Full wwPDB X-ray Structure Validation Report (i)

Jun 24, 2024 – 04:18 PM EDT

PDB ID	:	5WNQ
Title	:	Crystal Structure of 30S ribosomal subunit from Thermus thermophilus
Authors	:	DeMirci, H.
Deposited on	:	2017-08-01
Resolution	:	3.50 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 (i) 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 (i)) were used in the production of this report:

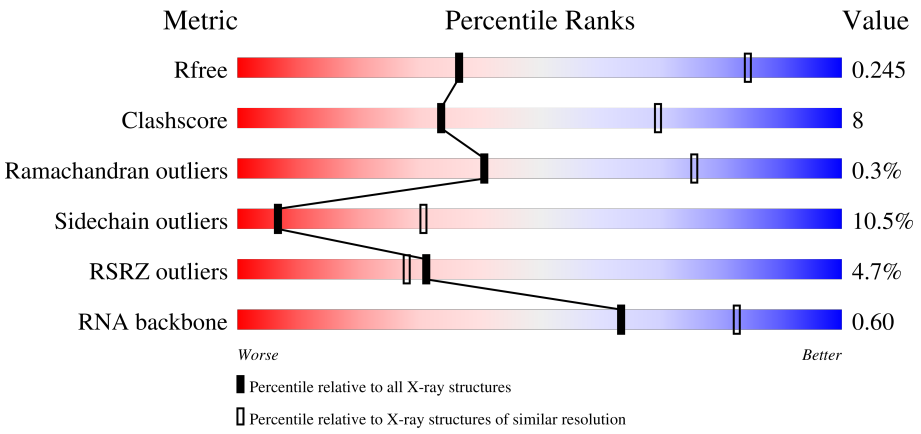
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.37.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.50 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	1659 (3.60-3.40)
Clashscore	141614	1036 (3.58-3.42)
Ramachandran outliers	138981	1005 (3.58-3.42)
Sidechain outliers	138945	1006 (3.58-3.42)
RSRZ outliers	127900	1559 (3.60-3.40)
RNA backbone	3102	1002 (4.00-3.00)

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 <=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	2% 57% 32% 10% ••
2	B	234	3% 66% 29% •
3	C	206	9% 63% 33% •
4	D	208	6% 69% 27% •

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Mol	Chain	Length	Quality of chain
5	E	150	74% 25%
6	F	101	3% 77% 21%
7	G	155	3% 81% 17%
8	H	138	% 78% 20%
9	I	127	13% 62% 35%
10	J	98	9% 59% 34% 5%
11	K	116	3% 61% 36%
12	L	124	8% 68% 28%
13	M	118	13% 55% 40% 5%
14	N	60	2% 58% 35% 7%
15	O	87	75% 20% 6%
16	P	83	76% 20%
17	Q	99	4% 80% 19%
18	R	70	% 79% 19%
19	S	80	34% 71% 28%
20	T	99	2% 66% 28%
21	U	24	42% 75% 25%

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
1	PSU	A	1540	-	-	-	X
1	PSU	A	1541	-	-	-	X
22	MG	A	1601	-	-	-	X
22	MG	A	1623	-	-	-	X
22	MG	A	1624	-	-	-	X
22	MG	A	1631	-	-	-	X
22	MG	A	1633	-	-	-	X
22	MG	A	1666	-	-	-	X

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
22	MG	A	1668	-	-	-	X
22	MG	A	1684	-	-	-	X
22	MG	A	1690	-	-	-	X
22	MG	A	1692	-	-	-	X
22	MG	A	1708	-	-	-	X
22	MG	A	1715	-	-	-	X
22	MG	A	1724	-	-	-	X
22	MG	A	1725	-	-	-	X
22	MG	A	1730	-	-	-	X
22	MG	A	1735	-	-	-	X
22	MG	A	1738	-	-	-	X
22	MG	A	1742	-	-	-	X
22	MG	A	1743	-	-	-	X
22	MG	A	1755	-	-	-	X
22	MG	A	1757	-	-	-	X
22	MG	A	1768	-	-	-	X
22	MG	A	1775	-	-	-	X
22	MG	A	1780	-	-	-	X
22	MG	A	1783	-	-	-	X
22	MG	A	1786	-	-	-	X
22	MG	A	1787	-	-	-	X
22	MG	A	1797	-	-	-	X
22	MG	A	1801	-	-	-	X
22	MG	A	1803	-	-	-	X
22	MG	A	1815	-	-	-	X
22	MG	A	1818	-	-	-	X
22	MG	A	1826	-	-	-	X
22	MG	A	1835	-	-	-	X
22	MG	D	304	-	-	-	X
22	MG	D	305	-	-	-	X
22	MG	P	101	-	-	-	X

2 Entry composition (i)

There are 24 unique types of molecules in this entry. The entry contains 52227 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 16S Ribosomal RNA rRNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
1	A	1512	32644	14540	6039	10547	1518	0	6	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1534	C	A	conflict	GB 55771382
A	1535	A	C	conflict	GB 55771382

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

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Mg		
22	A	237	237	237	0	0
22	B	2	2	2	0	0
22	C	3	3	3	0	0
22	D	4	4	4	0	0
22	E	2	2	2	0	0
22	F	1	1	1	0	0
22	I	1	1	1	0	0
22	P	2	2	2	0	0
22	Q	1	1	1	0	0
22	S	1	1	1	0	0

- Molecule 23 is ZINC ION (three-letter code: ZN) (formula: Zn).

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

- Molecule 24 is water.

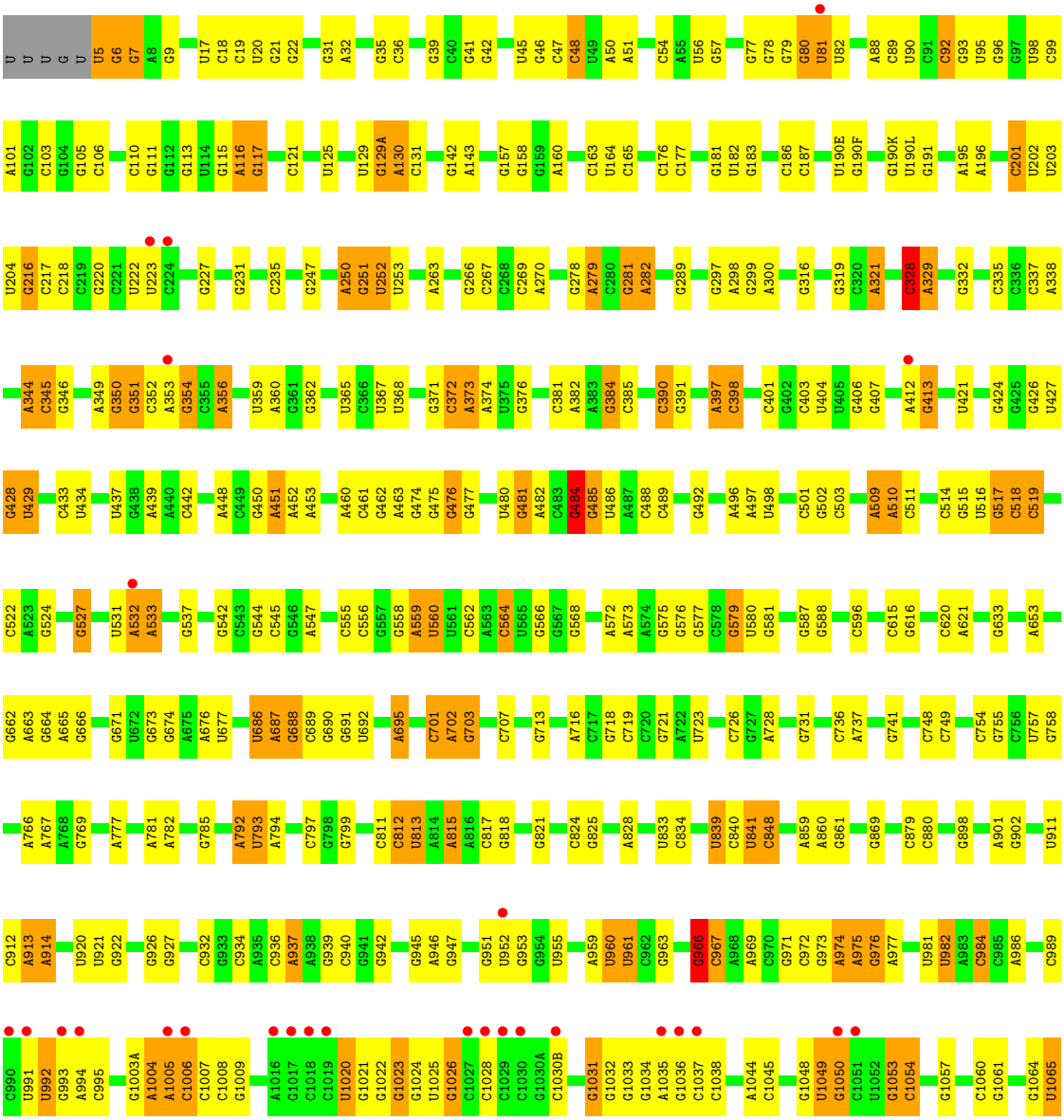
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
24	A	225	225	225	0	0
			Total	O		
24	D	2	2	2	0	0
			Total	O		
24	E	4	4	4	0	0
			Total	O		
24	L	3	3	3	0	0
			Total	O		
24	N	1	1	1	0	0
			Total	O		
24	Q	2	2	2	0	0
			Total	O		
24	T	2	2	2	0	0

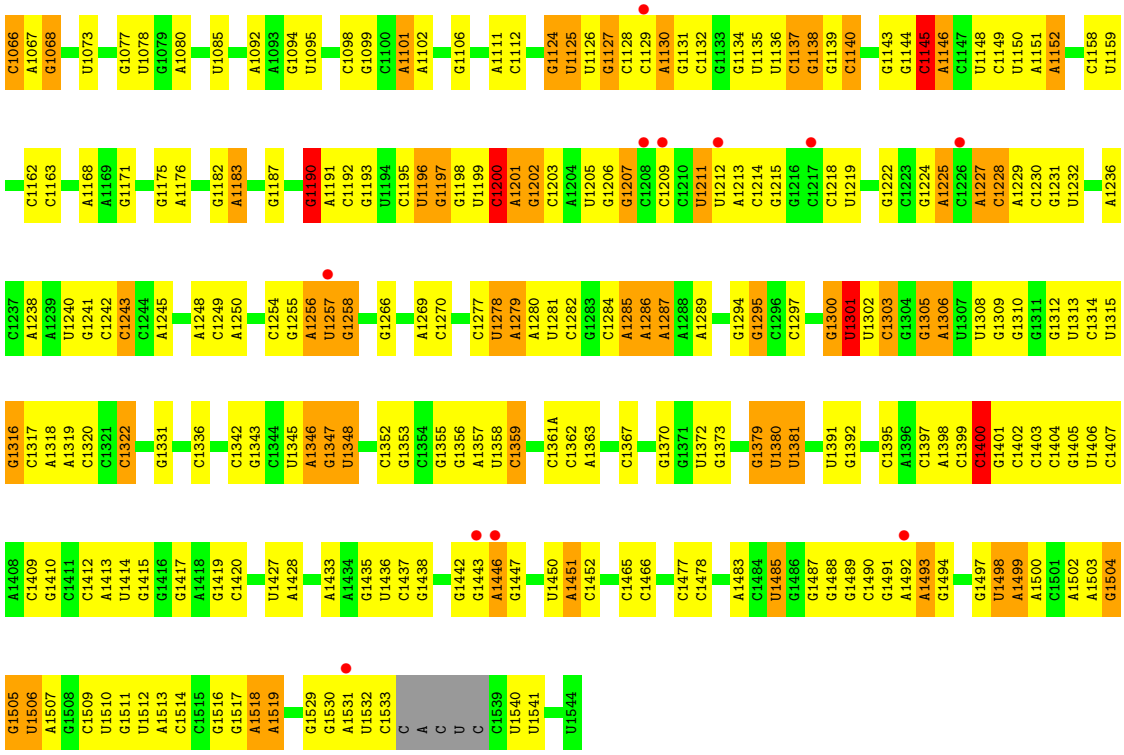
3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: 16S Ribosomal RNA rRNA

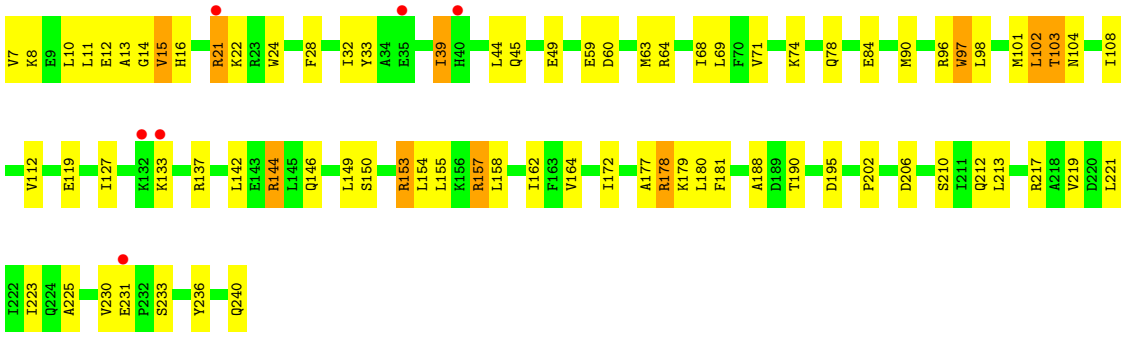
Chain A: 2% 57% 32% 10%





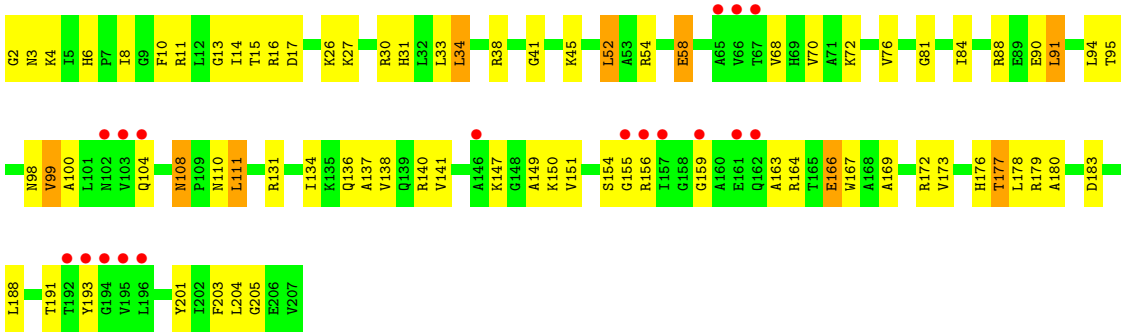
- Molecule 2: 30S ribosomal protein S2

Chain B:



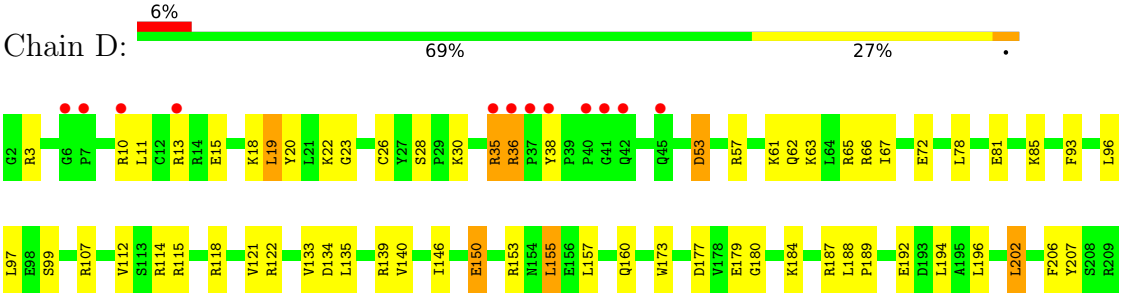
- Molecule 3: 30S ribosomal protein S3

Chain C:



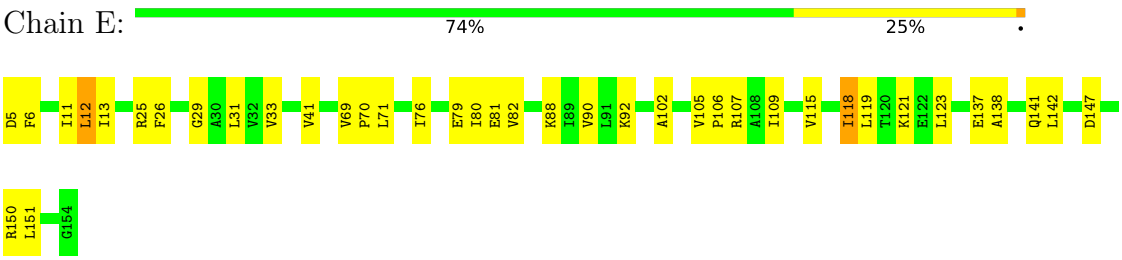
• Molecule 4: 30S ribosomal protein S4

Chain D:



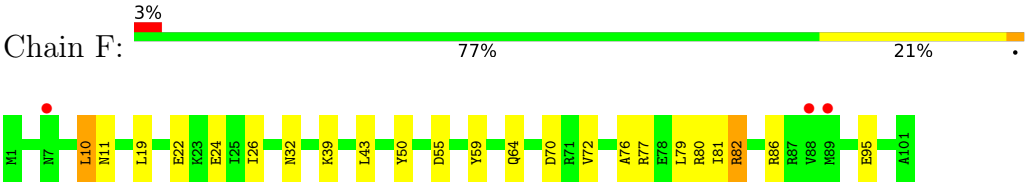
• Molecule 5: 30S ribosomal protein S5

Chain E:



