Full wwPDB X-ray Structure Validation Report (i)

Aug 22, 2023 – 06:46 PM EDT

PDB ID	:	3DY5
Title	:	Allene oxide synthase 8R-lipoxygenase from Plexaura homomalla
Authors	:	Gilbert, N.C.; Niebuhr, M.; Tsuruta, H.; Newcomer, M.E.
Deposited on	:	2008-07-25
Resolution	:	3.51 Å(reported)

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

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

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

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

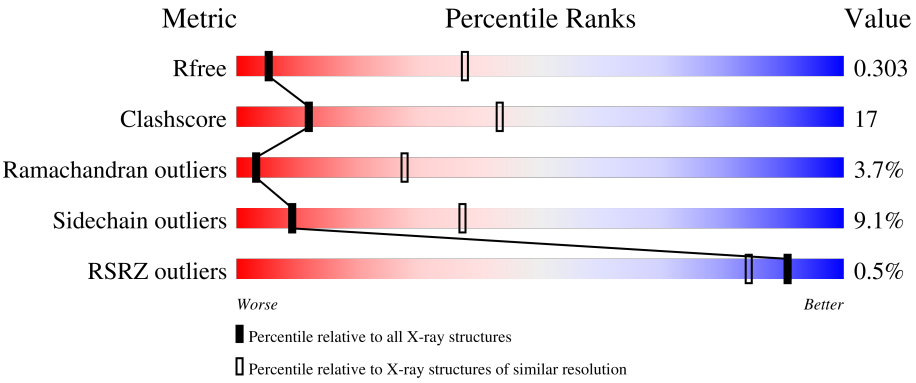
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35

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 3.51 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	1161 (3.60-3.44)
Clashscore	141614	1244 (3.60-3.44)
Ramachandran outliers	138981	1206 (3.60-3.44)
Sidechain outliers	138945	1207 (3.60-3.44)
RSRZ outliers	127900	1080 (3.60-3.44)

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	1066	58% 32% · 6%
1	C	1066	% 56% 33% 5% 6%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 16218 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 Allene oxide synthase-lipoxygenase protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	1002	Total	C	N	O	S	0	0	0
			8065	5153	1377	1521	14			
1	C	1002	Total	C	N	O	S	0	0	0
			8065	5153	1377	1521	14			

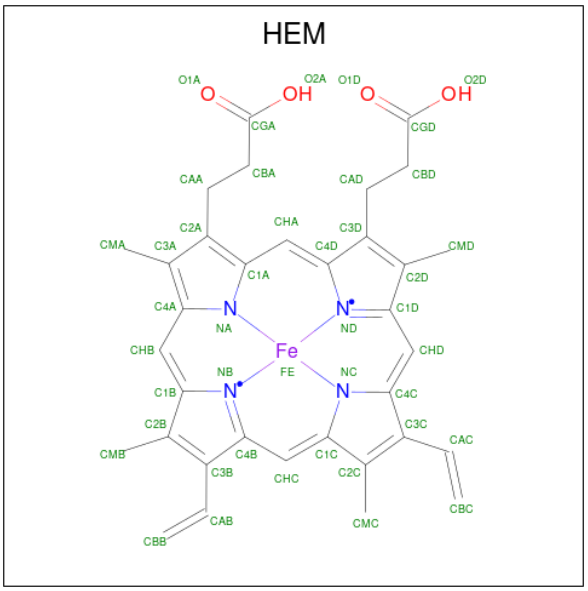
There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	782	ILE	VAL	SEE REMARK 999	UNP O16025
A	963	ILE	VAL	SEE REMARK 999	UNP O16025
C	782	ILE	VAL	SEE REMARK 999	UNP O16025
C	963	ILE	VAL	SEE REMARK 999	UNP O16025

- Molecule 2 is FE (II) ION (three-letter code: FE2) (formula: Fe).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total	Fe	0	0
			1	1		
2	C	1	Total	Fe	0	0
			1	1		

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



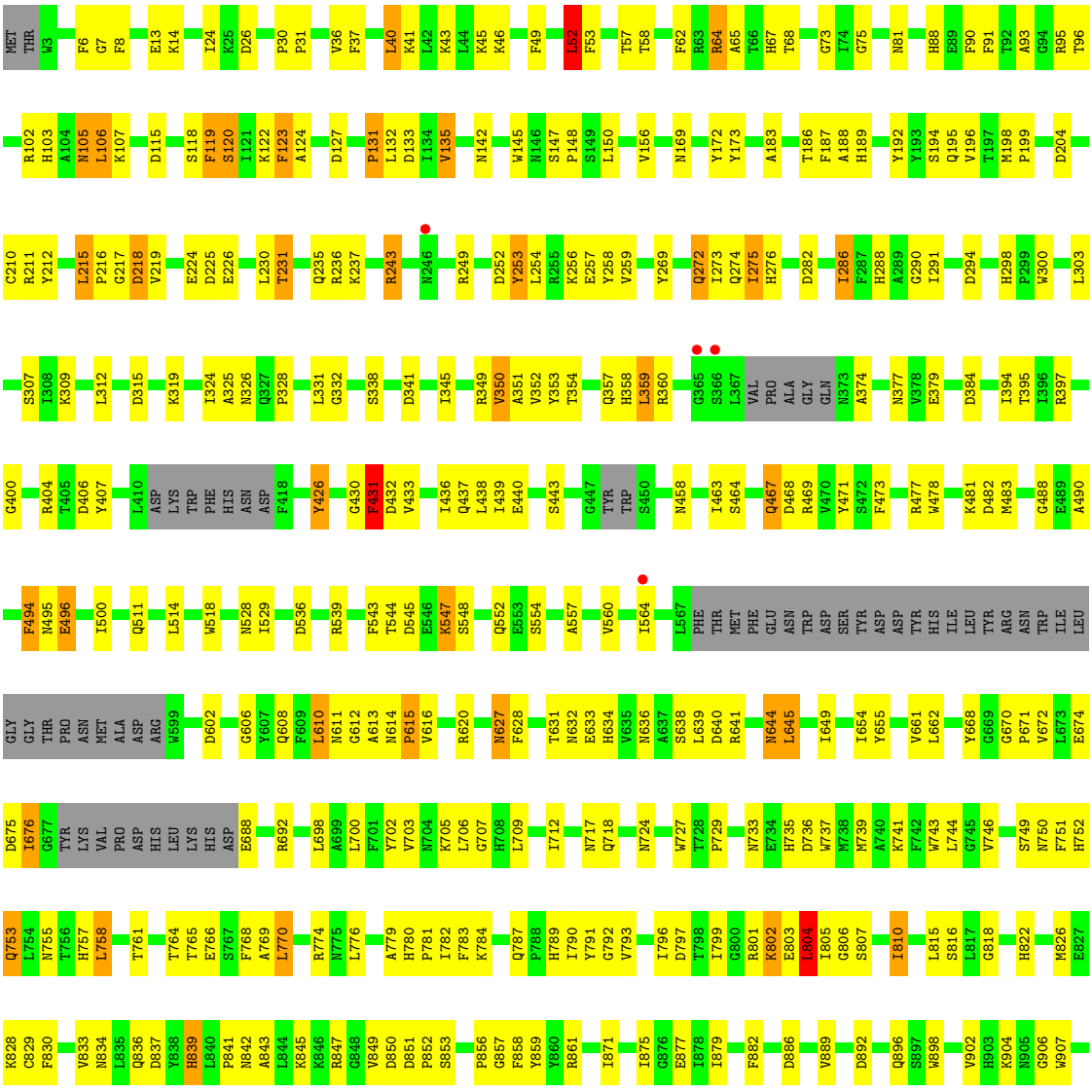
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
3	C	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		

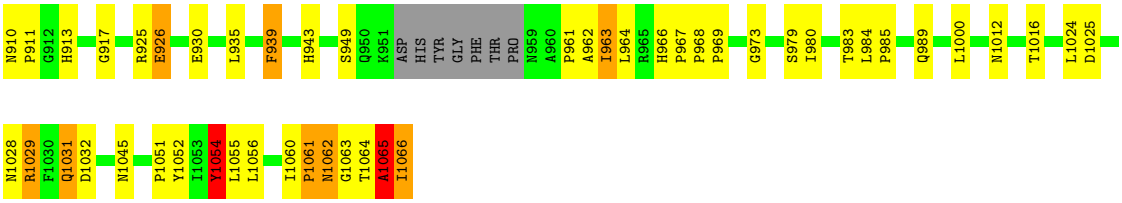
3 Residue-property plots (i)

These plots are drawn for all protein, RNA, 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: Allene oxide synthase-lipoxygenase protein

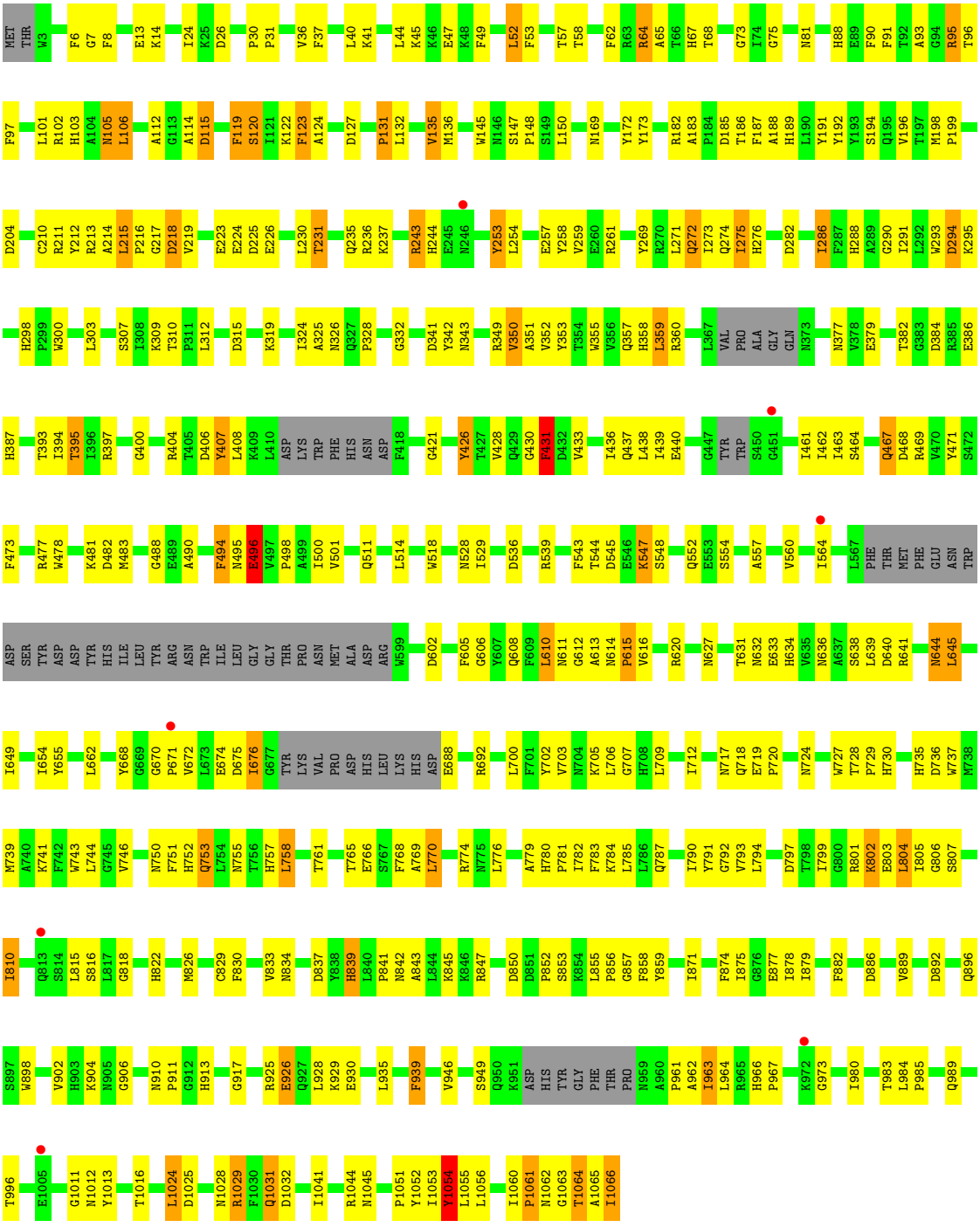
Chain A:





