Full wwPDB X-ray Structure Validation Report ⓘ

Sep 7, 2021 – 10:39 am BST

PDB ID	:	7OX8
Title	:	Target-bound SpCas9 complex with TRAC full RNA guide
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Deposited on	:	2021-06-22
Resolution	:	2.75 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

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

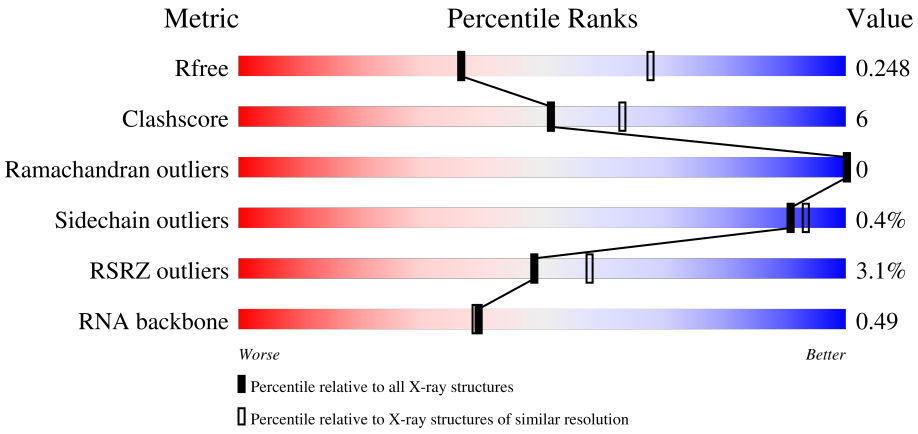
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.23.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.23.1

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.75 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1235 (2.78-2.74)
Clashscore	141614	1277 (2.78-2.74)
Ramachandran outliers	138981	1257 (2.78-2.74)
Sidechain outliers	138945	1257 (2.78-2.74)
RSRZ outliers	127900	1207 (2.78-2.74)
RNA backbone	3102	1060 (3.02-2.50)

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 of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	84	57% 33% 10%
2	B	1372	3% 84% 13%
3	C	28	57% 43%
4	D	12	25% 58% 17%

2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 13558 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 RNA chain called sgRNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	84	Total	C	N	O	P	0	0	1
			1760	786	320	571	83			

- Molecule 2 is a protein called CRISPR-associated endonuclease Cas9/Csn1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	1330	Total	C	N	O	S	0	0	0
			10875	6929	1887	2037	22			

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	-3	GLY	-	expression tag	UNP Q99ZW2
B	-2	ALA	-	expression tag	UNP Q99ZW2
B	-1	ALA	-	expression tag	UNP Q99ZW2
B	0	SER	-	expression tag	UNP Q99ZW2
B	10	ALA	ASP	engineered mutation	UNP Q99ZW2
B	840	ALA	HIS	engineered mutation	UNP Q99ZW2

- Molecule 3 is a DNA chain called TRAC target DNA strand.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	C	28	Total	C	N	O	P	0	0	0
			569	272	106	164	27			

- Molecule 4 is a DNA chain called TRAC non-target DNA strand.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	D	10	Total	C	N	O	P	0	0	0
			203	98	37	59	9			

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

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	2	Total Mg 2 2	0	0

- Molecule 6 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	6	Total K 6 6	0	0
6	B	6	Total K 6 6	0	0

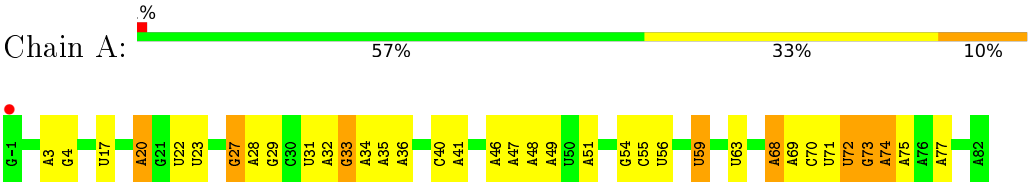
- Molecule 7 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	59	Total O 59 59	0	0
7	B	70	Total O 70 70	0	0
7	C	8	Total O 8 8	0	0

