



Full wwPDB X-ray Structure Validation Report ⓘ

Jun 12, 2024 – 06:16 PM EDT

PDB ID : 3E6T
Title : Structure of murine INOS oxygenase domain with inhibitor AR-C118901
Authors : Garcin, E.D.; Arvai, A.S.; Rosenfeld, R.J.; Kroeger, M.D.; Crane, B.R.; Anderson, G.; Andrews, G.; Hamley, P.J.; Mallinder, P.R.; Nicholls, D.J.; St-Gallay, S.A.; Tinker, A.C.; Gensmantel, N.P.; Mete, A.; Cheshire, D.R.; Connolly, S.; Stueh, D.J.; Aberg, A.; Wallace, A.V.; Tainer, J.A.; Getzoff, E.D.
Deposited on : 2008-08-15
Resolution : 2.50 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](#) ①) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 2022.3.0, CSD as543be (2022)
Xtrriage (Phenix) : 1.20.1
EDS : 2.36.2
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) : 2.36.2

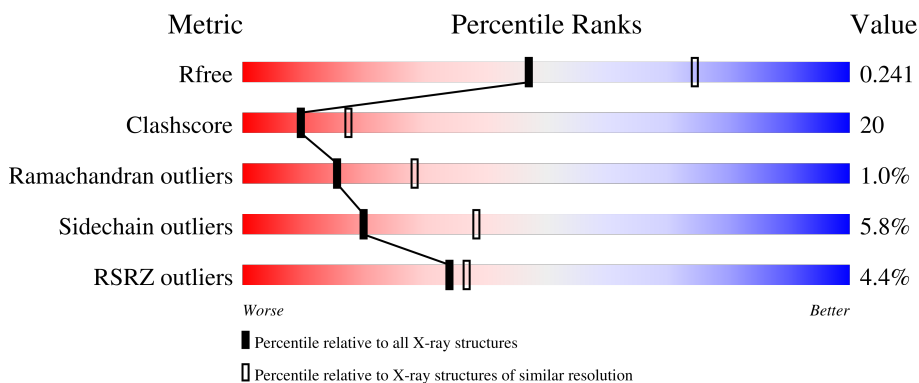
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.50 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	4661 (2.50-2.50)
Clashscore	141614	5346 (2.50-2.50)
Ramachandran outliers	138981	5231 (2.50-2.50)
Sidechain outliers	138945	5233 (2.50-2.50)
RSRZ outliers	127900	4559 (2.50-2.50)

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	433	
1	B	433	

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
3	H4B	A	902	X	-	-	-

2 Entry composition [i](#)

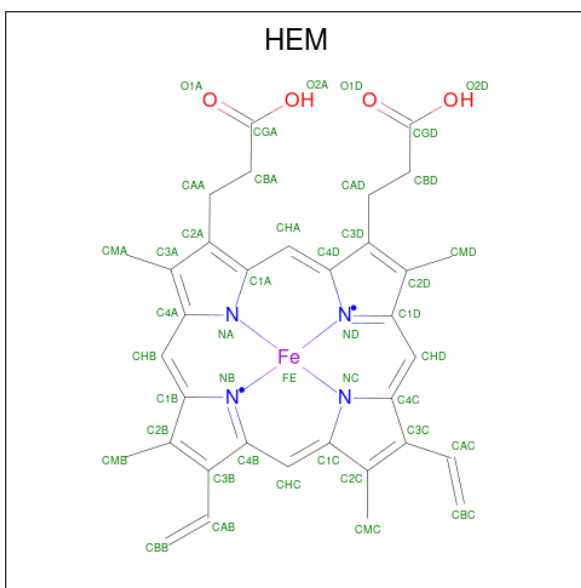
There are 5 unique types of molecules in this entry. The entry contains 7161 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Nitric oxide synthase, inducible.

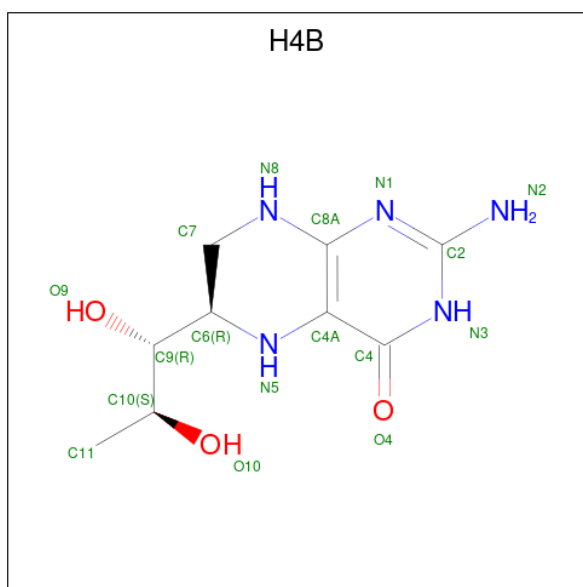
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	415	Total 3385	C 2171	N 582	O 612	S 20	0	0	0
1	B	410	Total 3347	C 2148	N 577	O 602	S 20	0	0	0

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



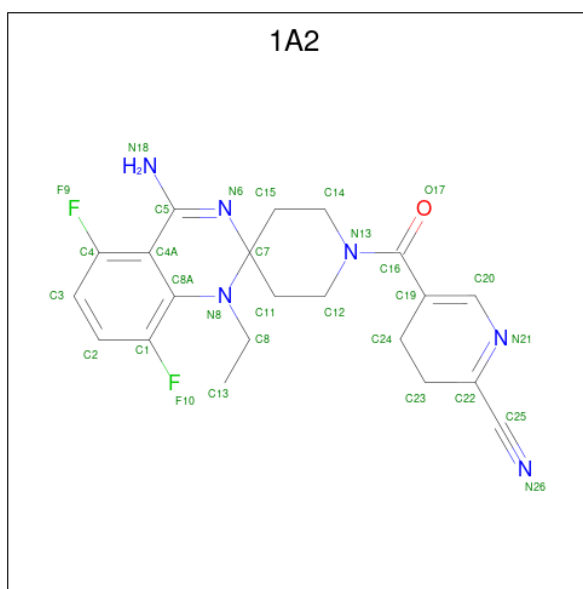
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
			Total	C	Fe	N			O
2	A	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	B	1	Total 43	C 34	Fe 1	N 4	O 4	0	0

- Molecule 3 is 5,6,7,8-TETRAHYDROBIOPTERIN (three-letter code: H4B) (formula: $C_9H_{15}N_5O_3$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	0
			17	9	5	3		
3	B	1	Total	C	N	O	0	0
			17	9	5	3		

- Molecule 4 is 5-(4'-AMINO-1'-ETHYL-5',8'-DIFLUORO-1'H-SPIRO[PIPERIDINE-4,2'-QUINAZOLINE]-1-YLCARBONYL)PICOLINONITRILE (three-letter code: 1A2) (formula: C₂₁H₂₂F₂N₆O).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	A	1	Total	C	F	N	O	0	0
			30	21	2	6	1		

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	F	N	O		
4	B	1	30	21	2	6	1	0	0

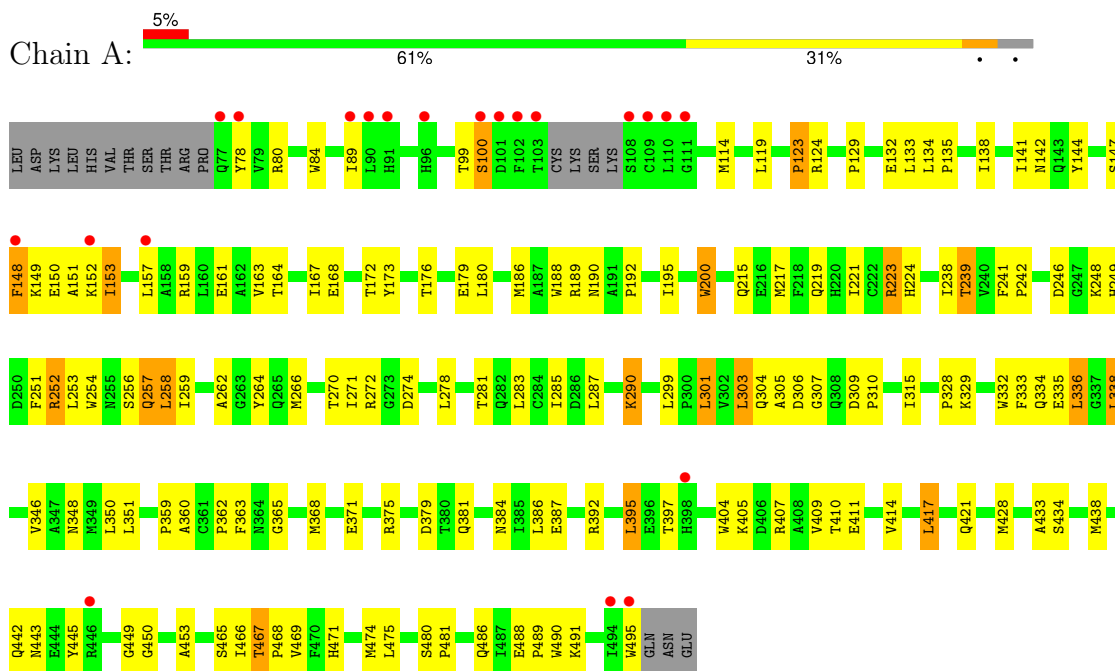
- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	112	Total	O	0	0
			112	112		
5	B	137	Total	O	0	0
			137	137		

