Full wwPDB X-ray Structure Validation Report (i)

Jul 3, 2023 – 10:15 pm BST

PDB ID	:	1GZX
Title	:	Oxy T State Haemoglobin - Oxygen bound at all four haems
Authors	:	Paoli, M.; Liddington, R.; Tame, J.; Wilkinson, A.; Dodson, G.
Deposited on	:	2002-06-07
Resolution	:	2.10 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 (i) symbol.

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

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

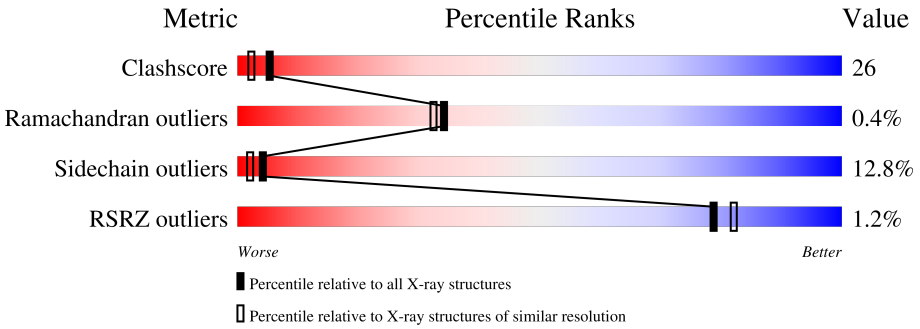
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.33
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.33

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 2.10 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))
Clashscore	141614	5710 (2.10-2.10)
Ramachandran outliers	138981	5647 (2.10-2.10)
Sidechain outliers	138945	5648 (2.10-2.10)
RSRZ outliers	127900	5083 (2.10-2.10)

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	141	43% 32% 19% 6%
1	C	141	48% 38% 11% .
2	B	146	3% 49% 38% 11% .
2	D	146	% 43% 36% 18% .

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	OXY	B	1291	-	-	X	-
4	OXY	D	1691	-	-	X	-

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 4769 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.

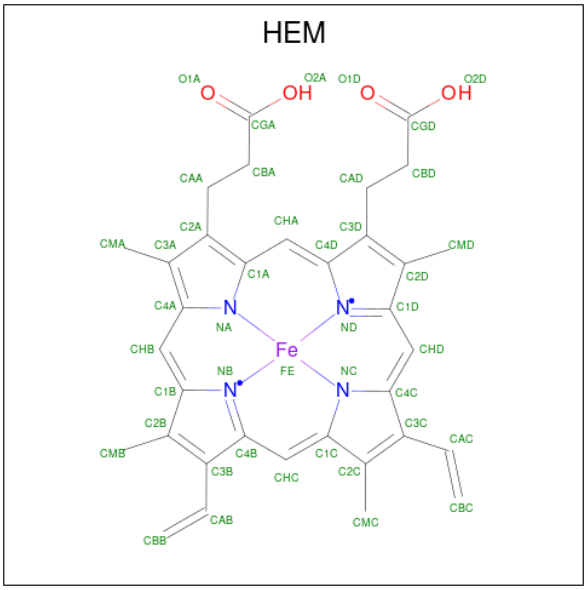
- Molecule 1 is a protein called Hemoglobin subunit alpha.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	141	Total	C	N	O	S	0	0	0
			1069	685	187	194	3			
1	C	141	Total	C	N	O	S	0	0	0
			1069	685	187	194	3			

- Molecule 2 is a protein called Hemoglobin subunit beta.

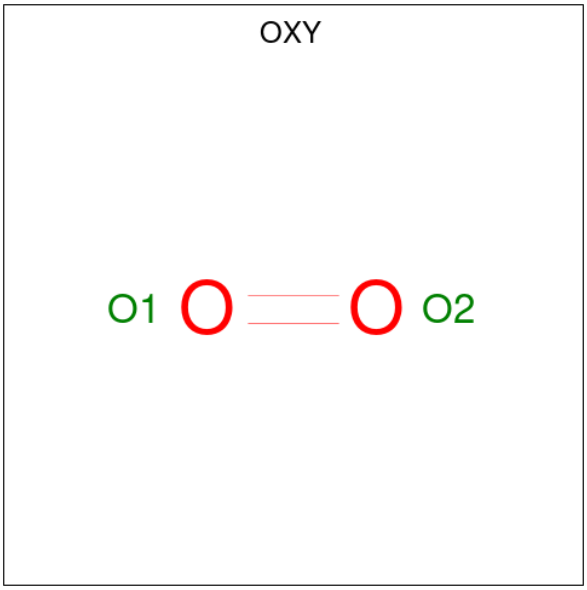
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	146	Total	C	N	O	S	0	0	0
			1123	724	195	201	3			
2	D	146	Total	C	N	O	S	0	0	0
			1123	724	195	201	3			

- Molecule 3 is PROTOPORPHYRIN IX CONTAINING FE (three-letter code: HEM) (formula: $C_{34}H_{32}FeN_4O_4$).



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

- Molecule 4 is OXYGEN MOLECULE (three-letter code: OXY) (formula: O_2).



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

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	62	Total	O	0	0
			62	62		
5	B	55	Total	O	0	0
			55	55		

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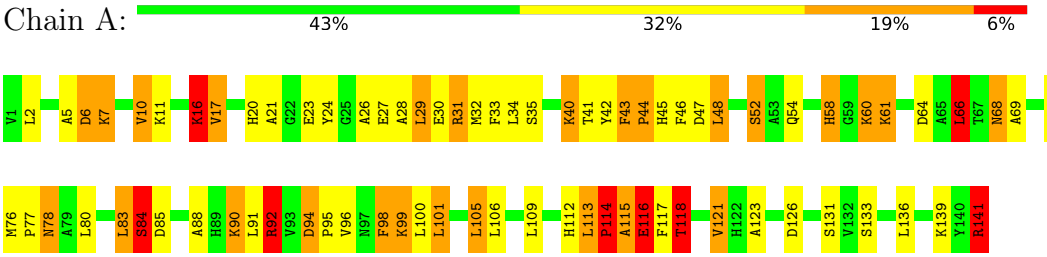
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	C	45	Total O 45 45	0	0
5	D	43	Total O 43 43	0	0

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.

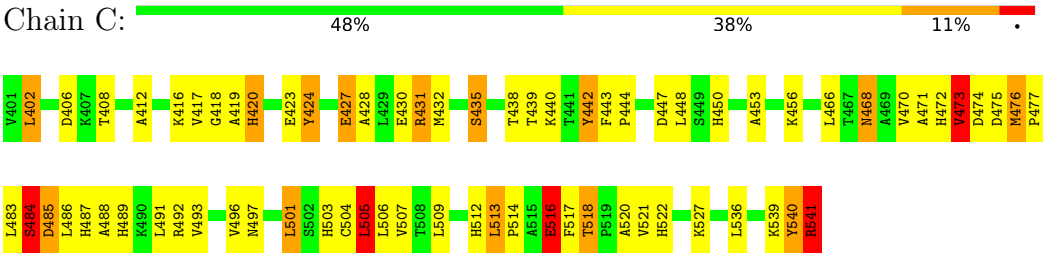
• Molecule 1: Hemoglobin subunit alpha

Chain A:



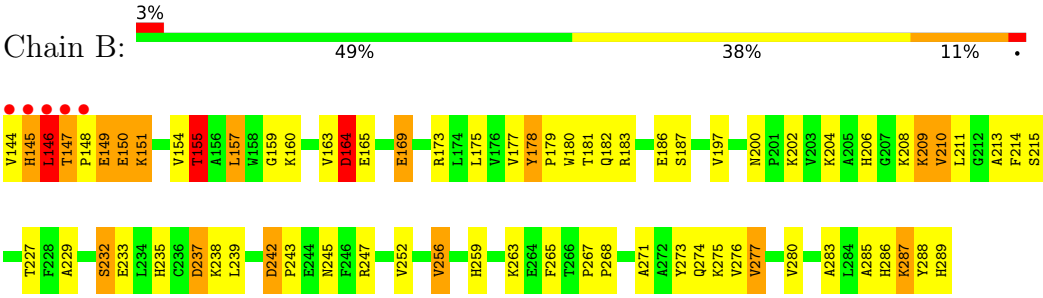
• Molecule 1: Hemoglobin subunit alpha

Chain C:



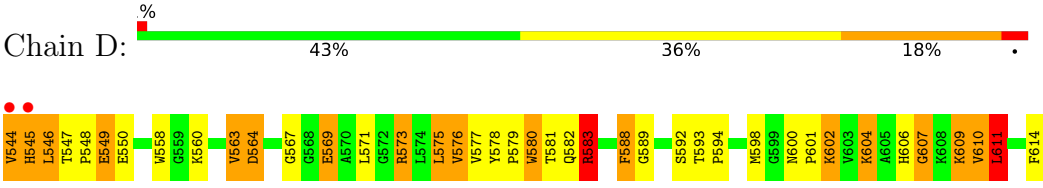
• Molecule 2: Hemoglobin subunit beta

Chain B:



• Molecule 2: Hemoglobin subunit beta

Chain D:




A619
H620
L621
D622
K625
G626
T627
F628
A629
T630
L631
S632
E633
L634
K638
L639
H640
V641
D642
P643
E644
N645
F646
R647
L648
L649
G650
H660
F661
G662
K663
T666
P667
P668
V669
Q670
Y673
Q674
K675
V676
V677
L684
A685
H686
K687
Y688
H689

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α, β, γ	97.05Å 99.50Å 66.11Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	10.00 – 2.10 31.38 – 2.11	Depositor EDS
% Data completeness (in resolution range)	95.0 (10.00-2.10) 93.7 (31.38-2.11)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	5.80 (at 2.10Å)	Xtriage
Refinement program	PROLSQ	Depositor
R, R_{free}	0.199 , 0.221 0.181 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å^2)	29.1	Xtriage
Anisotropy	0.312	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 96.5	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	0.019 for k,h,-l	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	4769	wwPDB-VP
Average B, all atoms (Å^2)	27.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.24% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

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

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: OXY, 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	1.13	1/1097 (0.1%)	2.57	81/1491 (5.4%)
1	C	1.10	2/1097 (0.2%)	2.54	69/1491 (4.6%)
2	B	1.13	0/1153	2.76	75/1566 (4.8%)
2	D	1.12	1/1153 (0.1%)	2.44	58/1566 (3.7%)
All	All	1.12	4/4500 (0.1%)	2.58	283/6114 (4.6%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	487	HIS	CA-CB	6.06	1.67	1.53
2	D	549	GLU	CD-OE2	5.73	1.31	1.25
1	C	541	ARG	CD-NE	-5.41	1.37	1.46
1	A	141	ARG	NE-CZ	5.15	1.39	1.33

