



Full wwPDB X-ray Structure Validation Report

Feb 27, 2014 – 02:43 AM GMT

PDB ID : 4AJ9
Title : Catalase 3 from Neurospora crassa
Authors : Zarate-Romero, A.; Rudino-Pinera, E.
Deposited on : 2012-02-16
Resolution : 1.85 Å(reported)

This is a full wwPDB validation report for a publicly released PDB entry.
We welcome your comments at validation@mail.wwpdb.org
A user guide is available at <http://wwpdb.org/ValidationPDFNotes.html>

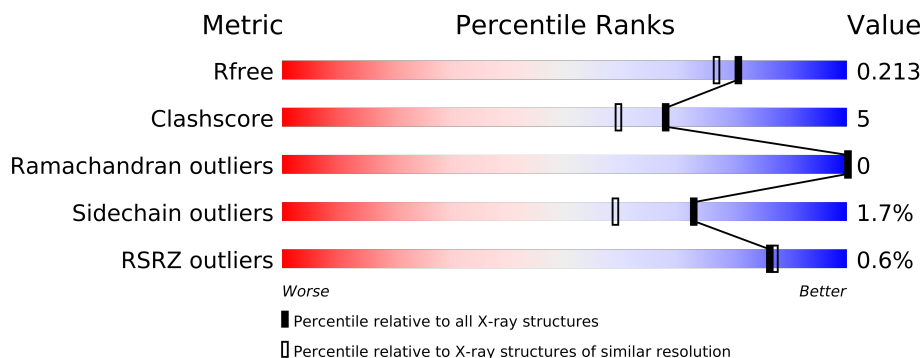
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.15 2013
Xtriage (Phenix) : dev-1323
EDS : stable22639
Percentile statistics : 21963
Refmac : 5.8.0049
CCP4 : 6.3.0 (Settle)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP) : stable22683

1 Overall quality at a glance

The reported resolution of this entry is 1.85 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}	66092	1269 (1.86-1.86)
Clashscore	79885	1470 (1.86-1.86)
Ramachandran outliers	78287	1451 (1.86-1.86)
Sidechain outliers	78261	1451 (1.86-1.86)
RSRZ outliers	66119	1269 (1.86-1.86)

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. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density.

Mol	Chain	Length	Quality of chain
1	A	682	
1	B	682	
1	C	682	
1	D	682	

The following table lists non-polymeric compounds that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Geometry	Electron density
3	ACT	A	1717	-	X
3	ACT	B	1719	-	X
3	ACT	C	1722	-	X
3	ACT	D	1718	-	X

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Mol	Type	Chain	Res	Geometry	Electron density
4	1PE	A	1720	-	X
4	1PE	A	1722	-	X
4	1PE	A	1723	-	X
4	1PE	A	1724	-	X
4	1PE	B	1721	-	X
4	1PE	B	1722	-	X
4	1PE	B	1723	-	X
4	1PE	B	1726	-	X
4	1PE	C	1723	-	X
4	1PE	C	1724	-	X
4	1PE	C	1726	-	X
4	1PE	D	1722	-	X
4	1PE	D	1723	-	X

2 Entry composition i

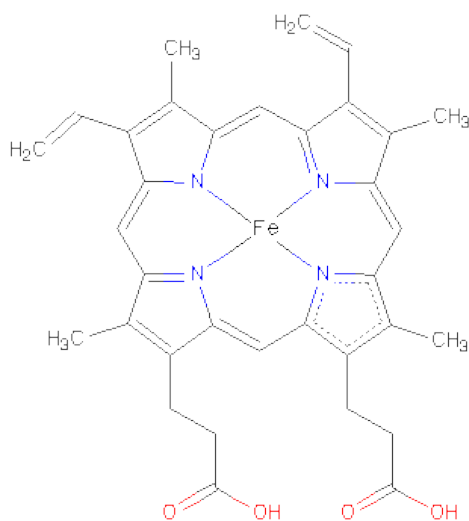
There are 5 unique types of molecules in this entry. The entry contains 24066 atoms, of which 0 are hydrogen and 0 are deuterium.

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 CATALASE-3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	677	Total	C	N	O	S	0	9	0
			5383	3406	957	1014	6			
1	B	679	Total	C	N	O	S	0	12	0
			5419	3424	963	1026	6			
1	C	682	Total	C	N	O	S	0	10	0
			5427	3431	961	1029	6			
1	D	678	Total	C	N	O	S	0	9	0
			5385	3408	956	1015	6			

- 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
2	A	1	Total	C	Fe	N O	0	0
			43	34	1	4 4		
2	B	1	Total	C	Fe	N O	0	0
			43	34	1	4 4		

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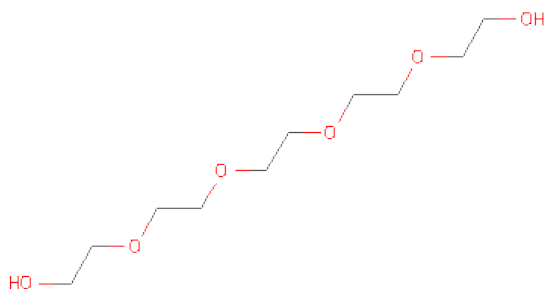
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	C	1	Total	C	Fe	N	O	
			43	34	1	4	4	
2	D	1	Total	C	Fe	N	O	
			43	34	1	4	4	

- Molecule 3 is ACETATE ION (three-letter code: ACT) (formula: $C_2H_3O_2$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O		
			4	2	2	0	0
3	A	1	Total	C	O		
			4	2	2	0	0
3	B	1	Total	C	O		
			4	2	2	0	0
3	B	1	Total	C	O		
			4	2	2	0	0
3	C	1	Total	C	O		
			4	2	2	0	0
3	C	1	Total	C	O		
			4	2	2	0	0
3	D	1	Total	C	O		
			4	2	2	0	0
3	D	1	Total	C	O		
			4	2	2	0	0

- Molecule 4 is PENTAETHYLENE GLYCOL (three-letter code: 1PE) (formula: $C_{10}H_{22}O_6$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			3	2	1		
4	A	1	Total	C	O	0	0
			3	2	1		
4	A	1	Total	C	O	0	0
			3	2	1		
4	A	1	Total	C	O	0	0
			3	2	1		
4	A	1	Total	C	O	0	0
			6	4	2		
4	A	1	Total	C	O	0	0
			6	4	2		
4	A	1	Total	C	O	0	0
			9	6	3		
4	B	1	Total	C	O	0	0
			3	2	1		
4	B	1	Total	C	O	0	0
			3	2	1		
4	B	1	Total	C	O	0	0
			6	4	2		
4	B	1	Total	C	O	0	0
			6	4	2		
4	B	1	Total	C	O	0	0
			6	4	2		
4	B	1	Total	C	O	0	0
			12	8	4		
4	B	1	Total	C	O	0	0
			12	8	4		

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	C	1	Total C O 3 2 1	0	0
4	C	1	Total C O 3 2 1	0	0
4	C	1	Total C O 6 4 2	0	0
4	C	1	Total C O 6 4 2	0	0
4	C	1	Total C O 9 6 3	0	0
4	D	1	Total C O 3 2 1	0	0
4	D	1	Total C O 3 2 1	0	0
4	D	1	Total C O 3 2 1	0	0
4	D	1	Total C O 6 4 2	0	0
4	D	1	Total C O 9 6 3	0	0

- Molecule 5 is water.

