W O R L D W I D E

wwPDB

P R O T E I N D A T A B A N K

wwPDB X-ray Structure Validation Summary Report ⓘ

Apr 15, 2024 – 04:30 PM EDT

PDB ID	:	8GBK
Title	:	Dri1 hemoprotein variant H79A-R90A with a zinc-mirror heme site
Authors	:	Yee, E.F.; Blaby-Haas, C.
Deposited on	:	2023-02-26
Resolution	:	2.90 Å(reported)

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

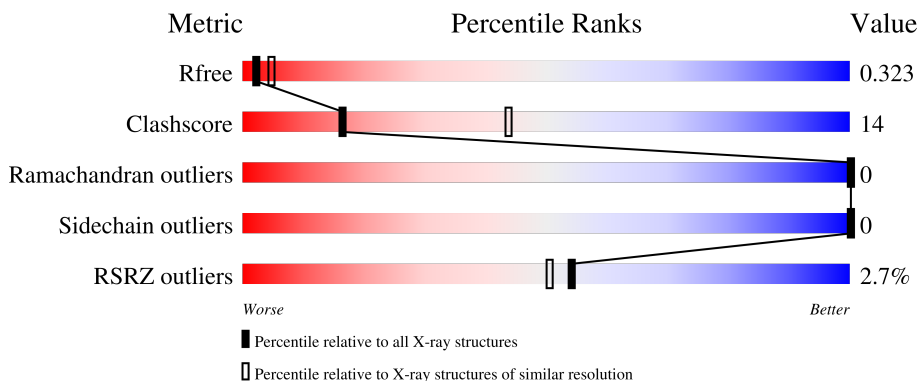|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36.1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.1

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 2.90 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	Percentile Ranks	Value
Rfree		0.323
Clashscore		14
Ramachandran outliers		0
Sidechain outliers		0
RSRZ outliers		2.7%

Worse   *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1957 (2.90-2.90)
Clashscore	141614	2172 (2.90-2.90)
Ramachandran outliers	138981	2115 (2.90-2.90)
Sidechain outliers	138945	2117 (2.90-2.90)
RSRZ outliers	127900	1906 (2.90-2.90)

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 <=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	103	2% — 77% / 17% / 7%
1	B	103	.% — 70% / 24% / 6%
1	C	103	6% — 63% / 29% / 8%
1	D	103	4% — 70% / 21% / 9%
1	E	103	72% / 23% / 5%

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Mol	Chain	Length	Quality of chain
1	F	103	4% 65% 24% 11%
1	G	103	4% 82% 16% •
1	H	103	61% 34% 5%

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
2	HEB	A	201	X	-	-	-
2	HEB	D	201	X	-	-	-
2	HEB	E	201	X	-	-	-
2	HEB	H	201	X	-	-	-

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 6056 atoms, of which 136 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 Ssr1698 protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	G	100	Total	C	N	O	S	0	0	0
			754	467	126	155	6			
1	H	98	Total	C	N	O	S	0	0	0
			731	449	124	152	6			
1	B	97	Total	C	N	O	S	0	0	0
			723	443	123	151	6			
1	E	98	Total	C	N	O	S	0	0	0
			731	449	124	152	6			
1	A	96	Total	C	N	O	S	0	0	0
			715	439	121	149	6			
1	C	95	Total	C	N	O	S	0	0	0
			706	434	120	146	6			
1	D	94	Total	C	N	O	S	0	0	0
			701	431	119	145	6			
1	F	92	Total	C	N	O	S	0	0	0
			687	424	116	141	6			

There are 72 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	79	ALA	HIS	engineered mutation	UNP P73129
G	90	ALA	ARG	engineered mutation	UNP P73129
G	97	ALA	-	expression tag	UNP P73129
G	98	GLU	-	expression tag	UNP P73129
G	99	ASN	-	expression tag	UNP P73129
G	100	LEU	-	expression tag	UNP P73129
G	101	TYR	-	expression tag	UNP P73129
G	102	PHE	-	expression tag	UNP P73129
G	103	GLN	-	expression tag	UNP P73129
H	79	ALA	HIS	engineered mutation	UNP P73129
H	90	ALA	ARG	engineered mutation	UNP P73129
H	97	ALA	-	expression tag	UNP P73129
H	98	GLU	-	expression tag	UNP P73129