All (283) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	183	ARG	NE-CZ-NH1	26.47	133.54	120.30
2	B	247	ARG	NE-CZ-NH1	-23.82	108.39	120.30
2	B	247	ARG	CD-NE-CZ	22.13	154.58	123.60
1	A	92	ARG	CD-NE-CZ	20.70	152.58	123.60
1	C	431	ARG	NE-CZ-NH2	-17.38	111.61	120.30
1	A	92	ARG	NE-CZ-NH2	17.22	128.91	120.30
1	C	475	ASP	CB-CG-OD2	-17.00	103.00	118.30
2	B	247	ARG	NE-CZ-NH2	16.66	128.63	120.30
1	C	431	ARG	NE-CZ-NH1	16.40	128.50	120.30
2	B	173	ARG	NE-CZ-NH1	16.40	128.50	120.30
2	B	183	ARG	CD-NE-CZ	15.83	145.76	123.60
1	C	541	ARG	NE-CZ-NH2	15.73	128.16	120.30
2	B	222	ASP	CB-CG-OD1	15.27	132.04	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	288	TYR	CB-CG-CD1	-15.19	111.89	121.00
1	C	423	GLU	OE1-CD-OE2	13.57	139.59	123.30
1	A	105	LEU	CA-CB-CG	13.32	145.93	115.30
2	D	573	ARG	NE-CZ-NH2	13.22	126.91	120.30
2	D	573	ARG	NE-CZ-NH1	-13.20	113.70	120.30
2	D	622	ASP	CB-CG-OD1	13.14	130.13	118.30
2	B	183	ARG	NH1-CZ-NH2	-12.69	105.44	119.40
2	D	673	TYR	CB-CG-CD2	12.16	128.29	121.00
2	B	273	TYR	CB-CG-CD1	-12.14	113.72	121.00
2	B	169	GLU	OE1-CD-OE2	11.89	137.57	123.30
2	B	216	ASP	CB-CG-OD2	11.86	128.97	118.30
1	A	31	ARG	NE-CZ-NH2	-11.58	114.51	120.30
2	D	622	ASP	CB-CG-OD2	-11.53	107.92	118.30
1	A	31	ARG	NE-CZ-NH1	11.48	126.04	120.30
2	B	149	GLU	CB-CG-CD	11.29	144.68	114.20
1	C	541	ARG	NE-CZ-NH1	-11.00	114.80	120.30
2	D	644	GLU	OE1-CD-OE2	11.00	136.50	123.30
1	A	115	ALA	N-CA-CB	-10.77	95.03	110.10
2	D	588	PHE	C-N-CA	10.71	144.80	122.30
1	A	141	ARG	NE-CZ-NH1	-10.25	115.17	120.30
1	A	60	LYS	CA-CB-CG	9.95	135.29	113.40
2	D	673	TYR	CB-CG-CD1	-9.92	115.05	121.00
1	A	141	ARG	CD-NE-CZ	-9.56	110.22	123.60
2	B	178	TYR	CB-CG-CD1	9.55	126.73	121.00
2	D	633	GLU	OE1-CD-OE2	9.36	134.53	123.30
1	A	83	LEU	CB-CA-C	9.26	127.79	110.20
1	A	74	ASP	CB-CG-OD1	-9.18	110.04	118.30
1	C	541	ARG	CG-CD-NE	9.14	130.99	111.80
2	B	271	ALA	CB-CA-C	9.07	123.71	110.10
1	A	5	ALA	CB-CA-C	8.92	123.48	110.10
1	C	406	ASP	CB-CG-OD2	-8.89	110.30	118.30
2	B	149	GLU	CB-CA-C	8.89	128.17	110.40
2	B	157	LEU	CA-CB-CG	8.78	135.49	115.30
2	B	209	LYS	CA-CB-CG	8.74	132.63	113.40
1	A	31	ARG	CD-NE-CZ	8.73	135.82	123.60
1	C	408	THR	O-C-N	8.70	136.63	122.70
2	B	169	GLU	CG-CD-OE2	-8.69	100.91	118.30
1	C	492	ARG	CD-NE-CZ	-8.47	111.74	123.60
1	A	7	LYS	CG-CD-CE	8.37	137.02	111.90
2	D	545	HIS	O-C-N	8.23	135.87	122.70
2	D	564	ASP	CB-CG-OD2	-8.18	110.94	118.30
1	A	96	VAL	O-C-N	8.10	135.66	122.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	126	ASP	CB-CG-OD2	-8.03	111.08	118.30
1	C	427	GLU	OE1-CD-OE2	7.93	132.81	123.30
2	D	621	LEU	C-N-CA	7.90	141.45	121.70
1	C	513	LEU	CB-CG-CD1	-7.72	97.88	111.00
2	B	213	ALA	N-CA-CB	7.68	120.85	110.10
2	B	146	LEU	CA-CB-CG	7.66	132.91	115.30
1	C	489	HIS	O-C-N	7.64	134.93	122.70
1	A	98	PHE	O-C-N	7.64	134.92	122.70
1	C	442	TYR	CB-CG-CD1	7.64	125.58	121.00
2	B	222	ASP	CB-CG-OD2	-7.59	111.47	118.30
1	A	115	ALA	CB-CA-C	7.53	121.39	110.10
2	D	576	VAL	CA-CB-CG2	7.52	122.18	110.90
1	C	540	TYR	CB-CG-CD2	-7.49	116.50	121.00
1	C	492	ARG	NE-CZ-NH2	7.46	124.03	120.30
2	D	650	GLY	O-C-N	-7.45	110.78	122.70
1	A	64	ASP	CB-CG-OD2	7.41	124.97	118.30
1	A	114	PRO	O-C-N	7.36	134.48	122.70
1	C	520	ALA	CA-C-O	-7.32	104.74	120.10
1	C	430	GLU	OE1-CD-OE2	7.30	132.06	123.30
2	D	564	ASP	CB-CG-OD1	7.28	124.85	118.30
1	A	118	THR	CA-CB-CG2	7.28	122.59	112.40
1	A	112	HIS	CA-C-O	-7.25	104.88	120.10
2	D	620	HIS	CA-CB-CG	-7.25	101.28	113.60
2	B	169	GLU	CB-CA-C	-7.19	96.01	110.40
1	A	5	ALA	N-CA-CB	-7.17	100.06	110.10
1	A	75	ASP	CB-CG-OD1	7.16	124.74	118.30
1	A	29	LEU	CB-CA-C	7.08	123.66	110.20
2	D	677	VAL	CB-CA-C	7.02	124.75	111.40
1	C	423	GLU	CG-CD-OE2	-7.01	104.28	118.30
2	B	154	VAL	CA-C-O	6.97	134.75	120.10
2	B	146	LEU	O-C-N	6.93	133.79	122.70
2	D	583	ARG	CD-NE-CZ	6.93	133.30	123.60
1	A	73	VAL	CB-CA-C	-6.89	98.30	111.40
1	A	73	VAL	CA-CB-CG2	6.89	121.23	110.90
1	C	505	LEU	CB-CG-CD2	-6.89	99.29	111.00
1	C	453	ALA	N-CA-CB	6.86	119.70	110.10
1	C	484	SER	O-C-N	6.84	133.65	122.70
2	D	578	TYR	CB-CG-CD1	-6.83	116.90	121.00
2	D	618	LEU	CA-CB-CG	6.83	131.01	115.30
1	C	540	TYR	CG-CD2-CE2	-6.79	115.87	121.30
1	A	94	ASP	CB-CG-OD2	6.79	124.41	118.30
2	D	688	TYR	CB-CG-CD1	6.77	125.06	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	611	LEU	CB-CA-C	6.77	123.07	110.20
1	C	473	VAL	CA-C-N	-6.75	102.34	117.20
2	D	546	LEU	C-N-CA	6.74	138.55	121.70
2	B	173	ARG	NH1-CZ-NH2	-6.73	112.00	119.40
2	D	647	ARG	NE-CZ-NH1	6.73	123.66	120.30
2	D	622	ASP	CA-CB-CG	6.72	128.19	113.40
2	B	242	ASP	CB-CG-OD2	-6.71	112.26	118.30
2	D	638	LYS	CB-CA-C	-6.66	97.09	110.40
1	A	116	GLU	CG-CD-OE1	6.61	131.51	118.30
2	D	626	GLY	O-C-N	6.53	133.15	122.70
1	A	131	SER	CB-CA-C	6.53	122.50	110.10
1	A	78	ASN	CB-CG-OD1	6.51	134.62	121.60
1	C	406	ASP	OD1-CG-OD2	6.50	135.64	123.30
2	B	286	HIS	O-C-N	-6.47	112.35	122.70
2	D	626	GLY	CA-C-O	-6.46	108.98	120.60
1	C	507	VAL	O-C-N	-6.45	112.38	122.70
1	A	6	ASP	CB-CG-OD2	6.44	124.10	118.30
2	D	549	GLU	CG-CD-OE1	6.43	131.17	118.30
1	C	518	THR	CA-CB-CG2	6.43	121.40	112.40
1	A	61	LYS	CB-CG-CD	-6.38	95.01	111.60
2	B	146	LEU	N-CA-C	-6.37	93.81	111.00
2	B	277	VAL	N-CA-CB	-6.33	97.56	111.50
2	B	277	VAL	CB-CA-C	6.32	123.41	111.40
1	A	60	LYS	CB-CG-CD	6.32	128.03	111.60
2	D	577	VAL	C-N-CA	6.31	137.47	121.70
2	B	214	PHE	CZ-CE2-CD2	-6.30	112.54	120.10
1	A	72	HIS	CA-CB-CG	-6.27	102.94	113.60
2	D	569	GLU	CG-CD-OE2	-6.27	105.77	118.30
2	D	604	LYS	CB-CA-C	-6.26	97.88	110.40
1	A	112	HIS	CA-CB-CG	6.24	124.21	113.60
1	C	504	CYS	CA-CB-SG	-6.23	102.79	114.00
2	B	277	VAL	CA-CB-CG1	6.21	120.22	110.90
1	C	483	LEU	CA-C-O	-6.21	107.05	120.10
1	A	40	LYS	CD-CE-NZ	-6.17	97.51	111.70
1	A	46	PHE	CB-CG-CD1	-6.17	116.48	120.80
2	B	285	ALA	O-C-N	-6.15	112.85	122.70
2	D	677	VAL	N-CA-CB	-6.15	97.96	111.50
1	C	475	ASP	O-C-N	6.15	132.54	122.70
2	B	256	VAL	CA-CB-CG1	6.12	120.08	110.90
2	B	237	ASP	CB-CG-OD2	-6.09	112.81	118.30
1	C	447	ASP	CB-CG-OD2	-6.08	112.83	118.30
2	B	181	THR	CA-CB-CG2	-6.05	103.92	112.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	197	VAL	CA-C-O	6.01	132.72	120.10
2	D	589	GLY	N-CA-C	6.01	128.12	113.10
2	B	288	TYR	CD1-CG-CD2	5.98	124.48	117.90
1	C	517	PHE	CB-CG-CD1	-5.98	116.61	120.80
2	D	607	GLY	O-C-N	-5.96	113.16	122.70
