



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 10, 2018 – 09:33 pm GMT

PDB ID : 2HG9  
Title : Reaction centre from Rhodobacter sphaeroides strain R-26.1 complexed with tetrabrominated phosphatidylcholine  
Authors : Roszak, A.W.; Gardiner, A.T.; Isaacs, N.W.; Cogdell, R.J.  
Deposited on : 2006-06-26  
Resolution : 2.45 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 : trunk30967  
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) : trunk30967

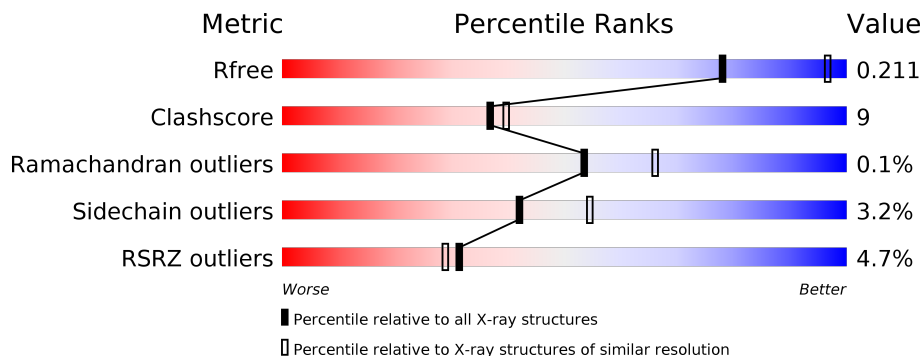
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.45 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	1259 (2.48-2.44)
Clashscore	122126	1323 (2.48-2.44)
Ramachandran outliers	120053	1314 (2.48-2.44)
Sidechain outliers	120020	1314 (2.48-2.44)
RSRZ outliers	108989	1238 (2.48-2.44)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments 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	L	281	
2	M	307	
3	H	260	

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
10	CDL	M	800	-	-	-	X
11	PCK	M	802	-	-	X	X
12	LDA	H	903	-	-	-	X
12	LDA	H	904	-	-	-	X
12	LDA	H	908	-	-	X	X
12	LDA	M	902	-	-	-	X
12	LDA	M	920	-	-	-	X
13	GOL	H	708	-	-	-	X
15	PC7	H	801	-	-	-	X
8	U10	L	502	-	-	-	X

## 2 Entry composition [i](#)

There are 16 unique types of molecules in this entry. The entry contains 7843 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 Reaction center protein L chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	L	281	2237	1511	356	362	8	0	3	0

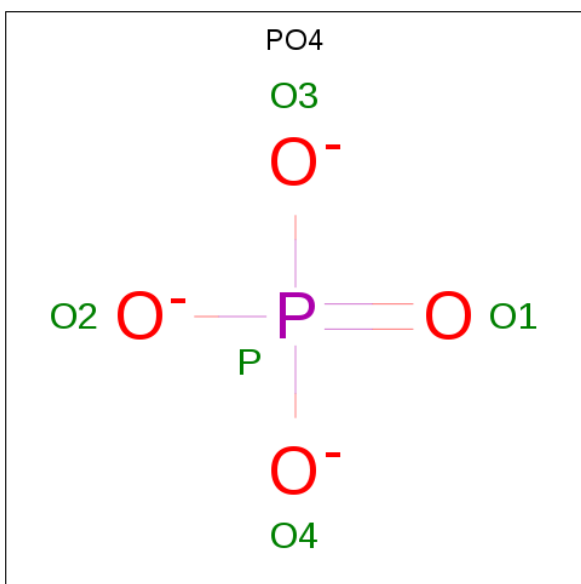
- Molecule 2 is a protein called Reaction center protein M chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	M	302	2450	1631	402	406	11	0	12	0

- Molecule 3 is a protein called Reaction center protein H chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	H	241	1862	1189	323	339	11	0	9	0

- Molecule 4 is PHOSPHATE ION (three-letter code: PO4) (formula: O<sub>4</sub>P).

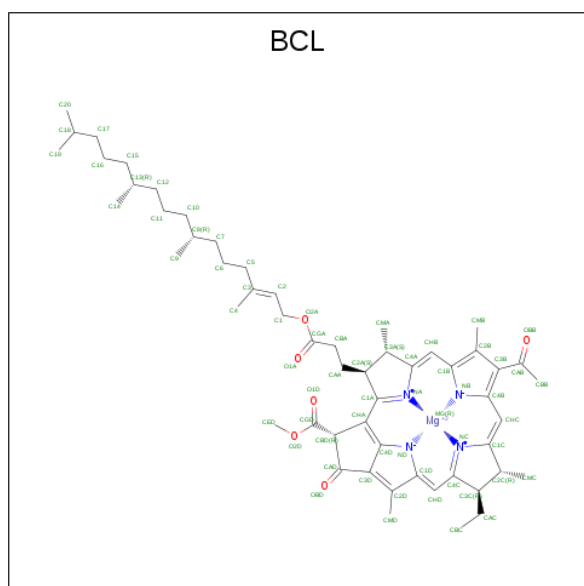


Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	L	1	Total O P 5 4 1	0	0
4	M	1	Total O P 5 4 1	0	0
4	M	1	Total O P 5 4 1	0	0
4	H	1	Total O P 5 4 1	0	0

- Molecule 5 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

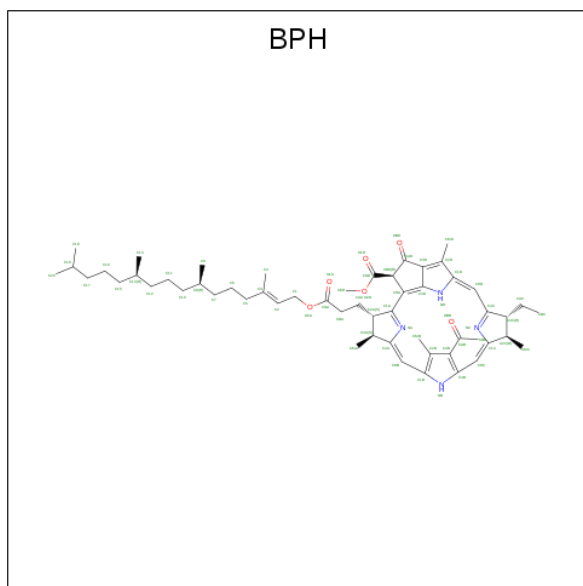
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	L	1	Total Cl 1 1	0	0
5	M	1	Total Cl 1 1	0	0

- Molecule 6 is BACTERIOCHLOROPHYLL A (three-letter code: BCL) (formula: C<sub>55</sub>H<sub>74</sub>MgN<sub>4</sub>O<sub>6</sub>).



