



Full wwPDB/EMDataBank EM Map/Model Validation Report ⓘ

Mar 14, 2018 – 08:30 PM EDT

PDB ID : 6FXC
Title : The cryo-EM structure of hibernating 100S ribosome dimer from pathogenic *Staphylococcus aureus*
Authors : Matzov, D.; Aibara, S.; Zimmerman, E.; Bashan, A.; Kidmose, R.; Amunts, A.; Yonath, A.
Deposited on : 2018-03-08
Resolution : 6.76 Å(reported)

This is a Full wwPDB/EMDataBank EM Map/Model Validation Report
for a publicly released PDB/EMDB entry.

We welcome your comments at validation@mail.wwpdb.org
A user guide is available at
<http://wwpdb.org/validation/2016/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

MolProbity : 4.02b-467
Percentile statistics : 20161228.v01 (using entries in the PDB archive December 28th 2016)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP) : rb-20030736

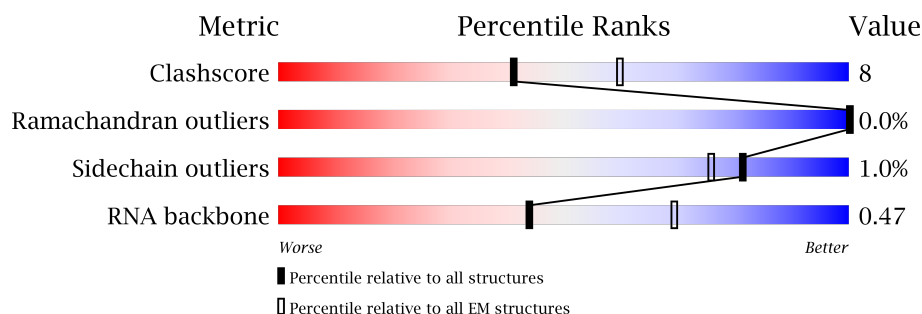
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 6.76 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.




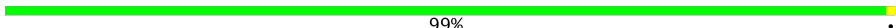
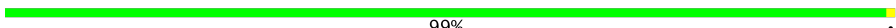
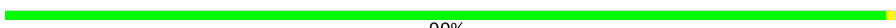









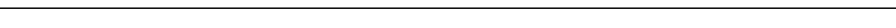

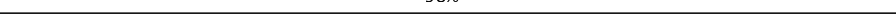
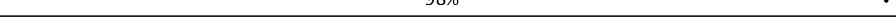


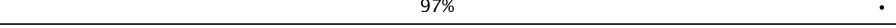
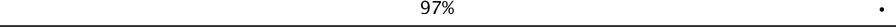
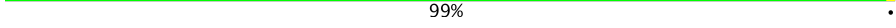
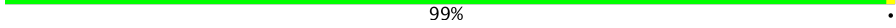
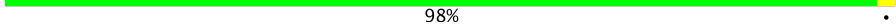
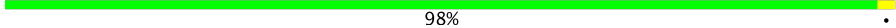
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	125131	1336
Ramachandran outliers	121729	1120
Sidechain outliers	121581	1026
RNA backbone	3398	335

The table below summarises the geometric issues observed across the polymeric chains. The red, orange, yellow and green segments on the bar indicate the fraction of residues that contain outliers for ≥ 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 $\leq 5\%$.

Mol	Chain	Length	Quality of chain
1	Aa	1539	68% 30% .
1	Ba	1539	68% 30% .
2	Ab	226	99% .
2	Bb	226	99% .
3	Ac	202	100%
3	Bc	202	100%
4	Ad	198	99% .
4	Bd	198	99% .

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Mol	Chain	Length	Quality of chain
5	Ae	156	 99%
5	Be	156	 99%
6	Af	95	 99%
6	Bf	95	 99%
7	Ag	152	 100%
7	Bg	152	 100%
8	Ah	131	 98%
8	Bh	131	 98%
9	Ai	127	 97%
9	Bi	127	 97%
10	Aj	97	 99%
10	Bj	97	 99%
11	Ak	114	 100%
11	Bk	114	 100%
12	Al	135	 98%
12	Bl	135	 98%
13	Am	121	 85% 14%
13	Bm	121	 85% 14%
14	An	60	 97%
14	Bn	60	 97%
15	Ao	88	 99%
15	Bo	88	 99%
16	Ap	89	 98%
16	Bp	89	 98%
17	Aq	80	 100%











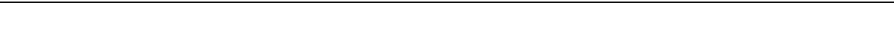

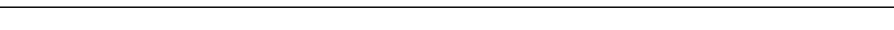
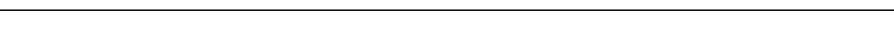











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Mol	Chain	Length	Quality of chain
17	Bq	80	100%
18	Ar	54	98%
18	Br	54	98%
19	As	80	99%
19	Bs	80	99%
20	At	81	99%
20	Bt	81	99%
21	Au	52	100%
21	Bu	52	100%
22	Av	190	82% 15%
22	Bv	190	82% 15%
23	AA	2923	55% 34% 10% ..
23	BA	2923	56% 33% 10% ..
24	AB	115	70% 24% ..
24	BB	115	71% 24% ..
25	AC	274	74% 25%
25	BC	274	76% 24%
26	AD	215	75% 25%
26	BD	215	74% 26%
27	AE	206	83% 17%
27	BE	206	83% 17%
28	AF	175	79% 21%
28	BF	175	81% 19%
29	AG	175	83% 16% .
29	BG	175	86% 14% .










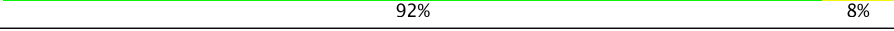



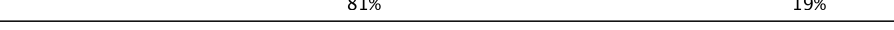







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Mol	Chain	Length	Quality of chain
30	AH	145	 90% 10%
30	BH	145	 90% 10%
31	AI	122	 68% 31% .
31	BI	122	 68% 31% .
32	AJ	146	 76% 24%
32	BJ	146	 76% 24%
33	AK	137	 77% 23% .
33	BK	137	 79% 20% .
34	AL	120	 87% 13%
34	BL	120	 87% 13%
35	AM	119	 76% 21% .
35	BM	119	 75% 23% .
36	AN	114	 81% 19%
36	BN	114	 80% 20%
37	AO	116	 84% 16% .
37	BO	116	 84% 16% .
38	AP	102	 87% 13%
38	BP	102	 87% 13%
39	AQ	112	 84% 15% .
39	BQ	112	 85% 14% .
40	AR	89	 81% 19%
40	BR	89	 81% 19%
41	AS	103	 81% 19%
41	BS	103	 81% 19%
42	AT	94	 91% 9%

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Mol	Chain	Length	Quality of chain
42	BT	94	 89% 11%
43	AU	82	 83% 16% .
43	BU	82	 80% 18% .
44	AV	58	 86% 12% .
44	BV	58	 86% 12% .
45	AW	67	 84% 16%
45	BW	67	 85% 15%
46	AX	58	 83% 17%
46	BX	58	 83% 17%
47	AY	59	 92% 8%
47	BY	59	 92% 8%
48	AZ	48	 79% 21%
48	BZ	48	 81% 19%
49	A1	47	 81% 19%
49	B1	47	 83% 17%
50	A2	43	 81% 19%
50	B2	43	 84% 16%
51	A3	64	 84% 16%
51	B3	64	 84% 16%
52	A4	37	 62% 35% .
52	B4	37	 65% 32% .

2 Entry composition

There are 52 unique types of molecules in this entry. The entry contains 281510 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a RNA chain called Ribosomal RNA 16S.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	Aa	1539	Total	C	N	O	P	0	0
			32969	14719	6017	10694	1539		
1	Ba	1539	Total	C	N	O	P	0	0
			32969	14719	6017	10694	1539		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
2	Ab	226	Total	C	N	O	S	0	0
			1813	1156	314	335	8		
2	Bb	226	Total	C	N	O	S	0	0
			1813	1156	314	335	8		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
3	Ac	202	Total	C	N	O	S	0	0
			1501	945	284	271	1		
3	Bc	202	Total	C	N	O	S	0	0
			1501	945	284	271	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
4	Ad	198	Total	C	N	O	S	0	0
			1497	952	275	268	2		
4	Bd	198	Total	C	N	O	S	0	0
			1497	952	275	268	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
5	Ae	156	Total	C	N	O	S	0	0
			1145	723	211	209	2		
5	Be	156	Total	C	N	O	S	0	0
			1145	723	211	209	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
6	Af	95	Total	C	N	O	S	0	0
			778	493	138	145	2		
6	Bf	95	Total	C	N	O	S	0	0
			778	493	138	145	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
7	Ag	152	Total	C	N	O	S	0	0
			1161	722	218	217	4		
7	Bg	152	Total	C	N	O	S	0	0
			1161	722	218	217	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
8	Ah	131	Total	C	N	O	S	0	0
			1026	650	183	189	4		
8	Bh	131	Total	C	N	O	S	0	0
			1026	650	183	189	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
9	Ai	127	Total	C	N	O	S	0	0
			922	576	179	166	1		
9	Bi	127	Total	C	N	O	S	0	0
			922	576	179	166	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
10	Aj	97	Total	C	N	O	S	0	0
			752	475	140	136	1		

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Mol	Chain	Residues	Atoms					AltConf	Trace
10	Bj	97	Total	C	N	O	S	0	0
			752	475	140	136	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
11	Ak	114	Total	C	N	O	S	0	0
			810	498	151	159	2		
11	Bk	114	Total	C	N	O	S	0	0
			810	498	151	159	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
12	Al	135	Total	C	N	O	S	0	0
			1037	646	211	178	2		
12	Bl	135	Total	C	N	O	S	0	0
			1037	646	211	178	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
13	Am	104	Total	C	N	O	S	0	0
			727	453	139	135			
13	Bm	104	Total	C	N	O	S	0	0
			727	453	139	135			

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

Mol	Chain	Residues	Atoms					AltConf	Trace
14	An	60	Total	C	N	O	S	0	0
			487	307	98	77	5		
14	Bn	60	Total	C	N	O	S	0	0
			487	307	98	77	5		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
15	Ao	88	Total	C	N	O	S	0	0
			723	448	150	124	1		
15	Bo	88	Total	C	N	O	S	0	0
			723	448	150	124	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
16	Ap	89	Total	C	N	O	S	0	0
			694	436	128	129	1		
16	Bp	89	Total	C	N	O	S	0	0
			694	436	128	129	1		

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

Mol	Chain	Residues	Atoms				AltConf	Trace
17	Aq	80	Total	C	N	O	0	0
			621	392	112	117		
17	Bq	80	Total	C	N	O	0	0
			621	392	112	117		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
18	Ar	54	Total	C	N	O	S	0	0
			446	284	86	74	2		
18	Br	54	Total	C	N	O	S	0	0
			446	284	86	74	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
19	As	80	Total	C	N	O	S	0	0
			636	410	113	111	2		
19	Bs	80	Total	C	N	O	S	0	0
			636	410	113	111	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
20	At	81	Total	C	N	O	S	0	0
			591	358	117	115	1		
20	Bt	81	Total	C	N	O	S	0	0
			591	358	117	115	1		

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

Mol	Chain	Residues	Atoms				AltConf	Trace
21	Au	52	Total	C	N	O	0	0
			400	249	79	72		
21	Bu	52	Total	C	N	O	0	0
			400	249	79	72		

- Molecule 22 is a protein called Ribosome hibernation promotion factor.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	Av	162	Total	C	N	O	S	0	0
			1333	835	242	254	2		
22	Bv	162	Total	C	N	O	S	0	0
			1333	835	242	254	2		

- Molecule 23 is a RNA chain called Ribosomal RNA 23S.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	AA	2905	Total	C	N	O	P	0	0
			62277	27803	11387	20182	2905		
23	BA	2905	Total	C	N	O	P	0	0
			62277	27803	11387	20182	2905		

- Molecule 24 is a RNA chain called Ribosomal RNA 5S.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	AB	115	Total	C	N	O	P	0	0
			2445	1094	436	801	114		
24	BB	115	Total	C	N	O	P	0	0
			2445	1094	436	801	114		

- Molecule 25 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	AC	274	Total	C	N	O	S	0	0
			2094	1303	415	371	5		
25	BC	274	Total	C	N	O	S	0	0
			2094	1303	415	371	5		

- Molecule 26 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	AD	215	Total	C	N	O	S	0	0
			1627	1018	299	305	5		

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Mol	Chain	Residues	Atoms					AltConf	Trace
26	BD	215	Total	C	N	O	S	0	0
			1627	1018	299	305	5		

- Molecule 27 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	AE	206	Total	C	N	O	S	0	0
			1572	986	288	296	2		
27	BE	206	Total	C	N	O	S	0	0
			1572	986	288	296	2		

- Molecule 28 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	AF	175	Total	C	N	O	S	0	0
			1325	837	227	255	6		
28	BF	175	Total	C	N	O	S	0	0
			1325	837	227	255	6		

- Molecule 29 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	AG	175	Total	C	N	O	S	0	0
			1263	790	239	231	3		
29	BG	175	Total	C	N	O	S	0	0
			1263	790	239	231	3		

- Molecule 30 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	AH	145	Total	C	N	O	S	0	0
			1143	714	208	218	3		
30	BH	145	Total	C	N	O	S	0	0
			1143	714	208	218	3		

- Molecule 31 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	AI	122	Total	C	N	O	S	0	0
			918	572	174	168	4		
31	BI	122	Total	C	N	O	S	0	0
			918	572	174	168	4		

- Molecule 32 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	AJ	146	Total	C	N	O	S	0	0
			1086	674	214	197	1		
32	BJ	146	Total	C	N	O	S	0	0
			1086	674	214	197	1		

- Molecule 33 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	AK	137	Total	C	N	O	S	0	0
			1071	689	203	175	4		
33	BK	137	Total	C	N	O	S	0	0
			1071	689	203	175	4		

- Molecule 34 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	AL	120	Total	C	N	O	S	0	0
			932	576	182	173	1		
34	BL	120	Total	C	N	O	S	0	0
			932	576	182	173	1		

- Molecule 35 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	AM	119	Total	C	N	O	S	0	0
			891	557	174	159	1		
35	BM	119	Total	C	N	O	S	0	0
			891	557	174	159	1		

- Molecule 36 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms				AltConf	Trace
36	AN	114	Total	C	N	O	0	0
			889	563	175	151		
36	BN	114	Total	C	N	O	0	0
			889	563	175	151		

- Molecule 37 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	AO	116	Total	C	N	O	S	0	0
			942	593	189	156	4		
37	BO	116	Total	C	N	O	S	0	0
			942	593	189	156	4		

- Molecule 38 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	AP	102	Total	C	N	O	S	0	0
			790	503	142	144	1		
38	BP	102	Total	C	N	O	S	0	0
			790	503	142	144	1		

- Molecule 39 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	AQ	112	Total	C	N	O	S	0	0
			854	534	164	153	3		
39	BQ	112	Total	C	N	O	S	0	0
			854	534	164	153	3		

- Molecule 40 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	AR	89	Total	C	N	O	S	0	0
			715	453	127	131	4		
40	BR	89	Total	C	N	O	S	0	0
			715	453	127	131	4		

- Molecule 41 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	AS	103	Total	C	N	O	S	0	0
			770	486	142	141	1		
41	BS	103	Total	C	N	O	S	0	0
			770	486	142	141	1		

- Molecule 42 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	AT	94	Total	C	N	O		0	0
			722	463	130	129			

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Mol	Chain	Residues	Atoms				AltConf	Trace
42	BT	94	Total	C	N	O	0	0
			722	463	130	129		

- Molecule 43 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms				AltConf	Trace
43	AU	82	Total	C	N	O	0	0
			622	385	122	115		
43	BU	82	Total	C	N	O	0	0
			622	385	122	115		

- Molecule 44 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms				AltConf	Trace
44	AV	58	Total	C	N	O	0	0
			445	277	96	72		
44	BV	58	Total	C	N	O	0	0
			445	277	96	72		

- Molecule 45 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms				AltConf	Trace
45	AW	67	Total	C	N	O	0	0
			541	333	102	106		
45	BW	67	Total	C	N	O	0	0
			541	333	102	106		

- Molecule 46 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms				AltConf	Trace
46	AX	58	Total	C	N	O	0	0
			449	280	85	84		
46	BX	58	Total	C	N	O	0	0
			449	280	85	84		

- Molecule 47 is a protein called 50S ribosomal protein L31 type B.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	AY	59	Total	C	N	O	S	0	0
			370	225	68	76	1		
47	BY	59	Total	C	N	O	S	0	0
			370	225	68	76	1		

- Molecule 48 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	AZ	48	Total	C	N	O	S	0	0
			360	222	77	59	2		
48	BZ	48	Total	C	N	O	S	0	0
			360	222	77	59	2		

- Molecule 49 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	A1	47	Total	C	N	O	S	0	0
			390	238	78	70	4		
49	B1	47	Total	C	N	O	S	0	0
			390	238	78	70	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
50	A2	43	Total	C	N	O	S	0	0
			367	225	89	52	1		
50	B2	43	Total	C	N	O	S	0	0
			367	225	89	52	1		

- Molecule 51 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	A3	64	Total	C	N	O	S	0	0
			521	324	113	82	2		
51	B3	64	Total	C	N	O	S	0	0
			521	324	113	82	2		

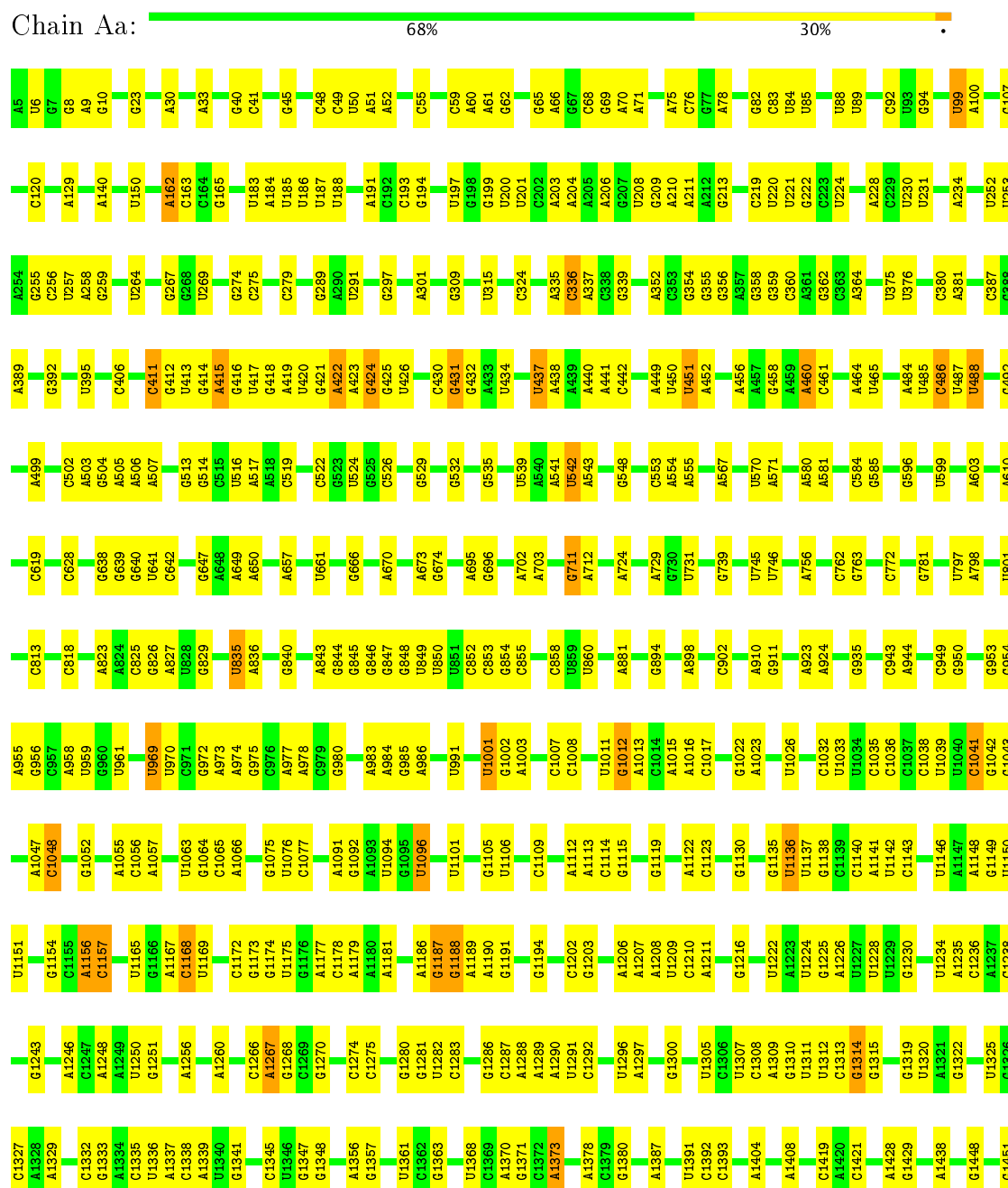
- Molecule 52 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	A4	37	Total	C	N	O	S	0	0
			295	186	60	44	5		
52	B4	37	Total	C	N	O	S	0	0
			295	186	60	44	5		

3 Residue-property plots

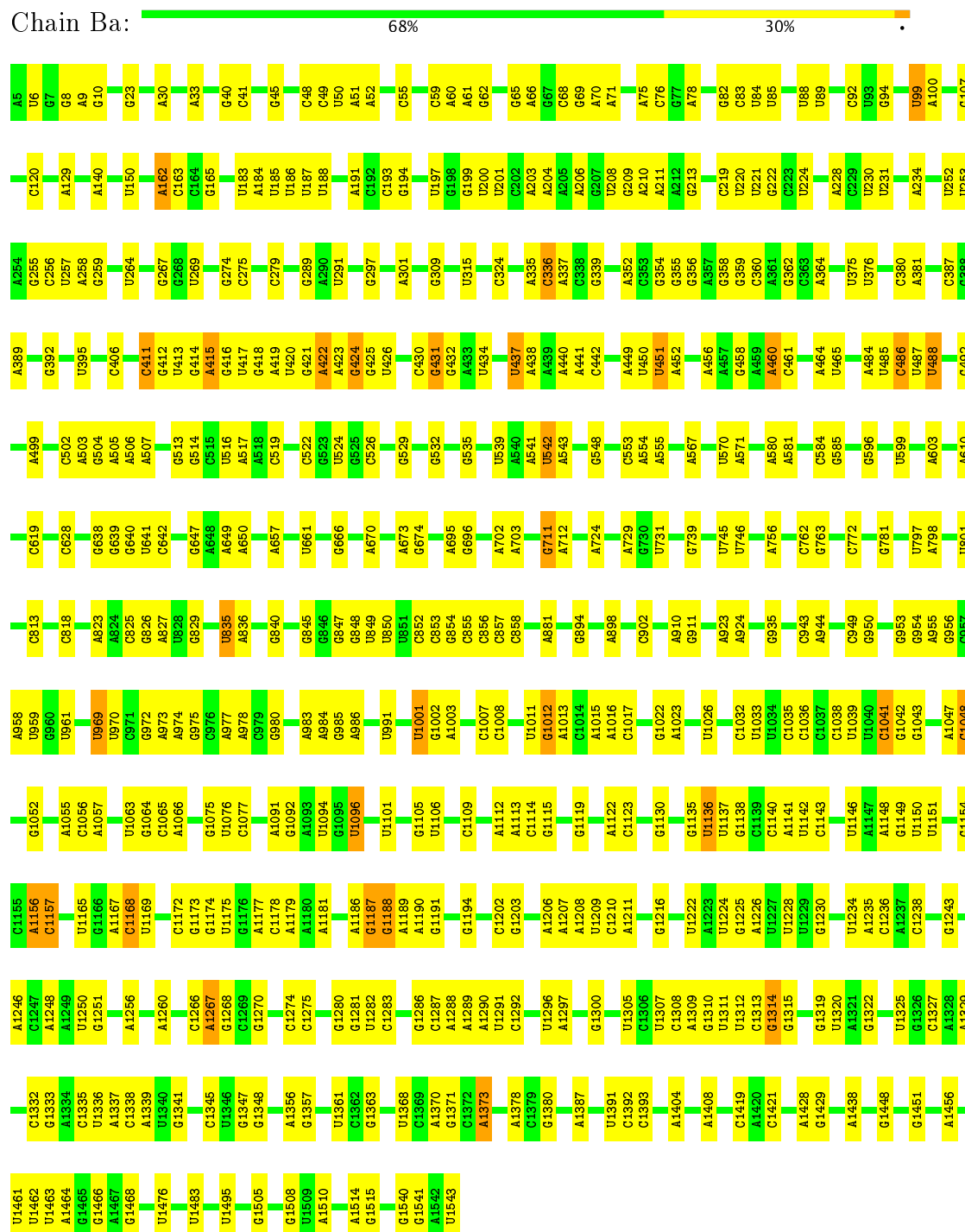
These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded according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

• Molecule 1: Ribosomal RNA 16S





• Molecule 1: Ribosomal RNA 16S



• Molecule 2: 30S ribosomal protein S2





- Molecule 2: 30S ribosomal protein S2

Chain Bb:  99%



- Molecule 3: 30S ribosomal protein S3

Chain Ac:  100%

There are no outlier residues recorded for this chain.

- Molecule 3: 30S ribosomal protein S3

Chain Bc:  100%

There are no outlier residues recorded for this chain.

- Molecule 4: 30S ribosomal protein S4

Chain Ad:  99%



- Molecule 4: 30S ribosomal protein S4

Chain Bd:  99%



- Molecule 5: 30S ribosomal protein S5

Chain Ae:  99%



- Molecule 5: 30S ribosomal protein S5

Chain Be:  99%



- Molecule 6: 30S ribosomal protein S6

Chain Af:  99%



- Molecule 6: 30S ribosomal protein S6

Chain Bf:  99%



- Molecule 7: 30S ribosomal protein S7

Chain Ag:  100%

There are no outlier residues recorded for this chain.

- Molecule 7: 30S ribosomal protein S7

Chain Bg:  100%

There are no outlier residues recorded for this chain.

- Molecule 8: 30S ribosomal protein S8

Chain Ah:  98%



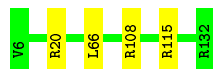
- Molecule 8: 30S ribosomal protein S8

Chain Bh:  98%



- Molecule 9: 30S ribosomal protein S9

Chain Ai:  97%



- Molecule 9: 30S ribosomal protein S9

Chain Bi:  97%

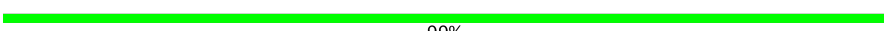


- Molecule 10: 30S ribosomal protein S10

Chain Aj:  99%



- Molecule 10: 30S ribosomal protein S10

Chain Bj:  99%



- Molecule 11: 30S ribosomal protein S11

Chain Ak:  100%

There are no outlier residues recorded for this chain.

- Molecule 11: 30S ribosomal protein S11

Chain Bk:  100%

There are no outlier residues recorded for this chain.

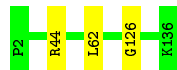
- Molecule 12: 30S ribosomal protein S12

Chain Al:  98%




- Molecule 12: 30S ribosomal protein S12

Chain Bl:  98%



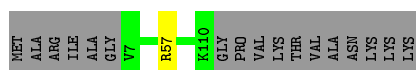
- Molecule 13: 30S ribosomal protein S13

Chain Am:  85% 14%



- Molecule 13: 30S ribosomal protein S13

Chain Bm:  85% 14%



- Molecule 14: 30S ribosomal protein S14 type Z

Chain An: 97%



- Molecule 14: 30S ribosomal protein S14 type Z

Chain Bn: 97%



- Molecule 15: 30S ribosomal protein S15

Chain Ao: 99%



- Molecule 15: 30S ribosomal protein S15

Chain Bo: 99%



- Molecule 16: 30S ribosomal protein S16

Chain Ap: 98%



- Molecule 16: 30S ribosomal protein S16

Chain Bp: 98%



- Molecule 17: 30S ribosomal protein S17

Chain Aq: 100%

There are no outlier residues recorded for this chain.

- Molecule 17: 30S ribosomal protein S17

Chain Bq:  100%

There are no outlier residues recorded for this chain.

- Molecule 18: 30S ribosomal protein S18

Chain Ar:  98%



- Molecule 18: 30S ribosomal protein S18

Chain Br:  98%



- Molecule 19: 30S ribosomal protein S19

Chain As:  99%



- Molecule 19: 30S ribosomal protein S19

Chain Bs:  99%



- Molecule 20: 30S ribosomal protein S20

Chain At:  99%



- Molecule 20: 30S ribosomal protein S20

Chain Bt:  99%



- Molecule 21: 30S ribosomal protein S21

Chain Au:  100%


There are no outlier residues recorded for this chain.

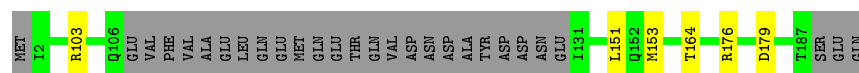
- Molecule 21: 30S ribosomal protein S21

Chain Bu: 100%


There are no outlier residues recorded for this chain.

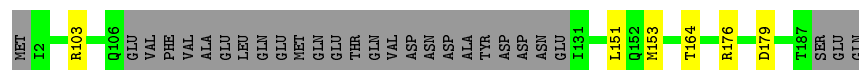
- Molecule 22: Ribosome hibernation promotion factor

Chain Av:  82% 15%



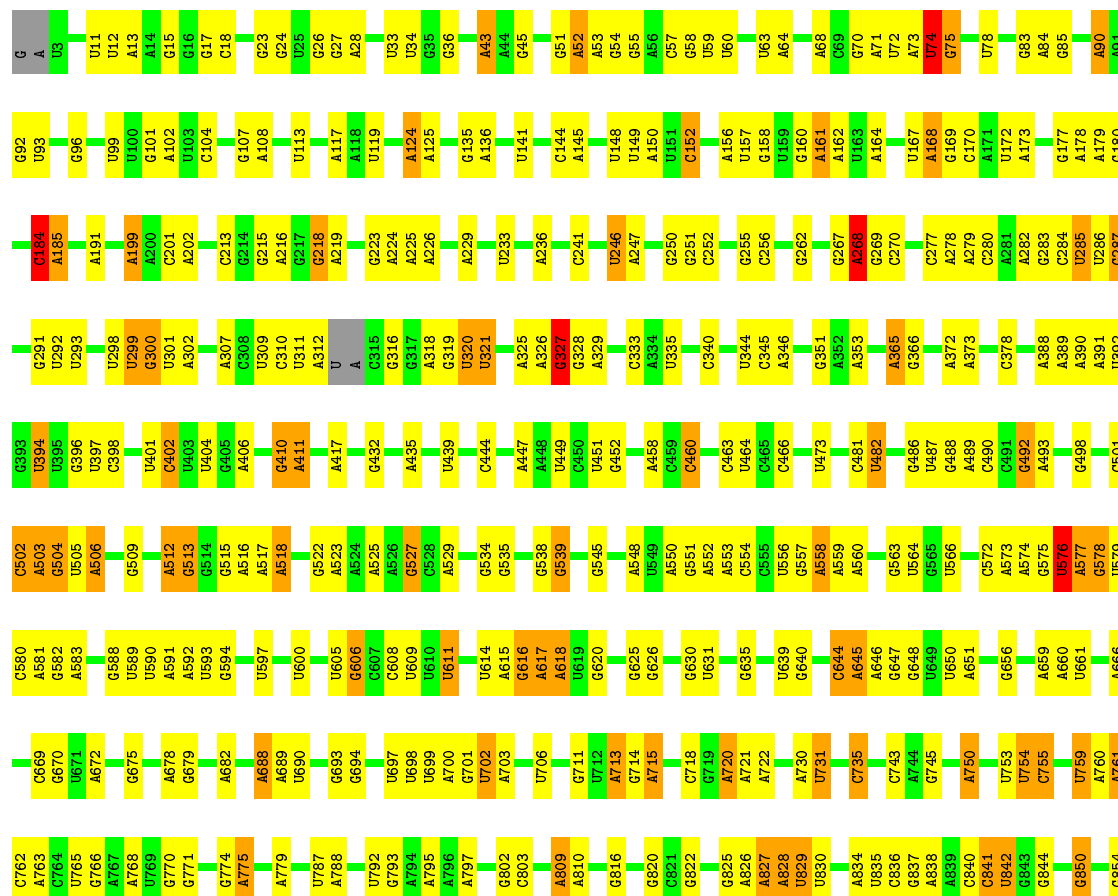
- Molecule 22: Ribosome hibernation promotion factor

Chain By:  82% • 15%

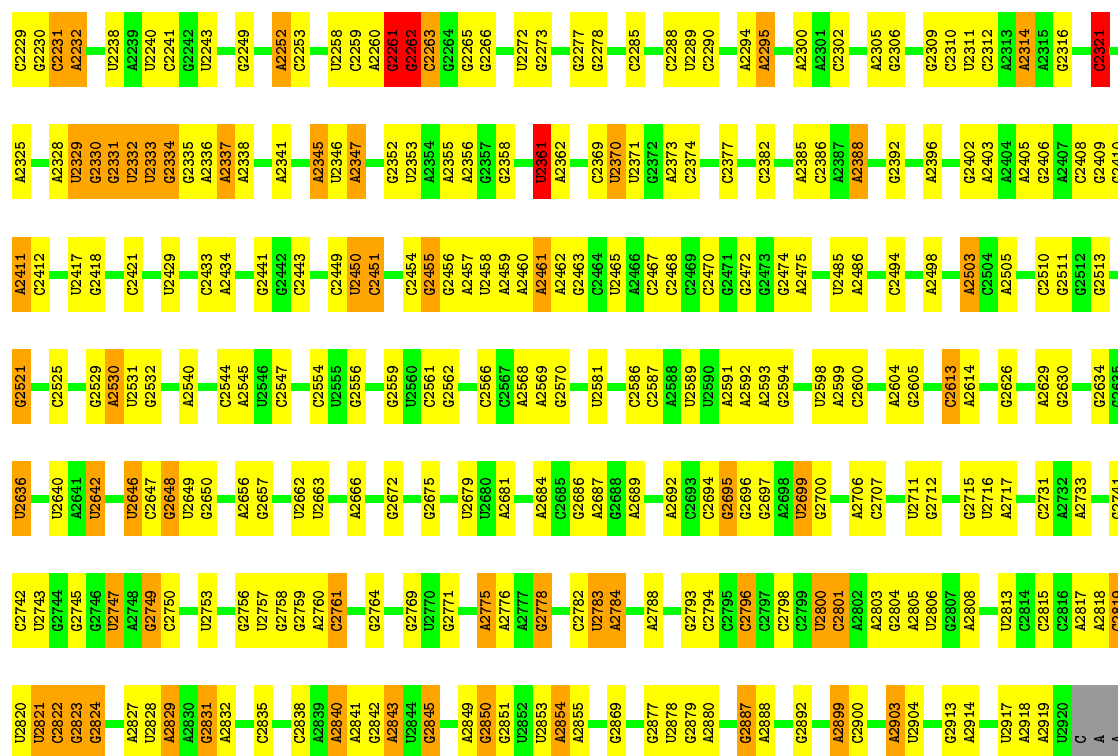


- Molecule 23: Ribosomal RNA 23S

Chain AA: 55% 34% 10%

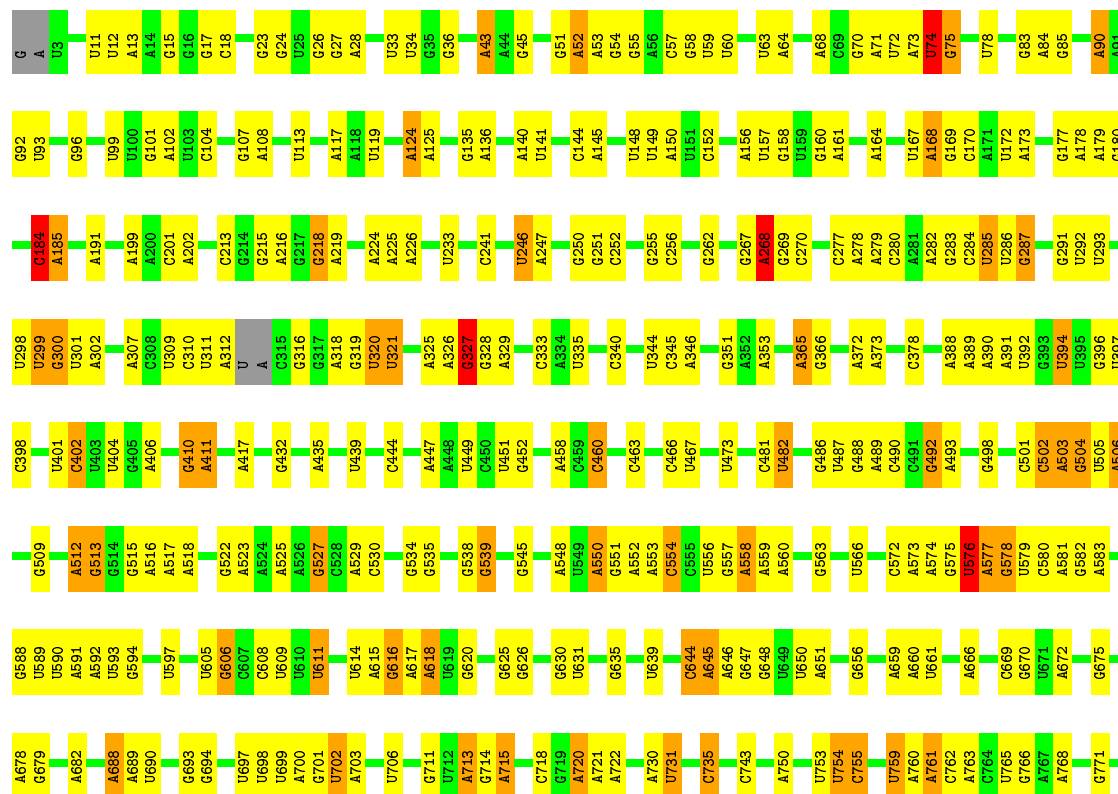


A2146	A2147	A2058	G1960	A1880	A1796	C1692	U1598	U1456	G1376	A1285	U1174	U1105	A1024	U855
G2059	A1963	G1885	A1963	G1885	G1797	G1693	G1599	U1525	U1457	G1286	G1175	G1106	A1025	U856
A2061	A1964	A1886	A1965	A1886	A1800	G1697	A1601	A1527	U1378	U1287	U1176	G1107	A1026	C857
G2062	A1966	A1889	A1966	A1889	A1803	A1698	A1605	U1532	G1380	G1289	G1178	U1109	A1027	U858
C2070	U1967	G1893	U1967	A1804	G1803	U1701	A1606	U1532	G1383	G1290	C1179	U1110	C1031	C859
A2153	A1893	A1893	C1968	U1805	U1804	C1702	A1806	U1463	U1463	A1291	C1184	A1111	C1034	C861
G2073	G1894	G1894	C1969	U1806	U1806	U1703	G1613	U1464	G1385	A1292	C1185	A1112	A1035	C862
C2074	C2074	C1895	U1970	A1807	A1807	U1703	A1614	C1536	G1386	U1293	A1186	A1113	C1036	G863
G2075	U1971	U1896	U1971	U1808	U1808	G1710	G1615	A1537	C1387	G1294	A1187	A1114	C1036	A952
A2076	U1897	U1897	U1897	A1616	A1616	G1710	G1615	A1537	C1387	G1294	A1187	A1115	A1037	C868
U2159	A1979	C1898	A1810	A1617	A1617	A1713	U1540	U1471	G1388	G1298	A1190	C1116	C1038	A868
G2079	A1899	A1811	U1899	U1625	U1625	G1718	G1550	A1475	G1392	G1300	C1197	A1117	C1038	C869
C2080	G1981	A1812	G1981	A1626	A1626	C1719	U1551	U1476	G1393	G1304	G1198	G1118	A1040	C870
A2081	U1982	C1901	A1813	G1627	G1627	C1719	U1552	U1477	U1394	U1305	A1199	C1119	G1041	U871
C2082	A1903	A1814	C1815	A1553	A1553	A1726	A1628	A1478	G1395	U1305	A1200	A1121	C1042	U872
G2083	A1904	A1816	C1815	A1554	A1554	A1726	A1628	A1478	G1395	U1305	A1200	A1122	C1043	U873
G2084	G1986	A1816	C1817	A1554	A1554	A1726	A1628	A1478	G1395	U1305	A1200	A1122	C1043	A874
A2085	G1989	A1819	C1817	A1554	A1554	A1726	A1628	A1478	G1395	U1305	A1200	A1122	C1043	A874
A2086	G1990	A1819	C1817	A1554	A1554	A1726	A1628	A1478	G1395	U1305	A1200	A1122	C1043	A874
A2087	A1907	A1907	A1907	A1632	A1632	U1732	A1632	U1481	G1401	A1312	U1205	U1125	G1046	C878
G2088	G1991	A1908	A1908	A1632	A1632	U1732	A1632	U1481	G1401	A1312	U1205	U1125	G1046	C878
A2089	C1992	C1909	A1909	A1633	A1633	U1737	A1633	U1482	G1402	A1312	U1205	U1125	G1046	C878
U2095	A1993	A1911	G1932	A1635	A1635	C1738	A1635	U1485	G1403	C1315	A1208	U1126	A1055	A891
G2096	C1994	C1912	C1827	G1739	G1739	G1740	U1636	U1486	G1405	G1316	A1057	A1129	U1056	U892
C2097	G1995	U1913	U1828	G1743	G1743	A1744	G1639	G1487	G1406	G1320	U1215	A1130	A872	C882
A2098	A1996	C1914	A1829	U1744	U1744	A1744	U1640	A1488	G1407	A1324	U1216	A1131	U1063	U896
U2103	A1998	A1917	A1830	U1745	U1745	A1745	G1641	A1489	G1408	U1325	U1217	A1140	A1064	U897
G2186	G1999	G1918	C1833	G1746	G1746	C1642	C1642	C1491	U1409	G1326	G1218	A1142	A1065	A897
C2187	G2187	G1834	G1834	C1643	C1643	G1747	C1643	U1492	A1410	C1326	G1218	C1136	G1066	G901

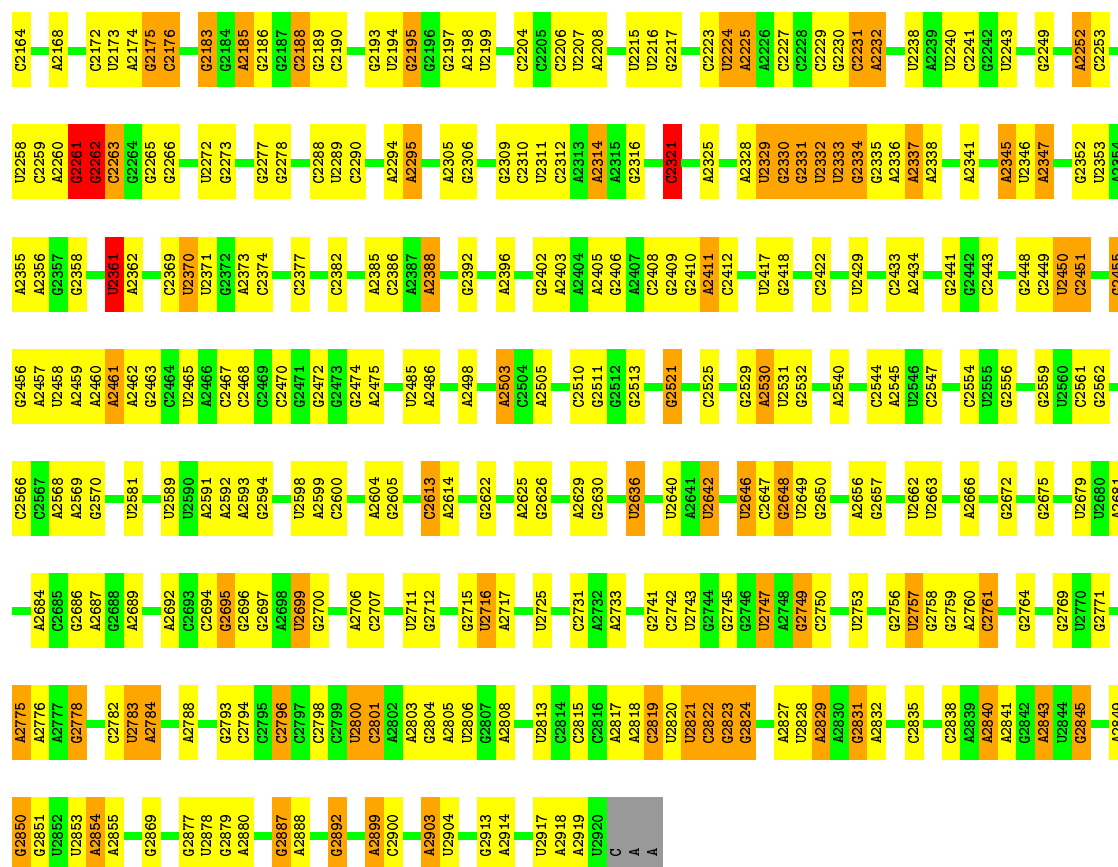


• Molecule 23: Ribosomal RNA 23S

Chain BA: 56% 33% 10% ..



