



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 9, 2026 – 08:46 AM UTC

PDB ID : 3DZG / pdb_00003dzg
Title : Crystal structure of human CD38 extracellular domain, ara-F-ribose-5'-phosphate/nicotinamide complex
Authors : Liu, Q.; Kriksunov, I.A.; Jiang, H.; Graeff, R.; Lin, H.; Lee, H.C.; Hao, Q.
Deposited on : 2008-07-29
Resolution : 1.65 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 types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 2.0
EDS : 3.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

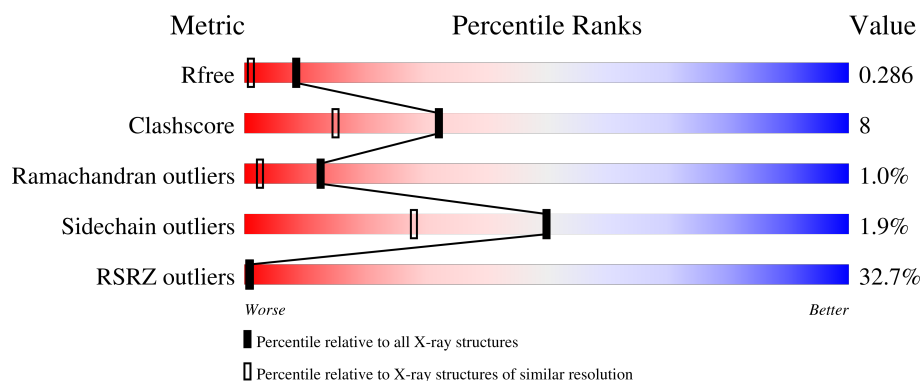
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.65 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}	180053	2563 (1.66-1.66)
Clashscore	190562	2662 (1.66-1.66)
Ramachandran outliers	187476	2621 (1.66-1.66)
Sidechain outliers	187428	2621 (1.66-1.66)
RSRZ outliers	180081	2564 (1.66-1.66)

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 $\leq 5\%$. 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	262	29% 78% 18% .
1	B	262	34% 81% 15% .

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 4612 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.

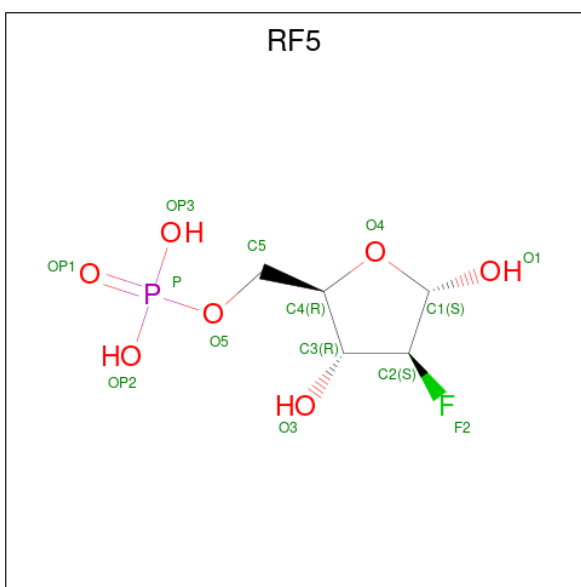
- Molecule 1 is a protein called ADP-ribosyl cyclase 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	252	Total	C	N	O	S	0	0	0
			2050	1290	358	386	16			
1	B	252	Total	C	N	O	S	0	0	0
			2050	1290	358	386	16			

There are 22 discrepancies between the modelled and reference sequences:

