



Full wwPDB X-ray Structure Validation Report ⓘ

Feb 1, 2016 – 10:30 PM GMT

PDB ID : 4Y55
Title : Crystal structure of Buffalo lactoperoxidase with Rhodanide at 2.09 Angstrom resolution
Authors : Gupta, A.; Tyagi, T.K.; Kaur, P.; Sharma, S.; Singh, T.P.
Deposited on : 2015-02-11
Resolution : 2.10 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
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467
Mogul : 1.7 (RC4), CSD as536be (2015)
Xtriage (Phenix) : 1.9-1692
EDS : rb-20026688
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)
Refmac : 5.8.0135
CCP4 : 6.5.0
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : trunk26865

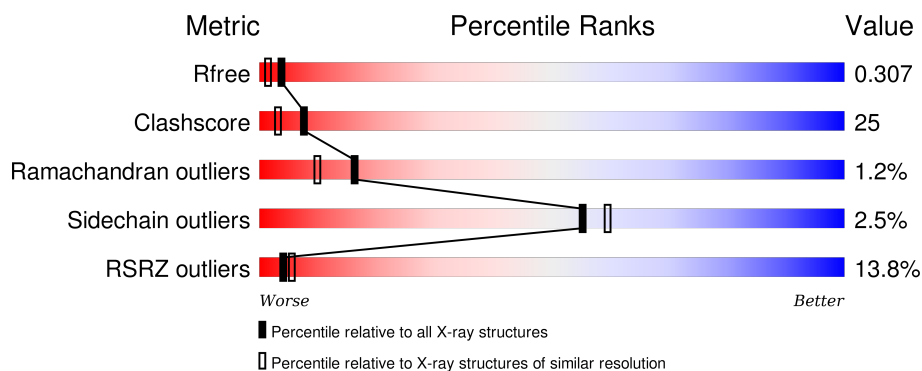
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.10 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}	91344	3939 (2.10-2.10)
Clashscore	102246	4460 (2.10-2.10)
Ramachandran outliers	100387	4413 (2.10-2.10)
Sidechain outliers	100360	4414 (2.10-2.10)
RSRZ outliers	91569	3948 (2.10-2.10)

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. 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	595	

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
7	NO3	A	617	-	-	X	X

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
7	NO3	A	618	-	-	X	-

2 Entry composition [i](#)

There are 10 unique types of molecules in this entry. The entry contains 5156 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 Lactoperoxidase.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	595	Total	C	N	O	P	S	0	0	0
			4770	3032	845	865	1	27			

- Molecule 2 is N-ACETYL-D-GLUCOSAMINE (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



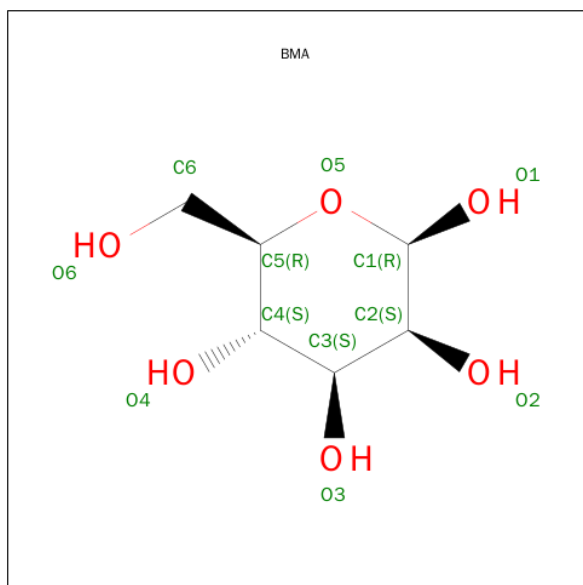
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	N	O	0	0
			14	8	1	5		
2	A	1	Total	C	N	O	0	0
			14	8	1	5		
2	A	1	Total	C	N	O	0	0
			14	8	1	5		
2	A	1	Total	C	N	O	0	0
			14	8	1	5		
2	A	1	Total	C	N	O	0	0
			14	8	1	5		

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	N	O	0	0
			14	8	1	5		
2	A	1	Total	C	N	O	0	0
			14	8	1	5		
2	A	1	Total	C	N	O	0	0
			14	8	1	5		

- Molecule 3 is BETA-D-MANNOSE (three-letter code: BMA) (formula: $C_6H_{12}O_6$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			11	6	5		

- Molecule 4 is ALPHA-D-MANNOSE (three-letter code: MAN) (formula: $C_6H_{12}O_6$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			11	6	5		

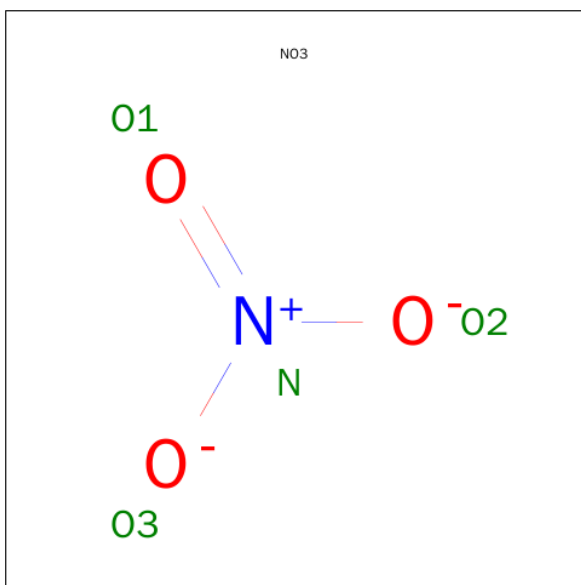
- Molecule 5 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	1	Total	Ca	0	0
			1	1		

- Molecule 6 is IODIDE ION (three-letter code: IOD) (formula: I).

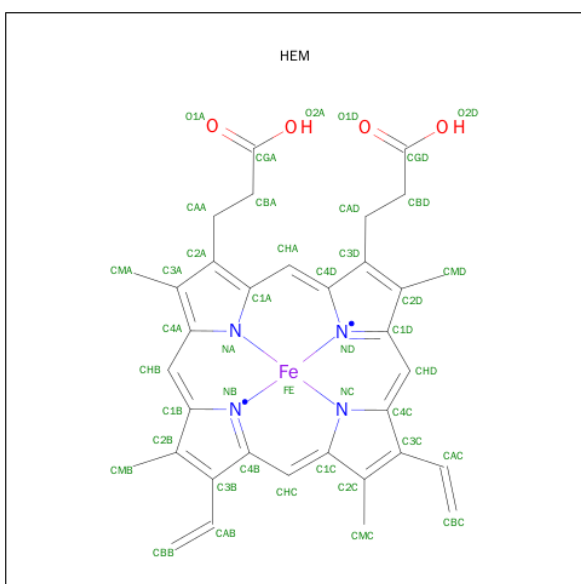
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	6	Total	I	0	0
			6	6		

- Molecule 7 is NITRATE ION (three-letter code: NO3) (formula: NO₃).



