



Full wwPDB X-ray Structure Validation Report ⓘ

Jan 17, 2022 – 10:20 AM JST

PDB ID : 7DUL
Title : Crystal structure of the *Thermus thermophilus* (HB8) 30S ribosomal subunit with mRNA and cognate transfer RNA anticodon stem-loop and sisomicin derivative N3'MS bound
Authors : DeMirici, H.; Destan, E.
Deposited on : 2021-01-09
Resolution : 3.62 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The 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)
Xtriage (Phenix) : 1.13
EDS : 2.25
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) : 2.25

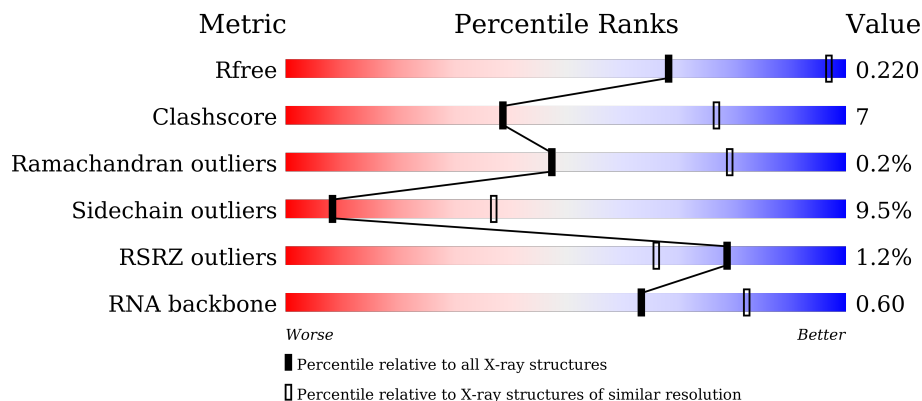
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.62 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.











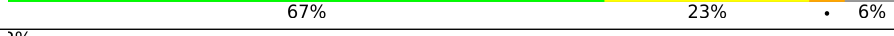
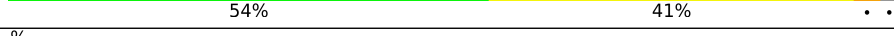
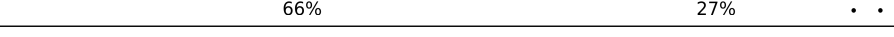

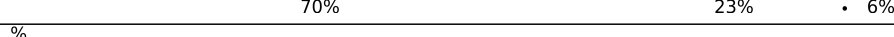
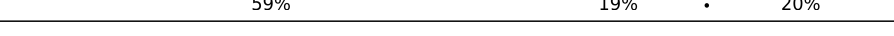
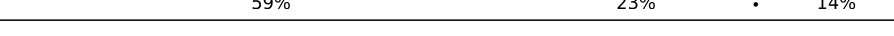
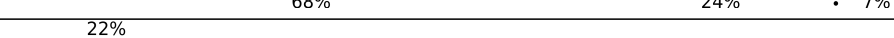

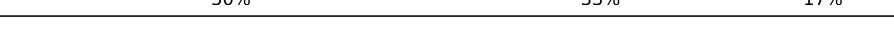
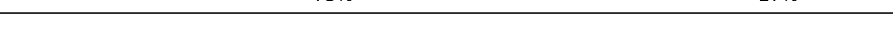
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1290 (3.74-3.50)
Clashscore	141614	1387 (3.74-3.50)
Ramachandran outliers	138981	1339 (3.74-3.50)
Sidechain outliers	138945	1339 (3.74-3.50)
RSRZ outliers	127900	1191 (3.74-3.50)
RNA backbone	3102	1018 (4.22-3.00)

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	1522	 60% 32% 7% ..
2	B	256	 3% 64% 25% 9%
3	C	239	 60% 22% 14%
4	D	209	 73% 25%

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Mol	Chain	Length	Quality of chain
5	E	162	
6	F	101	
7	G	156	
8	H	138	
9	I	128	
10	J	105	
11	K	129	
12	L	135	
13	M	126	
14	N	61	
15	O	89	
16	P	88	
17	Q	105	
18	R	88	
19	S	93	
20	T	106	
21	U	27	
22	Y	6	
23	W	15	

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
24	MG	A	1616	-	-	-	X
24	MG	A	1630	-	-	-	X
24	MG	A	1668	-	-	-	X
24	MG	A	1670	-	-	-	X
24	MG	A	1681	-	-	-	X

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
24	MG	A	1686	-	-	-	X
24	MG	A	1692	-	-	-	X
24	MG	A	1702	-	-	-	X
24	MG	A	1705	-	-	-	X
24	MG	A	1718	-	-	-	X
24	MG	A	1719	-	-	-	X
24	MG	A	1721	-	-	-	X
24	MG	A	1744	-	-	-	X
24	MG	A	1760	-	-	-	X
24	MG	A	1767	-	-	-	X
24	MG	A	1773	-	-	-	X
24	MG	A	1776	-	-	-	X
24	MG	A	1798	-	-	-	X
24	MG	A	1802	-	-	-	X
24	MG	A	1829	-	-	-	X
24	MG	A	1831	-	-	-	X
24	MG	A	1834	-	-	-	X
24	MG	C	302	-	-	-	X
24	MG	D	304	-	-	-	X
25	SIS	A	1835	-	-	-	X

2 Entry composition [i](#)

There are 27 unique types of molecules in this entry. The entry contains 52689 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 30S Ribosomal RNA rRNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
1	A	1512	32644	14540	6040	10546	1518	0	6	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	234	1900	1213	341	341	5	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	C	206	1612	1016	314	281	1	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	D	208	1703	1066	339	291	7	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
5	E	150	1146	724	217	201	4	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
6	F	101	843	531	155	154	3	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
7	G	155	1257	781	252	218	6	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
8	H	138	1116	705	215	193	3	0	0	0

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

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
9	I	127	1010	639	197	174	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
10	J	98	792	498	156	137	1	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
11	K	116	864	537	164	160	3	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
12	L	124	972	612	195	163	2	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
13	M	118	937	579	193	163	2	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
14	N	60	492	312	104	72	4	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
15	O	87	729	457	146	124	2	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
16	P	83	700	443	139	117	1	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
17	Q	99	823	528	152	141	2	0	0	0

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

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
18	R	70	574	367	112	95	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
19	S	80	647	414	119	112	2	0	0	0

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
20	T	99	763	470	162	129	2	0	0	0

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

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
21	U	24	208	128	50	30	0	0	0

- Molecule 22 is a RNA chain called RNA (5'-R(*UP*UP*UP*UP*UP*U)-3').

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
22	Y	6	117	54	12	46	5	0	0	0

- Molecule 23 is a RNA chain called RNA (5'-R(*GP*GP*GP*AP*UP*UP*GP*AP*AP*AP*AP*UP*CP*CP*C)-3').

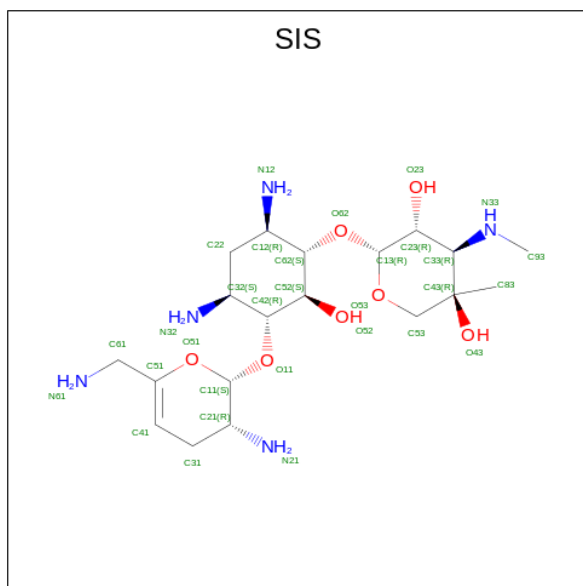
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
23	W	15	319	144	60	101	14	0	0	0

- Molecule 24 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
24	A	234	Total	Mg	0	0
			234	234		
24	B	2	Total	Mg	0	0
			2	2		
24	C	3	Total	Mg	0	0
			3	3		
24	D	3	Total	Mg	0	0
			3	3		
24	E	1	Total	Mg	0	0
			1	1		
24	F	1	Total	Mg	0	0
			1	1		
24	H	1	Total	Mg	0	0
			1	1		
24	P	2	Total	Mg	0	0
			2	2		
24	Q	1	Total	Mg	0	0
			1	1		
24	S	1	Total	Mg	0	0
			1	1		

- Molecule 25 is (1S,2S,3R,4S,6R)-4,6-diamino-3-[[[(2S,3R)-3-amino-6-(aminomethyl)-3,4-dihydro-2H-pyran-2-yl]oxy]-2-hydroxycyclohexyl 3-deoxy-4-C-methyl-3-(methylamino)-beta-L-arabinopyranoside (three-letter code: SIS) (formula: C₁₉H₃₇N₅O₇) (labeled as "Ligand of

Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
25	A	1	Total	C	N	O	0	0
			31	19	5	7		

- Molecule 26 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
26	D	1	Total	Zn	0	0
			1	1		
26	N	1	Total	Zn	0	0
			1	1		

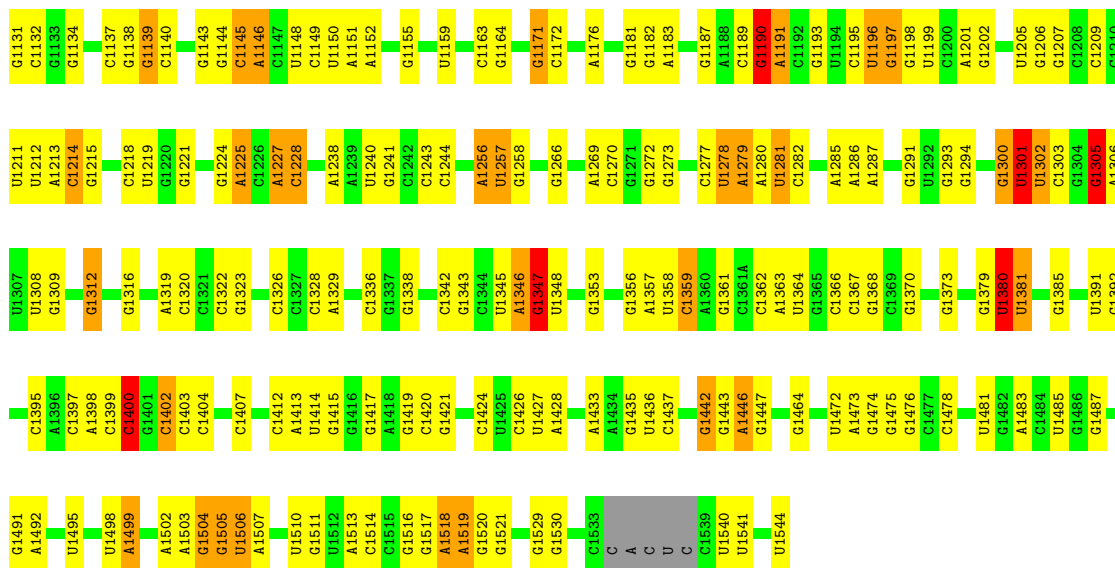
- Molecule 27 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
27	A	224	Total	O	0	0
			224	224		
27	C	1	Total	O	0	0
			1	1		
27	D	1	Total	O	0	0
			1	1		
27	E	6	Total	O	0	0
			6	6		
27	L	1	Total	O	0	0
			1	1		
27	N	2	Total	O	0	0
			2	2		

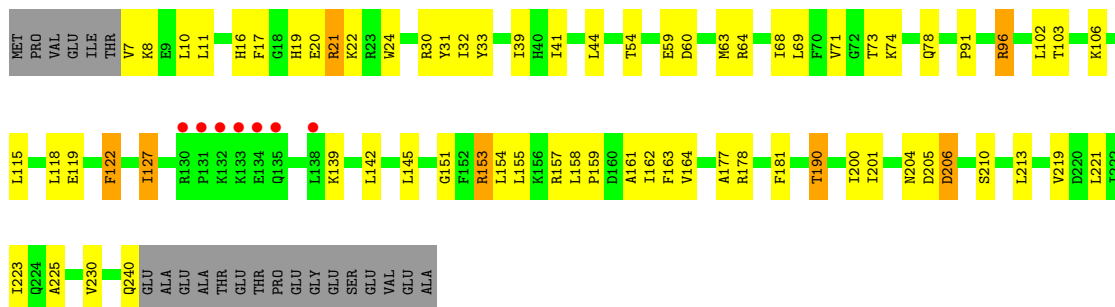
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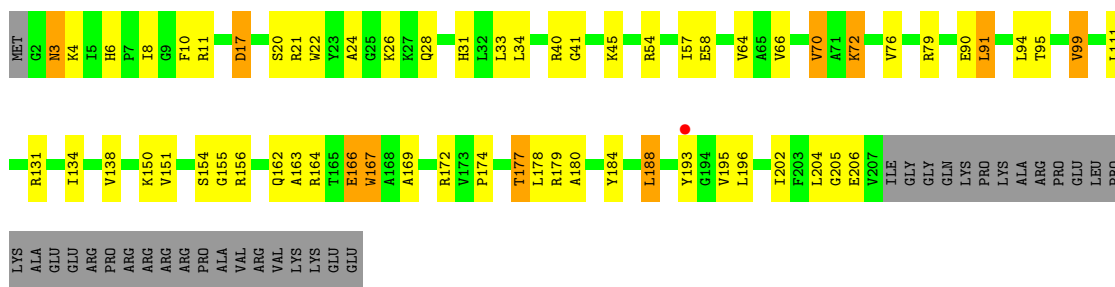
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
27	Q	2	Total O 2 2	0	0
27	T	2	Total O 2 2	0	0



• Molecule 2: 30S ribosomal protein S2



• Molecule 3: 30S ribosomal protein S3

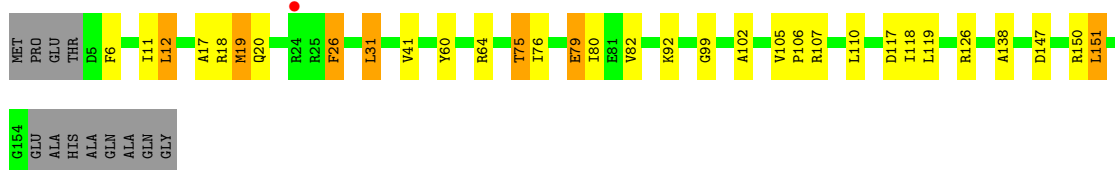
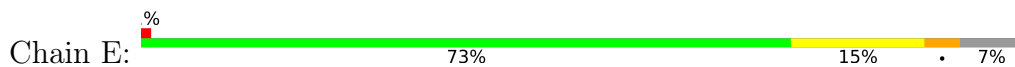


• Molecule 4: 30S ribosomal protein S4

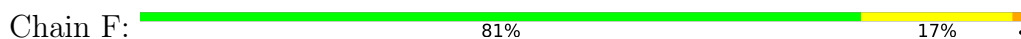




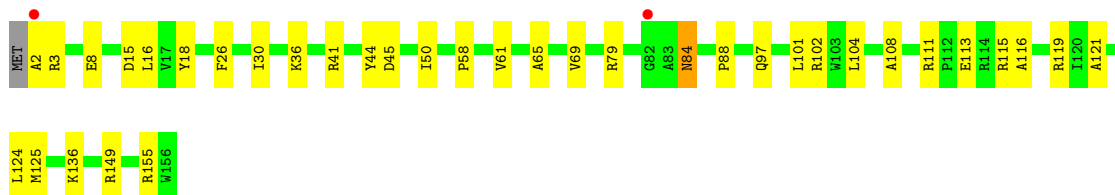
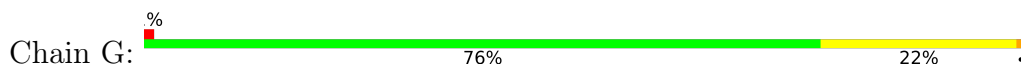
- Molecule 5: 30S ribosomal protein S5



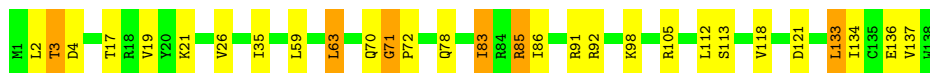
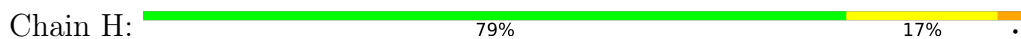
- Molecule 6: 30S ribosomal protein S6