• Molecule 1: Allene oxide synthase-lipoxygenase protein

Chain C:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	235.52Å 77.49Å 157.97Å 90.00° 112.45° 90.00°	Depositor
Resolution (Å)	20.86 – 3.51 39.20 – 3.51	Depositor EDS
% Data completeness (in resolution range)	98.1 (20.86-3.51) 98.1 (39.20-3.51)	Depositor EDS
R_{merge}	0.14	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.87 (at 3.48Å)	Xtriage
Refinement program	REFMAC 5.2.0005	Depositor
R, R_{free}	0.273 , 0.322 0.261 , 0.303	Depositor DCC
R_{free} test set	1652 reflections (5.04%)	wwPDB-VP
Wilson B-factor (Å^2)	57.0	Xtriage
Anisotropy	0.224	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.25 , 24.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.86	EDS
Total number of atoms	16218	wwPDB-VP
Average B, all atoms (Å^2)	2.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.34% 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, FE2

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	0.49	1/8272 (0.0%)	0.61	1/11212 (0.0%)
1	C	0.50	1/8272 (0.0%)	0.61	0/11212
All	All	0.50	2/16544 (0.0%)	0.61	1/22424 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	C	0	1
All	All	0	2

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	1066	ILE	C-OXT	-6.70	1.10	1.23
1	A	1066	ILE	C-OXT	6.31	1.35	1.23

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	52	LEU	CA-CB-CG	5.02	126.85	115.30

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	1065	ALA	Peptide
1	C	1064	THR	Peptide

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	8065	0	7846	276	0
1	C	8065	0	7846	277	0
2	A	1	0	0	0	0
2	C	1	0	0	0	0
3	A	43	0	30	4	0
3	C	43	0	30	1	0
All	All	16218	0	15752	554	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 17.

All (554) 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:C:910:ASN:HB3	1:C:911:PRO:HD2	1.40	1.03
1:A:120:SER:HB3	1:A:135:VAL:HG12	1.42	0.99
1:A:481:LYS:HG3	1:A:482:ASP:H	1.26	0.99
1:C:481:LYS:HG3	1:C:482:ASP:H	1.28	0.97
1:C:120:SER:HB3	1:C:135:VAL:HG12	1.46	0.96
1:A:910:ASN:HB3	1:A:911:PRO:HD2	1.45	0.96
1:A:611:ASN:HD21	1:A:858:PHE:HA	1.31	0.94
1:C:282:ASP:HB3	1:C:286:ILE:HD11	1.49	0.92
1:C:611:ASN:HD21	1:C:858:PHE:HA	1.31	0.92
1:A:210:CYS:HB3	1:A:275:ILE:HG22	1.51	0.92
1:A:272:GLN:HG2	1:A:300:TRP:HB3	1.53	0.90
1:C:210:CYS:HB3	1:C:275:ILE:HG22	1.52	0.90
1:A:494:PHE:HD1	1:A:495:ASN:H	1.20	0.89
1:A:282:ASP:HB3	1:A:286:ILE:HD11	1.51	0.89
1:C:272:GLN:HG2	1:C:300:TRP:HB3	1.55	0.88
1:C:1054:TYR:HD1	1:C:1054:TYR:H	1.20	0.87

