Full wwPDB/EMDataBank EM Map/Model Validation Report (i)

Jan 17, 2017 – 05:52 PM EST

PDB ID	:	5H4P
EMDB ID:	:	EMD-9569
Title	:	Structural snapshot of cytoplasmic pre-60S ribosomal particles bound with Nmd3, Lsg1, Tif6 and Reh1
Authors	:	Ma, C.; Wu, S.; Li, N.; Chen, Y.; Yan, K.; Li, Z.; Zheng, L.; Lei, J.; Woolford, J.L.; Gao, N.
Deposited on	:	2016-11-01
Resolution	:	3.07 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 (i) symbol.

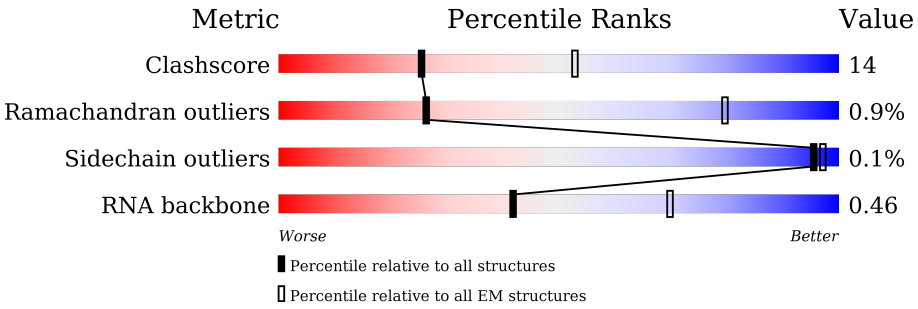
MolProbity	:	4.02b-467
Mogul	:	unknown
Percentile statistics	:	20151230.v01 (using entries in the PDB archive December 30th 2015)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP)	:	rb-20028442

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.07 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	114402	924
Ramachandran outliers	111179	726
Sidechain outliers	111093	686
RNA backbone	3027	244

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 <=5%

Mol	Chain	Length	Quality of chain
1	1	3396	45% 35% 11% 9%
2	3	121	35% 54% 12%
3	4	158	51% 39% 9%
4	A	246	69% 31%
5	B	387	61% 38% .
6	C	361	65% 35%
7	D	297	60% 38% .
8	E	176	54% 34% . 11%

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Mol	Chain	Length	Quality of chain
9	F	244	66% 25% 9%
10	G	256	64% 26% 9%
11	H	191	61% 39%
12	J	174	59% 34%
13	L	199	65% 31%
14	M	138	67% 30%
15	N	204	63% 35%
16	O	199	72% 27%
17	P	184	72% 27%
18	Q	186	72% 27%
19	R	189	59% 23% 17%
20	S	172	66% 31%
21	T	160	70% 29%
22	U	121	65% 17% 17%
23	V	137	74% 26%
24	W	155	27% 14% 59%
25	X	142	63% 22% 15%
26	Y	127	72% 26%
27	Z	136	56% 43%
28	a	149	97%
29	b	59	98%
30	c	105	92% 8%
31	d	113	95%
32	e	130	96%
33	f	107	99%

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Mol	Chain	Length	Quality of chain
34	g	121	93% 7%
35	h	120	97%
36	i	100	97%
37	j	88	99%
38	k	78	99%
39	l	51	96%
40	o	106	90% 10%
41	p	92	99%
42	w	248	96%
43	y	227	99%
44	z	56	96%

2 Entry composition

There are 44 unique types of molecules in this entry. The entry contains 122929 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 25S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	1	3091	66124	29535	11927	21571	3091	0	0

- Molecule 2 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	3	121	2579	1152	461	845	121	0	0

- Molecule 3 is a RNA chain called 5.8S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	4	158	3353	1500	586	1109	158	0	0

- Molecule 4 is a protein called 60S ribosomal protein L2-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	A	246	1874	1168	380	325	1	0	0

- Molecule 5 is a protein called 60S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	B	386	3075	1950	584	533	8	0	0

- Molecule 6 is a protein called 60S ribosomal protein L4-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	C	361	2748	1729	522	494	3	0	0

- Molecule 7 is a protein called 60S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	D	296	Total	C	N	O	S	0	0
			2375	1501	414	458	2		

- Molecule 8 is a protein called 60S ribosomal protein L6-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	E	156	Total	C	N	O	S	0	0
			1239	800	222	216	1		

- Molecule 9 is a protein called 60S ribosomal protein L7-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	F	222	Total	C	N	O	S	0	0
			1784	1151	324	308	1		

- Molecule 10 is a protein called 60S ribosomal protein L8-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	G	233	Total	C	N	O	S	0	0
			1804	1151	323	327	3		

- Molecule 11 is a protein called 60S ribosomal protein L9-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	H	191	Total	C	N	O	S	0	0
			1518	963	274	277	4		

- Molecule 12 is a protein called 60S ribosomal protein L11-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	J	169	Total	C	N	O	S	0	0
			1353	847	253	249	4		

- Molecule 13 is a protein called 60S ribosomal protein L13-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
13	L	193	Total	C	N	O	0	0
			1543	962	315	266		

- Molecule 14 is a protein called 60S ribosomal protein L14-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	M	136	Total	C	N	O	S	0	0
			1053	675	199	177	2		

- Molecule 15 is a protein called 60S ribosomal protein L15-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	N	203	Total	C	N	O	S	0	0
			1720	1077	361	281	1		

- Molecule 16 is a protein called 60S ribosomal protein L16-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	O	197	Total	C	N	O	S	0	0
			1555	1003	289	262	1		

- Molecule 17 is a protein called 60S ribosomal protein L17-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
17	P	183	Total	C	N	O	0	0
			1442	896	287	259		

- Molecule 18 is a protein called 60S ribosomal protein L18-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	Q	185	Total	C	N	O	S	0	0
			1441	908	290	241	2		

- Molecule 19 is a protein called 60S ribosomal protein L19-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
19	R	156	Total	C	N	O	0	0
			1258	781	265	212		

- Molecule 20 is a protein called 60S ribosomal protein L20-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	S	172	Total	C	N	O	S	0	0
			1445	930	267	244	4		

- Molecule 21 is a protein called 60S ribosomal protein L21-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	T	159	Total	C	N	O	S	0	0
			1276	805	246	221	4		

- Molecule 22 is a protein called 60S ribosomal protein L22-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
22	U	100	Total	C	N	O	0	0
			796	516	131	149		

- Molecule 23 is a protein called 60S ribosomal protein L23-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	V	136	Total	C	N	O	S	0	0
			1003	628	189	179	7		

- Molecule 24 is a protein called 60S ribosomal protein L24-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	W	64	Total	C	N	O	S	0	0
			528	340	103	84	1		

- Molecule 25 is a protein called 60S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	X	121	Total	C	N	O	S	0	0
			964	620	169	173	2		

- Molecule 26 is a protein called 60S ribosomal protein L26-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	Y	126	Total	C	N	O	0	0
			993	625	192	176		

- Molecule 27 is a protein called 60S ribosomal protein L27-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
27	Z	135	Total	C	N	O	0	0
			1092	710	202	180		

- Molecule 28 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	a	148	Total	C	N	O	S	0	0
			1173	749	231	190	3		

- Molecule 29 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms				AltConf	Trace
29	b	58	Total	C	N	O	0	0
			462	289	100	73		

- Molecule 30 is a protein called 60S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	c	97	Total	C	N	O	S	0	0
			743	479	124	139	1		

- Molecule 31 is a protein called 60S ribosomal protein L31-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	d	109	Total	C	N	O	S	0	0
			876	556	167	152	1		

- Molecule 32 is a protein called 60S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	e	127	Total	C	N	O	S	0	0
			1020	647	205	167	1		

- Molecule 33 is a protein called 60S ribosomal protein L33-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	f	106	Total	C	N	O	S	0	0
			850	540	165	144	1		

- Molecule 34 is a protein called 60S ribosomal protein L34-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	g	112	Total	C	N	O	S	0	0
			880	545	179	152	4		

- Molecule 35 is a protein called 60S ribosomal protein L35-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	h	119	Total	C	N	O	S	0	0
			969	615	186	167	1		

- Molecule 36 is a protein called 60S ribosomal protein L36-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	i	99	Total	C	N	O	S	0	0
			771	481	156	132	2		

- Molecule 37 is a protein called 60S ribosomal protein L37-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	j	87	Total	C	N	O	S	0	0
			681	414	148	114	5		

- Molecule 38 is a protein called 60S ribosomal protein L38.

Mol	Chain	Residues	Atoms				AltConf	Trace
38	k	77	Total	C	N	O	0	0
			612	391	115	106		

- Molecule 39 is a protein called 60S ribosomal protein L39.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	l	50	Total	C	N	O	S	0	0
			436	272	97	65	2		

- Molecule 40 is a protein called 60S ribosomal protein L42-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	o	95	Total	C	N	O	S	0	0
			765	481	154	125	5		

- Molecule 41 is a protein called 60S ribosomal protein L43-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	p	91	Total	C	N	O	S	0	0
			694	429	138	121	6		

- Molecule 42 is a protein called 60S ribosomal export protein NMD3.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	w	248	Total	C	N	O	S	0	0
			1894	1208	318	361	7		

- Molecule 43 is a protein called Eukaryotic translation initiation factor 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	y	227	Total	C	N	O	S	0	0
			1699	1054	296	342	7		

- Molecule 44 is a protein called Cytoplasmic 60S subunit biogenesis factor REH1.

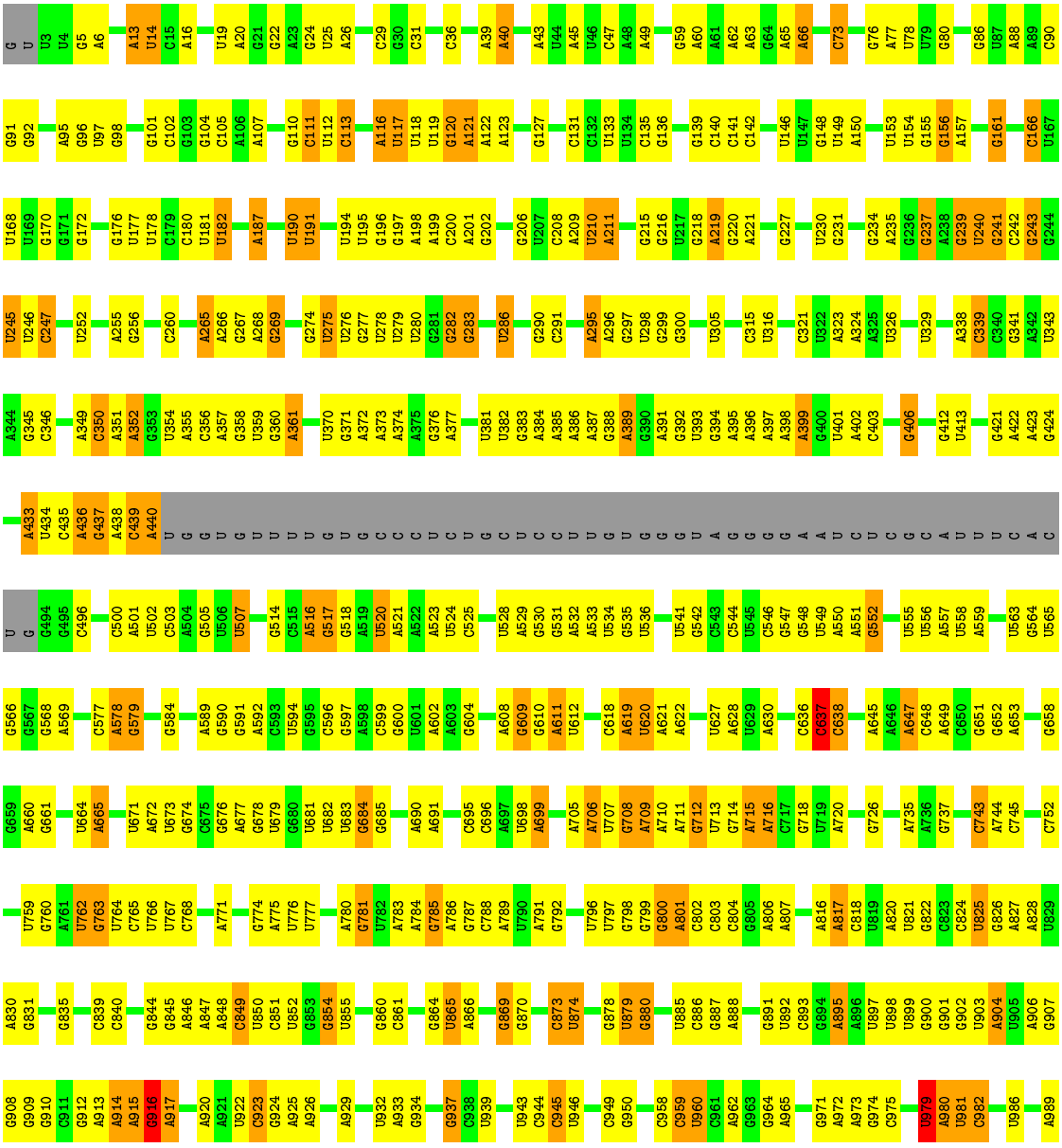
Mol	Chain	Residues	Atoms					AltConf	Trace
44	z	56	Total	C	N	O	S	0	0
			469	289	92	85	3		

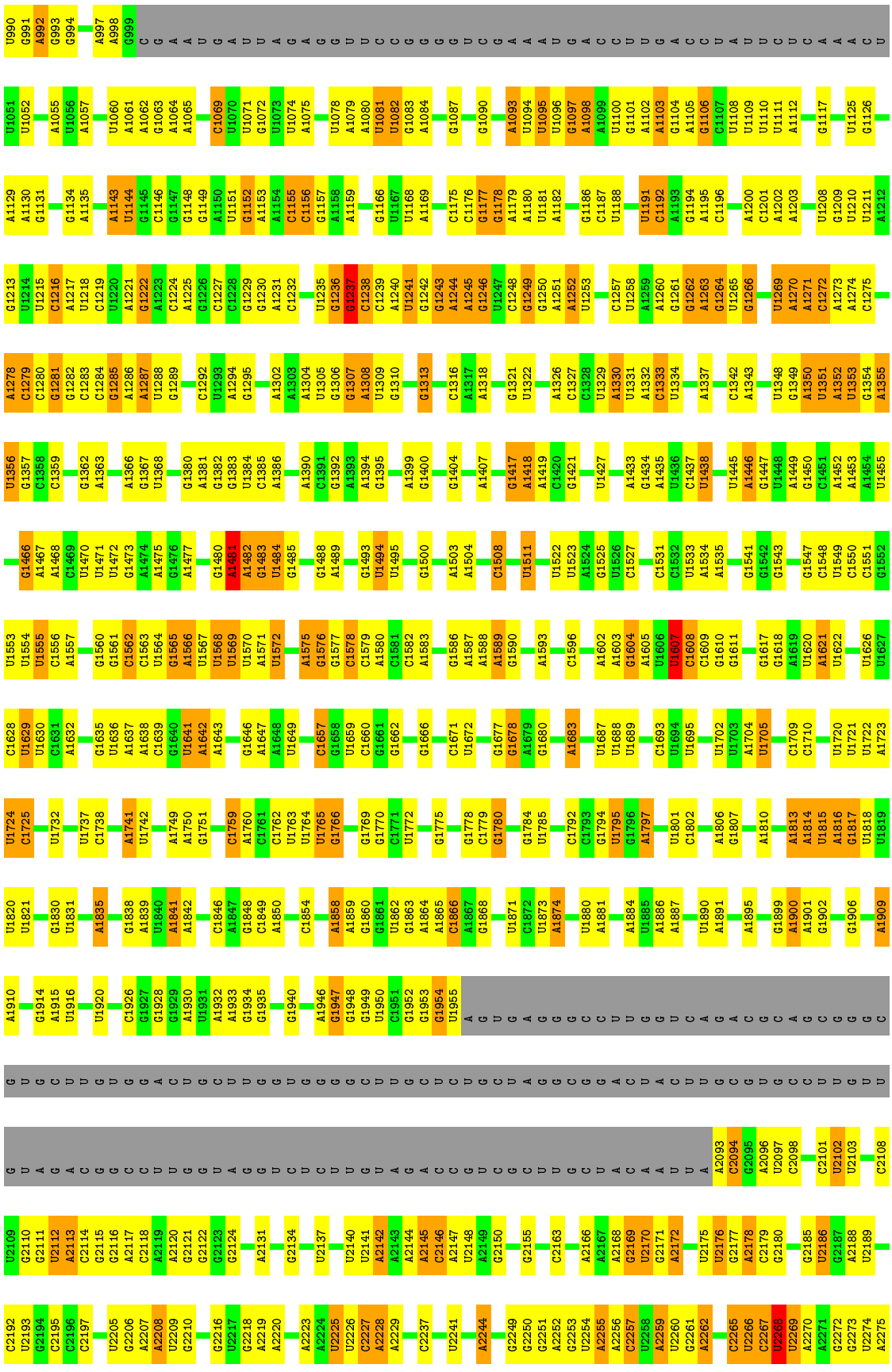
3 Residue-property plots (i)

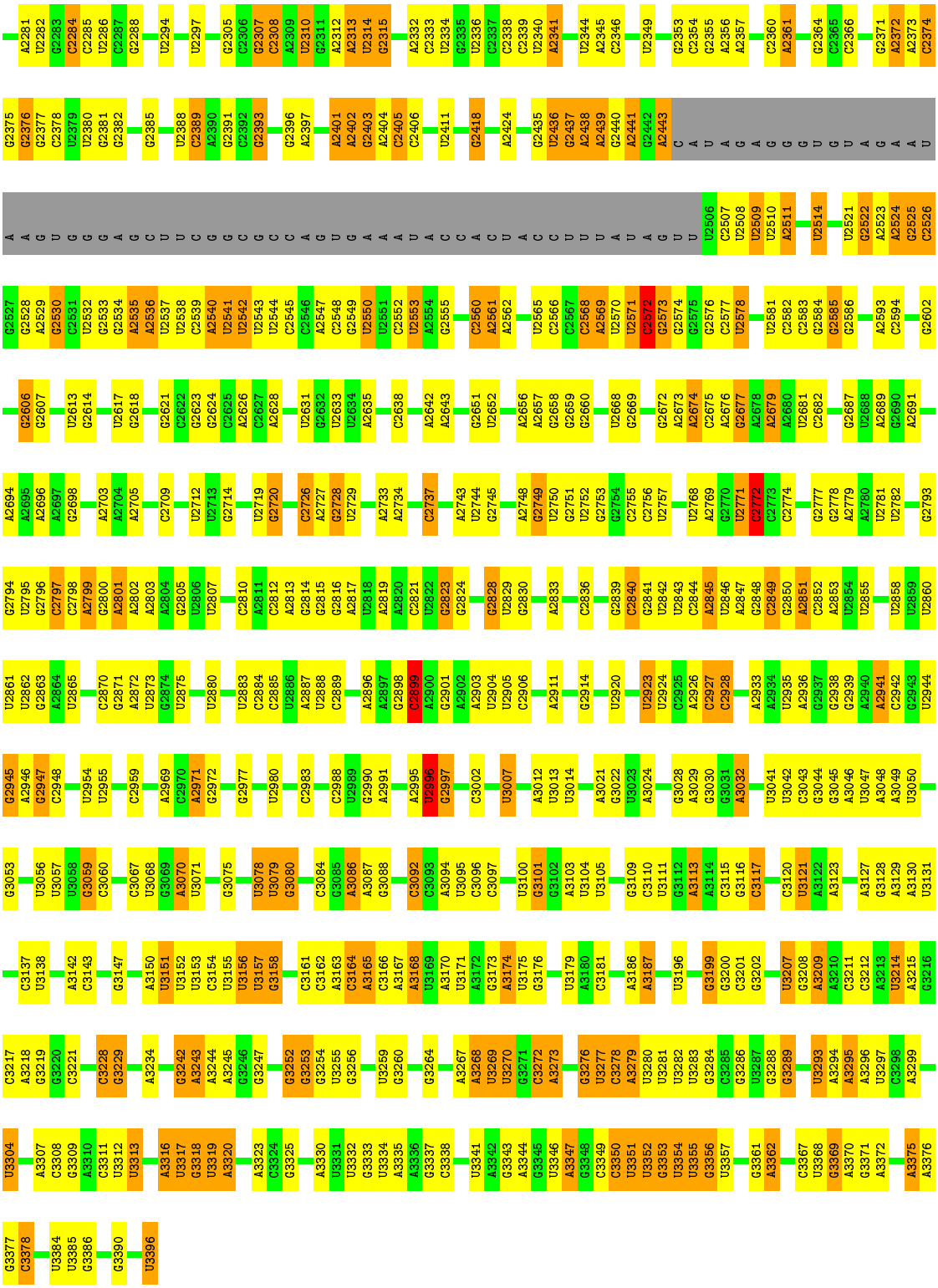
These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded according to the number of geometric 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: 25S ribosomal RNA

Chain 1: 45% 35% 11% 9%

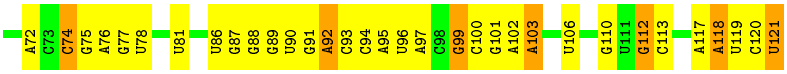






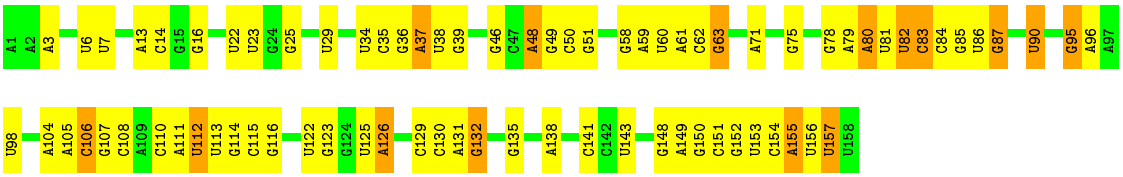
- Molecule 2: 5S ribosomal RNA

Chain 3:



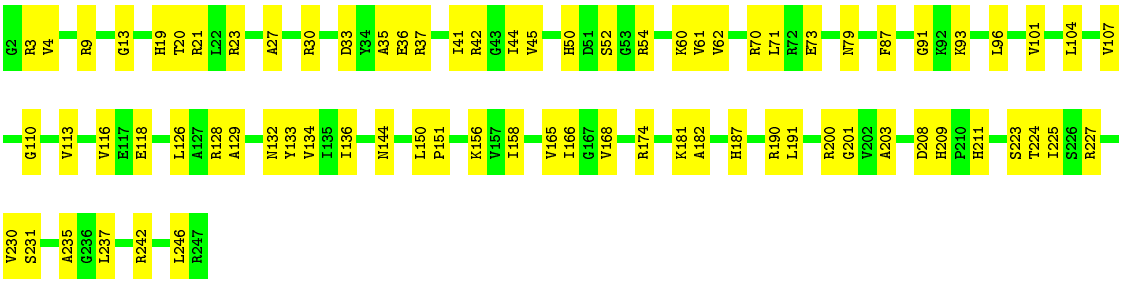
- Molecule 3: 5.8S ribosomal RNA

Chain 4:



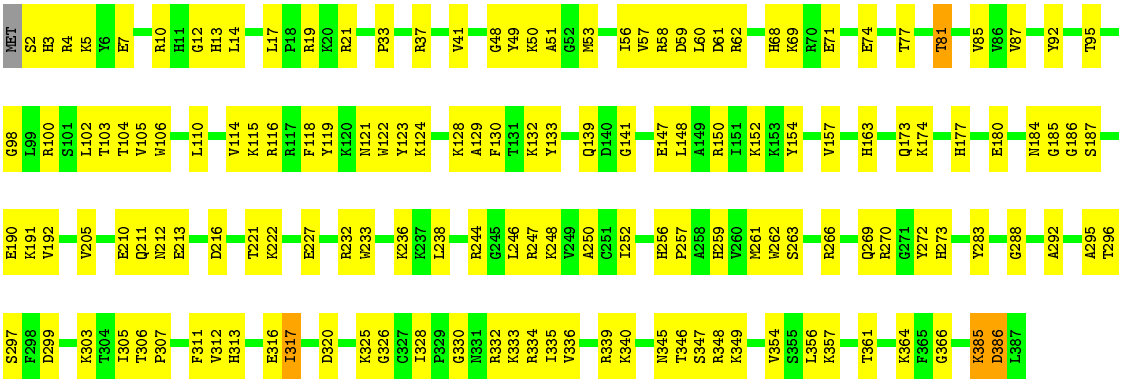
- Molecule 4: 60S ribosomal protein L2-A

Chain A:



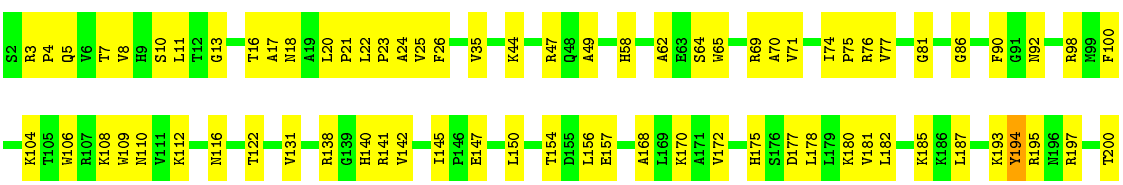
- Molecule 5: 60S ribosomal protein L3

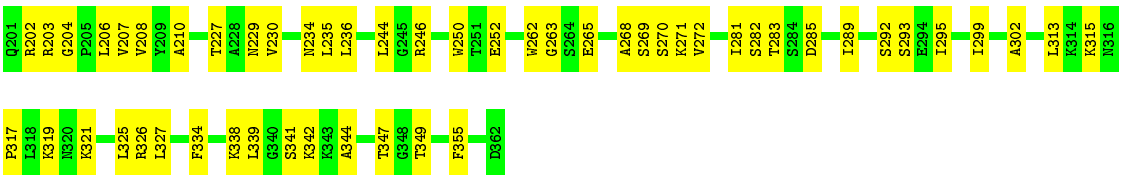
Chain B:



- Molecule 6: 60S ribosomal protein L4-A

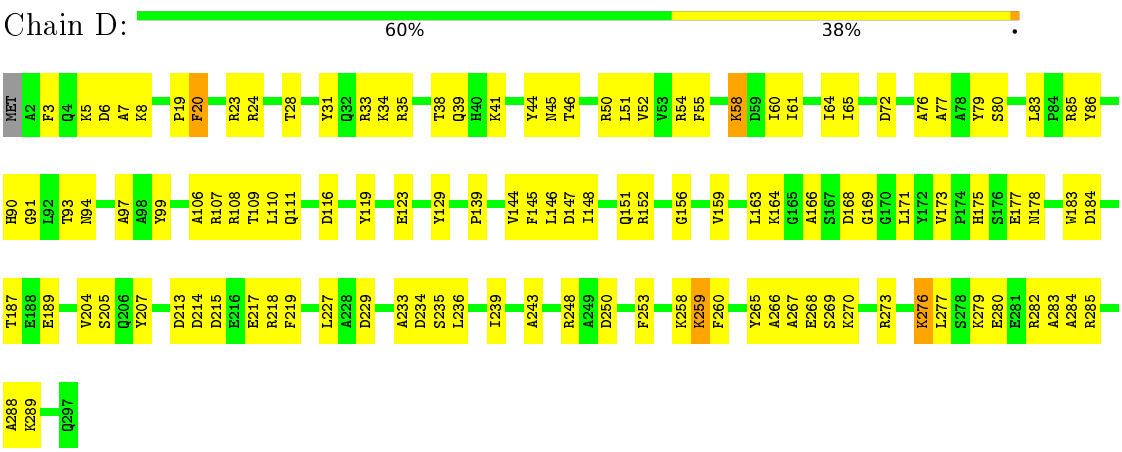
Chain C:





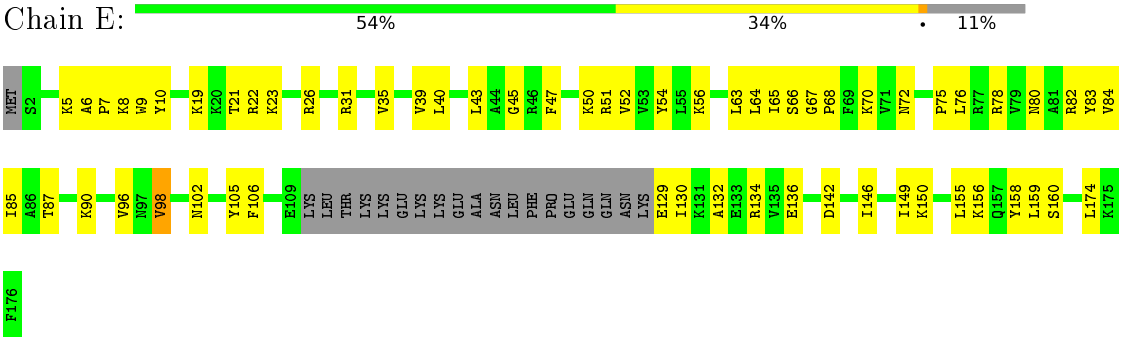
• Molecule 7: 60S ribosomal protein L5

Chain D:



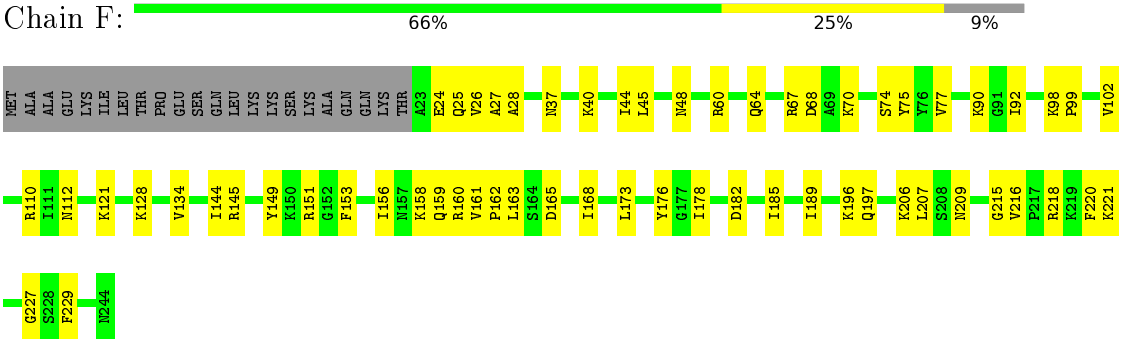
• Molecule 8: 60S ribosomal protein L6-A

Chain E:



• Molecule 9: 60S ribosomal protein L7-A

Chain F:

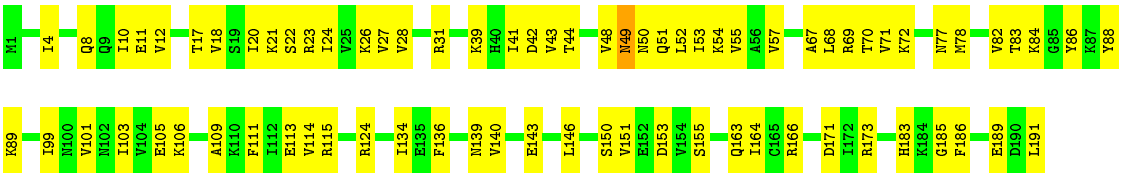


• Molecule 10: 60S ribosomal protein L8-A

Chain G:

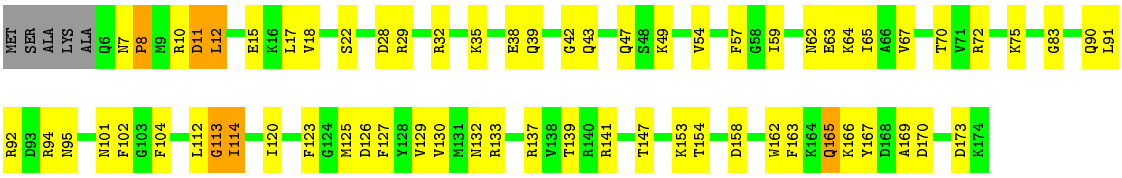
• Molecule 11: 60S ribosomal protein L9-A

Chain H:



