



wwPDB EM Validation Summary Report ⓘ

Apr 16, 2024 – 03:19 am BST

PDB ID : 6ZTJ
EMDB ID : EMD-11418
Title : E. coli 70S-RNAP expressome complex in NusG-coupled state (38 nt intervening mRNA)
Authors : Webster, M.W.; Takacs, M.; Weixlbaumer, A.
Deposited on : 2020-07-20
Resolution : 3.40 Å (reported)
Based on initial models : 6ALH, 4YBB

This is a wwPDB EM 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/EMValidationReportHelp>

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:

EMDB validation analysis : 0.0.1.dev92
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : **FAILED**
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : **FAILED**
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:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.40 Å.

There are no overall percentile quality scores available for this entry.

MolProbity failed to run properly - the sequence quality summary graphics cannot be shown.

2 Entry composition [i](#)

There are 68 unique types of molecules in this entry. The entry contains 176970 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	AA	1533	32909	14684	6037	10655	1533	0	0

- Molecule 2 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	AB	226	1765	1116	317	324	8	0	0

- Molecule 3 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	AC	211	1653	1046	310	293	4	0	0

- Molecule 4 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	AD	205	1643	1026	315	298	4	0	0

- Molecule 5 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	AE	156	1148	715	217	210	6	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AE	9	CYS	GLY	conflict	UNP A0A090BZW5

- Molecule 6 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	AF	104	Total	C	N	O	S	0	0
			848	536	153	152	7		

- Molecule 7 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	AG	153	Total	C	N	O	S	0	0
			1203	750	231	218	4		

- Molecule 8 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	AH	129	Total	C	N	O	S	0	0
			979	616	173	184	6		

- Molecule 9 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	AI	128	Total	C	N	O	S	0	0
			1031	639	207	182	3		

- Molecule 10 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	AJ	101	Total	C	N	O	S	0	0
			808	504	155	148	1		

- Molecule 11 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	AK	117	Total	C	N	O	S	0	0
			877	540	174	160	3		

- Molecule 12 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	AL	122	Total	C	N	O	S	0	0
			951	588	195	163	5		

- Molecule 13 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	AM	115	Total	C	N	O	S	0	0
			891	552	179	157	3		

- Molecule 14 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	AN	100	Total	C	N	O	S	0	0
			805	499	164	139	3		

- Molecule 15 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	AO	88	Total	C	N	O	S	0	0
			714	439	144	130	1		

- Molecule 16 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	AP	82	Total	C	N	O	S	0	0
			649	406	128	114	1		

- Molecule 17 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	AQ	80	Total	C	N	O	S	0	0
			648	411	121	113	3		

- Molecule 18 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms				AltConf	Trace
18	AR	60	Total	C	N	O	0	0
			494	310	93	91		

- Molecule 19 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	AS	83	Total	C	N	O	S	0	0
			663	424	126	111	2		

- Molecule 20 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	AT	86	Total	C	N	O	S	0	0
			670	414	138	115	3		

- Molecule 21 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	AU	70	Total	C	N	O	S	0	0
			590	366	125	98	1		

- Molecule 22 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	AV	40	Total	C	N	O	P	0	0
			849	381	154	274	40		

- Molecule 23 is a RNA chain called tRNA(fmet) P-site.

Mol	Chain	Residues	Atoms						AltConf	Trace
23	AW	77	Total	C	N	O	P	S	0	0
			1645	734	297	536	77	1		

- Molecule 24 is a RNA chain called Phe-NH-tRNA(Phe) A-site.

Mol	Chain	Residues	Atoms						AltConf	Trace
24	AX	76	Total	C	N	O	P	S	0	0
			1624	724	290	533	76	1		

- Molecule 25 is a protein called 30S ribosomal protein S1.

