



# Full wwPDB X-ray Structure Validation Report ⓘ

Feb 1, 2016 – 04:00 PM GMT

PDB ID : 4DV6  
Title : Crystal structure of the *Thermus thermophilus* 30S ribosomal subunit with a 16S rRNA mutation, A915G  
Authors : Demirci, H.; Murphy IV, F.; Murphy, E.; Gregory, S.T.; Dahlberg, A.E.; Jogl, G.  
Deposited on : 2012-02-22  
Resolution : 3.30 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](mailto:validation@mail.wwpdb.org)  
A user guide is available at  
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>  
with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467  
Mogul : 1.7 (RC4), CSD as536be (2015)  
Xtriage (Phenix) : 1.9-1692  
EDS : rb-20026688  
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)  
Refmac : 5.8.0135  
CCP4 : 6.5.0  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : trunk26865

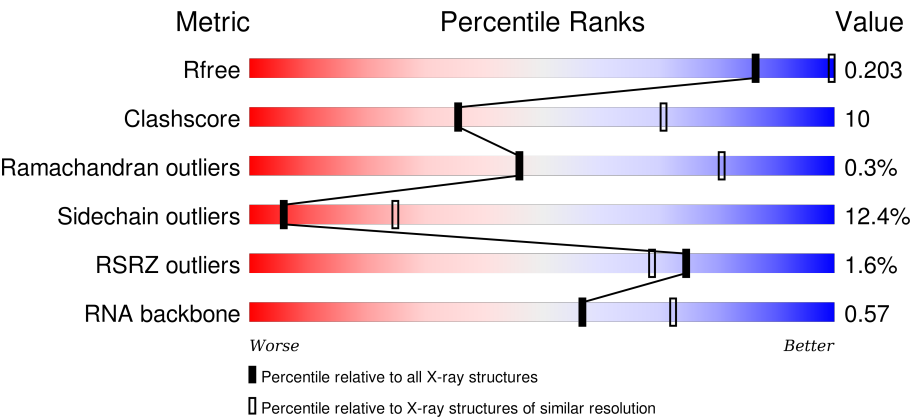
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.30 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 <sub>free</sub>	91344	2060 (3.40-3.20)
Clashscore	102246	1058 (3.38-3.22)
Ramachandran outliers	100387	1038 (3.38-3.22)
Sidechain outliers	100360	1037 (3.38-3.22)
RSRZ outliers	91569	2070 (3.40-3.20)
RNA backbone	2183	1005 (3.82-2.78)

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 on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. 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	<div><div>2%</div><div><div></div><div>57%</div><div>31%</div><div>10%</div><div>..</div></div></div>
2	B	256	<div><div>%</div><div><div></div><div>57%</div><div>28%</div><div>6%</div><div>9%</div></div></div>
3	C	239	<div><div>3%</div><div><div></div><div>58%</div><div>24%</div><div>•</div><div>14%</div></div></div>
4	D	209	<div><div>3%</div><div><div></div><div>68%</div><div>24%</div><div>6%</div></div></div>

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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	

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
22	MG	A	1614	-	-	-	X
22	MG	A	1623	-	-	-	X
22	MG	A	1644	-	-	-	X
22	MG	A	1696	-	-	-	X
22	MG	A	1697	-	-	-	X
22	MG	A	1700	-	-	-	X
22	MG	A	1705	-	-	-	X
22	MG	A	1713	-	-	-	X

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
22	MG	A	1717	-	-	-	X
22	MG	A	1722	-	-	-	X
22	MG	A	1726	-	-	-	X
22	MG	A	1728	-	-	-	X
22	MG	A	1731	-	-	-	X
22	MG	A	1736	-	-	-	X
22	MG	A	1742	-	-	-	X
22	MG	A	1747	-	-	-	X
22	MG	A	1751	-	-	-	X
22	MG	A	1768	-	-	-	X
22	MG	A	1772	-	-	-	X
22	MG	A	1779	-	-	-	X
22	MG	A	1781	-	-	-	X
22	MG	A	1808	-	-	-	X
22	MG	A	1822	-	-	-	X
22	MG	A	1837	-	-	-	X
22	MG	A	1838	-	-	-	X
22	MG	A	1839	-	-	-	X
22	MG	A	1841	-	-	-	X
22	MG	A	1850	-	-	-	X
22	MG	A	1856	-	-	-	X
22	MG	A	1880	-	-	-	X
22	MG	A	1881	-	-	-	X
22	MG	A	1892	-	-	-	X
22	MG	D	302	-	-	-	X
22	MG	D	306	-	-	-	X
22	MG	N	102	-	-	-	X
22	MG	Q	203	-	-	-	X
22	MG	S	101	-	-	-	X

## 2 Entry composition

There are 24 unique types of molecules in this entry. The entry contains 52623 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 rRNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	1512	Total	C	N	O	P	0	6	0
			32645	14540	6039	10548	1518			

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	915	G	A	ENGINEERED MUTATION	GB M26923.1
A	1534	C	A	CONFLICT	GB M26923.1
A	1535	A	C	CONFLICT	GB M26923.1

- Molecule 2 is a protein called ribosomal protein S2.

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

- Molecule 3 is a protein called ribosomal protein S3.

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

- Molecule 4 is a protein called ribosomal protein S4.

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

- Molecule 5 is a protein called ribosomal protein S5.

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

- Molecule 6 is a protein called ribosomal protein S6.

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

- Molecule 7 is a protein called ribosomal protein S7.

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

- Molecule 8 is a protein called ribosomal protein S8.

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

- Molecule 9 is a protein called ribosomal protein S9.

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

- Molecule 10 is a protein called ribosomal protein S10.

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

- Molecule 11 is a protein called ribosomal protein S11.

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

- Molecule 12 is a protein called ribosomal protein S12.

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

- Molecule 13 is a protein called ribosomal protein S13.

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

- Molecule 14 is a protein called ribosomal protein S14.

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

- Molecule 15 is a protein called ribosomal protein S15.

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

- Molecule 16 is a protein called ribosomal protein S16.

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

- Molecule 17 is a protein called ribosomal protein S17.

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

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Q	96	GLN	GLU	CONFLICT	UNP Q5SHP7

- Molecule 18 is a protein called ribosomal protein S18.

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

- Molecule 19 is a protein called ribosomal protein S19.

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

- Molecule 20 is a protein called ribosomal protein S20.

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

- Molecule 21 is a protein called ribosomal protein THX.

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

- Molecule 22 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
22	P	3	Total	Mg	0	0
			3	3		
22	J	1	Total	Mg	0	0
			1	1		
22	Q	4	Total	Mg	0	0
			4	4		
22	D	5	Total	Mg	0	0
			5	5		
22	E	2	Total	Mg	0	0
			2	2		
22	B	2	Total	Mg	0	0
			2	2		
22	C	2	Total	Mg	0	0
			2	2		
22	A	295	Total	Mg	0	0
			295	295		
22	T	1	Total	Mg	0	0
			1	1		

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
22	N	1	Total 1	Mg 1	0	0
22	L	1	Total 1	Mg 1	0	0
22	S	1	Total 1	Mg 1	0	0
22	F	1	Total 1	Mg 1	0	0
22	M	1	Total 1	Mg 1	0	0

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

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

- Molecule 24 is water.

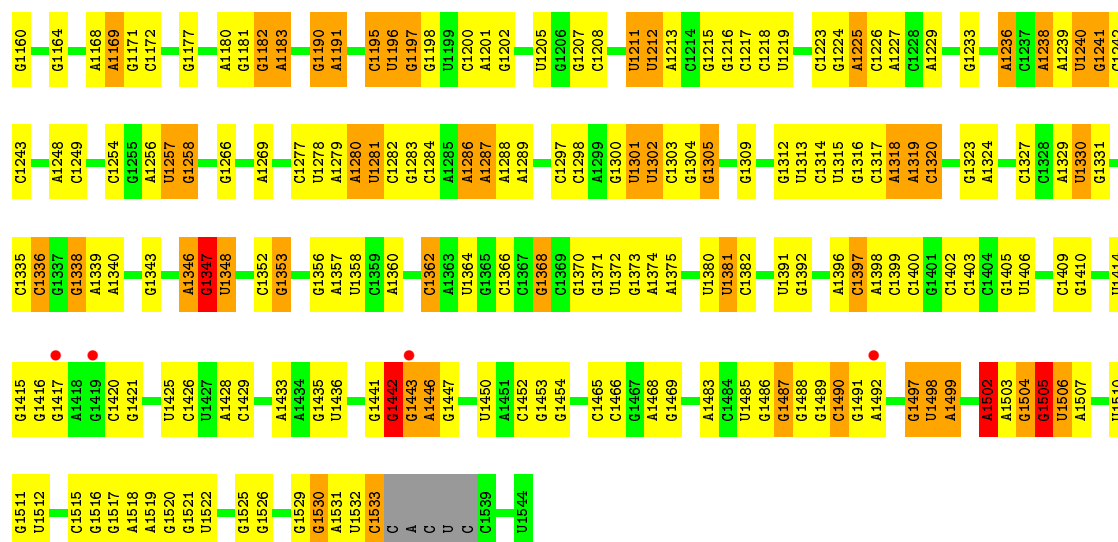
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
24	A	515	Total 515	O 515	0	0
24	B	1	Total 1	O 1	0	0
24	C	1	Total 1	O 1	0	0
24	D	4	Total 4	O 4	0	0
24	E	7	Total 7	O 7	0	0
24	G	1	Total 1	O 1	0	0
24	J	4	Total 4	O 4	0	0
24	L	3	Total 3	O 3	0	0
24	M	7	Total 7	O 7	0	0
24	N	3	Total 3	O 3	0	0

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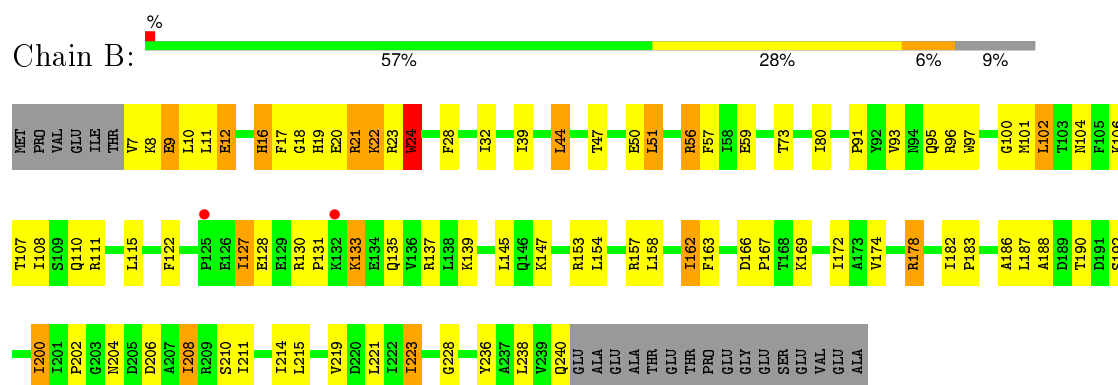
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
24	P	14	Total 14	O 14	0	0
24	Q	3	Total 3	O 3	0	0
24	S	3	Total 3	O 3	0	0
24	T	1	Total 1	O 1	0	0
24	U	1	Total 1	O 1	0	0

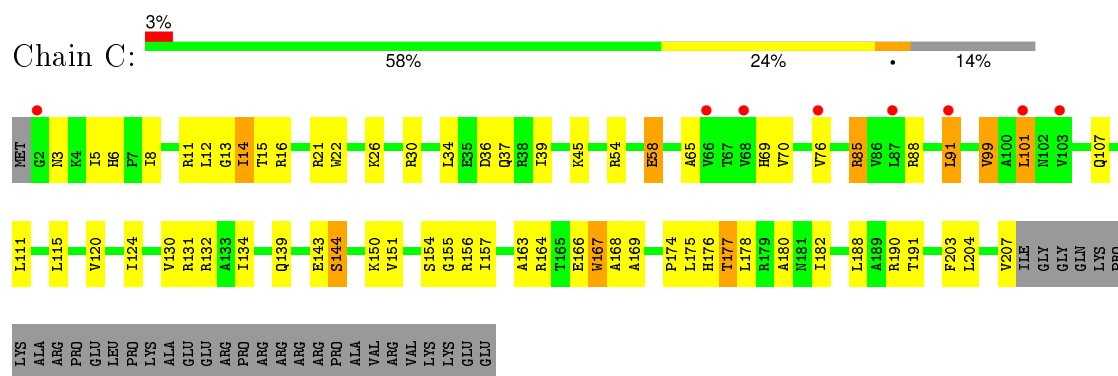




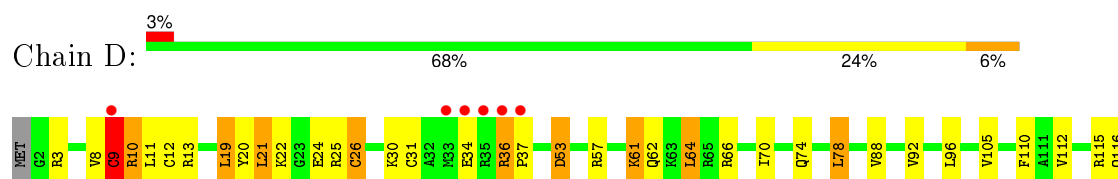
• Molecule 2: ribosomal protein S2

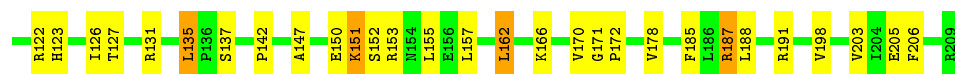


• Molecule 3: ribosomal protein S3



• Molecule 4: ribosomal protein S4





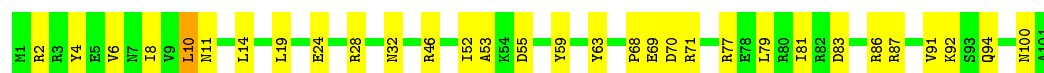
• Molecule 5: ribosomal protein S5

Chain E: 59% 30% 7%



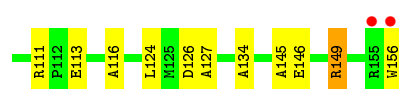
• Molecule 6: ribosomal protein S6

Chain F: 69% 30% 1%



• Molecule 7: ribosomal protein S7

Chain G: 3% 72% 24%



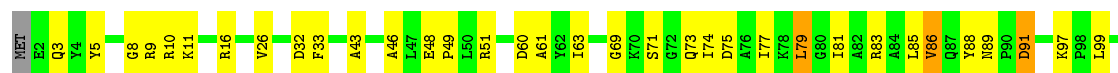
• Molecule 8: ribosomal protein S8

Chain H: 71% 26% 3%

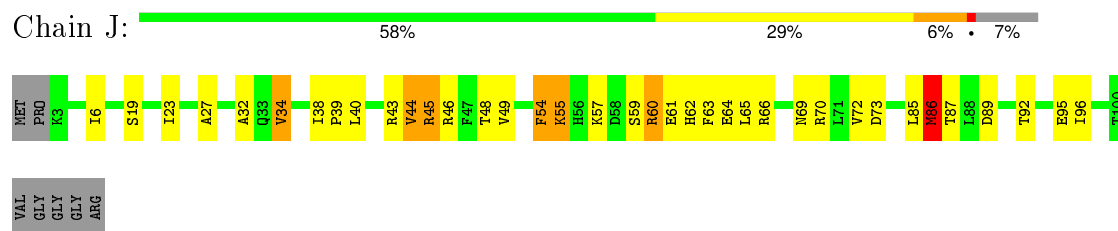


• Molecule 9: ribosomal protein S9

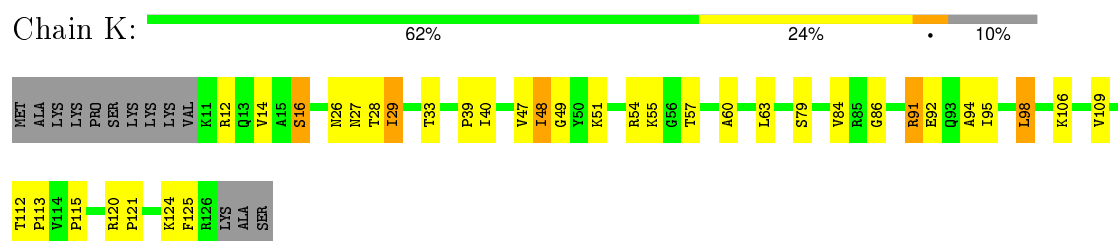
Chain I: 63% 33% 4%



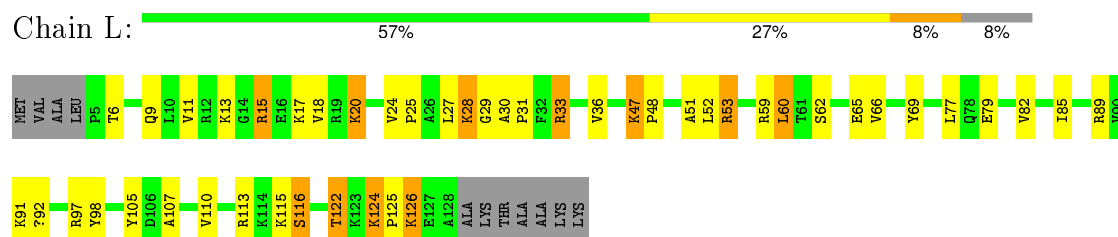
- Molecule 10: ribosomal protein S10



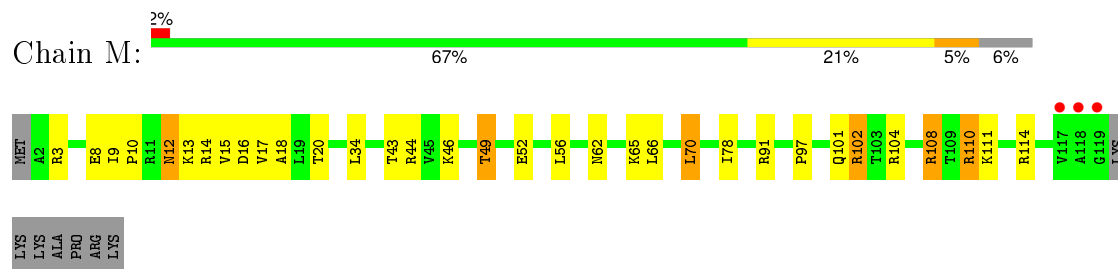
- Molecule 11: ribosomal protein S11



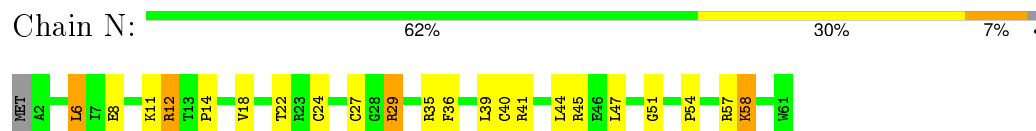
- Molecule 12: ribosomal protein S12



- Molecule 13: ribosomal protein S13



- Molecule 14: ribosomal protein S14



- Molecule 15: ribosomal protein S15

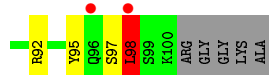




- Molecule 16: ribosomal protein S16



- Molecule 17: ribosomal protein S17



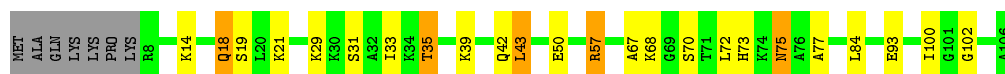
- Molecule 18: ribosomal protein S18



- Molecule 19: ribosomal protein S19



- Molecule 20: ribosomal protein S20



- Molecule 21: ribosomal protein THX



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	401.25Å 401.25Å 176.04Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	34.55 – 3.30 34.55 – 3.30	Depositor EDS
% Data completeness (in resolution range)	98.3 (34.55-3.30) 98.2 (34.55-3.30)	Depositor EDS
$R_{merge}$	0.10	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.83 (at 3.32Å)	Xtriage
Refinement program	PHENIX (phenix.refine: dev_978)	Depositor
R, $R_{free}$	0.163 , 0.208 0.163 , 0.203	Depositor DCC
$R_{free}$ test set	10600 reflections (5.31%)	DCC
Wilson B-factor (Å <sup>2</sup> )	114.1	Xtriage
Anisotropy	0.314	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.26 , 83.0	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtriage
Outliers	2 of 210534 reflections (0.001%)	Xtriage
$F_o, F_c$ correlation	0.97	EDS
Total number of atoms	52623	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	131.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.67% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.375 respectively for untwinned datasets, and 0.333, 0.2 for perfectly twinned datasets.



