Full wwPDB X-ray Structure Validation Report (i)

Sep 5, 2023 – 03:08 AM EDT

PDB ID	:	3TXF
Title	:	HEWL co-crystallization with cisplatin in DMSO media with glycerol as the cryoprotectant
Authors	:	Tanley, S.W.M.; Schreurs, A.M.M.; Helliwell, J.R.; Kroon-Batenburg, L.M.J.
Deposited on	:	2011-09-23
Resolution	:	1.69 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:

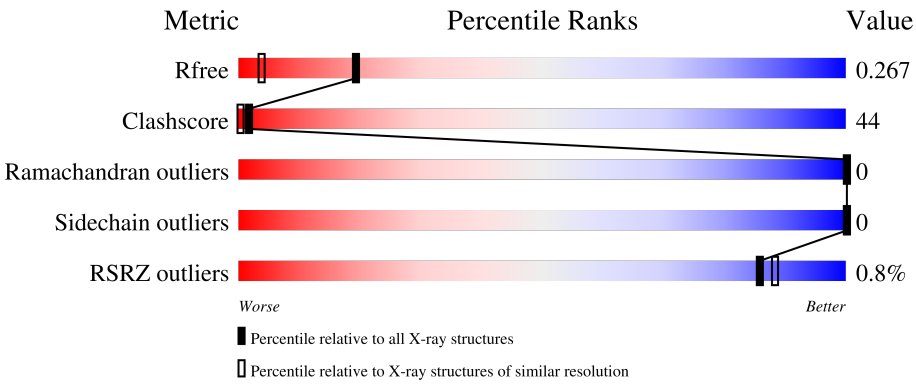
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, 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

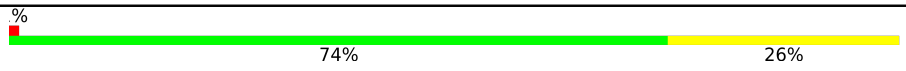
The reported resolution of this entry is 1.69 Å.

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	4298 (1.70-1.70)
Clashscore	141614	4695 (1.70-1.70)
Ramachandran outliers	138981	4610 (1.70-1.70)
Sidechain outliers	138945	4610 (1.70-1.70)
RSRZ outliers	127900	4222 (1.70-1.70)

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	129	

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
2	CL	A	1132	-	-	X	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
5	DMS	A	132	-	-	X	X
5	DMS	A	134	-	-	-	X
5	DMS	A	135	-	-	X	-
5	DMS	A	137	-	-	-	X
5	DMS	A	148	-	-	X	X
5	DMS	A	149	-	-	X	X
5	DMS	A	150	-	-	-	X
5	DMS	A	151	-	-	-	X
5	DMS	A	152	-	-	-	X
5	DMS	A	153	-	-	-	X
5	DMS	A	154	-	-	-	X
5	DMS	A	155	-	-	-	X
6	GOL	A	139	-	-	-	X
6	GOL	A	143	-	-	-	X
6	GOL	A	144	-	-	-	X
6	GOL	A	145	-	-	-	X
6	GOL	A	146	-	-	-	X
6	GOL	A	147	-	-	-	X
6	GOL	A	156	-	-	X	X
6	GOL	A	157	-	-	X	X
6	GOL	A	158	-	-	-	X
6	GOL	A	159	-	-	-	X
6	GOL	A	161	-	-	-	X
6	GOL	A	162	-	-	-	X
6	GOL	A	163	-	-	-	X
6	GOL	A	164	-	-	X	X
6	GOL	A	165	-	-	X	-
6	GOL	A	801	-	-	-	X

2 Entry composition (i)

There are 7 unique types of molecules in this entry. The entry contains 1309 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 Lysozyme C.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	129	1001	613	193	185	10	0	0	0