G2083	C1985	U1899	A1811	G1710	A1616	U1540	A1471	U1386	G1115	A1187	A955	C870	G774
G2084	C1985	G1900	A1812	A1617	A1617	C1472	C1387	C1387	C1116	A1187	A956	U871	A775
A2085	C1901	A1813	A1713	A1713	U1625	G1550	A1190	U1299	A1117	C957		U872	
A2086	G1902	A1814	G1718	U1626	U1626	U1551	C1476	U1389	G1118	G1300	C960	U873	A779
G2088	G1903	A1815	C1719	A1627	A1627	U1552	U1477	G1392	G1119	G1304	G961	A874	
A2089	G1991	A1816	C1719	A1628	A1628	A1553	A1478	C1393	G1120	U1043	A962	C878	A788
	G1992	C1817	A1726	A1629	A1629	A1554	G1479	U1394	A1121	A1045	A963	U879	
	G1993	G1819	A1726	A1630	A1630	G1555	A1480	G1395	G1122	U1200	U964		
U2095	A1907	A1825	G1731	G1631	G1631	G1556	A1481	A1310	C1123	G1046	C882	C892	G792
G2096	G1908	U1826	U1732	A1632	A1632	C1557	U1482	A1396	A1311	A1047	G793	G793	G793
G2097	G1910	G1827	U1732	A1633	A1633	C1558	A1483	G1397	U1125	U1048	C967	A794	A794
A2098	A1912	A1828	U1737	A1634	A1634	G1559	A1483	G1401	U1126	C1049	A968	G890	A795
	G1913	C1828	C1738	A1635	A1635	U1560	G1485	A1402	U1127	U1055	A969	A891	A796
	G1999	A1829	C1738	U1636	U1636	A1561	C1486	C1403	A1128	A1056	U892	U892	A797
U2103	C1914	A1830	G1740			C1562	G1487	G1316	A1129	U1070	U971		
G2107	A1917	C1833	G1743	G1639	G1639	U1563	A1488	G1320	G1130	U1214	A972	U895	G802
U2108	G1918	U1834	A1744	U1640	U1640	G1564	A1489	G1405	A1131	U1215	A973	U896	C903
A2109	G1930	U1835	A1745	G1641	G1641	U1565	G1490	G1407	U1216	U1063	U974	U897	
C2110	G1931	U1836	A1746	C1642	C1642	G1566	C1491	A1324	G1133	A1064	U975		
C2112	U2020	G1838	G1747	C1643	C1643	G1492	U1409	U1325	U1217	U1065	U976	G901	A810
A2115	G1932	G1839	G1747	U1644	U1644	U1569	U1493	C1326	C1136	G1067	A977	A902	
U2116	G1933	C1839	U1750	A1647	A1647	G1570	C1494	A1410	G1137	U1067	G903	G903	G816
C2118	U2021	G1843	U1750	G1648	G1648	G1571	C1495	A1435	U1224	G1225	A985	G904	G820
A2119	C1935	A1844	C1754			C1574	C1496	U1338	G1226	G1068	U986	U985	G821
U2118	G1936	U1845	A1757	C1651	C1651	A1575	G1498	U1339	U1227	A1070	G987	A906	G822
U2119	U1937	A1846	A1758	A1652	A1652	G1576	U1499	U1340	A1228	U1141	C988	C988	
G2120	A1938	U1847	G1759	A1653	A1653	A1578	G1501	A1422	A1242	A1071	A989	A911	
A2030	A1939	C1852	G1760	G1654	G1654	C1579	A1502	A1423	G1142	A1072	G991	G914	G825
C2126	A	G1852	G1761	A1658	A1658	U1580	C1503	U1348	U1240	G1075	A991	G914	A826
	C	C1852	G1761	A1658	A1658	U1581	U1504	A1349	C1148	A1076	A992	G918	A827
C2129	U	G1855	U1762	C1661	C1661	U1582	U1504	U1431	U1149	U1077	G997	G919	A828
C2134	A	A1856	U1763	G1661	G1661	U1583	U1504	U1432	G1250	G1078	A920	U830	
U2135	A1945	C1857	A1764	A1662	A1662	G1583	C1508	A1431	G1257	G1086	G1000	C921	A833
U2136	A1945	C1857	A1765	G1663	G1663	U1584	G1509	A1432	A1258	C1087	G1001	G922	A834
						U1584	C1509			C1088	U1002	A923	
U2046		C1860				G1585	U1510	G1354	G1261	C1089	U1003		
A2139	A2047	U1861	C1768	A1666	A1666	C1586	C1511	A1440	A1264	A1090	G926	C926	C836
C2140	G2048	G1862	A1771	G1675	G1675	U1588	U1512	A1443	A1358	G1091	G927	A838	G937
U2049	U2049	C1863	G1772	A1772	A1772	U1589	A1514	C1445	G1265	A1004	C928	C928	A838
		C1864				C1590	G1515	U1446	G1266	U1011	C929	C929	A839
G2056	G2056	A1875	C1781	A1875	A1875	G1591	U1516	U1447	A1267	A1095	C	C	C840
A2057	A1955	U1876	A1781	C1682	C1682	C1592	A1517	A1448	C1367	A1159	A1018	C	C941
A2058	G1956	G1875	G1790	U1683	U1683	G1593	U1518	A1449	C1368	C1160	A1019	U	U942
G2059	G1957	U1877	G1791	A1684	A1684	U1594	U1519	A1450	G1369	A1275	G1020	U	
A2060	G1958	U1878	G1791	A1684	A1684	U1594	U1519	A1450	C1370	C1277	G1021	U	
U2061	A1958	U1879	A1879	C1595	C1595	G1595	A1520	U1451	U1371	U163	A1011	C	
G2062	G2062	A1880	A1796	U1690	A1690	C1596	A1521	C1452	U102	G1278	G1022	G	G854
			G1797	G1691	G1691	U1597	G1522	C1453	G1372		A1023	G937	U855
C2070		A1885	A1800	G1693	C1692	U1598		U1454	U1104	A1024	A1024	G937	U856
G2154		A1886	A1800	G1693	G1693	U1599	U1525	U1455	U1174	A1025	A1025	U940	C957
C2073	G2073	A1965	A1803	G1697	A1600	G1526	G1526	U1456	G1266	G1175	C1026	U941	U858
G2074	G2074	A1966	U1804	A1601	A1601	A1527	A1527	U1457	U1378	U1287	A1027	C942	C959
G2075	G2075	A1893	U1805	A1605	A1605	U1532	U1532	U1458	G1288	A1177	C108	C943	U860
A2076	A2076	G1968	U1806	C1702	C1702	A1533	U1533	A1459	G1380	C1178	G944	G944	C861
U2159	U2159	A1894	U1807	A1606	A1606	G1534	U1534	U1381	G1290	C1179	C1031		G862
G2079	G2079	G1895	U1808	C1702	C1702	G1534	A1463	U1381	C1111	A1034	C949		G863
A2161	G2080	U1970	U1807	U1703	U1703	G1535	A1464	G1383	A1292	A1112	C1035		A868
G2162	A2081	U1897	C1809	A1614	A1614	G1536	U1536	G1384	U1293	A1185	C1036		A869
A2162	C2082	C1809	U1809	A1615	A1615	A1537	A1537	G1385	C1294	A1142	A1037		A870



- Molecule 24: Ribosomal RNA 5S

Chain AB: 70% 24%



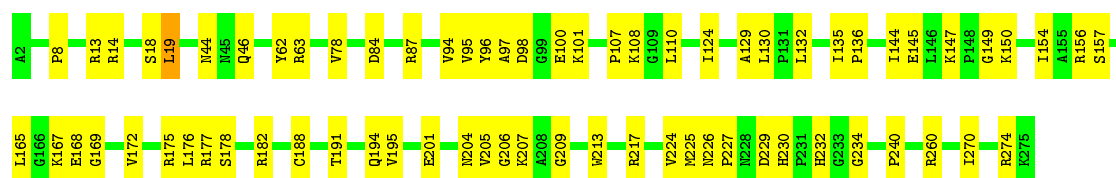
- Molecule 24: Ribosomal RNA 5S

Chain BB: 71% 24%

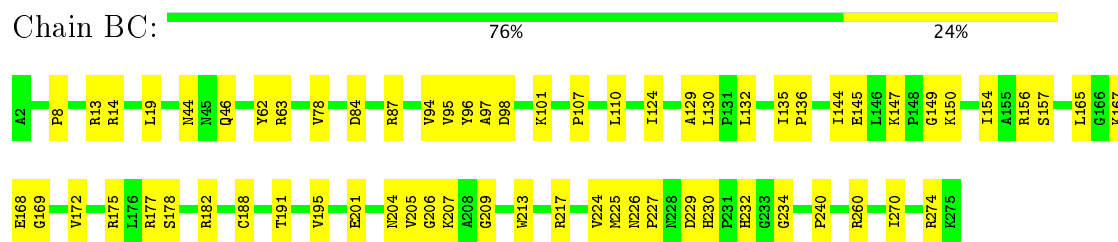


- Molecule 25: 50S ribosomal protein L2

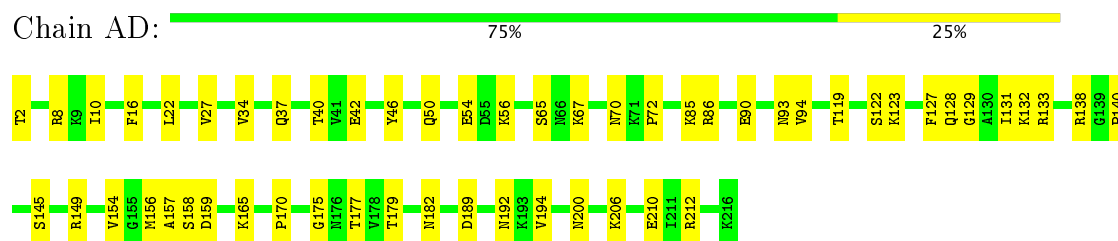
Chain AC: 74% 25%



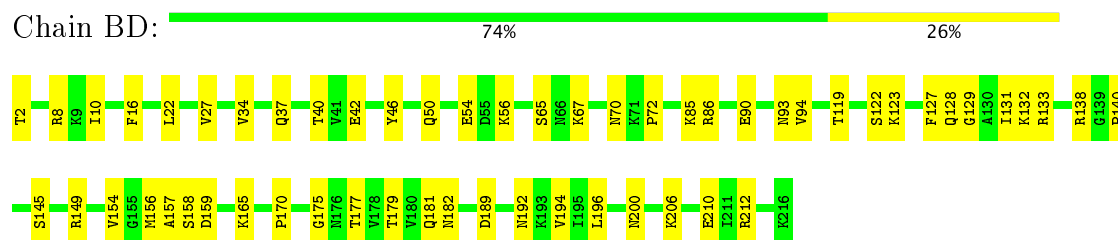
- Molecule 25: 50S ribosomal protein L2



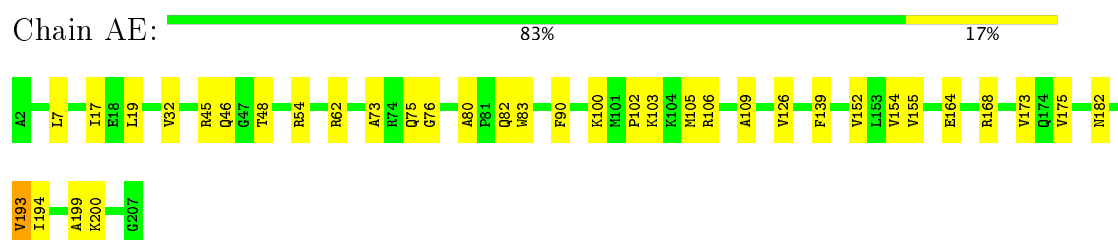
- Molecule 26: 50S ribosomal protein L3



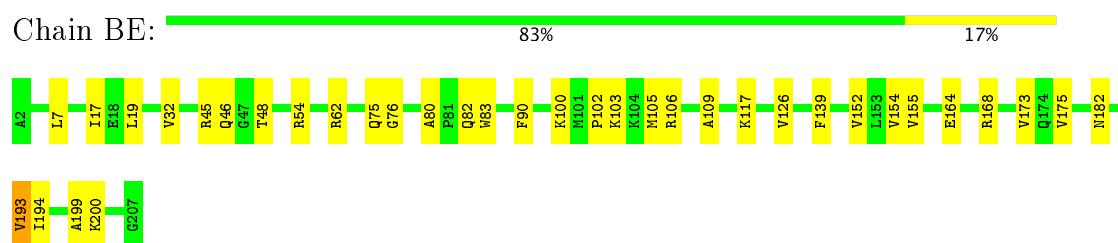
- Molecule 26: 50S ribosomal protein L3



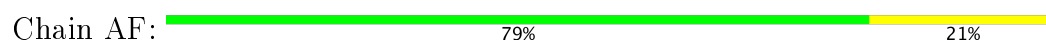
- Molecule 27: 50S ribosomal protein L4

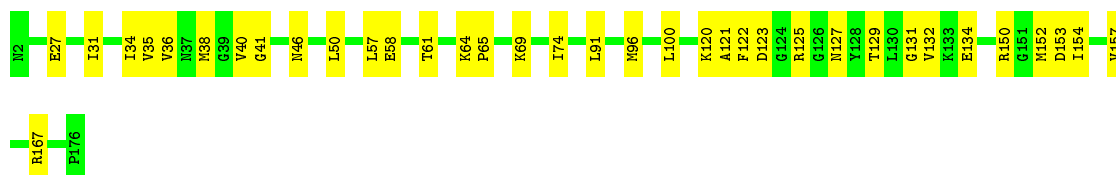


- Molecule 27: 50S ribosomal protein L4



- Molecule 28: 50S ribosomal protein L5





- Molecule 28: 50S ribosomal protein L5

Chain BF: 81% 19%



- Molecule 29: 50S ribosomal protein L6

Chain AG: 83% 16%



- Molecule 29: 50S ribosomal protein L6

Chain BG: 86% 14%



- Molecule 30: 50S ribosomal protein L13

Chain AH: 90% 10%



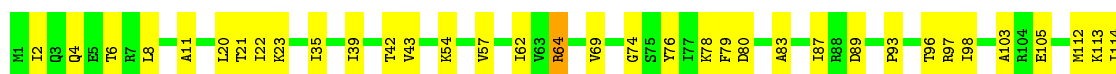
- Molecule 30: 50S ribosomal protein L13

Chain BH: 90% 10%

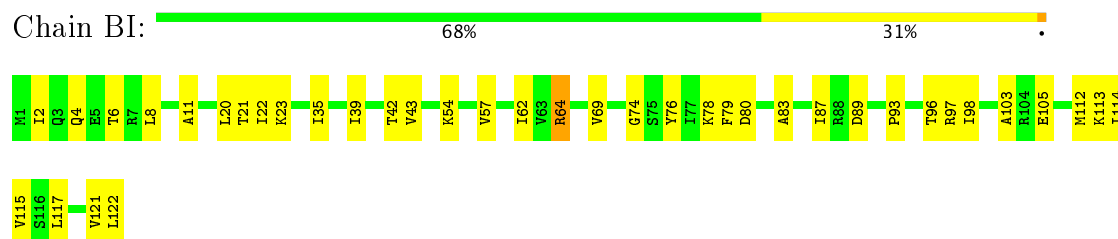


- Molecule 31: 50S ribosomal protein L14

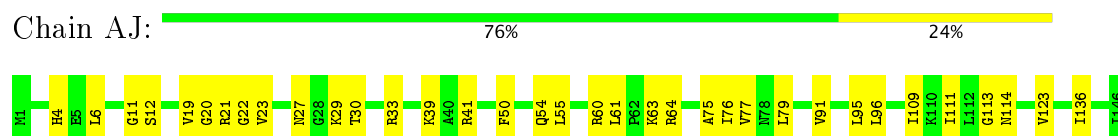
Chain AI: 68% 31%



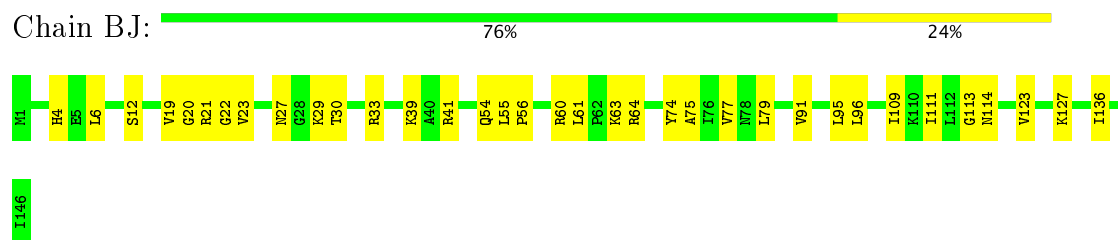
- Molecule 31: 50S ribosomal protein L14



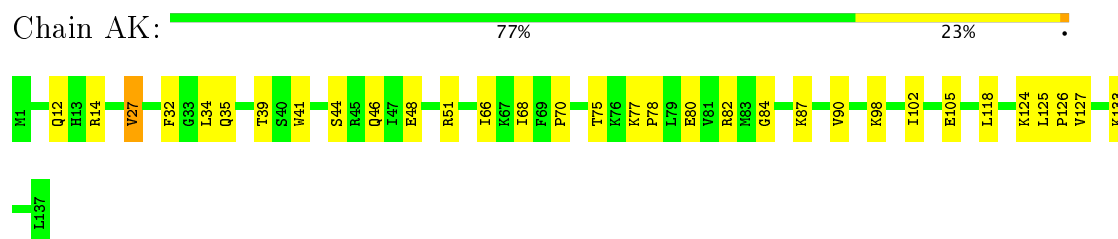
- Molecule 32: 50S ribosomal protein L15



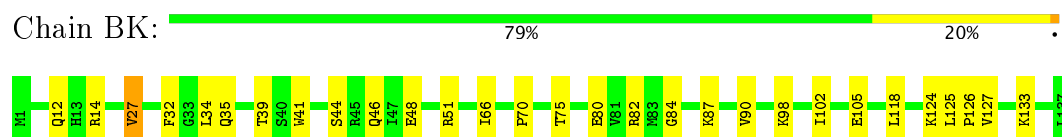
- Molecule 32: 50S ribosomal protein L15



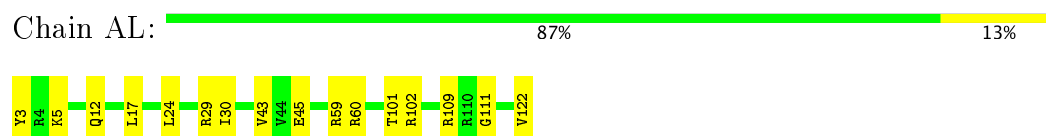
- Molecule 33: 50S ribosomal protein L16



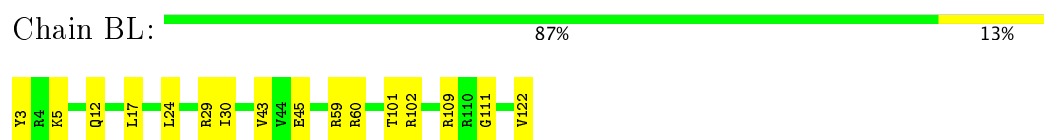
- Molecule 33: 50S ribosomal protein L16



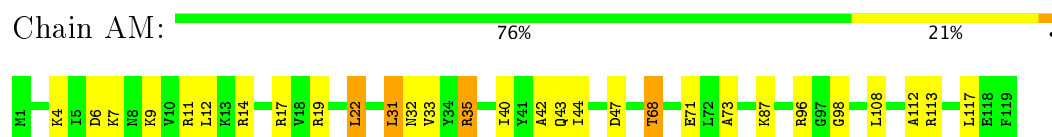
- Molecule 34: 50S ribosomal protein L17



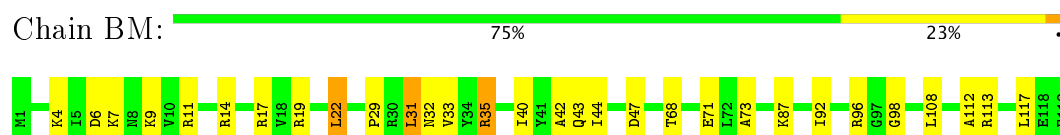
- Molecule 34: 50S ribosomal protein L17



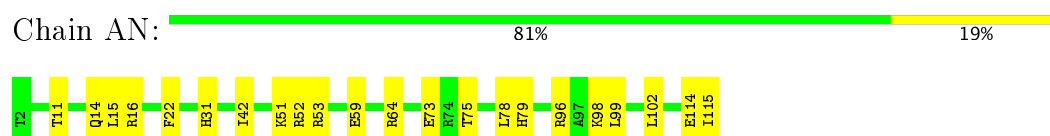
- Molecule 35: 50S ribosomal protein L18



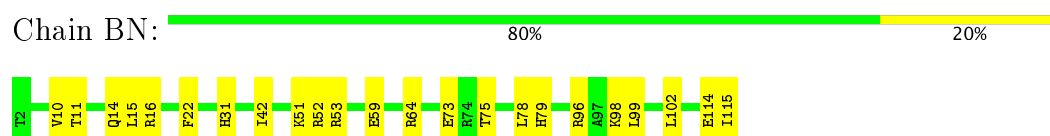
- Molecule 35: 50S ribosomal protein L18



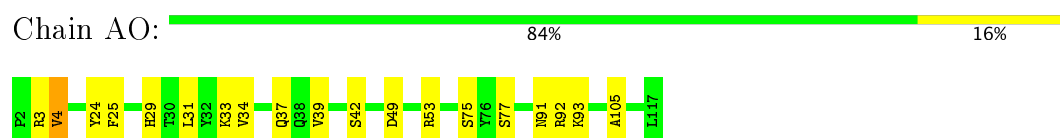
- Molecule 36: 50S ribosomal protein L19



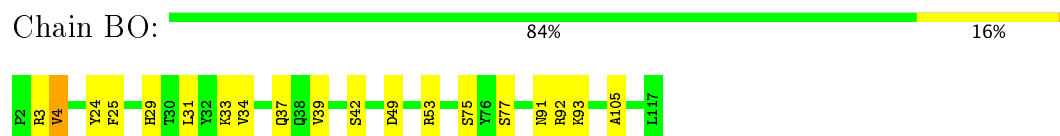
- Molecule 36: 50S ribosomal protein L19




- Molecule 37: 50S ribosomal protein L20



- Molecule 37: 50S ribosomal protein L20



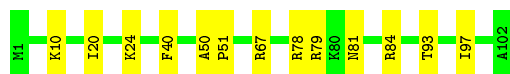
- Molecule 38: 50S ribosomal protein L21

Chain AP:  87% 13%




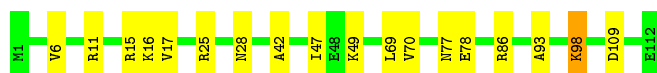
- Molecule 38: 50S ribosomal protein L21

Chain BP:  87% 13%




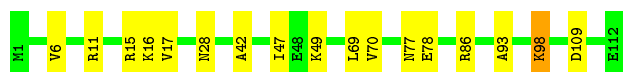
- Molecule 39: 50S ribosomal protein L22

Chain AQ:  84% 15%




- Molecule 39: 50S ribosomal protein L22

Chain BQ:  85% 14%




- Molecule 40: 50S ribosomal protein L23

Chain AR:  81% 19%




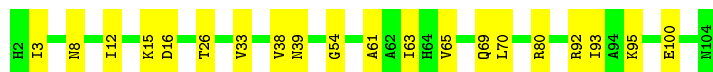
- Molecule 40: 50S ribosomal protein L23

Chain BR:  81% 19%



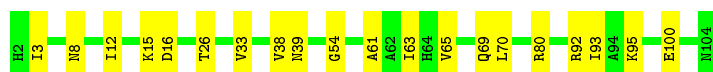
- Molecule 41: 50S ribosomal protein L24

Chain AS:  81% 19%

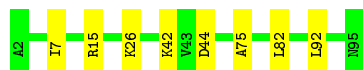


- Molecule 41: 50S ribosomal protein L24

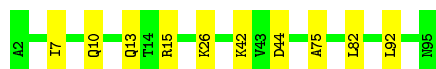
Chain BS:  81% 19%



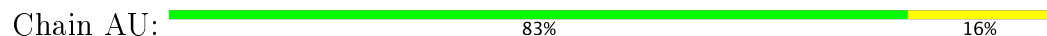
- Molecule 42: 50S ribosomal protein L25



- Molecule 42: 50S ribosomal protein L25



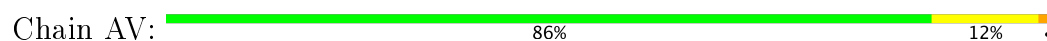
- Molecule 43: 50S ribosomal protein L27



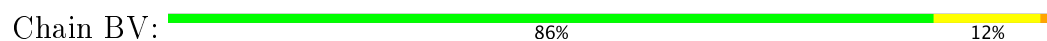
- Molecule 43: 50S ribosomal protein L27



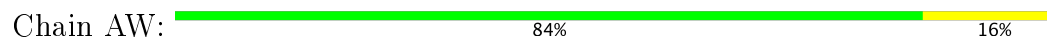
- Molecule 44: 50S ribosomal protein L28



- Molecule 44: 50S ribosomal protein L28



- Molecule 45: 50S ribosomal protein L29




- Molecule 45: 50S ribosomal protein L29

Chain BW:  85% 15%




- Molecule 46: 50S ribosomal protein L30

Chain AX:  83% 17%



- Molecule 46: 50S ribosomal protein L30

Chain BX:  83% 17%



- Molecule 47: 50S ribosomal protein L31 type B

Chain AY:  92% 8%




- Molecule 47: 50S ribosomal protein L31 type B

Chain BY:  92% 8%




- Molecule 48: 50S ribosomal protein L32

Chain AZ:  79% 21%




- Molecule 48: 50S ribosomal protein L32

Chain BZ:  81% 19%

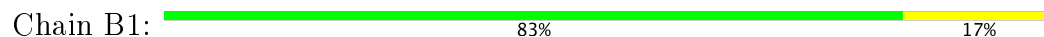


- Molecule 49: 50S ribosomal protein L33

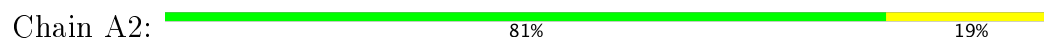
Chain A1:  81% 19%



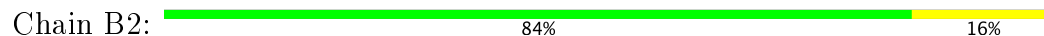
- Molecule 49: 50S ribosomal protein L33



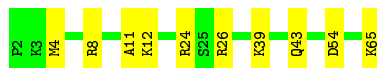
- Molecule 50: 50S ribosomal protein L34



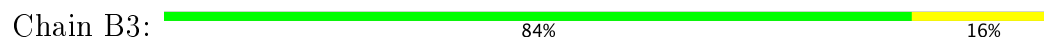
- Molecule 50: 50S ribosomal protein L34



- Molecule 51: 50S ribosomal protein L35



- Molecule 51: 50S ribosomal protein L35



- Molecule 52: 50S ribosomal protein L36



- Molecule 52: 50S ribosomal protein L36



4 Experimental information

Property	Value	Source
Reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	Depositor
Number of particles used	12570	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	2.3	Depositor
Minimum defocus (nm)	Not provided	Depositor
Maximum defocus (nm)	Not provided	Depositor
Magnification	Not provided	Depositor
Image detector	FEI FALCON II (4k x 4k)	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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 > 2$	RMSZ	# $ Z > 2$
1	Aa	0.38	0/36913	0.95	101/57564 (0.2%)
1	Ba	0.38	0/36913	0.95	102/57564 (0.2%)
10	Aj	0.27	0/764	0.56	0/1034
10	Bj	0.27	0/764	0.56	0/1034
11	Ak	0.29	0/824	0.59	0/1119
11	Bk	0.29	0/824	0.59	0/1119
12	Al	0.30	0/1054	0.63	1/1415 (0.1%)
12	Bl	0.30	0/1054	0.63	1/1415 (0.1%)
13	Am	0.26	0/732	0.56	0/991
13	Bm	0.26	0/732	0.56	0/991
14	An	0.32	0/497	0.63	0/662
14	Bn	0.32	0/497	0.63	0/662
15	Ao	0.26	0/732	0.53	0/979
15	Bo	0.26	0/732	0.53	0/979
16	Ap	0.33	0/705	0.57	0/952
16	Bp	0.33	0/705	0.57	0/952
17	Aq	0.32	0/629	0.58	0/849
17	Bq	0.32	0/629	0.58	0/849
18	Ar	0.28	0/453	0.65	1/604 (0.2%)
18	Br	0.28	0/453	0.65	1/604 (0.2%)
19	As	0.31	0/654	0.58	0/879
19	Bs	0.31	0/654	0.58	0/879
2	Ab	0.26	0/1840	0.53	1/2470 (0.0%)
2	Bb	0.26	0/1840	0.53	1/2470 (0.0%)
20	At	0.23	0/591	0.50	0/793
20	Bt	0.23	0/591	0.50	0/793
21	Au	0.27	0/403	0.51	0/535
21	Bu	0.27	0/403	0.51	0/535
22	Av	0.49	0/1350	0.81	2/1812 (0.1%)
22	Bv	0.49	0/1350	0.81	2/1812 (0.1%)
23	AA	0.74	3/69738 (0.0%)	1.02	207/108747 (0.2%)
23	BA	0.74	3/69738 (0.0%)	1.02	208/108747 (0.2%)
24	AB	0.61	0/2732	1.16	21/4253 (0.5%)
24	BB	0.61	0/2732	1.16	21/4253 (0.5%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >2	RMSZ	# Z >2
25	AC	0.48	0/2129	0.67	3/2858 (0.1%)
25	BC	0.48	0/2129	0.67	3/2858 (0.1%)
26	AD	0.49	0/1651	0.66	0/2215
26	BD	0.49	0/1651	0.66	0/2215
27	AE	0.47	0/1595	0.66	0/2154
27	BE	0.47	0/1595	0.66	0/2154
28	AF	0.31	0/1339	0.63	0/1805
28	BF	0.32	0/1339	0.63	0/1805
29	AG	0.35	0/1281	0.58	0/1736
29	BG	0.35	0/1281	0.58	0/1736
3	Ac	0.27	0/1523	0.59	0/2062
3	Bc	0.27	0/1523	0.59	0/2062
30	AH	0.48	0/1165	0.65	0/1570
30	BH	0.48	0/1165	0.65	0/1570
31	AI	0.47	0/925	0.73	3/1242 (0.2%)
31	BI	0.47	0/925	0.73	3/1242 (0.2%)
32	AJ	0.46	0/1100	0.71	2/1467 (0.1%)
32	BJ	0.45	0/1100	0.71	2/1467 (0.1%)
33	AK	0.46	0/1095	0.61	0/1472
33	BK	0.46	0/1095	0.61	0/1472
34	AL	0.43	0/936	0.71	0/1253
34	BL	0.43	0/936	0.71	0/1253
35	AM	0.43	0/900	0.69	3/1205 (0.2%)
35	BM	0.43	0/900	0.69	2/1205 (0.2%)
36	AN	0.44	0/901	0.65	1/1209 (0.1%)
36	BN	0.44	0/901	0.65	1/1209 (0.1%)
37	AO	0.52	0/954	0.64	0/1264
37	BO	0.52	0/954	0.64	0/1264
38	AP	0.47	0/800	0.67	0/1070
38	BP	0.47	0/800	0.67	0/1070
39	AQ	0.45	0/862	0.70	0/1161
39	BQ	0.45	0/862	0.70	0/1161
4	Ad	0.28	0/1526	0.62	1/2063 (0.0%)
4	Bd	0.28	0/1526	0.62	1/2063 (0.0%)
40	AR	0.43	0/723	0.63	0/966
40	BR	0.43	0/723	0.63	0/966
41	AS	0.39	0/779	0.67	0/1043
41	BS	0.39	0/779	0.67	0/1043
42	AT	0.37	0/730	0.66	1/981 (0.1%)
42	BT	0.37	0/730	0.66	1/981 (0.1%)
43	AU	0.55	0/628	0.68	1/833 (0.1%)
43	BU	0.55	0/628	0.68	1/833 (0.1%)
44	AV	0.38	0/451	0.66	0/603

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >2	RMSZ	# Z >2
44	BV	0.38	0/451	0.66	0/603
45	AW	0.39	0/542	0.69	0/722
45	BW	0.39	0/542	0.69	0/722
46	AX	0.40	0/451	0.61	0/606
46	BX	0.40	0/451	0.61	0/606
47	AY	0.25	0/378	0.53	0/521
47	BY	0.25	0/378	0.53	0/521
48	AZ	0.43	0/366	0.65	0/489
48	BZ	0.43	0/366	0.65	0/489
49	A1	0.34	0/395	0.60	0/530
49	B1	0.34	0/395	0.60	0/530
5	Ae	0.28	0/1159	0.59	0/1566
5	Be	0.28	0/1159	0.59	0/1566
50	A2	0.48	0/371	0.67	0/484
50	B2	0.47	0/371	0.67	0/484
51	A3	0.40	0/526	0.62	0/690
51	B3	0.40	0/526	0.61	0/690
52	A4	0.53	0/298	0.63	0/392
52	B4	0.52	0/298	0.63	0/392
6	Af	0.30	0/789	0.60	1/1060 (0.1%)
6	Bf	0.30	0/789	0.60	1/1060 (0.1%)
7	Ag	0.26	0/1176	0.54	0/1588
7	Bg	0.26	0/1176	0.54	0/1588
8	Ah	0.31	0/1038	0.63	0/1395
8	Bh	0.31	0/1038	0.63	0/1395
9	Ai	0.27	0/937	0.67	1/1269 (0.1%)
9	Bi	0.27	0/937	0.67	1/1269 (0.1%)
All	All	0.58	6/306060 (0.0%)	0.92	703/458404 (0.2%)

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
12	Al	0	1
12	Bl	0	1
19	As	0	1
19	Bs	0	1
20	At	0	1
20	Bt	0	1
26	AD	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
26	BD	0	1
38	AP	0	1
38	BP	0	1
5	Ae	0	1
5	Be	0	1
9	Ai	0	1
9	Bi	0	1
All	All	0	14

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
23	BA	1065	A	N9-C4	-5.38	1.34	1.37
23	AA	1584	U	C1'-N1	5.31	1.56	1.48
23	BA	1584	U	C1'-N1	5.31	1.56	1.48
23	AA	1065	A	N9-C4	-5.26	1.34	1.37
23	BA	1186	A	N9-C4	-5.21	1.34	1.37
23	AA	1186	A	N9-C4	-5.02	1.34	1.37