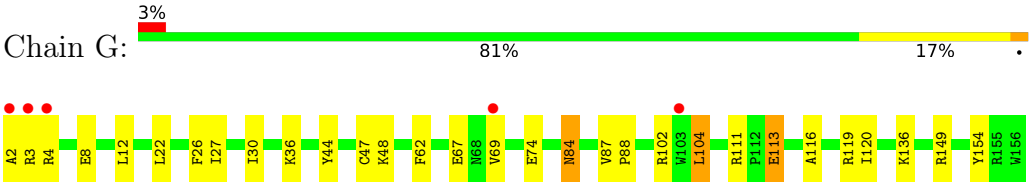
• Molecule 6: 30S ribosomal protein S6

Chain F:



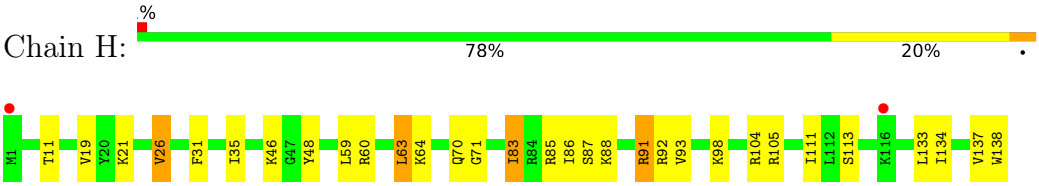
• Molecule 7: 30S ribosomal protein S7

Chain G:



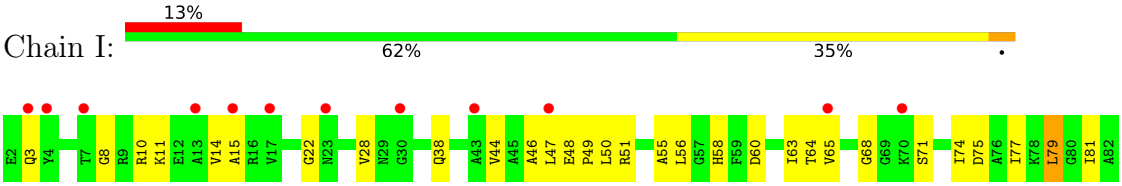
• Molecule 8: 30S ribosomal protein S8

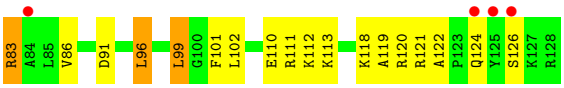
Chain H:



• Molecule 9: 30S ribosomal protein S9

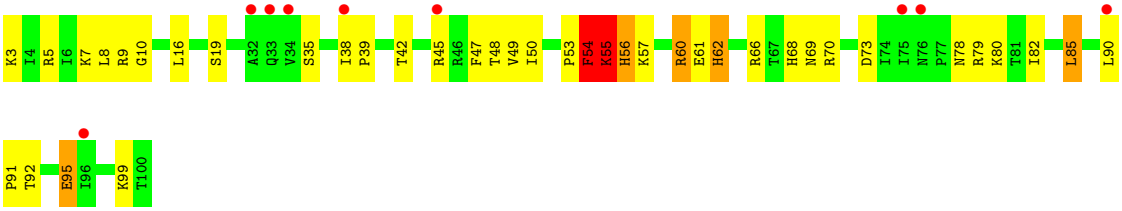
Chain I:





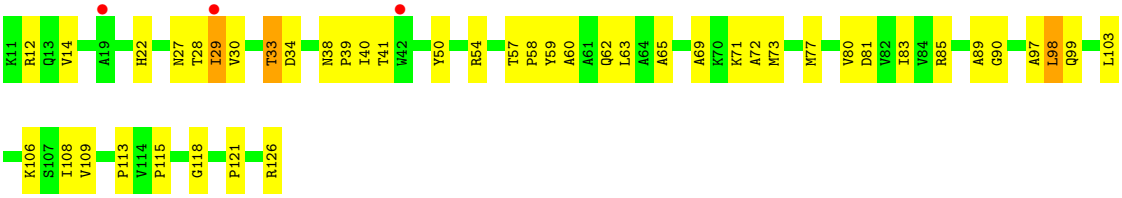
• Molecule 10: 30S ribosomal protein S10

Chain J:



• Molecule 11: 30S ribosomal protein S11

Chain K:



• Molecule 12: 30S ribosomal protein S12

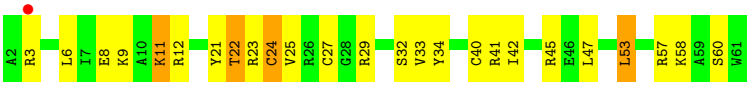
Chain L:

• Molecule 13: 30S ribosomal protein S13

Chain M:

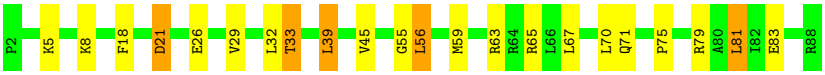
• Molecule 14: 30S ribosomal protein S14 type Z

Chain N:



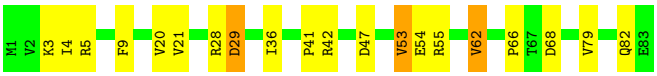
• Molecule 15: 30S ribosomal protein S15

Chain O:



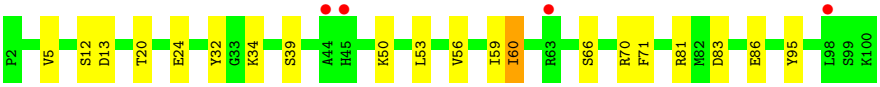
• Molecule 16: 30S ribosomal protein S16

Chain P:



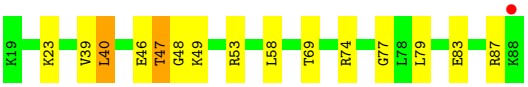
• Molecule 17: 30S ribosomal protein S17

Chain Q:



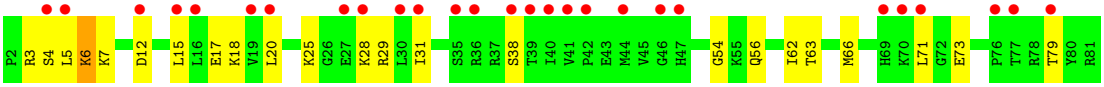
• Molecule 18: 30S ribosomal protein S18

Chain R:



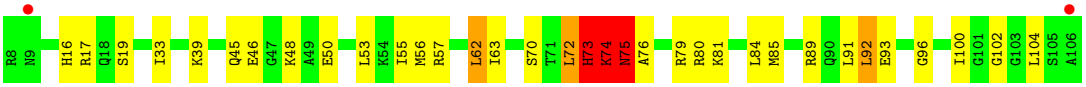
• Molecule 19: 30S ribosomal protein S19

Chain S:



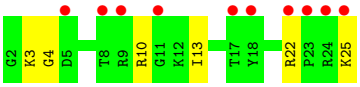
• Molecule 20: 30S ribosomal protein S20

Chain T:



• Molecule 21: 30S ribosomal protein Thx

Chain U:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, α, β, γ	400.00Å 400.00Å 173.00Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.98 – 3.50 39.78 – 2.92	Depositor EDS
% Data completeness (in resolution range)	97.9 (29.98-3.50) 68.0 (39.78-2.92)	Depositor EDS
R_{merge}	0.55	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	0.01 (at 2.90Å)	Xtriage
Refinement program	PHENIX	Depositor
R, R_{free}	0.199 , 0.245 0.202 , 0.245	Depositor DCC
R_{free} test set	2000 reflections (0.68%)	wwPDB-VP
Wilson B-factor (Å^2)	98.0	Xtriage
Anisotropy	0.298	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.24 , 134.2	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	52227	wwPDB-VP
Average B, all atoms (Å^2)	210.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.34% of the height of the origin peak. No significant pseudotranslation is detected.*

[1]Intensities estimated from amplitudes.

[2]Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality (i)

5.1 Standard geometry (i)

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

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	0.22	0/36139	0.80	26/56396 (0.0%)
2	B	0.26	0/1935	0.43	0/2609
3	C	0.26	0/1636	0.47	0/2205
4	D	0.25	0/1733	0.41	0/2318
5	E	0.26	0/1162	0.46	0/1564
6	F	0.24	0/856	0.45	0/1154
7	G	0.24	0/1276	0.40	0/1709
8	H	0.26	0/1136	0.47	0/1527
9	I	0.26	0/1029	0.45	0/1379
10	J	0.26	0/805	0.52	0/1082
11	K	0.27	0/879	0.48	0/1187
12	L	0.25	0/977	0.51	0/1306
13	M	0.25	0/947	0.45	0/1270
14	N	0.26	0/501	0.46	0/664
15	O	0.25	0/740	0.39	0/987
16	P	0.25	0/716	0.44	0/963
17	Q	0.26	0/836	0.49	0/1117
18	R	0.25	0/579	0.45	0/768
19	S	0.25	0/661	0.52	0/890
20	T	0.25	0/765	0.43	0/1007
21	U	0.22	0/212	0.44	0/277
All	All	0.24	0/55520	0.71	26/82379 (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
2	B	0	1
3	C	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
10	J	0	2
13	M	0	1
14	N	0	1
20	T	0	1
All	All	0	7

There are no bond length outliers.

All (26) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	328	C	C2-N1-C1'	7.59	127.15	118.80
1	A	1127	G	N1-C6-O6	-7.32	115.51	119.90
1	A	328	C	N1-C2-O2	7.30	123.28	118.90
1	A	1127	G	C5-C6-O6	7.04	132.83	128.60
1	A	839	U	C2-N1-C1'	6.76	125.81	117.70
1	A	1243	C	C2-N3-C4	-6.58	116.61	119.90
1	A	1243	C	N1-C2-N3	6.32	123.62	119.20
1	A	1295	G	N3-C4-N9	-6.29	122.22	126.00
1	A	839	U	N1-C2-O2	6.20	127.14	122.80
1	A	839	U	N3-C2-O2	-5.80	118.14	122.20
1	A	1243	C	N3-C2-O2	-5.63	117.96	121.90
1	A	476	G	C5-C6-O6	5.56	131.94	128.60
1	A	1200	C	C2-N1-C1'	5.55	124.91	118.80
1	A	328	C	N3-C2-O2	-5.52	118.03	121.90
1	A	1145	C	N3-C4-N4	-5.52	114.14	118.00
1	A	328	C	C6-N1-C1'	-5.49	114.22	120.80
1	A	1346	A	P-O3'-C3'	5.21	125.95	119.70
1	A	1397	C	N3-C4-C5	5.19	123.97	121.90
1	A	1190	G	P-O3'-C3'	5.18	125.92	119.70
1	A	1395	C	N1-C2-O2	5.17	122.00	118.90
1	A	1158	C	C2-N1-C1'	5.14	124.46	118.80
1	A	1295	G	N9-C4-C5	5.13	107.45	105.40
1	A	1054	C	N3-C4-C5	5.08	123.93	121.90
1	A	484	G	P-O3'-C3'	5.06	125.77	119.70
1	A	1200	C	N1-C2-O2	5.05	121.93	118.90
1	A	1301	U	P-O3'-C3'	5.01	125.71	119.70

There are no chirality outliers.

All (7) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	B	15	VAL	Peptide
3	C	166	GLU	Peptide
10	J	54	PHE	Peptide
10	J	55	LYS	Peptide
13	M	6	GLY	Peptide
14	N	11	LYS	Peptide
20	T	74	LYS	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	16507	381	2
2	B	1900	0	1951	39	0
3	C	1612	0	1677	47	0
4	D	1703	0	1763	42	0
5	E	1146	0	1207	20	0
6	F	843	0	857	12	0
7	G	1257	0	1296	17	0
8	H	1116	0	1177	18	0
9	I	1010	0	1037	32	0
10	J	792	0	835	32	0
11	K	864	0	881	27	0
12	L	972	0	1058	24	0
13	M	937	0	995	37	0
14	N	492	0	529	26	0
15	O	729	0	768	8	0
16	P	700	0	720	12	0
17	Q	823	0	893	11	0
18	R	574	0	644	12	0
19	S	647	0	673	13	0
20	T	763	0	861	20	0
21	U	208	0	221	5	0
22	A	237	0	0	0	0
22	B	2	0	0	0	0
22	C	3	0	0	0	0
22	D	4	0	0	0	0
22	E	2	0	0	0	0
22	F	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
22	I	1	0	0	0	0
22	P	2	0	0	0	0
22	Q	1	0	0	0	0
22	S	1	0	0	0	0
23	D	1	0	0	0	0
23	N	1	0	0	0	0
24	A	225	0	0	2	0
24	D	2	0	0	0	0
24	E	4	0	0	0	0
24	L	3	0	0	0	0
24	N	1	0	0	0	0
24	Q	2	0	0	0	0
24	T	2	0	0	0	0
All	All	52227	0	36550	731	2

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 8.

