



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 13, 2018 – 07:42 pm GMT

PDB ID : 4UFX  
Title : Plasmodium vivax N-myristoyltransferase in complex with a pyridyl inhibitor (compound 19)  
Authors : Yu, Z.; Brannigan, J.A.; Rangachari, K.; Heal, W.P.; Wilkinson, A.J.; Holder, A.A.; Tate, E.W.; Leatherbarrow, R.J.  
Deposited on : 2015-03-19  
Resolution : 1.49 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](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467  
Mogul : 1.7.3 (157068), CSD as539be (2018)  
Xtriage (Phenix) : 1.13  
EDS : trunk31020  
Percentile statistics : 20171227.v01 (using entries in the PDB archive December 27th 2017)  
Refmac : 5.8.0158  
CCP4 : 7.0 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : trunk31020

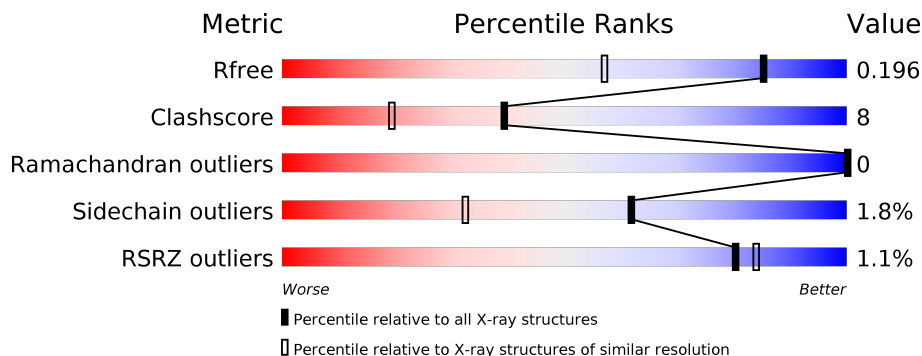
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 1.49 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))
$R_{free}$	111664	2534 (1.50-1.50)
Clashscore	122126	2727 (1.50-1.50)
Ramachandran outliers	120053	2661 (1.50-1.50)
Sidechain outliers	120020	2659 (1.50-1.50)
RSRZ outliers	108989	2481 (1.50-1.50)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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	385	 % 85% 13% •
1	B	385	 % 87% 12% •
1	C	385	 % 81% 14% ••

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
6	CL	A	1415	-	-	X	-

## 2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 11935 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.

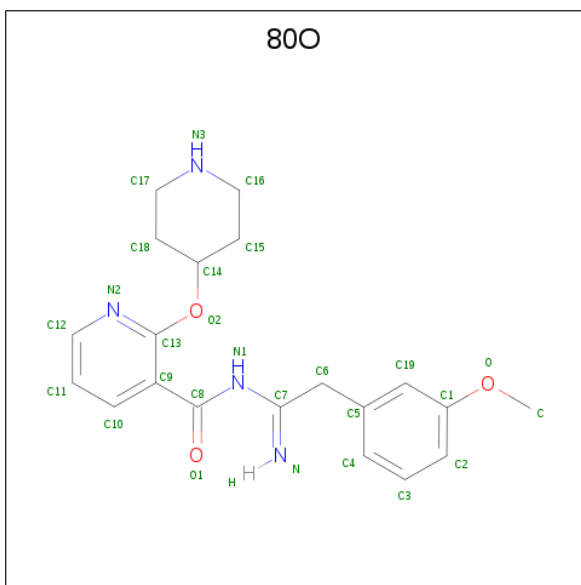
- Molecule 1 is a protein called GLYCYLPEPTIDE N-TETRADECANOYLTRANSFERASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	385	Total 3335	C 2185	N 536	O 601	S 13	0	29	0
1	B	385	Total 3413	C 2241	N 543	O 616	S 13	0	42	0
1	C	372	Total 3308	C 2187	N 518	O 591	S 12	0	41	0

There are 3 discrepancies between the modelled and reference sequences:

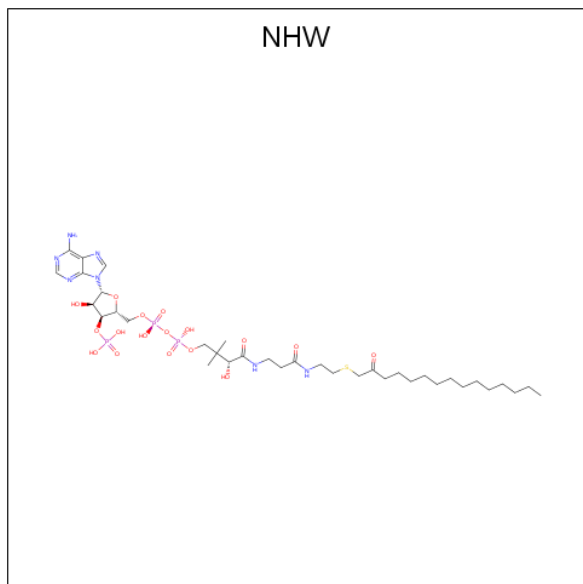
Chain	Residue	Modelled	Actual	Comment	Reference
A	26	MET	-	expression tag	UNP A5K1A2
B	26	MET	-	expression tag	UNP A5K1A2
C	26	MET	-	expression tag	UNP A5K1A2

- Molecule 2 is N-[2-(3-methoxyphenyl)ethanimidoyl]-2-piperidin-4-yloxy-pyridine-3-carboxamide (three-letter code: 80O) (formula: C<sub>20</sub>H<sub>24</sub>N<sub>4</sub>O<sub>3</sub>).



