Full wwPDB X-ray Structure Validation Report ⓘ

May 13, 2020 – 01:05 am BST

PDB ID	:	5C58
Title	:	A double mutant of serratia marcescens hemophore receptor HasR in complex with its hemophore HasA and heme
Authors	:	Becker, S.; Diederichs, K.; Welte, W.
Deposited on	:	2015-06-19
Resolution	:	2.79 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

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

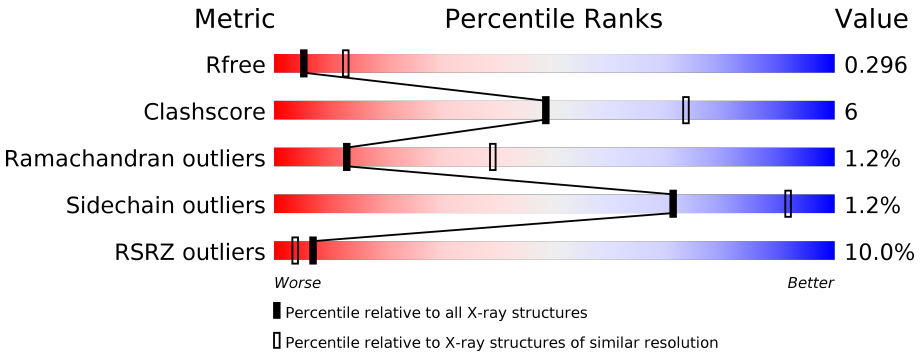
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.11
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.11

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 2.79 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3140 (2.80-2.80)
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)
RSRZ outliers	127900	3078 (2.80-2.80)

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 on 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	865	8% 64% 13% • 23%
2	B	206	9% 75% 9% 16%

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 6525 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 HasR protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	667	Total	C	N	O	S	0	0	0
			5226	3266	928	1019	13			

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	297	ALA	ARG	engineered mutation	UNP Q79AD2
A	645	ALA	GLY	engineered mutation	UNP Q79AD2
A	800	ALA	ASN	engineered mutation	UNP Q79AD2

- Molecule 2 is a protein called Hemophore HasA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	173	Total	C	N	O	S	0	0	0
			1256	783	204	268	1			

There are 19 discrepancies between the modelled and reference sequences:

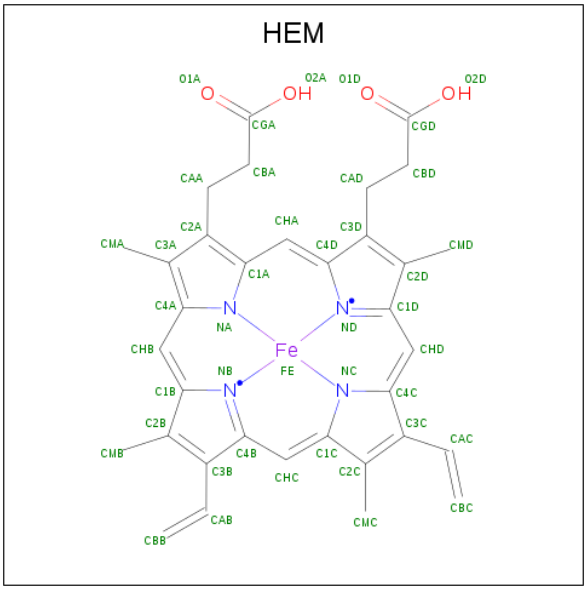
Chain	Residue	Modelled	Actual	Comment	Reference
B	-17	MET	-	initiating methionine	UNP Q54450
B	-16	ARG	-	expression tag	UNP Q54450
B	-15	GLY	-	expression tag	UNP Q54450
B	-14	SER	-	expression tag	UNP Q54450
B	-13	HIS	-	expression tag	UNP Q54450
B	-12	HIS	-	expression tag	UNP Q54450
B	-11	HIS	-	expression tag	UNP Q54450
B	-10	HIS	-	expression tag	UNP Q54450
B	-9	HIS	-	expression tag	UNP Q54450
B	-8	HIS	-	expression tag	UNP Q54450
B	-7	GLY	-	expression tag	UNP Q54450
B	-6	ILE	-	expression tag	UNP Q54450
B	-5	ARG	-	expression tag	UNP Q54450