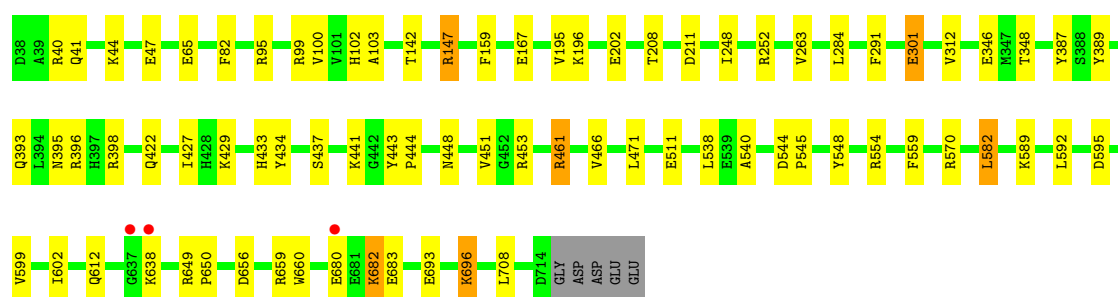
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	630	Total O 630 630	0	0
5	B	553	Total O 553 553	0	0
5	C	487	Total O 488 488	0	1
5	D	445	Total O 445 445	0	0

3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

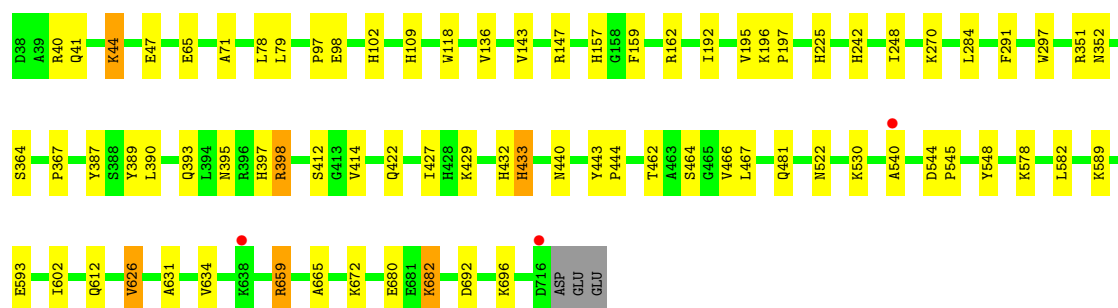
• Molecule 1: CATALASE-3

Chain A: 



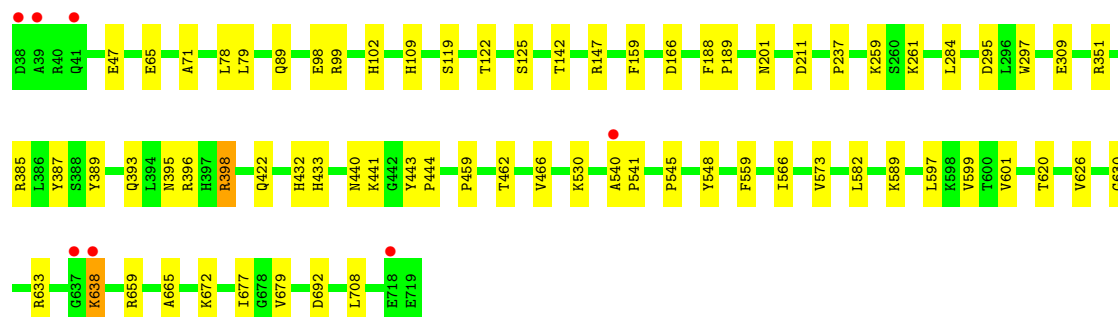
• Molecule 1: CATALASE-3

Chain B: 



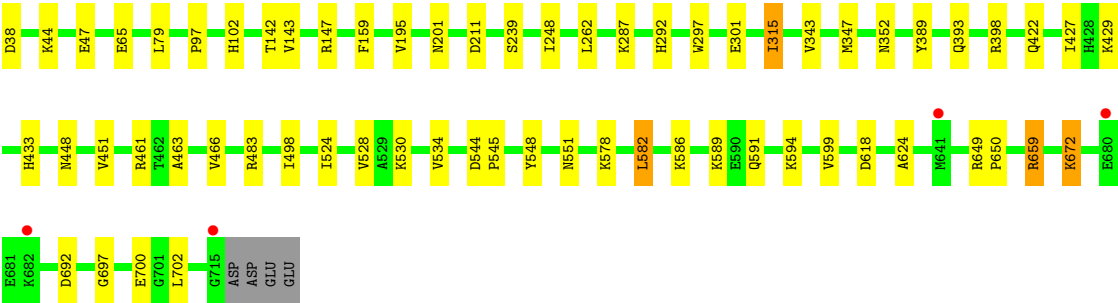
• Molecule 1: CATALASE-3

Chain C: 



● Molecule 1: CATALASE-3

Chain D: 



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	130.75Å 154.19Å 160.30Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.70 – 1.85 29.70 – 1.85	Depositor EDS
% Data completeness (in resolution range)	97.8 (29.70-1.85) 97.8 (29.70-1.85)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.08 (at 1.85Å)	Xtriage
Refinement program	PHENIX (PHENIX.REFINE)	Depositor
R, R_{free}	0.177 , 0.218 0.173 , 0.213	Depositor DCC
R_{free} test set	13534 reflections (5.04%)	DCC
Wilson B-factor (Å ²)	10.1	Xtriage
Anisotropy	0.046	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.40 , 30.6	EDS
Estimated twinning fraction	0.019 for -h,l,k	Xtriage
L-test for twinning	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Outliers	1 of 268614 reflections (0.000%)	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	24066	wwPDB-VP
Average B, all atoms (Å ²)	11.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.22% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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: HEM, 1PE, ACT

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	0.37	0/5519	0.55	1/7484 (0.0%)
1	B	0.36	0/5552	0.54	0/7529
1	C	0.35	0/5561	0.51	0/7542
1	D	0.36	0/5521	0.53	0/7485
All	All	0.36	0/22153	0.53	1/30040 (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	461	ARG	NE-CZ-NH2	-6.10	117.25	120.30

There are no chirality outliers.

There are no planarity outliers.