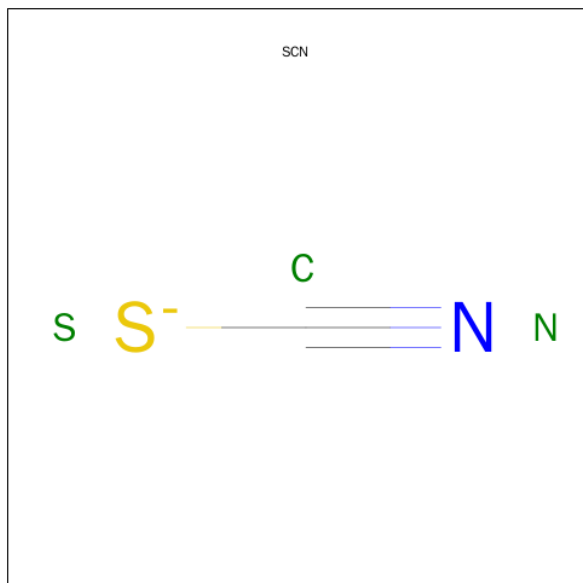
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	A	1	Total	N	O	0	0
			4	1	3		
7	A	1	Total	N	O	0	0
			4	1	3		
7	A	1	Total	N	O	0	0
			4	1	3		
7	A	1	Total	N	O	0	0
			4	1	3		

- Molecule 8 is PROTOPORPHYRIN IX CONTAINING FE (three-letter code: HEM) (formula: $C_{34}H_{32}FeN_4O_4$).



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

- Molecule 9 is THIOCYANATE ION (three-letter code: SCN) (formula: CNS).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
9	A	1	Total	C	N	S	0	0
			3	1	1	1		
9	A	1	Total	C	N	S	0	0
			3	1	1	1		
9	A	1	Total	C	N	S	0	0
			3	1	1	1		
9	A	1	Total	C	N	S	0	0
			3	1	1	1		

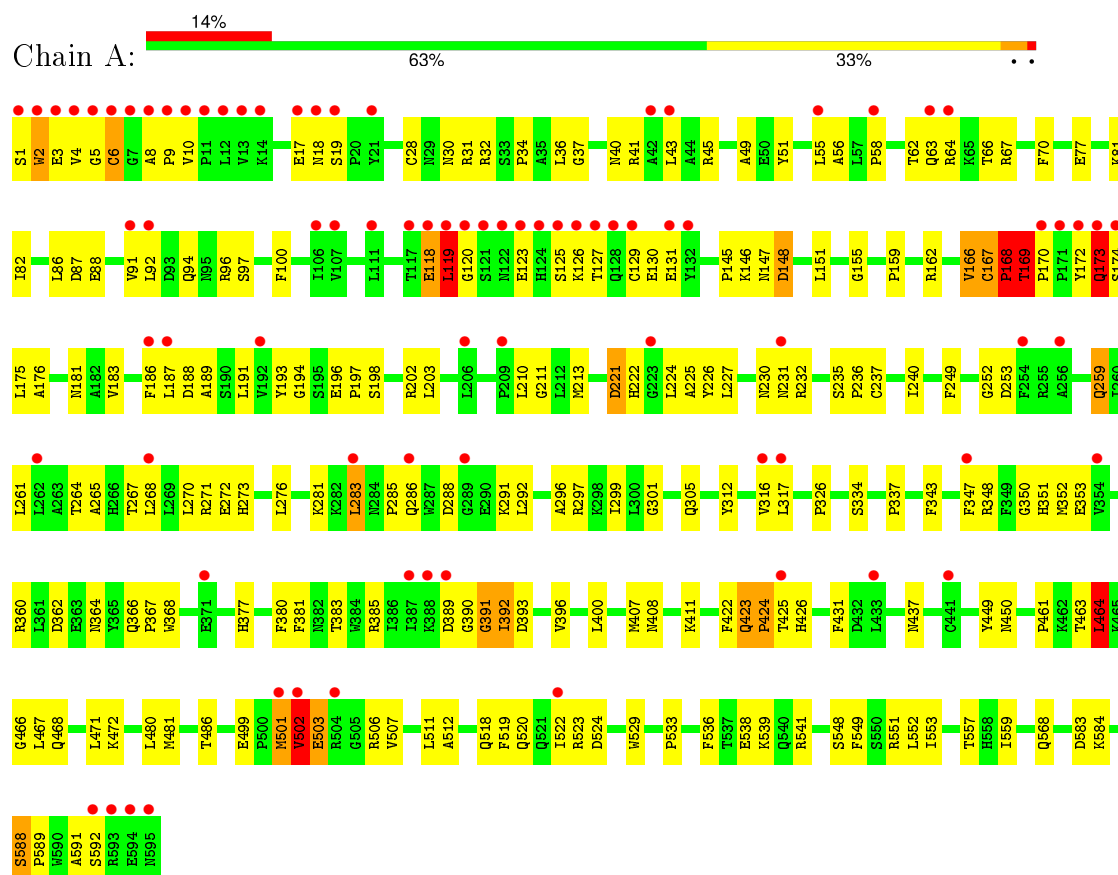
- Molecule 10 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
10	A	174	Total	O	0	0
			174	174		

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: Lactoperoxidase



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	54.01Å 80.05Å 76.80Å 90.00° 102.64° 90.00°	Depositor
Resolution (Å)	35.33 – 2.10 35.30 – 2.10	Depositor EDS
% Data completeness (in resolution range)	97.4 (35.33-2.10) 97.4 (35.30-2.10)	Depositor EDS
R_{merge}	0.13	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.87 (at 2.10Å)	Xtriage
Refinement program	REFMAC	Depositor
R, R_{free}	0.236 , 0.298 0.251 , 0.307	Depositor DCC
R_{free} test set	1837 reflections (5.31%)	DCC
Wilson B-factor (Å ²)	34.0	Xtriage
Anisotropy	0.391	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.28 , 39.8	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.51$, $\langle L^2 \rangle = 0.34$	Xtriage
Outliers	5 of 36464 reflections (0.014%)	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	5156	wwPDB-VP
Average B, all atoms (Å ²)	52.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.05% 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, 0.375 respectively for untwinned datasets, and 0.333, 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: SCN, NAG, SEP, CA, NO3, BMA, HEM, IOD, MAN