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1054:TYR:HD1	1:A:1054:TYR:H	1.23	0.83
1:C:494:PHE:HD1	1:C:495:ASN:H	1.25	0.82
1:A:822:HIS:O	1:A:826:MET:HG2	1.80	0.81
1:C:62:PHE:HE1	1:C:359:LEU:HD12	1.46	0.80
1:A:288:HIS:HD2	1:A:290:GLY:H	1.32	0.77
1:C:288:HIS:HD2	1:C:290:GLY:H	1.29	0.77
1:A:620:ARG:HA	1:A:655:TYR:CD2	2.21	0.76
1:A:781:PRO:HB3	1:A:882:PHE:CD1	2.21	0.76
1:C:781:PRO:HB3	1:C:882:PHE:CD1	2.20	0.76
1:A:751:PHE:O	1:A:755:ASN:HB3	1.85	0.76
1:C:751:PHE:O	1:C:755:ASN:HB3	1.84	0.75
1:C:641:ARG:HG3	1:C:702:TYR:OH	1.88	0.74
1:A:397:ARG:HD2	1:A:407:TYR:CZ	2.22	0.74
1:C:822:HIS:O	1:C:826:MET:HG2	1.88	0.74
1:C:62:PHE:CE1	1:C:359:LEU:HD12	2.23	0.73
1:A:875:ILE:O	1:A:879:ILE:HG12	1.87	0.73
1:A:62:PHE:HE1	1:A:359:LEU:HD12	1.53	0.72
1:C:545:ASP:HA	1:C:548:SER:HB3	1.70	0.72
1:A:545:ASP:HA	1:A:548:SER:HB3	1.72	0.72
1:A:641:ARG:HG3	1:A:702:TYR:OH	1.88	0.72
1:A:1029:ARG:HG3	1:A:1029:ARG:HH11	1.54	0.72
1:C:910:ASN:HB3	1:C:911:PRO:CD	2.18	0.71
1:C:548:SER:O	1:C:552:GLN:HG2	1.90	0.71
1:C:620:ARG:HA	1:C:655:TYR:CD2	2.25	0.71
1:C:397:ARG:HD2	1:C:407:TYR:CZ	2.25	0.71
1:A:189:HIS:HA	1:A:216:PRO:HG3	1.73	0.71
1:A:1054:TYR:CD1	1:A:1054:TYR:N	2.56	0.71
1:C:803:GLU:O	1:C:810:ILE:HG22	1.91	0.70
1:A:548:SER:O	1:A:552:GLN:HG2	1.91	0.70
1:C:529:ILE:HB	1:C:770:LEU:CD2	2.22	0.70
1:A:611:ASN:HD21	1:A:858:PHE:CA	2.03	0.70
1:C:875:ILE:O	1:C:879:ILE:HG12	1.92	0.70
1:A:886:ASP:OD2	1:A:925:ARG:HG3	1.91	0.69
1:C:1054:TYR:CD1	1:C:1054:TYR:N	2.58	0.69
1:A:910:ASN:HB3	1:A:911:PRO:CD	2.22	0.69
1:C:611:ASN:HD21	1:C:858:PHE:CA	2.06	0.69
1:C:471:TYR:HB3	1:C:473:PHE:CE1	2.28	0.68
1:A:169:ASN:HB3	1:A:172:TYR:CD2	2.28	0.68
1:A:120:SER:CB	1:A:135:VAL:HG12	2.23	0.68
1:C:103:HIS:HE1	1:C:269:TYR:OH	1.75	0.68
1:C:850:ASP:O	1:C:852:PRO:HD3	1.93	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:397:ARG:HE	1:C:404:ARG:HD3	1.59	0.68
1:A:103:HIS:HE1	1:A:269:TYR:OH	1.77	0.67
1:A:529:ILE:HB	1:A:770:LEU:CD2	2.25	0.67
1:A:62:PHE:CE1	1:A:359:LEU:HD12	2.29	0.67
1:C:189:HIS:HA	1:C:216:PRO:HG3	1.75	0.67
1:A:481:LYS:HG3	1:A:482:ASP:N	2.05	0.66
1:A:481:LYS:CG	1:A:482:ASP:H	2.06	0.66
1:C:481:LYS:HG3	1:C:482:ASP:N	2.08	0.66
1:C:780:HIS:HD2	1:C:782:ILE:H	1.42	0.66
1:A:8:PHE:CZ	1:A:24:ILE:HD11	2.31	0.66
1:C:199:PRO:HD2	1:C:332:GLY:O	1.95	0.66
1:C:169:ASN:HB3	1:C:172:TYR:CD2	2.29	0.65
1:C:468:ASP:O	1:C:469:ARG:HG3	1.96	0.65
1:A:926:GLU:N	1:A:926:GLU:CD	2.50	0.64
1:C:288:HIS:CD2	1:C:290:GLY:H	2.12	0.64
1:A:105:ASN:N	1:A:105:ASN:OD1	2.29	0.64
1:C:702:TYR:HB3	1:C:712:ILE:HG21	1.80	0.64
1:A:804:LEU:HA	1:A:810:ILE:HG23	1.80	0.64
1:C:668:TYR:HB3	1:C:692:ARG:HD2	1.80	0.64
1:C:377:ASN:HB2	1:C:463:ILE:HB	1.80	0.63
1:A:780:HIS:HD2	1:A:782:ILE:H	1.46	0.63
1:C:471:TYR:HB3	1:C:473:PHE:HE1	1.62	0.63
1:A:803:GLU:O	1:A:810:ILE:HG22	1.99	0.63
1:A:949:SER:HA	1:A:1054:TYR:CD2	2.34	0.63
1:C:8:PHE:CZ	1:C:24:ILE:HD11	2.33	0.62
1:A:668:TYR:HB3	1:A:692:ARG:HD2	1.82	0.62
1:A:471:TYR:HB3	1:A:473:PHE:CE1	2.34	0.62
1:C:631:THR:H	1:C:634:HIS:HD2	1.47	0.62
1:A:276:HIS:ND1	1:A:298:HIS:HE1	1.98	0.62
1:C:804:LEU:HA	1:C:810:ILE:HG23	1.82	0.62
1:C:120:SER:CB	1:C:135:VAL:HG12	2.26	0.62
1:A:757:HIS:O	1:A:758:LEU:HB3	2.00	0.61
1:A:189:HIS:HE1	1:A:219:VAL:CG1	2.13	0.61
1:A:377:ASN:HB2	1:A:463:ILE:HB	1.82	0.61
1:C:105:ASN:N	1:C:105:ASN:OD1	2.32	0.61
1:A:702:TYR:HB3	1:A:712:ILE:HG21	1.81	0.61
1:C:766:GLU:O	1:C:769:ALA:HB3	2.00	0.61
1:A:189:HIS:HE1	1:A:219:VAL:HG12	1.66	0.61
1:A:781:PRO:HB3	1:A:882:PHE:CE1	2.36	0.61
1:A:850:ASP:O	1:A:852:PRO:HD3	2.01	0.61
1:C:781:PRO:HB3	1:C:882:PHE:CE1	2.35	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:397:ARG:NE	1:C:404:ARG:HD3	2.14	0.60
1:C:966:HIS:HB3	1:C:967:PRO:HD2	1.83	0.60
1:C:926:GLU:N	1:C:926:GLU:CD	2.54	0.60
1:C:91:PHE:CD2	1:C:303:LEU:HD11	2.36	0.60
1:A:768:PHE:HB3	1:A:935:LEU:HD21	1.84	0.60
1:C:127:ASP:OD2	1:C:319:LYS:HE2	2.01	0.60
1:C:757:HIS:O	1:C:758:LEU:HB3	2.01	0.60
1:C:276:HIS:ND1	1:C:298:HIS:HE1	2.00	0.60
1:C:397:ARG:HB2	1:C:407:TYR:CE2	2.36	0.60
1:A:400:GLY:HA2	1:A:437:GLN:HG3	1.84	0.60
1:A:792:GLY:HA3	1:A:1065:ALA:HB2	1.84	0.59
1:C:189:HIS:HE1	1:C:219:VAL:HG12	1.66	0.59
1:A:632:ASN:HB3	1:A:644:ASN:HD21	1.67	0.59
1:C:632:ASN:HB3	1:C:644:ASN:HD21	1.67	0.59
1:A:397:ARG:HD2	1:A:407:TYR:CE1	2.36	0.59
1:A:613:ALA:O	1:A:615:PRO:HD3	2.02	0.59
1:C:633:GLU:HA	1:C:636:ASN:HB2	1.85	0.59
1:A:224:GLU:C	1:A:226:GLU:H	2.06	0.59
1:A:272:GLN:HB3	1:A:300:TRP:CE3	2.38	0.59
1:A:1045:ASN:HB3	1:A:1051:PRO:HB3	1.84	0.59
1:A:397:ARG:HB2	1:A:407:TYR:CE2	2.37	0.59
1:A:966:HIS:HB3	1:A:967:PRO:HD2	1.85	0.59
1:C:400:GLY:HA2	1:C:437:GLN:HG3	1.85	0.59
1:C:949:SER:HA	1:C:1054:TYR:CD2	2.38	0.59
1:A:120:SER:HB3	1:A:135:VAL:CG1	2.28	0.59
1:C:436:ILE:HD11	1:C:464:SER:HB2	1.85	0.59
1:A:633:GLU:HA	1:A:636:ASN:HB2	1.86	0.58
1:C:62:PHE:O	1:C:360:ARG:HG2	2.02	0.58
1:A:892:ASP:O	1:A:896:GLN:HG2	2.03	0.58
1:A:53:PHE:CE1	3:A:1100:HEM:HAC	2.39	0.58
1:A:62:PHE:O	1:A:360:ARG:HG2	2.03	0.58
1:A:288:HIS:CD2	1:A:290:GLY:H	2.17	0.58
1:A:1029:ARG:HG3	1:A:1029:ARG:NH1	2.16	0.58
1:A:91:PHE:CD2	1:A:303:LEU:HD11	2.39	0.58
1:A:518:TRP:CH2	1:A:906:GLY:HA2	2.39	0.58
1:A:670:GLY:N	1:A:671:PRO:HD3	2.19	0.58
1:C:53:PHE:CE1	3:C:1100:HEM:HAC	2.39	0.58
1:C:64:ARG:HD3	1:C:102:ARG:NH1	2.18	0.58
1:A:737:TRP:NE1	1:A:741:LYS:HE3	2.18	0.58
1:A:282:ASP:CB	1:A:286:ILE:HD11	2.32	0.57
1:A:478:TRP:CD1	1:A:539:ARG:HG3	2.38	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:799:ILE:CG2	1:A:803:GLU:HG3	2.35	0.57
1:C:189:HIS:HE1	1:C:219:VAL:CG1	2.17	0.57
1:C:1055:LEU:HA	1:C:1060:ILE:HD11	1.85	0.57
1:A:436:ILE:HD11	1:A:464:SER:HB2	1.86	0.57
1:C:886:ASP:OD2	1:C:925:ARG:HG3	2.04	0.57
1:A:199:PRO:HD2	1:A:332:GLY:O	2.05	0.57
1:C:119:PHE:HD2	1:C:119:PHE:O	1.87	0.57
1:C:606:GLY:HA3	1:C:709:LEU:O	2.03	0.57
1:A:67:HIS:HA	1:A:105:ASN:O	2.05	0.57
1:A:631:THR:H	1:A:634:HIS:HD2	1.52	0.57
1:C:211:ARG:HE	1:C:274:GLN:HE21	1.51	0.57
1:A:490:ALA:HB1	1:A:779:ALA:O	2.04	0.57
1:C:963:ILE:HD12	1:C:989:GLN:HG2	1.87	0.57
1:A:397:ARG:NE	1:A:404:ARG:HD3	2.20	0.57
1:C:1045:ASN:HB3	1:C:1051:PRO:HB3	1.86	0.57
1:C:610:LEU:HD13	1:C:857:GLY:O	2.05	0.56
1:C:613:ALA:O	1:C:615:PRO:HD3	2.04	0.56
1:A:397:ARG:HE	1:A:404:ARG:HD3	1.70	0.56
1:C:272:GLN:HB3	1:C:300:TRP:CE3	2.39	0.56
1:C:282:ASP:CB	1:C:286:ILE:HD11	2.30	0.56
1:C:397:ARG:HD2	1:C:407:TYR:CE1	2.39	0.56
1:A:471:TYR:HB3	1:A:473:PHE:HE1	1.68	0.56
1:A:753:GLN:HG2	1:A:815:LEU:HD11	1.86	0.56
1:A:1025:ASP:O	1:A:1028:ASN:HB3	2.05	0.56
1:A:8:PHE:HZ	1:A:24:ILE:HD11	1.69	0.56
1:A:606:GLY:HA3	1:A:709:LEU:O	2.05	0.56
1:C:49:PHE:HA	1:C:52:LEU:HB3	1.87	0.56
1:A:494:PHE:CD1	1:A:495:ASN:N	2.70	0.56
1:C:670:GLY:N	1:C:671:PRO:HD3	2.21	0.56
1:A:132:LEU:HD13	1:A:328:PRO:CD	2.36	0.56
1:A:963:ILE:HD12	1:A:989:GLN:HG2	1.88	0.56
1:A:468:ASP:O	1:A:469:ARG:HG3	2.06	0.55
1:C:889:VAL:HG21	1:C:925:ARG:HG2	1.89	0.55
1:C:119:PHE:O	1:C:119:PHE:CD2	2.60	0.55
1:C:224:GLU:C	1:C:226:GLU:H	2.09	0.55
1:A:353:TYR:O	1:A:357:GLN:HG3	2.07	0.55
1:A:132:LEU:HD13	1:A:328:PRO:HD3	1.89	0.55
1:A:926:GLU:CD	1:A:926:GLU:H	2.09	0.55
1:C:477:ARG:HG3	1:C:477:ARG:HH11	1.72	0.55
1:A:799:ILE:HG22	1:A:803:GLU:HG3	1.89	0.54
1:C:770:LEU:HD12	1:C:774:ARG:HG3	1.88	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:67:HIS:CE1	1:A:106:LEU:HD13	2.42	0.54
1:C:132:LEU:HD13	1:C:328:PRO:HD3	1.90	0.54
1:C:892:ASP:C	1:C:892:ASP:OD1	2.45	0.54
1:C:799:ILE:CG2	1:C:803:GLU:HG3	2.37	0.54
1:C:1025:ASP:O	1:C:1028:ASN:HB3	2.08	0.54
1:C:67:HIS:CE1	1:C:106:LEU:HD13	2.43	0.54
1:C:288:HIS:HD2	1:C:290:GLY:N	2.03	0.54
1:C:717:ASN:H	1:C:724:ASN:HD21	1.54	0.54
1:C:638:SER:OG	1:C:712:ILE:HG22	2.08	0.54
1:C:746:VAL:HA	1:C:961:PRO:O	2.08	0.54
1:A:787:GLN:HA	1:A:790:ILE:HG12	1.91	0.53
1:A:949:SER:HA	1:A:1054:TYR:CE2	2.43	0.53
1:C:73:GLY:HA2	1:C:312:LEU:HB2	1.90	0.53
1:C:103:HIS:CE1	1:C:269:TYR:OH	2.59	0.53
1:A:1000:LEU:O	1:A:1066:ILE:HG23	2.07	0.53
1:A:1055:LEU:HA	1:A:1060:ILE:HD11	1.90	0.53
1:C:103:HIS:HB3	1:C:187:PHE:CD2	2.43	0.53
1:C:949:SER:HA	1:C:1054:TYR:CE2	2.44	0.53
1:C:611:ASN:O	1:C:1052:TYR:HE1	1.91	0.53
1:C:478:TRP:CD1	1:C:539:ARG:HG3	2.44	0.53
1:A:183:ALA:HA	1:A:253:TYR:OH	2.08	0.53
1:A:729:PRO:HA	1:A:737:TRP:CD2	2.44	0.53
1:A:746:VAL:HA	1:A:961:PRO:O	2.08	0.53
1:A:49:PHE:HA	1:A:52:LEU:HB3	1.89	0.53
1:A:717:ASN:H	1:A:724:ASN:HD21	1.57	0.53
1:A:815:LEU:HA	1:A:962:ALA:HB1	1.91	0.53
1:C:611:ASN:HB3	1:C:1052:TYR:CE1	2.44	0.53
1:C:787:GLN:HA	1:C:790:ILE:HG12	1.89	0.53
1:A:802:LYS:HA	1:A:806:GLY:HA3	1.91	0.53
1:C:119:PHE:CE2	1:C:136:MET:HE3	2.44	0.53
1:A:325:ALA:HB2	1:A:350:VAL:HG22	1.92	0.52
1:A:1056:LEU:O	1:A:1060:ILE:HG12	2.08	0.52
1:A:796:ILE:HD13	1:A:1066:ILE:HD12	1.92	0.52
1:C:518:TRP:CH2	1:C:906:GLY:HA2	2.44	0.52
1:C:737:TRP:NE1	1:C:741:LYS:HE3	2.25	0.52
1:C:481:LYS:CG	1:C:482:ASP:H	2.07	0.52
1:C:799:ILE:HG22	1:C:803:GLU:HG3	1.91	0.52
1:C:727:TRP:CZ3	1:C:736:ASP:HB3	2.45	0.52
1:A:103:HIS:HB3	1:A:187:PHE:CD2	2.45	0.52
1:A:1061:PRO:O	1:A:1063:GLY:N	2.43	0.52
1:C:802:LYS:HA	1:C:806:GLY:HA3	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:766:GLU:O	1:A:769:ALA:HB3	2.10	0.52
1:A:73:GLY:HA2	1:A:312:LEU:HB2	1.92	0.52
1:A:610:LEU:HD13	1:A:857:GLY:O	2.09	0.52
1:A:746:VAL:HG21	1:A:964:LEU:HG	1.92	0.52
1:C:494:PHE:CD1	1:C:495:ASN:N	2.74	0.52
1:C:120:SER:HB3	1:C:135:VAL:CG1	2.31	0.52
1:A:467:GLN:HA	1:A:467:GLN:HE21	1.75	0.51
1:A:288:HIS:HB3	1:A:291:ILE:HG12	1.92	0.51
1:C:132:LEU:HD13	1:C:328:PRO:CD	2.40	0.51
1:C:857:GLY:HA2	1:C:859:TYR:CE2	2.45	0.51
1:C:40:LEU:O	1:C:41:LYS:C	2.48	0.51
1:C:426:TYR:CD1	1:C:426:TYR:N	2.79	0.51
1:C:729:PRO:HA	1:C:737:TRP:CD2	2.46	0.51
1:A:58:THR:HG23	1:A:468:ASP:O	2.11	0.51
1:A:127:ASP:OD2	1:A:319:LYS:HE2	2.10	0.51
1:A:188:ALA:O	1:A:216:PRO:HB3	2.11	0.51
1:A:712:ILE:O	1:A:729:PRO:HD3	2.10	0.51
1:A:792:GLY:O	1:A:796:ILE:HG22	2.11	0.51
1:A:638:SER:OG	1:A:712:ILE:HG22	2.11	0.51
1:C:1061:PRO:O	1:C:1063:GLY:N	2.44	0.51
1:C:8:PHE:HZ	1:C:24:ILE:HD11	1.74	0.51
1:C:610:LEU:HD22	1:C:858:PHE:CD1	2.46	0.51
1:C:776:LEU:HD21	1:C:898:TRP:HB2	1.92	0.51
1:A:631:THR:C	1:A:633:GLU:H	2.13	0.51
1:A:892:ASP:OD1	1:A:892:ASP:C	2.49	0.51
1:C:815:LEU:HA	1:C:962:ALA:HB1	1.92	0.51
1:A:288:HIS:HD2	1:A:290:GLY:N	2.05	0.51
1:C:467:GLN:HE21	1:C:467:GLN:HA	1.75	0.51
1:C:871:ILE:O	1:C:875:ILE:HG13	2.11	0.51
1:A:426:TYR:CD1	1:A:426:TYR:N	2.79	0.50
1:A:272:GLN:HB3	1:A:300:TRP:HE3	1.77	0.50
1:A:770:LEU:HD12	1:A:774:ARG:CD	2.41	0.50
1:C:37:PHE:HB3	1:C:1031:GLN:HG3	1.93	0.50
1:C:839:HIS:CD2	1:C:841:PRO:HG2	2.46	0.50
1:A:64:ARG:HD3	1:A:102:ARG:NH1	2.27	0.50
1:A:727:TRP:CZ3	1:A:736:ASP:HB3	2.47	0.50
1:A:789:HIS:ND1	1:A:1062:ASN:O	2.37	0.50
1:C:183:ALA:HA	1:C:253:TYR:OH	2.11	0.50
1:C:768:PHE:HB3	1:C:935:LEU:HD21	1.93	0.50
1:A:640:ASP:O	1:A:705:LYS:NZ	2.43	0.50
1:A:839:HIS:CD2	1:A:841:PRO:HG2	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:147:SER:HB3	1:A:148:PRO:HD3	1.93	0.50
1:A:37:PHE:HB3	1:A:1031:GLN:HG3	1.94	0.50
1:C:194:SER:OG	1:C:212:TYR:N	2.41	0.50
1:A:438:LEU:HA	1:A:473:PHE:HE2	1.77	0.49
1:C:288:HIS:HB3	1:C:291:ILE:HG12	1.93	0.49
1:C:640:ASP:OD1	1:C:702:TYR:OH	2.25	0.49
1:A:40:LEU:O	1:A:41:LYS:C	2.50	0.49
1:C:712:ILE:O	1:C:729:PRO:HD3	2.12	0.49
1:A:610:LEU:HD22	1:A:858:PHE:CD1	2.48	0.49
1:A:889:VAL:HG21	1:A:925:ARG:HG2	1.94	0.49
1:C:58:THR:HG23	1:C:468:ASP:O	2.13	0.49
1:C:353:TYR:O	1:C:357:GLN:HG3	2.12	0.49
1:A:611:ASN:HB3	1:A:1052:TYR:CE1	2.47	0.49
1:A:183:ALA:CA	1:A:253:TYR:OH	2.61	0.49
1:A:804:LEU:HA	1:A:810:ILE:CG2	2.42	0.49
1:C:188:ALA:O	1:C:216:PRO:HB3	2.13	0.49
1:C:892:ASP:O	1:C:896:GLN:HG2	2.13	0.49
1:C:966:HIS:HB3	1:C:967:PRO:CD	2.42	0.49
1:A:124:ALA:HB2	1:A:131:PRO:HD3	1.95	0.49
1:A:611:ASN:O	1:A:1052:TYR:HE1	1.96	0.49
1:A:966:HIS:HB3	1:A:967:PRO:CD	2.43	0.49
1:C:183:ALA:CA	1:C:253:TYR:OH	2.61	0.49
1:A:243:ARG:NH2	1:A:249:ARG:O	2.46	0.48
1:A:830:PHE:HA	1:A:833:VAL:HG23	1.94	0.48
1:A:871:ILE:O	1:A:875:ILE:HG13	2.13	0.48