1	A	72	HIS	O-C-N	5.95	132.22	122.70
2	D	578	TYR	CB-CG-CD2	5.93	124.56	121.00
1	A	68	ASN	CB-CG-OD1	-5.93	109.74	121.60
1	A	133	SER	O-C-N	-5.92	113.22	122.70
1	A	42	TYR	CB-CG-CD1	5.91	124.55	121.00
1	C	420	HIS	O-C-N	5.91	132.16	122.70
1	A	92	ARG	C-N-CA	5.91	136.47	121.70
2	B	145	HIS	CA-C-N	-5.91	104.21	117.20
1	A	28	ALA	N-CA-CB	5.89	118.35	110.10
2	B	177	VAL	C-N-CA	5.89	136.44	121.70
1	A	54	GLN	N-CA-CB	5.88	121.19	110.60
1	C	471	ALA	CA-C-O	-5.87	107.78	120.10
1	A	92	ARG	NE-CZ-NH1	-5.84	117.38	120.30
2	B	150	GLU	OE1-CD-OE2	5.84	130.31	123.30
2	B	151	LYS	N-CA-CB	5.80	121.03	110.60
2	D	602	LYS	CA-CB-CG	5.79	126.14	113.40
1	C	483	LEU	CA-CB-CG	5.79	128.61	115.30
2	D	628	PHE	CA-C-O	-5.77	107.99	120.10
1	A	101	LEU	CB-CG-CD1	-5.76	101.21	111.00
2	B	252	VAL	CG1-CB-CG2	5.75	120.11	110.90
1	C	522	HIS	CA-CB-CG	5.75	123.38	113.60
2	B	256	VAL	CB-CA-C	5.73	122.28	111.40
2	B	165	GLU	CG-CD-OE1	5.72	129.75	118.30
1	C	496	VAL	CA-C-O	-5.72	108.08	120.10
1	A	116	GLU	CA-CB-CG	5.71	125.97	113.40
1	A	41	THR	CA-CB-CG2	5.71	120.40	112.40
2	B	288	TYR	CG-CD1-CE1	-5.71	116.73	121.30
2	D	640	HIS	CA-CB-CG	-5.68	103.94	113.60
1	C	475	ASP	OD1-CG-OD2	5.67	134.08	123.30
1	A	136	LEU	CB-CG-CD2	-5.66	101.37	111.00
1	A	72	HIS	CA-C-O	-5.63	108.27	120.10
1	C	505	LEU	CA-CB-CG	5.63	128.25	115.30
1	A	68	ASN	CA-C-N	5.63	129.58	117.20
2	B	151	LYS	CB-CA-C	-5.62	99.16	110.40
1	A	141	ARG	CB-CG-CD	5.61	126.19	111.60
1	C	540	TYR	O-C-N	5.60	131.66	122.70
1	C	540	TYR	CA-C-N	-5.59	104.90	117.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	187	SER	N-CA-CB	-5.59	102.12	110.50
1	A	21	ALA	N-CA-CB	-5.57	102.30	110.10
1	A	20	HIS	CA-CB-CG	-5.57	104.14	113.60
1	A	117	PHE	C-N-CA	5.56	135.61	121.70
1	A	21	ALA	CB-CA-C	5.55	118.43	110.10
1	C	485	ASP	CB-CG-OD2	5.55	123.30	118.30
1	A	66	LEU	CB-CG-CD1	5.55	120.44	111.00
2	B	273	TYR	CB-CG-CD2	5.55	124.33	121.00
2	D	560	LYS	C-N-CA	5.54	135.55	121.70
1	C	424	TYR	CB-CG-CD2	-5.54	117.68	121.00
1	A	16	LYS	CD-CE-NZ	5.51	124.37	111.70
2	B	273	TYR	CD1-CE1-CZ	-5.50	114.85	119.80
2	B	150	GLU	N-CA-CB	5.50	120.50	110.60
1	A	121	VAL	CA-CB-CG1	5.49	119.13	110.90
1	C	412	ALA	CA-C-O	-5.49	108.58	120.10
1	A	116	GLU	CG-CD-OE2	-5.48	107.34	118.30
2	B	155	THR	OG1-CB-CG2	5.47	122.58	110.00
2	D	558	TRP	CB-CG-CD1	5.46	134.10	127.00
2	B	216	ASP	CA-C-O	5.46	131.56	120.10
1	A	44	PRO	O-C-N	-5.43	114.01	122.70
1	A	30	GLU	OE1-CD-OE2	5.42	129.81	123.30
1	A	54	GLN	O-C-N	5.42	131.37	122.70
2	B	177	VAL	CA-C-N	5.41	129.11	117.20
2	B	222	ASP	O-C-N	5.41	131.35	122.70
1	C	491	LEU	CA-C-O	-5.40	108.77	120.10
2	B	223	ASN	CB-CA-C	5.39	121.19	110.40
1	A	26	ALA	C-N-CA	5.38	135.15	121.70
1	C	431	ARG	CD-NE-CZ	-5.38	116.07	123.60
2	B	210	VAL	CG1-CB-CG2	5.38	119.50	110.90
2	B	164	ASP	CB-CG-OD1	5.37	123.13	118.30
2	B	265	PHE	CB-CA-C	5.36	121.12	110.40
2	B	227	THR	CA-CB-CG2	5.36	119.90	112.40
2	D	670	GLN	CA-CB-CG	-5.34	101.64	113.40
2	D	689	HIS	CA-C-O	-5.34	108.88	120.10
1	C	483	LEU	CA-C-N	5.34	128.95	117.20
2	B	232	SER	O-C-N	-5.33	114.17	122.70
1	C	516	GLU	CB-CA-C	-5.33	99.73	110.40
2	D	662	GLY	C-N-CA	5.33	135.03	121.70
2	B	165	GLU	CA-CB-CG	5.33	125.13	113.40
1	A	58	HIS	CB-CA-C	5.32	121.05	110.40
1	C	423	GLU	CB-CA-C	-5.31	99.78	110.40
1	C	476	MET	CB-CA-C	5.30	121.00	110.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	569	GLU	CB-CA-C	-5.30	99.80	110.40
1	A	43	PHE	CZ-CE2-CD2	-5.30	113.75	120.10
2	B	285	ALA	N-CA-CB	-5.30	102.69	110.10
1	C	487	HIS	N-CA-CB	5.30	120.14	110.60
2	D	673	TYR	CG-CD2-CE2	5.29	125.53	121.30
2	B	157	LEU	CB-CG-CD1	5.28	119.97	111.00
1	A	100	LEU	O-C-N	5.27	131.14	122.70
1	A	91	LEU	O-C-N	5.26	131.12	122.70
1	A	92	ARG	NH1-CZ-NH2	-5.25	113.63	119.40
2	B	145	HIS	CA-CB-CG	-5.25	104.68	113.60
2	D	663	LYS	CA-CB-CG	5.25	124.94	113.40
1	C	468	ASN	CB-CA-C	5.24	120.88	110.40
2	D	687	LYS	CD-CE-NZ	5.23	123.74	111.70
2	B	237	ASP	C-N-CA	-5.23	108.63	121.70
1	A	48	LEU	O-C-N	5.22	131.05	122.70
2	B	271	ALA	O-C-N	-5.21	114.36	122.70
1	A	73	VAL	CA-CB-CG1	-5.20	103.11	110.90
2	B	256	VAL	CA-C-N	5.20	128.63	117.20
1	C	471	ALA	CA-C-N	5.19	128.62	117.20
1	C	503	HIS	C-N-CA	5.18	134.66	121.70
2	D	545	HIS	N-CA-CB	5.18	119.92	110.60
2	D	686	HIS	CA-CB-CG	-5.17	104.81	113.60
2	B	287	LYS	CG-CD-CE	-5.17	96.40	111.90
1	C	481	SER	CA-C-O	-5.16	109.26	120.10
1	C	420	HIS	CB-CA-C	-5.16	100.08	110.40
1	C	430	GLU	O-C-N	-5.16	114.45	122.70
2	B	178	TYR	CD1-CG-CD2	-5.16	112.23	117.90
1	C	450	HIS	CB-CA-C	-5.15	100.11	110.40
2	B	165	GLU	CG-CD-OE2	-5.15	108.01	118.30
1	C	474	ASP	CB-CG-OD1	-5.14	113.67	118.30
1	C	478	ASN	OD1-CG-ND2	5.14	133.71	121.90
1	A	113	LEU	CA-CB-CG	5.13	127.11	115.30
1	C	536	LEU	CB-CG-CD1	-5.11	102.31	111.00
1	A	17	VAL	N-CA-CB	5.10	122.73	111.50
2	D	610	VAL	O-C-N	-5.09	114.55	122.70
2	D	688	TYR	N-CA-CB	5.09	119.77	110.60
1	C	420	HIS	CA-CB-CG	-5.09	104.94	113.60
1	C	475	ASP	CB-CG-OD1	5.09	122.88	118.30
2	D	660	HIS	CB-CA-C	-5.09	100.23	110.40
1	A	21	ALA	O-C-N	-5.08	114.56	123.20
1	A	131	SER	CA-C-N	5.08	128.38	117.20
1	A	10	VAL	CG1-CB-CG2	5.08	119.03	110.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	424	TYR	CA-C-O	-5.07	109.45	120.10
1	A	29	LEU	CA-CB-CG	5.07	126.95	115.30
1	C	424	TYR	O-C-N	5.06	131.81	123.20
2	B	146	LEU	C-N-CA	5.05	134.33	121.70
2	B	283	ALA	CB-CA-C	5.05	117.67	110.10
2	D	580	TRP	CE3-CZ3-CH2	-5.05	115.64	121.20
1	A	114	PRO	CA-CB-CG	-5.04	94.42	104.00
1	C	435	SER	O-C-N	5.04	130.76	122.70
2	D	634	LEU	CA-CB-CG	-5.04	103.71	115.30
1	C	520	ALA	CA-C-N	5.04	128.28	117.20
2	B	222	ASP	C-N-CA	-5.02	109.14	121.70
2	D	611	LEU	CB-CG-CD2	-5.02	102.47	111.00
2	D	615	SER	CA-C-O	5.02	130.64	120.10
1	C	486	LEU	CB-CG-CD1	-5.01	102.48	111.00
1	A	24	TYR	CA-CB-CG	5.01	122.92	113.40
1	A	84	SER	N-CA-CB	5.01	118.01	110.50
1	C	432	MET	C-N-CA	5.00	134.21	121.70
2	D	619	ALA	CB-CA-C	5.00	117.60	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	1069	0	1073	47	0
1	C	1069	0	1070	50	0
2	B	1123	0	1115	53	0
2	D	1123	0	1112	106	0
3	A	43	0	30	3	0
3	B	43	0	30	1	0
3	C	43	0	30	0	0
3	D	43	0	30	10	0
4	A	2	0	0	0	0
4	B	2	0	0	2	0
4	C	2	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	D	2	0	0	2	0
5	A	62	0	0	4	0
5	B	55	0	0	7	0
5	C	45	0	0	2	1
5	D	43	0	0	8	0
All	All	4769	0	4490	239	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 26.

