



Full wwPDB X-ray Structure Validation Report ⓘ

Jan 31, 2016 – 07:04 PM GMT

PDB ID : 1DV3
Title : PHOTOSYNTHETIC REACTION CENTER FROM RHODOBACTER SPHAEROIDES IN THE CHARGE-SEPARATED D+QAQB-STATE WITH THE PROTON TRANSFER INHIBITOR CD2+
Authors : Axelrod, H.L.; Abresch, E.C.; Paddock, M.L.; Okamura, M.Y.; Feher, G.
Deposited on : 2000-01-19
Resolution : 2.50 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.
We welcome your comments at validation@mail.wwpdb.org
A user guide is available at
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

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

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

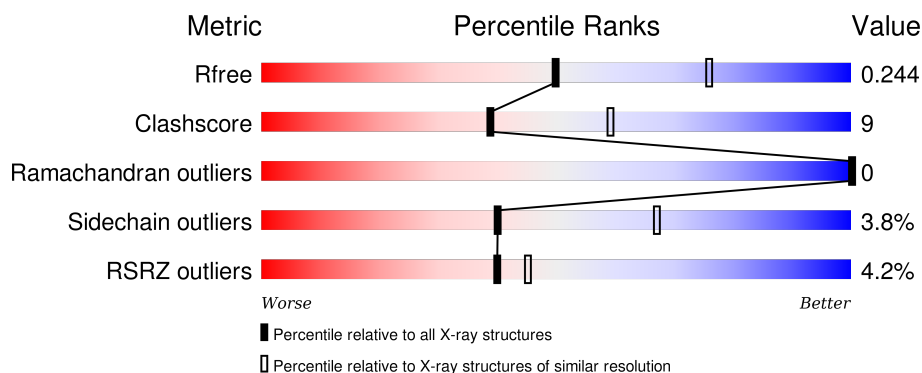
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.50 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.




Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	91344	3553 (2.50-2.50)
Clashscore	102246	4242 (2.50-2.50)
Ramachandran outliers	100387	4156 (2.50-2.50)
Sidechain outliers	100360	4158 (2.50-2.50)
RSRZ outliers	91569	3562 (2.50-2.50)

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 ≥ 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	<div> <div>4%</div> <div>77%</div> <div>21%</div> <div>•</div> </div>
1	R	281	<div> <div>6%</div> <div>77%</div> <div>22%</div> <div>•</div> </div>
2	M	307	<div> <div>2%</div> <div>84%</div> <div>12%</div> <div>• •</div> </div>
2	S	307	<div> <div>%</div> <div>83%</div> <div>13%</div> <div>• •</div> </div>
3	H	260	<div> <div>5%</div> <div>77%</div> <div>17%</div> <div>• 5%</div> </div>

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Mol	Chain	Length	Quality of chain
3	T	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	LDA	M	1012	-	-	-	X
10	LDA	M	1013	-	-	-	X
7	BCL	M	1003	X	-	-	-
8	BPH	R	2006	-	-	-	X

2 Entry composition

There are 11 unique types of molecules in this entry. The entry contains 14271 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 PHOTOSYNTHETIC REACTION CENTER REACTION CENTER.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	L	281	Total	C	N	O	S	0	0	0
			2232	1507	355	362	8			
1	R	281	Total	C	N	O	S	0	0	0
			2232	1507	355	362	8			

- Molecule 2 is a protein called PHOTOSYNTHETIC REACTION CENTER REACTION CENTER.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	M	299	Total	C	N	O	S	0	0	0
			2390	1597	391	392	10			
2	S	299	Total	C	N	O	S	0	0	0
			2390	1597	391	392	10			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
M	307	ALA	ASN	CONFLICT	UNP P02953
S	307	ALA	ASN	CONFLICT	UNP P02953

- Molecule 3 is a protein called PHOTOSYNTHETIC REACTION CENTER REACTION CENTER.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	H	246	Total	C	N	O	S	0	0	0
			1869	1196	320	343	10			
3	T	246	Total	C	N	O	S	0	0	0
			1869	1196	320	343	10			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
H	8	GLN	GLY	CONFLICT	UNP P11846
T	8	GLN	GLY	CONFLICT	UNP P11846

- Molecule 4 is FE (II) ION (three-letter code: FE2) (formula: Fe).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	S	1	Total Fe 1 1	0	0
4	M	1	Total Fe 1 1	0	0

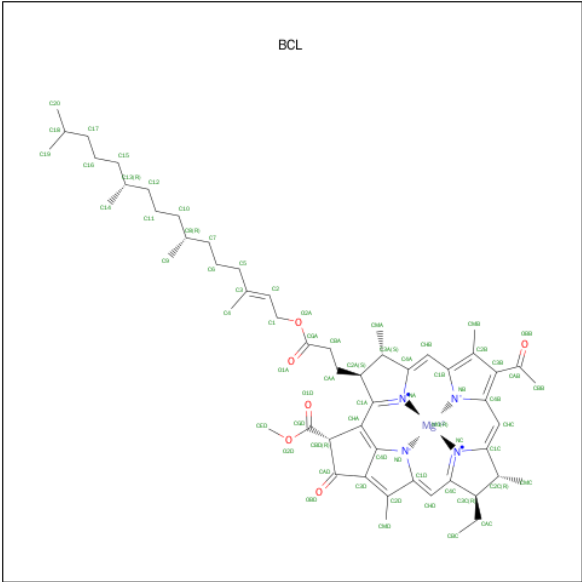
- Molecule 5 is CADMIUM ION (three-letter code: CD) (formula: Cd).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	H	1	Total Cd 1 1	0	0
5	T	1	Total Cd 1 1	0	0

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

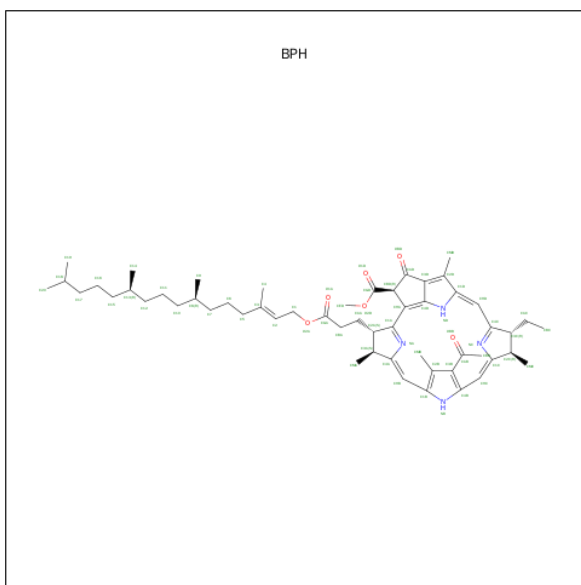
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	S	1	Total Cl 1 1	0	0
6	M	1	Total Cl 1 1	0	0

- Molecule 7 is BACTERIOCHLOROPHYLL A (three-letter code: BCL) (formula: C₅₅H₇₄MgN₄O₆).



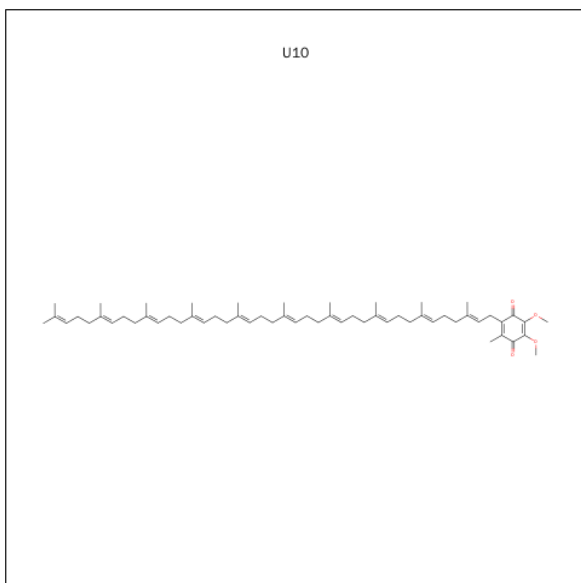
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
7	L	1	Total	C	Mg	N	O	0	0
			51	40	1	4	6		
7	L	1	Total	C	Mg	N	O	0	0
			66	55	1	4	6		
7	M	1	Total	C	Mg	N	O	0	0
			66	55	1	4	6		
7	M	1	Total	C	Mg	N	O	0	0
			66	55	1	4	6		
7	S	1	Total	C	Mg	N	O	0	0
			52	41	1	4	6		
7	R	1	Total	C	Mg	N	O	0	0
			66	55	1	4	6		
7	S	1	Total	C	Mg	N	O	0	0
			66	55	1	4	6		
7	R	1	Total	C	Mg	N	O	0	0
			66	55	1	4	6		

- Molecule 8 is BACTERIOPHEOPHYTIN A (three-letter code: BPH) (formula: C₅₅H₇₆N₄O₆).