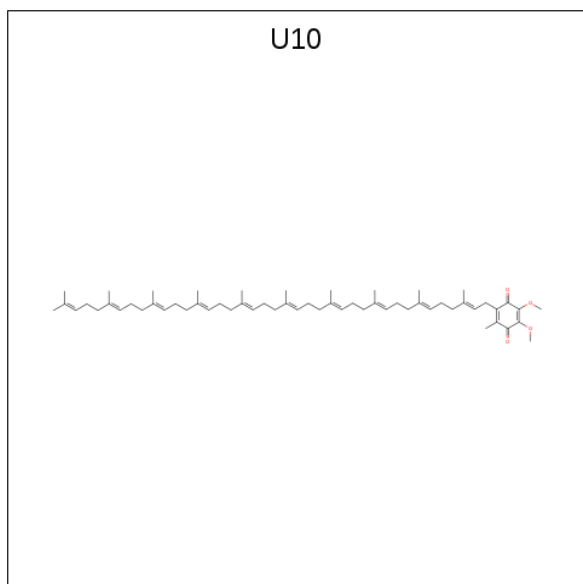
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	L	1	Total C Mg N O 66 55 1 4 6	0	0
6	L	1	Total C Mg N O 66 55 1 4 6	0	0
6	M	1	Total C Mg N O 66 55 1 4 6	0	0
6	M	1	Total C Mg N O 66 55 1 4 6	0	0

- Molecule 7 is BACTERIOPHEOPHYTIN A (three-letter code: BPH) (formula:  $C_{55}H_{76}N_4O_6$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	
7	L	1	Total	C	N	O	0	0
			65	55	4	6		
7	M	1	Total	C	N	O	0	0
			65	55	4	6		

- Molecule 8 is UBIQUINONE-10 (three-letter code: U10) (formula:  $C_{59}H_{90}O_4$ ).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	
8	L	1	Total	C	O	0	0
			48	44	4		

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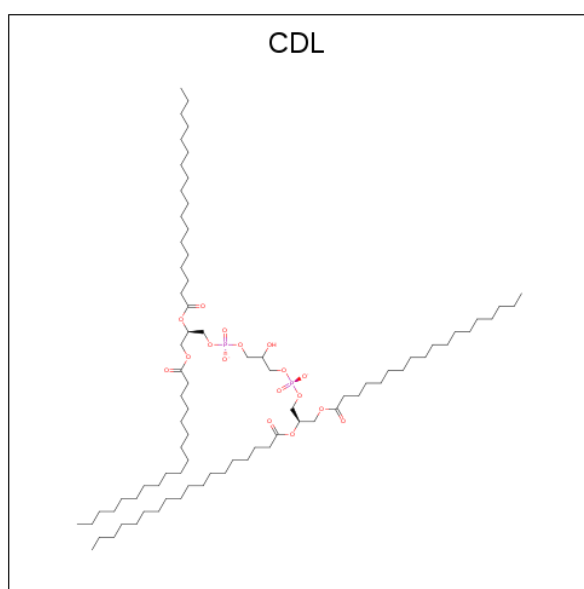
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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
8	M	1	48	44	4	0	0

- Molecule 9 is FE (III) ION (three-letter code: FE) (formula: Fe).

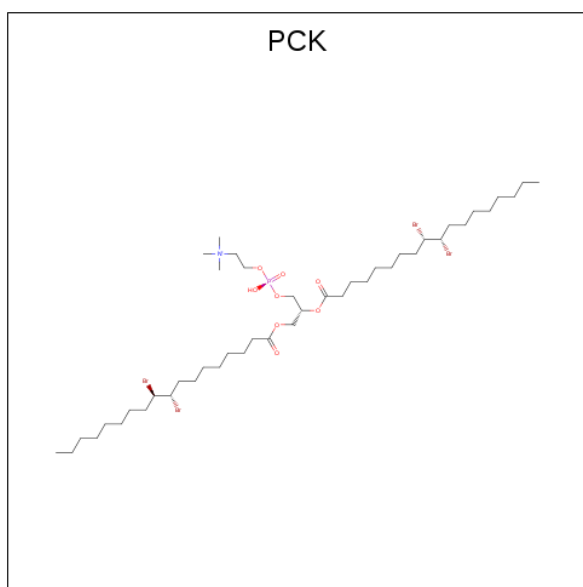
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Fe		
9	M	1	1	1	0	0

- Molecule 10 is CARDIOLIPIN (three-letter code: CDL) (formula: C<sub>81</sub>H<sub>156</sub>O<sub>17</sub>P<sub>2</sub>).



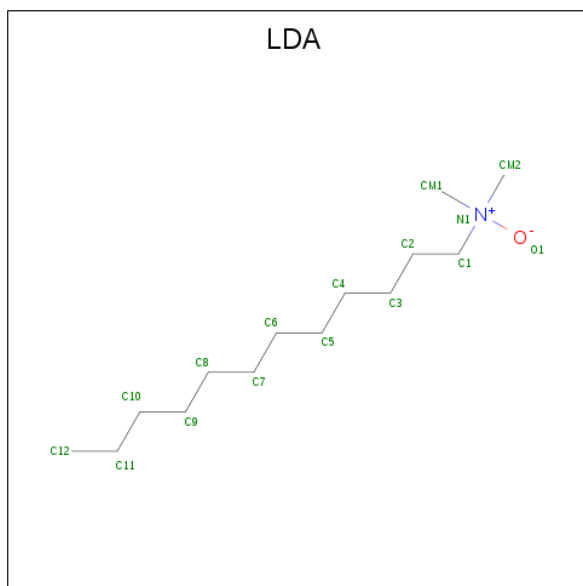
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	O	P		
10	M	1	81	62	17	2	0	0

- Molecule 11 is (7R,18S,19R)-18,19-DIBROMO-7-[[[(9S,10S)-9,10-DIBROMOOCTADECAN OYL]OXY]-4-HYDROXY-N,N,N-TRIMETHYL-10-OXO-3,5,9-TRIOXA-4-PHOSPHAHE PTACOSAN-1-AMINIUM 4-OXIDE (three-letter code: PCK) (formula: C<sub>44</sub>H<sub>85</sub>Br<sub>4</sub>NO<sub>8</sub>P).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	
			Total	Br	C	N	O			P
11	M	1	58	4	44	1	8	1	0	0

- Molecule 12 is LAURYL DIMETHYLAMINE-N-OXIDE (three-letter code: LDA) (formula:  $C_{14}H_{31}NO$ ).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
12	M	1	16	14	1	1	0	0
12	M	1	16	14	1	1	0	0

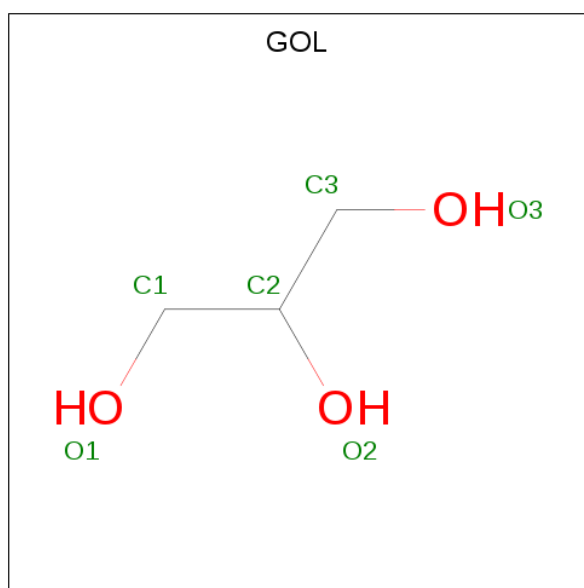
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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
12	M	1	Total 16	C 14	N 1	O 1	0	0
12	H	1	Total 16	C 14	N 1	O 1	0	0
12	H	1	Total 16	C 14	N 1	O 1	0	0
12	H	1	Total 16	C 14	N 1	O 1	0	0
12	H	1	Total 16	C 14	N 1	O 1	0	0

- Molecule 13 is GLYCEROL (three-letter code: GOL) (formula: C<sub>3</sub>H<sub>8</sub>O<sub>3</sub>).

