



Full wwPDB/EMDatabank EM Map/Model Validation Report ⓘ

Feb 13, 2017 – 02:53 PM EST

PDB ID : 3JCD
EMDB ID: : EMD-6549
Title : Structure of Escherichia coli EF4 in posttranslocational ribosomes (Post EF4)
Authors : Zhang, D.; Yan, K.; Liu, G.; Song, G.; Luo, J.; Shi, Y.; Cheng, E.; Wu, S.;
Jiang, T.; Low, J.; Gao, N.; Qin, Y.
Deposited on : 2015-12-01
Resolution : 3.70 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<http://wwpdb.org/validation/2016/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

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

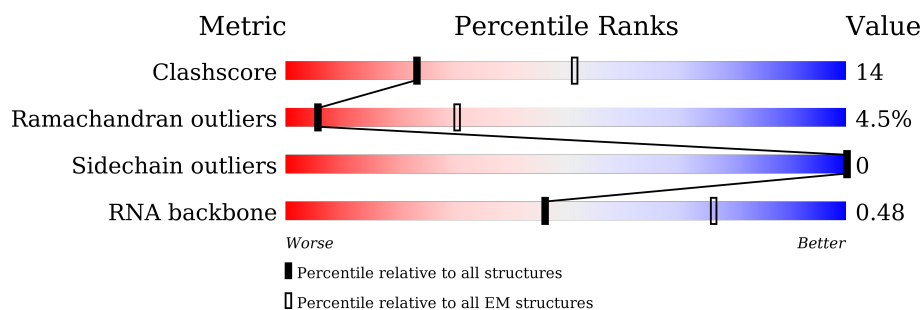
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.70 Å.

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





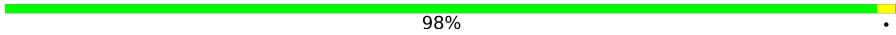
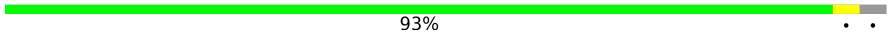

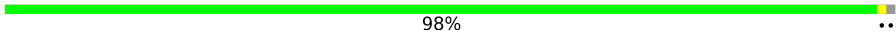
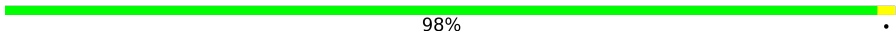



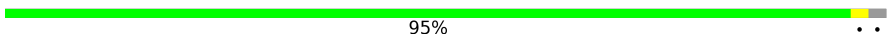


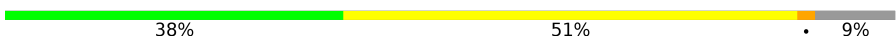











Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	114402	924
Ramachandran outliers	111179	726
Sidechain outliers	111093	686
RNA backbone	3027	244

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

Mol	Chain	Length	Quality of chain
1	b	241	85% 5% 10%
2	c	233	85% 12%
3	d	206	95% .
4	e	167	87% . 10%
5	f	135	70% 6% 24%
6	g	179	81% . 16%
7	h	130	98% ..
8	i	130	95% . .


















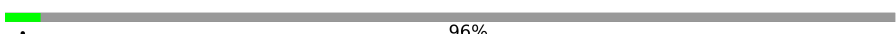






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Mol	Chain	Length	Quality of chain
9	j	103	 90% 5% 5%
10	k	129	 88% 9%
11	l	124	 98% ..
12	m	118	 93% ..
13	n	101	 88% 7% 5%
14	o	89	 98% ..
15	p	82	 98% .
16	q	84	 89% 6% 5%
17	r	75	 72% 27%
18	s	92	 83% 14%
19	t	87	 95% ..
20	u	71	 66% 6% 28%
21	0	57	 68% 30% .
22	1	55	 38% 51% 9%
23	2	46	 76% 22% .
24	3	64	 72% 27% .
25	4	38	 47% 45% 8%
26	5	234	 54% 46%
27	C	273	 59% 38% ..
28	D	209	 64% 33% .
29	E	201	 63% 35% .
30	F	179	 61% 35% ..
31	G	177	 62% 36% ..
32	H	149	 51% 46% .
33	I	142	 57% 41% ..

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Mol	Chain	Length	Quality of chain
34	J	142	
35	K	123	
36	L	144	
37	M	136	
38	N	127	
39	O	117	
40	P	115	
41	Q	118	
42	R	103	
43	S	110	
44	T	100	
45	U	104	
46	V	94	
47	W	85	
48	X	78	
49	Y	63	
50	Z	59	
51	x	599	
52	a	1533	
53	A	2904	
54	B	120	
55	7	15	
56	8	76	
56	9	76	

2 Entry composition [i](#)

There are 56 unique types of molecules in this entry. The entry contains 147815 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 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	b	218	Total	C	N	O	S	0	0
			1704	1081	305	311	7		

- Molecule 2 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	c	206	Total	C	N	O	S	0	0
			1624	1028	305	288	3		

- Molecule 3 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	d	205	Total	C	N	O	S	0	0
			1643	1026	315	298	4		

- Molecule 4 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	e	150	Total	C	N	O	S	0	0
			1105	687	211	201	6		

- Molecule 5 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	f	102	Total	C	N	O	S	0	0
			832	525	150	150	7		

- Molecule 6 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	g	151	Total	C	N	O	S	0	0
			1181	735	227	215	4		

- Molecule 7 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	h	129	Total	C	N	O	S	0	0
			979	616	173	184	6		

- Molecule 8 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	i	127	Total	C	N	O	S	0	0
			1022	634	206	179	3		

- Molecule 9 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	j	98	Total	C	N	O	S	0	0
			786	493	150	142	1		

- Molecule 10 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	k	117	Total	C	N	O	S	0	0
			877	540	174	160	3		

- Molecule 11 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	l	123	Total	C	N	O	S	0	0
			955	590	196	165	4		

- Molecule 12 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	m	114	Total	C	N	O	S	0	0
			883	546	178	156	3		

- Molecule 13 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	n	96	Total	C	N	O	S	0	0
			774	483	160	128	3		

- Molecule 14 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	o	88	Total	C	N	O	S	0	0
			714	439	144	130	1		

- Molecule 15 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	p	82	Total	C	N	O	S	0	0
			649	406	128	114	1		

- Molecule 16 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	q	80	Total	C	N	O	S	0	0
			648	411	121	113	3		

- Molecule 17 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms				AltConf	Trace
17	r	55	Total	C	N	O	0	0
			455	288	86	81		

- Molecule 18 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	s	79	Total	C	N	O	S	0	0
			637	408	120	107	2		

- Molecule 19 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	t	85	Total	C	N	O	S	0	0
			665	411	137	114	3		

- Molecule 20 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	u	51	Total	C	N	O	S	0	0
			425	265	86	73	1		

- Molecule 21 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	0	56	Total	C	N	O	S	0	0
			444	269	94	80	1		

- Molecule 22 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	1	50	Total	C	N	O	S	0	0
			409	263	75	71			

- Molecule 23 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	2	46	Total	C	N	O	S	0	0
			377	228	90	57	2		

- Molecule 24 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	3	64	Total	C	N	O	S	0	0
			504	323	105	74	2		

- Molecule 25 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	4	38	Total	C	N	O	S	0	0
			302	185	65	48	4		

- Molecule 26 is a protein called 50S ribosomal protein L1.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	5	234	Total	C	N	O	S	0	0
			1733	1081	315	330	7		

- Molecule 27 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	C	270	Total	C	N	O	S	0	0
			2076	1285	422	362	7		

- Molecule 28 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	D	209	Total	C	N	O	S	0	0
			1565	979	288	294	4		

- Molecule 29 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	E	201	Total	C	N	O	S	0	0
			1552	974	283	290	5		

- Molecule 30 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	F	177	Total	C	N	O	S	0	0
			1410	899	249	256	6		

- Molecule 31 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	G	176	Total	C	N	O	S	0	0
			1323	832	243	246	2		

- Molecule 32 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	H	149	Total	C	N	O	S	0	0
			1111	699	197	214	1		

- Molecule 33 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	I	141	Total	C	N	O	S	0	0
			1032	651	179	196	6		

- Molecule 34 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	J	142	Total	C	N	O	S	0	0
			1129	714	212	199	4		

- Molecule 35 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	K	122	Total	C	N	O	S	0	0
			938	587	180	165	6		

- Molecule 36 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	L	143	Total	C	N	O	S	0	0
			1045	649	206	189	1		

- Molecule 37 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	M	136	Total	C	N	O	S	0	0
			1074	686	205	177	6		

- Molecule 38 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	N	120	Total	C	N	O	S	0	0
			960	593	196	166	5		

- Molecule 39 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
39	O	116	Total	C	N	O	0	0
			892	552	178	162		

- Molecule 40 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	P	114	Total	C	N	O	S	0	0
			917	574	179	163	1		

- Molecule 41 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms				AltConf	Trace
41	Q	117	Total	C	N	O	0	0
			947	604	192	151		

- Molecule 42 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	R	103	Total	C	N	O	S	0	0
			816	516	153	145	2		

- Molecule 43 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	S	110	Total	C	N	O	S	0	0
			857	532	166	156	3		

- Molecule 44 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	T	93	Total	C	N	O	S	0	0
			738	466	139	131	2		

- Molecule 45 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
45	U	102	Total	C	N	O	0	0
			779	492	146	141		

- Molecule 46 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	V	94	Total	C	N	O	S	0	0
			753	479	137	134	3		

- Molecule 47 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	W	79	Total	C	N	O	S	0	0
			596	367	120	108	1		

- Molecule 48 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	X	77	Total	C	N	O	S	0	0
			625	388	129	106	2		

- Molecule 49 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	Y	63	Total	C	N	O	S	0	0
			509	313	99	95	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
50	Z	58	Total	C	N	O	S	0	0
			449	281	87	79	2		

- Molecule 51 is a protein called Elongation factor 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	x	26	Total	C	N	O	S	0	0
			214	134	43	35	2		

- Molecule 52 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	a	1533	Total	C	N	O	P	0	0
			32895	14671	6036	10655	1533		

- Molecule 53 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	A	2903	Total	C	N	O	P	0	0
			62320	27801	11467	20149	2903		

- Molecule 54 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	B	118	Total	C	N	O	P	0	0
			2529	1126	464	821	118		

- Molecule 55 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	7	9	Total	C	N	O	P	0	0
			191	86	34	62	9		

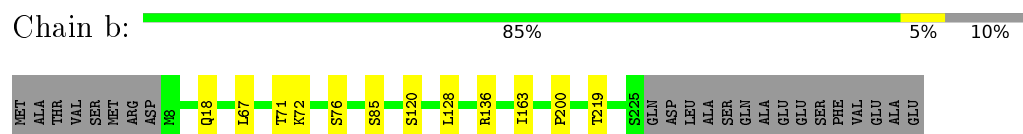
- Molecule 56 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	8	76	Total	C	N	O	P	0	0
			1623	723	290	534	76		
56	9	76	Total	C	N	O	P	0	0
			1623	723	290	534	76		

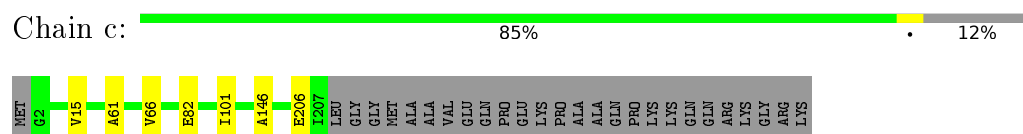
3 Residue-property plots [i](#)

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

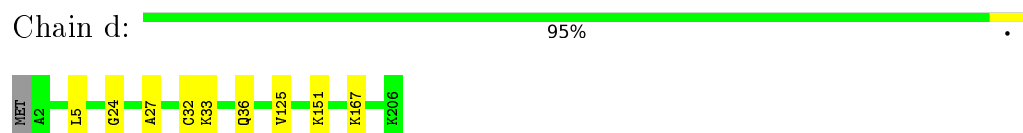
- Molecule 1: 30S ribosomal protein S2



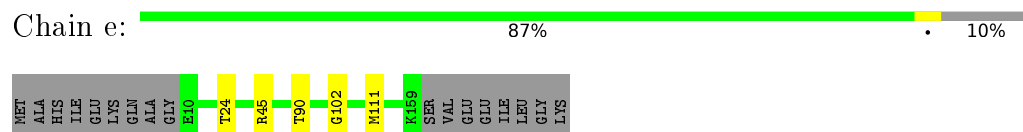
- Molecule 2: 30S ribosomal protein S3



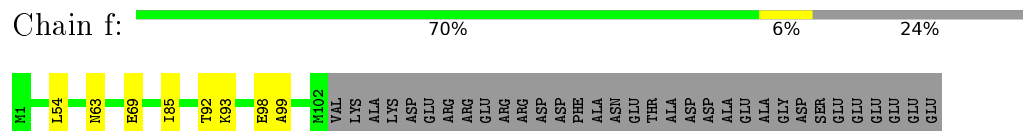
- Molecule 3: 30S ribosomal protein S4



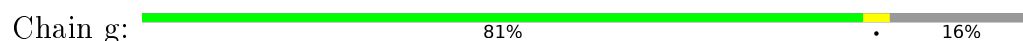
- Molecule 4: 30S ribosomal protein S5

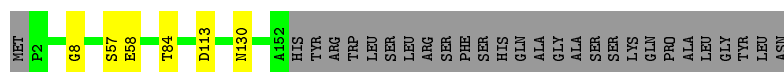


- Molecule 5: 30S ribosomal protein S6



- Molecule 6: 30S ribosomal protein S7





- Molecule 7: 30S ribosomal protein S8

Chain h: 98% ..



- Molecule 8: 30S ribosomal protein S9

Chain i: 95% ..



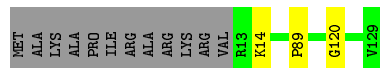
- Molecule 9: 30S ribosomal protein S10

Chain j: 90% 5% 5%



- Molecule 10: 30S ribosomal protein S11

Chain k: 88% 9%



- Molecule 11: 30S ribosomal protein S12

Chain l: 98% ..



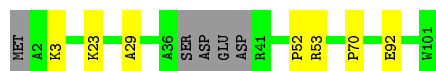
- Molecule 12: 30S ribosomal protein S13

Chain m: 93% ..



- Molecule 13: 30S ribosomal protein S14

Chain n: 88% 7% 5%



- Molecule 14: 30S ribosomal protein S15

Chain o:  98% ..




- Molecule 15: 30S ribosomal protein S16

Chain p:  98% .



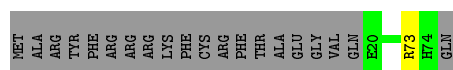
- Molecule 16: 30S ribosomal protein S17

Chain q:  89% 6% 5%




- Molecule 17: 30S ribosomal protein S18

Chain r:  72% 27%



- Molecule 18: 30S ribosomal protein S19

Chain s:  83% 14%



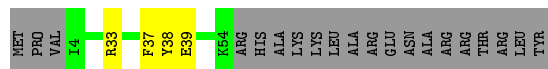
- Molecule 19: 30S ribosomal protein S20

Chain t:  95% ..



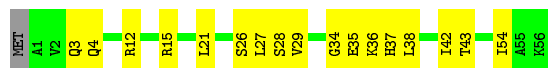
- Molecule 20: 30S ribosomal protein S21

Chain u:  66% 6% 28%



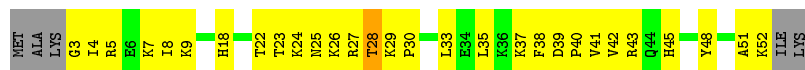
- Molecule 21: 50S ribosomal protein L32

Chain 0:  68% 30% .




- Molecule 22: 50S ribosomal protein L33

Chain 1:  38% 51% . 9%



- Molecule 23: 50S ribosomal protein L34

Chain 2:  76% 22% .



- Molecule 24: 50S ribosomal protein L35

Chain 3:  72% 27% .



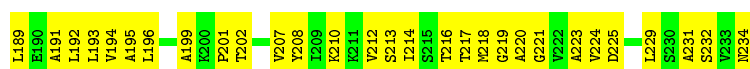
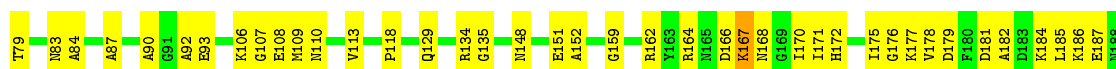
- Molecule 25: 50S ribosomal protein L36

Chain 4:  47% 45% 8%



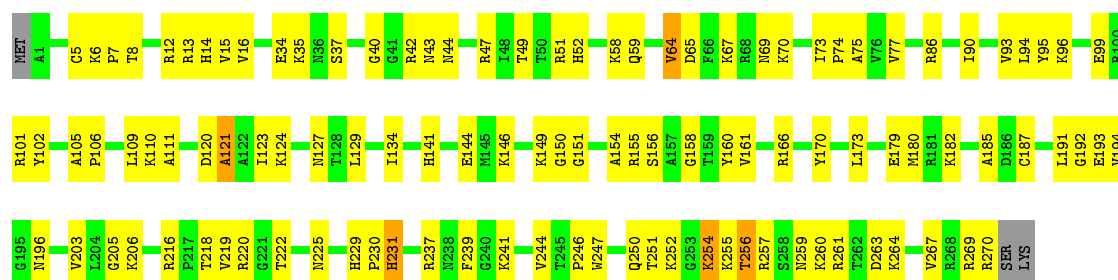
- Molecule 26: 50S ribosomal protein L1

Chain 5:  54% 46%



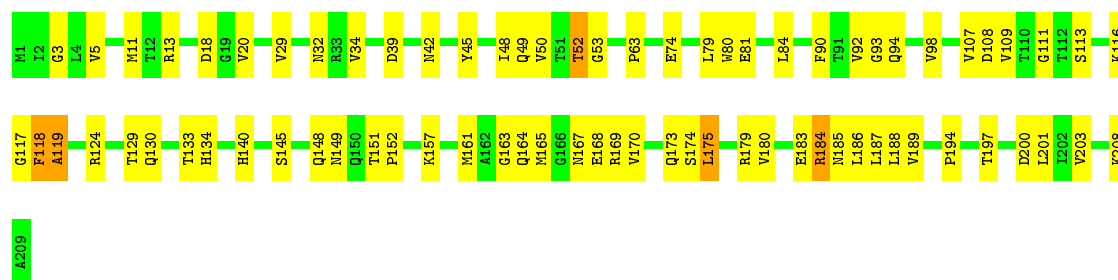
- Molecule 27: 50S ribosomal protein L2

Chain C:  59% 38% ..



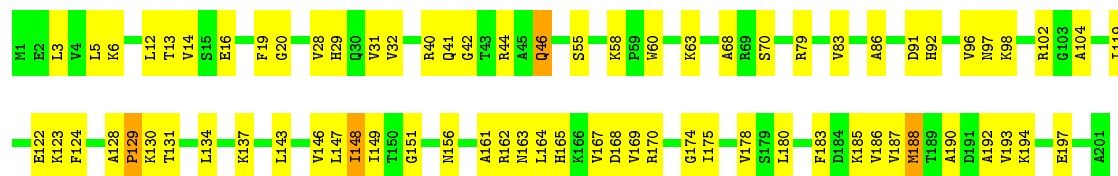
• Molecule 28: 50S ribosomal protein L3

Chain D: 64% 33%



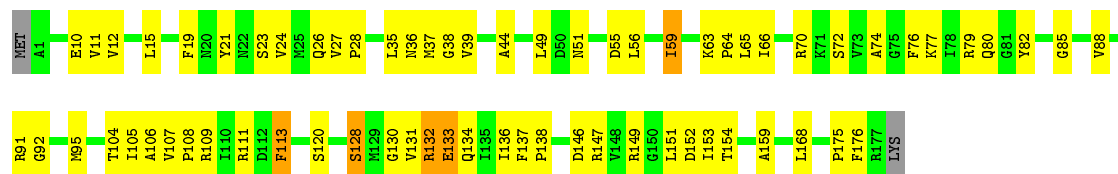
• Molecule 29: 50S ribosomal protein L4

Chain E: 63% 35%



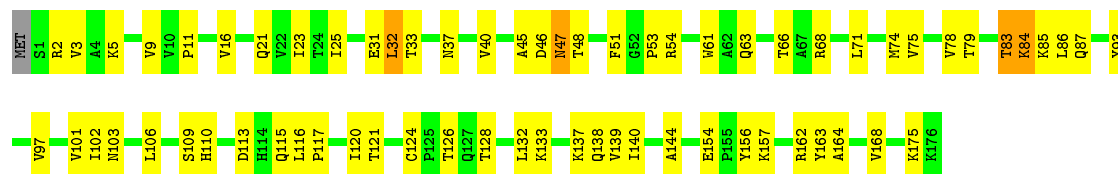
• Molecule 30: 50S ribosomal protein L5

Chain F: 61% 35%

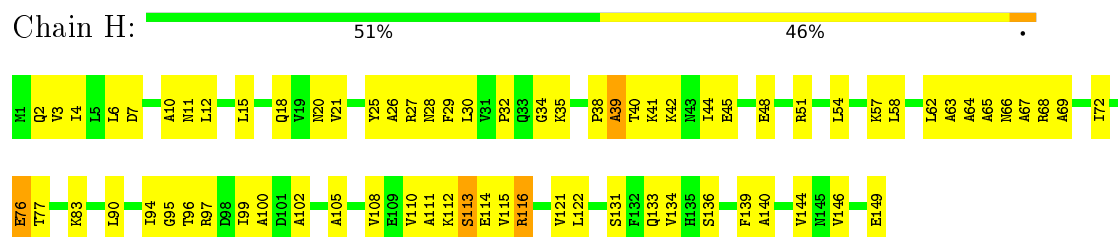


• Molecule 31: 50S ribosomal protein L6

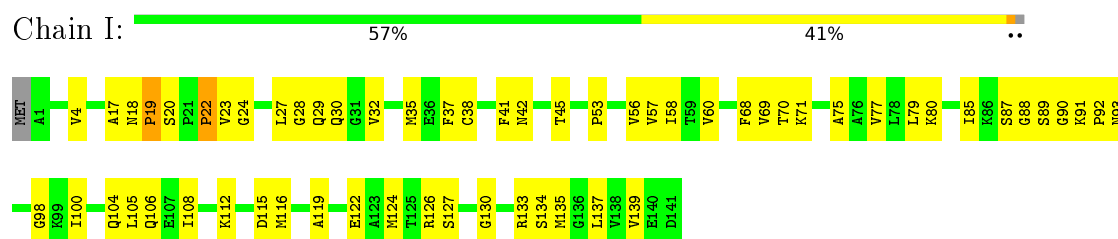
Chain G: 62% 36%



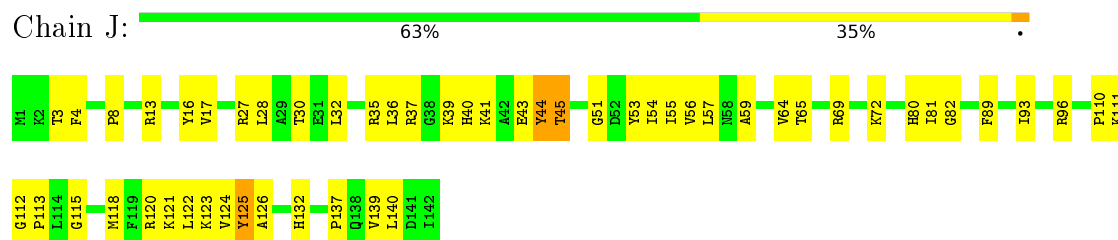
- Molecule 32: 50S ribosomal protein L9



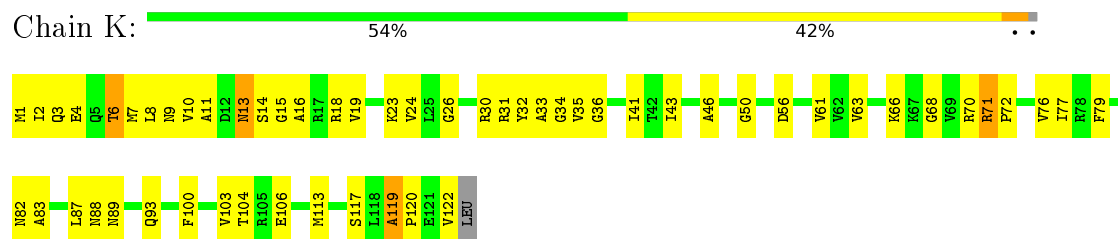
- Molecule 33: 50S ribosomal protein L11



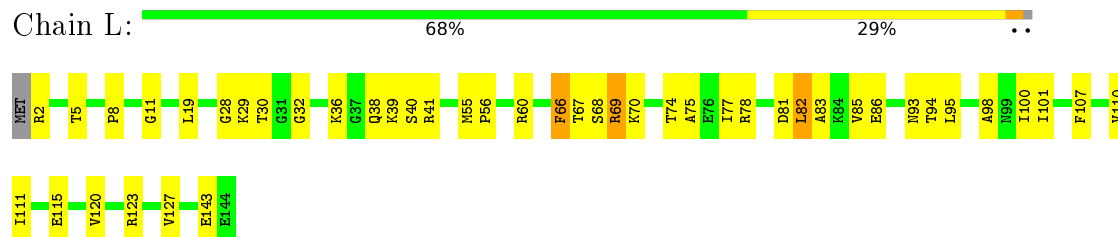
- Molecule 34: 50S ribosomal protein L13



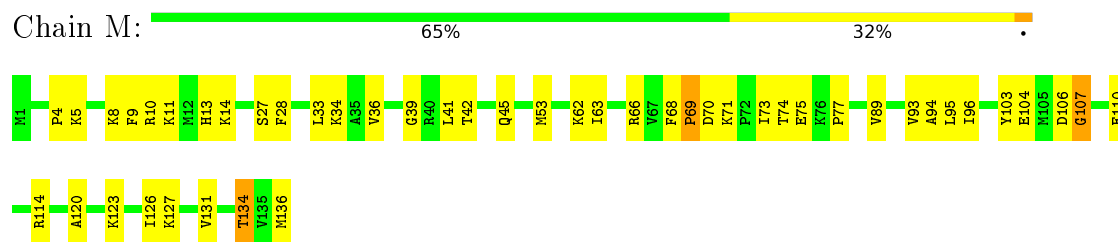
- Molecule 35: 50S ribosomal protein L14



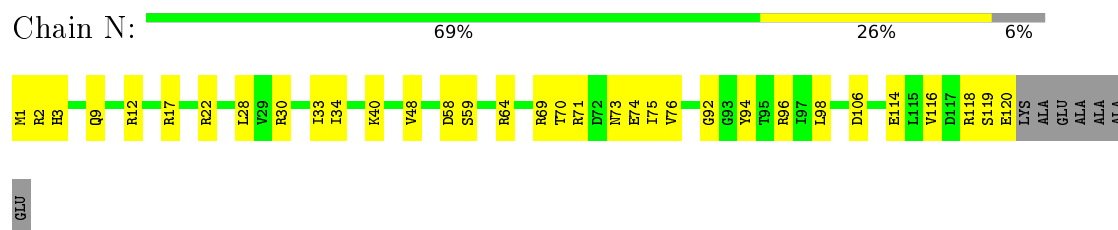
- Molecule 36: 50S ribosomal protein L15



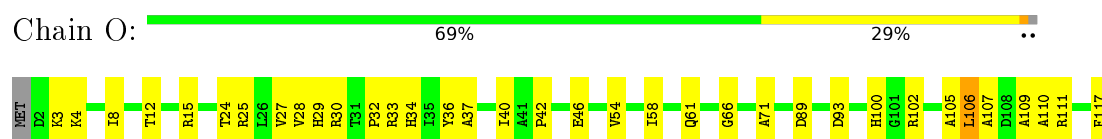
- Molecule 37: 50S ribosomal protein L16



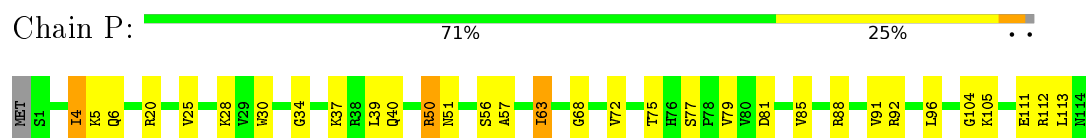
- Molecule 38: 50S ribosomal protein L17