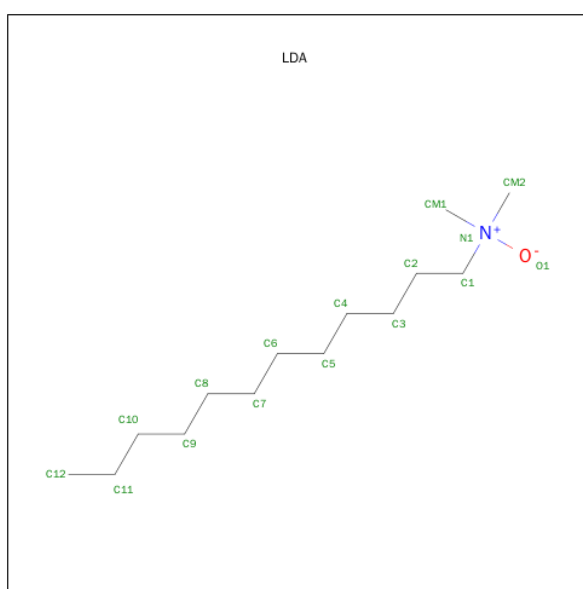
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
8	M	1	Total	C	N	O	0	0
			50	40	4	6		
8	L	1	Total	C	N	O	0	0
			65	55	4	6		
8	S	1	Total	C	N	O	0	0
			52	42	4	6		
8	R	1	Total	C	N	O	0	0
			65	55	4	6		

- Molecule 9 is UBIQUINONE-10 (three-letter code: U10) (formula: $C_{59}H_{90}O_4$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
9	M	1	Total	C	O	0	0
			38	34	4		
9	L	1	Total	C	O	0	0
			26	22	4		
9	S	1	Total	C	O	0	0
			31	27	4		
9	R	1	Total	C	O	0	0
			19	15	4		

- Molecule 10 is LAURYL DIMETHYLAMINE-N-OXIDE (three-letter code: LDA) (formula: $C_{14}H_{31}NO$).



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

- Molecule 11 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
11	H	84	Total	O	0	0
			84	84		
11	L	52	Total	O	0	0
			52	52		
11	M	88	Total	O	0	0
			88	88		

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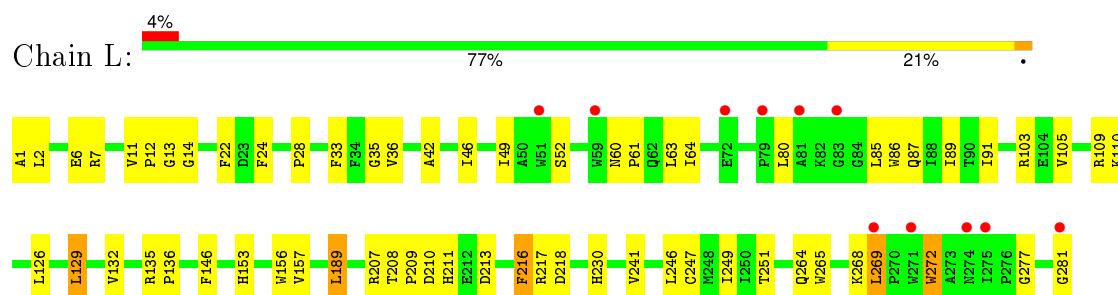
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
11	R	44	Total 44	O 44	0	0
11	S	72	Total 72	O 72	0	0
11	T	66	Total 66	O 66	0	0

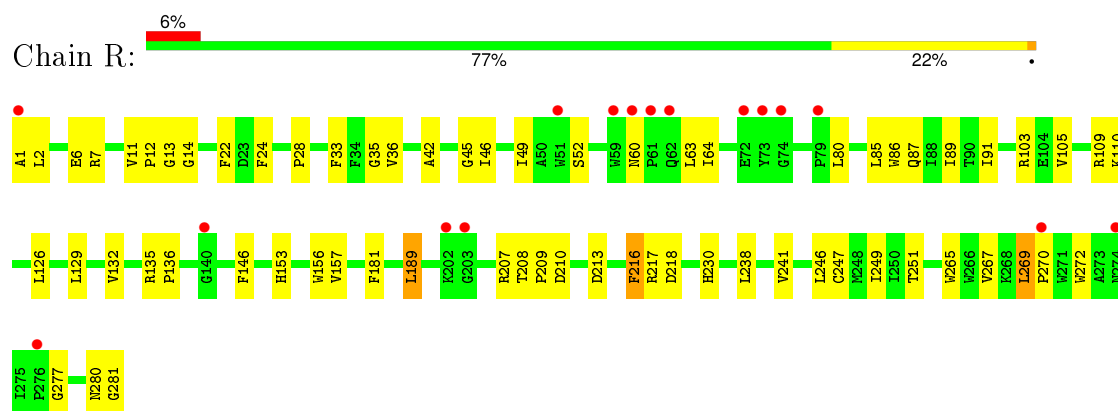
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

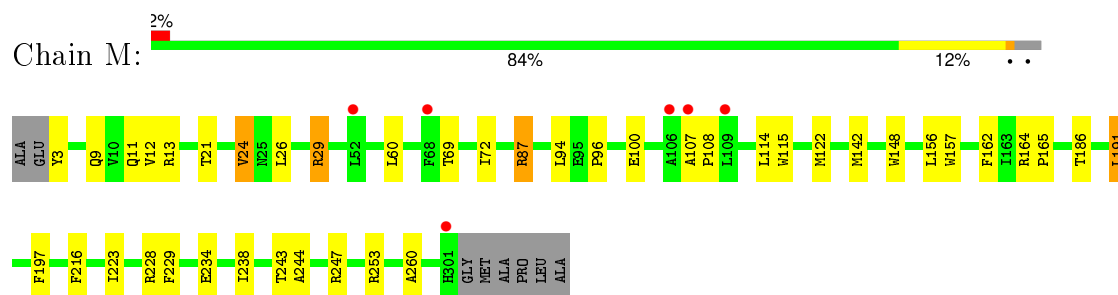
- Molecule 1: PHOTOSYNTHETIC REACTION CENTER REACTION CENTER



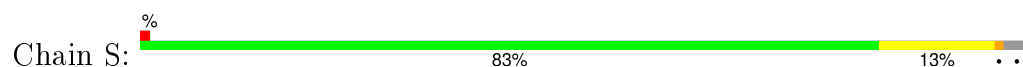
- Molecule 1: PHOTOSYNTHETIC REACTION CENTER REACTION CENTER

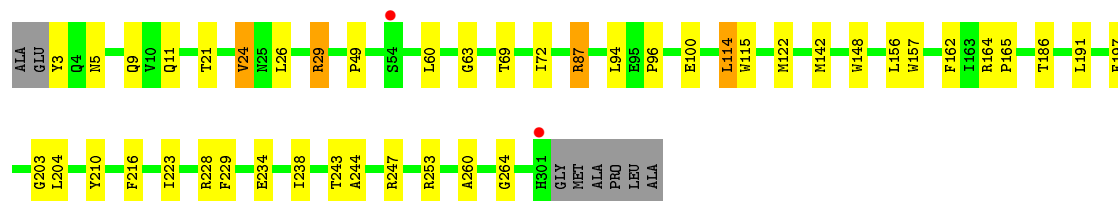


- Molecule 2: PHOTOSYNTHETIC REACTION CENTER REACTION CENTER

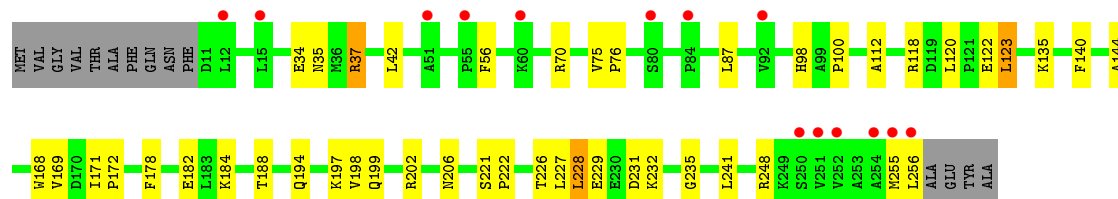
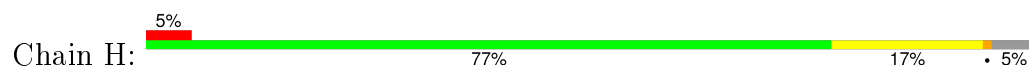


- Molecule 2: PHOTOSYNTHETIC REACTION CENTER REACTION CENTER

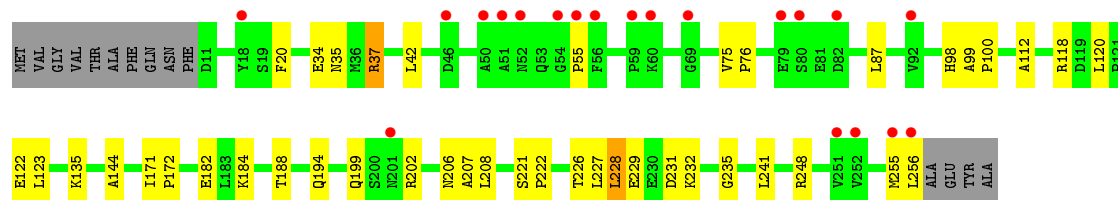
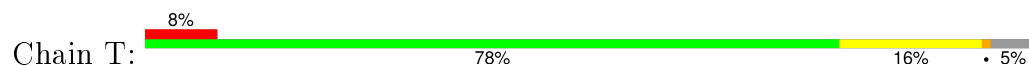




