



Full wwPDB X-ray Structure Validation Report ⓘ

Feb 1, 2016 – 05:59 PM GMT

PDB ID : 4K4B
Title : X-ray crystal structure of E. coli YdiI complexed with undeca-2-one-CoA
Authors : Ru, W.; Farelli, J.D.; Dunaway-Mariano, D.; Allen, K.N.
Deposited on : 2013-04-12
Resolution : 1.90 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

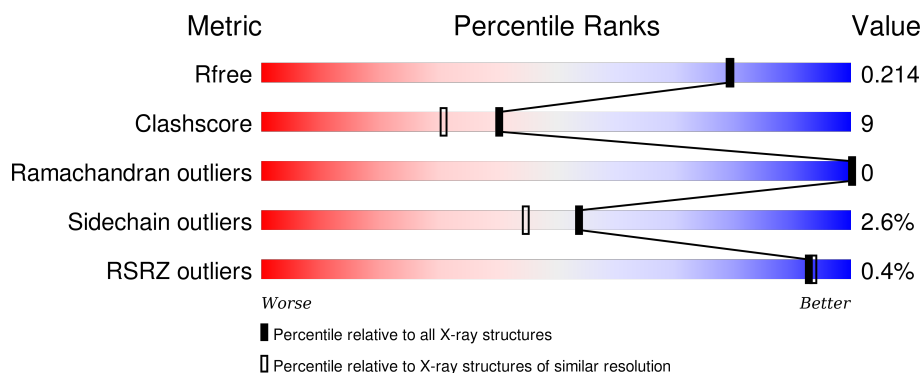
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.90 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	4755 (1.90-1.90)
Clashscore	102246	5398 (1.90-1.90)
Ramachandran outliers	100387	5338 (1.90-1.90)
Sidechain outliers	100360	5339 (1.90-1.90)
RSRZ outliers	91569	4766 (1.90-1.90)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	136	<div> <div>92%</div> <div>8%</div> </div>
1	B	136	<div> <div>85%</div> <div>15%</div> <div>.</div> </div>
1	C	136	<div> <div>%</div> <div>88%</div> <div>12%</div> </div>
1	D	136	<div> <div>%</div> <div>87%</div> <div>12%</div> <div>.</div> </div>
1	E	136	<div> <div>88%</div> <div>12%</div> </div>

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Mol	Chain	Length	Quality of chain
1	F	136	
1	G	136	
1	H	136	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	UOQ	A	201	-	-	-	X
2	UOQ	A	203	-	-	-	X
2	UOQ	B	201	-	-	-	X
2	UOQ	B	202	-	-	-	X
2	UOQ	C	201	-	-	-	X
2	UOQ	D	501	-	-	-	X
2	UOQ	E	201	-	-	-	X
2	UOQ	E	203	-	-	-	X
2	UOQ	E	204	-	-	-	X
2	UOQ	F	201	-	-	-	X
2	UOQ	H	201	-	-	-	X
2	UOQ	H	202	-	-	-	X
2	UOQ	H	203	-	-	-	X

2 Entry composition

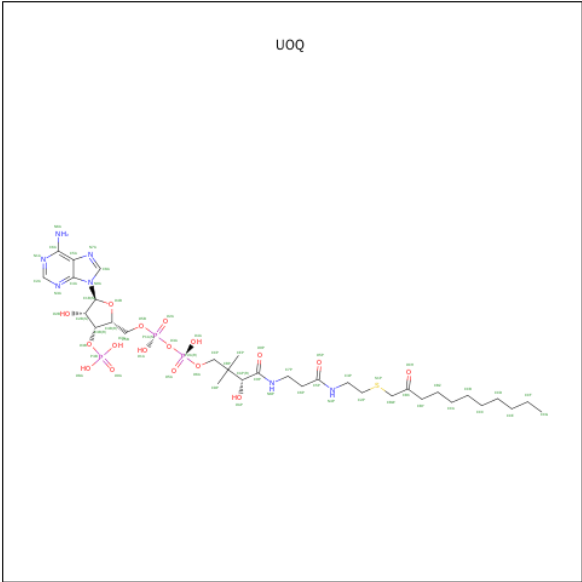
There are 4 unique types of molecules in this entry. The entry contains 10531 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Esterase YdiI.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	136	Total	C	N	O	S	0	9	0
			1116	694	207	206	9			
1	B	136	Total	C	N	O	S	0	8	0
			1103	685	205	203	10			
1	C	136	Total	C	N	O	S	0	10	0
			1125	699	211	205	10			
1	D	136	Total	C	N	O	S	0	10	0
			1122	699	206	208	9			
1	E	136	Total	C	N	O	S	0	9	0
			1112	692	206	205	9			
1	F	136	Total	C	N	O	S	0	7	0
			1098	685	202	203	8			
1	G	136	Total	C	N	O	S	0	6	0
			1084	677	199	199	9			
1	H	136	Total	C	N	O	S	0	8	0
			1114	690	207	208	9			

- Molecule 2 is UNDECA-2-ONE COENZYME A (three-letter code: UOQ) (formula: $C_{32}H_{56}N_7O_{17}P_3S$).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	S	0	0
			60	32	7	17	3	1		
2	A	1	Total	C	N	O	P	S	2	0
			60	32	7	17	3	1		
2	B	1	Total	C	N	O	P	S	0	0
			60	32	7	17	3	1		
2	B	1	Total	C	N	O	P	S	1	0
			60	32	7	17	3	1		
2	C	1	Total	C	N	O	P	S	1	0
			60	32	7	17	3	1		
2	D	1	Total	C	N	O	P	S	3	0
			60	32	7	17	3	1		
2	E	1	Total	C	N	O	P	S	0	0
			60	32	7	17	3	1		
2	E	1	Total	C	N	O	P	S	1	0
			60	32	7	17	3	1		
2	E	1	Total	C	N	O	P	S	0	0
			60	32	7	17	3	1		
2	F	1	Total	C	N	O	P	S	0	0
			60	32	7	17	3	1		
2	H	1	Total	C	N	O	P	S	0	0
			60	32	7	17	3	1		
2	H	1	Total	C	N	O	P	S	3	0
			60	32	7	17	3	1		
2	H	1	Total	C	N	O	P	S	1	0
			60	32	7	17	3	1		

- Molecule 3 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total Cl 1 1	0	0
3	E	1	Total Cl 1 1	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	127	Total O 127 127	0	0
4	B	114	Total O 114 114	0	0
4	C	119	Total O 119 119	0	0
4	D	100	Total O 100 100	0	0
4	E	88	Total O 88 88	0	0
4	F	89	Total O 89 89	0	0
4	G	100	Total O 100 100	0	0
4	H	138	Total O 138 138	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: Esterase YdiI

Chain A: 




• Molecule 1: Esterase YdiI

Chain B: 




• Molecule 1: Esterase YdiI

Chain C: 




• Molecule 1: Esterase YdiI

Chain D: 




• Molecule 1: Esterase YdiI

Chain E: 

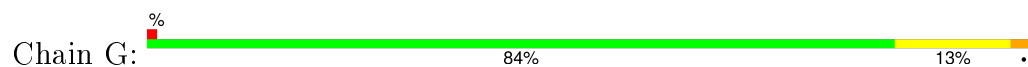


• Molecule 1: Esterase YdiI

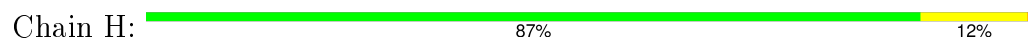
Chain F: 



- Molecule 1: Esterase YdiI



- Molecule 1: Esterase YdiI



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	57.97Å 68.58Å 81.14Å 78.93° 84.69° 76.46°	Depositor
Resolution (Å)	33.89 – 1.90 35.79 – 1.90	Depositor EDS
% Data completeness (in resolution range)	93.3 (33.89-1.90) 84.3 (35.79-1.90)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.52 (at 1.89Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.8_1069)	Depositor
R, R_{free}	0.169 , 0.216 0.170 , 0.214	Depositor DCC
R_{free} test set	4421 reflections (5.64%)	DCC
Wilson B-factor (Å ²)	11.4	Xtriage
Anisotropy	0.288	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 50.4	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.52$, $\langle L^2 \rangle = 0.36$	Xtriage
Outliers	0 of 87470 reflections	Xtriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	10531	wwPDB-VP
Average B, all atoms (Å ²)	18.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 51.33 % of the origin peak, indicating pseudo translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo translational symmetry is equal to 5.6939e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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 [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: UOQ, CL