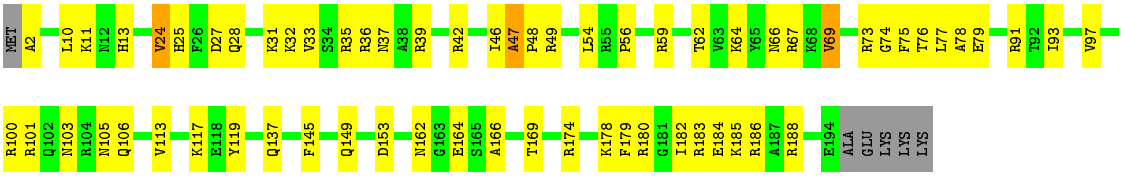
• Molecule 12: 60S ribosomal protein L11-A

Chain J:



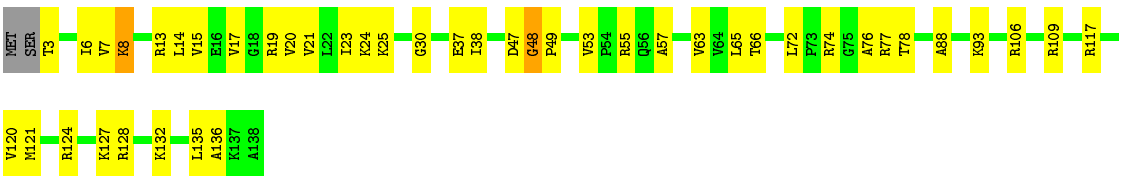
• Molecule 13: 60S ribosomal protein L13-A

Chain L:



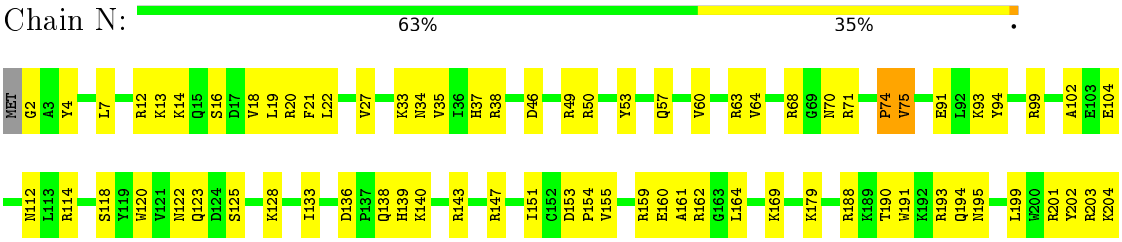
• Molecule 14: 60S ribosomal protein L14-A

Chain M:



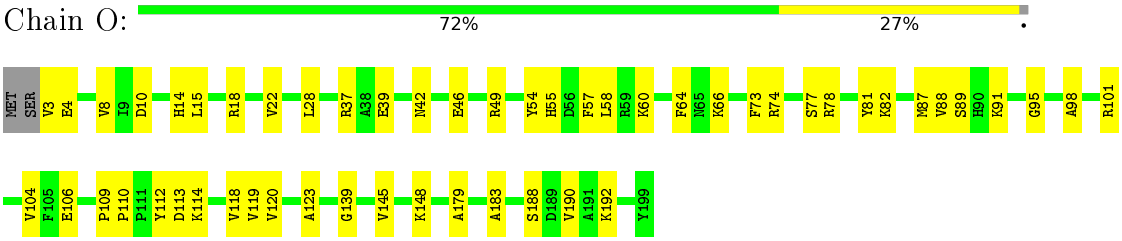
• Molecule 15: 60S ribosomal protein L15-A

Chain N:



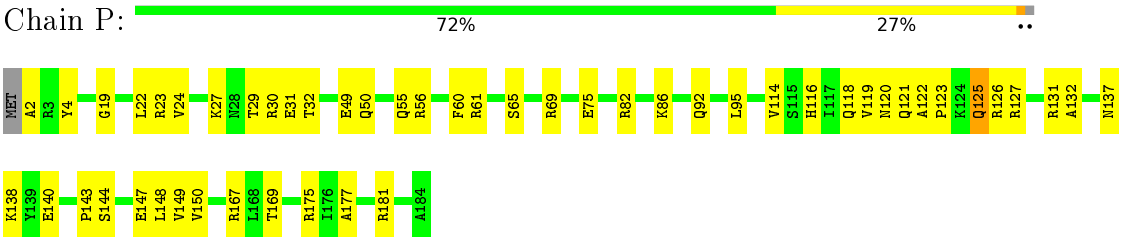
- Molecule 16: 60S ribosomal protein L16-A

Chain O:



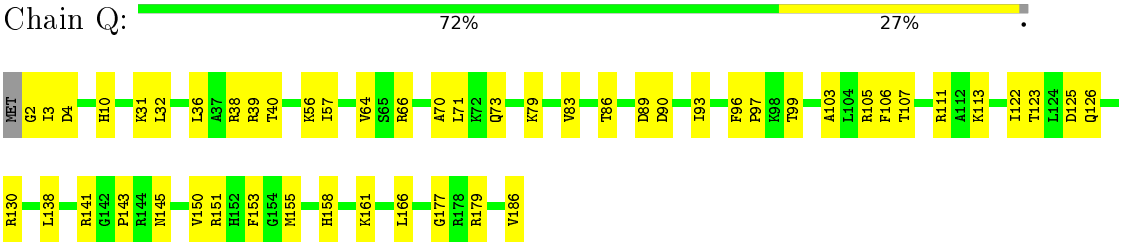
- Molecule 17: 60S ribosomal protein L17-A

Chain P:



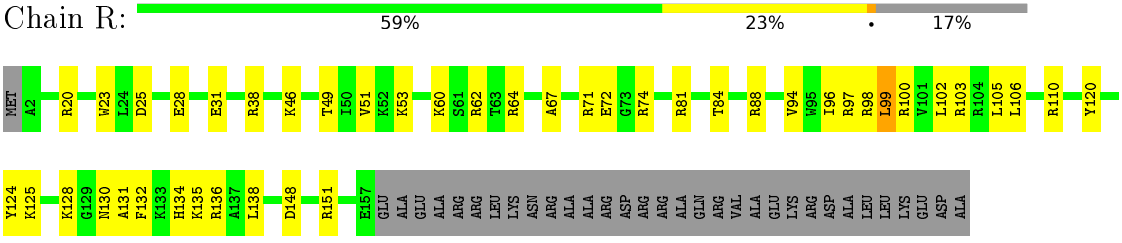
- Molecule 18: 60S ribosomal protein L18-A

Chain Q:



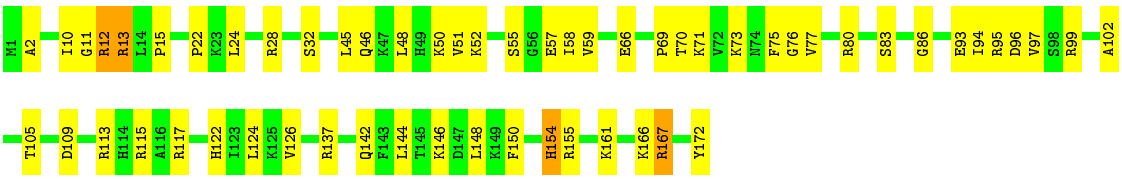
- Molecule 19: 60S ribosomal protein L19-A

Chain R:



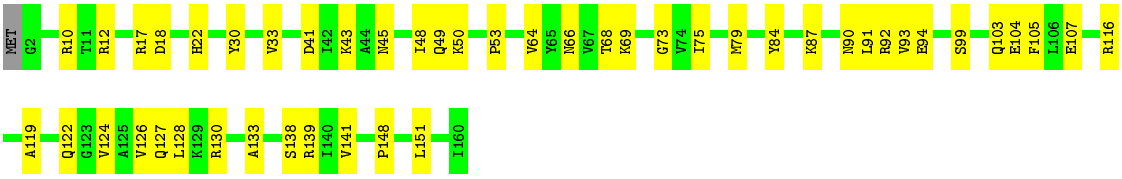
- Molecule 20: 60S ribosomal protein L20-A

Chain S:



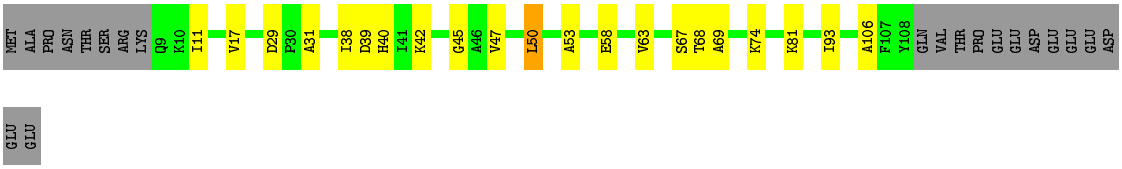
- Molecule 21: 60S ribosomal protein L21-A

Chain T:



- Molecule 22: 60S ribosomal protein L22-A

Chain U:

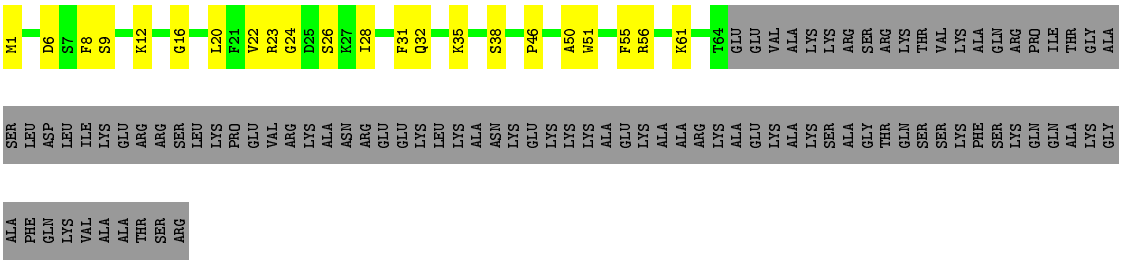


- Molecule 23: 60S ribosomal protein L23-A

Chain V:

- Molecule 24: 60S ribosomal protein L24-A

Chain W:



- Molecule 25: 60S ribosomal protein L25

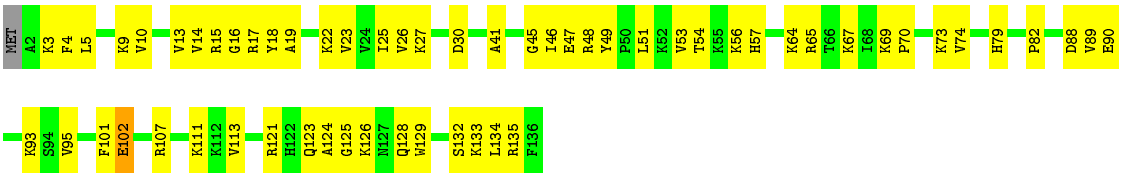
Chain X:

• Molecule 26: 60S ribosomal protein L26-A

Chain Y:

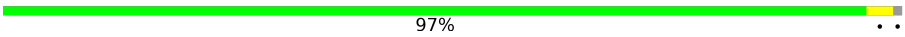
• Molecule 27: 60S ribosomal protein L27-A

Chain Z:



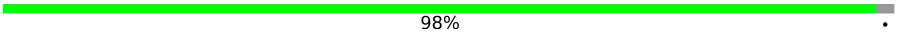
• Molecule 28: 60S ribosomal protein L28

Chain a:



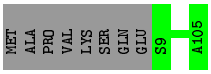
• Molecule 29: 60S ribosomal protein L29

Chain b:



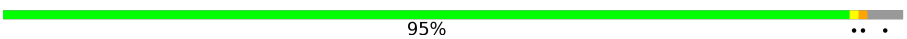
• Molecule 30: 60S ribosomal protein L30

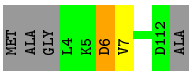
Chain c:



• Molecule 31: 60S ribosomal protein L31-A

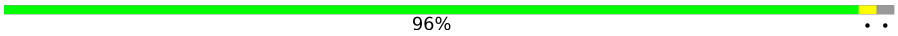
Chain d:

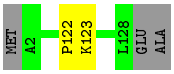




• Molecule 32: 60S ribosomal protein L32

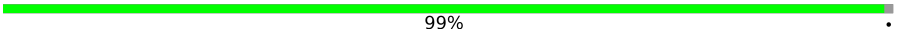
Chain e:





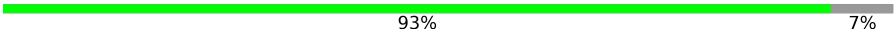
- Molecule 33: 60S ribosomal protein L33-A

Chain f:



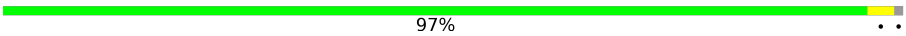
- Molecule 34: 60S ribosomal protein L34-A

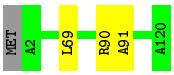
Chain g:



- Molecule 35: 60S ribosomal protein L35-A

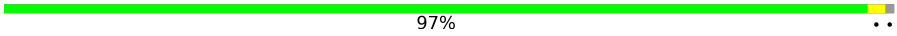
Chain h:

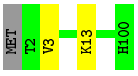




- Molecule 36: 60S ribosomal protein L36-A

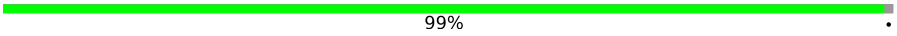
Chain i:





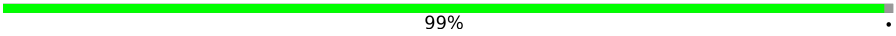
- Molecule 37: 60S ribosomal protein L37-A

Chain j:



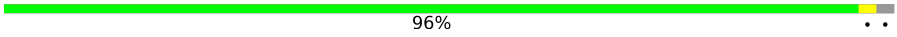
- Molecule 38: 60S ribosomal protein L38

Chain k:



- Molecule 39: 60S ribosomal protein L39

Chain l:

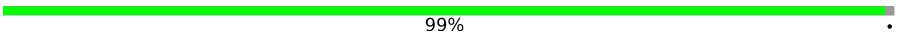


- Molecule 40: 60S ribosomal protein L42-A

Chain o:

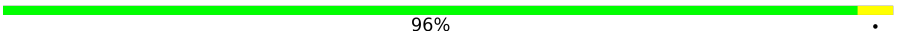
- Molecule 41: 60S ribosomal protein L43-A

Chain p:



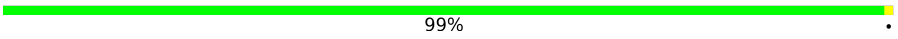
- Molecule 42: 60S ribosomal export protein NMD3

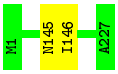
Chain w:



- Molecule 43: Eukaryotic translation initiation factor 6

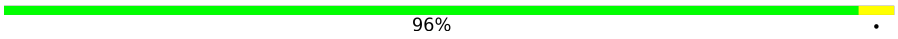
Chain y:

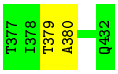




- Molecule 44: Cytoplasmic 60S subunit biogenesis factor REH1

Chain z:





4 Experimental information (i)

Property	Value	Source
Reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	Depositor
Number of particles used	84240	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	Not provided	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	Not provided	Depositor
Minimum defocus (nm)	Not provided	Depositor
Maximum defocus (nm)	Not provided	Depositor
Magnification	Not provided	Depositor
Image detector	Not provided	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	1	0.88	0/74017	0.89	34/115398 (0.0%)
10	G	0.43	0/1836	0.59	0/2481
11	H	0.40	0/1539	0.57	0/2073
12	J	0.34	0/1374	0.55	0/1842
13	L	0.44	0/1568	0.63	0/2106
14	M	0.43	0/1068	0.55	0/1438
15	N	0.52	0/1757	0.63	0/2354
16	O	0.51	1/1585 (0.1%)	0.58	0/2128
17	P	0.48	0/1465	0.61	0/1968
18	Q	0.44	0/1465	0.62	0/1965
19	R	0.42	0/1275	0.57	1/1702 (0.1%)
2	3	0.73	0/2883	0.83	0/4491
20	S	0.48	0/1481	0.57	0/1990
21	T	0.44	0/1300	0.56	0/1743
22	U	0.40	0/812	0.58	0/1099
23	V	0.46	0/1018	0.64	0/1369
24	W	0.44	0/540	0.56	0/717
25	X	0.46	0/979	0.61	0/1321
26	Y	0.42	0/1004	0.62	1/1341 (0.1%)
27	Z	0.46	0/1118	0.60	0/1497
28	a	0.46	0/1204	0.63	0/1612
29	b	0.35	0/473	0.50	0/629
3	4	0.94	0/3746	0.86	0/5832
30	c	0.46	0/751	0.53	0/1008
31	d	0.47	0/890	0.55	0/1196
32	e	0.45	0/1041	0.58	0/1394
33	f	0.52	0/868	0.56	0/1168
34	g	0.48	0/890	0.57	0/1189
35	h	0.40	0/978	0.55	1/1301 (0.1%)
36	i	0.40	0/778	0.61	0/1034
37	j	0.48	0/696	0.62	0/923
38	k	0.38	0/618	0.58	0/826
39	l	0.47	0/443	0.58	0/588
4	A	0.50	0/1908	0.61	0/2564

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >2	RMSZ	#|Z| >2
40	o	0.46	0/777	0.61	0/1028
41	p	0.53	0/701	0.58	0/934
42	w	0.51	2/1931 (0.1%)	0.64	2/2629 (0.1%)
43	y	0.38	0/1720	0.56	0/2341
44	z	0.37	0/472	0.56	0/626
5	B	0.52	0/3146	0.61	0/4228
6	C	0.46	0/2800	0.61	0/3790
7	D	0.39	0/2425	0.55	0/3271
8	E	0.41	0/1260	0.57	0/1694
9	F	0.46	0/1821	0.57	0/2451
All	All	0.74	3/132421 (0.0%)	0.79	39/195279 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
10	G	0	1
11	H	0	1
12	J	0	1
13	L	0	1
14	M	0	1
16	O	0	2
17	P	0	1
20	S	0	2
22	U	0	1
27	Z	0	1
31	d	0	1
32	e	0	1
35	h	0	1
39	l	0	1
42	w	0	1
43	y	0	1
5	B	0	2
7	D	0	1
All	All	0	21

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
42	w	186	ASP	C-N	11.11	1.59	1.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
42	w	165	VAL	C-N	7.19	1.48	1.34
16	O	74	ARG	C-N	-5.12	1.22	1.34

All (39) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	2572	C	N1-C2-O2	8.73	124.14	118.90
42	w	165	VAL	O-C-N	8.29	136.85	121.10
1	1	2572	C	C2-N1-C1'	7.83	127.42	118.80
1	1	1269	U	C2-N1-C1'	7.74	126.99	117.70
26	Y	126	LEU	CA-CB-CG	6.84	131.03	115.30
1	1	1269	U	N3-C2-O2	-6.76	117.47	122.20
1	1	1269	U	N1-C2-O2	6.74	127.52	122.80
1	1	835	G	O4'-C1'-N9	6.66	113.53	108.20
1	1	1607	U	P-O3'-C3'	6.63	127.66	119.70
1	1	922	U	C2-N1-C1'	6.43	125.41	117.70
1	1	2572	C	N3-C2-O2	-6.29	117.49	121.90
1	1	2146	C	C6-N1-C2	-6.11	117.86	120.30
1	1	2443	A	O4'-C1'-N9	5.83	112.86	108.20
42	w	186	ASP	O-C-N	-5.79	113.44	122.70
1	1	2553	U	N1-C2-O2	5.64	126.75	122.80
1	1	2553	U	C2-N1-C1'	5.63	124.45	117.70
1	1	2572	C	C6-N1-C1'	-5.60	114.08	120.80
1	1	2257	C	N1-C2-O2	5.53	122.22	118.90
1	1	2996	U	C2-N1-C1'	5.47	124.27	117.70
1	1	916	G	P-O3'-C3'	5.44	126.23	119.70
35	h	69	LEU	CA-CB-CG	5.42	127.76	115.30
1	1	1481	A	C4-N9-C1'	5.40	136.02	126.30
1	1	2257	C	C2-N1-C1'	5.39	124.73	118.80
1	1	1484	U	P-O3'-C3'	5.37	126.15	119.70
1	1	406	G	O4'-C1'-N9	5.36	112.49	108.20
1	1	2268	U	N3-C2-O2	-5.30	118.49	122.20
1	1	637	C	OP1-P-O3'	5.29	116.84	105.20
1	1	3156	U	P-O3'-C3'	5.24	125.99	119.70
1	1	3214	U	C2-N1-C1'	5.23	123.97	117.70
1	1	2726	C	N3-C2-O2	-5.23	118.24	121.90
1	1	2268	U	N1-C2-O2	5.17	126.42	122.80
19	R	99	LEU	CB-CG-CD2	-5.15	102.24	111.00
1	1	2772	C	N1-C2-O2	5.15	121.99	118.90
1	1	2899	C	N1-C2-O2	5.13	121.98	118.90
1	1	1604	G	C4-N9-C1'	5.07	133.10	126.50
1	1	2772	C	C2-N1-C1'	5.07	124.38	118.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	979	U	P-O3'-C3'	5.07	125.78	119.70
1	1	1237	G	C4-N9-C1'	5.04	133.05	126.50
1	1	3362	A	O4'-C1'-N9	5.00	112.20	108.20

There are no chirality outliers.

All (21) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
5	B	385	LYS	Peptide
5	B	81	THR	Peptide
7	D	58	LYS	Peptide
10	G	30	THR	Peptide
11	H	49	ASN	Peptide
12	J	113	GLY	Peptide
13	L	69	VAL	Peptide
14	M	48	GLY	Peptide
16	O	109	PRO	Peptide
16	O	148	LYS	Peptide
17	P	125	GLN	Peptide
20	S	12	ARG	Peptide
20	S	166	LYS	Peptide
22	U	50	LEU	Peptide
27	Z	102	GLU	Peptide
31	d	6	ASP	Peptide
32	e	122	PRO	Peptide
35	h	90	ARG	Peptide
39	l	4	GLN	Peptide
42	w	167	HIS	Peptide
43	y	145	ASN	Peptide

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	1	66124	0	33228	1119	0
2	3	2579	0	1304	72	0
3	4	3353	0	1695	47	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	A	1874	0	1943	73	0
5	B	3075	0	3142	128	0
6	C	2748	0	2859	112	0
7	D	2375	0	2325	103	0
8	E	1239	0	1326	57	0
9	F	1784	0	1862	60	0
10	G	1804	0	1877	60	0
11	H	1518	0	1587	62	0
12	J	1353	0	1383	60	0
13	L	1543	0	1608	58	0
14	M	1053	0	1149	45	0
15	N	1720	0	1779	85	0
16	O	1555	0	1659	38	0
17	P	1442	0	1485	44	0
18	Q	1441	0	1543	59	0
19	R	1258	0	1342	47	0
20	S	1445	0	1487	61	0
21	T	1276	0	1323	45	0
22	U	796	0	812	13	0
23	V	1003	0	1048	31	0
24	W	528	0	558	19	0
25	X	964	0	1025	27	0
26	Y	993	0	1081	27	0
27	Z	1092	0	1155	51	0
28	a	1173	0	1215	0	0
29	b	462	0	491	0	0
30	c	743	0	797	0	0
31	d	876	0	912	0	0
32	e	1020	0	1090	0	0
33	f	850	0	880	0	0
34	g	880	0	945	0	0
35	h	969	0	1078	0	0
36	i	771	0	849	0	0
37	j	681	0	687	0	0
38	k	612	0	682	0	0
39	l	436	0	475	0	0
40	o	765	0	827	0	0
41	p	694	0	738	0	0
42	w	1894	0	1846	0	0
43	y	1699	0	1680	0	0
44	z	469	0	492	0	0
All	All	122929	0	89269	2151	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 14.

All (2151) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:3151:U:OP2	5:B:132:LYS:NZ	1.71	1.22
1:1:912:G:OP2	4:A:9:ARG:NH1	1.74	1.20
1:1:1724:U:OP2	19:R:128:LYS:NZ	1.78	1.16
1:1:1135:A:OP2	5:B:5:LYS:NZ	51.85	1.15
1:1:2436:U:H2'	1:1:2437:G:H5"	1.26	1.14
20:S:109:ASP:OD1	20:S:113:ARG:NH1	1.81	1.12
1:1:3068:U:OP2	19:R:62:ARG:NH1	1.85	1.10
4:A:30:ARG:HH12	4:A:41:ILE:HD13	1.13	1.08
12:J:32:ARG:NH1	12:J:120:ILE:O	1.85	1.08
1:1:2435:G:H2'	1:1:2436:U:H5'	1.12	1.07
15:N:38:ARG:HH12	15:N:60:VAL:HG13	1.16	1.06
1:1:2988:C:O2	5:B:266:ARG:NH1	1.91	1.03
1:1:673:U:O4	18:Q:56:LYS:NZ	1.94	1.00
1:1:1874:A:N7	19:R:20:ARG:NH1	2.11	0.99
5:B:115:LYS:NZ	5:B:129:ALA:O	1.96	0.98
1:1:2103:U:OP1	19:R:81:ARG:NH1	1.98	0.97
1:1:2435:G:H2'	1:1:2436:U:C5'	1.94	0.97
1:1:1657:C:O2'	1:1:1797:A:OP2	1.82	0.96
12:J:133:ARG:NH2	12:J:158:ASP:OD2	1.98	0.96
1:1:2338:C:OP1	5:B:236:LYS:NZ	2.00	0.95
5:B:185:GLY:O	5:B:191:LYS:NZ	2.00	0.94
1:1:2251:G:H1	1:1:2265:C:H41	1.16	0.94
1:1:3214:U:OP2	14:M:128:ARG:NH1	1.99	0.94
1:1:596:C:O2	6:C:326:ARG:NH1	2.00	0.94
2:3:31:U:H4'	7:D:218:ARG:HH22	1.33	0.93
15:N:37:HIS:HE1	15:N:63:ARG:HH11	1.03	0.92
1:1:3042:U:OP2	1:1:3092:C:N4	2.03	0.92
9:F:48:ASN:ND2	9:F:182:ASP:OD2	2.03	0.92
3:4:75:G:OP2	26:Y:74:TYR:OH	1.88	0.92
1:1:2435:G:C2'	1:1:2436:U:H5'	2.00	0.91
1:1:2991:A:O3'	5:B:21:ARG:NH1	2.04	0.90
1:1:1157:G:OP1	9:F:90:LYS:NZ	2.04	0.90
1:1:2305:G:OP2	1:1:2305:G:N2	2.05	0.90
1:1:979:U:O2'	1:1:980:A:OP2	1.89	0.90
1:1:3309:G:N2	1:1:3309:G:OP2	2.04	0.90
1:1:2945:G:O2'	1:1:2948:C:OP2	1.90	0.89
1:1:1493:G:O6	13:L:2:ALA:N	69.02	0.89