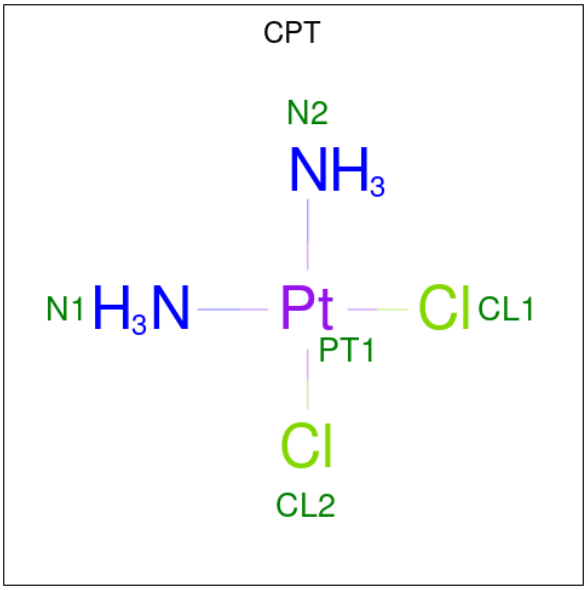
- Molecule 2 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Cl		
2	A	7	7	7	0	0

- Molecule 3 is SODIUM ION (three-letter code: NA) (formula: Na).

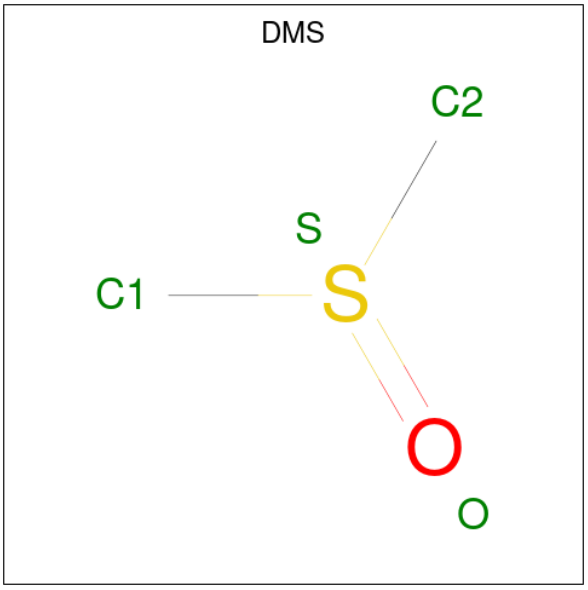
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Na		
3	A	1	1	1	0	0

- Molecule 4 is Cisplatin (three-letter code: CPT) (formula: $Cl_2H_6N_2Pt$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	N	Pt		
4	A	1	3	2	1	0	0

- Molecule 5 is DIMETHYL SULFOXIDE (three-letter code: DMS) (formula: C_2H_6OS).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	O	S		
5	A	1	4	2	1	1	0	0
			Total	C	O	S		
5	A	1	4	2	1	1	0	0
			Total	C	O	S		
5	A	1	4	2	1	1	0	0
			Total	C	O	S		
5	A	1	4	2	1	1	0	0
			Total	C	O	S		
5	A	1	4	2	1	1	0	0
			Total	C	O	S		
5	A	1	4	2	1	1	0	0
			Total	C	O	S		
5	A	1	4	2	1	1	0	0
			Total	C	O	S		
5	A	1	4	2	1	1	0	0
			Total	C	O	S		
5	A	1	4	2	1	1	0	0
			Total	C	O	S		
5	A	1	4	2	1	1	0	0
			Total	C	O	S		
5	A	1	4	2	1	1	0	0
			Total	C	O	S		
5	A	1	4	2	1	1	0	0

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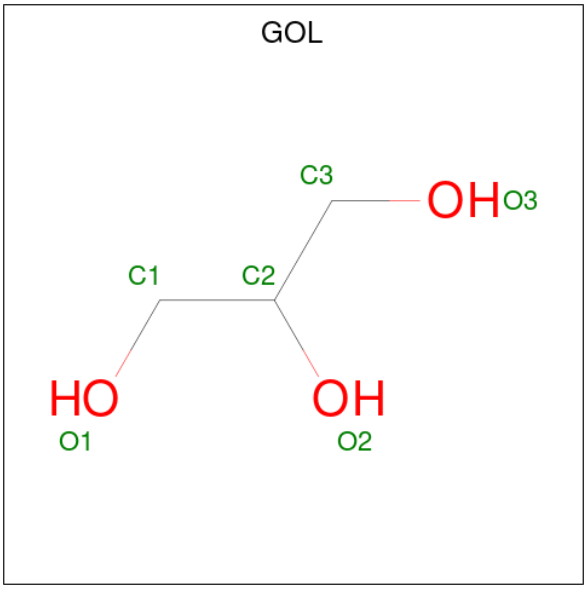
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	O	S		
5	A	1	4	2	1	1	0	0
			Total	C	O	S		
5	A	1	4	2	1	1	0	0
			Total	C	O	S		
5	A	1	4	2	1	1	0	0
			Total	C	O	S		
5	A	1	4	2	1	1	0	0
			Total	C	O	S		
5	A	1	4	2	1	1	0	0

- Molecule 6 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



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

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

- Molecule 7 is water.