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.40	0/1136	0.57	0/1528
1	B	0.38	0/1122	0.55	0/1507
1	C	0.40	0/1145	0.55	0/1539
1	D	0.38	0/1145	0.55	0/1540
1	E	0.38	0/1132	0.56	0/1523
1	F	0.35	0/1118	0.54	0/1504
1	G	0.39	0/1106	0.56	0/1487
1	H	0.40	0/1130	0.56	0/1518
All	All	0.39	0/9034	0.55	0/12146

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 [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	1116	0	1123	13	0
1	B	1103	0	1119	19	0
1	C	1125	0	1140	16	0
1	D	1122	0	1130	16	0
1	E	1112	0	1121	12	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	F	1098	0	1112	13	0
1	G	1084	0	1105	18	0
1	H	1114	0	1115	21	0
2	A	120	0	104	22	0
2	B	120	0	104	5	0
2	C	60	0	52	9	0
2	D	60	0	52	8	0
2	E	180	0	156	18	0
2	F	60	0	52	10	0
2	H	180	0	155	9	0
3	A	1	0	0	0	0
3	E	1	0	0	0	0
4	A	127	0	0	11	0
4	B	114	0	0	6	0
4	C	119	0	0	6	0
4	D	100	0	0	6	0
4	E	88	0	0	9	0
4	F	89	0	0	4	0
4	G	100	0	0	5	0
4	H	138	0	0	10	0
All	All	10531	0	9640	168	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 (168) 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:C:201:UOQ:S1P	4:D:693:HOH:O	2.02	1.14
2:H:202:UOQ:H5B	2:H:202:UOQ:O8A	1.38	1.12
1:E:127[B]:CYS:SG	4:E:749:HOH:O	2.23	0.96
2:A:203:UOQ:S1P	4:B:405:HOH:O	2.24	0.94
1:B:121:GLU:OE2	4:B:404:HOH:O	1.84	0.93
2:H:203:UOQ:O1A	4:H:372:HOH:O	1.85	0.93
1:H:84:GLU:OE1	4:H:413:HOH:O	1.86	0.93
1:H:94:ARG:NH2	4:H:321:HOH:O	2.00	0.90
1:A:127[B]:CYS:SG	4:A:346:HOH:O	2.31	0.89
2:E:204:UOQ:S1P	4:E:774:HOH:O	2.29	0.88
1:G:88:ASN:HB2	4:H:413:HOH:O	1.75	0.86
1:A:136:LEU:O	4:A:352:HOH:O	1.96	0.84
2:D:501:UOQ:CBX	2:D:501:UOQ:HCD	2.09	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:201:UOQ:C8A	4:A:416:HOH:O	2.30	0.79
1:A:88[B]:ASN:OD1	4:A:307:HOH:O	2.02	0.78
1:G:23:PHE:HB2	4:G:270:HOH:O	1.84	0.77
1:E:15:MET:SD	4:E:747:HOH:O	2.41	0.77
1:H:128:SER:OG	1:H:130:ARG:NH1	2.18	0.77
2:F:201:UOQ:H2P	1:G:63:GLU:OE2	1.84	0.77
2:E:201:UOQ:O9A	4:E:726:HOH:O	2.04	0.76
1:G:117:GLU:OE2	4:G:275:HOH:O	2.04	0.75
1:D:94:ARG:NH1	4:D:670:HOH:O	2.15	0.75
1:C:127[B]:CYS:SG	4:C:392:HOH:O	2.35	0.74
2:E:203:UOQ:O5P	4:E:786:HOH:O	2.06	0.73
1:C:35:THR:HG22	1:C:103[B]:LYS:HG2	1.69	0.72
2:E:204:UOQ:O5P	4:E:781:HOH:O	2.10	0.69
1:F:35[A]:THR:HG22	1:F:103[A]:LYS:HG2	1.75	0.68
1:C:17:GLU:OE2	4:C:362:HOH:O	2.11	0.68
2:F:201:UOQ:C2P	2:F:201:UOQ:HBV	2.24	0.67
2:F:201:UOQ:HBVA	1:H:55:GLY:H	1.59	0.67
1:A:108:GLY:HA3	2:C:201:UOQ:O4A	1.95	0.67
1:G:25:ASP:OD2	4:G:217:HOH:O	2.13	0.66
1:A:106:HIS:NE2	2:C:201:UOQ:O4A	2.24	0.65
1:D:30[B]:HIS:CE1	1:E:122:LYS:HE3	2.31	0.65
2:C:201:UOQ:H2P	1:D:63[B]:GLU:OE2	1.96	0.64
2:A:203:UOQ:O7A	2:A:203:UOQ:H5B	1.98	0.64
2:F:201:UOQ:H2P	2:F:201:UOQ:HBV	1.79	0.64
2:D:501:UOQ:P3B	2:D:501:UOQ:H5BA	2.38	0.63
1:B:35:THR:HG22	1:B:103:LYS:HG2	1.81	0.63
1:F:29:GLU:O	1:F:30[B]:HIS:ND1	2.31	0.62
2:B:202:UOQ:P3B	2:B:202:UOQ:H5BA	2.39	0.62
2:D:501:UOQ:O7A	2:D:501:UOQ:H5BA	2.00	0.62
1:F:117:GLU:OE1	4:F:329:HOH:O	2.15	0.61
2:C:201:UOQ:H4B	2:C:201:UOQ:O1A	2.01	0.61
2:A:203:UOQ:O4A	1:C:106:HIS:NE2	2.20	0.61
1:B:91:ARG:HD2	4:B:400:HOH:O	2.01	0.60
2:A:201:UOQ:O4B	4:A:403:HOH:O	2.16	0.60
2:A:201:UOQ:HCAA	2:A:201:UOQ:S1P	2.42	0.60
2:E:203:UOQ:HBWA	1:G:48:GLN:HG2	1.84	0.59
1:F:43:ASP:OD1	4:F:340:HOH:O	2.16	0.58
1:B:63:GLU:HG2	1:B:85:ILE:HD13	1.85	0.57
1:E:63:GLU:OE2	2:H:203:UOQ:HBWA	2.05	0.57
2:D:501:UOQ:N3A	2:D:501:UOQ:H2B	2.19	0.56
1:E:91:ARG:NH2	4:E:762:HOH:O	2.31	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:201:UOQ:H8A	4:A:416:HOH:O	1.99	0.56
2:A:201:UOQ:HCB	2:A:201:UOQ:HBW	1.87	0.56
2:A:203:UOQ:H56	1:B:21:VAL:HG11	1.88	0.55
1:C:91:ARG:O	1:C:126[B]:CYS:HB2	2.07	0.55
1:A:49:PRO:HG2	2:A:203:UOQ:HCD	1.89	0.55
2:E:203:UOQ:HBW	1:G:55:GLY:H	1.72	0.54
2:A:201:UOQ:H6P	1:B:17:GLU:O	2.07	0.54
1:E:96:GLY:N	2:E:201:UOQ:O9A	2.41	0.54
2:F:201:UOQ:CBY	1:H:55:GLY:H	2.21	0.54
1:F:103[B]:LYS:NZ	4:F:375:HOH:O	2.41	0.53
2:A:203:UOQ:CCG	1:B:21:VAL:HG11	2.37	0.53
2:E:203:UOQ:H2P	2:E:203:UOQ:OCH	2.08	0.53
1:D:121[A]:GLU:HG2	4:D:662:HOH:O	2.07	0.53
2:H:202:UOQ:C5B	2:H:202:UOQ:O8A	2.33	0.53
1:F:110:ARG:NH2	2:F:201:UOQ:H4B	2.25	0.52
1:B:49:PRO:HG2	2:B:202:UOQ:HCE	1.91	0.52
1:G:44[B]:SER:HB3	1:H:23:PHE:HE1	1.74	0.52
1:B:43:ASP:OD1	1:B:45[A]:ARG:NH1	2.32	0.52
2:E:204:UOQ:H2PA	1:F:82:GLY:HA3	1.93	0.51
1:D:86:ASN:OD1	1:D:130:ARG:HD2	2.11	0.51
1:A:1:MET:SD	1:A:6:LYS:HE3	2.50	0.51
2:A:201:UOQ:H5B	2:A:201:UOQ:O9A	2.11	0.51
1:D:30[B]:HIS:HE1	1:E:122:LYS:HE3	1.72	0.51
2:A:203:UOQ:O5P	4:A:421:HOH:O	2.18	0.50
1:D:110:ARG:HD3	4:D:618:HOH:O	2.11	0.50
1:D:9:LEU:HD21	1:D:31[A]:ILE:HG13	1.93	0.50
1:C:89:HIS:ND1	1:C:127[B]:CYS:SG	2.78	0.50
1:B:49:PRO:CG	2:B:202:UOQ:H53	2.41	0.49