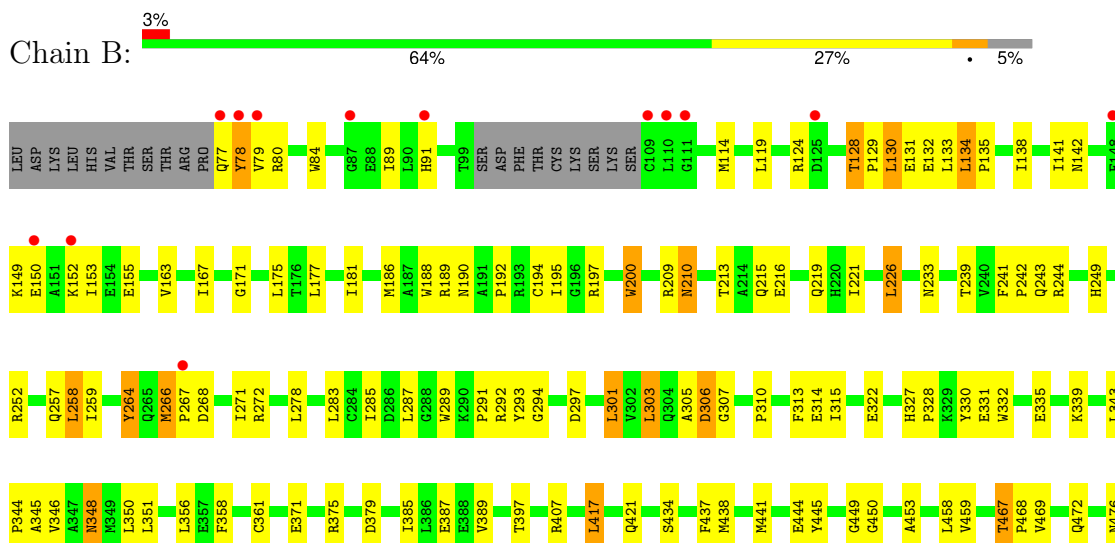
3 Residue-property plots

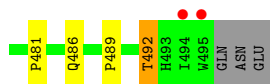
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: Nitric oxide synthase, inducible



- Molecule 1: Nitric oxide synthase, inducible





4 Data and refinement statistics

Property	Value	Source
Space group	P 61 2 2	Depositor
Cell constants a, b, c, α , β , γ	213.99Å 213.99Å 116.82Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	19.98 – 2.50 29.86 – 2.50	Depositor EDS
% Data completeness (in resolution range)	88.7 (19.98-2.50) 88.8 (29.86-2.50)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.29 (at 2.51Å)	Xtrriage
Refinement program	CNS	Depositor
R, R_{free}	0.236 , 0.267 0.224 , 0.241	Depositor DCC
R_{free} test set	2650 reflections (5.04%)	wwPDB-VP
Wilson B-factor (Å ²)	45.3	Xtrriage
Anisotropy	0.753	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 41.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	7161	wwPDB-VP
Average B, all atoms (Å ²)	52.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.37% of the height of the origin peak. No significant pseudotranslation is detected.*

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 [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: 1A2, H4B, 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	0.38	0/3484	0.63	1/4737 (0.0%)
1	B	0.37	0/3445	0.63	0/4684
All	All	0.38	0/6929	0.63	1/9421 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	365	GLY	N-CA-C	-5.28	99.89	113.10

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3385	0	3278	150	0
1	B	3347	0	3248	111	0
2	A	43	0	30	2	0
2	B	43	0	30	3	0
3	A	17	0	14	0	0
3	B	17	0	14	0	0
4	A	30	0	22	3	0
4	B	30	0	22	5	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	A	112	0	0	16	0
5	B	137	0	0	4	0
All	All	7161	0	6658	265	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 20.

