



# Full wwPDB/EMDatabank EM Map/Model Validation Report ⓘ

Mar 2, 2017 – 12:19 pm GMT

PDB ID : 3JAI  
EMDB ID: : EMD-3040  
Title : Structure of a mammalian ribosomal termination complex with ABCE1, eRF1(AAQ), and the UGA stop codon  
Authors : Brown, A.; Shao, S.; Murray, J.; Hegde, R.S.; Ramakrishnan, V.  
Deposited on : 2015-06-10  
Resolution : 3.65 Å(reported)  
Based on PDB ID : 1DT9, 4V51, 3J7P, 3J92, 3BK7

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](mailto:validation@mail.wwpdb.org)  
A user guide is available at  
<http://wwpdb.org/validation/2016/EMValidationReportHelp>  
with specific help available everywhere you see the ⓘ symbol.

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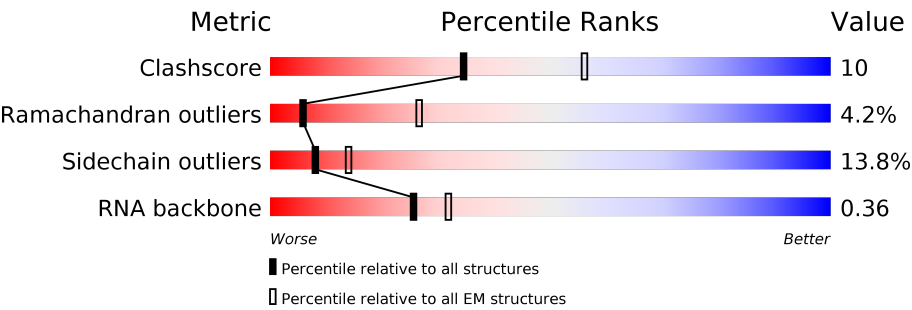
MolProbity : 4.02b-467  
Mogul : 1.7.2 (RC1), CSD as538be (2017)  
Percentile statistics : 20161228.v01 (using entries in the PDB archive December 28th 2016)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)  
Validation Pipeline (wwPDB-VP) : recalc29047

# 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 3.65 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.

















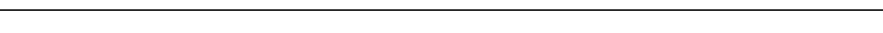




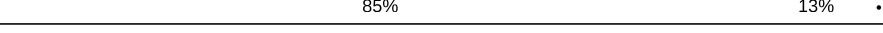





Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	125131	1336
Ramachandran outliers	121729	1120
Sidechain outliers	121581	1026
RNA backbone	3398	335

The table below summarises the geometric issues observed across the polymeric chains. The red, orange, yellow and green segments on the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$

Mol	Chain	Length	Quality of chain
1	A	244	66% 29% 5% .
2	B	394	68% 26% 5% .
3	C	361	67% 27% 5%
4	D	292	78% 21% .
5	E	248	57% 28% 9% 5%
6	F	225	66% 29% 5%
7	G	241	69% 28% .
8	H	190	72% 26% ..


























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Mol	Chain	Length	Quality of chain
9	I	213	
10	J	169	
11	L	210	
12	M	138	
13	N	203	
14	O	199	
15	P	153	
16	Q	187	
17	R	180	
18	S	175	
19	T	159	
20	U	99	
21	V	131	
22	W	63	
23	X	119	
24	Y	134	
25	Z	135	
26	a	147	
27	b	75	
28	c	94	
29	d	107	
30	e	128	
31	f	109	
32	g	114	
33	h	122	


























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Mol	Chain	Length	Quality of chain
34	i	102	 84% 14% •
35	j	86	 78% 20% •
36	k	69	 87% 13%
37	l	50	 82% 18%
38	m	52	 77% 21% •
39	n	23	 87% 13%
40	o	104	 84% 15% •
41	p	91	 82% 18%
42	r	125	 82% 16% ••
43	s	198	 89% 10% •
44	t	163	 79% 20% •
45	1	15	 73% 27%
46	2	76	 46% 45% 8% •
47	3	75	 39% 43% 15% •
48	5	3662	 40% 44% 15% •
49	7	120	 62% 31% 8%
50	8	156	 47% 37% 15%
51	9	1719	 39% 45% 15% •
52	AA	208	 63% 30% 6%
53	BB	213	 69% 27% 5%
54	CC	218	 62% 34% ••
55	DD	227	 70% 25% 6%
56	EE	262	 63% 29% 7%
57	FF	191	 68% 28% 5%
58	GG	237	 68% 27% 5%

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Mol	Chain	Length	Quality of chain
59	HH	189	
60	II	206	
61	JJ	185	
62	KK	98	
63	LL	152	
64	MM	124	
65	NN	150	
66	OO	136	
67	PP	127	
68	QQ	141	
69	RR	129	
70	SS	137	
71	TT	141	
72	UU	104	
73	VV	83	
74	WW	129	
75	XX	141	
76	YY	126	
77	ZZ	75	
78	aa	98	
79	bb	83	
80	cc	61	
81	dd	53	
82	ee	57	
83	ff	68	

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Mol	Chain	Length	Quality of chain
84	gg	313	<div><div></div><div>90%</div><div>10%</div></div>
85	hh	12	<div><div></div><div>50%</div><div>50%</div></div>
86	ii	416	<div><div></div><div>88%</div><div>12%</div></div>
87	jj	594	<div><div></div><div>89%</div><div>7%</div><div></div><div></div></div>

## 2 Entry composition [i](#)

There are 91 unique types of molecules in this entry. The entry contains 226453 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 protein called uL2.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	244	Total	C	N	O	S	0	0
			1868	1171	382	309	6		

- Molecule 2 is a protein called uL3.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	394	Total	C	N	O	S	0	0
			3148	2007	591	537	13		

- Molecule 3 is a protein called uL4.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	361	Total	C	N	O	S	0	0
			2875	1808	576	477	14		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	361	LYS	-	EXPRESSION TAG	UNP G1SVW5
C	362	SER	-	EXPRESSION TAG	UNP G1SVW5

- Molecule 4 is a protein called uL18.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	D	292	Total	C	N	O	S	0	0
			2386	1509	437	426	14		

- Molecule 5 is a protein called eL6.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	E	236	Total	C	N	O	S	0	0
			1898	1215	362	318	3		

- Molecule 6 is a protein called uL30.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	F	225	Total	C	N	O	S	0	0
			1870	1202	358	301	9		

- Molecule 7 is a protein called eL8.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	G	241	Total	C	N	O	S	0	0
			1934	1233	371	326	4		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	191	GLY	CYS	CONFLICT	UNP G1STW0

- Molecule 8 is a protein called uL6.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	H	190	Total	C	N	O	S	0	0
			1516	954	284	272	6		

- Molecule 9 is a protein called uL16.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	I	204	Total	C	N	O	S	0	0
			1655	1051	319	272	13		

- Molecule 10 is a protein called uL5.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	J	169	Total	C	N	O	S	0	0
			1353	855	252	240	6		

- Molecule 11 is a protein called eL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	L	210	Total	C	N	O	S	0	0
			1703	1065	354	280	4		

- Molecule 12 is a protein called eL14.



Mol	Chain	Residues	Atoms					AltConf	Trace
12	M	138	Total	C	N	O	S	0	0
			1137	727	221	182	7		

- Molecule 13 is a protein called eL15.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	N	203	Total	C	N	O	S	0	0
			1701	1072	359	266	4		

- Molecule 14 is a protein called uL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	O	199	Total	C	N	O	S	0	0
			1638	1056	321	256	5		

- Molecule 15 is a protein called uL22.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	P	153	Total	C	N	O	S	0	0
			1242	776	241	216	9		

- Molecule 16 is a protein called eL18.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	Q	187	Total	C	N	O	S	0	0
			1506	941	311	249	5		

- Molecule 17 is a protein called eL19.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	R	180	Total	C	N	O	S	0	0
			1508	933	328	238	9		

- Molecule 18 is a protein called eL20.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	S	175	Total	C	N	O	S	0	0
			1454	925	284	235	10		

- Molecule 19 is a protein called eL21.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	T	159	Total	C	N	O	S	0	0
			1298	823	252	217	6		

- Molecule 20 is a protein called eL22.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	U	99	Total	C	N	O	S	0	0
			808	518	141	147	2		

- Molecule 21 is a protein called uL14.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	V	131	Total	C	N	O	S	0	0
			979	618	184	172	5		

- Molecule 22 is a protein called eL24.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	W	63	Total	C	N	O	S	0	0
			528	337	103	85	3		

- Molecule 23 is a protein called uL23.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	X	119	Total	C	N	O	S	0	0
			976	624	183	168	1		

- Molecule 24 is a protein called uL24.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	Y	134	Total	C	N	O	S	0	0
			1115	700	226	186	3		

- Molecule 25 is a protein called eL27.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	Z	135	Total	C	N	O	S	0	0
			1107	714	208	182	3		

- Molecule 26 is a protein called uL15.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	a	147	Total	C	N	O	S	0	0
			1162	734	239	185	4		

- Molecule 27 is a protein called eL29.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	b	75	Total	C	N	O	S	0	0
			609	378	130	98	3		

- Molecule 28 is a protein called eL30.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	c	94	Total	C	N	O	S	0	0
			732	465	130	131	6		

- Molecule 29 is a protein called eL31.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	d	107	Total	C	N	O	S	0	0
			888	560	171	155	2		

- Molecule 30 is a protein called eL32.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	e	128	Total	C	N	O	S	0	0
			1053	667	216	165	5		

- Molecule 31 is a protein called eL33.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	f	109	Total	C	N	O	S	0	0
			876	555	174	143	4		

- Molecule 32 is a protein called eL34.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	g	114	Total	C	N	O	S	0	0
			906	566	187	147	6		

- Molecule 33 is a protein called uL29.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	h	122	Total	C	N	O	S	0	0
			1013	640	204	168	1		

- Molecule 34 is a protein called eL36.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	i	102	Total	C	N	O	S	0	0
			830	520	176	129	5		

- Molecule 35 is a protein called eL37.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	j	86	Total	C	N	O	S	0	0
			705	434	155	111	5		

- Molecule 36 is a protein called eL38.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	k	69	Total	C	N	O	S	0	0
			569	366	103	99	1		

- Molecule 37 is a protein called eL39.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	l	50	Total	C	N	O	S	0	0
			444	281	98	64	1		

- Molecule 38 is a protein called eL40.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	m	52	Total	C	N	O	S	0	0
			429	266	90	67	6		

- Molecule 39 is a protein called eL41.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	n	23	Total	C	N	O	S	0	0
			222	134	61	25	2		

- Molecule 40 is a protein called eL42.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	o	104	Total	C	N	O	S	0	0
			851	533	174	138	6		

- Molecule 41 is a protein called eL43.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	p	91	Total	C	N	O	S	0	0
			708	445	136	120	7		

- Molecule 42 is a protein called eL28.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	r	125	Total	C	N	O	S	0	0
			1001	621	206	168	6		

- Molecule 43 is a protein called uL10.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	s	198	Total	C	N	O	S	0	0
			1523	969	265	280	9		

- Molecule 44 is a protein called uL11.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	t	163	Total	C	N	O	S	0	0
			1238	773	230	230	5		

- Molecule 45 is a protein called peptide.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	1	15	Total	C	N	O	S	0	0
			125	82	20	22	1		

- Molecule 46 is a RNA chain called tRNA(Val).

Mol	Chain	Residues	Atoms					AltConf	Trace
46	2	76	Total	C	N	O	P	0	0
			1616	723	291	527	75		

- Molecule 47 is a RNA chain called tRNA(Lys).

Mol	Chain	Residues	Atoms					AltConf	Trace
47	3	75	Total	C	N	O	P	0	0
			1593	712	281	526	74		

- Molecule 48 is a RNA chain called 28S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	5	3662	Total	C	N	O	P	0	0
			78486	34947	14363	25515	3661		

- Molecule 49 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	7	120	Total	C	N	O	P	0	0
			2558	1141	456	842	119		

- Molecule 50 is a RNA chain called 5.8S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	8	156	Total	C	N	O	P	0	0
			3314	1480	585	1094	155		

- Molecule 51 is a RNA chain called 18S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	9	1719	Total	C	N	O	P	0	0
			36680	16371	6586	12005	1718		

- Molecule 52 is a protein called uS2.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	AA	208	Total	C	N	O	S	0	0
			1642	1045	289	300	8		

- Molecule 53 is a protein called eS1.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	BB	213	Total	C	N	O	S	0	0
			1729	1098	309	308	14		

- Molecule 54 is a protein called uS5.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	CC	218	Total	C	N	O	S	0	0
			1692	1102	287	296	7		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
CC	194	ARG	HIS	CONFLICT	UNP G1TUT9
CC	228	GLY	SER	CONFLICT	UNP G1TUT9

- Molecule 55 is a protein called uS3.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	DD	227	Total	C	N	O	S	0	0
			1764	1124	317	315	8		

- Molecule 56 is a protein called eS4.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	EE	262	Total	C	N	O	S	0	0
			2073	1323	384	357	9		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
EE	25	GLY	SER	CONFLICT	UNP G1TK17

- Molecule 57 is a protein called uS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	FF	191	Total	C	N	O	S	0	0
			1509	943	286	273	7		

- Molecule 58 is a protein called eS6.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	GG	237	Total	C	N	O	S	0	0
			1923	1200	387	329	7		

- Molecule 59 is a protein called eS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	HH	189	Total	C	N	O	S	0	0
			1521	969	280	271	1		

- Molecule 60 is a protein called eS8.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	II	206	Total	C	N	O	S	0	0
			1686	1058	332	291	5		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
II	47	ARG	GLY	CONFLICT	UNP G1TJW1

- Molecule 61 is a protein called uS4.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	JJ	185	Total	C	N	O	S	0	0
			1525	969	306	248	2		

- Molecule 62 is a protein called eS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	KK	98	Total	C	N	O	S	0	0
			827	539	148	134	6		

- Molecule 63 is a protein called uS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	LL	152	Total	C	N	O	S	0	0
			1238	788	232	212	6		

- Molecule 64 is a protein called eS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	MM	124	Total	C	N	O	S	0	0
			958	600	170	179	9		

- Molecule 65 is a protein called uS15.



Mol	Chain	Residues	Atoms					AltConf	Trace
65	NN	150	Total	C	N	O	S	0	0
			1208	773	229	205	1		

- Molecule 66 is a protein called uS11.

Mol	Chain	Residues	Atoms					AltConf	Trace
66	OO	136	Total	C	N	O	S	0	0
			1016	621	199	190	6		

- Molecule 67 is a protein called uS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
67	PP	127	Total	C	N	O	S	0	0
			1060	673	201	179	7		

- Molecule 68 is a protein called uS9.

Mol	Chain	Residues	Atoms					AltConf	Trace
68	QQ	141	Total	C	N	O	S	0	0
			1124	715	212	194	3		

- Molecule 69 is a protein called eS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
69	RR	129	Total	C	N	O	S	0	0
			1047	658	193	191	5		

- Molecule 70 is a protein called uS13.

Mol	Chain	Residues	Atoms					AltConf	Trace
70	SS	137	Total	C	N	O	S	0	0
			1139	714	231	193	1		

- Molecule 71 is a protein called eS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
71	TT	141	Total	C	N	O	S	0	0
			1102	692	212	195	3		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
TT	119	GLY	TRP	CONFLICT	UNP G1TN62

- Molecule 72 is a protein called uS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
72	UU	104	Total	C	N	O	S	0	0
			821	514	155	148	4		

- Molecule 73 is a protein called eS21.

Mol	Chain	Residues	Atoms					AltConf	Trace
73	VV	83	Total	C	N	O	S	0	0
			636	394	118	119	5		

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
VV	3	ASN	SER	CONFLICT	UNP G1TM82
VV	4	ASP	ASN	CONFLICT	UNP G1TM82
VV	50	PHE	SER	CONFLICT	UNP G1TM82
VV	75	ALA	SER	CONFLICT	UNP G1TM82

- Molecule 74 is a protein called uS8.

Mol	Chain	Residues	Atoms					AltConf	Trace
74	WW	129	Total	C	N	O	S	0	0
			1034	659	193	176	6		

- Molecule 75 is a protein called uS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
75	XX	141	Total	C	N	O	S	0	0
			1098	693	219	183	3		

- Molecule 76 is a protein called eS24.

Mol	Chain	Residues	Atoms					AltConf	Trace
76	YY	126	Total	C	N	O	S	0	0
			1023	646	200	172	5		

- Molecule 77 is a protein called eS25.

Mol	Chain	Residues	Atoms					AltConf	Trace
77	ZZ	75	Total	C	N	O	S	0	0
			598	382	111	104	1		

- Molecule 78 is a protein called eS26.

Mol	Chain	Residues	Atoms					AltConf	Trace
78	aa	98	Total	C	N	O	S	0	0
			781	486	161	129	5		

- Molecule 79 is a protein called eS27.

Mol	Chain	Residues	Atoms					AltConf	Trace
79	bb	83	Total	C	N	O	S	0	0
			651	408	121	115	7		

- Molecule 80 is a protein called eS28.

Mol	Chain	Residues	Atoms					AltConf	Trace
80	cc	61	Total	C	N	O	S	0	0
			475	290	92	91	2		

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
cc	18	ILE	LEU	CONFLICT	UNP G1TIB4
cc	20	LYS	ARG	CONFLICT	UNP G1TIB4
cc	40	HIS	ARG	CONFLICT	UNP G1TIB4
cc	42	THR	ILE	CONFLICT	UNP G1TIB4

- Molecule 81 is a protein called uS14.

Mol	Chain	Residues	Atoms					AltConf	Trace
81	dd	53	Total	C	N	O	S	0	0
			445	278	90	72	5		

- Molecule 82 is a protein called eS30.

Mol	Chain	Residues	Atoms					AltConf	Trace
82	ee	57	Total	C	N	O	S	0	0
			457	282	101	73	1		

- Molecule 83 is a protein called eS31.

Mol	Chain	Residues	Atoms					AltConf	Trace
83	ff	62	Total	C	N	O	S	0	0
			520	331	98	85	6		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
ff	?	-	VAL	DELETION	UNP G1SK22

- Molecule 84 is a protein called RACK1.

Mol	Chain	Residues	Atoms					AltConf	Trace
84	gg	313	Total	C	N	O	S	0	0
			2436	1535	424	465	12		

- Molecule 85 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
85	hh	12	Total	C	N	O	P	0	0
			257	115	46	84	12		

- Molecule 86 is a protein called eRF1.

Mol	Chain	Residues	Atoms					AltConf	Trace
86	ii	416	Total	C	N	O	S	0	0
			3280	2087	559	623	11		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
ii	183	ALA	GLY	ENGINEERED MUTATION	UNP P62495
ii	184	ALA	GLY	ENGINEERED MUTATION	UNP P62495

- Molecule 87 is a protein called ABCE1.

Mol	Chain	Residues	Atoms					AltConf	Trace
87	jj	577	Total	C	N	O	S	0	0
			4551	2910	780	830	31		

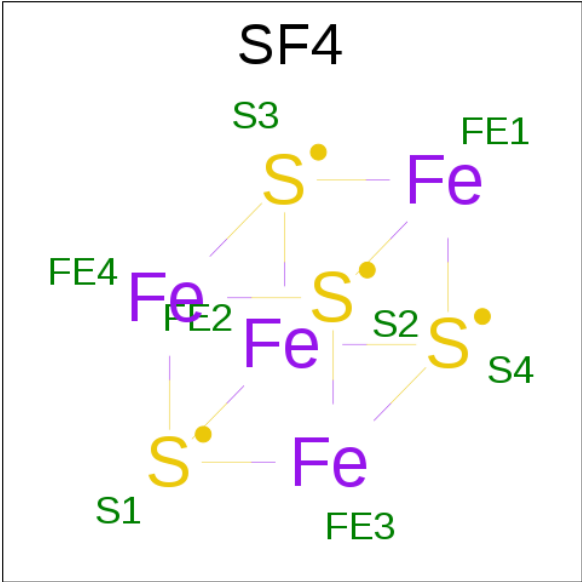
- Molecule 88 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
88	P	1	Total 1	Mg 1	0
88	g	1	Total 1	Mg 1	0
88	I	1	Total 1	Mg 1	0
88	C	1	Total 1	Mg 1	0
88	V	1	Total 1	Mg 1	0
88	7	5	Total 5	Mg 5	0
88	5	147	Total 147	Mg 147	0
88	8	2	Total 2	Mg 2	0
88	9	35	Total 35	Mg 35	0
88	hh	1	Total 1	Mg 1	0

- Molecule 89 is ZINC ION (three-letter code: ZN) (formula: Zn).

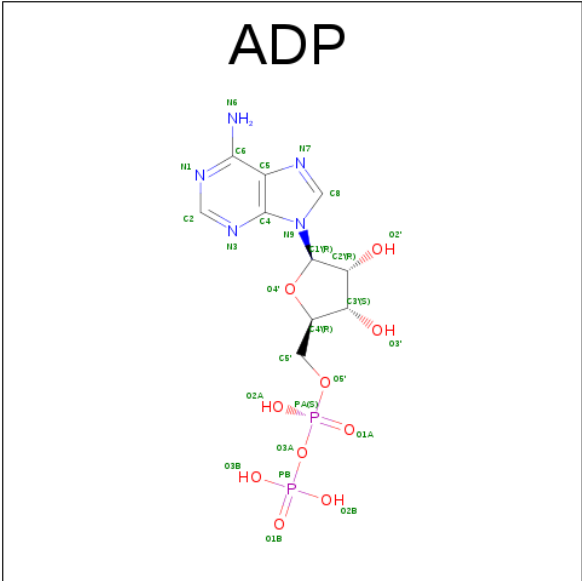
Mol	Chain	Residues	Atoms		AltConf
89	p	1	Total 1	Zn 1	0
89	g	1	Total 1	Zn 1	0
89	j	1	Total 1	Zn 1	0
89	dd	1	Total 1	Zn 1	0
89	ff	1	Total 1	Zn 1	0
89	aa	1	Total 1	Zn 1	0
89	o	1	Total 1	Zn 1	0
89	m	1	Total 1	Zn 1	0

- Molecule 90 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe<sub>4</sub>S<sub>4</sub>).



Mol	Chain	Residues	Atoms			AltConf
90	jj	1	Total	Fe	S	0
			16	8	8	
90	jj	1	Total	Fe	S	0
			16	8	8	

- Molecule 91 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula:  $C_{10}H_{15}N_5O_{10}P_2$ ).



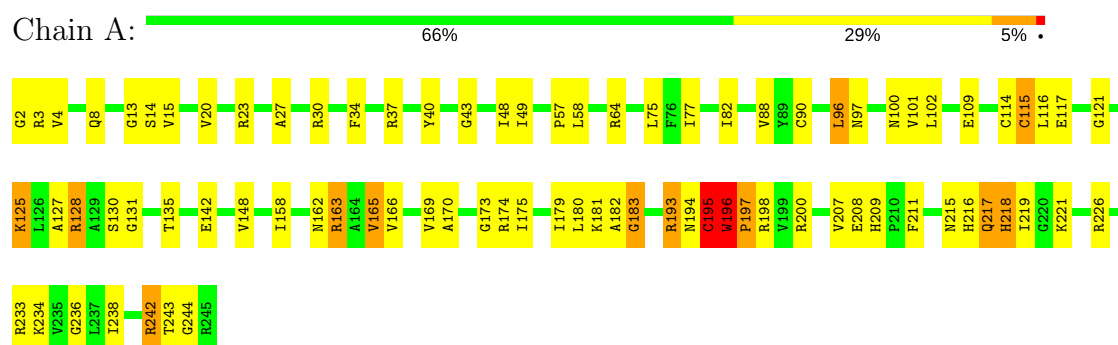
*Continued from previous page...*

Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
91	jj	1	54	20	10	20	4	0

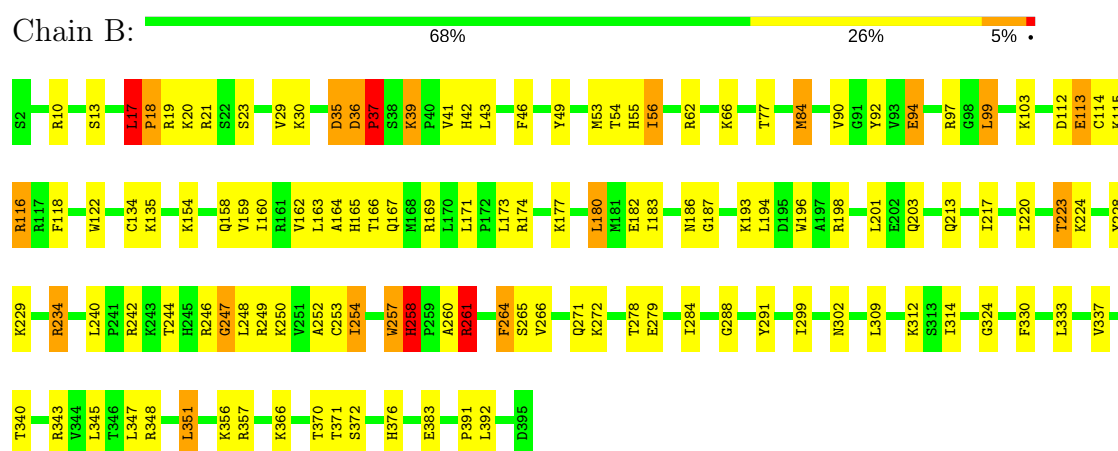
### 3 Residue-property plots

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

#### • Molecule 1: uL2



#### • Molecule 2: uL3



#### • Molecule 3: uL4

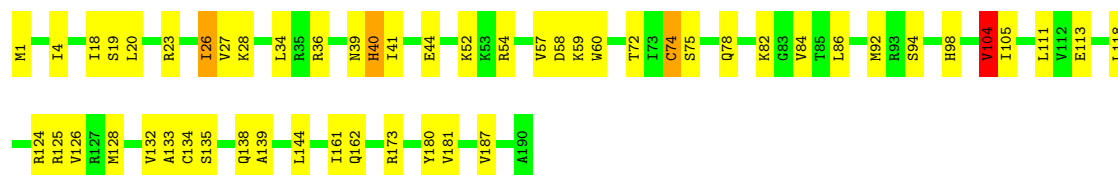






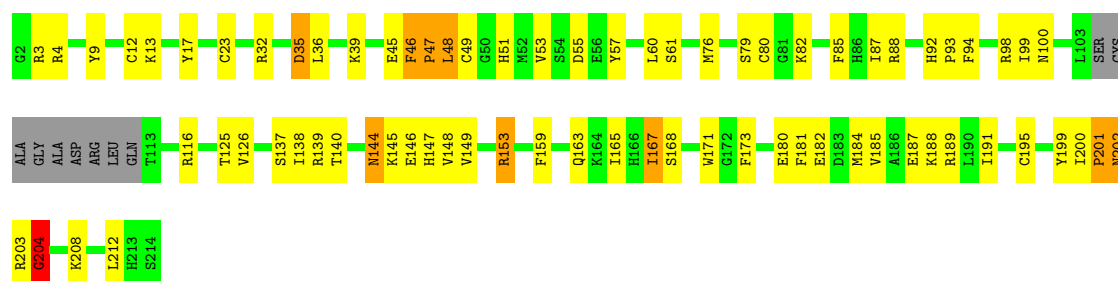
- Molecule 8: uL6

Chain H: 



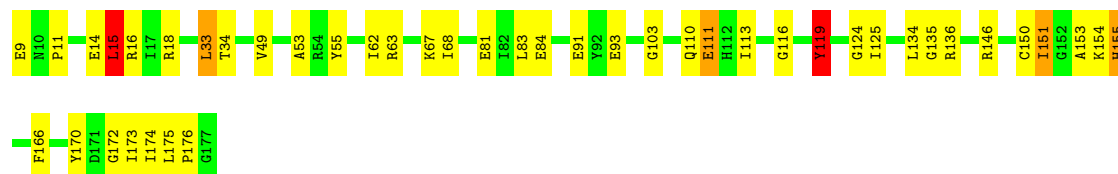
- Molecule 9: uL16

Chain I: 



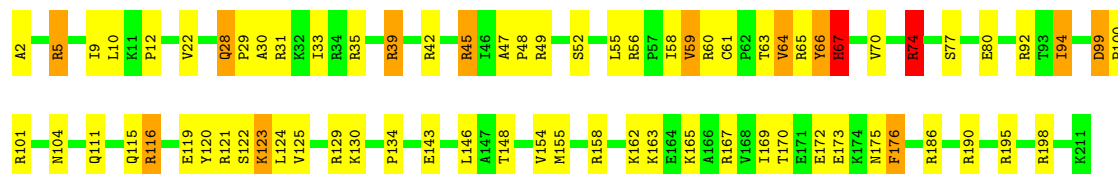
- Molecule 10: uL5

Chain J: 



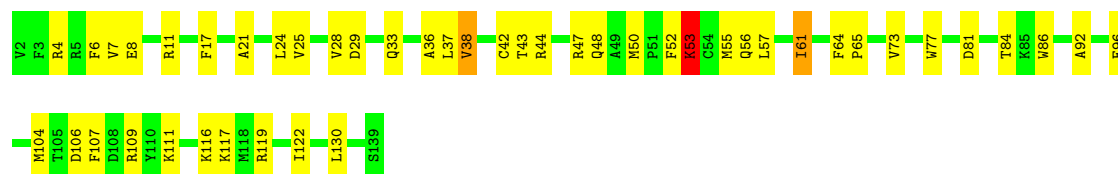
- Molecule 11: eL13

Chain L: 

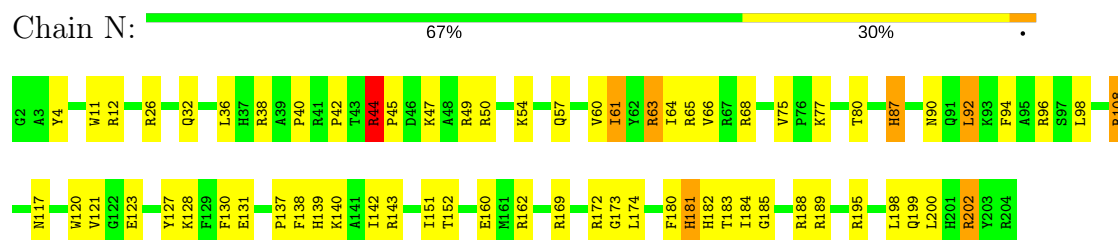


- Molecule 12: eL14

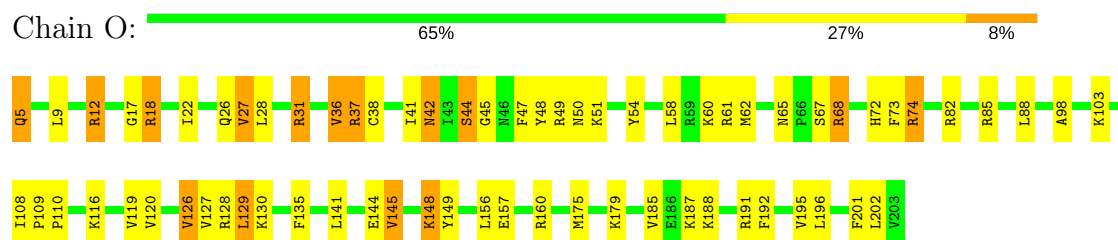
Chain M: 



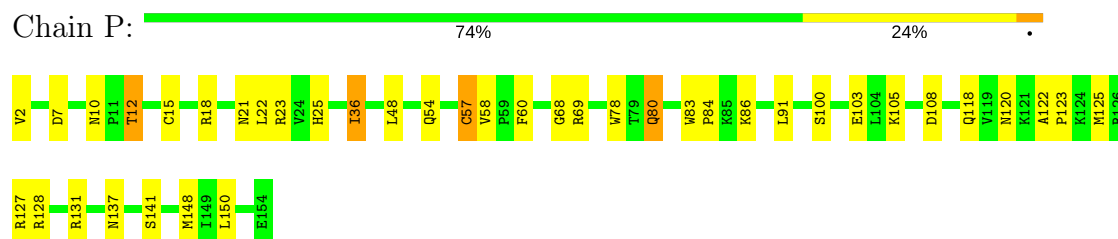
- Molecule 13: eL15



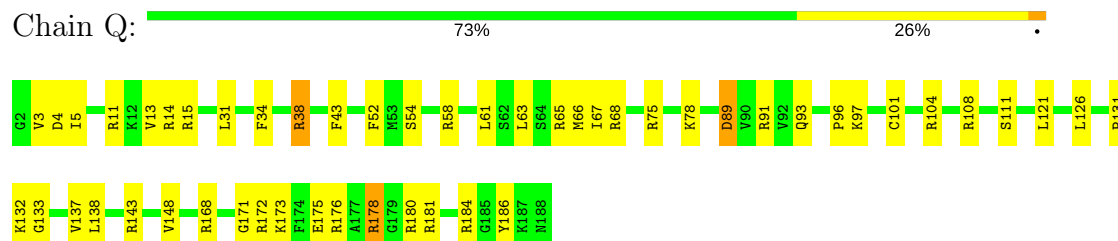
- Molecule 14: uL13



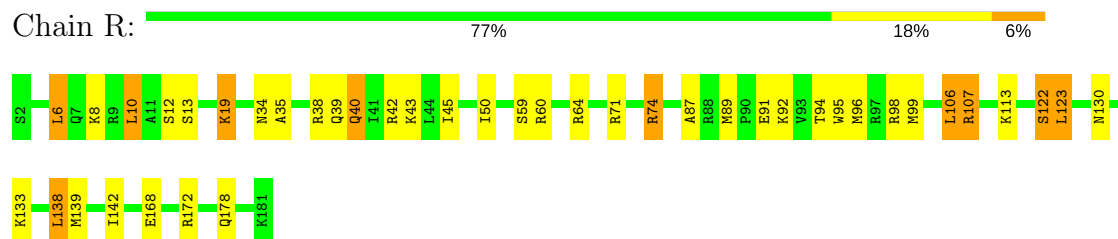
- Molecule 15: uL22



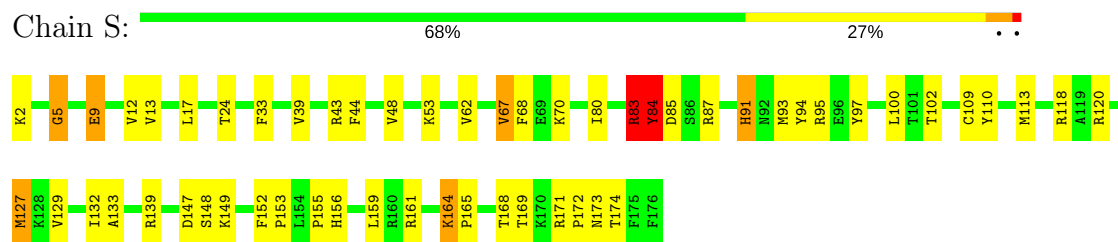
- Molecule 16: eL18



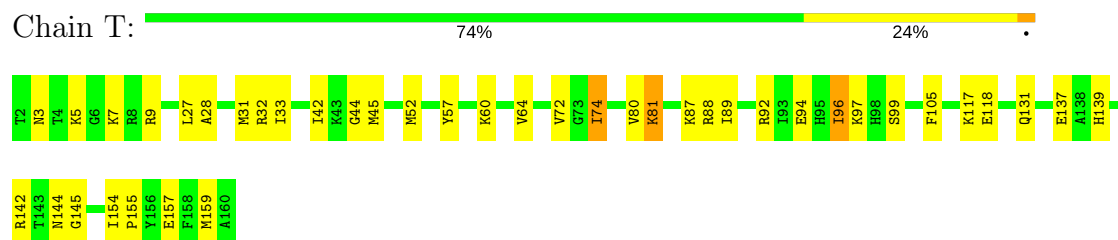
- Molecule 17: eL19



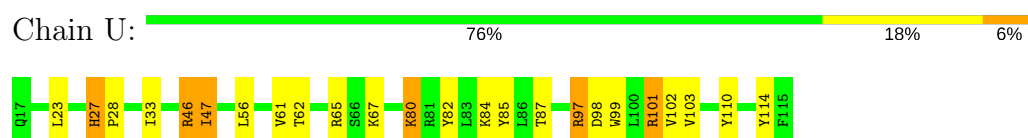
- Molecule 18: eL20



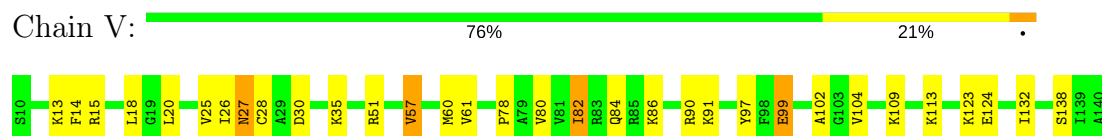
• Molecule 19: eL21



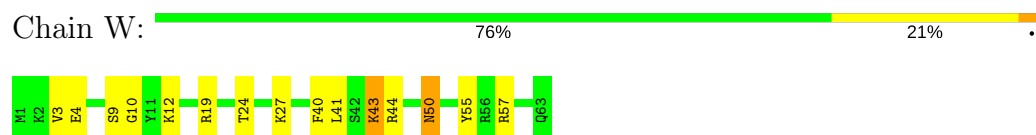
• Molecule 20: eL22



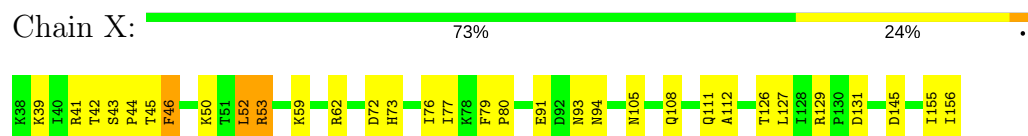
• Molecule 21: uL14



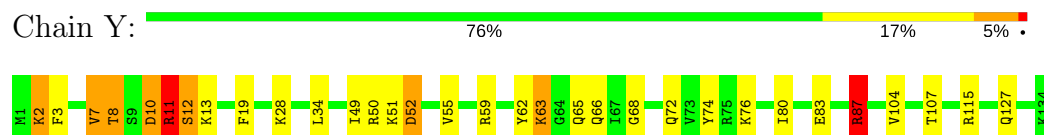
• Molecule 22: eL24



• Molecule 23: uL23

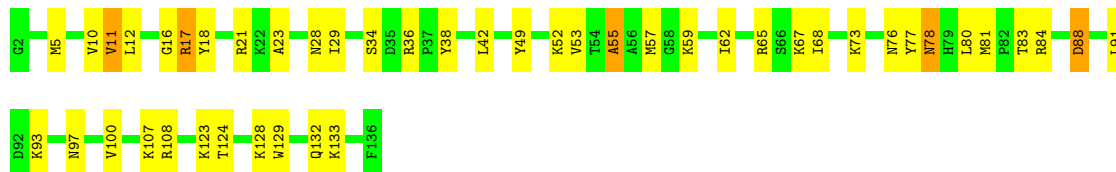


• Molecule 24: uL24




- Molecule 25: eL27

Chain Z:  66% 30% .




- Molecule 26: uL15

Chain a:  88% 9% .




- Molecule 27: eL29

Chain b:  85% 13% .




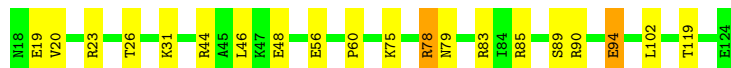
- Molecule 28: eL30

Chain c:  85% 15% .




- Molecule 29: eL31

Chain d:  81% 17% .




- Molecule 30: eL32

Chain e:  82% 17% .




- Molecule 31: eL33

Chain f:  82% 17% .




- Molecule 32: eL34

Chain g:  82% 18%




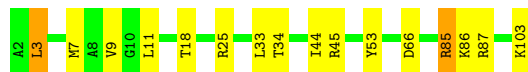
• Molecule 33: uL29

Chain h:  85% 14%




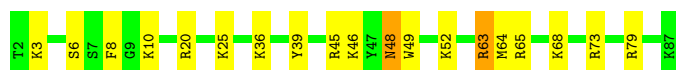
• Molecule 34: eL36

Chain i:  84% 14%




• Molecule 35: eL37

Chain j:  78% 20%




• Molecule 36: eL38

Chain k:  87% 13%




• Molecule 37: eL39

Chain l:  82% 18%




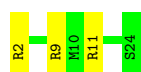
• Molecule 38: eL40

Chain m:  77% 21%



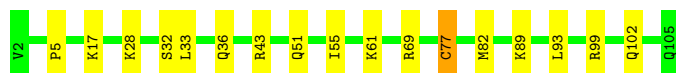
• Molecule 39: eL41

Chain n:  87% 13%



• Molecule 40: eL42

Chain o: 84% 15% .



• Molecule 41: eL43

Chain p: 82% 18%



• Molecule 42: eL28

Chain r: 82% 16% ..



• Molecule 43: uL10

Chain s: 89% 10% .



• Molecule 44: uL11

Chain t: 79% 20% .



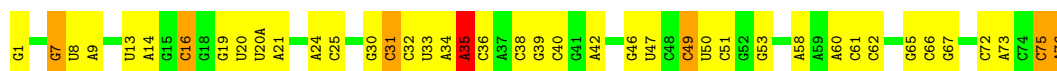
• Molecule 45: peptide

Chain 1: 73% 27%



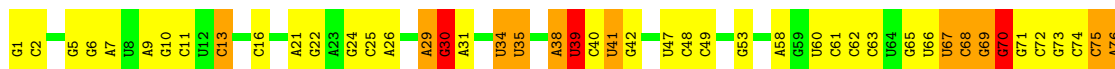
• Molecule 46: tRNA(Val)

Chain 2: 46% 45% 8% .

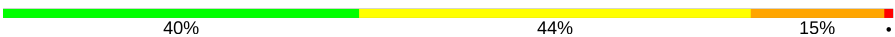


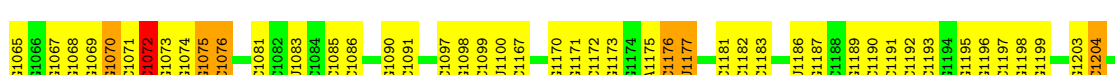
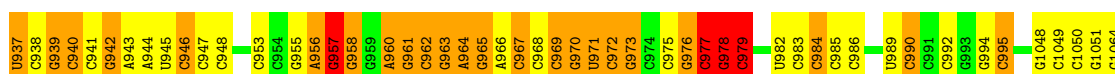
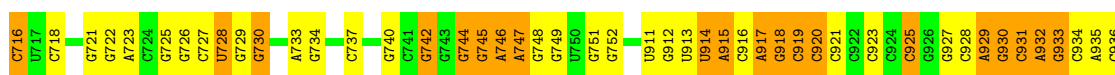
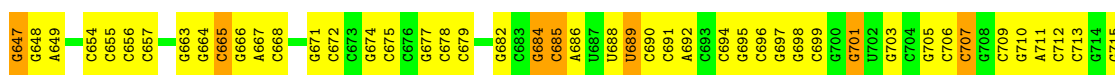
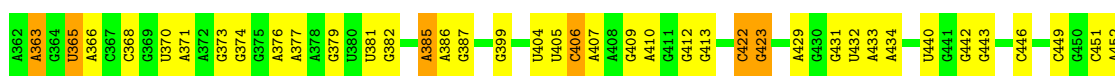
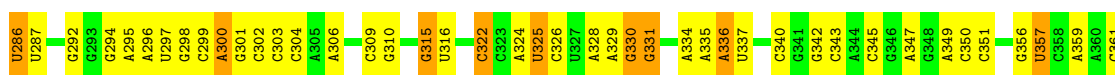
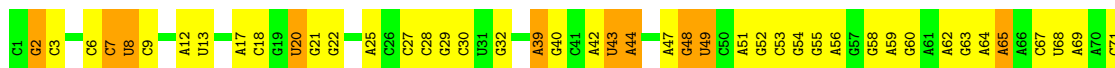
• Molecule 47: tRNA(Lys)

Chain 3: 



• Molecule 48: 28S ribosomal RNA

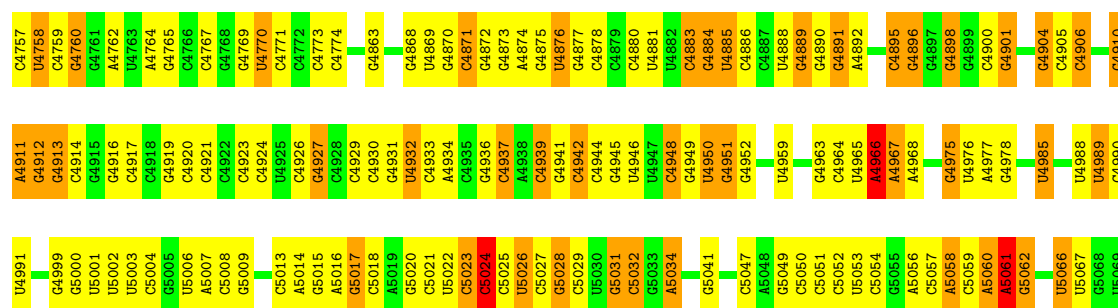
Chain 5: 





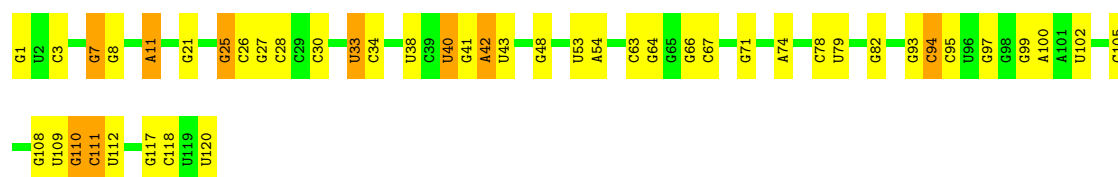
C2627	C2556	C2482	A2401	G2306	C2125	G2063	A1991	C1920	G1760	A1669	C1590	U1511	A1420	G1359
G2632	G2557	U2485	G2402	G2312	G2126	G2064	U1992	C1921	G1761	G1670	U1591	U1512	G1421	G1360
U2633	G2558	G2486	A2403	U2311	G2127	G2065	C1993	G1922	G1764	U1671	U1596	U1513	G1422	G1361
G2638	C2560	C2489	U2408	A2313	G2128	G2066	C1994	A1923	G1765	U1672	U1597	U1514	U1423	G1362
U2639	G2564	U2490	U2409	G2314	G2130	G2068	G1996	C1924	A1767	G1676	G1598	A1516	G1424	C1363
G2640	A2565	C2491	C2410	G2315	C2131	A2069	U1997	G1925	C1768	U1677	C1599	G1517	G1425	C1364
G2645	G2566	C2492	G2416	G2316	G2243	U2070	A1998	U1927	U1771	C1678	A1601	A1518	G1426	C1365
C2646	G2567	G2493	A2417	G2322	G2244	A2071	A1999	C1928	U1772	C1679	U1602	C1519	C1430	G1366
C2645	C2568	U2494	A2418	G2323	G2245	C2072	G2000	A1929	C1772	G1680	C1603	C1520	C1431	G1367
G2649	U2495	G2496	G2421	C2324	C2247	C2073	G2001	U1930	G1776	G1681	G1612	A1523	G1435	C1369
G2654	C2497	C2498	C2422	C2325	C2248	G2076	A2002	C1931	A1777	U1682	A1613	A1524	G1436	G1370
G2654	G2498	G2499	A2423	G2328	G2249	C2077	U2004	G1933	C1777	A1684	C1614	U1528	C1439	A1372
G2658	G2503	G2504	G2424	G2331	C2250	G2078	G2005	A1934	U1780	U1687	C1615	U1529	U1440	A1373
G2661	C2504	C2504	U2425	G2332	G2251	G2079	U2006	U1939	U1781	U1688	U1616	U1531	U1441	G1374
G2662	C2505	C2505	U2426	G2333	A2252	C2080	U2008	G1940	C1783	G1689	G1617	U1532	C1442	C1376
G2669	C2506	C2506	G2427	G2334	G2253	G2081	A2009	A1941	U1784	C1690	G1619	A1533	U1445	C1377
G2670	C2507	C2507	A2428	G2335	C2255	C2082	A2010	A1942	C1785	G1691	U1622	A1534	U1446	C1378
G2676	U2507	U2508	G2433	G2336	C2256	G2083	C2011	U1943	U1796	U1692	A1630	C1535	C1447	C1379
G2677	C2508	C2509	U2434	G2337	C2257	G2085	A2017	U1947	U1787	U1693	A1631	U1536	C1448	C1380
G2681	C2509	G2510	G2435	C2338	C2258	C2086	C2018	G1948	C1788	C1694	G1624	A1537	G1449	U1381
G2682	C2511	A2512	U2436	G2339	C2259	C2087	C2019	U1959	C1789	U1695	G1625	U1538	C1449	G1382
G2683	A2512	A2513	C2437	C2340	C2260	G2088	U2020	U1954	U1790	G1697	G1627	C1540	C1384	G1383
G2684	C2513	C2514	A2438	G2341	C2261	G2089	U2021	G1955	U1792	C1698	C1541	U1546	G1454	C1384
G2685	C2514	C2515	U2439	G2342	C2262	U2090	C2022	G1956	U1798	A1699	C1629	U1547	G1455	G1385
G2686	C2516	C2517	U2440	G2343	C2263	G2091	C2023	U1957	C1799	U1718	A1630	A1548	G1456	C1386
G2687	C2518	C2519	U2441	G2344	C2264	G2092	C2024	A1958	A1800	G1719	A1632	G1548	G1457	A1387
G2688	C2520	C2521	C2446	G2345	C2265	C2093	A1962	G1724	A1801	G1721	G1633	G1549	G1464	A1388
G2689	C2522	C2523	U2447	G2346	C2266	G2094	A1964	U1725	A1802	C1722	A1634	G1550	G1465	U1389
G2693	C2524	C2525	G2450	G2351	G2270	U2097	A2029	U1726	A1805	U1726	A1637	A1554	G1466	G1390
G2694	U2524	U2527	A2451	A2360	G2273	A2100	U2032	G1965	G1811	C1732	U1638	C1557	G1474	C1395
G2695	C2527	C2530	G2457	G2364	C2274	G2102	A2033	C1966	C1812	C1733	C1640	U1563	C1475	A1397
G2696	U2530	C2531	C2458	A2365	G2275	G2103	G2034	A1967	G1818	G1734	A1564	A1565	C1476	A1398
G2697	C2532	C2533	U2459	A2366	C2276	G2104	C2035	G1968	C1819	G1741	A1646	C1566	C1477	G1399
G2698	C2534	C2537	A2460	A2367	G2277	A2105	A2040	G1969	C1820	U1742	U1647	U1567	C1478	G1400
G2699	C2538	C2541	G2461	A2368	C2278	G2106	A2041	C1971	G1821	G1743	A1653	U1571	G1482	G1401
G2703	C2539	C2542	U2467	U2369	U2281	G2109	G2045	G1972	U1822	A1743	G1654	G1572	C1483	G1404
G2704	C2540	C2543	U2468	A2370	A2282	C2110	G2046	G1975	G1823	U1744	C1655	U1572	G1484	C1405
U2708	C2544	C2545	C2469	A2374	G2288	G2111	A2047	G1976	G1825	G1745	C1656	A1575	C1485	G1406
C2709	C2546	C2547	G2471	G2390	C2289	G2112	U2048	U1979	G1826	U1748	G1657	G1575	C1486	C1407
G2710	C2548	C2549	A2472	G2391	G2290	G2113	G2052	U1980	C1828	G1749	U1658	U1577	A1497	G1408
G2711	C2550	C2551	A2473	C2392	G2294	G2114	C2053	U1981	G1829	G1750	U1659	U1578	G1498	C1409
G2712	C2552	C2553	G2474	G2393	C2295	G2115	U2054	G1982	U1830	A1751	U1660	C1579	C1411	U1410
G2713	C2554	C2555	U2475	C2394	G2296	G2116	G2055	A1983	G1833	G1752	C1661	C1580	G1502	C1412
G2714	C2556	C2557	G2476	A2395	G2297	G2117	G2056	A1984	U1834	U1753	C1662	C1581	A1503	C1413
G2715	C2558	C2559	A2477	A2396	G2298	G2118	A2057	G1985	U1835	U1754	C1663	U1582	C1504	C1414
C2716	C2560	C2561	C2478	G2397	A2300	G2119	U2058	U1986	G1836	U1755	U1664	U1583	G1505	G1415
C2720	C2562	C2563	C2479	U2398	C2301	C2121	C2059	C1987	A1837	U1756	C1665	G1584	G1506	G1416
G2721	C2564	C2565	G2480	G2399	C2302	C2122	G2060	G1988	U1918	G1758	C1667	G1585	C1507	C1417
	C2565	C2566	G2481	G2400	C2303	G2123	U2061	A1990	U1919	G1759	A1668	G1586	A1508	C1418
						G2124	C2062		U1839					G1419

G4690	A4607	G4529	U4450	G4283	C4207	C4132	A3945	A3871	U3798	U3715	G2896	A2795	G2722
G4691	G4609	U4530	C4453	C4284	A4212	C4133	G3946	A3872	A3799	C3716	G2897	G2796	U2723
A4692		U4531	G4454	U4285	A4213	G4134	U4069	G3873	A3800	A3718	G2898	C2797	G2724
G4693		A4532	G4455	C4286	A4214	G4135	U4070	G3874	U3801	A3719	G2899	A2798	A2725
G4694		A4533	G4456	U4289		C4136	U4073	G3875	U3802		U3904	G2800	G2726
G4695			U4457	U4290	U4218	C4137	A4074	A3876	A3803	A3723	G2905	U2801	C2727
C4696		G4537	C4458	G4291	A4219	C4138	G4075	A3877	G3804	A3724	G2906	C2802	U2728
G4617		G4538	U4459	U4296		C4139	G4076	G3878	U3805	A3725	G2907	U2729	C2730
G4618			U4460	G4297	C4223	C4140		G3879		A3726	G2908	C2731	U2730
U4619		A4546	U4461	U4298	C4224	G4141		G3880	C3810	A3727	U2907	G2732	G2732
U4620		C4547	G4462	G4299	C4225	C4142		G3881	G3811	A3728	U2908	C2733	C2733
C4621		U4398	U4463	U4301	G4226	G4143	C4079	G3882	G3814	U3729	C2909	U2734	U2734
U4622		G4400	A4464	U4302	G4226	C4144	C4080	U3883	U3815	U3730	G2910	G2735	G2735
		U4555		C4303		C4145			A3816	A3731	G3586	G2736	C2737
U4709		U4556	G4472	A4304	U4229	G4146	G4084	G3886	A3817	A3732	C3587		
C4710		U4557	A4473	G4305	C4230	C4147	A4085	G3887	G3818		G3588	A2815	
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G4712		U4559	G4475	U4307	U4232	G4149	G4087	G3889	U3818	G3735	G3590	C2817	U2740
G4713		U4560	C4476	A4308	U4233	G4150	C4088	A3890	U3819	A3736	G3591	U2741	U2741
C4714		U4406		C4309	U4234	C4151		A3891	G3820	A3737	G3592	G2742	G2742
U4635		G4407		G4309	U4235	C4152	G4091	U3892	G3821		C3593	C2820	
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		G4410		C4314		C4155	G4094	G3895	G3827	A3748	A3596	C2824	C2749
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G4644		U4482		A4317	U4241	G4161	C4096	G3897	G3829	G3750	C3598	U2826	G2751
C4645		C4486		U4320	C4242	C4162	G4097	G3898	A3830	G3751	A3599	G2827	G2752
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G4647		U4488		U4321	G4244	U4164	G4099	G3900	U3831	G3753	C3601	G2829	G2754
		G4489		G4321	G4245	C4165	C4100	A3901	U3832	G3754	C3602	G2830	A2755
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G4652		U4491		G4329	U4250	C4167	C4102	G3904	G3835	G3756	C3605	A2845	G2757
G4653		U4420		U4330	A4251	C4168	C4103	A3905	A3836	G3757	G3606	G2846	A2758
C4654		C4421		C4331		G4169	G4104	A3906	A3837	A3758	G3607	G2847	G2759
U4655		A4422		C4332	G4254	C4170	A4105	G3907	U3838	A3759	A3610	G2848	G2760
U4657		U4423		C4333		C4171	G4106	A3908	G3839	A3760	A3611	A2849	U2761
G4732		A4424		U4334	C4258	A4172	G4107	C3909	U3840	A3761	C3612	U2843	G2762
C4733		G4425		C4335	U4259	G4173	G4108	C3910	C3841	U3762	G3613	A2844	U2763
U4734		U4426		A4336	C4260		C4109	C3911	C3842	U3763	G3614	A2845	A2764
G4735		G4427		C4340	U4261	A4178	C4110	U3912	C3843	A3764	U3615	G2846	
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G4737		U4429		C4350	C4263	C4180	C4112	U3914	A3845	U3766	G3618	G2848	C2772
C4738		U4430		U4351	G4264	G4181	C4113	U3915	A3846	A3767	G3619	A2849	G2770
U4739		G4431		U4352	U4265	C4182	C4114	G3916	A3847	A3768	G3620	A2850	C2771
G4740		C4432		C4355	U4266	G4183	C4115	U3917	C3850	U3770	G3621	G2851	G2772
C4741		G4433		G4356	G4267	C4184	C4116	G3918	U3851	U3771	G3622	A2852	C2773
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G4745		U4437		G4371	A4271	U4188	U4120	C3922	A3857	G3703	A3626	A2856	A2783
C4746		U4438		U4372	G4272	U4189	C4121	C3923	G3858	U3704	A3627	U2857	A2787
		G4439		C4373	U4273	U4190	G4122	U3924	G3859	G3705	U3631	G2858	U2788
		U4440		U4374	G4274	C4191		G3925	A3860	U3706	A3632	G2859	A2789
		A4441		G4375	U4275	G4192		C3926	A3861	C3707	A3633	U2860	U2790
		U4442		A4376	C4276	G4193	C4123	U3927	A3862	U3708	A3634	U2861	
		U4443		C4377	G4277	C4194	C4124	C3928	A3863	G3709	A3635	A2862	A2787
		U4444		A4378	U4278	G4195	C4125	G3929	A3864	U3710	A3636	U2863	A2788
		U4445		U4379	A4279	C4196	C4126	G3930	A3865	G3711	U3637	G2864	U2789
		U4446		A4380	U4280	C4197	C4127	C3931	A3866	A3712	A3638	A2865	A2790
		U4447		U4381	A4281	C4198	C4128	G3932	A3867	U3713	A3639	G2866	
		U4448		A4382	U4282	C4199	C4129	C3933	G3868	U3714	A3640	G2867	G2793
		U4449		A4383		C4200	C4130	G3934	C3869	G3715	A3641	U2868	C2794
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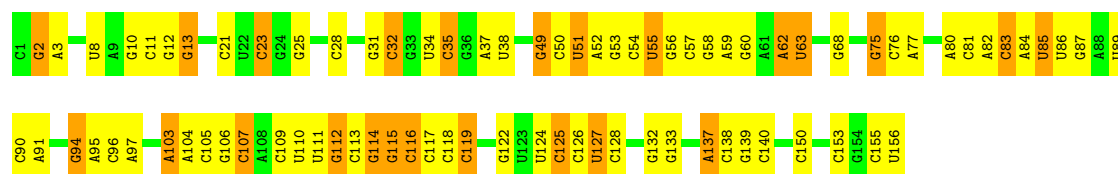
• Molecule 49: 5S ribosomal RNA