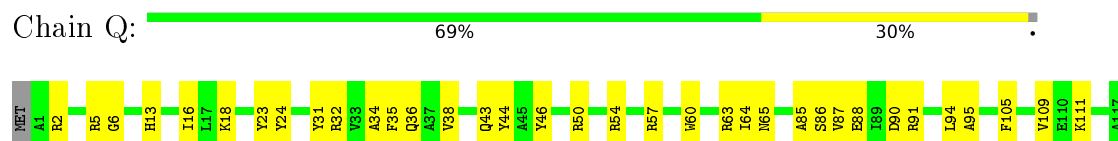
- Molecule 39: 50S ribosomal protein L18



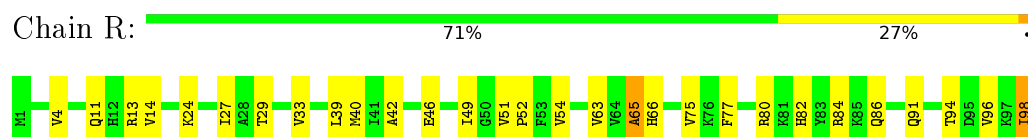
- Molecule 40: 50S ribosomal protein L19



- Molecule 41: 50S ribosomal protein L20



- Molecule 42: 50S ribosomal protein L21

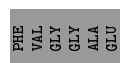
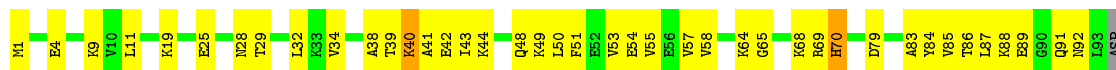


- Molecule 43: 50S ribosomal protein L22

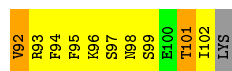
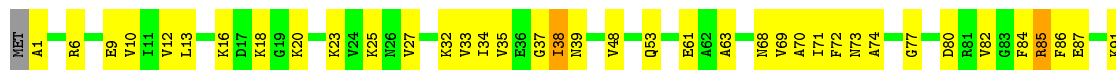




• Molecule 44: 50S ribosomal protein L23



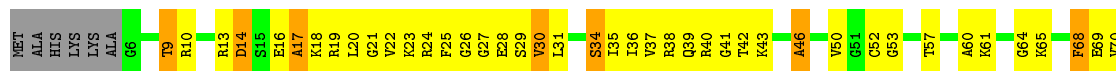
• Molecule 45: 50S ribosomal protein L24



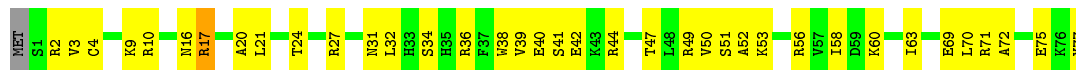
• Molecule 46: 50S ribosomal protein L25



• Molecule 47: 50S ribosomal protein L27



• Molecule 48: 50S ribosomal protein L28



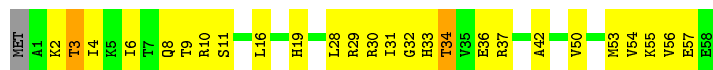
• Molecule 49: 50S ribosomal protein L29





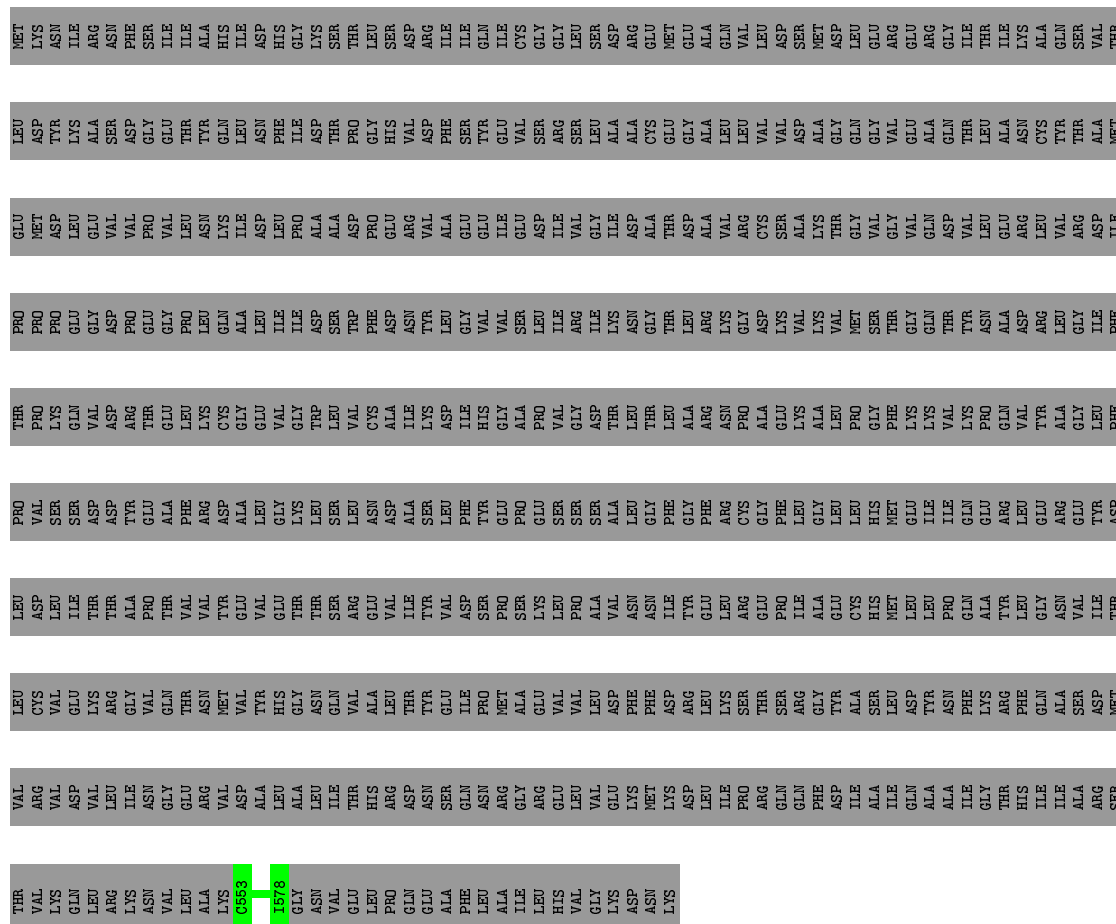
- Molecule 50: 50S ribosomal protein L30

Chain Z: 54% 41%



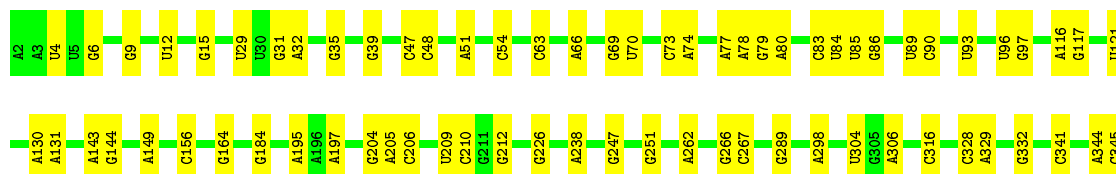
- Molecule 51: Elongation factor 4

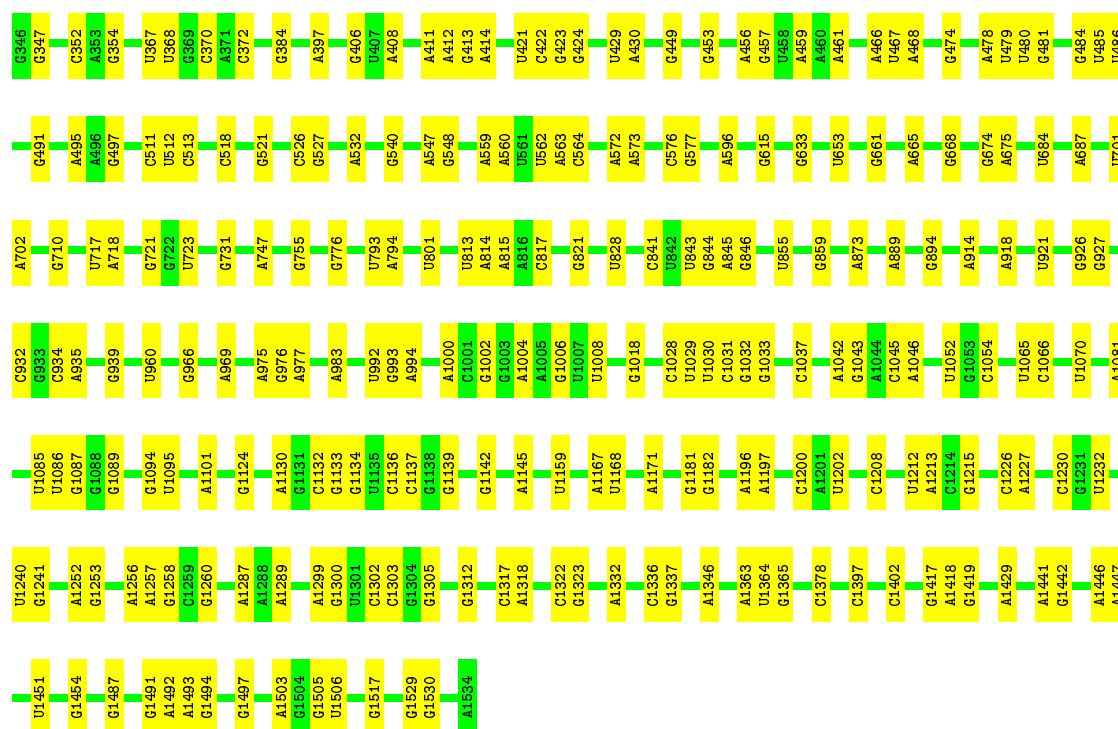
Chain x: 96%



- Molecule 52: 16S ribosomal RNA

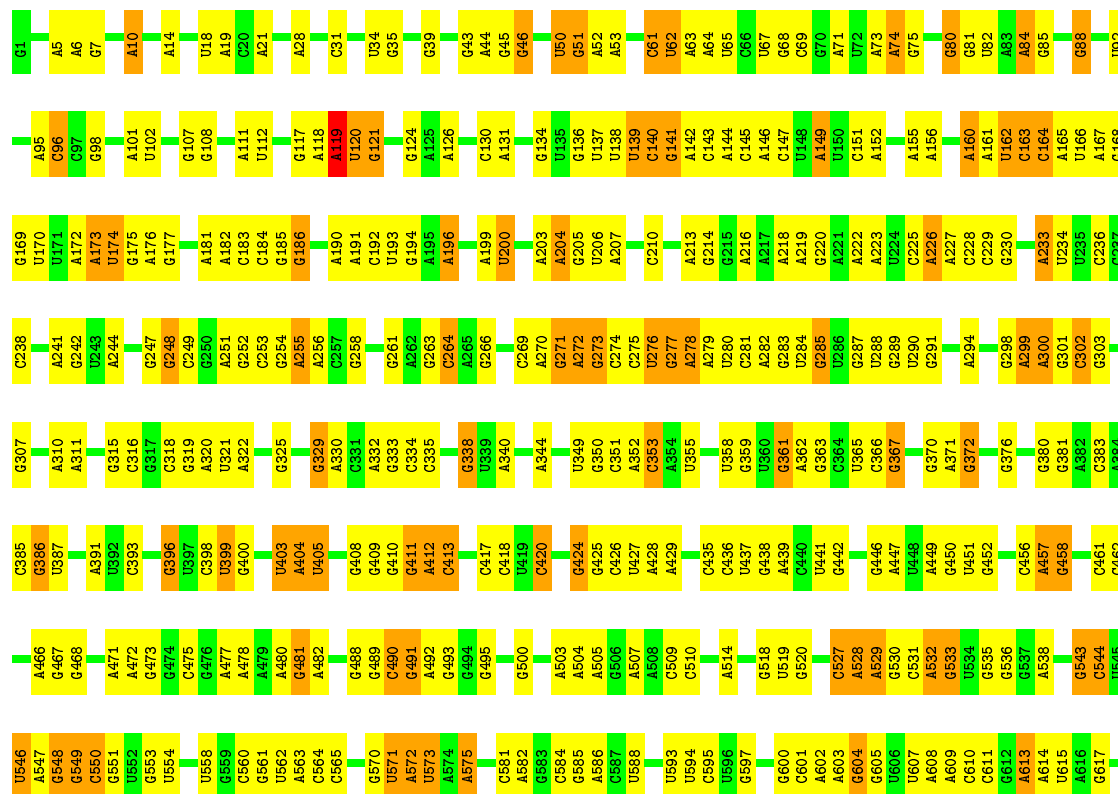
Chain a: 80% 20%





• Molecule 53: 23S ribosomal RNA

Chain A: 43% 46% 11%



G1699	G1617	G1538	G1464	G1388	G1229	A1142	A1073	G1011	G938	A866	C791	A705	A621
A1618	G1465	U1539	G1466	A1392	A1230	A1143	G1074	U1012	G939	G869	A192	G713	G622
G1619	U1467	G1540	U1467	A1393	G1231	A1144	C1075	C1013	G940	U870	A800	U714	G623
U1621	U1468	C1541	U1468	U1394	G1232	C1150	C1076	A941	A942	U871	G801	A715	G624
G1622	A1469	G1542	A1469	A1395	G1236	C1151	U1078	U1015	G943	U872	A802	A716	G625
G1623	A1470	G1543	A1470	U1396	A1237	C1152	C1079	U1018	C944	C873	A803	C717	A626
	G1471		G1471	U1397	G1238	C1153	A1080	U1019	A945	G874	G805	A718	A627
	C1472		C1472	C1398	G1239	G1154	U1081	A1020	A946		C806	C719	G628
	A1473		A1473	C1399	G1240	A1155	U1082	A1021	C947	A877	C807	A720	G629
	U1474		U1474	U1400	A1241	A1156	U1083	A1022	C948	A878	G808	U721	A630
	C1401		C1401	U1325	G1242	G1157	U1084	G1023		G879			A631
	U1402		U1402	U1326	A1244		A1085	U1024	G853	G880	C812	U724	G636
					G1245	G1160	A1086	G1025	G854	G881	U613	G725	A637
					A1246		G1087	G1026	U955	G882	C814	G726	G638
					A1247	C1164	A1088	G1027	U956	G883	C815		G639
					G1248	A1165	A1089	C957	U957	U884	C816		C640
					U1249	G1166	A1090	A1028	U958	C817	C817		
					G1250	C1167		C1030	A859	A856	G818		C645
					C1251	G1168	G1093	G1031	A860	U887	A819	C736	U646
					A1253	C1170	U1094	A1032	C961	C888	A820	C737	G647
					A1253	G1171	A1095	G1033	G962		C823	G738	G648
					G1256	C1172	U1097	G1034	U963	G891	U824	A739	G649
					A1262	U1173	A1098	U1035	C964	C893		C740	C650
					U1263	U1174	G1099	G1037	U970	U894	U827	A741	G651
					G1345	A1175	C1100	U1038	G971	U895	U828	A742	U652
					C1346	U1176	A1099	G1039	A972	A896	A829	G743	U653
					A1347	G1177	U1101	A1040	A973	C897	G830	G745	A655
					U1352	U1180	C1104	G1041	G974	C898	G831	U746	G656
					A1353	U1181	U1105	G1042	A975	U899	U832	U747	U657
					G1354	U1182	G1106	C1043		A900	A833	G748	U658
					G1355	C1270	C1044	G1045	G978	C901	G834	A749	A661
					C1271	U1183	U1180	A1046	A979	C902	C835	A750	
					C1272	A1431	A1111	G1047	A980	C903	C836		U665
					A1273	G1185	G1112	A1048	A981	G904	C837	U755	U666
					U1273	G1186	U1113	C982	C982		C838	U756	A666
					A1274	C1114	C1114	A1049	A983	G907	U839	G757	U667
					U1275	G1190	G1115	A1050	A984		C940		A669
					A1278	U1199	C1117	G1051		A910	G841	G768	
					G1279	C1200	G1116	A1054	G989	A911	U842	U769	G674
					C1283	U1201	U1119	G1055	A990	C915	G843	G770	A675
					A1284	A1205	G1120	A1056		G916	A844	G771	A676
					G1286	G1206	G1124	C995	C995	C922	U845	C772	A677
					A1287	C1207	G1125	U1058	A996	G923	U847	U773	C678
					G1288	G1212	A1126	G1059	G997	G924		G774	C679
					U1294	G1215	A1127	U1060	C998	A925	U850	G775	C680
					C1295	G1216	G1128	U1061	U999	G926	C851	G777	U683
					G1296	U1219	A1129	G1062	A1000	A927			
					C1297	G1223	U1130	G1063	A1001		G855	G780	U686
					G1300	A1301	U1131	C1064	A928			A781	
					A1302	G1300	G1131	U1065	G1002		G858	A782	G690
					A1303	A1302	U1132	U1066	G1003		C859	A783	C691
					A1304	A1303	U1133	U1067	U1004	U931	U931	G784	C692
					A1305	A1304	A1134	A1068	C1005	U932	U960	G785	A693
					A1306	A1305	C1135	A1069	C1006	U934	G862		
					A1307	A1306	G1139	A1070	C1007	U935	A863	A788	G700
					A1308	A1307		G1071	A1008	A936	G864	A789	G701
					A1309	A1308		C1072	A1010	C937	C865	U790	

- Molecule 54: 5S ribosomal RNA

Response	Percentage
Yes	42%
No	50%
Don't know	7%

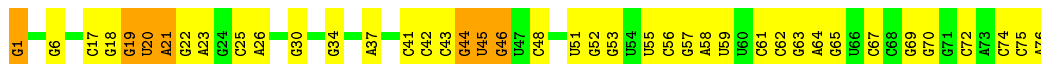
U	G2	G3	C4	G7	C8	G9	U14	A15	G18	C19	G20	G24	C27	C28	A29	C30	C31	G32	G33	A34	C35	G36	C37	U40	G41	C42	C43	G44	U48	C49	A50	G51	A52	A53	G54	U55	G56	A57	C63	G64	U65	A66	G67	C68	G69	C70	C71	U74	G75	C76
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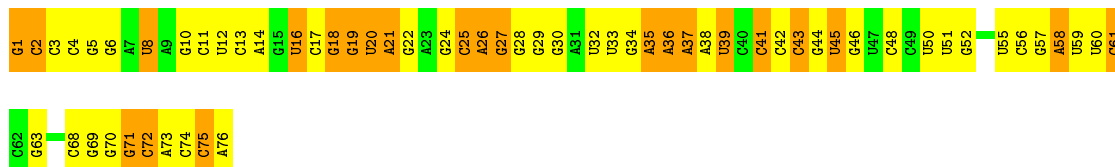
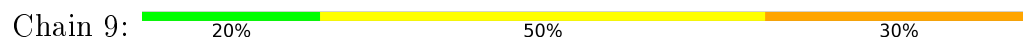
• Molecule 55: tRNA



• Molecule 56: tRNA



• Molecule 56: tRNA



4 Experimental information

Property	Value	Source
Reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	Depositor
Number of particles used	18772	Depositor
Resolution determination method	Not provided	Depositor
CTF correction method	Not provided	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	Not provided	Depositor
Minimum defocus (nm)	Not provided	Depositor
Maximum defocus (nm)	Not provided	Depositor
Magnification	Not provided	Depositor
Image detector	GATAN K2 SUMMIT (4K X 4K)	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z > 2	RMSZ	# Z > 2
1	b	0.30	0/1735	0.55	0/2338
10	k	0.35	0/893	0.52	0/1205
11	l	0.35	0/969	0.54	0/1300
12	m	0.32	0/892	0.56	0/1193
13	n	0.33	0/785	0.52	0/1043
14	o	0.35	0/722	0.51	0/964
15	p	0.34	0/659	0.48	0/884
16	q	0.33	0/657	0.55	0/881
17	r	0.36	0/462	0.48	0/621
18	s	0.30	0/652	0.50	0/877
19	t	0.36	0/671	0.51	0/888
2	c	0.34	0/1651	0.50	0/2225
20	u	0.34	0/430	0.56	0/570
21	0	0.36	0/450	0.52	0/599
22	1	0.36	0/416	0.58	0/554
23	2	0.36	0/380	0.52	0/498
24	3	0.38	0/513	0.56	0/676
25	4	0.32	0/303	0.54	0/397
26	5	0.27	0/1748	0.60	0/2355
27	C	0.39	0/2115	0.58	1/2844 (0.0%)
28	D	0.37	0/1586	0.57	0/2134
29	E	0.34	0/1571	0.54	0/2113
3	d	0.32	0/1665	0.52	0/2227
30	F	0.32	0/1434	0.53	0/1926
31	G	0.31	0/1343	0.53	0/1816
32	H	0.30	0/1122	0.59	0/1515
33	I	0.26	0/1046	0.54	0/1410
34	J	0.39	0/1152	0.56	0/1551
35	K	0.40	0/947	0.57	0/1268
36	L	0.33	0/1054	0.56	0/1403
37	M	0.36	0/1093	0.57	0/1460
38	N	0.38	0/973	0.55	0/1301
39	O	0.31	0/902	0.51	1/1209 (0.1%)
4	e	0.35	0/1118	0.54	0/1504

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z > 2	RMSZ	# Z > 2
40	P	0.37	0/929	0.56	0/1242
41	Q	0.43	0/960	0.51	0/1278
42	R	0.35	0/829	0.53	0/1107
43	S	0.37	0/864	0.55	0/1156
44	T	0.36	0/744	0.61	0/994
45	U	0.33	0/787	0.57	0/1051
46	V	0.33	0/766	0.50	0/1025
47	W	0.35	0/603	0.64	0/797
48	X	0.37	0/635	0.56	0/848
49	Y	0.32	0/510	0.51	0/677
5	f	0.33	0/851	0.56	0/1150
50	Z	0.32	0/453	0.57	0/605
51	x	0.31	0/214	0.54	0/275
52	a	0.52	0/36834	0.77	0/57462
53	A	0.58	0/69799	0.81	6/108892 (0.0%)
54	B	0.46	0/2828	0.77	0/4410
55	7	0.48	0/213	0.91	0/329
56	8	0.51	1/1813 (0.1%)	0.79	0/2823
56	9	0.39	1/1813 (0.1%)	0.83	3/2823 (0.1%)
6	g	0.32	0/1195	0.50	0/1602
7	h	0.36	0/989	0.53	0/1326
8	i	0.32	0/1034	0.52	0/1375
9	j	0.31	0/796	0.57	0/1077
All	All	0.50	2/160568 (0.0%)	0.74	11/240073 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
20	u	0	1
31	G	0	1
35	K	0	1
All	All	0	3

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
56	9	1	G	OP3-P	-10.74	1.48	1.61
56	8	1	G	OP3-P	-10.71	1.48	1.61

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
56	9	39	U	C2-N1-C1'	7.25	126.40	117.70
56	9	39	U	N1-C2-O2	7.22	127.85	122.80
56	9	39	U	N3-C2-O2	-6.07	117.95	122.20
53	A	1415	U	C2-N1-C1'	6.02	124.92	117.70
39	O	106	LEU	CA-CB-CG	5.67	128.34	115.30
27	C	109	LEU	CA-CB-CG	5.49	127.93	115.30
53	A	1415	U	N1-C2-O2	5.38	126.56	122.80
53	A	546	U	C2-N1-C1'	5.37	124.15	117.70
53	A	1256	G	C4-N9-C1'	5.31	133.40	126.50
53	A	119	A	P-O3'-C3'	5.25	126.00	119.70
53	A	1256	G	C8-N9-C1'	-5.13	120.33	127.00

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
31	G	83	THR	Peptide
35	K	71	ARG	Peptide
20	u	39	GLU	Peptide

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	b	1704	0	1732	0	0
2	c	1624	0	1696	0	0
3	d	1643	0	1707	0	0
4	e	1105	0	1148	0	0
5	f	832	0	824	0	0
6	g	1181	0	1238	0	0
7	h	979	0	1031	0	0
8	i	1022	0	1070	0	0
9	j	786	0	828	0	0
10	k	877	0	887	0	0
11	l	955	0	1016	0	0
12	m	883	0	941	0	0

Continued on next page...

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
13	n	774	0	824	0	0
14	o	714	0	734	0	0
15	p	649	0	666	0	0
16	q	648	0	691	0	0
17	r	455	0	478	0	0
18	s	637	0	665	0	0
19	t	665	0	714	0	0
20	u	425	0	449	0	0
21	0	444	0	461	12	0
22	1	409	0	440	19	0
23	2	377	0	418	6	0
24	3	504	0	574	14	0
25	4	302	0	340	16	0
26	5	1733	0	1824	98	0
27	C	2076	0	2152	68	0
28	D	1565	0	1616	51	0
29	E	1552	0	1619	49	0
30	F	1410	0	1447	51	0
31	G	1323	0	1374	48	0
32	H	1111	0	1148	49	0
33	I	1032	0	1088	50	0
34	J	1129	0	1162	45	0
35	K	938	0	1012	37	0
36	L	1045	0	1117	25	0
37	M	1074	0	1157	31	0
38	N	960	0	1000	25	0
39	O	892	0	923	28	0
40	P	917	0	965	23	0
41	Q	947	0	1022	36	0
42	R	816	0	839	21	0
43	S	857	0	922	23	0
44	T	738	0	807	27	0
45	U	779	0	834	31	0
46	V	753	0	780	21	0
47	W	596	0	610	51	0
48	X	625	0	655	32	0
49	Y	509	0	543	10	0
50	Z	449	0	491	20	0
51	x	214	0	244	0	0
52	a	32895	0	16553	0	0
53	A	62320	0	31343	1212	0
54	B	2529	0	1281	51	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
55	7	191	0	97	3	0
56	8	1623	0	821	46	0
56	9	1623	0	821	94	0
All	All	147815	0	99839	2145	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 14.