• Molecule 3: PHOTOSYNTHETIC REACTION CENTER REACTION CENTER



• Molecule 3: PHOTOSYNTHETIC REACTION CENTER REACTION CENTER



4 Data and refinement statistics

Property	Value	Source
Space group	P 43 21 2	Depositor
Cell constants a, b, c, α , β , γ	141.25Å 141.25Å 275.33Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	27.80 – 2.50 27.76 – 2.49	Depositor EDS
% Data completeness (in resolution range)	95.2 (27.80-2.50) 94.6 (27.76-2.49)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.68 (at 2.51Å)	Xtriage
Refinement program	CNS 0.9	Depositor
R, R_{free}	0.226 , 0.252 0.220 , 0.244	Depositor DCC
R_{free} test set	4391 reflections (5.00%)	DCC
Wilson B-factor (Å ²)	41.7	Xtriage
Anisotropy	0.361	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 55.7	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Outliers	1 of 92258 reflections (0.001%)	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	14271	wwPDB-VP
Average B, all atoms (Å ²)	40.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.74% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: BCL, LDA, CL, BPH, CD, FE2, U10

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	0.40	0/2320	0.55	0/3175
1	R	0.40	0/2320	0.55	0/3175
2	M	0.41	0/2482	0.53	0/3389
2	S	0.42	0/2482	0.53	0/3389
3	H	0.34	0/1917	0.59	0/2608
3	T	0.34	0/1917	0.59	0/2608
All	All	0.39	0/13438	0.56	0/18344

There are no bond length outliers.

There are no bond angle outliers.

