MET:HG2	1:D:388:SER:O	2.20	0.41
1:C:158:LYS:HE3	4:C:579:HOH:O	2.20	0.41
1:D:92:HIS:N	4:D:501:HOH:O	1.94	0.41
1:A:89:LEU:HD21	1:A:217:VAL:HG13	2.02	0.41
1:B:41:TYR:HB3	1:B:42:PRO:HD3	2.03	0.41
1:B:89:LEU:HD23	1:B:222:LEU:CD1	2.51	0.41
1:C:36:TRP:CE3	1:C:302:ILE:HG12	2.56	0.41
1:D:19:ARG:NE	4:D:515:HOH:O	2.40	0.41
1:B:89:LEU:HD12	1:B:217:VAL:HB	2.03	0.41
2:B:401:HEM:HMB2	2:B:401:HEM:HBB2	2.02	0.41
2:D:401:HEM:HMC2	2:D:401:HEM:HBC2	2.02	0.41
1:B:154:GLN:O	1:B:158:LYS:N	2.32	0.41
1:A:64:ILE:HG22	1:A:179:LEU:HD23	2.02	0.41
1:A:366:ASP:HA	1:D:111:HIS:CE1	2.56	0.41
1:B:107:HIS:HB2	1:C:267:ARG:HG3	2.03	0.41
1:C:108:GLY:O	1:C:112:GLU:HG3	2.21	0.41
1:D:346:PHE:CE2	1:D:350:ARG:HD3	2.55	0.41
1:A:47:ILE:HD13	1:A:308:LEU:HD21	2.03	0.40
1:D:312:THR:O	1:D:316:ASN:N	2.52	0.40
1:B:70:ILE:HD13	1:B:187:TRP:CZ3	2.56	0.40
1:B:106:VAL:HG21	1:B:356:GLU:HA	2.02	0.40
1:B:350:ARG:HD2	1:B:354:ARG:NH1	2.37	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:107:HIS:ND1	1:D:363:ILE:HD11	2.36	0.40
1:C:193:TRP:HD1	1:C:228:SER:OG	2.04	0.40
1:D:98:LEU:HA	1:D:98:LEU:HD23	1.67	0.40
1:A:104:SER:O	4:A:508:HOH:O	2.22	0.40
1:A:342:ARG:HH11	1:A:342:ARG:HD2	1.72	0.40
1:B:52:LYS:HE3	1:B:52:LYS:HB3	1.87	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:84:ARG:NH2	1:B:157:ASP:O[1_565]	2.13	0.07

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	389/398 (98%)	378 (97%)	11 (3%)	0	100	100
1	B	363/398 (91%)	352 (97%)	11 (3%)	0	100	100
1	C	390/398 (98%)	380 (97%)	10 (3%)	0	100	100
1	D	369/398 (93%)	360 (98%)	9 (2%)	0	100	100
All	All	1511/1592 (95%)	1470 (97%)	41 (3%)	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	323/341 (95%)	322 (100%)	1 (0%)	92	95
1	B	291/341 (85%)	284 (98%)	7 (2%)	49	51
1	C	314/341 (92%)	310 (99%)	4 (1%)	69	74
1	D	301/341 (88%)	298 (99%)	3 (1%)	76	81
All	All	1229/1364 (90%)	1214 (99%)	15 (1%)	71	76

All (15) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	34	GLN
1	B	154	GLN
1	B	213	VAL
1	B	228	SER
1	B	304	LYS
1	B	324	LYS
1	B	350	ARG
1	B	390	VAL
1	C	141	LEU
1	C	149	ARG
1	C	264	ARG
1	C	340	LEU
1	D	34	GLN
1	D	147	SER
1	D	186	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	194	HIS
1	B	239	HIS
1	C	154	GLN
1	C	211	GLN
1	C	383	GLN
1	D	232	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

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	#$|Z| > 2$
3	TAM	A	402	-	7,10,10	0.77	0	9,12,12	0.76	0
2	HEM	B	401	4,1	41,50,50	1.86	7 (17%)	45,82,82	2.01	14 (31%)
2	HEM	C	401	1	41,50,50	1.87	8 (19%)	45,82,82	1.59	8 (17%)
2	HEM	A	401	1	41,50,50	1.93	6 (14%)	45,82,82	1.59	7 (15%)
2	HEM	D	401	1	41,50,50	1.95	14 (34%)	45,82,82	1.92	12 (26%)
3	TAM	C	402	-	7,10,10	1.00	1 (14%)	9,12,12	1.43	1 (11%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	TAM	A	402	-	-	5/12/12/12	-
2	HEM	B	401	4,1	-	2/12/54/54	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	HEM	C	401	1	-	2/12/54/54	-
2	HEM	A	401	1	-	0/12/54/54	-
2	HEM	D	401	1	-	1/12/54/54	-
3	TAM	C	402	-	-	1/12/12/12	-