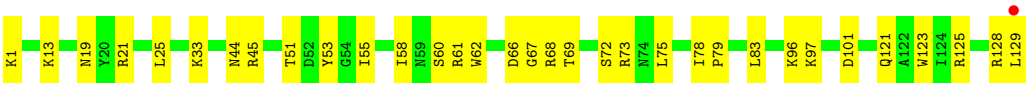
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
7	A	107	107	107	0	0

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: Lysozyme C

Chain A:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 43 21 2	Depositor
Cell constants a, b, c, α, β, γ	78.44Å 78.44Å 36.97Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	55.47 – 1.69 55.47 – 1.69	Depositor EDS
% Data completeness (in resolution range)	95.3 (55.47-1.69) 95.2 (55.47-1.69)	Depositor EDS
R_{merge}	0.04	Depositor
R_{sym}	0.04	Depositor
$< I/\sigma(I) >$ [1]	1.36 (at 1.69Å)	Xtriage
Refinement program	REFMAC 5.5.0110	Depositor
R, R_{free}	0.175 , 0.249 0.215 , 0.267	Depositor DCC
R_{free} test set	624 reflections (4.86%)	wwPDB-VP
Wilson B-factor (Å^2)	12.0	Xtriage
Anisotropy	0.048	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.38 , 51.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.92	EDS
Total number of atoms	1309	wwPDB-VP
Average B, all atoms (Å^2)	23.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.73% 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 (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: DMS, CL, GOL, CPT, NA

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	1.10	2/1021 (0.2%)	1.03	2/1379 (0.1%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	44	ASN	CB-CG	5.46	1.63	1.51
1	A	53	TYR	CG-CD2	5.39	1.46	1.39

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	55	ILE	CG1-CB-CG2	6.18	125.00	111.40
1	A	25	LEU	CB-CG-CD2	-5.81	101.12	111.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1001	0	958	75	0
2	A	7	0	0	8	0
3	A	1	0	0	0	0
4	A	3	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	A	64	0	96	56	0
6	A	126	0	168	44	0
7	A	107	0	0	14	0
All	All	1309	0	1222	106	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 44.