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	-4	MET	-	expression tag	UNP Q54450
B	-3	ARG	-	expression tag	UNP Q54450
B	-2	ALA	-	expression tag	UNP Q54450
B	-1	ARG	-	expression tag	UNP Q54450
B	0	TYR	-	expression tag	UNP Q54450
B	1	PRO	-	expression tag	UNP Q54450

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



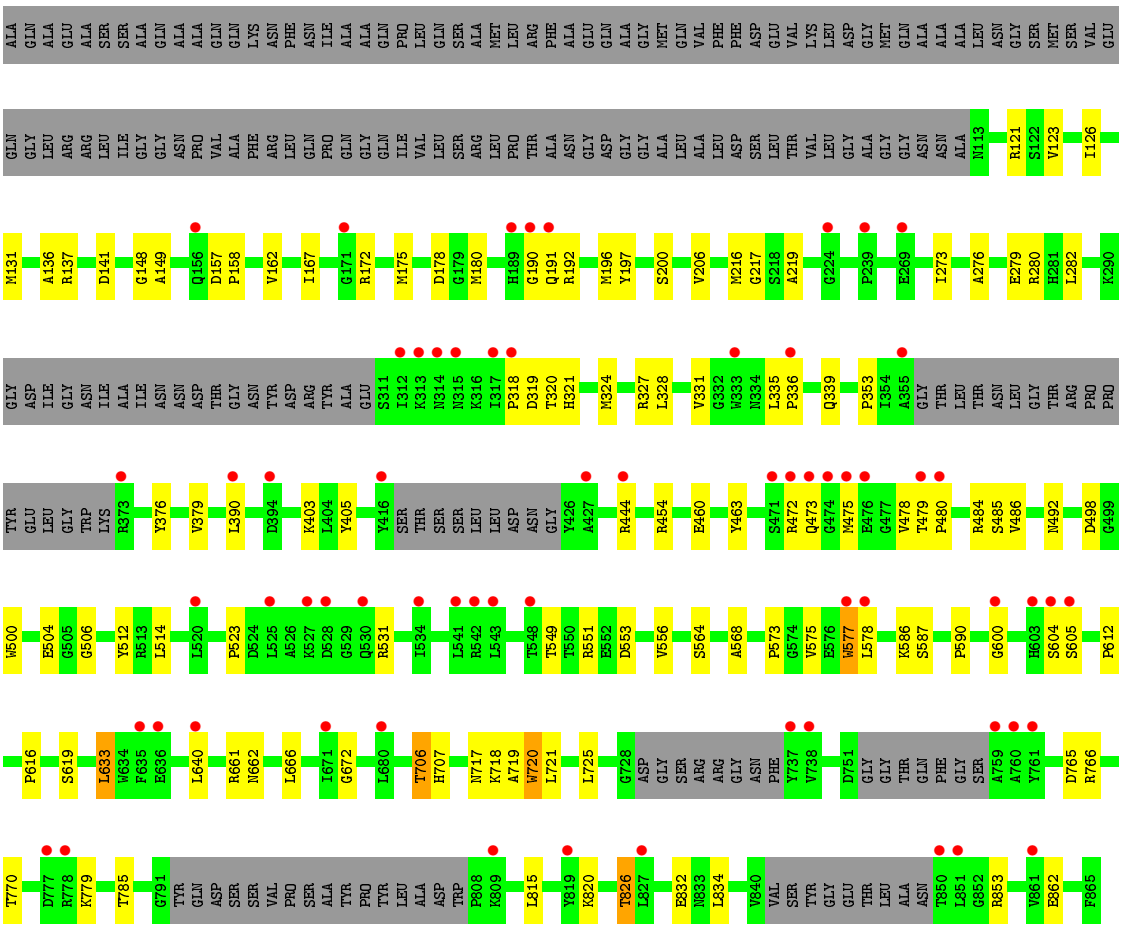
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	B	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		

3 Residue-property plots (i)

These plots are drawn for all protein, RNA and DNA 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.

