



wwPDB X-ray Structure Validation Summary Report ⓘ

Feb 13, 2024 – 05:17 AM EST

PDB ID : 3I56
Title : Co-crystal structure of Triacetyloleandomycin Bound to the Large Ribosomal Subunit
Authors : Gurel, G.; Blaha, G.; Steitz, T.A.; Moore, P.B.
Deposited on : 2009-07-03
Resolution : 2.90 Å (reported)

This is a wwPDB X-ray Structure Validation Summary 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 : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtrriage (Phenix) : 1.13
EDS : 2.36
buster-report : 1.1.7 (2018)
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

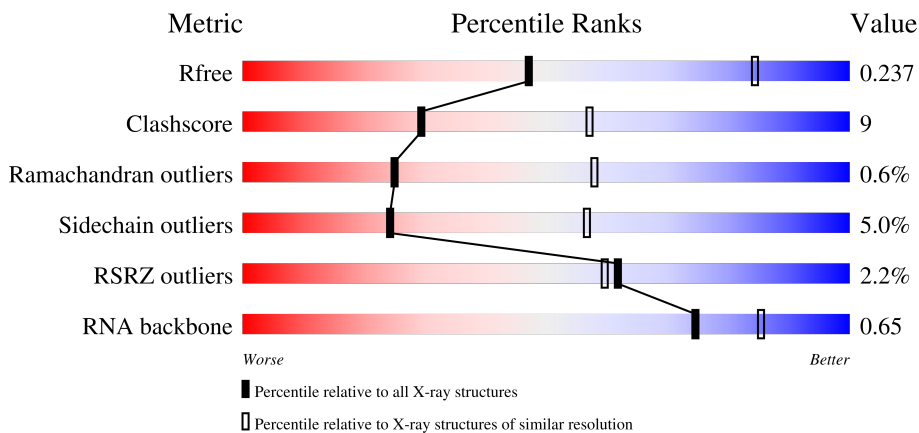
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.90 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.



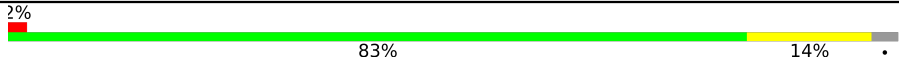
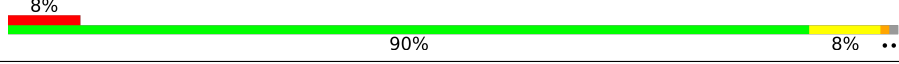
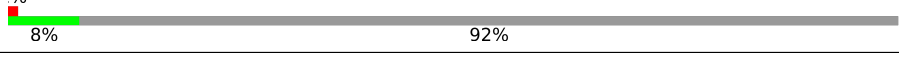


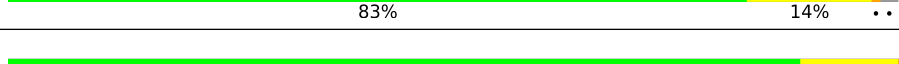
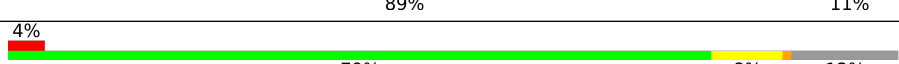
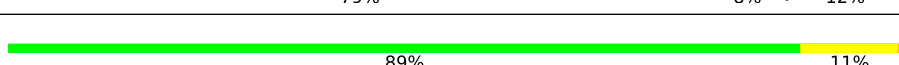

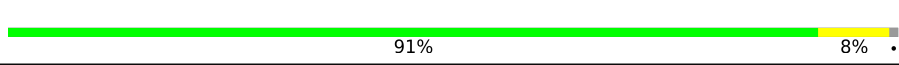

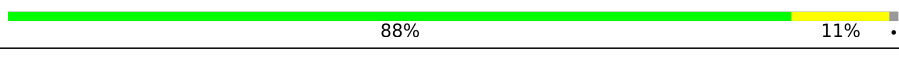
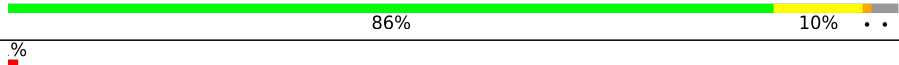

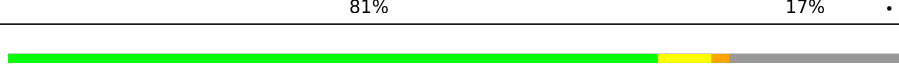










Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1957 (2.90-2.90)
Clashscore	141614	2172 (2.90-2.90)
Ramachandran outliers	138981	2115 (2.90-2.90)
Sidechain outliers	138945	2117 (2.90-2.90)
RSRZ outliers	127900	1906 (2.90-2.90)
RNA backbone	3102	1007 (3.16-2.64)

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	240	 2% 83% 15% ..
2	B	338	 81% 17% .
3	C	246	 83% 15% .
4	D	177	 18% 64% 14% .. 21%



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Mol	Chain	Length	Quality of chain
5	E	178	
6	F	120	
7	G	348	
8	H	174	
9	I	162	
10	J	145	
11	K	132	
12	L	165	
13	M	194	
14	N	187	
15	O	116	
16	P	149	
17	Q	96	
18	R	155	
19	S	85	
20	T	120	
21	U	66	
22	V	71	
23	W	154	
24	X	92	
25	Y	241	
26	Z	116	
27	1	57	
28	2	50	
29	3	92	

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Mol	Chain	Length	Quality of chain
30	0	2923	
31	9	122	

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
32	MG	0	8034	-	-	-	X
32	MG	0	8037	-	-	-	X
33	CL	K	8812	-	-	X	-
34	SR	0	8920	-	-	-	X
34	SR	0	8922	-	-	-	X
34	SR	0	8923	-	-	-	X
34	SR	0	8928	-	-	-	X
34	SR	0	8934	-	-	-	X
34	SR	0	8938	-	-	-	X
34	SR	0	8946	-	-	-	X
34	SR	0	8954	-	-	-	X
34	SR	0	8959	-	-	-	X
34	SR	0	8964	-	-	-	X
34	SR	0	8970	-	-	-	X
34	SR	0	8982	-	-	-	X
34	SR	0	8986	-	-	-	X
34	SR	0	8997	-	-	-	X
34	SR	0	9000	-	-	-	X
34	SR	0	9004	-	-	-	X
34	SR	0	9006	-	-	-	X
34	SR	1	8952	-	-	-	X
34	SR	A	8929	-	-	-	X
34	SR	A	8930	-	-	-	X
34	SR	B	8950	-	-	-	X
34	SR	T	8939	-	-	-	X
35	NA	0	8505	-	-	-	X
35	NA	0	8507	-	-	-	X
35	NA	0	8525	-	-	-	X
35	NA	0	8549	-	-	-	X
35	NA	0	8560	-	-	-	X
35	NA	0	8565	-	-	-	X
35	NA	0	8567	-	-	-	X
35	NA	0	8568	-	-	-	X

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
35	NA	0	8570	-	-	-	X
35	NA	9	8572	-	-	-	X
35	NA	C	8558	-	-	-	X
38	TAO	0	2924	X	-	-	-

2 Entry composition [i](#)

There are 39 unique types of molecules in this entry. The entry contains 99181 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 50S ribosomal protein L2P.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	237	1753	1072	352	324	5	0	0	0

- Molecule 2 is a protein called 50S ribosomal protein L3P.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	337	2625	1616	493	511	5	0	0	0

- Molecule 3 is a protein called 50S ribosomal protein L4P.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	C	246	1860	1130	345	384	1	0	0	0

- Molecule 4 is a protein called 50S ribosomal protein L5P.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	D	140	1094	685	195	210	4	0	0	0

- Molecule 5 is a protein called 50S ribosomal protein L6P.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
5	E	172	1357	840	224	289	4	0	0	0

- Molecule 6 is a protein called 50S ribosomal protein L7Ae.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
6	F	119	890	551	141	197	1	0	0	0

- Molecule 7 is a protein called 50S ribosomal protein L10E.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
7	G	29	240	149	39	51	1	0	0	0

- Molecule 8 is a protein called 50S ribosomal protein L10e.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
8	H	160	1283	798	240	239	6	0	0	0

- Molecule 9 is a protein called 50S ribosomal protein L11P.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
9	I	70	519	323	81	114	1	0	0	0

- Molecule 10 is a protein called 50S ribosomal protein L13P.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
10	J	142	1120	696	199	222	3	0	0	0

- Molecule 11 is a protein called 50S ribosomal protein L14P.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
11	K	132	994	609	189	192	4	0	0	0

- Molecule 12 is a protein called 50S ribosomal protein L15P.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
12	L	145	1118	670	222	226	0	0	0

- Molecule 13 is a protein called 50S ribosomal protein L15e.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
13	M	194	1559	943	333	282	1	0	0	0

- Molecule 14 is a protein called 50S ribosomal protein L18P.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
14	N	186	1445	895	262	286	2	0	0	0

- Molecule 15 is a protein called 50S ribosomal protein L18e.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O				
15	O	115	865	529	161	175		0	0	0

- Molecule 16 is a protein called 50S ribosomal protein L19e.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O				
16	P	143	1136	683	229	224		0	0	0

- Molecule 17 is a protein called 50S ribosomal protein L21e.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O				
17	Q	95	735	450	141	144		0	0	0

- Molecule 18 is a protein called 50S ribosomal protein L22P.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
18	R	150	1149	713	209	223	4	0	0	0

- Molecule 19 is a protein called 50S ribosomal protein L23P.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
19	S	81	641	389	111	138	3	0	0	0

- Molecule 20 is a protein called 50S ribosomal protein L24P.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O				
20	T	119	950	568	180	202		0	0	0

- Molecule 21 is a protein called 50S ribosomal protein L24e.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
21	U	53	Total	C	N	O	S	0	0	0
			410	244	75	86	5			

- Molecule 22 is a protein called 50S ribosomal protein L29P.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
22	V	65	Total	C	N	O	S	0	0	0
			499	304	94	100	1			

- Molecule 23 is a protein called 50S ribosomal protein L30P.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
23	W	154	Total	C	N	O	S	0	0	0
			1196	737	209	244	6			

- Molecule 24 is a protein called 50S ribosomal protein L31e.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
24	X	82	Total	C	N	O	S	0	0	0
			654	402	129	122	1			

- Molecule 25 is a protein called 50S ribosomal protein L32e.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
25	Y	142	Total	C	N	O	0	0	0
			1130	686	228	216			

- Molecule 26 is a protein called 50S ribosomal protein L37Ae.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
26	Z	73	Total	C	N	O	S	0	0	0
			573	343	113	112	5			

There are 24 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Z	1	MET	-	expression tag	UNP P60619
Z	2	SER	-	expression tag	UNP P60619
Z	3	PRO	-	expression tag	UNP P60619
Z	4	ARG	-	expression tag	UNP P60619
Z	5	ALA	-	expression tag	UNP P60619
Z	6	ARG	-	expression tag	UNP P60619

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Chain	Residue	Modelled	Actual	Comment	Reference
Z	7	ARG	-	expression tag	UNP P60619
Z	8	GLU	-	expression tag	UNP P60619
Z	9	PRO	-	expression tag	UNP P60619
Z	10	ASN	-	expression tag	UNP P60619
Z	11	LEU	-	expression tag	UNP P60619
Z	12	GLU	-	expression tag	UNP P60619
Z	13	GLY	-	expression tag	UNP P60619
Z	14	LEU	-	expression tag	UNP P60619
Z	15	MET	-	expression tag	UNP P60619
Z	16	TRP	-	expression tag	UNP P60619
Z	17	PRO	-	expression tag	UNP P60619
Z	18	LEU	-	expression tag	UNP P60619
Z	19	GLY	-	expression tag	UNP P60619
Z	20	GLY	-	expression tag	UNP P60619
Z	21	GLN	-	expression tag	UNP P60619
Z	22	GLN	-	expression tag	UNP P60619
Z	23	THR	-	expression tag	UNP P60619
Z	24	THR	-	expression tag	UNP P60619