All (239) 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)
2:D:638:LYS:HB2	2:D:638:LYS:NZ	1.27	1.29
1:C:470:VAL:O	1:C:473:VAL:HG22	1.39	1.18
2:D:547:THR:HG22	2:D:549:GLU:N	1.64	1.13
2:D:649:LEU:HD23	3:D:1690:HEM:HBB2	1.32	1.09
2:D:638:LYS:HZ2	2:D:638:LYS:CB	1.63	1.09
2:D:638:LYS:NZ	2:D:638:LYS:CB	2.17	1.07
2:D:544:VAL:HG13	2:D:546:LEU:HD13	1.36	1.07
2:D:547:THR:HG22	2:D:549:GLU:H	0.82	0.97
2:B:144:VAL:HG22	2:B:145:HIS:H	1.31	0.96
2:D:620:HIS:HB2	5:D:2022:HOH:O	1.65	0.95
1:C:470:VAL:O	1:C:473:VAL:CG2	2.15	0.94
2:D:547:THR:CG2	2:D:549:GLU:H	1.78	0.94
2:D:563:VAL:HG22	2:D:611:LEU:HD12	1.51	0.93
1:A:16:LYS:NZ	1:A:16:LYS:HB3	1.84	0.91
2:D:620:HIS:N	2:D:620:HIS:CD2	2.36	0.90
2:D:627:THR:CB	5:D:2022:HOH:O	2.20	0.89
2:D:610:VAL:HG21	4:D:1691:OXY:O1	1.73	0.89
1:C:513:LEU:HB3	1:C:516:GLU:HG2	1.53	0.88
2:D:544:VAL:CG1	2:D:546:LEU:HD13	2.05	0.87
2:D:547:THR:HG21	2:D:549:GLU:HB2	1.57	0.84
2:D:627:THR:OG1	5:D:2022:HOH:O	1.94	0.82
1:A:84:SER:HB2	1:A:139:LYS:HD2	1.60	0.81
2:D:620:HIS:N	2:D:620:HIS:HD2	1.76	0.80
2:D:544:VAL:HG13	2:D:546:LEU:CD1	2.10	0.80
2:B:144:VAL:HG22	2:B:145:HIS:N	1.95	0.80
2:D:667:PRO:N	2:D:668:PRO:CD	2.45	0.80
1:C:439:THR:HG22	1:C:497:ASN:HD22	1.48	0.79
2:B:267:PRO:HD2	2:B:268:PRO:HD3	1.63	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:512:HIS:C	1:C:514:PRO:HD3	2.03	0.79
1:C:518:THR:HG23	1:C:521:VAL:H	1.48	0.79
1:A:35:SER:HB3	2:B:274:GLN:HG3	1.64	0.78
2:D:638:LYS:HA	2:D:638:LYS:HE3	1.62	0.78
2:B:180:TRP:HZ3	1:C:541:ARG:HG2	1.50	0.76
1:C:443:PHE:N	1:C:444:PRO:CD	2.50	0.74
1:A:114:PRO:O	2:B:259:HIS:NE2	2.20	0.74
2:B:267:PRO:CD	2:B:268:PRO:HD3	2.18	0.74
2:B:144:VAL:CG2	2:B:145:HIS:H	2.01	0.74
1:A:99:LYS:HD2	1:A:99:LYS:N	2.03	0.74
2:D:649:LEU:CD2	3:D:1690:HEM:HBB2	2.13	0.74
2:D:563:VAL:HG22	2:D:611:LEU:CD1	2.17	0.73
2:D:638:LYS:HE3	2:D:638:LYS:CA	2.17	0.73
2:D:547:THR:CG2	2:D:549:GLU:HB2	2.17	0.73
1:A:92:ARG:HB3	2:D:580:TRP:HB2	1.71	0.73
1:C:485:ASP:OD1	1:C:539:LYS:HE2	1.88	0.72
2:D:634:LEU:O	2:D:638:LYS:HB3	1.90	0.71
2:D:667:PRO:N	2:D:668:PRO:HD2	2.04	0.71
2:B:186:GLU:HG2	5:B:2012:HOH:O	1.91	0.70
1:C:476:MET:N	1:C:477:PRO:CD	2.54	0.70
1:A:99:LYS:HD2	1:A:99:LYS:H	1.56	0.70
2:D:638:LYS:HB2	2:D:638:LYS:HZ3	1.55	0.70
1:C:428:ALA:CB	1:C:505:LEU:HD13	2.22	0.69
2:D:600:ASN:OD1	2:D:602:LYS:N	2.22	0.69
2:D:619:ALA:C	2:D:620:HIS:HD2	1.96	0.69
2:D:687:LYS:HD2	5:D:2040:HOH:O	1.94	0.68
2:D:619:ALA:C	2:D:620:HIS:CD2	2.66	0.68
2:B:164:ASP:OD2	2:B:208:LYS:HD2	1.95	0.67
2:B:267:PRO:N	2:B:268:PRO:CD	2.58	0.67
2:D:634:LEU:HD12	2:D:638:LYS:HZ3	1.60	0.66
1:A:90:LYS:HB2	1:A:90:LYS:NZ	2.10	0.66
1:A:114:PRO:HG2	1:A:115:ALA:N	2.09	0.66
2:D:667:PRO:CD	2:D:668:PRO:CD	2.73	0.66
2:B:209:LYS:HE2	5:B:2054:HOH:O	1.97	0.65
2:D:610:VAL:CG2	4:D:1691:OXY:O1	2.44	0.64
2:B:164:ASP:CG	2:B:208:LYS:HD2	2.17	0.64
2:B:237:ASP:OD2	2:B:289:HIS:NE2	2.30	0.64
2:D:634:LEU:HD12	2:D:638:LYS:NZ	2.13	0.64
1:C:513:LEU:N	1:C:514:PRO:HD3	2.13	0.64
1:C:518:THR:CG2	1:C:521:VAL:HG23	2.27	0.64
1:C:428:ALA:HB2	1:C:505:LEU:HD13	1.79	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:614:PHE:CE1	5:D:2005:HOH:O	2.50	0.64
2:D:609:LYS:HD3	3:D:1690:HEM:HAA2	1.79	0.63
1:C:468:ASN:O	1:C:472:HIS:HD2	1.80	0.63
2:D:569:GLU:O	2:D:573:ARG:HG3	1.98	0.63
2:D:667:PRO:HD2	2:D:668:PRO:CD	2.28	0.63
2:D:638:LYS:HB2	2:D:638:LYS:HZ2	0.71	0.63
1:C:518:THR:HG22	1:C:521:VAL:CG2	2.29	0.62
2:B:144:VAL:HG13	2:B:146:LEU:HD23	1.82	0.62
2:B:229:ALA:O	2:B:233:GLU:HG3	2.00	0.61
2:D:667:PRO:CD	2:D:668:PRO:HD3	2.29	0.61
1:A:92:ARG:HB2	2:D:583:ARG:HD3	1.82	0.61
2:D:594:PRO:O	2:D:598:MET:HG2	2.00	0.61
2:B:150:GLU:OE2	2:B:275:LYS:NZ	2.33	0.61
2:B:151:LYS:O	2:B:155:THR:HB	2.01	0.60
2:D:625:LYS:HD3	2:D:686:HIS:CG	2.36	0.60
2:D:638:LYS:CA	2:D:638:LYS:CE	2.76	0.60
1:C:443:PHE:N	1:C:444:PRO:HD3	2.17	0.59
1:A:85:ASP:OD1	1:A:139:LYS:HD3	2.03	0.59
1:C:484:SER:HB2	5:C:2029:HOH:O	2.03	0.59
2:B:146:LEU:HD13	2:B:150:GLU:HB3	1.85	0.59
2:B:276:VAL:O	2:B:280:VAL:HG23	2.03	0.59
1:C:501:LEU:HD22	1:C:505:LEU:HD22	1.85	0.59
2:D:667:PRO:HD2	2:D:668:PRO:HD3	1.84	0.59
2:B:287:LYS:HE2	5:B:2052:HOH:O	2.02	0.58
2:D:627:THR:HB	5:D:2022:HOH:O	1.94	0.58
1:A:6:ASP:O	1:A:10:VAL:HG23	2.03	0.58
1:A:114:PRO:HA	2:B:259:HIS:CD2	2.38	0.58
2:B:144:VAL:HG21	5:B:2047:HOH:O	2.04	0.58
1:C:439:THR:HG22	1:C:497:ASN:ND2	2.17	0.58
2:D:547:THR:CG2	2:D:548:PRO:CD	2.82	0.57
1:C:518:THR:HG22	1:C:521:VAL:HB	1.85	0.57
2:D:547:THR:HG23	2:D:548:PRO:CD	2.33	0.57
2:D:588:PHE:HD2	2:D:588:PHE:N	2.02	0.57
1:A:16:LYS:HB3	1:A:16:LYS:HZ3	1.64	0.57
1:A:33:PHE:CE2	1:A:48:LEU:HD22	2.40	0.56
2:D:576:VAL:HG22	2:D:594:PRO:HA	1.87	0.56
2:D:588:PHE:N	2:D:588:PHE:CD2	2.72	0.56
2:D:625:LYS:HE3	2:D:686:HIS:CD2	2.40	0.56
1:A:114:PRO:HG2	1:A:115:ALA:H	1.71	0.56
2:D:667:PRO:CD	2:D:668:PRO:HD2	2.35	0.55
1:A:123:ALA:HB1	5:A:2054:HOH:O	2.06	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:544:VAL:HG23	5:D:2035:HOH:O	2.06	0.55
2:D:571:LEU:HD21	2:D:606:HIS:HD2	1.72	0.55
1:A:114:PRO:HA	2:B:259:HIS:NE2	2.23	0.54
5:A:2050:HOH:O	2:B:263:LYS:HD2	2.07	0.54
1:C:440:LYS:HG2	1:C:448:LEU:HD13	1.90	0.54
1:C:518:THR:HG22	1:C:521:VAL:HG23	1.88	0.54
2:B:147:THR:O	2:B:150:GLU:HB2	2.07	0.54
2:B:169:GLU:HG2	2:B:256:VAL:HG13	1.89	0.54
1:C:424:TYR:N	1:C:424:TYR:CD2	2.75	0.54
2:D:592:SER:C	2:D:593:THR:HG23	2.28	0.54
2:D:609:LYS:HD3	3:D:1690:HEM:CAA	2.37	0.54
2:D:639:LEU:HD13	3:D:1690:HEM:C3D	2.42	0.53
2:B:267:PRO:CD	2:B:268:PRO:CD	2.86	0.53
2:D:547:THR:HG23	2:D:548:PRO:HD2	1.90	0.53
2:B:267:PRO:HD2	2:B:268:PRO:CD	2.34	0.53
1:A:16:LYS:HB3	1:A:16:LYS:HZ2	1.72	0.53
2:B:202:LYS:HG3	5:B:2020:HOH:O	2.09	0.53
1:A:118:THR:HG23	5:A:2051:HOH:O	2.09	0.52
1:C:488:ALA:HA	1:C:540:TYR:CE2	2.45	0.52
2:B:186:GLU:HG3	5:B:2014:HOH:O	2.08	0.52
2:D:571:LEU:CD2	2:D:606:HIS:HD2	2.23	0.52
1:A:141:ARG:HD3	1:C:527:LYS:HG2	1.93	0.51
2:D:547:THR:HB	2:D:550:GLU:HG3	1.91	0.51
2:D:576:VAL:CG2	2:D:594:PRO:HA	2.40	0.51
2:D:667:PRO:HD2	2:D:668:PRO:HD2	1.92	0.51
1:C:518:THR:HG22	1:C:521:VAL:CB	2.40	0.51
2:B:144:VAL:CG2	2:B:145:HIS:N	2.62	0.51
2:B:235:HIS:HA	2:B:239:LEU:HB2	1.94	0.50
2:B:242:ASP:OD1	1:C:442:TYR:OH	2.24	0.50
2:B:267:PRO:CB	2:B:268:PRO:HD3	2.42	0.50
1:C:513:LEU:N	1:C:514:PRO:CD	2.74	0.50
2:B:147:THR:HG23	2:B:148:PRO:HD2	1.93	0.50
2:D:643:PRO:HA	2:D:646:PHE:CD2	2.46	0.50
2:D:592:SER:O	2:D:593:THR:CG2	2.60	0.50
2:B:210:VAL:HG21	4:B:1291:OXY:O1	2.12	0.50
1:A:43:PHE:N	1:A:44:PRO:CD	2.75	0.49
1:A:47:ASP:OD2	1:A:52:SER:HB2	2.12	0.49
2:D:563:VAL:CG2	2:D:611:LEU:HD12	2.32	0.49
2:D:666:THR:OG1	2:D:669:VAL:HG23	2.13	0.49
1:C:476:MET:N	1:C:477:PRO:HD2	2.28	0.49
2:B:287:LYS:CE	5:B:2052:HOH:O	2.61	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:267:PRO:HB2	2:B:268:PRO:HD3	1.95	0.48
2:D:600:ASN:OD1	2:D:600:ASN:C	2.52	0.48
1:C:440:LYS:HG2	1:C:448:LEU:CD1	2.43	0.48
1:A:113:LEU:HB3	1:A:116:GLU:HG2	1.96	0.48
2:B:146:LEU:CD1	2:B:150:GLU:HB3	2.44	0.48
2:D:684:LEU:CD1	3:D:1690:HEM:HAB	2.43	0.48
1:A:7:LYS:O	1:A:11:LYS:HG2	2.13	0.48
1:C:431:ARG:HD3	2:D:670:GLN:OE1	2.14	0.48
1:A:92:ARG:HB2	2:D:583:ARG:CD	2.44	0.47
2:D:567:GLY:O	2:D:607:GLY:HA3	2.14	0.47
3:D:1690:HEM:HBA2	3:D:1690:HEM:HHA	1.96	0.47
1:C:442:TYR:CE1	1:C:493:VAL:HA	2.50	0.47
2:D:592:SER:O	2:D:593:THR:HG23	2.15	0.47
1:C:484:SER:O	1:C:488:ALA:CB	2.63	0.47
1:A:114:PRO:HA	2:B:259:HIS:HE2	1.80	0.47
2:D:661:PHE:O	2:D:662:GLY:C	2.53	0.47
1:A:88:ALA:HB2	5:A:2061:HOH:O	2.15	0.46
1:C:442:TYR:C	1:C:444:PRO:CD	2.82	0.46
1:A:114:PRO:CG	1:A:115:ALA:N	2.78	0.46
2:D:547:THR:HG22	2:D:548:PRO:N	2.31	0.46
2:D:666:THR:C	2:D:668:PRO:HD2	2.36	0.46
1:A:83:LEU:HD11	3:A:1142:HEM:C3A	2.51	0.46
2:B:243:PRO:HG2	1:C:438:THR:CG2	2.45	0.46
2:D:575:LEU:HG	2:D:582:GLN:HG2	1.96	0.46
2:B:200:ASN:OD1	2:B:202:LYS:HB2	2.16	0.45
1:A:29:LEU:HD11	1:A:58:HIS:HD2	1.80	0.45
2:D:544:VAL:CG1	2:D:546:LEU:CD1	2.83	0.45
1:C:506:LEU:HD12	1:C:506:LEU:HA	1.73	0.45
2:D:631:LEU:HD23	2:D:631:LEU:HA	1.74	0.45
1:C:482:ALA:O	1:C:485:ASP:HB2	2.17	0.45
1:C:516:GLU:H	1:C:516:GLU:CD	2.19	0.45
1:A:84:SER:CB	1:A:139:LYS:HD2	2.42	0.45
2:D:634:LEU:O	2:D:638:LYS:CB	2.63	0.45
2:B:243:PRO:HG2	1:C:438:THR:HG22	1.98	0.44
1:C:442:TYR:C	1:C:444:PRO:HD2	2.38	0.44
2:D:547:THR:HG22	2:D:549:GLU:CA	2.43	0.44
1:A:27:GLU:O	1:A:31:ARG:HG3	2.17	0.44
1:A:90:LYS:HB2	1:A:90:LYS:HZ2	1.81	0.44
1:C:418:GLY:O	1:C:420:HIS:N	2.51	0.44
2:D:649:LEU:HD22	3:D:1690:HEM:HMC3	1.99	0.44
2:D:547:THR:CG2	2:D:548:PRO:HD2	2.48	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:402:LEU:HD12	1:C:402:LEU:HA	1.83	0.44
2:B:157:LEU:C	2:B:159:GLY:N	2.71	0.43
1:A:66:LEU:HD21	1:A:105:LEU:HD21	1.99	0.43
1:C:427:GLU:O	1:C:431:ARG:HG3	2.17	0.43
1:C:466:LEU:O	1:C:470:VAL:HG23	2.19	0.43
2:D:547:THR:CG2	2:D:549:GLU:CB	2.94	0.43
2:D:667:PRO:CB	2:D:668:PRO:HD3	2.48	0.43
1:A:78:ASN:HD22	1:A:78:ASN:HA	1.58	0.43
2:D:579:PRO:O	2:D:582:GLN:HG3	2.19	0.43
1:A:43:PHE:N	1:A:43:PHE:CD1	2.87	0.43
2:B:178:TYR:N	2:B:179:PRO:CD	2.80	0.43
2:D:625:LYS:NZ	5:D:2020:HOH:O	2.52	0.43
1:A:76:MET:N	1:A:77:PRO:CD	2.81	0.43
1:A:61:LYS:HD3	3:A:1142:HEM:HAA2	2.01	0.42
2:D:575:LEU:HD12	2:D:581:THR:OG1	2.19	0.42
2:D:666:THR:HB	2:D:668:PRO:HD2	2.02	0.42
2:D:545:HIS:O	2:D:675:LYS:HE2	2.19	0.42
2:D:547:THR:CG2	2:D:548:PRO:N	2.82	0.42
2:D:625:LYS:HD3	2:D:686:HIS:CD2	2.54	0.42
1:A:98:PHE:HD1	3:A:1142:HEM:HBB2	1.85	0.42
2:D:611:LEU:HD22	2:D:611:LEU:HA	1.68	0.42
2:D:642:ASP:HA	2:D:643:PRO:HD3	1.82	0.42
1:C:444:PRO:HG2	5:C:2017:HOH:O	2.18	0.42
1:A:94:ASP:HA	1:A:95:PRO:HD3	1.85	0.42
1:A:114:PRO:C	2:B:259:HIS:HE2	2.17	0.42
1:C:435:SER:HB3	2:D:674:GLN:HG3	2.01	0.42
2:D:571:LEU:HD12	2:D:571:LEU:HA	1.71	0.42
1:C:424:TYR:N	1:C:424:TYR:HD2	2.15	0.41
2:D:634:LEU:HD12	2:D:638:LYS:HB2	2.02	0.41
1:A:69:ALA:HB2	1:A:80:LEU:HD21	2.02	0.41
2:D:616:ASP:O	2:D:620:HIS:CD2	2.72	0.41
2:B:175:LEU:HG	2:B:182:GLN:HG2	2.01	0.41
1:C:484:SER:O	1:C:488:ALA:HB3	2.20	0.41
1:A:33:PHE:CD1	1:A:40:LYS:HG2	2.55	0.41
2:D:592:SER:C	2:D:593:THR:CG2	2.89	0.41
2:B:232:SER:HB3	2:B:287:LYS:HG2	2.02	0.41
1:A:118:THR:HG22	1:A:121:VAL:H	1.86	0.41
1:A:34:LEU:HD12	2:B:267:PRO:HB2	2.03	0.41
2:D:609:LYS:HE2	3:D:1690:HEM:O1A	2.20	0.41
2:D:634:LEU:CD1	2:D:638:LYS:HZ3	2.30	0.41
2:B:206:HIS:NE2	4:B:1291:OXY:O1	2.53	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:643:PRO:HA	2:D:646:PHE:CE2	2.56	0.40
1:A:43:PHE:HA	1:A:45:HIS:CE1	2.55	0.40
2:B:148:PRO:HA	2:B:151:LYS:HG3	2.02	0.40
1:C:431:ARG:HA	2:D:667:PRO:HB3	2.03	0.40
2:B:245:ASN:HB3	3:B:1290:HEM:HMC1	2.02	0.40
2:D:639:LEU:HD13	3:D:1690:HEM:C2D	2.57	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)
5:C:2027:HOH:O	5:C:2027:HOH:O[2_565]	1.90	0.30