All (36) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	401	HEM	C3D-C2D	7.32	1.52	1.36
2	C	401	HEM	C3D-C2D	6.76	1.51	1.36
2	B	401	HEM	C3D-C2D	6.64	1.50	1.36
2	D	401	HEM	C3D-C2D	6.27	1.50	1.36
2	A	401	HEM	C3C-C2C	-5.32	1.33	1.40
2	C	401	HEM	C3C-C2C	-4.34	1.34	1.40
2	B	401	HEM	C3C-C2C	-3.87	1.35	1.40
2	A	401	HEM	C3C-CAC	3.62	1.55	1.47
2	D	401	HEM	C3B-C2B	-3.58	1.30	1.37
2	B	401	HEM	C3C-CAC	3.57	1.55	1.47
2	C	401	HEM	C3C-CAC	3.33	1.54	1.47
2	D	401	HEM	C3C-C2C	-3.21	1.35	1.40
2	D	401	HEM	CMA-C3A	3.20	1.58	1.51
2	D	401	HEM	C3C-CAC	3.19	1.54	1.47
2	D	401	HEM	C4A-NA	3.01	1.42	1.36
2	B	401	HEM	CMD-C2D	3.00	1.57	1.50
2	C	401	HEM	CMA-C3A	2.92	1.57	1.51
2	D	401	HEM	FE-ND	2.80	2.10	1.96
2	A	401	HEM	C2C-C1C	2.79	1.48	1.42
2	B	401	HEM	CAB-C3B	2.72	1.54	1.47
2	C	401	HEM	CAB-C3B	2.64	1.54	1.47
3	C	402	TAM	C3-C6	2.48	1.56	1.52
2	D	401	HEM	CMB-C2B	2.45	1.56	1.50
2	C	401	HEM	CAA-C2A	2.37	1.55	1.52
2	A	401	HEM	CAB-C3B	2.31	1.53	1.47
2	D	401	HEM	C4A-CHB	-2.31	1.34	1.41
2	D	401	HEM	C4D-ND	-2.29	1.36	1.40
2	C	401	HEM	CMB-C2B	2.23	1.55	1.50
2	B	401	HEM	CMB-C2B	2.16	1.55	1.50
2	D	401	HEM	CAA-C2A	2.16	1.55	1.52
2	A	401	HEM	CMD-C2D	2.14	1.55	1.50
2	D	401	HEM	CAB-C3B	2.14	1.53	1.47
2	B	401	HEM	C2C-C1C	2.12	1.47	1.42
2	C	401	HEM	CMC-C2C	2.10	1.56	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	401	HEM	CHD-C1D	-2.07	1.35	1.41
2	D	401	HEM	CMC-C2C	2.02	1.56	1.51

All (42) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	401	HEM	C4C-CHD-C1D	6.03	130.52	122.56
2	A	401	HEM	C4D-ND-C1D	4.95	110.19	105.07
2	B	401	HEM	CAD-CBD-CGD	-4.32	104.30	113.60
2	B	401	HEM	C4D-ND-C1D	4.25	109.46	105.07
2	C	401	HEM	CHD-C1D-ND	4.10	128.88	124.43
2	D	401	HEM	CMB-C2B-C1B	4.02	131.16	125.04
2	D	401	HEM	C4B-C3B-C2B	3.86	110.18	107.11
2	A	401	HEM	C4B-CHC-C1C	3.61	127.33	122.56
2	C	401	HEM	C4D-ND-C1D	3.61	108.80	105.07
2	D	401	HEM	C4C-CHD-C1D	3.41	127.06	122.56
2	B	401	HEM	CMC-C2C-C3C	3.37	130.99	124.68
3	C	402	TAM	O4-C4-C1	-3.29	102.59	111.39
2	B	401	HEM	C1D-C2D-C3D	-3.29	103.50	106.96
2	D	401	HEM	O2A-CGA-CBA	3.28	124.57	114.03
2	D	401	HEM	C4D-ND-C1D	3.27	108.45	105.07
2	C	401	HEM	CAD-C3D-C4D	3.23	130.31	124.66
2	D	401	HEM	CAB-C3B-C2B	-3.20	118.08	128.60
2	C	401	HEM	CMC-C2C-C3C	3.05	130.38	124.68
2	B	401	HEM	CHC-C4B-NB	3.02	127.71	124.43
2	D	401	HEM	CBD-CAD-C3D	-2.97	104.39	112.63
2	B	401	HEM	CBD-CAD-C3D	-2.83	104.78	112.63
2	D	401	HEM	CMB-C2B-C3B	-2.78	121.49	128.30
2	A	401	HEM	CHA-C4D-ND	2.72	127.74	124.38
2	A	401	HEM	CMC-C2C-C3C	2.70	129.74	124.68
2	C	401	HEM	CHB-C1B-NB	2.63	127.63	124.38
2	B	401	HEM	C2C-C3C-C4C	2.61	108.72	106.90
2	A	401	HEM	CAD-CBD-CGD	-2.56	108.09	113.60
2	C	401	HEM	CHD-C1D-C2D	-2.47	121.12	124.98
2	B	401	HEM	CHA-C4D-ND	-2.36	121.47	124.38
2	B	401	HEM	CAD-C3D-C4D	2.34	128.75	124.66
2	C	401	HEM	CHC-C4B-NB	2.33	126.96	124.43
2	A	401	HEM	C4C-CHD-C1D	2.30	125.59	122.56
2	B	401	HEM	CHA-C4D-C3D	2.27	129.58	125.33
2	D	401	HEM	O1A-CGA-CBA	-2.24	115.88	123.08
2	D	401	HEM	O1D-CGD-CBD	-2.20	116.01	123.08
2	A	401	HEM	O2A-CGA-CBA	2.14	120.92	114.03