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	0.72	2/4886 (0.0%)	0.95	24/6627 (0.4%)

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	2

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	424	PRO	N-CD	5.83	1.56	1.47
1	A	353	GLU	CD-OE1	5.23	1.31	1.25

All (24) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	118	GLU	CB-CA-C	-14.60	81.21	110.40
1	A	169	THR	N-CA-CB	-11.69	88.08	110.30
1	A	423	GLN	CB-CA-C	10.92	132.24	110.40
1	A	119	LEU	CB-CA-C	10.43	130.01	110.20
1	A	502	VAL	CB-CA-C	10.00	130.39	111.40
1	A	168	PRO	N-CA-CB	-9.25	92.20	103.30
1	A	119	LEU	N-CA-CB	-8.55	93.29	110.40
1	A	56	ALA	N-CA-CB	-7.99	98.91	110.10
1	A	67	ARG	NE-CZ-NH1	7.21	123.90	120.30
1	A	56	ALA	O-C-N	-6.97	111.55	122.70
1	A	118	GLU	N-CA-C	6.84	129.47	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	503	GLU	N-CA-CB	-6.74	98.47	110.60
1	A	502	VAL	N-CA-C	-6.24	94.16	111.00
1	A	501	MET	C-N-CA	6.00	136.71	121.70
1	A	464	LEU	CB-CA-C	-5.93	98.92	110.20
1	A	67	ARG	NE-CZ-NH2	-5.92	117.34	120.30
1	A	168	PRO	N-CA-C	5.82	127.22	112.10
1	A	96	ARG	NE-CZ-NH1	5.72	123.16	120.30
1	A	486	THR	N-CA-CB	5.59	120.93	110.30
1	A	148	ASP	C-N-CD	5.54	140.03	128.40
1	A	56	ALA	CA-C-N	5.48	129.26	117.20
1	A	96	ARG	NE-CZ-NH2	-5.35	117.63	120.30
1	A	348	ARG	NE-CZ-NH1	5.21	122.91	120.30
1	A	221	ASP	CB-CG-OD1	5.02	122.82	118.30

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	169	THR	Peptide
1	A	391	GLY	Peptide

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4770	0	4676	244	2
2	A	112	0	98	1	0
3	A	11	0	10	0	0
4	A	11	0	10	0	0
5	A	1	0	0	0	0
6	A	6	0	0	1	0
7	A	16	0	0	4	0
8	A	43	0	30	4	0
9	A	12	0	0	0	0
10	A	174	0	0	15	0
All	All	5156	0	4824	248	2

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 25.

