WORLDWIDE wwPDB PROTEIN DATA BANK

wwPDB X-ray Structure Validation Summary Report (i)

Aug 8, 2023 – 01:31 AM EDT

PDB ID	:	1NKW
Title	:	Crystal Structure Of The Large Ribosomal Subunit From Deinococcus Radio-durans
Authors	:	Harms, J.M.; Schluenzen, F.; Zarivach, R.; Bashan, A.; Gat, S.; Agmon, I.; Bartels, H.; Franceschi, F.; Yonath, A.
Deposited on	:	2003-01-05
Resolution	:	3.10 Å(reported)

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

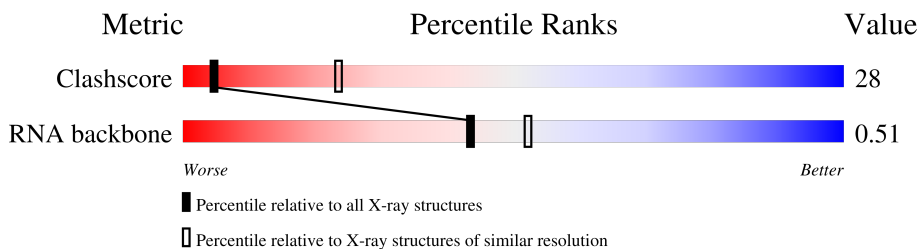|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	NOT EXECUTED
EDS	:	NOT EXECUTED
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35

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 3.10 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
Clashscore		28
RNA backbone		0.51

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))
Clashscore	141614	1184 (3.10-3.10)
RNA backbone	3102	1116 (3.40-2.80)

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%

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	0	2880	21% / 59% / 15% •
2	9	124	18% / 59% / 19% / 5%
3	A	275	98% •
4	B	211	97% •
5	C	205	96% •
6	D	180	99% •
7	E	212	83% / 17%
8	F	146	34% • / 64%
9	G	144	99% •

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Mol	Chain	Length	Quality of chain
10	H	174	82% 18%
11	I	134	99%
12	J	156	90% 10%
13	K	142	87% 13%
14	L	116	98%
15	M	114	97%
16	N	166	74% 25%
17	O	118	99%
18	P	100	100%
19	Q	134	97%
20	R	95	98%
21	S	115	98%
22	T	253	88% 12%
23	U	91	95% 5%
24	W	67	97%
25	X	55	100%
26	Y	73	100%
27	Z	60	97%
28	1	82	65% 35%
29	2	47	98%
30	3	64	98%
31	4	36	97%

2 Entry composition (i)

There are 31 unique types of molecules in this entry. The entry contains 65300 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 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	0	2766	Total 59359	C 26479	N 10949	O 19166	P 2765	0	0	0

- Molecule 2 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	9	118	Total 2519	C 1124	N 464	O 813	P 118	0	0	0

- Molecule 3 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
3	A	270	Total 270	C 270	0	0	270

- Molecule 4 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
4	B	205	Total 205	C 205	0	0	205

- Molecule 5 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
5	C	197	Total 197	C 197	0	0	197

- Molecule 6 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
6	D	178	Total 178	C 178	0	0	178

- Molecule 7 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
7	E	177	Total 177	C 177	0	0	177

- Molecule 8 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
8	F	52	Total 52	C 52	0	0	52

- Molecule 9 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
9	G	143	Total 143	C 143	0	0	143

- Molecule 10 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
10	H	143	Total 143	C 143	0	0	143

- Molecule 11 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
11	I	132	Total 132	C 132	0	0	132

- Molecule 12 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
12	J	141	Total 141	C 141	0	0	141

- Molecule 13 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
13	K	124	Total 124	C 124	0	0	124

- Molecule 14 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
14	L	114	Total 114	C 114	0	0	114

- Molecule 15 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
15	M	111	Total 111	C 111	8	0	111