5.2 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 hydrogens added by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, and the number in parentheses is this value normalized per 1000 atoms of the molecule in the chain. The Symm-Clashes column gives symmetry related clashes, in the same way as for the Clashes column.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	5383	0	5211	66	0
1	B	5419	0	5231	65	0
1	C	5427	0	5235	58	0
1	D	5385	0	5213	49	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	A	43	0	30	2	0
2	B	43	0	30	3	0
2	C	43	0	30	1	0
2	D	43	0	30	3	0
3	A	8	0	6	1	0
3	B	8	0	6	1	0
3	C	8	0	6	1	0
3	D	8	0	6	1	0
4	A	33	0	35	4	0
4	B	48	0	56	2	0
4	C	27	0	30	1	0
4	D	24	0	25	1	0
5	A	630	0	0	13	0
5	B	553	0	0	4	0
5	C	488	0	0	8	0
5	D	445	0	0	6	0
All	All	24066	0	21180	210	0

Clashscore is defined as the number of clashes calculated for the entry per 1000 atoms (including hydrogens) of the entry. The overall clashscore for this entry is 5.

All (210) close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
5:C:2154:HOH:O	1:D:147[B]:ARG:O	1.56	1.21
5:A:2227:HOH:O	1:B:147[A]:ARG:O	1.69	1.09
1:A:147[A]:ARG:O	5:A:2112:HOH:O	1.71	1.08
5:A:2426:HOH:O	1:C:398:ARG:NH2	1.93	1.02
1:C:147[A]:ARG:O	1:D:147[A]:ARG:O	1.79	1.01
1:A:398:ARG:HG2	1:B:398:ARG:HH11	1.34	0.93
1:C:147[B]:ARG:O	5:C:2060:HOH:O	1.87	0.91
1:B:40:ARG:NH2	1:B:47:GLU:OE2	2.03	0.90
1:C:398:ARG:NE	1:D:398:ARG:HE	1.71	0.89
1:C:441:LYS:HG2	4:C:1726:1PE:H122	1.53	0.88
1:A:40:ARG:NH2	1:A:47:GLU:OE2	2.08	0.85
1:A:147[B]:ARG:O	1:B:147[B]:ARG:O	2.00	0.80
1:C:633:ARG:HH21	1:C:638:LYS:NZ	1.80	0.79
1:B:530:LYS:HG2	1:B:540:ALA:HB1	1.63	0.79
1:C:626[A]:VAL:HG12	1:C:665:ALA:HB3	1.64	0.79
1:A:398:ARG:HD3	1:D:422:GLN:NE2	1.98	0.78
1:D:544:ASP:OD2	5:D:2353:HOH:O	2.03	0.76
1:C:398:ARG:HE	1:D:398:ARG:HE	1.29	0.76
1:A:398:ARG:CZ	1:B:398:ARG:HD3	2.16	0.75

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:398:ARG:HG2	1:B:398:ARG:NH1	2.00	0.74
1:C:398:ARG:NE	1:D:398:ARG:NE	2.37	0.72
1:A:511:GLU:OE2	1:A:538:LEU:HD21	1.88	0.72
1:A:422:GLN:NE2	1:D:398:ARG:HG3	2.05	0.70
1:A:544:ASP:OD2	5:A:2521:HOH:O	2.10	0.70
1:C:633:ARG:HH21	1:C:638:LYS:HZ1	1.40	0.70
1:A:545:PRO:HA	1:A:548:TYR:CD2	2.28	0.68
1:C:530:LYS:HG2	1:C:540:ALA:HB1	1.75	0.68
1:B:589:LYS:O	1:B:593:GLU:HG3	1.94	0.68
1:D:38:ASP:OD2	1:D:44:LYS:NZ	2.25	0.68
1:A:659:ARG:HD2	5:A:2608:HOH:O	1.95	0.67
1:A:395:ASN:O	1:A:398:ARG:HD2	1.96	0.66
1:B:118:TRP:CZ3	4:B:1726:1PE:H141	2.30	0.66
4:A:1724:1PE:H241	5:A:2146:HOH:O	1.95	0.65
1:B:412:SER:O	5:B:2331:HOH:O	2.14	0.65
1:A:195[A]:VAL:HG21	3:A:1716:ACT:H1	1.79	0.65
1:D:692:ASP:OD2	5:D:2438:HOH:O	2.15	0.64
1:D:195[A]:VAL:HG21	3:D:1717:ACT:H1	1.80	0.63
1:A:638:LYS:NZ	1:A:638:LYS:HB3	2.15	0.61
1:A:41:GLN:O	1:A:44:LYS:HG2	2.01	0.61
1:C:309:GLU:OE1	5:C:2257:HOH:O	2.17	0.60
1:B:522:ASN:ND2	1:B:544[B]:ASP:OD1	2.34	0.60
1:A:346:GLU:OE2	1:A:348:THR:OG1	2.10	0.59
1:B:692:ASP:O	1:B:696:LYS:HG3	2.03	0.59
1:B:422:GLN:NE2	1:C:398:ARG:HD3	2.18	0.58
1:B:414:VAL:H	4:B:1720:1PE:C12	2.17	0.58
1:A:167:GLU:OE2	1:A:453:ARG:NE	2.37	0.57
1:C:566:ILE:HD12	1:C:597:LEU:HD21	1.86	0.57
1:B:41:GLN:HA	1:B:44:LYS:HE3	1.87	0.57
1:A:252:ARG:NH1	1:A:461:ARG:HD3	2.19	0.57
1:D:343[A]:VAL:HG22	5:D:2245:HOH:O	2.05	0.56
1:D:672:LYS:HE3	1:D:672:LYS:O	2.06	0.56
1:A:398:ARG:NH2	5:A:2380:HOH:O	2.03	0.55
1:A:659:ARG:HH22	4:A:1722:1PE:H122	1.71	0.55
1:A:47:GLU:OE1	5:A:2013:HOH:O	2.18	0.55
1:D:624:ALA:HB2	1:D:702:LEU:HD21	1.88	0.54
1:B:545:PRO:HA	1:B:548:TYR:CD2	2.43	0.54
1:B:270:LYS:HE2	1:B:270:LYS:HA	1.90	0.54
1:B:544[B]:ASP:N	1:B:544[B]:ASP:OD1	2.41	0.53
1:B:157:HIS:HE1	5:B:2121:HOH:O	1.91	0.53
1:A:680:GLU:O	1:A:683:GLU:HG3	2.09	0.53
1:B:387:TYR:HB2	1:C:79:LEU:HD11	1.90	0.53