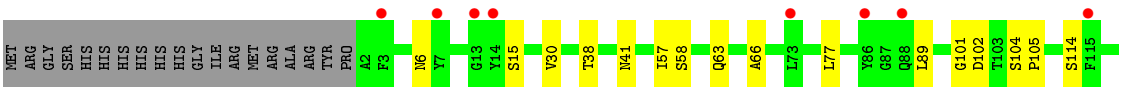
- Molecule 1: HasR protein

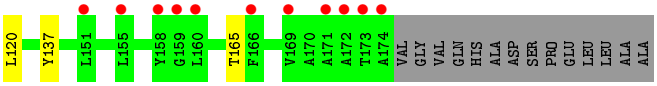
Chain A:



- Molecule 2: Hemophore HasA

Chain B:




L120
Y137
L151
L155
Y158
G159
L160
T165
F166
V169
A170
A171
A172
T173
A174
VAL
GLY
VAL
GLN
HIS
ALA
ASP
SER
PRO
GLU
LEU
LEU
ALA
ALA

4 Data and refinement statistics (i)

Property	Value	Source
Space group	I 2 2 2	Depositor
Cell constants a, b, c, α, β, γ	101.97Å 114.62Å 260.76Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	37.75 – 2.79 37.75 – 2.79	Depositor EDS
% Data completeness (in resolution range)	98.8 (37.75-2.79) 99.0 (37.75-2.79)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	0.10	Depositor
$< I/\sigma(I) >$ [1]	1.53 (at 2.81Å)	Xtriage
Refinement program	PHENIX (1.10pre-2083_1692: ???)	Depositor
R, R_{free}	0.247 , 0.296 0.247 , 0.296	Depositor DCC
R_{free} test set	1884 reflections (4.98%)	wwPDB-VP
Wilson B-factor (Å^2)	78.8	Xtriage
Anisotropy	0.569	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 58.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	6525	wwPDB-VP
Average B, all atoms (Å^2)	117.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.27% 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

5.1 Standard geometry

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

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\| > 5$	RMSZ	$\#\|Z\| > 5$
1	A	0.22	0/5340	0.39	0/7239
2	B	0.22	0/1284	0.33	0/1752
All	All	0.22	0/6624	0.38	0/8991

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

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	5226	0	4992	64	0
2	B	1256	0	1137	10	0
3	B	43	0	30	4	0
All	All	6525	0	6159	76	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 6.