All (248) 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:A:519:PHE:HA	1:A:522:ILE:CD1	1.62	1.27
1:A:391:GLY:HA3	10:A:846:HOH:O	1.43	1.14
1:A:519:PHE:CD1	1:A:522:ILE:CD1	2.31	1.13
1:A:2:TRP:HZ3	1:A:4:VAL:N	1.52	1.07
1:A:519:PHE:HA	1:A:522:ILE:CG1	1.83	1.07
1:A:167:CYS:HB3	1:A:168:PRO:HD3	1.37	1.06
1:A:519:PHE:O	1:A:522:ILE:HG13	1.57	1.03
1:A:407:MET:HB3	1:A:501:MET:CE	1.88	1.02
1:A:519:PHE:CD1	1:A:522:ILE:HD11	1.96	1.00
1:A:221:ASP:OD2	10:A:790:HOH:O	1.80	0.99
1:A:167:CYS:CB	1:A:168:PRO:CD	2.40	0.98
1:A:519:PHE:HA	1:A:522:ILE:HG12	1.46	0.97
1:A:2:TRP:CZ3	1:A:4:VAL:N	2.27	0.97
1:A:519:PHE:CA	1:A:522:ILE:HD11	1.94	0.97
1:A:43:LEU:CD2	1:A:181:ASN:HB2	1.94	0.96
1:A:519:PHE:HD1	1:A:522:ILE:CD1	1.74	0.96
1:A:519:PHE:O	1:A:522:ILE:CG1	2.13	0.96
1:A:91:VAL:HG11	1:A:411:LYS:HD3	1.48	0.95
1:A:519:PHE:CA	1:A:522:ILE:CD1	2.44	0.94
1:A:519:PHE:HA	1:A:522:ILE:HD11	1.47	0.94
1:A:213:MET:HG2	1:A:273:HIS:CD2	2.03	0.93
1:A:519:PHE:CB	1:A:522:ILE:HD11	1.99	0.92
1:A:167:CYS:HB3	1:A:168:PRO:CD	1.99	0.91
1:A:2:TRP:CZ3	1:A:4:VAL:HG23	2.05	0.91
1:A:64:ARG:HG3	1:A:64:ARG:HH11	1.36	0.89
1:A:501:MET:SD	1:A:506:ARG:HA	2.12	0.88
1:A:519:PHE:CA	1:A:522:ILE:HG12	2.04	0.86
1:A:91:VAL:CG1	1:A:411:LYS:HD3	2.08	0.84
1:A:118:GLU:CG	1:A:118:GLU:O	2.22	0.81
1:A:167:CYS:HB2	1:A:168:PRO:HD2	1.63	0.81
1:A:43:LEU:HD23	1:A:181:ASN:HB2	1.60	0.81
1:A:424:PRO:O	6:A:613:IOD:I	2.69	0.81
1:A:172:TYR:OH	1:A:174:SER:HB2	1.81	0.80
1:A:519:PHE:C	1:A:522:ILE:HG12	2.03	0.79
1:A:288:ASP:O	1:A:292:LEU:HG	1.83	0.79
1:A:100:PHE:CE1	1:A:316:VAL:HG22	2.17	0.79
1:A:463:THR:O	1:A:466:GLY:N	2.15	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:64:ARG:HG3	1:A:64:ARG:NH1	1.97	0.78
1:A:519:PHE:CA	1:A:522:ILE:CG1	2.58	0.77
1:A:519:PHE:CG	1:A:522:ILE:HD11	2.19	0.77
1:A:196:GLU:HB2	1:A:198:SEP:O1P	1.83	0.77
1:A:43:LEU:HD21	1:A:181:ASN:HB2	1.67	0.77
1:A:519:PHE:CD1	1:A:522:ILE:HD13	2.20	0.76
1:A:197:PRO:HD2	1:A:198:SEP:O1P	1.86	0.75
1:A:186:PHE:CE2	1:A:337:PRO:HB2	2.21	0.75
1:A:130:GLU:OE2	1:A:426:HIS:ND1	2.17	0.74
1:A:202:ARG:HH22	1:A:231:ASN:HB2	1.52	0.74
1:A:172:TYR:CZ	1:A:174:SER:HB2	2.23	0.73
1:A:51:TYR:CD1	1:A:55:LEU:O	2.40	0.73
1:A:2:TRP:HE3	1:A:3:GLU:N	1.87	0.73
1:A:407:MET:HB3	1:A:501:MET:HE2	1.70	0.73
1:A:120:GLY:HA3	1:A:123:GLU:HB3	1.70	0.72
1:A:10:VAL:HG11	1:A:41:ARG:NH1	2.05	0.72
1:A:407:MET:HB3	1:A:501:MET:HE1	1.70	0.71
1:A:519:PHE:C	1:A:522:ILE:CG1	2.58	0.71
1:A:501:MET:SD	1:A:506:ARG:CA	2.79	0.70
1:A:167:CYS:CB	1:A:168:PRO:HD2	2.20	0.70
1:A:2:TRP:CE3	1:A:3:GLU:CA	2.74	0.70
1:A:167:CYS:HB2	1:A:168:PRO:CD	2.18	0.70
1:A:268:LEU:O	1:A:552:LEU:HD21	1.92	0.70
1:A:63:GLN:OE1	1:A:63:GLN:N	2.20	0.69
1:A:6:CYS:HG	1:A:167:CYS:HG	0.73	0.69
1:A:385:ARG:HD3	1:A:389:ASP:OD2	1.93	0.69
1:A:2:TRP:CE3	1:A:3:GLU:N	2.62	0.68
1:A:2:TRP:CE3	1:A:4:VAL:HG23	2.28	0.68
1:A:259:GLN:HE22	1:A:261:LEU:HB2	1.56	0.68
1:A:2:TRP:HZ3	1:A:4:VAL:H	0.78	0.68
1:A:502:VAL:CG1	1:A:503:GLU:H	2.06	0.68
1:A:186:PHE:CE2	1:A:337:PRO:CB	2.77	0.68
1:A:519:PHE:HA	1:A:522:ILE:HD13	1.70	0.67
1:A:77:GLU:OE2	1:A:81:LYS:NZ	2.23	0.67
1:A:186:PHE:O	1:A:188:ASP:N	2.27	0.66
1:A:118:GLU:HG2	1:A:118:GLU:O	1.95	0.66
1:A:63:GLN:CD	1:A:63:GLN:H	1.97	0.66
1:A:100:PHE:HE1	1:A:316:VAL:CG2	2.08	0.65
1:A:286:GLN:N	1:A:286:GLN:OE1	2.27	0.65
1:A:2:TRP:HE3	1:A:3:GLU:CA	2.10	0.64
1:A:312:TYR:CZ	1:A:316:VAL:HG21	2.32	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:213:MET:HG2	1:A:273:HIS:HD2	1.62	0.64
1:A:551:ARG:HD3	1:A:583:ASP:O	1.97	0.64
1:A:186:PHE:HE2	1:A:337:PRO:CB	2.11	0.64
1:A:9:PRO:HG2	10:A:765:HOH:O	1.97	0.63
1:A:227:LEU:HG	1:A:270:LEU:HD22	1.79	0.63
1:A:100:PHE:CE1	1:A:316:VAL:CG2	2.81	0.63
1:A:91:VAL:CG1	1:A:411:LYS:CD	2.76	0.63
1:A:464:LEU:O	1:A:468:GLN:HG3	1.98	0.63
1:A:227:LEU:HD23	10:A:740:HOH:O	1.97	0.63
1:A:523:ARG:HG3	1:A:529:TRP:CZ2	2.33	0.62
1:A:146:LYS:O	1:A:147:ASN:HB2	1.98	0.62
1:A:17:GLU:O	1:A:18:ASN:HB3	1.99	0.62
1:A:58:PRO:HD3	1:A:162:ARG:CZ	2.29	0.62
1:A:502:VAL:HB	1:A:507:VAL:O	1.99	0.61
1:A:88:GLU:O	1:A:91:VAL:HG22	2.00	0.61
1:A:100:PHE:CZ	1:A:316:VAL:HG22	2.34	0.61
1:A:8:ALA:HB3	1:A:9:PRO:HD3	1.82	0.61
1:A:172:TYR:HE2	1:A:175:LEU:H	1.49	0.61
1:A:450:ASN:OD1	1:A:461:PRO:HD2	2.01	0.61
1:A:237:CYS:HA	1:A:381:PHE:O	2.02	0.60
1:A:91:VAL:HG23	1:A:91:VAL:O	2.02	0.60
1:A:1:SER:O	1:A:2:TRP:HB3	1.99	0.60
1:A:551:ARG:HD3	1:A:584:LYS:HA	1.84	0.60
1:A:172:TYR:CG	1:A:173:GLN:N	2.70	0.60
1:A:286:GLN:NE2	1:A:592:SER:OG	2.35	0.60
1:A:2:TRP:CE3	1:A:4:VAL:N	2.69	0.59
1:A:501:MET:HG2	1:A:506:ARG:C	2.22	0.59
1:A:18:ASN:O	1:A:19:SER:C	2.41	0.59
1:A:351:HIS:HD1	1:A:437:ASN:HD21	1.48	0.59
1:A:221:ASP:HB2	1:A:226:TYR:CZ	2.38	0.58
1:A:5:GLY:HA3	10:A:717:HOH:O	2.02	0.58
1:A:148:ASP:O	1:A:151:LEU:HB2	2.04	0.58
1:A:368:TRP:CH2	1:A:390:GLY:N	2.72	0.58
1:A:425:THR:O	1:A:425:THR:HG22	2.04	0.57
1:A:172:TYR:O	1:A:173:GLN:HB3	2.03	0.57
1:A:166:VAL:O	1:A:167:CYS:HB2	2.04	0.57
1:A:422:PHE:CE2	1:A:423:GLN:O	2.57	0.57
1:A:559:ILE:HD13	1:A:559:ILE:N	2.20	0.57
1:A:230:ASN:OD1	1:A:231:ASN:N	2.38	0.56
1:A:286:GLN:H	1:A:286:GLN:CD	2.07	0.56
1:A:501:MET:SD	1:A:506:ARG:C	2.84	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2:TRP:C	1:A:2:TRP:CE3	2.78	0.56
1:A:125:SER:O	1:A:129:CYS:HB2	2.06	0.56
1:A:377:HIS:HA	1:A:380:PHE:CE2	2.40	0.55
8:A:621:HEM:HBB2	8:A:621:HEM:HMB2	1.87	0.55