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:C:297:TRP:CE3	1:D:201:ASN:HB3	2.44	0.53
1:D:102:HIS:CE1	1:D:143:VAL:HG22	2.43	0.53
1:B:98:GLU:HB2	1:B:147[A]:ARG:HG3	1.91	0.53
1:B:680:GLU:HB3	1:B:682:LYS:HZ2	1.74	0.53
1:C:545:PRO:HA	1:C:548:TYR:CD2	2.44	0.53
1:C:559:PHE:HB3	1:C:708:LEU:HD11	1.90	0.52
1:D:545:PRO:HA	1:D:548:TYR:CD2	2.45	0.52
1:D:301:GLU:HG2	1:D:352:ASN:ND2	2.25	0.52
1:A:448:ASN:OD1	1:A:451[A]:VAL:HG12	2.10	0.52
1:A:589:LYS:HG3	1:A:599:VAL:HB	1.91	0.52
1:C:201:ASN:HB3	1:D:297:TRP:CE3	2.44	0.52
1:B:466:VAL:HG22	1:B:467:LEU:O	2.09	0.51
1:B:659:ARG:HD3	5:B:2522:HOH:O	2.11	0.51
1:B:364:SER:HB3	1:B:393:GLN:CD	2.31	0.51
1:C:659:ARG:HD2	5:C:2472:HOH:O	2.10	0.51
1:B:578:LYS:HE3	5:B:2473:HOH:O	2.10	0.50
1:A:103:ALA:O	1:A:147[B]:ARG:HG2	2.12	0.50
1:C:237:PRO:HB3	3:C:1722:ACT:H1	1.93	0.50
1:D:239:SER:HA	1:D:292:HIS:CD2	2.46	0.50
1:A:427:ILE:O	1:D:47:GLU:HA	2.11	0.50
1:B:242:HIS:O	3:B:1719:ACT:H2	2.12	0.50
1:A:693:GLU:O	1:A:696:LYS:HD3	2.12	0.50
1:C:261:LYS:HE2	5:C:2071:HOH:O	2.12	0.50
1:C:677:ILE:HG13	1:C:679:VAL:HG23	1.94	0.49
1:D:591:GLN:O	1:D:594:LYS:HB2	2.13	0.49
1:A:301:GLU:HA	1:A:301:GLU:OE1	2.13	0.49
1:A:99:ARG:HA	1:A:396[A]:ARG:HD3	1.94	0.49
1:D:97:PRO:HG3	1:D:398:ARG:NH2	2.28	0.49
1:B:395:ASN:O	1:B:398:ARG:NH2	2.43	0.49
1:B:432:HIS:HB2	1:B:440:ASN:HB3	1.94	0.49
1:A:570[B]:ARG:HH11	1:A:570[B]:ARG:HB2	1.78	0.48
1:A:147[A]:ARG:HD2	5:A:2158:HOH:O	2.13	0.48
5:A:2226:HOH:O	1:B:147[B]:ARG:HD2	2.13	0.48
1:B:225:HIS:CE1	1:B:481:GLN:HB3	2.48	0.48
1:A:680:GLU:HB3	1:A:682:LYS:CE	2.43	0.48
1:C:630:GLY:O	1:C:633:ARG:HG2	2.13	0.48
1:A:398:ARG:HH21	1:B:97:PRO:HD3	1.79	0.48
1:A:248:ILE:HD12	2:A:1715:HEM:HMB1	1.96	0.48
1:C:389:TYR:O	1:C:393:GLN:HG2	2.14	0.47
1:C:432:HIS:HB2	1:C:440:ASN:HB3	1.95	0.47
1:D:697:GLY:O	1:D:700:GLU:HG2	2.14	0.47
1:B:196:LYS:HB3	1:B:197:PRO:CD	2.44	0.47

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:B:1717:HEM:HBB2	2:B:1717:HEM:HMB1	1.97	0.47
1:A:195[B]:VAL:HG13	1:A:208:THR:HG22	1.96	0.47
1:C:541[B]:PRO:HB3	5:C:2170:HOH:O	2.14	0.47
1:C:259:LYS:HD3	1:C:259:LYS:HA	1.77	0.47
1:A:248:ILE:HD12	2:A:1715:HEM:CBB	2.44	0.47
1:A:389:TYR:O	1:A:393:GLN:HG2	2.15	0.47
1:B:433:HIS:ND1	1:B:433:HIS:N	2.60	0.47
1:A:466:VAL:HG12	1:C:462:THR:HG22	1.96	0.47
1:B:466:VAL:HG23	1:D:461:ARG:O	2.15	0.47
1:A:545:PRO:HA	1:A:548:TYR:CG	2.49	0.46
1:B:367:PRO:HD3	1:B:389:TYR:CD2	2.50	0.46
1:C:98:GLU:OE1	1:C:147[B]:ARG:HG3	2.15	0.46
1:B:397:HIS:HA	1:C:422:GLN:NE2	2.29	0.46
1:B:44:LYS:N	1:B:44:LYS:HD3	2.31	0.46
1:C:395:ASN:O	1:C:398:ARG:HD2	2.15	0.46
1:D:582:LEU:O	1:D:586:LYS:HG3	2.15	0.46
1:A:540:ALA:N	5:A:2537:HOH:O	2.27	0.46
1:C:573:VAL:HG22	1:C:626[A]:VAL:CG2	2.45	0.46
1:A:434:TYR:CE2	1:A:437:SER:HB2	2.51	0.46
1:B:71:ALA:HB2	1:B:78:LEU:HD21	1.98	0.45
1:C:188:PHE:HB3	1:C:189:PRO:HD3	1.98	0.45
1:B:429:LYS:HB2	1:B:429:LYS:HE3	1.73	0.45
1:C:443:TYR:HA	1:C:444:PRO:C	2.36	0.45
1:B:464:SER:HA	1:D:463:ALA:O	2.16	0.45
1:C:589:LYS:HG3	1:C:599:VAL:HB	1.98	0.45
1:A:682:LYS:H	1:A:682:LYS:HZ3	1.64	0.45
1:C:99:ARG:HA	1:C:396[A]:ARG:HD3	1.98	0.45
1:A:659:ARG:NH2	4:A:1722:1PE:H122	2.31	0.45
1:C:582:LEU:HB2	5:C:2427:HOH:O	2.16	0.45
1:C:98:GLU:HB3	1:C:147[B]:ARG:HG3	1.99	0.45
1:B:395:ASN:OD1	1:B:398:ARG:NH2	2.50	0.45
1:B:136:VAL:HA	1:B:162:ARG:O	2.17	0.45
1:B:672:LYS:HA	1:B:672:LYS:HD2	1.88	0.44
1:A:95:ARG:HH21	1:B:196:LYS:HE3	1.82	0.44
1:C:71:ALA:HB2	1:C:78:LEU:HD21	1.98	0.44
1:B:284:LEU:HD21	1:B:291:PHE:CD2	2.53	0.44
1:B:79:LEU:HD11	1:C:387:TYR:HB2	2.00	0.44
1:D:262:LEU:HB2	1:D:315:ILE:HG12	1.99	0.44
1:A:461:ARG:O	1:C:466:VAL:HG23	2.18	0.44
1:B:389:TYR:O	1:B:393:GLN:HG2	2.18	0.44
1:D:389:TYR:O	1:D:393:GLN:HG2	2.17	0.44
1:B:297:TRP:CZ3	1:B:352:ASN:HB3	2.53	0.44