- Molecule 16 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
16	N	125	Total 125	C 125	0	0	125

- Molecule 17 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
17	O	117	Total 117	C 117	16	0	117

- Molecule 18 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
18	P	100	Total 100	C 100	0	0	100

- Molecule 19 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
19	Q	130	Total 130	C 130	0	0	130

- Molecule 20 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
20	R	93	Total 93	C 93	0	0	93

- Molecule 21 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
21	S	113	Total 113	C 113	0	0	113

- Molecule 22 is a protein called general stress protein CTC.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
22	T	223	Total 223	C 223	43	0	223

- Molecule 23 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
23	U	86	Total 86	C 86	0	0	86

- Molecule 24 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
24	W	65	Total 65	C 65	0	0	65

- Molecule 25 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
25	X	55	Total 55	C 55	4	0	55

- Molecule 26 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
26	Y	73	Total 73	C 73	0	0	73

- Molecule 27 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
27	Z	58	Total 58	C 58	0	0	58

- Molecule 28 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
28	1	53	Total 53	C 53	0	0	53

- Molecule 29 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
29	2	46	Total 46	C 46	0	0	46

- Molecule 30 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
30	3	63	Total 63	C 63	0	0	63

- Molecule 31 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
31	4	35	Total 35	C 35	0	0	35

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. 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. 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.

Note EDS was not executed.

• Molecule 1: 23S ribosomal RNA

C2689 A2690 C2691 A2692 U2693 G2694 C2695 A2696 G2699 U2700 A2701 G2702 C2703 U2704 A2705 U2706 G2707 U2708 C2709 C2710 G2711 G2712 A2713 A2714 C2715 C2716 G2717 A2718 U2719 A2720 C2721 C2722 C2723 G2724 G2725 U2726 C2727 A2728 A2729 A2730 G2731 C2732 A2733 U2734 C2735 U2736 A2737 A2738 C2739 C2740 G2741 G2742 G2743 A2744 A2745 C2748 A2749 G2750

C2751 C2752 C2753 C2754 A2755 A2756 G2757 A2758 U2759 G2760 A2761 G2762 U2763 U2764 C2765 U2766 C2767 C2768 C2769 A2770 U2771 U2772 G2773 U2774 U U A U2778 C2779 A2780 G2781 G2782 U2783 A2784 A2785 A2786 C2787 C2788 U2789 C2790 C2791 C2792 G2793 G2794 A2795 A2798 C2799 C2800 A2801 C2802 C2803 G2804 G2805 G2806 U2807 U2808 A2809 A2810 G2811

A2812 G2813 G2814 C2815 G2819 C2820 G2821 U2822 G2823 C2824 A2825 C2826 G2827 C2828 A2829 U2830 A2831 G2832 C2833 A2834 A2835 U2836 G2837 U2838 G2839 U2840 U2841 C2842 A2843 G2844 C2845 G2846 A2847 A2848 C2849 U2850 G2851 G2852 U2853 G2854 C2855 U2856 C2857 A2858 U2859 C2860 A2861 G2862 U2863 C2864 G2865 A2866 G2867 C2868 U2869 C2870 U2871 U2872 G2873

C2876 A2877 C U C

• Molecule 2: 5S ribosomal RNA

Chain 9: 18% 59% 19% 5%

A C A C4 C5 C6 C7 C8 G9 C12 C13 C14 A15 U16 A17 G18 C19 A20 C21 U22 G23 U24 G25 G26 A27 A28 C29 C30 A31 C32 C33 C34 C35 A36 C40 A41 U42 G43 C44 G45 G46 A47 A48 C49 U50 G51 G52 G53 U54 C55 G56 U57 G58 A59 A60 A61 C62 A63

C64 A65 G66 C67 A68 G69 C70 G71 C72 C73 A74 A75 U76 G77 A78 U79 A80 C81 U82 C83 G84 G85 A86 C87 C88 G89 C90 A91 G92 G93 G94 C98 G99 G100 A101 A102 A103 A104 A105 U106 C107 G108 G109 U110 C111 A112 G113 C114 G115 C116 G117 G118 G121 U U U

• Molecule 3: 50S ribosomal protein L2

Chain A: 98% .