- Molecule 27 is a protein called 50S ribosomal protein L37e.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
27	1	56	431	258	86	83	4	0	0	0

- Molecule 28 is a protein called 50S ribosomal protein L39e.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
28	2	46	396	239	89	67	1	0	0	0

- Molecule 29 is a protein called 50S ribosomal protein L44E.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
29	3	92	755	458	153	137	7	0	0	0

- Molecule 30 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
30	0	2754	59020	26349	10873	19053	2745	0	0	0

- Molecule 31 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
31	9	122	2599	1160	471	847	121	0	0	0

- Molecule 32 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
32	A	2	Total 2	Mg 2	0	0
32	B	2	Total 2	Mg 2	0	0
32	C	1	Total 1	Mg 1	0	0
32	K	1	Total 1	Mg 1	0	0
32	T	1	Total 1	Mg 1	0	0
32	Y	1	Total 1	Mg 1	0	0
32	2	1	Total 1	Mg 1	0	0
32	0	82	Total 82	Mg 82	0	0
32	9	2	Total 2	Mg 2	0	0

- Molecule 33 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
33	A	1	Total 1	Cl 1	0	0
33	B	1	Total 1	Cl 1	0	0
33	J	3	Total 3	Cl 3	0	0
33	K	1	Total 1	Cl 1	0	0
33	L	2	Total 2	Cl 2	0	0
33	M	1	Total 1	Cl 1	0	0
33	N	1	Total 1	Cl 1	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
33	O	1	Total 1	Cl 1	0	0
33	Q	1	Total 1	Cl 1	0	0
33	R	1	Total 1	Cl 1	0	0
33	Y	1	Total 1	Cl 1	0	0
33	3	1	Total 1	Cl 1	0	0
33	0	7	Total 7	Cl 7	0	0

- Molecule 34 is STRONTIUM ION (three-letter code: SR) (formula: Sr).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
34	A	3	Total 3	Sr 3	0	0
34	B	2	Total 2	Sr 2	0	0
34	H	1	Total 1	Sr 1	0	0
34	R	1	Total 1	Sr 1	0	0
34	S	1	Total 1	Sr 1	0	0
34	T	1	Total 1	Sr 1	0	0
34	Y	1	Total 1	Sr 1	0	0
34	1	2	Total 2	Sr 2	0	0
34	3	3	Total 3	Sr 3	0	0
34	0	91	Total 91	Sr 91	0	0
34	9	2	Total 2	Sr 2	0	0

- Molecule 35 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
35	B	1	Total Na 1 1	0	0
35	C	3	Total Na 3 3	0	0
35	H	1	Total Na 1 1	0	0
35	J	1	Total Na 1 1	0	0
35	M	1	Total Na 1 1	0	0
35	Q	1	Total Na 1 1	0	0
35	R	3	Total Na 3 3	0	0
35	S	1	Total Na 1 1	0	0
35	2	1	Total Na 1 1	0	0
35	0	60	Total Na 60 60	0	0
35	9	2	Total Na 2 2	0	0

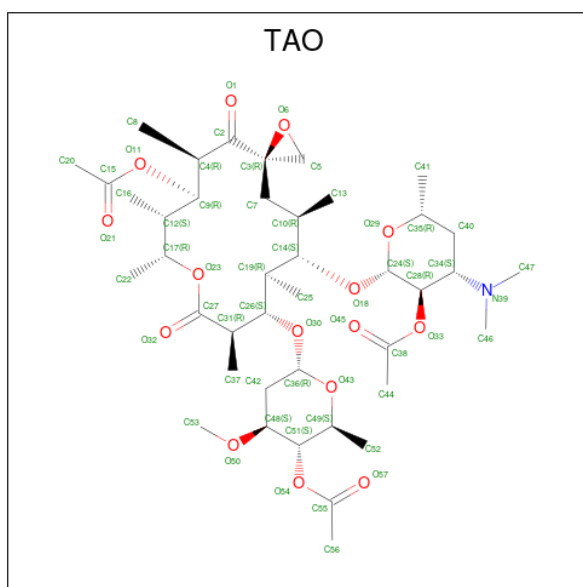
- Molecule 36 is CADMIUM ION (three-letter code: CD) (formula: Cd).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
36	O	1	Total Cd 1 1	0	0
36	U	1	Total Cd 1 1	0	0
36	Z	1	Total Cd 1 1	0	0
36	1	1	Total Cd 1 1	0	0
36	3	1	Total Cd 1 1	0	0

- Molecule 37 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
37	0	2	Total K 2 2	0	0

- Molecule 38 is TROLEANDOMYCIN (three-letter code: TAO) (formula: C₄₁H₆₇NO₁₅).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
38	0	1	57	41	1	15	0	0

- Molecule 39 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
39	A	106	Total	O	0	0
			106	106		
39	B	135	Total	O	0	0
			135	135		
39	C	168	Total	O	0	0
			168	168		
39	D	45	Total	O	0	0
			45	45		
39	E	40	Total	O	0	0
			40	40		
39	F	23	Total	O	0	0
			23	23		
39	G	18	Total	O	0	0
			18	18		
39	H	71	Total	O	0	0
			71	71		
39	I	7	Total	O	0	0
			7	7		
39	J	46	Total	O	0	0
			46	46		
39	K	52	Total	O	0	0
			52	52		

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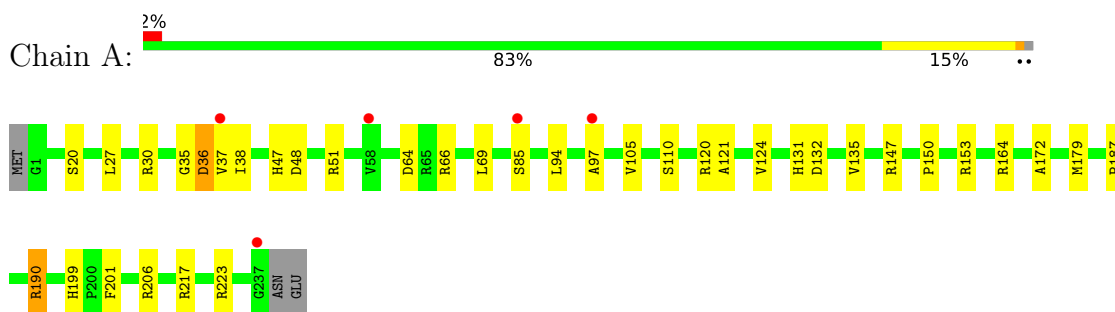
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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
39	L	87	Total O 87 87	0	0
39	M	123	Total O 123 123	0	0
39	N	66	Total O 66 66	0	0
39	O	44	Total O 44 44	0	0
39	P	55	Total O 55 55	0	0
39	Q	42	Total O 42 42	0	0
39	R	78	Total O 78 78	0	0
39	S	28	Total O 28 28	0	0
39	T	35	Total O 35 35	0	0
39	U	26	Total O 26 26	0	0
39	V	11	Total O 11 11	0	0
39	W	66	Total O 66 66	0	0
39	X	22	Total O 22 22	0	0
39	Y	94	Total O 94 94	0	0
39	Z	27	Total O 27 27	0	0
39	1	49	Total O 49 49	0	0
39	2	34	Total O 34 34	0	0
39	3	62	Total O 62 62	0	0
39	0	6021	Total O 6021 6021	0	0
39	9	142	Total O 142 142	0	0

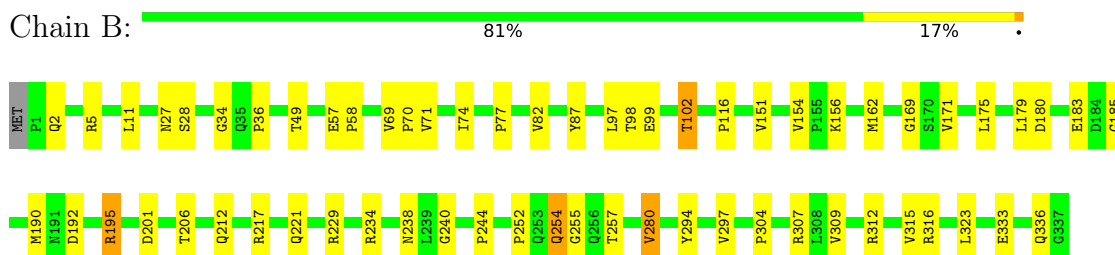
3 Residue-property plots [i](#)

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.

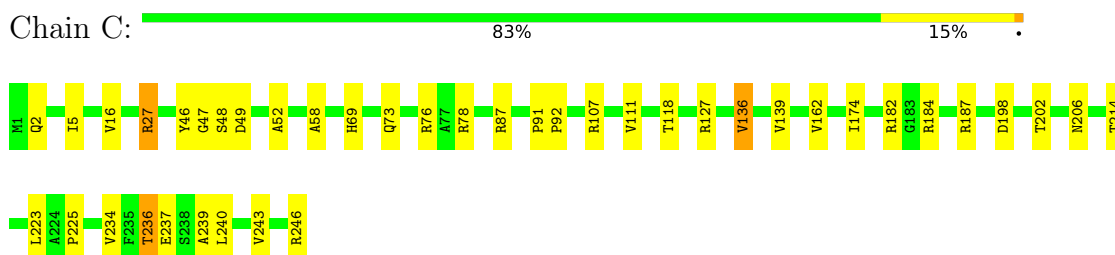
- Molecule 1: 50S ribosomal protein L2P



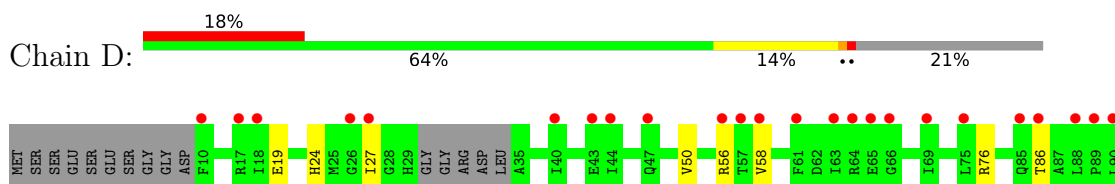
- Molecule 2: 50S ribosomal protein L3P




- Molecule 3: 50S ribosomal protein L4P



- Molecule 4: 50S ribosomal protein L5P




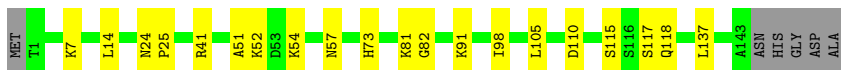
- Molecule 15: 50S ribosomal protein L18e

Chain O:  91% 8%




- Molecule 16: 50S ribosomal protein L19e

Chain P:  83% 13%




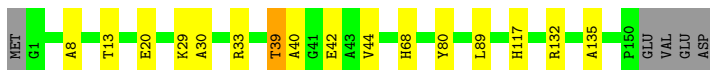
- Molecule 17: 50S ribosomal protein L21e