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1305:U:OP2	1:1:2939:G:N2	2.05	0.89
1:1:3276:G:H1	9:F:60:ARG:HH22	66.51	0.89
1:1:123:A:OP1	10:G:105:LYS:NZ	2.06	0.88
1:1:97:U:O4	13:L:11:LYS:NZ	2.07	0.88
1:1:804:C:OP1	6:C:98:ARG:NH2	2.08	0.86
1:1:2436:U:H2'	1:1:2437:G:C5'	2.05	0.86
1:1:2728:G:N7	21:T:87:LYS:NZ	2.24	0.86
2:3:38:U:N3	2:3:41:G:OP2	2.09	0.86
1:1:3308:C:N3	17:P:69:ARG:NH1	2.24	0.86
17:P:49:GLU:OE2	17:P:92:GLN:NE2	2.08	0.85
1:1:148:G:OP2	15:N:4:TYR:OH	1.94	0.85
1:1:3092:C:O2'	1:1:3094:A:OP2	1.93	0.85
1:1:2206:G:N2	1:1:2237:C:N3	2.23	0.85
19:R:103:ARG:NH1	19:R:124:TYR:OH	2.09	0.85
27:Z:88:ASP:HB3	27:Z:121:ARG:HH22	1.42	0.85
1:1:3070:A:OP1	19:R:62:ARG:NH2	2.10	0.84
13:L:48:PRO:HA	13:L:137:GLN:HB3	1.58	0.84
23:V:81:GLN:O	23:V:98:ASN:ND2	2.10	0.84
7:D:64:ILE:HD13	7:D:109:THR:HG21	1.60	0.84
1:1:2437:G:H1	1:1:2510:U:H3	1.24	0.84
1:1:2774:C:OP1	13:L:178:LYS:NZ	2.10	0.84
14:M:13:ARG:NH1	20:S:172:TYR:O	2.11	0.84
1:1:2948:C:OP1	5:B:244:ARG:NH2	2.11	0.84
11:H:26:LYS:NZ	25:X:60:TYR:OH	166.48	0.84
1:1:282:G:O2'	1:1:283:G:OP2	1.95	0.83
1:1:1680:G:O6	22:U:81:LYS:NZ	2.10	0.83
1:1:3375:A:O2'	1:1:3378:C:OP2	1.96	0.83
1:1:3316:A:O2'	1:1:3317:U:OP2	1.96	0.83
1:1:743:C:N3	18:Q:141:ARG:NH1	2.27	0.82
7:D:77:ALA:O	7:D:108:ARG:NH1	2.11	0.82
7:D:31:TYR:O	7:D:35:ARG:NH1	2.13	0.82
13:L:182:ILE:HG22	13:L:186:ARG:HH12	1.42	0.82
1:1:1778:G:O2'	1:1:1780:G:OP2	1.98	0.81
1:1:1605:A:O2'	1:1:1607:U:OP2	1.97	0.81
1:1:2745:G:N2	1:1:2748:A:OP2	2.13	0.81
1:1:297:G:O6	15:N:12:ARG:NH1	2.14	0.81
1:1:3162:C:H2'	1:1:3163:A:H8	1.45	0.81
1:1:825:U:O2	1:1:901:G:N2	2.14	0.81
6:C:282:SER:N	18:Q:125:ASP:OD2	2.15	0.80
1:1:31:C:H41	15:N:188:ARG:HH12	1.30	0.80
1:1:2712:U:HO2'	1:1:2743:A:HO2'	1.21	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2522:G:O6	4:A:70:ARG:NH1	2.14	0.80
1:1:1192:C:N4	1:1:1302:A:OP2	2.13	0.80
1:1:1550:C:H2'	1:1:1551:C:H6	1.46	0.80
1:1:2436:U:C2'	1:1:2437:G:H5"	2.09	0.80
23:V:14:SER:O	23:V:81:GLN:NE2	2.14	0.79
1:1:759:U:P	16:O:18:ARG:HH12	117.86	0.79
7:D:148:ILE:HG23	7:D:151:GLN:HB3	1.64	0.79
24:W:6:ASP:OD2	24:W:9:SER:OG	1.99	0.79
15:N:37:HIS:CE1	15:N:63:ARG:HH11	1.95	0.79
1:1:1721:U:OP2	19:R:124:TYR:OH	2.00	0.79
1:1:1683:A:H61	1:1:3071:U:H3	1.30	0.79
2:3:64:A:OP1	7:D:289:LYS:NZ	2.16	0.79
20:S:13:ARG:NH1	20:S:50:LYS:O	2.14	0.79
1:1:3041:U:OP1	23:V:12:ARG:NH1	2.15	0.79
1:1:2219:A:H2'	1:1:2220:A:H8	1.47	0.78
1:1:242:C:O2'	1:1:243:G:OP2	1.99	0.78
15:N:38:ARG:HH12	15:N:60:VAL:CG1	1.96	0.78
2:3:121:U:OP2	7:D:265:TYR:OH	2.01	0.78
1:1:2436:U:H6	1:1:2436:U:C5'	1.97	0.78
1:1:852:U:O4	17:P:2:ALA:N	115.13	0.78
1:1:525:C:OP2	14:M:77:ARG:NH2	2.17	0.78
1:1:1404:G:N2	1:1:1407:A:OP2	2.17	0.78
1:1:3211:C:P	14:M:109:ARG:HH12	2.06	0.78
1:1:695:C:OP1	6:C:271:LYS:NZ	2.16	0.78
18:Q:86:THR:HG22	18:Q:105:ARG:HB2	1.65	0.78
1:1:1579:C:H42	1:1:1580:A:H62	1.32	0.78
1:1:3349:C:N3	1:1:3356:G:N2	2.32	0.77
1:1:2227:C:H2'	1:1:2228:A:H8	1.49	0.77
1:1:358:G:N2	1:1:361:A:OP2	2.17	0.77
12:J:92:ARG:HB3	12:J:173:ASP:OD2	1.83	0.77
1:1:1179:A:HO2'	1:1:1327:C:HO2'	1.28	0.77
1:1:2828:G:N1	1:1:2862:U:O2	2.16	0.77
1:1:80:G:OP2	15:N:193:ARG:NH1	2.17	0.77
11:H:69:ARG:HH12	11:H:72:LYS:NZ	1.83	0.77
1:1:2439:A:H2	1:1:2508:U:H3	1.31	0.77
1:1:1096:U:OP2	21:T:116:ARG:NH2	2.18	0.77
1:1:3350:C:N4	1:1:3353:G:O6	2.17	0.77
4:A:30:ARG:NH1	4:A:41:ILE:HD13	1.96	0.77
20:S:10:ILE:O	20:S:59:VAL:N	2.18	0.77
27:Z:22:LYS:NZ	27:Z:132:SER:O	2.15	0.77
5:B:41:VAL:HA	5:B:185:GLY:HA3	1.64	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2155:G:O2'	4:A:227:ARG:NH2	2.18	0.76
10:G:36:ILE:HG22	10:G:37:GLY:H	1.50	0.76
1:1:2254:U:O2	1:1:2262:A:N6	2.18	0.76
1:1:63:A:OP1	15:N:169:LYS:NZ	2.18	0.76
1:1:371:G:N1	1:1:374:A:OP2	2.17	0.76
3:4:135:G:H5"	25:X:49:LYS:HD3	1.65	0.76
20:S:115:ARG:O	20:S:117:ARG:NH2	2.18	0.76
27:Z:26:VAL:O	27:Z:93:LYS:NZ	2.19	0.76
1:1:1390:A:N6	1:1:1418:A:O2'	2.19	0.76
1:1:503:C:O5'	8:E:26:ARG:NH1	2.17	0.76
1:1:2405:C:N4	1:1:2870:C:O2	2.19	0.75
17:P:122:ALA:HB3	17:P:143:PRO:HB2	1.68	0.75
1:1:1445:U:O2	1:1:2357:A:N6	2.17	0.75
2:3:72:A:N6	2:3:106:U:O4	2.19	0.75
5:B:81:THR:HG21	5:B:205:VAL:HG13	1.68	0.75
1:1:524:U:O4	1:1:568:G:N1	2.15	0.75
8:E:40:LEU:HD13	8:E:84:VAL:HG11	1.68	0.75
25:X:103:TYR:HB3	25:X:135:ILE:HD11	1.67	0.75
14:M:88:ALA:O	14:M:93:LYS:NZ	2.18	0.75
24:W:12:LYS:O	24:W:32:GLN:NE2	2.20	0.74
1:1:1814:A:H4'	1:1:1815:U:H5'	1.68	0.74
7:D:76:ALA:HB3	7:D:109:THR:HG22	1.69	0.74
1:1:1632:A:OP1	27:Z:69:LYS:NZ	2.19	0.74
1:1:920:A:OP1	1:1:923:C:N4	2.21	0.74
20:S:28:ARG:HH11	20:S:99:ARG:CZ	2.00	0.74
1:1:2681:U:O2	12:J:22:SER:OG	2.04	0.73
21:T:119:ALA:HA	21:T:122:GLN:HB3	1.69	0.73
1:1:2206:G:OP2	1:1:2206:G:H8	1.70	0.73
1:1:3212:C:OP2	14:M:124:ARG:NH2	2.21	0.73
1:1:824:C:H5"	4:A:21:ARG:HD3	1.70	0.73
1:1:2703:A:N6	7:D:28:THR:O	2.21	0.73
23:V:136:VAL:H	26:Y:102:SER:HB3	139.89	0.73
1:1:1098:A:O2'	21:T:130:ARG:O	2.06	0.73
1:1:1392:G:HO2'	1:1:1417:G:H1	0.73	0.73
1:1:201:A:H2'	1:1:202:G:H8	1.52	0.73
1:1:215:G:OP1	26:Y:12:ARG:NH1	2.22	0.73
2:3:119:U:H3'	7:D:258:LYS:NZ	2.04	0.73
1:1:1101:G:OP2	9:F:196:LYS:HE3	1.89	0.73
23:V:108:GLU:HG2	23:V:128:ARG:NH1	2.04	0.73
1:1:3316:A:OP1	1:1:3318:G:N2	2.16	0.73
15:N:155:VAL:O	15:N:162:ARG:NH2	2.22	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:374:A:HO2'	1:1:376:G:H8	1.37	0.73
27:Z:89:VAL:HG13	27:Z:93:LYS:HD3	1.71	0.72
1:1:1534:A:OP2	1:1:1586:G:N1	2.13	0.72
6:C:206:LEU:HB2	6:C:246:ARG:HH21	1.54	0.72
5:B:105:VAL:HG11	5:B:148:LEU:HD11	1.71	0.72
1:1:2703:A:OP2	7:D:23:ARG:NH2	2.22	0.72
7:D:85:ARG:NH1	7:D:86:TYR:OH	2.22	0.72
9:F:24:GLU:HG2	9:F:25:GLN:H	1.53	0.72
1:1:671:U:OP2	18:Q:57:ILE:HD12	1.89	0.72
10:G:78:PHE:O	10:G:79:GLN:HG2	1.89	0.72
1:1:1240:A:H3'	1:1:1241:U:H5'	1.72	0.72
1:1:3367:C:OP2	1:1:3368:U:O2'	2.05	0.72
1:1:3297:U:O4	5:B:124:LYS:NZ	2.22	0.72
1:1:2112:U:H4'	1:1:2113:A:OP2	1.90	0.72
4:A:30:ARG:NH1	4:A:41:ILE:HG21	2.04	0.72
7:D:58:LYS:HA	7:D:93:THR:HG21	1.71	0.71
1:1:1307:G:H5'	16:O:60:LYS:HE2	1.71	0.71
1:1:1863:G:N1	1:1:1866:C:OP2	2.22	0.71
8:E:35:VAL:HB	8:E:90:LYS:NZ	2.05	0.71
1:1:2435:G:C2'	1:1:2436:U:C5'	2.63	0.71
19:R:99:LEU:HD21	19:R:103:ARG:HH21	1.55	0.71
12:J:133:ARG:HH12	12:J:154:THR:HA	1.55	0.71
1:1:1649:U:O4	1:1:1806:A:N6	2.19	0.71
1:1:791:A:OP1	6:C:108:LYS:NZ	2.22	0.71
11:H:113:GLU:OE2	11:H:115:ARG:NE	2.24	0.71
1:1:1763:U:H5'	1:1:1764:U:OP2	1.91	0.70
5:B:216:ASP:OD2	5:B:339:ARG:NH2	2.21	0.70
13:L:47:ALA:HB1	13:L:48:PRO:HD2	1.73	0.70
1:1:1940:G:H21	1:1:3362:A:H8	1.39	0.70
1:1:2116:G:OP1	1:1:2118:C:N4	2.24	0.70
1:1:2176:U:OP1	4:A:54:ARG:NH2	2.19	0.70
1:1:2749:G:H8	1:1:2749:G:OP2	1.74	0.70
1:1:3252:G:H5"	1:1:3253:G:OP2	1.90	0.70
1:1:796:U:H2'	1:1:797:U:H6	1.55	0.70
5:B:10:ARG:NH1	5:B:12:GLY:O	2.24	0.70
1:1:1494:U:OP1	13:L:42:ARG:NH2	71.03	0.70
4:A:118:GLU:HG2	4:A:156:LYS:NZ	2.07	0.70
10:G:162:LEU:HA	15:N:7:LEU:HD11	1.73	0.70
27:Z:54:THR:HG22	27:Z:57:HIS:CD2	2.26	0.70
1:1:2437:G:O6	1:1:2510:U:O4	2.08	0.70
5:B:283:TYR:HB3	5:B:356:LEU:HD11	1.71	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:N:112:ASN:HB2	15:N:138:GLN:HE22	1.56	0.70
14:M:24:LYS:HE2	14:M:25:LYS:NZ	2.06	0.70
1:1:389:A:OP1	17:P:4:TYR:OH	2.07	0.70
10:G:162:LEU:HD23	15:N:7:LEU:HD21	1.74	0.70
25:X:100:LYS:NZ	25:X:106:ASP:OD1	2.24	0.70
1:1:1308:A:OP2	1:1:1308:A:H8	1.73	0.69
1:1:437:G:H2'	1:1:438:A:O4'	1.92	0.69
17:P:30:ARG:NH1	17:P:31:GLU:OE2	2.25	0.69
27:Z:51:LEU:HB2	27:Z:65:ARG:HD2	1.74	0.69
8:E:43:LEU:HD11	8:E:85:ILE:HG13	1.72	0.69
12:J:38:GLU:O	12:J:42:GLY:N	2.19	0.69
6:C:112:LYS:HZ1	15:N:204:LYS:HA	1.57	0.69
11:H:109:ALA:HB1	11:H:111:PHE:HD2	1.57	0.69
1:1:2117:A:HO2'	1:1:3080:G:HO2'	1.39	0.69
5:B:4:ARG:HD2	5:B:7:GLU:HA	1.75	0.69
9:F:92:ILE:HD11	18:Q:4:ASP:HB2	1.73	0.69
19:R:23:TRP:CH2	19:R:25:ASP:HB3	2.28	0.69
1:1:2573:G:H2'	1:1:2574:G:H8	1.56	0.69
1:1:2727:A:OP2	1:1:2728:G:N2	2.25	0.69
1:1:1348:U:OP2	18:Q:38:ARG:NH2	2.26	0.69
1:1:2207:A:H2'	1:1:2208:A:H8	1.58	0.69
1:1:609:G:OP2	6:C:315:LYS:NZ	2.19	0.69
2:3:31:U:H4'	7:D:218:ARG:NH2	2.07	0.69
1:1:339:C:OP1	1:1:1380:G:O2'	2.10	0.69
2:3:87:G:H2'	2:3:88:G:H8	1.57	0.69
17:P:56:ARG:NH2	17:P:75:GLU:OE2	2.26	0.69
6:C:207:VAL:HB	6:C:227:THR:HG22	1.75	0.69
1:1:1308:A:OP2	1:1:1308:A:C8	2.46	0.69
1:1:1243:G:N2	1:1:1271:A:OP1	2.23	0.68
1:1:2572:C:O2'	1:1:2573:G:O4'	2.10	0.68
1:1:529:A:H2'	1:1:530:G:H8	1.56	0.68
11:H:48:VAL:HG13	11:H:49:ASN:H	1.56	0.68
1:1:1720:U:OP2	19:R:110:ARG:NH2	2.25	0.68
1:1:2660:G:N3	1:1:2744:U:O2'	2.25	0.68
7:D:215:ASP:OD2	7:D:218:ARG:HG2	1.92	0.68
12:J:165:GLN:HG2	12:J:166:LYS:H	1.57	0.68
1:1:2618:G:O2'	1:1:2865:U:OP1	2.12	0.68
1:1:3333:G:H22	1:1:3369:G:H1'	1.58	0.68
16:O:22:VAL:HG21	16:O:120:VAL:HG11	1.76	0.68
18:Q:125:ASP:OD1	18:Q:126:GLN:N	2.27	0.68
1:1:2568:C:O2'	1:1:2569:A:O4'	2.10	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:321:C:OP1	15:N:159:ARG:NH2	2.26	0.68
1:1:992:A:H5"	21:T:43:LYS:HD2	1.75	0.68
5:B:187:SER:O	5:B:190:GLU:N	2.26	0.68
26:Y:40:ARG:NH1	26:Y:46:LYS:NZ	2.40	0.68
24:W:56:ARG:HB3	24:W:61:LYS:HB2	1.76	0.68
4:A:27:ALA:O	4:A:128:ARG:NH2	2.27	0.67
6:C:112:LYS:NZ	15:N:204:LYS:HA	2.09	0.67
1:1:520:U:H3	6:C:347:THR:HG1	1.43	0.67
1:1:1216:C:H42	1:1:1289:G:H1	1.40	0.67
1:1:950:G:N1	1:1:1368:U:OP2	2.24	0.67
9:F:60:ARG:NH1	17:P:169:THR:HG21	70.43	0.67
1:1:1257:C:H42	1:1:1261:G:H22	1.42	0.67
27:Z:95:VAL:HG11	27:Z:113:VAL:HB	1.76	0.67
1:1:1561:G:O6	1:1:1578:C:N4	2.26	0.67
7:D:280:GLU:HA	7:D:283:ALA:HB3	1.76	0.67
8:E:31:ARG:NH2	8:E:84:VAL:O	2.27	0.67
27:Z:48:ARG:NH1	27:Z:69:LYS:HD2	2.10	0.67
15:N:37:HIS:HE1	15:N:63:ARG:NH1	1.85	0.67
1:1:2255:A:N7	1:1:2260:U:N3	2.43	0.67
1:1:2406:C:H42	1:1:2815:G:H1	1.43	0.66
5:B:53:MET:HG2	5:B:77:THR:HG22	1.78	0.66
11:H:49:ASN:O	11:H:51:GLN:N	2.26	0.66
15:N:122:ASN:OD1	15:N:123:GLN:N	2.28	0.66
19:R:102:LEU:HD22	19:R:138:LEU:HD13	1.78	0.66
1:1:2376:G:H2'	1:1:2377:G:C8	2.31	0.66
1:1:744:A:H1'	18:Q:141:ARG:HD2	1.78	0.66
1:1:1310:G:HO2'	1:1:2380:U:HO2'	1.44	0.66
23:V:27:ASP:OD2	23:V:102:ILE:HG22	1.95	0.66
1:1:2799:A:O2'	4:A:42:ARG:NH1	104.72	0.66
1:1:2585:G:O6	10:G:47:SER:OG	2.13	0.66
4:A:104:LEU:HD22	4:A:158:ILE:HD11	1.78	0.66
9:F:110:ARG:HH11	18:Q:3:ILE:CG1	2.08	0.66
27:Z:101:PHE:HA	27:Z:107:ARG:HE	1.61	0.66
1:1:502:U:O3'	8:E:26:ARG:NH1	2.26	0.65
23:V:135:VAL:HA	26:Y:102:SER:H	139.90	0.65
1:1:3234:A:H2	1:1:3253:G:H22	1.43	0.65
1:1:76:G:N7	13:L:101:ARG:HB3	2.12	0.65
7:D:285:ARG:HA	7:D:288:ALA:HB3	1.77	0.65
27:Z:3:LYS:NZ	27:Z:30:ASP:OD1	2.22	0.65
1:1:187:A:N3	1:1:208:C:O2'	2.27	0.65
1:1:3353:G:H4'	1:1:3354:U:OP2	1.96	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:M:48:GLY:HA3	14:M:53:VAL:HG13	1.78	0.65
7:D:123:GLU:HG2	7:D:248:ARG:HH12	1.62	0.65
1:1:2781:U:H4'	13:L:185:LYS:HG3	1.79	0.65
21:T:66:ASN:O	21:T:73:GLY:N	2.25	0.65
21:T:79:MET:HB2	21:T:84:TYR:HE1	1.61	0.65
1:1:2186:U:H5	4:A:200:ARG:HD3	1.62	0.65
1:1:2899:C:N3	11:H:173:ARG:NH1	2.44	0.65
6:C:302:ALA:CB	18:Q:39:ARG:HH12	2.10	0.65
11:H:4:ILE:HB	20:S:142:GLN:HE21	1.61	0.65
9:F:110:ARG:HH11	18:Q:3:ILE:HG12	1.61	0.65
10:G:109:LEU:HD23	10:G:112:GLU:OE2	1.97	0.65
8:E:70:LYS:HG2	8:E:142:ASP:OD2	1.97	0.65
1:1:2219:A:H2'	1:1:2220:A:C8	2.31	0.64
1:1:3308:C:O2	17:P:69:ARG:HD2	1.97	0.64
2:3:112:G:H2'	2:3:113:C:C6	2.32	0.64
25:X:59:SER:HB3	25:X:102:LEU:HD21	1.79	0.64
1:1:1564:U:H2'	1:1:1565:G:C8	2.32	0.64
1:1:3057:U:O2'	1:1:3059:G:OP1	2.14	0.64
9:F:156:ILE:HD11	9:F:168:ILE:HG23	1.79	0.64
19:R:105:LEU:HD12	19:R:135:LYS:HE2	1.79	0.64
1:1:2207:A:H2'	1:1:2208:A:C8	2.31	0.64
5:B:261:MET:HG2	16:O:64:PHE:HA	1.80	0.64
11:H:69:ARG:HH11	11:H:72:LYS:HD3	1.62	0.64
13:L:33:VAL:O	13:L:37:ASN:ND2	2.31	0.64
1:1:784:A:O2'	1:1:785:G:OP2	2.16	0.64
8:E:52:VAL:HG23	8:E:67:GLY:HA2	1.79	0.64
8:E:35:VAL:HB	8:E:90:LYS:HZ2	1.62	0.64
1:1:267:G:N2	15:N:50:ARG:O	2.30	0.64
5:B:50:LYS:NZ	5:B:330:GLY:O	2.31	0.64
1:1:1438:U:H5'	6:C:74:ILE:HD11	1.80	0.64
1:1:989:A:O2'	21:T:104:GLU:OE1	2.15	0.64
1:1:1266:G:OP2	1:1:1266:G:H8	1.79	0.64
5:B:306:THR:OG1	5:B:316:GLU:O	2.12	0.64
14:M:21:VAL:HG12	14:M:65:LEU:HD23	1.78	0.64
1:1:3157:U:H4'	1:1:3158:G:H5'	1.78	0.64
1:1:3333:G:N2	1:1:3369:G:H1'	2.13	0.64
1:1:901:G:H2'	1:1:902:G:H8	1.63	0.64
7:D:129:TYR:CG	7:D:177:GLU:HB3	2.33	0.64
11:H:69:ARG:NH1	11:H:72:LYS:HD3	2.13	0.64
13:L:46:ILE:HG22	13:L:49:ARG:HB2	1.80	0.64
1:1:1093:A:N3	1:1:1096:U:N3	2.46	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2250:G:H1	1:1:2266:U:H3	1.46	0.63
1:1:1884:A:H2	1:1:2349:U:H3	1.47	0.63
1:1:359:U:H4'	1:1:817:A:H62	1.63	0.63
14:M:47:ASP:OD2	14:M:49:PRO:HD3	1.98	0.63
15:N:38:ARG:NH1	15:N:60:VAL:HG13	2.01	0.63
1:1:1759:C:N4	1:1:1766:G:O6	2.17	0.63
20:S:13:ARG:HD3	20:S:51:VAL:HG12	1.78	0.63
15:N:53:TYR:HB2	15:N:133:ILE:HD12	1.79	0.63
1:1:2510:U:O2'	1:1:2511:A:H5"	1.98	0.63
27:Z:95:VAL:HG21	27:Z:113:VAL:HG11	1.80	0.63
1:1:1618:G:H4'	3:4:129:C:H1'	1.80	0.63
1:1:563:U:OP1	20:S:71:LYS:NZ	2.28	0.63
1:1:1270:A:N6	1:1:1271:A:N3	2.46	0.63
15:N:91:GLU:O	15:N:93:LYS:NZ	2.28	0.63
1:1:1525:G:H5'	1:1:1830:G:OP2	1.99	0.63
1:1:2228:A:H2'	1:1:2229:A:C8	2.33	0.63
1:1:2698:G:H4'	21:T:12:ARG:NH1	2.13	0.63
2:3:110:G:OP2	7:D:279:LYS:NZ	2.32	0.63
1:1:3207:U:OP1	14:M:106:ARG:NH2	2.31	0.63
1:1:1134:G:O2'	1:1:2642:A:N3	2.30	0.63
8:E:129:GLU:HG2	8:E:130:ILE:H	1.62	0.63
10:G:36:ILE:O	10:G:38:GLN:N	2.32	0.63
3:4:150:G:OP1	25:X:27:ARG:NH2	2.32	0.63
1:1:1186:G:H2'	1:1:1187:C:H6	1.64	0.62
1:1:13:A:H5'	1:1:14:U:OP2	1.99	0.62
1:1:1814:A:OP1	1:1:1816:A:O2'	2.16	0.62
1:1:2137:U:OP2	1:1:2142:A:N6	2.27	0.62
1:1:2439:A:O5'	1:1:2439:A:H8	1.82	0.62
9:F:77:VAL:HG12	20:S:59:VAL:HA	1.80	0.62
1:1:412:G:H5"	17:P:30:ARG:HD2	1.81	0.62
1:1:2227:C:H2'	1:1:2228:A:C8	2.34	0.62
1:1:2436:U:H6	1:1:2436:U:O5'	1.82	0.62
1:1:3221:C:H42	1:1:3264:G:H1	1.47	0.62
27:Z:88:ASP:HB3	27:Z:121:ARG:NH2	2.13	0.62
1:1:682:U:O2'	13:L:28:GLN:NE2	2.32	0.62
12:J:32:ARG:HB3	12:J:120:ILE:HG23	1.82	0.62
1:1:1763:U:H3'	1:1:1764:U:C6	2.34	0.62
1:1:3376:A:H5'	1:1:3377:G:H5"	1.81	0.62
5:B:269:GLN:NE2	5:B:270:ARG:O	2.32	0.62
2:3:44:C:H2'	2:3:45:A:H8	1.65	0.62
1:1:120:G:N1	10:G:126:SER:O	2.31	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2514:U:OP2	1:1:2586:G:N1	2.27	0.62
1:1:2836:C:H5	1:1:2852:C:H42	1.47	0.62
11:H:18:VAL:HG12	11:H:27:VAL:HG22	1.81	0.62
1:1:104:G:O2'	1:1:698:U:O2	2.15	0.62
8:E:174:LEU:HD22	14:M:117:ARG:HH12	1.63	0.62
11:H:23:ARG:NH2	11:H:42:ASP:OD1	2.32	0.62
2:3:112:G:H2'	2:3:113:C:H6	1.64	0.62
27:Z:46:ILE:HD11	27:Z:49:TYR:CD1	2.35	0.62
1:1:3164:C:H1'	1:1:3165:A:H5'	1.82	0.62
1:1:503:C:P	8:E:26:ARG:NH1	2.73	0.62
3:4:131:A:H2'	3:4:132:G:H8	1.64	0.62
7:D:107:ARG:NH2	7:D:169:GLY:O	2.33	0.62
1:1:2660:G:OP1	1:1:2750:U:O2'	2.18	0.61
1:1:959:C:H41	1:1:2801:A:H5"	1.64	0.61
2:3:88:G:H2'	2:3:89:G:H8	1.64	0.61
8:E:174:LEU:HD22	14:M:117:ARG:NH1	2.14	0.61
14:M:38:ILE:HD11	20:S:150:PHE:CE2	2.35	0.61
7:D:215:ASP:OD2	7:D:217:GLU:HG2	2.00	0.61
13:L:76:THR:CG2	13:L:101:ARG:HG3	2.30	0.61
8:E:40:LEU:HD11	8:E:54:TYR:HB2	1.82	0.61
13:L:182:ILE:HG22	13:L:186:ARG:NH1	2.14	0.61
1:1:1862:U:N3	1:1:1868:G:O6	2.19	0.61
1:1:237:G:OP2	1:1:237:G:H8	1.82	0.61
5:B:296:THR:HG22	5:B:297:SER:H	1.65	0.61
1:1:1078:U:H4'	7:D:46:THR:HG21	1.81	0.61
17:P:24:VAL:HG12	17:P:86:LYS:HG2	1.81	0.61
10:G:50:VAL:HG12	25:X:30:ALA:HA	1.82	0.61
1:1:1626:U:H3	1:1:1817:G:H22	1.46	0.61
1:1:2561:A:HO2'	1:1:2562:A:H8	1.48	0.61
6:C:180:LYS:NZ	6:C:202:ARG:HB3	2.15	0.61
1:1:503:C:P	8:E:26:ARG:HH11	2.23	0.61
15:N:18:VAL:HG13	15:N:19:LEU:HD12	1.83	0.61
23:V:104:ASN:OD1	23:V:108:GLU:N	2.34	0.61
1:1:2163:C:O2	1:1:2171:G:N2	2.25	0.61
1:1:63:A:N3	1:1:78:U:O2'	2.28	0.61
2:3:49:G:C8	7:D:58:LYS:HG2	2.35	0.61
4:A:242:ARG:NH1	4:A:246:LEU:HD23	2.16	0.61
7:D:85:ARG:NH1	7:D:86:TYR:CZ	2.69	0.61
1:1:2524:A:N1	10:G:44:ARG:NH1	2.49	0.61
1:1:1144:U:OP1	1:1:1367:G:O2'	2.18	0.61
1:1:2113:A:OP2	1:1:2113:A:C8	2.54	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2312:A:H2'	1:1:2315:G:H21	1.64	0.61
1:1:2437:G:O6	1:1:2510:U:C4	2.54	0.61
1:1:1258:U:H2'	1:1:1260:A:OP2	2.01	0.61
12:J:133:ARG:NH1	12:J:153:LYS:O	2.34	0.61
16:O:14:HIS:HD2	16:O:123:ALA:HB3	1.66	0.61
1:1:1175:C:O2'	16:O:87:MET:O	2.17	0.61
17:P:131:ARG:HG3	17:P:137:ASN:OD1	2.00	0.61
1:1:2550:U:C6	10:G:37:GLY:HA3	2.35	0.60
1:1:2794:G:O2'	1:1:2795:U:OP2	2.14	0.60
8:E:78:ARG:NH1	8:E:106:PHE:HB2	2.16	0.60
1:1:1607:U:H6	1:1:1607:U:H5'	1.65	0.60
1:1:3316:A:N6	5:B:124:LYS:HG2	2.17	0.60
9:F:215:GLY:O	9:F:216:VAL:HG22	2.01	0.60
15:N:104:GLU:HA	15:N:160:GLU:HG3	1.83	0.60
1:1:356:C:O2'	6:C:81:GLY:O	2.17	0.60
11:H:89:LYS:HB3	11:H:143:GLU:OE2	2.00	0.60
13:L:91:ARG:HE	13:L:97:VAL:HB	1.66	0.60
17:P:60:PHE:CE2	17:P:82:ARG:HB2	2.36	0.60
1:1:1362:G:H2'	1:1:1363:A:C8	2.36	0.60
1:1:1482:A:H4'	1:1:1483:G:OP2	2.01	0.60
11:H:124:ARG:HD3	11:H:164:ILE:HG13	1.83	0.60
1:1:759:U:OP1	16:O:18:ARG:NH1	118.75	0.60
1:1:2344:U:H2'	1:1:2345:A:C8	2.36	0.60
1:1:860:G:OP2	4:A:181:LYS:NZ	2.32	0.60
2:3:40:C:O2	12:J:72:ARG:NE	2.22	0.60
6:C:302:ALA:CA	18:Q:39:ARG:HH12	2.14	0.60
1:1:1084:A:H4'	7:D:44:TYR:CZ	2.36	0.60
1:1:1553:U:H4'	1:1:1554:U:H5'	1.83	0.60
1:1:3272:C:OP2	8:E:78:ARG:NH2	2.34	0.60
7:D:151:GLN:HG2	7:D:159:VAL:HG21	1.84	0.60
10:G:24:ASN:HB3	10:G:25:PRO:HD3	1.82	0.60
1:1:1447:G:N7	17:P:27:LYS:HB2	2.16	0.60
1:1:349:A:H4'	1:1:350:C:OP2	2.02	0.60
7:D:123:GLU:HG2	7:D:248:ARG:NH1	2.16	0.60
9:F:151:ARG:HH12	9:F:207:LEU:HA	1.67	0.60
9:F:151:ARG:NH1	9:F:207:LEU:HA	2.16	0.60
1:1:111:C:P	13:L:91:ARG:HH12	2.25	0.60
20:S:12:ARG:HH21	21:T:141:VAL:HG12	1.67	0.60
1:1:3276:G:H1	9:F:60:ARG:NH2	66.99	0.60
1:1:1452:A:N3	1:1:2346:C:O2'	2.30	0.59
1:1:181:U:O2'	12:J:75:LYS:NZ	155.91	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:3171:U:H3	1:1:3279:A:H61	1.47	0.59
1:1:2441:A:OP2	1:1:2441:A:H8	1.85	0.59
2:3:19:C:H2'	2:3:20:A:C8	2.37	0.59
3:4:80:A:H1'	3:4:82:U:O4	2.03	0.59
1:1:2228:A:H2'	1:1:2229:A:H8	1.67	0.59
3:4:95:G:OP2	12:J:72:ARG:NH1	153.03	0.59
4:A:79:ASN:ND2	4:A:166:ILE:O	2.36	0.59
1:1:2401:A:H5'	6:C:70:ALA:HB2	1.85	0.59
7:D:51:LEU:N	7:D:145:PHE:O	2.26	0.59
1:1:1063:G:OP2	1:1:1097:G:H3'	2.03	0.59
1:1:1576:G:H2'	1:1:1577:G:O4'	2.02	0.59
1:1:1813:A:H5'	1:1:1814:A:OP2	2.02	0.59
1:1:435:C:H2'	1:1:436:A:C8	2.37	0.59
1:1:647:A:N6	1:1:2371:G:HO2'	2.01	0.59
5:B:17:LEU:HD11	5:B:233:TRP:HH2	1.68	0.59
7:D:60:ILE:HB	7:D:80:SER:HB3	1.83	0.59
10:G:171:LYS:HG2	10:G:226:TYR:CD2	2.37	0.59
23:V:74:MET:SD	23:V:102:ILE:HD11	2.42	0.59
1:1:1362:G:H2'	1:1:1363:A:H8	1.66	0.59
1:1:1550:C:H2'	1:1:1551:C:C6	2.35	0.59
1:1:2364:G:H1	1:1:2396:G:H21	1.51	0.59
1:1:3167:A:H5'	1:1:3168:A:OP2	2.03	0.59
20:S:96:ASP:OD1	20:S:97:VAL:N	2.28	0.59
1:1:3277:U:H5"	1:1:3278:C:N3	2.16	0.59
1:1:3277:U:OP1	1:1:3278:C:N4	2.35	0.59
1:1:1362:G:H4'	9:F:159:GLN:O	2.03	0.59
6:C:317:PRO:C	6:C:319:LYS:H	2.04	0.59
2:3:121:U:H3	7:D:268:GLU:HG3	1.66	0.59
1:1:1353:U:O2'	8:E:8:LYS:O	2.19	0.59
1:1:529:A:H2'	1:1:530:G:C8	2.37	0.59
1:1:2424:A:N1	4:A:230:VAL:HG21	2.17	0.59
13:L:76:THR:O	13:L:79:GLU:N	2.36	0.59
26:Y:23:PRO:HD2	26:Y:26:GLN:OE1	2.03	0.59
1:1:2509:U:H2'	1:1:2510:U:H5'	1.84	0.59
5:B:283:TYR:HD1	5:B:354:VAL:HG21	1.68	0.59
6:C:7:THR:OG1	6:C:147:GLU:OE2	2.17	0.59
6:C:181:VAL:O	6:C:182:LEU:HB2	2.02	0.59
17:P:116:HIS:HB3	17:P:149:VAL:HB	1.83	0.59
17:P:126:ARG:NH1	17:P:140:GLU:OE2	2.36	0.59
6:C:302:ALA:HB2	18:Q:39:ARG:HH12	1.66	0.59
1:1:2168:A:C6	1:1:2170:U:H1'	2.37	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:3309:G:H1'	17:P:69:ARG:HD3	1.85	0.59
1:1:796:U:H2'	1:1:797:U:C6	2.38	0.59
11:H:4:ILE:HD13	20:S:148:LEU:HD21	1.85	0.59
1:1:2675:C:H42	12:J:22:SER:HB2	1.66	0.59
2:3:11:A:N1	2:3:67:G:O2'	2.35	0.58
6:C:170:LYS:HG2	6:C:175:HIS:HB2	1.85	0.58
14:M:55:ARG:NH2	14:M:76:ALA:O	2.36	0.58
17:P:114:VAL:HG12	17:P:150:VAL:HG12	1.84	0.58
13:L:10:LEU:HD23	18:Q:166:LEU:HD11	1.84	0.58
1:1:1523:U:O2'	1:1:1608:C:OP1	2.20	0.58
1:1:3013:U:H2'	1:1:3014:U:C6	2.38	0.58
1:1:709:A:OP1	18:Q:179:ARG:NH1	2.37	0.58
19:R:25:ASP:OD2	19:R:28:GLU:HG2	2.04	0.58
26:Y:116:LYS:O	26:Y:120:GLN:HG2	2.03	0.58
1:1:346:C:N4	1:1:349:A:OP2	2.19	0.58
1:1:827:A:H2'	1:1:828:A:H8	1.68	0.58
5:B:71:GLU:OE2	24:W:1:MET:N	2.25	0.58
12:J:92:ARG:NH2	12:J:94:ARG:HH11	2.01	0.58
1:1:3211:C:OP2	14:M:109:ARG:NH1	2.35	0.58
17:P:126:ARG:HH12	17:P:138:LYS:HD2	1.69	0.58
1:1:2529:A:OP1	10:G:248:LYS:NZ	2.28	0.58
4:A:230:VAL:HG22	4:A:231:SER:H	1.68	0.58
26:Y:112:ASP:H	26:Y:115:ARG:HB2	1.68	0.58
1:1:2186:U:C5	4:A:200:ARG:HD3	2.38	0.58
6:C:203:ARG:HB3	6:C:246:ARG:HH12	1.67	0.58
7:D:58:LYS:HA	7:D:93:THR:CG2	2.33	0.58
1:1:502:U:H4'	8:E:26:ARG:HB3	1.86	0.58
11:H:23:ARG:HH21	11:H:42:ASP:HA	1.69	0.58
11:H:84:LYS:HB3	11:H:186:PHE:HB3	1.84	0.58
17:P:95:LEU:HD23	17:P:148:LEU:HD21	1.84	0.58
20:S:13:ARG:O	20:S:22:PRO:HG2	2.04	0.58
1:1:1071:U:H3	1:1:1087:G:H1	1.52	0.58
1:1:1110:U:H2'	1:1:1111:U:C6	2.38	0.58
1:1:2541:U:H1'	1:1:2542:U:OP2	2.03	0.58
1:1:2843:U:H5"	1:1:2844:C:H5	1.69	0.58
2:3:96:U:H2'	2:3:97:A:H8	1.68	0.58
1:1:2991:A:H5"	5:B:21:ARG:NH1	2.18	0.58
1:1:591:G:N2	8:E:19:LYS:O	2.33	0.58
7:D:83:LEU:O	7:D:86:TYR:N	2.36	0.58
25:X:105:VAL:HG12	25:X:106:ASP:H	1.67	0.58
1:1:1678:G:O6	22:U:74:LYS:NZ	2.37	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:3086:A:H3'	1:1:3087:A:H8	1.69	0.58
3:4:82:U:O2'	3:4:83:C:OP1	2.20	0.58
6:C:142:VAL:O	6:C:145:ILE:HG12	2.04	0.58
1:1:286:U:O2'	15:N:179:LYS:O	2.21	0.58
1:1:1108:U:H2'	1:1:1109:U:C6	2.39	0.58
1:1:1229:G:H2'	1:1:1230:G:H8	1.69	0.58
1:1:216:G:OP1	26:Y:16:ARG:NH1	2.37	0.58
1:1:440:A:H8	1:1:440:A:OP2	1.85	0.58
10:G:54:GLU:HG2	10:G:57:ARG:HH21	1.69	0.58
26:Y:51:ARG:HG2	26:Y:52:ARG:H	1.69	0.58
1:1:1270:A:C6	1:1:1271:A:H1'	2.38	0.58
1:1:3255:U:H2'	1:1:3256:G:H8	1.68	0.58
3:4:130:C:H2'	3:4:131:A:H8	1.69	0.58
15:N:190:THR:HA	15:N:193:ARG:HE	1.68	0.58
25:X:67:ILE:HD12	25:X:83:VAL:HG12	1.86	0.58
6:C:302:ALA:HA	18:Q:39:ARG:HH12	1.68	0.57
1:1:2171:G:H2'	1:1:2172:A:H8	1.68	0.57
16:O:119:VAL:HG11	20:S:167:ARG:HD2	1.86	0.57
1:1:1915:A:H5"	19:R:84:THR:HG22	1.86	0.57
1:1:1236:G:N1	1:1:1244:A:OP1	2.35	0.57
4:A:118:GLU:HG2	4:A:156:LYS:HZ3	1.69	0.57
5:B:77:THR:HG21	5:B:328:ILE:HG22	1.87	0.57
1:1:2341:A:H8	1:1:2341:A:OP2	1.87	0.57
3:4:78:G:H2'	3:4:79:A:C8	2.39	0.57
1:1:113:C:OP1	15:N:147:ARG:NE	2.30	0.57
19:R:28:GLU:O	19:R:31:GLU:N	2.38	0.57
1:1:1816:A:H2'	1:1:1817:G:C8	2.39	0.57
1:1:685:G:OP2	13:L:35:ARG:NH2	2.38	0.57
1:1:691:A:OP2	1:1:691:A:H8	1.88	0.57
1:1:710:A:H2'	1:1:711:A:C8	2.39	0.57
6:C:150:LEU:HD21	6:C:172:VAL:HG11	1.86	0.57
2:3:6:C:O2'	7:D:72:ASP:OD2	2.10	0.57
16:O:28:LEU:HD11	16:O:88:VAL:HG13	1.85	0.57
18:Q:107:THR:O	18:Q:111:ARG:HG3	2.04	0.57
4:A:44:ILE:HG22	4:A:87:PHE:HD1	1.69	0.57
5:B:139:GLN:HG3	5:B:141:GLY:H	1.69	0.57
6:C:62:ALA:HB3	6:C:90:PHE:CE2	2.39	0.57
7:D:148:ILE:HG12	7:D:159:VAL:HG11	1.86	0.57
7:D:267:ALA:HA	7:D:270:LYS:HD2	1.86	0.57
8:E:96:VAL:HG12	8:E:98:VAL:HG23	1.86	0.57
10:G:26:LEU:HD23	27:Z:123:GLN:HE22	1.68	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:S:12:ARG:HG3	20:S:12:ARG:O	2.05	0.57
1:1:1188:U:OP1	1:1:1210:U:O2'	2.15	0.57
1:1:1203:A:N3	1:1:2855:U:O2'	2.34	0.57
1:1:1224:C:H2'	1:1:1225:A:H8	1.70	0.57
1:1:577:C:O2'	1:1:579:G:OP1	2.16	0.57
1:1:885:U:H2'	1:1:886:C:H6	1.68	0.57
11:H:163:GLN:HB3	11:H:166:ARG:NH1	2.20	0.57
1:1:1095:U:H3	21:T:127:GLN:NE2	2.02	0.57
1:1:2206:G:H1	1:1:2237:C:H42	1.52	0.57
1:1:627:U:H2'	1:1:628:A:C8	2.40	0.57
1:1:1831:U:O2'	3:4:114:G:OP1	2.15	0.57
4:A:20:THR:HA	4:A:23:ARG:HH11	1.69	0.57
8:E:146:ILE:HD13	8:E:149:ILE:HD12	1.85	0.57
12:J:95:ASN:O	12:J:102:PHE:HA	2.04	0.57
25:X:86:VAL:HG21	25:X:95:ILE:HG12	1.86	0.57
1:1:1261:G:O2'	1:1:1278:A:N6	2.37	0.57
1:1:2991:A:C3'	5:B:21:ARG:HH12	2.17	0.57
6:C:122:THR:HG22	6:C:235:LEU:HB2	1.86	0.57
20:S:45:LEU:HB3	20:S:51:VAL:HG21	1.85	0.57
1:1:2259:A:H2'	1:1:2260:U:C6	2.40	0.57
2:3:44:C:O4'	7:D:152:ARG:NH1	2.38	0.57
1:1:1235:U:H4'	1:1:1236:G:H5'	1.86	0.56
1:1:2439:A:H2'	1:1:2440:G:C8	2.39	0.56
1:1:2526:C:H6	1:1:2526:C:OP2	1.87	0.56
1:1:2573:G:H2'	1:1:2574:G:C8	2.39	0.56
1:1:3048:A:OP2	5:B:222:LYS:NZ	2.27	0.56
3:4:110:C:O2'	3:4:112:U:OP2	2.19	0.56
25:X:67:ILE:HD11	25:X:115:ARG:HH21	1.70	0.56
1:1:2344:U:H2'	1:1:2345:A:H8	1.69	0.56
1:1:2584:G:O2'	10:G:240:ASN:ND2	2.34	0.56
1:1:2374:C:N4	1:1:2941:A:O4'	2.38	0.56
4:A:60:LYS:HB3	4:A:73:GLU:OE2	2.05	0.56
15:N:68:ARG:NH1	15:N:128:LYS:HE3	2.19	0.56
18:Q:64:VAL:HG12	18:Q:90:ASP:H	1.71	0.56
1:1:1229:G:H2'	1:1:1230:G:C8	2.39	0.56
1:1:2437:G:O2'	1:1:2438:A:H8	1.88	0.56
1:1:865:U:H2'	1:1:866:A:H8	1.69	0.56
1:1:3295:A:H5'	5:B:119:TYR:HE1	1.70	0.56
26:Y:3:LYS:HD2	26:Y:8:VAL:HG13	1.87	0.56
1:1:1815:U:O2'	1:1:1816:A:OP2	2.21	0.56
1:1:3094:A:OP1	23:V:14:SER:OG	2.20	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:3174:A:C5	1:1:3279:A:H1'	2.40	0.56
1:1:873:C:H4'	1:1:874:U:OP2	2.05	0.56
3:4:149:A:N3	10:G:55:TYR:OH	2.32	0.56
1:1:3002:C:O2'	5:B:180:GLU:OE2	2.18	0.56
14:M:23:ILE:O	14:M:30:GLY:N	2.30	0.56
15:N:4:TYR:CD1	15:N:46:ASP:HB3	2.40	0.56
15:N:68:ARG:HH12	15:N:128:LYS:HE3	1.69	0.56
1:1:1249:G:H2'	1:1:1250:G:C8	2.40	0.56
1:1:3319:U:O2'	1:1:3320:A:OP1	2.22	0.56
1:1:651:G:O2'	1:1:1435:A:OP1	2.22	0.56
3:4:36:G:N2	3:4:37:A:N1	2.54	0.56
1:1:1081:U:O2'	1:1:1082:U:OP2	2.22	0.56
1:1:1568:U:H4'	1:1:1569:U:OP2	2.05	0.56
1:1:209:A:H4'	1:1:211:A:N7	2.20	0.56
1:1:2720:G:OP2	1:1:2720:G:H8	1.88	0.56
1:1:3116:G:N2	1:1:3116:G:OP1	2.36	0.56
1:1:3152:U:O2'	1:1:3153:U:H5'	2.06	0.56
5:B:345:ASN:OD1	5:B:346:THR:N	2.38	0.56
11:H:4:ILE:HD11	20:S:150:PHE:CD2	2.41	0.56
12:J:28:ASP:O	12:J:32:ARG:NE	2.39	0.56
15:N:114:ARG:NH1	15:N:151:ILE:O	2.38	0.56
15:N:99:ARG:NH2	15:N:118:SER:O	2.38	0.56
15:N:27:VAL:HB	15:N:122:ASN:HD21	1.71	0.56
1:1:1508:C:OP1	17:P:127:ARG:NH2	2.39	0.56
1:1:265:A:H5"	1:1:266:A:OP2	2.04	0.56
1:1:3243:A:H4'	5:B:95:THR:HG22	1.88	0.56
6:C:138:ARG:NH1	6:C:140:HIS:NE2	2.54	0.56
9:F:110:ARG:NH2	9:F:206:LYS:HZ3	2.03	0.56
10:G:72:PRO:HG3	15:N:18:VAL:HA	1.88	0.56
15:N:37:HIS:CE1	15:N:63:ARG:HD2	2.41	0.56
23:V:93:LEU:HB3	24:W:20:LEU:HB3	1.86	0.56
3:4:82:U:H4'	3:4:87:G:H5"	1.87	0.56
6:C:62:ALA:HB3	6:C:90:PHE:HE2	1.69	0.56
9:F:110:ARG:HD3	18:Q:3:ILE:HG13	1.88	0.56
21:T:48:ILE:HG13	21:T:94:GLU:HG2	1.87	0.56
1:1:1108:U:H2'	1:1:1109:U:H6	1.70	0.56
1:1:3168:A:H61	1:1:3282:U:H3	1.53	0.56
3:4:131:A:H2'	3:4:132:G:C8	2.41	0.56
6:C:263:GLY:HA3	6:C:268:ALA:O	2.06	0.56
7:D:213:ASP:OD1	7:D:214:ASP:N	2.39	0.56
1:1:1353:U:H2'	8:E:9:TRP:CE3	2.41	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:H:12:VAL:N	11:H:51:GLN:O	2.39	0.56
15:N:68:ARG:HD3	15:N:125:SER:O	2.05	0.56
19:R:134:HIS:CE1	19:R:136:ARG:HB3	2.41	0.56
1:1:2568:C:H6	1:1:2568:C:OP2	1.89	0.56
1:1:3283:U:H2'	1:1:3284:G:C8	2.40	0.56
2:3:87:G:H2'	2:3:88:G:C8	2.39	0.56
5:B:213:GLU:CD	5:B:340:LYS:HZ2	2.10	0.56
5:B:305:ILE:HD11	5:B:317:ILE:HG21	1.87	0.56
1:1:653:A:H5"	1:1:2361:A:H5'	1.87	0.55
4:A:126:LEU:HD13	4:A:150:LEU:HD21	1.89	0.55
9:F:144:ILE:HG22	9:F:185:ILE:HG23	1.89	0.55
13:L:179:PHE:O	13:L:183:ARG:HG2	2.06	0.55
1:1:1765:U:H5	19:R:46:LYS:HZ3	1.50	0.55
1:1:2297:U:O2	1:1:2920:U:H5'	2.06	0.55
1:1:3276:G:O2'	1:1:3277:U:OP2	2.23	0.55
1:1:563:U:H2'	1:1:564:G:C8	2.40	0.55
5:B:74:GLU:OE1	5:B:283:TYR:OH	2.19	0.55
18:Q:64:VAL:HG22	18:Q:96:PHE:CE1	2.41	0.55
1:1:1288:U:H2'	1:1:1289:G:H8	1.70	0.55
20:S:155:ARG:HD2	20:S:172:TYR:HD1	1.71	0.55
22:U:39:ASP:OD1	22:U:40:HIS:ND1	2.37	0.55
1:1:194:U:H2'	1:1:195:U:H6	1.70	0.55
1:1:671:U:H2'	1:1:672:A:H8	1.71	0.55
2:3:52:G:O2'	2:3:53:U:OP1	2.22	0.55
7:D:7:ALA:C	7:D:8:LYS:HD2	2.27	0.55
1:1:155:G:H5"	1:1:156:G:C8	2.41	0.55
1:1:3157:U:H1'	1:1:3158:G:C8	2.41	0.55
1:1:86:G:O2'	1:1:98:G:O6	2.23	0.55
6:C:58:HIS:NE2	6:C:98:ARG:HD3	2.22	0.55
6:C:10:SER:OG	6:C:13:GLY:O	2.22	0.55
6:C:5:GLN:HE22	6:C:21:PRO:HG3	1.71	0.55
12:J:92:ARG:NH2	12:J:94:ARG:NH1	2.55	0.55
5:B:385:LYS:HG3	5:B:386:ASP:H	1.72	0.55
8:E:52:VAL:HG21	8:E:65:ILE:HD13	1.89	0.55
11:H:105:GLU:HA	11:H:109:ALA:HB3	1.89	0.55
11:H:77:ASN:HB3	11:H:151:VAL:HG21	1.89	0.55
1:1:149:U:P	15:N:49:ARG:HH12	2.29	0.55
1:1:377:A:H1'	1:1:392:G:N2	2.22	0.55
1:1:551:A:O2'	1:1:552:G:O5'	2.24	0.55
11:H:69:ARG:HH12	11:H:72:LYS:HZ2	1.52	0.55
13:L:32:LYS:O	13:L:36:ARG:HG3	2.07	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1097:G:C8	21:T:128:LEU:HD13	2.41	0.55
27:Z:46:ILE:HD11	27:Z:49:TYR:CE1	2.41	0.55
1:1:1723:A:OP2	19:R:103:ARG:NH2	2.40	0.55
1:1:3163:A:N6	1:1:3288:G:H1	2.03	0.55
1:1:737:G:H8	1:1:737:G:OP2	1.90	0.55
1:1:781:G:OP1	18:Q:151:ARG:HD2	2.07	0.55
2:3:119:U:H3'	7:D:258:LYS:HZ2	1.71	0.55
1:1:3049:A:H4'	5:B:364:LYS:HD2	1.88	0.55
8:E:102:ASN:OD1	8:E:105:TYR:N	2.33	0.55
12:J:47:GLN:HG2	12:J:67:VAL:HG12	1.87	0.55
14:M:65:LEU:HD12	20:S:172:TYR:HE2	1.72	0.55
1:1:194:U:H2'	1:1:195:U:C6	2.42	0.55
7:D:106:ALA:HB2	7:D:166:ALA:HA	1.89	0.55
13:L:166:ALA:O	13:L:169:THR:N	2.38	0.55
9:F:151:ARG:NH1	9:F:206:LYS:O	2.40	0.54
13:L:76:THR:HG22	13:L:101:ARG:HG3	1.89	0.54
17:P:126:ARG:NH1	17:P:138:LYS:HD2	2.21	0.54
1:1:676:G:OP2	18:Q:107:THR:HA	2.07	0.54
1:1:3165:A:H2'	1:1:3166:C:H6	1.71	0.54
1:1:1245:A:N6	1:1:1272:C:O2'	2.36	0.54
1:1:1348:U:C4	18:Q:31:LYS:HE3	2.43	0.54
1:1:1449:A:H5"	1:1:1450:G:OP2	2.07	0.54
1:1:2437:G:O2'	1:1:2438:A:OP2	2.20	0.54
7:D:52:VAL:HG21	7:D:65:ILE:HD12	1.87	0.54
27:Z:16:GLY:C	27:Z:18:TYR:H	2.10	0.54
1:1:1097:G:H1'	1:1:1098:A:OP2	2.07	0.54
1:1:2799:A:H1'	4:A:42:ARG:NH1	106.68	0.54
1:1:676:G:H1'	1:1:787:G:H22	1.73	0.54
18:Q:71:LEU:HD13	18:Q:99:THR:HG21	1.90	0.54
2:3:26:C:O2	2:3:57:G:N2	2.37	0.54
2:3:53:U:H4'	12:J:8:PRO:HB2	1.89	0.54
6:C:292:SER:OG	6:C:293:SER:N	2.39	0.54
9:F:112:ASN:ND2	9:F:209:ASN:OD1	2.39	0.54
10:G:91:PHE:CE2	10:G:185:ARG:NH1	2.74	0.54
13:L:76:THR:HG23	13:L:101:ARG:NH1	2.23	0.54
1:1:1103:A:OP2	1:1:1103:A:H4'	2.07	0.54
1:1:1222:G:O2'	1:1:1284:C:N4	2.41	0.54
1:1:3164:C:O2'	1:1:3165:A:H8	1.91	0.54
2:3:62:U:O4	2:3:63:A:N6	2.41	0.54
8:E:150:LYS:HE3	8:E:156:LYS:HD2	1.89	0.54
11:H:20:ILE:HD13	14:M:7:VAL:HG22	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:785:G:H1	18:Q:90:ASP:HA	1.72	0.54
1:1:972:A:H2'	1:1:973:A:H8	1.73	0.54
5:B:332:ARG:HH11	5:B:333:LYS:HE2	1.73	0.54
11:H:150:SER:HB3	11:H:153:ASP:HB2	1.89	0.54