All (2145) 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)
53:A:271:G:C5	53:A:367:G:C2	1.87	1.62
53:A:271:G:C8	53:A:367:G:N2	1.70	1.54
53:A:271:G:N7	53:A:367:G:C2	1.77	1.45
53:A:271:G:N7	53:A:367:G:N1	1.67	1.40
53:A:272:A:C2	53:A:273:G:C5	2.10	1.39
56:8:19:G:C8	56:8:57:G:N2	2.02	1.28
56:9:26:A:H8	56:9:27:G:C8	1.53	1.27
56:9:24:G:H2'	56:9:25:C:C5'	1.67	1.24
53:A:271:G:N7	53:A:367:G:N2	1.73	1.23
56:9:10:G:O6	56:9:25:C:N4	1.69	1.23
56:9:10:G:O6	56:9:25:C:C4	1.97	1.18
53:A:272:A:C2	53:A:273:G:C4	2.33	1.17
56:9:26:A:C8	56:9:27:G:C4	2.35	1.14
56:9:26:A:N7	56:9:27:G:C4	2.20	1.07
53:A:269:C:C2	53:A:270:A:C8	2.42	1.07
56:9:24:G:H2'	56:9:25:C:H5'	1.14	1.07
53:A:272:A:N3	53:A:273:G:C8	2.24	1.05
56:9:26:A:C8	56:9:27:G:C5	2.45	1.04
53:A:271:G:C6	53:A:367:G:C2	2.45	1.04
56:9:26:A:C8	56:9:27:G:C8	2.46	1.03
53:A:271:G:C5	53:A:367:G:N1	2.13	1.02
56:9:25:C:H2'	56:9:26:A:H4'	1.40	1.00
56:9:24:G:C2'	56:9:25:C:C5'	2.40	0.98
53:A:272:A:H2	53:A:273:G:C4	1.74	0.96
56:9:27:G:N2	56:9:45:U:H3	1.62	0.96
56:9:26:A:C8	56:9:27:G:N9	2.35	0.94
56:9:26:A:H8	56:9:27:G:N9	1.66	0.94
40:P:50:ARG:HB2	40:P:56:SER:HB3	1.48	0.93
56:9:24:G:C2'	56:9:25:C:H5''	1.99	0.93
56:9:27:G:H22	56:9:45:U:H3	1.03	0.92