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:649:ARG:HB3	1:A:650:PRO:HD3	1.99	0.44
1:A:656:ASP:HB3	1:A:660:TRP:CZ3	2.53	0.44
1:D:586:LYS:NZ	1:D:586:LYS:HB3	2.34	0.43
1:D:429:LYS:HB2	1:D:429:LYS:HE3	1.70	0.43
1:C:385:ARG:HG2	2:C:1720:HEM:C2C	2.53	0.43
1:D:483:ARG:HD3	1:D:524:ILE:O	2.18	0.43
1:A:441:LYS:NZ	4:A:1718:1PE:H221	2.32	0.43
1:C:109:HIS:HB2	1:C:351:ARG:HB2	2.00	0.43
1:A:398:ARG:CZ	1:B:398:ARG:CD	2.91	0.43
1:C:297:TRP:CZ3	1:D:201:ASN:HB3	2.53	0.43
1:B:462:THR:HA	1:D:466:VAL:HA	2.01	0.43
1:B:427:ILE:O	1:C:47:GLU:HA	2.18	0.43
1:C:201:ASN:HB3	1:D:297:TRP:CZ3	2.54	0.43
2:B:1717:HEM:HBB2	2:B:1717:HEM:CMB	2.49	0.43
1:B:248:ILE:HD12	2:B:1717:HEM:CBB	2.49	0.43
1:D:448:ASN:OD1	1:D:451:VAL:HG12	2.19	0.43
1:C:125:SER:OG	1:C:166:ASP:OD1	2.31	0.43
1:C:119:SER:HA	1:C:122:THR:O	2.18	0.42
1:A:602:ILE:HA	1:A:612:GLN:O	2.19	0.42
1:D:551:ASN:HB3	4:D:1723:1PE:H132	2.02	0.42
1:A:559:PHE:HB3	1:A:708:LEU:HD11	2.01	0.42
1:B:390:LEU:HG	1:C:89:GLN:OE1	2.19	0.42
1:A:82:PHE:HB2	5:D:2259:HOH:O	2.19	0.42
1:C:284:LEU:HD13	1:C:620:THR:HB	2.01	0.42
1:B:626:VAL:HB	1:B:665:ALA:HB3	2.00	0.42
1:A:284:LEU:HD21	1:A:291:PHE:CD2	2.54	0.42
1:D:248:ILE:HD12	2:D:1716:HEM:HMB1	2.00	0.42
1:D:147[A]:ARG:NH2	5:D:2084:HOH:O	2.52	0.42
1:A:429:LYS:HB2	1:A:429:LYS:HE2	1.46	0.42
1:B:398:ARG:HD2	1:C:422:GLN:OE1	2.19	0.42
5:A:2386:HOH:O	1:C:398:ARG:NH2	2.41	0.42
1:A:638:LYS:HB3	1:A:638:LYS:HZ2	1.83	0.42
1:C:589:LYS:HD2	1:C:601:VAL:HG23	2.01	0.42
1:A:398:ARG:NH2	1:B:398:ARG:CD	2.83	0.42
1:B:192:ILE:HA	1:B:195[A]:VAL:HG22	2.02	0.42
1:D:649:ARG:HB3	1:D:650:PRO:HD3	2.02	0.41
1:D:102:HIS:HA	1:D:142:THR:O	2.20	0.41
1:D:498:ILE:HD11	1:D:528:VAL:HG22	2.02	0.41
1:B:102:HIS:CE1	1:B:143:VAL:HG22	2.55	0.41
1:D:287:LYS:HE3	1:D:618:ASP:OD1	2.20	0.41
1:C:459:PRO:O	5:C:2346:HOH:O	2.22	0.41
1:C:672:LYS:O	1:C:672:LYS:HD3	2.21	0.41

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:263:VAL:HG23	1:A:312:VAL:HB	2.02	0.41
2:D:1716:HEM:CMB	2:D:1716:HEM:HBB2	2.51	0.41
1:A:443:TYR:HA	1:A:444:PRO:C	2.40	0.41
1:D:589:LYS:HG3	1:D:599:VAL:HB	2.02	0.41
1:B:443:TYR:HA	1:B:444:PRO:C	2.41	0.41
1:A:582:LEU:HD12	1:A:582:LEU:HA	1.92	0.41
1:A:387:TYR:HB2	1:D:79:LEU:HD11	2.03	0.41
1:B:631:ALA:O	1:B:634:VAL:HG22	2.21	0.41
1:D:530:LYS:O	1:D:534:VAL:HG23	2.20	0.41
2:D:1716:HEM:HMB1	2:D:1716:HEM:HBB2	2.02	0.41
1:A:202:GLU:O	1:A:202:GLU:HG2	2.21	0.41
1:B:602:ILE:HA	1:B:612:GLN:O	2.21	0.41
1:B:682:LYS:HB3	1:B:682:LYS:HE3	1.94	0.40
1:D:578:LYS:HD3	1:D:578:LYS:HA	1.76	0.40
1:A:102:HIS:HA	1:A:142:THR:O	2.21	0.40
1:D:659:ARG:HD3	5:D:2425:HOH:O	2.20	0.40
5:A:2085:HOH:O	1:B:398:ARG:NH2	2.53	0.40
1:A:47:GLU:HA	1:D:427:ILE:O	2.21	0.40
1:A:680:GLU:HB3	1:A:682:LYS:CD	2.52	0.40
1:B:109:HIS:HB2	1:B:351:ARG:HB2	2.04	0.40
1:A:100:VAL:O	1:A:196:LYS:HE3	2.22	0.40
1:C:398:ARG:NH1	1:C:398:ARG:HG3	2.37	0.40
1:C:102:HIS:HA	1:C:142:THR:O	2.21	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	684/682 (100%)	665 (97%)	19 (3%)	0	100	100
1	B	689/682 (101%)	670 (97%)	19 (3%)	0	100	100
1	C	690/682 (101%)	667 (97%)	23 (3%)	0	100	100
1	D	685/682 (100%)	662 (97%)	23 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
All	All	2748/2728 (101%)	2664 (97%)	84 (3%)	0	100	100

There are no Ramachandran outliers to report.

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	564/560 (101%)	549 (97%)	15 (3%)	57	39
1	B	568/560 (101%)	559 (98%)	9 (2%)	75	62
1	C	569/560 (102%)	561 (99%)	8 (1%)	78	68
1	D	564/560 (101%)	555 (98%)	9 (2%)	75	62
All	All	2265/2240 (101%)	2224 (98%)	41 (2%)	73	57

All (41) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	65	GLU
1	A	147[A]	ARG
1	A	147[B]	ARG
1	A	159	PHE
1	A	211	ASP
1	A	301	GLU
1	A	433	HIS
1	A	471	LEU
1	A	554[A]	ARG
1	A	554[B]	ARG
1	A	582	LEU
1	A	592	LEU
1	A	595	ASP
1	A	682	LYS
1	A	696	LYS
1	B	44	LYS
1	B	65	GLU
1	B	159	PHE

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Mol	Chain	Res	Type
1	B	398	ARG
1	B	433	HIS
1	B	582	LEU
1	B	626	VAL
1	B	659	ARG
1	B	682	LYS
1	C	65	GLU
1	C	159	PHE
1	C	211	ASP
1	C	295	ASP
1	C	398	ARG
1	C	433	HIS
1	C	638	LYS
1	C	692	ASP
1	D	65	GLU
1	D	159	PHE
1	D	211	ASP
1	D	315	ILE
1	D	347	MET
1	D	433	HIS
1	D	582	LEU
1	D	659	ARG
1	D	672	LYS