Chain 7: 62% 31% 8%



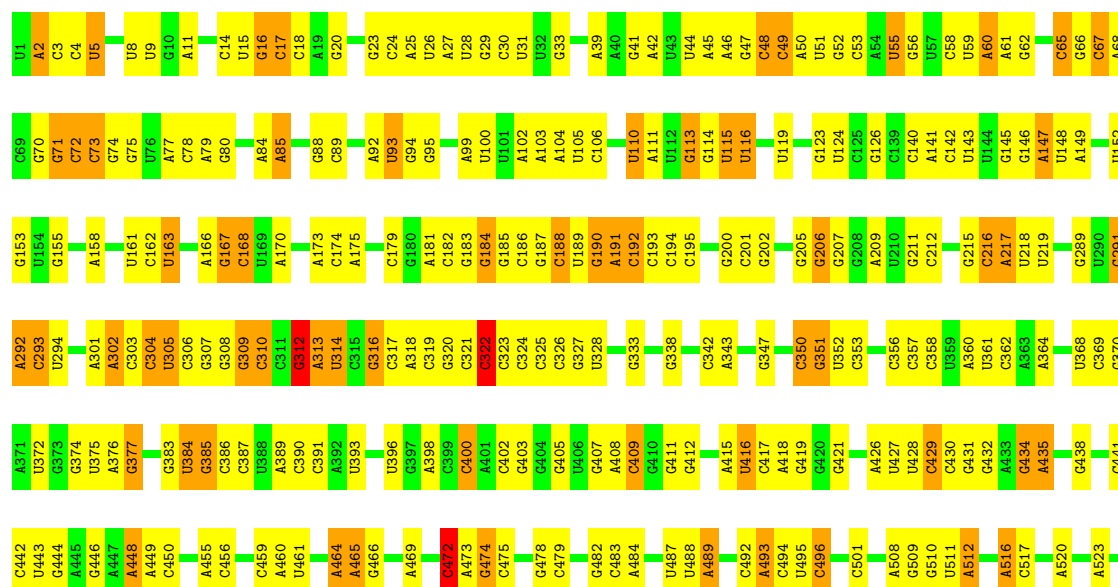
• Molecule 50: 5.8S ribosomal RNA

Chain 8: 47% 37% 15%

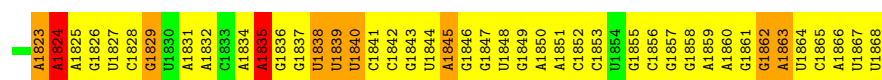


• Molecule 51: 18S ribosomal RNA

Chain 9: 39% 45% 15%

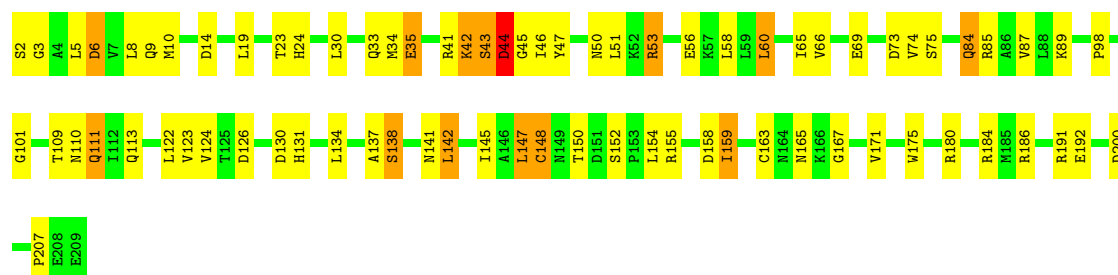


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U1730	A1650	C1575	U1509	A1438	C1373	U1297	C1230	A1150	A1084	A997	A913	C829	C674	G606	A531
A1731	G1654	U1575	U1510	A1439	C1374	U1298	C1231	A1151	C1085	A998	U914	G831	U677	U607	C532
G1732	C1655	U1578	C1511	U1440	A1376	U1299	U1232	U1152	C1089	G999	G915	G832	G677	C608	A533
A1735	U1654	U1441	U1512	U1442	U1377	U1301	C1234	U1154	C1090	C1000	A916	C833	U678	U609	G534
G1736	C1655	U1443	C1513	U1444	U1378	G1302	G1235	U1157	C1093	A1001	U918	C834	A679	G610	G535
G1737	A1661	U1515	G1516	U1445	C1380	U1304	C1236	G1157	A1093	U1002	A919	C835	G680	C614	C539
U1662	U1662	U1446	G1517	A1446	C1381	U1307	C1237	C1163	G1096	G1005	A920	C836	G681	C615	U542
A1664	A1664	G1447	C1518	G1447	C1384	U1308	A1240	G1164	G1097	C1006	A921	G838	G682	A616	U543
G1665	C1666	U1586	U1519	A1448	G1385	C1309	U1241	G1165	C1098	C1007	G921	G839	G684	G617	U544
U1667	U1667	G1449	G1520	G1449	U1242	U1243	U1243	G1166	C1099	A1011	G925	C840	U688	C618	G544
U1668	A1588	A1452	C1521	A1452	A1386	C1310	U1244	G1167	G1099	A1012	G929	G841	U689	A619	A545
G1669	U1589	C1453	U1522	C1453	C1311	U1245	U1245	G1168	C1099	U1013	C930	G842	U690	G621	A546
C1670	A1594	C1454	G1523	C1454	C1312	U1246	U1246	G1175	G1101	U1016	G933	U844	G696	G622	C548
G1671	U1595	A1454	C1524	A1455	A1313	U1247	U1247	A1181	G1102	U1017	G934	U845	G697	G623	C549
U1672	U1596	G1456	U1526	G1456	U1315	A1250	A1250	A1182	G1103	U1018	G935	U846	G698	G624	C550
G1753	C1597	G1459	C1527	G1459	C1316	A1251	A1251	A1183	G1104	U1019	G936	U847	G699	G625	U551
G1754	U1598	C1460	G1528	C1460	C1317	C1252	C1252	G1184	G1105	A1020	C937	U848	C734	U626	G552
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G1756	U1676	G1600	U1530	G1461	U1397	U1319	C1254	C1185	G1107	A1024	U943	A858	C738	U630	G558
G1757	U1677	A1531	C1531	U1462	G1398	G1320	G1255	A1190	G1109	U1025	A944	A859	U747	U631	G559
G1758	U1678	U1602	C1532	U1463	C1399	G1321	G1256	C1191	G1110	C1026	U945	A860	U748	C632	A560
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G1777	C1687	U1613	C1542	C1472	C1406	A1332	C1267	G1199	U1120	A1036	G959	G873	C790	U642	U572
C1778	U1688	U1615	U1543	G1473	U1407	U1333	C1268	A1200	C1121	G1040	U960	C877	C791	A643	A574
G1779	C1689	U1616	C1544	A1474	A1408	G1334	C1269	A1201	G1122	G1041	A962	C878	C792	G644	A575
G1780	A1695	G1617	U1545	U1475	A1409	G1335	G1270	U1202	C1123	U1044	A963	C879	G793	C645	A576
C1783	U1698	C1618	C1546	C1476	C1410	C1336	C1271	G1203	C1124	U1045	U968	U887	A794	A650	C578
G1784	C1698	A1619	G1547	U1477	C1412	U1339	C1272	A1204	G1131	C1047	U969	U888	G796	U651	C579
C1785	A1699	U1620	U1548	U1478	G1413	U1340	C1273	C1205	C1132	A1049	C971	U889	C797	A654	A583
U1786	C1700	U1621	U1549	G1479	A1414	C1341	G1274	C1125	G976	C1052	C977	U890	U799	A655	G588
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G1799	C1706	U1626	U1554	A1487	C1418	U1346	G1279	G1210	U1136	U1056	A988	U894	U806	C663	C592
A1800	U1713	C1628	U1556	C1488	C1419	U1347	G1280	G1211	C1137	C1057	G901	U895	A810	C664	C593
A1801	U1714	U1637	U1560	G1489	A1421	G1348	C1281	C1213	C1138	A1058	A989	U896	A812	A664	A594
G1805	A1715	G1638	G1563	G1490	G1422	C1423	C1282	A1214	U1139	G1069	A990	U897	G821	U665	U595
A1809	C1716	U1639	C1564	U1494	G1423	G1351	C1283	C1215	C1140	A1060	A991	U898	U822	U667	G597
U1810	U1717	A1641	U1565	U1495	U1424	G1352	A1284	C1216	C1141	U1069	A992	U899	U823	A668	G598
A1813	U1721	U1642	G1566	U1496	C1427	G1353	G1285	C1217	A1143	C1078		U900	C824	A669	A599
G1722	G1722	U1643	C1567	U1498	G1431	U1364	G1290	G1222	A1144			U901		U677	G597
G1817	U1725	C1645	C1568	U1499	U1432	G1365	A1291	G1224	A1145			G902		A670	
A1818	G1726	C1646	G1570	C1501	C1433	G1366	C1292	G1225	C1146			A903			
A1819	G1727	A1647	G1571	C1501	C1434	G1367	A1293	G1226	C1147			G904			
							G1294	G1227				G905			



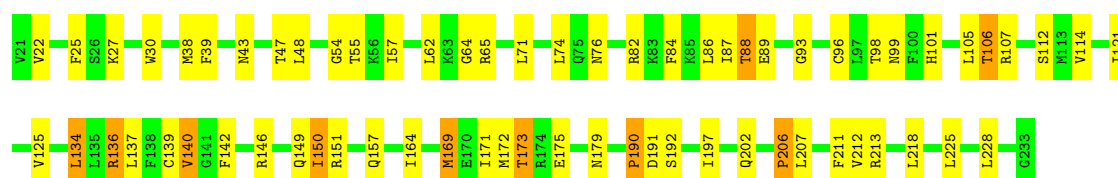
• Molecule 52: uS2

Chain AA: 63% 30% 6%



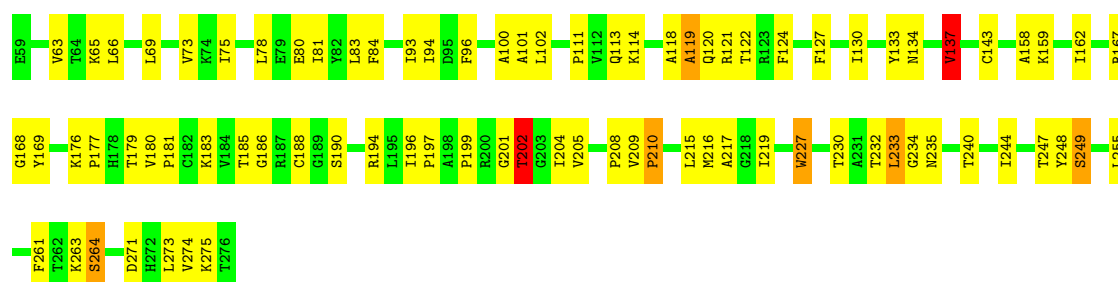
• Molecule 53: eS1

Chain BB: 69% 27% 5%



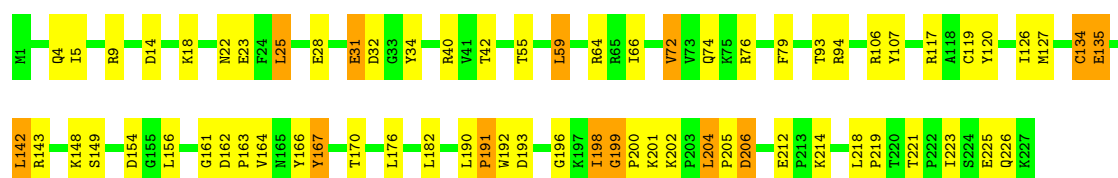
• Molecule 54: uS5

Chain CC: 62% 34% 2%



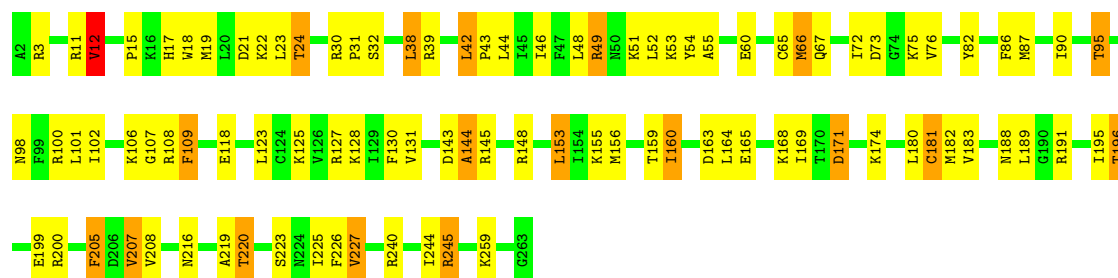
• Molecule 55: uS3

Chain DD: 70% 25% 6%



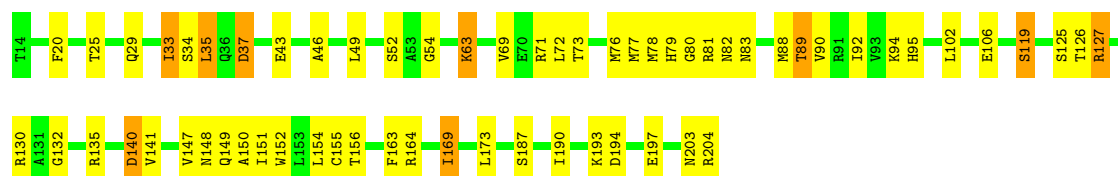
• Molecule 56: eS4

Chain EE: 63% 29% 7%



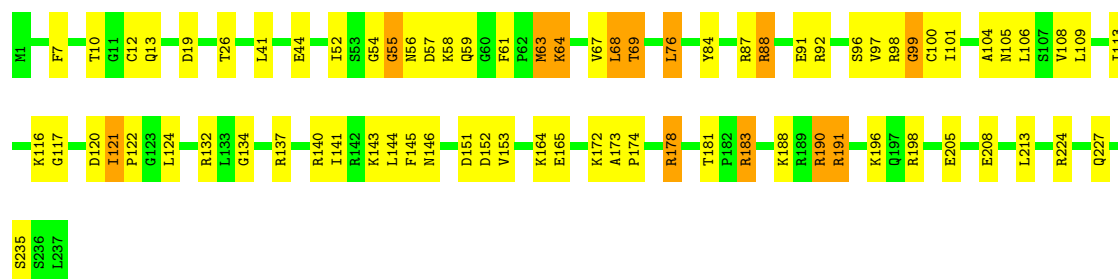
• Molecule 57: uS7

Chain FF: 68% 28% 5%



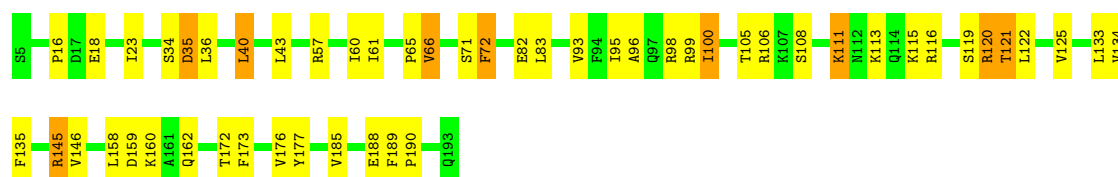
• Molecule 58: eS6

Chain GG: 68% 27% 5%



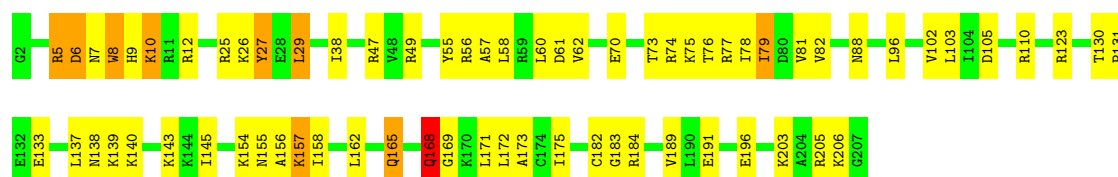
• Molecule 59: eS7

Chain HH: 72% 23% 5%

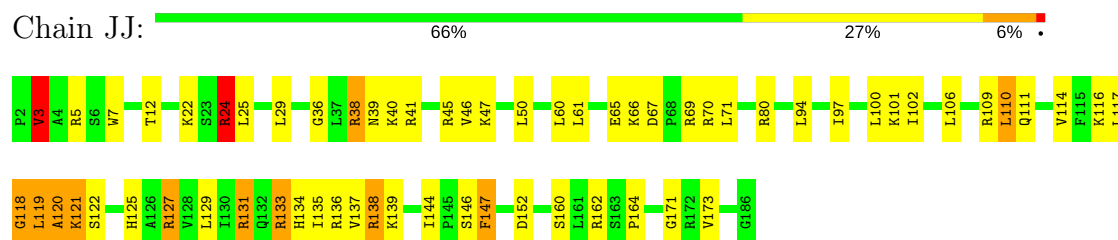


• Molecule 60: eS8

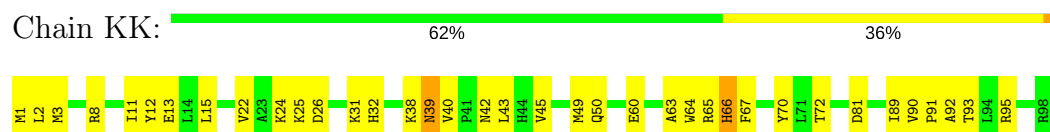
Chain II: 67% 29% 5%



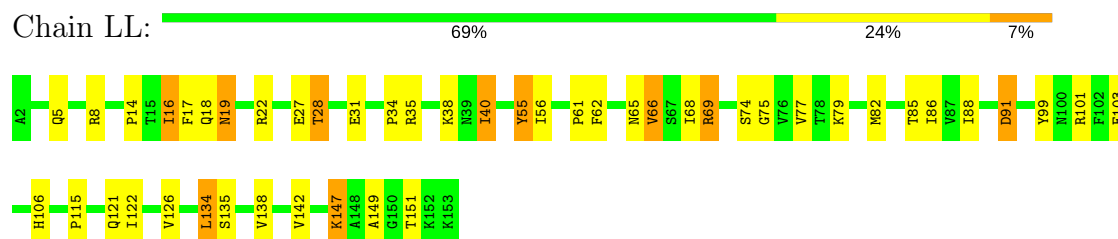
- Molecule 61: uS4



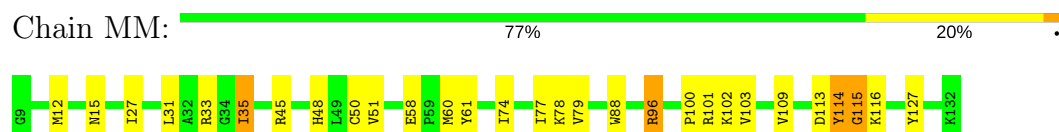
- Molecule 62: eS10



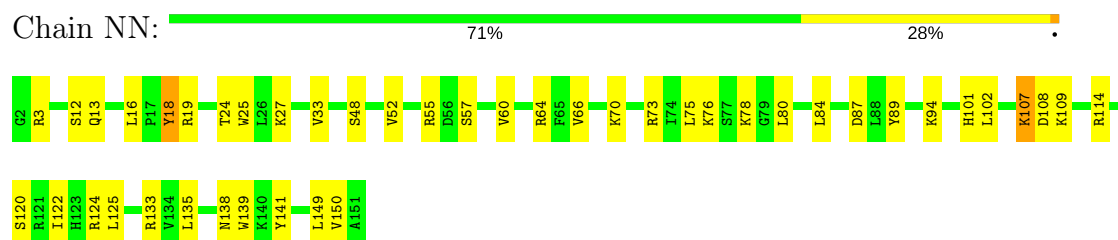
- Molecule 63: uS17



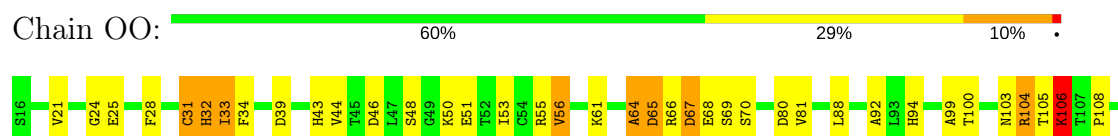
- Molecule 64: eS12



- Molecule 65: uS15



- Molecule 66: uS11





• Molecule 67: uS19

Chain PP: 76% 20% •



• Molecule 68: uS9

Chain QQ: 74% 21% • •



• Molecule 69: eS17

Chain RR: 70% 26% 5%



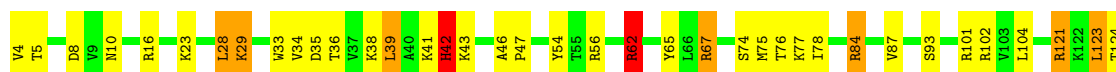
• Molecule 70: uS13

Chain SS: 69% 25% • •



• Molecule 71: eS19

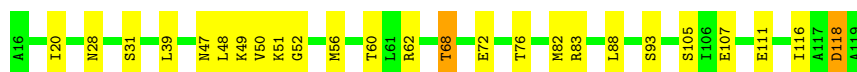
Chain TT: 72% 22% 5% •



• Molecule 72: uS10

Chain UU: 76% 22% •

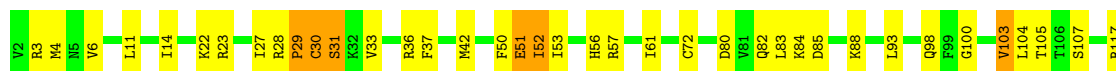




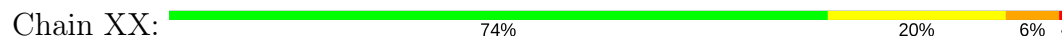
- Molecule 73: eS21



- Molecule 74: uS8



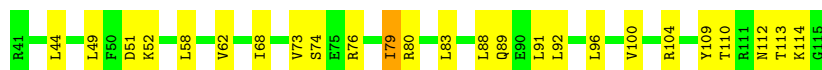
- Molecule 75: uS12



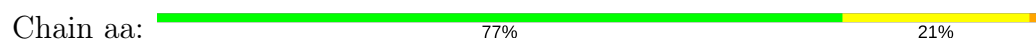
- Molecule 76: eS24



- Molecule 77: eS25

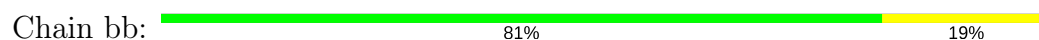


- Molecule 78: eS26





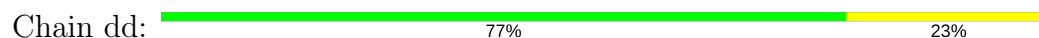
• Molecule 79: eS27



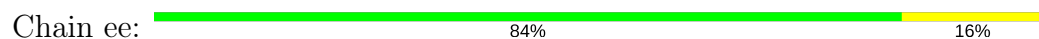
• Molecule 80: eS28



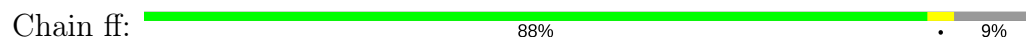
• Molecule 81: uS14



• Molecule 82: eS30



• Molecule 83: eS31



• Molecule 84: RACK1

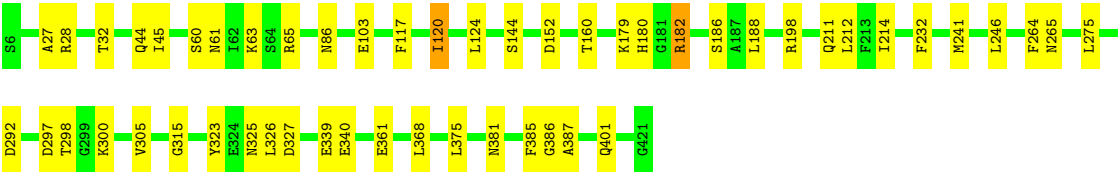
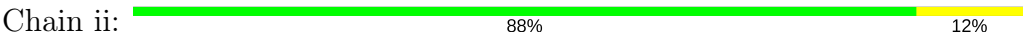


• Molecule 85: mRNA

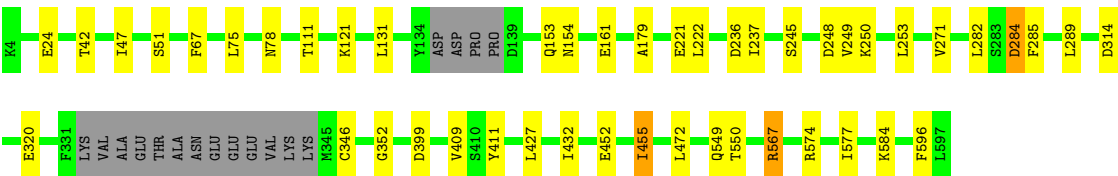
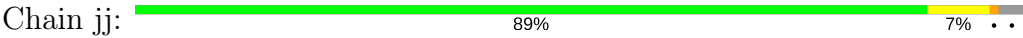




● Molecule 86: eRF1



● Molecule 87: ABCE1



## 4 Experimental information

Property	Value	Source
Reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	Depositor
Number of particles used	22058	Depositor
Resolution determination method	FSC 0.143	Depositor
CTF correction method	Not provided	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	30	Depositor
Minimum defocus (nm)	1700	Depositor
Maximum defocus (nm)	3600	Depositor
Magnification	104478	Depositor
Image detector	FEI FALCON II (4k x 4k)	Depositor

## 5 Model quality ⓘ

### 5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: ZN, MG, SF4, ADP

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	A	0.68	0/1906	0.94	1/2556 (0.0%)
10	J	0.49	0/1376	0.80	2/1841 (0.1%)
11	L	0.59	0/1734	0.92	2/2317 (0.1%)
12	M	0.55	0/1158	0.80	0/1547
13	N	0.67	0/1746	0.99	3/2338 (0.1%)
14	O	0.63	0/1671	0.88	0/2234
15	P	0.67	0/1268	0.87	0/1701
16	Q	0.62	0/1530	0.94	0/2041
17	R	0.54	0/1524	0.88	2/2013 (0.1%)
18	S	0.63	0/1493	0.93	6/2002 (0.3%)
19	T	0.53	0/1326	0.80	0/1770
2	B	0.62	0/3216	0.89	4/4311 (0.1%)
20	U	0.48	0/822	0.75	0/1103
21	V	0.59	0/993	0.84	0/1332
22	W	0.57	0/541	0.86	2/720 (0.3%)
23	X	0.55	0/993	0.84	1/1334 (0.1%)
24	Y	0.54	0/1132	0.90	1/1504 (0.1%)
25	Z	0.58	0/1130	0.84	0/1507
26	a	0.65	0/1191	0.91	1/1590 (0.1%)
27	b	0.56	0/619	0.79	1/818 (0.1%)
28	c	0.55	0/742	0.79	0/996
29	d	0.55	0/903	0.90	1/1216 (0.1%)
3	C	0.65	1/2929 (0.0%)	0.91	5/3935 (0.1%)
30	e	0.59	0/1071	0.93	1/1429 (0.1%)
31	f	0.70	0/895	0.95	0/1198
32	g	0.59	0/916	0.90	3/1220 (0.2%)
33	h	0.51	0/1021	0.84	1/1348 (0.1%)
34	i	0.52	0/841	0.87	2/1112 (0.2%)
35	j	0.73	1/720 (0.1%)	1.09	4/952 (0.4%)
36	k	0.54	0/575	0.79	0/761
37	l	0.66	0/454	0.91	0/599
38	m	0.51	0/435	0.86	0/575

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >2	RMSZ	# Z  >2
39	n	0.56	0/223	1.00	1/284 (0.4%)
4	D	0.50	0/2432	0.76	1/3257 (0.0%)
40	o	0.59	0/864	0.86	0/1140
41	p	0.57	0/718	0.82	0/953
42	r	0.63	0/1017	0.91	2/1364 (0.1%)
43	s	0.41	0/1547	0.60	0/2088
44	t	0.41	0/1257	0.70	0/1697
45	1	0.60	0/129	0.78	0/173
46	2	0.32	0/1805	0.76	3/2809 (0.1%)
47	3	0.34	0/1777	0.88	5/2763 (0.2%)
48	5	0.52	20/87790 (0.0%)	0.86	109/136937 (0.1%)
49	7	0.47	0/2858	0.74	1/4455 (0.0%)
5	E	0.54	0/1936	0.87	2/2600 (0.1%)
50	8	0.53	0/3701	0.78	0/5766
51	9	0.45	10/41013 (0.0%)	0.82	41/63919 (0.1%)
52	AA	0.51	0/1679	0.78	0/2283
53	BB	0.54	0/1756	0.81	1/2350 (0.0%)
54	CC	0.52	0/1730	0.84	1/2344 (0.0%)
55	DD	0.47	0/1792	0.77	0/2412
56	EE	0.49	0/2115	0.87	0/2843
57	FF	0.52	0/1531	0.82	0/2059
58	GG	0.49	0/1946	0.80	0/2590
59	HH	0.46	0/1544	0.74	0/2068
6	F	0.64	0/1905	0.88	2/2539 (0.1%)
60	II	0.52	0/1715	0.86	1/2287 (0.0%)
61	JJ	0.52	0/1550	0.91	3/2069 (0.1%)
62	KK	0.51	0/851	0.78	0/1147
63	LL	0.54	0/1259	0.85	0/1684
64	MM	0.48	0/968	0.65	0/1296
65	NN	0.52	0/1232	0.83	0/1656
66	OO	0.59	0/1029	0.98	2/1380 (0.1%)
67	PP	0.48	0/1079	0.79	0/1437
68	QQ	0.51	0/1142	0.82	1/1528 (0.1%)
69	RR	0.49	0/1060	0.76	0/1421
7	G	0.55	0/1967	0.83	2/2647 (0.1%)
70	SS	0.47	0/1157	0.86	1/1548 (0.1%)
71	TT	0.51	0/1120	0.84	3/1499 (0.2%)
72	UU	0.48	0/831	0.75	0/1115
73	VV	0.53	0/645	0.83	0/865
74	WW	0.59	0/1051	0.88	0/1406
75	XX	0.58	0/1116	0.90	1/1490 (0.1%)
76	YY	0.51	0/1040	0.80	0/1382
77	ZZ	0.49	0/604	0.82	0/810

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >2	RMSZ	# Z  >2
78	aa	0.53	0/794	0.87	0/1065
79	bb	0.43	0/665	0.71	0/891
8	H	0.51	0/1535	0.84	1/2063 (0.0%)
80	cc	0.57	0/478	0.88	0/640
81	dd	0.61	0/455	0.92	1/603 (0.2%)
82	ee	0.57	0/462	0.84	1/607 (0.2%)
83	ff	0.39	0/531	0.65	0/703
84	gg	0.45	0/2493	0.70	1/3394 (0.0%)
85	hh	0.47	0/287	0.78	0/445
86	ii	0.45	0/3333	0.67	1/4483 (0.0%)
87	jj	0.42	0/4633	0.70	3/6249 (0.0%)
9	I	0.55	0/1693	0.79	1/2260 (0.0%)
All	All	0.52	32/242711 (0.0%)	0.84	235/355683 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	2
11	L	0	1
14	O	0	3
18	S	0	2
19	T	0	1
2	B	0	6
21	V	0	1
23	X	0	1
24	Y	0	1
26	a	0	2
3	C	0	5
31	f	0	1
33	h	0	1
36	k	0	1
38	m	0	1
4	D	0	1
42	r	0	1
5	E	0	4
51	9	0	3
52	AA	0	2
53	BB	0	3
55	DD	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
56	EE	0	2
57	FF	0	1
59	HH	0	1
61	JJ	0	1
63	LL	0	2
66	OO	0	2
68	QQ	0	1
7	G	0	1
70	SS	0	3
71	TT	0	1
72	UU	0	2
73	VV	0	1
74	WW	0	1
75	XX	0	1
76	YY	0	1
78	aa	0	2
86	ii	0	3
87	jj	0	2
9	I	0	4
All	All	0	76

All (32) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
48	5	957	G	O3'-P	9.85	1.73	1.61
48	5	3859	G	O3'-P	-8.08	1.51	1.61
48	5	1847	C	O3'-P	-7.85	1.51	1.61
48	5	956	A	O3'-P	7.22	1.69	1.61
51	9	677	G	O3'-P	-6.35	1.53	1.61
51	9	1473	G	O3'-P	6.30	1.68	1.61
48	5	1393	G	O3'-P	-6.24	1.53	1.61
51	9	314	U	O3'-P	6.21	1.68	1.61
48	5	4526	U	O3'-P	-6.09	1.53	1.61
48	5	2023	C	O3'-P	-5.88	1.54	1.61
51	9	913	A	O3'-P	-5.77	1.54	1.61
48	5	1395	U	O3'-P	-5.75	1.54	1.61
48	5	2394	G	O3'-P	-5.70	1.54	1.61
48	5	2808	G	O3'-P	-5.62	1.54	1.61
48	5	2297	G	O3'-P	-5.38	1.54	1.61
3	C	111	TRP	CB-CG	-5.37	1.40	1.50
48	5	97	G	O3'-P	-5.35	1.54	1.61
48	5	1343	A	O3'-P	-5.32	1.54	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
48	5	3850	C	O3'-P	-5.30	1.54	1.61
51	9	1353	A	O3'-P	-5.21	1.54	1.61
48	5	4186	A	O3'-P	-5.19	1.54	1.61
51	9	641	A	O3'-P	-5.17	1.54	1.61
48	5	4429	C	O3'-P	-5.17	1.54	1.61
48	5	4645	C	O3'-P	-5.15	1.54	1.61
48	5	1636	U	O3'-P	-5.14	1.54	1.61
48	5	371	A	O3'-P	-5.13	1.54	1.61
35	j	48	ASN	CG-OD1	5.12	1.35	1.24
51	9	1843	G	O3'-P	-5.11	1.55	1.61
48	5	1603	C	O3'-P	-5.07	1.55	1.61
51	9	419	G	O3'-P	-5.07	1.55	1.61
51	9	393	U	O3'-P	-5.05	1.55	1.61
51	9	429	C	O3'-P	-5.02	1.55	1.61

All (235) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
48	5	1965	G	P-O3'-C3'	20.40	144.18	119.70
48	5	3753	G	N9-C1'-C2'	-13.34	96.66	114.00
51	9	1235	G	N9-C1'-C2'	-12.87	97.27	114.00
47	3	70	G	N9-C1'-C2'	-12.35	97.94	114.00
51	9	1212	G	N9-C1'-C2'	-11.52	99.03	114.00
48	5	3718	A	N9-C1'-C2'	-11.47	99.09	114.00
51	9	1455	A	N9-C1'-C2'	-11.40	99.18	114.00
48	5	1969	G	N9-C1'-C2'	-10.95	99.77	114.00
48	5	4975	G	C2'-C3'-O3'	10.64	132.91	109.50
48	5	1358	G	C4'-C3'-O3'	10.59	134.18	113.00
87	jj	121	LYS	CD-CE-NZ	-10.49	87.57	111.70
51	9	909	G	N9-C1'-C2'	-10.46	100.40	114.00
48	5	2022	C	C4'-C3'-O3'	10.20	133.40	113.00
48	5	1961	G	N9-C1'-C2'	-9.92	101.08	112.00
48	5	2027	U	N1-C1'-C2'	-9.88	101.13	112.00
51	9	322	C	N1-C1'-C2'	-9.85	101.17	112.00
24	Y	87	ARG	NE-CZ-NH2	9.81	125.21	120.30
48	5	3888	G	C2'-C3'-O3'	9.78	131.03	109.50
35	j	63	ARG	NE-CZ-NH1	9.56	125.08	120.30
48	5	1357	C	C4'-C3'-O3'	9.38	131.75	113.00
48	5	1477	C	C2'-C3'-O3'	8.93	129.14	109.50
48	5	2028	C	N1-C1'-C2'	-8.78	102.34	112.00
48	5	3697	U	C2'-C3'-O3'	8.73	128.70	109.50
48	5	1292	C	C2'-C3'-O3'	8.54	128.28	109.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
51	9	1835	A	C2'-C3'-O3'	8.54	128.28	109.50
48	5	1965	G	OP1-P-O3'	8.43	123.74	105.20
51	9	1394	G	C2'-C3'-O3'	8.38	127.94	109.50
51	9	1448	A	N9-C1'-C2'	-8.35	102.82	112.00
68	QQ	146	ARG	NE-CZ-NH2	8.33	124.47	120.30
48	5	2858	A	N9-C1'-C2'	-8.29	102.89	112.00
61	JJ	24	ARG	NE-CZ-NH1	8.28	124.44	120.30
48	5	2858	A	C4'-C3'-O3'	8.28	129.56	113.00
48	5	2046	G	C2'-C3'-O3'	8.20	127.53	109.50
48	5	406	C	C2'-C3'-O3'	8.18	127.50	109.50
48	5	4548	A	C2'-C3'-O3'	8.18	127.49	109.50
48	5	1211	G	C2'-C3'-O3'	8.12	127.36	109.50
51	9	908	A	N9-C1'-C2'	-8.09	103.10	112.00
47	3	38	A	N9-C1'-C2'	-8.09	103.10	112.00
22	W	44	ARG	NE-CZ-NH1	7.98	124.29	120.30
48	5	3718	A	C4'-C3'-O3'	7.97	128.94	113.00
48	5	1961	G	C4'-C3'-O3'	7.95	128.89	113.00
61	JJ	127	ARG	NE-CZ-NH1	7.93	124.26	120.30
48	5	1455	G	C2'-C3'-O3'	7.92	126.91	109.50
48	5	1962	A	N9-C1'-C2'	-7.86	103.36	112.00
48	5	385	A	C4'-C3'-O3'	7.82	128.63	113.00
48	5	2021	G	N9-C1'-C2'	-7.79	103.43	112.00
51	9	1235	G	C4'-C3'-O3'	7.77	128.53	113.00
48	5	4198	G	O5'-P-OP2	-7.73	98.74	105.70
71	TT	62	ARG	NE-CZ-NH2	7.72	124.16	120.30
51	9	1211	G	N9-C1'-C2'	-7.67	103.56	112.00
48	5	47	A	C4'-C3'-O3'	7.63	128.27	113.00
48	5	4948	C	C2'-C3'-O3'	7.61	126.24	109.50
51	9	1234	C	N1-C1'-C2'	-7.60	103.64	112.00
48	5	1847	C	C4'-C3'-O3'	-7.56	93.53	109.40
51	9	1212	G	C4'-C3'-O3'	7.54	128.08	113.00
48	5	1239	C	C2'-C3'-O3'	7.38	125.73	109.50
47	3	30	G	N9-C1'-C2'	-7.37	103.89	112.00
48	5	3625	G	C2'-C3'-O3'	7.37	125.72	109.50
48	5	125	C	C2'-C3'-O3'	7.35	125.68	109.50
5	E	208	LEU	CA-CB-CG	7.32	132.14	115.30
48	5	2695	A	C2'-C3'-O3'	7.25	125.45	109.50
51	9	110	U	C2'-C3'-O3'	7.25	125.44	109.50
51	9	1294	G	N9-C1'-C2'	-7.24	104.04	112.00
49	7	1	G	C5'-C4'-O4'	7.18	117.71	109.10
3	C	342	ARG	NE-CZ-NH1	7.16	123.88	120.30
48	5	5060	A	C2'-C3'-O3'	7.11	125.15	109.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
18	S	83	ARG	NE-CZ-NH2	7.06	123.83	120.30
48	5	2632	U	N1-C1'-C2'	7.06	123.17	114.00
48	5	90	G	C2'-C3'-O3'	7.03	124.96	109.50
47	3	39	U	N1-C1'-C2'	-7.03	104.27	112.00
51	9	312	G	C2'-C3'-O3'	7.02	124.95	109.50
51	9	1385	G	N9-C1'-C2'	-6.98	104.32	112.00
51	9	1419	C	C2'-C3'-O3'	6.96	124.84	113.70
2	B	261	ARG	N-CA-C	-6.96	92.20	111.00
48	5	1266	G	C2'-C3'-O3'	6.90	124.74	113.70
48	5	2586	G	N9-C1'-C2'	6.90	122.96	114.00
48	5	215	C	C2'-C3'-O3'	6.81	124.60	113.70
48	5	275	C	C2'-C3'-O3'	6.81	124.59	113.70
48	5	957	G	P-O3'-C3'	6.76	127.81	119.70
51	9	666	U	N1-C1'-C2'	6.75	122.77	114.00
81	dd	44	ARG	NE-CZ-NH1	6.74	123.67	120.30
35	j	63	ARG	NE-CZ-NH2	-6.72	116.94	120.30
51	9	1824	A	C2'-C3'-O3'	6.71	124.44	113.70
48	5	1398	A	C2'-C3'-O3'	6.71	124.43	113.70
46	2	1	G	C5'-C4'-O4'	6.70	117.14	109.10
51	9	1386	A	N9-C1'-C2'	-6.69	104.64	112.00
48	5	1236	C	C2'-C3'-O3'	6.68	124.39	113.70
48	5	4528	G	C2'-C3'-O3'	6.68	124.39	113.70
48	5	2083	C	C4'-C3'-O3'	6.54	126.07	113.00
42	r	107	ARG	NE-CZ-NH1	6.53	123.57	120.30
51	9	1060	A	N9-C1'-C2'	6.51	122.47	114.00
48	5	3670	C	N1-C1'-C2'	-6.48	104.88	112.00
51	9	1681	U	N1-C1'-C2'	-6.45	104.91	112.00
13	N	44	ARG	NE-CZ-NH1	6.44	123.52	120.30
48	5	1969	G	C4'-C3'-O3'	6.43	125.86	113.00
48	5	5061	A	C2'-C3'-O3'	6.40	123.94	113.70
34	i	85	ARG	NE-CZ-NH1	6.39	123.49	120.30
48	5	1280	C	C2'-C3'-O3'	6.39	123.92	113.70
48	5	1672	U	N1-C1'-C2'	6.36	122.27	114.00
48	5	4885	U	C2'-C3'-O3'	6.33	123.84	113.70
48	5	2474	G	C2'-C3'-O3'	6.30	123.79	113.70
51	9	1447	G	N9-C1'-C2'	-6.24	105.13	112.00
48	5	1357	C	C2'-C3'-O3'	-6.24	95.78	109.50
48	5	4951	G	C2'-C3'-O3'	6.23	123.67	113.70
13	N	63	ARG	NE-CZ-NH1	6.23	123.41	120.30
17	R	60	ARG	NE-CZ-NH1	6.22	123.41	120.30
48	5	276	C	C4'-C3'-O3'	-6.22	96.34	109.40
23	X	62	ARG	NE-CZ-NH1	6.22	123.41	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
86	ii	182	ARG	NE-CZ-NH1	6.20	123.40	120.30
51	9	1844	U	C4'-C3'-O3'	-6.20	96.38	109.40
2	B	17	LEU	CA-CB-CG	6.20	129.56	115.30
48	5	5059	C	C2'-C3'-O3'	6.18	123.59	113.70
51	9	1535	U	C4'-C3'-O3'	-6.11	96.58	109.40
48	5	286	U	N1-C1'-C2'	6.08	121.90	114.00
48	5	1818	G	C2'-C3'-O3'	6.06	123.40	113.70
51	9	1535	U	N1-C1'-C2'	6.05	121.87	114.00
71	TT	84	ARG	NE-CZ-NH2	6.05	123.33	120.30
34	i	25	ARG	NE-CZ-NH1	6.05	123.32	120.30
48	5	2027	U	C4'-C3'-O3'	5.99	124.98	113.00
7	G	146	LEU	CA-CB-CG	5.94	128.96	115.30
48	5	2067	C	C4'-C3'-O3'	-5.92	96.98	109.40
10	J	136	ARG	NE-CZ-NH1	5.90	123.25	120.30
48	5	956	A	P-O3'-C3'	5.89	126.77	119.70
82	ee	13	ARG	NE-CZ-NH1	5.87	123.23	120.30
35	j	63	ARG	CG-CD-NE	5.84	124.07	111.80
27	b	14	ARG	NE-CZ-NH2	5.78	123.19	120.30
42	r	107	ARG	NE-CZ-NH2	-5.77	117.41	120.30
48	5	977	C	C2'-C3'-O3'	5.77	122.94	113.70
48	5	1990	A	C2'-C3'-O3'	5.76	122.92	113.70
70	SS	113	ARG	NE-CZ-NH1	5.76	123.18	120.30
48	5	2067	C	C2'-C3'-O3'	5.75	122.89	113.70
48	5	3717	A	N9-C1'-C2'	-5.73	105.70	112.00
48	5	1380	G	C4'-C3'-O3'	5.71	124.42	113.00
3	C	98	GLY	N-CA-C	-5.69	98.86	113.10
48	5	2123	C	C2'-C3'-O3'	5.69	122.81	113.70
48	5	1965	G	OP2-P-O3'	-5.68	92.70	105.20
48	5	1072	C	N1-C1'-C2'	5.67	121.38	114.00
48	5	1238	A	C2'-C3'-O3'	5.66	122.76	113.70
5	E	72	PRO	N-CA-CB	5.66	110.09	103.30
48	5	3670	C	C4'-C3'-O3'	5.64	124.29	113.00
48	5	957	G	N9-C1'-C2'	5.64	121.33	114.00
48	5	1365	C	C4'-C3'-O3'	5.64	124.28	113.00
46	2	1	G	C5'-C4'-C3'	5.62	124.99	116.00
48	5	1329	G	C2'-C3'-O3'	5.62	122.69	113.70
2	B	37	PRO	CA-N-CD	-5.62	103.63	111.50
61	JJ	131	ARG	NE-CZ-NH2	-5.61	117.49	120.30
51	9	1473	G	C4'-C3'-O3'	5.61	124.21	113.00
18	S	87	ARG	NE-CZ-NH1	5.58	123.09	120.30
48	5	2797	C	N1-C1'-C2'	-5.56	105.89	112.00
51	9	1212	G	C2'-C3'-O3'	-5.56	97.28	109.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
48	5	118	C	C4'-C3'-O3'	-5.55	97.74	109.40
48	5	7	C	C2'-C3'-O3'	5.55	122.58	113.70
17	R	6	LEU	CA-CB-CG	5.53	128.03	115.30
18	S	83	ARG	CG-CD-NE	5.53	123.41	111.80
47	3	70	G	C4'-C3'-O3'	5.52	124.03	113.00
48	5	957	G	C2'-C3'-O3'	5.51	122.52	113.70
3	C	232	VAL	CB-CA-C	-5.49	100.98	111.40
48	5	2116	C	C2'-C3'-O3'	5.49	122.48	113.70
48	5	2054	U	N1-C1'-C2'	5.48	121.12	114.00
8	H	124	ARG	NE-CZ-NH2	-5.46	117.57	120.30
3	C	199	ARG	NE-CZ-NH1	5.46	123.03	120.30
48	5	4084	G	C2'-C3'-O3'	5.45	122.42	113.70
51	9	1144	A	N9-C1'-C2'	5.44	121.07	114.00
51	9	588	G	C2'-C3'-O3'	5.43	122.38	113.70
48	5	4975	G	C4'-C3'-O3'	-5.42	98.01	109.40
10	J	119	TYR	CA-CB-CG	5.42	123.70	113.40
30	e	36	ARG	NE-CZ-NH2	5.41	123.01	120.30
48	5	4723	A	C4-N9-C1'	5.41	136.03	126.30
87	jj	567	ARG	NE-CZ-NH1	-5.41	117.60	120.30
48	5	1474	C	C2'-C3'-O3'	5.40	122.34	113.70
48	5	2822	G	N9-C1'-C2'	-5.40	106.06	112.00
2	B	258	HIS	N-CA-C	5.40	125.58	111.00
75	XX	67	ARG	NE-CZ-NH2	5.39	123.00	120.30
51	9	1234	C	C2'-C3'-O3'	5.38	122.31	113.70
48	5	4723	A	C8-N9-C1'	-5.37	118.03	127.70
48	5	1465	G	C2'-C3'-O3'	5.37	122.29	113.70
48	5	2740	U	O5'-P-OP1	-5.36	100.87	105.70
32	g	66	ARG	NE-CZ-NH1	5.36	122.98	120.30
48	5	4966	A	N9-C1'-C2'	5.34	120.94	114.00
29	d	78	ARG	NE-CZ-NH1	5.33	122.96	120.30
60	II	5	ARG	NE-CZ-NH1	5.33	122.96	120.30
48	5	1379	C	O4'-C1'-C2'	-5.31	100.49	105.80
32	g	8	ARG	NE-CZ-NH2	-5.31	117.65	120.30
71	TT	42	HIS	CB-CA-C	-5.31	99.78	110.40
51	9	1680	G	N9-C1'-C2'	-5.30	106.17	112.00
9	I	204	GLY	C-N-CD	5.30	139.53	128.40
11	L	39	ARG	NE-CZ-NH1	5.30	122.95	120.30
22	W	44	ARG	NE-CZ-NH2	-5.27	117.67	120.30
87	jj	567	ARG	NE-CZ-NH2	5.26	122.93	120.30
48	5	956	A	N9-C1'-C2'	5.25	120.83	114.00
13	N	38	ARG	NE-CZ-NH2	-5.25	117.68	120.30
11	L	74	ARG	NE-CZ-NH1	5.24	122.92	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
32	g	24	ARG	NE-CZ-NH1	5.23	122.91	120.30
26	a	32	ARG	NE-CZ-NH1	5.22	122.91	120.30
48	5	684	G	C2'-C3'-O3'	5.22	122.05	113.70
48	5	2703	G	C5'-C4'-O4'	5.21	115.35	109.10
51	9	472	C	C2'-C3'-O3'	5.20	122.02	113.70
51	9	55	U	N1-C1'-C2'	5.19	120.75	114.00
33	h	22	ASP	CB-CG-OD2	5.18	122.96	118.30
48	5	2265	G	N9-C1'-C2'	5.17	120.73	114.00
48	5	2649	G	C2'-C3'-O3'	5.17	121.98	113.70
51	9	1595	U	N1-C1'-C2'	5.17	120.73	114.00
1	A	196	TRP	C-N-CD	-5.17	109.23	120.60
3	C	342	ARG	NE-CZ-NH2	-5.17	117.72	120.30
48	5	2553	A	O4'-C1'-N9	5.17	112.33	108.20
7	G	231	ASP	CB-CG-OD2	5.16	122.94	118.30
4	D	15	ARG	NE-CZ-NH2	5.15	122.88	120.30
39	n	11	ARG	NE-CZ-NH2	-5.15	117.72	120.30
46	2	35	A	O5'-P-OP2	-5.14	101.07	105.70
48	5	2021	G	C1'-C2'-O2'	-5.14	95.18	110.60
51	9	1489	A	C4'-C3'-O3'	5.14	123.28	113.00
51	9	1620	A	N9-C1'-C2'	5.13	120.67	114.00
48	5	3859	G	C4'-C3'-O3'	-5.13	98.63	109.40
48	5	486	C	C2'-C3'-O3'	5.12	121.89	113.70
51	9	1647	A	C2'-C3'-O3'	5.11	121.87	113.70
18	S	164	LYS	C-N-CD	-5.10	109.38	120.60
18	S	84	TYR	CB-CG-CD1	5.08	124.05	121.00
48	5	4119	C	C2'-C3'-O3'	5.08	121.83	113.70
84	gg	17	TRP	CA-CB-CG	5.07	123.33	113.70
48	5	3753	G	C4'-C3'-O3'	5.05	123.11	113.00
53	BB	136	ARG	NE-CZ-NH2	5.05	122.83	120.30
51	9	1109	C	C1'-C2'-O2'	5.05	125.76	110.60
48	5	5024	C	C2'-C3'-O3'	5.05	121.78	113.70
54	CC	137	VAL	CB-CA-C	-5.05	101.81	111.40
6	F	168	ARG	NE-CZ-NH1	5.05	122.82	120.30
66	OO	146	ARG	NE-CZ-NH1	5.05	122.82	120.30
6	F	219	ARG	NE-CZ-NH1	5.04	122.82	120.30
66	OO	147	ARG	NE-CZ-NH2	-5.04	117.78	120.30
48	5	1380	G	N9-C1'-C2'	5.03	120.54	114.00
18	S	83	ARG	NE-CZ-NH1	-5.03	117.78	120.30
48	5	979	C	C2'-C3'-O3'	5.02	121.73	113.70
48	5	1393	G	C4'-C3'-O3'	-5.02	98.87	109.40
35	j	63	ARG	CD-NE-CZ	5.01	130.61	123.60
51	9	1268	C	N1-C1'-C2'	-5.01	106.49	112.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
48	5	978	G	O4'-C4'-C3'	-5.00	99.00	104.00

There are no chirality outliers.

All (76) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
51	9	1212	G	Sidechain
51	9	1235	G	Sidechain
51	9	909	G	Sidechain
1	A	195	CYS	Peptide
1	A	196	TRP	Peptide
52	AA	42	LYS	Peptide
52	AA	73	ASP	Peptide
2	B	17	LEU	Peptide
2	B	257	TRP	Peptide
2	B	35	ASP	Peptide
2	B	351	LEU	Peptide
2	B	36	ASP	Peptide
2	B	37	PRO	Peptide
53	BB	106	THR	Peptide
53	BB	150	ILE	Peptide
53	BB	211	PHE	Peptide
3	C	149	GLU	Peptide
3	C	245	HIS	Peptide
3	C	339	THR	Peptide
3	C	48	ASN	Peptide
3	C	73	VAL	Peptide
4	D	36	LEU	Peptide
55	DD	201	LYS	Peptide
5	E	123	SER	Peptide
5	E	125	GLY	Peptide
5	E	126	ARG	Peptide
5	E	149	LEU	Peptide
56	EE	205	PHE	Peptide
56	EE	66	MET	Peptide
57	FF	43	GLU	Peptide
7	G	27	VAL	Peptide
59	HH	111	LYS	Peptide
9	I	167	ILE	Peptide
9	I	168	SER	Peptide
9	I	203	ARG	Peptide
9	I	204	GLY	Peptide

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Mol	Chain	Res	Type	Group
61	JJ	38	ARG	Peptide
11	L	66	TYR	Peptide
63	LL	115	PRO	Peptide
63	LL	134	LEU	Peptide
14	O	148	LYS	Peptide
14	O	191	ARG	Peptide
14	O	68	ARG	Peptide
66	OO	103	ASN	Peptide
66	OO	145	GLY	Peptide
68	QQ	42	ILE	Peptide
18	S	164	LYS	Peptide
18	S	5	GLY	Peptide
70	SS	11	HIS	Peptide
70	SS	88	LYS	Peptide
70	SS	9	PHE	Peptide
19	T	32	ARG	Peptide
71	TT	42	HIS	Peptide
72	UU	68	THR	Peptide
72	UU	72	GLU	Peptide
21	V	97	TYR	Peptide
73	VV	32	ILE	Peptide
74	WW	27	ILE	Peptide
23	X	126	THR	Peptide
75	XX	98	ASP	Peptide
24	Y	7	VAL	Peptide
76	YY	32	LYS	Peptide
26	a	14	HIS	Peptide
26	a	90	ALA	Peptide
78	aa	46	GLU	Peptide
78	aa	9	GLY	Peptide
31	f	105	LEU	Peptide
33	h	95	LEU	Peptide
86	ii	323	TYR	Peptide
86	ii	325	ASN	Peptide
86	ii	326	LEU	Peptide
87	jj	284	ASP	Peptide
87	jj	596	PHE	Peptide
36	k	28	ASN	Peptide
38	m	111	ARG	Peptide
42	r	70	GLN	Peptide



## 5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1868	0	1959	44	0
2	B	3148	0	3267	69	0
3	C	2875	0	3049	69	0
4	D	2386	0	2419	29	0
5	E	1898	0	2035	64	0
6	F	1870	0	1994	41	0
7	G	1934	0	2087	40	0
8	H	1516	0	1597	21	0
9	I	1655	0	1704	62	0
10	J	1353	0	1386	19	0
11	L	1703	0	1820	46	0
12	M	1137	0	1211	27	0
13	N	1701	0	1749	42	0
14	O	1638	0	1777	38	0
15	P	1242	0	1269	15	0
16	Q	1506	0	1623	22	0
17	R	1508	0	1664	25	0
18	S	1454	0	1496	33	0
19	T	1298	0	1366	13	0
20	U	808	0	831	10	0
21	V	979	0	1039	10	0
22	W	528	0	541	6	0
23	X	976	0	1053	20	0
24	Y	1115	0	1205	13	0
25	Z	1107	0	1182	20	0
26	a	1162	0	1209	0	0
27	b	609	0	650	0	0
28	c	732	0	769	0	0
29	d	888	0	930	0	0
30	e	1053	0	1147	0	0
31	f	876	0	912	0	0
32	g	906	0	998	0	0
33	h	1013	0	1147	0	0
34	i	830	0	916	0	0
35	j	705	0	738	0	0
36	k	569	0	637	0	0
37	l	444	0	483	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
38	m	429	0	467	0	0
39	n	222	0	264	0	0
40	o	851	0	922	0	0
41	p	708	0	756	0	0
42	r	1001	0	1060	0	0
43	s	1523	0	1577	0	0
44	t	1238	0	1295	0	0
45	1	125	0	117	2	0
46	2	1616	0	824	22	0
47	3	1593	0	811	48	0
48	5	78486	0	39663	1576	0
49	7	2558	0	1296	30	0
50	8	3314	0	1683	53	0
51	9	36680	0	18530	711	0
52	AA	1642	0	1646	30	0
53	BB	1729	0	1803	28	0
54	CC	1692	0	1780	45	0
55	DD	1764	0	1863	23	0
56	EE	2073	0	2175	45	0
57	FF	1509	0	1563	24	0
58	GG	1923	0	2089	33	0
59	HH	1521	0	1616	27	0
60	II	1686	0	1772	35	0
61	JJ	1525	0	1640	30	0
62	KK	827	0	854	10	0
63	LL	1238	0	1315	20	0
64	MM	958	0	993	4	0
65	NN	1208	0	1294	8	0
66	OO	1016	0	1039	24	0
67	PP	1060	0	1120	12	0
68	QQ	1124	0	1193	13	0
69	RR	1047	0	1103	12	0
70	SS	1139	0	1191	16	0
71	TT	1102	0	1142	20	0
72	UU	821	0	883	2	0
73	VV	636	0	634	13	0
74	WW	1034	0	1080	19	0
75	XX	1098	0	1167	9	0
76	YY	1023	0	1090	19	0
77	ZZ	598	0	656	9	0
78	aa	781	0	829	0	0
79	bb	651	0	672	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
80	cc	475	0	497	0	0
81	dd	445	0	439	0	0
82	ee	457	0	502	0	0
83	ff	520	0	536	0	0
84	gg	2436	0	2393	0	0
85	hh	257	0	129	0	0
86	ii	3280	0	3326	0	0
87	jj	4551	0	4687	0	0
88	5	147	0	0	0	0
88	7	5	0	0	0	0
88	8	2	0	0	0	0
88	9	35	0	0	0	0
88	C	1	0	0	0	0
88	I	1	0	0	0	0
88	P	1	0	0	0	0
88	V	1	0	0	0	0
88	g	1	0	0	0	0
88	hh	1	0	0	0	0
89	aa	1	0	0	0	0
89	dd	1	0	0	0	0
89	ff	1	0	0	0	0
89	g	1	0	0	0	0
89	j	1	0	0	0	0
89	m	1	0	0	0	0
89	o	1	0	0	0	0
89	p	1	0	0	0	0
90	jj	16	0	0	0	0
91	jj	54	0	24	0	0
All	All	226453	0	169859	3455	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 10.