All (731) 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)
20:T:100:ILE:HG22	20:T:102:GLY:H	1.39	0.86
1:A:664:G:H22	1:A:741:G:H1	1.21	0.86
1:A:1125:U:OP2	1:A:1145:C:N4	2.10	0.85
1:A:1443:G:H5"	1:A:1446:A:H5'	1.58	0.85
1:A:1347:G:O6	9:I:10:ARG:NH2	2.15	0.80
1:A:1125:U:H3	10:J:5:ARG:HH21	1.30	0.79
1:A:1417:G:O2'	1:A:1483:A:N6	2.17	0.78
4:D:11:LEU:HD13	4:D:66:ARG:HD2	1.66	0.78
13:M:10:PRO:HB2	13:M:18:ALA:HB1	1.68	0.75
9:I:50:LEU:HB3	9:I:55:ALA:HB3	1.69	0.75
3:C:33:LEU:HD21	14:N:53:LEU:HD22	1.70	0.73
1:A:1518[B]:MA6:H102	1:A:1519[B]:MA6:H103	1.70	0.73
1:A:1049:U:O2'	14:N:3:ARG:NH1	2.23	0.72
1:A:974:A:OP2	14:N:29:ARG:NH2	2.23	0.72
6:F:10:LEU:HD12	6:F:59:TYR:HB3	1.73	0.71
1:A:1134:G:H1	1:A:1140:C:H42	1.36	0.71
3:C:41:GLY:O	3:C:45:LYS:HG2	1.91	0.71
1:A:1516[B]:G:N2	1:A:1519[B]:MA6:OP2	2.22	0.71
2:B:21:ARG:HA	2:B:39:ILE:HA	1.73	0.71
20:T:74:LYS:O	20:T:76:ALA:N	2.23	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:Q:66:SER:O	17:Q:70:ARG:NH1	2.24	0.70
1:A:1373:G:H5"	7:G:36:LYS:HE3	1.73	0.69
1:A:1128:C:O2'	1:A:1130:A:N7	2.25	0.69
1:A:1195:C:H3'	1:A:1196:U:H5"	1.74	0.69
12:L:41:ARG:HE	12:L:43:VAL:HG22	1.58	0.69
9:I:10:ARG:HG2	9:I:75:ASP:HB2	1.74	0.69
3:C:52:LEU:HD12	3:C:68:VAL:HG13	1.74	0.68
1:A:103:C:OP1	20:T:17:ARG:NH1	2.27	0.68
16:P:4:ILE:HG12	16:P:21:VAL:HG22	1.76	0.68
20:T:75:ASN:OD1	20:T:75:ASN:N	2.26	0.68
8:H:83:ILE:HG12	8:H:137:VAL:HG22	1.75	0.68
17:Q:12:SER:HB3	17:Q:20:THR:HB	1.75	0.68
10:J:61:GLU:OE2	14:N:58:LYS:NZ	2.26	0.68
10:J:82:ILE:HA	10:J:85:LEU:HB2	1.76	0.68
1:A:1028:C:H42	1:A:1033:G:H1	1.41	0.67
5:E:71:LEU:HD21	5:E:115:VAL:HG22	1.76	0.67
1:A:972:C:H4'	10:J:57:LYS:HD3	1.77	0.67
1:A:532:A:N6	3:C:159:GLY:O	2.28	0.67
1:A:1399:C:H4'	1:A:1400:5MC:H5"	1.76	0.66
1:A:1111:A:H61	3:C:177:THR:HB	1.60	0.66
10:J:61:GLU:OE1	14:N:45:ARG:NH1	2.29	0.66
12:L:53:ARG:NH1	12:L:92:0TD:OD2	2.27	0.66
10:J:49:VAL:HG13	14:N:41:ARG:HB2	1.78	0.66
1:A:1073:U:O2	2:B:104:ASN:ND2	2.28	0.66
15:O:39:LEU:HD13	15:O:56:LEU:HB2	1.78	0.65
1:A:372:C:H4'	1:A:373:A:O5'	1.95	0.65
3:C:26:LYS:O	3:C:30:ARG:NH1	2.30	0.65
11:K:85:ARG:HD3	11:K:113:PRO:HD3	1.78	0.65
1:A:1009:G:H1	1:A:1020:U:H3	1.45	0.65
4:D:107:ARG:HH12	4:D:114:ARG:HH21	1.45	0.65
1:A:1405:G:HO2'	1:A:1518[A]:MA6:HO2'	1.44	0.64
4:D:15:GLU:HB3	4:D:63:LYS:HD3	1.79	0.64
1:A:1004:A:N7	1:A:1036:G:O6	2.31	0.64
8:H:111:ILE:HG22	8:H:134:ILE:HD12	1.79	0.64
1:A:95:U:H2'	1:A:96:G:H8	1.62	0.64
19:S:5:LEU:C	19:S:6:LYS:HG3	2.19	0.64
1:A:564:C:O2'	8:H:91:ARG:NH2	2.30	0.63
1:A:686:U:HO2'	1:A:687:A:H8	1.46	0.63
12:L:41:ARG:HH21	12:L:43:VAL:HG13	1.63	0.63
1:A:671:G:H5'	6:F:77:ARG:HH21	1.63	0.63
1:A:1347:G:H1'	1:A:1348:U:H5	1.63	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:279:A:OP2	17:Q:95:TYR:OH	2.15	0.63
4:D:194:LEU:HB3	4:D:196:LEU:HG	1.81	0.63
4:D:57:ARG:HG3	4:D:202:LEU:HD13	1.81	0.62
20:T:46:GLU:OE1	20:T:48:LYS:NZ	2.33	0.62
14:N:47:LEU:HB3	14:N:53:LEU:HD21	1.80	0.62
11:K:80:VAL:HG21	11:K:103:LEU:HD13	1.81	0.62
1:A:1406:U:O2'	1:A:1517[B]:G:N2	2.33	0.61
16:P:28:ARG:NH1	16:P:29:ASP:OD2	2.32	0.61
1:A:427:U:OP1	4:D:13:ARG:NH2	2.33	0.61
1:A:1243:C:O2	1:A:1295:G:N2	2.33	0.61
5:E:102:ALA:O	5:E:107:ARG:NH1	2.33	0.61
1:A:1391:U:H2'	1:A:1392:G:C8	2.36	0.61
13:M:96:LEU:O	13:M:110:ARG:NH1	2.32	0.61
2:B:84:GLU:HB3	2:B:219:VAL:HG21	1.83	0.61
1:A:992:U:H3	1:A:1044:A:H62	1.48	0.60
1:A:404:U:OP2	4:D:118:ARG:NH1	2.33	0.60
1:A:946:A:H2'	1:A:947:G:C8	2.35	0.60
20:T:33:ILE:HD13	20:T:62:LEU:HB3	1.84	0.60
1:A:1305:G:N2	1:A:1331:G:H1'	2.16	0.60
7:G:69:VAL:HG21	7:G:104:LEU:HD21	1.83	0.60
1:A:1222:G:OP2	1:A:1322:C:N4	2.31	0.60
1:A:1505:G:O2'	1:A:1506:U:OP2	2.16	0.60
9:I:86:VAL:HG21	9:I:102:LEU:HD11	1.82	0.60
10:J:79:ARG:HH12	10:J:82:ILE:HD12	1.67	0.59
11:K:57:THR:HG23	11:K:60:ALA:H	1.65	0.59
1:A:462:G:H21	16:P:82:GLN:HE21	1.48	0.59
1:A:1266:G:N2	1:A:1269:A:OP2	2.26	0.59
1:A:321:A:N6	1:A:329:A:OP2	2.35	0.59
5:E:105:VAL:HB	5:E:106:PRO:HD3	1.84	0.59
13:M:57:ARG:O	13:M:61:GLU:HB2	2.02	0.59
16:P:53:VAL:HG12	16:P:79:VAL:HG22	1.84	0.59
1:A:951:G:OP2	13:M:102:ARG:NH2	2.35	0.59
1:A:376:G:H5"	16:P:5:ARG:HB2	1.85	0.59
1:A:1498:UR3:O5'	1:A:1498:UR3:H6	2.02	0.59
13:M:8:GLU:HG3	13:M:22:ILE:HG23	1.85	0.59
1:A:426:G:OP1	4:D:38:TYR:OH	2.21	0.58
1:A:1240:U:OP1	7:G:119:ARG:NH2	2.33	0.58
1:A:522:C:H41	12:L:53:ARG:HH22	1.52	0.58
4:D:99:SER:HB3	4:D:139:ARG:HG3	1.84	0.58
1:A:1310:G:H5'	13:M:77:ASN:HD21	1.68	0.58
1:A:1510:U:H2'	1:A:1511:G:C8	2.38	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:63:MET:HB3	2:B:225:ALA:HB1	1.86	0.58
1:A:1414:U:H2'	1:A:1415:G:C8	2.39	0.58
4:D:107:ARG:HH21	4:D:194:LEU:HD12	1.69	0.58
1:A:1242:C:OP1	21:U:10:ARG:NH1	2.34	0.57
20:T:39:LYS:HG2	20:T:55:ILE:HD13	1.86	0.57
1:A:451:A:N6	1:A:481:G:C4	2.72	0.57
1:A:1006:C:H42	1:A:1022:G:H22	1.52	0.57
3:C:156:ARG:H	3:C:163:ALA:HA	1.69	0.57
1:A:403:C:OP2	4:D:3:ARG:NH2	2.37	0.57
1:A:792:A:H4'	1:A:793:U:O5'	2.04	0.57
3:C:137:ALA:HA	3:C:140:ARG:HD2	1.86	0.57
1:A:1532:U:H2'	1:A:1533:C:H3'	1.87	0.57
2:B:59:GLU:HB2	2:B:221:LEU:HD11	1.86	0.57
12:L:46:LYS:HB3	12:L:92:0TD:H8	1.86	0.57
3:C:150:LYS:HB2	3:C:173:VAL:HG21	1.85	0.57
1:A:1193:G:OP1	3:C:167:TRP:NE1	2.32	0.57
18:R:47:THR:HA	18:R:83:GLU:HB2	1.87	0.57
1:A:21:G:H2'	1:A:22:G:C8	2.40	0.57
1:A:982:U:OP2	14:N:23:ARG:NH2	2.38	0.57
1:A:1048:G:H1	1:A:1209:C:H42	1.53	0.57
11:K:40:ILE:HG22	11:K:41:THR:HG23	1.86	0.57
1:A:45:U:H2'	1:A:46:G:C8	2.40	0.57
1:A:297:G:N2	1:A:300:A:OP2	2.33	0.57
1:A:1504:G:OP1	1:A:1507:A:H4'	2.05	0.57
1:A:191:G:O2'	20:T:102:GLY:O	2.17	0.57
15:O:33:THR:OG1	15:O:63:ARG:NH1	2.36	0.56
1:A:56:U:H2'	1:A:57:G:H8	1.70	0.56
3:C:14:ILE:HG22	3:C:15:THR:HG23	1.87	0.56
4:D:18:LYS:HE2	4:D:20:TYR:HE2	1.70	0.56
4:D:78:LEU:HD21	4:D:96:LEU:HB3	1.88	0.56
11:K:69:ALA:O	11:K:73:MET:HG2	2.06	0.56
19:S:18:LYS:HD3	19:S:31:ILE:HD11	1.88	0.56
20:T:50:GLU:HA	20:T:100:ILE:HG13	1.88	0.56
1:A:250:A:H4'	1:A:251:G:O5'	2.05	0.56
1:A:1064:G:N2	1:A:1190:G:O2'	2.38	0.56
12:L:60:LEU:HD11	12:L:85:ILE:HD12	1.88	0.56
13:M:88:ARG:HH11	19:S:3:ARG:HH21	1.54	0.56
1:A:1491:G:N2	1:A:1492:A:H62	2.02	0.56
3:C:131:ARG:HA	3:C:134:ILE:HD12	1.87	0.56
1:A:17:U:H2'	1:A:18:C:C6	2.40	0.56
6:F:22:GLU:OE1	6:F:82:ARG:NH1	2.39	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:227:G:N2	16:P:62:VAL:O	2.36	0.56
1:A:959:A:O2'	1:A:984:C:O2'	2.22	0.56
1:A:1144:G:H21	1:A:1146:A:H62	1.52	0.56
3:C:91:LEU:HD21	3:C:99:VAL:HG22	1.88	0.56
3:C:134:ILE:HG23	3:C:151:VAL:HB	1.86	0.56
1:A:955:U:H1'	1:A:1227:A:H61	1.72	0.55
1:A:1405:G:O2'	1:A:1518[A]:MA6:O2'	2.19	0.55
10:J:53:PRO:HA	14:N:41:ARG:NH2	2.20	0.55
12:L:24:VAL:HG13	12:L:98:TYR:HE2	1.72	0.55
1:A:88:A:H2'	1:A:89:C:O4'	2.07	0.55
1:A:56:U:H2'	1:A:57:G:C8	2.41	0.55
1:A:1437:C:H2'	1:A:1438:G:H8	1.72	0.55
1:A:129(A):G:N2	1:A:190(F):G:OP2	2.34	0.55
8:H:26:VAL:HG13	8:H:59:LEU:HB2	1.88	0.55
1:A:269:C:H2'	1:A:270:A:C8	2.41	0.55
1:A:1415:G:H1	1:A:1485:U:H3	1.54	0.55
1:A:542:G:OP1	4:D:10:ARG:NH2	2.40	0.55
1:A:95:U:H2'	1:A:96:G:C8	2.42	0.55
9:I:46:ALA:HB2	9:I:74:ILE:HG23	1.88	0.55
1:A:407:G:OP1	4:D:115:ARG:NH1	2.40	0.54
3:C:68:VAL:HG12	3:C:70:VAL:HG22	1.90	0.54
1:A:216:G:H2'	1:A:217:C:C6	2.42	0.54
9:I:79:LEU:O	9:I:83:ARG:HG2	2.07	0.54
1:A:1060:C:OP1	14:N:45:ARG:NH2	2.41	0.54
3:C:180:ALA:HB1	3:C:205:GLY:O	2.08	0.54
8:H:48:TYR:HA	8:H:60:ARG:O	2.07	0.54
1:A:880:C:OP1	12:L:8:ASN:ND2	2.39	0.54
1:A:1162:C:H2'	1:A:1163:C:C6	2.42	0.54
15:O:56:LEU:HA	15:O:59:MET:HE2	1.90	0.54
1:A:77:G:H2'	1:A:78:G:C8	2.43	0.54
1:A:1313:U:O4	19:S:4:SER:OG	2.18	0.54
9:I:112:LYS:HA	9:I:119:ALA:HB2	1.89	0.54
1:A:811:C:O2'	1:A:901:A:N1	2.35	0.54
1:A:1305:G:O2'	1:A:1306:A:O5'	2.26	0.54
1:A:442:C:H42	1:A:492:G:H1	1.56	0.54
1:A:448:A:P	1:A:485:G:H22	2.31	0.53
1:A:1049:U:H4'	1:A:1050:G:O5'	2.08	0.53
1:A:973:G:H3'	1:A:974:A:H5"	1.90	0.53
1:A:677:U:H3	1:A:713:G:H22	1.56	0.53
10:J:48:THR:O	14:N:34:TYR:OH	2.25	0.53
1:A:390:C:O3'	16:P:28:ARG:NH2	2.42	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1342:C:H2'	1:A:1343:G:C8	2.43	0.53
1:A:1498:UR3:O4'	1:A:1519[A]:MA6:H2	2.08	0.53
11:K:65:ALA:HB1	11:K:98:LEU:HD23	1.90	0.53
12:L:24:VAL:HG13	12:L:98:TYR:CE2	2.43	0.53
1:A:501:C:H2'	1:A:502:G:C8	2.44	0.53
1:A:1148:U:H2'	1:A:1149:C:O4'	2.09	0.53
1:A:1198:G:H2'	1:A:1199:U:C6	2.44	0.53
6:F:39:LYS:HG2	6:F:64:GLN:HB3	1.91	0.53
1:A:1150:U:O4	1:A:1151:A:N6	2.42	0.53
3:C:150:LYS:HB3	3:C:201:TYR:HB2	1.91	0.52
1:A:1008:C:N4	1:A:1021:G:H1	2.07	0.52
1:A:1379:G:O6	7:G:2:ALA:N	2.42	0.52
4:D:57:ARG:HB3	4:D:206:PHE:HB2	1.91	0.52
1:A:1305:G:O2'	1:A:1306:A:H8	1.93	0.52
1:A:1488:G:H2'	1:A:1489:G:C8	2.44	0.52
10:J:55:LYS:HD2	10:J:56:HIS:H	1.73	0.52
1:A:89:C:H2'	1:A:90:U:O4'	2.09	0.52
1:A:130:A:OP2	1:A:190(E):U:O2'	2.24	0.52
3:C:156:ARG:NH1	3:C:193:TYR:O	2.43	0.52
1:A:537:G:OP1	12:L:113:ARG:NH2	2.42	0.52
1:A:1254:C:H2'	1:A:1255:G:C8	2.44	0.52
2:B:21:ARG:HG3	2:B:22:LYS:H	1.75	0.52
1:A:518:C:H4'	1:A:519:C:O5'	2.09	0.52
1:A:113:G:H1'	1:A:354:G:H5'	1.90	0.52
1:A:1143:G:H2'	1:A:1144:G:C8	2.45	0.52
2:B:162:ILE:HD12	2:B:177:ALA:HB2	1.92	0.52
4:D:140:VAL:HG11	4:D:146:ILE:HD11	1.92	0.52
12:L:70:ILE:HG12	12:L:100:ILE:HD12	1.92	0.52
20:T:92:LEU:O	20:T:96:GLY:HA2	2.10	0.52
1:A:481:G:O2'	1:A:482:A:H8	1.92	0.52
1:A:1195:C:H3'	1:A:1196:U:C5'	2.39	0.52
1:A:1392:G:N2	1:A:1502:A:H8	2.08	0.52
1:A:1187:G:N3	14:N:60:SER:OG	2.43	0.51
12:L:103:GLY:N	12:L:107:ALA:O	2.28	0.51
12:L:113:ARG:HH11	12:L:116:SER:H	1.59	0.51
1:A:7:G:H5'	1:A:298:A:O4'	2.10	0.51
1:A:932:C:H5'	7:G:4:ARG:HG3	1.92	0.51
1:A:937:A:N6	1:A:1345:U:O4	2.43	0.51
1:A:1257:U:O2'	1:A:1258:G:OP2	2.24	0.51
1:A:1391:U:H2'	1:A:1392:G:H8	1.73	0.51
3:C:81:GLY:O	3:C:84:ILE:HG22	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1294:G:H2'	1:A:1295:G:C8	2.46	0.51
3:C:88:ARG:HH21	3:C:100:ALA:HB1	1.75	0.51
10:J:50:ILE:HA	10:J:60:ARG:HB3	1.92	0.51
1:A:1345:U:OP1	9:I:120:ARG:NH1	2.43	0.51
1:A:1435:G:H2'	1:A:1436:U:C6	2.45	0.51
2:B:119:GLU:OE1	2:B:153:ARG:NH2	2.44	0.51
2:B:158:LEU:HD12	2:B:158:LEU:H	1.76	0.51
3:C:58:GLU:HB3	10:J:92:THR:HG21	1.92	0.51
7:G:84:ASN:OD1	7:G:84:ASN:N	2.29	0.51
1:A:235:C:N4	24:A:1903:HOH:O	2.42	0.51
1:A:1098:C:OP2	2:B:144:ARG:NH2	2.43	0.51
1:A:1145:C:O2'	1:A:1146:A:O5'	2.22	0.51
1:A:1497:G:H2'	1:A:1498:UR3:H5'	1.92	0.51
20:T:16:HIS:O	20:T:19:SER:HB3	2.11	0.51
3:C:138:VAL:HG13	3:C:149:ALA:HB3	1.93	0.51
1:A:501:C:H2'	1:A:502:G:H8	1.76	0.50