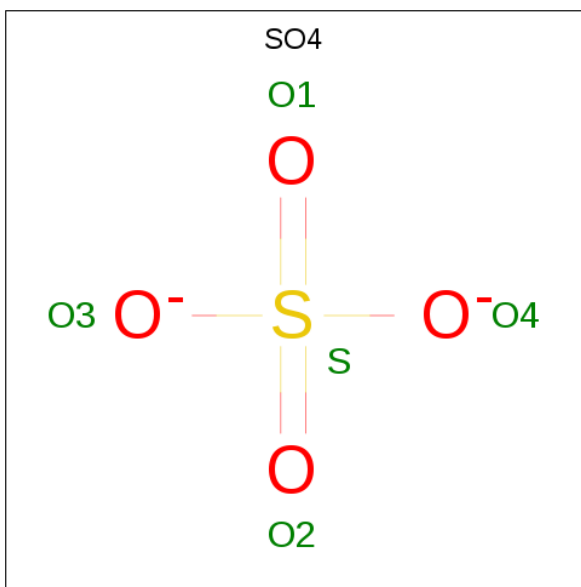
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
2	A	1	27	20	4	3	0	0
2	B	1	27	20	4	3	0	0
2	C	1	27	20	4	3	0	0

- Molecule 3 is 2-oxopentadecyl-CoA (three-letter code: NHW) (formula:  $C_{36}H_{64}N_7O_{17}P_3S$ ).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
			Total	C	N	O	P	S		
3	A	1	64	36	7	17	3	1	0	0
3	B	1	64	36	7	17	3	1	0	0
3	C	1	64	36	7	17	3	1	0	0

- Molecule 4 is SULFATE ION (three-letter code: SO4) (formula:  $O_4S$ ).



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

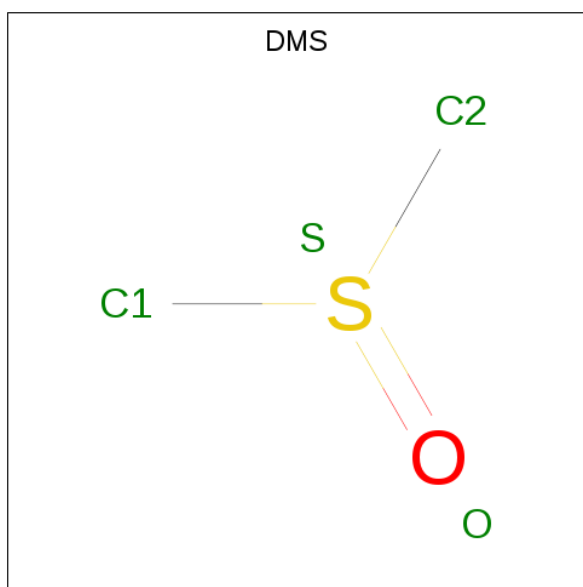
- Molecule 5 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	B	1	Total	Mg	0	0
			1	1		
5	A	1	Total	Mg	0	0
			1	1		
5	C	1	Total	Mg	0	0
			1	1		

- Molecule 6 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	B	2	Total	Cl	0	0
			2	2		
6	A	3	Total	Cl	0	0
			3	3		
6	C	1	Total	Cl	0	0
			1	1		

- Molecule 7 is DIMETHYL SULFOXIDE (three-letter code: DMS) (formula: C<sub>2</sub>H<sub>6</sub>OS).



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

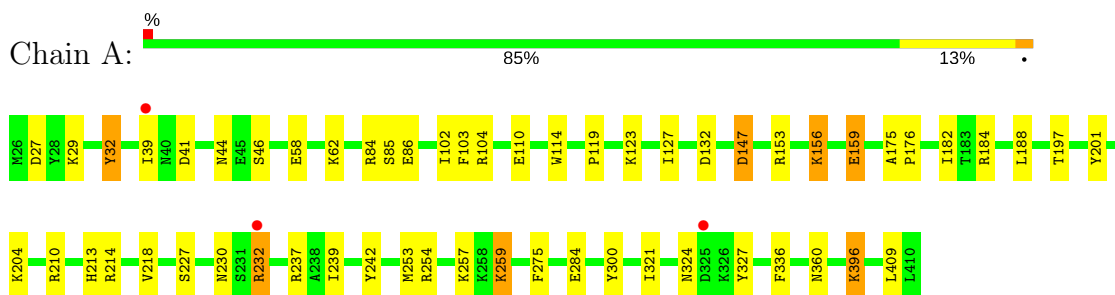
- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	583	Total	O	0	0
			583	583		
8	B	466	Total	O	0	0
			466	466		
8	C	518	Total	O	0	0
			518	518		

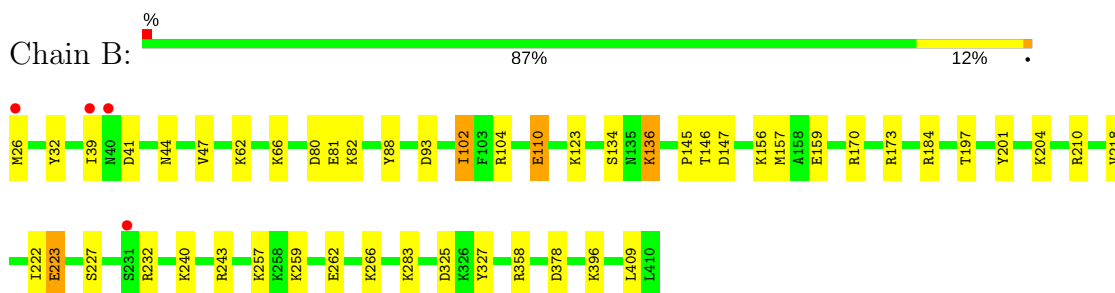
### 3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA 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.