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	157	HIS
1	D	422	GLN

5.3.3 RNA ⓘ

There are no RNA chains 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 ⓘ

36 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	A	1715	1	49,50,50	2.13	15 (30%)	46,82,82	2.32	11 (23%)
3	ACT	A	1716	-	1,3,3	1.38	0	0,3,3	0.00	-
3	ACT	A	1717	-	1,3,3	1.32	0	0,3,3	0.00	-
4	1PE	A	1718	-	2,2,15	9.66	1 (50%)	0,1,14	0.00	-
4	1PE	A	1719	-	2,2,15	9.66	1 (50%)	0,1,14	0.00	-
4	1PE	A	1720	-	2,2,15	9.46	1 (50%)	0,1,14	0.00	-
4	1PE	A	1721	-	2,2,15	9.36	1 (50%)	0,1,14	0.00	-
4	1PE	A	1722	-	5,5,15	6.26	1 (20%)	3,4,14	1.39	0
4	1PE	A	1723	-	5,5,15	6.38	1 (20%)	3,4,14	1.58	1 (33%)
4	1PE	A	1724	-	8,8,15	4.88	1 (12%)	6,7,14	1.50	1 (16%)
2	HEM	B	1717	1	49,50,50	2.26	14 (28%)	46,82,82	1.96	9 (19%)
3	ACT	B	1718	-	1,3,3	0.91	0	0,3,3	0.00	-
3	ACT	B	1719	-	1,3,3	1.77	0	0,3,3	0.00	-
4	1PE	B	1720	-	2,2,15	9.34	1 (50%)	0,1,14	0.00	-
4	1PE	B	1721	-	2,2,15	10.27	1 (50%)	0,1,14	0.00	-
4	1PE	B	1722	-	5,5,15	6.22	1 (20%)	3,4,14	1.73	1 (33%)
4	1PE	B	1723	-	5,5,15	6.08	1 (20%)	3,4,14	1.64	1 (33%)
4	1PE	B	1724	-	5,5,15	6.27	1 (20%)	3,4,14	1.78	1 (33%)
4	1PE	B	1725	-	11,11,15	2.06	1 (9%)	9,10,14	1.67	1 (11%)
4	1PE	B	1726	-	11,11,15	2.34	1 (9%)	9,10,14	1.64	1 (11%)
2	HEM	C	1720	1	49,50,50	2.24	16 (32%)	46,82,82	2.02	7 (15%)
3	ACT	C	1721	-	1,3,3	1.47	0	0,3,3	0.00	-
3	ACT	C	1722	-	1,3,3	1.94	0	0,3,3	0.00	-

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	1PE	C	1723	-	2,2,15	8.92	1 (50%)	0,1,14	0.00	-
4	1PE	C	1724	-	2,2,15	9.22	1 (50%)	0,1,14	0.00	-
4	1PE	C	1725	-	5,5,15	6.22	1 (20%)	3,4,14	1.69	1 (33%)
4	1PE	C	1726	-	5,5,15	5.94	1 (20%)	3,4,14	1.62	1 (33%)
4	1PE	C	1727	-	8,8,15	4.82	1 (12%)	6,7,14	1.55	1 (16%)
2	HEM	D	1716	1	49,50,50	2.35	13 (26%)	46,82,82	2.19	9 (19%)
3	ACT	D	1717	-	1,3,3	0.90	0	0,3,3	0.00	-
3	ACT	D	1718	-	1,3,3	1.59	0	0,3,3	0.00	-
4	1PE	D	1719	-	2,2,15	9.51	1 (50%)	0,1,14	0.00	-
4	1PE	D	1720	-	2,2,15	8.96	1 (50%)	0,1,14	0.00	-
4	1PE	D	1721	-	2,2,15	9.69	1 (50%)	0,1,14	0.00	-
4	1PE	D	1722	-	5,5,15	5.89	1 (20%)	3,4,14	1.76	1 (33%)
4	1PE	D	1723	-	8,8,15	5.20	1 (12%)	6,7,14	1.64	1 (16%)

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	A	1715	1	-	0/14/114/114	0/0/8/8
3	ACT	A	1716	-	-	0/0/0/0	0/0/0/0
3	ACT	A	1717	-	-	0/0/0/0	0/0/0/0
4	1PE	A	1718	-	-	0/0/0/13	0/0/0/0
4	1PE	A	1719	-	-	0/0/0/13	0/0/0/0
4	1PE	A	1720	-	-	0/0/0/13	0/0/0/0
4	1PE	A	1721	-	-	0/0/0/13	0/0/0/0
4	1PE	A	1722	-	-	0/3/3/13	0/0/0/0
4	1PE	A	1723	-	-	0/3/3/13	0/0/0/0
4	1PE	A	1724	-	-	0/6/6/13	0/0/0/0
2	HEM	B	1717	1	-	0/14/114/114	0/0/8/8
3	ACT	B	1718	-	-	0/0/0/0	0/0/0/0
3	ACT	B	1719	-	-	0/0/0/0	0/0/0/0
4	1PE	B	1720	-	-	0/0/0/13	0/0/0/0
4	1PE	B	1721	-	-	0/0/0/13	0/0/0/0
4	1PE	B	1722	-	-	0/3/3/13	0/0/0/0
4	1PE	B	1723	-	-	0/3/3/13	0/0/0/0
4	1PE	B	1724	-	-	0/3/3/13	0/0/0/0
4	1PE	B	1725	-	-	0/9/9/13	0/0/0/0
4	1PE	B	1726	-	-	0/9/9/13	0/0/0/0

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	HEM	C	1720	1	-	0/14/114/114	0/0/8/8
3	ACT	C	1721	-	-	0/0/0/0	0/0/0/0
3	ACT	C	1722	-	-	0/0/0/0	0/0/0/0
4	1PE	C	1723	-	-	0/0/0/13	0/0/0/0
4	1PE	C	1724	-	-	0/0/0/13	0/0/0/0
4	1PE	C	1725	-	-	0/3/3/13	0/0/0/0
4	1PE	C	1726	-	-	0/3/3/13	0/0/0/0
4	1PE	C	1727	-	-	0/6/6/13	0/0/0/0
2	HEM	D	1716	1	-	0/14/114/114	0/0/8/8
3	ACT	D	1717	-	-	0/0/0/0	0/0/0/0
3	ACT	D	1718	-	-	0/0/0/0	0/0/0/0
4	1PE	D	1719	-	-	0/0/0/13	0/0/0/0
4	1PE	D	1720	-	-	0/0/0/13	0/0/0/0
4	1PE	D	1721	-	-	0/0/0/13	0/0/0/0
4	1PE	D	1722	-	-	0/3/3/13	0/0/0/0
4	1PE	D	1723	-	-	0/6/6/13	0/0/0/0