1:A:736:C:H2'	1:A:737:A:C8	2.46	0.50
1:A:1092:A:N3	1:A:1183:A:N6	2.58	0.50
1:A:1106:G:H5"	3:C:172:ARG:HB3	1.93	0.50
1:A:1310:G:H5'	13:M:77:ASN:ND2	2.25	0.50
1:A:41:G:H2'	1:A:42:G:C8	2.46	0.50
1:A:1031:G:H2'	1:A:1032:G:C8	2.47	0.50
14:N:9:LYS:HD2	14:N:23:ARG:HB2	1.93	0.50
3:C:155:GLY:HA2	3:C:164:ARG:H	1.77	0.50
4:D:62:GLN:OE1	4:D:65:ARG:NH1	2.44	0.50
10:J:5:ARG:HB2	10:J:99:LYS:O	2.11	0.50
1:A:5:U:H4'	1:A:6:G:O5'	2.12	0.50
1:A:474:G:H2'	1:A:475:G:C8	2.47	0.50
1:A:558:G:OP2	1:A:559:A:O2'	2.28	0.50
1:A:1137:C:H4'	1:A:1138:G:C2	2.47	0.50
1:A:1250:A:H4'	9:I:68:GLY:H	1.77	0.50
3:C:108:ASN:HB3	3:C:111:LEU:HB2	1.93	0.50
20:T:70:SER:HA	20:T:73:HIS:CD2	2.46	0.50
1:A:673:G:H2'	1:A:674:G:C8	2.46	0.50
1:A:1314:C:H2'	1:A:1315:U:C6	2.47	0.50
8:H:46:LYS:HG3	8:H:64:LYS:HB3	1.94	0.50
9:I:99:LEU:HB3	9:I:101:PHE:HD1	1.77	0.50
11:K:121:PRO:HD2	11:K:126:ARG:HD2	1.92	0.50
1:A:1053:G:HO2'	1:A:1199:U:H5	1.59	0.49
1:A:335:C:O2'	1:A:1433:A:N3	2.40	0.49
2:B:45:GLN:O	2:B:49:GLU:HG3	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:913:A:H4'	1:A:914:A:O5'	2.12	0.49
1:A:1305:G:O2'	1:A:1306:A:P	2.70	0.49
11:K:22:HIS:HB3	11:K:29:ILE:HD13	1.94	0.49
1:A:1343:G:H4'	9:I:122:ALA:HB3	1.95	0.49
6:F:77:ARG:O	6:F:81:ILE:HG13	2.12	0.49
1:A:474:G:H2'	1:A:475:G:H8	1.77	0.49
1:A:701:C:H5"	1:A:703:G:H5'	1.95	0.49
19:S:12:ASP:H	19:S:38:SER:HB3	1.77	0.49
1:A:157:G:H2'	1:A:158:G:H8	1.78	0.49
1:A:1008:C:H42	1:A:1021:G:H1	1.61	0.49
1:A:1256:A:H4'	1:A:1257:U:O5'	2.13	0.49
10:J:9:ARG:HG3	10:J:95:GLU:HB3	1.94	0.49
1:A:514:C:H2'	1:A:515:G:H8	1.78	0.49
1:A:1068:G:H8	1:A:1068:G:OP2	1.95	0.49
1:A:1232:U:H5"	9:I:124:GLN:O	2.13	0.49
4:D:173:TRP:CD2	4:D:189:PRO:HB3	2.48	0.49
1:A:920:U:H2'	1:A:921:U:C6	2.48	0.49
1:A:1131:G:H2'	1:A:1132:C:C6	2.48	0.49
9:I:22:GLY:HA3	9:I:60:ASP:HB2	1.94	0.49
11:K:14:VAL:HG21	11:K:40:ILE:HD13	1.95	0.49
1:A:1412:C:H2'	1:A:1413:A:C8	2.48	0.48
2:B:98:LEU:O	2:B:101:MET:HG3	2.13	0.48
5:E:33:VAL:HG11	5:E:109:ILE:HA	1.94	0.48
1:A:1502:A:H2	1:A:1505:G:H1	1.60	0.48
4:D:81:GLU:O	4:D:85:LYS:HG3	2.14	0.48
7:G:113:GLU:HG3	7:G:119:ARG:HA	1.95	0.48
10:J:48:THR:HA	10:J:62:HIS:HB3	1.94	0.48
19:S:62:ILE:HD12	19:S:66:MET:HG3	1.94	0.48
1:A:1192:C:O2	5:E:25:ARG:NH2	2.47	0.48
10:J:10:GLY:HA3	10:J:16:LEU:HD21	1.94	0.48
1:A:769:G:H4'	1:A:1513:A:H4'	1.96	0.48
1:A:1196:U:OP1	1:A:1197:G:H5'	2.13	0.48
1:A:1343:G:H1'	9:I:121:ARG:HH12	1.78	0.48
1:A:1359:C:H1'	1:A:1361(A):C:H41	1.78	0.48
3:C:6:HIS:CE1	3:C:8:ILE:HB	2.49	0.48
18:R:46:GLU:CD	18:R:46:GLU:H	2.15	0.48
1:A:337:C:H2'	1:A:338:A:C8	2.49	0.48
1:A:1356:G:H2'	1:A:1357:A:C8	2.49	0.48
11:K:83:ILE:HD13	11:K:109:VAL:HB	1.95	0.48
2:B:97:TRP:HZ2	2:B:102:LEU:HD22	1.79	0.48
3:C:13:GLY:HA3	14:N:57:ARG:HH21	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:390:C:H2'	1:A:391:G:C8	2.48	0.48
1:A:945:G:O6	1:A:1236:A:N1	2.46	0.48
2:B:101:MET:HA	2:B:108:ILE:HG13	1.96	0.48
6:F:50:TYR:CE1	18:R:77:GLY:HA2	2.49	0.48
1:A:130:A:H1'	1:A:263:A:O2'	2.14	0.48
1:A:686:U:O2'	1:A:687:A:H8	1.95	0.48
13:M:74:VAL:O	13:M:78:ILE:HG12	2.14	0.48
17:Q:24:GLU:HG2	17:Q:39:SER:HB3	1.95	0.48
1:A:201:C:H42	1:A:216:G:H1	1.62	0.48
1:A:298:A:N6	24:A:1901:HOH:O	2.18	0.48
6:F:70:ASP:OD1	6:F:70:ASP:N	2.39	0.48
1:A:401:C:O2'	1:A:621:A:N3	2.41	0.47
1:A:1305:G:O2'	1:A:1306:A:C8	2.67	0.47
3:C:70:VAL:HG12	3:C:72:LYS:H	1.78	0.47
7:G:22:LEU:HG	7:G:62:PHE:HE2	1.79	0.47
13:M:48:LEU:HB3	13:M:53:VAL:HG23	1.95	0.47
1:A:1136:U:H5"	1:A:1137:C:OP2	2.14	0.47
1:A:1451:A:H5"	1:A:1452:C:H5	1.80	0.47
2:B:68:ILE:O	2:B:90:MET:HB3	2.14	0.47
4:D:23:GLY:HA3	4:D:112:VAL:HG12	1.95	0.47
9:I:96:LEU:HD23	9:I:102:LEU:HG	1.95	0.47
10:J:7:LYS:HE3	10:J:9:ARG:HH21	1.78	0.47
1:A:718:G:O6	18:R:74:ARG:NH1	2.47	0.47
5:E:81:GLU:HG2	5:E:90:VAL:HG22	1.97	0.47
1:A:31:G:N2	1:A:48:C:OP1	2.44	0.47
1:A:35:G:H2'	1:A:36:C:C6	2.49	0.47
1:A:328:C:H4'	1:A:329:A:O5'	2.15	0.47
1:A:1201:A:H4'	1:A:1202:G:O5'	2.14	0.47
5:E:102:ALA:HB1	5:E:106:PRO:HB2	1.97	0.47
14:N:29:ARG:HB3	14:N:33:VAL:HG22	1.96	0.47
1:A:707:C:OP1	11:K:85:ARG:NH1	2.48	0.47
1:A:1286:A:H2'	1:A:1287:A:H4'	1.96	0.47
1:A:1355:G:H2'	1:A:1356:G:C8	2.50	0.47
1:A:1513:A:H2'	1:A:1514:C:C6	2.49	0.47
8:H:104:ARG:HG3	8:H:138:TRP:CD2	2.49	0.47
1:A:129:U:O3'	1:A:129(A):G:H3'	2.14	0.47
1:A:263:A:OP2	20:T:79:ARG:NH1	2.47	0.47
1:A:701:C:H4'	1:A:702:A:O5'	2.13	0.47
1:A:1112:C:O2	3:C:179:ARG:HB2	2.15	0.47
1:A:1269:A:N1	1:A:1312:G:O2'	2.45	0.47
9:I:48:GLU:N	9:I:49:PRO:HD2	2.30	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1145:C:HO2'	1:A:1146:A:P	2.37	0.47
1:A:1225:A:H2'	1:A:1225:A:N3	2.29	0.47
1:A:1427:U:H2'	1:A:1428:A:C8	2.50	0.47
4:D:72:GLU:OE1	4:D:207:TYR:OH	2.32	0.47
17:Q:5:VAL:HG22	17:Q:60:ILE:HG12	1.96	0.47
1:A:579:G:H5'	1:A:728:A:H1'	1.97	0.47
1:A:976:G:OP2	1:A:1358:U:O2'	2.32	0.47
13:M:49:THR:HG22	13:M:51:ALA:H	1.79	0.47
2:B:60:ASP:CG	2:B:64:ARG:HH12	2.19	0.47
2:B:133:LYS:O	2:B:137:ARG:HG3	2.15	0.47
5:E:88:LYS:HD2	5:E:123:LEU:HD12	1.97	0.47
1:A:164:U:H2'	1:A:165:C:C6	2.50	0.46
1:A:689:C:H2'	1:A:690:G:O4'	2.16	0.46
1:A:981:U:H5'	14:N:21:TYR:CZ	2.50	0.46
1:A:1257:U:H4'	1:A:1258:G:O5'	2.15	0.46
1:A:1301:U:OP2	1:A:1303:C:N4	2.48	0.46
14:N:32:SER:O	14:N:40:CYS:HB2	2.16	0.46
1:A:1230:C:N4	13:M:105:THR:HG21	2.31	0.46
1:A:80:G:H2'	1:A:81:U:H5'	1.96	0.46
1:A:362:G:N2	1:A:365:U:OP2	2.45	0.46
1:A:450:G:H4'	16:P:41:PRO:HB2	1.96	0.46
1:A:580:U:H2'	1:A:581:G:O4'	2.15	0.46
1:A:1020:U:H2'	1:A:1021:G:H8	1.79	0.46
1:A:966:M2G:HM22	1:A:967:5MC:C2	2.50	0.46
1:A:1254:C:H2'	1:A:1255:G:H8	1.80	0.46
13:M:15:VAL:HG21	13:M:48:LEU:HD21	1.97	0.46
1:A:316:G:OP2	1:A:351:G:O2'	2.33	0.46
2:B:71:VAL:HB	2:B:164:VAL:HG12	1.97	0.46
11:K:33:THR:OG1	11:K:34:ASP:N	2.49	0.46
17:Q:59:ILE:HG23	17:Q:71:PHE:HB3	1.97	0.46
20:T:50:GLU:HG3	20:T:100:ILE:HD11	1.98	0.46
1:A:514:C:H2'	1:A:515:G:C8	2.50	0.46
1:A:560:U:H5'	1:A:566:G:N2	2.30	0.46
1:A:1518[A]:MA6:H8	1:A:1518[A]:MA6:O5'	2.15	0.46
3:C:137:ALA:O	3:C:141:VAL:HG23	2.15	0.46
4:D:187:ARG:NH2	4:D:188:LEU:HB2	2.31	0.46
8:H:63:LEU:H	8:H:63:LEU:HD22	1.81	0.46
16:P:68:ASP:OD1	16:P:68:ASP:N	2.49	0.46
1:A:142:G:H2'	1:A:143:A:C8	2.51	0.46
1:A:359:U:H2'	1:A:360:A:C8	2.50	0.46
1:A:452:A:O2'	1:A:453:A:O4'	2.29	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1409:C:H2'	1:A:1410:G:C8	2.51	0.46
3:C:6:HIS:HE1	3:C:8:ILE:HB	1.80	0.46
3:C:34:LEU:O	3:C:38:ARG:HG2	2.16	0.46
12:L:10:LEU:HB3	17:Q:32:TYR:CE1	2.50	0.46
21:U:13:ILE:HG22	21:U:22:ARG:CZ	2.46	0.46
8:H:87:SER:HB2	8:H:93:VAL:HB	1.98	0.46
1:A:41:G:H2'	1:A:42:G:H8	1.81	0.46
1:A:1367:C:H5'	10:J:60:ARG:HE	1.81	0.46
2:B:142:LEU:HD23	2:B:142:LEU:HA	1.83	0.46
11:K:50:TYR:CD2	11:K:54:ARG:HB3	2.51	0.46
11:K:72:ALA:HB1	11:K:77:MET:HG3	1.97	0.46
1:A:766:A:H2'	1:A:767:A:O4'	2.16	0.46
1:A:1218:C:H2'	1:A:1219:U:C6	2.51	0.46
1:A:1347:G:O2'	1:A:1348:U:P	2.73	0.46
3:C:150:LYS:HG3	3:C:169:ALA:HB2	1.97	0.46
4:D:19:LEU:HB3	4:D:67:ILE:HG12	1.98	0.45
4:D:177:ASP:OD1	4:D:179:GLU:HG2	2.16	0.45
7:G:26:PHE:O	7:G:30:ILE:HG13	2.15	0.45
1:A:1317:C:H2'	1:A:1318:A:O4'	2.16	0.45
3:C:3:ASN:OD1	3:C:4:LYS:NZ	2.46	0.45
8:H:86:ILE:HD12	8:H:133:LEU:HD22	1.98	0.45
9:I:48:GLU:OE1	9:I:51:ARG:NH1	2.49	0.45
1:A:532:A:H2'	1:A:533:A:H5"	1.97	0.45
2:B:16:HIS:CE1	2:B:210:SER:HB2	2.51	0.45
3:C:134:ILE:O	3:C:138:VAL:HG23	2.17	0.45
4:D:184:LYS:HE3	4:D:184:LYS:HB2	1.78	0.45
5:E:11:ILE:HG22	5:E:12:LEU:HD12	1.98	0.45
1:A:437:U:H5'	4:D:155:LEU:HD21	1.98	0.45
3:C:134:ILE:HG21	3:C:167:TRP:O	2.16	0.45
13:M:48:LEU:HD22	13:M:48:LEU:HA	1.82	0.45
1:A:1380:U:H1'	1:A:1381:U:OP2	2.16	0.45
3:C:16:ARG:NH1	3:C:183:ASP:OD2	2.45	0.45
12:L:27:LEU:HG	12:L:28:LYS:H	1.81	0.45
14:N:24:CYS:H	14:N:33:VAL:HG21	1.81	0.45
1:A:299:G:H2'	1:A:300:A:C8	2.52	0.45
1:A:344:A:H5'	1:A:345:C:C5	2.52	0.45
1:A:356:A:N3	1:A:368:U:O2'	2.32	0.45
1:A:1005:A:N3	1:A:1026:G:N2	2.65	0.45
1:A:1498:UR3:H1'	1:A:1499:A:OP2	2.17	0.45
4:D:93:PHE:CE1	4:D:97:LEU:HD11	2.51	0.45
1:A:337:C:H2'	1:A:338:A:H8	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:898:G:N2	1:A:901:A:OP2	2.43	0.45
1:A:974:A:OP1	1:A:974:A:H8	1.99	0.45
1:A:1511:G:H2'	1:A:1512:U:O4'	2.17	0.45
4:D:11:LEU:HD22	4:D:66:ARG:NH1	2.32	0.45
2:B:102:LEU:HB3	2:B:180:LEU:HD12	1.99	0.45
4:D:133:VAL:HG12	4:D:135:LEU:H	1.82	0.45
13:M:16:ASP:OD1	13:M:16:ASP:N	2.50	0.45
1:A:92:C:H2'	1:A:93:G:C8	2.51	0.45
1:A:757:U:H2'	1:A:758:G:O4'	2.16	0.45
1:A:953:G:N7	13:M:104:ARG:NH2	2.64	0.45
2:B:146:GLN:O	2:B:150:SER:HB3	2.16	0.45
1:A:125:U:O3'	1:A:633:G:N2	2.51	0.44
1:A:186:C:H2'	1:A:187:C:C6	2.53	0.44
1:A:555:C:H2'	1:A:556:C:C6	2.52	0.44
1:A:1277:C:O2'	1:A:1279:A:H1'	2.17	0.44
1:A:1348:U:OP1	9:I:110:GLU:HB3	2.16	0.44
4:D:150:GLU:HA	4:D:153:ARG:HG3	1.98	0.44
8:H:19:VAL:HG23	8:H:21:LYS:HG3	1.99	0.44
10:J:42:THR:HG21	10:J:66:ARG:HB2	1.99	0.44
1:A:217:C:H2'	1:A:218:C:C6	2.52	0.44
1:A:281:G:H4'	1:A:282:A:O5'	2.17	0.44
12:L:8:ASN:O	12:L:12:ARG:HG3	2.18	0.44
15:O:18:PHE:CZ	15:O:21:ASP:HB2	2.52	0.44
1:A:19:C:H2'	1:A:20:U:H6	1.81	0.44
2:B:179:LYS:HE3	2:B:179:LYS:HB2	1.81	0.44
8:H:31:PHE:O	8:H:35:ILE:HG12	2.17	0.44
1:A:476:G:H2'	1:A:477:G:H8	1.82	0.44
1:A:707:C:O2	11:K:39:PRO:HD3	2.17	0.44
1:A:1065:U:H1'	1:A:1066:C:OP2	2.17	0.44
1:A:1316:G:N2	1:A:1319:A:OP2	2.51	0.44
9:I:63:ILE:HG21	9:I:77:ILE:HG12	2.00	0.44
11:K:58:PRO:HD3	11:K:89:ALA:HB1	1.99	0.44
13:M:99:ARG:HB2	13:M:101:GLN:NE2	2.32	0.44
1:A:79:G:H2'	1:A:79:G:N3	2.33	0.44
1:A:615:C:H2'	1:A:616:G:O4'	2.18	0.44
2:B:188:ALA:O	2:B:202:PRO:HA	2.17	0.44
4:D:28:SER:O	4:D:30:LYS:N	2.48	0.44
10:J:50:ILE:HD12	10:J:50:ILE:H	1.81	0.44
13:M:62:ASN:OD1	13:M:62:ASN:N	2.50	0.44
20:T:63:ILE:HG21	20:T:81:LYS:HG3	2.00	0.44
1:A:1125:U:O4	10:J:5:ARG:NE	2.42	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:230:VAL:HG12	2:B:231:GLU:O	2.17	0.44
9:I:15:ALA:HB2	9:I:65:VAL:HG23	2.00	0.44
1:A:299:G:C6	1:A:300:A:C6	3.06	0.44
1:A:1403:C:H1'	1:A:1500:A:N1	2.33	0.44
1:A:1516[A]:G:H2'	1:A:1518[A]:MA6:OP2	2.17	0.44
12:L:53:ARG:HG2	12:L:93:LEU:HD11	1.99	0.44
15:O:75:PRO:O	15:O:79:ARG:HG3	2.17	0.44
18:R:40:LEU:HB3	18:R:79:LEU:HD11	2.00	0.44
1:A:381:C:H2'	1:A:382:A:O4'	2.18	0.44
1:A:688:G:H2'	1:A:689:C:C6	2.53	0.44
1:A:719:C:O2'	18:R:49:LYS:HB3	2.18	0.44
1:A:1022:G:N2	1:A:1023:G:N7	2.65	0.44
1:A:1049:U:H5'	1:A:1201:A:OP2	2.17	0.44
1:A:1493:A:H2'	1:A:1494:G:H8	1.82	0.44
10:J:8:LEU:O	10:J:69:ASN:HA	2.17	0.44
1:A:691:G:H2'	1:A:692:U:C6	2.52	0.44