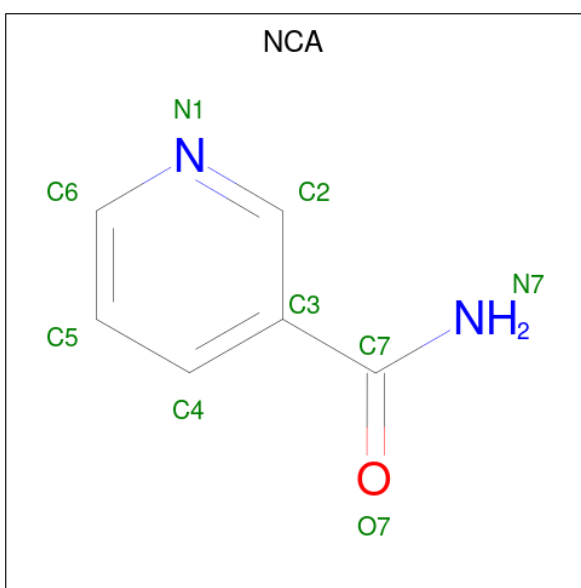
Chain	Residue	Modelled	Actual	Comment	Reference
A	39	LYS	-	expression tag	UNP P28907
A	40	ARG	-	expression tag	UNP P28907
A	41	GLU	-	expression tag	UNP P28907
A	42	ALA	-	expression tag	UNP P28907
A	43	GLU	-	expression tag	UNP P28907
A	44	ALA	-	expression tag	UNP P28907
A	49	THR	GLN	engineered mutation	UNP P28907
A	100	ASP	ASN	engineered mutation	UNP P28907
A	164	ASP	ASN	engineered mutation	UNP P28907
A	209	ASP	ASN	engineered mutation	UNP P28907
A	219	ASP	ASN	engineered mutation	UNP P28907
B	39	LYS	-	expression tag	UNP P28907
B	40	ARG	-	expression tag	UNP P28907
B	41	GLU	-	expression tag	UNP P28907
B	42	ALA	-	expression tag	UNP P28907
B	43	GLU	-	expression tag	UNP P28907
B	44	ALA	-	expression tag	UNP P28907
B	49	THR	GLN	engineered mutation	UNP P28907
B	100	ASP	ASN	engineered mutation	UNP P28907
B	164	ASP	ASN	engineered mutation	UNP P28907
B	209	ASP	ASN	engineered mutation	UNP P28907
B	219	ASP	ASN	engineered mutation	UNP P28907

- Molecule 2 is 2-deoxy-2-fluoro-5-O-phosphono-alpha-D-arabinofuranose (CCD ID: RF5) (formula: C₅H₁₀FO₇P).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	F	O	P	0	0
			13	5	1	6	1		
2	B	1	Total	C	F	O	P	0	0
			13	5	1	6	1		

- Molecule 3 is NICOTINAMIDE (CCD ID: NCA) (formula: $C_6H_6N_2O$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	0
			9	6	2	1		
3	B	1	Total	C	N	O	0	0
			9	6	2	1		

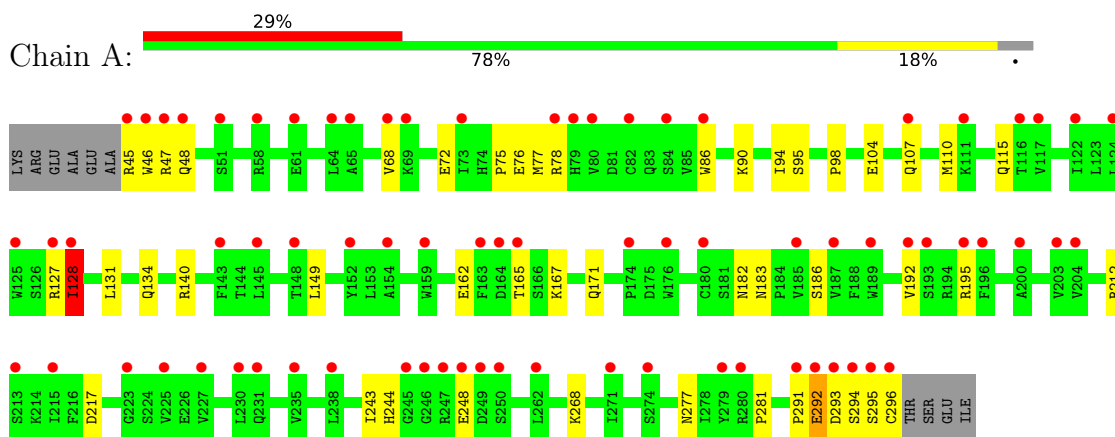
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	236	Total 236	O 236	0	0
4	B	232	Total 232	O 232	0	0