1:C:397:ARG:HD3	1:C:440:GLU:OE2	2.13	0.48
1:C:770:LEU:CD1	1:C:774:ARG:HG3	2.43	0.48
1:A:211:ARG:HE	1:A:274:GLN:HE21	1.60	0.48
1:A:397:ARG:HD3	1:A:440:GLU:OE2	2.13	0.48
1:A:611:ASN:ND2	1:A:858:PHE:HA	2.15	0.48
1:A:757:HIS:O	1:A:758:LEU:CB	2.61	0.48
1:A:910:ASN:O	1:A:913:HIS:HB2	2.13	0.48
1:C:37:PHE:HD2	1:C:1031:GLN:HG3	1.78	0.48
1:C:707:GLY:HA2	1:C:856:PRO:HG2	1.95	0.48
1:A:644:ASN:ND2	1:A:645:LEU:H	2.11	0.48
1:C:114:ALA:HA	1:C:182:ARG:HA	1.95	0.48
1:A:119:PHE:HD2	1:A:119:PHE:O	1.96	0.48
1:A:258:TYR:O	1:A:258:TYR:CD2	2.66	0.48
1:C:746:VAL:HG21	1:C:964:LEU:HG	1.95	0.48
1:A:103:HIS:CE1	1:A:269:TYR:OH	2.63	0.48
1:A:273:ILE:HG22	1:A:303:LEU:HB2	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:670:GLY:N	1:A:671:PRO:CD	2.77	0.48
1:C:785:LEU:HD22	1:C:878:ILE:HG21	1.95	0.48
1:C:804:LEU:HA	1:C:810:ILE:CG2	2.44	0.48
1:A:324:ILE:HD11	1:A:349:ARG:HB2	1.95	0.48
1:C:743:TRP:O	1:C:746:VAL:HG12	2.13	0.48
1:C:781:PRO:CB	1:C:882:PHE:CD1	2.96	0.48
1:C:926:GLU:CD	1:C:926:GLU:H	2.17	0.48
1:C:325:ALA:HB2	1:C:350:VAL:HG22	1.96	0.47
1:C:395:THR:CG2	1:C:407:TYR:HB3	2.44	0.47
1:C:45:LYS:O	1:C:49:PHE:HD1	1.97	0.47
1:C:119:PHE:HB3	1:C:192:TYR:CG	2.50	0.47
1:C:147:SER:HB3	1:C:148:PRO:HD3	1.97	0.47
1:C:211:ARG:NE	1:C:274:GLN:NE2	2.61	0.47
1:C:743:TRP:HA	1:C:746:VAL:HG12	1.96	0.47
1:A:793:VAL:HG21	1:A:939:PHE:CE2	2.49	0.47
1:C:750:ASN:HD21	1:C:816:SER:HB3	1.79	0.47
1:A:30:PRO:HA	1:A:31:PRO:HD2	1.80	0.47
1:A:142:ASN:HD22	1:A:195:GLN:HE22	1.61	0.47
1:A:776:LEU:HD21	1:A:898:TRP:HB2	1.97	0.47
1:C:511:GLN:O	1:C:514:LEU:HB2	2.15	0.47
1:C:670:GLY:N	1:C:671:PRO:CD	2.77	0.47
1:C:752:HIS:NE2	1:C:946:VAL:HG13	2.30	0.47
1:A:797:ASP:O	1:A:801:ARG:HG3	2.15	0.47
1:C:393:THR:O	1:C:394:ILE:HD13	2.13	0.47
1:C:902:VAL:HA	1:C:906:GLY:HA3	1.97	0.47
1:A:477:ARG:HG3	1:A:477:ARG:HH11	1.79	0.47
1:C:668:TYR:HB2	1:C:818:GLY:O	2.15	0.47
1:A:793:VAL:HG21	1:A:939:PHE:HE2	1.80	0.47
1:A:858:PHE:CD2	1:A:861:ARG:CB	2.98	0.47
1:A:781:PRO:CB	1:A:882:PHE:CD1	2.96	0.46
1:A:796:ILE:CD1	1:A:1066:ILE:HD12	2.45	0.46
1:A:858:PHE:CD2	1:A:861:ARG:HB2	2.50	0.46
1:C:1029:ARG:HG3	1:C:1029:ARG:HH11	1.80	0.46
1:C:728:THR:C	1:C:730:HIS:H	2.19	0.46
1:C:1056:LEU:O	1:C:1060:ILE:HG12	2.15	0.46
1:C:753:GLN:HG2	1:C:815:LEU:HD11	1.97	0.46
1:A:668:TYR:HB2	1:A:818:GLY:O	2.15	0.46
1:C:95:ARG:HD2	1:C:97:PHE:CZ	2.50	0.46
1:C:273:ILE:HG22	1:C:303:LEU:HB2	1.97	0.46
1:A:43:LYS:O	1:A:46:LYS:HB2	2.15	0.46
1:A:64:ARG:H	1:A:64:ARG:HG2	1.48	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:707:GLY:HA2	1:A:856:PRO:HG2	1.98	0.46
1:C:213:ARG:O	1:C:271:LEU:HD12	2.15	0.46
1:A:791:TYR:CG	1:A:792:GLY:N	2.84	0.46
1:A:984:LEU:HB3	1:A:985:PRO:CD	2.45	0.46
1:C:67:HIS:HA	1:C:105:ASN:O	2.16	0.46
1:C:1053:ILE:O	1:C:1055:LEU:N	2.48	0.46
1:A:615:PRO:O	1:A:847:ARG:NH1	2.49	0.46
1:C:324:ILE:HD11	1:C:349:ARG:HB2	1.97	0.46
1:A:132:LEU:HA	1:A:326:ASN:O	2.16	0.46
1:C:382:THR:O	1:C:421:GLY:HA2	2.15	0.46
1:C:843:ALA:O	1:C:847:ARG:HG3	2.15	0.46
1:C:631:THR:C	1:C:633:GLU:H	2.18	0.46
1:A:102:ARG:HD3	3:A:1100:HEM:O2A	2.17	0.45
1:A:614:ASN:HD21	1:A:616:VAL:HG13	1.81	0.45
1:A:700:LEU:HB3	1:A:712:ILE:HD11	1.99	0.45
1:C:611:ASN:HB3	1:C:1052:TYR:CD1	2.51	0.45
1:A:119:PHE:HB3	1:A:192:TYR:CG	2.52	0.45
1:A:627:ASN:N	1:A:627:ASN:HD22	2.14	0.45
1:C:101:LEU:HD21	1:C:103:HIS:CE1	2.51	0.45
1:C:145:TRP:CD2	1:C:288:HIS:NE2	2.83	0.45
1:A:40:LEU:N	1:A:40:LEU:HD23	2.31	0.45
1:A:88:HIS:HD2	1:A:90:PHE:HB3	1.82	0.45
1:C:797:ASP:O	1:C:801:ARG:HG3	2.16	0.45
1:C:874:PHE:O	1:C:875:ILE:C	2.53	0.45
1:A:217:GLY:O	1:A:219:VAL:O	2.34	0.45
1:A:613:ALA:HB1	1:A:752:HIS:CD2	2.51	0.45
1:A:703:VAL:HG11	1:A:856:PRO:HD3	1.98	0.45
1:C:124:ALA:HB2	1:C:131:PRO:HD3	1.98	0.45
1:A:544:THR:O	1:A:547:LYS:N	2.50	0.45
1:A:224:GLU:O	1:A:226:GLU:N	2.47	0.45
1:C:64:ARG:HD3	1:C:102:ARG:CZ	2.47	0.45
1:C:490:ALA:HB1	1:C:779:ALA:O	2.16	0.45
1:A:217:GLY:O	1:A:219:VAL:N	2.50	0.45
1:A:645:LEU:O	1:A:649:ILE:HG12	2.17	0.45
1:C:830:PHE:HA	1:C:833:VAL:HG23	1.99	0.45
1:C:641:ARG:HA	1:C:705:LYS:HD3	1.99	0.45
1:A:186:THR:HA	1:A:254:LEU:CD1	2.46	0.44
1:C:37:PHE:CD2	1:C:1031:GLN:HG3	2.51	0.44
1:C:211:ARG:HE	1:C:274:GLN:NE2	2.15	0.44
1:C:438:LEU:HA	1:C:473:PHE:HE2	1.82	0.44
1:C:668:TYR:HB3	1:C:692:ARG:CD	2.47	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:45:LYS:O	1:A:49:PHE:HD1	2.01	0.44
1:A:122:LYS:HG3	1:A:133:ASP:OD1	2.17	0.44
1:A:253:TYR:CD1	1:A:253:TYR:C	2.89	0.44
1:A:350:VAL:HG12	1:A:351:ALA:N	2.32	0.44
1:A:436:ILE:HB	1:A:471:TYR:CD2	2.52	0.44
1:A:668:TYR:HB3	1:A:692:ARG:CD	2.46	0.44
3:A:1100:HEM:HBC2	3:A:1100:HEM:CMC	2.47	0.44
1:C:112:ALA:HB3	1:C:243:ARG:HE	1.82	0.44
1:C:610:LEU:HD21	1:C:855:LEU:HD11	1.99	0.44
1:C:816:SER:HB2	1:C:962:ALA:O	2.17	0.44
1:A:611:ASN:HB3	1:A:1052:TYR:CD1	2.53	0.44
1:A:75:GLY:HA3	1:A:307:SER:O	2.17	0.44
1:A:1029:ARG:H	1:A:1029:ARG:HG2	1.62	0.44
1:C:436:ILE:CD1	1:C:464:SER:HB2	2.46	0.44
1:A:430:GLY:O	1:A:431:PHE:C	2.55	0.44
1:C:544:THR:O	1:C:547:LYS:N	2.51	0.44
1:A:257:GLU:C	1:A:259:VAL:H	2.20	0.44
1:A:902:VAL:HA	1:A:906:GLY:HA3	1.98	0.44
1:C:44:LEU:O	1:C:47:GLU:HB2	2.18	0.44
1:C:253:TYR:CD1	1:C:253:TYR:C	2.90	0.44
1:A:119:PHE:O	1:A:119:PHE:CD2	2.70	0.44
1:C:615:PRO:O	1:C:847:ARG:NH1	2.51	0.44
1:A:88:HIS:HD2	1:A:91:PHE:H	1.64	0.44
1:A:123:PHE:CE2	1:A:132:LEU:HD23	2.53	0.44
1:A:400:GLY:HA3	1:A:433:VAL:HB	1.99	0.44
1:C:439:ILE:HG21	1:C:462:ILE:CD1	2.48	0.44
1:C:498:PRO:HD2	1:C:501:VAL:HG21	2.00	0.44
1:C:554:SER:HA	1:C:557:ALA:HB3	2.00	0.44
1:C:719:GLU:HA	1:C:720:PRO:HD3	1.86	0.44
1:A:211:ARG:NE	1:A:274:GLN:NE2	2.66	0.44
1:C:13:GLU:OE1	1:C:236:ARG:NH1	2.47	0.44
1:C:123:PHE:CE2	1:C:132:LEU:HD23	2.53	0.44
1:C:186:THR:HG21	1:C:261:ARG:NH2	2.33	0.44
1:C:757:HIS:O	1:C:758:LEU:CB	2.65	0.44
1:A:611:ASN:HD21	1:A:858:PHE:C	2.22	0.43
1:C:49:PHE:CE2	1:C:150:LEU:HD23	2.53	0.43
1:A:739:MET:CE	1:A:983:THR:HG21	2.48	0.43
1:A:858:PHE:CE2	1:A:861:ARG:HB2	2.52	0.43
1:A:37:PHE:HD2	1:A:1031:GLN:HG3	1.83	0.43
1:C:182:ARG:HD3	1:C:244:HIS:CE1	2.53	0.43
1:C:984:LEU:HB3	1:C:985:PRO:CD	2.47	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:755:ASN:ND2	1:A:829:CYS:SG	2.90	0.43
1:C:780:HIS:CD2	1:C:781:PRO:HD2	2.53	0.43
1:A:107:LYS:HE2	1:A:156:VAL:O	2.17	0.43
1:A:132:LEU:HD13	1:A:328:PRO:HD2	2.01	0.43
1:A:1065:ALA:O	1:A:1066:ILE:HB	2.19	0.43
1:C:88:HIS:HD2	1:C:90:PHE:HB3	1.84	0.43
1:A:851:ASP:O	1:A:853:SER:N	2.51	0.43
1:C:132:LEU:HA	1:C:326:ASN:O	2.17	0.43
1:C:231:THR:O	1:C:235:GLN:HG3	2.19	0.43
1:C:703:VAL:HG11	1:C:856:PRO:HD3	2.00	0.43
1:C:739:MET:CE	1:C:983:THR:HG21	2.49	0.43
1:A:632:ASN:HB3	1:A:644:ASN:ND2	2.33	0.43
1:C:1064:THR:O	1:C:1064:THR:HG22	2.19	0.43
1:C:119:PHE:CD2	1:C:119:PHE:C	2.91	0.43
1:C:632:ASN:HB3	1:C:644:ASN:ND2	2.32	0.43
1:A:132:LEU:HB2	1:A:328:PRO:HD3	2.00	0.43
1:C:186:THR:HA	1:C:254:LEU:CD1	2.49	0.43
1:C:791:TYR:CG	1:C:792:GLY:N	2.86	0.43
1:A:252:ASP:O	1:A:256:LYS:HB2	2.19	0.43
1:C:755:ASN:ND2	1:C:829:CYS:SG	2.89	0.43
1:A:45:LYS:O	1:A:46:LYS:C	2.56	0.42
1:A:64:ARG:HE	1:A:64:ARG:HB3	1.31	0.42
1:A:770:LEU:CD1	1:A:774:ARG:HG3	2.49	0.42
1:C:215:LEU:N	1:C:215:LEU:HD23	2.34	0.42
1:C:282:ASP:HB3	1:C:286:ILE:CD1	2.35	0.42
1:C:355:TRP:HH2	1:C:461:ILE:HD13	1.84	0.42
1:C:386:GLU:O	1:C:387:HIS:HB2	2.19	0.42
1:C:783:PHE:C	1:C:783:PHE:CD2	2.91	0.42
1:C:834:ASN:OD1	1:C:917:GLY:HA3	2.19	0.42
1:C:928:LEU:O	1:C:929:LYS:C	2.56	0.42
1:A:145:TRP:CD2	1:A:288:HIS:NE2	2.87	0.42
1:C:613:ALA:HB1	1:C:752:HIS:CD2	2.55	0.42
1:C:645:LEU:O	1:C:649:ILE:HG12	2.19	0.42
1:A:765:THR:O	1:A:766:GLU:C	2.57	0.42
1:C:258:TYR:O	1:C:258:TYR:CD2	2.73	0.42
1:C:644:ASN:ND2	1:C:645:LEU:H	2.17	0.42
1:C:765:THR:O	1:C:766:GLU:C	2.58	0.42
1:A:394:ILE:HD13	1:A:443:SER:HA	2.01	0.42
1:A:490:ALA:HB2	1:A:784:LYS:HD2	2.01	0.42
1:A:783:PHE:CD2	1:A:783:PHE:C	2.92	0.42
1:C:114:ALA:O	1:C:115:ASP:HB2	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:217:GLY:O	1:C:219:VAL:O	2.37	0.42
1:C:341:ASP:O	1:C:343:ASN:N	2.52	0.42
1:C:349:ARG:O	1:C:350:VAL:C	2.58	0.42
1:C:350:VAL:HG12	1:C:351:ALA:N	2.34	0.42
1:A:103:HIS:HD2	1:A:118:SER:O	2.02	0.42
1:A:839:HIS:HB3	1:A:842:ASN:HB2	2.00	0.42
1:A:843:ALA:O	1:A:847:ARG:HG3	2.19	0.42
1:C:64:ARG:H	1:C:64:ARG:HG2	1.50	0.42
1:C:257:GLU:C	1:C:259:VAL:H	2.22	0.42
1:A:37:PHE:CD2	1:A:1031:GLN:HG3	2.54	0.42
1:A:733:ASN:OD1	1:A:735:HIS:HB2	2.19	0.42
1:A:943:HIS:CD2	1:A:1064:THR:HG23	2.55	0.42
1:C:793:VAL:HG21	1:C:939:PHE:HE2	1.85	0.42
1:A:122:LYS:C	1:A:124:ALA:H	2.23	0.42
1:A:147:SER:O	1:A:150:LEU:HB3	2.19	0.42
1:A:698:LEU:HD11	1:A:718:GLN:HE22	1.84	0.42
1:A:857:GLY:HA2	1:A:859:TYR:CE2	2.54	0.42
1:C:44:LEU:HD13	1:C:1024:LEU:HD13	2.02	0.42
1:C:191:TYR:CE2	1:C:223:GLU:HG2	2.55	0.42
1:C:272:GLN:HB3	1:C:300:TRP:HE3	1.81	0.42
1:C:286:ILE:H	1:C:286:ILE:HG13	1.50	0.42
1:C:528:ASN:HB2	1:C:801:ARG:NH2	2.34	0.42
1:C:700:LEU:HB3	1:C:712:ILE:HD11	2.01	0.42
1:A:194:SER:HB3	1:A:212:TYR:HB2	2.02	0.42
1:A:528:ASN:HB2	1:A:801:ARG:NH2	2.35	0.42
1:C:430:GLY:O	1:C:431:PHE:C	2.57	0.42
1:C:668:TYR:HD2	1:C:692:ARG:NE	2.17	0.42
1:A:119:PHE:CD2	1:A:119:PHE:C	2.93	0.42
1:A:554:SER:HA	1:A:557:ALA:HB3	2.01	0.42
1:A:698:LEU:HD11	1:A:718:GLN:NE2	2.35	0.42
1:A:743:TRP:O	1:A:744:LEU:C	2.58	0.42
1:C:75:GLY:HA3	1:C:307:SER:O	2.20	0.42
1:C:810:ILE:HD11	1:C:996:THR:CG2	2.50	0.42
1:C:293:TRP:O	1:C:295:LYS:N	2.53	0.42
1:A:439:ILE:HG12	1:A:473:PHE:CD2	2.55	0.41
1:A:834:ASN:OD1	1:A:917:GLY:HA3	2.19	0.41
1:A:374:ALA:HB2	1:A:432:ASP:HB2	2.01	0.41
1:A:668:TYR:HD2	1:A:692:ARG:NE	2.18	0.41
1:C:122:LYS:C	1:C:124:ALA:H	2.22	0.41
1:C:400:GLY:HA3	1:C:433:VAL:HB	2.02	0.41
1:C:605:PHE:CE2	1:C:744:LEU:HD23	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:770:LEU:HD12	1:C:774:ARG:CD	2.50	0.41
1:C:1029:ARG:HG3	1:C:1029:ARG:NH1	2.35	0.41
1:A:13:GLU:OE1	1:A:236:ARG:NH1	2.47	0.41
1:A:764:THR:HB	1:A:907:TRP:CZ2	2.55	0.41
1:A:770:LEU:HD12	1:A:774:ARG:HG3	2.02	0.41
1:A:979:SER:O	1:A:980:ILE:C	2.59	0.41
1:C:293:TRP:O	1:C:294:ASP:C	2.58	0.41
1:C:735:HIS:HB3	1:C:980:ILE:HD11	2.01	0.41
1:C:793:VAL:HG21	1:C:939:PHE:CE2	2.55	0.41
1:A:88:HIS:CD2	1:A:90:PHE:HB3	2.55	0.41
1:A:639:LEU:HD21	1:A:654:ILE:HD11	2.01	0.41
1:A:729:PRO:HA	1:A:737:TRP:CE2	2.55	0.41
1:A:215:LEU:N	1:A:215:LEU:HD23	2.35	0.41
1:A:858:PHE:CD2	1:A:861:ARG:HB3	2.55	0.41
1:C:408:LEU:HD13	1:C:428:VAL:HB	2.03	0.41
1:C:1065:ALA:O	1:C:1066:ILE:HG23	2.21	0.41
1:A:91:PHE:CE1	1:A:331:LEU:HD11	2.56	0.41
1:A:661:VAL:O	1:A:828:LYS:HE2	2.20	0.41
1:C:494:PHE:C	1:C:496:GLU:H	2.23	0.41
1:C:794:LEU:HD23	1:C:794:LEU:HA	1.92	0.41
1:C:1011:GLY:O	1:C:1013:TYR:N	2.54	0.41
1:A:849:VAL:O	1:A:861:ARG:NH1	2.52	0.41
1:C:30:PRO:HA	1:C:31:PRO:HD2	1.82	0.41
1:C:910:ASN:O	1:C:913:HIS:HB2	2.21	0.41
1:A:231:THR:O	1:A:235:GLN:HG3	2.21	0.41
1:A:458:ASN:HD22	1:A:458:ASN:HA	1.69	0.41
1:A:511:GLN:O	1:A:514:LEU:HB2	2.21	0.41
1:A:793:VAL:HG22	1:A:1064:THR:HB	2.03	0.41
1:A:834:ASN:C	1:A:836:GLN:N	2.74	0.41
1:C:490:ALA:HB2	1:C:784:LYS:HD2	2.02	0.41
1:C:729:PRO:HA	1:C:737:TRP:CE2	2.56	0.41
1:C:839:HIS:HB3	1:C:842:ASN:HB2	2.03	0.41
1:C:62:PHE:HE1	1:C:359:LEU:CD1	2.27	0.41
1:A:345:ILE:HD13	1:A:345:ILE:HA	1.77	0.40
1:C:192:TYR:N	1:C:214:ALA:O	2.51	0.40
1:C:224:GLU:O	1:C:226:GLU:N	2.55	0.40
1:C:980:ILE:O	1:C:984:LEU:HG	2.21	0.40
1:A:750:ASN:HD21	1:A:816:SER:HB3	1.87	0.40
1:A:968:PRO:HA	1:A:969:PRO:HD3	1.93	0.40
1:C:639:LEU:HD21	1:C:654:ILE:HD11	2.02	0.40
1:C:1041:ILE:HG23	1:C:1044:ARG:NH2	2.36	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:118:SER:HB2	3:A:1100:HEM:CMA	2.51	0.40
1:A:338:SER:O	1:A:341:ASP:HB3	2.21	0.40
1:A:768:PHE:CE1	1:A:902:VAL:HG11	2.56	0.40
1:C:132:LEU:HB2	1:C:328:PRO:HD3	2.03	0.40
1:C:614:ASN:HD21	1:C:616:VAL:HG13	1.86	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	988/1066 (93%)	802 (81%)	150 (15%)	36 (4%)	3	28
1	C	988/1066 (93%)	792 (80%)	159 (16%)	37 (4%)	3	28
All	All	1976/2132 (93%)	1594 (81%)	309 (16%)	73 (4%)	3	28