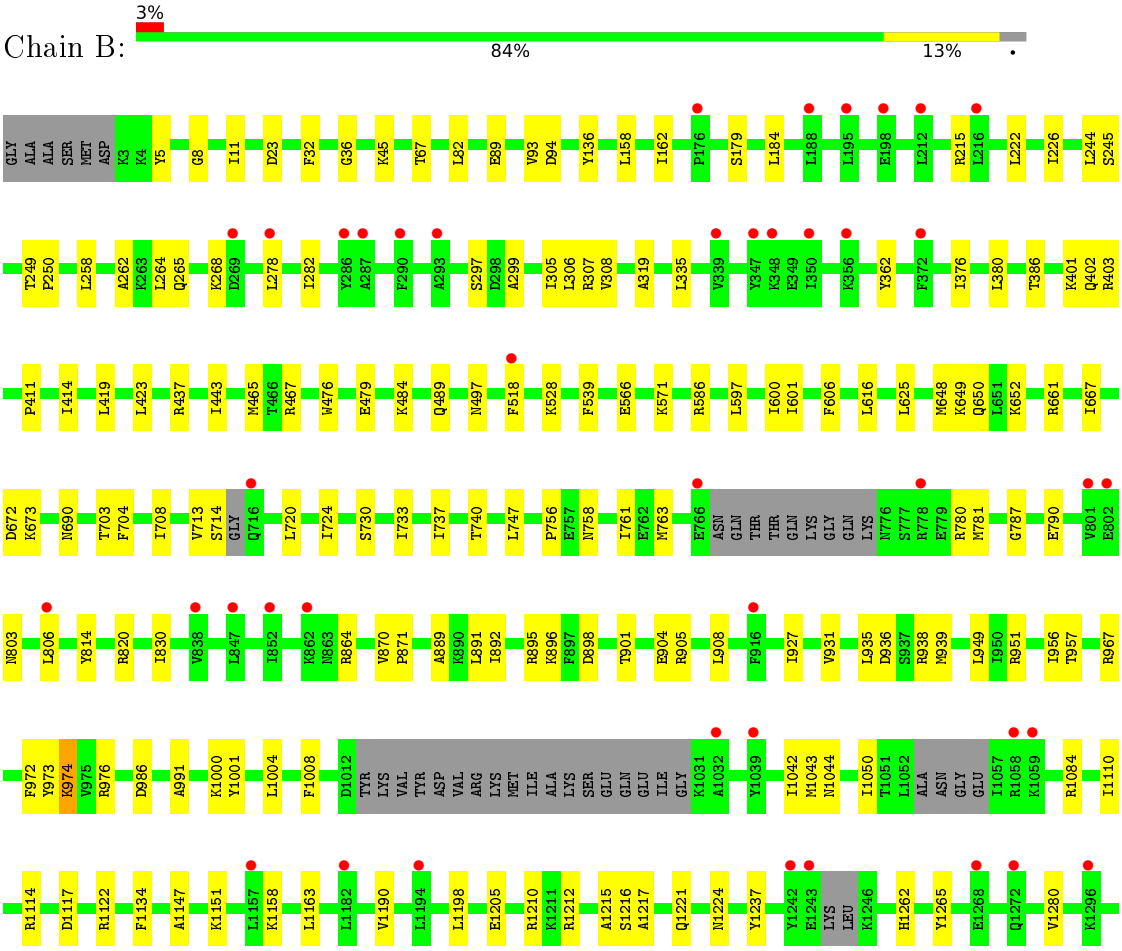
3 Residue-property plots (i)

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

- Molecule 1: sgRNA



- Molecule 2: CRISPR-associated endonuclease Cas9/Csn1



• Molecule 3: TRAC target DNA strand

Chain C:

• Molecule 4: TRAC non-target DNA strand

Chain D:

4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	178.18Å 67.55Å 187.85Å 90.00° 111.23° 90.00°	Depositor
Resolution (Å)	47.91 – 2.75 47.91 – 2.75	Depositor EDS
% Data completeness (in resolution range)	98.9 (47.91-2.75) 98.9 (47.91-2.75)	Depositor EDS
R_{merge}	0.18	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.23 (at 2.77Å)	Xtriage
Refinement program	PHENIX 1.17.1_3660	Depositor
R, R_{free}	0.209 , 0.248 0.209 , 0.248	Depositor DCC
R_{free} test set	2707 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å^2)	69.3	Xtriage
Anisotropy	0.645	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 44.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	13558	wwPDB-VP
Average B, all atoms (Å^2)	82.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.53% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