All (265) 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:B:195:ILE:HB	5:B:2039:HOH:O	1.32	1.30
1:A:153:ILE:HD12	1:A:153:ILE:H	1.22	1.00
2:A:901:HEM:HBA2	4:A:905:1A2:H82	1.42	1.00
1:A:99:THR:HG22	1:A:100:SER:H	1.31	0.93
1:B:301:LEU:HD13	1:B:315:ILE:HD11	1.51	0.90
2:B:901:HEM:HBA2	4:B:905:1A2:H82	1.56	0.87
1:B:252:ARG:HH21	1:B:489:PRO:HD3	1.44	0.81
1:B:141:ILE:HD11	1:B:163:VAL:HG21	1.66	0.78
1:A:99:THR:HG22	1:A:100:SER:N	1.98	0.77
1:A:134:LEU:O	1:A:138:ILE:HG12	1.83	0.77
1:A:251:PHE:O	1:A:252:ARG:HG2	1.84	0.77
1:A:221:ILE:HG21	1:A:301:LEU:HD21	1.66	0.77
1:A:195:ILE:HG21	1:A:368:MET:HE3	1.66	0.77
1:A:132:GLU:O	1:A:135:PRO:HD2	1.87	0.74
1:A:224:HIS:ND1	1:A:239:THR:HG22	2.03	0.72
1:A:239:THR:HG23	1:A:362:PRO:HG2	1.72	0.71
1:B:152:LYS:HD2	1:B:155:GLU:OE2	1.90	0.71
1:A:124:ARG:HD3	5:A:1018:HOH:O	1.90	0.71
1:A:336:LEU:HB3	1:A:338:LEU:HD22	1.73	0.70
1:A:141:ILE:CD1	1:A:163:VAL:HG21	2.22	0.70
1:A:153:ILE:HD12	1:A:153:ILE:N	2.02	0.69
1:A:217:MET:HE2	1:A:305:ALA:HB2	1.75	0.68
1:B:343:LEU:O	5:B:2073:HOH:O	2.12	0.68
1:B:195:ILE:CG2	1:B:437:PHE:HB2	2.24	0.68
1:B:285:ILE:HD11	1:B:291:PRO:HB3	1.76	0.67
1:A:405:LYS:O	1:A:409:VAL:HG23	1.95	0.66
1:B:186:MET:HE1	1:B:189:ARG:HH11	1.60	0.66
1:A:89:ILE:N	1:A:89:ILE:HD12	2.11	0.66
1:A:290:LYS:H	1:A:290:LYS:CD	2.08	0.65
1:B:417:LEU:O	1:B:421:GLN:HG3	1.95	0.65
1:B:215:GLN:O	1:B:219:GLN:HG3	1.97	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:249:HIS:C	1:B:306:ASP:O	2.36	0.64
1:A:290:LYS:H	1:A:290:LYS:CE	2.10	0.64
1:A:215:GLN:O	1:A:219:GLN:HG3	1.97	0.64
1:B:188:TRP:CE3	1:B:200:TRP:HA	2.33	0.64
1:B:221:ILE:HG21	1:B:301:LEU:HD21	1.80	0.63
1:A:195:ILE:HD13	1:A:368:MET:HE1	1.80	0.63
1:A:266:MET:SD	1:A:272:ARG:HD3	2.39	0.63
1:B:385:ILE:O	1:B:389:VAL:HG23	1.99	0.63
1:A:163:VAL:O	1:A:167:ILE:HG13	1.99	0.63
1:A:283:LEU:O	1:A:287:LEU:HG	1.99	0.63
1:A:159:ARG:O	1:A:163:VAL:HG23	1.98	0.63
1:A:176:THR:OG1	1:A:179:GLU:HG3	1.99	0.63
1:A:407:ARG:HD3	5:A:1115:HOH:O	1.97	0.62
2:B:901:HEM:HBA2	4:B:905:1A2:C8	2.28	0.62
1:B:177:LEU:O	1:B:181:ILE:HD13	1.99	0.62
1:B:78:TYR:CZ	1:B:91:HIS:HD2	2.18	0.61
1:A:217:MET:CE	1:A:303:LEU:HB3	2.29	0.61
1:A:467:THR:CG2	1:A:469:VAL:HG22	2.31	0.61
1:A:153:ILE:H	1:A:153:ILE:CD1	1.92	0.61
1:A:438:MET:CE	1:A:469:VAL:HG12	2.30	0.61
1:B:195:ILE:HG22	1:B:437:PHE:HB2	1.81	0.60
1:B:239:THR:O	1:B:361:CYS:HA	2.01	0.60
1:B:303:LEU:HD23	1:B:313:PHE:CD2	2.36	0.60
1:A:290:LYS:H	1:A:290:LYS:HD2	1.66	0.60
1:A:304:GLN:O	1:A:304:GLN:HG3	2.02	0.60
1:A:141:ILE:HD13	1:A:163:VAL:HG21	1.83	0.60
1:A:281:THR:O	1:A:285:ILE:HG12	2.02	0.60
1:B:301:LEU:HB3	1:B:303:LEU:HD21	1.84	0.59
1:B:387:GLU:HG3	1:B:397:THR:HG21	1.85	0.59
1:A:141:ILE:HD11	1:A:163:VAL:HG21	1.85	0.59
1:B:195:ILE:HG22	1:B:195:ILE:O	2.03	0.58
1:A:290:LYS:H	1:A:290:LYS:HE3	1.67	0.58
1:A:272:ARG:HG2	1:A:272:ARG:HH11	1.68	0.58
1:B:141:ILE:CD1	1:B:163:VAL:HG21	2.34	0.58
1:B:303:LEU:O	1:B:310:PRO:HA	2.03	0.58
1:A:445:TYR:HA	1:A:450:GLY:H	1.68	0.58
1:B:175:LEU:HD13	1:B:356:LEU:CD1	2.34	0.58
1:B:467:THR:CG2	1:B:469:VAL:HG22	2.34	0.58
1:A:411:GLU:O	1:A:414:VAL:HG22	2.03	0.57
1:B:303:LEU:N	1:B:303:LEU:HD22	2.19	0.57
1:A:410:THR:O	1:A:414:VAL:HG13	2.04	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:186:MET:HB3	1:B:481:PRO:HG2	1.86	0.57
1:B:241:PHE:HB3	1:B:242:PRO:CD	2.35	0.57
1:B:190:ASN:O	1:B:192:PRO:HD3	2.05	0.57
1:B:459:VAL:HG22	1:B:469:VAL:HG23	1.86	0.57
1:B:149:LYS:HG2	1:B:150:GLU:N	2.20	0.56
2:A:901:HEM:HBA2	4:A:905:1A2:C8	2.28	0.56
1:B:167:ILE:HG23	1:B:171:GLY:O	2.05	0.56
1:A:438:MET:HG3	1:A:468:PRO:HB2	1.86	0.56
1:B:77:GLN:HE21	1:B:77:GLN:HA	1.71	0.56
1:A:134:LEU:HB3	1:A:135:PRO:HD3	1.87	0.56
1:B:271:ILE:HD13	1:B:278:LEU:HD11	1.88	0.56
1:A:241:PHE:HB3	1:A:242:PRO:CD	2.35	0.56
1:A:333:PHE:HB3	5:A:1097:HOH:O	2.04	0.56
1:B:289:TRP:NE1	1:B:314:GLU:OE1	2.37	0.55
1:A:153:ILE:O	1:A:157:LEU:HD13	2.06	0.55
1:B:492:THR:O	1:B:492:THR:OG1	2.22	0.55
1:B:331:GLU:OE1	1:B:331:GLU:HA	2.06	0.55
1:A:350:LEU:HD23	1:A:351:LEU:N	2.22	0.54
1:B:134:LEU:HB3	1:B:135:PRO:HD3	1.89	0.54
1:B:149:LYS:HG2	1:B:150:GLU:HG3	1.89	0.54
1:A:217:MET:HE1	1:A:303:LEU:HB3	1.88	0.54
1:A:238:ILE:HG13	1:A:363:PHE:HB3	1.89	0.54
1:A:188:TRP:CE3	1:A:200:TRP:HA	2.43	0.54
1:A:138:ILE:HG22	1:A:142:ASN:ND2	2.22	0.54
1:A:466:ILE:HG22	1:A:466:ILE:O	2.08	0.54
1:B:301:LEU:CD1	1:B:315:ILE:HD11	2.33	0.54
1:B:133:LEU:C	1:B:133:LEU:HD13	2.28	0.53
1:B:186:MET:HE1	1:B:189:ARG:NH1	2.22	0.53
1:A:465:SER:O	1:A:471:HIS:HE1	1.90	0.53
1:A:264:TYR:HB2	1:A:266:MET:HE2	1.89	0.53
1:A:215:GLN:NE2	5:A:1058:HOH:O	2.36	0.52
1:B:129:PRO:HG2	1:B:132:GLU:HG2	1.91	0.52
1:B:175:LEU:HD13	1:B:356:LEU:HD12	1.91	0.52
1:A:249:HIS:C	1:A:306:ASP:O	2.48	0.52
1:A:274:ASP:OD2	5:A:1079:HOH:O	2.18	0.52
1:B:195:ILE:HD11	1:B:458:LEU:O	2.09	0.52
1:A:149:LYS:HG2	1:A:150:GLU:N	2.24	0.52
1:B:285:ILE:HD12	1:B:291:PRO:HD3	1.92	0.52
1:B:130:LEU:HD21	1:B:167:ILE:HG22	1.92	0.52
1:A:262:ALA:HB2	1:A:299:LEU:CD2	2.39	0.52
1:B:194:CYS:O	1:B:197:ARG:NH1	2.42	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:195:ILE:HG23	1:B:437:PHE:HB2	1.91	0.52
1:A:350:LEU:HD23	1:A:350:LEU:C	2.31	0.51
1:B:243:GLN:HB3	1:B:358:PHE:CE2	2.44	0.51
1:B:346:VAL:HG22	4:B:905:1A2:H133	1.91	0.51
1:B:80:ARG:NH2	1:B:89:ILE:HD13	2.26	0.51
1:B:258:LEU:HB3	1:B:259:ILE:HD12	1.92	0.51
1:A:80:ARG:NH1	1:A:89:ILE:HG21	2.26	0.51
1:B:259:ILE:HD12	1:B:259:ILE:N	2.26	0.51
1:A:328:PRO:O	1:A:329:LYS:HD2	2.11	0.50
1:A:488:GLU:OE1	1:A:491:LYS:HE2	2.11	0.50
1:B:209:ARG:O	1:B:242:PRO:HG3	2.11	0.50
1:B:77:GLN:HA	1:B:77:GLN:NE2	2.27	0.50
1:A:189:ARG:O	5:A:1036:HOH:O	2.18	0.50
1:A:480:SER:HA	1:A:481:PRO:C	2.32	0.50
1:A:186:MET:HE1	1:A:189:ARG:HH11	1.77	0.50
1:B:258:LEU:HB2	1:B:345:ALA:HB3	1.94	0.49
1:A:346:VAL:HG22	4:A:905:1A2:H133	1.94	0.49
1:B:283:LEU:O	1:B:287:LEU:HG	2.11	0.49
1:A:271:ILE:HD13	1:A:278:LEU:HD11	1.93	0.49
1:A:190:ASN:O	1:A:192:PRO:HD3	2.12	0.49
1:B:397:THR:HG22	1:B:397:THR:O	2.12	0.49