12:J:15:GLU:HB3	12:J:130:VAL:HG13	1.89	0.54
7:D:41:LYS:HB2	21:T:68:THR:O	2.08	0.54
1:1:246:U:H2'	1:1:247:C:H6	1.73	0.54
1:1:807:A:H61	1:1:934:G:H22	1.55	0.54
7:D:60:ILE:HD11	7:D:93:THR:HA	1.89	0.54
1:1:73:C:N3	13:L:59:ARG:NH1	2.56	0.54
1:1:1795:U:OP1	4:A:191:LEU:HD21	2.07	0.54
1:1:196:G:N2	1:1:198:A:H3'	2.22	0.54
1:1:2218:G:H2'	1:1:2219:A:C8	2.43	0.54
1:1:2307:G:O2'	1:1:2310:U:OP2	2.25	0.54
1:1:394:G:N1	1:1:397:A:OP2	2.42	0.54
5:B:19:ARG:HB2	5:B:232:ARG:HH21	1.73	0.54
1:1:2526:C:O2	10:G:48:ARG:NH2	2.40	0.54
1:1:2534:G:H22	1:1:2545:C:H42	1.55	0.53
5:B:110:LEU:HD22	5:B:130:PHE:CE2	2.43	0.53
1:1:3330:A:H4'	5:B:366:GLY:HA3	1.90	0.53
20:S:95:ARG:NH1	20:S:144:LEU:HD21	2.24	0.53
1:1:1269:U:H3	1:1:1271:A:H5"	1.73	0.53
1:1:2991:A:N3	17:P:69:ARG:NH2	2.56	0.53
2:3:19:C:H2'	2:3:20:A:H8	1.71	0.53
4:A:113:VAL:HG12	4:A:166:ILE:HD13	1.88	0.53
1:1:743:C:C2	18:Q:141:ARG:NH1	2.76	0.53
10:G:26:LEU:HD13	27:Z:53:VAL:HG11	1.90	0.53
3:4:82:U:HO2'	3:4:83:C:P	2.31	0.53
6:C:283:THR:HG22	6:C:285:ASP:H	1.73	0.53
7:D:94:ASN:OD1	7:D:97:ALA:N	2.41	0.53
12:J:7:ASN:OD1	12:J:10:ARG:NH1	2.34	0.53
4:A:101:VAL:HG11	13:L:153:ASP:OD2	119.50	0.53
4:A:116:VAL:HG13	4:A:126:LEU:HB2	1.88	0.53
10:G:152:LEU:HD23	10:G:178:ALA:HB3	1.90	0.53
25:X:105:VAL:HG11	25:X:126:LEU:HD13	1.90	0.53
1:1:1659:U:H2'	1:1:1660:C:C6	2.43	0.53
1:1:3147:G:O2'	5:B:104:THR:OG1	2.12	0.53
6:C:64:SER:HA	6:C:75:PRO:HA	1.91	0.53
1:1:745:C:H5"	18:Q:145:ASN:ND2	2.24	0.53
1:1:1637:A:H4'	27:Z:15:ARG:HB3	1.91	0.53
1:1:1635:G:N2	1:1:1638:A:OP2	2.35	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1724:U:H1'	1:1:1725:C:C6	2.43	0.53
1:1:25:U:H4'	1:1:26:A:N7	2.24	0.53
7:D:129:TYR:CD1	7:D:177:GLU:HB3	2.44	0.53
10:G:75:ILE:HD11	15:N:22:LEU:HD11	1.89	0.53
12:J:90:GLN:HG2	12:J:170:ASP:HB2	1.90	0.53
3:4:156:U:H5"	3:4:157:U:OP2	2.08	0.53
3:4:46:G:O2'	3:4:61:A:N1	2.39	0.53
5:B:272:TYR:HE1	5:B:334:ARG:HH22	1.56	0.53
12:J:49:LYS:HB3	12:J:62:ASN:HA	1.90	0.53
16:O:3:VAL:O	16:O:4:GLU:HG3	2.09	0.53
20:S:24:LEU:O	21:T:148:PRO:HA	2.08	0.53
1:1:1687:U:OP2	22:U:42:LYS:HE3	2.09	0.53
1:1:2255:A:H5'	1:1:2261:G:N2	2.24	0.53
1:1:2927:C:H2'	1:1:2928:C:C6	2.44	0.53
1:1:611:A:O2'	1:1:612:U:OP2	2.15	0.53
10:G:36:ILE:HG22	10:G:37:GLY:N	2.21	0.53
1:1:1350:A:H8	1:1:1351:U:H3'	1.74	0.53
1:1:3344:A:H2	1:1:3361:G:H21	1.54	0.53
1:1:95:A:C5	1:1:96:G:H1'	2.44	0.53
7:D:187:THR:HG23	7:D:189:GLU:HG3	1.89	0.53
22:U:17:VAL:HB	22:U:63:VAL:HB	1.91	0.53
1:1:600:G:O2'	1:1:602:A:N6	2.35	0.53
24:W:6:ASP:OD1	24:W:31:PHE:HA	2.09	0.53
1:1:2841:G:H2'	1:1:2844:C:H42	1.73	0.52
1:1:549:U:H2'	1:1:550:A:H8	1.73	0.52
1:1:627:U:H2'	1:1:628:A:H8	1.72	0.52
1:1:839:C:H2'	1:1:840:C:H6	1.74	0.52
3:4:63:G:OP2	3:4:90:U:H4'	2.09	0.52
14:M:48:GLY:HA3	14:M:53:VAL:CG1	2.40	0.52
19:R:23:TRP:CE3	19:R:51:VAL:HG22	2.44	0.52
26:Y:56:VAL:HG21	26:Y:104:LEU:HD13	1.91	0.52
1:1:1447:G:OP1	17:P:65:SER:OG	2.15	0.52
1:1:2779:A:O2'	13:L:180:ARG:NH2	2.39	0.52
1:1:3199:G:H2'	1:1:3200:G:H8	1.73	0.52
4:A:224:THR:HA	4:A:237:LEU:O	2.09	0.52
6:C:180:LYS:HZ1	6:C:202:ARG:CB	2.22	0.52
12:J:11:ASP:O	12:J:12:LEU:HB2	2.10	0.52
18:Q:64:VAL:HG11	18:Q:113:LYS:HD2	1.91	0.52
1:1:523:A:O2'	20:S:69:PRO:HD2	2.08	0.52
22:U:93:ILE:HA	22:U:106:ALA:O	2.08	0.52
27:Z:90:GLU:HA	27:Z:93:LYS:HG2	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1446:A:N6	1:1:2356:A:C8	2.77	0.52
1:1:3115:C:HO2'	1:1:3117:C:H41	1.56	0.52
25:X:105:VAL:HG12	25:X:106:ASP:N	2.25	0.52
25:X:105:VAL:HG11	25:X:126:LEU:HD22	1.91	0.52
1:1:1621:A:H2'	1:1:1622:U:C6	2.44	0.52
1:1:1933:A:H4'	1:1:2124:G:H5'	1.91	0.52
1:1:3078:U:H4'	1:1:3079:U:OP2	2.08	0.52
1:1:3255:U:H2'	1:1:3256:G:C8	2.45	0.52
8:E:149:ILE:HG23	8:E:155:LEU:HD23	1.91	0.52
10:G:36:ILE:O	10:G:38:GLN:HG2	2.08	0.52
1:1:2436:U:C6	1:1:2436:U:C5'	2.85	0.52
1:1:296:A:N3	1:1:299:G:O2'	2.38	0.52
1:1:2997:G:H1'	1:1:3396:U:H5"	1.92	0.52
1:1:439:C:H3'	1:1:440:A:H8	1.75	0.52
1:1:715:A:HO2'	1:1:752:C:HO2'	1.55	0.52
1:1:898:U:H2'	1:1:899:U:C6	2.44	0.52
5:B:292:ALA:HB1	5:B:295:ALA:HB3	1.90	0.52
5:B:328:ILE:HD11	5:B:336:VAL:HG11	1.92	0.52
5:B:51:ALA:HB2	5:B:317:ILE:HD11	1.91	0.52
1:1:1385:C:H41	6:C:202:ARG:NH2	2.07	0.52
3:4:143:U:H4'	15:N:57:GLN:HB3	1.91	0.52
1:1:1307:G:H1'	1:1:1308:A:C8	2.45	0.52
1:1:3045:G:OP1	5:B:19:ARG:NH2	2.42	0.52
1:1:502:U:O2'	8:E:26:ARG:NH1	2.43	0.52
5:B:221:THR:HB	5:B:273:HIS:H	1.74	0.52
5:B:283:TYR:OH	5:B:325:LYS:HD2	2.10	0.52
11:H:83:THR:OG1	11:H:84:LYS:N	2.41	0.52
14:M:20:VAL:HG13	14:M:66:THR:OG1	2.09	0.52
15:N:191:TRP:O	15:N:195:ASN:ND2	2.43	0.52
17:P:29:THR:HA	17:P:32:THR:HG22	1.91	0.52
18:Q:123:THR:OG1	18:Q:125:ASP:OD1	2.26	0.52
1:1:541:U:H3	1:1:550:A:H61	1.56	0.52
1:1:817:A:C8	1:1:920:A:N1	2.78	0.52
1:1:962:A:N1	1:1:2814:G:O2'	2.36	0.52
5:B:332:ARG:NH1	5:B:333:LYS:HE2	2.24	0.52
7:D:234:ASP:OD1	7:D:235:SER:N	2.43	0.52
1:1:1285:G:H8	1:1:1285:G:OP2	1.91	0.52
1:1:914:A:H2	4:A:208:ASP:OD2	1.92	0.52
6:C:187:LEU:HD13	6:C:193:LYS:HZ3	1.75	0.52
16:O:98:ALA:HA	16:O:101:ARG:HH11	1.75	0.52
1:1:1603:A:H61	25:X:71:THR:HG21	1.74	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2284:C:H1'	1:1:2971:A:N6	2.25	0.52
1:1:3351:U:O2'	1:1:3352:U:OP1	2.20	0.52
5:B:114:VAL:HG11	5:B:163:HIS:CD2	2.44	0.52
13:L:75:PHE:O	13:L:79:GLU:HB2	2.10	0.52
14:M:65:LEU:HD12	20:S:172:TYR:CE2	2.44	0.52
17:P:50:GLN:HB3	17:P:55:GLN:HB2	1.92	0.52
19:R:106:LEU:HD11	19:R:138:LEU:HD11	1.92	0.52
26:Y:40:ARG:HH12	26:Y:46:LYS:HZ2	1.56	0.52
1:1:1155:C:H2'	1:1:1156:C:H6	1.74	0.52
1:1:939:U:O2'	1:1:2402:A:N1	2.32	0.52
1:1:2674:A:H8	12:J:126:ASP:OD1	1.93	0.52
10:G:67:ILE:HG23	10:G:237:ILE:HB	1.91	0.52
11:H:86:TYR:CE2	11:H:151:VAL:HG22	2.45	0.52
23:V:32:ARG:HB2	23:V:64:LYS:HB2	1.92	0.52
26:Y:118:LEU:HD12	26:Y:121:ARG:HH11	1.75	0.52
4:A:201:GLY:HA3	4:A:209:HIS:CD2	2.46	0.51
1:1:291:C:OP1	15:N:68:ARG:HG3	2.09	0.51
16:O:77:SER:OG	16:O:106:GLU:OE2	2.18	0.51
26:Y:126:LEU:O	26:Y:126:LEU:HD12	2.10	0.51
1:1:1215:U:H2'	1:1:1216:C:O4'	2.10	0.51
1:1:1237:G:H8	1:1:1263:A:C8	2.28	0.51
1:1:2180:G:OP1	4:A:174:ARG:NH2	2.42	0.51
1:1:2841:G:H21	1:1:2847:A:H62	1.57	0.51
1:1:674:G:O2'	6:C:116:ASN:ND2	2.44	0.51
1:1:898:U:H2'	1:1:899:U:H6	1.75	0.51
5:B:123:TYR:CZ	5:B:124:LYS:HG3	2.45	0.51
7:D:3:PHE:HD2	7:D:6:ASP:OD2	1.92	0.51
11:H:44:THR:O	11:H:55:VAL:HA	2.10	0.51
16:O:110:PRO:O	16:O:112:TYR:N	2.43	0.51
20:S:77:VAL:HG22	20:S:126:VAL:HG22	1.92	0.51
24:W:23:ARG:HG2	24:W:24:GLY:H	1.75	0.51
1:1:1109:U:H2'	1:1:1110:U:H6	1.75	0.51
1:1:2259:A:H2'	1:1:2260:U:H6	1.75	0.51
1:1:2418:G:N3	1:1:2418:G:H2'	2.24	0.51
1:1:345:G:O2'	3:4:25:G:N3	2.44	0.51
4:A:44:ILE:HG22	4:A:87:PHE:CD1	2.44	0.51
7:D:41:LYS:HG2	21:T:69:LYS:O	2.11	0.51
14:M:14:LEU:H	14:M:19:ARG:NH1	2.09	0.51
20:S:83:SER:N	20:S:86:GLY:O	2.43	0.51
1:1:149:U:OP2	15:N:49:ARG:NH2	2.41	0.51
1:1:2677:G:H3'	1:1:2679:A:OP2	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:671:U:H2'	1:1:672:A:C8	2.45	0.51
6:C:326:ARG:HG3	6:C:327:LEU:H	1.75	0.51
14:M:15:VAL:HG13	14:M:65:LEU:HD11	1.92	0.51
1:1:1055:A:N3	2:3:81:U:O2'	2.43	0.51
1:1:39:A:H5"	4:A:35:ALA:HB2	87.41	0.51
9:F:144:ILE:HD12	9:F:189:ILE:HD12	1.91	0.51
10:G:156:ASP:OD2	10:G:182:GLY:HA2	2.11	0.51
12:J:133:ARG:HH12	12:J:154:THR:CA	2.23	0.51
12:J:163:PHE:CE2	12:J:169:ALA:HB3	2.45	0.51
12:J:59:ILE:HG21	12:J:65:ILE:HD12	1.92	0.51
17:P:19:GLY:HA3	17:P:22:LEU:HD11	1.93	0.51
17:P:23:ARG:NH1	17:P:125:GLN:OE1	2.43	0.51
25:X:131:ASP:HB3	25:X:134:ASP:OD2	2.11	0.51
1:1:1947:G:H5"	1:1:1948:G:OP2	2.11	0.51
1:1:991:G:H2'	1:1:992:A:C8	2.46	0.51
7:D:111:GLN:HA	7:D:116:ASP:HB2	1.92	0.51
8:E:39:VAL:O	8:E:87:THR:OG1	2.21	0.51
16:O:73:PHE:HB3	16:O:78:ARG:HG3	1.92	0.51
6:C:289:ILE:HG21	18:Q:32:LEU:HD11	1.92	0.51
22:U:67:SER:OG	22:U:69:ALA:O	2.28	0.51
1:1:201:A:H2'	1:1:202:G:C8	2.38	0.51
1:1:800:G:H2'	1:1:801:A:N7	2.26	0.51
6:C:234:ASN:OD1	6:C:235:LEU:N	2.44	0.51
8:E:80:ASN:HB3	8:E:83:TYR:HD2	1.74	0.51
1:1:116:A:OP2	15:N:2:GLY:HA3	2.10	0.51
1:1:1471:U:H2'	1:1:1472:U:C6	2.46	0.51
1:1:2561:A:O2'	1:1:2562:A:H8	1.94	0.51
7:D:280:GLU:O	7:D:284:ALA:N	2.39	0.51
19:R:72:GLU:O	19:R:74:ARG:NH1	2.43	0.51
1:1:2096:A:H2'	1:1:2097:U:C6	2.46	0.51
1:1:2244:A:O2'	4:A:223:SER:OG	2.28	0.51
1:1:2816:G:N2	1:1:2819:A:OP2	2.38	0.51
1:1:2861:U:H2'	1:1:2862:U:O4'	2.10	0.51
10:G:154:ALA:HB2	10:G:186:LEU:HD12	1.93	0.51
19:R:28:GLU:HG3	19:R:49:THR:HG23	1.92	0.51
21:T:79:MET:HB2	21:T:84:TYR:CE1	2.42	0.51
1:1:1495:U:H2'	1:1:1842:A:C2	2.46	0.51
1:1:2389:C:O2'	1:1:3307:A:N1	2.38	0.51
1:1:594:U:H2'	1:1:609:G:O6	2.10	0.51
1:1:619:A:OP1	17:P:167:ARG:HD2	2.11	0.51
11:H:57:VAL:HG23	11:H:68:LEU:HD12	1.91	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:H:69:ARG:HH12	11:H:72:LYS:HZ3	1.59	0.51
1:1:503:C:O2	8:E:23:LYS:HE3	2.10	0.50
20:S:66:GLU:OE2	20:S:73:LYS:HE3	2.11	0.50
1:1:277:G:H5'	15:N:91:GLU:OE1	2.10	0.50
1:1:3228:C:H1'	1:1:3229:G:OP2	2.11	0.50
1:1:846:A:H2'	1:1:847:A:O4'	2.11	0.50
13:L:27:ASP:HB2	13:L:31:LYS:HG3	1.94	0.50
20:S:12:ARG:NH1	20:S:15:PRO:HG3	2.26	0.50
26:Y:50:ILE:HD12	26:Y:106:ILE:HD11	1.93	0.50
1:1:3296:A:OP2	5:B:121:ASN:HB2	2.10	0.50
1:1:372:A:H2'	1:1:373:A:C8	2.46	0.50
1:1:505:G:H4'	6:C:313:LEU:HD21	1.92	0.50
1:1:848:A:N6	1:1:849:C:O2	2.44	0.50
5:B:346:THR:O	5:B:348:ARG:N	2.43	0.50
7:D:239:ILE:O	7:D:243:ALA:N	2.43	0.50
14:M:37:GLU:HG2	14:M:38:ILE:H	1.76	0.50
1:1:1480:G:O4'	1:1:1483:G:N2	2.44	0.50
1:1:916:G:H5'	1:1:917:A:OP1	2.11	0.50
1:1:40:A:O2'	1:1:937:G:O6	2.22	0.50
9:F:156:ILE:O	9:F:159:GLN:HB2	2.12	0.50
21:T:17:ARG:NH1	21:T:45:ASN:OD1	2.43	0.50
1:1:3050:U:O2'	24:W:16:GLY:O	2.17	0.50
1:1:2712:U:O2'	1:1:2743:A:O2'	2.04	0.50
1:1:2901:G:O2'	1:1:3024:A:N1	2.44	0.50
2:3:45:A:H2'	2:3:46:A:C8	2.47	0.50
4:A:20:THR:HA	4:A:23:ARG:NH1	2.27	0.50
5:B:58:ARG:NE	5:B:283:TYR:OH	2.44	0.50
6:C:326:ARG:HG3	6:C:327:LEU:N	2.26	0.50
1:1:517:G:H5"	9:F:67:ARG:NH2	2.26	0.50
1:1:31:C:H5	15:N:188:ARG:HH22	1.60	0.50
21:T:66:ASN:HB3	21:T:73:GLY:HA3	1.93	0.50
25:X:53:HIS:CE1	25:X:56:ARG:HG2	2.46	0.50
26:Y:40:ARG:NH1	26:Y:46:LYS:HZ3	2.09	0.50
27:Z:54:THR:HG23	27:Z:56:LYS:H	1.76	0.50
1:1:1224:C:H2'	1:1:1225:A:C8	2.46	0.50
1:1:1103:A:N6	1:1:1363:A:O2'	2.44	0.50
1:1:2225:U:H2'	1:1:2226:U:H6	1.77	0.50
1:1:3100:U:O2'	1:1:3101:G:OP2	2.27	0.50
1:1:3279:A:H5'	1:1:3280:U:OP2	2.12	0.50
1:1:578:A:H2'	6:C:334:PHE:CD2	2.47	0.50
1:1:964:G:H2'	1:1:965:A:C8	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:3:86:U:O2'	9:F:218:ARG:NH1	2.44	0.50
5:B:288:GLY:N	5:B:320:ASP:OD1	2.45	0.50
6:C:35:VAL:HG21	6:C:244:LEU:HD21	1.94	0.50
11:H:31:ARG:NE	11:H:83:THR:O	2.30	0.50
1:1:1468:A:N1	1:1:1880:U:O2'	2.39	0.50
1:1:2207:A:O2'	1:1:2208:A:H5'	2.11	0.50
1:1:887:G:H2'	1:1:888:A:C8	2.46	0.50
6:C:138:ARG:HH11	6:C:140:HIS:CD2	2.30	0.50
9:F:110:ARG:NH1	18:Q:3:ILE:HG12	2.26	0.50
27:Z:25:ILE:HG23	27:Z:41:ALA:HB1	1.93	0.50
1:1:139:G:H2'	1:1:140:C:C6	2.47	0.50
1:1:900:G:H1'	1:1:1589:A:N6	2.26	0.50
1:1:1450:G:C6	1:1:2355:G:N2	2.80	0.50
1:1:354:U:H2'	1:1:355:A:H8	1.77	0.50
5:B:212:ASN:OD1	5:B:354:VAL:HG22	2.12	0.50
9:F:158:LYS:HG2	9:F:159:GLN:H	1.77	0.50
13:L:184:GLU:O	13:L:188:ARG:N	2.32	0.50
24:W:35:LYS:HE2	24:W:51:TRP:CZ2	2.47	0.50
27:Z:22:LYS:HE3	27:Z:134:LEU:HB2	1.94	0.50
1:1:386:A:C5	1:1:387:A:H1'	2.47	0.50
7:D:41:LYS:HE2	21:T:93:VAL:HG11	1.94	0.50
7:D:65:ILE:HG23	7:D:72:ASP:HB3	1.93	0.50
10:G:78:PHE:HD1	10:G:179:ILE:HD13	1.75	0.50
10:G:28:HIS:CE1	27:Z:128:GLN:HG3	2.47	0.50
13:L:56:PRO:HG3	13:L:74:GLY:O	2.12	0.50
1:1:618:C:H5"	17:P:169:THR:HG22	1.94	0.50
1:1:2585:G:C6	25:X:24:LEU:HD13	2.47	0.49
1:1:406:G:N3	3:4:16:G:C2	2.80	0.49
1:1:520:U:O4	6:C:349:THR:OG1	2.30	0.49
1:1:578:A:H2'	6:C:334:PHE:HD2	1.77	0.49
7:D:164:LYS:HE3	7:D:168:ASP:OD2	2.12	0.49
20:S:12:ARG:HH12	20:S:15:PRO:CG	2.25	0.49
1:1:1213:G:OP1	20:S:137:ARG:NH1	2.45	0.49
1:1:1381:A:OP1	6:C:197:ARG:NE	2.41	0.49
1:1:1548:C:OP2	1:1:1549:U:C2	2.65	0.49
1:1:1603:A:H61	25:X:71:THR:CG2	2.24	0.49
1:1:3334:U:H4'	1:1:3335:A:H5'	1.93	0.49
4:A:19:HIS:ND1	4:A:190:ARG:O	2.34	0.49
6:C:269:SER:O	6:C:270:SER:OG	2.25	0.49
1:1:660:A:H5'	6:C:92:ASN:ND2	2.27	0.49
11:H:109:ALA:HB1	11:H:111:PHE:CD2	2.43	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:P:118:GLN:NE2	17:P:147:GLU:OE2	2.46	0.49
20:S:2:ALA:HB3	20:S:32:SER:HB3	1.94	0.49
1:1:3043:C:P	23:V:48:ARG:HH21	2.35	0.49
1:1:3095:U:OP1	23:V:86:ARG:HD3	2.12	0.49
1:1:3221:C:N4	1:1:3264:G:H1	2.09	0.49
1:1:437:G:OP2	1:1:437:G:C8	2.65	0.49
19:R:23:TRP:HB2	19:R:53:LYS:HG3	1.94	0.49
14:M:55:ARG:HD3	20:S:70:THR:HB	1.94	0.49
1:1:1841:A:H1'	1:1:1848:G:O4'	2.13	0.49
1:1:2285:C:OP2	1:1:2286:U:O2'	2.17	0.49
4:A:133:TYR:CD2	4:A:168:VAL:HG12	2.47	0.49
9:F:64:GLN:NE2	9:F:68:ASP:OD1	2.43	0.49
11:H:103:ILE:HG13	11:H:136:PHE:HZ	1.77	0.49
21:T:75:ILE:HA	21:T:87:LYS:O	2.12	0.49
1:1:112:U:O2'	1:1:113:C:OP2	2.28	0.49
1:1:2660:G:O2'	1:1:2744:U:O2	2.29	0.49
1:1:2840:C:H42	1:1:2848:G:H1	1.59	0.49
1:1:3355:U:O2'	1:1:3357:U:OP2	2.29	0.49
1:1:964:G:H2'	1:1:965:A:H8	1.78	0.49
4:A:62:VAL:HG21	4:A:71:LEU:HD23	1.94	0.49
6:C:180:LYS:HZ1	6:C:202:ARG:HB3	1.78	0.49
7:D:99:TYR:HE1	7:D:164:LYS:HG3	1.77	0.49
13:L:75:PHE:O	13:L:76:THR:OG1	2.26	0.49
23:V:80:ARG:HD3	23:V:117:PRO:HG2	1.93	0.49
23:V:93:LEU:HD22	24:W:20:LEU:HD22	1.94	0.49
23:V:135:VAL:HG11	24:W:26:SER:HB3	1.93	0.49
1:1:1693:C:O2'	1:1:1772:U:O2'	2.17	0.49
1:1:1765:U:H5	19:R:46:LYS:NZ	2.10	0.49
1:1:1807:G:H5"	27:Z:135:ARG:HH22	1.78	0.49
1:1:2613:U:O2'	1:1:2805:G:OP2	2.22	0.49
1:1:3350:C:N3	1:1:3356:G:N2	2.60	0.49
2:3:15:C:O2'	7:D:8:LYS:HD3	2.13	0.49
6:C:8:VAL:HG21	6:C:18:ASN:ND2	2.27	0.49
8:E:7:PRO:HG2	8:E:10:TYR:CE1	2.47	0.49
9:F:220:PHE:O	9:F:229:PHE:HE2	1.96	0.49
15:N:34:ASN:O	15:N:37:HIS:HD2	1.96	0.49
1:1:1218:U:H2'	1:1:1219:C:H5'	1.94	0.49
2:3:92:A:C5	2:3:93:C:H1'	2.48	0.49
1:1:3313:U:H4'	5:B:173:GLN:HG3	1.95	0.49
6:C:11:LEU:HD21	6:C:156:LEU:HB2	1.94	0.49
1:1:1494:U:P	13:L:42:ARG:HH22	71.72	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:L:64:LYS:O	13:L:67:ARG:NH1	2.45	0.49
21:T:64:VAL:HA	21:T:73:GLY:O	2.12	0.49
1:1:216:G:O2'	26:Y:19:TYR:OH	2.25	0.49
1:1:1135:A:P	5:B:5:LYS:NZ	52.38	0.49
1:1:3268:A:H1'	8:E:75:PRO:HG3	1.95	0.49
16:O:179:ALA:O	16:O:183:ALA:N	2.45	0.49
3:4:14:C:H5"	17:P:123:PRO:HD3	1.95	0.49
25:X:77:GLU:HG2	25:X:133:LEU:HD12	1.94	0.49
1:1:1237:G:H5'	1:1:1238:C:OP2	2.12	0.49
1:1:1886:A:H61	1:1:2391:G:P	2.36	0.49
1:1:2150:G:O2'	1:1:2189:U:OP1	2.31	0.49
1:1:255:A:H2'	1:1:256:G:C8	2.48	0.49
2:3:7:G:OP2	7:D:28:THR:OG1	2.17	0.49
5:B:19:ARG:O	5:B:273:HIS:HE1	1.95	0.49
5:B:4:ARG:O	5:B:5:LYS:HB3	2.12	0.49
2:3:33:U:C2	7:D:207:TYR:CD1	3.00	0.49
8:E:72:ASN:HB3	8:E:160:SER:HA	1.95	0.49
15:N:136:ASP:OD2	15:N:139:HIS:HB2	2.13	0.49
21:T:17:ARG:HB3	21:T:22:HIS:CE1	2.48	0.49
1:1:2097:U:H2'	1:1:2098:C:C6	2.48	0.49
1:1:2393:G:H4'	5:B:252:ILE:HG13	1.94	0.49
1:1:2436:U:C4'	1:1:2436:U:C6	2.95	0.49
1:1:2544:U:H2'	1:1:2545:C:C6	2.48	0.49
1:1:3084:C:OP1	24:W:38:SER:OG	2.22	0.49
5:B:59:ASP:OD1	5:B:357:LYS:NZ	2.42	0.49
9:F:134:VAL:O	9:F:229:PHE:HB2	2.13	0.49
10:G:104:GLU:O	10:G:108:ARG:HG2	2.13	0.49
10:G:64:ILE:O	10:G:68:ARG:HG2	2.12	0.49
12:J:29:ARG:NH1	12:J:123:PHE:CD1	2.81	0.49
16:O:10:ASP:OD1	16:O:37:ARG:HD3	2.13	0.49
1:1:2756:C:O4'	21:T:49:GLN:HG2	2.13	0.49
1:1:1564:U:H2'	1:1:1565:G:H8	1.78	0.48
4:A:52:SER:HB3	4:A:191:LEU:HD23	1.95	0.48
1:1:341:G:N7	6:C:195:ARG:NH2	2.58	0.48
12:J:139:THR:HG22	12:J:147:THR:HA	1.95	0.48
13:L:35:ARG:HG2	13:L:39:ARG:NH1	2.28	0.48
13:L:79:GLU:OE2	13:L:103:ASN:ND2	2.40	0.48
1:1:2508:U:H2'	1:1:2509:U:O4'	2.13	0.48
2:3:36:C:H2'	2:3:37:G:H8	1.79	0.48
15:N:38:ARG:HG3	15:N:38:ARG:HH11	1.77	0.48
21:T:53:PRO:HD3	21:T:91:LEU:HD22	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:Z:5:LEU:HD21	27:Z:82:PRO:HB3	1.94	0.48
1:1:1062:A:H5"	1:1:1063:G:H5'	1.95	0.48
1:1:1334:U:OP1	9:F:206:LYS:NZ	2.46	0.48
1:1:246:U:H2'	1:1:247:C:C6	2.48	0.48
1:1:2577:C:H2'	1:1:2578:U:O4'	2.12	0.48
1:1:3045:G:H2'	1:1:3046:A:O4'	2.12	0.48
1:1:3242:G:H8	5:B:154:TYR:CE2	2.31	0.48
1:1:762:U:C4	1:1:763:G:H1'	2.48	0.48
5:B:312:VAL:HG12	5:B:313:HIS:ND1	2.28	0.48
7:D:86:TYR:OH	7:D:250:ASP:O	2.22	0.48
12:J:132:ASN:HA	12:J:154:THR:HG21	1.96	0.48
20:S:52:LYS:N	20:S:55:SER:OG	2.44	0.48
1:1:2171:G:H2'	1:1:2172:A:C8	2.48	0.48
1:1:563:U:H2'	1:1:564:G:H8	1.77	0.48
1:1:676:G:N2	1:1:787:G:C6	2.82	0.48
4:A:3:ARG:HG2	4:A:4:VAL:N	2.29	0.48
5:B:49:TYR:OH	5:B:177:HIS:ND1	2.44	0.48
7:D:52:VAL:HG22	7:D:147:ASP:HB3	1.94	0.48
26:Y:51:ARG:HG2	26:Y:52:ARG:N	2.28	0.48
1:1:1178:G:OP2	1:1:1179:A:OP2	2.31	0.48
1:1:117:U:O2	1:1:119:U:H5"	2.13	0.48
1:1:120:G:C8	10:G:129:PRO:HD2	2.48	0.48
1:1:1764:U:H3'	1:1:1765:U:H5"	1.96	0.48
1:1:2941:A:H8	1:1:2941:A:OP2	1.94	0.48
1:1:901:G:H2'	1:1:902:G:C8	2.47	0.48
1:1:357:A:O4'	6:C:81:GLY:HA3	2.14	0.48
10:G:78:PHE:C	10:G:80:TYR:H	2.17	0.48
11:H:67:ALA:HA	11:H:70:THR:HG22	1.95	0.48
13:L:76:THR:HG1	13:L:79:GLU:HB2	1.78	0.48
16:O:89:SER:O	16:O:95:GLY:HA3	2.13	0.48
23:V:13:ILE:HD11	23:V:54:LEU:HB3	1.95	0.48
1:1:112:U:O2'	1:1:113:C:P	2.72	0.48
1:1:2274:U:H2'	1:1:2275:A:H8	1.78	0.48
1:1:2548:C:OP2	4:A:93:LYS:NZ	2.45	0.48
1:1:2946:A:H5"	1:1:2947:G:H5'	1.95	0.48
1:1:2954:U:H4'	1:1:2955:U:H5'	1.94	0.48
6:C:141:ARG:NH1	6:C:180:LYS:HD3	2.28	0.48
6:C:321:LYS:O	6:C:325:LEU:HG	2.13	0.48
1:1:2673:A:H4'	12:J:104:PHE:HA	1.95	0.48
17:P:60:PHE:HE2	17:P:82:ARG:HD2	1.78	0.48
18:Q:126:GLN:O	18:Q:130:ARG:HG3	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1472:U:C2	1:1:1473:G:C8	3.02	0.48
6:C:170:LYS:HE2	6:C:175:HIS:ND1	2.29	0.48
1:1:608:A:O2'	6:C:326:ARG:NH1	2.46	0.48
1:1:80:G:P	15:N:193:ARG:NH1	2.87	0.48
18:Q:177:GLY:O	18:Q:186:VAL:N	2.33	0.48
24:W:8:PHE:CD1	24:W:46:PRO:HG3	2.48	0.48
1:1:1152:G:N3	1:1:1152:G:H2'	2.28	0.48
1:1:2227:C:O2'	1:1:2228:A:OP1	2.30	0.48
1:1:439:C:H3'	1:1:440:A:C8	2.47	0.48
6:C:65:TRP:NE1	6:C:76:ARG:HB2	2.28	0.48
10:G:48:ARG:NH1	10:G:49:TYR:CE1	2.82	0.48
1:1:712:G:OP1	13:L:174:ARG:NH1	2.46	0.48
16:O:73:PHE:CG	16:O:78:ARG:HG3	2.49	0.48
23:V:122:CYS:SG	23:V:129:VAL:HG11	2.54	0.48
27:Z:88:ASP:O	27:Z:121:ARG:NH2	2.47	0.48
1:1:1621:A:H2'	1:1:1622:U:H6	1.78	0.48
1:1:1864:A:H2'	1:1:1865:A:C8	2.49	0.48
1:1:2382:G:N7	16:O:91:LYS:NZ	2.45	0.48
1:1:3120:C:O2'	1:1:3121:U:H2'	2.14	0.48
1:1:706:A:C6	1:1:714:G:C2	3.02	0.48
2:3:7:G:OP1	7:D:33:ARG:HD2	2.13	0.48
3:4:58:G:H5"	3:4:98:U:O2	2.14	0.48
1:1:118:U:O2	1:1:121:A:H5'	2.14	0.48
1:1:2112:U:C4'	1:1:2113:A:OP2	2.62	0.48
1:1:2178:A:H5"	4:A:132:ASN:ND2	2.28	0.48
1:1:2631:U:OP1	1:1:2757:U:O2'	2.25	0.48
1:1:295:A:H2	1:1:300:G:H4'	1.78	0.48
1:1:396:A:C6	1:1:399:A:C6	3.02	0.48
1:1:346:C:C2	3:4:25:G:H4'	2.49	0.48
6:C:92:ASN:HD22	6:C:100:PHE:HB2	1.78	0.48
1:1:3187:A:H5'	11:H:22:SER:HA	1.95	0.48
22:U:31:ALA:HA	22:U:58:GLU:OE2	2.12	0.48
1:1:1704:A:O2'	1:1:1705:U:H5"	2.13	0.47
1:1:1813:A:H2'	1:1:1814:A:N7	2.29	0.47
1:1:1864:A:OP1	19:R:88:ARG:NH1	2.47	0.47
1:1:2883:U:H2'	1:1:2884:C:C6	2.49	0.47
1:1:3044:G:O3'	5:B:13:HIS:HB2	2.14	0.47
1:1:386:A:N6	1:1:387:A:N3	2.62	0.47
1:1:612:U:H4'	8:E:21:THR:HG21	1.96	0.47
1:1:496:C:HO2'	1:1:622:A:H2	1.61	0.47
6:C:269:SER:OG	6:C:271:LYS:O	2.22	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:D:219:PHE:CE2	7:D:227:LEU:HD11	2.49	0.47
15:N:13:LYS:HB3	15:N:16:SER:HB3	1.96	0.47
27:Z:73:LYS:HG3	27:Z:74:VAL:O	2.13	0.47
1:1:1186:G:H2'	1:1:1187:C:C6	2.46	0.47
1:1:161:G:O6	1:1:260:C:N4	2.43	0.47
1:1:182:U:H3	1:1:234:G:H1	1.62	0.47
1:1:3162:C:H2'	1:1:3163:A:C8	2.35	0.47
1:1:531:G:H2'	1:1:532:A:C8	2.49	0.47
1:1:710:A:H2'	1:1:711:A:H8	1.78	0.47
5:B:14:LEU:HD22	5:B:262:TRP:CZ3	2.49	0.47
15:N:13:LYS:O	15:N:19:LEU:HD22	2.14	0.47
15:N:4:TYR:HD1	15:N:46:ASP:HB3	1.79	0.47
14:M:65:LEU:HB2	20:S:172:TYR:HE2	1.79	0.47
20:S:13:ARG:CD	20:S:51:VAL:HG12	2.43	0.47
3:4:71:A:O2'	26:Y:51:ARG:NH2	2.46	0.47
27:Z:124:ALA:O	27:Z:126:LYS:N	2.45	0.47
1:1:1477:A:OP1	1:1:3075:G:O2'	2.33	0.47
1:1:2440:G:N2	1:1:2507:C:N3	2.59	0.47
1:1:2768:U:H2'	1:1:2769:A:C8	2.50	0.47
1:1:3170:A:H61	1:1:3280:U:H3	1.61	0.47
1:1:637:C:H4'	1:1:638:C:OP1	2.14	0.47
6:C:180:LYS:NZ	6:C:202:ARG:CB	2.77	0.47
16:O:77:SER:HB2	16:O:104:VAL:HG12	1.97	0.47
16:O:46:GLU:HG3	16:O:49:ARG:H	1.79	0.47
1:1:1721:U:OP2	19:R:103:ARG:HD3	2.14	0.47
27:Z:26:VAL:HG23	27:Z:27:LYS:H	1.79	0.47
27:Z:46:ILE:HA	27:Z:70:PRO:HA	1.96	0.47
1:1:1125:U:H2'	1:1:1126:G:H8	1.79	0.47
1:1:1261:G:N2	1:1:1261:G:OP2	2.47	0.47
1:1:153:U:H2'	1:1:154:U:H5"	1.96	0.47
1:1:824:C:C2	1:1:902:G:N2	2.82	0.47
1:1:825:U:O2	1:1:901:G:C2	2.66	0.47
2:3:24:A:H4'	2:3:120:C:H4'	1.96	0.47
4:A:33:ASP:O	4:A:37:ARG:HG2	2.14	0.47
12:J:29:ARG:NH1	12:J:123:PHE:CE1	2.82	0.47
20:S:57:GLU:OE2	21:T:139:ARG:NH1	2.47	0.47
27:Z:64:LYS:HD3	27:Z:67:LYS:HZ2	1.79	0.47
1:1:1060:U:H2'	1:1:1061:A:C8	2.49	0.47
1:1:1470:U:H2'	1:1:1471:U:H6	1.80	0.47
1:1:1646:G:O2'	1:1:1647:A:OP2	2.28	0.47
1:1:2436:U:C6	1:1:2436:U:C3'	2.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:3096:C:H2'	1:1:3097:C:C6	2.50	0.47
1:1:679:U:O2'	1:1:788:C:O2	2.18	0.47
1:1:903:U:H2'	1:1:904:A:C8	2.49	0.47
6:C:3:ARG:NH1	6:C:24:ALA:HA	2.29	0.47
7:D:119:TYR:OH	7:D:139:PRO:O	2.23	0.47
8:E:54:TYR:CE1	8:E:63:LEU:HD22	2.49	0.47
9:F:163:LEU:O	9:F:165:ASP:N	2.48	0.47
9:F:163:LEU:O	9:F:168:ILE:HD12	2.15	0.47
9:F:173:LEU:HD23	9:F:178:ILE:HG21	1.95	0.47
9:F:24:GLU:HB2	9:F:28:ALA:HB3	1.96	0.47
13:L:119:TYR:HD1	13:L:145:PHE:CZ	2.32	0.47
23:V:87:ARG:NH2	23:V:137:VAL:HG21	2.29	0.47
1:1:1078:U:H2'	1:1:1080:A:OP2	2.15	0.47
1:1:1816:A:O2'	1:1:1817:G:OP1	2.33	0.47
1:1:2108:C:H1'	1:1:3344:A:C8	2.50	0.47
1:1:2659:G:H4'	1:1:2751:G:O2'	2.14	0.47
2:3:93:C:H2'	2:3:94:C:H6	1.79	0.47
1:1:1384:U:H5"	6:C:138:ARG:O	2.15	0.47
1:1:1381:A:H2'	1:1:1382:G:C8	2.50	0.47
1:1:2308:C:O2	1:1:2971:A:N6	2.47	0.47
1:1:991:G:H2'	1:1:992:A:H8	1.78	0.47
6:C:229:ASN:OD1	6:C:230:VAL:N	2.47	0.47
11:H:106:LYS:H	11:H:109:ALA:CB	2.27	0.47
18:Q:36:LEU:O	18:Q:40:THR:OG1	2.21	0.47
26:Y:59:VAL:HG12	26:Y:103:LYS:O	2.14	0.47
1:1:1149:G:C2	1:1:1155:C:N3	2.83	0.47
1:1:3161:C:H42	1:1:3289:G:H1	1.62	0.47
1:1:66:A:P	13:L:100:ARG:HH21	2.37	0.47
6:C:175:HIS:HA	6:C:178:LEU:HD12	1.96	0.47
6:C:281:ILE:HG13	18:Q:125:ASP:OD2	2.14	0.47
6:C:71:VAL:HG22	6:C:76:ARG:HH22	1.80	0.47
7:D:34:LYS:O	7:D:38:THR:HG23	2.14	0.47
10:G:158:ASP:O	10:G:160:ILE:HG13	2.15	0.47
1:1:2550:U:H6	10:G:37:GLY:HA3	1.79	0.47
11:H:8:GLN:HG2	11:H:68:LEU:HD21	1.97	0.47
1:1:1194:G:H2'	1:1:1195:A:C8	2.50	0.47
1:1:1561:G:O2'	1:1:1562:C:OP2	2.29	0.47
1:1:1784:G:H2'	1:1:1785:U:O4'	2.15	0.47
1:1:1604:G:H4'	1:1:1835:A:H4'	1.96	0.47
1:1:1909:A:C6	1:1:1910:A:C6	3.03	0.47
1:1:2185:G:O2'	1:1:2314:U:OP2	2.33	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:981:U:H2'	1:1:982:C:O4'	2.14	0.47
2:3:13:A:H5'	2:3:14:U:H5	1.80	0.47
5:B:210:GLU:HG3	5:B:211:GLN:O	2.15	0.47
5:B:313:HIS:HB2	5:B:332:ARG:HD2	1.95	0.47
5:B:303:LYS:HD2	5:B:361:THR:HG21	1.97	0.47
5:B:56:ILE:HA	5:B:56:ILE:HD13	1.70	0.47
9:F:98:LYS:O	9:F:102:VAL:HG23	2.15	0.47
16:O:39:GLU:HB2	16:O:139:GLY:HA3	1.97	0.47
18:Q:89:ASP:OD1	18:Q:90:ASP:N	2.48	0.47
26:Y:43:TYR:CE2	26:Y:109:LEU:HD12	2.50	0.47
1:1:1709:C:H2'	1:1:1710:C:H6	1.80	0.47
1:1:2267:C:H2'	1:1:2268:U:O4'	2.15	0.47
1:1:2529:A:H2'	1:1:2530:G:O4'	2.15	0.47
1:1:354:U:H2'	1:1:355:A:C8	2.50	0.47
1:1:720:A:N7	1:1:783:A:H4'	2.30	0.47
3:4:48:A:O2'	3:4:50:C:OP2	2.26	0.47
1:1:1100:U:OP2	9:F:196:LYS:HD2	2.14	0.47
2:3:40:C:H4'	12:J:43:GLN:NE2	2.31	0.47
15:N:138:GLN:HA	15:N:143:ARG:HH11	1.80	0.47
16:O:78:ARG:NH1	16:O:81:TYR:CD2	2.83	0.47
26:Y:107:THR:O	26:Y:108:LYS:HD2	2.15	0.47
1:1:1326:A:H2'	1:1:1327:C:O4'	2.14	0.46
1:1:1560:G:C2	1:1:1580:A:N1	2.83	0.46
1:1:1687:U:O4	22:U:45:GLY:N	2.48	0.46
1:1:2850:G:H2'	1:1:2851:A:H8	1.80	0.46
1:1:3007:U:H5'	16:O:73:PHE:CD1	2.50	0.46
1:1:372:A:C6	1:1:373:A:C6	3.03	0.46
1:1:831:G:O6	1:1:864:G:N2	2.47	0.46
1:1:848:A:C5	1:1:849:C:H1'	2.50	0.46
1:1:860:G:O5'	4:A:181:LYS:NZ	2.48	0.46
2:3:36:C:H2'	2:3:37:G:C8	2.49	0.46
4:A:110:GLY:N	4:A:136:ILE:O	2.28	0.46
4:A:225:ILE:HD11	4:A:235:ALA:O	2.15	0.46
4:A:3:ARG:HG2	4:A:4:VAL:H	1.79	0.46
5:B:95:THR:OG1	5:B:98:GLY:O	2.31	0.46
7:D:111:GLN:HG3	7:D:116:ASP:OD2	2.15	0.46
1:1:1288:U:H2'	1:1:1289:G:C8	2.50	0.46
1:1:1316:C:H42	20:S:154:HIS:CD2	2.32	0.46
1:1:1504:A:H5"	17:P:125:GLN:HE22	1.80	0.46
1:1:1641:U:O2'	1:1:1642:A:H3'	2.16	0.46
1:1:2771:U:OP2	1:1:2772:C:N3	2.48	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:58:HIS:CE1	6:C:98:ARG:HD3	2.51	0.46
16:O:55:HIS:HA	16:O:58:LEU:HB3	1.95	0.46
20:S:28:ARG:HH11	20:S:99:ARG:NH2	2.13	0.46
22:U:29:ASP:OD2	22:U:31:ALA:HB3	2.16	0.46
27:Z:14:VAL:HG12	27:Z:79:HIS:O	2.16	0.46
1:1:1240:A:H8	1:1:1240:A:OP2	1.98	0.46
1:1:647:A:N6	1:1:2371:G:O2'	2.45	0.46
1:1:3228:C:H4'	1:1:3229:G:O5'	2.15	0.46
1:1:3337:G:H2'	1:1:3338:C:C6	2.50	0.46
1:1:3111:U:H4'	11:H:151:VAL:HG12	1.97	0.46
12:J:49:LYS:HG2	12:J:64:LYS:H	1.81	0.46
1:1:127:G:OP1	15:N:140:LYS:HG3	2.16	0.46
19:R:60:LYS:HE2	19:R:64:ARG:HH21	1.79	0.46
24:W:20:LEU:HD21	24:W:28:ILE:HG23	1.98	0.46
1:1:1724:U:C5	19:R:125:LYS:NZ	2.83	0.46
2:3:99:G:H4'	9:F:128:LYS:HE3	1.96	0.46
10:G:26:LEU:HD12	10:G:27:THR:N	2.31	0.46
14:M:135:LEU:HD23	14:M:136:ALA:N	2.30	0.46
11:H:21:LYS:HG3	14:M:8:LYS:HD2	1.98	0.46
1:1:29:C:O2'	15:N:162:ARG:O	2.31	0.46
10:G:71:VAL:HG12	15:N:21:PHE:CZ	2.51	0.46
18:Q:79:LYS:HD3	18:Q:138:LEU:HG	1.97	0.46
1:1:2111:G:H4'	1:1:2112:U:OP2	2.16	0.46
1:1:2535:A:H2'	1:1:2536:A:O4'	2.16	0.46
1:1:2745:G:N1	1:1:2748:A:OP2	2.47	0.46
1:1:440:A:C8	1:1:440:A:OP2	2.68	0.46
6:C:295:ILE:O	6:C:299:ILE:HG12	2.15	0.46
1:1:2793:G:H4'	16:O:66:LYS:HE3	92.94	0.46
27:Z:47:GLU:N	27:Z:69:LYS:O	2.45	0.46
1:1:507:U:O2'	1:1:1166:G:O2'	2.34	0.46
1:1:1608:C:H5"	25:X:111:ASN:ND2	2.31	0.46
1:1:413:U:P	17:P:30:ARG:HE	2.39	0.46
1:1:1385:C:H41	6:C:202:ARG:HH21	1.63	0.46
10:G:111:LYS:O	10:G:115:ALA:N	2.43	0.46
12:J:125:MET:HG2	12:J:127:PHE:HE1	1.81	0.46
13:L:24:VAL:HG12	15:N:199:LEU:HB2	1.98	0.46
19:R:103:ARG:NH1	19:R:124:TYR:CZ	2.84	0.46
21:T:41:ASP:OD1	21:T:99:SER:HB2	2.16	0.46
1:1:1176:C:H2'	1:1:1177:G:N2	2.31	0.46
1:1:1281:G:H3'	1:1:1282:G:H8	1.81	0.46
1:1:1427:U:H5'	6:C:44:LYS:NZ	2.31	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:149:U:N3	1:1:150:A:N7	2.63	0.46
1:1:1571:A:H2'	1:1:1572:U:O4'	2.14	0.46
1:1:1450:G:O6	1:1:2355:G:N2	2.48	0.46
1:1:2768:U:H2'	1:1:2769:A:H8	1.80	0.46
1:1:708:G:N1	1:1:712:G:C6	2.84	0.46
3:4:22:U:OP2	6:C:194:TYR:HD2	1.99	0.46
5:B:87:VAL:HG13	5:B:163:HIS:HD2	1.80	0.46
6:C:355:PHE:CE2	9:F:70:LYS:HE3	2.51	0.46
7:D:276:LYS:O	7:D:277:LEU:HB2	2.15	0.46
15:N:33:LYS:HB3	15:N:37:HIS:CD2	2.51	0.46
1:1:276:U:O2	15:N:93:LYS:HE2	2.15	0.46
15:N:71:ARG:HB2	15:N:94:TYR:HB2	1.97	0.46
1:1:1566:A:C8	1:1:1566:A:OP2	2.69	0.46
1:1:1688:U:H2'	1:1:1689:U:C6	2.51	0.46
1:1:2371:G:H2'	1:1:2372:A:H5"	1.97	0.46
1:1:2526:C:C6	1:1:2526:C:OP2	2.69	0.46
1:1:3150:A:H5'	5:B:129:ALA:HA	1.98	0.46
1:1:860:G:P	4:A:181:LYS:NZ	2.89	0.46
5:B:227:GLU:HG2	5:B:270:ARG:HE	1.81	0.46
13:L:79:GLU:HG3	13:L:103:ASN:OD1	2.15	0.46
1:1:1282:G:H2'	1:1:1283:C:O4'	2.15	0.46
1:1:1579:C:H42	1:1:1580:A:N6	2.07	0.46
1:1:1932:A:C2	1:1:2124:G:H5"	2.51	0.46
1:1:3201:C:H2'	1:1:3202:G:C8	2.50	0.46
1:1:107:A:O2'	1:1:324:A:N3	2.39	0.46
1:1:989:A:H2'	1:1:990:U:O4'	2.16	0.46
4:A:134:VAL:HG12	4:A:151:PRO:HD3	1.97	0.46
7:D:108:ARG:CZ	7:D:253:PHE:HB2	2.46	0.46
12:J:35:LYS:O	12:J:39:GLN:HG2	2.16	0.46
13:L:76:THR:O	13:L:78:ALA:N	2.49	0.46
15:N:16:SER:O	15:N:20:ARG:HG2	2.15	0.46
16:O:57:PHE:CZ	16:O:82:LYS:HE3	2.51	0.46
1:1:1561:G:H1	1:1:1578:C:H42	1.64	0.46
1:1:1628:C:H5"	1:1:1629:U:H2'	1.98	0.46
1:1:197:G:N2	1:1:372:A:C8	2.84	0.46
1:1:913:A:H2	1:1:2134:G:N3	2.14	0.46
1:1:220:G:O2'	1:1:221:A:H5'	2.16	0.46
1:1:241:G:C6	1:1:242:C:C4	3.03	0.46
1:1:2436:U:C4'	1:1:2436:U:H6	2.29	0.46
1:1:2521:U:H2'	1:1:2522:G:H5'	1.97	0.46
1:1:338:A:OP1	6:C:47:ARG:HA	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:599:C:H2'	1:1:600:G:H8	1.81	0.46
2:3:8:G:C6	2:3:9:C:N4	2.84	0.46
5:B:105:VAL:HG21	5:B:148:LEU:HD12	1.98	0.46
17:P:121:GLN:HA	17:P:144:SER:HA	1.98	0.46
1:1:2560:C:H41	27:Z:56:LYS:HE3	1.80	0.46
1:1:1278:A:HO2'	1:1:1279:C:H6	1.61	0.45
1:1:1307:G:H1'	1:1:1308:A:OP2	2.16	0.45
1:1:2117:A:O2'	1:1:3080:G:O2'	2.13	0.45
1:1:2581:U:H2'	1:1:2582:C:H6	1.81	0.45
1:1:2584:G:H5"	1:1:2585:G:OP2	2.15	0.45
5:B:17:LEU:HD11	5:B:233:TRP:CH2	2.48	0.45
1:1:516:A:H5"	6:C:344:ALA:HB2	1.98	0.45
11:H:11:GLU:HA	11:H:52:LEU:HD23	1.97	0.45
23:V:14:SER:HB3	23:V:83:LYS:NZ	2.31	0.45
27:Z:15:ARG:HB2	27:Z:79:HIS:HB3	1.98	0.45
1:1:190:U:O2'	1:1:191:U:OP2	2.20	0.45
1:1:2945:G:H5"	1:1:2947:G:C8	2.52	0.45
1:1:434:U:H2'	1:1:435:C:H6	1.80	0.45
6:C:104:LYS:HD3	6:C:106:TRP:CZ2	2.51	0.45
9:F:121:LYS:HB2	21:T:133:ALA:HB3	1.97	0.45
11:H:86:TYR:CZ	11:H:151:VAL:HG22	2.51	0.45
12:J:133:ARG:NH1	12:J:154:THR:HG22	2.32	0.45
20:S:80:ARG:HH21	20:S:122:HIS:CD2	2.34	0.45
20:S:28:ARG:HH11	20:S:99:ARG:NE	2.13	0.45
23:V:13:ILE:CD1	23:V:54:LEU:HB3	2.45	0.45
1:1:3332:U:OP1	24:W:35:LYS:HD2	2.16	0.45
27:Z:133:LYS:HG2	27:Z:134:LEU:O	2.17	0.45
1:1:2115:G:H22	1:1:2120:A:H1'	1.81	0.45
1:1:2528:G:O3'	10:G:248:LYS:NZ	2.50	0.45
1:1:2840:C:N3	1:1:2848:G:N2	2.64	0.45
1:1:3088:G:H5"	1:1:3377:G:N2	2.31	0.45
1:1:434:U:H2'	1:1:435:C:C6	2.50	0.45
1:1:565:U:H2'	1:1:566:G:C8	2.51	0.45
1:1:359:U:H4'	1:1:817:A:N6	2.28	0.45
1:1:860:G:C6	4:A:181:LYS:HB2	2.51	0.45
5:B:296:THR:HG22	5:B:297:SER:N	2.30	0.45
1:1:534:U:O4	14:M:74:ARG:NH2	2.49	0.45
1:1:1062:A:H4'	21:T:105:PHE:CE1	2.51	0.45
1:1:2633:U:O4	21:T:10:ARG:NH2	2.49	0.45
27:Z:74:VAL:HG23	27:Z:101:PHE:CE2	2.51	0.45
1:1:2828:G:OP2	1:1:2829:U:OP2	2.34	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:3028:G:H2'	1:1:3029:A:C8	2.51	0.45
5:B:2:SER:OG	5:B:3:HIS:N	2.49	0.45
14:M:17:VAL:HG12	14:M:72:LEU:HB2	1.97	0.45
18:Q:122:ILE:HG22	18:Q:123:THR:O	2.17	0.45
22:U:38:ILE:O	22:U:50:LEU:HD11	2.16	0.45
1:1:1607:U:O2'	1:1:1608:C:OP1	2.32	0.45
1:1:269:G:H5'	15:N:120:TRP:CE3	2.51	0.45
1:1:3041:U:H2'	1:1:3042:U:C6	2.52	0.45
1:1:715:A:H4'	1:1:716:A:OP1	2.16	0.45
1:1:745:C:H5"	18:Q:145:ASN:HD22	1.81	0.45
5:B:116:ARG:NH1	5:B:122:TRP:CD1	2.84	0.45
5:B:173:GLN:O	5:B:174:LYS:HB2	2.17	0.45
5:B:247:ARG:O	5:B:248:LYS:HG3	2.17	0.45