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

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	0.45	0/1971	0.93	0/3072
2	B	0.29	0/11065	0.44	0/14865
3	C	0.72	0/638	1.00	1/982 (0.1%)
4	D	0.78	0/227	0.98	0/349
All	All	0.36	0/13901	0.60	1/19268 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	C	2	DG	O4'-C4'-C3'	-6.40	101.94	104.50

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	A	1760	0	880	30	0
2	B	10875	0	11046	108	0
3	C	569	0	316	6	0
4	D	203	0	115	6	0
5	A	2	0	0	0	0
6	A	6	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	B	6	0	0	0	0
7	A	59	0	0	1	0
7	B	70	0	0	4	0
7	C	8	0	0	0	0
All	All	13558	0	12357	144	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 6.

All (144) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:73:G:H3'	1:A:74:A:H5"	1.54	0.88
2:B:713:VAL:HG12	2:B:714:SER:H	1.46	0.81
1:A:22:U:H2'	1:A:23:U:C6	2.24	0.72
2:B:1335:ARG:NH2	4:D:2:DG:O6	2.23	0.70
2:B:972:PHE:HE1	2:B:1084:ARG:HD3	1.56	0.69
2:B:1004:LEU:HD11	2:B:1042:ILE:HD11	1.74	0.68
4:D:-2:DC:H2"	4:D:-1:DA:H5"	1.79	0.65
3:C:-6:DA:H2'	3:C:-5:DA:C8	2.33	0.64
1:A:59:U:OP1	2:B:467:ARG:NH2	2.32	0.62
2:B:262:ALA:HB1	2:B:278:LEU:HD12	1.82	0.62
1:A:20:A:OP2	2:B:403:ARG:NH1	2.31	0.62
2:B:895:ARG:NH1	7:B:1502:HOH:O	2.31	0.62
2:B:1212:ARG:NH2	2:B:1280:VAL:O	2.34	0.61
2:B:892:ILE:HB	2:B:896:LYS:HD3	1.84	0.60
2:B:1114:ARG:NH1	4:D:4:DA:OP1	2.35	0.60
4:D:6:DT:H1'	4:D:7:DG:H5'	1.84	0.59
2:B:258:LEU:HD21	2:B:282:ILE:HD11	1.84	0.59
2:B:308:VAL:HG11	2:B:319:ALA:HB3	1.84	0.59
2:B:870:VAL:HG23	2:B:908:LEU:HG	1.85	0.59
2:B:489:GLN:HG3	2:B:625:LEU:HD21	1.86	0.58
2:B:967:ARG:NH1	2:B:986:ASP:OD1	2.35	0.58
2:B:761:ILE:HD11	2:B:957:THR:HG22	1.86	0.58
2:B:1215:ALA:HB2	2:B:1221:GLN:HG3	1.86	0.58
2:B:898:ASP:O	2:B:905:ARG:NH2	2.37	0.57
2:B:8:GLY:HA3	2:B:991:ALA:HB2	1.86	0.57
4:D:-2:DC:H5"	4:D:-2:DC:H6	1.69	0.57
2:B:184:LEU:HD12	2:B:299:ALA:HB2	1.86	0.56
2:B:244:LEU:HB2	2:B:250:PRO:HG3	1.88	0.56
2:B:179:SER:HB3	2:B:299:ALA:HB2	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1205:GLU:OE1	2:B:1359:ARG:NH2	2.41	0.54
2:B:93:VAL:HG12	7:B:1528:HOH:O	2.05	0.54
2:B:927:ILE:O	2:B:931:VAL:HG23	2.07	0.54
1:A:22:U:H2'	1:A:23:U:H6	1.68	0.54
2:B:250:PRO:HD2	2:B:264:LEU:O	2.08	0.54
2:B:720:LEU:O	2:B:724:ILE:HG12	2.07	0.54
1:A:4:G:OP1	2:B:661:ARG:NE	2.34	0.54
2:B:32:PHE:CE2	2:B:45:LYS:HB2	2.43	0.54