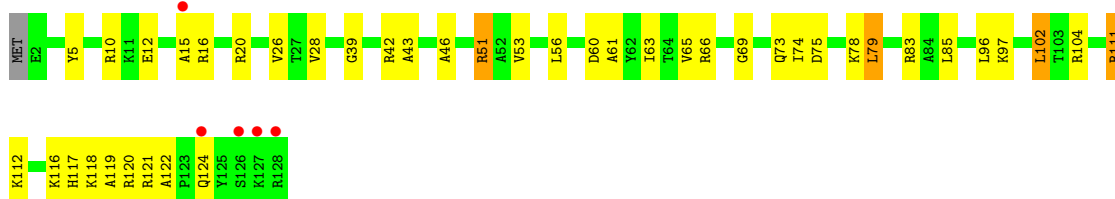
- Molecule 7: 30S ribosomal protein S7



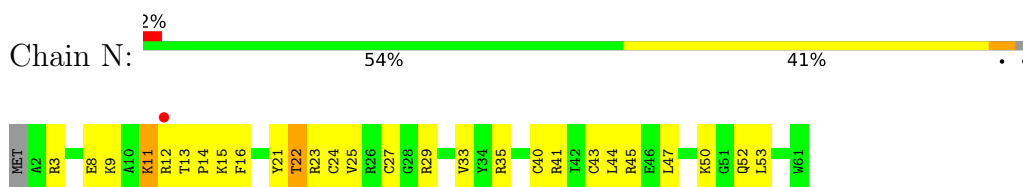
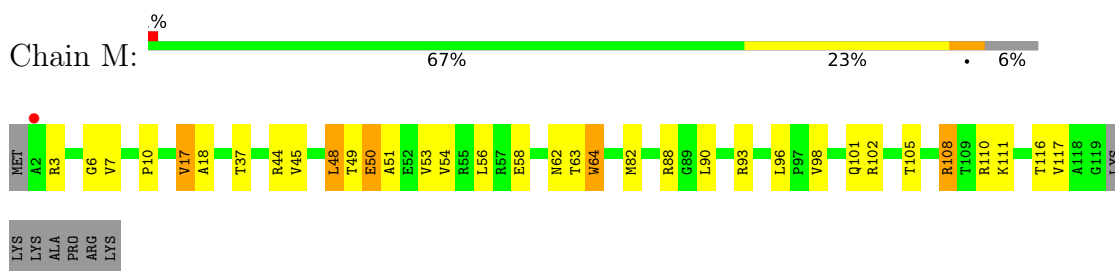
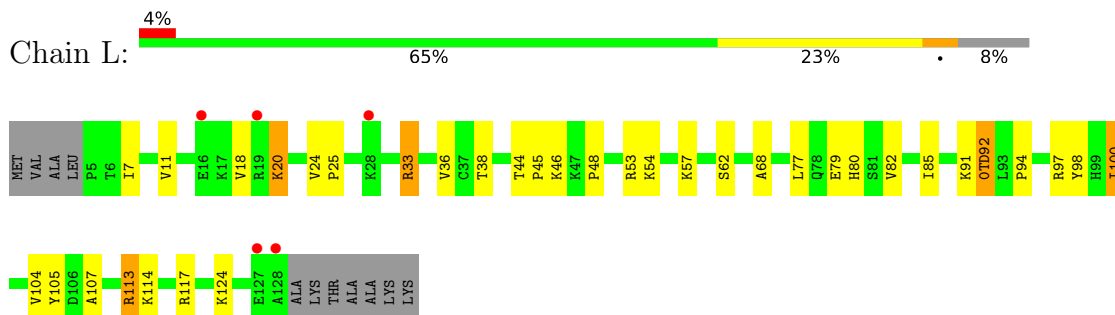
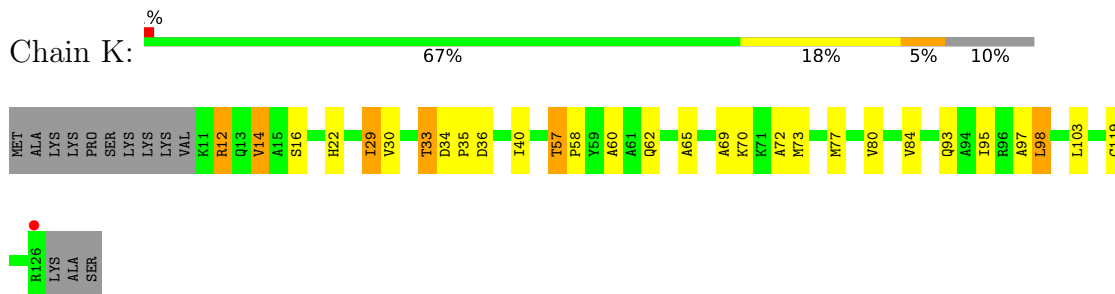
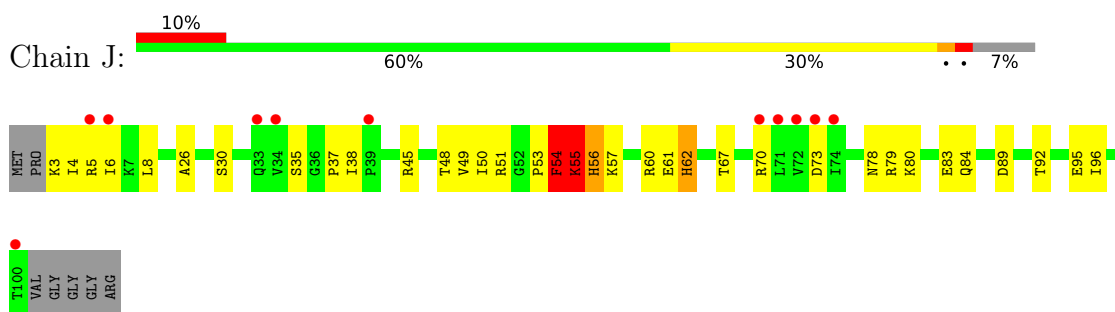
- Molecule 8: 30S ribosomal protein S8



- Molecule 9: 30S ribosomal protein S9

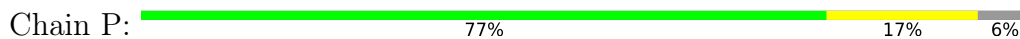


- Molecule 10: 30S ribosomal protein S10





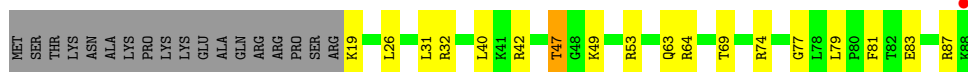
- Molecule 16: 30S ribosomal protein S16



- Molecule 17: 30S ribosomal protein S17



- Molecule 18: 30S ribosomal protein S18



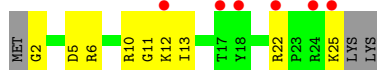
- Molecule 19: 30S ribosomal protein S19



- Molecule 20: 30S ribosomal protein S20



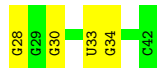
- Molecule 21: 30S ribosomal protein Thx



- Molecule 22: RNA (5'-R(*UP*UP*UP*UP*UP*U)-3')



- Molecule 23: RNA (5'-R(*GP*GP*GP*AP*UP*UP*GP*AP*AP*AP*AP*UP*CP*CP*C)-3')



4 Data and refinement statistics

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, α , β , γ	400.83Å 400.83Å 174.67Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	39.88 – 3.62 39.88 – 2.92	Depositor EDS
% Data completeness (in resolution range)	99.7 (39.88-3.62) 66.4 (39.88-2.92)	Depositor EDS
R_{merge}	0.86	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	-0.71 (at 2.90Å)	Xtrriage
Refinement program	PHENIX DEV-3318	Depositor
R, R_{free}	0.183 , 0.220 0.183 , 0.220	Depositor DCC
R_{free} test set	2000 reflections (0.67%)	wwPDB-VP
Wilson B-factor (Å ²)	94.9	Xtrriage
Anisotropy	0.080	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.23 , 84.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.45$, $\langle L^2 \rangle = 0.28$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	52689	wwPDB-VP
Average B, all atoms (Å ²)	166.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.33% 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 i

5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: UR3, 4OC, 5MC, ZN, M2G, MA6, 7MG, 0TD, PSU, MG, 2MG, SIS

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	0.23	0/36138	0.77	22/56392 (0.0%)
2	B	0.26	0/1935	0.42	0/2609
3	C	0.25	0/1636	0.45	0/2205
4	D	0.25	0/1733	0.41	0/2318
5	E	0.26	0/1162	0.45	0/1564
6	F	0.23	0/856	0.41	0/1154
7	G	0.24	0/1276	0.38	0/1709
8	H	0.27	0/1136	0.45	0/1527
9	I	0.26	0/1029	0.46	0/1379
10	J	0.25	0/805	0.51	0/1082
11	K	0.26	0/879	0.45	0/1187
12	L	0.25	0/977	0.49	0/1306
13	M	0.24	0/947	0.45	0/1270
14	N	0.26	0/501	0.44	0/664
15	O	0.23	0/740	0.40	0/987
16	P	0.25	0/716	0.44	0/963
17	Q	0.25	0/836	0.46	1/1117 (0.1%)
18	R	0.25	0/579	0.44	0/768
19	S	0.26	0/661	0.48	0/890
20	T	0.24	0/765	0.40	0/1007
21	U	0.22	0/212	0.41	0/277
22	Y	0.22	0/128	0.89	0/196
23	W	0.23	0/357	0.80	0/555
All	All	0.24	0/56004	0.69	23/83126 (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
3	C	0	1
8	H	0	1
10	J	0	2
13	M	0	2
All	All	0	6

There are no bond length outliers.

All (23) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	20	U	N3-C4-O4	8.21	125.15	119.40
1	A	20	U	N3-C4-C5	-8.10	109.74	114.60
1	A	839	U	C2-N1-C1'	7.73	126.97	117.70
1	A	20	U	C2-N3-C4	7.21	131.32	127.00
1	A	21	G	N7-C8-N9	-6.98	109.61	113.10
1	A	839	U	N1-C2-O2	6.80	127.56	122.80
1	A	839	U	N3-C2-O2	-6.20	117.86	122.20
1	A	754	C	C2-N1-C1'	6.19	125.61	118.80
1	A	21	G	C8-N9-C4	5.67	108.67	106.40
1	A	1190	G	P-O3'-C3'	5.60	126.42	119.70
1	A	1301	U	P-O3'-C3'	5.53	126.34	119.70
1	A	328	C	C2-N1-C1'	5.51	124.86	118.80
1	A	1380	U	P-O3'-C3'	5.34	126.11	119.70
1	A	1346	A	P-O3'-C3'	5.33	126.10	119.70
1	A	21	G	C5-N7-C8	5.30	106.95	104.30
1	A	1305	G	P-O3'-C3'	5.28	126.04	119.70
1	A	1347	G	P-O3'-C3'	5.15	125.88	119.70
17	Q	98	LEU	CA-CB-CG	5.08	126.97	115.30
1	A	792	A	P-O3'-C3'	5.05	125.76	119.70
1	A	1300	G	P-O3'-C3'	5.03	125.74	119.70
1	A	428	G	P-O3'-C3'	5.03	125.73	119.70
1	A	1065	U	P-O3'-C3'	5.02	125.72	119.70
1	A	748	C	P-O3'-C3'	5.00	125.70	119.70

There are no chirality outliers.

All (6) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	C	166	GLU	Peptide
8	H	71	GLY	Peptide
10	J	54	PHE	Peptide
10	J	55	LYS	Peptide

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Mol	Chain	Res	Type	Group
13	M	111	LYS	Peptide
13	M	6	GLY	Peptide

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	32644	0	16509	340	0
2	B	1900	0	1951	33	0
3	C	1612	0	1676	33	0
4	D	1703	0	1763	32	0
5	E	1146	0	1207	22	0
6	F	843	0	857	11	0
7	G	1257	0	1296	21	0
8	H	1116	0	1177	16	0
9	I	1010	0	1037	25	0
10	J	792	0	835	26	0
11	K	864	0	881	16	0
12	L	972	0	1058	27	0
13	M	937	0	995	22	0
14	N	492	0	529	26	0
15	O	729	0	768	13	0
16	P	700	0	720	7	0
17	Q	823	0	893	15	0
18	R	574	0	644	11	0
19	S	647	0	673	13	0
20	T	763	0	861	13	0
21	U	208	0	221	7	0
22	Y	117	0	62	2	0
23	W	319	0	164	2	0
24	A	234	0	0	0	0
24	B	2	0	0	0	0
24	C	3	0	0	0	0
24	D	3	0	0	0	0
24	E	1	0	0	0	0
24	F	1	0	0	0	0
24	H	1	0	0	0	0
24	P	2	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
24	Q	1	0	0	0	0
24	S	1	0	0	0	0
25	A	31	0	37	3	0
26	D	1	0	0	0	0
26	N	1	0	0	0	0
27	A	224	0	0	3	0
27	C	1	0	0	0	0
27	D	1	0	0	0	0
27	E	6	0	0	0	0
27	L	1	0	0	0	0
27	N	2	0	0	0	0
27	Q	2	0	0	0	0
27	T	2	0	0	0	0
All	All	52689	0	36814	649	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 7.