MET ALA VAL K4 R273 ARG LYS
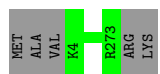
• Molecule 4: 50S ribosomal protein L3

Chain B: 97% .

M1 S205 ALA ALA LYS GLY GLY LYS
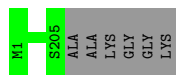
• Molecule 5: 50S ribosomal protein L4

Chain C: 96% .

MET A2 E198 GLU ALA GLY GLU GLN GLN
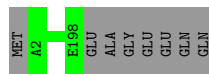
• Molecule 6: 50S ribosomal protein L5

Chain D: 99% .

MET Q2 K179 GLN

• Molecule 7: 50S ribosomal protein L6

Chain E:

83%   17%

MET PRO GLN ARG ARG ARG LEU HIS HIS LEU ASP LEU THR SER ALA PRO PRO ARG ASP PRO LEU ARG ASN LYS GLU ASP ASN MET SER ARG ILE G5 G181 LYS GLY LYS LYS
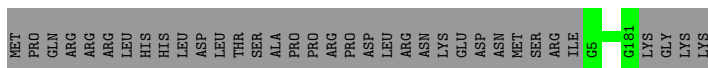
• Molecule 8: 50S ribosomal protein L9

Chain F:

34%   .   64%

M1 L6 T14 S52 ILE GLU LYS ARG GLN ALA GLN GLU LYS ALA VAL ALA GLU ASP LEU ALA SER ARG LEU ASN GLY VAL ALA VAL GLU LEU SER VAL ARG ALA GLY GLU GLY LYS ILE TYR GLY ALA VAL THR HIS GLN ASP VAL ALA ASN SER LEU ASP GLN LEU GLY PHE

ASP VAL ASP ARG ARG LYS ILE ASP MET PRO LYS THR VAL LYS GLU VAL GLY VAL GLY TYR ASP ILE ALA TYR ARG ALA HIS PRO GLU VAL THR ILE PRO MET LYS LEU VAL VAL HIS ALA ALA LYS
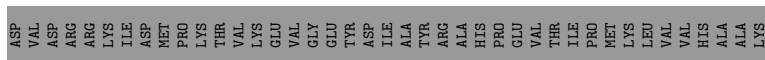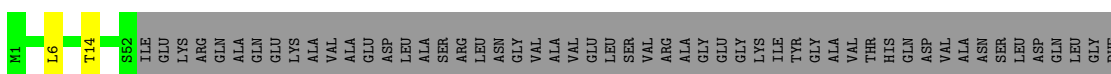
• Molecule 9: 50S ribosomal protein L11

Chain G:

99%   .

M1 N143 ALA

• Molecule 10: 50S ribosomal protein L13

Chain H:

82%   18%

MET ALA PHE PRO ASP THR ASP VAL SER VAL SER PRO PRO ARG GLY GLY PRO SER SER PRO ALA LYS SER SER PRO LEU LEU ARG SER PHE LYS V29 L171 GLU VAL LYS
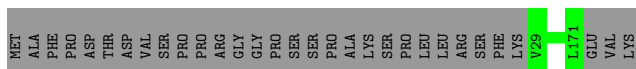
• Molecule 11: 50S ribosomal protein L14

Chain I:

99%   .