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	2232	0	2187	46	0
1	R	2232	0	2187	48	0
2	M	2390	0	2304	36	0
2	S	2390	0	2304	40	0
3	H	1869	0	1884	38	0
3	T	1869	0	1884	37	0
4	M	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	S	1	0	0	0	0
5	H	1	0	0	0	0
5	T	1	0	0	0	0
6	M	1	0	0	0	0
6	S	1	0	0	0	0
7	L	117	0	115	8	0
7	M	132	0	148	10	0
7	R	132	0	148	10	0
7	S	118	0	117	12	0
8	L	65	0	76	4	0
8	M	50	0	43	0	0
8	R	65	0	76	8	0
8	S	52	0	47	6	0
9	L	26	0	28	0	0
9	M	38	0	47	2	0
9	R	19	0	17	1	0
9	S	31	0	36	0	0
10	M	32	0	62	1	0
11	H	84	0	0	0	0
11	L	52	0	0	2	0
11	M	88	0	0	0	0
11	R	44	0	0	1	0
11	S	72	0	0	2	0
11	T	66	0	0	2	0
All	All	14271	0	13710	247	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 (247) 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)
2:S:228:ARG:HA	3:T:194:GLN:CG	2.07	0.84
8:S:2005:BPH:HBB3	8:S:2005:BPH:HHC	1.61	0.83
2:M:197:PHE:HZ	7:M:1003:BCL:HBB2	1.45	0.81
1:R:181:PHE:HB3	8:S:2005:BPH:HBB2	1.63	0.79
2:S:21:THR:O	2:S:24:VAL:HG13	1.86	0.76
7:M:1004:BCL:HMB1	7:M:1004:BCL:HBB2	1.66	0.75
1:R:241:VAL:HG21	8:R:2006:BPH:HAC2	1.69	0.75
7:L:1001:BCL:HBB3	7:M:1003:BCL:H41	1.66	0.74
7:S:2001:BCL:HBB3	7:S:2003:BCL:H41	1.70	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:M:21:THR:O	2:M:24:VAL:HG13	1.88	0.73
2:M:9:GLN:HE22	3:H:197:LYS:HA	1.52	0.73
7:R:2004:BCL:H193	8:R:2006:BPH:H102	1.70	0.73
7:R:2004:BCL:HED2	2:S:203:GLY:HA3	1.70	0.71
2:S:228:ARG:HA	3:T:194:GLN:HG3	1.72	0.70
3:H:206:ASN:HD21	3:H:248:ARG:HD2	1.56	0.69
7:R:2004:BCL:HBB2	7:R:2004:BCL:HMB1	1.72	0.69
2:M:197:PHE:CZ	7:M:1003:BCL:HBB2	2.26	0.69
2:S:197:PHE:HZ	7:S:2003:BCL:HBB2	1.58	0.69
8:R:2006:BPH:HBB3	8:R:2006:BPH:HHC	1.74	0.68
3:T:206:ASN:HD21	3:T:248:ARG:HD2	1.60	0.67
1:R:42:ALA:HA	8:R:2006:BPH:H9C2	1.77	0.67
2:S:63:GLY:HA3	8:S:2005:BPH:H5C1	1.78	0.66
7:L:1001:BCL:HBB2	7:L:1001:BCL:HHC	1.78	0.66
7:S:2001:BCL:HHC	7:S:2001:BCL:HBB2	1.76	0.66
1:R:265:TRP:O	1:R:269:LEU:HD13	1.97	0.65
1:R:189:LEU:HG	1:R:216:PHE:HZ	1.61	0.64
3:T:226:THR:OG1	3:T:229:GLU:HG3	1.98	0.64
2:S:228:ARG:HA	3:T:194:GLN:HG2	1.80	0.64
1:L:189:LEU:HG	1:L:216:PHE:HZ	1.64	0.63
1:L:265:TRP:O	1:L:269:LEU:HD13	1.97	0.63
7:M:1004:BCL:HMB1	7:M:1004:BCL:CBB	2.28	0.63
3:H:226:THR:OG1	3:H:229:GLU:HG3	1.98	0.63
2:S:11:GLN:HB2	3:T:144:ALA:HB3	1.81	0.62
8:R:2006:BPH:CBB	8:R:2006:BPH:HHC	2.29	0.62
1:L:105:VAL:O	1:L:109:ARG:HG3	2.00	0.62
2:M:13:ARG:O	3:H:140:PHE:HA	2.01	0.61
2:S:197:PHE:CZ	7:S:2003:BCL:HBB2	2.36	0.61
1:R:105:VAL:O	1:R:109:ARG:HG3	2.01	0.61
1:R:80:LEU:O	1:R:85:LEU:HB2	2.01	0.61
1:L:241:VAL:HG21	8:L:1006:BPH:HAC1	1.83	0.61
2:M:186:THR:HG23	7:M:1003:BCL:HMD2	1.81	0.60
7:S:2001:BCL:CBB	7:S:2001:BCL:HHC	2.31	0.60
1:L:80:LEU:O	1:L:85:LEU:HB2	2.01	0.60
2:M:228:ARG:HA	3:H:194:GLN:CG	2.32	0.60
3:T:255:MET:C	3:T:256:LEU:HD12	2.22	0.59
1:R:181:PHE:CD2	8:S:2005:BPH:HBB1	2.36	0.59
8:R:2006:BPH:HBB2	2:S:210:TYR:HB3	1.83	0.59
3:H:255:MET:C	3:H:256:LEU:HD12	2.22	0.59
7:S:2003:BCL:CBB	7:S:2003:BCL:HHC	2.32	0.59
7:L:1002:BCL:HBB3	7:L:1002:BCL:HMB1	1.83	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:R:2010:HOH:O	2:S:253:ARG:HD3	2.03	0.58
7:L:1002:BCL:HMB1	7:L:1002:BCL:CBB	2.33	0.58
7:S:2003:BCL:HBB2	7:S:2003:BCL:HHC	1.85	0.57
3:H:194:GLN:H	3:H:194:GLN:CD	2.09	0.56
3:H:199:GLN:HE22	3:H:202:ARG:NH1	2.04	0.56
3:T:194:GLN:H	3:T:194:GLN:CD	2.09	0.55
1:R:230:HIS:CD2	2:S:223:ILE:HG13	2.42	0.55
2:S:164:ARG:HB3	2:S:165:PRO:HD3	1.89	0.55
7:L:1001:BCL:CBB	7:L:1001:BCL:HHC	2.36	0.55
1:L:52:SER:HB2	1:L:85:LEU:HD23	1.89	0.55
1:R:28:PRO:HB3	2:S:253:ARG:NH1	2.20	0.55
2:S:243:THR:O	2:S:247:ARG:HG3	2.06	0.55
3:T:199:GLN:HE22	3:T:202:ARG:NH1	2.05	0.55
1:R:181:PHE:HB3	8:S:2005:BPH:CBB	2.34	0.55
2:M:9:GLN:NE2	3:H:198:VAL:H	2.06	0.54
3:T:118:ARG:HD3	3:T:120:LEU:HD12	1.88	0.54
2:M:122:MET:HE3	2:M:157:TRP:HE1	1.72	0.54
8:S:2005:BPH:CBB	8:S:2005:BPH:HHC	2.36	0.54
3:H:118:ARG:HD3	3:H:120:LEU:HD12	1.90	0.54
1:L:272:TRP:CD2	2:M:87:ARG:HB3	2.42	0.54
3:H:241:LEU:O	3:H:248:ARG:NH2	2.42	0.53
1:L:277:GLY:O	1:L:281:GLY:HA3	2.08	0.53
1:L:60:ASN:O	1:L:64:ILE:HG13	2.09	0.53
7:R:2004:BCL:CBB	7:R:2004:BCL:HMB1	2.39	0.53
1:R:52:SER:HB2	1:R:85:LEU:HD23	1.90	0.53
3:H:87:LEU:HD23	3:H:100:PRO:HA	1.91	0.53
1:L:28:PRO:HB3	2:M:253:ARG:NH1	2.24	0.53
3:H:37:ARG:HH11	3:H:76:PRO:HD3	1.74	0.53
1:R:267:VAL:HG13	2:S:87:ARG:HD2	1.90	0.53
1:R:60:ASN:O	1:R:64:ILE:HG13	2.09	0.53
1:R:189:LEU:HG	1:R:216:PHE:CZ	2.44	0.52
2:M:260:ALA:HB1	3:H:35:ASN:OD1	2.08	0.52
1:R:11:VAL:HG13	1:R:12:PRO:HD2	1.92	0.52
1:R:45:GLY:HA3	8:R:2006:BPH:H9C1	1.92	0.52
1:L:14:GLY:O	1:L:109:ARG:HD3	2.10	0.52
1:R:22:PHE:HA	1:R:24:PHE:CE1	2.44	0.52
11:S:2040:HOH:O	3:T:34:GLU:HG3	2.09	0.52
3:T:206:ASN:HD21	3:T:248:ARG:CD	2.23	0.52
2:S:204:LEU:HD13	3:T:20:PHE:CE2	2.45	0.52
1:L:22:PHE:HA	1:L:24:PHE:CE1	2.45	0.52
1:L:33:PHE:O	1:L:36:VAL:HG22	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:T:87:LEU:HD23	3:T:100:PRO:HA	1.92	0.51
2:M:164:ARG:HB3	2:M:165:PRO:HD3	1.90	0.51
3:H:206:ASN:HD21	3:H:248:ARG:CD	2.21	0.51
1:R:33:PHE:O	1:R:36:VAL:HG22	2.10	0.51
3:T:241:LEU:O	3:T:248:ARG:NH2	2.43	0.51
1:L:11:VAL:HG13	1:L:12:PRO:HD2	1.92	0.51
1:R:22:PHE:HA	1:R:24:PHE:HE1	1.75	0.51
1:L:49:ILE:HG12	1:L:89:ILE:HD13	1.93	0.51
3:T:37:ARG:HH11	3:T:76:PRO:HD3	1.74	0.51
7:R:2002:BCL:CBB	7:R:2002:BCL:HMB1	2.41	0.51
1:R:14:GLY:O	1:R:109:ARG:HD3	2.10	0.51
1:L:246:LEU:O	1:L:249:ILE:HG22	2.11	0.51
1:R:277:GLY:O	1:R:281:GLY:HA3	2.11	0.51
7:M:1003:BCL:CBB	7:M:1003:BCL:HHC	2.41	0.50
2:M:243:THR:O	2:M:247:ARG:HG3	2.11	0.50
7:R:2002:BCL:CGA	7:R:2004:BCL:HBC1	2.41	0.50
2:M:229:PHE:HB2	2:M:244:ALA:HB2	1.93	0.50
2:S:228:ARG:CA	3:T:194:GLN:HG3	2.39	0.49
1:L:22:PHE:HA	1:L:24:PHE:HE1	1.77	0.49
2:S:100:GLU:CD	2:S:100:GLU:H	2.16	0.49
3:H:199:GLN:NE2	3:H:202:ARG:NH1	2.60	0.49
2:S:260:ALA:HB1	3:T:35:ASN:OD1	2.12	0.49
1:R:135:ARG:HB3	1:R:136:PRO:HD3	1.94	0.49
2:S:122:MET:HE3	2:S:157:TRP:HE1	1.77	0.49
2:S:49:PRO:HG2	11:S:2017:HOH:O	2.11	0.49
3:T:199:GLN:NE2	3:T:202:ARG:NH1	2.61	0.49
3:T:182:GLU:HA	3:T:188:THR:HG22	1.94	0.49
2:M:100:GLU:H	2:M:100:GLU:CD	2.16	0.49
1:R:246:LEU:O	1:R:249:ILE:HG22	2.13	0.48
1:L:135:ARG:NH1	1:L:251:THR:O	2.43	0.48
1:R:238:LEU:HD12	8:R:2006:BPH:CBC	2.43	0.48
3:H:182:GLU:HA	3:H:188:THR:HG22	1.95	0.48
1:L:213:ASP:O	1:L:217:ARG:HB2	2.14	0.48
1:L:1:ALA:HB1	3:H:42:LEU:HB3	1.96	0.48
1:R:49:ILE:HG12	1:R:89:ILE:HD13	1.96	0.48
1:L:49:ILE:CG1	1:L:89:ILE:HD13	2.44	0.48
3:H:199:GLN:NE2	3:H:202:ARG:HH11	2.12	0.47
2:S:69:THR:O	2:S:72:ILE:HG22	2.14	0.47
7:R:2004:BCL:HED2	2:S:203:GLY:CA	2.40	0.47
2:M:69:THR:O	2:M:72:ILE:HG22	2.14	0.47
1:L:207:ARG:HG2	2:M:142:MET:HG2	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:H:228:LEU:CD2	3:H:232:LYS:HE3	2.45	0.47
2:S:229:PHE:HB2	2:S:244:ALA:HB2	1.95	0.47
1:R:135:ARG:NH1	1:R:251:THR:O	2.45	0.47
1:L:241:VAL:HG21	8:L:1006:BPH:CAC	2.45	0.47
3:T:87:LEU:HD22	3:T:98:HIS:O	2.15	0.47
2:M:228:ARG:HA	3:H:194:GLN:HG2	1.96	0.47
1:R:213:ASP:O	1:R:217:ARG:HB2	2.15	0.47
2:M:12:VAL:HG21	3:H:169:VAL:HG11	1.97	0.47
1:L:189:LEU:HG	1:L:216:PHE:CZ	2.46	0.46
3:H:87:LEU:HD22	3:H:98:HIS:O	2.15	0.46
1:L:135:ARG:HB3	1:L:136:PRO:HD3	1.96	0.46
3:T:171:ILE:HB	3:T:172:PRO:HD3	1.96	0.46
3:H:171:ILE:HB	3:H:172:PRO:HD3	1.97	0.46
7:M:1003:BCL:HBB2	7:M:1003:BCL:HHC	1.97	0.46
11:L:1034:HOH:O	2:M:253:ARG:HD3	2.15	0.46
1:R:218:ASP:OD1	2:S:29:ARG:HD2	2.16	0.46
7:R:2004:BCL:CED	2:S:203:GLY:HA3	2.41	0.46
1:R:28:PRO:HB3	2:S:253:ARG:HH11	1.81	0.45
1:L:86:TRP:CH2	1:L:132:VAL:HG13	2.51	0.45
7:R:2002:BCL:HAA2	7:R:2002:BCL:HBD	1.98	0.45
1:L:13:GLY:O	1:L:110:LYS:HE2	2.16	0.45
1:R:280:ASN:HB2	2:S:87:ARG:HE	1.81	0.45
1:L:28:PRO:HB3	2:M:253:ARG:HH11	1.82	0.45
1:R:208:THR:HB	1:R:209:PRO:HD2	1.97	0.45
1:L:208:THR:HB	1:L:209:PRO:HD2	1.98	0.45
3:T:241:LEU:HB2	11:T:2049:HOH:O	2.17	0.45
1:L:42:ALA:O	1:L:46:ILE:HG13	2.16	0.45
1:L:60:ASN:CG	1:L:63:LEU:HD23	2.37	0.45
10:M:1012:LDA:HM21	3:H:56:PHE:HE2	1.82	0.45
1:R:86:TRP:CH2	1:R:132:VAL:HG13	2.52	0.44
3:T:228:LEU:CD2	3:T:232:LYS:HE3	2.47	0.44
1:L:230:HIS:CD2	2:M:223:ILE:HG13	2.51	0.44
3:T:199:GLN:NE2	3:T:202:ARG:HH11	2.15	0.44
1:R:60:ASN:CG	1:R:63:LEU:HD23	2.38	0.44
1:L:208:THR:HB	1:L:209:PRO:CD	2.47	0.44
2:S:114:LEU:HA	2:S:114:LEU:HD12	1.85	0.44
1:R:153:HIS:O	1:R:157:VAL:HG23	2.17	0.44
7:L:1002:BCL:HAA2	7:L:1002:BCL:HBD	1.99	0.44
1:L:241:VAL:HG21	8:L:1006:BPH:CBC	2.48	0.44
1:L:153:HIS:O	1:L:157:VAL:HG23	2.17	0.44
1:R:35:GLY:HA2	1:R:103:ARG:HD2	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:2:LEU:HB3	1:L:6:GLU:HB3	1.99	0.44
1:R:208:THR:HB	1:R:209:PRO:CD	2.48	0.44
1:R:1:ALA:HB1	3:T:42:LEU:HB3	2.00	0.44
3:T:37:ARG:NH1	3:T:76:PRO:HD3	2.32	0.44
1:R:2:LEU:HB3	1:R:6:GLU:HB3	2.00	0.44
2:S:186:THR:HG23	7:S:2003:BCL:HMD2	2.00	0.43
2:M:228:ARG:HA	3:H:194:GLN:HG3	2.00	0.43
3:H:122:GLU:HB2	3:H:227:LEU:HD21	2.00	0.43
7:L:1001:BCL:HMB1	7:L:1001:BCL:OBB	2.17	0.43
1:R:42:ALA:O	1:R:46:ILE:HG13	2.18	0.43
9:M:1008:U10:H4M2	9:M:1008:U10:H3M3	2.00	0.43
1:R:49:ILE:CG1	1:R:89:ILE:HD13	2.48	0.43
3:H:228:LEU:HD22	3:H:232:LYS:HE3	2.00	0.43
2:S:234:GLU:O	2:S:238:ILE:HG13	2.19	0.43
1:L:35:GLY:HA2	1:L:103:ARG:HD2	2.00	0.43
8:L:1006:BPH:OBB	8:L:1006:BPH:HHC	2.17	0.43
3:T:228:LEU:HD22	3:T:232:LYS:HE3	2.01	0.43
2:M:260:ALA:C	9:M:1008:U10:H4M3	2.39	0.43
1:R:207:ARG:HG2	2:S:142:MET:HG2	2.01	0.43
3:H:75:VAL:HA	3:H:76:PRO:C	2.39	0.43
7:S:2003:BCL:OBB	7:S:2003:BCL:HMB1	2.19	0.43
3:T:34:GLU:O	3:T:37:ARG:HD3	2.19	0.43
1:L:218:ASP:OD1	2:M:29:ARG:HD2	2.18	0.43
7:S:2001:BCL:OBB	7:S:2001:BCL:HMB1	2.19	0.42
3:H:37:ARG:NH1	3:H:76:PRO:HD3	2.33	0.42
3:H:221:SER:HA	3:H:222:PRO:HD3	1.81	0.42
2:S:162:PHE:C	2:S:165:PRO:HD2	2.39	0.42
1:L:272:TRP:CE2	2:M:87:ARG:HB3	2.53	0.42
3:T:122:GLU:HB2	3:T:227:LEU:HD21	2.01	0.42
2:S:3:TYR:CE1	2:S:9:GLN:HG3	2.55	0.42
1:L:60:ASN:HA	1:L:61:PRO:HD3	1.93	0.42
3:T:75:VAL:HA	3:T:76:PRO:C	2.39	0.42
1:L:146:PHE:HB3	1:L:156:TRP:CD2	2.55	0.42
3:T:112:ALA:HA	3:T:235:GLY:O	2.20	0.42
1:R:13:GLY:O	1:R:110:LYS:HE2	2.19	0.41
1:R:85:LEU:HD12	1:R:85:LEU:HA	1.90	0.41
3:H:34:GLU:O	3:H:37:ARG:HD3	2.19	0.41
2:S:264:GLY:HA3	3:T:35:ASN:OD1	2.20	0.41
2:S:3:TYR:CZ	2:S:5:ASN:HA	2.55	0.41
1:L:87:GLN:O	1:L:91:ILE:HG12	2.20	0.41
2:M:234:GLU:O	2:M:238:ILE:HG13	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:M:107:ALA:HA	2:M:108:PRO:HD3	1.96	0.41
3:T:221:SER:HA	3:T:222:PRO:HD3	1.80	0.41
7:S:2001:BCL:HBA1	7:S:2001:BCL:H3A	1.86	0.41
2:M:162:PHE:C	2:M:165:PRO:HD2	2.41	0.41
1:L:11:VAL:HG13	11:L:1047:HOH:O	2.20	0.41
7:R:2004:BCL:H2C	7:R:2004:BCL:HBC3	1.85	0.41
7:L:1002:BCL:CBA	7:M:1004:BCL:HBC1	2.50	0.41
7:S:2003:BCL:HAA2	7:S:2003:BCL:HBD	2.02	0.41
2:M:3:TYR:CE1	2:M:9:GLN:HG3	2.56	0.41
1:R:87:GLN:O	1:R:91:ILE:HG12	2.20	0.41
7:M:1003:BCL:HMB1	7:M:1003:BCL:OBB	2.19	0.41
3:H:206:ASN:ND2	3:H:248:ARG:CD	2.84	0.41
1:R:146:PHE:HB3	1:R:156:TRP:CD2	2.55	0.41
2:M:148:TRP:HA	2:M:148:TRP:CE3	2.56	0.41
1:R:269:LEU:HA	1:R:270:PRO:HD3	1.90	0.41
3:T:55:PRO:HD3	11:T:2069:HOH:O	2.21	0.41
2:S:96:PRO:HB3	2:S:115:TRP:CE2	2.56	0.41
2:S:148:TRP:HA	2:S:148:TRP:CE3	2.56	0.40
9:R:2009:U10:H4M3	9:R:2009:U10:H3M2	2.03	0.40
3:T:207:ALA:O	3:T:208:LEU:HD12	2.21	0.40
3:H:70:ARG:HH22	3:H:123:LEU:HD13	1.86	0.40
1:R:52:SER:CB	1:R:85:LEU:HD23	2.51	0.40
1:L:207:ARG:HG3	1:L:211:HIS:CD2	2.56	0.40
2:S:148:TRP:HA	2:S:148:TRP:HE3	1.87	0.40
2:M:96:PRO:HB3	2:M:115:TRP:CE2	2.57	0.40
3:H:112:ALA:HA	3:H:235:GLY:O	2.22	0.40
2:M:11:GLN:HB2	3:H:144:ALA:HB3	2.04	0.40
3:H:168:TRP:HB2	3:H:178:PHE:HB2	2.03	0.40
2:M:9:GLN:HE22	3:H:198:VAL:H	1.68	0.40
3:T:99:ALA:HA	3:T:100:PRO:HD3	1.86	0.40
2:M:191:LEU:HD12	2:M:191:LEU:HA	1.91	0.40
1:L:129:LEU:HD12	1:L:129:LEU:HA	1.88	0.40
1:L:264:GLN:OE1	1:L:268:LYS:HE2	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	L	279/281 (99%)	263 (94%)	16 (6%)	0	100	100
1	R	279/281 (99%)	264 (95%)	15 (5%)	0	100	100
2	M	297/307 (97%)	287 (97%)	10 (3%)	0	100	100
2	S	297/307 (97%)	289 (97%)	8 (3%)	0	100	100
3	H	244/260 (94%)	235 (96%)	9 (4%)	0	100	100
3	T	244/260 (94%)	236 (97%)	8 (3%)	0	100	100
All	All	1640/1696 (97%)	1574 (96%)	66 (4%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	L	220/220 (100%)	211 (96%)	9 (4%)	37	63
1	R	220/220 (100%)	211 (96%)	9 (4%)	37	63
2	M	235/239 (98%)	225 (96%)	10 (4%)	35	61
2	S	235/239 (98%)	225 (96%)	10 (4%)	35	61
3	H	199/209 (95%)	193 (97%)	6 (3%)	48	76
3	T	199/209 (95%)	193 (97%)	6 (3%)	48	76
All	All	1308/1336 (98%)	1258 (96%)	50 (4%)	40	67

