



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 6, 2026 – 10:29 AM UTC

PDB ID : 2GC7 / pdb_00002gc7
Title : Substrate reduced, copper free complex of methylamine dehydrogenase, amicyanin and cytochrome c551i from *Paracoccus denitrificans*.
Authors : Chen, Z.; Durley, R.; Davidson, V.L.; Mathews, F.S.
Deposited on : 2006-03-13
Resolution : 1.90 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

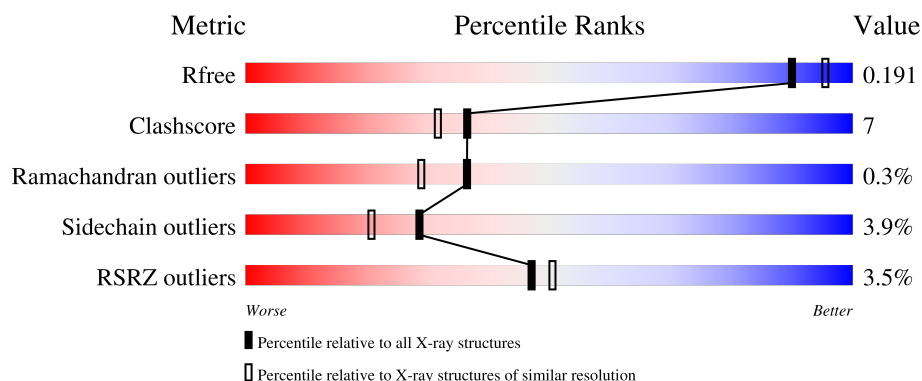
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.90 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}	180053	7789 (1.90-1.90)
Clashscore	190562	8410 (1.90-1.90)
Ramachandran outliers	187476	8333 (1.90-1.90)
Sidechain outliers	187428	8333 (1.90-1.90)
RSRZ outliers	180081	7790 (1.90-1.90)

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	386	2% 80% 18% ..
1	E	386	2% 82% 17% .
1	I	386	2% 79% 18% ..
1	M	386	% 81% 16% ..
2	B	131	2% 81% 13% .. 5%

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Mol	Chain	Length	Quality of chain
2	F	131	 2% 79% 15% .. 5%
2	J	131	 2% 81% 12% .. 5%
2	N	131	 2% 79% 15% .. 5%
3	C	105	 5% 74% 25% .
3	G	105	 5% 84% 16%
3	K	105	 5% 90% 10%
3	O	105	 29% 76% 20% .
4	D	147	 % 73% 20% 6%
4	H	147	 8% 75% 23% .
4	L	147	 3% 76% 21% .
4	P	147	 5% 76% 21% .

2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 24910 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 Methylamine dehydrogenase heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	382	Total	C	N	O	S	0	0	0
			2967	1878	509	572	8			
1	E	382	Total	C	N	O	S	0	0	0
			2967	1878	509	572	8			
1	I	382	Total	C	N	O	S	0	0	0
			2967	1878	509	572	8			
1	M	382	Total	C	N	O	S	0	0	0
			2967	1878	509	572	8			

- Molecule 2 is a protein called Methylamine dehydrogenase light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	125	Total	C	N	O	S	0	0	0
			956	590	161	192	13			
2	F	125	Total	C	N	O	S	0	0	0
			956	590	161	192	13			
2	J	125	Total	C	N	O	S	0	0	0
			956	590	161	192	13			
2	N	125	Total	C	N	O	S	0	0	0
			956	590	161	192	13			

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	57	TRQ	TRP	modified residue	UNP P22619
F	57	TRQ	TRP	modified residue	UNP P22619
J	57	TRQ	TRP	modified residue	UNP P22619
N	57	TRQ	TRP	modified residue	UNP P22619

- Molecule 3 is a protein called Amicyanin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	C	105	Total	C	N	O	S	0	0	0
			807	516	133	152	6			
3	G	105	Total	C	N	O	S	0	0	0
			807	516	133	152	6			
3	K	105	Total	C	N	O	S	0	0	0
			807	516	133	152	6			
3	O	105	Total	C	N	O	S	0	0	0
			807	516	133	152	6			

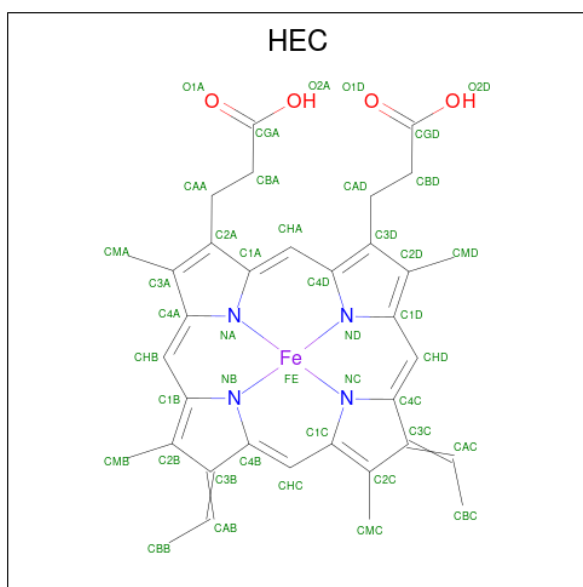
- Molecule 4 is a protein called Cytochrome c-L.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	D	147	Total	C	N	O	S	0	0	0
			1145	724	182	231	8			
4	H	147	Total	C	N	O	S	0	0	0
			1145	724	182	231	8			
4	L	147	Total	C	N	O	S	0	0	0
			1145	724	182	231	8			
4	P	147	Total	C	N	O	S	0	0	0
			1145	724	182	231	8			

- Molecule 5 is SODIUM ION (CCD ID: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	D	1	Total	Na	0	0
			1	1		
5	H	1	Total	Na	0	0
			1	1		
5	L	1	Total	Na	0	0
			1	1		
5	P	1	Total	Na	0	0
			1	1		

- Molecule 6 is HEME C (CCD ID: HEC) (formula: C₃₄H₃₄FeN₄O₄).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
6	D	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
6	H	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
6	L	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
6	P	1	Total 43	C 34	Fe 1	N 4	O 4	0	0

- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	179	Total	O	0	0
			179	179		
7	B	55	Total	O	0	0
			55	55		
7	C	24	Total	O	0	0
			24	24		
7	D	46	Total	O	0	0
			46	46		
7	E	178	Total	O	0	0
			178	178		
7	F	65	Total	O	0	0
			65	65		
7	G	26	Total	O	0	0
			26	26		
7	H	42	Total	O	0	0
			42	42		

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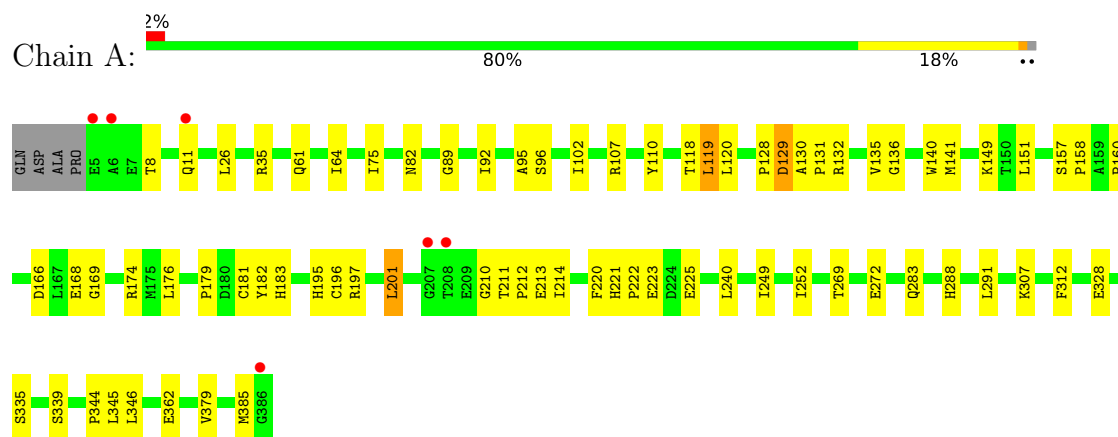
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	I	179	Total 179	O 179	0	0
7	J	61	Total 61	O 61	0	0
7	K	32	Total 32	O 32	0	0
7	L	48	Total 48	O 48	0	0
7	M	195	Total 195	O 195	0	0
7	N	53	Total 53	O 53	0	0
7	O	14	Total 14	O 14	0	0
7	P	37	Total 37	O 37	0	0

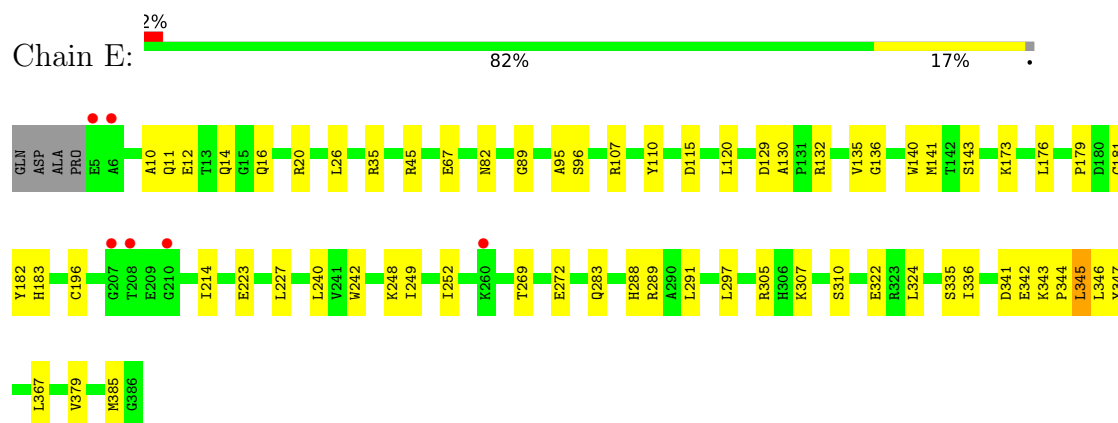
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

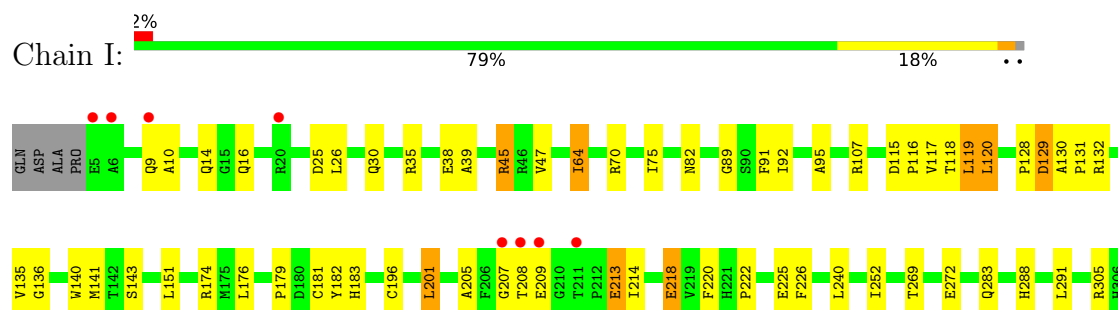
- Molecule 1: Methylamine dehydrogenase heavy chain



- Molecule 1: Methylamine dehydrogenase heavy chain

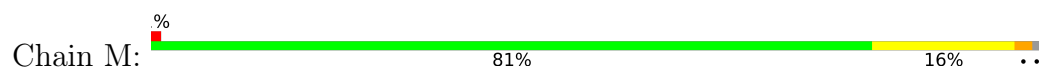


- Molecule 1: Methylamine dehydrogenase heavy chain

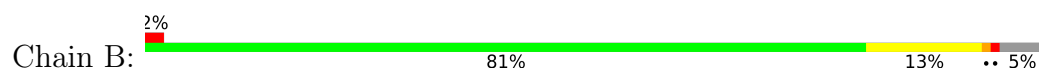




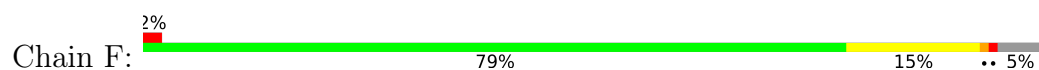
- Molecule 1: Methylamine dehydrogenase heavy chain



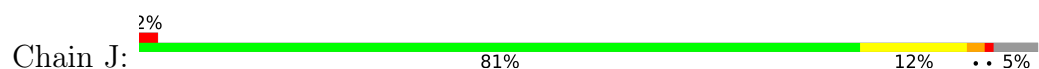
- Molecule 2: Methylamine dehydrogenase light chain



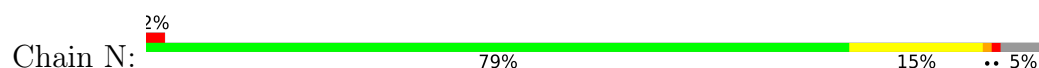
- Molecule 2: Methylamine dehydrogenase light chain



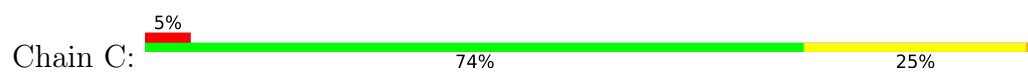
- Molecule 2: Methylamine dehydrogenase light chain