All (76) 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:B:30:VAL:HG11	2:B:57:ILE:HD11	1.69	0.75
3:B:200:HEM:HHC	3:B:200:HEM:HBB2	1.69	0.74
1:A:175:MET:HE1	1:A:196:MET:HG2	1.71	0.73
3:B:200:HEM:HHD	3:B:200:HEM:HBC2	1.72	0.72
1:A:178:ASP:O	1:A:403:LYS:NZ	2.23	0.72
1:A:531:ARG:HH11	1:A:725:LEU:HD11	1.58	0.68
2:B:30:VAL:HG12	2:B:41:ASN:HB2	1.79	0.65
1:A:149:ALA:O	1:A:766:ARG:NH2	2.30	0.63
1:A:587:SER:OG	1:A:619:SER:OG	2.22	0.58
1:A:633:LEU:HD22	1:A:640:LEU:HB2	1.85	0.58
2:B:104:SER:HB2	2:B:105:PRO:HD2	1.86	0.58
1:A:167:ILE:HG22	1:A:172:ARG:HB3	1.85	0.57
1:A:486:VAL:HA	1:A:512:TYR:HA	1.86	0.57
2:B:15:SER:HA	2:B:165:THR:HA	1.87	0.57
1:A:661:ARG:HD3	1:A:718:LYS:HA	1.88	0.56
1:A:137:ARG:HG2	1:A:282:LEU:HD13	1.88	0.56
1:A:280:ARG:HB2	1:A:324:MET:HG2	1.87	0.54
1:A:720:TRP:CD1	1:A:721:LEU:HG	2.43	0.54
3:B:200:HEM:HMA2	3:B:200:HEM:HBA2	1.91	0.53
1:A:319:ASP:HB3	1:A:353:PRO:HB2	1.90	0.53
1:A:136:ALA:HB1	1:A:141:ASP:HB2	1.91	0.52
1:A:335:LEU:HB2	1:A:339:GLN:HB2	1.92	0.52
1:A:604:SER:OG	1:A:604:SER:O	2.25	0.52
1:A:273:ILE:HD13	1:A:331:VAL:HG22	1.91	0.52
1:A:717:ASN:O	1:A:719:ALA:N	2.37	0.51
1:A:162:VAL:H	1:A:175:MET:HE3	1.75	0.51
1:A:590:PRO:HA	1:A:616:PRO:HB3	1.92	0.51
1:A:353:PRO:HA	1:A:376:TYR:HA	1.93	0.51
1:A:523:PRO:HB2	1:A:666:LEU:HB2	1.94	0.50
1:A:484:ARG:HB2	1:A:514:LEU:HD13	1.93	0.49
2:B:89:LEU:HD23	2:B:120:LEU:HD12	1.94	0.49
1:A:498:ASP:HB3	1:A:500:TRP:CD1	2.47	0.49
1:A:504:GLU:HB3	1:A:568:ALA:HB3	1.94	0.48
1:A:478:VAL:HG22	1:A:600:GLY:HA3	1.95	0.48
1:A:820:LYS:HG2	1:A:826:THR:HB	1.96	0.48
1:A:551:ARG:NH1	1:A:553:ASP:OD1	2.46	0.48
1:A:190:GLY:O	1:A:191:GLN:HG2	2.13	0.48
1:A:339:GLN:HG2	1:A:390:LEU:HD13	1.96	0.47
2:B:101:GLY:HA2	2:B:102:ASP:HA	1.59	0.47
1:A:126:ILE:HD11	1:A:131:MET:HG2	1.97	0.47
1:A:605:SER:OG	2:B:38:THR:HA	2.14	0.47
1:A:148:GLY:H	1:A:706:THR:HG21	1.79	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:575:VAL:HG22	1:A:577:TRP:H	1.80	0.46
1:A:556:VAL:HG22	1:A:612:PRO:HB3	1.97	0.46
1:A:121:ARG:HB2	1:A:121:ARG:HE	1.63	0.45
1:A:137:ARG:HB2	1:A:853:ARG:NH2	2.32	0.45
1:A:779:LYS:HE3	1:A:820:LYS:HG3	1.98	0.45
1:A:472:ARG:HG2	1:A:473:GLN:H	1.83	0.44
1:A:217:GLY:HA2	1:A:460:GLU:OE1	2.18	0.44
1:A:577:TRP:HD1	1:A:578:LEU:HB2	1.83	0.44
1:A:779:LYS:HD2	1:A:779:LYS:HA	1.61	0.44
1:A:832:GLU:OE1	1:A:853:ARG:NH2	2.51	0.44
1:A:121:ARG:HH21	1:A:123:VAL:HG11	1.84	0.43
1:A:463:TYR:CD2	1:A:485:SER:HB3	2.52	0.43
1:A:492:ASN:HB3	1:A:506:GLY:HA3	2.01	0.43
1:A:197:TYR:CE2	1:A:379:VAL:HG11	2.53	0.43
1:A:321:HIS:CE1	1:A:353:PRO:HG2	2.54	0.43
1:A:770:THR:HG22	1:A:785:THR:HG23	2.00	0.43
1:A:826:THR:HG23	1:A:862:GLU:HB3	2.00	0.43
1:A:180:MET:HE3	1:A:405:TYR:HB2	2.01	0.42
2:B:58:SER:HA	2:B:66:ALA:HB2	2.02	0.42
2:B:6:ASN:HB2	2:B:114:SER:HB3	2.00	0.42
2:B:137:TYR:HB2	3:B:200:HEM:CBC	2.50	0.41
1:A:444:ARG:HG2	1:A:454:ARG:HG3	2.02	0.41
1:A:707:HIS:ND1	1:A:765:ASP:OD1	2.53	0.41
1:A:475:MET:HA	1:A:478:VAL:HG23	2.02	0.41
1:A:279:GLU:OE1	1:A:327:ARG:NH1	2.54	0.41
1:A:717:ASN:C	1:A:719:ALA:H	2.23	0.41
1:A:137:ARG:HD3	1:A:853:ARG:NE	2.35	0.41
1:A:276:ALA:HB3	1:A:328:LEU:HB3	2.03	0.41
1:A:662:ASN:ND2	1:A:718:LYS:HE3	2.36	0.41
1:A:815:LEU:HD11	1:A:834:LEU:HD22	2.03	0.41
1:A:564:SER:HB3	1:A:586:LYS:O	2.21	0.40
1:A:126:ILE:HG23	1:A:206:VAL:HB	2.02	0.40
1:A:190:GLY:O	1:A:192:ARG:HG2	2.22	0.40
1:A:157:ASP:HA	1:A:158:PRO:HD2	1.97	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	651/865 (75%)	576 (88%)	67 (10%)	8 (1%)	13	39
2	B	171/206 (83%)	151 (88%)	18 (10%)	2 (1%)	13	39
All	All	822/1071 (77%)	727 (88%)	85 (10%)	10 (1%)	13	39