Chain Q:  88% 11%




- Molecule 18: 50S ribosomal protein L22P

Chain R:  86% 10%




- Molecule 19: 50S ribosomal protein L23P

Chain S:  76% 19% 5%



- Molecule 20: 50S ribosomal protein L24P

Chain T:  81% 17% 2%

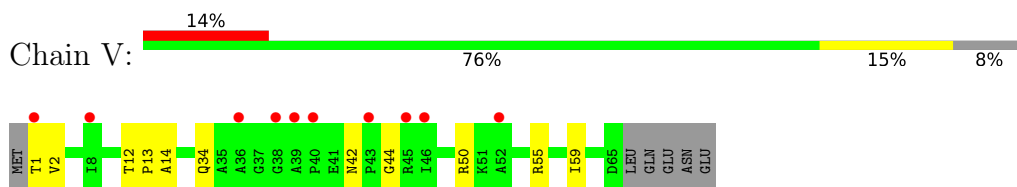


- Molecule 21: 50S ribosomal protein L24e

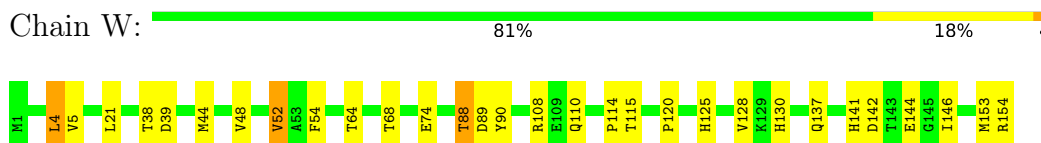
Chain U:  73% 6% 20%



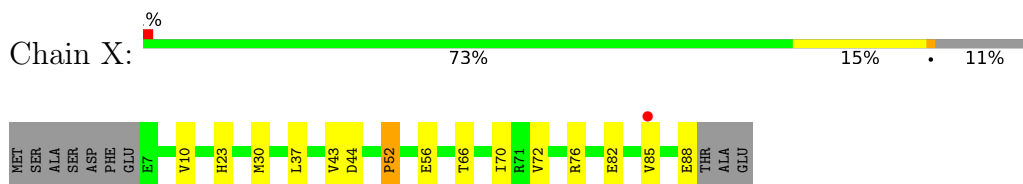
- Molecule 22: 50S ribosomal protein L29P



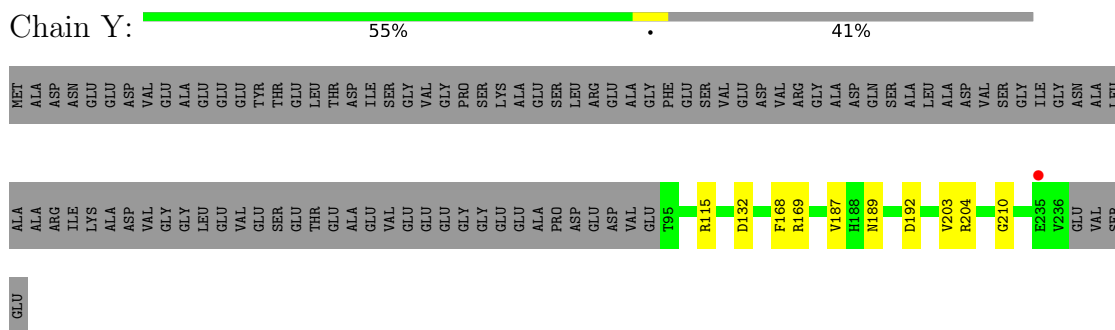
- Molecule 23: 50S ribosomal protein L30P



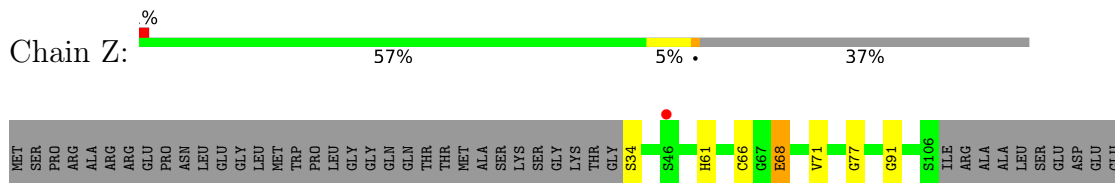
- Molecule 24: 50S ribosomal protein L31e



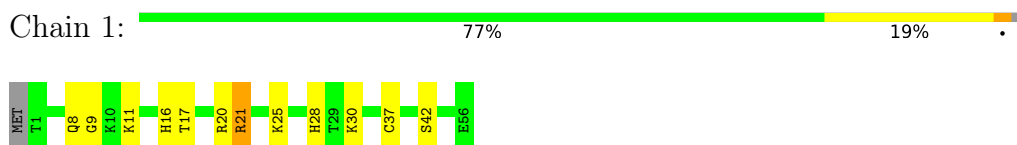
- Molecule 25: 50S ribosomal protein L32e