2:B:649:LYS:HA	2:B:652:LYS:HE2	1.90	0.54
2:B:1042:ILE:HG23	2:B:1043:MET:HG2	1.90	0.53
3:C:8:DG:H2'	3:C:9:DC:C6	2.43	0.53
3:C:14:DA:H2"	3:C:15:DG:H8	1.73	0.53
2:B:956:ILE:HA	2:B:1008:PHE:O	2.09	0.53
1:A:70:C:H2'	1:A:71:U:C6	2.45	0.52
2:B:94:ASP:HB2	7:B:1528:HOH:O	2.08	0.52
2:B:1212:ARG:NH1	7:B:1506:HOH:O	2.42	0.52
3:C:-1:DC:H2"	3:C:0:DG:C8	2.45	0.52
2:B:704:PHE:O	2:B:708:ILE:HG12	2.10	0.52
1:A:3:A:H2'	1:A:4:G:C8	2.45	0.52
2:B:82:LEU:HD22	2:B:162:ILE:HD12	1.91	0.51
2:B:597:LEU:O	2:B:601:ILE:HG12	2.10	0.51
2:B:733:ILE:O	2:B:737:ILE:HD12	2.10	0.51
2:B:713:VAL:HG12	2:B:714:SER:N	2.21	0.51
1:A:31:U:H2'	1:A:32:A:C8	2.45	0.51
2:B:870:VAL:HG13	2:B:871:PRO:HD2	1.93	0.51
2:B:1122:ARG:HG2	2:B:1134:PHE:CE2	2.46	0.51
2:B:222:LEU:O	2:B:226:ILE:HG12	2.10	0.50
2:B:566:GLU:O	2:B:571:LYS:HG2	2.10	0.50
2:B:974:LYS:HE3	2:B:976:ARG:NH1	2.26	0.50
2:B:1262:HIS:HD2	2:B:1265:TYR:CZ	2.30	0.50
2:B:1151:LYS:HD2	2:B:1158:LYS:HD2	1.93	0.50
2:B:158:LEU:HD22	2:B:419:LEU:HD12	1.93	0.50
2:B:8:GLY:CA	2:B:991:ALA:HB2	2.42	0.50
2:B:730:SER:O	2:B:733:ILE:HG22	2.12	0.49
1:A:33:G:H5"	1:A:33:G:H8	1.78	0.49
2:B:756:PRO:HD2	2:B:939:MET:HE3	1.95	0.49
2:B:790:GLU:HG2	2:B:889:ALA:HA	1.95	0.48
1:A:74:A:OP1	1:A:74:A:H8	1.95	0.48
1:A:71:U:H2'	1:A:72:U:C6	2.48	0.48
2:B:443:ILE:HD11	2:B:476:TRP:HZ2	1.78	0.48
2:B:1110:ILE:HG23	2:B:1122:ARG:HD2	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:936:ASP:OD1	2:B:951:ARG:NH1	2.47	0.48
2:B:814:TYR:CZ	2:B:830:ILE:HG12	2.49	0.47
1:A:33:G:H5'	1:A:34:A:OP2	2.14	0.47
2:B:780:ARG:NH1	2:B:806:LEU:O	2.45	0.47
2:B:136:TYR:HE2	2:B:402:GLN:HB3	1.80	0.47
2:B:528:LYS:HE3	2:B:539:PHE:CE1	2.50	0.47
2:B:1163:LEU:HD21	2:B:1198:LEU:HD12	1.97	0.47
2:B:89:GLU:O	2:B:93:VAL:HG23	2.16	0.46
2:B:1216:SER:OG	2:B:1217:ALA:N	2.49	0.46
1:A:46:A:H2'	1:A:47:A:C8	2.51	0.46
2:B:600:ILE:HG23	2:B:650:GLN:HB3	1.97	0.46
1:A:54:G:H2'	1:A:55:C:C6	2.51	0.46
1:A:31:U:H2'	1:A:32:A:H8	1.79	0.45
1:A:69:A:H2'	1:A:70:C:H6	1.81	0.45
2:B:901:THR:O	2:B:904:GLU:HG2	2.16	0.45
2:B:249:THR:OG1	2:B:265:GLN:NE2	2.50	0.45
2:B:864:ARG:NH2	2:B:871:PRO:HD3	2.31	0.45
1:A:73:G:H3'	1:A:74:A:C5'	2.37	0.45
2:B:1224:ASN:HB2	2:B:1280:VAL:HG11	1.99	0.45
2:B:380:LEU:O	2:B:386:THR:OG1	2.30	0.45
1:A:70:C:H2'	1:A:71:U:H6	1.81	0.44
2:B:497:ASN:HD21	3:C:11:DG:P	2.41	0.44
2:B:935:LEU:O	2:B:939:MET:HG2	2.18	0.44
