WORLDWIDE PDB
PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report (i)

Dec 10, 2023 – 04:45 am GMT

PDB ID	:	2JLU
Title	:	Dengue virus 4 NS3 helicase in complex with ssRNA
Authors	:	Luo, D.H.; Xu, T.; Watson, R.P.; Becker, D.S.; Sampath, A.; Jahnke, W.; Yeong, S.S.; Wang, C.H.; Lim, S.P.; Vasudevan, S.G.; Lescar, J.
Deposited on	:	2008-09-15
Resolution	:	2.04 Å(reported)

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

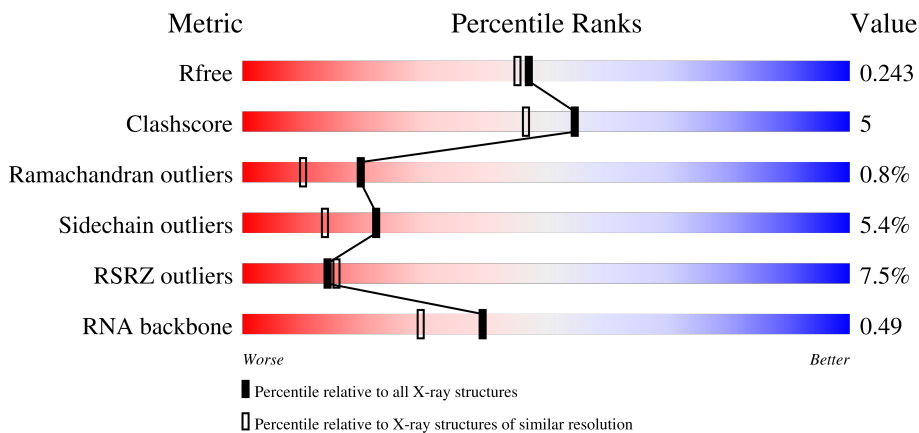|		
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1   Overall quality at a glance ⓘ

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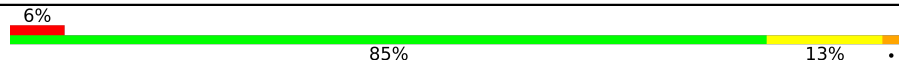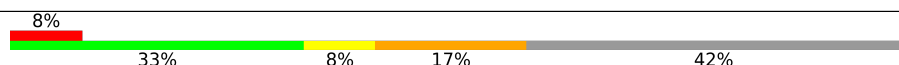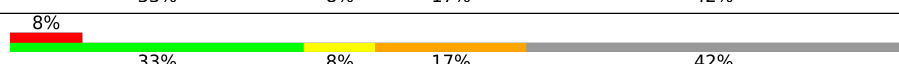*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.04 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	Percentile Ranks	Value
Rfree		0.243
Clashscore		5
Ramachandran outliers		0.8%
Sidechain outliers		5.4%
RSRZ outliers		7.5%
RNA backbone		0.49

Worse   *Better*

■ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	130704	1692 (2.04-2.04)
Clashscore	141614	1773 (2.04-2.04)
Ramachandran outliers	138981	1752 (2.04-2.04)
Sidechain outliers	138945	1752 (2.04-2.04)
RSRZ outliers	127900	1672 (2.04-2.04)
RNA backbone	3102	1018 (2.50-1.58)

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	451	6% / 85% / 13% / ·
1	B	451	8% / 85% / 13% / ·
2	C	12	8% / 33% / 8% / 17% / 42%
2	D	12	8% / 33% / 8% / 17% / 42%

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2 Entry composition ⓘ

There are 4 unique types of molecules in this entry. The entry contains 7895 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 SERINE PROTEASE SUBUNIT NS3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	451	Total	C	N	O	S	0	0	0
			3605	2271	644	673	17			
1	B	451	Total	C	N	O	S	0	0	0
			3603	2271	642	673	17			