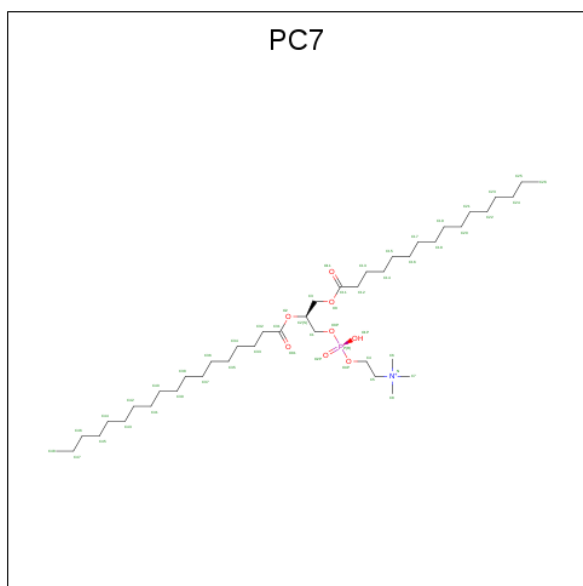


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
13	M	1	Total 6	C 3	O 3	0	0
13	M	1	Total 6	C 3	O 3	0	0
13	H	1	Total 6	C 3	O 3	0	0
13	H	1	Total 6	C 3	O 3	0	0
13	H	1	Total 6	C 3	O 3	0	0
13	H	1	Total 6	C 3	O 3	0	0

- Molecule 14 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
14	H	1	Total K 1 1	0	0

- Molecule 15 is (7S)-4-HYDROXY-N,N,N-TRIMETHYL-9-OXO-7-[(PALMITOYLOXY)METHYL]-3,5,8-TRIOXA-4-PHOSPHAHEXACOSAN-1-AMINIUM 4-OXIDE (three-letter code: PC7) (formula: C<sub>42</sub>H<sub>85</sub>NO<sub>8</sub>P).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
15	H	1	Total C N O P 52 42 1 8 1	0	0

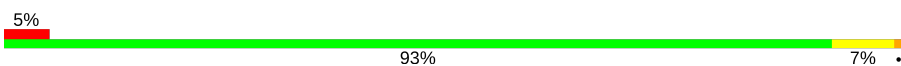
- Molecule 16 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
16	L	100	Total O 100 100	0	0
16	M	133	Total O 133 133	0	0
16	H	208	Total O 208 208	0	0

### 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.

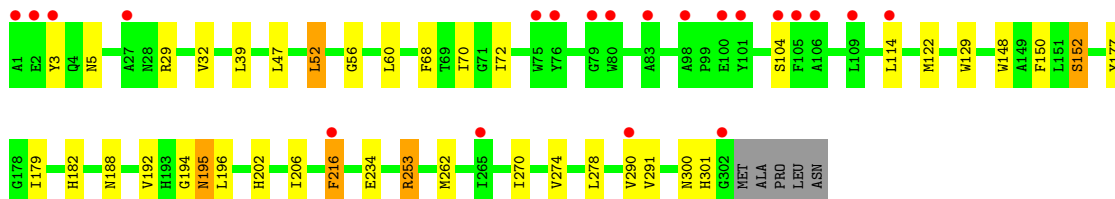
- Molecule 1: Reaction center protein L chain

Chain L: 




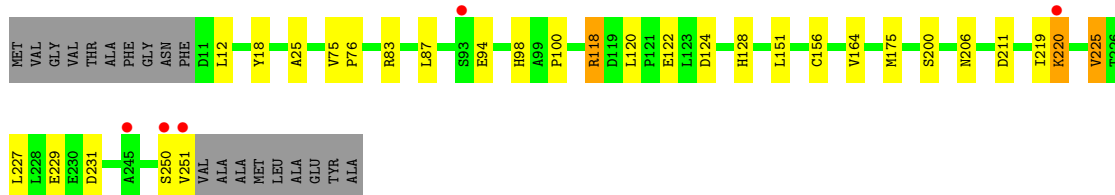
- Molecule 2: Reaction center protein M chain

Chain M: 



- Molecule 3: Reaction center protein H chain

Chain H: 



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 31 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	139.55Å 139.55Å 184.61Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	39.36 – 2.45 39.36 – 2.45	Depositor EDS
% Data completeness (in resolution range)	98.0 (39.36-2.45) 98.0 (39.36-2.45)	Depositor EDS
$R_{merge}$	0.07	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	3.30 (at 2.45Å)	Xtrriage
Refinement program	REFMAC 5.2.0019	Depositor
R, $R_{free}$	0.179 , 0.209 0.183 , 0.211	Depositor DCC
$R_{free}$ test set	3709 reflections (4.93%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	49.9	Xtrriage
Anisotropy	0.036	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.33 , 83.3	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	0.017 for -h,-k,l	Xtrriage
$F_o, F_c$ correlation	0.95	EDS
Total number of atoms	7843	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	55.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.64% 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: BCL, GOL, LDA, CL, CDL, BPH, K, PC7, PCK, FE, U10, PO4

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	L	0.90	0/2342	0.73	1/3205 (0.0%)
2	M	0.90	1/2601 (0.0%)	0.80	3/3548 (0.1%)
3	H	0.95	3/1961 (0.2%)	0.84	4/2663 (0.2%)
All	All	0.92	4/6904 (0.1%)	0.79	8/9416 (0.1%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	H	94	GLU	CG-CD	6.20	1.61	1.51
3	H	94	GLU	CB-CG	5.59	1.62	1.52
3	H	94	GLU	CD-OE2	5.30	1.31	1.25
2	M	152	SER	CB-OG	5.05	1.48	1.42

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	H	124	ASP	CB-CG-OD1	7.74	125.27	118.30
3	H	124	ASP	CB-CG-OD2	-6.80	112.18	118.30
2	M	253[A]	ARG	NE-CZ-NH2	6.00	123.30	120.30
2	M	253[B]	ARG	NE-CZ-NH2	6.00	123.30	120.30
3	H	83	ARG	NE-CZ-NH2	-5.78	117.41	120.30
2	M	29	ARG	NE-CZ-NH2	-5.43	117.58	120.30
1	L	210	ASP	CB-CG-OD1	5.37	123.13	118.30
3	H	211	ASP	CB-CG-OD1	5.19	122.97	118.30

There are no chirality outliers.

There are no planarity outliers.