All (73) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	243	ARG
1	A	610	LEU
1	A	615	PRO
1	A	1012	ASN
1	A	1062	ASN
1	C	243	ARG
1	C	610	LEU
1	C	615	PRO
1	C	1012	ASN
1	C	1062	ASN
1	A	7	GLY
1	A	14	LYS
1	A	93	ALA

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Mol	Chain	Res	Type
1	A	106	LEU
1	A	225	ASP
1	A	231	THR
1	A	294	ASP
1	A	494	PHE
1	A	496	GLU
1	A	676	ILE
1	A	839	HIS
1	A	930	GLU
1	C	7	GLY
1	C	81	ASN
1	C	93	ALA
1	C	225	ASP
1	C	294	ASP
1	C	494	PHE
1	C	496	GLU
1	C	676	ILE
1	C	839	HIS
1	A	81	ASN
1	A	837	ASP
1	A	1054	TYR
1	C	14	LYS
1	C	106	LEU
1	C	231	THR
1	C	350	VAL
1	C	488	GLY
1	C	612	GLY
1	C	837	ASP
1	C	930	GLU
1	A	6	PHE
1	A	65	ALA
1	A	68	THR
1	A	115	ASP
1	A	123	PHE
1	A	218	ASP
1	A	431	PHE
1	A	973	GLY
1	C	6	PHE
1	C	65	ALA
1	C	115	ASP
1	C	218	ASP
1	C	431	PHE