All (50) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	L	7	ARG
1	L	126	LEU
1	L	129	LEU
1	L	189	LEU
1	L	210	ASP
1	L	216	PHE
1	L	247	CYS
1	L	269	LEU
1	L	272	TRP
2	M	24	VAL
2	M	26	LEU
2	M	29	ARG
2	M	60	LEU
2	M	87	ARG
2	M	94	LEU
2	M	114	LEU
2	M	156	LEU
2	M	191	LEU
2	M	216	PHE
3	H	37	ARG
3	H	123	LEU
3	H	135	LYS
3	H	184	LYS
3	H	228	LEU
3	H	231	ASP
1	R	7	ARG
1	R	126	LEU
1	R	129	LEU
1	R	189	LEU
1	R	210	ASP
1	R	216	PHE
1	R	247	CYS
1	R	269	LEU
1	R	272	TRP
2	S	24	VAL
2	S	26	LEU
2	S	29	ARG
2	S	60	LEU
2	S	87	ARG
2	S	94	LEU
2	S	114	LEU
2	S	156	LEU

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Mol	Chain	Res	Type
2	S	191	LEU
2	S	216	PHE
3	T	37	ARG
3	T	123	LEU
3	T	135	LYS
3	T	184	LYS
3	T	228	LEU
3	T	231	ASP

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (14) such sidechains are listed below:

Mol	Chain	Res	Type
1	L	87	GLN
2	M	4	GLN
2	M	9	GLN
2	M	300	ASN
3	H	194	GLN
3	H	199	GLN
3	H	206	ASN
1	R	87	GLN
2	S	4	GLN
2	S	9	GLN
2	S	300	ASN
3	T	194	GLN
3	T	199	GLN
3	T	206	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no carbohydrates in this entry.