- Molecule 26: 50S ribosomal protein L37Ae

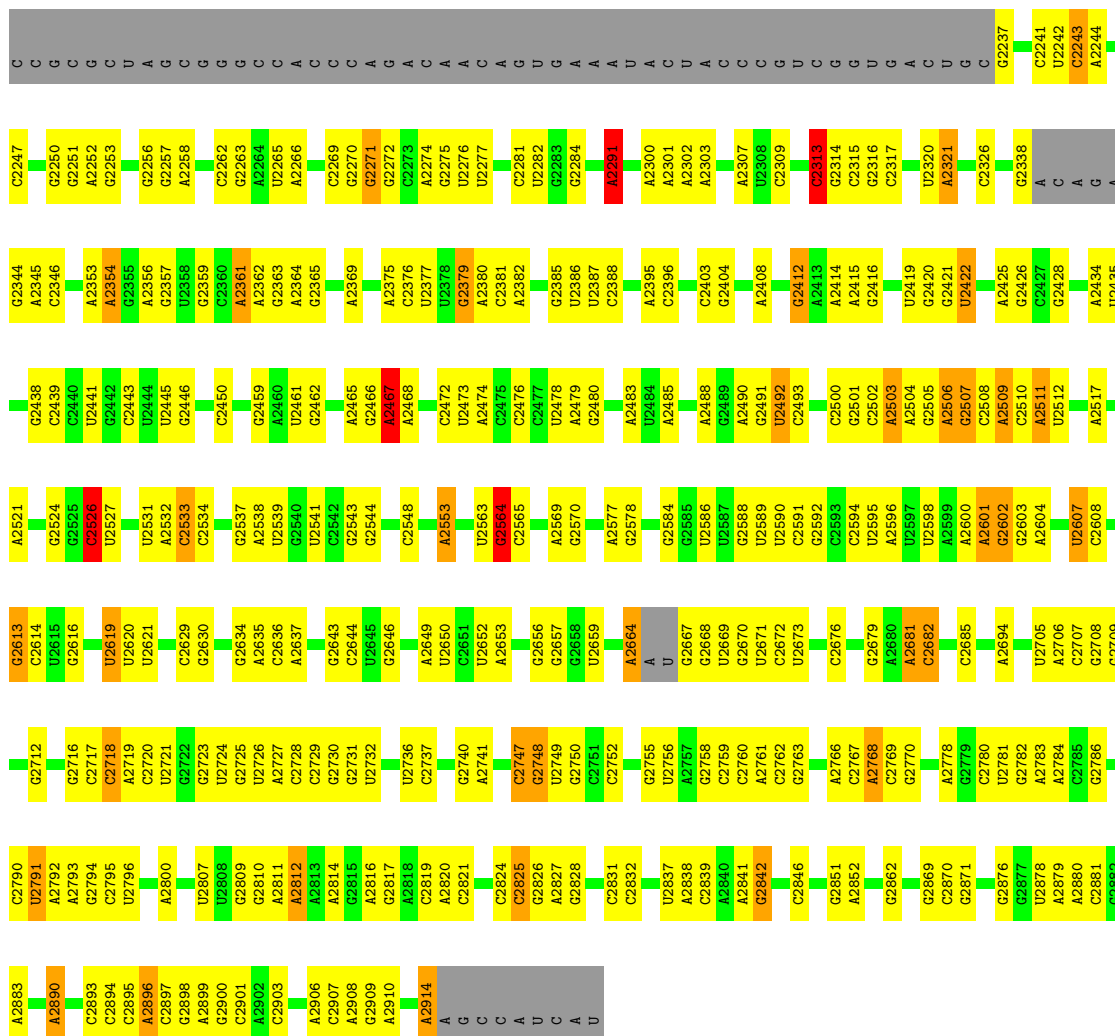


- Molecule 27: 50S ribosomal protein L37e

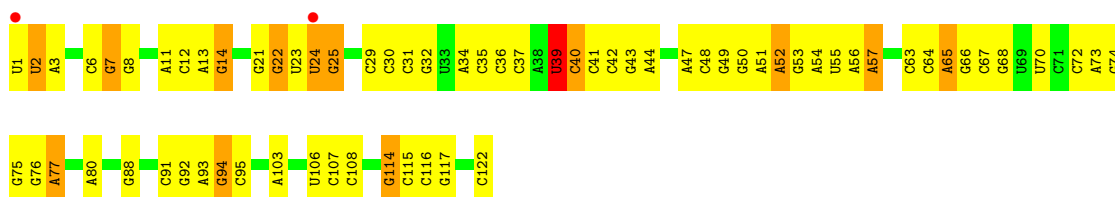


- Molecule 28: 50S ribosomal protein L39e

G2110	C	G2110	C	G1156	C	G1224	C	A1318	C	G1409	C	U1500	C	G1592	C	G1756	C	A1828	C	U1937	C	G2020	C	G2110	C
G2111	C	G1157	C	C1225	C	C1318	C	A1319	C	G1410	C	U1503	C	C1593	C	U1757	C	C1830	C	G1938	C	G2021	C	G2111	C
G2113	C	G1158	C	C1228	C	A1413	C	U1504	C	A1413	C	U1505	C	C1594	C	U1759	C	C1834	C	G1939	C	G2022	C	G2113	C
C2114	C	G1159	C	C1229	C	A1414	C	A1505	C	A1415	C	U1506	C	U1595	C	A1667	C	U1835	C	C1940	C	A2030	C	C2114	C
U2115	A	A1161	A	A1230	A	A1416	A	A1506	A	A1416	A	U1506	A	A1597	A	A1670	A	U1836	A	A1942	A	G2031	A	U2115	A
U2116	A	G1162	A	U1234	A	G1417	A	U1511	A	G1417	A	U1511	A	A1598	A	C1674	A	U1838	A	C1943	A	U2032	A	U2116	A
U2120	A	G1163	A	G1235	A	U1418	A	G1512	A	U1418	A	U1512	A	U1599	A	C1675	A	A1839	A	C1944	A	U2033	A	U2120	A
G2121	A	U1164	A	C1236	A	U1419	A	C1513	A	U1419	A	C1513	A	U1600	A	C1676	A	A1840	A	G1947	A	U2034	A	G2121	A
A2135	A	G1165	A	U1237	A	U1514	A	C1514	A	U1514	A	C1514	A	A1603	A	U1677	A	C1841	A	G1948	A	A2038	A	A2135	A
G2136	A	A1166	A	A1238	A	U1422	A	A1515	A	U1422	A	U1515	A	A1604	A	C1678	A	A1845	A	G1949	A	A2039	A	G2136	A
A	U	G1167	U	G1239	U	A1424	U	U1516	U	A1424	U	U1516	U	A1605	U	C1679	U	U1846	U	G1950	U	C2040	U	A	A
C	U	C1168	U	G1240	U	G1425	U	C1521	U	G1425	U	C1521	U	A1606	U	A1682	U	U1850	U	U	U	U	U	C	C
C	U	A1171	U	G1241	U	G1426	U	A1522	U	G1426	U	A1522	U	A1607	U	A1683	U	G1851	U	A	A	G	G	C	C
C	U	A1172	U	A1242	U	A1427	U	G1523	U	A1427	U	G1523	U	A1608	U	A1684	U	G1852	U	A	A	G	G	C	C
C	U	A1173	U	C1243	U	G1433	U	A1524	U	G1433	U	A1524	U	A1609	U	A1685	U	G1855	U	C	C	G	G	C	C
C	U	A1174	U	C1245	U	A1434	U	G1525	U	A1434	U	G1525	U	A1610	U	C1689	U	C1856	U	C	C	G	G	C	C
C	U	A1175	U	A1246	U	C1439	U	A1526	U	C1439	U	A1526	U	A1614	U	C1690	U	A1857	U	C	C	G	G	C	C
C	U	C1176	U	C1250	U	U1440	U	A1527	U	U1440	U	A1527	U	A1615	U	U1701	U	A1858	U	C	C	G	G	C	C
C	U	A1177	U	C1251	U	G1441	U	G1528	U	G1441	U	G1528	U	A1616	U	U1702	U	G1868	U	C	C	G	G	C	C
C	U	U1180	U	C1252	U	A1442	U	G1535	U	A1442	U	G1535	U	A1617	U	U1703	U	G1872	U	C	C	G	G	C	C
C	U	A1181	U	C1253	U	G1443	U	G1536	U	G1443	U	G1536	U	A1618	U	C1700	U	C	C	U1964	U	C2061	U	U2016	U
C	U	A1182	U	G1260	U	G1444	U	C1537	U	G1444	U	C1537	U	A1619	U	U1701	U	U1965	U	C	C	C	C	U	U
C	U	C1183	U	U1266	U	G1445	U	C1538	U	G1445	U	C1538	U	A1620	U	U1702	U	U1966	U	C	C	C	C	U	U
C	U	C1184	U	U1267	U	G1446	U	C1544	U	G1446	U	C1544	U	A1624	U	U1703	U	U1967	U	C	C	C	C	U	U
C	U	U1185	U	C1268	U	U1447	U	C1545	U	U1447	U	C1545	U	A1625	U	U1704	U	U1968	U	C	C	C	C	U	U
C	U	U1186	U	G1269	U	G1450	U	C1546	U	G1450	U	C1546	U	A1626	U	U1705	U	U1969	U	C	C	C	C	U	U
C	U	A1187	U	U1278	U	C1456	U	C1547	U	C1456	U	C1547	U	A1627	U	U1706	U	U1970	U	C	C	C	C	U	U
C	U	A1188	U	A1279	U	U1457	U	C1552	U	U1457	U	C1552	U	A1630	U	U1707	U	U1971	U	C	C	C	C	U	U
C	U	A1189	U	A1280	U	U1461	U	C1553	U	U1461	U	C1553	U	A1631	U	U1708	U	U1972	U	C	C	C	C	U	U
C	U	A1190	U	U1281	U	C1462	U	C1554	U	C1462	U	C1554	U	A1632	U	U1709	U	U1973	U	C	C	C	C	U	U
C	U	A1191	U	U1282	U	U1471	U	C1555	U	U1471	U	C1555	U	A1633	U	U1710	U	U1974	U	C	C	C	C	U	U
C	U	A1192	U	U1283	U	C1472	U	C1556	U	C1472	U	C1556	U	A1634	U	U1711	U	U1975	U	C	C	C	C	U	U
C	U	A1193	U	U1284	U	C1473	U	C1557	U	C1473	U	C1557	U	A1635	U	U1712	U	U1976	U	C	C	C	C	U	U
C	U	U1198	U	U1285	U	U1474	U	C1558	U	U1474	U	C1558	U	U1636	U	U1713	U	U1977	U	C	C	C	C	U	U
C	U	A1199	U	U1286	U	U1475	U	C1559	U	U1475	U	C1559	U	A1637	U	U1714	U	U1978	U	C	C	C	C	U	U
C	U	A1200	U	U1287	U	C1477	U	C1560	U	C1477	U	C1560	U	A1641	U	U1715	U	U1979	U	C	C	C	C	U	U
C	U	A1201	U	U1288	U	G1481	U	C1561	U	G1481	U	C1561	U	A1642	U	U1716	U	U1980	U	C	C	C	C	U	U
C	U	A1202	U	U1289	U	A1482	U	C1562	U	A1482	U	C1562	U	A1643	U	U1717	U	U1981	U	C	C	C	C	U	U
C	U	G1205	U	U1290	U	C1483	U	C1563	U	C1483	U	C1563	U	A1644	U	U1718	U	U1982	U	C	C	C	C	U	U
C	U	U1206	U	G1295	U	A1484	U	C1564	U	A1484	U	C1564	U	A1645	U	U1719	U	U1983	U	C	C	C	C	U	U
C	U	U1207	U	G1300	U	A1485	U	C1565	U	A1485	U	C1565	U	A1646	U	U1720	U	U1984	U	C	C	C	C	U	U
C	U	C1208	U	U1304	U	U1488	U	C1566	U	U1488	U	C1566	U	A1647	U	U1721	U	U1985	U	C	C	C	C	U	U
C	U	C1209	U	C1305	U	C1397	U	C1567	U	C1397	U	C1567	U	A1648	U	U1722	U	U1986	U	C	C	C	C	U	U
C	U	C1210	U	C1306	U	A1494	U	C1568	U	A1494	U	C1568	U	A1649	U	U1723	U	U1987	U	C	C	C	C	U	U
C	U	C1211	U	C1307	U	A1398	U	C1569	U	A1398	U	C1569	U	A1650	U	U1724	U	U1988	U	C	C	C	C	U	U
C	U	C1212	U	U1308	U	A1496	U	C1570	U	A1496	U	C1570	U	A1651	U	U1725	U	U1989	U	C	C	C	C	U	U
C	U	C1213	U	U1309	U	C1400	U	C1571	U	C1400	U	C1571	U	A1652	U	U1726	U	U1990	U	C	C	C	C	U	U
C	U	C1214	U	U1310	U	A1407	U	C1572	U	A1407	U	C1572	U	A1653	U	U1727	U	U1991	U	C	C	C	C	U	U
C	U	C1215	U	G1311	U	C1408	U	C1573	U	C1408	U	C1573	U	A1654	U	U1728	U	U1992	U	C	C	C	C	U	U
C	U	C1216	U	G1312	U	U1488	U	C1574	U	U1488	U	C1574	U	A1655	U	U1729	U	U1993	U	C	C	C	C	U	U
C	U	C1217	U	C1308	U	C1397	U	C1575	U	C1397	U	C1575	U	A1656	U	U1730	U	U1994	U	C	C	C	C	U	U
C	U	C1218	U	C1309	U	A1494	U	C1576	U	A1494	U	C1576	U	A1657	U	U1731	U	U1995	U	C	C	C	C	U	U
C	U	C1219	U	U1310	U	A1399	U	C1577	U	A1399	U	C1577	U	A1658	U	U1732	U	U1996	U	C	C	C	C	U	U
C	U	C1220	U	U1311	U	C1400	U	C1578	U	C1400	U	C1578	U	A1659	U	U1733	U	U1997	U	C	C	C	C	U	U
C	U	C1221	U	G1312	U	A1407	U	C1579	U	A1407	U	C1579	U	A1660	U	U1734	U	U1998	U	C	C	C	C	U	U
C	U	C1222	U	G1313	U	C1408	U	C1580	U	C1408	U	C1580	U	A1661	U	U1735	U	U1999	U	C	C	C	C	U	U
C	U	C1223	U	C1309	U	C1397	U	C1581	U	C1397	U	C1581	U	A1662	U	U1736	U	U2000	U	C	C	C	C	U	U
C	U	C1224	U	U1309	U	A1496	U	C1582	U	A1496	U	C1582	U	A1663	U	U1737	U	U2001	U	C	C	C	C	U	U
C	U	C1225	U	U1310	U	C1400	U	C1583	U	C1400	U	C1583	U	A1664	U	U1738	U	U2002	U	C	C	C	C	U	U
C	U	C1226	U	G1311	U	A1407	U	C1584	U	A1407	U	C1584	U	A1665	U	U1739	U	U2003	U	C	C	C	C	U	U
C	U	C1227	U	C1309	U	C1397	U	C1585	U	C1397	U	C1585	U	A1666	U	U1740	U	U2004	U	C	C	C	C	U	U
C	U	C1228	U	U1309	U	A1496	U	C1586	U	A1496	U	C1586	U	A1667	U	U1741	U	U2005	U	C	C	C	C	U	U
C	U	C1229	U	U1310	U	C1400	U	C1587	U	C1400	U	C1587	U	A1668	U	U1742	U	U2006	U	C	C	C	C	U	U
C	U	C1230	U	G1311	U	A1407	U	C1588	U	A1407	U	C1588	U	A1669	U	U1743	U	U2007	U	C	C	C	C	U	U
C	U	U1234	U	C1305	U	C1397	U	C1589	U	C1397	U	C1589	U	A1670	U	U1744	U	U2008	U	C	C	C	C	U	U
C	U	G1235	U	C1306	U	A1494	U	C1590	U	A1494	U	C1590	U	A167											



• Molecule 31: 5S ribosomal RNA



4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	212.43Å 300.77Å 575.41Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	50.00 – 2.90 85.79 – 2.41	Depositor EDS
% Data completeness (in resolution range)	84.3 (50.00-2.90) 90.7 (85.79-2.41)	Depositor EDS
R_{merge}	0.19	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	0.00 (at 2.42Å)	Xtrriage
Refinement program	CNS	Depositor
R, R_{free}	0.191 , 0.243 0.189 , 0.237	Depositor DCC
R_{free} test set	6547 reflections (0.98%)	wwPDB-VP
Wilson B-factor (Å ²)	41.3	Xtrriage
Anisotropy	0.234	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , 63.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	99181	wwPDB-VP
Average B, all atoms (Å ²)	46.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.49% 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: TAO, K, NA, PSU, SR, OMG, UR3, MG, OMU, CD, 1MA, 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	0.49	0/1786	0.76	0/2408
2	B	0.53	0/2690	0.76	0/3652
3	C	0.54	0/1885	0.76	0/2552
4	D	0.63	0/1111	0.74	2/1498 (0.1%)
5	E	0.59	0/1382	0.70	0/1880
6	F	0.53	0/901	0.72	0/1224
7	G	0.51	0/241	0.63	0/324
8	H	0.59	0/1303	0.77	0/1743
9	I	0.59	0/526	0.68	0/716
10	J	0.61	0/1136	0.74	0/1530
11	K	0.50	0/1004	0.78	0/1351
12	L	0.50	0/1130	0.76	0/1509
13	M	0.50	0/1583	0.74	0/2116
14	N	0.54	0/1474	0.79	0/1999
15	O	0.49	0/874	0.72	1/1181 (0.1%)
16	P	0.54	0/1147	0.65	0/1528
17	Q	0.51	0/749	0.77	0/1005
18	R	0.57	0/1172	0.73	0/1578
19	S	0.52	0/648	0.66	0/875
20	T	0.49	0/958	0.75	1/1289 (0.1%)
21	U	0.56	0/417	0.69	0/562
22	V	0.44	0/502	0.71	0/675
23	W	0.52	0/1219	0.76	1/1655 (0.1%)
24	X	0.53	0/664	0.76	0/895
25	Y	0.49	0/1146	0.74	0/1536
26	Z	0.62	0/584	0.77	0/781
27	1	0.55	0/438	0.74	0/578
28	2	0.45	0/401	0.69	0/529
29	3	0.55	0/771	0.68	0/1024
30	0	0.41	0/65957	0.69	12/102867 (0.0%)
31	9	0.36	0/2904	0.69	1/4526 (0.0%)
All	All	0.45	0/98703	0.70	18/147586 (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
23	W	0	1
30	0	0	35
31	9	0	2
All	All	0	38

There are no bond length outliers.

The worst 5 of 18 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
30	0	1504	A	C1'-O4'-C4'	-6.21	104.93	109.90
30	0	2291	A	N9-C1'-C2'	6.13	121.97	114.00
30	0	871	G	C5'-C4'-O4'	-6.06	101.83	109.10
30	0	1942	A	C5'-C4'-C3'	5.87	125.38	116.00
31	9	39	U	N1-C1'-C2'	5.60	121.29	114.00

There are no chirality outliers.