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Mol	Chain	Res	Type
1	C	973	GLY
1	C	1054	TYR
1	A	612	GLY
1	A	758	LEU
1	A	804	LEU
1	A	1061	PRO
1	A	1065	ALA
1	C	68	THR
1	C	123	PHE
1	C	342	TYR
1	C	407	TYR
1	C	758	LEU
1	C	1061	PRO
1	C	718	GLN
1	A	350	VAL
1	A	488	GLY
1	A	131	PRO
1	C	131	PRO

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	863/922 (94%)	784 (91%)	79 (9%)	9 37
1	C	863/922 (94%)	785 (91%)	78 (9%)	9 38
All	All	1726/1844 (94%)	1569 (91%)	157 (9%)	9 37

All (157) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	26	ASP
1	A	36	VAL
1	A	40	LEU
1	A	52	LEU
1	A	57	THR

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Mol	Chain	Res	Type
1	A	64	ARG
1	A	95	ARG
1	A	96	THR
1	A	105	ASN
1	A	119	PHE
1	A	120	SER
1	A	135	VAL
1	A	173	TYR
1	A	196	VAL
1	A	198	MET
1	A	204	ASP
1	A	215	LEU
1	A	218	ASP
1	A	230	LEU
1	A	237	LYS
1	A	253	TYR
1	A	272	GLN
1	A	275	ILE
1	A	286	ILE
1	A	309	LYS
1	A	315	ASP
1	A	352	VAL
1	A	354	THR
1	A	358	HIS
1	A	359	LEU
1	A	379	GLU
1	A	384	ASP
1	A	395	THR
1	A	406	ASP
1	A	426	TYR
1	A	431	PHE
1	A	467	GLN
1	A	483	MET
1	A	496	GLU
1	A	500	ILE
1	A	536	ASP
1	A	543	PHE
1	A	547	LYS
1	A	560	VAL
1	A	564	ILE
1	A	602	ASP
1	A	608	GLN

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Mol	Chain	Res	Type
1	A	627	ASN
1	A	628	PHE
1	A	644	ASN
1	A	645	LEU
1	A	662	LEU
1	A	672	VAL
1	A	674	GLU
1	A	675	ASP
1	A	676	ILE
1	A	688	GLU
1	A	706	LEU
1	A	749	SER
1	A	753	GLN
1	A	761	THR
1	A	770	LEU
1	A	802	LYS
1	A	804	LEU
1	A	805	ILE
1	A	807	SER
1	A	810	ILE
1	A	845	LYS
1	A	877	GLU
1	A	904	LYS
1	A	926	GLU
1	A	939	PHE
1	A	963	ILE
1	A	1016	THR
1	A	1024	LEU
1	A	1029	ARG
1	A	1031	GLN
1	A	1032	ASP
1	A	1054	TYR
1	C	26	ASP
1	C	36	VAL
1	C	52	LEU
1	C	57	THR
1	C	64	ARG
1	C	95	ARG
1	C	96	THR
1	C	105	ASN
1	C	119	PHE
1	C	120	SER