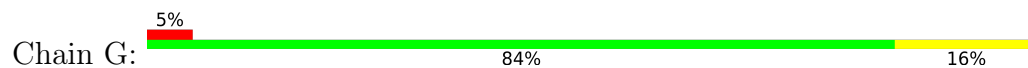
- Molecule 2: Methylamine dehydrogenase light chain



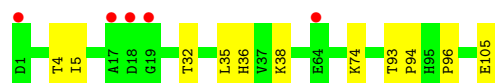
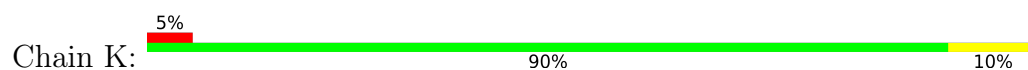
- Molecule 3: Amicyanin



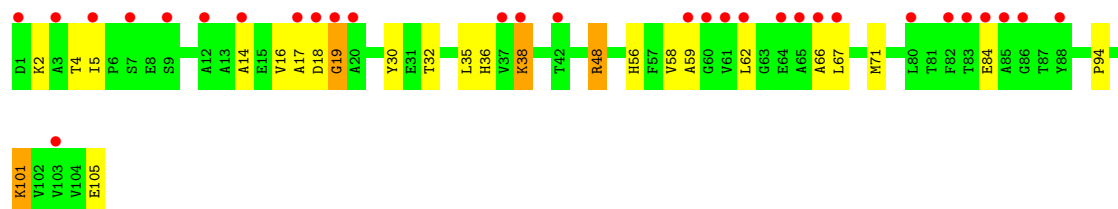
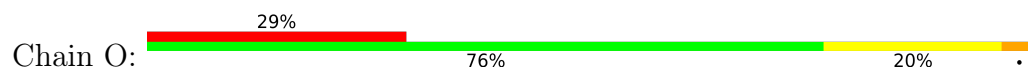
• Molecule 3: Amicyanin



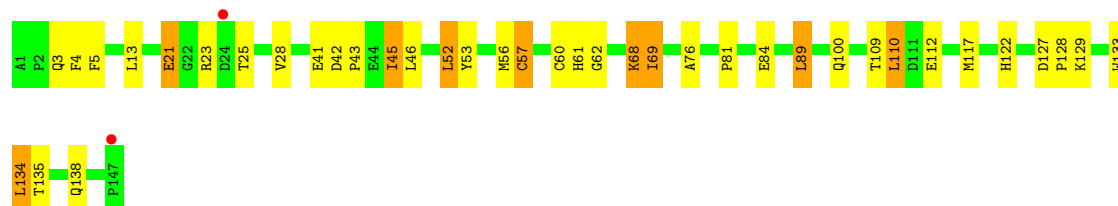
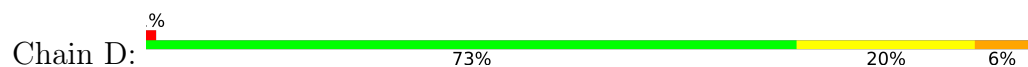
• Molecule 3: Amicyanin



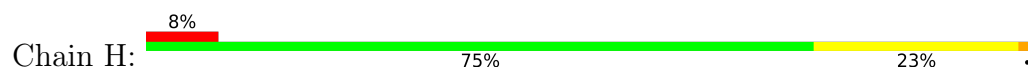
• Molecule 3: Amicyanin



• Molecule 4: Cytochrome c-L

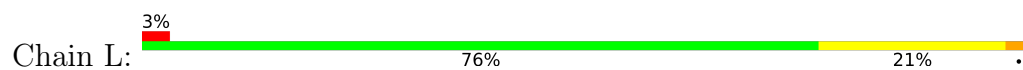


• Molecule 4: Cytochrome c-L

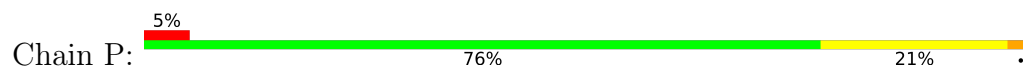




• Molecule 4: Cytochrome c-L



• Molecule 4: Cytochrome c-L



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	81.32Å 189.13Å 128.91Å 90.00° 99.75° 90.00°	Depositor
Resolution (Å)	29.94 – 1.90 29.94 – 1.90	Depositor EDS
% Data completeness (in resolution range)	82.4 (29.94-1.90) 82.4 (29.94-1.90)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.62 (at 1.85Å)	Xtrriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.171 , 0.198 0.165 , 0.191	Depositor DCC
R_{free} test set	20339 reflections (7.99%)	wwPDB-VP
Wilson B-factor (Å ²)	25.4	Xtrriage
Anisotropy	0.351	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 44.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.97	EDS
Total number of atoms	24910	wwPDB-VP
Average B, all atoms (Å ²)	31.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 41.93 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 2.1960e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

¹Intensities estimated from amplitudes.

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

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: HEC, TRQ, NA

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	0.35	0/3044	0.92	9/4148 (0.2%)
1	E	0.35	0/3044	0.93	12/4148 (0.3%)
1	I	0.36	0/3044	0.93	12/4148 (0.3%)
1	M	0.35	0/3044	0.95	18/4148 (0.4%)
2	B	0.40	0/964	0.91	6/1315 (0.5%)
2	F	0.41	0/964	0.92	6/1315 (0.5%)
2	J	0.42	0/964	0.92	5/1315 (0.4%)
2	N	0.40	0/964	0.91	6/1315 (0.5%)
3	C	0.36	0/828	0.87	4/1124 (0.4%)
3	G	0.37	0/828	0.86	3/1124 (0.3%)
3	K	0.36	0/828	0.92	2/1124 (0.2%)
3	O	0.35	0/828	0.87	3/1124 (0.3%)
4	D	0.49	2/1180 (0.2%)	0.98	4/1605 (0.2%)
4	H	0.53	2/1180 (0.2%)	1.01	7/1605 (0.4%)
4	L	0.51	2/1180 (0.2%)	0.99	6/1605 (0.4%)
4	P	0.50	2/1180 (0.2%)	0.97	7/1605 (0.4%)
All	All	0.40	8/24064 (0.0%)	0.93	110/32768 (0.3%)

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	H	61	HIS	CE1-NE2	12.13	1.44	1.32
4	P	61	HIS	CE1-NE2	11.52	1.44	1.32
4	L	61	HIS	CE1-NE2	11.49	1.44	1.32
4	D	61	HIS	CE1-NE2	10.71	1.43	1.32
4	P	61	HIS	ND1-CE1	5.85	1.38	1.32
4	H	61	HIS	ND1-CE1	5.83	1.38	1.32
4	L	61	HIS	ND1-CE1	5.79	1.38	1.32
4	D	61	HIS	ND1-CE1	5.78	1.38	1.32

All (110) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	P	61	HIS	ND1-CG-CD2	14.00	120.10	106.10
4	H	61	HIS	ND1-CG-CD2	13.89	119.99	106.10
4	L	61	HIS	ND1-CG-CD2	13.88	119.98	106.10
4	D	61	HIS	ND1-CG-CD2	13.79	119.89	106.10
4	H	61	HIS	CB-CG-CD2	-9.31	119.10	131.20
4	L	61	HIS	CB-CG-CD2	-9.29	119.12	131.20
4	D	61	HIS	CB-CG-CD2	-9.26	119.17	131.20
4	P	61	HIS	CB-CG-CD2	-9.24	119.19	131.20
3	K	32	THR	CA-C-N	8.37	128.49	119.28
3	K	32	THR	C-N-CA	8.37	128.49	119.28
3	O	32	THR	CA-C-N	7.16	126.78	119.19
3	O	32	THR	C-N-CA	7.16	126.78	119.19
2	F	104	ASN	N-CA-C	7.09	121.24	112.59
2	J	26	TRP	N-CA-C	6.96	119.76	111.33
2	N	26	TRP	N-CA-C	6.89	119.66	111.33
2	B	26	TRP	N-CA-C	6.73	119.48	111.33
2	F	26	TRP	N-CA-C	6.67	119.40	111.33
2	F	78	CYS	N-CA-C	6.57	119.14	109.69
1	I	95	ALA	N-CA-C	-6.52	98.11	108.73
2	B	78	CYS	N-CA-C	6.51	119.07	109.69
1	E	342	GLU	N-CA-C	6.50	118.44	111.36
1	M	339	SER	N-CA-C	-6.49	100.87	110.48
4	D	61	HIS	CG-CD2-NE2	-6.48	100.72	107.20
2	N	104	ASN	N-CA-C	6.47	121.23	112.88
1	I	379	VAL	N-CA-C	6.44	117.12	108.11
2	J	104	ASN	N-CA-C	6.41	121.15	112.88
2	N	78	CYS	N-CA-C	6.37	118.86	109.69
4	P	61	HIS	CG-CD2-NE2	-6.36	100.84	107.20
2	J	78	CYS	N-CA-C	6.33	118.81	109.69
2	B	104	ASN	N-CA-C	6.33	121.05	112.88
1	E	343	LYS	CA-C-N	6.33	126.30	119.78
1	E	343	LYS	C-N-CA	6.33	126.30	119.78
4	L	61	HIS	CG-CD2-NE2	-6.28	100.92	107.20
1	A	379	VAL	N-CA-C	6.26	116.88	108.11
1	I	344	PRO	N-CA-C	6.24	121.13	111.21
1	I	140	TRP	N-CA-C	6.23	119.58	112.97
1	E	95	ALA	N-CA-C	-6.21	99.12	109.24
1	A	140	TRP	N-CA-C	6.17	119.50	112.97
1	E	140	TRP	N-CA-C	6.16	119.50	112.97
1	E	249	ILE	N-CA-C	6.06	116.59	107.80
4	H	61	HIS	CG-CD2-NE2	-6.03	101.17	107.20
3	G	32	THR	CA-C-N	6.02	125.73	119.05
3	G	32	THR	C-N-CA	6.02	125.73	119.05

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	32	THR	CA-C-N	5.99	125.87	119.28
3	C	32	THR	C-N-CA	5.99	125.87	119.28
1	I	343	LYS	CA-C-N	5.92	125.88	119.78
1	I	343	LYS	C-N-CA	5.92	125.88	119.78
1	A	95	ALA	N-CA-C	-5.90	99.62	109.24
1	M	95	ALA	N-CA-C	-5.79	99.30	108.73
2	F	99	ARG	N-CA-C	-5.77	100.55	109.79
2	J	99	ARG	N-CA-C	-5.76	100.58	109.79
4	P	80	TYR	CA-C-N	5.76	127.03	119.84
4	P	80	TYR	C-N-CA	5.76	127.03	119.84
1	A	64	ILE	N-CA-C	5.75	116.77	108.48
2	B	99	ARG	N-CA-C	-5.73	100.63	109.79
1	E	115	ASP	N-CA-C	-5.69	102.48	109.65
2	J	77	CYS	N-CA-C	-5.67	100.00	109.24
1	M	64	ILE	N-CA-C	5.62	116.58	108.48
2	N	99	ARG	N-CA-C	-5.61	100.82	109.79
1	A	339	SER	N-CA-C	-5.60	102.99	110.55
1	M	379	VAL	N-CA-C	5.59	115.93	108.11
2	B	77	CYS	N-CA-C	-5.58	100.15	109.24
1	A	141	MET	N-CA-C	-5.56	106.16	113.17
1	M	140	TRP	N-CA-C	5.55	118.86	112.97
1	M	141	MET	N-CA-C	-5.55	106.17	113.17
1	M	33	GLU	CA-C-N	5.55	125.56	119.90
1	M	33	GLU	C-N-CA	5.55	125.56	119.90
1	M	249	ILE	N-CA-C	5.54	115.83	107.80
1	M	226	PHE	N-CA-C	5.52	117.73	108.73
1	M	129	ASP	N-CA-C	5.46	119.11	111.74
1	E	379	VAL	N-CA-C	5.45	115.74	108.11
2	N	77	CYS	N-CA-C	-5.44	100.38	109.24
2	F	77	CYS	N-CA-C	-5.43	100.39	109.24
1	M	343	LYS	CA-C-N	5.43	125.43	119.89
1	M	343	LYS	C-N-CA	5.43	125.43	119.89
4	P	69	ILE	N-CA-C	-5.39	105.28	110.72
1	I	141	MET	N-CA-C	-5.37	106.40	113.17
1	A	344	PRO	N-CA-C	5.34	119.70	111.21
1	M	342	GLU	N-CA-C	5.33	117.52	111.02
3	C	22	VAL	N-CA-C	5.32	116.14	108.48
4	L	74	ASN	N-CA-C	5.32	119.07	112.59
1	M	344	PRO	N-CA-C	5.31	119.55	111.11
1	E	143	SER	N-CA-C	5.29	117.22	109.24
1	M	329	MET	N-CA-C	5.28	117.95	111.82
3	G	22	VAL	N-CA-C	5.28	116.08	108.48