5.6 Ligand geometry

Of 24 ligands modelled in this entry, 6 are monoatomic - leaving 18 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
7	BCL	L	1001	2	38,59,74	1.13	5 (13%)	40,97,115	1.59	8 (20%)
7	BCL	L	1002	1	53,74,74	1.01	4 (7%)	57,115,115	1.24	7 (12%)
8	BPH	L	1006	-	64,70,70	1.24	7 (10%)	73,101,101	1.48	11 (15%)
9	U10	L	1009	-	26,26,63	1.66	4 (15%)	31,34,79	1.43	6 (19%)
7	BCL	M	1003	2	53,74,74	0.97	5 (9%)	57,115,115	1.42	11 (19%)
7	BCL	M	1004	1	53,74,74	0.98	5 (9%)	57,115,115	1.56	11 (19%)
8	BPH	M	1005	-	49,55,70	1.13	5 (10%)	56,83,101	1.57	8 (14%)
9	U10	M	1008	-	38,38,63	1.86	7 (18%)	46,49,79	1.15	3 (6%)
10	LDA	M	1012	-	15,15,15	4.83	3 (20%)	16,17,17	3.17	3 (18%)
10	LDA	M	1013	-	15,15,15	4.73	3 (20%)	16,17,17	3.23	5 (31%)
7	BCL	R	2002	1	53,74,74	1.02	3 (5%)	57,115,115	1.43	10 (17%)
7	BCL	R	2004	1	53,74,74	1.06	5 (9%)	57,115,115	1.38	8 (14%)
8	BPH	R	2006	-	64,70,70	1.09	5 (7%)	73,101,101	1.46	9 (12%)
9	U10	R	2009	-	19,19,63	1.92	4 (21%)	23,26,79	1.25	3 (13%)
7	BCL	S	2001	2	39,60,74	1.17	6 (15%)	40,98,115	1.64	8 (20%)
7	BCL	S	2003	2	53,74,74	0.91	3 (5%)	57,115,115	1.41	8 (14%)
8	BPH	S	2005	-	51,57,70	1.23	6 (11%)	57,85,101	1.53	10 (17%)
9	U10	S	2008	-	31,31,63	1.79	4 (12%)	37,40,79	1.00	1 (2%)

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
7	BCL	L	1001	2	-	0/19/119/137	0/0/9/9
7	BCL	L	1002	1	-	0/37/137/137	0/0/9/9

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
8	BPH	L	1006	-	-	0/54/105/105	0/1/6/6
9	U10	L	1009	-	-	0/19/43/87	0/1/1/1
7	BCL	M	1003	2	1/1/21/25	0/37/137/137	0/0/9/9
7	BCL	M	1004	1	-	0/37/137/137	0/0/9/9
8	BPH	M	1005	-	-	0/36/87/105	0/1/6/6
9	U10	M	1008	-	-	0/33/57/87	0/1/1/1
10	LDA	M	1012	-	-	0/13/13/13	0/0/0/0
10	LDA	M	1013	-	-	0/13/13/13	0/0/0/0
7	BCL	R	2002	1	-	0/37/137/137	0/0/9/9
7	BCL	R	2004	1	-	0/37/137/137	0/0/9/9
8	BPH	R	2006	-	-	0/54/105/105	0/1/6/6
9	U10	R	2009	-	-	0/11/35/87	0/1/1/1
7	BCL	S	2001	2	-	0/21/121/137	0/0/9/9
7	BCL	S	2003	2	-	0/37/137/137	0/0/9/9
8	BPH	S	2005	-	-	0/39/90/105	0/1/6/6
9	U10	S	2008	-	-	0/25/49/87	0/1/1/1

All (84) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	M	1012	LDA	O1-N1	-18.25	1.22	1.39
10	M	1013	LDA	O1-N1	-17.69	1.22	1.39
9	M	1008	U10	C7-C8	-4.02	1.44	1.50
9	R	2009	U10	C7-C8	-3.90	1.44	1.50
8	S	2005	BPH	C3D-CAD	-3.54	1.39	1.46
8	R	2006	BPH	C3D-CAD	-3.32	1.40	1.46
10	M	1013	LDA	CM2-N1	-3.08	1.44	1.49
8	L	1006	BPH	C1B-C2B	-3.06	1.39	1.45
7	R	2004	BCL	O2D-CGD	-3.04	1.25	1.33
8	L	1006	BPH	C3D-CAD	-3.00	1.40	1.46
10	M	1013	LDA	CM1-N1	-2.99	1.44	1.49
7	L	1001	BCL	C3B-CAB	-2.98	1.40	1.49
7	L	1002	BCL	O2D-CGD	-2.96	1.25	1.33
7	L	1001	BCL	O2D-CGD	-2.93	1.25	1.33
8	R	2006	BPH	O2D-CGD	-2.92	1.25	1.33
7	M	1003	BCL	O2D-CGD	-2.87	1.25	1.33
7	S	2001	BCL	O2D-CGD	-2.85	1.25	1.33
7	M	1003	BCL	C3B-CAB	-2.80	1.41	1.49
7	M	1004	BCL	O2D-CGD	-2.78	1.26	1.33
8	S	2005	BPH	O2D-CGD	-2.75	1.26	1.33
8	M	1005	BPH	O2D-CGD	-2.75	1.26	1.33
8	L	1006	BPH	O2A-CGA	-2.72	1.25	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	L	1006	BPH	O2D-CGD	-2.72	1.26	1.33
7	R	2004	BCL	C3D-CAD	-2.69	1.38	1.45
8	R	2006	BPH	C1B-C2B	-2.69	1.39	1.45
7	M	1003	BCL	O2A-CGA	-2.68	1.25	1.33
9	L	1009	U10	C7-C8	-2.65	1.46	1.50
7	R	2002	BCL	O2D-CGD	-2.63	1.26	1.33
10	M	1012	LDA	CM1-N1	-2.62	1.45	1.49
8	M	1005	BPH	O2A-CGA	-2.60	1.25	1.33
7	R	2002	BCL	O2A-CGA	-2.60	1.25	1.33
7	S	2003	BCL	O2D-CGD	-2.60	1.26	1.33
7	S	2001	BCL	C3B-CAB	-2.53	1.42	1.49
8	R	2006	BPH	O2A-CGA	-2.52	1.25	1.33
7	R	2004	BCL	C3B-CAB	-2.46	1.42	1.49
7	S	2003	BCL	O2A-CGA	-2.46	1.25	1.33
10	M	1012	LDA	CM2-N1	-2.44	1.45	1.49
7	L	1001	BCL	C3D-CAD	-2.44	1.38	1.45
8	S	2005	BPH	O2A-CGA	-2.41	1.26	1.33
7	M	1004	BCL	C3D-CAD	-2.41	1.39	1.45
7	M	1004	BCL	C3B-CAB	-2.40	1.42	1.49
7	M	1004	BCL	O2A-CGA	-2.40	1.26	1.33
7	S	2001	BCL	O2A-CGA	-2.39	1.26	1.33
8	S	2005	BPH	C1B-C2B	-2.36	1.40	1.45
7	R	2004	BCL	O2A-CGA	-2.35	1.26	1.33
7	L	1001	BCL	O2A-CGA	-2.34	1.26	1.33
7	L	1002	BCL	O2A-CGA	-2.30	1.26	1.33
8	M	1005	BPH	C3D-CAD	-2.24	1.42	1.46
7	M	1003	BCL	C3D-CAD	-2.13	1.39	1.45
7	S	2001	BCL	C3D-CAD	-2.04	1.40	1.45
7	L	1002	BCL	OBD-CAD	2.01	1.25	1.22
9	R	2009	U10	C4-C3	2.07	1.44	1.35
8	S	2005	BPH	C4A-NA	2.09	1.39	1.34
8	M	1005	BPH	CHC-C1C	2.37	1.41	1.36
7	S	2001	BCL	C2A-C1A	2.53	1.57	1.52
7	L	1001	BCL	C2-C3	2.56	1.40	1.32
8	L	1006	BPH	CHA-C1A	2.56	1.43	1.37
8	L	1006	BPH	CHC-C1C	2.68	1.41	1.36
7	M	1003	BCL	C2-C3	2.74	1.38	1.33
7	M	1004	BCL	C2-C3	2.79	1.38	1.33
8	M	1005	BPH	C2-C3	2.80	1.40	1.32
9	M	1008	U10	C8-C9	2.96	1.38	1.33
7	S	2003	BCL	C2-C3	3.07	1.39	1.33
9	M	1008	U10	C23-C24	3.18	1.39	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
9	M	1008	U10	C28-C29	3.22	1.42	1.32
9	L	1009	U10	C8-C9	3.37	1.39	1.33
8	R	2006	BPH	C2-C3	3.43	1.39	1.33
8	L	1006	BPH	C2-C3	3.45	1.39	1.33
9	L	1009	U10	C13-C14	3.48	1.39	1.33
7	S	2001	BCL	C2-C3	3.54	1.39	1.33
7	R	2004	BCL	C2-C3	3.62	1.40	1.33
8	S	2005	BPH	C2-C3	3.74	1.40	1.33
9	R	2009	U10	C8-C9	3.85	1.40	1.33
9	S	2008	U10	C13-C14	3.85	1.40	1.33
9	S	2008	U10	C8-C9	4.17	1.41	1.33
7	L	1002	BCL	C2-C3	4.18	1.41	1.33
9	M	1008	U10	C18-C19	4.21	1.41	1.33
9	S	2008	U10	C18-C19	4.25	1.41	1.33
9	M	1008	U10	C13-C14	4.28	1.41	1.33
7	R	2002	BCL	C2-C3	4.28	1.41	1.33
9	L	1009	U10	C6-C1	4.49	1.45	1.35
9	R	2009	U10	C6-C1	4.64	1.46	1.35
9	S	2008	U10	C6-C1	4.64	1.46	1.35
9	M	1008	U10	C6-C1	5.30	1.47	1.35