2:D:501:UOQ:OCH	2:D:501:UOQ:H52	2.12	0.49
2:A:203:UOQ:CBW	4:B:405:HOH:O	2.55	0.49
1:E:48:GLN:NE2	2:E:204:UOQ:OCH	2.46	0.49
1:C:17:GLU:HB2	4:D:695:HOH:O	2.13	0.49
1:H:109:SER:OG	2:H:203:UOQ:H5B	2.13	0.49
1:H:45[A]:ARG:CZ	4:H:402:HOH:O	2.60	0.49
1:C:48[B]:GLN:NE2	2:C:201:UOQ:HBW	2.28	0.49
2:D:501:UOQ:HBV	2:D:501:UOQ:HCD	1.95	0.49
1:C:117:GLU:OE1	4:C:370:HOH:O	2.20	0.48
1:F:121:GLU:HG2	4:F:369:HOH:O	2.13	0.48
1:D:94:ARG:NH2	4:D:643:HOH:O	2.45	0.48
2:D:501:UOQ:CBY	2:D:501:UOQ:HCD	2.43	0.48
1:G:52:LEU:HD23	1:G:94:ARG:HG2	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:27:ARG:HD2	4:C:316:HOH:O	2.14	0.48
4:E:786:HOH:O	1:G:92:SER:HB2	2.14	0.48
2:A:203:UOQ:HCGA	1:B:12:LEU:O	2.13	0.47
2:B:202:UOQ:H8A	2:B:202:UOQ:H2B	1.55	0.47
1:H:94:ARG:NH1	4:H:415:HOH:O	2.35	0.47
1:C:48[A]:GLN:NE2	2:C:201:UOQ:HBW	2.30	0.47
1:F:130:ARG:NE	1:H:130:ARG:HD3	2.29	0.47
4:B:359:HOH:O	1:D:92:SER:HA	2.15	0.47
2:F:201:UOQ:H3P	2:F:201:UOQ:OCH	2.15	0.47
1:D:52:LEU:HD23	1:D:94:ARG:HG2	1.97	0.47
1:B:117:GLU:OE1	4:B:341:HOH:O	2.20	0.47
1:C:15:MET:HB3	1:C:15:MET:HE2	1.67	0.47
1:H:89:HIS:HB3	4:H:414:HOH:O	2.15	0.46
1:F:91:ARG:HB3	1:F:126:CYS:HA	1.95	0.46
1:H:7:ILE:HD11	1:H:15:MET:CE	2.44	0.46
1:E:11:ALA:O	1:E:15:MET:HG3	2.15	0.46
2:E:203:UOQ:H53	1:G:49:PRO:CD	2.45	0.46
2:E:201:UOQ:HAP	2:E:201:UOQ:H7PA	1.66	0.46
2:B:201:UOQ:O5A	2:B:201:UOQ:H5B	2.15	0.46
2:E:201:UOQ:O2A	4:E:776:HOH:O	2.21	0.45
1:H:63[A]:GLU:HG2	1:H:85:ILE:HD13	1.98	0.45
1:D:21:VAL:HG13	1:D:26:ILE:HB	1.99	0.45
1:B:91:ARG:O	1:B:126[B]:CYS:HB2	2.16	0.45
1:A:27[B]:ARG:HD3	4:A:398:HOH:O	2.16	0.45
1:H:35[A]:THR:HG21	4:H:417:HOH:O	2.16	0.45
1:G:7[A]:ILE:HD13	1:G:11:ALA:HB3	1.98	0.45
1:D:128:SER:OG	1:D:130:ARG:NH1	2.50	0.45
1:A:7:ILE:HA	4:A:311:HOH:O	2.16	0.45
1:F:6:LYS:HD2	1:F:6:LYS:HA	1.53	0.45
2:H:202:UOQ:H52	2:H:202:UOQ:HBZ	1.73	0.44
2:E:204:UOQ:H2P	1:F:63:GLU:OE1	2.17	0.44
1:H:45[A]:ARG:NE	4:H:402:HOH:O	2.51	0.44
1:A:49:PRO:HA	2:A:201:UOQ:O9P	2.18	0.44
2:F:201:UOQ:H51	1:H:48:GLN:HB3	2.00	0.43
2:E:203:UOQ:H5B	2:E:203:UOQ:O5A	2.18	0.43
1:A:27[B]:ARG:HD2	4:A:397:HOH:O	2.17	0.43
1:G:7[B]:ILE:HG13	4:G:255:HOH:O	2.18	0.43
2:D:501:UOQ:CCD	2:D:501:UOQ:HBV	2.48	0.43
1:B:118:ILE:HB	1:B:127[B]:CYS:SG	2.58	0.43
1:B:91:ARG:HB3	1:B:126[B]:CYS:HA	2.00	0.43
2:C:201:UOQ:P1A	2:C:201:UOQ:HCP	2.59	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:86:ASN:OD1	1:H:130:ARG:HD2	2.18	0.43
2:E:201:UOQ:C5B	2:E:201:UOQ:O7A	2.67	0.42
1:G:103:LYS:HE3	4:G:249:HOH:O	2.18	0.42
1:D:91:ARG:HB3	1:D:126[B]:CYS:HA	2.00	0.42
2:A:201:UOQ:HCAA	2:A:201:UOQ:CBW	2.50	0.42
2:H:203:UOQ:OCH	2:H:203:UOQ:H2PA	2.18	0.42
2:F:201:UOQ:HCE	1:H:49:PRO:CD	2.50	0.42
1:G:85:ILE:HG13	1:G:86:ASN:N	2.34	0.42
2:C:201:UOQ:H56	2:C:201:UOQ:HCD	1.82	0.42
1:E:29:GLU:OE2	1:E:39:THR:OG1	2.27	0.42
1:A:37:GLU:HG3	4:A:321:HOH:O	2.20	0.42
1:B:130:ARG:NE	1:D:130:ARG:HD3	2.34	0.42
2:H:202:UOQ:C8A	4:H:428:HOH:O	2.68	0.42
2:A:203:UOQ:HBW	2:A:203:UOQ:HBZA	1.56	0.42
1:D:91:ARG:HB3	1:D:126[A]:CYS:HA	2.00	0.42
2:A:201:UOQ:O9P	1:B:19:ASN:ND2	2.47	0.41
1:E:59:VAL:HG11	1:F:59:VAL:HG11	2.01	0.41
1:A:88[B]:ASN:OD1	1:C:113:VAL:HG21	2.21	0.41
2:F:201:UOQ:CBX	1:H:48:GLN:HE21	2.34	0.41
1:G:7[B]:ILE:HG22	1:G:8:THR:N	2.36	0.41
2:A:203:UOQ:H52	1:B:21:VAL:HG21	2.02	0.41
2:E:204:UOQ:O4A	1:G:108:GLY:HA3	2.21	0.41
1:H:7:ILE:HD11	1:H:15:MET:HE1	2.02	0.41
1:H:48:GLN:HG3	1:H:48:GLN:H	1.73	0.41
1:C:135:ILE:O	1:C:136:LEU:HD23	2.21	0.41
2:E:201:UOQ:H2P	2:E:201:UOQ:HBYA	2.03	0.40
1:G:21:VAL:HG13	1:G:26:ILE:HB	2.04	0.40
2:A:203:UOQ:HBWA	1:B:67:SER:OG	2.21	0.40
1:C:127[B]:CYS:SG	4:C:382:HOH:O	2.62	0.40
1:C:91:ARG:NH2	4:C:315:HOH:O	2.51	0.40
1:E:23:PHE:O	1:E:45[B]:ARG:NH2	2.54	0.40
2:H:201:UOQ:HBW	2:H:201:UOQ:CCA	2.52	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	A	143/136 (105%)	142 (99%)	1 (1%)	0	100	100
1	B	142/136 (104%)	142 (100%)	0	0	100	100
1	C	144/136 (106%)	143 (99%)	1 (1%)	0	100	100
1	D	144/136 (106%)	142 (99%)	2 (1%)	0	100	100
1	E	143/136 (105%)	140 (98%)	3 (2%)	0	100	100
1	F	141/136 (104%)	140 (99%)	1 (1%)	0	100	100
1	G	140/136 (103%)	138 (99%)	2 (1%)	0	100	100
1	H	142/136 (104%)	141 (99%)	1 (1%)	0	100	100
All	All	1139/1088 (105%)	1128 (99%)	11 (1%)	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	A	121/112 (108%)	121 (100%)	0	100	100
1	B	120/112 (107%)	117 (98%)	3 (2%)	55	47
1	C	122/112 (109%)	120 (98%)	2 (2%)	70	66
1	D	122/112 (109%)	117 (96%)	5 (4%)	37	25
1	E	121/112 (108%)	118 (98%)	3 (2%)	55	47
1	F	119/112 (106%)	115 (97%)	4 (3%)	44	33
1	G	118/112 (105%)	112 (95%)	6 (5%)	29	17
1	H	120/112 (107%)	117 (98%)	3 (2%)	55	47
All	All	963/896 (108%)	937 (97%)	26 (3%)	54	43