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	I	226	PHE	N-CA-C	5.26	117.30	108.73
1	I	129	ASP	N-CA-C	5.23	118.65	111.54
1	E	344	PRO	N-CA-C	5.22	119.51	111.21
1	A	129	ASP	N-CA-C	5.21	118.90	112.24
3	C	30	TYR	N-CA-C	-5.20	100.04	108.41
4	L	61	HIS	CG-ND1-CE1	-5.20	100.47	109.30
4	H	23	ARG	N-CA-C	-5.17	107.35	113.97
1	E	141	MET	N-CA-C	-5.17	106.66	113.17
4	H	20	GLU	CA-C-N	-5.16	114.96	122.65
4	H	20	GLU	C-N-CA	-5.16	114.96	122.65
1	I	64	ILE	N-CA-C	5.16	115.91	108.48
1	I	143	SER	N-CA-C	5.16	117.03	109.24
4	H	61	HIS	CG-ND1-CE1	-5.15	100.54	109.30
4	D	61	HIS	CG-ND1-CE1	-5.14	100.56	109.30
4	P	61	HIS	CG-ND1-CE1	-5.14	100.57	109.30
2	N	105	ASP	N-CA-C	-5.13	106.86	113.23
1	I	115	ASP	N-CA-C	-5.13	103.19	109.65
1	M	115	ASP	N-CA-C	-5.06	102.07	109.50
4	L	57	CYS	N-CA-C	5.04	120.30	114.04
2	B	105	ASP	N-CA-C	-5.04	106.98	113.23
1	M	360	ASP	N-CA-C	-5.03	101.56	109.25
2	F	105	ASP	N-CA-C	-5.02	107.00	113.23
3	O	30	TYR	N-CA-C	-5.02	100.33	108.41
1	E	248	LYS	N-CA-C	-5.01	102.86	110.28
1	A	249	ILE	N-CA-C	5.00	115.06	107.75