Mol	Chain	Residues	Atoms				AltConf	Trace
25	AY	89	Total	C	N	O	0	0
			677	423	112	142		

- Molecule 26 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	BA	2900	Total	C	N	O	P	0	0
			62270	27786	11456	20128	2900		

- Molecule 27 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
27	BB	120	2569	1144	468	837	120	0	0

- Molecule 28 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
28	BC	272	2092	1294	425	366	7	0	0

- Molecule 29 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
29	BD	209	1566	980	288	294	4	0	0

- Molecule 30 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
30	BE	201	1552	974	283	290	5	0	0

- Molecule 31 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	BF	178	1420	905	251	258	6	0	0

- Molecule 32 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
32	BG	175	1313	826	241	244	2	0	0

- Molecule 33 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
33	BH	149	1111	699	197	214	1	0	0

- Molecule 34 is a protein called 50S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	BI	130	Total	C	N	O	S	0	0
			980	620	174	182	4		

- Molecule 35 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	BJ	141	Total	C	N	O	S	0	0
			1032	651	179	196	6		

- Molecule 36 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	BK	142	Total	C	N	O	S	0	0
			1129	714	212	199	4		

- Molecule 37 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	BL	123	Total	C	N	O	S	0	0
			947	593	181	167	6		

- Molecule 38 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	BM	144	Total	C	N	O	S	0	0
			1052	653	207	190	2		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
BM	77	VAL	ILE	conflict	UNP P02413

- Molecule 39 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	BN	136	Total	C	N	O	S	0	0
			1075	686	205	178	6		

- Molecule 40 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	BO	120	Total	C	N	O	S	0	0
			960	593	196	166	5		

- Molecule 41 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	BP	117	Total	C	N	O	S	0	0
			900	557	179	163	1		

- Molecule 42 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	BQ	114	Total	C	N	O	S	0	0
			917	574	179	163	1		

- Molecule 43 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms				AltConf	Trace
43	BR	117	Total	C	N	O	0	0
			947	604	192	151		

- Molecule 44 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	BS	103	Total	C	N	O	S	0	0
			816	516	153	145	2		

- Molecule 45 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	BT	110	Total	C	N	O	S	0	0
			857	532	166	156	3		

- Molecule 46 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	BU	96	Total	C	N	O	S	0	0
			764	484	142	136	2		

- Molecule 47 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
47	BV	103	Total	C	N	O	0	0
			789	498	148	143		

- Molecule 48 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	BW	94	Total	C	N	O	S	0	0
			753	479	137	134	3		

- Molecule 49 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	BX	76	Total	C	N	O	S	0	0
			582	360	117	104	1		

- Molecule 50 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	BY	77	Total	C	N	O	S	0	0
			625	388	129	106	2		

- Molecule 51 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	BZ	63	Total	C	N	O	S	0	0
			509	313	99	95	2		

- Molecule 52 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	B1	58	Total	C	N	O	S	0	0
			449	281	87	79	2		

- Molecule 53 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	B2	56	Total	C	N	O	S	0	0
			444	269	94	80	1		

- Molecule 54 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
54	B3	53	Total	C	N	O	0	0
			436	281	80	75		

- Molecule 55 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	B4	46	Total	C	N	O	S	0	0
			377	228	90	57	2		

- Molecule 56 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	B5	64	Total	C	N	O	S	0	0
			504	323	105	74	2		

- Molecule 57 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	B6	38	Total	C	N	O	S	0	0
			301	185	65	47	4		

- Molecule 58 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	B7	70	Total	C	N	O	S	0	0
			549	339	104	100	6		

- Molecule 59 is a DNA chain called Non-template DNA strand.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	CN	30	Total	C	N	O	P	0	0
			618	294	114	180	30		

- Molecule 60 is a DNA chain called Template DNA strand.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	CT	30	Total	C	N	O	P	0	0
			606	288	105	183	30		

- Molecule 61 is a protein called DNA-directed RNA polymerase subunit alpha.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	CA	229	Total	C	N	O	S	0	0
			1775	1106	313	350	6		
61	CB	219	Total	C	N	O	S	0	0
			1684	1051	295	332	6		

- Molecule 62 is a protein called DNA-directed RNA polymerase subunit beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	CC	1320	Total	C	N	O	S	0	0
			10415	6535	1815	2021	44		

- Molecule 63 is a protein called DNA-directed RNA polymerase subunit beta'.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	CD	1333	Total	C	N	O	S	0	0
			10375	6518	1851	1956	50		