All (3455) 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)
9:I:191:ILE:HD12	9:I:200:ILE:CD1	1.25	1.59
9:I:191:ILE:CD1	9:I:200:ILE:HD12	1.17	1.55
48:5:1968:G:H1	48:5:2018:C:N4	1.21	1.34
9:I:191:ILE:CD1	9:I:200:ILE:CD1	1.90	1.34
48:5:976:G:H2'	48:5:977:C:O4'	1.21	1.31

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:9:1137:U:O4	51:9:1148:A:N1	1.64	1.29
48:5:2022:C:C5	48:5:2023:C:C6	2.19	1.29
5:E:126:ARG:NH2	48:5:1285:U:OP1	1.71	1.22
48:5:2468:U:O4	48:5:2473:A:N1	1.70	1.22
7:G:86:VAL:CG1	7:G:185:LYS:HG2	1.71	1.19
51:9:872:A:N1	51:9:914:U:O4	1.77	1.17
9:I:51:HIS:O	9:I:53:VAL:HG23	1.48	1.14
48:5:1278:C:H3'	48:5:1279:A:H4'	1.29	1.13
48:5:1968:G:N1	48:5:2018:C:N4	1.97	1.13
48:5:1960:A:C3'	48:5:1961:G:H5''	1.79	1.12
51:9:1137:U:C4	51:9:1148:A:N1	2.18	1.11
9:I:87:ILE:HG12	9:I:138:ILE:HG12	1.32	1.11
9:I:191:ILE:HD11	9:I:200:ILE:HD12	1.13	1.11
48:5:2022:C:C5	48:5:2023:C:C5	2.40	1.09
48:5:2367:A:N1	48:5:2788:U:O4	1.87	1.08
7:G:86:VAL:HG11	7:G:185:LYS:CG	1.84	1.08
9:I:191:ILE:HD12	9:I:200:ILE:HD11	1.26	1.08
48:5:4213:A:N1	48:5:4218:U:O4	1.86	1.08
51:9:1307:U:H2'	51:9:1308:U:H5''	1.30	1.08
46:2:35:A:OP2	68:QQ:146:ARG:NH1	1.87	1.07
48:5:1960:A:C4'	48:5:1961:G:H5''	1.85	1.06
2:B:163:LEU:CD2	2:B:182:GLU:HG2	1.85	1.05
48:5:2409:U:C4	48:5:2783:A:N1	2.25	1.04
48:5:2409:U:O4	48:5:2783:A:N1	1.90	1.04
48:5:2022:C:C6	48:5:2023:C:C6	2.47	1.03
48:5:1279:A:H3'	48:5:1280:C:H5''	1.36	1.03
11:L:170:THR:HG23	11:L:173:GLU:H	1.18	1.03
48:5:1960:A:H3'	48:5:1961:G:H5''	1.39	1.03
48:5:2022:C:H2'	48:5:2023:C:C4'	1.88	1.03
9:I:149:VAL:HG22	9:I:167:ILE:HD11	1.33	1.02
51:9:830:A:N1	51:9:844:U:O4	1.92	1.02
48:5:1929:A:N1	48:5:2054:U:O4	1.93	1.01
51:9:1137:U:O4	51:9:1148:A:C2	2.15	1.00
51:9:830:A:N6	51:9:844:U:N3	2.09	0.99
9:I:149:VAL:CG2	9:I:167:ILE:HD11	1.93	0.99
47:3:67:U:C2'	47:3:68:C:H5'	1.92	0.98
2:B:163:LEU:HD23	2:B:182:GLU:HG2	1.46	0.98
48:5:976:G:C2'	48:5:977:C:O4'	2.12	0.96
5:E:59:TYR:CD2	5:E:64:LEU:HD12	2.00	0.96
9:I:82:LYS:HE3	48:5:1990:A:OP1	1.64	0.96
48:5:3914:U:H3	48:5:4378:A:H61	1.06	0.96