1:A:146:LYS:O	1:A:147:ASN:CB	2.54	0.55
1:A:519:PHE:HD1	1:A:522:ILE:HD12	1.64	0.55
2:A:604:NAG:H81	10:A:833:HOH:O	2.06	0.54
1:A:366:GLN:O	1:A:367:PRO:C	2.43	0.54
1:A:264:THR:HG23	1:A:392:ILE:HG13	1.89	0.54
1:A:268:LEU:HD23	1:A:549:PHE:CE2	2.42	0.54
1:A:31:ARG:HD2	7:A:618:NO3:O1	2.07	0.54
1:A:281:LYS:NZ	1:A:285:PRO:O	2.40	0.53
1:A:87:ASP:N	7:A:617:NO3:O1	2.41	0.53
1:A:393:ASP:OD1	1:A:557:THR:HB	2.08	0.53
1:A:2:TRP:CE3	1:A:3:GLU:HA	2.44	0.52
1:A:188:ASP:O	1:A:189:ALA:C	2.47	0.52
1:A:288:ASP:HB2	1:A:291:LYS:H	1.74	0.52
1:A:519:PHE:HD1	1:A:522:ILE:HD11	1.45	0.52
1:A:519:PHE:CG	1:A:522:ILE:CD1	2.84	0.52
1:A:283:LEU:HD21	1:A:591:ALA:HB2	1.90	0.52
1:A:66:THR:HB	1:A:70:PHE:N	2.25	0.52
1:A:407:MET:CB	1:A:501:MET:HE1	2.40	0.51
1:A:32:ARG:NH2	1:A:334:SER:OG	2.43	0.51
1:A:283:LEU:CD2	1:A:591:ALA:HA	2.40	0.51
1:A:169:THR:N	1:A:170:PRO:CD	2.73	0.51
1:A:385:ARG:O	1:A:389:ASP:HB2	2.10	0.51
1:A:193:TYR:OH	1:A:297:ARG:HA	2.10	0.51
1:A:471:LEU:O	1:A:472:LYS:C	2.50	0.51
1:A:364:ASN:HD22	1:A:364:ASN:N	2.08	0.51
1:A:77:GLU:HB2	1:A:145:PRO:HG3	1.94	0.50
1:A:45:ARG:CZ	1:A:49:ALA:HB2	2.42	0.50
1:A:92:LEU:O	1:A:94:GLN:OE1	2.29	0.50
1:A:551:ARG:CD	1:A:583:ASP:O	2.59	0.50
1:A:272:GLU:O	1:A:276:LEU:HB2	2.12	0.50
1:A:92:LEU:HB2	10:A:843:HOH:O	2.11	0.49
1:A:210:LEU:HD22	10:A:853:HOH:O	2.10	0.49
1:A:281:LYS:HD2	1:A:285:PRO:HA	1.94	0.49
1:A:592:SER:OG	1:A:592:SER:O	2.29	0.49
1:A:467:LEU:HD11	1:A:471:LEU:HD11	1.93	0.49
1:A:62:THR:HG22	1:A:64:ARG:H	1.77	0.49
1:A:392:ILE:HG23	1:A:396:VAL:HG23	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:467:LEU:HG	1:A:471:LEU:HD12	1.94	0.49
1:A:191:LEU:HA	1:A:253:ASP:HB2	1.95	0.49
1:A:82:ILE:CD1	1:A:480:LEU:HD23	2.43	0.48
1:A:350:GLY:HA3	8:A:621:HEM:CBC	2.44	0.48
1:A:235:SER:OG	10:A:842:HOH:O	2.20	0.48
1:A:326:PRO:O	1:A:523:ARG:NH2	2.43	0.48
1:A:203:LEU:HD21	1:A:252:GLY:HA2	1.94	0.48
1:A:10:VAL:HG11	1:A:41:ARG:CZ	2.42	0.48
1:A:481:MET:HA	1:A:481:MET:CE	2.44	0.48
1:A:264:THR:O	1:A:267:THR:HB	2.14	0.48
1:A:317:LEU:O	1:A:502:VAL:HG11	2.14	0.47
1:A:524:ASP:OD2	10:A:874:HOH:O	2.20	0.47
8:A:621:HEM:HMC2	8:A:621:HEM:HBC2	1.97	0.47
1:A:183:VAL:HG11	10:A:732:HOH:O	2.14	0.47
1:A:588:SER:N	1:A:589:PRO:CD	2.77	0.47
1:A:464:LEU:HD13	1:A:481:MET:HG3	1.95	0.47
1:A:2:TRP:CZ3	1:A:4:VAL:CG2	2.88	0.47
1:A:202:ARG:HH22	1:A:231:ASN:CB	2.22	0.47
1:A:183:VAL:CG1	10:A:732:HOH:O	2.63	0.47
1:A:97:SER:HB3	1:A:568:GLN:O	2.14	0.47
1:A:501:MET:CG	1:A:506:ARG:C	2.83	0.47
1:A:316:VAL:HG12	1:A:316:VAL:O	2.15	0.47
1:A:502:VAL:HG13	1:A:503:GLU:H	1.79	0.47
1:A:100:PHE:HE1	1:A:316:VAL:HG23	1.80	0.46
1:A:2:TRP:CE3	1:A:3:GLU:C	2.88	0.46
1:A:211:GLY:HA3	1:A:292:LEU:HB2	1.98	0.46
1:A:2:TRP:C	1:A:2:TRP:CD2	2.88	0.46
1:A:501:MET:SD	1:A:506:ARG:O	2.74	0.46
1:A:343:PHE:CD1	1:A:518:GLN:HG2	2.51	0.46
1:A:119:LEU:HD13	10:A:779:HOH:O	2.15	0.46
1:A:28:CYS:HA	1:A:34:PRO:HB3	1.98	0.46
1:A:362:ASP:C	1:A:362:ASP:OD1	2.53	0.46
1:A:37:GLY:HA3	1:A:186:PHE:CZ	2.50	0.46
1:A:588:SER:CB	1:A:589:PRO:HD3	2.46	0.45
1:A:172:TYR:CE2	1:A:174:SER:HB2	2.51	0.45
1:A:213:MET:CB	1:A:270:LEU:HD11	2.47	0.45
1:A:224:LEU:HD23	1:A:224:LEU:N	2.32	0.44
1:A:265:ALA:HA	1:A:268:LEU:HB2	1.99	0.44
1:A:392:ILE:HG23	1:A:396:VAL:CG2	2.48	0.44
1:A:131:GLU:CG	10:A:770:HOH:O	2.65	0.44
1:A:400:LEU:HD11	1:A:553:ILE:HD13	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:296:ALA:O	1:A:299:ILE:N	2.49	0.44
1:A:368:TRP:CH2	1:A:390:GLY:CA	3.01	0.44
1:A:352:MET:HB3	1:A:407:MET:HG2	1.98	0.44
1:A:502:VAL:HG12	1:A:503:GLU:H	1.80	0.44
1:A:536:PHE:O	1:A:541:ARG:NH1	2.51	0.43
1:A:236:PRO:O	1:A:240:ILE:HG12	2.19	0.43
1:A:87:ASP:O	1:A:411:LYS:HE3	2.19	0.43
1:A:511:LEU:O	1:A:512:ALA:C	2.51	0.43
1:A:221:ASP:HB2	1:A:226:TYR:CE2	2.54	0.43
1:A:213:MET:HB3	1:A:270:LEU:HD11	2.01	0.43
1:A:548:SER:OG	1:A:551:ARG:HB2	2.19	0.43
1:A:2:TRP:HE3	1:A:3:GLU:C	2.23	0.42
1:A:175:LEU:HD23	1:A:176:ALA:N	2.34	0.42
1:A:368:TRP:HZ3	1:A:389:ASP:OD1	2.02	0.42
1:A:301:GLY:O	1:A:305:GLN:HG3	2.19	0.42
1:A:194:GLY:HA2	1:A:252:GLY:O	2.19	0.42
1:A:407:MET:CB	1:A:501:MET:CE	2.79	0.42
1:A:273:HIS:CE1	1:A:296:ALA:HB3	2.54	0.42
1:A:360:ARG:HH12	1:A:389:ASP:CG	2.22	0.42
1:A:523:ARG:HG3	1:A:529:TRP:CE2	2.55	0.42
1:A:202:ARG:NH2	1:A:231:ASN:ND2	2.68	0.42
1:A:501:MET:HG2	1:A:507:VAL:N	2.35	0.42
1:A:86:LEU:HB2	7:A:617:NO3:O1	2.19	0.42
1:A:36:LEU:O	1:A:186:PHE:HZ	2.02	0.41
1:A:30:ASN:O	1:A:34:PRO:HA	2.20	0.41
1:A:385:ARG:O	1:A:389:ASP:CB	2.68	0.41
1:A:159:PRO:HD2	1:A:431:PHE:CE2	2.55	0.41
1:A:519:PHE:CD1	1:A:522:ILE:HD12	2.42	0.41
1:A:502:VAL:CG1	1:A:503:GLU:N	2.80	0.41
1:A:126:LYS:CG	1:A:127:THR:N	2.83	0.41
1:A:265:ALA:O	1:A:268:LEU:N	2.53	0.41
1:A:58:PRO:HD3	1:A:162:ARG:NH1	2.36	0.41
1:A:449:TYR:OH	1:A:499:GLU:OE2	2.33	0.41
1:A:18:ASN:C	1:A:19:SER:O	2.58	0.41
1:A:407:MET:SD	1:A:408:ASN:N	2.93	0.41
1:A:31:ARG:NH1	7:A:618:NO3:O1	2.38	0.41
1:A:240:ILE:HA	1:A:240:ILE:HD13	1.91	0.41
1:A:225:ALA:O	1:A:271:ARG:NH2	2.49	0.41
1:A:43:LEU:HD21	1:A:181:ASN:CB	2.43	0.41
1:A:522:ILE:HG13	1:A:523:ARG:N	2.36	0.40
1:A:230:ASN:ND2	1:A:232:ARG:HG2	2.36	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:621:HEM:HBC2	8:A:621:HEM:CMC	2.51	0.40
1:A:426:HIS:HB3	10:A:818:HOH:O	2.21	0.40
1:A:392:ILE:O	1:A:396:VAL:HG23	2.22	0.40
1:A:249:PHE:CE2	1:A:383:THR:HG22	2.56	0.40
1:A:151:LEU:HD23	1:A:155:GLY:O	2.21	0.40
1:A:422:PHE:CD2	1:A:423:GLN:O	2.75	0.40