## 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	L	2237	0	2202	10	0
2	M	2450	0	2370	38	0
3	H	1862	0	1884	21	0
4	H	5	0	0	0	0
4	L	5	0	0	0	0
4	M	10	0	0	0	0
5	L	1	0	0	0	0
5	M	1	0	0	1	0
6	L	132	0	148	8	0
6	M	132	0	148	20	0
7	L	65	0	75	3	0
7	M	65	0	76	4	0
8	L	48	0	63	4	0
8	M	48	0	63	1	0
9	M	1	0	0	0	0
10	M	81	0	106	2	0
11	M	58	0	80	24	0
12	H	64	0	124	19	0
12	M	48	0	93	9	0
13	H	24	0	32	2	0
13	M	12	0	16	0	0
14	H	1	0	0	0	0
15	H	52	0	84	6	0
16	H	208	0	0	0	0
16	L	100	0	0	0	0
16	M	133	0	0	7	0
All	All	7843	0	7564	128	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 9.

All (128) 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)
12:M:902:LDA:H121	12:H:908:LDA:H121	1.37	1.04

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:M:47[A]:LEU:HD22	11:M:802:PCK:BR4	2.11	1.04
8:L:502:U10:H351	8:L:502:U10:H38	1.41	1.03
11:M:802:PCK:H252	11:M:802:PCK:H211	1.35	1.02
2:M:122:MET:SD	12:M:920:LDA:H122	2.01	1.01
6:M:311:BCL:H93	11:M:802:PCK:H482	1.42	1.00
2:M:188[B]:ASN:OD1	16:M:1416:HOH:O	1.80	0.98
2:M:47[B]:LEU:HD23	11:M:802:PCK:BR4	2.26	0.90
11:M:802:PCK:BR1	11:M:802:PCK:H442	2.30	0.87
11:M:802:PCK:H252	11:M:802:PCK:C21	2.08	0.83
12:M:902:LDA:H121	12:H:908:LDA:C12	2.08	0.82
11:M:802:PCK:H161	11:M:802:PCK:BR3	2.36	0.81
2:M:60[B]:LEU:HD23	7:M:401:BPH:H4C1	1.63	0.81
8:L:502:U10:H351	8:L:502:U10:C38	2.11	0.80
12:H:903:LDA:CM2	12:H:904:LDA:O1	2.30	0.80
6:M:313:BCL:H191	11:M:802:PCK:H262	1.64	0.80
12:H:903:LDA:HM22	12:H:904:LDA:H21	1.66	0.76
11:M:802:PCK:H211	11:M:802:PCK:C25	2.10	0.76
12:M:902:LDA:C12	12:H:908:LDA:H121	2.16	0.74
15:H:801:PC7:H451	12:H:901:LDA:H121	1.68	0.74
6:M:311:BCL:C7	6:M:311:BCL:H41	2.18	0.72
6:M:311:BCL:HBB2	6:M:311:BCL:HMB1	1.71	0.71
6:M:311:BCL:CBB	6:M:311:BCL:HMB1	2.22	0.70
2:M:47[A]:LEU:CD2	11:M:802:PCK:BR4	2.94	0.70
6:M:311:BCL:H102	6:M:311:BCL:H41	1.75	0.67
12:H:903:LDA:HM23	12:H:904:LDA:O1	1.93	0.67
15:H:801:PC7:H451	12:H:901:LDA:C12	2.23	0.66
11:M:802:PCK:BR1	11:M:802:PCK:C44	2.99	0.66
6:M:311:BCL:H92	11:M:802:PCK:H261	1.78	0.66
6:M:311:BCL:H41	6:M:311:BCL:H71	1.78	0.65
2:M:52:LEU:HD11	2:M:60[A]:LEU:CD2	2.26	0.64
2:M:253[B]:ARG:NH2	16:M:1251:HOH:O	2.31	0.64
2:M:301[A]:HIS:CE1	16:M:1031:HOH:O	2.51	0.63
3:H:220[A]:LYS:NZ	3:H:229:GLU:OE2	2.32	0.62
2:M:68:PHE:O	2:M:72:ILE:HD13	2.00	0.62
3:H:219:ILE:HG21	3:H:225:VAL:HG13	1.82	0.61
2:M:56:GLY:O	2:M:60[A]:LEU:HD13	2.00	0.61
15:H:801:PC7:H73	12:H:908:LDA:H122	1.82	0.61
2:M:179:ILE:HG23	6:M:311:BCL:HED1	1.83	0.61
6:L:312:BCL:HMB1	6:L:312:BCL:CBB	2.32	0.60
2:M:47[B]:LEU:CD2	11:M:802:PCK:BR4	3.02	0.60
2:M:262:MET:HA	2:M:262:MET:HE3	1.85	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:M:70:ILE:HG21	12:M:920:LDA:HM13	1.84	0.58
6:M:311:BCL:C4	6:M:311:BCL:H71	2.34	0.57
6:M:311:BCL:H93	11:M:802:PCK:C48	2.27	0.57
6:L:314:BCL:HBB2	6:L:314:BCL:HMB1	1.85	0.56
1:L:201:GLU:OE2	1:L:204[B]:LYS:NZ	2.33	0.56
3:H:128[B]:HIS:ND1	13:H:708:GOL:H32	2.21	0.55
11:M:802:PCK:H271	11:M:802:PCK:BR1	2.61	0.55
6:M:313:BCL:HMB1	6:M:313:BCL:CBB	2.37	0.54
10:M:800:CDL:CA5	10:M:800:CDL:OA8	2.56	0.54
1:L:182:THR:OG1	6:M:311:BCL:H2	2.08	0.54
2:M:262:MET:HE3	2:M:262:MET:CA	2.38	0.53
2:M:39:LEU:HD23	12:M:907:LDA:H101	1.90	0.52
6:M:311:BCL:H92	11:M:802:PCK:C26	2.40	0.51
6:M:313:BCL:H191	11:M:802:PCK:C26	2.37	0.51
3:H:25:ALA:HB2	12:H:908:LDA:H61	1.92	0.51