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:9:872:A:N1	51:9:914:U:C4	2.34	0.96
48:5:48:G:O2'	48:5:49:U:OP2	1.82	0.95
48:5:1279:A:C3'	48:5:1280:C:H5''	1.97	0.95
7:G:29:ASN:HD21	7:G:31:LEU:HD23	1.34	0.94
48:5:1957:U:O2'	48:5:1958:A:O4'	1.87	0.93
5:E:126:ARG:HH21	48:5:1285:U:P	1.91	0.93
51:9:1385:G:C2'	51:9:1386:A:H5'	2.00	0.92
7:G:86:VAL:HG11	7:G:185:LYS:HG2	0.93	0.92
48:5:4633:G:O2'	48:5:4635:A:OP2	1.88	0.91
48:5:1983:A:N1	48:5:2008:U:C4	2.39	0.91
48:5:2468:U:N3	48:5:2473:A:N6	2.17	0.91
51:9:1235:G:H2'	51:9:1236:G:H8	1.34	0.90
48:5:1968:G:H1	48:5:2018:C:H41	1.15	0.89
48:5:2638:G:N2	48:5:2697:A:N1	2.20	0.89
51:9:1109:C:O2'	51:9:1110:G:O5'	1.91	0.89
11:L:56:ARG:O	11:L:116:ARG:NH2	2.06	0.89
48:5:957:G:H1'	48:5:958:G:OP2	1.71	0.88
48:5:745:G:H2'	48:5:746:A:O4'	1.74	0.87
2:B:163:LEU:HD21	2:B:182:GLU:HG2	1.57	0.87
7:G:29:ASN:ND2	7:G:31:LEU:HD23	1.89	0.87
51:9:1109:C:O2	51:9:1109:C:H2'	1.73	0.86
48:5:1968:G:N2	48:5:2018:C:H42	1.73	0.86
51:9:1144:A:H2'	51:9:1145:A:C8	2.09	0.86
51:9:1235:G:H2'	51:9:1236:G:C8	2.09	0.86
48:5:1960:A:H3'	48:5:1961:G:C5'	2.06	0.85
54:CC:204:ILE:HD11	54:CC:215:LEU:CD2	2.06	0.85
9:I:49:CYS:SG	9:I:51:HIS:NE2	2.49	0.85
48:5:2395:A:O2'	48:5:2806:A:H1'	1.75	0.85
2:B:163:LEU:CD2	2:B:182:GLU:CG	2.54	0.84
48:5:1958:A:N1	48:5:2026:A:C6	2.45	0.84
11:L:116:ARG:NH1	11:L:155:MET:O	2.10	0.84
48:5:1279:A:H3'	48:5:1280:C:C5'	2.08	0.84
9:I:49:CYS:HA	9:I:138:ILE:O	1.77	0.84
4:D:200:MET:HE3	4:D:200:MET:HA	1.59	0.83
14:O:22:ILE:HD13	14:O:120:VAL:HG11	1.57	0.83
11:L:170:THR:CG2	11:L:173:GLU:HB2	2.08	0.83
47:3:67:U:C3'	47:3:68:C:H5'	2.07	0.83
48:5:1929:A:H61	48:5:2054:U:H3	1.25	0.83
3:C:114:ARG:HB2	3:C:114:ARG:CZ	2.07	0.83
47:3:67:U:H2'	47:3:68:C:H5'	1.60	0.83
51:9:1307:U:C2'	51:9:1308:U:H5''	2.08	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:M:81:ASP:OD1	12:M:84:THR:HG23	1.77	0.82
48:5:77:U:O4	48:5:335:A:N1	2.12	0.82
17:R:168:GLU:O	17:R:172:ARG:HG2	1.79	0.82
51:9:1102:G:N2	51:9:1103:C:C2	2.47	0.81
21:V:28:CYS:SG	21:V:30:ASP:OD1	2.38	0.81
5:E:126:ARG:NH1	48:5:712:C:O2'	2.12	0.81
5:E:157:ARG:O	5:E:178:ASN:ND2	2.13	0.81
48:5:1755:C:O2'	48:5:1756:U:O5'	1.99	0.81
48:5:1840:G:H3'	48:5:1842:G:P	2.21	0.81
48:5:919:C:N4	48:5:920:C:C4	2.49	0.81
9:I:49:CYS:HB2	9:I:51:HIS:CE1	2.15	0.81
48:5:1278:C:C3'	48:5:1279:A:H4'	2.09	0.81
48:5:2022:C:H5	48:5:2023:C:C5	1.97	0.81
9:I:51:HIS:O	9:I:53:VAL:CG2	2.28	0.81
5:E:124:HIS:O	48:5:1282:G:O6	1.99	0.80
5:E:238:ILE:O	5:E:239:THR:OG1	1.98	0.80
48:5:1957:U:H2'	48:5:1958:A:H8	1.46	0.80
48:5:3723:A:H2'	48:5:3724:A:C8	2.17	0.80
47:3:29:A:O2'	47:3:30:G:O5'	1.98	0.80
48:5:4723:A:H2'	48:5:4724:A:C8	2.16	0.79
48:5:2022:C:H2'	48:5:2023:C:O4'	1.81	0.79
48:5:3914:U:H3	48:5:4378:A:N6	1.80	0.79
5:E:251:SER:O	5:E:255:PRO:HD3	1.82	0.79
5:E:254:LEU:O	5:E:254:LEU:HD23	1.83	0.79
48:5:976:G:OP1	48:5:976:G:H4'	1.82	0.79
48:5:1960:A:C3'	48:5:1961:G:C5'	2.60	0.78
48:5:1280:C:C4	48:5:1282:G:C6	2.72	0.78
45:1:68:VAL:C	46:2:76:A:O2'	2.22	0.78
54:CC:199:PRO:O	54:CC:202:THR:OG1	2.02	0.78
70:SS:11:HIS:O	70:SS:12:ILE:HD12	1.83	0.78
48:5:2758:G:O2'	48:5:2764:A:N3	2.17	0.78
51:9:1385:G:H2'	51:9:1386:A:H5'	1.65	0.78
48:5:1823:G:O3'	48:5:1825:A:P	2.42	0.77
51:9:1137:U:O4	51:9:1148:A:C6	2.37	0.77
4:D:200:MET:HA	4:D:200:MET:CE	2.13	0.77
11:L:170:THR:HG23	11:L:173:GLU:N	1.96	0.77
48:5:482:G:H2'	48:5:483:G:C8	2.19	0.77
51:9:1681:U:O2'	51:9:1682:C:O4'	2.03	0.77
51:9:1598:G:H3'	77:ZZ:80:ARG:HD2	1.67	0.77
48:5:504:G:N1	48:5:654:C:C2	2.53	0.77
5:E:62:LYS:HE3	48:5:978:G:OP2	1.85	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:2468:U:C4	48:5:2473:A:N1	2.52	0.77
51:9:1614:A:OP2	67:PP:42:ARG:NH1	2.18	0.76
51:9:1680:G:O2'	51:9:1681:U:H5'	1.84	0.76
2:B:163:LEU:HD21	2:B:182:GLU:CG	2.14	0.76
48:5:1960:A:C5'	48:5:1961:G:H5''	2.16	0.76
48:5:1983:A:N1	48:5:2008:U:O4	2.18	0.76
51:9:1407:U:H2'	51:9:1408:U:C5	2.21	0.76
54:CC:204:ILE:CD1	54:CC:215:LEU:HD21	2.15	0.76
48:5:2773:G:N2	48:5:2774:C:C2	2.54	0.76
51:9:1416:C:H2'	51:9:1417:C:C2	2.21	0.76
51:9:322:C:O2'	51:9:323:C:O5'	2.03	0.76
51:9:1420:G:HO2'	71:TT:4:VAL:N	1.84	0.75
47:3:38:A:O2'	47:3:39:U:H5'	1.86	0.75
48:5:2468:U:H3	48:5:2473:A:N6	1.81	0.75
51:9:1144:A:C2	51:9:1145:A:C2	2.75	0.75
19:T:64:VAL:HG13	19:T:72:VAL:HG13	1.68	0.75
51:9:911:C:C2'	51:9:912:C:H5'	2.16	0.75
56:EE:52:LEU:HB3	56:EE:54:TYR:CD1	2.20	0.75
48:5:504:G:C2	48:5:654:C:O2	2.39	0.75
3:C:271:ALA:O	3:C:272:SER:OG	2.01	0.75
9:I:49:CYS:HG	9:I:51:HIS:HE2	1.30	0.75
51:9:1267:C:O2'	51:9:1268:C:H5'	1.87	0.74
54:CC:73:VAL:HG12	54:CC:73:VAL:O	1.87	0.74
14:O:5:GLN:HE21	14:O:5:GLN:N	1.84	0.74
51:9:872:A:C2	51:9:914:U:O4	2.40	0.74
48:5:2826:U:H4'	48:5:2827:G:H5'	1.69	0.74
51:9:1386:A:H2'	51:9:1387:G:C8	2.23	0.74
51:9:872:A:C6	51:9:914:U:O4	2.40	0.74
48:5:2022:C:C3'	48:5:2023:C:H5''	2.17	0.74
4:D:95:TYR:HH	4:D:195:HIS:HE2	1.33	0.74
8:H:27:VAL:HG12	8:H:84:VAL:HG21	1.67	0.74
49:7:30:C:C2	49:7:48:G:N2	2.55	0.74
48:5:2769:U:C2	48:5:2770:C:C5	2.75	0.73
51:9:1307:U:H2'	51:9:1308:U:C5'	2.16	0.73
11:L:42:ARG:HE	11:L:45:ARG:NH1	1.86	0.73
51:9:309:G:N2	51:9:310:C:C2	2.57	0.73
48:5:1835:G:O2'	48:5:1836:G:OP2	2.04	0.73
48:5:2084:C:H3'	48:5:2085:G:C5'	2.18	0.73
48:5:977:C:C2'	48:5:978:G:H5'	2.18	0.73
47:3:35:U:C1'	51:9:1641:A:OP1	2.36	0.73
51:9:945:U:H2'	51:9:946:U:C6	2.24	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:L:163:LYS:HE2	48:5:509:A:H4'	1.69	0.73
13:N:202:ARG:NH2	48:5:1372:A:OP1	2.21	0.72
51:9:1408:U:H2'	51:9:1409:A:C8	2.24	0.72
51:9:872:A:C6	51:9:914:U:C4	2.77	0.72
48:5:2288:G:N2	48:5:2290:C:C2	2.57	0.72
13:N:181:HIS:CD2	48:5:99:A:H4'	2.24	0.72
51:9:1385:G:O2'	51:9:1386:A:H5'	1.89	0.72
51:9:1386:A:H2'	51:9:1387:G:H8	1.54	0.72
7:G:86:VAL:HG21	7:G:185:LYS:HE3	1.70	0.72
51:9:1447:G:O2'	51:9:1448:A:H5'	1.89	0.72
46:2:35:A:OP2	68:QQ:146:ARG:CZ	2.37	0.72
18:S:53:LYS:NZ	49:7:74:A:O2'	2.22	0.72
11:L:42:ARG:HE	11:L:45:ARG:HH12	1.37	0.72
48:5:1213:G:C6	48:5:1215:C:C2	2.78	0.72
48:5:1359:G:H2'	48:5:1360:G:C8	2.24	0.72
48:5:1176:C:O2'	48:5:1177:U:O4'	2.08	0.72
48:5:977:C:C2	48:5:978:G:C8	2.78	0.72
51:9:1374:C:O2'	51:9:1464:C:O2	2.07	0.72
48:5:2517:A:N3	48:5:2539:C:O2'	2.22	0.72
4:D:33:ARG:NH2	49:7:7:G:O3'	2.23	0.72
51:9:1102:G:C2	51:9:1130:G:N2	2.58	0.72
51:9:1406:G:H3'	51:9:1407:U:H4'	1.71	0.72
51:9:830:A:N6	51:9:844:U:H3	1.86	0.72
46:2:38:C:O2'	51:9:1058:A:OP1	2.08	0.71
48:5:1968:G:H22	48:5:2018:C:H42	1.38	0.71
48:5:1724:G:H4'	48:5:1725:U:OP2	1.90	0.71
48:5:181:C:N3	48:5:256:G:C2	2.59	0.71
48:5:2022:C:C4	48:5:2023:C:C2	2.79	0.71
48:5:2022:C:H3'	48:5:2023:C:H5''	1.72	0.71
51:9:1407:U:H2'	51:9:1408:U:C6	2.25	0.71
48:5:1929:A:N6	48:5:2054:U:H3	1.88	0.71
51:9:751:G:C2	51:9:792:C:N3	2.58	0.71
8:H:19:SER:OG	8:H:26:ILE:HG13	1.91	0.71
48:5:2409:U:C4	48:5:2783:A:C2	2.78	0.71
48:5:4461:C:O2	48:5:4516:G:C2	2.44	0.71
48:5:516:C:C2	48:5:646:G:N2	2.59	0.71
16:Q:65:ARG:NH1	48:5:1502:G:OP1	2.24	0.71
54:CC:204:ILE:HD11	54:CC:215:LEU:HD21	1.69	0.71
48:5:4579:U:O2	48:5:4580:U:C2	2.44	0.70
48:5:4901:G:N2	48:5:4921:C:C2	2.59	0.70
51:9:1454:A:OP1	69:RR:3:ARG:NE	2.24	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:2022:C:H2'	48:5:2023:C:H4'	1.73	0.70
48:5:5024:C:H2'	60:II:168:GLN:HG3	1.72	0.70
51:9:17:C:O2'	51:9:1194:A:N1	2.21	0.70
54:CC:204:ILE:HD11	54:CC:215:LEU:HD23	1.71	0.70
48:5:499:G:N2	48:5:656:C:C2	2.60	0.70
56:EE:52:LEU:HB3	56:EE:54:TYR:HD1	1.52	0.70
48:5:2089:G:O2'	48:5:2090:U:OP2	2.08	0.70
48:5:4453:C:C2	48:5:4529:G:C2	2.80	0.70
48:5:4892:A:N1	48:5:4927:G:O6	2.25	0.70
48:5:499:G:C2	48:5:656:C:C2	2.80	0.70
51:9:1011:A:H2'	51:9:1012:A:O4'	1.91	0.70
9:I:51:HIS:ND1	9:I:137:SER:HB2	2.07	0.70
48:5:2367:A:N6	48:5:2798:A:O4'	2.25	0.69
48:5:3751:G:C2'	48:5:3752:C:H5'	2.22	0.69
6:F:164:ILE:HB	6:F:169:ILE:HD12	1.73	0.69
13:N:160:GLU:N	13:N:160:GLU:OE1	2.25	0.69
47:3:29:A:HO2'	47:3:30:G:C5'	2.06	0.69
51:9:1102:G:N1	51:9:1103:C:C4	2.61	0.69
53:BB:39:PHE:CE2	53:BB:74:LEU:HD23	2.27	0.69
48:5:1682:A:C2	48:5:1683:U:C2	2.81	0.69
48:5:1958:A:C6	48:5:2026:A:C6	2.80	0.69
48:5:1378:C:H3'	48:5:1379:C:H5'	1.74	0.69
48:5:1929:A:N7	48:5:1932:A:H1'	2.08	0.69
48:5:2022:C:H2'	48:5:2023:C:C5'	2.22	0.69
11:L:170:THR:HG22	11:L:173:GLU:HB2	1.74	0.69
48:5:4371:G:O2'	48:5:4372:U:OP2	2.07	0.69
25:Z:52:LYS:O	25:Z:65:ARG:NH2	2.25	0.69
48:5:1367:C:N3	48:5:1369:C:OP2	2.26	0.69
9:I:87:ILE:HG12	9:I:138:ILE:CG1	2.19	0.69
48:5:1962:A:OP1	48:5:2020:U:OP2	2.11	0.68
63:LL:103:GLU:OE1	75:XX:14:ARG:NH2	2.26	0.68
12:M:81:ASP:OD1	12:M:84:THR:CG2	2.42	0.68
48:5:4291:G:H5''	48:5:4291:G:N3	2.09	0.68
11:L:74:ARG:NH2	48:5:76:A:N7	2.41	0.68
48:5:1367:C:C2	48:5:1370:G:H2'	2.28	0.68
14:O:18:ARG:NH1	48:5:2053:C:O3'	2.27	0.68
1:A:77:ILE:HD13	1:A:128:ARG:HB2	1.76	0.68
48:5:2367:A:N6	48:5:2788:U:N3	2.42	0.68
48:5:642:G:N2	48:5:643:C:C2	2.62	0.68
51:9:1308:U:H2'	51:9:1309:C:O4'	1.94	0.68
48:5:4473:A:C2	48:5:4474:A:C5	2.82	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:J:83:LEU:HD12	10:J:170:TYR:OH	1.92	0.68
48:5:2367:A:N6	48:5:2788:U:H3	1.93	0.67
4:D:23:ARG:NH2	48:5:4280:A:OP2	2.26	0.67
2:B:163:LEU:HD23	2:B:182:GLU:CG	2.18	0.67
48:5:199:G:C6	48:5:201:C:N4	2.62	0.67
48:5:1379:C:H4'	48:5:1380:G:O4'	1.92	0.67
51:9:980:A:H2'	51:9:981:A:C8	2.30	0.67
48:5:1956:A:H2'	48:5:1957:U:H5'	1.77	0.67
51:9:1190:A:H2'	51:9:1191:C:O4'	1.95	0.67
59:HH:172:THR:O	59:HH:176:VAL:HG23	1.95	0.67
48:5:3751:G:O2'	48:5:3775:A:N6	2.28	0.67
68:QQ:146:ARG:HH21	68:QQ:146:ARG:HG3	1.59	0.67
48:5:3724:A:N6	48:5:3725:G:C6	2.63	0.67
48:5:4942:C:O3'	48:5:4944:C:P	2.53	0.67
57:FF:20:PHE:O	57:FF:94:LYS:NZ	2.27	0.67
47:3:39:U:O2'	47:3:40:C:H6	1.78	0.67
48:5:4481:U:H2'	48:5:4482:U:C6	2.29	0.67
48:5:504:G:C6	48:5:654:C:N3	2.63	0.67
54:CC:118:ALA:O	54:CC:119:ALA:HB3	1.95	0.67
5:E:257:ILE:HG22	5:E:263:LEU:HD23	1.77	0.67
48:5:1984:A:N6	48:5:2011:C:O2'	2.28	0.66
48:5:2022:C:C4	48:5:2023:C:C6	2.83	0.66
48:5:2905:C:C2	48:5:3590:G:N2	2.63	0.66
51:9:1344:A:N6	51:9:1386:A:H5''	2.09	0.66
47:3:35:U:H1'	51:9:1641:A:OP1	1.94	0.66
48:5:1378:C:H3'	48:5:1379:C:C5'	2.25	0.66
48:5:2793:G:C6	48:5:2797:C:C4	2.83	0.66
48:5:1958:A:C6	48:5:2026:A:N1	2.63	0.66
51:9:1406:G:C3'	51:9:1407:U:H4'	2.25	0.66
52:AA:19:LEU:HD11	69:RR:106:LEU:HD11	1.78	0.66
48:5:2409:U:O4	48:5:2783:A:C6	2.48	0.66
51:9:1842:C:C2	51:9:1858:G:C2	2.84	0.66
4:D:199:ILE:HG22	4:D:200:MET:SD	2.36	0.66
48:5:1268:G:H4'	48:5:1269:G:OP1	1.96	0.66
48:5:4213:A:H61	48:5:4218:U:H3	1.43	0.66
9:I:181:PHE:O	9:I:185:VAL:HG23	1.95	0.66
48:5:1960:A:H4'	48:5:1961:G:H5''	1.77	0.66
48:5:4462:C:C2	48:5:4515:G:C2	2.84	0.66
48:5:22:G:N2	50:8:35:C:C2	2.64	0.66
60:II:38:ILE:HD11	60:II:81:VAL:HG23	1.77	0.66
61:JJ:118:GLY:O	61:JJ:120:ALA:N	2.29	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
74:WW:11:LEU:HD22	74:WW:72:CYS:SG	2.36	0.66
55:DD:134:CYS:SG	55:DD:135:GLU:N	2.68	0.66
11:L:47:ALA:HB3	11:L:48:PRO:HD3	1.76	0.65
21:V:57:VAL:HG23	21:V:84:GLN:HG2	1.77	0.65
51:9:1679:A:O2'	51:9:1680:G:OP2	2.09	0.65
47:3:76:A:N6	48:5:4371:G:N7	2.45	0.65
48:5:2554:U:H4'	48:5:2555:G:OP1	1.96	0.65
48:5:3656:A:O4'	48:5:3747:A:C2	2.48	0.65
48:5:4454:G:HO2'	48:5:4500:U:HO2'	1.39	0.65
51:9:1012:A:C2	51:9:1013:U:C2	2.84	0.65
2:B:39:LYS:NZ	2:B:39:LYS:HB3	2.11	0.65
48:5:1279:A:C2'	48:5:1280:C:H5''	2.26	0.65
51:9:434:G:H2'	51:9:435:A:C8	2.31	0.65
48:5:497:G:N2	48:5:657:C:C2	2.64	0.65
3:C:209:VAL:HB	3:C:229:LEU:HD13	1.77	0.65
48:5:976:G:H2'	48:5:977:C:C1'	2.24	0.65
48:5:1957:U:C2'	48:5:1958:A:H8	2.10	0.65
48:5:2022:C:C4	48:5:2023:C:N1	2.65	0.65
48:5:106:A:H1'	48:5:336:A:C8	2.32	0.65
3:C:341:LEU:HD21	5:E:46:LEU:HD21	1.78	0.65
48:5:917:A:C2	48:5:919:C:C5	2.84	0.64
48:5:1074:G:N2	48:5:1075:G:C2	2.66	0.64
51:9:1265:A:N3	51:9:1265:A:H2'	2.10	0.64
51:9:200:G:N2	51:9:201:C:C2	2.65	0.64
51:9:14:C:OP2	54:CC:232:THR:HG21	1.97	0.64
9:I:149:VAL:CG2	9:I:167:ILE:CD1	2.74	0.64
48:5:300:A:C2	48:5:301:G:C5	2.86	0.64
11:L:163:LYS:CE	48:5:509:A:H4'	2.27	0.64
48:5:1081:C:C2	48:5:1220:G:C2	2.85	0.64
48:5:2022:C:N4	48:5:2023:C:N3	2.46	0.64
48:5:4473:A:C2	48:5:4482:U:N3	2.65	0.64
54:CC:75:ILE:HG23	54:CC:80:GLU:OE1	1.97	0.64
9:I:187:GLU:O	9:I:188:LYS:HB2	1.97	0.64
48:5:1280:C:H3'	48:5:1281:G:H5''	1.80	0.64
48:5:1186:U:H2'	48:5:1187:G:O4'	1.98	0.64
48:5:1468:C:C2	48:5:1498:G:N2	2.66	0.64
48:5:1975:G:O4'	48:5:1984:A:H1'	1.97	0.64
48:5:222:C:H2'	48:5:223:G:O4'	1.98	0.64
48:5:2256:C:O2	48:5:2256:C:H2'	1.96	0.64
48:5:4462:C:C2	48:5:4515:G:N2	2.65	0.64
48:5:4939:C:O3'	48:5:4941:G:P	2.55	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:EE:160:ILE:HG21	56:EE:169:ILE:HG22	1.80	0.64
24:Y:49:ILE:HD13	24:Y:80:ILE:HD13	1.79	0.64
47:3:39:U:HO2'	47:3:40:C:H6	1.45	0.64
48:5:1958:A:N6	48:5:2026:A:N6	2.45	0.64
48:5:93:G:H2'	48:5:94:A:C8	2.33	0.64
51:9:1102:G:C2	51:9:1103:C:C4	2.86	0.64
48:5:2768:C:O5'	48:5:2769:U:H5'	1.98	0.64
54:CC:209:VAL:HG21	54:CC:233:LEU:HD13	1.79	0.64
9:I:47:PRO:O	9:I:48:LEU:HB2	1.97	0.64
60:II:182:CYS:SG	60:II:183:GLY:N	2.71	0.64
14:O:37:ARG:NH2	48:5:4760:G:OP2	2.31	0.64
48:5:2088:A:O2'	48:5:2089:G:P	2.56	0.64
51:9:908:A:O2'	51:9:909:G:O5'	2.12	0.64
51:9:200:G:N1	51:9:201:C:C4	2.66	0.63
51:9:640:A:H2'	51:9:641:A:C8	2.32	0.63
48:5:1358:G:C6	48:5:1379:C:N3	2.66	0.63
58:GG:188:LYS:HA	58:GG:191:ARG:HD3	1.80	0.63
48:5:1840:G:C3'	48:5:1842:G:P	2.85	0.63
48:5:111:C:C2	48:5:331:G:C2	2.86	0.63
51:9:1204:A:O2'	51:9:1700:C:OP2	2.15	0.63
7:G:29:ASN:OD1	7:G:30:PRO:HD2	1.99	0.63
48:5:933:G:C2	48:5:940:C:C6	2.86	0.63
9:I:184:MET:HE3	9:I:189:ARG:HD2	1.80	0.63
15:P:36:ILE:HD11	15:P:48:LEU:HD11	1.81	0.63
48:5:1404:G:C2	48:5:1414:C:C2	2.86	0.63
48:5:1550:G:C2	48:5:1579:C:C2	2.85	0.63
48:5:2288:G:N1	48:5:2290:C:C4	2.66	0.63
51:9:911:C:H2'	51:9:912:C:H5'	1.79	0.63
13:N:195:ARG:NH2	48:5:98:A:O3'	2.31	0.63
48:5:1999:A:H1'	48:5:2017:A:N1	2.13	0.63
54:CC:100:ALA:O	54:CC:102:LEU:N	2.32	0.63
4:D:219:TYR:CE2	4:D:227:ILE:HD11	2.34	0.63
48:5:1957:U:H2'	48:5:1958:A:C8	2.33	0.63
48:5:2258:C:H2'	48:5:2258:C:O2	1.98	0.63
5:E:202:VAL:HG13	5:E:256:LYS:NZ	2.14	0.63
48:5:956:A:H4'	48:5:957:G:OP2	1.98	0.63
51:9:1129:G:H3'	51:9:1130:G:H8	1.64	0.63
51:9:152:U:H2'	51:9:153:G:O4'	1.99	0.63
48:5:181:C:C2	48:5:256:G:N2	2.67	0.63
48:5:2773:G:N1	48:5:2774:C:C4	2.66	0.63
51:9:309:G:N1	51:9:310:C:C4	2.67	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:312:LYS:HD2	2:B:370:THR:HG21	1.81	0.63
55:DD:126:ILE:HD11	55:DD:134:CYS:SG	2.38	0.63
60:II:162:LEU:HD11	60:II:191:GLU:HG2	1.81	0.63
51:9:1408:U:C4	51:9:1409:A:N6	2.67	0.62
51:9:1839:U:H2'	51:9:1840:U:C6	2.34	0.62
51:9:751:G:N2	51:9:792:C:C2	2.67	0.62
10:J:62:ILE:HB	10:J:68:ILE:HD11	1.81	0.62
48:5:2547:G:N2	48:5:2548:C:C2	2.66	0.62
54:CC:204:ILE:CD1	54:CC:215:LEU:CD2	2.74	0.62
56:EE:55:ALA:HB1	56:EE:60:GLU:HB2	1.81	0.62
48:5:3717:A:O2'	48:5:3718:A:O4'	2.16	0.62
51:9:1228:A:H2'	51:9:1229:G:C8	2.34	0.62
51:9:1339:U:H2'	51:9:1340:U:O4'	1.99	0.62
48:5:1074:G:C2	48:5:1238:A:C2	2.87	0.62
48:5:51:A:N3	48:5:1528:U:O2'	2.31	0.62
48:5:1956:A:C2'	48:5:1957:U:H5'	2.29	0.62
48:5:5000:G:C2	48:5:5051:C:C2	2.87	0.62
54:CC:94:ILE:HG21	54:CC:159:LYS:HB3	1.80	0.62
7:G:86:VAL:HG12	7:G:87:LEU:N	2.15	0.62
48:5:1279:A:C2	48:5:1280:C:C2	2.87	0.62
48:5:22:G:C2	50:8:35:C:N3	2.67	0.62
13:N:195:ARG:HH21	48:5:99:A:P	2.22	0.62
51:9:1771:G:N2	51:9:1772:C:C2	2.67	0.62
57:FF:76:MET:HA	57:FF:155:CYS:SG	2.40	0.62
69:RR:126:MET:O	69:RR:127:ASN:ND2	2.32	0.62
47:3:1:G:N2	47:3:2:C:C2	2.68	0.62
48:5:1958:A:C2	48:5:2026:A:C2	2.88	0.62
48:5:1328:G:O2'	48:5:2349:A:OP1	2.18	0.62
51:9:1401:A:C2	51:9:1402:A:C6	2.87	0.62
5:E:62:LYS:HE2	48:5:979:C:OP2	1.98	0.62
46:2:53:G:C2	46:2:62:C:C2	2.88	0.62
48:5:4510:A:O2'	48:5:4511:A:O4'	2.16	0.62
57:FF:71:ARG:NH1	57:FF:148:ASN:OD1	2.30	0.62
59:HH:43:LEU:HD22	59:HH:72:PHE:CD2	2.35	0.62
48:5:112:C:C2	48:5:330:G:C2	2.88	0.62
48:5:1264:C:H2'	48:5:1265:G:O4'	2.00	0.62
53:BB:125:VAL:HG11	53:BB:173:THR:HG23	1.80	0.62
48:5:1968:G:H22	48:5:2018:C:N4	1.97	0.62
48:5:2023:C:OP1	48:5:2023:C:H4'	1.99	0.62
48:5:1958:A:N6	48:5:2026:A:H61	1.97	0.62
48:5:723:A:C2	48:5:943:A:N1	2.68	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:7:30:C:N3	49:7:48:G:C2	2.68	0.62
51:9:1235:G:H5'	51:9:1247:C:H42	1.64	0.62
5:E:174:PRO:O	5:E:176:SER:N	2.33	0.62
56:EE:100:ARG:HD2	56:EE:102:ILE:HD11	1.81	0.62
47:3:39:U:O2'	47:3:40:C:C6	2.52	0.62
48:5:1358:G:H8	48:5:1358:G:H3'	1.63	0.62
51:9:1616:U:O4	67:PP:40:ARG:NH1	2.31	0.62
48:5:1279:A:H2'	48:5:1280:C:C6	2.35	0.61
48:5:1957:U:C2'	48:5:1958:A:C8	2.83	0.61
48:5:1957:U:O2'	48:5:1958:A:H5'	2.00	0.61
50:8:118:C:C2	50:8:133:G:C2	2.88	0.61
11:L:170:THR:HG23	11:L:173:GLU:HB2	1.82	0.61
48:5:3752:C:O2'	48:5:3753:G:OP2	2.15	0.61
48:5:707:C:H42	48:5:1290:G:H1	1.48	0.61
10:J:53:ALA:HB2	10:J:68:ILE:HD12	1.81	0.61
48:5:1213:G:N1	48:5:1215:C:C2	2.69	0.61
48:5:1984:A:N7	48:5:2011:C:H4'	2.16	0.61
48:5:5066:U:H2'	48:5:5067:U:C6	2.35	0.61
51:9:1589:A:N3	51:9:1653:U:O2'	2.33	0.61
51:9:322:C:HO2'	51:9:323:C:P	2.24	0.61
1:A:13:GLY:O	1:A:15:VAL:N	2.32	0.61
48:5:1999:A:O2'	48:5:2000:G:O4'	2.18	0.61
48:5:3751:G:O2'	48:5:3752:C:H5'	2.01	0.61
5:E:125:GLY:O	5:E:127:LYS:HG3	2.00	0.61
9:I:191:ILE:HD12	9:I:200:ILE:HD12	0.86	0.61
48:5:960:A:N6	48:5:1283:G:O6	2.33	0.61
48:5:1991:A:N6	48:5:2003:G:OP1	2.34	0.61
48:5:5061:A:O2'	48:5:5062:G:OP2	2.08	0.61
48:5:515:C:C2	48:5:647:G:C2	2.89	0.61
13:N:180:PHE:O	13:N:182:HIS:N	2.33	0.61
48:5:977:C:C4	48:5:978:G:N7	2.69	0.61
55:DD:31:GLU:OE1	55:DD:106:ARG:NH2	2.34	0.61
5:E:54:SER:OG	5:E:55:ARG:N	2.33	0.61
48:5:504:G:C6	48:5:654:C:C2	2.89	0.61
51:9:830:A:N1	51:9:844:U:C4	2.67	0.61
51:9:1681:U:O2'	51:9:1682:C:O5'	2.18	0.61
14:O:26:GLN:OE1	14:O:31:ARG:NH1	2.33	0.61
51:9:1613:G:C2	51:9:1627:C:C2	2.88	0.60
64:MM:50:CYS:SG	64:MM:51:VAL:N	2.74	0.60
48:5:1899:G:N2	48:5:1900:C:C2	2.69	0.60
48:5:2022:C:C3'	48:5:2023:C:C5'	2.79	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:2814:C:C2'	48:5:2814:C:O2	2.49	0.60
51:9:1102:G:N2	51:9:1130:G:N2	2.48	0.60
51:9:195:C:C2	51:9:205:G:N2	2.70	0.60
4:D:129:GLU:HG3	4:D:177:THR:HG21	1.83	0.60
51:9:1409:A:N6	51:9:1410:C:C4	2.69	0.60
5:E:217:GLN:NE2	5:E:233:LYS:HD2	2.16	0.60
51:9:163:U:OP2	58:GG:87:ARG:NH2	2.35	0.60
10:J:150:CYS:SG	10:J:151:ILE:N	2.71	0.60
48:5:4901:G:C2	48:5:4921:C:N3	2.70	0.60
6:F:91:LEU:HD22	6:F:92:ALA:N	2.17	0.60
11:L:167:ARG:NH1	11:L:173:GLU:OE1	2.34	0.60
48:5:2108:G:C6	48:5:2125:C:N4	2.69	0.60
48:5:4281:A:C2	48:5:4283:G:C6	2.90	0.60
51:9:1298:G:O2'	51:9:1299:A:C8	2.50	0.60
16:Q:43:PHE:CE2	16:Q:138:LEU:HD12	2.37	0.60
76:YY:85:ASN:HD22	76:YY:85:ASN:H	1.49	0.60
48:5:1983:A:C6	48:5:2008:U:O4	2.55	0.60
48:5:1987:C:H2'	48:5:1987:C:O2	2.00	0.60
48:5:4714:C:C5	48:5:4715:C:C5	2.89	0.60
51:9:488:U:H2'	51:9:488:U:O2	2.01	0.60
48:5:2089:G:N3	48:5:2089:G:H2'	2.16	0.60
2:B:39:LYS:HB3	2:B:39:LYS:HZ3	1.66	0.60
48:5:1358:G:C8	48:5:1358:G:H3'	2.36	0.60
48:5:1360:G:C6	48:5:1361:G:C5	2.90	0.60
48:5:2022:C:N4	48:5:2023:C:C2	2.70	0.60
48:5:1358:G:O2'	48:5:1359:G:O4'	2.18	0.60
48:5:986:C:C2	48:5:1068:G:N2	2.69	0.60
9:I:49:CYS:SG	9:I:51:HIS:CE1	2.95	0.60
48:5:3668:C:C2	48:5:3675:G:C2	2.90	0.59
48:5:4411:G:C2	48:5:4432:C:C2	2.90	0.59
51:9:50:A:C2	51:9:488:U:O4	2.55	0.59
5:E:124:HIS:C	5:E:124:HIS:ND1	2.55	0.59
48:5:1983:A:C2	48:5:2008:U:C4	2.89	0.59
48:5:2446:C:C2	48:5:2515:G:C2	2.90	0.59
48:5:2408:U:C2	48:5:2409:U:O4	2.55	0.59
51:9:834:C:N3	51:9:841:G:C2	2.71	0.59
1:A:179:ILE:HB	48:5:3653:A:H4'	1.84	0.59
25:Z:11:VAL:HG11	25:Z:80:LEU:HD13	1.84	0.59
49:7:30:C:C2	49:7:48:G:C2	2.91	0.59
51:9:1398:G:N2	51:9:1399:C:C2	2.70	0.59
52:AA:24:HIS:HB3	52:AA:51:LEU:HD11	1.84	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:3:PHE:HB2	48:5:1755:C:C6	2.37	0.59
8:H:19:SER:OG	8:H:26:ILE:CG1	2.50	0.59
13:N:138:PHE:CZ	48:5:18:C:H1'	2.38	0.59
48:5:2090:U:P	48:5:2090:U:O4'	2.60	0.59
48:5:2616:C:C2	48:5:2722:G:C2	2.90	0.59
48:5:4757:C:O4'	48:5:4757:C:O2	2.20	0.59
51:9:291:G:C8	51:9:291:G:O5'	2.55	0.59
3:C:357:ALA:O	3:C:361:LYS:HG3	2.03	0.59
9:I:49:CYS:CB	9:I:51:HIS:CE1	2.86	0.59
47:3:68:C:O2'	47:3:69:G:O4'	2.19	0.59
2:B:261:ARG:HE	48:5:3870:C:H4'	1.68	0.59
51:9:1528:G:N2	51:9:1529:C:C2	2.71	0.59
51:9:598:G:N2	51:9:639:C:C2	2.71	0.59
59:HH:61:ILE:HD13	59:HH:93:VAL:HG13	1.83	0.59
48:5:1297:U:O4'	48:5:1297:U:OP2	2.21	0.59
48:5:1958:A:C6	48:5:2026:A:N6	2.71	0.59
48:5:1928:C:C4	48:5:2054:U:O2	2.56	0.59
48:5:2688:G:N2	48:5:2689:C:C2	2.71	0.59
50:8:56:G:C4	50:8:62:A:C2	2.90	0.59
51:9:1298:G:O2'	51:9:1299:A:O5'	2.20	0.59
51:9:15:U:H2'	51:9:16:G:O4'	2.03	0.59
3:C:158:VAL:HG12	3:C:217:ILE:HD12	1.83	0.59
59:HH:23:ILE:HD11	59:HH:60:ILE:HD13	1.84	0.59
47:3:10:G:N2	47:3:11:C:C2	2.71	0.59
51:9:841:G:N2	51:9:842:C:C2	2.71	0.59
51:9:872:A:N6	51:9:914:U:C5	2.71	0.59
10:J:83:LEU:HD12	10:J:170:TYR:CZ	2.37	0.59
48:5:1277:G:N2	48:5:1278:C:C2	2.70	0.59
48:5:77:U:N3	48:5:335:A:N6	2.51	0.59
49:7:82:G:C2	49:7:95:C:C2	2.91	0.59
51:9:211:G:N2	51:9:212:C:C2	2.71	0.59
48:5:1541:C:C2	48:5:1619:G:C2	2.90	0.59
48:5:2294:G:N2	48:5:2295:C:C2	2.70	0.59
51:9:115:U:H2'	51:9:116:U:C6	2.37	0.59
51:9:1835:A:C4	51:9:1863:A:N7	2.70	0.59
61:JJ:97:ILE:O	61:JJ:100:LEU:HB2	2.02	0.59
48:5:2089:G:HO2'	48:5:2090:U:P	2.25	0.58
48:5:4419:U:OP1	48:5:4421:C:N4	2.36	0.58
48:5:642:G:N1	48:5:643:C:C4	2.70	0.58
50:8:60:G:O6	50:8:96:C:O2'	2.16	0.58
53:BB:62:LEU:HA	53:BB:65:ARG:HE	1.68	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:X:52:LEU:HD22	23:X:53:ARG:N	2.18	0.58
48:5:1550:G:N1	48:5:1551:C:C2	2.71	0.58
48:5:2793:G:C5	48:5:2797:C:N4	2.71	0.58
51:9:1201:U:H2'	51:9:1202:U:C6	2.38	0.58
51:9:1235:G:O2'	51:9:1236:G:O4'	2.13	0.58
5:E:254:LEU:C	5:E:254:LEU:HD23	2.24	0.58
51:9:1664:A:O2'	51:9:1665:G:O5'	2.14	0.58
14:O:156:LEU:HD13	48:5:4910:G:C4	2.39	0.58
51:9:1455:A:O2'	51:9:1456:G:O5'	2.21	0.58
9:I:92:HIS:HB2	9:I:94:PHE:CE2	2.39	0.58
48:5:2693:G:C6	48:5:2694:G:N1	2.71	0.58
48:5:3612:C:H1'	48:5:5016:A:C8	2.38	0.58
51:9:1717:C:C2	51:9:1817:G:N2	2.72	0.58
48:5:106:A:H2'	48:5:107:G:O4'	2.04	0.58
48:5:181:C:N4	48:5:256:G:C6	2.71	0.58
48:5:2729:C:H2'	48:5:2730:U:O4'	2.04	0.58
48:5:4213:A:N1	48:5:4218:U:C4	2.70	0.58
48:5:685:C:O2	48:5:685:C:C2'	2.52	0.58
51:9:1695:A:N1	51:9:1832:A:O2'	2.34	0.58
51:9:316:G:N2	51:9:317:C:C2	2.72	0.58
47:3:53:G:C2	47:3:62:C:C2	2.90	0.58
48:5:1485:C:O4'	48:5:1485:C:O2	2.19	0.58
51:9:1100:A:C2	51:9:1101:U:C2	2.91	0.58
9:I:191:ILE:CD1	9:I:200:ILE:HD11	2.00	0.58
9:I:4:ARG:NH2	9:I:9:TYR:OH	2.37	0.58
76:YY:55:ILE:HG12	76:YY:75:ILE:HG23	1.85	0.58
48:5:1550:G:C2	48:5:1579:C:O2	2.57	0.58
48:5:1958:A:N3	48:5:2026:A:C2	2.72	0.58
48:5:199:G:C2	48:5:220:C:O2	2.57	0.58
17:R:74:ARG:NH2	48:5:2891:U:OP2	2.34	0.58
11:L:31:ARG:HD2	48:5:337:U:OP1	2.03	0.58
48:5:3684:G:C6	48:5:3685:C:N4	2.72	0.58
48:5:1378:C:OP1	48:5:1379:C:H3'	2.04	0.58
48:5:4189:U:H2'	48:5:4190:U:O4'	2.04	0.58
51:9:1406:G:H2'	51:9:1407:U:O3'	2.03	0.58
51:9:1566:G:N7	71:TT:101:ARG:NH2	2.52	0.58
51:9:409:C:C2	51:9:432:G:N2	2.72	0.58
9:I:49:CYS:HG	9:I:51:HIS:CD2	2.19	0.58
48:5:1662:C:H2'	48:5:1663:C:C6	2.39	0.58
48:5:1874:A:H5'	48:5:4218:U:O2	2.03	0.58
48:5:2123:C:O2'	48:5:2124:G:OP2	2.17	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:4395:U:H6	48:5:4395:U:H5'	1.68	0.58
48:5:665:C:H2'	48:5:665:C:O2	2.03	0.58
48:5:2468:U:O4	48:5:2473:A:C2	2.53	0.57
48:5:4462:C:N3	48:5:4515:G:C2	2.72	0.57
52:AA:111:GLN:HB3	54:CC:63:VAL:CG1	2.34	0.57
51:9:446:G:OP2	60:II:47:ARG:NH1	2.37	0.57
61:JJ:46:VAL:HG21	61:JJ:106:LEU:HD11	1.86	0.57
18:S:9:GLU:HB3	18:S:67:VAL:HG13	1.86	0.57
48:5:4207:C:C2	48:5:4226:G:C2	2.92	0.57
48:5:4754:G:C2	48:5:4880:C:C2	2.93	0.57
51:9:1235:G:C5'	51:9:1247:C:H42	2.17	0.57
1:A:196:TRP:CG	1:A:197:PRO:N	2.72	0.57
5:E:135:LYS:O	5:E:163:GLN:NE2	2.37	0.57
5:E:202:VAL:HG13	5:E:256:LYS:HZ1	1.67	0.57
71:TT:33:TRP:O	71:TT:35:ASP:N	2.36	0.57
48:5:3627:G:N2	48:5:3835:C:C2	2.72	0.57
51:9:944:A:C5	51:9:945:U:C5	2.93	0.57
19:T:74:ILE:HD13	19:T:96:ILE:HD11	1.85	0.57
48:5:127:G:N2	48:5:128:C:C2	2.72	0.57
48:5:2557:G:C2	48:5:2571:C:C2	2.92	0.57
51:9:1526:G:N2	51:9:1527:C:C2	2.72	0.57
61:JJ:94:LEU:HD12	61:JJ:97:ILE:HD12	1.86	0.57
47:3:39:U:O4'	57:FF:135:ARG:NH2	2.38	0.57
48:5:2084:C:H3'	48:5:2085:G:H5'	1.85	0.57
48:5:2623:A:C2	48:5:2624:G:C5	2.92	0.57
51:9:291:G:H4'	51:9:292:A:OP1	2.04	0.57
51:9:350:C:HO2'	51:9:383:G:H1	1.50	0.57
51:9:833:C:H4'	51:9:834:C:OP1	2.05	0.57
48:5:2022:C:C5	48:5:2023:C:N1	2.71	0.57
48:5:2654:C:C2	48:5:2681:G:N2	2.73	0.57
48:5:4723:A:C2	48:5:4724:A:C5	2.92	0.57
50:8:83:C:H4'	50:8:85:U:O2	2.04	0.57
51:9:412:G:N2	51:9:429:C:C2	2.72	0.57
2:B:21:ARG:HD3	2:B:271:GLN:OE1	2.05	0.57
16:Q:11:ARG:NH2	48:5:1690:C:OP2	2.38	0.57
68:QQ:12:VAL:HG21	68:QQ:91:ALA:HA	1.86	0.57
48:5:1929:A:C8	48:5:1932:A:H1'	2.39	0.57
48:5:1962:A:OP1	48:5:2020:U:P	2.63	0.57
48:5:3765:G:O2'	48:5:3766:A:C8	2.57	0.57
48:5:4691:A:C2	48:5:4700:A:C4	2.92	0.57
48:5:4709:U:C4	48:5:4710:C:C4	2.93	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:516:C:N3	48:5:646:G:C2	2.73	0.57
46:2:53:G:N2	46:2:62:C:C2	2.73	0.57
48:5:1213:G:C2	48:5:1215:C:O2	2.58	0.57
48:5:1278:C:C6	48:5:1279:A:H1'	2.40	0.57
48:5:1297:U:O4'	48:5:1297:U:P	2.63	0.57
48:5:1354:A:H2'	48:5:1502:G:N1	2.20	0.57
48:5:1886:G:N2	48:5:1894:C:C2	2.72	0.57
48:5:245:C:O4'	48:5:245:C:O2	2.22	0.57
48:5:5028:G:C6	48:5:5029:C:N4	2.72	0.57
51:9:1108:G:C2	51:9:1125:C:C2	2.92	0.57
6:F:115:ARG:HH21	6:F:208:ASN:HA	1.69	0.57
11:L:65:ARG:HG2	11:L:66:TYR:CE2	2.39	0.57
71:TT:65:TYR:HA	71:TT:123:LEU:HD22	1.86	0.57
48:5:2408:U:C1'	48:5:2409:U:C5	2.88	0.57
48:5:2588:C:OP1	48:5:2767:U:O2'	2.23	0.57
48:5:4441:A:H5''	48:5:4441:A:C8	2.40	0.57
48:5:466:A:C2	48:5:467:U:C4	2.92	0.57
51:9:1760:G:C2	51:9:1773:C:C2	2.92	0.57
1:A:4:VAL:HG12	1:A:8:GLN:HB2	1.86	0.57
48:5:1279:A:C4	48:5:1280:C:C4	2.92	0.57
48:5:2022:C:C6	48:5:2023:C:H6	2.17	0.57
48:5:3766:A:N1	51:9:1827:U:O2'	2.33	0.57
48:5:937:U:H2'	48:5:937:U:O2	2.05	0.57
51:9:1784:G:N2	51:9:1785:C:C2	2.73	0.57
51:9:1857:G:OP2	66:OO:146:ARG:NH1	2.38	0.57
1:A:131:GLY:HA3	48:5:3683:C:C4	2.39	0.57
58:GG:52:ILE:HD11	58:GG:109:LEU:HD22	1.87	0.57
48:5:1468:C:C2	48:5:1498:G:C2	2.93	0.56
51:9:358:C:C2	51:9:405:G:C2	2.93	0.56
60:II:61:ASP:O	60:II:78:ILE:N	2.37	0.56
12:M:116:LYS:HB3	14:O:196:LEU:HD21	1.86	0.56
14:O:27:VAL:CG1	14:O:98:ALA:HB1	2.35	0.56
48:5:1268:G:C2	48:5:1270:A:C8	2.93	0.56
48:5:1358:G:C8	48:5:1358:G:C3'	2.88	0.56
48:5:2547:G:N1	48:5:2548:C:C4	2.73	0.56
48:5:976:G:C6	48:5:977:C:C4	2.92	0.56
56:EE:191:ARG:HD3	56:EE:245:ARG:HB3	1.87	0.56
9:I:191:ILE:HD11	9:I:200:ILE:CD1	1.95	0.56
75:XX:57:VAL:HG11	75:XX:115:ILE:HG22	1.87	0.56
48:5:723:A:H2	48:5:943:A:N1	2.03	0.56
48:5:969:C:O2'	48:5:970:G:N3	2.38	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:I:202:ASN:HB3	49:7:63:C:N3	2.21	0.56
11:L:175:ASN:O	11:L:176:PHE:O	2.23	0.56
48:5:1723:A:N1	48:5:1838:A:C2	2.73	0.56
48:5:4075:U:O2'	48:5:4076:G:P	2.63	0.56
51:9:1717:C:C2	51:9:1817:G:C2	2.93	0.56
56:EE:19:MET:SD	56:EE:108:ARG:HD2	2.45	0.56
48:5:4461:C:N3	48:5:4516:G:C6	2.74	0.56
48:5:4967:A:C2	48:5:4968:A:C4	2.94	0.56
2:B:174:ARG:NH1	48:5:4985:U:O2	2.39	0.56
48:5:3726:A:H2'	48:5:3727:A:C8	2.41	0.56
51:9:322:C:O2'	51:9:323:C:P	2.63	0.56
3:C:262:ASP:O	3:C:271:ALA:O	2.23	0.56
48:5:2256:C:O2	48:5:2256:C:C2'	2.53	0.56
17:R:92:LYS:NZ	48:5:2606:G:O3'	2.38	0.56
48:5:4508:C:N3	48:5:4512:U:H5	2.02	0.56
51:9:1303:C:O2	51:9:1303:C:O4'	2.23	0.56
51:9:639:C:H2'	51:9:640:A:C8	2.41	0.56
2:B:116:ARG:HD2	2:B:122:TRP:CD2	2.41	0.56
3:C:66:SER:HA	3:C:77:PRO:HA	1.88	0.56
14:O:36:VAL:HG11	14:O:108:ILE:HD12	1.88	0.56
18:S:9:GLU:HG2	18:S:33:PHE:CE1	2.40	0.56
19:T:87:LYS:NZ	48:5:4301:U:OP2	2.39	0.56
48:5:1447:C:H2'	48:5:1448:G:O4'	2.05	0.56
48:5:1929:A:N1	48:5:2054:U:C4	2.71	0.56
48:5:2367:A:N1	48:5:2788:U:C4	2.70	0.56
48:5:3594:C:H2'	48:5:3594:C:O2	2.03	0.56
51:9:1674:G:N7	68:QQ:17:LYS:NZ	2.54	0.56
51:9:912:C:H3'	51:9:913:A:H5''	1.88	0.56
48:5:2027:U:O2'	48:5:2028:C:H5'	2.06	0.56
48:5:4101:C:C2	48:5:4109:G:C2	2.94	0.56
51:9:1727:G:H2'	51:9:1728:U:O4'	2.06	0.56
61:JJ:110:LEU:HD22	61:JJ:114:VAL:HG23	1.86	0.56
61:JJ:39:ASN:OD1	61:JJ:41:ARG:HB3	2.06	0.56
48:5:1280:C:C2	48:5:1282:G:C4	2.94	0.56
48:5:1726:U:H3	48:5:1836:G:H1	1.54	0.56
48:5:1960:A:H5''	48:5:1961:G:H5''	1.86	0.56
48:5:2258:C:C2'	48:5:2258:C:O2	2.54	0.56
48:5:77:U:H3	48:5:336:A:N6	2.03	0.56
48:5:4601:U:OP2	48:5:4609:G:N1	2.36	0.56
48:5:976:G:C2	48:5:977:C:C2	2.94	0.56
48:5:977:C:H2'	48:5:978:G:O4'	2.05	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:9:1019:C:H2'	51:9:1020:A:O4'	2.05	0.56
51:9:291:G:N2	51:9:293:C:OP2	2.33	0.56
51:9:474:G:N2	51:9:475:C:C2	2.74	0.56
51:9:872:A:N6	51:9:914:U:C4	2.74	0.56
12:M:53:LYS:NZ	48:5:1921:C:O2'	2.39	0.56
17:R:6:LEU:HD13	17:R:10:LEU:HD23	1.88	0.56
25:Z:16:GLY:O	25:Z:18:TYR:N	2.39	0.56
48:5:1213:G:O6	48:5:1215:C:C4	2.59	0.56
48:5:1404:G:N2	48:5:1414:C:C2	2.74	0.56
48:5:3685:C:H2'	48:5:3686:G:O4'	2.06	0.56
48:5:685:C:H2'	48:5:685:C:O2	2.06	0.56
1:A:40:TYR:CE1	48:5:4117:U:C4	2.94	0.56
55:DD:206:ASP:N	55:DD:206:ASP:OD1	2.39	0.56
48:5:3870:C:C2	48:5:3886:G:C2	2.94	0.55
51:9:853:C:O4'	51:9:853:C:O2	2.24	0.55
5:E:254:LEU:HD21	5:E:258:LYS:CE	2.35	0.55
9:I:3:ARG:NH2	48:5:4431:U:OP2	2.39	0.55
9:I:82:LYS:HE3	48:5:1990:A:P	2.46	0.55
48:5:3945:A:H4'	53:BB:54:GLY:HA2	1.89	0.55
48:5:4579:U:H2'	48:5:4580:U:C6	2.41	0.55
14:O:72:HIS:N	48:5:4586:G:OP1	2.39	0.55
51:9:1537:A:C2	51:9:1538:C:C2	2.94	0.55
51:9:415:A:H2'	51:9:416:U:O4'	2.06	0.55
3:C:229:LEU:N	3:C:229:LEU:HD22	2.21	0.55
4:D:200:MET:O	4:D:240:TYR:HD2	1.89	0.55
76:YY:85:ASN:ND2	76:YY:85:ASN:H	2.04	0.55
46:2:65:G:N2	46:2:66:C:C2	2.74	0.55
48:5:1358:G:H2'	48:5:1359:G:O4'	2.07	0.55
48:5:4589:A:N1	48:5:4621:C:O2'	2.30	0.55
51:9:17:C:H2'	51:9:18:C:C6	2.42	0.55
9:I:17:TYR:CE2	9:I:23:CYS:SG	3.00	0.55
47:3:35:U:O4'	51:9:1641:A:P	2.64	0.55
48:5:1872:G:O2'	48:5:4219:A:N3	2.29	0.55
48:5:977:C:O2'	48:5:978:G:H5'	2.07	0.55
51:9:830:A:H2'	51:9:831:G:O4'	2.06	0.55
48:5:1958:A:C5	48:5:2026:A:N1	2.75	0.55
48:5:1960:A:C4'	48:5:1961:G:C5'	2.74	0.55
48:5:4587:G:C2	48:5:4716:C:C2	2.95	0.55
48:5:917:A:C6	48:5:919:C:N4	2.74	0.55
50:8:139:G:C6	50:8:140:C:C4	2.95	0.55
51:9:824:C:C2	61:JJ:144:ILE:HD13	2.42	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:9:830:A:N6	51:9:844:U:C2	2.73	0.55
2:B:254:ILE:HG23	2:B:266:VAL:HG11	1.89	0.55
48:5:1834:U:H2'	48:5:1834:U:O2	2.06	0.55
48:5:2391:G:N2	48:5:2392:C:C2	2.74	0.55
48:5:2394:G:O2'	48:5:2819:U:O4	2.24	0.55
48:5:2827:G:H2'	48:5:2827:G:N3	2.22	0.55
9:I:35:ASP:N	9:I:35:ASP:OD1	2.40	0.55
21:V:20:LEU:HD22	21:V:26:ILE:CG2	2.37	0.55
48:5:22:G:C2	50:8:35:C:C2	2.94	0.55
48:5:2315:G:C2	48:5:2325:C:O2	2.59	0.55
48:5:3748:A:H2'	48:5:3749:C:C6	2.41	0.55
48:5:4281:A:C2	48:5:4283:G:C5	2.94	0.55
61:JJ:125:HIS:CE1	61:JJ:129:LEU:HD21	2.42	0.55
18:S:13:VAL:HG23	18:S:62:VAL:HB	1.87	0.55
70:SS:8:LYS:HD3	77:ZZ:49:LEU:HD11	1.88	0.55
48:5:973:G:N2	48:5:1282:G:HO2'	2.05	0.55
48:5:1534:A:C8	48:5:1637:A:N1	2.75	0.55
48:5:2494:U:H2'	48:5:2495:U:O4'	2.07	0.55
48:5:962:C:OP2	48:5:2264:C:N3	2.39	0.55
11:L:170:THR:HG23	11:L:173:GLU:CB	2.37	0.55
22:W:40:PHE:HD1	22:W:41:LEU:HD22	1.72	0.55
25:Z:49:TYR:CE2	25:Z:133:LYS:HA	2.42	0.55
48:5:960:A:H5'	48:5:961:G:OP2	2.07	0.55
51:9:1403:C:O2	51:9:1403:C:C2'	2.54	0.55
47:3:35:U:H1'	51:9:1641:A:P	2.46	0.55
51:9:1760:G:N2	51:9:1773:C:C2	2.75	0.55
51:9:832:G:N2	51:9:843:C:C2	2.74	0.55
74:WW:82:GLN:O	74:WW:84:LYS:N	2.40	0.55
7:G:48:LYS:HB3	23:X:42:THR:HG23	1.88	0.55
76:YY:5:VAL:O	76:YY:28:LEU:O	2.25	0.55
48:5:1266:G:H5''	48:5:2112:G:C2	2.41	0.55
51:9:1292:C:H3'	51:9:1293:A:H5''	1.88	0.55
51:9:1454:A:OP1	69:RR:3:ARG:HG2	2.06	0.55
51:9:1597:C:H4'	51:9:1603:G:C6	2.42	0.55
4:D:64:ILE:HD12	4:D:109:LEU:HD22	1.89	0.55
60:II:182:CYS:SG	60:II:184:ARG:N	2.79	0.55
10:J:119:TYR:CD2	70:SS:12:ILE:HG21	2.42	0.55
66:OO:64:ALA:O	66:OO:66:ARG:N	2.40	0.55
16:Q:78:LYS:HG2	16:Q:137:VAL:HG23	1.88	0.55
48:5:1249:C:C2	48:5:1262:G:C2	2.95	0.54
48:5:2065:G:H2'	48:5:2066:C:O4'	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:3663:A:H4'	48:5:3664:G:OP2	2.06	0.54
48:5:4724:A:C6	48:5:4725:C:C4	2.94	0.54
51:9:1108:G:N2	51:9:1125:C:C2	2.75	0.54
51:9:1411:G:H3'	51:9:1412:C:H4'	1.88	0.54
48:5:2490:U:O2'	48:5:2491:C:O4'	2.23	0.54
48:5:3876:A:O2'	48:5:3877:A:P	2.64	0.54
12:M:37:LEU:HD11	12:M:47:ARG:HD2	1.89	0.54
14:O:44:SER:HB3	14:O:129:LEU:HD11	1.89	0.54
76:YY:40:ILE:HG21	76:YY:57:VAL:HG11	1.87	0.54
47:3:16:C:O2	47:3:16:C:O4'	2.24	0.54
48:5:2022:C:H3'	48:5:2023:C:C5'	2.37	0.54
48:5:2313:A:O2'	48:5:2314:G:OP1	2.15	0.54
48:5:4495:G:N2	48:5:4506:C:C2	2.76	0.54
51:9:1537:A:H2'	51:9:1538:C:O4'	2.08	0.54
10:J:63:ARG:NH2	50:8:58:G:N7	128.44	0.54
14:O:126:VAL:O	14:O:126:VAL:HG22	2.08	0.54
25:Z:78:ASN:N	25:Z:78:ASN:OD1	2.40	0.54
48:5:1269:G:C6	48:5:2111:G:N2	2.75	0.54
48:5:4250:G:C2	48:5:4259:C:C2	2.95	0.54
48:5:4283:G:N2	48:5:4284:C:C2	2.74	0.54
48:5:4730:C:O4'	48:5:4730:C:O2	2.25	0.54
48:5:746:A:H4'	48:5:747:A:OP1	2.07	0.54
51:9:1401:A:C2	51:9:1402:A:N1	2.76	0.54
5:E:52:ARG:NE	5:E:52:ARG:O	2.37	0.54
11:L:63:THR:O	11:L:65:ARG:N	2.40	0.54
48:5:100:C:O4'	48:5:100:C:O2	2.24	0.54
48:5:1268:G:C4	48:5:2111:G:N2	2.76	0.54
48:5:2409:U:C5	48:5:2783:A:C2	2.96	0.54
48:5:286:U:H2'	48:5:287:U:C6	2.43	0.54
48:5:3593:C:H4'	48:5:3594:C:OP2	2.07	0.54
51:9:1118:C:O2	51:9:1118:C:O4'	2.24	0.54
1:A:117:GLU:OE1	1:A:121:GLY:N	2.41	0.54
54:CC:83:LEU:HD23	54:CC:84:PHE:CE2	2.43	0.54
5:E:62:LYS:CE	48:5:978:G:OP2	2.54	0.54
7:G:32:PHE:CZ	25:Z:55:ALA:HA	2.42	0.54
77:ZZ:68:ILE:HB	77:ZZ:109:TYR:HB2	1.90	0.54
48:5:3782:C:N3	48:5:3811:G:C2	2.76	0.54
18:S:169:THR:OG1	48:5:4876:U:C2	2.61	0.54
51:9:1117:C:O4'	51:9:1117:C:O2	2.25	0.54
51:9:167:G:C6	51:9:168:C:C5	2.96	0.54
51:9:1705:C:O5'	51:9:1705:C:H6	1.91	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:9:216:C:O4'	51:9:216:C:O2	2.26	0.54
51:9:113:G:C2	51:9:293:C:C2	2.95	0.54
52:AA:123:VAL:HG13	52:AA:145:ILE:HB	1.89	0.54
55:DD:142:LEU:HD13	55:DD:182:LEU:HD11	1.90	0.54
48:5:1380:G:O2'	48:5:1381:U:O2	2.17	0.54
48:5:1483:C:O4'	48:5:1483:C:O2	2.25	0.54
48:5:1929:A:H3'	48:5:1929:A:N3	2.23	0.54
48:5:2301:G:N2	48:5:2302:C:C2	2.76	0.54
48:5:3642:A:OP1	48:5:3644:U:OP1	2.26	0.54
48:5:4524:G:OP2	48:5:4524:G:H4'	2.06	0.54
48:5:4714:C:C6	48:5:4715:C:C5	2.96	0.54
50:8:56:G:C2	50:8:57:C:C2	2.96	0.54
51:9:615:C:H2'	51:9:616:A:O4'	2.07	0.54
3:C:208:CYS:SG	3:C:228:THR:OG1	2.65	0.54
5:E:95:ASP:OD1	5:E:96:LYS:N	2.37	0.54
48:5:43:U:H2'	48:5:44:A:O5'	2.07	0.54
49:7:111:C:H2'	49:7:112:U:O4'	2.07	0.54
51:9:1406:G:C4	51:9:1407:U:H1'	2.43	0.54
51:9:145:G:N1	51:9:146:G:C6	2.76	0.54
7:G:157:ILE:HG23	7:G:167:VAL:HG11	1.88	0.54
48:5:3680:U:H2'	48:5:3680:U:O2	2.06	0.54
48:5:3782:C:C2	48:5:3811:G:N2	2.76	0.54
49:7:108:G:C6	49:7:109:U:C4	2.96	0.54
51:9:1650:A:C5	51:9:1675:A:C2	2.95	0.54
51:9:751:G:O2'	51:9:752:G:O4'	2.25	0.54
56:EE:49:ARG:HB3	56:EE:55:ALA:HB3	1.89	0.54
57:FF:25:THR:HG21	57:FF:46:ALA:HB3	1.89	0.54
11:L:99:ASP:OD1	11:L:101:ARG:N	2.41	0.54
16:Q:186:TYR:CD2	48:5:4307:A:H4'	2.42	0.54
16:Q:67:ILE:HD12	16:Q:96:PRO:HD2	1.89	0.54
48:5:2020:U:H2'	48:5:2020:U:O2	2.08	0.54
48:5:32:G:N1	48:5:48:G:O2'	2.38	0.54
48:5:3911:C:H2'	48:5:3912:U:C6	2.42	0.54
48:5:516:C:C2	48:5:646:G:C2	2.95	0.54
48:5:747:A:C5	48:5:916:C:N4	2.76	0.54
51:9:1401:A:H2'	51:9:1402:A:C8	2.43	0.54
47:3:35:U:C1'	51:9:1641:A:P	2.96	0.54
51:9:872:A:N6	51:9:915:G:C4	2.76	0.54
19:T:27:LEU:O	19:T:28:ALA:C	2.46	0.54
51:9:1542:C:H5''	71:TT:62:ARG:NH1	2.23	0.54
48:5:1296:G:H1'	48:5:1297:U:P	2.48	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:1979:A:N1	48:5:1983:A:H5'	2.22	0.53
48:5:4489:G:N2	48:5:4592:C:OP1	2.41	0.53
48:5:940:C:H2'	48:5:941:C:O4'	2.08	0.53
50:8:76:C:H2'	50:8:77:A:O4'	2.07	0.53
51:9:1384:C:H2'	51:9:1385:G:O4'	2.08	0.53
51:9:217:A:C2	51:9:309:G:N1	2.76	0.53
56:EE:199:GLU:HB2	56:EE:207:VAL:HG12	1.89	0.53
6:F:184:TYR:HB3	6:F:202:ARG:HG2	1.90	0.53
14:O:192:PHE:O	14:O:195:VAL:N	2.41	0.53
48:5:1332:C:H2'	48:5:1333:A:C8	2.43	0.53
48:5:2614:C:O2	48:5:2726:G:C2	2.60	0.53
48:5:975:C:C3'	48:5:976:G:O4'	2.57	0.53
51:9:1137:U:C4	51:9:1148:A:C6	2.94	0.53
51:9:698:G:N1	51:9:733:C:C2	2.76	0.53
5:E:238:ILE:C	5:E:239:THR:HG1	2.00	0.53
6:F:94:VAL:HG13	6:F:142:ILE:HD12	1.90	0.53
57:FF:102:LEU:HD11	77:ZZ:100:VAL:HG21	1.90	0.53
65:NN:124:ARG:O	65:NN:125:LEU:C	2.46	0.53
19:T:154:ILE:HD12	19:T:154:ILE:O	2.08	0.53
48:5:1308:C:H2'	48:5:1309:C:C6	2.43	0.53
48:5:1430:C:C2	48:5:1455:G:C2	2.96	0.53
48:5:1998:A:O2'	48:5:1999:A:O4'	2.26	0.53
48:5:2368:A:N6	48:5:2788:U:O2	2.41	0.53
48:5:2743:A:C2	48:5:2744:A:C4	2.96	0.53
1:A:96:LEU:CD2	1:A:166:VAL:HG21	2.39	0.53
3:C:186:SER:O	3:C:188:ARG:HD2	2.09	0.53
11:L:65:ARG:HG2	11:L:66:TYR:CD2	2.43	0.53
48:5:3916:G:C2	48:5:3917:A:C4	2.97	0.53
48:5:4138:C:C2	48:5:4147:G:C2	2.96	0.53
2:B:252:ALA:HB3	48:5:4457:U:O2	2.07	0.53
48:5:5023:C:O2	48:5:5023:C:O4'	2.23	0.53
48:5:965:G:N3	48:5:965:G:H2'	2.23	0.53
51:9:1144:A:O2'	51:9:1199:A:O2'	2.25	0.53
51:9:1856:C:H2'	51:9:1857:G:C8	2.44	0.53
51:9:71:G:O2'	51:9:72:C:OP1	2.22	0.53
8:H:134:CYS:SG	8:H:135:SER:N	2.81	0.53
48:5:1241:C:N4	48:5:1270:A:O2'	2.41	0.53
48:5:181:C:C2	48:5:256:G:C2	2.97	0.53
48:5:286:U:O2	48:5:287:U:C2	2.61	0.53
48:5:294:G:H3'	48:5:294:G:N3	2.23	0.53
48:5:497:G:C2	48:5:657:C:C2	2.96	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:705:G:N2	48:5:706:C:C2	2.76	0.53
51:9:641:A:OP1	61:JJ:40:LYS:HE2	2.07	0.53
51:9:73:C:O4'	51:9:73:C:O2	2.27	0.53
4:D:258:LYS:O	4:D:259:ARG:HG3	2.08	0.53
7:G:86:VAL:CG1	7:G:87:LEU:N	2.72	0.53
19:T:92:ARG:NH2	48:5:4313:A:OP1	2.41	0.53
48:5:2408:U:O4'	48:5:2409:U:C5	2.60	0.53
48:5:4413:C:O4'	48:5:4413:C:O2	2.24	0.53
51:9:1520:G:N3	51:9:1520:G:H2'	2.23	0.53
1:A:130:SER:OG	1:A:131:GLY:N	2.42	0.53
52:AA:87:VAL:HG12	52:AA:175:TRP:CZ2	2.44	0.53
3:C:266:THR:HG22	3:C:269:LYS:HB3	1.91	0.53
18:S:120:ARG:HD2	48:5:2061:U:OP1	2.07	0.53
48:5:1969:G:O2'	48:5:1970:A:H5'	2.08	0.53
48:5:2505:C:O2	48:5:2505:C:O4'	2.26	0.53
48:5:2622:G:C6	48:5:2623:A:N7	2.77	0.53
48:5:4524:G:N2	48:5:4525:C:C2	2.77	0.53
48:5:4635:A:C2	48:5:4664:A:C5	2.97	0.53
48:5:946:C:C2	48:5:947:C:C5	2.96	0.53
48:5:721:G:C2	48:5:948:C:C2	2.96	0.53
51:9:1737:G:C5	51:9:1738:C:C5	2.97	0.53
54:CC:66:LEU:HD12	54:CC:93:ILE:HD13	1.90	0.53
6:F:115:ARG:NH2	6:F:208:ASN:HA	2.24	0.53
11:L:146:LEU:HB2	11:L:148:THR:HG22	1.90	0.53
48:5:158:A:C6	48:5:277:G:C5	2.97	0.53
48:5:1677:U:H4'	48:5:1680:G:N1	2.24	0.53
48:5:2905:C:C2	48:5:3590:G:C2	2.97	0.53
51:9:1545:A:H2'	51:9:1546:G:C8	2.44	0.53
51:9:356:C:H3'	51:9:356:C:O2	2.09	0.53
51:9:398:A:C8	51:9:398:A:H5'	2.44	0.53
51:9:50:A:N1	51:9:488:U:O4	2.42	0.53
57:FF:73:THR:HG21	57:FF:90:VAL:HG22	1.91	0.53
59:HH:43:LEU:HD21	59:HH:71:SER:HB3	1.91	0.53
71:TT:5:THR:HG1	71:TT:65:TYR:HH	1.56	0.53
48:5:1279:A:C5	48:5:1280:C:C4	2.97	0.53
48:5:1412:G:N2	48:5:1413:C:C2	2.76	0.53
48:5:4888:U:O2'	48:5:4889:G:O5'	2.27	0.53
48:5:919:C:C4	48:5:920:C:C5	2.97	0.53
51:9:1144:A:C2	51:9:1145:A:N1	2.76	0.53
51:9:1386:A:OP1	51:9:1483:A:N3	2.42	0.53
51:9:1594:A:C6	51:9:1595:U:C5	2.97	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:9:312:G:O2'	51:9:313:A:OP1	2.16	0.53
51:9:88:G:C6	51:9:89:C:C4	2.97	0.53
2:B:337:VAL:HG21	2:B:345:LEU:HD21	1.90	0.53
4:D:95:TYR:OH	4:D:195:HIS:NE2	2.34	0.53
5:E:251:SER:O	5:E:255:PRO:CD	2.55	0.53
6:F:85:VAL:HG22	18:S:62:VAL:HA	1.91	0.53
58:GG:141:ILE:HG21	58:GG:153:VAL:HG13	1.91	0.53
13:N:172:ARG:HG2	48:5:29:G:H5''	1.91	0.53
48:5:1516:G:C6	48:5:1518:A:C4	2.96	0.53
48:5:1987:C:C2'	48:5:1987:C:O2	2.57	0.53
48:5:4583:C:N4	48:5:4718:G:C6	2.77	0.53
51:9:1229:G:H2'	51:9:1230:C:O4'	2.08	0.53
51:9:1406:G:C5	51:9:1407:U:H1'	2.43	0.53
51:9:1835:A:N9	51:9:1863:A:N7	2.56	0.53
51:9:113:G:N2	51:9:293:C:C2	2.77	0.53
51:9:873:G:C6	51:9:914:U:C5	2.97	0.53
1:A:196:TRP:O	1:A:197:PRO:C	2.47	0.53
59:HH:145:ARG:HA	74:WW:51:GLU:HB2	1.91	0.53
15:P:15:CYS:SG	15:P:150:LEU:HB2	2.49	0.53
48:5:1523:A:C5	48:5:1653:A:C2	2.97	0.52
48:5:4966:A:C2	48:5:4967:A:C2	2.97	0.52
48:5:929:A:H3'	48:5:930:G:C5'	2.39	0.52
51:9:1144:A:HO2'	51:9:1199:A:HO2'	1.52	0.52
51:9:1489:A:H4'	51:9:1490:G:OP2	2.09	0.52
51:9:1500:G:C2	51:9:1501:C:C2	2.97	0.52
51:9:1644:C:H2'	51:9:1645:C:O4'	2.09	0.52
51:9:464:A:H4'	51:9:465:A:OP2	2.07	0.52
53:BB:190:PRO:O	53:BB:192:SER:N	2.42	0.52
6:F:216:SER:OG	6:F:217:SER:N	2.43	0.52
48:5:1886:G:C2	48:5:1894:C:N3	2.76	0.52
48:5:2424:G:C2	48:5:2426:U:O2	2.62	0.52
17:R:71:ARG:NH1	48:5:3605:C:OP2	2.38	0.52
48:5:978:G:H2'	48:5:979:C:O4'	2.09	0.52
51:9:1599:U:O2	51:9:1599:U:O4'	2.26	0.52
51:9:1828:C:H2'	51:9:1829:G:O4'	2.09	0.52
51:9:1834:A:N3	51:9:1834:A:H2'	2.25	0.52
4:D:200:MET:CA	4:D:200:MET:CE	2.86	0.52
7:G:102:TYR:CE2	7:G:207:VAL:HG12	2.44	0.52
9:I:45:GLU:O	9:I:46:PHE:CD1	2.63	0.52
14:O:27:VAL:HG12	14:O:98:ALA:HB1	1.89	0.52
68:QQ:34:VAL:HG21	68:QQ:84:ILE:HD12	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:1280:C:O2'	48:5:1282:G:C8	2.61	0.52
1:A:181:LYS:HD2	48:5:1577:G:C4	2.44	0.52
48:5:301:G:C6	48:5:302:C:C4	2.97	0.52
48:5:4895:C:H1'	48:5:4896:G:C8	2.45	0.52
48:5:8:U:H2'	48:5:9:C:O4'	2.10	0.52
51:9:501:C:C2'	51:9:501:C:O2	2.57	0.52
51:9:911:C:O2'	51:9:912:C:H5'	2.09	0.52
5:E:62:LYS:O	5:E:63:ALA:HB3	2.09	0.52
14:O:109:PRO:HB2	14:O:110:PRO:CD	2.39	0.52
48:5:1072:C:O2	48:5:1072:C:C2'	2.58	0.52
48:5:1279:A:H2'	48:5:1280:C:H5''	1.92	0.52
48:5:1982:G:O2'	48:5:2010:A:H4'	2.10	0.52
48:5:2654:C:C2	48:5:2681:G:C2	2.98	0.52
48:5:3878:C:N4	48:5:4518:A:C4	2.77	0.52
48:5:4723:A:C2	48:5:4724:A:C6	2.97	0.52
48:5:726:G:N2	48:5:940:C:N3	2.58	0.52
51:9:1293:A:H2'	51:9:1294:G:O4'	2.09	0.52
51:9:1473:G:HO2'	51:9:1474:A:H2	1.55	0.52
51:9:50:A:N1	51:9:488:U:C4	2.77	0.52
51:9:688:U:O2	59:HH:122:LEU:HB2	2.10	0.52
53:BB:169:MET:SD	53:BB:169:MET:N	2.82	0.52
3:C:233:THR:HG22	3:C:259:LYS:HZ2	1.74	0.52
56:EE:183:VAL:HG11	56:EE:220:THR:HG21	1.92	0.52
14:O:36:VAL:CG1	14:O:108:ILE:HD12	2.40	0.52
66:OO:105:THR:O	66:OO:106:LYS:C	2.48	0.52
47:3:70:G:H2'	47:3:71:G:C8	2.44	0.52
48:5:2280:G:H8	48:5:2280:G:O5'	1.92	0.52
48:5:3717:A:N1	48:5:3933:G:H1'	2.25	0.52
48:5:4411:G:C2	48:5:4432:C:O2	2.62	0.52
48:5:4769:G:H2'	48:5:4770:U:O4'	2.09	0.52
51:9:1149:A:O2'	51:9:1150:A:H3'	2.09	0.52
51:9:1526:G:N1	51:9:1527:C:C4	2.78	0.52
51:9:195:C:C2	51:9:205:G:C2	2.98	0.52
51:9:309:G:C2	51:9:310:C:C4	2.98	0.52
51:9:832:G:C2	51:9:843:C:C2	2.98	0.52
51:9:958:G:H2'	51:9:959:G:O4'	2.10	0.52
3:C:180:ILE:HD11	3:C:227:ILE:HD11	1.91	0.52
67:PP:34:MET:HA	67:PP:34:MET:HE2	1.91	0.52
48:5:1757:U:H2'	48:5:1758:G:O4'	2.09	0.52
48:5:199:G:C2	48:5:201:C:C4	2.98	0.52
48:5:2579:G:H5''	48:5:2580:U:OP2	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:80:C:C2	48:5:104:G:C2	2.97	0.52
51:9:1431:G:C4	51:9:1432:U:H1'	2.45	0.52
51:9:2:A:H3'	54:CC:205:VAL:HG11	1.92	0.52
2:B:247:GLY:HA3	2:B:250:LYS:HD2	1.91	0.52
53:BB:172:MET:HE3	53:BB:212:VAL:HG12	1.90	0.52
3:C:253:THR:O	3:C:254:GLU:C	2.46	0.52
11:L:122:SER:OG	11:L:123:LYS:N	2.42	0.52
47:3:5:G:N2	47:3:68:C:C2	2.78	0.52
48:5:1301:C:O4'	48:5:1301:C:O2	2.28	0.52
48:5:1422:G:C2	48:5:1464:C:C2	2.98	0.52
48:5:3594:C:O2	48:5:3594:C:C2'	2.57	0.52
48:5:3724:A:C6	48:5:3725:G:C5	2.98	0.52
48:5:4260:U:H2'	48:5:4261:C:C6	2.45	0.52
48:5:931:C:O2'	48:5:932:A:P	2.67	0.52
49:7:42:A:C5	49:7:43:U:C5	2.97	0.52
2:B:94:GLU:HB2	2:B:158:GLN:HG3	1.90	0.52
18:S:44:PHE:CZ	18:S:48:VAL:HG21	2.45	0.52
48:5:1367:C:H2'	48:5:1367:C:O2	2.09	0.52
48:5:1693:U:H2'	48:5:1694:C:O4'	2.10	0.52
48:5:1910:G:N2	48:5:1911:C:C2	2.78	0.52
48:5:4399:U:H2'	48:5:4400:G:O4'	2.10	0.52
48:5:698:G:N2	48:5:699:C:C2	2.78	0.52
51:9:1666:C:H2'	51:9:1667:U:O4'	2.10	0.52
51:9:664:A:H1'	51:9:1164:G:N2	2.25	0.52
12:M:104:MET:SD	12:M:109:ARG:HA	2.49	0.52
48:5:1236:C:O2'	48:5:1237:C:O5'	2.25	0.52
48:5:1541:C:C2	48:5:1619:G:N2	2.78	0.52
48:5:1819:G:H5''	48:5:1819:G:C8	2.45	0.52
48:5:1840:G:O3'	48:5:1842:G:P	2.68	0.52
48:5:4094:G:H2'	48:5:4095:G:O4'	2.10	0.52
51:9:1309:C:HO2'	51:9:1310:U:P	2.33	0.52
51:9:1405:A:H2'	51:9:1406:G:O4'	2.10	0.52
51:9:303:C:H2'	51:9:304:C:O4'	2.10	0.52
2:B:164:ALA:HB3	2:B:183:ILE:HD11	1.92	0.52
54:CC:168:GLY:N	54:CC:179:THR:O	2.40	0.52
10:J:153:ALA:O	10:J:155:HIS:N	2.42	0.52
61:JJ:24:ARG:HG2	61:JJ:24:ARG:HH11	1.75	0.52
12:M:11:ARG:HA	12:M:61:ILE:HG22	1.91	0.52
68:QQ:39:LEU:HA	68:QQ:42:ILE:HD13	1.92	0.52
46:2:16:C:O2	46:2:16:C:O4'	2.26	0.52
48:5:1339:U:H2'	48:5:1340:C:C6	2.44	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:1958:A:C4	48:5:2026:A:C2	2.98	0.52
48:5:4966:A:H2'	48:5:4967:A:O4'	2.10	0.52
48:5:671:G:C6	48:5:672:C:C4	2.98	0.52
51:9:1234:C:H5''	51:9:1234:C:H6	1.75	0.52
51:9:1553:C:O2	51:9:1553:C:O4'	2.25	0.52
51:9:960:U:H1'	51:9:963:A:N7	2.25	0.52
2:B:41:VAL:HA	2:B:187:GLY:HA3	1.92	0.52
54:CC:188:CYS:SG	54:CC:235:ASN:OD1	2.68	0.52
6:F:146:TYR:CE2	6:F:239:GLU:HB3	2.45	0.52
60:II:139:LYS:HD2	60:II:145:ILE:HD12	1.91	0.52
3:C:302:LEU:HD22	16:Q:38:ARG:HB2	1.91	0.52
48:5:1277:G:N1	48:5:1278:C:C4	2.78	0.51
48:5:2127:C:H2'	48:5:2128:G:C8	2.45	0.51
48:5:1322:A:N6	48:5:4446:U:OP1	2.43	0.51
51:9:752:G:C6	51:9:790:C:N4	2.78	0.51
2:B:39:LYS:NZ	2:B:39:LYS:CB	2.73	0.51
57:FF:35:LEU:HD23	57:FF:147:VAL:HG22	1.92	0.51
8:H:162:GLN:HG3	8:H:180:TYR:HA	1.91	0.51
60:II:76:THR:HG21	60:II:105:ASP:O	2.09	0.51
15:P:118:GLN:NE2	48:5:423:G:N3	2.58	0.51
24:Y:10:ASP:O	24:Y:11:ARG:C	2.48	0.51
48:5:2669:C:H2'	48:5:2670:C:O4'	2.10	0.51
48:5:4735:G:C2	48:5:4736:C:C2	2.99	0.51
50:8:137:A:H2'	50:8:138:C:C6	2.46	0.51
51:9:1466:G:N2	51:9:1467:C:C2	2.78	0.51
51:9:1646:C:N3	51:9:1678:A:C8	2.78	0.51
51:9:1834:A:N3	51:9:1834:A:C2'	2.73	0.51
51:9:751:G:C6	51:9:792:C:N4	2.78	0.51
7:G:31:LEU:HB3	25:Z:53:VAL:HG11	1.92	0.51
9:I:47:PRO:HB3	9:I:171:TRP:CE2	2.45	0.51
71:TT:23:LYS:HA	71:TT:54:TYR:CE1	2.45	0.51
48:5:1958:A:C2	48:5:2026:A:N1	2.79	0.51
48:5:751:G:C2	48:5:752:G:N7	2.78	0.51
50:8:103:A:C8	50:8:104:A:C8	2.98	0.51
7:G:140:VAL:HG23	7:G:141:ASN:N	2.25	0.51
51:9:1857:G:H3'	66:OO:146:ARG:HH22	1.73	0.51
48:5:190:G:C2	48:5:252:C:C2	2.98	0.51
48:5:48:G:HO2'	48:5:49:U:P	2.21	0.51
51:9:592:C:O4'	51:9:592:C:O2	2.27	0.51
51:9:623:G:N2	51:9:624:C:C2	2.78	0.51
3:C:95:MET:SD	3:C:95:MET:N	2.80	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:G:184:LEU:HD12	7:G:190:LEU:CD1	2.40	0.51
51:9:913:A:OP1	59:HH:99:ARG:NH2	2.43	0.51
9:I:51:HIS:ND1	9:I:137:SER:CB	2.73	0.51
69:RR:38:ILE:HD12	69:RR:39:ALA:N	2.26	0.51
48:5:1285:U:C4	48:5:1286:C:C4	2.98	0.51
48:5:2022:C:C2'	48:5:2023:C:C5'	2.87	0.51
48:5:2108:G:N1	48:5:2125:C:C4	2.79	0.51
48:5:919:C:N4	48:5:920:C:C5	2.78	0.51
51:9:1109:C:C2'	51:9:1109:C:O2	2.49	0.51
51:9:1231:C:H2'	51:9:1232:U:O4'	2.09	0.51
51:9:1379:A:H2'	51:9:1380:C:C6	2.45	0.51
51:9:193:C:C2	51:9:207:G:C2	2.99	0.51
51:9:217:A:C2	51:9:218:U:C6	2.99	0.51
51:9:830:A:C6	51:9:844:U:N3	2.78	0.51
10:J:18:ARG:HG3	10:J:135:GLY:HA3	1.91	0.51
15:P:131:ARG:HD2	15:P:137:ASN:ND2	2.26	0.51
48:5:1167:C:C2	48:5:1195:G:C2	2.99	0.51
48:5:3765:G:O2'	48:5:3766:A:N7	2.34	0.51
8:H:72:THR:OG1	48:5:4690:G:O2'	2.23	0.51
48:5:4758:U:O4'	48:5:4758:U:O2	2.25	0.51
48:5:721:G:N2	48:5:948:C:C2	2.78	0.51
13:N:12:ARG:NH1	51:9:1848:U:O4	102.31	0.51
51:9:823:U:O4'	51:9:823:U:O2	2.28	0.51
1:A:211:PHE:CG	1:A:219:ILE:HG23	2.45	0.51
2:B:18:PRO:O	2:B:20:LYS:N	2.43	0.51
58:GG:57:ASP:HA	58:GG:106:LEU:HD23	1.91	0.51
58:GG:44:GLU:HB3	58:GG:121:ILE:HD11	1.92	0.51
66:OO:139:SER:OG	66:OO:140:THR:N	2.43	0.51
51:9:1616:U:OP2	67:PP:43:ARG:NH2	2.43	0.51
48:5:1214:C:H1'	48:5:1215:C:OP2	2.10	0.51
48:5:1367:C:H3'	48:5:1368:A:H5''	1.93	0.51
48:5:1958:A:C2	48:5:2026:A:C6	2.98	0.51
48:5:2276:A:H2'	48:5:2277:C:O4'	2.11	0.51
48:5:363:A:C8	48:5:365:U:C2	2.98	0.51
51:9:398:A:H5''	51:9:400:C:O4'	2.10	0.51
51:9:913:A:N3	59:HH:66:VAL:HG11	2.26	0.51
19:T:42:ILE:HD13	19:T:89:ILE:HD11	1.93	0.51
48:5:105:A:C2	48:5:336:A:C8	2.98	0.51
48:5:1280:C:C2	48:5:1282:G:C5	2.99	0.51
48:5:2022:C:C2'	48:5:2023:C:H5''	2.40	0.51
48:5:2084:C:H3'	48:5:2085:G:H5''	1.91	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:4080:C:C2	48:5:4167:G:C2	2.99	0.51
48:5:3878:C:N4	48:5:4518:A:O4'	2.42	0.51
48:5:32:G:H1	48:5:48:G:HO2'	1.57	0.51
2:B:258:HIS:O	2:B:260:ALA:N	2.44	0.51
58:GG:68:LEU:O	58:GG:69:THR:O	2.29	0.51
65:NN:135:LEU:HD22	65:NN:139:TRP:CG	2.46	0.51
48:5:2021:G:O2'	48:5:2022:C:H5'	2.11	0.51
48:5:199:G:N1	48:5:220:C:C2	2.79	0.51
48:5:230:G:N2	48:5:239:C:C2	2.79	0.51
48:5:2481:G:C2	48:5:2498:C:C2	2.99	0.51
48:5:2684:C:H2'	48:5:2685:C:O4'	2.10	0.51
48:5:4681:A:H2'	48:5:4682:U:O4'	2.11	0.51
48:5:956:A:H3'	48:5:957:G:C8	2.45	0.51
52:AA:47:TYR:HB2	52:AA:150:THR:HG21	1.93	0.51
2:B:42:HIS:CE1	2:B:186:ASN:O	2.64	0.51
3:C:228:THR:C	3:C:229:LEU:HD22	2.32	0.51
54:CC:118:ALA:O	54:CC:119:ALA:CB	2.57	0.51
58:GG:61:PHE:CE2	58:GG:96:SER:HB3	2.46	0.51
68:QQ:51:LEU:HD22	68:QQ:84:ILE:HD11	1.92	0.51
48:5:1280:C:HO2'	48:5:1282:G:H8	1.55	0.51
48:5:1928:C:N4	48:5:2054:U:O2	2.43	0.51
48:5:4891:G:C2	48:5:4929:C:C2	2.99	0.51
51:9:1282:A:H3'	51:9:1283:C:C5'	2.40	0.51
51:9:1315:U:O2	51:9:1315:U:O4'	2.28	0.51
51:9:1500:G:C6	51:9:1501:C:C4	2.98	0.51
51:9:1654:G:N2	51:9:1655:C:C2	2.79	0.51
51:9:52:G:C6	51:9:53:C:C4	2.99	0.51
57:FF:140:ASP:N	57:FF:140:ASP:OD1	2.44	0.51
7:G:99:ALA:O	7:G:102:TYR:N	2.43	0.51
51:9:688:U:O2	59:HH:122:LEU:HG	2.11	0.51
51:9:384:U:O4	60:II:5:ARG:NH2	2.44	0.51
14:O:42:ASN:N	14:O:42:ASN:OD1	2.43	0.51
46:2:39:G:N2	46:2:40:C:C2	2.79	0.50
48:5:2076:G:C6	48:5:2077:C:C4	3.00	0.50
48:5:4495:G:C2	48:5:4506:C:C2	2.99	0.50
48:5:919:C:N4	48:5:920:C:N4	2.59	0.50
51:9:1100:A:C6	51:9:1101:U:C4	2.99	0.50
51:9:1432:U:N3	51:9:1433:C:C5	2.80	0.50
51:9:1809:A:C6	51:9:1810:U:C4	2.99	0.50
51:9:834:C:N4	51:9:841:G:C6	2.79	0.50
3:C:86:ARG:HA	3:C:89:GLN:HG3	1.92	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:L:59:VAL:HG13	48:5:74:G:H5'	1.93	0.50
66:OO:31:CYS:HB2	66:OO:44:VAL:HG22	1.92	0.50
52:AA:53:ARG:HD3	73:VV:82:ASN:HB3	1.93	0.50
48:5:1771:U:H2'	48:5:1772:C:O4'	2.11	0.50
48:5:1723:A:N1	48:5:1838:A:N1	2.59	0.50
48:5:2108:G:C2	48:5:2125:C:N3	2.79	0.50
48:5:2773:G:C2	48:5:2774:C:C4	2.99	0.50
48:5:3752:C:H2'	48:5:3777:G:C8	2.47	0.50
48:5:470:A:C5	48:5:471:A:C8	2.99	0.50
7:G:86:VAL:HG21	7:G:185:LYS:CE	2.40	0.50
9:I:87:ILE:HG22	9:I:88:ARG:N	2.26	0.50
11:L:60:ARG:HD3	11:L:67:HIS:O	2.10	0.50
48:5:1365:C:H4'	48:5:1366:G:OP1	2.11	0.50
48:5:4473:A:C2	48:5:4474:A:C4	3.00	0.50
48:5:4473:A:N1	48:5:4474:A:C6	2.80	0.50
48:5:4583:C:N3	48:5:4718:G:C2	2.80	0.50
48:5:4591:U:H2'	48:5:4592:C:C6	2.46	0.50
51:9:1439:A:H2'	51:9:1440:C:O4'	2.11	0.50
51:9:1442:U:N3	51:9:1443:C:C5	2.80	0.50
72:UU:60:THR:HG22	72:UU:83:ARG:HG2	1.94	0.50
47:3:39:U:O2'	47:3:40:C:O5'	2.29	0.50
48:5:1724:G:C4'	48:5:1725:U:OP2	2.57	0.50
48:5:211:G:H4'	48:5:234:G:C8	2.47	0.50
48:5:4532:U:H2'	48:5:4533:A:O4'	2.11	0.50
48:5:730:G:C2	48:5:939:G:N2	2.79	0.50
51:9:1129:G:H3'	51:9:1130:G:C8	2.46	0.50
51:9:1568:C:H2'	51:9:1569:A:C8	2.46	0.50
51:9:1624:U:O4'	51:9:1624:U:O2	2.29	0.50
51:9:887:U:O4'	51:9:887:U:O2	2.28	0.50
9:I:49:CYS:HG	9:I:51:HIS:CE1	2.23	0.50
23:X:105:ASN:OD1	23:X:108:GLN:HG3	2.11	0.50
48:5:1362:G:N2	48:5:1363:C:C2	2.80	0.50
48:5:1563:A:C8	48:5:1563:A:O5'	2.65	0.50
48:5:1907:A:H2'	48:5:1908:A:C8	2.46	0.50
48:5:2685:C:H3'	48:5:2686:G:H5''	1.93	0.50
51:9:1537:A:H2'	51:9:1538:C:C6	2.47	0.50
51:9:1667:U:H2'	51:9:1668:U:C6	2.46	0.50
51:9:1705:C:H2'	51:9:1706:G:C8	2.47	0.50
51:9:305:U:O2'	51:9:309:G:O4'	2.26	0.50
51:9:639:C:H2'	51:9:640:A:H8	1.77	0.50
5:E:127:LYS:O	5:E:132:HIS:CD2	2.64	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
62:KK:24:LYS:O	62:KK:26:ASP:N	2.45	0.50
24:Y:2:LYS:C	24:Y:3:PHE:CD1	2.85	0.50
48:5:1358:G:C2'	48:5:1359:G:O4'	2.59	0.50
48:5:230:G:C2	48:5:239:C:C2	2.99	0.50
48:5:3652:A:C2	48:5:3653:A:N1	2.80	0.50
48:5:4423:U:O2	48:5:4423:U:O4'	2.29	0.50
48:5:5015:G:O2'	48:5:5034:A:N6	2.45	0.50
48:5:986:C:C2	48:5:1068:G:C2	3.00	0.50
51:9:909:G:O2'	51:9:910:G:O5'	2.29	0.50
2:B:160:ILE:HD13	2:B:194:LEU:HD13	1.93	0.50
6:F:114:LEU:O	6:F:123:THR:HG21	2.12	0.50
57:FF:71:ARG:HB3	57:FF:151:ILE:HD13	1.94	0.50
58:GG:121:ILE:HG23	58:GG:122:PRO:HD2	1.94	0.50
13:N:90:ASN:O	13:N:92:LEU:N	2.44	0.50
76:YY:58:PHE:CZ	76:YY:72:PHE:HB3	2.47	0.50
48:5:1235:G:H2'	48:5:1236:C:H5'	1.93	0.50
48:5:973:G:N2	48:5:1282:G:O2'	2.44	0.50
48:5:1557:C:C2	48:5:1571:G:N2	2.79	0.50
48:5:1908:A:H2'	48:5:1909:G:O4'	2.12	0.50
48:5:1960:A:H4'	48:5:1961:G:C5'	2.41	0.50
51:9:1398:G:N1	51:9:1399:C:C4	2.79	0.50
51:9:1528:G:C2	51:9:1529:C:C4	3.00	0.50
10:J:83:LEU:CD1	10:J:170:TYR:CZ	2.95	0.50
11:L:55:LEU:HD22	11:L:120:TYR:CG	2.46	0.50
66:OO:21:VAL:HG23	66:OO:25:GLU:HB2	1.93	0.50
70:SS:27:ALA:HB1	70:SS:42:HIS:CE1	2.47	0.50
48:5:1371:A:N6	50:8:28:C:O2'	2.45	0.50
48:5:1378:C:OP1	48:5:1379:C:C3'	2.60	0.50
48:5:199:G:C6	48:5:220:C:N3	2.79	0.50
48:5:2726:G:C6	48:5:2727:C:N4	2.79	0.50
48:5:40:G:H1'	48:5:3914:U:N3	2.27	0.50
48:5:4767:C:C2	48:5:4868:G:C2	3.00	0.50
50:8:139:G:C2	50:8:140:C:C2	3.00	0.50
51:9:1650:A:C6	51:9:1675:A:C2	2.99	0.50
51:9:316:G:N1	51:9:317:C:C4	2.79	0.50
51:9:562:U:H2'	51:9:563:G:C8	2.47	0.50
51:9:659:G:N3	51:9:659:G:H2'	2.27	0.50
5:E:199:ILE:O	5:E:256:LYS:NZ	2.44	0.50
7:G:100:HIS:HA	7:G:103:ARG:HD2	1.94	0.50
7:G:58:PRO:CD	23:X:46:PHE:CD2	2.94	0.50
8:H:132:VAL:HG12	8:H:133:ALA:N	2.26	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:M:122:ILE:HG22	14:O:185:VAL:HG11	1.92	0.50
66:OO:145:GLY:O	66:OO:147:ARG:N	2.43	0.50
68:QQ:34:VAL:O	68:QQ:36:GLY:N	2.45	0.50
24:Y:87:ARG:HG3	24:Y:87:ARG:HH21	1.77	0.50
48:5:707:C:N4	48:5:1290:G:H1	2.10	0.50
16:Q:104:ARG:NH2	48:5:1353:G:N7	2.60	0.50
48:5:1431:C:C2	48:5:1454:G:N2	2.80	0.50
48:5:1823:G:C3'	48:5:1825:A:P	3.00	0.50
6:F:215:LEU:O	48:5:2073:C:H5'	2.12	0.50
48:5:181:C:C4	48:5:256:G:N1	2.80	0.50
51:9:1144:A:C2'	51:9:1145:A:C8	2.90	0.50
51:9:1698:C:O2	51:9:1698:C:O4'	2.29	0.50
51:9:570:C:O2	76:YY:34:THR:HB	2.12	0.50
51:9:516:A:C6	51:9:644:G:N7	2.80	0.50
51:9:688:U:H4'	51:9:689:U:O5'	2.12	0.50
1:A:37:ARG:NH1	48:5:4088:C:OP1	2.45	0.50
53:BB:88:THR:HG22	53:BB:96:CYS:HB3	1.92	0.50
54:CC:233:LEU:C	54:CC:233:LEU:HD12	2.32	0.50
52:AA:111:GLN:HB3	54:CC:63:VAL:HG12	1.94	0.50
59:HH:134:VAL:HG12	59:HH:173:PHE:CE2	2.47	0.50
51:9:219:U:H1'	60:II:184:ARG:HD2	1.94	0.50
48:5:1962:A:C2'	48:5:1963:C:O5'	2.60	0.49
48:5:2110:C:C6	48:5:2110:C:OP1	2.65	0.49
48:5:2586:G:O2'	48:5:2587:A:C8	2.64	0.49
48:5:2618:G:C2	48:5:2720:C:C2	3.00	0.49
48:5:27:C:O2'	48:5:60:G:N3	2.44	0.49
51:9:1143:A:H2'	51:9:1144:A:O4'	2.12	0.49
51:9:1518:C:O5'	51:9:1518:C:O2	2.30	0.49
3:C:342:ARG:HG3	3:C:342:ARG:HH11	1.77	0.49
59:HH:177:TYR:CD2	59:HH:185:VAL:HG21	2.47	0.49
9:I:12:CYS:HB2	9:I:57:TYR:CE2	2.47	0.49
51:9:448:A:H5''	60:II:25:ARG:HA	1.94	0.49
10:J:93:GLU:HB3	10:J:173:ILE:HD11	1.93	0.49
23:X:127:LEU:HD12	23:X:127:LEU:C	2.32	0.49
48:5:1086:C:C2	48:5:1212:G:C2	3.00	0.49
48:5:1400:G:C6	48:5:1401:C:C4	3.01	0.49
48:5:1755:C:O2	48:5:1755:C:O2'	2.16	0.49
48:5:1897:A:H3'	48:5:1897:A:N3	2.27	0.49
48:5:1957:U:HO2'	48:5:1958:A:C1'	2.24	0.49
48:5:3627:G:C2	48:5:3835:C:N3	2.80	0.49
48:5:504:G:C2	48:5:654:C:C2	2.99	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:963:G:H2'	48:5:963:G:N3	2.27	0.49
51:9:488:U:H3'	51:9:489:A:H5'	1.92	0.49
6:F:157:TYR:CE1	6:F:189:MET:HG2	2.47	0.49
9:I:153:ARG:HA	9:I:165:ILE:HD11	1.94	0.49
72:UU:20:ILE:HD12	72:UU:116:ILE:HA	1.93	0.49
74:WW:85:ASP:O	74:WW:88:LYS:N	2.45	0.49
47:3:24:G:C6	47:3:25:C:C4	3.01	0.49
48:5:1263:A:C6	48:5:1264:C:C4	3.00	0.49
48:5:130:C:C2	48:5:139:G:N2	2.81	0.49
48:5:1557:C:C2	48:5:1571:G:C2	3.00	0.49
48:5:1613:A:H3'	48:5:1614:C:H5'	1.94	0.49
48:5:300:A:C2	48:5:301:G:C6	3.00	0.49
23:X:45:THR:HG22	48:5:4085:A:OP1	2.12	0.49
48:5:4507:A:H2'	48:5:4508:C:C6	2.47	0.49
49:7:25:G:C6	49:7:26:C:C4	3.00	0.49
49:7:66:G:C2	49:7:67:C:C2	3.00	0.49
50:8:125:C:O4'	50:8:125:C:O2	2.29	0.49
51:9:1012:A:H2'	51:9:1013:U:O4'	2.12	0.49
51:9:598:G:C2	51:9:639:C:C2	3.00	0.49
5:E:140:ILE:HD13	5:E:169:LEU:HD11	1.93	0.49
60:II:171:LEU:HD13	60:II:189:VAL:HG11	1.94	0.49
60:II:6:ASP:OD1	60:II:6:ASP:N	2.45	0.49
61:JJ:22:LYS:HA	61:JJ:25:LEU:HD12	1.94	0.49
48:5:120:A:C2	48:5:148:C:O2	2.64	0.49
48:5:2267:U:O4'	48:5:2267:U:O2	2.26	0.49
48:5:2524:U:H5''	48:5:2711:G:C2	2.47	0.49
17:R:19:LYS:HG2	48:5:2823:G:OP1	2.12	0.49
51:9:1537:A:C2	51:9:1596:U:N3	2.81	0.49
51:9:1546:G:N2	51:9:1670:C:O2	2.41	0.49
51:9:191:A:H3'	51:9:192:C:H5''	1.94	0.49
51:9:292:A:O5'	51:9:292:A:C4	2.65	0.49
51:9:559:G:O2'	51:9:560:A:O5'	2.29	0.49
51:9:650:A:H2'	51:9:651:U:O4'	2.12	0.49
1:A:193:ARG:O	1:A:195:CYS:N	2.45	0.49
1:A:207:VAL:HG23	1:A:208:GLU:HG3	1.94	0.49
56:EE:22:LYS:HB3	56:EE:23:LEU:HD12	1.95	0.49
8:H:44:GLU:HB3	8:H:58:ASP:HB2	1.93	0.49
47:3:29:A:HO2'	47:3:30:G:P	2.31	0.49
48:5:1370:G:H4'	48:5:1371:A:H4'	1.95	0.49
48:5:1886:G:C2	48:5:1894:C:C2	3.01	0.49
48:5:1268:G:C4	48:5:2111:G:C2	3.00	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:3869:C:O5'	48:5:3869:C:H6	1.95	0.49
48:5:3912:U:O2'	48:5:3913:G:H5'	2.12	0.49
48:5:505:G:C6	48:5:506:C:C4	3.00	0.49
18:S:67:VAL:HA	48:5:728:U:O4	2.12	0.49
51:9:1408:U:O4	51:9:1409:A:N6	2.45	0.49
51:9:389:A:H2'	51:9:390:C:C6	2.47	0.49
51:9:635:G:C6	51:9:636:C:C4	3.01	0.49
56:EE:160:ILE:HG21	56:EE:169:ILE:CG2	2.42	0.49
56:EE:86:PHE:HE2	56:EE:226:PHE:CD2	2.31	0.49
6:F:118:GLN:HB2	6:F:121:ASN:ND2	2.27	0.49
6:F:92:ALA:HB3	6:F:127:LEU:HD21	1.94	0.49
7:G:156:VAL:HG11	7:G:184:LEU:HG	1.95	0.49
13:N:137:PRO:O	13:N:152:THR:HG22	2.12	0.49
2:B:242:ARG:NH2	48:5:1591:U:OP2	2.45	0.49
47:3:76:A:N7	48:5:4371:G:C6	2.80	0.49
51:9:1260:A:C4	51:9:1620:A:N7	2.80	0.49
51:9:1549:U:OP1	55:DD:34:TYR:OH	28.84	0.49
51:9:1617:G:N7	67:PP:43:ARG:NH1	2.61	0.49
51:9:1771:G:N1	51:9:1772:C:C4	2.81	0.49
51:9:50:A:C2	51:9:51:U:C1'	2.95	0.49
13:N:40:PRO:HG3	48:5:8:U:H5''	1.94	0.49
73:VV:20:SER:HB3	73:VV:59:ILE:HD11	1.93	0.49
48:5:1398:A:O2'	48:5:1399:G:OP2	2.28	0.49
48:5:1484:G:N3	48:5:1484:G:H2'	2.27	0.49
48:5:1665:C:H2'	48:5:1666:C:C6	2.47	0.49
49:7:66:G:C6	49:7:67:C:C4	3.00	0.49
51:9:1045:U:H2'	51:9:1046:U:O4'	2.13	0.49
51:9:1444:U:H2'	51:9:1445:U:C6	2.47	0.49
51:9:1613:G:N2	51:9:1627:C:C2	2.81	0.49
51:9:55:U:C2'	51:9:55:U:O2	2.61	0.49
51:9:925:G:N2	65:NN:48:SER:OG	2.45	0.49
15:P:10:ASN:N	15:P:10:ASN:OD1	2.46	0.49
18:S:84:TYR:C	18:S:84:TYR:CD1	2.86	0.49
47:3:38:A:N3	57:FF:135:ARG:NH2	2.60	0.49
47:3:5:G:N2	47:3:6:G:C4	2.80	0.49
48:5:1617:G:H1'	48:5:2513:A:N6	2.28	0.49
48:5:190:G:C2	48:5:252:C:O2	2.66	0.49
48:5:2552:G:C6	48:5:2553:A:C6	3.00	0.49
48:5:3665:G:H2'	48:5:3666:C:O4'	2.13	0.49
48:5:81:C:H2'	48:5:82:U:O4'	2.13	0.49
51:9:1474:A:H2'	51:9:1475:G:H5''	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:9:501:C:H2'	51:9:501:C:O2	2.12	0.49
51:9:688:U:OP2	59:HH:122:LEU:N	2.44	0.49
51:9:71:G:H3'	51:9:72:C:H5''	1.94	0.49
14:O:12:ARG:O	18:S:171:ARG:NH2	2.45	0.49
14:O:28:LEU:HD11	14:O:88:LEU:HD23	1.95	0.49
16:Q:175:GLU:O	16:Q:176:ARG:HG2	2.12	0.49
48:5:1213:G:C6	48:5:1215:C:N3	2.81	0.49
48:5:1400:G:C2	48:5:1401:C:C2	3.00	0.49
48:5:1822:U:O4'	48:5:1822:U:O2	2.31	0.49
48:5:2058:G:N2	48:5:2059:C:C2	2.81	0.49
48:5:2555:G:O6	48:5:2572:C:N4	2.46	0.49
48:5:2909:C:C2	48:5:3586:G:C2	3.00	0.49
48:5:3910:C:H2'	48:5:3911:C:C6	2.48	0.49
48:5:4459:U:H2'	48:5:4460:U:C6	2.47	0.49
48:5:4773:C:C2	48:5:4863:G:C2	3.01	0.49
48:5:67:C:H2'	48:5:68:U:O4'	2.13	0.49
51:9:1308:U:H2'	51:9:1309:C:C1'	2.43	0.49
51:9:1364:U:O4'	51:9:1364:U:O2	2.28	0.49
51:9:52:G:C2	51:9:53:C:C2	3.01	0.49
9:I:80:CYS:HB2	9:I:144:ASN:HD21	1.78	0.49
71:TT:4:VAL:HG23	71:TT:4:VAL:O	2.12	0.49
47:3:39:U:O2'	47:3:40:C:C5'	2.61	0.49
48:5:1754:U:O4'	48:5:1754:U:O2	2.29	0.49
48:5:2459:G:H2'	48:5:2461:G:OP2	2.12	0.49
48:5:2521:G:H5'	48:5:2640:G:H1'	1.95	0.49
48:5:2864:A:H2'	48:5:2865:U:C6	2.47	0.49
48:5:3771:C:O2	48:5:3771:C:O4'	2.31	0.49
48:5:4320:G:H2'	48:5:4321:U:O4'	2.13	0.49
48:5:671:G:C2	48:5:672:C:C2	3.01	0.49
54:CC:133:TYR:CD1	54:CC:216:MET:HA	2.48	0.49
55:DD:167:TYR:CE2	55:DD:204:LEU:HG	2.48	0.49
56:EE:208:VAL:HB	56:EE:225:ILE:CD1	2.43	0.49
61:JJ:117:LEU:O	61:JJ:119:LEU:HB2	2.13	0.49
13:N:68:ARG:HD2	13:N:128:LYS:HG3	1.95	0.49
70:SS:15:VAL:HB	70:SS:20:ILE:HD11	1.95	0.49
25:Z:36:ARG:HG2	25:Z:38:TYR:CE1	2.48	0.49
48:5:1398:A:H1'	48:5:1399:G:C8	2.48	0.48
48:5:166:C:O5'	48:5:166:C:H6	1.96	0.48
48:5:3698:G:N2	48:5:3699:C:C2	2.81	0.48
48:5:4424:A:N7	48:5:4475:G:C6	2.81	0.48
48:5:4931:G:N3	48:5:4931:G:H2'	2.28	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2:GLY:N	48:5:4185:G:OP1	2.46	0.48
52:AA:65:ILE:HG23	52:AA:74:VAL:HG21	1.93	0.48
2:B:252:ALA:HB1	48:5:4524:G:N3	2.28	0.48
51:9:987:A:C2	53:BB:114:VAL:HG21	2.48	0.48
17:R:35:ALA:HA	17:R:40:GLN:HG2	1.95	0.48
48:5:2021:G:O2'	48:5:2022:C:O4'	2.29	0.48
48:5:4749:C:O2	48:5:4749:C:O4'	2.31	0.48
51:9:1116:C:O2	51:9:1116:C:O4'	2.30	0.48
54:CC:124:PHE:O	54:CC:143:CYS:HA	2.13	0.48
14:O:45:GLY:O	14:O:135:PHE:HA	2.13	0.48
23:X:155:ILE:O	23:X:156:ILE:HB	2.13	0.48
48:5:1198:G:H2'	48:5:1199:G:C8	2.47	0.48
48:5:1252:C:C2	48:5:1259:G:C2	3.01	0.48
48:5:1776:A:C6	48:5:1777:C:C4	3.01	0.48
48:5:2268:A:H4'	48:5:2269:C:H5'	1.95	0.48
51:9:145:G:N7	58:GG:178:ARG:NH1	2.53	0.48
51:9:14:C:O2	51:9:1198:G:C2	2.66	0.48
51:9:495:U:C4	51:9:496:C:C4	3.02	0.48
52:AA:124:VAL:HG13	52:AA:130:ASP:HB2	1.94	0.48
53:BB:134:LEU:HD22	53:BB:218:LEU:HD12	1.94	0.48
53:BB:48:LEU:C	53:BB:48:LEU:HD12	2.34	0.48
56:EE:15:PRO:HD2	56:EE:18:TRP:CE3	2.48	0.48
58:GG:7:PHE:HB2	58:GG:113:ILE:HD12	1.95	0.48
61:JJ:146:SER:O	61:JJ:147:PHE:C	2.51	0.48
3:C:114:ARG:CZ	48:5:1358:G:H5''	2.42	0.48
48:5:169:G:N1	48:5:170:C:C4	2.82	0.48
48:5:4152:G:N2	48:5:4153:C:C2	2.81	0.48
48:5:4079:C:C2	48:5:4168:G:C2	3.01	0.48
48:5:1867:A:N6	48:5:4441:A:O2'	2.44	0.48
48:5:4735:G:C6	48:5:4736:C:C4	3.01	0.48
48:5:707:C:C2	48:5:1291:G:C2	3.00	0.48
51:9:1144:A:C2	51:9:1145:A:C6	3.01	0.48
51:9:1471:C:H2'	51:9:1472:C:C6	2.49	0.48
51:9:211:G:N1	51:9:212:C:C4	2.82	0.48
51:9:409:C:C2	51:9:432:G:C2	3.01	0.48
52:AA:33:GLN:HB3	52:AA:154:LEU:HD12	1.95	0.48
4:D:78:ALA:HB1	4:D:104:LEU:HD13	1.94	0.48
48:5:1958:A:N1	48:5:2026:A:N1	2.61	0.48
48:5:229:G:C2	48:5:240:G:C2	3.02	0.48
48:5:2639:U:O2'	48:5:2694:G:N1	2.34	0.48
48:5:3705:G:C6	48:5:3706:C:C4	3.01	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:9:1130:G:C2	51:9:1131:G:C8	3.02	0.48
54:CC:263:LYS:O	54:CC:264:SER:HB3	2.14	0.48
56:EE:31:PRO:HD3	56:EE:38:LEU:HD13	1.94	0.48
8:H:23:ARG:NH2	8:H:39:ASN:HA	2.28	0.48
12:M:17:PHE:HA	12:M:21:ALA:HB2	1.94	0.48
13:N:173:GLY:O	13:N:183:THR:HG21	2.13	0.48
15:P:57:CYS:SG	15:P:58:VAL:N	2.87	0.48
18:S:12:VAL:HG11	18:S:44:PHE:CG	2.48	0.48
71:TT:38:LYS:O	71:TT:39:LEU:HB2	2.12	0.48
76:YY:20:ARG:HB3	76:YY:76:TYR:CD1	2.48	0.48
48:5:2814:C:H2'	48:5:2814:C:O2	2.12	0.48
48:5:298:G:N2	48:5:299:C:C2	2.81	0.48
48:5:356:G:OP1	48:5:2343:G:N1	2.41	0.48
48:5:3783:A:C8	48:5:3792:G:C6	3.02	0.48
48:5:4308:C:H2'	48:5:4309:G:O4'	2.13	0.48
48:5:82:U:H2'	48:5:83:C:O4'	2.12	0.48
48:5:977:C:N3	48:5:978:G:N7	2.62	0.48
51:9:1149:A:C6	51:9:1151:G:C4	3.01	0.48
51:9:1476:A:C8	69:RR:3:ARG:HB2	2.48	0.48
51:9:1208:A:H4'	51:9:1835:A:N7	2.29	0.48
51:9:292:A:O2'	51:9:293:C:OP2	2.31	0.48
4:D:8:LYS:HG2	4:D:12:TYR:CE2	2.48	0.48
51:9:65:C:N4	58:GG:134:GLY:O	2.40	0.48
51:9:868:G:C2	59:HH:115:LYS:HA	2.49	0.48
60:II:165:GLN:O	60:II:169:GLY:N	2.47	0.48
61:JJ:136:ARG:HD3	61:JJ:160:SER:HA	1.96	0.48
18:S:147:ASP:OD1	18:S:148:SER:N	2.46	0.48
74:WW:42:MET:HE3	74:WW:50:PHE:CE2	2.49	0.48
48:5:1279:A:C3'	48:5:1280:C:C5'	2.77	0.48
48:5:1672:U:C5	48:5:1684:A:N1	2.82	0.48
48:5:199:G:C2	48:5:201:C:N3	2.82	0.48
18:S:173:ASN:HA	48:5:4762:A:H2	1.78	0.48
48:5:499:G:N3	48:5:499:G:H2'	2.28	0.48
48:5:931:C:HO2'	48:5:932:A:P	2.36	0.48
4:D:56:THR:HG23	49:7:27:G:OP2	2.14	0.48
49:7:30:C:C4	49:7:48:G:N1	2.81	0.48
3:C:195:LYS:NZ	50:8:21:C:OP1	2.42	0.48
51:9:1109:C:HO2'	51:9:1110:G:C5'	2.16	0.48
51:9:402:C:H2'	51:9:403:G:O4'	2.13	0.48
51:9:574:A:H2'	51:9:575:A:C8	2.49	0.48
52:AA:50:ASN:HB3	52:AA:53:ARG:HB2	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
55:DD:142:LEU:CD1	55:DD:182:LEU:HD11	2.42	0.48
55:DD:161:GLY:O	55:DD:164:VAL:HG12	2.14	0.48
56:EE:128:LYS:HA	56:EE:156:MET:SD	2.53	0.48
58:GG:144:LEU:HD23	58:GG:145:PHE:CE2	2.48	0.48
15:P:54:GLN:HA	15:P:83:TRP:CD1	2.48	0.48
20:U:28:PRO:HA	20:U:114:TYR:OH	2.14	0.48
21:V:13:LYS:O	21:V:14:PHE:HB2	2.14	0.48
46:2:35:A:H2'	46:2:36:C:O4'	2.13	0.48
2:B:249:ARG:NH2	48:5:3845:A:OP2	2.47	0.48
48:5:3909:C:C5	48:5:3910:C:C5	3.02	0.48
48:5:4119:C:O4'	48:5:4119:C:O2	2.32	0.48
48:5:4213:A:N6	48:5:4218:U:H3	2.09	0.48
49:7:93:G:C6	49:7:94:C:C4	3.02	0.48
51:9:1229:G:C2	51:9:1230:C:C2	3.02	0.48
51:9:1528:G:C6	51:9:1529:C:N4	2.82	0.48
51:9:1735:A:H2'	51:9:1736:G:O4'	2.12	0.48
55:DD:162:ASP:O	55:DD:163:PRO:C	2.52	0.48
5:E:59:TYR:CZ	5:E:64:LEU:HB2	2.48	0.48
8:H:39:ASN:O	8:H:40:HIS:HB3	2.14	0.48
8:H:74:CYS:SG	8:H:75:SER:N	2.85	0.48
11:L:55:LEU:HD12	11:L:154:VAL:HG13	1.96	0.48
48:5:1690:C:H2'	48:5:1691:G:O4'	2.13	0.48
9:I:82:LYS:CE	48:5:1990:A:OP1	2.52	0.48
48:5:233:U:H3'	48:5:234:G:H5'	1.96	0.48
48:5:2557:G:C6	48:5:2558:C:C4	3.02	0.48
48:5:3873:G:H2'	48:5:3874:G:C8	2.49	0.48
51:9:1416:C:H2'	51:9:1417:C:N1	2.28	0.48
51:9:1334:G:C4	51:9:1498:A:C2	3.02	0.48
51:9:1681:U:HO2'	51:9:1682:C:H6	1.61	0.48
51:9:361:U:C2	51:9:1175:G:N3	2.82	0.48
12:M:43:THR:O	12:M:44:ARG:HB2	2.14	0.48
21:V:82:ILE:HD12	21:V:104:VAL:HG22	1.95	0.48
48:5:2046:G:H1'	48:5:2047:A:C8	2.49	0.48
48:5:2065:G:C2	48:5:2066:C:C2	3.02	0.48
48:5:2477:A:H2'	48:5:2478:C:C6	2.49	0.48
48:5:2831:G:C2	48:5:3855:C:C2	3.02	0.48
48:5:4906:C:C2	48:5:4916:G:C2	3.01	0.48
48:5:422:C:C2	50:8:13:G:C2	3.02	0.48
51:9:443:U:O4	51:9:444:G:C6	2.65	0.48
51:9:832:G:C2	51:9:843:C:N3	2.82	0.48
3:C:271:ALA:C	3:C:272:SER:HG	2.06	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
55:DD:191:PRO:O	55:DD:193:ASP:N	2.46	0.48
48:5:1751:A:C2	48:5:1780:A:C2	3.01	0.47
48:5:2370:A:N1	48:5:2390:G:O2'	2.39	0.47
48:5:2768:C:O4'	48:5:2768:C:O2	2.29	0.47
48:5:4099:G:C6	48:5:4100:C:C4	3.01	0.47
48:5:5003:U:H2'	48:5:5004:C:O4'	2.14	0.47
51:9:589:G:C4	51:9:591:U:C5	3.02	0.47
53:BB:30:TRP:CH2	53:BB:48:LEU:HD23	2.48	0.47
7:G:156:VAL:CG1	7:G:184:LEU:HG	2.44	0.47
77:ZZ:73:VAL:HG21	77:ZZ:88:LEU:HD21	1.96	0.47
48:5:1075:G:C2	48:5:1076:C:C2	3.02	0.47
48:5:1379:C:O2	48:5:1379:C:O4'	2.32	0.47
48:5:2863:G:C6	48:5:2864:A:C6	3.03	0.47
48:5:4136:G:C6	48:5:4137:C:C4	3.02	0.47
48:5:978:G:C6	48:5:979:C:C4	3.02	0.47
51:9:1102:G:N2	51:9:1103:C:N3	2.62	0.47
51:9:427:U:O4'	51:9:427:U:O2	2.32	0.47
51:9:49:C:O2	51:9:478:G:C2	2.67	0.47
51:9:680:G:C6	51:9:681:U:C4	3.02	0.47
51:9:834:C:H3'	51:9:835:C:C4'	2.44	0.47
52:AA:41:ARG:HD3	52:AA:47:TYR:CZ	2.49	0.47
51:9:1578:U:C5	55:DD:5:ILE:HA	2.48	0.47
6:F:107:VAL:CG1	6:F:111:LEU:HD12	2.44	0.47
6:F:109:LYS:O	6:F:112:GLN:HG2	2.14	0.47
57:FF:20:PHE:CZ	57:FF:69:VAL:HG11	2.50	0.47
60:II:103:LEU:HA	60:II:171:LEU:O	2.14	0.47
51:9:301:A:N3	60:II:73:THR:HG21	2.29	0.47
20:U:80:LYS:HD3	20:U:110:TYR:CE2	2.49	0.47
25:Z:53:VAL:CG2	25:Z:62:ILE:HG23	2.44	0.47
46:2:34:A:O2'	46:2:35:A:O4'	2.32	0.47
48:5:1067:G:H2'	48:5:1068:G:O4'	2.14	0.47
48:5:115:C:O4'	48:5:115:C:O2	2.29	0.47
48:5:1170:G:C2	48:5:1192:C:C2	3.02	0.47
14:O:62:MET:HA	48:5:2045:G:C5	2.49	0.47
48:5:2097:U:O4'	48:5:2097:U:O2	2.32	0.47
48:5:2108:G:N2	48:5:2125:C:C2	2.82	0.47
48:5:368:C:C2	48:5:374:G:C2	3.02	0.47
48:5:3907:G:C2	48:5:3909:C:C4	3.02	0.47
48:5:4093:G:C3'	48:5:4094:G:H5'	2.44	0.47
48:5:4389:C:H2'	48:5:4390:A:C8	2.49	0.47
48:5:4441:A:H5''	48:5:4441:A:H8	1.79	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:S:174:THR:HG21	48:5:4762:A:O2'	2.14	0.47
51:9:1551:U:H2'	51:9:1552:G:C8	2.50	0.47
51:9:947:G:H2'	51:9:948:C:O4'	2.14	0.47
52:AA:122:LEU:HG	52:AA:142:LEU:HD22	1.95	0.47
52:AA:87:VAL:HG12	52:AA:175:TRP:CE2	2.49	0.47
56:EE:38:LEU:HD12	56:EE:38:LEU:C	2.35	0.47
59:HH:158:LEU:HD12	59:HH:189:PHE:CZ	2.49	0.47
51:9:916:A:C5	65:NN:73:ARG:HD3	2.49	0.47
66:OO:67:ASP:OD1	66:OO:67:ASP:N	2.47	0.47
51:9:1672:U:O3'	68:QQ:76:GLY:HA3	2.15	0.47
17:R:42:ARG:HA	17:R:45:ILE:HD12	1.97	0.47
48:5:1325:C:O2	48:5:1325:C:O5'	2.32	0.47
48:5:1383:G:C6	48:5:1384:C:C4	3.02	0.47
48:5:2609:G:C2	48:5:2731:C:O2	2.68	0.47
48:5:279:A:O2'	48:5:280:G:OP2	2.25	0.47
48:5:357:U:C2	48:5:359:A:N7	2.82	0.47
2:B:30:LYS:NZ	48:5:4717:A:OP2	2.35	0.47
48:5:677:G:N2	48:5:678:C:C2	2.82	0.47
51:9:39:A:C2	51:9:517:C:C6	3.01	0.47
2:B:41:VAL:HG21	2:B:196:TRP:CG	2.50	0.47
3:C:164:THR:HG21	48:5:223:G:H2'	1.95	0.47
55:DD:23:GLU:HG2	62:KK:64:TRP:CD1	2.50	0.47
6:F:93:PHE:CD2	6:F:246:ILE:HD11	2.49	0.47
7:G:159:HIS:CE1	7:G:185:LYS:HE2	2.48	0.47
51:9:643:A:P	61:JJ:38:ARG:NH2	2.87	0.47
17:R:59:SER:N	48:5:4646:U:OP1	2.47	0.47
25:Z:5:MET:HG2	25:Z:77:TYR:CE1	2.50	0.47
48:5:1846:G:H2'	48:5:1847:C:C6	2.50	0.47
48:5:1855:G:C6	48:5:1856:C:C4	3.03	0.47
48:5:256:G:N2	48:5:257:C:C2	2.83	0.47
48:5:2632:U:H2'	48:5:2633:U:C6	2.50	0.47
48:5:2715:G:C2	48:5:2716:C:C2	3.03	0.47
48:5:3586:G:C6	48:5:3587:C:C4	3.03	0.47
48:5:3662:A:H61	48:5:3680:U:H3	1.61	0.47
48:5:4075:U:O2'	48:5:4076:G:H2'	2.14	0.47
48:5:4644:G:C6	48:5:4645:C:C4	3.03	0.47
50:8:106:G:N2	50:8:107:C:C2	2.82	0.47
51:9:1115:U:O4'	51:9:1115:U:O2	2.32	0.47
51:9:1543:U:OP2	71:TT:62:ARG:NH1	2.47	0.47
51:9:55:U:H2'	51:9:55:U:O2	2.14	0.47
51:9:908:A:OP2	51:9:908:A:H8	1.98	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:CC:180:VAL:HG22	54:CC:219:ILE:HD13	1.95	0.47
56:EE:183:VAL:CG1	56:EE:220:THR:HG21	2.44	0.47
62:KK:15:LEU:HD22	62:KK:49:MET:CE	2.44	0.47
13:N:66:VAL:HG11	13:N:98:LEU:HB3	1.95	0.47
15:P:125:MET:HG2	15:P:141:SER:HB3	1.97	0.47
73:VV:57:GLY:O	73:VV:58:ALA:C	2.52	0.47
24:Y:19:PHE:CD2	50:8:23:C:C5	3.03	0.47
47:3:1:G:N1	47:3:2:C:C4	2.83	0.47
48:5:1359:G:H2'	48:5:1360:G:H8	1.75	0.47
48:5:2846:G:H2'	48:5:2847:G:O4'	2.15	0.47
48:5:5026:U:H3'	60:II:79:ILE:HD12	1.97	0.47
13:N:169:ARG:NH1	48:5:63:G:OP2	2.47	0.47
50:8:119:C:C2	50:8:132:G:C2	3.03	0.47
51:9:1452:A:H4'	51:9:1453:C:O4'	2.15	0.47
51:9:1669:G:N2	51:9:1670:C:C2	2.83	0.47
3:C:266:THR:OG1	3:C:267:TRP:N	2.47	0.47
3:C:44:LEU:HD11	3:C:120:LYS:HD3	1.97	0.47
3:C:57:LEU:O	3:C:58:ALA:C	2.52	0.47
7:G:86:VAL:CG1	7:G:87:LEU:H	2.28	0.47
60:II:57:ALA:O	60:II:58:LEU:HD23	2.14	0.47
63:LL:61:PRO:HA	63:LL:66:VAL:HG13	1.97	0.47
18:S:84:TYR:HD1	18:S:84:TYR:C	2.18	0.47
77:ZZ:58:LEU:HD23	77:ZZ:62:VAL:HG21	1.97	0.47
48:5:990:C:C4	48:5:1064:G:C2	3.03	0.47
48:5:1724:G:N3	48:5:1724:G:H2'	2.30	0.47
48:5:2301:G:N1	48:5:2302:C:C4	2.82	0.47
48:5:2315:G:C2	48:5:2325:C:C2	3.01	0.47
48:5:2402:G:C2	48:5:2403:A:C8	3.02	0.47
48:5:2519:U:C2	48:5:2520:C:C5	3.02	0.47
48:5:2750:G:H2'	48:5:2751:G:O4'	2.14	0.47
48:5:3900:G:N2	48:5:4562:C:C2	2.83	0.47
48:5:4102:C:C2	48:5:4108:G:C2	3.02	0.47
48:5:479:G:N2	48:5:480:C:C2	2.83	0.47
48:5:499:G:C2	48:5:656:C:N3	2.82	0.47
48:5:698:G:N1	48:5:699:C:C4	2.83	0.47
48:5:751:G:N2	48:5:912:G:C4	2.83	0.47
51:9:1054:G:H2'	51:9:1055:A:O4'	2.13	0.47
51:9:1409:A:C6	51:9:1410:C:C5	3.03	0.47
51:9:750:C:H2'	51:9:750:C:O2	2.13	0.47
51:9:853:C:O5'	51:9:853:C:O2	2.32	0.47
52:AA:43:SER:OG	52:AA:44:ASP:N	2.47	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:BB:121:ILE:HG21	53:BB:164:ILE:CG2	2.43	0.47
53:BB:71:LEU:O	53:BB:74:LEU:N	2.47	0.47
58:GG:76:LEU:HD22	58:GG:92:ARG:CG	2.45	0.47
63:LL:91:ASP:N	63:LL:91:ASP:OD1	2.48	0.47
19:T:3:ASN:OD1	19:T:9:ARG:NH1	2.48	0.47
23:X:43:SER:OG	23:X:44:PRO:HD2	2.15	0.47
48:5:1359:G:H2'	48:5:1360:G:O4'	2.15	0.47
48:5:1910:G:C6	48:5:1911:C:N4	2.83	0.47
48:5:207:G:H2'	48:5:208:A:C8	2.50	0.47
48:5:4075:U:O2'	48:5:4076:G:OP1	2.33	0.47
48:5:1854:G:N2	48:5:4394:A:O4'	2.47	0.47
51:9:1210:G:C5'	51:9:1211:G:OP2	2.62	0.47
52:AA:3:GLY:N	73:VV:78:ILE:O	2.47	0.47
54:CC:66:LEU:HD11	54:CC:81:ILE:HD11	1.97	0.47
5:E:146:LEU:HD13	5:E:190:VAL:CG1	2.45	0.47
59:HH:133:LEU:HD21	59:HH:176:VAL:HG11	1.97	0.47
14:O:126:VAL:HG13	14:O:127:VAL:HG23	1.95	0.47
47:3:10:G:N1	47:3:11:C:C4	2.83	0.47
47:3:24:G:C2	47:3:25:C:C2	3.02	0.47
48:5:1072:C:O2	48:5:1072:C:H2'	2.15	0.47
48:5:1234:G:H2'	48:5:1235:G:C8	2.50	0.47
48:5:1399:G:H2'	48:5:1400:G:O4'	2.15	0.47
48:5:2557:G:C2	48:5:2558:C:C2	3.03	0.47
48:5:2609:G:N1	48:5:2731:C:C2	2.83	0.47
48:5:4291:G:C5'	48:5:4291:G:N3	2.77	0.47
48:5:4631:G:H2'	48:5:4632:U:O4'	2.15	0.47
48:5:4989:U:O2	48:5:4989:U:O4'	2.30	0.47
50:8:53:G:C2	50:8:54:C:C2	3.03	0.47
51:9:1265:A:C2'	51:9:1265:A:N3	2.78	0.47
51:9:1735:A:C4	51:9:1800:A:C2	3.03	0.47
51:9:680:G:C5	51:9:681:U:C5	3.03	0.47
51:9:696:G:C2	51:9:735:C:C2	3.03	0.47
3:C:183:VAL:HG21	3:C:226:GLY:HA3	1.97	0.47
4:D:180:PHE:HB3	4:D:195:HIS:CD2	2.49	0.47
9:I:87:ILE:CG2	9:I:88:ARG:N	2.77	0.47
66:OO:43:HIS:HA	66:OO:55:ARG:HA	1.96	0.47
16:Q:101:CYS:SG	16:Q:121:LEU:HB2	2.55	0.47
48:5:1072:C:H1'	48:5:1073:G:C8	2.50	0.47
48:5:1171:G:C2	48:5:1191:C:C2	3.02	0.47
48:5:1448:G:N2	48:5:1449:C:C2	2.82	0.47
48:5:1539:G:C6	48:5:1540:C:C4	3.02	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:1733:G:N3	48:5:4214:A:H2'	2.30	0.47
48:5:1846:G:C2	48:5:1847:C:C2	3.03	0.47
48:5:1904:G:C2	48:5:2073:C:C2	3.03	0.47
48:5:962:C:P	48:5:2264:C:N3	2.88	0.47
48:5:2496:G:C2	48:5:2497:C:C2	3.03	0.47
48:5:3900:G:H5''	48:5:3901:A:H4'	1.96	0.47
48:5:4099:G:C2	48:5:4100:C:C2	3.03	0.47
48:5:505:G:C2	48:5:506:C:C2	3.02	0.47
51:9:635:G:C2	51:9:636:C:C2	3.02	0.47
51:9:823:U:C5	76:YY:64:PHE:CE2	3.03	0.47
3:C:293:LEU:HD22	16:Q:34:PHE:CE2	2.49	0.47
56:EE:31:PRO:CD	56:EE:38:LEU:HD13	2.45	0.47
6:F:98:ARG:HG2	6:F:141:TYR:HA	1.96	0.47
8:H:92:MET:HB3	8:H:181:VAL:HA	1.97	0.47
63:LL:16:ILE:H	63:LL:16:ILE:HD13	1.79	0.47
46:2:30:G:C6	46:2:31:C:C4	3.03	0.47
48:5:1416:G:N2	48:5:1417:C:C2	2.83	0.47
48:5:1912:G:N2	48:5:1913:C:C2	2.83	0.47
48:5:1962:A:O2'	48:5:1963:C:O5'	2.31	0.47
48:5:1995:G:C2	48:5:1996:C:C2	3.03	0.47
48:5:224:U:O2	48:5:224:U:O4'	2.31	0.47
48:5:2367:A:C8	48:5:2798:A:C6	3.03	0.47
48:5:2898:G:C6	48:5:2899:C:C4	3.03	0.47
48:5:4767:C:C2	48:5:4868:G:N2	2.83	0.47
48:5:4916:G:C2	48:5:4917:C:C2	3.03	0.47
48:5:5006:U:H4'	48:5:5007:A:H5'	1.96	0.47
50:8:53:G:H2'	50:8:54:C:O4'	2.15	0.47
51:9:1134:G:N2	51:9:1135:C:C2	2.82	0.47
51:9:1407:U:C2'	51:9:1408:U:C6	2.96	0.47
51:9:1528:G:N1	51:9:1529:C:C4	2.83	0.47
2:B:163:LEU:CD2	2:B:182:GLU:HG3	2.40	0.47
2:B:46:PHE:CE1	2:B:84:MET:HG3	2.50	0.47
58:GG:12:CYS:SG	58:GG:13:GLN:N	2.88	0.47
9:I:76:MET:HB3	9:I:85:PHE:CE2	2.50	0.47
12:M:64:PHE:CE2	12:M:73:VAL:HG23	2.50	0.47
71:TT:104:LEU:HD13	71:TT:121:ARG:HE	1.80	0.47
21:V:80:VAL:HG11	21:V:132:ILE:HD13	1.97	0.47
48:5:1846:G:H2'	48:5:1847:C:H6	1.80	0.46
48:5:1934:A:N1	48:5:2048:U:C4	2.83	0.46
48:5:279:A:H3'	48:5:279:A:OP1	2.15	0.46
48:5:4242:U:N3	48:5:4281:A:C2	2.79	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:4728:U:H2'	48:5:4728:U:O2	2.16	0.46
48:5:4932:U:H2'	48:5:4933:C:O4'	2.14	0.46
2:B:271:GLN:NE2	48:5:4978:G:OP1	2.41	0.46
51:9:1109:C:C2'	51:9:1110:G:O5'	2.62	0.46
51:9:1398:G:C2	51:9:1399:C:C6	3.03	0.46
51:9:697:G:C2	51:9:734:C:C2	3.03	0.46
51:9:88:G:C2	51:9:89:C:C2	3.03	0.46
1:A:101:VAL:HB	1:A:165:VAL:HG12	1.96	0.46
53:BB:172:MET:CE	53:BB:212:VAL:HG12	2.45	0.46
6:F:117:ARG:NH1	16:Q:4:ASP:O	2.44	0.46
73:VV:20:SER:O	73:VV:22:ARG:N	2.48	0.46
74:WW:100:GLY:HA2	74:WW:130:PHE:HB3	1.97	0.46
76:YY:45:ALA:O	76:YY:49:LYS:N	2.48	0.46
48:5:1878:G:N2	48:5:1879:C:C2	2.83	0.46
48:5:1941:A:N6	48:5:2040:A:C4	2.83	0.46
48:5:2391:G:N1	48:5:2392:C:C4	2.83	0.46
48:5:2898:G:C2	48:5:2899:C:C2	3.03	0.46
48:5:4093:G:H3'	48:5:4094:G:H5'	1.97	0.46
48:5:4883:C:O2'	48:5:4884:G:P	2.73	0.46
51:9:1109:C:C2	51:9:1110:G:C8	3.03	0.46
51:9:1234:C:H2'	51:9:1235:G:C8	2.50	0.46
51:9:1328:G:H2'	51:9:1329:U:O4'	2.15	0.46
51:9:1500:G:H2'	51:9:1501:C:O4'	2.15	0.46
51:9:1754:G:C6	51:9:1755:C:C4	3.03	0.46
51:9:123:G:C2	51:9:342:C:C2	3.04	0.46
1:A:234:LYS:HG2	1:A:238:ILE:HD12	1.96	0.46
2:B:234:ARG:HA	2:B:272:LYS:HD2	1.96	0.46
3:C:66:SER:CA	3:C:77:PRO:HA	2.45	0.46
57:FF:119:SER:O	57:FF:193:LYS:HB2	2.16	0.46
51:9:67:C:O2'	58:GG:165:GLU:OE1	2.31	0.46
9:I:45:GLU:O	9:I:46:PHE:CG	2.68	0.46
60:II:156:ALA:O	60:II:158:ILE:N	2.48	0.46
12:M:24:LEU:HB2	12:M:43:THR:HG21	1.97	0.46
48:5:1189:G:C6	48:5:1190:C:C4	3.03	0.46
48:5:2586:G:C8	48:5:2770:C:H1'	2.51	0.46
48:5:322:C:O2	48:5:4356:G:C2	2.68	0.46
48:5:4919:G:C2	48:5:4920:C:C2	3.03	0.46
49:7:71:G:C2	49:7:105:C:C2	3.04	0.46
50:8:10:G:C2	50:8:11:C:C2	3.03	0.46
50:8:139:G:N1	50:8:140:C:C2	2.84	0.46
50:8:75:G:N2	50:8:76:C:C2	2.83	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:9:1416:C:O3'	51:9:1417:C:O4'	2.33	0.46
51:9:1535:U:O2	51:9:1535:U:C2'	2.63	0.46
51:9:194:C:C2	51:9:206:G:C2	3.04	0.46
51:9:321:C:O2'	51:9:322:C:H5'	2.15	0.46
51:9:909:G:HO2'	51:9:910:G:P	2.38	0.46
51:9:920:A:OP1	74:WW:57:ARG:NH1	2.49	0.46
1:A:30:ARG:O	1:A:163:ARG:NH2	2.49	0.46
2:B:92:TYR:HB2	2:B:159:VAL:HB	1.98	0.46
2:B:257:TRP:HB3	48:5:4518:A:OP1	2.15	0.46
2:B:261:ARG:HD3	2:B:261:ARG:N	2.29	0.46
53:BB:87:ILE:O	53:BB:98:THR:HA	2.14	0.46
3:C:54:VAL:HG21	3:C:101:MET:CE	2.45	0.46
55:DD:74:GLN:HA	55:DD:79:PHE:HB2	1.96	0.46
56:EE:143:ASP:O	56:EE:144:ALA:HB3	2.13	0.46
6:F:107:VAL:HG12	6:F:111:LEU:HD12	1.97	0.46
51:9:163:U:OP1	58:GG:84:TYR:HA	2.15	0.46
9:I:60:LEU:HD13	9:I:159:PHE:CD1	2.51	0.46
12:M:24:LEU:HD11	12:M:86:TRP:CG	2.50	0.46
24:Y:52:ASP:OD1	24:Y:52:ASP:N	2.45	0.46
46:2:50:U:H2'	46:2:51:C:C6	2.50	0.46
48:5:1590:C:H5''	48:5:1591:U:O5'	2.16	0.46
48:5:1699:A:N6	48:5:2094:G:O2'	2.48	0.46
48:5:2065:G:C6	48:5:2066:C:C4	3.03	0.46
48:5:2586:G:C8	48:5:2587:A:C5	3.04	0.46
48:5:3703:G:C6	48:5:3704:U:C4	3.03	0.46
47:3:76:A:C2	48:5:4370:G:C4	3.04	0.46
48:5:497:G:H3'	48:5:498:C:H5''	1.97	0.46
51:9:1224:G:C6	51:9:1225:U:C4	3.04	0.46
51:9:166:A:C2	51:9:167:G:C8	3.03	0.46
51:9:1839:U:O2	51:9:1840:U:C2	2.68	0.46
51:9:488:U:O2	51:9:488:U:C2'	2.63	0.46
51:9:909:G:O2'	51:9:910:G:H8	1.97	0.46
63:LL:75:GLY:HA3	63:LL:88:ILE:HD12	1.97	0.46
12:M:56:GLN:HB2	48:5:4871:C:N3	2.30	0.46
13:N:120:TRP:NE1	13:N:123:GLU:OE1	2.35	0.46
13:N:45:PRO:O	13:N:49:ARG:HG3	2.15	0.46
48:5:2022:C:N4	48:5:2023:C:C4	2.82	0.46
48:5:2090:U:OP2	48:5:2090:U:O4'	2.34	0.46
48:5:2597:G:C2	48:5:2749:C:C2	3.03	0.46
48:5:2793:G:C6	48:5:2797:C:N4	2.84	0.46
1:A:27:ALA:N	48:5:3680:U:OP1	2.48	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:3909:C:O2	48:5:4396:A:N1	2.49	0.46
48:5:4274:A:H2'	48:5:4275:G:C8	2.50	0.46
48:5:967:C:N3	48:5:2254:G:C6	2.83	0.46
48:5:20:U:H2'	50:8:37:A:H61	1.81	0.46
51:9:5:U:C2	51:9:20:G:N2	2.83	0.46
4:D:146:LEU:HD11	4:D:159:VAL:HG11	1.97	0.46
9:I:139:ARG:NH1	9:I:195:CYS:SG	2.89	0.46
9:I:61:SER:HA	9:I:126:VAL:HG23	1.97	0.46
11:L:170:THR:CG2	11:L:173:GLU:CB	2.86	0.46
63:LL:40:ILE:HD11	63:LL:68:ILE:HG13	1.98	0.46
48:5:1171:G:C6	48:5:1172:C:C4	3.04	0.46
48:5:1280:C:C4	48:5:1282:G:N1	2.84	0.46
48:5:1682:A:C2	48:5:1683:U:N1	2.84	0.46
48:5:1791:U:C5	48:5:1792:U:C6	3.04	0.46
48:5:2311:C:C2	48:5:2328:G:C2	3.03	0.46
48:5:2468:U:N3	48:5:2473:A:C6	2.79	0.46
48:5:2468:U:C4	48:5:2473:A:N6	2.82	0.46
48:5:2606:G:C6	48:5:2607:C:C4	3.04	0.46
48:5:2698:G:C6	48:5:2699:C:C4	3.04	0.46
48:5:2715:G:C6	48:5:2716:C:C4	3.04	0.46
48:5:3861:A:H2'	48:5:3862:A:C8	2.50	0.46
48:5:4305:G:C2'	48:5:4305:G:N3	2.78	0.46
48:5:4559:A:H3'	48:5:4559:A:C8	2.51	0.46
48:5:4883:C:HO2'	48:5:4884:G:P	2.37	0.46
48:5:931:C:O2'	48:5:932:A:OP1	2.29	0.46
51:9:1048:G:N2	51:9:1069:U:C5	2.83	0.46
51:9:1474:A:H2'	51:9:1475:G:C5'	2.45	0.46
51:9:1481:G:C6	51:9:1482:C:N3	2.84	0.46
51:9:878:G:C6	51:9:909:G:C6	3.04	0.46
51:9:92:A:H4'	51:9:93:U:OP2	2.14	0.46
1:A:49:ILE:CG2	1:A:58:LEU:HB2	2.46	0.46
2:B:35:ASP:OD1	2:B:35:ASP:N	2.49	0.46
5:E:179:ARG:NE	48:5:4937:C:OP1	2.44	0.46
5:E:254:LEU:O	5:E:257:ILE:HG13	2.15	0.46
7:G:43:GLN:O	7:G:45:ILE:N	2.49	0.46
51:9:302:A:H1'	60:II:73:THR:HG23	1.97	0.46
61:JJ:120:ALA:O	61:JJ:121:LYS:CB	2.63	0.46
62:KK:8:ARG:NH1	62:KK:12:TYR:OH	2.49	0.46
13:N:121:VAL:CG1	13:N:131:GLU:HG3	2.46	0.46
48:5:1448:G:C6	48:5:1449:C:N4	2.84	0.46
48:5:1995:G:C6	48:5:1996:C:N3	2.84	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:2698:G:H2'	48:5:2699:C:O4'	2.16	0.46
48:5:4240:G:C6	48:5:4241:C:C4	3.04	0.46
48:5:4432:C:H2'	48:5:4433:G:O4'	2.15	0.46
48:5:3889:G:C4	48:5:4720:C:C4	3.04	0.46
48:5:69:A:N1	48:5:324:A:O2'	2.41	0.46
48:5:733:A:H2'	48:5:734:G:O4'	2.16	0.46
51:9:999:G:C6	51:9:1000:C:C4	3.03	0.46
51:9:1129:G:C3'	51:9:1130:G:H8	2.27	0.46
51:9:1839:U:C6	51:9:1862:G:N2	2.84	0.46
58:GG:58:LYS:O	58:GG:59:GLN:HB2	2.15	0.46
13:N:108:ARG:NH2	48:5:54:G:O2'	2.49	0.46
67:PP:18:ARG:HG2	70:SS:90:VAL:HA	1.98	0.46
17:R:123:LEU:HD21	17:R:142:ILE:HG12	1.98	0.46
74:WW:30:CYS:SG	74:WW:31:SER:N	2.89	0.46
75:XX:41:PHE:O	75:XX:43:GLY:N	2.49	0.46
48:5:1550:G:C6	48:5:1551:C:C4	3.04	0.46
48:5:1789:C:H2'	48:5:1790:U:H6	1.79	0.46
48:5:1661:C:C2	48:5:2345:G:N1	2.84	0.46
48:5:2446:C:H2'	48:5:2447:U:C6	2.51	0.46
48:5:2496:G:C6	48:5:2497:C:C4	3.04	0.46
48:5:2567:G:C2	48:5:2568:C:C2	3.04	0.46
48:5:3904:G:H4'	48:5:3905:A:OP1	2.14	0.46
48:5:3918:G:C6	48:5:3919:C:C4	3.04	0.46
48:5:4092:G:N2	48:5:4158:C:C2	2.83	0.46
48:5:4666:G:H2'	48:5:4667:C:C6	2.50	0.46
48:5:4904:G:N2	48:5:4905:C:C2	2.84	0.46
48:5:4977:A:H2'	48:5:4978:G:O4'	2.16	0.46
48:5:5057:C:H2'	48:5:5058:A:C8	2.51	0.46
48:5:725:G:H2'	48:5:726:G:C8	2.51	0.46
48:5:977:C:C3'	48:5:978:G:H5'	2.45	0.46
51:9:1512:C:H2'	51:9:1513:C:C6	2.51	0.46
51:9:1784:G:N1	51:9:1785:C:C4	2.84	0.46
51:9:182:C:H2'	51:9:184:G:H1'	1.97	0.46
51:9:511:U:H2'	51:9:512:A:C8	2.51	0.46
51:9:623:G:N1	51:9:624:C:C4	2.84	0.46
3:C:218:VAL:HG22	3:C:229:LEU:HG	1.97	0.46
56:EE:52:LEU:O	56:EE:54:TYR:N	2.49	0.46
11:L:22:VAL:CG1	13:N:200:LEU:HD12	2.46	0.46
76:YY:85:ASN:N	76:YY:85:ASN:ND2	2.63	0.46
46:2:32:C:C5	46:2:33:U:C5	3.03	0.46
48:5:1376:C:H4'	48:5:1377:G:OP1	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:1379:C:H4'	48:5:1380:G:C8	2.51	0.46
48:5:1584:G:C6	48:5:1585:C:C4	3.04	0.46
48:5:2026:A:C2'	48:5:2027:U:H5'	2.46	0.46
48:5:2245:G:C2	48:5:2246:C:C2	3.04	0.46
48:5:281:U:O2'	48:5:329:A:H1'	2.16	0.46
48:5:4576:U:C4	48:5:4577:U:C4	3.04	0.46
48:5:4916:G:C6	48:5:4917:C:C4	3.04	0.46
13:N:181:HIS:NE2	48:5:99:A:H4'	2.30	0.46
50:8:94:G:H5'	50:8:94:G:C8	2.51	0.46
51:9:1089:G:C6	51:9:1090:C:C4	3.04	0.46
51:9:1259:A:H3'	51:9:1259:A:N3	2.30	0.46
51:9:16:G:C2	51:9:17:C:N3	2.84	0.46
51:9:1859:A:C2	51:9:1860:A:C6	3.04	0.46
51:9:614:C:C2	51:9:626:G:C2	3.03	0.46
5:E:276:GLY:C	5:E:277:VAL:HG23	2.36	0.46
6:F:44:LEU:O	6:F:47:ALA:N	2.49	0.46
60:II:61:ASP:OD1	60:II:62:VAL:N	2.48	0.46
62:KK:39:ASN:O	62:KK:40:VAL:C	2.55	0.46
65:NN:122:ILE:HG21	65:NN:141:TYR:CD2	2.50	0.46
48:5:1270:A:H2'	48:5:1271:G:O4'	2.16	0.46
48:5:1721:G:C6	48:5:1722:C:C4	3.04	0.46
48:5:177:G:C2	48:5:178:C:C2	3.03	0.46
48:5:177:G:C6	48:5:178:C:C4	3.04	0.46
48:5:1990:A:H3'	48:5:1991:A:H5''	1.98	0.46
48:5:2021:G:C2	48:5:2022:C:C2	3.04	0.46
48:5:2045:G:O6	48:5:3870:C:O2'	2.28	0.46
48:5:2627:C:O2	48:5:2627:C:O4'	2.33	0.46
48:5:4740:G:C2	48:5:4741:C:C2	3.04	0.46
48:5:940:C:C4	48:5:941:C:C4	3.04	0.46
51:9:1236:G:C6	51:9:1237:C:C4	3.04	0.46
51:9:1331:C:C2	51:9:1489:A:C5	3.04	0.46
51:9:1664:A:HO2'	51:9:1665:G:C5'	2.28	0.46
4:D:56:THR:HG21	49:7:26:C:H5''	1.97	0.46
5:E:146:LEU:HD13	5:E:190:VAL:HG11	1.98	0.46
5:E:47:VAL:O	5:E:48:ARG:C	2.55	0.46
6:F:63:TYR:O	6:F:64:ARG:C	2.54	0.46
48:5:994:G:C2	48:5:1050:C:C2	3.04	0.45
48:5:1196:G:C6	48:5:1197:C:C4	3.04	0.45
48:5:1240:G:C6	48:5:1241:C:C4	3.04	0.45
48:5:1550:G:C2	48:5:1551:C:C2	3.04	0.45
48:5:2909:C:O2	48:5:3586:G:C2	2.69	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:3680:U:C2'	48:5:3680:U:O2	2.64	0.45
48:5:4619:U:H2'	48:5:4620:U:O4'	2.15	0.45
48:5:4737:G:C2	48:5:4738:C:C2	3.04	0.45
48:5:4911:A:H3'	48:5:4912:G:C5'	2.46	0.45
51:9:1122:A:N3	53:BB:146:ARG:NH1	2.62	0.45
51:9:1276:A:N6	51:9:1321:G:O2'	2.45	0.45
51:9:1845:A:C2	51:9:1855:G:C6	3.04	0.45
51:9:834:C:C2	51:9:841:G:N2	2.84	0.45
1:A:116:LEU:CD2	1:A:148:VAL:HG11	2.47	0.45
52:AA:60:LEU:HD13	52:AA:159:ILE:HD11	1.97	0.45
2:B:114:CYS:SG	2:B:180:LEU:HD11	2.56	0.45
2:B:260:ALA:C	2:B:261:ARG:HD3	2.36	0.45
5:E:127:LYS:O	5:E:132:HIS:NE2	2.49	0.45
6:F:139:GLU:N	6:F:140:PRO:HD2	2.31	0.45
6:F:234:ASP:O	6:F:238:ARG:NH2	2.49	0.45
58:GG:68:LEU:HA	58:GG:101:ILE:HD13	1.98	0.45
58:GG:121:ILE:HG22	58:GG:124:LEU:HB3	1.97	0.45
17:R:172:ARG:NE	17:R:172:ARG:HA	2.31	0.45
48:5:1381:U:O2	48:5:1381:U:O4'	2.33	0.45
48:5:1448:G:C2	48:5:1449:C:C2	3.04	0.45
3:C:181:LYS:HD3	48:5:218:A:C8	2.51	0.45
48:5:2336:G:C2	48:5:2337:C:C2	3.04	0.45
48:5:2559:G:C6	48:5:2560:C:C4	3.04	0.45
48:5:2619:G:H5'	48:5:2620:G:OP2	2.16	0.45
48:5:2736:G:N2	48:5:2737:C:C2	2.84	0.45
48:5:4427:G:HO2'	48:5:4428:A:H8	1.64	0.45
48:5:43:U:C2'	48:5:44:A:O5'	2.63	0.45
48:5:5001:U:H2'	48:5:5002:U:O4'	2.16	0.45
48:5:28:C:C2	48:5:55:G:N2	2.84	0.45
48:5:691:C:H2'	48:5:692:A:C8	2.51	0.45
48:5:984:C:C2	48:5:1070:G:N2	2.85	0.45
50:8:53:G:C6	50:8:54:C:C4	3.04	0.45
51:9:1455:A:H2'	51:9:1456:G:H8	1.80	0.45
51:9:1643:U:H2'	51:9:1644:C:C6	2.51	0.45
51:9:1859:A:H2'	51:9:1860:A:C8	2.50	0.45
51:9:872:A:C6	51:9:915:G:C5	3.04	0.45
1:A:236:GLY:N	48:5:3687:A:O2'	2.50	0.45
3:C:233:THR:HG22	3:C:259:LYS:NZ	2.31	0.45
5:E:161:LEU:HD22	5:E:204:ILE:HD13	1.98	0.45
59:HH:100:ILE:CG1	59:HH:125:VAL:HG11	2.47	0.45
14:O:148:LYS:HB2	14:O:149:TYR:CD2	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:1203:G:N2	48:5:1204:C:C2	2.84	0.45
48:5:1549:G:C2	48:5:1580:C:C2	3.04	0.45
48:5:1905:U:H2'	48:5:1906:U:O4'	2.16	0.45
48:5:1925:G:C6	48:5:1926:C:C4	3.05	0.45
48:5:227:A:C6	48:5:228:C:C2	3.04	0.45
48:5:2457:G:C6	48:5:2458:C:C4	3.04	0.45
48:5:3894:A:H2'	48:5:3895:G:O4'	2.17	0.45
48:5:4661:G:C6	48:5:4662:C:C4	3.04	0.45
48:5:4730:C:O5'	48:5:4731:G:N2	2.50	0.45
48:5:4977:A:C2	48:5:4978:G:C4	3.04	0.45
48:5:5026:U:C6	60:II:79:ILE:HD11	2.51	0.45
51:9:1102:G:C2	51:9:1103:C:C5	3.04	0.45
51:9:1243:U:O4	51:9:1257:G:N2	2.43	0.45
51:9:561:A:OP1	61:JJ:171:GLY:N	2.50	0.45
51:9:953:C:H2'	51:9:954:U:O4'	2.17	0.45
4:D:62:CYS:HB3	4:D:105:LEU:HD22	1.98	0.45
55:DD:163:PRO:HA	55:DD:166:TYR:CZ	2.52	0.45
3:C:334:THR:HG21	6:F:53:TYR:OH	2.16	0.45
60:II:25:ARG:O	60:II:27:TYR:N	2.49	0.45
63:LL:99:TYR:O	63:LL:101:ARG:N	2.49	0.45
63:LL:17:PHE:CZ	63:LL:19:ASN:HB2	2.50	0.45
14:O:58:LEU:HD23	14:O:72:HIS:CD2	2.50	0.45
16:Q:15:ARG:HD2	16:Q:52:PHE:O	2.16	0.45
23:X:93:ASN:OD1	48:5:2532:C:O2'	2.34	0.45
48:5:1891:A:O2'	48:5:1892:A:O4'	2.29	0.45
48:5:209:U:C4	48:5:233:U:O4	2.69	0.45
48:5:2439:G:H2'	48:5:2440:U:H5'	1.97	0.45
48:5:2606:G:C2	48:5:2607:C:C2	3.05	0.45
48:5:2612:G:C6	48:5:2613:C:C4	3.05	0.45
48:5:303:C:H2'	48:5:304:C:O4'	2.16	0.45
48:5:3586:G:C2	48:5:3587:C:C2	3.04	0.45
48:5:3626:G:C6	48:5:3836:A:C2	3.05	0.45
48:5:2366:A:H1'	48:5:3851:U:O5'	2.17	0.45
48:5:4283:G:N1	48:5:4284:C:C4	2.85	0.45
48:5:499:G:C2	48:5:500:G:C8	3.04	0.45
48:5:508:G:C2	48:5:510:U:C5	3.04	0.45
48:5:746:A:O2'	48:5:747:A:O5'	2.30	0.45
51:9:1204:A:H2'	51:9:1205:C:O4'	2.16	0.45
51:9:1664:A:O2'	51:9:1665:G:C5'	2.65	0.45
51:9:980:A:C2	51:9:981:A:C6	3.05	0.45
1:A:125:LYS:HG3	48:5:3681:G:C6	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:CC:102:LEU:HG	54:CC:130:ILE:HD11	1.97	0.45
7:G:190:LEU:HD23	7:G:199:CYS:O	2.17	0.45
58:GG:7:PHE:CD2	58:GG:10:THR:HG23	2.52	0.45
59:HH:96:ALA:HB3	59:HH:98:ARG:NH1	2.32	0.45
11:L:175:ASN:O	11:L:176:PHE:C	2.54	0.45
76:YY:76:TYR:OH	76:YY:86:GLU:HG2	2.16	0.45
25:Z:11:VAL:N	25:Z:23:ALA:O	2.50	0.45
48:5:1189:G:C2	48:5:1190:C:C2	3.04	0.45
48:5:1332:C:H2'	48:5:1333:A:H8	1.81	0.45
48:5:2478:C:N4	48:5:2479:G:O6	2.49	0.45
48:5:2602:G:C6	48:5:2603:C:C4	3.04	0.45
48:5:2800:G:C6	48:5:2801:U:C4	3.04	0.45
48:5:3877:A:N3	48:5:4401:G:O2'	2.39	0.45
48:5:4109:G:C6	48:5:4110:C:C4	3.05	0.45
48:5:4461:C:C2	48:5:4516:G:C2	3.04	0.45
48:5:4562:C:C4	48:5:4563:U:C4	3.04	0.45
48:5:76:A:C6	48:5:77:U:C5	3.03	0.45
51:9:1005:G:C6	51:9:1006:C:C4	3.05	0.45
51:9:1035:A:H2'	51:9:1036:A:O4'	2.16	0.45
51:9:1271:C:C5	51:9:1272:C:C5	3.04	0.45
51:9:1391:C:H2'	51:9:1392:U:O4'	2.15	0.45
51:9:60:A:H2'	51:9:61:A:C8	2.51	0.45
54:CC:194:ARG:HD3	54:CC:196:ILE:HD11	1.99	0.45
17:R:107:ARG:HG3	17:R:107:ARG:HH11	2.88	0.45
20:U:80:LYS:HD3	20:U:110:TYR:CZ	2.51	0.45
25:Z:28:ASN:HB2	25:Z:77:TYR:OH	2.16	0.45
48:5:1240:G:C2	48:5:1241:C:C2	3.04	0.45
48:5:202:C:C2	48:5:214:G:C2	3.05	0.45
48:5:222:C:C2	48:5:236:G:N2	2.85	0.45
48:5:3629:A:H4'	51:9:1721:U:O2	2.17	0.45
2:B:234:ARG:NH2	48:5:4566:U:O2'	2.50	0.45
48:5:4919:G:C6	48:5:4920:C:C4	3.05	0.45
48:5:957:G:N2	48:5:958:G:N7	2.57	0.45
48:5:994:G:C6	48:5:995:C:C4	3.04	0.45
50:8:31:G:C6	50:8:32:C:C4	3.05	0.45
51:9:1535:U:O2	51:9:1535:U:H2'	2.17	0.45
51:9:385:G:N3	51:9:385:G:H2'	2.32	0.45
51:9:455:A:H2'	51:9:456:C:C6	2.51	0.45
2:B:77:THR:HG21	2:B:337:VAL:HG22	1.97	0.45
2:B:54:THR:OG1	2:B:55:HIS:N	2.50	0.45
5:E:158:VAL:HG21	5:E:180:VAL:HG11	1.97	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:I:49:CYS:HB2	9:I:51:HIS:HE1	1.78	0.45
10:J:14:GLU:O	10:J:15:LEU:C	2.55	0.45
62:KK:66:HIS:O	62:KK:67:PHE:HB2	2.17	0.45
18:S:109:CYS:O	18:S:110:TYR:C	2.54	0.45
70:SS:117:ILE:HG22	70:SS:117:ILE:O	2.15	0.45
20:U:56:LEU:HB3	20:U:61:VAL:HG22	1.99	0.45
22:W:9:SER:OG	22:W:10:GLY:N	2.50	0.45
48:5:1196:G:C2	48:5:1197:C:C2	3.04	0.45
48:5:1238:A:O2'	48:5:1239:C:O5'	2.24	0.45
48:5:2458:C:H2'	48:5:2459:G:O4'	2.17	0.45
48:5:2771:G:C6	48:5:2772:C:C4	3.04	0.45
48:5:3905:A:C2	48:5:4449:A:C6	3.05	0.45
48:5:4158:C:H2'	48:5:4158:C:O2	2.17	0.45
48:5:497:G:C2	48:5:657:C:N3	2.85	0.45
48:5:956:A:H3'	48:5:957:G:C4	2.51	0.45
50:8:56:G:C6	50:8:57:C:C4	3.04	0.45
51:9:1031:A:C6	51:9:1032:C:C4	3.05	0.45
51:9:1212:G:O2'	51:9:1213:C:O4'	2.27	0.45
51:9:1321:G:H2'	51:9:1322:G:O4'	2.17	0.45
51:9:1335:G:C6	51:9:1336:C:C4	3.05	0.45
51:9:1344:A:N3	51:9:1345:G:H1'	2.31	0.45
51:9:1759:G:C2	51:9:1774:C:C2	3.05	0.45
51:9:190:G:O2'	51:9:209:A:N6	2.49	0.45
51:9:123:G:N2	51:9:342:C:C2	2.85	0.45
1:A:20:VAL:HG12	1:A:23:ARG:HD2	1.98	0.45
3:C:106:LYS:HG2	3:C:108:TRP:CZ2	2.52	0.45
54:CC:63:VAL:O	54:CC:63:VAL:HG12	2.16	0.45
4:D:118:ILE:CG2	4:D:135:ILE:HD12	2.46	0.45
4:D:64:ILE:HG22	4:D:75:VAL:HG12	1.99	0.45
9:I:184:MET:CE	9:I:189:ARG:HD2	2.47	0.45
12:M:38:VAL:HG21	12:M:55:MET:HE1	1.98	0.45
12:M:64:PHE:HB2	12:M:65:PRO:HD2	1.97	0.45
17:R:172:ARG:N	17:R:172:ARG:HD2	2.32	0.45
25:Z:88:ASP:N	25:Z:88:ASP:OD1	2.50	0.45
48:5:1358:G:N3	48:5:1359:G:N7	2.64	0.45
48:5:1635:C:O2'	48:5:1636:U:H5'	2.17	0.45
48:5:2080:U:H2'	48:5:2081:C:C6	2.52	0.45
48:5:2128:G:C2	48:5:2129:C:C2	3.05	0.45
48:5:3637:U:OP1	48:5:3826:C:O2'	2.26	0.45
48:5:3751:G:H2'	48:5:3752:C:H5'	1.98	0.45
48:5:4188:U:C2	48:5:4189:U:C5	3.05	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:4476:C:O4'	48:5:4476:C:O2	2.32	0.45
48:5:4579:U:H2'	48:5:4580:U:O4'	2.16	0.45
48:5:4595:G:C6	48:5:4596:C:C4	3.05	0.45
48:5:6:C:O2'	48:5:7:C:H5'	2.17	0.45
48:5:931:C:C2'	48:5:932:A:O5'	2.64	0.45
51:9:102:A:C5	51:9:357:C:C4	3.04	0.45
1:A:90:CYS:CB	1:A:101:VAL:HG13	2.46	0.45
1:A:182:ALA:O	1:A:183:GLY:C	2.54	0.45
2:B:92:TYR:HB3	2:B:99:LEU:HD13	1.99	0.45
5:E:160:PHE:CD1	5:E:169:LEU:HD13	2.52	0.45
56:EE:11:ARG:O	56:EE:12:VAL:HG12	2.16	0.45
6:F:225:LYS:HE3	48:5:1907:A:H4'	1.98	0.45
59:HH:61:ILE:CD1	59:HH:93:VAL:HG13	2.45	0.45
10:J:119:TYR:HB3	70:SS:12:ILE:HD13	1.98	0.45
11:L:146:LEU:HD12	11:L:148:THR:HG22	1.98	0.45
51:9:1838:U:O2	66:OO:150:ARG:HD2	2.17	0.45
46:2:7:G:C6	46:2:49:C:N4	2.85	0.45
48:5:2128:G:C6	48:5:2129:C:C4	3.05	0.45
48:5:2557:G:N1	48:5:2558:C:C2	2.85	0.45
48:5:351:C:C2	50:8:25:G:C2	3.05	0.45
48:5:3628:G:C2	48:5:3834:C:C2	3.05	0.45
48:5:3715:U:H2'	48:5:3716:C:C6	2.52	0.45
48:5:4537:C:H2'	48:5:4538:G:C8	2.52	0.45
51:9:561:A:OP2	61:JJ:173:VAL:HB	2.17	0.45
2:B:224:LYS:HG3	2:B:340:THR:HB	1.99	0.45
53:BB:62:LEU:HD11	53:BB:96:CYS:SG	2.57	0.45
56:EE:208:VAL:CG1	56:EE:225:ILE:HD13	2.46	0.45
56:EE:52:LEU:HB3	56:EE:54:TYR:CE1	2.52	0.45
58:GG:104:ALA:O	58:GG:106:LEU:N	2.49	0.45
8:H:98:HIS:CE1	48:5:4602:A:H5''	2.51	0.45
61:JJ:110:LEU:O	61:JJ:114:VAL:N	2.49	0.45
11:L:64:VAL:HA	11:L:67:HIS:CD2	2.51	0.45
15:P:148:MET:HE1	15:P:150:LEU:HD21	1.98	0.45
69:RR:28:PHE:CE2	69:RR:32:LYS:HD3	2.52	0.45
24:Y:65:GLN:N	24:Y:66:GLN:OE1	2.47	0.45
24:Y:8:THR:O	48:5:347:A:OP1	2.34	0.45
47:3:13:C:N3	47:3:22:G:O6	2.50	0.45
48:5:1213:G:C6	48:5:1215:C:C4	3.05	0.45
48:5:1329:G:H3'	48:5:1329:G:C8	2.51	0.45
48:5:132:G:C2	48:5:133:C:H1'	2.52	0.45
48:5:1349:G:C6	48:5:1350:C:C4	3.05	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:1520:C:C2	48:5:1658:G:N2	2.85	0.45
48:5:167:C:C2	48:5:269:G:N2	2.85	0.45
48:5:2409:U:O4	48:5:2783:A:C2	2.64	0.45
48:5:4136:G:C2	48:5:4137:C:C2	3.05	0.45
48:5:4587:G:N2	48:5:4716:C:C2	2.85	0.45
48:5:976:G:C6	48:5:977:C:N3	2.85	0.45
50:8:10:G:C6	50:8:11:C:C4	3.04	0.45
51:9:99:A:H2'	51:9:100:U:O4'	2.17	0.45
51:9:1681:U:H2'	51:9:1682:C:C6	2.52	0.45
51:9:185:G:N2	51:9:186:C:C2	2.85	0.45
1:A:216:HIS:O	1:A:218:HIS:N	2.50	0.45
3:C:188:ARG:NH1	3:C:202:ILE:HD12	2.32	0.45
4:D:207:TYR:CE1	49:7:33:U:C6	3.05	0.45
55:DD:59:LEU:HB2	55:DD:66:ILE:HD12	1.99	0.45
6:F:104:SER:OG	6:F:105:PRO:HD2	2.17	0.45
7:G:191:GLY:O	7:G:194:VAL:O	2.35	0.45
14:O:109:PRO:HB2	14:O:110:PRO:HD2	1.99	0.45
15:P:2:VAL:HG21	15:P:18:ARG:NH1	2.32	0.45
69:RR:16:ILE:HG22	69:RR:24:LEU:HD11	1.98	0.45
73:VV:40:ASP:O	73:VV:41:LYS:CB	2.65	0.45
74:WW:37:PHE:CZ	74:WW:103:VAL:HG11	2.52	0.45
74:WW:28:ARG:N	74:WW:29:PRO:CD	2.80	0.45
48:5:1246:G:H2'	48:5:1247:U:O4'	2.17	0.44
48:5:1278:C:H2'	48:5:1279:A:O3'	2.16	0.44
48:5:1646:A:H2'	48:5:1647:U:C6	2.52	0.44
48:5:169:G:N2	48:5:170:C:C2	2.85	0.44
48:5:2816:G:C6	48:5:2817:C:C4	3.06	0.44
48:5:2889:G:C6	48:5:2890:C:C4	3.05	0.44
48:5:3662:A:N7	48:5:3681:G:C2	2.85	0.44
48:5:4473:A:N1	48:5:4482:U:O4	2.49	0.44
48:5:4740:G:C6	48:5:4741:C:C4	3.05	0.44
13:N:172:ARG:NH1	48:5:62:A:OP1	2.50	0.44
51:9:1105:G:C2	51:9:1128:C:C2	3.06	0.44
51:9:1134:G:C2	51:9:1135:C:C2	3.06	0.44
51:9:1236:G:C2	51:9:1237:C:C2	3.05	0.44
51:9:1299:A:O2'	51:9:1300:U:H3'	2.18	0.44
51:9:1571:G:C2	51:9:1572:C:C2	3.05	0.44
51:9:832:G:C6	51:9:833:C:C4	3.06	0.44
1:A:169:VAL:HG12	1:A:170:ALA:N	2.31	0.44
2:B:55:HIS:O	2:B:56:ILE:HD12	2.17	0.44
53:BB:25:PHE:CD1	66:OO:88:LEU:HD21	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:CC:249:SER:C	73:VV:23:ILE:HD11	2.37	0.44
6:F:170:ALA:O	6:F:172:THR:HG23	2.17	0.44
59:HH:133:LEU:HD21	59:HH:176:VAL:CG1	2.46	0.44
61:JJ:137:VAL:O	61:JJ:139:LYS:N	2.50	0.44
61:JJ:47:LYS:HG3	61:JJ:102:ILE:HD11	1.99	0.44
48:5:1381:U:C5	48:5:1382:G:H1'	2.52	0.44
48:5:1995:G:C6	48:5:1996:C:C4	3.06	0.44
48:5:209:U:N3	48:5:233:U:C4	2.85	0.44
48:5:2294:G:N1	48:5:2295:C:C4	2.85	0.44
48:5:2481:G:C6	48:5:2482:C:C4	3.05	0.44
48:5:2567:G:C6	48:5:2568:C:C4	3.06	0.44
48:5:2602:G:C2	48:5:2603:C:C2	3.05	0.44
48:5:4094:G:H2'	48:5:4095:G:C1'	2.47	0.44
48:5:4109:G:C2	48:5:4110:C:C2	3.06	0.44
48:5:4407:G:C4	48:5:4408:G:C8	3.04	0.44
48:5:4666:G:C2	48:5:4667:C:C2	3.05	0.44
14:O:74:ARG:NH2	48:5:4712:C:OP1	2.51	0.44
48:5:5017:G:C2	48:5:5018:C:C2	3.06	0.44
48:5:994:G:C2	48:5:995:C:C2	3.05	0.44
51:9:1409:A:N6	51:9:1410:C:C5	2.86	0.44
51:9:1551:U:O2	51:9:1551:U:O4'	2.32	0.44
51:9:1728:U:C4	51:9:1729:U:C5	3.05	0.44
51:9:1749:G:C6	51:9:1750:C:C4	3.06	0.44
51:9:642:U:H4'	51:9:643:A:OP1	2.17	0.44
51:9:869:A:N3	51:9:915:G:H1'	2.32	0.44
1:A:88:VAL:HG12	1:A:88:VAL:O	2.16	0.44
53:BB:71:LEU:HD21	53:BB:84:PHE:CE1	2.53	0.44
61:JJ:66:LYS:HA	61:JJ:71:LEU:HD11	1.98	0.44
52:AA:66:VAL:HG11	73:VV:46:PHE:HB2	1.99	0.44
74:WW:31:SER:OG	74:WW:33:VAL:N	2.48	0.44
75:XX:124:LYS:HA	75:XX:129:SER:HA	1.98	0.44
46:2:75:C:H2'	46:2:76:A:O4'	2.18	0.44
48:5:707:C:O2	48:5:1291:G:C2	2.70	0.44
48:5:1358:G:N2	48:5:1359:G:O6	2.50	0.44
48:5:1404:G:C6	48:5:1405:C:C4	3.05	0.44
48:5:1876:U:H2'	48:5:1877:G:O4'	2.16	0.44
48:5:1954:U:H2'	48:5:1955:G:O4'	2.16	0.44
48:5:2245:G:C6	48:5:2246:C:C4	3.06	0.44
48:5:2439:G:C4	48:5:2440:U:C5	3.05	0.44
48:5:4276:G:C2	48:5:4333:C:C2	3.05	0.44
18:S:68:PHE:CD2	48:5:728:U:C4	3.05	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:956:A:H3'	48:5:957:G:C5	2.52	0.44
48:5:967:C:OP1	48:5:2254:G:N1	2.48	0.44
48:5:986:C:N3	48:5:1068:G:C2	2.86	0.44
50:8:62:A:H4'	50:8:63:U:O5'	2.17	0.44
51:9:1294:G:C6	51:9:1295:A:C5	3.06	0.44
51:9:1516:G:O3'	67:PP:122:THR:HG21	2.17	0.44
51:9:1686:G:N2	51:9:1687:C:C2	2.85	0.44
51:9:1731:A:H2'	51:9:1732:G:H8	1.82	0.44
51:9:1749:G:C2	51:9:1750:C:C2	3.05	0.44
51:9:666:U:C2	51:9:667:U:C5	3.05	0.44
51:9:828:G:C6	51:9:829:C:C4	3.06	0.44
51:9:830:A:N6	51:9:844:U:C4	2.73	0.44
51:9:934:G:H2'	51:9:934:G:N3	2.33	0.44
52:AA:42:LYS:C	52:AA:43:SER:O	2.55	0.44
3:C:128:LEU:HD22	3:C:252:TRP:CH2	2.52	0.44
3:C:218:VAL:O	3:C:218:VAL:HG12	2.16	0.44
54:CC:201:GLY:O	54:CC:202:THR:C	2.55	0.44
54:CC:69:LEU:HG	54:CC:273:LEU:HD21	1.99	0.44
6:F:94:VAL:O	6:F:122:GLY:HA2	2.17	0.44
63:LL:14:PRO:O	63:LL:16:ILE:HD13	2.17	0.44
63:LL:35:ARG:NH2	63:LL:55:TYR:O	2.41	0.44
14:O:38:CYS:O	14:O:41:ILE:N	2.42	0.44
51:9:1542:C:C5'	71:TT:62:ARG:NH1	2.81	0.44
24:Y:10:ASP:O	24:Y:12:SER:N	2.50	0.44
48:5:1241:C:C2'	48:5:1242:G:OP1	2.66	0.44
48:5:1818:G:O2'	48:5:1819:G:OP1	2.28	0.44
48:5:1957:U:O2'	48:5:1958:A:C8	2.70	0.44
48:5:4246:G:C2	48:5:4263:C:C2	3.05	0.44
48:5:4371:G:C5	48:5:4372:U:C4	3.06	0.44
48:5:709:C:H2'	48:5:710:G:O4'	2.17	0.44
51:9:1415:C:H2'	51:9:1416:C:O4'	2.17	0.44
11:L:58:ILE:HG23	11:L:70:VAL:CG1	2.47	0.44
14:O:185:VAL:HG13	14:O:188:LYS:HG2	1.99	0.44
53:BB:25:PHE:CG	66:OO:88:LEU:HD21	2.52	0.44
69:RR:126:MET:N	69:RR:126:MET:SD	2.90	0.44
76:YY:113:ARG:O	76:YY:114:MET:HB2	2.18	0.44
48:5:1098:G:C2	48:5:1099:C:C2	3.06	0.44
48:5:113:A:C2	48:5:278:G:C4	3.04	0.44
48:5:1171:G:C2	48:5:1172:C:C2	3.05	0.44
48:5:1237:C:O4'	48:5:1237:C:O2	2.35	0.44
48:5:1656:U:H6	48:5:1656:U:H5'	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:1679:A:N1	48:5:4391:G:O2'	2.39	0.44
48:5:1840:G:HO3'	48:5:1842:G:P	2.40	0.44
48:5:2367:A:C8	48:5:2798:A:C5	3.05	0.44
48:5:351:C:C2	50:8:25:G:N2	2.86	0.44
48:5:2905:C:N3	48:5:3590:G:C2	2.85	0.44
1:A:8:GLN:NE2	48:5:3668:C:OP1	2.49	0.44
48:5:3937:C:H2'	48:5:3938:G:N2	2.33	0.44
48:5:4076:G:OP2	48:5:4163:U:N3	2.50	0.44
48:5:4289:U:H2'	48:5:4290:U:C6	2.52	0.44
48:5:5020:G:O6	48:5:5028:G:O6	2.35	0.44
48:5:726:G:H1	48:5:940:C:N4	2.15	0.44
48:5:76:A:C5	48:5:77:U:C5	3.05	0.44
51:9:1148:A:H4'	51:9:1149:A:O4'	2.17	0.44
51:9:1275:G:O2'	51:9:1276:A:OP2	2.35	0.44
51:9:1298:G:O2'	51:9:1299:A:P	2.75	0.44
51:9:1587:G:O2'	71:TT:67:ARG:NH2	2.43	0.44
51:9:1753:C:C2	51:9:1780:G:C2	3.05	0.44
51:9:396:U:OP2	63:LL:79:LYS:NZ	2.43	0.44
51:9:616:A:N7	51:9:617:G:C8	2.85	0.44
3:C:26:ALA:O	3:C:27:VAL:C	2.56	0.44
3:C:54:VAL:HG21	3:C:101:MET:HE2	2.00	0.44
55:DD:162:ASP:N	55:DD:163:PRO:CD	2.81	0.44
5:E:279:PRO:HA	5:E:282:LEU:CD2	2.48	0.44
5:E:90:LYS:N	5:E:91:PRO:HD3	2.33	0.44
56:EE:102:ILE:HG23	56:EE:182:MET:CE	2.47	0.44
18:S:168:THR:OG1	18:S:169:THR:N	2.49	0.44
23:X:76:ILE:HG23	23:X:77:ILE:HG13	2.00	0.44
48:5:1400:G:H2'	48:5:1401:C:O4'	2.16	0.44
19:T:105:PHE:CD1	48:5:1802:A:H4'	2.53	0.44
48:5:2586:G:H8	48:5:2770:C:H1'	1.82	0.44
48:5:2586:G:N7	48:5:2587:A:C6	2.86	0.44
48:5:2594:C:C2	48:5:2752:G:C2	3.06	0.44
48:5:4583:C:C4	48:5:4718:G:C6	3.05	0.44
48:5:939:G:N3	48:5:939:G:H2'	2.33	0.44
48:5:985:C:C2	48:5:1069:G:C2	3.06	0.44
51:9:1512:C:H2'	51:9:1513:C:H6	1.82	0.44
51:9:167:G:N1	51:9:168:C:C4	2.86	0.44
52:AA:145:ILE:HD13	52:AA:159:ILE:CG2	2.48	0.44
2:B:20:LYS:HD3	48:5:4717:A:H4'	1.98	0.44
2:B:324:GLY:HA2	48:5:5051:C:O3'	2.17	0.44
3:C:208:CYS:HG	3:C:228:THR:HG1	1.60	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:221:PHE:HB3	3:C:227:ILE:HG21	1.99	0.44
3:C:333:LYS:HE2	5:E:50:ILE:HA	2.00	0.44
56:EE:102:ILE:HG23	56:EE:182:MET:HE3	2.00	0.44
56:EE:163:ASP:O	56:EE:164:LEU:HB2	2.17	0.44
7:G:159:HIS:ND1	7:G:185:LYS:HA	2.33	0.44
13:N:42:PRO:CA	13:N:61:ILE:HD12	2.47	0.44
18:S:97:TYR:CZ	18:S:109:CYS:HA	2.52	0.44
25:Z:10:VAL:HG11	25:Z:129:TRP:HZ3	1.82	0.44
48:5:1349:G:C6	48:5:1508:A:N1	2.86	0.44
48:5:1360:G:N1	48:5:1361:G:C4	2.86	0.44
48:5:1873:A:C2	48:5:1874:A:C8	3.06	0.44
48:5:2076:G:C2	48:5:2077:C:C2	3.04	0.44
48:5:2306:G:N3	48:5:2331:G:C2	2.86	0.44
48:5:2559:G:C2	48:5:2560:C:C2	3.06	0.44
48:5:2715:G:H2'	48:5:2715:G:N3	2.31	0.44
48:5:3882:C:H2'	48:5:3883:U:C6	2.52	0.44
48:5:4489:G:C6	48:5:4490:C:C4	3.05	0.44
48:5:4745:G:N2	48:5:4746:C:N4	2.66	0.44
48:5:5017:G:C6	48:5:5018:C:C4	3.05	0.44
48:5:28:C:C2	48:5:55:G:C2	3.06	0.44
48:5:978:G:C2	48:5:979:C:C2	3.06	0.44
50:8:115:G:C2	50:8:116:C:C2	3.06	0.44
50:8:55:U:O4	50:8:62:A:N1	2.50	0.44
51:9:105:U:C5	51:9:106:C:C5	3.06	0.44
51:9:1089:G:C2	51:9:1090:C:C2	3.05	0.44
51:9:1459:G:C2	51:9:1468:C:C2	3.05	0.44
51:9:1511:U:H2'	51:9:1512:C:C6	2.53	0.44
51:9:1847:G:N2	51:9:1853:C:C2	2.86	0.44
51:9:200:G:C2	51:9:201:C:C4	3.06	0.44
51:9:666:U:H2'	51:9:667:U:C6	2.53	0.44
51:9:832:G:C2	51:9:833:C:C2	3.06	0.44
65:NN:33:VAL:HG21	65:NN:66:VAL:HG11	2.00	0.44
66:OO:94:HIS:HA	66:OO:127:GLY:O	2.18	0.44
48:5:1367:C:O2	48:5:1370:G:H2'	2.17	0.44
48:5:1387:A:O4'	48:5:1397:A:N6	2.51	0.44
48:5:1622:U:O2'	48:5:1627:G:H4'	2.18	0.44
48:5:1635:C:C2'	48:5:1636:U:H5'	2.47	0.44
48:5:1981:G:O2'	48:5:1982:G:O4'	2.36	0.44
48:5:2021:G:C6	48:5:2022:C:C4	3.06	0.44
48:5:2468:U:C4	48:5:2473:A:C6	3.06	0.44
48:5:2682:G:N2	48:5:2683:C:C2	2.86	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:3627:G:C2	48:5:3835:C:C2	3.06	0.44
48:5:3804:G:C6	48:5:3805:U:C4	3.06	0.44
48:5:3870:C:C2	48:5:3886:G:N2	2.86	0.44
48:5:4412:C:H2'	48:5:4413:C:O2	2.16	0.44
48:5:4416:G:N2	48:5:4417:C:C2	2.86	0.44
48:5:469:C:C2	48:5:470:A:C8	3.06	0.44
49:7:25:G:C2	49:7:26:C:C2	3.05	0.44
51:9:1126:G:N2	51:9:1127:C:C2	2.86	0.44
51:9:1145:A:C5	51:9:1146:C:H1'	2.52	0.44
51:9:1166:G:C6	51:9:1167:G:N7	2.86	0.44
51:9:1374:C:H2'	51:9:1375:G:O4'	2.18	0.44
51:9:1407:U:O2	51:9:1407:U:C2'	2.65	0.44
51:9:16:G:C6	51:9:17:C:N4	2.86	0.44
51:9:578:C:H2'	51:9:579:C:O4'	2.18	0.44
2:B:165:HIS:ND1	2:B:166:THR:O	2.50	0.44
3:C:293:LEU:HD13	48:5:2088:A:H2'	2.00	0.44
51:9:510:G:OP1	61:JJ:3:VAL:HA	2.18	0.44
13:N:60:VAL:HG12	13:N:61:ILE:N	2.33	0.44
48:5:1286:C:H2'	48:5:1287:G:C8	2.53	0.44
48:5:1374:G:C6	48:5:1375:C:C4	3.06	0.44
48:5:1899:G:N1	48:5:1900:C:C4	2.86	0.44
48:5:1956:A:C3'	48:5:1957:U:H5'	2.48	0.44
48:5:2034:G:C6	48:5:2035:C:C4	3.06	0.44
48:5:2336:G:C6	48:5:2337:C:C4	3.06	0.44
48:5:2578:G:C6	48:5:2584:G:C6	3.06	0.44
48:5:3724:A:C6	48:5:3725:G:C6	3.06	0.44
50:8:127:U:C4	50:8:128:C:C5	3.05	0.44
50:8:155:C:H2'	50:8:156:U:O4'	2.18	0.44
51:9:1255:G:OP1	51:9:1256:G:O2'	2.21	0.44
51:9:1616:U:H2'	51:9:1617:G:O4'	2.18	0.44
51:9:216:C:C5	51:9:217:A:C8	3.05	0.44
62:KK:38:LYS:O	62:KK:40:VAL:N	2.51	0.44
11:L:99:ASP:OD1	11:L:99:ASP:C	2.55	0.44
12:M:6:PHE:O	12:M:11:ARG:HD2	2.17	0.44
23:X:72:ASP:O	23:X:76:ILE:HG22	2.18	0.44
48:5:1404:G:C2	48:5:1405:C:C2	3.06	0.43
48:5:176:G:H2'	48:5:177:G:O4'	2.18	0.43
23:X:53:ARG:NH1	48:5:2475:G:N7	2.65	0.43
48:5:2473:A:C6	48:5:2506:G:N7	2.86	0.43
48:5:2688:G:N1	48:5:2689:C:C4	2.86	0.43
48:5:2698:G:C2	48:5:2699:C:C2	3.06	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:325:U:H2'	48:5:326:C:C6	2.53	0.43
48:5:3648:A:H1'	48:5:3785:A:N6	2.32	0.43
48:5:3811:G:C4	48:5:3814:U:C5	3.06	0.43
48:5:4395:U:C6	48:5:4395:U:H5'	2.51	0.43
48:5:730:G:N2	48:5:939:G:N2	2.66	0.43
51:9:1398:G:C6	51:9:1399:C:C4	3.06	0.43
51:9:1500:G:C5	51:9:1501:C:C4	3.06	0.43
51:9:1777:G:C6	51:9:1778:C:C4	3.06	0.43
51:9:187:G:C6	51:9:188:C:C4	3.05	0.43
51:9:823:U:O5'	51:9:823:U:O2	2.35	0.43
5:E:101:ARG:HG2	48:5:470:A:N1	2.33	0.43
5:E:254:LEU:CD2	5:E:258:LYS:HD2	2.48	0.43
7:G:184:LEU:HD12	7:G:190:LEU:HD13	1.99	0.43
60:II:55:TYR:HB2	60:II:182:CYS:O	2.18	0.43
66:OO:56:VAL:CG1	66:OO:81:VAL:HG23	2.48	0.43
17:R:172:ARG:HG3	17:R:172:ARG:HH21	1.83	0.43
77:ZZ:51:ASP:N	77:ZZ:51:ASP:OD1	2.49	0.43
48:5:1270:A:H2'	48:5:1271:G:O5'	2.18	0.43
48:5:1533:A:H1'	48:5:1536:U:O4	2.18	0.43
1:A:208:GLU:HG2	48:5:1629:G:H1	1.82	0.43
48:5:1744:U:H2'	48:5:1745:G:O4'	2.18	0.43
48:5:1947:U:H2'	48:5:1947:U:O2	2.17	0.43
48:5:2769:U:OP1	48:5:2770:C:OP1	2.36	0.43
48:5:3597:G:C2	48:5:3598:C:C2	3.06	0.43
48:5:3705:G:C2	48:5:3706:C:C2	3.06	0.43
48:5:3723:A:C2	48:5:3724:A:C6	3.06	0.43
48:5:3727:A:H2'	48:5:3728:A:C8	2.53	0.43
48:5:4139:G:C6	48:5:4140:C:C4	3.06	0.43
48:5:4178:A:H2'	48:5:4179:G:C8	2.53	0.43
48:5:4919:G:N2	48:5:4920:C:C2	2.86	0.43
48:5:4950:U:O2	48:5:4950:U:O4'	2.36	0.43
51:9:1222:G:H2'	51:9:1223:A:C8	2.52	0.43
51:9:1240:A:C4	67:PP:100:LYS:HG2	2.54	0.43
51:9:1500:G:C6	51:9:1501:C:N3	2.86	0.43
51:9:1536:G:H2'	51:9:1537:A:H8	1.83	0.43
47:3:35:U:O4'	51:9:1641:A:OP1	2.35	0.43
51:9:1777:G:C2	51:9:1778:C:C2	3.05	0.43
2:B:114:CYS:SG	2:B:165:HIS:CD2	3.12	0.43
3:C:298:ILE:HG12	16:Q:131:PRO:HB3	1.99	0.43
4:D:95:TYR:O	4:D:98:ALA:HB3	2.18	0.43
6:F:89:PRO:HG3	6:F:146:TYR:CE1	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:GG:64:LYS:HG2	58:GG:97:VAL:HG21	1.99	0.43
59:HH:135:PHE:C	59:HH:135:PHE:CD1	2.91	0.43
9:I:93:PRO:HB2	9:I:125:THR:HB	1.99	0.43
61:JJ:60:LEU:HD22	61:JJ:70:ARG:HA	2.00	0.43
64:MM:35:ILE:HD13	64:MM:61:TYR:CE1	2.53	0.43
66:OO:31:CYS:HA	66:OO:44:VAL:HA	2.00	0.43
15:P:131:ARG:CD	15:P:137:ASN:ND2	2.81	0.43
15:P:22:LEU:HD23	15:P:22:LEU:HA	2.39	0.43
21:V:20:LEU:HD13	21:V:26:ILE:HG21	2.00	0.43
74:WW:53:ILE:N	74:WW:53:ILE:HD12	2.33	0.43
47:3:41:U:H2'	47:3:42:G:C8	2.53	0.43
47:3:66:U:C4	47:3:67:U:C5	3.05	0.43
11:L:2:ALA:N	48:5:1514:U:OP1	2.51	0.43
48:5:2008:U:C2	48:5:2010:A:OP2	2.72	0.43
48:5:2733:C:H2'	48:5:2734:U:O4'	2.18	0.43
48:5:2793:G:C2	48:5:2799:G:C6	3.06	0.43
48:5:77:U:C4	48:5:335:A:N1	2.85	0.43
48:5:3729:U:H2'	48:5:3730:U:C6	2.53	0.43
48:5:4230:C:H1'	48:5:4271:A:C2	2.53	0.43
48:5:5000:G:N2	48:5:5051:C:C2	2.87	0.43
48:5:964:A:N1	48:5:2252:G:N7	2.66	0.43
51:9:1057:C:O2	51:9:1057:C:O4'	2.35	0.43
51:9:1249:C:N4	51:9:1250:A:C6	2.86	0.43
51:9:1268:C:C2	51:9:1515:G:N2	2.86	0.43
51:9:841:G:C2	51:9:842:C:C2	3.05	0.43
51:9:841:G:N1	51:9:842:C:C4	2.86	0.43
51:9:944:A:C6	51:9:945:U:C5	3.06	0.43
51:9:996:A:H2'	51:9:997:A:O4'	2.18	0.43
52:AA:167:GLY:O	52:AA:171:VAL:HG23	2.18	0.43
54:CC:65:LYS:HG3	54:CC:273:LEU:HD22	2.00	0.43
56:EE:181:CYS:SG	56:EE:182:MET:N	2.92	0.43
7:G:86:VAL:CG1	7:G:185:LYS:CG	2.66	0.43
63:LL:135:SER:OG	63:LL:138:VAL:HG23	2.19	0.43
63:LL:27:GLU:O	63:LL:28:THR:HG22	2.18	0.43
14:O:201:PHE:N	14:O:201:PHE:CD1	2.84	0.43
66:OO:44:VAL:HB	66:OO:53:ILE:O	2.17	0.43
18:S:93:MET:SD	18:S:113:MET:HE1	2.58	0.43
7:G:58:PRO:CD	23:X:46:PHE:HD2	2.31	0.43
48:5:1090:G:C2	48:5:1091:C:C2	3.06	0.43
48:5:1245:C:C4	48:5:1269:G:O6	2.72	0.43
48:5:1506:G:C2	48:5:1507:C:C2	3.06	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:1826:G:C2	48:5:1827:C:C2	3.07	0.43
48:5:199:G:N2	48:5:201:C:C2	2.86	0.43
48:5:2622:G:C5	48:5:2623:A:N7	2.86	0.43
48:5:3857:G:C6	48:5:3858:C:C4	3.06	0.43
48:5:504:G:O6	48:5:654:C:C4	2.72	0.43
48:5:677:G:C2	48:5:678:C:C2	3.06	0.43
48:5:726:G:C6	48:5:727:C:N4	2.87	0.43
51:9:115:U:H2'	51:9:116:U:H6	1.81	0.43
51:9:1221:G:C2	51:9:1222:G:C5	3.06	0.43
51:9:1571:G:C6	51:9:1572:C:C4	3.06	0.43
51:9:1737:G:C6	51:9:1738:C:C4	3.06	0.43
51:9:561:A:O2'	61:JJ:134:HIS:NE2	2.48	0.43
54:CC:130:ILE:HG22	54:CC:158:ALA:HB1	1.99	0.43
54:CC:137:VAL:HG13	54:CC:217:ALA:HA	2.01	0.43
54:CC:244:ILE:HA	54:CC:247:THR:HG23	2.00	0.43
55:DD:198:ILE:O	55:DD:199:GLY:O	2.36	0.43
5:E:254:LEU:C	5:E:254:LEU:CD2	2.86	0.43
7:G:65:ARG:O	7:G:68:ALA:N	2.50	0.43
51:9:302:A:O2'	60:II:73:THR:O	2.21	0.43
11:L:146:LEU:HB2	11:L:148:THR:CG2	2.48	0.43
14:O:51:LYS:N	14:O:141:LEU:HD11	2.33	0.43
17:R:91:GLU:O	17:R:94:THR:N	2.51	0.43
20:U:87:THR:HG23	20:U:102:VAL:HG21	1.99	0.43
73:VV:15:ARG:NH2	73:VV:24:ILE:HG21	2.34	0.43
45:1:68:VAL:O	46:2:76:A:O2'	2.37	0.43
48:5:1048:G:C2	48:5:1049:C:C2	3.06	0.43
48:5:1584:G:C2	48:5:1585:C:C2	3.07	0.43
48:5:1672:U:C6	48:5:1684:A:C2	3.06	0.43
48:5:1757:U:C2	48:5:1758:G:C8	3.06	0.43
48:5:179:G:C2	48:5:180:C:C2	3.06	0.43
48:5:1995:G:C5	48:5:1996:C:C4	3.06	0.43
14:O:17:GLY:HA3	48:5:2052:G:O3'	2.18	0.43
48:5:2863:G:C6	48:5:2864:A:C5	3.07	0.43
48:5:3783:A:N7	48:5:3792:G:C6	2.86	0.43
48:5:3822:U:H2'	48:5:3822:U:O2	2.18	0.43
48:5:4402:C:C5	48:5:4403:U:C5	3.06	0.43
48:5:4455:G:C6	48:5:4456:C:C4	3.07	0.43
48:5:4904:G:C2	48:5:4905:C:C2	3.06	0.43
48:5:665:C:O2	48:5:665:C:C2'	2.66	0.43
48:5:688:U:H2'	48:5:689:U:C6	2.53	0.43
48:5:701:G:N3	48:5:701:G:H2'	2.33	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:9:1103:C:C2	51:9:1104:G:C8	3.07	0.43
51:9:1296:U:C4	51:9:1297:U:C4	3.07	0.43
51:9:1650:A:C5	51:9:1675:A:N1	2.87	0.43
51:9:1754:G:C2	51:9:1755:C:C2	3.05	0.43
51:9:23:G:C6	51:9:24:C:C4	3.06	0.43
1:A:48:ILE:HD11	1:A:82:ILE:HG22	1.99	0.43
4:D:16:TYR:O	49:7:11:A:N6	2.51	0.43
55:DD:25:LEU:HB3	55:DD:34:TYR:CE1	2.53	0.43
56:EE:72:ILE:HD13	56:EE:82:TYR:CD1	2.53	0.43
10:J:166:PHE:CE2	10:J:172:GLY:HA3	2.54	0.43
62:KK:11:ILE:HD12	62:KK:45:VAL:HG22	1.99	0.43
13:N:94:PHE:CE2	13:N:96:ARG:HB2	2.53	0.43
71:TT:42:HIS:HB2	71:TT:43:LYS:HG2	1.99	0.43
76:YY:103:SER:O	76:YY:105:LYS:N	2.52	0.43
76:YY:5:VAL:HG23	76:YY:6:THR:N	2.33	0.43
48:5:179:G:N2	48:5:180:C:C2	2.87	0.43
48:5:1962:A:HO2'	48:5:1963:C:C5'	2.30	0.43
48:5:3600:G:C2	48:5:3601:C:C2	3.07	0.43
48:5:4966:A:H2'	48:5:4967:A:C8	2.53	0.43
51:9:1132:C:C5	51:9:1133:A:C8	3.07	0.43
47:3:34:U:H1'	51:9:1642:U:OP2	2.17	0.43
51:9:211:G:C6	51:9:212:C:N4	2.87	0.43
51:9:412:G:C2	51:9:429:C:C2	3.06	0.43
51:9:929:G:N1	51:9:930:C:C2	2.86	0.43
1:A:207:VAL:HG12	48:5:3919:C:C5'	2.48	0.43
8:H:4:ILE:HD11	18:S:152:PHE:CD2	2.54	0.43
61:JJ:46:VAL:HG21	61:JJ:106:LEU:CD1	2.49	0.43
11:L:28:GLN:HG2	11:L:29:PRO:HD3	2.01	0.43
11:L:77:SER:OG	11:L:80:GLU:HG3	2.18	0.43
71:TT:46:ALA:HB1	71:TT:47:PRO:CD	2.49	0.43
73:VV:24:ILE:HG12	73:VV:56:CYS:HA	2.00	0.43
25:Z:16:GLY:O	25:Z:17:ARG:C	2.56	0.43
47:3:75:C:O2'	47:3:76:A:OP2	2.24	0.43
48:5:1378:C:H5'	48:5:1379:C:H3'	2.00	0.43
48:5:39:A:C4	48:5:1654:G:C6	3.07	0.43
48:5:2021:G:O2'	48:5:2022:C:C5'	2.67	0.43
48:5:2602:G:H2'	48:5:2603:C:O4'	2.18	0.43
48:5:2612:G:C2	48:5:2613:C:C2	3.06	0.43
48:5:3600:G:C6	48:5:3601:C:C4	3.07	0.43
48:5:3878:C:C4	48:5:4518:A:C4	3.06	0.43
48:5:4911:A:C3'	48:5:4912:G:H5''	2.49	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:9:1584:G:C6	51:9:1586:U:C2	3.07	0.43
51:9:1669:G:C2	51:9:1670:C:C2	3.06	0.43
51:9:1771:G:C2	51:9:1772:C:C4	3.07	0.43
51:9:1842:C:C2	51:9:1858:G:N2	2.87	0.43
51:9:94:G:C5	51:9:95:G:C8	3.06	0.43
59:HH:146:VAL:HG21	74:WW:50:PHE:CE1	2.54	0.43
12:M:107:PHE:CZ	12:M:111:LYS:HE2	2.53	0.43
12:M:36:ALA:HB2	12:M:52:PHE:CE1	2.54	0.43
13:N:57:GLN:HB3	13:N:139:HIS:CE1	2.54	0.43
16:Q:61:LEU:HD22	16:Q:66:MET:HB2	2.01	0.43
75:XX:9:THR:O	75:XX:10:ALA:C	2.57	0.43
47:3:39:U:O2'	47:3:40:C:O4'	2.37	0.43
48:5:1358:G:H2'	48:5:1359:G:H8	1.84	0.43
48:5:1547:A:H3'	48:5:1548:G:H8	1.82	0.43
48:5:258:G:C2	48:5:259:C:C2	3.07	0.43
48:5:3740:G:C5	48:5:3741:C:C5	3.07	0.43
48:5:3777:G:N2	48:5:3815:G:H2'	2.34	0.43
48:5:4439:U:H2'	48:5:4440:G:O4'	2.19	0.43
48:5:4901:G:C2	48:5:4921:C:C2	3.06	0.43
48:5:4999:G:N3	48:5:4999:G:H2'	2.34	0.43
48:5:4999:G:N2	48:5:5052:C:C2	2.87	0.43
48:5:5020:G:C2	48:5:5021:C:C2	3.06	0.43
48:5:674:G:C2	48:5:675:C:C2	3.07	0.43
48:5:933:G:C2	48:5:939:G:N2	2.87	0.43
49:7:38:U:C2	49:7:40:U:OP2	2.72	0.43
49:7:93:G:C2	49:7:94:C:C2	3.07	0.43
51:9:1137:U:O2'	51:9:1138:C:OP1	2.30	0.43
51:9:1347:U:H2'	51:9:1348:G:C8	2.53	0.43
51:9:1587:G:N3	51:9:1587:G:H2'	2.34	0.43
51:9:1731:A:H2'	51:9:1732:G:C8	2.54	0.43
51:9:351:G:C6	51:9:352:U:C5	3.07	0.43
52:AA:30:LEU:HB2	52:AA:47:TYR:CE2	2.53	0.43
52:AA:3:GLY:O	52:AA:5:LEU:N	2.51	0.43
2:B:220:ILE:HG12	2:B:278:THR:HG23	2.00	0.43
5:E:254:LEU:N	5:E:255:PRO:CD	2.81	0.43
6:F:44:LEU:O	6:F:45:ARG:C	2.57	0.43
57:FF:154:LEU:HD12	57:FF:155:CYS:N	2.34	0.43
8:H:104:VAL:HG13	8:H:113:GLU:HB2	2.00	0.43
18:S:132:ILE:HG22	18:S:133:ALA:O	2.18	0.43
22:W:50:ASN:HA	22:W:55:TYR:CG	2.54	0.43
74:WW:6:VAL:HG13	74:WW:29:PRO:HG2	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:3:38:A:C2	57:FF:135:ARG:NH1	2.86	0.43
48:5:1563:A:C8	51:9:678:U:H4'	2.54	0.43
48:5:1811:G:C2	48:5:1812:C:C2	3.07	0.43
48:5:2021:G:HO2'	48:5:2022:C:C4'	2.31	0.43
17:R:38:ARG:NH2	48:5:2527:A:OP2	2.41	0.43
48:5:4080:C:C2	48:5:4167:G:N2	2.86	0.43
48:5:4303:C:O2	48:5:4303:C:O4'	2.33	0.43
2:B:13:SER:HB2	48:5:4622:A:H4'	1.99	0.43
48:5:52:G:N2	48:5:53:C:C2	2.87	0.43
48:5:674:G:N2	48:5:675:C:C2	2.87	0.43
51:9:1224:G:C4	51:9:1225:U:C5	3.06	0.43
51:9:1466:G:C6	51:9:1467:C:N4	2.87	0.43
51:9:1771:G:C6	51:9:1772:C:N4	2.87	0.43
51:9:913:A:H2'	59:HH:120:ARG:NH2	2.34	0.43
3:C:210:ILE:CG2	3:C:232:VAL:HG13	2.49	0.43
8:H:34:LEU:HD12	8:H:84:VAL:HG23	2.01	0.43
51:9:1615:U:H3'	67:PP:43:ARG:NH2	2.33	0.43
71:TT:75:MET:HA	71:TT:78:ILE:HG22	2.00	0.43
74:WW:52:ILE:HG22	74:WW:61:ILE:HG23	2.01	0.43
23:X:46:PHE:C	23:X:46:PHE:CD1	2.89	0.43
23:X:76:ILE:HG21	23:X:112:ALA:CB	2.48	0.43
76:YY:126:GLY:O	76:YY:128:GLY:N	2.51	0.43
48:5:1546:C:N3	48:5:1612:G:O6	2.52	0.43
48:5:1668:A:C4	48:5:2282:A:C2	3.07	0.43
48:5:174:C:C2	48:5:263:G:C2	3.06	0.43
48:5:1912:G:C2	48:5:1913:C:C2	3.07	0.43
48:5:192:G:H2'	48:5:193:G:O4'	2.18	0.43
48:5:1964:A:N1	48:5:4694:G:C5	2.87	0.43
48:5:2273:G:C6	48:5:2274:C:C4	3.06	0.43
48:5:2306:G:C2	48:5:2331:G:C4	3.07	0.43
48:5:2457:G:C2	48:5:2458:C:C2	3.07	0.43
48:5:254:G:C2	48:5:255:C:C2	3.07	0.43
48:5:2595:C:H2'	48:5:2596:G:O4'	2.19	0.43
48:5:2620:G:C6	48:5:2621:A:C5	3.06	0.43
48:5:3717:A:OP2	48:5:3735:G:N2	2.49	0.43
48:5:4240:G:C2	48:5:4241:C:C2	3.06	0.43
48:5:4489:G:C2	48:5:4490:C:C2	3.06	0.43
48:5:4898:G:N2	48:5:4923:C:C2	2.87	0.43
48:5:79:C:H2'	48:5:80:C:C6	2.54	0.43
51:9:666:U:C5	51:9:1150:A:C4	3.07	0.43
51:9:1567:G:H1'	70:SS:82:TRP:CH2	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:CC:127:PHE:CZ	54:CC:234:GLY:HA3	2.54	0.43
5:E:173:GLY:O	5:E:174:PRO:C	2.56	0.43
56:EE:39:ARG:HA	56:EE:39:ARG:HE	1.84	0.43
8:H:138:GLN:O	8:H:139:ALA:HB3	2.18	0.43
8:H:126:VAL:HG11	8:H:161:ILE:HG22	2.01	0.43
63:LL:103:GLU:OE2	75:XX:11:ARG:NH1	2.52	0.43
65:NN:107:LYS:O	65:NN:109:LYS:N	2.51	0.43
20:U:84:LYS:HA	20:U:87:THR:HG22	2.00	0.43
48:5:1048:G:C6	48:5:1049:C:C4	3.07	0.42
48:5:1090:G:C6	48:5:1091:C:C4	3.07	0.42
48:5:1277:G:C2	48:5:1278:C:C2	3.07	0.42
48:5:2470:C:O4'	48:5:2470:C:O2	2.37	0.42
48:5:2907:G:H2'	48:5:2908:U:O4'	2.19	0.42
48:5:302:C:N4	48:5:303:C:N4	2.66	0.42
48:5:3617:G:O2'	48:5:3620:G:N7	2.52	0.42
48:5:29:G:C6	48:5:54:G:C6	3.07	0.42
48:5:642:G:C2	48:5:643:C:C4	3.07	0.42
48:5:80:C:C2	48:5:104:G:N2	2.87	0.42
49:7:110:G:H2'	49:7:111:C:C6	2.54	0.42
51:9:1622:U:C6	70:SS:120:HIS:CE1	3.07	0.42
51:9:1845:A:C2	51:9:1855:G:C5	3.07	0.42
51:9:442:C:H2'	51:9:443:U:O4'	2.19	0.42
51:9:614:C:N4	51:9:626:G:C6	2.87	0.42
55:DD:204:LEU:HD23	55:DD:205:PRO:CD	2.49	0.42
5:E:186:HIS:O	5:E:187:GLN:C	2.57	0.42
5:E:217:GLN:NE2	5:E:233:LYS:CD	2.82	0.42
5:E:257:ILE:HG22	5:E:263:LEU:CD2	2.47	0.42
57:FF:76:MET:O	57:FF:78:MET:N	2.52	0.42
9:I:79:SER:HB2	9:I:147:HIS:ND1	2.33	0.42
51:9:520:A:H5''	61:JJ:12:THR:HG23	2.00	0.42
11:L:125:VAL:HG12	11:L:125:VAL:O	2.19	0.42
12:M:50:MET:HE3	12:M:55:MET:HB3	2.00	0.42
64:MM:51:VAL:HG13	64:MM:109:VAL:HG22	2.00	0.42
48:5:1388:A:C6	48:5:1389:U:N3	2.88	0.42
48:5:1676:C:N4	48:5:4378:A:C8	2.87	0.42
48:5:1986:U:H2'	48:5:2007:G:O6	2.19	0.42
48:5:2773:G:C2	48:5:2774:C:C5	3.07	0.42
48:5:3590:G:N1	48:5:3591:C:C2	2.87	0.42
48:5:366:A:C2	48:5:376:A:C4	3.07	0.42
48:5:4911:A:H3'	48:5:4912:G:H5''	2.01	0.42
48:5:5028:G:C2	48:5:5029:C:N3	2.88	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
50:8:89:U:H2'	50:8:90:C:C6	2.54	0.42
51:9:1235:G:C5'	51:9:1247:C:N4	2.81	0.42
51:9:293:C:O2'	51:9:294:U:H3'	2.19	0.42
51:9:376:A:H2'	51:9:377:G:O4'	2.20	0.42
51:9:673:G:C2	51:9:674:C:C2	3.07	0.42
51:9:936:G:C2	51:9:1007:C:C2	3.07	0.42
2:B:49:TYR:CE1	2:B:171:LEU:HD11	2.54	0.42
4:D:67:ALA:HA	4:D:72:ASP:HA	2.00	0.42
56:EE:125:LYS:HB2	56:EE:226:PHE:HD1	1.83	0.42
6:F:146:TYR:CE2	6:F:239:GLU:CB	3.02	0.42
7:G:51:LEU:O	7:G:52:THR:C	2.57	0.42
59:HH:61:ILE:HD11	59:HH:95:ILE:HD12	1.99	0.42
60:II:156:ALA:O	60:II:157:LYS:C	2.58	0.42
11:L:22:VAL:HG13	13:N:200:LEU:HD12	2.00	0.42
17:R:168:GLU:O	17:R:172:ARG:CG	2.60	0.42
76:YY:25:ILE:HD11	76:YY:44:LEU:HD21	2.01	0.42
13:N:49:ARG:NH2	48:5:152:U:OP2	2.49	0.42
18:S:91:HIS:NE2	48:5:2032:U:O2'	2.49	0.42
48:5:2306:G:N2	48:5:2331:G:C4	2.88	0.42
48:5:209:U:C4	48:5:233:U:C4	3.07	0.42
48:5:2410:C:C2	48:5:2435:G:N2	2.87	0.42
48:5:2551:A:N6	48:5:2552:G:C6	2.87	0.42
48:5:4269:G:C2	48:5:4270:C:C2	3.07	0.42
48:5:4269:G:C6	48:5:4270:C:C4	3.08	0.42
13:N:108:ARG:NH2	48:5:54:G:O3'	2.50	0.42
50:8:49:G:C2	50:8:50:C:C2	3.08	0.42
51:9:1034:A:C5	51:9:1082:A:C5	3.07	0.42
51:9:1227:G:C2	51:9:1638:G:C2	3.07	0.42
51:9:905:C:H2'	51:9:906:U:O4'	2.19	0.42
2:B:115:LYS:HA	2:B:118:PHE:HD1	1.84	0.42
53:BB:47:THR:HG22	53:BB:48:LEU:N	2.34	0.42
3:C:120:LYS:HD2	48:5:1374:G:OP1	2.18	0.42
13:N:11:TRP:CE3	13:N:44:ARG:NH2	2.88	0.42
67:PP:108:LYS:O	67:PP:111:MET:HB2	2.19	0.42
71:TT:28:LEU:O	71:TT:29:LYS:HB2	2.20	0.42
23:X:52:LEU:HD22	23:X:53:ARG:H	1.85	0.42
75:XX:51:VAL:HG13	75:XX:70:VAL:HG13	2.01	0.42
77:ZZ:74:SER:HA	77:ZZ:79:ILE:HG22	2.01	0.42
48:5:1359:G:C5	48:5:1360:G:C5	3.07	0.42
48:5:124:C:C2	48:5:146:G:C2	3.08	0.42
48:5:1511:U:C2	48:5:1512:G:C8	3.07	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:181:C:C4	48:5:256:G:C2	3.08	0.42
48:5:1851:G:H2'	48:5:1852:U:O4'	2.19	0.42
48:5:2055:G:H3'	48:5:2056:G:H5''	2.01	0.42
48:5:2082:G:C6	48:5:2083:C:C4	3.07	0.42
48:5:2088:A:HO2'	48:5:2089:G:P	2.41	0.42
48:5:2339:G:N2	48:5:2340:C:C2	2.87	0.42
48:5:2889:G:C6	48:5:2890:C:N3	2.88	0.42
48:5:315:G:H2'	48:5:315:G:N3	2.34	0.42
48:5:4207:C:C2	48:5:4226:G:N2	2.88	0.42
11:L:163:LYS:NZ	48:5:509:A:H5'	2.34	0.42
51:9:1105:G:C6	51:9:1106:C:C4	3.07	0.42
51:9:1797:U:H2'	51:9:1798:C:C6	2.54	0.42
51:9:976:G:C6	51:9:977:C:C4	3.08	0.42
52:AA:6:ASP:OD1	52:AA:6:ASP:N	2.53	0.42
3:C:132:ALA:O	3:C:133:LEU:HB2	2.19	0.42
3:C:163:LYS:N	3:C:166:GLU:OE1	2.50	0.42
6:F:148:ASN:HB3	6:F:151:SER:H	1.84	0.42
9:I:199:TYR:CE2	9:I:201:PRO:HB3	2.55	0.42
63:LL:126:VAL:CG2	63:LL:142:VAL:HG13	2.50	0.42
13:N:63:ARG:HA	13:N:130:PHE:O	2.20	0.42
16:Q:178:ARG:HA	16:Q:184:ARG:O	2.20	0.42
69:RR:36:GLU:HG2	69:RR:47:ARG:HD2	2.01	0.42
70:SS:30:ILE:CD1	70:SS:45:LEU:HD21	2.50	0.42
51:9:572:U:H5'	76:YY:60:PHE:O	2.18	0.42
25:Z:53:VAL:HG21	25:Z:62:ILE:HG23	2.01	0.42
46:2:65:G:C2	46:2:66:C:C2	3.08	0.42
48:5:1064:G:C2	48:5:1065:G:C4	3.07	0.42
48:5:1356:U:N3	48:5:1357:C:C4	2.88	0.42
48:5:1681:G:C2	48:5:1682:A:C8	3.08	0.42
48:5:2297:G:C2	48:5:2338:C:N3	2.88	0.42
48:5:2767:U:C4	48:5:2769:U:O4	2.73	0.42
48:5:3717:A:O2'	48:5:3718:A:C5'	2.68	0.42
48:5:3737:A:H8	48:5:3737:A:O5'	2.02	0.42
48:5:2:G:C2	48:5:3:C:C2	3.07	0.42
48:5:4408:G:N2	48:5:4409:C:C2	2.87	0.42
48:5:458:C:H2'	48:5:459:C:O4'	2.19	0.42
48:5:4737:G:C6	48:5:4738:C:C4	3.07	0.42
48:5:937:U:C2'	48:5:937:U:O2	2.68	0.42
50:8:115:G:N2	50:8:116:C:C2	2.87	0.42
48:5:22:G:N1	50:8:35:C:C4	2.87	0.42
51:9:1417:C:O2'	51:9:1419:C:OP1	2.34	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:3:35:U:H1'	51:9:1640:A:O3'	2.18	0.42
51:9:1726:G:C6	51:9:1727:G:C5	3.08	0.42
51:9:618:C:OP1	75:XX:87:ASN:N	2.47	0.42
2:B:229:LYS:HG3	2:B:272:LYS:HD3	1.99	0.42
2:B:291:TYR:CE1	2:B:299:ILE:HG13	2.54	0.42
2:B:29:VAL:HG13	2:B:348:ARG:HD3	2.02	0.42
3:C:233:THR:CG2	3:C:259:LYS:NZ	2.82	0.42
55:DD:72:VAL:HG22	62:KK:22:VAL:CG1	2.50	0.42
58:GG:88:ARG:HB3	58:GG:91:GLU:HB2	2.02	0.42
17:R:122:SER:O	17:R:123:LEU:C	2.58	0.42
73:VV:37:ALA:HB1	73:VV:46:PHE:CD1	2.54	0.42
48:5:127:G:C2	48:5:128:C:C2	3.07	0.42
48:5:1660:U:O4'	48:5:2346:C:O4'	2.37	0.42
48:5:2451:A:C2	48:5:2509:C:C2	3.07	0.42
48:5:2524:U:H5''	48:5:2711:G:N2	2.34	0.42
48:5:3670:C:O2'	48:5:3671:G:C5'	2.67	0.42
48:5:3684:G:C2	48:5:3685:C:N3	2.88	0.42
48:5:3911:C:H2'	48:5:3912:U:H6	1.84	0.42
48:5:404:U:H2'	48:5:405:U:O4'	2.20	0.42
48:5:4901:G:N1	48:5:4921:C:C4	2.87	0.42
48:5:725:G:H2'	48:5:726:G:H8	1.84	0.42
48:5:947:C:H2'	48:5:948:C:H6	1.84	0.42
49:7:27:G:C2	49:7:28:C:C2	3.08	0.42
50:8:112:G:N2	50:8:113:C:C2	2.87	0.42
50:8:113:C:H2'	50:8:114:G:O4'	2.20	0.42
50:8:68:G:C2	50:8:91:A:C2	3.07	0.42
51:9:1121:G:C5	51:9:1122:A:N7	2.88	0.42
51:9:1139:C:OP1	51:9:1139:C:O2	2.37	0.42
51:9:1417:C:O2	51:9:1419:C:H5'	2.19	0.42
51:9:474:G:N1	51:9:475:C:C4	2.88	0.42
51:9:644:G:C6	51:9:645:C:N4	2.88	0.42
3:C:125:CYS:O	3:C:126:SER:C	2.58	0.42
5:E:276:GLY:O	5:E:277:VAL:CG2	2.67	0.42
5:E:276:GLY:O	5:E:277:VAL:HG23	2.20	0.42
6:F:93:PHE:CE1	6:F:155:LEU:HD13	2.55	0.42
60:II:38:ILE:HG12	60:II:96:LEU:HD11	2.02	0.42
65:NN:18:TYR:O	65:NN:19:ARG:C	2.58	0.42
14:O:47:PHE:O	14:O:50:ASN:N	2.53	0.42
18:S:127:MET:HE1	19:T:155:PRO:HA	2.02	0.42
12:M:7:VAL:N	18:S:152:PHE:O	2.49	0.42
25:Z:100:VAL:HG13	25:Z:107:LYS:HA	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:1075:G:C6	48:5:1076:C:C4	3.08	0.42
48:5:1213:G:C2	48:5:1215:C:C2	3.08	0.42
48:5:1277:G:C6	48:5:1278:C:N4	2.88	0.42
48:5:1468:C:N3	48:5:1498:G:C2	2.87	0.42
16:Q:89:ASP:HA	48:5:1502:G:O6	2.19	0.42
48:5:169:G:C2	48:5:170:C:C2	3.07	0.42
48:5:2481:G:C2	48:5:2482:C:C2	3.08	0.42
48:5:2703:G:C6	48:5:2704:C:C4	3.08	0.42
48:5:2711:G:H3'	48:5:2712:G:H5''	2.02	0.42
48:5:4433:G:N2	48:5:4434:C:C2	2.88	0.42
48:5:4526:U:C5	48:5:4527:G:C6	3.07	0.42
48:5:4644:G:C2	48:5:4645:C:C2	3.08	0.42
48:5:4731:G:H4'	48:5:4732:G:H5'	2.02	0.42
48:5:4881:U:O2	48:5:4881:U:O4'	2.37	0.42
13:N:185:GLY:O	48:5:78:U:OP1	2.37	0.42
51:9:113:G:N2	51:9:293:C:O4'	2.52	0.42
51:9:1229:G:C6	51:9:1230:C:C4	3.08	0.42
51:9:14:C:C2	51:9:1198:G:N1	2.88	0.42
51:9:1612:G:N2	51:9:1628:C:C2	2.88	0.42
51:9:1840:U:C4	51:9:1841:C:C4	3.07	0.42
51:9:187:G:C2	51:9:188:C:C2	3.07	0.42
51:9:211:G:C2	51:9:212:C:C4	3.08	0.42
51:9:441:C:H2'	51:9:442:C:C6	2.55	0.42
2:B:391:PRO:C	2:B:392:LEU:HD22	2.39	0.42
53:BB:139:CYS:O	53:BB:140:VAL:HB	2.20	0.42
3:C:119:GLN:HG2	48:5:1351:G:O4'	2.19	0.42
6:F:98:ARG:HH21	6:F:226:THR:HA	1.84	0.42
7:G:57:TRP:O	7:G:62:ARG:NH2	2.48	0.42
63:LL:77:VAL:HG22	63:LL:86:ILE:HD12	2.01	0.42
69:RR:20:TYR:CE2	69:RR:38:ILE:HB	2.55	0.42
19:T:64:VAL:HG13	19:T:72:VAL:CG1	2.42	0.42
71:TT:38:LYS:O	71:TT:39:LEU:CB	2.67	0.42
73:VV:17:CYS:SG	73:VV:20:SER:N	2.93	0.42
24:Y:10:ASP:O	24:Y:13:LYS:N	2.53	0.42
25:Z:12:LEU:HB2	25:Z:81:MET:HB3	2.01	0.42
48:5:1271:G:H3'	48:5:1272:C:H5'	2.02	0.42
48:5:1412:G:N1	48:5:1413:C:C4	2.88	0.42
48:5:1466:G:C6	48:5:1467:C:C4	3.08	0.42
48:5:1943:A:N1	48:5:4411:G:O2'	2.46	0.42
48:5:1967:A:H2'	48:5:1968:G:H5'	2.01	0.42
48:5:2579:G:C2	48:5:2583:C:C2	3.07	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:2703:G:C2	48:5:2704:C:C2	3.07	0.42
48:5:2769:U:H1'	48:5:2770:C:C6	2.53	0.42
48:5:301:G:C2	48:5:302:C:C2	3.08	0.42
48:5:4075:U:O2'	48:5:4076:G:O5'	2.38	0.42
48:5:1733:G:C4	48:5:4214:A:C2	3.08	0.42
48:5:484:U:C4	48:5:486:C:C5	3.08	0.42
48:5:705:G:N1	48:5:706:C:C4	2.88	0.42
50:8:115:G:C6	50:8:116:C:C4	3.08	0.42
51:9:1097:G:C6	51:9:1098:C:C4	3.08	0.42
51:9:1315:U:C4	51:9:1316:C:C4	3.08	0.42
51:9:1823:A:H2'	51:9:1824:A:H5'	2.01	0.42
51:9:318:A:OP2	58:GG:183:ARG:NH2	2.52	0.42
52:AA:180:ARG:HD2	52:AA:184:ARG:CZ	2.49	0.42
2:B:116:ARG:HB3	2:B:177:LYS:HG3	2.01	0.42
54:CC:113:GLN:HB3	54:CC:122:THR:HA	2.00	0.42
56:EE:195:ILE:O	56:EE:196:THR:CB	2.67	0.42
56:EE:244:ILE:O	56:EE:245:ARG:HB3	2.20	0.42
56:EE:43:PRO:O	56:EE:46:ILE:N	2.51	0.42
12:M:42:CYS:HG	12:M:77:TRP:HB3	1.85	0.42
64:MM:113:ASP:O	64:MM:115:GLY:N	2.52	0.42
18:S:80:ILE:HG13	18:S:129:VAL:HG22	2.01	0.42
46:2:24:A:C6	46:2:25:C:C4	3.07	0.42
48:5:1580:C:C5	48:5:1581:G:N7	2.88	0.42
48:5:1721:G:C2	48:5:1722:C:C2	3.08	0.42
48:5:1912:G:C6	48:5:1913:C:N4	2.88	0.42
48:5:4495:G:C2	48:5:4506:C:N3	2.87	0.42
48:5:4673:U:H2'	48:5:4674:C:C6	2.55	0.42
48:5:4754:G:N2	48:5:4880:C:C2	2.88	0.42
48:5:5031:G:N2	48:5:5032:C:C2	2.87	0.42
48:5:744:G:C2	48:5:921:C:C2	3.07	0.42
50:8:112:G:C6	50:8:113:C:C4	3.08	0.42
51:9:1279:C:C4	51:9:1280:G:N7	2.88	0.42
51:9:145:G:N1	51:9:146:G:O6	2.53	0.42
51:9:50:A:C2	51:9:51:U:H1'	2.55	0.42
52:AA:147:LEU:HD13	52:AA:163:CYS:SG	2.60	0.42
56:EE:188:ASN:ND2	56:EE:219:ALA:O	2.53	0.42
8:H:86:LEU:O	8:H:187:VAL:HB	2.20	0.42
59:HH:40:LEU:O	59:HH:40:LEU:HD23	2.20	0.42
9:I:180:GLU:O	9:I:184:MET:HG3	2.20	0.42
10:J:103:GLY:O	10:J:134:LEU:HD12	2.19	0.42
66:OO:32:HIS:O	66:OO:33:ILE:HB	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:P:60:PHE:O	15:P:78:TRP:NE1	2.53	0.42
20:U:27:HIS:N	20:U:28:PRO:HD2	2.35	0.42
20:U:46:ARG:O	20:U:47:ILE:C	2.59	0.42
46:2:7:G:C2	46:2:49:C:C2	3.08	0.42
48:5:1431:C:C2	48:5:1454:G:C2	3.08	0.42
48:5:1550:G:N3	48:5:1579:C:O2	2.53	0.42
48:5:1732:C:C2	48:5:1798:G:C2	3.08	0.42
48:5:1846:G:C6	48:5:1847:C:C4	3.08	0.42
48:5:1957:U:O2'	48:5:1958:A:C5'	2.67	0.42
48:5:2771:G:C2	48:5:2772:C:C2	3.08	0.42
48:5:3654:G:C5	48:5:3655:C:C5	3.08	0.42
48:5:381:U:O4	48:5:382:G:C6	2.73	0.42
48:5:517:C:C2	48:5:645:G:N2	2.87	0.42
48:5:744:G:C2	48:5:745:G:C5	3.07	0.42
48:5:77:U:H3	48:5:336:A:H62	1.68	0.42
48:5:44:A:O2'	48:5:94:A:N1	2.48	0.42
50:8:31:G:C2	50:8:32:C:C2	3.08	0.42
51:9:1025:U:H2'	51:9:1026:C:O4'	2.20	0.42
51:9:1366:G:C2	51:9:1374:C:C2	3.08	0.42
51:9:352:U:H2'	51:9:353:C:C6	2.55	0.42
51:9:910:G:C6	51:9:911:C:C4	3.08	0.42
2:B:248:LEU:C	2:B:248:LEU:HD12	2.40	0.42
56:EE:38:LEU:HD12	56:EE:38:LEU:O	2.19	0.42
58:GG:55:GLY:N	58:GG:63:MET:SD	2.93	0.42
10:J:111:GLU:CB	10:J:125:ILE:HG21	2.50	0.42
63:LL:99:TYR:N	63:LL:99:TYR:CD1	2.88	0.42
66:OO:99:ALA:HB2	66:OO:108:PRO:HA	2.02	0.42
11:L:39:ARG:NH2	48:5:1362:G:OP1	2.53	0.41
48:5:1383:G:C2	48:5:1384:C:C2	3.08	0.41
48:5:1416:G:C6	48:5:1417:C:C4	3.08	0.41
48:5:1448:G:C6	48:5:1449:C:C4	3.08	0.41
48:5:1826:G:C6	48:5:1827:C:C4	3.07	0.41
48:5:2288:G:C2	48:5:2290:C:C4	3.08	0.41
48:5:2322:G:N2	48:5:2323:C:C2	2.88	0.41
48:5:4139:G:C2	48:5:4140:C:C2	3.08	0.41
48:5:4303:C:O2	48:5:4303:C:O5'	2.37	0.41
48:5:4389:C:H2'	48:5:4390:A:H8	1.84	0.41
48:5:4453:C:C2	48:5:4529:G:N2	2.88	0.41
48:5:4651:A:H2'	48:5:4652:G:O4'	2.20	0.41
48:5:710:G:H2'	48:5:711:A:C8	2.55	0.41
3:C:333:LYS:NZ	48:5:976:G:OP1	2.52	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
50:8:50:C:H3'	50:8:51:U:C5'	2.50	0.41
51:9:1203:G:H2'	51:9:1204:A:C8	2.55	0.41
51:9:1380:C:H2'	51:9:1381:G:O4'	2.20	0.41
51:9:1588:A:H2'	51:9:1589:A:C8	2.55	0.41
51:9:173:A:C5	51:9:174:C:C5	3.08	0.41
51:9:1784:G:C6	51:9:1785:C:N4	2.87	0.41
2:B:217:ILE:HG21	2:B:284:ILE:HD11	2.02	0.41
3:C:302:LEU:HD22	16:Q:38:ARG:CB	2.49	0.41
54:CC:210:PRO:HA	54:CC:240:THR:HG21	2.01	0.41
58:GG:173:ALA:HB1	58:GG:174:PRO:HD2	2.01	0.41
8:H:144:LEU:HD22	8:H:161:ILE:CD1	2.50	0.41
9:I:204:GLY:O	49:7:63:C:H6	2.03	0.41
51:9:305:U:C6	60:II:182:CYS:O	2.73	0.41
13:N:65:ARG:HD3	13:N:127:TYR:CD1	2.55	0.41
20:U:82:TYR:O	20:U:85:TYR:HB3	2.20	0.41
47:3:6:G:N1	47:3:7:A:C5	2.88	0.41
48:5:1048:G:N2	48:5:1049:C:C2	2.88	0.41
48:5:39:A:C5	48:5:1654:G:C6	3.08	0.41
48:5:2086:G:C2	48:5:2087:C:C2	3.08	0.41
48:5:2676:A:C2	48:5:2677:G:H1'	2.55	0.41
48:5:2712:G:N2	48:5:2713:C:C2	2.88	0.41
48:5:3670:C:O2'	48:5:3671:G:O5'	2.38	0.41
48:5:3820:G:C6	48:5:3821:A:C5	3.08	0.41
48:5:4595:G:C2	48:5:4596:C:C2	3.08	0.41
48:5:469:C:H2'	48:5:470:A:O4'	2.20	0.41
48:5:7:C:H2'	48:5:8:U:C6	2.55	0.41
48:5:715:G:H1	48:5:953:C:H42	1.67	0.41
51:9:1134:G:C6	51:9:1135:C:C4	3.07	0.41
51:9:1184:G:C6	51:9:1185:C:C4	3.09	0.41
51:9:1292:C:H3'	51:9:1293:A:C5'	2.50	0.41
51:9:374:G:C2	51:9:391:C:C2	3.07	0.41
51:9:478:G:N2	51:9:479:C:C2	2.89	0.41
51:9:47:G:C2	51:9:48:C:C2	3.08	0.41
51:9:483:C:N4	51:9:484:A:N1	2.67	0.41
3:C:147:VAL:HG13	3:C:148:PRO:HD2	2.02	0.41
3:C:210:ILE:HG21	3:C:232:VAL:HG13	2.01	0.41
55:DD:192:TRP:HB3	55:DD:196:GLY:HA3	2.01	0.41
60:II:102:VAL:HG11	60:II:175:ILE:HD11	2.01	0.41
66:OO:123:GLY:O	66:OO:124:MET:C	2.58	0.41
70:SS:113:ARG:HG2	70:SS:113:ARG:HH11	1.85	0.41
70:SS:20:ILE:HG22	70:SS:29:ALA:HB1	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
71:TT:76:THR:OG1	71:TT:77:LYS:N	2.53	0.41
24:Y:66:GLN:OE1	24:Y:66:GLN:N	2.53	0.41
25:Z:128:LYS:O	25:Z:132:GLN:HG3	2.21	0.41
48:5:1085:C:C2	48:5:1213:G:N1	2.88	0.41
48:5:1416:G:C2	48:5:1417:C:C2	3.07	0.41
48:5:1484:G:C2	48:5:1486:C:C4	3.09	0.41
48:5:1756:U:H5'	48:5:1757:U:OP2	2.19	0.41
48:5:1867:A:N6	48:5:4441:A:HO2'	2.18	0.41
18:S:118:ARG:HE	48:5:2035:C:H5'	1.86	0.41
48:5:2256:C:H1'	48:5:2257:C:OP2	2.21	0.41
48:5:2898:G:C2	48:5:3602:C:C2	3.09	0.41
48:5:3648:A:C4	48:5:3785:A:C6	3.08	0.41
48:5:3723:A:C2	48:5:3730:U:N3	2.89	0.41
48:5:4246:G:N2	48:5:4263:C:C2	2.89	0.41
48:5:4566:U:H2'	48:5:4567:G:O4'	2.20	0.41
48:5:4904:G:C6	48:5:4905:C:C4	3.07	0.41
5:E:184:ARG:NE	48:5:4941:G:OP1	2.46	0.41
50:8:139:G:C6	50:8:140:C:N3	2.88	0.41
51:9:1137:U:N3	51:9:1148:A:N6	2.68	0.41
51:9:1478:U:H2'	51:9:1479:G:O4'	2.20	0.41
51:9:1531:A:H2'	51:9:1532:C:C6	2.55	0.41
51:9:1650:A:C4	51:9:1675:A:C6	3.08	0.41
51:9:1686:G:C6	51:9:1687:C:C4	3.08	0.41
51:9:217:A:N3	51:9:309:G:C2	2.88	0.41
2:B:36:ASP:OD1	2:B:36:ASP:N	2.43	0.41
3:C:36:ILE:O	3:C:37:VAL:C	2.58	0.41
5:E:127:LYS:HE3	5:E:127:LYS:HB2	1.81	0.41
57:FF:149:GLN:O	57:FF:150:ALA:C	2.58	0.41
7:G:38:ASN:OD1	7:G:43:GLN:NE2	2.54	0.41
9:I:46:PHE:CD1	9:I:140:THR:HA	2.55	0.41
5:E:157:ARG:NH2	12:M:106:ASP:OD2	2.54	0.41
21:V:27:ASN:O	21:V:102:ALA:HA	2.20	0.41
51:9:682:U:O2'	74:WW:4:MET:SD	2.64	0.41
24:Y:62:TYR:O	24:Y:63:LYS:C	2.58	0.41
48:5:1549:G:N2	48:5:1580:C:C2	2.88	0.41
48:5:1669:A:N1	48:5:1670:G:C6	2.89	0.41
48:5:1907:A:C5	48:5:1908:A:C6	3.09	0.41
48:5:2027:U:O2'	48:5:2028:C:C5'	2.69	0.41
48:5:233:U:C3'	48:5:234:G:C5'	2.98	0.41
48:5:3918:G:C2	48:5:3919:C:C2	3.08	0.41
48:5:4170:A:H4'	48:5:4171:C:O5'	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:4633:G:O3'	48:5:4634:U:H3'	2.21	0.41
48:5:4661:G:C2	48:5:4662:C:C2	3.09	0.41
48:5:4966:A:N1	48:5:4967:A:C6	2.88	0.41
48:5:504:G:N2	48:5:654:C:H1'	2.35	0.41
51:9:1031:A:C5	51:9:1032:C:C5	3.08	0.41
51:9:1046:U:H2'	51:9:1047:C:O4'	2.19	0.41
51:9:1398:G:O2'	58:GG:88:ARG:NH2	160.31	0.41
51:9:1563:G:C2	51:9:1564:C:C2	3.08	0.41
51:9:1552:G:C8	51:9:1578:U:C4	3.09	0.41
51:9:1739:C:C2	51:9:1796:G:C2	3.08	0.41
51:9:16:G:H2'	51:9:17:C:C6	2.55	0.41
2:B:223:THR:O	2:B:343:ARG:NH1	2.54	0.41
53:BB:121:ILE:HD12	53:BB:207:LEU:HD21	2.02	0.41
3:C:274:LYS:O	3:C:276:ASN:N	2.53	0.41
52:AA:111:GLN:CB	54:CC:63:VAL:HG11	2.50	0.41
56:EE:19:MET:HG3	56:EE:51:LYS:NZ	2.35	0.41
57:FF:33:ILE:HG23	57:FF:33:ILE:O	2.20	0.41
57:FF:73:THR:HG22	57:FF:89:THR:CG2	2.50	0.41
60:II:102:VAL:N	60:II:173:ALA:O	2.52	0.41
14:O:65:ASN:HB3	14:O:68:ARG:HD2	2.02	0.41
17:R:106:LEU:O	17:R:107:ARG:C	2.80	0.41
19:T:57:TYR:HH	19:T:87:LYS:HZ3	1.69	0.41
19:T:87:LYS:NZ	48:5:4301:U:P	2.94	0.41
48:5:1098:G:C6	48:5:1099:C:C4	3.08	0.41
48:5:179:G:C6	48:5:180:C:C4	3.08	0.41
14:O:48:TYR:CD1	48:5:1930:U:C6	3.08	0.41
48:5:2006:U:H2'	48:5:2007:G:O4'	2.20	0.41
48:5:2089:G:O2'	48:5:2090:U:P	2.74	0.41
48:5:256:G:C2	48:5:257:C:C2	3.08	0.41
2:B:21:ARG:NH2	48:5:4568:A:O3'	2.53	0.41
48:5:751:G:N2	48:5:752:G:C5	2.89	0.41
48:5:971:U:H2'	48:5:972:C:H5''	2.02	0.41
51:9:1097:G:C2	51:9:1098:C:C2	3.08	0.41
51:9:1319:U:H2'	51:9:1320:G:O4'	2.20	0.41
51:9:1354:G:H2'	51:9:1356:G:N7	2.36	0.41
51:9:1447:G:H2'	51:9:1448:A:C8	2.56	0.41
51:9:1543:U:HO2'	68:QQ:77:HIS:CD2	2.37	0.41
51:9:493:A:C2	51:9:494:C:C6	3.09	0.41
1:A:114:CYS:SG	1:A:165:VAL:HG22	2.61	0.41
53:BB:87:ILE:HD13	53:BB:101:HIS:CD2	2.55	0.41
53:BB:139:CYS:SG	53:BB:140:VAL:N	2.92	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:293:LEU:HA	3:C:293:LEU:HD23	1.88	0.41
9:I:137:SER:OG	9:I:173:PHE:CE1	2.70	0.41
9:I:182:GLU:HA	9:I:182:GLU:OE2	2.20	0.41
51:9:384:U:O2'	63:LL:135:SER:C	2.58	0.41
63:LL:126:VAL:HG23	63:LL:142:VAL:HG13	2.02	0.41
66:OO:151:LEU:C	66:OO:151:LEU:HD22	2.41	0.41
20:U:101:ARG:HD2	20:U:103:VAL:HG23	2.02	0.41
21:V:99:GLU:HB3	22:W:24:THR:HG23	2.02	0.41
48:5:1326:A:H2'	48:5:1327:C:C6	2.56	0.41
48:5:1721:G:N2	48:5:1722:C:C2	2.88	0.41
48:5:1269:G:C5	48:5:2111:G:C2	3.08	0.41
48:5:2684:C:H2'	48:5:2685:C:C6	2.56	0.41
48:5:286:U:C2	48:5:287:U:C4	3.09	0.41
48:5:342:G:N2	48:5:343:C:C2	2.89	0.41
48:5:3702:A:C6	48:5:3774:A:C6	3.08	0.41
48:5:370:U:C6	48:5:1637:A:C2	3.08	0.41
48:5:381:U:C4	48:5:382:G:C5	3.09	0.41
48:5:4129:G:C6	48:5:4130:C:C4	3.08	0.41
48:5:4183:G:N3	48:5:4183:G:H2'	2.35	0.41
48:5:3896:C:O2	48:5:4564:A:N1	2.53	0.41
48:5:5028:G:H2'	48:5:5029:C:C6	2.55	0.41
48:5:914:U:C4	48:5:915:A:C5	3.09	0.41
49:7:110:G:C2	49:7:111:C:C2	3.08	0.41
51:9:1137:U:H3	51:9:1148:A:N6	2.17	0.41
51:9:1669:G:C6	51:9:1670:C:C4	3.08	0.41
51:9:23:G:C2	51:9:24:C:C2	3.09	0.41
2:B:254:ILE:CG2	2:B:266:VAL:HG11	2.51	0.41
54:CC:183:LYS:HD3	54:CC:196:ILE:HG23	2.01	0.41
56:EE:127:ARG:O	56:EE:156:MET:SD	2.79	0.41
7:G:143:VAL:O	7:G:146:LEU:N	2.53	0.41
58:GG:108:VAL:CG1	58:GG:109:LEU:N	2.83	0.41
9:I:145:LYS:HE3	9:I:167:ILE:HG21	2.03	0.41
12:M:116:LYS:O	12:M:117:LYS:C	2.58	0.41
51:9:959:G:O6	66:OO:68:GLU:OE2	2.38	0.41
15:P:68:GLY:O	15:P:80:GLN:HA	2.21	0.41
67:PP:13:ARG:O	67:PP:15:PHE:N	2.54	0.41
70:SS:22:GLY:HA2	70:SS:56:ALA:HB3	2.02	0.41
73:VV:17:CYS:SG	73:VV:19:ALA:HB3	2.59	0.41
77:ZZ:91:LEU:HD23	77:ZZ:96:LEU:HD12	2.02	0.41
46:2:39:G:C6	46:2:40:C:N4	2.89	0.41
48:5:119:G:C8	48:5:119:G:H5''	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:1275:G:N2	48:5:1276:C:C2	2.89	0.41
48:5:1277:G:C2	48:5:1278:C:C4	3.09	0.41
48:5:1322:A:C6	48:5:1326:A:C8	3.09	0.41
48:5:1388:A:C5	48:5:1389:U:C4	3.09	0.41
48:5:1424:G:H2'	48:5:1425:G:O4'	2.21	0.41
13:N:4:TYR:OH	48:5:151:G:OP2	2.28	0.41
48:5:1539:G:C2	48:5:1540:C:C2	3.09	0.41
48:5:1265:G:OP1	48:5:2115:G:N1	2.53	0.41
48:5:2557:G:C2	48:5:2571:C:O2	2.73	0.41
48:5:2574:G:O6	48:5:2762:G:O6	2.39	0.41
48:5:342:G:C6	48:5:343:C:N4	2.89	0.41
48:5:3611:A:C6	48:5:3612:C:C4	3.09	0.41
48:5:3632:C:C2	48:5:3830:A:C2	3.09	0.41
48:5:3676:G:C6	48:5:3677:U:C4	3.09	0.41
48:5:3707:U:H2'	48:5:3708:C:C6	2.56	0.41
48:5:4152:G:C6	48:5:4153:C:N4	2.88	0.41
48:5:4473:A:C2	48:5:4474:A:C6	3.08	0.41
48:5:504:G:H22	48:5:654:C:H1'	1.85	0.41
48:5:476:G:C2	48:5:679:C:C2	3.09	0.41
48:5:742:G:C2	48:5:923:C:C2	3.09	0.41
48:5:914:U:C4	48:5:915:A:C4	3.09	0.41
51:9:1078:C:H2'	51:9:1078:C:O2	2.21	0.41
51:9:1181:A:H2'	51:9:1182:A:O4'	2.21	0.41
51:9:1459:G:C6	51:9:1460:C:C4	3.09	0.41
51:9:455:A:C6	51:9:456:C:N4	2.88	0.41
5:E:254:LEU:HD21	5:E:258:LYS:HE3	2.03	0.41
56:EE:52:LEU:O	56:EE:54:TYR:CD1	2.73	0.41
6:F:134:MET:HA	6:F:137:ILE:HG22	2.03	0.41
59:HH:121:THR:O	59:HH:122:LEU:C	2.59	0.41
12:M:28:VAL:HB	12:M:37:LEU:HD13	2.02	0.41
13:N:181:HIS:O	13:N:184:ILE:HB	2.20	0.41
17:R:12:SER:OG	17:R:13:SER:N	2.54	0.41
22:W:50:ASN:N	22:W:50:ASN:OD1	2.53	0.41
74:WW:105:THR:N	74:WW:124:LYS:O	2.46	0.41
48:5:1359:G:C2'	48:5:1360:G:C8	3.01	0.41
48:5:1385:G:C6	48:5:1386:C:C4	3.08	0.41
48:5:1964:A:C2	48:5:4694:G:C4	3.08	0.41
48:5:1967:A:C2'	48:5:1968:G:H5'	2.51	0.41
48:5:2297:G:N2	48:5:2338:C:C2	2.89	0.41
48:5:2395:A:O2'	48:5:2806:A:C1'	2.60	0.41
48:5:373:G:H2'	48:5:374:G:O4'	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:4222:G:C6	48:5:4223:C:C4	3.09	0.41
48:5:433:A:C2	48:5:434:A:C4	3.08	0.41
48:5:4709:U:C2	48:5:4710:C:C6	3.09	0.41
48:5:4711:C:H2'	48:5:4712:C:O4'	2.21	0.41
48:5:4920:C:H2'	48:5:4921:C:C6	2.56	0.41
48:5:4946:U:H2'	48:5:4946:U:O2	2.19	0.41
48:5:5028:G:C2	48:5:5029:C:C2	3.09	0.41
48:5:674:G:C6	48:5:675:C:C4	3.08	0.41
5:E:132:HIS:CE1	48:5:711:A:H1'	2.56	0.41
50:8:13:G:H2'	50:8:13:G:N3	2.35	0.41
51:9:1005:G:C2	51:9:1006:C:C2	3.08	0.41
51:9:1102:G:N1	51:9:1103:C:N4	2.68	0.41
51:9:1307:U:C3'	51:9:1308:U:H5''	2.49	0.41
51:9:1411:G:H3'	51:9:1412:C:C4'	2.50	0.41
51:9:374:G:H2'	51:9:375:U:C6	2.56	0.41
3:C:180:ILE:O	3:C:183:VAL:N	2.54	0.41
3:C:78:ARG:HB3	3:C:88:GLY:HA2	2.01	0.41
3:C:341:LEU:CD2	5:E:46:LEU:HD21	2.49	0.41
51:9:333:G:N7	58:GG:190:ARG:NH1	2.68	0.41
10:J:175:LEU:HD12	10:J:176:PRO:O	2.21	0.41
62:KK:40:VAL:O	62:KK:40:VAL:HG13	2.20	0.41
16:Q:171:GLY:O	16:Q:173:LYS:N	2.54	0.41
69:RR:85:VAL:HG12	69:RR:86:PRO:O	2.20	0.41
21:V:25:VAL:HG22	48:5:2848:G:OP1	2.20	0.41
75:XX:81:ILE:HG22	75:XX:83:ALA:N	2.36	0.41
46:2:30:G:C2	46:2:31:C:C2	3.09	0.41
48:5:1203:G:C2	48:5:1204:C:C2	3.08	0.41
48:5:124:C:C2	48:5:146:G:N2	2.89	0.41
48:5:1277:G:C6	48:5:1278:C:C4	3.09	0.41
3:C:33:ARG:NH1	48:5:1350:C:O3'	2.50	0.41
48:5:1612:G:N3	48:5:1612:G:H2'	2.35	0.41
48:5:1934:A:C2	48:5:2048:U:N3	2.89	0.41
48:5:2609:G:C2	48:5:2731:C:C2	3.08	0.41
48:5:2712:G:C2	48:5:2713:C:C2	3.09	0.41
13:N:68:ARG:CG	48:5:302:C:OP1	2.69	0.41
48:5:3849:A:O2'	48:5:3850:C:H5'	2.21	0.41
48:5:2:G:C6	48:5:3:C:C4	3.09	0.41
48:5:4606:G:C2'	48:5:4607:A:O5'	2.69	0.41
6:F:244:ARG:NH1	48:5:942:G:OP2	2.54	0.41
49:7:110:G:C6	49:7:111:C:N4	2.88	0.41
51:9:147:A:H2'	51:9:148:U:C6	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:9:1548:G:O6	51:9:1584:G:O6	2.39	0.41
51:9:27:A:H2'	51:9:28:U:O4'	2.21	0.41
51:9:673:G:C6	51:9:674:C:C4	3.08	0.41
51:9:995:G:N2	51:9:999:G:C4	2.89	0.41
2:B:264:PHE:CD1	2:B:265:SER:N	2.89	0.41
53:BB:64:GLY:N	53:BB:88:THR:OG1	2.52	0.41
3:C:186:SER:O	3:C:187:GLN:C	2.59	0.41
51:9:1535:U:C2	57:FF:82:ASN:ND2	2.88	0.41
11:L:101:ARG:NH1	48:5:65:A:OP2	2.53	0.41
11:L:30:ALA:HA	11:L:33:ILE:HD12	2.02	0.41
13:N:140:LYS:HA	13:N:143:ARG:HB2	2.03	0.41
18:S:173:ASN:HA	48:5:4762:A:C2	2.56	0.41
18:S:83:ARG:HH21	18:S:83:ARG:CG	2.34	0.41
18:S:95:ARG:HD2	18:S:113:MET:HE2	2.03	0.41
51:9:804:U:O3'	74:WW:122:GLY:HA3	2.20	0.41
23:X:53:ARG:NH1	48:5:2475:G:C8	2.89	0.41
76:YY:19:GLN:HG2	76:YY:81:TYR:CD2	2.56	0.41
48:5:1279:A:C5	48:5:1280:C:N4	2.89	0.41
48:5:1412:G:C6	48:5:1413:C:C4	3.09	0.41
48:5:1268:G:C2	48:5:2111:G:N2	2.89	0.41
48:5:2417:A:C4	48:5:2418:A:C8	3.08	0.41
48:5:193:G:C2	48:5:249:C:C2	3.09	0.41
48:5:3597:G:C6	48:5:3598:C:C4	3.09	0.41
48:5:3799:A:C6	48:5:3800:A:C6	3.09	0.41
48:5:4147:G:C6	48:5:4148:C:C4	3.08	0.41
48:5:518:G:C6	48:5:519:C:C4	3.09	0.41
48:5:918:G:H2'	48:5:918:G:N3	2.36	0.41
50:8:2:G:H2'	50:8:2:G:N3	2.36	0.41
51:9:1405:A:C6	51:9:1406:G:C5	3.09	0.41
51:9:1649:U:N3	51:9:1675:A:C2	2.89	0.41
51:9:411:G:N2	51:9:430:C:C2	2.89	0.41
51:9:526:A:O2'	61:JJ:125:HIS:ND1	2.50	0.41
51:9:591:U:O2	51:9:591:U:O4'	2.37	0.41
51:9:828:G:C2	51:9:829:C:C2	3.09	0.41
51:9:839:C:C2'	51:9:839:C:O2	2.69	0.41
51:9:909:G:H2'	51:9:910:G:C8	2.56	0.41
1:A:43:GLY:O	1:A:88:VAL:N	2.54	0.41
52:AA:148:CYS:HB3	52:AA:152:SER:CB	2.51	0.41
53:BB:171:ILE:HD13	53:BB:197:ILE:HA	2.03	0.41
6:F:181:LEU:HD23	6:F:186:ILE:HG21	2.03	0.41
6:F:39:PHE:CD1	48:5:2123:C:H3'	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
70:SS:31:THR:HG21	70:SS:38:ARG:HG3	2.03	0.41
70:SS:39:ARG:NH1	71:TT:36:THR:O	2.54	0.41
47:3:75:C:O2'	47:3:76:A:P	2.78	0.41
48:5:1075:G:H2'	48:5:1076:C:C6	2.56	0.41
48:5:111:C:C2	48:5:331:G:N2	2.89	0.41
48:5:127:G:C6	48:5:128:C:C4	3.09	0.41
48:5:1855:G:C2	48:5:1856:C:C2	3.08	0.41
48:5:2028:C:O2'	48:5:2029:A:O4'	2.37	0.41
48:5:2316:G:C2	48:5:2324:C:C2	3.08	0.41
48:5:2858:A:O2'	48:5:2859:G:O5'	2.38	0.41
48:5:4281:A:O2'	48:5:4282:A:O5'	2.38	0.41
48:5:4476:C:O2'	48:5:4478:G:OP2	2.27	0.41
48:5:4614:G:N2	48:5:4615:C:C2	2.89	0.41
48:5:479:G:C2	48:5:480:C:C2	3.09	0.41
48:5:647:G:C5	48:5:648:G:C8	3.08	0.41
51:9:1145:A:C6	51:9:1146:C:H1'	2.56	0.41
51:9:1476:A:H3'	51:9:1477:U:C5'	2.51	0.41
51:9:1524:G:N2	51:9:1525:C:C2	2.89	0.41
51:9:1650:A:H5''	68:QQ:139:ALA:HB2	2.02	0.41
51:9:1678:A:H2'	51:9:1679:A:C8	2.55	0.41
51:9:1686:G:C2	51:9:1687:C:C2	3.08	0.41
51:9:170:A:OP2	58:GG:140:ARG:NE	2.54	0.41
51:9:185:G:C2	51:9:186:C:C2	3.08	0.41
51:9:933:G:N7	51:9:992:A:N1	2.69	0.41
51:9:976:G:C2	51:9:977:C:C2	3.09	0.41
3:C:253:THR:O	3:C:256:ALA:N	2.53	0.41
54:CC:185:THR:OG1	54:CC:186:GLY:N	2.54	0.41
7:G:81:ASN:OD1	7:G:238:GLY:N	2.54	0.41
60:II:6:ASP:O	60:II:9:HIS:ND1	2.52	0.41
60:II:76:THR:HG22	60:II:77:ARG:N	2.35	0.41
13:N:137:PRO:HD2	13:N:138:PHE:CE1	2.56	0.41
17:R:6:LEU:HD22	17:R:10:LEU:CD2	2.50	0.41
17:R:95:TRP:O	17:R:96:MET:C	2.57	0.41
22:W:3:VAL:HG21	22:W:12:LYS:HD2	2.02	0.41
24:Y:55:VAL:N	24:Y:68:GLY:O	2.53	0.41
48:5:1099:C:H2'	48:5:1100:U:O4'	2.22	0.40
48:5:1270:A:C2'	48:5:1271:G:O5'	2.69	0.40
48:5:1292:C:C2	48:5:1293:G:C8	3.09	0.40
48:5:256:G:C6	48:5:257:C:C4	3.09	0.40
48:5:2611:A:H2'	48:5:2612:G:C8	2.56	0.40
48:5:2645:G:C2	48:5:2646:C:C2	3.09	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:5:2759:G:O2'	48:5:2762:G:N2	2.54	0.40
48:5:1676:C:H2'	48:5:3914:U:C4	2.56	0.40
1:A:34:PHE:CD2	48:5:4087:G:C6	3.09	0.40
48:5:4472:G:H3'	48:5:4473:A:H5'	2.01	0.40
48:5:458:C:C4	48:5:459:C:C4	3.10	0.40
48:5:715:G:C6	48:5:716:C:C4	3.09	0.40
48:5:912:G:C6	48:5:913:U:C5	3.09	0.40
48:5:975:C:H3'	48:5:976:G:O4'	2.21	0.40
51:9:309:G:C2	51:9:310:C:C2	3.09	0.40
51:9:751:G:N1	51:9:792:C:C4	2.89	0.40
2:B:112:ASP:O	2:B:113:GLU:C	2.59	0.40
3:C:223:ASN:HD22	3:C:223:ASN:HA	1.68	0.40
5:E:41:SER:CB	48:5:978:G:H5''	2.51	0.40
56:EE:107:GLY:HA3	56:EE:189:LEU:HD23	2.03	0.40
57:FF:49:LEU:HD21	68:QQ:49:TYR:HB2	2.02	0.40
7:G:95:LEU:HD21	7:G:156:VAL:HG21	2.03	0.40
13:N:36:LEU:O	13:N:36:LEU:HD23	2.21	0.40
67:PP:15:PHE:CE2	67:PP:17:TYR:HB2	2.56	0.40
8:H:60:TRP:CE3	18:S:153:PRO:HD2	2.56	0.40
23:X:79:PHE:HB2	23:X:80:PRO:HD2	2.03	0.40
47:3:5:G:C2	47:3:68:C:N3	2.89	0.40
48:5:1279:A:OP1	48:5:1279:A:O3'	2.38	0.40
17:R:87:ALA:HB2	48:5:1549:G:H4'	2.03	0.40
48:5:1550:G:C6	48:5:1579:C:N3	2.90	0.40
48:5:1687:U:H2'	48:5:1688:G:O4'	2.21	0.40
9:I:98:ARG:NH1	48:5:1864:G:OP1	2.52	0.40
48:5:192:G:C2	48:5:250:C:C2	3.10	0.40
48:5:1932:A:O2'	48:5:1933:G:H5'	2.22	0.40
48:5:2076:G:C6	48:5:2077:C:N3	2.89	0.40
48:5:297:U:C2	48:5:298:G:C8	3.08	0.40
48:5:3675:G:C2	48:5:3676:G:N7	2.90	0.40
48:5:3752:C:O2'	48:5:3753:G:P	2.79	0.40
48:5:4142:C:C4	48:5:4143:G:N1	2.88	0.40
48:5:4222:G:N2	48:5:4223:C:C2	2.89	0.40
48:5:4368:G:C6	48:5:4369:A:C5	3.09	0.40
1:A:215:ASN:ND2	48:5:4546:A:N7	2.69	0.40
48:5:4615:C:O2'	48:5:4616:A:H5'	2.20	0.40
48:5:4723:A:C2	48:5:4724:A:C4	3.09	0.40
48:5:933:G:N1	48:5:939:G:N2	2.68	0.40
48:5:713:C:H42	48:5:955:G:H1	1.68	0.40
51:9:1309:C:O2'	51:9:1310:U:O5'	2.27	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:9:824:C:C6	61:JJ:144:ILE:HD12	2.57	0.40
51:9:84:A:H2'	51:9:85:A:O4'	2.21	0.40
1:A:242:ARG:CD	1:A:243:THR:N	2.84	0.40
1:A:97:ASN:OD1	1:A:97:ASN:N	2.54	0.40
2:B:41:VAL:HG11	2:B:193:LYS:HA	2.03	0.40
3:C:144:ILE:O	3:C:144:ILE:HD13	2.22	0.40
4:D:118:ILE:HG23	4:D:135:ILE:HD12	2.02	0.40
56:EE:159:THR:HG23	56:EE:227:VAL:HG22	2.03	0.40
56:EE:87:MET:HE2	56:EE:123:LEU:HB3	2.03	0.40
57:FF:127:ARG:O	57:FF:127:ARG:HD2	2.21	0.40
10:J:33:LEU:CD1	10:J:67:LYS:HB3	2.50	0.40
51:9:428:U:C6	61:JJ:7:TRP:CH2	3.09	0.40
12:M:81:ASP:OD2	12:M:84:THR:HG21	2.22	0.40
13:N:47:LYS:HA	13:N:50:ARG:HH11	1.87	0.40
14:O:54:TYR:OH	14:O:73:PHE:O	2.35	0.40
66:OO:28:PHE:CE1	66:OO:92:ALA:HB1	2.56	0.40
6:F:100:ILE:HD11	16:Q:4:ASP:HB3	2.02	0.40
48:5:1203:G:C6	48:5:1204:C:C4	3.09	0.40
48:5:1280:C:C5	48:5:1282:G:C6	3.09	0.40
48:5:1374:G:C2	48:5:1375:C:C2	3.09	0.40
48:5:1867:A:H61	48:5:4441:A:HO2'	1.68	0.40
48:5:191:G:C2	48:5:251:C:C2	3.09	0.40
48:5:2509:C:O2'	48:5:2510:G:H5'	2.20	0.40
48:5:2889:G:C2	48:5:2890:C:C2	3.09	0.40
48:5:322:C:N3	48:5:4356:G:C6	2.88	0.40
48:5:3718:A:H2'	48:5:3719:A:C8	2.56	0.40
48:5:3731:C:H2'	48:5:3732:A:O4'	2.22	0.40
48:5:4131:G:C2	48:5:4132:C:C2	3.10	0.40
48:5:4147:G:C2	48:5:4148:C:C2	3.10	0.40
48:5:4154:G:C2	48:5:4155:C:C2	3.09	0.40
48:5:4486:C:H2'	48:5:4487:A:O4'	2.20	0.40
48:5:4562:C:H2'	48:5:4563:U:O4'	2.21	0.40
48:5:488:G:C6	48:5:489:C:C4	3.08	0.40
48:5:751:G:N2	48:5:912:G:N3	2.70	0.40
48:5:947:C:H2'	48:5:948:C:C6	2.56	0.40
49:7:110:G:N2	49:7:111:C:C2	2.89	0.40
51:9:1126:G:C6	51:9:1127:C:C4	3.09	0.40
51:9:1404:U:O4'	51:9:1581:C:O2	2.39	0.40
51:9:1676:U:H2'	51:9:1677:U:O4'	2.22	0.40
51:9:1715:A:C2	51:9:1819:A:C2	3.10	0.40
51:9:472:C:H4'	51:9:474:G:OP1	2.22	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:9:961:G:C6	51:9:962:A:C5	3.09	0.40
2:B:288:GLY:HA3	2:B:330:PHE:CE1	2.56	0.40
54:CC:169:TYR:CE1	54:CC:177:PRO:HA	2.56	0.40
51:9:1387:G:N1	55:DD:206:ASP:OD2	2.49	0.40
56:EE:44:LEU:HD13	56:EE:72:ILE:HD11	2.02	0.40
6:F:181:LEU:HB3	6:F:186:ILE:HB	2.03	0.40
57:FF:92:ILE:HD13	57:FF:169:ILE:HG21	2.02	0.40
57:FF:73:THR:O	57:FF:89:THR:HG21	2.21	0.40
58:GG:52:ILE:HD11	58:GG:109:LEU:CD2	2.51	0.40
58:GG:67:VAL:HG23	58:GG:99:GLY:HA2	2.04	0.40
51:9:448:A:N6	60:II:29:LEU:HD13	2.36	0.40
63:LL:40:ILE:HG21	63:LL:62:PHE:CE1	2.56	0.40
12:M:86:TRP:CE2	12:M:92:ALA:HB2	2.57	0.40
14:O:108:ILE:HG22	14:O:157:GLU:OE1	2.21	0.40
15:P:122:ALA:HB1	15:P:123:PRO:CD	2.51	0.40
17:R:138:LEU:O	17:R:139:MET:C	2.59	0.40
17:R:95:TRP:CE2	48:5:1572:U:H4'	2.55	0.40
18:S:94:TYR:O	18:S:139:ARG:NH1	2.50	0.40
47:3:68:C:C2'	47:3:69:G:O4'	2.69	0.40
48:5:1356:U:C4	48:5:1357:C:N4	2.89	0.40
48:5:1383:G:C5	48:5:1384:C:C4	3.10	0.40
16:Q:181:ARG:NH1	48:5:1391:A:OP2	2.55	0.40
48:5:1504:G:O5'	48:5:1504:G:H8	2.04	0.40
48:5:1748:U:H2'	48:5:1749:A:O4'	2.22	0.40
48:5:376:A:H2'	48:5:377:A:O4'	2.21	0.40
48:5:3909:C:C4	48:5:3910:C:C5	3.10	0.40
48:5:4129:G:C2	48:5:4130:C:C2	3.08	0.40
48:5:4303:C:H2'	48:5:4305:G:C8	2.56	0.40
48:5:4349:C:H3'	48:5:4350:C:H5'	2.04	0.40
48:5:442:G:H2'	48:5:443:G:O4'	2.22	0.40
48:5:4583:C:C4	48:5:4718:G:N1	2.89	0.40
48:5:4765:G:N1	48:5:4870:G:C8	2.90	0.40
48:5:4967:A:C2	48:5:4968:A:C5	3.10	0.40
48:5:5008:C:H2'	48:5:5009:G:O4'	2.21	0.40
48:5:677:G:C6	48:5:678:C:C4	3.09	0.40
48:5:963:G:C2'	48:5:963:G:N3	2.83	0.40
49:7:117:G:C2	49:7:118:C:C2	3.10	0.40
51:9:29:G:C6	51:9:30:C:C4	3.09	0.40
51:9:431:G:H2'	51:9:432:G:O4'	2.22	0.40
51:9:483:C:N4	51:9:484:A:C6	2.90	0.40
51:9:841:G:C6	51:9:842:C:C4	3.10	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:173:GLY:O	1:A:174:ARG:C	2.59	0.40
1:A:77:ILE:HD12	1:A:115:CYS:SG	2.62	0.40
52:AA:34:MET:O	52:AA:35:GLU:C	2.59	0.40
51:9:656:G:O2'	54:CC:227:TRP:CE3	2.74	0.40
4:D:258:LYS:O	4:D:259:ARG:CG	2.69	0.40
5:E:280:HIS:CD2	5:E:281:LYS:N	2.89	0.40
7:G:86:VAL:HG13	7:G:183:ILE:O	2.22	0.40
10:J:53:ALA:HB2	10:J:68:ILE:CD1	2.49	0.40
11:L:65:ARG:NH1	48:5:1382:G:OP1	2.54	0.40
11:L:94:ILE:HG22	11:L:124:LEU:HD11	2.04	0.40
66:OO:151:LEU:OXT	66:OO:151:LEU:HD22	2.21	0.40
74:WW:105:THR:CG2	74:WW:126:LEU:HD21	2.52	0.40
23:X:76:ILE:HG21	23:X:112:ALA:HB2	2.02	0.40
47:3:34:U:O2	51:9:1641:A:H5''	2.22	0.40
48:5:1070:G:C6	48:5:1071:C:N4	2.89	0.40
48:5:1412:G:C2	48:5:1413:C:C2	3.09	0.40
48:5:1448:G:C2	48:5:2097:U:C4	3.10	0.40
48:5:1576:G:C4	48:5:1578:U:C6	3.10	0.40
48:5:1783:C:H2'	48:5:1784:U:O4'	2.22	0.40
48:5:219:G:OP1	48:5:219:G:H4'	2.22	0.40
48:5:2468:U:C2	48:5:2473:A:N6	2.88	0.40
48:5:258:G:N2	48:5:259:C:C2	2.90	0.40
48:5:2616:C:C2	48:5:2722:G:N2	2.89	0.40
48:5:2771:G:H2'	48:5:2772:C:O4'	2.21	0.40
48:5:2849:A:O4'	48:5:2850:A:C2	2.75	0.40
48:5:298:G:C2	48:5:299:C:C2	3.10	0.40
48:5:3804:G:C5	48:5:3805:U:C5	3.09	0.40
48:5:4162:C:O2	48:5:4162:C:O4'	2.37	0.40
48:5:4410:G:C2	48:5:4411:G:C8	3.09	0.40
48:5:4913:G:HO2'	48:5:4914:C:C1'	2.35	0.40
48:5:740:G:C2	48:5:925:C:C2	3.09	0.40
48:5:964:A:H2'	48:5:965:G:OP1	2.22	0.40
51:9:1444:U:O2'	51:9:1580:A:N1	2.50	0.40
51:9:1648:G:O2'	51:9:1674:G:O6	2.31	0.40
51:9:113:G:N2	51:9:292:A:H1'	2.37	0.40
51:9:387:C:OP2	60:II:10:LYS:HE3	2.22	0.40
51:9:600:G:C2'	51:9:601:G:O5'	2.69	0.40
1:A:217:GLN:NE2	48:5:3650:C:OP1	2.54	0.40
3:C:119:GLN:O	3:C:120:LYS:C	2.60	0.40
56:EE:42:LEU:HD12	56:EE:109:PHE:CB	2.51	0.40
7:G:86:VAL:HG22	7:G:183:ILE:HG22	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
59:HH:105:THR:HG1	59:HH:108:SER:H	1.69	0.40
13:N:121:VAL:HG11	13:N:131:GLU:HG3	2.03	0.40
14:O:54:TYR:CD1	14:O:145:VAL:HG21	2.57	0.40
16:Q:43:PHE:CD1	16:Q:133:GLY:HA3	2.57	0.40
23:X:53:ARG:NH1	48:5:2475:G:C5	2.90	0.40
25:Z:28:ASN:C	25:Z:29:ILE:HD12	2.41	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	
1	A	242/244 (99%)	199 (82%)	34 (14%)	9 (4%)	4	36
2	B	392/394 (100%)	338 (86%)	44 (11%)	10 (3%)	6	44
3	C	359/361 (99%)	302 (84%)	48 (13%)	9 (2%)	6	45
4	D	290/292 (99%)	255 (88%)	31 (11%)	4 (1%)	13	55
5	E	232/248 (94%)	172 (74%)	37 (16%)	23 (10%)	1	11
6	F	223/225 (99%)	204 (92%)	18 (8%)	1 (0%)	38	76
7	G	239/241 (99%)	205 (86%)	26 (11%)	8 (3%)	4	39
8	H	188/190 (99%)	161 (86%)	25 (13%)	2 (1%)	17	61
9	I	200/213 (94%)	178 (89%)	17 (8%)	5 (2%)	6	45
10	J	167/169 (99%)	141 (84%)	18 (11%)	8 (5%)	2	29
11	L	208/210 (99%)	174 (84%)	25 (12%)	9 (4%)	3	32
12	M	136/138 (99%)	123 (90%)	12 (9%)	1 (1%)	25	68
13	N	201/203 (99%)	167 (83%)	32 (16%)	2 (1%)	18	62
14	O	197/199 (99%)	176 (89%)	20 (10%)	1 (0%)	32	73
15	P	151/153 (99%)	134 (89%)	13 (9%)	4 (3%)	6	44