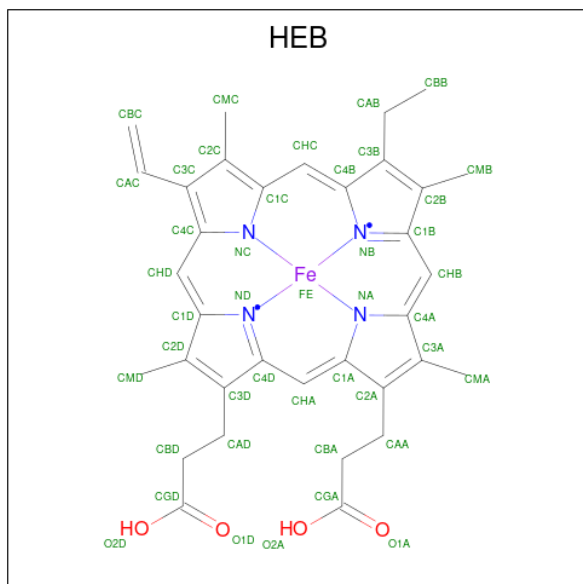*Continued on next page...*

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Chain	Residue	Modelled	Actual	Comment	Reference
H	99	ASN	-	expression tag	UNP P73129
H	100	LEU	-	expression tag	UNP P73129
H	101	TYR	-	expression tag	UNP P73129
H	102	PHE	-	expression tag	UNP P73129
H	103	GLN	-	expression tag	UNP P73129
B	79	ALA	HIS	engineered mutation	UNP P73129
B	90	ALA	ARG	engineered mutation	UNP P73129
B	97	ALA	-	expression tag	UNP P73129
B	98	GLU	-	expression tag	UNP P73129
B	99	ASN	-	expression tag	UNP P73129
B	100	LEU	-	expression tag	UNP P73129
B	101	TYR	-	expression tag	UNP P73129
B	102	PHE	-	expression tag	UNP P73129
B	103	GLN	-	expression tag	UNP P73129
E	79	ALA	HIS	engineered mutation	UNP P73129
E	90	ALA	ARG	engineered mutation	UNP P73129
E	97	ALA	-	expression tag	UNP P73129
E	98	GLU	-	expression tag	UNP P73129
E	99	ASN	-	expression tag	UNP P73129
E	100	LEU	-	expression tag	UNP P73129
E	101	TYR	-	expression tag	UNP P73129
E	102	PHE	-	expression tag	UNP P73129
E	103	GLN	-	expression tag	UNP P73129
A	79	ALA	HIS	engineered mutation	UNP P73129
A	90	ALA	ARG	engineered mutation	UNP P73129
A	97	ALA	-	expression tag	UNP P73129
A	98	GLU	-	expression tag	UNP P73129
A	99	ASN	-	expression tag	UNP P73129
A	100	LEU	-	expression tag	UNP P73129
A	101	TYR	-	expression tag	UNP P73129
A	102	PHE	-	expression tag	UNP P73129
A	103	GLN	-	expression tag	UNP P73129
C	79	ALA	HIS	engineered mutation	UNP P73129
C	90	ALA	ARG	engineered mutation	UNP P73129
C	97	ALA	-	expression tag	UNP P73129
C	98	GLU	-	expression tag	UNP P73129
C	99	ASN	-	expression tag	UNP P73129
C	100	LEU	-	expression tag	UNP P73129
C	101	TYR	-	expression tag	UNP P73129
C	102	PHE	-	expression tag	UNP P73129
C	103	GLN	-	expression tag	UNP P73129
D	79	ALA	HIS	engineered mutation	UNP P73129

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Chain	Residue	Modelled	Actual	Comment	Reference
D	90	ALA	ARG	engineered mutation	UNP P73129
D	97	ALA	-	expression tag	UNP P73129
D	98	GLU	-	expression tag	UNP P73129
D	99	ASN	-	expression tag	UNP P73129
D	100	LEU	-	expression tag	UNP P73129
D	101	TYR	-	expression tag	UNP P73129
D	102	PHE	-	expression tag	UNP P73129
D	103	GLN	-	expression tag	UNP P73129
F	79	ALA	HIS	engineered mutation	UNP P73129
F	90	ALA	ARG	engineered mutation	UNP P73129
F	97	ALA	-	expression tag	UNP P73129
F	98	GLU	-	expression tag	UNP P73129
F	99	ASN	-	expression tag	UNP P73129
F	100	LEU	-	expression tag	UNP P73129
F	101	TYR	-	expression tag	UNP P73129
F	102	PHE	-	expression tag	UNP P73129
F	103	GLN	-	expression tag	UNP P73129

- Molecule 2 is HEME B/C (three-letter code: HEB) (formula: $C_{34}H_{34}FeN_4O_4$) (labeled as "Ligand of Interest" by depositor).

HEB

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	H	1	Total	C	Fe	H	N	O	0	0
			77	34	1	34	4	4		
2	E	1	Total	C	Fe	H	N	O	0	0
			77	34	1	34	4	4		

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Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	A	1	Total	C	Fe	H	N	O	0	0
			77	34	1	34	4	4		
2	D	1	Total	C	Fe	H	N	O	0	0
			77	34	1	34	4	4		

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: Ssr1698 protein

Chain G:

- Molecule 1: Ssr1698 protein

Chain H:

- Molecule 1: Ssr1698 protein

Chain B:
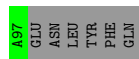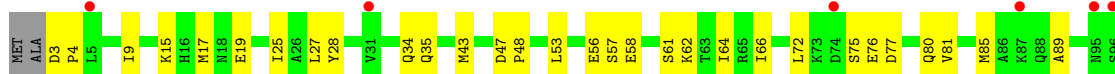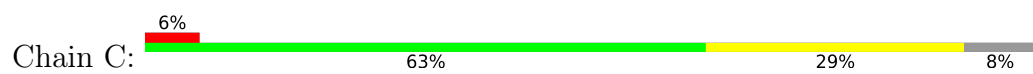
- Molecule 1: Ssr1698 protein

Chain E:

- Molecule 1: Ssr1698 protein

Chain A:

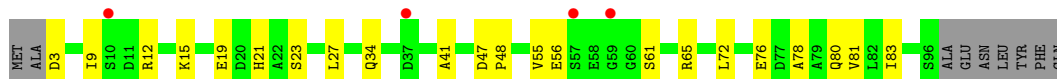- Molecule 1: Ssr1698 protein

Chain C:

6%

63% 29% 8%

MET ALA D3 P4 L5 I9 K15 H16 M17 N18 E19 I25 A26 L27 Y28 V31 Q34 Q35 M43 D47 P48 L53 E56 S57 E58 S61 K62 T63 I64 R65 I66 L72 K73 D74 S75 E76 D77 Q80 V81 M85 A86 K87 Q88 A89 N95 S96

A97 GLU ASN LEU TYR PHE GLN

• Molecule 1: Ssr1698 protein

Chain D:

4%

70% 21% 9%

MET ALA D3 I9 S10 D11 R12 K15 E19 D20 H21 A22 S23 L27 Q34 D37 A41 D47 P48 V55 E56 S57 E58 G59 G60 S61 R65 L72 E76 D77 A78 A79 Q80 V81 L82 I83 S96 ALA GLU ASN LEU TYR PHE GLN

• Molecule 1: Ssr1698 protein

Chain F:

4%

65% 24% 11%

MET ALA D3 P4 L5 T6 P7 K15 E19 S23 L27 Q30 V31 Q35 M40 Q44 T49 V54 S61 E67 L72 K73 D74 S75 A78 A79 Q80 V81 L82 I83 A89 K94 ASN SER ALA GLU ASN LEU TYR PHE GLN