- Molecule 64 is a protein called DNA-directed RNA polymerase subunit omega.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	CE	51	Total	C	N	O	S	0	0
			399	246	77	75	1		

- Molecule 65 is a protein called Transcription termination/antitermination protein NusG.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	CF	161	Total	C	N	O	S	0	0
			1283	818	221	237	7		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
CF	121	ALA	LYS	conflict	UNP P0AFG1

- Molecule 66 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

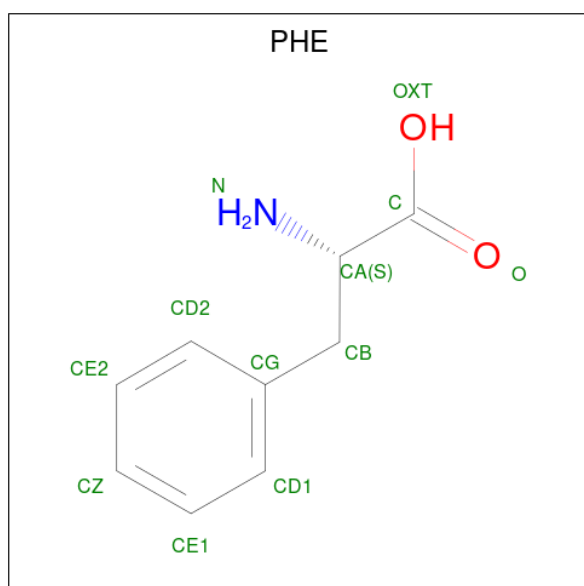
Mol	Chain	Residues	Atoms		AltConf
66	AA	148	Total	Mg	0
			148	148	
66	AI	1	Total	Mg	0
			1	1	

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Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
66	AW	1	1	1	0
66	AX	1	1	1	0
66	BA	314	314	314	0
66	BB	6	6	6	0
66	BC	3	3	3	0
66	BD	1	1	1	0
66	BE	1	1	1	0
66	BQ	1	1	1	0
66	BT	1	1	1	0
66	CD	1	1	1	0

- Molecule 67 is PHENYLALANINE (three-letter code: PHE) (formula: C₉H₁₁NO₂).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
67	AX	1	11	9	1	1	0

- Molecule 68 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
68	B6	1	Total 1	Zn 1	0
68	B7	1	Total 1	Zn 1	0
68	CD	2	Total 2	Zn 2	0

MolProbity failed to run properly - this section is therefore empty.

3 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	15327	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	42	Depositor
Minimum defocus (nm)	700	Depositor
Maximum defocus (nm)	3500	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor

4 Model quality [i](#)

4.1 Standard geometry [i](#)

MolProbity failed to run properly - this section is therefore empty.

4.2 Too-close contacts [i](#)

MolProbity failed to run properly - this section is therefore empty.

4.3 Torsion angles [i](#)

4.3.1 Protein backbone [i](#)

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4.3.2 Protein sidechains [i](#)

MolProbity failed to run properly - this section is therefore empty.

4.3.3 RNA [i](#)

MolProbity failed to run properly - this section is therefore empty.