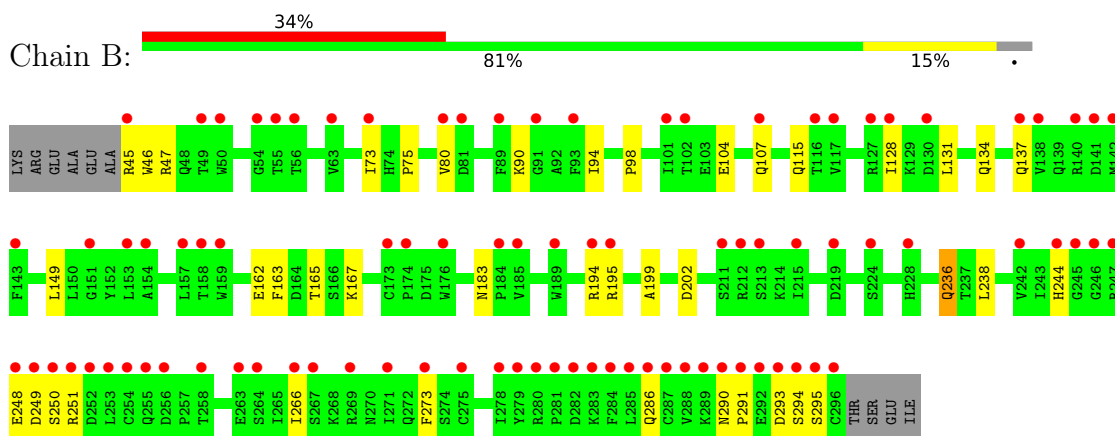
3 Residue-property plots

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: ADP-ribosyl cyclase 1



• Molecule 1: ADP-ribosyl cyclase 1



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	41.69Å 52.81Å 65.38Å 106.06° 91.95° 95.12°	Depositor
Resolution (Å)	20.00 – 1.65 20.00 – 1.65	Depositor EDS
% Data completeness (in resolution range)	100.0 (20.00-1.65) 96.3 (20.00-1.65)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	0.06	Depositor
$\langle I/\sigma(I) \rangle$ ¹	4.12 (at 1.64Å)	Xtriage
Refinement program	REFMAC 5.3.0021	Depositor
R, R_{free}	0.174 , 0.211 0.263 , 0.286	Depositor DCC
R_{free} test set	3139 reflections (5.06%)	wwPDB-VP
Wilson B-factor (Å ²)	18.7	Xtriage
Anisotropy	0.373	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.42 , 54.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	4612	wwPDB-VP
Average B, all atoms (Å ²)	32.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.74% 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, 0.333 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: RF5, NCA

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	0.83	4/2101 (0.2%)	0.97	5/2846 (0.2%)
1	B	0.68	0/2101	0.87	2/2846 (0.1%)
All	All	0.76	4/4202 (0.1%)	0.92	7/5692 (0.1%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	68	VAL	CA-CB	11.67	1.66	1.54
1	A	72	GLU	CD-OE2	8.14	1.40	1.25
1	A	68	VAL	C-O	6.20	1.31	1.24
1	A	68	VAL	N-CA	5.82	1.53	1.46

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	68	VAL	O-C-N	7.66	130.24	121.96
1	A	68	VAL	CA-CB-CG1	-5.94	100.31	110.40
1	A	248	GLU	CB-CA-C	-5.77	109.38	117.23
1	A	68	VAL	CB-CA-C	5.58	118.84	111.70
1	B	290	ASN	CA-C-N	5.47	126.68	119.84
1	B	290	ASN	C-N-CA	5.47	126.68	119.84
1	A	68	VAL	CA-C-O	-5.10	116.11	121.41

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	2050	0	1976	33	0
1	B	2050	0	1976	34	0
2	A	13	0	6	0	0
2	B	13	0	6	0	0
3	A	9	0	6	0	0
3	B	9	0	6	0	0
4	A	236	0	0	6	0
4	B	232	0	0	10	0
All	All	4612	0	3976	65	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 8.