All (2) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:222:HIS:CE1	1:A:538:GLU:OE2[2_555]	1.68	0.52
1:A:222:HIS:ND1	1:A:538:GLU:OE2[2_555]	1.88	0.32

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	592/595 (100%)	533 (90%)	52 (9%)	7 (1%)	16 10

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	167	CYS
1	A	173	GLN
1	A	187	LEU
1	A	502	VAL
1	A	2	TRP
1	A	464	LEU
1	A	166	VAL

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	516/516 (100%)	503 (98%)	13 (2%)	55 59

All (13) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	6	CYS
1	A	40	ASN
1	A	119	LEU
1	A	168	PRO
1	A	173	GLN
1	A	259	GLN
1	A	283	LEU
1	A	347	PHE
1	A	392	ILE
1	A	520	GLN
1	A	533	PRO
1	A	539	LYS
1	A	588	SER

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	94	GLN
1	A	217	GLN
1	A	259	GLN
1	A	364	ASN
1	A	468	GLN
1	A	497	ASN
1	A	570	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

1 non-standard protein/DNA/RNA residue is modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
1	SEP	A	198	1	8,9,10	1.19	0	8,12,14	2.15	2 (25%)

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
1	SEP	A	198	1	-	0/6/8/10	0/0/0/0

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	198	SEP	OG-P-O1P	-4.66	95.28	107.14
1	A	198	SEP	O3P-P-O2P	2.87	118.30	107.38

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	198	SEP	2	0

5.5 Carbohydrates ⓘ

There are no carbohydrates in this entry.