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:269:C:N3	53:A:270:A:N7	2.18	0.92
53:A:272:A:HO2'	53:A:273:G:H8	1.10	0.92
53:A:269:C:C4	53:A:270:A:N7	2.38	0.91
53:A:272:A:O2'	53:A:273:G:H8	1.53	0.91
53:A:272:A:N3	53:A:273:G:N7	2.21	0.89
56:9:29:G:H1	56:9:41:C:H42	1.20	0.89
53:A:272:A:C2	53:A:273:G:C6	2.59	0.89
56:9:27:G:N2	56:9:45:U:N3	2.20	0.88
45:U:38:ILE:HG23	45:U:39:ASN:H	1.37	0.87
53:A:271:G:C5	53:A:367:G:N2	2.29	0.87
56:9:25:C:H2'	56:9:26:A:C4'	2.04	0.86
53:A:269:C:C2	53:A:270:A:N7	2.43	0.86
27:C:134:ILE:O	27:C:166:ARG:NH1	2.08	0.86
33:I:29:GLN:HG3	33:I:32:VAL:HB	1.56	0.85
56:9:24:G:H2'	56:9:25:C:H5''	1.59	0.84
44:T:28:ASN:HB2	44:T:91:GLN:HE22	1.40	0.84
56:9:10:G:N1	56:9:25:C:N3	2.27	0.83
53:A:271:G:C5	53:A:367:G:N3	2.45	0.83
53:A:272:A:N3	53:A:273:G:C5	2.46	0.83
33:I:126:ARG:HB3	53:A:1080:A:H4'	1.61	0.82
26:5:166:ASP:HA	53:A:2122:U:H1'	1.60	0.82
43:S:73:LYS:HB3	43:S:106:VAL:HB	1.60	0.82
53:A:271:G:C6	53:A:367:G:N1	2.41	0.81
48:X:36:ARG:HG2	48:X:47:THR:HG22	1.63	0.81
53:A:2796:U:H3	53:A:2799:A:H61	1.30	0.80
53:A:155:A:H2'	53:A:156:A:H8	1.47	0.79
32:H:4:ILE:HG12	32:H:18:GLN:HE22	1.47	0.79
29:E:163:ASN:ND2	53:A:320:A:N3	2.30	0.79
37:M:66:ARG:NH1	37:M:104:GLU:OE2	2.16	0.79
28:D:49:GLN:HE21	28:D:79:LEU:HD13	1.45	0.78
27:C:269:ARG:NH2	53:A:1799:G:OP2	2.17	0.78
53:A:2576:G:O2'	53:A:2579:C:OP2	2.02	0.77
34:J:43:GLU:O	34:J:45:THR:N	2.17	0.77
53:A:184:C:H2'	53:A:185:G:H8	1.50	0.77
56:9:11:C:H42	56:9:25:C:H42	1.33	0.76
33:I:85:ILE:HG22	33:I:87:SER:H	1.50	0.76
43:S:24:ILE:HD11	43:S:36:LEU:HD13	1.67	0.76
53:A:191:A:HO2'	53:A:678:C:HO2'	1.32	0.76
30:F:70:ARG:NH2	53:A:2298:A:OP1	2.17	0.76
47:W:16:GLU:OE2	53:A:2270:A:O2'	2.02	0.76
56:9:26:A:N6	56:9:45:U:O2	2.19	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:O:15:ARG:NH1	53:A:1264:A:OP1	2.16	0.76
56:9:26:A:H8	56:9:27:G:N7	1.83	0.75
33:I:127:SER:HA	53:A:1080:A:H1'	1.67	0.75
53:A:411:G:OP2	53:A:2406:A:O2'	2.02	0.75
29:E:147:LEU:HB3	29:E:186:VAL:HG23	1.69	0.75
53:A:2368:C:N4	53:A:2382:G:O6	2.19	0.75
50:Z:8:GLN:HG2	50:Z:31:ILE:HA	1.68	0.75
53:A:107:G:H2'	53:A:108:G:H8	1.50	0.75
53:A:1696:G:N2	53:A:1977:A:O2'	2.18	0.75
53:A:271:G:N9	53:A:367:G:N2	2.31	0.75
46:V:57:TYR:OH	46:V:79:ARG:NH2	2.19	0.75
53:A:1530:G:N1	53:A:1541:C:O2	2.20	0.75
37:M:53:MET:HB2	37:M:120:ALA:HB2	1.66	0.75
33:I:127:SER:O	53:A:1059:G:N2	2.20	0.75
34:J:4:PHE:N	34:J:44:TYR:OH	2.20	0.74
53:A:1176:U:H2'	53:A:1177:G:C8	2.22	0.74
47:W:40:ARG:NH1	47:W:52:CYS:SG	2.61	0.74
26:5:18:THR:OG1	26:5:221:GLY:O	2.06	0.74
27:C:251:THR:HG22	27:C:252:LYS:H	1.50	0.74
56:9:26:A:H5''	56:9:27:G:C8	2.23	0.74
56:8:19:G:N7	56:8:57:G:N2	2.35	0.74
37:M:75:GLU:HG2	53:A:957:C:H5'	1.70	0.74
38:N:28:LEU:HD23	38:N:48:VAL:HG21	1.70	0.74
48:X:9:LYS:NZ	53:A:396:G:OP2	2.21	0.74
54:B:95:U:H2'	54:B:96:G:H8	1.53	0.74
53:A:1173:U:H2'	53:A:1174:U:H4'	1.70	0.73
26:5:106:LYS:O	53:A:2162:G:N2	2.21	0.73
45:U:27:VAL:HG23	45:U:33:VAL:HG12	1.70	0.73
34:J:35:ARG:HA	34:J:40:HIS:HD2	1.53	0.73
26:5:9:ARG:NH2	53:A:2107:G:OP2	2.21	0.73
56:9:10:G:C6	56:9:25:C:C4	2.77	0.73
27:C:123:ILE:HG23	27:C:191:LEU:HD21	1.71	0.73
47:W:19:ARG:HH11	47:W:22:VAL:HG11	1.53	0.73
49:Y:16:THR:O	49:Y:20:ASN:ND2	2.22	0.73
26:5:77:VAL:HG11	26:5:92:ALA:HA	1.71	0.73
56:8:21:A:N6	56:8:46:G:C4	2.56	0.73
56:8:6:G:N2	56:8:67:C:O2	2.21	0.73
53:A:807:U:H2'	53:A:808:G:H8	1.54	0.73
53:A:1175:A:H5'	53:A:1176:U:H1'	1.71	0.73
47:W:13:ARG:NH2	53:A:2260:C:OP1	2.22	0.73
53:A:2033:A:O2'	53:A:2035:G:OP2	2.07	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:D:184:ARG:HG2	28:D:186:LEU:HD13	1.70	0.73
31:G:40:VAL:O	31:G:54:ARG:NH2	2.20	0.73
48:X:17:ARG:NH2	48:X:21:LEU:O	2.22	0.73
23:2:37:LYS:NZ	53:A:468:G:OP2	2.22	0.73
26:5:168:ASN:OD1	53:A:2121:G:N2	2.22	0.72
56:9:26:A:C8	56:9:27:G:N7	2.56	0.72
28:D:119:ALA:HB1	28:D:124:ARG:HB2	1.68	0.72
33:I:105:LEU:H	33:I:108:ILE:HB	1.53	0.72
30:F:132:ARG:NH1	53:A:2305:U:O2'	2.22	0.72
40:P:63:ILE:HA	40:P:68:GLY:HA2	1.72	0.72
22:1:7:LYS:NZ	53:A:2421:G:OP1	2.22	0.72
40:P:4:ILE:O	40:P:6:GLN:N	2.22	0.72
45:U:6:ARG:NH2	45:U:25:LYS:O	2.23	0.72
22:1:8:ILE:HG23	22:1:51:ALA:HA	1.71	0.72
53:A:1917:U:O4	53:A:1918:A:N6	2.23	0.72
37:M:14:LYS:NZ	53:A:956:G:N7	2.36	0.72
41:Q:63:ARG:NH1	41:Q:95:ALA:O	2.22	0.72
53:A:2116:G:H1	53:A:2147:A:HO2'	1.32	0.72
26:5:12:ARG:HD3	26:5:17:ALA:HA	1.70	0.72
53:A:1069:A:N7	53:A:1074:G:N1	2.38	0.72
53:A:370:G:O2'	53:A:424:G:OP1	2.07	0.72
30:F:23:SER:HB3	30:F:26:GLN:HB2	1.71	0.72
35:K:10:VAL:HG11	35:K:16:ALA:HB3	1.72	0.71
56:8:21:A:N6	56:8:46:G:N9	2.38	0.71
53:A:2324:U:H3'	53:A:2325:G:H5''	1.70	0.71
31:G:31:GLU:O	31:G:33:THR:N	2.22	0.71
50:Z:9:THR:OG1	50:Z:53:MET:O	2.08	0.71
56:9:10:G:C6	56:9:25:C:N3	2.58	0.71
21:0:42:ILE:HD11	38:N:98:LEU:HB3	1.71	0.71
53:A:2120:G:N2	53:A:2178:C:O2	2.23	0.71
53:A:878:A:N6	53:A:899:A:O2'	2.23	0.71
30:F:147:ARG:HG3	30:F:149:ARG:H	1.56	0.71
53:A:2450:A:O2'	56:8:76:A:N6	2.23	0.71
33:I:57:VAL:HB	33:I:69:VAL:HB	1.73	0.70
56:9:26:A:OP1	56:9:26:A:H4'	1.90	0.70
21:0:12:ARG:NH1	53:A:1263:U:OP1	2.24	0.70
28:D:48:ILE:HG23	28:D:84:LEU:HD11	1.72	0.70
41:Q:18:LYS:NZ	53:A:1219:U:OP2	2.24	0.70
53:A:271:G:H1'	53:A:272:A:OP1	1.90	0.70
22:1:3:GLY:O	22:1:5:ARG:N	2.22	0.70
29:E:131:THR:HG23	53:A:321:U:H5''	1.72	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:S:18:ARG:O	43:S:20:VAL:N	2.25	0.70
53:A:271:G:C4	53:A:367:G:C2	2.73	0.70
34:J:72:LYS:HB3	34:J:89:PHE:HB2	1.72	0.70
26:5:37:LYS:NZ	26:5:218:MET:SD	2.64	0.70
53:A:1278:C:H2'	53:A:1279:G:H8	1.56	0.70
32:H:68:ARG:NH2	32:H:113:SER:OG	2.24	0.70
43:S:11:ARG:HH21	53:A:1322:A:H5'	1.56	0.70
53:A:272:A:N1	53:A:273:G:C6	2.60	0.70
34:J:56:VAL:HB	34:J:124:VAL:HA	1.74	0.70
53:A:2129:C:N4	53:A:2159:G:O6	2.25	0.70
53:A:2185:U:H2'	53:A:2186:G:H5''	1.74	0.70
45:U:92:VAL:HG22	45:U:93:ARG:H	1.57	0.70
47:W:23:LYS:NZ	53:A:923:G:N3	2.39	0.70
53:A:2126:A:N6	53:A:2173:A:OP2	2.23	0.69
53:A:1336:A:H2'	53:A:1337:G:H8	1.56	0.69
53:A:269:C:H2'	53:A:270:A:H8	1.56	0.69
28:D:13:ARG:HH11	53:A:2683:C:H4'	1.57	0.69
21:O:37:HIS:ND1	21:O:38:LEU:O	2.23	0.69
53:A:532:A:N7	53:A:2021:C:O2'	2.26	0.69
31:G:97:VAL:HG22	31:G:102:ILE:HG13	1.72	0.69
26:5:8:MET:HB3	26:5:12:ARG:HH12	1.57	0.69
53:A:1999:C:O2	53:A:2687:U:O2'	2.11	0.69
34:J:110:PRO:HB2	34:J:111:LYS:HG2	1.73	0.69
42:R:49:ILE:HD12	42:R:52:PRO:HA	1.75	0.69
40:P:28:LYS:HB3	40:P:39:LEU:HD23	1.72	0.69
53:A:2530:A:O2'	53:A:2532:G:OP2	2.10	0.69
56:9:26:A:H5''	56:9:27:G:N7	2.08	0.69
34:J:37:ARG:NH2	53:A:1007:C:OP1	2.25	0.69
53:A:2156:G:O2'	53:A:2158:A:N7	2.26	0.69
30:F:38:GLY:O	53:A:2306:C:N4	2.26	0.69
53:A:1799:G:N2	53:A:1818:U:O2'	2.26	0.69
41:Q:91:ARG:NH2	53:A:996:A:OP2	2.22	0.69
33:I:133:ARG:NH1	53:A:1078:U:OP1	2.26	0.68
26:5:48:LEU:HD21	26:5:171:ILE:HD12	1.74	0.68
29:E:143:LEU:HD13	29:E:146:VAL:HG11	1.74	0.68
53:A:1713:A:H61	53:A:1745:A:H61	1.41	0.68
36:L:32:GLY:HA2	53:A:1190:G:H5''	1.75	0.68
41:Q:35:PHE:HZ	42:R:84:ARG:HH22	1.39	0.68
48:X:42:GLU:OE1	48:X:44:ARG:NH2	2.26	0.68
53:A:1438:U:H2'	53:A:1439:A:H8	1.59	0.68
37:M:5:LYS:N	53:A:871:U:OP1	2.26	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:T:39:THR:H	44:T:42:GLU:HB3	1.57	0.68
38:N:9:GLN:NE2	53:A:2002:G:OP2	2.27	0.68
34:J:55:ILE:HG22	34:J:123:LYS:HB2	1.74	0.68
44:T:4:GLU:OE2	53:A:143:C:O2'	2.11	0.68
49:Y:45:GLN:O	49:Y:47:ARG:N	2.27	0.68
56:8:1:G:O6	56:8:72:C:N4	2.24	0.68
53:A:1864:U:OP1	53:A:2410:G:O2'	2.12	0.68
27:C:99:GLU:OE2	27:C:101:ARG:NE	2.27	0.68
53:A:2114:A:N7	53:A:2170:A:N6	2.42	0.67
53:A:1918:A:O2'	53:A:1920:C:N4	2.27	0.67
56:9:29:G:H1	56:9:41:C:N4	1.92	0.67
56:9:51:U:H3	56:9:63:G:H1	1.39	0.67
33:I:130:GLY:O	53:A:1088:A:N6	2.27	0.67
29:E:161:ALA:HB1	29:E:167:VAL:HG11	1.76	0.67
43:S:2:GLU:HA	43:S:108:SER:HB3	1.77	0.67
56:9:26:A:N7	56:9:27:G:N3	2.42	0.67
53:A:117:G:OP2	53:A:119:A:O2'	2.10	0.67
53:A:2375:G:N2	53:A:2378:A:OP2	2.26	0.67
25:4:5:ALA:HB3	53:A:2466:C:H5'	1.77	0.67
53:A:271:G:C4	53:A:367:G:N2	2.62	0.67
56:8:20:U:H4'	56:8:21:A:OP1	1.93	0.67
56:9:26:A:H5'	56:9:27:G:OP2	1.93	0.67
32:H:30:LEU:O	32:H:34:GLY:N	2.26	0.67
32:H:4:ILE:HD11	32:H:44:ILE:HG22	1.75	0.67
39:O:102:ARG:N	54:B:49:C:OP1	2.27	0.67
53:A:1068:G:O2'	53:A:1070:A:N6	2.28	0.67
53:A:548:G:O2'	53:A:549:G:N2	2.27	0.67
32:H:94:ILE:HA	32:H:114:GLU:HA	1.76	0.67
53:A:1044:C:O2'	53:A:1111:A:N1	2.24	0.67
33:I:135:MET:SD	53:A:1063:G:O2'	2.53	0.67
56:9:19:G:OP1	56:9:60:U:N3	2.28	0.66
26:5:31:LYS:NZ	26:5:234:ASN:HD22	1.92	0.66
53:A:1689:A:OP2	53:A:1698:A:N6	2.25	0.66
53:A:828:U:O4	53:A:858:G:N2	41.20	0.66
28:D:179:ARG:HB3	28:D:188:LEU:HD12	1.75	0.66
48:X:20:ALA:HA	56:9:75:C:H41	1.58	0.66
53:A:1160:G:O6	53:A:1182:G:N1	20.99	0.66
53:A:1288:G:OP2	53:A:1288:G:N2	2.27	0.66
34:J:35:ARG:HA	34:J:40:HIS:CD2	2.29	0.66
46:V:35:GLU:OE2	46:V:93:ARG:NH1	2.20	0.66
53:A:2443:C:H2'	53:A:2444:G:H8	1.60	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:972:A:N1	53:A:973:A:N6	2.43	0.66
31:G:121:THR:OG1	31:G:133:LYS:O	2.13	0.66
53:A:1283:G:N2	53:A:1329:U:O4	2.28	0.66
28:D:173:GLN:NE2	53:A:2771:C:O2'	2.29	0.66
26:5:167:LYS:HB2	53:A:2121:G:H1'	1.78	0.66
33:I:89:SER:HB2	53:A:1063:G:H21	1.60	0.66
53:A:1309:G:HO2'	53:A:1611:C:HO2'	1.42	0.66
29:E:97:ASN:ND2	53:A:658:U:O2	2.28	0.66
53:A:1275:A:N1	53:A:1295:C:O2'	2.29	0.66
40:P:91:VAL:HG11	40:P:96:LEU:HD21	1.77	0.66
53:A:1128:G:N7	53:A:2489:U:O2'	2.29	0.66
53:A:2114:A:O4'	53:A:2169:A:N6	2.22	0.66
34:J:17:VAL:HG22	34:J:139:VAL:HA	1.78	0.66
53:A:1285:A:H61	53:A:1329:U:H5'	1.61	0.66
53:A:2473:U:O5'	53:A:2475:C:N4	2.29	0.66
53:A:2589:A:H2'	53:A:2590:A:H8	1.59	0.66
53:A:307:G:N1	53:A:310:A:OP2	2.29	0.66
53:A:272:A:N1	53:A:365:U:O4	2.27	0.66
53:A:219:A:N3	53:A:234:U:O2'	2.28	0.65
53:A:674:G:O6	53:A:716:A:N6	102.54	0.65
53:A:833:A:H2'	53:A:834:G:H8	1.60	0.65
41:Q:2:ARG:HB2	53:A:1248:G:C5	2.31	0.65
46:V:21:ARG:NH1	54:B:77:U:OP1	2.29	0.65
56:9:10:G:N1	56:9:25:C:C2	2.63	0.65
41:Q:65:ASN:ND2	53:A:1010:A:OP1	2.28	0.65
53:A:155:A:H2'	53:A:156:A:C8	2.30	0.65
53:A:2163:A:OP2	53:A:2171:A:O2'	2.08	0.65
53:A:242:G:O2'	53:A:254:G:O6	2.12	0.65
48:X:2:ARG:NH2	53:A:1365:A:OP1	2.29	0.65
26:5:18:THR:HG23	26:5:223:ALA:H	1.61	0.65
53:A:2450:A:N6	53:A:2501:C:O2	2.30	0.65
53:A:880:G:O2'	53:A:882:G:N7	2.27	0.65
24:3:29:ARG:NH2	53:A:2394:C:OP2	2.29	0.65
53:A:1105:U:H2'	53:A:1106:G:H8	1.61	0.65
53:A:2050:C:N4	53:A:2051:A:N1	2.45	0.65
43:S:61:ASN:ND2	53:A:495:G:N3	2.45	0.65
56:8:21:A:N1	56:8:48:C:C6	2.52	0.65
44:T:38:ALA:HB1	44:T:43:ILE:HG22	1.78	0.65
47:W:24:ARG:HH12	47:W:26:GLY:HA2	1.62	0.65
46:V:14:LYS:NZ	54:B:80:U:O4	2.29	0.65
23:2:12:ARG:HE	23:2:44:VAL:HG11	1.61	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1940:U:N3	53:A:1965:C:OP2	2.30	0.65
53:A:1266:G:O2'	53:A:2012:G:O6	2.15	0.65
38:N:33:ILE:HD13	38:N:114:GLU:HB3	1.78	0.65
42:R:75:VAL:HG22	42:R:86:GLN:HG2	1.77	0.65
53:A:2121:G:O6	53:A:2176:A:N6	2.23	0.64
53:A:272:A:C2	53:A:273:G:N7	2.60	0.64
53:A:2809:A:OP2	53:A:2890:G:N1	2.28	0.64
38:N:40:LYS:NZ	53:A:1651:G:OP1	2.27	0.64
53:A:2449:U:O2'	53:A:2501:C:N4	2.30	0.64
53:A:1324:G:O2'	53:A:1326:U:OP2	2.15	0.64
35:K:61:VAL:HG23	35:K:87:LEU:HD11	1.80	0.64
53:A:2659:G:O2'	53:A:2661:G:N7	2.28	0.64
53:A:833:A:H2'	53:A:834:G:C8	2.32	0.64
53:A:1057:A:N6	53:A:1087:G:OP2	2.30	0.64
22:1:5:ARG:NH1	53:A:2285:C:OP2	2.30	0.64
53:A:271:G:H4'	53:A:272:A:OP2	1.97	0.64
53:A:2788:C:O2'	53:A:2809:A:N3	2.29	0.64
33:I:56:VAL:HG21	33:I:68:PHE:HB2	1.79	0.64
42:R:4:VAL:HG12	42:R:40:MET:HB3	1.79	0.64
26:5:60:ARG:HD3	26:5:164:ARG:HG3	1.80	0.64
53:A:910:A:N3	53:A:2264:C:O2'	2.30	0.64
43:S:55:ILE:HG23	43:S:66:ILE:HG21	1.79	0.64
56:8:43:C:N4	56:8:44:G:O6	2.31	0.64
53:A:2474:U:OP2	53:A:2475:C:N4	2.27	0.64
36:L:93:ASN:O	36:L:95:LEU:N	2.31	0.64
53:A:279:A:N6	53:A:361:G:H1'	2.13	0.64
32:H:102:ALA:HA	32:H:105:ALA:HB3	1.78	0.64
22:1:25:ASN:OD1	22:1:26:LYS:N	2.31	0.64
26:5:77:VAL:HG23	26:5:93:GLU:HG2	1.80	0.64
53:A:1477:A:N6	53:A:1514:G:O2'	2.31	0.64
53:A:1794:A:H2'	53:A:1795:C:H6	1.62	0.64
41:Q:2:ARG:NH2	53:A:446:G:OP1	2.30	0.64
48:X:16:ASN:ND2	48:X:24:THR:OG1	2.29	0.64
49:Y:49:ASP:OD1	49:Y:52:ARG:NH2	2.32	0.63
53:A:203:A:N6	53:A:204:A:N1	2.45	0.63
34:J:96:ARG:NH1	53:A:2640:G:OP1	2.30	0.63
43:S:18:ARG:HH21	53:A:518:G:H4'	1.62	0.63
39:O:29:HIS:CE1	54:B:7:G:H5'	2.34	0.63
35:K:43:ILE:HD12	35:K:56:ASP:HB2	1.79	0.63
25:4:4:ARG:HG3	53:A:2466:C:OP1	1.98	0.63
55:7:19:A:N1	55:7:20:A:N6	2.47	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:2106:U:N3	53:A:2107:G:N7	2.46	0.63
53:A:1047:G:H21	53:A:1215:G:H1'	126.02	0.63
41:Q:36:GLN:NE2	53:A:1252:G:H22	1.97	0.63
37:M:123:LYS:HD2	53:A:2484:G:H1'	1.81	0.63
53:A:2508:G:H2'	53:A:2509:G:H8	1.62	0.63
53:A:2644:G:H3'	53:A:2645:G:H21	1.64	0.63
53:A:272:A:O2'	53:A:273:G:C8	2.33	0.63
53:A:332:A:O2'	53:A:334:C:OP2	2.13	0.63
36:L:39:LYS:NZ	53:A:833:A:OP2	2.23	0.63
30:F:51:ASN:ND2	30:F:146:ASP:OD2	2.32	0.63
30:F:12:VAL:HG23	30:F:27:VAL:HG21	1.81	0.63
36:L:95:LEU:HD13	36:L:100:ILE:HD11	1.80	0.63
43:S:4:ILE:HG22	43:S:106:VAL:HG22	1.80	0.63
49:Y:56:LEU:O	49:Y:58:ASN:N	2.31	0.63
26:5:177:LYS:HG3	26:5:179:ASP:H	1.63	0.63
33:I:89:SER:OG	33:I:135:MET:O	2.14	0.63
45:U:13:LEU:O	45:U:18:LYS:NZ	2.25	0.63
47:W:64:GLY:HA2	47:W:84:GLU:HG2	1.81	0.63
53:A:1358:G:N1	53:A:1372:U:OP2	2.27	0.63
53:A:2116:G:N1	53:A:2147:A:O2'	2.22	0.63
53:A:287:G:H1	53:A:353:C:H42	1.47	0.63
30:F:72:SER:HB2	30:F:80:GLN:N	2.14	0.63
29:E:161:ALA:HA	29:E:164:LEU:HD13	1.80	0.63
56:8:21:A:N6	56:8:46:G:C8	2.61	0.62
53:A:269:C:C2	53:A:270:A:H8	2.11	0.62
26:5:75:VAL:HG22	26:5:113:VAL:HG21	1.81	0.62
26:5:67:HIS:NE2	26:5:187:GLU:OE1	2.32	0.62
31:G:175:LYS:NZ	53:A:2659:G:O3'	2.32	0.62
29:E:16:GLU:O	29:E:20:GLY:N	2.31	0.62
43:S:13:SER:O	43:S:15:GLN:N	2.31	0.62
26:5:31:LYS:HZ1	26:5:234:ASN:HD22	1.47	0.62
53:A:134:G:O6	53:A:144:A:N6	2.32	0.62
53:A:1721:G:N2	53:A:1740:G:O6	2.30	0.62
53:A:2796:U:H3	53:A:2799:A:N6	1.97	0.62
53:A:281:C:H2'	53:A:282:A:H8	1.63	0.62
53:A:477:A:N6	53:A:500:G:O2'	2.32	0.62
27:C:161:VAL:HG11	27:C:173:LEU:HD23	1.81	0.62
31:G:138:GLN:HE22	53:A:2760:C:H1'	1.64	0.62
45:U:12:VAL:HA	45:U:69:VAL:HG12	1.81	0.62
46:V:30:ILE:HG12	46:V:91:PHE:HB2	1.80	0.62
53:A:1062:G:H2'	53:A:1063:G:H8	1.64	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:2133:G:N2	53:A:2159:G:O2'	2.32	0.62
49:Y:56:LEU:HA	49:Y:59:GLU:HG2	1.82	0.62
53:A:2126:A:H4'	53:A:2127:G:H5'	1.80	0.62
56:9:25:C:C2'	56:9:26:A:H4'	2.23	0.62
30:F:105:ILE:HD12	30:F:138:PRO:HG2	1.81	0.62
22:1:25:ASN:OD1	22:1:27:ARG:N	2.32	0.62
26:5:84:ALA:HA	26:5:87:ALA:HB3	1.81	0.62
53:A:1184:U:H2'	53:A:1185:G:H8	1.65	0.62
53:A:677:A:HO2'	53:A:2070:A:HO2'	1.43	0.62
54:B:70:C:H2'	54:B:71:C:C6	2.35	0.62
27:C:160:TYR:HB3	27:C:193:GLU:HG2	1.81	0.62
41:Q:94:LEU:HG	42:R:4:VAL:HG21	1.82	0.62
46:V:6:ALA:HB3	46:V:65:VAL:HB	1.80	0.62
56:9:16:U:O2'	56:9:18:G:OP1	2.18	0.61
56:9:72:C:H2'	56:9:73:A:H8	1.65	0.61
37:M:10:ARG:NH1	53:A:2278:A:OP1	2.32	0.61
53:A:488:G:O2'	53:A:491:G:O6	2.18	0.61
27:C:170:TYR:OH	27:C:264:LYS:NZ	2.33	0.61
32:H:7:ASP:OD2	32:H:10:ALA:N	2.33	0.61
33:I:19:PRO:HG2	33:I:22:PRO:HD2	1.83	0.61
53:A:1862:G:H1	53:A:1880:U:H3	1.48	0.61
53:A:2815:C:H2'	53:A:2816:G:H8	1.66	0.61
53:A:5:A:H2'	53:A:6:A:H8	1.65	0.61
31:G:83:THR:HB	31:G:84:LYS:HG2	1.82	0.61
27:C:259:ASN:O	27:C:261:ARG:N	2.32	0.61
22:1:33:LEU:HD21	22:1:35:LEU:HG	1.82	0.61
29:E:44:ARG:HH12	53:A:1248:G:P	2.23	0.61
53:A:160:A:H2'	53:A:161:A:C8	2.36	0.61
28:D:168:GLU:HG3	28:D:169:ARG:H	1.65	0.61
48:X:69:GLU:O	48:X:71:ARG:N	2.34	0.61
27:C:86:ARG:HH11	53:A:1817:G:H5''	1.66	0.61
53:A:269:C:N4	53:A:270:A:H62	1.98	0.61
31:G:23:ILE:HG21	31:G:71:LEU:HD21	1.81	0.61
32:H:2:GLN:HE22	32:H:20:ASN:HB2	1.65	0.61
53:A:1713:A:N6	53:A:1746:A:N1	2.48	0.61
53:A:233:A:H61	53:A:428:A:H61	1.48	0.61
43:S:88:ARG:NH1	53:A:748:G:OP1	2.32	0.61
33:I:24:GLY:H	33:I:27:LEU:HG	1.66	0.61
40:P:88:ARG:HH22	40:P:112:ARG:HB3	1.65	0.61
53:A:720:U:H2'	53:A:721:A:C8	2.35	0.61
26:5:44:VAL:HG21	26:5:212:VAL:HG13	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1383:A:H2'	53:A:1384:A:C8	2.36	0.61
53:A:1968:G:O2'	53:A:1969:A:O4'	2.19	0.61
53:A:223:A:O2'	53:A:420:C:O2	2.18	0.61
30:F:39:VAL:HG11	30:F:49:LEU:HD13	1.82	0.61
37:M:110:GLU:OE2	37:M:114:ARG:NE	2.34	0.61
56:8:51:U:H3	56:8:63:G:H1	1.49	0.60
53:A:2795:C:H42	53:A:2801:G:H1	1.48	0.60
27:C:65:ASP:OD2	27:C:101:ARG:NH1	2.33	0.60
26:5:52:ALA:HB2	26:5:56:ASP:H	1.65	0.60
26:5:74:ARG:HH12	53:A:2126:A:P	2.24	0.60
32:H:7:ASP:HB2	32:H:35:LYS:HB3	1.82	0.60
26:5:135:GLY:N	53:A:2124:G:O6	2.33	0.60
53:A:746:U:O2'	53:A:2611:C:O2'	2.17	0.60
27:C:257:ARG:NH1	27:C:263:ASP:OD1	2.34	0.60
37:M:71:LYS:HD3	37:M:95:LEU:HD13	1.82	0.60
26:5:108:GLU:OE2	53:A:2162:G:N1	2.32	0.60
29:E:44:ARG:NH1	53:A:1248:G:OP1	2.35	0.60
34:J:36:LEU:HD11	34:J:121:LYS:HB2	1.83	0.60
53:A:2114:A:C4	53:A:2115:G:H1'	2.37	0.60
44:T:57:VAL:O	44:T:86:THR:OG1	2.20	0.60
53:A:1009:A:N3	53:A:1153:C:O2'	2.34	0.60
28:D:161:MET:SD	53:A:2619:C:O2'	2.57	0.60
43:S:11:ARG:NH2	53:A:1322:A:H5'	2.17	0.60
47:W:23:LYS:HG2	47:W:24:ARG:H	1.66	0.60
56:9:26:A:H8	56:9:27:G:C4	1.98	0.60
53:A:1738:G:HO2'	53:A:1739:A:H8	1.49	0.60
54:B:30:C:H1'	54:B:57:A:H61	1.66	0.60
35:K:70:ARG:HG2	35:K:76:VAL:HG22	1.84	0.60
38:N:64:ARG:NH2	53:A:2706:A:O2'	2.34	0.60
47:W:23:LYS:HE2	53:A:855:G:N2	2.15	0.60
27:C:43:ASN:OD1	27:C:44:ASN:N	2.34	0.60
32:H:68:ARG:HH11	32:H:110:VAL:HG22	1.67	0.60
43:S:59:GLU:HA	43:S:64:ALA:HA	1.83	0.60
53:A:2557:G:H2'	53:A:2558:C:C6	2.37	0.59
47:W:21:GLY:HA2	47:W:25:PHE:CD1	2.37	0.59
53:A:2114:A:N1	53:A:2117:A:N6	2.50	0.59
40:P:20:ARG:NH1	53:A:2849:U:O4	2.35	0.59
35:K:11:ALA:O	35:K:100:PHE:N	2.34	0.59
48:X:75:GLU:HG3	48:X:77:TYR:H	1.66	0.59
27:C:206:LYS:NZ	53:A:729:G:OP2	2.31	0.59
53:A:1153:C:H2'	53:A:1154:G:O4'	2.02	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1166:G:N1	53:A:1169:A:OP2	11.87	0.59
24:3:7:ARG:NH2	53:A:244:A:OP2	2.33	0.59
29:E:98:LYS:HB3	29:E:102:ARG:HH22	1.67	0.59
53:A:1038:G:H2'	53:A:1039:A:H8	1.67	0.59
53:A:2048:G:N2	53:A:2621:G:N3	2.51	0.59
53:A:358:U:H2'	53:A:359:G:H8	1.76	0.59
38:N:12:ARG:O	38:N:17:ARG:NH2	2.36	0.59
53:A:287:G:H2'	53:A:288:U:C6	2.36	0.59
34:J:44:TYR:HB2	41:Q:63:ARG:HB3	1.85	0.59
48:X:3:VAL:HG22	48:X:10:ARG:HG2	1.84	0.59
24:3:39:ARG:NE	53:A:2362:C:OP1	2.36	0.59
24:3:24:LYS:HB2	24:3:46:LYS:HE2	1.83	0.59
53:A:1087:G:H22	53:A:1099:G:H1'	16.46	0.59
27:C:180:MET:HB2	27:C:267:VAL:HB	1.85	0.59