All (130) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	M	1012	LDA	CM2-N1-CM1	-11.08	96.33	108.83
10	M	1013	LDA	CM2-N1-CM1	-11.04	96.38	108.83
8	M	1005	BPH	C4D-C3D-C2D	-5.43	100.08	107.08
8	L	1006	BPH	C4D-C3D-C2D	-5.26	100.29	107.08
8	R	2006	BPH	C4D-C3D-C2D	-4.81	100.87	107.08
7	R	2004	BCL	OBD-CAD-C3D	-4.02	120.14	128.35
8	S	2005	BPH	C4D-C3D-C2D	-4.00	101.92	107.08
7	S	2003	BCL	OBD-CAD-CBD	-3.68	120.38	125.94
7	L	1001	BCL	OBD-CAD-C3D	-3.58	121.05	128.35
8	S	2005	BPH	O1D-CGD-CBD	-3.46	119.67	124.62
7	M	1003	BCL	CMB-C2B-C1B	-3.34	122.83	128.36
7	M	1004	BCL	O1D-CGD-CBD	-3.23	119.99	124.62
8	R	2006	BPH	C7-C6-C5	-3.08	103.96	113.06
7	L	1001	BCL	O1D-CGD-CBD	-3.04	120.26	124.62
8	R	2006	BPH	O1D-CGD-CBD	-3.04	120.27	124.62
8	L	1006	BPH	O1D-CGD-CBD	-3.01	120.31	124.62
8	M	1005	BPH	O1D-CGD-CBD	-3.00	120.33	124.62
7	S	2001	BCL	O1D-CGD-CBD	-2.95	120.39	124.62

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	L	1001	BCL	C1-C2-C3	-2.89	121.97	126.71
9	R	2009	U10	C7-C8-C9	-2.89	121.80	126.70
7	M	1004	BCL	CMB-C2B-C1B	-2.84	123.66	128.36
7	R	2004	BCL	CMB-C2B-C1B	-2.83	123.68	128.36
7	M	1004	BCL	CAC-C3C-C4C	-2.80	106.36	112.58
8	S	2005	BPH	C1C-NC-C4C	-2.80	107.57	110.44
7	R	2002	BCL	OBD-CAD-C3D	-2.79	122.65	128.35
9	L	1009	U10	C15-C14-C13	-2.74	118.13	123.50
7	R	2002	BCL	O1D-CGD-CBD	-2.62	120.86	124.62
7	R	2002	BCL	OBB-CAB-CBB	-2.61	113.88	120.13
7	S	2001	BCL	OBD-CAD-C3D	-2.59	123.07	128.35
7	R	2002	BCL	CHA-C1A-NA	-2.46	120.01	126.06
9	S	2008	U10	C20-C19-C18	-2.46	118.68	123.50
7	M	1004	BCL	OBD-CAD-CBD	-2.45	122.24	125.94
7	S	2003	BCL	O1D-CGD-CBD	-2.45	121.11	124.62
9	L	1009	U10	C7-C8-C9	-2.38	122.66	126.70
7	M	1003	BCL	O1D-CGD-CBD	-2.38	121.21	124.62
7	R	2004	BCL	C6-C5-C3	-2.36	107.30	112.48
7	R	2004	BCL	CAC-C3C-C4C	-2.34	107.39	112.58
8	L	1006	BPH	OBD-CAD-CBD	-2.33	122.43	125.94
8	R	2006	BPH	OBD-CAD-CBD	-2.32	122.44	125.94
7	L	1002	BCL	CMB-C2B-C1B	-2.29	124.58	128.36
7	M	1004	BCL	CMC-C2C-C3C	-2.25	104.38	114.35
10	M	1013	LDA	C6-C5-C4	-2.24	102.95	114.53
7	L	1002	BCL	OBD-CAD-C3D	-2.21	123.84	128.35
7	L	1002	BCL	CHA-C1A-NA	-2.20	120.64	126.06
7	L	1001	BCL	CHA-C1A-NA	-2.19	120.66	126.06
10	M	1013	LDA	C4-C3-C2	-2.19	103.22	114.53
7	S	2001	BCL	CHA-C1A-NA	-2.17	120.73	126.06
8	M	1005	BPH	C3A-C4A-NA	-2.16	109.80	113.57
8	L	1006	BPH	CMA-C3A-C4A	-2.14	106.03	113.01
9	L	1009	U10	O5-C5-C6	-2.13	117.67	121.68
7	S	2003	BCL	CAC-C3C-C4C	-2.13	107.85	112.58
10	M	1013	LDA	C9-C8-C7	-2.12	103.59	114.53
7	R	2004	BCL	O1D-CGD-CBD	-2.10	121.61	124.62
9	M	1008	U10	C7-C6-C5	-2.09	116.09	118.56
8	S	2005	BPH	OBD-CAD-C3D	-2.09	124.08	128.35
7	R	2002	BCL	CMB-C2B-C1B	-2.09	124.91	128.36
7	M	1004	BCL	OBD-CAD-C3D	-2.08	124.10	128.35
8	M	1005	BPH	OBD-CAD-CBD	-2.08	122.80	125.94
8	L	1006	BPH	CMC-C2C-C1C	-2.08	106.01	112.33
10	M	1012	LDA	C6-C5-C4	-2.07	103.83	114.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	L	1009	U10	C1M-C1-C6	-2.07	119.67	124.10
7	L	1002	BCL	O1D-CGD-CBD	-2.07	121.66	124.62
7	M	1003	BCL	CAC-C3C-C2C	-2.06	108.94	114.13
7	S	2001	BCL	CMB-C2B-C1B	-2.04	125.00	128.36
7	M	1003	BCL	CMC-C2C-C3C	-2.03	105.38	114.35
8	L	1006	BPH	C4A-NA-C1A	2.01	110.00	108.21
8	R	2006	BPH	CED-O2D-CGD	2.04	120.78	115.99
8	S	2005	BPH	C2A-C3A-C4A	2.06	105.80	101.10
7	M	1003	BCL	C3A-C2A-C1A	2.06	104.99	101.50
8	L	1006	BPH	CED-O2D-CGD	2.06	120.82	115.99
7	M	1003	BCL	C2A-C1A-CHA	2.06	127.69	123.89
7	R	2002	BCL	C6-C5-C3	2.07	117.03	112.48
8	S	2005	BPH	CMB-C2B-C1B	2.07	128.43	125.06
7	S	2003	BCL	O2A-CGA-CBA	2.08	118.25	111.90
7	M	1003	BCL	O2A-CGA-CBA	2.08	118.25	111.90
8	L	1006	BPH	O2A-CGA-CBA	2.12	118.37	111.90
7	R	2002	BCL	C1D-CHD-C4C	2.14	129.34	126.07
7	S	2003	BCL	OBb-CAB-C3B	2.18	123.45	120.00
7	M	1004	BCL	C2C-C3C-C4C	2.18	105.19	101.50
9	M	1008	U10	C4M-O4-C4	2.18	124.37	116.61
7	L	1001	BCL	C4A-NA-C1A	2.20	109.20	106.36
7	R	2002	BCL	O2D-CGD-CBD	2.20	114.32	111.30
8	M	1005	BPH	C2A-C3A-C4A	2.21	106.16	101.10
7	L	1002	BCL	C1D-CHD-C4C	2.25	129.50	126.07
8	R	2006	BPH	C2A-C3A-C4A	2.27	106.29	101.10
9	L	1009	U10	C15-C14-C16	2.33	118.97	115.41
9	R	2009	U10	C7-C6-C5	2.34	121.31	118.56
9	M	1008	U10	C25-C24-C26	2.36	119.01	115.41
7	L	1002	BCL	O2D-CGD-CBD	2.43	114.63	111.30
7	S	2001	BCL	CMB-C2B-C3B	2.50	129.97	125.09
7	S	2003	BCL	CED-O2D-CGD	2.50	121.86	115.99
9	L	1009	U10	C10-C9-C11	2.59	119.36	115.41
8	M	1005	BPH	C3D-CAD-CBD	2.60	111.27	107.60
7	M	1003	BCL	C4-C3-C5	2.61	119.39	115.41
7	L	1001	BCL	CHB-C4A-NA	2.64	128.16	124.51
7	R	2004	BCL	CMB-C2B-C3B	2.73	130.43	125.09
7	S	2003	BCL	O2D-CGD-CBD	2.74	115.05	111.30
7	M	1004	BCL	CMB-C2B-C3B	2.78	130.52	125.09
7	M	1004	BCL	C4-C3-C5	2.79	119.66	115.41
9	R	2009	U10	C3M-O3-C3	2.85	126.73	116.61
8	S	2005	BPH	C2C-C3C-C4C	2.85	106.34	101.50
7	R	2004	BCL	O2D-CGD-CBD	2.92	115.30	111.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	M	1003	BCL	C3D-CAD-CBD	3.05	111.90	107.60
7	L	1002	BCL	C6-C5-C3	3.08	119.23	112.48
7	R	2002	BCL	C3D-CAD-CBD	3.19	112.10	107.60
8	S	2005	BPH	C3D-CAD-CBD	3.27	112.22	107.60
7	M	1003	BCL	CMB-C2B-C3B	3.27	131.49	125.09
8	S	2005	BPH	C3C-C4C-NC	3.39	111.32	107.93
7	L	1001	BCL	C3D-CAD-CBD	3.42	112.43	107.60
7	S	2001	BCL	C4-C3-C5	3.42	119.56	115.68
7	L	1001	BCL	O2D-CGD-CBD	3.47	116.05	111.30
7	M	1004	BCL	O2D-CGD-CBD	3.62	116.26	111.30
7	M	1003	BCL	O2D-CGD-CBD	3.66	116.32	111.30
8	M	1005	BPH	C3C-C4C-NC	3.68	111.61	107.93
7	M	1004	BCL	C3D-CAD-CBD	3.69	112.81	107.60
8	R	2006	BPH	C3C-C4C-NC	3.70	111.64	107.93
7	R	2004	BCL	C3D-CAD-CBD	3.74	112.88	107.60
8	R	2006	BPH	O2D-CGD-CBD	3.78	116.48	111.30
8	L	1006	BPH	C3D-CAD-CBD	3.79	112.95	107.60
8	R	2006	BPH	C3D-CAD-CBD	3.86	113.05	107.60
7	S	2001	BCL	O2D-CGD-CBD	3.95	116.72	111.30
8	S	2005	BPH	O2D-CGD-CBD	4.04	116.85	111.30
7	S	2001	BCL	C3D-CAD-CBD	4.23	113.58	107.60
7	S	2003	BCL	C3D-CAD-CBD	4.27	113.63	107.60
7	R	2002	BCL	CED-O2D-CGD	4.39	126.30	115.99
8	L	1006	BPH	O2D-CGD-CBD	4.40	117.33	111.30
8	M	1005	BPH	O2D-CGD-CBD	4.42	117.36	111.30
8	L	1006	BPH	C3C-C4C-NC	4.45	112.39	107.93
10	M	1012	LDA	O1-N1-C1	4.63	115.48	110.27
10	M	1013	LDA	O1-N1-C1	5.12	116.04	110.27