All (26) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	83	LEU
1	B	95	GLU
1	B	130	ARG
1	C	7[A]	ILE
1	C	7[B]	ILE
1	D	31[A]	ILE
1	D	31[B]	ILE
1	D	48	GLN
1	D	83	LEU
1	D	130	ARG
1	E	7	ILE
1	E	33	ASP
1	E	77	GLU
1	F	6	LYS
1	F	83	LEU
1	F	121	GLU
1	F	130	ARG
1	G	7[A]	ILE
1	G	7[B]	ILE
1	G	48	GLN
1	G	85	ILE
1	G	91	ARG
1	G	92	SER
1	H	48	GLN
1	H	83	LEU
1	H	130	ARG

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	H	112	GLN

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 15 ligands modelled in this entry, 2 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	UOQ	A	201	-	52,62,62	2.08	11 (21%)	64,88,88	3.42	23 (35%)
2	UOQ	A	203	-	52,62,62	2.04	13 (25%)	64,88,88	2.29	14 (21%)
2	UOQ	B	201	-	52,62,62	2.07	12 (23%)	64,88,88	2.18	12 (18%)
2	UOQ	B	202	-	52,62,62	2.00	14 (26%)	64,88,88	2.29	19 (29%)
2	UOQ	C	201	-	52,62,62	1.96	12 (23%)	64,88,88	2.49	14 (21%)
2	UOQ	D	501	-	52,62,62	2.06	12 (23%)	64,88,88	2.30	20 (31%)
2	UOQ	E	201	-	52,62,62	2.11	12 (23%)	64,88,88	2.61	21 (32%)
2	UOQ	E	203	-	52,62,62	2.08	13 (25%)	64,88,88	2.49	13 (20%)
2	UOQ	E	204	-	52,62,62	1.98	12 (23%)	64,88,88	2.33	19 (29%)
2	UOQ	F	201	-	52,62,62	2.08	13 (25%)	64,88,88	2.39	19 (29%)
2	UOQ	H	201	-	52,62,62	2.03	11 (21%)	64,88,88	2.25	18 (28%)
2	UOQ	H	202	-	52,62,62	2.81	14 (26%)	64,88,88	2.48	22 (34%)
2	UOQ	H	203	-	52,62,62	2.01	11 (21%)	64,88,88	2.23	18 (28%)

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	UOQ	A	201	-	-	0/57/77/77	0/3/3/3
2	UOQ	A	203	-	-	0/57/77/77	0/3/3/3
2	UOQ	B	201	-	-	0/57/77/77	0/3/3/3
2	UOQ	B	202	-	-	0/57/77/77	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	UOQ	C	201	-	-	1/57/77/77	0/3/3/3
2	UOQ	D	501	-	-	0/57/77/77	0/3/3/3
2	UOQ	E	201	-	-	2/57/77/77	0/3/3/3
2	UOQ	E	203	-	-	0/57/77/77	0/3/3/3
2	UOQ	E	204	-	-	0/57/77/77	0/3/3/3
2	UOQ	F	201	-	-	0/57/77/77	0/3/3/3
2	UOQ	H	201	-	-	0/57/77/77	0/3/3/3
2	UOQ	H	202	-	-	0/57/77/77	0/3/3/3
2	UOQ	H	203	-	-	1/57/77/77	0/3/3/3

All (160) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	202	UOQ	P3B-O3B	-10.08	1.29	1.60
2	H	202	UOQ	O3B-C3B	-9.68	1.14	1.44
2	E	203	UOQ	C2B-C3B	-5.55	1.40	1.53
2	B	202	UOQ	C2B-C3B	-5.39	1.40	1.53
2	B	201	UOQ	C2B-C3B	-5.18	1.41	1.53
2	D	501	UOQ	C2B-C3B	-5.07	1.41	1.53
2	C	201	UOQ	C2B-C3B	-5.04	1.41	1.53
2	F	201	UOQ	C2B-C3B	-4.97	1.41	1.53
2	H	202	UOQ	C2B-C3B	-4.94	1.41	1.53
2	E	201	UOQ	C2B-C3B	-4.92	1.41	1.53
2	A	203	UOQ	C2B-C3B	-4.80	1.42	1.53
2	H	201	UOQ	C2B-C3B	-4.78	1.42	1.53
2	A	201	UOQ	C2B-C3B	-4.78	1.42	1.53
2	E	204	UOQ	C2B-C3B	-4.64	1.42	1.53
2	H	203	UOQ	C2B-C3B	-4.61	1.42	1.53
2	E	203	UOQ	C3B-C4B	-3.60	1.42	1.52
2	F	201	UOQ	C3B-C4B	-3.50	1.42	1.52
2	H	203	UOQ	C3B-C4B	-3.29	1.43	1.52
2	B	201	UOQ	C3B-C4B	-3.24	1.43	1.52
2	E	201	UOQ	C3B-C4B	-3.20	1.43	1.52
2	B	202	UOQ	C3B-C4B	-3.15	1.43	1.52
2	A	203	UOQ	C3B-C4B	-3.13	1.43	1.52
2	E	204	UOQ	C3B-C4B	-3.05	1.44	1.52
2	D	501	UOQ	C3B-C4B	-3.01	1.44	1.52
2	E	203	UOQ	CBW-CBX	-3.01	1.45	1.51
2	A	201	UOQ	O9P-C9P	-2.95	1.17	1.23
2	C	201	UOQ	C3B-C4B	-2.91	1.44	1.52
2	A	201	UOQ	C3B-C4B	-2.91	1.44	1.52
2	H	201	UOQ	C3B-C4B	-2.88	1.44	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	204	UOQ	CBW-CBX	-2.84	1.46	1.51
2	H	202	UOQ	C3B-C4B	-2.81	1.44	1.52
2	D	501	UOQ	CBW-CBX	-2.69	1.46	1.51
2	E	201	UOQ	CBW-CBX	-2.60	1.46	1.51
2	A	203	UOQ	O9P-C9P	-2.57	1.18	1.23
2	A	203	UOQ	CBW-CBX	-2.55	1.46	1.51
2	E	201	UOQ	O9P-C9P	-2.53	1.18	1.23
2	H	203	UOQ	O9P-C9P	-2.51	1.18	1.23
2	B	201	UOQ	CBW-CBX	-2.49	1.46	1.51
2	A	203	UOQ	O4B-C4B	-2.46	1.39	1.45
2	H	202	UOQ	O9P-C9P	-2.44	1.18	1.23
2	H	201	UOQ	O4B-C4B	-2.42	1.39	1.45
2	E	203	UOQ	O4B-C4B	-2.42	1.39	1.45
2	B	202	UOQ	O9P-C9P	-2.40	1.18	1.23
2	C	201	UOQ	O4B-C4B	-2.40	1.39	1.45
2	H	203	UOQ	CBW-CBX	-2.36	1.47	1.51
2	A	201	UOQ	CBW-CBX	-2.34	1.47	1.51
2	B	201	UOQ	O9P-C9P	-2.32	1.18	1.23
2	D	501	UOQ	O9P-C9P	-2.30	1.18	1.23
2	E	204	UOQ	O4B-C4B	-2.29	1.39	1.45
2	E	201	UOQ	O4B-C4B	-2.29	1.39	1.45
2	E	203	UOQ	O5B-C5B	-2.25	1.35	1.44
2	B	202	UOQ	O5B-C5B	-2.25	1.35	1.44
2	C	201	UOQ	O5B-C5B	-2.22	1.35	1.44
2	F	201	UOQ	O9P-C9P	-2.19	1.19	1.23
2	C	201	UOQ	CBW-CBX	-2.19	1.47	1.51
2	F	201	UOQ	CBW-CBX	-2.18	1.47	1.51
2	E	204	UOQ	O9P-C9P	-2.18	1.19	1.23
2	B	201	UOQ	O4B-C4B	-2.17	1.40	1.45
2	E	203	UOQ	O9P-C9P	-2.17	1.19	1.23
2	H	201	UOQ	O9P-C9P	-2.16	1.19	1.23
2	F	201	UOQ	O4B-C4B	-2.12	1.40	1.45
2	A	201	UOQ	O4B-C4B	-2.12	1.40	1.45
2	H	202	UOQ	CDP-CBP	-2.10	1.49	1.53
2	A	203	UOQ	O5B-C5B	-2.08	1.36	1.44
2	H	202	UOQ	O4B-C4B	-2.08	1.40	1.45
2	A	203	UOQ	CDP-CBP	-2.05	1.49	1.53
2	D	501	UOQ	O4B-C4B	-2.03	1.40	1.45
2	B	202	UOQ	O4B-C4B	-2.03	1.40	1.45
2	C	201	UOQ	O9P-C9P	-2.02	1.19	1.23
2	B	202	UOQ	CBW-CBX	-2.00	1.47	1.51
2	H	201	UOQ	O4B-C1B	2.00	1.43	1.41