All (82) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	D	1723	1PE	C14-C24	-14.58	1.49	1.55
4	B	1721	1PE	C22-C12	-14.49	1.49	1.55
4	A	1723	1PE	C13-C23	-14.19	1.49	1.55
4	B	1724	1PE	C13-C23	-13.92	1.49	1.55
4	A	1722	1PE	C13-C23	-13.91	1.49	1.55
4	C	1725	1PE	C13-C23	-13.82	1.49	1.55
4	B	1722	1PE	C13-C23	-13.81	1.49	1.55
4	D	1721	1PE	C12-C22	-13.71	1.49	1.55
4	A	1724	1PE	C14-C24	-13.68	1.49	1.55
4	A	1718	1PE	C12-C22	-13.66	1.49	1.55
4	A	1719	1PE	C22-C12	-13.63	1.49	1.55
4	B	1723	1PE	C13-C23	-13.50	1.49	1.55
4	C	1727	1PE	C14-C24	-13.49	1.49	1.55
4	D	1719	1PE	C12-C22	-13.45	1.49	1.55
4	A	1720	1PE	C12-C22	-13.38	1.49	1.55
4	B	1720	1PE	C12-C22	-13.21	1.49	1.55
4	A	1721	1PE	C22-C12	-13.21	1.49	1.55
4	C	1726	1PE	C13-C23	-13.20	1.49	1.55
4	D	1722	1PE	C13-C23	-13.09	1.49	1.55
4	C	1724	1PE	C22-C12	-13.00	1.50	1.55
4	D	1720	1PE	C22-C12	-12.64	1.50	1.55
4	C	1723	1PE	C12-C22	-12.61	1.50	1.55

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	1726	1PE	C15-C25	-7.17	1.52	1.55
2	D	1716	HEM	C2B-C1B	6.76	1.46	1.44
4	B	1725	1PE	C15-C25	-6.21	1.52	1.55
2	C	1720	HEM	C3C-C2C	-5.57	1.34	1.43
2	D	1716	HEM	C3C-C2C	-5.56	1.34	1.43
2	A	1715	HEM	C3C-C2C	-5.31	1.34	1.43
2	B	1717	HEM	C2B-C1B	5.24	1.45	1.44
2	B	1717	HEM	C3B-C2B	-5.22	1.34	1.43
2	C	1720	HEM	C3B-C2B	-5.20	1.34	1.43
2	B	1717	HEM	C3C-C2C	-5.16	1.34	1.43
2	B	1717	HEM	C3D-C2D	5.15	1.52	1.43
2	D	1716	HEM	C3D-C2D	5.11	1.52	1.43
2	C	1720	HEM	C3D-C2D	5.09	1.52	1.43
2	A	1715	HEM	C3D-C2D	5.04	1.52	1.43
2	B	1717	HEM	C3B-CAB	4.82	1.55	1.40
2	D	1716	HEM	C3B-CAB	4.82	1.55	1.40
2	D	1716	HEM	C3B-C2B	-4.77	1.35	1.43
2	C	1720	HEM	C3B-CAB	4.70	1.55	1.40
2	C	1720	HEM	C2B-C1B	4.57	1.45	1.44
2	B	1717	HEM	C4A-C3A	4.57	1.45	1.40
2	A	1715	HEM	C3B-CAB	4.54	1.54	1.40
2	B	1717	HEM	C3C-CAC	4.53	1.54	1.40
2	A	1715	HEM	C3C-CAC	4.49	1.54	1.40
2	D	1716	HEM	C3C-CAC	4.46	1.54	1.40
2	A	1715	HEM	C3B-C2B	-4.33	1.36	1.43
2	C	1720	HEM	C3C-CAC	4.28	1.53	1.40
2	C	1720	HEM	C4A-C3A	4.20	1.45	1.40
2	D	1716	HEM	FE-ND	4.13	2.12	1.97
2	A	1715	HEM	C4A-C3A	4.01	1.45	1.40
2	D	1716	HEM	C4A-C3A	3.98	1.45	1.40
2	B	1717	HEM	C2D-C1D	3.58	1.45	1.44
2	C	1720	HEM	FE-ND	3.55	2.10	1.97
2	D	1716	HEM	FE-NA	3.41	2.07	1.92
2	A	1715	HEM	FE-ND	3.29	2.09	1.97
2	A	1715	HEM	FE-NC	3.03	2.09	1.97
2	A	1715	HEM	CMB-C2B	2.75	1.56	1.47
2	B	1717	HEM	FE-NA	2.72	2.04	1.92
2	B	1717	HEM	CMC-C2C	2.66	1.55	1.47
2	A	1715	HEM	CMC-C2C	2.57	1.55	1.47
2	A	1715	HEM	C2B-C1B	2.55	1.45	1.44
2	B	1717	HEM	CMB-C2B	2.55	1.55	1.47
2	A	1715	HEM	FE-NB	2.53	2.07	1.97

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	1720	HEM	CHA-C4D	2.52	1.39	1.35
2	D	1716	HEM	CMD-C2D	2.48	1.55	1.47
2	B	1717	HEM	FE-NB	2.48	2.06	1.97
2	C	1720	HEM	CMB-C2B	2.47	1.55	1.47
2	D	1716	HEM	CMC-C2C	2.45	1.55	1.47
2	D	1716	HEM	CMB-C2B	2.44	1.55	1.47
2	C	1720	HEM	CMD-C2D	2.37	1.54	1.47
2	C	1720	HEM	FE-NA	2.31	2.02	1.92
2	A	1715	HEM	CMD-C2D	2.29	1.54	1.47
2	C	1720	HEM	CMC-C2C	2.27	1.54	1.47
2	B	1717	HEM	CMD-C2D	2.23	1.54	1.47
2	D	1716	HEM	CHA-C4D	2.22	1.39	1.35
2	B	1717	HEM	FE-ND	2.18	2.05	1.97
2	A	1715	HEM	FE-NA	2.17	2.01	1.92
2	C	1720	HEM	C3D-C4D	2.16	1.45	1.44
2	C	1720	HEM	CAA-C2A	2.08	1.55	1.52
2	A	1715	HEM	CHA-C4D	2.06	1.38	1.35
2	C	1720	HEM	FE-NC	2.04	2.05	1.97

All (48) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	1715	HEM	C3B-C4B-NB	-9.75	107.02	114.00
2	C	1720	HEM	C3B-C4B-NB	-8.02	108.26	114.00
2	D	1716	HEM	C3B-C4B-NB	-7.98	108.29	114.00
2	B	1717	HEM	C3B-C4B-NB	-7.72	108.48	114.00
2	D	1716	HEM	C4D-ND-C1D	6.82	112.14	105.16
2	A	1715	HEM	C4D-ND-C1D	5.94	111.24	105.16
2	C	1720	HEM	C4D-ND-C1D	5.56	110.86	105.16
2	B	1717	HEM	C4D-ND-C1D	5.39	110.68	105.16
2	D	1716	HEM	CBD-CAD-C3D	-4.27	105.06	114.37
2	A	1715	HEM	CBD-CAD-C3D	-4.01	105.63	114.37
2	A	1715	HEM	C1B-NB-C4B	3.86	109.11	105.16
2	B	1717	HEM	CBD-CAD-C3D	-3.60	106.52	114.37
2	A	1715	HEM	CHD-C1D-ND	3.54	127.53	124.58
2	D	1716	HEM	C2D-C1D-ND	-3.45	108.86	112.93
2	A	1715	HEM	C2D-C1D-ND	-3.45	108.86	112.93
2	C	1720	HEM	CHD-C4C-NC	3.44	127.72	124.73
2	C	1720	HEM	CBD-CAD-C3D	-3.44	106.86	114.37
2	C	1720	HEM	C1B-NB-C4B	2.99	108.22	105.16
2	B	1717	HEM	C2D-C1D-ND	-2.97	109.42	112.93
2	D	1716	HEM	CHD-C1D-ND	2.89	126.99	124.58