All (649) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:481:G:HO2'	1:A:482:A:H8	1.00	0.99
20:T:100:ILE:HG22	20:T:102:GLY:H	1.43	0.83
1:A:1028:C:H42	1:A:1033:G:H1	1.27	0.81
8:H:86:ILE:HD11	8:H:136:GLU:HG3	1.61	0.81
13:M:10:PRO:HB2	13:M:18:ALA:HB1	1.63	0.79
1:A:1176:A:N6	1:A:1181:G:O6	2.16	0.79
1:A:1516[B]:G:N2	1:A:1519[B]:MA6:OP2	2.17	0.77
1:A:1266:G:N2	1:A:1269:A:OP2	2.16	0.77
17:Q:66:SER:O	17:Q:70:ARG:NH1	2.19	0.76
1:A:664:G:H22	1:A:741:G:H1	1.31	0.75
3:C:33:LEU:HD21	14:N:53:LEU:HD22	1.67	0.75
1:A:1214:C:H3'	1:A:1215:G:H8	1.51	0.75
1:A:537:G:OP1	12:L:113:ARG:NH2	2.22	0.73
19:S:12:ASP:H	19:S:38:SER:HB3	1.54	0.73
1:A:1443:G:H5''	1:A:1446:A:H5'	1.70	0.72
1:A:955:U:H1'	1:A:1227:A:H61	1.55	0.72
1:A:456:C:H42	1:A:476:G:H1	1.36	0.72
10:J:53:PRO:HA	14:N:41:ARG:HH21	1.56	0.71
1:A:1128:C:O2'	1:A:1130:A:N7	2.24	0.71
2:B:21:ARG:HA	2:B:39:ILE:HA	1.72	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1005:A:N3	1:A:1026:G:N2	2.40	0.70
1:A:1125:U:OP2	1:A:1145:C:N4	2.25	0.70
1:A:618:C:H5'	1:A:619:U:H5''	1.73	0.69
1:A:1020:U:H2'	1:A:1021:G:H8	1.57	0.69
1:A:407:G:OP1	4:D:115:ARG:NH1	2.26	0.69
1:A:976:G:OP2	1:A:1358:U:O2'	2.11	0.69
1:A:1022:G:N2	1:A:1023:G:N7	2.41	0.69
1:A:1544:U:H4'	22:Y:1:U:H5'	1.75	0.68
19:S:50:ALA:HB1	19:S:57:HIS:HB3	1.74	0.68
1:A:1128:C:OP1	9:I:66:ARG:NH1	2.25	0.68
13:M:49:THR:HG22	13:M:51:ALA:H	1.59	0.68
5:E:11:ILE:HB	5:E:31:LEU:HB3	1.76	0.68
1:A:1030(A):G:N2	1:A:1030(D):A:OP2	2.27	0.67
1:A:1100:C:OP1	2:B:96:ARG:NH1	2.27	0.67
1:A:1057:G:H5''	3:C:154:SER:HB2	1.76	0.67
3:C:70:VAL:HG21	3:C:76:VAL:HG21	1.75	0.67
14:N:9:LYS:HD2	14:N:23:ARG:HB2	1.74	0.67
2:B:63:MET:HB3	2:B:225:ALA:HB1	1.77	0.66
9:I:112:LYS:HA	9:I:119:ALA:HB2	1.77	0.66
1:A:455:C:H42	1:A:477:G:H1	1.43	0.66
1:A:677:U:H3	1:A:713:G:H22	1.44	0.66
1:A:1495:U:O4	25:A:1835:SIS:N12	2.29	0.65
11:K:80:VAL:HG21	11:K:103:LEU:HD13	1.78	0.65
4:D:78:LEU:HB3	4:D:93:PHE:HE1	1.60	0.65
10:J:61:GLU:OE1	14:N:45:ARG:NH1	2.30	0.65
1:A:1134:G:H1	1:A:1140:C:H42	1.43	0.65
1:A:617:G:H1	1:A:623:C:H42	1.43	0.65
1:A:298:A:N6	27:A:1902:HOH:O	2.29	0.65
1:A:1505:G:O2'	1:A:1506:U:OP2	2.15	0.64
1:A:145:G:H1	1:A:177:C:H42	1.44	0.64
16:P:4:ILE:HG12	16:P:21:VAL:HG22	1.79	0.64
3:C:91:LEU:HD21	3:C:99:VAL:HG22	1.79	0.64
1:A:972:C:H4'	10:J:57:LYS:HD3	1.77	0.63
9:I:15:ALA:HB2	9:I:65:VAL:HG13	1.81	0.63
4:D:63:LYS:NZ	4:D:197:PRO:O	2.31	0.63
1:A:372:C:H4'	1:A:373:A:O5'	1.99	0.63
1:A:811:C:N4	27:A:1903:HOH:O	2.31	0.63
17:Q:13:ASP:HB2	17:Q:53:LEU:HD12	1.80	0.63
12:L:38:THR:HB	12:L:57:LYS:HB2	1.81	0.63
1:A:921:U:O2'	5:E:19:MET:O	2.17	0.62
1:A:31:G:N2	1:A:48:C:OP1	2.24	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:M:3:ARG:HE	13:M:7:VAL:HG12	1.64	0.62
3:C:156:ARG:H	3:C:163:ALA:HA	1.64	0.61
1:A:542:G:OP1	4:D:10:ARG:NH2	2.33	0.61
1:A:276:G:O2'	17:Q:68:ARG:NH1	2.33	0.61
1:A:1003(A):G:C5	1:A:1004:A:H1'	2.34	0.61
15:O:2:PRO:O	15:O:38:ARG:NH1	2.33	0.61
8:H:4:ASP:OD2	8:H:85:ARG:NH1	2.34	0.61
1:A:1190:G:O2'	1:A:1191:A:OP2	2.08	0.60
1:A:1213:A:N6	1:A:1215:G:N3	2.49	0.60
7:G:84:ASN:OD1	7:G:84:ASN:N	2.34	0.60
18:R:47:THR:HA	18:R:83:GLU:HB2	1.82	0.60
1:A:1060:C:OP1	14:N:45:ARG:NH2	2.34	0.60
1:A:1139:G:H4'	1:A:1140:C:H5'	1.84	0.60
1:A:1510:U:H2'	1:A:1511:G:C8	2.36	0.60
4:D:15:GLU:OE1	4:D:59:ARG:NH2	2.34	0.60
1:A:560:U:H4'	1:A:561:U:H5''	1.83	0.60
7:G:88:PRO:O	7:G:155:ARG:NH1	2.35	0.60
9:I:51:ARG:HG3	9:I:56:LEU:HD21	1.83	0.60
1:A:1048:G:H1	1:A:1209:C:H42	1.50	0.60
1:A:1196:U:OP1	1:A:1197:G:H5'	2.02	0.60
1:A:671:G:H5'	6:F:77:ARG:HH21	1.67	0.60
4:D:150:GLU:HA	4:D:153:ARG:HG3	1.83	0.59
1:A:1367:C:H5'	10:J:60:ARG:HE	1.66	0.59
5:E:60:TYR:OH	5:E:64:ARG:NH2	2.35	0.59
7:G:15:ASP:OD1	7:G:44:TYR:OH	2.20	0.59
1:A:1020:U:H2'	1:A:1021:G:C8	2.35	0.59
7:G:113:GLU:HB2	7:G:119:ARG:HG2	1.84	0.59
1:A:1031:G:H2'	1:A:1032:G:H8	1.68	0.59
4:D:15:GLU:OE1	4:D:66:ARG:NH1	2.36	0.59
12:L:53:ARG:NH1	12:L:92:0TD:OD2	2.31	0.59
4:D:22:LYS:HB2	4:D:26:CYS:SG	2.43	0.59
20:T:89:ARG:HH21	20:T:104:LEU:HB3	1.67	0.58
1:A:1326:C:OP2	21:U:6:ARG:NH2	2.36	0.58
5:E:17:ALA:HA	5:E:26:PHE:HB3	1.84	0.58
2:B:68:ILE:HG12	2:B:161:ALA:HB3	1.85	0.58
9:I:97:LYS:HA	9:I:102:LEU:HD11	1.84	0.58
2:B:162:ILE:HD12	2:B:177:ALA:HB2	1.85	0.58
1:A:1190:G:HO2'	1:A:1191:A:P	2.24	0.58
15:O:26:GLU:OE1	15:O:77:ARG:NH1	2.31	0.58
15:O:39:LEU:HD13	15:O:56:LEU:HB2	1.86	0.58
1:A:1491:G:C5	25:A:1835:SIS:H4	2.38	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:413:G:H2'	1:A:428:G:H22	1.69	0.57
1:A:1145:C:O2'	1:A:1146:A:O5'	2.23	0.57
1:A:390:C:O3'	16:P:28:ARG:NH2	2.38	0.57
3:C:188:LEU:HD11	3:C:195:VAL:HG13	1.86	0.57
1:A:417:C:H42	1:A:426:G:H1	1.51	0.57
1:A:380:G:N2	1:A:383:A:OP2	2.36	0.57
1:A:1106:G:H5''	3:C:172:ARG:HB3	1.85	0.57
1:A:1111:A:N1	3:C:177:THR:HB	2.20	0.57
1:A:1193:G:OP1	3:C:167:TRP:NE1	2.34	0.57
12:L:24:VAL:HG13	12:L:98:TYR:HE2	1.69	0.57
19:S:13:ASP:OD1	19:S:13:ASP:N	2.37	0.57
1:A:413:G:H2'	1:A:428:G:N2	2.20	0.57
1:A:1228:C:H4'	13:M:116:THR:HA	1.87	0.57
4:D:61:LYS:NZ	4:D:62:GLN:OE1	2.37	0.57
1:A:757:U:O2'	1:A:879:C:O2	2.21	0.56
1:A:1031:G:H2'	1:A:1032:G:C8	2.39	0.56
1:A:1113:C:H42	1:A:1187:G:H1	1.52	0.56
1:A:45:U:H2'	1:A:46:G:C8	2.40	0.56
1:A:1281:U:H5'	1:A:1282:C:H5	1.71	0.56
1:A:1499:A:H1'	1:A:1520[A]:G:H5'	1.86	0.56
1:A:922:G:H4'	5:E:20:GLN:HA	1.86	0.56
3:C:6:HIS:CE1	3:C:8:ILE:HB	2.40	0.56
12:L:33:ARG:HD3	12:L:62:SER:HB3	1.87	0.56
1:A:1518[B]:MA6:H102	1:A:1519[B]:MA6:H103	1.88	0.56
2:B:59:GLU:HB2	2:B:221:LEU:HD11	1.87	0.56
17:Q:22:LEU:HD11	17:Q:39:SER:HB2	1.88	0.56
1:A:250:A:H4'	1:A:251:G:O5'	2.05	0.56
1:A:533:A:O2'	1:A:535:A:OP2	2.23	0.56
18:R:32:ARG:HA	18:R:69:THR:HG21	1.87	0.56
1:A:509:A:N3	1:A:543:C:O2'	2.34	0.55
12:L:117:ARG:NH2	12:L:124:LYS:HD3	2.21	0.55
1:A:403:C:OP2	4:D:74:GLN:NE2	2.38	0.55
1:A:1214:C:H3'	1:A:1215:G:C8	2.38	0.55
12:L:36:VAL:HG22	12:L:82:VAL:HG12	1.86	0.55
1:A:1291:G:OP1	7:G:41:ARG:NH2	2.27	0.55
1:A:1112:C:O2	3:C:179:ARG:HB2	2.06	0.55
2:B:32:ILE:HD11	2:B:190:THR:HG23	1.88	0.55
2:B:204:ASN:H	2:B:204:ASN:HD22	1.53	0.55
5:E:75:THR:OG1	5:E:76:ILE:N	2.40	0.55
1:A:21:G:H21	1:A:915:A:H61	1.54	0.55
1:A:1373:G:H5''	7:G:36:LYS:HE3	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:20:SER:OG	3:C:40:ARG:NH2	2.31	0.55
1:A:501:C:H2'	1:A:502:G:C8	2.42	0.55
1:A:664:G:N2	1:A:741:G:H1	2.03	0.55
1:A:1008:C:N4	1:A:1021:G:H1	2.04	0.55
1:A:1379:G:O6	7:G:2:ALA:N	2.40	0.54
3:C:155:GLY:HA2	3:C:164:ARG:H	1.72	0.54
4:D:187:ARG:NH1	4:D:188:LEU:H	2.05	0.54
7:G:50:ILE:HD11	7:G:61:VAL:HG11	1.88	0.54
12:L:24:VAL:HG13	12:L:98:TYR:CE2	2.42	0.54
1:A:1291:G:H4'	9:I:39:GLY:HA3	1.89	0.54
4:D:26:CYS:HA	4:D:31:CYS:HB2	1.90	0.54
20:T:92:LEU:O	20:T:96:GLY:HA2	2.07	0.54
1:A:1143:G:H2'	1:A:1144:G:C8	2.42	0.54
6:F:33:TYR:HA	6:F:71:ARG:HH21	1.72	0.54
1:A:113:G:H1'	1:A:354:G:H5'	1.89	0.54
1:A:1278:U:H5'	1:A:1279:A:O4'	2.08	0.54
1:A:448:A:OP2	1:A:485:G:N2	2.30	0.54
1:A:1064:G:N2	1:A:1190:G:O2'	2.41	0.54
13:M:3:ARG:NE	13:M:7:VAL:HG12	2.22	0.54
1:A:1004:A:H5''	1:A:1025:U:C4	2.43	0.54
1:A:1126:U:O4	1:A:1127:G:N2	2.40	0.54
14:N:50:LYS:HG2	14:N:52:GLN:HE21	1.71	0.54
1:A:401:C:H2'	1:A:402:G:H8	1.73	0.53
1:A:335:C:O2'	1:A:1433:A:N3	2.37	0.53
9:I:46:ALA:HA	9:I:78:LYS:HB2	1.90	0.53
19:S:28:LYS:HG2	19:S:29:ARG:H	1.73	0.53
1:A:1124:G:H5'	10:J:35:SER:O	2.09	0.53
17:Q:45:HIS:CD2	17:Q:47:PRO:HG3	2.44	0.53
1:A:20:U:H3'	1:A:21:G:C5	2.44	0.53
1:A:951:G:OP2	13:M:102:ARG:NH2	2.41	0.53
16:P:53:VAL:HG12	16:P:79:VAL:HG22	1.89	0.53
1:A:914:A:H2'	1:A:915:A:H8	1.73	0.53
1:A:1516[A]:G:H2'	1:A:1518[A]:MA6:OP2	2.09	0.53
2:B:17:PHE:HD1	2:B:41:ILE:HD12	1.72	0.53
1:A:1414:U:H2'	1:A:1415:G:C8	2.44	0.53
1:A:636:U:H2'	1:A:637:G:C8	2.44	0.53
4:D:190:ASP:OD1	4:D:191:ARG:N	2.36	0.53
6:F:10:LEU:HD12	6:F:59:TYR:HB3	1.91	0.53
8:H:17:THR:O	8:H:78:GLN:NE2	2.42	0.53
20:T:45:GLN:HA	20:T:91:LEU:HD12	1.90	0.53
1:A:564:C:O2'	8:H:91:ARG:NH2	2.42	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1198:G:H2'	1:A:1199:U:C6	2.44	0.52
1:A:1412:C:H2'	1:A:1413:A:C8	2.43	0.52
2:B:54:THR:HG21	2:B:201:ILE:HD11	1.90	0.52
1:A:1420:C:H2'	1:A:1421:G:H8	1.73	0.52
3:C:134:ILE:HG23	3:C:151:VAL:HB	1.90	0.52
6:F:30:LEU:HB3	6:F:35:ALA:HB3	1.91	0.52
1:A:401:C:H2'	1:A:402:G:C8	2.44	0.52
2:B:30:ARG:HD2	2:B:31:TYR:CZ	2.44	0.52
15:O:5:LYS:HA	15:O:8:LYS:HB2	1.91	0.52
1:A:153:C:H42	1:A:168:G:H1	1.58	0.52
1:A:452:A:O2'	1:A:453:A:O4'	2.21	0.52
1:A:1474:G:H2'	1:A:1475:G:C8	2.45	0.52
3:C:6:HIS:HE1	3:C:8:ILE:HB	1.72	0.52
5:E:79:GLU:HG2	5:E:92:LYS:HG3	1.92	0.52
1:A:1040:U:H2'	1:A:1041:A:H8	1.75	0.52
3:C:8:ILE:HG13	3:C:184:TYR:HB3	1.92	0.52
16:P:40:ASP:HB3	16:P:48:TRP:HB2	1.92	0.52
1:A:1356:G:H2'	1:A:1357:A:C8	2.45	0.52
1:A:579:G:H5'	1:A:728:A:H1'	1.92	0.52
12:L:77:LEU:HD21	12:L:107:ALA:HB2	1.92	0.52
14:N:27:CYS:SG	14:N:29:ARG:HB2	2.50	0.51
1:A:1049:U:H4'	1:A:1050:G:O5'	2.09	0.51
1:A:1435:G:H2'	1:A:1436:U:C6	2.46	0.51
9:I:46:ALA:HB2	9:I:74:ILE:HG23	1.92	0.51
19:S:62:ILE:HD12	19:S:66:MET:HG3	1.92	0.51
1:A:1316:G:N2	1:A:1319:A:OP2	2.41	0.51
10:J:55:LYS:HD2	10:J:56:HIS:H	1.76	0.51
7:G:69:VAL:HG21	7:G:104:LEU:HD21	1.91	0.51
10:J:8:LEU:HD23	10:J:96:ILE:HG12	1.92	0.51
1:A:7:G:H5'	1:A:298:A:O4'	2.11	0.51
1:A:103:C:OP1	20:T:17:ARG:NH1	2.43	0.51
1:A:424:G:H2'	1:A:425:G:H8	1.77	0.50
1:A:501:C:OP1	12:L:117:ARG:NH2	2.45	0.50
10:J:79:ARG:O	10:J:83:GLU:N	2.44	0.50
1:A:1504:G:OP1	1:A:1507:A:H4'	2.10	0.50
12:L:104:VAL:HG22	12:L:105:TYR:H	1.76	0.50
1:A:1195:C:H3'	1:A:1196:U:H5''	1.92	0.50
11:K:72:ALA:HB1	11:K:77:MET:HG3	1.93	0.50
9:I:10:ARG:HG2	9:I:75:ASP:HB2	1.94	0.50
5:E:11:ILE:HG22	5:E:12:LEU:HD12	1.93	0.50
1:A:603:U:H2'	1:A:604:G:C8	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:21:ARG:HG3	2:B:22:LYS:H	1.77	0.50
3:C:64:VAL:HG12	3:C:66:VAL:HG23	1.94	0.50
1:A:1118:C:H42	1:A:1155:G:H1	1.60	0.50
1:A:1305:G:OP2	21:U:2:GLY:N	2.44	0.50
1:A:518:C:H4'	1:A:519:C:O5'	2.12	0.49
1:A:689:C:H2'	1:A:690:G:O4'	2.12	0.49
1:A:973:G:H3'	1:A:974:A:H5''	1.94	0.49
1:A:1064:G:N2	1:A:1190:G:HO2'	2.10	0.49
13:M:10:PRO:O	13:M:45:VAL:HG11	2.11	0.49
6:F:50:TYR:CE1	18:R:77:GLY:HA2	2.47	0.49
1:A:217:C:H2'	1:A:218:C:C6	2.48	0.49
3:C:58:GLU:HB3	10:J:92:THR:HG21	1.93	0.49
1:A:812:C:H4'	1:A:813:U:O5'	2.13	0.49
1:A:1006:C:H2'	1:A:1007:C:H6	1.75	0.49
1:A:1003(A):G:H2'	1:A:1004:A:H4'	1.95	0.49
1:A:1308:U:OP1	13:M:98:VAL:N	2.43	0.49
1:A:344:A:H5'	1:A:345:C:C5	2.47	0.49
1:A:1397:C:N4	22:Y:5:U:OP2	2.45	0.49
2:B:240:GLN:OE1	2:B:240:GLN:N	2.38	0.49
9:I:65:VAL:HG11	9:I:73:GLN:HB3	1.93	0.49
11:K:14:VAL:HG21	11:K:40:ILE:HD13	1.95	0.49
12:L:48:PRO:HD2	12:L:92:OTD:H8	1.95	0.49
14:N:9:LYS:NZ	14:N:12:ARG:HH21	2.10	0.49
1:A:686:U:O2'	1:A:687:A:H8	1.96	0.49
1:A:1125:U:H3	10:J:5:ARG:NH2	2.11	0.49
1:A:1150:U:O4	1:A:1151:A:N6	2.46	0.49
2:B:223:ILE:HD12	2:B:230:VAL:HG21	1.93	0.49
1:A:718:G:O6	18:R:74:ARG:NH1	2.46	0.49
10:J:57:LYS:O	10:J:60:ARG:NH1	2.46	0.49
19:S:29:ARG:HD2	19:S:29:ARG:N	2.28	0.49
1:A:977:A:O2'	1:A:979:C:OP2	2.28	0.49
1:A:1309:G:P	13:M:88:ARG:HH21	2.36	0.49
1:A:1417:G:O2'	1:A:1483:A:N6	2.46	0.49
1:A:1391:U:H2'	1:A:1392:G:C8	2.48	0.49
1:A:1256:A:H4'	1:A:1257:U:O5'	2.13	0.48
1:A:1472:U:H2'	1:A:1473:A:C8	2.48	0.48
12:L:38:THR:N	12:L:57:LYS:O	2.36	0.48
1:A:824:C:H2'	1:A:825:G:C8	2.47	0.48
2:B:74:LYS:NZ	2:B:206:ASP:OD1	2.42	0.48
3:C:24:ALA:HB1	3:C:28:GLN:HB2	1.94	0.48
1:A:299:G:H2'	1:A:300:A:C8	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:19:HIS:CE1	2:B:206:ASP:HB2	2.48	0.48
14:N:22:THR:HB	14:N:33:VAL:HB	1.95	0.48
1:A:332:G:H2'	1:A:333:G:H8	1.79	0.48
1:A:922:G:H2'	1:A:923:A:C8	2.48	0.48
1:A:376:G:H2'	1:A:377:G:C8	2.48	0.48
1:A:474:G:H2'	1:A:475:G:H8	1.79	0.48
1:A:518:C:H2'	1:A:530:G:C8	2.49	0.48
1:A:1427:U:H2'	1:A:1428:A:C8	2.49	0.48
4:D:105:VAL:HG13	4:D:110:PHE:HB2	1.96	0.48
7:G:26:PHE:HD1	7:G:101:LEU:HD22	1.78	0.48
8:H:83:ILE:HG12	8:H:137:VAL:HG22	1.95	0.48
1:A:1048:G:H1	1:A:1209:C:N4	2.11	0.48
1:A:1131:G:H2'	1:A:1132:C:C6	2.49	0.48
6:F:11:ASN:HD22	6:F:86:ARG:NH2	2.12	0.48
1:A:421:U:H5'	1:A:422:C:C5	2.49	0.48
2:B:119:GLU:OE1	2:B:153:ARG:NH2	2.47	0.48
19:S:45:VAL:HA	19:S:62:ILE:HG13	1.96	0.48
1:A:559:A:OP1	5:E:126:ARG:NH1	2.46	0.48
5:E:102:ALA:O	5:E:107:ARG:NH1	2.47	0.48
1:A:682:G:H2'	1:A:683:G:H8	1.79	0.47
9:I:28:VAL:HG22	9:I:63:ILE:HB	1.95	0.47
1:A:580:U:H2'	1:A:581:G:O4'	2.14	0.47
1:A:963:G:HO2'	10:J:54:PHE:HZ	1.61	0.47
1:A:1002:G:H2'	1:A:1003:G:C8	2.49	0.47
15:O:18:PHE:CZ	15:O:21:ASP:HB2	2.50	0.47
19:S:5:LEU:HD12	19:S:9:VAL:HG13	1.95	0.47
10:J:8:LEU:HB2	10:J:70:ARG:HB2	1.96	0.47
1:A:674:G:H2'	1:A:675:A:H8	1.79	0.47
1:A:1056:U:H5'	3:C:163:ALA:HB2	1.96	0.47
6:F:70:ASP:OD1	6:F:70:ASP:N	2.46	0.47
14:N:24:CYS:HB3	14:N:29:ARG:HB3	1.96	0.47
1:A:890:G:O2'	1:A:906:G:O6	2.27	0.47
1:A:916:G:H2'	1:A:917:G:H8	1.79	0.47
3:C:11:ARG:HG2	3:C:178:LEU:HG	1.95	0.47
4:D:102:ASP:HB3	4:D:136:PRO:HB3	1.96	0.47
11:K:62:GLN:HG3	11:K:97:ALA:HB2	1.95	0.47
1:A:102:G:OP1	20:T:17:ARG:NH2	2.48	0.47
1:A:108:G:H5'	1:A:109:A:H5''	1.97	0.47
1:A:1197:G:H5''	27:A:1909:HOH:O	2.14	0.47
8:H:19:VAL:HG23	8:H:21:LYS:HG2	1.97	0.47
1:A:939:G:H5''	7:G:102:ARG:NH1	2.30	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:24:GLU:HG2	4:D:25:ARG:H	1.79	0.47
1:A:1128:C:H42	1:A:1143:G:H1	1.61	0.47
2:B:139:LYS:O	2:B:139:LYS:NZ	2.47	0.47
9:I:26:VAL:HG13	9:I:61:ALA:HB3	1.97	0.47
13:M:54:VAL:O	13:M:58:GLU:HG2	2.14	0.47
1:A:1027:C:N4	1:A:1034:G:H1	2.13	0.47
1:A:1345:U:OP1	9:I:120:ARG:NH1	2.48	0.47
2:B:158:LEU:HD12	2:B:158:LEU:H	1.80	0.47
11:K:33:THR:OG1	11:K:34:ASP:N	2.48	0.47
13:M:90:LEU:HD23	13:M:93:ARG:HD2	1.97	0.47
14:N:47:LEU:HB3	14:N:53:LEU:HD21	1.97	0.47
1:A:936:C:H2'	1:A:937:A:O4'	2.16	0.46
12:L:46:LYS:HD2	12:L:94:PRO:HG3	1.96	0.46
1:A:324:G:N1	1:A:327:A:OP2	2.48	0.46
1:A:707:C:H2'	1:A:708:C:C6	2.50	0.46
8:H:63:LEU:H	8:H:63:LEU:HD22	1.81	0.46
18:R:53:ARG:HD3	18:R:63:GLN:HB2	1.96	0.46
7:G:36:LYS:NZ	9:I:42:ARG:HD3	2.30	0.46
13:M:96:LEU:O	13:M:110:ARG:NH1	2.48	0.46
1:A:376:G:H5''	16:P:5:ARG:HB2	1.98	0.46
1:A:673:G:H2'	1:A:674:G:C8	2.50	0.46
10:J:49:VAL:HG13	14:N:41:ARG:HD2	1.97	0.46