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
16	Q	185/187 (99%)	161 (87%)	20 (11%)	4 (2%)	8	47
17	R	178/180 (99%)	151 (85%)	25 (14%)	2 (1%)	17	61
18	S	173/175 (99%)	151 (87%)	18 (10%)	4 (2%)	7	47
19	T	157/159 (99%)	137 (87%)	17 (11%)	3 (2%)	9	51
20	U	97/99 (98%)	82 (84%)	11 (11%)	4 (4%)	3	33
21	V	129/131 (98%)	110 (85%)	19 (15%)	0	100	100
22	W	61/63 (97%)	55 (90%)	5 (8%)	1 (2%)	11	54
23	X	117/119 (98%)	106 (91%)	9 (8%)	2 (2%)	11	53
24	Y	132/134 (98%)	114 (86%)	13 (10%)	5 (4%)	4	35
25	Z	133/135 (98%)	113 (85%)	14 (10%)	6 (4%)	3	30
26	a	145/147 (99%)	114 (79%)	24 (17%)	7 (5%)	2	29
27	b	73/75 (97%)	65 (89%)	5 (7%)	3 (4%)	3	33
28	c	92/94 (98%)	87 (95%)	5 (5%)	0	100	100
29	d	105/107 (98%)	86 (82%)	17 (16%)	2 (2%)	9	51
30	e	126/128 (98%)	110 (87%)	12 (10%)	4 (3%)	5	40
31	f	107/109 (98%)	88 (82%)	12 (11%)	7 (6%)	1	22
32	g	112/114 (98%)	97 (87%)	13 (12%)	2 (2%)	10	52
33	h	120/122 (98%)	106 (88%)	10 (8%)	4 (3%)	4	39
34	i	100/102 (98%)	87 (87%)	11 (11%)	2 (2%)	9	50
35	j	84/86 (98%)	73 (87%)	8 (10%)	3 (4%)	4	37
36	k	67/69 (97%)	53 (79%)	10 (15%)	4 (6%)	2	24
37	l	48/50 (96%)	41 (85%)	5 (10%)	2 (4%)	3	32
38	m	50/52 (96%)	43 (86%)	7 (14%)	0	100	100
39	n	21/23 (91%)	21 (100%)	0	0	100	100
40	o	102/104 (98%)	79 (78%)	19 (19%)	4 (4%)	3	34
41	p	89/91 (98%)	75 (84%)	9 (10%)	5 (6%)	2	25
42	r	123/125 (98%)	104 (85%)	10 (8%)	9 (7%)	1	19
43	s	196/198 (99%)	163 (83%)	21 (11%)	12 (6%)	2	23
44	t	161/163 (99%)	100 (62%)	36 (22%)	25 (16%)	0	4
45	1	13/15 (87%)	10 (77%)	2 (15%)	1 (8%)	1	17
52	AA	206/208 (99%)	153 (74%)	37 (18%)	16 (8%)	1	16