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	2967	0	2845	48	0
1	E	2967	0	2845	39	0
1	I	2967	0	2845	50	0
1	M	2967	0	2845	39	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	956	0	857	13	0
2	F	956	0	857	15	0
2	J	956	0	857	18	0
2	N	956	0	857	16	0
3	C	807	0	795	14	0
3	G	807	0	795	9	0
3	K	807	0	795	9	0
3	O	807	0	795	17	0
4	D	1145	0	1038	28	0
4	H	1145	0	1038	21	0
4	L	1145	0	1038	19	0
4	P	1145	0	1038	19	0
5	D	1	0	0	0	0
5	H	1	0	0	0	0
5	L	1	0	0	0	0
5	P	1	0	0	0	0
6	D	43	0	30	1	0
6	H	43	0	30	0	0
6	L	43	0	30	1	0
6	P	43	0	30	1	0
7	A	179	0	0	5	0
7	B	55	0	0	0	0
7	C	24	0	0	1	0
7	D	46	0	0	1	0
7	E	178	0	0	1	0
7	F	65	0	0	0	0
7	G	26	0	0	1	0
7	H	42	0	0	0	0
7	I	179	0	0	2	0
7	J	61	0	0	1	0
7	K	32	0	0	1	0
7	L	48	0	0	0	0
7	M	195	0	0	2	0
7	N	53	0	0	0	0
7	O	14	0	0	1	0
7	P	37	0	0	0	0
All	All	24910	0	22260	332	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 (332) 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)
4:D:60:CYS:HA	4:D:69:ILE:HD11	1.39	1.02
2:J:21:GLN:HE22	1:M:11:GLN:HG3	1.25	0.99
2:J:21:GLN:NE2	1:M:11:GLN:HG3	1.81	0.95
1:E:288:HIS:HD2	1:E:291:LEU:H	1.18	0.90
2:J:57:TRQ:HB2	2:J:108:TRP:NE1	1.88	0.89
2:B:57:TRQ:HB2	2:B:108:TRP:NE1	1.87	0.88
1:I:288:HIS:HD2	1:I:291:LEU:H	1.21	0.87
2:F:57:TRQ:HB2	2:F:108:TRP:NE1	1.89	0.87
2:N:57:TRQ:HB2	2:N:108:TRP:NE1	1.88	0.87
1:M:288:HIS:HD2	1:M:291:LEU:H	1.23	0.86
1:A:288:HIS:HD2	1:A:291:LEU:H	1.23	0.84
4:D:60:CYS:HA	4:D:69:ILE:CD1	2.10	0.81
1:M:173:LYS:HE2	1:M:173:LYS:HA	1.65	0.78
4:D:42:ASP:HB3	4:D:45:ILE:HD12	1.66	0.77
1:I:82:ASN:HD22	1:I:132:ARG:HH11	1.34	0.76
1:M:45:ARG:HD2	1:M:67:GLU:HG2	1.68	0.75
1:A:11:GLN:HB2	2:F:21:GLN:HE22	1.52	0.75
4:D:133:TRP:CD1	4:D:134:LEU:HD13	2.22	0.74
4:P:21:GLU:H	4:P:21:GLU:CD	1.96	0.74
4:P:4:PHE:HB3	4:P:13:LEU:HD12	1.69	0.73
4:D:23:ARG:HG2	4:D:110:LEU:HD22	1.69	0.73
4:L:34:THR:OG1	4:L:36:GLU:HG2	1.89	0.73
2:B:57:TRQ:HB2	2:B:108:TRP:HE1	1.54	0.73
3:C:38:LYS:HG2	3:C:41:ASP:OD2	1.88	0.72
2:J:57:TRQ:HB2	2:J:108:TRP:HE1	1.53	0.72
4:P:127:ASP:HB3	4:P:130:ASP:OD2	1.89	0.72
1:I:35:ARG:H	2:N:45:ASN:HD22	1.37	0.72
4:L:20:GLU:H	4:L:20:GLU:CD	1.97	0.72
1:M:82:ASN:HD22	1:M:132:ARG:HH11	1.39	0.70
2:F:57:TRQ:HB2	2:F:108:TRP:HE1	1.56	0.69
4:P:133:TRP:CD1	4:P:134:LEU:HD13	2.27	0.68
1:M:319:LYS:NZ	1:M:319:LYS:HB3	2.08	0.68
1:A:82:ASN:HD22	1:A:132:ARG:HH11	1.40	0.68
2:N:57:TRQ:HB2	2:N:108:TRP:HE1	1.55	0.68
1:A:35:ARG:H	2:F:45:ASN:HD22	1.43	0.66
1:I:179:PRO:HD3	1:I:214:ILE:HD13	1.76	0.66
2:J:45:ASN:HD22	1:M:35:ARG:H	1.43	0.66
1:A:179:PRO:HD3	1:A:214:ILE:HD13	1.77	0.66
1:A:75:ILE:HD11	1:A:92:ILE:HD11	1.77	0.65
4:D:62:GLY:HA2	4:D:68:LYS:HZ2	1.63	0.64
4:H:133:TRP:CD1	4:H:134:LEU:HD13	2.33	0.64
1:E:82:ASN:HD22	1:E:132:ARG:HH11	1.45	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:L:133:TRP:CD1	4:L:134:LEU:HD13	2.33	0.63
1:I:118:THR:HB	1:I:120:LEU:HD23	1.80	0.63
2:B:45:ASN:HD22	1:E:35:ARG:H	1.46	0.63
4:D:127:ASP:OD2	4:D:129:LYS:HB3	2.00	0.62
3:C:39:VAL:HG23	3:C:105:GLU:OXT	2.00	0.62
1:M:288:HIS:CD2	1:M:291:LEU:H	2.14	0.61
1:E:179:PRO:HD3	1:E:214:ILE:HD13	1.83	0.61
4:P:134:LEU:HG	4:P:138:GLN:HB3	1.83	0.61
4:H:7:ILE:HG13	4:H:8:ILE:CD1	2.30	0.61
4:L:127:ASP:HB3	4:L:130:ASP:OD2	2.00	0.60
4:P:14:ASN:HD21	4:P:16:ASP:HB2	1.65	0.60
4:P:127:ASP:OD2	4:P:129:LYS:HG2	2.02	0.60
1:E:107:ARG:NE	1:E:130:ALA:HB1	2.16	0.60
4:H:17:ASP:HB3	4:H:105:TRP:CE3	2.37	0.60
1:A:89:GLY:HA2	7:A:1396:HOH:O	2.01	0.59
1:A:283:GLN:HB2	1:A:335:SER:HB3	1.83	0.59
4:D:69:ILE:HD13	4:D:69:ILE:H	1.66	0.59
1:M:179:PRO:HD3	1:M:214:ILE:HD13	1.84	0.59
4:H:18:ALA:O	4:H:23:ARG:NH1	2.35	0.59
4:H:7:ILE:HG13	4:H:8:ILE:HD12	1.84	0.59
3:K:5:ILE:HD12	3:K:5:ILE:N	2.18	0.58
1:A:195:HIS:NE2	1:A:221:HIS:HE1	2.02	0.58
2:J:21:GLN:NE2	1:M:11:GLN:CG	2.62	0.58
1:E:288:HIS:CD2	1:E:291:LEU:H	2.09	0.58
2:F:104:ASN:C	2:F:104:ASN:HD22	2.11	0.58
3:O:5:ILE:N	3:O:5:ILE:HD12	2.18	0.58
4:D:109:THR:OG1	4:D:112:GLU:HG3	2.04	0.57
2:B:104:ASN:HD22	2:B:104:ASN:C	2.12	0.57
4:L:4:PHE:HB3	4:L:13:LEU:HD12	1.86	0.57
2:N:104:ASN:C	2:N:104:ASN:HD22	2.11	0.57
3:O:17:ALA:O	3:O:19:GLY:N	2.36	0.57
1:E:283:GLN:HB2	1:E:335:SER:HB3	1.87	0.56
1:A:160:PRO:HG3	7:A:1555:HOH:O	2.05	0.56
3:C:5:ILE:HD12	3:C:5:ILE:N	2.20	0.56
1:E:45:ARG:HH21	1:E:67:GLU:HG2	1.70	0.56
1:M:252:ILE:HG22	1:M:254:LEU:CD1	2.36	0.56
1:M:283:GLN:HB2	1:M:335:SER:HB3	1.88	0.56
2:J:104:ASN:C	2:J:104:ASN:HD22	2.12	0.56
3:K:38:LYS:HD3	3:K:105:GLU:OXT	2.05	0.56
4:P:109:THR:OG1	4:P:112:GLU:HG3	2.05	0.56
1:E:12:GLU:HG2	1:E:16:GLN:NE2	2.20	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:118:THR:HB	1:I:120:LEU:CD2	2.36	0.55
1:I:174:ARG:NH2	1:I:207:GLY:O	2.39	0.55
1:I:208:THR:O	1:I:208:THR:HG22	2.07	0.55
4:P:45:ILE:HD12	4:P:45:ILE:C	2.32	0.55
1:I:45:ARG:HD3	1:I:341:ASP:OD1	2.08	0.54
3:C:27:LYS:HE3	4:D:76:ALA:HB3	1.89	0.54
1:A:312:PHE:CE2	1:A:328:GLU:HG2	2.43	0.54
4:D:41:GLU:O	4:D:43:PRO:HD3	2.07	0.54
1:M:252:ILE:N	1:M:252:ILE:HD12	2.22	0.54
1:A:201:LEU:HD13	1:A:220:PHE:CE1	2.43	0.54
3:C:31:GLU:CD	7:C:2228:HOH:O	2.51	0.53
4:P:1:ALA:N	4:P:2:PRO:HD2	2.23	0.53
4:P:14:ASN:ND2	4:P:16:ASP:HB2	2.24	0.53
1:A:118:THR:HB	1:A:120:LEU:HD23	1.89	0.53
4:D:89:LEU:HD13	4:D:117:MET:HG2	1.91	0.53
1:E:45:ARG:HD2	1:E:345:LEU:HD22	1.90	0.53
2:B:18:ASN:O	1:E:16:GLN:HA	2.09	0.52
1:I:288:HIS:CD2	1:I:291:LEU:H	2.12	0.52
1:M:118:THR:HB	1:M:120:LEU:HD22	1.92	0.52
1:I:119:LEU:HD22	2:N:48:PRO:HB2	1.92	0.52
1:I:128:PRO:O	1:I:131:PRO:HD3	2.09	0.52
4:L:89:LEU:HD13	4:L:117:MET:HG2	1.92	0.52
2:N:54:THR:O	3:O:71:MET:HG3	2.10	0.52
1:I:91:PHE:HA	1:I:116:PRO:HG3	1.92	0.52
4:H:8:ILE:HD13	4:H:97:ALA:HA	1.92	0.51
1:I:283:GLN:HB2	1:I:335:SER:HB3	1.91	0.51
4:H:103:PRO:HB2	4:H:105:TRP:CD1	2.44	0.51
4:H:17:ASP:HB3	4:H:105:TRP:CZ3	2.45	0.51
1:M:319:LYS:HB3	1:M:319:LYS:HZ3	1.75	0.51
4:H:24:ASP:O	4:H:29:LYS:HE2	2.11	0.51
1:E:10:ALA:O	1:E:14:GLN:HG3	2.10	0.51
1:I:252:ILE:HD12	1:I:252:ILE:N	2.26	0.50
4:D:45:ILE:HD13	4:D:46:LEU:N	2.27	0.50
4:D:100:GLN:HB3	6:D:200:HEC:HBC2	1.93	0.50
1:M:118:THR:HB	1:M:120:LEU:CD2	2.41	0.50
4:H:134:LEU:HG	4:H:138:GLN:HB3	1.93	0.50
1:I:222:PRO:HG2	1:I:225:GLU:HB2	1.94	0.50
1:A:151:LEU:C	1:A:151:LEU:HD23	2.37	0.50
1:A:182:TYR:N	1:A:182:TYR:CD1	2.80	0.50
3:O:48:ARG:HH21	3:O:48:ARG:HG3	1.77	0.50
1:A:75:ILE:HD11	1:A:92:ILE:CD1	2.43	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:307:LYS:HZ2	2:J:104:ASN:ND2	2.11	0.49
2:B:54:THR:O	3:C:71:MET:HG3	2.12	0.49
4:P:23:ARG:HG3	4:P:110:LEU:HD22	1.94	0.49
4:L:20:GLU:CD	4:L:20:GLU:N	2.67	0.49
1:A:182:TYR:O	1:A:183:HIS:HB2	2.13	0.49
4:L:20:GLU:OE2	4:L:21:GLU:HG2	2.12	0.49
2:B:45:ASN:ND2	1:E:35:ARG:HG2	2.27	0.49
1:A:288:HIS:CD2	1:A:291:LEU:H	2.14	0.49
4:D:135:THR:OG1	4:D:138:GLN:HG3	2.13	0.49
3:K:93:THR:HB	3:K:94:PRO:HD3	1.95	0.49
4:P:19:MET:HB3	4:P:21:GLU:OE2	2.13	0.49
1:M:181:CYS:HA	1:M:196:CYS:HA	1.95	0.48
1:M:237:ALA:HB2	1:M:289:ARG:HG3	1.95	0.48
1:I:89:GLY:HA2	7:I:1299:HOH:O	2.13	0.48
1:I:118:THR:CB	1:I:120:LEU:HD23	2.43	0.48
1:M:358:ILE:HD12	1:M:368:ARG:HG3	1.95	0.48
3:G:93:THR:HB	3:G:94:PRO:HD3	1.95	0.48
1:I:35:ARG:H	2:N:45:ASN:ND2	2.09	0.48
4:P:53:TYR:CE1	4:P:57:CYS:HB2	2.48	0.48
1:A:128:PRO:O	1:A:131:PRO:HD3	2.14	0.48
1:A:174:ARG:NH1	1:A:210:GLY:O	2.47	0.48
4:D:133:TRP:HD1	4:D:134:LEU:HD13	1.74	0.48
4:H:53:TYR:CE1	4:H:57:CYS:HB2	2.48	0.48
4:H:109:THR:OG1	4:H:112:GLU:HG3	2.14	0.48
4:D:4:PHE:HB3	4:D:13:LEU:HD12	1.96	0.48
1:E:322:GLU:O	1:E:324:LEU:HD13	2.14	0.48
1:I:312:PHE:CE2	1:I:328:GLU:HG3	2.49	0.47
1:E:182:TYR:O	1:E:183:HIS:HB2	2.14	0.47
1:A:118:THR:HB	1:A:120:LEU:CD2	2.44	0.47
3:C:4:THR:O	3:C:6:PRO:HD3	2.14	0.47
1:E:96:SER:HB3	1:E:110:TYR:CZ	2.50	0.47
4:H:49:ALA:HB1	4:H:119:TRP:HB2	1.96	0.47
1:I:305:ARG:HD3	2:J:9:PRO:O	2.15	0.47
4:L:100:GLN:HB3	6:L:200:HEC:HBC2	1.96	0.47
1:E:307:LYS:HZ1	2:F:104:ASN:ND2	2.13	0.47
3:G:67:LEU:C	3:G:67:LEU:HD23	2.40	0.47
1:I:47:VAL:HG13	1:I:64:ILE:HB	1.96	0.47
4:D:21:GLU:H	4:D:21:GLU:CD	2.23	0.46
4:L:41:GLU:O	4:L:43:PRO:HD3	2.15	0.46
1:A:211:THR:CG2	1:A:212:PRO:HD2	2.44	0.46
2:F:8:ASP:OD2	2:F:10:ARG:N	2.49	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:269:THR:OG1	1:I:272:GLU:HG3	2.14	0.46
1:M:89:GLY:HA2	7:M:1057:HOH:O	2.16	0.46
1:A:181:CYS:HA	1:A:196:CYS:HA	1.96	0.46
3:C:67:LEU:C	3:C:67:LEU:HD23	2.41	0.46
1:E:182:TYR:CD1	1:E:182:TYR:N	2.83	0.46
3:O:38:LYS:N	3:O:38:LYS:HD2	2.30	0.46
4:D:81:PRO:O	4:D:84:GLU:HG2	2.16	0.46
1:E:297:LEU:HD22	1:E:310:SER:HB2	1.98	0.46
1:I:182:TYR:N	1:I:182:TYR:CD1	2.83	0.46
4:L:6:ASN:OD1	4:L:8:ILE:HG12	2.16	0.46
4:L:24:ASP:O	4:L:29:LYS:HE3	2.15	0.46
1:A:96:SER:HB3	1:A:110:TYR:CZ	2.50	0.46
1:M:182:TYR:O	1:M:183:HIS:HB2	2.16	0.46
1:A:118:THR:O	1:A:120:LEU:HD22	2.16	0.46
1:M:307:LYS:NZ	2:N:104:ASN:ND2	2.64	0.46
4:L:45:ILE:HD12	4:L:45:ILE:C	2.40	0.46
1:A:61:GLN:OE1	1:A:75:ILE:HD12	2.16	0.45
1:A:211:THR:HG22	1:A:212:PRO:HD2	1.98	0.45
1:I:181:CYS:C	1:I:182:TYR:CD1	2.94	0.45
1:I:182:TYR:O	1:I:183:HIS:HB2	2.16	0.45
2:J:55:ALA:HB1	3:K:94:PRO:HB3	1.97	0.45
1:M:107:ARG:NE	1:M:130:ALA:HB1	2.31	0.45
3:O:2:LYS:HB2	3:O:62:LEU:HA	1.97	0.45
1:A:11:GLN:HB2	2:F:21:GLN:NE2	2.25	0.45
1:A:118:THR:CB	1:A:120:LEU:HD23	2.47	0.45
4:D:41:GLU:OE2	4:D:122:HIS:HD2	2.00	0.45
1:E:135:VAL:O	1:E:136:GLY:C	2.60	0.45
1:E:129:ASP:O	1:E:130:ALA:C	2.60	0.45
1:M:135:VAL:O	1:M:136:GLY:C	2.59	0.45
1:M:182:TYR:CD1	1:M:182:TYR:N	2.85	0.45
1:E:45:ARG:NH2	1:E:67:GLU:OE2	2.50	0.45
1:I:25:ASP:HB3	1:I:30:GLN:HB2	1.99	0.45
1:I:39:ALA:O	1:I:117:VAL:HG13	2.16	0.45
1:I:205:ALA:HB3	1:I:213:GLU:HG3	1.99	0.45
4:D:62:GLY:HA2	4:D:68:LYS:NZ	2.32	0.45
1:M:307:LYS:HZ2	2:N:104:ASN:ND2	2.14	0.45
3:O:2:LYS:CD	3:O:84:GLU:HG2	2.46	0.45
1:A:252:ILE:HD12	1:A:252:ILE:N	2.33	0.44
2:F:55:ALA:HB1	3:G:94:PRO:HB3	1.98	0.44
1:I:135:VAL:HG22	1:I:136:GLY:N	2.32	0.44
1:I:201:LEU:HD13	1:I:220:PHE:CE1	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:149:LYS:HE3	1:A:168:GLU:OE2	2.17	0.44
2:B:8:ASP:OD2	2:B:10:ARG:N	2.50	0.44
3:G:27:LYS:HE2	4:H:76:ALA:HB3	1.99	0.44
1:I:129:ASP:O	1:I:130:ALA:C	2.61	0.44
2:J:48:PRO:HB2	1:M:119:LEU:HD22	2.00	0.44
1:I:151:LEU:C	1:I:151:LEU:HD23	2.42	0.44
4:L:127:ASP:OD2	4:L:128:PRO:HD2	2.17	0.44
1:A:129:ASP:O	1:A:130:ALA:C	2.60	0.44
7:J:1318:HOH:O	1:M:5:GLU:HA	2.18	0.44
4:D:122:HIS:HE1	7:D:1815:HOH:O	1.99	0.44
1:I:342:GLU:O	1:I:344:PRO:HD3	2.18	0.44
1:M:297:LEU:HD22	1:M:310:SER:HB2	1.99	0.44
1:A:135:VAL:HG22	1:A:136:GLY:N	2.33	0.44
1:E:45:ARG:HG3	1:E:67:GLU:HG2	1.99	0.44
1:E:336:ILE:HA	1:E:347:TYR:O	2.18	0.44
1:I:181:CYS:HA	1:I:196:CYS:HA	1.99	0.44
4:P:100:GLN:HB3	6:P:200:HEC:HBC2	2.00	0.44
1:I:75:ILE:HD11	1:I:92:ILE:HD11	1.99	0.43
3:O:67:LEU:C	3:O:67:LEU:HD23	2.43	0.43
1:A:119:LEU:HD22	2:F:48:PRO:HB2	1.99	0.43
1:E:289:ARG:HG2	1:E:289:ARG:HH21	1.83	0.43
3:G:38:LYS:HA	3:G:105:GLU:OXT	2.17	0.43
4:H:18:ALA:HB1	4:H:110:LEU:HD13	2.00	0.43
1:A:8:THR:H	1:A:11:GLN:HG2	1.82	0.43
4:D:3:GLN:HB3	4:D:5:PHE:CE2	2.53	0.43
1:E:107:ARG:CZ	1:E:130:ALA:HB1	2.48	0.43
1:I:14:GLN:NE2	1:I:70:ARG:HH21	2.16	0.43
1:I:107:ARG:NE	1:I:130:ALA:HB1	2.34	0.43
1:M:129:ASP:O	1:M:130:ALA:C	2.61	0.43
3:O:48:ARG:HG2	4:P:77:TYR:CZ	2.53	0.43
1:A:197:ARG:HD2	7:A:1757:HOH:O	2.16	0.43
3:C:36:HIS:CD2	4:D:69:ILE:HG22	2.53	0.43
4:D:53:TYR:CE1	4:D:57:CYS:HB2	2.52	0.43
4:H:4:PHE:HB3	4:H:13:LEU:HD12	2.00	0.43
4:H:7:ILE:HG13	4:H:8:ILE:HD13	2.01	0.43
1:I:305:ARG:HD2	2:J:11:ALA:O	2.17	0.43
4:H:124:TYR:CZ	4:H:126:GLY:HA3	2.54	0.43
2:N:8:ASP:OD2	2:N:10:ARG:N	2.50	0.43
2:N:25:TYR:HB3	2:N:28:HIS:CD2	2.53	0.43
4:P:54:ALA:HA	4:P:58:SER:HB2	2.00	0.43
1:A:89:GLY:HA3	1:A:385:MET:HE3	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:135:VAL:HG22	1:E:136:GLY:N	2.32	0.43
1:I:10:ALA:O	1:I:14:GLN:HG3	2.19	0.43
3:K:36:HIS:CD2	4:L:69:ILE:HD12	2.54	0.43
1:M:96:SER:HB3	1:M:110:TYR:CZ	2.54	0.43
2:B:53:ALA:HB2	2:B:109:CYS:HA	2.01	0.43
1:E:307:LYS:NZ	2:F:104:ASN:ND2	2.67	0.43
4:H:25:THR:OG1	4:H:28:VAL:HG23	2.19	0.43
1:E:341:ASP:OD2	1:E:341:ASP:N	2.50	0.43
1:A:107:ARG:NE	1:A:130:ALA:HB1	2.34	0.42
2:B:25:TYR:HB3	2:B:28:HIS:CD2	2.54	0.42
4:D:25:THR:OG1	4:D:28:VAL:HG23	2.18	0.42
2:F:53:ALA:HB2	2:F:109:CYS:HA	2.01	0.42
1:E:305:ARG:HD3	2:F:9:PRO:O	2.19	0.42
2:F:104:ASN:C	2:F:104:ASN:ND2	2.77	0.42
3:C:26:ALA:O	3:C:29:LYS:HG2	2.19	0.42
3:O:36:HIS:CD2	4:P:69:ILE:HD12	2.54	0.42
1:E:269:THR:OG1	1:E:272:GLU:HG3	2.18	0.42
4:P:20:GLU:CD	4:P:20:GLU:H	2.27	0.42
1:E:227:LEU:HB3	1:E:242:TRP:NE1	2.34	0.42
1:I:207:GLY:C	1:I:209:GLU:H	2.28	0.42
1:A:11:GLN:NE2	7:A:1454:HOH:O	2.53	0.42
1:A:120:LEU:HD21	7:A:1329:HOH:O	2.19	0.42
1:A:166:ASP:CG	1:A:169:GLY:H	2.27	0.42
1:E:173:LYS:HE2	1:E:173:LYS:HA	2.01	0.42
1:I:35:ARG:HG2	2:N:45:ASN:ND2	2.35	0.42
1:M:197:ARG:HD2	7:M:1476:HOH:O	2.19	0.42
1:A:222:PRO:HG2	1:A:225:GLU:HB2	2.02	0.42
3:G:12:ALA:HB3	3:G:15:GLU:HG3	2.02	0.42
1:I:333:ILE:HD12	1:I:348:ALA:HB1	2.01	0.42
3:K:94:PRO:C	3:K:96:PRO:HD3	2.44	0.42
2:N:55:ALA:HB1	3:O:94:PRO:HB3	2.01	0.42
3:C:25:ILE:HB	3:C:47:ASN:HA	2.02	0.42
1:A:307:LYS:HZ2	2:B:104:ASN:ND2	2.18	0.42
4:D:52:LEU:HD12	4:D:52:LEU:HA	1.91	0.42
4:D:127:ASP:HA	4:D:128:PRO:HD3	1.96	0.42
1:I:307:LYS:HZ2	2:J:104:ASN:HD21	1.68	0.42
3:K:74:LYS:NZ	7:K:2212:HOH:O	2.50	0.42
1:M:45:ARG:HD3	1:M:345:LEU:HD22	2.02	0.42
2:N:53:ALA:HB2	2:N:109:CYS:HA	2.02	0.42
1:A:82:ASN:HD22	1:A:132:ARG:NH1	2.15	0.41
1:A:307:LYS:NZ	2:B:104:ASN:ND2	2.68	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:93:THR:HB	3:C:94:PRO:HD3	2.02	0.41
1:I:307:LYS:NZ	2:J:104:ASN:ND2	2.68	0.41
1:M:307:LYS:NZ	2:N:104:ASN:HD21	2.17	0.41
1:I:16:GLN:HA	2:N:18:ASN:O	2.20	0.41
1:M:54:HIS:O	1:M:55:PHE:HB2	2.20	0.41
2:B:104:ASN:C	2:B:104:ASN:ND2	2.78	0.41
1:A:288:HIS:HD2	1:A:291:LEU:N	2.04	0.41
3:O:56:HIS:C	3:O:56:HIS:CD2	2.99	0.41
2:J:53:ALA:HB2	2:J:109:CYS:HA	2.01	0.41
4:L:80:TYR:HA	4:L:81:PRO:HD2	1.84	0.41
4:H:80:TYR:HA	4:H:81:PRO:HD2	1.79	0.41
1:I:38:GLU:HG2	7:I:1918:HOH:O	2.20	0.41
3:O:101:LYS:HB2	3:O:101:LYS:NZ	2.36	0.41
2:F:25:TYR:HB3	2:F:28:HIS:CD2	2.56	0.41
4:L:52:LEU:HD12	4:L:52:LEU:HA	1.86	0.41
1:A:157:SER:OG	1:A:158:PRO:HA	2.20	0.41
3:C:94:PRO:C	3:C:96:PRO:HD3	2.45	0.41
3:G:93:THR:HB	3:G:94:PRO:CD	2.51	0.41
4:H:48:GLU:OE2	4:H:115:ARG:NH2	2.53	0.41
2:J:93:GLY:O	2:J:95:LEU:HD13	2.20	0.41
2:J:104:ASN:C	2:J:104:ASN:ND2	2.78	0.41
3:K:4:THR:C	3:K:5:ILE:HD12	2.45	0.41
3:O:58:VAL:HG22	7:O:1467:HOH:O	2.20	0.41
1:E:181:CYS:HA	1:E:196:CYS:HA	2.02	0.41
1:E:283:GLN:HB2	1:E:335:SER:CB	2.51	0.41
3:G:20:ALA:HB1	7:G:1783:HOH:O	2.21	0.41
1:I:218:GLU:H	1:I:218:GLU:HG3	1.54	0.41
3:K:93:THR:HB	3:K:94:PRO:CD	2.51	0.41
4:L:109:THR:OG1	4:L:112:GLU:HG3	2.21	0.41
3:O:59:ALA:N	3:O:66:ALA:HB2	2.36	0.41
1:I:82:ASN:HD22	1:I:132:ARG:NH1	2.09	0.41
1:A:269:THR:OG1	1:A:272:GLU:HG3	2.21	0.40
1:E:45:ARG:NE	1:E:341:ASP:OD1	2.49	0.40
3:O:14:ALA:C	3:O:16:VAL:H	2.30	0.40
3:O:38:LYS:HA	3:O:105:GLU:O	2.20	0.40
1:E:89:GLY:HA3	1:E:385:MET:HE3	2.03	0.40
1:E:252:ILE:N	1:E:252:ILE:HD12	2.37	0.40
3:G:56:HIS:CD2	3:G:56:HIS:C	2.99	0.40
2:J:18:ASN:O	1:M:16:GLN:HA	2.22	0.40
4:L:18:ALA:O	4:L:23:ARG:NH1	2.54	0.40
1:M:269:THR:OG1	1:M:272:GLU:HG3	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:74:LYS:O	3:C:75:GLU:HB2	2.22	0.40
1:E:11:GLN:NE2	7:E:1541:HOH:O	2.51	0.40
1:M:316:LEU:HD23	1:M:316:LEU:N	2.36	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	380/386 (98%)	365 (96%)	14 (4%)	1 (0%)	36	29
1	E	380/386 (98%)	368 (97%)	12 (3%)	0	100	100
1	I	380/386 (98%)	362 (95%)	18 (5%)	0	100	100
1	M	380/386 (98%)	363 (96%)	16 (4%)	1 (0%)	36	29
2	B	122/131 (93%)	118 (97%)	4 (3%)	0	100	100
2	F	122/131 (93%)	118 (97%)	4 (3%)	0	100	100
2	J	122/131 (93%)	118 (97%)	4 (3%)	0	100	100
2	N	122/131 (93%)	118 (97%)	4 (3%)	0	100	100
3	C	103/105 (98%)	100 (97%)	3 (3%)	0	100	100
3	G	103/105 (98%)	97 (94%)	4 (4%)	2 (2%)	6	1
3	K	103/105 (98%)	102 (99%)	1 (1%)	0	100	100
3	O	103/105 (98%)	91 (88%)	10 (10%)	2 (2%)	6	1
4	D	145/147 (99%)	142 (98%)	3 (2%)	0	100	100
4	H	145/147 (99%)	140 (97%)	4 (3%)	1 (1%)	18	10
4	L	145/147 (99%)	140 (97%)	4 (3%)	1 (1%)	18	10
4	P	145/147 (99%)	142 (98%)	2 (1%)	1 (1%)	18	10
All	All	3000/3076 (98%)	2884 (96%)	107 (4%)	9 (0%)	36	29