7:D:50:ARG:HD2	7:D:147:ASP:HB2	1.98	0.45
24:W:22:VAL:HG22	24:W:28:ILE:HG12	1.99	0.45
1:1:1352:A:H1'	1:1:1353:U:O5'	2.16	0.45
1:1:1467:A:N6	1:1:1511:U:O2	2.50	0.45
1:1:1765:U:H4'	1:1:1765:U:OP1	2.16	0.45
1:1:2186:U:O2'	1:1:2313:A:N3	2.42	0.45
1:1:29:C:H4'	1:1:62:A:H4'	1.98	0.45
1:1:698:U:H2'	1:1:699:A:O4'	2.16	0.45
5:B:62:ARG:H	5:B:68:HIS:HD1	1.65	0.45
15:N:190:THR:O	15:N:194:GLN:HG2	2.15	0.45
3:4:14:C:H5"	17:P:123:PRO:CD	2.47	0.45
1:1:1916:U:H5'	19:R:81:ARG:HH21	1.80	0.45
27:Z:54:THR:HG23	27:Z:56:LYS:N	2.32	0.45
1:1:1168:U:H2'	1:1:1169:A:H8	1.82	0.45
1:1:210:U:C2	1:1:230:U:H4'	2.52	0.45
1:1:438:A:H2'	1:1:439:C:O4'	2.16	0.45
1:1:804:C:O2'	6:C:74:ILE:HG22	2.16	0.45
1:1:820:A:N6	1:1:821:U:O4	2.50	0.45
5:B:346:THR:C	5:B:348:ARG:H	2.20	0.45
8:E:39:VAL:HG22	8:E:159:LEU:HD21	1.99	0.45
11:H:10:ILE:O	11:H:52:LEU:HA	2.16	0.45
21:T:103:GLN:O	21:T:107:GLU:HG3	2.16	0.45
27:Z:13:VAL:O	27:Z:19:ALA:HA	2.17	0.45
1:1:672:A:C2	1:1:673:U:C2	3.04	0.45
1:1:708:G:N1	1:1:712:G:O6	2.50	0.45
2:3:13:A:H5'	2:3:14:U:C5	2.51	0.45
6:C:208:VAL:HG11	6:C:250:TRP:CZ3	2.52	0.45
9:F:110:ARG:HG2	18:Q:2:GLY:O	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:O:15:LEU:HA	16:O:42:ASN:O	2.16	0.45
20:S:48:LEU:HD13	21:T:151:LEU:HD13	1.99	0.45
1:1:1109:U:H2'	1:1:1110:U:C6	2.51	0.45
1:1:1146:C:H4'	1:1:1331:U:C4	2.52	0.45
1:1:1243:G:H1'	1:1:1270:A:C2	2.52	0.45
1:1:2439:A:OP2	1:1:2439:A:C8	2.70	0.45
1:1:2623:G:H2'	1:1:2624:G:O4'	2.17	0.45
1:1:278:U:H2'	1:1:279:U:O4'	2.16	0.45
1:1:2797:C:H4'	1:1:2798:C:OP2	2.17	0.45
10:G:176:PRO:HB3	10:G:219:ASP:OD1	2.17	0.45
1:1:31:C:N4	15:N:188:ARG:HH12	2.08	0.45
15:N:68:ARG:HH12	15:N:128:LYS:CE	2.30	0.45
16:O:8:VAL:O	16:O:118:VAL:HG22	2.17	0.45
19:R:96:ILE:CG2	19:R:100:ARG:HE	2.30	0.45
21:T:50:LYS:O	21:T:92:ARG:HD3	2.17	0.45
23:V:45:ARG:HB3	23:V:48:ARG:HD2	1.99	0.45
1:1:1222:G:H1'	1:1:1285:G:H1	1.80	0.45
1:1:1168:U:H5	1:1:1329:U:C5	2.35	0.45
1:1:1575:A:N6	1:1:1576:G:O6	2.49	0.45
1:1:1609:C:H2'	1:1:1610:G:C8	2.52	0.45
1:1:2843:U:H5"	1:1:2844:C:C5	2.49	0.45
1:1:2903:A:H2'	1:1:2904:U:O4'	2.16	0.45
1:1:360:G:C2	1:1:361:A:C2	3.05	0.45
1:1:501:A:OP1	8:E:82:ARG:NH2	2.30	0.45
13:L:54:LEU:HD11	13:L:119:TYR:CG	2.52	0.45
20:S:102:ALA:O	20:S:105:THR:OG1	2.25	0.45
1:1:2771:U:HO2'	1:1:2772:C:P	2.39	0.44
2:3:120:C:OP2	7:D:258:LYS:NZ	2.45	0.44
5:B:213:GLU:OE2	5:B:340:LYS:NZ	2.47	0.44
7:D:5:LYS:O	7:D:6:ASP:HB2	4.64	0.44
11:H:88:TYR:HE2	11:H:155:SER:HA	1.82	0.44
12:J:167:TYR:O	12:J:169:ALA:N	2.50	0.44
20:S:80:ARG:HH21	20:S:122:HIS:HD2	1.65	0.44
1:1:1096:U:OP2	21:T:128:LEU:HD21	2.17	0.44
25:X:131:ASP:OD2	25:X:133:LEU:HB3	2.17	0.44
1:1:2197:C:N4	1:1:2241:U:H2'	2.32	0.44
1:1:393:U:H2'	1:1:394:G:C8	2.51	0.44
1:1:885:U:H2'	1:1:886:C:C6	2.50	0.44
1:1:989:A:H4'	21:T:104:GLU:OE2	2.17	0.44
1:1:3293:U:H5'	5:B:128:LYS:HE2	1.98	0.44
6:C:35:VAL:HG11	6:C:244:LEU:HD21	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:D:178:ASN:HA	7:D:183:TRP:CE3	2.53	0.44
7:D:38:THR:HG22	21:T:30:TYR:HB3	1.99	0.44
8:E:22:ARG:O	8:E:23:LYS:NZ	2.36	0.44
10:G:78:PHE:HE2	10:G:164:VAL:HG12	1.82	0.44
11:H:78:MET:O	11:H:82:VAL:N	2.50	0.44
26:Y:89:LYS:HG2	26:Y:90:VAL:H	1.82	0.44
1:1:1488:G:H5"	1:1:1838:G:O6	2.17	0.44
1:1:2927:C:H2'	1:1:2928:C:H6	1.82	0.44
1:1:3317:U:H4'	1:1:3318:G:OP2	2.16	0.44
1:1:844:G:N2	1:1:850:U:O2	2.50	0.44
9:F:110:ARG:NH2	9:F:206:LYS:NZ	2.65	0.44
1:1:77:A:N7	13:L:73:ARG:NH1	2.66	0.44
1:1:1795:U:P	4:A:191:LEU:HD21	2.58	0.44
1:1:180:C:O2	1:1:237:G:N2	2.50	0.44
1:1:1895:A:O2'	1:1:3053:G:H4'	2.18	0.44
1:1:2843:U:OP2	1:1:2844:C:N4	2.49	0.44
1:1:528:U:H2'	1:1:529:A:C8	2.52	0.44
1:1:534:U:O2	20:S:146:LYS:HA	2.18	0.44
5:B:238:LEU:HB2	5:B:246:LEU:O	2.17	0.44
7:D:90:HIS:CE1	7:D:229:ASP:OD2	2.71	0.44
12:J:83:GLY:HA3	12:J:127:PHE:HE2	1.81	0.44
3:4:3:A:H4'	17:P:61:ARG:HH11	1.81	0.44
18:Q:106:PHE:HB2	18:Q:111:ARG:HH11	1.83	0.44
1:1:1873:U:OP2	19:R:20:ARG:NH2	2.51	0.44
14:M:57:ALA:HB2	20:S:97:VAL:HG21	1.99	0.44
1:1:1629:U:C4	27:Z:111:LYS:HD2	2.52	0.44
1:1:997:A:H61	1:1:1052:U:H3	1.66	0.44
1:1:1105:A:H2'	1:1:1106:G:O4'	2.17	0.44
1:1:2274:U:H2'	1:1:2275:A:C8	2.53	0.44
1:1:3110:C:H2'	1:1:3111:U:C6	2.52	0.44
5:B:118:PHE:HE2	5:B:130:PHE:CE2	2.35	0.44
5:B:296:THR:HG21	5:B:356:LEU:O	2.18	0.44
12:J:113:GLY:HA3	12:J:114:ILE:HD12	1.99	0.44
12:J:12:LEU:HD23	12:J:162:TRP:CG	2.52	0.44
15:N:112:ASN:HB2	15:N:138:GLN:NE2	2.28	0.44
15:N:153:ASP:OD2	15:N:155:VAL:HG22	2.17	0.44
23:V:59:MET:HE1	23:V:75:PRO:HG3	1.98	0.44
1:1:1355:A:H1'	1:1:1356:U:OP2	2.18	0.44
1:1:230:U:H2'	1:1:231:G:O4'	2.18	0.44
1:1:2672:G:N2	1:1:2682:C:O2	2.41	0.44
1:1:3165:A:H2'	1:1:3166:C:C6	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:791:A:N6	1:1:792:G:O6	2.51	0.44
1:1:816:A:C8	1:1:906:A:N6	2.86	0.44
1:1:2148:U:O2'	4:A:182:ALA:HB2	2.18	0.44
6:C:4:PRO:HD2	6:C:22:LEU:HD12	1.99	0.44
11:H:134:ILE:HG13	11:H:146:LEU:HG	2.00	0.44
14:M:120:VAL:O	14:M:124:ARG:HG3	2.16	0.44
14:M:24:LYS:HE2	14:M:25:LYS:HZ3	1.80	0.44
15:N:64:VAL:HG11	15:N:102:ALA:HB1	2.00	0.44
20:S:80:ARG:HB2	20:S:124:LEU:HD11	1.99	0.44
25:X:58:ASP:O	25:X:62:VAL:HG23	2.17	0.44
26:Y:56:VAL:CG2	26:Y:104:LEU:HB3	2.48	0.44
1:1:1890:U:O4	1:1:1891:A:N6	2.51	0.44
1:1:194:U:C2	1:1:195:U:H5	2.35	0.44
1:1:2525:G:O2'	1:1:2526:C:OP2	2.25	0.44
1:1:2841:G:N2	1:1:2847:A:H62	2.14	0.44
1:1:3209:A:P	20:S:161:LYS:NZ	2.91	0.44
1:1:892:U:C4	1:1:893:C:C4	3.06	0.44
2:3:88:G:H2'	2:3:89:G:C8	2.49	0.44
6:C:338:LYS:O	6:C:339:LEU:HB2	2.18	0.44
11:H:183:HIS:HE1	11:H:185:GLY:HA3	1.83	0.44
22:U:53:ALA:HA	22:U:68:THR:HG22	1.99	0.44
1:1:1577:G:H5"	1:1:1578:C:OP2	2.18	0.44
1:1:2332:A:H2'	1:1:2333:C:O4'	2.18	0.44
1:1:2437:G:O2'	1:1:2438:A:C8	2.69	0.44
1:1:3368:U:O2	1:1:3370:A:H1'	2.18	0.44
1:1:845:G:C2	1:1:847:A:OP2	2.71	0.44
1:1:945:C:H6	1:1:945:C:OP2	2.00	0.44
2:3:110:G:P	7:D:279:LYS:NZ	2.91	0.44
2:3:49:G:N7	7:D:58:LYS:HE2	2.32	0.44
9:F:24:GLU:HG2	9:F:25:GLN:N	2.27	0.44
12:J:29:ARG:HA	12:J:32:ARG:NH2	2.33	0.44
1:1:534:U:H1'	20:S:146:LYS:HD3	2.00	0.44
20:S:75:PHE:O	20:S:94:ILE:N	2.37	0.44
1:1:1269:U:H5	1:1:1273:A:H62	1.65	0.44
1:1:1534:A:H62	1:1:1586:G:H2'	1.83	0.44
1:1:712:G:C2	1:1:713:U:C2	3.06	0.44
6:C:49:ALA:HA	6:C:109:TRP:CZ2	2.52	0.44
6:C:65:TRP:CD1	6:C:76:ARG:HB2	2.53	0.44
7:D:39:GLN:NE2	7:D:46:THR:O	2.50	0.44
12:J:101:ASN:ND2	12:J:130:VAL:HG23	2.33	0.44
13:L:25:HIS:O	15:N:201:ARG:HG3	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:M:38:ILE:HD11	20:S:150:PHE:HE2	1.81	0.44
1:1:1125:U:H2'	1:1:1126:G:C8	2.52	0.43
1:1:1394:A:H2'	1:1:1395:G:O4'	2.18	0.43
1:1:2403:G:N2	1:1:2404:A:H62	2.16	0.43
1:1:2947:G:N3	5:B:250:ALA:HB1	2.32	0.43
1:1:589:A:N6	1:1:610:G:O2'	2.44	0.43
1:1:847:A:H2'	1:1:848:A:C8	2.53	0.43
2:3:95:A:C6	2:3:96:U:C4	3.06	0.43
4:A:129:ALA:HB3	4:A:132:ASN:ND2	2.32	0.43
5:B:61:ASP:OD1	5:B:68:HIS:HE1	2.01	0.43
10:G:75:ILE:HG22	10:G:76:ALA:N	2.33	0.43
12:J:94:ARG:O	12:J:95:ASN:HB2	2.17	0.43
1:1:2166:A:H5'	15:N:75:VAL:O	2.18	0.43
17:P:177:ALA:O	17:P:181:ARG:N	2.50	0.43
20:S:12:ARG:HH12	20:S:15:PRO:HG3	1.82	0.43
1:1:1262:G:H5"	1:1:1263:A:OP2	2.18	0.43
1:1:166:C:H6	1:1:166:C:OP2	2.01	0.43
1:1:201:A:C4	1:1:202:G:N7	2.86	0.43
1:1:2093:A:O5'	1:1:2094:C:OP2	2.36	0.43
4:A:187:HIS:HA	4:A:190:ARG:HD3	2.00	0.43
5:B:19:ARG:O	5:B:273:HIS:CE1	2.71	0.43
20:S:57:GLU:HG2	20:S:58:ILE:N	2.34	0.43
1:1:1074:U:O3'	1:1:1075:A:H8	2.00	0.43
1:1:1472:U:H2'	1:1:1473:G:H8	1.82	0.43
1:1:1522:U:H3'	25:X:113:LEU:HD22	2.01	0.43
1:1:1578:C:H5'	1:1:1579:C:OP2	2.18	0.43
1:1:2218:G:H2'	1:1:2219:A:H8	1.82	0.43
1:1:2585:G:N3	1:1:2585:G:H2'	2.32	0.43
1:1:2660:G:H1'	1:1:2744:U:H1'	1.98	0.43
1:1:374:A:O2'	1:1:376:G:H8	1.97	0.43
1:1:36:C:N4	1:1:47:C:O2'	2.51	0.43
1:1:696:C:OP1	6:C:272:VAL:N	2.25	0.43
2:3:100:C:H2'	2:3:101:G:O4'	2.19	0.43
4:A:96:LEU:HD12	4:A:107:VAL:HG12	1.99	0.43
9:F:176:TYR:CZ	9:F:197:GLN:HG2	2.51	0.43
11:H:17:THR:HG21	14:M:3:THR:HA	2.00	0.43
11:H:8:GLN:HB2	11:H:55:VAL:HG22	2.00	0.43
1:1:3113:A:H4'	11:H:69:ARG:HG3	2.00	0.43
14:M:49:PRO:HB3	14:M:78:THR:HG23	2.01	0.43
17:P:30:ARG:HA	17:P:119:VAL:HG11	2.00	0.43
21:T:17:ARG:O	21:T:18:ASP:HB2	2.17	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1265:U:H2'	1:1:1266:G:C8	2.53	0.43
1:1:2703:A:OP2	7:D:23:ARG:CZ	2.66	0.43
1:1:541:U:H2'	1:1:542:G:C8	2.53	0.43
1:1:597:G:OP1	9:F:37:ASN:HB3	2.18	0.43
1:1:86:G:N7	13:L:13:HIS:ND1	2.66	0.43
2:3:39:C:O2	12:J:70:THR:OG1	2.35	0.43
3:4:122:U:H2'	3:4:123:G:H8	1.84	0.43
3:4:126:A:O2'	3:4:129:C:N4	2.51	0.43
6:C:185:LYS:HA	6:C:200:THR:O	2.18	0.43
7:D:55:PHE:HE2	7:D:159:VAL:HG22	1.83	0.43
1:1:1168:U:H1'	9:F:209:ASN:ND2	2.34	0.43
10:G:146:LYS:NZ	10:G:173:MET:O	2.52	0.43
1:1:268:A:OP1	15:N:50:ARG:NH1	2.51	0.43
27:Z:16:GLY:O	27:Z:18:TYR:N	2.39	0.43
1:1:981:U:H3	1:1:1102:A:H2	1.67	0.43
1:1:1148:G:C6	1:1:1149:G:N7	2.86	0.43
1:1:1354:G:OP2	8:E:9:TRP:HZ3	2.02	0.43
1:1:1618:G:H4'	3:4:129:C:C1'	2.48	0.43
1:1:1949:G:H2'	1:1:1950:U:C6	2.53	0.43
1:1:2439:A:P	1:1:2439:A:H8	2.41	0.43
1:1:3343:G:H21	1:1:3362:A:H2	1.64	0.43
1:1:3384:U:H2'	1:1:3385:U:H6	1.84	0.43
1:1:395:A:C6	1:1:396:A:C6	3.06	0.43
4:A:225:ILE:HD12	4:A:237:LEU:O	2.18	0.43
4:A:30:ARG:HH12	4:A:41:ILE:HG21	1.78	0.43
5:B:92:TYR:HA	5:B:100:ARG:O	2.19	0.43
5:B:60:LEU:O	5:B:69:LYS:N	2.44	0.43
7:D:19:PRO:HB2	7:D:24:ARG:HG3	1.98	0.43
9:F:98:LYS:HB3	9:F:99:PRO:HD3	1.99	0.43
10:G:160:ILE:HG22	10:G:164:VAL:CG1	2.47	0.43
10:G:26:LEU:HD23	27:Z:123:GLN:NE2	2.33	0.43
23:V:14:SER:HB3	23:V:83:LYS:HZ1	1.82	0.43
24:W:50:ALA:HA	24:W:55:PHE:CD1	2.53	0.43
26:Y:118:LEU:CD1	26:Y:121:ARG:HH11	2.31	0.43
1:1:1069:C:O2	1:1:1090:G:N2	2.51	0.43
1:1:1155:C:H2'	1:1:1156:C:C6	2.51	0.43
1:1:146:U:H4'	1:1:148:G:C8	2.53	0.43
1:1:2208:A:C8	1:1:2208:A:OP2	2.71	0.43
1:1:3371:G:H2'	1:1:3372:A:C8	2.54	0.43
1:1:406:G:H1'	3:4:16:G:N2	2.33	0.43
1:1:784:A:HO2'	1:1:785:G:P	2.38	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:854:G:C5	1:1:855:U:C5	3.07	0.43
4:A:209:HIS:HD2	4:A:211:HIS:HB2	1.84	0.43
7:D:205:SER:HB2	7:D:233:ALA:HB1	1.99	0.43
8:E:56:LYS:HD2	8:E:98:VAL:CG1	2.48	0.43
15:N:112:ASN:OD1	15:N:112:ASN:N	2.51	0.43
1:1:1724:U:O4	19:R:125:LYS:NZ	2.51	0.43
19:R:148:ASP:OD1	19:R:151:ARG:NH2	2.52	0.43
19:R:94:VAL:O	19:R:98:ARG:HG3	2.18	0.43
1:1:1125:U:C2	1:1:1126:G:C8	3.06	0.43
1:1:2169:G:OP2	1:1:2170:U:OP2	2.36	0.43
1:1:2905:U:H2'	1:1:2906:C:C6	2.53	0.43
1:1:2995:A:H3'	1:1:2996:U:H5"	2.01	0.43
1:1:412:G:H1'	17:P:120:ASN:HB3	2.00	0.43
1:1:708:G:H5"	1:1:709:A:OP2	2.17	0.43
1:1:912:G:N7	4:A:9:ARG:NH2	2.66	0.43
2:3:8:G:N2	2:3:113:C:O2	2.45	0.43
6:C:16:THR:HG22	6:C:17:ALA:N	2.34	0.43
12:J:29:ARG:HH12	12:J:123:PHE:HD1	1.65	0.43
14:M:128:ARG:O	14:M:132:LYS:HG2	2.18	0.43
14:M:21:VAL:HB	14:M:63:VAL:HG22	2.00	0.43
15:N:139:HIS:O	15:N:143:ARG:HG3	2.19	0.43
15:N:153:ASP:CG	15:N:154:PRO:HD2	2.38	0.43
5:B:262:TRP:HD1	16:O:64:PHE:O	2.02	0.43
18:Q:155:MET:HA	18:Q:161:LYS:HB2	2.00	0.43
18:Q:36:LEU:HD22	18:Q:40:THR:HG21	2.01	0.43
1:1:785:G:N2	18:Q:89:ASP:O	2.48	0.43
1:1:1874:A:C8	19:R:20:ARG:NH1	2.83	0.43
25:X:63:ILE:HD11	25:X:102:LEU:HD12	2.00	0.43
1:1:2849:C:H2'	1:1:2850:G:O4'	2.18	0.43
1:1:2955:U:OP2	1:1:2977:G:N1	2.23	0.43
1:1:385:A:C2	1:1:386:A:C4	3.07	0.43
1:1:433:A:H2'	1:1:434:U:C6	2.54	0.43
1:1:992:A:O2'	1:1:993:G:H5'	2.19	0.43
4:A:36:GLU:HG3	4:A:91:GLY:HA2	2.01	0.43
6:C:339:LEU:HA	6:C:342:LYS:HB2	2.01	0.43
2:3:35:C:O2'	7:D:156:GLY:HA3	2.18	0.43
8:E:35:VAL:HB	8:E:90:LYS:HZ1	1.83	0.43
11:H:114:VAL:HB	11:H:124:ARG:HB2	2.01	0.43
20:S:96:ASP:CG	20:S:97:VAL:H	2.18	0.43
1:1:1218:U:H3	1:1:1287:A:N6	2.16	0.43
1:1:589:A:H1'	1:1:1337:A:H5"	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1887:A:C2	1:1:2391:G:H4'	2.54	0.43
1:1:2341:A:OP2	1:1:2341:A:C8	2.69	0.43
1:1:818:C:N3	1:1:920:A:H5'	2.33	0.43
3:4:130:C:H2'	3:4:131:A:C8	2.50	0.43
1:1:3242:G:C8	5:B:154:TYR:CE2	3.06	0.43
10:G:156:ASP:OD2	10:G:183:LYS:HG2	2.19	0.43
1:1:1258:U:C2	1:1:1260:A:OP2	2.72	0.43
1:1:1709:C:H2'	1:1:1710:C:C6	2.53	0.43
1:1:1954:G:H5"	1:1:1955:U:OP2	2.19	0.43
1:1:2146:C:H5"	4:A:203:ALA:HB1	2.01	0.43
1:1:2437:G:O2'	1:1:2438:A:P	2.77	0.43
1:1:352:A:C8	1:1:354:U:C2	3.06	0.43
1:1:879:U:O2	1:1:2357:A:O2'	2.27	0.43
11:H:41:ILE:HD13	11:H:71:VAL:HG22	2.01	0.43
1:1:97:U:OP2	13:L:13:HIS:CD2	2.71	0.43
15:N:160:GLU:HG2	15:N:161:ALA:N	2.34	0.43
6:C:110:ASN:HB3	15:N:202:TYR:CE1	2.54	0.43
16:O:88:VAL:HG12	16:O:89:SER:N	2.34	0.43
1:1:1602:A:H5"	19:R:38:ARG:HG3	2.01	0.43
1:1:1306:G:O2'	1:1:1307:G:H2'	2.19	0.42
1:1:1332:A:H2'	1:1:1333:C:C6	2.54	0.42
1:1:1342:C:C2	1:1:1343:A:C8	3.07	0.42
1:1:1858:A:O2'	1:1:1859:A:OP2	2.37	0.42
1:1:19:U:H2'	1:1:20:A:C8	2.54	0.42
1:1:2529:A:P	10:G:248:LYS:NZ	2.92	0.42
1:1:3047:U:O2'	1:1:3048:A:H5'	2.19	0.42
1:1:3059:G:H2'	1:1:3060:C:C6	2.54	0.42
1:1:3318:G:OP2	1:1:3318:G:C8	2.72	0.42
1:1:3350:C:O2'	1:1:3351:U:OP1	2.37	0.42
1:1:3304:U:OP2	1:1:3377:G:C4	2.72	0.42
1:1:599:C:H2'	1:1:600:G:C8	2.54	0.42
1:1:684:G:H2'	1:1:685:G:C8	2.54	0.42
1:1:998:A:H4'	2:3:103:A:C2	2.54	0.42
5:B:385:LYS:HG3	5:B:386:ASP:N	2.34	0.42
10:G:150:LEU:HD23	10:G:151:VAL:N	2.34	0.42
12:J:29:ARG:HH11	12:J:123:PHE:HE1	1.67	0.42
18:Q:70:ALA:O	18:Q:73:GLN:HB3	2.19	0.42
20:S:155:ARG:CD	20:S:172:TYR:HD1	2.31	0.42
1:1:1252:A:H2'	1:1:1253:U:C5	2.54	0.42
1:1:1352:A:H4'	1:1:1353:U:OP1	2.18	0.42
1:1:2525:G:H4'	1:1:2526:C:OP2	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2737:C:H4'	21:T:68:THR:OG1	2.19	0.42
1:1:1191:U:H3	1:1:3105:U:H5"	1.84	0.42
1:1:3215:A:O5'	14:M:121:MET:HE1	2.19	0.42
1:1:433:A:H2'	1:1:434:U:H6	1.84	0.42
1:1:873:C:H3'	1:1:874:U:H4'	2.01	0.42
5:B:106:TRP:HB2	5:B:133:TYR:CE2	2.53	0.42
5:B:256:HIS:HA	5:B:257:PRO:C	2.40	0.42
5:B:283:TYR:CG	5:B:356:LEU:HD21	2.54	0.42
5:B:296:THR:H	5:B:299:ASP:HB3	1.84	0.42
1:1:520:U:N3	6:C:347:THR:OG1	2.33	0.42
7:D:110:LEU:HD13	7:D:171:LEU:HD23	2.01	0.42
11:H:18:VAL:HG21	11:H:53:ILE:HD11	2.01	0.42
27:Z:48:ARG:HH12	27:Z:69:LYS:HD2	1.83	0.42
1:1:1148:G:N1	1:1:1149:G:C5	2.87	0.42
1:1:1217:A:C6	1:1:1218:U:C4	3.06	0.42
1:1:1946:A:H2'	1:1:1947:G:O4'	2.20	0.42
1:1:384:A:C2	1:1:385:A:C4	3.08	0.42
1:1:798:G:H2'	1:1:799:G:O4'	2.20	0.42
1:1:993:G:N2	1:1:1057:A:N1	2.67	0.42
5:B:216:ASP:HB2	5:B:339:ARG:HB3	2.01	0.42
5:B:307:PRO:HD3	5:B:311:PHE:CE2	2.53	0.42
6:C:5:GLN:HA	6:C:20:LEU:O	2.19	0.42
2:3:64:A:P	7:D:289:LYS:NZ	2.91	0.42
7:D:52:VAL:HG13	7:D:54:ARG:NH1	2.35	0.42
8:E:40:LEU:CD1	8:E:54:TYR:HB2	2.47	0.42
11:H:189:GLU:C	11:H:191:LEU:H	2.21	0.42
1:1:290:G:O2'	15:N:70:ASN:OD1	2.17	0.42
22:U:39:ASP:O	22:U:47:VAL:HB	2.18	0.42
23:V:54:LEU:HD21	23:V:119:GLY:HA3	2.01	0.42
27:Z:64:LYS:HD3	27:Z:67:LYS:NZ	2.34	0.42
1:1:1143:A:H4'	1:1:1144:U:OP2	2.19	0.42
1:1:1144:U:C4	1:1:1366:A:C2	3.08	0.42
1:1:3022:G:N2	1:1:3032:A:OP2	2.45	0.42
1:1:39:A:H5"	4:A:35:ALA:CB	87.09	0.42
1:1:589:A:H8	1:1:590:G:C8	2.37	0.42
3:4:106:C:C5'	3:4:108:C:OP2	2.66	0.42
7:D:146:LEU:CD1	7:D:163:LEU:HD12	2.49	0.42
20:S:13:ARG:HA	20:S:13:ARG:HD2	1.68	0.42
1:1:1110:U:C2	1:1:1111:U:C5	3.07	0.42
1:1:116:A:H62	1:1:153:U:H1'	1.85	0.42
1:1:1541:G:H22	1:1:1555:U:H2'	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1579:C:H5'	1:1:1649:U:H5"	2.02	0.42
1:1:2418:G:H5"	1:1:2606:G:N2	2.35	0.42
1:1:2617:U:C5	1:1:2621:G:OP2	2.72	0.42
1:1:280:U:O2	1:1:282:G:H3'	2.20	0.42
1:1:591:G:N2	1:1:612:U:OP1	2.38	0.42
1:1:62:A:H5"	15:N:164:LEU:HD21	2.01	0.42
1:1:664:U:O2'	1:1:665:A:H5'	2.19	0.42
1:1:915:A:N3	1:1:915:A:H2'	2.34	0.42
1:1:943:U:H3'	4:A:13:GLY:HA2	70.56	0.42
1:1:974:G:C2	1:1:975:C:C6	3.08	0.42
1:1:1795:U:H2'	4:A:50:HIS:CD2	2.54	0.42
6:C:338:LYS:HD3	6:C:338:LYS:HA	1.82	0.42
8:E:68:PRO:HB3	8:E:142:ASP:OD1	2.19	0.42
12:J:83:GLY:HA2	12:J:112:LEU:HD22	2.02	0.42
13:L:59:ARG:HD2	13:L:66:ASN:O	2.19	0.42
1:1:1914:G:N2	19:R:81:ARG:O	2.40	0.42
21:T:90:ASN:O	21:T:91:LEU:HD23	2.20	0.42
24:W:50:ALA:HA	24:W:55:PHE:CG	2.55	0.42
25:X:103:TYR:HB3	25:X:135:ILE:CD1	2.45	0.42
1:1:116:A:N6	1:1:153:U:H1'	2.34	0.42
1:1:1260:A:O2'	1:1:1279:C:O2	2.28	0.42
1:1:1305:U:C2	5:B:257:PRO:HG3	2.54	0.42
1:1:2745:G:C2	1:1:2748:A:OP2	2.72	0.42
1:1:3384:U:H2'	1:1:3385:U:C6	2.54	0.42
3:4:39:G:O2'	3:4:105:A:N1	2.42	0.42
4:A:144:ASN:N	4:A:144:ASN:OD1	2.53	0.42
5:B:283:TYR:HE1	5:B:354:VAL:HG11	1.83	0.42
5:B:58:ARG:O	5:B:71:GLU:HA	2.20	0.42
6:C:234:ASN:OD1	6:C:236:LEU:N	2.51	0.42
6:C:154:THR:OG1	6:C:252:GLU:HB3	2.19	0.42
11:H:24:ILE:HD11	11:H:39:LYS:HE2	2.02	0.42
12:J:18:VAL:HG22	12:J:70:THR:HG22	2.00	0.42
1:1:1103:A:H2'	1:1:1103:A:N3	2.35	0.42
1:1:1250:G:H2'	1:1:1251:A:C8	2.55	0.42
1:1:1814:A:H4'	1:1:1815:U:C5'	2.44	0.42
1:1:2883:U:O5'	1:1:2883:U:H6	2.02	0.42
1:1:3121:U:H3	1:1:3123:A:H62	1.68	0.42
1:1:514:G:N3	6:C:341:SER:OG	2.39	0.42
1:1:784:A:C6	18:Q:93:ILE:HG22	2.55	0.42
2:3:1:G:C4	7:D:266:ALA:HA	2.54	0.42
2:3:96:U:H2'	2:3:97:A:C8	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:D:58:LYS:HE3	7:D:93:THR:OG1	2.19	0.42
2:3:49:G:OP2	7:D:91:GLY:HA2	2.19	0.42
1:1:1057:A:OP1	9:F:98:LYS:HE3	2.19	0.42
10:G:134:TYR:CD2	10:G:190:VAL:HG23	2.55	0.42
12:J:63:GLU:O	12:J:63:GLU:HG2	2.19	0.42
18:Q:66:ARG:NH2	18:Q:143:PRO:HD3	2.34	0.42
18:Q:150:VAL:HA	18:Q:153:PHE:CD2	2.54	0.42
18:Q:83:VAL:O	18:Q:103:ALA:HA	2.20	0.42
1:1:1279:C:H2'	1:1:1280:C:O4'	2.19	0.42
1:1:1636:U:H5"	27:Z:73:LYS:HE3	2.01	0.42
1:1:2668:U:H2'	1:1:2669:G:C8	2.54	0.42
1:1:2944:U:O2'	1:1:2947:G:N7	2.47	0.42
1:1:3214:U:OP2	14:M:128:ARG:CZ	2.67	0.42
1:1:3243:A:C8	16:O:110:PRO:HD3	2.55	0.42
1:1:381:U:H2'	1:1:382:U:C6	2.55	0.42
1:1:827:A:H2'	1:1:828:A:C8	2.51	0.42
1:1:849:C:H2'	1:1:850:U:C6	2.54	0.42
1:1:900:G:C6	1:1:901:G:C6	3.07	0.42
2:3:42:A:C5	2:3:43:U:C4	3.08	0.42
5:B:347:SER:C	5:B:349:LYS:H	2.22	0.42
6:C:177:ASP:OD2	6:C:204:GLY:HA2	2.20	0.42
8:E:66:SER:HB3	8:E:76:LEU:HD23	2.01	0.42
11:H:171:ASP:OD2	11:H:173:ARG:HG2	2.20	0.42
16:O:188:SER:O	16:O:192:LYS:HG2	2.19	0.42
27:Z:10:VAL:HG11	27:Z:129:TRP:HZ3	1.84	0.42
1:1:1246:G:N3	1:1:1264:G:O2'	2.53	0.42
1:1:1900:A:H1'	1:1:1902:G:N7	2.35	0.42
1:1:2308:C:C2	1:1:2971:A:N6	2.84	0.42
1:1:2528:G:N2	1:1:2582:C:O2	2.51	0.42
1:1:2733:A:H2'	1:1:2734:A:O4'	2.20	0.42
1:1:3253:G:C2	1:1:3254:G:C8	3.07	0.42
1:1:3269:U:H4'	1:1:3270:U:O5'	2.19	0.42
1:1:971:G:C6	1:1:972:A:C5	3.08	0.42
2:3:28:C:OP1	12:J:137:ARG:NH1	2.51	0.42
6:C:65:TRP:CE3	6:C:69:ARG:NH1	2.88	0.42
7:D:215:ASP:CG	7:D:217:GLU:HG2	2.40	0.42
8:E:78:ARG:NH1	8:E:106:PHE:CB	2.82	0.42
11:H:139:ASN:OD1	11:H:140:VAL:HG23	2.19	0.42
12:J:54:VAL:HG11	12:J:57:PHE:CD2	2.55	0.42
13:L:113:VAL:O	13:L:117:LYS:HG2	2.20	0.42
15:N:74:PRO:O	15:N:75:VAL:O	2.38	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:3067:C:H3'	19:R:62:ARG:NH1	2.35	0.42
1:1:2147:A:H2'	1:1:2148:U:O4'	2.20	0.42
1:1:2830:G:H1	1:1:2858:U:H3	1.66	0.42
1:1:382:U:C2	1:1:388:G:N2	2.88	0.42
4:A:242:ARG:HH12	4:A:246:LEU:HD23	1.85	0.42
1:1:2340:U:OP1	5:B:236:LYS:HD2	2.20	0.42
6:C:302:ALA:HB2	18:Q:39:ARG:NH1	2.34	0.42
7:D:163:LEU:HD21	7:D:175:HIS:CG	2.55	0.42
9:F:40:LYS:O	9:F:44:ILE:HG13	2.19	0.42
11:H:18:VAL:CG2	11:H:53:ILE:HD11	2.49	0.42
9:F:110:ARG:HH11	18:Q:3:ILE:HG13	1.80	0.42
1:1:1252:A:C8	1:1:1253:U:H5	2.37	0.41
1:1:1269:U:N3	1:1:1271:A:H5"	2.35	0.41
1:1:1704:A:N6	1:1:1741:A:N1	2.68	0.41
1:1:1760:A:OP2	1:1:1760:A:H8	2.03	0.41
1:1:199:A:C4	1:1:201:A:C8	3.08	0.41
1:1:2113:A:OP2	1:1:2113:A:N9	2.53	0.41
1:1:2668:U:O4	1:1:2687:G:N2	2.53	0.41
1:1:423:A:N6	1:1:424:G:C6	2.88	0.41
1:1:674:G:C2	1:1:789:A:C2	3.07	0.41
1:1:2991:A:C4'	5:B:21:ARG:HH12	2.33	0.41
6:C:77:VAL:O	6:C:86:GLY:N	2.53	0.41
10:G:97:TYR:O	10:G:131:ALA:HA	2.20	0.41
12:J:137:ARG:NH1	12:J:141:ARG:HD3	2.35	0.41
18:Q:86:THR:HA	18:Q:105:ARG:O	2.20	0.41
23:V:84:SER:HB3	23:V:94:TYR:CD2	2.55	0.41
27:Z:89:VAL:CG1	27:Z:93:LYS:HD3	2.47	0.41
1:1:1111:U:H2'	1:1:1112:A:H8	1.85	0.41
1:1:1466:G:H5"	1:1:1467:A:OP2	2.21	0.41
1:1:2781:U:H2'	1:1:2782:U:C6	2.55	0.41
1:1:541:U:H3	1:1:550:A:N6	2.17	0.41
2:3:38:U:C2	2:3:40:C:OP2	2.73	0.41
4:A:79:ASN:ND2	4:A:165:VAL:HG22	2.35	0.41
6:C:157:GLU:OE2	6:C:210:ALA:N	2.52	0.41
6:C:71:VAL:HG21	6:C:76:ARG:HH12	1.85	0.41
7:D:20:PHE:O	7:D:24:ARG:NH2	2.53	0.41
8:E:47:PHE:O	8:E:50:LYS:HG2	2.20	0.41
14:M:21:VAL:HB	14:M:63:VAL:CG2	2.50	0.41
3:4:141:C:O2	15:N:112:ASN:ND2	2.52	0.41
18:Q:96:PHE:CG	18:Q:97:PRO:HD2	2.55	0.41
27:Z:23:VAL:HG12	27:Z:45:GLY:HA3	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1261:G:C2	1:1:1261:G:OP2	2.74	0.41
1:1:1230:G:H1	1:1:1279:C:H42	1.67	0.41
1:1:246:U:O2'	1:1:247:C:H5'	2.20	0.41
1:1:620:U:H5'	17:P:167:ARG:CZ	2.51	0.41
1:1:885:U:C2	1:1:886:C:C5	3.08	0.41
2:3:9:C:H5	2:3:10:C:C2	2.38	0.41
2:3:30:G:N2	2:3:48:U:C2	2.88	0.41
5:B:313:HIS:CB	5:B:332:ARG:HD2	2.50	0.41
15:N:38:ARG:HG3	15:N:38:ARG:NH1	2.34	0.41
1:1:1258:U:O2'	1:1:1260:A:N7	2.37	0.41
1:1:2145:A:H5'	1:1:2959:C:H5'	2.02	0.41
1:1:239:G:H2'	1:1:240:U:C2	2.55	0.41
1:1:2617:U:H5	1:1:2621:G:OP2	2.02	0.41
1:1:73:C:C2	13:L:59:ARG:NH1	2.88	0.41
3:4:153:U:H2'	3:4:154:C:C6	2.56	0.41
5:B:77:THR:HG23	5:B:326:GLY:O	2.20	0.41
7:D:144:VAL:HG13	7:D:173:VAL:HG22	2.03	0.41
7:D:204:VAL:HB	7:D:236:LEU:HD21	2.01	0.41
8:E:105:TYR:OH	8:E:134:ARG:HG2	2.20	0.41
8:E:51:ARG:NH1	8:E:158:TYR:CE1	2.88	0.41
8:E:64:LEU:HD21	8:E:76:LEU:HD22	2.03	0.41
9:F:145:ARG:O	9:F:149:TYR:HD2	2.03	0.41
9:F:161:VAL:HG12	9:F:162:PRO:O	2.20	0.41
9:F:153:PHE:CD1	9:F:162:PRO:HA	2.55	0.41
9:F:221:LYS:O	9:F:227:GLY:HA3	2.20	0.41
10:G:190:VAL:HG22	10:G:192:GLN:HG2	2.00	0.41
12:J:17:LEU:HD13	12:J:129:VAL:HG22	2.02	0.41
14:M:14:LEU:H	14:M:19:ARG:HH11	1.67	0.41
16:O:55:HIS:ND1	16:O:58:LEU:HD23	2.35	0.41
1:1:785:G:N1	18:Q:90:ASP:HA	2.35	0.41
21:T:138:SER:O	21:T:139:ARG:HG3	2.21	0.41
1:1:2571:U:O2'	1:1:2572:C:O2	2.34	0.41
1:1:3346:U:H2'	1:1:3347:A:O4'	2.21	0.41
2:3:13:A:C8	2:3:112:G:C4	3.09	0.41
5:B:92:TYR:HB2	5:B:157:VAL:HG23	2.02	0.41
7:D:184:ASP:HB2	7:D:189:GLU:HB2	2.02	0.41
9:F:160:ARG:NH2	9:F:206:LYS:HD3	2.35	0.41
10:G:75:ILE:HG22	10:G:76:ALA:H	1.85	0.41
14:M:127:LYS:HB2	16:O:190:VAL:HG11	2.02	0.41
1:1:1155:C:C6	1:1:1156:C:H5	2.39	0.41
1:1:1578:C:H3'	1:1:1579:C:C6	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:176:G:H2'	1:1:177:U:O4'	2.20	0.41
1:1:1949:G:H1	1:1:2097:U:H3	1.68	0.41
1:1:2642:A:H2'	1:1:2643:A:C8	2.55	0.41
1:1:391:A:H2'	1:1:392:G:O4'	2.20	0.41
3:4:122:U:H2'	3:4:123:G:C8	2.56	0.41
4:A:45:VAL:HB	4:A:61:VAL:HG22	2.03	0.41
5:B:10:ARG:NH2	5:B:263:SER:O	2.54	0.41
6:C:168:ALA:O	6:C:172:VAL:HG23	2.20	0.41
6:C:23:PRO:HD2	6:C:26:PHE:CD2	2.56	0.41
8:E:78:ARG:HH11	8:E:106:PHE:HB2	1.84	0.41
1:1:1334:U:H5"	9:F:206:LYS:HB3	2.01	0.41
13:L:162:ASN:HD21	13:L:164:GLU:HB2	1.86	0.41
19:R:81:ARG:HG2	19:R:88:ARG:CZ	2.50	0.41
1:1:2839:G:O6	1:1:2845:A:O2'	2.33	0.41
1:1:3293:U:H6	1:1:3293:U:OP2	2.03	0.41
1:1:406:G:H1'	3:4:16:G:H22	1.84	0.41
1:1:880:G:C8	17:P:132:ALA:HA	2.55	0.41
1:1:909:G:C4	1:1:910:G:C8	3.09	0.41
1:1:949:C:OP1	18:Q:10:HIS:ND1	2.53	0.41
2:3:90:U:H2'	2:3:91:G:O4'	2.21	0.41
1:1:2366:C:P	5:B:259:HIS:HE2	2.44	0.41
5:B:53:MET:HE2	5:B:77:THR:HG22	2.02	0.41
11:H:163:GLN:HB3	11:H:166:ARG:HH12	1.86	0.41
11:H:17:THR:OG1	11:H:28:VAL:HB	2.20	0.41
11:H:43:VAL:HG11	11:H:71:VAL:HG21	2.02	0.41
12:J:133:ARG:NH1	12:J:153:LYS:C	2.74	0.41
6:C:112:LYS:NZ	15:N:203:ARG:O	2.51	0.41
1:1:3277:U:H2'	17:P:175:ARG:NH2	2.36	0.41
19:R:130:ASN:C	19:R:132:PHE:N	2.74	0.41
7:D:45:ASN:OD1	21:T:33:VAL:HG21	2.21	0.41
24:W:50:ALA:HA	24:W:55:PHE:CE1	2.56	0.41
1:1:1313:G:O2'	1:1:1318:A:N1	2.48	0.41
1:1:1779:C:O5'	19:R:97:ARG:NH2	2.54	0.41
1:1:2353:G:C6	1:1:2354:C:N3	2.89	0.41
1:1:2418:G:H5"	1:1:2606:G:H22	1.84	0.41
1:1:2847:A:OP2	1:1:2848:G:OP2	2.38	0.41
1:1:423:A:C6	1:1:424:G:C5	3.09	0.41
1:1:437:G:H22	1:1:622:A:H61	1.67	0.41
1:1:826:G:C2	1:1:900:G:C6	3.09	0.41
1:1:958:C:C5	1:1:960:U:H1'	2.55	0.41
2:3:74:C:H2'	2:3:75:G:C8	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:283:TYR:CD1	5:B:354:VAL:HG21	2.51	0.41
5:B:48:GLY:O	5:B:335:ILE:HD12	2.20	0.41
6:C:265:GLU:N	6:C:265:GLU:OE1	2.40	0.41
11:H:53:ILE:HG22	11:H:54:LYS:N	2.36	0.41
12:J:133:ARG:HH12	12:J:153:LYS:C	2.23	0.41
13:L:46:ILE:O	13:L:47:ALA:HB3	2.20	0.41
13:L:93:ILE:HD12	13:L:93:ILE:HG23	1.85	0.41
16:O:113:ASP:OD1	16:O:114:LYS:N	2.53	0.41
20:S:155:ARG:HD2	20:S:172:TYR:CD1	2.54	0.41
1:1:1330:A:N7	1:1:1332:A:C6	2.88	0.41
1:1:1353:U:O2	8:E:10:TYR:N	2.38	0.41
1:1:2268:U:H3'	1:1:2269:U:H5'	2.03	0.41
1:1:2314:U:H6	1:1:2314:U:H2'	1.73	0.41
1:1:652:G:N1	1:1:2361:A:H1'	2.36	0.41
1:1:2660:G:H5"	1:1:2750:U:O2'	2.20	0.41
1:1:2823:G:H2'	1:1:2824:G:H8	1.85	0.41
1:1:3288:G:N3	1:1:3289:G:C8	2.89	0.41
1:1:502:U:O3'	8:E:26:ARG:HD2	2.21	0.41
4:A:44:ILE:O	4:A:61:VAL:HA	2.21	0.41
5:B:152:LYS:HG2	5:B:192:VAL:HG11	2.01	0.41
6:C:25:VAL:HG22	6:C:262:TRP:HB2	2.03	0.41
7:D:259:LYS:O	7:D:260:PHE:HB2	2.21	0.41
11:H:99:ILE:HG22	11:H:101:VAL:HG23	2.03	0.41
12:J:32:ARG:HD2	12:J:120:ILE:HA	2.03	0.41
14:M:65:LEU:HB2	20:S:172:TYR:CE2	2.56	0.41
9:F:74:SER:HB3	21:T:141:VAL:O	2.21	0.41
23:V:27:ASP:N	23:V:27:ASP:OD1	2.53	0.41
1:1:1240:A:C8	1:1:1240:A:OP2	2.74	0.41
1:1:1471:U:H2'	1:1:1472:U:H6	1.86	0.41
1:1:1721:U:C5	19:R:103:ARG:NH1	2.88	0.41
1:1:1737:U:H2'	1:1:1738:C:O4'	2.21	0.41
1:1:1764:U:H3'	1:1:1765:U:C5'	2.51	0.41
1:1:199:A:C6	1:1:219:A:N6	2.89	0.41
1:1:913:A:O2'	1:1:2146:C:O2	2.37	0.41
1:1:2208:A:H8	1:1:2208:A:OP2	2.04	0.41
1:1:2218:G:C6	1:1:2219:A:C6	3.09	0.41
1:1:2252:A:H2'	1:1:2253:G:H8	1.86	0.41
1:1:2712:U:H4'	1:1:2743:A:O3'	2.21	0.41
1:1:2807:U:H5"	1:1:2969:A:OP1	2.21	0.41
1:1:2880:U:OP1	23:V:47:ASN:ND2	2.46	0.41
1:1:802:C:H2'	1:1:803:C:H6	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:822:G:O6	1:1:904:A:C6	2.73	0.41
3:4:115:C:H2'	3:4:116:G:O4'	2.21	0.41
3:4:6:U:H2'	3:4:7:U:C6	2.56	0.41
1:1:2548:C:P	4:A:93:LYS:NZ	2.94	0.41
5:B:147:GLU:OE1	5:B:150:ARG:NH1	2.54	0.41
13:L:69:VAL:HG12	13:L:149:GLN:OE1	2.21	0.41
16:O:55:HIS:HD1	16:O:58:LEU:HD23	1.85	0.41
18:Q:64:VAL:HG12	18:Q:90:ASP:N	2.35	0.41
19:R:99:LEU:HD21	19:R:103:ARG:NH2	2.28	0.41
20:S:11:GLY:HA3	20:S:57:GLU:O	2.21	0.41
1:1:1062:A:N3	21:T:130:ARG:NH2	2.62	0.41
1:1:1287:A:C5	1:1:1288:U:C4	3.09	0.41
1:1:177:U:H2'	1:1:178:U:O4'	2.21	0.41
1:1:194:U:C2	1:1:195:U:C5	3.08	0.41
1:1:2565:U:H2'	1:1:2566:C:C6	2.56	0.41
1:1:2569:A:H8	1:1:2569:A:OP2	2.04	0.41
1:1:269:G:H5"	15:N:14:LYS:HE2	2.03	0.41
1:1:2812:C:H2'	1:1:2813:A:C8	2.56	0.41
1:1:2926:A:H2'	1:1:2927:C:C6	2.55	0.41
1:1:31:C:H5	15:N:188:ARG:NH2	2.19	0.41
1:1:678:G:O2'	1:1:787:G:N2	2.54	0.41
2:3:4:U:H2'	2:3:5:G:C8	2.56	0.41
2:3:77:G:N2	2:3:78:U:O4	2.25	0.41
5:B:33:PRO:HB2	5:B:184:ASN:HD21	1.86	0.41
7:D:91:GLY:O	7:D:94:ASN:ND2	2.54	0.41
1:1:584:G:H4'	9:F:45:LEU:C	42.76	0.41
1:1:709:A:P	18:Q:179:ARG:HH22	2.44	0.41
1:1:1792:C:HO2'	1:1:1794:G:H8	1.62	0.40
1:1:1801:U:H2'	1:1:1802:C:C6	2.56	0.40
1:1:1779:C:H41	1:1:2102:U:P	2.44	0.40
1:1:245:U:H2'	1:1:246:U:C6	2.56	0.40
1:1:3311:C:H2'	1:1:3312:U:O4'	2.21	0.40
1:1:869:G:H1'	1:1:891:G:N2	2.36	0.40
1:1:895:A:N7	1:1:897:U:C2	2.90	0.40
5:B:102:LEU:HD12	5:B:103:THR:N	2.36	0.40
7:D:279:LYS:HD2	7:D:282:ARG:HH21	1.86	0.40
8:E:132:ALA:O	8:E:136:GLU:HG2	2.21	0.40
10:G:160:ILE:HG22	10:G:164:VAL:HG13	2.03	0.40
12:J:39:GLN:HE21	12:J:114:ILE:HG23	1.86	0.40
13:L:93:ILE:O	13:L:93:ILE:HG22	2.21	0.40
18:Q:158:HIS:H	18:Q:186:VAL:HG11	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:R:106:LEU:HB3	19:R:120:TYR:CE1	2.56	0.40
19:R:67:ALA:O	19:R:71:ARG:HG3	2.21	0.40
9:F:75:TYR:HB2	21:T:141:VAL:CG2	2.51	0.40
23:V:123:ALA:O	23:V:130:ALA:HB2	2.22	0.40
23:V:45:ARG:HB3	23:V:48:ARG:CD	2.51	0.40
1:1:16:A:O3'	25:X:45:LYS:HG2	2.21	0.40
26:Y:83:ASP:OD1	26:Y:84:LYS:N	2.49	0.40
1:1:1489:A:N6	1:1:1854:C:H42	2.19	0.40
1:1:199:A:C5	1:1:201:A:C5	3.10	0.40
1:1:2179:C:H4'	1:1:2180:G:OP2	2.20	0.40
1:1:2540:A:C8	1:1:2540:A:OP2	2.74	0.40
1:1:370:U:C4	1:1:376:G:O6	2.74	0.40
1:1:971:G:C6	1:1:972:A:C6	3.09	0.40
3:4:155:A:H2'	3:4:156:U:O4'	2.21	0.40
1:1:3272:C:OP2	8:E:78:ARG:CZ	2.68	0.40
10:G:34:PHE:CE1	10:G:42:PRO:HD3	2.56	0.40
13:L:105:ASN:OD1	13:L:106:GLN:N	2.54	0.40
20:S:76:GLY:HA2	20:S:93:GLU:HA	2.03	0.40
21:T:126:VAL:HG23	21:T:127:GLN:H	1.87	0.40
1:1:1230:G:H2'	1:1:1231:A:H5'	2.04	0.40
1:1:1239:C:H1'	1:1:1250:G:H22	1.85	0.40
1:1:1304:A:H1'	1:1:2885:C:H1'	2.02	0.40
1:1:1481:A:C8	1:1:1483:G:C6	3.09	0.40
1:1:1722:U:OP1	19:R:100:ARG:NH1	2.54	0.40
1:1:274:G:H2'	1:1:275:U:O4'	2.21	0.40
1:1:565:U:H2'	1:1:566:G:H8	1.86	0.40
1:1:945:C:C6	1:1:945:C:OP2	2.74	0.40
2:3:117:A:H2'	2:3:118:A:O4'	2.21	0.40
5:B:57:VAL:HG13	5:B:71:GLU:HB3	2.03	0.40
7:D:269:SER:O	7:D:273:ARG:HG2	2.22	0.40
3:4:29:U:H5"	13:L:27:ASP:HB3	2.03	0.40
1:1:1543:G:OP1	15:N:35:VAL:HG23	2.21	0.40
1:1:101:G:H2'	1:1:102:C:O4'	2.21	0.40
1:1:1617:G:H2'	1:1:1618:G:O4'	2.21	0.40
1:1:1859:A:C2	1:1:1860:G:N7	2.90	0.40
1:1:2923:U:H2'	1:1:2924:U:C6	2.57	0.40
1:1:3021:A:H4'	1:1:3022:G:OP1	2.21	0.40
1:1:500:C:H2'	1:1:501:A:C8	2.57	0.40
1:1:743:C:H2'	1:1:744:A:O4'	2.22	0.40
1:1:672:A:C2	1:1:791:A:C2	3.10	0.40
1:1:839:C:H2'	1:1:840:C:C6	2.53	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:3:77:G:H3'	20:S:46:GLN:O	2.21	0.40
2:3:8:G:O6	2:3:9:C:N4	2.55	0.40
3:4:154:C:H5"	10:G:181:LYS:HB3	2.02	0.40
5:B:37:ARG:HD3	5:B:186:GLY:HA2	2.03	0.40
6:C:170:LYS:HE2	6:C:175:HIS:CE1	2.57	0.40
1:1:2703:A:C6	7:D:23:ARG:NH1	2.90	0.40
7:D:61:ILE:HG12	7:D:79:TYR:CE1	2.56	0.40
1:1:3273:A:H5'	8:E:45:GLY:HA2	2.04	0.40
8:E:40:LEU:HB3	8:E:84:VAL:CG1	2.52	0.40
1:1:2529:A:P	10:G:248:LYS:HZ3	2.41	0.40
16:O:54:TYR:CD2	16:O:145:VAL:HG11	2.56	0.40
27:Z:26:VAL:HG12	27:Z:89:VAL:HG21	2.03	0.40
27:Z:4:PHE:O	27:Z:9:LYS:HG3	2.21	0.40
1:1:1258:U:O2	1:1:1261:G:N1	2.54	0.40
1:1:1321:G:H2'	1:1:1322:U:H6	1.87	0.40
1:1:1560:G:H1	1:1:1580:A:H61	1.66	0.40
1:1:1671:C:H2'	1:1:1672:U:O4'	2.21	0.40
1:1:653:A:C8	1:1:2360:C:N4	2.90	0.40
1:1:2529:A:C2	1:1:2530:G:H1'	2.56	0.40
1:1:532:A:O2'	1:1:533:A:H5'	2.22	0.40
4:A:230:VAL:HG22	4:A:231:SER:N	2.36	0.40
9:F:26:VAL:HG23	9:F:27:ALA:H	1.86	0.40
12:J:91:LEU:HB3	12:J:95:ASN:HD22	1.87	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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	
4	A	244/246 (99%)	236 (97%)	8 (3%)	0	100	100
5	B	384/387 (99%)	357 (93%)	25 (6%)	2 (0%)	34	72