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
53	BB	211/213 (99%)	165 (78%)	34 (16%)	12 (6%)	2	25
54	CC	216/218 (99%)	184 (85%)	22 (10%)	10 (5%)	3	30
55	DD	225/227 (99%)	184 (82%)	30 (13%)	11 (5%)	2	28
56	EE	260/262 (99%)	197 (76%)	43 (16%)	20 (8%)	1	17
57	FF	189/191 (99%)	156 (82%)	22 (12%)	11 (6%)	2	24
58	GG	235/237 (99%)	198 (84%)	29 (12%)	8 (3%)	4	39
59	HH	187/189 (99%)	144 (77%)	30 (16%)	13 (7%)	1	20
60	II	204/206 (99%)	169 (83%)	25 (12%)	10 (5%)	2	28
61	JJ	183/185 (99%)	152 (83%)	19 (10%)	12 (7%)	1	22
62	KK	96/98 (98%)	65 (68%)	20 (21%)	11 (12%)	0	7
63	LL	150/152 (99%)	125 (83%)	16 (11%)	9 (6%)	2	24
64	MM	122/124 (98%)	87 (71%)	25 (20%)	10 (8%)	1	15
65	NN	148/150 (99%)	121 (82%)	21 (14%)	6 (4%)	3	33
66	OO	134/136 (98%)	96 (72%)	24 (18%)	14 (10%)	0	10
67	PP	125/127 (98%)	102 (82%)	20 (16%)	3 (2%)	7	46
68	QQ	139/141 (99%)	115 (83%)	14 (10%)	10 (7%)	1	19
69	RR	127/129 (98%)	100 (79%)	18 (14%)	9 (7%)	1	19
70	SS	135/137 (98%)	110 (82%)	15 (11%)	10 (7%)	1	18
71	TT	139/141 (99%)	127 (91%)	9 (6%)	3 (2%)	8	47
72	UU	102/104 (98%)	84 (82%)	12 (12%)	6 (6%)	2	24
73	VV	81/83 (98%)	65 (80%)	9 (11%)	7 (9%)	1	14
74	WW	127/129 (98%)	101 (80%)	21 (16%)	5 (4%)	3	34
75	XX	139/141 (99%)	122 (88%)	8 (6%)	9 (6%)	1	22
76	YY	124/126 (98%)	100 (81%)	15 (12%)	9 (7%)	1	19
77	ZZ	73/75 (97%)	58 (80%)	11 (15%)	4 (6%)	2	26
78	aa	96/98 (98%)	76 (79%)	8 (8%)	12 (12%)	0	7
79	bb	81/83 (98%)	59 (73%)	16 (20%)	6 (7%)	1	18
80	cc	59/61 (97%)	47 (80%)	11 (19%)	1 (2%)	11	53
81	dd	51/53 (96%)	40 (78%)	11 (22%)	0	100	100
82	ee	55/57 (96%)	39 (71%)	14 (26%)	2 (4%)	4	37
83	ff	58/68 (85%)	49 (84%)	8 (14%)	1 (2%)	11	53