All (703) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	BB	87	C	N1-C2-O2	12.71	126.53	118.90
24	AB	87	C	N1-C2-O2	12.65	126.49	118.90
24	AB	87	C	C2-N1-C1'	12.14	132.15	118.80
24	BB	87	C	C2-N1-C1'	12.08	132.08	118.80
23	AA	576	U	C2-N1-C1'	12.02	132.13	117.70
23	BA	576	U	C2-N1-C1'	11.98	132.07	117.70
1	Aa	745	U	OP1-P-O3'	-11.41	80.09	105.20
1	Ba	745	U	OP1-P-O3'	-11.40	80.12	105.20
23	AA	2150	A	N7-C8-N9	10.86	119.23	113.80
23	BA	2150	A	N7-C8-N9	10.83	119.22	113.80
23	BA	576	U	N1-C2-O2	10.59	130.21	122.80
24	AB	111	C	N1-C2-O2	10.59	125.25	118.90
24	BB	111	C	N1-C2-O2	10.59	125.25	118.90
24	AB	87	C	N3-C2-O2	-10.55	114.52	121.90
23	AA	576	U	N1-C2-O2	10.55	130.18	122.80
23	BA	1179	C	N1-C2-O2	10.49	125.19	118.90
24	BB	87	C	N3-C2-O2	-10.47	114.57	121.90
23	AA	1179	C	N1-C2-O2	10.42	125.15	118.90
23	BA	576	U	N3-C2-O2	-9.97	115.22	122.20
23	AA	576	U	N3-C2-O2	-9.96	115.23	122.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
23	BA	2150	A	C5-N7-C8	9.83	108.81	103.90
23	AA	2150	A	C5-N7-C8	9.79	108.80	103.90
23	AA	1994	C	N1-C2-O2	9.75	124.75	118.90
23	BA	1994	C	N1-C2-O2	9.72	124.73	118.90
23	BA	1994	C	C2-N1-C1'	9.61	129.37	118.80
23	AA	1994	C	C2-N1-C1'	9.60	129.37	118.80
23	AA	1932	C	N1-C2-O2	9.50	124.60	118.90
23	BA	1932	C	N1-C2-O2	9.41	124.55	118.90
23	BA	1932	C	C2-N1-C1'	9.39	129.13	118.80
23	AA	1932	C	C2-N1-C1'	9.36	129.10	118.80
24	BB	87	C	C6-N1-C1'	-9.05	109.94	120.80
24	AB	87	C	C6-N1-C1'	-9.04	109.95	120.80
23	AA	1179	C	N3-C2-O2	-8.82	115.72	121.90
23	BA	1179	C	N3-C2-O2	-8.78	115.75	121.90
23	AA	1179	C	C2-N1-C1'	8.75	128.42	118.80
24	AB	111	C	N3-C2-O2	-8.74	115.78	121.90
23	BA	1179	C	C2-N1-C1'	8.71	128.38	118.80
24	BB	111	C	N3-C2-O2	-8.69	115.82	121.90
24	BB	111	C	C2-N1-C1'	8.63	128.29	118.80
23	AA	593	U	C2-N1-C1'	8.61	128.03	117.70
24	AB	111	C	C2-N1-C1'	8.60	128.26	118.80
23	BA	593	U	C2-N1-C1'	8.56	127.97	117.70
24	BB	108	U	N3-C2-O2	-8.44	116.29	122.20
24	AB	108	U	N3-C2-O2	-8.42	116.31	122.20
23	AA	439	U	C2-N1-C1'	8.37	127.74	117.70
23	AA	576	U	C6-N1-C1'	-8.35	109.50	121.20
23	BA	576	U	C6-N1-C1'	-8.33	109.53	121.20
23	AA	1894	G	C4-N9-C1'	8.33	137.33	126.50
23	BA	1894	G	C4-N9-C1'	8.33	137.33	126.50
23	BA	439	U	C2-N1-C1'	8.32	127.69	117.70
23	AA	1378	U	N3-C2-O2	-8.30	116.39	122.20
9	Bi	66	LEU	CA-CB-CG	8.29	134.38	115.30
9	Ai	66	LEU	CA-CB-CG	8.29	134.37	115.30
23	BA	1378	U	N3-C2-O2	-8.22	116.45	122.20
23	BA	1804	U	C2-N1-C1'	8.19	127.53	117.70
1	Aa	55	C	N1-C2-O2	8.13	123.78	118.90
23	AA	1804	U	C2-N1-C1'	8.12	127.44	117.70
1	Ba	55	C	N1-C2-O2	8.10	123.76	118.90
23	AA	1378	U	N1-C2-O2	8.08	128.46	122.80
23	BA	1378	U	N1-C2-O2	8.07	128.45	122.80
1	Aa	99	U	C2-N1-C1'	8.07	127.38	117.70
24	BB	108	U	C2-N1-C1'	8.06	127.37	117.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	Ba	99	U	C2-N1-C1'	8.05	127.37	117.70
24	BB	100	U	C2-N1-C1'	8.05	127.36	117.70
24	AB	108	U	C2-N1-C1'	8.04	127.35	117.70
1	Aa	599	U	C2-N1-C1'	8.03	127.34	117.70
1	Ba	599	U	C2-N1-C1'	8.03	127.34	117.70
1	Ba	55	C	C2-N1-C1'	8.02	127.62	118.80
23	AA	759	U	C2-N1-C1'	8.02	127.32	117.70
23	BA	759	U	N1-C2-O2	8.02	128.41	122.80
23	BA	1994	C	N3-C2-O2	-8.00	116.30	121.90
24	AB	100	U	C2-N1-C1'	8.00	127.29	117.70
23	BA	759	U	C2-N1-C1'	8.00	127.29	117.70
23	AA	759	U	N1-C2-O2	7.98	128.38	122.80
1	Aa	55	C	C2-N1-C1'	7.97	127.57	118.80
23	AA	1994	C	N3-C2-O2	-7.97	116.32	121.90
1	Ba	1187	G	C4-N9-C1'	7.94	136.82	126.50
1	Aa	1187	G	C4-N9-C1'	7.92	136.80	126.50
23	BA	439	U	N3-C2-O2	-7.88	116.68	122.20
23	AA	439	U	N3-C2-O2	-7.87	116.69	122.20
23	AA	1227	U	N3-C2-O2	-7.84	116.71	122.20
23	AA	439	U	N1-C2-O2	7.84	128.29	122.80
23	BA	439	U	N1-C2-O2	7.84	128.29	122.80
1	Ba	745	U	OP2-P-O3'	-7.79	88.07	105.20
1	Aa	745	U	OP2-P-O3'	-7.78	88.09	105.20
23	BA	1227	U	N3-C2-O2	-7.75	116.78	122.20
23	BA	2370	U	N3-C2-O2	-7.73	116.79	122.20
23	BA	882	C	C2-N1-C1'	7.70	127.27	118.80
23	AA	2370	U	N3-C2-O2	-7.69	116.82	122.20
23	AA	882	C	C2-N1-C1'	7.68	127.25	118.80
23	AA	1378	U	C2-N1-C1'	7.63	126.86	117.70
23	AA	1932	C	N3-C2-O2	-7.63	116.56	121.90
23	BA	1378	U	C2-N1-C1'	7.62	126.84	117.70
24	AB	108	U	N1-C2-O2	7.59	128.12	122.80
24	BB	108	U	N1-C2-O2	7.59	128.11	122.80
31	AI	20	LEU	CA-CB-CG	7.56	132.69	115.30
31	BI	20	LEU	CA-CB-CG	7.55	132.66	115.30
23	AA	1894	G	C8-N9-C1'	-7.53	117.20	127.00
23	BA	1894	G	C8-N9-C1'	-7.53	117.20	127.00
23	BA	1932	C	N3-C2-O2	-7.50	116.65	121.90
1	Ba	1136	U	C2-N1-C1'	7.48	126.67	117.70
35	BM	31	LEU	CA-CB-CG	7.44	132.41	115.30
35	AM	31	LEU	CA-CB-CG	7.42	132.37	115.30
1	Aa	1136	U	C2-N1-C1'	7.41	126.59	117.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
23	AA	1599	G	N3-C2-N2	-7.41	114.72	119.90
1	Ba	415	A	P-O3'-C3'	7.35	128.52	119.70
23	BA	1599	G	N3-C2-N2	-7.29	114.79	119.90
1	Aa	415	A	P-O3'-C3'	7.29	128.45	119.70
23	AA	1692	C	C2-N1-C1'	7.28	126.81	118.80
23	BA	1692	C	C2-N1-C1'	7.26	126.78	118.80
23	BA	1579	C	N1-C2-O2	7.22	123.23	118.90
1	Ba	902	C	C2-N1-C1'	7.17	126.69	118.80
23	AA	1579	C	N1-C2-O2	7.17	123.20	118.90
23	BA	1994	C	C6-N1-C1'	-7.16	112.21	120.80
23	AA	1597	U	N3-C2-O2	-7.14	117.20	122.20
1	Aa	835	U	C2-N1-C1'	7.13	126.26	117.70
23	AA	2223	C	N1-C2-O2	7.13	123.18	118.90
1	Aa	746	U	OP1-P-OP2	7.11	130.27	119.60
1	Aa	902	C	C2-N1-C1'	7.11	126.62	118.80
1	Ba	835	U	C2-N1-C1'	7.11	126.23	117.70
23	AA	1994	C	C6-N1-C1'	-7.10	112.28	120.80
23	BA	1932	C	C6-N1-C1'	-7.09	112.29	120.80
1	Ba	746	U	OP1-P-OP2	7.08	130.22	119.60
1	Ba	99	U	N1-C2-O2	7.08	127.75	122.80
1	Aa	99	U	N1-C2-O2	7.06	127.75	122.80
23	BA	1597	U	N3-C2-O2	-7.06	117.26	122.20
1	Ba	99	U	N3-C2-O2	-7.04	117.27	122.20
23	BA	2223	C	N1-C2-O2	7.04	123.12	118.90
23	AA	1932	C	C6-N1-C1'	-7.03	112.36	120.80
1	Aa	1187	G	N3-C4-N9	7.02	130.21	126.00
1	Aa	99	U	N3-C2-O2	-7.01	117.29	122.20
23	BA	759	U	N3-C2-O2	-7.00	117.30	122.20
1	Aa	460	A	P-O3'-C3'	6.99	128.09	119.70
23	BA	2261	G	P-O3'-C3'	-6.99	111.31	119.70
23	AA	1894	G	N3-C4-N9	6.97	130.18	126.00
23	BA	1894	G	N3-C4-N9	6.97	130.18	126.00
23	BA	2819	C	N1-C2-O2	6.97	123.08	118.90
1	Ba	1187	G	N3-C4-N9	6.94	130.16	126.00
23	AA	759	U	N3-C2-O2	-6.94	117.34	122.20
23	AA	2261	G	P-O3'-C3'	-6.94	111.38	119.70
1	Ba	460	A	P-O3'-C3'	6.93	128.01	119.70
23	AA	1214	C	N1-C2-O2	6.91	123.05	118.90
23	AA	1914	C	N1-C2-O2	6.89	123.03	118.90
23	BA	575	G	C4-N9-C1'	6.88	135.44	126.50
23	AA	575	G	C4-N9-C1'	6.85	135.41	126.50
23	BA	1914	C	N1-C2-O2	6.85	123.01	118.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
23	BA	2361	U	C2-N1-C1'	6.84	125.91	117.70
1	Aa	431	G	C4-N9-C1'	6.84	135.39	126.50
23	AA	1160	C	N1-C2-O2	6.84	123.00	118.90
1	Ba	431	G	C4-N9-C1'	6.84	135.39	126.50
1	Aa	424	G	C4-N9-C1'	6.84	135.39	126.50
1	Ba	424	G	C4-N9-C1'	6.84	135.39	126.50
22	Av	176	ARG	NE-CZ-NH1	6.83	123.72	120.30
22	Bv	176	ARG	NE-CZ-NH1	6.83	123.72	120.30
23	AA	2819	C	N1-C2-O2	6.82	122.99	118.90
23	BA	1160	C	N1-C2-O2	6.81	122.99	118.90
23	AA	2361	U	C2-N1-C1'	6.79	125.85	117.70
1	Aa	1187	G	N3-C4-C5	-6.76	125.22	128.60
1	Ba	1187	G	N3-C4-C5	-6.76	125.22	128.60
1	Aa	55	C	N3-C2-O2	-6.74	117.18	121.90
23	BA	1214	C	N1-C2-O2	6.74	122.94	118.90
1	Ba	55	C	N3-C2-O2	-6.71	117.20	121.90
1	Ba	431	G	N3-C4-N9	6.69	130.01	126.00
1	Aa	424	G	N3-C4-C5	-6.68	125.26	128.60
23	BA	1227	U	N1-C2-O2	6.65	127.45	122.80
23	AA	1227	U	N1-C2-O2	6.63	127.44	122.80
1	Ba	424	G	N3-C4-C5	-6.63	125.29	128.60
1	Aa	711	G	P-O3'-C3'	6.62	127.65	119.70
1	Aa	431	G	N3-C4-N9	6.60	129.96	126.00
1	Ba	711	G	P-O3'-C3'	6.60	127.62	119.70
1	Ba	451	U	P-O3'-C3'	6.59	127.61	119.70
1	Aa	1041	C	P-O3'-C3'	6.58	127.59	119.70
1	Aa	65	G	P-O3'-C3'	6.57	127.58	119.70
1	Aa	451	U	P-O3'-C3'	6.56	127.57	119.70
1	Ba	1041	C	P-O3'-C3'	6.55	127.56	119.70
1	Ba	65	G	P-O3'-C3'	6.54	127.55	119.70
23	BA	1597	U	N1-C2-O2	6.54	127.38	122.80
23	AA	1597	U	N1-C2-O2	6.53	127.37	122.80
1	Ba	1075	G	P-O3'-C3'	6.52	127.52	119.70
1	Ba	1187	G	C8-N9-C1'	-6.51	118.53	127.00
4	Ad	101	LEU	CA-CB-CG	6.51	130.28	115.30
1	Aa	1187	G	C8-N9-C1'	-6.51	118.54	127.00
4	Bd	101	LEU	CA-CB-CG	6.51	130.26	115.30
1	Aa	1075	G	P-O3'-C3'	6.50	127.50	119.70
1	Ba	1136	U	N3-C2-O2	-6.49	117.66	122.20
1	Aa	1136	U	N3-C2-O2	-6.49	117.66	122.20
23	BA	2049	U	C2-N1-C1'	6.48	125.47	117.70
1	Aa	835	U	N3-C2-O2	-6.47	117.67	122.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
23	AA	2049	U	C2-N1-C1'	6.46	125.46	117.70
1	Aa	336	C	C2-N1-C1'	6.46	125.91	118.80
1	Aa	315	U	C2-N1-C1'	6.45	125.44	117.70
1	Ba	336	C	C2-N1-C1'	6.45	125.89	118.80
23	BA	2699	U	N1-C2-O2	6.45	127.31	122.80
23	AA	2223	C	N3-C2-O2	-6.44	117.39	121.90
1	Ba	315	U	C2-N1-C1'	6.44	125.42	117.70
23	AA	575	G	N3-C4-N9	6.43	129.86	126.00
23	AA	1731	G	P-O3'-C3'	6.43	127.42	119.70
23	AA	268	A	P-O3'-C3'	6.43	127.42	119.70
23	BA	74	U	N1-C2-O2	6.42	127.30	122.80
23	BA	1213	C	N1-C2-O2	6.42	122.75	118.90
23	AA	2699	U	N1-C2-O2	6.41	127.29	122.80
1	Ba	431	G	N3-C4-C5	-6.41	125.39	128.60
23	BA	268	A	P-O3'-C3'	6.41	127.39	119.70
23	AA	1651	C	N1-C2-O2	6.40	122.74	118.90
23	BA	1651	C	N1-C2-O2	6.40	122.74	118.90
23	AA	74	U	N1-C2-O2	6.40	127.28	122.80
23	BA	1731	G	P-O3'-C3'	6.40	127.38	119.70
1	Ba	835	U	N3-C2-O2	-6.40	117.72	122.20
23	AA	1213	C	N1-C2-O2	6.39	122.73	118.90
23	AA	2450	U	P-O3'-C3'	6.39	127.36	119.70
23	BA	2450	U	P-O3'-C3'	6.39	127.36	119.70
24	BB	111	C	C6-N1-C1'	-6.38	113.14	120.80
23	BA	2223	C	N3-C2-O2	-6.38	117.43	121.90
1	Aa	1136	U	N1-C2-O2	6.38	127.27	122.80
23	BA	975	U	N1-C2-O2	6.37	127.26	122.80
23	AA	1992	C	C2-N1-C1'	6.36	125.80	118.80
23	BA	1552	U	N3-C2-O2	-6.36	117.75	122.20
24	AB	111	C	C6-N1-C1'	-6.35	113.18	120.80
23	BA	1992	C	C2-N1-C1'	6.35	125.78	118.80
23	AA	975	U	N1-C2-O2	6.34	127.24	122.80
23	AA	1804	U	C6-N1-C1'	-6.34	112.32	121.20
1	Ba	424	G	N3-C4-N9	6.34	129.80	126.00
23	BA	2262	G	O5'-P-OP1	-6.34	99.99	105.70
23	AA	1804	U	N3-C2-O2	-6.33	117.77	122.20
1	Ba	1136	U	N1-C2-O2	6.33	127.23	122.80
23	BA	1804	U	C6-N1-C1'	-6.33	112.33	121.20
1	Aa	424	G	N3-C4-N9	6.33	129.80	126.00
23	AA	1804	U	N1-C2-O2	6.32	127.23	122.80
23	BA	1804	U	N3-C2-O2	-6.32	117.77	122.20
23	AA	2747	U	C2-N1-C1'	6.32	125.28	117.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	Ba	902	C	N3-C2-O2	-6.32	117.48	121.90
1	Aa	431	G	N3-C4-C5	-6.31	125.45	128.60
23	AA	2262	G	O5'-P-OP1	-6.29	100.03	105.70
23	BA	1692	C	N1-C2-O2	6.28	122.67	118.90
1	Aa	762	C	C2-N1-C1'	6.28	125.70	118.80
1	Ba	762	C	C2-N1-C1'	6.28	125.70	118.80
23	BA	2747	U	C2-N1-C1'	6.26	125.21	117.70
23	AA	988	C	N1-C2-O2	6.25	122.65	118.90
1	Aa	902	C	N3-C2-O2	-6.25	117.53	121.90
23	BA	575	G	N3-C4-N9	6.25	129.75	126.00
23	AA	1552	U	N3-C2-O2	-6.25	117.83	122.20
1	Ba	797	U	C2-N1-C1'	6.24	125.19	117.70
23	BA	862	C	N1-C2-O2	6.24	122.65	118.90
24	BB	94	C	N1-C2-O2	6.24	122.64	118.90
23	AA	1692	C	N1-C2-O2	6.24	122.64	118.90
23	BA	988	C	N1-C2-O2	6.23	122.64	118.90
1	Aa	902	C	N1-C2-O2	6.23	122.64	118.90
1	Aa	797	U	C2-N1-C1'	6.22	125.17	117.70
1	Aa	387	C	C2-N1-C1'	6.21	125.64	118.80
23	BA	1579	C	N3-C2-O2	-6.21	117.55	121.90
23	BA	184	C	C2-N1-C1'	6.21	125.63	118.80
23	AA	1227	U	C2-N1-C1'	6.20	125.14	117.70
1	Aa	1168	C	N1-C2-O2	6.20	122.62	118.90
23	AA	1579	C	N3-C2-O2	-6.19	117.56	121.90
23	AA	184	C	C2-N1-C1'	6.19	125.61	118.80
23	AA	862	C	N1-C2-O2	6.19	122.61	118.90
1	Ba	599	U	N1-C2-O2	6.19	127.13	122.80
1	Aa	599	U	N1-C2-O2	6.18	127.12	122.80
23	BA	1804	U	N1-C2-O2	6.17	127.12	122.80
23	BA	1953	U	C2-N1-C1'	6.17	125.11	117.70
23	AA	1953	U	C2-N1-C1'	6.17	125.11	117.70
24	AB	94	C	N1-C2-O2	6.17	122.60	118.90
23	BA	1227	U	C2-N1-C1'	6.17	125.11	117.70
23	AA	2845	G	N3-C2-N2	-6.17	115.58	119.90
1	Aa	835	U	N1-C2-O2	6.17	127.12	122.80
1	Ba	902	C	N1-C2-O2	6.17	122.60	118.90
23	AA	1914	C	N3-C2-O2	-6.16	117.59	121.90
1	Ba	387	C	C2-N1-C1'	6.16	125.58	118.80
1	Aa	1001	U	P-O3'-C3'	6.15	127.08	119.70
18	Ar	60	LEU	CA-CB-CG	6.15	129.45	115.30
1	Ba	835	U	N1-C2-O2	6.15	127.11	122.80
18	Br	60	LEU	CA-CB-CG	6.15	129.44	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	Ba	502	C	C2-N1-C1'	6.15	125.56	118.80
23	AA	2845	G	N3-C4-N9	-6.15	122.31	126.00
1	Aa	524	U	C2-N1-C1'	6.14	125.07	117.70
1	Ba	1168	C	N1-C2-O2	6.13	122.58	118.90
1	Ba	524	U	C2-N1-C1'	6.13	125.05	117.70
1	Ba	1001	U	P-O3'-C3'	6.12	127.05	119.70
23	BA	1914	C	N3-C2-O2	-6.12	117.62	121.90
23	AA	882	C	C6-N1-C1'	-6.10	113.48	120.80
23	BA	2347	A	C2-N3-C4	6.10	113.65	110.60
23	BA	882	C	C6-N1-C1'	-6.10	113.48	120.80
1	Aa	502	C	C2-N1-C1'	6.10	125.51	118.80
1	Aa	460	A	C2-N3-C4	6.09	113.65	110.60
23	AA	575	G	C8-N9-C1'	-6.09	119.08	127.00
1	Aa	762	C	N1-C2-O2	6.09	122.56	118.90
1	Ba	762	C	N1-C2-O2	6.09	122.56	118.90
23	BA	575	G	C8-N9-C1'	-6.09	119.09	127.00
23	AA	593	U	C6-N1-C1'	-6.08	112.68	121.20
23	BA	2845	G	N3-C2-N2	-6.08	115.64	119.90
23	BA	593	U	C6-N1-C1'	-6.08	112.69	121.20
1	Ba	460	A	C2-N3-C4	6.07	113.64	110.60
1	Aa	162	A	C2-N3-C4	6.07	113.64	110.60
1	Aa	1140	C	N1-C2-O2	6.06	122.53	118.90
36	BN	15	LEU	CA-CB-CG	6.05	129.22	115.30
1	Ba	1140	C	N1-C2-O2	6.05	122.53	118.90
23	BA	2845	G	N3-C4-N9	-6.04	122.38	126.00
36	AN	15	LEU	CA-CB-CG	6.04	129.18	115.30
23	BA	2112	C	N1-C2-O2	6.03	122.52	118.90
24	AB	87	C	C6-N1-C2	-6.02	117.89	120.30
1	Aa	969	U	P-O3'-C3'	6.02	126.92	119.70
1	Aa	1314	G	P-O3'-C3'	6.02	126.92	119.70
23	AA	1179	C	C6-N1-C2	-6.02	117.89	120.30
23	AA	2347	A	C2-N3-C4	6.02	113.61	110.60
1	Ba	1314	G	P-O3'-C3'	6.02	126.92	119.70
23	BA	576	U	P-O3'-C3'	6.01	126.91	119.70
1	Ba	1096	U	C2-N1-C1'	6.01	124.91	117.70
23	BA	882	C	N1-C2-O2	6.00	122.50	118.90
1	Aa	1096	U	C2-N1-C1'	6.00	124.89	117.70
23	BA	882	C	N3-C2-O2	-6.00	117.70	121.90
23	BA	463	C	N1-C2-O2	6.00	122.50	118.90
23	AA	2112	C	N1-C2-O2	5.99	122.50	118.90
1	Ba	969	U	P-O3'-C3'	5.99	126.89	119.70
23	AA	576	U	P-O3'-C3'	5.96	126.86	119.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	Ba	162	A	C2-N3-C4	5.96	113.58	110.60
23	BA	2223	C	C2-N1-C1'	5.96	125.35	118.80
1	Aa	1096	U	N1-C2-O2	5.95	126.97	122.80
23	AA	2223	C	C2-N1-C1'	5.95	125.34	118.80
23	BA	1179	C	C6-N1-C1'	-5.95	113.66	120.80
23	AA	1179	C	C6-N1-C1'	-5.94	113.67	120.80
23	AA	987	U	P-O3'-C3'	5.94	126.83	119.70
23	BA	987	U	P-O3'-C3'	5.94	126.83	119.70
31	AI	89	ASP	CB-CG-OD1	5.94	123.64	118.30
23	BA	1731	G	OP1-P-O3'	5.94	118.27	105.20
1	Ba	1096	U	N1-C2-O2	5.94	126.96	122.80
1	Ba	1267	A	P-O3'-C3'	5.94	126.82	119.70
23	AA	882	C	N3-C2-O2	-5.94	117.75	121.90
1	Aa	1267	A	P-O3'-C3'	5.93	126.82	119.70
23	AA	439	U	C6-N1-C1'	-5.93	112.89	121.20
23	AA	463	C	N1-C2-O2	5.93	122.46	118.90
23	BA	402	C	N1-C2-O2	5.93	122.46	118.90
23	AA	882	C	N1-C2-O2	5.93	122.46	118.90
1	Aa	1325	U	C2-N1-C1'	5.92	124.81	117.70
23	AA	1731	G	OP1-P-O3'	5.92	118.23	105.20
24	BB	100	U	C6-N1-C1'	-5.92	112.91	121.20
23	AA	577	A	P-O3'-C3'	5.91	126.80	119.70
1	Ba	1325	U	C2-N1-C1'	5.91	124.80	117.70
23	BA	439	U	C6-N1-C1'	-5.91	112.92	121.20
1	Aa	415	A	C2-N3-C4	5.91	113.55	110.60
23	BA	1179	C	C6-N1-C2	-5.90	117.94	120.30
23	AA	2049	U	N1-C2-O2	5.89	126.92	122.80
1	Aa	431	G	C8-N9-C1'	-5.89	119.34	127.00
24	AB	100	U	C6-N1-C1'	-5.89	112.95	121.20
1	Ba	431	G	C8-N9-C1'	-5.89	119.34	127.00
1	Ba	315	U	N1-C2-O2	5.89	126.92	122.80
23	BA	577	A	P-O3'-C3'	5.89	126.77	119.70
23	BA	2049	U	N1-C2-O2	5.89	126.92	122.80
1	Aa	315	U	N1-C2-O2	5.88	126.92	122.80
1	Aa	415	A	OP1-P-O3'	5.88	118.14	105.20
43	BU	53	ILE	C-N-CA	5.87	136.38	121.70
23	BA	897	A	C5-C6-N6	-5.87	119.01	123.70
31	BI	89	ASP	CB-CG-OD1	5.86	123.58	118.30
1	Ba	599	U	N3-C2-O2	-5.86	118.10	122.20
1	Ba	387	C	N1-C2-O2	5.86	122.42	118.90
23	AA	402	C	N1-C2-O2	5.85	122.41	118.90
1	Ba	415	A	OP1-P-O3'	5.85	118.07	105.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
23	BA	2369	C	N1-C2-O2	5.85	122.41	118.90
23	BA	2370	U	N1-C2-O2	5.85	126.90	122.80
43	AU	53	ILE	C-N-CA	5.85	136.32	121.70
23	AA	897	A	C5-C6-N6	-5.84	119.03	123.70
23	BA	688	A	P-O3'-C3'	5.84	126.71	119.70
1	Aa	315	U	N3-C2-O2	-5.82	118.12	122.20
23	AA	2370	U	N1-C2-O2	5.82	126.88	122.80
1	Ba	315	U	N3-C2-O2	-5.82	118.12	122.20
1	Ba	415	A	C2-N3-C4	5.82	113.51	110.60
23	AA	1768	C	N1-C2-O2	5.82	122.39	118.90
23	BA	1768	C	N1-C2-O2	5.82	122.39	118.90
23	BA	2796	C	N1-C2-O2	5.82	122.39	118.90
24	BB	87	C	C6-N1-C2	-5.82	117.97	120.30
1	Aa	437	U	P-O3'-C3'	5.81	126.67	119.70
23	BA	828	A	C4-N9-C1'	5.81	136.76	126.30
1	Ba	437	U	P-O3'-C3'	5.80	126.67	119.70
23	AA	755	C	N1-C2-O2	5.80	122.38	118.90
23	AA	828	A	C4-N9-C1'	5.80	136.74	126.30
23	BA	268	A	O4'-C1'-N9	5.80	112.84	108.20
1	Aa	599	U	N3-C2-O2	-5.80	118.14	122.20
23	AA	688	A	P-O3'-C3'	5.80	126.66	119.70
23	AA	268	A	O4'-C1'-N9	5.79	112.83	108.20
1	Ba	1156	A	P-O3'-C3'	5.79	126.64	119.70
23	AA	2796	C	N1-C2-O2	5.78	122.37	118.90
23	AA	74	U	N3-C2-O2	-5.77	118.16	122.20
23	BA	74	U	N3-C2-O2	-5.77	118.16	122.20
23	AA	2742	C	N1-C2-O2	5.77	122.36	118.90
1	Aa	1156	A	P-O3'-C3'	5.77	126.62	119.70
23	BA	1287	U	N1-C2-O2	5.77	126.84	122.80
1	Aa	387	C	N1-C2-O2	5.76	122.36	118.90
1	Ba	336	C	N1-C2-O2	5.75	122.35	118.90
23	BA	2742	C	N1-C2-O2	5.75	122.35	118.90
1	Aa	336	C	N1-C2-O2	5.74	122.34	118.90
23	BA	755	C	N1-C2-O2	5.74	122.34	118.90
23	AA	1287	U	N1-C2-O2	5.73	126.81	122.80
23	AA	1588	U	O4'-C1'-N1	5.73	112.78	108.20
23	AA	2369	C	N1-C2-O2	5.73	122.34	118.90
23	BA	1588	U	O4'-C1'-N1	5.72	112.78	108.20
23	AA	759	U	C6-N1-C1'	-5.71	113.21	121.20
23	AA	943	C	N1-C2-O2	5.71	122.33	118.90
1	Ba	486	C	N1-C2-O2	5.71	122.32	118.90
23	BA	759	U	C6-N1-C1'	-5.69	113.23	121.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
23	AA	1213	C	N3-C2-O2	-5.69	117.92	121.90
23	AA	2361	U	N1-C2-O2	5.69	126.78	122.80
23	AA	1287	U	C2-N1-C1'	5.68	124.52	117.70
23	BA	862	C	C6-N1-C2	-5.68	118.03	120.30
1	Aa	486	C	N1-C2-O2	5.68	122.31	118.90
23	BA	943	C	N1-C2-O2	5.68	122.31	118.90
23	AA	2749	G	P-O3'-C3'	5.67	126.51	119.70
23	BA	1213	C	N3-C2-O2	-5.67	117.93	121.90
23	AA	975	U	N3-C2-O2	-5.67	118.23	122.20
23	BA	975	U	N3-C2-O2	-5.67	118.23	122.20
1	Ba	65	G	C4-N9-C1'	5.66	133.86	126.50
23	BA	2749	G	P-O3'-C3'	5.66	126.50	119.70
23	BA	1287	U	N3-C2-O2	-5.65	118.24	122.20
23	AA	1287	U	N3-C2-O2	-5.65	118.25	122.20
23	BA	1552	U	N1-C2-O2	5.64	126.75	122.80
23	AA	1803	G	C4-N9-C1'	5.64	133.83	126.50
23	BA	1803	G	C4-N9-C1'	5.64	133.83	126.50
1	Aa	1370	A	P-O3'-C3'	5.64	126.46	119.70
23	BA	1228	A	N7-C8-N9	5.63	116.62	113.80
23	BA	2370	U	C2-N1-C1'	5.63	124.46	117.70
23	AA	2370	U	C2-N1-C1'	5.63	124.45	117.70
1	Aa	599	U	C6-N1-C1'	-5.62	113.33	121.20
23	BA	1287	U	C2-N1-C1'	5.62	124.44	117.70
1	Aa	1136	U	P-O3'-C3'	5.62	126.44	119.70
23	AA	872	U	N1-C2-O2	5.62	126.73	122.80
1	Ba	1136	U	P-O3'-C3'	5.62	126.44	119.70
1	Ba	1370	A	P-O3'-C3'	5.62	126.44	119.70
1	Aa	65	G	C4-N9-C1'	5.62	133.80	126.50
23	AA	862	C	C6-N1-C2	-5.62	118.05	120.30
23	BA	1845	U	P-O3'-C3'	5.61	126.44	119.70
23	BA	593	U	C5-C6-N1	5.61	125.51	122.70
1	Ba	599	U	C6-N1-C1'	-5.60	113.36	121.20
23	BA	862	C	N3-C2-O2	-5.60	117.98	121.90
23	BA	1579	C	C6-N1-C2	-5.60	118.06	120.30
1	Ba	1048	C	N1-C2-O2	5.60	122.26	118.90
1	Ba	424	G	C8-N9-C1'	-5.59	119.73	127.00
23	AA	1214	C	N3-C2-O2	-5.59	117.99	121.90
23	AA	1845	U	P-O3'-C3'	5.59	126.41	119.70
23	BA	1451	U	N1-C2-O2	5.59	126.71	122.80
23	AA	1552	U	N1-C2-O2	5.58	126.71	122.80
23	AA	593	U	C5-C6-N1	5.58	125.49	122.70
23	BA	872	U	N1-C2-O2	5.58	126.71	122.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
23	AA	1579	C	C6-N1-C2	-5.58	118.07	120.30
23	AA	1228	A	N7-C8-N9	5.58	116.59	113.80
23	AA	1633	A	C2-N3-C4	5.57	113.39	110.60
22	Av	153	MET	CG-SD-CE	-5.57	91.29	100.20
22	Bv	153	MET	CG-SD-CE	-5.57	91.29	100.20
1	Aa	424	G	C8-N9-C1'	-5.56	119.77	127.00
23	BA	2361	U	N1-C2-O2	5.56	126.69	122.80
23	AA	256	C	N1-C2-O2	5.56	122.24	118.90
23	AA	754	U	N1-C2-O2	5.56	126.69	122.80
23	BA	754	U	N1-C2-O2	5.56	126.69	122.80
23	AA	1343	U	C2-N1-C1'	5.56	124.37	117.70
23	AA	577	A	C2-N3-C4	5.56	113.38	110.60
23	BA	1214	C	N3-C2-O2	-5.56	118.01	121.90
23	AA	862	C	N3-C2-O2	-5.55	118.01	121.90
1	Aa	553	C	O4'-C1'-N1	5.55	112.64	108.20
23	AA	1692	C	C6-N1-C1'	-5.55	114.14	120.80
23	BA	1692	C	C6-N1-C1'	-5.55	114.14	120.80
1	Aa	1122	A	P-O3'-C3'	5.55	126.36	119.70
24	BB	69	C	N1-C2-O2	5.55	122.23	118.90
23	BA	2761	C	N1-C2-O2	5.54	122.23	118.90
1	Ba	1122	A	P-O3'-C3'	5.54	126.35	119.70
23	AA	1451	U	N1-C2-O2	5.54	126.68	122.80
23	BA	398	C	N1-C2-O2	5.54	122.22	118.90
35	BM	22	LEU	CA-CB-CG	5.54	128.04	115.30
35	AM	22	LEU	CA-CB-CG	5.54	128.03	115.30
1	Ba	387	C	N3-C2-O2	-5.54	118.03	121.90
23	BA	1343	U	C2-N1-C1'	5.54	124.34	117.70
23	AA	1992	C	N1-C2-O2	5.53	122.22	118.90
23	BA	1992	C	N1-C2-O2	5.53	122.22	118.90
23	BA	2699	U	N3-C2-O2	-5.52	118.33	122.20
23	BA	256	C	N1-C2-O2	5.52	122.21	118.90
23	AA	2761	C	N1-C2-O2	5.51	122.21	118.90
1	Ba	553	C	O4'-C1'-N1	5.51	112.61	108.20
23	AA	1894	G	C6-C5-N7	-5.50	127.10	130.40
1	Ba	55	C	C6-N1-C1'	-5.49	114.21	120.80
24	AB	69	C	N1-C2-O2	5.49	122.19	118.90
23	BA	1894	G	C6-C5-N7	-5.49	127.11	130.40
1	Aa	387	C	N3-C2-O2	-5.47	118.07	121.90
1	Ba	486	C	N3-C2-O2	-5.47	118.07	121.90
23	BA	2408	C	N1-C2-O2	5.47	122.18	118.90
23	AA	1049	C	N1-C2-O2	5.46	122.18	118.90
23	BA	2747	U	N3-C2-O2	-5.46	118.38	122.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
23	AA	1216	U	C2-N1-C1'	5.46	124.25	117.70
1	Aa	55	C	C6-N1-C1'	-5.46	114.25	120.80
23	AA	398	C	N1-C2-O2	5.46	122.17	118.90
23	BA	577	A	C2-N3-C4	5.45	113.33	110.60
23	BA	1049	C	N1-C2-O2	5.45	122.17	118.90
1	Aa	486	C	N3-C2-O2	-5.45	118.08	121.90
23	AA	2408	C	N1-C2-O2	5.45	122.17	118.90
23	AA	975	U	C2-N1-C1'	5.44	124.23	117.70
23	AA	872	U	N3-C2-O2	-5.43	118.40	122.20
23	AA	2699	U	N3-C2-O2	-5.43	118.39	122.20
23	BA	1633	A	C2-N3-C4	5.43	113.32	110.60
24	AB	115	C	N1-C2-O2	5.43	122.16	118.90
1	Ba	422	A	C2-N3-C4	5.43	113.31	110.60
1	Aa	1048	C	N1-C2-O2	5.42	122.16	118.90
23	BA	2321	C	N1-C2-O2	5.42	122.15	118.90
23	AA	1815	C	N1-C2-O2	5.42	122.15	118.90
1	Ba	1168	C	C2-N1-C1'	5.42	124.76	118.80
23	AA	327	G	O4'-C1'-N9	5.42	112.53	108.20
23	BA	327	G	O4'-C1'-N9	5.42	112.53	108.20
23	BA	1216	U	C2-N1-C1'	5.41	124.20	117.70
23	AA	575	G	N3-C4-C5	-5.41	125.90	128.60
23	BA	1815	C	N1-C2-O2	5.40	122.14	118.90
23	BA	975	U	C2-N1-C1'	5.40	124.17	117.70
24	BB	115	C	N1-C2-O2	5.39	122.14	118.90
1	Ba	411	C	C6-N1-C2	-5.38	118.15	120.30
23	AA	1101	A	C2-N3-C4	5.38	113.29	110.60
23	BA	1514	A	N1-C6-N6	5.38	121.83	118.60
1	Aa	1168	C	C2-N1-C1'	5.38	124.72	118.80
1	Ba	1157	C	N1-C2-O2	5.38	122.13	118.90
23	BA	1692	C	N3-C2-O2	-5.38	118.14	121.90
24	AB	100	U	N1-C2-O2	5.37	126.56	122.80
23	AA	1894	G	N3-C4-C5	-5.36	125.92	128.60
23	BA	1894	G	N3-C4-C5	-5.36	125.92	128.60
23	BA	1732	U	O5'-P-OP2	-5.36	100.88	105.70
23	AA	1514	A	N1-C6-N6	5.36	121.81	118.60
23	BA	460	C	N1-C2-O2	5.35	122.11	118.90
23	AA	2321	C	N1-C2-O2	5.35	122.11	118.90
23	AA	2361	U	N3-C2-O2	-5.35	118.46	122.20
1	Ba	55	C	C6-N1-C2	-5.35	118.16	120.30
23	AA	2747	U	N3-C2-O2	-5.34	118.46	122.20
23	BA	2731	C	N1-C2-O2	5.34	122.11	118.90
24	BB	94	C	N3-C2-O2	-5.34	118.16	121.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
23	BA	2249	G	O4'-C1'-N9	5.34	112.47	108.20
24	AB	94	C	N3-C2-O2	-5.33	118.17	121.90
25	AC	130	LEU	CA-CB-CG	5.33	127.56	115.30
25	BC	130	LEU	CA-CB-CG	5.33	127.56	115.30
23	AA	2049	U	N3-C2-O2	-5.33	118.47	122.20
1	Aa	1157	C	N1-C2-O2	5.33	122.10	118.90
23	AA	2731	C	N1-C2-O2	5.33	122.10	118.90
1	Aa	55	C	C6-N1-C2	-5.33	118.17	120.30
23	AA	971	U	N1-C2-O2	5.33	126.53	122.80
23	AA	1732	U	O5'-P-OP2	-5.33	100.91	105.70
23	BA	872	U	N3-C2-O2	-5.32	118.47	122.20
24	BB	100	U	N1-C2-O2	5.32	126.53	122.80
23	AA	2636	U	C2-N1-C1'	5.32	124.08	117.70
25	BC	19	LEU	CA-CB-CG	5.32	127.53	115.30
31	BI	64	ARG	CA-CB-CG	5.32	125.11	113.40
23	AA	988	C	N3-C2-O2	-5.32	118.18	121.90
23	AA	1692	C	N3-C2-O2	-5.32	118.18	121.90
1	Aa	411	C	C6-N1-C2	-5.31	118.17	120.30
31	AI	64	ARG	CA-CB-CG	5.31	125.09	113.40
25	AC	19	LEU	CA-CB-CG	5.31	127.52	115.30
23	BA	2112	C	N3-C2-O2	-5.31	118.18	121.90
23	AA	2112	C	N3-C2-O2	-5.30	118.19	121.90
23	AA	1551	U	O5'-P-OP1	-5.30	100.93	105.70
23	BA	1551	U	O5'-P-OP1	-5.30	100.93	105.70
23	BA	2636	U	C2-N1-C1'	5.30	124.06	117.70
23	AA	2249	G	O4'-C1'-N9	5.30	112.44	108.20
1	Aa	1012	G	C4-N9-C1'	5.29	133.37	126.50
23	BA	1101	A	C2-N3-C4	5.29	113.24	110.60
1	Ba	1012	G	C4-N9-C1'	5.29	133.37	126.50
23	BA	971	U	N1-C2-O2	5.29	126.50	122.80
23	AA	714	G	C4-N9-C1'	5.28	133.37	126.50
23	BA	714	G	C4-N9-C1'	5.28	133.37	126.50
23	BA	988	C	N3-C2-O2	-5.28	118.21	121.90
23	AA	394	U	N1-C2-O2	5.27	126.49	122.80
1	Aa	422	A	C2-N3-C4	5.27	113.23	110.60
23	BA	394	U	N1-C2-O2	5.27	126.49	122.80
23	AA	2263	C	N1-C2-O2	5.27	122.06	118.90
23	BA	575	G	N3-C4-C5	-5.26	125.97	128.60
23	BA	2361	U	N3-C2-O2	-5.26	118.52	122.20
23	BA	2049	U	N3-C2-O2	-5.26	118.52	122.20
23	BA	340	C	N1-C2-O2	5.25	122.05	118.90
23	AA	1758	A	C2-N3-C4	5.25	113.23	110.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
23	BA	1758	A	C2-N3-C4	5.25	113.23	110.60
23	AA	2796	C	N3-C2-O2	-5.25	118.22	121.90
23	BA	1451	U	N3-C2-O2	-5.25	118.52	122.20
23	BA	2263	C	N1-C2-O2	5.25	122.05	118.90
23	BA	2796	C	N3-C2-O2	-5.25	118.22	121.90
23	AA	460	C	N1-C2-O2	5.24	122.05	118.90
1	Ba	324	C	C6-N1-C2	-5.24	118.20	120.30
1	Ba	797	U	N1-C2-O2	5.24	126.47	122.80
1	Aa	502	C	N1-C2-O2	5.23	122.04	118.90
23	AA	340	C	N1-C2-O2	5.23	122.04	118.90
23	AA	1451	U	N3-C2-O2	-5.23	118.54	122.20
23	AA	1557	C	N1-C2-O2	5.22	122.03	118.90
23	BA	1557	C	N1-C2-O2	5.22	122.03	118.90
23	BA	1214	C	C2-N1-C1'	5.22	124.54	118.80
12	Al	62	LEU	CA-CB-CG	5.21	127.29	115.30
1	Ba	1186	A	C2-N3-C4	5.21	113.21	110.60
23	BA	1101	A	C4-N9-C1'	5.21	135.67	126.30
25	BC	13	ARG	CA-CB-CG	5.21	124.85	113.40
12	Bl	62	LEU	CA-CB-CG	5.20	127.27	115.30
1	Aa	1063	U	C2-N1-C1'	5.20	123.94	117.70
23	BA	1950	U	N1-C2-O2	5.20	126.44	122.80
1	Aa	1188	G	C4-N9-C1'	5.20	133.26	126.50
23	AA	1101	A	C4-N9-C1'	5.20	135.66	126.30
1	Ba	1063	U	C2-N1-C1'	5.20	123.94	117.70
23	AA	1101	A	N7-C8-N9	5.20	116.40	113.80
23	BA	1101	A	N7-C8-N9	5.20	116.40	113.80
1	Aa	1096	U	N3-C2-O2	-5.19	118.56	122.20
1	Ba	1096	U	N3-C2-O2	-5.19	118.56	122.20
25	AC	13	ARG	CA-CB-CG	5.19	124.82	113.40
23	AA	1950	U	N1-C2-O2	5.19	126.43	122.80
1	Aa	797	U	N1-C2-O2	5.18	126.43	122.80
23	BA	1953	U	N3-C2-O2	-5.18	118.57	122.20
32	BJ	61	LEU	CB-CG-CD2	-5.18	102.19	111.00
23	AA	1228	A	O4'-C1'-N9	5.18	112.34	108.20
32	AJ	6	LEU	CA-CB-CG	5.18	127.21	115.30
32	AJ	61	LEU	CB-CG-CD2	-5.18	102.19	111.00
23	AA	754	U	N3-C2-O2	-5.18	118.58	122.20
23	BA	1228	A	O4'-C1'-N9	5.18	112.34	108.20
1	Ba	1188	G	C4-N9-C1'	5.18	133.23	126.50
32	BJ	6	LEU	CA-CB-CG	5.17	127.20	115.30
23	AA	1625	U	N3-C2-O2	-5.17	118.58	122.20
23	AA	1587	C	N1-C2-O2	5.16	122.00	118.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	Bf	54	ASP	CB-CG-OD1	5.16	122.94	118.30
1	Aa	1186	A	C2-N3-C4	5.16	113.18	110.60
23	AA	1385	G	P-O3'-C3'	5.15	125.88	119.70
23	AA	1953	U	N3-C2-O2	-5.15	118.59	122.20
23	AA	1214	C	C2-N1-C1'	5.15	124.46	118.80
23	AA	2263	C	C6-N1-C2	-5.15	118.24	120.30
23	BA	57	C	N1-C2-O2	5.15	121.99	118.90
1	Ba	542	U	C2-N1-C1'	5.14	123.87	117.70
23	AA	1160	C	N3-C2-O2	-5.14	118.30	121.90
1	Aa	1114	C	C6-N1-C2	-5.14	118.25	120.30
23	AA	57	C	N1-C2-O2	5.13	121.98	118.90
1	Aa	542	U	C2-N1-C1'	5.13	123.86	117.70
23	AA	256	C	N3-C2-O2	-5.13	118.31	121.90
23	AA	1651	C	N3-C2-O2	-5.13	118.31	121.90
23	BA	1160	C	N3-C2-O2	-5.13	118.31	121.90
23	AA	1761	G	N3-C4-C5	5.12	131.16	128.60
23	BA	1761	G	N3-C4-C5	5.12	131.16	128.60
23	BA	1651	C	N3-C2-O2	-5.12	118.31	121.90
1	Ba	797	U	N3-C2-O2	-5.12	118.62	122.20
23	BA	1385	G	P-O3'-C3'	5.12	125.84	119.70
23	BA	556	U	N1-C2-O2	5.12	126.38	122.80
23	BA	256	C	N3-C2-O2	-5.12	118.32	121.90
6	Af	54	ASP	CB-CG-OD1	5.11	122.90	118.30
24	AB	108	U	C6-N1-C1'	-5.11	114.04	121.20
1	Aa	99	U	C5-C6-N1	5.11	125.25	122.70
23	AA	1758	A	C4-N9-C1'	5.11	135.50	126.30
1	Aa	1373	A	C2-N3-C4	5.11	113.15	110.60
23	AA	576	U	C5-C6-N1	5.11	125.25	122.70
23	AA	1803	G	C8-N9-C1'	-5.11	120.36	127.00
1	Ba	1373	A	C2-N3-C4	5.11	113.15	110.60
23	BA	1803	G	C8-N9-C1'	-5.11	120.36	127.00
23	BA	2369	C	N3-C2-O2	-5.11	118.33	121.90
23	BA	1216	U	N1-C2-O2	5.10	126.37	122.80
23	BA	530	C	N1-C2-O2	5.10	121.96	118.90
23	BA	1587	C	N1-C2-O2	5.10	121.96	118.90
23	BA	2095	U	N1-C2-O2	5.10	126.37	122.80
23	AA	2819	C	C2-N1-C1'	5.09	124.41	118.80
23	BA	1758	A	C4-N9-C1'	5.09	135.47	126.30
24	BB	83	C	C6-N1-C2	-5.09	118.26	120.30
24	BB	108	U	C6-N1-C1'	-5.09	114.08	121.20
1	Aa	324	C	C6-N1-C2	-5.09	118.27	120.30
23	AA	1380	G	C4-N9-C1'	5.09	133.11	126.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
23	BA	1828	U	N1-C2-O2	5.08	126.36	122.80
23	AA	2369	C	N3-C2-O2	-5.08	118.35	121.90
42	AT	82	LEU	C-N-CA	5.07	134.38	121.70
1	Aa	488	U	C2-N1-C1'	5.07	123.78	117.70
1	Ba	488	U	C2-N1-C1'	5.07	123.78	117.70
42	BT	82	LEU	C-N-CA	5.07	134.38	121.70
23	AA	556	U	N1-C2-O2	5.07	126.35	122.80
1	Ba	99	U	C5-C6-N1	5.07	125.23	122.70
1	Ba	502	C	N1-C2-O2	5.07	121.94	118.90
1	Aa	460	A	N3-C4-N9	5.06	131.44	127.40
23	AA	1552	U	C6-N1-C2	-5.06	117.97	121.00
23	BA	1552	U	C6-N1-C2	-5.06	117.97	121.00
23	AA	1828	U	N1-C2-O2	5.05	126.33	122.80
23	BA	576	U	C5-C6-N1	5.05	125.22	122.70
23	BA	593	U	N1-C2-O2	5.05	126.33	122.80
23	BA	402	C	N3-C2-O2	-5.05	118.37	121.90
23	BA	60	U	N1-C2-O2	5.04	126.33	122.80
1	Aa	99	U	P-O3'-C3'	5.04	125.75	119.70
23	BA	1380	G	C4-N9-C1'	5.04	133.06	126.50
23	BA	1625	U	N3-C2-O2	-5.04	118.67	122.20
23	AA	1992	C	N3-C2-O2	-5.04	118.37	121.90
1	Ba	460	A	N3-C4-N9	5.04	131.43	127.40
23	BA	1992	C	N3-C2-O2	-5.04	118.37	121.90
2	Ab	20	THR	C-N-CA	5.04	134.30	121.70
23	BA	2347	A	N3-C4-N9	5.04	131.43	127.40
23	BA	2223	C	C6-N1-C2	-5.04	118.28	120.30
23	BA	2819	C	C2-N1-C1'	5.04	124.34	118.80
23	AA	2095	U	N1-C2-O2	5.04	126.33	122.80
23	BA	754	U	N3-C2-O2	-5.04	118.67	122.20
23	AA	1132	A	O4'-C1'-N9	5.03	112.22	108.20
1	Ba	902	C	C6-N1-C1'	-5.03	114.76	120.80
24	AB	100	U	O4'-C1'-N1	5.03	112.22	108.20
1	Ba	99	U	P-O3'-C3'	5.03	125.73	119.70
23	BA	2263	C	C6-N1-C2	-5.03	118.29	120.30
1	Aa	797	U	N3-C2-O2	-5.03	118.68	122.20
23	AA	2224	U	N3-C2-O2	-5.03	118.68	122.20
23	AA	1559	G	N3-C2-N2	-5.02	116.38	119.90
23	BA	1559	G	N3-C2-N2	-5.02	116.38	119.90
23	AA	2223	C	C6-N1-C2	-5.02	118.29	120.30
23	AA	943	C	C6-N1-C2	-5.01	118.30	120.30
23	BA	1214	C	C6-N1-C2	-5.01	118.30	120.30
1	Aa	524	U	N3-C2-O2	-5.01	118.69	122.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
23	AA	60	U	N1-C2-O2	5.01	126.31	122.80
23	AA	184	C	C5-C6-N1	5.01	123.50	121.00
1	Ba	1114	C	C6-N1-C2	-5.01	118.30	120.30
2	Bb	20	THR	C-N-CA	5.01	134.23	121.70
1	Aa	599	U	O4'-C1'-N1	5.01	112.20	108.20
23	AA	2347	A	N3-C4-N9	5.01	131.41	127.40
1	Ba	599	U	O4'-C1'-N1	5.01	112.20	108.20
35	AM	68	THR	C-N-CA	5.00	134.21	121.70
23	AA	460	C	C6-N1-C2	-5.00	118.30	120.30
1	Ba	65	G	OP2-P-O3'	5.00	116.20	105.20
23	BA	2224	U	N3-C2-O2	-5.00	118.70	122.20

There are no chirality outliers.

All (14) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
26	AD	158	SER	Peptide
38	AP	50	ALA	Peptide
5	Ae	76	ARG	Peptide
9	Ai	108	ARG	Peptide
12	Al	126	GLY	Peptide
19	As	80	PHE	Peptide
20	At	58	ASP	Peptide
26	BD	158	SER	Peptide
38	BP	50	ALA	Peptide
5	Be	76	ARG	Peptide
9	Bi	108	ARG	Peptide
12	Bl	126	GLY	Peptide
19	Bs	80	PHE	Peptide
20	Bt	58	ASP	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	Aa	32969	0	16595	0	0
1	Ba	32969	0	16595	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	Ab	1813	0	1875	0	0
2	Bb	1813	0	1875	0	0
3	Ac	1501	0	1464	0	0
3	Bc	1501	0	1464	0	0
4	Ad	1497	0	1449	0	0
4	Bd	1497	0	1449	0	0
5	Ae	1145	0	1202	0	0
5	Be	1145	0	1202	0	0
6	Af	778	0	775	0	0
6	Bf	778	0	775	0	0
7	Ag	1161	0	1165	0	0
7	Bg	1161	0	1165	0	0
8	Ah	1026	0	1078	0	0
8	Bh	1026	0	1078	0	0
9	Ai	922	0	890	0	0
9	Bi	922	0	890	0	0
10	Aj	752	0	775	0	0
10	Bj	752	0	775	0	0
11	Ak	810	0	784	0	0
11	Bk	810	0	784	0	0
12	Al	1037	0	1091	0	0
12	Bl	1037	0	1091	0	0
13	Am	727	0	674	0	0
13	Bm	727	0	674	0	0
14	An	487	0	492	0	0
14	Bn	487	0	492	0	0
15	Ao	723	0	749	0	0
15	Bo	723	0	749	0	0
16	Ap	694	0	709	0	0
16	Bp	694	0	709	0	0
17	Aq	621	0	615	0	0
17	Bq	621	0	615	0	0
18	Ar	446	0	482	0	0
18	Br	446	0	482	0	0
19	As	636	0	626	0	0
19	Bs	636	0	626	0	0
20	At	591	0	616	0	0
20	Bt	591	0	616	0	0
21	Au	400	0	407	0	0
21	Bu	400	0	407	0	0
22	Av	1333	0	1349	0	0
22	Bv	1333	0	1349	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
23	AA	62277	0	31301	710	0
23	BA	62277	0	31301	692	0
24	AB	2445	0	1241	16	0
24	BB	2445	0	1241	14	0
25	AC	2094	0	2203	87	0
25	BC	2094	0	2203	84	0
26	AD	1627	0	1667	58	0
26	BD	1627	0	1667	58	0
27	AE	1572	0	1619	39	0
27	BE	1572	0	1619	40	0
28	AF	1325	0	1342	51	0
28	BF	1325	0	1342	52	0
29	AG	1263	0	1225	25	0
29	BG	1263	0	1225	24	0
30	AH	1143	0	1134	17	0
30	BH	1143	0	1134	16	0
31	AI	918	0	980	25	0
31	BI	918	0	980	24	0
32	AJ	1086	0	1125	28	0
32	BJ	1086	0	1125	27	0
33	AK	1071	0	1123	26	0
33	BK	1071	0	1123	23	0
34	AL	932	0	983	26	0
34	BL	932	0	983	26	0
35	AM	891	0	925	21	0
35	BM	891	0	925	21	0
36	AN	889	0	937	15	0
36	BN	889	0	937	16	0
37	AO	942	0	1014	31	0
37	BO	942	0	1014	31	0
38	AP	790	0	830	13	0
38	BP	790	0	830	12	0
39	AQ	854	0	914	17	0
39	BQ	854	0	914	16	0
40	AR	715	0	748	22	0
40	BR	715	0	748	21	0
41	AS	770	0	809	17	0
41	BS	770	0	809	17	0
42	AT	722	0	766	4	0
42	BT	722	0	766	5	0
43	AU	622	0	643	9	0
43	BU	622	0	643	10	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
44	AV	445	0	466	6	0
44	BV	445	0	466	6	0
45	AW	541	0	563	9	0
45	BW	541	0	563	8	0
46	AX	449	0	491	9	0
46	BX	449	0	491	9	0
47	AY	370	0	243	3	0
47	BY	370	0	243	3	0
48	AZ	360	0	358	23	0
48	BZ	360	0	358	20	0
49	A1	390	0	394	8	0
49	B1	390	0	394	7	0
50	A2	367	0	415	10	0
50	B2	367	0	415	10	0
51	A3	521	0	586	10	0
51	B3	521	0	586	10	0
52	A4	295	0	340	14	0
52	B4	295	0	340	14	0
All	All	281510	0	186494	1864	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 8.