All (9) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	G	18	ASP
4	L	68	LYS
3	O	18	ASP
3	G	17	ALA
4	H	68	LYS
3	O	19	GLY
4	P	68	LYS
1	A	102	ILE
1	M	102	ILE

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	308/311 (99%)	298 (97%)	10 (3%)	34	27
1	E	308/311 (99%)	299 (97%)	9 (3%)	37	31
1	I	308/311 (99%)	296 (96%)	12 (4%)	28	21
1	M	308/311 (99%)	298 (97%)	10 (3%)	34	27
2	B	104/106 (98%)	101 (97%)	3 (3%)	37	31
2	F	104/106 (98%)	101 (97%)	3 (3%)	37	31
2	J	104/106 (98%)	101 (97%)	3 (3%)	37	31
2	N	104/106 (98%)	101 (97%)	3 (3%)	37	31
3	C	85/85 (100%)	81 (95%)	4 (5%)	23	15
3	G	85/85 (100%)	82 (96%)	3 (4%)	32	24
3	K	85/85 (100%)	84 (99%)	1 (1%)	63	63
3	O	85/85 (100%)	80 (94%)	5 (6%)	18	10
4	D	118/118 (100%)	108 (92%)	10 (8%)	10	4
4	H	118/118 (100%)	113 (96%)	5 (4%)	26	19
4	L	118/118 (100%)	110 (93%)	8 (7%)	14	7
4	P	118/118 (100%)	110 (93%)	8 (7%)	14	7

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
All	All	2460/2480 (99%)	2363 (96%)	97 (4%)	28	21

All (97) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	26	LEU
1	A	119	LEU
1	A	176	LEU
1	A	201	LEU
1	A	213	GLU
1	A	223	GLU
1	A	240	LEU
1	A	345	LEU
1	A	346	LEU
1	A	362	GLU
2	B	7	THR
2	B	95	LEU
2	B	104	ASN
3	C	29	LYS
3	C	35	LEU
3	C	84	GLU
3	C	99	ARG
4	D	21	GLU
4	D	45	ILE
4	D	52	LEU
4	D	56	MET
4	D	57	CYS
4	D	68	LYS
4	D	69	ILE
4	D	89	LEU
4	D	110	LEU
4	D	134	LEU
1	E	20	ARG
1	E	26	LEU
1	E	120	LEU
1	E	176	LEU
1	E	223	GLU
1	E	240	LEU
1	E	345	LEU
1	E	346	LEU
1	E	367	LEU
2	F	7	THR

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Mol	Chain	Res	Type
2	F	95	LEU
2	F	104	ASN
3	G	1	ASP
3	G	35	LEU
3	G	101	LYS
4	H	52	LEU
4	H	89	LEU
4	H	110	LEU
4	H	134	LEU
4	H	146	GLN
1	I	9	GLN
1	I	26	LEU
1	I	45	ARG
1	I	119	LEU
1	I	120	LEU
1	I	176	LEU
1	I	201	LEU
1	I	213	GLU
1	I	218	GLU
1	I	240	LEU
1	I	345	LEU
1	I	367	LEU
2	J	7	THR
2	J	95	LEU
2	J	104	ASN
3	K	35	LEU
4	L	20	GLU
4	L	48	GLU
4	L	52	LEU
4	L	56	MET
4	L	57	CYS
4	L	89	LEU
4	L	110	LEU
4	L	134	LEU
1	M	26	LEU
1	M	119	LEU
1	M	120	LEU
1	M	223	GLU
1	M	240	LEU
1	M	254	LEU
1	M	319	LYS
1	M	345	LEU

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Mol	Chain	Res	Type
1	M	346	LEU
1	M	367	LEU
2	N	7	THR
2	N	95	LEU
2	N	104	ASN
3	O	4	THR
3	O	35	LEU
3	O	38	LYS
3	O	48	ARG
3	O	101	LYS
4	P	21	GLU
4	P	51	GLU
4	P	52	LEU
4	P	56	MET
4	P	68	LYS
4	P	89	LEU
4	P	134	LEU
4	P	146	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (63) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	9	GLN
1	A	11	GLN
1	A	14	GLN
1	A	16	GLN
1	A	82	ASN
1	A	221	HIS
1	A	235	GLN
1	A	288	HIS
1	A	300	GLN
1	A	375	HIS
2	B	21	GLN
2	B	34	ASN
2	B	45	ASN
2	B	104	ASN
4	D	14	ASN
4	D	63	HIS
4	D	122	HIS
4	D	146	GLN
1	E	9	GLN
1	E	11	GLN

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Mol	Chain	Res	Type
1	E	16	GLN
1	E	30	GLN
1	E	54	HIS
1	E	61	GLN
1	E	82	ASN
1	E	284	GLN
1	E	288	HIS
1	E	375	HIS
2	F	18	ASN
2	F	21	GLN
2	F	45	ASN
2	F	104	ASN
4	H	3	GLN
4	H	14	ASN
4	H	30	HIS
4	H	146	GLN
1	I	9	GLN
1	I	11	GLN
1	I	14	GLN
1	I	16	GLN
1	I	82	ASN
1	I	235	GLN
1	I	284	GLN
1	I	288	HIS
2	J	21	GLN
2	J	45	ASN
2	J	104	ASN
1	M	9	GLN
1	M	11	GLN
1	M	14	GLN
1	M	16	GLN
1	M	50	ASN
1	M	61	GLN
1	M	82	ASN
1	M	94	HIS
1	M	235	GLN
1	M	288	HIS
1	M	375	HIS
2	N	21	GLN
2	N	45	ASN
2	N	104	ASN
3	O	76	GLN

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Mol	Chain	Res	Type
4	P	30	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

4 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# $ Z > 2$	Counts	RMSZ	# $ Z > 2$
2	TRQ	F	57	2	16,17,18	1.49	3 (18%)	16,24,26	1.45	1 (6%)
2	TRQ	N	57	2	16,17,18	1.48	2 (12%)	16,24,26	1.45	1 (6%)
2	TRQ	B	57	2	16,17,18	1.47	3 (18%)	16,24,26	1.44	1 (6%)
2	TRQ	J	57	2	16,17,18	1.46	3 (18%)	16,24,26	1.28	1 (6%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	TRQ	F	57	2	-	1/5/19/21	0/2/2/2
2	TRQ	N	57	2	-	1/5/19/21	0/2/2/2
2	TRQ	B	57	2	-	1/5/19/21	0/2/2/2
2	TRQ	J	57	2	-	1/5/19/21	0/2/2/2

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	57	TRQ	CH2-CZ2	-3.44	1.37	1.53
2	N	57	TRQ	CH2-CZ2	-3.44	1.37	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	J	57	TRQ	CH2-CZ2	-3.41	1.37	1.53
2	F	57	TRQ	CH2-CZ2	-3.36	1.37	1.53
2	N	57	TRQ	CE2-CZ2	-2.83	1.40	1.50
2	F	57	TRQ	CE2-CZ2	-2.79	1.40	1.50
2	J	57	TRQ	CE2-CZ2	-2.66	1.40	1.50
2	B	57	TRQ	CE2-CZ2	-2.64	1.40	1.50
2	B	57	TRQ	CE3-CZ3	2.04	1.40	1.35
2	F	57	TRQ	CE3-CZ3	2.00	1.40	1.35
2	J	57	TRQ	CE3-CZ3	2.00	1.40	1.35

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	N	57	TRQ	O7-CZ2-CH2	4.78	124.49	118.39
2	F	57	TRQ	O7-CZ2-CH2	4.70	124.38	118.39
2	B	57	TRQ	O7-CZ2-CH2	4.67	124.34	118.39
2	J	57	TRQ	O7-CZ2-CH2	3.92	123.38	118.39

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	57	TRQ	C-CA-CB-CG
2	F	57	TRQ	C-CA-CB-CG
2	J	57	TRQ	C-CA-CB-CG
2	N	57	TRQ	C-CA-CB-CG

There are no ring outliers.