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
84	gg	311/313 (99%)	263 (85%)	40 (13%)	8 (3%)	6	44
86	ii	414/416 (100%)	378 (91%)	25 (6%)	11 (3%)	6	43
87	jj	569/594 (96%)	501 (88%)	54 (10%)	14 (2%)	6	45
All	All	12492/12708 (98%)	10443 (84%)	1523 (12%)	526 (4%)	6	32

All (526) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	14	SER
1	A	196	TRP
1	A	197	PRO
2	B	37	PRO
2	B	302	ASN
3	C	73	VAL
3	C	217	ILE
5	E	91	PRO
5	E	96	LYS
5	E	118	PRO
5	E	174	PRO
5	E	175	LEU
5	E	200	SER
5	E	221	PRO
6	F	239	GLU
7	G	44	ASP
7	G	45	ILE
7	G	128	VAL
8	H	40	HIS
9	I	47	PRO
9	I	48	LEU
10	J	11	PRO
11	L	64	VAL
11	L	67	HIS
11	L	176	PHE
13	N	87	HIS
18	S	155	PRO
18	S	165	PRO
24	Y	51	LYS
25	Z	34	SER
25	Z	84	ARG
25	Z	91	LEU
26	a	90	ALA

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Mol	Chain	Res	Type
29	d	94	GLU
30	e	44	ARG
30	e	92	ASN
31	f	79	GLY
31	f	80	ASN
32	g	69	LYS
33	h	7	ARG
33	h	122	LYS
35	j	36	LYS
36	k	61	PRO
41	p	40	SER
42	r	11	ARG
42	r	86	ALA
42	r	105	ASP
42	r	107	ARG
43	s	62	ARG
43	s	201	PRO
44	t	29	ALA
44	t	30	PRO
44	t	31	LYS
44	t	89	PRO
44	t	106	PHE
44	t	137	GLN
44	t	144	ASP
44	t	149	HIS
45	l	64	PRO
52	AA	43	SER
52	AA	138	SER
53	BB	57	ILE
53	BB	140	VAL
53	BB	179	ASN
53	BB	191	ASP
54	CC	255	LEU
55	DD	199	GLY
55	DD	202	LYS
56	EE	12	VAL
56	EE	118	GLU
56	EE	168	LYS
56	EE	223	SER
57	FF	163	PHE
58	GG	105	ASN
59	HH	18	GLU

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Mol	Chain	Res	Type
59	HH	66	VAL
60	II	27	TYR
60	II	157	LYS
61	JJ	119	LEU
61	JJ	121	LYS
62	KK	63	ALA
62	KK	93	THR
62	KK	95	ARG
63	LL	66	VAL
64	MM	79	VAL
64	MM	102	LYS
64	MM	114	TYR
66	OO	56	VAL
66	OO	65	ASP
66	OO	138	ASP
66	OO	140	THR
67	PP	14	LYS
68	QQ	43	GLU
69	RR	88	VAL
69	RR	93	GLN
70	SS	81	ASP
70	SS	133	GLY
71	TT	29	LYS
71	TT	34	VAL
72	UU	107	GLU
73	VV	41	LYS
74	WW	29	PRO
75	XX	34	THR
76	YY	104	ARG
77	ZZ	104	ARG
77	ZZ	113	THR
79	bb	82	LYS
82	ee	9	VAL
84	gg	161	SER
84	gg	282	GLU
86	ii	27	ALA
86	ii	32	THR
86	ii	120	ILE
86	ii	298	THR
87	jj	237	ILE
87	jj	245	SER
87	jj	455	ILE

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Mol	Chain	Res	Type
1	A	217	GLN
2	B	18	PRO
2	B	247	GLY
3	C	273	LEU
3	C	275	SER
4	D	187	SER
5	E	54	SER
5	E	85	LEU
5	E	92	VAL
5	E	95	ASP
7	G	85	GLN
10	J	91	GLU
10	J	124	GLY
10	J	155	HIS
11	L	143	GLU
12	M	53	LYS
13	N	181	HIS
16	Q	14	ARG
16	Q	148	VAL
16	Q	178	ARG
17	R	19	LYS
17	R	130	ASN
19	T	44	GLY
20	U	98	ASP
24	Y	11	ARG
24	Y	83	GLU
25	Z	17	ARG
25	Z	124	THR
26	a	76	ASP
33	h	40	ALA
41	p	10	ILE
42	r	20	ARG
42	r	67	ARG
42	r	71	ARG
43	s	34	ASN
43	s	70	GLU
43	s	106	LYS
43	s	109	ALA
43	s	142	GLY
44	t	19	GLY
44	t	22	VAL
44	t	39	PRO

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Mol	Chain	Res	Type
44	t	53	TRP
44	t	54	LYS
44	t	58	ILE
44	t	67	ARG
52	AA	44	ASP
52	AA	45	GLY
52	AA	186	ARG
53	BB	86	LEU
53	BB	93	GLY
53	BB	190	PRO
53	BB	206	PRO
54	CC	101	ALA
54	CC	119	ALA
55	DD	191	PRO
55	DD	219	PRO
56	EE	24	THR
56	EE	53	LYS
56	EE	95	THR
56	EE	101	LEU
56	EE	171	ASP
56	EE	196	THR
56	EE	216	ASN
57	FF	52	SER
57	FF	54	GLY
57	FF	77	MET
57	FF	80	GLY
58	GG	54	GLY
58	GG	69	THR
59	HH	159	ASP
59	HH	190	PRO
60	II	8	TRP
60	II	138	ASN
60	II	154	LYS
60	II	155	ASN
61	JJ	3	VAL
61	JJ	118	GLY
61	JJ	120	ALA
62	KK	3	MET
63	LL	55	TYR
63	LL	149	ALA
65	NN	24	THR
65	NN	138	ASN

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Mol	Chain	Res	Type
66	OO	24	GLY
66	OO	48	SER
66	OO	106	LYS
67	PP	75	VAL
68	QQ	64	ALA
68	QQ	100	VAL
69	RR	123	THR
70	SS	11	HIS
70	SS	12	ILE
70	SS	82	TRP
71	TT	39	LEU
72	UU	50	VAL
72	UU	52	GLY
73	VV	21	ASN
73	VV	31	SER
73	VV	48	GLY
74	WW	30	CYS
74	WW	83	LEU
74	WW	107	SER
75	XX	6	GLY
76	YY	95	GLY
76	YY	120	THR
76	YY	127	ALA
78	aa	9	GLY
78	aa	25	ASN
78	aa	28	ARG
78	aa	46	GLU
79	bb	4	ALA
79	bb	6	ASP
79	bb	26	GLN
84	gg	160	SER
84	gg	253	GLY
86	ii	144	SER
86	ii	305	VAL
86	ii	315	GLY
86	ii	387	ALA
87	jj	24	GLU
87	jj	179	ALA
87	jj	249	VAL
87	jj	550	THR
1	A	194	ASN
3	C	16	GLU

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Mol	Chain	Res	Type
5	E	63	ALA
5	E	166	SER
5	E	179	ARG
5	E	187	GLN
5	E	234	GLU
9	I	99	ILE
9	I	201	PRO
10	J	15	LEU
10	J	116	GLY
10	J	154	LYS
16	Q	172	ARG
19	T	81	LYS
20	U	97	ARG
22	W	43	LYS
23	X	131	ASP
24	Y	63	LYS
26	a	40	HIS
26	a	84	GLU
26	a	119	LYS
27	b	7	HIS
29	d	60	PRO
32	g	67	LEU
37	l	44	TRP
40	o	32	SER
40	o	77	CYS
41	p	18	TYR
41	p	41	PHE
42	r	68	SER
42	r	85	ASN
43	s	69	LEU
43	s	108	PRO
44	t	5	PHE
44	t	26	SER
44	t	105	THR
44	t	118	HIS
44	t	119	ARG
52	AA	6	ASP
52	AA	84	GLN
52	AA	191	ARG
52	AA	207	PRO
54	CC	190	SER
55	DD	143	ARG

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Mol	Chain	Res	Type
56	EE	98	ASN
56	EE	153	LEU
57	FF	34	SER
57	FF	37	ASP
57	FF	63	LYS
58	GG	152	ASP
59	HH	57	ARG
59	HH	160	LYS
60	II	137	LEU
60	II	168	GLN
61	JJ	5	ARG
61	JJ	138	ARG
61	JJ	147	PHE
62	KK	25	LYS
62	KK	31	LYS
62	KK	39	ASN
62	KK	92	ALA
63	LL	19	ASN
63	LL	147	LYS
64	MM	100	PRO
65	NN	3	ARG
66	OO	64	ALA
66	OO	129	ILE
67	PP	121	ILE
68	QQ	17	LYS
68	QQ	35	ASN
68	QQ	132	PHE
70	SS	7	GLU
72	UU	51	LYS
74	WW	93	LEU
75	XX	10	ALA
75	XX	116	PRO
77	ZZ	52	LYS
78	aa	13	LYS
78	aa	62	TYR
79	bb	48	SER
84	gg	60	ARG
84	gg	76	GLN
86	ii	386	GLY
87	jj	285	PHE
1	A	127	ALA
2	B	372	SER

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Mol	Chain	Res	Type
2	B	376	HIS
5	E	103	VAL
5	E	218	LEU
5	E	224	GLN
9	I	46	PHE
11	L	5	ARG
14	O	126	VAL
15	P	12	THR
15	P	108	ASP
23	X	73	HIS
25	Z	55	ALA
30	e	119	ALA
30	e	125	PRO
31	f	25	THR
31	f	37	ASP
34	i	3	LEU
35	j	39	TYR
36	k	22	SER
36	k	32	VAL
40	o	5	PRO
40	o	99	ARG
41	p	31	ILE
43	s	63	LYS
44	t	148	PRO
52	AA	35	GLU
52	AA	165	ASN
53	BB	88	THR
53	BB	106	THR
55	DD	214	LYS
55	DD	223	ILE
56	EE	30	ARG
56	EE	73	ASP
56	EE	131	VAL
58	GG	146	ASN
59	HH	16	PRO
59	HH	111	LYS
60	II	143	LYS
61	JJ	133	ARG
62	KK	32	HIS
63	LL	69	ARG
63	LL	151	THR
64	MM	116	LYS

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Mol	Chain	Res	Type
65	NN	13	GLN
65	NN	108	ASP
66	OO	32	HIS
66	OO	128	ARG
68	QQ	145	TYR
69	RR	63	ARG
69	RR	121	GLN
70	SS	10	GLN
70	SS	83	PHE
72	UU	105	SER
73	VV	45	ARG
75	XX	42	GLY
76	YY	34	THR
78	aa	8	ASN
78	aa	15	ARG
78	aa	64	LEU
79	bb	75	GLU
82	ee	22	GLN
83	ff	85	LYS
84	gg	146	SER
84	gg	205	SER
86	ii	28	ARG
87	jj	47	ILE
87	jj	346	CYS
87	jj	452	GLU
1	A	244	GLY
2	B	113	GLU
2	B	169	ARG
2	B	254	ILE
3	C	58	ALA
3	C	187	GLN
3	C	309	ILE
4	D	44	TYR
4	D	158	LYS
4	D	188	LYS
7	G	123	ALA
11	L	134	PRO
15	P	21	ASN
20	U	27	HIS
20	U	47	ILE
26	a	4	ARG
31	f	97	ILE

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Mol	Chain	Res	Type
31	f	107	PRO
33	h	89	ARG
34	i	11	LEU
36	k	21	LYS
37	l	47	THR
43	s	57	LYS
43	s	73	PRO
44	t	120	SER
52	AA	98	PRO
52	AA	110	ASN
52	AA	137	ALA
53	BB	22	VAL
53	BB	76	ASN
54	CC	202	THR
54	CC	261	PHE
54	CC	274	VAL
55	DD	4	GLN
55	DD	93	THR
55	DD	200	PRO
56	EE	76	VAL
56	EE	109	PHE
56	EE	144	ALA
57	FF	119	SER
58	GG	55	GLY
58	GG	117	GLY
59	HH	113	LYS
60	II	131	PRO
61	JJ	122	SER
62	KK	90	VAL
63	LL	28	THR
63	LL	34	PRO
64	MM	15	ASN
64	MM	103	VAL
66	OO	104	ARG
68	QQ	27	ARG
69	RR	95	ILE
72	UU	118	ASP
73	VV	33	PRO
75	XX	68	LYS
75	XX	129	SER
76	YY	52	PRO
76	YY	126	GLY

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Mol	Chain	Res	Type
78	aa	27	ALA
78	aa	35	ALA
78	aa	61	ALA
86	ii	385	PHE
5	E	48	ARG
5	E	239	THR
7	G	125	LYS
11	L	169	ILE
24	Y	10	ASP
26	a	98	ALA
31	f	106	TYR
35	j	8	PHE
52	AA	10	MET
54	CC	181	PRO
57	FF	33	ILE
57	FF	132	GLY
59	HH	35	ASP
59	HH	65	PRO
59	HH	100	ILE
64	MM	58	GLU
64	MM	96	ARG
66	OO	33	ILE
68	QQ	32	ILE
70	SS	17	ASN
70	SS	39	ARG
73	VV	10	ASP
77	ZZ	112	ASN
2	B	90	VAL
7	G	238	GLY
8	H	104	VAL
18	S	5	GLY
19	T	145	GLY
44	t	2	PRO
44	t	10	ILE
52	AA	101	GLY
54	CC	264	SER
65	NN	150	VAL
68	QQ	30	GLY
69	RR	42	PRO
76	YY	51	THR
18	S	172	PRO
27	b	36	ASP

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Mol	Chain	Res	Type
44	t	23	GLY
56	EE	90	ILE
59	HH	116	ARG
61	JJ	164	PRO
66	OO	144	GLY
75	XX	61	GLN
1	A	183	GLY
3	C	148	PRO
11	L	100	PRO
58	GG	99	GLY
61	JJ	36	GLY
69	RR	125	GLY
75	XX	33	GLY
80	cc	25	GLY
87	jj	352	GLY
1	A	57	PRO
5	E	190	VAL
7	G	163	PRO
10	J	174	ILE
11	L	12	PRO
27	b	21	ILE
54	CC	111	PRO
55	DD	218	LEU
62	KK	91	PRO
64	MM	115	GLY
69	RR	124	VAL
87	jj	432	ILE
5	E	220	LYS
15	P	84	PRO
76	YY	29	HIS
87	jj	42	THR

### 5.3.2 Protein sidechains ⓘ

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

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

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	187/187 (100%)	159 (85%)	28 (15%)	3	23
2	B	336/342 (98%)	288 (86%)	48 (14%)	4	26
3	C	301/301 (100%)	258 (86%)	43 (14%)	4	26
4	D	247/247 (100%)	218 (88%)	29 (12%)	6	33
5	E	208/221 (94%)	179 (86%)	29 (14%)	4	27
6	F	194/195 (100%)	169 (87%)	25 (13%)	5	29
7	G	206/206 (100%)	176 (85%)	30 (15%)	3	24
8	H	169/169 (100%)	147 (87%)	22 (13%)	5	29
9	I	174/180 (97%)	158 (91%)	16 (9%)	11	45
10	J	142/142 (100%)	127 (89%)	15 (11%)	8	38
11	L	176/176 (100%)	144 (82%)	32 (18%)	2	13
12	M	117/117 (100%)	104 (89%)	13 (11%)	7	36
13	N	171/171 (100%)	149 (87%)	22 (13%)	5	29
14	O	171/171 (100%)	141 (82%)	30 (18%)	2	15
15	P	134/134 (100%)	118 (88%)	16 (12%)	6	32
16	Q	163/163 (100%)	142 (87%)	21 (13%)	5	29
17	R	159/159 (100%)	139 (87%)	20 (13%)	5	30
18	S	156/156 (100%)	137 (88%)	19 (12%)	6	31
19	T	139/139 (100%)	115 (83%)	24 (17%)	2	15
20	U	89/89 (100%)	79 (89%)	10 (11%)	7	36
21	V	101/101 (100%)	82 (81%)	19 (19%)	2	12
22	W	55/55 (100%)	49 (89%)	6 (11%)	7	37
23	X	107/107 (100%)	95 (89%)	12 (11%)	7	36
24	Y	124/124 (100%)	106 (86%)	18 (14%)	4	24
25	Z	117/117 (100%)	101 (86%)	16 (14%)	4	27
26	a	119/119 (100%)	108 (91%)	11 (9%)	11	45
27	b	62/62 (100%)	54 (87%)	8 (13%)	5	29
28	c	79/79 (100%)	65 (82%)	14 (18%)	2	14
29	d	98/98 (100%)	79 (81%)	19 (19%)	1	11
30	e	114/114 (100%)	95 (83%)	19 (17%)	2	17

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
31	f	88/88 (100%)	75 (85%)	13 (15%)	3	24
32	g	98/98 (100%)	81 (83%)	17 (17%)	2	15
33	h	109/109 (100%)	96 (88%)	13 (12%)	6	32
34	i	86/86 (100%)	72 (84%)	14 (16%)	3	18
35	j	73/73 (100%)	57 (78%)	16 (22%)	1	8
36	k	64/64 (100%)	60 (94%)	4 (6%)	21	60
37	l	47/47 (100%)	40 (85%)	7 (15%)	3	23
38	m	48/48 (100%)	36 (75%)	12 (25%)	1	5
39	n	22/22 (100%)	20 (91%)	2 (9%)	11	46
40	o	92/92 (100%)	78 (85%)	14 (15%)	3	22
41	p	74/74 (100%)	63 (85%)	11 (15%)	3	23
42	r	109/109 (100%)	93 (85%)	16 (15%)	3	24
43	s	166/166 (100%)	155 (93%)	11 (7%)	19	59
44	t	136/136 (100%)	126 (93%)	10 (7%)	16	54
45	1	13/13 (100%)	11 (85%)	2 (15%)	3	22
52	AA	174/174 (100%)	142 (82%)	32 (18%)	2	12
53	BB	194/194 (100%)	168 (87%)	26 (13%)	4	28
54	CC	183/183 (100%)	162 (88%)	21 (12%)	6	34
55	DD	190/190 (100%)	151 (80%)	39 (20%)	1	9
56	EE	223/223 (100%)	188 (84%)	35 (16%)	3	21
57	FF	161/161 (100%)	132 (82%)	29 (18%)	2	13
58	GG	207/207 (100%)	174 (84%)	33 (16%)	3	20
59	HH	169/169 (100%)	155 (92%)	14 (8%)	13	49
60	II	178/178 (100%)	150 (84%)	28 (16%)	3	21
61	JJ	161/161 (100%)	139 (86%)	22 (14%)	4	27
62	KK	89/89 (100%)	76 (85%)	13 (15%)	3	24
63	LL	136/136 (100%)	116 (85%)	20 (15%)	3	24
64	MM	104/104 (100%)	88 (85%)	16 (15%)	3	22
65	NN	130/130 (100%)	104 (80%)	26 (20%)	1	10
66	OO	106/106 (100%)	84 (79%)	22 (21%)	1	9
67	PP	116/116 (100%)	97 (84%)	19 (16%)	2	18

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
68	QQ	117/117 (100%)	100 (86%)	17 (14%)	4	24
69	RR	117/117 (100%)	96 (82%)	21 (18%)	2	14
70	SS	119/119 (100%)	101 (85%)	18 (15%)	3	23
71	TT	112/112 (100%)	94 (84%)	18 (16%)	3	19
72	UU	94/94 (100%)	79 (84%)	15 (16%)	3	20
73	VV	67/67 (100%)	56 (84%)	11 (16%)	2	18
74	WW	112/112 (100%)	98 (88%)	14 (12%)	5	30
75	XX	113/113 (100%)	92 (81%)	21 (19%)	2	12
76	YY	108/108 (100%)	87 (81%)	21 (19%)	1	11
77	ZZ	66/66 (100%)	58 (88%)	8 (12%)	6	32
78	aa	85/85 (100%)	74 (87%)	11 (13%)	5	29
79	bb	75/75 (100%)	65 (87%)	10 (13%)	4	28
80	cc	54/54 (100%)	40 (74%)	14 (26%)	0	5
81	dd	47/47 (100%)	36 (77%)	11 (23%)	1	6
82	ee	47/47 (100%)	41 (87%)	6 (13%)	5	29
83	ff	58/61 (95%)	57 (98%)	1 (2%)	66	87
84	gg	272/272 (100%)	248 (91%)	24 (9%)	12	47
86	ii	358/358 (100%)	319 (89%)	39 (11%)	7	37
87	jj	507/522 (97%)	475 (94%)	32 (6%)	21	60
All	All	10889/10933 (100%)	9386 (86%)	1503 (14%)	8	27

All (1503) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	3	ARG
1	A	64	ARG
1	A	75	LEU
1	A	96	LEU
1	A	100	ASN
1	A	102	LEU
1	A	109	GLU
1	A	115	CYS
1	A	125	LYS
1	A	128	ARG
1	A	135	THR

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Mol	Chain	Res	Type
1	A	142	GLU
1	A	158	ILE
1	A	162	ASN
1	A	163	ARG
1	A	165	VAL
1	A	175	ILE
1	A	180	LEU
1	A	193	ARG
1	A	195	CYS
1	A	198	ARG
1	A	200	ARG
1	A	209	HIS
1	A	218	HIS
1	A	221	LYS
1	A	226	ARG
1	A	233	ARG
1	A	242	ARG
2	B	10	ARG
2	B	17	LEU
2	B	19	ARG
2	B	23	SER
2	B	39	LYS
2	B	43	LEU
2	B	53	MET
2	B	56	ILE
2	B	62	ARG
2	B	66	LYS
2	B	84	MET
2	B	94	GLU
2	B	97	ARG
2	B	99	LEU
2	B	103	LYS
2	B	116	ARG
2	B	134	CYS
2	B	135	LYS
2	B	154	LYS
2	B	162	VAL
2	B	167	GLN
2	B	173	LEU
2	B	180	LEU
2	B	198	ARG
2	B	201	LEU

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Mol	Chain	Res	Type
2	B	203	GLN
2	B	213	GLN
2	B	223	THR
2	B	228	TYR
2	B	234	ARG
2	B	240	LEU
2	B	244	THR
2	B	246	ARG
2	B	253	CYS
2	B	258	HIS
2	B	261	ARG
2	B	264	PHE
2	B	279	GLU
2	B	309	LEU
2	B	314	ILE
2	B	333	LEU
2	B	347	LEU
2	B	351	LEU
2	B	356	LYS
2	B	357	ARG
2	B	366	LYS
2	B	371	THR
2	B	383	GLU
3	C	14	LYS
3	C	20	LYS
3	C	33	ARG
3	C	45	ARG
3	C	54	VAL
3	C	57	LEU
3	C	71	ARG
3	C	80	ARG
3	C	95	MET
3	C	101	MET
3	C	106	LYS
3	C	107	THR
3	C	113	ARG
3	C	114	ARG
3	C	118	THR
3	C	122	TYR
3	C	124	ILE
3	C	144	ILE
3	C	150	LEU

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Mol	Chain	Res	Type
3	C	155	GLU
3	C	156	ASP
3	C	159	GLU
3	C	165	LYS
3	C	175	LYS
3	C	179	ASP
3	C	188	ARG
3	C	193	LYS
3	C	201	ARG
3	C	208	CYS
3	C	213	GLU
3	C	219	LYS
3	C	232	VAL
3	C	246	VAL
3	C	267	TRP
3	C	281	MET
3	C	284	MET
3	C	289	LEU
3	C	303	ARG
3	C	307	LYS
3	C	312	ARG
3	C	333	LYS
3	C	339	THR
3	C	345	ARG
4	D	4	VAL
4	D	33	ARG
4	D	36	LEU
4	D	37	VAL
4	D	39	GLN
4	D	40	ASP
4	D	66	TYR
4	D	84	PRO
4	D	89	LYS
4	D	94	ASN
4	D	104	LEU
4	D	110	LEU
4	D	111	ASN
4	D	124	GLU
4	D	129	GLU
4	D	152	ARG
4	D	153	THR
4	D	196	ARG

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Mol	Chain	Res	Type
4	D	202	GLN
4	D	225	GLN
4	D	248	ARG
4	D	249	GLU
4	D	256	LYS
4	D	264	LYS
4	D	267	ASN
4	D	268	ARG
4	D	278	ASP
4	D	291	GLN
4	D	293	ARG
5	E	46	LEU
5	E	52	ARG
5	E	54	SER
5	E	55	ARG
5	E	58	MET
5	E	101	ARG
5	E	105	LEU
5	E	111	TYR
5	E	115	GLU
5	E	124	HIS
5	E	134	ARG
5	E	136	LEU
5	E	137	ARG
5	E	141	THR
5	E	148	ILE
5	E	158	VAL
5	E	162	LYS
5	E	166	SER
5	E	171	VAL
5	E	175	LEU
5	E	193	THR
5	E	206	LYS
5	E	208	LEU
5	E	212	TYR
5	E	230	ASP
5	E	233	LYS
5	E	250	ASP
5	E	262	GLN
5	E	282	LEU
6	F	33	LYS
6	F	41	GLN

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Mol	Chain	Res	Type
6	F	43	MET
6	F	46	LYS
6	F	49	ARG
6	F	68	ARG
6	F	72	ARG
6	F	76	MET
6	F	91	LEU
6	F	98	ARG
6	F	115	ARG
6	F	127	LEU
6	F	131	SER
6	F	137	ILE
6	F	146	TYR
6	F	154	GLU
6	F	179	ARG
6	F	192	LEU
6	F	201	LYS
6	F	202	ARG
6	F	217	SER
6	F	234	ASP
6	F	238	ARG
6	F	248	ARG
6	F	249	MET
7	G	28	VAL
7	G	46	GLN
7	G	59	ARG
7	G	62	ARG
7	G	73	ARG
7	G	75	LYS
7	G	81	ASN
7	G	90	GLN
7	G	106	THR
7	G	110	LYS
7	G	112	GLN
7	G	131	LYS
7	G	145	THR
7	G	148	GLU
7	G	150	LYS
7	G	151	LYS
7	G	154	LEU
7	G	162	ASP
7	G	170	LEU

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Mol	Chain	Res	Type
7	G	173	LEU
7	G	175	ARG
7	G	177	MET
7	G	181	TYR
7	G	185	LYS
7	G	189	ARG
7	G	201	THR
7	G	207	VAL
7	G	210	GLU
7	G	218	LEU
7	G	220	GLU
8	H	1	MET
8	H	18	ILE
8	H	20	LEU
8	H	26	ILE
8	H	28	LYS
8	H	36	ARG
8	H	41	ILE
8	H	52	LYS
8	H	54	ARG
8	H	57	VAL
8	H	59	LYS
8	H	74	CYS
8	H	78	GLN
8	H	82	LYS
8	H	94	SER
8	H	104	VAL
8	H	105	ILE
8	H	111	LEU
8	H	118	LEU
8	H	125	ARG
8	H	128	MET
8	H	173	ARG
9	I	13	LYS
9	I	32	ARG
9	I	35	ASP
9	I	36	LEU
9	I	39	LYS
9	I	55	ASP
9	I	100	ASN
9	I	116	ARG
9	I	144	ASN

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Mol	Chain	Res	Type
9	I	146	GLU
9	I	148	VAL
9	I	153	ARG
9	I	163	GLN
9	I	202	ASN
9	I	208	LYS
9	I	212	LEU
10	J	9	GLU
10	J	15	LEU
10	J	16	ARG
10	J	33	LEU
10	J	34	THR
10	J	49	VAL
10	J	55	TYR
10	J	81	GLU
10	J	84	GLU
10	J	110	GLN
10	J	111	GLU
10	J	113	ILE
10	J	119	TYR
10	J	146	ARG
10	J	151	ILE
11	L	5	ARG
11	L	9	ILE
11	L	10	LEU
11	L	28	GLN
11	L	35	ARG
11	L	45	ARG
11	L	49	ARG
11	L	52	SER
11	L	59	VAL
11	L	61	CYS
11	L	67	HIS
11	L	74	ARG
11	L	92	ARG
11	L	94	ILE
11	L	99	ASP
11	L	104	ASN
11	L	111	GLN
11	L	115	GLN
11	L	116	ARG
11	L	119	GLU

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Mol	Chain	Res	Type
11	L	121	ARG
11	L	123	LYS
11	L	129	ARG
11	L	130	LYS
11	L	158	ARG
11	L	162	LYS
11	L	165	LYS
11	L	172	GLU
11	L	186	ARG
11	L	190	ARG
11	L	195	ARG
11	L	198	ARG
12	M	4	ARG
12	M	8	GLU
12	M	25	VAL
12	M	29	ASP
12	M	33	GLN
12	M	38	VAL
12	M	48	GLN
12	M	53	LYS
12	M	57	LEU
12	M	61	ILE
12	M	96	GLU
12	M	119	ARG
12	M	130	LEU
13	N	26	ARG
13	N	32	GLN
13	N	44	ARG
13	N	54	LYS
13	N	61	ILE
13	N	64	ILE
13	N	75	VAL
13	N	77	LYS
13	N	80	THR
13	N	87	HIS
13	N	92	LEU
13	N	108	ARG
13	N	117	ASN
13	N	142	ILE
13	N	151	ILE
13	N	162	ARG
13	N	174	LEU

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Mol	Chain	Res	Type
13	N	188	ARG
13	N	189	ARG
13	N	198	LEU
13	N	199	GLN
13	N	202	ARG
14	O	5	GLN
14	O	9	LEU
14	O	12	ARG
14	O	18	ARG
14	O	27	VAL
14	O	31	ARG
14	O	36	VAL
14	O	37	ARG
14	O	42	ASN
14	O	44	SER
14	O	49	ARG
14	O	60	LYS
14	O	61	ARG
14	O	67	SER
14	O	74	ARG
14	O	82	ARG
14	O	85	ARG
14	O	103	LYS
14	O	116	LYS
14	O	119	VAL
14	O	128	ARG
14	O	129	LEU
14	O	130	LYS
14	O	144	GLU
14	O	145	VAL
14	O	160	ARG
14	O	175	MET
14	O	179	LYS
14	O	187	LYS
14	O	202	LEU
15	P	7	ASP
15	P	12	THR
15	P	23	ARG
15	P	25	HIS
15	P	36	ILE
15	P	57	CYS
15	P	69	ARG

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Mol	Chain	Res	Type
15	P	80	GLN
15	P	86	LYS
15	P	91	LEU
15	P	100	SER
15	P	103	GLU
15	P	105	LYS
15	P	120	ASN
15	P	127	ARG
15	P	128	ARG
16	Q	3	VAL
16	Q	5	ILE
16	Q	13	VAL
16	Q	31	LEU
16	Q	38	ARG
16	Q	54	SER
16	Q	58	ARG
16	Q	63	LEU
16	Q	68	ARG
16	Q	75	ARG
16	Q	89	ASP
16	Q	91	ARG
16	Q	93	GLN
16	Q	97	LYS
16	Q	108	ARG
16	Q	111	SER
16	Q	126	LEU
16	Q	132	LYS
16	Q	143	ARG
16	Q	168	ARG
16	Q	180	ARG
17	R	8	LYS
17	R	10	LEU
17	R	34	ASN
17	R	39	GLN
17	R	40	GLN
17	R	43	LYS
17	R	50	ILE
17	R	64	ARG
17	R	74	ARG
17	R	89	MET
17	R	98	ARG
17	R	99	MET

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Mol	Chain	Res	Type
17	R	106	LEU
17	R	107	ARG
17	R	113	LYS
17	R	122	SER
17	R	123	LEU
17	R	133	LYS
17	R	138	LEU
17	R	178	GLN
18	S	2	LYS
18	S	9	GLU
18	S	17	LEU
18	S	24	THR
18	S	39	VAL
18	S	43	ARG
18	S	67	VAL
18	S	70	LYS
18	S	83	ARG
18	S	84	TYR
18	S	85	ASP
18	S	91	HIS
18	S	100	LEU
18	S	102	THR
18	S	127	MET
18	S	149	LYS
18	S	156	HIS
18	S	159	LEU
18	S	161	ARG
19	T	5	LYS
19	T	7	LYS
19	T	31	MET
19	T	33	ILE
19	T	45	MET
19	T	52	MET
19	T	60	LYS
19	T	74	ILE
19	T	80	VAL
19	T	81	LYS
19	T	88	ARG
19	T	94	GLU
19	T	96	ILE
19	T	97	LYS
19	T	99	SER

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Mol	Chain	Res	Type
19	T	117	LYS
19	T	118	GLU
19	T	131	GLN
19	T	137	GLU
19	T	139	HIS
19	T	142	ARG
19	T	144	ASN
19	T	157	GLU
19	T	159	MET
20	U	23	LEU
20	U	33	ILE
20	U	46	ARG
20	U	62	THR
20	U	65	ARG
20	U	67	LYS
20	U	80	LYS
20	U	97	ARG
20	U	99	TRP
20	U	101	ARG
21	V	15	ARG
21	V	18	LEU
21	V	27	ASN
21	V	35	LYS
21	V	51	ARG
21	V	57	VAL
21	V	60	MET
21	V	61	VAL
21	V	78	PRO
21	V	82	ILE
21	V	86	LYS
21	V	90	ARG
21	V	91	LYS
21	V	99	GLU
21	V	109	LYS
21	V	113	LYS
21	V	123	LYS
21	V	124	GLU
21	V	138	SER
22	W	4	GLU
22	W	19	ARG
22	W	27	LYS
22	W	43	LYS

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Mol	Chain	Res	Type
22	W	50	ASN
22	W	57	ARG
23	X	39	LYS
23	X	41	ARG
23	X	46	PHE
23	X	50	LYS
23	X	52	LEU
23	X	53	ARG
23	X	59	LYS
23	X	91	GLU
23	X	94	ASN
23	X	111	GLN
23	X	129	ARG
23	X	145	ASP
24	Y	2	LYS
24	Y	7	VAL
24	Y	8	THR
24	Y	11	ARG
24	Y	12	SER
24	Y	28	LYS
24	Y	34	LEU
24	Y	50	ARG
24	Y	52	ASP
24	Y	59	ARG
24	Y	72	GLN
24	Y	74	TYR
24	Y	76	LYS
24	Y	87	ARG
24	Y	104	VAL
24	Y	107	THR
24	Y	115	ARG
24	Y	127	GLN
25	Z	11	VAL
25	Z	21	ARG
25	Z	42	LEU
25	Z	57	MET
25	Z	59	LYS
25	Z	67	LYS
25	Z	68	ILE
25	Z	73	LYS
25	Z	76	ASN
25	Z	78	ASN

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Mol	Chain	Res	Type
25	Z	83	THR
25	Z	88	ASP
25	Z	93	LYS
25	Z	97	ASN
25	Z	108	ARG
25	Z	123	LYS
26	a	14	HIS
26	a	16	SER
26	a	27	LYS
26	a	39	HIS
26	a	40	HIS
26	a	52	TYR
26	a	59	ARG
26	a	64	LYS
26	a	84	GLU
26	a	122	VAL
26	a	132	ARG
27	b	9	THR
27	b	22	LYS
27	b	28	ARG
27	b	36	ASP
27	b	39	PHE
27	b	43	MET
27	b	44	ARG
27	b	51	LYS
28	c	28	VAL
28	c	37	MET
28	c	40	GLN
28	c	50	ASN
28	c	52	CYS
28	c	61	GLU
28	c	81	LEU
28	c	87	LYS
28	c	90	ARG
28	c	91	VAL
28	c	92	CYS
28	c	93	THR
28	c	94	LEU
28	c	101	ASP
29	d	19	GLU
29	d	20	VAL
29	d	23	ARG

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Mol	Chain	Res	Type
29	d	26	THR
29	d	31	LYS
29	d	44	ARG
29	d	46	LEU
29	d	48	GLU
29	d	56	GLU
29	d	75	LYS
29	d	78	ARG
29	d	79	ASN
29	d	83	ARG
29	d	85	ARG
29	d	89	SER
29	d	90	ARG
29	d	94	GLU
29	d	102	LEU
29	d	119	THR
30	e	11	LYS
30	e	21	ILE
30	e	22	ARG
30	e	30	LYS
30	e	32	LYS
30	e	44	ARG
30	e	46	ARG
30	e	47	ARG
30	e	48	ARG
30	e	49	PHE
30	e	64	LYS
30	e	78	LEU
30	e	80	HIS
30	e	98	GLU
30	e	106	LYS
30	e	107	ASN
30	e	113	GLU
30	e	123	THR
30	e	129	LEU
31	f	16	ARG
31	f	33	VAL
31	f	36	ARG
31	f	40	GLU
31	f	46	ARG
31	f	52	LYS
31	f	69	VAL

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Mol	Chain	Res	Type
31	f	84	VAL
31	f	100	ARG
31	f	101	ILE
31	f	103	VAL
31	f	106	TYR
31	f	109	ARG
32	g	2	VAL
32	g	5	LEU
32	g	11	LEU
32	g	21	ARG
32	g	23	SER
32	g	32	TYR
32	g	54	ARG
32	g	60	ARG
32	g	64	LEU
32	g	65	MET
32	g	66	ARG
32	g	71	LYS
32	g	73	HIS
32	g	74	VAL
32	g	88	ARG
32	g	100	GLN
32	g	115	LYS
33	h	10	ARG
33	h	28	LEU
33	h	51	ARG
33	h	58	LEU
33	h	65	GLN
33	h	67	GLU
33	h	88	THR
33	h	97	LYS
33	h	98	HIS
33	h	100	GLU
33	h	104	THR
33	h	119	TYR
33	h	122	LYS
34	i	3	LEU
34	i	7	MET
34	i	9	VAL
34	i	18	THR
34	i	33	LEU
34	i	34	THR

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Mol	Chain	Res	Type
34	i	44	ILE
34	i	45	ARG
34	i	53	TYR
34	i	66	ASP
34	i	85	ARG
34	i	86	LYS
34	i	87	ARG
34	i	103	LYS
35	j	3	LYS
35	j	6	SER
35	j	10	LYS
35	j	20	ARG
35	j	25	LYS
35	j	45	ARG
35	j	46	LYS
35	j	48	ASN
35	j	49	TRP
35	j	52	LYS
35	j	63	ARG
35	j	64	MET
35	j	65	ARG
35	j	68	LYS
35	j	73	ARG
35	j	79	ARG
36	k	18	LYS
36	k	31	ASN
36	k	69	LEU
36	k	70	LYS
37	l	3	SER
37	l	8	ARG
37	l	11	ARG
37	l	16	LYS
37	l	23	ILE
37	l	36	ARG
37	l	46	ARG
38	m	79	GLU
38	m	83	ARG
38	m	84	GLN
38	m	85	LEU
38	m	88	LYS
38	m	96	CYS
38	m	97	ARG

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Mol	Chain	Res	Type
38	m	98	LYS
38	m	106	ARG
38	m	111	ARG
38	m	118	THR
38	m	119	ASN
39	n	2	ARG
39	n	9	ARG
40	o	17	LYS
40	o	28	LYS
40	o	33	LEU
40	o	36	GLN
40	o	43	ARG
40	o	51	GLN
40	o	55	ILE
40	o	61	LYS
40	o	69	ARG
40	o	77	CYS
40	o	82	MET
40	o	89	LYS
40	o	93	LEU
40	o	102	GLN
41	p	13	LYS
41	p	24	LYS
41	p	38	THR
41	p	49	ARG
41	p	52	VAL
41	p	54	ILE
41	p	59	SER
41	p	60	CYS
41	p	70	THR
41	p	74	THR
41	p	84	ARG
42	r	14	SER
42	r	18	ILE
42	r	26	SER
42	r	28	GLU
42	r	32	LEU
42	r	36	ASN
42	r	39	ARG
42	r	48	THR
42	r	60	VAL
42	r	67	ARG

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Mol	Chain	Res	Type
42	r	83	ASN
42	r	105	ASP
42	r	107	ARG
42	r	108	MET
42	r	115	SER
42	r	118	LEU
43	s	38	LYS
43	s	44	ARG
43	s	57	LYS
43	s	62	ARG
43	s	68	HIS
43	s	94	ASP
43	s	146	LYS
43	s	149	ARG
43	s	174	LEU
43	s	185	PHE
43	s	191	GLN
44	t	1	MET
44	t	14	TYR
44	t	16	ARG
44	t	40	LYS
44	t	95	GLN
44	t	100	HIS
44	t	104	ILE
44	t	106	PHE
44	t	114	ARG
44	t	123	ARG
45	1	60	THR
45	1	63	SER
52	AA	2	SER
52	AA	8	LEU
52	AA	9	GLN
52	AA	14	ASP
52	AA	23	THR
52	AA	44	ASP
52	AA	46	ILE
52	AA	53	ARG
52	AA	56	GLU
52	AA	58	LEU
52	AA	60	LEU
52	AA	69	GLU
52	AA	75	SER

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Mol	Chain	Res	Type
52	AA	84	GLN
52	AA	85	ARG
52	AA	89	LYS
52	AA	109	THR
52	AA	111	GLN
52	AA	113	GLN
52	AA	126	ASP
52	AA	131	HIS
52	AA	134	LEU
52	AA	138	SER
52	AA	141	ASN
52	AA	142	LEU
52	AA	147	LEU
52	AA	148	CYS
52	AA	155	ARG
52	AA	158	ASP
52	AA	159	ILE
52	AA	192	GLU
52	AA	200	ASP
53	BB	27	LYS
53	BB	38	MET
53	BB	43	ASN
53	BB	55	THR
53	BB	82	ARG
53	BB	89	GLU
53	BB	99	ASN
53	BB	105	LEU
53	BB	107	ARG
53	BB	112	SER
53	BB	134	LEU
53	BB	136	ARG
53	BB	137	LEU
53	BB	142	PHE
53	BB	149	GLN
53	BB	150	ILE
53	BB	151	ARG
53	BB	157	GLN
53	BB	169	MET
53	BB	173	THR
53	BB	175	GLU
53	BB	202	GLN
53	BB	206	PRO