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
6	C	359/361 (99%)	329 (92%)	29 (8%)	1 (0%)	46 80
7	D	294/297 (99%)	267 (91%)	24 (8%)	3 (1%)	19 58
8	E	152/176 (86%)	143 (94%)	6 (4%)	3 (2%)	9 38
9	F	220/244 (90%)	205 (93%)	15 (7%)	0	100 100
10	G	231/256 (90%)	208 (90%)	20 (9%)	3 (1%)	15 50
11	H	189/191 (99%)	174 (92%)	14 (7%)	1 (0%)	34 72
12	J	167/174 (96%)	144 (86%)	18 (11%)	5 (3%)	5 28
13	L	191/199 (96%)	172 (90%)	16 (8%)	3 (2%)	12 44
14	M	134/138 (97%)	123 (92%)	9 (7%)	2 (2%)	13 47
15	N	201/204 (98%)	189 (94%)	10 (5%)	2 (1%)	19 58
16	O	195/199 (98%)	193 (99%)	2 (1%)	0	100 100
17	P	181/184 (98%)	178 (98%)	3 (2%)	0	100 100
18	Q	183/186 (98%)	172 (94%)	11 (6%)	0	100 100
19	R	154/189 (82%)	147 (96%)	6 (4%)	1 (1%)	30 68
20	S	170/172 (99%)	157 (92%)	10 (6%)	3 (2%)	11 42
21	T	157/160 (98%)	148 (94%)	8 (5%)	1 (1%)	30 68
22	U	98/121 (81%)	86 (88%)	11 (11%)	1 (1%)	19 58
23	V	134/137 (98%)	130 (97%)	4 (3%)	0	100 100
24	W	62/155 (40%)	60 (97%)	2 (3%)	0	100 100
25	X	119/142 (84%)	113 (95%)	6 (5%)	0	100 100
26	Y	124/127 (98%)	115 (93%)	9 (7%)	0	100 100
27	Z	133/136 (98%)	124 (93%)	6 (4%)	3 (2%)	8 35
28	a	146/149 (98%)	131 (90%)	11 (8%)	4 (3%)	6 31
29	b	56/59 (95%)	51 (91%)	5 (9%)	0	100 100
30	c	95/105 (90%)	92 (97%)	3 (3%)	0	100 100
31	d	107/113 (95%)	101 (94%)	4 (4%)	2 (2%)	10 40
32	e	125/130 (96%)	117 (94%)	7 (6%)	1 (1%)	24 63
33	f	104/107 (97%)	98 (94%)	6 (6%)	0	100 100
34	g	110/121 (91%)	105 (96%)	5 (4%)	0	100 100
35	h	117/120 (98%)	110 (94%)	6 (5%)	1 (1%)	21 61
36	i	97/100 (97%)	82 (84%)	13 (13%)	2 (2%)	9 37