4 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	F	57	TRQ	2	0
2	N	57	TRQ	2	0
2	B	57	TRQ	2	0
2	J	57	TRQ	2	0

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 8 ligands modelled in this entry, 4 are monoatomic - leaving 4 for Mogul analysis.

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
6	HEC	D	200	4	46,50,50	2.21	11 (23%)	58,82,82	1.60	4 (6%)
6	HEC	L	200	4	46,50,50	2.22	12 (26%)	58,82,82	1.55	4 (6%)
6	HEC	H	200	4	46,50,50	2.08	11 (23%)	58,82,82	1.57	5 (8%)
6	HEC	P	200	4	46,50,50	2.16	12 (26%)	58,82,82	1.45	4 (6%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	HEC	D	200	4	-	6/14/54/54	-
6	HEC	L	200	4	-	4/14/54/54	-
6	HEC	H	200	4	-	4/14/54/54	-
6	HEC	P	200	4	-	6/14/54/54	-

All (46) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	D	200	HEC	CAC-C3C	6.91	1.57	1.35
6	L	200	HEC	CAC-C3C	6.67	1.56	1.35
6	D	200	HEC	CAB-C3B	6.40	1.55	1.35
6	H	200	HEC	CAB-C3B	6.36	1.55	1.35
6	P	200	HEC	CAB-C3B	6.18	1.55	1.35
6	P	200	HEC	CAC-C3C	6.02	1.54	1.35
6	L	200	HEC	CAB-C3B	5.87	1.54	1.35
6	H	200	HEC	CAC-C3C	5.77	1.53	1.35
6	D	200	HEC	CMD-C2D	5.27	1.61	1.50
6	L	200	HEC	CMC-C2C	4.70	1.60	1.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	H	200	HEC	CMB-C2B	4.56	1.60	1.50
6	D	200	HEC	CMB-C2B	4.11	1.59	1.50
6	L	200	HEC	CMD-C2D	4.09	1.59	1.50
6	P	200	HEC	O2A-CGA	-3.96	1.17	1.30
6	P	200	HEC	CMC-C2C	3.93	1.58	1.50
6	L	200	HEC	CMB-C2B	3.92	1.58	1.50
6	D	200	HEC	CMC-C2C	3.76	1.58	1.50
6	H	200	HEC	CMD-C2D	3.70	1.58	1.50
6	P	200	HEC	CMD-C2D	3.65	1.58	1.50
6	P	200	HEC	CMA-C3A	3.51	1.58	1.50
6	L	200	HEC	O1A-CGA	3.32	1.33	1.22
6	L	200	HEC	O2A-CGA	-3.22	1.20	1.30
6	P	200	HEC	CMB-C2B	3.03	1.57	1.50
6	D	200	HEC	O2A-CGA	-3.02	1.20	1.30
6	H	200	HEC	CMA-C3A	3.01	1.56	1.50
6	D	200	HEC	CMA-C3A	3.00	1.56	1.50
6	H	200	HEC	O1A-CGA	2.91	1.31	1.22
6	P	200	HEC	O1A-CGA	2.88	1.31	1.22
6	H	200	HEC	O2A-CGA	-2.85	1.21	1.30
6	L	200	HEC	CMA-C3A	2.84	1.56	1.50
6	H	200	HEC	CMC-C2C	2.83	1.56	1.50
6	P	200	HEC	CBD-CAD	2.82	1.61	1.51
6	L	200	HEC	CHA-C4D	2.79	1.45	1.39
6	L	200	HEC	CBD-CAD	2.77	1.61	1.51
6	D	200	HEC	O1A-CGA	2.69	1.30	1.22
6	D	200	HEC	CAA-C2A	2.49	1.57	1.51
6	D	200	HEC	CBD-CAD	2.46	1.60	1.51
6	P	200	HEC	C4D-ND	-2.42	1.35	1.39
6	H	200	HEC	CBD-CAD	2.36	1.60	1.51
6	L	200	HEC	C1C-C2C	2.28	1.48	1.43
6	L	200	HEC	CAA-C2A	2.22	1.57	1.51
6	P	200	HEC	C1C-C2C	2.17	1.48	1.43
6	D	200	HEC	CBB-CAB	2.10	1.57	1.49
6	P	200	HEC	C1A-NA	-2.10	1.35	1.39
6	H	200	HEC	C4B-NB	-2.01	1.35	1.39
6	H	200	HEC	C1C-C2C	2.01	1.47	1.43

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	L	200	HEC	CBB-CAB-C3B	-8.32	110.80	127.43
6	D	200	HEC	CBB-CAB-C3B	-8.14	111.17	127.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	H	200	HEC	CBB-CAB-C3B	-7.88	111.67	127.43
6	P	200	HEC	CBB-CAB-C3B	-7.25	112.94	127.43
6	D	200	HEC	CBC-CAC-C3C	-4.95	117.53	127.43
6	H	200	HEC	CBC-CAC-C3C	-4.30	118.84	127.43
6	P	200	HEC	CBC-CAC-C3C	-4.29	118.87	127.43
6	L	200	HEC	CBC-CAC-C3C	-4.15	119.14	127.43
6	H	200	HEC	CHC-C4B-NB	-2.67	121.54	124.45
6	L	200	HEC	CBD-CAD-C3D	-2.44	105.80	112.53
6	D	200	HEC	CBD-CAD-C3D	-2.30	106.18	112.53
6	H	200	HEC	CBD-CAD-C3D	-2.29	106.21	112.53
6	P	200	HEC	CBD-CAD-C3D	-2.25	106.30	112.53
6	D	200	HEC	CHC-C4B-NB	-2.23	122.03	124.45
6	P	200	HEC	O1D-CGD-CBD	-2.12	116.36	123.09
6	L	200	HEC	O1D-CGD-CBD	-2.12	116.37	123.09
6	H	200	HEC	O1D-CGD-CBD	-2.12	116.37	123.09

There are no chirality outliers.

All (20) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	D	200	HEC	C2B-C3B-CAB-CBB
6	D	200	HEC	C4B-C3B-CAB-CBB
6	D	200	HEC	C2C-C3C-CAC-CBC
6	D	200	HEC	C4C-C3C-CAC-CBC
6	H	200	HEC	C2B-C3B-CAB-CBB
6	H	200	HEC	C4B-C3B-CAB-CBB
6	H	200	HEC	C2C-C3C-CAC-CBC
6	H	200	HEC	C4C-C3C-CAC-CBC
6	L	200	HEC	C2B-C3B-CAB-CBB
6	L	200	HEC	C2C-C3C-CAC-CBC
6	L	200	HEC	C4C-C3C-CAC-CBC
6	P	200	HEC	C2B-C3B-CAB-CBB
6	P	200	HEC	C4B-C3B-CAB-CBB
6	P	200	HEC	C2C-C3C-CAC-CBC
6	P	200	HEC	C4C-C3C-CAC-CBC
6	L	200	HEC	C4B-C3B-CAB-CBB
6	D	200	HEC	CAD-CBD-CGD-O1D
6	P	200	HEC	CAD-CBD-CGD-O1D
6	P	200	HEC	CAD-CBD-CGD-O2D
6	D	200	HEC	CAD-CBD-CGD-O2D

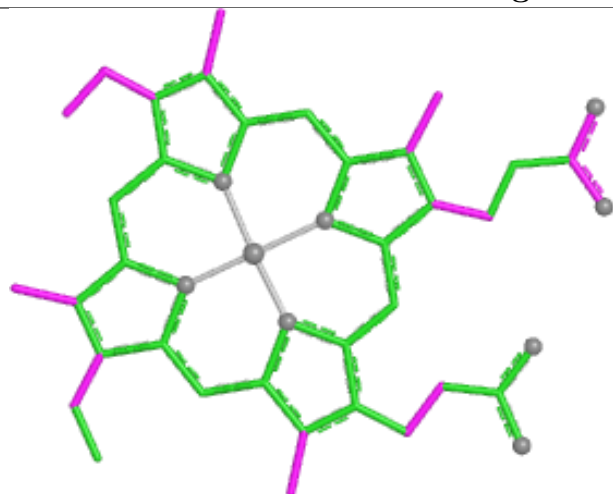
There are no ring outliers.

3 monomers are involved in 3 short contacts:

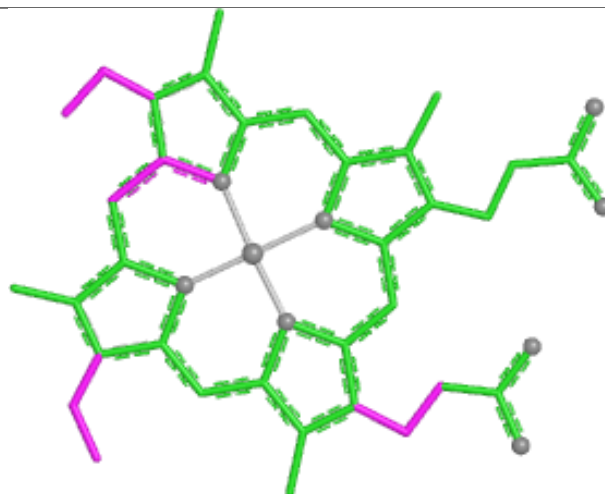
Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	D	200	HEC	1	0
6	L	200	HEC	1	0
6	P	200	HEC	1	0

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.