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	250	ASP	GLU	conflict	UNP Q2YHF0
A	292	CYS	SER	conflict	UNP Q2YHF0
A	321	SER	THR	conflict	UNP Q2YHF0
A	322	ILE	THR	conflict	UNP Q2YHF0
A	381	ARG	LYS	conflict	UNP Q2YHF0
A	480	LYS	ARG	conflict	UNP Q2YHF0
B	250	ASP	GLU	conflict	UNP Q2YHF0
B	292	CYS	SER	conflict	UNP Q2YHF0
B	321	SER	THR	conflict	UNP Q2YHF0
B	322	ILE	THR	conflict	UNP Q2YHF0
B	381	ARG	LYS	conflict	UNP Q2YHF0
B	480	LYS	ARG	conflict	UNP Q2YHF0

- Molecule 2 is a RNA chain called 5'-R(*AP*GP*AP*CP*UP*AP*AP*CP*AP*AP*CP*U) -3'.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	C	7	Total	C	N	O	P	0	0	0
			128	58	20	44	6			
2	D	7	Total	C	N	O	P	0	0	0
			128	58	20	44	6			

- Molecule 3 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).

GOL

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

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	207	Total 207	O 207	0	0
4	B	175	Total 175	O 175	0	0
4	C	13	Total 13	O 13	0	0
4	D	12	Total 12	O 12	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 di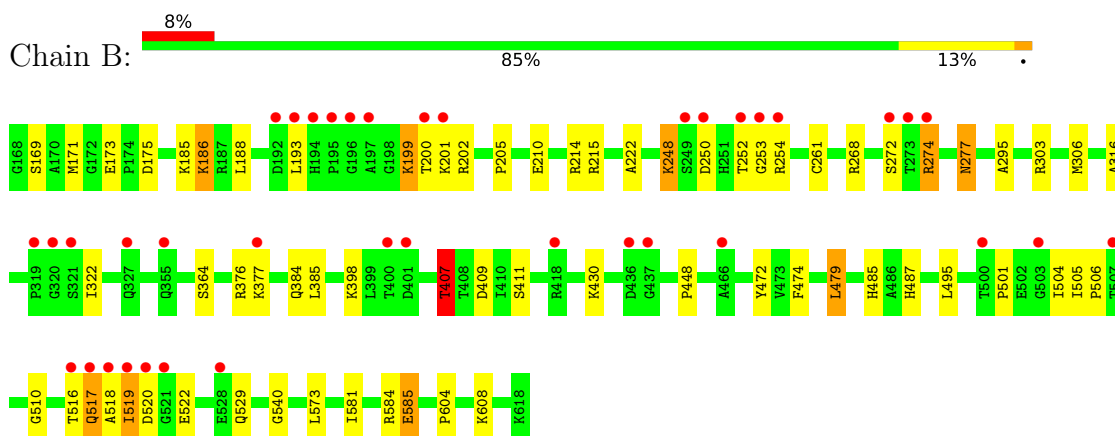splayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or 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.

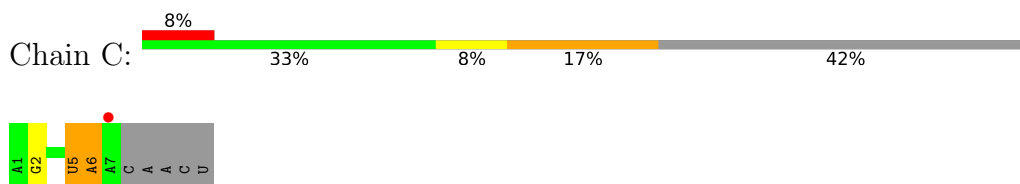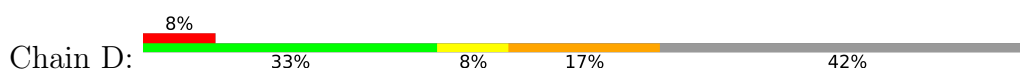• Molecule 1: SERINE PROTEASE SUBUNIT NS3
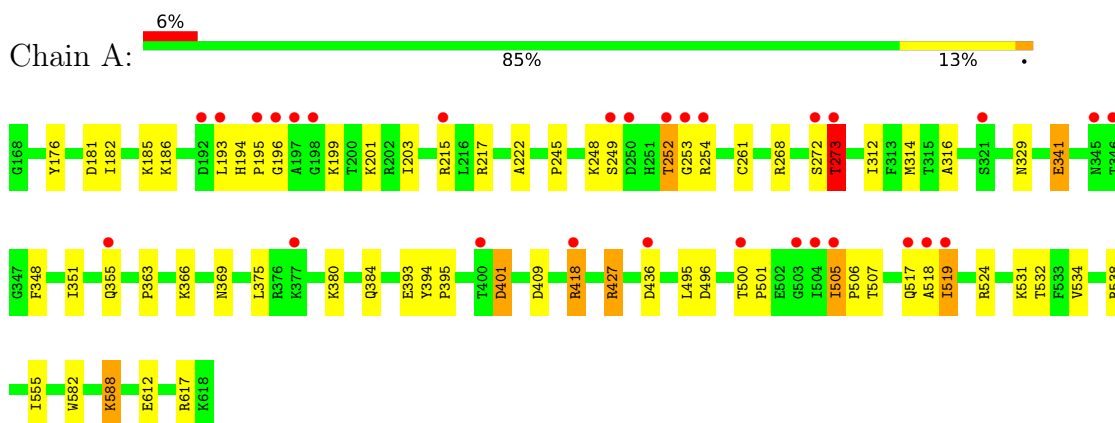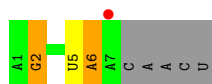
Chain A:

• Molecule 1: SERINE PROTEASE SUBUNIT NS3

Chain B:

• Molecule 2: 5'-R(*AP*GP*AP*CP*UP*AP*AP*CP*AP*AP*CP*U)-3'

Chain C:

• Molecule 2: 5'-R(*AP*GP*AP*CP*UP*AP*AP*CP*AP*AP*CP*U)-3'

Chain D:

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	132.03Å　　105.50Å　　72.52Å 90.00°　　117.54°　　90.00°	Depositor
Resolution (Å)	20.00　–　2.04 19.86　–　2.04	Depositor EDS
% Data completeness (in resolution range)	97.8 (20.00-2.04) 97.8 (19.86-2.04)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.43 (at 2.04Å)	Xtriage
Refinement program	REFMAC 5.2.0019	Depositor
R, R_{free}	0.197　,　0.242 0.197　,　0.243	Depositor DCC
R_{free} test set	2779 reflections (5.08%)	wwPDB-VP
Wilson B-factor (Å^2)	24.9	Xtriage
Anisotropy	0.024	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.38 , 48.7	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	0.94	EDS
Total number of atoms	7895	wwPDB-VP
Average B, all atoms (Å^2)	24.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.84% of the height of the origin peak. No significant pseudotranslation is detected.*

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[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 (i)

5.1 Standard geometry (i)

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

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	0.52	0/3686	0.63	0/4990
1	B	0.53	0/3684	0.65	1/4987 (0.0%)
2	C	0.76	0/142	1.57	2/219 (0.9%)
2	D	0.86	0/142	1.53	2/219 (0.9%)
All	All	0.54	0/7654	0.70	5/10415 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	B	0	1

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	5	U	O4'-C1'-N1	8.62	115.09	108.20
2	D	5	U	O4'-C1'-N1	8.08	114.66	108.20
2	D	2	G	C5-C6-N1	5.73	114.37	111.50
2	C	5	U	N1-C1'-C2'	-5.11	106.39	112.00
1	B	407	THR	CB-CA-C	-5.09	97.86	111.60

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	272	SER	Peptide

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	3605	0	3590	40	0
1	B	3603	0	3590	40	0
2	C	128	0	68	2	0
2	D	128	0	68	2	0
3	A	6	0	8	1	0
3	B	18	0	24	1	0
4	A	207	0	0	1	0
4	B	175	0	0	3	0
4	C	13	0	0	0	0
4	D	12	0	0	1	0
All	All	7895	0	7348	77	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 5.