1:A:965:A:H4'	1:A:966:M2G:OP1	2.15	0.46
11:K:12:ARG:HD2	11:K:14:VAL:HG13	1.97	0.46
1:A:757:U:H2'	1:A:758:G:O4'	2.15	0.46
1:A:1027:C:H42	1:A:1034:G:H1	1.64	0.46
1:A:1123:A:H4'	10:J:37:PRO:HD2	1.97	0.46
4:D:162:LEU:HA	4:D:165:MET:HB2	1.98	0.46
13:M:50:GLU:HA	13:M:53:VAL:HB	1.97	0.46
1:A:877:C:O2	8:H:3:THR:HG21	2.15	0.46
1:A:956:U:H2'	1:A:957:U:O4'	2.15	0.46
1:A:966:M2G:HM13	1:A:967:5MC:H1'	1.98	0.46
13:M:101:GLN:N	13:M:101:GLN:OE1	2.49	0.46
17:Q:59:ILE:HD12	17:Q:73:VAL:HA	1.97	0.46
1:A:110:C:O2'	16:P:25:ARG:O	2.32	0.46
1:A:229:U:H2'	1:A:230:G:C8	2.51	0.46
1:A:1225:A:H2'	1:A:1225:A:N3	2.30	0.46
1:A:1359:C:O2'	1:A:1361:G:N7	2.48	0.46
4:D:187:ARG:CZ	4:D:188:LEU:H	2.29	0.46
11:K:22:HIS:HB3	11:K:29:ILE:HD13	1.97	0.46
16:P:4:ILE:O	16:P:66:PRO:HA	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:Q:29:HIS:CG	17:Q:30:PRO:HD2	2.51	0.46
18:R:26:LEU:HD12	18:R:26:LEU:HA	1.80	0.46
1:A:24:U:H2'	1:A:25:C:C6	2.51	0.46
8:H:112:LEU:HD23	8:H:133:LEU:HA	1.97	0.46
10:J:49:VAL:HG21	14:N:44:LEU:HD23	1.98	0.46
3:C:180:ALA:HB1	3:C:205:GLY:O	2.15	0.45
5:E:118:ILE:HG12	5:E:119:LEU:N	2.31	0.45
10:J:50:ILE:HD12	10:J:50:ILE:H	1.80	0.45
1:A:424:G:H2'	1:A:425:G:C8	2.51	0.45
2:B:91:PRO:HG2	2:B:155:LEU:HG	1.96	0.45
4:D:11:LEU:HD13	4:D:66:ARG:HD3	1.98	0.45
15:O:12:ILE:HG12	15:O:31:LEU:HD11	1.98	0.45
21:U:10:ARG:O	21:U:13:ILE:HG12	2.16	0.45
1:A:526:C:OP1	12:L:91:LYS:NZ	2.40	0.45
1:A:750:G:N3	15:O:23:GLY:HA3	2.30	0.45
1:A:974:A:OP1	1:A:974:A:H8	1.99	0.45
1:A:1228:C:OP1	13:M:108:ARG:NH2	2.48	0.45
3:C:20:SER:HB3	3:C:22:TRP:HE1	1.81	0.45
10:J:26:ALA:O	10:J:84:GLN:NE2	2.49	0.45
1:A:674:G:H2'	1:A:675:A:C8	2.51	0.45
1:A:701:C:H5''	1:A:703:G:H5'	1.98	0.45
10:J:26:ALA:HB1	10:J:84:GLN:HB2	1.98	0.45
1:A:401:C:O2'	1:A:621:A:N3	2.46	0.45
1:A:769:G:H4'	1:A:1513:A:H4'	1.99	0.45
1:A:1502:A:H2	1:A:1505:G:H1	1.65	0.45
1:A:1516[A]:G:N2	1:A:1519[A]:MA6:OP2	2.41	0.45
1:A:1171:G:H2'	1:A:1172:C:C6	2.52	0.45
14:N:8:GLU:HB2	14:N:11:LYS:HE3	1.97	0.45
15:O:59:MET:HB2	15:O:59:MET:HE3	1.85	0.45
1:A:430:A:P	4:D:8:VAL:H	2.40	0.45
4:D:191:ARG:NH1	4:D:200:GLU:OE1	2.50	0.45
1:A:89:C:H2'	1:A:90:U:O4'	2.17	0.45
1:A:932:C:H5''	7:G:3:ARG:HD2	1.97	0.45
1:A:1347:G:N2	1:A:1373:G:H2'	2.32	0.45
1:A:59:A:H5''	1:A:387:U:H5''	1.99	0.45
1:A:281:G:H4'	1:A:282:A:O5'	2.15	0.45
1:A:316:G:OP2	1:A:351:G:O2'	2.34	0.45
1:A:371:G:O2'	1:A:372:C:H5'	2.16	0.45
1:A:1048:G:O3'	1:A:1049:U:H3'	2.17	0.45
1:A:1366:C:H2'	1:A:1367:C:C6	2.52	0.45
1:A:1424:C:H42	1:A:1476:G:H1	1.65	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:3:ASN:OD1	3:C:4:LYS:NZ	2.40	0.45
4:D:102:ASP:OD1	4:D:103:ASN:N	2.49	0.45
8:H:113:SER:HB2	8:H:134:ILE:HD11	1.98	0.45
14:N:14:PRO:C	14:N:16:PHE:H	2.20	0.45
1:A:35:G:H2'	1:A:36:C:C6	2.52	0.45
10:J:80:LYS:H	10:J:80:LYS:HD2	1.81	0.45
17:Q:6:LEU:HB3	17:Q:23:VAL:HG11	1.98	0.45
1:A:1070:U:OP1	5:E:20:GLN:HG3	2.18	0.44
1:A:9:G:H5''	5:E:126:ARG:HD3	1.98	0.44
1:A:337:C:H2'	1:A:338:A:H8	1.82	0.44
1:A:1517[B]:G:N7	1:A:1518[B]:MA6:H103	2.32	0.44
3:C:202:ILE:HG22	3:C:204:LEU:HD23	1.98	0.44
5:E:80:ILE:HD13	5:E:138:ALA:HB1	1.99	0.44
9:I:69:GLY:O	9:I:73:GLN:HG3	2.17	0.44
9:I:16:ARG:H	9:I:16:ARG:HG3	1.60	0.44
1:A:231:G:H2'	1:A:232:G:H8	1.82	0.44
1:A:1049:U:O2'	14:N:3:ARG:HD3	2.17	0.44
2:B:155:LEU:HD11	2:B:159:PRO:HG3	1.99	0.44
1:A:181:G:H4'	1:A:182:U:C5'	2.47	0.44
1:A:216:G:H2'	1:A:217:C:C6	2.52	0.44
4:D:18:LYS:HE2	4:D:20:TYR:HE1	1.83	0.44
10:J:4:ILE:HG22	10:J:6:ILE:HD11	1.99	0.44
11:K:65:ALA:HB1	11:K:98:LEU:HD23	1.99	0.44
1:A:1065:U:H1'	1:A:1066:C:OP2	2.18	0.44
3:C:57:ILE:HG12	3:C:66:VAL:HG22	1.98	0.44
5:E:110:LEU:HD13	5:E:118:ILE:HG21	2.00	0.44
2:B:16:HIS:CE1	2:B:210:SER:HB2	2.53	0.44
4:D:177:ASP:OD1	4:D:180:GLY:N	2.49	0.44
6:F:100:ASN:O	6:F:100:ASN:ND2	2.51	0.44
8:H:26:VAL:HG13	8:H:59:LEU:HB2	2.00	0.44
1:A:474:G:H2'	1:A:475:G:C8	2.53	0.44
1:A:1358:U:H5''	14:N:35:ARG:HG3	1.99	0.44
1:A:118:U:H3'	1:A:288:A:H61	1.83	0.44
1:A:682:G:H2'	1:A:683:G:C8	2.53	0.44
1:A:762:C:H2'	1:A:763:G:C8	2.53	0.44
1:A:1399:C:H4'	1:A:1400:5MC:H5''	1.98	0.44
1:A:1491:G:N7	25:A:1835:SIS:H4	2.33	0.44
3:C:41:GLY:O	3:C:45:LYS:HG2	2.18	0.44
3:C:174:PRO:HB2	3:C:177:THR:CG2	2.48	0.44
4:D:31:CYS:C	4:D:33:MET:H	2.21	0.44
11:K:70:LYS:HA	11:K:73:MET:HG2	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:19:C:H2'	1:A:20:U:O4'	2.17	0.43
1:A:261:U:OP2	20:T:79:ARG:NH2	2.50	0.43
1:A:390:C:H2'	1:A:391:G:C8	2.53	0.43
1:A:692:U:H2'	1:A:694:A:OP2	2.18	0.43
1:A:811:C:O2'	1:A:901:A:N1	2.48	0.43
2:B:205:ASP:OD1	2:B:206:ASP:N	2.51	0.43
3:C:150:LYS:HG3	3:C:169:ALA:HB2	2.00	0.43
8:H:121:ASP:N	8:H:121:ASP:OD1	2.51	0.43
12:L:25:PRO:HD2	12:L:97:ARG:NH1	2.32	0.43
12:L:85:ILE:HG23	12:L:98:TYR:HB3	1.99	0.43
14:N:21:TYR:CE2	14:N:23:ARG:HG2	2.53	0.43
23:W:28:G:H2'	23:W:28:G:N3	2.33	0.43
1:A:298:A:H2'	1:A:299:G:O4'	2.18	0.43
1:A:664:G:OP1	18:R:64:ARG:NH1	2.49	0.43
1:A:701:C:H4'	1:A:702:A:O5'	2.17	0.43
15:O:39:LEU:HD12	15:O:59:MET:HE2	1.99	0.43
21:U:12:LYS:HB3	21:U:22:ARG:HD2	2.00	0.43
1:A:488:C:H2'	1:A:489:C:C6	2.53	0.43
1:A:616:G:H2'	1:A:617:G:H8	1.83	0.43
1:A:902:G:H2'	1:A:903:G:H8	1.83	0.43
1:A:1065:U:H4'	1:A:1066:C:O5'	2.18	0.43
1:A:1163:C:H2'	1:A:1164:G:H8	1.84	0.43
1:A:1328:C:H2'	1:A:1329:A:C8	2.54	0.43
1:A:1420:C:H2'	1:A:1421:G:C8	2.50	0.43
1:A:21:G:H21	1:A:915:A:N6	2.15	0.43
1:A:428:G:H1'	1:A:429:U:OP2	2.18	0.43
1:A:916:G:H2'	1:A:917:G:C8	2.54	0.43
2:B:19:HIS:CG	2:B:20:GLU:HG2	2.53	0.43
7:G:108:ALA:O	7:G:111:ARG:HB2	2.19	0.43
9:I:5:TYR:HE1	9:I:16:ARG:HB3	1.82	0.43
11:K:29:ILE:HG12	11:K:30:VAL:N	2.34	0.43
14:N:24:CYS:H	14:N:33:VAL:HG21	1.84	0.43
19:S:11:VAL:HG13	19:S:38:SER:HB2	2.00	0.43
21:U:13:ILE:HG22	21:U:22:ARG:CZ	2.48	0.43
1:A:1513:A:H2'	1:A:1514:C:C6	2.53	0.43
2:B:181:PHE:CD2	8:H:70:GLN:HB3	2.53	0.43
11:K:84:VAL:HG21	11:K:95:ILE:HD11	2.00	0.43
14:N:33:VAL:HA	14:N:40:CYS:HA	2.00	0.43
19:S:71:LEU:HD12	19:S:71:LEU:H	1.83	0.43
1:A:12:U:H4'	1:A:526:C:O2'	2.19	0.43
1:A:824:C:H2'	1:A:825:G:H8	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:932:C:H42	1:A:1385:G:H1	1.66	0.43
1:A:972:C:OP1	10:J:57:LYS:NZ	2.41	0.43
1:A:1419:G:H1	1:A:1481:U:H3	1.66	0.43
11:K:98:LEU:HD22	11:K:98:LEU:HA	1.87	0.43
1:A:737:A:H2'	1:A:738:C:C6	2.54	0.43
1:A:1221:G:O3'	19:S:77:THR:HG21	2.19	0.43
1:A:1342:C:H2'	1:A:1343:G:C8	2.54	0.43
6:F:62:TRP:CH2	6:F:64:GLN:HB2	2.53	0.43
9:I:79:LEU:HD22	9:I:83:ARG:HG3	1.99	0.43
1:A:1013:G:N2	1:A:1016:A:OP2	2.52	0.43
1:A:1054:C:N4	23:W:34:G:C8	2.87	0.43
1:A:1302:U:C6	13:M:17:VAL:HG21	2.53	0.43
4:D:18:LYS:HA	4:D:33:MET:HG3	2.01	0.43
12:L:44:THR:HA	12:L:45:PRO:HD3	1.85	0.43
1:A:1402:4OC:HM22	1:A:1403:C:H5'	2.00	0.43
9:I:53:VAL:HG21	9:I:85:LEU:HD21	2.00	0.43
13:M:63:THR:HG23	13:M:64:TRP:CD2	2.54	0.43
1:A:538:G:H5''	12:L:114:LYS:HB2	2.01	0.43
1:A:558:G:C8	1:A:559:A:H2'	2.54	0.43
1:A:707:C:H2'	1:A:708:C:H6	1.84	0.43
1:A:1277:C:O2'	1:A:1279:A:H1'	2.18	0.43
7:G:16:LEU:H	7:G:16:LEU:HD22	1.84	0.43
7:G:18:TYR:OH	7:G:58:PRO:HG2	2.18	0.43
1:A:190(J):U:H2'	1:A:190(K):G:C8	2.54	0.42
9:I:43:ALA:HA	9:I:74:ILE:HD13	2.01	0.42
1:A:54:C:H42	1:A:357:G:H1	1.67	0.42
1:A:833:U:H2'	1:A:834:C:C6	2.54	0.42
10:J:49:VAL:HG13	14:N:41:ARG:HB2	2.02	0.42
1:A:616:G:H2'	1:A:617:G:C8	2.54	0.42
1:A:974:A:OP2	14:N:41:ARG:NH1	2.52	0.42
12:L:46:LYS:HG3	12:L:94:PRO:HD3	2.01	0.42
17:Q:3:LYS:HD3	17:Q:61:GLU:O	2.20	0.42
1:A:190(K):G:H2'	1:A:190(L):U:C6	2.53	0.42
1:A:384:G:H2'	1:A:385:C:C6	2.54	0.42
9:I:20:ARG:O	9:I:60:ASP:N	2.41	0.42
11:K:16:SER:O	11:K:35:PRO:HD3	2.18	0.42
15:O:55:GLY:O	15:O:59:MET:HG3	2.19	0.42
15:O:75:PRO:O	15:O:79:ARG:HG3	2.20	0.42
18:R:40:LEU:HB3	18:R:79:LEU:HD11	2.02	0.42
19:S:63:THR:HG22	19:S:64:GLU:H	1.85	0.42
1:A:766:A:H2'	1:A:767:A:O4'	2.18	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1053:G:H4'	1:A:1054:C:H5''	2.02	0.42
2:B:115:LEU:HD13	2:B:145:LEU:HB3	2.00	0.42
1:A:1061:G:H2'	1:A:1062:U:O4'	2.20	0.42
10:J:30:SER:HB3	10:J:80:LYS:HB2	2.01	0.42
13:M:48:LEU:HA	13:M:48:LEU:HD22	1.76	0.42
14:N:14:PRO:O	14:N:15:LYS:HB3	2.19	0.42
18:R:74:ARG:HB3	18:R:81:PHE:CE1	2.55	0.42
20:T:40:ALA:HB2	20:T:55:ILE:HG22	2.00	0.42
1:A:146:G:H2'	1:A:147:G:H8	1.85	0.42
1:A:456:C:N4	1:A:476:G:H1	2.12	0.42
1:A:1272:G:H2'	1:A:1273:G:O4'	2.19	0.42
4:D:14:ARG:HG3	4:D:59:ARG:NH2	2.35	0.42
14:N:27:CYS:HB3	14:N:43:CYS:SG	2.59	0.42
19:S:55:LYS:HG2	19:S:56:GLN:HG3	2.02	0.42
1:A:662:G:H2'	1:A:663:A:C8	2.54	0.42
1:A:719:C:O2'	18:R:49:LYS:HB3	2.19	0.42
1:A:1006:C:H2'	1:A:1007:C:C6	2.54	0.42
1:A:1244:C:H42	1:A:1293:G:H1	1.67	0.42
1:A:1414:U:H2'	1:A:1415:G:H8	1.84	0.42
2:B:60:ASP:CG	2:B:64:ARG:HH12	2.23	0.42
2:B:74:LYS:O	2:B:78:GLN:HG3	2.20	0.42
2:B:91:PRO:HB3	2:B:151:GLY:O	2.20	0.42
1:A:5:U:H4'	1:A:6:G:O5'	2.19	0.42
1:A:1240:U:OP2	7:G:116:ALA:N	2.51	0.42
1:A:1243:C:H42	1:A:1294:G:H1	1.67	0.42
1:A:1442:G:O6	1:A:1446:A:N6	2.49	0.42
1:A:1472:U:H2'	1:A:1473:A:H8	1.84	0.42
2:B:122:PHE:HA	2:B:127:ILE:HG23	2.02	0.42
12:L:7:ILE:O	12:L:11:VAL:HG23	2.19	0.42
14:N:12:ARG:HG3	14:N:13:THR:H	1.84	0.42
1:A:129:U:O3'	1:A:129(A):G:H3'	2.19	0.42
6:F:22:GLU:OE1	6:F:82:ARG:NH1	2.53	0.42
9:I:116:LYS:HD2	9:I:122:ALA:HA	2.01	0.42
17:Q:63:ARG:HG2	17:Q:64:PRO:HD2	2.01	0.42
1:A:1064:G:N2	1:A:1191:A:OP2	2.47	0.41
1:A:1189:C:P	10:J:51:ARG:HH22	2.42	0.41
5:E:151:LEU:HD23	5:E:151:LEU:HA	1.74	0.41
13:M:56:LEU:HD23	13:M:56:LEU:HA	1.82	0.41
1:A:88:A:H2'	1:A:89:C:O4'	2.20	0.41
1:A:922:G:H1	1:A:1395:C:H42	1.66	0.41
1:A:1009:G:H1	1:A:1020:U:H3	1.68	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:71:VAL:HB	2:B:164:VAL:HG12	2.02	0.41
4:D:170:VAL:HG11	4:D:175:SER:HA	2.01	0.41
9:I:111:ARG:HG2	9:I:112:LYS:N	2.35	0.41
11:K:57:THR:CG2	11:K:60:ALA:H	2.33	0.41
21:U:6:ARG:H	21:U:6:ARG:HG2	1.69	0.41
1:A:1081:G:H8	1:A:1081:G:OP2	2.04	0.41
1:A:1392:G:H21	1:A:1502:A:H8	1.67	0.41
4:D:28:SER:O	4:D:30:LYS:N	2.46	0.41
9:I:112:LYS:HE3	9:I:117:HIS:O	2.20	0.41
11:K:58:PRO:HB2	11:K:93:GLN:HG3	2.02	0.41
12:L:7:ILE:HD13	12:L:7:ILE:HA	1.96	0.41
18:R:19:LYS:HE3	18:R:19:LYS:HB2	1.75	0.41
1:A:22:G:H2'	1:A:23:C:C6	2.55	0.41
1:A:191:G:O2'	20:T:102:GLY:O	2.25	0.41
1:A:1426:C:H42	1:A:1474:G:H1	1.67	0.41
5:E:82:VAL:HG21	5:E:138:ALA:HA	2.01	0.41
12:L:54:LYS:HD2	12:L:54:LYS:N	2.35	0.41
15:O:24:SER:HB2	15:O:27:VAL:HG23	2.02	0.41
1:A:277:C:H5'	17:Q:68:ARG:NH1	2.36	0.41
1:A:838:G:H2'	1:A:839:U:H5''	2.02	0.41
1:A:895:G:H2'	1:A:896:C:C6	2.56	0.41
1:A:1205:U:H2'	1:A:1206:G:C8	2.56	0.41
1:A:1437:C:H42	1:A:1464:G:H1	1.67	0.41
3:C:134:ILE:O	3:C:138:VAL:HG23	2.20	0.41
5:E:99:GLY:N	5:E:117:ASP:OD2	2.49	0.41
7:G:65:ALA:O	7:G:69:VAL:HG23	2.20	0.41
1:A:670:G:H2'	1:A:671:G:O4'	2.21	0.41
1:A:1163:C:H2'	1:A:1164:G:C8	2.55	0.41
1:A:1520[A]:G:H2'	1:A:1521:G:C8	2.56	0.41
1:A:671:G:H5'	6:F:77:ARG:NH2	2.35	0.41
1:A:962:C:H2'	1:A:963:G:C8	2.55	0.41
1:A:1037:C:H2'	1:A:1038:C:C6	2.55	0.41
1:A:1068:G:H8	1:A:1068:G:OP2	2.03	0.41
4:D:94:LEU:HA	4:D:97:LEU:HD12	2.02	0.41
8:H:105:ARG:HA	8:H:105:ARG:HD3	1.84	0.41
11:K:69:ALA:O	11:K:73:MET:HG2	2.20	0.41
20:T:43:LEU:HB2	20:T:52:ALA:HB2	2.02	0.41
1:A:254:G:OP1	17:Q:67:LYS:O	2.39	0.41
1:A:280:C:C2	17:Q:38:ARG:HD3	2.56	0.41
1:A:620:C:H2'	1:A:621:A:O4'	2.21	0.41
1:A:1040:U:H2'	1:A:1041:A:C8	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1148:U:H2'	1:A:1149:C:O4'	2.20	0.41
1:A:1518[B]:MA6:H93	1:A:1519[B]:MA6:N1	2.36	0.41
2:B:219:VAL:O	2:B:223:ILE:HG13	2.21	0.41
14:N:50:LYS:HG2	14:N:52:GLN:NE2	2.35	0.41
1:A:224:C:H2'	1:A:225:C:C6	2.56	0.41
1:A:714:G:H2'	1:A:715:A:C8	2.56	0.41
1:A:768:A:OP1	1:A:804:U:H4'	2.21	0.41
1:A:1269:A:N1	1:A:1312:G:O2'	2.49	0.41
1:A:1281:U:H5'	1:A:1282:C:C5	2.53	0.41
1:A:1328:C:H2'	1:A:1329:A:H8	1.85	0.41
1:A:1380:U:H1'	1:A:1381:U:OP2	2.20	0.41
3:C:17:ASP:O	3:C:54:ARG:NH2	2.54	0.41
5:E:18:ARG:HG2	5:E:19:MET:N	2.35	0.41
7:G:121:ALA:O	7:G:125:MET:HG3	2.21	0.41
8:H:35:ILE:HD13	8:H:118:VAL:HG11	2.03	0.41
17:Q:83:ASP:OD1	17:Q:83:ASP:N	2.54	0.41
20:T:80:ARG:O	20:T:84:LEU:HB2	2.21	0.41
1:A:1218:C:H2'	1:A:1219:U:C6	2.56	0.41
1:A:1347:G:O6	9:I:10:ARG:NH2	2.54	0.41
3:C:179:ARG:HG2	3:C:206:GLU:O	2.20	0.41
4:D:57:ARG:NH2	5:E:107:ARG:HD3	2.36	0.41
5:E:105:VAL:HB	5:E:106:PRO:HD3	2.03	0.41
5:E:147:ASP:OD1	5:E:147:ASP:N	2.54	0.41
7:G:26:PHE:CE2	7:G:30:ILE:HD11	2.56	0.41
7:G:155:ARG:HD3	7:G:155:ARG:HA	1.91	0.41
15:O:2:PRO:HB2	15:O:3:ILE:H	1.60	0.41
1:A:475:G:H2'	1:A:476:G:H8	1.86	0.40
8:H:17:THR:HG22	8:H:63:LEU:HG	2.03	0.40
10:J:48:THR:HA	10:J:62:HIS:HB3	2.03	0.40
12:L:25:PRO:HD2	12:L:97:ARG:HH12	1.85	0.40
20:T:29:LYS:O	20:T:33:ILE:HG12	2.20	0.40
21:U:5:ASP:O	21:U:11:GLY:HA3	2.21	0.40
1:A:688:G:H2'	1:A:689:C:C6	2.55	0.40
1:A:967:5MC:H2'	1:A:968:A:C8	2.56	0.40
1:A:1301:U:H1'	1:A:1302:U:OP1	2.22	0.40
3:C:72:LYS:HB2	3:C:72:LYS:HE2	1.82	0.40
12:L:20:LYS:HE2	12:L:20:LYS:HB2	1.84	0.40
13:M:49:THR:HG22	13:M:51:ALA:N	2.32	0.40
13:M:62:ASN:N	13:M:62:ASN:OD1	2.55	0.40
13:M:88:ARG:HG3	13:M:98:VAL:HG13	2.02	0.40
17:Q:3:LYS:HB3	17:Q:61:GLU:HB3	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:452:A:HO2'	1:A:453:A:C4'	2.29	0.40
1:A:1003:G:N2	1:A:1039:C:O2	2.54	0.40
2:B:118:LEU:HB2	2:B:142:LEU:HD21	2.03	0.40
4:D:184:LYS:HE3	4:D:184:LYS:HB2	1.74	0.40
12:L:68:ALA:HB1	12:L:100:ILE:HG13	2.03	0.40
12:L:77:LEU:HD23	12:L:77:LEU:HA	1.88	0.40
1:A:130:A:OP2	1:A:190(E):U:O2'	2.29	0.40
1:A:476:G:H2'	1:A:477:G:C8	2.57	0.40
1:A:1003(A):G:C6	1:A:1004:A:H1'	2.57	0.40
1:A:1145:C:H1'	1:A:1146:A:C8	2.55	0.40
20:T:50:GLU:HA	20:T:100:ILE:HG13	2.03	0.40
1:A:429:U:H1'	1:A:430:A:H5''	2.03	0.40
1:A:1000:U:H2'	1:A:1001:A:C8	2.57	0.40
1:A:1392:G:N2	1:A:1502:A:H8	2.19	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	B	232/256 (91%)	218 (94%)	14 (6%)	0	100	100
3	C	204/239 (85%)	183 (90%)	21 (10%)	0	100	100
4	D	206/209 (99%)	200 (97%)	6 (3%)	0	100	100
5	E	148/162 (91%)	143 (97%)	5 (3%)	0	100	100
6	F	99/101 (98%)	97 (98%)	2 (2%)	0	100	100
7	G	153/156 (98%)	146 (95%)	7 (5%)	0	100	100
8	H	136/138 (99%)	131 (96%)	3 (2%)	2 (2%)	10	47
9	I	125/128 (98%)	114 (91%)	11 (9%)	0	100	100
10	J	96/105 (91%)	79 (82%)	14 (15%)	3 (3%)	4	32