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	480	PRO
2	B	63	GLN
2	B	77	LEU
1	A	318	PRO
1	A	672	GLY
1	A	216	MET
1	A	219	ALA
1	A	573	PRO
1	A	633	LEU
1	A	336	PRO

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	546/693 (79%)	538 (98%)	8 (2%)	65	89
2	B	132/158 (84%)	132 (100%)	0	100	100
All	All	678/851 (80%)	670 (99%)	8 (1%)	71	92

All (8) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	200	SER
1	A	320	THR
1	A	479	THR
1	A	549	THR
1	A	577	TRP
1	A	706	THR
1	A	720	TRP
1	A	826	THR

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

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 carbohydrates in this entry.

5.6 Ligand geometry

1 ligand is 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	B	200	2	27,50,50	2.24	6 (22%)	17,82,82	1.95	5 (29%)

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	B	200	2	-	2/6/54/54	-

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	200	HEM	C3D-C2D	5.45	1.53	1.37
3	B	200	HEM	C3C-C2C	-4.77	1.33	1.40
3	B	200	HEM	C3B-C2B	-4.65	1.33	1.40
3	B	200	HEM	C3B-CAB	3.65	1.55	1.47
3	B	200	HEM	C3C-CAC	3.63	1.55	1.47
3	B	200	HEM	CAA-C2A	2.85	1.56	1.52

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	B	200	HEM	CMA-C3A-C4A	-4.35	121.78	128.46
3	B	200	HEM	CBA-CAA-C2A	3.48	118.91	112.49
3	B	200	HEM	CMA-C3A-C2A	2.68	130.00	124.94
3	B	200	HEM	CAD-CBD-CGD	-2.08	109.19	112.67
3	B	200	HEM	C1D-C2D-C3D	-2.01	105.60	107.00

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	B	200	HEM	C1A-C2A-CAA-CBA
3	B	200	HEM	C3A-C2A-CAA-CBA

There are no ring outliers.

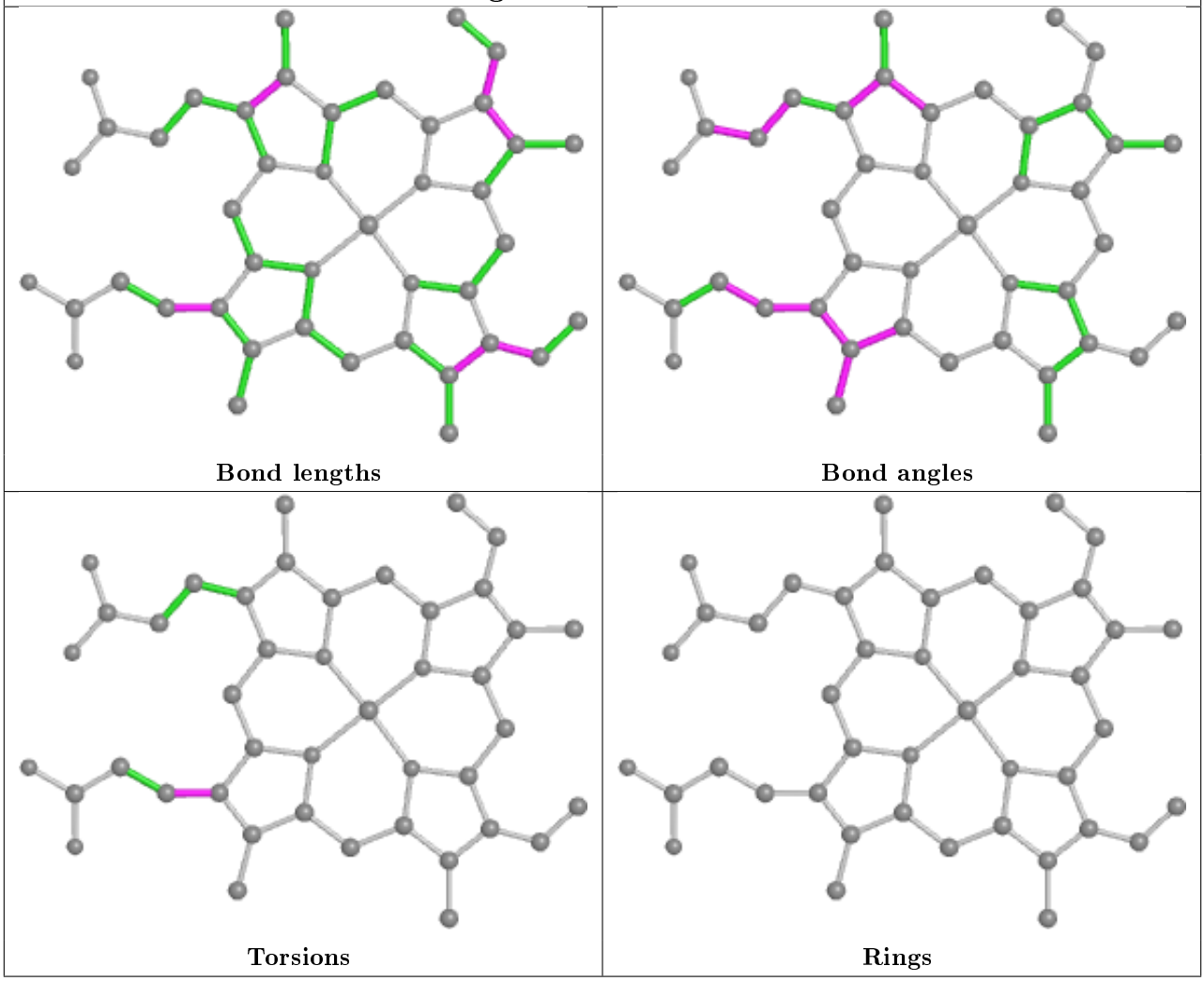
1 monomer is involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	200	HEM	4	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will