All (65) 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:B:194:ARG:HD2	4:B:541:HOH:O	1.67	0.94
1:B:115:GLN:HE22	1:B:149:LEU:H	1.18	0.92
1:A:115:GLN:HE22	1:A:149:LEU:H	1.18	0.90
1:A:165:THR:HG23	1:A:167:LYS:H	1.36	0.88
1:B:165:THR:HG23	1:B:167:LYS:H	1.35	0.87
1:B:266:ILE:HD11	1:B:273:PHE:HB2	1.60	0.82
1:B:202:ASP:HB3	4:B:503:HOH:O	1.80	0.80
1:A:75:PRO:HA	1:A:78:ARG:HG3	1.67	0.77
1:A:195:ARG:HD3	4:A:531:HOH:O	1.84	0.75
1:B:90:LYS:HG3	1:B:94:ILE:HG13	1.70	0.73
1:B:236:GLN:NE2	4:B:630:HOH:O	2.27	0.68
1:A:127:ARG:NH1	1:A:217:ASP:OD2	2.21	0.67
1:A:294:SER:O	1:A:296:CYS:N	2.28	0.67
1:B:266:ILE:HD11	1:B:273:PHE:CB	2.25	0.65
1:A:183:ASN:ND2	1:A:186:SER:H	1.95	0.65
1:A:268:LYS:HD3	1:B:163:PHE:CE1	2.32	0.65
1:A:140:ARG:NH2	4:A:431:HOH:O	2.29	0.64
1:B:162:GLU:HB2	1:B:165:THR:HG22	1.79	0.64
1:A:162:GLU:HB2	1:A:165:THR:HG22	1.80	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:182:ASN:HB2	4:A:413:HOH:O	1.99	0.62
1:A:86:TRP:CE2	1:A:90:LYS:HG3	2.35	0.61
1:B:137:GLN:HG2	4:B:627:HOH:O	2.02	0.60
1:A:127:ARG:HB3	1:A:212:ARG:HE	1.66	0.60
1:A:110:MET:HE1	1:A:192:VAL:CG1	2.32	0.58
1:A:268:LYS:HD3	1:B:163:PHE:HE1	1.66	0.58
1:A:110:MET:HE1	1:A:192:VAL:HG12	1.86	0.58
1:B:293:ASP:CG	1:B:294:SER:H	2.13	0.57
1:B:115:GLN:NE2	1:B:149:LEU:H	1.96	0.57
1:B:104:GLU:HA	1:B:107:GLN:HG2	1.88	0.56
1:A:46:TRP:HE1	1:A:47:ARG:NH2	2.04	0.56
1:B:244:HIS:HD2	1:B:250:SER:HB3	1.70	0.55
1:A:48:GLN:NE2	1:A:171:GLN:HB3	2.22	0.55
1:B:195:ARG:HB2	4:B:528:HOH:O	2.07	0.54
1:B:45:ARG:HG3	1:B:46:TRP:N	2.23	0.54
1:A:78:ARG:NH1	4:A:395:HOH:O	2.41	0.53
1:B:194:ARG:NH1	4:B:634:HOH:O	2.41	0.53
1:B:195:ARG:HG3	4:B:527:HOH:O	2.09	0.52
1:B:47:ARG:NH2	4:B:639:HOH:O	2.41	0.52
1:B:244:HIS:CD2	1:B:250:SER:HB3	2.44	0.52
1:B:266:ILE:HD11	1:B:273:PHE:CA	2.40	0.52
1:A:134:GLN:CD	4:A:444:HOH:O	2.53	0.51
1:A:244:HIS:HE1	1:A:277:ASN:OD1	1.94	0.50
1:A:183:ASN:HD21	1:A:186:SER:H	1.58	0.49
1:A:243:ILE:HG23	1:A:281:PRO:HG3	1.95	0.49
1:B:90:LYS:CG	1:B:94:ILE:HG13	2.39	0.49
1:B:238:LEU:HB3	1:B:266:ILE:HD13	1.95	0.47
1:A:76:GLU:HG2	1:A:77:MET:HG2	1.97	0.46
1:B:98:PRO:O	1:B:183:ASN:HA	2.15	0.46
1:B:45:ARG:HG3	1:B:47:ARG:H	1.81	0.46
1:B:195:ARG:HD3	4:B:528:HOH:O	2.14	0.46
1:B:248:GLU:HG3	1:B:249:ASP:H	1.81	0.45
1:A:115:GLN:NE2	1:A:149:LEU:H	1.99	0.45
1:A:98:PRO:O	1:A:183:ASN:HA	2.18	0.44
1:B:134:GLN:O	1:B:137:GLN:HB2	2.18	0.43
1:A:104:GLU:HA	1:A:107:GLN:HG2	2.00	0.43
1:A:291:PRO:O	1:A:292:GLU:HB3	2.18	0.43
1:A:291:PRO:C	1:A:293:ASP:H	2.25	0.42
1:B:199:ALA:HB3	4:B:591:HOH:O	2.19	0.42
1:B:162:GLU:HB2	1:B:165:THR:CG2	2.47	0.42
1:A:94:ILE:O	1:A:95:SER:HB2	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:128:ILE:HG13	4:A:418:HOH:O	2.19	0.42
1:A:243:ILE:CG2	1:A:281:PRO:HG3	2.49	0.41
1:B:73:ILE:O	1:B:75:PRO:HD3	2.21	0.41
1:B:47:ARG:HG2	1:B:47:ARG:HH11	1.85	0.41
1:A:78:ARG:HE	1:A:78:ARG:HB2	1.70	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	250/262 (95%)	240 (96%)	8 (3%)	2 (1%)	16	4
1	B	250/262 (95%)	239 (96%)	8 (3%)	3 (1%)	10	2
All	All	500/524 (95%)	479 (96%)	16 (3%)	5 (1%)	12	2