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
11	K	114/129 (88%)	108 (95%)	6 (5%)	0	100	100
12	L	121/135 (90%)	112 (93%)	9 (7%)	0	100	100
13	M	116/126 (92%)	102 (88%)	14 (12%)	0	100	100
14	N	58/61 (95%)	50 (86%)	8 (14%)	0	100	100
15	O	85/89 (96%)	83 (98%)	2 (2%)	0	100	100
16	P	81/88 (92%)	78 (96%)	3 (4%)	0	100	100
17	Q	97/105 (92%)	94 (97%)	3 (3%)	0	100	100
18	R	68/88 (77%)	65 (96%)	3 (4%)	0	100	100
19	S	78/93 (84%)	71 (91%)	7 (9%)	0	100	100
20	T	97/106 (92%)	87 (90%)	10 (10%)	0	100	100
21	U	22/27 (82%)	21 (96%)	1 (4%)	0	100	100
All	All	2336/2541 (92%)	2182 (93%)	149 (6%)	5 (0%)	47	79

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
10	J	55	LYS
10	J	56	HIS
10	J	54	PHE
8	H	71	GLY
8	H	72	PRO

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	
2	B	202/220 (92%)	177 (88%)	25 (12%)	4	25
3	C	160/188 (85%)	136 (85%)	24 (15%)	3	19
4	D	180/181 (99%)	167 (93%)	13 (7%)	14	47
5	E	115/123 (94%)	105 (91%)	10 (9%)	10	41

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
6	F	90/90 (100%)	85 (94%)	5 (6%)	21	55
7	G	126/127 (99%)	117 (93%)	9 (7%)	14	47
8	H	119/119 (100%)	111 (93%)	8 (7%)	16	50
9	I	98/99 (99%)	88 (90%)	10 (10%)	7	34
10	J	87/92 (95%)	78 (90%)	9 (10%)	7	33
11	K	88/99 (89%)	80 (91%)	8 (9%)	9	39
12	L	103/110 (94%)	96 (93%)	7 (7%)	16	49
13	M	94/101 (93%)	84 (89%)	10 (11%)	6	32
14	N	49/50 (98%)	46 (94%)	3 (6%)	18	53
15	O	79/80 (99%)	67 (85%)	12 (15%)	3	18
16	P	72/74 (97%)	67 (93%)	5 (7%)	15	48
17	Q	94/97 (97%)	89 (95%)	5 (5%)	22	57
18	R	61/77 (79%)	57 (93%)	4 (7%)	16	50
19	S	71/80 (89%)	61 (86%)	10 (14%)	3	21
20	T	76/82 (93%)	66 (87%)	10 (13%)	4	23
21	U	19/22 (86%)	18 (95%)	1 (5%)	22	57
All	All	1983/2111 (94%)	1795 (90%)	188 (10%)	8	37

All (188) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	B	7	VAL
2	B	8	LYS
2	B	10	LEU
2	B	11	LEU
2	B	21	ARG
2	B	24	TRP
2	B	33	TYR
2	B	44	LEU
2	B	69	LEU
2	B	73	THR
2	B	96	ARG
2	B	102	LEU
2	B	103	THR
2	B	106	LYS
2	B	122	PHE

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Mol	Chain	Res	Type
2	B	127	ILE
2	B	153	ARG
2	B	154	LEU
2	B	157	ARG
2	B	163	PHE
2	B	178	ARG
2	B	190	THR
2	B	200	ILE
2	B	206	ASP
2	B	213	LEU
3	C	3	ASN
3	C	10	PHE
3	C	17	ASP
3	C	21	ARG
3	C	26	LYS
3	C	31	HIS
3	C	34	LEU
3	C	70	VAL
3	C	72	LYS
3	C	79	ARG
3	C	90	GLU
3	C	91	LEU
3	C	94	LEU
3	C	95	THR
3	C	99	VAL
3	C	111	LEU
3	C	131	ARG
3	C	162	GLN
3	C	166	GLU
3	C	167	TRP
3	C	177	THR
3	C	188	LEU
3	C	193	TYR
3	C	196	LEU
4	D	10	ARG
4	D	34	GLU
4	D	35	ARG
4	D	49	ARG
4	D	58	LEU
4	D	78	LEU
4	D	115	ARG
4	D	122	ARG