1:A:138:ILE:HG22	1:A:142:ASN:HD21	1.77	0.49
1:A:251:PHE:C	1:A:252:ARG:HG2	2.32	0.49
1:A:368:MET:HE1	1:A:433:ALA:HB1	1.94	0.49
1:B:186:MET:HE3	1:B:189:ARG:HD3	1.94	0.49
1:B:266:MET:HB3	1:B:267:PRO:HD2	1.93	0.49
1:B:438:MET:HE3	1:B:469:VAL:HA	1.95	0.49
1:A:252:ARG:HH21	1:A:489:PRO:HD3	1.76	0.49
1:A:239:THR:CG2	1:A:362:PRO:HG2	2.41	0.48
1:B:78:TYR:CD1	1:B:78:TYR:C	2.86	0.48
1:B:407:ARG:HG3	5:B:2109:HOH:O	2.11	0.48
1:B:327:HIS:CG	1:B:328:PRO:HD2	2.48	0.48
1:A:290:LYS:HD2	1:A:290:LYS:N	2.28	0.48
1:A:303:LEU:O	1:A:310:PRO:HA	2.13	0.48
1:A:254:TRP:CZ3	1:A:490:TRP:HB3	2.48	0.48
1:A:438:MET:HE3	1:A:469:VAL:HG12	1.96	0.48
1:B:186:MET:CE	1:B:189:ARG:HD3	2.43	0.48
1:A:149:LYS:HG2	1:A:150:GLU:HG3	1.95	0.48
1:A:442:GLN:HG3	1:A:443:ASN:N	2.29	0.48
1:B:213:THR:OG1	1:B:216:GLU:HG3	2.14	0.47
1:B:346:VAL:CG2	4:B:905:1A2:H133	2.44	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:445:TYR:HA	1:B:450:GLY:H	1.80	0.47
1:A:129:PRO:HG3	5:A:1019:HOH:O	2.14	0.47
1:A:301:LEU:HB3	1:A:303:LEU:CD1	2.44	0.47
1:B:371:GLU:OE1	4:B:905:1A2:N6	2.48	0.47
1:A:144:TYR:O	1:A:147:SER:HB3	2.15	0.47
1:A:148:PHE:CE2	1:A:152:LYS:HE2	2.50	0.47
1:B:305:ALA:O	1:B:307:GLY:N	2.47	0.47
1:A:186:MET:CE	1:A:189:ARG:HH11	2.28	0.47
1:A:264:TYR:HB2	1:A:266:MET:CE	2.45	0.47
1:B:195:ILE:HG23	1:B:437:PHE:CB	2.45	0.47
1:A:438:MET:HE2	1:A:469:VAL:HG12	1.94	0.47
1:B:124:ARG:HH21	1:B:128:THR:HB	1.79	0.47
1:A:417:LEU:O	1:A:421:GLN:HG3	2.16	0.46
1:B:445:TYR:O	1:B:449:GLY:HA2	2.14	0.46
1:A:246:ASP:CG	1:A:248:LYS:H	2.18	0.46
1:A:301:LEU:HD13	1:A:315:ILE:HD11	1.97	0.46
1:A:488:GLU:HG3	5:A:1122:HOH:O	2.14	0.46
1:B:129:PRO:HB2	1:B:131:GLU:CD	2.36	0.46
1:B:453:ALA:HB1	1:B:458:LEU:CD1	2.45	0.46
1:B:327:HIS:ND1	1:B:328:PRO:HD2	2.31	0.46
1:B:332:TRP:O	1:B:335:GLU:HB2	2.15	0.46
1:B:252:ARG:NH2	1:B:489:PRO:HD3	2.23	0.46
1:A:99:THR:CG2	1:A:100:SER:H	2.03	0.46
1:A:395:LEU:HD23	1:A:404:TRP:HB2	1.98	0.46
1:A:259:ILE:HD12	1:A:259:ILE:N	2.31	0.46
1:A:252:ARG:NH2	1:A:489:PRO:HD3	2.30	0.45
1:A:428:MET:HB3	5:A:1048:HOH:O	2.16	0.45
1:B:130:LEU:CD2	1:B:167:ILE:HG22	2.46	0.45
1:A:78:TYR:C	1:A:78:TYR:CD1	2.90	0.45
1:A:262:ALA:HB2	1:A:299:LEU:HG	1.99	0.45
1:A:332:TRP:O	1:A:335:GLU:HB2	2.16	0.45
1:B:285:ILE:CD1	1:B:291:PRO:HB3	2.45	0.45
1:A:368:MET:CE	1:A:433:ALA:HB1	2.46	0.45
1:B:266:MET:CE	1:B:272:ARG:HE	2.30	0.45
1:A:301:LEU:HB3	1:A:303:LEU:HD13	1.98	0.45
1:A:124:ARG:CD	5:A:1018:HOH:O	2.56	0.44
1:B:84:TRP:NE1	1:B:114:MET:HG3	2.32	0.44
1:A:217:MET:HE3	1:A:303:LEU:HB3	1.98	0.44
1:A:252:ARG:HD3	1:A:359:PRO:HB2	1.98	0.44
1:B:188:TRP:CZ3	1:B:200:TRP:HA	2.52	0.44
1:A:151:ALA:HB1	5:A:1022:HOH:O	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:294:GLY:N	1:B:297:ASP:OD2	2.50	0.44
1:B:453:ALA:O	1:B:476:ASN:HB2	2.16	0.44
1:A:141:ILE:HD11	1:A:163:VAL:HG11	1.99	0.44
1:A:266:MET:HB2	1:A:270:THR:O	2.17	0.44
1:B:350:LEU:C	1:B:350:LEU:HD23	2.38	0.44
1:B:375:ARG:O	1:B:379:ASP:HB2	2.18	0.44
1:A:84:TRP:CE2	1:A:114:MET:HG3	2.53	0.44
1:A:241:PHE:HB3	1:A:242:PRO:HD2	2.00	0.44
1:A:371:GLU:O	1:A:375:ARG:HB2	2.18	0.44
1:B:438:MET:HE2	1:B:469:VAL:HG12	1.99	0.44
1:A:133:LEU:C	1:A:133:LEU:HD23	2.39	0.44
1:B:434:SER:HB3	1:B:468:PRO:HD2	2.00	0.43
1:B:441:MET:HE1	1:B:472:GLN:HG2	2.01	0.43
1:A:334:GLN:HA	5:A:1096:HOH:O	2.17	0.43
1:A:434:SER:OG	1:A:468:PRO:HD2	2.19	0.43
1:A:172:THR:OG1	1:A:173:TYR:N	2.50	0.43
1:A:333:PHE:O	1:A:336:LEU:HB2	2.18	0.43
1:B:138:ILE:HG22	1:B:142:ASN:ND2	2.33	0.43
1:B:186:MET:HB3	1:B:481:PRO:CG	2.49	0.43
1:B:241:PHE:HB3	1:B:242:PRO:HD2	2.01	0.43
1:A:238:ILE:CG1	1:A:363:PHE:HB3	2.48	0.43
1:B:226:LEU:HD23	1:B:226:LEU:O	2.18	0.43
1:A:290:LYS:HE3	1:A:290:LYS:N	2.34	0.43
1:A:164:THR:O	1:A:168:GLU:HG2	2.19	0.43
1:A:465:SER:C	1:A:467:THR:H	2.21	0.43
1:B:438:MET:CE	1:B:469:VAL:HG12	2.48	0.43
1:A:397:THR:O	1:A:397:THR:HG22	2.18	0.43
1:A:445:TYR:O	1:A:449:GLY:HA2	2.19	0.43
1:A:253:LEU:HD12	1:A:253:LEU:N	2.34	0.42
1:A:332:TRP:CE3	1:A:392:ARG:HD2	2.54	0.42
1:B:124:ARG:HD2	1:B:244:ARG:HD3	2.01	0.42
1:B:194:CYS:HB2	2:B:901:HEM:ND	2.34	0.42
1:A:223:ARG:HD2	5:A:1059:HOH:O	2.19	0.42
1:A:309:ASP:OD1	1:A:495:TRP:HA	2.19	0.42
1:A:272:ARG:HG2	1:A:272:ARG:NH1	2.32	0.42
1:B:348:ASN:H	1:B:348:ASN:ND2	2.18	0.42
1:A:453:ALA:HB3	1:A:474:MET:HB2	2.01	0.42
1:B:322:GLU:OE2	1:B:339:LYS:HE3	2.19	0.42
1:A:195:ILE:HG21	1:A:368:MET:CE	2.43	0.42
1:B:330:TYR:HB3	1:B:332:TRP:CE2	2.55	0.42
1:A:84:TRP:NE1	1:A:114:MET:HG3	2.34	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:123:PRO:O	1:A:124:ARG:HG3	2.20	0.41
1:A:467:THR:HG21	1:A:469:VAL:HG22	2.01	0.41
1:B:210:ASN:N	1:B:210:ASN:HD22	2.17	0.41
1:B:351:LEU:HB3	1:B:358:PHE:HB2	2.02	0.41
1:A:149:LYS:HE2	1:A:150:GLU:HG3	2.03	0.41
1:A:306:ASP:HB3	1:A:307:GLY:H	1.72	0.41
1:B:348:ASN:H	1:B:348:ASN:HD22	1.68	0.41
1:B:78:TYR:HD1	1:B:79:VAL:N	2.19	0.41
1:A:434:SER:OG	1:A:467:THR:HG23	2.20	0.41
1:A:368:MET:HE1	1:A:433:ALA:CB	2.51	0.41
1:A:445:TYR:O	1:A:449:GLY:N	2.54	0.41
1:A:303:LEU:CD1	1:A:303:LEU:N	2.83	0.41
1:B:80:ARG:NH2	1:B:89:ILE:CD1	2.84	0.41
1:A:252:ARG:HH12	1:A:486:GLN:HB3	1.86	0.41
1:A:258:LEU:HB3	1:A:259:ILE:HD12	2.01	0.41
1:A:360:ALA:HA	5:A:1073:HOH:O	2.20	0.41
1:A:384:ASN:HA	5:A:1104:HOH:O	2.21	0.41
1:B:153:ILE:H	1:B:153:ILE:HG13	1.67	0.41
1:A:251:PHE:O	1:A:360:ALA:HB2	2.21	0.41
1:A:301:LEU:HD12	1:A:301:LEU:HA	1.89	0.40
1:A:89:ILE:N	1:A:89:ILE:CD1	2.81	0.40
1:A:368:MET:CE	1:A:433:ALA:CB	2.99	0.40
1:B:195:ILE:HG13	5:B:2038:HOH:O	2.22	0.40
1:A:256:SER:HB2	1:A:257:GLN:OE1	2.22	0.40
1:B:264:TYR:CE1	1:B:293:TYR:HA	2.55	0.40
1:A:242:PRO:HB2	1:A:251:PHE:CE1	2.56	0.40
1:A:249:HIS:C	5:A:1068:HOH:O	2.60	0.40
1:A:379:ASP:HB3	1:A:381:GLN:OE1	2.20	0.40
1:A:138:ILE:O	1:A:142:ASN:ND2	2.54	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	411/433 (95%)	370 (90%)	38 (9%)	3 (1%)	22	39
1	B	406/433 (94%)	362 (89%)	39 (10%)	5 (1%)	13	24
All	All	817/866 (94%)	732 (90%)	77 (9%)	8 (1%)	15	28