5 of 38 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
30	0	396	U	Sidechain
30	0	458	G	Sidechain
30	0	482	G	Sidechain
30	0	49	A	Sidechain
23	W	90	TYR	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	A	1753	0	1766	22	0
2	B	2625	0	2533	35	0
3	C	1860	0	1813	28	0
4	D	1094	0	1085	13	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	E	1357	0	1266	14	0
6	F	890	0	843	5	0
7	G	240	0	231	0	0
8	H	1283	0	1292	17	0
9	I	519	0	500	6	0
10	J	1120	0	1098	15	0
11	K	994	0	1027	11	0
12	L	1118	0	1076	11	0
13	M	1559	0	1573	18	0
14	N	1445	0	1401	13	0
15	O	865	0	873	7	0
16	P	1136	0	1123	12	0
17	Q	735	0	729	9	0
18	R	1149	0	1122	11	0
19	S	641	0	605	8	0
20	T	950	0	924	10	0
21	U	410	0	364	4	0
22	V	499	0	511	7	0
23	W	1196	0	1137	20	0
24	X	654	0	653	7	0
25	Y	1130	0	1133	10	0
26	Z	573	0	531	5	0
27	1	431	0	426	14	0
28	2	396	0	413	10	0
29	3	755	0	728	9	0
30	0	59020	0	29812	1178	0
31	9	2599	0	1325	71	0
32	0	82	0	0	0	0
32	2	1	0	0	0	0
32	9	2	0	0	0	0
32	A	2	0	0	0	0
32	B	2	0	0	0	0
32	C	1	0	0	0	0
32	K	1	0	0	0	0
32	T	1	0	0	0	0
32	Y	1	0	0	0	0
33	0	7	0	0	0	0
33	3	1	0	0	0	0
33	A	1	0	0	0	0
33	B	1	0	0	0	0
33	J	3	0	0	0	0
33	K	1	0	0	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
33	L	2	0	0	0	0
33	M	1	0	0	0	0
33	N	1	0	0	0	0
33	O	1	0	0	0	0
33	Q	1	0	0	0	0
33	R	1	0	0	0	0
33	Y	1	0	0	0	0
34	0	91	0	0	0	0
34	1	2	0	0	0	0
34	3	3	0	0	0	0
34	9	2	0	0	0	0
34	A	3	0	0	0	0
34	B	2	0	0	0	0
34	H	1	0	0	0	0
34	R	1	0	0	0	0
34	S	1	0	0	0	0
34	T	1	0	0	0	0
34	Y	1	0	0	0	0
35	0	60	0	0	0	0
35	2	1	0	0	0	0
35	9	2	0	0	0	0
35	B	1	0	0	0	0
35	C	3	0	0	0	0
35	H	1	0	0	0	0
35	J	1	0	0	0	0
35	M	1	0	0	0	0
35	Q	1	0	0	0	0
35	R	3	0	0	0	0
35	S	1	0	0	0	0
36	1	1	0	0	0	0
36	3	1	0	0	0	0
36	O	1	0	0	0	0
36	U	1	0	0	0	0
36	Z	1	0	0	0	0
37	0	2	0	0	0	0
38	0	57	0	67	14	0
39	0	6021	0	0	144	0
39	1	49	0	0	0	0
39	2	34	0	0	0	0
39	3	62	0	0	0	0
39	9	142	0	0	3	0
39	A	106	0	0	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
39	B	135	0	0	4	0
39	C	168	0	0	2	0
39	D	45	0	0	0	0
39	E	40	0	0	1	0
39	F	23	0	0	0	0
39	G	18	0	0	0	0
39	H	71	0	0	1	0
39	I	7	0	0	0	0
39	J	46	0	0	1	0
39	K	52	0	0	0	0
39	L	87	0	0	2	0
39	M	123	0	0	0	0
39	N	66	0	0	2	0
39	O	44	0	0	1	0
39	P	55	0	0	0	0
39	Q	42	0	0	0	0
39	R	78	0	0	2	0
39	S	28	0	0	0	0
39	T	35	0	0	1	0
39	U	26	0	0	0	0
39	V	11	0	0	0	0
39	W	66	0	0	1	0
39	X	22	0	0	0	0
39	Y	94	0	0	3	0
39	Z	27	0	0	0	0
All	All	99181	0	59980	1428	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.

The worst 5 of 1428 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)
30:0:1160:G:H5'	30:0:1161:A:H5'	1.25	1.16
30:0:871:G:H5'	30:0:871:G:H8	1.06	1.08
30:0:871:G:H5'	30:0:871:G:C8	1.90	1.06
30:0:2717:C:H2'	30:0:2718:C:H5''	1.42	1.01
10:J:82:THR:HG23	30:0:1242:A:H5'	1.42	1.01

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	235/240 (98%)	219 (93%)	14 (6%)	2 (1%)	17	48
2	B	335/338 (99%)	306 (91%)	26 (8%)	3 (1%)	17	48
3	C	244/246 (99%)	225 (92%)	19 (8%)	0	100	100
4	D	134/177 (76%)	121 (90%)	10 (8%)	3 (2%)	6	24
5	E	170/178 (96%)	160 (94%)	10 (6%)	0	100	100
6	F	117/120 (98%)	108 (92%)	6 (5%)	3 (3%)	5	20
7	G	25/348 (7%)	25 (100%)	0	0	100	100
8	H	156/174 (90%)	146 (94%)	9 (6%)	1 (1%)	25	58
9	I	68/162 (42%)	62 (91%)	6 (9%)	0	100	100
10	J	140/145 (97%)	133 (95%)	6 (4%)	1 (1%)	22	54
11	K	130/132 (98%)	124 (95%)	6 (5%)	0	100	100
12	L	141/165 (86%)	131 (93%)	10 (7%)	0	100	100
13	M	192/194 (99%)	185 (96%)	7 (4%)	0	100	100
14	N	184/187 (98%)	171 (93%)	8 (4%)	5 (3%)	5	19
15	O	113/116 (97%)	109 (96%)	4 (4%)	0	100	100
16	P	141/149 (95%)	140 (99%)	1 (1%)	0	100	100
17	Q	93/96 (97%)	88 (95%)	4 (4%)	1 (1%)	14	42
18	R	148/155 (96%)	140 (95%)	7 (5%)	1 (1%)	22	54
19	S	79/85 (93%)	77 (98%)	2 (2%)	0	100	100
20	T	117/120 (98%)	111 (95%)	4 (3%)	2 (2%)	9	31
21	U	51/66 (77%)	49 (96%)	2 (4%)	0	100	100
22	V	63/71 (89%)	60 (95%)	3 (5%)	0	100	100
23	W	152/154 (99%)	148 (97%)	4 (3%)	0	100	100
24	X	80/92 (87%)	76 (95%)	2 (2%)	2 (2%)	5	21
25	Y	140/241 (58%)	137 (98%)	3 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
26	Z	71/116 (61%)	62 (87%)	9 (13%)	0	100	100
27	1	54/57 (95%)	52 (96%)	2 (4%)	0	100	100
28	2	42/50 (84%)	41 (98%)	1 (2%)	0	100	100
29	3	90/92 (98%)	86 (96%)	4 (4%)	0	100	100
All	All	3705/4466 (83%)	3492 (94%)	189 (5%)	24 (1%)	25	58

5 of 24 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	37	VAL
4	D	137	PRO
6	F	101	ALA
10	J	5	GLU
14	N	154	LEU

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	179/182 (98%)	165 (92%)	14 (8%)	12	34
2	B	282/283 (100%)	265 (94%)	17 (6%)	19	49
3	C	193/193 (100%)	175 (91%)	18 (9%)	9	27
4	D	117/148 (79%)	107 (92%)	10 (8%)	10	31
5	E	152/156 (97%)	147 (97%)	5 (3%)	38	72
6	F	93/94 (99%)	91 (98%)	2 (2%)	52	81
7	G	27/282 (10%)	26 (96%)	1 (4%)	34	68
8	H	134/143 (94%)	128 (96%)	6 (4%)	27	61
9	I	58/130 (45%)	57 (98%)	1 (2%)	60	86
10	J	118/121 (98%)	109 (92%)	9 (8%)	13	36
11	K	106/106 (100%)	101 (95%)	5 (5%)	26	59
12	L	113/127 (89%)	107 (95%)	6 (5%)	22	54

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
13	M	158/158 (100%)	153 (97%)	5 (3%)	39	73
14	N	149/150 (99%)	143 (96%)	6 (4%)	31	65
15	O	93/94 (99%)	91 (98%)	2 (2%)	52	81
16	P	113/117 (97%)	108 (96%)	5 (4%)	28	61
17	Q	79/80 (99%)	75 (95%)	4 (5%)	24	56
18	R	117/122 (96%)	115 (98%)	2 (2%)	60	86
19	S	71/74 (96%)	68 (96%)	3 (4%)	30	63
20	T	105/106 (99%)	96 (91%)	9 (9%)	10	30
21	U	44/52 (85%)	43 (98%)	1 (2%)	50	80
22	V	51/57 (90%)	49 (96%)	2 (4%)	32	66
23	W	130/130 (100%)	124 (95%)	6 (5%)	27	60
24	X	66/74 (89%)	60 (91%)	6 (9%)	9	28
25	Y	120/196 (61%)	118 (98%)	2 (2%)	60	86
26	Z	60/94 (64%)	59 (98%)	1 (2%)	60	86
27	1	46/47 (98%)	45 (98%)	1 (2%)	52	81
28	2	42/46 (91%)	41 (98%)	1 (2%)	49	79
29	3	79/79 (100%)	74 (94%)	5 (6%)	18	46
All	All	3095/3641 (85%)	2940 (95%)	155 (5%)	24	57

5 of 155 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
17	Q	95	GLU
24	X	82	GLU
19	S	59	ASP
21	U	56	ARG
29	3	3	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 68 such sidechains are listed below:

Mol	Chain	Res	Type
25	Y	189	ASN
27	1	16	HIS
29	3	2	GLN
12	L	41	HIS

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Mol	Chain	Res	Type
12	L	18	HIS

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
30	0	2745/2923 (93%)	235 (8%)	22 (0%)
31	9	121/122 (99%)	16 (13%)	1 (0%)
All	All	2866/3045 (94%)	251 (8%)	23 (0%)

5 of 251 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
30	0	31	C
30	0	67	A
30	0	69	A
30	0	70	A
30	0	71	G

5 of 23 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
30	0	1730	G
30	0	2313	C
30	0	2103	A
30	0	2467	A
30	0	877	G

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

5 non-standard protein/DNA/RNA residues 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
30	1MA	0	628	30	16,25,26	1.33	3 (18%)	18,37,40	1.15	2 (11%)
30	OMG	0	2588	30	18,26,27	1.03	2 (11%)	19,38,41	0.77	1 (5%)
30	PSU	0	2621	30	18,21,22	1.51	2 (11%)	22,30,33	1.26	3 (13%)
30	UR3	0	2619	30	19,22,23	0.42	0	26,32,35	0.64	1 (3%)
30	OMU	0	2587	30,35	19,22,23	0.32	0	26,31,34	0.36	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
30	1MA	0	628	30	-	0/3/25/26	0/3/3/3
30	OMG	0	2588	30	-	0/5/27/28	0/3/3/3
30	PSU	0	2621	30	-	0/7/25/26	0/2/2/2
30	UR3	0	2619	30	-	0/7/25/26	0/2/2/2
30	OMU	0	2587	30,35	-	0/9/27/28	0/2/2/2

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

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
30	0	2621	PSU	C2-N1	4.88	1.43	1.36
30	0	628	1MA	C2-N3	3.43	1.33	1.29
30	0	2621	PSU	C6-C5	2.98	1.38	1.35
30	0	628	1MA	C6-N6	2.62	1.34	1.27
30	0	2588	OMG	C5-C6	-2.57	1.42	1.47

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

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
30	0	2621	PSU	C6-C5-C4	3.07	120.34	118.20
30	0	2621	PSU	O2-C2-N1	2.84	125.92	122.79
30	0	2621	PSU	C6-N1-C2	-2.81	119.81	122.68
30	0	628	1MA	N1-C2-N3	2.81	129.30	126.02
30	0	628	1MA	C5-C6-N1	2.54	117.68	113.90

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
30	0	2619	UR3	1	0

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 306 ligands modelled in this entry, 305 are monoatomic - leaving 1 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
38	TAO	0	2924	-	59,60,60	0.68	1 (1%)	77,89,89	1.85	16 (20%)

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
38	TAO	0	2924	-	2/2/24/24	14/77/113/113	0/4/4/4

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
38	0	2924	TAO	C5-C3	2.28	1.52	1.47

The worst 5 of 16 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
38	0	2924	TAO	O33-C38-C44	5.91	121.97	111.09
38	0	2924	TAO	C17-O23-C27	-4.89	110.42	117.51
38	0	2924	TAO	O54-C55-C56	4.65	119.65	111.09
38	0	2924	TAO	O11-C15-C20	4.37	119.13	111.09

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
38	0	2924	TAO	C51-O54-C55	-4.27	111.12	117.72