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Mol	Chain	Res	Type
4	D	127	THR
4	D	135	LEU
4	D	150	GLU
4	D	155	LEU
4	D	193	ASP
5	E	6	PHE
5	E	12	LEU
5	E	19	MET
5	E	26	PHE
5	E	31	LEU
5	E	41	VAL
5	E	75	THR
5	E	79	GLU
5	E	150	ARG
5	E	151	LEU
6	F	10	LEU
6	F	24	GLU
6	F	32	ASN
6	F	43	LEU
6	F	82	ARG
7	G	8	GLU
7	G	45	ASP
7	G	79	ARG
7	G	84	ASN
7	G	97	GLN
7	G	115	ARG
7	G	124	LEU
7	G	136	LYS
7	G	149	ARG
8	H	2	LEU
8	H	3	THR
8	H	63	LEU
8	H	83	ILE
8	H	85	ARG
8	H	92	ARG
8	H	98	LYS
8	H	133	LEU
9	I	12	GLU
9	I	51	ARG
9	I	79	LEU
9	I	96	LEU
9	I	102	LEU

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Mol	Chain	Res	Type
9	I	104	ARG
9	I	111	ARG
9	I	118	LYS
9	I	121	ARG
9	I	124	GLN
10	J	3	LYS
10	J	38	ILE
10	J	45	ARG
10	J	62	HIS
10	J	67	THR
10	J	73	ASP
10	J	78	ASN
10	J	89	ASP
10	J	95	GLU
11	K	12	ARG
11	K	14	VAL
11	K	29	ILE
11	K	33	THR
11	K	36	ASP
11	K	57	THR
11	K	98	LEU
11	K	119	CYS
12	L	18	VAL
12	L	20	LYS
12	L	33	ARG
12	L	79	GLU
12	L	80	HIS
12	L	100	ILE
12	L	113	ARG
13	M	17	VAL
13	M	37	THR
13	M	44	ARG
13	M	48	LEU
13	M	50	GLU
13	M	64	TRP
13	M	82	MET
13	M	105	THR
13	M	108	ARG
13	M	117	VAL
14	N	11	LYS
14	N	22	THR
14	N	25	VAL

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Mol	Chain	Res	Type
15	O	5	LYS
15	O	8	LYS
15	O	32	LEU
15	O	33	THR
15	O	39	LEU
15	O	45	VAL
15	O	56	LEU
15	O	65	ARG
15	O	70	LEU
15	O	71	GLN
15	O	81	LEU
15	O	83	GLU
16	P	55	ARG
16	P	62	VAL
16	P	67	THR
16	P	82	GLN
16	P	83	GLU
17	Q	34	LYS
17	Q	53	LEU
17	Q	59	ILE
17	Q	60	ILE
17	Q	76	LEU
18	R	31	LEU
18	R	42	ARG
18	R	47	THR
18	R	87	ARG
19	S	6	LYS
19	S	13	ASP
19	S	15	LEU
19	S	29	ARG
19	S	31	ILE
19	S	39	THR
19	S	48	THR
19	S	62	ILE
19	S	63	THR
19	S	79	THR
20	T	9	ASN
20	T	53	LEU
20	T	56	MET
20	T	57	ARG
20	T	62	LEU
20	T	68	LYS

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Mol	Chain	Res	Type
20	T	73	HIS
20	T	75	ASN
20	T	84	LEU
20	T	92	LEU
21	U	25	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
2	B	37	ASN
2	B	204	ASN
10	J	84	GLN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	1503/1522 (98%)	237 (15%)	45 (2%)
22	Y	5/6 (83%)	2 (40%)	0
23	W	14/15 (93%)	2 (14%)	0
All	All	1522/1543 (98%)	241 (15%)	45 (2%)

All (241) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	6	G
1	A	9	G
1	A	13	C
1	A	32	A
1	A	39	G
1	A	47	C
1	A	48	C
1	A	51	A
1	A	101	A
1	A	116	A
1	A	117	G
1	A	121	C
1	A	129(A)	G
1	A	130	A
1	A	131	C
1	A	163	C

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Mol	Chain	Res	Type
1	A	182	U
1	A	183	G
1	A	195	A
1	A	201	C
1	A	203	U
1	A	204	U
1	A	216	G
1	A	220	G
1	A	247	G
1	A	251	G
1	A	252	U
1	A	266	G
1	A	267	C
1	A	279	A
1	A	282	A
1	A	289	G
1	A	301	G
1	A	321	A
1	A	328	C
1	A	329	A
1	A	332	G
1	A	344	A
1	A	345	C
1	A	350	G
1	A	351	G
1	A	352	C
1	A	353	A
1	A	354	G
1	A	356	A
1	A	367	U
1	A	373	A
1	A	374	A
1	A	384	G
1	A	390	C
1	A	397	A
1	A	398	C
1	A	406	G
1	A	412	A
1	A	413	G
1	A	421	U
1	A	424	G
1	A	429	U

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Mol	Chain	Res	Type
1	A	430	A
1	A	439	A
1	A	451	A
1	A	460	A
1	A	461	C
1	A	481	G
1	A	485	G
1	A	486	U
1	A	497	A
1	A	498	U
1	A	509	A
1	A	510	A
1	A	511	C
1	A	518	C
1	A	519	C
1	A	524	G
1	A	531	U
1	A	533	A
1	A	547	A
1	A	559	A
1	A	560	U
1	A	562	C
1	A	564	C
1	A	572	A
1	A	573	A
1	A	576	G
1	A	577	G
1	A	579	G
1	A	588	G
1	A	596	C
1	A	653	A
1	A	665	A
1	A	686	U
1	A	687	A
1	A	688	G
1	A	695	A
1	A	701	C
1	A	702	A
1	A	703	G
1	A	721	G
1	A	723	U
1	A	731	G

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Mol	Chain	Res	Type
1	A	734	G
1	A	749	C
1	A	755	G
1	A	777	A
1	A	781	A
1	A	782	A
1	A	785	G
1	A	792	A
1	A	793	U
1	A	794	A
1	A	799	G
1	A	812	C
1	A	813	U
1	A	817	C
1	A	821	G
1	A	828	A
1	A	839	U
1	A	840	C
1	A	841	U
1	A	848	C
1	A	851	G
1	A	876	G
1	A	889	A
1	A	902	G
1	A	914	A
1	A	926	G
1	A	927	G
1	A	934	C
1	A	935	A
1	A	942	G
1	A	960	U
1	A	961	U
1	A	966	M2G
1	A	967	5MC
1	A	969	A
1	A	971	G
1	A	972	C
1	A	974	A
1	A	975	A
1	A	976	G
1	A	977	A
1	A	989	C

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Mol	Chain	Res	Type
1	A	991	U
1	A	992	U
1	A	993	G
1	A	1004	A
1	A	1005	A
1	A	1023	G
1	A	1024	G
1	A	1026	G
1	A	1030(B)	C
1	A	1045	C
1	A	1050	G
1	A	1051	C
1	A	1053	G
1	A	1054	C
1	A	1065	U
1	A	1066	C
1	A	1068	G
1	A	1094	G
1	A	1095	U
1	A	1096	C
1	A	1101	A
1	A	1125	U
1	A	1126	U
1	A	1127	G
1	A	1129	C
1	A	1130	A
1	A	1137	C
1	A	1138	G
1	A	1139	G
1	A	1146	A
1	A	1152	A
1	A	1159	U
1	A	1171	G
1	A	1183	A
1	A	1191	A
1	A	1196	U
1	A	1197	G
1	A	1201	A
1	A	1202	G
1	A	1211	U
1	A	1212	U
1	A	1214	C

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Mol	Chain	Res	Type
1	A	1224	G
1	A	1225	A
1	A	1227	A
1	A	1228	C
1	A	1238	A
1	A	1241	G
1	A	1256	A
1	A	1257	U
1	A	1258	G
1	A	1270	C
1	A	1278	U
1	A	1279	A
1	A	1280	A
1	A	1281	U
1	A	1286	A
1	A	1287	A
1	A	1300	G
1	A	1301	U
1	A	1302	U
1	A	1303	C
1	A	1306	A
1	A	1312	G
1	A	1320	C
1	A	1322	C
1	A	1323	G
1	A	1336	C
1	A	1338	G
1	A	1346	A
1	A	1347	G
1	A	1348	U
1	A	1353	G
1	A	1359	C
1	A	1362	C
1	A	1363	A
1	A	1364	U
1	A	1368	G
1	A	1370	G
1	A	1381	U
1	A	1398	A
1	A	1400	5MC
1	A	1442	G
1	A	1446	A

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Mol	Chain	Res	Type
1	A	1447	G
1	A	1478	C
1	A	1485	U
1	A	1487	G
1	A	1492	A
1	A	1499	A
1	A	1503	A
1	A	1504	G
1	A	1506	U
1	A	1529	G
1	A	1530	G
22	Y	5	U
22	Y	6	U
23	W	30	G
23	W	33	U

All (45) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	A	5	U
1	A	115	G
1	A	129(A)	G
1	A	181	G
1	A	204	U
1	A	250	A
1	A	251	G
1	A	281	G
1	A	328	C
1	A	372	C
1	A	428	G
1	A	429	U
1	A	484	G
1	A	485	G
1	A	496	A
1	A	509	A
1	A	518	C
1	A	559	A
1	A	575	G
1	A	687	A
1	A	701	C
1	A	748	C
1	A	792	A

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Mol	Chain	Res	Type
1	A	812	C
1	A	913	A
1	A	960	U
1	A	965	A
1	A	992	U
1	A	1049	U
1	A	1065	U
1	A	1067	A
1	A	1145	C
1	A	1182	G
1	A	1190	G
1	A	1201	A
1	A	1256	A
1	A	1257	U
1	A	1285	A
1	A	1300	G
1	A	1301	U
1	A	1305	G
1	A	1346	A
1	A	1347	G
1	A	1380	U
1	A	1505	G

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

17 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
1	5MC	A	1407	1	15,22,23	0.98	1 (6%)	19,32,35	1.12	3 (15%)
1	MA6	A	1519[B]	1	19,26,27	1.23	3 (15%)	18,38,41	0.59	0
1	5MC	A	967	1	15,22,23	0.89	0	19,32,35	1.07	1 (5%)
12	0TD	L	92	12	4,9,10	0.81	0	3,11,13	1.75	1 (33%)
1	PSU	A	1541	1,24	17,21,22	1.05	2 (11%)	20,30,33	3.18	6 (30%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
1	M2G	A	966	1	20,27,28	1.98	4 (20%)	22,40,43	2.38	4 (18%)
1	UR3	A	1498	1	14,22,23	1.02	2 (14%)	15,32,35	1.07	1 (6%)
1	5MC	A	1404	1	15,22,23	1.05	1 (6%)	19,32,35	1.04	2 (10%)
1	MA6	A	1518[B]	1	19,26,27	1.19	2 (10%)	18,38,41	0.75	0
1	PSU	A	1540	1	17,21,22	1.02	1 (5%)	20,30,33	3.22	6 (30%)
1	MA6	A	1519[A]	1	19,26,27	1.03	1 (5%)	18,38,41	0.61	0
1	5MC	A	1400	1	15,22,23	0.89	0	19,32,35	1.05	1 (5%)
1	MA6	A	1518[A]	1	19,26,27	0.96	1 (5%)	18,38,41	0.77	0
1	PSU	A	516	1,24	17,21,22	1.04	2 (11%)	20,30,33	3.17	6 (30%)
1	2MG	A	1207	1	19,26,27	2.23	4 (21%)	21,38,41	2.00	3 (14%)
1	7MG	A	527	1	22,26,27	2.12	6 (27%)	28,39,42	1.76	6 (21%)
1	4OC	A	1402	1	16,23,24	0.90	1 (6%)	17,32,35	0.76	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
1	5MC	A	1407	1	-	0/5/25/26	0/2/2/2
1	MA6	A	1519[B]	1	-	3/7/29/30	0/3/3/3
1	5MC	A	967	1	-	2/5/25/26	0/2/2/2
12	0TD	L	92	12	-	2/3/12/14	-
1	PSU	A	1541	1,24	-	1/7/25/26	0/2/2/2
1	M2G	A	966	1	-	3/7/29/30	0/3/3/3
1	UR3	A	1498	1	-	0/5/25/26	0/2/2/2
1	5MC	A	1404	1	-	0/5/25/26	0/2/2/2
1	MA6	A	1518[B]	1	-	1/7/29/30	0/3/3/3
1	PSU	A	1540	1	-	0/7/25/26	0/2/2/2
1	MA6	A	1519[A]	1	-	4/7/29/30	0/3/3/3
1	5MC	A	1400	1	-	2/5/25/26	0/2/2/2
1	MA6	A	1518[A]	1	-	0/7/29/30	0/3/3/3
1	PSU	A	516	1,24	-	0/7/25/26	0/2/2/2
1	2MG	A	1207	1	-	0/5/27/28	0/3/3/3
1	7MG	A	527	1	-	0/7/37/38	0/3/3/3
1	4OC	A	1402	1	-	3/9/29/30	0/2/2/2

All (31) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1207	2MG	C2-N2	7.00	1.40	1.34
1	A	966	M2G	C6-N1	5.82	1.43	1.33
1	A	1207	2MG	C6-N1	5.69	1.42	1.33
1	A	527	7MG	C4-N3	5.61	1.41	1.34
1	A	527	7MG	C2-N2	4.84	1.43	1.33
1	A	527	7MG	C8-N9	-4.50	1.35	1.45
1	A	966	M2G	C2-N2	4.02	1.41	1.34
1	A	966	M2G	C2-N1	3.70	1.41	1.34
1	A	1519[B]	MA6	C6-N1	3.38	1.38	1.33
1	A	1518[B]	MA6	C6-N1	3.33	1.38	1.33
1	A	1541	PSU	C4-N3	3.20	1.38	1.33
1	A	966	M2G	C4-N3	3.14	1.40	1.35
1	A	516	PSU	C4-N3	3.13	1.38	1.33
1	A	1540	PSU	C4-N3	3.07	1.38	1.33
1	A	1519[A]	MA6	C6-N1	2.78	1.37	1.33
1	A	527	7MG	C6-N1	2.69	1.37	1.33
1	A	527	7MG	C5-C6	2.62	1.45	1.41
1	A	1498	UR3	C6-N1	2.61	1.39	1.35
1	A	1404	5MC	C5-C4	2.59	1.45	1.41
1	A	1518[A]	MA6	C6-N1	2.55	1.36	1.33
1	A	1519[B]	MA6	C2-N1	2.42	1.38	1.33
1	A	1207	2MG	C4-N3	2.31	1.39	1.35
1	A	1498	UR3	C4-N3	2.26	1.41	1.38
1	A	527	7MG	CM7-N7	-2.23	1.42	1.46
1	A	1402	4OC	C5-C4	2.18	1.44	1.39
1	A	1407	5MC	C5-C4	2.16	1.44	1.41
1	A	516	PSU	O4'-C1'	-2.14	1.41	1.44
1	A	1207	2MG	C2-N1	2.14	1.41	1.34
1	A	1518[B]	MA6	C2-N1	2.08	1.37	1.33
1	A	1541	PSU	O4'-C1'	-2.06	1.41	1.44
1	A	1519[B]	MA6	C2-N3	2.04	1.35	1.32

All (40) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1541	PSU	N3-C2-N1	-11.00	119.69	128.43
1	A	1540	PSU	N3-C2-N1	-10.92	119.75	128.43
1	A	516	PSU	N3-C2-N1	-10.89	119.77	128.43
1	A	966	M2G	C5-C6-N1	-8.06	112.41	123.43
1	A	1207	2MG	C5-C6-N1	-7.45	113.24	123.43
1	A	966	M2G	C2-N1-C6	5.79	123.08	116.18
1	A	516	PSU	C2-N3-C4	5.79	120.03	115.14
1	A	1540	PSU	C2-N3-C4	5.75	120.00	115.14

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1541	PSU	C2-N3-C4	5.72	119.97	115.14
1	A	527	7MG	N3-C4-N9	4.80	133.08	126.91
1	A	516	PSU	C5-C4-N3	-4.27	119.86	125.36
1	A	527	7MG	C5-C4-N3	-4.24	119.58	126.49
1	A	1540	PSU	C5-C4-N3	-4.17	119.99	125.36
1	A	1541	PSU	C5-C4-N3	-4.12	120.05	125.36
1	A	527	7MG	N9-C8-N7	4.07	109.20	103.38
1	A	1207	2MG	C2-N1-C6	3.72	121.84	115.18
1	A	1541	PSU	C6-N1-C2	3.29	120.79	115.36
1	A	516	PSU	C6-N1-C2	3.25	120.72	115.36
1	A	1540	PSU	C6-N1-C2	3.24	120.71	115.36
1	A	516	PSU	C5-C6-N1	-3.24	120.45	124.44
1	A	1541	PSU	C5-C6-N1	-3.19	120.52	124.44
1	A	1540	PSU	C5-C6-N1	-3.19	120.52	124.44
1	A	1540	PSU	C5-C1'-C2'	-2.83	110.27	115.32
1	A	527	7MG	C2-N1-C6	2.55	119.97	115.93
1	A	966	M2G	N3-C2-N2	2.52	119.74	117.18
1	A	527	7MG	C4-C5-C6	2.51	117.89	115.20
1	A	1404	5MC	C4-N3-C2	2.38	118.89	116.02
1	A	1207	2MG	C4-C5-N7	2.33	111.83	109.40
12	L	92	0TD	CSB-SB-CB	-2.31	97.31	101.85
1	A	527	7MG	C2-N3-C4	2.30	120.25	113.89
1	A	516	PSU	O4'-C1'-C2'	2.27	108.34	104.66
1	A	1404	5MC	N4-C4-N3	-2.20	113.92	117.03
1	A	1400	5MC	C4-N3-C2	2.16	118.62	116.02
1	A	967	5MC	C4-N3-C2	2.16	118.62	116.02
1	A	1407	5MC	N4-C4-N3	-2.10	114.06	117.03
1	A	1407	5MC	C4-N3-C2	2.08	118.53	116.02
1	A	966	M2G	C2-N3-C4	-2.05	112.95	115.28
1	A	1498	UR3	C3'-C2'-C1'	2.04	104.05	100.98
1	A	1541	PSU	O4'-C1'-C2'	2.04	107.96	104.66
1	A	1407	5MC	CM5-C5-C6	2.01	122.92	118.68

There are no chirality outliers.