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Mol	Chain	Res	Type
1	C	135	VAL
1	C	173	TYR
1	C	185	ASP
1	C	196	VAL
1	C	198	MET
1	C	204	ASP
1	C	215	LEU
1	C	218	ASP
1	C	230	LEU
1	C	237	LYS
1	C	253	TYR
1	C	272	GLN
1	C	275	ILE
1	C	286	ILE
1	C	309	LYS
1	C	310	THR
1	C	315	ASP
1	C	352	VAL
1	C	358	HIS
1	C	359	LEU
1	C	379	GLU
1	C	384	ASP
1	C	395	THR
1	C	406	ASP
1	C	426	TYR
1	C	431	PHE
1	C	467	GLN
1	C	483	MET
1	C	496	GLU
1	C	500	ILE
1	C	536	ASP
1	C	543	PHE
1	C	547	LYS
1	C	560	VAL
1	C	564	ILE
1	C	602	ASP
1	C	608	GLN
1	C	627	ASN
1	C	644	ASN
1	C	645	LEU
1	C	662	LEU
1	C	672	VAL

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Mol	Chain	Res	Type
1	C	674	GLU
1	C	675	ASP
1	C	676	ILE
1	C	688	GLU
1	C	706	LEU
1	C	753	GLN
1	C	761	THR
1	C	770	LEU
1	C	802	LYS
1	C	804	LEU
1	C	805	ILE
1	C	807	SER
1	C	810	ILE
1	C	845	LYS
1	C	853	SER
1	C	877	GLU
1	C	904	LYS
1	C	926	GLU
1	C	939	PHE
1	C	963	ILE
1	C	1016	THR
1	C	1024	LEU
1	C	1029	ARG
1	C	1031	GLN
1	C	1032	ASP
1	C	1054	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (50) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	88	HIS
1	A	103	HIS
1	A	142	ASN
1	A	189	HIS
1	A	244	HIS
1	A	274	GLN
1	A	298	HIS
1	A	437	GLN
1	A	458	ASN
1	A	506	GLN
1	A	528	ASN
1	A	611	ASN

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Mol	Chain	Res	Type
1	A	627	ASN
1	A	634	HIS
1	A	644	ASN
1	A	718	GLN
1	A	724	ASN
1	A	753	GLN
1	A	780	HIS
1	A	836	GLN
1	A	839	HIS
1	A	842	ASN
1	A	893	ASN
1	A	905	ASN
1	A	1043	GLN
1	C	88	HIS
1	C	103	HIS
1	C	142	ASN
1	C	189	HIS
1	C	244	HIS
1	C	274	GLN
1	C	298	HIS
1	C	437	GLN
1	C	458	ASN
1	C	506	GLN
1	C	611	ASN
1	C	627	ASN
1	C	634	HIS
1	C	644	ASN
1	C	718	GLN
1	C	724	ASN
1	C	750	ASN
1	C	753	GLN
1	C	780	HIS
1	C	836	GLN
1	C	839	HIS
1	C	842	ASN
1	C	905	ASN
1	C	950	GLN
1	C	1043	GLN

5.3.3 RNA

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)

Of 4 ligands modelled in this entry, 2 are monoatomic - leaving 2 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	$\#\|Z\| > 2$
3	HEM	A	1100	1	41,50,50	1.88	7 (17%)	45,82,82	1.57	6 (13%)
3	HEM	C	1100	1	41,50,50	1.94	6 (14%)	45,82,82	1.70	7 (15%)

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	A	1100	1	-	6/12/54/54	-
3	HEM	C	1100	1	-	6/12/54/54	-

All (13) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	1100	HEM	C3D-C2D	7.55	1.52	1.36
3	A	1100	HEM	C3D-C2D	7.19	1.52	1.36
3	C	1100	HEM	C3C-C2C	-5.24	1.33	1.40
3	A	1100	HEM	C3C-C2C	-4.69	1.33	1.40
3	A	1100	HEM	C3C-CAC	3.11	1.54	1.47
3	C	1100	HEM	C3C-CAC	3.10	1.54	1.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	1100	HEM	FE-ND	3.07	2.12	1.96
3	A	1100	HEM	CAB-C3B	2.81	1.55	1.47
3	A	1100	HEM	FE-ND	2.71	2.10	1.96
3	C	1100	HEM	CAB-C3B	2.59	1.54	1.47
3	C	1100	HEM	CMB-C2B	2.43	1.55	1.50
3	A	1100	HEM	CMB-C2B	2.26	1.55	1.50
3	A	1100	HEM	CMC-C2C	2.04	1.56	1.51

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	C	1100	HEM	C4D-ND-C1D	5.83	111.10	105.07
3	A	1100	HEM	C4D-ND-C1D	5.49	110.74	105.07
3	C	1100	HEM	C4C-CHD-C1D	3.88	127.68	122.56
3	C	1100	HEM	CAA-CBA-CGA	-3.64	103.56	113.76
3	A	1100	HEM	CAA-CBA-CGA	-3.38	104.28	113.76
3	A	1100	HEM	C4C-CHD-C1D	3.26	126.86	122.56
3	C	1100	HEM	CBA-CAA-C2A	-2.94	107.60	112.62
3	C	1100	HEM	C4B-CHC-C1C	2.75	126.18	122.56
3	A	1100	HEM	C4B-CHC-C1C	2.37	125.68	122.56
3	C	1100	HEM	CAD-CBD-CGD	-2.32	108.60	113.60
3	A	1100	HEM	CAD-C3D-C4D	2.25	128.59	124.66
3	A	1100	HEM	C2C-C3C-C4C	2.06	108.34	106.90
3	C	1100	HEM	C2C-C3C-C4C	2.06	108.33	106.90

There are no chirality outliers.

All (12) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	1100	HEM	C2B-C3B-CAB-CBB
3	C	1100	HEM	C2B-C3B-CAB-CBB
3	A	1100	HEM	C4B-C3B-CAB-CBB
3	C	1100	HEM	CAD-CBD-CGD-O1D
3	A	1100	HEM	CAA-CBA-CGA-O1A
3	C	1100	HEM	CAA-CBA-CGA-O1A
3	A	1100	HEM	CAD-CBD-CGD-O1D
3	C	1100	HEM	CAA-CBA-CGA-O2A
3	A	1100	HEM	CAA-CBA-CGA-O2A
3	A	1100	HEM	CAD-CBD-CGD-O2D
3	C	1100	HEM	CAD-CBD-CGD-O2D
3	C	1100	HEM	C4B-C3B-CAB-CBB

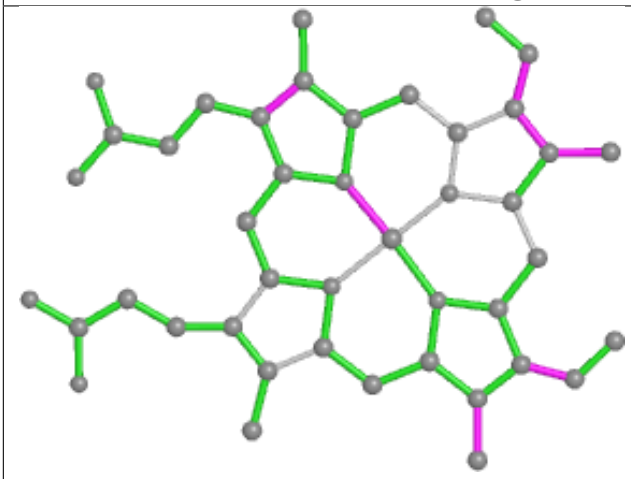
There are no ring outliers.

2 monomers are involved in 5 short contacts:

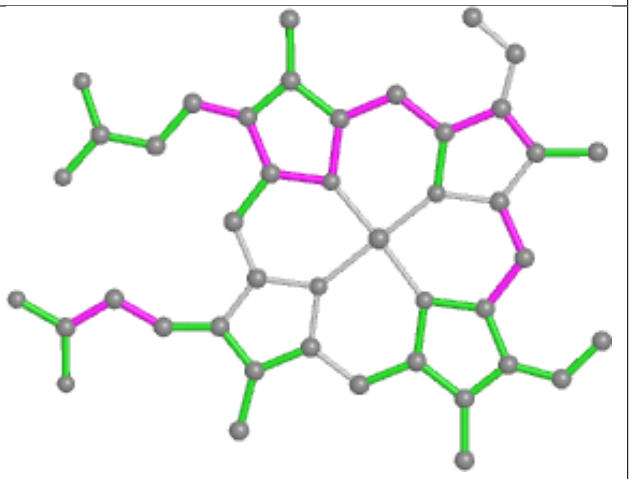
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	1100	HEM	4	0
3	C	1100	HEM	1	0

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 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.