## 5 Model quality ⓘ

### 5.1 Standard geometry ⓘ

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

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	0.54	1/36140 (0.0%)	0.94	56/56398 (0.1%)
2	B	0.37	0/1935	0.59	0/2609
3	C	0.33	0/1636	0.57	0/2205
4	D	0.42	1/1733 (0.1%)	0.59	0/2318
5	E	0.46	0/1162	0.68	0/1564
6	F	0.31	0/856	0.51	0/1154
7	G	0.35	0/1276	0.53	0/1709
8	H	0.46	0/1136	0.67	0/1527
9	I	0.31	0/1029	0.56	0/1379
10	J	0.35	0/805	0.64	0/1082
11	K	0.38	0/879	0.62	0/1187
12	L	0.44	0/977	0.68	0/1306
13	M	0.32	0/947	0.54	0/1270
14	N	0.38	0/501	0.60	0/664
15	O	0.38	0/740	0.56	0/987
16	P	0.42	0/716	0.64	0/963
17	Q	0.44	0/836	0.68	1/1117 (0.1%)
18	R	0.38	0/579	0.55	0/768
19	S	0.29	0/661	0.57	0/890
20	T	0.42	0/765	0.66	0/1007
21	U	0.29	0/212	0.51	0/277
All	All	0.49	2/55521 (0.0%)	0.85	57/82381 (0.1%)

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

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Mol	Chain	#Chirality outliers	#Planarity outliers
10	J	0	1
20	T	0	1
All	All	0	4

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	279	A	N9-C4	-8.67	1.32	1.37
4	D	9	CYS	CB-SG	5.69	1.92	1.82

All (57) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	328	C	N1-C2-O2	10.47	125.18	118.90
1	A	328	C	N3-C2-O2	-9.28	115.41	121.90
1	A	266	G	C6-C5-N7	-8.19	125.49	130.40
1	A	839	U	C2-N1-C1'	7.81	127.07	117.70
1	A	481	G	N3-C4-N9	7.81	130.69	126.00
1	A	839	U	N1-C2-O2	7.67	128.17	122.80
1	A	1502	A	C6-C5-N7	-7.51	127.04	132.30
1	A	266	G	N1-C6-O6	7.36	124.31	119.90
1	A	1505	G	C8-N9-C4	-7.29	103.48	106.40
1	A	279	A	C2-N3-C4	-7.28	106.96	110.60
1	A	279	A	C5-N7-C8	-7.24	100.28	103.90
1	A	266	G	C4-C5-N7	7.20	113.68	110.80
1	A	481	G	N3-C4-C5	-7.19	125.00	128.60
1	A	1502	A	C5-N7-C8	-7.04	100.38	103.90
1	A	839	U	N3-C2-O2	-6.88	117.38	122.20
1	A	328	C	C2-N1-C1'	6.72	126.19	118.80
1	A	484	G	N3-C4-N9	6.35	129.81	126.00
1	A	1502	A	C4-C5-N7	6.34	113.87	110.70
1	A	1502	A	N1-C6-N6	6.29	122.37	118.60
1	A	1502	A	C2-N3-C4	-6.20	107.50	110.60
1	A	117	G	N1-C6-O6	6.19	123.61	119.90
1	A	559	A	C8-N9-C4	-6.10	103.36	105.80
1	A	728	A	N1-C6-N6	5.98	122.19	118.60
1	A	1502	A	N7-C8-N9	5.98	116.79	113.80
1	A	181	G	N3-C4-C5	-5.95	125.62	128.60
1	A	279	A	N1-C6-N6	5.91	122.15	118.60
17	Q	98	LEU	CA-CB-CG	5.91	128.90	115.30
1	A	12	U	C6-N1-C2	-5.82	117.51	121.00
1	A	266	G	C4-N9-C1'	5.75	133.97	126.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1505	G	N7-C8-N9	5.73	115.97	113.10
1	A	1347	G	C4-N9-C1'	-5.67	119.12	126.50
1	A	266	G	C5-N7-C8	-5.64	101.48	104.30
1	A	960	U	N1-C2-O2	5.62	126.73	122.80
1	A	484	G	C4-N9-C1'	5.58	133.76	126.50
1	A	484	G	N3-C4-C5	-5.58	125.81	128.60
1	A	1442	G	C4-N9-C1'	5.57	133.74	126.50
1	A	365	U	C2-N1-C1'	5.50	124.31	117.70
1	A	7	G	C4-N9-C1'	-5.49	119.36	126.50
1	A	266	G	C5-C6-O6	-5.46	125.32	128.60
1	A	266	G	C8-N9-C1'	-5.39	119.99	127.00
1	A	328	C	N3-C4-N4	-5.38	114.23	118.00
1	A	129(A)	G	C4-N9-C1'	5.33	133.43	126.50
1	A	945	G	C8-N9-C4	-5.30	104.28	106.40
1	A	723	U	C5-C6-N1	5.29	125.35	122.70
1	A	328	C	C5-C4-N4	5.25	123.88	120.20
1	A	875	C	C6-N1-C2	5.24	122.40	120.30
1	A	484	G	C8-N9-C1'	-5.23	120.19	127.00
1	A	364	A	N1-C6-N6	-5.22	115.47	118.60
1	A	839	U	C6-N1-C1'	-5.22	113.89	121.20
1	A	325	A	N1-C6-N6	-5.20	115.48	118.60
1	A	1346	A	P-O3'-C3'	5.15	125.88	119.70
1	A	1347	G	C8-N9-C1'	5.11	133.64	127.00
1	A	624	C	C6-N1-C2	5.06	122.33	120.30
1	A	733	A	C8-N9-C4	5.06	107.82	105.80
1	A	1442	G	C8-N9-C1'	-5.04	120.45	127.00
1	A	653	A	C8-N9-C4	-5.03	103.79	105.80
1	A	482	A	N1-C6-N6	5.02	121.61	118.60

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	C	166	GLU	Peptide
8	H	90	GLY	Peptide
10	J	86	MET	Peptide
20	T	93	GLU	Peptide

## 5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	32645	0	16507	438	0
2	B	1900	0	1951	54	0
3	C	1612	0	1677	45	0
4	D	1703	0	1763	44	0
5	E	1146	0	1207	36	0
6	F	843	0	857	18	0
7	G	1257	0	1296	25	0
8	H	1116	0	1177	23	0
9	I	1010	0	1037	32	0
10	J	792	0	835	24	0
11	K	864	0	881	24	0
12	L	972	0	1058	36	0
13	M	937	0	995	23	0
14	N	492	0	529	20	0
15	O	729	0	768	13	0
16	P	700	0	720	20	0
17	Q	823	0	893	32	0
18	R	574	0	644	18	0
19	S	647	0	673	19	0
20	T	763	0	861	13	0
21	U	208	0	221	6	0
22	A	295	0	0	0	0
22	B	2	0	0	0	0
22	C	2	0	0	0	0
22	D	5	0	0	0	0
22	E	2	0	0	0	0
22	F	1	0	0	0	0
22	J	1	0	0	0	0
22	L	1	0	0	0	0
22	M	1	0	0	0	0
22	N	1	0	0	0	0
22	P	3	0	0	0	0
22	Q	4	0	0	0	0
22	S	1	0	0	0	0
22	T	1	0	0	0	0
23	D	1	0	0	0	0
23	N	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
24	A	515	0	0	16	0
24	B	1	0	0	0	0
24	C	1	0	0	0	0
24	D	4	0	0	0	0
24	E	7	0	0	0	0
24	G	1	0	0	0	0
24	J	4	0	0	1	0
24	L	3	0	0	0	0
24	M	7	0	0	0	0
24	N	3	0	0	1	0
24	P	14	0	0	6	0
24	Q	3	0	0	1	0
24	S	3	0	0	0	0
24	T	1	0	0	0	0
24	U	1	0	0	0	0
All	All	52623	0	36550	849	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 10.