All (77) 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:418:ARG:HG2	1:A:418:ARG:HH11	1.19	1.04
1:B:376:ARG:HH22	1:B:384:GLN:HE21	1.29	0.81
1:A:252:THR:O	1:A:254:ARG:N	2.17	0.78
1:B:407:THR:HG21	1:B:411:SER:OG	1.86	0.74
1:A:245:PRO:O	1:B:248:LYS:HG2	1.88	0.73
1:A:418:ARG:HG2	1:A:418:ARG:NH1	1.90	0.72
1:B:171:MET:O	1:B:202:ARG:HD3	1.91	0.69
1:B:193:LEU:O	1:B:316:ALA:HA	1.92	0.69
1:A:199:LYS:HD2	1:A:314:MET:HB3	1.76	0.67
1:B:385:LEU:HB2	1:B:407:THR:HG23	1.76	0.67
1:B:409:ASP:OD2	2:D:2:G:O2'	2.14	0.65
1:B:517:GLN:H	1:B:517:GLN:CD	2.01	0.64
1:A:495:LEU:HD11	1:A:506:PRO:HB2	1.79	0.64
1:A:409:ASP:OD2	2:C:2:G:O2'	2.16	0.63
1:A:505:ILE:HG13	1:A:524:ARG:HH12	1.63	0.63
1:B:252:THR:O	1:B:254:ARG:N	2.21	0.63
1:B:604:PRO:O	1:B:608:LYS:HG2	1.99	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:519:ILE:O	1:B:522:GLU:HB2	1.99	0.62
1:A:193:LEU:O	1:A:316:ALA:HA	2.00	0.61
1:B:193:LEU:HD13	1:B:199:LYS:HG2	1.82	0.61
1:A:348:PHE:HB3	1:A:351:ILE:HD12	1.83	0.59
1:B:169:SER:HB3	1:B:175:ASP:HA	1.84	0.59
1:A:496:ASP:HA	1:A:505:ILE:HD11	1.83	0.58
1:B:268:ARG:HD2	2:D:6:A:O2'	2.04	0.58
1:A:363:PRO:HD3	1:A:427:ARG:HH11	1.69	0.57
1:B:448:PRO:HB2	1:B:479:LEU:HB2	1.87	0.56
1:A:500:THR:OG1	1:A:501:PRO:HD2	2.06	0.55
1:B:518:ALA:O	1:B:519:ILE:C	2.43	0.55
1:B:306:MET:SD	1:B:504:ILE:HD12	2.47	0.54
1:B:222:ALA:O	1:B:261:CYS:HA	2.07	0.54
1:A:185:LYS:O	1:A:186:LYS:HB2	2.08	0.53
1:B:173:GLU:O	1:B:202:ARG:HD2	2.10	0.52
1:A:176:TYR:HB2	3:A:1619:GOL:O2	2.10	0.51
1:A:222:ALA:O	1:A:261:CYS:HA	2.10	0.51
1:B:303:ARG:NH1	1:B:501:PRO:HD2	2.25	0.51
1:A:248:LYS:HZ3	1:B:248:LYS:HG3	1.75	0.51
1:A:518:ALA:O	1:A:519:ILE:C	2.49	0.51
1:B:210:GLU:OE2	1:B:214:ARG:NH1	2.43	0.51
1:B:385:LEU:CB	1:B:407:THR:HG23	2.39	0.50
1:A:612:GLU:HG2	1:A:617:ARG:HH22	1.78	0.49
1:B:495:LEU:HD11	1:B:506:PRO:HB2	1.95	0.49
1:A:272:SER:HA	1:A:273:THR:O	2.13	0.49
1:B:585:GLU:OE1	4:B:2162:HOH:O	2.19	0.48
1:B:303:ARG:HA	1:B:306:MET:HE2	1.95	0.48
1:A:582:TRP:CE2	1:A:588:LYS:HG3	2.49	0.47
1:A:248:LYS:NZ	1:B:248:LYS:HG3	2.29	0.47
1:A:500:THR:OG1	1:A:501:PRO:CD	2.62	0.47
1:A:182:ILE:HD12	1:A:312:ILE:HD11	1.97	0.47
1:A:341:GLU:HB3	1:A:427:ARG:NH2	2.30	0.47
1:B:540:GLY:O	3:B:1620:GOL:O1	2.25	0.46
1:A:534:VAL:O	1:A:538:ARG:HG2	2.16	0.46
1:B:277:ASN:OD1	1:B:303:ARG:NH2	2.49	0.45
1:B:529:GLN:NE2	4:B:2139:HOH:O	2.50	0.44
1:A:394:TYR:N	1:A:395:PRO:HD2	2.33	0.43
1:A:196:GLY:O	1:A:329:ASN:ND2	2.48	0.43
1:A:505:ILE:HD13	1:A:506:PRO:O	2.19	0.43
1:B:295:ALA:O	1:B:495:LEU:HD13	2.19	0.43
1:A:532:THR:HG21	1:A:555:ILE:O	2.18	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:268:ARG:HD2	2:C:6:A:O2'	2.18	0.42
1:A:375:LEU:O	1:A:380:LYS:HB2	2.19	0.42
1:A:588:LYS:HE3	1:A:588:LYS:HB3	1.90	0.42
1:A:363:PRO:CD	1:A:427:ARG:HH11	2.31	0.42
1:A:355:GLN:HA	1:A:355:GLN:HE21	1.85	0.42
1:B:505:ILE:HA	1:B:506:PRO:HD3	1.94	0.42
1:B:472:TYR:CE2	1:B:474:PHE:HB3	2.55	0.41
1:A:199:LYS:HA	1:A:203:ILE:HD12	2.02	0.41
1:B:193:LEU:HD13	1:B:199:LYS:CG	2.50	0.41
1:A:418:ARG:HH11	1:A:418:ARG:CG	2.06	0.41
1:B:185:LYS:O	1:B:186:LYS:CB	2.68	0.41
1:B:376:ARG:HH12	1:B:384:GLN:NE2	2.18	0.41
1:B:430:LYS:HG3	1:B:485:HIS:CD2	2.56	0.41
1:B:202:ARG:C	1:B:205:PRO:HD2	2.42	0.41
1:B:518:ALA:CB	4:B:2135:HOH:O	2.68	0.40
1:A:401:ASP:HB3	4:A:2097:HOH:O	2.21	0.40
1:B:364:SER:HB2	4:D:2005:HOH:O	2.21	0.40
1:A:194:HIS:HD2	1:A:195:PRO:O	2.04	0.40
1:A:369:ASN:HA	1:A:384:GLN:NE2	2.36	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	449/451 (100%)	432 (96%)	14 (3%)	3 (1%)	22	12
1	B	449/451 (100%)	434 (97%)	11 (2%)	4 (1%)	17	8
All	All	898/902 (100%)	866 (96%)	25 (3%)	7 (1%)	19	10