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	401	HEM	CMD-C2D-C1D	2.13	128.29	125.04
2	C	401	HEM	CHA-C4D-ND	2.12	127.00	124.38
2	D	401	HEM	O2D-CGD-CBD	2.12	120.83	114.03
2	B	401	HEM	CHC-C4B-C3B	-2.10	121.35	124.57
2	B	401	HEM	O2A-CGA-CBA	2.07	120.68	114.03
2	D	401	HEM	C1D-C2D-C3D	-2.01	104.85	106.96

There are no chirality outliers.

All (11) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	402	TAM	C2-C-C1-C4
3	A	402	TAM	C3-C-C1-C4
3	A	402	TAM	N-C-C1-C4
3	C	402	TAM	C-C1-C4-O4
3	A	402	TAM	C-C2-C5-O5
2	D	401	HEM	C4B-C3B-CAB-CBB
3	A	402	TAM	C-C1-C4-O4
2	B	401	HEM	CAA-CBA-CGA-O2A
2	B	401	HEM	CAA-CBA-CGA-O1A
2	C	401	HEM	CAD-CBD-CGD-O2D
2	C	401	HEM	CAD-CBD-CGD-O1D

There are no ring outliers.

6 monomers are involved in 20 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	402	TAM	3	0
2	B	401	HEM	2	0
2	C	401	HEM	5	0
2	A	401	HEM	4	0
2	D	401	HEM	4	0
3	C	402	TAM	2	0

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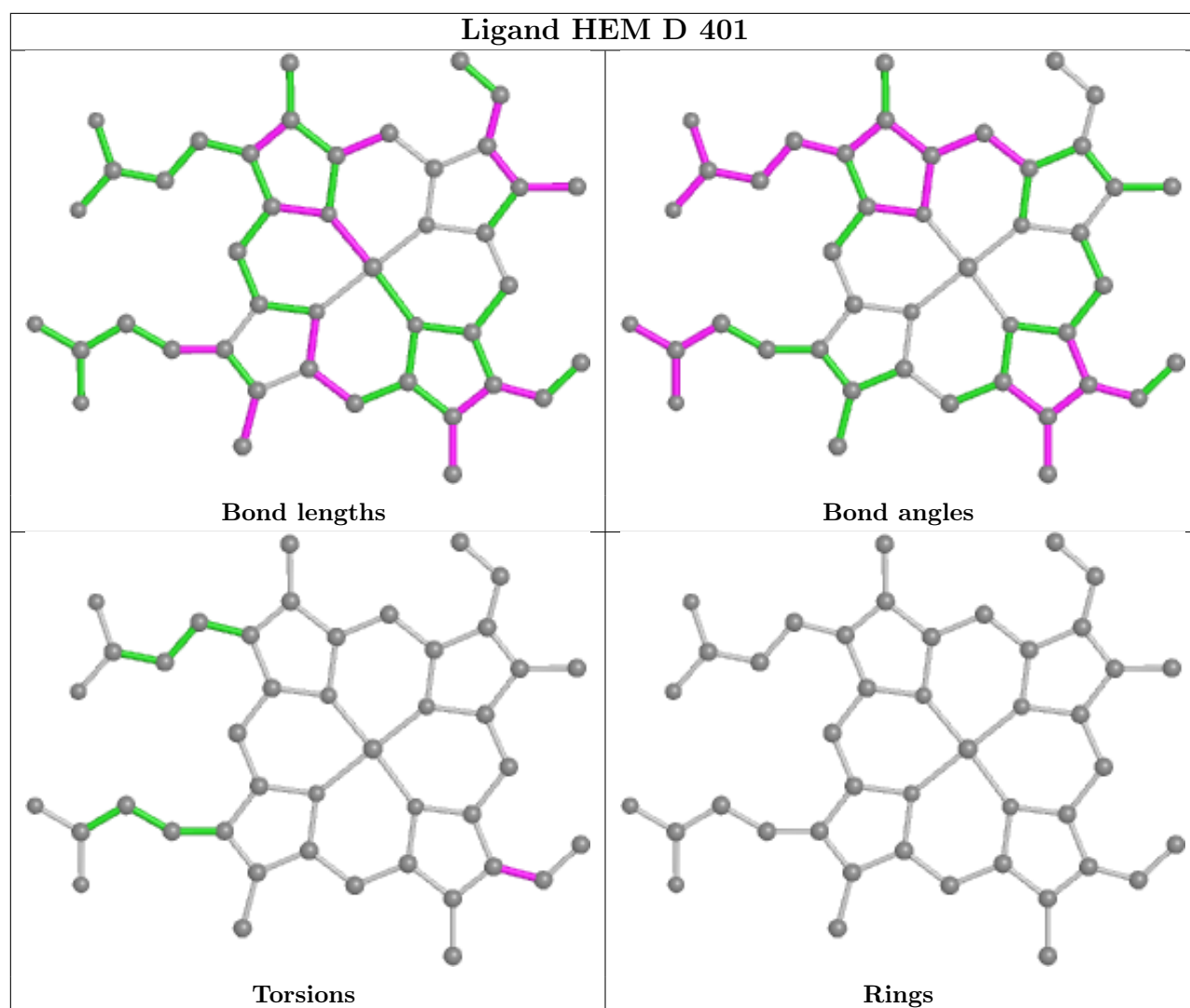
average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents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