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	139/141 (99%)	135 (97%)	4 (3%)	0	100	100
1	C	139/141 (99%)	128 (92%)	10 (7%)	1 (1%)	22	18
2	B	144/146 (99%)	142 (99%)	2 (1%)	0	100	100
2	D	144/146 (99%)	138 (96%)	5 (4%)	1 (1%)	22	18
All	All	566/574 (99%)	543 (96%)	21 (4%)	2 (0%)	34	32

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	419	ALA
2	D	663	LYS

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	113/113 (100%)	92 (81%)	21 (19%)	1 1
1	C	113/113 (100%)	101 (89%)	12 (11%)	6 4
2	B	118/118 (100%)	106 (90%)	12 (10%)	7 4
2	D	118/118 (100%)	104 (88%)	14 (12%)	5 2
All	All	462/462 (100%)	403 (87%)	59 (13%)	4 2

All (59) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2	LEU
1	A	16	LYS
1	A	17	VAL
1	A	23	GLU
1	A	32	MET
1	A	52	SER
1	A	60	LYS
1	A	66	LEU
1	A	68	ASN
1	A	73	VAL
1	A	84	SER
1	A	90	LYS
1	A	92	ARG
1	A	99	LYS
1	A	101	LEU
1	A	106	LEU
1	A	109	LEU
1	A	114	PRO
1	A	116	GLU
1	A	118	THR
1	A	141	ARG
2	B	146	LEU
2	B	147	THR
2	B	149	GLU

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Mol	Chain	Res	Type
2	B	155	THR
2	B	160	LYS
2	B	163	VAL
2	B	164	ASP
2	B	204	LYS
2	B	211	LEU
2	B	215	SER
2	B	238	LYS
2	B	277	VAL
1	C	402	LEU
1	C	416	LYS
1	C	417	VAL
1	C	456	LYS
1	C	473	VAL
1	C	481	SER
1	C	484	SER
1	C	501	LEU
1	C	505	LEU
1	C	509	LEU
1	C	516	GLU
1	C	541	ARG
2	D	544	VAL
2	D	563	VAL
2	D	564	ASP
2	D	575	LEU
2	D	583	ARG
2	D	601	PRO
2	D	604	LYS
2	D	609	LYS
2	D	611	LEU
2	D	618	LEU
2	D	630	THR
2	D	638	LYS
2	D	647	ARG
2	D	687	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	78	ASN
1	A	97	ASN
2	B	245	ASN

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Mol	Chain	Res	Type
2	B	260	HIS
1	C	472	HIS
1	C	497	ASN
2	D	620	HIS
2	D	623	ASN
2	D	686	HIS

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

8 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	HEM	C	1542	1,4	41,50,50	1.58	9 (21%)	45,82,82	1.83	12 (26%)
4	OXY	A	1143	3	1,1,1	0.07	0	-		
4	OXY	B	1291	3	1,1,1	0.25	0	-		
4	OXY	C	1543	3	1,1,1	0.52	0	-		
3	HEM	A	1142	1,4	41,50,50	1.66	7 (17%)	45,82,82	2.08	14 (31%)
4	OXY	D	1691	3	1,1,1	0.22	0	-		
3	HEM	B	1290	2,4	41,50,50	1.67	9 (21%)	45,82,82	2.30	15 (33%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
3	HEM	D	1690	2,4	41,50,50	1.66	7 (17%)	45,82,82	2.47	18 (40%)

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	HEM	D	1690	2,4	-	1/12/54/54	-
3	HEM	C	1542	1,4	-	3/12/54/54	-
3	HEM	B	1290	2,4	-	2/12/54/54	-
3	HEM	A	1142	1,4	-	7/12/54/54	-