All (2) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
38	0	2924	TAO	C9
38	0	2924	TAO	C10

5 of 14 torsion outliers are listed below:

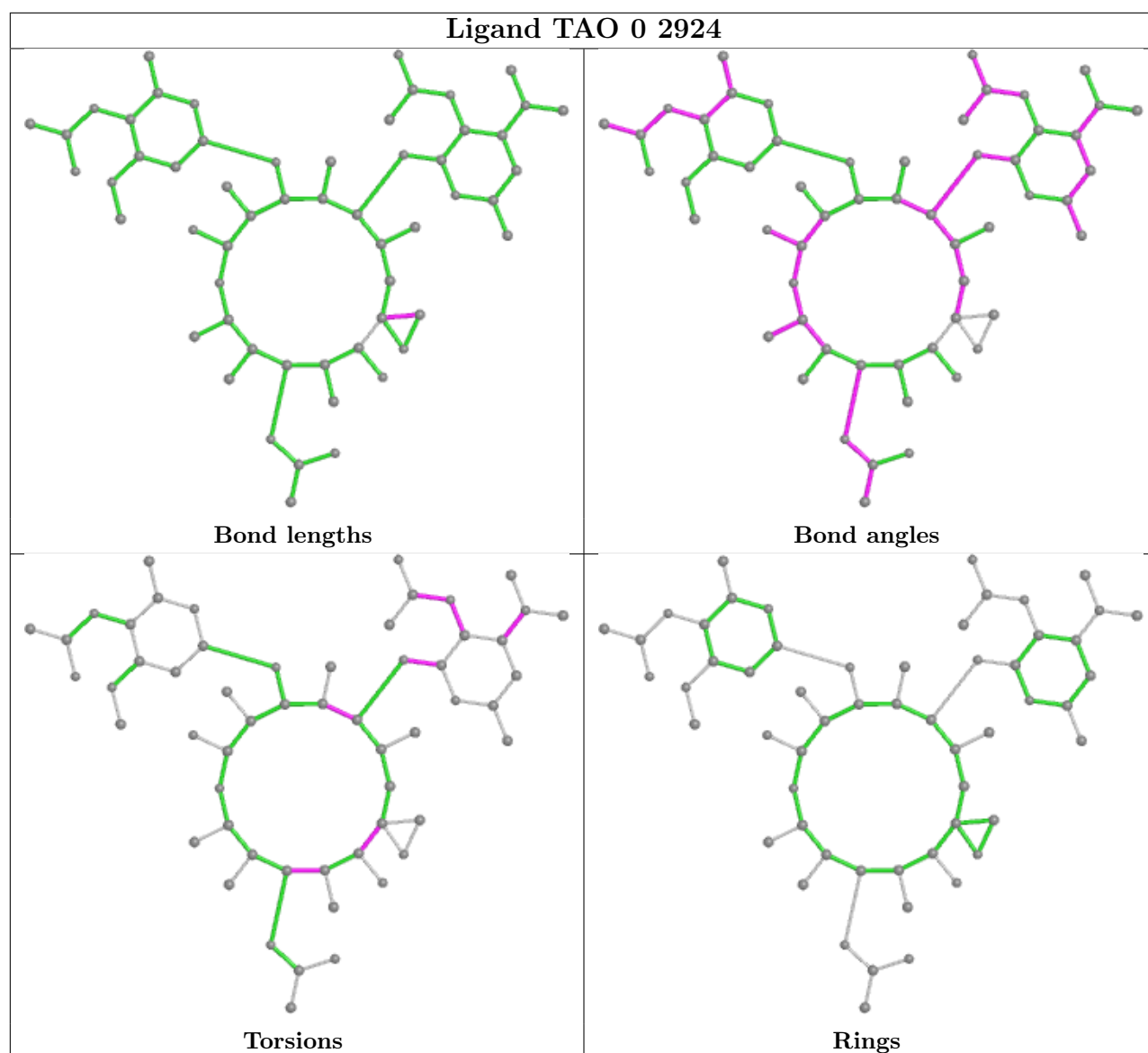
Mol	Chain	Res	Type	Atoms
38	0	2924	TAO	C44-C38-O33-C28
38	0	2924	TAO	O45-C38-O33-C28
38	0	2924	TAO	C10-C14-C19-C25
38	0	2924	TAO	C34-C28-O33-C38
38	0	2924	TAO	C40-C34-N39-C47

There are no ring outliers.

1 monomer is involved in 14 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
38	0	2924	TAO	14	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



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	237/240 (98%)	-0.33	5 (2%) 63 61	19, 43, 83, 105	0
2	B	337/338 (99%)	-0.47	0 100 100	17, 47, 75, 90	0
3	C	246/246 (100%)	-0.39	0 100 100	12, 41, 66, 78	0
4	D	140/177 (79%)	0.97	31 (22%) 0 0	51, 92, 120, 131	0
5	E	172/178 (96%)	-0.19	4 (2%) 60 58	39, 62, 89, 96	0
6	F	119/120 (99%)	0.40	10 (8%) 11 8	43, 70, 104, 120	0
7	G	29/348 (8%)	0.80	3 (10%) 6 5	62, 88, 97, 98	0
8	H	160/174 (91%)	-0.35	0 100 100	24, 48, 85, 99	0
9	I	70/162 (43%)	3.17	51 (72%) 0 0	124, 138, 160, 161	0
10	J	142/145 (97%)	-0.51	1 (0%) 87 87	25, 43, 65, 80	0
11	K	132/132 (100%)	-0.54	0 100 100	25, 43, 68, 75	0
12	L	145/165 (87%)	0.06	6 (4%) 37 32	13, 60, 107, 118	0
13	M	194/194 (100%)	-0.61	0 100 100	22, 36, 55, 62	0
14	N	186/187 (99%)	0.08	8 (4%) 35 31	32, 58, 111, 119	0
15	O	115/116 (99%)	-0.38	0 100 100	30, 49, 66, 74	0
16	P	143/149 (95%)	-0.42	0 100 100	30, 49, 64, 67	0
17	Q	95/96 (98%)	-0.60	0 100 100	25, 36, 51, 71	0
18	R	150/155 (96%)	-0.64	0 100 100	21, 37, 61, 73	0
19	S	81/85 (95%)	-0.08	1 (1%) 79 79	35, 57, 74, 82	0
20	T	119/120 (99%)	-0.17	2 (1%) 70 69	32, 53, 80, 100	0
21	U	53/66 (80%)	-0.51	0 100 100	30, 49, 70, 74	0
22	V	65/71 (91%)	0.90	10 (15%) 2 1	49, 72, 108, 116	0
23	W	154/154 (100%)	-0.66	0 100 100	26, 40, 59, 70	0
24	X	82/92 (89%)	-0.22	1 (1%) 79 79	36, 49, 73, 84	0

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
25	Y	142/241 (58%)	-0.52	1 (0%) 87 87	18, 39, 64, 81	0
26	Z	73/116 (62%)	-0.32	1 (1%) 75 75	34, 54, 77, 93	0
27	1	56/57 (98%)	-0.63	0 100 100	16, 26, 35, 43	0
28	2	46/50 (92%)	-0.16	0 100 100	29, 56, 81, 98	0
29	3	92/92 (100%)	-0.41	0 100 100	27, 47, 62, 73	0
30	0	2749/2923 (94%)	-0.67	8 (0%) 94 94	11, 36, 81, 154	0
31	9	122/122 (100%)	-0.76	2 (1%) 72 71	22, 51, 78, 129	0
All	All	6646/7511 (88%)	-0.41	145 (2%) 62 59	11, 44, 93, 161	0

The worst 5 of 145 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
9	I	112	LEU	9.2
9	I	97	VAL	8.9
9	I	72	GLU	8.0
22	V	40	PRO	7.4
9	I	109	PRO	7.3

6.2 Non-standard residues in protein, DNA, RNA chains [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(Å ²)	Q<0.9
30	1MA	0	628	23/24	0.98	0.14	13,18,20,21	0
30	OMU	0	2587	21/22	0.98	0.11	22,25,29,32	0
30	OMG	0	2588	24/25	0.98	0.13	20,23,24,28	0
30	UR3	0	2619	21/22	0.98	0.12	21,24,26,29	0
30	PSU	0	2621	20/21	0.98	0.13	18,19,25,25	0