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	253	GLY
1	B	253	GLY
1	B	274	ARG
1	A	519	ILE
1	B	519	ILE
1	A	273	THR
1	B	510	GLY

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	387/388 (100%)	368 (95%)	19 (5%)	25	17
1	B	387/388 (100%)	364 (94%)	23 (6%)	19	11
All	All	774/776 (100%)	732 (95%)	42 (5%)	22	13

All (42) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	181	ASP
1	A	201	LYS
1	A	215	ARG
1	A	217	ARG
1	A	249	SER
1	A	252	THR
1	A	273	THR
1	A	341	GLU
1	A	366	LYS
1	A	393	GLU
1	A	401	ASP
1	A	418	ARG
1	A	427	ARG
1	A	436	ASP
1	A	505	ILE
1	A	507	THR
1	A	517	GLN

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Mol	Chain	Res	Type
1	A	531	LYS
1	A	588	LYS
1	B	186	LYS
1	B	188	LEU
1	B	199	LYS
1	B	200	THR
1	B	201	LYS
1	B	215	ARG
1	B	248	LYS
1	B	250	ASP
1	B	274	ARG
1	B	277	ASN
1	B	322	ILE
1	B	377	LYS
1	B	398	LYS
1	B	407	THR
1	B	479	LEU
1	B	487	HIS
1	B	516	THR
1	B	517	GLN
1	B	520	ASP
1	B	573	LEU
1	B	581	ILE
1	B	584	ARG
1	B	585	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	355	GLN
1	A	517	GLN
1	B	384	GLN
1	B	467	GLN
1	B	487	HIS
1	B	529	GLN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
2	C	6/12 (50%)	1 (16%)	1 (16%)

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Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
2	D	6/12 (50%)	1 (16%)	0
All	All	12/24 (50%)	2 (16%)	1 (8%)