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	100	SER
1	B	306	ASP
1	A	123	PRO
1	A	200	TRP
1	B	200	TRP
1	B	268	ASP
1	B	344	PRO
1	B	266	MET

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	363/381 (95%)	341 (94%)	22 (6%)	18	36
1	B	358/381 (94%)	338 (94%)	20 (6%)	21	40
All	All	721/762 (95%)	679 (94%)	42 (6%)	20	38

All (42) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	119	LEU
1	A	148	PHE
1	A	153	ILE
1	A	161	GLU
1	A	180	LEU
1	A	223	ARG
1	A	239	THR
1	A	252	ARG

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Mol	Chain	Res	Type
1	A	257	GLN
1	A	258	LEU
1	A	290	LYS
1	A	301	LEU
1	A	303	LEU
1	A	336	LEU
1	A	338	LEU
1	A	348	ASN
1	A	386	LEU
1	A	387	GLU
1	A	395	LEU
1	A	417	LEU
1	A	467	THR
1	A	475	LEU
1	B	78	TYR
1	B	119	LEU
1	B	128	THR
1	B	130	LEU
1	B	134	LEU
1	B	210	ASN
1	B	226	LEU
1	B	233	ASN
1	B	257	GLN
1	B	258	LEU
1	B	264	TYR
1	B	292	ARG
1	B	301	LEU
1	B	303	LEU
1	B	348	ASN
1	B	417	LEU
1	B	444	GLU
1	B	467	THR
1	B	486	GLN
1	B	492	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	77	GLN
1	A	91	HIS
1	A	142	ASN
1	A	204	GLN

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Mol	Chain	Res	Type
1	A	215	GLN
1	A	219	GLN
1	A	231	ASN
1	A	233	ASN
1	A	348	ASN
1	A	471	HIS
1	B	77	GLN
1	B	91	HIS
1	B	210	ASN
1	B	231	ASN
1	B	233	ASN
1	B	348	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

6 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
2	HEM	B	901	-	42,50,50	1.60	9 (21%)	46,82,82	1.59	11 (23%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	H4B	A	902	-	16,18,18	1.96	3 (18%)	14,26,26	1.74	5 (35%)
2	HEM	A	901	-	42,50,50	1.44	6 (14%)	46,82,82	1.65	10 (21%)
4	1A2	B	905	-	26,33,33	3.86	14 (53%)	29,49,49	2.46	10 (34%)
4	1A2	A	905	-	26,33,33	3.79	12 (46%)	29,49,49	2.43	11 (37%)
3	H4B	B	902	-	16,18,18	1.99	3 (18%)	14,26,26	1.74	5 (35%)

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	HEM	B	901	-	-	4/12/54/54	-
3	H4B	A	902	-	1/1/3/5	2/8/17/17	0/2/2/2
2	HEM	A	901	-	-	2/12/54/54	-
4	1A2	B	905	-	-	6/10/53/53	0/3/4/4
4	1A2	A	905	-	-	6/10/53/53	0/3/4/4
3	H4B	B	902	-	-	2/8/17/17	0/2/2/2

All (47) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	905	1A2	C25-N26	11.32	1.34	1.14
4	A	905	1A2	C25-N26	11.16	1.34	1.14
4	A	905	1A2	C22-N21	10.26	1.44	1.32
4	B	905	1A2	C22-N21	9.91	1.44	1.32
3	B	902	H4B	C7-C6	-6.45	1.46	1.52
3	A	902	H4B	C7-C6	-6.44	1.46	1.52
4	A	905	1A2	C23-C22	-6.04	1.39	1.50
4	B	905	1A2	C23-C22	-5.92	1.39	1.50
2	B	901	HEM	C3C-C4C	4.70	1.48	1.41
4	A	905	1A2	C24-C23	-4.60	1.38	1.52
4	B	905	1A2	C24-C19	-4.34	1.43	1.50
4	B	905	1A2	C16-N13	4.27	1.42	1.34
4	B	905	1A2	C24-C23	-3.92	1.40	1.52
4	A	905	1A2	C24-C19	-3.78	1.44	1.50
3	B	902	H4B	C7-N8	-3.77	1.38	1.44
2	A	901	HEM	C3C-CAC	-3.60	1.39	1.47
2	A	901	HEM	CHA-C4D	3.48	1.43	1.34
3	A	902	H4B	C7-N8	-3.42	1.38	1.44

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	905	1A2	C16-N13	3.31	1.40	1.34
4	B	905	1A2	C20-N21	3.30	1.44	1.36
4	B	905	1A2	C5-N6	3.28	1.37	1.29
4	B	905	1A2	C8-N8	3.22	1.51	1.46
2	B	901	HEM	C3C-CAC	-3.19	1.40	1.47
4	A	905	1A2	C5-N6	3.16	1.37	1.29
2	A	901	HEM	C3C-C4C	3.10	1.45	1.41
4	A	905	1A2	C4A-C4	3.07	1.44	1.39
2	B	901	HEM	C2C-C1C	2.87	1.48	1.42
2	A	901	HEM	CAB-C3B	-2.71	1.40	1.47
4	B	905	1A2	O17-C16	2.70	1.28	1.23
2	B	901	HEM	CHA-C4D	2.61	1.41	1.34
2	B	901	HEM	C3C-C2C	-2.52	1.37	1.40
2	B	901	HEM	C3B-C4B	2.52	1.49	1.44
4	A	905	1A2	C20-N21	2.51	1.42	1.36
4	B	905	1A2	C4A-C5	-2.47	1.40	1.45
4	A	905	1A2	O17-C16	2.47	1.28	1.23
4	A	905	1A2	F10-C1	-2.44	1.29	1.35
2	B	901	HEM	CHB-C1B	2.33	1.40	1.34
3	A	902	H4B	C4A-N5	-2.30	1.33	1.37
2	A	901	HEM	C1A-NA	2.26	1.40	1.36
3	B	902	H4B	C4A-N5	-2.22	1.33	1.37
4	A	905	1A2	C8-N8	2.17	1.49	1.46
4	B	905	1A2	C4A-C4	2.15	1.42	1.39
4	B	905	1A2	F10-C1	-2.15	1.29	1.35
2	B	901	HEM	FE-NB	2.13	2.09	1.98
4	B	905	1A2	C14-N13	2.02	1.50	1.47
2	B	901	HEM	CBB-CAB	2.02	1.40	1.30
2	A	901	HEM	C3B-C4B	2.02	1.48	1.44

All (52) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	905	1A2	C14-C15-C7	-6.98	106.88	113.03
4	A	905	1A2	C14-C15-C7	-6.92	106.94	113.03
4	B	905	1A2	C14-N13-C12	-4.85	102.79	112.68
4	A	905	1A2	C12-C11-C7	-4.25	109.29	113.03
4	A	905	1A2	C14-N13-C12	-4.23	104.05	112.68
2	A	901	HEM	C3B-C2B-C1B	4.09	109.48	106.41
2	B	901	HEM	C3B-C2B-C1B	3.96	109.38	106.41
2	B	901	HEM	C4B-CHC-C1C	3.93	127.74	122.56
4	B	905	1A2	C25-C22-N21	3.85	121.90	117.02