All (849) 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	0.92
1:A:762:C:N4	24:A:2302:HOH:O	2.07	0.87
1:A:235:C:H5'	17:Q:70:ARG:HG2	1.55	0.86
1:A:1502:A:H2	1:A:1505:G:H1	1.22	0.85
1:A:835:U:OP1	18:R:64:ARG:NH2	2.08	0.85
1:A:1443:G:H5''	1:A:1446:A:H5'	1.60	0.84
1:A:279:A:OP2	17:Q:95:TYR:OH	1.96	0.83
1:A:298:A:N6	24:A:2041:HOH:O	2.14	0.80
18:R:47:THR:HA	18:R:83:GLU:HB2	1.63	0.80
2:B:178:ARG:NH1	8:H:71:GLY:O	2.14	0.80
5:E:43:LEU:HD11	5:E:132:ALA:HB1	1.65	0.79
1:A:427:U:OP1	4:D:13:ARG:NH2	2.17	0.78
1:A:1366:C:O2'	10:J:60:ARG:NH2	2.17	0.78
1:A:664:G:H22	1:A:741:G:H1	1.29	0.77
1:A:452:A:O2'	1:A:453:A:O4'	2.04	0.76
1:A:542:G:OP1	4:D:10:ARG:NH2	2.18	0.76
1:A:537:G:OP1	12:L:113:ARG:NH2	2.19	0.76
1:A:281:G:O2'	1:A:282:A:OP2	2.04	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1316:G:H4'	14:N:18:VAL:HG11	1.69	0.75
11:K:16:SER:HB2	11:K:79:SER:HB3	1.66	0.75
5:E:11:ILE:HB	5:E:31:LEU:HB3	1.66	0.75
10:J:86:MET:SD	10:J:87:THR:N	2.58	0.75
7:G:146:GLU:HA	7:G:149:ARG:HG3	1.70	0.74
15:O:39:LEU:HD13	15:O:56:LEU:HB2	1.70	0.74
1:A:226:G:N2	24:A:2225:HOH:O	2.20	0.73
1:A:975:A:H4'	1:A:976:G:H5''	1.70	0.73
12:L:27:LEU:O	12:L:29:GLY:N	2.21	0.73
1:A:250:A:H4'	1:A:251:G:O5'	1.87	0.73
1:A:1129:C:N4	1:A:1135:U:O4	2.19	0.72
10:J:6:ILE:HB	10:J:72:VAL:HB	1.72	0.71
1:A:673:G:H2'	1:A:674:G:C8	2.24	0.71
2:B:223:ILE:HG22	2:B:228:GLY:HA3	1.73	0.71
13:M:49:THR:HG22	13:M:52:GLU:H	1.56	0.71
1:A:1007:C:H1'	1:A:1023:G:H1	1.53	0.71
1:A:975:A:H5'	1:A:975:A:H8	1.56	0.71
13:M:10:PRO:HB2	13:M:18:ALA:HB1	1.73	0.70
1:A:836:G:OP1	18:R:61:LYS:NZ	2.25	0.70
12:L:27:LEU:HD23	12:L:28:LYS:HE3	1.73	0.70
10:J:54:PHE:O	10:J:55:LYS:HG3	1.92	0.69
1:A:1257:U:O2'	1:A:1258:G:O5'	2.10	0.69
1:A:686:U:HO2'	1:A:687:A:H8	1.39	0.69
1:A:1266:G:N2	1:A:1269:A:OP2	2.23	0.69
1:A:1003:G:N2	1:A:1039:C:O2	2.25	0.69
4:D:150:GLU:HA	4:D:153:ARG:HG3	1.73	0.69
4:D:3:ARG:NH2	4:D:74:GLN:OE1	2.25	0.69
3:C:150:LYS:HD3	3:C:169:ALA:HB2	1.75	0.69
15:O:56:LEU:HA	15:O:59:MET:HE2	1.75	0.68
1:A:1518[B]:MA6:H102	1:A:1519[B]:MA6:H103	1.75	0.68
6:F:46:ARG:HH22	18:R:37:VAL:HG21	1.58	0.68
1:A:1435:G:H2'	1:A:1436:U:C6	2.29	0.67
1:A:501:C:H2'	1:A:502:G:C8	2.29	0.67
1:A:1417:G:O2'	1:A:1483:A:N6	2.27	0.67
15:O:7:GLU:OE1	15:O:38:ARG:NH2	2.27	0.67
9:I:10:ARG:HG2	9:I:75:ASP:HB2	1.75	0.67
6:F:10:LEU:HD12	6:F:59:TYR:HB3	1.77	0.66
1:A:1177:G:OP2	9:I:97:LYS:NZ	2.28	0.66
1:A:1313:U:O4	19:S:4:SER:OG	2.09	0.66
10:J:64:GLU:OE2	10:J:66:ARG:NH2	2.26	0.66
16:P:78:GLY:HA2	24:P:211:HOH:O	1.95	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:26:CYS:HA	4:D:31:CYS:HB2	1.77	0.66
1:A:1406:U:H4'	1:A:1518[B]:MA6:H1'	1.78	0.66
3:C:155:GLY:HA3	3:C:163:ALA:HB1	1.78	0.66
1:A:411:A:N3	1:A:413:G:O2'	2.28	0.66
1:A:1392:G:H21	1:A:1502:A:H8	1.42	0.66
1:A:949:A:N6	24:A:2306:HOH:O	2.29	0.65
1:A:113:G:H1'	1:A:354:G:H5'	1.77	0.65
17:Q:68:ARG:H	17:Q:70:ARG:HH11	1.44	0.65
5:E:12:LEU:HD13	5:E:31:LEU:HB2	1.78	0.65
4:D:64:LEU:HD23	4:D:198:VAL:HG21	1.79	0.65
1:A:407:G:OP1	4:D:115:ARG:NH1	2.29	0.65
19:S:33:THR:HG22	19:S:35:SER:H	1.62	0.64
16:P:79:VAL:N	24:P:214:HOH:O	2.30	0.64
5:E:101:ILE:O	5:E:120:THR:HB	1.97	0.64
12:L:24:VAL:HG13	12:L:98:TYR:HE2	1.60	0.64
1:A:1224:G:O2'	24:A:2334:HOH:O	2.14	0.64
1:A:1504:G:OP1	1:A:1507:A:H4'	1.97	0.64
1:A:427:U:OP2	4:D:36:ARG:NH2	2.29	0.64
9:I:126:SER:OG	9:I:127:LYS:N	2.31	0.64
1:A:1375:A:H4'	7:G:29:LYS:HE3	1.78	0.64
15:O:64:ARG:HG2	15:O:88:ARG:HH22	1.62	0.64
1:A:1347:G:O2'	1:A:1348:U:OP2	2.16	0.64
7:G:47:CYS:HA	7:G:50:ILE:HG22	1.79	0.64
5:E:80:ILE:HD13	5:E:138:ALA:HB1	1.80	0.64
2:B:240:GLN:OE1	2:B:240:GLN:N	2.28	0.63
1:A:1402:4OC:H2'	1:A:1403:C:O4'	1.98	0.63
3:C:91:LEU:HD21	3:C:99:VAL:HG22	1.81	0.63
1:A:91:C:H2'	1:A:92:C:H6	1.64	0.63
7:G:15:ASP:OD2	7:G:44:TYR:OH	2.16	0.63
12:L:47:LYS:HD2	12:L:48:PRO:HD3	1.80	0.63
1:A:1111:A:N1	3:C:177:THR:HB	2.13	0.63
17:Q:83:ASP:N	17:Q:83:ASP:OD1	2.32	0.63
12:L:25:PRO:C	12:L:27:LEU:H	2.03	0.62
1:A:1374:A:OP1	7:G:36:LYS:NZ	2.30	0.62
1:A:243:A:N6	1:A:281:G:O2'	2.32	0.62
5:E:102:ALA:O	5:E:107:ARG:NH1	2.33	0.62
1:A:1405:G:HO2'	1:A:1518[B]:MA6:HO2'	1.45	0.62
5:E:98:THR:N	5:E:117:ASP:OD1	2.31	0.62
1:A:706:A:O4'	11:K:29:ILE:HD11	2.00	0.61
1:A:677:U:H3	1:A:713:G:H22	1.47	0.61
10:J:46:ARG:HG2	10:J:64:GLU:HB3	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1001:A:H2'	1:A:1002:G:H8	1.65	0.61
1:A:1028:C:H42	1:A:1033:G:H22	1.47	0.61
9:I:26:VAL:HB	9:I:33:PHE:HB2	1.82	0.61
1:A:992:U:H3	1:A:1044:A:H62	1.47	0.61
5:E:10:MET:SD	5:E:13:ILE:HG23	2.41	0.61
16:P:74:LEU:HB3	16:P:79:VAL:HG21	1.82	0.61
10:J:63:PHE:HZ	14:N:45:ARG:HG3	1.66	0.61
1:A:1305:G:H5''	21:U:4:GLY:HA3	1.82	0.61
13:M:13:LYS:HA	13:M:44:ARG:HH11	1.64	0.61
2:B:127:ILE:O	2:B:135:GLN:NE2	2.28	0.61
2:B:23:ARG:O	2:B:24:TRP:HD1	1.84	0.61
1:A:869:G:N7	24:A:2238:HOH:O	2.32	0.61
1:A:390:C:O3'	16:P:28:ARG:NH2	2.33	0.61
12:L:20:LYS:HD2	12:L:20:LYS:H	1.65	0.61
15:O:36:ILE:HG13	15:O:59:MET:HE3	1.83	0.60
1:A:1086:U:H3	1:A:1099:G:H22	1.49	0.60
2:B:101:MET:HA	2:B:108:ILE:HG13	1.81	0.60
1:A:269:C:H2'	1:A:270:A:C8	2.36	0.60
1:A:1391:U:H2'	1:A:1392:G:C8	2.36	0.60
7:G:111:ARG:NH2	7:G:126:ASP:OD2	2.34	0.60
5:E:35:GLY:HA3	5:E:112:LEU:HB3	1.83	0.60
20:T:67:ALA:HA	20:T:73:HIS:H	1.67	0.60
1:A:975:A:H5'	1:A:975:A:C8	2.37	0.60
6:F:68:PRO:HB2	6:F:71:ARG:HG3	1.84	0.60
3:C:156:ARG:H	3:C:163:ALA:HA	1.67	0.59
16:P:80:PHE:N	24:P:214:HOH:O	2.11	0.59
1:A:45:U:H2'	1:A:46:G:C8	2.37	0.59
1:A:5:U:H4'	1:A:6:G:O5'	2.00	0.59
5:E:152:ARG:NH2	8:H:107:LEU:O	2.35	0.59
1:A:976:G:OP2	1:A:1358:U:O2'	2.19	0.59
1:A:1498:UR3:O4'	1:A:1519[A]:MA6:H2	2.02	0.59
14:N:12:ARG:HH11	14:N:14:PRO:HG3	1.66	0.59
12:L:113:ARG:NH1	12:L:116:SER:H	2.00	0.59
1:A:376:G:H5''	16:P:5:ARG:HD2	1.84	0.59
16:P:26:ARG:HD2	16:P:31:LYS:O	2.02	0.59
10:J:27:ALA:HB2	10:J:85:LEU:HD11	1.85	0.59
1:A:1497:G:H2'	1:A:1498:UR3:H5'	1.85	0.59
17:Q:68:ARG:H	17:Q:70:ARG:NH1	2.00	0.58
3:C:130:VAL:HG12	3:C:134:ILE:HD11	1.84	0.58
1:A:1200:C:O2'	1:A:1205:U:O4	2.20	0.58
1:A:692:U:OP1	11:K:124:LYS:NZ	2.26	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:G:15:ASP:HB3	7:G:20:ASP:H	1.69	0.58
10:J:48:THR:HA	10:J:62:HIS:HB3	1.86	0.58
1:A:838:G:H2'	1:A:839:U:H5''	1.85	0.58
1:A:401:C:O2'	1:A:621:A:N3	2.33	0.58
1:A:1497:G:C2'	1:A:1498:UR3:H5'	2.33	0.58
12:L:36:VAL:HG22	12:L:82:VAL:HG12	1.85	0.58
19:S:50:ALA:HB1	19:S:57:HIS:HB3	1.85	0.58
1:A:1101:A:H4'	1:A:1102:A:O5'	2.03	0.58
1:A:437:U:O2'	4:D:123:HIS:ND1	2.24	0.58
1:A:1057:G:H5''	3:C:154:SER:HB2	1.86	0.58
1:A:830:G:H5''	2:B:22:LYS:HE3	1.86	0.58
2:B:22:LYS:NZ	2:B:22:LYS:O	2.23	0.58
1:A:1356:G:H2'	1:A:1357:A:C8	2.39	0.58
1:A:501:C:H2'	1:A:502:G:H8	1.69	0.58
5:E:78:HIS:HD2	8:H:107:LEU:HD12	1.69	0.58
1:A:524:G:H2'	1:A:525:C:C6	2.39	0.57
1:A:1499:A:H1'	1:A:1520[A]:G:H5'	1.86	0.57
1:A:1286:A:H2'	1:A:1287:A:H4'	1.85	0.57
1:A:1399:C:H4'	1:A:1400:5MC:H5''	1.86	0.57
1:A:946:A:H2'	1:A:947:G:C8	2.40	0.57
3:C:58:GLU:HB3	10:J:92:THR:HG21	1.86	0.57
12:L:24:VAL:HG13	12:L:98:TYR:CE2	2.40	0.57
1:A:373:A:H1'	1:A:481:G:N3	2.19	0.57
1:A:1256:A:H5'	1:A:1258:G:H1'	1.85	0.57
1:A:1239:A:H4'	1:A:1240:U:H5''	1.85	0.57
13:M:13:LYS:HA	13:M:44:ARG:NH1	2.20	0.57
1:A:1006:C:H42	1:A:1022:G:H22	1.52	0.57
8:H:83:ILE:HG13	8:H:137:VAL:HG22	1.87	0.57
1:A:17:U:H2'	1:A:18:C:C6	2.39	0.57
3:C:139:GLN:HG3	3:C:143:GLU:OE2	2.03	0.57
1:A:1327:C:OP2	21:U:12:LYS:NZ	2.36	0.57
1:A:299:G:H2'	1:A:300:A:C8	2.40	0.57
1:A:676:A:H1'	11:K:115:PRO:HB3	1.87	0.57
2:B:16:HIS:HD2	2:B:204:ASN:HD22	1.53	0.57
3:C:131:ARG:HA	3:C:134:ILE:HD12	1.87	0.56
1:A:1049:U:H4'	1:A:1050:G:O5'	2.04	0.56
1:A:1420:C:H2'	1:A:1421:G:H8	1.69	0.56
3:C:70:VAL:HG21	3:C:76:VAL:HG21	1.87	0.56
1:A:372:C:H4'	1:A:373:A:O5'	2.05	0.56
3:C:174:PRO:HB2	3:C:177:THR:HG23	1.88	0.56
4:D:57:ARG:HB3	4:D:206:PHE:HB2	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1080:A:O3'	5:E:16:THR:OG1	2.23	0.56
6:F:6:VAL:HB	6:F:63:TYR:HB2	1.88	0.56
1:A:923:A:OP1	5:E:21:ALA:HB2	2.04	0.56
9:I:110:GLU:OE2	9:I:113:LYS:NZ	2.38	0.56
13:M:17:VAL:O	13:M:20:THR:OG1	2.18	0.56
1:A:1368:G:O2'	10:J:46:ARG:NH2	2.38	0.56
14:N:27:CYS:SG	14:N:29:ARG:HB2	2.46	0.56
11:K:84:VAL:HG11	11:K:91:ARG:HD3	1.87	0.56
1:A:978:A:OP2	1:A:1362:C:N4	2.37	0.56
7:G:5:ARG:HE	7:G:6:ARG:H	1.52	0.56
2:B:47:THR:O	2:B:51:LEU:HB2	2.05	0.56
8:H:89:PRO:HA	8:H:92:ARG:NH1	2.21	0.55
1:A:1100:C:H3'	24:A:2251:HOH:O	2.05	0.55
1:A:1489:G:H2'	1:A:1490:C:O4'	2.07	0.55
1:A:1525:G:OP1	11:K:120:ARG:NH2	2.38	0.55
18:R:76:LEU:HB3	18:R:78:LEU:HD12	1.88	0.55
2:B:95:GLN:HG3	2:B:147:LYS:HG2	1.87	0.55
1:A:518:C:H4'	1:A:519:C:O5'	2.06	0.55
1:A:522:C:H41	12:L:53:ARG:HH22	1.54	0.55
1:A:837:G:H1	1:A:849:C:H42	1.54	0.55
1:A:858:G:N7	24:A:2239:HOH:O	2.33	0.55
9:I:79:LEU:HD22	9:I:83:ARG:HG3	1.89	0.55
1:A:1240:U:OP2	7:G:116:ALA:N	2.38	0.55
1:A:560:U:H5'	1:A:566:G:N2	2.21	0.55
15:O:87:ILE:HG22	15:O:88:ARG:H	1.72	0.55
1:A:560:U:H5'	1:A:566:G:C2	2.41	0.55
1:A:1532:U:N3	24:A:2127:HOH:O	2.32	0.55
1:A:646:U:H2'	1:A:647:C:C6	2.42	0.55
2:B:93:VAL:HG11	2:B:97:TRP:CD1	2.42	0.55
1:A:600:C:H42	1:A:638:G:H1	1.54	0.55
1:A:1516[A]:G:H2'	1:A:1518[A]:MA6:OP2	2.07	0.54
1:A:436:C:H2'	1:A:437:U:C6	2.42	0.54
1:A:1491:G:N2	1:A:1492:A:H62	2.04	0.54
1:A:792:A:H4'	1:A:793:U:O5'	2.06	0.54
1:A:1510:U:H2'	1:A:1511:G:C8	2.42	0.54
1:A:281:G:HO2'	1:A:282:A:P	2.29	0.54
1:A:1305:G:N2	1:A:1331:G:H1'	2.21	0.54
1:A:1301:U:O2'	1:A:1302:U:O5'	2.25	0.54
1:A:382:A:H2'	1:A:383:A:C8	2.42	0.54
1:A:328:C:O2	1:A:328:C:H2'	2.06	0.54
16:P:51:VAL:HG21	16:P:77:ALA:HB2	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:N:58:LYS:NZ	24:N:202:HOH:O	2.39	0.54
4:D:9:CYS:O	4:D:12:CYS:HB2	2.06	0.54
1:A:951:G:OP2	13:M:102:ARG:NH2	2.40	0.54
1:A:47:C:C6	1:A:365:U:H2'	2.42	0.54
6:F:8:ILE:HD11	6:F:79:LEU:HD13	1.88	0.54
20:T:57:ARG:HE	20:T:102:GLY:HA3	1.71	0.54
1:A:1280:A:H5'	10:J:40:LEU:HD22	1.89	0.54
1:A:559:A:OP1	5:E:126:ARG:NH2	2.41	0.54
2:B:130:ARG:HB3	2:B:131:PRO:HD2	1.90	0.54
17:Q:67:LYS:HA	17:Q:70:ARG:HH12	1.72	0.54
1:A:982:U:H5''	14:N:6:LEU:HD11	1.89	0.54
2:B:9:GLU:HB3	2:B:12:GLU:HG2	1.89	0.54
1:A:1126:U:O4	1:A:1127:G:N2	2.39	0.54
1:A:1243:C:H5''	21:U:8:THR:HG23	1.90	0.54
1:A:353:A:H5'	1:A:353:A:H8	1.73	0.54
13:M:3:ARG:HA	13:M:8:GLU:O	2.08	0.53
7:G:65:ALA:HB1	7:G:127:ALA:HB3	1.90	0.53
1:A:1392:G:N2	1:A:1502:A:H8	2.05	0.53
1:A:1195:C:H3'	1:A:1196:U:C5'	2.38	0.53
2:B:172:ILE:H	2:B:172:ILE:HD12	1.72	0.53
1:A:1225:A:N3	1:A:1225:A:H2'	2.24	0.53
3:C:8:ILE:HG23	3:C:16:ARG:HG2	1.91	0.53
2:B:16:HIS:HD2	2:B:204:ASN:ND2	2.06	0.53
1:A:581:G:N2	1:A:760:G:N7	2.57	0.53
1:A:276:G:O2'	17:Q:68:ARG:NH1	2.41	0.53
1:A:1116:C:O2'	9:I:108:VAL:HG21	2.09	0.53
1:A:1505:G:O2'	1:A:1506:U:OP2	2.18	0.53
1:A:1415:G:H2'	1:A:1416:G:H8	1.73	0.53
1:A:1347:G:O2'	1:A:1348:U:P	2.66	0.53
1:A:191:G:O2'	20:T:102:GLY:O	2.26	0.53
9:I:46:ALA:HB2	9:I:74:ILE:HG23	1.91	0.53
17:Q:15:MET:HG3	17:Q:18:THR:HB	1.91	0.53
1:A:436:C:H2'	1:A:437:U:H6	1.74	0.53
1:A:765:G:H5''	1:A:766:A:OP1	2.08	0.53
14:N:39:LEU:HD11	14:N:47:LEU:HD12	1.90	0.53
5:E:97:GLY:N	5:E:117:ASP:OD1	2.42	0.53
1:A:1238:A:H5'	1:A:1336:C:H41	1.73	0.53
3:C:12:LEU:HD11	14:N:51:GLY:HA2	1.90	0.53
4:D:53:ASP:OD1	4:D:53:ASP:N	2.41	0.53
17:Q:95:TYR:HA	17:Q:98:LEU:HD11	1.91	0.52
1:A:390:C:H2'	1:A:391:G:C8	2.44	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:Q:48:GLU:HB2	17:Q:50:LYS:HG3	1.89	0.52
1:A:1181:G:O2'	1:A:1182:G:H5'	2.10	0.52
4:D:8:VAL:HG11	4:D:21:LEU:HB2	1.91	0.52
1:A:1516[A]:G:N2	1:A:1519[A]:MA6:OP2	2.37	0.52
1:A:922:G:H2'	1:A:923:A:C8	2.44	0.52
8:H:69:ARG:NH1	8:H:75:ARG:O	2.43	0.52
1:A:91:C:H2'	1:A:92:C:C6	2.45	0.52
17:Q:22:LEU:HD11	17:Q:39:SER:HB3	1.90	0.52
4:D:187:ARG:HA	4:D:187:ARG:HH11	1.75	0.52
19:S:51:VAL:HG21	19:S:71:LEU:HD22	1.92	0.52
9:I:63:ILE:HG21	9:I:77:ILE:HG12	1.92	0.52
16:P:75:ARG:HA	24:P:213:HOH:O	2.10	0.52
1:A:1410:G:H1	1:A:1490:C:H42	1.57	0.52
1:A:580:U:H2'	1:A:581:G:O4'	2.10	0.52
17:Q:97:SER:O	17:Q:98:LEU:HD12	2.10	0.52
1:A:1515[A]:C:H42	1:A:1520[A]:G:H1	1.57	0.52
3:C:13:GLY:HA3	14:N:57:ARG:NH2	2.25	0.52
7:G:50:ILE:HD11	7:G:61:VAL:HG11	1.92	0.52
2:B:102:LEU:HD21	2:B:162:ILE:HD11	1.92	0.52
10:J:40:LEU:HB2	10:J:69:ASN:HB2	1.92	0.52
20:T:18:GLN:HA	20:T:21:LYS:HG3	1.90	0.52