All (32) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	1690	HEM	C3C-C2C	-5.30	1.33	1.40
3	A	1142	HEM	C3C-C2C	-5.05	1.33	1.40
3	A	1142	HEM	C3C-CAC	4.52	1.57	1.47
3	B	1290	HEM	C3C-C2C	-4.40	1.34	1.40
3	D	1690	HEM	C3C-CAC	4.21	1.56	1.47
3	B	1290	HEM	C3C-CAC	4.05	1.56	1.47
3	C	1542	HEM	C3C-C2C	-3.50	1.35	1.40
3	C	1542	HEM	C3C-CAC	3.01	1.54	1.47
3	C	1542	HEM	CMD-C2D	2.89	1.56	1.50
3	D	1690	HEM	CMB-C2B	2.79	1.56	1.50
3	A	1142	HEM	CMB-C2B	2.79	1.56	1.50
3	B	1290	HEM	CAB-C3B	2.71	1.54	1.47
3	C	1542	HEM	CAB-C3B	2.69	1.54	1.47
3	B	1290	HEM	CHB-C1B	2.64	1.41	1.35
3	B	1290	HEM	CAD-C3D	2.62	1.58	1.51
3	B	1290	HEM	C1D-ND	2.58	1.44	1.38
3	D	1690	HEM	CAB-C3B	2.55	1.54	1.47
3	A	1142	HEM	CMD-C2D	2.47	1.56	1.50
3	D	1690	HEM	O1A-CGA	2.46	1.30	1.22
3	B	1290	HEM	CHA-C4D	2.38	1.41	1.35
3	D	1690	HEM	C2A-C3A	-2.36	1.30	1.37
3	B	1290	HEM	C3B-C2B	-2.34	1.32	1.37
3	A	1142	HEM	CAA-C2A	2.32	1.55	1.52
3	A	1142	HEM	CAB-C3B	2.27	1.53	1.47
3	B	1290	HEM	C2C-C1C	2.25	1.47	1.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	1542	HEM	CAA-C2A	2.20	1.55	1.52
3	C	1542	HEM	O1A-CGA	2.14	1.29	1.22
3	C	1542	HEM	CMB-C2B	2.13	1.55	1.50
3	C	1542	HEM	O2D-CGD	-2.12	1.23	1.30
3	A	1142	HEM	C2A-C3A	-2.11	1.31	1.37
3	D	1690	HEM	CHA-C4D	2.09	1.40	1.35
3	C	1542	HEM	FE-NB	2.05	2.07	1.96

All (59) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	D	1690	HEM	CMA-C3A-C4A	-6.52	118.44	128.46
3	A	1142	HEM	C4C-CHD-C1D	6.44	131.06	122.56
3	B	1290	HEM	CMA-C3A-C4A	-6.26	118.83	128.46
3	D	1690	HEM	CBA-CAA-C2A	-5.32	103.55	112.62
3	B	1290	HEM	C4B-CHC-C1C	5.29	129.54	122.56
3	D	1690	HEM	CMA-C3A-C2A	5.09	134.55	124.94
3	B	1290	HEM	CMC-C2C-C3C	4.80	133.66	124.68
3	D	1690	HEM	CAD-CBD-CGD	4.77	123.86	113.60
3	C	1542	HEM	CBA-CAA-C2A	4.70	120.65	112.62
3	C	1542	HEM	CMA-C3A-C4A	-4.15	122.09	128.46
3	D	1690	HEM	C4C-CHD-C1D	4.13	128.00	122.56
3	D	1690	HEM	CHC-C4B-NB	3.99	128.76	124.43
3	A	1142	HEM	CHA-C4D-ND	3.91	129.21	124.38
3	D	1690	HEM	O1A-CGA-CBA	-3.78	110.92	123.08
3	A	1142	HEM	CBA-CAA-C2A	-3.73	106.26	112.62
3	B	1290	HEM	C2C-C3C-C4C	3.71	109.49	106.90
3	B	1290	HEM	C4A-C3A-C2A	3.71	109.58	107.00
3	B	1290	HEM	CAD-C3D-C4D	-3.65	118.28	124.66
3	D	1690	HEM	CMD-C2D-C1D	-3.62	119.53	125.04
3	A	1142	HEM	CAD-CBD-CGD	-3.61	105.84	113.60
3	C	1542	HEM	C4C-CHD-C1D	3.54	127.23	122.56
3	B	1290	HEM	CMA-C3A-C2A	3.53	131.59	124.94
3	A	1142	HEM	C4B-CHC-C1C	3.50	127.18	122.56
3	B	1290	HEM	O2A-CGA-CBA	3.42	125.01	114.03
3	C	1542	HEM	CHA-C4D-C3D	3.34	131.60	125.33
3	C	1542	HEM	CMA-C3A-C2A	3.24	131.06	124.94
3	D	1690	HEM	CMC-C2C-C3C	3.19	130.65	124.68
3	B	1290	HEM	C1B-NB-C4B	-3.08	101.89	105.07
3	D	1690	HEM	C2C-C3C-C4C	3.05	109.03	106.90
3	A	1142	HEM	CMC-C2C-C3C	3.04	130.37	124.68
3	C	1542	HEM	CMC-C2C-C3C	2.96	130.21	124.68

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	C	1542	HEM	C4D-ND-C1D	2.86	108.03	105.07
3	B	1290	HEM	O2D-CGD-O1D	-2.86	116.18	123.30
3	B	1290	HEM	CAA-C2A-C3A	2.85	135.43	127.25
3	C	1542	HEM	CBD-CAD-C3D	-2.83	104.76	112.63
3	D	1690	HEM	CHB-C1B-NB	2.81	127.85	124.38
3	A	1142	HEM	CBD-CAD-C3D	-2.78	104.90	112.63
3	A	1142	HEM	CMA-C3A-C2A	2.77	130.16	124.94
3	D	1690	HEM	C3B-C2B-C1B	2.76	108.53	106.49
3	C	1542	HEM	C3D-C4D-ND	-2.66	107.21	110.17
3	C	1542	HEM	CHA-C4D-ND	-2.65	121.11	124.38
3	A	1142	HEM	CAA-CBA-CGA	-2.64	106.35	113.76
3	A	1142	HEM	CMA-C3A-C4A	-2.64	124.40	128.46
3	D	1690	HEM	CHA-C4D-C3D	2.60	130.20	125.33
3	C	1542	HEM	O1A-CGA-CBA	2.51	131.15	123.08
3	B	1290	HEM	O2A-CGA-O1A	-2.47	117.15	123.30
3	B	1290	HEM	CAD-C3D-C2D	2.35	132.25	127.88
3	D	1690	HEM	O2A-CGA-CBA	2.33	121.51	114.03
3	B	1290	HEM	CBA-CAA-C2A	-2.29	108.72	112.62
3	A	1142	HEM	C4A-C3A-C2A	-2.25	105.43	107.00
3	D	1690	HEM	C4B-CHC-C1C	-2.22	119.63	122.56
3	D	1690	HEM	CMD-C2D-C3D	2.21	132.12	126.12
3	D	1690	HEM	CHA-C4D-ND	-2.19	121.68	124.38
3	A	1142	HEM	O1D-CGD-CBD	-2.18	116.09	123.08
3	B	1290	HEM	C2B-C1B-NB	2.13	112.37	109.84
3	A	1142	HEM	CHD-C1D-C2D	2.09	128.25	124.98
3	D	1690	HEM	CHC-C4B-C3B	-2.08	121.39	124.57
3	A	1142	HEM	CHC-C4B-C3B	2.05	127.70	124.57
3	C	1542	HEM	C2C-C3C-C4C	2.03	108.32	106.90

There are no chirality outliers.

All (13) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	1142	HEM	C2B-C3B-CAB-CBB
3	A	1142	HEM	C4B-C3B-CAB-CBB
3	C	1542	HEM	CAD-CBD-CGD-O1D
3	A	1142	HEM	CAD-CBD-CGD-O1D
3	A	1142	HEM	C2A-CAA-CBA-CGA
3	C	1542	HEM	CAD-CBD-CGD-O2D
3	B	1290	HEM	CAD-CBD-CGD-O2D
3	D	1690	HEM	C3D-CAD-CBD-CGD
3	A	1142	HEM	CAD-CBD-CGD-O2D

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Mol	Chain	Res	Type	Atoms
3	B	1290	HEM	CAD-CBD-CGD-O1D
3	A	1142	HEM	CAA-CBA-CGA-O2A
3	A	1142	HEM	CAA-CBA-CGA-O1A
3	C	1542	HEM	C4B-C3B-CAB-CBB

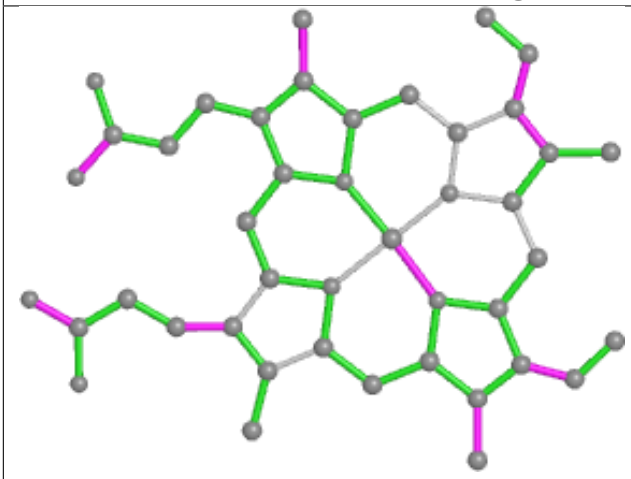
There are no ring outliers.

5 monomers are involved in 18 short contacts:

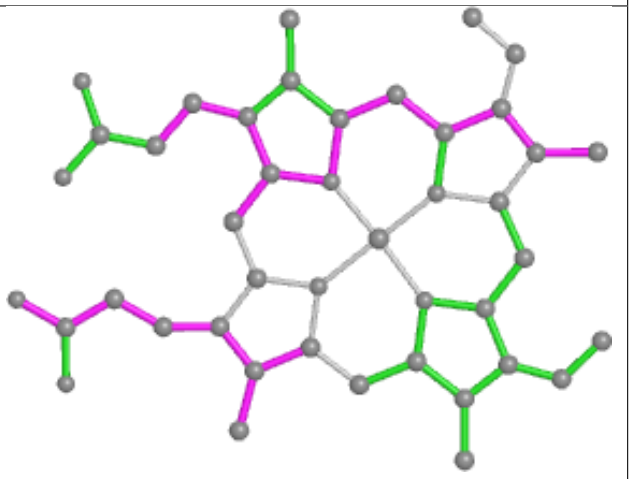
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	1291	OXY	2	0
3	A	1142	HEM	3	0
4	D	1691	OXY	2	0
3	B	1290	HEM	1	0
3	D	1690	HEM	10	0

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.