4   Data and refinement statistics   ⓘ

Property	Value	Source
Space group	P 43	Depositor
Cell constants a, b, c, α, β, γ	91.81Å 91.81Å 144.31Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.94 – 2.90 29.94 – 2.90	Depositor EDS
% Data completeness (in resolution range)	98.7 (29.94-2.90) 98.7 (29.94-2.90)	Depositor EDS
R_{merge}	0.14	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.49 (at 2.90Å)	Xtriage
Refinement program	PHENIX 1.19.2_4158	Depositor
R, R_{free}	0.311 , 0.326 0.313 , 0.323	Depositor DCC
R_{free} test set	1973 reflections (7.55%)	wwPDB-VP
Wilson B-factor (Å^2)	70.5	Xtriage
Anisotropy	0.149	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.25 , 12.3	EDS
L-test for twinning[2]	$< |L| > = 0.51, < L^2 > = 0.35$	Xtriage
Estimated twinning fraction	0.448 for h,-k,-l	Xtriage
F_o,F_c correlation	0.91	EDS
Total number of atoms	6056	wwPDB-VP
Average B, all atoms (Å^2)	74.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 70.78 % 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 2.9469e-06. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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

5 Model quality (i)

5.1 Standard geometry (i)

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

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	0.42	0/723	0.54	0/977
1	B	0.43	0/731	0.56	0/988
1	C	0.53	0/714	0.66	0/965
1	D	0.52	0/709	0.63	0/958
1	E	0.37	0/739	0.55	0/999
1	F	0.44	0/695	0.57	0/939
1	G	0.49	0/764	0.65	0/1033
1	H	0.44	0/739	0.58	0/999
All	All	0.46	0/5814	0.59	0/7858

There are no bond length outliers.

There are no bond angle outliers.

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	715	0	700	17	0
1	B	723	0	706	23	0
1	C	706	0	694	22	0
1	D	701	0	689	23	0
1	E	731	0	717	21	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	F	687	0	678	21	0
1	G	754	0	735	16	0
1	H	731	0	717	34	0
2	A	43	34	32	2	0
2	D	43	34	32	3	0
2	E	43	34	32	2	0
2	H	43	34	32	3	0
All	All	5920	136	5764	167	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 14.

The worst 5 of 167 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:9:ILE:HG23	1:D:12:ARG:HH21	1.25	1.00
1:D:72:LEU:HD13	1:D:78:ALA:HA	1.48	0.96
1:F:3:ASP:HA	1:F:74:ASP:HB3	1.51	0.92
1:B:72:LEU:HD13	1:B:78:ALA:HA	1.51	0.90
1:A:72:LEU:HD21	1:A:81:VAL:HG21	1.52	0.89

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	94/103 (91%)	91 (97%)	3 (3%)	0	100	100
1	B	95/103 (92%)	92 (97%)	3 (3%)	0	100	100
1	C	93/103 (90%)	87 (94%)	6 (6%)	0	100	100
1	D	92/103 (89%)	88 (96%)	4 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	E	96/103 (93%)	92 (96%)	4 (4%)	0	100	100
1	F	90/103 (87%)	82 (91%)	8 (9%)	0	100	100
1	G	98/103 (95%)	96 (98%)	2 (2%)	0	100	100
1	H	96/103 (93%)	90 (94%)	6 (6%)	0	100	100
All	All	754/824 (92%)	718 (95%)	36 (5%)	0	100	100

There are no Ramachandran outliers to report.

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	77/83 (93%)	77 (100%)	0	100	100
1	B	78/83 (94%)	78 (100%)	0	100	100
1	C	76/83 (92%)	76 (100%)	0	100	100
1	D	76/83 (92%)	76 (100%)	0	100	100
1	E	79/83 (95%)	79 (100%)	0	100	100
1	F	74/83 (89%)	74 (100%)	0	100	100
1	G	81/83 (98%)	81 (100%)	0	100	100
1	H	79/83 (95%)	79 (100%)	0	100	100
All	All	620/664 (93%)	620 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

5.3.3 RNA (i)

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 ⓘ

4 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#$|Z| > 2$	Counts	RMSZ	#$|Z| > 2$
2	HEB	H	201	-	48,50,50	1.31	6 (12%)	55,82,82	1.99	17 (30%)
2	HEB	D	201	-	48,50,50	1.26	5 (10%)	55,82,82	1.94	12 (21%)
2	HEB	E	201	-	48,50,50	1.32	5 (10%)	55,82,82	1.95	15 (27%)
2	HEB	A	201	-	48,50,50	1.29	5 (10%)	55,82,82	1.92	13 (23%)

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	HEB	H	201	-	1/1/8/8	2/12/54/54	-
2	HEB	D	201	-	1/1/8/8	0/12/54/54	-
2	HEB	E	201	-	1/1/8/8	3/12/54/54	-
2	HEB	A	201	-	1/1/8/8	0/12/54/54	-

The worst 5 of 21 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	201	HEB	C4B-NB	-3.71	1.33	1.40

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W O R L D W I D E
wwPDB
PROTEIN DATA BANK

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	201	HEB	C4B-NB	-3.46	1.34	1.40
2	A	201	HEB	C4B-NB	-3.29	1.34	1.40
2	D	201	HEB	C4B-NB	-3.04	1.35	1.40
2	E	201	HEB	C3C-C2C	-2.98	1.36	1.40

The worst 5 of 57 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	H	201	HEB	C1D-ND-C4D	5.41	110.67	105.07
2	H	201	HEB	C4A-NA-C1A	5.13	110.38	105.35
2	E	201	HEB	C4A-NA-C1A	5.09	110.33	105.35
2	A	201	HEB	C4A-NA-C1A	5.01	110.25	105.35
2	E	201	HEB	C4B-NB-C1B	4.93	110.17	105.07

All (4) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
2	H	201	HEB	NA
2	E	201	HEB	NA
2	A	201	HEB	NA
2	D	201	HEB	NA