All (106) 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:60:SER:HB2	5:A:148:DMS:C2	1.55	1.37
2:A:1132:CL:CL	5:A:148:DMS:H12	1.70	1.27
2:A:1132:CL:CL	5:A:148:DMS:C1	2.27	1.18
1:A:60:SER:CB	5:A:148:DMS:H23	1.80	1.11
1:A:66:ASP:OD1	5:A:148:DMS:H13	1.53	1.07
1:A:33:LYS:HE3	6:A:157:GOL:H31	1.11	1.06
1:A:19:ASN:HD21	6:A:164:GOL:H31	1.26	0.98
1:A:33:LYS:CE	6:A:157:GOL:H31	1.95	0.95
1:A:1:LYS:N	6:A:165:GOL:H31	1.84	0.91
1:A:69:THR:H	5:A:148:DMS:H12	1.37	0.90
5:A:135:DMS:C2	7:A:2045:HOH:O	2.23	0.87
2:A:1134:CL:CL	5:A:135:DMS:O	2.30	0.86
1:A:60:SER:HB2	5:A:148:DMS:H23	0.85	0.84
1:A:33:LYS:HE3	6:A:157:GOL:C3	2.04	0.84
1:A:45:ARG:HH22	6:A:142:GOL:H11	1.43	0.83
1:A:66:ASP:OD1	5:A:148:DMS:C1	2.27	0.82
1:A:61:ARG:HD3	6:A:158:GOL:H31	1.61	0.82
1:A:66:ASP:H	5:A:148:DMS:H22	1.45	0.82
5:A:135:DMS:H22	7:A:2045:HOH:O	1.79	0.82
2:A:1132:CL:CL	5:A:148:DMS:H11	2.16	0.81
1:A:72:SER:OG	5:A:148:DMS:S	2.39	0.80
1:A:60:SER:CB	5:A:148:DMS:C2	2.49	0.80
1:A:121:GLN:HE22	1:A:125:ARG:HE	1.28	0.80
1:A:121:GLN:HE21	1:A:125:ARG:HH21	1.30	0.78
1:A:19:ASN:ND2	6:A:164:GOL:H31	2.00	0.77
1:A:97:LYS:HG2	6:A:161:GOL:H2	1.66	0.77
6:A:801:GOL:H32	7:A:2072:HOH:O	1.84	0.76
1:A:19:ASN:HD21	6:A:164:GOL:C3	1.97	0.75
1:A:129:LEU:HA	5:A:132:DMS:C1	2.17	0.74
1:A:75:LEU:CD1	6:A:140:GOL:H12	2.18	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:129:LEU:HA	5:A:132:DMS:S	2.27	0.73
6:A:801:GOL:C3	7:A:2072:HOH:O	2.36	0.73
5:A:138:DMS:H21	7:A:2069:HOH:O	1.88	0.72
1:A:96:LYS:NZ	5:A:136:DMS:O	2.21	0.72
1:A:1:LYS:CA	6:A:165:GOL:H31	2.19	0.71
5:A:138:DMS:C2	7:A:2069:HOH:O	2.38	0.71
1:A:33:LYS:HZ1	5:A:135:DMS:C1	2.04	0.70
1:A:66:ASP:N	5:A:148:DMS:H22	2.05	0.70
1:A:121:GLN:HB2	6:A:156:GOL:H11	1.74	0.69
6:A:159:GOL:H2	6:A:163:GOL:C3	2.22	0.69
1:A:1:LYS:N	6:A:165:GOL:C3	2.55	0.68
6:A:157:GOL:H32	7:A:2036:HOH:O	1.93	0.67
1:A:69:THR:N	5:A:148:DMS:H12	2.08	0.67
6:A:156:GOL:O3	6:A:164:GOL:H32	1.95	0.67
1:A:33:LYS:NZ	5:A:135:DMS:S	2.68	0.67
1:A:78:ILE:HG22	5:A:151:DMS:H22	1.77	0.66
5:A:135:DMS:H11	7:A:2046:HOH:O	1.95	0.66
1:A:69:THR:H	5:A:148:DMS:C1	2.06	0.66
5:A:135:DMS:C1	7:A:2046:HOH:O	2.43	0.66
1:A:128:ARG:O	5:A:132:DMS:S	2.55	0.65
5:A:149:DMS:S	6:A:157:GOL:O1	2.49	0.64
6:A:159:GOL:H2	6:A:163:GOL:H32	1.79	0.64
1:A:1:LYS:H1	6:A:165:GOL:C3	2.11	0.64