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	905	1A2	C15-C14-N13	-3.75	103.82	110.82
4	A	905	1A2	C15-C14-N13	-3.68	103.94	110.82
2	A	901	HEM	CMD-C2D-C1D	3.50	130.51	125.03
2	B	901	HEM	C4C-CHD-C1D	3.46	127.13	122.56
4	B	905	1A2	C4A-C8A-C1	-3.34	115.79	118.81
2	B	901	HEM	CMD-C2D-C1D	3.24	130.10	125.03
3	A	902	H4B	C2-N3-C4	3.20	120.41	115.96
4	B	905	1A2	C24-C23-C22	3.13	119.83	111.27
4	A	905	1A2	C25-C22-N21	3.13	120.98	117.02
2	A	901	HEM	C4B-C3B-C2B	-3.08	104.45	107.28
2	B	901	HEM	C4B-C3B-C2B	-3.02	104.51	107.28
3	B	902	H4B	C2-N3-C4	2.99	120.12	115.96
3	A	902	H4B	C8A-C4A-C4	2.96	117.19	114.50
4	B	905	1A2	C12-C11-C7	-2.96	110.43	113.03
4	A	905	1A2	C4A-C8A-C1	-2.95	116.14	118.81
3	B	902	H4B	C8A-C4A-C4	2.93	117.17	114.50
4	A	905	1A2	C8A-C4A-C4	2.91	120.44	117.67
4	A	905	1A2	C23-C24-C19	2.90	121.79	113.72
4	B	905	1A2	C23-C24-C19	2.89	121.77	113.72
2	A	901	HEM	C4C-CHD-C1D	2.89	126.37	122.56
4	A	905	1A2	C24-C23-C22	2.87	119.13	111.27
4	B	905	1A2	C8A-C4A-C4	2.87	120.40	117.67
4	A	905	1A2	C11-C12-N13	-2.76	105.66	110.82
2	B	901	HEM	CAD-C3D-C2D	-2.58	123.04	127.87
2	A	901	HEM	C4A-C3A-C2A	2.54	108.76	107.00
3	B	902	H4B	C2-N1-C8A	2.43	120.37	114.59
2	A	901	HEM	CBD-CAD-C3D	-2.43	105.82	112.53
2	A	901	HEM	C4D-C3D-C2D	2.42	110.42	106.89
3	B	902	H4B	N1-C2-N3	-2.36	121.86	125.48
2	B	901	HEM	CHC-C4B-NB	-2.36	121.90	124.44
3	A	902	H4B	C2-N1-C8A	2.32	120.10	114.59
3	A	902	H4B	N1-C2-N3	-2.28	121.98	125.48
2	A	901	HEM	C1D-C2D-C3D	-2.26	104.60	106.98
2	B	901	HEM	CAD-C3D-C4D	2.23	128.59	124.70
4	B	905	1A2	C11-C12-N13	-2.22	106.67	110.82
3	B	902	H4B	C4-C4A-N5	2.20	121.70	118.57
4	A	905	1A2	F9-C4-C4A	2.16	121.94	118.15
3	A	902	H4B	C4-C4A-N5	2.15	121.64	118.57
2	B	901	HEM	CAB-C3B-C2B	-2.15	121.45	128.43
2	A	901	HEM	C4B-CHC-C1C	2.13	125.37	122.56
2	B	901	HEM	CAB-C3B-C4B	2.13	133.78	124.39
2	B	901	HEM	CHC-C4B-C3B	2.10	127.78	124.57

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	901	HEM	CMA-C3A-C4A	-2.09	125.40	128.46

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
3	A	902	H4B	C6

All (22) torsion outliers are listed below:

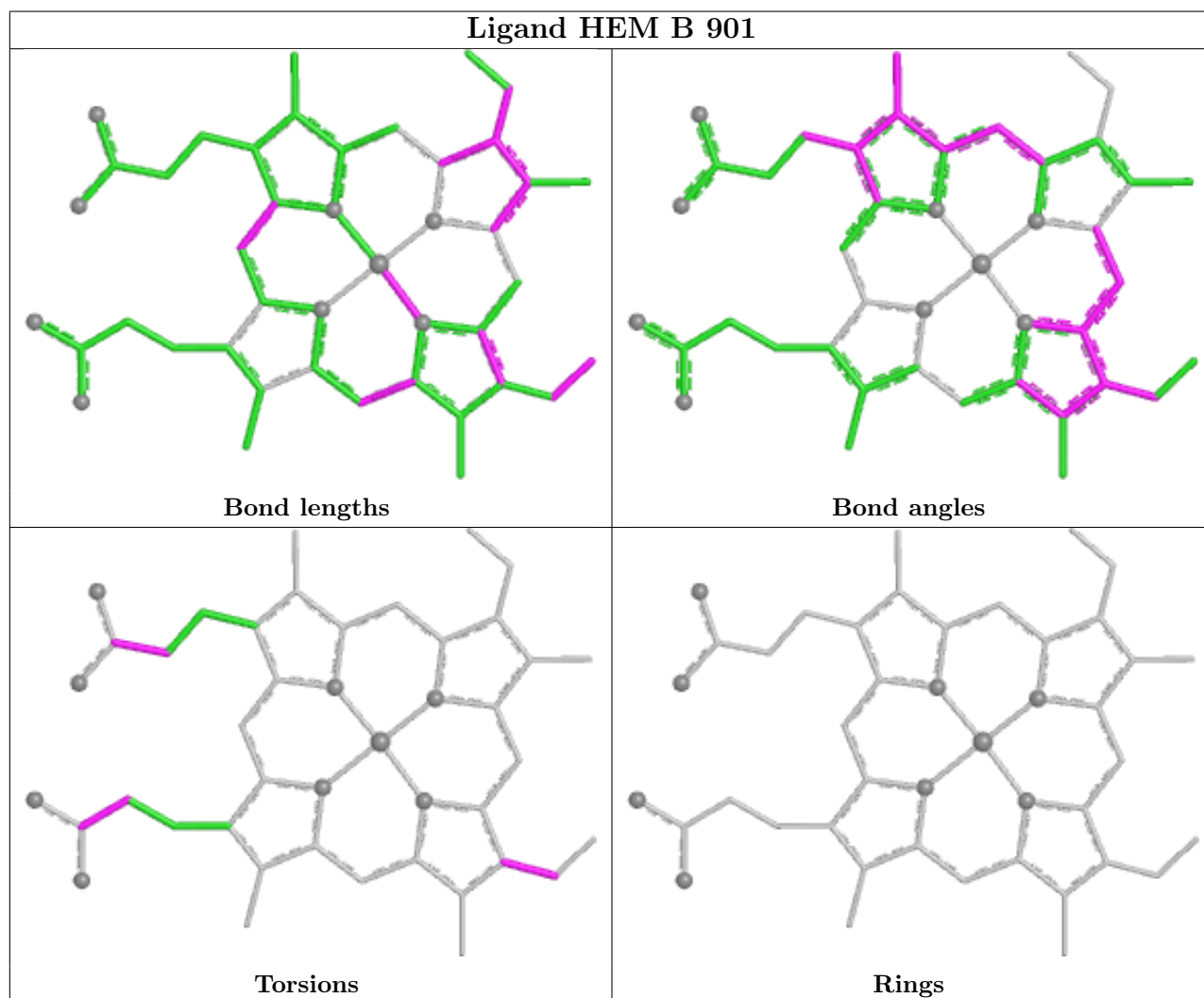
Mol	Chain	Res	Type	Atoms
3	A	902	H4B	C7-C6-C9-O9
3	A	902	H4B	C7-C6-C9-C10
3	B	902	H4B	C7-C6-C9-O9
3	B	902	H4B	C7-C6-C9-C10
4	A	905	1A2	N13-C16-C19-C24
4	B	905	1A2	O17-C16-N13-C14
4	B	905	1A2	N13-C16-C19-C24
4	A	905	1A2	O17-C16-N13-C14
4	A	905	1A2	C19-C16-N13-C14
4	B	905	1A2	C19-C16-N13-C14
4	B	905	1A2	O17-C16-C19-C24
2	B	901	HEM	C4B-C3B-CAB-CBB
4	B	905	1A2	N13-C16-C19-C20
4	A	905	1A2	O17-C16-C19-C24
2	A	901	HEM	C4B-C3B-CAB-CBB
4	A	905	1A2	C13-C8-N8-C8A
4	B	905	1A2	C13-C8-N8-C8A
4	A	905	1A2	C13-C8-N8-C7
2	B	901	HEM	CAD-CBD-CGD-O2D
2	B	901	HEM	CAA-CBA-CGA-O2A
2	B	901	HEM	CAD-CBD-CGD-O1D
2	A	901	HEM	CAD-CBD-CGD-O2D