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	203	UOQ	C6A-N6A	2.13	1.41	1.34
2	E	204	UOQ	O4B-C1B	2.15	1.43	1.41
2	F	201	UOQ	C6A-N6A	2.16	1.41	1.34
2	B	202	UOQ	C4A-N3A	2.16	1.38	1.35
2	E	203	UOQ	C6A-N6A	2.18	1.41	1.34
2	B	202	UOQ	C6A-N6A	2.18	1.41	1.34
2	H	202	UOQ	C6A-N6A	2.19	1.41	1.34
2	D	501	UOQ	C6A-N6A	2.20	1.41	1.34
2	A	203	UOQ	C6A-N6A	2.20	1.41	1.34
2	F	201	UOQ	C4A-N3A	2.20	1.38	1.35
2	C	201	UOQ	C6A-N6A	2.21	1.41	1.34
2	H	201	UOQ	C6A-N6A	2.22	1.41	1.34
2	A	201	UOQ	C6A-N6A	2.23	1.41	1.34
2	B	201	UOQ	C6A-N6A	2.24	1.41	1.34
2	E	204	UOQ	C6A-N6A	2.25	1.41	1.34
2	E	201	UOQ	C6A-N6A	2.25	1.41	1.34
2	E	203	UOQ	O4B-C1B	2.25	1.44	1.41
2	B	202	UOQ	OAP-CAP	2.28	1.46	1.42
2	E	203	UOQ	OAP-CAP	2.34	1.46	1.42
2	B	201	UOQ	O4B-C1B	2.39	1.44	1.41
2	D	501	UOQ	O4B-C1B	2.40	1.44	1.41
2	B	201	UOQ	OAP-CAP	2.45	1.47	1.42
2	H	203	UOQ	OAP-CAP	2.46	1.47	1.42
2	H	201	UOQ	OAP-CAP	2.55	1.47	1.42
2	F	201	UOQ	OAP-CAP	2.64	1.47	1.42
2	E	204	UOQ	OAP-CAP	2.67	1.47	1.42
2	H	202	UOQ	O4B-C1B	2.68	1.44	1.41
2	D	501	UOQ	OAP-CAP	2.68	1.47	1.42
2	H	203	UOQ	CEP-CBP	2.70	1.59	1.53
2	B	202	UOQ	CEP-CBP	2.70	1.59	1.53
2	B	202	UOQ	O4B-C1B	2.70	1.44	1.41
2	A	201	UOQ	O4B-C1B	2.75	1.44	1.41
2	A	203	UOQ	CEP-CBP	2.77	1.59	1.53
2	E	201	UOQ	O4B-C1B	2.81	1.44	1.41
2	E	203	UOQ	CEP-CBP	2.81	1.59	1.53
2	H	202	UOQ	OAP-CAP	2.83	1.47	1.42
2	E	201	UOQ	OAP-CAP	2.84	1.47	1.42
2	C	201	UOQ	OAP-CAP	2.86	1.48	1.42
2	E	204	UOQ	CEP-CBP	2.88	1.60	1.53
2	A	203	UOQ	OAP-CAP	2.90	1.48	1.42
2	C	201	UOQ	CEP-CBP	2.95	1.60	1.53
2	F	201	UOQ	CEP-CBP	3.00	1.60	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	203	UOQ	O4B-C1B	3.00	1.45	1.41
2	A	201	UOQ	CEP-CBP	3.07	1.60	1.53
2	H	201	UOQ	CEP-CBP	3.12	1.60	1.53
2	E	201	UOQ	CEP-CBP	3.19	1.60	1.53
2	B	201	UOQ	CEP-CBP	3.22	1.60	1.53
2	D	501	UOQ	CEP-CBP	3.40	1.61	1.53
2	B	202	UOQ	C5P-N4P	3.47	1.41	1.33
2	H	202	UOQ	CEP-CBP	3.48	1.61	1.53
2	F	201	UOQ	O4B-C1B	3.53	1.45	1.41
2	E	203	UOQ	C5P-N4P	3.69	1.42	1.33
2	F	201	UOQ	C5P-N4P	3.79	1.42	1.33
2	C	201	UOQ	C5P-N4P	3.93	1.42	1.33
2	H	203	UOQ	C5P-N4P	3.98	1.42	1.33
2	E	201	UOQ	C5P-N4P	3.99	1.42	1.33
2	H	202	UOQ	C5P-N4P	4.02	1.43	1.33
2	D	501	UOQ	C5P-N4P	4.06	1.43	1.33
2	E	204	UOQ	C5P-N4P	4.13	1.43	1.33
2	B	201	UOQ	C5P-N4P	4.16	1.43	1.33
2	A	203	UOQ	C5P-N4P	4.34	1.43	1.33
2	H	201	UOQ	C5P-N4P	4.44	1.44	1.33
2	A	201	UOQ	C5P-N4P	4.58	1.44	1.33
2	A	203	UOQ	C9P-N8P	4.63	1.43	1.33
2	H	203	UOQ	C9P-N8P	4.64	1.43	1.33
2	F	201	UOQ	C9P-N8P	4.67	1.43	1.33
2	E	204	UOQ	C9P-N8P	4.70	1.43	1.33
2	D	501	UOQ	C9P-N8P	4.79	1.43	1.33
2	B	202	UOQ	C9P-N8P	4.82	1.43	1.33
2	E	203	UOQ	C9P-N8P	5.05	1.44	1.33
2	C	201	UOQ	C9P-N8P	5.05	1.44	1.33
2	B	201	UOQ	C9P-N8P	5.14	1.44	1.33
2	H	202	UOQ	C9P-N8P	5.15	1.44	1.33
2	H	201	UOQ	C9P-N8P	5.26	1.44	1.33
2	E	201	UOQ	C9P-N8P	5.52	1.45	1.33
2	A	201	UOQ	C9P-N8P	5.89	1.45	1.33
2	C	201	UOQ	OCH-CBX	6.99	1.34	1.21
2	E	204	UOQ	OCH-CBX	7.44	1.35	1.21
2	A	201	UOQ	OCH-CBX	7.63	1.35	1.21
2	B	202	UOQ	OCH-CBX	7.81	1.36	1.21
2	H	202	UOQ	OCH-CBX	7.81	1.36	1.21
2	E	203	UOQ	OCH-CBX	7.89	1.36	1.21
2	B	201	UOQ	OCH-CBX	7.90	1.36	1.21
2	H	201	UOQ	OCH-CBX	7.93	1.36	1.21