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

53 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
24	7MG	AX	46	24	20,25,27	3.27	10 (50%)	27,37,42	2.22	8 (29%)
24	4SU	AX	8	24	18,21,22	4.12	8 (44%)	26,30,33	2.26	5 (19%)
1	5MC	AA	967	1	18,22,23	3.99	7 (38%)	26,32,35	1.03	1 (3%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
1	MA6	AA	1518	1	18,26,27	1.34	3 (16%)	19,38,41	4.16	2 (10%)
26	PSU	BA	955	26,66	18,21,22	1.07	2 (11%)	22,30,33	1.74	4 (18%)
23	OMC	AW	32	23	19,22,23	3.03	8 (42%)	26,31,34	0.92	1 (3%)
24	3AU	AX	47	24	18,21,29	3.40	8 (44%)	26,30,43	1.64	4 (15%)
26	2MG	BA	1835	26	18,26,27	2.30	7 (38%)	16,38,41	1.62	4 (25%)
26	PSU	BA	2504	26	18,21,22	1.06	3 (16%)	22,30,33	2.05	6 (27%)
24	H2U	AX	20	24	18,21,22	3.15	5 (27%)	21,30,33	1.95	4 (19%)
26	PSU	BA	2580	26	18,21,22	1.05	2 (11%)	22,30,33	2.07	6 (27%)
26	PSU	BA	2605	26	18,21,22	1.04	1 (5%)	22,30,33	1.96	6 (27%)
23	H2U	AW	20	23	18,21,22	3.07	5 (27%)	21,30,33	1.99	5 (23%)
1	UR3	AA	1498	66,1	19,22,23	2.59	7 (36%)	26,32,35	1.31	1 (3%)
1	G7M	AA	527	1	20,26,27	2.28	8 (40%)	17,39,42	1.22	2 (11%)
23	PSU	AW	55	23	18,21,22	1.04	1 (5%)	22,30,33	1.98	7 (31%)
1	2MG	AA	1516	1	18,26,27	2.28	7 (38%)	16,38,41	1.64	4 (25%)
26	6MZ	BA	1618	26	18,25,26	1.99	3 (16%)	16,36,39	1.86	3 (18%)
26	OMU	BA	2552	26	19,22,23	3.01	7 (36%)	26,31,34	1.71	5 (19%)
1	MA6	AA	1519	1	18,26,27	1.35	3 (16%)	19,38,41	4.12	2 (10%)
26	OMC	BA	2498	26	19,22,23	2.91	8 (42%)	26,31,34	0.87	1 (3%)
23	5MU	AW	54	23	19,22,23	1.41	5 (26%)	28,32,35	2.11	6 (21%)
1	2MG	AA	1207	66,1	18,26,27	2.36	7 (38%)	16,38,41	1.42	4 (25%)
24	PSU	AX	32	66,24	18,21,22	1.09	2 (11%)	22,30,33	1.77	4 (18%)
26	1MG	BA	745	26	18,26,27	2.66	5 (27%)	19,39,42	1.46	3 (15%)
26	H2U	BA	2449	26	18,21,22	2.82	5 (27%)	21,30,33	2.13	5 (23%)
23	4SU	AW	8	23	18,21,22	4.16	8 (44%)	26,30,33	2.28	5 (19%)
26	PSU	BA	2457	26	18,21,22	1.05	1 (5%)	22,30,33	2.00	6 (27%)
26	G7M	BA	2069	26	20,26,27	2.32	7 (35%)	17,39,42	1.18	2 (11%)
26	2MA	BA	2503	26,66	17,25,26	2.62	6 (35%)	17,37,40	1.41	3 (17%)
12	D2T	AL	89	12	7,9,10	1.11	0	6,11,13	2.48	4 (66%)
26	5MC	BA	1962	26	18,22,23	3.97	7 (38%)	26,32,35	1.14	1 (3%)
1	5MC	AA	1407	1	18,22,23	3.89	7 (38%)	26,32,35	0.97	1 (3%)
26	2MG	BA	2445	26,30	18,26,27	2.31	7 (38%)	16,38,41	1.54	4 (25%)
26	PSU	BA	1917	26	18,21,22	0.99	1 (5%)	22,30,33	1.80	5 (22%)
1	2MG	AA	966	1	18,26,27	2.41	7 (38%)	16,38,41	1.74	6 (37%)
1	4OC	AA	1402	1	20,23,24	3.40	9 (45%)	26,32,35	1.01	2 (7%)
39	4D4	BN	81	39	9,11,12	2.41	2 (22%)	8,13,15	0.86	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
24	5MU	AX	54	24	19,22,23	1.34	5 (26%)	28,32,35	2.09	6 (21%)
24	PSU	AX	55	24	18,21,22	1.10	1 (5%)	22,30,33	1.89	5 (22%)
26	6MZ	BA	2030	26	18,25,26	1.93	3 (16%)	16,36,39	2.48	3 (18%)
29	MEQ	BD	150	29	8,9,10	0.86	0	5,10,12	0.92	0
26	3TD	BA	1915	26	18,22,23	4.47	10 (55%)	22,32,35	1.91	4 (18%)
24	MIA	AX	37	24	18,24,32	1.49	3 (16%)	18,35,47	1.53	2 (11%)
26	PSU	BA	746	26,66	18,21,22	1.03	1 (5%)	22,30,33	2.12	8 (36%)
1	PSU	AA	516	1	18,21,22	1.05	2 (11%)	22,30,33	2.04	7 (31%)
26	5MU	BA	747	26	19,22,23	1.41	4 (21%)	28,32,35	2.16	6 (21%)
26	5MU	BA	1939	26	19,22,23	1.42	4 (21%)	28,32,35	2.29	6 (21%)
26	PSU	BA	1911	26	18,21,22	1.07	1 (5%)	22,30,33	1.77	3 (13%)
26	OMG	BA	2251	26,23	18,26,27	2.69	8 (44%)	19,38,41	1.52	4 (21%)
24	H2U	AX	16	24	18,21,22	3.05	5 (27%)	21,30,33	2.01	5 (23%)
24	PSU	AX	39	24	18,21,22	1.14	1 (5%)	22,30,33	1.78	5 (22%)
26	PSU	BA	2604	26	18,21,22	1.01	1 (5%)	22,30,33	1.67	3 (13%)