All (5) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	E	201	HEB	CAA-CBA-CGA-O1A
2	H	201	HEB	CAD-CBD-CGD-O2D
2	E	201	HEB	CAA-CBA-CGA-O2A
2	E	201	HEB	CAD-CBD-CGD-O1D
2	H	201	HEB	CAA-CBA-CGA-O2A

There are no ring outliers.
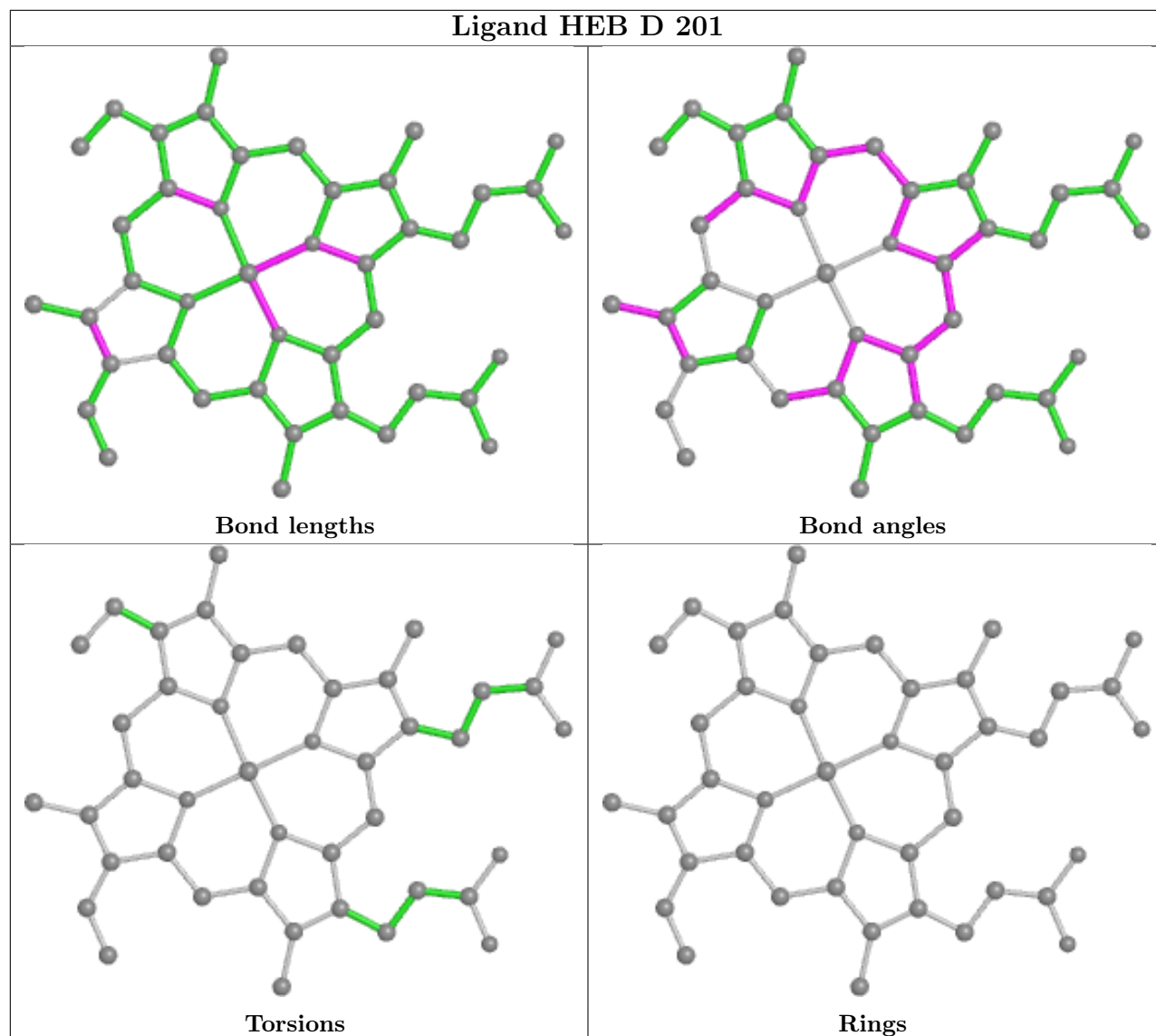
4 monomers are involved in 10 short contacts:

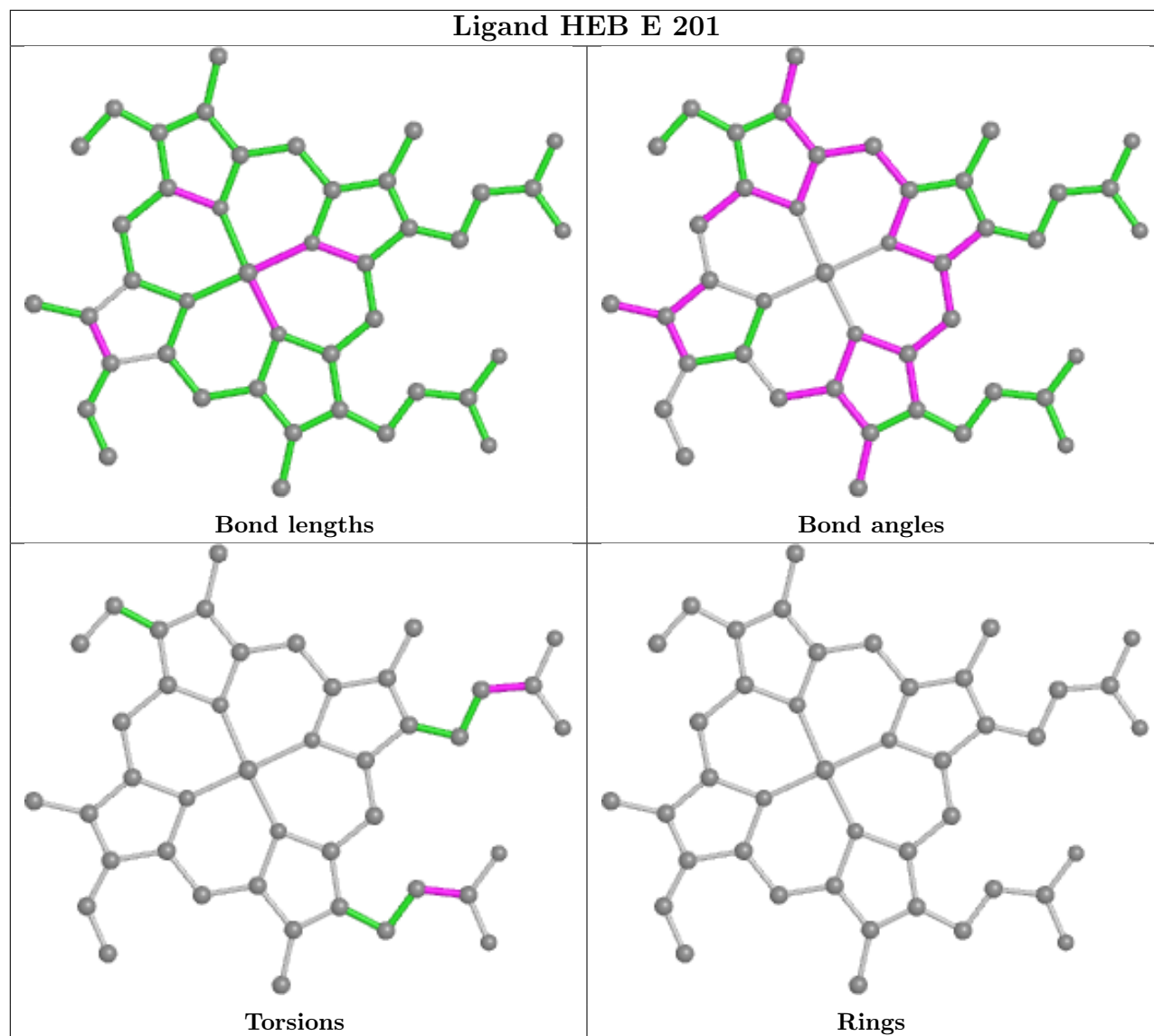| Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	H	201	HEB	3	0
2	D	201	HEB	3	0
2	E	201	HEB	2	0
2	A	201	HEB	2	0

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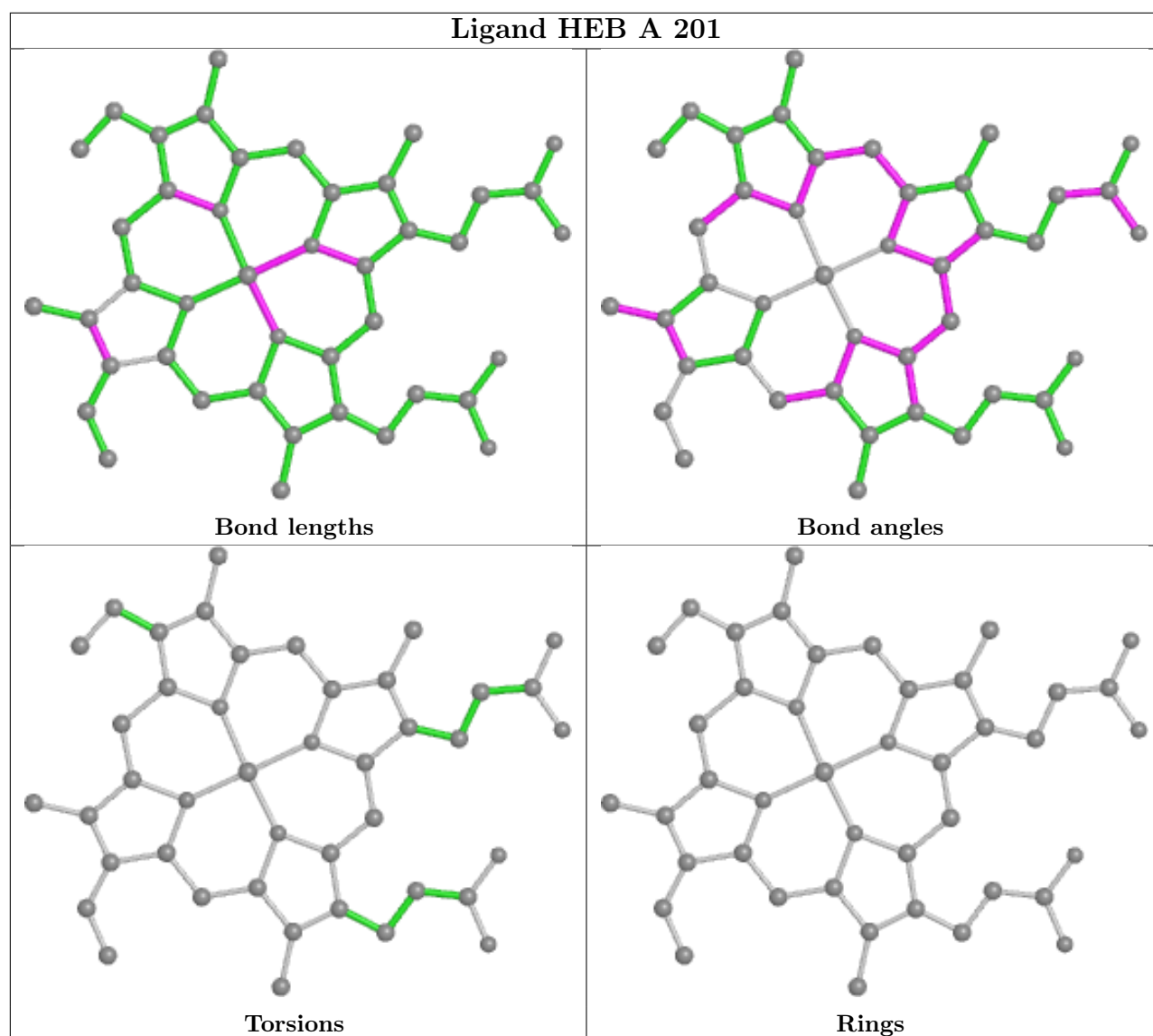
bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within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