All (2) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	C	6	A
2	D	6	A

All (1) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
2	C	5	U

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 ⓘ

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	GOL	B	1621	-	5,5,5	0.31	0	5,5,5	0.30	0
3	GOL	B	1619	-	5,5,5	0.34	0	5,5,5	0.44	0
3	GOL	B	1620	-	5,5,5	0.41	0	5,5,5	0.48	0
3	GOL	A	1619	-	5,5,5	0.31	0	5,5,5	0.40	0

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	GOL	B	1621	-	-	0/4/4/4	-
3	GOL	B	1619	-	-	0/4/4/4	-
3	GOL	B	1620	-	-	2/4/4/4	-
3	GOL	A	1619	-	-	0/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	B	1620	GOL	C1-C2-C3-O3
3	B	1620	GOL	O2-C2-C3-O3

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	1620	GOL	1	0
3	A	1619	GOL	1	0

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, 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	451/451 (100%)	0.43	29 (6%)	19	21	15, 23, 35, 43	5 (1%)
1	B	451/451 (100%)	0.43	38 (8%)	11	11	14, 23, 35, 43	4 (0%)
2	C	7/12 (58%)	-0.07	1 (14%)	2	2	18, 21, 49, 52	0
2	D	7/12 (58%)	0.02	1 (14%)	2	2	19, 21, 50, 56	0
All	All	916/926 (98%)	0.42	69 (7%)	14	15	14, 23, 36, 56	9 (0%)

All (69) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	519	ILE	8.1
1	A	503	GLY	7.9
1	B	273	THR	7.9
1	B	196	GLY	7.4
1	A	273	THR	7.2
1	B	197	ALA	6.5
1	A	345	ASN	5.6
1	A	436	ASP	5.5
1	A	272	SER	5.0
1	A	519	ILE	4.9
1	B	436	ASP	4.8
1	B	252	THR	4.7
1	A	196	GLY	4.6
1	B	195	PRO	4.5
1	A	252	THR	4.5
1	A	197	ALA	4.4
1	A	400	THR	4.3
1	A	517	GLN	4.3
1	A	346	THR	4.3
1	A	518	ALA	4.1
1	B	253	GLY	4.1

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Mol	Chain	Res	Type	RSRZ
1	B	250	ASP	3.9
1	B	193	LEU	3.9
1	B	520	ASP	3.8
1	A	418	ARG	3.7
1	A	377	LYS	3.7
1	B	377	LYS	3.6
1	B	272	SER	3.6
1	A	254	ARG	3.6
1	A	504	ILE	3.6
1	A	192	ASP	3.5
1	B	521	GLY	3.5
1	A	250	ASP	3.3
1	B	194	HIS	3.3
1	A	249	SER	3.2
1	B	418	ARG	3.1
1	B	200	THR	3.0
1	A	215	ARG	2.9
1	A	505	ILE	2.9
1	B	327	GLN	2.9
1	A	253	GLY	2.9
1	B	254	ARG	2.8
1	A	195	PRO	2.8
1	B	320	GLY	2.8
1	B	500	THR	2.7
1	B	528	GLU	2.6
1	B	518	ALA	2.6
1	B	201	LYS	2.6
1	B	321	SER	2.6
1	B	319	PRO	2.6
1	B	517	GLN	2.6
1	B	249	SER	2.5
1	B	192	ASP	2.5
1	A	355	GLN	2.5
1	B	355	GLN	2.4
1	B	400	THR	2.4
1	B	274	ARG	2.4
2	D	7	A	2.4
1	B	466	ALA	2.4
1	B	516	THR	2.4
1	B	503	GLY	2.4
1	A	500	THR	2.3
1	B	401	ASP	2.3

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Mol	Chain	Res	Type	RSRZ
2	C	7	A	2.3
1	A	193	LEU	2.3
1	A	198	GLY	2.2
1	A	321	SER	2.1
1	B	507	THR	2.1
1	B	437	GLY	2.0

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

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

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

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(Å^2)	Q<0.9
3	GOL	B	1619	6/6	0.77	0.25	38,39,40,40	0
3	GOL	B	1621	6/6	0.89	0.18	47,48,49,50	0
3	GOL	A	1619	6/6	0.93	0.14	24,30,30,32	0
3	GOL	B	1620	6/6	0.95	0.31	33,36,38,39	0

6.5 Other polymers ⓘ

There are no such residues in this entry.