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	1716	HEM	C1B-NB-C4B	2.72	107.94	105.16
2	A	1715	HEM	CAA-CBA-CGA	-2.69	104.83	113.47
2	B	1717	HEM	CHD-C4C-NC	2.69	127.07	124.73
4	B	1725	1PE	C25-OH5-C14	2.68	121.34	112.51
2	C	1720	HEM	CMA-C3A-C4A	-2.63	124.58	128.62
2	B	1717	HEM	CHC-C4B-NB	2.57	126.72	124.58
2	B	1717	HEM	C1B-NB-C4B	2.56	107.78	105.16
4	B	1722	1PE	C23-OH3-C22	2.55	120.90	112.51
2	C	1720	HEM	C2D-C1D-ND	-2.55	109.92	112.93
2	A	1715	HEM	CHD-C4C-NC	2.53	126.93	124.73
4	B	1724	1PE	C23-OH3-C22	2.48	120.66	112.51
4	B	1726	1PE	C25-OH5-C14	2.44	120.55	112.51
2	D	1716	HEM	C3A-C4A-NA	-2.43	107.57	109.41
2	D	1716	HEM	CHD-C4C-NC	2.43	126.84	124.73
4	D	1722	1PE	C23-OH3-C22	2.43	120.50	112.51
2	A	1715	HEM	C4C-NC-C1C	2.41	108.03	105.53
4	C	1725	1PE	C23-OH3-C22	2.39	120.39	112.51
2	B	1717	HEM	CAA-CBA-CGA	-2.34	105.94	113.47
2	B	1717	HEM	C3A-C4A-NA	-2.22	107.74	109.41
2	A	1715	HEM	CMA-C3A-C4A	-2.20	125.24	128.62
4	C	1726	1PE	C23-OH3-C22	2.19	119.73	112.51
4	A	1723	1PE	C23-OH3-C22	2.16	119.61	112.51
2	D	1716	HEM	CMA-C3A-C4A	-2.15	125.31	128.62
4	C	1727	1PE	C24-OH4-C13	2.11	119.45	112.51
4	A	1724	1PE	C24-OH4-C13	2.07	119.33	112.51
4	D	1723	1PE	C24-OH4-C13	2.06	119.29	112.51
2	A	1715	HEM	C1A-CHA-C4D	-2.03	124.80	127.47
4	B	1723	1PE	C23-OH3-C22	2.03	119.19	112.51

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	677/682 (99%)	-0.44	3 (0%) 90 91	2, 8, 24, 51	0
1	B	679/682 (99%)	-0.42	3 (0%) 90 91	2, 8, 25, 55	0
1	C	682/682 (100%)	-0.36	7 (1%) 79 78	3, 9, 29, 50	0
1	D	678/682 (99%)	-0.40	4 (0%) 86 87	3, 9, 26, 55	0
All	All	2716/2728 (99%)	-0.40	17 (0%) 86 87	2, 8, 26, 55	0

All (17) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	540	ALA	4.3
1	D	680	GLU	3.1
1	C	540	ALA	3.0
1	B	716	ASP	2.7
1	C	718	GLU	2.6
1	A	638	LYS	2.5
1	A	637	GLY	2.5
1	B	638	LYS	2.4
1	C	638	LYS	2.4
1	C	39	ALA	2.3
1	D	641	MET	2.2
1	A	680	GLU	2.2
1	C	38	ASP	2.2
1	C	637	GLY	2.2
1	D	715	GLY	2.2
1	C	41	GLN	2.1
1	D	682	LYS	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 carbohydrates in this entry.

6.4 Ligands

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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. 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	RSR	LLDF	B-factors(Å ²)	Q<0.9
4	1PE	B	1722	6/16	0.16	12.38	26,37,40,42	0
4	1PE	D	1723	9/16	0.20	7.54	22,33,37,40	0
3	ACT	A	1717	4/4	0.15	7.35	5,8,13,18	0
3	ACT	B	1719	4/4	0.16	6.61	5,7,19,23	0
4	1PE	B	1723	6/16	0.15	6.59	16,25,32,37	0
4	1PE	B	1726	12/16	0.13	6.10	12,20,28,37	0
3	ACT	D	1718	4/4	0.16	5.84	6,12,17,20	0
3	ACT	C	1722	4/4	0.12	4.45	8,8,21,25	0
4	1PE	D	1722	6/16	0.21	4.35	23,28,34,34	0
4	1PE	A	1723	6/16	0.19	3.93	28,31,31,32	0
4	1PE	B	1721	3/16	0.12	3.82	16,16,25,32	0
4	1PE	C	1726	6/16	0.12	3.55	17,24,35,37	0
4	1PE	A	1722	6/16	0.14	3.40	15,24,26,31	0
4	1PE	A	1724	9/16	0.15	2.95	19,26,33,34	0
4	1PE	A	1720	3/16	0.16	2.42	23,23,30,31	0
4	1PE	C	1724	3/16	0.15	2.33	22,22,23,36	0
4	1PE	C	1723	3/16	0.14	2.22	18,18,22,31	0
4	1PE	A	1721	3/16	0.11	1.71	24,24,25,35	0
4	1PE	C	1727	9/16	0.12	1.50	21,25,35,40	0
4	1PE	B	1725	12/16	0.14	1.49	16,23,36,41	0
2	HEM	B	1717	43/43	0.09	1.34	0,2,6,7	0
4	1PE	A	1719	3/16	0.13	1.30	24,24,25,27	0
4	1PE	B	1720	3/16	0.12	1.21	14,14,27,33	0
4	1PE	D	1720	3/16	0.13	1.01	26,26,27,39	0
4	1PE	D	1719	3/16	0.14	0.82	26,26,30,31	0
3	ACT	C	1721	4/4	0.10	0.70	7,7,10,15	0
4	1PE	C	1725	6/16	0.11	0.57	24,29,33,38	0
4	1PE	B	1724	6/16	0.11	0.31	16,22,24,44	0
2	HEM	A	1715	43/43	0.08	0.11	0,3,6,8	0
4	1PE	A	1718	3/16	0.11	-0.23	25,25,28,33	0

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Mol	Type	Chain	Res	Atoms	RSR	LLDF	B-factors(\AA^2)	Q<0.9
3	ACT	D	1717	4/4	0.08	-0.25	5,6,8,11	0
2	HEM	C	1720	43/43	0.07	-0.29	0,4,8,11	0
3	ACT	B	1718	4/4	0.07	-0.35	8,10,12,13	0
2	HEM	D	1716	43/43	0.07	-0.52	1,4,5,7	0
4	1PE	D	1721	3/16	0.08	-0.85	16,16,21,30	0
3	ACT	A	1716	4/4	0.06	-1.38	6,6,7,8	0

6.5 Other polymers ⓘ

There are no such residues in this entry.