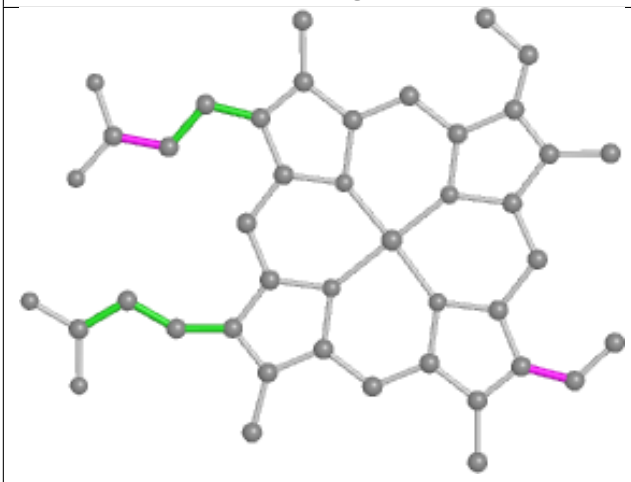
Ligand HEM C 1542



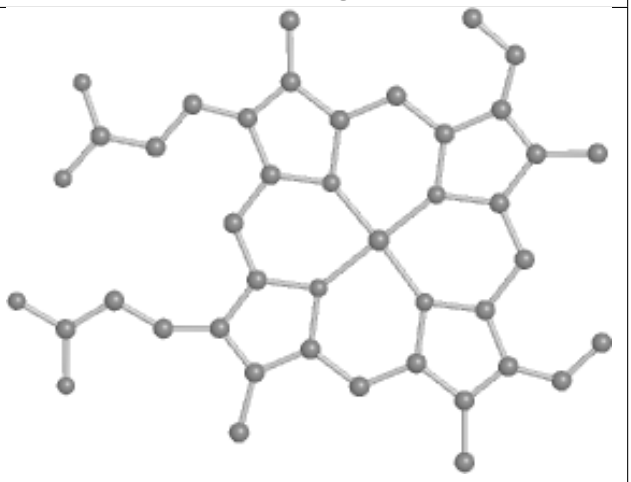
Bond lengths



Bond angles

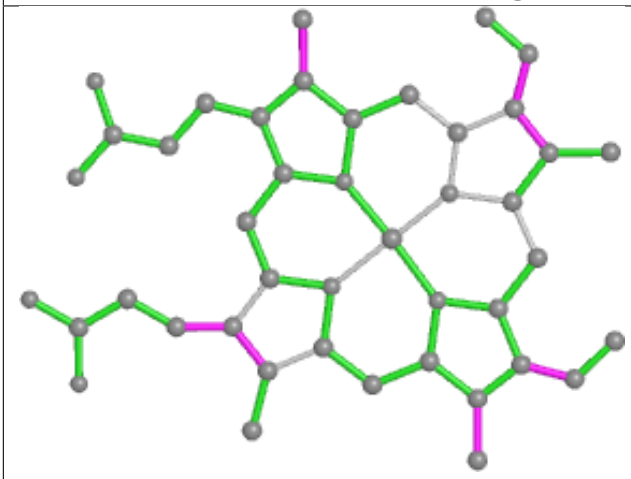


Torsions

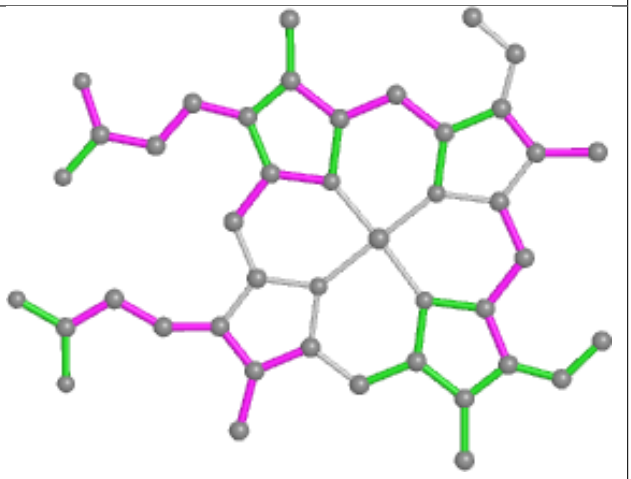


Rings

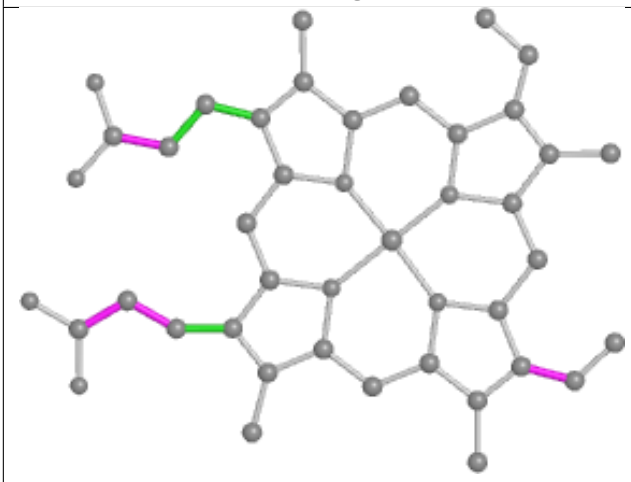
Ligand HEM A 1142



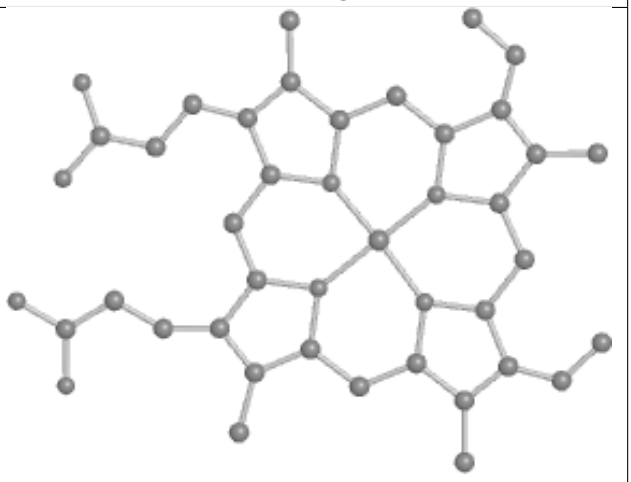
Bond lengths



Bond angles

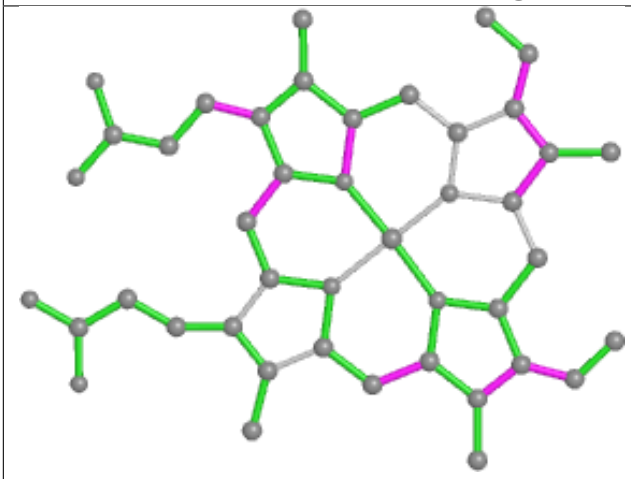


Torsions

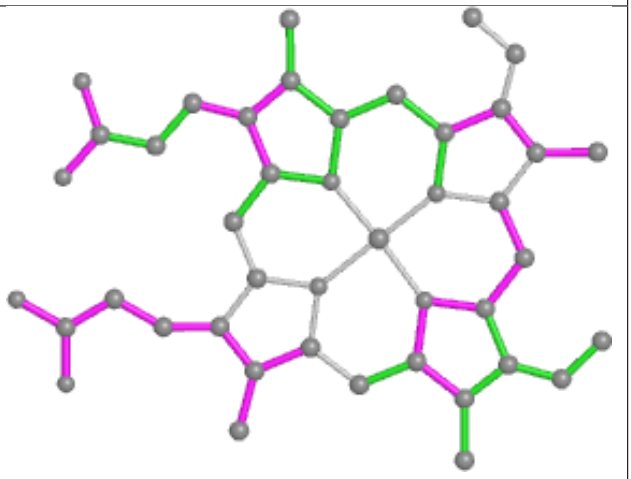


Rings

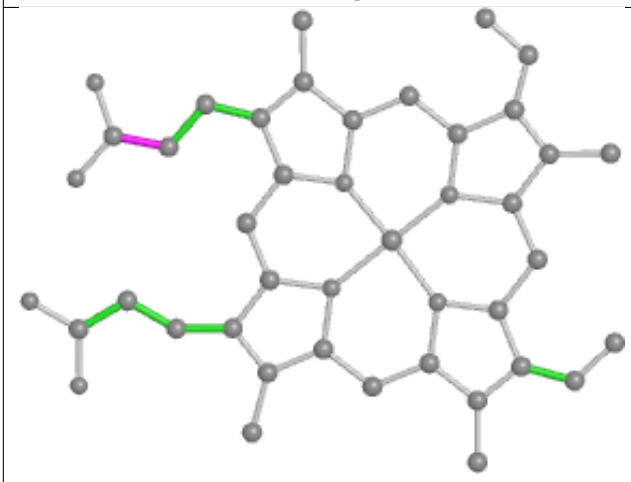
Ligand HEM B 1290



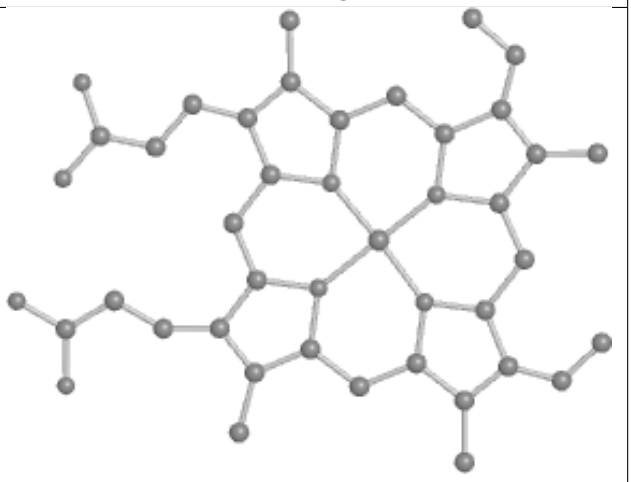
Bond lengths



Bond angles

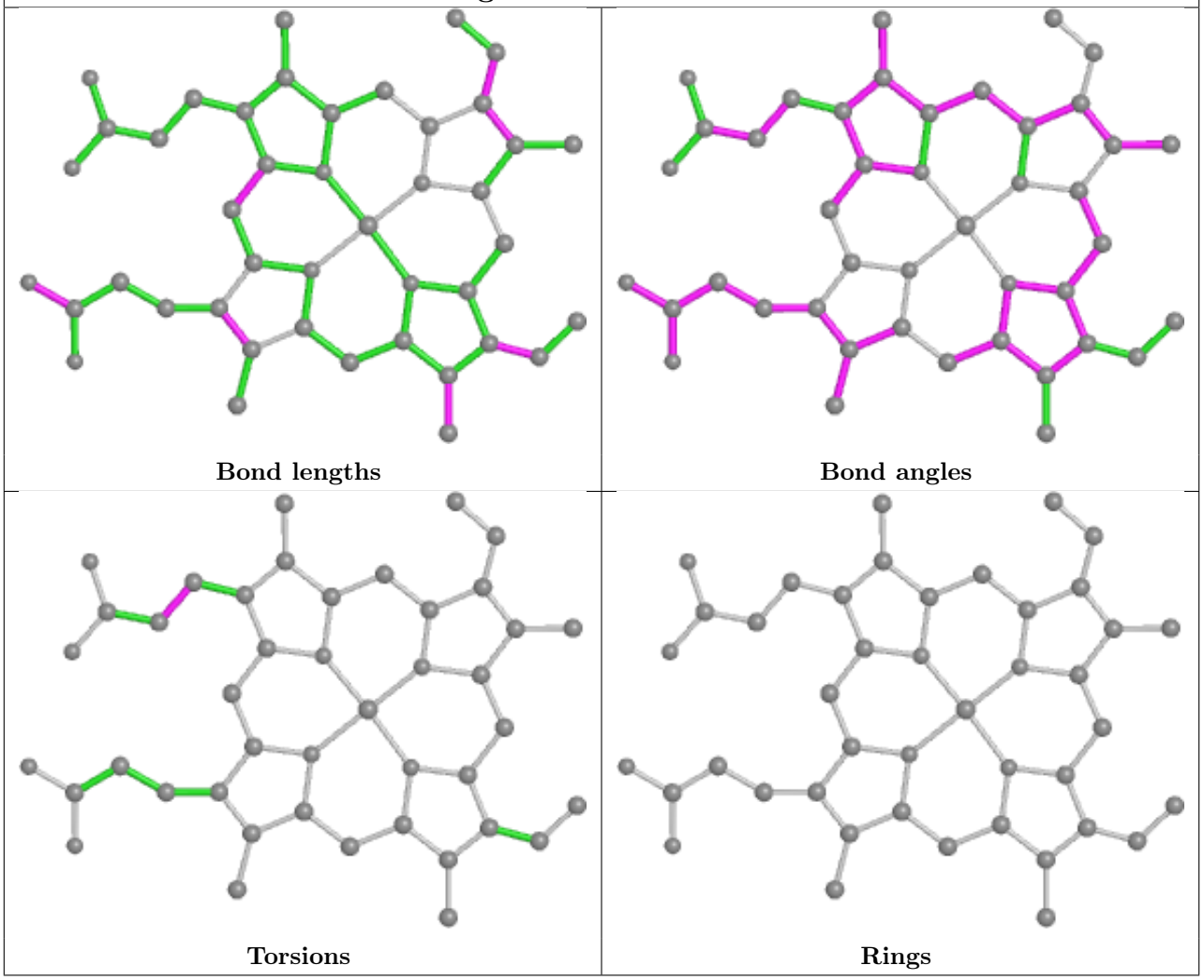


Torsions



Rings

Ligand HEM D 1690



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	141/141 (100%)	-0.33	0	100	100	17, 24, 35, 44	0
1	C	141/141 (100%)	-0.22	0	100	100	14, 27, 37, 46	0
2	B	146/146 (100%)	-0.15	5 (3%)	45	51	15, 23, 40, 54	0
2	D	146/146 (100%)	0.00	2 (1%)	75	78	16, 28, 42, 55	0
All	All	574/574 (100%)	-0.18	7 (1%)	79	82	14, 26, 40, 55	0