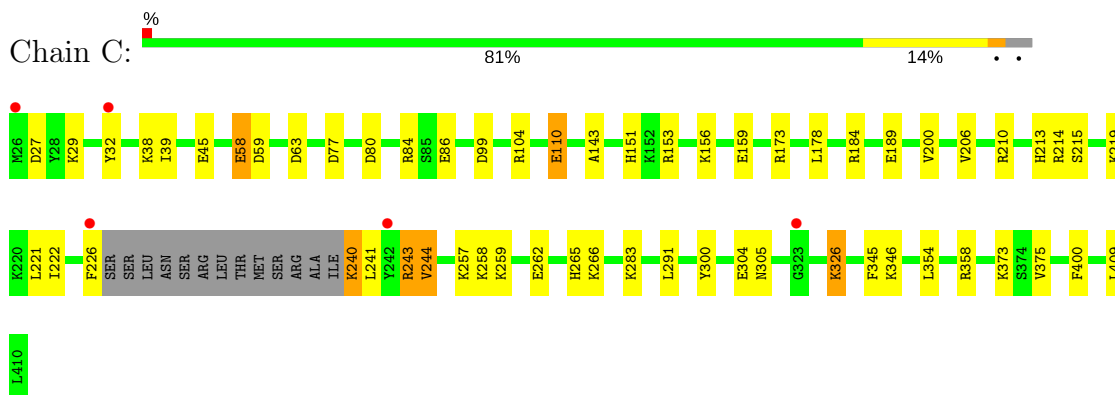
- Molecule 1: GLYCYLPEPTIDE N-TETRADECANOYLTRANSFERASE



- Molecule 1: GLYCYLPEPTIDE N-TETRADECANOYLTRANSFERASE



- Molecule 1: GLYCYLPEPTIDE N-TETRADECANOYLTRANSFERASE





## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	57.33Å 118.89Å 174.90Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	98.32 – 1.49 87.45 – 1.49	Depositor EDS
% Data completeness (in resolution range)	99.8 (98.32-1.49) 99.8 (87.45-1.49)	Depositor EDS
$R_{merge}$	0.10	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.76 (at 1.49Å)	Xtrriage
Refinement program	REFMAC 5.8.0033	Depositor
R, $R_{free}$	0.158 , 0.197 0.158 , 0.196	Depositor DCC
$R_{free}$ test set	9856 reflections (5.06%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	10.3	Xtrriage
Anisotropy	0.657	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.35 , 47.9	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.45$ , $\langle L^2 \rangle = 0.28$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.97	EDS
Total number of atoms	11935	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	14.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.01% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

## 5 Model quality i

### 5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: MG, 80O, CL, NHW, DMS, SO4

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	1.16	4/3500 (0.1%)	1.20	16/4734 (0.3%)
1	B	1.18	3/3620 (0.1%)	1.16	11/4888 (0.2%)
1	C	1.15	2/3513 (0.1%)	1.19	12/4746 (0.3%)
All	All	1.16	9/10633 (0.1%)	1.18	39/14368 (0.3%)

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	C	0	1

All (9) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	189	GLU	CD-OE2	-5.97	1.19	1.25
1	A	159	GLU	CD-OE1	5.92	1.32	1.25
1	A	114	TRP	CZ3-CH2	5.56	1.49	1.40
1	C	63	ASP	CB-CG	5.41	1.63	1.51
1	A	32	TYR	CB-CG	5.17	1.59	1.51
1	A	336	PHE	CE1-CZ	5.17	1.47	1.37
1	B	358	ARG	CZ-NH2	5.09	1.39	1.33
1	B	88	TYR	CE1-CZ	5.03	1.45	1.38
1	B	32	TYR	CB-CG	5.03	1.59	1.51

All (39) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	184	ARG	NE-CZ-NH2	-10.34	115.13	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	104	ARG	NE-CZ-NH1	10.02	125.31	120.30
1	A	104	ARG	NE-CZ-NH2	-9.90	115.35	120.30
1	B	184	ARG	NE-CZ-NH2	-9.60	115.50	120.30
1	C	104	ARG	NE-CZ-NH1	9.43	125.01	120.30
1	B	104	ARG	NE-CZ-NH1	7.98	124.29	120.30
1	A	259[A]	LYS	CD-CE-NZ	-7.19	95.16	111.70
1	A	259[B]	LYS	CD-CE-NZ	-7.19	95.16	111.70
1	C	244	VAL	CG1-CB-CG2	7.17	122.37	110.90
1	A	275	PHE	CB-CG-CD1	-7.01	115.89	120.80
1	A	84	ARG	NE-CZ-NH1	6.98	123.79	120.30
1	C	184	ARG	NE-CZ-NH1	6.58	123.59	120.30
1	C	104	ARG	NE-CZ-NH2	-6.51	117.05	120.30
1	A	184	ARG	NE-CZ-NH2	-6.48	117.06	120.30
1	A	214	ARG	NE-CZ-NH2	-6.35	117.12	120.30
1	A	132	ASP	CB-CG-OD2	-6.25	112.67	118.30
1	A	153	ARG	NE-CZ-NH1	6.13	123.36	120.30
1	B	358	ARG	NE-CZ-NH1	6.13	123.36	120.30
1	C	84	ARG	NE-CZ-NH1	6.12	123.36	120.30
1	B	147	ASP	CB-CG-OD1	6.11	123.80	118.30
1	A	336	PHE	CB-CG-CD2	-6.02	116.59	120.80
1	B	173	ARG	NE-CZ-NH1	5.99	123.29	120.30
1	A	254	ARG	NE-CZ-NH2	-5.98	117.31	120.30
1	B	358	ARG	NE-CZ-NH2	-5.87	117.37	120.30
1	C	210	ARG	NE-CZ-NH2	-5.76	117.42	120.30
1	C	345	PHE	CB-CG-CD1	-5.73	116.79	120.80
1	B	102	ILE	CB-CA-C	-5.54	100.53	111.60
1	C	153	ARG	NE-CZ-NH1	5.50	123.05	120.30
1	A	123	LYS	CD-CE-NZ	-5.33	99.44	111.70
1	A	147[A]	ASP	CB-CG-OD1	5.18	122.96	118.30
1	A	147[B]	ASP	CB-CG-OD1	5.18	122.96	118.30
1	C	80	ASP	CB-CG-OD2	5.15	122.94	118.30
1	B	170	ARG	NE-CZ-NH2	-5.15	117.73	120.30
1	C	77	ASP	CB-CG-OD1	5.13	122.92	118.30
1	B	378	ASP	CB-CG-OD1	5.12	122.91	118.30
1	B	104	ARG	NE-CZ-NH2	-5.05	117.77	120.30
1	B	93	ASP	CB-CG-OD1	5.04	122.84	118.30
1	A	396	LYS	CD-CE-NZ	-5.03	100.12	111.70
1	C	173	ARG	NE-CZ-NH1	-5.03	117.79	120.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	240	LYS	Peptide