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	295	SER
1	B	291	PRO
1	B	295	SER
1	A	128	ILE
1	B	128	ILE

5.3.2 Protein sidechains [i](#)

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

The Analysed column shows the number of residues for which the sidechain conformation was

analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	233/241 (97%)	229 (98%)	4 (2%)	53	32
1	B	233/241 (97%)	228 (98%)	5 (2%)	47	24
All	All	466/482 (97%)	457 (98%)	9 (2%)	50	28

All (9) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	45	ARG
1	A	128	ILE
1	A	131	LEU
1	A	292	GLU
1	B	80	VAL
1	B	131	LEU
1	B	236	GLN
1	B	251	ARG
1	B	286	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (18) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	48	GLN
1	A	74	HIS
1	A	83	GLN
1	A	115	GLN
1	A	134	GLN
1	A	139	GLN
1	A	183	ASN
1	A	244	HIS
1	B	48	GLN
1	B	83	GLN
1	B	115	GLN
1	B	134	GLN
1	B	137	GLN
1	B	171	GLN
1	B	236	GLN
1	B	244	HIS
1	B	270	ASN
1	B	286	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 oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

4 ligands are modelled in this entry.

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$
3	NCA	A	302	-	9,9,9	0.61	0	11,11,11	2.08	4 (36%)
2	RF5	A	301	-	13,13,14	0.83	0	17,19,21	1.51	4 (23%)
2	RF5	B	301	-	13,13,14	0.85	1 (7%)	17,19,21	1.22	1 (5%)
3	NCA	B	302	-	9,9,9	0.46	0	11,11,11	1.65	4 (36%)

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
3	NCA	A	302	-	-	0/4/4/4	0/1/1/1
2	RF5	A	301	-	-	2/6/19/22	0/1/1/1
2	RF5	B	301	-	-	1/6/19/22	0/1/1/1
3	NCA	B	302	-	-	0/4/4/4	0/1/1/1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	301	RF5	F2-C2	-2.24	1.35	1.40