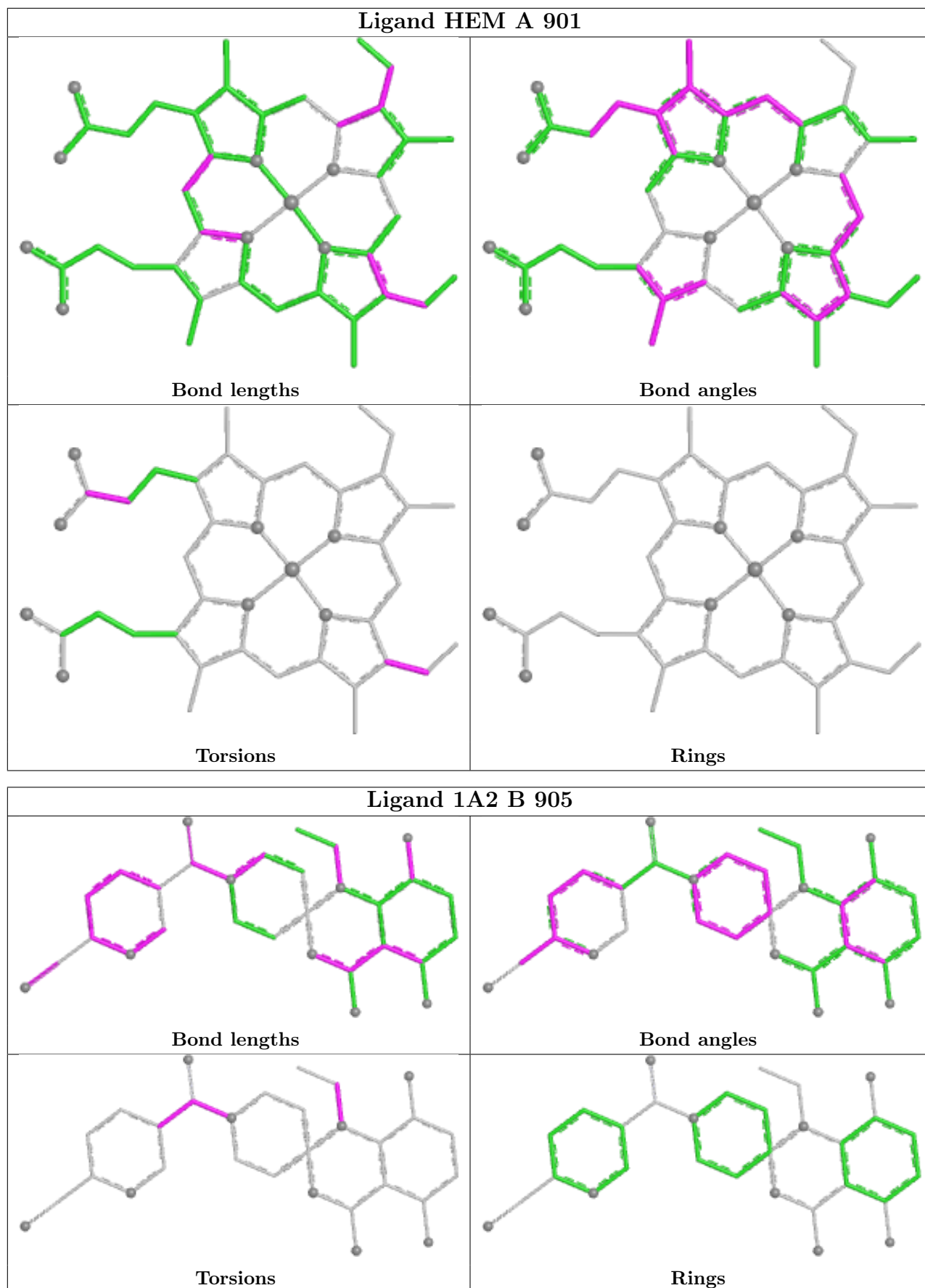
There are no ring outliers.

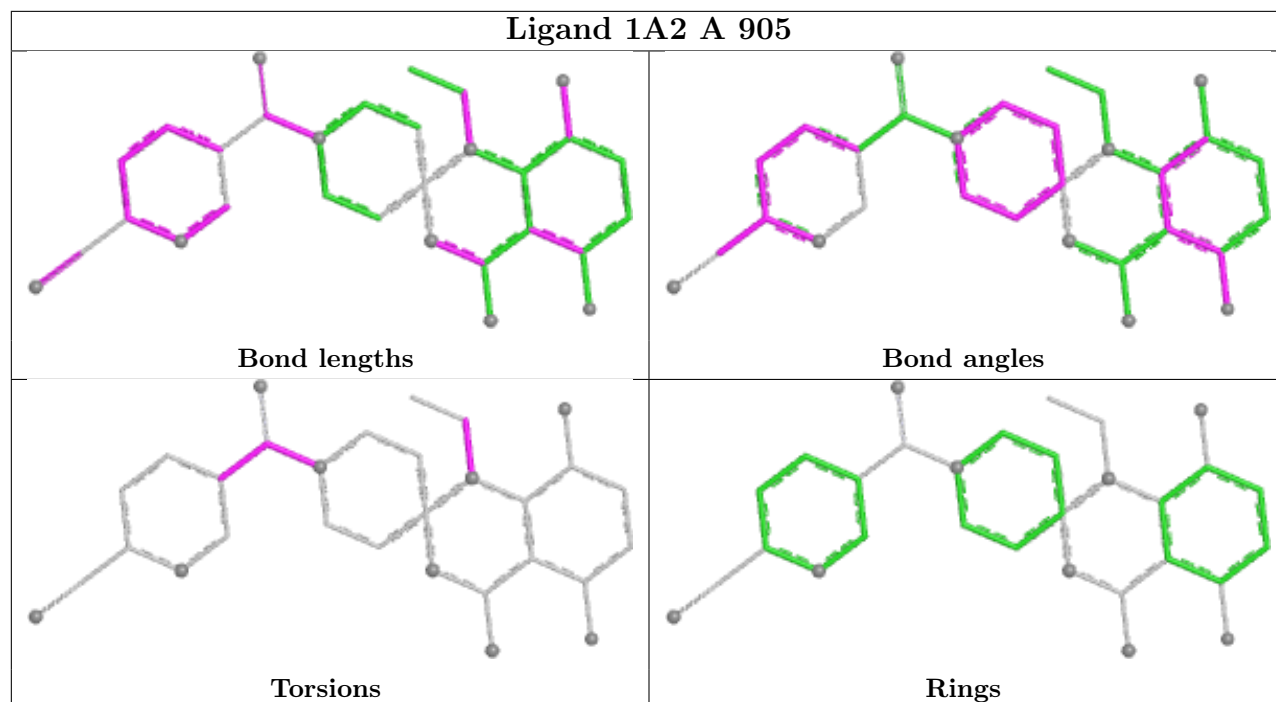
4 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	901	HEM	3	0
2	A	901	HEM	2	0
4	B	905	1A2	5	0
4	A	905	1A2	3	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.







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	415/433 (95%)	0.14	21 (5%) 28 29	29, 51, 85, 123	0
1	B	410/433 (94%)	0.06	15 (3%) 41 45	30, 50, 77, 95	0
All	All	825/866 (95%)	0.10	36 (4%) 34 37	29, 50, 81, 123	0

All (36) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	103	THR	10.9
1	A	102	PHE	10.3
1	A	101	ASP	6.1
1	B	110	LEU	6.0
1	A	110	LEU	5.4
1	B	494	ILE	5.1
1	A	108	SER	4.3
1	A	495	TRP	4.0
1	A	78	TYR	3.5
1	B	495	TRP	3.3
1	B	77	GLN	3.3
1	B	148	PHE	3.3
1	A	152	LYS	3.1
1	A	494	ILE	3.1
1	A	111	GLY	3.0
1	A	100	SER	2.8
1	B	152	LYS	2.8
1	A	89	ILE	2.8
1	A	148	PHE	2.8
1	B	87	GLY	2.8
1	B	111	GLY	2.8
1	A	77	GLN	2.7
1	A	90	LEU	2.7
1	B	109	CYS	2.6

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Mol	Chain	Res	Type	RSRZ
1	A	157	LEU	2.6
1	B	267	PRO	2.5
1	B	78	TYR	2.5
1	A	109	CYS	2.4
1	A	96	HIS	2.4
1	A	398	HIS	2.3
1	B	79	VAL	2.2
1	B	150	GLU	2.2
1	B	125	ASP	2.2
1	A	446	ARG	2.1
1	B	91	HIS	2.0
1	A	91	HIS	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 monosaccharides in this entry.

6.4 Ligands [i](#)

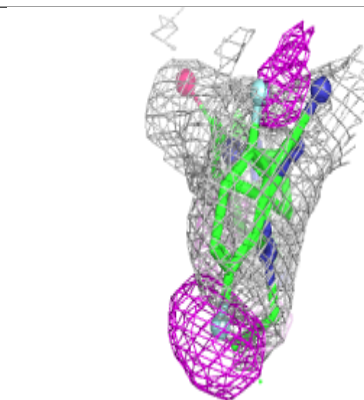
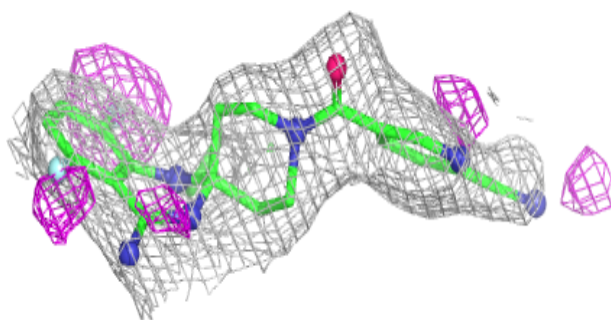
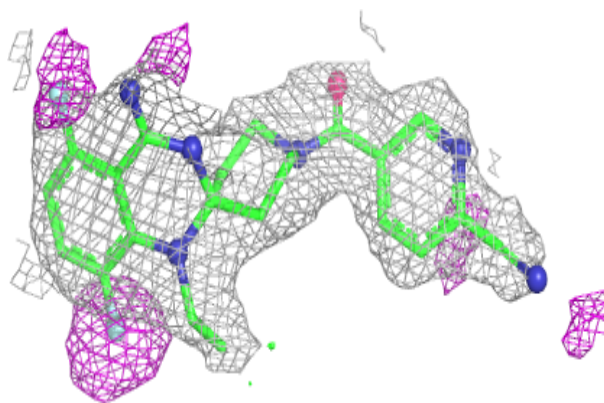
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
4	1A2	A	905	30/30	0.91	0.22	45,50,58,59	0
4	1A2	B	905	30/30	0.92	0.21	48,52,55,60	0
3	H4B	A	902	17/17	0.97	0.13	46,48,49,49	0
3	H4B	B	902	17/17	0.97	0.17	40,41,46,47	0
2	HEM	A	901	43/43	0.97	0.18	27,30,41,44	0
2	HEM	B	901	43/43	0.97	0.18	29,31,40,47	0