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	203	UOQ	OCH-CBX	8.01	1.36	1.21
2	A	203	UOQ	OCH-CBX	8.07	1.36	1.21
2	D	501	UOQ	OCH-CBX	8.08	1.36	1.21
2	E	201	UOQ	OCH-CBX	8.15	1.36	1.21
2	F	201	UOQ	OCH-CBX	8.17	1.36	1.21

All (232) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	201	UOQ	C1B-N9A-C4A	-16.62	101.88	126.94
2	A	201	UOQ	OCH-CBX-CBW	-9.88	108.01	122.14
2	E	203	UOQ	N3A-C2A-N1A	-9.66	121.49	128.89
2	B	202	UOQ	N3A-C2A-N1A	-9.64	121.51	128.89
2	E	204	UOQ	OCH-CBX-CBW	-9.52	108.52	122.14
2	H	202	UOQ	N3A-C2A-N1A	-9.35	121.73	128.89
2	E	201	UOQ	N3A-C2A-N1A	-9.30	121.77	128.89
2	C	201	UOQ	N3A-C2A-N1A	-9.23	121.83	128.89
2	B	201	UOQ	N3A-C2A-N1A	-9.21	121.84	128.89
2	A	203	UOQ	N3A-C2A-N1A	-9.10	121.92	128.89
2	F	201	UOQ	N3A-C2A-N1A	-9.10	121.93	128.89
2	E	203	UOQ	OCH-CBX-CBW	-9.06	109.17	122.14
2	A	201	UOQ	N3A-C2A-N1A	-9.05	121.97	128.89
2	D	501	UOQ	N3A-C2A-N1A	-9.04	121.97	128.89
2	H	203	UOQ	N3A-C2A-N1A	-8.82	122.14	128.89
2	F	201	UOQ	OCH-CBX-CBW	-8.68	109.72	122.14
2	E	201	UOQ	OCH-CBX-CBW	-8.51	109.96	122.14
2	E	204	UOQ	N3A-C2A-N1A	-8.43	122.44	128.89
2	A	203	UOQ	OCH-CBX-CBW	-8.37	110.17	122.14
2	H	201	UOQ	N3A-C2A-N1A	-8.00	122.77	128.89
2	D	501	UOQ	OCH-CBX-CBW	-7.89	110.85	122.14
2	H	201	UOQ	OCH-CBX-CBW	-7.64	111.21	122.14
2	H	202	UOQ	OCH-CBX-CBW	-7.19	111.85	122.14
2	C	201	UOQ	C4B-O4B-C1B	-7.13	101.88	109.72
2	B	201	UOQ	OCH-CBX-CBW	-7.12	111.95	122.14
2	E	203	UOQ	C4B-O4B-C1B	-7.11	101.91	109.72
2	C	201	UOQ	OCH-CBX-CBW	-7.05	112.05	122.14
2	B	202	UOQ	OCH-CBX-CBW	-6.85	112.34	122.14
2	H	203	UOQ	OCH-CBX-CBW	-6.54	112.78	122.14
2	A	201	UOQ	C4B-O4B-C1B	-6.06	103.06	109.72
2	B	202	UOQ	OCH-CBX-CBY	-5.33	104.31	121.16
2	B	201	UOQ	P2A-O3A-P1A	-4.94	118.87	132.73
2	H	202	UOQ	P3B-O3B-C3B	-4.90	109.82	121.56

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	203	UOQ	OCH-CBX-CBY	-4.87	105.77	121.16
2	H	203	UOQ	OCH-CBX-CBY	-4.79	106.02	121.16
2	H	201	UOQ	OCH-CBX-CBY	-4.72	106.22	121.16
2	D	501	UOQ	P2A-O3A-P1A	-4.62	119.76	132.73
2	F	201	UOQ	P2A-O3A-P1A	-4.55	119.96	132.73
2	E	201	UOQ	C3P-N4P-C5P	-4.46	114.01	122.79
2	C	201	UOQ	OCH-CBX-CBY	-4.38	107.30	121.16
2	E	203	UOQ	C2B-C3B-C4B	-4.21	95.38	103.29
2	E	201	UOQ	C4B-O4B-C1B	-4.21	105.10	109.72
2	B	201	UOQ	C3P-N4P-C5P	-4.20	114.52	122.79
2	F	201	UOQ	OCH-CBX-CBY	-4.17	107.96	121.16
2	A	203	UOQ	OCH-CBX-CBY	-4.14	108.07	121.16
2	B	202	UOQ	P2A-O3A-P1A	-4.10	121.20	132.73
2	F	201	UOQ	C4B-O4B-C1B	-4.05	105.27	109.72
2	B	202	UOQ	C2B-C1B-N9A	-4.04	108.11	114.29
2	H	202	UOQ	C4B-O4B-C1B	-4.04	105.28	109.72
2	A	201	UOQ	OCH-CBX-CBY	-4.01	108.48	121.16
2	D	501	UOQ	OCH-CBX-CBY	-4.00	108.49	121.16
2	E	204	UOQ	OCH-CBX-CBY	-4.00	108.50	121.16
2	C	201	UOQ	P2A-O3A-P1A	-3.99	121.53	132.73
2	E	201	UOQ	OCH-CBX-CBY	-3.97	108.61	121.16
2	A	201	UOQ	C4A-C5A-N7A	-3.95	105.84	109.48
2	A	201	UOQ	P2A-O3A-P1A	-3.89	121.81	132.73
2	B	201	UOQ	OCH-CBX-CBY	-3.82	109.07	121.16
2	B	201	UOQ	C4B-O4B-C1B	-3.79	105.56	109.72
2	E	204	UOQ	P2A-O3A-P1A	-3.78	122.12	132.73
2	E	203	UOQ	P2A-O3A-P1A	-3.74	122.22	132.73
2	F	201	UOQ	C4A-C5A-N7A	-3.72	106.06	109.48
2	H	203	UOQ	C4A-C5A-N7A	-3.71	106.07	109.48
2	H	202	UOQ	O3B-P3B-O9A	-3.68	97.91	107.11
2	H	202	UOQ	OCH-CBX-CBY	-3.64	109.65	121.16
2	C	201	UOQ	C4A-C5A-N7A	-3.54	106.22	109.48
2	B	201	UOQ	C4A-C5A-N7A	-3.52	106.24	109.48
2	H	203	UOQ	P2A-O3A-P1A	-3.48	122.95	132.73
2	H	201	UOQ	P2A-O3A-P1A	-3.43	123.09	132.73
2	E	201	UOQ	C4A-C5A-N7A	-3.40	106.35	109.48
2	E	201	UOQ	C1B-N9A-C4A	-3.36	121.87	126.94
2	D	501	UOQ	C4A-C5A-N7A	-3.35	106.39	109.48
2	H	202	UOQ	P2A-O3A-P1A	-3.35	123.33	132.73
2	B	202	UOQ	C3P-N4P-C5P	-3.33	116.23	122.79
2	H	202	UOQ	C4A-C5A-N7A	-3.26	106.48	109.48
2	E	203	UOQ	CBW-CBX-CBY	-3.22	108.68	115.59