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
37	j	85/88 (97%)	77 (91%)	8 (9%)	0	100	100
38	k	75/78 (96%)	70 (93%)	5 (7%)	0	100	100
39	l	48/51 (94%)	43 (90%)	5 (10%)	0	100	100
40	o	93/106 (88%)	84 (90%)	9 (10%)	0	100	100
41	p	89/92 (97%)	82 (92%)	7 (8%)	0	100	100
42	w	246/248 (99%)	220 (89%)	19 (8%)	7 (3%)	6	30
43	y	225/227 (99%)	220 (98%)	4 (2%)	1 (0%)	39	75
44	z	54/56 (96%)	47 (87%)	5 (9%)	2 (4%)	4	24
All	All	6348/6731 (94%)	5900 (93%)	394 (6%)	54 (1%)	26	61

All (54) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
8	E	98	VAL
10	G	36	ILE
28	a	78	LEU
32	e	123	LYS
42	w	328	ILE
42	w	329	SER
42	w	387	LEU
7	D	259	LYS
10	G	37	GLY
11	H	50	ASN
12	J	11	ASP
14	M	8	LYS
20	S	13	ARG
27	Z	17	ARG
36	i	13	LYS
43	y	146	ILE
7	D	276	LYS
8	E	5	LYS
12	J	8	PRO
13	L	77	LEU
21	T	124	VAL
28	a	47	LYS
35	h	91	ALA
42	w	185	VAL
44	z	380	ALA
12	J	114	ILE