Ligand HEM B 401

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM C 401

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM A 401

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM D 401
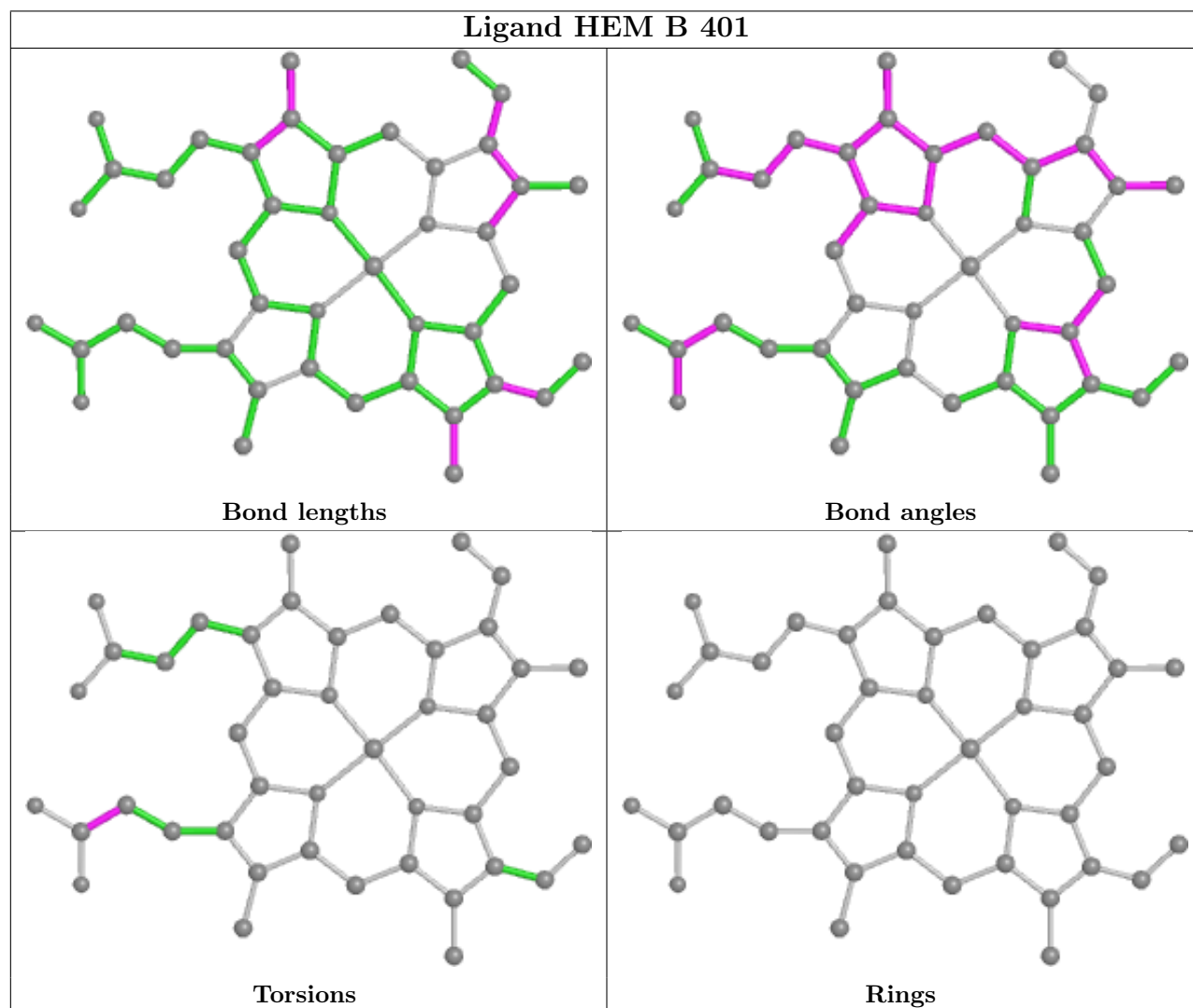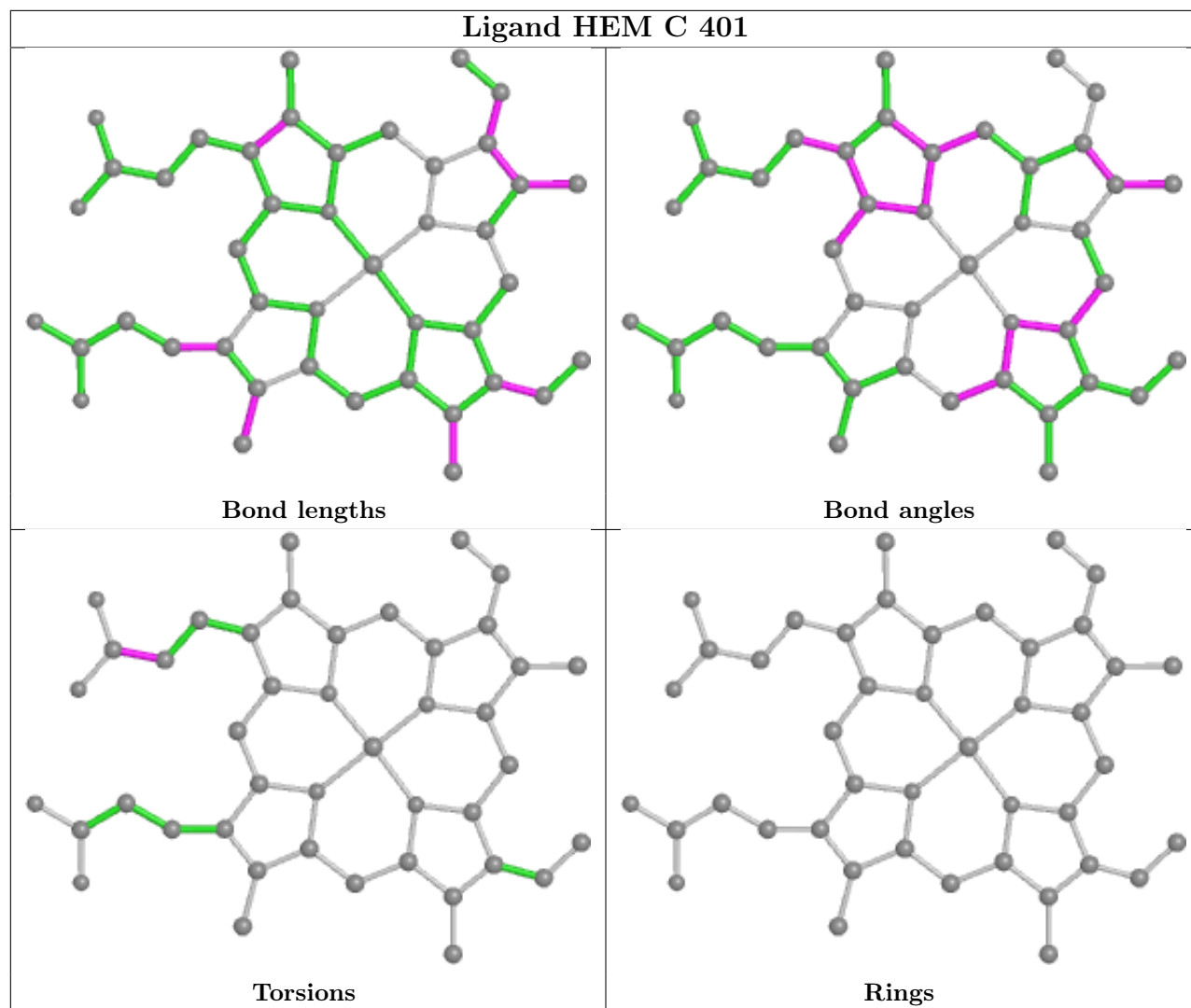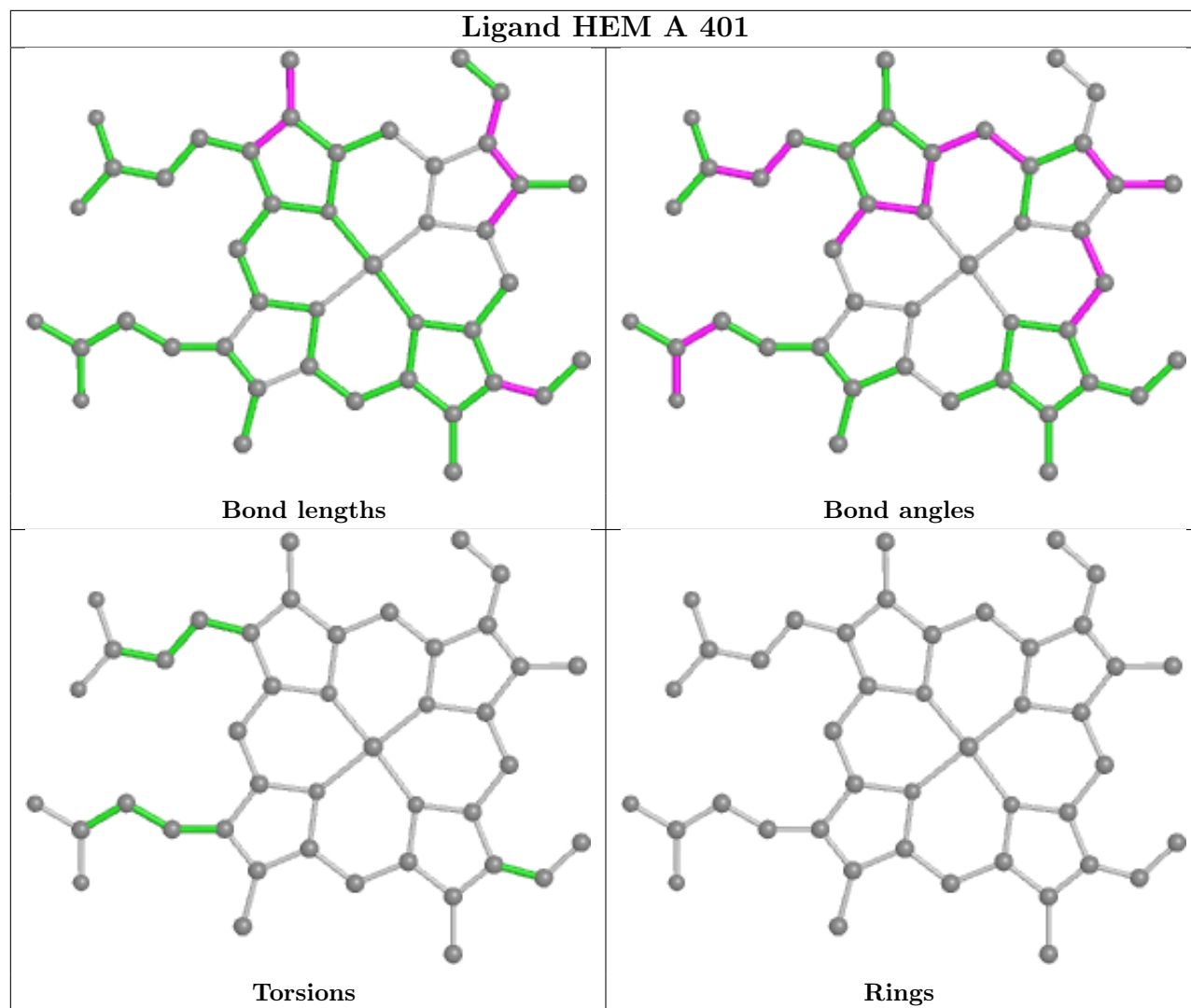
5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