MET I2 V133 LEU

• Molecule 12: 50S ribosomal protein L15

Chain J:

90%   10%

MET LYS LEU H4 E144 VAL GLN THR GLN GLN ASP ASP ALA GLN LYS LYS ALA GLU
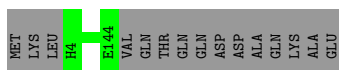
• Molecule 13: 50S ribosomal protein L16

Chain K: 87%   •   13%

MET MET LEU LEU PRO LYS ARG **T8** **R17** **K131** MET VAL LYS ARG GLU VAL TYR ASP GLU ALA GLN
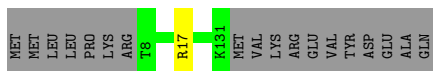
- Molecule 14: 50S ribosomal protein L17

Chain L: 98%   •

MET ARG **H3** **V116**

- Molecule 15: 50S ribosomal protein L18

Chain M: 97%   •

MET ALA THR **A4** **F114**

- Molecule 16: 50S ribosomal protein L19

Chain N: 74%   •   25%

MET **Q2** **S47** **M125** **K126** ASP ALA ALA ARG ALA GLN GLN ASP LYS ALA ASN ALA SER ALA GLN ALA ALA ALA ALA GLN ALA ASP THR VAL VAL ILE SER ALA ALA PRO GLU VAL ALA PRO GLU THR GLN GLY GLU
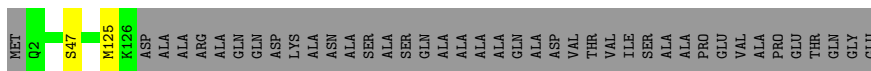
- Molecule 17: 50S ribosomal protein L20

Chain O: 99%   •

MET **P2** **Q118**

- Molecule 18: 50S ribosomal protein L21

Chain P: 100%

There are no outlier residues recorded for this chain.

- Molecule 19: 50S ribosomal protein L22

Chain Q: 97%   •

MET THR ALA PRO **E5** **K134**
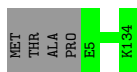
- Molecule 20: 50S ribosomal protein L23

Chain R: 98%   •

MET S2 | Q94 ALA

• Molecule 21: 50S ribosomal protein L24

Chain S:
98%

MET P2 | I114 ASP

• Molecule 22: general stress protein CTC

Chain T:
88% 12%

MET ALA HIS THR GLY GLN THR ALA LYS SER GLN GLY ASP THR ALA THR M1 | E223 ASP ASN ALA GLY THR ASP SER GLU ASP ASN SER ASP ALA GLN

• Molecule 23: 50S ribosomal protein L27

Chain U:
95% 5%

MET A2 | E87 VAL ALA ALA ASP
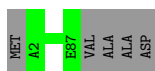
• Molecule 24: 50S ribosomal protein L29

Chain W:
97%

MET K2 | Q66 GLN

• Molecule 25: 50S ribosomal protein L30

Chain X:
100%

There are no outlier residues recorded for this chain.

• Molecule 26: 50S ribosomal protein L31

Chain Y:
100%

There are no outlier residues recorded for this chain.

• Molecule 27: 50S ribosomal protein L32

Chain Z:
97%

MET A2 | A59 VAL

• Molecule 28: 50S ribosomal protein L33

Chain 1:

65%   35%

MET PHE LEU LEU ARG GLN ALA LEU GLY ALA THR PHE PRO VAL PRO GLY ASP GLN ARG GLU GLY CYS ALA LYS GLU SER ILE MET A2 K54 VAL
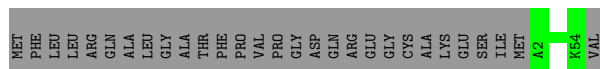
• Molecule 29: 50S ribosomal protein L34

Chain 2:

98%   .

M1 D46 GLU

• Molecule 30: 50S ribosomal protein L35

Chain 3:

98%   .

MET P2 R64

• Molecule 31: 50S ribosomal protein L36

Chain 4:

97%   .

MET K2 Q36

4 Data and refinement statistics ⓘ

Xtriage (Phenix) and EDS were not executed - this section is therefore incomplete.