32:H:3:VAL:HA	32:H:39:ALA:H	1.68	0.59
35:K:2:ILE:HD12	35:K:8:LEU:HD21	1.84	0.59
46:V:29:ILE:HA	46:V:39:ALA:HA	1.84	0.59
46:V:76:ASP:OD1	46:V:77:VAL:N	2.36	0.59
53:A:1345:C:H42	53:A:1601:G:H1	1.51	0.59
35:K:23:LYS:NZ	53:A:2561:U:O2	2.35	0.59
27:C:155:ARG:NH1	53:A:1818:U:OP2	2.36	0.59
29:E:5:LEU:HD21	29:E:122:GLU:H	1.67	0.59
39:O:71:ALA:HB1	39:O:106:LEU:HD23	1.84	0.59
53:A:1435:G:H2'	53:A:1436:G:H8	1.68	0.58
53:A:593:U:H2'	53:A:594:U:H6	1.67	0.58
33:I:79:LEU:HD21	33:I:105:LEU:HD21	1.85	0.58
53:A:1114:C:H42	53:A:1186:G:H1	71.33	0.58
27:C:270:ARG:NH2	53:A:1798:U:OP2	2.35	0.58
53:A:1889:A:N3	53:A:2086:U:O2'	2.33	0.58
53:A:1934:C:H2'	53:A:1935:G:H8	1.66	0.58
53:A:351:C:H2'	53:A:352:A:H8	1.68	0.58
54:B:116:G:H2'	54:B:117:G:H8	1.68	0.58
54:B:34:A:N6	54:B:44:G:O2'	2.34	0.58
47:W:18:LYS:HG2	53:A:2270:A:H5'	1.85	0.58
53:A:690:G:N2	53:A:773:U:O2	2.37	0.58
32:H:97:ARG:HH22	32:H:111:ALA:HB1	1.68	0.58
33:I:17:ALA:HB3	33:I:38:CYS:HA	1.84	0.58
26:5:193:LEU:HD23	26:5:196:LEU:HD12	1.84	0.58
53:A:1038:G:H2'	53:A:1039:A:C8	2.37	0.58
53:A:2169:A:H2'	53:A:2170:A:C8	2.39	0.58
53:A:269:C:H2'	53:A:270:A:C8	2.37	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:D:111:GLY:HA3	28:D:194:PRO:HG2	1.86	0.58
45:U:68:ASN:ND2	53:A:329:G:OP2	2.31	0.58
32:H:26:ALA:O	32:H:28:ASN:N	2.36	0.58
56:9:11:C:N4	56:9:25:C:H42	1.98	0.58
53:A:978:G:HO2'	53:A:1002:G:HO2'	1.52	0.58
53:A:1069:A:N3	53:A:1073:A:N6	2.52	0.58
53:A:1532:A:H1'	53:A:1540:G:H1	1.69	0.58
53:A:593:U:H2'	53:A:594:U:C6	2.39	0.58
53:A:755:U:H2'	53:A:756:A:H8	1.68	0.58
39:O:117:PHE:OXT	53:A:2377:A:O2'	2.21	0.58
41:Q:23:TYR:CD1	53:A:533:G:H5'	2.39	0.58
27:C:58:LYS:HB3	53:A:1568:G:H4'	1.86	0.58
47:W:50:VAL:H	47:W:61:LYS:HE2	1.68	0.58
56:9:26:A:N7	56:9:27:G:C5	2.63	0.58
53:A:52:A:H2'	53:A:53:A:C8	2.38	0.58
29:E:31:VAL:HG21	29:E:104:ALA:HB2	1.85	0.58
50:Z:8:GLN:HB3	50:Z:32:GLY:H	1.68	0.58
26:5:196:LEU:HA	26:5:199:ALA:HB3	1.85	0.58
26:5:26:ALA:HB3	26:5:224:VAL:HG22	1.86	0.58
53:A:1247:A:N7	53:A:1249:U:N3	2.52	0.58
53:A:1696:G:N2	53:A:1977:A:HO2'	2.02	0.58
54:B:93:C:H2'	54:B:94:A:H8	1.68	0.58
27:C:231:HIS:O	27:C:241:LYS:NZ	2.32	0.58
37:M:69:PRO:HA	37:M:94:ALA:HB2	1.85	0.58
53:A:1722:A:H62	53:A:1738:G:H1'	1.69	0.58
53:A:2112:G:N2	53:A:2119:A:O2'	2.36	0.58
53:A:879:G:H22	53:A:898:C:H2'	1.69	0.58
28:D:52:THR:OG1	28:D:53:GLY:N	2.35	0.58
36:L:82:LEU:HD13	36:L:120:VAL:HG11	1.86	0.58
53:A:2023:C:H2'	53:A:2024:G:H8	1.69	0.57
36:L:60:ARG:HH21	53:A:2428:G:H21	1.52	0.57
32:H:131:SER:OG	32:H:140:ALA:N	2.34	0.57
34:J:125:TYR:OH	34:J:132:HIS:NE2	2.37	0.57
45:U:10:VAL:HG12	45:U:71:ILE:HA	1.85	0.57
53:A:2287:A:O2'	53:A:2288:A:H2'	2.04	0.57
47:W:31:LEU:HD22	53:A:2354:C:H4'	1.85	0.57
31:G:103:ASN:HA	31:G:113:ASP:OD1	2.05	0.57
26:5:191:ALA:HA	26:5:194:VAL:HG22	1.86	0.57
41:Q:57:ARG:NH1	53:A:1154:G:OP2	2.37	0.57
53:A:2185:U:N3	53:A:2186:G:N7	2.52	0.57
53:A:564:C:H2'	53:A:565:C:H6	1.68	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:624:C:H2'	53:A:625:G:H8	1.69	0.57
53:A:636:G:HO2'	53:A:638:G:HO2'	1.48	0.57
53:A:720:U:H2'	53:A:721:A:H8	1.69	0.57
27:C:216:ARG:NE	53:A:691:C:OP1	2.38	0.57
31:G:51:PHE:CE2	31:G:68:ARG:HA	2.38	0.57
32:H:83:LYS:HB3	32:H:90:LEU:HD22	1.85	0.57
44:T:28:ASN:HB2	44:T:91:GLN:NE2	2.16	0.57
25:4:11:CYS:SG	25:4:33:HIS:ND1	2.75	0.57
53:A:1417:C:OP1	53:A:1588:G:O2'	2.21	0.57
34:J:118:MET:HA	34:J:121:LYS:HE2	1.87	0.57
39:O:106:LEU:HA	39:O:109:ALA:HB3	1.86	0.57
47:W:19:ARG:HA	47:W:34:SER:HA	1.86	0.57
53:A:1087:G:N2	53:A:1099:G:N3	14.72	0.57
53:A:1296:G:OP1	53:A:2709:G:O2'	2.20	0.57
54:B:66:A:H61	54:B:107:G:H2'	1.70	0.57
35:K:71:ARG:HE	35:K:106:GLU:HG3	1.70	0.57
34:J:44:TYR:CD1	41:Q:63:ARG:HD3	2.39	0.57
48:X:36:ARG:NH1	53:A:2199:A:OP1	2.36	0.57
53:A:1721:G:H1'	53:A:1739:A:N6	2.20	0.57
53:A:84:A:H62	53:A:101:A:H2	1.53	0.57
27:C:16:VAL:H	27:C:203:VAL:HG12	1.70	0.57
28:D:107:VAL:HG22	28:D:108:ASP:H	1.69	0.57
44:T:69:ARG:HG3	44:T:70:HIS:CD2	2.40	0.57
56:9:24:G:O2'	56:9:25:C:H5''	2.03	0.57
53:A:2453:A:H61	53:A:2500:U:H3	1.50	0.57
53:A:488:G:N2	53:A:493:G:O6	2.37	0.57
34:J:16:TYR:CD1	34:J:140:LEU:HD23	2.39	0.57
47:W:22:VAL:H	47:W:25:PHE:HB2	1.70	0.57
26:5:178:VAL:HA	26:5:185:LEU:HD11	1.86	0.57
53:A:271:G:N2	53:A:272:A:C5	2.73	0.57
35:K:70:ARG:NH2	53:A:2683:C:O2	2.37	0.57
44:T:87:LEU:HB2	44:T:91:GLN:HG2	1.86	0.57
26:5:185:LEU:O	26:5:189:LEU:HG	2.05	0.57
56:8:20:U:C2'	56:8:21:A:H5''	2.35	0.57
53:A:1065:U:N3	53:A:1069:A:N7	2.53	0.57
53:A:2623:G:H2'	53:A:2624:G:H8	1.68	0.57
53:A:543:G:H3'	53:A:544:C:H5''	1.87	0.57
39:O:3:LYS:NZ	54:B:30:C:OP1	2.38	0.57
47:W:28:GLU:O	47:W:31:LEU:HG	2.04	0.57
56:8:26:A:H61	56:8:44:G:H1	1.52	0.57
53:A:2523:G:HO2'	53:A:2764:A:HO2'	1.53	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:D:92:VAL:O	28:D:94:GLN:N	2.38	0.57
35:K:31:ARG:NE	53:A:1996:C:OP1	2.38	0.57
56:8:63:G:H2'	56:8:64:A:C8	2.40	0.56
53:A:1287:A:H3'	53:A:1288:G:H21	1.69	0.56
53:A:2659:G:N2	53:A:2662:A:OP2	2.37	0.56
53:A:271:G:N2	53:A:272:A:C6	2.73	0.56
47:W:23:LYS:HE2	53:A:855:G:H21	1.70	0.56
31:G:9:VAL:HA	31:G:48:THR:HG22	1.85	0.56
53:A:2372:U:H2'	53:A:2373:G:H8	1.69	0.56
53:A:2499:C:N4	53:A:2500:U:O4	2.38	0.56
53:A:318:C:H2'	53:A:319:G:H8	1.69	0.56
53:A:608:A:H2'	53:A:609:A:O4'	2.86	0.56
30:F:104:THR:HG22	30:F:105:ILE:HG23	1.87	0.56
32:H:83:LYS:HB2	32:H:95:GLY:HA3	1.87	0.56
47:W:19:ARG:NH1	47:W:22:VAL:HG11	2.19	0.56
47:W:30:VAL:HG11	53:A:2352:A:C6	2.41	0.56
26:5:47:ASN:HB2	26:5:210:LYS:HB2	1.86	0.56
53:A:891:G:N2	53:A:892:A:O2'	2.37	0.56
27:C:144:GLU:HB2	27:C:187:CYS:HB3	1.87	0.56
41:Q:91:ARG:CZ	53:A:996:A:H4'	2.34	0.56
53:A:2144:G:OP2	53:A:2144:G:N2	2.37	0.56
32:H:69:ALA:HA	32:H:72:ILE:HG22	1.86	0.56
44:T:65:GLY:N	44:T:79:ASP:OD1	2.33	0.56
53:A:2146:C:H5'	53:A:2148:G:C8	2.40	0.56
54:B:24:G:N7	54:B:56:G:H2'	2.19	0.56
29:E:60:TRP:NE1	29:E:68:ALA:O	2.35	0.56
53:A:1434:A:H2'	53:A:1435:G:C8	2.40	0.56
53:A:1799:G:N1	53:A:1819:A:OP2	2.29	0.56
43:S:16:LYS:NZ	53:A:2011:U:OP2	2.30	0.56
53:A:2465:C:H2'	53:A:2466:C:C6	2.40	0.56
53:A:437:U:H2'	53:A:438:G:C8	2.40	0.56
34:J:17:VAL:HG13	34:J:137:PRO:HB2	1.88	0.56
56:8:53:G:H1	56:8:61:C:H42	1.51	0.56
53:A:1827:U:O2'	53:A:1970:A:N3	2.37	0.56
53:A:272:A:N3	53:A:273:G:C4	2.70	0.56
53:A:2793:C:H2'	53:A:2794:C:C6	2.40	0.56
53:A:530:G:OP2	53:A:530:G:N2	9.41	0.56
53:A:980:A:N6	53:A:981:A:N1	2.54	0.56
46:V:30:ILE:HG21	46:V:70:ILE:HG21	1.87	0.56
48:X:39:VAL:O	48:X:41:SER:N	2.35	0.56
53:A:1794:A:H2'	53:A:1795:C:C6	2.40	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:383:C:N3	53:A:391:A:N6	2.54	0.56
24:3:22:LYS:HA	24:3:48:MET:HA	1.88	0.56
29:E:41:GLN:NE2	53:A:442:G:O4'	2.39	0.56
53:A:959:A:N3	53:A:2457:U:O2'	2.38	0.56
54:B:63:C:H2'	54:B:64:G:H8	1.71	0.56
36:L:110:VAL:HB	36:L:127:VAL:HG23	1.87	0.56
46:V:58:SER:O	46:V:73:LYS:NZ	2.38	0.56
26:5:30:LEU:HD21	26:5:216:THR:H	1.69	0.56
53:A:1722:A:N6	53:A:1738:G:H1'	2.20	0.56
53:A:2131:U:H4'	53:A:2132:U:H4'	1.86	0.56
53:A:68:G:N2	53:A:74:A:O4'	2.39	0.56
28:D:119:ALA:HB2	28:D:165:MET:HB2	1.88	0.56
53:A:1062:G:H2'	53:A:1063:G:C8	2.40	0.56
53:A:768:G:N2	53:A:1379:U:O2'	2.38	0.56
53:A:605:G:H1	53:A:623:C:H42	1.53	0.56
24:3:53:ASP:OD2	53:A:2359:C:O2'	2.22	0.55
53:A:1748:C:H2'	53:A:1749:A:C8	2.41	0.55
24:3:34:LYS:NZ	53:A:2390:U:O5'	2.38	0.55
31:G:154:GLU:OE2	31:G:156:TYR:HB2	2.05	0.55
35:K:1:MET:HA	35:K:32:TYR:HB3	1.87	0.55
53:A:271:G:N3	53:A:272:A:N7	2.54	0.55
53:A:845:A:H61	53:A:932:U:H3	1.55	0.55
29:E:134:LEU:HD23	29:E:161:ALA:HB2	1.89	0.55
26:5:31:LYS:HZ1	26:5:234:ASN:HA	1.72	0.55
56:8:63:G:H2'	56:8:64:A:H8	1.70	0.55
53:A:2028:U:H3	53:A:2033:A:H62	1.52	0.55
53:A:2136:G:H2'	53:A:2137:U:C6	2.41	0.55
53:A:410:G:O6	53:A:417:C:N4	2.29	0.55
28:D:45:TYR:OH	28:D:81:GLU:OE1	2.24	0.55
46:V:72:VAL:HG21	46:V:91:PHE:HB3	1.87	0.55
25:4:7:VAL:HG23	25:4:8:LYS:H	1.71	0.55
56:9:68:C:N4	56:9:69:G:O6	2.39	0.55
56:9:70:G:H2'	56:9:71:G:C8	2.41	0.55
27:C:40:GLY:O	27:C:42:ARG:NH1	2.40	0.55
34:J:36:LEU:O	34:J:51:GLY:HA3	2.07	0.55
26:5:46:VAL:HG22	26:5:212:VAL:HG22	1.88	0.55
53:A:1048:A:OP2	53:A:1110:G:N2	2.40	0.55
47:W:10:ARG:NH2	53:A:2279:G:N7	2.47	0.55
53:A:2530:A:OP2	53:A:2535:G:N2	2.39	0.55
48:X:53:LYS:NZ	53:A:372:G:O2'	2.39	0.55
36:L:38:GLN:N	53:A:832:U:OP1	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:H:41:LYS:H	32:H:44:ILE:HG23	1.71	0.55
33:I:93:ASN:N	53:A:1076:C:O2'	2.39	0.55
53:A:404:A:H1'	53:A:405:U:OP2	2.06	0.55
53:A:932:U:O2'	53:A:934:U:O4	2.20	0.55
46:V:17:SER:HB3	46:V:21:ARG:HH12	1.72	0.55
46:V:62:THR:HA	46:V:71:LYS:HA	1.88	0.55
56:8:44:G:HO2'	56:8:45:U:H6	1.55	0.55
53:A:1387:A:H2'	53:A:1388:G:H8	1.70	0.55
53:A:2182:U:H2'	53:A:2183:A:C8	2.42	0.55
53:A:2559:C:H2'	53:A:2560:A:H8	1.72	0.55
21:0:27:LEU:HD23	21:0:36:LYS:HD3	1.88	0.55
53:A:1547:C:H2'	53:A:1548:A:H8	1.72	0.55
53:A:2286:G:H4'	53:A:2287:A:O4'	2.07	0.55
53:A:2589:A:H2'	53:A:2590:A:C8	2.40	0.55
33:I:133:ARG:HD2	53:A:1079:C:H1'	1.89	0.55
38:N:28:LEU:HD13	38:N:34:ILE:HG12	1.87	0.55
53:A:1042:G:H1	53:A:1113:U:H3	1.55	0.55
35:K:3:GLN:NE2	53:A:1995:U:O2	2.40	0.55
53:A:2292:U:H2'	53:A:2293:G:C8	2.42	0.55
53:A:285:G:H1	53:A:355:U:H3	1.54	0.55
53:A:438:G:H2'	53:A:439:A:H8	1.71	0.55
30:F:65:LEU:HD13	54:B:41:G:H2'	1.89	0.55
48:X:56:ARG:HH22	53:A:399:U:H5''	1.71	0.55
26:5:135:GLY:N	53:A:2125:G:O6	2.40	0.55
53:A:812:C:O2'	53:A:1226:A:O2'	2.18	0.55
50:Z:11:SER:OG	53:A:989:G:OP2	2.20	0.55
27:C:121:ALA:HB3	27:C:129:LEU:HD11	1.88	0.55
31:G:3:VAL:HG22	31:G:68:ARG:HD3	1.89	0.55
56:9:25:C:H3'	56:9:25:C:H6	1.72	0.54
53:A:964:C:O2'	53:A:2273:A:N3	2.39	0.54
53:A:2514:U:H2'	53:A:2515:C:C6	2.41	0.54
56:9:60:U:H5''	56:9:61:C:H5	1.73	0.54
53:A:1386:C:H2'	53:A:1387:A:C8	2.43	0.54
53:A:139:U:H1'	53:A:141:G:H1	1.73	0.54
53:A:2718:G:O2'	53:A:2847:U:OP1	2.19	0.54
28:D:98:VAL:HG12	28:D:180:VAL:HG13	1.89	0.54
32:H:96:THR:HB	32:H:100:ALA:HB2	1.90	0.54
42:R:14:VAL:HG11	42:R:98:ILE:HG21	1.89	0.54
24:3:23:HIS:HD2	24:3:49:VAL:HG12	1.72	0.54
26:5:196:LEU:HD13	26:5:208:TYR:HB3	1.90	0.54
56:9:27:G:H2'	56:9:28:G:H8	1.73	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1062:G:C8	53:A:1088:A:H2'	2.43	0.54
53:A:1582:C:O2'	53:A:1585:C:N4	2.40	0.54
53:A:1786:A:H1'	53:A:1938:A:N6	2.23	0.54
53:A:299:A:N1	53:A:322:A:O2'	2.38	0.54
31:G:53:PRO:HG3	31:G:61:TRP:CZ2	2.42	0.54
41:Q:54:ARG:NH2	53:A:1155:A:O3'	2.38	0.54
53:A:1330:C:N4	53:A:1331:G:O6	2.41	0.54
53:A:136:G:H1	53:A:143:C:H42	1.55	0.54
53:A:1570:A:H2'	53:A:1571:A:C8	2.42	0.54
44:T:64:LYS:NZ	53:A:1601:G:OP1	2.34	0.54
53:A:1851:U:O2'	56:9:71:G:O2'	2.22	0.54
53:A:2291:U:H2'	53:A:2292:U:C6	2.43	0.54
53:A:2437:G:H2'	53:A:2438:U:H6	1.72	0.54
53:A:263:G:N2	53:A:264:C:O2	2.40	0.54
33:I:104:GLN:HB3	33:I:108:ILE:HD12	1.88	0.54
36:L:68:SER:O	36:L:70:LYS:N	2.38	0.54
37:M:62:LYS:HB3	37:M:106:ASP:HB2	1.90	0.54
37:M:41:LEU:HD13	37:M:96:ILE:HG12	1.89	0.54
44:T:54:GLU:HG2	44:T:88:LYS:HB3	1.89	0.54
48:X:34:SER:HA	48:X:49:ARG:HA	1.90	0.54
53:A:1590:A:H2'	53:A:1591:A:C8	2.43	0.54
53:A:5:A:H2'	53:A:6:A:C8	2.42	0.54
53:A:820:A:N3	53:A:943:A:O2'	2.41	0.54
27:C:77:VAL:HG23	27:C:111:ALA:HA	1.88	0.54
27:C:34:GLU:OE2	53:A:1816:C:N4	2.26	0.54
28:D:45:TYR:OH	53:A:2636:C:O2'	2.24	0.54
36:L:74:THR:HG22	36:L:107:PHE:HB2	1.89	0.54
47:W:9:THR:HG23	47:W:10:ARG:HG3	1.90	0.54
56:9:57:G:H2'	56:9:58:A:H5'	1.90	0.54
53:A:1753:G:N2	53:A:1756:G:O5'	2.38	0.54
53:A:1825:U:H2'	53:A:1826:G:H8	1.72	0.54
53:A:2447:G:N2	53:A:2450:A:OP2	2.41	0.54
53:A:2692:G:H2'	53:A:2693:G:C8	2.43	0.54
53:A:271:G:C6	53:A:367:G:N3	2.51	0.54
53:A:807:U:H2'	53:A:808:G:C8	2.40	0.54
53:A:971:G:OP2	53:A:974:G:N2	2.41	0.54
32:H:66:ASN:O	32:H:68:ARG:HA	2.08	0.54
35:K:8:LEU:HD23	35:K:82:ASN:HB3	1.89	0.54
53:A:1054:A:H2'	53:A:1055:G:C8	2.42	0.54
53:A:1150:C:H2'	53:A:1151:A:C8	2.43	0.54
27:C:220:ARG:HG2	53:A:1789:A:OP1	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:2119:A:H2	53:A:2170:A:H2'	1.71	0.54
27:C:47:ARG:NH2	53:A:774:G:OP1	2.39	0.54
29:E:168:ASP:OD1	29:E:169:VAL:N	2.40	0.54
35:K:7:MET:HB3	35:K:18:ARG:HD2	1.89	0.54
36:L:2:ARG:O	36:L:5:THR:HG22	2.07	0.54
42:R:39:LEU:HD22	42:R:49:ILE:HD13	1.89	0.54
53:A:107:G:H2'	53:A:108:G:C8	2.37	0.54
53:A:1417:C:H42	53:A:1581:G:H1	1.56	0.54
37:M:127:LYS:NZ	53:A:1030:C:OP2	2.41	0.54
38:N:9:GLN:HB3	53:A:1653:G:C6	2.43	0.54
39:O:106:LEU:O	39:O:110:ALA:N	2.37	0.54
45:U:38:ILE:HG23	45:U:39:ASN:N	2.15	0.54
27:C:49:THR:HG21	53:A:1813:G:H1'	1.89	0.54
35:K:71:ARG:HB3	35:K:72:PRO:HD2	1.89	0.54
36:L:123:ARG:NE	36:L:143:GLU:OE2	2.41	0.54
55:7:18:C:H42	56:8:34:G:H1	1.55	0.53
53:A:1978:A:H2'	53:A:1979:U:H6	1.72	0.53
53:A:272:A:C4	53:A:273:G:N7	2.76	0.53
38:N:94:TYR:O	38:N:116:VAL:N	2.40	0.53
53:A:1479:G:H1	53:A:1512:C:H42	1.56	0.53
53:A:2092:U:OP1	53:A:2199:A:O2'	2.26	0.53
48:X:36:ARG:NH1	53:A:2200:C:OP2	2.40	0.53
53:A:2216:G:H2'	53:A:2217:G:H8	1.72	0.53
53:A:2292:U:H2'	53:A:2293:G:H8	1.72	0.53
53:A:490:C:H2'	53:A:491:G:H8	7.13	0.53
27:C:222:THR:N	53:A:1826:G:OP1	2.42	0.53
36:L:67:THR:HG22	36:L:69:ARG:H	1.74	0.53
28:D:116:LYS:HA	38:N:1:MET:SD	2.48	0.53
56:8:22:G:H2'	56:8:23:A:H8	1.72	0.53
53:A:177:G:N2	53:A:177:G:OP2	2.41	0.53
54:B:14:U:OP2	54:B:70:C:O2'	2.26	0.53
30:F:92:GLY:O	30:F:95:MET:HB3	2.08	0.53
26:5:87:ALA:HA	26:5:90:ALA:HB3	1.89	0.53
56:9:35:A:H2'	56:9:36:A:C8	2.42	0.53
53:A:1645:G:H5''	53:A:1646:C:H5'	1.89	0.53
54:B:40:U:O3'	54:B:43:C:N4	2.33	0.53
54:B:87:U:H3'	54:B:88:C:H5''	1.91	0.53
29:E:149:ILE:HG13	29:E:188:MET:HA	1.89	0.53
33:I:124:MET:O	33:I:127:SER:OG	2.12	0.53
45:U:94:PHE:HA	45:U:101:THR:HA	1.91	0.53
50:Z:30:ARG:O	50:Z:33:HIS:HB2	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:W:38:ARG:HB2	53:A:2330:G:N3	2.23	0.53
53:A:412:A:N6	53:A:2411:A:O2'	2.41	0.53
53:A:2749:A:N1	53:A:2750:A:N6	2.55	0.53
53:A:2792:A:H61	53:A:2804:U:H3	1.55	0.53
53:A:351:C:H2'	53:A:352:A:C8	2.43	0.53
31:G:120:ILE:HD11	31:G:139:VAL:HG12	1.90	0.53
26:5:8:MET:HB3	26:5:12:ARG:NH1	2.21	0.53
56:9:26:A:C5'	56:9:27:G:C8	2.92	0.53
53:A:2805:C:H2'	53:A:2806:C:C6	2.44	0.53
40:P:92:ARG:NH2	53:A:2849:U:OP1	2.41	0.53
53:A:52:A:H2'	53:A:53:A:H8	1.72	0.53
27:C:5:CYS:SG	27:C:12:ARG:NH2	2.67	0.53
53:A:1724:G:N2	53:A:1737:G:O2'	2.41	0.53
53:A:925:A:H2'	53:A:926:G:H8	1.73	0.53
33:I:98:GLY:HA3	33:I:137:LEU:HD22	1.91	0.53
34:J:124:VAL:HG23	34:J:125:TYR:H	1.73	0.53
38:N:69:ARG:O	38:N:70:THR:OG1	2.23	0.53
53:A:1152:C:H2'	53:A:1153:C:H6	1.74	0.53
53:A:1918:A:HO2'	53:A:1920:C:H41	1.56	0.53
53:A:2065:C:H2'	53:A:2066:C:O4'	2.09	0.53
53:A:2398:U:H2'	53:A:2399:G:H8	1.73	0.53
29:E:58:LYS:NZ	29:E:70:SER:O	2.42	0.53
31:G:101:VAL:HG12	31:G:115:GLN:HA	1.90	0.53
38:N:71:ARG:NH2	53:A:2707:U:O2	2.42	0.53
40:P:30:TRP:CD2	40:P:37:LYS:HE2	2.44	0.53
53:A:1014:A:H2'	53:A:1015:U:H6	1.74	0.53
53:A:1020:A:H5'	53:A:1021:A:C8	2.43	0.53
48:X:27:ARG:NH2	53:A:1365:A:OP1	2.31	0.53
53:A:1818:U:H4'	53:A:1821:A:H1'	1.90	0.53
53:A:438:G:H2'	53:A:439:A:C8	2.44	0.53
25:4:36:ARG:NH1	53:A:2742:G:OP1	2.42	0.53
26:5:7:ARG:HA	26:5:10:VAL:HG22	1.90	0.53
53:A:1464:G:H2'	53:A:1465:G:C8	2.44	0.53
53:A:2128:G:H2'	53:A:2129:C:H4'	1.91	0.53
53:A:2146:C:H5''	53:A:2147:A:C2	2.43	0.53
27:C:64:VAL:HG21	27:C:86:ARG:NH2	2.24	0.53
27:C:7:PRO:HB3	27:C:13:ARG:HG3	1.91	0.53
33:I:119:ALA:H	53:A:1082:U:H5'	1.73	0.53
37:M:74:THR:HG22	37:M:89:VAL:HA	1.90	0.53
39:O:28:VAL:HG12	39:O:37:ALA:HA	1.91	0.53
25:4:30:GLU:HG3	25:4:32:LYS:H	1.73	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:5:109:MET:O	26:5:110:ASN:ND2	2.42	0.52
56:8:18:G:O2'	56:8:19:G:C8	2.62	0.52
56:9:42:C:H2'	56:9:43:C:H5''	1.90	0.52
35:K:104:THR:HB	35:K:106:GLU:OE1	2.09	0.52
47:W:9:THR:OG1	47:W:10:ARG:N	2.41	0.52
26:5:12:ARG:NH2	26:5:221:GLY:O	2.36	0.52
56:9:71:G:O2'	56:9:72:C:OP1	2.27	0.52
53:A:1031:G:H2'	53:A:1032:A:C8	2.44	0.52
53:A:1058:U:H2'	53:A:1059:G:C8	2.44	0.52
53:A:1526:C:H2'	53:A:1527:G:O4'	2.10	0.52
53:A:573:U:N3	53:A:2031:A:OP1	2.36	0.52
53:A:2837:A:H2'	53:A:2838:G:H8	1.74	0.52
53:A:570:G:N2	53:A:571:U:O2	7.11	0.52
39:O:3:LYS:HG3	39:O:4:LYS:H	1.74	0.52
45:U:73:ASN:HB2	45:U:80:ASP:HB2	1.91	0.52
53:A:883:G:N2	53:A:894:U:O2'	2.42	0.52
30:F:64:PRO:HA	30:F:88:VAL:HG22	1.91	0.52
34:J:64:VAL:HG12	34:J:69:ARG:HH21	1.74	0.52
37:M:45:GLN:HE21	53:A:2485:G:H5''	1.73	0.52
38:N:96:ARG:NH2	38:N:116:VAL:O	2.43	0.52
42:R:24:LYS:HA	42:R:94:THR:HG23	1.91	0.52
46:V:43:ASP:OD1	46:V:44:HIS:N	2.42	0.52
53:A:1287:A:H3'	53:A:1288:G:N2	2.23	0.52
53:A:2443:C:H2'	53:A:2444:G:C8	2.41	0.52
30:F:39:VAL:HG12	30:F:85:GLY:HA2	1.92	0.52
53:A:1169:A:H61	53:A:1180:U:H3	1.58	0.52
53:A:1785:A:O2'	53:A:1786:A:H2'	2.09	0.52
30:F:120:SER:OG	53:A:2304:G:OP1	2.25	0.52
53:A:280:U:H2'	53:A:281:C:C6	2.45	0.52
54:B:95:U:H2'	54:B:96:G:C8	2.39	0.52
53:A:146:A:H2'	53:A:147:C:C6	2.44	0.52
53:A:923:G:H2'	53:A:924:G:H8	1.74	0.52
45:U:48:VAL:H	45:U:53:GLN:HB3	1.75	0.52
56:9:3:C:H2'	56:9:4:C:C6	2.45	0.52
53:A:1853:A:N3	53:A:2233:U:O2'	2.42	0.52
29:E:149:ILE:HG22	29:E:170:ARG:HB2	1.90	0.52
39:O:25:ARG:NH1	54:B:8:C:O2'	2.43	0.52
35:K:122:VAL:HG22	40:P:40:GLN:HE22	1.75	0.52
48:X:39:VAL:HG22	48:X:44:ARG:O	2.09	0.52
56:8:74:C:C2	56:8:75:C:H5	2.27	0.52
53:A:2112:G:H2'	53:A:2113:U:C5	2.44	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:741:U:O4	53:A:742:A:N6	2.43	0.52
31:G:32:LEU:O	31:G:33:THR:OG1	2.27	0.52
33:I:122:GLU:HG2	33:I:126:ARG:NH1	2.24	0.52
35:K:19:VAL:HG13	35:K:41:ILE:HG23	1.91	0.52
44:T:39:THR:O	44:T:41:ALA:N	2.43	0.52
53:A:1891:G:N2	56:9:72:C:OP1	2.43	0.52
53:A:1438:U:O2	53:A:1555:G:N2	2.43	0.52
53:A:271:G:H1	53:A:366:C:H42	1.56	0.52
27:C:6:LYS:O	27:C:8:THR:N	2.42	0.52
31:G:126:THR:HG22	31:G:128:THR:H	1.75	0.52
53:A:2216:G:H2'	53:A:2217:G:C8	2.45	0.52
53:A:2644:G:H3'	53:A:2645:G:N2	2.25	0.52
53:A:675:A:N6	53:A:716:A:N1	93.88	0.52
28:D:117:GLY:HA2	28:D:164:GLN:HE22	1.74	0.52
38:N:118:ARG:O	38:N:120:GLU:N	2.43	0.52
50:Z:29:ARG:HH21	50:Z:33:HIS:CE1	2.28	0.52
56:8:55:U:N3	56:8:58:A:OP2	2.30	0.51
53:A:1592:C:H2'	53:A:1593:A:C8	2.45	0.51
53:A:1838:C:C2	53:A:1898:U:C4	2.98	0.51
53:A:2512:C:H2'	53:A:2513:A:O4'	2.10	0.51
53:A:528:A:H2'	53:A:529:A:H5''	1.90	0.51
54:B:70:C:H2'	54:B:71:C:H6	1.74	0.51
27:C:230:PRO:O	27:C:241:LYS:NZ	2.32	0.51
32:H:115:VAL:HG12	32:H:136:SER:HA	1.92	0.51
47:W:37:VAL:O	47:W:38:ARG:HG2	2.11	0.51
22:1:7:LYS:HG2	22:1:23:THR:HG22	1.92	0.51
26:5:47:ASN:HA	26:5:170:ILE:HG13	1.92	0.51
56:9:29:G:H2'	56:9:30:G:H8	1.75	0.51
53:A:1310:G:N2	53:A:1605:C:N3	2.57	0.51