1:A:1200:C:H5'	1:A:1201:A:OP1	2.18	0.44
4:D:61:LYS:NZ	4:D:62:GLN:OE1	2.38	0.44
5:E:118:ILE:HG12	5:E:119:LEU:N	2.33	0.44
16:P:3:LYS:HE2	16:P:3:LYS:HB3	1.87	0.44
17:Q:50:LYS:HE2	17:Q:50:LYS:HB3	1.77	0.44
20:T:72:LEU:HD11	20:T:80:ARG:HD2	1.99	0.44
1:A:105:G:H2'	1:A:106:C:C6	2.53	0.43
1:A:1007:C:H2'	1:A:1008:C:C6	2.53	0.43
1:A:1151:A:HO2'	1:A:1152:A:H8	1.66	0.43
1:A:1211:U:H1'	1:A:1213:A:N3	2.33	0.43
5:E:13:ILE:HA	5:E:29:GLY:O	2.17	0.43
10:J:57:LYS:O	10:J:60:ARG:NH1	2.51	0.43
13:M:54:VAL:HG23	13:M:57:ARG:NH1	2.33	0.43
1:A:157:G:H2'	1:A:158:G:C8	2.52	0.43
1:A:371:G:O2'	1:A:372:C:H5'	2.17	0.43
1:A:812:C:H4'	1:A:813:U:O5'	2.18	0.43
1:A:1399:C:C2	1:A:1502:A:N6	2.86	0.43
2:B:213:LEU:O	2:B:217:ARG:HG2	2.18	0.43
3:C:27:LYS:HA	3:C:30:ARG:HH12	1.83	0.43
5:E:80:ILE:HD13	5:E:138:ALA:HB1	2.00	0.43
13:M:4:ILE:O	13:M:57:ARG:HG3	2.18	0.43
1:A:825:G:N2	8:H:11:THR:HG21	2.34	0.43
1:A:1037:C:H2'	1:A:1038:C:C6	2.53	0.43
1:A:1248:A:H2'	1:A:1249:C:C6	2.54	0.43
9:I:8:GLY:H	9:I:83:ARG:HD2	1.82	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:I:10:ARG:HG2	9:I:75:ASP:CB	2.46	0.43
5:E:76:ILE:HG23	5:E:142:LEU:HD13	2.01	0.43
13:M:51:ALA:O	13:M:54:VAL:HG12	2.18	0.43
18:R:47:THR:HG22	18:R:83:GLU:H	1.83	0.43
1:A:662:G:H2'	1:A:663:A:C8	2.53	0.43
1:A:1437:C:H2'	1:A:1438:G:C8	2.52	0.43
1:A:1518[B]:MA6:H93	1:A:1519[B]:MA6:N1	2.33	0.43
8:H:113:SER:HB2	8:H:134:ILE:HD11	1.99	0.43
11:K:27:ASN:OD1	11:K:28:THR:N	2.52	0.43
13:M:11:ARG:HA	13:M:45:VAL:HG11	2.00	0.43
13:M:63:THR:HG23	13:M:64:TRP:CD2	2.54	0.43
15:O:29:VAL:HG11	15:O:67:LEU:HD21	2.00	0.43
1:A:252:U:H2'	1:A:253:U:C6	2.53	0.43
1:A:428:G:H1'	1:A:429:U:OP2	2.19	0.43
1:A:676:A:H1'	11:K:115:PRO:HB3	2.00	0.43
1:A:833:U:H2'	1:A:834:C:C6	2.53	0.43
1:A:1419:G:H2'	1:A:1420:C:C6	2.54	0.43
12:L:124:LYS:HD2	12:L:125:PRO:HD2	2.00	0.43
1:A:7:G:H21	5:E:121:LYS:HG2	1.84	0.43
1:A:433:C:H2'	1:A:434:U:C6	2.54	0.43
1:A:963:G:HO2'	10:J:54:PHE:HZ	1.63	0.43
2:B:103:THR:HG23	2:B:180:LEU:HD21	1.99	0.43
1:A:142:G:O2'	1:A:196:A:N1	2.44	0.43
1:A:1242:C:P	21:U:10:ARG:HH12	2.40	0.43
1:A:1300:G:H4'	1:A:1301:U:O5'	2.18	0.43
1:A:1355:G:H2'	1:A:1356:G:H8	1.84	0.43
2:B:13:ALA:O	2:B:15:VAL:N	2.52	0.43
4:D:35:ARG:HD2	4:D:35:ARG:N	2.33	0.43
4:D:121:VAL:O	4:D:134:ASP:HA	2.19	0.43
14:N:29:ARG:HA	14:N:29:ARG:HD2	1.84	0.43
14:N:29:ARG:HH22	14:N:41:ARG:NH1	2.17	0.43
18:R:53:ARG:NH1	18:R:58:LEU:O	2.45	0.43
1:A:19:C:H2'	1:A:20:U:C6	2.53	0.43
1:A:960:U:H4'	1:A:961:U:C5'	2.49	0.43
1:A:1278:U:H5'	1:A:1279:A:O4'	2.18	0.43
1:A:1284:C:H3'	1:A:1285:A:H8	1.84	0.43
1:A:1343:G:H1'	9:I:121:ARG:NH1	2.34	0.43
9:I:28:VAL:HA	9:I:63:ILE:O	2.19	0.43
13:M:77:ASN:O	13:M:81:LEU:HG	2.19	0.43
17:Q:83:ASP:OD1	17:Q:83:ASP:N	2.50	0.43
19:S:17:GLU:HA	19:S:20:LEU:HG	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:T:45:GLN:HA	20:T:91:LEU:HD12	2.01	0.43
20:T:89:ARG:NH2	20:T:104:LEU:HB3	2.33	0.43
1:A:373:A:H1'	1:A:481:G:H1'	2.01	0.42
1:A:1305:G:H5"	21:U:4:GLY:HA3	2.01	0.42
1:A:1401:G:O6	1:A:1504:G:N2	2.52	0.42
1:A:1465:C:H2'	1:A:1466:C:O4'	2.19	0.42
4:D:177:ASP:OD1	4:D:180:GLY:N	2.40	0.42
11:K:59:TYR:CE2	11:K:63:LEU:HD11	2.54	0.42
13:M:57:ARG:HG2	13:M:61:GLU:HG3	2.00	0.42
14:N:6:LEU:HB3	14:N:23:ARG:NH2	2.34	0.42
18:R:48:GLY:O	18:R:74:ARG:NH2	2.52	0.42
1:A:517:G:N1	1:A:533:A:OP2	2.46	0.42
1:A:1229:A:OP2	13:M:114:ARG:NH1	2.53	0.42
3:C:110:ASN:O	3:C:141:VAL:HG22	2.20	0.42
3:C:147:LYS:HB2	3:C:203:PHE:CE2	2.54	0.42
7:G:44:TYR:O	7:G:48:LYS:HG3	2.19	0.42
7:G:87:VAL:HG11	7:G:154:TYR:O	2.18	0.42
13:M:54:VAL:O	13:M:58:GLU:HG2	2.19	0.42
19:S:28:LYS:HG2	19:S:29:ARG:H	1.84	0.42
20:T:73:HIS:HB3	20:T:74:LYS:H	1.58	0.42
1:A:952:U:H2'	1:A:953:G:H8	1.85	0.42
1:A:1111:A:N6	3:C:177:THR:HB	2.30	0.42
1:A:1202:G:H2'	1:A:1203:C:O4'	2.19	0.42
1:A:1300:G:H1'	1:A:1301:U:OP2	2.18	0.42
1:A:1316:G:N1	1:A:1319:A:OP2	2.51	0.42
3:C:70:VAL:HG21	3:C:76:VAL:HG21	2.01	0.42
4:D:22:LYS:HB2	4:D:26:CYS:SG	2.59	0.42
12:L:20:LYS:H	12:L:20:LYS:HG3	1.52	0.42
1:A:217:C:H2'	1:A:218:C:H6	1.83	0.42
1:A:757:U:O2'	1:A:879:C:O2	2.37	0.42
1:A:1130:A:H4'	9:I:3:GLN:NE2	2.35	0.42
7:G:26:PHE:CE2	7:G:30:ILE:HD11	2.55	0.42
11:K:33:THR:HG1	11:K:38:ASN:C	2.22	0.42
12:L:77:LEU:HD23	12:L:77:LEU:HA	1.90	0.42
14:N:29:ARG:HH22	14:N:41:ARG:HH12	1.67	0.42
1:A:936:C:H2'	1:A:937:A:O4'	2.20	0.42
1:A:1098:C:H2'	1:A:1099:G:O4'	2.19	0.42
4:D:187:ARG:HA	4:D:187:ARG:HD2	1.84	0.42
9:I:99:LEU:HB3	9:I:101:PHE:CD1	2.55	0.42
13:M:2:ALA:O	13:M:10:PRO:HD2	2.19	0.42
13:M:36:LYS:HB2	13:M:59:TYR:CE2	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1232:U:OP1	9:I:126:SER:HB3	2.18	0.42
3:C:180:ALA:HB3	3:C:203:PHE:HE1	1.84	0.42
10:J:9:ARG:HA	10:J:68:HIS:O	2.20	0.42
10:J:90:LEU:N	10:J:91:PRO:HD2	2.34	0.42
11:K:29:ILE:HG12	11:K:30:VAL:N	2.34	0.42
13:M:13:LYS:O	13:M:45:VAL:HG23	2.20	0.42
1:A:939:G:H5"	7:G:102:ARG:CZ	2.50	0.42
1:A:1308:U:H2'	1:A:1309:G:C8	2.55	0.42
1:A:1477:C:H2'	1:A:1478:C:C6	2.55	0.42
6:F:55:ASP:HB3	6:F:86:ARG:HH12	1.85	0.42
13:M:56:LEU:HD23	13:M:56:LEU:HA	1.88	0.42
1:A:463:A:H2'	1:A:474:G:O4'	2.19	0.42
1:A:721:G:OP2	18:R:53:ARG:HG3	2.20	0.42
2:B:28:PHE:HD2	2:B:32:ILE:HD11	1.85	0.42
2:B:112:VAL:HG22	2:B:149:LEU:HD13	2.02	0.42
7:G:111:ARG:NH1	7:G:113:GLU:OE2	2.53	0.42
9:I:111:ARG:NH1	9:I:112:LYS:O	2.52	0.42
13:M:87:TYR:N	19:S:73:GLU:O	2.53	0.42
1:A:695:A:H61	1:A:797:C:H1'	1.84	0.42
1:A:716:A:N3	11:K:118:GLY:HA2	2.34	0.42
10:J:39:PRO:HA	10:J:70:ARG:HD3	2.02	0.42
11:K:58:PRO:HA	11:K:90:GLY:HA3	2.02	0.42
1:A:413:G:H2'	1:A:428:G:N2	2.35	0.42
1:A:484:G:H1'	1:A:485:G:OP2	2.20	0.42
1:A:1077:G:N2	1:A:1080:A:OP2	2.47	0.42
1:A:1255:G:C6	1:A:1279:A:N7	2.88	0.42
2:B:84:GLU:OE2	2:B:233:SER:OG	2.38	0.42
2:B:157:ARG:HG2	2:B:158:LEU:N	2.35	0.42
4:D:36:ARG:HG2	4:D:38:TYR:CZ	2.55	0.42
5:E:137:GLU:O	5:E:141:GLN:HG3	2.20	0.42
6:F:26:ILE:HG23	6:F:79:LEU:HD21	2.02	0.42
8:H:105:ARG:HD3	8:H:105:ARG:HA	1.85	0.42
9:I:50:LEU:HD11	9:I:81:ILE:HD13	2.01	0.42
10:J:79:ARG:NH1	10:J:79:ARG:HA	2.34	0.42
13:M:65:LYS:H	13:M:65:LYS:HG2	1.50	0.42
1:A:384:G:H2'	1:A:385:C:C6	2.55	0.41
1:A:544:G:OP1	4:D:62:GLN:NE2	2.44	0.41
1:A:859:A:OP2	1:A:869:G:N1	2.36	0.41
3:C:17:ASP:O	3:C:54:ARG:NH2	2.53	0.41
5:E:82:VAL:HG21	5:E:138:ALA:HA	2.01	0.41
6:F:11:ASN:HD22	6:F:86:ARG:NH2	2.17	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:G:74:GLU:O	7:G:88:PRO:HA	2.20	0.41
7:G:116:ALA:O	7:G:120:ILE:HG12	2.20	0.41
13:M:90:LEU:HD23	13:M:93:ARG:HD2	2.02	0.41
1:A:397:A:H5'	1:A:398:C:OP1	2.20	0.41
1:A:1034:G:H2'	1:A:1035:A:H8	1.84	0.41
1:A:1205:U:H2'	1:A:1206:G:H8	1.84	0.41
1:A:1308:U:OP2	13:M:99:ARG:HG2	2.19	0.41
2:B:178:ARG:O	8:H:71:GLY:HA2	2.20	0.41
2:B:181:PHE:HD2	8:H:70:GLN:HB3	1.85	0.41
4:D:53:ASP:OD1	4:D:53:ASP:N	2.53	0.41
15:O:55:GLY:O	15:O:59:MET:HG3	2.20	0.41
1:A:349:A:H2'	1:A:350:G:O4'	2.20	0.41
1:A:975:A:H5"	1:A:1363:A:N6	2.34	0.41
11:K:62:GLN:HG3	11:K:97:ALA:HB2	2.01	0.41
16:P:4:ILE:O	16:P:66:PRO:HA	2.20	0.41
16:P:21:VAL:HG23	16:P:36:ILE:HG12	2.02	0.41
19:S:7:LYS:HE3	19:S:7:LYS:HB3	1.87	0.41
1:A:671:G:H5'	6:F:77:ARG:NH2	2.32	0.41
1:A:1004:A:H5"	1:A:1025:U:C4	2.55	0.41
10:J:47:PHE:HB3	14:N:34:TYR:HE2	1.85	0.41
1:A:488:C:H2'	1:A:489:C:C6	2.56	0.41
1:A:1162:C:H2'	1:A:1163:C:H6	1.84	0.41
1:A:1279:A:H8	1:A:1282:C:N3	2.17	0.41
2:B:28:PHE:CD2	2:B:190:THR:HA	2.56	0.41
1:A:110:C:H2'	1:A:111:G:O4'	2.20	0.41
1:A:986:A:H1'	19:S:54:GLY:O	2.20	0.41
1:A:1277:C:H1'	1:A:1282:C:H1'	2.02	0.41
12:L:126:LYS:HE2	12:L:126:LYS:HB2	1.86	0.41
14:N:8:GLU:O	14:N:11:LYS:HG3	2.21	0.41
3:C:136:GLN:O	3:C:140:ARG:HG3	2.20	0.41
4:D:61:LYS:HE3	4:D:61:LYS:HB3	1.92	0.41
6:F:76:ALA:O	6:F:80:ARG:HG3	2.20	0.41
8:H:104:ARG:HD3	8:H:104:ARG:HA	1.89	0.41
9:I:8:GLY:HA2	9:I:79:LEU:HD13	2.02	0.41
18:R:39:VAL:HG13	18:R:40:LEU:HD23	2.02	0.41
19:S:29:ARG:HD2	19:S:29:ARG:N	2.35	0.41
1:A:77:G:H2'	1:A:78:G:H8	1.83	0.41
1:A:841:U:H5'	1:A:848:C:C6	2.56	0.41
1:A:1231:G:H5"	9:I:126:SER:OG	2.21	0.41
2:B:223:ILE:H	2:B:223:ILE:HG13	1.74	0.41
14:N:22:THR:HB	14:N:33:VAL:HB	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:7:G:O6	5:E:92:LYS:NZ	2.36	0.41
1:A:116:A:H2'	1:A:117:G:H8	1.86	0.41
1:A:160:A:H1'	1:A:344:A:N7	2.36	0.41
1:A:190(K):G:H2'	1:A:190(L):U:C6	2.56	0.41
1:A:453:A:N6	1:A:480:U:O2	2.54	0.41
1:A:509:A:HO2'	1:A:510:A:P	2.43	0.41
1:A:911:U:H2'	1:A:912:C:C6	2.55	0.41
1:A:939:G:H2'	1:A:940:C:C6	2.56	0.41
1:A:1518[B]:MA6:H102	1:A:1519[B]:MA6:C10	2.47	0.41
10:J:19:SER:HB2	10:J:91:PRO:HG3	2.03	0.41
12:L:48:PRO:HD2	12:L:92:0TD:H8	2.03	0.41
12:L:89:ARG:HG2	12:L:97:ARG:HA	2.03	0.41
1:A:278:G:C6	17:Q:95:TYR:HD2	2.39	0.41
1:A:1006:C:H2'	1:A:1007:C:C6	2.56	0.41
1:A:1450:U:O2'	1:A:1451:A:H8	2.04	0.41
11:K:106:LYS:HD2	11:K:106:LYS:HA	1.94	0.41
1:A:176:C:H2'	1:A:177:C:C6	2.56	0.40
1:A:1003(A):G:C5	1:A:1004:A:H1'	2.56	0.40
1:A:1101:A:H4'	1:A:1102:A:O5'	2.21	0.40
1:A:1124:G:H5'	10:J:35:SER:HA	2.02	0.40
1:A:1175:G:H2'	1:A:1176:A:C8	2.56	0.40
1:A:1352:C:OP1	21:U:3:LYS:NZ	2.36	0.40
10:J:53:PRO:HB3	14:N:42:ILE:HD13	2.02	0.40
17:Q:56:VAL:HG21	17:Q:81:ARG:HD3	2.03	0.40
18:R:23:LYS:HD2	18:R:58:LEU:HD23	2.03	0.40
19:S:25:LYS:HD2	19:S:25:LYS:N	2.36	0.40
1:A:502:G:H2'	1:A:503:C:O4'	2.21	0.40
1:A:587:G:N2	1:A:754:C:OP2	2.53	0.40
1:A:620:C:H2'	1:A:621:A:O4'	2.21	0.40
1:A:666:G:H5'	1:A:726:C:H1'	2.04	0.40
1:A:1228:C:OP1	13:M:108:ARG:NH2	2.54	0.40
1:A:1372:U:H5"	9:I:71:SER:HB3	2.02	0.40
5:E:69:VAL:HA	5:E:70:PRO:HD3	1.94	0.40
5:E:147:ASP:N	5:E:147:ASP:OD1	2.53	0.40
7:G:12:LEU:H	7:G:12:LEU:HD12	1.85	0.40
15:O:26:GLU:HA	15:O:81:LEU:HD11	2.03	0.40
1:A:98:U:H2'	1:A:99:C:C6	2.57	0.40
1:A:222:U:H2'	1:A:223:U:C6	2.56	0.40
1:A:860:A:H2'	1:A:861:G:O4'	2.20	0.40
1:A:1057:G:H5"	3:C:154:SER:HB2	2.02	0.40
1:A:1061:G:N7	3:C:2:GLY:HA3	2.36	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1213:A:N6	1:A:1215:G:N3	2.68	0.40
1:A:1497:G:C2'	1:A:1498:UR3:H5'	2.51	0.40
2:B:155:LEU:HD23	2:B:155:LEU:HA	1.79	0.40
2:B:240:GLN:OE1	2:B:240:GLN:N	2.44	0.40
11:K:99:GLN:HE21	11:K:108:ILE:HD11	1.86	0.40
12:L:113:ARG:NH1	12:L:116:SER:H	2.20	0.40
2:B:74:LYS:O	2:B:78:GLN:HG3	2.21	0.40
1:A:815:A:N7	1:A:1509:C:O2'	2.47	0.40
1:A:824:C:H2'	1:A:825:G:C8	2.57	0.40
1:A:1211:U:H1'	1:A:1213:A:C2	2.57	0.40
5:E:11:ILE:HB	5:E:31:LEU:HB3	2.03	0.40
11:K:41:THR:HG21	11:K:71:LYS:HB3	2.03	0.40
13:M:87:TYR:CE1	13:M:91:ARG:HD3	2.57	0.40
20:T:81:LYS:O	20:T:85:MET:HG3	2.22	0.40