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	301	RF5	O4-C4-C3	-3.82	101.10	104.63
3	A	302	NCA	C3-C2-N1	-3.30	118.59	123.50
3	A	302	NCA	O7-C7-C3	-3.09	115.82	119.60
3	A	302	NCA	C4-C3-C2	2.99	120.94	117.61
3	A	302	NCA	C6-N1-C2	2.85	121.84	116.85
3	B	302	NCA	C3-C2-N1	-2.79	119.35	123.50
3	B	302	NCA	C6-N1-C2	2.78	121.71	116.85
3	B	302	NCA	C3-C7-N7	2.34	120.62	117.74
2	B	301	RF5	O4-C4-C3	-2.24	102.57	104.63
2	A	301	RF5	C1-O4-C4	2.21	112.94	108.06
2	A	301	RF5	OP2-P-O5	-2.18	100.98	106.67
3	B	302	NCA	O7-C7-C3	-2.12	117.00	119.60
2	A	301	RF5	O3-C3-C4	2.10	117.12	111.08

There are no chirality outliers.

All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	301	RF5	C3-C4-C5-O5
2	B	301	RF5	C3-C4-C5-O5
2	A	301	RF5	C4-C5-O5-P

There are no ring outliers.

No monomer is involved in short contacts.

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	A	252/262 (96%)	1.73	75 (29%)  	24, 30, 39, 48	0
1	B	252/262 (96%)	1.79	90 (35%)  	26, 31, 39, 43	0
All	All	504/524 (96%)	1.76	165 (32%)  	24, 30, 39, 48	0

All (165) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	249	ASP	8.1
1	A	293	ASP	7.2
1	B	249	ASP	6.8
1	A	294	SER	6.5
1	B	291	PRO	6.4
1	B	246	GLY	5.8
1	B	287	CYS	5.8
1	A	248	GLU	5.7
1	A	246	GLY	5.6
1	B	290	ASN	5.2
1	B	248	GLU	5.2
1	A	292	GLU	5.0
1	A	164	ASP	5.0
1	B	228	HIS	4.7
1	B	286	GLN	4.6
1	B	213	SER	4.6
1	B	295	SER	4.6
1	A	47	ARG	4.5
1	B	296	CYS	4.4
1	B	294	SER	4.4
1	B	141	ASP	4.4
1	B	292	GLU	4.4
1	B	247	ARG	4.2
1	A	79	HIS	4.1

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Mol	Chain	Res	Type	RSRZ
1	A	213	SER	4.0
1	B	293	ASP	4.0
1	A	128	ILE	4.0
1	B	245	GLY	4.0
1	B	282	ASP	4.0
1	B	267	SER	3.9
1	A	84	SER	3.8
1	B	127	ARG	3.8
1	B	280	ARG	3.6
1	A	295	SER	3.6
1	A	296	CYS	3.6
1	A	176	TRP	3.6
1	B	159	TRP	3.6
1	A	65	ALA	3.6
1	A	46	TRP	3.6
1	B	176	TRP	3.6
1	A	250	SER	3.5
1	A	165	THR	3.5
1	A	291	PRO	3.5
1	B	284	PHE	3.4
1	B	269	ARG	3.4
1	B	54	GLY	3.3
1	B	138	VAL	3.3
1	B	116	THR	3.2
1	A	73	ILE	3.2
1	A	68	VAL	3.2
1	B	185	VAL	3.2
1	B	254	CYS	3.2
1	A	80	VAL	3.2
1	B	250	SER	3.1
1	B	255	GLN	3.1
1	A	235	VAL	3.1
1	A	143	PHE	3.1
1	B	80	VAL	3.0
1	A	280	ARG	3.0
1	B	219	ASP	3.0
1	A	230	LEU	3.0
1	B	137	GLN	3.0
1	A	204	VAL	3.0
1	B	266	ILE	3.0
1	B	285	LEU	3.0
1	A	247	ARG	2.9