53:A:1469:A:OP2	53:A:1522:A:N6	2.36	0.51
53:A:601:C:O2'	53:A:605:G:OP1	2.27	0.51
53:A:705:A:OP2	53:A:725:G:N1	2.40	0.51
53:A:1779:U:O2	53:A:1783:A:N6	2.43	0.51
53:A:2646:C:H2'	53:A:2647:U:O4'	2.10	0.51
25:4:24:ARG:NH1	53:A:2742:G:OP2	2.35	0.51
35:K:88:ASN:OD1	35:K:89:ASN:N	2.42	0.51
48:X:56:ARG:NH1	53:A:400:G:OP2	2.43	0.51
53:A:192:C:H2'	53:A:193:U:H5'	1.92	0.51
26:5:134:ARG:NE	53:A:2172:U:H5''	2.25	0.51
53:A:269:C:N4	53:A:270:A:N6	2.59	0.51
53:A:281:C:H2'	53:A:282:A:C8	2.45	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:D:18:ASP:OD1	28:D:18:ASP:N	2.43	0.51
39:O:111:ARG:HB2	39:O:117:PHE:HE2	1.75	0.51
40:P:111:GLU:HB2	40:P:113:LEU:HD23	1.91	0.51
56:9:27:G:N2	56:9:45:U:C4	2.76	0.51
34:J:120:ARG:NE	53:A:2780:G:OP2	2.41	0.51
30:F:10:GLU:O	30:F:12:VAL:N	2.43	0.51
31:G:102:ILE:O	31:G:113:ASP:HA	2.10	0.51
22:1:8:ILE:HD13	22:1:24:LYS:HG2	1.92	0.51
53:A:1014:A:H2'	53:A:1015:U:C6	2.46	0.51
53:A:272:A:N3	53:A:273:G:N9	2.56	0.51
25:4:19:ARG:HD2	25:4:24:ARG:HD2	1.92	0.51
53:A:1980:G:O2'	53:A:1982:U:OP2	2.25	0.51
34:J:96:ARG:NH2	53:A:2639:A:O3'	2.30	0.51
54:B:86:G:H2'	54:B:87:U:H5''	1.93	0.51
37:M:4:PRO:HG3	37:M:68:PHE:HE2	1.76	0.51
47:W:50:VAL:HG23	47:W:61:LYS:HE3	1.93	0.51
53:A:1166:G:O2'	53:A:1169:A:N6	13.38	0.51
53:A:1446:C:H2'	53:A:1447:C:H6	1.76	0.51
53:A:1532:A:C2	53:A:1533:C:H1'	2.46	0.51
53:A:2125:G:N2	53:A:2174:C:O2	2.44	0.51
53:A:2679:A:H2'	53:A:2680:U:H6	1.75	0.51
53:A:2855:C:H2'	53:A:2856:A:C8	2.46	0.51
21:0:26:SER:OG	53:A:2888:C:O4'	2.29	0.51
53:A:873:C:H42	53:A:904:G:H1	1.58	0.51
53:A:850:U:O4	53:A:927:A:N6	2.43	0.51
53:A:945:A:C5	53:A:2448:A:C2	2.98	0.51
29:E:175:ILE:HD11	29:E:180:LEU:HD11	1.92	0.51
35:K:3:GLN:HG2	35:K:4:GLU:H	1.75	0.51
39:O:27:VAL:HA	39:O:93:ASP:HB3	1.93	0.51
40:P:91:VAL:HG21	40:P:96:LEU:HD11	1.93	0.51
41:Q:91:ARG:NH2	53:A:996:A:H4'	2.25	0.51
43:S:24:ILE:HG22	43:S:71:VAL:HG11	1.92	0.51
47:W:46:ALA:HB3	47:W:80:SER:HB3	1.93	0.51
53:A:700:G:O2'	53:A:1632:A:N3	2.42	0.51
53:A:1859:U:H2'	53:A:1860:G:H8	1.76	0.51
48:X:56:ARG:NH2	53:A:399:U:H5''	2.26	0.51
53:A:882:G:N2	53:A:895:U:O2'	2.43	0.51
50:Z:3:THR:HA	50:Z:37:ARG:O	2.09	0.51
22:1:41:VAL:HG13	22:1:42:VAL:HG23	1.93	0.51
53:A:140:C:O4'	53:A:141:G:N2	2.43	0.51
53:A:1918:A:H2	53:A:1919:A:H62	1.58	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:2660:A:H2'	53:A:2661:G:O4'	2.10	0.51
53:A:2655:G:O2'	53:A:2664:G:O6	2.25	0.51
53:A:365:U:H2'	53:A:366:C:C6	2.46	0.51
53:A:461:C:H2'	53:A:462:C:H6	1.76	0.51
53:A:910:A:N1	53:A:2277:G:H1'	2.26	0.51
31:G:84:LYS:HB3	31:G:132:LEU:H	1.76	0.51
26:5:107:GLY:O	26:5:134:ARG:NH2	2.36	0.50
53:A:2150:C:N4	53:A:2151:U:O2	2.43	0.50
53:A:2812:G:H2'	53:A:2813:A:C8	2.46	0.50
29:E:162:ARG:NH1	53:A:340:A:O2'	2.43	0.50
53:A:452:G:N2	53:A:458:G:O4'	2.44	0.50
53:A:736:C:H2'	53:A:737:C:C6	3.11	0.50
34:J:59:ALA:HB3	34:J:126:ALA:HA	1.91	0.50
37:M:42:THR:HA	37:M:93:VAL:HG12	1.93	0.50
47:W:38:ARG:HG3	53:A:2330:G:H1'	1.93	0.50
53:A:1434:A:H2'	53:A:1435:G:H8	1.74	0.50
53:A:418:C:O2	53:A:425:G:N2	29.57	0.50
35:K:66:LYS:HA	35:K:79:PHE:O	2.12	0.50
50:Z:42:ALA:O	53:A:851:C:O2'	2.28	0.50
53:A:2137:U:H2'	53:A:2138:G:H8	1.76	0.50
53:A:2108:A:H2	53:A:2181:U:H3	1.57	0.50
53:A:2669:G:H2'	53:A:2670:A:H8	1.76	0.50
28:D:145:SER:HB2	53:A:2578:G:N7	2.26	0.50
35:K:113:MET:O	35:K:117:SER:OG	2.23	0.50
25:4:9:LYS:NZ	25:4:14:CYS:O	2.43	0.50
26:5:11:ILE:HB	26:5:220:ALA:HB2	1.94	0.50
53:A:830:G:N3	53:A:2448:A:N6	2.59	0.50
53:A:2508:G:H2'	53:A:2509:G:C8	2.46	0.50
53:A:258:G:N1	53:A:269:C:O2	37.97	0.50
53:A:656:G:H2'	53:A:657:U:C6	2.46	0.50
53:A:713:G:O2'	53:A:718:A:N6	2.37	0.50
26:5:43:ASP:H	26:5:214:ILE:HD11	1.76	0.50
56:9:18:G:N2	56:9:55:U:O2	2.34	0.50
53:A:1063:G:H2'	53:A:1064:C:O4'	2.12	0.50
53:A:426:C:H2'	53:A:427:U:C6	2.47	0.50
53:A:819:A:N3	53:A:942:G:N2	2.59	0.50
53:A:974:G:H1'	53:A:975:A:C8	2.46	0.50
27:C:90:ILE:HD12	27:C:102:TYR:CD1	2.47	0.50
33:I:89:SER:O	33:I:91:LYS:N	2.45	0.50
53:A:1687:G:H2'	53:A:1688:U:C6	2.47	0.50
53:A:226:A:N6	53:A:227:A:N1	2.59	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:413:C:H42	53:A:2410:G:H1	1.60	0.50
53:A:271:G:H1	53:A:366:C:N4	2.10	0.50
53:A:273:G:H2'	53:A:274:C:H6	1.77	0.50
43:S:83:LYS:HD3	43:S:95:ARG:NH1	2.26	0.50
45:U:35:VAL:HB	45:U:38:ILE:HG21	1.93	0.50
26:5:6:LYS:HE3	53:A:2151:U:H5''	1.94	0.50
56:9:8:U:N3	56:9:14:A:N7	2.60	0.50
53:A:1397:U:OP2	53:A:1398:C:N4	2.35	0.50
53:A:2101:A:H2'	53:A:2102:G:H8	1.75	0.50
24:3:4:LYS:NZ	53:A:253:C:OP2	2.33	0.50
53:A:2883:A:H5'	53:A:2884:U:H5'	1.94	0.50
53:A:69:C:O2'	53:A:73:A:O2'	2.30	0.50
30:F:134:GLN:NE2	30:F:147:ARG:O	2.40	0.50
30:F:15:LEU:HB3	30:F:21:TYR:HE2	1.77	0.50
45:U:13:LEU:HD11	45:U:70:ALA:HB2	1.94	0.50
56:9:11:C:N4	56:9:24:G:H1	2.10	0.50
53:A:2033:A:N6	53:A:2036:C:N3	2.59	0.50
53:A:298:G:O2'	53:A:322:A:N1	2.43	0.50
53:A:391:A:O2'	53:A:410:G:OP1	2.29	0.50
54:B:116:G:H2'	54:B:117:G:C8	2.47	0.50
54:B:20:G:N2	54:B:63:C:O2	2.40	0.50
29:E:40:ARG:HH21	29:E:92:HIS:CE1	2.29	0.50
38:N:58:ASP:OD1	38:N:59:SER:N	2.45	0.50
53:A:1736:U:H2'	53:A:1737:G:O4'	2.12	0.50
47:W:18:LYS:HE2	53:A:2269:G:O3'	2.12	0.50
53:A:607:U:H2'	53:A:608:A:H8	1.76	0.50
53:A:884:U:H3	53:A:892:A:H2	1.60	0.50
27:C:156:SER:O	27:C:194:VAL:HG11	2.12	0.50
31:G:37:ASN:HB3	31:G:40:VAL:HB	1.93	0.50
33:I:135:MET:HB3	33:I:137:LEU:HG	1.94	0.50
33:I:53:PRO:HG2	33:I:77:VAL:HG11	1.94	0.50
36:L:75:ALA:HB3	36:L:101:ILE:HG23	1.94	0.50
38:N:70:THR:HB	38:N:75:ILE:HD11	1.93	0.50
48:X:17:ARG:HH21	48:X:21:LEU:HB3	1.76	0.50
26:5:186:LYS:NZ	26:5:229:LEU:O	2.37	0.49
53:A:1271:G:N2	53:A:1617:C:O4'	2.44	0.49
53:A:1638:C:OP1	53:A:2710:C:O2'	2.29	0.49
53:A:2143:C:O2	53:A:2146:C:O2'	2.30	0.49
53:A:996:A:N1	53:A:1045:C:O2'	82.80	0.49
27:C:146:LYS:HB2	27:C:149:LYS:HB2	1.93	0.49
27:C:141:HIS:HD2	27:C:192:GLY:O	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:H:29:PHE:HB2	53:A:2198:A:C2	2.47	0.49
32:H:51:ARG:HA	32:H:54:LEU:HB3	1.93	0.49
44:T:11:LEU:HD23	44:T:34:VAL:HG12	1.94	0.49
47:W:20:LEU:HD13	53:A:2355:G:H4'	1.93	0.49
21:O:29:VAL:HG12	21:O:36:LYS:HA	1.93	0.49
26:5:35:THR:HG23	26:5:219:GLY:HA2	1.93	0.49
56:8:19:G:N7	56:8:57:G:C2	2.80	0.49
53:A:120:U:H4'	53:A:121:G:H5''	1.94	0.49
53:A:1499:C:H2'	53:A:1500:G:H8	1.77	0.49
53:A:604:G:H2'	53:A:605:G:H8	1.77	0.49
54:B:114:C:H2'	54:B:115:A:H8	1.77	0.49
38:N:30:ARG:HH12	38:N:74:GLU:CD	2.15	0.49
56:8:48:C:H2'	56:8:59:U:H4'	1.94	0.49
53:A:1150:C:H2'	53:A:1151:A:H8	1.76	0.49
53:A:141:G:N3	53:A:141:G:H2'	2.27	0.49
53:A:1992:G:O4'	53:A:1994:C:N4	2.39	0.49
53:A:200:U:O2	53:A:386:G:N2	2.45	0.49
47:W:65:LYS:HD2	47:W:82:GLU:OE1	2.12	0.49
26:5:74:ARG:NH2	53:A:2125:G:O5'	2.45	0.49
53:A:2507:C:H5'	53:A:2573:C:C4	2.47	0.49
53:A:457:A:H2	53:A:458:G:H21	1.59	0.49
53:A:547:A:H3'	53:A:548:G:C5'	2.42	0.49
53:A:877:A:H1'	53:A:900:A:N6	2.27	0.49
54:B:106:G:H2'	54:B:107:G:O4'	2.12	0.49
30:F:128:SER:HA	30:F:154:THR:HA	1.94	0.49
31:G:109:SER:HB2	53:A:2668:G:H1'	1.95	0.49
37:M:96:ILE:HD11	37:M:126:ILE:HG21	1.94	0.49
41:Q:90:ASP:OD1	41:Q:94:LEU:HD22	2.13	0.49
45:U:95:PHE:O	45:U:99:SER:HA	2.11	0.49
47:W:39:GLN:HE21	47:W:43:LYS:HB2	1.76	0.49
56:9:27:G:O2'	56:9:28:G:H5'	2.12	0.49
56:9:56:C:H2'	56:9:57:G:C8	2.47	0.49
33:I:134:SER:HB3	53:A:1062:G:H1'	1.95	0.49
53:A:1174:U:O2'	53:A:1176:U:N3	2.40	0.49
53:A:1378:A:O2'	53:A:1380:G:N7	2.39	0.49
53:A:2184:A:H2'	53:A:2185:U:C6	2.48	0.49
44:T:44:LYS:O	44:T:48:GLN:HG2	2.12	0.49
45:U:37:GLY:N	45:U:61:GLU:OE2	2.43	0.49
53:A:1271:G:O2'	53:A:1618:A:OP1	2.30	0.49
53:A:161:A:OP2	53:A:162:U:O2'	2.29	0.49
28:D:129:THR:HG22	28:D:130:GLN:O	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1266:G:N2	53:A:1269:A:N7	9.90	0.49
53:A:2354:C:H42	53:A:2363:G:H1	1.59	0.49
53:A:277:G:H4'	53:A:278:A:N7	2.28	0.49
34:J:3:THR:HG21	41:Q:60:TRP:HE1	1.76	0.49
41:Q:85:ALA:HB1	41:Q:111:LYS:HE3	1.93	0.49
44:T:85:VAL:O	44:T:86:THR:OG1	2.31	0.49
47:W:39:GLN:HG3	47:W:42:THR:HB	1.95	0.49
47:W:39:GLN:NE2	47:W:43:LYS:HB2	2.27	0.49
56:8:44:G:O2'	56:8:45:U:H2'	2.13	0.49
53:A:1582:C:HO2'	53:A:1585:C:N4	2.11	0.49
53:A:191:A:H2'	53:A:192:C:C6	2.48	0.49
53:A:2062:A:H8	53:A:2503:A:H62	1.59	0.49
53:A:2208:C:H2'	53:A:2209:G:H8	1.77	0.49
53:A:299:A:N7	53:A:300:A:N6	2.61	0.49
39:O:30:ARG:HH12	54:B:48:U:P	2.35	0.49
30:F:56:LEU:HD23	30:F:59:ILE:HD12	1.94	0.49
56:9:71:G:H2'	56:9:72:C:C6	2.47	0.49
53:A:2172:U:O2'	53:A:2173:A:H5'	2.13	0.49
53:A:218:A:H2'	53:A:219:A:H8	1.76	0.49
53:A:792:A:O2'	53:A:2440:C:N3	2.41	0.49
53:A:2704:C:H2'	53:A:2705:A:O4'	2.13	0.49
53:A:271:G:C2	53:A:272:A:C5	3.01	0.49
53:A:527:C:H4'	53:A:528:A:O5'	2.12	0.49
28:D:124:ARG:NH1	28:D:164:GLN:O	2.43	0.49
36:L:77:ILE:HG22	36:L:78:ARG:H	1.78	0.49
36:L:82:LEU:HA	36:L:85:VAL:HB	1.95	0.49
47:W:36:ILE:HG22	47:W:37:VAL:O	2.13	0.49
24:3:23:HIS:CD2	24:3:49:VAL:HG12	2.47	0.49
56:9:11:C:H42	56:9:25:C:N4	2.08	0.49
56:9:41:C:H2'	56:9:42:C:O4'	2.13	0.49
53:A:1057:A:C8	53:A:1086:A:H2'	2.47	0.49
53:A:1409:U:H2'	53:A:1410:G:C8	2.48	0.49
53:A:1637:A:H2'	53:A:1638:C:C6	2.48	0.49
53:A:2260:C:HO2'	53:A:2388:A:HO2'	1.54	0.49
53:A:278:A:N1	53:A:361:G:H2'	2.27	0.49
53:A:624:C:H2'	53:A:625:G:C8	2.47	0.49
28:D:98:VAL:HG21	28:D:185:ASN:HA	1.95	0.49
30:F:130:GLY:HA3	53:A:2305:U:H5''	1.95	0.49
31:G:86:LEU:HD11	31:G:144:ALA:HB1	1.95	0.49
42:R:49:ILE:HG22	42:R:54:VAL:HG13	1.95	0.49
22:1:39:ASP:O	22:1:43:ARG:N	2.46	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:5:186:LYS:HD3	26:5:231:ALA:HA	1.94	0.48
53:A:1656:C:H42	53:A:2004:G:H1	1.61	0.48
53:A:528:A:N1	53:A:2042:A:H2'	2.28	0.48
27:C:244:VAL:HG12	27:C:250:GLN:HA	1.95	0.48
30:F:107:VAL:HB	30:F:108:PRO:HD3	1.94	0.48
35:K:13:ASN:C	35:K:15:GLY:H	2.15	0.48
25:4:4:ARG:HG2	25:4:6:SER:H	1.78	0.48
26:5:74:ARG:HH22	53:A:2125:G:H3'	1.79	0.48
56:9:24:G:C3'	56:9:25:C:C5'	2.91	0.48
53:A:1055:G:H1	53:A:1104:C:H42	1.60	0.48
27:C:35:LYS:NZ	53:A:1353:A:O3'	2.46	0.48
53:A:1418:G:N2	53:A:1579:A:N7	2.60	0.48
53:A:2669:G:H2'	53:A:2670:A:C8	2.47	0.48
45:U:85:ARG:N	45:U:91:LYS:O	2.40	0.48
46:V:72:VAL:HG12	46:V:93:ARG:HA	1.93	0.48
56:9:24:G:C2'	56:9:25:C:H5'	2.07	0.48
53:A:1346:G:H2'	53:A:1347:A:C8	2.48	0.48
53:A:139:U:O2'	53:A:141:G:N2	2.35	0.48
53:A:2392:A:OP2	53:A:2422:C:N4	2.41	0.48
53:A:255:A:H2'	53:A:256:A:O4'	2.12	0.48
53:A:543:G:N2	53:A:550:C:O2	2.34	0.48
53:A:863:A:O3'	54:B:100:G:N2	2.45	0.48
27:C:246:PRO:HG2	27:C:247:TRP:CE3	2.49	0.48
34:J:112:GLY:O	34:J:115:GLY:N	2.38	0.48
49:Y:31:GLN:O	49:Y:34:SER:OG	2.26	0.48
50:Z:2:LYS:O	50:Z:3:THR:OG1	2.27	0.48
50:Z:4:ILE:HD12	50:Z:56:VAL:HG23	1.95	0.48
50:Z:6:ILE:HG22	50:Z:28:LEU:HD11	1.94	0.48
53:A:1200:C:N4	53:A:1201:U:O4	2.46	0.48
53:A:1438:U:H2'	53:A:1439:A:C8	2.44	0.48
53:A:163:C:HO2'	53:A:164:C:H6	1.58	0.48
53:A:2070:A:H2'	53:A:2071:A:O4'	2.13	0.48
31:G:138:GLN:NE2	53:A:2760:C:H1'	2.27	0.48
27:C:219:VAL:HG21	53:A:782:A:N7	2.28	0.48
35:K:63:VAL:HG11	35:K:103:VAL:HG12	1.95	0.48
38:N:22:ARG:HG3	38:N:70:THR:HA	1.94	0.48
39:O:105:ALA:O	39:O:107:ALA:N	2.39	0.48
26:5:18:THR:HG23	26:5:223:ALA:N	2.26	0.48
56:9:5:G:H2'	56:9:6:G:C8	2.48	0.48
53:A:31:C:O2'	53:A:1238:G:OP1	2.30	0.48
53:A:167:A:H2'	53:A:168:G:O4'	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:2193:G:H2'	53:A:2194:U:H6	1.78	0.48
31:G:157:LYS:NZ	53:A:2659:G:OP2	2.46	0.48
53:A:61:C:C4	53:A:62:U:H5	2.32	0.48
53:A:791:C:O2'	53:A:792:A:OP2	2.25	0.48
28:D:174:SER:OG	28:D:175:LEU:N	2.46	0.48
53:A:151:C:H42	53:A:175:G:H1	1.62	0.48
53:A:2187:U:H2'	53:A:2188:U:C6	2.48	0.48
37:M:106:ASP:CG	37:M:107:GLY:H	2.16	0.48
45:U:86:PHE:CZ	45:U:101:THR:HG21	2.48	0.48
49:Y:24:GLU:OE1	49:Y:46:VAL:HG13	2.13	0.48
23:2:34:ARG:NE	23:2:42:LEU:O	2.47	0.48
26:5:7:ARG:HH12	26:5:218:MET:HG3	1.79	0.48
53:A:1279:G:H2'	53:A:1279:G:N3	2.77	0.48
53:A:2476:A:H2	53:A:2481:G:H1	1.62	0.48
31:G:110:HIS:HE1	53:A:2668:G:H4'	1.79	0.48
53:A:2679:A:H2'	53:A:2680:U:C6	2.49	0.48
36:L:77:ILE:HG22	36:L:78:ARG:N	2.28	0.48
47:W:53:GLY:N	47:W:57:THR:O	2.43	0.48
23:2:26:ASN:O	23:2:30:VAL:HG23	2.13	0.48
26:5:56:ASP:O	26:5:202:THR:OG1	2.28	0.48
53:A:2122:U:N3	53:A:2123:G:N7	2.62	0.48
53:A:2230:G:H2'	53:A:2231:U:C6	2.49	0.48
53:A:2301:C:H2'	53:A:2302:U:C6	2.49	0.48
53:A:2788:C:H2'	53:A:2789:C:C6	2.49	0.48
53:A:974:G:H1'	53:A:975:A:H8	1.78	0.48
53:A:1424:G:H2'	53:A:1425:G:O4'	2.14	0.48
53:A:182:A:H2'	53:A:183:C:O4'	2.14	0.48
53:A:1877:A:H2'	53:A:1878:G:O4'	2.14	0.48
53:A:233:A:N6	53:A:428:A:H61	2.11	0.48
53:A:2573:C:OP1	53:A:2574:G:H5''	2.14	0.48
53:A:478:A:N6	53:A:480:A:N1	2.62	0.48
53:A:594:U:H2'	53:A:595:C:C6	2.48	0.48
37:M:10:ARG:HE	37:M:11:LYS:HE3	1.78	0.48
42:R:66:HIS:CD2	42:R:94:THR:HG22	2.49	0.48
47:W:30:VAL:HA	47:W:60:ALA:O	2.14	0.48
53:A:1184:U:H2'	53:A:1185:G:C8	2.48	0.48
53:A:124:G:N2	53:A:126:A:O2'	2.45	0.48
53:A:1730:C:O2	53:A:1731:G:N1	2.47	0.48
53:A:1859:U:C2	53:A:1860:G:C8	3.01	0.48
53:A:962:G:O2'	53:A:2496:C:O2'	2.32	0.48
56:8:69:G:H2'	56:8:70:G:C8	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1569:A:H2'	53:A:1570:A:C8	2.49	0.47
53:A:1620:G:H2'	53:A:1621:U:C6	2.48	0.47
53:A:2304:G:H22	53:A:2312:U:H3	1.62	0.47
53:A:2453:A:N6	53:A:2500:U:H3	2.12	0.47
53:A:692:C:C2	53:A:771:G:C2	3.02	0.47
32:H:100:ALA:H	32:H:112:LYS:HD3	1.79	0.47
33:I:18:ASN:HA	33:I:23:VAL:HG21	1.95	0.47
40:P:88:ARG:HD2	40:P:112:ARG:NH2	2.30	0.47
48:X:31:ASN:O	48:X:32:LEU:HD12	2.14	0.47
53:A:1713:A:C6	53:A:1716:U:H1'	2.49	0.47
53:A:2128:G:O6	53:A:2133:G:N2	2.47	0.47
53:A:489:G:O6	53:A:491:G:N2	2.47	0.47
34:J:40:HIS:HE1	34:J:41:LYS:HE3	1.78	0.47
44:T:32:LEU:H	44:T:83:ALA:HB3	1.79	0.47
47:W:43:LYS:HD2	47:W:79:ILE:HG13	1.94	0.47
53:A:1056:G:HO2'	53:A:1086:A:H8	1.59	0.47
53:A:1488:C:H42	53:A:1501:G:H1	1.61	0.47
53:A:1748:C:H2'	53:A:1749:A:H8	1.78	0.47
53:A:269:C:O2	53:A:270:A:C8	2.64	0.47
30:F:28:PRO:HB3	30:F:159:ALA:HB2	1.97	0.47
32:H:96:THR:OG1	32:H:112:LYS:O	2.17	0.47
45:U:9:GLU:HA	45:U:23:LYS:HA	1.95	0.47
53:A:1164:C:H2'	53:A:1165:A:H8	1.78	0.47
44:T:19:LYS:NZ	53:A:1392:A:OP1	2.47	0.47
53:A:1400:U:H2'	53:A:1401:G:C8	2.50	0.47
31:G:2:ARG:HD3	53:A:2751:G:C4	2.49	0.47
53:A:840:C:N3	53:A:842:U:O2'	12.25	0.47
32:H:121:VAL:O	32:H:122:LEU:HB3	2.15	0.47
40:P:88:ARG:NH2	40:P:112:ARG:HB3	2.29	0.47
46:V:17:SER:HB3	46:V:21:ARG:NH1	2.28	0.47
26:5:37:LYS:HE2	26:5:38:PHE:CE2	2.48	0.47
56:9:1:G:C2	56:9:73:A:H1'	2.49	0.47
53:A:2101:A:H2'	53:A:2102:G:C8	2.50	0.47
53:A:2162:G:OP2	53:A:2163:A:N6	2.48	0.47
53:A:21:A:H61	53:A:519:U:H3	1.61	0.47
41:Q:44:TYR:HH	53:A:561:G:HO2'	1.59	0.47
54:B:84:G:H1	54:B:92:C:H42	1.62	0.47
28:D:113:SER:OG	28:D:167:ASN:N	2.47	0.47
48:X:4:CYS:HB2	48:X:51:SER:HB3	1.96	0.47
26:5:52:ALA:HB1	26:5:54:LYS:H	1.78	0.47
53:A:1112:G:H2'	53:A:1113:U:C6	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1018:U:O3'	53:A:1120:G:N2	2.48	0.47
53:A:1668:A:H61	53:A:1676:A:H61	1.63	0.47
41:Q:24:TYR:OH	53:A:2021:C:OP1	2.28	0.47
53:A:2437:G:H2'	53:A:2438:U:C6	2.50	0.47
53:A:564:C:H2'	53:A:565:C:C6	2.48	0.47
53:A:693:A:O2'	53:A:1353:A:N3	2.45	0.47
28:D:151:THR:HG22	28:D:152:PRO:HD3	1.97	0.47
41:Q:16:ILE:HD13	41:Q:35:PHE:HD1	1.79	0.47
48:X:58:ILE:HG23	48:X:63:ILE:HG12	1.96	0.47
50:Z:16:LEU:HB2	50:Z:19:HIS:HD2	1.79	0.47
53:A:1687:G:H2'	53:A:1688:U:H6	1.79	0.47
53:A:238:C:O2'	53:A:608:A:N3	2.46	0.47
53:A:948:C:O2	53:A:984:A:O2'	2.16	0.47
29:E:151:GLY:HA2	29:E:192:ALA:HB2	1.96	0.47
28:D:20:VAL:HG13	35:K:72:PRO:HB2	1.97	0.47
22:1:25:ASN:ND2	22:1:28:THR:HG23	2.30	0.47
26:5:213:SER:OG	26:5:224:VAL:O	2.32	0.47
26:5:67:HIS:O	26:5:159:GLY:HA3	2.14	0.47
56:8:19:G:OP2	56:8:19:G:H8	1.97	0.47
53:A:1041:G:N3	53:A:1115:G:N2	2.62	0.47
29:E:165:HIS:HE1	53:A:1205:A:H2'	1.80	0.47
53:A:1334:G:C6	53:A:1335:C:C4	3.03	0.47
53:A:1529:G:H1	53:A:1542:U:H3	1.62	0.47
24:3:32:LEU:HB2	53:A:2419:U:H5''	1.95	0.47
53:A:2572:A:OP1	53:A:2574:G:O2'	2.25	0.47
53:A:270:A:H2'	53:A:270:A:N3	2.30	0.47
42:R:80:ARG:NH2	53:A:572:A:OP2	2.48	0.47
53:A:679:C:H2'	53:A:680:C:H6	1.79	0.47
53:A:690:G:O2'	53:A:780:G:OP1	2.33	0.47
53:A:855:G:H22	53:A:922:C:N4	2.13	0.47
29:E:148:ILE:HA	29:E:187:VAL:HB	1.96	0.47
40:P:30:TRP:CD1	40:P:81:ASP:HB2	2.49	0.47
44:T:43:ILE:HD11	44:T:58:VAL:HG11	1.95	0.47
50:Z:6:ILE:O	50:Z:34:THR:HA	2.14	0.47
28:D:118:PHE:CD1	53:A:1655:A:H4'	2.50	0.47
53:A:2110:G:H1	53:A:2179:C:H42	1.61	0.47
53:A:2208:C:H2'	53:A:2209:G:C8	2.49	0.47
53:A:2380:C:H2'	53:A:2381:A:C8	2.50	0.47
53:A:471:A:H2'	53:A:472:A:O4'	2.14	0.47
53:A:813:U:H2'	53:A:814:C:C6	2.50	0.47
53:A:884:U:H2'	53:A:885:C:O4'	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:3:21:PHE:O	24:3:22:LYS:HG2	2.15	0.47
26:5:162:ARG:NH2	53:A:2124:G:OP2	2.47	0.47
33:I:92:PRO:HA	53:A:1076:C:H4'	1.97	0.47
53:A:1295:C:H2'	53:A:1296:G:H8	1.79	0.47
53:A:1433:A:N6	53:A:1434:A:N1	4.65	0.47
53:A:277:G:H4'	53:A:278:A:C8	2.50	0.47
53:A:10:A:C5	53:A:2800:A:C6	3.03	0.47
53:A:349:U:H2'	53:A:350:G:H8	1.80	0.47
53:A:547:A:H3'	53:A:548:G:H5'	1.96	0.47
53:A:608:A:C6	53:A:621:A:C5	3.03	0.47
38:N:92:GLY:HA2	38:N:94:TYR:CE1	2.50	0.47
41:Q:85:ALA:HB1	41:Q:111:LYS:HG3	1.96	0.47
26:5:182:ALA:HB1	26:5:232:SER:HA	1.97	0.47
56:9:11:C:H2'	56:9:12:U:C6	2.50	0.47
53:A:1182:G:H4'	53:A:1183:U:H5''	5.65	0.47
53:A:1414:C:H2'	53:A:1415:U:C6	2.50	0.47
53:A:1863:G:HO2'	53:A:2411:A:HO2'	1.61	0.47
28:D:3:GLY:HA3	28:D:203:VAL:O	2.15	0.47
30:F:133:GLU:O	30:F:136:ILE:HG12	2.15	0.47
42:R:63:VAL:HA	42:R:96:VAL:HG12	1.97	0.47
50:Z:50:VAL:O	50:Z:54:VAL:HG22	2.15	0.47
56:8:42:C:H2'	56:8:43:C:O4'	2.14	0.46
53:A:1320:C:N4	53:A:1333:G:O6	2.48	0.46
26:5:170:ILE:HD13	53:A:2177:C:H4'	1.96	0.46
28:D:29:VAL:HB	28:D:98:VAL:HG22	1.97	0.46
30:F:109:ARG:HD3	30:F:136:ILE:O	2.14	0.46
33:I:80:LYS:NZ	53:A:1064:C:H5'	2.30	0.46
34:J:53:TYR:CE1	34:J:121:LYS:HG2	2.50	0.46
35:K:24:VAL:HG13	35:K:33:ALA:HB2	1.97	0.46
47:W:17:ALA:HB2	47:W:37:VAL:HG23	1.97	0.46
56:9:17:C:O2'	56:9:18:G:H5''	2.15	0.46
56:9:29:G:H2'	56:9:30:G:C8	2.51	0.46
56:9:37:A:H2'	56:9:38:A:O4'	2.15	0.46
53:A:1072:C:N4	53:A:1098:A:OP2	2.49	0.46
53:A:1751:U:H2'	53:A:1752:C:C6	2.50	0.46
53:A:2122:U:O4	53:A:2174:C:N4	2.49	0.46
53:A:2423:U:H4'	53:A:2424:C:O5'	2.15	0.46
25:4:1:MET:N	53:A:2526:G:N3	2.63	0.46
53:A:740:C:H42	53:A:757:G:H1	1.62	0.46
28:D:148:GLN:HB2	28:D:152:PRO:HG2	1.96	0.46
29:E:124:PHE:CE1	29:E:137:LYS:HE3	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:E:14:VAL:HG21	29:E:19:PHE:HD2	1.79	0.46
32:H:68:ARG:HH21	32:H:133:GLN:H	1.61	0.46
36:L:55:MET:HA	36:L:56:PRO:HD3	1.67	0.46