Ligand HEB H 201

Bond lengths

Bond angles

Torsions

Rings

Ligand HEB D 201

Bond lengths

Bond angles

Torsions

Rings

Ligand HEB E 201

Bond lengths

Bond angles

Torsions

Rings

Ligand HEB A 201

Bond lengths

Bond angles

Torsions

Rings
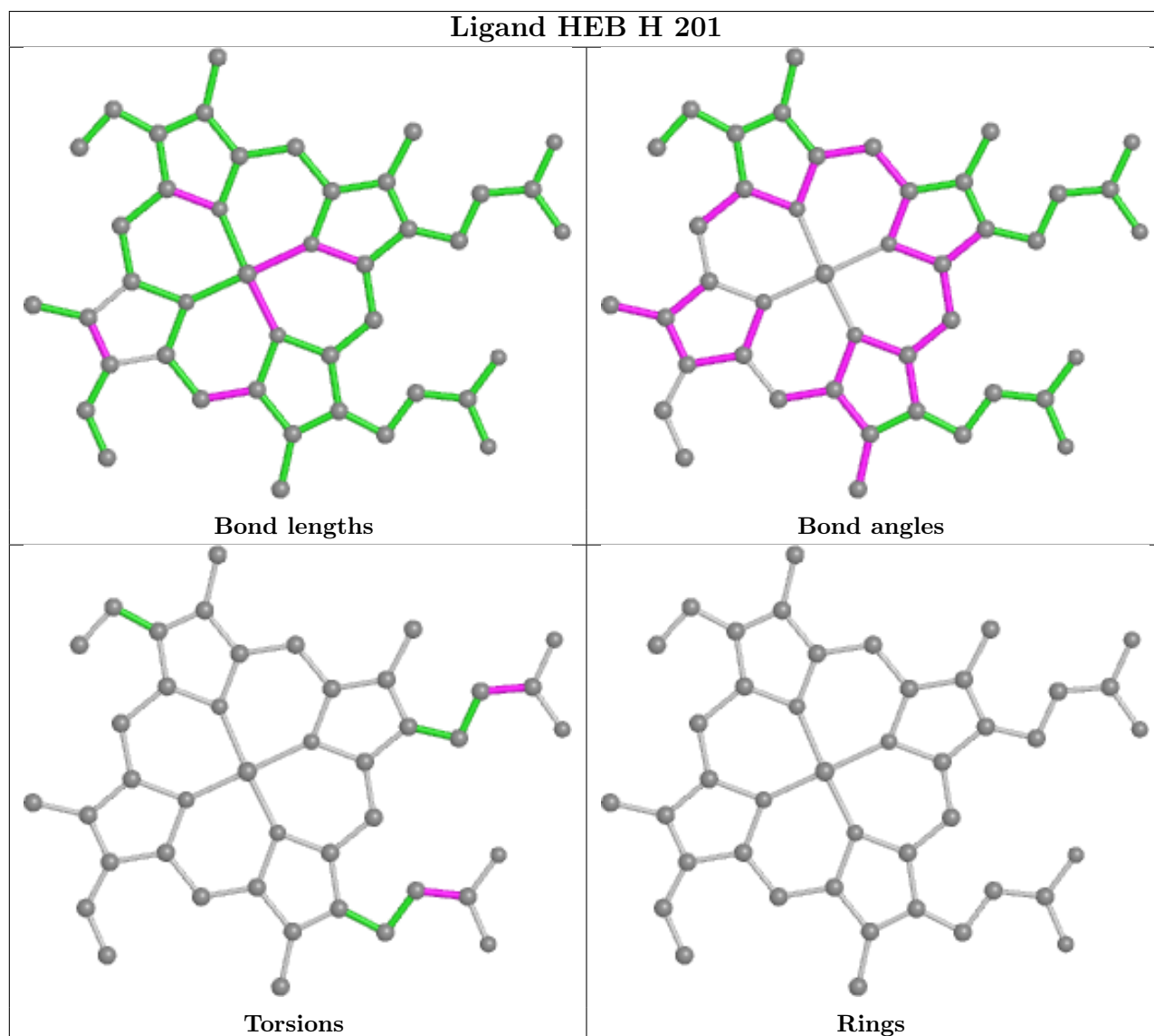
5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6   Fit of model and data ⓘ

6.1   Protein, DNA and RNA chains ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	96/103 (93%)	0.08	2 (2%)	63	61	55, 77, 93, 104	0
1	B	97/103 (94%)	0.24	1 (1%)	82	82	51, 68, 93, 107	0
1	C	95/103 (92%)	0.23	6 (6%)	20	16	65, 83, 99, 108	0
1	D	94/103 (91%)	0.18	4 (4%)	35	31	60, 79, 103, 113	0
1	E	98/103 (95%)	0.18	0	100	100	59, 68, 84, 99	0
1	F	92/103 (89%)	0.15	4 (4%)	35	31	60, 79, 98, 109	0
1	G	100/103 (97%)	0.31	4 (4%)	38	33	49, 65, 94, 111	0
1	H	98/103 (95%)	0.10	0	100	100	47, 60, 84, 92	0
All	All	770/824 (93%)	0.19	21 (2%)	54	50	47, 73, 98, 113	0

The worst 5 of 21 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	96	SER	3.9
1	C	96	SER	3.5
1	C	95	ASN	3.3
1	D	37	ASP	2.9
1	D	59	GLY	2.7