1:A:1100:C:OP1	2:B:96:ARG:NH1	2.43	0.51
13:M:16:ASP:OD1	13:M:16:ASP:N	2.42	0.51
5:E:64:ARG:H	5:E:64:ARG:HD2	1.74	0.51
12:L:89:ARG:HG2	12:L:97:ARG:HA	1.93	0.51
1:A:344:A:H5'	1:A:345:C:H5	1.75	0.51
5:E:144:THR:O	5:E:148:VAL:HG23	2.11	0.51
1:A:1020:U:H2'	1:A:1021:G:C8	2.45	0.51
1:A:686:U:O2'	1:A:687:A:H8	1.93	0.51
11:K:57:THR:CG2	11:K:60:ALA:H	2.22	0.51
1:A:572:A:H5'	1:A:573:A:OP2	2.10	0.51
10:J:63:PHE:CZ	14:N:45:ARG:HG3	2.45	0.51
1:A:1488:G:H2'	1:A:1489:G:C8	2.44	0.51
1:A:1060:C:H2'	1:A:1061:G:H8	1.76	0.51
2:B:19:HIS:HD2	2:B:20:GLU:HG2	1.76	0.51
1:A:1414:U:H2'	1:A:1415:G:H8	1.76	0.51
1:A:731:G:OP1	1:A:766:A:H1'	2.11	0.51
18:R:34:TYR:CE1	18:R:35:ARG:HG3	2.45	0.51
1:A:1248:A:H2'	1:A:1249:C:C6	2.46	0.51
1:A:12:U:O2'	1:A:13:U:OP1	2.23	0.51
12:L:27:LEU:C	12:L:29:GLY:H	2.12	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:F:2:ARG:NE	6:F:69:GLU:HG2	2.26	0.51
1:A:1352:C:H2'	1:A:1353:G:C8	2.45	0.51
1:A:1241:G:H2'	1:A:1242:C:C6	2.46	0.51
2:B:21:ARG:HA	2:B:39:ILE:HG23	1.93	0.51
2:B:188:ALA:O	2:B:202:PRO:HA	2.11	0.51
1:A:371:G:O2'	1:A:372:C:H5'	2.12	0.50
1:A:1145:C:O2'	1:A:1146:A:H8	1.93	0.50
8:H:86:ILE:HG21	8:H:133:LEU:HD22	1.94	0.50
1:A:1254:C:H41	10:J:43:ARG:HH12	1.58	0.50
1:A:736:C:H2'	1:A:737:A:C8	2.47	0.50
1:A:1197:G:H5''	24:A:2049:HOH:O	2.10	0.50
7:G:50:ILE:O	7:G:54:THR:HG22	2.11	0.50
9:I:43:ALA:HA	9:I:74:ILE:HD13	1.93	0.50
1:A:1035:A:H2'	1:A:1036:G:C8	2.46	0.50
18:R:48:GLY:O	18:R:74:ARG:NH2	2.43	0.50
1:A:977:A:H2'	1:A:978:A:H5''	1.94	0.50
2:B:17:PHE:HD1	2:B:18:GLY:H	1.59	0.50
1:A:141:A:H1'	1:A:182:U:O2	2.11	0.50
1:A:750:G:N3	15:O:23:GLY:HA3	2.26	0.50
1:A:1129:C:H4'	1:A:1130:A:OP2	2.11	0.50
10:J:44:VAL:HG13	10:J:66:ARG:HB3	1.94	0.50
4:D:20:TYR:HD2	4:D:26:CYS:HB3	1.76	0.50
1:A:792:A:H1'	1:A:793:U:OP2	2.11	0.50
1:A:1130:A:OP1	1:A:1130:A:H3'	2.11	0.50
1:A:1053:G:H4'	1:A:1054:C:H5'	1.94	0.50
18:R:47:THR:HG22	18:R:48:GLY:H	1.77	0.50
3:C:111:LEU:HD21	3:C:144:SER:O	2.11	0.50
1:A:1425:U:H2'	1:A:1426:C:C6	2.47	0.50
1:A:828:A:H4'	1:A:828:A:OP1	2.11	0.50
19:S:30:LEU:O	19:S:31:ILE:HG12	2.11	0.50
1:A:820:U:H4'	1:A:821:G:OP2	2.12	0.50
2:B:115:LEU:HD12	2:B:145:LEU:HB3	1.94	0.50
1:A:1406:U:O2	1:A:1517[A]:G:N2	2.44	0.49
1:A:791:G:H2'	1:A:792:A:H5'	1.94	0.49
1:A:932:C:H5'	7:G:4:ARG:HG2	1.93	0.49
1:A:1060:C:H2'	1:A:1061:G:C8	2.47	0.49
1:A:860:A:H2'	1:A:861:G:O4'	2.12	0.49
1:A:1486:G:H2'	1:A:1487:G:O4'	2.11	0.49
3:C:85:ARG:HB2	3:C:85:ARG:HH11	1.77	0.49
6:F:94:GLN:HB3	18:R:32:ARG:HD3	1.94	0.49
1:A:411:A:H62	1:A:413:G:N2	2.10	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:642:A:N3	8:H:113:SER:OG	2.45	0.49
1:A:748:C:H4'	1:A:749:C:O5'	2.11	0.49
15:O:11:VAL:HG21	15:O:34:LEU:HD12	1.93	0.49
16:P:80:PHE:HD1	24:P:213:HOH:O	1.95	0.49
6:F:28:ARG:O	6:F:32:ASN:HB2	2.12	0.49
1:A:130:A:OP2	1:A:190(E):U:O2'	2.23	0.49
1:A:505:G:H2'	1:A:506:G:C8	2.48	0.49
1:A:1007:C:O2	1:A:1023:G:N1	2.46	0.49
1:A:1525:G:P	11:K:120:ARG:HH22	2.36	0.49
1:A:562:C:H1'	12:L:15:ARG:HG3	1.94	0.49
1:A:117:G:O5'	1:A:117:G:H8	1.95	0.49
21:U:8:THR:HG22	21:U:10:ARG:H	1.77	0.49
15:O:26:GLU:HG3	15:O:81:LEU:HG	1.94	0.49
1:A:1028:C:N4	1:A:1033:G:H22	2.10	0.49
14:N:12:ARG:HA	14:N:12:ARG:NE	2.28	0.49
10:J:49:VAL:HG13	14:N:41:ARG:HB2	1.93	0.49
9:I:91:ASP:N	9:I:91:ASP:OD1	2.46	0.49
4:D:10:ARG:HG2	4:D:11:LEU:HD23	1.95	0.49
1:A:1044:A:C6	1:A:1045:C:H1'	2.48	0.49
1:A:1287:A:H2'	1:A:1288:A:C8	2.48	0.49
1:A:1196:U:O2'	24:A:2047:HOH:O	2.19	0.49
11:K:14:VAL:HG11	11:K:40:ILE:HD11	1.95	0.49
1:A:690:G:H2'	1:A:691:G:O4'	2.13	0.49
1:A:411:A:H62	1:A:413:G:H21	1.61	0.48
9:I:32:ASP:OD1	9:I:33:PHE:N	2.46	0.48
11:K:57:THR:HG23	11:K:60:ALA:H	1.77	0.48
3:C:120:VAL:O	3:C:124:ILE:HG13	2.13	0.48
6:F:70:ASP:N	6:F:70:ASP:OD1	2.46	0.48
1:A:1132:C:H2'	1:A:1133:G:H8	1.78	0.48
1:A:664:G:OP1	18:R:64:ARG:NH1	2.46	0.48
1:A:1182:G:H4'	1:A:1183:A:O5'	2.14	0.48
1:A:1409:C:H2'	1:A:1410:G:H8	1.77	0.48
1:A:1143:G:H2'	1:A:1144:G:C8	2.48	0.48
1:A:266:G:C8	1:A:266:G:H5''	2.47	0.48
1:A:1257:U:HO2'	1:A:1258:G:P	2.36	0.48
12:L:85:ILE:HG23	12:L:98:TYR:HB3	1.96	0.48
1:A:1148:U:H2'	1:A:1149:C:O4'	2.14	0.48
6:F:11:ASN:HB3	6:F:14:LEU:HG	1.94	0.48
1:A:583:A:H2'	1:A:584:G:O4'	2.14	0.48
1:A:277:C:H5'	17:Q:68:ARG:NH1	2.28	0.48
3:C:134:ILE:HG23	3:C:151:VAL:HB	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1145:C:O2'	1:A:1146:A:O5'	2.30	0.48
12:L:11:VAL:HG13	17:Q:29:HIS:CD2	2.47	0.48
6:F:4:TYR:CE1	6:F:92:LYS:HG2	2.48	0.48
7:G:54:THR:HG23	7:G:56:GLN:H	1.79	0.48
1:A:974:A:OP2	14:N:41:ARG:NH1	2.45	0.48
4:D:19:LEU:HD13	4:D:21:LEU:HD21	1.94	0.48
20:T:75:ASN:OD1	20:T:75:ASN:N	2.46	0.48
1:A:46:G:H2'	1:A:366:C:C5	2.48	0.48
1:A:522:C:OP2	12:L:69:TYR:OH	2.25	0.48
17:Q:67:LYS:O	17:Q:68:ARG:HB2	2.13	0.48
1:A:1195:C:H3'	1:A:1196:U:H5''	1.96	0.48
2:B:133:LYS:O	2:B:137:ARG:HG3	2.14	0.48
14:N:8:GLU:O	14:N:11:LYS:HB2	2.13	0.48
1:A:1530:G:H4'	1:A:1530:G:OP1	2.13	0.48
9:I:60:ASP:OD1	9:I:61:ALA:N	2.47	0.48
1:A:7:G:H5'	1:A:298:A:O4'	2.13	0.48
1:A:1283:G:H2'	1:A:1284:C:C6	2.48	0.48
18:R:76:LEU:HB3	18:R:78:LEU:CD1	2.44	0.48
5:E:36:ASP:OD2	5:E:38:GLN:HB2	2.13	0.48
17:Q:40:LYS:HD3	17:Q:42:TYR:CZ	2.48	0.48
1:A:624:C:H2'	1:A:625:G:C8	2.48	0.48
1:A:1453:G:H2'	1:A:1454:G:O4'	2.14	0.48
8:H:33:GLU:OE2	8:H:50:ARG:NE	2.46	0.48
1:A:246:A:N6	1:A:281:G:H1'	2.28	0.48
1:A:1283:G:H2'	1:A:1284:C:H6	1.78	0.48
8:H:108:GLY:HA3	8:H:138:TRP:HB3	1.96	0.48
1:A:411:A:OP1	4:D:30:LYS:NZ	2.46	0.47
12:L:60:LEU:HD21	12:L:66:VAL:HG22	1.95	0.47
1:A:1297:C:OP2	13:M:44:ARG:NH2	2.46	0.47
1:A:1180:A:OP1	9:I:103:THR:OG1	2.27	0.47
1:A:1108:G:H5'	3:C:176:HIS:ND1	2.29	0.47
1:A:1329:A:H2'	1:A:1330:U:O4'	2.14	0.47
4:D:152:SER:HA	4:D:155:LEU:HG	1.95	0.47
1:A:1207:2MG:HM23	1:A:1208:C:H1'	1.97	0.47
12:L:113:ARG:HH12	12:L:116:SER:H	1.61	0.47
1:A:1409:C:H2'	1:A:1410:G:C8	2.49	0.47
1:A:144:G:H1	1:A:178:C:H42	1.63	0.47
3:C:182:ILE:HD13	3:C:203:PHE:HD1	1.80	0.47
12:L:27:LEU:HB3	12:L:28:LYS:HG2	1.96	0.47
1:A:1057:G:H2'	1:A:1058:G:O4'	2.13	0.47
1:A:818:G:HO2'	1:A:820:U:H6	1.62	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:222:U:H2'	1:A:223:U:C6	2.50	0.47
1:A:279:A:OP1	1:A:280:C:O2'	2.23	0.47
5:E:31:LEU:HD23	5:E:31:LEU:HA	1.78	0.47
12:L:89:ARG:CZ	12:L:97:ARG:HG2	2.45	0.47
12:L:82:VAL:HG23	12:L:105:TYR:HB3	1.96	0.47
4:D:205:GLU:OE1	5:E:100:VAL:HG23	2.15	0.47
1:A:816:A:OP1	1:A:1526:G:O2'	2.25	0.47
1:A:960:U:H1'	1:A:1223:C:H5'	1.96	0.47
1:A:1330:U:H2'	1:A:1331:G:H5'	1.97	0.47
20:T:70:SER:HA	20:T:73:HIS:CD2	2.49	0.47
5:E:78:HIS:CD2	8:H:107:LEU:HD12	2.49	0.47
2:B:204:ASN:HB3	2:B:206:ASP:O	2.15	0.47
2:B:16:HIS:CE1	2:B:210:SER:HB2	2.50	0.47
16:P:6:LEU:HD11	16:P:73:LEU:HD12	1.97	0.47
19:S:22:LEU:HD21	19:S:28:LYS:HD3	1.97	0.47
1:A:928:G:O2'	1:A:1533:C:OP1	2.28	0.47
1:A:1372:U:OP1	9:I:71:SER:HB3	2.14	0.47
2:B:44:LEU:H	2:B:44:LEU:HD12	1.79	0.47
1:A:1239:A:C4	1:A:1298:C:N4	2.83	0.47
5:E:144:THR:HG22	5:E:146:ALA:H	1.79	0.47
8:H:97:VAL:O	8:H:100:ILE:HG12	2.15	0.47
7:G:38:LEU:O	7:G:42:ILE:HG13	2.15	0.47
1:A:190(E):U:O2'	17:Q:63:ARG:NH2	2.48	0.47
11:K:33:THR:HG22	11:K:39:PRO:HA	1.96	0.47
4:D:61:LYS:HA	4:D:203:VAL:HG22	1.97	0.47
7:G:124:LEU:HD23	7:G:124:LEU:HA	1.74	0.47
12:L:28:LYS:HG3	12:L:33:ARG:NH1	2.30	0.47
1:A:687:A:H4'	1:A:688:G:O5'	2.15	0.47
14:N:12:ARG:NH1	14:N:14:PRO:HG3	2.30	0.47
11:K:27:ASN:ND2	11:K:55:LYS:HD2	2.30	0.47
1:A:960:U:H4'	1:A:961:U:C5'	2.45	0.46
1:A:1223:C:P	19:S:78:ARG:HH21	2.38	0.46
1:A:991:U:O2'	1:A:992:U:P	2.73	0.46
16:P:9:PHE:N	16:P:16:HIS:O	2.44	0.46
1:A:1309:G:H5'	13:M:78:ILE:HD11	1.97	0.46
11:K:121:PRO:HB2	11:K:125:PHE:HB2	1.98	0.46
1:A:1281:U:H5'	1:A:1282:C:H5	1.80	0.46
6:F:77:ARG:O	6:F:81:ILE:HG12	2.15	0.46
5:E:151:LEU:HB3	8:H:79:VAL:HG22	1.96	0.46
1:A:1001:A:H2'	1:A:1002:G:C8	2.48	0.46
3:C:16:ARG:NH2	3:C:54:ARG:HH12	2.13	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:J:19:SER:O	10:J:23:ILE:HG12	2.14	0.46
2:B:28:PHE:HD2	2:B:32:ILE:HD11	1.80	0.46
1:A:1118:C:H2'	1:A:1119:C:C6	2.50	0.46
14:N:29:ARG:HH22	14:N:41:ARG:HH12	1.64	0.46
1:A:791:G:C2'	1:A:792:A:H5'	2.45	0.46
1:A:1236:A:H4'	1:A:1304:G:H4'	1.97	0.46
19:S:17:GLU:HA	19:S:20:LEU:HG	1.96	0.46
18:R:47:THR:HG23	18:R:83:GLU:O	2.16	0.46
1:A:502:G:H2'	1:A:503:C:O4'	2.16	0.46
3:C:6:HIS:CD2	3:C:8:ILE:H	2.33	0.46
8:H:86:ILE:HG22	8:H:93:VAL:HG11	1.97	0.46
12:L:33:ARG:HD3	12:L:62:SER:HB3	1.97	0.46
12:L:97:ARG:HB2	12:L:98:TYR:CE1	2.51	0.46
1:A:1319:A:H5'	19:S:5:LEU:HD22	1.97	0.46
1:A:302:G:N3	1:A:556:C:H4'	2.31	0.46
1:A:1277:C:HO2'	1:A:1279:A:H8	1.62	0.46
16:P:27:LYS:HG3	16:P:27:LYS:H	1.37	0.46
1:A:1104:G:OP1	2:B:111:ARG:HD2	2.16	0.46
3:C:26:LYS:HG2	10:J:45:ARG:HH21	1.79	0.46
2:B:187:LEU:HD23	2:B:214:ILE:HG21	1.97	0.46
1:A:1491:G:H21	1:A:1492:A:H62	1.64	0.46
20:T:14:LYS:O	20:T:18:GLN:HG2	2.16	0.46
1:A:936:C:H2'	1:A:937:A:O4'	2.16	0.46
1:A:1415:G:H2'	1:A:1416:G:C8	2.50	0.46
19:S:33:THR:HG22	19:S:35:SER:N	2.27	0.46
17:Q:29:HIS:CG	17:Q:30:PRO:HD2	2.50	0.46
15:O:70:LEU:HD22	15:O:78:TYR:HB2	1.98	0.46
1:A:1117:G:H4'	9:I:104:ARG:NH1	2.31	0.46
1:A:401:C:H2'	1:A:402:G:H8	1.81	0.45
1:A:620:C:N1	4:D:135:LEU:HD13	2.31	0.45
1:A:1057:G:H5''	3:C:154:SER:CB	2.45	0.45
2:B:80:ILE:HD11	2:B:208:ILE:HG13	1.98	0.45
6:F:53:ALA:HB3	6:F:86:ARG:HE	1.80	0.45
1:A:1317:C:H2'	1:A:1318:A:O4'	2.16	0.45
16:P:43:LYS:HG2	16:P:48:TRP:CD2	2.51	0.45
1:A:1532:U:H6	1:A:1532:U:O5'	1.99	0.45
5:E:81:GLU:HG2	5:E:90:VAL:HG22	1.98	0.45
5:E:116:THR:HG23	5:E:117:ASP:OD2	2.17	0.45
1:A:1240:U:H1'	7:G:38:LEU:HD11	1.99	0.45
16:P:43:LYS:HA	16:P:48:TRP:HB3	1.99	0.45
1:A:1358:U:OP1	14:N:35:ARG:HG3	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1511:G:H2'	1:A:1512:U:O4'	2.17	0.45
1:A:344:A:H4'	1:A:345:C:OP2	2.17	0.45
1:A:943:U:H1'	9:I:124:GLN:HE22	1.81	0.45
3:C:174:PRO:HB2	3:C:177:THR:CG2	2.45	0.45
2:B:59:GLU:HB2	2:B:221:LEU:HD11	1.97	0.45
1:A:1213:A:N1	1:A:1215:G:H1'	2.31	0.45
1:A:1216:G:H2'	1:A:1217:C:H6	1.81	0.45
1:A:179:A:H2'	1:A:180:U:C6	2.52	0.45
1:A:455:C:H42	1:A:477:G:H1	1.64	0.45
1:A:62:U:H2'	1:A:63:C:C6	2.51	0.45
13:M:91:ARG:HD2	13:M:91:ARG:HA	1.77	0.45
3:C:16:ARG:HH21	3:C:54:ARG:HH12	1.64	0.45
1:A:824:C:H2'	1:A:825:G:H8	1.81	0.45
1:A:1498:UR3:O2'	1:A:1499:A:OP2	2.30	0.45
3:C:167:TRP:HE3	3:C:168:ALA:H	1.64	0.45
2:B:19:HIS:CD2	2:B:20:GLU:HG2	2.52	0.45
1:A:262:A:C6	1:A:263:A:C6	3.05	0.45
1:A:701:C:H4'	1:A:702:A:O5'	2.16	0.45
12:L:59:ARG:HD3	12:L:65:GLU:HG3	1.99	0.45
1:A:1229:A:OP2	13:M:114:ARG:HD3	2.17	0.45
1:A:767:A:H2'	1:A:768:A:O4'	2.16	0.45
1:A:1399:C:C2	1:A:1502:A:N6	2.85	0.45
1:A:1502:A:H2	1:A:1505:G:N1	2.01	0.45
5:E:11:ILE:HA	5:E:11:ILE:HD13	1.68	0.45
18:R:76:LEU:HD23	18:R:76:LEU:HA	1.63	0.45
1:A:1149:C:H2'	1:A:1150:U:C6	2.51	0.45
6:F:53:ALA:HB3	6:F:86:ARG:NE	2.31	0.45
1:A:1147:C:O2	9:I:16:ARG:NH1	2.49	0.45
5:E:32:VAL:HB	5:E:58:ALA:HB1	1.99	0.45
19:S:62:ILE:HD12	19:S:66:MET:HB2	1.99	0.45
21:U:6:ARG:O	21:U:12:LYS:HD3	2.17	0.45
4:D:62:GLN:O	4:D:66:ARG:HB2	2.17	0.45
5:E:28:PHE:O	5:E:47:LYS:HA	2.17	0.45
1:A:1190:G:O2'	1:A:1191:A:P	2.74	0.45
2:B:139:LYS:HA	2:B:139:LYS:HD2	1.79	0.45
4:D:171:GLY:HA2	4:D:172:PRO:HD3	1.86	0.45
7:G:145:ALA:O	7:G:146:GLU:HB2	2.17	0.45
11:K:27:ASN:OD1	11:K:28:THR:N	2.50	0.45
1:A:434:U:H2'	1:A:435:C:C6	2.52	0.45
1:A:444:C:H2'	1:A:445:G:H8	1.82	0.45
1:A:1031:G:H2'	1:A:1032:G:H8	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:953:G:N7	13:M:104:ARG:NH2	2.65	0.45
2:B:174:VAL:O	2:B:178:ARG:HG3	2.17	0.44
1:A:1126:U:H2'	1:A:1127:G:H5'	1.99	0.44
1:A:1428:A:H2'	1:A:1429:C:C6	2.53	0.44
1:A:1396:A:H4'	1:A:1397:C:H5''	1.97	0.44
1:A:1006:C:H2'	1:A:1007:C:H6	1.81	0.44
3:C:58:GLU:HB2	3:C:65:ALA:HB3	1.98	0.44
2:B:73:THR:HG23	2:B:95:GLN:O	2.17	0.44
9:I:8:GLY:HA2	9:I:79:LEU:HD13	1.98	0.44
1:A:1249:C:O2'	9:I:73:GLN:NE2	2.50	0.44
11:K:51:LYS:O	11:K:55:LYS:HE2	2.18	0.44
12:L:30:ALA:HA	12:L:31:PRO:HD3	1.83	0.44
1:A:127:G:HO2'	17:Q:2:PRO:N	2.16	0.44
12:L:6:THR:OG1	12:L:9:GLN:HG3	2.17	0.44
15:O:17:ARG:HD3	15:O:77:ARG:HH11	1.82	0.44
4:D:3:ARG:HH12	4:D:70:ILE:HD13	1.81	0.44
12:L:60:LEU:HD11	12:L:85:ILE:HD12	2.00	0.44
1:A:401:C:H2'	1:A:402:G:C8	2.53	0.44
1:A:581:G:C8	24:A:1966:HOH:O	2.68	0.44
4:D:187:ARG:NH1	4:D:188:LEU:H	2.15	0.44
1:A:1077:G:O6	5:E:47:LYS:NZ	2.50	0.44
10:J:39:PRO:HA	10:J:70:ARG:HD3	1.97	0.44