1:A:48:A:H2'	1:A:49:A:C8	2.53	0.43
2:B:672:ASP:HA	2:B:703:THR:OG1	2.18	0.43
2:B:1308:ASN:HB3	2:B:1326:TYR:CD1	2.53	0.43
2:B:1163:LEU:HD23	2:B:1163:LEU:HA	1.89	0.43
2:B:245:SER:HA	2:B:297:SER:HB2	2.01	0.43
2:B:411:PRO:HD2	2:B:414:ILE:HD12	2.01	0.43
2:B:23:ASP:OD1	2:B:23:ASP:N	2.50	0.43
2:B:1163:LEU:HG	2:B:1343:LEU:HD21	2.01	0.43
2:B:1210:ARG:HA	2:B:1280:VAL:HG22	2.01	0.42
1:A:3:A:H2'	1:A:4:G:H8	1.84	0.42
1:A:40:C:H2'	1:A:41:A:C8	2.54	0.42
2:B:787:GLY:HA3	2:B:891:LEU:HD21	2.01	0.42
2:B:1117:ASP:N	2:B:1117:ASP:OD1	2.51	0.42
2:B:32:PHE:CD2	2:B:45:LYS:HB2	2.55	0.42
1:A:68:A:C4	1:A:69:A:C8	3.07	0.42
2:B:763:MET:HE1	2:B:931:VAL:HG21	2.01	0.42
2:B:1306:ALA:O	2:B:1310:ILE:HG12	2.19	0.42
2:B:5:TYR:CE2	2:B:756:PRO:HB3	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:362:TYR:CZ	2:B:401:LYS:HE3	2.55	0.42
2:B:423:LEU:HD13	2:B:437:ARG:HG3	2.02	0.42
2:B:479:GLU:OE1	2:B:484:LYS:HE2	2.20	0.42
2:B:539:PHE:HB3	2:B:690:ASN:ND2	2.35	0.42
2:B:1000:LYS:HG3	2:B:1001:TYR:CE1	2.55	0.42
3:C:5:DC:H2'	3:C:6:DC:H6	1.84	0.42
1:A:40:C:H2'	1:A:41:A:H8	1.84	0.42
1:A:73:G:C3'	1:A:74:A:H5"	2.39	0.42
2:B:335:LEU:HD21	2:B:376:ILE:HD11	2.02	0.42
2:B:465:MET:SD	2:B:467:ARG:HG3	2.59	0.42
2:B:305:ILE:HG22	2:B:306:LEU:HD23	2.01	0.41
2:B:747:LEU:HD23	2:B:747:LEU:HA	1.92	0.41
2:B:673:LYS:CG	2:B:703:THR:HG21	2.50	0.41
7:A:225:HOH:O	2:B:67:THR:HG21	2.21	0.41
2:B:36:GLY:HA3	2:B:1359:ARG:O	2.20	0.41
2:B:1147:ALA:HB2	2:B:1190:VAL:HA	2.01	0.41
1:A:27:G:H5"	1:A:27:G:H8	1.86	0.41
1:A:46:A:H2'	1:A:47:A:H8	1.86	0.41
2:B:781:MET:HG2	2:B:803:ASN:HA	2.03	0.41
2:B:265:GLN:NE2	2:B:268:LYS:HE3	2.35	0.41
1:A:36:A:H8	1:A:36:A:O5'	2.03	0.41
1:A:70:C:C2	1:A:71:U:C5	3.09	0.41
2:B:648:MET:O	2:B:652:LYS:HG3	2.20	0.41
1:A:34:A:OP1	1:A:34:A:H8	2.04	0.41
2:B:606:PHE:HE2	2:B:616:LEU:HD21	1.86	0.41
4:D:4:DA:H1'	4:D:5:DT:H5'	2.02	0.41
2:B:215:ARG:HH11	2:B:307:ARG:NH1	2.19	0.40
2:B:949:LEU:HD23	2:B:951:ARG:NH2	2.37	0.40
2:B:11:ILE:HD11	2:B:740:THR:HG21	2.03	0.40
2:B:1044:ASN:HB3	2:B:1050:ILE:CD1	2.51	0.40
2:B:518:PHE:CD1	2:B:667:ILE:HD12	2.56	0.40
2:B:737:ILE:HG12	2:B:931:VAL:HG22	2.03	0.40
2:B:973:TYR:HB3	2:B:1237:TYR:CG	2.57	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
2	B	1318/1372 (96%)	1272 (96%)	46 (4%)	0	100 100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
2	B	1194/1226 (97%)	1189 (100%)	5 (0%)	91 93