## 5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3335	0	3419	50	0
1	B	3413	0	3539	57	0
1	C	3308	0	3428	58	2
2	A	27	0	23	1	0
2	B	27	0	23	1	0
2	C	27	0	23	1	0
3	A	64	0	60	0	0
3	B	64	0	60	0	0
3	C	64	0	59	0	0
4	A	5	0	0	1	0
4	B	5	0	0	1	0
5	A	1	0	0	0	0
5	B	1	0	0	0	0
5	C	1	0	0	0	0
6	A	3	0	0	2	0
6	B	2	0	0	0	0
6	C	1	0	0	0	0
7	A	8	0	12	0	0
7	B	8	0	12	0	0
7	C	4	0	6	1	0
8	A	583	0	0	18	1
8	B	466	0	0	17	0
8	C	518	0	0	21	1
All	All	11935	0	10664	169	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 8.

All (169) 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:409[B]:LEU:HD23	8:A:2303:HOH:O	1.09	1.27
1:B:257[A]:LYS:HD2	1:B:259[A]:LYS:NZ	1.59	1.17
1:B:257[B]:LYS:HD2	8:B:2340:HOH:O	1.42	1.17
1:B:243[B]:ARG:NH2	8:B:2308:HOH:O	1.76	1.17
1:C:409[A]:LEU:HD23	8:C:2279:HOH:O	1.43	1.15
1:C:258[A]:LYS:NZ	8:C:2374:HOH:O	1.80	1.14
1:C:151[B]:HIS:HE1	8:C:2043:HOH:O	1.38	1.06
1:A:232:ARG:O	1:A:237[B]:ARG:NH1	1.92	1.03
1:B:66[A]:LYS:NZ	8:B:2088:HOH:O	1.89	1.03
1:B:39:ILE:HD11	1:B:201:TYR:HE1	1.20	1.02
1:A:156[B]:LYS:HE3	8:A:2301:HOH:O	1.58	1.01
1:A:156[B]:LYS:CE	8:A:2301:HOH:O	2.07	1.01
1:C:32[A]:TYR:HE2	8:C:2013:HOH:O	1.41	1.00
1:B:283[A]:LYS:NZ	8:B:2348:HOH:O	1.95	0.97
1:C:200[A]:VAL:CG2	8:C:2311:HOH:O	2.13	0.97
1:B:62[B]:LYS:HG3	8:B:2067:HOH:O	1.67	0.94
1:B:257[A]:LYS:HD2	1:B:259[A]:LYS:HZ3	1.33	0.94
1:B:39:ILE:HD11	1:B:201:TYR:CE1	2.03	0.92
1:B:159[A]:GLU:CD	1:B:409[A]:LEU:HD22	1.92	0.90
1:B:156[A]:LYS:NZ	1:B:157:MET:O	2.04	0.89
1:C:262[B]:GLU:HG3	1:C:283[B]:LYS:HE3	1.55	0.88
1:B:257[A]:LYS:HE3	8:B:2338:HOH:O	1.75	0.87
1:B:257[A]:LYS:CD	1:B:259[A]:LYS:NZ	2.39	0.85
1:A:44:ASN:HD22	1:A:46:SER:H	1.25	0.84
1:B:44[B]:ASN:H	1:B:44[B]:ASN:ND2	1.75	0.83
1:C:32[A]:TYR:CE2	8:C:2013:HOH:O	2.19	0.83
1:A:257:LYS:HE2	1:A:259[A]:LYS:NZ	1.93	0.83
1:C:258[A]:LYS:CE	8:C:2374:HOH:O	2.23	0.81
1:B:257[A]:LYS:HD2	1:B:259[A]:LYS:HZ1	1.47	0.78
1:C:346[B]:LYS:HG2	1:C:375:VAL:HG12	1.68	0.76
1:A:39:ILE:HD11	1:A:201:TYR:HE1	1.52	0.74
1:C:151[B]:HIS:CE1	8:C:2043:HOH:O	2.23	0.74
1:C:110[B]:GLU:HG3	8:C:2214:HOH:O	1.89	0.73
2:C:1000:80O:N	2:C:1000:80O:O1	2.16	0.73
1:B:82[B]:LYS:HE3	8:B:2117:HOH:O	1.90	0.71
1:C:300[A]:TYR:OH	8:C:2431:HOH:O	2.09	0.71
1:B:145:PRO:HB2	1:B:156[A]:LYS:HE2	1.74	0.70
1:A:39:ILE:HD11	1:A:201:TYR:CE1	2.26	0.70
1:A:110[A]:GLU:OE2	8:A:2166:HOH:O	2.08	0.69
1:A:147[A]:ASP:OD2	8:A:2281:HOH:O	2.10	0.69
1:B:39:ILE:CD1	1:B:201:TYR:HE1	2.01	0.69
1:B:159[A]:GLU:CD	1:B:409[A]:LEU:CD2	2.60	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:85[A]:SER:OG	8:A:2163:HOH:O	2.12	0.67
1:C:257:LYS:HE3	1:C:259[B]:LYS:NZ	2.11	0.66
1:C:266[A]:LYS:HG3	8:C:2380:HOH:O	1.94	0.66
1:B:44[B]:ASN:H	1:B:44[B]:ASN:HD22	1.43	0.65
1:A:159:GLU:CD	1:A:409[A]:LEU:HD22	2.17	0.65
1:A:44:ASN:ND2	1:A:46:SER:H	1.94	0.65
1:C:326[B]:LYS:CE	8:C:2447:HOH:O	2.44	0.65
2:A:1000:80O:O1	2:A:1000:80O:N	2.23	0.64
1:C:110[B]:GLU:CG	8:C:2214:HOH:O	2.43	0.64
1:A:230:ASN:OD1	1:A:232:ARG:HB2	1.98	0.64
1:A:156[A]:LYS:HE2	8:A:2301:HOH:O	1.97	0.63
1:B:243[B]:ARG:HD3	8:B:2314:HOH:O	1.97	0.63
1:A:119:PRO:CG	1:A:284[B]:GLU:HG2	2.29	0.63
1:B:123[C]:LYS:HB3	8:B:2105:HOH:O	1.99	0.63
1:B:41:ASP:O	1:B:204[B]:LYS:HE3	1.99	0.63
1:A:259[B]:LYS:HB2	1:A:259[B]:LYS:HZ3	1.63	0.62
1:A:27:ASP:HB3	1:A:29:LYS:HE3	1.82	0.62
1:B:159[A]:GLU:OE1	1:B:409[A]:LEU:CD2	2.48	0.61
1:A:58[B]:GLU:HG3	8:A:2079:HOH:O	1.99	0.61
1:B:145:PRO:HB2	1:B:156[A]:LYS:CE	2.31	0.61
1:C:354[B]:LEU:HD21	1:C:358:ARG:NE	2.16	0.61
1:C:206[B]:VAL:HG22	1:C:400:PHE:CE1	2.36	0.60
2:B:1000:80O:N	2:B:1000:80O:O1	2.26	0.60
1:A:127:ILE:CD1	1:A:182[B]:ILE:HD13	2.32	0.60
1:B:110[B]:GLU:HG3	8:B:2176:HOH:O	2.02	0.59
1:A:218[A]:VAL:HG21	1:A:239:ILE:HA	1.83	0.59
1:A:86:GLU:OE2	8:A:2173:HOH:O	2.17	0.59
1:B:240[A]:LYS:HG3	1:B:243[A]:ARG:NH2	2.18	0.59
1:C:258[A]:LYS:HE3	8:C:2374:HOH:O	1.92	0.58
1:B:134:SER:OG	1:B:136[B]:LYS:HB3	2.03	0.58
1:C:156[B]:LYS:HE2	8:C:2168:HOH:O	2.03	0.58
1:B:240[A]:LYS:HG3	1:B:243[A]:ARG:HH21	1.70	0.56
1:C:32[A]:TYR:OH	1:C:39:ILE:HG22	2.05	0.56
1:A:284[B]:GLU:HG3	8:A:2465:HOH:O	2.05	0.56