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Mol	Chain	Res	Type	RSRZ
1	B	244	HIS	2.9
1	A	45	ARG	2.8
1	B	195	ARG	2.8
1	B	224	SER	2.8
1	B	128	ILE	2.8
1	A	117	VAL	2.7
1	A	124	LEU	2.7
1	B	215	ILE	2.7
1	A	69	LYS	2.7
1	B	289	LYS	2.7
1	A	48	GLN	2.7
1	A	279	TYR	2.7
1	B	281	PRO	2.6
1	A	185	VAL	2.6
1	B	50	TRP	2.6
1	A	122	ILE	2.6
1	A	51	SER	2.6
1	B	258	THR	2.6
1	B	153	LEU	2.6
1	B	157	LEU	2.6
1	A	86	TRP	2.6
1	B	212	ARG	2.6
1	B	56	THR	2.5
1	B	143	PHE	2.5
1	A	227	VAL	2.5
1	A	271	ILE	2.5
1	A	189	TRP	2.5
1	B	194	ARG	2.5
1	A	238	LEU	2.5
1	B	253	LEU	2.5
1	A	245	GLY	2.5
1	A	78	ARG	2.5
1	A	274	SER	2.5
1	B	252	ASP	2.4
1	B	256	ASP	2.4
1	A	145	LEU	2.4
1	A	203	VAL	2.4
1	B	55	THR	2.4
1	B	107	GLN	2.4
1	B	278	ILE	2.4
1	B	93	PHE	2.4
1	B	73	ILE	2.4

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Mol	Chain	Res	Type	RSRZ
1	A	187	VAL	2.4
1	A	192	VAL	2.4
1	A	195	ARG	2.3
1	B	189	TRP	2.3
1	B	271	ILE	2.3
1	B	130	ASP	2.3
1	B	184	PRO	2.3
1	A	116	THR	2.3
1	B	158	THR	2.3
1	B	142	MET	2.3
1	B	288	VAL	2.3
1	B	283	LYS	2.3
1	A	82	CYS	2.3
1	A	215	ILE	2.3
1	B	251	ARG	2.2
1	A	163	PHE	2.2
1	A	152	TYR	2.2
1	B	101	ILE	2.2
1	A	61	GLU	2.2
1	B	117	VAL	2.2
1	B	174	PRO	2.2
1	B	154	ALA	2.2
1	B	81	ASP	2.2
1	A	58	ARG	2.2
1	A	111	LYS	2.2
1	A	225	VAL	2.2
1	A	154	ALA	2.2
1	A	148	THR	2.2
1	B	63	VAL	2.1
1	B	91	GLY	2.1
1	A	125	TRP	2.1
1	A	174	PRO	2.1
1	A	231	GLN	2.1
1	B	279	TYR	2.1
1	B	45	ARG	2.1
1	B	173	CYS	2.1
1	A	64	LEU	2.1
1	A	159	TRP	2.1
1	B	211	SER	2.1
1	B	263	GLU	2.1
1	B	102	THR	2.1
1	B	89	PHE	2.1

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Mol	Chain	Res	Type	RSRZ
1	B	273	PHE	2.1
1	B	151	GLY	2.0
1	A	200	ALA	2.0
1	A	127	ARG	2.0
1	B	242	VAL	2.0
1	A	180	CYS	2.0
1	A	262	LEU	2.0
1	B	49	THR	2.0
1	A	107	GLN	2.0
1	A	223	GLY	2.0
1	A	196	PHE	2.0
1	B	140	ARG	2.0
1	A	193	SER	2.0
1	B	264	SER	2.0
1	B	275	CYS	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 oligosaccharides 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, 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	B-factors($\text{\AA}^2$)	Q<0.9
3	NCA	A	302	9/9	0.94	0.09	19,23,25,26	0
3	NCA	B	302	9/9	0.94	0.07	19,24,25,26	0
2	RF5	B	301	13/14	0.95	0.08	22,26,30,33	0
2	RF5	A	301	13/14	0.96	0.07	14,18,19,21	0

6.5 Other polymers [i](#)

There are no such residues in this entry.