also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

Ligand HEM B 200



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, 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	667/865 (77%)	0.52	65 (9%) 7 4	67, 103, 169, 248	0
2	B	173/206 (83%)	0.75	19 (10%) 5 3	108, 142, 180, 230	0
All	All	840/1071 (78%)	0.57	84 (10%) 7 4	67, 112, 174, 248	0

All (84) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	476	GLU	8.8
2	B	166	PHE	6.3
2	B	174	ALA	5.8
1	A	541	LEU	5.5
2	B	7	TYR	5.3
1	A	759	ALA	5.0
1	A	851	LEU	4.8
1	A	850	THR	4.6
2	B	171	ALA	4.5
1	A	318	PRO	4.4
2	B	158	TYR	4.4
1	A	525	LEU	4.3
1	A	635	PHE	4.2
1	A	312	ILE	4.2
2	B	172	ALA	4.1
1	A	315	ASN	3.9
1	A	548	THR	3.9
1	A	313	LYS	3.7
1	A	604	SER	3.6
1	A	809	LYS	3.6
1	A	761	TYR	3.5
1	A	636	GLU	3.5
2	B	3	PHE	3.4
1	A	416	TYR	3.3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
2	B	14	TYR	3.2
1	A	314	ASN	3.2
1	A	475	MET	3.2
2	B	173	THR	3.2
1	A	373	ARG	3.1
1	A	827	LEU	3.1
1	A	819	TYR	3.0
1	A	156	GLN	3.0
1	A	578	LEU	3.0
1	A	542	ARG	3.0
2	B	13	GLY	3.0
2	B	155	LEU	3.0
2	B	86	TYR	2.9
1	A	190	GLY	2.9
1	A	528	ASP	2.9
1	A	543	LEU	2.9
2	B	159	GLY	2.9
1	A	760	ALA	2.9
1	A	520	LEU	2.7
1	A	336	PRO	2.6
1	A	355	ALA	2.6
1	A	600	GLY	2.6
1	A	671	ILE	2.6
2	B	160	LEU	2.6
1	A	737	TYR	2.6
1	A	480	PRO	2.6
1	A	474	GLY	2.5
2	B	115	PHE	2.5
1	A	394	ASP	2.5
1	A	738	VAL	2.5
1	A	473	GLN	2.5
1	A	479	THR	2.4
1	A	333	TRP	2.4
1	A	778	ARG	2.4
1	A	680	LEU	2.4
1	A	527	LYS	2.4
1	A	534	ILE	2.4
1	A	269	GLU	2.3
1	A	239	PRO	2.3
1	A	605	SER	2.3
2	B	73	LEU	2.3
1	A	577	TRP	2.3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	A	472	ARG	2.3
1	A	317	ILE	2.3
2	B	151	LEU	2.3
1	A	427	ALA	2.3
1	A	224	GLY	2.3
1	A	530	GLN	2.2
1	A	777	ASP	2.2
1	A	603	HIS	2.2
1	A	171	GLY	2.1
1	A	444	ARG	2.1
1	A	191	GLN	2.1
1	A	189	HIS	2.1
2	B	88	GLN	2.1
1	A	861	VAL	2.0
1	A	471	SER	2.0
1	A	390	LEU	2.0
1	A	640	LEU	2.0
2	B	169	VAL	2.0

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

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

6.3 Carbohydrates (i)

There are no carbohydrates in this entry.