13:M:62:ASN:N	13:M:62:ASN:OD1	2.51	0.44
1:A:114:U:O2'	1:A:115:G:H5'	2.18	0.44
1:A:581:G:N7	24:A:1966:HOH:O	2.36	0.44
1:A:1314:C:C5	19:S:6:LYS:HE2	2.52	0.44
2:B:56:ARG:HG2	2:B:57:PHE:N	2.31	0.44
3:C:150:LYS:HA	3:C:169:ALA:HA	1.99	0.44
16:P:28:ARG:HG3	16:P:29:ASP:N	2.32	0.44
2:B:157:ARG:HG2	2:B:158:LEU:N	2.32	0.44
20:T:31:SER:O	20:T:35:THR:OG1	2.35	0.44
12:L:110:VAL:H	12:L:122:THR:HG22	1.81	0.44
13:M:12:ASN:ND2	13:M:12:ASN:O	2.49	0.44
1:A:81:U:H2'	1:A:83:U:OP2	2.17	0.44
1:A:1347:G:N2	1:A:1373:G:H2'	2.32	0.44
3:C:167:TRP:HE3	3:C:168:ALA:N	2.15	0.44
1:A:109:A:H2'	1:A:326:G:N2	2.32	0.44
1:A:457:C:H2'	1:A:458:C:C6	2.52	0.44
1:A:37:U:O2'	1:A:500:G:H4'	2.18	0.44
1:A:148:G:H2'	1:A:149:A:C8	2.53	0.44
1:A:540:G:H2'	1:A:541:G:O4'	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:Q:89:LEU:HD23	17:Q:89:LEU:HA	1.82	0.44
1:A:964:A:N6	24:A:2371:HOH:O	2.50	0.44
1:A:1320:C:H41	19:S:37:ARG:HG2	1.82	0.44
1:A:227:G:H1'	24:A:2225:HOH:O	2.18	0.44
3:C:134:ILE:HG21	3:C:167:TRP:O	2.18	0.44
1:A:1128:C:H42	1:A:1143:G:H1	1.65	0.44
1:A:1147:C:O2'	9:I:5:TYR:OH	2.32	0.44
9:I:48:GLU:OE2	9:I:51:ARG:HD2	2.17	0.44
1:A:1338:G:H2'	1:A:1339:A:C8	2.53	0.44
1:A:1441:G:H4'	1:A:1442:G:C5	2.53	0.44
20:T:39:LYS:O	20:T:43:LEU:HB2	2.18	0.44
3:C:132:ARG:HB2	3:C:132:ARG:HE	1.46	0.44
17:Q:40:LYS:HD3	17:Q:42:TYR:OH	2.17	0.44
1:A:62:U:OP1	1:A:385:C:O2'	2.35	0.44
1:A:1190:G:HO2'	1:A:1191:A:P	2.41	0.44
3:C:30:ARG:HB3	14:N:36:PHE:O	2.18	0.44
1:A:665:A:H2'	1:A:732:C:O2	2.18	0.44
1:A:397:A:N3	1:A:397:A:H3'	2.33	0.44
1:A:667:G:H4'	15:O:51:HIS:CE1	2.53	0.44
19:S:70:LYS:HE3	19:S:70:LYS:HB2	1.81	0.44
1:A:254:G:OP1	17:Q:67:LYS:O	2.35	0.43
20:T:67:ALA:HB2	20:T:77:ALA:HB2	2.00	0.43
1:A:838:G:C2'	1:A:839:U:H5''	2.47	0.43
1:A:383:A:C5	1:A:384:G:H1'	2.53	0.43
13:M:65:LYS:O	13:M:70:LEU:HG	2.18	0.43
4:D:166:LYS:HG2	4:D:178:VAL:HG11	1.99	0.43
1:A:620:C:H2'	1:A:621:A:O4'	2.18	0.43
1:A:765:G:N2	1:A:813:U:OP2	2.46	0.43
8:H:113:SER:HB2	8:H:134:ILE:HD11	2.00	0.43
1:A:1141:C:H2'	1:A:1142:G:H8	1.83	0.43
8:H:85:ARG:NE	8:H:87:SER:O	2.51	0.43
11:K:48:ILE:HD13	11:K:63:LEU:HB3	2.00	0.43
2:B:166:ASP:OD2	2:B:169:LYS:HB2	2.18	0.43
11:K:106:LYS:HA	11:K:106:LYS:HD2	1.80	0.43
10:J:62:HIS:N	24:J:302:HOH:O	2.28	0.43
2:B:97:TRP:HZ2	2:B:102:LEU:HD22	1.83	0.43
3:C:14:ILE:O	3:C:16:ARG:N	2.50	0.43
18:R:53:ARG:HG2	18:R:63:GLN:OE1	2.19	0.43
4:D:151:LYS:H	4:D:151:LYS:CD	2.31	0.43
4:D:22:LYS:HB2	4:D:26:CYS:SG	2.58	0.43
12:L:53:ARG:NH1	12:L:92:0TD:OD2	2.29	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1061:G:H5''	10:J:59:SER:HB2	1.99	0.43
6:F:91:VAL:HG12	6:F:92:LYS:O	2.18	0.43
8:H:100:ILE:H	8:H:100:ILE:HG12	1.68	0.43
4:D:110:PHE:HD1	4:D:162:LEU:HD21	1.82	0.43
4:D:127:THR:HG23	4:D:147:ALA:HB3	2.00	0.43
1:A:1468:A:H2'	1:A:1469:G:O4'	2.18	0.43
1:A:779:C:H2'	1:A:780:A:O4'	2.18	0.43
8:H:103:VAL:HG21	8:H:110:ALA:HB2	1.99	0.43
1:A:872:A:C8	1:A:874:G:C8	3.07	0.43
2:B:107:THR:O	2:B:110:GLN:HB2	2.18	0.43
1:A:353:A:H5'	1:A:353:A:C8	2.52	0.43
1:A:513:C:H2'	1:A:514:C:O4'	2.19	0.43
17:Q:67:LYS:HA	17:Q:70:ARG:NH1	2.32	0.43
1:A:1505:G:H3'	1:A:1505:G:C8	2.54	0.43
1:A:1339:A:H2'	1:A:1340:A:O4'	2.18	0.43
1:A:335:C:O2'	1:A:1433:A:N3	2.48	0.43
1:A:547:A:H4'	1:A:548:G:O5'	2.18	0.43
1:A:1241:G:H2'	1:A:1242:C:H6	1.82	0.43
1:A:162:A:C5	1:A:163:C:H1'	2.54	0.43
1:A:567:G:H2'	1:A:568:G:O4'	2.18	0.43
1:A:575:G:H4'	1:A:576:G:OP1	2.19	0.43
4:D:78:LEU:HA	4:D:78:LEU:HD23	1.69	0.43
1:A:967:5MC:OP1	1:A:969:A:H5'	2.18	0.43
1:A:243:A:C2	1:A:246:A:C8	3.06	0.43
1:A:1035:A:C6	1:A:1036:G:C6	3.07	0.43
1:A:1143:G:O5'	1:A:1143:G:H8	2.02	0.43
18:R:26:LEU:HD13	18:R:26:LEU:HA	1.78	0.43
1:A:1347:G:HO2'	1:A:1348:U:P	2.35	0.43
1:A:11:G:C2'	1:A:12:U:H5'	2.48	0.43
1:A:1164:G:H1	1:A:1172:C:H42	1.66	0.43
11:K:94:ALA:O	11:K:98:LEU:HB2	2.18	0.43
2:B:167:PRO:HB2	2:B:192:SER:HB2	2.00	0.43
10:J:32:ALA:O	10:J:34:VAL:HG23	2.19	0.43
1:A:372:C:H1'	1:A:373:A:OP2	2.19	0.43
1:A:946:A:C6	1:A:947:G:C6	3.07	0.43
1:A:793:U:H4'	1:A:794:A:OP2	2.19	0.43
16:P:9:PHE:CE1	16:P:18:ARG:HD2	2.54	0.43
1:A:824:C:H2'	1:A:825:G:C8	2.54	0.43
1:A:701:C:H5''	1:A:703:G:H5'	1.99	0.43
11:K:48:ILE:HG22	11:K:49:GLY:H	1.82	0.43
4:D:105:VAL:HG21	4:D:126:ILE:HG12	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:G:41:ARG:HH11	7:G:41:ARG:HB3	1.83	0.43
12:L:126:LYS:HB2	12:L:126:LYS:HE2	1.69	0.43
1:A:949:A:OP1	13:M:101:GLN:HB3	2.18	0.42
1:A:1490:C:H5'	1:A:1491:G:OP2	2.19	0.42
1:A:11:G:O2'	1:A:12:U:H5'	2.19	0.42
6:F:52:ILE:HG22	6:F:86:ARG:HD3	2.01	0.42
1:A:444:C:H2'	1:A:445:G:C8	2.54	0.42
1:A:325:A:H2'	1:A:326:G:O4'	2.19	0.42
18:R:53:ARG:O	18:R:57:GLY:N	2.50	0.42
1:A:1323:G:H2'	1:A:1324:A:C8	2.54	0.42
4:D:142:PRO:HA	4:D:185:PHE:HD2	1.83	0.42
19:S:3:ARG:HG2	19:S:3:ARG:H	1.58	0.42
3:C:130:VAL:HG21	3:C:157:ILE:HG23	2.01	0.42
3:C:180:ALA:HB1	3:C:203:PHE:CE1	2.54	0.42
1:A:841:U:C5	1:A:848:C:H1'	2.54	0.42
2:B:178:ARG:HB3	2:B:178:ARG:HH11	1.85	0.42
5:E:74:GLY:HA3	5:E:116:THR:HG22	2.01	0.42
20:T:29:LYS:O	20:T:33:ILE:HG13	2.19	0.42
8:H:31:PHE:O	8:H:35:ILE:HG12	2.19	0.42
2:B:50:GLU:HB3	2:B:200:ILE:O	2.19	0.42
12:L:25:PRO:C	12:L:27:LEU:N	2.71	0.42
1:A:991:U:O2'	1:A:992:U:O5'	2.33	0.42
1:A:692:U:OP2	11:K:26:ASN:ND2	2.49	0.42
2:B:17:PHE:CD1	2:B:18:GLY:N	2.87	0.42
9:I:48:GLU:N	9:I:49:PRO:HD2	2.35	0.42
1:A:201:C:H42	1:A:216:G:H1	1.66	0.42
16:P:60:LEU:HD23	16:P:60:LEU:HA	1.86	0.42
8:H:18:ARG:HD3	8:H:18:ARG:HA	1.90	0.42
17:Q:24:GLU:OE2	17:Q:37:LYS:HD2	2.20	0.42
1:A:975:A:H4'	1:A:976:G:C5'	2.44	0.42
16:P:57:ARG:NE	16:P:79:VAL:O	2.50	0.42
3:C:14:ILE:C	3:C:16:ARG:H	2.23	0.42
1:A:397:A:H5'	1:A:398:C:OP1	2.18	0.42
17:Q:4:LYS:N	24:Q:302:HOH:O	2.17	0.42
1:A:714:G:H2'	1:A:715:A:C8	2.54	0.42
1:A:484:G:H4'	1:A:485:G:O5'	2.18	0.42
3:C:36:ASP:O	3:C:39:ILE:HB	2.20	0.42
7:G:20:ASP:OD2	7:G:22:LEU:N	2.53	0.42
1:A:624:C:H2'	1:A:625:G:H8	1.84	0.42
9:I:88:TYR:CD2	9:I:89:ASN:HB2	2.54	0.42
1:A:110:C:H2'	1:A:111:G:O4'	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:G:75:VAL:HG11	7:G:86:GLN:HB3	2.02	0.42
9:I:10:ARG:HE	9:I:11:LYS:HB2	1.84	0.42
4:D:187:ARG:CZ	4:D:188:LEU:H	2.32	0.42
1:A:1320:C:N4	19:S:37:ARG:HG2	2.34	0.42
12:L:124:LYS:HA	12:L:125:PRO:HD3	1.90	0.42
1:A:757:U:O2'	1:A:879:C:O2	2.36	0.42
1:A:875:C:O2'	8:H:14:ARG:NH1	2.53	0.42
1:A:1406:U:C4'	1:A:1518[B]:MA6:H1'	2.49	0.42
11:K:84:VAL:HG21	11:K:95:ILE:HD11	2.02	0.42
2:B:215:LEU:HD23	2:B:215:LEU:HA	1.84	0.42
1:A:267:C:OP2	17:Q:67:LYS:HD3	2.19	0.42
1:A:355:C:H5'	1:A:389:A:OP2	2.20	0.42
13:M:15:VAL:HG23	13:M:43:THR:O	2.20	0.42
5:E:91:LEU:HB3	5:E:118:ILE:HD11	2.01	0.42
17:Q:6:LEU:HA	17:Q:6:LEU:HD23	1.86	0.42
1:A:1130:A:O2'	9:I:3:GLN:NE2	2.53	0.42
1:A:411:A:N7	1:A:413:G:N3	2.68	0.42
1:A:1301:U:O2'	1:A:1302:U:H3'	2.20	0.42
1:A:328:C:H1'	1:A:329:A:OP2	2.20	0.42
1:A:555:C:H2'	1:A:556:C:C6	2.55	0.42
17:Q:12:SER:HB3	17:Q:20:THR:HB	2.00	0.42
1:A:1218:C:H2'	1:A:1219:U:C6	2.55	0.42
19:S:36:ARG:NH2	19:S:75:ALA:O	2.53	0.42
4:D:191:ARG:HA	4:D:191:ARG:HD2	1.89	0.42
21:U:25:LYS:HA	21:U:25:LYS:HE3	2.02	0.42
2:B:100:GLY:O	2:B:104:ASN:N	2.45	0.42
1:A:518:C:H2'	1:A:530:G:C8	2.55	0.41
1:A:1216:G:H2'	1:A:1217:C:C6	2.55	0.41
13:M:97:PRO:HA	13:M:110:ARG:HD2	2.01	0.41
3:C:155:GLY:HA2	3:C:164:ARG:O	2.20	0.41
1:A:1086:U:H3	1:A:1099:G:N2	2.16	0.41
9:I:83:ARG:O	9:I:86:VAL:HG12	2.19	0.41
13:M:102:ARG:NH1	13:M:102:ARG:HB2	2.35	0.41
9:I:81:ILE:O	9:I:85:LEU:HB2	2.20	0.41
3:C:115:LEU:HA	3:C:115:LEU:HD23	1.77	0.41
1:A:313:A:H2'	1:A:314:C:C6	2.54	0.41
2:B:96:ARG:HA	2:B:96:ARG:HD2	1.88	0.41
1:A:1371:G:O3'	9:I:69:GLY:HA3	2.20	0.41
5:E:66:MET:HB3	5:E:66:MET:HE3	1.90	0.41
13:M:102:ARG:HG3	13:M:102:ARG:O	2.20	0.41
1:A:114:U:H1'	1:A:353:A:H1'	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:148:G:H2'	1:A:149:A:H8	1.85	0.41
1:A:895:G:H2'	1:A:896:C:C6	2.56	0.41
4:D:116:GLN:NE2	4:D:157:LEU:HD11	2.35	0.41
1:A:517:G:N1	1:A:533:A:OP2	2.39	0.41
7:G:26:PHE:HD1	7:G:101:LEU:HD22	1.85	0.41
1:A:918:A:H2'	1:A:919:A:C8	2.55	0.41
1:A:1227:A:OP2	13:M:111:LYS:HE2	2.20	0.41
5:E:92:LYS:HB2	5:E:92:LYS:HE3	1.83	0.41
1:A:316:G:OP2	1:A:351:G:O2'	2.37	0.41
20:T:50:GLU:HA	20:T:100:ILE:HG22	2.02	0.41
1:A:476:G:H2'	1:A:477:G:C8	2.56	0.41
5:E:72:GLN:O	5:E:75:THR:HG22	2.21	0.41
1:A:812:C:H6	1:A:812:C:H2'	1.73	0.41
16:P:81:ARG:HB2	24:P:211:HOH:O	2.20	0.41
1:A:142:G:H2'	1:A:143:A:H8	1.86	0.41
1:A:1315:U:O2'	1:A:1360:A:N3	2.45	0.41
1:A:1381:U:H2'	1:A:1382:C:H6	1.86	0.41
1:A:413:G:H2'	1:A:428:G:N2	2.35	0.41
17:Q:48:GLU:CD	17:Q:50:LYS:HE2	2.41	0.41
2:B:208:ILE:HA	2:B:211:ILE:HD12	2.02	0.41
1:A:204:U:H4'	1:A:216:G:O4'	2.20	0.41
9:I:111:ARG:HG2	9:I:112:LYS:N	2.36	0.41
1:A:404:U:H2'	1:A:405:U:H6	1.86	0.41
2:B:219:VAL:O	2:B:223:ILE:HG13	2.21	0.41
10:J:61:GLU:OE1	14:N:45:ARG:NH1	2.43	0.41
1:A:1147:C:HO2'	9:I:5:TYR:HH	1.61	0.41
5:E:118:ILE:HG12	5:E:119:LEU:N	2.36	0.41
1:A:142:G:H2'	1:A:143:A:C8	2.55	0.41
5:E:131:ILE:HD13	5:E:131:ILE:HA	1.92	0.41
1:A:411:A:OP2	4:D:25:ARG:NH2	2.53	0.41
1:A:1347:G:H1'	1:A:1348:U:H5	1.85	0.41
1:A:1304:G:C6	1:A:1305:G:N1	2.89	0.41
1:A:390:C:H2'	1:A:391:G:H8	1.84	0.41
7:G:69:VAL:HG11	7:G:134:ALA:HB1	2.03	0.41
19:S:40:ILE:HD13	19:S:62:ILE:HD13	2.03	0.41
1:A:757:U:H2'	1:A:758:G:O4'	2.21	0.41
6:F:100:ASN:O	18:R:28:GLU:HG3	2.21	0.41
1:A:1072:G:C5	1:A:1073:U:C4	3.09	0.41
2:B:182:ILE:HA	2:B:183:PRO:HD2	1.92	0.41
1:A:1343:G:H1'	9:I:121:ARG:NH1	2.36	0.41
1:A:1168:A:C6	1:A:1169:A:C6	3.09	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:K:112:THR:HA	11:K:113:PRO:HD3	1.88	0.41
12:L:51:ALA:O	12:L:52:LEU:HD23	2.20	0.41
8:H:20:TYR:CE1	8:H:76:PRO:HD2	2.56	0.41
1:A:132:C:O2	1:A:230:G:N2	2.33	0.41
4:D:36:ARG:N	4:D:37:PRO:HD3	2.36	0.41
3:C:6:HIS:HD2	3:C:8:ILE:H	1.68	0.41
1:A:1425:U:H2'	1:A:1426:C:H6	1.86	0.41
1:A:130:A:H1'	1:A:263:A:O2'	2.21	0.41
1:A:1141:C:H2'	1:A:1142:G:C8	2.56	0.41
4:D:151:LYS:H	4:D:151:LYS:HD2	1.86	0.41
17:Q:27:PHE:CZ	17:Q:36:ILE:HD11	2.56	0.41
1:A:1211:U:H4'	1:A:1212:U:O5'	2.20	0.41
1:A:1095:U:H2'	1:A:1096:C:O4'	2.21	0.41
4:D:24:GLU:HG2	4:D:25:ARG:N	2.36	0.40
20:T:100:ILE:HG12	20:T:102:GLY:H	1.86	0.40
1:A:1238:A:OP1	1:A:1336:C:H5	2.04	0.40
1:A:1521:G:H2'	1:A:1522:U:C6	2.56	0.40
3:C:88:ARG:HD3	3:C:101:LEU:HB2	2.03	0.40
1:A:781:A:C5	1:A:802:A:C2	3.10	0.40
1:A:1030(A):G:H2'	1:A:1030(B):C:H5''	2.03	0.40
1:A:289:G:P	24:A:1909:HOH:O	2.79	0.40
12:L:77:LEU:HD21	12:L:107:ALA:HB2	2.03	0.40
15:O:67:LEU:HA	15:O:67:LEU:HD23	1.86	0.40
4:D:3:ARG:HD3	4:D:3:ARG:HA	1.71	0.40
1:A:1112:C:H42	3:C:177:THR:HA	1.86	0.40
11:K:84:VAL:HG11	11:K:91:ARG:HH11	1.86	0.40
2:B:167:PRO:HG3	2:B:186:ALA:HB1	2.04	0.40
1:A:337:C:H2'	1:A:338:A:C8	2.56	0.40
2:B:91:PRO:HB3	2:B:154:LEU:HB2	2.03	0.40
1:A:1450:U:H2'	1:A:1452:C:C5	2.56	0.40
1:A:913:A:H1'	1:A:914:A:OP2	2.20	0.40
4:D:88:VAL:O	4:D:92:VAL:HG23	2.21	0.40
1:A:948:C:OP2	13:M:108:ARG:HB2	2.21	0.40
1:A:976:G:H5'	1:A:1358:U:O2'	2.21	0.40
1:A:1126:U:C4	1:A:1127:G:N2	2.90	0.40
7:G:65:ALA:O	7:G:69:VAL:HG23	2.21	0.40
4:D:8:VAL:HG12	4:D:21:LEU:HD23	2.04	0.40
6:F:94:GLN:CB	18:R:32:ARG:HD3	2.50	0.40
19:S:28:LYS:HG2	19:S:29:ARG:H	1.87	0.40
17:Q:10:VAL:HG13	17:Q:19:VAL:HB	2.04	0.40
1:A:1465:C:H2'	1:A:1466:C:O4'	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:H:25:ASP:OD1	8:H:25:ASP:N	2.54	0.40
1:A:1518[A]:MA6:O5'	1:A:1518[A]:MA6:H8	2.21	0.40
1:A:1223:C:H3'	1:A:1224:G:H5''	2.03	0.40
2:B:16:HIS:CD2	2:B:204:ASN:H	2.40	0.40
1:A:625:G:H2'	1:A:626:U:C6	2.57	0.40
11:K:86:GLY:H	11:K:112:THR:HG23	1.86	0.40
1:A:273:A:N6	1:A:274:A:C6	2.90	0.40
1:A:564:C:C6	17:Q:31:LEU:HD11	2.57	0.40
3:C:22:TRP:CH2	14:N:54:PRO:HG2	2.57	0.40
1:A:662:G:H2'	1:A:663:A:C8	2.56	0.40
7:G:104:LEU:HA	7:G:104:LEU:HD23	1.93	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%)	210 (90%)	20 (9%)	2 (1%)	21	60
3	C	204/239 (85%)	185 (91%)	19 (9%)	0	100	100
4	D	206/209 (99%)	201 (98%)	5 (2%)	0	100	100
5	E	148/162 (91%)	143 (97%)	5 (3%)	0	100	100
6	F	99/101 (98%)	96 (97%)	3 (3%)	0	100	100
7	G	153/156 (98%)	149 (97%)	4 (3%)	0	100	100
8	H	136/138 (99%)	132 (97%)	4 (3%)	0	100	100
9	I	125/128 (98%)	114 (91%)	10 (8%)	1 (1%)	24	62
10	J	96/105 (91%)	81 (84%)	12 (12%)	3 (3%)	5	32
11	K	114/129 (88%)	107 (94%)	7 (6%)	0	100	100
12	L	121/135 (90%)	113 (93%)	7 (6%)	1 (1%)	24	62