1:A:1:LYS:H2	6:A:165:GOL:H31	1.63	0.63
1:A:33:LYS:NZ	5:A:135:DMS:O	2.20	0.63
1:A:45:ARG:NH2	6:A:142:GOL:H11	2.12	0.63
1:A:60:SER:HB2	5:A:148:DMS:H21	1.71	0.62
1:A:67:GLY:N	5:A:148:DMS:H11	2.15	0.61
1:A:78:ILE:HG22	5:A:151:DMS:C2	2.31	0.60
1:A:69:THR:HB	5:A:148:DMS:S	2.41	0.60
1:A:121:GLN:NE2	1:A:125:ARG:HH21	1.99	0.60
1:A:45:ARG:HH22	6:A:142:GOL:C1	2.12	0.60
5:A:135:DMS:H21	7:A:2045:HOH:O	1.95	0.59
1:A:19:ASN:ND2	6:A:164:GOL:C3	2.61	0.59
1:A:69:THR:N	5:A:148:DMS:C1	2.64	0.59
1:A:33:LYS:NZ	5:A:135:DMS:C1	2.66	0.58
5:A:131:DMS:O	5:A:149:DMS:C1	2.52	0.57
1:A:121:GLN:NE2	1:A:125:ARG:HE	2.01	0.57
1:A:79:PRO:HD2	5:A:151:DMS:H22	1.85	0.57
1:A:1:LYS:HA	6:A:165:GOL:H31	1.86	0.56
1:A:66:ASP:OD1	5:A:148:DMS:C2	2.55	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:67:GLY:H	5:A:148:DMS:H11	1.71	0.55
5:A:135:DMS:H23	7:A:2046:HOH:O	2.07	0.54
6:A:146:GOL:H11	6:A:156:GOL:H32	1.91	0.53
2:A:1132:CL:CL	5:A:153:DMS:H11	2.47	0.52
1:A:129:LEU:O	6:A:144:GOL:H32	2.10	0.51
1:A:61:ARG:HD2	6:A:801:GOL:O3	2.10	0.51
1:A:129:LEU:HA	5:A:132:DMS:H13	1.91	0.51
1:A:101:ASP:OD1	6:A:140:GOL:H11	2.11	0.50
2:A:1131:CL:CL	6:A:156:GOL:O1	2.59	0.50
5:A:149:DMS:S	6:A:157:GOL:C1	2.99	0.50
1:A:125:ARG:HG2	6:A:145:GOL:O3	2.14	0.48
1:A:66:ASP:H	5:A:148:DMS:C2	2.23	0.47
1:A:45:ARG:HD2	1:A:51:THR:OG1	2.14	0.47
5:A:153:DMS:H11	7:A:2075:HOH:O	2.14	0.47
1:A:69:THR:HB	5:A:148:DMS:C1	2.45	0.47
1:A:61:ARG:NH1	1:A:62:TRP:HE1	2.13	0.46
1:A:66:ASP:OD1	5:A:148:DMS:H23	2.15	0.46
6:A:146:GOL:C3	6:A:156:GOL:H2	2.44	0.46
1:A:21:ARG:HD2	6:A:141:GOL:O3	2.16	0.46
1:A:13:LYS:NZ	6:A:144:GOL:O1	2.49	0.46
1:A:129:LEU:C	6:A:144:GOL:H11	2.36	0.46
6:A:141:GOL:H2	7:A:2109:HOH:O	2.15	0.46
1:A:62:TRP:CZ3	1:A:73:ARG:HG3	2.51	0.45
1:A:21:ARG:HH11	6:A:141:GOL:C3	2.30	0.44
1:A:61:ARG:CD	6:A:158:GOL:H31	2.41	0.44
1:A:68:ARG:NH1	2:A:1137:CL:CL	2.78	0.43
2:A:1132:CL:CL	5:A:153:DMS:C1	3.03	0.43
1:A:69:THR:CB	5:A:148:DMS:C1	2.97	0.43
1:A:33:LYS:HZ1	5:A:135:DMS:H11	1.82	0.43
1:A:75:LEU:HD11	6:A:140:GOL:H12	1.99	0.42
1:A:123:TRP:CZ3	5:A:131:DMS:H11	2.55	0.42
1:A:58:ILE:HB	1:A:83:LEU:HD13	2.01	0.42
6:A:146:GOL:H31	6:A:156:GOL:H2	2.02	0.42
5:A:138:DMS:H23	7:A:2069:HOH:O	2.11	0.40
5:A:149:DMS:C1	6:A:159:GOL:O1	2.69	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	127/129 (98%)	124 (98%)	3 (2%)	0	100 100