All (7) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	D	544	VAL	5.8
2	B	144	VAL	4.4
2	B	146	LEU	3.1
2	B	148	PRO	3.0
2	B	147	THR	2.7
2	D	545	HIS	2.1
2	B	145	HIS	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 (i)

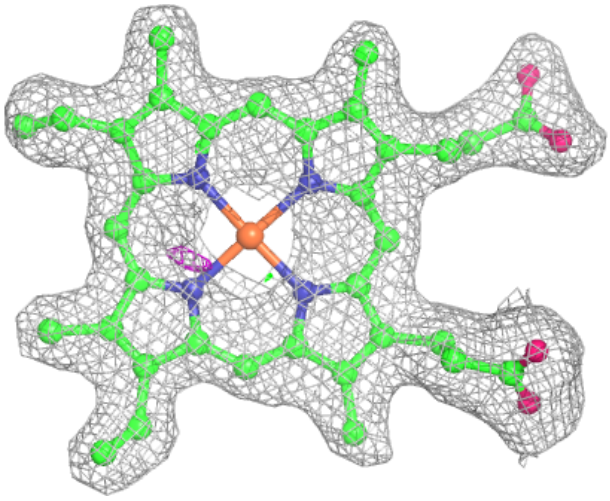
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

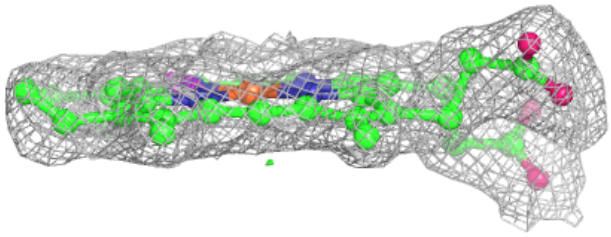
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	HEM	A	1142	43/43	0.97	0.11	23,27,36,44	0
3	HEM	D	1690	43/43	0.97	0.11	25,28,40,42	0
3	HEM	C	1542	43/43	0.98	0.09	17,22,34,40	0
3	HEM	B	1290	43/43	0.98	0.11	13,18,25,28	0
4	OXY	D	1691	2/2	0.98	0.12	30,30,30,36	0
4	OXY	B	1291	2/2	0.99	0.14	19,19,19,21	2
4	OXY	C	1543	2/2	0.99	0.10	25,25,25,30	0
4	OXY	A	1143	2/2	0.99	0.11	27,27,27,33	0

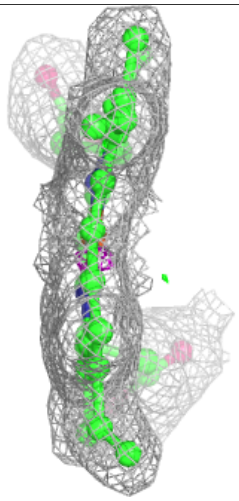
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around HEM A 1142:

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

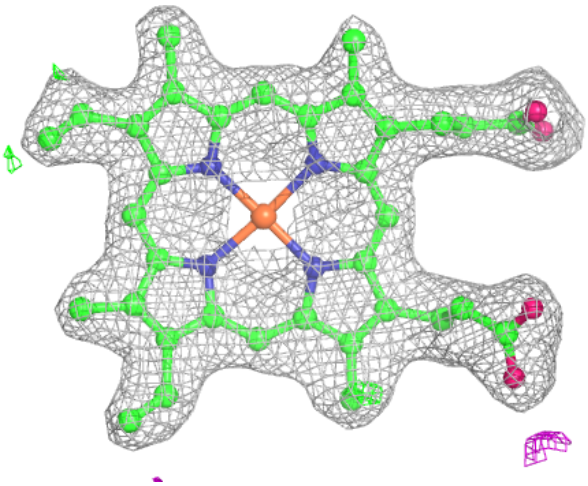


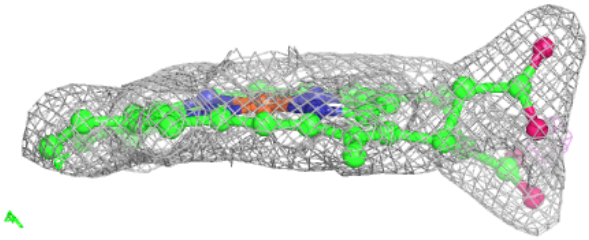


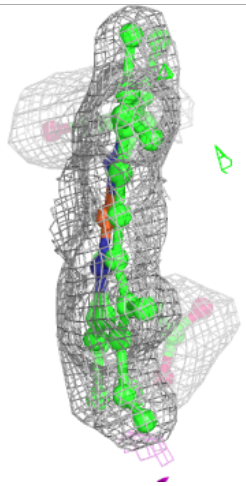


Electron density around HEM D 1690:

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

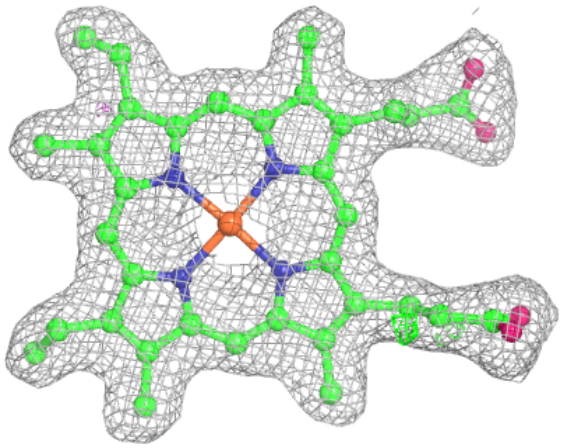


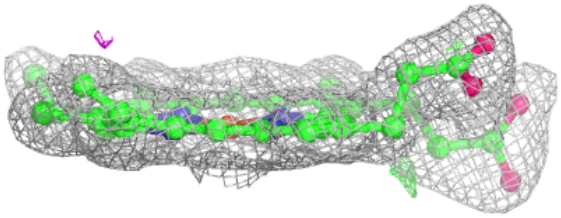


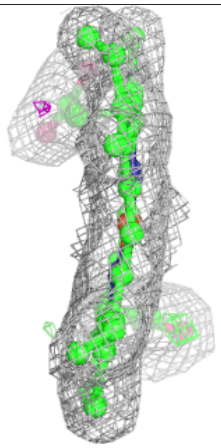


Electron density around HEM C 1542:

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

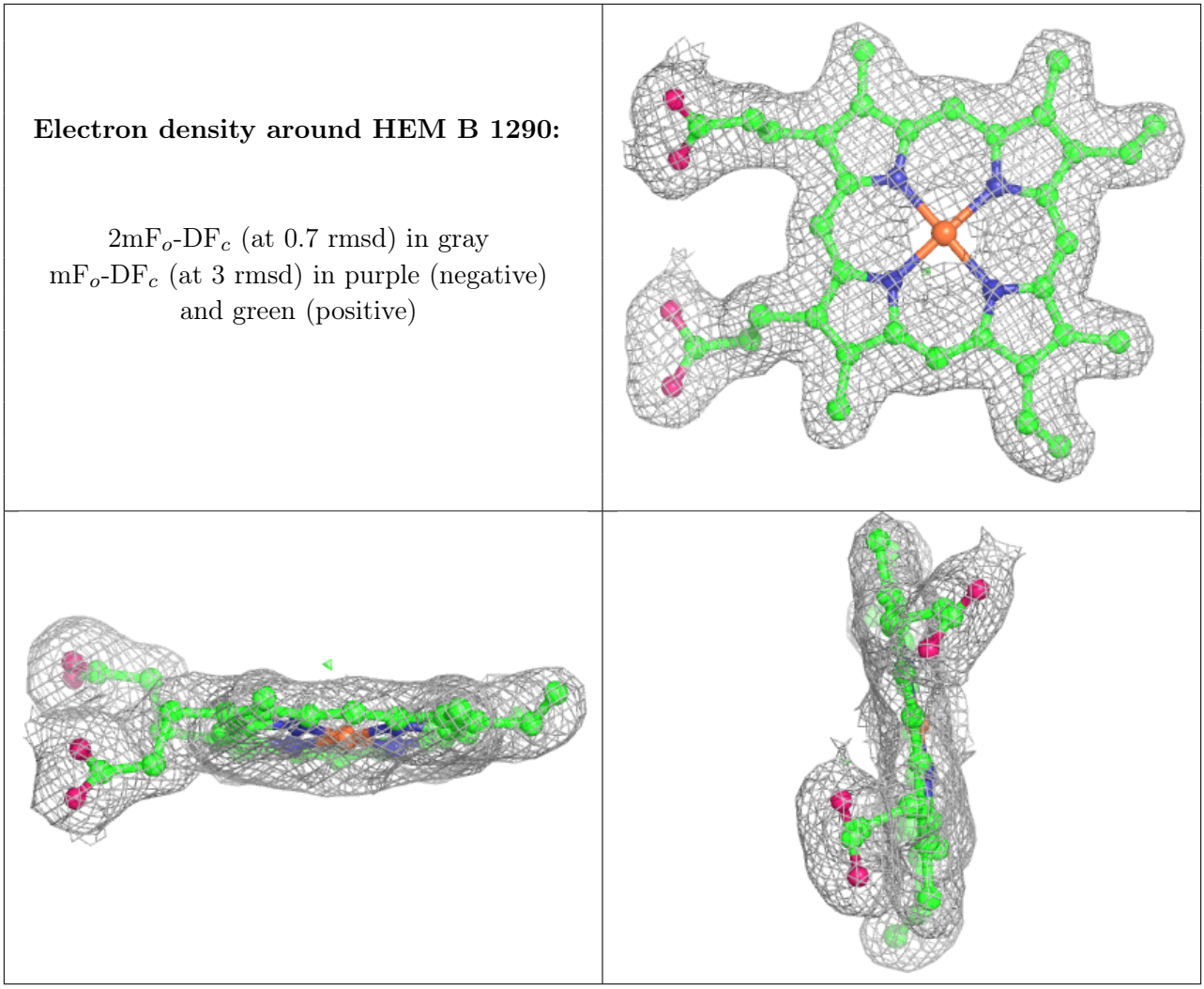






Electron density around HEM B 1290:

$2mF_o$-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.