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, 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
34	SR	0	8938	1/1	-0.47	0.70	200,200,200,200	0
34	SR	0	8928	1/1	-0.11	1.41	200,200,200,200	0
34	SR	0	8959	1/1	-0.06	0.67	195,195,195,195	0
34	SR	A	8993	1/1	0.03	0.21	200,200,200,200	0
32	MG	0	8091	1/1	0.09	0.28	79,79,79,79	0
34	SR	A	8930	1/1	0.10	2.72	200,200,200,200	0
34	SR	9	8980	1/1	0.10	0.39	200,200,200,200	0
35	NA	0	8525	1/1	0.13	1.03	107,107,107,107	0
34	SR	0	9000	1/1	0.15	1.26	200,200,200,200	0
34	SR	0	9006	1/1	0.18	0.41	192,192,192,192	0
35	NA	0	8548	1/1	0.19	0.23	59,59,59,59	0
35	NA	0	8509	1/1	0.22	0.33	53,53,53,53	0
34	SR	0	8908	1/1	0.23	0.27	200,200,200,200	0
34	SR	0	8903	1/1	0.23	0.12	168,168,168,168	0
34	SR	0	8907	1/1	0.27	0.22	180,180,180,180	0
34	SR	0	8966	1/1	0.27	0.27	178,178,178,178	0
34	SR	0	8965	1/1	0.28	0.09	143,143,143,143	0
34	SR	0	8920	1/1	0.28	0.56	200,200,200,200	0
34	SR	0	8935	1/1	0.33	0.11	159,159,159,159	0
34	SR	0	8911	1/1	0.35	0.38	200,200,200,200	0
34	SR	0	8984	1/1	0.37	0.08	170,170,170,170	0
34	SR	0	8991	1/1	0.38	0.11	162,162,162,162	0
34	SR	0	8926	1/1	0.39	0.39	199,199,199,199	0
34	SR	0	8997	1/1	0.40	1.21	200,200,200,200	0
34	SR	B	8987	1/1	0.42	0.29	199,199,199,199	0
34	SR	A	8929	1/1	0.44	0.46	174,174,174,174	0
35	NA	0	8511	1/1	0.44	0.20	56,56,56,56	0
34	SR	0	8922	1/1	0.45	0.55	155,155,155,155	0
35	NA	0	8535	1/1	0.45	0.39	68,68,68,68	0
34	SR	3	8999	1/1	0.45	0.23	200,200,200,200	0
35	NA	0	8557	1/1	0.45	0.24	89,89,89,89	0
35	NA	J	8538	1/1	0.46	0.22	49,49,49,49	0
34	SR	0	8933	1/1	0.47	0.14	137,137,137,137	0
34	SR	1	8952	1/1	0.48	0.68	200,200,200,200	0
34	SR	0	9004	1/1	0.51	0.53	200,200,200,200	0
34	SR	0	8970	1/1	0.51	0.46	200,200,200,200	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
34	SR	0	8901	1/1	0.53	0.12	73,73,73,73	0
34	SR	B	8950	1/1	0.53	0.62	196,196,196,196	0
34	SR	0	8968	1/1	0.55	0.14	170,170,170,170	0
34	SR	0	8995	1/1	0.56	0.38	164,164,164,164	0
34	SR	0	8934	1/1	0.57	0.76	168,168,168,168	0
34	SR	0	8925	1/1	0.57	0.18	178,178,178,178	0
34	SR	0	8982	1/1	0.57	1.21	200,200,200,200	0
34	SR	Y	9002	1/1	0.58	0.39	200,200,200,200	0
32	MG	0	8037	1/1	0.58	0.94	88,88,88,88	0
34	SR	0	8949	1/1	0.58	0.20	132,132,132,132	0
34	SR	T	8939	1/1	0.58	0.64	200,200,200,200	0
34	SR	0	8919	1/1	0.59	0.40	188,188,188,188	0
35	NA	C	8558	1/1	0.61	0.45	33,33,33,33	0
34	SR	0	8964	1/1	0.62	0.42	188,188,188,188	0
35	NA	0	8519	1/1	0.62	0.37	76,76,76,76	0
34	SR	0	8956	1/1	0.64	0.10	147,147,147,147	0
32	MG	0	8034	1/1	0.65	0.50	60,60,60,60	0
35	NA	0	8560	1/1	0.65	0.45	104,104,104,104	0
35	NA	0	8570	1/1	0.65	0.55	81,81,81,81	0
34	SR	0	8931	1/1	0.66	0.16	193,193,193,193	0
35	NA	0	8565	1/1	0.66	1.06	79,79,79,79	0
34	SR	0	8988	1/1	0.66	0.20	177,177,177,177	0
34	SR	0	8927	1/1	0.67	0.23	184,184,184,184	0
34	SR	0	8958	1/1	0.67	0.10	147,147,147,147	0
34	SR	0	8960	1/1	0.68	0.35	200,200,200,200	0
34	SR	0	8973	1/1	0.68	0.14	178,178,178,178	0
34	SR	0	8909	1/1	0.69	0.25	189,189,189,189	0
34	SR	0	8945	1/1	0.70	0.09	131,131,131,131	0
34	SR	0	8946	1/1	0.70	0.40	190,190,190,190	0
32	MG	2	8060	1/1	0.70	0.28	67,67,67,67	0
34	SR	0	8954	1/1	0.70	0.87	198,198,198,198	0
34	SR	0	8979	1/1	0.71	0.09	180,180,180,180	0
34	SR	0	8998	1/1	0.71	0.37	196,196,196,196	0
34	SR	3	8932	1/1	0.71	0.11	133,133,133,133	0
32	MG	0	8053	1/1	0.72	0.11	78,78,78,78	0
35	NA	0	8502	1/1	0.72	0.29	54,54,54,54	0
34	SR	0	8977	1/1	0.72	0.12	194,194,194,194	0
34	SR	0	8910	1/1	0.72	0.10	92,92,92,92	0
34	SR	0	8923	1/1	0.73	0.59	165,165,165,165	0
35	NA	0	8568	1/1	0.73	0.44	46,46,46,46	0
34	SR	0	8962	1/1	0.73	0.26	197,197,197,197	0
35	NA	0	8529	1/1	0.74	0.08	33,33,33,33	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
34	SR	0	8924	1/1	0.74	0.12	184,184,184,184	0
35	NA	0	8505	1/1	0.74	0.52	31,31,31,31	0
34	SR	0	8942	1/1	0.74	0.34	162,162,162,162	0
34	SR	0	8916	1/1	0.75	0.34	178,178,178,178	0
35	NA	0	8567	1/1	0.76	0.46	63,63,63,63	0
35	NA	0	8571	1/1	0.76	0.21	73,73,73,73	0
35	NA	9	8572	1/1	0.76	0.68	103,103,103,103	0
32	MG	0	8039	1/1	0.77	0.31	56,56,56,56	0
35	NA	0	8549	1/1	0.77	0.43	60,60,60,60	0
32	MG	0	8036	1/1	0.77	0.08	46,46,46,46	0
34	SR	0	8943	1/1	0.77	0.38	179,179,179,179	0
35	NA	S	8510	1/1	0.77	0.18	35,35,35,35	0
34	SR	0	8947	1/1	0.78	0.32	200,200,200,200	0
35	NA	R	8532	1/1	0.78	0.12	39,39,39,39	0
32	MG	0	8083	1/1	0.78	0.09	41,41,41,41	0
32	MG	0	8052	1/1	0.79	0.23	59,59,59,59	0
34	SR	9	9003	1/1	0.80	0.23	195,195,195,195	0
32	MG	0	8027	1/1	0.80	0.16	37,37,37,37	0
34	SR	0	8986	1/1	0.80	1.32	200,200,200,200	0
35	NA	0	8507	1/1	0.80	0.58	68,68,68,68	0
34	SR	0	9001	1/1	0.80	0.71	187,187,187,187	0
38	TAO	0	2924	57/57	0.80	0.35	83,95,107,109	0
34	SR	0	8978	1/1	0.81	0.79	200,200,200,200	0
35	NA	0	8561	1/1	0.81	0.46	52,52,52,52	0
35	NA	Q	8540	1/1	0.81	0.11	34,34,34,34	0
34	SR	0	8989	1/1	0.82	0.70	200,200,200,200	0
32	MG	0	8059	1/1	0.82	0.11	33,33,33,33	0
35	NA	0	8555	1/1	0.82	0.37	38,38,38,38	0
34	SR	0	8917	1/1	0.82	0.62	199,199,199,199	0
35	NA	0	8559	1/1	0.82	0.34	94,94,94,94	0
32	MG	0	8020	1/1	0.82	0.11	36,36,36,36	0
37	K	0	8401	1/1	0.82	0.40	150,150,150,150	0
34	SR	0	8971	1/1	0.82	0.09	195,195,195,195	0
34	SR	0	8906	1/1	0.83	0.40	191,191,191,191	0
34	SR	0	8992	1/1	0.83	0.13	151,151,151,151	0
34	SR	0	9005	1/1	0.83	0.24	190,190,190,190	0
34	SR	0	8955	1/1	0.83	0.13	184,184,184,184	0
35	NA	0	8546	1/1	0.83	0.68	106,106,106,106	0
34	SR	0	8969	1/1	0.84	0.25	181,181,181,181	0
34	SR	0	9007	1/1	0.84	0.40	200,200,200,200	0
34	SR	0	8957	1/1	0.84	0.76	200,200,200,200	0
33	CL	J	8802	1/1	0.84	0.07	66,66,66,66	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
34	SR	0	8981	1/1	0.84	0.51	200,200,200,200	0
34	SR	0	8990	1/1	0.84	0.08	91,91,91,91	0
32	MG	0	8081	1/1	0.84	0.49	94,94,94,94	0
34	SR	0	8983	1/1	0.84	0.35	170,170,170,170	0
35	NA	0	8528	1/1	0.84	0.09	49,49,49,49	0
35	NA	0	8531	1/1	0.85	0.22	47,47,47,47	0
32	MG	B	8043	1/1	0.85	0.13	37,37,37,37	0
32	MG	0	8082	1/1	0.85	0.33	39,39,39,39	0
34	SR	0	8921	1/1	0.85	0.14	155,155,155,155	0
35	NA	0	8520	1/1	0.85	0.11	44,44,44,44	0
34	SR	0	8940	1/1	0.85	0.28	159,159,159,159	0
35	NA	0	8526	1/1	0.85	0.09	51,51,51,51	0
34	SR	0	8994	1/1	0.85	0.23	192,192,192,192	0
34	SR	H	8972	1/1	0.85	0.14	131,131,131,131	0
35	NA	0	8564	1/1	0.86	0.95	91,91,91,91	0
34	SR	0	8944	1/1	0.86	0.21	200,200,200,200	0
34	SR	0	8996	1/1	0.86	0.62	200,200,200,200	0
32	MG	0	8049	1/1	0.86	0.32	43,43,43,43	0
32	MG	0	8092	1/1	0.86	0.06	61,61,61,61	0
34	SR	0	8904	1/1	0.86	0.35	200,200,200,200	0
34	SR	0	8948	1/1	0.86	0.11	94,94,94,94	0
34	SR	0	8915	1/1	0.86	0.14	200,200,200,200	0
35	NA	M	8539	1/1	0.86	0.10	19,19,19,19	0
33	CL	L	8810	1/1	0.87	0.07	69,69,69,69	0
32	MG	0	8005	1/1	0.87	0.21	26,26,26,26	0
35	NA	0	8521	1/1	0.87	0.08	28,28,28,28	0
35	NA	0	8522	1/1	0.87	0.85	73,73,73,73	0
35	NA	0	8524	1/1	0.87	0.19	43,43,43,43	0
35	NA	0	8501	1/1	0.87	0.25	29,29,29,29	0
34	SR	0	9008	1/1	0.87	0.08	135,135,135,135	0
32	MG	0	8055	1/1	0.88	0.15	49,49,49,49	0
35	NA	0	8553	1/1	0.88	0.41	59,59,59,59	0
34	SR	R	8912	1/1	0.88	0.12	157,157,157,157	0
32	MG	A	8050	1/1	0.88	0.16	18,18,18,18	0
32	MG	0	8071	1/1	0.88	0.45	136,136,136,136	0
35	NA	0	8574	1/1	0.88	0.28	52,52,52,52	0
32	MG	0	8002	1/1	0.88	0.16	14,14,14,14	0
32	MG	0	8035	1/1	0.88	0.21	65,65,65,65	0
34	SR	3	8953	1/1	0.88	0.20	200,200,200,200	0
33	CL	0	8822	1/1	0.89	0.10	59,59,59,59	0
32	MG	0	8056	1/1	0.89	0.19	37,37,37,37	0
35	NA	0	8547	1/1	0.89	0.22	49,49,49,49	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
32	MG	0	8029	1/1	0.89	0.23	111,111,111,111	0
32	MG	0	8063	1/1	0.89	0.12	47,47,47,47	0
35	NA	0	8530	1/1	0.89	0.36	46,46,46,46	0
32	MG	0	8069	1/1	0.89	0.34	38,38,38,38	0
32	MG	0	8079	1/1	0.90	0.15	51,51,51,51	0
32	MG	0	8068	1/1	0.90	0.13	54,54,54,54	0
34	SR	0	8905	1/1	0.90	0.21	161,161,161,161	0
35	NA	0	8556	1/1	0.90	0.32	41,41,41,41	0
32	MG	9	8074	1/1	0.90	0.08	45,45,45,45	0
35	NA	0	8506	1/1	0.90	0.31	50,50,50,50	0
32	MG	0	8032	1/1	0.90	0.09	47,47,47,47	0
35	NA	0	8508	1/1	0.90	0.76	41,41,41,41	0
32	MG	0	8033	1/1	0.90	0.12	78,78,78,78	0
32	MG	0	8004	1/1	0.91	0.18	23,23,23,23	0
35	NA	0	8573	1/1	0.91	0.26	65,65,65,65	0
32	MG	K	8054	1/1	0.91	0.27	62,62,62,62	0
35	NA	0	8550	1/1	0.91	0.12	25,25,25,25	0
34	SR	0	8936	1/1	0.91	0.11	100,100,100,100	0
32	MG	0	8075	1/1	0.91	0.06	32,32,32,32	0
32	MG	T	8057	1/1	0.92	0.05	60,60,60,60	0
34	SR	0	8914	1/1	0.92	0.49	198,198,198,198	0
32	MG	0	8093	1/1	0.92	0.05	13,13,13,13	0
33	CL	L	8814	1/1	0.92	0.19	51,51,51,51	0
34	SR	0	8902	1/1	0.92	0.18	107,107,107,107	0
32	MG	9	8040	1/1	0.92	0.64	71,71,71,71	0
34	SR	0	8967	1/1	0.92	0.24	191,191,191,191	0
32	MG	0	8019	1/1	0.92	0.25	1,1,1,1	0
33	CL	J	8821	1/1	0.93	0.10	61,61,61,61	0
35	NA	0	8551	1/1	0.93	0.12	36,36,36,36	0
35	NA	C	8503	1/1	0.93	0.17	31,31,31,31	0
34	SR	0	8974	1/1	0.93	0.21	165,165,165,165	0
32	MG	0	8072	1/1	0.93	0.21	44,44,44,44	0
35	NA	0	8541	1/1	0.93	0.73	86,86,86,86	0
33	CL	J	8801	1/1	0.93	0.09	58,58,58,58	0
34	SR	0	8937	1/1	0.93	0.28	155,155,155,155	0
33	CL	Y	8820	1/1	0.93	0.09	33,33,33,33	0
32	MG	0	8026	1/1	0.93	0.11	22,22,22,22	0
34	SR	0	8941	1/1	0.94	0.20	180,180,180,180	0
33	CL	0	8805	1/1	0.94	0.18	62,62,62,62	0
32	MG	B	8042	1/1	0.94	0.14	41,41,41,41	0
34	SR	0	8963	1/1	0.94	0.20	182,182,182,182	0
32	MG	0	8078	1/1	0.94	0.17	28,28,28,28	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
32	MG	0	8021	1/1	0.94	0.07	16,16,16,16	0
35	NA	0	8562	1/1	0.94	0.28	45,45,45,45	0
32	MG	0	8067	1/1	0.94	0.37	51,51,51,51	0
32	MG	0	8028	1/1	0.94	0.18	16,16,16,16	0
35	NA	0	8566	1/1	0.94	0.15	69,69,69,69	0
35	NA	0	8536	1/1	0.94	0.16	46,46,46,46	0
32	MG	0	8023	1/1	0.94	0.13	14,14,14,14	0
34	SR	0	8918	1/1	0.94	0.12	122,122,122,122	0
32	MG	0	8089	1/1	0.94	0.27	56,56,56,56	0
35	NA	0	8516	1/1	0.94	0.12	18,18,18,18	0
32	MG	0	8030	1/1	0.94	0.30	45,45,45,45	0
34	SR	S	8961	1/1	0.94	0.21	165,165,165,165	0
32	MG	0	8031	1/1	0.94	0.10	69,69,69,69	0
33	CL	0	8803	1/1	0.94	0.14	50,50,50,50	0
35	NA	0	8512	1/1	0.95	0.30	32,32,32,32	0
32	MG	0	8018	1/1	0.95	0.26	53,53,53,53	0
32	MG	A	8051	1/1	0.95	0.47	117,117,117,117	0
33	CL	O	8808	1/1	0.95	0.13	68,68,68,68	0
35	NA	0	8534	1/1	0.95	0.14	15,15,15,15	0
34	SR	1	8913	1/1	0.95	0.35	179,179,179,179	0
32	MG	0	8073	1/1	0.95	0.09	47,47,47,47	0
35	NA	0	8537	1/1	0.95	0.14	22,22,22,22	0
32	MG	0	8006	1/1	0.95	0.06	7,7,7,7	0
35	NA	9	8543	1/1	0.95	0.09	22,22,22,22	0
35	NA	0	8545	1/1	0.95	0.18	41,41,41,41	0
32	MG	0	8046	1/1	0.95	0.12	25,25,25,25	0
37	K	0	8402	1/1	0.95	0.17	78,78,78,78	0
32	MG	0	8047	1/1	0.95	0.25	34,34,34,34	0
34	SR	0	8951	1/1	0.96	0.15	164,164,164,164	0
35	NA	R	8533	1/1	0.96	0.20	51,51,51,51	0
33	CL	3	8804	1/1	0.96	0.11	59,59,59,59	0
32	MG	0	8007	1/1	0.96	0.17	3,3,3,3	0
32	MG	0	8062	1/1	0.96	0.32	64,64,64,64	0
33	CL	0	8815	1/1	0.96	0.22	72,72,72,72	0
33	CL	0	8816	1/1	0.96	0.19	60,60,60,60	0
32	MG	0	8038	1/1	0.96	0.07	52,52,52,52	0
32	MG	0	8077	1/1	0.96	0.09	36,36,36,36	0
32	MG	0	8064	1/1	0.96	0.15	29,29,29,29	0
35	NA	0	8544	1/1	0.96	0.19	49,49,49,49	0
35	NA	0	8569	1/1	0.96	0.12	40,40,40,40	0
32	MG	0	8066	1/1	0.96	0.40	87,87,87,87	0
34	SR	0	8985	1/1	0.96	0.14	128,128,128,128	0