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
7	M	1003	BCL	C13

There are no torsion outliers.

There are no ring outliers.

14 monomers are involved in 59 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	L	1001	BCL	4	0
7	L	1002	BCL	4	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	L	1006	BPH	4	0
7	M	1003	BCL	7	0
7	M	1004	BCL	3	0
9	M	1008	U10	2	0
10	M	1012	LDA	1	0
7	R	2002	BCL	3	0
7	R	2004	BCL	8	0
8	R	2006	BPH	8	0
9	R	2009	U10	1	0
7	S	2001	BCL	5	0
7	S	2003	BCL	8	0
8	S	2005	BPH	6	0

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	L	281/281 (100%)	0.10	11 (3%) 43 48	23, 40, 62, 70	0
1	R	281/281 (100%)	0.05	16 (5%) 27 31	25, 42, 62, 69	0
2	M	299/307 (97%)	0.06	6 (2%) 68 72	25, 34, 50, 69	0
2	S	299/307 (97%)	-0.13	2 (0%) 89 90	27, 36, 50, 70	0
3	H	246/260 (94%)	0.15	14 (5%) 27 31	29, 41, 66, 81	0
3	T	246/260 (94%)	0.21	20 (8%) 15 16	31, 42, 67, 82	0
All	All	1652/1696 (97%)	0.07	69 (4%) 40 45	23, 39, 62, 82	0

All (69) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
3	T	80	SER	6.6
3	T	92	VAL	6.1
3	H	255	MET	5.7
3	H	252	VAL	4.9
3	T	51	ALA	4.9
1	L	51	TRP	4.8
1	R	203	GLY	4.8
2	S	301	HIS	4.5
3	H	80	SER	4.3
3	T	55	PRO	4.3
1	L	59	TRP	4.2
1	L	281	GLY	4.0
1	R	202	LYS	4.0
3	T	79	GLU	4.0
2	M	301	HIS	3.7
1	R	59	TRP	3.6
3	H	251	VAL	3.4
3	H	254	ALA	3.3
3	T	60	LYS	3.3

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Mol	Chain	Res	Type	RSRZ
3	T	255	MET	3.3
1	R	270	PRO	3.2
3	T	252	VAL	3.2
3	H	84	PRO	3.0
2	M	107	ALA	3.0
3	H	55	PRO	2.9
3	T	50	ALA	2.9
3	H	256	LEU	2.8
1	L	274	ASN	2.8
1	L	269	LEU	2.8
2	M	106	ALA	2.8
1	R	274	ASN	2.8
1	R	276	PRO	2.8
3	T	46	ASP	2.8
3	T	251	VAL	2.8
3	H	250	SER	2.8
1	L	271	TRP	2.7
3	T	82	ASP	2.7
3	H	15	LEU	2.6
3	T	52	ASN	2.6
3	T	18	TYR	2.4
3	H	12	LEU	2.4
1	R	73	TYR	2.4
3	T	54	GLY	2.4
3	T	69	GLY	2.4
1	R	140	GLY	2.3
3	H	51	ALA	2.3
1	R	72	GLU	2.3
3	T	256	LEU	2.3
2	S	54	SER	2.2
3	H	92	VAL	2.2
1	L	83	GLY	2.2
2	M	109	LEU	2.1
1	L	81	ALA	2.1
1	L	79	PRO	2.1
1	R	1	ALA	2.1
1	R	60	ASN	2.1
1	R	61	PRO	2.1
1	R	51	TRP	2.1
3	H	60	LYS	2.1
1	R	62	GLN	2.1
3	T	201	ASN	2.1

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Mol	Chain	Res	Type	RSRZ
1	L	275	ILE	2.1
1	L	72	GLU	2.1
2	M	52	LEU	2.1
3	T	59	PRO	2.1
1	R	74	GLY	2.0
1	R	79	PRO	2.0
2	M	68	PHE	2.0
3	T	56	PHE	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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors(Å ²)	Q<0.9
10	LDA	M	1013	16/16	0.70	0.41	11.99	62,65,70,71	0
10	LDA	M	1012	16/16	0.60	0.37	8.49	67,72,78,78	0
8	BPH	R	2006	65/65	0.92	0.17	2.08	34,42,49,50	0
7	BCL	L	1002	66/66	0.94	0.20	1.99	24,31,33,35	0
7	BCL	S	2003	66/66	0.94	0.18	1.72	29,32,44,46	0
7	BCL	R	2002	66/66	0.94	0.17	1.68	30,34,42,46	0
9	U10	S	2008	31/63	0.93	0.17	1.58	41,42,44,45	0
7	BCL	M	1003	66/66	0.95	0.18	1.28	23,29,38,43	0
9	U10	R	2009	19/63	0.92	0.17	0.84	42,45,49,49	0
9	U10	M	1008	38/63	0.89	0.20	0.68	24,30,47,49	0
8	BPH	L	1006	65/65	0.93	0.15	0.58	17,30,40,40	0
9	U10	L	1009	26/63	0.92	0.16	0.30	35,37,39,39	0
8	BPH	S	2005	52/65	0.94	0.14	0.14	27,31,49,52	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors(\AA^2)	Q<0.9
7	BCL	R	2004	66/66	0.95	0.14	-0.00	21,29,56,58	0
7	BCL	S	2001	52/66	0.95	0.12	-0.16	26,31,40,42	0
7	BCL	M	1004	66/66	0.96	0.16	-0.27	20,26,50,55	0
8	BPH	M	1005	50/65	0.95	0.13	-0.57	20,24,30,31	0
7	BCL	L	1001	51/66	0.97	0.13	-0.57	24,27,37,39	0
4	FE2	S	2007	1/1	1.00	0.05	-2.00	29,29,29,29	0
4	FE2	M	1007	1/1	0.99	0.07	-3.77	24,24,24,24	0
5	CD	T	2010	1/1	0.98	0.04	-	56,56,56,56	0
6	CL	M	1011	1/1	0.97	0.14	-	38,38,38,38	0
5	CD	H	1010	1/1	0.99	0.04	-	43,43,43,43	0
6	CL	S	2011	1/1	0.94	0.19	-	51,51,51,51	0

6.5 Other polymers [i](#)

There are no such residues in this entry.