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Mol	Chain	Res	Type
13	L	62	THR
42	w	277	SER
5	B	386	ASP
7	D	20	PHE
12	J	165	GLN
15	N	74	PRO
15	N	75	VAL
27	Z	102	GLU
28	a	48	TYR
31	d	6	ASP
44	z	379	THR
12	J	12	LEU
13	L	47	ALA
19	R	131	ALA
20	S	154	HIS
42	w	350	ASP
10	G	157	VAL
8	E	6	ALA
20	S	167	ARG
27	Z	125	GLY
42	w	166	PRO
6	C	131	VAL
28	a	56	VAL
31	d	7	VAL
36	i	3	VAL
5	B	317	ILE
14	M	6	ILE
22	U	11	ILE

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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
4	A	189/189 (100%)	189 (100%)	0	100 100
5	B	318/323 (98%)	317 (100%)	1 (0%)	94 97
6	C	288/288 (100%)	287 (100%)	1 (0%)	94 97

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
7	D	244/245 (100%)	244 (100%)	0	100	100
8	E	134/153 (88%)	134 (100%)	0	100	100
9	F	186/205 (91%)	186 (100%)	0	100	100
10	G	187/208 (90%)	186 (100%)	1 (0%)	92	96
11	H	171/171 (100%)	171 (100%)	0	100	100
12	J	147/150 (98%)	147 (100%)	0	100	100
13	L	154/159 (97%)	153 (99%)	1 (1%)	90	96
14	M	107/109 (98%)	107 (100%)	0	100	100
15	N	175/176 (99%)	175 (100%)	0	100	100
16	O	160/162 (99%)	160 (100%)	0	100	100
17	P	145/146 (99%)	145 (100%)	0	100	100
18	Q	150/151 (99%)	150 (100%)	0	100	100
19	R	129/154 (84%)	129 (100%)	0	100	100
20	S	156/156 (100%)	156 (100%)	0	100	100
21	T	136/137 (99%)	136 (100%)	0	100	100
22	U	87/107 (81%)	87 (100%)	0	100	100
23	V	104/105 (99%)	104 (100%)	0	100	100
24	W	56/129 (43%)	56 (100%)	0	100	100
25	X	104/118 (88%)	104 (100%)	0	100	100
26	Y	109/110 (99%)	109 (100%)	0	100	100
27	Z	115/116 (99%)	115 (100%)	0	100	100
28	a	118/119 (99%)	118 (100%)	0	100	100
29	b	46/47 (98%)	46 (100%)	0	100	100
30	c	81/88 (92%)	81 (100%)	0	100	100
31	d	92/97 (95%)	92 (100%)	0	100	100
32	e	109/111 (98%)	109 (100%)	0	100	100
33	f	90/91 (99%)	90 (100%)	0	100	100
34	g	95/103 (92%)	95 (100%)	0	100	100
35	h	104/105 (99%)	104 (100%)	0	100	100
36	i	81/82 (99%)	81 (100%)	0	100	100
37	j	70/71 (99%)	70 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
38	k	68/69 (99%)	68 (100%)	0	100 100
39	l	45/46 (98%)	45 (100%)	0	100 100
40	o	82/91 (90%)	82 (100%)	0	100 100
41	p	71/72 (99%)	71 (100%)	0	100 100
42	w	205/221 (93%)	203 (99%)	2 (1%)	82 93
43	y	189/194 (97%)	189 (100%)	0	100 100
44	z	51/51 (100%)	51 (100%)	0	100 100
All	All	5348/5625 (95%)	5342 (100%)	6 (0%)	95 98

All (6) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
5	B	85	VAL
6	C	194	TYR
10	G	26	LEU
13	L	24	VAL
42	w	328	ILE
42	w	330	ARG

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (65) such sidechains are listed below:

Mol	Chain	Res	Type
4	A	79	ASN
4	A	97	ASN
4	A	209	HIS
5	B	3	HIS
5	B	231	HIS
5	B	269	GLN
5	B	273	HIS
6	C	5	GLN
6	C	59	GLN
6	C	114	ASN
6	C	116	ASN
7	D	151	GLN
8	E	167	ASN
10	G	138	HIS
10	G	232	HIS
11	H	125	ASN

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Mol	Chain	Res	Type
11	H	183	HIS
12	J	39	GLN
13	L	28	GLN
13	L	106	GLN
15	N	37	HIS
15	N	138	GLN
15	N	182	ASN
16	O	90	HIS
17	P	133	HIS
19	R	130	ASN
20	S	114	HIS
20	S	122	HIS
20	S	142	GLN
20	S	154	HIS
21	T	58	GLN
21	T	112	ASN
21	T	127	GLN
23	V	98	ASN
24	W	59	HIS
25	X	111	ASN
26	Y	4	GLN
27	Z	36	HIS
27	Z	57	HIS
27	Z	123	GLN
28	a	40	HIS
28	a	44	ASN
28	a	64	GLN
28	a	65	GLN
28	a	74	ASN
29	b	43	HIS
31	d	87	ASN
32	e	13	HIS
32	e	52	GLN
32	e	71	HIS
34	g	34	HIS
34	g	52	GLN
37	j	16	HIS
39	l	11	GLN
40	o	82	GLN
41	p	25	GLN
41	p	33	GLN
41	p	34	HIS

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Mol	Chain	Res	Type
42	w	272	GLN
42	w	332	ASN
43	y	86	ASN
43	y	106	ASN
43	y	145	ASN
43	y	162	HIS
44	z	402	GLN

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	1	3086/3396 (90%)	747 (24%)	47 (1%)
2	3	120/121 (99%)	20 (16%)	1 (0%)
3	4	157/158 (99%)	39 (24%)	2 (1%)
All	All	3363/3675 (91%)	806 (23%)	50 (1%)

All (806) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	1	5	G
1	1	6	A
1	1	14	U
1	1	22	G
1	1	24	G
1	1	40	A
1	1	43	A
1	1	45	A
1	1	49	A
1	1	59	G
1	1	60	A
1	1	65	A
1	1	66	A
1	1	73	C
1	1	88	A
1	1	90	C
1	1	91	G
1	1	92	G
1	1	105	C
1	1	110	G
1	1	111	C
1	1	113	C

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Mol	Chain	Res	Type
1	1	116	A
1	1	117	U
1	1	120	G
1	1	121	A
1	1	122	A
1	1	131	C
1	1	133	U
1	1	135	C
1	1	136	G
1	1	141	C
1	1	142	C
1	1	156	G
1	1	157	A
1	1	161	G
1	1	166	C
1	1	168	U
1	1	170	G
1	1	172	G
1	1	182	U
1	1	187	A
1	1	190	U
1	1	191	U
1	1	200	C
1	1	206	G
1	1	210	U
1	1	211	A
1	1	218	G
1	1	219	A
1	1	227	G
1	1	235	A
1	1	237	G
1	1	240	U
1	1	241	G
1	1	243	G
1	1	245	U
1	1	247	C
1	1	252	U
1	1	265	A
1	1	269	G
1	1	275	U
1	1	283	G
1	1	286	U

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Mol	Chain	Res	Type
1	1	295	A
1	1	298	U
1	1	305	U
1	1	315	C
1	1	316	U
1	1	323	A
1	1	326	U
1	1	329	U
1	1	339	C
1	1	343	U
1	1	350	C
1	1	351	A
1	1	352	A
1	1	361	A
1	1	383	G
1	1	389	A
1	1	398	A
1	1	399	A
1	1	401	U
1	1	402	A
1	1	403	C
1	1	421	G
1	1	422	A
1	1	433	A
1	1	436	A
1	1	437	G
1	1	439	C
1	1	440	A
1	1	507	U
1	1	516	A
1	1	517	G
1	1	518	G
1	1	520	U
1	1	521	A
1	1	535	G
1	1	536	U
1	1	544	C
1	1	546	C
1	1	547	G
1	1	548	G
1	1	552	G
1	1	555	U

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Mol	Chain	Res	Type
1	1	556	U
1	1	557	A
1	1	558	U
1	1	559	A
1	1	569	A
1	1	578	A
1	1	579	G
1	1	592	A
1	1	604	G
1	1	609	G
1	1	611	A
1	1	620	U
1	1	621	A
1	1	630	A
1	1	636	C
1	1	638	C
1	1	645	A
1	1	647	A
1	1	648	C
1	1	649	A
1	1	658	G
1	1	661	G
1	1	665	A
1	1	677	A
1	1	681	U
1	1	683	U
1	1	684	G
1	1	690	A
1	1	699	A
1	1	705	A
1	1	706	A
1	1	707	U
1	1	708	G
1	1	709	A
1	1	712	G
1	1	715	A
1	1	716	A
1	1	718	G
1	1	726	G
1	1	735	A
1	1	743	C
1	1	760	G

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Mol	Chain	Res	Type
1	1	762	U
1	1	763	G
1	1	764	U
1	1	765	C
1	1	766	U
1	1	767	U
1	1	768	C
1	1	771	A
1	1	774	G
1	1	775	A
1	1	776	U
1	1	777	U
1	1	780	A
1	1	781	G
1	1	785	G
1	1	786	A
1	1	800	G
1	1	801	A
1	1	806	A
1	1	817	A
1	1	825	U
1	1	830	A
1	1	849	C
1	1	851	C
1	1	854	G
1	1	861	C
1	1	865	U
1	1	869	G
1	1	870	G
1	1	874	U
1	1	878	G
1	1	879	U
1	1	880	G
1	1	895	A
1	1	904	A
1	1	907	G
1	1	908	G
1	1	914	A
1	1	915	A
1	1	916	G
1	1	917	A
1	1	923	C

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Mol	Chain	Res	Type
1	1	924	G
1	1	925	A
1	1	926	A
1	1	929	A
1	1	932	U
1	1	933	A
1	1	937	G
1	1	944	C
1	1	945	C
1	1	946	U
1	1	959	C
1	1	960	U
1	1	979	U
1	1	980	A
1	1	981	U
1	1	982	C
1	1	986	U
1	1	992	A
1	1	994	G
1	1	1064	A
1	1	1065	A
1	1	1069	C
1	1	1072	G
1	1	1079	A
1	1	1081	U
1	1	1082	U
1	1	1083	G
1	1	1093	A
1	1	1094	U
1	1	1095	U
1	1	1097	G
1	1	1098	A
1	1	1103	A
1	1	1104	G
1	1	1106	G
1	1	1117	G
1	1	1129	A
1	1	1130	A
1	1	1131	G
1	1	1144	U
1	1	1151	U
1	1	1152	G

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Mol	Chain	Res	Type
1	1	1153	A
1	1	1155	C
1	1	1156	C
1	1	1159	A
1	1	1177	G
1	1	1178	G
1	1	1180	A
1	1	1181	U
1	1	1182	A
1	1	1191	U
1	1	1192	C
1	1	1196	C
1	1	1200	A
1	1	1201	C
1	1	1202	A
1	1	1208	U
1	1	1209	G
1	1	1211	U
1	1	1216	C
1	1	1221	A
1	1	1222	G
1	1	1227	C
1	1	1232	C
1	1	1236	G
1	1	1237	G
1	1	1238	C
1	1	1241	U
1	1	1242	G
1	1	1243	G
1	1	1244	A
1	1	1245	A
1	1	1246	G
1	1	1248	C
1	1	1249	G
1	1	1252	A
1	1	1262	G
1	1	1263	A
1	1	1264	G
1	1	1266	G
1	1	1270	A
1	1	1271	A
1	1	1272	C

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Mol	Chain	Res	Type
1	1	1274	A
1	1	1275	C
1	1	1278	A
1	1	1279	C
1	1	1281	G
1	1	1285	G
1	1	1286	A
1	1	1287	A
1	1	1292	C
1	1	1294	A
1	1	1295	G
1	1	1307	G
1	1	1308	A
1	1	1309	U
1	1	1313	G
1	1	1330	A
1	1	1333	C
1	1	1349	G
1	1	1350	A
1	1	1351	U
1	1	1352	A
1	1	1353	U
1	1	1355	A
1	1	1356	U
1	1	1357	G
1	1	1359	C
1	1	1383	G
1	1	1386	A
1	1	1399	A
1	1	1400	G
1	1	1417	G
1	1	1418	A
1	1	1419	A
1	1	1421	G
1	1	1433	A
1	1	1434	G
1	1	1437	C
1	1	1438	U
1	1	1446	A
1	1	1453	A
1	1	1455	U
1	1	1466	G

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Mol	Chain	Res	Type
1	1	1475	A
1	1	1481	A
1	1	1482	A
1	1	1483	G
1	1	1485	G
1	1	1494	U
1	1	1500	G
1	1	1503	A
1	1	1508	C
1	1	1511	U
1	1	1527	C
1	1	1531	C
1	1	1533	U
1	1	1535	A
1	1	1547	G
1	1	1555	U
1	1	1556	C
1	1	1557	A
1	1	1562	C
1	1	1563	C
1	1	1565	G
1	1	1566	A
1	1	1567	U
1	1	1568	U
1	1	1569	U
1	1	1570	U
1	1	1572	U
1	1	1575	A
1	1	1576	G
1	1	1578	C
1	1	1582	C
1	1	1583	A
1	1	1587	A
1	1	1588	A
1	1	1589	A
1	1	1590	G
1	1	1593	A
1	1	1596	C
1	1	1607	U
1	1	1608	C
1	1	1611	G
1	1	1620	U

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Mol	Chain	Res	Type
1	1	1621	A
1	1	1629	U
1	1	1630	U
1	1	1639	C
1	1	1641	U
1	1	1642	A
1	1	1643	A
1	1	1657	C
1	1	1662	G
1	1	1666	G
1	1	1677	G
1	1	1678	G
1	1	1683	A
1	1	1695	U
1	1	1702	U
1	1	1705	U
1	1	1724	U
1	1	1725	C
1	1	1732	U
1	1	1741	A
1	1	1742	U
1	1	1749	A
1	1	1750	A
1	1	1751	G
1	1	1759	C
1	1	1762	C
1	1	1765	U
1	1	1766	G
1	1	1769	G
1	1	1770	G
1	1	1775	G
1	1	1780	G
1	1	1795	U
1	1	1797	A
1	1	1810	A
1	1	1813	A
1	1	1814	A
1	1	1816	A
1	1	1817	G
1	1	1818	U
1	1	1820	U
1	1	1821	U

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Mol	Chain	Res	Type
1	1	1835	A
1	1	1839	A
1	1	1841	A
1	1	1846	C
1	1	1849	C
1	1	1850	A
1	1	1858	A
1	1	1866	C
1	1	1871	U
1	1	1874	A
1	1	1881	A
1	1	1899	G
1	1	1900	A
1	1	1901	A
1	1	1906	G
1	1	1909	A
1	1	1920	U
1	1	1926	C
1	1	1928	G
1	1	1930	A
1	1	1934	G
1	1	1935	G
1	1	1947	G
1	1	1952	G
1	1	1953	G
1	1	1954	G
1	1	2094	C
1	1	2101	C
1	1	2102	U
1	1	2110	G
1	1	2112	U
1	1	2113	A
1	1	2114	C
1	1	2121	G
1	1	2122	G
1	1	2131	A
1	1	2140	U
1	1	2141	U
1	1	2142	A
1	1	2144	A
1	1	2145	A
1	1	2169	G

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Mol	Chain	Res	Type
1	1	2170	U
1	1	2172	A
1	1	2175	U
1	1	2176	U
1	1	2177	G
1	1	2178	A
1	1	2186	U
1	1	2188	A
1	1	2192	C
1	1	2193	U
1	1	2195	C
1	1	2205	U
1	1	2208	A
1	1	2209	U
1	1	2210	G
1	1	2216	G
1	1	2223	A
1	1	2225	U
1	1	2228	A
1	1	2244	A
1	1	2249	G
1	1	2255	A
1	1	2256	A
1	1	2257	C
1	1	2259	A
1	1	2262	A
1	1	2265	C
1	1	2266	U
1	1	2267	C
1	1	2268	U
1	1	2269	U
1	1	2270	A
1	1	2272	G
1	1	2273	G
1	1	2281	A
1	1	2282	U
1	1	2284	C
1	1	2288	G
1	1	2294	U
1	1	2307	G
1	1	2308	C
1	1	2310	U

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Mol	Chain	Res	Type
1	1	2313	A
1	1	2314	U
1	1	2315	G
1	1	2334	U
1	1	2336	U
1	1	2339	C
1	1	2341	A
1	1	2361	A
1	1	2372	A
1	1	2373	A
1	1	2374	C
1	1	2375	G
1	1	2376	G
1	1	2378	C
1	1	2381	G
1	1	2385	G
1	1	2388	U
1	1	2389	C
1	1	2393	G
1	1	2397	A
1	1	2401	A
1	1	2402	A
1	1	2403	G
1	1	2405	C
1	1	2411	U
1	1	2418	G
1	1	2436	U
1	1	2437	G
1	1	2438	A
1	1	2439	A
1	1	2441	A
1	1	2443	A
1	1	2509	U
1	1	2511	A
1	1	2514	U
1	1	2522	G
1	1	2523	A
1	1	2524	A
1	1	2525	G
1	1	2526	C
1	1	2530	G
1	1	2532	U

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Mol	Chain	Res	Type
1	1	2533	G
1	1	2535	A
1	1	2537	U
1	1	2538	U
1	1	2539	C
1	1	2540	A
1	1	2541	U
1	1	2542	U
1	1	2543	U
1	1	2547	A
1	1	2549	G
1	1	2550	U
1	1	2552	C
1	1	2553	U
1	1	2555	G
1	1	2560	C
1	1	2561	A
1	1	2568	C
1	1	2569	A
1	1	2570	U
1	1	2571	U
1	1	2572	C
1	1	2573	G
1	1	2576	G
1	1	2578	U
1	1	2583	C
1	1	2585	G
1	1	2593	A
1	1	2594	C
1	1	2602	G
1	1	2606	G
1	1	2607	G
1	1	2614	G
1	1	2626	A
1	1	2628	A
1	1	2635	A
1	1	2638	C
1	1	2651	G
1	1	2652	U
1	1	2656	A
1	1	2657	A
1	1	2658	G

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Mol	Chain	Res	Type
1	1	2674	A
1	1	2676	A
1	1	2677	G
1	1	2679	A
1	1	2689	A
1	1	2691	A
1	1	2694	A
1	1	2696	A
1	1	2705	A
1	1	2709	C
1	1	2714	G
1	1	2719	U
1	1	2720	G
1	1	2726	C
1	1	2728	G
1	1	2729	U
1	1	2737	C
1	1	2749	G
1	1	2752	U
1	1	2753	G
1	1	2755	C
1	1	2772	C
1	1	2777	G
1	1	2778	G
1	1	2796	G
1	1	2797	C
1	1	2799	A
1	1	2800	G
1	1	2801	A
1	1	2802	A
1	1	2803	A
1	1	2810	C
1	1	2817	A
1	1	2821	C
1	1	2823	G
1	1	2828	G
1	1	2833	A
1	1	2840	C
1	1	2842	U
1	1	2845	A
1	1	2846	U
1	1	2849	C

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Mol	Chain	Res	Type
1	1	2851	A
1	1	2853	A
1	1	2860	U
1	1	2863	G
1	1	2871	G
1	1	2872	A
1	1	2873	U
1	1	2875	U
1	1	2887	A
1	1	2888	U
1	1	2889	C
1	1	2896	A
1	1	2898	G
1	1	2899	C
1	1	2911	A
1	1	2914	G
1	1	2923	U
1	1	2927	C
1	1	2928	C
1	1	2933	A
1	1	2935	U
1	1	2936	A
1	1	2938	G
1	1	2941	A
1	1	2942	C
1	1	2945	G
1	1	2947	G
1	1	2971	A
1	1	2972	G
1	1	2980	U
1	1	2983	C
1	1	2990	G
1	1	2996	U
1	1	2997	G
1	1	3007	U
1	1	3012	A
1	1	3030	G
1	1	3032	A
1	1	3056	U
1	1	3059	G
1	1	3070	A
1	1	3078	U

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Mol	Chain	Res	Type
1	1	3079	U
1	1	3080	G
1	1	3086	A
1	1	3092	C
1	1	3101	G
1	1	3103	A
1	1	3104	U
1	1	3109	G
1	1	3113	A
1	1	3117	C
1	1	3121	U
1	1	3127	A
1	1	3128	G
1	1	3129	A
1	1	3130	A
1	1	3131	U
1	1	3137	C
1	1	3138	U
1	1	3142	A
1	1	3143	C
1	1	3151	U
1	1	3154	C
1	1	3155	U
1	1	3156	U
1	1	3157	U
1	1	3158	G
1	1	3164	C
1	1	3165	A
1	1	3168	A
1	1	3173	G
1	1	3174	A
1	1	3175	U
1	1	3176	G
1	1	3179	U
1	1	3181	C
1	1	3186	A
1	1	3187	A
1	1	3196	U
1	1	3199	G
1	1	3207	U
1	1	3208	G
1	1	3209	A

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Mol	Chain	Res	Type
1	1	3217	C
1	1	3218	A
1	1	3219	G
1	1	3229	G
1	1	3242	G
1	1	3243	A
1	1	3244	A
1	1	3245	A
1	1	3247	G
1	1	3252	G
1	1	3253	G
1	1	3259	U
1	1	3260	G
1	1	3267	A
1	1	3268	A
1	1	3269	U
1	1	3270	U
1	1	3272	C
1	1	3273	A
1	1	3276	G
1	1	3277	U
1	1	3278	C
1	1	3279	A
1	1	3281	U
1	1	3286	G
1	1	3289	G
1	1	3293	U
1	1	3294	A
1	1	3295	A
1	1	3299	A
1	1	3304	U
1	1	3313	U
1	1	3316	A
1	1	3317	U
1	1	3318	G
1	1	3319	U
1	1	3320	A
1	1	3323	A
1	1	3325	G
1	1	3341	U
1	1	3347	A
1	1	3351	U

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Mol	Chain	Res	Type
1	1	3352	U
1	1	3353	G
1	1	3354	U
1	1	3355	U
1	1	3356	G
1	1	3369	G
1	1	3375	A
1	1	3378	C
1	1	3386	G
1	1	3390	G
1	1	3396	U
2	3	9	C
2	3	13	A
2	3	22	A
2	3	40	C
2	3	41	G
2	3	42	A
2	3	53	U
2	3	54	U
2	3	55	A
2	3	65	G
2	3	66	A
2	3	74	C
2	3	76	A
2	3	92	A
2	3	99	G
2	3	102	A
2	3	103	A
2	3	112	G
2	3	118	A
2	3	121	U
3	4	13	A
3	4	23	U
3	4	34	U
3	4	35	C
3	4	37	A
3	4	38	U
3	4	48	A
3	4	49	G
3	4	51	G
3	4	59	A
3	4	60	U

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Mol	Chain	Res	Type
3	4	62	C
3	4	63	G
3	4	80	A
3	4	81	U
3	4	82	U
3	4	83	C
3	4	84	C
3	4	85	G
3	4	86	U
3	4	87	G
3	4	90	U
3	4	95	G
3	4	96	A
3	4	104	A
3	4	106	C
3	4	107	G
3	4	111	A
3	4	112	U
3	4	113	U
3	4	125	U
3	4	126	A
3	4	132	G
3	4	138	A
3	4	148	G
3	4	151	C
3	4	152	G
3	4	155	A
3	4	157	U

All (50) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	1	13	A
1	1	239	G
1	1	282	G
1	1	547	G
1	1	619	A
1	1	637	C
1	1	715	A
1	1	873	C
1	1	916	G
1	1	979	U

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Mol	Chain	Res	Type
1	1	981	U
1	1	1064	A
1	1	1097	G
1	1	1103	A
1	1	1143	A
1	1	1307	G
1	1	1352	A
1	1	1355	A
1	1	1482	A
1	1	1484	U
1	1	1562	C
1	1	1568	U
1	1	1607	U
1	1	1815	U
1	1	1816	A
1	1	2101	C
1	1	2112	U
1	1	2209	U
1	1	2227	C
1	1	2372	A
1	1	2525	G
1	1	2536	A
1	1	2537	U
1	1	2541	U
1	1	2593	A
1	1	2771	U
1	1	3078	U
1	1	3156	U
1	1	3218	A
1	1	3228	C
1	1	3269	U
1	1	3316	A
1	1	3317	U
1	1	3319	U
1	1	3350	C
1	1	3351	U
1	1	3353	G
2	3	52	G
3	4	82	U
3	4	85	G

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

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

5.5 Carbohydrates (i)

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)

There are no chain breaks in this entry.