3:H:18:TYR:CD1	12:H:908:LDA:HM23	2.46	0.51
6:L:314:BCL:HBB3	7:L:402:BPH:H141	1.92	0.50
6:L:312:BCL:CGA	6:L:314:BCL:HBC1	2.42	0.50
2:M:177:TYR:OH	12:M:920:LDA:H123	2.11	0.50
1:L:69:PRO:HG2	1:L:142:TRP:HB2	1.94	0.49
5:M:711:CL:CL	16:M:1177:HOH:O	2.57	0.49
6:M:311:BCL:C9	11:M:802:PCK:H461	2.42	0.49
12:H:904:LDA:H32	12:H:904:LDA:HM13	1.95	0.49
15:H:801:PC7:C7	12:H:908:LDA:H122	2.44	0.48
12:H:903:LDA:HM22	12:H:904:LDA:O1	2.13	0.48
2:M:150:PHE:N	7:M:401:BPH:HMD3	2.28	0.47
8:M:501:U10:H4M2	8:M:501:U10:O3	2.14	0.47
6:L:312:BCL:HMB1	6:L:312:BCL:HBB3	1.95	0.47
2:M:270:ILE:HD13	10:M:800:CDL:H711	1.97	0.47
3:H:18:TYR:HD1	12:H:908:LDA:HM23	1.80	0.47
2:M:3:TYR:CZ	2:M:5:ASN:HA	2.50	0.47
2:M:52:LEU:HD11	2:M:60[A]:LEU:HD21	1.96	0.46
7:L:402:BPH:HBB3	7:L:402:BPH:CMB	2.46	0.46
2:M:290:VAL:HG21	3:H:12:LEU:HD23	1.97	0.46
16:M:1078:HOH:O	3:H:175:MET:HE1	2.16	0.46
1:L:135:ARG:HB3	1:L:136:PRO:HD3	1.97	0.46
1:L:187:LEU:HD13	2:M:216:PHE:CG	2.51	0.46
2:M:52:LEU:HD11	2:M:60[B]:LEU:HD12	1.97	0.46
6:M:313:BCL:HMB1	6:M:313:BCL:HBB3	1.96	0.46
2:M:148:TRP:HA	2:M:148:TRP:CE3	2.51	0.46
2:M:152:SER:OG	2:M:278:LEU:HG	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:H:122:GLU:HB2	3:H:227:LEU:HD21	1.99	0.45
2:M:68:PHE:CE1	2:M:72:ILE:HD11	2.51	0.45
2:M:234:GLU:OE2	2:M:262:MET:HE1	2.17	0.45
3:H:219:ILE:HG21	3:H:225:VAL:CG1	2.47	0.45
15:H:801:PC7:H41	15:H:801:PC7:H11	1.99	0.45
2:M:202:HIS:CE1	2:M:206:ILE:HD11	2.52	0.45
7:M:401:BPH:H4C3	11:M:802:PCK:BR2	2.73	0.44
3:H:25:ALA:HB2	12:H:908:LDA:C6	2.47	0.44
15:H:801:PC7:H11	15:H:801:PC7:C4	2.47	0.44
6:L:314:BCL:H202	7:L:402:BPH:H7C2	2.00	0.44
2:M:52:LEU:HD11	2:M:60[A]:LEU:HD22	2.00	0.44
1:L:193:LEU:HD23	8:L:502:U10:C2	2.48	0.43
3:H:156[B]:CYS:HB3	3:H:206:ASN:O	2.18	0.43
6:M:313:BCL:C20	11:M:802:PCK:H242	2.49	0.43
3:H:118[B]:ARG:NE	3:H:120:LEU:HD12	2.34	0.43
3:H:156[A]:CYS:HB3	3:H:206:ASN:O	2.18	0.43
6:L:312:BCL:NA	6:M:313:BCL:HBB2	2.34	0.43
12:H:904:LDA:HM13	12:H:904:LDA:C3	2.48	0.43
2:M:188[A]:ASN:ND2	16:M:1416:HOH:O	2.49	0.43
3:H:87:LEU:HD23	3:H:100:PRO:HA	2.01	0.42
11:M:802:PCK:H252	11:M:802:PCK:C20	2.49	0.42
3:H:151:LEU:O	3:H:164:VAL:HG23	2.19	0.42
1:L:207:ARG:CG	1:L:211:HIS:CG	3.03	0.42
7:M:401:BPH:CMB	7:M:401:BPH:HBB3	2.48	0.42
1:L:207:ARG:HG2	1:L:211:HIS:CG	2.55	0.42
6:L:314:BCL:CBB	6:L:314:BCL:HMB1	2.50	0.42
8:L:502:U10:C35	8:L:502:U10:C38	2.92	0.42
12:H:903:LDA:H102	12:H:904:LDA:H101	2.02	0.42
2:M:129:TRP:CH2	11:M:802:PCK:BR2	3.28	0.42
2:M:301[A]:HIS:HE1	16:M:1031:HOH:O	1.95	0.41
12:M:902:LDA:C11	12:H:908:LDA:H121	2.49	0.41
1:L:209:PRO:HA	1:L:212:GLU:OE1	2.20	0.41
1:L:80:LEU:O	1:L:85:LEU:HD12	2.20	0.41
6:M:313:BCL:H18	11:M:802:PCK:C24	2.51	0.41
2:M:290:VAL:HG12	2:M:291:VAL:HG23	2.03	0.41
3:H:75:VAL:HA	3:H:76:PRO:C	2.40	0.41
3:H:118[B]:ARG:HE	3:H:120:LEU:HD12	1.86	0.41
3:H:128[B]:HIS:CE1	13:H:708:GOL:H32	2.55	0.41
11:M:802:PCK:H62	11:M:802:PCK:H41	1.83	0.41
12:M:902:LDA:H21	12:M:902:LDA:HM13	1.85	0.41
2:M:194:GLY:O	2:M:195:ASN:HB3	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:H:87:LEU:HD13	3:H:98:HIS:HB2	2.01	0.40
3:H:250:SER:O	3:H:251:VAL:HG23	2.21	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	L	282/281 (100%)	275 (98%)	7 (2%)	0	100	100
2	M	312/307 (102%)	300 (96%)	11 (4%)	1 (0%)	43	52
3	H	248/260 (95%)	245 (99%)	3 (1%)	0	100	100
All	All	842/848 (99%)	820 (97%)	21 (2%)	1 (0%)	53	66