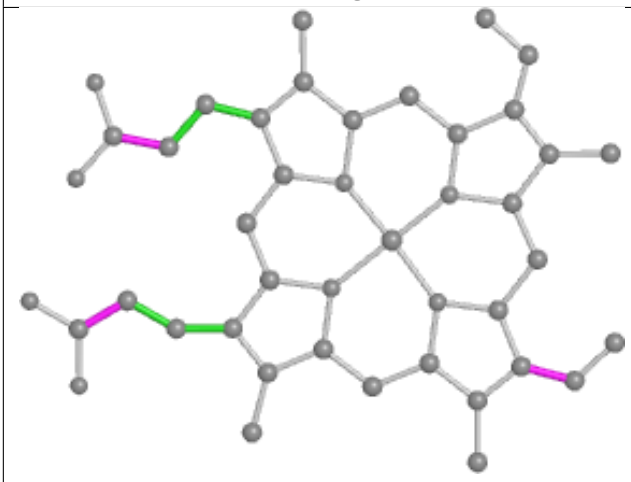
Ligand HEM A 1100



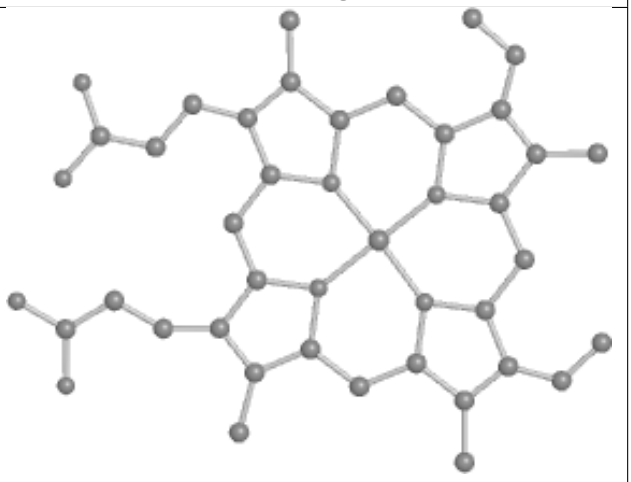
Bond lengths



Bond angles

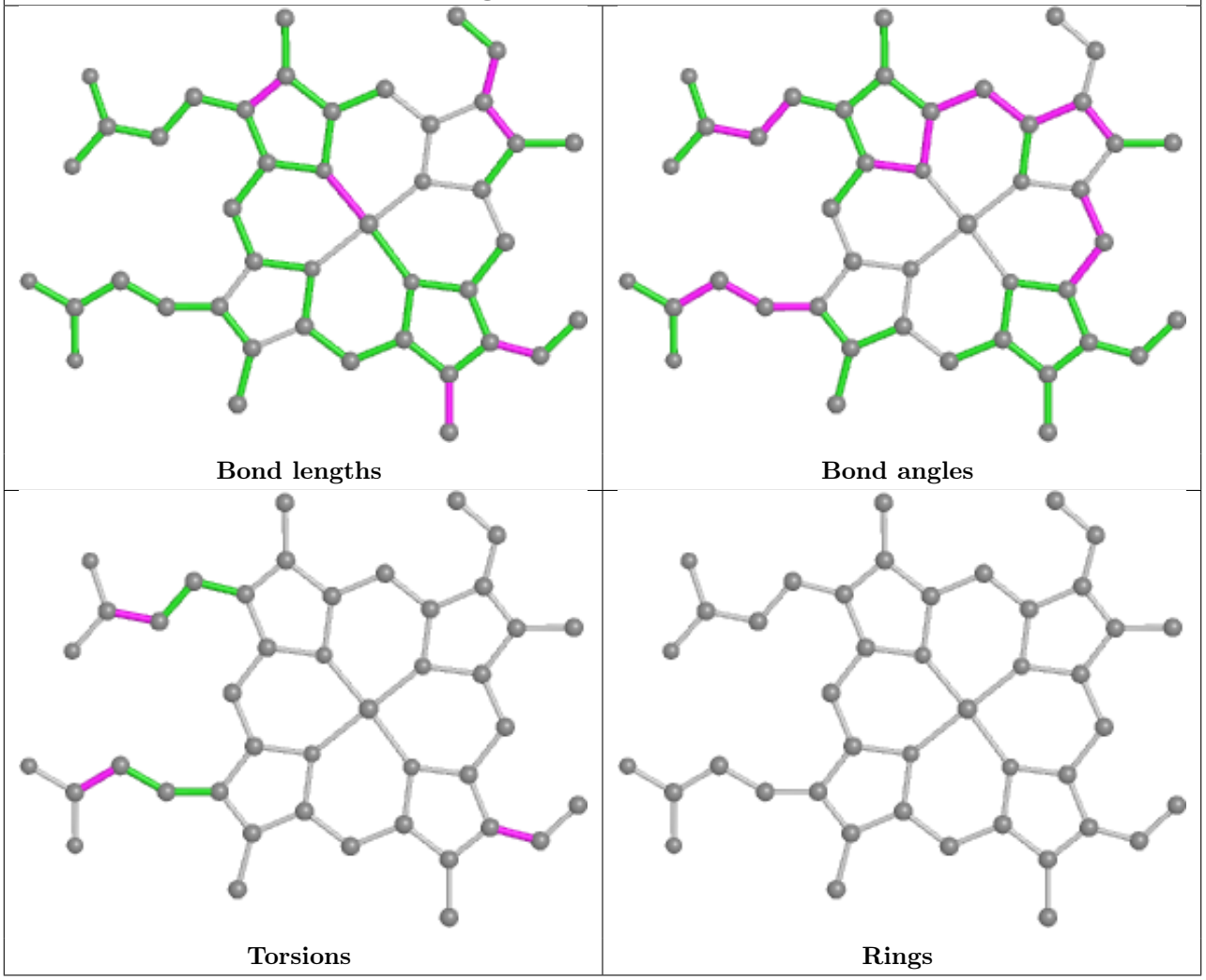


Torsions



Rings

Ligand HEM C 1100



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	1002/1066 (93%)	-0.30	4 (0%)	92	87	2, 2, 2, 2	0
1	C	1002/1066 (93%)	-0.30	7 (0%)	87	79	2, 2, 2, 2	0
All	All	2004/2132 (93%)	-0.30	11 (0%)	91	84	2, 2, 2, 2	0

All (11) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	451	GLY	3.4
1	C	564	ILE	3.4
1	C	972	LYS	3.1
1	A	365	GLY	2.7
1	A	564	ILE	2.5
1	A	366	SER	2.3
1	C	671	PRO	2.2
1	C	246	ASN	2.2
1	C	1005	GLU	2.1
1	A	246	ASN	2.1
1	C	813	GLN	2.0

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

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

6.3 Carbohydrates

There are no monosaccharides in this entry.

6.4 Ligands (i)

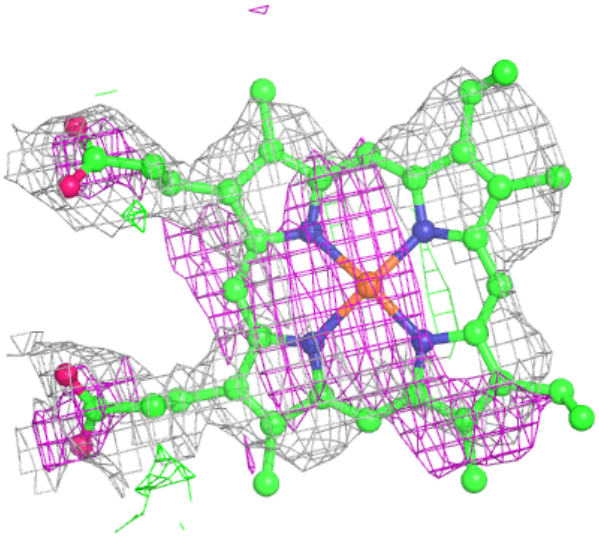
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

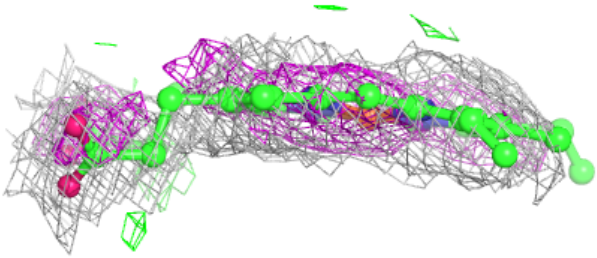
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	FE2	A	1099	1/1	0.92	0.06	2,2,2,2	0
3	HEM	A	1100	43/43	0.92	0.24	2,2,2,2	0
3	HEM	C	1100	43/43	0.94	0.18	2,2,2,2	0
2	FE2	C	1099	1/1	0.97	0.08	18,18,18,18	0

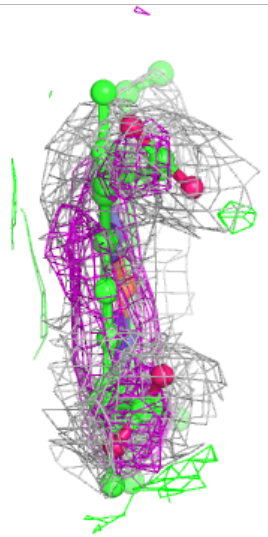
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around HEM A 1100:

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

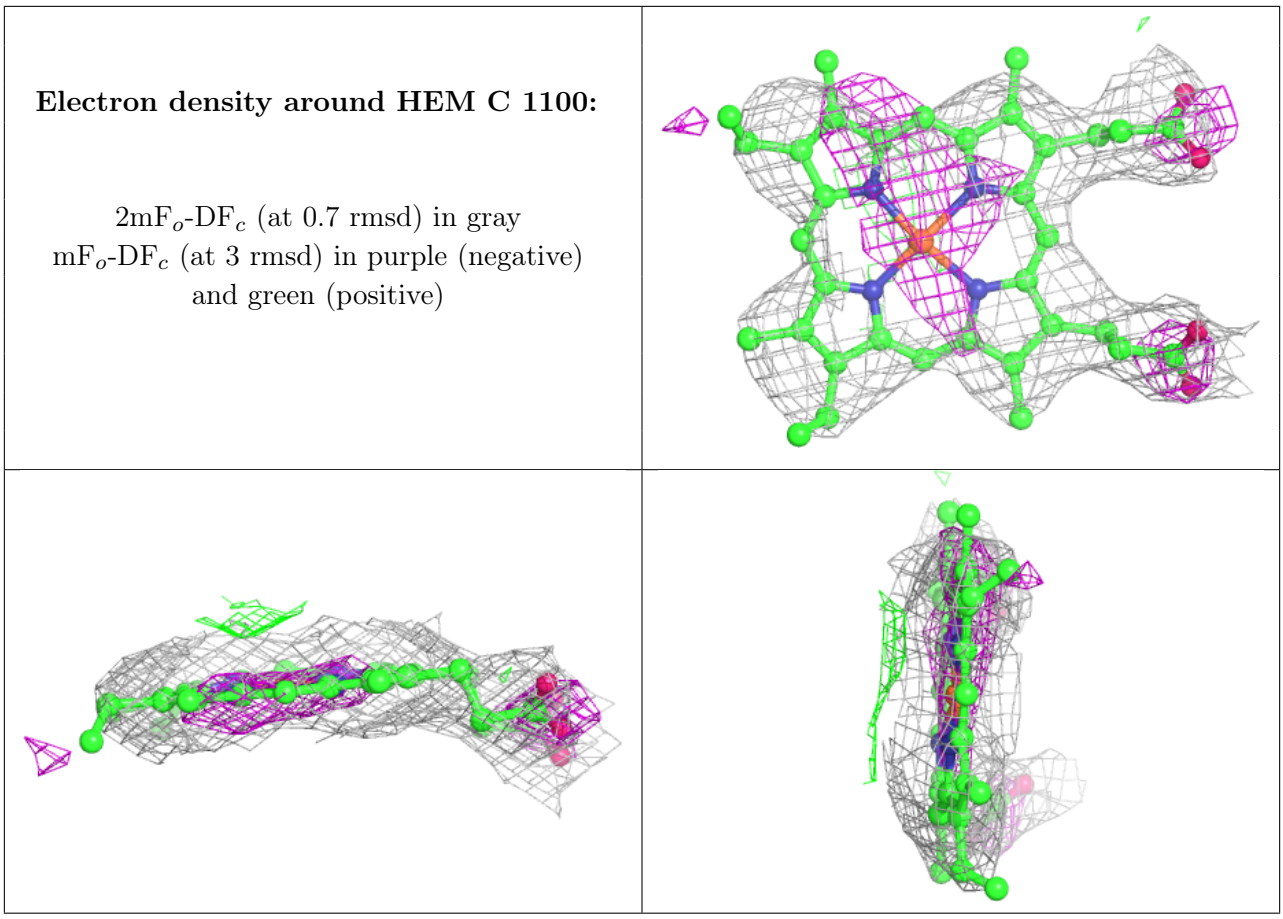






Electron density around HEM C 1100:

$2mF_o$-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.