There are no Ramachandran outliers to report.

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	105/105 (100%)	105 (100%)	0	100 100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	15	HIS
1	A	19	ASN
1	A	121	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 46 ligands modelled in this entry, 8 are monoatomic - leaving 38 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	$\#\|Z\| > 2$
5	DMS	A	137	-	3,3,3	2.66	1 (33%)	3,3,3	0.54	0
6	GOL	A	147	-	5,5,5	0.43	0	5,5,5	0.47	0
6	GOL	A	164	-	5,5,5	0.38	0	5,5,5	0.74	0
6	GOL	A	166	-	5,5,5	0.46	0	5,5,5	0.50	0
5	DMS	A	133	-	3,3,3	2.66	1 (33%)	3,3,3	0.57	0
5	DMS	A	148	3	3,3,3	2.64	1 (33%)	3,3,3	1.38	0
6	GOL	A	801	-	5,5,5	0.36	0	5,5,5	0.49	0
5	DMS	A	131	-	3,3,3	2.74	1 (33%)	3,3,3	0.89	0
6	GOL	A	162	-	5,5,5	0.35	0	5,5,5	0.34	0
6	GOL	A	163	-	5,5,5	0.41	0	5,5,5	0.46	0
5	DMS	A	151	-	3,3,3	2.70	1 (33%)	3,3,3	0.73	0
5	DMS	A	154	-	3,3,3	2.68	1 (33%)	3,3,3	0.59	0
6	GOL	A	158	-	5,5,5	0.53	0	5,5,5	1.42	1 (20%)
5	DMS	A	138	-	3,3,3	1.90	1 (33%)	3,3,3	0.77	0
5	DMS	A	152	-	3,3,3	2.71	1 (33%)	3,3,3	0.62	0
5	DMS	A	150	-	3,3,3	2.65	1 (33%)	3,3,3	0.58	0
6	GOL	A	160	-	5,5,5	0.41	0	5,5,5	0.27	0
4	CPT	A	130	1	0,2,4	-	-	-		
6	GOL	A	145	-	5,5,5	0.37	0	5,5,5	0.43	0
5	DMS	A	155	-	3,3,3	2.70	1 (33%)	3,3,3	0.51	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
5	DMS	A	149	-	3,3,3	2.68	1 (33%)	3,3,3	0.68	0
6	GOL	A	141	-	5,5,5	0.37	0	5,5,5	0.94	0
5	DMS	A	134	-	3,3,3	2.73	1 (33%)	3,3,3	0.67	0
6	GOL	A	139	-	5,5,5	0.33	0	5,5,5	0.40	0
6	GOL	A	157	-	5,5,5	0.52	0	5,5,5	1.01	0
5	DMS	A	132	-	3,3,3	2.61	1 (33%)	3,3,3	0.70	0
6	GOL	A	143	-	5,5,5	0.36	0	5,5,5	0.39	0
6	GOL	A	156	-	5,5,5	0.30	0	5,5,5	0.50	0
6	GOL	A	165	-	5,5,5	0.43	0	5,5,5	1.13	0
5	DMS	A	136	-	3,3,3	2.63	1 (33%)	3,3,3	1.24	1 (33%)
6	GOL	A	140	-	5,5,5	0.44	0	5,5,5	0.45	0
6	GOL	A	159	-	5,5,5	0.39	0	5,5,5	0.54	0
6	GOL	A	161	-	5,5,5	0.36	0	5,5,5	0.37	0
6	GOL	A	146	-	5,5,5	0.35	0	5,5,5	0.42	0
6	GOL	A	142	-	5,5,5	0.50	0	5,5,5	0.37	0
6	GOL	A	144	-	5,5,5	0.43	0	5,5,5	0.33	0
5	DMS	A	153	-	3,3,3	2.67	1 (33%)	3,3,3	0.54	0
5	DMS	A	135	-	3,3,3	2.74	1 (33%)	3,3,3	1.18	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
6	GOL	A	147	-	-	2/4/4/4	-
6	GOL	A	164	-	-	2/4/4/4	-
6	GOL	A	166	-	-	2/4/4/4	-
6	GOL	A	801	-	-	4/4/4/4	-
6	GOL	A	162	-	-	2/4/4/4	-
6	GOL	A	163	-	-	4/4/4/4	-
6	GOL	A	158	-	-	3/4/4/4	-
6	GOL	A	160	-	-	0/4/4/4	-
6	GOL	A	145	-	-	2/4/4/4	-
6	GOL	A	141	-	-	2/4/4/4	-
6	GOL	A	139	-	-	0/4/4/4	-
6	GOL	A	157	-	-	4/4/4/4	-
6	GOL	A	143	-	-	4/4/4/4	-
6	GOL	A	156	-	-	2/4/4/4	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	GOL	A	165	-	-	2/4/4/4	-
6	GOL	A	140	-	-	0/4/4/4	-
6	GOL	A	159	-	-	0/4/4/4	-
6	GOL	A	146	-	-	4/4/4/4	-
6	GOL	A	142	-	-	2/4/4/4	-
6	GOL	A	144	-	-	4/4/4/4	-
6	GOL	A	161	-	-	0/4/4/4	-