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	M	195	ASN

### 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	L	223/220 (101%)	216 (97%)	7 (3%)	43	56
2	M	248/240 (103%)	239 (96%)	9 (4%)	38	50

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	H	205/208 (99%)	198 (97%)	7 (3%)	40	53
All	All	676/668 (101%)	653 (97%)	23 (3%)	42	53

All (23) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	L	21	LEU
1	L	185	LEU
1	L	207	ARG
1	L	210	ASP
1	L	235	LEU
1	L	247	CYS
1	L	272	TRP
2	M	32	VAL
2	M	52	LEU
2	M	104	SER
2	M	114	LEU
2	M	182	HIS
2	M	192	VAL
2	M	196	LEU
2	M	216	PHE
2	M	274	VAL
3	H	118[A]	ARG
3	H	118[B]	ARG
3	H	200	SER
3	H	220[A]	LYS
3	H	220[B]	LYS
3	H	225	VAL
3	H	231	ASP

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

Mol	Chain	Res	Type
2	M	4	GLN
2	M	28	ASN
3	H	68	HIS

### 5.3.3 RNA

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

Of 32 ligands modelled in this entry, 4 are monoatomic - leaving 28 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
4	PO4	H	704	-	4,4,4	0.72	0	6,6,6	0.74	0
13	GOL	H	705	-	5,5,5	0.52	0	5,5,5	0.65	0
13	GOL	H	706	-	5,5,5	0.33	0	5,5,5	1.01	0
13	GOL	H	708	-	5,5,5	0.27	0	5,5,5	0.49	0
13	GOL	H	709	-	5,5,5	0.44	0	5,5,5	0.41	0
15	PC7	H	801	-	51,51,51	0.85	1 (1%)	57,59,59	0.93	3 (5%)
12	LDA	H	901	-	12,15,15	1.93	1 (8%)	14,17,17	0.56	0
12	LDA	H	903	-	12,15,15	1.92	1 (8%)	14,17,17	0.54	0
12	LDA	H	904	-	12,15,15	1.89	1 (8%)	14,17,17	0.87	0
12	LDA	H	908	-	12,15,15	1.93	1 (8%)	14,17,17	1.21	2 (14%)
6	BCL	L	312	1	58,74,74	1.41	4 (6%)	66,115,115	1.39	12 (18%)
6	BCL	L	314	1	58,74,74	1.53	4 (6%)	66,115,115	1.67	15 (22%)
7	BPH	L	402	-	65,70,70	0.85	2 (3%)	75,101,101	1.42	9 (12%)
8	U10	L	502	-	48,48,63	1.08	3 (6%)	56,61,79	1.72	15 (26%)
4	PO4	L	703	-	4,4,4	0.85	0	6,6,6	0.75	0
6	BCL	M	311	2	58,74,74	1.27	5 (8%)	66,115,115	1.52	14 (21%)
6	BCL	M	313	2	58,74,74	1.51	5 (8%)	66,115,115	1.62	14 (21%)
7	BPH	M	401	-	65,70,70	0.88	1 (1%)	75,101,101	1.51	13 (17%)
8	U10	M	501	-	48,48,63	0.93	2 (4%)	56,61,79	1.54	12 (21%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
4	PO4	M	701	-	4,4,4	0.72	0	6,6,6	1.08	0
4	PO4	M	702	-	4,4,4	0.68	0	6,6,6	0.93	0
13	GOL	M	707	-	5,5,5	0.49	0	5,5,5	0.30	0
13	GOL	M	710	-	5,5,5	0.41	0	5,5,5	0.42	0
10	CDL	M	800	-	80,80,99	1.18	4 (5%)	86,92,111	1.16	8 (9%)
11	PCK	M	802	-	57,57,57	0.78	0	63,69,69	1.10	5 (7%)
12	LDA	M	902	-	12,15,15	1.91	1 (8%)	14,17,17	1.24	1 (7%)
12	LDA	M	907	-	12,15,15	1.95	1 (8%)	14,17,17	0.64	0
12	LDA	M	920	-	12,15,15	1.94	1 (8%)	14,17,17	0.90	1 (7%)

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
4	PO4	H	704	-	-	0/0/0/0	0/0/0/0
13	GOL	H	705	-	-	0/4/4/4	0/0/0/0
13	GOL	H	706	-	-	0/4/4/4	0/0/0/0
13	GOL	H	708	-	-	0/4/4/4	0/0/0/0
13	GOL	H	709	-	-	0/4/4/4	0/0/0/0
15	PC7	H	801	-	-	0/55/55/55	0/0/0/0
12	LDA	H	901	-	-	0/13/13/13	0/0/0/0
12	LDA	H	903	-	-	0/13/13/13	0/0/0/0
12	LDA	H	904	-	-	0/13/13/13	0/0/0/0
12	LDA	H	908	-	-	0/13/13/13	0/0/0/0
6	BCL	L	312	1	-	0/37/137/137	0/0/9/9
6	BCL	L	314	1	-	0/37/137/137	0/0/9/9
7	BPH	L	402	-	-	0/52/105/105	0/5/6/6
8	U10	L	502	-	-	0/45/69/87	0/1/1/1
4	PO4	L	703	-	-	0/0/0/0	0/0/0/0
6	BCL	M	311	2	-	0/37/137/137	0/0/9/9
6	BCL	M	313	2	-	0/37/137/137	0/0/9/9
7	BPH	M	401	-	-	0/52/105/105	0/5/6/6
8	U10	M	501	-	-	0/45/69/87	0/1/1/1
4	PO4	M	701	-	-	0/0/0/0	0/0/0/0
4	PO4	M	702	-	-	0/0/0/0	0/0/0/0
13	GOL	M	707	-	-	0/4/4/4	0/0/0/0
13	GOL	M	710	-	-	0/4/4/4	0/0/0/0
10	CDL	M	800	-	-	0/91/91/110	0/0/0/0
11	PCK	M	802	-	-	0/67/67/67	0/0/0/0

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
12	LDA	M	902	-	-	0/13/13/13	0/0/0/0
12	LDA	M	907	-	-	0/13/13/13	0/0/0/0
12	LDA	M	920	-	-	0/13/13/13	0/0/0/0

All (38) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
12	H	901	LDA	O1-N1	-6.64	1.25	1.42
12	H	908	LDA	O1-N1	-6.63	1.25	1.42
12	M	907	LDA	O1-N1	-6.63	1.25	1.42
12	H	903	LDA	O1-N1	-6.55	1.26	1.42
12	M	902	LDA	O1-N1	-6.54	1.26	1.42
12	M	920	LDA	O1-N1	-6.54	1.26	1.42
12	H	904	LDA	O1-N1	-6.48	1.26	1.42
6	M	313	BCL	C3C-C4C	-3.65	1.46	1.51
6	M	313	BCL	C4A-NA	-3.58	1.32	1.38
6	M	311	BCL	C4A-NA	-3.41	1.32	1.38
6	M	311	BCL	C1C-NC	-2.89	1.33	1.38
6	L	314	BCL	C1C-NC	-2.87	1.33	1.38
6	L	314	BCL	C4A-NA	-2.78	1.33	1.38
6	L	312	BCL	C4A-NA	-2.71	1.34	1.38
6	M	313	BCL	C1C-NC	-2.55	1.34	1.38
6	L	312	BCL	C1C-NC	-2.14	1.34	1.38
7	L	402	BPH	OBD-CAD	2.12	1.25	1.22
6	M	311	BCL	OBD-CAD	2.13	1.25	1.22
8	L	502	U10	C13-C14	2.16	1.38	1.33
8	M	501	U10	O4-C4	2.20	1.42	1.36
7	L	402	BPH	CHC-C1C	2.28	1.40	1.36
15	H	801	PC7	C1-C2	2.38	1.57	1.50
8	M	501	U10	O3-C3	2.49	1.43	1.36
8	L	502	U10	O4-C4	3.15	1.44	1.36
7	M	401	BPH	CHC-C1C	3.56	1.43	1.36
6	M	311	BCL	CHB-C4A	3.87	1.38	1.33
8	L	502	U10	O3-C3	4.17	1.47	1.36
10	M	800	CDL	OB8-CB7	4.30	1.45	1.33
10	M	800	CDL	OB6-CB5	4.49	1.47	1.34
10	M	800	CDL	OA6-CA5	4.64	1.47	1.34
10	M	800	CDL	OA8-CA7	4.71	1.47	1.33
6	M	313	BCL	CHC-C1C	5.34	1.39	1.33
6	M	311	BCL	CHC-C1C	5.39	1.39	1.33
6	L	312	BCL	CHC-C1C	5.53	1.39	1.33
6	L	314	BCL	CHB-C4A	6.17	1.40	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	L	312	BCL	CHB-C4A	6.38	1.40	1.33
6	M	313	BCL	CHB-C4A	6.39	1.40	1.33
6	L	314	BCL	CHC-C1C	6.64	1.41	1.33