1:A:58[A]:GLU:HG2	8:A:2041:HOH:O	2.05	0.56
8:A:2513:HOH:O	1:B:44[B]:ASN:HB3	2.06	0.55
1:C:262[B]:GLU:CG	1:C:283[B]:LYS:HE3	2.31	0.55
1:C:326[B]:LYS:HE2	1:C:326[B]:LYS:CA	2.37	0.55
1:C:222:ILE:HB	8:C:2333:HOH:O	2.07	0.54
1:B:82[B]:LYS:CD	8:B:2117:HOH:O	2.54	0.54
1:A:409[B]:LEU:CD2	8:A:2303:HOH:O	1.96	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:82[B]:LYS:HD2	8:B:2117:HOH:O	2.09	0.53
1:B:197:THR:HG23	1:B:409[B]:LEU:HD22	1.91	0.53
1:B:80:ASP:OD2	1:B:82[B]:LYS:HD2	2.07	0.53
1:B:262[B]:GLU:HG3	8:B:2343:HOH:O	2.10	0.52
1:C:110[A]:GLU:HG3	8:C:2211:HOH:O	2.09	0.52
1:B:146:THR:H	1:B:156[A]:LYS:HZ3	1.58	0.52
1:C:346[B]:LYS:CG	1:C:375:VAL:HG12	2.38	0.51
1:A:257:LYS:HE2	1:A:259[A]:LYS:HZ3	1.72	0.51
1:C:326[B]:LYS:HA	1:C:326[B]:LYS:HE2	1.93	0.51
1:A:218[A]:VAL:HG11	1:A:242:TYR:HD2	1.76	0.50
1:B:257[A]:LYS:CD	1:B:259[A]:LYS:HZ1	2.15	0.50
1:B:257[B]:LYS:CD	8:B:2340:HOH:O	2.24	0.50
1:C:110[B]:GLU:CD	8:C:2214:HOH:O	2.50	0.50
1:A:218[A]:VAL:HG22	8:A:2371:HOH:O	2.11	0.50
1:B:223[A]:GLU:HG2	1:B:327:TYR:HE2	1.76	0.50
1:B:262[A]:GLU:HG2	1:B:266[A]:LYS:HE3	1.93	0.50
1:A:360[A]:ASN:ND2	8:A:2377:HOH:O	2.45	0.49
1:A:218[A]:VAL:CG2	1:A:239:ILE:HG12	2.43	0.49
1:C:45:GLU:OE2	1:C:151[A]:HIS:HE1	1.96	0.49
1:A:227:SER:O	6:A:1415:CL:CL	2.68	0.49
1:C:32[A]:TYR:CE2	1:C:38:LYS:HD2	2.48	0.48
1:B:145:PRO:CA	1:B:156[A]:LYS:HZ1	2.26	0.48
1:B:82[B]:LYS:CE	8:B:2117:HOH:O	2.54	0.48
1:A:213:HIS:HD2	8:A:2191:HOH:O	1.96	0.47
1:B:159[A]:GLU:OE1	1:B:409[A]:LEU:HD21	2.15	0.47
1:C:304:GLU:O	1:C:305:ASN:HB2	2.13	0.47
1:A:32:TYR:OH	1:A:39:ILE:HB	2.15	0.47
1:B:47:VAL:HG11	1:B:396[A]:LYS:HD2	1.97	0.47
1:A:257:LYS:HE2	1:A:259[B]:LYS:HD3	1.96	0.46
1:C:200[A]:VAL:HG23	8:C:2311:HOH:O	1.99	0.46
1:A:127:ILE:HD11	1:A:182[B]:ILE:CD1	2.45	0.46
1:A:218[A]:VAL:HG23	1:A:239:ILE:HG12	1.98	0.46
1:B:145:PRO:HA	1:B:156[A]:LYS:HZ1	1.79	0.46
1:B:222[A]:ILE:HD13	1:B:227:SER:HB2	1.97	0.46
1:B:218:VAL:O	1:B:222[A]:ILE:HG12	2.15	0.46
1:C:265:HIS:CE1	1:C:283[A]:LYS:HG2	2.50	0.46
1:A:218[A]:VAL:HG11	1:A:242:TYR:CD2	2.51	0.46
1:A:62[B]:LYS:HE3	1:A:188:LEU:CD2	2.46	0.46
1:C:58:GLU:HG2	1:C:59:ASP:N	2.31	0.46
1:B:39:ILE:O	1:B:204[A]:LYS:NZ	2.43	0.45
1:C:45:GLU:OE2	1:C:151[A]:HIS:CE1	2.69	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:102:ILE:HG22	8:B:2161:HOH:O	2.17	0.45
1:B:146:THR:HG22	1:B:159[B]:GLU:HG3	1.97	0.45
1:A:197:THR:HG23	1:A:409[A]:LEU:HD12	1.99	0.45
1:A:324:ASN:HB3	1:A:327:TYR:O	2.17	0.45
1:A:41:ASP:O	1:A:204[B]:LYS:HE3	2.17	0.45
1:B:102:ILE:HG21	1:B:102:ILE:HD13	1.78	0.45
1:C:159[B]:GLU:OE2	7:C:1413:DMS:O	2.35	0.44
1:B:110[A]:GLU:HG3	8:B:2175:HOH:O	2.17	0.44
1:A:253[A]:MET:HG3	1:A:300:TYR:HB3	2.00	0.44
1:A:159:GLU:OE2	1:A:409[A]:LEU:HD22	2.17	0.44
1:C:257:LYS:HE3	1:C:259[B]:LYS:HZ1	1.78	0.44
1:C:86:GLU:OE1	8:C:2171:HOH:O	2.21	0.43
1:A:127:ILE:HD11	1:A:182[B]:ILE:HD13	2.00	0.43
1:C:240:LYS:CB	1:C:243:ARG:HB2	2.48	0.43
1:B:197:THR:HG23	1:B:409[A]:LEU:HD12	2.00	0.43
1:C:257:LYS:HE3	1:C:259[B]:LYS:CE	2.49	0.43
1:C:291:LEU:HA	1:C:291:LEU:HD23	1.91	0.43
1:A:210:ARG:HD3	4:A:1411:SO4:O1	2.18	0.43
1:C:262[A]:GLU:HA	1:C:283[A]:LYS:HZ2	1.83	0.43
1:C:265:HIS:ND1	1:C:283[A]:LYS:HG2	2.34	0.43
1:B:262[A]:GLU:HG3	1:B:283[A]:LYS:NZ	2.34	0.43
1:C:326[B]:LYS:HE3	8:C:2447:HOH:O	2.13	0.43
1:C:213:HIS:CG	1:C:226:PHE:HE1	2.37	0.42
1:C:110[B]:GLU:CD	1:C:110[B]:GLU:H	2.23	0.42
1:C:27:ASP:HB3	1:C:29:LYS:HE2	2.01	0.42
1:C:215:SER:HB3	1:C:221:LEU:HD12	2.01	0.42
1:B:146:THR:CG2	1:B:159[B]:GLU:HG3	2.50	0.42
1:A:156[A]:LYS:HG2	8:A:2301:HOH:O	2.19	0.42
1:C:262[A]:GLU:HG2	1:C:266[A]:LYS:HE2	2.02	0.42
1:A:175:ALA:HB3	1:A:176:PRO:HD3	2.02	0.41
1:A:321:ILE:HG22	1:A:324:ASN:HB2	2.02	0.41
1:A:102[B]:ILE:HG13	1:A:103:PHE:CE2	2.55	0.41
1:B:210:ARG:HD3	4:B:1411:SO4:O3	2.21	0.41
1:C:346[B]:LYS:HG2	1:C:375:VAL:CG1	2.46	0.41
1:A:156[A]:LYS:CD	8:A:2301:HOH:O	2.69	0.41
1:B:262[A]:GLU:HG3	1:B:283[A]:LYS:HZ1	1.86	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:C:373[A]:LYS:NZ	8:A:2159:HOH:O[4_456]	1.64	0.56
1:C:110[B]:GLU:OE1	8:C:2240:HOH:O[4_446]	2.02	0.18