39:O:34:HIS:HE1	54:B:27:C:OP1	1.98	0.46
21:O:42:ILE:HG22	21:O:43:THR:O	2.16	0.46
26:5:134:ARG:HE	53:A:2126:A:N6	2.14	0.46
53:A:1058:U:H2'	53:A:1059:G:H8	1.81	0.46
53:A:2469:A:N6	53:A:2481:G:O2'	2.49	0.46
53:A:244:A:C2	53:A:255:A:C4	3.03	0.46
53:A:2638:G:O2'	53:A:2775:G:N2	2.39	0.46
53:A:271:G:N2	53:A:366:C:N3	2.60	0.46
31:G:85:LYS:HB3	31:G:164:ALA:HB2	1.96	0.46
45:U:95:PHE:CZ	45:U:102:ILE:HB	2.50	0.46
56:9:25:C:C3'	56:9:25:C:C6	2.99	0.46
56:9:4:C:N4	56:9:69:G:H1	2.13	0.46
53:A:1357:C:H2'	53:A:1358:G:O4'	2.16	0.46
53:A:1731:G:HO2'	53:A:1732:C:H3'	1.81	0.46
53:A:213:A:H2'	53:A:214:G:C8	2.51	0.46
53:A:2119:A:C2	53:A:2170:A:H2'	2.50	0.46
53:A:2888:C:H2'	53:A:2889:C:H6	1.80	0.46
53:A:842:U:H2'	53:A:843:G:C8	2.50	0.46
29:E:91:ASP:OD1	29:E:92:HIS:N	2.49	0.46
44:T:25:GLU:HA	44:T:28:ASN:O	2.16	0.46
48:X:16:ASN:ND2	48:X:24:THR:O	2.48	0.46
50:Z:29:ARG:HH21	50:Z:33:HIS:HE1	1.64	0.46
56:8:20:U:O2	56:8:20:U:H2'	2.16	0.46
56:8:22:G:H2'	56:8:23:A:C8	2.49	0.46
53:A:1066:U:N3	53:A:1069:A:O5'	2.35	0.46
53:A:1715:G:O2'	53:A:1743:G:O6	2.28	0.46
53:A:2150:C:C4	53:A:2151:U:H1'	2.50	0.46
34:J:39:LYS:HA	34:J:43:GLU:HG3	1.97	0.46
26:5:11:ILE:O	26:5:33:LEU:HD11	2.16	0.46
27:C:255:LYS:HA	53:A:1797:G:O3'	2.16	0.46
34:J:39:LYS:NZ	53:A:1009:A:OP1	2.46	0.46
53:A:1326:U:HO2'	53:A:2010:G:HO2'	1.55	0.46
53:A:2654:A:OP1	53:A:2654:A:H8	1.99	0.46
53:A:437:U:H2'	53:A:438:G:H8	1.80	0.46
29:E:119:ILE:HG13	29:E:187:VAL:HA	1.98	0.46
29:E:194:LYS:O	29:E:197:GLU:HB3	2.15	0.46
31:G:63:GLN:O	31:G:66:THR:OG1	2.26	0.46
32:H:63:ALA:O	32:H:108:VAL:HG13	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:8:61:C:H2'	56:8:62:C:C6	2.51	0.46
56:9:29:G:N2	56:9:42:C:O2	2.49	0.46
53:A:149:A:H62	53:A:176:A:H61	1.64	0.46
53:A:2730:C:H2'	53:A:2731:G:C8	2.50	0.46
53:A:2747:G:O6	53:A:2755:C:H5''	2.16	0.46
53:A:652:U:H2'	53:A:653:U:H5'	1.98	0.46
53:A:81:G:C6	53:A:82:U:C2	3.03	0.46
39:O:54:VAL:HG22	54:B:116:G:H4'	1.98	0.46
39:O:3:LYS:HG3	39:O:4:LYS:N	2.31	0.46
47:W:19:ARG:HE	47:W:22:VAL:HG21	1.81	0.46
24:3:30:HIS:ND1	24:3:31:ILE:HG23	2.31	0.46
53:A:1181:U:H2'	53:A:1182:G:C8	2.51	0.46
53:A:2128:G:N2	53:A:2160:C:H42	2.13	0.46
53:A:269:C:C5	53:A:270:A:N7	2.84	0.46
53:A:775:G:H2'	53:A:776:G:O4'	7.44	0.46
53:A:878:A:C5	53:A:879:G:C8	3.04	0.46
32:H:41:LYS:N	32:H:44:ILE:HG23	2.30	0.46
48:X:52:ALA:O	48:X:53:LYS:HB3	2.16	0.46
22:1:25:ASN:HB3	22:1:28:THR:OG1	2.16	0.46
53:A:1152:C:H2'	53:A:1153:C:C6	2.51	0.46
53:A:1326:U:N3	53:A:1648:U:O2'	2.49	0.46
53:A:2133:G:H1'	53:A:2160:C:C5	2.52	0.46
53:A:236:C:H42	53:A:261:G:H1	1.64	0.46
53:A:842:U:H2'	53:A:843:G:H8	1.80	0.46
53:A:900:A:H2'	53:A:901:C:O4'	2.16	0.46
28:D:39:ASP:H	28:D:42:ASN:HB2	1.80	0.46
32:H:4:ILE:HG12	32:H:18:GLN:NE2	2.24	0.46
44:T:54:GLU:CG	44:T:88:LYS:HB3	2.46	0.46
21:0:28:SER:OG	21:0:37:HIS:O	2.22	0.45
53:A:1738:G:O2'	53:A:1739:A:O4'	2.31	0.45
53:A:2007:U:H2'	53:A:2008:C:H6	1.82	0.45
53:A:2114:A:C5	53:A:2115:G:H1'	2.50	0.45
53:A:2262:U:H2'	53:A:2263:C:H6	1.80	0.45
53:A:2757:A:H2'	53:A:2757:A:N3	2.32	0.45
53:A:281:C:N4	53:A:359:G:H1	2.13	0.45
53:A:398:C:OP1	53:A:2090:A:O2'	2.26	0.45
31:G:45:ALA:O	31:G:47:ASN:N	2.49	0.45
31:G:71:LEU:HA	31:G:74:MET:SD	2.56	0.45
39:O:29:HIS:HB3	39:O:36:TYR:HB2	1.98	0.45
56:8:19:G:C5	56:8:57:G:C2	3.03	0.45
53:A:155:A:N6	53:A:166:U:O4	17.28	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:194:G:N2	53:A:251:A:N3	2.64	0.45
53:A:2346:A:H3'	53:A:2347:C:H5''	1.97	0.45
28:D:149:ASN:HB2	53:A:2575:C:H5'	1.97	0.45
53:A:301:G:O2'	53:A:302:C:H5''	2.15	0.45
53:A:864:G:H21	53:A:866:A:N6	2.14	0.45
53:A:937:C:H2'	53:A:938:G:H8	1.80	0.45
54:B:29:A:H2'	54:B:30:C:H6	1.82	0.45
31:G:25:ILE:HD12	31:G:74:MET:HB3	1.98	0.45
35:K:71:ARG:HE	35:K:106:GLU:CG	2.28	0.45
41:Q:91:ARG:NH1	42:R:11:GLN:H	2.15	0.45
47:W:38:ARG:HH21	53:A:2387:U:H1'	1.81	0.45
26:5:27:ILE:O	26:5:31:LYS:N	2.50	0.45
26:5:28:ALA:HA	26:5:31:LYS:HB2	1.98	0.45
53:A:1020:A:H4'	53:A:1021:A:O5'	2.16	0.45
53:A:2787:C:H2'	53:A:2788:C:C6	2.50	0.45
53:A:2881:U:H2'	53:A:2882:A:H8	1.81	0.45
53:A:43:G:C4	53:A:44:A:C8	3.05	0.45
53:A:768:G:H2'	53:A:769:U:O4'	2.16	0.45
34:J:122:LEU:O	34:J:123:LYS:HD2	2.17	0.45
35:K:13:ASN:O	35:K:14:SER:OG	2.29	0.45
35:K:2:ILE:HG21	35:K:8:LEU:HD11	1.99	0.45
45:U:35:VAL:O	45:U:38:ILE:HG22	2.16	0.45
56:8:64:A:H2'	56:8:65:G:C8	2.51	0.45
53:A:1078:U:H4'	53:A:1079:C:C6	2.51	0.45
53:A:1342:A:C6	53:A:1397:U:C5	3.04	0.45
53:A:1494:A:H2'	53:A:1495:A:H8	1.81	0.45
29:E:147:LEU:HB2	29:E:183:PHE:HD2	1.81	0.45
29:E:46:GLN:NE2	53:A:1248:G:C5	2.85	0.45
30:F:66:ILE:HG13	30:F:66:ILE:O	2.17	0.45
36:L:28:GLY:O	36:L:30:THR:N	2.50	0.45
56:9:41:C:C4	56:9:42:C:C4	3.04	0.45
56:9:4:C:H2'	56:9:5:G:C8	2.51	0.45
53:A:1413:A:H3'	53:A:1414:C:H6	1.80	0.45
53:A:2350:C:H2'	53:A:2351:G:O4'	2.16	0.45
53:A:2802:G:H2'	53:A:2803:G:O4'	2.15	0.45
53:A:910:A:C6	53:A:911:A:C6	3.04	0.45
32:H:68:ARG:NH1	32:H:110:VAL:HG22	2.31	0.45
32:H:64:ALA:HA	32:H:108:VAL:HG13	1.98	0.45
38:N:9:GLN:O	38:N:17:ARG:HD3	2.17	0.45
26:5:148:ASN:O	26:5:152:ALA:N	2.50	0.45
53:A:1079:C:H41	53:A:1088:A:H5''	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1037:G:H1	53:A:1118:C:H42	1.65	0.45
53:A:1206:G:C6	53:A:1207:C:C4	3.05	0.45
53:A:1355:G:H2'	53:A:1356:G:H8	2.45	0.45
53:A:1697:G:H4'	53:A:1978:A:H5''	1.99	0.45
53:A:2193:G:H2'	53:A:2194:U:C6	2.51	0.45
53:A:248:G:O5'	53:A:249:C:H5''	2.17	0.45
53:A:2554:U:H2'	53:A:2555:U:C5	2.51	0.45
53:A:273:G:H2'	53:A:274:C:C6	2.50	0.45
28:D:81:GLU:OE1	53:A:2636:C:H4'	2.15	0.45
30:F:151:LEU:HA	53:A:2305:U:C4	2.51	0.45
37:M:13:HIS:CD2	53:A:910:A:C4	3.05	0.45
45:U:72:PHE:CE1	45:U:77:GLY:HA2	2.51	0.45
45:U:85:ARG:HG3	45:U:86:PHE:O	2.17	0.45
53:A:1088:A:H5'	53:A:1089:A:H5'	1.98	0.45
53:A:1172:C:C4	53:A:1173:U:C2	3.05	0.45
53:A:812:C:HO2'	53:A:1226:A:HO2'	1.54	0.45
53:A:1520:U:H2'	53:A:1521:G:O4'	2.15	0.45
53:A:1825:U:H2'	53:A:1826:G:C8	2.52	0.45
53:A:1861:G:H1	53:A:1881:C:H42	1.64	0.45
53:A:225:C:H2'	53:A:226:A:O4'	2.17	0.45
53:A:481:G:O2'	53:A:507:A:N1	2.43	0.45
53:A:530:G:C2	53:A:2035:G:H5'	2.52	0.45
53:A:613:A:H5''	53:A:614:A:H8	1.81	0.45
53:A:940:G:H2'	53:A:941:A:O4'	2.17	0.45
30:F:28:PRO:HB2	30:F:168:LEU:HD22	1.99	0.45
30:F:37:MET:HE1	30:F:149:ARG:HD3	1.97	0.45
34:J:53:TYR:HE1	34:J:121:LYS:HG2	1.80	0.45
35:K:68:GLY:HA3	35:K:77:ILE:O	2.17	0.45
53:A:1228:G:C2	53:A:1229:C:C2	3.05	0.45
28:D:140:HIS:NE2	53:A:1658:C:OP1	2.50	0.45
53:A:2125:G:N2	53:A:2126:A:H62	2.15	0.45
53:A:247:G:N2	53:A:252:G:N7	2.64	0.45
53:A:491:G:C6	53:A:492:A:C6	3.05	0.45
53:A:584:C:H2'	53:A:585:G:O4'	2.17	0.45
30:F:107:VAL:HG11	30:F:175:PRO:HG2	1.99	0.45
31:G:9:VAL:HG13	31:G:11:PRO:HD3	1.99	0.45
50:Z:55:LYS:HE3	50:Z:57:GLU:OE2	2.17	0.45
44:T:19:LYS:HG3	53:A:1393:A:H61	1.82	0.45
53:A:1430:G:H2'	53:A:1431:A:O4'	2.17	0.45
53:A:2135:A:H5''	53:A:2136:G:N7	2.32	0.45
27:C:16:VAL:N	27:C:203:VAL:HG12	2.32	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:G:132:LEU:O	31:G:140:ILE:HD11	2.16	0.45
47:W:65:LYS:HB2	47:W:82:GLU:HB2	1.98	0.45
56:8:19:G:OP2	56:8:19:G:C8	2.70	0.45
56:9:1:G:C2	56:9:2:C:C2	3.04	0.45
56:9:71:G:C2	56:9:72:C:C2	3.04	0.45
53:A:1130:U:O2'	53:A:1131:G:H2'	2.16	0.45
53:A:1231:U:H2'	53:A:1232:G:H8	1.82	0.45
53:A:1847:A:H4'	53:A:1848:A:OP2	2.15	0.45
53:A:573:U:O2'	53:A:575:A:OP1	2.27	0.45
27:C:75:ALA:HB2	27:C:95:TYR:CD1	2.51	0.45
33:I:56:VAL:HG23	33:I:70:THR:HA	1.99	0.45
26:5:83:ASN:ND2	26:5:118:PRO:HG2	2.32	0.44
26:5:113:VAL:HG12	26:5:162:ARG:HH12	1.81	0.44
56:8:52:G:C6	56:8:53:G:C4	3.05	0.44
53:A:1443:U:H2'	53:A:1444:G:H8	1.82	0.44
35:K:6:THR:OG1	53:A:1666:G:O2'	2.16	0.44
53:A:172:A:H2'	53:A:173:A:C8	2.51	0.44
53:A:219:A:C6	53:A:220:G:C6	3.05	0.44
28:D:130:GLN:HE21	53:A:2511:U:H1'	1.81	0.44
53:A:2646:C:OP2	53:A:2732:G:O2'	2.25	0.44
33:I:37:PHE:CZ	33:I:41:PHE:HB2	2.52	0.44
39:O:8:ILE:O	39:O:12:THR:OG1	2.23	0.44
53:A:1456:G:C6	53:A:1457:U:C4	3.05	0.44
53:A:2024:G:C5	53:A:2040:G:C2	3.05	0.44
53:A:2326:C:O2'	53:A:2327:A:OP1	2.31	0.44
53:A:447:A:C5	53:A:473:G:C5	3.06	0.44
53:A:192:C:O2'	53:A:802:A:N3	2.51	0.44
53:A:827:U:O2'	53:A:2068:U:C2	2.69	0.44
53:A:838:C:H2'	53:A:839:U:C6	2.53	0.44
36:L:95:LEU:HA	36:L:98:ALA:HB3	1.99	0.44
53:A:1127:A:N7	53:A:2488:G:O2'	2.48	0.44
53:A:1168:G:C6	53:A:1169:A:C6	3.05	0.44
53:A:1519:G:C6	53:A:1520:U:C4	3.06	0.44
53:A:1947:C:H2'	53:A:1948:G:H8	1.82	0.44
53:A:2077:A:OP1	53:A:2238:G:N1	2.37	0.44
53:A:2897:U:H2'	53:A:2898:U:C6	2.52	0.44
53:A:639:U:H2'	53:A:640:C:C6	2.51	0.44
47:W:23:LYS:HD2	53:A:855:G:N3	2.32	0.44
33:I:100:ILE:HB	33:I:139:VAL:HG23	1.98	0.44
41:Q:43:GLN:NE2	42:R:77:PHE:HB3	2.32	0.44
43:S:2:GLU:HB3	43:S:106:VAL:HG13	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:5:27:ILE:HG22	26:5:31:LYS:HE3	2.00	0.44
26:5:79:THR:HG23	26:5:84:ALA:HB2	2.00	0.44
55:7:15:G:N3	55:7:15:G:H2'	2.32	0.44
53:A:1084:A:H1'	53:A:1105:U:O2'	2.18	0.44
53:A:119:A:O2'	53:A:120:U:OP2	2.34	0.44
53:A:1268:A:C2	53:A:2013:A:C4	3.05	0.44
53:A:2470:G:C2	53:A:2471:A:C8	3.04	0.44
53:A:953:G:C2	53:A:954:G:C8	3.06	0.44
29:E:14:VAL:HG21	29:E:19:PHE:CD2	2.53	0.44
29:E:170:ARG:HD3	29:E:174:GLY:O	2.17	0.44
33:I:89:SER:HB2	53:A:1063:G:N2	2.30	0.44
37:M:33:LEU:HD12	37:M:103:TYR:HD2	1.83	0.44
53:A:1853:A:H2'	53:A:1854:A:C8	2.52	0.44
53:A:1837:C:H2'	53:A:1899:A:H61	1.82	0.44
53:A:18:U:O4	53:A:19:A:N6	2.51	0.44
53:A:2297:A:N1	53:A:2321:U:H5	2.16	0.44
53:A:2522:U:O2'	53:A:2647:U:OP1	2.30	0.44
53:A:408:G:H2'	53:A:409:G:H8	1.81	0.44
53:A:690:G:O6	53:A:772:C:N4	2.51	0.44
53:A:85:G:C5	53:A:98:G:C2	3.05	0.44
30:F:91:ARG:NH2	54:B:43:C:O2	2.51	0.44
28:D:34:VAL:HG21	28:D:90:PHE:O	2.17	0.44
29:E:32:VAL:HG23	29:E:178:VAL:HG12	2.00	0.44
33:I:27:LEU:HD12	33:I:28:GLY:O	2.17	0.44
39:O:40:ILE:HG23	39:O:46:GLU:O	2.18	0.44
43:S:88:ARG:HD3	43:S:94:ASP:OD2	2.18	0.44
47:W:19:ARG:HH11	47:W:22:VAL:HG21	1.82	0.44
47:W:35:ILE:HG12	47:W:35:ILE:O	2.18	0.44
26:5:201:PRO:HG2	26:5:207:VAL:HG22	1.99	0.44
56:8:20:U:H2'	56:8:21:A:H5''	1.99	0.44
56:9:28:G:C6	56:9:43:C:C4	3.06	0.44
53:A:1366:A:H2'	53:A:1367:A:O4'	2.18	0.44
53:A:1495:A:N3	53:A:1578:U:O2'	2.43	0.44
53:A:196:A:H2'	53:A:196:A:N3	2.33	0.44
53:A:2114:A:H1'	53:A:2167:U:H4'	2.00	0.44
22:1:22:THR:OG1	53:A:2286:G:O6	2.17	0.44
53:A:252:G:C2	53:A:253:C:C2	3.06	0.44
27:C:225:ASN:ND2	53:A:784:G:H5'	2.33	0.44
33:I:24:GLY:O	33:I:28:GLY:N	2.51	0.44
53:A:1345:C:N4	53:A:1601:G:H1	2.16	0.44
53:A:1363:C:O2'	53:A:1809:A:N3	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:2472:G:C6	53:A:2475:C:H2'	2.53	0.44
28:D:63:PRO:HG3	53:A:2787:C:H1'	1.99	0.44
53:A:2901:C:H2'	53:A:2902:C:O4'	2.18	0.44
53:A:45:G:C4	53:A:46:G:C8	9.22	0.44
28:D:194:PRO:HA	53:A:2680:U:H5'	2.00	0.44
34:J:27:ARG:NH1	53:A:1143:A:N7	2.65	0.44
36:L:81:ASP:C	36:L:83:ALA:H	2.20	0.44
42:R:82:HIS:ND1	42:R:82:HIS:O	2.51	0.44
26:5:33:LEU:HD21	26:5:220:ALA:HB3	1.98	0.44
26:5:42:VAL:HA	26:5:214:ILE:HD11	2.00	0.44
56:9:25:C:H3'	56:9:25:C:C6	2.51	0.44
53:A:1142:A:C5	53:A:1144:A:C5	3.05	0.44
53:A:1165:A:H2'	53:A:1166:G:H8	1.83	0.44
53:A:1413:A:H61	53:A:1589:U:H3	1.66	0.44
26:5:129:GLN:HB2	53:A:2113:U:O4	2.18	0.44
53:A:2110:G:N2	53:A:2120:G:H1'	2.33	0.44
53:A:2316:G:C2	53:A:2317:A:C4	3.06	0.44
53:A:2749:A:OP2	53:A:2750:A:O2'	2.19	0.44
53:A:2841:C:H2'	53:A:2842:G:C8	2.53	0.44
53:A:376:G:H1	53:A:387:U:H3	17.56	0.44
53:A:530:G:H21	53:A:530:G:P	8.70	0.44
53:A:974:G:N3	53:A:1186:G:N2	2.66	0.44
54:B:4:C:C2	54:B:117:G:C2	3.06	0.44
27:C:93:VAL:N	27:C:101:ARG:O	2.51	0.44
27:C:179:GLU:OE1	53:A:1799:G:H8	2.01	0.44
31:G:97:VAL:HG23	31:G:124:CYS:SG	2.57	0.44
32:H:3:VAL:HA	32:H:39:ALA:N	2.33	0.44
37:M:134:THR:HG22	37:M:136:MET:H	1.82	0.44
39:O:66:GLY:HA2	39:O:102:ARG:NH2	2.33	0.44
40:P:25:VAL:HG12	40:P:85:VAL:HA	1.99	0.44
42:R:49:ILE:HB	42:R:51:VAL:O	2.18	0.44
45:U:82:VAL:HG11	45:U:93:ARG:HB3	1.98	0.44
26:5:195:ALA:O	26:5:199:ALA:N	2.51	0.44
53:A:1685:C:H2'	53:A:1686:C:C6	2.53	0.44
53:A:1869:G:N1	53:A:1871:A:H2'	2.32	0.44
53:A:2221:G:H2'	53:A:2222:C:C6	2.53	0.44
53:A:255:A:C6	53:A:256:A:C4	3.06	0.44
53:A:2684:U:C4	53:A:2685:G:N7	2.86	0.44
53:A:381:G:H1	53:A:393:C:H42	1.66	0.44
53:A:755:U:H2'	53:A:756:A:C8	2.50	0.44
53:A:834:G:H1'	53:A:2358:A:N3	2.33	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:B:31:C:O2'	54:B:53:A:N1	2.38	0.44
27:C:124:LYS:HB3	27:C:127:ASN:ND2	2.32	0.44
27:C:158:GLY:HA3	53:A:1820:U:C4	2.53	0.44
42:R:42:ALA:HA	42:R:46:GLU:HA	1.99	0.44
44:T:68:LYS:NZ	53:A:1337:G:OP2	2.51	0.44
53:A:1073:A:H8	53:A:1074:G:N7	2.16	0.43
33:I:93:ASN:HB3	53:A:1077:A:H4'	2.00	0.43
53:A:1087:G:C2	53:A:1099:G:N3	14.80	0.43
53:A:2488:G:H2'	53:A:2489:U:C6	2.53	0.43
53:A:404:A:H4'	53:A:405:U:O5'	2.18	0.43
53:A:50:U:O2'	53:A:51:G:OP1	2.33	0.43
27:C:170:TYR:CD1	27:C:182:LYS:HB3	2.52	0.43
31:G:115:GLN:HG2	31:G:116:LEU:O	2.18	0.43
34:J:17:VAL:HG12	34:J:55:ILE:HD11	1.99	0.43
43:S:73:LYS:HE2	43:S:75:PHE:CE2	2.53	0.43
32:H:32:PRO:HA	48:X:38:TRP:CD1	2.53	0.43
53:A:1028:A:N6	53:A:1125:G:H2'	2.33	0.43
53:A:1050:A:H2'	53:A:1051:G:O4'	2.18	0.43
43:S:6:LYS:HD3	53:A:1314:C:H5	43.93	0.43
53:A:1444:G:H2'	53:A:1445:G:C8	2.53	0.43
53:A:2230:G:H2'	53:A:2231:U:H6	1.83	0.43
53:A:418:C:N3	53:A:425:G:N1	27.79	0.43
53:A:535:G:H2'	53:A:536:G:O4'	2.18	0.43
30:F:79:ARG:HB3	30:F:82:TYR:CE2	2.54	0.43
34:J:32:LEU:HD22	34:J:54:ILE:HD13	2.00	0.43
42:R:29:THR:HG23	42:R:65:ALA:HA	2.00	0.43
47:W:23:LYS:H	47:W:68:PHE:HE2	1.65	0.43
48:X:20:ALA:HA	56:9:75:C:N4	2.29	0.43
21:0:4:GLN:NE2	53:A:2056:G:H4'	2.33	0.43
34:J:30:THR:HG21	53:A:1005:C:O2'	2.19	0.43
53:A:1164:C:H2'	53:A:1165:A:C8	2.54	0.43
53:A:1173:U:C2'	53:A:1174:U:H4'	2.46	0.43
53:A:1268:A:H3'	53:A:1269:A:H8	1.83	0.43
53:A:1713:A:H61	53:A:1745:A:N6	2.13	0.43
53:A:1859:U:H2'	53:A:1860:G:C8	2.53	0.43
53:A:2337:G:N1	53:A:2338:C:N3	2.67	0.43
53:A:383:C:O2	53:A:385:C:N4	2.51	0.43
54:B:117:G:H2'	54:B:118:C:C6	2.53	0.43
28:D:34:VAL:HA	28:D:50:VAL:HG12	2.00	0.43
29:E:5:LEU:O	29:E:5:LEU:HD23	2.18	0.43
30:F:15:LEU:HA	30:F:19:PHE:HD2	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:G:87:GLN:HE21	31:G:162:ARG:HD2	1.83	0.43
32:H:97:ARG:HB2	32:H:114:GLU:HB2	2.00	0.43
32:H:3:VAL:HG12	32:H:38:PRO:HA	2.01	0.43
32:H:76:GLU:HG3	32:H:77:THR:O	2.18	0.43
34:J:89:PHE:O	34:J:93:ILE:HG12	2.19	0.43
37:M:8:LYS:HE3	37:M:9:PHE:HE2	1.83	0.43
24:3:61:LEU:HB3	24:3:64:ALA:HB2	2.00	0.43
26:5:166:ASP:OD2	53:A:2121:G:N2	2.51	0.43
53:A:1472:C:H42	53:A:1519:G:H1	1.65	0.43
53:A:1537:G:C4	53:A:1538:G:H1'	2.53	0.43
53:A:2093:G:N7	53:A:2225:A:H2'	2.33	0.43
53:A:2220:U:H2'	53:A:2221:G:H8	1.82	0.43
53:A:2531:A:N3	53:A:2658:C:O2'	2.36	0.43
53:A:2581:G:N3	53:A:2581:G:H2'	2.33	0.43
53:A:1297:C:OP1	53:A:2710:C:H4'	2.17	0.43
53:A:358:U:H2'	53:A:359:G:C8	2.54	0.43
53:A:611:C:H42	53:A:617:G:H1	1.64	0.43
53:A:748:G:H8	53:A:750:A:OP2	2.01	0.43
53:A:835:C:H2'	53:A:836:G:C8	2.53	0.43
53:A:859:G:OP2	53:A:869:G:N1	21.80	0.43
28:D:107:VAL:N	28:D:174:SER:O	2.45	0.43
25:4:37:GLN:HE21	53:A:1125:G:H4'	1.84	0.43
53:A:1099:G:C6	53:A:1100:C:C4	3.06	0.43
53:A:1361:G:H2'	53:A:1362:C:C6	2.53	0.43
53:A:1934:C:N4	53:A:1935:G:O6	2.52	0.43
53:A:2294:G:N2	53:A:2339:C:N3	2.66	0.43
53:A:831:G:C6	53:A:832:U:N3	2.87	0.43
53:A:924:G:H2'	53:A:925:A:H8	1.84	0.43
53:A:95:A:C2	53:A:96:C:H1'	2.53	0.43
54:B:18:G:C6	54:B:19:C:C4	3.06	0.43
54:B:49:C:H2'	54:B:50:A:C8	2.54	0.43
29:E:129:PRO:HG3	29:E:156:ASN:OD1	2.19	0.43
33:I:19:PRO:HD2	33:I:23:VAL:HG22	2.00	0.43
26:5:181:ASP:HB2	26:5:184:LYS:HB2	2.00	0.43
53:A:1181:U:H2'	53:A:1182:G:H8	1.84	0.43
53:A:281:C:H42	53:A:359:G:H1	1.65	0.43
53:A:272:A:N1	53:A:365:U:C4	2.87	0.43
53:A:652:U:C2'	53:A:653:U:H5'	2.48	0.43
53:A:873:C:H2'	53:A:874:G:H8	1.82	0.43
39:O:25:ARG:NH1	54:B:8:C:O3'	2.52	0.43
54:B:93:C:H2'	54:B:94:A:C8	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:F:36:ASN:HB3	30:F:152:ASP:OD1	2.19	0.43
32:H:11:ASN:OD1	32:H:12:LEU:N	2.51	0.43
53:A:1346:G:H2'	53:A:1347:A:H8	1.84	0.43
53:A:1300:G:C2	53:A:1626:A:N6	2.86	0.43
27:C:156:SER:OG	53:A:1820:U:O2'	2.33	0.43
53:A:1987:A:H2'	53:A:1988:G:C8	2.54	0.43
29:E:63:LYS:NZ	53:A:2060:A:O2'	2.52	0.43
53:A:2104:C:H2'	53:A:2105:U:C6	2.53	0.43
53:A:2261:C:H42	53:A:2279:G:H1	1.66	0.43
53:A:2416:C:H2'	53:A:2417:C:C6	2.53	0.43
53:A:500:G:N1	53:A:503:A:OP2	2.50	0.43
53:A:827:U:H2'	53:A:870:U:O4	56.71	0.43
29:E:46:GLN:O	29:E:86:ALA:HB1	2.18	0.43
45:U:96:LYS:O	45:U:97:SER:OG	2.31	0.43
53:A:1704:C:H2'	53:A:1705:A:C8	2.54	0.43
53:A:2133:G:H2'	53:A:2134:A:H4'	2.01	0.43
53:A:2135:A:OP1	53:A:2160:C:H1'	2.19	0.43
53:A:2137:U:H2'	53:A:2138:G:C8	2.52	0.43
53:A:2398:U:H2'	53:A:2399:G:C8	2.51	0.43
53:A:718:A:H8	53:A:718:A:OP2	3.41	0.43
53:A:924:G:H2'	53:A:925:A:C8	2.52	0.43
28:D:157:LYS:HA	53:A:2619:C:H5''	2.01	0.43
30:F:37:MET:HG2	30:F:151:LEU:HB3	2.01	0.43
32:H:100:ALA:HB3	32:H:112:LYS:HG2	2.01	0.43
32:H:41:LYS:O	32:H:44:ILE:HG12	2.19	0.43
33:I:88:GLY:HA3	53:A:1064:C:H4'	2.01	0.43
53:A:1413:A:H3'	53:A:1414:C:C6	2.54	0.43
53:A:1471:G:C6	53:A:1472:C:C4	3.06	0.43
53:A:466:A:N3	53:A:683:U:H1'	2.34	0.43
53:A:818:G:O2'	53:A:819:A:H5'	4.02	0.43
41:Q:57:ARG:NH2	53:A:998:C:OP2	2.52	0.43
39:O:33:ARG:NH1	54:B:52:A:N7	2.67	0.43
28:D:119:ALA:HB3	28:D:163:GLY:O	2.19	0.43
31:G:137:LYS:O	31:G:140:ILE:HG22	2.19	0.43
37:M:34:LYS:HE3	37:M:131:VAL:HG11	2.01	0.43
39:O:24:THR:HG22	39:O:42:PRO:HD3	2.01	0.43
22:1:37:LYS:HB2	22:1:48:TYR:CE2	2.54	0.43
25:4:11:CYS:HB3	25:4:33:HIS:CE1	2.54	0.43
56:8:61:C:H2'	56:8:62:C:H6	1.84	0.43
53:A:1039:A:H2	53:A:1116:G:H22	1.67	0.43
53:A:1531:C:H2'	53:A:1532:A:H4'	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1660:G:H1	53:A:2000:C:H42	1.67	0.43
26:5:172:HIS:NE2	53:A:2176:A:N3	2.67	0.43
53:A:560:C:H2'	53:A:561:G:O4'	2.18	0.43
53:A:601:C:H2'	53:A:602:A:O4'	2.19	0.43
53:A:610:C:H2'	53:A:611:C:C6	2.54	0.43
53:A:925:A:H2'	53:A:926:G:C8	2.53	0.43
27:C:15:VAL:HG22	27:C:205:GLY:HA3	2.00	0.43
29:E:29:HIS:NE2	36:L:8:PRO:HD3	2.34	0.43
30:F:105:ILE:O	30:F:108:PRO:HD2	2.19	0.43
37:M:34:LYS:HD3	46:V:81:PRO:O	2.19	0.43
26:5:50:ILE:HG22	26:5:57:GLN:OE1	2.19	0.42
53:A:1079:C:N4	53:A:1088:A:H5''	2.34	0.42
53:A:1223:G:C6	53:A:1227:G:C6	3.07	0.42
53:A:1410:G:C2	53:A:1593:A:C2	3.07	0.42
53:A:2143:C:H4'	53:A:2145:C:H41	1.84	0.42
53:A:2795:C:N4	53:A:2801:G:H1	2.16	0.42
41:Q:13:HIS:ND1	53:A:582:A:OP1	2.51	0.42
53:A:974:G:H8	53:A:990:A:H62	1.66	0.42
27:C:158:GLY:H	27:C:194:VAL:HG13	1.84	0.42
29:E:161:ALA:HA	29:E:164:LEU:HB2	2.01	0.42