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Mol	Chain	Res	Type
53	BB	213	ARG
53	BB	225	LEU
53	BB	228	LEU
54	CC	78	LEU
54	CC	96	PHE
54	CC	114	LYS
54	CC	120	GLN
54	CC	121	ARG
54	CC	134	ASN
54	CC	137	VAL
54	CC	162	ILE
54	CC	167	ARG
54	CC	176	LYS
54	CC	197	PRO
54	CC	202	THR
54	CC	208	PRO
54	CC	210	PRO
54	CC	227	TRP
54	CC	230	THR
54	CC	233	LEU
54	CC	248	TYR
54	CC	249	SER
54	CC	271	ASP
54	CC	275	LYS
55	DD	9	ARG
55	DD	14	ASP
55	DD	18	LYS
55	DD	22	ASN
55	DD	25	LEU
55	DD	28	GLU
55	DD	31	GLU
55	DD	32	ASP
55	DD	40	ARG
55	DD	42	THR
55	DD	55	THR
55	DD	59	LEU
55	DD	64	ARG
55	DD	72	VAL
55	DD	76	ARG
55	DD	94	ARG
55	DD	107	TYR
55	DD	117	ARG

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Mol	Chain	Res	Type
55	DD	119	CYS
55	DD	120	TYR
55	DD	127	MET
55	DD	134	CYS
55	DD	135	GLU
55	DD	142	LEU
55	DD	148	LYS
55	DD	149	SER
55	DD	154	ASP
55	DD	156	LEU
55	DD	167	TYR
55	DD	170	THR
55	DD	176	LEU
55	DD	190	LEU
55	DD	198	ILE
55	DD	204	LEU
55	DD	206	ASP
55	DD	212	GLU
55	DD	221	THR
55	DD	225	GLU
55	DD	226	GLN
56	EE	3	ARG
56	EE	12	VAL
56	EE	17	HIS
56	EE	21	ASP
56	EE	24	THR
56	EE	32	SER
56	EE	38	LEU
56	EE	42	LEU
56	EE	48	LEU
56	EE	49	ARG
56	EE	65	CYS
56	EE	66	MET
56	EE	67	GLN
56	EE	75	LYS
56	EE	95	THR
56	EE	106	LYS
56	EE	130	PHE
56	EE	145	ARG
56	EE	148	ARG
56	EE	153	LEU
56	EE	155	LYS

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Mol	Chain	Res	Type
56	EE	160	ILE
56	EE	165	GLU
56	EE	171	ASP
56	EE	174	LYS
56	EE	180	LEU
56	EE	181	CYS
56	EE	200	ARG
56	EE	205	PHE
56	EE	207	VAL
56	EE	220	THR
56	EE	227	VAL
56	EE	240	ARG
56	EE	245	ARG
56	EE	259	LYS
57	FF	29	GLN
57	FF	35	LEU
57	FF	37	ASP
57	FF	63	LYS
57	FF	72	LEU
57	FF	79	HIS
57	FF	81	ARG
57	FF	83	ASN
57	FF	88	MET
57	FF	89	THR
57	FF	95	HIS
57	FF	106	GLU
57	FF	125	SER
57	FF	126	THR
57	FF	127	ARG
57	FF	130	ARG
57	FF	140	ASP
57	FF	141	VAL
57	FF	152	TRP
57	FF	156	THR
57	FF	164	ARG
57	FF	169	ILE
57	FF	173	LEU
57	FF	187	SER
57	FF	190	ILE
57	FF	194	ASP
57	FF	197	GLU
57	FF	203	ASN

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Mol	Chain	Res	Type
57	FF	204	ARG
58	GG	19	ASP
58	GG	26	THR
58	GG	41	LEU
58	GG	56	ASN
58	GG	63	MET
58	GG	64	LYS
58	GG	68	LEU
58	GG	76	LEU
58	GG	88	ARG
58	GG	98	ARG
58	GG	100	CYS
58	GG	116	LYS
58	GG	120	ASP
58	GG	121	ILE
58	GG	132	ARG
58	GG	137	ARG
58	GG	143	LYS
58	GG	151	ASP
58	GG	164	LYS
58	GG	172	LYS
58	GG	178	ARG
58	GG	181	THR
58	GG	183	ARG
58	GG	190	ARG
58	GG	191	ARG
58	GG	196	LYS
58	GG	198	ARG
58	GG	205	GLU
58	GG	208	GLU
58	GG	213	LEU
58	GG	224	ARG
58	GG	227	GLN
58	GG	235	SER
59	HH	34	SER
59	HH	35	ASP
59	HH	36	LEU
59	HH	40	LEU
59	HH	72	PHE
59	HH	82	GLU
59	HH	83	LEU
59	HH	106	ARG

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Mol	Chain	Res	Type
59	HH	119	SER
59	HH	120	ARG
59	HH	121	THR
59	HH	145	ARG
59	HH	162	GLN
59	HH	188	GLU
60	II	6	ASP
60	II	7	ASN
60	II	8	TRP
60	II	10	LYS
60	II	12	ARG
60	II	26	LYS
60	II	29	LEU
60	II	49	ARG
60	II	56	ARG
60	II	60	LEU
60	II	70	GLU
60	II	74	ARG
60	II	75	LYS
60	II	79	ILE
60	II	82	VAL
60	II	88	ASN
60	II	110	ARG
60	II	123	ARG
60	II	130	THR
60	II	133	GLU
60	II	140	LYS
60	II	165	GLN
60	II	168	GLN
60	II	172	LEU
60	II	196	GLU
60	II	203	LYS
60	II	205	ARG
60	II	206	LYS
61	JJ	3	VAL
61	JJ	24	ARG
61	JJ	29	LEU
61	JJ	45	ARG
61	JJ	50	LEU
61	JJ	61	LEU
61	JJ	65	GLU
61	JJ	67	ASP

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Mol	Chain	Res	Type
61	JJ	69	ARG
61	JJ	80	ARG
61	JJ	101	LYS
61	JJ	109	ARG
61	JJ	110	LEU
61	JJ	111	GLN
61	JJ	116	LYS
61	JJ	127	ARG
61	JJ	131	ARG
61	JJ	133	ARG
61	JJ	135	ILE
61	JJ	138	ARG
61	JJ	152	ASP
61	JJ	162	ARG
62	KK	1	MET
62	KK	2	LEU
62	KK	13	GLU
62	KK	42	ASN
62	KK	43	LEU
62	KK	50	GLN
62	KK	60	GLU
62	KK	65	ARG
62	KK	66	HIS
62	KK	70	TYR
62	KK	72	THR
62	KK	81	ASP
62	KK	89	ILE
63	LL	5	GLN
63	LL	8	ARG
63	LL	16	ILE
63	LL	18	GLN
63	LL	22	ARG
63	LL	31	GLU
63	LL	38	LYS
63	LL	40	ILE
63	LL	56	ILE
63	LL	65	ASN
63	LL	69	ARG
63	LL	74	SER
63	LL	82	MET
63	LL	85	THR
63	LL	91	ASP

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Mol	Chain	Res	Type
63	LL	106	HIS
63	LL	121	GLN
63	LL	122	ILE
63	LL	134	LEU
63	LL	147	LYS
64	MM	12	MET
64	MM	27	ILE
64	MM	31	LEU
64	MM	33	ARG
64	MM	35	ILE
64	MM	45	ARG
64	MM	48	HIS
64	MM	60	MET
64	MM	74	ILE
64	MM	77	ILE
64	MM	78	LYS
64	MM	88	TRP
64	MM	96	ARG
64	MM	101	ARG
64	MM	114	TYR
64	MM	127	TYR
65	NN	12	SER
65	NN	16	LEU
65	NN	18	TYR
65	NN	25	TRP
65	NN	27	LYS
65	NN	52	VAL
65	NN	55	ARG
65	NN	57	SER
65	NN	60	VAL
65	NN	64	ARG
65	NN	70	LYS
65	NN	75	LEU
65	NN	76	LYS
65	NN	78	LYS
65	NN	80	LEU
65	NN	84	LEU
65	NN	87	ASP
65	NN	89	TYR
65	NN	94	LYS
65	NN	101	HIS
65	NN	102	LEU

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Mol	Chain	Res	Type
65	NN	107	LYS
65	NN	114	ARG
65	NN	120	SER
65	NN	133	ARG
65	NN	149	LEU
66	OO	31	CYS
66	OO	34	PHE
66	OO	39	ASP
66	OO	46	ASP
66	OO	50	LYS
66	OO	51	GLU
66	OO	61	LYS
66	OO	65	ASP
66	OO	67	ASP
66	OO	69	SER
66	OO	70	SER
66	OO	80	ASP
66	OO	100	THR
66	OO	104	ARG
66	OO	106	LYS
66	OO	116	LEU
66	OO	121	ARG
66	OO	122	SER
66	OO	128	ARG
66	OO	138	ASP
66	OO	146	ARG
66	OO	151	LEU
67	PP	5	GLU
67	PP	6	GLN
67	PP	7	LYS
67	PP	10	ARG
67	PP	21	ASP
67	PP	28	MET
67	PP	29	SER
67	PP	37	TYR
67	PP	40	ARG
67	PP	43	ARG
67	PP	44	ARG
67	PP	47	ARG
67	PP	50	ARG
67	PP	52	LYS
67	PP	82	ASP

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Mol	Chain	Res	Type
67	PP	100	LYS
67	PP	101	THR
67	PP	104	GLN
67	PP	121	ILE
68	QQ	25	CYS
68	QQ	26	LYS
68	QQ	27	ARG
68	QQ	32	ILE
68	QQ	41	MET
68	QQ	47	LEU
68	QQ	69	ARG
68	QQ	72	VAL
68	QQ	73	LYS
68	QQ	84	ILE
68	QQ	85	ARG
68	QQ	90	LYS
68	QQ	119	LEU
68	QQ	120	LEU
68	QQ	126	ARG
68	QQ	140	ARG
68	QQ	146	ARG
69	RR	3	ARG
69	RR	6	THR
69	RR	14	ARG
69	RR	31	ASN
69	RR	49	LYS
69	RR	55	THR
69	RR	58	MET
69	RR	77	GLU
69	RR	78	ARG
69	RR	82	ASP
69	RR	88	VAL
69	RR	91	LEU
69	RR	98	VAL
69	RR	99	ASP
69	RR	105	MET
69	RR	109	LEU
69	RR	118	GLN
69	RR	121	GLN
69	RR	123	THR
69	RR	126	MET
69	RR	127	ASN

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Mol	Chain	Res	Type
70	SS	8	LYS
70	SS	10	GLN
70	SS	13	LEU
70	SS	14	ARG
70	SS	17	ASN
70	SS	21	ASP
70	SS	34	LYS
70	SS	52	LEU
70	SS	63	GLU
70	SS	72	GLN
70	SS	78	LYS
70	SS	82	TRP
70	SS	86	ARG
70	SS	96	SER
70	SS	118	ARG
70	SS	131	VAL
70	SS	134	GLN
70	SS	136	THR
71	TT	8	ASP
71	TT	10	ASN
71	TT	16	ARG
71	TT	28	LEU
71	TT	41	LYS
71	TT	56	ARG
71	TT	62	ARG
71	TT	67	ARG
71	TT	74	SER
71	TT	84	ARG
71	TT	87	VAL
71	TT	93	SER
71	TT	102	ARG
71	TT	121	ARG
71	TT	123	LEU
71	TT	124	THR
71	TT	128	GLN
71	TT	131	LEU
72	UU	28	ASN
72	UU	31	SER
72	UU	39	LEU
72	UU	47	ASN
72	UU	48	LEU
72	UU	49	LYS

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Mol	Chain	Res	Type
72	UU	56	MET
72	UU	62	ARG
72	UU	68	THR
72	UU	76	THR
72	UU	82	MET
72	UU	88	LEU
72	UU	93	SER
72	UU	111	GLU
72	UU	118	ASP
73	VV	1	MET
73	VV	9	VAL
73	VV	11	LEU
73	VV	21	ASN
73	VV	40	ASP
73	VV	45	ARG
73	VV	51	LYS
73	VV	62	MET
73	VV	66	ASP
73	VV	69	ILE
73	VV	74	LYS
74	WW	3	ARG
74	WW	14	ILE
74	WW	22	LYS
74	WW	23	ARG
74	WW	31	SER
74	WW	36	ARG
74	WW	51	GLU
74	WW	52	ILE
74	WW	56	HIS
74	WW	80	ASP
74	WW	98	GLN
74	WW	103	VAL
74	WW	104	LEU
74	WW	117	ARG
75	XX	3	LYS
75	XX	5	ARG
75	XX	12	LYS
75	XX	14	ARG
75	XX	19	ASP
75	XX	29	LYS
75	XX	37	LYS
75	XX	45	SER

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Mol	Chain	Res	Type
75	XX	61	GLN
75	XX	64	SER
75	XX	67	ARG
75	XX	68	LYS
75	XX	70	VAL
75	XX	90	CYS
75	XX	98	ASP
75	XX	99	GLU
75	XX	105	PHE
75	XX	115	ILE
75	XX	119	ARG
75	XX	128	VAL
75	XX	129	SER
76	YY	6	THR
76	YY	8	ARG
76	YY	14	THR
76	YY	16	ARG
76	YY	17	LEU
76	YY	20	ARG
76	YY	22	GLN
76	YY	32	LYS
76	YY	40	ILE
76	YY	46	LYS
76	YY	61	ARG
76	YY	69	THR
76	YY	72	PHE
76	YY	85	ASN
76	YY	98	GLU
76	YY	99	LYS
76	YY	100	LYS
76	YY	107	ARG
76	YY	110	ARG
76	YY	111	LYS
76	YY	112	ASN
77	ZZ	44	LEU
77	ZZ	76	ARG
77	ZZ	79	ILE
77	ZZ	83	LEU
77	ZZ	89	GLN
77	ZZ	92	LEU
77	ZZ	110	THR
77	ZZ	114	LYS

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Mol	Chain	Res	Type
78	aa	2	THR
78	aa	10	ARG
78	aa	19	GLN
78	aa	21	ILE
78	aa	26	CYS
78	aa	38	LYS
78	aa	41	ILE
78	aa	51	ARG
78	aa	52	ASP
78	aa	74	CYS
78	aa	95	ARG
79	bb	17	ARG
79	bb	27	SER
79	bb	36	LYS
79	bb	37	CYS
79	bb	40	CYS
79	bb	44	THR
79	bb	72	ARG
79	bb	81	ARG
79	bb	83	GLN
79	bb	84	HIS
80	cc	20	LYS
80	cc	24	GLN
80	cc	26	GLN
80	cc	28	THR
80	cc	31	ARG
80	cc	34	PHE
80	cc	44	ARG
80	cc	51	ARG
80	cc	56	LEU
80	cc	58	LEU
80	cc	60	GLU
80	cc	61	SER
80	cc	67	ARG
80	cc	68	LEU
81	dd	4	GLN
81	dd	5	GLN
81	dd	12	ARG
81	dd	14	PHE
81	dd	16	GLN
81	dd	26	ASN
81	dd	27	ARG

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Mol	Chain	Res	Type
81	dd	32	ARG
81	dd	39	CYS
81	dd	49	ASP
81	dd	56	ASP
82	ee	18	LYS
82	ee	24	LYS
82	ee	26	LYS
82	ee	40	ARG
82	ee	52	LYS
82	ee	58	ASN
83	ff	81	THR
84	gg	17	TRP
84	gg	36	ARG
84	gg	44	LYS
84	gg	47	ARG
84	gg	49	GLU
84	gg	59	LEU
84	gg	64	HIS
84	gg	79	LEU
84	gg	93	THR
84	gg	100	ARG
84	gg	115	SER
84	gg	119	GLN
84	gg	131	LEU
84	gg	143	GLN
84	gg	165	ILE
84	gg	172	LYS
84	gg	186	THR
84	gg	230	LEU
84	gg	261	LEU
84	gg	268	ASP
84	gg	289	LEU
84	gg	294	ASP
84	gg	298	LEU
84	gg	306	LEU
86	ii	44	GLN
86	ii	45	ILE
86	ii	60	SER
86	ii	61	ASN
86	ii	63	LYS
86	ii	65	ARG
86	ii	86	ASN

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Mol	Chain	Res	Type
86	ii	103	GLU
86	ii	117	PHE
86	ii	120	ILE
86	ii	124	LEU
86	ii	152	ASP
86	ii	160	THR
86	ii	179	LYS
86	ii	180	HIS
86	ii	182	ARG
86	ii	186	SER
86	ii	188	LEU
86	ii	198	ARG
86	ii	211	GLN
86	ii	212	LEU
86	ii	214	ILE
86	ii	232	PHE
86	ii	241	MET
86	ii	246	LEU
86	ii	264	PHE
86	ii	265	ASN
86	ii	275	LEU
86	ii	292	ASP
86	ii	297	ASP
86	ii	300	LYS
86	ii	327	ASP
86	ii	339	GLU
86	ii	340	GLU
86	ii	361	GLU
86	ii	368	LEU
86	ii	375	LEU
86	ii	381	ASN
86	ii	401	GLN
87	jj	51	SER
87	jj	67	PHE
87	jj	75	LEU
87	jj	78	ASN
87	jj	111	THR
87	jj	131	LEU
87	jj	153	GLN
87	jj	154	ASN
87	jj	161	GLU
87	jj	221	GLU

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Mol	Chain	Res	Type
87	jj	222	LEU
87	jj	236	ASP
87	jj	248	ASP
87	jj	250	LYS
87	jj	253	LEU
87	jj	271	VAL
87	jj	282	LEU
87	jj	284	ASP
87	jj	289	LEU
87	jj	314	ASP
87	jj	320	GLU
87	jj	399	ASP
87	jj	409	VAL
87	jj	411	TYR
87	jj	427	LEU
87	jj	455	ILE
87	jj	472	LEU
87	jj	549	GLN
87	jj	567	ARG
87	jj	574	ARG
87	jj	577	ILE
87	jj	584	LYS

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

Mol	Chain	Res	Type
5	E	217	GLN
11	L	175	ASN

### 5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
46	2	74/76 (97%)	24 (32%)	0
47	3	72/75 (96%)	28 (38%)	0
48	5	3643/3662 (99%)	1236 (33%)	0
49	7	119/120 (99%)	24 (20%)	0
50	8	155/156 (99%)	49 (31%)	0
51	9	1709/1719 (99%)	614 (35%)	0
85	hh	11/12 (91%)	6 (54%)	0
All	All	5783/5820 (99%)	1981 (34%)	0

All (1981) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
46	2	7	G
46	2	8	U
46	2	9	A
46	2	13	U
46	2	14	A
46	2	16	C
46	2	19	G
46	2	20	U
46	2	20(A)	U
46	2	21	A
46	2	31	C
46	2	35	A
46	2	42	A
46	2	46	G
46	2	47	U
46	2	49	C
46	2	58	A
46	2	60	A
46	2	61	C
46	2	67	G
46	2	72	C
46	2	73	A
46	2	75	C
46	2	76	A
47	3	9	A
47	3	13	C
47	3	21	A
47	3	26	A
47	3	29	A
47	3	30	G
47	3	31	A
47	3	34	U
47	3	35	U
47	3	39	U
47	3	41	U
47	3	47	U
47	3	48	C
47	3	49	C
47	3	58	A
47	3	60	U
47	3	61	C
47	3	63	C

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Mol	Chain	Res	Type
47	3	65	G
47	3	67	U
47	3	68	C
47	3	69	G
47	3	70	G
47	3	72	C
47	3	73	G
47	3	74	C
47	3	75	C
47	3	76	A
48	5	2	G
48	5	8	U
48	5	12	A
48	5	13	U
48	5	17	A
48	5	20	U
48	5	21	G
48	5	25	A
48	5	30	C
48	5	39	A
48	5	42	A
48	5	43	U
48	5	44	A
48	5	48	G
48	5	49	U
48	5	56	A
48	5	58	G
48	5	59	A
48	5	64	A
48	5	65	A
48	5	71	C
48	5	72	C
48	5	73	A
48	5	74	G
48	5	75	G
48	5	91	G
48	5	93	G
48	5	94	A
48	5	96	U
48	5	104	G
48	5	109	G
48	5	110	C

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Mol	Chain	Res	Type
48	5	116	G
48	5	118	C
48	5	119	G
48	5	120	A
48	5	122	U
48	5	125	C
48	5	126	C
48	5	128	C
48	5	134	G
48	5	135	G
48	5	136	C
48	5	137	G
48	5	143	C
48	5	144	G
48	5	145	G
48	5	146	G
48	5	152	U
48	5	157	U
48	5	158	A
48	5	159	C
48	5	160	G
48	5	161	G
48	5	164	G
48	5	166	C
48	5	170	C
48	5	171	U
48	5	172	C
48	5	173	C
48	5	174	C
48	5	175	C
48	5	177	G
48	5	183	C
48	5	184	U
48	5	185	C
48	5	186	G
48	5	187	U
48	5	188	G
48	5	189	G
48	5	200	U
48	5	201	C
48	5	202	C
48	5	203	U

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Mol	Chain	Res	Type
48	5	205	C
48	5	209	U
48	5	216	C
48	5	217	C
48	5	218	A
48	5	219	G
48	5	220	C
48	5	221	C
48	5	224	U
48	5	226	G
48	5	227	A
48	5	233	U
48	5	234	G
48	5	235	A
48	5	246	G
48	5	253	G
48	5	255	C
48	5	257	C
48	5	265	C
48	5	266	C
48	5	267	G
48	5	275	C
48	5	276	C
48	5	277	G
48	5	278	G
48	5	280	G
48	5	292	G
48	5	295	A
48	5	296	A
48	5	300	A
48	5	306	A
48	5	309	C
48	5	310	G
48	5	315	G
48	5	316	U
48	5	322	C
48	5	325	U
48	5	328	A
48	5	330	G
48	5	331	G
48	5	334	A
48	5	336	A

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Mol	Chain	Res	Type
48	5	340	C
48	5	345	C
48	5	349	A
48	5	350	C
48	5	357	U
48	5	361	C
48	5	363	A
48	5	365	U
48	5	379	G
48	5	385	A
48	5	386	A
48	5	387	G
48	5	399	G
48	5	406	C
48	5	407	A
48	5	409	G
48	5	410	A
48	5	412	G
48	5	413	G
48	5	422	C
48	5	423	G
48	5	429	A
48	5	431	G
48	5	432	U
48	5	440	U
48	5	446	C
48	5	449	C
48	5	451	C
48	5	452	A
48	5	453	G
48	5	454	U
48	5	455	C
48	5	458	C
48	5	465	G
48	5	467	U
48	5	468	U
48	5	469	C
48	5	470	A
48	5	473	C
48	5	485	C
48	5	486	C
48	5	487	G

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Mol	Chain	Res	Type
48	5	491	G
48	5	498	C
48	5	499	G
48	5	500	G
48	5	502	C
48	5	503	C
48	5	504	G
48	5	506	C
48	5	509	A
48	5	510	U
48	5	513	U
48	5	514	U
48	5	515	C
48	5	519	C
48	5	643	C
48	5	647	G
48	5	649	A
48	5	655	C
48	5	663	G
48	5	664	G
48	5	665	C
48	5	666	G
48	5	667	A
48	5	668	C
48	5	682	G
48	5	684	G
48	5	685	C
48	5	686	A
48	5	689	U
48	5	690	C
48	5	694	C
48	5	695	G
48	5	696	C
48	5	697	G
48	5	701	G
48	5	703	G
48	5	707	C
48	5	716	C
48	5	718	C
48	5	722	G
48	5	728	U
48	5	729	G

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Mol	Chain	Res	Type
48	5	730	G
48	5	737	C
48	5	742	G
48	5	744	G
48	5	745	G
48	5	746	A
48	5	747	A
48	5	748	G
48	5	749	G
48	5	911	U
48	5	914	U
48	5	915	A
48	5	917	A
48	5	918	G
48	5	919	C
48	5	920	C
48	5	925	C
48	5	927	G
48	5	928	C
48	5	929	A
48	5	930	G
48	5	931	C
48	5	932	A
48	5	933	G
48	5	934	C
48	5	935	A
48	5	936	C
48	5	937	U
48	5	938	C
48	5	939	G
48	5	940	C
48	5	942	G
48	5	944	A
48	5	945	U
48	5	946	C
48	5	957	G
48	5	958	G
48	5	960	A
48	5	961	G
48	5	962	C
48	5	963	G
48	5	964	A

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Mol	Chain	Res	Type
48	5	965	G
48	5	966	A
48	5	967	C
48	5	968	C
48	5	969	C
48	5	970	G
48	5	971	U
48	5	972	C
48	5	973	G
48	5	976	G
48	5	977	C
48	5	978	G
48	5	979	C
48	5	982	U
48	5	983	C
48	5	984	C
48	5	989	U
48	5	990	C
48	5	992	C
48	5	995	C
48	5	1051	G
48	5	1070	G
48	5	1072	C
48	5	1075	G
48	5	1076	C
48	5	1083	U
48	5	1097	C
48	5	1173	G
48	5	1175	A
48	5	1176	C
48	5	1177	U
48	5	1181	C
48	5	1182	C
48	5	1183	C
48	5	1193	C
48	5	1204	C
48	5	1208	G
48	5	1209	U
48	5	1211	G
48	5	1212	G
48	5	1214	C
48	5	1215	C

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Mol	Chain	Res	Type
48	5	1219	G
48	5	1221	G
48	5	1222	A
48	5	1233	G
48	5	1234	G
48	5	1235	G
48	5	1236	C
48	5	1237	C
48	5	1238	A
48	5	1239	C
48	5	1240	G
48	5	1241	C
48	5	1242	G
48	5	1243	C
48	5	1244	G
48	5	1245	C
48	5	1255	A
48	5	1256	G
48	5	1259	G
48	5	1267	C
48	5	1268	G
48	5	1269	G
48	5	1270	A
48	5	1272	C
48	5	1273	G
48	5	1274	A
48	5	1275	G
48	5	1276	C
48	5	1278	C
48	5	1279	A
48	5	1280	C
48	5	1285	U
48	5	1287	G
48	5	1288	G
48	5	1289	C
48	5	1293	G
48	5	1294	A
48	5	1295	C
48	5	1296	G
48	5	1297	U
48	5	1301	C
48	5	1303	A

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Mol	Chain	Res	Type
48	5	1304	C
48	5	1313	C
48	5	1314	C
48	5	1316	G
48	5	1320	U
48	5	1326	A
48	5	1329	G
48	5	1330	A
48	5	1337	A
48	5	1354	A
48	5	1358	G
48	5	1359	G
48	5	1364	U
48	5	1365	C
48	5	1366	G
48	5	1367	C
48	5	1369	C
48	5	1370	G
48	5	1371	A
48	5	1372	A
48	5	1376	C
48	5	1377	G
48	5	1378	C
48	5	1379	C
48	5	1380	G
48	5	1381	U
48	5	1387	A
48	5	1394	G
48	5	1397	A
48	5	1398	A
48	5	1399	G
48	5	1407	C
48	5	1408	G
48	5	1409	C
48	5	1410	U
48	5	1411	C
48	5	1413	C
48	5	1414	C
48	5	1416	G
48	5	1418	C
48	5	1420	A
48	5	1421	G

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Mol	Chain	Res	Type
48	5	1426	G
48	5	1435	G
48	5	1436	C
48	5	1439	C
48	5	1440	U
48	5	1441	C
48	5	1442	C
48	5	1445	U
48	5	1446	C
48	5	1448	G
48	5	1449	C
48	5	1455	G
48	5	1456	C
48	5	1457	G
48	5	1465	G
48	5	1467	C
48	5	1469	C
48	5	1475	G
48	5	1477	C
48	5	1478	C
48	5	1482	G
48	5	1483	C
48	5	1484	G
48	5	1486	C
48	5	1497	A
48	5	1498	G
48	5	1502	G
48	5	1503	A
48	5	1504	G
48	5	1514	U
48	5	1516	G
48	5	1523	A
48	5	1524	A
48	5	1531	U
48	5	1533	A
48	5	1534	A
48	5	1538	U
48	5	1547	A
48	5	1554	A
48	5	1563	A
48	5	1564	A
48	5	1566	C

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Mol	Chain	Res	Type
48	5	1575	A
48	5	1578	U
48	5	1583	A
48	5	1586	G
48	5	1591	U
48	5	1596	U
48	5	1598	C
48	5	1601	A
48	5	1602	U
48	5	1612	G
48	5	1613	A
48	5	1616	U
48	5	1624	G
48	5	1625	G
48	5	1631	A
48	5	1632	A
48	5	1633	G
48	5	1634	A
48	5	1638	A
48	5	1640	C
48	5	1641	G
48	5	1654	G
48	5	1656	U
48	5	1658	G
48	5	1661	C
48	5	1670	G
48	5	1671	U
48	5	1676	C
48	5	1677	U
48	5	1679	A
48	5	1680	G
48	5	1692	C
48	5	1696	C
48	5	1697	G
48	5	1698	C
48	5	1699	A
48	5	1719	A
48	5	1720	C
48	5	1721	G
48	5	1723	A
48	5	1724	G
48	5	1725	U

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Mol	Chain	Res	Type
48	5	1733	G
48	5	1734	G
48	5	1741	G
48	5	1742	A
48	5	1745	G
48	5	1750	G
48	5	1753	G
48	5	1754	U
48	5	1755	C
48	5	1756	U
48	5	1757	U
48	5	1758	G
48	5	1760	G
48	5	1761	G
48	5	1764	G
48	5	1767	A
48	5	1768	C
48	5	1772	C
48	5	1776	A
48	5	1777	C
48	5	1781	U
48	5	1785	C
48	5	1787	A
48	5	1800	U
48	5	1803	G
48	5	1804	A
48	5	1805	A
48	5	1812	C
48	5	1818	G
48	5	1819	G
48	5	1820	C
48	5	1821	G
48	5	1822	U
48	5	1827	C
48	5	1828	C
48	5	1830	G
48	5	1833	G
48	5	1834	U
48	5	1835	G
48	5	1836	G
48	5	1840	G
48	5	1848	C

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Mol	Chain	Res	Type
48	5	1855	G
48	5	1867	A
48	5	1869	G
48	5	1873	A
48	5	1882	U
48	5	1885	G
48	5	1889	U
48	5	1891	A
48	5	1894	C
48	5	1897	A
48	5	1898	C
48	5	1899	G
48	5	1900	C
48	5	1910	G
48	5	1917	A
48	5	1918	U
48	5	1919	G
48	5	1920	C
48	5	1921	C
48	5	1922	G
48	5	1923	A
48	5	1929	A
48	5	1931	C
48	5	1939	A
48	5	1947	U
48	5	1948	G
48	5	1955	G
48	5	1956	A
48	5	1957	U
48	5	1958	A
48	5	1959	U
48	5	1960	A
48	5	1961	G
48	5	1962	A
48	5	1963	C
48	5	1964	A
48	5	1969	G
48	5	1972	G
48	5	1975	G
48	5	1976	G
48	5	1980	U
48	5	1981	G

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Mol	Chain	Res	Type
48	5	1983	A
48	5	1984	A
48	5	1985	G
48	5	1986	U
48	5	1987	C
48	5	1988	G
48	5	1990	A
48	5	1991	A
48	5	1993	C
48	5	1997	U
48	5	1998	A
48	5	2001	G
48	5	2002	A
48	5	2003	G
48	5	2004	U
48	5	2005	G
48	5	2008	U
48	5	2011	C
48	5	2018	C
48	5	2019	C
48	5	2020	U
48	5	2023	C
48	5	2024	G
48	5	2025	A
48	5	2026	A
48	5	2028	C
48	5	2040	A
48	5	2041	A
48	5	2047	A
48	5	2048	U
48	5	2052	G
48	5	2055	G
48	5	2056	G
48	5	2058	G
48	5	2062	C
48	5	2063	G
48	5	2064	G
48	5	2068	C
48	5	2069	A
48	5	2070	U
48	5	2071	A
48	5	2072	C

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Mol	Chain	Res	Type
48	5	2079	G
48	5	2084	C
48	5	2087	C
48	5	2089	G
48	5	2090	U
48	5	2091	C
48	5	2092	G
48	5	2093	A
48	5	2094	G
48	5	2095	A
48	5	2097	U
48	5	2100	A
48	5	2101	C
48	5	2103	G
48	5	2105	A
48	5	2107	C
48	5	2108	G
48	5	2109	G
48	5	2110	C
48	5	2111	G
48	5	2112	G
48	5	2113	G
48	5	2114	G
48	5	2115	G
48	5	2116	C
48	5	2117	G
48	5	2118	G
48	5	2119	C
48	5	2120	G
48	5	2122	G
48	5	2123	C
48	5	2124	G
48	5	2125	C
48	5	2126	G
48	5	2127	C
48	5	2129	C
48	5	2130	G
48	5	2131	C
48	5	2244	C
48	5	2247	C
48	5	2248	C
48	5	2250	C

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Mol	Chain	Res	Type
48	5	2251	G
48	5	2252	G
48	5	2253	A
48	5	2254	G
48	5	2255	C
48	5	2256	C
48	5	2257	C
48	5	2258	C
48	5	2259	G
48	5	2260	C
48	5	2261	G
48	5	2262	G
48	5	2263	A
48	5	2264	C
48	5	2265	G
48	5	2266	C
48	5	2267	U
48	5	2268	A
48	5	2269	C
48	5	2270	G
48	5	2275	G
48	5	2277	C
48	5	2279	A
48	5	2288	G
48	5	2289	C
48	5	2295	C
48	5	2300	A
48	5	2301	G
48	5	2313	A
48	5	2314	G
48	5	2332	A
48	5	2333	G
48	5	2335	C
48	5	2344	U
48	5	2348	G
48	5	2351	C
48	5	2360	A
48	5	2364	G
48	5	2374	A
48	5	2391	G
48	5	2395	A
48	5	2396	A

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Mol	Chain	Res	Type
48	5	2397	G
48	5	2399	G
48	5	2401	A
48	5	2416	G
48	5	2417	A
48	5	2421	G
48	5	2422	C
48	5	2424	G
48	5	2425	U
48	5	2428	A
48	5	2433	G
48	5	2437	C
48	5	2440	U
48	5	2441	C
48	5	2443	G
48	5	2447	U
48	5	2450	G
48	5	2467	U
48	5	2469	C
48	5	2471	G
48	5	2473	A
48	5	2474	G
48	5	2475	G
48	5	2485	U
48	5	2488	C
48	5	2489	C
48	5	2490	U
48	5	2491	C
48	5	2493	G
48	5	2495	U
48	5	2503	G
48	5	2504	C
48	5	2505	C
48	5	2506	G
48	5	2507	A
48	5	2511	A
48	5	2512	A
48	5	2513	A
48	5	2514	G
48	5	2530	U
48	5	2537	A
48	5	2544	G

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Mol	Chain	Res	Type
48	5	2546	G
48	5	2547	G
48	5	2549	G
48	5	2553	A
48	5	2554	U
48	5	2555	G
48	5	2557	G
48	5	2558	C
48	5	2564	G
48	5	2566	G
48	5	2572	C
48	5	2575	U
48	5	2576	G
48	5	2583	C
48	5	2586	G
48	5	2587	A
48	5	2588	C
48	5	2589	C
48	5	2601	A
48	5	2602	G
48	5	2611	A
48	5	2612	G
48	5	2620	G
48	5	2622	G
48	5	2623	A
48	5	2624	G
48	5	2627	C
48	5	2638	G
48	5	2639	U
48	5	2640	G
48	5	2649	G
48	5	2658	G
48	5	2661	U
48	5	2662	G
48	5	2669	C
48	5	2670	C
48	5	2676	A
48	5	2686	G
48	5	2687	U
48	5	2688	G
48	5	2689	C
48	5	2694	G

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Mol	Chain	Res	Type
48	5	2695	A
48	5	2696	A
48	5	2697	A
48	5	2708	U
48	5	2710	C
48	5	2711	G
48	5	2712	G
48	5	2714	G
48	5	2716	C
48	5	2721	G
48	5	2723	U
48	5	2725	A
48	5	2726	G
48	5	2733	C
48	5	2735	G
48	5	2740	U
48	5	2742	G
48	5	2743	A
48	5	2744	A
48	5	2754	G
48	5	2755	A
48	5	2756	G
48	5	2757	A
48	5	2760	G
48	5	2761	U
48	5	2762	G
48	5	2763	U
48	5	2767	U
48	5	2768	C
48	5	2769	U
48	5	2770	C
48	5	2772	C
48	5	2778	G
48	5	2787	A
48	5	2788	U
48	5	2789	A
48	5	2790	U
48	5	2794	C
48	5	2795	A
48	5	2796	G
48	5	2798	A
48	5	2802	C

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Mol	Chain	Res	Type
48	5	2806	A
48	5	2807	A
48	5	2808	G
48	5	2815	A
48	5	2820	C
48	5	2825	A
48	5	2826	U
48	5	2827	G
48	5	2828	U
48	5	2829	U
48	5	2838	G
48	5	2839	U
48	5	2842	G
48	5	2844	A
48	5	2846	G
48	5	2850	A
48	5	2855	G
48	5	2858	A
48	5	2859	G
48	5	2862	G
48	5	2874	U
48	5	2896	G
48	5	2897	G
48	5	2898	G
48	5	2904	U
48	5	2905	C
48	5	2910	G
48	5	3594	C
48	5	3595	U
48	5	3596	A
48	5	3597	G
48	5	3598	C
48	5	3605	C
48	5	3609	G
48	5	3615	G
48	5	3616	U
48	5	3617	G
48	5	3620	G
48	5	3625	G
48	5	3626	G
48	5	3628	G
48	5	3630	A

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Mol	Chain	Res	Type
48	5	3635	A
48	5	3644	U
48	5	3653	A
48	5	3659	G
48	5	3660	C
48	5	3662	A
48	5	3664	G
48	5	3668	C
48	5	3670	C
48	5	3671	G
48	5	3673	C
48	5	3674	G
48	5	3680	U
48	5	3681	G
48	5	3682	A
48	5	3692	A
48	5	3696	C
48	5	3698	G
48	5	3710	G
48	5	3711	A
48	5	3712	A
48	5	3713	U
48	5	3717	A
48	5	3718	A
48	5	3719	A
48	5	3729	U
48	5	3736	A
48	5	3748	A
48	5	3750	G
48	5	3752	C
48	5	3753	G
48	5	3755	G
48	5	3756	A
48	5	3759	A
48	5	3760	A
48	5	3761	C
48	5	3762	U
48	5	3764	U
48	5	3765	G
48	5	3766	A
48	5	3770	U
48	5	3773	U

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Mol	Chain	Res	Type
48	5	3774	A
48	5	3775	A
48	5	3776	G
48	5	3777	G
48	5	3784	A
48	5	3786	U
48	5	3798	U
48	5	3799	A
48	5	3802	U
48	5	3810	C
48	5	3811	G
48	5	3814	U
48	5	3817	A
48	5	3819	G
48	5	3822	U
48	5	3828	A
48	5	3831	U
48	5	3838	U
48	5	3839	G
48	5	3840	U
48	5	3842	C
48	5	3843	C
48	5	3859	G
48	5	3867	A
48	5	3871	A
48	5	3876	A
48	5	3877	A
48	5	3878	C
48	5	3879	G
48	5	3881	G
48	5	3882	C
48	5	3889	G
48	5	3890	A
48	5	3892	U
48	5	3897	G
48	5	3898	G
48	5	3900	G
48	5	3901	A
48	5	3905	A
48	5	3906	A
48	5	3907	G
48	5	3912	U

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Mol	Chain	Res	Type
48	5	3914	U
48	5	3915	U
48	5	3916	G
48	5	3917	A
48	5	3918	G
48	5	3925	U
48	5	3926	C
48	5	3927	U
48	5	3938	G
48	5	3939	G
48	5	3943	A
48	5	3946	G
48	5	4069	U
48	5	4070	U
48	5	4073	A
48	5	4076	G
48	5	4084	G
48	5	4085	A
48	5	4086	G
48	5	4088	C
48	5	4091	G
48	5	4092	G
48	5	4093	G
48	5	4094	G
48	5	4097	G
48	5	4104	G
48	5	4105	A
48	5	4107	G
48	5	4110	C
48	5	4112	C
48	5	4114	C
48	5	4115	G
48	5	4116	C
48	5	4117	U
48	5	4118	U
48	5	4119	C
48	5	4120	U
48	5	4121	G
48	5	4122	G
48	5	4125	C
48	5	4127	A
48	5	4134	C

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Mol	Chain	Res	Type
48	5	4143	G
48	5	4144	C
48	5	4145	C
48	5	4161	G
48	5	4162	C
48	5	4163	U
48	5	4164	C
48	5	4166	G
48	5	4170	A
48	5	4171	C
48	5	4173	G
48	5	4182	G
48	5	4183	G
48	5	4184	G
48	5	4191	G
48	5	4197	G
48	5	4203	A
48	5	4205	A
48	5	4212	A
48	5	4213	A
48	5	4214	A
48	5	4218	U
48	5	4219	A
48	5	4225	G
48	5	4226	G
48	5	4229	U
48	5	4232	U
48	5	4233	A
48	5	4235	G
48	5	4237	C
48	5	4241	C
48	5	4251	A
48	5	4254	G
48	5	4258	C
48	5	4265	U
48	5	4266	G
48	5	4267	G
48	5	4268	A
48	5	4271	A
48	5	4273	A
48	5	4276	G
48	5	4279	A

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Mol	Chain	Res	Type
48	5	4286	C
48	5	4291	G
48	5	4296	U
48	5	4297	G
48	5	4302	U
48	5	4303	C
48	5	4304	A
48	5	4305	G
48	5	4306	U
48	5	4312	U
48	5	4314	C
48	5	4317	A
48	5	4329	G
48	5	4330	G
48	5	4332	C
48	5	4335	C
48	5	4336	A
48	5	4349	C
48	5	4350	C
48	5	4354	U
48	5	4355	G
48	5	4368	G
48	5	4371	G
48	5	4372	U
48	5	4373	G
48	5	4376	A
48	5	4377	G
48	5	4378	A
48	5	4379	A
48	5	4380	A
48	5	4381	A
48	5	4387	C
48	5	4391	G
48	5	4394	A
48	5	4395	U
48	5	4396	A
48	5	4398	C
48	5	4405	G
48	5	4419	U
48	5	4420	U
48	5	4421	C
48	5	4422	A

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Mol	Chain	Res	Type
48	5	4424	A
48	5	4426	C
48	5	4433	G
48	5	4437	U
48	5	4438	U
48	5	4439	U
48	5	4441	A
48	5	4444	C
48	5	4447	C
48	5	4448	G
48	5	4449	A
48	5	4450	U
48	5	4453	C
48	5	4463	U
48	5	4464	A
48	5	4472	G
48	5	4473	A
48	5	4475	G
48	5	4476	C
48	5	4478	G
48	5	4482	U
48	5	4489	G
48	5	4491	G
48	5	4500	U
48	5	4510	A
48	5	4511	A
48	5	4512	U
48	5	4513	A
48	5	4518	A
48	5	4519	C
48	5	4520	G
48	5	4522	G
48	5	4524	G
48	5	4527	G
48	5	4528	G
48	5	4529	G
48	5	4530	U
48	5	4531	U
48	5	4548	A
48	5	4549	G
48	5	4555	U
48	5	4556	U

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Mol	Chain	Res	Type
48	5	4557	U
48	5	4560	C
48	5	4561	C
48	5	4567	G
48	5	4570	G
48	5	4573	G
48	5	4575	G
48	5	4583	C
48	5	4584	A
48	5	4585	U
48	5	4586	G
48	5	4590	A
48	5	4599	A
48	5	4606	G
48	5	4607	A
48	5	4608	G
48	5	4617	G
48	5	4618	G
48	5	4627	U
48	5	4636	U
48	5	4637	G
48	5	4641	U
48	5	4644	G
48	5	4647	G
48	5	4656	A
48	5	4657	U
48	5	4660	G
48	5	4661	G
48	5	4663	G
48	5	4667	C
48	5	4670	C
48	5	4671	C
48	5	4672	A
48	5	4677	U
48	5	4684	A
48	5	4687	A
48	5	4693	C
48	5	4694	G
48	5	4695	C
48	5	4697	U
48	5	4700	A
48	5	4702	G

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Mol	Chain	Res	Type
48	5	4709	U
48	5	4712	C
48	5	4718	G
48	5	4719	G
48	5	4720	C
48	5	4721	G
48	5	4728	U
48	5	4730	C
48	5	4731	G
48	5	4732	G
48	5	4733	C
48	5	4734	A
48	5	4737	G
48	5	4741	C
48	5	4742	G
48	5	4744	A
48	5	4745	G
48	5	4746	C
48	5	4749	C
48	5	4750	G
48	5	4751	G
48	5	4753	U
48	5	4754	G
48	5	4756	C
48	5	4758	U
48	5	4759	C
48	5	4760	G
48	5	4764	A
48	5	4770	U
48	5	4771	C
48	5	4774	C
48	5	4869	U
48	5	4871	C
48	5	4872	G
48	5	4873	G
48	5	4874	A
48	5	4875	G
48	5	4876	U
48	5	4877	G
48	5	4878	C
48	5	4883	C
48	5	4884	G

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Mol	Chain	Res	Type
48	5	4885	U
48	5	4886	C
48	5	4889	G
48	5	4890	G
48	5	4891	G
48	5	4895	C
48	5	4896	G
48	5	4898	G
48	5	4900	C
48	5	4901	G
48	5	4904	G
48	5	4906	C
48	5	4910	G
48	5	4911	A
48	5	4912	G
48	5	4913	G
48	5	4924	C
48	5	4926	C
48	5	4927	G
48	5	4930	C
48	5	4932	U
48	5	4934	A
48	5	4936	G
48	5	4937	C
48	5	4939	C
48	5	4942	C
48	5	4945	G
48	5	4948	C
48	5	4949	G
48	5	4950	U
48	5	4951	G
48	5	4952	G
48	5	4959	U
48	5	4963	G
48	5	4964	C
48	5	4965	U
48	5	4966	A
48	5	4967	A
48	5	4975	G
48	5	4976	U
48	5	4985	U
48	5	4988	U

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Mol	Chain	Res	Type
48	5	4989	U
48	5	4990	C
48	5	4991	U
48	5	5013	C
48	5	5014	A
48	5	5017	G
48	5	5022	U
48	5	5023	C
48	5	5024	C
48	5	5025	C
48	5	5026	U
48	5	5027	C
48	5	5028	G
48	5	5031	G
48	5	5032	C
48	5	5034	A
48	5	5041	G
48	5	5047	C
48	5	5049	G
48	5	5050	C
48	5	5053	U
48	5	5054	C
48	5	5056	A
48	5	5058	A
48	5	5060	A
48	5	5061	A
48	5	5062	G
48	5	5066	U
49	7	3	C
49	7	7	G
49	7	8	G
49	7	11	A
49	7	21	G
49	7	25	G
49	7	33	U
49	7	34	C
49	7	40	U
49	7	41	G
49	7	42	A
49	7	53	U
49	7	54	A
49	7	64	G

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Mol	Chain	Res	Type
49	7	78	C
49	7	79	U
49	7	94	C
49	7	97	G
49	7	99	G
49	7	100	A
49	7	102	U
49	7	110	G
49	7	111	C
49	7	120	U
50	8	2	G
50	8	3	A
50	8	8	U
50	8	12	G
50	8	13	G
50	8	23	C
50	8	32	C
50	8	34	U
50	8	35	C
50	8	38	U
50	8	49	G
50	8	51	U
50	8	52	A
50	8	55	U
50	8	59	A
50	8	62	A
50	8	63	U
50	8	75	G
50	8	80	A
50	8	81	C
50	8	82	A
50	8	83	C
50	8	84	A
50	8	85	U
50	8	86	U
50	8	87	G
50	8	94	G
50	8	95	A
50	8	97	A
50	8	103	A
50	8	105	C
50	8	107	C

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Mol	Chain	Res	Type
50	8	109	C
50	8	110	U
50	8	111	U
50	8	112	G
50	8	114	G
50	8	115	G
50	8	116	C
50	8	117	C
50	8	119	C
50	8	122	G
50	8	124	U
50	8	125	C
50	8	126	C
50	8	127	U
50	8	137	A
50	8	150	C
50	8	153	C
51	9	2	A
51	9	3	C
51	9	4	C
51	9	5	U
51	9	8	U
51	9	9	U
51	9	11	A
51	9	16	G
51	9	17	C
51	9	25	A
51	9	26	U
51	9	31	U
51	9	33	G
51	9	41	G
51	9	42	A
51	9	44	U
51	9	45	A
51	9	46	A
51	9	48	C
51	9	49	C
51	9	56	G
51	9	58	C
51	9	59	U
51	9	60	A
51	9	62	G

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Mol	Chain	Res	Type
51	9	65	C
51	9	66	G
51	9	67	C
51	9	68	A
51	9	70	G
51	9	71	G
51	9	72	C
51	9	73	C
51	9	74	G
51	9	75	G
51	9	77	A
51	9	78	C
51	9	79	A
51	9	80	G
51	9	85	A
51	9	93	U
51	9	103	A
51	9	104	A
51	9	110	U
51	9	111	A
51	9	113	G
51	9	114	G
51	9	115	U
51	9	116	U
51	9	119	U
51	9	124	U
51	9	126	G
51	9	140	C
51	9	141	A
51	9	142	C
51	9	143	U
51	9	147	A
51	9	149	A
51	9	155	G
51	9	158	A
51	9	161	U
51	9	162	C
51	9	163	U
51	9	167	G
51	9	168	C
51	9	175	A
51	9	179	C

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Mol	Chain	Res	Type
51	9	181	A
51	9	183	G
51	9	184	G
51	9	188	C
51	9	189	U
51	9	190	G
51	9	191	A
51	9	192	C
51	9	202	G
51	9	206	G
51	9	215	G
51	9	216	C
51	9	217	A
51	9	289	G
51	9	291	G
51	9	292	A
51	9	293	C
51	9	302	A
51	9	304	C
51	9	305	U
51	9	306	C
51	9	307	G
51	9	308	G
51	9	309	G
51	9	310	C
51	9	312	G
51	9	313	A
51	9	314	U
51	9	316	G
51	9	319	C
51	9	320	G
51	9	322	C
51	9	324	C
51	9	325	C
51	9	326	C
51	9	327	G
51	9	328	U
51	9	338	G
51	9	343	A
51	9	347	G
51	9	350	C
51	9	351	G

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Mol	Chain	Res	Type
51	9	360	A
51	9	362	C
51	9	364	A
51	9	368	U
51	9	369	C
51	9	370	G
51	9	372	U
51	9	377	G
51	9	384	U
51	9	385	G
51	9	386	C
51	9	400	C
51	9	407	G
51	9	408	A
51	9	409	C
51	9	416	U
51	9	417	C
51	9	418	A
51	9	421	G
51	9	426	A
51	9	434	G
51	9	435	A
51	9	438	G
51	9	448	A
51	9	449	A
51	9	450	C
51	9	459	C
51	9	460	A
51	9	461	U
51	9	464	A
51	9	465	A
51	9	466	G
51	9	469	A
51	9	472	C
51	9	473	A
51	9	474	G
51	9	482	G
51	9	487	U
51	9	489	A
51	9	492	C
51	9	493	A
51	9	496	C

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Mol	Chain	Res	Type
51	9	508	A
51	9	509	G
51	9	512	A
51	9	516	A
51	9	523	A
51	9	530	U
51	9	532	C
51	9	533	A
51	9	535	G
51	9	539	C
51	9	542	U
51	9	544	G
51	9	545	A
51	9	546	G
51	9	548	C
51	9	549	C
51	9	550	C
51	9	551	U
51	9	552	G
51	9	556	U
51	9	557	U
51	9	559	G
51	9	560	A
51	9	562	U
51	9	563	G
51	9	568	C
51	9	570	C
51	9	576	A
51	9	583	A
51	9	588	G
51	9	589	G
51	9	590	A
51	9	591	U
51	9	592	C
51	9	593	C
51	9	595	U
51	9	597	G
51	9	598	G
51	9	601	G
51	9	605	A
51	9	606	G
51	9	607	U

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Mol	Chain	Res	Type
51	9	608	C
51	9	610	G
51	9	614	C
51	9	617	G
51	9	620	G
51	9	621	C
51	9	627	U
51	9	628	A
51	9	629	A
51	9	631	U
51	9	632	C
51	9	634	A
51	9	637	U
51	9	643	A
51	9	644	G
51	9	654	A
51	9	655	A
51	9	659	G
51	9	660	C
51	9	663	C
51	9	664	A
51	9	666	U
51	9	668	A
51	9	669	A
51	9	670	A
51	9	671	A
51	9	672	A
51	9	673	G
51	9	674	C
51	9	679	A
51	9	683	G
51	9	684	G
51	9	688	U
51	9	689	U
51	9	698	G
51	9	733	C
51	9	735	C
51	9	738	C
51	9	747	U
51	9	748	C
51	9	749	U
51	9	752	G

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Mol	Chain	Res	Type
51	9	753	C
51	9	788	G
51	9	789	G
51	9	791	C
51	9	794	A
51	9	796	G
51	9	797	C
51	9	798	G
51	9	799	U
51	9	800	U
51	9	810	A
51	9	811	A
51	9	812	A
51	9	821	G
51	9	822	U
51	9	827	A
51	9	830	A
51	9	834	C
51	9	835	C
51	9	836	G
51	9	837	A
51	9	838	G
51	9	839	C
51	9	840	C
51	9	845	G
51	9	847	A
51	9	848	U
51	9	853	C
51	9	858	A
51	9	859	G
51	9	861	A
51	9	862	A
51	9	869	A
51	9	870	A
51	9	871	U
51	9	872	A
51	9	873	G
51	9	877	C
51	9	878	G
51	9	879	C
51	9	880	G
51	9	887	U

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Mol	Chain	Res	Type
51	9	888	U
51	9	890	U
51	9	892	U
51	9	893	U
51	9	901	G
51	9	902	G
51	9	903	A
51	9	908	A
51	9	909	G
51	9	910	G
51	9	912	C
51	9	913	A
51	9	914	U
51	9	917	U
51	9	919	A
51	9	920	A
51	9	921	G
51	9	933	G
51	9	934	G
51	9	938	A
51	9	943	U
51	9	955	A
51	9	960	U
51	9	961	G
51	9	963	A
51	9	968	U
51	9	971	G
51	9	985	G
51	9	990	A
51	9	991	G
51	9	992	A
51	9	999	G
51	9	1002	U
51	9	1016	U
51	9	1017	U
51	9	1023	A
51	9	1030	A
51	9	1033	G
51	9	1040	G
51	9	1041	G
51	9	1044	G
51	9	1049	A

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Mol	Chain	Res	Type
51	9	1052	A
51	9	1053	C
51	9	1060	A
51	9	1082	A
51	9	1083	A
51	9	1085	C
51	9	1089	G
51	9	1093	A
51	9	1096	G
51	9	1100	A
51	9	1101	U
51	9	1102	G
51	9	1109	C
51	9	1110	G
51	9	1113	A
51	9	1114	U
51	9	1115	U
51	9	1116	C
51	9	1117	C
51	9	1118	C
51	9	1120	U
51	9	1121	G
51	9	1123	C
51	9	1126	G
51	9	1131	G
51	9	1133	A
51	9	1138	C
51	9	1139	C
51	9	1143	A
51	9	1144	A
51	9	1148	A
51	9	1149	A
51	9	1150	A
51	9	1153	C
51	9	1154	U
51	9	1157	G
51	9	1163	C
51	9	1164	G
51	9	1165	G
51	9	1166	G
51	9	1168	G
51	9	1181	A

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Mol	Chain	Res	Type
51	9	1194	A
51	9	1195	A
51	9	1197	G
51	9	1207	G
51	9	1208	A
51	9	1209	A
51	9	1210	G
51	9	1211	G
51	9	1212	G
51	9	1213	C
51	9	1214	A
51	9	1215	C
51	9	1216	C
51	9	1217	A
51	9	1224	G
51	9	1227	G
51	9	1230	C
51	9	1235	G
51	9	1240	A
51	9	1242	U
51	9	1250	A
51	9	1251	A
51	9	1253	A
51	9	1254	C
51	9	1256	G
51	9	1257	G
51	9	1258	A
51	9	1259	A
51	9	1260	A
51	9	1266	C
51	9	1267	C
51	9	1268	C
51	9	1270	G
51	9	1271	C
51	9	1274	G
51	9	1275	G
51	9	1276	A
51	9	1280	G
51	9	1282	A
51	9	1283	C
51	9	1284	A
51	9	1285	G

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Mol	Chain	Res	Type
51	9	1286	G
51	9	1288	U
51	9	1289	U
51	9	1291	A
51	9	1292	C
51	9	1293	A
51	9	1294	G
51	9	1298	G
51	9	1299	A
51	9	1300	U
51	9	1301	A
51	9	1302	G
51	9	1303	C
51	9	1304	U
51	9	1308	U
51	9	1309	C
51	9	1310	U
51	9	1312	G
51	9	1314	U
51	9	1315	U
51	9	1316	C
51	9	1318	G
51	9	1322	G
51	9	1330	G
51	9	1331	C
51	9	1332	A
51	9	1333	U
51	9	1334	G
51	9	1342	U
51	9	1343	U
51	9	1344	A
51	9	1345	G
51	9	1348	G
51	9	1351	G
51	9	1371	U
51	9	1372	U
51	9	1376	A
51	9	1378	A
51	9	1386	A
51	9	1387	G
51	9	1394	G
51	9	1395	C

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Mol	Chain	Res	Type
51	9	1396	A
51	9	1397	U
51	9	1398	G
51	9	1401	A
51	9	1402	A
51	9	1404	U
51	9	1405	A
51	9	1407	U
51	9	1408	U
51	9	1410	C
51	9	1412	C
51	9	1413	G
51	9	1414	A
51	9	1418	C
51	9	1419	C
51	9	1420	G
51	9	1422	G
51	9	1424	G
51	9	1426	U
51	9	1427	C
51	9	1432	U
51	9	1433	C
51	9	1434	C
51	9	1435	C
51	9	1437	C
51	9	1438	A
51	9	1439	A
51	9	1440	C
51	9	1442	U
51	9	1444	U
51	9	1447	G
51	9	1448	A
51	9	1449	G
51	9	1452	A
51	9	1454	A
51	9	1455	A
51	9	1456	G
51	9	1462	U
51	9	1463	U
51	9	1464	C
51	9	1465	A
51	9	1466	G

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Mol	Chain	Res	Type
51	9	1473	G
51	9	1474	A
51	9	1475	G
51	9	1476	A
51	9	1477	U
51	9	1478	U
51	9	1487	A
51	9	1490	G
51	9	1494	U
51	9	1495	G
51	9	1497	G
51	9	1498	A
51	9	1507	G
51	9	1509	U
51	9	1510	G
51	9	1521	C
51	9	1522	A
51	9	1523	C
51	9	1525	C
51	9	1527	C
51	9	1531	A
51	9	1533	A
51	9	1536	G
51	9	1544	C
51	9	1545	A
51	9	1548	G
51	9	1552	G
51	9	1553	C
51	9	1554	C
51	9	1555	U
51	9	1556	A
51	9	1560	U
51	9	1567	G
51	9	1570	G
51	9	1574	C
51	9	1575	G
51	9	1580	A
51	9	1585	U
51	9	1586	U
51	9	1587	G
51	9	1588	A
51	9	1594	A

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Mol	Chain	Res	Type
51	9	1595	U
51	9	1596	U
51	9	1599	U
51	9	1601	A
51	9	1602	U
51	9	1603	G
51	9	1604	G
51	9	1606	G
51	9	1612	G
51	9	1618	C
51	9	1621	U
51	9	1622	U
51	9	1623	A
51	9	1624	U
51	9	1625	U
51	9	1637	A
51	9	1638	G
51	9	1639	G
51	9	1641	A
51	9	1647	A
51	9	1648	G
51	9	1654	G
51	9	1661	A
51	9	1663	A
51	9	1664	A
51	9	1665	G
51	9	1666	C
51	9	1667	U
51	9	1671	G
51	9	1680	G
51	9	1681	U
51	9	1682	C
51	9	1683	C
51	9	1686	G
51	9	1688	C
51	9	1689	C
51	9	1695	A
51	9	1699	A
51	9	1703	C
51	9	1713	C
51	9	1715	A
51	9	1721	U

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Mol	Chain	Res	Type
51	9	1722	G
51	9	1725	U
51	9	1729	U
51	9	1732	G
51	9	1745	A
51	9	1746	U
51	9	1748	G
51	9	1753	C
51	9	1756	C
51	9	1758	G
51	9	1760	G
51	9	1783	C
51	9	1786	U
51	9	1800	A
51	9	1801	A
51	9	1805	G
51	9	1813	A
51	9	1823	A
51	9	1824	A
51	9	1825	A
51	9	1826	G
51	9	1829	G
51	9	1831	A
51	9	1835	A
51	9	1836	G
51	9	1837	G
51	9	1838	U
51	9	1839	U
51	9	1840	U
51	9	1845	A
51	9	1846	G
51	9	1849	G
51	9	1850	A
51	9	1851	A
51	9	1852	C
51	9	1861	G
51	9	1862	G
51	9	1863	A
51	9	1864	U
51	9	1865	C
51	9	1866	A
51	9	1867	U

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
51	9	1868	U
85	hh	42	C
85	hh	43	A
85	hh	46	G
85	hh	49	U
85	hh	51	A
85	hh	52	G

There are no RNA pucker outliers to report.

## 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](#)

Of 207 ligands modelled in this entry, 203 are monoatomic - leaving 4 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the chemical component dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z  > 2$	Counts	RMSZ	$\# Z  > 2$
90	SF4	jj	600	87	0,12,12	0.00	-	0,24,24	0.00	-
90	SF4	jj	601	87	0,12,12	0.00	-	0,24,24	0.00	-
91	ADP	jj	602	-	25,29,29	1.08	2 (8%)	24,45,45	1.79	2 (8%)
91	ADP	jj	603	-	25,29,29	1.08	2 (8%)	24,45,45	1.79	2 (8%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the chemical component dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
90	SF4	jj	600	87	-	0/0/48/48	0/6/5/5
90	SF4	jj	601	87	-	0/0/48/48	0/6/5/5
91	ADP	jj	602	-	-	0/12/32/32	0/3/3/3
91	ADP	jj	603	-	-	0/12/32/32	0/3/3/3

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
91	jj	602	ADP	C2-N3	2.08	1.35	1.32
91	jj	603	ADP	C2-N3	2.09	1.35	1.32
91	jj	603	ADP	C5-C4	3.29	1.47	1.40
91	jj	602	ADP	C5-C4	3.31	1.48	1.40

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
91	jj	602	ADP	N3-C2-N1	-6.98	122.78	128.86
91	jj	603	ADP	N3-C2-N1	-6.89	122.86	128.86
91	jj	602	ADP	C4-C5-N7	-3.18	106.34	109.41
91	jj	603	ADP	C4-C5-N7	-3.15	106.37	109.41

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.