### 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	412/385 (107%)	402 (98%)	10 (2%)	0	100	100
1	B	425/385 (110%)	416 (98%)	9 (2%)	0	100	100
1	C	409/385 (106%)	400 (98%)	9 (2%)	0	100	100
All	All	1246/1155 (108%)	1218 (98%)	28 (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	379/351 (108%)	375 (99%)	4 (1%)	76	55
1	B	393/351 (112%)	383 (98%)	10 (2%)	50	19
1	C	379/351 (108%)	366 (97%)	13 (3%)	40	10
All	All	1151/1053 (109%)	1124 (98%)	27 (2%)	62	22

All (27) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	156[A]	LYS
1	A	156[B]	LYS
1	A	232	ARG
1	A	396	LYS
1	B	26	MET
1	B	81	GLU
1	B	110[A]	GLU
1	B	110[B]	GLU
1	B	136[A]	LYS
1	B	136[B]	LYS
1	B	223[A]	GLU
1	B	223[B]	GLU
1	B	232	ARG
1	B	325	ASP
1	C	58	GLU
1	C	99	ASP
1	C	110[A]	GLU
1	C	110[B]	GLU
1	C	214[A]	ARG
1	C	214[B]	ARG
1	C	219[A]	LYS
1	C	219[B]	LYS
1	C	241	LEU
1	C	243	ARG
1	C	244	VAL
1	C	326[A]	LYS
1	C	326[B]	LYS