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

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:82:U:O2	1:A:1400:5MC:C2[3_545]	1.93	0.27
1:A:82:U:O2	1:A:1400:5MC:C4[3_545]	2.13	0.07

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	232/234 (99%)	213 (92%)	18 (8%)	1 (0%)	34 72
3	C	204/206 (99%)	186 (91%)	18 (9%)	0	100 100
4	D	206/208 (99%)	201 (98%)	5 (2%)	0	100 100
5	E	148/150 (99%)	143 (97%)	5 (3%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
6	F	99/101 (98%)	96 (97%)	3 (3%)	0	100	100
7	G	153/155 (99%)	150 (98%)	3 (2%)	0	100	100
8	H	136/138 (99%)	135 (99%)	1 (1%)	0	100	100
9	I	125/127 (98%)	117 (94%)	8 (6%)	0	100	100
10	J	96/98 (98%)	79 (82%)	14 (15%)	3 (3%)	4	30
11	K	114/116 (98%)	109 (96%)	5 (4%)	0	100	100
12	L	121/124 (98%)	107 (88%)	14 (12%)	0	100	100
13	M	116/118 (98%)	106 (91%)	10 (9%)	0	100	100
14	N	58/60 (97%)	49 (84%)	9 (16%)	0	100	100
15	O	85/87 (98%)	83 (98%)	2 (2%)	0	100	100
16	P	81/83 (98%)	78 (96%)	3 (4%)	0	100	100
17	Q	97/99 (98%)	95 (98%)	2 (2%)	0	100	100
18	R	68/70 (97%)	67 (98%)	1 (2%)	0	100	100
19	S	78/80 (98%)	73 (94%)	5 (6%)	0	100	100
20	T	97/99 (98%)	84 (87%)	10 (10%)	3 (3%)	4	30
21	U	22/24 (92%)	21 (96%)	1 (4%)	0	100	100
All	All	2336/2377 (98%)	2192 (94%)	137 (6%)	7 (0%)	41	75

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
10	J	55	LYS
20	T	74	LYS
20	T	75	ASN
2	B	14	GLY
10	J	56	HIS
20	T	73	HIS
10	J	54	PHE

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	202/202 (100%)	176 (87%)	26 (13%)	4	22
3	C	160/160 (100%)	138 (86%)	22 (14%)	3	20
4	D	180/180 (100%)	169 (94%)	11 (6%)	18	51
5	E	115/115 (100%)	106 (92%)	9 (8%)	12	42
6	F	90/90 (100%)	82 (91%)	8 (9%)	9	37
7	G	126/126 (100%)	116 (92%)	10 (8%)	12	41
8	H	119/119 (100%)	111 (93%)	8 (7%)	16	48
9	I	98/98 (100%)	83 (85%)	15 (15%)	2	17
10	J	87/88 (99%)	76 (87%)	11 (13%)	4	22
11	K	88/88 (100%)	83 (94%)	5 (6%)	20	53
12	L	103/103 (100%)	88 (85%)	15 (15%)	3	18
13	M	94/94 (100%)	80 (85%)	14 (15%)	3	17
14	N	49/49 (100%)	43 (88%)	6 (12%)	5	23
15	O	79/79 (100%)	66 (84%)	13 (16%)	2	13
16	P	72/72 (100%)	63 (88%)	9 (12%)	4	23
17	Q	94/94 (100%)	89 (95%)	5 (5%)	22	55
18	R	61/61 (100%)	57 (93%)	4 (7%)	16	49
19	S	71/71 (100%)	65 (92%)	6 (8%)	10	39
20	T	76/76 (100%)	65 (86%)	11 (14%)	3	18
21	U	19/19 (100%)	18 (95%)	1 (5%)	22	55
All	All	1983/1984 (100%)	1774 (90%)	209 (10%)	7	31

All (209) 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	12	GLU
2	B	21	ARG
2	B	24	TRP
2	B	33	TYR
2	B	39	ILE
2	B	44	LEU
2	B	69	LEU

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Mol	Chain	Res	Type
2	B	96	ARG
2	B	97	TRP
2	B	102	LEU
2	B	103	THR
2	B	127	ILE
2	B	144	ARG
2	B	153	ARG
2	B	154	LEU
2	B	157	ARG
2	B	172	ILE
2	B	178	ARG
2	B	195	ASP
2	B	206	ASP
2	B	212	GLN
2	B	236	TYR
3	C	10	PHE
3	C	11	ARG
3	C	31	HIS
3	C	34	LEU
3	C	52	LEU
3	C	58	GLU
3	C	90	GLU
3	C	91	LEU
3	C	94	LEU
3	C	95	THR
3	C	98	ASN
3	C	99	VAL
3	C	104	GLN
3	C	108	ASN
3	C	111	LEU
3	C	166	GLU
3	C	176	HIS
3	C	177	THR
3	C	178	LEU
3	C	188	LEU
3	C	191	THR
3	C	204	LEU
4	D	19	LEU
4	D	35	ARG
4	D	36	ARG
4	D	53	ASP
4	D	122	ARG

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Mol	Chain	Res	Type
4	D	150	GLU
4	D	155	LEU
4	D	157	LEU
4	D	160	GLN
4	D	192	GLU
4	D	202	LEU
5	E	5	ASP
5	E	6	PHE
5	E	12	LEU
5	E	26	PHE
5	E	41	VAL
5	E	79	GLU
5	E	118	ILE
5	E	150	ARG
5	E	151	LEU
6	F	10	LEU
6	F	19	LEU
6	F	24	GLU
6	F	32	ASN
6	F	43	LEU
6	F	72	VAL
6	F	82	ARG
6	F	95	GLU
7	G	3	ARG
7	G	8	GLU
7	G	27	ILE
7	G	47	CYS
7	G	67	GLU
7	G	84	ASN
7	G	104	LEU
7	G	113	GLU
7	G	136	LYS
7	G	149	ARG
8	H	26	VAL
8	H	63	LEU
8	H	83	ILE
8	H	85	ARG
8	H	88	LYS
8	H	91	ARG
8	H	92	ARG
8	H	98	LYS
9	I	11	LYS

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Mol	Chain	Res	Type
9	I	14	VAL
9	I	38	GLN
9	I	44	VAL
9	I	47	LEU
9	I	56	LEU
9	I	58	HIS
9	I	64	THR
9	I	79	LEU
9	I	83	ARG
9	I	91	ASP
9	I	96	LEU
9	I	99	LEU
9	I	113	LYS
9	I	118	LYS
10	J	3	LYS
10	J	38	ILE
10	J	45	ARG
10	J	55	LYS
10	J	60	ARG
10	J	62	HIS
10	J	73	ASP
10	J	78	ASN
10	J	80	LYS
10	J	85	LEU
10	J	95	GLU
11	K	12	ARG
11	K	29	ILE
11	K	33	THR
11	K	81	ASP
11	K	98	LEU
12	L	18	VAL
12	L	20	LYS
12	L	33	ARG
12	L	36	VAL
12	L	42	THR
12	L	47	LYS
12	L	53	ARG
12	L	59	ARG
12	L	79	GLU
12	L	80	HIS
12	L	82	VAL
12	L	96	VAL

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Mol	Chain	Res	Type
12	L	97	ARG
12	L	113	ARG
12	L	122	THR
13	M	7	VAL
13	M	12	ASN
13	M	14	ARG
13	M	44	ARG
13	M	48	LEU
13	M	50	GLU
13	M	59	TYR
13	M	64	TRP
13	M	65	LYS
13	M	70	LEU
13	M	80	ARG
13	M	108	ARG
13	M	110	ARG
13	M	115	LYS
14	N	12	ARG
14	N	22	THR
14	N	24	CYS
14	N	25	VAL
14	N	27	CYS
14	N	53	LEU
15	O	5	LYS
15	O	8	LYS
15	O	21	ASP
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	9	PHE
16	P	20	VAL
16	P	29	ASP
16	P	42	ARG
16	P	47	ASP
16	P	53	VAL

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Mol	Chain	Res	Type
16	P	54	GLU
16	P	55	ARG
16	P	62	VAL
17	Q	13	ASP
17	Q	34	LYS
17	Q	53	LEU
17	Q	60	ILE
17	Q	86	GLU
18	R	40	LEU
18	R	47	THR
18	R	69	THR
18	R	87	ARG
19	S	6	LYS
19	S	15	LEU
19	S	56	GLN
19	S	63	THR
19	S	71	LEU
19	S	79	THR
20	T	53	LEU
20	T	56	MET
20	T	57	ARG
20	T	62	LEU
20	T	72	LEU
20	T	73	HIS
20	T	74	LYS
20	T	75	ASN
20	T	84	LEU
20	T	92	LEU
20	T	93	GLU
21	U	25	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
2	B	204	ASN
2	B	212	GLN
9	I	3	GLN
16	P	82	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	1504/1522 (98%)	258 (17%)	46 (3%)

All (258) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	6	G
1	A	7	G
1	A	9	G
1	A	32	A
1	A	39	G
1	A	47	C
1	A	48	C
1	A	50	A
1	A	51	A
1	A	54	C
1	A	80	G
1	A	81	U
1	A	92	C
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
1	A	182	U
1	A	183	G
1	A	195	A
1	A	201	C
1	A	202	U
1	A	203	U
1	A	204	U
1	A	216	G
1	A	220	G
1	A	231	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

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Mol	Chain	Res	Type
1	A	289	G
1	A	319	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	346	G
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
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	517	G
1	A	518	C

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Mol	Chain	Res	Type
1	A	519	C
1	A	524	G
1	A	527	7MG
1	A	531	U
1	A	532	A
1	A	533	A
1	A	545	C
1	A	547	A
1	A	559	A
1	A	560	U
1	A	562	C
1	A	564	C
1	A	568	G
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	723	U
1	A	731	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	813	U

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Mol	Chain	Res	Type
1	A	815	A
1	A	817	C
1	A	818	G
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	902	G
1	A	914	A
1	A	922	G
1	A	926	G
1	A	927	G
1	A	934	C
1	A	937	A
1	A	942	G
1	A	960	U
1	A	961	U
1	A	966	M2G
1	A	969	A
1	A	971	G
1	A	974	A
1	A	975	A
1	A	976	G
1	A	977	A
1	A	982	U
1	A	984	C
1	A	989	C
1	A	991	U
1	A	992	U
1	A	993	G
1	A	994	A
1	A	995	C
1	A	1004	A
1	A	1005	A
1	A	1006	C
1	A	1020	U
1	A	1023	G
1	A	1024	G
1	A	1026	G
1	A	1030(B)	C

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Mol	Chain	Res	Type
1	A	1031	G
1	A	1045	C
1	A	1050	G
1	A	1053	G
1	A	1054	C
1	A	1065	U
1	A	1066	C
1	A	1068	G
1	A	1078	U
1	A	1085	U
1	A	1094	G
1	A	1095	U
1	A	1101	A
1	A	1124	G
1	A	1125	U
1	A	1126	U
1	A	1127	G
1	A	1130	A
1	A	1135	U
1	A	1137	C
1	A	1138	G
1	A	1139	G
1	A	1140	C
1	A	1146	A
1	A	1152	A
1	A	1159	U
1	A	1168	A
1	A	1171	G
1	A	1183	A
1	A	1191	A
1	A	1196	U
1	A	1197	G
1	A	1200	C
1	A	1201	A
1	A	1202	G
1	A	1207	2MG
1	A	1211	U
1	A	1212	U
1	A	1214	C
1	A	1224	G
1	A	1225	A
1	A	1227	A

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Mol	Chain	Res	Type
1	A	1228	C
1	A	1238	A
1	A	1241	G
1	A	1245	A
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	1289	A
1	A	1297	C
1	A	1300	G
1	A	1301	U
1	A	1302	U
1	A	1303	C
1	A	1305	G
1	A	1306	A
1	A	1316	G
1	A	1320	C
1	A	1322	C
1	A	1336	C
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	1370	G
1	A	1379	G
1	A	1381	U
1	A	1398	A
1	A	1400	5MC
1	A	1442	G
1	A	1446	A
1	A	1447	G
1	A	1451	A
1	A	1485	U

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Mol	Chain	Res	Type
1	A	1487	G
1	A	1490	C
1	A	1493	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
1	A	1531	A

All (46) 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	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
1	A	812	C
1	A	913	A
1	A	960	U
1	A	992	U
1	A	1049	U
1	A	1065	U

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Mol	Chain	Res	Type
1	A	1067	A
1	A	1126	U
1	A	1129	C
1	A	1139	G
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	PSU	A	516	1	18,21,22	2.00	6 (33%)	22,30,33	1.40	4 (18%)
1	M2G	A	966	1	20,27,28	1.41	4 (20%)	22,40,43	1.36	3 (13%)
1	5MC	A	1404	1	18,22,23	1.04	2 (11%)	26,32,35	0.93	2 (7%)
1	4OC	A	1402	1	20,23,24	0.96	2 (10%)	26,32,35	0.73	1 (3%)
1	PSU	A	1540	1	18,21,22	1.99	7 (38%)	22,30,33	1.46	3 (13%)
1	MA6	A	1518[A]	1	18,26,27	0.62	0	19,38,41	0.90	1 (5%)
1	MA6	A	1518[B]	1	18,26,27	0.65	0	19,38,41	0.92	1 (5%)
1	7MG	A	527	1	22,26,27	5.07	4 (18%)	29,39,42	2.11	9 (31%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
1	5MC	A	1400	1	18,22,23	1.07	2 (11%)	26,32,35	0.92	1 (3%)
1	MA6	A	1519[A]	1	18,26,27	0.65	0	19,38,41	0.97	1 (5%)
1	PSU	A	1541	22,1	18,21,22	2.00	6 (33%)	22,30,33	1.41	3 (13%)
1	2MG	A	1207	1	18,26,27	1.30	4 (22%)	16,38,41	1.40	2 (12%)
1	UR3	A	1498	1	19,22,23	0.69	1 (5%)	26,32,35	1.08	1 (3%)
1	MA6	A	1519[B]	1	18,26,27	0.68	0	19,38,41	0.92	1 (5%)
12	0TD	L	92	12	7,9,10	1.03	0	6,11,13	2.22	2 (33%)
1	5MC	A	967	1	18,22,23	1.02	2 (11%)	26,32,35	0.92	2 (7%)
1	5MC	A	1407	1	18,22,23	1.05	2 (11%)	26,32,35	0.99	2 (7%)

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	PSU	A	516	1	-	0/7/25/26	0/2/2/2
1	M2G	A	966	1	-	2/7/29/30	0/3/3/3
1	5MC	A	1404	1	-	0/7/25/26	0/2/2/2
1	4OC	A	1402	1	-	2/9/29/30	0/2/2/2
1	PSU	A	1540	1	-	0/7/25/26	0/2/2/2
1	MA6	A	1518[A]	1	-	1/7/29/30	0/3/3/3
1	MA6	A	1518[B]	1	-	0/7/29/30	0/3/3/3
1	7MG	A	527	1	-	2/7/37/38	0/3/3/3
1	5MC	A	1400	1	-	2/7/25/26	0/2/2/2
1	MA6	A	1519[A]	1	-	1/7/29/30	0/3/3/3
1	PSU	A	1541	22,1	-	1/7/25/26	0/2/2/2
1	2MG	A	1207	1	-	2/5/27/28	0/3/3/3
1	UR3	A	1498	1	-	0/7/25/26	0/2/2/2
1	MA6	A	1519[B]	1	-	0/7/29/30	0/3/3/3
12	0TD	L	92	12	-	2/7/12/14	-
1	5MC	A	967	1	-	2/7/25/26	0/2/2/2
1	5MC	A	1407	1	-	0/7/25/26	0/2/2/2

All (42) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	527	7MG	C8-N9	-23.03	1.33	1.46
1	A	527	7MG	C2-N2	3.80	1.43	1.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1540	PSU	C2-N1	-3.60	1.31	1.36
1	A	1541	PSU	C2-N1	-3.57	1.31	1.36
1	A	516	PSU	C2-N1	-3.57	1.31	1.36
1	A	1541	PSU	C6-C5	3.54	1.39	1.35
1	A	516	PSU	C6-C5	3.51	1.39	1.35
1	A	1540	PSU	C6-C5	3.47	1.39	1.35
1	A	516	PSU	C4-N3	-3.43	1.32	1.38
1	A	1540	PSU	C4-N3	-3.40	1.32	1.38
1	A	1541	PSU	C4-N3	-3.30	1.32	1.38
1	A	966	M2G	C6-N1	3.24	1.42	1.37
1	A	1540	PSU	C2-N3	-3.22	1.32	1.37
1	A	1541	PSU	C2-N3	-3.18	1.32	1.37
1	A	516	PSU	C2-N3	-3.14	1.32	1.37
1	A	966	M2G	C2-N3	3.10	1.34	1.30
1	A	1207	2MG	C2-N2	2.85	1.39	1.33
1	A	966	M2G	C2-N2	2.72	1.40	1.35
1	A	516	PSU	O4-C4	-2.72	1.18	1.23
1	A	1207	2MG	C6-N1	2.70	1.41	1.37
1	A	1541	PSU	O4-C4	-2.69	1.18	1.23
1	A	1207	2MG	C5-C6	-2.68	1.42	1.47
1	A	527	7MG	C5-N7	2.61	1.38	1.35
1	A	1540	PSU	O4-C4	-2.60	1.18	1.23
1	A	966	M2G	C5-C6	-2.54	1.42	1.47
1	A	1400	5MC	C2-N1	2.46	1.45	1.40
1	A	1407	5MC	C2-N1	2.43	1.45	1.40
1	A	1400	5MC	C2-N3	2.42	1.41	1.36
1	A	1404	5MC	C2-N1	2.35	1.45	1.40
1	A	1404	5MC	C2-N3	2.32	1.41	1.36
1	A	1402	4OC	C2-N3	2.31	1.41	1.36
1	A	967	5MC	C2-N3	2.30	1.41	1.36
1	A	1407	5MC	C2-N3	2.30	1.41	1.36
1	A	1207	2MG	C2-N1	2.23	1.40	1.36
1	A	967	5MC	C2-N1	2.22	1.44	1.40
1	A	1540	PSU	O2-C2	-2.20	1.18	1.23
1	A	1541	PSU	O2-C2	-2.20	1.18	1.23
1	A	527	7MG	C4-N3	2.19	1.39	1.34
1	A	516	PSU	O2-C2	-2.17	1.18	1.23
1	A	1402	4OC	O2-C2	-2.08	1.19	1.23
1	A	1540	PSU	C6-N1	-2.06	1.32	1.36
1	A	1498	UR3	C2-N1	2.03	1.41	1.38