All (21) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
12	L	92	0TD	O-C-CA-CB
12	L	92	0TD	CG-CB-SB-CSB
1	A	966	M2G	C4'-C5'-O5'-P
1	A	967	5MC	O4'-C4'-C5'-O5'
1	A	1400	5MC	O4'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
1	A	1402	4OC	O4'-C4'-C5'-O5'
1	A	1519[A]	MA6	C3'-C4'-C5'-O5'
1	A	1519[B]	MA6	C5-C6-N6-C9
1	A	1400	5MC	C3'-C4'-C5'-O5'
1	A	1402	4OC	C3'-C4'-C5'-O5'
1	A	1519[A]	MA6	O4'-C4'-C5'-O5'
1	A	967	5MC	C3'-C4'-C5'-O5'
1	A	1519[B]	MA6	N1-C6-N6-C9
1	A	966	M2G	O4'-C4'-C5'-O5'
1	A	1519[A]	MA6	C5-C6-N6-C9
1	A	1519[B]	MA6	C5-C6-N6-C10
1	A	1402	4OC	C3'-C2'-O2'-CM2
1	A	966	M2G	C3'-C4'-C5'-O5'
1	A	1519[A]	MA6	C5-C6-N6-C10
1	A	1541	PSU	O4'-C1'-C5-C4
1	A	1518[B]	MA6	O4'-C4'-C5'-O5'

There are no ring outliers.

9 monomers are involved in 13 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	1519[B]	MA6	3	0
1	A	967	5MC	2	0
12	L	92	0TD	2	0
1	A	966	M2G	2	0
1	A	1518[B]	MA6	3	0
1	A	1519[A]	MA6	1	0
1	A	1400	5MC	1	0
1	A	1518[A]	MA6	1	0
1	A	1402	4OC	1	0

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 252 ligands modelled in this entry, 251 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
25	SIS	A	1835	-	28,33,33	1.29	2 (7%)	28,49,49	0.91	1 (3%)

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
25	SIS	A	1835	-	-	2/9/65/65	0/3/3/3

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
25	A	1835	SIS	C31-C41	-4.85	1.39	1.50
25	A	1835	SIS	C61-C51	-3.74	1.39	1.48

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
25	A	1835	SIS	C93-N33-C33	-2.99	110.02	114.38

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
25	A	1835	SIS	C23-C33-N33-C93
25	A	1835	SIS	C52-C42-O11-C11

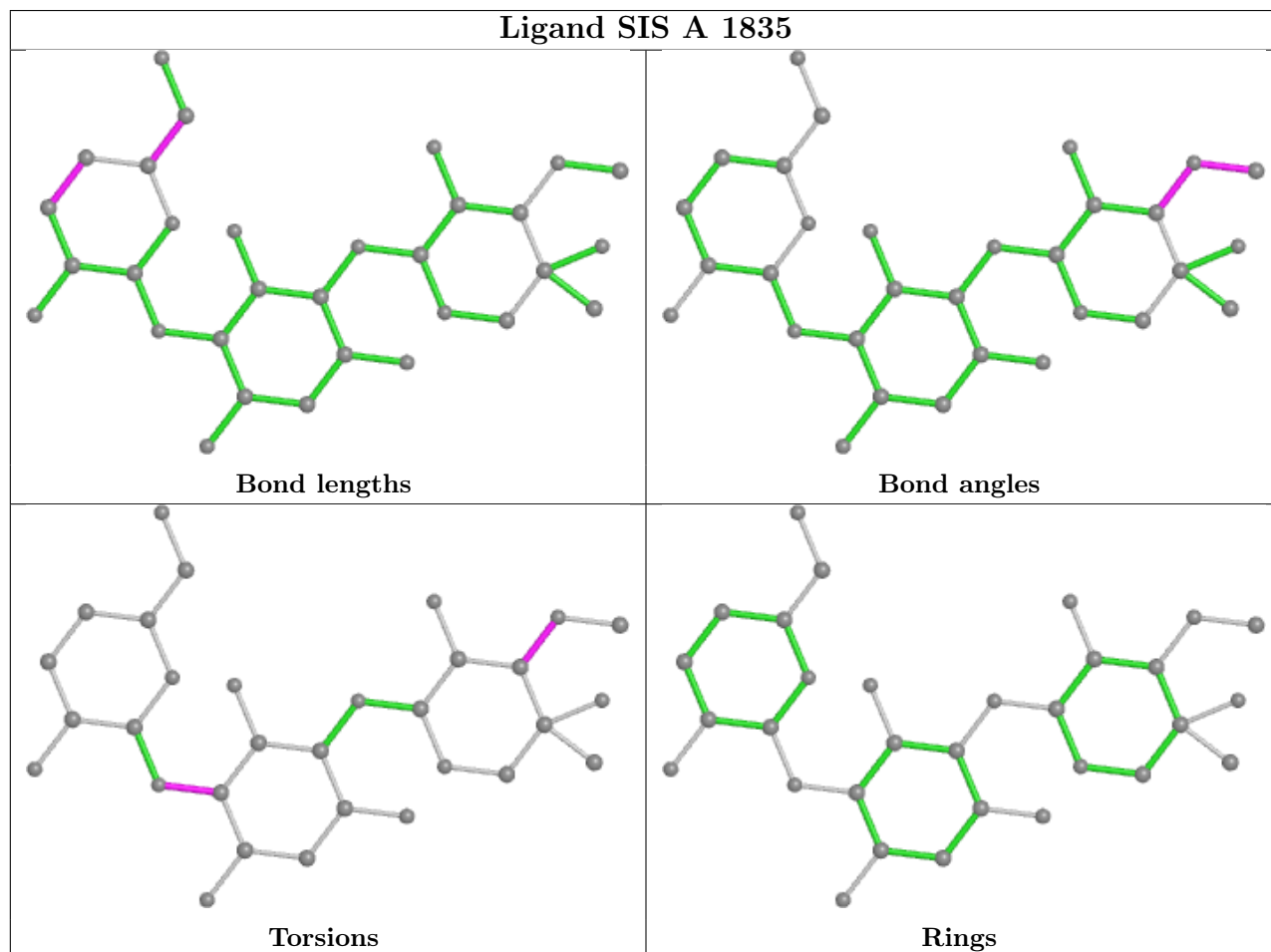
There are no ring outliers.

1 monomer is involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
25	A	1835	SIS	3	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](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	A	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	20:U	O3'	21:G	P	5.82

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	1498/1522 (98%)	-0.86	3 (0%) 95 91	113, 154, 234, 338	0
2	B	234/256 (91%)	-0.38	7 (2%) 50 34	126, 185, 265, 334	0
3	C	206/239 (86%)	-0.50	1 (0%) 91 83	146, 190, 242, 286	0
4	D	208/209 (99%)	-0.40	0 100 100	109, 161, 225, 276	0
5	E	150/162 (92%)	-0.43	1 (0%) 87 78	100, 144, 182, 223	0
6	F	101/101 (100%)	-0.51	0 100 100	133, 177, 210, 224	0
7	G	155/156 (99%)	-0.61	2 (1%) 77 64	132, 167, 219, 271	0
8	H	138/138 (100%)	-0.54	0 100 100	101, 137, 176, 231	0
9	I	127/128 (99%)	-0.05	5 (3%) 39 26	141, 182, 237, 276	0
10	J	98/105 (93%)	0.43	11 (11%) 5 3	139, 210, 280, 305	0
11	K	116/129 (89%)	-0.32	1 (0%) 84 73	113, 149, 199, 230	0
12	L	123/135 (91%)	-0.06	5 (4%) 37 24	105, 152, 199, 256	0
13	M	118/126 (93%)	-0.28	1 (0%) 86 75	123, 170, 217, 297	0
14	N	60/61 (98%)	0.03	1 (1%) 70 55	135, 171, 242, 296	0
15	O	87/89 (97%)	-0.23	1 (1%) 80 68	119, 158, 199, 246	0
16	P	83/88 (94%)	-0.31	0 100 100	121, 151, 190, 245	0
17	Q	99/105 (94%)	-0.35	0 100 100	108, 136, 183, 206	0
18	R	70/88 (79%)	-0.38	1 (1%) 75 61	117, 154, 231, 250	0
19	S	80/93 (86%)	-0.10	0 100 100	143, 189, 244, 298	0
20	T	99/106 (93%)	-0.16	0 100 100	114, 150, 201, 225	0
21	U	24/27 (88%)	1.47	6 (25%) 0 0	143, 169, 192, 242	0
22	Y	6/6 (100%)	1.07	1 (16%) 1 1	182, 187, 244, 273	0
23	W	15/15 (100%)	-0.13	0 100 100	181, 200, 255, 260	0
All	All	3895/4084 (95%)	-0.51	47 (1%) 79 66	100, 161, 237, 338	0

All (47) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
21	U	18	TYR	5.3
22	Y	6	U	5.2
2	B	132	LYS	5.0
21	U	17	THR	4.8
2	B	134	GLU	4.8
10	J	73	ASP	4.7
10	J	33	GLN	4.1
2	B	133	LYS	4.0
2	B	131	PRO	3.8
12	L	19	ARG	3.7
10	J	5	ARG	3.5
10	J	34	VAL	3.5
21	U	22	ARG	3.5
12	L	127	GLU	3.2
9	I	128	ARG	3.1
5	E	24	ARG	3.1
18	R	88	LYS	3.1
12	L	128	ALA	3.0
1	A	21	G	3.0
2	B	130	ARG	3.0
10	J	72	VAL	2.8
3	C	193	TYR	2.8
10	J	70	ARG	2.8
7	G	82	GLY	2.8
21	U	24	ARG	2.7
10	J	6	ILE	2.7
1	A	532	A	2.7
9	I	127	LYS	2.6
7	G	2	ALA	2.6
10	J	100	THR	2.5
9	I	15	ALA	2.5
9	I	126	SER	2.4
21	U	12	LYS	2.4
10	J	39	PRO	2.4
15	O	26	GLU	2.3
10	J	71	LEU	2.3
13	M	2	ALA	2.2
12	L	28	LYS	2.2
14	N	12	ARG	2.2
12	L	16	GLU	2.1
2	B	138	LEU	2.1
9	I	124	GLN	2.1

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Mol	Chain	Res	Type	RSRZ
1	A	1003(A)	G	2.1
10	J	74	ILE	2.1
21	U	25	LYS	2.1
2	B	135	GLN	2.1
11	K	126	ARG	2.0