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

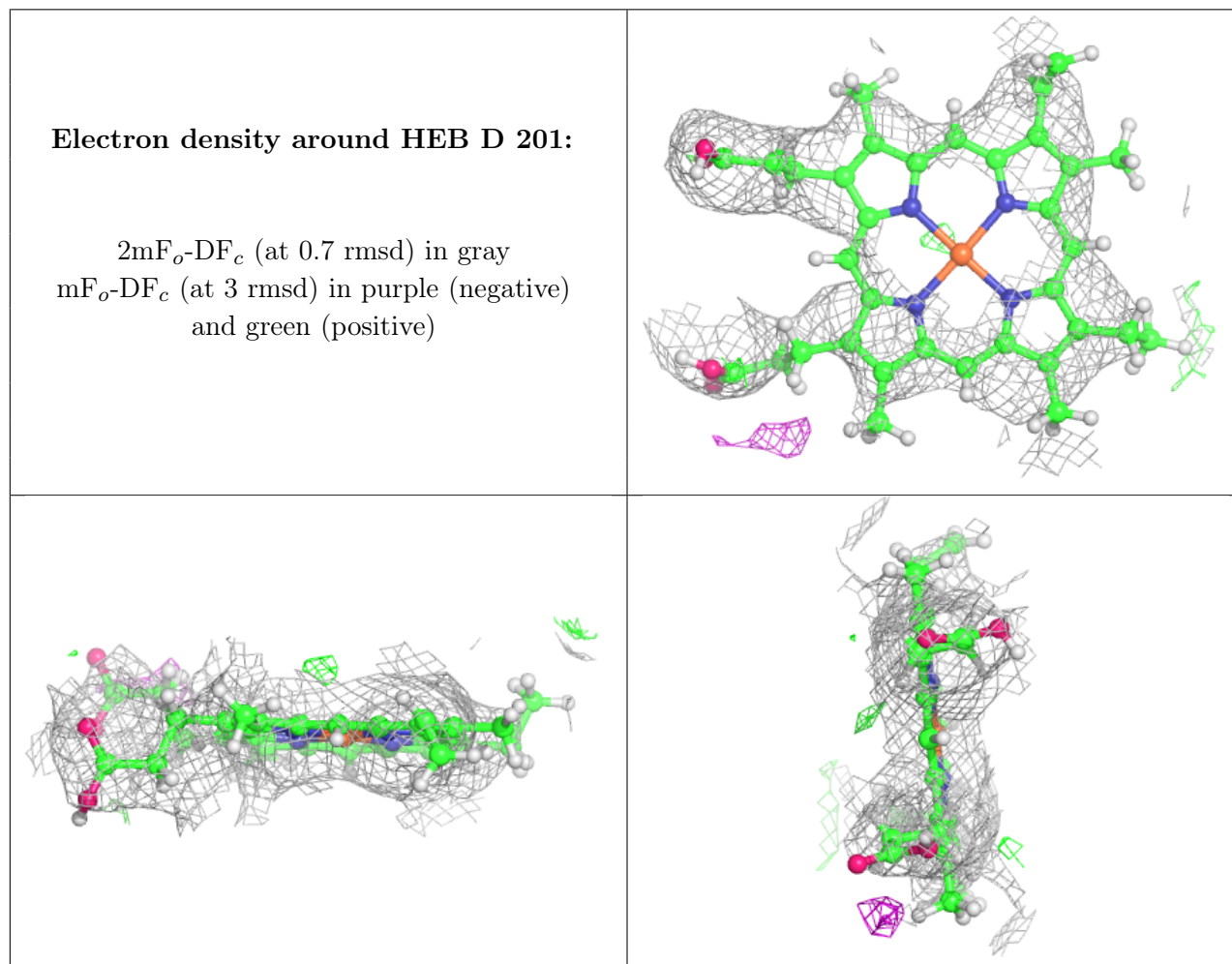There are no non-standard protein/DNA/RNA residues in this entry.

6.3   Carbohydrates ⓘ

There are no monosaccharides in this entry.

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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
2	HEB	D	201	43/43	0.93	0.24	60,92,114,126	0
2	HEB	E	201	43/43	0.95	0.23	57,77,106,106	0
2	HEB	H	201	43/43	0.95	0.23	49,67,89,95	0
2	HEB	A	201	43/43	0.96	0.20	60,86,111,111	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 HEB D 201:

$2\text{mF}_o\text{-DF}_c$ (at 0.7 rmsd) in gray
$\text{mF}_o\text{-DF}_c$ (at 3 rmsd) in purple (negative)
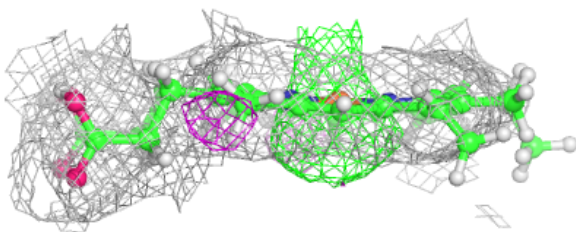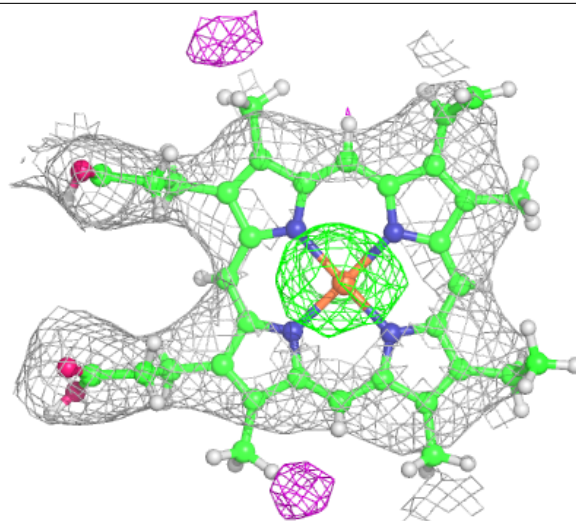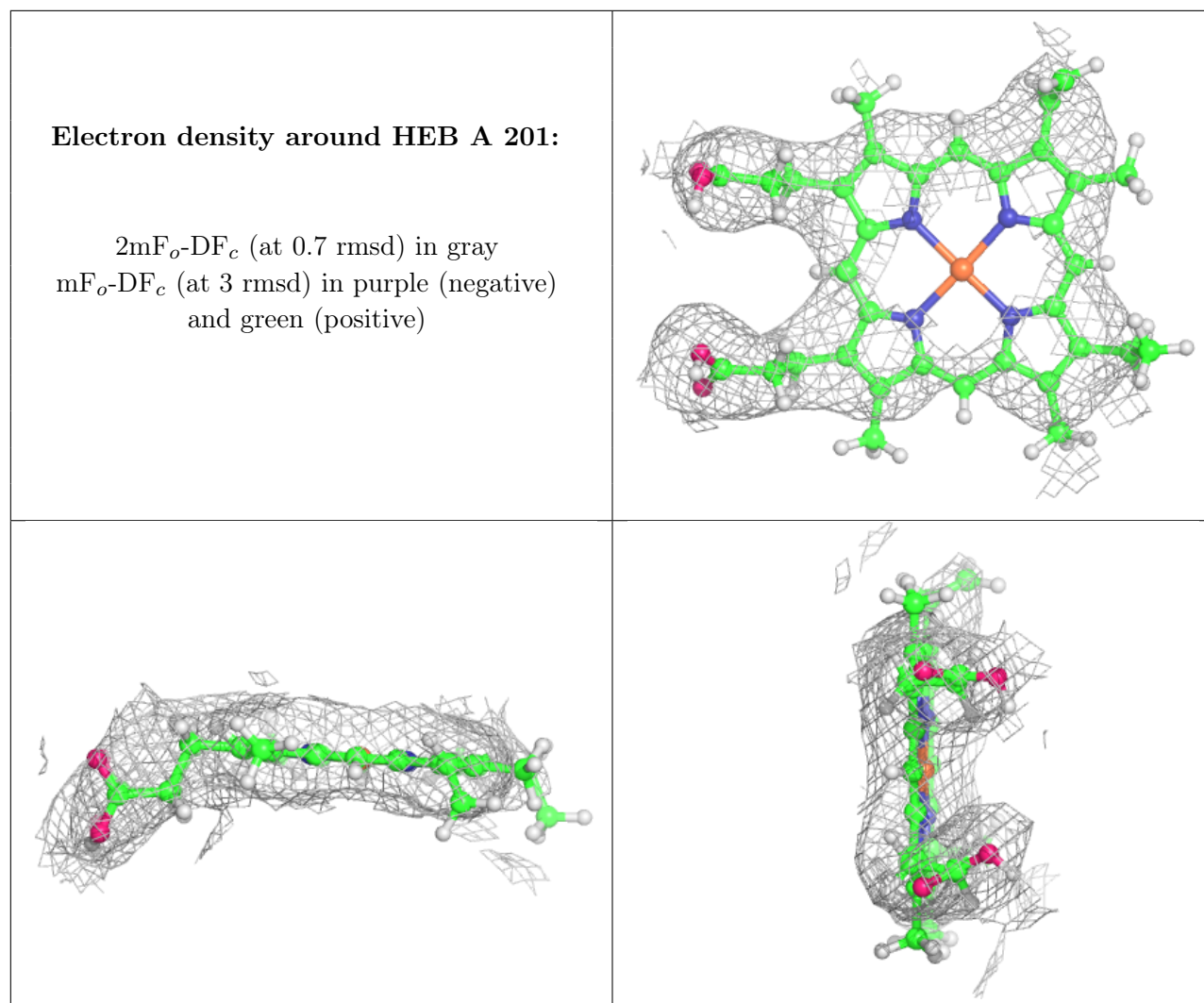and green (positive)

Electron density around HEB E 201:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
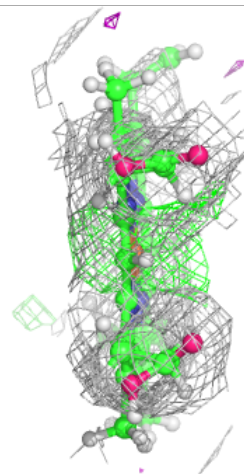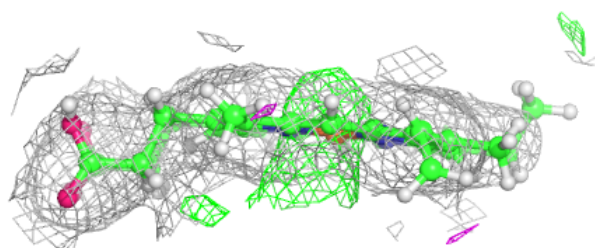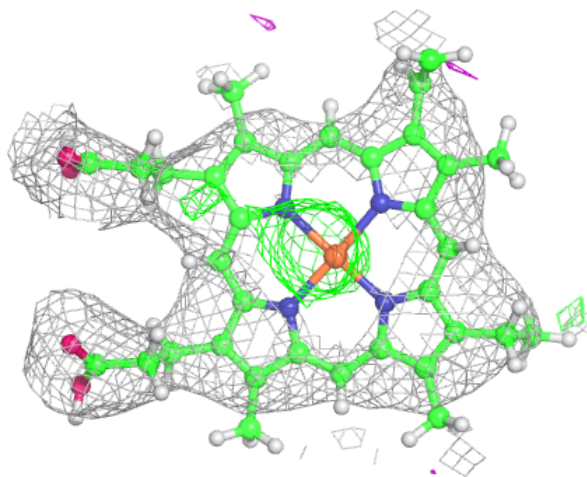
Electron density around HEB H 201:

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

Electron density around HEB A 201:

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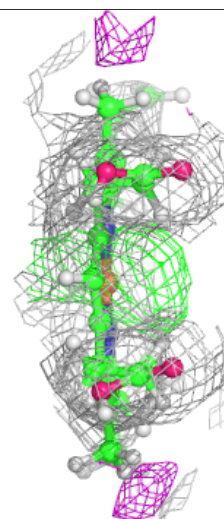
6.5 Other polymers (i)

There are no such residues in this entry.