All (1864) 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)
23:BA:2717:A:N7	34:BL:3:TYR:CD1	1.68	1.59
23:AA:2717:A:N7	34:AL:3:TYR:CD1	1.68	1.57
23:BA:581:A:OP1	30:BH:1:MET:CE	1.72	1.37
23:BA:1533:A:N7	25:BC:96:TYR:C	1.79	1.36
23:AA:581:A:OP1	30:AH:1:MET:CE	1.72	1.35
23:AA:2717:A:N7	34:AL:3:TYR:CE1	1.94	1.35
23:AA:1533:A:N7	25:AC:96:TYR:C	1.79	1.34
23:BA:2717:A:N7	34:BL:3:TYR:CE1	1.94	1.32
23:AA:581:A:OP1	30:AH:1:MET:HE1	1.29	1.24
23:BA:2046:U:OP2	48:BZ:6:ARG:NH1	1.72	1.22
23:AA:2046:U:OP2	48:AZ:6:ARG:NH1	1.72	1.22
23:AA:2332:U:H1'	28:AF:132:VAL:O	1.05	1.21
23:BA:581:A:OP1	30:BH:1:MET:HE1	1.00	1.18
23:BA:2332:U:H1'	28:BF:132:VAL:O	1.05	1.18
23:BA:1613:G:C4	25:BC:213:TRP:CE3	2.23	1.15

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AA:2648:G:OP1	26:AD:133:ARG:NH2	1.79	1.15
23:AA:2717:A:C8	34:AL:3:TYR:CE1	2.35	1.15
23:AA:1613:G:C4	25:AC:213:TRP:CE3	2.23	1.14
23:BA:2648:G:OP1	26:BD:133:ARG:NH2	1.79	1.14
23:BA:2717:A:C8	34:BL:3:TYR:CE1	2.35	1.13
23:AA:1819:G:OP1	25:AC:205:VAL:N	1.81	1.13
23:AA:753:U:OP1	23:AA:860:U:O2'	128.29	1.12
23:BA:753:U:OP1	23:BA:860:U:O2'	128.29	1.11
23:AA:1663:G:HO2'	50:A2:2:VAL:N	1.48	1.11
23:BA:1819:G:OP1	25:BC:205:VAL:N	1.81	1.11
23:BA:1663:G:HO2'	50:B2:2:VAL:N	1.48	1.10
23:AA:2338:A:H8	28:AF:40:VAL:HG21	1.13	1.10
23:BA:2332:U:C1'	28:BF:132:VAL:O	1.99	1.10
23:AA:1818:A:O2'	25:AC:206:GLY:HA2	1.49	1.10
23:AA:2332:U:C1'	28:AF:132:VAL:O	1.99	1.10
23:AA:2717:A:N6	34:AL:3:TYR:HB2	1.67	1.10
23:BA:2717:A:N6	34:BL:3:TYR:HB2	1.67	1.10
23:BA:1818:A:O2'	25:BC:206:GLY:CA	2.00	1.09
23:BA:1818:A:O2'	25:BC:206:GLY:HA2	1.49	1.09
23:AA:1818:A:O2'	25:AC:206:GLY:CA	2.00	1.09
23:BA:2338:A:H8	28:BF:40:VAL:HG21	1.13	1.07
23:BA:2331:G:H4'	28:BF:129:THR:O	1.54	1.07
23:AA:2331:G:H4'	28:AF:129:THR:O	1.54	1.06
27:BE:17:ILE:HD11	27:BE:200:LYS:HE3	1.35	1.06
23:AA:1533:A:N7	25:AC:97:ALA:N	1.91	1.04
23:AA:753:U:H5''	23:AA:860:U:H1'	127.49	1.03
23:BA:1533:A:N7	25:BC:97:ALA:N	1.91	1.02
27:AE:17:ILE:HD11	27:AE:200:LYS:HE3	1.35	1.02
23:BA:2312:C:OP2	49:B1:2:ARG:NH2	1.92	1.02
23:AA:2332:U:C6	28:AF:152:MET:O	2.14	1.01
23:AA:513:G:OP1	50:A2:34:ARG:NH1	1.94	1.00
23:AA:2312:C:OP2	49:A1:2:ARG:NH2	1.92	1.00
23:BA:2332:U:C6	28:BF:152:MET:O	2.14	1.00
23:BA:513:G:OP1	50:B2:34:ARG:NH1	1.94	0.99
23:BA:1818:A:HO2'	25:BC:206:GLY:HA2	1.28	0.98
23:BA:606:G:H21	37:BO:37:GLN:HE22	1.09	0.97
23:BA:2776:A:H1'	29:BG:63:THR:HG22	1.46	0.97
23:AA:2776:A:H1'	29:AG:63:THR:HG22	1.46	0.97
23:AA:2330:G:H5''	28:AF:122:PHE:O	1.65	0.97
23:BA:492:G:OP1	37:BO:3:ARG:HB3	1.66	0.96
23:BA:2330:G:H5''	28:BF:122:PHE:O	1.65	0.95

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AA:1533:A:N6	25:AC:96:TYR:O	2.00	0.94
23:AA:492:G:OP1	37:AO:3:ARG:HB3	1.66	0.94
23:AA:660:A:H8	27:AE:182:ASN:HB3	1.33	0.94
23:BA:1533:A:N6	25:BC:96:TYR:O	2.00	0.93
23:BA:2800:U:OP1	26:BD:179:THR:HG23	1.68	0.93
23:AA:1613:G:C5	25:AC:213:TRP:CE3	2.36	0.92
23:AA:606:G:H21	37:AO:37:GLN:HE22	1.09	0.92
23:BA:74:U:OP1	45:BW:48:LYS:NZ	2.02	0.92
23:AA:2642:U:C2	48:AZ:4:PRO:HA	2.05	0.92
23:AA:74:U:OP1	45:AW:48:LYS:NZ	2.02	0.92
23:BA:1377:U:OP2	40:BR:58:TYR:OH	1.87	0.92
23:AA:2800:U:OP1	26:AD:179:THR:HG23	1.68	0.91
23:BA:2642:U:C2	48:BZ:4:PRO:HA	2.05	0.91
23:BA:753:U:H5''	23:BA:860:U:H1'	127.49	0.91
23:BA:660:A:H8	27:BE:182:ASN:HB3	1.33	0.90
23:BA:2338:A:C8	28:BF:40:VAL:HG21	2.05	0.90
23:AA:2717:A:N7	34:AL:3:TYR:CG	2.40	0.90
23:AA:1377:U:OP2	40:AR:58:TYR:OH	1.87	0.90
23:BA:1613:G:C5	25:BC:213:TRP:CE3	2.36	0.89
23:BA:2775:A:H1'	29:BG:67:THR:HG22	1.55	0.89
23:AA:2338:A:C8	28:AF:40:VAL:HG21	2.05	0.89
23:BA:2717:A:N7	34:BL:3:TYR:CG	2.40	0.89
23:BA:2717:A:C8	34:BL:3:TYR:CZ	2.62	0.88
23:AA:2775:A:H1'	29:AG:67:THR:HG22	1.55	0.88
23:AA:2717:A:C8	34:AL:3:TYR:CZ	2.62	0.88
23:AA:2717:A:C5	34:AL:3:TYR:CD1	2.63	0.87
23:BA:581:A:OP1	30:BH:1:MET:SD	2.33	0.87
23:AA:372:A:H61	41:AS:15:LYS:HG2	1.40	0.86
23:AA:581:A:OP1	30:AH:1:MET:SD	2.33	0.86
23:BA:2717:A:C5	34:BL:3:TYR:CD1	2.63	0.86
23:BA:731:U:O2	50:B2:7:GLN:O	1.94	0.86
23:AA:731:U:O2	50:A2:7:GLN:O	1.94	0.85
23:BA:2338:A:C8	28:BF:40:VAL:HG11	2.11	0.85
23:AA:2338:A:C8	28:AF:40:VAL:HG11	2.11	0.84
23:BA:1324:A:H5'	34:BL:109:ARG:HD2	1.58	0.84
23:BA:372:A:H61	41:BS:15:LYS:HG2	1.40	0.84
23:AA:1324:A:H5'	34:AL:109:ARG:HD2	1.58	0.84
27:BE:17:ILE:CD1	27:BE:200:LYS:HE3	2.07	0.84
23:AA:2231:C:H5''	25:AC:147:LYS:CE	2.08	0.84
23:BA:2231:C:H5''	25:BC:147:LYS:HE3	1.60	0.84
27:AE:17:ILE:CD1	27:AE:200:LYS:HE3	2.07	0.83