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(Å²)	Q<0.9
1	A	391/398 (98%)	0.05	8 (2%)	65	63	19, 37, 64, 89	0
1	B	367/398 (92%)	0.34	23 (6%)	20	19	25, 45, 85, 98	0
1	C	392/398 (98%)	0.23	11 (2%)	53	51	27, 44, 74, 82	0
1	D	373/398 (93%)	0.12	13 (3%)	44	43	19, 37, 77, 97	0
All	All	1523/1592 (95%)	0.18	55 (3%)	42	42	19, 41, 77, 98	0

All (55) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	192	TYR	8.3
1	B	217	VAL	5.4
1	C	187	TRP	4.4
1	B	227	ILE	4.3
1	B	156	MET	4.3
1	B	218	ASP	4.3
1	B	193	TRP	4.0
1	B	385	VAL	3.8
1	D	156	MET	3.7
1	D	385	VAL	3.6
1	B	222	LEU	3.4
1	A	217	VAL	3.3
1	C	159	MET	3.3
1	C	215	ALA	3.3
1	B	221	LYS	3.2
1	C	214	HIS	3.2
1	C	53	VAL	3.1
1	A	219	GLY	3.1
1	B	9	TRP	3.1
1	B	216	GLU	2.9
1	C	168	SER	2.8