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	203	UOQ	C4A-C5A-N7A	-3.12	106.61	109.48
2	H	203	UOQ	C3P-N4P-C5P	-3.07	116.75	122.79
2	E	203	UOQ	C4A-C5A-N7A	-3.04	106.68	109.48
2	H	203	UOQ	CBW-CBX-CBY	-3.03	109.08	115.59
2	E	204	UOQ	C4A-C5A-N7A	-3.03	106.70	109.48
2	D	501	UOQ	C7P-N8P-C9P	-3.00	116.58	122.53
2	E	204	UOQ	CBW-CBX-CBY	-3.00	109.14	115.59
2	E	201	UOQ	P2A-O3A-P1A	-3.00	124.31	132.73
2	A	203	UOQ	P2A-O3A-P1A	-2.99	124.33	132.73
2	H	201	UOQ	C4A-C5A-N7A	-2.98	106.74	109.48
2	A	201	UOQ	O4B-C1B-N9A	-2.96	101.90	108.10
2	H	201	UOQ	CBW-CBX-CBY	-2.93	109.30	115.59
2	A	203	UOQ	CBW-CBX-CBY	-2.90	109.36	115.59
2	H	201	UOQ	C4B-O4B-C1B	-2.89	106.54	109.72
2	H	202	UOQ	C7P-N8P-C9P	-2.86	116.87	122.53
2	E	204	UOQ	C4B-O4B-C1B	-2.81	106.63	109.72
2	E	201	UOQ	O5P-C5P-N4P	-2.63	117.72	122.94
2	A	201	UOQ	CBW-CBX-CBY	-2.54	110.14	115.59
2	B	202	UOQ	C4B-O4B-C1B	-2.52	106.95	109.72
2	E	201	UOQ	CBW-CBX-CBY	-2.42	110.39	115.59
2	B	202	UOQ	C4A-C5A-N7A	-2.39	107.28	109.48
2	D	501	UOQ	C4B-O4B-C1B	-2.31	107.19	109.72
2	A	201	UOQ	P3B-O3B-C3B	-2.30	116.06	121.56
2	B	201	UOQ	CBW-CBX-CBY	-2.28	110.69	115.59
2	D	501	UOQ	CBW-CBX-CBY	-2.28	110.70	115.59
2	F	201	UOQ	C7P-N8P-C9P	-2.26	118.06	122.53
2	A	201	UOQ	O5P-C5P-N4P	-2.17	118.62	122.94
2	D	501	UOQ	C1B-N9A-C4A	-2.14	123.71	126.94
2	H	202	UOQ	O9P-C9P-N8P	-2.10	118.88	123.08
2	C	201	UOQ	C1B-N9A-C4A	-2.08	123.80	126.94
2	H	203	UOQ	C4B-O4B-C1B	-2.08	107.43	109.72
2	C	201	UOQ	CDP-CBP-CCP	-2.06	105.83	108.50
2	E	203	UOQ	C1B-N9A-C4A	-2.06	123.84	126.94
2	B	202	UOQ	CBW-CBX-CBY	-2.03	111.23	115.59
2	H	201	UOQ	O3A-P1A-O5B	2.03	108.31	102.94
2	E	204	UOQ	C2B-C3B-C4B	2.03	107.11	103.29
2	C	201	UOQ	CEP-CBP-CCP	2.05	111.16	108.50
2	A	203	UOQ	O4B-C4B-C3B	2.05	109.60	104.86
2	H	202	UOQ	CBX-CBW-S1P	2.07	121.56	113.75
2	E	201	UOQ	C2B-C1B-N9A	2.10	117.49	114.29
2	B	202	UOQ	O3B-C3B-C4B	2.10	118.22	109.99
2	H	202	UOQ	C6P-C7P-N8P	2.11	116.50	111.88

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	204	UOQ	O5B-C5B-C4B	2.12	116.93	109.12
2	H	201	UOQ	O5B-C5B-C4B	2.15	117.05	109.12
2	B	202	UOQ	CDP-CBP-CCP	2.16	111.30	108.50
2	F	201	UOQ	C2B-C1B-N9A	2.18	117.63	114.29
2	B	202	UOQ	O2B-C2B-C3B	2.20	117.50	111.16
2	H	203	UOQ	C6P-C5P-N4P	2.20	120.28	116.46
2	H	202	UOQ	C7P-C6P-C5P	2.21	115.96	112.31
2	E	204	UOQ	C6P-C5P-N4P	2.21	120.30	116.46
2	E	203	UOQ	O3A-P1A-O5B	2.25	108.91	102.94
2	A	203	UOQ	C2P-C3P-N4P	2.26	116.88	112.36
2	D	501	UOQ	O6A-CCP-CBP	2.26	114.18	110.55
2	H	201	UOQ	O3A-P2A-O6A	2.27	108.96	102.94
2	H	201	UOQ	O6A-CCP-CBP	2.27	114.20	110.55
2	H	202	UOQ	O3B-C3B-C2B	2.28	120.36	111.51
2	E	204	UOQ	O4B-C4B-C3B	2.28	110.12	104.86
2	D	501	UOQ	C3P-N4P-C5P	2.29	127.29	122.79
2	H	201	UOQ	C3P-N4P-C5P	2.31	127.34	122.79
2	E	201	UOQ	P3B-O3B-C3B	2.31	127.11	121.56
2	H	203	UOQ	C2B-C3B-C4B	2.32	107.66	103.29
2	D	501	UOQ	C6P-C7P-N8P	2.35	117.04	111.88
2	H	201	UOQ	O4B-C4B-C3B	2.36	110.31	104.86
2	H	203	UOQ	P3B-O3B-C3B	2.36	127.23	121.56
2	H	203	UOQ	CDP-CBP-CCP	2.37	111.57	108.50
2	E	203	UOQ	CDP-CBP-CCP	2.37	111.57	108.50
2	B	202	UOQ	O4B-C1B-N9A	2.37	113.07	108.10
2	B	202	UOQ	O5B-C5B-C4B	2.38	117.89	109.12
2	C	201	UOQ	O5B-C5B-C4B	2.38	117.89	109.12
2	E	201	UOQ	C6P-C7P-N8P	2.40	117.14	111.88
2	D	501	UOQ	C2P-S1P-CBW	2.42	105.93	101.89
2	B	202	UOQ	O3A-P2A-O6A	2.43	109.37	102.94
2	E	204	UOQ	O3A-P1A-O5B	2.43	109.38	102.94
2	F	201	UOQ	O3B-C3B-C4B	2.44	119.58	109.99
2	D	501	UOQ	O3A-P2A-O6A	2.45	109.43	102.94
2	F	201	UOQ	O6A-CCP-CBP	2.46	114.50	110.55
2	E	201	UOQ	O3A-P1A-O5B	2.47	109.50	102.94
2	H	202	UOQ	O4B-C1B-N9A	2.50	113.33	108.10
2	D	501	UOQ	O4B-C4B-C3B	2.51	110.64	104.86
2	H	202	UOQ	CAP-C9P-N8P	2.54	122.09	116.47
2	F	201	UOQ	P3B-O3B-C3B	2.54	127.65	121.56
2	A	201	UOQ	C2B-C3B-C4B	2.54	108.06	103.29
2	F	201	UOQ	CEP-CBP-CCP	2.55	111.80	108.50
2	H	203	UOQ	O3B-C3B-C2B	2.56	121.48	111.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	204	UOQ	C3B-C2B-C1B	2.57	106.14	99.98
2	B	202	UOQ	O4B-C4B-C3B	2.58	110.82	104.86
2	D	501	UOQ	C3B-C2B-C1B	2.60	106.21	99.98
2	E	204	UOQ	C2P-S1P-CBW	2.60	106.22	101.89
2	F	201	UOQ	O3B-C3B-C2B	2.60	121.64	111.51
2	F	201	UOQ	C3B-C2B-C1B	2.66	106.35	99.98
2	E	203	UOQ	C7P-C6P-C5P	2.67	116.71	112.31
2	A	203	UOQ	C3B-C2B-C1B	2.74	106.56	99.98
2	B	202	UOQ	C2P-S1P-CBW	2.76	106.49	101.89
2	B	201	UOQ	O3A-P2A-O6A	2.78	110.32	102.94
2	A	201	UOQ	CEP-CBP-CAP	2.79	114.44	109.34
2	E	204	UOQ	O3A-P2A-O6A	2.83	110.44	102.94
2	F	201	UOQ	O3A-P1A-O5B	2.84	110.47	102.94
2	A	201	UOQ	O4B-C4B-C5B	2.85	119.51	109.32
2	E	204	UOQ	CDP-CBP-CCP	2.87	112.22	108.50
2	A	201	UOQ	C6P-C5P-N4P	2.87	121.45	116.46
2	E	201	UOQ	C6P-C5P-N4P	2.89	121.48	116.46
2	A	203	UOQ	O3A-P2A-O6A	2.93	110.71	102.94
2	D	501	UOQ	O4B-C1B-N9A	2.94	114.26	108.10
2	B	201	UOQ	O3A-P1A-O5B	2.96	110.78	102.94
2	H	203	UOQ	O4B-C1B-N9A	2.98	114.33	108.10
2	C	201	UOQ	O4B-C4B-C3B	3.00	111.77	104.86
2	H	201	UOQ	C7P-C6P-C5P	3.00	117.25	112.31
2	F	201	UOQ	O4B-C4B-C3B	3.01	111.79	104.86
2	B	201	UOQ	CEP-CBP-CCP	3.08	112.49	108.50
2	A	201	UOQ	C2P-C3P-N4P	3.09	118.53	112.36
2	A	201	UOQ	O3A-P1A-O5B	3.09	111.14	102.94
2	F	201	UOQ	O4B-C4B-C5B	3.17	120.64	109.32
2	E	204	UOQ	C7P-C6P-C5P	3.21	117.61	112.31
2	E	201	UOQ	OAP-CAP-C9P	3.22	117.76	110.38
2	A	201	UOQ	C6P-C7P-N8P	3.28	119.09	111.88
2	H	201	UOQ	C6P-C7P-N8P	3.30	119.11	111.88
2	H	203	UOQ	O3A-P2A-O6A	3.30	111.70	102.94
2	H	202	UOQ	O6A-CCP-CBP	3.31	115.87	110.55
2	B	202	UOQ	C3B-C2B-C1B	3.31	107.93	99.98
2	F	201	UOQ	O4B-C1B-N9A	3.34	115.10	108.10
2	H	201	UOQ	C2B-C1B-N9A	3.36	119.43	114.29
2	A	203	UOQ	CDP-CBP-CCP	3.37	112.86	108.50
2	B	201	UOQ	O5B-C5B-C4B	3.37	121.56	109.12
2	E	204	UOQ	O6A-CCP-CBP	3.40	116.01	110.55
2	D	501	UOQ	O5B-C5B-C4B	3.42	121.71	109.12
2	H	203	UOQ	C2P-S1P-CBW	3.43	107.60	101.89