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AA:902:A:OP1	43:AU:85:LYS:NZ	2.10	0.83
23:AA:1781:C:H5	36:AN:96:ARG:HH21	1.22	0.83
23:BA:1781:C:H5	36:BN:96:ARG:HH21	1.22	0.83
23:BA:2333:U:H3	28:BF:40:VAL:CG2	1.91	0.83
23:AA:2333:U:H3	28:AF:40:VAL:CG2	1.91	0.83
23:BA:1533:A:N7	25:BC:96:TYR:O	2.10	0.83
23:BA:902:A:OP1	43:BU:85:LYS:NZ	2.10	0.83
23:AA:1533:A:N7	25:AC:96:TYR:O	2.10	0.82
23:AA:1818:A:HO2'	25:AC:206:GLY:HA2	1.40	0.82
23:AA:2706:A:H2	26:AD:200:ASN:HD21	1.27	0.82
23:BA:1613:G:C5	25:BC:213:TRP:CZ3	2.62	0.82
23:AA:2231:C:H5''	25:AC:147:LYS:HE3	1.60	0.82
23:BA:1582:U:H3	23:BA:1587:C:HO2'	1.26	0.82
23:AA:2337:A:H2	28:AF:74:ILE:CG2	1.93	0.82
35:AM:19:ARG:HH21	35:AM:47:ASP:CG	1.83	0.82
23:BA:2231:C:H5''	25:BC:147:LYS:CE	2.08	0.82
23:BA:1701:U:OP1	26:BD:149:ARG:N	2.13	0.82
23:AA:2332:U:N1	28:AF:152:MET:O	2.13	0.81
23:AA:54:G:O2'	50:A2:36:ARG:NH1	2.13	0.81
23:AA:1290:G:H1	37:AO:37:GLN:HE21	1.27	0.81
23:BA:2337:A:H2	28:BF:74:ILE:CG2	1.93	0.81
23:BA:54:G:O2'	50:B2:36:ARG:NH1	2.13	0.81
23:BA:2800:U:OP1	26:BD:179:THR:CG2	2.28	0.81
23:AA:2800:U:OP1	26:AD:179:THR:CG2	2.28	0.81
23:BA:1040:A:OP2	38:BP:10:LYS:HD3	1.81	0.81
23:BA:2332:U:N1	28:BF:152:MET:O	2.13	0.80
23:BA:2717:A:C6	34:BL:3:TYR:HB2	2.16	0.80
35:BM:19:ARG:HH21	35:BM:47:ASP:CG	1.84	0.80
23:AA:2337:A:C2	28:AF:74:ILE:HG21	2.16	0.80
23:BA:2337:A:C2	28:BF:74:ILE:HG21	2.16	0.80
23:AA:967:C:O2'	43:AU:34:ALA:HB2	1.82	0.80
23:BA:967:C:O2'	43:BU:34:ALA:HB2	1.82	0.80
23:AA:2717:A:C6	34:AL:3:TYR:HB2	2.16	0.80
23:BA:1290:G:H1	37:BO:37:GLN:HE21	1.27	0.80
23:AA:1040:A:OP2	38:AP:10:LYS:HD3	1.81	0.79
23:AA:1701:U:OP1	26:AD:149:ARG:N	2.13	0.79
23:AA:1514:A:H61	23:AA:1566:G:H1	1.30	0.79
23:BA:2706:A:H2	26:BD:200:ASN:HD21	1.27	0.79
23:BA:2333:U:O2	28:BF:40:VAL:HB	1.84	0.78
23:BA:1710:G:O2'	31:BI:6:THR:HG22	1.83	0.78
23:AA:1710:G:O2'	31:AI:6:THR:HG22	1.83	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AA:1498:U:P	34:AL:59:ARG:HH12	2.06	0.78
23:AA:1613:G:C5	25:AC:213:TRP:CZ3	2.62	0.78
23:AA:1819:G:P	25:AC:205:VAL:HG22	2.23	0.78
23:AA:2048:G:N2	37:AO:25:PHE:CD2	2.52	0.78
23:AA:247:A:OP2	51:A3:8:ARG:NH2	2.17	0.78
23:BA:492:G:OP1	37:BO:3:ARG:HD3	1.84	0.78
23:AA:2333:U:O2	28:AF:40:VAL:HB	1.84	0.77
23:BA:2048:G:N2	37:BO:25:PHE:CD2	2.52	0.77
23:BA:1819:G:P	25:BC:205:VAL:HG22	2.23	0.77
23:BA:1498:U:P	34:BL:59:ARG:HH12	2.06	0.77
23:BA:703:A:O2'	27:BE:102:PRO:HG3	1.84	0.77
23:BA:1514:A:H61	23:BA:1566:G:H1	1.30	0.77
23:BA:2039:G:N7	39:BQ:16:LYS:NZ	2.31	0.77
23:AA:1185:U:OP2	30:AH:66:THR:OG1	2.01	0.77
23:AA:703:A:O2'	27:AE:102:PRO:HG3	1.84	0.77
23:BA:2694:C:N3	29:BG:110:SER:OG	2.17	0.77
23:AA:492:G:OP1	37:AO:3:ARG:HD3	1.84	0.76
23:AA:2835:C:O2'	48:AZ:40:HIS:HD2	1.67	0.76
23:BA:2835:C:O2'	48:BZ:40:HIS:HD2	1.67	0.76
23:BA:1185:U:OP2	30:BH:66:THR:OG1	2.01	0.76
23:BA:2337:A:H2	28:BF:74:ILE:HG21	1.48	0.76
23:BA:247:A:OP2	51:B3:8:ARG:NH2	2.17	0.76
23:AA:1533:A:C5	25:AC:96:TYR:O	2.39	0.75
23:AA:2694:C:N3	29:AG:110:SER:OG	2.17	0.75
23:AA:2337:A:H2	28:AF:74:ILE:HG21	1.48	0.75
23:BA:1533:A:C5	25:BC:96:TYR:O	2.39	0.75
23:AA:1582:U:H3	23:AA:1587:C:HO2'	1.33	0.75
23:AA:2039:G:N7	39:AQ:16:LYS:NZ	2.31	0.75
23:BA:651:A:OP1	27:BE:100:LYS:NZ	2.18	0.74
23:AA:844:G:OP1	23:AA:844:G:H4'	4.76	0.74
23:BA:2332:U:O5'	28:BF:131:GLY:HA3	1.88	0.74
23:AA:2332:U:O5'	28:AF:131:GLY:HA3	1.88	0.73
23:AA:651:A:OP1	27:AE:100:LYS:NZ	2.18	0.73
23:AA:581:A:OP1	30:AH:1:MET:HE3	1.85	0.73
23:AA:351:G:O2'	41:AS:15:LYS:NZ	2.20	0.73
23:BA:1449:A:N7	23:BA:1635:A:N6	2.37	0.73
23:AA:2835:C:O2'	48:AZ:40:HIS:CD2	2.42	0.72
23:BA:2288:C:OP1	43:BU:27:LYS:HE3	1.89	0.72
23:BA:660:A:C8	27:BE:182:ASN:HB3	2.22	0.72
23:AA:1449:A:N7	23:AA:1635:A:N6	2.37	0.72
23:BA:1515:G:H1	23:BA:1565:U:H3	1.37	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BA:1533:A:C6	25:BC:96:TYR:O	2.43	0.72
23:BA:1261:G:OP1	38:BP:67:ARG:NH2	2.23	0.72
23:AA:529:A:O2'	41:AS:54:GLY:O	2.08	0.72
23:AA:1533:A:C6	25:AC:96:TYR:O	2.43	0.72
23:BA:2835:C:O2'	48:BZ:40:HIS:CD2	2.42	0.72
23:AA:1261:G:OP1	38:AP:67:ARG:NH2	2.23	0.71
23:AA:1998:A:C2	25:AC:240:PRO:HD3	2.25	0.71
23:AA:2288:C:OP1	43:AU:27:LYS:HE3	1.89	0.71
23:BA:2231:C:H5'	25:BC:147:LYS:HD2	1.71	0.71
23:AA:252:C:O2	51:A3:12:LYS:NZ	2.24	0.71
23:BA:252:C:O2	51:B3:12:LYS:NZ	2.24	0.71
23:BA:1998:A:C2	25:BC:240:PRO:HD3	2.25	0.71
23:AA:2259:C:OP2	44:AV:27:ARG:NH2	2.24	0.71
23:BA:2801:C:OP1	26:BD:177:THR:OG1	2.09	0.71
23:BA:2259:C:OP2	44:BV:27:ARG:NH2	2.24	0.71
23:BA:529:A:O2'	41:BS:54:GLY:O	2.08	0.70
23:AA:2338:A:H8	28:AF:40:VAL:CG2	2.00	0.70
23:AA:2231:C:H5'	25:AC:147:LYS:HD2	1.71	0.70
23:AA:2455:G:N2	32:AJ:54:GLN:HE21	1.89	0.70
23:AA:660:A:C8	27:AE:182:ASN:HB3	2.22	0.70
23:AA:1515:G:H1	23:AA:1565:U:H3	1.37	0.70
23:BA:2455:G:N2	32:BJ:54:GLN:HE21	1.89	0.70
23:BA:351:G:O2'	41:BS:15:LYS:NZ	2.20	0.70
27:AE:17:ILE:HD11	27:AE:200:LYS:CE	2.18	0.69
23:BA:1287:U:H5'	37:BO:4:VAL:CG1	2.22	0.69
31:BI:76:TYR:HB2	36:BN:75:THR:HB	1.74	0.69
23:AA:2904:U:O4	48:AZ:40:HIS:N	2.24	0.69
23:AA:1287:U:H5'	37:AO:4:VAL:CG1	2.22	0.69
24:BB:5:G:H21	35:BM:43:GLN:HE22	1.40	0.69
33:BK:82:ARG:HH11	43:BU:12:LYS:HE3	1.58	0.69
23:AA:2801:C:OP1	26:AD:177:THR:OG1	2.09	0.69
23:AA:2049:U:OP2	48:AZ:12:ARG:NH2	2.26	0.69
23:BA:2338:A:H8	28:BF:40:VAL:CG2	2.00	0.69
28:AF:132:VAL:HG12	28:AF:134:GLU:H	1.58	0.68
24:AB:5:G:H21	35:AM:43:GLN:HE22	1.40	0.68
23:BA:1498:U:P	34:BL:59:ARG:NH1	2.66	0.68
23:AA:2331:G:O2'	28:AF:153:ASP:OD1	2.10	0.68
27:BE:17:ILE:HD11	27:BE:200:LYS:CE	2.18	0.68
23:BA:2331:G:O2'	28:BF:153:ASP:OD1	2.10	0.68
31:AI:76:TYR:HB2	36:AN:75:THR:HB	1.74	0.68
23:AA:1498:U:P	34:AL:59:ARG:NH1	2.66	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AA:721:A:H8	23:AA:2096:G:H21	1.42	0.68
23:BA:2904:U:H5	48:BZ:40:HIS:CE1	2.12	0.68
23:BA:2049:U:OP2	48:BZ:12:ARG:NH2	2.26	0.67
23:BA:1533:A:C8	25:BC:98:ASP:CB	2.47	0.67
23:AA:2904:U:H5	48:AZ:40:HIS:CE1	2.12	0.67
23:AA:2037:G:H5''	39:AQ:42:ALA:HB2	1.76	0.67
23:BA:252:C:O2'	32:BJ:63:LYS:NZ	2.19	0.67
23:BA:492:G:OP1	37:BO:3:ARG:CB	2.42	0.67
23:AA:2554:C:H5''	52:A4:30:PRO:HB2	1.76	0.67
28:BF:132:VAL:HG12	28:BF:134:GLU:H	1.58	0.67
23:BA:606:G:N2	37:BO:37:GLN:HE22	1.89	0.67
23:AA:492:G:OP1	37:AO:3:ARG:CB	2.42	0.67
23:AA:2314:A:H62	23:AA:2371:U:H3	1.41	0.66
23:BA:721:A:H8	23:BA:2096:G:H21	1.42	0.66
23:AA:2841:A:OP1	26:AD:123:LYS:O	2.14	0.66
23:BA:2314:A:H62	23:BA:2371:U:H3	1.40	0.66
23:BA:2904:U:O4	48:BZ:40:HIS:N	2.24	0.66
33:AK:82:ARG:HH11	43:AU:12:LYS:HE3	1.58	0.66
23:BA:1578:A:N6	23:BA:1590:C:N3	2.44	0.66
23:AA:2277:G:N2	33:AK:84:GLY:HA3	2.10	0.66
23:AA:2330:G:C5'	28:AF:122:PHE:O	2.44	0.65
23:BA:2554:C:H5''	52:B4:30:PRO:HB2	1.76	0.65
23:BA:2046:U:OP1	48:BZ:7:ARG:HD3	1.97	0.65
23:AA:606:G:N2	37:AO:37:GLN:HE22	1.89	0.65
23:BA:2277:G:N2	33:BK:84:GLY:HA3	2.11	0.65
23:BA:2037:G:H5''	39:BQ:42:ALA:HB2	1.76	0.65
23:AA:2046:U:OP1	48:AZ:7:ARG:HD3	1.97	0.65
36:AN:59:GLU:HG2	36:AN:78:LEU:HD23	1.79	0.65
25:BC:167:LYS:HG2	25:BC:172:VAL:HG12	1.79	0.65
23:AA:1663:G:O2'	50:A2:2:VAL:N	2.26	0.65
23:AA:1578:A:N6	23:AA:1590:C:N3	2.44	0.65
23:BA:1641:G:OP1	40:BR:39:LYS:NZ	2.18	0.65
23:BA:1701:U:OP1	26:BD:149:ARG:HB2	1.97	0.65
23:AA:502:C:H5	40:AR:68:TYR:CD1	2.15	0.65
23:AA:1510:U:H3	23:AA:1571:G:H1	1.44	0.65
23:BA:1510:U:H3	23:BA:1571:G:H1	1.44	0.65
23:BA:2841:A:OP1	26:BD:123:LYS:O	2.14	0.65
23:BA:502:C:H5	40:BR:68:TYR:CD1	2.15	0.64
36:BN:59:GLU:HG2	36:BN:78:LEU:HD23	1.79	0.64
23:AA:539:G:H4'	39:AQ:6:VAL:HG22	1.80	0.64
23:AA:854:G:H8	23:AA:854:G:O5'	2.99	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BA:539:G:H4'	39:BQ:6:VAL:HG22	1.80	0.64
23:AA:1287:U:H5'	37:AO:4:VAL:HG13	1.80	0.64
23:AA:2646:U:H5'	26:AD:165:LYS:HB3	1.78	0.64
23:BA:2225:A:N7	23:BA:2252:A:N6	2.45	0.64
23:AA:1701:U:OP1	26:AD:149:ARG:HB2	1.97	0.64
23:AA:2225:A:N7	23:AA:2252:A:N6	2.45	0.64
23:AA:365:A:OP1	27:AE:168:ARG:NE	2.31	0.64
23:BA:1522:G:H1	23:BA:1558:U:H3	1.46	0.64
23:AA:2717:A:H8	34:AL:3:TYR:CZ	2.16	0.64
23:AA:498:G:H21	23:AA:503:A:H8	1.45	0.64
23:BA:2646:U:H5'	26:BD:165:LYS:HB3	1.78	0.64
23:AA:1555:G:N2	23:AA:1556:G:O6	2.32	0.63
23:AA:252:C:O2'	32:AJ:63:LYS:NZ	2.19	0.63
25:AC:167:LYS:HG2	25:AC:172:VAL:HG12	1.79	0.63
23:AA:2904:U:C5	48:AZ:40:HIS:CE1	2.87	0.63
23:BA:1555:G:N2	23:BA:1556:G:O6	2.32	0.63
23:AA:1522:G:H1	23:AA:1558:U:H3	1.46	0.63
23:AA:17:G:OP1	48:AZ:11:THR:HG22	1.99	0.63
23:BA:1818:A:O2'	25:BC:206:GLY:C	2.37	0.63
23:BA:1042:C:OP1	37:BO:92:ARG:NH2	2.31	0.63
23:AA:1818:A:O2'	25:AC:206:GLY:C	2.37	0.63
23:BA:2717:A:H8	34:BL:3:TYR:CZ	2.16	0.63
23:AA:2388:A:OP2	51:A3:24:ARG:NH2	2.32	0.63
23:BA:498:G:H21	23:BA:503:A:H8	1.45	0.63
35:BM:31:LEU:HB3	35:BM:44:ILE:HD13	1.81	0.63
23:AA:2733:A:O2'	34:AL:60:ARG:NH1	2.32	0.62
23:BA:1663:G:O2'	50:B2:2:VAL:N	2.26	0.62
23:BA:75:G:O2'	45:BW:48:LYS:NZ	2.26	0.62
23:BA:2733:A:O2'	34:BL:60:ARG:NH1	2.32	0.62
35:BM:68:THR:HG1	35:BM:71:GLU:H	1.47	0.62
23:AA:75:G:O2'	45:AW:48:LYS:NZ	2.26	0.62
23:AA:2043:U:O2	48:AZ:4:PRO:HG2	1.99	0.62
23:BA:17:G:OP1	48:BZ:11:THR:HG22	1.99	0.62
23:BA:2325:A:H62	23:BA:2345:A:H8	1.45	0.62
23:BA:1533:A:C5	25:BC:96:TYR:C	2.71	0.62
23:BA:2904:U:C5	48:BZ:40:HIS:CE1	2.87	0.62
41:BS:3:ILE:HD11	41:BS:33:VAL:HG11	1.82	0.62
23:AA:1651:C:N4	23:AA:1666:A:OP2	2.33	0.62
23:AA:2325:A:H62	23:AA:2345:A:H8	1.45	0.62
23:AA:1042:C:OP1	37:AO:92:ARG:NH2	2.31	0.62
23:BA:2231:C:C5'	25:BC:147:LYS:HD2	2.29	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:BC:230:HIS:HD2	25:BC:232:HIS:H	1.47	0.62
23:BA:1287:U:H5'	37:BO:4:VAL:HG13	1.80	0.62
23:AA:2403:A:N3	35:AM:113:ARG:NH2	2.47	0.62
26:BD:16:PHE:O	36:BN:14:GLN:NE2	2.32	0.62
36:BN:31:HIS:HB3	36:BN:42:ILE:HD11	1.80	0.62
25:AC:230:HIS:HD2	25:AC:232:HIS:H	1.46	0.62
33:AK:51:ARG:HG3	33:AK:66:ILE:HD11	1.82	0.62
23:BA:1967:U:O2	23:BA:1969:C:N4	2.33	0.62
23:BA:2043:U:O2	48:BZ:4:PRO:HG2	1.99	0.62
23:AA:761:A:C6	37:AO:39:VAL:O	136.41	0.62
23:BA:1651:C:N4	23:BA:1666:A:OP2	2.33	0.62
35:BM:19:ARG:NH2	35:BM:47:ASP:CG	2.53	0.62
25:AC:107:PRO:HA	25:AC:195:VAL:HA	1.82	0.62
35:AM:31:LEU:HB3	35:AM:44:ILE:HD13	1.81	0.62
46:AX:12:VAL:HG22	46:AX:20:ARG:HG2	1.82	0.62
23:AA:2046:U:P	48:AZ:6:ARG:HH12	2.22	0.62
23:AA:1492:G:N3	23:AA:1574:G:N2	2.48	0.62
41:AS:3:ILE:HD11	41:AS:33:VAL:HG11	1.82	0.62
23:BA:2039:G:OP1	39:BQ:11:ARG:NH1	2.30	0.62
23:AA:1533:A:C8	25:AC:98:ASP:HB2	2.35	0.61
26:AD:16:PHE:O	36:AN:14:GLN:NE2	2.32	0.61
36:AN:31:HIS:HB3	36:AN:42:ILE:HD11	1.80	0.61
33:BK:51:ARG:HG3	33:BK:66:ILE:HD11	1.82	0.61
23:AA:2039:G:OP1	39:AQ:11:ARG:NH1	2.30	0.61
23:BA:1492:G:N3	23:BA:1574:G:N2	2.48	0.61
23:AA:1967:U:O2	23:AA:1969:C:N4	2.33	0.61
41:BS:12:ILE:HD11	41:BS:69:GLN:HB2	1.81	0.61
23:AA:2717:A:C5	34:AL:3:TYR:CG	2.88	0.61
39:AQ:11:ARG:O	39:AQ:11:ARG:NH2	2.33	0.61
23:AA:2784:A:N1	29:AG:67:THR:HG21	2.16	0.61
23:BA:2080:G:H5'	26:BD:157:ALA:O	2.01	0.61
23:BA:2784:A:N1	29:BG:67:THR:HG21	2.16	0.61
23:AA:1076:A:OP1	52:A4:8:LYS:HG2	2.00	0.61
23:BA:2333:U:H3	28:BF:40:VAL:HG21	1.65	0.61
23:BA:2046:U:P	48:BZ:6:ARG:HH12	2.22	0.61
41:AS:12:ILE:HD11	41:AS:69:GLN:HB2	1.81	0.61
23:AA:1641:G:OP1	40:AR:39:LYS:NZ	2.18	0.61
23:BA:1581:U:O5'	23:BA:1584:U:H5	1.83	0.61
23:BA:1761:G:H1	23:BA:1768:C:H42	1.49	0.61
23:AA:2649:U:O3'	23:AA:2845:G:N2	2.33	0.61
23:BA:2649:U:O3'	23:BA:2845:G:N2	2.33	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BA:2706:A:H2	26:BD:200:ASN:ND2	1.97	0.61
39:BQ:11:ARG:O	39:BQ:11:ARG:NH2	2.33	0.61
31:AI:78:LYS:HB2	36:AN:73:GLU:HB2	1.82	0.61
23:BA:2330:G:H4'	28:BF:122:PHE:O	2.01	0.61
23:BA:268:A:N6	23:BA:473:U:O2'	2.34	0.61
31:BI:78:LYS:HB2	36:BN:73:GLU:HB2	1.83	0.61
23:AA:1581:U:O5'	23:AA:1584:U:H5	1.83	0.60
23:AA:2851:G:OP2	26:AD:65:SER:OG	2.13	0.60
23:BA:1833:C:O2'	25:BC:46:GLN:OE1	2.19	0.60
23:BA:2278:G:OP1	33:BK:82:ARG:NH2	2.34	0.60
23:BA:2851:G:OP2	26:BD:65:SER:OG	2.13	0.60
23:AA:2231:C:C5'	25:AC:147:LYS:HD2	2.30	0.60
23:BA:2089:A:N6	23:BA:2530:A:N7	2.50	0.60
23:BA:2717:A:C5	34:BL:3:TYR:CG	2.88	0.60
23:AA:2330:G:H4'	28:AF:122:PHE:O	2.01	0.60
23:BA:1037:A:H62	23:BA:1205:U:H3	1.49	0.60
23:BA:2403:A:N3	35:BM:113:ARG:NH2	2.47	0.60
23:AA:1037:A:H62	23:AA:1205:U:H3	1.49	0.60
23:AA:795:A:N1	23:AA:803:C:N4	18.43	0.60
23:BA:795:A:N1	23:BA:803:C:N4	18.43	0.60
46:BX:12:VAL:HG22	46:BX:20:ARG:HG2	1.82	0.60
23:AA:2278:G:OP1	33:AK:82:ARG:NH2	2.34	0.60
23:BA:583:A:O2'	30:BH:8:ASN:OD1	2.20	0.60
29:BG:164:TYR:HB2	29:BG:167:GLU:HB2	1.84	0.60
23:AA:268:A:N6	23:AA:473:U:O2'	2.34	0.60
23:AA:2080:G:H5'	26:AD:157:ALA:O	2.01	0.60
23:AA:579:U:H5'	37:AO:42:SER:HB2	1.84	0.60
25:BC:107:PRO:HA	25:BC:195:VAL:HA	1.82	0.60
23:AA:2231:C:C5'	25:AC:147:LYS:HE3	2.32	0.60
23:AA:1833:C:O2'	25:AC:46:GLN:OE1	2.19	0.60
25:AC:78:VAL:HG22	25:AC:94:VAL:HG12	1.84	0.60
23:BA:2663:U:O2'	26:BD:46:TYR:OH	2.16	0.60
23:BA:579:U:H5'	37:BO:42:SER:HB2	1.84	0.60
23:AA:1038:C:OP1	37:AO:53:ARG:NH2	2.35	0.60
23:AA:648:G:N3	23:AA:702:U:O2'	2.35	0.60
35:AM:68:THR:HG1	35:AM:71:GLU:H	1.47	0.60
23:AA:2321:C:OP1	35:AM:96:ARG:NH2	2.35	0.60
23:BA:2258:U:OP1	44:BV:30:ASN:N	2.35	0.60
23:AA:635:G:H21	51:A3:4:MET:HE3	1.67	0.60
23:AA:2120:G:N3	23:AA:2225:A:N6	2.49	0.59
23:BA:2388:A:OP2	51:B3:24:ARG:NH2	2.32	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BA:1076:A:OP1	52:B4:8:LYS:HG2	2.00	0.59
23:BA:365:A:OP1	27:BE:168:ARG:NE	2.31	0.59
23:AA:1761:G:H1	23:AA:1768:C:H42	1.49	0.59
27:AE:17:ILE:CG1	27:AE:200:LYS:HE3	2.32	0.59
35:AM:19:ARG:NH2	35:AM:47:ASP:CG	2.53	0.59
23:BA:2333:U:N3	28:BF:40:VAL:CG2	2.64	0.59
23:BA:2231:C:C5'	25:BC:147:LYS:HE3	2.32	0.59
23:AA:1197:C:OP1	37:AO:92:ARG:NH2	2.29	0.59
23:AA:2089:A:N6	23:AA:2530:A:N7	2.50	0.59
23:AA:2333:U:H3	28:AF:40:VAL:HG21	1.65	0.59
23:BA:648:G:N3	23:BA:702:U:O2'	2.35	0.59
23:AA:1521:A:H61	23:AA:1559:G:H1	1.50	0.59
29:AG:164:TYR:HB2	29:AG:167:GLU:HB2	1.84	0.59
23:BA:1129:A:N3	23:BA:1148:C:O2'	2.35	0.59
25:BC:78:VAL:HG22	25:BC:94:VAL:HG12	1.84	0.59
23:AA:1533:A:C8	25:AC:98:ASP:CB	2.47	0.59
23:BA:1038:C:OP1	37:BO:53:ARG:NH2	2.35	0.59
23:BA:1122:U:O2'	23:BA:1132:A:N3	2.35	0.59
23:AA:2566:C:H5'	52:A4:3:VAL:HG21	1.85	0.59
23:AA:1109:U:O2'	23:AA:1118:G:N1	2.33	0.59
23:AA:1122:U:O2'	23:AA:1132:A:N3	2.35	0.59
26:AD:128:GLN:HE21	26:AD:132:LYS:HG2	1.67	0.59
41:BS:39:ASN:HB3	41:BS:61:ALA:HB3	1.84	0.59
23:AA:2195:G:N1	23:AA:2197:G:N7	2.51	0.59
26:AD:129:GLY:HA2	26:AD:170:PRO:HB3	1.85	0.59
23:BA:1521:A:H61	23:BA:1559:G:H1	1.50	0.59
23:BA:2047:A:H5'	48:BZ:9:SER:HB3	1.84	0.59
27:BE:17:ILE:CG1	27:BE:200:LYS:HE3	2.32	0.59
29:BG:57:ASP:OD1	29:BG:62:ARG:NH1	2.36	0.59
23:BA:2717:A:H62	34:BL:3:TYR:HB2	1.66	0.59
23:AA:2258:U:OP1	44:AV:30:ASN:N	2.35	0.59
28:AF:41:GLY:HA3	28:AF:150:ARG:HH22	1.67	0.59
23:AA:856:U:OP2	32:AJ:20:GLY:O	2.21	0.59
23:BA:856:U:OP2	32:BJ:20:GLY:O	2.21	0.59
33:BK:39:THR:HG23	33:BK:98:LYS:HA	1.85	0.59
23:AA:1938:U:O2'	23:AA:1945:A:N6	2.36	0.58
23:AA:2047:A:H5'	48:AZ:9:SER:HB3	1.84	0.58
23:AA:2706:A:H2	26:AD:200:ASN:ND2	1.97	0.58
23:BA:1101:A:OP2	23:BA:1133:G:N2	2.36	0.58
26:BD:128:GLN:HE21	26:BD:132:LYS:HG2	1.67	0.58
23:BA:2321:C:OP1	35:BM:96:ARG:NH2	2.35	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BA:1040:A:O2'	37:BO:91:ASN:ND2	2.36	0.58
23:AA:1133:G:N2	23:AA:1145:U:O4	2.36	0.58
23:AA:1063:U:H3	23:AA:1186:A:H62	1.51	0.58
23:AA:2778:G:N2	29:AG:3:ARG:HH21	2.01	0.58
23:AA:583:A:O2'	30:AH:8:ASN:OD1	2.20	0.58
23:BA:635:G:H21	51:B3:4:MET:HE3	1.68	0.58
23:BA:1133:G:N2	23:BA:1145:U:O4	2.36	0.58
23:BA:1197:C:OP1	37:BO:92:ARG:NH2	2.29	0.58
23:BA:2120:G:N3	23:BA:2225:A:N6	2.49	0.58
41:BS:93:ILE:HG22	41:BS:95:LYS:H	1.68	0.58
23:AA:1101:A:OP2	23:AA:1133:G:N2	2.36	0.58
23:AA:1450:A:N1	23:AA:1634:A:N6	2.52	0.58
23:AA:2232:A:OP1	25:AC:150:LYS:HG3	2.03	0.58
23:BA:2330:G:C5'	28:BF:122:PHE:O	2.43	0.58
23:AA:856:U:OP2	32:AJ:20:GLY:C	2.41	0.58
23:BA:1063:U:H3	23:BA:1186:A:H62	1.51	0.58
28:BF:41:GLY:HA3	28:BF:150:ARG:HH22	1.67	0.58
24:AB:77:G:O6	42:AT:15:ARG:NH2	2.37	0.58
33:AK:39:THR:HG23	33:AK:98:LYS:HA	1.85	0.58
23:BA:1099:G:N2	23:BA:1149:U:O2	2.37	0.58
23:AA:2494:C:OP1	52:A4:6:SER:OG	2.12	0.58
23:AA:611:U:OP1	23:AA:989:A:N6	2.33	0.58
23:AA:1099:G:N2	23:AA:1149:U:O2	2.36	0.58
29:AG:57:ASP:OD1	29:AG:62:ARG:NH1	2.36	0.58
23:AA:1450:A:H61	23:AA:1635:A:H62	1.52	0.58
29:AG:86:VAL:HG22	29:AG:132:LYS:HG2	1.85	0.58
23:AA:1040:A:O2'	37:AO:91:ASN:ND2	2.36	0.58
23:BA:1533:A:C8	25:BC:98:ASP:HB2	2.35	0.58
23:BA:1450:A:H61	23:BA:1635:A:H62	1.52	0.58
23:BA:2333:U:C2	28:BF:40:VAL:HB	2.38	0.58
23:BA:856:U:OP2	32:BJ:20:GLY:C	2.41	0.58
24:BB:77:G:O6	42:BT:15:ARG:NH2	2.37	0.58
43:BU:44:ILE:HD13	43:BU:47:ARG:HH21	1.69	0.58
23:AA:517:A:N7	23:AA:551:G:O2'	27.51	0.57
23:AA:2717:A:H62	34:AL:3:TYR:HB2	1.66	0.57
41:AS:39:ASN:HB3	41:AS:61:ALA:HB3	1.84	0.57
23:BA:1450:A:N1	23:BA:1634:A:N6	2.52	0.57
23:BA:1938:U:O2'	23:BA:1945:A:N6	2.36	0.57
25:BC:95:VAL:HG22	25:BC:101:LYS:HG2	1.86	0.57
26:BD:129:GLY:HA2	26:BD:170:PRO:HB3	1.85	0.57
23:BA:2329:U:O2'	28:BF:123:ASP:HB2	2.04	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BA:1379:A:OP1	40:BR:35:LYS:NZ	2.37	0.57
23:BA:502:C:C5	40:BR:68:TYR:CD1	2.92	0.57
23:AA:1917:A:C8	23:AA:2261:G:N2	2.72	0.57
41:AS:93:ILE:HG22	41:AS:95:LYS:H	1.69	0.57
23:AA:2046:U:OP1	48:AZ:7:ARG:CD	2.53	0.57
23:BA:2046:U:OP1	48:BZ:7:ARG:CD	2.53	0.57
29:BG:86:VAL:HG22	29:BG:132:LYS:HG2	1.85	0.57
23:BA:2776:A:C1'	29:BG:63:THR:HG22	2.30	0.57
23:AA:2333:U:C2	28:AF:40:VAL:HB	2.38	0.57
23:AA:2329:U:O2'	28:AF:123:ASP:HB2	2.05	0.57
23:BA:1091:G:O2'	23:BA:1155:A:N6	2.37	0.57
23:BA:1401:G:N2	23:BA:1404:A:OP2	2.37	0.57
23:BA:2232:A:OP1	25:BC:150:LYS:HG3	2.03	0.57
23:BA:2869:G:N7	23:BA:2887:G:N2	2.53	0.57
23:BA:2778:G:N2	29:BG:3:ARG:HH21	2.01	0.57
23:BA:2566:C:H5'	52:B4:3:VAL:HG21	1.85	0.57
40:BR:50:VAL:HA	40:BR:82:LEU:HA	1.86	0.57
23:AA:1091:G:O2'	23:AA:1155:A:N6	2.37	0.57
23:AA:2332:U:H1'	28:AF:132:VAL:C	2.11	0.57
23:AA:506:A:H2	23:AA:515:G:H21	1.52	0.57
24:AB:46:A:OP1	35:AM:35:ARG:NH1	2.38	0.57
23:AA:1818:A:O3'	25:AC:205:VAL:HG22	2.05	0.57
23:BA:1818:A:O3'	25:BC:205:VAL:HG22	2.05	0.57
23:AA:1527:A:OP1	23:AA:1556:G:N2	2.38	0.57
43:AU:44:ILE:HD13	43:AU:47:ARG:HH21	1.69	0.57
23:BA:517:A:N7	23:BA:551:G:O2'	27.51	0.57
24:BB:46:A:OP1	35:BM:35:ARG:NH1	2.37	0.57
42:BT:75:ALA:HB2	42:BT:92:LEU:HB2	1.86	0.57
23:AA:1379:A:OP1	40:AR:35:LYS:NZ	2.37	0.57
40:AR:50:VAL:HA	40:AR:82:LEU:HA	1.86	0.57
42:AT:26:LYS:NZ	42:AT:44:ASP:OD1	2.37	0.57
23:AA:2333:U:N3	28:AF:40:VAL:CG2	2.64	0.57
23:AA:2694:C:O2	29:AG:110:SER:N	2.37	0.57
25:AC:95:VAL:HG22	25:AC:101:LYS:HG2	1.86	0.57
23:AA:1284:A:HO2'	27:AE:45:ARG:HH22	1.51	0.57
23:AA:1401:G:N2	23:AA:1404:A:OP2	2.37	0.57
23:AA:502:C:C5	40:AR:68:TYR:CD1	2.92	0.57
23:BA:1845:U:OP2	25:BC:156:ARG:NH2	2.38	0.57
23:BA:868:A:H62	23:BA:879:U:H3	1.50	0.57
32:BJ:91:VAL:HA	32:BJ:95:LEU:HD12	1.87	0.57
23:AA:2510:C:O2	33:AK:124:LYS:HE2	2.05	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AA:492:G:OP1	37:AO:3:ARG:CD	2.53	0.56
23:AA:1847:U:O2	25:AC:201:GLU:HB3	2.05	0.56
42:AT:75:ALA:HB2	42:AT:92:LEU:HB2	1.86	0.56
45:AW:11:THR:OG1	45:AW:60:ARG:NH2	2.38	0.56
23:BA:1109:U:O2'	23:BA:1118:G:N1	2.33	0.56
23:BA:1527:A:OP1	23:BA:1556:G:N2	2.38	0.56
23:BA:1917:A:C8	23:BA:2261:G:N2	2.72	0.56
23:BA:611:U:OP1	23:BA:989:A:N6	2.33	0.56
23:AA:191:A:H5'	44:AV:14:THR:HG21	1.88	0.56
23:AA:2136:U:H3	23:AA:2207:U:H3	1.52	0.56
23:BA:1488:A:H61	23:BA:1595:C:H42	1.53	0.56
23:AA:1369:G:N7	23:AA:1653:A:O2'	2.36	0.56
23:AA:868:A:H62	23:AA:879:U:H3	1.50	0.56
23:BA:2136:U:H3	23:BA:2207:U:H3	1.52	0.56
23:AA:1287:U:C5'	37:AO:4:VAL:HG13	2.35	0.56
23:BA:125:A:OP2	50:B2:19:PHE:N	2.38	0.56
23:BA:2195:G:N1	23:BA:2197:G:N7	2.51	0.56
23:AA:1488:A:H61	23:AA:1595:C:H42	1.53	0.56
23:BA:1847:U:O2	25:BC:201:GLU:HB3	2.05	0.56
23:BA:761:A:C6	37:BO:39:VAL:O	136.41	0.56
45:BW:11:THR:OG1	45:BW:60:ARG:NH2	2.38	0.56
23:AA:125:A:OP2	50:A2:19:PHE:N	2.38	0.56
23:BA:506:A:H2	23:BA:515:G:H21	1.52	0.56
23:BA:656:G:H21	23:BA:660:A:H2	1.54	0.56
23:BA:1287:U:C5'	37:BO:4:VAL:HG13	2.35	0.56
23:BA:713:A:H2'	23:BA:715:A:H62	1.71	0.56
23:BA:2877:G:N2	23:BA:2880:A:OP2	2.32	0.56
23:AA:2869:G:N7	23:AA:2887:G:N2	2.53	0.56
23:AA:713:A:H2'	23:AA:715:A:H62	1.71	0.56
31:AI:69:VAL:HG21	31:AI:105:GLU:HG3	1.88	0.56
32:AJ:91:VAL:HA	32:AJ:95:LEU:HD12	1.87	0.56
31:BI:69:VAL:HG21	31:BI:105:GLU:HG3	1.88	0.56
35:AM:6:ASP:OD2	35:AM:9:LYS:HG3	2.06	0.55
23:BA:2510:C:O2	33:BK:124:LYS:HE2	2.06	0.55
23:AA:2686:G:N2	23:AA:2689:A:OP2	2.39	0.55
23:AA:45:G:N7	23:AA:218:G:O2'	2.38	0.55
23:BA:1101:A:N6	23:BA:1131:G:OP2	2.35	0.55
23:BA:124:A:H5''	50:B2:20:ARG:HB2	1.88	0.55
23:BA:191:A:H5'	44:BV:14:THR:HG21	1.87	0.55
23:AA:1521:A:N3	23:AA:1561:G:N2	2.54	0.55
23:BA:2136:U:O4	23:BA:2206:C:N4	2.39	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BA:250:G:OP2	23:BA:252:C:N4	2.40	0.55
23:BA:492:G:OP1	37:BO:3:ARG:CD	2.53	0.55
23:AA:1325:U:O2'	23:AA:1691:G:N2	2.34	0.55
23:AA:2559:G:O2'	23:AA:2684:A:N1	2.39	0.55
23:AA:1960:G:H1	23:AA:1994:C:H5	1.55	0.55
23:AA:250:G:OP2	23:AA:252:C:N4	2.40	0.55
23:AA:2695:G:H1'	29:AG:110:SER:HB2	1.88	0.55
31:AI:21:THR:HG22	31:AI:39:ILE:HD13	1.87	0.55
23:BA:1107:G:N2	23:BA:1120:C:O3'	2.39	0.55
23:BA:1369:G:N7	23:BA:1653:A:O2'	2.36	0.55
23:BA:1498:U:OP2	34:BL:59:ARG:NH1	2.29	0.55
23:BA:1648:C:O2'	23:BA:1654:A:N6	2.40	0.55
23:AA:246:U:OP2	51:A3:8:ARG:NH1	2.40	0.55
23:AA:2647:C:O2'	26:AD:170:PRO:O	2.18	0.55
23:AA:650:U:OP1	27:AE:102:PRO:HA	2.07	0.55
23:AA:1378:U:H1'	40:AR:54:ASN:HB3	1.88	0.55
23:AA:1107:G:N2	23:AA:1120:C:O3'	2.39	0.55
23:AA:2877:G:N2	23:AA:2880:A:OP2	2.32	0.55
23:AA:319:G:H22	23:AA:326:A:H61	1.54	0.55
23:BA:2717:A:H8	34:BL:3:TYR:CE1	2.19	0.55
23:AA:788:A:O2'	23:AA:1703:U:OP1	2.25	0.55
23:AA:1845:U:OP2	25:AC:156:ARG:NH2	2.38	0.55
23:AA:2079:G:OP1	26:AD:154:VAL:HG22	2.07	0.55
23:BA:2144:A:HO2'	23:BA:2175:G:HO2'	1.55	0.55
23:BA:718:C:OP1	27:BE:54:ARG:HD2	2.07	0.55
23:BA:2695:G:H1'	29:BG:110:SER:HB2	1.88	0.55
35:BM:6:ASP:OD2	35:BM:9:LYS:HG3	2.06	0.55
23:AA:863:G:H21	23:AA:1228:A:H2	1.55	0.55
23:AA:1533:A:N7	25:AC:96:TYR:CB	2.70	0.55
23:AA:608:C:OP2	38:AP:78:ARG:O	2.25	0.55
49:B1:9:CYS:SG	49:B1:10:THR:N	2.80	0.55
27:AE:32:VAL:HG12	27:AE:109:ALA:HB2	1.89	0.54
44:AV:38:ILE:HG22	44:AV:60:THR:HA	1.89	0.54
23:BA:1960:G:H1	23:BA:1994:C:H5	1.55	0.54
31:BI:21:THR:HG22	31:BI:39:ILE:HD13	1.87	0.54
42:BT:26:LYS:NZ	42:BT:44:ASP:OD1	2.37	0.54
23:AA:718:C:OP1	27:AE:54:ARG:HD2	2.07	0.54
23:BA:1215:U:O2'	23:BA:1217:U:OP2	2.22	0.54
23:BA:299:U:O2'	23:BA:300:G:N2	2.41	0.54
23:BA:922:G:H2'	23:BA:923:A:H8	1.71	0.54
23:AA:124:A:H5''	50:A2:20:ARG:HB2	1.88	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BA:1115:G:N1	23:BA:1136:C:OP2	2.36	0.54
23:BA:1378:U:H1'	40:BR:54:ASN:HB3	1.88	0.54
23:BA:1487:G:H2'	23:BA:1488:A:H8	1.73	0.54
23:BA:2331:G:OP1	28:BF:121:ALA:HA	2.08	0.54
23:BA:2559:G:O2'	23:BA:2684:A:N1	2.40	0.54
23:BA:2079:G:OP1	26:BD:154:VAL:HG22	2.07	0.54
23:AA:2314:A:H2	23:AA:2373:A:H62	1.56	0.54
23:AA:656:G:H21	23:AA:660:A:H2	1.54	0.54
23:AA:922:G:H2'	23:AA:923:A:H8	1.72	0.54
23:BA:650:U:OP1	27:BE:102:PRO:HA	2.07	0.54
23:BA:608:C:OP2	38:BP:78:ARG:O	2.25	0.54
23:BA:502:C:H5	40:BR:68:TYR:CE1	2.25	0.54
23:AA:2758:G:OP1	26:AD:182:ASN:ND2	2.40	0.54
23:AA:1613:G:N2	25:AC:209:GLY:O	2.41	0.54
23:BA:2694:C:O2	29:BG:110:SER:N	2.37	0.54
23:BA:826:A:OP1	25:BC:217:ARG:NH2	2.39	0.54
33:BK:75:THR:HA	33:BK:90:VAL:HA	1.89	0.54
23:BA:246:U:OP2	51:B3:8:ARG:NH1	2.40	0.54
23:BA:1613:G:N2	25:BC:209:GLY:O	2.41	0.54
23:BA:735:C:O2'	23:BA:825:G:OP1	2.26	0.54
23:AA:1102:U:H3	23:AA:1124:A:H61	1.56	0.54
23:AA:1472:C:N4	23:AA:1617:A:OP2	2.34	0.54
23:AA:2776:A:C1'	29:AG:63:THR:HG22	2.30	0.54
27:BE:32:VAL:HG12	27:BE:109:ALA:HB2	1.89	0.54
23:AA:1077:U:H3	23:AA:1166:G:H1	1.55	0.54
23:AA:2227:C:O2	23:AA:2253:C:N4	2.41	0.54
23:AA:344:U:OP2	41:AS:80:ARG:NH2	2.32	0.54
23:BA:863:G:H21	23:BA:1228:A:H2	1.55	0.54
23:BA:1521:A:N3	23:BA:1561:G:N2	2.54	0.54
45:BW:31:GLN:HG3	45:BW:37:LEU:HD12	1.90	0.54
23:BA:2813:U:O2	26:BD:72:PRO:HB3	2.08	0.54
23:BA:2337:A:C2	28:BF:74:ILE:CG2	2.80	0.54
23:AA:1035:C:O2'	23:AA:1046:G:N2	28.84	0.54
23:AA:1648:C:O2'	23:AA:1654:A:N6	2.40	0.54
23:AA:2331:G:OP1	28:AF:121:ALA:HA	2.08	0.54
23:AA:2819:C:N4	23:AA:2822:C:O2	2.41	0.54
23:AA:502:C:H5	40:AR:68:TYR:CE1	2.25	0.54
23:AA:1533:A:C5	25:AC:96:TYR:C	2.71	0.54
23:BA:1131:G:H1	23:BA:1133:G:H21	1.56	0.54
23:BA:1533:A:N7	25:BC:96:TYR:CB	2.70	0.54
23:BA:2029:G:OP1	34:BL:5:LYS:HD3	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BA:2162:A:H62	23:BA:2183:G:H21	1.55	0.54
23:BA:579:U:O2'	37:BO:49:ASP:OD2	2.20	0.54
23:AA:1101:A:N6	23:AA:1131:G:OP2	2.35	0.53
23:AA:1008:C:O2'	23:AA:2300:A:N3	2.38	0.53
23:BA:78:U:H5'	45:BW:7:ARG:HH22	1.73	0.53
44:BV:38:ILE:HG22	44:BV:60:THR:HA	1.89	0.53
49:A1:9:CYS:SG	49:A1:10:THR:N	2.80	0.53
23:AA:2289:U:OP2	43:AU:24:SER:OG	2.17	0.53
23:AA:2361:U:O3'	35:AM:17:ARG:HG2	2.09	0.53
36:AN:51:LYS:HG3	36:AN:98:LYS:HE2	1.90	0.53
23:BA:788:A:O2'	23:BA:1703:U:OP1	2.25	0.53
23:BA:2758:G:OP1	26:BD:182:ASN:ND2	2.40	0.53
31:BI:42:THR:HG22	31:BI:57:VAL:HG22	1.91	0.53
23:AA:1491:C:O2'	23:AA:1574:G:N2	2.39	0.53
23:AA:735:C:O2'	23:AA:825:G:OP1	2.26	0.53
23:AA:706:U:H1'	32:AJ:12:SER:O	2.08	0.53
32:AJ:55:LEU:O	32:AJ:60:ARG:NH1	2.41	0.53
45:AW:31:GLN:HG3	45:AW:37:LEU:HD12	1.90	0.53
23:BA:2312:C:P	49:B1:2:ARG:HH21	2.28	0.53
23:BA:1643:C:OP2	40:BR:35:LYS:HD3	2.09	0.53
23:BA:2227:C:O2	23:BA:2253:C:N4	2.41	0.53
31:BI:22:ILE:HG22	31:BI:23:LYS:HG2	1.90	0.53
31:BI:35:ILE:HG21	31:BI:103:ALA:HB3	1.91	0.53
32:BJ:55:LEU:O	32:BJ:60:ARG:NH1	2.41	0.53
36:BN:51:LYS:HG3	36:BN:98:LYS:HE2	1.90	0.53
23:BA:2642:U:O2	48:BZ:4:PRO:HA	2.08	0.53
23:AA:1487:G:H2'	23:AA:1488:A:H8	1.73	0.53
23:AA:2813:U:O2	26:AD:72:PRO:HB3	2.08	0.53
26:AD:93:ASN:HD21	26:AD:212:ARG:HB2	1.74	0.53
29:AG:125:VAL:HG22	29:AG:131:VAL:HG22	1.89	0.53
29:BG:125:VAL:HG22	29:BG:131:VAL:HG22	1.89	0.53
23:AA:78:U:H5'	45:AW:7:ARG:HH22	1.73	0.53
34:AL:45:GLU:OE2	34:AL:101:THR:OG1	2.24	0.53
37:AO:24:TYR:O	37:AO:29:HIS:ND1	2.42	0.53
23:BA:2314:A:H2	23:BA:2373:A:H62	1.56	0.53
40:BR:7:LEU:HD21	40:BR:42:VAL:HG12	1.91	0.53
23:AA:299:U:O2'	23:AA:300:G:N2	2.41	0.53
23:AA:838:A:OP2	23:AA:2098:A:O2'	2.27	0.53
23:AA:1106:G:O2'	23:AA:1121:A:N6	2.42	0.53
33:AK:75:THR:HA	33:AK:90:VAL:HA	1.89	0.53
23:AA:1055:A:P	37:AO:77:SER:HG	2.31	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BA:2686:G:N2	23:BA:2689:A:OP2	2.39	0.53
23:BA:2782:C:H3'	52:B4:19:ARG:HH22	1.74	0.53
23:BA:319:G:H22	23:BA:326:A:H61	1.54	0.53
23:BA:2706:A:C2	26:BD:200:ASN:ND2	2.77	0.53
23:AA:184:C:O2'	23:AA:185:A:N7	2.40	0.53
31:AI:42:THR:HG22	31:AI:57:VAL:HG22	1.91	0.53
23:BA:2778:G:N1	29:BG:3:ARG:NH2	2.56	0.53
25:BC:230:HIS:CD2	25:BC:232:HIS:H	2.27	0.53
23:AA:1581:U:O5'	23:AA:1584:U:C5	2.62	0.53
31:AI:22:ILE:HG22	31:AI:23:LYS:HG2	1.90	0.53
41:AS:16:ASP:HB2	41:AS:38:VAL:HG13	1.91	0.53
50:B2:34:ARG:HG2	50:B2:37:ARG:HH22	1.74	0.53
23:BA:1077:U:H3	23:BA:1166:G:H1	1.55	0.53
23:BA:1106:G:O2'	23:BA:1121:A:N6	2.42	0.53
23:BA:2707:C:OP1	26:BD:123:LYS:HG2	2.09	0.53
23:BA:1843:U:C5	25:BC:62:TYR:CD2	2.97	0.53
29:BG:38:ASN:ND2	29:BG:41:MET:SD	2.82	0.53
50:A2:34:ARG:HG2	50:A2:37:ARG:HH22	1.74	0.52
23:AA:1131:G:H1	23:AA:1133:G:H21	1.56	0.52
23:AA:1643:C:OP2	40:AR:35:LYS:HD3	2.09	0.52
23:AA:2136:U:O4	23:AA:2206:C:N4	2.39	0.52
23:AA:2782:C:H3'	52:A4:19:ARG:HH22	1.74	0.52
23:AA:644:C:HO2'	23:AA:645:A:H8	1.57	0.52
23:AA:2231:C:C5'	25:AC:147:LYS:CE	2.84	0.52
23:AA:2707:C:OP1	26:AD:123:LYS:HG2	2.09	0.52
23:AA:1701:U:OP1	26:AD:149:ARG:CA	2.57	0.52
23:AA:895:U:O2	46:AX:46:GLN:NE2	2.42	0.52
48:AZ:34:GLY:HA3	48:AZ:47:GLY:HA2	1.90	0.52
23:BA:1055:A:P	37:BO:77:SER:HG	2.31	0.52
23:BA:1102:U:H3	23:BA:1124:A:H61	1.56	0.52
23:BA:1265:G:H2'	23:BA:1289:A:H61	23.14	0.52
23:BA:2819:C:N4	23:BA:2822:C:O2	2.41	0.52
23:BA:550:A:HO2'	23:BA:554:C:HO2'	1.54	0.52
26:BD:93:ASN:HD21	26:BD:212:ARG:HB2	1.74	0.52
41:BS:16:ASP:HB2	41:BS:38:VAL:HG13	1.91	0.52
23:BA:2361:U:O3'	35:BM:17:ARG:HG2	2.09	0.52
25:BC:227:PRO:HD3	25:BC:234:GLY:H	1.74	0.52
23:BA:1284:A:HO2'	27:BE:45:ARG:HH22	1.51	0.52
23:AA:2162:A:H62	23:AA:2183:G:H21	1.55	0.52
25:AC:230:HIS:CD2	25:AC:232:HIS:H	2.27	0.52
26:AD:22:LEU:HD13	31:AI:74:GLY:HA3	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:AP:24:LYS:HA	38:AP:93:THR:HG23	1.91	0.52
23:BA:1581:U:O5'	23:BA:1584:U:C5	2.62	0.52
23:BA:1818:A:O2'	25:BC:206:GLY:N	2.42	0.52
23:BA:184:C:O2'	23:BA:185:A:N7	2.40	0.52
23:BA:2371:U:OP1	49:B1:33:LYS:HD2	2.09	0.52
23:BA:502:C:C5	40:BR:68:TYR:CG	2.97	0.52
52:A4:25:VAL:HG22	52:A4:34:GLN:HB2	1.92	0.52
23:AA:1031:C:H5''	46:AX:10:ARG:HH11	1.74	0.52
23:AA:1265:G:H2'	23:AA:1289:A:H61	23.14	0.52
25:AC:227:PRO:HD3	25:AC:234:GLY:H	1.74	0.52
23:AA:2778:G:N1	29:AG:3:ARG:NH2	2.56	0.52
31:AI:35:ILE:HG21	31:AI:103:ALA:HB3	1.91	0.52
35:AM:112:ALA:HB1	35:AM:117:LEU:HD12	1.92	0.52
49:B1:22:ASN:ND2	49:B1:25:ASN:OD1	2.40	0.52
23:BA:838:A:OP2	23:BA:2098:A:O2'	2.27	0.52
23:AA:1864:C:O2'	23:AA:1954:A:N3	2.36	0.52
23:AA:650:U:O5'	27:AE:103:LYS:HE3	2.09	0.52
40:AR:7:LEU:HD21	40:AR:42:VAL:HG12	1.91	0.52
23:BA:1701:U:OP1	26:BD:149:ARG:CA	2.57	0.52
23:BA:1845:U:OP2	25:BC:156:ARG:NE	2.43	0.52
23:BA:2140:C:N3	23:BA:2195:G:O2'	2.41	0.52
23:BA:1031:C:H5''	46:BX:10:ARG:HH11	1.74	0.52
23:AA:1362:C:OP1	23:AA:1691:G:O2'	2.26	0.52
23:AA:1451:U:H3	23:AA:1633:A:H62	1.57	0.52
23:AA:2662:U:O2'	26:AD:90:GLU:OE2	2.28	0.52
23:AA:488:G:O4'	27:AE:46:GLN:NE2	2.43	0.52
23:AA:1843:U:C5	25:AC:62:TYR:CD2	2.97	0.52
23:AA:502:C:C5	40:AR:68:TYR:CG	2.97	0.52
23:BA:2332:U:H1'	28:BF:132:VAL:C	2.11	0.52
23:BA:2662:U:O2'	26:BD:90:GLU:OE2	2.28	0.52
23:BA:706:U:H1'	32:BJ:12:SER:O	2.08	0.52
23:BA:895:U:O2	46:BX:46:GLN:NE2	2.42	0.52
28:BF:127:ASN:HD22	28:BF:157:VAL:HA	1.74	0.52
23:AA:2642:U:O2	48:AZ:4:PRO:HA	2.09	0.52
23:AA:492:G:OP1	37:AO:3:ARG:CG	2.58	0.52
28:AF:127:ASN:HD22	28:AF:157:VAL:HA	1.74	0.52
52:B4:25:VAL:HG22	52:B4:34:GLN:HB2	1.92	0.52
23:BA:2289:U:OP2	43:BU:24:SER:OG	2.17	0.52
48:BZ:34:GLY:HA3	48:BZ:47:GLY:HA2	1.90	0.52
23:AA:860:U:H6	23:AA:860:U:H3'	2.96	0.52
23:AA:1304:G:OP2	39:AQ:15:ARG:NH2	2.43	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BA:1035:C:O2'	23:BA:1046:G:N2	28.84	0.52
23:BA:2843:A:OP1	26:BD:127:PHE:HB2	2.10	0.52
23:BA:743:C:O2'	23:BA:779:A:N6	2.42	0.52
23:AA:1818:A:O2'	25:AC:206:GLY:N	2.42	0.52
23:AA:2706:A:C2	26:AD:200:ASN:ND2	2.77	0.52
23:BA:1449:A:H62	23:BA:1635:A:H61	1.57	0.52
23:BA:1304:G:OP2	39:BQ:15:ARG:NH2	2.43	0.52
23:AA:2029:G:OP1	34:AL:5:LYS:HD3	2.08	0.52
23:AA:743:C:O2'	23:AA:779:A:N6	2.42	0.52
23:AA:857:C:H2'	23:AA:857:C:O2	2.98	0.52
29:AG:38:ASN:ND2	29:AG:41:MET:SD	2.82	0.52
23:BA:2388:A:OP2	51:B3:24:ARG:NH1	2.43	0.52
38:BP:24:LYS:HA	38:BP:93:THR:HG23	1.91	0.52
23:BA:2840:A:C6	26:BD:206:LYS:HD2	2.45	0.51
28:BF:46:ASN:O	28:BF:50:LEU:N	2.40	0.51
32:BJ:79:LEU:HB2	32:BJ:113:GLY:HA2	1.92	0.51
23:AA:1129:A:N3	23:AA:1148:C:O2'	2.35	0.51
23:AA:2843:A:OP1	26:AD:127:PHE:HB2	2.10	0.51
23:AA:609:U:H5''	32:AJ:29:LYS:HD2	1.92	0.51
23:AA:860:U:H3'	23:AA:860:U:C6	3.30	0.51
23:BA:1290:G:H1	37:BO:37:GLN:NE2	2.04	0.51
23:BA:168:A:H5''	23:BA:169:G:C8	2.46	0.51
23:BA:492:G:OP1	37:BO:3:ARG:CG	2.58	0.51
23:AA:2312:C:P	49:A1:2:ARG:HH21	2.28	0.51
23:AA:1284:A:O2'	27:AE:45:ARG:NH2	2.32	0.51
23:AA:1492:G:N2	23:AA:1508:C:N3	2.59	0.51
23:AA:2371:U:OP1	49:A1:33:LYS:HD2	2.09	0.51
23:BA:650:U:O5'	27:BE:103:LYS:HE3	2.09	0.51
27:BE:75:GLN:HE22	27:BE:82:GLN:HE21	1.58	0.51
23:BA:1491:C:O2'	23:BA:1574:G:N2	2.39	0.51
23:BA:2850:G:P	26:BD:67:LYS:HB3	2.51	0.51
23:BA:609:U:H5''	32:BJ:29:LYS:HD2	1.92	0.51
26:BD:22:LEU:HD13	31:BI:74:GLY:HA3	1.92	0.51
35:BM:112:ALA:HB1	35:BM:117:LEU:HD12	1.92	0.51
23:AA:1359:A:H62	23:AA:1383:G:H8	42.38	0.51
23:AA:2056:G:N1	23:AA:2060:A:OP2	2.38	0.51
23:AA:2134:C:N4	23:AA:2208:A:OP2	2.41	0.51
23:AA:2331:G:H5'	28:AF:129:THR:OG1	2.10	0.51
23:AA:860:U:C6	23:AA:860:U:C3'	3.61	0.51
23:BA:12:U:O4	23:BA:13:A:N6	2.44	0.51
23:BA:720:A:OP1	27:BE:76:GLY:CA	2.59	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AA:1847:U:O2	25:AC:201:GLU:N	2.43	0.51
23:AA:2465:U:O2'	23:AA:2467:C:OP1	2.29	0.51
23:AA:2854:A:H2'	23:AA:2899:A:H61	1.75	0.51
23:AA:522:G:N1	23:AA:525:A:OP2	2.44	0.51
25:AC:165:LEU:HD11	25:AC:175:ARG:HB2	1.92	0.51
23:BA:1137:G:O2'	23:BA:1143:G:O6	2.29	0.51
23:BA:1286:G:C5	37:BO:3:ARG:HB2	2.45	0.51
23:BA:1359:A:H62	23:BA:1383:G:H8	42.38	0.51
23:BA:606:G:H21	37:BO:37:GLN:NE2	1.92	0.51
23:BA:85:G:OP1	41:BS:26:THR:HG21	2.11	0.51
36:BN:16:ARG:H	36:BN:79:HIS:CD2	2.29	0.51
23:AA:573:A:H5'	30:AH:114:ARG:HG2	1.93	0.51
23:AA:827:A:O2'	25:AC:224:VAL:O	2.29	0.51
23:AA:720:A:OP1	27:AE:76:GLY:CA	2.59	0.51
23:AA:720:A:OP1	27:AE:76:GLY:HA2	2.11	0.51
23:AA:2331:G:C4'	28:AF:129:THR:O	2.45	0.51
28:AF:31:ILE:HD11	28:AF:34:ILE:HD11	1.93	0.51
23:AA:85:G:OP1	41:AS:26:THR:HG21	2.11	0.51
23:BA:1284:A:O2'	27:BE:45:ARG:NH2	2.32	0.51
23:BA:2402:G:N2	23:BA:2405:A:OP2	2.43	0.51
25:BC:165:LEU:HD11	25:BC:175:ARG:HB2	1.93	0.51
23:BA:502:C:H41	40:BR:68:TYR:CB	2.24	0.51
23:BA:372:A:N6	41:BS:15:LYS:HG2	2.19	0.51
23:AA:1509:G:N2	23:AA:1593:G:O2'	2.43	0.51
23:AA:2715:G:N2	23:AA:2747:U:O2	2.43	0.51
27:AE:80:ALA:HB3	27:AE:83:TRP:HD1	1.76	0.51
23:BA:1844:G:OP1	25:BC:87:ARG:NH2	2.44	0.51
23:BA:1847:U:O2	25:BC:201:GLU:N	2.43	0.51
23:BA:2715:G:N2	23:BA:2747:U:O2	2.43	0.51
23:BA:522:G:N1	23:BA:525:A:OP2	2.44	0.51
24:BB:29:C:OP1	35:BM:4:LYS:NZ	2.44	0.51
23:BA:2231:C:C5'	25:BC:147:LYS:CE	2.85	0.51
28:BF:57:LEU:HD22	28:BF:65:PRO:HG3	1.93	0.51
23:AA:1286:G:C5	37:AO:3:ARG:HB2	2.45	0.51
23:AA:1726:A:H61	23:AA:1750:U:H3	1.59	0.51
23:AA:2388:A:OP2	51:A3:24:ARG:NH1	2.43	0.51
23:BA:1509:G:N2	23:BA:1593:G:O2'	2.43	0.51
23:BA:2331:G:H5'	28:BF:129:THR:OG1	2.10	0.51
23:BA:320:U:H5'	23:BA:321:U:H3'	1.92	0.51
23:AA:502:C:H5	40:AR:68:TYR:CG	2.28	0.51
23:AA:503:A:H62	23:AA:516:A:H5''	1.76	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:AC:182:ARG:HG3	25:AC:270:ILE:HD13	1.93	0.51
23:AA:2840:A:C6	26:AD:206:LYS:HD2	2.45	0.51
23:AA:1376:G:H5''	40:AR:15:LYS:HG2	1.93	0.51
31:BI:112:MET:N	31:BI:112:MET:SD	3.35	0.51
34:BL:45:GLU:OE2	34:BL:101:THR:OG1	2.24	0.51
42:BT:7:ILE:HB	42:BT:42:LYS:HB2	1.93	0.51
23:AA:1449:A:H62	23:AA:1635:A:H61	1.57	0.50
23:AA:1579:C:H3'	23:AA:1581:U:H3	1.75	0.50
23:AA:2333:U:H3	28:AF:40:VAL:CB	2.24	0.50
23:AA:576:U:O2	23:AA:605:U:O2'	2.29	0.50
32:AJ:79:LEU:HB2	32:AJ:113:GLY:HA2	1.92	0.50
23:BA:2782:C:H3'	52:B4:19:ARG:NH2	2.26	0.50
23:AA:1022:G:N1	23:AA:1025:A:OP2	7.18	0.50
25:AC:144:ILE:HB	25:AC:154:ILE:HB	1.92	0.50
23:AA:1844:G:OP1	25:AC:87:ARG:NH2	2.44	0.50
28:AF:57:LEU:HD22	28:AF:65:PRO:HG3	1.93	0.50
23:BA:2465:U:O2'	23:BA:2467:C:OP1	2.29	0.50
23:BA:2854:A:H2'	23:BA:2899:A:H61	1.75	0.50
23:BA:502:C:H5	40:BR:68:TYR:CG	2.28	0.50
43:BU:55:PRO:HG3	43:BU:61:ARG:HB2	1.93	0.50
49:A1:22:ASN:ND2	49:A1:25:ASN:OD1	2.40	0.50
23:AA:168:A:H5''	23:AA:169:G:C8	2.46	0.50
23:AA:2157:U:O2'	23:AA:2185:A:N1	2.42	0.50
23:AA:320:U:H5'	23:AA:321:U:H3'	1.92	0.50
23:AA:1242:A:N3	32:AJ:4:HIS:HB3	2.27	0.50
24:AB:29:C:OP1	35:AM:4:LYS:NZ	2.44	0.50
36:AN:16:ARG:H	36:AN:79:HIS:CD2	2.29	0.50
23:BA:1451:U:H3	23:BA:1633:A:H62	1.57	0.50
23:BA:928:C:N4	23:BA:937:G:OP2	2.42	0.50
25:BC:144:ILE:HB	25:BC:154:ILE:HB	1.92	0.50
23:AA:2455:G:N2	32:AJ:54:GLN:NE2	2.57	0.50
23:AA:590:U:OP1	23:AA:1257:G:O2'	2.26	0.50
23:AA:606:G:H21	37:AO:37:GLN:NE2	1.92	0.50
23:AA:826:A:OP1	25:AC:217:ARG:NH2	2.39	0.50
26:AD:119:THR:HB	26:AD:210:GLU:HB2	1.93	0.50
23:AA:2850:G:P	26:AD:67:LYS:HB3	2.51	0.50
27:AE:75:GLN:HE22	27:AE:82:GLN:HE21	1.58	0.50
23:AA:2332:U:C1'	28:AF:152:MET:O	2.60	0.50
23:BA:2778:G:C2	29:BG:3:ARG:NH2	2.72	0.50
23:BA:720:A:OP1	27:BE:76:GLY:HA2	2.11	0.50
30:BH:53:ASP:N	30:BH:53:ASP:OD1	2.44	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AA:12:U:O4	23:AA:13:A:N6	2.44	0.50
23:AA:2778:G:C2	29:AG:3:ARG:NH2	2.71	0.50
23:AA:842:U:OP1	27:AE:62:ARG:NH2	2.42	0.50
43:AU:55:PRO:HG3	43:AU:61:ARG:HB2	1.93	0.50
23:BA:1376:G:H5''	40:BR:15:LYS:HG2	1.93	0.50
23:BA:1726:A:H61	23:BA:1750:U:H3	1.59	0.50
23:BA:1242:A:N3	32:BJ:4:HIS:HB3	2.27	0.50
36:BN:16:ARG:H	36:BN:79:HIS:HD2	1.57	0.50
23:AA:1498:U:OP2	34:AL:59:ARG:NH1	2.29	0.50
23:AA:2402:G:N2	23:AA:2405:A:OP2	2.43	0.50
23:AA:2831:G:OP1	26:AD:70:ASN:HB2	2.11	0.50
36:AN:16:ARG:H	36:AN:79:HIS:HD2	1.57	0.50
23:AA:579:U:O2'	37:AO:49:ASP:OD2	2.20	0.50
23:AA:502:C:H41	40:AR:68:TYR:CB	2.24	0.50
23:BA:1208:A:H62	23:BA:1224:U:H3	1.60	0.50
23:BA:1579:C:H3'	23:BA:1581:U:H3	1.75	0.50
23:BA:18:C:O2'	23:BA:597:U:OP1	2.29	0.50
25:BC:84:ASP:OD2	25:BC:87:ARG:NH1	2.41	0.50
23:BA:1498:U:O5'	34:BL:59:ARG:NH1	2.45	0.50
23:AA:1845:U:OP2	25:AC:156:ARG:NE	2.43	0.50
23:AA:878:C:OP1	32:AJ:39:LYS:HE3	2.12	0.50
23:BA:2831:G:OP1	26:BD:70:ASN:HB2	2.11	0.50
23:AA:2341:A:H5'	28:AF:35:VAL:HG11	1.94	0.50
29:AG:87:LEU:HD13	29:AG:148:ILE:HD13	1.94	0.50
23:BA:1492:G:N2	23:BA:1508:C:N3	2.59	0.50
23:BA:2157:U:O2'	23:BA:2185:A:N1	2.42	0.50
23:BA:1039:C:C6	30:BH:1:MET:HA	2.47	0.50
23:AA:2782:C:H3'	52:A4:19:ARG:NH2	2.26	0.50
23:AA:1937:G:O6	23:AA:1946:A:N6	2.45	0.50
23:AA:2598:U:O2	26:AD:156:MET:HG2	2.12	0.50
30:AH:53:ASP:N	30:AH:53:ASP:OD1	2.44	0.50
23:BA:1020:G:HO2'	23:BA:1199:A:HO2'	1.56	0.50
23:BA:1407:C:O2'	23:BA:1838:G:O2'	2.30	0.50
23:BA:1937:G:O6	23:BA:1946:A:N6	2.45	0.50
23:BA:675:G:N2	23:BA:678:A:OP2	2.39	0.50
23:BA:1533:A:N7	25:BC:96:TYR:HB3	2.27	0.50
23:BA:488:G:O4'	27:BE:46:GLN:NE2	2.43	0.50
28:BF:61:THR:HG21	28:BF:91:LEU:HD11	1.94	0.50
23:AA:1337:A:H4'	23:AA:1338:U:H5''	1.94	0.49
23:AA:1828:U:OP2	25:AC:150:LYS:NZ	2.44	0.49
23:AA:1819:G:OP1	25:AC:204:ASN:HA	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AA:1533:A:N7	25:AC:96:TYR:HB3	2.27	0.49
31:AI:112:MET:N	31:AI:112:MET:SD	3.35	0.49
23:BA:1819:G:OP1	25:BC:204:ASN:HA	2.12	0.49
23:BA:1818:A:N6	23:BA:1855:G:O2'	2.42	0.49
23:BA:326:A:H1'	23:BA:327:G:H5'	1.93	0.49
23:BA:2778:G:N2	29:BG:3:ARG:NH2	2.59	0.49
23:BA:573:A:H5'	30:BH:114:ARG:HG2	1.93	0.49
32:BJ:75:ALA:HB3	32:BJ:109:ILE:HG12	1.94	0.49
37:BO:24:TYR:O	37:BO:29:HIS:ND1	2.42	0.49
23:AA:2140:C:N3	23:AA:2195:G:O2'	2.41	0.49
23:AA:2778:G:N2	29:AG:3:ARG:NH2	2.59	0.49
32:AJ:19:VAL:HG13	32:AJ:27:ASN:HB3	1.94	0.49
44:AV:19:SER:OG	44:AV:23:ASN:OD1	2.25	0.49
23:BA:1453:G:H4'	23:BA:1455:U:H3	1.77	0.49
23:BA:1828:U:OP2	25:BC:150:LYS:NZ	2.44	0.49
23:BA:344:U:OP2	41:BS:80:ARG:NH2	2.32	0.49
23:BA:842:U:OP1	27:BE:62:ARG:NH2	2.42	0.49
23:BA:2341:A:H5'	28:BF:35:VAL:HG11	1.94	0.49
23:AA:1175:G:N2	23:AA:1176:U:O4	2.43	0.49
23:AA:1508:C:N4	23:AA:1509:G:O6	2.45	0.49
23:AA:326:A:H1'	23:AA:327:G:H5'	1.93	0.49
23:AA:578:G:O6	23:AA:874:A:N6	57.12	0.49
32:AJ:75:ALA:HB3	32:AJ:109:ILE:HG12	1.94	0.49
23:AA:1498:U:O5'	34:AL:59:ARG:NH1	2.45	0.49
23:BA:2333:U:H3	28:BF:40:VAL:CB	2.24	0.49
23:BA:2455:G:N2	32:BJ:54:GLN:NE2	2.57	0.49
23:BA:503:A:H62	23:BA:516:A:H5''	1.76	0.49
25:BC:182:ARG:HG3	25:BC:270:ILE:HD13	1.93	0.49
27:BE:80:ALA:HB3	27:BE:83:TRP:HD1	1.76	0.49
23:AA:1024:A:OP1	23:AA:1026:C:N4	2.46	0.49
23:AA:1072:A:N3	23:AA:2513:G:O2'	2.37	0.49
23:AA:2418:G:O2'	23:AA:2451:C:N4	2.46	0.49
23:AA:18:C:O2'	23:AA:597:U:OP1	2.29	0.49
23:AA:616:G:O2'	23:AA:618:A:OP1	2.30	0.49
23:BA:1024:A:OP1	23:BA:1026:C:N4	2.46	0.49
23:BA:545:G:N1	23:BA:548:A:OP2	2.45	0.49
26:BD:119:THR:HB	26:BD:210:GLU:HB2	1.93	0.49
23:BA:1067:U:OP2	23:BA:1069:G:O2'	2.31	0.49
23:BA:2337:A:H2	28:BF:74:ILE:HG22	1.76	0.49
25:BC:129:ALA:HB2	25:BC:191:THR:HG22	1.95	0.49
23:AA:1115:G:N1	23:AA:1136:C:OP2	2.36	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AA:2800:U:OP1	26:AD:179:THR:HG21	2.12	0.49
25:AC:129:ALA:HB2	25:AC:191:THR:HG22	1.95	0.49
42:AT:7:ILE:HB	42:AT:42:LYS:HB2	1.93	0.49
23:BA:827:A:O2'	25:BC:224:VAL:O	2.29	0.49
28:BF:31:ILE:HD11	28:BF:34:ILE:HD11	1.93	0.49
23:AA:1312:A:N7	34:AL:12:GLN:HG2	2.28	0.49
23:AA:2818:A:N6	23:AA:2824:G:O6	2.45	0.49
26:AD:37:GLN:HB3	26:AD:50:GLN:HG2	1.95	0.49
52:B4:5:PRO:O	52:B4:36:GLN:NE2	2.45	0.49
23:BA:107:G:H5''	23:BA:108:A:H5''	6.65	0.49
23:BA:1325:U:O2'	23:BA:1691:G:N2	2.34	0.49
23:BA:1508:C:N4	23:BA:1509:G:O6	2.45	0.49
23:BA:2418:G:O2'	23:BA:2451:C:N4	2.46	0.49
23:BA:578:G:O6	23:BA:874:A:N6	57.12	0.49
23:BA:2598:U:O2	26:BD:156:MET:HG2	2.12	0.49
23:AA:1020:G:HO2'	23:AA:1199:A:HO2'	1.61	0.49
23:AA:1067:U:OP2	23:AA:1069:G:O2'	2.31	0.49
23:AA:1208:A:H62	23:AA:1224:U:H3	1.60	0.49
23:AA:2663:U:HO2'	26:AD:46:TYR:HH	1.49	0.49
23:BA:901:G:H2'	23:BA:902:A:C8	2.48	0.49
26:BD:37:GLN:HB3	26:BD:50:GLN:HG2	1.94	0.49
23:AA:1039:C:C6	30:AH:1:MET:HA	2.47	0.49
23:AA:1759:G:H21	23:AA:1772:G:H5'	1.77	0.49
23:AA:922:G:H2'	23:AA:923:A:C8	2.48	0.49
23:BA:1764:A:N7	23:BA:1765:A:N6	2.61	0.49
23:BA:2332:U:C1'	28:BF:152:MET:O	2.60	0.49
23:BA:2647:C:O2'	26:BD:170:PRO:O	2.18	0.49
29:BG:87:LEU:HD13	29:BG:148:ILE:HD13	1.94	0.49
52:A4:5:PRO:O	52:A4:36:GLN:NE2	2.45	0.49
23:AA:107:G:H5''	23:AA:108:A:H5''	6.65	0.49
24:AB:29:C:O2'	24:AB:51:A:N1	2.41	0.49
28:AF:46:ASN:O	28:AF:50:LEU:N	2.40	0.49
23:BA:2818:A:N6	23:BA:2824:G:O6	2.45	0.49
23:BA:346:A:O5'	31:BI:97:ARG:NH1	155.28	0.49
23:BA:644:C:HO2'	23:BA:645:A:H8	1.61	0.49
32:BJ:19:VAL:HG13	32:BJ:27:ASN:HB3	1.94	0.49
23:BA:878:C:OP1	32:BJ:39:LYS:HE3	2.12	0.49
23:AA:1726:A:OP2	23:AA:1743:G:N2	2.46	0.48
23:AA:928:C:N4	23:AA:937:G:OP2	2.42	0.48
23:BA:1072:A:N3	23:BA:2513:G:O2'	2.37	0.48
23:BA:1472:C:N4	23:BA:1617:A:OP2	2.34	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BA:590:U:OP1	23:BA:1257:G:O2'	2.26	0.48
23:AA:1701:U:OP1	26:AD:149:ARG:CB	2.61	0.48
23:AA:2591:A:OP1	23:AA:2675:G:O2'	2.31	0.48
23:AA:896:U:H2'	23:AA:897:A:H8	1.79	0.48
23:AA:901:G:H2'	23:AA:902:A:C8	2.48	0.48
34:AL:102:ARG:HH21	34:AL:122:VAL:HG21	1.78	0.48
23:BA:2309:G:N2	23:BA:2417:U:O2	2.43	0.48
23:BA:854:G:O5'	23:BA:854:G:H8	2.99	0.48
23:BA:1701:U:OP1	26:BD:149:ARG:CB	2.61	0.48
23:AA:1453:G:H4'	23:AA:1455:U:H3	1.77	0.48
23:AA:1845:U:H3'	25:AC:157:SER:N	2.29	0.48
23:BA:1337:A:H4'	23:BA:1338:U:H5''	1.94	0.48
23:BA:2007:G:O2'	23:BA:2009:U:OP2	2.29	0.48
23:AA:1407:C:O2'	23:AA:1838:G:O2'	2.30	0.48
23:AA:850:G:OP2	32:AJ:41:ARG:HG2	2.14	0.48
28:AF:61:THR:HG21	28:AF:91:LEU:HD11	1.94	0.48
23:BA:1111:A:N1	23:BA:1139:A:O2'	2.36	0.48
23:BA:1312:A:N7	34:BL:12:GLN:HG2	2.28	0.48
23:BA:1759:G:H21	23:BA:1772:G:H5'	1.78	0.48
23:AA:2642:U:H1'	48:AZ:4:PRO:HB3	1.96	0.48
23:AA:284:C:O2'	23:AA:287:G:N2	2.32	0.48
26:AD:56:LYS:HD3	26:AD:86:ARG:HG2	1.96	0.48
23:BA:1510:U:O2	23:BA:1571:G:N2	2.43	0.48
23:BA:809:A:H61	23:BA:1816:A:H8	1.61	0.48
23:AA:588:G:N2	23:AA:589:U:O4	2.40	0.48
23:AA:955:A:H62	33:AK:12:GLN:HA	1.78	0.48
23:BA:2642:U:H1'	48:BZ:4:PRO:HB3	1.96	0.48
23:BA:2715:G:N1	23:BA:2747:U:OP2	2.32	0.48
23:BA:896:U:H2'	23:BA:897:A:H8	1.79	0.48
46:BX:18:THR:HG22	46:BX:49:LYS:HZ1	1.79	0.48
23:AA:1215:U:O2'	23:AA:1217:U:OP2	2.22	0.48
23:AA:675:G:N2	23:AA:678:A:OP2	2.39	0.48
27:AE:139:PHE:HZ	27:AE:154:VAL:HG11	1.78	0.48
27:AE:154:VAL:HA	27:AE:193:VAL:HG23	1.96	0.48
23:BA:1781:C:N3	23:BA:2743:U:O2'	2.44	0.48
23:BA:1845:U:H3'	25:BC:157:SER:N	2.29	0.48
27:BE:164:GLU:HA	27:BE:175:VAL:HG21	1.95	0.48