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
1	PSU	A	1540	20/21	0.84	0.31	266,276,297,298	0
1	PSU	A	1541	20/21	0.90	0.18	249,258,301,351	0
1	MA6	A	1518[A]	24/25	0.93	0.21	129,132,140,145	24
1	MA6	A	1518[B]	24/25	0.93	0.21	128,139,149,156	24
12	0TD	L	92	10/11	0.93	0.34	173,209,235,236	0
1	4OC	A	1402	22/23	0.93	0.20	134,143,152,158	0
1	7MG	A	527	24/25	0.94	0.16	122,132,148,155	0
1	MA6	A	1519[B]	24/25	0.95	0.23	125,136,142,145	24
1	5MC	A	1400	21/22	0.95	0.15	130,145,160,163	0
1	MA6	A	1519[A]	24/25	0.95	0.23	126,129,144,151	24
1	M2G	A	966	25/26	0.96	0.17	150,164,180,187	0
1	UR3	A	1498	21/22	0.96	0.13	131,135,156,162	0
1	2MG	A	1207	24/25	0.96	0.11	155,169,180,191	0
1	PSU	A	516	20/21	0.96	0.09	158,180,187,190	0
1	5MC	A	1404	21/22	0.97	0.11	127,133,140,149	0
1	5MC	A	1407	21/22	0.97	0.09	137,151,175,183	0
1	5MC	A	967	21/22	0.97	0.11	142,153,171,179	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
24	MG	D	304	1/1	-0.41	1.21	213,213,213,213	0
24	MG	A	1708	1/1	-0.17	0.30	179,179,179,179	0
24	MG	A	1831	1/1	0.23	1.94	274,274,274,274	0
24	MG	A	1776	1/1	0.23	2.01	153,153,153,153	0
24	MG	A	1725	1/1	0.24	0.39	229,229,229,229	0
24	MG	A	1721	1/1	0.30	1.16	160,160,160,160	0
24	MG	D	302	1/1	0.38	0.11	125,125,125,125	0
24	MG	A	1683	1/1	0.43	0.21	178,178,178,178	0
24	MG	A	1703	1/1	0.45	0.13	191,191,191,191	0
24	MG	A	1616	1/1	0.45	0.97	209,209,209,209	0
24	MG	P	102	1/1	0.46	0.21	165,165,165,165	0
24	MG	A	1829	1/1	0.50	0.59	170,170,170,170	0
24	MG	A	1802	1/1	0.53	0.62	173,173,173,173	0
24	MG	A	1719	1/1	0.54	1.19	165,165,165,165	0
24	MG	A	1692	1/1	0.54	0.41	151,151,151,151	0
24	MG	A	1690	1/1	0.57	0.37	128,128,128,128	0
24	MG	C	302	1/1	0.58	0.81	163,163,163,163	0
24	MG	A	1691	1/1	0.58	0.19	155,155,155,155	0
24	MG	A	1702	1/1	0.59	1.63	127,127,127,127	0
24	MG	A	1640	1/1	0.59	0.28	196,196,196,196	0
24	MG	A	1771	1/1	0.60	0.15	167,167,167,167	0
24	MG	A	1661	1/1	0.60	0.39	179,179,179,179	0
24	MG	A	1681	1/1	0.60	0.43	173,173,173,173	0
24	MG	A	1705	1/1	0.61	0.56	115,115,115,115	0
24	MG	A	1798	1/1	0.61	0.45	144,144,144,144	0
24	MG	A	1668	1/1	0.61	0.64	166,166,166,166	0
24	MG	A	1677	1/1	0.65	0.25	174,174,174,174	0
24	MG	A	1744	1/1	0.65	0.96	137,137,137,137	0
24	MG	A	1693	1/1	0.65	0.25	195,195,195,195	0
24	MG	A	1815	1/1	0.66	0.17	110,110,110,110	0
25	SIS	A	1835	31/31	0.66	0.75	234,267,277,278	0
24	MG	A	1834	1/1	0.67	0.66	170,170,170,170	0
24	MG	A	1643	1/1	0.67	0.15	140,140,140,140	0
24	MG	A	1767	1/1	0.68	0.42	143,143,143,143	0
24	MG	A	1680	1/1	0.69	0.39	148,148,148,148	0
24	MG	E	201	1/1	0.69	0.11	161,161,161,161	0
24	MG	A	1670	1/1	0.70	0.90	138,138,138,138	0
24	MG	A	1718	1/1	0.70	0.41	249,249,249,249	0
24	MG	A	1601	1/1	0.70	0.31	133,133,133,133	0
24	MG	A	1757	1/1	0.71	0.16	133,133,133,133	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
24	MG	A	1612	1/1	0.71	0.16	188,188,188,188	0
24	MG	A	1786	1/1	0.71	0.33	139,139,139,139	0
24	MG	A	1760	1/1	0.73	0.64	166,166,166,166	0
24	MG	D	303	1/1	0.73	0.09	153,153,153,153	0
24	MG	A	1675	1/1	0.74	0.12	151,151,151,151	0
24	MG	A	1630	1/1	0.75	0.51	147,147,147,147	0
24	MG	A	1779	1/1	0.75	0.18	126,126,126,126	0
24	MG	A	1794	1/1	0.76	0.23	166,166,166,166	0
24	MG	A	1707	1/1	0.77	0.14	177,177,177,177	0
24	MG	A	1686	1/1	0.77	0.54	136,136,136,136	0
24	MG	A	1773	1/1	0.78	0.96	145,145,145,145	0
24	MG	A	1735	1/1	0.79	0.20	106,106,106,106	0
24	MG	A	1682	1/1	0.79	0.11	135,135,135,135	0
24	MG	A	1714	1/1	0.79	0.33	155,155,155,155	0
24	MG	A	1662	1/1	0.80	0.17	135,135,135,135	0
24	MG	A	1641	1/1	0.80	0.41	197,197,197,197	0
24	MG	A	1814	1/1	0.80	0.40	139,139,139,139	0
24	MG	A	1697	1/1	0.80	0.36	93,93,93,93	0
24	MG	A	1825	1/1	0.80	0.16	107,107,107,107	0
24	MG	A	1663	1/1	0.81	0.35	127,127,127,127	0
24	MG	A	1833	1/1	0.81	0.19	156,156,156,156	0
24	MG	A	1613	1/1	0.81	0.13	148,148,148,148	0
24	MG	A	1808	1/1	0.81	0.19	150,150,150,150	0
24	MG	A	1813	1/1	0.81	0.14	171,171,171,171	0
24	MG	A	1617	1/1	0.82	0.29	107,107,107,107	0
24	MG	A	1623	1/1	0.82	0.26	146,146,146,146	0
24	MG	A	1816	1/1	0.82	0.26	117,117,117,117	0
24	MG	A	1722	1/1	0.83	0.44	124,124,124,124	0
24	MG	A	1800	1/1	0.83	0.31	163,163,163,163	0
24	MG	A	1764	1/1	0.83	0.27	127,127,127,127	0
24	MG	A	1611	1/1	0.83	0.50	262,262,262,262	0
24	MG	A	1811	1/1	0.83	0.25	236,236,236,236	0
24	MG	A	1728	1/1	0.83	0.26	111,111,111,111	0
24	MG	A	1772	1/1	0.83	0.25	177,177,177,177	0
24	MG	A	1791	1/1	0.84	0.08	125,125,125,125	0
24	MG	A	1720	1/1	0.84	0.39	160,160,160,160	0
24	MG	A	1763	1/1	0.84	0.24	125,125,125,125	0
24	MG	A	1684	1/1	0.84	0.31	127,127,127,127	0
24	MG	A	1647	1/1	0.84	0.25	124,124,124,124	0
24	MG	A	1688	1/1	0.84	0.18	194,194,194,194	0
24	MG	A	1810	1/1	0.84	0.14	197,197,197,197	0
24	MG	A	1605	1/1	0.84	0.79	118,118,118,118	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
24	MG	A	1716	1/1	0.84	0.19	152,152,152,152	0
24	MG	A	1742	1/1	0.84	0.33	131,131,131,131	0
24	MG	A	1608	1/1	0.84	0.04	135,135,135,135	0
24	MG	A	1704	1/1	0.84	0.20	139,139,139,139	0
24	MG	A	1787	1/1	0.85	0.18	117,117,117,117	0
24	MG	A	1774	1/1	0.85	0.39	127,127,127,127	0
24	MG	A	1828	1/1	0.85	0.60	168,168,168,168	0
24	MG	A	1749	1/1	0.85	0.17	145,145,145,145	0
24	MG	A	1777	1/1	0.85	0.25	112,112,112,112	0
24	MG	H	201	1/1	0.85	0.19	136,136,136,136	0
24	MG	A	1632	1/1	0.85	0.79	192,192,192,192	0
24	MG	A	1710	1/1	0.85	0.19	123,123,123,123	0
24	MG	A	1678	1/1	0.86	0.19	117,117,117,117	0
24	MG	A	1801	1/1	0.86	0.28	119,119,119,119	0
24	MG	A	1664	1/1	0.86	0.30	119,119,119,119	0
24	MG	A	1747	1/1	0.86	0.40	138,138,138,138	0
24	MG	A	1796	1/1	0.87	0.31	163,163,163,163	0
24	MG	C	301	1/1	0.87	0.09	137,137,137,137	0
24	MG	A	1746	1/1	0.87	0.15	114,114,114,114	0
24	MG	A	1785	1/1	0.87	0.25	90,90,90,90	0
24	MG	A	1631	1/1	0.87	0.23	183,183,183,183	0
24	MG	A	1687	1/1	0.87	0.09	177,177,177,177	0
24	MG	A	1803	1/1	0.87	0.09	172,172,172,172	0
24	MG	A	1788	1/1	0.87	0.51	115,115,115,115	0
24	MG	A	1755	1/1	0.87	0.23	123,123,123,123	0
24	MG	A	1660	1/1	0.87	0.13	119,119,119,119	0
24	MG	A	1606	1/1	0.88	0.21	155,155,155,155	0
24	MG	A	1805	1/1	0.88	0.57	146,146,146,146	0
24	MG	A	1709	1/1	0.88	0.34	230,230,230,230	0
24	MG	A	1603	1/1	0.88	0.19	142,142,142,142	0
24	MG	A	1671	1/1	0.88	0.14	139,139,139,139	0
24	MG	A	1753	1/1	0.88	0.07	138,138,138,138	0
24	MG	A	1627	1/1	0.88	0.42	115,115,115,115	0
24	MG	A	1645	1/1	0.88	0.24	97,97,97,97	0
24	MG	A	1639	1/1	0.88	0.19	117,117,117,117	0
24	MG	A	1743	1/1	0.88	0.30	128,128,128,128	0
24	MG	A	1780	1/1	0.88	0.10	161,161,161,161	0
24	MG	Q	201	1/1	0.88	0.06	143,143,143,143	0
24	MG	A	1784	1/1	0.88	0.23	109,109,109,109	0
24	MG	A	1724	1/1	0.89	0.12	120,120,120,120	0
24	MG	A	1620	1/1	0.89	0.33	144,144,144,144	0
24	MG	A	1726	1/1	0.89	0.17	104,104,104,104	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
24	MG	A	1649	1/1	0.89	0.42	141,141,141,141	0
24	MG	A	1732	1/1	0.89	0.07	203,203,203,203	0
24	MG	A	1658	1/1	0.89	0.25	113,113,113,113	0
24	MG	B	301	1/1	0.89	0.10	153,153,153,153	0
24	MG	B	302	1/1	0.89	1.34	210,210,210,210	0
24	MG	A	1738	1/1	0.89	0.21	121,121,121,121	0
24	MG	A	1822	1/1	0.90	0.28	134,134,134,134	0
24	MG	A	1823	1/1	0.90	0.18	122,122,122,122	0
24	MG	A	1797	1/1	0.90	0.26	122,122,122,122	0
24	MG	A	1827	1/1	0.90	0.17	137,137,137,137	0
24	MG	A	1669	1/1	0.90	0.23	111,111,111,111	0
24	MG	A	1621	1/1	0.90	0.15	138,138,138,138	0
24	MG	A	1615	1/1	0.90	0.20	183,183,183,183	0
24	MG	A	1832	1/1	0.90	0.24	148,148,148,148	0
24	MG	A	1782	1/1	0.90	0.19	96,96,96,96	0
24	MG	A	1694	1/1	0.90	0.12	152,152,152,152	0
24	MG	A	1770	1/1	0.90	0.42	123,123,123,123	0
24	MG	A	1713	1/1	0.91	0.33	144,144,144,144	0
24	MG	A	1674	1/1	0.91	0.44	150,150,150,150	0
24	MG	A	1646	1/1	0.91	0.14	161,161,161,161	0
24	MG	A	1706	1/1	0.91	0.12	148,148,148,148	0
24	MG	A	1769	1/1	0.91	0.30	96,96,96,96	0
24	MG	A	1783	1/1	0.91	0.18	157,157,157,157	0
24	MG	A	1748	1/1	0.91	0.19	139,139,139,139	0
24	MG	A	1695	1/1	0.91	0.24	162,162,162,162	0
24	MG	A	1653	1/1	0.91	0.31	178,178,178,178	0
24	MG	A	1619	1/1	0.91	0.51	152,152,152,152	0
24	MG	A	1648	1/1	0.91	0.37	167,167,167,167	0
24	MG	A	1789	1/1	0.91	0.18	169,169,169,169	0
24	MG	A	1790	1/1	0.91	0.25	142,142,142,142	0
24	MG	A	1699	1/1	0.92	0.23	167,167,167,167	0
24	MG	A	1807	1/1	0.92	0.14	160,160,160,160	0
24	MG	A	1652	1/1	0.92	0.18	99,99,99,99	0
24	MG	A	1626	1/1	0.92	0.62	138,138,138,138	0
24	MG	A	1715	1/1	0.92	0.22	161,161,161,161	0
24	MG	A	1635	1/1	0.92	0.18	138,138,138,138	0
24	MG	A	1793	1/1	0.92	0.04	100,100,100,100	0
24	MG	A	1733	1/1	0.92	0.24	112,112,112,112	0
24	MG	A	1734	1/1	0.92	0.60	108,108,108,108	0
24	MG	A	1817	1/1	0.92	0.33	180,180,180,180	0
24	MG	A	1659	1/1	0.92	0.16	136,136,136,136	0
24	MG	A	1602	1/1	0.92	0.28	264,264,264,264	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
24	MG	A	1610	1/1	0.92	0.23	126,126,126,126	0
24	MG	A	1624	1/1	0.92	0.43	147,147,147,147	0
24	MG	A	1642	1/1	0.92	0.24	150,150,150,150	0
24	MG	A	1745	1/1	0.92	0.24	88,88,88,88	0
24	MG	A	1711	1/1	0.93	0.42	214,214,214,214	0
24	MG	A	1712	1/1	0.93	0.40	169,169,169,169	0
24	MG	A	1812	1/1	0.93	0.21	187,187,187,187	0
24	MG	A	1700	1/1	0.93	0.28	111,111,111,111	0
24	MG	A	1636	1/1	0.93	0.13	150,150,150,150	0
24	MG	A	1676	1/1	0.93	0.30	120,120,120,120	0
24	MG	A	1650	1/1	0.93	0.29	128,128,128,128	0
24	MG	A	1740	1/1	0.93	0.13	133,133,133,133	0
24	MG	A	1689	1/1	0.93	0.28	135,135,135,135	0
24	MG	A	1727	1/1	0.93	0.27	149,149,149,149	0
26	ZN	D	301	1/1	0.93	0.41	183,183,183,183	0
26	ZN	N	101	1/1	0.93	0.18	168,168,168,168	0
24	MG	A	1799	1/1	0.94	0.12	102,102,102,102	0
24	MG	A	1756	1/1	0.94	0.35	98,98,98,98	0
24	MG	A	1622	1/1	0.94	0.37	146,146,146,146	0
24	MG	A	1819	1/1	0.94	0.61	121,121,121,121	0
24	MG	C	303	1/1	0.94	0.10	146,146,146,146	0
24	MG	A	1759	1/1	0.94	0.13	124,124,124,124	0
24	MG	A	1667	1/1	0.94	0.44	99,99,99,99	0
24	MG	A	1672	1/1	0.94	0.20	175,175,175,175	0
24	MG	A	1633	1/1	0.94	0.19	158,158,158,158	0
24	MG	A	1765	1/1	0.94	0.12	114,114,114,114	0
24	MG	A	1766	1/1	0.94	0.36	120,120,120,120	0
24	MG	A	1781	1/1	0.94	0.20	123,123,123,123	0
24	MG	S	101	1/1	0.94	0.09	109,109,109,109	0
24	MG	A	1752	1/1	0.94	0.39	140,140,140,140	0
24	MG	A	1634	1/1	0.94	0.36	100,100,100,100	0
24	MG	A	1737	1/1	0.94	0.31	114,114,114,114	0
24	MG	A	1818	1/1	0.95	0.19	159,159,159,159	0
24	MG	A	1731	1/1	0.95	0.90	131,131,131,131	0
24	MG	A	1665	1/1	0.95	0.15	111,111,111,111	0
24	MG	A	1795	1/1	0.95	0.14	121,121,121,121	0
24	MG	A	1824	1/1	0.95	0.17	128,128,128,128	0
24	MG	A	1809	1/1	0.95	0.04	150,150,150,150	0
24	MG	A	1679	1/1	0.95	0.10	216,216,216,216	0
24	MG	A	1666	1/1	0.95	0.10	104,104,104,104	0
24	MG	A	1656	1/1	0.95	0.23	181,181,181,181	0
24	MG	P	101	1/1	0.95	0.46	91,91,91,91	0

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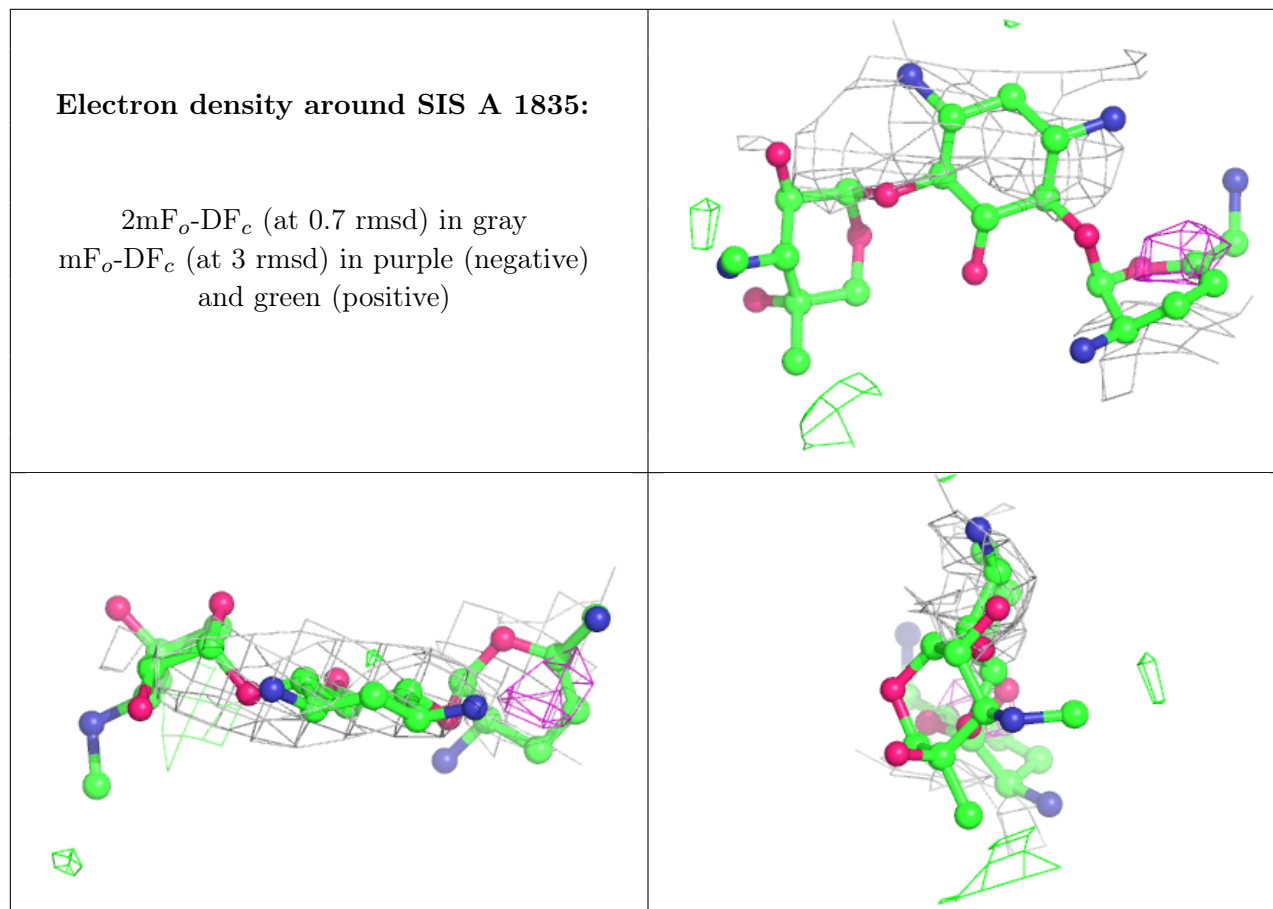
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
24	MG	A	1830	1/1	0.95	0.08	168,168,168,168	0
24	MG	A	1604	1/1	0.95	0.09	140,140,140,140	0
24	MG	A	1618	1/1	0.95	0.33	140,140,140,140	0
24	MG	A	1701	1/1	0.95	0.17	148,148,148,148	0
24	MG	A	1741	1/1	0.95	0.24	142,142,142,142	0
24	MG	A	1655	1/1	0.95	0.24	112,112,112,112	0
24	MG	A	1657	1/1	0.96	0.15	151,151,151,151	0
24	MG	A	1651	1/1	0.96	0.13	129,129,129,129	0
24	MG	A	1768	1/1	0.96	0.11	94,94,94,94	0
24	MG	A	1750	1/1	0.96	0.33	139,139,139,139	0
24	MG	A	1673	1/1	0.96	0.15	190,190,190,190	0
24	MG	A	1638	1/1	0.96	0.20	129,129,129,129	0
24	MG	A	1628	1/1	0.96	0.33	110,110,110,110	0
24	MG	A	1654	1/1	0.96	0.09	150,150,150,150	0
24	MG	F	201	1/1	0.96	0.08	117,117,117,117	0
24	MG	A	1685	1/1	0.96	0.75	111,111,111,111	0
24	MG	A	1775	1/1	0.96	0.44	100,100,100,100	0
24	MG	A	1625	1/1	0.96	0.32	85,85,85,85	0
24	MG	A	1730	1/1	0.96	0.20	137,137,137,137	0
24	MG	A	1778	1/1	0.96	0.42	122,122,122,122	0
24	MG	A	1717	1/1	0.96	0.37	187,187,187,187	0
24	MG	A	1696	1/1	0.96	0.55	307,307,307,307	0
24	MG	A	1637	1/1	0.96	0.16	112,112,112,112	0
24	MG	A	1736	1/1	0.97	0.22	124,124,124,124	0
24	MG	A	1644	1/1	0.97	0.11	108,108,108,108	0
24	MG	A	1754	1/1	0.97	0.10	94,94,94,94	0
24	MG	A	1614	1/1	0.97	0.13	109,109,109,109	0
24	MG	A	1820	1/1	0.97	0.11	133,133,133,133	0
24	MG	A	1629	1/1	0.97	0.09	147,147,147,147	0
24	MG	A	1698	1/1	0.97	0.23	118,118,118,118	0
24	MG	A	1758	1/1	0.97	0.06	114,114,114,114	0
24	MG	A	1723	1/1	0.97	0.11	106,106,106,106	0
24	MG	A	1826	1/1	0.97	0.25	91,91,91,91	0
24	MG	A	1729	1/1	0.97	0.12	111,111,111,111	0
24	MG	A	1762	1/1	0.97	0.05	104,104,104,104	0
24	MG	A	1821	1/1	0.98	0.08	157,157,157,157	0
24	MG	A	1607	1/1	0.98	0.12	98,98,98,98	0
24	MG	A	1609	1/1	0.98	0.08	107,107,107,107	0
24	MG	A	1792	1/1	0.98	0.17	108,108,108,108	0
24	MG	A	1751	1/1	0.98	0.17	129,129,129,129	0
24	MG	A	1804	1/1	0.98	0.10	125,125,125,125	0
24	MG	A	1761	1/1	0.98	0.10	155,155,155,155	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
24	MG	A	1806	1/1	0.98	0.12	104,104,104,104	0
24	MG	A	1739	1/1	0.99	0.46	93,93,93,93	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.