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Mol	Chain	Res	Type	RSRZ
1	C	90	VAL	2.8
1	D	38	VAL	2.8
1	A	160	LEU	2.7
1	B	215	ALA	2.6
1	D	154	GLN	2.6
1	D	180	HIS	2.5
1	B	32	GLU	2.5
1	B	194	HIS	2.5
1	B	214	HIS	2.3
1	A	166	PHE	2.3
1	C	142	LEU	2.3
1	D	256	PHE	2.3
1	B	299	GLY	2.3
1	D	185	LEU	2.3
1	D	34	GLN	2.3
1	A	187	TRP	2.2
1	C	209	ILE	2.2
1	B	196	ARG	2.2
1	C	202	LYS	2.2
1	B	371	LEU	2.2
1	D	214	HIS	2.2
1	D	221	LYS	2.2
1	D	26	ILE	2.2
1	B	224	ASP	2.2
1	C	8	GLN	2.2
1	A	54	PHE	2.2
1	A	163	SER	2.2
1	D	66	LEU	2.1
1	B	195	GLU	2.1
1	A	209	ILE	2.0
1	B	31	GLU	2.0
1	D	217	VAL	2.0
1	B	376	ALA	2.0
1	B	144	VAL	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 ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 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	TAM	C	402	11/11	0.82	0.15	32,37,59,59	0
3	TAM	A	402	11/11	0.88	0.14	34,38,51,56	0
2	HEM	A	401	43/43	0.90	0.17	17,22,27,58	0
2	HEM	C	401	43/43	0.95	0.19	18,27,37,38	0