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
24	7MG	AX	46	24	-	2/7/34/38	0/3/3/3
24	4SU	AX	8	24	-	1/7/25/26	0/2/2/2
1	5MC	AA	967	1	-	3/7/25/26	0/2/2/2
1	MA6	AA	1518	1	-	1/7/29/30	0/3/3/3
26	PSU	BA	955	26,66	-	0/7/25/26	0/2/2/2
23	OMC	AW	32	23	-	3/9/27/28	0/2/2/2
24	3AU	AX	47	24	-	2/7/25/35	0/2/2/2
26	2MG	BA	1835	26	-	0/5/27/28	0/3/3/3
26	PSU	BA	2504	26	-	0/7/25/26	0/2/2/2
24	H2U	AX	20	24	-	3/7/38/39	0/2/2/2
26	PSU	BA	2580	26	-	0/7/25/26	0/2/2/2
26	PSU	BA	2605	26	-	0/7/25/26	0/2/2/2
23	H2U	AW	20	23	-	7/7/38/39	0/2/2/2
1	UR3	AA	1498	66,1	-	0/7/25/26	0/2/2/2
1	G7M	AA	527	1	-	1/3/25/26	0/3/3/3
23	PSU	AW	55	23	-	3/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	2MG	AA	1516	1	-	0/5/27/28	0/3/3/3
26	6MZ	BA	1618	26	-	4/5/27/28	0/3/3/3
26	OMU	BA	2552	26	-	2/9/27/28	0/2/2/2
1	MA6	AA	1519	1	-	3/7/29/30	0/3/3/3
26	OMC	BA	2498	26	-	2/9/27/28	0/2/2/2
23	5MU	AW	54	23	-	0/7/25/26	0/2/2/2
1	2MG	AA	1207	66,1	-	2/5/27/28	0/3/3/3
24	PSU	AX	32	66,24	-	2/7/25/26	0/2/2/2
26	1MG	BA	745	26	-	0/3/25/26	0/3/3/3
26	H2U	BA	2449	26	-	2/7/38/39	0/2/2/2
23	4SU	AW	8	23	-	2/7/25/26	0/2/2/2
26	PSU	BA	2457	26	-	0/7/25/26	0/2/2/2
26	G7M	BA	2069	26	-	2/3/25/26	0/3/3/3
26	2MA	BA	2503	26,66	-	2/3/25/26	0/3/3/3
12	D2T	AL	89	12	-	1/7/12/14	-
26	5MC	BA	1962	26	-	0/7/25/26	0/2/2/2
1	5MC	AA	1407	1	-	0/7/25/26	0/2/2/2
26	2MG	BA	2445	26,30	-	2/5/27/28	0/3/3/3
26	PSU	BA	1917	26	-	2/7/25/26	0/2/2/2
1	2MG	AA	966	1	-	2/5/27/28	0/3/3/3
1	4OC	AA	1402	1	-	0/9/29/30	0/2/2/2
39	4D4	BN	81	39	-	4/11/12/14	-
24	5MU	AX	54	24	-	0/7/25/26	0/2/2/2
24	PSU	AX	55	24	-	4/7/25/26	0/2/2/2
26	6MZ	BA	2030	26	-	3/5/27/28	0/3/3/3
29	MEQ	BD	150	29	-	4/8/9/11	-
26	3TD	BA	1915	26	-	3/7/25/26	0/2/2/2
24	MIA	AX	37	24	-	0/3/25/34	0/3/3/3
26	PSU	BA	746	26,66	-	2/7/25/26	0/2/2/2
1	PSU	AA	516	1	-	2/7/25/26	0/2/2/2
26	5MU	BA	747	26	-	0/7/25/26	0/2/2/2
26	5MU	BA	1939	26	-	2/7/25/26	0/2/2/2
26	PSU	BA	1911	26	-	1/7/25/26	0/2/2/2
26	OMG	BA	2251	26,23	-	0/5/27/28	0/3/3/3
24	H2U	AX	16	24	-	4/7/38/39	0/2/2/2
24	PSU	AX	39	24	-	0/7/25/26	0/2/2/2
26	PSU	BA	2604	26	-	0/7/25/26	0/2/2/2