All (39) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	527	7MG	C5-C6-N1	4.91	119.64	110.99
1	A	527	7MG	C2-N3-C4	4.50	120.33	112.30
1	A	527	7MG	N9-C4-N3	4.40	132.05	125.47
1	A	1207	2MG	O6-C6-N1	-4.07	115.85	120.65
1	A	527	7MG	C5-C4-N3	-4.02	120.46	128.13
12	L	92	0TD	CSB-SB-CB	-3.98	95.24	102.44
1	A	1540	PSU	N1-C2-N3	3.94	119.60	115.13
1	A	966	M2G	N1-C2-N2	-3.87	114.74	118.04
1	A	1498	UR3	C6-N1-C2	-3.72	118.45	121.79
1	A	516	PSU	N1-C2-N3	3.70	119.32	115.13
1	A	1541	PSU	N1-C2-N3	3.60	119.21	115.13
1	A	527	7MG	N9-C8-N7	3.54	108.45	103.38
1	A	1207	2MG	O6-C6-C5	3.48	131.17	124.37
1	A	966	M2G	O6-C6-C5	3.27	130.76	124.37
1	A	527	7MG	C2-N1-C6	-2.84	119.92	125.10
1	A	1541	PSU	C6-C5-C4	-2.82	116.22	118.20
12	L	92	0TD	OD1-CG-CB	-2.82	116.53	122.44
1	A	527	7MG	O6-C6-C5	-2.81	120.65	127.54
1	A	966	M2G	O6-C6-N1	-2.76	117.39	120.65
1	A	1540	PSU	C4-N3-C2	-2.75	122.38	126.34
1	A	1519[A]	MA6	N1-C6-N6	-2.69	114.22	117.06
1	A	1518[A]	MA6	N1-C6-N6	-2.66	114.26	117.06
1	A	1541	PSU	C4-N3-C2	-2.55	122.67	126.34
1	A	1518[B]	MA6	N1-C6-N6	-2.54	114.38	117.06
1	A	516	PSU	C4-N3-C2	-2.52	122.70	126.34
1	A	1407	5MC	N4-C4-N3	-2.49	113.94	118.48
1	A	516	PSU	C6-C5-C4	-2.45	116.48	118.20
1	A	527	7MG	C6-C5-C4	-2.44	117.60	122.62
1	A	1519[B]	MA6	N1-C6-N6	-2.36	114.57	117.06
1	A	967	5MC	N4-C4-N3	-2.35	114.19	118.48
1	A	1404	5MC	N4-C4-N3	-2.27	114.33	118.48
1	A	527	7MG	C6-C5-N7	2.27	135.49	131.91
1	A	1407	5MC	C5-C4-N3	2.19	124.03	121.67
1	A	1540	PSU	O2-C2-N1	-2.15	120.43	122.79
1	A	1402	4OC	C5-C4-N4	-2.11	118.31	122.61
1	A	1400	5MC	C5-C4-N3	2.09	123.93	121.67
1	A	516	PSU	O2-C2-N1	-2.06	120.53	122.79
1	A	967	5MC	C5-C4-N3	2.05	123.88	121.67
1	A	1404	5MC	C5-C4-N3	2.01	123.84	121.67

There are no chirality outliers.

All (17) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	527	7MG	C3'-C4'-C5'-O5'
1	A	1207	2MG	O4'-C4'-C5'-O5'
1	A	1518[A]	MA6	C5-C6-N6-C10
1	A	1207	2MG	C3'-C4'-C5'-O5'
1	A	1400	5MC	O4'-C4'-C5'-O5'
1	A	1402	4OC	O4'-C4'-C5'-O5'
1	A	1400	5MC	C3'-C4'-C5'-O5'
1	A	1402	4OC	C3'-C4'-C5'-O5'
1	A	527	7MG	O4'-C4'-C5'-O5'
1	A	966	M2G	O4'-C4'-C5'-O5'
1	A	967	5MC	O4'-C4'-C5'-O5'
1	A	1519[A]	MA6	C5-C6-N6-C9
1	A	966	M2G	C3'-C4'-C5'-O5'
12	L	92	0TD	CG-CB-SB-CSB
12	L	92	0TD	SB-CB-CG-OD1
1	A	1541	PSU	O4'-C1'-C5-C4
1	A	967	5MC	C3'-C4'-C5'-O5'

There are no ring outliers.

9 monomers are involved in 20 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	966	M2G	1	0
1	A	1518[A]	MA6	4	0
1	A	1518[B]	MA6	3	0
1	A	1400	5MC	1	2
1	A	1519[A]	MA6	1	0
1	A	1498	UR3	5	0
1	A	1519[B]	MA6	4	0
12	L	92	0TD	3	0
1	A	967	5MC	1	0

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 256 ligands modelled in this entry, 256 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data (i)

6.1 Protein, DNA and RNA chains (i)

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	1498/1522 (98%)	-0.27	38 (2%)	57	51	124, 195, 320, 468	0
2	B	234/234 (100%)	-0.35	6 (2%)	56	49	146, 204, 294, 345	0
3	C	206/206 (100%)	0.12	18 (8%)	10	11	216, 274, 324, 352	0
4	D	208/208 (100%)	-0.02	12 (5%)	23	20	147, 210, 275, 352	0
5	E	150/150 (100%)	-0.12	0	100	100	125, 165, 215, 248	0
6	F	101/101 (100%)	-0.34	3 (2%)	50	44	166, 206, 236, 279	0
7	G	155/155 (100%)	-0.11	5 (3%)	47	42	174, 245, 300, 335	0
8	H	138/138 (100%)	-0.45	2 (1%)	75	69	115, 151, 192, 252	0
9	I	127/127 (100%)	0.47	16 (12%)	3	5	199, 272, 353, 384	0
10	J	98/98 (100%)	0.39	9 (9%)	9	9	209, 280, 367, 444	0
11	K	116/116 (100%)	-0.21	3 (2%)	56	49	137, 175, 227, 259	0
12	L	123/124 (99%)	0.15	10 (8%)	12	12	119, 201, 249, 279	0
13	M	118/118 (100%)	0.17	15 (12%)	3	4	173, 227, 283, 338	0
14	N	60/60 (100%)	0.02	1 (1%)	70	64	192, 249, 301, 332	0
15	O	87/87 (100%)	-0.39	0	100	100	131, 173, 220, 240	0
16	P	83/83 (100%)	-0.33	0	100	100	151, 201, 244, 286	0
17	Q	99/99 (100%)	-0.15	4 (4%)	38	33	128, 160, 196, 235	0
18	R	70/70 (100%)	-0.18	1 (1%)	75	69	134, 177, 243, 286	0
19	S	80/80 (100%)	1.55	27 (33%)	0	0	196, 279, 328, 376	0
20	T	99/99 (100%)	-0.23	2 (2%)	65	60	148, 191, 243, 274	0
21	U	24/24 (100%)	1.83	10 (41%)	0	0	216, 236, 259, 287	0
All	All	3874/3899 (99%)	-0.11	182 (4%)	31	28	115, 206, 312, 468	0

All (182) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	1018	C	10.9
3	C	193	TYR	9.4
1	A	1017	G	9.0
1	A	990	C	8.9
1	A	1129	C	8.2
13	M	7	VAL	8.2
1	A	1019	C	7.3
1	A	412	A	7.3
10	J	33	GLN	7.1
1	A	1006	C	7.1
19	S	40	ILE	7.1
19	S	38	SER	7.1
21	U	17	THR	6.9
4	D	35	ARG	6.2
3	C	157	ILE	6.2
1	A	993	G	6.1
1	A	994	A	5.9
1	A	991	U	5.8
19	S	41	VAL	5.7
1	A	532	A	5.7
4	D	42	GLN	5.6
10	J	34	VAL	5.5
3	C	103	VAL	5.3
3	C	155	GLY	5.3
9	I	126	SER	5.3
9	I	15	ALA	5.2
19	S	79	THR	5.2
3	C	156	ARG	5.0
7	G	2	ALA	4.9
21	U	18	TYR	4.9
19	S	27	GLU	4.8
13	M	118	ALA	4.8
19	S	69	HIS	4.7
1	A	1443	G	4.6
13	M	119	GLY	4.5
13	M	105	THR	4.5
19	S	30	LEU	4.5
4	D	13	ARG	4.3
9	I	124	GLN	4.3
3	C	162	GLN	4.3
21	U	5	ASP	4.3
21	U	11	GLY	4.2
3	C	146	ALA	4.1

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Mol	Chain	Res	Type	RSRZ
21	U	24	ARG	4.1
13	M	2	ALA	4.1
1	A	1005	A	4.1
2	B	132	LYS	4.0
3	C	196	LEU	4.0
21	U	23	PRO	3.8
13	M	117	VAL	3.7
1	A	1036	G	3.7
19	S	35	SER	3.7
10	J	32	ALA	3.7
19	S	36	ARG	3.6
1	A	1030	C	3.6
4	D	45	GLN	3.6
19	S	28	LYS	3.6
6	F	89	MET	3.5
1	A	1257	U	3.5
3	C	65	ALA	3.5
13	M	8	GLU	3.5
19	S	42	PRO	3.5
1	A	1027	C	3.4
1	A	1029	C	3.4
8	H	116	LYS	3.4
10	J	45	ARG	3.4
12	L	128	ALA	3.4
4	D	37	PRO	3.4
19	S	19	VAL	3.3
10	J	96	ILE	3.3
13	M	6	GLY	3.2
19	S	77	THR	3.2
9	I	65	VAL	3.2
3	C	161	GLU	3.2
13	M	3	ARG	3.2
13	M	104	ARG	3.2
1	A	1208	C	3.2
3	C	195	VAL	3.1
9	I	4	TYR	3.1
9	I	125	TYR	3.1
4	D	40	PRO	3.0
19	S	71	LEU	3.0
4	D	41	GLY	3.0
19	S	5	LEU	3.0
19	S	47	HIS	3.0

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Mol	Chain	Res	Type	RSRZ
4	D	6	GLY	3.0
2	B	21	ARG	3.0
4	D	36	ARG	2.9
3	C	104	GLN	2.9
19	S	31	ILE	2.9
12	L	86	ARG	2.9
1	A	81	U	2.9
2	B	40	HIS	2.9
12	L	50	SER	2.9
11	K	19	ALA	2.9
12	L	32	PHE	2.9
18	R	88	LYS	2.9
12	L	49	ASN	2.8
19	S	70	LYS	2.8
13	M	44	ARG	2.8
3	C	102	ASN	2.8
3	C	66	VAL	2.8
9	I	70	LYS	2.8
13	M	9	ILE	2.8
7	G	4	ARG	2.7
3	C	192	THR	2.7
12	L	45	PRO	2.7
1	A	1016	A	2.7
3	C	67	THR	2.7
17	Q	63	ARG	2.7
12	L	48	PRO	2.7
3	C	159	GLY	2.6
1	A	952	U	2.6
1	A	1212	U	2.6
19	S	15	LEU	2.6
1	A	1037	C	2.6
19	S	20	LEU	2.6
19	S	39	THR	2.6
6	F	88	VAL	2.6
7	G	69	VAL	2.6
1	A	1028	C	2.5
1	A	1035	A	2.5
2	B	35	GLU	2.5
13	M	4	ILE	2.5
3	C	194	GLY	2.5
17	Q	44	ALA	2.5
6	F	7	ASN	2.5

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Mol	Chain	Res	Type	RSRZ
19	S	76	PRO	2.5
1	A	1217	C	2.4
20	T	9	ASN	2.4
4	D	10	ARG	2.4
1	A	1050	G	2.4
4	D	38	TYR	2.4
13	M	45	VAL	2.4
1	A	1531	A	2.4
19	S	44	MET	2.4
10	J	90	LEU	2.4
9	I	43	ALA	2.3
10	J	76	ASN	2.3
19	S	12	ASP	2.3
9	I	30	GLY	2.3
12	L	114	LYS	2.3
1	A	1492	A	2.3
7	G	3	ARG	2.3
19	S	16	LEU	2.3
4	D	7	PRO	2.3
7	G	103	TRP	2.3
21	U	9	ARG	2.3
9	I	13	ALA	2.3
21	U	25	LYS	2.2
11	K	42	TRP	2.2
9	I	7	THR	2.2
11	K	29	ILE	2.2
12	L	19	ARG	2.2
14	N	3	ARG	2.2
9	I	23	ASN	2.2
12	L	96	VAL	2.2
21	U	8	THR	2.2
1	A	1030(B)	C	2.2
1	A	1209	C	2.2
21	U	22	ARG	2.2
20	T	106	ALA	2.1
13	M	10	PRO	2.1
10	J	75	ILE	2.1
10	J	38	ILE	2.1
1	A	1051	C	2.1
19	S	4	SER	2.1
2	B	231	GLU	2.1
9	I	3	GLN	2.1