5.6 Ligand geometry

Of 26 ligands modelled in this entry, 7 are monoatomic - leaving 19 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$
2	NAG	A	601	1,2	14,14,15	0.90	1 (7%)	15,19,21	2.14	6 (40%)
2	NAG	A	602	3,2	14,14,15	0.46	0	15,19,21	1.23	1 (6%)
3	BMA	A	603	2	11,11,12	0.68	0	14,15,17	1.67	2 (14%)
2	NAG	A	604	1,2	14,14,15	0.66	0	15,19,21	1.12	1 (6%)
2	NAG	A	605	2	14,14,15	0.57	0	15,19,21	0.69	0
2	NAG	A	606	1,2	14,14,15	0.99	1 (7%)	15,19,21	1.48	3 (20%)
2	NAG	A	607	2,4	14,14,15	0.59	0	15,19,21	2.43	4 (26%)
4	MAN	A	608	2	11,11,12	0.35	0	14,15,17	1.22	2 (14%)
2	NAG	A	609	1,2	14,14,15	0.51	0	15,19,21	1.62	2 (13%)
2	NAG	A	610	2	14,14,15	0.50	0	15,19,21	1.52	3 (20%)
7	NO3	A	617	-	3,3,3	2.69	2 (66%)	3,3,3	0.87	0
7	NO3	A	618	-	3,3,3	2.25	2 (66%)	3,3,3	0.35	0
7	NO3	A	619	-	3,3,3	2.81	2 (66%)	3,3,3	1.20	0
7	NO3	A	620	-	3,3,3	2.34	2 (66%)	3,3,3	0.38	0
8	HEM	A	621	1,10	30,50,50	2.38	9 (30%)	24,82,82	2.51	9 (37%)
9	SCN	A	622	-	2,2,2	1.40	0	1,1,1	0.27	0
9	SCN	A	623	-	2,2,2	1.56	1 (50%)	1,1,1	0.09	0
9	SCN	A	624	-	2,2,2	1.60	1 (50%)	1,1,1	0.04	0
9	SCN	A	625	-	2,2,2	2.16	1 (50%)	1,1,1	0.23	0

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	NAG	A	601	1,2	-	0/6/23/26	0/1/1/1
2	NAG	A	602	3,2	-	0/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	BMA	A	603	2	-	0/2/19/22	0/1/1/1
2	NAG	A	604	1,2	-	0/6/23/26	0/1/1/1
2	NAG	A	605	2	-	0/6/23/26	0/1/1/1
2	NAG	A	606	1,2	-	0/6/23/26	0/1/1/1
2	NAG	A	607	2,4	-	0/6/23/26	0/1/1/1
4	MAN	A	608	2	-	0/2/19/22	0/1/1/1
2	NAG	A	609	1,2	-	0/6/23/26	0/1/1/1
2	NAG	A	610	2	-	0/6/23/26	0/1/1/1
7	NO3	A	617	-	-	0/0/0/0	0/0/0/0
7	NO3	A	618	-	-	0/0/0/0	0/0/0/0
7	NO3	A	619	-	-	0/0/0/0	0/0/0/0
7	NO3	A	620	-	-	0/0/0/0	0/0/0/0
8	HEM	A	621	1,10	-	0/10/54/54	0/0/8/8
9	SCN	A	622	-	-	0/0/0/0	0/0/0/0
9	SCN	A	623	-	-	0/0/0/0	0/0/0/0
9	SCN	A	624	-	-	0/0/0/0	0/0/0/0
9	SCN	A	625	-	-	0/0/0/0	0/0/0/0

All (22) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	A	621	HEM	C2C-C1C	-7.27	1.38	1.52
8	A	621	HEM	C2D-C3D	-6.96	1.33	1.54
7	A	619	NO3	O1-N	-4.01	1.07	1.24
8	A	621	HEM	C3B-C4B	-3.53	1.48	1.51
9	A	625	SCN	C-S	-3.05	1.44	1.63
8	A	621	HEM	C3C-CAC	-2.78	1.46	1.51
2	A	606	NAG	O5-C1	-2.59	1.39	1.43
8	A	621	HEM	C2B-C1B	-2.46	1.43	1.51
2	A	601	NAG	O5-C1	-2.35	1.39	1.43
9	A	624	SCN	C-S	-2.24	1.49	1.63
9	A	623	SCN	C-S	-2.20	1.49	1.63
8	A	621	HEM	C3D-C4D	-2.02	1.49	1.51
7	A	619	NO3	O3-N	-2.01	1.14	1.25
8	A	621	HEM	CHC-C1C	2.21	1.41	1.36
8	A	621	HEM	FE-NC	2.25	2.04	1.95
7	A	620	NO3	O3-N	2.48	1.38	1.25
7	A	618	NO3	O2-N	2.62	1.38	1.25
8	A	621	HEM	FE-NB	2.72	2.11	1.97
7	A	618	NO3	O3-N	2.85	1.40	1.25
7	A	617	NO3	O2-N	2.91	1.40	1.25
7	A	620	NO3	O2-N	3.06	1.41	1.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	A	617	NO3	O3-N	3.55	1.43	1.25

All (33) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	607	NAG	C4-C3-C2	-5.52	102.64	111.23
2	A	601	NAG	C1-O5-C5	-4.06	107.10	112.25
2	A	610	NAG	C4-C3-C2	-3.33	106.06	111.23
8	A	621	HEM	CBD-CAD-C3D	-3.16	104.36	113.55
8	A	621	HEM	CBA-CAA-C2A	-3.06	107.04	112.53
2	A	601	NAG	O4-C4-C3	-3.05	103.47	110.34
2	A	604	NAG	C3-C2-N2	-2.83	103.78	110.56
2	A	607	NAG	C2-N2-C7	-2.49	119.85	123.04
2	A	610	NAG	O7-C7-C8	-2.14	118.14	122.06
2	A	606	NAG	O7-C7-C8	-2.04	118.32	122.06
2	A	601	NAG	C3-C4-C5	-2.02	106.67	110.20
4	A	608	MAN	C3-C4-C5	2.08	113.82	110.20
2	A	610	NAG	O3-C3-C2	2.42	113.92	109.11
8	A	621	HEM	C2D-C3D-C4D	2.44	105.63	101.50
2	A	606	NAG	O3-C3-C2	2.46	113.98	109.11
2	A	609	NAG	C3-C4-C5	2.47	114.50	110.20
8	A	621	HEM	CMD-C2D-C3D	2.68	126.21	114.35
2	A	606	NAG	C2-N2-C7	2.85	126.69	123.04
2	A	601	NAG	O4-C4-C5	3.03	117.27	109.24
2	A	607	NAG	C3-C2-N2	3.10	117.99	110.56
3	A	603	BMA	C1-O5-C5	3.14	116.23	112.25
2	A	601	NAG	C4-C3-C2	3.34	116.42	111.23
2	A	602	NAG	C1-O5-C5	3.58	116.79	112.25
4	A	608	MAN	C1-C2-C3	3.63	113.84	109.54
8	A	621	HEM	CAD-C3D-C4D	3.93	126.34	112.47
2	A	601	NAG	C6-C5-C4	3.95	122.75	113.02
8	A	621	HEM	CMB-C2B-C3B	4.11	126.80	116.53
3	A	603	BMA	C1-C2-C3	4.29	114.62	109.54
8	A	621	HEM	CAA-CBA-CGA	4.50	120.99	112.75
2	A	609	NAG	C1-O5-C5	4.94	118.52	112.25
8	A	621	HEM	CMC-C2C-C3C	5.09	129.25	116.53
2	A	607	NAG	C1-O5-C5	5.11	118.73	112.25
8	A	621	HEM	CAD-C3D-C2D	5.15	128.03	113.22