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
13	M	116/126 (92%)	107 (92%)	9 (8%)	0	100	100
14	N	58/61 (95%)	49 (84%)	9 (16%)	0	100	100
15	O	85/89 (96%)	82 (96%)	3 (4%)	0	100	100
16	P	81/88 (92%)	78 (96%)	3 (4%)	0	100	100
17	Q	97/105 (92%)	91 (94%)	6 (6%)	0	100	100
18	R	68/88 (77%)	63 (93%)	5 (7%)	0	100	100
19	S	78/93 (84%)	73 (94%)	4 (5%)	1 (1%)	15	52
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%)	146 (6%)	8 (0%)	46	81

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
12	L	28	LYS
2	B	21	ARG
2	B	24	TRP
19	S	31	ILE
9	I	119	ALA
10	J	54	PHE
10	J	86	MET
10	J	34	VAL

### 5.3.2 Protein sidechains ⓘ

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%)	174 (86%)	28 (14%)	4	20
3	C	160/188 (85%)	134 (84%)	26 (16%)	3	14
4	D	180/181 (99%)	159 (88%)	21 (12%)	7	28
5	E	115/123 (94%)	103 (90%)	12 (10%)	9	34

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
6	F	90/90 (100%)	84 (93%)	6 (7%)	20	58
7	G	126/127 (99%)	113 (90%)	13 (10%)	9	34
8	H	119/119 (100%)	107 (90%)	12 (10%)	9	35
9	I	98/99 (99%)	90 (92%)	8 (8%)	14	48
10	J	87/92 (95%)	75 (86%)	12 (14%)	4	20
11	K	88/99 (89%)	78 (89%)	10 (11%)	7	29
12	L	103/110 (94%)	87 (84%)	16 (16%)	3	16
13	M	94/101 (93%)	82 (87%)	12 (13%)	5	23
14	N	49/50 (98%)	41 (84%)	8 (16%)	3	14
15	O	79/80 (99%)	66 (84%)	13 (16%)	3	14
16	P	72/74 (97%)	62 (86%)	10 (14%)	4	20
17	Q	94/97 (97%)	84 (89%)	10 (11%)	8	33
18	R	61/77 (79%)	52 (85%)	9 (15%)	4	17
19	S	71/80 (89%)	63 (89%)	8 (11%)	7	30
20	T	76/82 (93%)	66 (87%)	10 (13%)	5	22
21	U	19/22 (86%)	17 (90%)	2 (10%)	8	33
All	All	1983/2111 (94%)	1737 (88%)	246 (12%)	6	25

All (246) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	B	7	VAL
2	B	8	LYS
2	B	9	GLU
2	B	10	LEU
2	B	11	LEU
2	B	12	GLU
2	B	16	HIS
2	B	22	LYS
2	B	24	TRP
2	B	44	LEU
2	B	51	LEU
2	B	56	ARG
2	B	102	LEU
2	B	106	LYS
2	B	122	PHE

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Mol	Chain	Res	Type
2	B	127	ILE
2	B	128	GLU
2	B	133	LYS
2	B	153	ARG
2	B	162	ILE
2	B	163	PHE
2	B	178	ARG
2	B	190	THR
2	B	200	ILE
2	B	208	ILE
2	B	223	ILE
2	B	236	TYR
2	B	238	LEU
3	C	3	ASN
3	C	5	ILE
3	C	11	ARG
3	C	14	ILE
3	C	15	THR
3	C	21	ARG
3	C	34	LEU
3	C	37	GLN
3	C	45	LYS
3	C	58	GLU
3	C	69	HIS
3	C	85	ARG
3	C	91	LEU
3	C	99	VAL
3	C	101	LEU
3	C	107	GLN
3	C	144	SER
3	C	167	TRP
3	C	175	LEU
3	C	177	THR
3	C	178	LEU
3	C	188	LEU
3	C	190	ARG
3	C	191	THR
3	C	204	LEU
3	C	207	VAL
4	D	9	CYS
4	D	10	ARG
4	D	19	LEU

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Mol	Chain	Res	Type
4	D	21	LEU
4	D	26	CYS
4	D	34	GLU
4	D	36	ARG
4	D	53	ASP
4	D	61	LYS
4	D	64	LEU
4	D	78	LEU
4	D	96	LEU
4	D	112	VAL
4	D	122	ARG
4	D	131	ARG
4	D	135	LEU
4	D	137	SER
4	D	151	LYS
4	D	162	LEU
4	D	170	VAL
4	D	187	ARG
5	E	12	LEU
5	E	15	ARG
5	E	19	MET
5	E	31	LEU
5	E	41	VAL
5	E	63	ARG
5	E	64	ARG
5	E	79	GLU
5	E	80	ILE
5	E	117	ASP
5	E	125	SER
5	E	136	MET
6	F	10	LEU
6	F	19	LEU
6	F	24	GLU
6	F	55	ASP
6	F	83	ASP
6	F	87	ARG
7	G	5	ARG
7	G	6	ARG
7	G	8	GLU
7	G	21	VAL
7	G	38	LEU
7	G	57	GLU

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Mol	Chain	Res	Type
7	G	89	MET
7	G	92	SER
7	G	94	ARG
7	G	97	GLN
7	G	113	GLU
7	G	149	ARG
7	G	156	TRP
8	H	24	THR
8	H	26	VAL
8	H	46	LYS
8	H	56	LYS
8	H	63	LEU
8	H	85	ARG
8	H	87	SER
8	H	91	ARG
8	H	92	ARG
8	H	93	VAL
8	H	95	VAL
8	H	105	ARG
9	I	9	ARG
9	I	79	LEU
9	I	86	VAL
9	I	91	ASP
9	I	99	LEU
9	I	111	ARG
9	I	116	LYS
9	I	124	GLN
10	J	38	ILE
10	J	44	VAL
10	J	45	ARG
10	J	55	LYS
10	J	57	LYS
10	J	60	ARG
10	J	65	LEU
10	J	73	ASP
10	J	86	MET
10	J	89	ASP
10	J	95	GLU
10	J	96	ILE
11	K	12	ARG
11	K	16	SER
11	K	29	ILE

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Mol	Chain	Res	Type
11	K	47	VAL
11	K	48	ILE
11	K	54	ARG
11	K	91	ARG
11	K	92	GLU
11	K	98	LEU
11	K	109	VAL
12	L	13	LYS
12	L	15	ARG
12	L	17	LYS
12	L	18	VAL
12	L	20	LYS
12	L	33	ARG
12	L	47	LYS
12	L	53	ARG
12	L	60	LEU
12	L	79	GLU
12	L	91	LYS
12	L	115	LYS
12	L	116	SER
12	L	122	THR
12	L	124	LYS
12	L	126	LYS
13	M	9	ILE
13	M	12	ASN
13	M	14	ARG
13	M	34	LEU
13	M	46	LYS
13	M	49	THR
13	M	56	LEU
13	M	66	LEU
13	M	70	LEU
13	M	102	ARG
13	M	108	ARG
13	M	110	ARG
14	N	6	LEU
14	N	12	ARG
14	N	22	THR
14	N	24	CYS
14	N	29	ARG
14	N	40	CYS
14	N	44	LEU

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Mol	Chain	Res	Type
14	N	58	LYS
15	O	5	LYS
15	O	31	LEU
15	O	34	LEU
15	O	36	ILE
15	O	39	LEU
15	O	45	VAL
15	O	57	LEU
15	O	65	ARG
15	O	71	GLN
15	O	73	GLU
15	O	76	GLU
15	O	81	LEU
15	O	83	GLU
16	P	20	VAL
16	P	27	LYS
16	P	28	ARG
16	P	36	ILE
16	P	42	ARG
16	P	55	ARG
16	P	61	SER
16	P	62	VAL
16	P	67	THR
16	P	82	GLN
17	Q	4	LYS
17	Q	15	MET
17	Q	16	GLN
17	Q	34	LYS
17	Q	53	LEU
17	Q	59	ILE
17	Q	61	GLU
17	Q	74	LEU
17	Q	92	ARG
17	Q	98	LEU
18	R	19	LYS
18	R	26	LEU
18	R	28	GLU
18	R	38	GLU
18	R	46	GLU
18	R	54	ARG
18	R	76	LEU
18	R	82	THR

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Mol	Chain	Res	Type
18	R	86	VAL
19	S	3	ARG
19	S	7	LYS
19	S	13	ASP
19	S	36	ARG
19	S	65	ASN
19	S	70	LYS
19	S	71	LEU
19	S	81	ARG
20	T	18	GLN
20	T	19	SER
20	T	35	THR
20	T	42	GLN
20	T	43	LEU
20	T	57	ARG
20	T	68	LYS
20	T	72	LEU
20	T	75	ASN
20	T	84	LEU
21	U	6	ARG
21	U	25	LYS

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
2	B	204	ASN
9	I	73	GLN

### 5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	1504/1522 (98%)	258 (17%)	37 (2%)

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	13	U

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Mol	Chain	Res	Type
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	80	G
1	A	81	U
1	A	82	U
1	A	101	A
1	A	108	G
1	A	115	G
1	A	116	A
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	190(D)	U
1	A	195	A
1	A	197	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	266	G
1	A	267	C
1	A	281	G
1	A	282	A
1	A	289	G
1	A	299	G
1	A	301	G
1	A	321	A
1	A	328	C
1	A	329	A

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Mol	Chain	Res	Type
1	A	332	G
1	A	344	A
1	A	345	C
1	A	347	G
1	A	351	G
1	A	352	C
1	A	353	A
1	A	354	G
1	A	367	U
1	A	372	C
1	A	373	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	422	C
1	A	424	G
1	A	429	U
1	A	439	A
1	A	460	A
1	A	461	C
1	A	463	A
1	A	481	G
1	A	485	G
1	A	486	U
1	A	496	A
1	A	497	A
1	A	498	U
1	A	508	C
1	A	509	A
1	A	510	A
1	A	511	C
1	A	518	C
1	A	519	C
1	A	527	7MG
1	A	532	A
1	A	533	A
1	A	547	A

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Mol	Chain	Res	Type
1	A	559	A
1	A	560	U
1	A	562	C
1	A	563	A
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	653	A
1	A	665	A
1	A	671	G
1	A	686	U
1	A	687	A
1	A	688	G
1	A	693	G
1	A	694	A
1	A	695	A
1	A	701	C
1	A	702	A
1	A	723	U
1	A	724	G
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	784	C
1	A	792	A
1	A	793	U
1	A	794	A
1	A	813	U
1	A	817	C
1	A	827	U
1	A	828	A
1	A	839	U
1	A	840	C
1	A	841	U

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Mol	Chain	Res	Type
1	A	848	C
1	A	858	G
1	A	871	U
1	A	872	A
1	A	876	G
1	A	902	G
1	A	903	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	963	G
1	A	966	M2G
1	A	969	A
1	A	975	A
1	A	976	G
1	A	977	A
1	A	989	C
1	A	992	U
1	A	993	G
1	A	1004	A
1	A	1005	A
1	A	1006	C
1	A	1016	A
1	A	1021	G
1	A	1023	G
1	A	1024	G
1	A	1026	G
1	A	1030(B)	C
1	A	1031	G
1	A	1045	C
1	A	1050	G
1	A	1053	G
1	A	1061	G
1	A	1065	U
1	A	1068	G
1	A	1094	G
1	A	1095	U

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Mol	Chain	Res	Type
1	A	1101	A
1	A	1104	G
1	A	1124	G
1	A	1125	U
1	A	1126	U
1	A	1127	G
1	A	1129	C
1	A	1130	A
1	A	1138	G
1	A	1139	G
1	A	1140	C
1	A	1145	C
1	A	1150	U
1	A	1159	U
1	A	1160	G
1	A	1169	A
1	A	1171	G
1	A	1182	G
1	A	1183	A
1	A	1190	G
1	A	1191	A
1	A	1195	C
1	A	1196	U
1	A	1197	G
1	A	1198	G
1	A	1201	A
1	A	1202	G
1	A	1212	U
1	A	1225	A
1	A	1226	C
1	A	1233	G
1	A	1236	A
1	A	1238	A
1	A	1240	U
1	A	1241	G
1	A	1257	U
1	A	1258	G
1	A	1278	U
1	A	1280	A
1	A	1281	U
1	A	1286	A
1	A	1287	A

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Mol	Chain	Res	Type
1	A	1289	A
1	A	1300	G
1	A	1301	U
1	A	1302	U
1	A	1303	C
1	A	1305	G
1	A	1312	G
1	A	1318	A
1	A	1319	A
1	A	1320	C
1	A	1330	U
1	A	1335	C
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	1362	C
1	A	1364	U
1	A	1368	G
1	A	1370	G
1	A	1381	U
1	A	1397	C
1	A	1398	A
1	A	1442	G
1	A	1443	G
1	A	1446	A
1	A	1447	G
1	A	1485	U
1	A	1487	G
1	A	1490	C
1	A	1497	G
1	A	1498	UR3
1	A	1499	A
1	A	1502	A
1	A	1503	A
1	A	1504	G
1	A	1505	G
1	A	1506	U
1	A	1529	G
1	A	1530	G

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Mol	Chain	Res	Type
1	A	1531	A
1	A	1533	C

All (37) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	A	5	U
1	A	12	U
1	A	115	G
1	A	129(A)	G
1	A	181	G
1	A	250	A
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	509	A
1	A	518	C
1	A	559	A
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	991	U
1	A	992	U
1	A	1049	U
1	A	1067	A
1	A	1139	G
1	A	1182	G
1	A	1190	G
1	A	1201	A
1	A	1211	U
1	A	1257	U
1	A	1301	U
1	A	1346	A
1	A	1347	G
1	A	1380	U

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Mol	Chain	Res	Type
1	A	1505	G

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

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	2MG	A	1207	1	17,26,27	2.07	4 (23%)	21,38,41	2.12	3 (14%)
1	5MC	A	1400	1	13,22,23	0.95	1 (7%)	15,32,35	0.93	1 (6%)
1	4OC	A	1402	1	13,23,24	0.80	1 (7%)	18,32,35	0.65	0
1	5MC	A	1404	1	13,22,23	0.98	1 (7%)	15,32,35	0.95	1 (6%)
1	5MC	A	1407	1	13,22,23	1.13	1 (7%)	15,32,35	0.99	1 (6%)
1	UR3	A	1498	1,22	12,22,23	0.76	0	16,32,35	1.13	1 (6%)
1	MA6	A	1518[A]	1	16,26,27	0.67	0	18,38,41	1.24	3 (16%)
1	MA6	A	1518[B]	1	16,26,27	1.24	2 (12%)	18,38,41	1.13	2 (11%)
1	MA6	A	1519[A]	1	16,26,27	0.77	1 (6%)	18,38,41	1.38	4 (22%)
1	MA6	A	1519[B]	1	16,26,27	1.33	3 (18%)	18,38,41	1.06	2 (11%)
1	PSU	A	1540	1	13,21,22	1.07	1 (7%)	18,30,33	3.82	5 (27%)
1	PSU	A	1541	1,22	13,21,22	1.08	2 (15%)	18,30,33	3.73	5 (27%)
1	PSU	A	516	1,22	13,21,22	1.10	1 (7%)	18,30,33	3.48	5 (27%)
1	7MG	A	527	1	19,26,27	2.62	5 (26%)	24,39,42	2.08	5 (20%)
1	M2G	A	966	1	17,27,28	1.80	4 (23%)	22,40,43	2.00	1 (4%)
1	5MC	A	967	1	13,22,23	1.14	2 (15%)	15,32,35	1.00	2 (13%)
12	0TD	L	92	12	4,9,10	0.82	0	4,11,13	2.51	2 (50%)