Property	Value	Source
Space group	I 2 2 2	Depositor
Cell constants a, b, c, α, β, γ	170.00Å 410.00Å 697.00Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	15.00 – 3.10	Depositor
% Data completeness (in resolution range)	(Not available) (15.00-3.10)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	CNS	Depositor
R, R_{free}	0.240 , 0.274	Depositor
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	65300	wwPDB-VP
Average B, all atoms (Å^2)	47.0	wwPDB-VP

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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	0	0.25	0/66467	0.70	6/103673 (0.0%)
2	9	0.59	0/2816	0.81	1/4388 (0.0%)
All	All	0.27	0/69283	0.70	7/108061 (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	0	0	5

There are no bond length outliers.

The worst 5 of 7 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	9	94	G	N9-C1'-C2'	-6.58	104.76	112.00
1	0	2428	U	N1-C1'-C2'	6.19	122.04	114.00
1	0	1279	G	N9-C1'-C2'	5.63	121.32	114.00
1	0	843	G	C2'-C3'-O3'	5.44	122.40	113.70
1	0	2660	C	N1-C1'-C2'	5.26	120.84	114.00

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	0	1264	C	Sidechain
1	0	1342	U	Sidechain
1	0	2251	U	Sidechain
1	0	2668	U	Sidechain
1	0	788	G	Sidechain

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	0	59359	0	29917	2555	1
2	9	2519	0	1285	147	0
3	A	270	0	0	0	0
4	B	205	0	0	0	0
5	C	197	0	0	0	0
6	D	178	0	0	0	0
7	E	177	0	0	0	0
8	F	52	0	0	1	0
9	G	143	0	0	0	0
10	H	143	0	0	0	0
11	I	132	0	0	0	0
12	J	141	0	0	0	0
13	K	124	0	0	1	0
14	L	114	0	0	0	0
15	M	111	0	0	0	0
16	N	125	0	0	1	1
17	O	117	0	0	0	0
18	P	100	0	0	0	0
19	Q	130	0	0	0	0
20	R	93	0	0	0	0
21	S	113	0	0	0	0
22	T	223	0	0	0	0
23	U	86	0	0	0	0
24	W	65	0	0	0	0
25	X	55	0	0	0	0
26	Y	73	0	0	0	0
27	Z	58	0	0	0	0
28	1	53	0	0	0	0
29	2	46	0	0	0	0
30	3	63	0	0	0	0
31	4	35	0	0	0	0
All	All	65300	0	31202	2696	1

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 28.

The worst 5 of 2696 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)
1:0:1679:U:H2'	1:0:1680:U:H5"	1.22	1.12
1:0:362:C:H2'	1:0:363:G:H4'	1.34	1.10
1:0:918:A:H2'	1:0:919:U:H5"	1.29	1.10
1:0:2548:G:H2'	1:0:2549:G:H5"	1.10	1.09
1:0:2058:U:H1'	1:0:2576:G:H21	1.08	1.08

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1552:C:OP1	16:N:47:SER:CA[8_455]	1.97	0.23

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

There are no protein backbone outliers to report in this entry.

5.3.2 Protein sidechains ⓘ

There are no protein residues with a non-rotameric sidechain to report in this entry.

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	0	2757/2880 (95%)	523 (18%)	48 (1%)
2	9	117/124 (94%)	23 (19%)	1 (0%)
All	All	2874/3004 (95%)	546 (18%)	49 (1%)

5 of 546 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	0	13	A
1	0	35	G
1	0	45	C
1	0	48	A
1	0	49	U

5 of 49 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	0	1938	U
1	0	2204	A
1	0	1975	G
1	0	2018	G
1	0	2245	A

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

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 ⓘ

EDS was not executed - this section is therefore empty.

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

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates ⓘ

EDS was not executed - this section is therefore empty.

6.4 Ligands ⓘ

EDS was not executed - this section is therefore empty.

6.5 Other polymers ⓘ

EDS was not executed - this section is therefore empty.