23:AA:1764:A:N7	23:AA:1765:A:N6	2.61	0.48
23:AA:2147:G:O6	23:AA:2199:U:O2'	2.28	0.48
23:AA:346:A:O5'	31:AI:97:ARG:NH1	155.28	0.48
23:BA:922:G:H2'	23:BA:923:A:C8	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BA:650:U:OP1	27:BE:103:LYS:N	2.47	0.48
23:BA:1022:G:N1	23:BA:1025:A:OP2	7.18	0.48
23:BA:489:A:OP1	27:BE:45:ARG:HG3	2.14	0.48
26:BD:10:ILE:HB	26:BD:27:VAL:HG13	1.96	0.48
27:BE:139:PHE:HZ	27:BE:154:VAL:HG11	1.78	0.48
23:AA:2007:G:O2'	23:AA:2009:U:OP2	2.29	0.48
25:AC:84:ASP:OD2	25:AC:87:ARG:NH1	2.41	0.48
23:BA:1324:A:N7	34:BL:111:GLY:HA3	2.29	0.48
23:BA:2134:C:N4	23:BA:2208:A:OP2	2.41	0.48
34:BL:102:ARG:HH21	34:BL:122:VAL:HG21	1.78	0.48
23:AA:1065:A:H2'	23:AA:1066:G:H4'	1.96	0.47
23:AA:1533:A:N7	25:AC:96:TYR:CA	2.73	0.47
23:AA:1737:U:H5''	23:AA:1738:C:H5	1.79	0.47
23:AA:1826:G:O6	25:AC:178:SER:HB2	2.14	0.47
23:BA:576:U:O2	23:BA:605:U:O2'	2.29	0.47
23:BA:2707:C:H1'	26:BD:200:ASN:HD22	1.78	0.47
23:AA:1825:U:OP2	25:AC:274:ARG:NH2	2.47	0.47
23:BA:1826:G:O6	25:BC:178:SER:HB2	2.14	0.47
23:AA:1137:G:O2'	23:AA:1143:G:O6	2.29	0.47
23:AA:1553:A:O2'	23:AA:1555:G:N2	2.48	0.47
23:AA:1581:U:C5	23:AA:1584:U:H6	2.32	0.47
23:BA:1581:U:C5	23:BA:1584:U:H6	2.32	0.47
23:BA:2591:A:OP1	23:BA:2675:G:O2'	2.31	0.47
23:BA:52:A:N7	23:BA:113:U:O2'	16.93	0.47
24:BB:4:G:H1	24:BB:111:C:H41	1.63	0.47
27:BE:154:VAL:HA	27:BE:193:VAL:HG23	1.96	0.47
23:AA:545:G:N1	23:AA:548:A:OP2	2.45	0.47
23:BA:1175:G:N2	23:BA:1176:U:O4	2.43	0.47
23:BA:1553:A:O2'	23:BA:1555:G:N2	2.48	0.47
23:BA:2392:G:N7	51:B3:39:LYS:NZ	2.57	0.47
51:A3:26:ARG:NH1	51:A3:43:GLN:O	2.48	0.47
23:AA:2707:C:H1'	26:AD:200:ASN:HD22	1.78	0.47
27:AE:164:GLU:HA	27:AE:175:VAL:HG21	1.95	0.47
23:AA:614:U:H3'	38:AP:79:ARG:HH12	1.80	0.47
26:BD:189:ASP:OD2	26:BD:192:ASN:ND2	2.42	0.47
23:BA:850:G:OP2	32:BJ:41:ARG:HG2	2.14	0.47
23:AA:661:U:C5'	27:AE:106:ARG:HD3	2.45	0.47
23:BA:1512:U:H2'	23:BA:1513:A:C8	2.49	0.47
23:BA:1796:A:O2'	23:BA:1985:C:OP1	2.33	0.47
23:BA:1918:G:HO2'	23:BA:2262:G:HO2'	1.61	0.47
23:BA:2775:A:H1'	29:BG:67:THR:CG2	2.36	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BA:926:G:O2'	23:BA:942:C:O2	2.33	0.47
26:BD:56:LYS:HD3	26:BD:86:ARG:HG2	1.96	0.47
23:AA:1113:A:H2	23:AA:1138:U:H3	1.63	0.47
23:AA:489:A:OP1	27:AE:45:ARG:HG3	2.14	0.47
23:BA:1065:A:H2'	23:BA:1066:G:H4'	1.96	0.47
23:BA:1315:C:H2'	23:BA:1316:G:H8	1.80	0.47
35:BM:42:ALA:HB2	35:BM:108:LEU:HD21	1.96	0.47
35:BM:14:ARG:HD2	35:BM:98:GLY:O	2.15	0.47
23:AA:1325:U:HO2'	23:AA:1691:G:H22	1.61	0.47
23:AA:650:U:OP1	27:AE:103:LYS:N	2.47	0.47
23:AA:614:U:O2'	38:AP:79:ARG:NH2	2.48	0.47
31:BI:115:VAL:HG13	31:BI:121:VAL:HG21	1.97	0.47
31:BI:80:ASP:OD2	36:BN:64:ARG:NH2	2.39	0.47
39:BQ:28:ASN:HA	39:BQ:70:VAL:HA	1.96	0.47
23:AA:1512:U:H2'	23:AA:1513:A:C8	2.49	0.47
23:AA:1826:G:OP1	25:AC:260:ARG:HD2	2.15	0.47
23:AA:1818:A:N6	23:AA:1855:G:O2'	2.42	0.47
23:AA:1862:G:H1	23:AA:1932:C:H5	1.63	0.47
23:AA:2663:U:O2'	26:AD:46:TYR:OH	2.16	0.47
23:AA:2715:G:N1	23:AA:2747:U:OP2	2.32	0.47
23:AA:2904:U:H5	48:AZ:40:HIS:CD2	2.33	0.47
23:AA:504:G:N2	23:AA:505:U:O4	2.45	0.47
23:AA:809:A:H61	23:AA:1816:A:H8	1.61	0.47
23:AA:926:G:O2'	23:AA:942:C:O2	2.33	0.47
31:AI:115:VAL:HG13	31:AI:121:VAL:HG21	1.97	0.47
46:BX:15:ARG:O	46:BX:20:ARG:NH1	2.48	0.47
23:AA:1326:C:OP1	23:AA:1691:G:N1	2.47	0.47
51:B3:26:ARG:NH1	51:B3:43:GLN:O	2.48	0.47
23:BA:1625:U:H2'	23:BA:1626:A:H8	1.80	0.47
23:BA:1826:G:OP1	25:BC:260:ARG:HD2	2.15	0.47
23:BA:700:A:H4'	23:BA:701:G:H5'	1.97	0.47
23:AA:1290:G:H1	37:AO:37:GLN:NE2	2.04	0.47
23:AA:1324:A:N7	34:AL:111:GLY:HA3	2.29	0.47
26:AD:50:GLN:HB3	26:AD:90:GLU:HG2	1.97	0.47
23:AA:1055:A:OP1	37:AO:75:SER:HB3	2.15	0.47
23:AA:372:A:N6	41:AS:15:LYS:HG2	2.19	0.47
24:BB:12:U:OP2	24:BB:68:U:O2'	2.32	0.47
23:AA:2392:G:N7	51:A3:39:LYS:NZ	2.57	0.46
23:AA:2686:G:O2'	29:AG:176:THR:HG21	2.15	0.46
23:AA:52:A:N7	23:AA:113:U:O2'	16.93	0.46
30:AH:2:ARG:HB2	37:AO:93:LYS:HZ3	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:AQ:28:ASN:HA	39:AQ:70:VAL:HA	1.96	0.46
23:BA:1864:C:O2'	23:BA:1954:A:N3	2.36	0.46
23:BA:2598:U:O2'	26:BD:159:ASP:HB2	2.15	0.46
23:BA:614:U:H3'	38:BP:79:ARG:HH12	1.80	0.46
23:BA:615:A:OP2	38:BP:79:ARG:NH2	2.49	0.46
23:BA:616:G:O2'	23:BA:618:A:OP1	2.30	0.46
23:AA:1448:U:N3	23:AA:1635:A:N1	2.45	0.46
23:AA:1818:A:O3'	25:AC:205:VAL:CG2	2.63	0.46
32:AJ:23:VAL:HG13	38:AP:81:ASN:HB3	1.97	0.46
24:AB:6:U:H4'	35:AM:32:ASN:HD21	1.80	0.46
52:B4:3:VAL:HG12	52:B4:35:ARG:HG3	1.97	0.46
23:BA:1110:U:N3	23:BA:1114:A:OP2	2.42	0.46
23:BA:1737:U:H5''	23:BA:1738:C:H5	1.79	0.46
23:BA:1818:A:O3'	25:BC:205:VAL:CG2	2.63	0.46
23:BA:201:C:H1'	23:BA:2461:A:H61	1.80	0.46
23:BA:661:U:C5'	27:BE:106:ARG:HD3	2.45	0.46
24:BB:6:U:H4'	35:BM:32:ASN:HD21	1.80	0.46
26:BD:50:GLN:HB3	26:BD:90:GLU:HG2	1.97	0.46
23:AA:1110:U:N3	23:AA:1114:A:OP2	2.42	0.46
23:AA:2022:U:H3'	23:AA:2023:C:H2'	1.97	0.46
23:AA:2775:A:H1'	29:AG:67:THR:CG2	2.36	0.46
24:AB:4:G:H1	24:AB:111:C:H41	1.62	0.46
26:AD:10:ILE:HB	26:AD:27:VAL:HG13	1.96	0.46
28:AF:36:VAL:HG12	28:AF:154:ILE:HG13	1.97	0.46
23:BA:1475:A:N6	23:BA:1606:C:O2	2.48	0.46
23:BA:1726:A:OP2	23:BA:1743:G:N2	2.46	0.46
23:BA:2231:C:H5'	25:BC:147:LYS:CD	2.43	0.46
23:BA:2815:C:O2'	23:BA:2829:A:N3	2.44	0.46
23:BA:829:U:H5''	25:BC:226:ASN:HD21	1.81	0.46
23:AA:1807:A:H3'	23:AA:1808:U:H2'	1.97	0.46
23:AA:1796:A:O2'	23:AA:1985:C:OP1	2.33	0.46
31:AI:80:ASP:OD2	36:AN:64:ARG:NH2	2.39	0.46
23:BA:1482:U:H2'	23:BA:1483:A:H8	1.80	0.46
23:AA:1284:A:H4'	27:AE:45:ARG:HH12	1.81	0.46
23:AA:282:A:H2'	23:AA:283:G:H8	1.81	0.46
23:AA:33:U:O4	23:AA:492:G:O2'	2.34	0.46
23:AA:26:G:N2	23:AA:558:A:OP2	2.38	0.46
23:AA:615:A:OP2	38:AP:79:ARG:NH2	2.49	0.46
25:AC:107:PRO:HD2	25:AC:110:LEU:HD22	1.98	0.46
23:AA:2648:G:P	26:AD:133:ARG:HH22	2.29	0.46
23:AA:640:G:O2'	32:AJ:11:GLY:O	2.28	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:AM:14:ARG:HD2	35:AM:98:GLY:O	2.15	0.46
23:BA:2231:C:C5'	25:BC:147:LYS:CD	2.94	0.46
25:BC:132:LEU:HD23	25:BC:135:ILE:HD12	1.98	0.46
30:BH:2:ARG:HB2	37:BO:93:LYS:HZ3	1.80	0.46
23:AA:1475:A:N6	23:AA:1606:C:O2	2.48	0.46
23:AA:1625:U:H2'	23:AA:1626:A:H8	1.80	0.46
23:AA:1930:G:OP1	25:AC:240:PRO:HB2	2.16	0.46
23:AA:378:C:OP2	41:AS:80:ARG:NH1	2.48	0.46
46:AX:15:ARG:O	46:AX:20:ARG:NH1	2.48	0.46
23:BA:1284:A:H4'	27:BE:45:ARG:HH12	1.81	0.46
23:BA:955:A:H62	33:BK:12:GLN:HA	1.78	0.46
23:BA:1930:G:OP1	25:BC:240:PRO:HB2	2.16	0.46
26:BD:189:ASP:HB3	26:BD:194:VAL:HG22	1.98	0.46
23:AA:329:A:N6	23:AA:396:G:O6	2.49	0.46
26:AD:189:ASP:HB3	26:AD:194:VAL:HG22	1.98	0.46
23:BA:43:A:H62	23:BA:482:U:H3	1.64	0.46
23:BA:2443:C:OP1	32:BJ:64:ARG:HB2	2.16	0.46
23:BA:614:U:O2'	38:BP:79:ARG:NH2	2.48	0.46
23:BA:2904:U:H5	48:BZ:40:HIS:CD2	2.33	0.46
23:AA:1944:U:H4'	23:AA:1947:C:H41	1.81	0.46
23:AA:2443:C:OP1	32:AJ:64:ARG:HB2	2.15	0.46
27:AE:7:LEU:HB2	27:AE:126:VAL:HG12	1.98	0.46
23:BA:1184:C:OP1	30:BH:26:LEU:HB3	2.16	0.46
23:BA:2022:U:H3'	23:BA:2023:C:H2'	1.97	0.46
23:BA:631:U:H1'	27:BE:90:PHE:HB3	1.98	0.46
29:BG:121:ILE:HD11	29:BG:140:GLN:HG3	1.98	0.46
33:BK:46:GLN:HB3	33:BK:125:LEU:HD13	1.97	0.46
34:BL:24:LEU:HD23	34:BL:30:ILE:HG12	1.97	0.46
41:BS:33:VAL:HG13	41:BS:65:VAL:HG22	1.98	0.46
28:BF:58:GLU:HB3	47:BY:7:PRO:HG2	1.98	0.46
23:AA:201:C:H1'	23:AA:2461:A:H61	1.80	0.46
23:AA:2598:U:O2'	26:AD:159:ASP:HB2	2.15	0.46
23:AA:720:A:N3	23:AA:2470:C:O2'	2.47	0.46
28:AF:58:GLU:HB3	47:AY:7:PRO:HG2	1.98	0.46
33:AK:46:GLN:HB3	33:AK:125:LEU:HD13	1.98	0.46
34:AL:24:LEU:HD23	34:AL:30:ILE:HG12	1.97	0.46
39:AQ:11:ARG:NH1	39:AQ:98:LYS:HG3	2.31	0.46
36:BN:114:GLU:HG2	36:BN:115:ILE:HG13	1.98	0.46
52:A43:VAL:HG12	52:A435:ARG:HG3	1.97	0.46
23:AA:1315:C:H2'	23:AA:1316:G:H8	1.80	0.46
23:AA:1781:C:N3	23:AA:2743:U:O2'	2.44	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AA:2333:U:H3	28:AF:40:VAL:HB	1.81	0.46
23:AA:2309:G:N2	23:AA:2417:U:O2	2.43	0.46
23:BA:45:G:N7	23:BA:218:G:O2'	2.38	0.46
23:BA:857:C:O2	23:BA:857:C:H2'	2.98	0.46
26:BD:122:SER:HB2	26:BD:175:GLY:HA2	1.98	0.46
23:AA:1064:A:N1	23:AA:1185:U:O2'	2.43	0.45
23:AA:1184:C:OP1	30:AH:26:LEU:HB3	2.16	0.45
23:AA:1918:G:HO2'	23:AA:2262:G:HO2'	1.60	0.45
23:AA:2216:U:H2'	23:AA:2217:G:C8	2.51	0.45
23:AA:43:A:H62	23:AA:482:U:H3	1.64	0.45
23:AA:750:A:OP2	23:AA:770:G:N2	2.44	0.45
23:AA:963:A:H4'	24:AB:94:C:O2	2.16	0.45
23:AA:631:U:H1'	27:AE:90:PHE:HB3	1.98	0.45
23:AA:2277:G:H22	33:AK:84:GLY:HA3	1.81	0.45
23:BA:2783:U:OP2	52:B4:19:ARG:NH2	2.49	0.45
23:BA:1121:A:O2'	23:BA:1122:U:O4'	2.34	0.45
23:BA:2663:U:H4'	26:BD:90:GLU:OE1	2.16	0.45
23:BA:2331:G:C4'	28:BF:129:THR:O	2.45	0.45
35:BM:40:ILE:HG21	35:BM:73:ALA:HA	1.98	0.45
39:BQ:11:ARG:NH1	39:BQ:98:LYS:HG3	2.31	0.45
23:AA:1658:A:H2	39:AQ:93:ALA:HB2	1.81	0.45
23:AA:1979:A:N3	23:AA:2587:C:O2'	2.42	0.45
23:AA:829:U:H5''	25:AC:226:ASN:HD21	1.81	0.45
23:BA:1055:A:OP1	37:BO:75:SER:HB3	2.15	0.45
23:BA:1807:A:H3'	23:BA:1808:U:H2'	1.97	0.45
23:BA:2216:U:H2'	23:BA:2217:G:C8	2.51	0.45
23:BA:2331:G:H2'	23:BA:2334:G:H22	1.81	0.45
23:BA:2686:G:O2'	29:BG:176:THR:HG21	2.15	0.45
23:BA:226:A:O2'	23:BA:466:C:O2	2.34	0.45
23:BA:860:U:O5'	23:BA:860:U:H6	2.60	0.45
28:BF:36:VAL:HG12	28:BF:154:ILE:HG13	1.97	0.45
35:BM:19:ARG:NH2	35:BM:47:ASP:OD1	2.45	0.45
23:AA:1533:A:N6	25:AC:100:GLU:N	2.46	0.45
23:AA:1039:C:C5	30:AH:1:MET:HA	2.51	0.45
23:BA:1095:A:N6	23:BA:1153:C:O2	2.50	0.45
23:BA:1862:G:H1	23:BA:1932:C:H5	1.63	0.45
23:BA:1944:U:H4'	23:BA:1947:C:H41	1.81	0.45
23:BA:2333:U:H3	28:BF:40:VAL:HB	1.81	0.45
23:BA:2904:U:C5	48:BZ:40:HIS:ND1	2.84	0.45
27:BE:7:LEU:HB2	27:BE:126:VAL:HG12	1.98	0.45
23:BA:378:C:OP2	41:BS:80:ARG:NH1	2.48	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AA:1102:U:H2'	23:AA:1103:G:C8	2.51	0.45
23:AA:1845:U:H5''	25:AC:157:SER:HB2	1.98	0.45
23:AA:2231:C:H5'	25:AC:147:LYS:CD	2.43	0.45
23:AA:2783:U:OP2	52:A4:19:ARG:NH2	2.49	0.45
23:AA:410:G:O2'	23:AA:411:A:N7	2.49	0.45
25:AC:132:LEU:HD23	25:AC:135:ILE:HD12	1.98	0.45
23:BA:1102:U:H2'	23:BA:1103:G:C8	2.51	0.45
23:BA:1113:A:H2	23:BA:1138:U:H3	1.63	0.45
23:BA:2277:G:H22	33:BK:84:GLY:HA3	1.81	0.45
23:AA:2272:U:H5''	23:AA:2273:G:H5'	1.99	0.45
23:AA:325:A:H2	23:AA:401:U:H1'	1.82	0.45
23:AA:2231:C:C5'	25:AC:147:LYS:CD	2.94	0.45
23:AA:878:C:OP1	32:AJ:39:LYS:CE	2.65	0.45
35:AM:40:ILE:HG21	35:AM:73:ALA:HA	1.98	0.45
23:BA:1039:C:C5	30:BH:1:MET:HA	2.51	0.45
23:BA:282:A:H2'	23:BA:283:G:H8	1.81	0.45
25:BC:107:PRO:HD2	25:BC:110:LEU:HD22	1.98	0.45
23:BA:581:A:P	30:BH:1:MET:HE1	2.34	0.45
31:BI:87:ILE:HA	31:BI:93:PRO:HA	1.99	0.45
32:BJ:23:VAL:HG13	38:BP:81:ASN:HB3	1.97	0.45
40:BR:64:ARG:HG3	40:BR:69:GLN:HA	1.99	0.45
23:AA:2386:C:O2'	51:A3:54:ASP:OD2	2.31	0.45
23:AA:1415:A:O2'	23:AA:1417:G:OP2	2.35	0.45
23:AA:1819:G:O2'	23:AA:1857:C:OP1	2.34	0.45
23:AA:2331:G:H2'	23:AA:2334:G:H22	1.81	0.45
23:AA:700:A:H4'	23:AA:701:G:H5'	1.97	0.45
23:AA:2663:U:H4'	26:AD:90:GLU:OE1	2.16	0.45
23:AA:2904:U:C5	48:AZ:40:HIS:ND1	2.84	0.45
23:BA:1038:C:O2'	38:BP:10:LYS:HE2	2.16	0.45
23:BA:1415:A:O2'	23:BA:1417:G:OP2	2.35	0.45
29:AG:121:ILE:HD11	29:AG:140:GLN:HG3	1.98	0.45
23:BA:1039:C:O2'	37:BO:93:LYS:NZ	2.49	0.45
23:BA:1463:A:H2'	23:BA:1465:G:C8	2.51	0.45
23:BA:1482:U:H3	23:BA:1601:U:H5	1.65	0.45
23:BA:1582:U:O5'	23:BA:1583:G:N2	2.50	0.45
23:BA:329:A:N6	23:BA:396:G:O6	2.49	0.45
23:BA:33:U:O4	23:BA:492:G:O2'	2.34	0.45
38:BP:20:ILE:HG12	38:BP:97:ILE:HD11	1.99	0.45
23:AA:1113:A:O2'	23:AA:1141:U:OP1	2.35	0.45
23:AA:1290:G:N2	37:AO:33:LYS:HB3	2.32	0.45
23:AA:2338:A:C8	28:AF:40:VAL:CG1	2.94	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AA:1777:G:O2'	23:AA:2880:A:N1	2.40	0.45
35:AM:7:LYS:O	35:AM:11:ARG:HB2	2.16	0.45
36:AN:114:GLU:HG2	36:AN:115:ILE:HG13	1.98	0.45
23:BA:1326:C:OP1	23:BA:1691:G:N1	2.47	0.45
23:BA:1819:G:O2'	23:BA:1857:C:OP1	2.34	0.45
23:BA:1825:U:OP2	25:BC:274:ARG:NH2	2.47	0.45
23:BA:2056:G:N1	23:BA:2060:A:OP2	2.38	0.45
23:BA:325:A:H2	23:BA:401:U:H1'	1.82	0.45
23:BA:787:U:H2'	23:BA:788:A:C8	2.52	0.45
23:AA:1095:A:N6	23:AA:1153:C:O2	2.50	0.45
23:AA:1242:A:O2'	32:AJ:4:HIS:HD2	2.00	0.45
23:AA:1463:A:H2'	23:AA:1465:G:C8	2.51	0.45
23:AA:226:A:O2'	23:AA:466:C:O2	2.34	0.45
31:AI:87:ILE:HA	31:AI:93:PRO:HA	1.99	0.45
35:AM:42:ALA:HB2	35:AM:108:LEU:HD21	1.97	0.45
40:AR:64:ARG:HG3	40:AR:69:GLN:HA	1.99	0.45
23:BA:1482:U:H2'	23:BA:1483:A:C8	2.52	0.45
23:BA:1533:A:N7	25:BC:96:TYR:CA	2.73	0.45
23:BA:1847:U:C2	25:BC:201:GLU:HB3	2.51	0.45
23:BA:2272:U:H5''	23:BA:2273:G:H5'	1.99	0.45
23:AA:1038:C:O2'	38:AP:10:LYS:HE2	2.16	0.45
23:AA:2333:U:N3	28:AF:40:VAL:HG23	2.32	0.45
32:AJ:77:VAL:HG13	32:AJ:111:ILE:HD13	1.99	0.45
51:B3:11:ALA:O	51:B3:65:LYS:NZ	2.50	0.45
23:BA:2903:A:H5'	23:BA:2904:U:H5'	1.99	0.45
23:BA:26:G:N2	23:BA:558:A:OP2	2.37	0.45
23:BA:854:G:O5'	23:BA:854:G:C8	3.73	0.45
23:BA:963:A:H4'	24:BB:94:C:O2	2.16	0.45
23:BA:534:G:H4'	39:BQ:49:LYS:HD2	1.98	0.45
23:AA:1581:U:P	23:AA:1584:U:C5	3.10	0.44
23:AA:1847:U:OP1	25:AC:177:ARG:HG2	2.17	0.44
26:AD:122:SER:HB2	26:AD:175:GLY:HA2	1.98	0.44
26:AD:189:ASP:OD2	26:AD:192:ASN:ND2	2.42	0.44
29:AG:83:TYR:N	29:AG:135:GLY:O	2.46	0.44
23:AA:2521:G:O2'	33:AK:80:GLU:HA	2.17	0.44
23:AA:1039:C:O2'	37:AO:93:LYS:NZ	2.49	0.44
38:AP:20:ILE:HG12	38:AP:97:ILE:HD11	1.99	0.44
23:BA:1875:A:O2'	23:BA:1876:G:O4'	2.35	0.44
24:BB:29:C:O2'	24:BB:51:A:N1	2.41	0.44
32:BJ:77:VAL:HG11	32:BJ:96:LEU:HD21	1.99	0.44
23:AA:1450:A:H61	23:AA:1635:A:N6	2.16	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:AS:33:VAL:HG13	41:AS:65:VAL:HG22	1.98	0.44
23:BA:897:A:H5'	46:BX:45:GLY:HA3	2.00	0.44
23:BA:2757:U:O2'	26:BD:181:GLN:O	2.33	0.44
23:BA:1242:A:O2'	32:BJ:4:HIS:HD2	2.00	0.44
35:BM:7:LYS:O	35:BM:11:ARG:HB2	2.16	0.44
41:BS:3:ILE:HG22	41:BS:70:LEU:HG	1.99	0.44
23:AA:1482:U:H2'	23:AA:1483:A:H8	1.81	0.44
23:AA:1500:G:H2'	23:AA:1501:G:H8	1.82	0.44
23:AA:1843:U:C5	25:AC:62:TYR:CE2	3.06	0.44
23:AA:2311:U:H3	23:AA:2411:A:H62	1.65	0.44
23:AA:223:G:O2'	23:AA:236:A:N3	2.45	0.44
26:AD:140:PRO:O	26:AD:145:SER:OG	2.29	0.44
35:AM:19:ARG:NH2	35:AM:47:ASP:OD1	2.45	0.44
23:BA:1113:A:O2'	23:BA:1141:U:OP1	2.35	0.44
23:BA:1845:U:H5''	25:BC:157:SER:HB2	1.98	0.44
23:BA:878:C:OP1	32:BJ:39:LYS:CE	2.65	0.44
32:BJ:77:VAL:HG13	32:BJ:111:ILE:HD13	1.99	0.44
23:AA:1582:U:O5'	23:AA:1583:G:N2	2.50	0.44
23:AA:58:G:O6	23:AA:68:A:N6	2.51	0.44
23:AA:774:G:H5'	23:AA:775:A:H5''	1.99	0.44
23:AA:787:U:H2'	23:AA:788:A:C8	2.52	0.44
24:AB:12:U:OP2	24:AB:68:U:O2'	2.32	0.44
25:AC:145:GLU:HB2	25:AC:188:CYS:HB3	2.00	0.44
23:AA:1847:U:C2	25:AC:201:GLU:HB3	2.52	0.44
29:AG:77:GLN:NE2	29:AG:81:GLN:OE1	2.51	0.44
23:AA:2717:A:H8	34:AL:3:TYR:CE1	2.19	0.44
23:BA:144:C:H2'	23:BA:145:A:H8	1.83	0.44
23:BA:582:G:OP1	23:BA:1039:C:N4	2.50	0.44
23:BA:896:U:H2'	23:BA:897:A:C8	2.53	0.44
31:BI:2:ILE:HD13	31:BI:8:LEU:HD21	2.00	0.44
23:AA:582:G:OP1	23:AA:1039:C:N4	2.50	0.44
23:AA:2903:A:H5'	23:AA:2904:U:H5'	1.99	0.44
35:AM:33:VAL:HG22	35:AM:108:LEU:HD23	2.00	0.44
23:AA:1031:C:H5''	46:AX:10:ARG:NH1	2.33	0.44
23:BA:630:G:N7	32:BJ:33:ARG:NH2	2.63	0.44
23:BA:645:A:O2'	23:BA:700:A:N1	2.42	0.44
23:BA:906:A:N3	24:BB:77:G:O2'	2.50	0.44
23:BA:64:A:H61	23:BA:90:A:H62	1.65	0.44
26:BD:140:PRO:O	26:BD:145:SER:OG	2.29	0.44
36:BN:99:LEU:HB3	36:BN:102:LEU:HD13	2.00	0.44
23:BA:502:C:H41	40:BR:68:TYR:HB2	1.83	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:AE:194:ILE:HD12	27:AE:199:ALA:HB2	1.99	0.44
23:BA:2386:C:O2'	51:B3:54:ASP:OD2	2.31	0.44
23:BA:1500:G:H2'	23:BA:1501:G:H8	1.82	0.44
23:BA:1581:U:P	23:BA:1584:U:C5	3.10	0.44
23:BA:2711:U:OP1	36:BN:53:ARG:HD3	2.17	0.44
23:BA:720:A:N3	23:BA:2470:C:O2'	2.47	0.44
23:BA:1031:C:H5''	46:BX:10:ARG:NH1	2.33	0.44
23:AA:1121:A:O2'	23:AA:1122:U:O4'	2.34	0.44
23:AA:1455:U:N3	23:AA:1468:G:O6	31.73	0.44
23:AA:1521:A:H2'	23:AA:1522:G:H8	1.83	0.44
23:AA:2711:U:OP1	36:AN:53:ARG:HD3	2.17	0.44
23:AA:509:G:N2	23:AA:512:A:OP2	2.45	0.44
25:AC:124:ILE:HD13	25:AC:136:PRO:HG3	1.99	0.44
33:AK:125:LEU:HB3	33:AK:127:VAL:HG12	2.00	0.44
23:AA:534:G:H4'	39:AQ:49:LYS:HD2	1.98	0.44
52:B4:16:VAL:HG22	52:B4:25:VAL:HG12	1.99	0.44
23:BA:2311:U:H3	23:BA:2411:A:H62	1.65	0.44
23:BA:2800:U:OP1	26:BD:179:THR:HG21	2.12	0.44
23:BA:2649:U:O2'	23:BA:2845:G:N2	2.51	0.44
23:AA:620:G:O2'	23:AA:1292:A:OP1	2.35	0.44
23:AA:1293:U:H5''	23:AA:1294:G:H5''	2.00	0.44
23:AA:630:G:N7	32:AJ:33:ARG:NH2	2.63	0.44
31:AI:64:ARG:HB2	31:AI:79:PHE:CG	2.53	0.44
41:AS:3:ILE:HG22	41:AS:70:LEU:HG	1.99	0.44
23:BA:2144:A:N6	23:BA:2188:C:OP2	2.42	0.44
23:BA:774:G:H5'	23:BA:775:A:H5''	1.99	0.44
23:BA:2330:G:C4'	28:BF:122:PHE:O	2.66	0.44
29:BG:77:GLN:NE2	29:BG:81:GLN:OE1	2.51	0.44
31:BI:98:ILE:HD12	31:BI:117:LEU:HB2	2.00	0.44
35:BM:33:VAL:HG22	35:BM:108:LEU:HD23	2.00	0.44
42:BT:10:GLN:O	42:BT:13:GLN:NE2	2.49	0.44
52:A4:16:VAL:HG22	52:A4:25:VAL:HG12	1.99	0.44
23:AA:1395:G:N1	23:AA:1408:G:N7	2.66	0.44
23:AA:144:C:H2'	23:AA:145:A:H8	1.83	0.44
23:AA:2613:C:H2'	23:AA:2614:A:C8	2.53	0.44
23:AA:860:U:O5'	23:AA:860:U:C6	3.48	0.44
24:AB:40:C:OP1	28:AF:64:LYS:NZ	2.45	0.44
23:BA:1643:C:OP1	40:BR:35:LYS:N	2.39	0.44
23:BA:1290:G:N2	37:BO:33:LYS:HB3	2.32	0.44
23:AA:1482:U:H2'	23:AA:1483:A:C8	2.53	0.43
23:AA:1875:A:O2'	23:AA:1876:G:O4'	2.35	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AA:2849:A:OP1	26:AD:86:ARG:NH2	2.47	0.43
23:AA:896:U:H2'	23:AA:897:A:C8	2.53	0.43
46:AX:8:LEU:HB2	46:AX:28:LEU:HD13	2.00	0.43
23:BA:1630:A:H2'	23:BA:1631:G:H2'	2.00	0.43
23:BA:1658:A:H2	39:BQ:93:ALA:HB2	1.82	0.43
23:BA:1847:U:OP1	25:BC:177:ARG:HG2	2.17	0.43
23:BA:2355:A:H2'	23:BA:2356:A:C8	2.53	0.43
23:BA:620:G:O2'	23:BA:1292:A:OP1	2.35	0.43
23:AA:1482:U:H3	23:AA:1601:U:H5	1.65	0.43
23:AA:1630:A:H2'	23:AA:1631:G:H2'	2.00	0.43
33:AK:46:GLN:HG2	33:AK:126:PRO:HD3	2.01	0.43
23:BA:1315:C:H2'	23:BA:1316:G:C8	2.53	0.43
23:BA:504:G:N2	23:BA:505:U:O4	2.45	0.43
23:BA:59:U:H1'	23:BA:73:A:H2'	2.00	0.43
26:BD:8:ARG:NH2	26:BD:54:GLU:OE1	2.43	0.43
31:BI:39:ILE:HG12	31:BI:62:ILE:HD11	2.01	0.43
23:AA:1315:C:H2'	23:AA:1316:G:C8	2.53	0.43
24:BB:4:G:H22	24:BB:111:C:H5	1.66	0.43
25:BC:145:GLU:HB2	25:BC:188:CYS:HB3	2.00	0.43
25:BC:168:GLU:HG3	25:BC:169:GLY:H	1.84	0.43
27:BE:194:ILE:HD12	27:BE:199:ALA:HB2	1.99	0.43
31:BI:96:THR:HA	31:BI:117:LEU:HD13	2.00	0.43
23:BA:2521:G:O2'	33:BK:80:GLU:HA	2.17	0.43
51:A3:11:ALA:O	51:A3:65:LYS:NZ	2.50	0.43
23:AA:125:A:P	50:A2:19:PHE:H	2.42	0.43
23:AA:1305:U:O2'	35:AM:14:ARG:NH2	123.81	0.43
23:AA:1395:G:H8	23:AA:1410:A:H62	1.66	0.43
23:AA:669:C:H2'	23:AA:670:G:H8	1.83	0.43
32:AJ:77:VAL:HG11	32:AJ:96:LEU:HD21	1.99	0.43
23:AA:502:C:N4	40:AR:68:TYR:CG	2.84	0.43
23:BA:1035:C:N3	23:BA:1036:C:N4	3.75	0.43
23:BA:1580:A:OP2	23:BA:1581:U:N3	2.51	0.43
23:BA:2716:U:OP2	23:BA:2892:G:N1	2.38	0.43
23:BA:509:G:N2	23:BA:512:A:OP2	2.45	0.43
23:BA:2333:U:N3	28:BF:40:VAL:HG23	2.32	0.43
31:BI:64:ARG:HB2	31:BI:79:PHE:CG	2.53	0.43
33:BK:125:LEU:HB3	33:BK:127:VAL:HG12	2.00	0.43
39:BQ:17:VAL:HG23	39:BQ:47:ILE:HD11	2.00	0.43
23:AA:1035:C:N3	23:AA:1036:C:N4	3.75	0.43
23:AA:1091:G:N2	23:AA:1154:G:O2'	2.51	0.43
23:AA:1510:U:O2	23:AA:1571:G:N2	2.43	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AA:1886:A:N6	23:AA:1910:G:O2'	2.51	0.43
23:AA:2649:U:O2'	23:AA:2845:G:N2	2.51	0.43
23:AA:502:C:H41	40:AR:68:TYR:HB2	1.83	0.43
23:AA:1615:G:P	25:AC:63:ARG:HH22	2.42	0.43
31:AI:98:ILE:HD12	31:AI:117:LEU:HB2	2.00	0.43
23:AA:2904:U:H5	48:AZ:40:HIS:CG	2.37	0.43
23:BA:2505:A:H5'	52:B4:31:LYS:HE3	2.01	0.43
23:BA:125:A:P	50:B2:19:PHE:H	2.42	0.43
23:BA:1293:U:H5''	23:BA:1294:G:H5''	2.00	0.43
23:BA:1395:G:H8	23:BA:1410:A:H62	1.66	0.43
23:BA:1521:A:H2'	23:BA:1522:G:H8	1.83	0.43
23:BA:1843:U:C5	25:BC:62:TYR:CE2	3.06	0.43
23:BA:2904:U:H5	48:BZ:40:HIS:CG	2.37	0.43
23:BA:661:U:H5'	27:BE:106:ARG:HD3	2.01	0.43
33:BK:27:VAL:HG12	33:BK:105:GLU:HG2	2.00	0.43
23:AA:1479:G:H2'	23:AA:1480:G:H8	1.84	0.43
23:AA:2152:G:N2	23:AA:2189:G:O2'	2.52	0.43
23:AA:2355:A:H2'	23:AA:2356:A:C8	2.53	0.43
23:AA:318:A:N6	23:AA:319:G:O6	2.52	0.43
23:AA:1710:G:HO2'	31:AI:6:THR:HG22	1.83	0.43
33:AK:27:VAL:HG12	33:AK:105:GLU:HG2	2.00	0.43
33:AK:14:ARG:HD2	33:AK:41:TRP:HH2	1.83	0.43
23:BA:1011:U:O2'	23:BA:1012:G:N7	5.74	0.43
23:BA:410:G:O2'	23:BA:411:A:N7	2.49	0.43
23:BA:693:G:H2'	23:BA:694:G:H8	1.84	0.43
23:BA:513:G:O2'	23:BA:841:C:O3'	2.37	0.43
23:BA:372:A:N6	41:BS:15:LYS:H	2.17	0.43
23:AA:1580:A:OP2	23:AA:1581:U:N3	2.51	0.43
23:AA:504:G:O2'	23:AA:515:G:O6	2.30	0.43
23:AA:970:U:H3'	23:AA:971:U:H4'	2.01	0.43
31:AI:113:LYS:HE3	31:AI:117:LEU:HD11	2.01	0.43
23:BA:2152:G:N2	23:BA:2189:G:O2'	2.52	0.43
24:BB:54:U:H4'	24:BB:55:A:H5'	2.00	0.43
25:BC:124:ILE:HD13	25:BC:136:PRO:HG3	1.99	0.43
23:AA:372:A:N6	41:AS:15:LYS:H	2.17	0.43
23:AA:59:U:H1'	23:AA:73:A:H2'	2.00	0.43
23:AA:897:A:H5'	46:AX:45:GLY:HA3	2.00	0.43
23:AA:1818:A:H4'	25:AC:207:LYS:H	1.83	0.43
23:BA:1395:G:N1	23:BA:1408:G:N7	2.66	0.43
23:BA:1479:G:H2'	23:BA:1480:G:H8	1.84	0.43
23:BA:2613:C:H2'	23:BA:2614:A:C8	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BA:58:G:O6	23:BA:68:A:N6	2.51	0.43
23:BA:857:C:OP2	32:BJ:22:GLY:HA2	2.19	0.43
27:BE:46:GLN:HG3	27:BE:48:THR:HG22	2.01	0.43
31:BI:113:LYS:HE3	31:BI:117:LEU:HD11	2.01	0.43
23:AA:1108:C:H3'	23:AA:1109:U:H4'	2.01	0.43
23:AA:1643:C:OP1	40:AR:35:LYS:N	2.39	0.43
23:AA:1852:G:OP1	25:AC:230:HIS:HE1	2.02	0.43
25:AC:176:LEU:HD13	25:AC:176:LEU:HA	1.79	0.43
27:AE:46:GLN:HG3	27:AE:48:THR:HG22	2.01	0.43
31:AI:96:THR:HA	31:AI:117:LEU:HD13	2.00	0.43
35:AM:12:LEU:HD23	35:AM:12:LEU:HA	1.61	0.43
36:AN:99:LEU:HB3	36:AN:102:LEU:HD13	2.00	0.43
23:BA:124:A:OP2	50:B2:20:ARG:NE	2.41	0.43
23:BA:1362:C:OP1	23:BA:1691:G:O2'	2.26	0.43
23:BA:318:A:N6	23:BA:319:G:O6	2.52	0.43
23:AA:2505:A:H5'	52:A4:31:LYS:HE3	2.00	0.43
23:AA:2510:C:O2	33:AK:124:LYS:CE	2.67	0.43
23:AA:282:A:H2'	23:AA:283:G:C8	2.54	0.43
23:AA:64:A:H61	23:AA:90:A:H62	1.65	0.43
31:AI:2:ILE:HD13	31:AI:8:LEU:HD21	2.00	0.43
40:AR:13:THR:H	40:AR:16:SER:HB3	1.84	0.43
41:AS:92:ARG:NH1	41:AS:100:GLU:OE2	2.52	0.43
23:BA:2311:U:OP2	49:B1:2:ARG:HG2	2.19	0.43
23:BA:135:G:H2'	23:BA:136:A:H8	1.84	0.43
23:BA:284:C:O2'	23:BA:287:G:N2	2.32	0.43
41:BS:92:ARG:NH1	41:BS:100:GLU:OE2	2.52	0.43
47:BY:16:ASP:OD2	47:BY:18:THR:OG1	2.35	0.43
23:AA:135:G:H2'	23:AA:136:A:H8	1.84	0.42
23:AA:2783:U:H1'	23:AA:2784:A:H5''	2.00	0.42
23:AA:502:C:N4	40:AR:68:TYR:CB	2.83	0.42
23:AA:906:A:N3	24:AB:77:G:O2'	2.50	0.42
24:AB:4:G:H22	24:AB:111:C:H5	1.66	0.42
25:AC:168:GLU:HG3	25:AC:169:GLY:H	1.84	0.42
28:AF:96:MET:O	28:AF:100:LEU:N	2.47	0.42
31:AI:39:ILE:HG12	31:AI:62:ILE:HD11	2.01	0.42
23:BA:1449:A:H2'	23:BA:1450:A:C4	2.54	0.42
23:BA:2168:A:H61	23:BA:2176:C:H41	1.67	0.42
23:BA:669:C:H2'	23:BA:670:G:H8	1.83	0.42
23:BA:904:G:O2'	23:BA:961:G:O6	2.28	0.42
26:BD:2:THR:HA	26:BD:94:VAL:HA	2.01	0.42
23:BA:24:G:O2'	39:BQ:78:GLU:O	2.36	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AA:1000:G:H2'	23:AA:1001:A:H2'	2.00	0.42
23:AA:2815:C:O2'	23:AA:2829:A:N3	2.44	0.42
33:AK:68:ILE:HA	33:AK:68:ILE:HD13	1.88	0.42
23:BA:1000:G:H2'	23:BA:1001:A:H2'	2.00	0.42
23:BA:1423:C:H2'	23:BA:1424:A:C8	2.54	0.42
23:BA:1682:C:O2	23:BA:2725:U:O2'	2.28	0.42
23:BA:502:C:N4	40:BR:68:TYR:CG	2.84	0.42
49:A1:9:CYS:HB3	49:A1:12:CYS:HB2	1.94	0.42
23:AA:1250:G:N2	23:AA:1274:G:O2'	2.52	0.42
23:AA:2168:A:H61	23:AA:2176:C:H41	1.67	0.42
23:AA:693:G:H2'	23:AA:694:G:H8	1.84	0.42
23:AA:857:C:OP2	32:AJ:22:GLY:HA2	2.19	0.42
26:AD:40:THR:HG22	26:AD:42:GLU:H	1.85	0.42
47:AY:32:SER:HA	47:AY:44:PRO:HD2	2.02	0.42
23:BA:140:A:N3	23:BA:1445:C:O2'	2.48	0.42
23:BA:1631:G:OP1	23:BA:1631:G:N2	2.52	0.42
23:BA:300:G:H1	23:BA:467:U:HO2'	1.64	0.42
23:BA:923:A:H2	23:BA:944:G:H22	1.66	0.42
23:BA:970:U:H3'	23:BA:971:U:H4'	2.01	0.42
33:BK:14:ARG:HD2	33:BK:41:TRP:HH2	1.83	0.42
33:BK:46:GLN:HG2	33:BK:126:PRO:HD3	2.01	0.42
47:BY:32:SER:HA	47:BY:44:PRO:HD2	2.02	0.42
23:AA:513:G:O2'	23:AA:841:C:O3'	2.37	0.42
23:AA:857:C:HO2'	23:AA:1264:A:HO2'	1.63	0.42
33:AK:48:GLU:OE2	33:AK:51:ARG:NH1	2.53	0.42
33:AK:77:LYS:HA	33:AK:78:PRO:HD3	1.93	0.42
23:BA:1111:A:N6	23:BA:1139:A:O3'	2.52	0.42
23:BA:1431:U:H4'	23:BA:1647:A:H4'	2.01	0.42
23:BA:1485:G:H1	23:BA:1598:U:H3	1.68	0.42
23:BA:2338:A:C8	28:BF:40:VAL:CG1	2.94	0.42
23:BA:284:C:H2'	23:BA:285:U:C2	2.55	0.42
27:BE:117:LYS:HA	27:BE:117:LYS:HD3	1.87	0.42
34:BL:17:LEU:HG	34:BL:43:VAL:HG21	2.02	0.42
23:AA:2311:U:OP2	49:A1:2:ARG:HG2	2.19	0.42
23:AA:1022:G:HO2'	23:AA:1046:G:HO2'	1.67	0.42
23:AA:1631:G:N2	23:AA:1631:G:OP1	2.52	0.42
23:AA:1980:A:HO2'	23:AA:2586:C:HO2'	1.63	0.42
23:AA:241:C:O2'	23:AA:651:A:N3	2.48	0.42
30:AH:18:VAL:HG23	30:AH:138:PRO:HB2	2.01	0.42
45:AW:14:ILE:HG21	45:AW:57:ALA:HB2	2.02	0.42
23:BA:1108:C:H3'	23:BA:1109:U:H4'	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BA:1110:U:O2'	23:BA:1113:A:N6	2.53	0.42
23:BA:1818:A:H4'	25:BC:207:LYS:H	1.83	0.42
23:BA:1615:G:P	25:BC:63:ARG:HH22	2.41	0.42
26:BD:40:THR:HG22	26:BD:42:GLU:H	1.85	0.42
23:BA:1697:G:C6	34:BL:5:LYS:HB2	2.55	0.42
23:AA:2332:U:O4	28:AF:38:MET:HG2	2.19	0.42
24:AB:54:U:H4'	24:AB:55:A:H5'	2.00	0.42
23:AA:1847:U:O2	25:AC:201:GLU:CB	2.68	0.42
23:BA:1305:U:O2'	35:BM:14:ARG:NH2	123.81	0.42
23:BA:150:A:H61	23:BA:179:A:H2	1.68	0.42
23:BA:2510:C:O2	33:BK:124:LYS:CE	2.67	0.42
25:BC:8:PRO:HB3	25:BC:14:ARG:HG3	2.02	0.42
23:AA:1000:G:OP1	33:AK:87:LYS:HG3	2.20	0.42
23:AA:2405:A:C5	23:AA:2406:G:H1'	2.55	0.42
23:AA:284:C:H2'	23:AA:285:U:C2	2.55	0.42
23:AA:72:U:OP2	45:AW:54:LYS:NZ	2.53	0.42
39:AQ:17:VAL:HG23	39:AQ:47:ILE:HD11	2.00	0.42
23:BA:2566:C:C5'	52:B4:3:VAL:HG21	2.50	0.42
23:BA:2332:U:O4	28:BF:38:MET:HG2	2.19	0.42
23:BA:2850:G:OP1	26:BD:67:LYS:HB3	2.20	0.42
26:BD:156:MET:N	26:BD:156:MET:SD	2.93	0.42
32:BJ:123:VAL:HG21	32:BJ:136:ILE:HD13	2.02	0.42
39:BQ:86:ARG:HA	39:BQ:86:ARG:HD2	1.61	0.42
41:BS:39:ASN:HD22	41:BS:63:ILE:HG12	1.85	0.42
23:AA:1423:C:H2'	23:AA:1424:A:C8	2.54	0.42
23:AA:1477:U:H2'	23:AA:1478:A:C8	2.55	0.42
23:AA:150:A:H61	23:AA:179:A:H2	1.68	0.42
23:AA:2337:A:H2	28:AF:74:ILE:HG22	1.76	0.42
23:AA:828:A:H2'	23:AA:829:U:H4'	2.02	0.42
25:AC:225:MET:HB3	25:AC:229:ASP:HB2	2.02	0.42
26:AD:156:MET:N	26:AD:156:MET:SD	2.93	0.42
29:AG:155:GLU:HA	29:AG:156:PRO:HD3	1.93	0.42
47:AY:16:ASP:OD2	47:AY:18:THR:OG1	2.35	0.42
23:BA:1000:G:OP1	33:BK:87:LYS:HG3	2.20	0.42
23:BA:2277:G:C2	33:BK:84:GLY:HA3	2.55	0.42
23:BA:72:U:OP2	45:BW:54:LYS:NZ	2.53	0.42
24:BB:55:A:H1'	28:BF:27:GLU:HB3	2.02	0.42
23:BA:856:U:H2'	32:BJ:21:ARG:HA	2.01	0.42
40:BR:13:THR:H	40:BR:16:SER:HB3	1.84	0.42
46:BX:8:LEU:HB2	46:BX:28:LEU:HD13	2.00	0.42
23:AA:1177:A:H1'	23:AA:1178:C:H4'	4.56	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AA:1485:G:H1	23:AA:1598:U:H3	1.68	0.42
23:AA:2842:G:O2'	23:AA:2845:G:O6	2.32	0.42
23:AA:923:A:H2	23:AA:944:G:H22	1.66	0.42
23:AA:720:A:OP1	27:AE:76:GLY:HA3	2.20	0.42
28:AF:132:VAL:HB	28:AF:152:MET:HB2	2.02	0.42
31:AI:98:ILE:HD13	31:AI:114:ILE:HG23	2.02	0.42
34:AL:17:LEU:HG	34:AL:43:VAL:HG21	2.02	0.42
23:BA:1479:G:H2'	23:BA:1480:G:C8	2.55	0.42
23:BA:2382:C:OP1	43:BU:33:ARG:NH1	2.53	0.42
23:BA:2648:G:P	26:BD:133:ARG:HH22	2.29	0.42
27:BE:152:VAL:HG12	27:BE:173:VAL:HG22	2.02	0.42
23:AA:1110:U:O2'	23:AA:1113:A:N6	2.53	0.42
23:AA:1431:U:H4'	23:AA:1647:A:H4'	2.01	0.42
23:AA:2382:C:OP1	43:AU:33:ARG:NH1	2.53	0.42
23:AA:859:C:OP1	38:AP:84:ARG:HA	2.20	0.42
29:AG:107:VAL:HG11	29:AG:162:ILE:HD11	2.02	0.42
23:BA:1278:G:H1'	23:BA:1337:A:H5''	92.85	0.42
23:BA:2783:U:H1'	23:BA:2784:A:H5''	2.01	0.42
23:BA:890:G:O2'	23:BA:892:U:O4	2.33	0.42
27:BE:19:LEU:HD21	27:BE:199:ALA:HB1	2.02	0.42
28:BF:132:VAL:HB	28:BF:152:MET:HB2	2.02	0.42
33:BK:32:PHE:HE1	33:BK:133:LYS:HE2	1.85	0.42
23:AA:1806:U:H2'	23:AA:1810:A:H62	1.85	0.41
23:AA:2821:U:H5''	23:AA:2823:G:C2	2.55	0.41
23:AA:661:U:H5'	27:AE:106:ARG:HD3	2.01	0.41
24:AB:47:C:H2'	24:AB:48:A:C8	2.55	0.41
23:AA:600:U:O2'	30:AH:48:HIS:O	2.31	0.41
33:AK:32:PHE:HE1	33:AK:133:LYS:HE2	1.85	0.41
23:BA:1031:C:O2'	23:BA:1044:A:N3	2.46	0.41
23:BA:1261:G:N2	23:BA:1264:A:OP2	2.46	0.41
23:BA:1563:U:H2'	23:BA:1564:G:C8	2.55	0.41
23:BA:282:A:H2'	23:BA:283:G:C8	2.54	0.41
24:BB:47:C:H2'	24:BB:48:A:C8	2.55	0.41
25:BC:207:LYS:HG2	25:BC:209:GLY:H	1.85	0.41
30:BH:18:VAL:HG23	30:BH:138:PRO:HB2	2.01	0.41
23:BA:1713:A:O2'	31:BI:4:GLN:NE2	2.53	0.41
23:AA:1111:A:N6	23:AA:1139:A:O3'	2.52	0.41
23:AA:1449:A:H2'	23:AA:1450:A:C4	2.54	0.41
23:AA:1893:A:C5	23:AA:1894:G:H1'	2.55	0.41
23:AA:856:U:H2'	32:AJ:21:ARG:HA	2.01	0.41
46:AX:18:THR:HG22	46:AX:49:LYS:HZ1	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BA:1886:A:N6	23:BA:1910:G:O2'	2.51	0.41
23:BA:2147:G:O6	23:BA:2199:U:O2'	2.28	0.41
23:BA:502:C:N4	40:BR:68:TYR:CB	2.82	0.41
23:BA:26:G:H1'	23:BA:560:A:H61	1.85	0.41
23:BA:241:C:O2'	23:BA:651:A:N3	2.48	0.41
23:BA:720:A:OP1	27:BE:76:GLY:HA3	2.20	0.41
23:BA:816:G:O2'	23:BA:1392:G:O2'	2.24	0.41
25:BC:225:MET:HB3	25:BC:229:ASP:HB2	2.02	0.41
23:BA:1852:G:OP1	25:BC:230:HIS:HE1	2.02	0.41
26:BD:34:VAL:HG22	26:BD:85:LYS:HE3	2.02	0.41
29:BG:107:VAL:HG11	29:BG:162:ILE:HD11	2.02	0.41
23:AA:1040:A:OP2	38:AP:10:LYS:CD	2.62	0.41
23:AA:2048:G:N2	37:AO:25:PHE:CG	2.89	0.41
23:AA:277:C:H2'	23:AA:278:A:H8	1.85	0.41
23:AA:2904:U:H5	48:AZ:40:HIS:NE2	2.18	0.41
23:AA:860:U:C5	23:AA:860:U:OP2	4.62	0.41
25:AC:108:LYS:N	25:AC:194:GLN:O	2.52	0.41
29:AG:170:ARG:HH12	52:A4:29:ASN:HB3	1.86	0.41
37:AO:31:LEU:HB2	37:AO:34:VAL:HG12	2.03	0.41
23:AA:1658:A:C2	39:AQ:93:ALA:HB2	2.55	0.41
23:BA:1829:A:H2'	23:BA:1830:A:C8	2.55	0.41
23:BA:2849:A:OP1	26:BD:86:ARG:NH2	2.47	0.41
23:BA:859:C:OP1	38:BP:84:ARG:HA	2.20	0.41
31:BI:43:VAL:HG23	31:BI:54:LYS:HA	2.02	0.41
33:BK:48:GLU:OE2	33:BK:51:ARG:NH1	2.53	0.41
45:BW:56:VAL:O	45:BW:60:ARG:HG2	2.20	0.41
45:BW:14:ILE:HG21	45:BW:57:ALA:HB2	2.02	0.41
23:AA:1767:G:OP2	23:AA:1768:C:N4	2.38	0.41
23:AA:1829:A:H2'	23:AA:1830:A:C8	2.56	0.41
27:AE:19:LEU:HD21	27:AE:199:ALA:HB1	2.02	0.41
28:AF:120:LYS:HB3	28:AF:167:ARG:HH22	1.85	0.41
23:AA:1697:G:C6	34:AL:5:LYS:HB2	2.55	0.41
37:AO:105:ALA:HB1	38:AP:40:PHE:HZ	1.85	0.41
52:B4:29:ASN:HD21	52:B4:32:HIS:CE1	2.39	0.41
23:BA:1917:A:H8	23:BA:2261:G:N2	2.18	0.41
23:BA:669:C:H2'	23:BA:670:G:C8	2.56	0.41
33:BK:35:GLN:HB3	33:BK:102:ILE:HD13	2.02	0.41
50:A2:40:ARG:HD3	50:A2:40:ARG:HA	1.92	0.41
23:AA:152:C:OP1	23:AA:1396:A:O2'	2.37	0.41
23:AA:2285:C:O2'	23:AA:2454:C:OP2	2.37	0.41
26:AD:34:VAL:HG22	26:AD:85:LYS:HE3	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:AF:34:ILE:HB	28:AF:91:LEU:HB2	2.03	0.41
30:AH:63:ILE:HG13	30:AH:102:ILE:HD11	2.03	0.41
33:AK:35:GLN:HB3	33:AK:102:ILE:HD13	2.02	0.41
39:AQ:86:ARG:HA	39:AQ:86:ARG:HD2	1.60	0.41
23:BA:1644:C:OP1	40:BR:76:ARG:NH2	2.54	0.41
23:BA:390:A:H2'	23:BA:391:A:C8	2.55	0.41
23:BA:828:A:H2'	23:BA:829:U:H4'	2.02	0.41
27:BE:32:VAL:HG13	27:BE:105:MET:HG2	2.03	0.41
23:AA:1563:U:H2'	23:AA:1564:G:C8	2.55	0.41
23:AA:1810:A:HO2'	23:AA:2634:G:HO2'	1.63	0.41
23:AA:390:A:H2'	23:AA:391:A:C8	2.55	0.41
26:AD:2:THR:HA	26:AD:94:VAL:HA	2.01	0.41
36:AN:59:GLU:CG	36:AN:78:LEU:HD23	2.48	0.41
23:BA:1250:G:N2	23:BA:1274:G:O2'	2.52	0.41
23:BA:1450:A:H61	23:BA:1635:A:N6	2.15	0.41
23:BA:2405:A:C5	23:BA:2406:G:H1'	2.55	0.41
23:BA:833:A:OP1	23:BA:836:C:N4	2.49	0.41
28:BF:34:ILE:HB	28:BF:91:LEU:HB2	2.03	0.41
23:BA:23:G:H21	39:BQ:77:ASN:ND2	2.19	0.41
23:BA:1658:A:C2	39:BQ:93:ALA:HB2	2.55	0.41
44:BV:14:THR:HG22	44:BV:28:ARG:HD2	2.03	0.41
52:A4:29:ASN:HD21	52:A4:32:HIS:CE1	2.39	0.41
23:AA:617:A:N6	23:AA:2061:U:OP1	2.54	0.41
23:AA:564:U:H5''	39:AQ:25:ARG:HH12	1.86	0.41
23:AA:753:U:C5'	23:AA:860:U:O2	125.55	0.41
25:AC:8:PRO:HB3	25:AC:14:ARG:HG3	2.02	0.41
25:AC:207:LYS:HG2	25:AC:209:GLY:H	1.85	0.41
23:AA:2850:G:OP1	26:AD:67:LYS:HB3	2.20	0.41
23:AA:2330:G:C4'	28:AF:122:PHE:O	2.66	0.41
30:AH:74:VAL:HG22	30:AH:74:VAL:H	1.62	0.41
31:AI:43:VAL:HG23	31:AI:54:LYS:HA	2.03	0.41
23:AA:1713:A:O2'	31:AI:4:GLN:NE2	2.53	0.41
39:AQ:69:LEU:HD23	39:AQ:109:ASP:HB3	2.03	0.41
41:AS:39:ASN:HD22	41:AS:63:ILE:HG12	1.85	0.41
23:BA:1177:A:H1'	23:BA:1178:C:H4'	4.56	0.41
27:BE:80:ALA:HB3	27:BE:83:TRP:CD1	2.55	0.41
28:BF:120:LYS:HB3	28:BF:167:ARG:HH22	1.85	0.41
31:BI:11:ALA:HB2	31:BI:83:ALA:HB1	2.03	0.41
43:BU:29:LEU:HD21	43:BU:49:ARG:HG2	2.03	0.41
23:AA:2260:A:H2'	23:AA:2261:G:C8	2.55	0.41
23:AA:23:G:H21	39:AQ:77:ASN:HD22	1.69	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AA:252:C:OP2	23:AA:2421:C:O2'	2.33	0.41
23:AA:669:C:H2'	23:AA:670:G:C8	2.56	0.41
23:AA:1698:A:O2'	26:AD:127:PHE:O	2.35	0.41
23:AA:1701:U:P	26:AD:149:ARG:HB2	2.60	0.41
23:AA:2277:G:C2	33:AK:84:GLY:HA3	2.55	0.41
23:AA:24:G:O2'	39:AQ:78:GLU:O	2.36	0.41
45:AW:56:VAL:O	45:AW:60:ARG:HG2	2.21	0.41
29:BG:170:ARG:HH12	52:B4:29:ASN:HB3	1.86	0.41
23:BA:1477:U:H2'	23:BA:1478:A:C8	2.55	0.41
23:BA:2498:A:N6	23:BA:2503:A:O2'	2.54	0.41
32:BJ:74:TYR:CE2	32:BJ:127:LYS:HE2	2.56	0.41
37:BO:31:LEU:HB2	37:BO:34:VAL:HG12	2.03	0.41
23:AA:1087:C:N4	23:AA:1088:C:H41	2.19	0.41
23:AA:1111:A:N1	23:AA:1139:A:O2'	2.36	0.41
23:AA:1107:G:H22	23:AA:1120:C:H1'	1.86	0.41
23:AA:1187:A:OP1	30:AH:28:ARG:NH2	2.50	0.41
23:AA:1479:G:H2'	23:AA:1480:G:C8	2.55	0.41
23:AA:527:G:O2'	23:AA:552:A:N6	2.52	0.41
23:AA:26:G:H1'	23:AA:560:A:H61	1.85	0.41
23:AA:625:G:H2'	23:AA:626:G:C8	2.56	0.41
23:AA:926:G:O2'	23:AA:941:A:N1	2.41	0.41
24:AB:11:A:N1	24:AB:67:G:O2'	2.40	0.41
27:AE:32:VAL:HG13	27:AE:105:MET:HG2	2.03	0.41
33:AK:34:LEU:HB2	33:AK:118:LEU:HD22	2.03	0.41
49:B1:31:GLU:HB2	49:B1:44:LEU:HD12	2.03	0.41
23:BA:1107:G:H22	23:BA:1120:C:H1'	1.86	0.41
23:BA:1583:G:H5''	23:BA:1584:U:C2	2.55	0.41
23:BA:1754:C:H4'	23:BA:2878:U:H3	1.86	0.41
23:BA:1893:A:C5	23:BA:1894:G:H1'	2.55	0.41
23:BA:2024:A:O5'	26:BD:138:ARG:NH1	2.44	0.41
23:BA:2821:U:H5''	23:BA:2823:G:C2	2.56	0.41
23:BA:2232:A:H5''	25:BC:149:GLY:C	2.42	0.41
30:BH:63:ILE:HG13	30:BH:102:ILE:HD11	2.03	0.41
30:BH:36:ILE:HD13	30:BH:36:ILE:HA	2.30	0.41
23:AA:2498:A:N6	23:AA:2503:A:O2'	2.54	0.41
27:AE:152:VAL:HG12	27:AE:173:VAL:HG22	2.02	0.41
23:AA:1644:C:OP1	40:AR:76:ARG:NH2	2.54	0.41
46:AX:18:THR:HG22	46:AX:49:LYS:NZ	2.36	0.41
23:BA:1521:A:N6	23:BA:1559:G:H1	2.18	0.41
23:BA:1758:A:H1'	23:BA:1772:G:C5	2.56	0.41
23:BA:1708:A:H61	23:BA:2023:C:H42	1.69	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BA:262:G:H21	23:BA:666:A:H8	1.69	0.41
23:BA:2333:U:N3	28:BF:40:VAL:HB	2.36	0.41
31:BI:98:ILE:HD13	31:BI:114:ILE:HG23	2.02	0.41
23:AA:1583:G:H5''	23:AA:1584:U:C2	2.55	0.41
23:AA:161:A:N6	23:AA:162:A:H62	2.86	0.41
23:AA:2294:A:H5''	23:AA:2295:A:H5''	2.02	0.41
23:AA:229:A:N1	23:AA:464:U:O2'	2.48	0.41
26:AD:8:ARG:NH2	26:AD:54:GLU:OE1	2.43	0.41
32:AJ:76:ILE:HA	32:AJ:76:ILE:HD13	1.89	0.41
23:AA:2302:C:O2'	33:AK:84:GLY:O	2.39	0.41
44:AV:39:LEU:HD12	44:AV:39:LEU:HA	1.95	0.41
45:AW:6:ILE:HG22	45:AW:56:VAL:HG21	2.03	0.41
23:BA:1520:A:H61	23:BA:1561:G:H2'	1.86	0.41
23:BA:2260:A:H2'	23:BA:2261:G:C8	2.55	0.41
23:BA:504:G:O2'	23:BA:515:G:O6	2.30	0.41
23:BA:503:A:N6	23:BA:516:A:H5''	2.36	0.41
23:BA:1701:U:P	26:BD:149:ARG:HB2	2.60	0.41
23:BA:2707:C:H1'	26:BD:200:ASN:ND2	2.36	0.41
29:BG:148:ILE:H	29:BG:148:ILE:HG13	1.55	0.41
23:AA:1278:G:H1'	23:AA:1337:A:H5''	92.85	0.40
23:AA:1847:U:OP1	25:AC:177:ARG:CG	2.69	0.40
23:AA:2642:U:O2	48:AZ:5:LYS:N	2.53	0.40
23:AA:2917:U:H2'	23:AA:2918:A:H8	1.86	0.40
31:AI:11:ALA:HB2	31:AI:83:ALA:HB1	2.02	0.40
33:AK:44:SER:HB2	33:AK:70:PRO:HG3	2.03	0.40
23:AA:2046:U:P	48:AZ:6:ARG:NH1	2.85	0.40
23:BA:1091:G:N2	23:BA:1154:G:O2'	2.51	0.40
23:BA:2917:U:H2'	23:BA:2918:A:H8	1.86	0.40
23:BA:527:G:O2'	23:BA:552:A:N6	2.52	0.40
23:BA:625:G:H2'	23:BA:626:G:C8	2.56	0.40
23:BA:1839:G:O2'	25:BC:44:ASN:HB2	2.21	0.40
36:BN:22:PHE:O	36:BN:52:ARG:NH1	2.54	0.40
23:AA:1985:C:H2'	23:AA:1986:G:H8	1.87	0.40
23:AA:503:A:N1	23:AA:518:A:N6	2.69	0.40
23:AA:862:C:H3'	23:AA:863:G:H8	1.86	0.40
23:AA:2232:A:H5''	25:AC:149:GLY:C	2.41	0.40
23:AA:1839:G:O2'	25:AC:44:ASN:HB2	2.22	0.40
36:AN:22:PHE:O	36:AN:52:ARG:NH1	2.55	0.40
23:BA:1379:A:O2'	23:BA:1381:U:OP2	2.31	0.40
23:BA:2294:A:H5''	23:BA:2295:A:H5''	2.03	0.40
23:BA:588:G:N2	23:BA:589:U:O4	2.40	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:BK:44:SER:HB2	33:BK:70:PRO:HG3	2.03	0.40
37:BO:105:ALA:HB1	38:BP:40:PHE:HZ	1.85	0.40
39:BQ:69:LEU:HD23	39:BQ:109:ASP:HB3	2.03	0.40
23:AA:2156:C:H42	23:AA:2186:G:H1	1.69	0.40
23:AA:262:G:H21	23:AA:666:A:H8	1.69	0.40
25:AC:18:SER:OG	25:AC:19:LEU:N	2.54	0.40
23:AA:2663:U:O2'	26:AD:46:TYR:CZ	2.74	0.40
32:AJ:123:VAL:HG21	32:AJ:136:ILE:HD13	2.02	0.40
23:BA:1465:G:O2'	23:BA:1537:A:N6	2.54	0.40
23:BA:2422:C:H42	23:BA:2448:G:H1	1.69	0.40
23:BA:862:C:H3'	23:BA:863:G:H8	1.86	0.40
23:BA:882:C:H5	23:BA:986:G:H1	1.67	0.40
36:BN:59:GLU:CG	36:BN:78:LEU:HD23	2.48	0.40
49:A1:31:GLU:HB2	49:A1:44:LEU:HD12	2.03	0.40
23:AA:745:G:O2'	23:AA:1676:A:N3	2.49	0.40
24:AB:55:A:H1'	28:AF:27:GLU:HB3	2.02	0.40
43:AU:34:ALA:H	43:AU:37:GLN:HE21	1.70	0.40
23:BA:1087:C:N4	23:BA:1088:C:H41	2.19	0.40
23:BA:1847:U:OP1	25:BC:177:ARG:CG	2.69	0.40
23:BA:2332:U:O5'	28:BF:131:GLY:CA	2.65	0.40
23:BA:2622:G:N2	23:BA:2625:A:OP2	2.53	0.40
23:BA:277:C:H2'	23:BA:278:A:H8	1.86	0.40
32:BJ:55:LEU:HA	32:BJ:56:PRO:HD3	1.96	0.40
43:BU:34:ALA:H	43:BU:37:GLN:HE21	1.70	0.40
23:AA:1397:G:N7	23:AA:1408:G:N2	2.70	0.40
23:AA:1465:G:O2'	23:AA:1537:A:N6	2.54	0.40
23:AA:1643:C:OP2	40:AR:35:LYS:CD	2.70	0.40
23:AA:199:A:C2	32:AJ:50:PHE:HZ	2.39	0.40
23:AA:2024:A:O5'	26:AD:138:ARG:NH1	2.44	0.40
23:AA:1754:C:H4'	23:AA:2878:U:H3	1.85	0.40
23:AA:503:A:N6	23:AA:516:A:H5''	2.36	0.40
23:AA:882:C:H5	23:AA:986:G:H1	1.67	0.40
27:AE:155:VAL:HB	27:AE:194:ILE:HG22	2.03	0.40
23:AA:1293:U:C5	27:AE:73:ALA:HA	2.57	0.40
23:BA:1187:A:OP1	30:BH:28:ARG:NH2	2.50	0.40
23:BA:1397:G:N7	23:BA:1408:G:N2	2.70	0.40
23:BA:2048:G:N2	37:BO:25:PHE:CG	2.89	0.40
23:BA:1847:U:O2	25:BC:201:GLU:CB	2.68	0.40
23:BA:809:A:H5'	25:BC:209:GLY:HA3	2.04	0.40
26:BD:196:LEU:HD21	36:BN:10:VAL:HG11	2.04	0.40
27:BE:155:VAL:HB	27:BE:194:ILE:HG22	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:BK:34:LEU:HB2	33:BK:118:LEU:HD22	2.03	0.40
35:BM:29:PRO:HD2	35:BM:92:ILE:HG22	2.04	0.40
44:BV:19:SER:OG	44:BV:23:ASN:OD1	2.25	0.40
46:BX:18:THR:HG22	46:BX:49:LYS:NZ	2.36	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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	Ab	224/226 (99%)	209 (93%)	14 (6%)	1 (0%)	38	77
2	Bb	224/226 (99%)	208 (93%)	14 (6%)	2 (1%)	20	63
3	Ac	200/202 (99%)	177 (88%)	23 (12%)	0	100	100
3	Bc	200/202 (99%)	177 (88%)	23 (12%)	0	100	100
4	Ad	196/198 (99%)	170 (87%)	26 (13%)	0	100	100
4	Bd	196/198 (99%)	170 (87%)	26 (13%)	0	100	100
5	Ae	154/156 (99%)	147 (96%)	7 (4%)	0	100	100
5	Be	154/156 (99%)	147 (96%)	7 (4%)	0	100	100
6	Af	93/95 (98%)	85 (91%)	8 (9%)	0	100	100
6	Bf	93/95 (98%)	85 (91%)	8 (9%)	0	100	100
7	Ag	150/152 (99%)	144 (96%)	6 (4%)	0	100	100
7	Bg	150/152 (99%)	144 (96%)	6 (4%)	0	100	100
8	Ah	129/131 (98%)	122 (95%)	7 (5%)	0	100	100
8	Bh	129/131 (98%)	121 (94%)	8 (6%)	0	100	100
9	Ai	125/127 (98%)	112 (90%)	13 (10%)	0	100	100
9	Bi	125/127 (98%)	112 (90%)	13 (10%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
10	Aj	95/97 (98%)	88 (93%)	7 (7%)	0	100	100
10	Bj	95/97 (98%)	88 (93%)	7 (7%)	0	100	100
11	Ak	112/114 (98%)	93 (83%)	19 (17%)	0	100	100
11	Bk	112/114 (98%)	93 (83%)	19 (17%)	0	100	100
12	Al	133/135 (98%)	118 (89%)	15 (11%)	0	100	100
12	Bl	133/135 (98%)	118 (89%)	15 (11%)	0	100	100
13	Am	100/121 (83%)	90 (90%)	10 (10%)	0	100	100
13	Bm	100/121 (83%)	90 (90%)	10 (10%)	0	100	100
14	An	58/60 (97%)	49 (84%)	9 (16%)	0	100	100
14	Bn	58/60 (97%)	49 (84%)	9 (16%)	0	100	100
15	Ao	86/88 (98%)	85 (99%)	1 (1%)	0	100	100
15	Bo	86/88 (98%)	85 (99%)	1 (1%)	0	100	100
16	Ap	87/89 (98%)	78 (90%)	9 (10%)	0	100	100
16	Bp	87/89 (98%)	78 (90%)	9 (10%)	0	100	100
17	Aq	78/80 (98%)	72 (92%)	6 (8%)	0	100	100
17	Bq	78/80 (98%)	72 (92%)	6 (8%)	0	100	100
18	Ar	52/54 (96%)	51 (98%)	1 (2%)	0	100	100
18	Br	52/54 (96%)	51 (98%)	1 (2%)	0	100	100
19	As	78/80 (98%)	68 (87%)	10 (13%)	0	100	100
19	Bs	78/80 (98%)	69 (88%)	9 (12%)	0	100	100
20	At	79/81 (98%)	77 (98%)	2 (2%)	0	100	100
20	Bt	79/81 (98%)	77 (98%)	2 (2%)	0	100	100
21	Au	50/52 (96%)	48 (96%)	2 (4%)	0	100	100
21	Bu	50/52 (96%)	48 (96%)	2 (4%)	0	100	100
22	Av	158/190 (83%)	149 (94%)	9 (6%)	0	100	100
22	Bv	158/190 (83%)	149 (94%)	9 (6%)	0	100	100
25	AC	272/274 (99%)	257 (94%)	15 (6%)	0	100	100
25	BC	272/274 (99%)	257 (94%)	15 (6%)	0	100	100
26	AD	213/215 (99%)	194 (91%)	19 (9%)	0	100	100
26	BD	213/215 (99%)	194 (91%)	19 (9%)	0	100	100
27	AE	204/206 (99%)	192 (94%)	12 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
27	BE	204/206 (99%)	192 (94%)	12 (6%)	0	100	100
28	AF	173/175 (99%)	142 (82%)	31 (18%)	0	100	100
28	BF	173/175 (99%)	142 (82%)	31 (18%)	0	100	100
29	AG	173/175 (99%)	155 (90%)	18 (10%)	0	100	100
29	BG	173/175 (99%)	155 (90%)	18 (10%)	0	100	100
30	AH	143/145 (99%)	131 (92%)	12 (8%)	0	100	100
30	BH	143/145 (99%)	131 (92%)	12 (8%)	0	100	100
31	AI	120/122 (98%)	106 (88%)	14 (12%)	0	100	100
31	BI	120/122 (98%)	106 (88%)	14 (12%)	0	100	100
32	AJ	144/146 (99%)	135 (94%)	9 (6%)	0	100	100
32	BJ	144/146 (99%)	135 (94%)	9 (6%)	0	100	100
33	AK	135/137 (98%)	127 (94%)	8 (6%)	0	100	100
33	BK	135/137 (98%)	127 (94%)	8 (6%)	0	100	100
34	AL	118/120 (98%)	114 (97%)	4 (3%)	0	100	100
34	BL	118/120 (98%)	115 (98%)	3 (2%)	0	100	100
35	AM	117/119 (98%)	103 (88%)	14 (12%)	0	100	100
35	BM	117/119 (98%)	103 (88%)	14 (12%)	0	100	100
36	AN	112/114 (98%)	99 (88%)	13 (12%)	0	100	100
36	BN	112/114 (98%)	99 (88%)	13 (12%)	0	100	100
37	AO	114/116 (98%)	109 (96%)	5 (4%)	0	100	100
37	BO	114/116 (98%)	109 (96%)	5 (4%)	0	100	100
38	AP	100/102 (98%)	93 (93%)	6 (6%)	1 (1%)	18	61
38	BP	100/102 (98%)	93 (93%)	6 (6%)	1 (1%)	18	61
39	AQ	110/112 (98%)	106 (96%)	4 (4%)	0	100	100
39	BQ	110/112 (98%)	106 (96%)	4 (4%)	0	100	100
40	AR	87/89 (98%)	81 (93%)	6 (7%)	0	100	100
40	BR	87/89 (98%)	81 (93%)	6 (7%)	0	100	100
41	AS	101/103 (98%)	89 (88%)	12 (12%)	0	100	100
41	BS	101/103 (98%)	89 (88%)	12 (12%)	0	100	100
42	AT	92/94 (98%)	87 (95%)	5 (5%)	0	100	100
42	BT	92/94 (98%)	87 (95%)	5 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
43	AU	80/82 (98%)	72 (90%)	8 (10%)	0	100	100
43	BU	80/82 (98%)	72 (90%)	8 (10%)	0	100	100
44	AV	56/58 (97%)	53 (95%)	3 (5%)	0	100	100
44	BV	56/58 (97%)	53 (95%)	3 (5%)	0	100	100
45	AW	65/67 (97%)	58 (89%)	7 (11%)	0	100	100
45	BW	65/67 (97%)	58 (89%)	7 (11%)	0	100	100
46	AX	56/58 (97%)	53 (95%)	3 (5%)	0	100	100
46	BX	56/58 (97%)	53 (95%)	3 (5%)	0	100	100
47	AY	57/59 (97%)	45 (79%)	12 (21%)	0	100	100
47	BY	57/59 (97%)	45 (79%)	12 (21%)	0	100	100
48	AZ	46/48 (96%)	40 (87%)	6 (13%)	0	100	100
48	BZ	46/48 (96%)	40 (87%)	6 (13%)	0	100	100
49	A1	45/47 (96%)	44 (98%)	1 (2%)	0	100	100
49	B1	45/47 (96%)	44 (98%)	1 (2%)	0	100	100
50	A2	41/43 (95%)	39 (95%)	2 (5%)	0	100	100
50	B2	41/43 (95%)	39 (95%)	2 (5%)	0	100	100
51	A3	62/64 (97%)	58 (94%)	4 (6%)	0	100	100
51	B3	62/64 (97%)	57 (92%)	5 (8%)	0	100	100
52	A4	35/37 (95%)	35 (100%)	0	0	100	100
52	B4	35/37 (95%)	35 (100%)	0	0	100	100
All	All	11016/11310 (97%)	10097 (92%)	914 (8%)	5 (0%)	100	100