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

All (29) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	527	7MG	C8-N9	-7.05	1.35	1.45
1	A	527	7MG	CM7-N7	-2.44	1.41	1.46
1	A	1541	PSU	O4'-C1'	-2.05	1.41	1.44
1	A	967	5MC	C6-N1	2.01	1.38	1.35
1	A	1519[B]	MA6	C5-C4	2.01	1.45	1.40
1	A	1207	2MG	C2-N1	2.05	1.42	1.34
1	A	1400	5MC	C5-C4	2.08	1.44	1.41
1	A	1519[A]	MA6	C2-N1	2.21	1.38	1.33
1	A	1402	4OC	C5-C4	2.25	1.44	1.39
1	A	1404	5MC	C5-C4	2.27	1.44	1.41
1	A	966	M2G	C4-N3	2.32	1.39	1.35
1	A	1407	5MC	C5-C4	2.36	1.45	1.41
1	A	1518[B]	MA6	C2-N1	2.48	1.38	1.33
1	A	967	5MC	C5-C4	2.50	1.45	1.41
1	A	1207	2MG	C4-N3	2.51	1.39	1.35
1	A	1519[B]	MA6	C2-N1	2.56	1.38	1.33
1	A	1518[B]	MA6	C6-N1	2.81	1.38	1.34
1	A	516	PSU	C4-N3	2.87	1.38	1.33
1	A	527	7MG	C6-N1	2.91	1.38	1.33
1	A	1541	PSU	C4-N3	2.96	1.38	1.33
1	A	1519[B]	MA6	C6-N1	2.99	1.38	1.34
1	A	966	M2G	C2-N1	3.04	1.40	1.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1540	PSU	C4-N3	3.16	1.39	1.33
1	A	966	M2G	C2-N2	3.30	1.40	1.34
1	A	966	M2G	C6-N1	5.02	1.42	1.33
1	A	527	7MG	C2-N2	5.05	1.44	1.34
1	A	1207	2MG	C2-N2	5.36	1.40	1.34
1	A	1207	2MG	C6-N1	5.46	1.43	1.33
1	A	527	7MG	C4-N3	5.69	1.41	1.34

All (43) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1540	PSU	N1-C2-N3	-14.03	119.38	128.33
1	A	1541	PSU	N1-C2-N3	-13.61	119.65	128.33
1	A	516	PSU	N1-C2-N3	-12.55	120.33	128.33
1	A	966	M2G	C5-C6-N1	-8.41	112.09	123.59
1	A	1207	2MG	C5-C6-N1	-7.65	113.13	123.59
1	A	527	7MG	C5-C4-N3	-7.20	119.80	126.82
12	L	92	0TD	CSB-SB-CB	-4.16	93.69	101.54
1	A	1541	PSU	C5-C6-N1	-3.02	120.13	124.39
1	A	516	PSU	C5-C6-N1	-2.95	120.23	124.39
1	A	1407	5MC	N4-C4-N3	-2.46	113.38	116.95
1	A	1540	PSU	C5-C6-N1	-2.35	121.08	124.39
1	A	527	7MG	N1-C2-N3	-2.31	121.75	125.53
1	A	967	5MC	N4-C4-N3	-2.25	113.69	116.95
1	A	1518[A]	MA6	N1-C6-N6	-2.22	114.63	117.05
1	A	1519[A]	MA6	C2'-C1'-N9	-2.21	110.92	114.29
1	A	1400	5MC	N4-C4-N3	-2.15	113.83	116.95
1	A	1519[A]	MA6	C1'-N9-C4	-2.07	123.81	126.94
12	L	92	0TD	O-C-CA	-2.02	120.10	125.44
1	A	1404	5MC	N4-C4-N3	-2.01	114.03	116.95
1	A	1518[A]	MA6	N3-C2-N1	2.15	130.54	128.89
1	A	967	5MC	CM5-C5-C6	2.22	123.09	118.62
1	A	527	7MG	C2-N3-C4	2.23	121.03	114.53
1	A	1519[B]	MA6	N3-C2-N1	2.34	130.69	128.89
1	A	1207	2MG	C4-C5-N7	2.37	111.66	109.48
1	A	1518[B]	MA6	N3-C2-N1	2.40	130.73	128.89
1	A	1498	UR3	C6-C5-C4	2.51	121.97	117.28
1	A	1518[B]	MA6	C2-N1-C6	2.54	116.84	111.43
1	A	1519[B]	MA6	C2-N1-C6	2.58	116.92	111.43
1	A	527	7MG	C6-N1-C2	2.67	119.64	115.94
1	A	1519[A]	MA6	C2-N1-C6	2.71	117.20	111.43
1	A	1540	PSU	O4'-C1'-C2'	2.88	107.67	104.73

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1518[A]	MA6	C2-N1-C6	2.98	117.77	111.43
1	A	516	PSU	C6-N1-C2	3.08	120.42	115.47
1	A	1519[A]	MA6	N3-C2-N1	3.14	131.30	128.89
1	A	1540	PSU	C6-N1-C2	3.21	120.63	115.47
1	A	516	PSU	O4'-C1'-C2'	3.35	108.14	104.73
1	A	1541	PSU	O4'-C1'-C2'	3.54	108.33	104.73
1	A	1541	PSU	C6-N1-C2	3.54	121.17	115.47
1	A	527	7MG	N3-C4-N9	3.95	132.69	126.75
1	A	1207	2MG	C6-N1-C2	4.51	121.87	115.31
1	A	1541	PSU	C4-N3-C2	5.03	119.59	115.25
1	A	516	PSU	C4-N3-C2	5.09	119.64	115.25
1	A	1540	PSU	C4-N3-C2	5.83	120.28	115.25

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

10 monomers are involved in 16 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	1207	2MG	1	0
1	A	1400	5MC	1	0
1	A	1402	4OC	1	0
1	A	1498	UR3	4	0
1	A	1518[A]	MA6	2	0
1	A	1518[B]	MA6	4	0
1	A	1519[A]	MA6	2	0
1	A	1519[B]	MA6	1	0
1	A	967	5MC	1	0
12	L	92	0TD	1	0

## 5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

Of 322 ligands modelled in this entry, 322 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

There are no such residues in this entry.

## 5.8 Polymer linkage issues

There are no chain breaks in this entry.

## 6 Fit of model and data ⓘ

### 6.1 Protein, DNA and RNA chains ⓘ

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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	1498/1522 (98%)	-0.11	33 (2%) 65 59	76, 115, 219, 341	0
2	B	234/256 (91%)	-0.20	2 (0%) 85 82	90, 139, 215, 256	0
3	C	206/239 (86%)	0.08	8 (3%) 43 36	120, 158, 201, 221	0
4	D	208/209 (99%)	-0.14	6 (2%) 55 49	87, 121, 164, 200	0
5	E	150/162 (92%)	-0.24	0 100 100	76, 101, 141, 181	0
6	F	101/101 (100%)	-0.46	0 100 100	103, 147, 173, 203	0
7	G	155/156 (99%)	-0.15	4 (2%) 59 53	105, 138, 189, 218	0
8	H	138/138 (100%)	-0.45	0 100 100	67, 96, 123, 153	0
9	I	127/128 (99%)	-0.09	1 (0%) 87 84	119, 158, 193, 212	0
10	J	98/105 (93%)	0.33	0 100 100	138, 184, 244, 266	0
11	K	116/129 (89%)	-0.27	0 100 100	89, 115, 160, 192	0
12	L	123/135 (91%)	-0.21	0 100 100	71, 119, 150, 203	0
13	M	118/126 (93%)	-0.14	3 (2%) 61 54	113, 145, 175, 266	0
14	N	60/61 (98%)	0.15	0 100 100	129, 149, 204, 222	0
15	O	87/89 (97%)	-0.16	2 (2%) 64 57	80, 112, 152, 188	0
16	P	83/88 (94%)	-0.17	0 100 100	87, 116, 142, 171	0
17	Q	99/105 (94%)	-0.23	2 (2%) 68 62	78, 108, 136, 165	0
18	R	70/88 (79%)	-0.20	0 100 100	90, 124, 174, 200	0
19	S	80/93 (86%)	0.10	1 (1%) 79 74	136, 178, 219, 245	0
20	T	99/106 (93%)	-0.22	0 100 100	90, 117, 160, 203	0
21	U	24/27 (88%)	0.53	1 (4%) 40 33	125, 142, 162, 184	0
All	All	3874/4063 (95%)	-0.13	63 (1%) 74 69	67, 126, 202, 341	0

All (63) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	1129	C	9.5
1	A	1037	C	5.3
1	A	1025	U	4.7
4	D	35	ARG	4.4
13	M	119	GLY	4.3
4	D	33	MET	4.2
7	G	156	TRP	4.1
1	A	1026	G	4.0
1	A	993	G	3.9
1	A	202	U	3.8
7	G	155	ARG	3.7
1	A	1002	G	3.5
9	I	128	ARG	3.3
1	A	1001	A	3.2
1	A	1030(A)	G	3.0
1	A	1036	G	3.0
21	U	18	TYR	2.9
1	A	1030	C	2.9
19	S	49	ILE	2.9
7	G	80	VAL	2.9
13	M	117	VAL	2.9
3	C	103	VAL	2.8
3	C	87	LEU	2.8
1	A	1419	G	2.8
2	B	132	LYS	2.7
1	A	1029	C	2.7
2	B	125	PRO	2.6
15	O	2	PRO	2.6
3	C	68	VAL	2.6
4	D	36	ARG	2.6
13	M	118	ALA	2.5
3	C	66	VAL	2.5
1	A	1034	G	2.5
17	Q	98	LEU	2.5
1	A	1031	G	2.5
1	A	1038	C	2.4
3	C	2	GLY	2.4
1	A	1006	C	2.4
1	A	1042	G	2.4
1	A	1024	G	2.3
17	Q	96	GLN	2.3
3	C	76	VAL	2.3
1	A	1027	C	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	1003	G	2.3
1	A	1023	G	2.3
7	G	2	ALA	2.2
1	A	1043	C	2.2
1	A	1417	G	2.2
1	A	1492	A	2.2
4	D	37	PRO	2.2
4	D	34	GLU	2.2
1	A	1443	G	2.2
1	A	1144	G	2.2
1	A	1030(B)	C	2.2
15	O	88	ARG	2.2
1	A	1035	A	2.1
1	A	81	U	2.1
3	C	91	LEU	2.1
1	A	1030(D)	A	2.1
4	D	9	CYS	2.1
1	A	1032	G	2.0
1	A	1047	G	2.0
3	C	101	LEU	2.0

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

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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95<sup>th</sup> 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	LLDF	B-factors(Å <sup>2</sup> )	Q<0.9
1	5MC	A	1404	21/22	0.95	0.19	-	94,103,109,116	0
1	5MC	A	1400	21/22	0.95	0.18	-	83,107,117,120	0
1	PSU	A	1541	20/21	0.91	0.28	-	154,163,196,196	0
1	5MC	A	1407	21/22	0.95	0.22	-	113,135,139,144	0
12	0TD	L	92	10/11	0.97	0.29	-	109,122,126,310	0
1	5MC	A	967	21/22	0.97	0.12	-	107,115,127,131	0
1	PSU	A	1540	20/21	0.88	0.37	-	184,203,209,210	0
1	4OC	A	1402	22/23	0.98	0.21	-	100,106,117,122	0
1	PSU	A	516	20/21	0.95	0.12	-	119,125,139,145	0
1	MA6	A	1519[A]	24/25	0.97	0.26	-	90,94,100,105	24
1	UR3	A	1498	21/22	0.96	0.21	-	94,105,112,119	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
1	2MG	A	1207	24/25	0.96	0.13	-	147,149,158,159	0
1	M2G	A	966	25/26	0.96	0.15	-	102,126,132,137	0
1	MA6	A	1518[A]	24/25	0.95	0.23	-	93,101,105,105	24
1	MA6	A	1519[B]	24/25	0.97	0.26	-	93,96,121,124	24
1	MA6	A	1518[B]	24/25	0.95	0.23	-	94,102,110,112	24
1	7MG	A	527	24/25	0.98	0.15	-	99,110,120,124	0