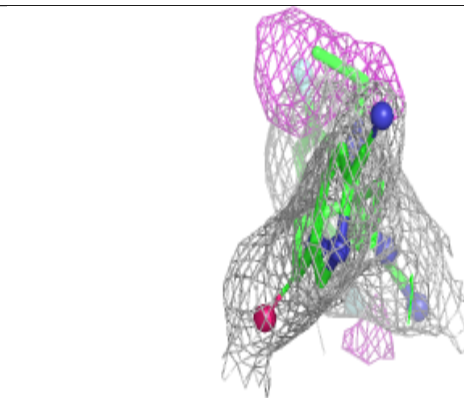
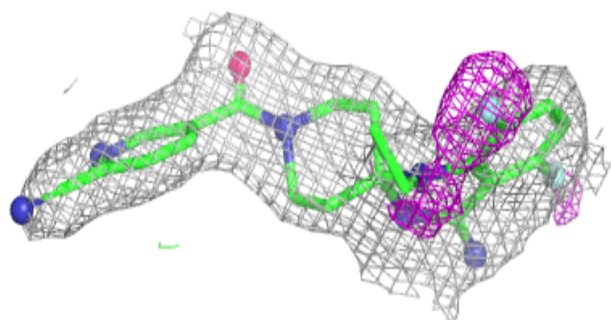
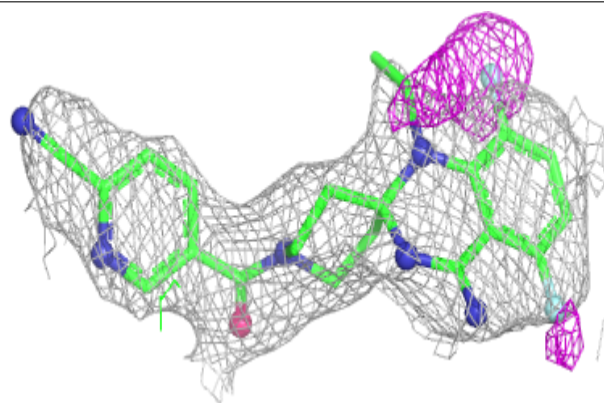
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around 1A2 A 905:

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

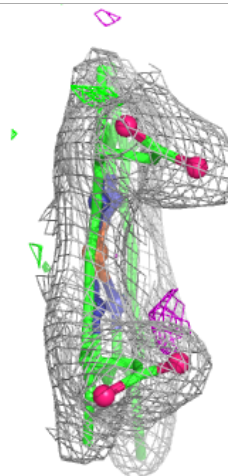
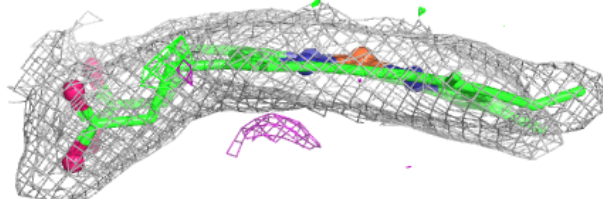
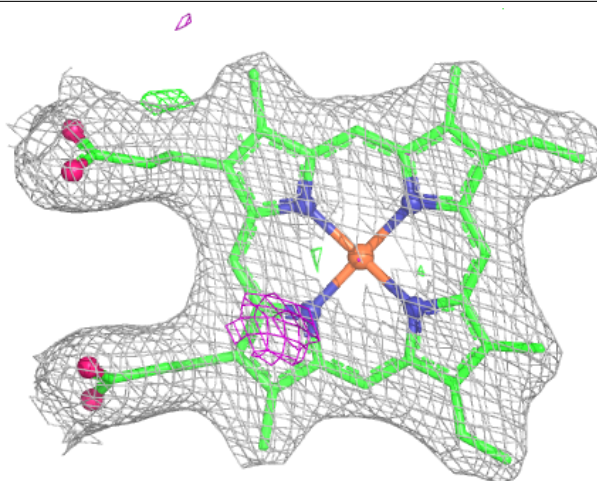
**Electron density around 1A2 B 905:**

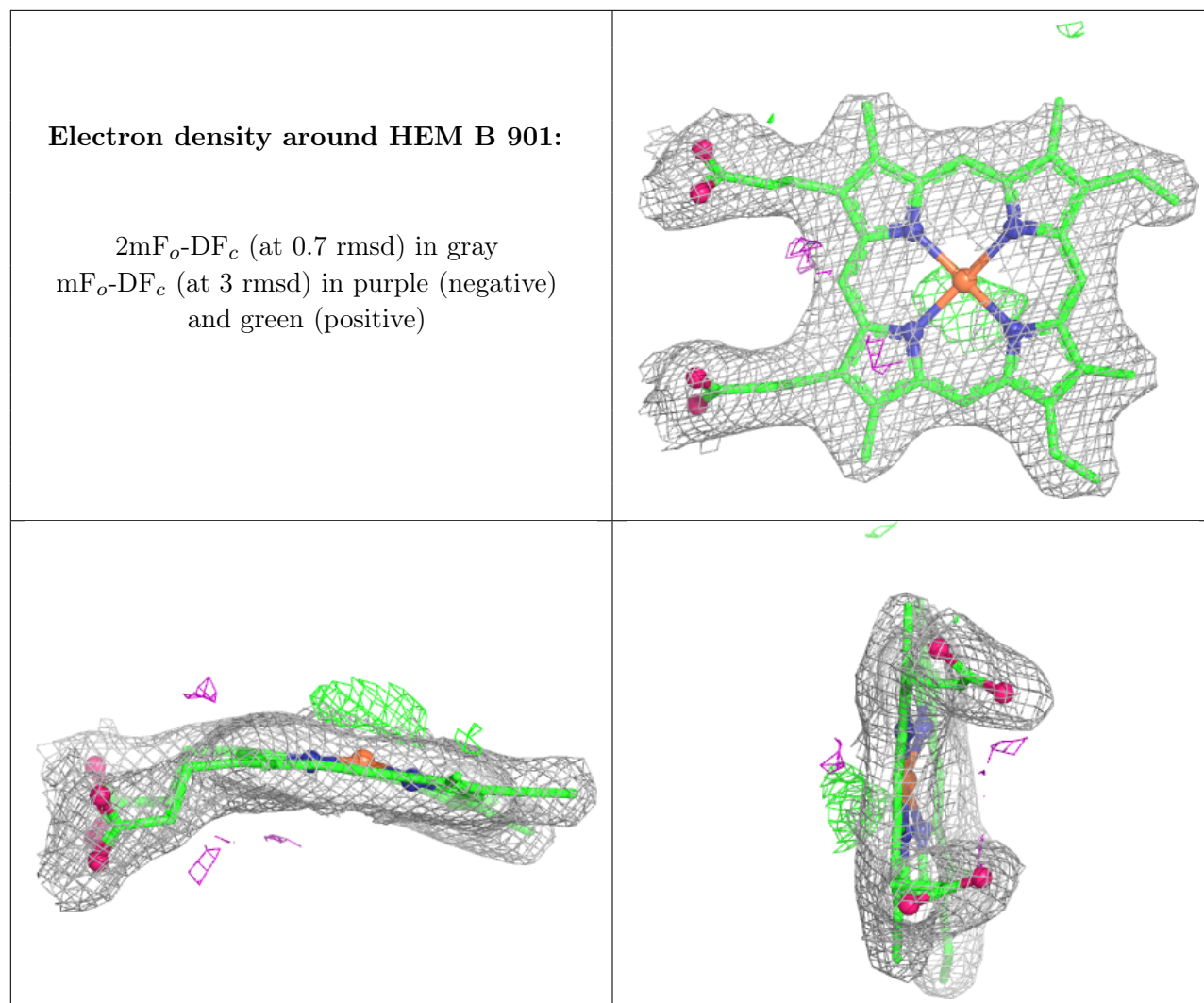
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around HEM A 901:

$2mF_o-DF_c$ (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.