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	131	DMS	O-S	4.65	1.81	1.50
5	A	134	DMS	O-S	4.58	1.81	1.50
5	A	155	DMS	O-S	4.54	1.80	1.50
5	A	135	DMS	O-S	4.53	1.80	1.50
5	A	152	DMS	O-S	4.52	1.80	1.50
5	A	149	DMS	O-S	4.52	1.80	1.50
5	A	151	DMS	O-S	4.51	1.80	1.50
5	A	133	DMS	O-S	4.49	1.80	1.50
5	A	153	DMS	O-S	4.49	1.80	1.50
5	A	154	DMS	O-S	4.48	1.80	1.50
5	A	137	DMS	O-S	4.45	1.80	1.50
5	A	150	DMS	O-S	4.44	1.80	1.50
5	A	132	DMS	O-S	4.39	1.79	1.50
5	A	148	DMS	O-S	4.36	1.79	1.50
5	A	136	DMS	O-S	4.36	1.79	1.50
5	A	138	DMS	O-S	3.08	1.71	1.50

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	A	158	GOL	O2-C2-C1	2.25	119.03	109.12
5	A	136	DMS	O-S-C1	2.13	117.40	106.54

There are no chirality outliers.

All (45) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	141	GOL	C1-C2-C3-O3
6	A	143	GOL	O1-C1-C2-C3

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Mol	Chain	Res	Type	Atoms
6	A	143	GOL	C1-C2-C3-O3
6	A	143	GOL	O2-C2-C3-O3
6	A	144	GOL	O1-C1-C2-C3
6	A	144	GOL	C1-C2-C3-O3
6	A	145	GOL	O1-C1-C2-O2
6	A	145	GOL	O1-C1-C2-C3
6	A	146	GOL	O1-C1-C2-O2
6	A	146	GOL	O1-C1-C2-C3
6	A	146	GOL	C1-C2-C3-O3
6	A	146	GOL	O2-C2-C3-O3
6	A	147	GOL	C1-C2-C3-O3
6	A	156	GOL	C1-C2-C3-O3
6	A	157	GOL	C1-C2-C3-O3
6	A	158	GOL	O1-C1-C2-C3
6	A	157	GOL	O1-C1-C2-O2
6	A	162	GOL	O2-C2-C3-O3
6	A	801	GOL	O1-C1-C2-C3
6	A	801	GOL	C1-C2-C3-O3
6	A	142	GOL	O1-C1-C2-C3
6	A	157	GOL	O1-C1-C2-C3
6	A	158	GOL	C1-C2-C3-O3
6	A	162	GOL	C1-C2-C3-O3
6	A	163	GOL	O1-C1-C2-C3
6	A	165	GOL	O1-C1-C2-C3
6	A	166	GOL	O1-C1-C2-C3
6	A	801	GOL	O2-C2-C3-O3
6	A	143	GOL	O1-C1-C2-O2
6	A	144	GOL	O1-C1-C2-O2
6	A	144	GOL	O2-C2-C3-O3
6	A	147	GOL	O2-C2-C3-O3
6	A	156	GOL	O2-C2-C3-O3
6	A	166	GOL	O1-C1-C2-O2
6	A	157	GOL	O2-C2-C3-O3
6	A	141	GOL	O2-C2-C3-O3
6	A	163	GOL	O1-C1-C2-O2
6	A	165	GOL	O1-C1-C2-O2
6	A	142	GOL	O1-C1-C2-O2
6	A	164	GOL	O2-C2-C3-O3
6	A	163	GOL	C1-C2-C3-O3
6	A	164	GOL	C1-C2-C3-O3
6	A	801	GOL	O1-C1-C2-O2
6	A	158	GOL	O2-C2-C3-O3

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Mol	Chain	Res	Type	Atoms
6	A	163	GOL	O2-C2-C3-O3

There are no ring outliers.