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	501	UOQ	C7P-C6P-C5P	3.48	118.05	112.31
2	H	203	UOQ	O5B-C5B-C4B	3.49	122.00	109.12
2	A	201	UOQ	C2P-S1P-CBW	3.51	107.73	101.89
2	A	201	UOQ	O4B-C4B-C3B	3.58	113.12	104.86
2	B	202	UOQ	O6A-CCP-CBP	3.65	116.42	110.55
2	H	201	UOQ	C2P-S1P-CBW	3.70	108.05	101.89
2	H	202	UOQ	C2B-C1B-N9A	3.71	119.96	114.29
2	H	202	UOQ	O5B-C5B-C4B	3.88	123.41	109.12
2	A	203	UOQ	C2P-S1P-CBW	3.96	108.48	101.89
2	E	201	UOQ	C2P-C3P-N4P	3.98	120.32	112.36
2	H	202	UOQ	O3A-P2A-O6A	4.00	113.56	102.94
2	C	201	UOQ	O4B-C1B-N9A	4.04	116.56	108.10
2	D	501	UOQ	O3A-P1A-O5B	4.09	113.78	102.94
2	F	201	UOQ	C2P-S1P-CBW	4.16	108.81	101.89
2	H	202	UOQ	C2P-S1P-CBW	4.23	108.94	101.89
2	H	203	UOQ	O6A-CCP-CBP	4.25	117.39	110.55
2	H	202	UOQ	O3A-P1A-O5B	4.34	114.45	102.94
2	A	203	UOQ	C7P-C6P-C5P	4.34	119.47	112.31
2	A	201	UOQ	O6A-CCP-CBP	4.36	117.56	110.55
2	E	201	UOQ	C7P-C6P-C5P	4.36	119.50	112.31
2	E	201	UOQ	O5B-C5B-C4B	4.47	125.60	109.12
2	A	201	UOQ	O5B-C5B-C4B	4.67	126.35	109.12
2	A	203	UOQ	O6A-CCP-CBP	4.70	118.10	110.55
2	C	201	UOQ	O6A-CCP-CBP	4.85	118.35	110.55
2	E	204	UOQ	C2B-C1B-N9A	4.96	121.87	114.29
2	A	201	UOQ	C7P-C6P-C5P	4.97	120.50	112.31
2	E	201	UOQ	C2P-S1P-CBW	5.07	110.34	101.89
2	E	201	UOQ	O6A-CCP-CBP	5.25	118.99	110.55
2	H	201	UOQ	C2P-C3P-N4P	5.78	123.92	112.36
2	E	203	UOQ	O6A-CCP-CBP	5.99	120.17	110.55
2	C	201	UOQ	C2B-C1B-N9A	7.46	125.69	114.29

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	H	203	UOQ	P3B-O3B-C3B-C2B
2	C	201	UOQ	P1A-O5B-C5B-C4B
2	E	201	UOQ	P1A-O5B-C5B-C4B
2	E	201	UOQ	CAP-C9P-N8P-C7P

There are no ring outliers.

13 monomers are involved in 81 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	201	UOQ	10	0
2	A	203	UOQ	12	0
2	B	201	UOQ	1	0
2	B	202	UOQ	4	0
2	C	201	UOQ	9	0
2	D	501	UOQ	8	0
2	E	201	UOQ	6	0
2	E	203	UOQ	6	0
2	E	204	UOQ	6	0
2	F	201	UOQ	10	0
2	H	201	UOQ	1	0
2	H	202	UOQ	4	0
2	H	203	UOQ	4	0

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	136/136 (100%)	-0.44	0 100 100	4, 10, 27, 40	0
1	B	136/136 (100%)	-0.49	0 100 100	4, 13, 34, 47	0
1	C	136/136 (100%)	-0.31	1 (0%) 89 90	5, 12, 28, 44	0
1	D	136/136 (100%)	-0.38	1 (0%) 89 90	5, 12, 31, 35	0
1	E	136/136 (100%)	-0.26	0 100 100	7, 15, 36, 48	0
1	F	136/136 (100%)	-0.38	1 (0%) 89 90	6, 14, 34, 47	0
1	G	136/136 (100%)	-0.40	1 (0%) 89 90	5, 13, 30, 42	0
1	H	136/136 (100%)	-0.49	0 100 100	5, 11, 27, 34	0
All	All	1088/1088 (100%)	-0.39	4 (0%) 93 93	4, 13, 31, 48	0

All (4) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	136	LEU	2.6
1	F	1	MET	2.6
1	G	136	LEU	2.6
1	D	1	MET	2.1

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
2	UOQ	D	501	60/60	0.86	0.26	8.94	6,43,61,73	28
2	UOQ	H	201	60/60	0.88	0.22	6.39	11,45,79,81	23
2	UOQ	A	201	60/60	0.86	0.27	5.28	15,46,80,89	24
2	UOQ	C	201	60/60	0.85	0.22	4.74	9,49,77,90	21
2	UOQ	E	203	60/60	0.85	0.21	4.26	10,48,72,83	22
2	UOQ	H	202	60/60	0.89	0.22	4.24	7,43,65,76	25
2	UOQ	E	201	60/60	0.85	0.25	4.00	16,47,65,76	24
2	UOQ	B	201	60/60	0.88	0.21	3.54	15,38,80,88	23
2	UOQ	B	202	60/60	0.93	0.16	3.07	8,26,69,84	21
2	UOQ	F	201	60/60	0.90	0.19	2.73	15,33,71,79	24
2	UOQ	A	203	60/60	0.90	0.20	2.70	11,41,79,81	21
2	UOQ	H	203	60/60	0.94	0.17	2.56	11,27,70,76	21
2	UOQ	E	204	60/60	0.90	0.18	2.45	10,37,97,97	19
3	CL	A	202	1/1	0.99	0.05	-	25,25,25,25	0
3	CL	E	202	1/1	0.99	0.07	-	27,27,27,27	0

6.5 Other polymers [i](#)

There are no such residues in this entry.