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

4 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	604	NAG	1	0
7	A	617	NO3	2	0
7	A	618	NO3	2	0
8	A	621	HEM	4	0

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	594/595 (99%)	0.89	82 (13%) 4 5	26, 46, 100, 159	0

All (82) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	2	TRP	20.4
1	A	1	SER	17.6
1	A	172	TYR	13.7
1	A	122	ASN	12.2
1	A	173	GLN	10.0
1	A	7	GLY	9.8
1	A	268	LEU	8.9
1	A	4	VAL	8.6
1	A	8	ALA	8.4
1	A	174	SER	8.3
1	A	120	GLY	8.3
1	A	121	SER	7.8
1	A	13	VAL	7.7
1	A	170	PRO	7.3
1	A	595	ASN	7.3
1	A	18	ASN	6.6
1	A	119	LEU	5.2
1	A	171	PRO	5.2
1	A	125	SER	4.7
1	A	254	PHE	4.7
1	A	3	GLU	4.6
1	A	5	GLY	4.5
1	A	10	VAL	4.4
1	A	126	LYS	4.3
1	A	123	GLU	4.3
1	A	92	LEU	4.1
1	A	64	ARG	4.0

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Mol	Chain	Res	Type	RSRZ
1	A	593	ARG	4.0
1	A	12	LEU	3.9
1	A	42	ALA	3.9
1	A	91	VAL	3.9
1	A	522	ILE	3.9
1	A	129	CYS	3.8
1	A	124	HIS	3.8
1	A	316	VAL	3.6
1	A	186	PHE	3.6
1	A	14	LYS	3.5
1	A	6	CYS	3.5
1	A	502	VAL	3.4
1	A	118	GLU	3.4
1	A	58	PRO	3.3
1	A	387	ILE	3.3
1	A	317	LEU	3.2
1	A	117	THR	3.1
1	A	231	ASN	3.0
1	A	389	ASP	3.0
1	A	9	PRO	2.9
1	A	107	VAL	2.9
1	A	504	ARG	2.9
1	A	289	GLY	2.9
1	A	501	MET	2.9
1	A	262	LEU	2.8
1	A	209	PRO	2.8
1	A	223	GLY	2.7
1	A	128	GLN	2.7
1	A	132	TYR	2.7
1	A	127	THR	2.6
1	A	286	GLN	2.6
1	A	63	GLN	2.5
1	A	347	PHE	2.5
1	A	43	LEU	2.5
1	A	187	LEU	2.5
1	A	11	PRO	2.4
1	A	17	GLU	2.3
1	A	111	LEU	2.3
1	A	388	LYS	2.3
1	A	256	ALA	2.3
1	A	283	LEU	2.3
1	A	106	ILE	2.2

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Mol	Chain	Res	Type	RSRZ
1	A	425	THR	2.2
1	A	441	CYS	2.2
1	A	594	GLU	2.2
1	A	55	LEU	2.2
1	A	371	GLU	2.1
1	A	433	LEU	2.1
1	A	592	SER	2.1
1	A	192	VAL	2.1
1	A	354	VAL	2.1
1	A	206	LEU	2.0
1	A	19	SER	2.0
1	A	131	GLU	2.0
1	A	21	TYR	2.0

6.2 Non-standard residues in protein, DNA, RNA chains [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. 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	RSCC	RSR	LLDF	B-factors(Å ²)	Q<0.9
1	SEP	A	198	10/11	0.94	0.12	-	38,55,65,66	0

6.3 Carbohydrates [i](#)

There are no carbohydrates in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. 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	RSCC	RSR	LLDF	B-factors(Å ²)	Q<0.9
7	NO3	A	617	4/4	0.84	0.53	1.98	58,62,63,75	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors(\AA^2)	Q<0.9
9	SCN	A	623	3/3	0.86	0.17	1.75	44,44,46,57	0
2	NAG	A	601	14/15	0.72	0.29	1.55	76,82,102,106	0
6	IOD	A	612	1/1	0.76	0.21	1.34	147,147,147,147	0
7	NO3	A	618	4/4	0.93	0.13	1.29	44,47,52,53	0
9	SCN	A	622	3/3	0.88	0.16	1.15	41,41,53,53	0
8	HEM	A	621	43/43	0.96	0.22	1.02	25,32,37,40	0
9	SCN	A	625	3/3	0.96	0.18	0.42	31,31,44,51	0
7	NO3	A	619	4/4	0.98	0.17	0.38	17,17,21,46	0
2	NAG	A	604	14/15	0.88	0.13	-0.37	58,68,73,83	0
2	NAG	A	606	14/15	0.91	0.14	-0.62	44,57,62,71	0
6	IOD	A	615	1/1	0.99	0.10	-0.86	33,33,33,33	0
5	CA	A	611	1/1	0.92	0.11	-1.67	37,37,37,37	0
6	IOD	A	614	1/1	0.96	0.05	-3.05	74,74,74,74	0
6	IOD	A	613	1/1	0.97	0.03	-3.25	79,79,79,79	0
6	IOD	A	626	1/1	0.98	0.03	-8.27	56,56,56,56	0
2	NAG	A	610	14/15	0.72	0.36	-	78,99,104,109	0
9	SCN	A	624	3/3	0.94	0.22	-	34,34,37,38	0
7	NO3	A	620	4/4	0.93	0.10	-	41,44,50,53	0
2	NAG	A	607	14/15	0.81	0.31	-	69,79,89,103	0
3	BMA	A	603	11/12	0.40	0.46	-	110,122,129,132	0
2	NAG	A	602	14/15	0.69	0.59	-	114,128,137,137	0
2	NAG	A	609	14/15	0.74	0.24	-	60,75,86,100	0
2	NAG	A	605	14/15	0.71	0.33	-	81,97,111,113	0
4	MAN	A	608	11/12	0.56	0.43	-	78,81,84,84	0
6	IOD	A	616	1/1	0.92	0.12	-	88,88,88,88	0

6.5 Other polymers

There are no such residues in this entry.