The worst 5 of 248 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
26	BA	1915	3TD	C6-C5	11.99	1.49	1.35
1	AA	967	5MC	C6-C5	10.01	1.51	1.34
1	AA	1407	5MC	C6-C5	9.87	1.50	1.34
24	AX	20	H2U	C2-N1	9.80	1.49	1.35
26	BA	1915	3TD	C2-N1	9.77	1.49	1.37

The worst 5 of 209 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	AA	1518	MA6	N1-C6-N6	-17.13	99.03	117.06
1	AA	1519	MA6	N1-C6-N6	-16.81	99.37	117.06
23	AW	8	4SU	C4-N3-C2	-8.08	119.49	127.34
24	AX	8	4SU	C4-N3-C2	-7.83	119.73	127.34
24	AX	46	7MG	C5-C4-N3	-7.48	120.08	127.80

There are no chirality outliers.

5 of 85 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	AA	966	2MG	O4'-C4'-C5'-O5'
1	AA	966	2MG	C3'-C4'-C5'-O5'
1	AA	1519	MA6	O4'-C4'-C5'-O5'
24	AX	32	PSU	C2'-C1'-C5-C4
24	AX	46	7MG	O4'-C4'-C5'-O5'

There are no ring outliers.

No monomer is involved in short contacts.

4.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

4.6 Ligand geometry [i](#)

Of 484 ligands modelled in this entry, 483 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	$\# Z > 2$
67	PHE	AX	101	24	10,11,12	0.49	0	10,13,15	0.32	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
67	PHE	AX	101	24	-	2/5/6/8	0/1/1/1

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
67	AX	101	PHE	CA-CB-CG-CD1
67	AX	101	PHE	CA-CB-CG-CD2

There are no ring outliers.

No monomer is involved in short contacts.

4.7 Other polymers [i](#)

There are no such residues in this entry.

4.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
63	CD	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	CD	1357:ILE	C	1358:PRO	N	1.15

5 Map visualisation

This section contains visualisations of the EMDB entry EMD-11418. These allow visual inspection of the internal detail of the map and identification of artifacts.

Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

5.1 Orthogonal projections

This section was not generated.

5.2 Central slices

This section was not generated.

5.3 Largest variance slices

This section was not generated.

5.4 Orthogonal standard-deviation projections (False-color)

This section was not generated.

5.5 Orthogonal surface views

This section was not generated.

5.6 Mask visualisation

This section was not generated. No masks/segmentation were deposited.

6 Map analysis

This section contains the results of statistical analysis of the map.

6.1 Map-value distribution

This section was not generated.

6.2 Volume estimate versus contour level

This section was not generated.

6.3 Rotationally averaged power spectrum

This section was not generated. The rotationally averaged power spectrum had issues being displayed.

7 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

8 Map-model fit

This section was not generated.