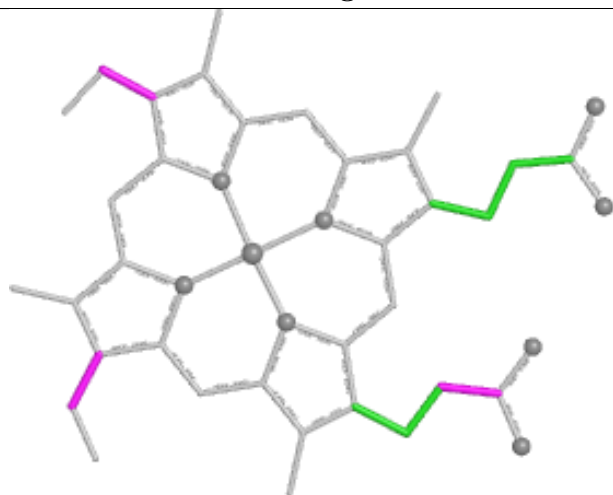
Ligand HEC D 200



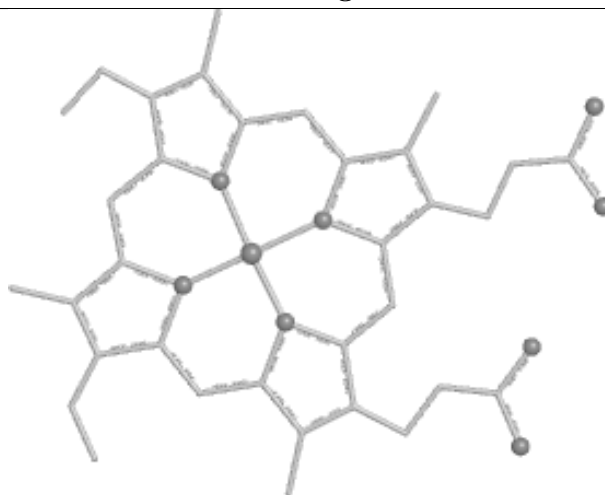
Bond lengths



Bond angles

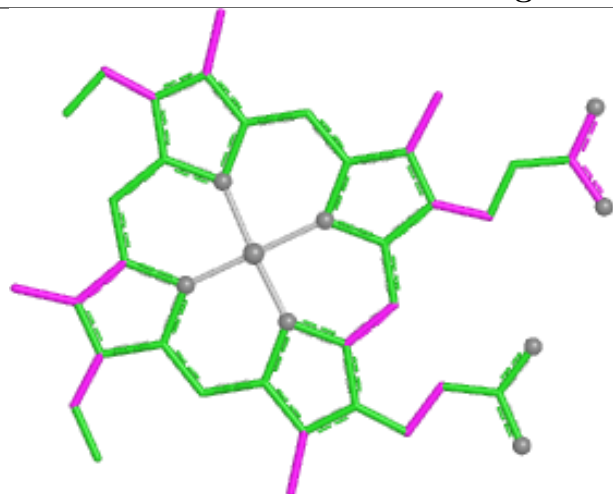


Torsions

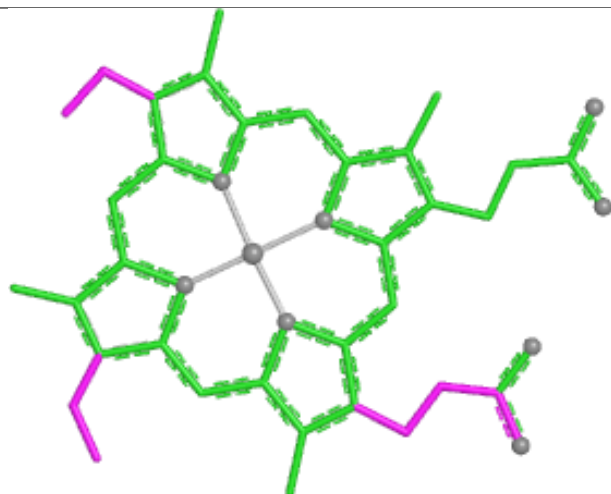


Rings

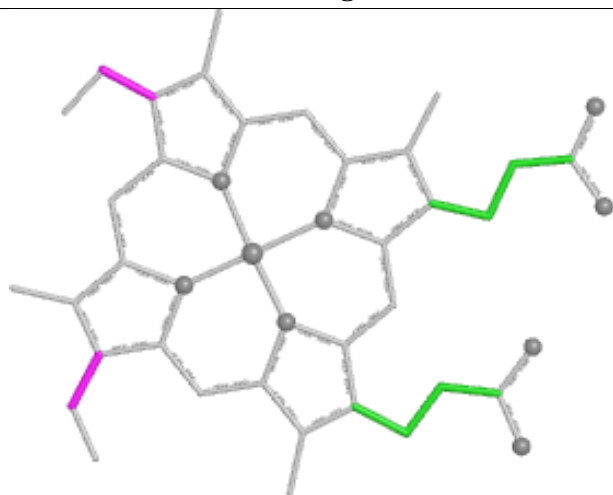
Ligand HEC L 200



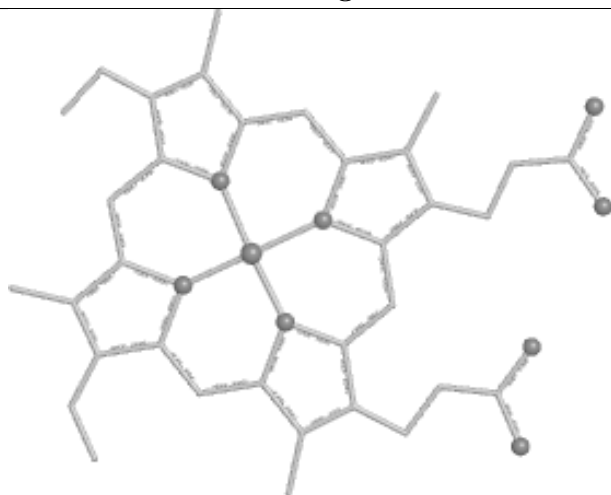
Bond lengths



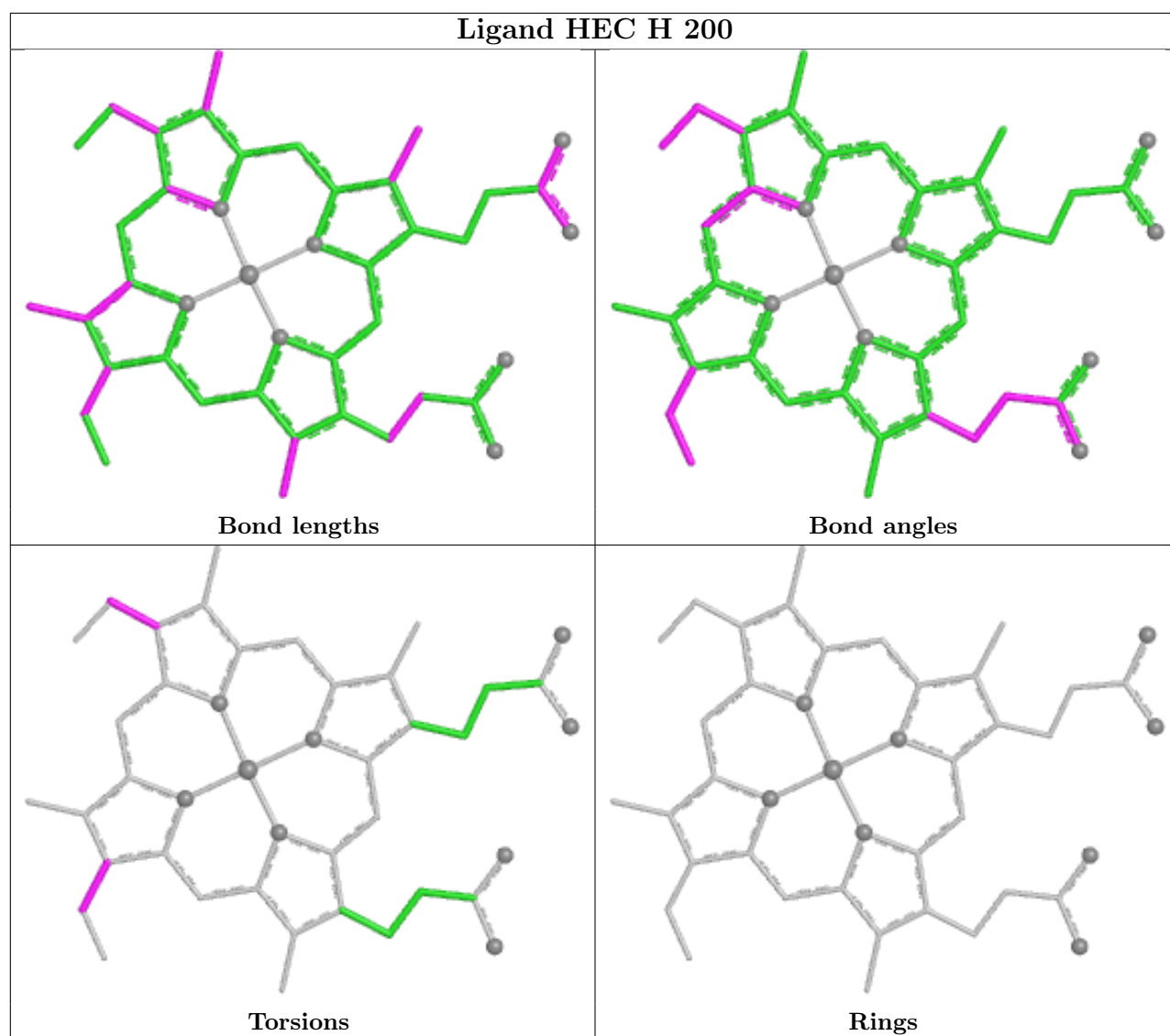
Bond angles

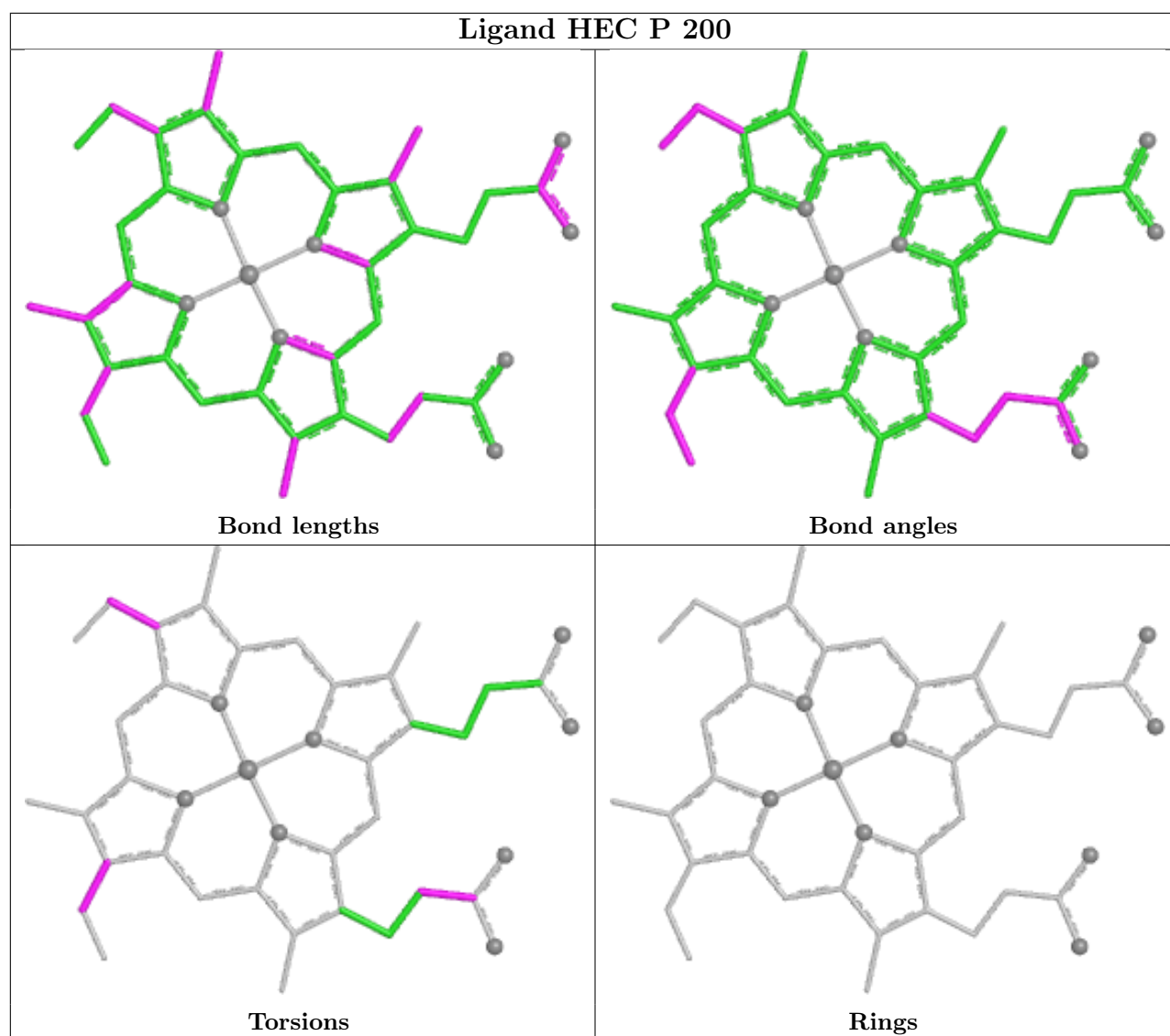


Torsions



Rings





5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	382/386 (98%)	-0.25	6 (1%) 70 74	18, 26, 45, 77	0
1	E	382/386 (98%)	-0.19	6 (1%) 70 74	18, 28, 47, 79	0
1	I	382/386 (98%)	-0.23	9 (2%) 59 63	18, 27, 47, 78	0
1	M	382/386 (98%)	-0.24	5 (1%) 75 78	18, 26, 46, 78	0
2	B	124/131 (94%)	-0.15	3 (2%) 59 63	20, 25, 44, 78	0
2	F	124/131 (94%)	-0.33	2 (1%) 70 74	17, 23, 41, 78	0
2	J	124/131 (94%)	-0.34	3 (2%) 59 63	18, 22, 41, 78	0
2	N	124/131 (94%)	-0.11	3 (2%) 59 63	19, 25, 44, 78	0
3	C	105/105 (100%)	0.62	5 (4%) 35 38	25, 40, 62, 73	0
3	G	105/105 (100%)	0.17	5 (4%) 35 38	23, 34, 56, 75	0
3	K	105/105 (100%)	0.08	5 (4%) 35 38	21, 32, 53, 69	0
3	O	105/105 (100%)	1.36	30 (28%) 1 1	28, 46, 69, 80	0
4	D	147/147 (100%)	0.12	2 (1%) 73 76	21, 32, 57, 69	0
4	H	147/147 (100%)	0.46	12 (8%) 17 18	22, 35, 62, 73	0
4	L	147/147 (100%)	0.06	4 (2%) 56 60	21, 31, 56, 64	0
4	P	147/147 (100%)	0.32	7 (4%) 35 38	23, 35, 60, 72	0
All	All	3032/3076 (98%)	-0.03	107 (3%) 47 50	17, 28, 56, 80	0

All (107) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	J	131	SER	7.3
2	B	131	SER	5.9
1	M	6	ALA	5.6
4	H	1	ALA	5.3
1	E	5	GLU	5.3

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Mol	Chain	Res	Type	RSRZ
2	F	131	SER	4.8
1	I	6	ALA	4.6
1	M	208	THR	4.5
1	E	210	GLY	4.5
1	E	208	THR	4.4
1	I	208	THR	4.4
1	A	208	THR	4.3
1	M	5	GLU	4.3
2	N	7	THR	4.1
1	M	386	GLY	4.0
2	N	131	SER	3.9
4	H	107	SER	3.8
3	G	17	ALA	3.8
4	H	24	ASP	3.8
4	P	1	ALA	3.8
1	A	386	GLY	3.7
2	J	8	ASP	3.6
3	O	17	ALA	3.6
3	O	19	GLY	3.6
2	F	7	THR	3.6
4	D	24	ASP	3.6
1	A	6	ALA	3.5
3	O	61	VAL	3.5
3	C	1	ASP	3.5
4	H	147	PRO	3.4
4	L	147	PRO	3.3
4	P	147	PRO	3.3
3	G	18	ASP	3.3
1	M	207	GLY	3.3
4	H	105	TRP	3.2
1	A	207	GLY	3.2
3	O	37	VAL	3.2
1	I	207	GLY	3.1
1	A	5	GLU	3.1
3	O	18	ASP	3.1
3	O	7	SER	3.1
4	L	24	ASP	3.0
3	O	65	ALA	3.0
3	K	19	GLY	3.0
1	I	386	GLY	3.0
1	E	207	GLY	2.9
3	O	14	ALA	2.9