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	34	GLN
1	A	44	ASN
1	A	101	ASN
1	A	213	HIS
1	B	34	GLN
1	B	106	ASN
1	B	217	ASN
1	B	360	ASN
1	C	34	GLN
1	C	249	ASN
1	C	350	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 carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

Of 22 ligands modelled in this entry, 9 are monoatomic - leaving 13 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	80O	A	1000	-	28,29,29	1.16	3 (10%)	33,38,38	1.59	4 (12%)
3	NHW	A	1001	5	58,66,66	1.46	6 (10%)	69,92,92	1.46	9 (13%)
4	SO4	A	1411	-	4,4,4	0.51	0	6,6,6	0.90	0
7	DMS	A	1416	-	3,3,3	0.86	0	3,3,3	2.10	2 (66%)
7	DMS	A	1417	-	3,3,3	0.68	0	3,3,3	1.82	1 (33%)
2	80O	B	1000	-	28,29,29	1.44	5 (17%)	33,38,38	1.43	6 (18%)
3	NHW	B	1001	5	58,66,66	1.40	7 (12%)	69,92,92	1.73	6 (8%)
4	SO4	B	1411	-	4,4,4	0.23	0	6,6,6	1.20	0
7	DMS	B	1415	-	3,3,3	0.55	0	3,3,3	1.24	0
7	DMS	B	1416	-	3,3,3	0.80	0	3,3,3	1.78	1 (33%)
2	80O	C	1000	-	28,29,29	1.42	5 (17%)	33,38,38	1.70	5 (15%)
3	NHW	C	1001	5	58,66,66	1.32	8 (13%)	69,92,92	1.54	10 (14%)
7	DMS	C	1413	-	3,3,3	0.56	0	3,3,3	0.90	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	80O	A	1000	-	-	0/16/26/26	0/3/3/3
3	NHW	A	1001	5	-	0/61/81/81	0/3/3/3
4	SO4	A	1411	-	-	0/0/0/0	0/0/0/0
7	DMS	A	1416	-	-	0/0/0/0	0/0/0/0
7	DMS	A	1417	-	-	0/0/0/0	0/0/0/0
2	80O	B	1000	-	-	0/16/26/26	0/3/3/3
3	NHW	B	1001	5	-	0/61/81/81	0/3/3/3
4	SO4	B	1411	-	-	0/0/0/0	0/0/0/0
7	DMS	B	1415	-	-	0/0/0/0	0/0/0/0
7	DMS	B	1416	-	-	0/0/0/0	0/0/0/0
2	80O	C	1000	-	-	0/16/26/26	0/3/3/3
3	NHW	C	1001	5	-	0/61/81/81	0/3/3/3
7	DMS	C	1413	-	-	0/0/0/0	0/0/0/0

All (34) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	1000	80O	C9-C13	-3.52	1.35	1.40
2	B	1000	80O	C8-N1	-2.93	1.32	1.37
3	C	1001	NHW	O10-C10	-2.85	1.36	1.42
2	C	1000	80O	C8-N1	-2.80	1.32	1.37
3	A	1001	NHW	P2A-O4A	-2.44	1.43	1.55
3	B	1001	NHW	O1M-C1M	2.01	1.25	1.21
3	C	1001	NHW	O6A-C12	2.01	1.50	1.43
3	C	1001	NHW	CP-S1	2.03	1.85	1.81
3	A	1001	NHW	C13-C11	2.04	1.58	1.53
2	C	1000	80O	C2-C1	2.11	1.42	1.38
3	C	1001	NHW	C7-C6	2.11	1.58	1.51
2	A	1000	80O	O-C1	2.16	1.42	1.37
3	C	1001	NHW	O1M-C1M	2.19	1.25	1.21
3	C	1001	NHW	C2A-N3A	2.21	1.35	1.32
2	C	1000	80O	C3-C4	2.28	1.43	1.38
2	A	1000	80O	C9-C13	2.29	1.43	1.40
2	B	1000	80O	C17-N3	2.32	1.56	1.47
2	C	1000	80O	C19-C1	2.33	1.43	1.38
2	B	1000	80O	C7-N	2.34	1.33	1.27
3	B	1001	NHW	C7-C6	2.37	1.59	1.51
3	A	1001	NHW	C6-C5	2.43	1.56	1.51
3	A	1001	NHW	CP-S1	2.52	1.87	1.81
3	B	1001	NHW	C6-C5	2.67	1.56	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	1000	80O	C6-C5	2.72	1.56	1.51
3	C	1001	NHW	P3X-O3X	2.72	1.64	1.59
3	B	1001	NHW	C8A-N9A	2.75	1.40	1.36
3	A	1001	NHW	P3X-O3X	2.81	1.64	1.59
3	B	1001	NHW	O4X-C4X	2.87	1.51	1.45
2	A	1000	80O	C2-C1	3.13	1.44	1.38
2	C	1000	80O	C6-C5	3.30	1.57	1.51
3	B	1001	NHW	P3X-O3X	3.38	1.65	1.59
3	B	1001	NHW	C13-C11	3.94	1.62	1.53
3	C	1001	NHW	O4X-C1X	4.58	1.47	1.41
3	A	1001	NHW	O4X-C1X	7.17	1.51	1.41