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	Ab	33	THR
38	AP	51	PRO
2	Bb	33	THR
38	BP	51	PRO
2	Bb	36	ASN

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 PDB entries followed by that with respect to all EM

entries.

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	Ab	195/196 (100%)	194 (100%)	1 (0%)	91	95
2	Bb	195/196 (100%)	195 (100%)	0	100	100
3	Ac	138/164 (84%)	138 (100%)	0	100	100
3	Bc	138/164 (84%)	138 (100%)	0	100	100
4	Ad	147/174 (84%)	146 (99%)	1 (1%)	87	93
4	Bd	147/174 (84%)	146 (99%)	1 (1%)	87	93
5	Ae	118/122 (97%)	118 (100%)	0	100	100
5	Be	118/122 (97%)	118 (100%)	0	100	100
6	Af	80/83 (96%)	80 (100%)	0	100	100
6	Bf	80/83 (96%)	80 (100%)	0	100	100
7	Ag	118/128 (92%)	118 (100%)	0	100	100
7	Bg	118/128 (92%)	118 (100%)	0	100	100
8	Ah	111/112 (99%)	109 (98%)	2 (2%)	64	84
8	Bh	111/112 (99%)	109 (98%)	2 (2%)	64	84
9	Ai	86/105 (82%)	84 (98%)	2 (2%)	56	79
9	Bi	86/105 (82%)	84 (98%)	2 (2%)	56	79
10	Aj	81/87 (93%)	80 (99%)	1 (1%)	75	88
10	Bj	81/87 (93%)	80 (99%)	1 (1%)	75	88
11	Ak	82/90 (91%)	82 (100%)	0	100	100
11	Bk	82/90 (91%)	82 (100%)	0	100	100
12	Al	111/117 (95%)	110 (99%)	1 (1%)	82	91
12	Bl	111/117 (95%)	110 (99%)	1 (1%)	82	91
13	Am	62/104 (60%)	61 (98%)	1 (2%)	68	85
13	Bm	62/104 (60%)	61 (98%)	1 (2%)	68	85
14	An	48/52 (92%)	46 (96%)	2 (4%)	34	64
14	Bn	48/52 (92%)	46 (96%)	2 (4%)	34	64
15	Ao	77/80 (96%)	76 (99%)	1 (1%)	73	87
15	Bo	77/80 (96%)	76 (99%)	1 (1%)	73	87
16	Ap	73/75 (97%)	71 (97%)	2 (3%)	50	74

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
16	Bp	73/75 (97%)	71 (97%)	2 (3%)	50	74
17	Aq	65/75 (87%)	65 (100%)	0	100	100
17	Bq	65/75 (87%)	65 (100%)	0	100	100
18	Ar	48/49 (98%)	48 (100%)	0	100	100
18	Br	48/49 (98%)	48 (100%)	0	100	100
19	As	67/70 (96%)	67 (100%)	0	100	100
19	Bs	67/70 (96%)	67 (100%)	0	100	100
20	At	61/67 (91%)	61 (100%)	0	100	100
20	Bt	61/67 (91%)	61 (100%)	0	100	100
21	Au	40/48 (83%)	40 (100%)	0	100	100
21	Bu	40/48 (83%)	40 (100%)	0	100	100
22	Av	147/173 (85%)	143 (97%)	4 (3%)	50	74
22	Bv	147/173 (85%)	143 (97%)	4 (3%)	50	74
25	AC	221/221 (100%)	221 (100%)	0	100	100
25	BC	221/221 (100%)	221 (100%)	0	100	100
26	AD	173/173 (100%)	172 (99%)	1 (1%)	89	94
26	BD	173/173 (100%)	172 (99%)	1 (1%)	89	94
27	AE	168/168 (100%)	167 (99%)	1 (1%)	89	94
27	BE	168/168 (100%)	167 (99%)	1 (1%)	89	94
28	AF	141/154 (92%)	139 (99%)	2 (1%)	71	86
28	BF	141/154 (92%)	139 (99%)	2 (1%)	71	86
29	AG	124/153 (81%)	122 (98%)	2 (2%)	68	85
29	BG	124/153 (81%)	122 (98%)	2 (2%)	68	85
30	AH	122/123 (99%)	121 (99%)	1 (1%)	85	92
30	BH	122/123 (99%)	121 (99%)	1 (1%)	85	92
31	AI	100/100 (100%)	99 (99%)	1 (1%)	80	90
31	BI	100/100 (100%)	99 (99%)	1 (1%)	80	90
32	AJ	109/112 (97%)	107 (98%)	2 (2%)	64	84
32	BJ	109/112 (97%)	107 (98%)	2 (2%)	64	84
33	AK	108/114 (95%)	107 (99%)	1 (1%)	82	91
33	BK	108/114 (95%)	107 (99%)	1 (1%)	82	91

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
34	AL	96/101 (95%)	95 (99%)	1 (1%)	80	90
34	BL	96/101 (95%)	95 (99%)	1 (1%)	80	90
35	AM	86/95 (90%)	83 (96%)	3 (4%)	41	69
35	BM	86/95 (90%)	83 (96%)	3 (4%)	41	69
36	AN	93/100 (93%)	92 (99%)	1 (1%)	78	89
36	BN	93/100 (93%)	92 (99%)	1 (1%)	78	89
37	AO	96/96 (100%)	95 (99%)	1 (1%)	80	90
37	BO	96/96 (100%)	95 (99%)	1 (1%)	80	90
38	AP	84/86 (98%)	84 (100%)	0	100	100
38	BP	84/86 (98%)	84 (100%)	0	100	100
39	AQ	89/91 (98%)	88 (99%)	1 (1%)	78	89
39	BQ	89/91 (98%)	88 (99%)	1 (1%)	78	89
40	AR	78/80 (98%)	76 (97%)	2 (3%)	51	75
40	BR	78/80 (98%)	76 (97%)	2 (3%)	51	75
41	AS	81/88 (92%)	80 (99%)	1 (1%)	75	88
41	BS	81/88 (92%)	80 (99%)	1 (1%)	75	88
42	AT	78/82 (95%)	78 (100%)	0	100	100
42	BT	78/82 (95%)	78 (100%)	0	100	100
43	AU	63/64 (98%)	60 (95%)	3 (5%)	30	61
43	BU	63/64 (98%)	60 (95%)	3 (5%)	30	61
44	AV	44/49 (90%)	43 (98%)	1 (2%)	56	79
44	BV	44/49 (90%)	43 (98%)	1 (2%)	56	79
45	AW	58/60 (97%)	58 (100%)	0	100	100
45	BW	58/60 (97%)	58 (100%)	0	100	100
46	AX	52/52 (100%)	52 (100%)	0	100	100
46	BX	52/52 (100%)	52 (100%)	0	100	100
47	AY	23/56 (41%)	23 (100%)	0	100	100
47	BY	23/56 (41%)	23 (100%)	0	100	100
48	AZ	35/44 (80%)	35 (100%)	0	100	100
48	BZ	35/44 (80%)	35 (100%)	0	100	100
49	A1	44/45 (98%)	44 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
49	B1	44/45 (98%)	44 (100%)	0	100	100
50	A2	39/39 (100%)	39 (100%)	0	100	100
50	B2	39/39 (100%)	39 (100%)	0	100	100
51	A3	55/55 (100%)	55 (100%)	0	100	100
51	B3	55/55 (100%)	55 (100%)	0	100	100
52	A4	35/35 (100%)	34 (97%)	1 (3%)	48	73
52	B4	35/35 (100%)	34 (97%)	1 (3%)	48	73
All	All	8900/9614 (93%)	8813 (99%)	87 (1%)	81	90

All (87) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	Ab	36	ASN
4	Ad	115	ASN
8	Ah	56	LYS
8	Ah	105	LEU
9	Ai	20	ARG
9	Ai	115	ARG
10	Aj	102	LEU
12	Al	44	ARG
13	Am	57	ARG
14	An	26	ARG
14	An	45	ARG
15	Ao	54	ARG
16	Ap	9	ARG
16	Ap	32	ARG
22	Av	103	ARG
22	Av	151	LEU
22	Av	164	THR
22	Av	179	ASP
26	AD	131	ILE
27	AE	193	VAL
28	AF	69	LYS
28	AF	125	ARG
29	AG	41	MET
29	AG	175	LYS
30	AH	97	ASN
31	AI	122	LEU
32	AJ	30	THR
32	AJ	114	ASN

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Mol	Chain	Res	Type
33	AK	27	VAL
34	AL	29	ARG
35	AM	22	LEU
35	AM	35	ARG
35	AM	87	LYS
36	AN	11	THR
37	AO	4	VAL
39	AQ	98	LYS
40	AR	47	ASN
40	AR	56	MET
41	AS	8	ASN
43	AU	22	ARG
43	AU	61	ARG
43	AU	75	VAL
44	AV	60	THR
52	A4	35	ARG
4	Bd	115	ASN
8	Bh	56	LYS
8	Bh	105	LEU
9	Bi	20	ARG
9	Bi	115	ARG
10	Bj	102	LEU
12	Bl	44	ARG
13	Bm	57	ARG
14	Bn	26	ARG
14	Bn	45	ARG
15	Bo	54	ARG
16	Bp	9	ARG
16	Bp	32	ARG
22	Bv	103	ARG
22	Bv	151	LEU
22	Bv	164	THR
22	Bv	179	ASP
26	BD	131	ILE
27	BE	193	VAL
28	BF	69	LYS
28	BF	125	ARG
29	BG	41	MET
29	BG	175	LYS
30	BH	97	ASN
31	BI	122	LEU
32	BJ	30	THR

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Mol	Chain	Res	Type
32	BJ	114	ASN
33	BK	27	VAL
34	BL	29	ARG
35	BM	22	LEU
35	BM	35	ARG
35	BM	87	LYS
36	BN	11	THR
37	BO	4	VAL
39	BQ	98	LYS
40	BR	47	ASN
40	BR	56	MET
41	BS	8	ASN
43	BU	22	ARG
43	BU	61	ARG
43	BU	75	VAL
44	BV	60	THR
52	B4	35	ARG

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (106) such sidechains are listed below:

Mol	Chain	Res	Type
2	Ab	190	ASN
3	Ac	53	HIS
3	Ac	64	ASN
4	Ad	115	ASN
4	Ad	146	GLN
5	Ae	83	HIS
6	Af	70	ASN
7	Ag	67	ASN
9	Ai	33	ASN
9	Ai	77	GLN
11	Ak	22	HIS
11	Ak	40	ASN
11	Ak	101	GLN
12	Al	42	GLN
12	Al	85	HIS
14	An	52	GLN
17	Aq	33	HIS
18	Ar	57	GLN
19	As	22	GLN
20	At	21	ASN
22	Av	82	ASN

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Mol	Chain	Res	Type
22	Av	152	GLN
25	AC	86	ASN
25	AC	133	GLN
25	AC	230	HIS
26	AD	128	GLN
26	AD	148	HIS
26	AD	167	GLN
27	AE	75	GLN
28	AF	127	ASN
29	AG	77	GLN
30	AH	48	HIS
30	AH	97	ASN
31	AI	4	GLN
32	AJ	4	HIS
32	AJ	114	ASN
35	AM	43	GLN
36	AN	4	HIS
36	AN	79	HIS
37	AO	37	GLN
37	AO	91	ASN
38	AP	81	ASN
39	AQ	77	ASN
40	AR	47	ASN
41	AS	8	ASN
41	AS	39	ASN
41	AS	44	HIS
43	AU	20	ASN
44	AV	16	ASN
48	AZ	19	HIS
48	AZ	40	HIS
49	A1	26	ASN
49	A1	45	HIS
50	A2	17	HIS
2	Bb	190	ASN
3	Bc	53	HIS
3	Bc	64	ASN
4	Bd	115	ASN
4	Bd	146	GLN
5	Be	83	HIS
6	Bf	70	ASN
7	Bg	67	ASN
9	Bi	33	ASN

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Mol	Chain	Res	Type
9	Bi	77	GLN
11	Bk	22	HIS
11	Bk	40	ASN
11	Bk	101	GLN
12	Bl	42	GLN
12	Bl	85	HIS
14	Bn	52	GLN
17	Bq	33	HIS
18	Br	57	GLN
19	Bs	22	GLN
20	Bt	21	ASN
22	Bv	152	GLN
25	BC	86	ASN
25	BC	133	GLN
25	BC	230	HIS
26	BD	128	GLN
26	BD	148	HIS
26	BD	167	GLN
27	BE	75	GLN
28	BF	127	ASN
29	BG	77	GLN
30	BH	48	HIS
30	BH	97	ASN
31	BI	4	GLN
32	BJ	4	HIS
32	BJ	114	ASN
35	BM	43	GLN
36	BN	4	HIS
36	BN	79	HIS
37	BO	37	GLN
37	BO	91	ASN
39	BQ	77	ASN
40	BR	47	ASN
41	BS	8	ASN
41	BS	39	ASN
41	BS	44	HIS
43	BU	20	ASN
44	BV	16	ASN
48	BZ	19	HIS
48	BZ	40	HIS
49	B1	26	ASN
49	B1	45	HIS

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Mol	Chain	Res	Type
50	B2	17	HIS

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	Aa	1537/1539 (99%)	470 (30%)	0
1	Ba	1537/1539 (99%)	468 (30%)	0
23	AA	2895/2923 (99%)	795 (27%)	27 (0%)
23	BA	2895/2923 (99%)	795 (27%)	28 (0%)
24	AB	113/115 (98%)	16 (14%)	0
24	BB	113/115 (98%)	16 (14%)	0
All	All	9090/9154 (99%)	2560 (28%)	55 (0%)

All (2560) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	Aa	6	U
1	Aa	8	G
1	Aa	9	A
1	Aa	10	G
1	Aa	23	G
1	Aa	30	A
1	Aa	33	A
1	Aa	40	G
1	Aa	41	C
1	Aa	45	G
1	Aa	48	C
1	Aa	49	C
1	Aa	50	U
1	Aa	51	A
1	Aa	52	A
1	Aa	59	C
1	Aa	60	A
1	Aa	61	A
1	Aa	62	G
1	Aa	66	A
1	Aa	68	C
1	Aa	69	G
1	Aa	70	A
1	Aa	71	A
1	Aa	75	A

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Mol	Chain	Res	Type
1	Aa	76	C
1	Aa	78	A
1	Aa	82	G
1	Aa	83	C
1	Aa	84	U
1	Aa	85	U
1	Aa	88	U
1	Aa	89	U
1	Aa	92	C
1	Aa	94	G
1	Aa	99	U
1	Aa	100	A
1	Aa	107	G
1	Aa	120	C
1	Aa	129	A
1	Aa	140	A
1	Aa	150	U
1	Aa	162	A
1	Aa	163	C
1	Aa	165	G
1	Aa	183	U
1	Aa	184	A
1	Aa	185	U
1	Aa	186	U
1	Aa	187	U
1	Aa	188	U
1	Aa	191	A
1	Aa	193	C
1	Aa	194	G
1	Aa	197	U
1	Aa	199	G
1	Aa	200	U
1	Aa	201	U
1	Aa	203	A
1	Aa	204	A
1	Aa	206	A
1	Aa	208	U
1	Aa	209	G
1	Aa	210	A
1	Aa	211	A
1	Aa	213	G
1	Aa	219	C

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Mol	Chain	Res	Type
1	Aa	220	U
1	Aa	221	U
1	Aa	222	G
1	Aa	224	U
1	Aa	228	A
1	Aa	230	U
1	Aa	231	U
1	Aa	234	A
1	Aa	252	U
1	Aa	253	U
1	Aa	255	G
1	Aa	256	C
1	Aa	257	U
1	Aa	258	A
1	Aa	259	G
1	Aa	264	U
1	Aa	267	G
1	Aa	269	U
1	Aa	274	G
1	Aa	275	C
1	Aa	279	C
1	Aa	289	G
1	Aa	291	U
1	Aa	297	G
1	Aa	301	A
1	Aa	309	G
1	Aa	335	A
1	Aa	336	C
1	Aa	337	A
1	Aa	339	G
1	Aa	352	A
1	Aa	354	G
1	Aa	355	G
1	Aa	356	G
1	Aa	358	G
1	Aa	359	G
1	Aa	360	C
1	Aa	362	G
1	Aa	364	A
1	Aa	375	U
1	Aa	376	U
1	Aa	380	C

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Mol	Chain	Res	Type
1	Aa	381	A
1	Aa	389	A
1	Aa	392	G
1	Aa	395	U
1	Aa	406	C
1	Aa	411	C
1	Aa	412	G
1	Aa	413	U
1	Aa	414	G
1	Aa	415	A
1	Aa	416	G
1	Aa	417	U
1	Aa	418	G
1	Aa	419	A
1	Aa	420	U
1	Aa	421	G
1	Aa	422	A
1	Aa	423	A
1	Aa	424	G
1	Aa	425	G
1	Aa	426	U
1	Aa	430	C
1	Aa	431	G
1	Aa	432	G
1	Aa	434	U
1	Aa	437	U
1	Aa	438	A
1	Aa	440	A
1	Aa	441	A
1	Aa	442	C
1	Aa	449	A
1	Aa	450	U
1	Aa	451	U
1	Aa	452	A
1	Aa	456	A
1	Aa	458	G
1	Aa	460	A
1	Aa	461	C
1	Aa	464	A
1	Aa	465	U
1	Aa	484	A
1	Aa	485	U

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Mol	Chain	Res	Type
1	Aa	486	C
1	Aa	487	U
1	Aa	488	U
1	Aa	492	G
1	Aa	499	A
1	Aa	503	A
1	Aa	504	G
1	Aa	505	A
1	Aa	506	A
1	Aa	507	A
1	Aa	513	G
1	Aa	514	G
1	Aa	516	U
1	Aa	517	A
1	Aa	519	C
1	Aa	522	C
1	Aa	526	C
1	Aa	529	G
1	Aa	532	G
1	Aa	535	G
1	Aa	539	U
1	Aa	541	A
1	Aa	542	U
1	Aa	543	A
1	Aa	548	G
1	Aa	554	A
1	Aa	555	A
1	Aa	567	A
1	Aa	570	U
1	Aa	571	A
1	Aa	580	A
1	Aa	581	A
1	Aa	584	C
1	Aa	585	G
1	Aa	596	G
1	Aa	603	A
1	Aa	610	A
1	Aa	619	C
1	Aa	628	C
1	Aa	638	G
1	Aa	639	G
1	Aa	640	G

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Mol	Chain	Res	Type
1	Aa	641	U
1	Aa	642	C
1	Aa	647	G
1	Aa	649	A
1	Aa	650	A
1	Aa	657	A
1	Aa	661	U
1	Aa	666	G
1	Aa	670	A
1	Aa	673	A
1	Aa	674	G
1	Aa	695	A
1	Aa	696	G
1	Aa	702	A
1	Aa	703	A
1	Aa	711	G
1	Aa	712	A
1	Aa	724	A
1	Aa	729	A
1	Aa	731	U
1	Aa	739	G
1	Aa	756	A
1	Aa	763	G
1	Aa	772	C
1	Aa	781	G
1	Aa	798	A
1	Aa	801	U
1	Aa	813	C
1	Aa	818	C
1	Aa	823	A
1	Aa	825	C
1	Aa	826	G
1	Aa	827	A
1	Aa	829	G
1	Aa	835	U
1	Aa	836	A
1	Aa	840	G
1	Aa	843	A
1	Aa	844	G
1	Aa	845	G
1	Aa	846	G
1	Aa	847	G

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Mol	Chain	Res	Type
1	Aa	848	G
1	Aa	849	U
1	Aa	850	U
1	Aa	852	C
1	Aa	853	C
1	Aa	854	G
1	Aa	855	C
1	Aa	858	C
1	Aa	860	U
1	Aa	881	A
1	Aa	894	G
1	Aa	898	A
1	Aa	910	A
1	Aa	911	G
1	Aa	923	A
1	Aa	924	A
1	Aa	935	G
1	Aa	943	C
1	Aa	944	A
1	Aa	949	C
1	Aa	950	G
1	Aa	953	G
1	Aa	954	G
1	Aa	955	A
1	Aa	956	G
1	Aa	958	A
1	Aa	959	U
1	Aa	961	U
1	Aa	969	U
1	Aa	970	U
1	Aa	972	G
1	Aa	973	A
1	Aa	974	A
1	Aa	975	G
1	Aa	977	A
1	Aa	978	A
1	Aa	980	G
1	Aa	983	A
1	Aa	984	A
1	Aa	985	G
1	Aa	986	A
1	Aa	991	U

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Mol	Chain	Res	Type
1	Aa	1001	U
1	Aa	1002	G
1	Aa	1003	A
1	Aa	1007	C
1	Aa	1008	C
1	Aa	1011	U
1	Aa	1012	G
1	Aa	1013	A
1	Aa	1015	A
1	Aa	1016	A
1	Aa	1017	C
1	Aa	1022	G
1	Aa	1023	A
1	Aa	1026	U
1	Aa	1032	C
1	Aa	1033	U
1	Aa	1035	C
1	Aa	1036	C
1	Aa	1038	C
1	Aa	1039	U
1	Aa	1041	C
1	Aa	1042	G
1	Aa	1043	G
1	Aa	1047	A
1	Aa	1048	C
1	Aa	1052	G
1	Aa	1055	A
1	Aa	1056	C
1	Aa	1057	A
1	Aa	1064	G
1	Aa	1065	C
1	Aa	1066	A
1	Aa	1076	U
1	Aa	1077	C
1	Aa	1091	A
1	Aa	1092	G
1	Aa	1094	U
1	Aa	1096	U
1	Aa	1101	U
1	Aa	1105	G
1	Aa	1106	U
1	Aa	1109	C

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Mol	Chain	Res	Type
1	Aa	1112	A
1	Aa	1113	A
1	Aa	1115	G
1	Aa	1119	G
1	Aa	1123	C
1	Aa	1130	G
1	Aa	1135	G
1	Aa	1136	U
1	Aa	1137	U
1	Aa	1138	G
1	Aa	1141	A
1	Aa	1142	U
1	Aa	1143	C
1	Aa	1146	U
1	Aa	1148	A
1	Aa	1149	G
1	Aa	1150	U
1	Aa	1151	U
1	Aa	1154	G
1	Aa	1156	A
1	Aa	1157	C
1	Aa	1165	U
1	Aa	1167	A
1	Aa	1168	C
1	Aa	1169	U
1	Aa	1172	C
1	Aa	1173	G
1	Aa	1174	G
1	Aa	1175	U
1	Aa	1177	A
1	Aa	1178	C
1	Aa	1179	A
1	Aa	1181	A
1	Aa	1187	G
1	Aa	1188	G
1	Aa	1189	A
1	Aa	1190	A
1	Aa	1191	G
1	Aa	1194	G
1	Aa	1202	C
1	Aa	1203	G
1	Aa	1206	A

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Mol	Chain	Res	Type
1	Aa	1207	A
1	Aa	1208	A
1	Aa	1209	U
1	Aa	1210	C
1	Aa	1211	A
1	Aa	1216	G
1	Aa	1222	U
1	Aa	1224	U
1	Aa	1225	G
1	Aa	1226	A
1	Aa	1228	U
1	Aa	1230	G
1	Aa	1234	U
1	Aa	1235	A
1	Aa	1236	C
1	Aa	1238	C
1	Aa	1243	G
1	Aa	1246	A
1	Aa	1248	A
1	Aa	1250	U
1	Aa	1251	G
1	Aa	1256	A
1	Aa	1260	A
1	Aa	1266	C
1	Aa	1267	A
1	Aa	1268	G
1	Aa	1270	G
1	Aa	1274	C
1	Aa	1275	C
1	Aa	1280	G
1	Aa	1281	G
1	Aa	1282	U
1	Aa	1283	C
1	Aa	1286	G
1	Aa	1287	C
1	Aa	1288	A
1	Aa	1289	A
1	Aa	1290	A
1	Aa	1291	U
1	Aa	1292	C
1	Aa	1296	U
1	Aa	1297	A

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Mol	Chain	Res	Type
1	Aa	1300	G
1	Aa	1305	U
1	Aa	1307	U
1	Aa	1308	C
1	Aa	1309	A
1	Aa	1310	G
1	Aa	1311	U
1	Aa	1312	U
1	Aa	1313	C
1	Aa	1314	G
1	Aa	1315	G
1	Aa	1319	G
1	Aa	1320	U
1	Aa	1322	G
1	Aa	1327	C
1	Aa	1329	A
1	Aa	1332	C
1	Aa	1333	G
1	Aa	1335	C
1	Aa	1336	U
1	Aa	1337	A
1	Aa	1338	C
1	Aa	1339	A
1	Aa	1341	G
1	Aa	1345	C
1	Aa	1347	G
1	Aa	1348	G
1	Aa	1356	A
1	Aa	1357	G
1	Aa	1361	U
1	Aa	1363	G
1	Aa	1368	U
1	Aa	1371	G
1	Aa	1373	A
1	Aa	1378	A
1	Aa	1380	G
1	Aa	1387	A
1	Aa	1391	U
1	Aa	1392	C
1	Aa	1393	C
1	Aa	1404	A
1	Aa	1408	A

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Mol	Chain	Res	Type
1	Aa	1419	C
1	Aa	1421	C
1	Aa	1428	A
1	Aa	1429	G
1	Aa	1438	A
1	Aa	1448	G
1	Aa	1451	G
1	Aa	1456	A
1	Aa	1461	U
1	Aa	1462	U
1	Aa	1463	U
1	Aa	1464	A
1	Aa	1466	G
1	Aa	1468	G
1	Aa	1476	U
1	Aa	1483	U
1	Aa	1495	U
1	Aa	1505	G
1	Aa	1508	G
1	Aa	1510	A
1	Aa	1514	A
1	Aa	1515	G
1	Aa	1540	G
1	Aa	1541	G
1	Aa	1543	U
23	AA	11	U
23	AA	15	G
23	AA	27	G
23	AA	28	A
23	AA	34	U
23	AA	36	G
23	AA	43	A
23	AA	51	G
23	AA	52	A
23	AA	53	A
23	AA	55	G
23	AA	63	U
23	AA	70	G
23	AA	71	A
23	AA	74	U
23	AA	75	G
23	AA	83	G

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Mol	Chain	Res	Type
23	AA	84	A
23	AA	90	A
23	AA	92	G
23	AA	93	U
23	AA	96	G
23	AA	101	G
23	AA	102	A
23	AA	104	C
23	AA	117	A
23	AA	119	U
23	AA	124	A
23	AA	141	U
23	AA	148	U
23	AA	149	U
23	AA	152	C
23	AA	156	A
23	AA	157	U
23	AA	158	G
23	AA	161	A
23	AA	164	A
23	AA	167	U
23	AA	168	A
23	AA	170	C
23	AA	172	U
23	AA	173	A
23	AA	177	G
23	AA	178	A
23	AA	180	G
23	AA	184	C
23	AA	185	A
23	AA	199	A
23	AA	202	A
23	AA	213	C
23	AA	215	G
23	AA	216	A
23	AA	218	G
23	AA	219	A
23	AA	224	A
23	AA	225	A
23	AA	233	U
23	AA	246	U
23	AA	251	G

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Mol	Chain	Res	Type
23	AA	255	G
23	AA	268	A
23	AA	269	G
23	AA	270	C
23	AA	279	A
23	AA	280	C
23	AA	285	U
23	AA	286	U
23	AA	287	G
23	AA	292	U
23	AA	293	U
23	AA	298	U
23	AA	299	U
23	AA	300	G
23	AA	301	U
23	AA	302	A
23	AA	307	A
23	AA	309	U
23	AA	310	C
23	AA	311	U
23	AA	312	A
23	AA	316	G
23	AA	320	U
23	AA	321	U
23	AA	327	G
23	AA	328	G
23	AA	333	C
23	AA	335	U
23	AA	345	C
23	AA	353	A
23	AA	365	A
23	AA	366	G
23	AA	373	A
23	AA	388	A
23	AA	389	A
23	AA	392	U
23	AA	394	U
23	AA	397	U
23	AA	402	C
23	AA	404	U
23	AA	406	A
23	AA	410	G

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Mol	Chain	Res	Type
23	AA	411	A
23	AA	417	A
23	AA	432	G
23	AA	435	A
23	AA	444	C
23	AA	447	A
23	AA	449	U
23	AA	451	U
23	AA	452	G
23	AA	458	A
23	AA	460	C
23	AA	481	C
23	AA	482	U
23	AA	486	G
23	AA	490	C
23	AA	492	G
23	AA	493	A
23	AA	501	C
23	AA	502	C
23	AA	503	A
23	AA	504	G
23	AA	506	A
23	AA	512	A
23	AA	513	G
23	AA	518	A
23	AA	523	A
23	AA	527	G
23	AA	535	G
23	AA	538	G
23	AA	539	G
23	AA	550	A
23	AA	553	A
23	AA	554	C
23	AA	557	G
23	AA	558	A
23	AA	559	A
23	AA	563	G
23	AA	566	U
23	AA	572	C
23	AA	574	A
23	AA	576	U
23	AA	577	A

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Mol	Chain	Res	Type
23	AA	578	G
23	AA	580	C
23	AA	591	A
23	AA	592	A
23	AA	594	G
23	AA	606	G
23	AA	611	U
23	AA	616	G
23	AA	617	A
23	AA	618	A
23	AA	639	U
23	AA	644	C
23	AA	645	A
23	AA	646	A
23	AA	647	G
23	AA	659	A
23	AA	672	A
23	AA	679	G
23	AA	682	A
23	AA	689	A
23	AA	690	U
23	AA	698	U
23	AA	699	U
23	AA	702	U
23	AA	713	A
23	AA	715	A
23	AA	720	A
23	AA	722	A
23	AA	730	A
23	AA	731	U
23	AA	735	C
23	AA	750	A
23	AA	754	U
23	AA	755	C
23	AA	759	U
23	AA	760	A
23	AA	761	A
23	AA	762	C
23	AA	763	A
23	AA	765	U
23	AA	766	G
23	AA	768	A

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Mol	Chain	Res	Type
23	AA	771	G
23	AA	775	A
23	AA	792	U
23	AA	793	G
23	AA	797	A
23	AA	802	G
23	AA	809	A
23	AA	810	A
23	AA	816	G
23	AA	820	G
23	AA	822	G
23	AA	827	A
23	AA	829	U
23	AA	830	U
23	AA	834	A
23	AA	835	U
23	AA	836	C
23	AA	837	G
23	AA	840	C
23	AA	841	C
23	AA	842	U
23	AA	850	G
23	AA	856	U
23	AA	857	C
23	AA	868	A
23	AA	870	C
23	AA	872	U
23	AA	891	A
23	AA	892	U
23	AA	904	G
23	AA	911	A
23	AA	914	G
23	AA	918	G
23	AA	920	A
23	AA	926	G
23	AA	928	C
23	AA	940	U
23	AA	943	C
23	AA	949	C
23	AA	952	A
23	AA	955	A
23	AA	957	C

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Mol	Chain	Res	Type
23	AA	960	C
23	AA	964	U
23	AA	968	A
23	AA	969	A
23	AA	970	U
23	AA	971	U
23	AA	972	A
23	AA	973	A
23	AA	975	U
23	AA	977	A
23	AA	985	A
23	AA	986	G
23	AA	988	C
23	AA	989	A
23	AA	990	G
23	AA	992	A
23	AA	997	G
23	AA	1003	A
23	AA	1005	G
23	AA	1012	G
23	AA	1018	A
23	AA	1019	A
23	AA	1024	A
23	AA	1025	A
23	AA	1027	A
23	AA	1034	A
23	AA	1040	A
23	AA	1043	U
23	AA	1047	G
23	AA	1049	C
23	AA	1056	U
23	AA	1057	A
23	AA	1066	G
23	AA	1067	U
23	AA	1069	G
23	AA	1070	A
23	AA	1076	A
23	AA	1077	U
23	AA	1078	G
23	AA	1086	G
23	AA	1087	C
23	AA	1088	C