## 6.3 Carbohydrates [i](#)

There are no carbohydrates 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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95<sup>th</sup> 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	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
22	MG	A	1747	1/1	0.27	0.79	43.58	115,115,115,115	0
22	MG	A	1614	1/1	0.95	0.64	36.41	138,138,138,138	0
22	MG	A	1808	1/1	0.79	1.20	31.07	303,303,303,303	0
22	MG	A	1838	1/1	0.79	0.80	23.62	319,319,319,319	0
22	MG	Q	203	1/1	0.89	0.93	16.44	379,379,379,379	0
22	MG	A	1892	1/1	0.21	0.74	16.18	146,146,146,146	0
22	MG	N	102	1/1	0.75	0.50	13.46	111,111,111,111	0
22	MG	A	1623	1/1	0.99	0.66	12.97	64,64,64,64	0
22	MG	A	1644	1/1	0.94	0.72	12.89	122,122,122,122	0
22	MG	A	1700	1/1	0.82	0.63	12.09	112,112,112,112	0
22	MG	A	1713	1/1	0.89	0.38	11.28	100,100,100,100	0
22	MG	A	1722	1/1	0.93	0.44	10.82	75,75,75,75	0
22	MG	A	1781	1/1	0.97	0.46	9.67	111,111,111,111	0
22	MG	A	1837	1/1	0.94	0.46	9.19	238,238,238,238	0
22	MG	A	1768	1/1	0.72	0.30	8.93	93,93,93,93	0
22	MG	A	1736	1/1	0.97	0.29	8.48	82,82,82,82	0
22	MG	A	1728	1/1	0.69	0.41	7.60	116,116,116,116	0
22	MG	D	302	1/1	0.96	0.54	7.53	91,91,91,91	0
22	MG	A	1742	1/1	0.88	0.46	7.30	79,79,79,79	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
22	MG	A	1772	1/1	0.93	0.22	6.61	175,175,175,175	0
22	MG	A	1696	1/1	0.97	0.37	6.30	154,154,154,154	0
22	MG	A	1726	1/1	0.94	0.32	5.68	114,114,114,114	0
22	MG	A	1880	1/1	0.85	0.26	5.48	140,140,140,140	0
22	MG	A	1731	1/1	0.54	0.35	4.33	100,100,100,100	0
22	MG	A	1751	1/1	0.99	0.33	4.23	83,83,83,83	0
22	MG	A	1850	1/1	0.83	0.36	3.98	299,299,299,299	0
22	MG	A	1839	1/1	0.79	0.25	3.96	345,345,345,345	0
22	MG	D	306	1/1	0.84	0.47	3.79	102,102,102,102	0
22	MG	A	1705	1/1	0.94	0.26	3.57	88,88,88,88	0
22	MG	A	1856	1/1	0.98	0.25	3.38	236,236,236,236	0
22	MG	A	1881	1/1	0.88	0.23	2.88	111,111,111,111	0
22	MG	S	101	1/1	0.81	0.47	2.65	114,114,114,114	0
22	MG	A	1822	1/1	0.90	0.20	2.63	177,177,177,177	0
22	MG	A	1717	1/1	0.93	0.34	2.60	93,93,93,93	0
22	MG	A	1779	1/1	0.90	0.20	2.55	128,128,128,128	0
22	MG	A	1841	1/1	0.91	0.27	2.38	373,373,373,373	0
22	MG	A	1697	1/1	0.94	0.34	2.13	99,99,99,99	0
23	ZN	D	301	1/1	0.98	0.38	1.62	124,124,124,124	0
22	MG	A	1821	1/1	0.97	0.27	1.61	308,308,308,308	0
23	ZN	N	101	1/1	0.98	0.21	1.58	149,149,149,149	0
22	MG	A	1789	1/1	0.97	0.28	1.57	86,86,86,86	0
22	MG	A	1648	1/1	0.90	0.17	1.34	80,80,80,80	0
22	MG	A	1609	1/1	0.98	0.22	1.02	84,84,84,84	0
22	MG	A	1683	1/1	0.98	0.18	0.86	152,152,152,152	0
22	MG	A	1712	1/1	0.95	0.17	0.84	79,79,79,79	0
22	MG	A	1854	1/1	0.98	0.26	0.82	394,394,394,394	0
22	MG	B	301	1/1	0.93	0.20	0.61	127,127,127,127	0
22	MG	A	1889	1/1	0.70	0.21	0.37	122,122,122,122	0
22	MG	A	1615	1/1	0.92	0.23	0.23	82,82,82,82	0
22	MG	A	1784	1/1	0.95	0.18	0.03	94,94,94,94	0
22	MG	A	1750	1/1	0.99	0.17	0.02	87,87,87,87	0
22	MG	J	201	1/1	0.95	0.23	-0.12	111,111,111,111	0
22	MG	A	1636	1/1	0.89	0.17	-0.12	144,144,144,144	0
22	MG	A	1695	1/1	0.95	0.18	-0.28	97,97,97,97	0
22	MG	B	302	1/1	0.99	0.18	-0.41	231,231,231,231	0
22	MG	A	1760	1/1	0.94	0.15	-0.41	91,91,91,91	0
22	MG	A	1621	1/1	0.95	0.18	-0.57	79,79,79,79	0
22	MG	A	1770	1/1	0.78	0.15	-0.66	102,102,102,102	0
22	MG	A	1633	1/1	0.99	0.17	-0.67	91,91,91,91	0
22	MG	A	1740	1/1	0.97	0.15	-0.69	91,91,91,91	0
22	MG	A	1652	1/1	0.99	0.13	-0.80	86,86,86,86	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
22	MG	A	1706	1/1	0.99	0.15	-0.86	98,98,98,98	0
22	MG	C	302	1/1	0.92	0.13	-0.91	165,165,165,165	0
22	MG	D	303	1/1	0.90	0.13	-0.91	95,95,95,95	0
22	MG	A	1868	1/1	0.98	0.15	-0.98	179,179,179,179	0
22	MG	A	1690	1/1	0.92	0.12	-1.20	128,128,128,128	0
22	MG	A	1661	1/1	0.87	0.13	-1.22	163,163,163,163	0
22	MG	Q	201	1/1	0.73	0.13	-1.30	106,106,106,106	0
22	MG	A	1641	1/1	0.97	0.12	-1.42	156,156,156,156	0
22	MG	A	1632	1/1	0.96	0.13	-1.57	123,123,123,123	0
22	MG	A	1656	1/1	0.98	0.13	-1.74	87,87,87,87	0
22	MG	A	1774	1/1	0.94	0.14	-1.93	175,175,175,175	0
22	MG	A	1699	1/1	0.98	0.14	-2.01	101,101,101,101	0
22	MG	A	1637	1/1	0.98	0.15	-2.07	87,87,87,87	0
22	MG	A	1771	1/1	0.97	0.07	-2.58	115,115,115,115	0
22	MG	A	1629	1/1	0.98	0.05	-7.77	70,70,70,70	0
22	MG	A	1610	1/1	0.95	0.17	-	195,195,195,195	0
22	MG	A	1666	1/1	0.94	0.12	-	107,107,107,107	0
22	MG	A	1796	1/1	0.84	0.26	-	248,248,248,248	0
22	MG	A	1667	1/1	0.98	0.14	-	243,243,243,243	0
22	MG	A	1780	1/1	0.97	0.36	-	130,130,130,130	0
22	MG	A	1875	1/1	0.95	0.15	-	130,130,130,130	0
22	MG	A	1877	1/1	0.87	0.28	-	105,105,105,105	0
22	MG	A	1608	1/1	0.92	0.28	-	88,88,88,88	0
22	MG	A	1811	1/1	0.85	0.43	-	367,367,367,367	0
22	MG	A	1876	1/1	0.98	0.68	-	122,122,122,122	0
22	MG	A	1754	1/1	0.85	0.58	-	128,128,128,128	0
22	MG	A	1809	1/1	0.96	0.07	-	149,149,149,149	0
22	MG	A	1617	1/1	0.91	0.27	-	109,109,109,109	0
22	MG	M	201	1/1	0.97	0.27	-	343,343,343,343	0
22	MG	A	1765	1/1	0.87	0.29	-	117,117,117,117	0
22	MG	A	1702	1/1	0.95	0.20	-	217,217,217,217	0
22	MG	A	1642	1/1	0.96	0.33	-	122,122,122,122	0
22	MG	A	1663	1/1	0.91	0.11	-	145,145,145,145	0
22	MG	A	1732	1/1	0.82	0.32	-	131,131,131,131	0
22	MG	A	1704	1/1	0.85	0.28	-	91,91,91,91	0
22	MG	A	1707	1/1	0.94	0.34	-	105,105,105,105	0
22	MG	A	1791	1/1	0.93	0.19	-	128,128,128,128	0
22	MG	T	201	1/1	0.91	0.50	-	89,89,89,89	0
22	MG	A	1601	1/1	0.98	0.32	-	104,104,104,104	0
22	MG	A	1792	1/1	0.97	0.25	-	290,290,290,290	0
22	MG	A	1687	1/1	0.97	0.20	-	110,110,110,110	0
22	MG	P	102	1/1	0.90	0.12	-	216,216,216,216	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
22	MG	A	1718	1/1	0.83	0.37	-	113,113,113,113	0
22	MG	A	1871	1/1	0.91	0.51	-	144,144,144,144	0
22	MG	A	1698	1/1	0.96	0.46	-	120,120,120,120	0
22	MG	A	1872	1/1	0.86	0.84	-	155,155,155,155	0
22	MG	A	1737	1/1	0.88	0.54	-	105,105,105,105	0
22	MG	A	1799	1/1	0.95	0.08	-	260,260,260,260	0
22	MG	A	1613	1/1	0.98	0.13	-	91,91,91,91	0
22	MG	A	1869	1/1	0.79	0.54	-	77,77,77,77	0
22	MG	A	1817	1/1	0.96	0.25	-	161,161,161,161	0
22	MG	A	1643	1/1	0.98	0.17	-	155,155,155,155	0
22	MG	A	1680	1/1	0.90	0.19	-	126,126,126,126	0
22	MG	A	1853	1/1	0.91	0.57	-	229,229,229,229	0
22	MG	A	1719	1/1	0.89	0.19	-	81,81,81,81	0
22	MG	A	1803	1/1	0.97	0.27	-	305,305,305,305	0
22	MG	A	1723	1/1	0.97	0.21	-	102,102,102,102	0
22	MG	A	1694	1/1	0.88	0.25	-	341,341,341,341	0
22	MG	A	1894	1/1	0.84	0.40	-	103,103,103,103	0
22	MG	A	1845	1/1	0.82	0.34	-	159,159,159,159	0
22	MG	A	1815	1/1	0.92	0.13	-	261,261,261,261	0
22	MG	A	1825	1/1	0.94	0.30	-	249,249,249,249	0
22	MG	A	1848	1/1	0.92	0.08	-	125,125,125,125	0
22	MG	A	1863	1/1	0.96	0.23	-	341,341,341,341	0
22	MG	A	1664	1/1	0.91	0.12	-	94,94,94,94	0
22	MG	A	1662	1/1	0.99	0.09	-	98,98,98,98	0
22	MG	A	1834	1/1	0.94	0.42	-	234,234,234,234	0
22	MG	A	1655	1/1	0.62	0.38	-	123,123,123,123	0
22	MG	A	1688	1/1	0.75	0.97	-	98,98,98,98	0
22	MG	A	1829	1/1	0.94	0.19	-	160,160,160,160	0
22	MG	A	1757	1/1	0.77	0.35	-	103,103,103,103	0
22	MG	C	301	1/1	0.74	0.16	-	103,103,103,103	0
22	MG	A	1860	1/1	0.94	0.14	-	260,260,260,260	0
22	MG	A	1612	1/1	0.93	0.07	-	107,107,107,107	0
22	MG	A	1619	1/1	0.97	0.43	-	107,107,107,107	0
22	MG	A	1864	1/1	0.94	0.43	-	303,303,303,303	0
22	MG	A	1602	1/1	0.94	0.13	-	110,110,110,110	0
22	MG	A	1795	1/1	0.96	0.15	-	247,247,247,247	0
22	MG	A	1895	1/1	0.95	0.66	-	85,85,85,85	0
22	MG	A	1634	1/1	0.99	0.35	-	67,67,67,67	0
22	MG	A	1721	1/1	0.66	0.37	-	131,131,131,131	0
22	MG	A	1657	1/1	0.90	0.28	-	91,91,91,91	0
22	MG	A	1665	1/1	0.93	0.12	-	89,89,89,89	0
22	MG	A	1870	1/1	0.96	0.26	-	117,117,117,117	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
22	MG	A	1739	1/1	0.85	0.28	-	108,108,108,108	0
22	MG	A	1852	1/1	0.96	0.22	-	189,189,189,189	0
22	MG	A	1649	1/1	0.96	0.20	-	74,74,74,74	0
22	MG	A	1755	1/1	0.82	0.48	-	109,109,109,109	0
22	MG	L	201	1/1	0.87	0.16	-	248,248,248,248	0
22	MG	P	101	1/1	0.82	0.35	-	92,92,92,92	0
22	MG	A	1734	1/1	0.90	0.39	-	108,108,108,108	0
22	MG	A	1807	1/1	0.98	0.19	-	236,236,236,236	0
22	MG	A	1620	1/1	0.93	0.87	-	103,103,103,103	0
22	MG	A	1715	1/1	0.91	0.42	-	108,108,108,108	0
22	MG	A	1794	1/1	0.95	0.16	-	344,344,344,344	0
22	MG	A	1763	1/1	0.77	0.42	-	121,121,121,121	0
22	MG	A	1842	1/1	0.93	0.42	-	259,259,259,259	0
22	MG	A	1818	1/1	0.98	0.20	-	235,235,235,235	0
22	MG	A	1883	1/1	0.97	0.31	-	114,114,114,114	0
22	MG	A	1790	1/1	0.27	0.94	-	135,135,135,135	0
22	MG	D	304	1/1	0.81	0.10	-	96,96,96,96	0
22	MG	A	1857	1/1	0.94	0.19	-	210,210,210,210	0
22	MG	A	1806	1/1	0.95	0.20	-	321,321,321,321	0
22	MG	A	1891	1/1	0.90	0.90	-	104,104,104,104	0
22	MG	A	1833	1/1	0.77	0.26	-	216,216,216,216	0
22	MG	A	1846	1/1	0.96	0.12	-	92,92,92,92	0
22	MG	A	1701	1/1	0.97	0.56	-	260,260,260,260	0
22	MG	A	1797	1/1	0.94	0.24	-	182,182,182,182	0
22	MG	A	1775	1/1	0.93	0.23	-	250,250,250,250	0
22	MG	A	1677	1/1	0.37	0.34	-	119,119,119,119	0
22	MG	E	201	1/1	0.94	0.09	-	128,128,128,128	0
22	MG	A	1692	1/1	0.98	0.12	-	106,106,106,106	0
22	MG	A	1660	1/1	0.97	0.16	-	112,112,112,112	0
22	MG	A	1647	1/1	0.94	0.18	-	67,67,67,67	0
22	MG	A	1744	1/1	0.94	0.20	-	106,106,106,106	0
22	MG	A	1798	1/1	0.88	0.20	-	389,389,389,389	0
22	MG	A	1819	1/1	0.93	0.14	-	147,147,147,147	0
22	MG	A	1720	1/1	0.91	0.54	-	96,96,96,96	0
22	MG	A	1624	1/1	0.88	0.70	-	112,112,112,112	0
22	MG	A	1873	1/1	0.84	0.41	-	135,135,135,135	0
22	MG	P	103	1/1	0.97	0.38	-	251,251,251,251	0
22	MG	A	1653	1/1	0.97	0.18	-	118,118,118,118	0
22	MG	A	1786	1/1	0.91	0.16	-	107,107,107,107	0
22	MG	A	1787	1/1	0.91	0.12	-	93,93,93,93	0
22	MG	A	1828	1/1	0.96	0.10	-	231,231,231,231	0
22	MG	A	1611	1/1	0.99	0.07	-	115,115,115,115	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
22	MG	A	1741	1/1	0.95	0.21	-	71,71,71,71	0
22	MG	A	1708	1/1	0.95	0.29	-	130,130,130,130	0
22	MG	A	1844	1/1	0.90	0.21	-	190,190,190,190	0
22	MG	A	1669	1/1	0.96	0.19	-	102,102,102,102	0
22	MG	A	1835	1/1	0.97	0.35	-	272,272,272,272	0
22	MG	A	1847	1/1	0.88	0.24	-	202,202,202,202	0
22	MG	A	1746	1/1	0.76	0.87	-	117,117,117,117	0
22	MG	A	1681	1/1	0.99	0.16	-	135,135,135,135	0
22	MG	Q	204	1/1	0.83	0.52	-	88,88,88,88	0
22	MG	A	1672	1/1	0.59	0.25	-	104,104,104,104	0
22	MG	A	1631	1/1	0.93	0.37	-	126,126,126,126	0
22	MG	A	1778	1/1	0.96	0.29	-	118,118,118,118	0
22	MG	A	1887	1/1	0.75	0.13	-	126,126,126,126	0
22	MG	A	1776	1/1	0.96	0.16	-	118,118,118,118	0
22	MG	A	1625	1/1	0.98	0.08	-	124,124,124,124	0
22	MG	A	1840	1/1	0.97	0.14	-	310,310,310,310	0
22	MG	A	1733	1/1	0.91	0.40	-	106,106,106,106	0
22	MG	A	1749	1/1	0.73	0.48	-	126,126,126,126	0
22	MG	A	1630	1/1	0.80	1.39	-	110,110,110,110	0
22	MG	A	1783	1/1	0.87	0.26	-	92,92,92,92	0
22	MG	A	1607	1/1	0.98	0.29	-	99,99,99,99	0
22	MG	A	1756	1/1	0.87	0.23	-	108,108,108,108	0
22	MG	A	1758	1/1	0.94	0.13	-	117,117,117,117	0
22	MG	A	1622	1/1	0.96	0.18	-	95,95,95,95	0
22	MG	A	1793	1/1	0.82	0.26	-	239,239,239,239	0
22	MG	A	1862	1/1	0.94	0.39	-	338,338,338,338	0
22	MG	A	1802	1/1	0.93	0.31	-	239,239,239,239	0
22	MG	A	1686	1/1	0.97	0.24	-	124,124,124,124	0
22	MG	A	1830	1/1	0.98	0.21	-	199,199,199,199	0
22	MG	A	1640	1/1	0.95	0.54	-	83,83,83,83	0
22	MG	A	1836	1/1	0.86	0.38	-	346,346,346,346	0
22	MG	A	1748	1/1	0.84	0.53	-	110,110,110,110	0
22	MG	A	1861	1/1	0.86	0.68	-	315,315,315,315	0
22	MG	A	1816	1/1	0.94	0.50	-	253,253,253,253	0
22	MG	A	1785	1/1	0.78	0.25	-	133,133,133,133	0
22	MG	A	1674	1/1	0.96	0.08	-	120,120,120,120	0
22	MG	A	1761	1/1	0.97	0.12	-	90,90,90,90	0
22	MG	A	1878	1/1	0.96	0.35	-	141,141,141,141	0
22	MG	E	202	1/1	0.79	0.73	-	173,173,173,173	0
22	MG	A	1826	1/1	0.98	0.11	-	138,138,138,138	0
22	MG	A	1810	1/1	0.96	0.13	-	291,291,291,291	0
22	MG	A	1874	1/1	0.80	0.14	-	127,127,127,127	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
22	MG	A	1638	1/1	0.96	0.24	-	114,114,114,114	0
22	MG	A	1843	1/1	0.94	0.72	-	151,151,151,151	0
22	MG	A	1866	1/1	0.92	0.24	-	239,239,239,239	0
22	MG	A	1676	1/1	0.97	0.11	-	135,135,135,135	0
22	MG	A	1727	1/1	0.99	0.11	-	115,115,115,115	0
22	MG	A	1764	1/1	0.93	0.18	-	111,111,111,111	0
22	MG	A	1759	1/1	0.81	0.42	-	112,112,112,112	0
22	MG	A	1879	1/1	0.99	0.15	-	102,102,102,102	0
22	MG	A	1604	1/1	0.96	0.59	-	91,91,91,91	0
22	MG	A	1804	1/1	0.97	0.07	-	147,147,147,147	0
22	MG	A	1673	1/1	0.97	0.79	-	102,102,102,102	0
22	MG	D	305	1/1	0.76	1.74	-	120,120,120,120	0
22	MG	A	1890	1/1	0.85	0.61	-	103,103,103,103	0
22	MG	A	1603	1/1	0.99	0.32	-	116,116,116,116	0
22	MG	A	1711	1/1	0.95	0.30	-	175,175,175,175	0
22	MG	A	1670	1/1	0.97	0.19	-	117,117,117,117	0
22	MG	A	1832	1/1	0.90	0.19	-	320,320,320,320	0
22	MG	A	1745	1/1	0.92	0.37	-	137,137,137,137	0
22	MG	A	1888	1/1	0.95	0.30	-	99,99,99,99	0
22	MG	A	1762	1/1	0.98	0.10	-	105,105,105,105	0
22	MG	A	1782	1/1	0.97	0.31	-	127,127,127,127	0
22	MG	A	1859	1/1	0.85	0.38	-	183,183,183,183	0
22	MG	A	1691	1/1	0.78	0.39	-	138,138,138,138	0
22	MG	A	1716	1/1	0.86	0.31	-	117,117,117,117	0
22	MG	A	1651	1/1	0.89	0.48	-	109,109,109,109	0
22	MG	A	1628	1/1	0.89	0.27	-	119,119,119,119	0
22	MG	A	1851	1/1	0.95	0.16	-	257,257,257,257	0
22	MG	A	1678	1/1	0.99	0.13	-	122,122,122,122	0
22	MG	A	1635	1/1	0.91	0.33	-	105,105,105,105	0
22	MG	A	1689	1/1	0.95	0.12	-	125,125,125,125	0
22	MG	A	1824	1/1	0.99	0.17	-	53,53,53,53	0
22	MG	A	1766	1/1	0.74	0.55	-	105,105,105,105	0
22	MG	A	1800	1/1	0.91	0.10	-	318,318,318,318	0
22	MG	A	1671	1/1	0.86	0.29	-	121,121,121,121	0
22	MG	A	1812	1/1	0.98	0.10	-	246,246,246,246	0
22	MG	A	1831	1/1	0.99	0.14	-	181,181,181,181	0
22	MG	A	1627	1/1	0.96	0.33	-	73,73,73,73	0
22	MG	A	1729	1/1	0.97	0.18	-	116,116,116,116	0
22	MG	A	1767	1/1	0.91	0.26	-	132,132,132,132	0
22	MG	A	1730	1/1	0.96	0.17	-	149,149,149,149	0
22	MG	A	1682	1/1	0.96	0.32	-	129,129,129,129	0
22	MG	A	1735	1/1	0.87	0.25	-	103,103,103,103	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
22	MG	Q	202	1/1	0.89	0.26	-	241,241,241,241	0
22	MG	A	1885	1/1	0.90	0.42	-	133,133,133,133	0
22	MG	A	1654	1/1	0.91	0.20	-	121,121,121,121	0
22	MG	A	1639	1/1	0.81	0.32	-	111,111,111,111	0
22	MG	A	1743	1/1	0.79	0.41	-	102,102,102,102	0
22	MG	A	1855	1/1	0.75	0.27	-	171,171,171,171	0
22	MG	A	1710	1/1	0.87	0.13	-	123,123,123,123	0
22	MG	A	1801	1/1	0.95	0.08	-	143,143,143,143	0
22	MG	A	1858	1/1	0.97	0.15	-	273,273,273,273	0
22	MG	A	1684	1/1	0.97	0.15	-	132,132,132,132	0
22	MG	A	1814	1/1	0.97	0.20	-	262,262,262,262	0
22	MG	A	1823	1/1	0.96	0.15	-	167,167,167,167	0
22	MG	A	1675	1/1	0.86	0.19	-	203,203,203,203	0
22	MG	A	1658	1/1	0.77	1.22	-	95,95,95,95	0
22	MG	A	1882	1/1	0.76	0.57	-	112,112,112,112	0
22	MG	A	1813	1/1	0.92	0.19	-	154,154,154,154	0
22	MG	A	1886	1/1	0.69	0.43	-	112,112,112,112	0
22	MG	A	1867	1/1	0.89	1.13	-	376,376,376,376	0
22	MG	A	1865	1/1	0.99	0.14	-	153,153,153,153	0
22	MG	F	201	1/1	0.97	0.34	-	115,115,115,115	0
22	MG	A	1668	1/1	0.97	0.24	-	94,94,94,94	0
22	MG	A	1626	1/1	0.83	0.33	-	99,99,99,99	0
22	MG	A	1805	1/1	0.84	0.28	-	281,281,281,281	0
22	MG	A	1709	1/1	0.99	0.31	-	105,105,105,105	0
22	MG	A	1685	1/1	0.81	0.55	-	99,99,99,99	0
22	MG	A	1738	1/1	0.92	0.31	-	84,84,84,84	0
22	MG	A	1777	1/1	0.92	0.19	-	111,111,111,111	0
22	MG	A	1646	1/1	0.96	0.21	-	113,113,113,113	0
22	MG	A	1773	1/1	0.91	0.12	-	154,154,154,154	0
22	MG	A	1849	1/1	0.97	0.49	-	367,367,367,367	0
22	MG	A	1753	1/1	0.92	0.21	-	117,117,117,117	0
22	MG	A	1714	1/1	0.81	0.42	-	108,108,108,108	0
22	MG	A	1788	1/1	0.97	0.11	-	109,109,109,109	0
22	MG	A	1725	1/1	0.97	0.13	-	95,95,95,95	0
22	MG	A	1724	1/1	0.93	0.28	-	98,98,98,98	0
22	MG	A	1606	1/1	0.95	0.12	-	129,129,129,129	0
22	MG	A	1752	1/1	0.74	0.63	-	120,120,120,120	0
22	MG	A	1616	1/1	0.97	0.34	-	100,100,100,100	0
22	MG	A	1659	1/1	0.95	0.17	-	110,110,110,110	0
22	MG	A	1605	1/1	0.98	0.12	-	97,97,97,97	0
22	MG	A	1769	1/1	0.84	0.21	-	134,134,134,134	0
22	MG	A	1650	1/1	0.96	0.19	-	172,172,172,172	0

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*Continued from previous page...*

Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
22	MG	A	1884	1/1	0.64	0.73	-	117,117,117,117	0
22	MG	A	1679	1/1	0.93	0.54	-	164,164,164,164	0
22	MG	A	1893	1/1	0.85	0.57	-	129,129,129,129	0
22	MG	A	1820	1/1	0.83	0.76	-	352,352,352,352	0
22	MG	A	1703	1/1	0.89	0.35	-	124,124,124,124	0
22	MG	A	1618	1/1	0.99	0.22	-	102,102,102,102	0
22	MG	A	1827	1/1	0.98	0.16	-	248,248,248,248	0
22	MG	A	1693	1/1	0.67	0.42	-	106,106,106,106	0
22	MG	A	1645	1/1	0.91	0.34	-	113,113,113,113	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.