All (44) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	1001	NHW	N3A-C2A-N1A	-11.22	119.26	128.86
3	C	1001	NHW	N3A-C2A-N1A	-6.68	123.15	128.86
3	A	1001	NHW	C4A-C5A-N7A	-5.96	103.65	109.41
2	A	1000	80O	C8-N1-C7	-5.74	113.11	125.90
2	C	1000	80O	C8-N1-C7	-4.92	114.93	125.90
3	C	1001	NHW	C6-C5-N4	-3.81	109.86	116.46
2	B	1000	80O	C8-N1-C7	-3.61	117.86	125.90
3	A	1001	NHW	C6-C5-N4	-3.49	110.42	116.46
3	B	1001	NHW	O6A-C12-C11	-3.36	105.15	110.55
2	C	1000	80O	C6-C5-C4	-3.08	116.49	120.89
3	C	1001	NHW	O1M-C1M-CP	-2.95	117.96	122.17
3	A	1001	NHW	C5X-C4X-C3X	-2.94	104.46	114.35
3	C	1001	NHW	C2-C3-N4	-2.93	106.08	112.46
2	B	1000	80O	C11-C12-N2	-2.91	118.63	123.43
2	B	1000	80O	C5-C6-C7	-2.58	109.07	113.93
3	B	1001	NHW	C7-N8-C9	-2.57	117.86	122.59
3	A	1001	NHW	C2-C3-N4	-2.53	106.94	112.46
2	B	1000	80O	C1-C19-C5	-2.46	117.00	119.72
3	A	1001	NHW	C4X-O4X-C1X	-2.45	107.27	109.83
3	A	1001	NHW	O1M-C1M-CP	-2.41	118.73	122.17
3	A	1001	NHW	C3M-C2M-C1M	-2.24	109.05	114.75
3	C	1001	NHW	O6A-C12-C11	-2.23	106.96	110.55
7	A	1416	DMS	O-S-C1	-2.20	95.06	106.55
3	C	1001	NHW	C5X-C4X-C3X	-2.18	107.01	114.35
3	B	1001	NHW	C4X-O4X-C1X	-2.13	107.61	109.83
2	A	1000	80O	C2-C3-C4	-2.03	117.40	120.25
2	C	1000	80O	C5-C6-C7	-2.02	110.12	113.93

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	1000	80O	C9-C8-N1	2.00	118.91	115.27
3	C	1001	NHW	O7A-P3X-O9A	2.03	118.53	110.60
3	C	1001	NHW	CP-C1M-C2M	2.03	119.88	115.52
3	A	1001	NHW	C5A-C6A-N6A	2.12	124.80	120.47
3	C	1001	NHW	C3X-C2X-C1X	2.16	104.74	99.94
3	A	1001	NHW	C13-C11-C10	2.18	112.60	108.82
2	A	1000	80O	C16-N3-C17	2.32	117.44	110.35
7	B	1416	DMS	O-S-C1	2.36	118.90	106.55
7	A	1417	DMS	C2-S-C1	2.41	110.91	98.46
2	B	1000	80O	C12-N2-C13	2.59	122.49	116.44
2	A	1000	80O	C12-N2-C13	2.64	122.62	116.44
7	A	1416	DMS	C2-S-C1	2.84	113.13	98.46
3	B	1001	NHW	C7-C6-C5	2.91	117.09	112.31
3	C	1001	NHW	O5-C5-C6	2.99	127.55	122.00
2	C	1000	80O	C12-N2-C13	3.05	123.56	116.44
2	C	1000	80O	C9-C8-N1	3.24	121.15	115.27
3	B	1001	NHW	C2A-N1A-C6A	3.30	124.36	118.75

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

6 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	1000	80O	1	0
4	A	1411	SO4	1	0
2	B	1000	80O	1	0
4	B	1411	SO4	1	0
2	C	1000	80O	1	0
7	C	1413	DMS	1	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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	385/385 (100%)	-0.48	3 (0%) 86 89	6, 10, 24, 42	8 (2%)
1	B	385/385 (100%)	-0.45	4 (1%) 82 85	6, 11, 25, 53	3 (0%)
1	C	372/385 (96%)	-0.45	5 (1%) 77 81	6, 10, 27, 59	3 (0%)
All	All	1142/1155 (98%)	-0.46	12 (1%) 80 84	6, 11, 26, 59	14 (1%)

All (12) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	242	TYR	3.2
1	C	226	PHE	3.1
1	B	39	ILE	2.9
1	B	40[A]	ASN	2.8
1	A	325	ASP	2.7
1	B	26	MET	2.6
1	C	32[A]	TYR	2.4
1	A	232	ARG	2.4
1	B	231	SER	2.4
1	C	323	GLY	2.2
1	C	26	MET	2.2
1	A	39	ILE	2.0

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

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

### 6.3 Carbohydrates [i](#)

There are no 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. The B-factors column lists the minimum, median, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
7	DMS	B	1416	4/4	0.80	0.19	35,38,39,46	0
4	SO4	B	1411	5/5	0.88	0.20	22,23,26,28	5
7	DMS	A	1417	4/4	0.88	0.13	45,45,53,59	0
6	CL	A	1415	1/1	0.94	0.16	39,39,39,39	0
4	SO4	A	1411	5/5	0.95	0.11	14,17,18,20	5
7	DMS	B	1415	4/4	0.97	0.09	16,19,19,19	0
7	DMS	C	1413	4/4	0.97	0.11	15,19,20,20	0
2	80O	C	1000	27/27	0.97	0.08	8,11,19,22	0
2	80O	B	1000	27/27	0.97	0.07	9,12,18,25	0
2	80O	A	1000	27/27	0.97	0.06	9,11,15,25	0
3	NHW	B	1001	64/64	0.98	0.06	6,9,12,14	0
7	DMS	A	1416	4/4	0.98	0.08	16,19,21,21	0
3	NHW	A	1001	64/64	0.98	0.06	6,9,12,14	0
6	CL	B	1414	1/1	0.99	0.05	13,13,13,13	0
5	MG	B	1412	1/1	0.99	0.05	17,17,17,17	0
5	MG	A	1412	1/1	0.99	0.04	18,18,18,18	0
3	NHW	C	1001	64/64	0.99	0.05	5,8,11,14	0
6	CL	A	1414	1/1	1.00	0.05	13,13,13,13	0
6	CL	A	1413	1/1	1.00	0.06	9,9,9,9	0
5	MG	C	1411	1/1	1.00	0.05	16,16,16,16	0
6	CL	C	1412	1/1	1.00	0.05	9,9,9,9	0
6	CL	B	1413	1/1	1.00	0.06	10,10,10,10	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.