2	HEM	B	401	43/43	0.96	0.15	16,25,28,35	0
2	HEM	D	401	43/43	0.97	0.14	9,19,26,34	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.
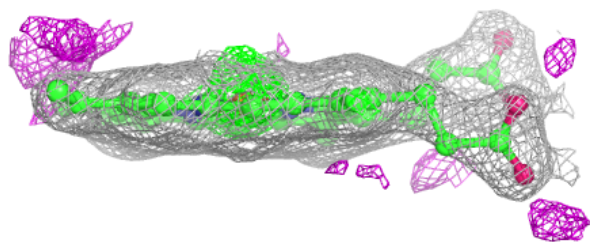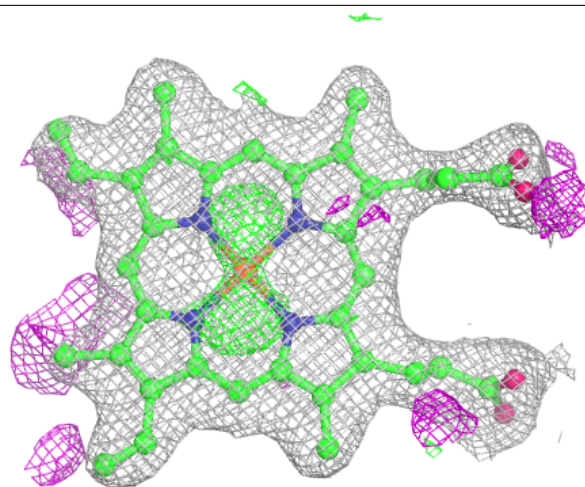
Electron density around HEM A 401:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
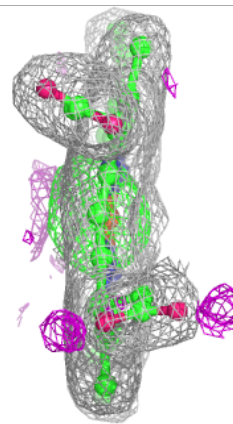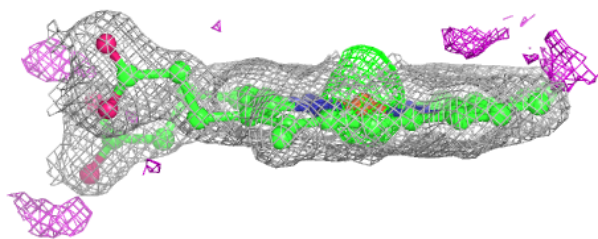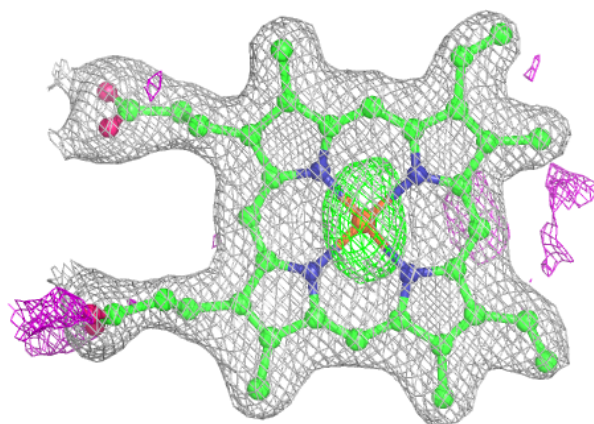
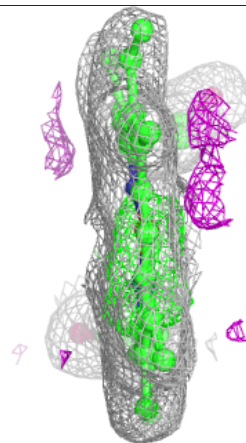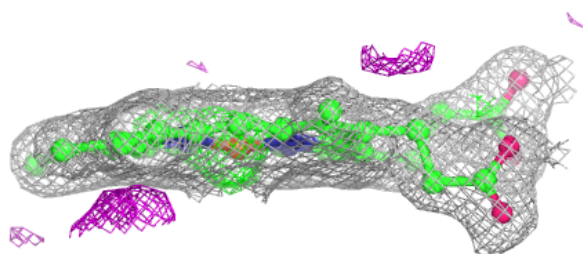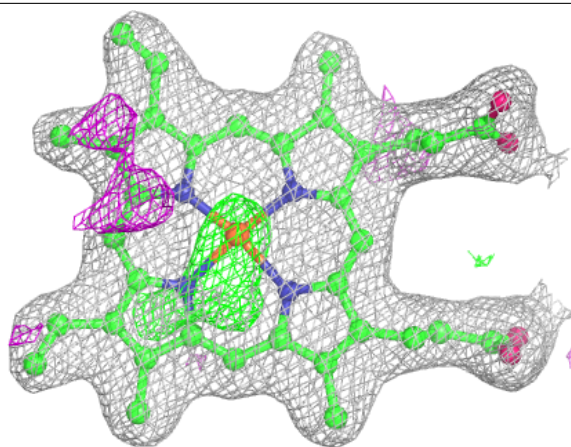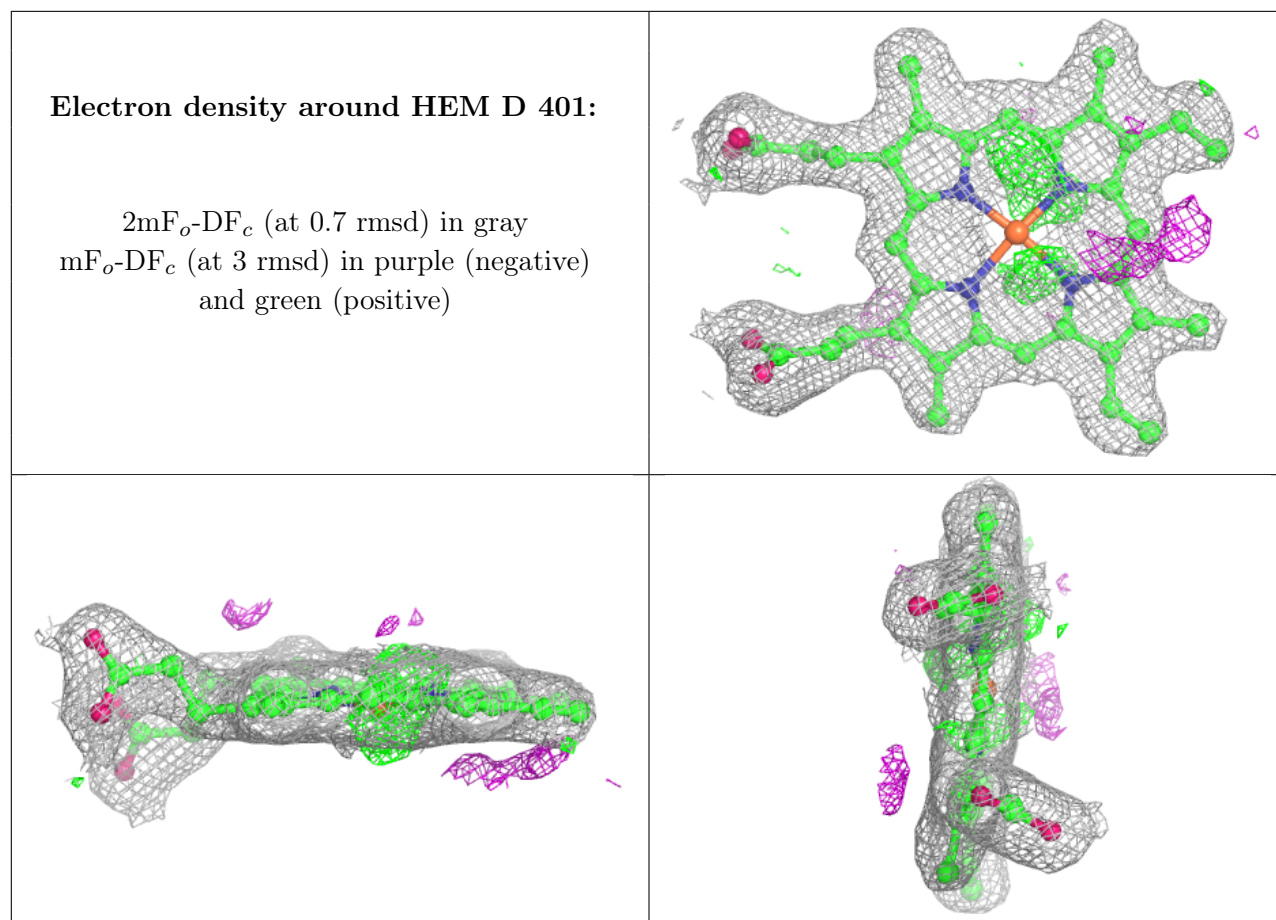Electron density around HEM C 401:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
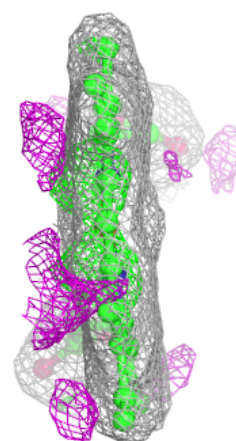
Electron density around HEM B 401:

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

Electron density around HEM D 401:

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

6.5 Other polymers ⓘ

There are no such residues in this entry.