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Mol	Chain	Res	Type	RSRZ
4	P	24	ASP	2.9
3	K	17	ALA	2.8
3	O	3	ALA	2.8
3	O	85	ALA	2.8
3	O	86	GLY	2.8
2	B	7	THR	2.8
3	K	18	ASP	2.8
3	O	62	LEU	2.7
3	O	64	GLU	2.7
3	O	66	ALA	2.7
3	O	1	ASP	2.6
2	B	8	ASP	2.6
4	H	18	ALA	2.6
3	O	12	ALA	2.6
4	P	128	PRO	2.6
3	O	5	ILE	2.6
3	O	38	LYS	2.6
4	D	147	PRO	2.5
1	I	5	GLU	2.5
3	G	19	GLY	2.5
3	K	1	ASP	2.5
1	E	6	ALA	2.5
4	H	19	MET	2.5
3	K	64	GLU	2.5
3	O	83	THR	2.4
4	L	21	GLU	2.4
3	O	42	THR	2.4
3	O	20	ALA	2.4
3	O	82	PHE	2.4
3	C	65	ALA	2.4
4	P	44	GLU	2.4
3	O	80	LEU	2.3
1	I	209	GLU	2.3
4	L	20	GLU	2.3
2	N	130	ALA	2.3
2	J	7	THR	2.3
3	C	38	LYS	2.3
3	G	65	ALA	2.2
3	O	60	GLY	2.2
3	O	9	SER	2.2
3	O	67	LEU	2.2
4	P	21	GLU	2.2

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Mol	Chain	Res	Type	RSRZ
3	C	17	ALA	2.2
1	E	260	LYS	2.2
1	I	20	ARG	2.2
1	I	211	THR	2.2
1	I	9	GLN	2.1
4	H	15	PHE	2.1
3	O	84	GLU	2.1
4	H	108	LEU	2.1
4	H	33	GLU	2.1
4	H	63	HIS	2.1
3	O	103	VAL	2.1
1	A	11	GLN	2.1
4	P	146	GLN	2.1
3	G	64	GLU	2.0
3	C	83	THR	2.0
3	O	59	ALA	2.0
4	H	23	ARG	2.0
3	O	88	TYR	2.0

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

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 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
2	TRQ	B	57	16/17	0.96	0.06	18,22,24,26	0
2	TRQ	F	57	16/17	0.96	0.05	18,20,22,24	0
2	TRQ	J	57	16/17	0.96	0.06	17,19,22,22	0
2	TRQ	N	57	16/17	0.96	0.06	17,22,26,26	0

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum,

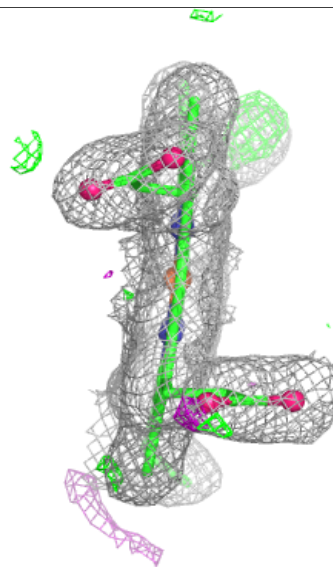
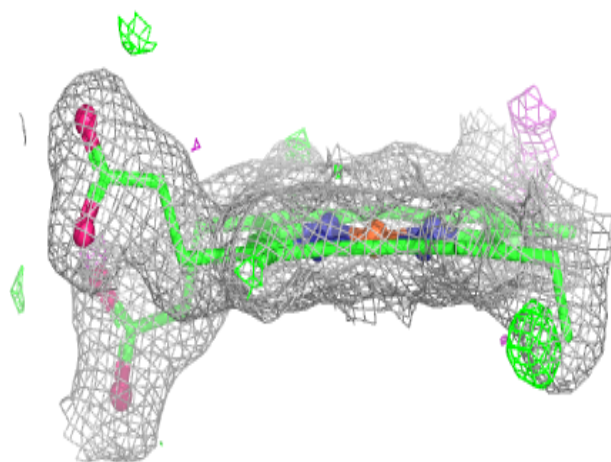
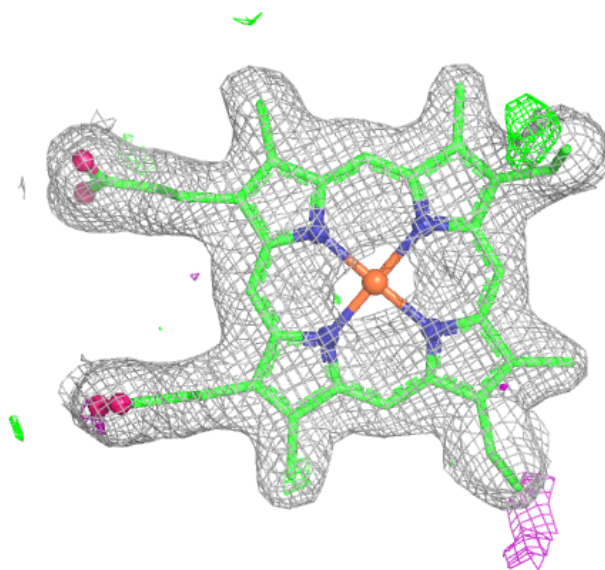
median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
5	NA	P	603	1/1	0.97	0.08	28,28,28,28	0
5	NA	H	604	1/1	0.98	0.05	24,24,24,24	0
5	NA	D	602	1/1	0.98	0.05	28,28,28,28	0
6	HEC	D	200	43/43	0.98	0.06	17,21,27,34	0
6	HEC	H	200	43/43	0.98	0.07	22,27,32,34	0
6	HEC	L	200	43/43	0.98	0.06	16,21,26,29	0
6	HEC	P	200	43/43	0.98	0.06	21,25,29,36	0
5	NA	L	601	1/1	0.99	0.05	21,21,21,21	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.

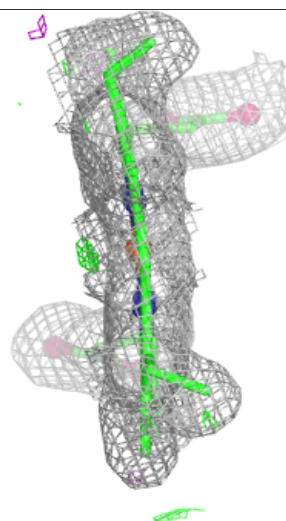
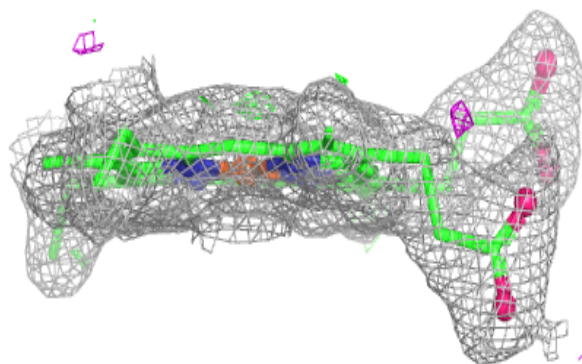
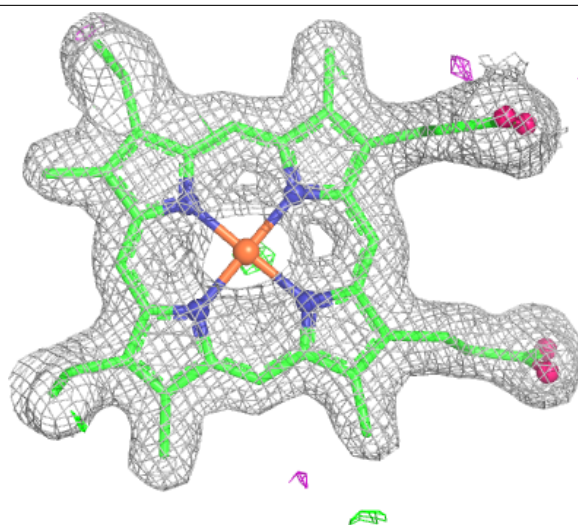
Electron density around HEC D 200:

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



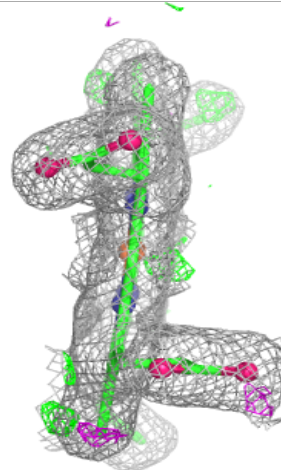
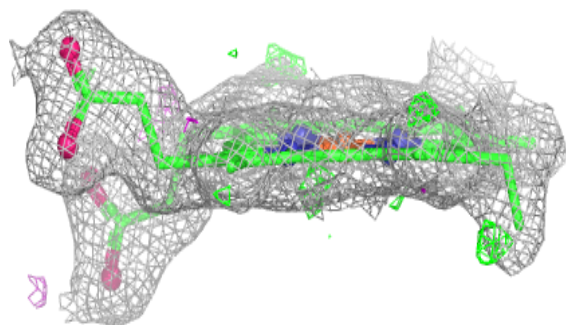
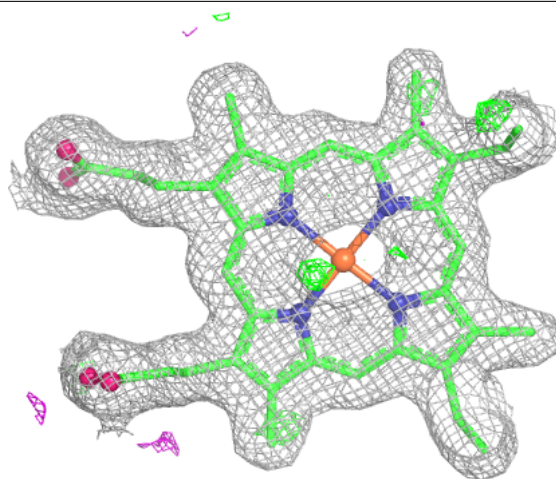
Electron density around HEC H 200:

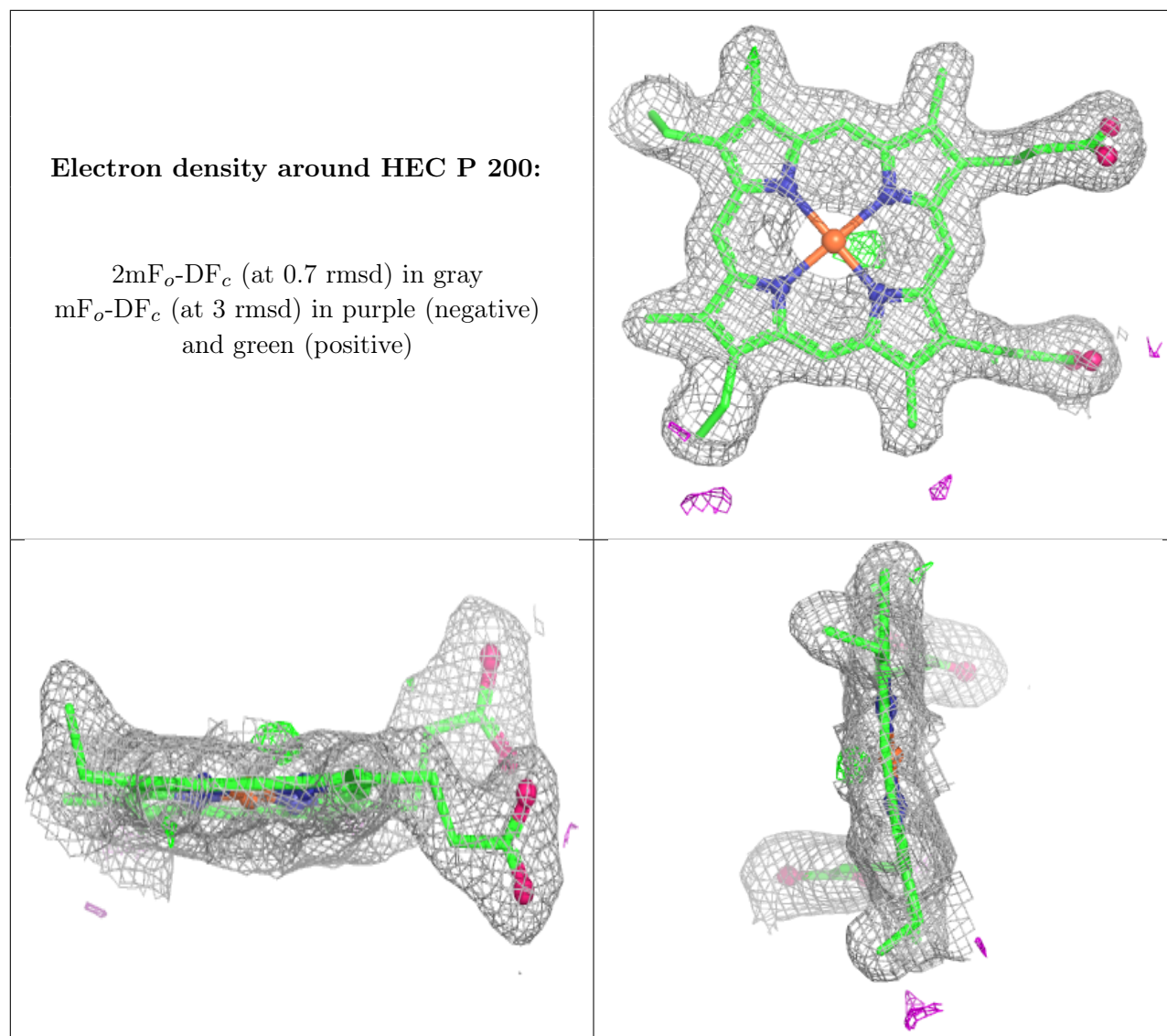
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around HEC L 200:

$2mF_o-DF_c$ (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.