All (124) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	M	313	BCL	CMB-C2B-C1B	-4.44	121.64	128.46
7	L	402	BPH	C1-C2-C3	-4.14	118.32	125.96
6	L	314	BCL	CMB-C2B-C1B	-4.00	122.32	128.46
6	L	312	BCL	CMB-C2B-C1B	-3.98	122.34	128.46
8	L	502	U10	C31-C29-C28	-3.97	113.02	121.10
8	M	501	U10	C32-C33-C34	-3.94	117.92	127.66
6	L	314	BCL	CAC-C3C-C2C	-3.68	105.00	114.24
6	M	311	BCL	C4-C3-C2	-3.65	114.11	123.70
12	M	902	LDA	CM2-N1-CM1	-3.64	105.10	110.91
8	M	501	U10	C31-C29-C28	-3.43	114.11	121.10
6	L	312	BCL	CAA-C2A-C3A	-3.43	103.41	112.81
8	L	502	U10	O2-C2-C3	-3.39	113.71	120.93
8	L	502	U10	C35-C34-C33	-3.27	115.11	123.70
6	M	313	BCL	CAC-C3C-C2C	-3.27	106.02	114.24
8	M	501	U10	C26-C27-C28	-3.23	101.06	111.87
6	M	313	BCL	C1-C2-C3	-3.21	120.04	125.96
7	M	401	BPH	OBD-CAD-CBD	-3.16	121.27	125.91
7	M	401	BPH	C1-C2-C3	-3.13	120.20	125.96
7	M	401	BPH	C4D-C3D-CAD	-3.12	105.99	107.78
6	L	314	BCL	CAA-C2A-C3A	-3.06	104.41	112.81
6	M	311	BCL	CMB-C2B-C1B	-3.04	123.79	128.46
6	M	313	BCL	C4B-CHC-C1C	-3.03	124.11	130.12
8	L	502	U10	C7-C6-C5	-3.00	114.74	118.48
8	M	501	U10	C17-C18-C19	-2.98	120.28	127.66
6	M	311	BCL	CHA-C1A-NA	-2.96	119.31	126.18
6	M	313	BCL	CHA-C1A-NA	-2.96	119.32	126.18
6	M	313	BCL	O2D-CGD-O1D	-2.95	117.96	123.82
7	L	402	BPH	C1C-NC-C4C	-2.89	107.94	110.54
7	L	402	BPH	O2D-CGD-O1D	-2.88	118.10	123.82
12	H	908	LDA	CM2-N1-CM1	-2.83	106.40	110.91
6	L	314	BCL	OBB-CAB-CBB	-2.79	113.86	120.15
7	M	401	BPH	CBB-CAB-C3B	-2.79	114.57	120.51
6	L	312	BCL	CHA-C1A-NA	-2.75	119.80	126.18
6	M	311	BCL	CMA-C3A-C4A	-2.71	104.48	111.77
6	M	311	BCL	CAA-C2A-C3A	-2.70	105.40	112.81

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	L	502	U10	C1M-C1-C6	-2.70	118.82	124.21
8	L	502	U10	C12-C13-C14	-2.69	120.99	127.66
7	L	402	BPH	O2A-CGA-O1A	-2.68	117.04	123.58
7	M	401	BPH	C4B-C3B-CAB	-2.64	120.75	130.22
6	M	313	BCL	CAC-C3C-C4C	-2.63	106.74	112.58
11	M	802	PCK	C18-C19-C20	-2.63	108.96	115.62
8	M	501	U10	C22-C23-C24	-2.62	121.17	127.66
15	H	801	PC7	C2-O2-C31	-2.61	111.70	117.88
6	L	314	BCL	O1D-CGD-CBD	-2.58	119.80	124.58
6	L	314	BCL	C5-C3-C2	-2.58	115.85	121.10
6	M	313	BCL	C11-C10-C8	-2.57	107.29	115.73
6	L	312	BCL	OBD-CAD-CBD	-2.54	122.18	125.91
12	M	920	LDA	CM2-N1-CM1	-2.54	106.86	110.91
6	L	312	BCL	C4B-C3B-CAB	-2.53	122.24	127.13
10	M	800	CDL	OA8-CA7-OA9	-2.52	117.42	123.58
8	M	501	U10	C7-C6-C5	-2.38	115.51	118.48
7	M	401	BPH	CAA-C2A-C3A	-2.35	106.37	112.81
10	M	800	CDL	OA6-CA5-OA7	-2.31	117.99	123.69
7	M	401	BPH	CMA-C3A-C2A	-2.22	104.83	113.81
8	M	501	U10	C11-C9-C8	-2.18	116.65	121.10
8	L	502	U10	O5-C5-C6	-2.16	118.00	121.88
6	L	314	BCL	CAC-C3C-C4C	-2.15	107.80	112.58
6	M	311	BCL	C4B-C3B-CAB	-2.12	123.04	127.13
8	L	502	U10	C15-C14-C13	-2.11	118.17	123.70
7	L	402	BPH	CMA-C3A-C2A	-2.09	105.33	113.81
6	L	314	BCL	CMC-C2C-C3C	-2.09	105.36	113.81
8	L	502	U10	C22-C23-C24	-2.08	122.52	127.66
6	M	313	BCL	OBB-CAB-CBB	-2.07	115.50	120.15
6	M	311	BCL	CMA-C3A-C2A	-2.05	105.52	113.81
6	L	312	BCL	CAA-C2A-C1A	-2.04	105.28	111.97
10	M	800	CDL	OB8-CB7-OB9	-2.02	118.65	123.58
8	L	502	U10	C21-C19-C18	-2.01	117.01	121.10
6	L	312	BCL	C1-O2A-CGA	2.02	121.41	116.77
8	M	501	U10	C41-C39-C40	2.03	119.16	114.59
6	M	313	BCL	O1D-CGD-CBD	2.03	128.35	124.58
10	M	800	CDL	OB8-CB7-C71	2.05	117.84	111.92
11	M	802	PCK	BR1-C19-C18	2.08	112.44	108.90
6	M	313	BCL	C4-C3-C5	2.10	118.91	115.29
8	M	501	U10	C10-C9-C11	2.13	118.95	115.29
6	M	311	BCL	C2A-C1A-CHA	2.14	127.69	123.92
6	M	311	BCL	C4-C3-C5	2.15	118.99	115.29
6	L	314	BCL	C4-C3-C5	2.16	119.01	115.29