6.4 Ligands (i)

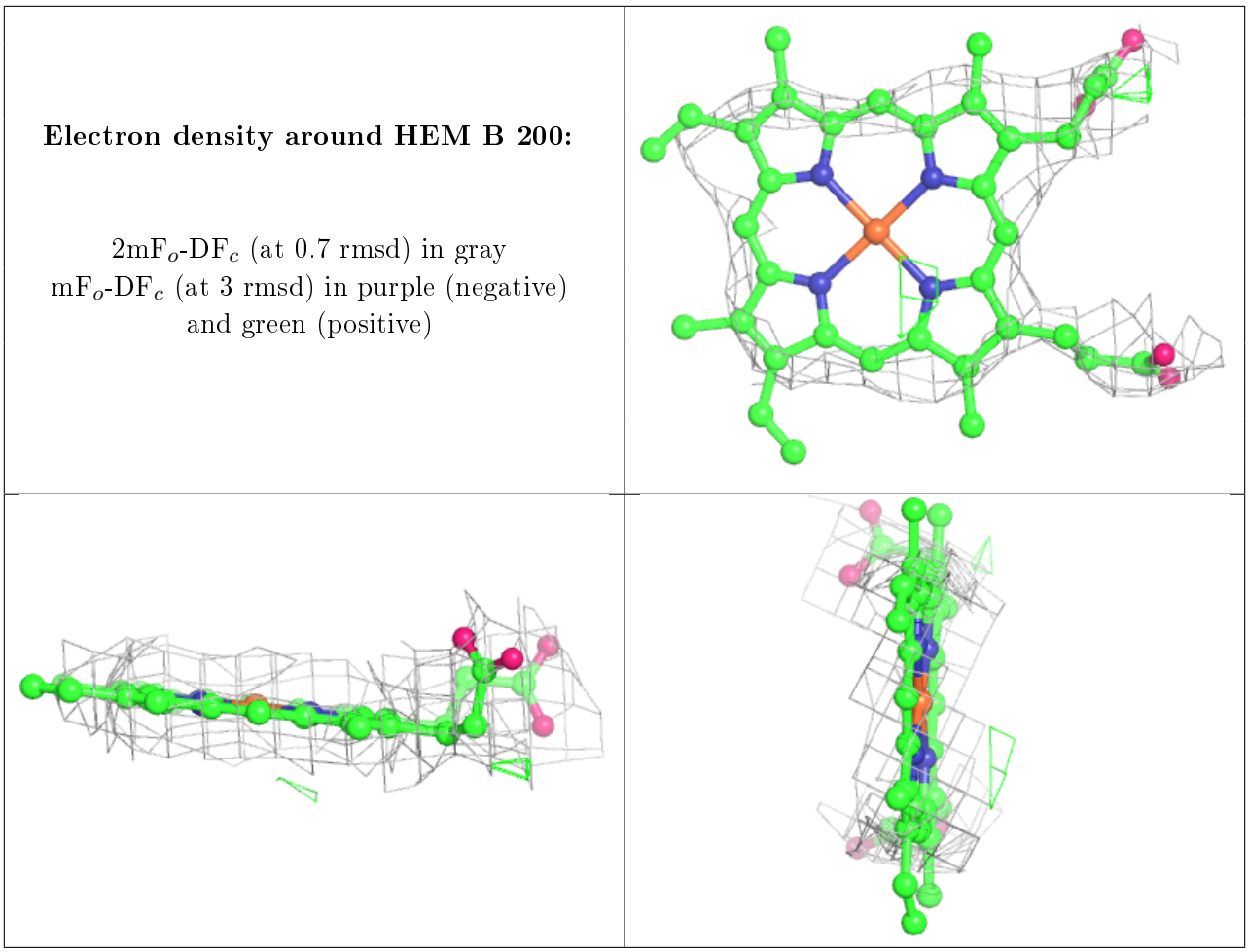
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' 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	B	200	43/43	0.97	0.27	112,162,179,183	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 B 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

There are no such residues in this entry.