24 monomers are involved in 97 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	A	164	GOL	5	0
5	A	148	DMS	25	0
6	A	801	GOL	3	0
5	A	131	DMS	2	0
6	A	163	GOL	2	0
5	A	151	DMS	3	0
6	A	158	GOL	2	0
5	A	138	DMS	3	0
6	A	145	GOL	1	0
5	A	149	DMS	4	0
6	A	141	GOL	3	0
6	A	157	GOL	6	0
5	A	132	DMS	4	0
6	A	156	GOL	6	0
6	A	165	GOL	6	0
5	A	136	DMS	1	0
6	A	140	GOL	3	0
6	A	159	GOL	3	0
6	A	161	GOL	1	0
6	A	146	GOL	3	0
6	A	142	GOL	3	0
6	A	144	GOL	3	0
5	A	153	DMS	3	0
5	A	135	DMS	12	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 (i)

6.1 Protein, DNA and RNA chains (i)

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	129/129 (100%)	-0.02	1 (0%) 86 88	7, 12, 23, 32	0

All (1) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	129	LEU	3.4

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

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

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
6	GOL	A	145	6/6	-0.05	0.57	93,94,94,95	0
6	GOL	A	146	6/6	0.03	0.59	94,95,95,96	0
6	GOL	A	144	6/6	0.04	0.81	94,95,95,96	0
5	DMS	A	150	4/4	0.06	0.97	136,137,137,137	0
5	DMS	A	137	4/4	0.07	0.93	156,156,156,156	0
6	GOL	A	162	6/6	0.07	0.45	64,66,66,67	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
5	DMS	A	154	4/4	0.09	0.99	148,148,148,148	0
5	DMS	A	149	4/4	0.10	0.63	85,85,86,87	0
6	GOL	A	164	6/6	0.17	0.95	124,126,126,126	0
6	GOL	A	143	6/6	0.22	0.57	66,72,72,72	0
6	GOL	A	147	6/6	0.22	0.47	83,84,84,85	0
5	DMS	A	134	4/4	0.30	0.68	130,130,130,130	0
5	DMS	A	153	4/4	0.33	0.80	157,158,158,158	0
6	GOL	A	161	6/6	0.33	0.60	72,74,74,75	0
6	GOL	A	163	6/6	0.35	0.76	106,107,107,108	0
6	GOL	A	139	6/6	0.38	0.43	72,73,73,73	0
5	DMS	A	133	4/4	0.38	0.39	83,84,84,84	0
6	GOL	A	801	6/6	0.47	0.41	52,54,57,58	0
6	GOL	A	140	6/6	0.48	0.28	55,56,57,57	0
6	GOL	A	156	6/6	0.48	0.43	62,64,65,65	0
5	DMS	A	152	4/4	0.50	0.41	97,97,97,98	0
6	GOL	A	166	6/6	0.56	0.37	68,70,71,72	0
6	GOL	A	142	6/6	0.59	0.40	44,50,51,52	0
5	DMS	A	148	4/4	0.60	0.89	23,33,36,36	0
5	DMS	A	151	4/4	0.60	0.50	90,90,90,90	0
6	GOL	A	159	6/6	0.63	0.42	46,53,53,54	0
6	GOL	A	158	6/6	0.63	0.41	38,39,42,43	0
6	GOL	A	160	6/6	0.67	0.32	66,67,68,68	0
5	DMS	A	135	4/4	0.69	0.30	46,46,47,48	0
5	DMS	A	155	4/4	0.70	0.48	124,124,125,125	0
6	GOL	A	141	6/6	0.71	0.35	34,44,45,46	0
2	CL	A	1132	1/1	0.77	0.14	12,12,12,12	0
5	DMS	A	136	4/4	0.78	0.28	32,33,35,38	0
6	GOL	A	157	6/6	0.79	0.49	31,36,38,42	0
5	DMS	A	132	4/4	0.80	0.40	59,59,59,60	0
5	DMS	A	131	4/4	0.80	0.24	52,53,53,55	0
6	GOL	A	165	6/6	0.82	0.30	16,38,40,40	0
5	DMS	A	138	4/4	0.90	0.18	24,28,28,31	0
2	CL	A	1137	1/1	0.91	0.18	42,42,42,42	0
3	NA	A	1138	1/1	0.92	0.14	13,13,13,13	0
2	CL	A	1136	1/1	0.94	0.18	36,36,36,36	0
2	CL	A	1131	1/1	0.97	0.06	17,17,17,17	0
2	CL	A	1134	1/1	0.97	0.18	25,25,25,25	0
2	CL	A	1130	1/1	0.98	0.11	10,10,10,10	0
2	CL	A	1135	1/1	0.98	0.06	28,28,28,28	0
4	CPT	A	130	3/5	0.99	0.12	19,19,24,31	0

6.5 Other polymers (i)

There are no such residues in this entry.