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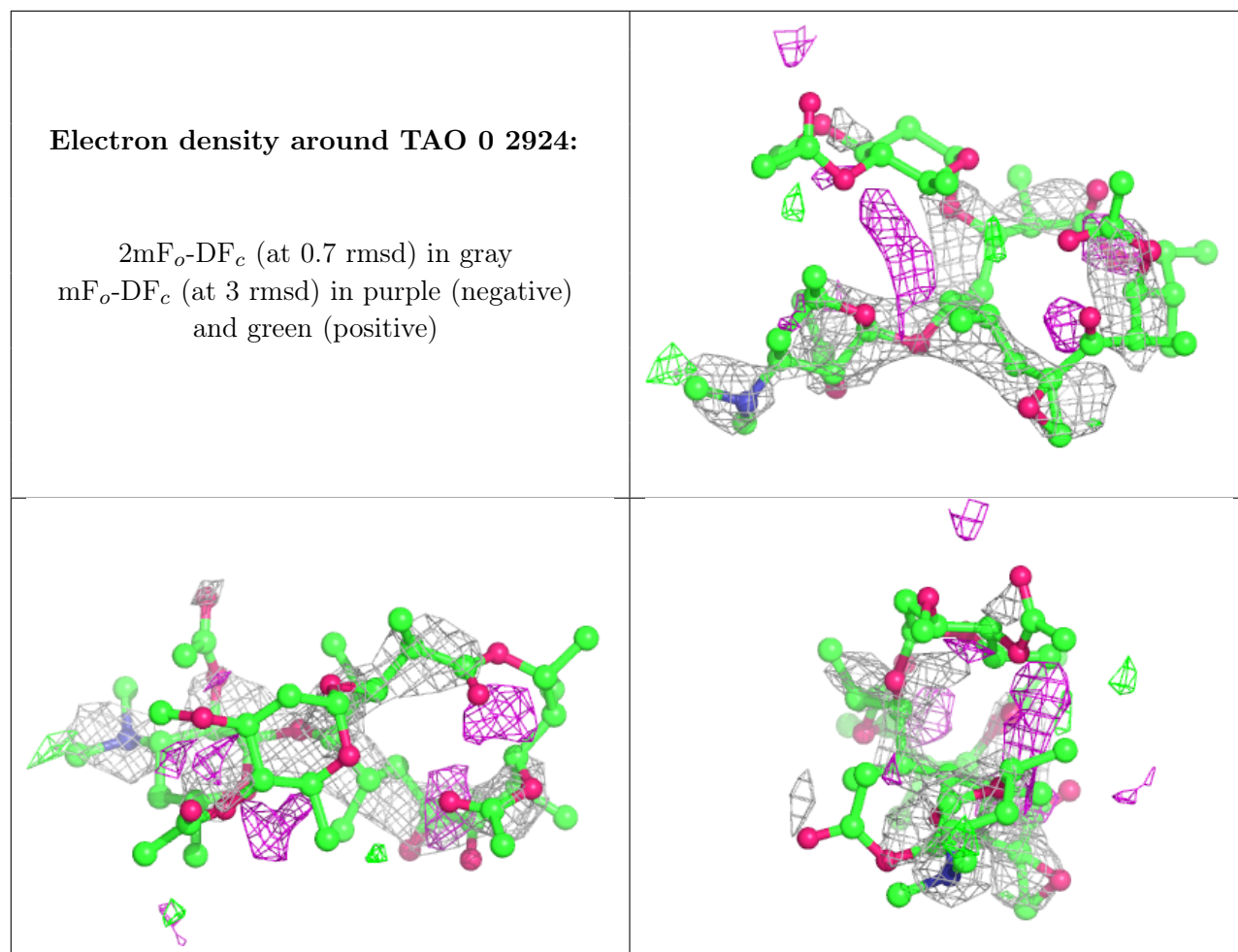
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
32	MG	0	8008	1/1	0.96	0.09	8,8,8,8	0
32	MG	0	8041	1/1	0.96	0.24	28,28,28,28	0
33	CL	K	8812	1/1	0.96	0.07	39,39,39,39	0
32	MG	0	8045	1/1	0.96	0.11	13,13,13,13	0
32	MG	0	8085	1/1	0.96	0.14	51,51,51,51	0
32	MG	0	8088	1/1	0.96	0.12	33,33,33,33	0
32	MG	0	8022	1/1	0.96	0.13	20,20,20,20	0
32	MG	0	8080	1/1	0.97	0.16	39,39,39,39	0
32	MG	0	8065	1/1	0.97	0.09	16,16,16,16	0
35	NA	0	8513	1/1	0.97	0.14	34,34,34,34	0
35	NA	0	8563	1/1	0.97	0.21	61,61,61,61	0
32	MG	0	8090	1/1	0.97	0.16	50,50,50,50	0
35	NA	0	8542	1/1	0.97	0.30	36,36,36,36	0
32	MG	0	8003	1/1	0.97	0.12	16,16,16,16	0
34	SR	0	8975	1/1	0.97	0.06	131,131,131,131	0
35	NA	R	8575	1/1	0.97	0.39	65,65,65,65	0
34	SR	0	8976	1/1	0.97	0.20	195,195,195,195	0
32	MG	0	8024	1/1	0.97	0.27	43,43,43,43	0
32	MG	0	8084	1/1	0.97	0.16	37,37,37,37	0
35	NA	0	8504	1/1	0.97	0.13	18,18,18,18	0
35	NA	0	8527	1/1	0.97	0.21	44,44,44,44	0
33	CL	N	8807	1/1	0.97	0.14	45,45,45,45	0
32	MG	0	8025	1/1	0.97	0.10	10,10,10,10	0
35	NA	B	8552	1/1	0.97	0.23	56,56,56,56	0
33	CL	R	8806	1/1	0.97	0.07	32,32,32,32	0
32	MG	0	8087	1/1	0.97	0.09	14,14,14,14	0
33	CL	0	8813	1/1	0.98	0.06	43,43,43,43	0
32	MG	C	8012	1/1	0.98	0.15	10,10,10,10	0
32	MG	0	8061	1/1	0.98	0.17	23,23,23,23	0
33	CL	0	8817	1/1	0.98	0.07	57,57,57,57	0
35	NA	0	8523	1/1	0.98	0.29	46,46,46,46	0
32	MG	0	8070	1/1	0.98	0.18	31,31,31,31	0
32	MG	Y	8086	1/1	0.98	0.20	69,69,69,69	0
33	CL	M	8818	1/1	0.98	0.06	36,36,36,36	0
32	MG	0	8009	1/1	0.98	0.22	15,15,15,15	0
32	MG	0	8013	1/1	0.98	0.09	11,11,11,11	0
33	CL	Q	8811	1/1	0.98	0.04	51,51,51,51	0
32	MG	0	8014	1/1	0.98	0.12	15,15,15,15	0
33	CL	A	8809	1/1	0.98	0.11	86,86,86,86	0
33	CL	B	8819	1/1	0.98	0.10	42,42,42,42	0
36	CD	O	8705	1/1	0.98	0.09	91,91,91,91	0
36	CD	1	8702	1/1	0.98	0.12	58,58,58,58	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
32	MG	0	8044	1/1	0.98	0.27	38,38,38,38	0
35	NA	0	8514	1/1	0.98	0.40	40,40,40,40	0
32	MG	0	8017	1/1	0.98	0.07	31,31,31,31	0
32	MG	0	8001	1/1	0.99	0.16	2,2,2,2	0
32	MG	0	8010	1/1	0.99	0.29	3,3,3,3	0
32	MG	0	8058	1/1	0.99	0.08	1,1,1,1	0
35	NA	2	8515	1/1	0.99	0.09	19,19,19,19	0
35	NA	C	8554	1/1	0.99	0.51	52,52,52,52	0
32	MG	0	8048	1/1	0.99	0.27	44,44,44,44	0
35	NA	0	8517	1/1	0.99	0.15	14,14,14,14	0
35	NA	H	8518	1/1	0.99	0.13	48,48,48,48	0
36	CD	U	8701	1/1	0.99	0.11	58,58,58,58	0
32	MG	0	8076	1/1	0.99	0.05	9,9,9,9	0
36	CD	3	8704	1/1	0.99	0.10	56,56,56,56	0
32	MG	0	8015	1/1	0.99	0.15	5,5,5,5	0
32	MG	0	8016	1/1	0.99	0.22	2,2,2,2	0
32	MG	0	8011	1/1	0.99	0.23	1,1,1,1	0
36	CD	Z	8703	1/1	1.00	0.12	55,55,55,55	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.



6.5 Other polymers [i](#)

There are no such residues in this entry.