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	B	586	ARG
2	B	758	ASN
2	B	820	ARG
2	B	938	ARG
2	B	974	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
2	B	14	ASN
2	B	265	GLN
2	B	595	HIS

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Mol	Chain	Res	Type
2	B	1262	HIS

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	81/84 (96%)	17 (20%)	0

All (17) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	17	U
1	A	20	A
1	A	27	G
1	A	28	A
1	A	29	G
1	A	33	G
1	A	35	A
1	A	51	A
1	A	56	U
1	A	59	U
1	A	63	U
1	A	68	A
1	A	72	U
1	A	73	G
1	A	74	A
1	A	75	A
1	A	77	A

There are no RNA pucker outliers to report.

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 monosaccharides in this entry.

5.6 Ligand geometry

Of 14 ligands modelled in this entry, 14 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

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^{th} 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	84/84 (100%)	-0.52	1 (1%) 79 85	47, 67, 154, 182	0
2	B	1330/1372 (96%)	0.22	44 (3%) 46 54	40, 78, 128, 175	0
3	C	28/28 (100%)	-0.49	0 100 100	60, 67, 124, 149	0
4	D	10/12 (83%)	-0.05	0 100 100	61, 79, 136, 159	0
All	All	1452/1496 (97%)	0.17	45 (3%) 49 58	40, 77, 130, 182	0

All (45) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	290	PHE	4.9
2	B	802	GLU	4.7
2	B	778	ARG	3.8
2	B	212	LEU	3.4
2	B	1058	ARG	3.2
2	B	350	ILE	3.2
2	B	1243	GLU	3.0
2	B	286	TYR	3.0
2	B	852	ILE	3.0
2	B	847	LEU	3.0
2	B	766	GLU	2.9
2	B	716	GLN	2.9
2	B	287	ALA	2.8
2	B	293	ALA	2.7
2	B	801	VAL	2.7
2	B	806	LEU	2.6
2	B	188	LEU	2.6
2	B	1182	LEU	2.6
2	B	1296	LYS	2.5
1	A	-1	G	2.5
2	B	1157	LEU	2.4

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Mol	Chain	Res	Type	RSRZ
2	B	356	LYS	2.4
2	B	372	PHE	2.4
2	B	278	LEU	2.4
2	B	176	PRO	2.4
2	B	216	LEU	2.4
2	B	1268	GLU	2.4
2	B	1059	LYS	2.3
2	B	347	TYR	2.3
2	B	1039	TYR	2.2
2	B	195	LEU	2.2
2	B	518	PHE	2.2
2	B	198	GLU	2.2
2	B	1272	GLN	2.2
2	B	1242	TYR	2.1
2	B	1032	ALA	2.1
2	B	348	LYS	2.1
2	B	916	PHE	2.1
2	B	339	VAL	2.1
2	B	1302	ILE	2.1
2	B	838	VAL	2.1
2	B	269	ASP	2.1
2	B	1365	LEU	2.1
2	B	862	LYS	2.1
2	B	1194	LEU	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 monosaccharides in this entry.

6.4 Ligands (i)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
6	K	A	108	1/1	0.59	0.25	137,137,137,137	0
6	K	A	107	1/1	0.68	0.15	135,135,135,135	0
6	K	A	104	1/1	0.85	0.24	115,115,115,115	0
6	K	A	105	1/1	0.87	0.28	121,121,121,121	0
6	K	B	1405	1/1	0.87	0.07	110,110,110,110	0
6	K	B	1401	1/1	0.91	0.11	77,77,77,77	0
5	MG	A	101	1/1	0.91	0.06	77,77,77,77	0
6	K	A	103	1/1	0.93	0.14	73,73,73,73	0
6	K	B	1406	1/1	0.94	0.07	87,87,87,87	0
6	K	A	106	1/1	0.95	0.44	127,127,127,127	0
6	K	B	1403	1/1	0.96	0.12	108,108,108,108	0
6	K	B	1404	1/1	0.96	0.11	108,108,108,108	0
5	MG	A	102	1/1	0.98	0.20	64,64,64,64	0
6	K	B	1402	1/1	0.98	0.07	96,96,96,96	0

6.5 Other polymers (i)

There are no such residues in this entry.