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	L	502	U10	C36-C34-C33	2.16	125.48	121.10
8	L	502	U10	C3M-O3-C3	2.20	124.27	116.45
7	M	401	BPH	C3C-C4C-NC	2.21	110.25	108.11
6	M	311	BCL	CMB-C2B-C3B	2.22	128.91	124.88
6	M	311	BCL	OBB-CAB-C3B	2.23	124.14	119.95
6	L	312	BCL	CED-O2D-CGD	2.25	121.14	115.97
8	M	501	U10	C25-C24-C26	2.27	119.20	115.29
6	M	313	BCL	CMD-C2D-C3D	2.31	129.09	124.88
6	L	312	BCL	C4-C3-C5	2.32	119.29	115.29
7	M	401	BPH	CMD-C2D-C3D	2.34	129.13	124.88
15	H	801	PC7	O3-C11-C12	2.34	118.69	111.92
8	L	502	U10	C35-C34-C36	2.39	119.41	115.29
6	M	311	BCL	CAA-CBA-CGA	2.40	120.51	113.35
6	M	313	BCL	CHC-C1C-NC	2.41	127.84	124.51
6	L	314	BCL	CMB-C2B-C3B	2.51	129.46	124.88
6	M	313	BCL	C2C-C3C-C4C	2.54	105.15	101.34
7	M	401	BPH	C1B-NB-C4B	2.57	111.51	106.51
10	M	800	CDL	CA6-OA8-CA7	2.64	125.02	117.13
6	L	314	BCL	CBC-CAC-C3C	2.65	119.48	113.45
6	L	312	BCL	CMB-C2B-C3B	2.71	129.81	124.88
7	L	402	BPH	CAC-C3C-C4C	2.72	119.64	112.67
6	L	312	BCL	CBA-CAA-C2A	2.74	121.95	113.82
8	M	501	U10	C15-C14-C16	2.77	120.07	115.29
7	L	402	BPH	CAC-C3C-C2C	2.80	121.28	114.24
6	L	314	BCL	OBB-CAB-C3B	2.82	125.26	119.95
6	M	311	BCL	C5-C3-C2	2.85	126.90	121.10
6	L	312	BCL	C2C-C3C-C4C	2.87	105.63	101.34
6	L	314	BCL	CMD-C2D-C3D	2.87	130.10	124.88
6	L	314	BCL	CAA-CBA-CGA	2.88	121.95	113.35
10	M	800	CDL	OA8-CA7-C31	2.88	120.25	111.92
12	H	908	LDA	CM1-N1-C1	2.91	116.35	110.23
8	L	502	U10	C25-C24-C26	2.96	120.39	115.29
11	M	802	PCK	O2-C31-C32	3.04	117.95	111.55
11	M	802	PCK	O3-C11-C12	3.17	121.09	111.92
15	H	801	PC7	O2-C31-C32	3.31	118.53	111.55
7	M	401	BPH	C1-O2A-CGA	3.43	124.66	116.77
7	L	402	BPH	O2D-CGD-CBD	3.45	117.39	111.28
7	M	401	BPH	O2D-CGD-CBD	3.53	117.55	111.28
11	M	802	PCK	O3-C3-C2	3.57	117.53	108.64
8	M	501	U10	C30-C29-C31	3.74	121.74	115.29
6	L	314	BCL	O2D-CGD-CBD	4.03	118.42	111.28
8	L	502	U10	C30-C29-C31	4.05	122.27	115.29

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	M	311	BCL	C1-O2A-CGA	4.07	126.15	116.77
7	M	401	BPH	CAC-C3C-C4C	4.19	123.44	112.67
10	M	800	CDL	OB6-CB5-C51	4.56	121.17	111.55
7	L	402	BPH	C3C-C4C-NC	4.64	112.61	108.11
10	M	800	CDL	OA6-CA5-C11	5.04	122.17	111.55

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

19 monomers are involved in 81 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
13	H	708	GOL	2	0
15	H	801	PC7	6	0
12	H	901	LDA	2	0
12	H	903	LDA	5	0
12	H	904	LDA	7	0
12	H	908	LDA	10	0
6	L	312	BCL	4	0
6	L	314	BCL	5	0
7	L	402	BPH	3	0
8	L	502	U10	4	0
6	M	311	BCL	13	0
6	M	313	BCL	7	0
7	M	401	BPH	4	0
8	M	501	U10	1	0
10	M	800	CDL	2	0
11	M	802	PCK	24	0
12	M	902	LDA	5	0
12	M	907	LDA	1	0
12	M	920	LDA	3	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, 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	L	281/281 (100%)	-0.00	13 (4%) 32 30	43, 53, 66, 82	0
2	M	302/307 (98%)	0.18	21 (6%) 16 13	43, 53, 65, 89	0
3	H	241/260 (92%)	-0.24	5 (2%) 63 60	44, 53, 61, 95	0
All	All	824/848 (97%)	-0.00	39 (4%) 31 29	43, 53, 65, 95	0

All (39) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	M	1	ALA	10.3
3	H	251	VAL	8.6
2	M	2[A]	GLU	6.1
3	H	250	SER	6.0
1	L	277	GLY	4.7
1	L	270	PRO	4.5
2	M	114	LEU	3.9
2	M	302	GLY	3.8
1	L	268	LYS	3.4
2	M	100[A]	GLU	3.3
2	M	80	TRP	3.2
1	L	59	TRP	3.1
1	L	185	LEU	3.1
2	M	104	SER	3.0
2	M	75	TRP	2.9
1	L	80	LEU	2.9
2	M	106	ALA	2.9
2	M	98	ALA	2.8
3	H	220[A]	LYS	2.8
2	M	105	PHE	2.8
3	H	245	ALA	2.8
1	L	269	LEU	2.7
2	M	101	TYR	2.7

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Mol	Chain	Res	Type	RSRZ
1	L	276[A]	PRO	2.6
2	M	3	TYR	2.6
1	L	202	LYS	2.5
1	L	281	GLY	2.5
2	M	109	LEU	2.4
1	L	279	ILE	2.4
2	M	216	PHE	2.4
1	L	278	GLY	2.3
2	M	27	ALA	2.3
1	L	271	TRP	2.2
2	M	290	VAL	2.2
2	M	83	ALA	2.2
2	M	79	GLY	2.1
2	M	76	TYR	2.1
3	H	93	SER	2.0
2	M	265	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
11	PCK	M	802	58/58	0.22	0.74	60,69,82,84	58
12	LDA	H	904	16/16	0.37	0.63	53,54,58,58	16
15	PC7	H	801	52/52	0.44	0.68	24,60,69,69	52
12	LDA	H	908	16/16	0.45	0.61	45,51,61,61	16
12	LDA	H	903	16/16	0.47	0.44	56,61,64,65	16
12	LDA	M	920	16/16	0.62	0.80	42,46,59,59	16
10	CDL	M	800	81/100	0.63	0.51	43,67,79,82	81

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
13	GOL	M	710	6/6	0.63	0.33	55,57,58,60	6
12	LDA	M	907	16/16	0.66	0.39	56,59,65,66	16
13	GOL	H	708	6/6	0.72	1.10	47,49,50,52	6
12	LDA	M	902	16/16	0.72	0.62	59,64,67,68	16
5	CL	L	712	1/1	0.72	0.35	66,66,66,66	1
8	U10	L	502	48/63	0.73	0.55	40,55,73,75	48
4	PO4	L	703	5/5	0.73	0.33	61,61,62,65	5
13	GOL	M	707	6/6	0.75	0.23	49,50,52,52	6
12	LDA	H	901	16/16	0.85	0.29	61,63,66,68	16
13	GOL	H	705	6/6	0.87	0.41	48,58,59,61	6
4	PO4	H	704	5/5	0.87	0.30	71,73,74,75	5
13	GOL	H	706	6/6	0.87	0.26	71,72,73,74	6
5	CL	M	711	1/1	0.88	0.24	74,74,74,74	1
13	GOL	H	709	6/6	0.88	0.19	55,56,57,58	6
7	BPH	M	401	65/65	0.88	0.23	45,55,106,107	0
8	U10	M	501	48/63	0.89	0.24	49,61,81,84	0
14	K	H	700	1/1	0.93	0.11	57,57,57,57	0
4	PO4	M	702	5/5	0.94	0.12	53,53,54,55	5
6	BCL	M	311	66/66	0.94	0.22	46,54,119,120	0
6	BCL	L	312	66/66	0.96	0.16	42,50,63,67	0
7	BPH	L	402	65/65	0.96	0.15	40,52,60,61	0
6	BCL	M	313	66/66	0.96	0.19	42,50,79,87	0
4	PO4	M	701	5/5	0.96	0.14	57,58,62,62	5
6	BCL	L	314	66/66	0.97	0.15	41,48,67,71	0
9	FE	M	500	1/1	0.99	0.17	51,51,51,51	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.