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Mol	Chain	Res	Type
23	AA	1089	C
23	AA	1091	G
23	AA	1092	A
23	AA	1093	C
23	AA	1094	A
23	AA	1095	A
23	AA	1100	G
23	AA	1102	U
23	AA	1105	U
23	AA	1106	G
23	AA	1109	U
23	AA	1111	A
23	AA	1113	A
23	AA	1114	A
23	AA	1115	G
23	AA	1116	C
23	AA	1117	A
23	AA	1118	G
23	AA	1119	C
23	AA	1120	C
23	AA	1122	U
23	AA	1126	U
23	AA	1127	U
23	AA	1128	A
23	AA	1132	A
23	AA	1133	G
23	AA	1137	G
23	AA	1138	U
23	AA	1139	A
23	AA	1140	A
23	AA	1143	G
23	AA	1145	U
23	AA	1148	C
23	AA	1150	A
23	AA	1151	G
23	AA	1155	A
23	AA	1156	G
23	AA	1158	G
23	AA	1160	C
23	AA	1161	A
23	AA	1162	C
23	AA	1163	U

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Mol	Chain	Res	Type
23	AA	1174	U
23	AA	1176	U
23	AA	1178	C
23	AA	1179	C
23	AA	1186	A
23	AA	1200	A
23	AA	1201	G
23	AA	1208	A
23	AA	1214	C
23	AA	1215	U
23	AA	1216	U
23	AA	1217	U
23	AA	1218	G
23	AA	1225	G
23	AA	1245	G
23	AA	1250	G
23	AA	1258	A
23	AA	1265	G
23	AA	1267	A
23	AA	1274	G
23	AA	1275	A
23	AA	1276	G
23	AA	1284	A
23	AA	1285	A
23	AA	1286	G
23	AA	1290	G
23	AA	1291	A
23	AA	1294	G
23	AA	1298	G
23	AA	1300	G
23	AA	1304	G
23	AA	1309	G
23	AA	1310	A
23	AA	1320	G
23	AA	1326	C
23	AA	1337	A
23	AA	1338	U
23	AA	1339	U
23	AA	1340	G
23	AA	1342	C
23	AA	1344	A
23	AA	1348	U

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Mol	Chain	Res	Type
23	AA	1349	U
23	AA	1351	C
23	AA	1354	G
23	AA	1358	A
23	AA	1367	C
23	AA	1370	C
23	AA	1386	U
23	AA	1387	C
23	AA	1389	U
23	AA	1392	G
23	AA	1394	U
23	AA	1402	A
23	AA	1405	G
23	AA	1415	A
23	AA	1416	U
23	AA	1417	G
23	AA	1420	U
23	AA	1422	A
23	AA	1423	C
23	AA	1432	A
23	AA	1440	A
23	AA	1443	A
23	AA	1445	C
23	AA	1447	A
23	AA	1450	A
23	AA	1451	U
23	AA	1453	G
23	AA	1454	U
23	AA	1455	U
23	AA	1457	U
23	AA	1459	A
23	AA	1463	A
23	AA	1464	U
23	AA	1471	A
23	AA	1472	C
23	AA	1481	A
23	AA	1489	A
23	AA	1490	G
23	AA	1491	C
23	AA	1494	G
23	AA	1495	C
23	AA	1496	G

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Mol	Chain	Res	Type
23	AA	1497	A
23	AA	1498	U
23	AA	1499	U
23	AA	1503	U
23	AA	1504	U
23	AA	1510	U
23	AA	1516	C
23	AA	1518	G
23	AA	1519	U
23	AA	1520	A
23	AA	1521	A
23	AA	1525	U
23	AA	1526	G
23	AA	1527	A
23	AA	1532	U
23	AA	1533	A
23	AA	1534	G
23	AA	1536	C
23	AA	1537	A
23	AA	1540	U
23	AA	1550	G
23	AA	1551	U
23	AA	1552	U
23	AA	1553	A
23	AA	1554	A
23	AA	1555	G
23	AA	1556	G
23	AA	1559	G
23	AA	1561	G
23	AA	1569	G
23	AA	1570	G
23	AA	1575	A
23	AA	1576	A
23	AA	1578	A
23	AA	1579	C
23	AA	1580	A
23	AA	1581	U
23	AA	1582	U
23	AA	1583	G
23	AA	1584	U
23	AA	1586	U
23	AA	1587	C

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Mol	Chain	Res	Type
23	AA	1591	G
23	AA	1594	U
23	AA	1605	A
23	AA	1606	C
23	AA	1613	G
23	AA	1616	A
23	AA	1625	U
23	AA	1627	G
23	AA	1629	U
23	AA	1630	A
23	AA	1631	G
23	AA	1632	A
23	AA	1633	A
23	AA	1634	A
23	AA	1635	A
23	AA	1636	U
23	AA	1639	G
23	AA	1652	A
23	AA	1653	A
23	AA	1654	A
23	AA	1661	C
23	AA	1666	A
23	AA	1675	G
23	AA	1679	A
23	AA	1683	U
23	AA	1684	A
23	AA	1690	A
23	AA	1691	G
23	AA	1692	C
23	AA	1693	G
23	AA	1718	G
23	AA	1719	C
23	AA	1732	U
23	AA	1737	U
23	AA	1738	C
23	AA	1740	G
23	AA	1745	A
23	AA	1747	G
23	AA	1757	U
23	AA	1758	A
23	AA	1759	G
23	AA	1760	G

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Mol	Chain	Res	Type
23	AA	1761	G
23	AA	1762	U
23	AA	1765	A
23	AA	1768	C
23	AA	1771	A
23	AA	1772	G
23	AA	1790	G
23	AA	1791	G
23	AA	1797	G
23	AA	1800	A
23	AA	1806	U
23	AA	1808	U
23	AA	1809	C
23	AA	1811	A
23	AA	1813	A
23	AA	1814	A
23	AA	1818	A
23	AA	1826	G
23	AA	1827	C
23	AA	1828	U
23	AA	1829	A
23	AA	1830	A
23	AA	1835	U
23	AA	1843	U
23	AA	1846	A
23	AA	1856	A
23	AA	1860	C
23	AA	1878	U
23	AA	1879	U
23	AA	1880	A
23	AA	1885	G
23	AA	1889	G
23	AA	1895	C
23	AA	1897	U
23	AA	1898	C
23	AA	1899	U
23	AA	1900	G
23	AA	1901	C
23	AA	1902	G
23	AA	1903	A
23	AA	1904	A
23	AA	1907	U

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Mol	Chain	Res	Type
23	AA	1909	C
23	AA	1911	A
23	AA	1912	A
23	AA	1914	C
23	AA	1918	G
23	AA	1933	G
23	AA	1935	C
23	AA	1937	G
23	AA	1938	U
23	AA	1945	A
23	AA	1950	U
23	AA	1956	G
23	AA	1958	U
23	AA	1963	A
23	AA	1964	A
23	AA	1965	A
23	AA	1966	U
23	AA	1971	U
23	AA	1982	U
23	AA	1989	C
23	AA	1990	C
23	AA	1992	C
23	AA	1994	C
23	AA	1996	A
23	AA	1997	A
23	AA	1998	A
23	AA	1999	G
23	AA	2009	U
23	AA	2018	U
23	AA	2019	G
23	AA	2020	U
23	AA	2023	C
23	AA	2024	A
23	AA	2029	G
23	AA	2030	A
23	AA	2047	A
23	AA	2057	A
23	AA	2058	A
23	AA	2059	G
23	AA	2060	A
23	AA	2062	G
23	AA	2070	C

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Mol	Chain	Res	Type
23	AA	2073	G
23	AA	2075	G
23	AA	2076	A
23	AA	2082	C
23	AA	2083	G
23	AA	2085	A
23	AA	2087	A
23	AA	2088	G
23	AA	2089	A
23	AA	2096	G
23	AA	2097	G
23	AA	2103	U
23	AA	2107	G
23	AA	2109	A
23	AA	2110	G
23	AA	2111	C
23	AA	2115	A
23	AA	2117	A
23	AA	2118	U
23	AA	2119	U
23	AA	2120	G
23	AA	2126	C
23	AA	2129	C
23	AA	2139	A
23	AA	2140	C
23	AA	2143	G
23	AA	2145	U
23	AA	2147	G
23	AA	2153	A
23	AA	2155	C
23	AA	2157	U
23	AA	2158	U
23	AA	2160	G
23	AA	2161	A
23	AA	2164	C
23	AA	2172	C
23	AA	2173	U
23	AA	2174	A
23	AA	2175	G
23	AA	2176	C
23	AA	2183	G
23	AA	2185	A

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Mol	Chain	Res	Type
23	AA	2186	G
23	AA	2188	C
23	AA	2190	C
23	AA	2193	G
23	AA	2194	U
23	AA	2195	G
23	AA	2198	A
23	AA	2204	C
23	AA	2215	U
23	AA	2224	U
23	AA	2225	A
23	AA	2229	C
23	AA	2230	G
23	AA	2231	C
23	AA	2232	A
23	AA	2238	U
23	AA	2240	U
23	AA	2241	C
23	AA	2243	U
23	AA	2252	A
23	AA	2261	G
23	AA	2262	G
23	AA	2263	C
23	AA	2265	G
23	AA	2266	G
23	AA	2290	C
23	AA	2295	A
23	AA	2305	A
23	AA	2306	G
23	AA	2310	C
23	AA	2314	A
23	AA	2316	G
23	AA	2321	C
23	AA	2328	A
23	AA	2329	U
23	AA	2330	G
23	AA	2331	G
23	AA	2332	U
23	AA	2333	U
23	AA	2334	G
23	AA	2335	G
23	AA	2336	A

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Mol	Chain	Res	Type
23	AA	2337	A
23	AA	2345	A
23	AA	2346	U
23	AA	2347	A
23	AA	2352	G
23	AA	2353	U
23	AA	2358	G
23	AA	2361	U
23	AA	2362	A
23	AA	2370	U
23	AA	2374	C
23	AA	2377	C
23	AA	2385	A
23	AA	2388	A
23	AA	2396	A
23	AA	2409	G
23	AA	2410	G
23	AA	2411	A
23	AA	2412	C
23	AA	2429	U
23	AA	2433	C
23	AA	2434	A
23	AA	2441	G
23	AA	2449	C
23	AA	2450	U
23	AA	2451	C
23	AA	2455	G
23	AA	2456	G
23	AA	2457	A
23	AA	2458	U
23	AA	2459	A
23	AA	2460	A
23	AA	2461	A
23	AA	2462	A
23	AA	2463	G
23	AA	2468	C
23	AA	2472	G
23	AA	2474	G
23	AA	2475	A
23	AA	2485	U
23	AA	2486	A
23	AA	2503	A

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Mol	Chain	Res	Type
23	AA	2511	G
23	AA	2521	G
23	AA	2525	C
23	AA	2529	G
23	AA	2530	A
23	AA	2531	U
23	AA	2532	G
23	AA	2540	A
23	AA	2544	C
23	AA	2545	A
23	AA	2547	C
23	AA	2556	G
23	AA	2561	C
23	AA	2562	G
23	AA	2568	A
23	AA	2569	A
23	AA	2570	G
23	AA	2581	U
23	AA	2589	U
23	AA	2592	A
23	AA	2593	A
23	AA	2594	G
23	AA	2599	A
23	AA	2600	C
23	AA	2604	A
23	AA	2605	G
23	AA	2613	C
23	AA	2626	G
23	AA	2629	A
23	AA	2630	G
23	AA	2636	U
23	AA	2640	U
23	AA	2642	U
23	AA	2646	U
23	AA	2648	G
23	AA	2650	G
23	AA	2656	A
23	AA	2657	G
23	AA	2666	A
23	AA	2672	G
23	AA	2679	U
23	AA	2681	A

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Mol	Chain	Res	Type
23	AA	2687	A
23	AA	2692	A
23	AA	2695	G
23	AA	2696	G
23	AA	2697	G
23	AA	2699	U
23	AA	2700	G
23	AA	2712	G
23	AA	2716	U
23	AA	2741	G
23	AA	2745	G
23	AA	2750	C
23	AA	2753	U
23	AA	2756	G
23	AA	2757	U
23	AA	2759	G
23	AA	2760	A
23	AA	2761	C
23	AA	2764	G
23	AA	2769	G
23	AA	2771	G
23	AA	2775	A
23	AA	2778	G
23	AA	2784	A
23	AA	2788	A
23	AA	2793	G
23	AA	2794	C
23	AA	2796	C
23	AA	2798	C
23	AA	2800	U
23	AA	2801	C
23	AA	2803	A
23	AA	2804	G
23	AA	2805	A
23	AA	2806	U
23	AA	2808	A
23	AA	2817	A
23	AA	2820	U
23	AA	2821	U
23	AA	2822	C
23	AA	2823	G
23	AA	2824	G

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Mol	Chain	Res	Type
23	AA	2827	A
23	AA	2828	U
23	AA	2829	A
23	AA	2831	G
23	AA	2832	A
23	AA	2838	C
23	AA	2840	A
23	AA	2843	A
23	AA	2850	G
23	AA	2853	U
23	AA	2854	A
23	AA	2855	A
23	AA	2879	G
23	AA	2887	G
23	AA	2888	A
23	AA	2892	G
23	AA	2899	A
23	AA	2900	C
23	AA	2903	A
23	AA	2913	G
23	AA	2914	A
23	AA	2919	A
24	AB	10	U
24	AB	22	G
24	AB	23	U
24	AB	24	C
24	AB	33	U
24	AB	39	G
24	AB	40	C
24	AB	43	A
24	AB	51	A
24	AB	55	A
24	AB	64	A
24	AB	87	C
24	AB	88	G
24	AB	106	G
24	AB	111	C
24	AB	113	G
1	Ba	6	U
1	Ba	8	G
1	Ba	9	A
1	Ba	10	G

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Mol	Chain	Res	Type
1	Ba	23	G
1	Ba	30	A
1	Ba	33	A
1	Ba	40	G
1	Ba	41	C
1	Ba	45	G
1	Ba	48	C
1	Ba	49	C
1	Ba	50	U
1	Ba	51	A
1	Ba	52	A
1	Ba	59	C
1	Ba	60	A
1	Ba	61	A
1	Ba	62	G
1	Ba	66	A
1	Ba	68	C
1	Ba	69	G
1	Ba	70	A
1	Ba	71	A
1	Ba	75	A
1	Ba	76	C
1	Ba	78	A
1	Ba	82	G
1	Ba	83	C
1	Ba	84	U
1	Ba	85	U
1	Ba	88	U
1	Ba	89	U
1	Ba	92	C
1	Ba	94	G
1	Ba	99	U
1	Ba	100	A
1	Ba	107	G
1	Ba	120	C
1	Ba	129	A
1	Ba	140	A
1	Ba	150	U
1	Ba	162	A
1	Ba	163	C
1	Ba	165	G
1	Ba	183	U

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Mol	Chain	Res	Type
1	Ba	184	A
1	Ba	185	U
1	Ba	186	U
1	Ba	187	U
1	Ba	188	U
1	Ba	191	A
1	Ba	193	C
1	Ba	194	G
1	Ba	197	U
1	Ba	199	G
1	Ba	200	U
1	Ba	201	U
1	Ba	203	A
1	Ba	204	A
1	Ba	206	A
1	Ba	208	U
1	Ba	209	G
1	Ba	210	A
1	Ba	211	A
1	Ba	213	G
1	Ba	219	C
1	Ba	220	U
1	Ba	221	U
1	Ba	222	G
1	Ba	224	U
1	Ba	228	A
1	Ba	230	U
1	Ba	231	U
1	Ba	234	A
1	Ba	252	U
1	Ba	253	U
1	Ba	255	G
1	Ba	256	C
1	Ba	257	U
1	Ba	258	A
1	Ba	259	G
1	Ba	264	U
1	Ba	267	G
1	Ba	269	U
1	Ba	274	G
1	Ba	275	C
1	Ba	279	C

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Mol	Chain	Res	Type
1	Ba	289	G
1	Ba	291	U
1	Ba	297	G
1	Ba	301	A
1	Ba	309	G
1	Ba	335	A
1	Ba	336	C
1	Ba	337	A
1	Ba	339	G
1	Ba	352	A
1	Ba	354	G
1	Ba	355	G
1	Ba	356	G
1	Ba	358	G
1	Ba	359	G
1	Ba	360	C
1	Ba	362	G
1	Ba	364	A
1	Ba	375	U
1	Ba	376	U
1	Ba	380	C
1	Ba	381	A
1	Ba	389	A
1	Ba	392	G
1	Ba	395	U
1	Ba	406	C
1	Ba	411	C
1	Ba	412	G
1	Ba	413	U
1	Ba	414	G
1	Ba	415	A
1	Ba	416	G
1	Ba	417	U
1	Ba	418	G
1	Ba	419	A
1	Ba	420	U
1	Ba	421	G
1	Ba	422	A
1	Ba	423	A
1	Ba	424	G
1	Ba	425	G
1	Ba	426	U

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Mol	Chain	Res	Type
1	Ba	430	C
1	Ba	431	G
1	Ba	432	G
1	Ba	434	U
1	Ba	437	U
1	Ba	438	A
1	Ba	440	A
1	Ba	441	A
1	Ba	442	C
1	Ba	449	A
1	Ba	450	U
1	Ba	451	U
1	Ba	452	A
1	Ba	456	A
1	Ba	458	G
1	Ba	460	A
1	Ba	461	C
1	Ba	464	A
1	Ba	465	U
1	Ba	484	A
1	Ba	485	U
1	Ba	486	C
1	Ba	487	U
1	Ba	488	U
1	Ba	492	G
1	Ba	499	A
1	Ba	503	A
1	Ba	504	G
1	Ba	505	A
1	Ba	506	A
1	Ba	507	A
1	Ba	513	G
1	Ba	514	G
1	Ba	516	U
1	Ba	517	A
1	Ba	519	C
1	Ba	522	C
1	Ba	526	C
1	Ba	529	G
1	Ba	532	G
1	Ba	535	G
1	Ba	539	U

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Mol	Chain	Res	Type
1	Ba	541	A
1	Ba	542	U
1	Ba	543	A
1	Ba	548	G
1	Ba	554	A
1	Ba	555	A
1	Ba	567	A
1	Ba	570	U
1	Ba	571	A
1	Ba	580	A
1	Ba	581	A
1	Ba	584	C
1	Ba	585	G
1	Ba	596	G
1	Ba	603	A
1	Ba	610	A
1	Ba	619	C
1	Ba	628	C
1	Ba	638	G
1	Ba	639	G
1	Ba	640	G
1	Ba	641	U
1	Ba	642	C
1	Ba	647	G
1	Ba	649	A
1	Ba	650	A
1	Ba	657	A
1	Ba	661	U
1	Ba	666	G
1	Ba	670	A
1	Ba	673	A
1	Ba	674	G
1	Ba	695	A
1	Ba	696	G
1	Ba	702	A
1	Ba	703	A
1	Ba	711	G
1	Ba	712	A
1	Ba	724	A
1	Ba	729	A
1	Ba	731	U
1	Ba	739	G

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Mol	Chain	Res	Type
1	Ba	756	A
1	Ba	763	G
1	Ba	772	C
1	Ba	781	G
1	Ba	798	A
1	Ba	801	U
1	Ba	813	C
1	Ba	818	C
1	Ba	823	A
1	Ba	825	C
1	Ba	826	G
1	Ba	827	A
1	Ba	829	G
1	Ba	835	U
1	Ba	836	A
1	Ba	840	G
1	Ba	845	G
1	Ba	847	G
1	Ba	848	G
1	Ba	849	U
1	Ba	850	U
1	Ba	852	C
1	Ba	853	C
1	Ba	854	G
1	Ba	855	C
1	Ba	856	C
1	Ba	857	C
1	Ba	858	C
1	Ba	881	A
1	Ba	894	G
1	Ba	898	A
1	Ba	910	A
1	Ba	911	G
1	Ba	923	A
1	Ba	924	A
1	Ba	935	G
1	Ba	943	C
1	Ba	944	A
1	Ba	949	C
1	Ba	950	G
1	Ba	953	G
1	Ba	954	G

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Mol	Chain	Res	Type
1	Ba	955	A
1	Ba	956	G
1	Ba	958	A
1	Ba	959	U
1	Ba	961	U
1	Ba	969	U
1	Ba	970	U
1	Ba	972	G
1	Ba	973	A
1	Ba	974	A
1	Ba	975	G
1	Ba	977	A
1	Ba	978	A
1	Ba	980	G
1	Ba	983	A
1	Ba	984	A
1	Ba	985	G
1	Ba	986	A
1	Ba	991	U
1	Ba	1001	U
1	Ba	1002	G
1	Ba	1003	A
1	Ba	1007	C
1	Ba	1008	C
1	Ba	1011	U
1	Ba	1012	G
1	Ba	1013	A
1	Ba	1015	A
1	Ba	1016	A
1	Ba	1017	C
1	Ba	1022	G
1	Ba	1023	A
1	Ba	1026	U
1	Ba	1032	C
1	Ba	1033	U
1	Ba	1035	C
1	Ba	1036	C
1	Ba	1038	C
1	Ba	1039	U
1	Ba	1041	C
1	Ba	1042	G
1	Ba	1043	G

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Mol	Chain	Res	Type
1	Ba	1047	A
1	Ba	1048	C
1	Ba	1052	G
1	Ba	1055	A
1	Ba	1056	C
1	Ba	1057	A
1	Ba	1064	G
1	Ba	1065	C
1	Ba	1066	A
1	Ba	1076	U
1	Ba	1077	C
1	Ba	1091	A
1	Ba	1092	G
1	Ba	1094	U
1	Ba	1096	U
1	Ba	1101	U
1	Ba	1105	G
1	Ba	1106	U
1	Ba	1109	C
1	Ba	1112	A
1	Ba	1113	A
1	Ba	1115	G
1	Ba	1119	G
1	Ba	1123	C
1	Ba	1130	G
1	Ba	1135	G
1	Ba	1136	U
1	Ba	1137	U
1	Ba	1138	G
1	Ba	1141	A
1	Ba	1142	U
1	Ba	1143	C
1	Ba	1146	U
1	Ba	1148	A
1	Ba	1149	G
1	Ba	1150	U
1	Ba	1151	U
1	Ba	1154	G
1	Ba	1156	A
1	Ba	1157	C
1	Ba	1165	U
1	Ba	1167	A

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Mol	Chain	Res	Type
1	Ba	1168	C
1	Ba	1169	U
1	Ba	1172	C
1	Ba	1173	G
1	Ba	1174	G
1	Ba	1175	U
1	Ba	1177	A
1	Ba	1178	C
1	Ba	1179	A
1	Ba	1181	A
1	Ba	1187	G
1	Ba	1188	G
1	Ba	1189	A
1	Ba	1190	A
1	Ba	1191	G
1	Ba	1194	G
1	Ba	1202	C
1	Ba	1203	G
1	Ba	1206	A
1	Ba	1207	A
1	Ba	1208	A
1	Ba	1209	U
1	Ba	1210	C
1	Ba	1211	A
1	Ba	1216	G
1	Ba	1222	U
1	Ba	1224	U
1	Ba	1225	G
1	Ba	1226	A
1	Ba	1228	U
1	Ba	1230	G
1	Ba	1234	U
1	Ba	1235	A
1	Ba	1236	C
1	Ba	1238	C
1	Ba	1243	G
1	Ba	1246	A
1	Ba	1248	A
1	Ba	1250	U
1	Ba	1251	G
1	Ba	1256	A
1	Ba	1260	A

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Mol	Chain	Res	Type
1	Ba	1266	C
1	Ba	1267	A
1	Ba	1268	G
1	Ba	1270	G
1	Ba	1274	C
1	Ba	1275	C
1	Ba	1280	G
1	Ba	1281	G
1	Ba	1282	U
1	Ba	1283	C
1	Ba	1286	G
1	Ba	1287	C
1	Ba	1288	A
1	Ba	1289	A
1	Ba	1290	A
1	Ba	1291	U
1	Ba	1292	C
1	Ba	1296	U
1	Ba	1297	A
1	Ba	1300	G
1	Ba	1305	U
1	Ba	1307	U
1	Ba	1308	C
1	Ba	1309	A
1	Ba	1310	G
1	Ba	1311	U
1	Ba	1312	U
1	Ba	1313	C
1	Ba	1314	G
1	Ba	1315	G
1	Ba	1319	G
1	Ba	1320	U
1	Ba	1322	G
1	Ba	1327	C
1	Ba	1329	A
1	Ba	1332	C
1	Ba	1333	G
1	Ba	1335	C
1	Ba	1336	U
1	Ba	1337	A
1	Ba	1338	C
1	Ba	1339	A

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Mol	Chain	Res	Type
1	Ba	1341	G
1	Ba	1345	C
1	Ba	1347	G
1	Ba	1348	G
1	Ba	1356	A
1	Ba	1357	G
1	Ba	1361	U
1	Ba	1363	G
1	Ba	1368	U
1	Ba	1371	G
1	Ba	1373	A
1	Ba	1378	A
1	Ba	1380	G
1	Ba	1387	A
1	Ba	1391	U
1	Ba	1392	C
1	Ba	1393	C
1	Ba	1404	A
1	Ba	1408	A
1	Ba	1419	C
1	Ba	1421	C
1	Ba	1428	A
1	Ba	1429	G
1	Ba	1438	A
1	Ba	1448	G
1	Ba	1451	G
1	Ba	1456	A
1	Ba	1461	U
1	Ba	1462	U
1	Ba	1463	U
1	Ba	1464	A
1	Ba	1466	G
1	Ba	1468	G
1	Ba	1476	U
1	Ba	1483	U
1	Ba	1495	U
1	Ba	1505	G
1	Ba	1508	G
1	Ba	1510	A
1	Ba	1514	A
1	Ba	1515	G
1	Ba	1540	G

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Mol	Chain	Res	Type
1	Ba	1541	G
1	Ba	1543	U
23	BA	11	U
23	BA	15	G
23	BA	27	G
23	BA	28	A
23	BA	34	U
23	BA	36	G
23	BA	43	A
23	BA	51	G
23	BA	52	A
23	BA	53	A
23	BA	55	G
23	BA	63	U
23	BA	70	G
23	BA	71	A
23	BA	74	U
23	BA	75	G
23	BA	83	G
23	BA	84	A
23	BA	90	A
23	BA	92	G
23	BA	93	U
23	BA	96	G
23	BA	101	G
23	BA	102	A
23	BA	104	C
23	BA	117	A
23	BA	119	U
23	BA	124	A
23	BA	141	U
23	BA	148	U
23	BA	149	U
23	BA	152	C
23	BA	156	A
23	BA	157	U
23	BA	158	G
23	BA	161	A
23	BA	164	A
23	BA	167	U
23	BA	168	A
23	BA	170	C

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Mol	Chain	Res	Type
23	BA	172	U
23	BA	173	A
23	BA	177	G
23	BA	178	A
23	BA	180	G
23	BA	184	C
23	BA	185	A
23	BA	199	A
23	BA	202	A
23	BA	213	C
23	BA	215	G
23	BA	216	A
23	BA	218	G
23	BA	219	A
23	BA	224	A
23	BA	225	A
23	BA	233	U
23	BA	246	U
23	BA	251	G
23	BA	255	G
23	BA	268	A
23	BA	269	G
23	BA	270	C
23	BA	279	A
23	BA	280	C
23	BA	285	U
23	BA	286	U
23	BA	287	G
23	BA	292	U
23	BA	293	U
23	BA	298	U
23	BA	299	U
23	BA	300	G
23	BA	301	U
23	BA	302	A
23	BA	307	A
23	BA	309	U
23	BA	310	C
23	BA	311	U
23	BA	312	A
23	BA	316	G
23	BA	320	U

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Mol	Chain	Res	Type
23	BA	321	U
23	BA	327	G
23	BA	328	G
23	BA	333	C
23	BA	335	U
23	BA	345	C
23	BA	353	A
23	BA	365	A
23	BA	366	G
23	BA	373	A
23	BA	388	A
23	BA	389	A
23	BA	392	U
23	BA	394	U
23	BA	397	U
23	BA	402	C
23	BA	404	U
23	BA	406	A
23	BA	410	G
23	BA	411	A
23	BA	417	A
23	BA	432	G
23	BA	435	A
23	BA	444	C
23	BA	447	A
23	BA	449	U
23	BA	451	U
23	BA	452	G
23	BA	458	A
23	BA	460	C
23	BA	481	C
23	BA	482	U
23	BA	486	G
23	BA	490	C
23	BA	492	G
23	BA	493	A
23	BA	501	C
23	BA	502	C
23	BA	503	A
23	BA	504	G
23	BA	506	A
23	BA	512	A

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Mol	Chain	Res	Type
23	BA	513	G
23	BA	518	A
23	BA	523	A
23	BA	527	G
23	BA	535	G
23	BA	538	G
23	BA	539	G
23	BA	550	A
23	BA	553	A
23	BA	554	C
23	BA	557	G
23	BA	558	A
23	BA	559	A
23	BA	563	G
23	BA	566	U
23	BA	572	C
23	BA	574	A
23	BA	576	U
23	BA	577	A
23	BA	578	G
23	BA	580	C
23	BA	591	A
23	BA	592	A
23	BA	594	G
23	BA	606	G
23	BA	611	U
23	BA	616	G
23	BA	617	A
23	BA	618	A
23	BA	639	U
23	BA	644	C
23	BA	645	A
23	BA	646	A
23	BA	647	G
23	BA	659	A
23	BA	672	A
23	BA	679	G
23	BA	682	A
23	BA	689	A
23	BA	690	U
23	BA	698	U
23	BA	699	U

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Mol	Chain	Res	Type
23	BA	702	U
23	BA	713	A
23	BA	715	A
23	BA	720	A
23	BA	722	A
23	BA	730	A
23	BA	731	U
23	BA	735	C
23	BA	750	A
23	BA	754	U
23	BA	755	C
23	BA	759	U
23	BA	760	A
23	BA	761	A
23	BA	762	C
23	BA	763	A
23	BA	765	U
23	BA	766	G
23	BA	768	A
23	BA	771	G
23	BA	775	A
23	BA	792	U
23	BA	793	G
23	BA	797	A
23	BA	802	G
23	BA	809	A
23	BA	810	A
23	BA	816	G
23	BA	820	G
23	BA	822	G
23	BA	827	A
23	BA	829	U
23	BA	830	U
23	BA	834	A
23	BA	835	U
23	BA	836	C
23	BA	837	G
23	BA	840	C
23	BA	841	C
23	BA	842	U
23	BA	850	G
23	BA	856	U

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Mol	Chain	Res	Type
23	BA	857	C
23	BA	868	A
23	BA	870	C
23	BA	872	U
23	BA	891	A
23	BA	892	U
23	BA	904	G
23	BA	911	A
23	BA	914	G
23	BA	918	G
23	BA	920	A
23	BA	926	G
23	BA	928	C
23	BA	940	U
23	BA	943	C
23	BA	949	C
23	BA	952	A
23	BA	955	A
23	BA	957	C
23	BA	960	C
23	BA	964	U
23	BA	968	A
23	BA	969	A
23	BA	970	U
23	BA	971	U
23	BA	972	A
23	BA	973	A
23	BA	975	U
23	BA	977	A
23	BA	985	A
23	BA	986	G
23	BA	988	C
23	BA	989	A
23	BA	990	G
23	BA	992	A
23	BA	997	G
23	BA	1003	A
23	BA	1005	G
23	BA	1012	G
23	BA	1018	A
23	BA	1019	A
23	BA	1024	A

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Mol	Chain	Res	Type
23	BA	1025	A
23	BA	1027	A
23	BA	1034	A
23	BA	1040	A
23	BA	1043	U
23	BA	1047	G
23	BA	1049	C
23	BA	1056	U
23	BA	1057	A
23	BA	1066	G
23	BA	1067	U
23	BA	1069	G
23	BA	1070	A
23	BA	1076	A
23	BA	1077	U
23	BA	1078	G
23	BA	1086	G
23	BA	1087	C
23	BA	1088	C
23	BA	1089	C
23	BA	1091	G
23	BA	1092	A
23	BA	1093	C
23	BA	1094	A
23	BA	1095	A
23	BA	1100	G
23	BA	1102	U
23	BA	1105	U
23	BA	1106	G
23	BA	1109	U
23	BA	1111	A
23	BA	1113	A
23	BA	1114	A
23	BA	1115	G
23	BA	1116	C
23	BA	1117	A
23	BA	1118	G
23	BA	1119	C
23	BA	1120	C
23	BA	1122	U
23	BA	1126	U
23	BA	1127	U

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Mol	Chain	Res	Type
23	BA	1128	A
23	BA	1132	A
23	BA	1133	G
23	BA	1137	G
23	BA	1138	U
23	BA	1139	A
23	BA	1140	A
23	BA	1143	G
23	BA	1145	U
23	BA	1148	C
23	BA	1150	A
23	BA	1151	G
23	BA	1155	A
23	BA	1156	G
23	BA	1158	G
23	BA	1160	C
23	BA	1161	A
23	BA	1162	C
23	BA	1163	U
23	BA	1174	U
23	BA	1176	U
23	BA	1178	C
23	BA	1179	C
23	BA	1186	A
23	BA	1200	A
23	BA	1201	G
23	BA	1208	A
23	BA	1214	C
23	BA	1215	U
23	BA	1216	U
23	BA	1217	U
23	BA	1218	G
23	BA	1225	G
23	BA	1245	G
23	BA	1250	G
23	BA	1258	A
23	BA	1265	G
23	BA	1267	A
23	BA	1274	G
23	BA	1275	A
23	BA	1276	G
23	BA	1284	A

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Mol	Chain	Res	Type
23	BA	1285	A
23	BA	1286	G
23	BA	1290	G
23	BA	1291	A
23	BA	1294	G
23	BA	1298	G
23	BA	1300	G
23	BA	1304	G
23	BA	1309	G
23	BA	1310	A
23	BA	1320	G
23	BA	1326	C
23	BA	1337	A
23	BA	1338	U
23	BA	1339	U
23	BA	1340	G
23	BA	1342	C
23	BA	1344	A
23	BA	1348	U
23	BA	1349	U
23	BA	1351	C
23	BA	1354	G
23	BA	1358	A
23	BA	1367	C
23	BA	1370	C
23	BA	1386	U
23	BA	1387	C
23	BA	1389	U
23	BA	1392	G
23	BA	1394	U
23	BA	1402	A
23	BA	1405	G
23	BA	1415	A
23	BA	1416	U
23	BA	1417	G
23	BA	1420	U
23	BA	1422	A
23	BA	1423	C
23	BA	1432	A
23	BA	1440	A
23	BA	1443	A
23	BA	1445	C

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Mol	Chain	Res	Type
23	BA	1447	A
23	BA	1450	A
23	BA	1451	U
23	BA	1453	G
23	BA	1454	U
23	BA	1455	U
23	BA	1457	U
23	BA	1459	A
23	BA	1463	A
23	BA	1464	U
23	BA	1471	A
23	BA	1472	C
23	BA	1481	A
23	BA	1489	A
23	BA	1490	G
23	BA	1491	C
23	BA	1494	G
23	BA	1495	C
23	BA	1496	G
23	BA	1497	A
23	BA	1498	U
23	BA	1499	U
23	BA	1503	U
23	BA	1504	U
23	BA	1510	U
23	BA	1516	C
23	BA	1518	G
23	BA	1519	U
23	BA	1520	A
23	BA	1521	A
23	BA	1525	U
23	BA	1526	G
23	BA	1527	A
23	BA	1532	U
23	BA	1533	A
23	BA	1534	G
23	BA	1536	C
23	BA	1537	A
23	BA	1540	U
23	BA	1550	G
23	BA	1551	U
23	BA	1552	U

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Mol	Chain	Res	Type
23	BA	1553	A
23	BA	1554	A
23	BA	1555	G
23	BA	1556	G
23	BA	1559	G
23	BA	1561	G
23	BA	1569	G
23	BA	1570	G
23	BA	1575	A
23	BA	1576	A
23	BA	1578	A
23	BA	1579	C
23	BA	1580	A
23	BA	1581	U
23	BA	1582	U
23	BA	1583	G
23	BA	1584	U
23	BA	1586	U
23	BA	1587	C
23	BA	1591	G
23	BA	1594	U
23	BA	1605	A
23	BA	1606	C
23	BA	1613	G
23	BA	1616	A
23	BA	1625	U
23	BA	1627	G
23	BA	1629	U
23	BA	1630	A
23	BA	1631	G
23	BA	1632	A
23	BA	1633	A
23	BA	1634	A
23	BA	1635	A
23	BA	1636	U
23	BA	1639	G
23	BA	1652	A
23	BA	1653	A
23	BA	1654	A
23	BA	1661	C
23	BA	1666	A
23	BA	1675	G

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Mol	Chain	Res	Type
23	BA	1679	A
23	BA	1683	U
23	BA	1684	A
23	BA	1690	A
23	BA	1691	G
23	BA	1692	C
23	BA	1693	G
23	BA	1718	G
23	BA	1719	C
23	BA	1732	U
23	BA	1737	U
23	BA	1738	C
23	BA	1740	G
23	BA	1745	A
23	BA	1747	G
23	BA	1757	U
23	BA	1758	A
23	BA	1759	G
23	BA	1760	G
23	BA	1761	G
23	BA	1762	U
23	BA	1765	A
23	BA	1768	C
23	BA	1771	A
23	BA	1772	G
23	BA	1790	G
23	BA	1791	G
23	BA	1797	G
23	BA	1800	A
23	BA	1806	U
23	BA	1808	U
23	BA	1809	C
23	BA	1811	A
23	BA	1813	A
23	BA	1814	A
23	BA	1818	A
23	BA	1826	G
23	BA	1827	C
23	BA	1828	U
23	BA	1829	A
23	BA	1830	A
23	BA	1835	U

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Mol	Chain	Res	Type
23	BA	1843	U
23	BA	1846	A
23	BA	1856	A
23	BA	1860	C
23	BA	1878	U
23	BA	1879	U
23	BA	1880	A
23	BA	1885	G
23	BA	1889	G
23	BA	1895	C
23	BA	1897	U
23	BA	1898	C
23	BA	1899	U
23	BA	1900	G
23	BA	1901	C
23	BA	1902	G
23	BA	1903	A
23	BA	1904	A
23	BA	1907	U
23	BA	1909	C
23	BA	1911	A
23	BA	1912	A
23	BA	1914	C
23	BA	1918	G
23	BA	1933	G
23	BA	1935	C
23	BA	1937	G
23	BA	1938	U
23	BA	1945	A
23	BA	1950	U
23	BA	1956	G
23	BA	1958	U
23	BA	1963	A
23	BA	1964	A
23	BA	1965	A
23	BA	1966	U
23	BA	1971	U
23	BA	1982	U
23	BA	1989	C
23	BA	1990	C
23	BA	1992	C
23	BA	1994	C

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Mol	Chain	Res	Type
23	BA	1996	A
23	BA	1997	A
23	BA	1998	A
23	BA	1999	G
23	BA	2009	U
23	BA	2018	U
23	BA	2019	G
23	BA	2020	U
23	BA	2023	C
23	BA	2024	A
23	BA	2029	G
23	BA	2030	A
23	BA	2047	A
23	BA	2057	A
23	BA	2058	A
23	BA	2059	G
23	BA	2060	A
23	BA	2062	G
23	BA	2070	C
23	BA	2073	G
23	BA	2075	G
23	BA	2076	A
23	BA	2082	C
23	BA	2083	G
23	BA	2085	A
23	BA	2087	A
23	BA	2088	G
23	BA	2089	A
23	BA	2096	G
23	BA	2097	G
23	BA	2103	U
23	BA	2107	G
23	BA	2109	A
23	BA	2110	G
23	BA	2111	C
23	BA	2115	A
23	BA	2117	A
23	BA	2118	U
23	BA	2119	U
23	BA	2120	G
23	BA	2126	C
23	BA	2129	C

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Mol	Chain	Res	Type
23	BA	2139	A
23	BA	2140	C
23	BA	2143	G
23	BA	2145	U
23	BA	2147	G
23	BA	2153	A
23	BA	2155	C
23	BA	2157	U
23	BA	2158	U
23	BA	2160	G
23	BA	2161	A
23	BA	2164	C
23	BA	2172	C
23	BA	2173	U
23	BA	2174	A
23	BA	2175	G
23	BA	2176	C
23	BA	2183	G
23	BA	2185	A
23	BA	2186	G
23	BA	2188	C
23	BA	2190	C
23	BA	2193	G
23	BA	2194	U
23	BA	2195	G
23	BA	2198	A
23	BA	2204	C
23	BA	2215	U
23	BA	2224	U
23	BA	2225	A
23	BA	2229	C
23	BA	2230	G
23	BA	2231	C
23	BA	2232	A
23	BA	2238	U
23	BA	2240	U
23	BA	2241	C
23	BA	2243	U
23	BA	2252	A
23	BA	2261	G
23	BA	2262	G
23	BA	2263	C

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Mol	Chain	Res	Type
23	BA	2265	G
23	BA	2266	G
23	BA	2290	C
23	BA	2295	A
23	BA	2305	A
23	BA	2306	G
23	BA	2310	C
23	BA	2314	A
23	BA	2316	G
23	BA	2321	C
23	BA	2328	A
23	BA	2329	U
23	BA	2330	G
23	BA	2331	G
23	BA	2332	U
23	BA	2333	U
23	BA	2334	G
23	BA	2335	G
23	BA	2336	A
23	BA	2337	A
23	BA	2345	A
23	BA	2346	U
23	BA	2347	A
23	BA	2352	G
23	BA	2353	U
23	BA	2358	G
23	BA	2361	U
23	BA	2362	A
23	BA	2370	U
23	BA	2374	C
23	BA	2377	C
23	BA	2385	A
23	BA	2388	A
23	BA	2396	A
23	BA	2409	G
23	BA	2410	G
23	BA	2411	A
23	BA	2412	C
23	BA	2429	U
23	BA	2433	C
23	BA	2434	A
23	BA	2441	G

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Mol	Chain	Res	Type
23	BA	2449	C
23	BA	2450	U
23	BA	2451	C
23	BA	2455	G
23	BA	2456	G
23	BA	2457	A
23	BA	2458	U
23	BA	2459	A
23	BA	2460	A
23	BA	2461	A
23	BA	2462	A
23	BA	2463	G
23	BA	2468	C
23	BA	2472	G
23	BA	2474	G
23	BA	2475	A
23	BA	2485	U
23	BA	2486	A
23	BA	2503	A
23	BA	2511	G
23	BA	2521	G
23	BA	2525	C
23	BA	2529	G
23	BA	2530	A
23	BA	2531	U
23	BA	2532	G
23	BA	2540	A
23	BA	2544	C
23	BA	2545	A
23	BA	2547	C
23	BA	2556	G
23	BA	2561	C
23	BA	2562	G
23	BA	2568	A
23	BA	2569	A
23	BA	2570	G
23	BA	2581	U
23	BA	2589	U
23	BA	2592	A
23	BA	2593	A
23	BA	2594	G
23	BA	2599	A

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Mol	Chain	Res	Type
23	BA	2600	C
23	BA	2604	A
23	BA	2605	G
23	BA	2613	C
23	BA	2626	G
23	BA	2629	A
23	BA	2630	G
23	BA	2636	U
23	BA	2640	U
23	BA	2642	U
23	BA	2646	U
23	BA	2648	G
23	BA	2650	G
23	BA	2656	A
23	BA	2657	G
23	BA	2666	A
23	BA	2672	G
23	BA	2679	U
23	BA	2681	A
23	BA	2687	A
23	BA	2692	A
23	BA	2695	G
23	BA	2696	G
23	BA	2697	G
23	BA	2699	U
23	BA	2700	G
23	BA	2712	G
23	BA	2716	U
23	BA	2741	G
23	BA	2745	G
23	BA	2750	C
23	BA	2753	U
23	BA	2756	G
23	BA	2757	U
23	BA	2759	G
23	BA	2760	A
23	BA	2761	C
23	BA	2764	G
23	BA	2769	G
23	BA	2771	G
23	BA	2775	A
23	BA	2778	G

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Mol	Chain	Res	Type
23	BA	2784	A
23	BA	2788	A
23	BA	2793	G
23	BA	2794	C
23	BA	2796	C
23	BA	2798	C
23	BA	2800	U
23	BA	2801	C
23	BA	2803	A
23	BA	2804	G
23	BA	2805	A
23	BA	2806	U
23	BA	2808	A
23	BA	2817	A
23	BA	2820	U
23	BA	2821	U
23	BA	2822	C
23	BA	2823	G
23	BA	2824	G
23	BA	2827	A
23	BA	2828	U
23	BA	2829	A
23	BA	2831	G
23	BA	2832	A
23	BA	2838	C
23	BA	2840	A
23	BA	2843	A
23	BA	2850	G
23	BA	2853	U
23	BA	2854	A
23	BA	2855	A
23	BA	2879	G
23	BA	2887	G
23	BA	2888	A
23	BA	2892	G
23	BA	2899	A
23	BA	2900	C
23	BA	2903	A
23	BA	2913	G
23	BA	2914	A
23	BA	2919	A
24	BB	10	U

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Mol	Chain	Res	Type
24	BB	22	G
24	BB	23	U
24	BB	24	C
24	BB	33	U
24	BB	39	G
24	BB	40	C
24	BB	43	A
24	BB	51	A
24	BB	55	A
24	BB	64	A
24	BB	87	C
24	BB	88	G
24	BB	106	G
24	BB	111	C
24	BB	113	G

All (55) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
23	AA	99	U
23	AA	160	G
23	AA	267	G
23	AA	268	A
23	AA	291	G
23	AA	451	U
23	AA	487	U
23	AA	513	G
23	AA	576	U
23	AA	577	A
23	AA	688	A
23	AA	697	U
23	AA	711	G
23	AA	840	C
23	AA	987	U
23	AA	1024	A
23	AA	1075	G
23	AA	1190	A
23	AA	1267	A
23	AA	1372	C
23	AA	1385	G
23	AA	1845	U
23	AA	2117	A

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Mol	Chain	Res	Type
23	AA	2450	U
23	AA	2568	A
23	AA	2749	G
23	AA	2783	U
23	BA	99	U
23	BA	160	G
23	BA	267	G
23	BA	268	A
23	BA	291	G
23	BA	451	U
23	BA	487	U
23	BA	513	G
23	BA	576	U
23	BA	577	A
23	BA	688	A
23	BA	697	U
23	BA	711	G
23	BA	840	C
23	BA	987	U
23	BA	1024	A
23	BA	1075	G
23	BA	1190	A
23	BA	1267	A
23	BA	1372	C
23	BA	1385	G
23	BA	1731	G
23	BA	1845	U
23	BA	2117	A
23	BA	2450	U
23	BA	2568	A
23	BA	2749	G
23	BA	2783	U

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

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates ⓘ

There are no carbohydrates in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
23	AA	6
23	BA	6
24	BB	1
1	Ba	1
13	Bm	1
24	AB	1
1	Aa	1
13	Am	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	AA	2207:U	O3'	2208:A	P	9.06
1	BA	2207:U	O3'	2208:A	P	9.06
1	AA	2132:A	O3'	2133:G	P	8.44
1	BA	2132:A	O3'	2133:G	P	8.44
1	AA	1096:C	O3'	1097:U	P	6.77
1	BA	1096:C	O3'	1097:U	P	6.77
1	Aa	465:U	O3'	466:G	P	3.97
1	Ba	465:U	O3'	466:G	P	3.97
1	AA	1153:C	O3'	1154:G	P	3.61
1	BA	1153:C	O3'	1154:G	P	3.61
1	AA	1448:U	O3'	1449:A	P	3.51
1	BA	1448:U	O3'	1449:A	P	3.51
1	BB	114:G	O3'	115:C	P	3.40
1	AA	2217:G	O3'	2218:G	P	3.39
1	AB	114:G	O3'	115:C	P	3.39
1	BA	2217:G	O3'	2218:G	P	3.39
1	Am	93:ARG	C	94:GLY	N	3.26
1	Bm	93:ARG	C	94:GLY	N	3.26