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Mol	Chain	Res	Type	RSRZ
9	I	47	LEU	2.1
1	A	1226	C	2.1
17	Q	98	LEU	2.1
1	A	353	A	2.1
8	H	1	MET	2.1
1	A	223	U	2.1
17	Q	45	HIS	2.0
1	A	224	C	2.0
19	S	46	GLY	2.0
1	A	1446	A	2.0
2	B	133	LYS	2.0
9	I	17	VAL	2.0
9	I	84	ALA	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	0.69	0.67	305,315,354,358	0
1	PSU	A	1541	20/21	0.70	0.55	310,320,357,440	0
1	PSU	A	516	20/21	0.87	0.10	206,229,245,257	0
1	5MC	A	1404	21/22	0.90	0.22	148,166,197,218	0
1	7MG	A	527	24/25	0.90	0.19	127,179,201,218	0
1	2MG	A	1207	24/25	0.90	0.23	250,270,291,306	0
12	0TD	L	92	10/11	0.90	1.00	192,255,325,334	0
1	5MC	A	1407	21/22	0.91	0.12	165,213,234,244	0
1	MA6	A	1519[B]	24/25	0.92	0.35	144,156,174,176	24
1	MA6	A	1518[A]	24/25	0.92	0.21	152,157,174,177	24
1	MA6	A	1518[B]	24/25	0.92	0.21	149,161,179,181	24
1	MA6	A	1519[A]	24/25	0.92	0.35	146,150,157,168	24
1	4OC	A	1402	22/23	0.93	0.25	157,174,198,199	0
1	UR3	A	1498	21/22	0.94	0.30	153,185,202,219	0
1	5MC	A	1400	21/22	0.94	0.14	152,183,200,213	0
1	5MC	A	967	21/22	0.96	0.13	171,187,219,234	0
1	M2G	A	966	25/26	0.96	0.14	201,210,227,233	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
22	MG	A	1797	1/1	-0.42	1.83	236,236,236,236	0
22	MG	A	1668	1/1	-0.16	0.71	202,202,202,202	0
22	MG	A	1725	1/1	-0.05	1.16	461,461,461,461	0
22	MG	A	1624	1/1	0.12	3.64	223,223,223,223	0
22	MG	A	1688	1/1	0.21	0.25	221,221,221,221	0
22	MG	A	1830	1/1	0.25	0.16	177,177,177,177	0
22	MG	A	1770	1/1	0.28	0.35	146,146,146,146	0
22	MG	A	1753	1/1	0.29	0.28	168,168,168,168	0
22	MG	A	1823	1/1	0.29	0.16	156,156,156,156	0
22	MG	A	1744	1/1	0.29	0.27	175,175,175,175	0
22	MG	A	1735	1/1	0.34	0.99	169,169,169,169	0
22	MG	A	1603	1/1	0.35	0.23	171,171,171,171	0
22	MG	A	1757	1/1	0.37	0.79	169,169,169,169	0
22	MG	A	1718	1/1	0.40	0.24	230,230,230,230	0
22	MG	A	1816	1/1	0.41	0.30	158,158,158,158	0
22	MG	A	1690	1/1	0.45	1.02	198,198,198,198	0
22	MG	Q	201	1/1	0.45	0.22	185,185,185,185	0
22	MG	A	1835	1/1	0.46	0.55	213,213,213,213	0
22	MG	D	304	1/1	0.51	0.62	186,186,186,186	0
22	MG	A	1826	1/1	0.52	0.66	174,174,174,174	0
22	MG	A	1665	1/1	0.53	0.40	168,168,168,168	0
22	MG	A	1743	1/1	0.53	1.24	176,176,176,176	0
22	MG	A	1810	1/1	0.54	0.14	222,222,222,222	0
22	MG	A	1791	1/1	0.55	0.25	220,220,220,220	0
22	MG	A	1792	1/1	0.55	0.39	190,190,190,190	0
22	MG	A	1724	1/1	0.55	0.66	154,154,154,154	0
22	MG	A	1803	1/1	0.55	0.86	163,163,163,163	0
22	MG	A	1730	1/1	0.56	0.47	187,187,187,187	0
22	MG	A	1817	1/1	0.56	0.29	165,165,165,165	0
22	MG	A	1786	1/1	0.58	1.26	149,149,149,149	0
22	MG	A	1684	1/1	0.58	0.74	156,156,156,156	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	P	102	1/1	0.60	0.14	191,191,191,191	0
22	MG	A	1807	1/1	0.61	0.13	162,162,162,162	0
22	MG	A	1703	1/1	0.62	0.24	252,252,252,252	0
22	MG	A	1775	1/1	0.62	0.55	145,145,145,145	0
22	MG	A	1666	1/1	0.62	0.76	140,140,140,140	0
22	MG	A	1687	1/1	0.64	0.08	220,220,220,220	0
22	MG	A	1815	1/1	0.65	0.77	162,162,162,162	0
22	MG	A	1662	1/1	0.66	0.31	138,138,138,138	0
22	MG	A	1833	1/1	0.66	0.12	177,177,177,177	0
22	MG	A	1780	1/1	0.67	0.86	171,171,171,171	0
22	MG	A	1601	1/1	0.67	0.89	192,192,192,192	0
22	MG	A	1832	1/1	0.67	0.13	201,201,201,201	0
22	MG	A	1692	1/1	0.67	0.84	185,185,185,185	0
22	MG	A	1708	1/1	0.68	0.61	151,151,151,151	0
22	MG	A	1613	1/1	0.68	0.24	197,197,197,197	0
22	MG	A	1787	1/1	0.68	1.02	168,168,168,168	0
22	MG	A	1836	1/1	0.70	0.36	180,180,180,180	0
22	MG	A	1783	1/1	0.70	0.83	114,114,114,114	0
22	MG	A	1742	1/1	0.70	0.85	161,161,161,161	0
22	MG	A	1707	1/1	0.70	0.16	187,187,187,187	0
22	MG	A	1633	1/1	0.71	0.78	169,169,169,169	0
22	MG	A	1778	1/1	0.71	0.12	142,142,142,142	0
22	MG	A	1755	1/1	0.71	0.43	153,153,153,153	0
22	MG	P	101	1/1	0.71	0.45	119,119,119,119	0
22	MG	A	1623	1/1	0.71	0.65	174,174,174,174	0
22	MG	A	1615	1/1	0.71	0.12	158,158,158,158	0
22	MG	S	101	1/1	0.72	0.20	177,177,177,177	0
22	MG	A	1801	1/1	0.73	0.48	243,243,243,243	0
22	MG	D	305	1/1	0.73	1.88	156,156,156,156	0
22	MG	A	1768	1/1	0.73	0.92	176,176,176,176	0
22	MG	A	1642	1/1	0.74	0.17	182,182,182,182	0
22	MG	A	1669	1/1	0.74	0.17	188,188,188,188	0
22	MG	A	1697	1/1	0.75	0.29	141,141,141,141	0
22	MG	D	303	1/1	0.75	0.17	158,158,158,158	0
22	MG	A	1715	1/1	0.75	0.59	200,200,200,200	0
22	MG	A	1831	1/1	0.75	0.11	173,173,173,173	0
22	MG	A	1738	1/1	0.76	0.45	165,165,165,165	0
22	MG	C	301	1/1	0.76	0.18	200,200,200,200	0
22	MG	A	1663	1/1	0.76	0.04	206,206,206,206	0
22	MG	A	1674	1/1	0.77	0.14	216,216,216,216	0
22	MG	A	1818	1/1	0.77	0.41	178,178,178,178	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1631	1/1	0.78	0.52	147,147,147,147	0
22	MG	A	1639	1/1	0.78	0.34	207,207,207,207	0
22	MG	A	1682	1/1	0.78	0.38	185,185,185,185	0
22	MG	A	1629	1/1	0.80	0.38	152,152,152,152	0
22	MG	A	1628	1/1	0.80	0.28	203,203,203,203	0
22	MG	A	1729	1/1	0.80	0.41	186,186,186,186	0
22	MG	A	1814	1/1	0.80	0.36	187,187,187,187	0
22	MG	A	1771	1/1	0.81	0.46	169,169,169,169	0
22	MG	A	1774	1/1	0.81	0.17	182,182,182,182	0
22	MG	A	1638	1/1	0.81	0.25	135,135,135,135	0
22	MG	A	1760	1/1	0.81	1.49	154,154,154,154	0
22	MG	A	1645	1/1	0.81	0.13	182,182,182,182	0
22	MG	A	1673	1/1	0.81	0.30	172,172,172,172	0
22	MG	A	1790	1/1	0.82	0.21	182,182,182,182	0
22	MG	A	1610	1/1	0.82	0.22	144,144,144,144	0
22	MG	A	1784	1/1	0.82	0.34	178,178,178,178	0
22	MG	A	1720	1/1	0.82	0.84	203,203,203,203	0
22	MG	A	1825	1/1	0.82	0.46	167,167,167,167	0
22	MG	A	1781	1/1	0.82	0.14	179,179,179,179	0
22	MG	A	1827	1/1	0.82	1.27	145,145,145,145	0
22	MG	A	1676	1/1	0.83	0.51	150,150,150,150	0
22	MG	A	1837	1/1	0.83	1.64	212,212,212,212	0
22	MG	A	1737	1/1	0.83	0.37	151,151,151,151	0
22	MG	A	1648	1/1	0.83	0.68	201,201,201,201	0
22	MG	A	1649	1/1	0.83	0.46	172,172,172,172	0
22	MG	A	1704	1/1	0.84	0.28	176,176,176,176	0
22	MG	A	1705	1/1	0.84	0.36	189,189,189,189	0
22	MG	A	1719	1/1	0.84	0.23	226,226,226,226	0
22	MG	A	1689	1/1	0.84	0.25	189,189,189,189	0
22	MG	A	1736	1/1	0.84	0.41	194,194,194,194	0
22	MG	A	1721	1/1	0.84	0.19	137,137,137,137	0
22	MG	A	1694	1/1	0.84	0.38	189,189,189,189	0
22	MG	A	1763	1/1	0.84	0.40	196,196,196,196	0
22	MG	A	1782	1/1	0.84	0.47	159,159,159,159	0
22	MG	A	1627	1/1	0.85	1.19	156,156,156,156	0
22	MG	A	1802	1/1	0.85	0.47	149,149,149,149	0
22	MG	A	1618	1/1	0.85	0.43	176,176,176,176	0
22	MG	A	1764	1/1	0.85	1.38	140,140,140,140	0
22	MG	A	1808	1/1	0.85	0.18	185,185,185,185	0
22	MG	A	1677	1/1	0.85	0.16	136,136,136,136	0
22	MG	A	1711	1/1	0.86	0.15	223,223,223,223	0
22	MG	B	302	1/1	0.86	0.59	239,239,239,239	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1805	1/1	0.86	0.22	160,160,160,160	0
22	MG	A	1749	1/1	0.86	0.21	171,171,171,171	0
22	MG	A	1605	1/1	0.86	1.53	150,150,150,150	0
22	MG	A	1612	1/1	0.87	0.27	184,184,184,184	0
22	MG	A	1691	1/1	0.87	0.32	169,169,169,169	0
22	MG	A	1811	1/1	0.87	0.39	215,215,215,215	0
22	MG	A	1795	1/1	0.87	1.05	179,179,179,179	0
22	MG	A	1812	1/1	0.88	0.23	237,237,237,237	0
22	MG	A	1647	1/1	0.88	0.84	197,197,197,197	0
22	MG	A	1695	1/1	0.88	0.25	166,166,166,166	0
22	MG	A	1680	1/1	0.88	0.44	148,148,148,148	0
22	MG	B	301	1/1	0.88	0.35	173,173,173,173	0
22	MG	A	1716	1/1	0.88	0.71	172,172,172,172	0
22	MG	A	1698	1/1	0.88	0.28	138,138,138,138	0
22	MG	C	302	1/1	0.88	0.23	204,204,204,204	0
22	MG	A	1617	1/1	0.88	0.23	117,117,117,117	0
22	MG	A	1634	1/1	0.88	0.30	180,180,180,180	0
22	MG	A	1739	1/1	0.88	0.35	98,98,98,98	0
22	MG	A	1740	1/1	0.88	0.29	156,156,156,156	0
22	MG	A	1621	1/1	0.88	0.24	176,176,176,176	0
22	MG	A	1788	1/1	0.88	0.37	182,182,182,182	0
22	MG	A	1693	1/1	0.88	0.13	214,214,214,214	0
22	MG	A	1675	1/1	0.89	0.24	200,200,200,200	0
22	MG	A	1779	1/1	0.89	0.44	201,201,201,201	0
22	MG	D	302	1/1	0.89	0.22	154,154,154,154	0
22	MG	A	1658	1/1	0.89	0.28	176,176,176,176	0
22	MG	A	1804	1/1	0.89	0.16	192,192,192,192	0
22	MG	A	1685	1/1	0.90	1.50	165,165,165,165	0
22	MG	A	1686	1/1	0.90	1.04	213,213,213,213	0
22	MG	A	1632	1/1	0.90	0.11	157,157,157,157	0
22	MG	A	1752	1/1	0.90	0.44	199,199,199,199	0
22	MG	A	1700	1/1	0.90	0.15	161,161,161,161	0
22	MG	A	1796	1/1	0.90	0.25	166,166,166,166	0
22	MG	A	1702	1/1	0.90	0.22	143,143,143,143	0
22	MG	A	1608	1/1	0.90	0.04	180,180,180,180	0
22	MG	A	1652	1/1	0.90	0.43	200,200,200,200	0
22	MG	A	1616	1/1	0.91	0.21	119,119,119,119	0
22	MG	A	1717	1/1	0.91	0.46	264,264,264,264	0
22	MG	A	1733	1/1	0.91	0.29	120,120,120,120	0
22	MG	A	1722	1/1	0.91	0.63	167,167,167,167	0
22	MG	A	1785	1/1	0.91	0.37	145,145,145,145	0
22	MG	A	1723	1/1	0.91	0.17	179,179,179,179	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1800	1/1	0.91	0.41	144,144,144,144	0
22	MG	A	1626	1/1	0.91	0.78	140,140,140,140	0
22	MG	A	1660	1/1	0.91	0.10	157,157,157,157	0
23	ZN	D	301	1/1	0.91	0.41	243,243,243,243	0
22	MG	A	1706	1/1	0.92	0.06	169,169,169,169	0
22	MG	A	1670	1/1	0.92	0.34	176,176,176,176	0
22	MG	A	1758	1/1	0.92	0.14	151,151,151,151	0
22	MG	A	1611	1/1	0.92	0.14	143,143,143,143	0
22	MG	A	1829	1/1	0.92	0.26	163,163,163,163	0
22	MG	A	1622	1/1	0.92	0.14	124,124,124,124	0
22	MG	A	1614	1/1	0.92	0.18	141,141,141,141	0
22	MG	A	1664	1/1	0.92	0.09	161,161,161,161	0
22	MG	A	1635	1/1	0.92	0.27	189,189,189,189	0
22	MG	A	1834	1/1	0.92	1.00	163,163,163,163	0
22	MG	A	1637	1/1	0.92	0.47	175,175,175,175	0
22	MG	A	1619	1/1	0.92	0.21	145,145,145,145	0
22	MG	A	1625	1/1	0.92	0.23	190,190,190,190	0
22	MG	A	1799	1/1	0.93	0.89	154,154,154,154	0
22	MG	A	1806	1/1	0.93	0.16	189,189,189,189	0
22	MG	A	1699	1/1	0.93	0.20	177,177,177,177	0
22	MG	E	202	1/1	0.93	0.10	169,169,169,169	0
22	MG	A	1630	1/1	0.93	0.24	147,147,147,147	0
22	MG	A	1679	1/1	0.93	0.19	225,225,225,225	0
22	MG	A	1731	1/1	0.93	2.01	172,172,172,172	0
22	MG	A	1824	1/1	0.93	0.29	140,140,140,140	0
22	MG	A	1640	1/1	0.93	0.18	143,143,143,143	0
22	MG	A	1681	1/1	0.94	0.84	153,153,153,153	0
22	MG	A	1828	1/1	0.94	0.10	156,156,156,156	0
22	MG	A	1607	1/1	0.94	0.40	166,166,166,166	0
22	MG	E	201	1/1	0.94	0.21	160,160,160,160	0
22	MG	A	1820	1/1	0.94	0.36	162,162,162,162	0
22	MG	A	1714	1/1	0.94	0.24	184,184,184,184	0
22	MG	A	1659	1/1	0.94	0.24	165,165,165,165	0
22	MG	A	1769	1/1	0.94	0.43	157,157,157,157	0
22	MG	C	303	1/1	0.94	0.15	232,232,232,232	0
22	MG	A	1750	1/1	0.94	0.26	175,175,175,175	0
22	MG	A	1813	1/1	0.95	0.08	177,177,177,177	0
22	MG	A	1657	1/1	0.95	0.38	144,144,144,144	0
22	MG	A	1667	1/1	0.95	0.34	164,164,164,164	0
22	MG	A	1747	1/1	0.95	0.20	169,169,169,169	0
22	MG	A	1713	1/1	0.95	0.27	185,185,185,185	0
22	MG	A	1728	1/1	0.95	0.13	186,186,186,186	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1773	1/1	0.95	0.31	213,213,213,213	0
22	MG	A	1822	1/1	0.95	0.35	146,146,146,146	0
22	MG	A	1761	1/1	0.95	0.32	176,176,176,176	0
22	MG	A	1809	1/1	0.95	0.33	210,210,210,210	0
22	MG	A	1620	1/1	0.95	0.56	191,191,191,191	0
22	MG	A	1776	1/1	0.95	0.96	118,118,118,118	0
22	MG	A	1777	1/1	0.95	0.76	162,162,162,162	0
23	ZN	N	101	1/1	0.95	0.23	279,279,279,279	0
22	MG	A	1766	1/1	0.96	0.24	188,188,188,188	0
22	MG	A	1767	1/1	0.96	0.51	127,127,127,127	0
22	MG	A	1661	1/1	0.96	0.21	192,192,192,192	0
22	MG	A	1644	1/1	0.96	0.94	134,134,134,134	0
22	MG	A	1726	1/1	0.96	0.41	162,162,162,162	0
22	MG	A	1650	1/1	0.96	0.39	135,135,135,135	0
22	MG	A	1710	1/1	0.96	0.23	140,140,140,140	0
22	MG	A	1741	1/1	0.96	0.68	143,143,143,143	0
22	MG	F	201	1/1	0.96	0.03	156,156,156,156	0
22	MG	A	1609	1/1	0.96	0.14	149,149,149,149	0
22	MG	A	1789	1/1	0.96	0.25	233,233,233,233	0
22	MG	A	1683	1/1	0.96	0.13	187,187,187,187	0
22	MG	A	1696	1/1	0.96	0.48	379,379,379,379	0
22	MG	A	1655	1/1	0.96	0.34	169,169,169,169	0
22	MG	A	1748	1/1	0.96	0.21	182,182,182,182	0
22	MG	A	1819	1/1	0.97	0.36	179,179,179,179	0
22	MG	A	1646	1/1	0.97	1.01	179,179,179,179	0
22	MG	A	1606	1/1	0.97	0.13	154,154,154,154	0
22	MG	A	1701	1/1	0.97	0.22	263,263,263,263	0
22	MG	A	1709	1/1	0.97	0.58	243,243,243,243	0
22	MG	A	1654	1/1	0.97	0.40	145,145,145,145	0
22	MG	I	201	1/1	0.97	0.52	169,169,169,169	0
22	MG	A	1678	1/1	0.97	0.94	208,208,208,208	0
22	MG	A	1602	1/1	0.97	0.88	190,190,190,190	0
22	MG	A	1641	1/1	0.97	0.74	195,195,195,195	0
22	MG	A	1754	1/1	0.97	0.15	201,201,201,201	0
22	MG	A	1732	1/1	0.97	0.22	232,232,232,232	0
22	MG	A	1756	1/1	0.97	0.20	100,100,100,100	0
22	MG	A	1653	1/1	0.98	0.08	136,136,136,136	0
22	MG	A	1765	1/1	0.98	0.19	193,193,193,193	0
22	MG	A	1656	1/1	0.98	0.29	216,216,216,216	0
22	MG	A	1727	1/1	0.98	0.63	177,177,177,177	0
22	MG	A	1751	1/1	0.98	0.19	142,142,142,142	0
22	MG	A	1759	1/1	0.98	0.39	155,155,155,155	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
22	MG	A	1745	1/1	0.98	0.20	143,143,143,143	0
22	MG	A	1793	1/1	0.98	0.36	138,138,138,138	0
22	MG	A	1794	1/1	0.98	0.06	125,125,125,125	0
22	MG	A	1746	1/1	0.98	0.19	150,150,150,150	0
22	MG	A	1772	1/1	0.98	0.40	161,161,161,161	0
22	MG	A	1762	1/1	0.98	0.11	143,143,143,143	0
22	MG	A	1798	1/1	0.98	0.40	132,132,132,132	0
22	MG	A	1672	1/1	0.98	0.11	210,210,210,210	0
22	MG	A	1671	1/1	0.99	0.24	176,176,176,176	0
22	MG	A	1712	1/1	0.99	0.40	197,197,197,197	0
22	MG	A	1604	1/1	0.99	0.19	192,192,192,192	0
22	MG	A	1734	1/1	0.99	0.22	173,173,173,173	0
22	MG	A	1651	1/1	0.99	0.16	126,126,126,126	0
22	MG	A	1636	1/1	0.99	0.28	128,128,128,128	0
22	MG	A	1821	1/1	0.99	0.22	165,165,165,165	0
22	MG	A	1643	1/1	1.00	0.09	148,148,148,148	0

6.5 Other polymers (i)

There are no such residues in this entry.