30:F:55:ASP:O	30:F:59:ILE:HG13	2.19	0.42
46:V:53:LYS:HB3	46:V:55:GLU:OE1	2.19	0.42
53:A:1036:G:C6	53:A:1120:G:C6	3.07	0.42
53:A:1223:G:N1	53:A:1227:G:C5	2.88	0.42
53:A:1283:G:N2	53:A:1285:A:H3'	2.35	0.42
44:T:1:MET:HG2	53:A:139:U:O4	2.19	0.42
53:A:1430:G:C6	53:A:1431:A:C5	3.07	0.42
53:A:1823:G:C5	53:A:1824:G:N7	2.87	0.42
32:H:25:TYR:CE1	53:A:2094:A:H4'	2.53	0.42
53:A:2096:C:H2'	53:A:2097:A:H8	1.84	0.42
53:A:2126:A:H2	53:A:2162:G:N7	2.17	0.42
53:A:2259:U:H2'	53:A:2260:C:H6	1.85	0.42
53:A:319:G:H2'	53:A:320:A:H8	1.94	0.42
53:A:291:G:C5	53:A:350:G:C6	3.07	0.42
53:A:39:G:C2	53:A:441:U:C2	3.07	0.42
53:A:570:G:C2	53:A:571:U:C2	6.86	0.42
53:A:903:C:H2'	53:A:904:G:H8	1.83	0.42
53:A:934:U:H2'	53:A:935:C:C6	2.54	0.42
27:C:105:ALA:HA	27:C:106:PRO:HD2	1.87	0.42
27:C:51:ARG:HG2	27:C:52:HIS:CD2	2.54	0.42
30:F:63:LYS:HA	30:F:64:PRO:HD3	1.87	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:I:30:GLN:H	33:I:32:VAL:HG23	1.84	0.42
35:K:70:ARG:O	35:K:71:ARG:HB2	2.18	0.42
39:O:105:ALA:O	39:O:106:LEU:HG	2.19	0.42
47:W:13:ARG:HG2	47:W:14:ASP:H	1.83	0.42
26:5:42:VAL:HG21	26:5:175:ILE:HB	2.00	0.42
26:5:217:THR:O	53:A:2174:C:O2'	2.37	0.42
56:9:43:C:H2'	56:9:45:U:O4	2.18	0.42
41:Q:31:TYR:OH	53:A:1252:G:OP1	2.35	0.42
38:N:73:ASN:HB3	53:A:1453:A:N7	2.34	0.42
53:A:1536:C:O2	53:A:1537:G:N1	2.51	0.42
53:A:1716:U:H2'	53:A:1717:A:C8	2.54	0.42
53:A:1731:G:O2'	53:A:1732:C:H3'	2.19	0.42
53:A:1746:A:H2'	53:A:1747:U:C6	2.54	0.42
53:A:173:A:C6	53:A:174:U:C4	3.08	0.42
53:A:2530:A:H2'	53:A:2531:A:H5''	2.00	0.42
53:A:2688:G:N1	53:A:2720:U:OP2	2.44	0.42
53:A:597:G:C6	53:A:661:A:C6	3.07	0.42
53:A:665:U:H2'	53:A:666:A:C8	2.54	0.42
30:F:24:VAL:O	30:F:27:VAL:HG12	2.19	0.42
31:G:47:ASN:HB3	31:G:48:THR:H	1.60	0.42
32:H:90:LEU:HD21	32:H:149:GLU:OXT	2.19	0.42
32:H:40:THR:O	32:H:42:LYS:N	2.47	0.42
32:H:45:GLU:O	32:H:48:GLU:HB3	2.19	0.42
37:M:8:LYS:HG2	37:M:9:PHE:CE2	2.54	0.42
48:X:17:ARG:NH2	48:X:21:LEU:HB3	2.34	0.42
50:Z:9:THR:OG1	50:Z:10:ARG:N	2.46	0.42
53:A:1227:G:N2	53:A:1228:G:H1'	2.35	0.42
53:A:136:G:C2	53:A:137:U:C2	3.07	0.42
53:A:1310:G:H1	53:A:1604:C:H42	1.67	0.42
53:A:1831:G:H2'	53:A:1832:C:C6	2.54	0.42
53:A:562:U:H1'	53:A:2035:G:O2'	2.19	0.42
53:A:2283:C:H2'	53:A:2284:A:H8	1.84	0.42
53:A:2710:C:H2'	53:A:2711:A:C8	2.54	0.42
53:A:2841:C:H2'	53:A:2842:G:H8	1.84	0.42
53:A:2888:C:H2'	53:A:2889:C:C6	2.54	0.42
37:M:8:LYS:HE3	37:M:9:PHE:CE2	2.55	0.42
38:N:1:MET:HG3	38:N:3:HIS:CD2	2.55	0.42
33:I:80:LYS:HZ1	53:A:1064:C:H5'	1.84	0.42
53:A:1496:A:N3	53:A:1577:C:O2'	2.45	0.42
53:A:1408:G:N2	53:A:1595:C:H1'	2.34	0.42
53:A:2107:G:C5	53:A:2183:A:C2	3.08	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:2132:U:H2'	53:A:2133:G:H8	1.85	0.42
53:A:2135:A:H5''	53:A:2136:G:C8	2.54	0.42
30:F:70:ARG:NH1	53:A:2299:U:OP2	2.41	0.42
53:A:271:G:O2'	53:A:272:A:C8	2.70	0.42
53:A:600:G:C5	53:A:601:C:C4	3.07	0.42
53:A:974:G:C4	53:A:1186:G:C2	3.07	0.42
29:E:3:LEU:HD12	29:E:12:LEU:HB3	2.01	0.42
37:M:39:GLY:O	37:M:96:ILE:HG13	2.20	0.42
35:K:76:VAL:H	40:P:72:VAL:HG22	1.85	0.42
53:A:1954:G:H21	53:A:1956:U:H3	1.68	0.42
26:5:43:ASP:HB3	53:A:2124:G:H1'	2.02	0.42
53:A:2700:A:H2'	53:A:2701:U:H6	1.85	0.42
53:A:436:C:N4	53:A:437:U:O4	2.52	0.42
36:L:66:PHE:HB3	53:A:631:A:O2'	2.19	0.42
27:C:74:PRO:HG2	27:C:96:LYS:HG3	2.02	0.42
28:D:5:VAL:HG11	28:D:80:TRP:CZ3	2.54	0.42
44:T:40:LYS:O	44:T:43:ILE:HG13	2.19	0.42
53:A:152:A:H61	53:A:173:A:N6	2.18	0.42
53:A:2033:A:N6	53:A:2036:C:C2	2.88	0.42
53:A:2266:A:N6	53:A:2273:A:OP2	2.53	0.42
21:0:3:GLN:HA	53:A:2615:U:C2	2.54	0.42
53:A:2006:C:O2'	53:A:2823:A:N3	2.53	0.42
53:A:884:U:H1'	53:A:893:C:O2	2.20	0.42
53:A:970:U:H5''	53:A:989:G:O6	2.20	0.42
27:C:229:HIS:CD2	27:C:246:PRO:HB3	2.55	0.42
38:N:73:ASN:HA	38:N:76:VAL:HG12	2.00	0.42
56:8:19:G:C8	56:8:57:G:C2	2.96	0.42
53:A:1034:G:C5	53:A:1035:U:C4	3.07	0.42
53:A:1170:C:H2'	53:A:1171:G:C8	2.55	0.42
40:P:105:LYS:HG2	53:A:1432:G:P	54.59	0.42
53:A:1538:G:C6	53:A:1539:U:N3	2.88	0.42
53:A:1553:A:N6	53:A:1555:G:N3	2.68	0.42
53:A:191:A:H2'	53:A:192:C:H6	1.84	0.42
53:A:271:G:O2'	53:A:272:A:H8	2.03	0.42
53:A:2758:A:C2	53:A:2759:G:H1'	2.55	0.42
53:A:67:U:C2	53:A:88:G:C2	3.08	0.42
29:E:128:ALA:O	29:E:130:LYS:N	2.51	0.42
33:I:134:SER:HB3	53:A:1062:G:O2'	2.20	0.42
40:P:57:ALA:HA	40:P:75:THR:HG23	2.01	0.42
56:8:30:G:C2	56:8:41:C:C2	3.08	0.42
53:A:1078:U:H4'	53:A:1079:C:C2	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1244:A:C4	53:A:1245:G:C8	3.08	0.42
53:A:165:A:H2'	53:A:166:U:O4'	2.20	0.42
53:A:2001:C:H1'	53:A:2689:U:C4	2.54	0.42
53:A:2221:G:H2'	53:A:2222:C:H6	1.84	0.42
53:A:300:A:H2	53:A:333:G:N3	2.18	0.42
29:E:98:LYS:HB3	29:E:102:ARG:NH2	2.35	0.42
30:F:113:PHE:HZ	30:F:175:PRO:HB3	1.84	0.42
35:K:34:GLY:O	35:K:36:GLY:N	2.52	0.42
42:R:27:ILE:HG13	42:R:33:VAL:HG12	2.02	0.42
46:V:37:PRO:HG2	54:B:74:U:H1'	2.02	0.42
50:Z:36:GLU:O	50:Z:37:ARG:NH1	2.53	0.42
53:A:1660:G:N2	53:A:2001:C:N3	2.67	0.42
53:A:2158:A:O2'	53:A:2159:G:N3	2.52	0.42
53:A:2815:C:H2'	53:A:2816:G:C8	2.50	0.42
53:A:315:G:C6	53:A:316:C:C4	3.08	0.42
27:C:52:HIS:CE1	27:C:218:THR:HG23	2.55	0.42
31:G:93:TYR:CD1	31:G:106:LEU:HA	2.55	0.42
31:G:66:THR:HG21	53:A:2757:A:N1	2.34	0.42
41:Q:105:PHE:O	41:Q:109:VAL:HG23	2.20	0.42
56:8:45:U:O2'	56:8:46:G:OP2	2.29	0.41
56:9:26:A:N7	56:9:27:G:C2	2.88	0.41
53:A:1049:C:H2'	53:A:1050:A:H8	1.85	0.41
53:A:1346:G:C2	53:A:1601:G:C2	3.08	0.41
53:A:1622:G:C2	53:A:1623:G:C8	3.08	0.41
53:A:1717:A:H2'	53:A:1718:G:O4'	2.20	0.41
53:A:1858:A:H1'	53:A:1885:A:C2	2.55	0.41
53:A:2061:G:O2'	53:A:2062:A:H3'	2.20	0.41
53:A:2062:A:H4'	53:A:2063:C:OP1	2.20	0.41
53:A:2128:G:C2'	53:A:2129:C:H4'	2.49	0.41
53:A:2209:G:C2	53:A:2210:U:O4	2.73	0.41
53:A:2262:U:H2'	53:A:2263:C:C6	2.54	0.41
53:A:272:A:H2	53:A:273:G:N3	2.13	0.41
53:A:2627:G:N2	53:A:2777:G:C4	2.88	0.41
53:A:2793:C:H2'	53:A:2794:C:H6	1.84	0.41
53:A:2901:C:C4	53:A:2902:C:C4	3.08	0.41
53:A:303:G:C6	53:A:315:G:C6	3.07	0.41
53:A:829:A:N7	53:A:2248:C:H5'	2.35	0.41
28:D:208:LYS:NZ	53:A:2731:G:O3'	2.52	0.41
28:D:5:VAL:H	28:D:32:ASN:ND2	2.18	0.41
43:S:27:LYS:O	43:S:71:VAL:HG12	2.20	0.41
26:5:189:LEU:O	26:5:192:LEU:HB3	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:8:19:G:N9	56:8:57:G:N2	2.62	0.41
53:A:130:C:H2'	53:A:131:A:O4'	2.20	0.41
38:N:17:ARG:NH2	53:A:2002:G:OP1	2.51	0.41
53:A:2507:C:C2	53:A:2583:G:C2	3.08	0.41
53:A:2869:G:N7	53:A:2870:C:C4	2.88	0.41
53:A:651:G:H2'	53:A:652:U:C6	2.55	0.41
53:A:816:C:H2'	53:A:817:C:H6	1.84	0.41
53:A:938:G:H2'	53:A:939:G:H8	1.85	0.41
40:P:77:SER:OG	40:P:79:VAL:HG22	2.20	0.41
48:X:60:LYS:HD2	53:A:372:G:H5''	2.02	0.41
26:5:52:ALA:HB2	26:5:56:ASP:HB2	2.01	0.41
53:A:1030:C:N3	53:A:1125:G:N2	2.68	0.41
53:A:1510:G:N2	53:A:1511:G:N3	2.68	0.41
53:A:2294:G:H2'	53:A:2295:C:H6	1.85	0.41
30:F:132:ARG:HH12	53:A:2306:C:H5'	1.86	0.41
53:A:290:U:N3	53:A:291:G:N7	2.68	0.41
53:A:478:A:C6	53:A:480:A:C6	3.08	0.41
53:A:862:G:C4	53:A:863:A:C8	3.08	0.41
54:B:29:A:H2'	54:B:30:C:C6	2.55	0.41
39:O:32:PRO:HD2	54:B:29:A:OP2	2.21	0.41
27:C:120:ASP:OD1	27:C:120:ASP:N	2.46	0.41
27:C:144:GLU:HA	27:C:151:GLY:HA2	2.02	0.41
33:I:18:ASN:HD22	33:I:35:MET:HA	1.85	0.41
34:J:56:VAL:O	34:J:57:LEU:HD12	2.20	0.41
34:J:80:HIS:HB3	34:J:81:ILE:H	1.59	0.41
35:K:119:ALA:HA	35:K:120:PRO:HD2	1.89	0.41
47:W:23:LYS:NZ	53:A:923:G:H1'	2.35	0.41
47:W:69:GLU:HB3	47:W:70:VAL:H	1.71	0.41
23:2:1:MET:O	23:2:3:ARG:HG2	2.21	0.41
25:4:38:GLY:O	53:A:1124:G:N2	2.39	0.41
26:5:76:ALA:HA	26:5:93:GLU:OE2	2.19	0.41
56:8:25:C:H2'	56:8:26:A:O4'	2.21	0.41
53:A:144:A:H2'	53:A:145:C:C6	2.55	0.41
53:A:1467:U:C4	53:A:1546:G:C2	3.09	0.41
53:A:1933:G:H1	53:A:1967:C:H42	1.68	0.41
53:A:2041:U:H2'	53:A:2042:A:H8	1.84	0.41
53:A:190:A:C5	53:A:207:A:C2	3.09	0.41
53:A:2105:U:H2'	53:A:2106:U:O4'	2.21	0.41
53:A:2221:G:C2	53:A:2222:C:C2	3.08	0.41
53:A:2297:A:N7	53:A:2320:U:N3	2.68	0.41
53:A:2699:C:H2'	53:A:2700:A:H8	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:739:A:H1'	53:A:740:C:H5	1.85	0.41
53:A:861:A:N3	54:B:79:G:O2'	2.51	0.41
53:A:927:A:H2'	53:A:928:A:C8	2.55	0.41
27:C:67:LYS:HG2	27:C:150:GLY:HA2	2.02	0.41
27:C:254:LYS:O	27:C:256:THR:N	2.44	0.41
30:F:74:ALA:HB2	56:8:56:C:O2	2.21	0.41
40:P:104:GLY:HA3	53:A:1432:G:OP1	53.98	0.41
42:R:4:VAL:HG23	42:R:13:ARG:HA	2.02	0.41
47:W:13:ARG:HG2	47:W:14:ASP:N	2.36	0.41
23:2:30:VAL:HG22	23:2:33:ARG:NH1	2.35	0.41
26:5:148:ASN:HB2	26:5:151:GLU:HG2	2.02	0.41
26:5:70:GLY:HA2	26:5:176:GLY:HA2	2.02	0.41
53:A:1078:U:H4'	53:A:1079:C:N1	2.35	0.41
34:J:27:ARG:HG2	53:A:1143:A:H62	1.85	0.41
53:A:1368:G:H2'	53:A:1369:G:C8	2.55	0.41
53:A:2149:U:C4	53:A:2150:C:C4	3.09	0.41
53:A:2405:G:H1'	53:A:2412:A:N6	2.35	0.41
53:A:2881:U:H2'	53:A:2882:A:C8	2.55	0.41
53:A:319:G:C4	53:A:320:A:C8	3.08	0.41
27:C:67:LYS:HB3	27:C:69:ASN:OD1	2.21	0.41
28:D:133:THR:OG1	28:D:134:HIS:N	2.53	0.41
32:H:20:ASN:OD1	32:H:21:VAL:N	2.54	0.41
26:5:193:LEU:HA	26:5:196:LEU:HD12	2.02	0.41
56:8:20:U:O2'	56:8:21:A:P	2.78	0.41
56:9:11:C:H2'	56:9:12:U:H6	1.86	0.41
53:A:1055:G:H2'	53:A:1056:G:O4'	2.20	0.41
53:A:80:G:C2	53:A:107:G:C2	3.08	0.41
53:A:1356:G:C6	53:A:1357:C:C4	3.09	0.41
53:A:1394:U:N3	53:A:1395:A:C6	2.89	0.41
53:A:2536:G:C6	53:A:2537:U:C4	3.09	0.41
31:G:157:LYS:NZ	53:A:2658:C:OP1	2.48	0.41
53:A:2660:A:C6	53:A:2661:G:C4	3.09	0.41
53:A:2681:C:N3	53:A:2727:A:H2	2.17	0.41
53:A:2751:G:N3	53:A:2751:G:H2'	2.36	0.41
28:D:197:THR:HB	53:A:2820:A:C2	2.56	0.41
53:A:449:A:C4	53:A:450:G:C8	3.09	0.41
53:A:514:A:H1'	53:A:581:C:O2'	2.20	0.41
32:H:54:LEU:HA	32:H:57:LYS:HZ3	1.85	0.41
33:I:42:ASN:O	33:I:45:THR:HB	2.21	0.41
33:I:58:ILE:HG22	33:I:60:VAL:HG23	2.02	0.41
45:U:25:LYS:HB3	45:U:34:ILE:O	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:9:1:G:N3	56:9:73:A:H1'	2.36	0.41
56:9:26:A:C5'	56:9:27:G:H8	2.34	0.41
53:A:1442:U:H3	53:A:1549:A:H61	1.67	0.41
53:A:1561:C:H2'	53:A:1562:U:H6	1.86	0.41
53:A:169:G:C6	53:A:170:U:C4	3.09	0.41
53:A:185:G:C2	53:A:186:G:C4	3.08	0.41
27:C:252:LYS:NZ	53:A:1901:A:OP2	2.41	0.41
53:A:1786:A:C4	53:A:1938:A:C6	3.08	0.41
53:A:677:A:O2'	53:A:2070:A:O2'	2.17	0.41
53:A:2116:G:H3'	53:A:2117:A:H8	1.85	0.41
53:A:2131:U:H4'	53:A:2132:U:C4'	2.50	0.41
53:A:2513:A:C6	53:A:2574:G:C6	3.09	0.41
53:A:2819:G:H1	53:A:2827:C:H42	1.69	0.41
53:A:2834:G:H2'	53:A:2879:A:H61	1.86	0.41
28:D:187:LEU:HG	28:D:189:VAL:HG13	2.03	0.41
30:F:15:LEU:HD13	30:F:28:PRO:HD2	2.02	0.41
41:Q:5:ARG:HG2	41:Q:6:GLY:N	2.36	0.41
26:5:44:VAL:O	26:5:172:HIS:HA	2.21	0.41
26:5:27:ILE:O	26:5:31:LYS:HG3	2.21	0.41
26:5:52:ALA:HB1	26:5:54:LYS:N	2.36	0.41
53:A:136:G:H1	53:A:143:C:N4	2.19	0.41
53:A:1401:G:H2'	53:A:1402:U:C6	2.55	0.41
53:A:1435:G:H2'	53:A:1436:G:C8	2.51	0.41
53:A:1394:U:H4'	53:A:1603:A:H4'	2.02	0.41
53:A:2082:A:H2'	53:A:2083:G:O4'	2.21	0.41
53:A:2187:U:H2'	53:A:2188:U:H6	1.85	0.41
53:A:2518:A:H2'	53:A:2518:A:N3	2.35	0.41
53:A:362:A:C4	53:A:363:G:C8	3.08	0.41
53:A:553:G:H2'	53:A:554:U:O4'	2.21	0.41
53:A:629:G:H5''	53:A:650:C:O2'	2.21	0.41
29:E:146:VAL:HA	29:E:185:LYS:O	2.21	0.41
29:E:190:ALA:O	29:E:193:VAL:HB	2.21	0.41
29:E:28:VAL:O	29:E:32:VAL:HG12	2.21	0.41
30:F:74:ALA:C	30:F:77:LYS:H	2.23	0.41
31:G:78:VAL:HG13	31:G:79:THR:HG23	2.01	0.41
39:O:58:ILE:O	39:O:61:GLN:HG2	2.21	0.41
21:0:21:LEU:HD21	43:S:41:LYS:HE3	2.03	0.41
44:T:28:ASN:CB	44:T:91:GLN:HE22	2.21	0.41
22:1:29:LYS:HA	22:1:30:PRO:HD2	1.88	0.41
56:9:20:U:OP1	56:9:21:A:H5'	2.21	0.41
56:9:51:U:C2	56:9:52:G:C8	3.09	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1857:G:C2	53:A:1884:G:N3	2.89	0.41
26:5:43:ASP:HB2	53:A:2123:G:N3	2.35	0.41
53:A:2135:A:O2'	53:A:2160:C:H4'	2.21	0.41
53:A:2559:C:H2'	53:A:2560:A:C8	2.53	0.41
53:A:2620:C:C4	53:A:2621:G:N7	2.89	0.41
53:A:2639:A:H2'	53:A:2640:G:O4'	2.20	0.41
53:A:28:A:O5'	53:A:28:A:H8	2.98	0.41
54:B:33:G:N2	54:B:34:A:N3	2.68	0.41
46:V:78:GLN:NE2	54:B:76:G:H21	2.19	0.41
30:F:105:ILE:HG13	30:F:106:ALA:N	2.36	0.41
30:F:131:VAL:HG23	30:F:132:ARG:N	2.36	0.41
31:G:154:GLU:OE1	31:G:157:LYS:N	2.44	0.41
31:G:2:ARG:HA	31:G:5:LYS:HE2	2.03	0.41
33:I:112:LYS:O	33:I:116:MET:HG3	2.20	0.41
33:I:75:ALA:O	33:I:79:LEU:HG	2.20	0.41
35:K:9:ASN:O	35:K:83:ALA:HA	2.20	0.41
36:L:11:GLY:O	53:A:597:G:O2'	2.33	0.41
40:P:88:ARG:HD2	40:P:112:ARG:HH22	1.83	0.41
41:Q:34:ALA:O	41:Q:38:VAL:HG23	2.21	0.41
45:U:86:PHE:CE2	45:U:92:VAL:HG21	2.56	0.41
49:Y:57:LEU:O	49:Y:61:ALA:N	2.52	0.41
50:Z:16:LEU:HB2	50:Z:19:HIS:CD2	2.56	0.41
22:1:18:HIS:ND1	22:1:40:PRO:HD2	2.36	0.41
25:4:30:GLU:HA	25:4:31:PRO:HD3	1.85	0.41
53:A:1000:A:OP2	53:A:1154:G:N1	2.45	0.41
53:A:1031:G:H2'	53:A:1032:A:H8	1.86	0.41
53:A:1071:G:H8	53:A:1071:G:OP1	2.04	0.41
53:A:1562:U:H2'	53:A:1563:U:O4'	2.21	0.41
53:A:2051:A:C5	53:A:2614:A:C6	3.09	0.41
53:A:2270:A:H2'	53:A:2271:G:O4'	2.21	0.41
53:A:2297:A:C5	53:A:2320:U:C2	3.09	0.41
53:A:2361:G:H2'	53:A:2362:C:O4'	2.21	0.41
53:A:2446:G:O2'	53:A:2448:A:H8	2.03	0.41
29:E:55:SER:HB3	53:A:468:G:H5''	2.01	0.41
53:A:519:U:H2'	53:A:520:G:C8	2.56	0.41
53:A:859:G:O2'	53:A:860:U:OP2	2.36	0.41
54:B:28:C:H2'	54:B:29:A:C8	2.56	0.41
54:B:68:C:H2'	54:B:69:G:H8	1.86	0.41
27:C:14:HIS:O	27:C:203:VAL:HG11	2.21	0.41
30:F:137:PHE:HA	30:F:138:PRO:HD3	1.82	0.41
31:G:21:GLN:NE2	31:G:37:ASN:O	2.54	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:H:144:VAL:HG23	32:H:146:VAL:HG13	2.02	0.41
46:V:36:ALA:HA	46:V:37:PRO:HD3	1.88	0.41
48:X:69:GLU:HA	48:X:72:ALA:HB3	2.03	0.41
22:1:38:PHE:HA	22:1:45:HIS:HA	2.03	0.41
56:9:4:C:H42	56:9:69:G:H1	1.69	0.41
56:9:60:U:H5''	56:9:61:C:C5	2.55	0.41
53:A:1151:A:H2'	53:A:1152:C:O4'	2.21	0.41
53:A:1681:G:C6	53:A:1762:A:C6	3.09	0.41
53:A:1954:G:N2	53:A:1956:U:H3	2.19	0.41
26:5:135:GLY:HA2	53:A:2122:U:C5	2.56	0.41
53:A:2293:G:H2'	53:A:2294:G:H8	1.86	0.41
47:W:30:VAL:HG13	53:A:2353:G:N3	2.35	0.41
53:A:255:A:C2	53:A:256:A:H1'	2.56	0.41
53:A:64:A:H2'	53:A:65:U:C6	2.56	0.41
53:A:870:U:H2'	53:A:871:U:O4'	2.21	0.41
27:C:70:LYS:HE3	27:C:73:ILE:HD12	2.02	0.41
31:G:120:ILE:CD1	31:G:139:VAL:HG12	2.51	0.41
33:I:71:LYS:HB3	33:I:115:ASP:OD2	2.21	0.41
49:Y:9:LYS:O	49:Y:13:GLU:HG3	2.21	0.41
50:Z:3:THR:HB	50:Z:36:GLU:HG3	2.02	0.41
26:5:73:VAL:HB	26:5:75:VAL:HG23	2.02	0.40
53:A:160:A:C6	53:A:161:A:C4	4.59	0.40
53:A:1684:G:C6	53:A:1685:C:C4	3.09	0.40
53:A:2287:A:C6	53:A:2289:G:C4	3.09	0.40
36:L:66:PHE:HZ	53:A:2404:U:H1'	1.87	0.40
53:A:2478:A:H2'	53:A:2479:U:O4'	2.21	0.40
53:A:2721:A:H1'	53:A:2873:A:O2'	2.21	0.40
53:A:403:U:HO2'	53:A:404:A:P	2.44	0.40
53:A:482:A:H2'	53:A:482:A:N3	3.07	0.40
53:A:648:G:C2	53:A:649:G:C5	3.08	0.40
41:Q:46:TYR:O	41:Q:50:ARG:NH1	2.54	0.40
45:U:32:LYS:HB3	45:U:63:ALA:HB1	2.02	0.40
45:U:1:ALA:HB1	45:U:84:PHE:HE2	1.86	0.40
25:4:7:VAL:HG23	25:4:8:LYS:N	2.34	0.40
26:5:21:TYR:H	26:5:225:ASP:N	2.19	0.40
56:8:21:A:N6	56:8:46:G:C5	2.87	0.40
53:A:1072:C:H42	53:A:1093:G:H22	1.69	0.40
53:A:1464:G:H2'	53:A:1465:G:H8	1.85	0.40
53:A:1571:A:H8	53:A:1571:A:O5'	2.04	0.40
53:A:1889:A:H2'	53:A:1890:A:C8	2.56	0.40
53:A:2087:G:H2'	53:A:2088:A:C8	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:2790:U:H4'	53:A:2791:G:H5''	2.03	0.40
53:A:283:G:C2	53:A:284:U:H1'	2.56	0.40
53:A:614:A:OP2	53:A:614:A:H3'	2.21	0.40
53:A:775:G:N7	53:A:777:G:N2	2.69	0.40
33:I:4:VAL:HG13	33:I:60:VAL:H	1.85	0.40
34:J:28:LEU:O	34:J:32:LEU:HG	2.21	0.40
34:J:64:VAL:HG11	34:J:69:ARG:HE	1.86	0.40
37:M:53:MET:HE3	37:M:63:ILE:HD13	2.03	0.40
41:Q:63:ARG:HG3	41:Q:64:ILE:N	2.36	0.40
45:U:20:LYS:HD2	45:U:20:LYS:HA	4.52	0.40
48:X:50:VAL:HG12	48:X:51:SER:O	2.20	0.40
53:A:1055:G:H21	53:A:1085:A:H2	1.67	0.40
53:A:1125:G:H3'	53:A:1126:A:C8	2.56	0.40
53:A:1199:U:N3	53:A:1247:A:H2	2.19	0.40
53:A:1473:G:H2'	53:A:1474:U:O4'	2.21	0.40
53:A:1766:G:C6	53:A:1987:A:C6	3.10	0.40
53:A:275:C:H3'	53:A:276:U:H4'	2.01	0.40
34:J:111:LYS:HE3	53:A:558:U:H4'	2.03	0.40
54:B:28:C:H2'	54:B:29:A:H8	1.85	0.40
28:D:200:ASP:O	28:D:201:LEU:HD12	2.22	0.40
34:J:4:PHE:HB3	34:J:44:TYR:HE2	1.86	0.40
34:J:8:PRO:HD2	53:A:538:A:O2'	2.22	0.40
35:K:26:GLY:O	35:K:30:ARG:HD2	2.22	0.40
39:O:15:ARG:NH1	54:B:8:C:H5''	2.37	0.40
22:1:9:LYS:HD3	22:1:52:LYS:C	2.42	0.40
53:A:111:A:C6	53:A:112:U:C4	3.09	0.40
53:A:1139:G:O2'	53:A:1143:A:N1	2.50	0.40
53:A:1444:G:H2'	53:A:1445:G:H8	1.84	0.40
53:A:1636:U:H2'	53:A:1637:A:C8	2.57	0.40
53:A:1646:C:H5''	53:A:1647:U:H5'	2.04	0.40
53:A:204:A:C8	53:A:206:U:C2	3.09	0.40
53:A:2116:G:N2	53:A:2146:C:OP1	2.39	0.40
53:A:2283:C:C2	53:A:2389:G:C2	3.10	0.40
53:A:2783:U:H2'	53:A:2784:U:H6	1.86	0.40
53:A:325:G:N7	53:A:338:G:N2	2.69	0.40
53:A:6:A:H2'	53:A:7:G:C8	2.56	0.40
30:F:35:LEU:HD23	30:F:153:ILE:HG22	2.02	0.40
32:H:58:LEU:O	32:H:62:LEU:N	2.54	0.40
37:M:27:SER:OG	37:M:28:PHE:N	2.54	0.40
40:P:30:TRP:CE3	40:P:37:LYS:HG2	2.56	0.40
41:Q:32:ARG:HB2	53:A:581:C:OP1	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:Q:43:GLN:HE21	42:R:77:PHE:HB3	1.85	0.40
44:T:50:LEU:O	44:T:51:PHE:HB2	2.21	0.40
44:T:9:LYS:HB2	49:Y:29:ARG:HH12	1.87	0.40
45:U:37:GLY:H	45:U:61:GLU:CD	2.23	0.40
47:W:25:PHE:HD2	47:W:27:GLY:H	1.70	0.40
26:5:43:ASP:O	53:A:2123:G:N2	2.46	0.40
53:A:1022:G:H4'	53:A:1023:U:H5'	2.03	0.40
53:A:1392:A:N7	53:A:1393:A:C5	2.90	0.40
53:A:1659:G:H1	53:A:2001:C:H42	1.69	0.40
53:A:1741:C:H2'	53:A:1742:U:O4'	2.22	0.40
53:A:151:C:N4	53:A:175:G:H1	2.19	0.40
53:A:2255:G:H2'	53:A:2256:G:O4'	2.21	0.40
30:F:76:PHE:HE1	53:A:2308:G:N7	2.19	0.40
53:A:2393:U:H2'	53:A:2394:C:O4'	2.22	0.40
53:A:2698:U:H2'	53:A:2699:C:C6	2.57	0.40
53:A:2677:G:C2	53:A:2731:G:C2	3.09	0.40
53:A:748:G:C5	53:A:749:A:C5	6.66	0.40
53:A:823:C:C4	53:A:824:U:C4	3.10	0.40
53:A:838:C:H2'	53:A:839:U:H6	1.86	0.40
53:A:953:G:H2'	53:A:954:G:O4'	2.81	0.40
31:G:71:LEU:O	31:G:75:VAL:HG23	2.21	0.40
32:H:116:ARG:HD3	32:H:139:PHE:HB3	2.03	0.40
41:Q:86:SER:O	41:Q:88:GLU:N	2.54	0.40
43:S:83:LYS:HD3	43:S:95:ARG:HH12	1.86	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	b	216/241 (90%)	181 (84%)	23 (11%)	12 (6%)	2 28

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	c	204/233 (88%)	190 (93%)	7 (3%)	7 (3%)	5	43
3	d	203/206 (98%)	179 (88%)	15 (7%)	9 (4%)	3	35
4	e	148/167 (89%)	128 (86%)	15 (10%)	5 (3%)	5	43
5	f	100/135 (74%)	79 (79%)	13 (13%)	8 (8%)	1	18
6	g	149/179 (83%)	125 (84%)	18 (12%)	6 (4%)	4	38
7	h	127/130 (98%)	115 (91%)	11 (9%)	1 (1%)	24	70
8	i	125/130 (96%)	109 (87%)	12 (10%)	4 (3%)	5	44
9	j	96/103 (93%)	78 (81%)	13 (14%)	5 (5%)	2	30
10	k	115/129 (89%)	104 (90%)	8 (7%)	3 (3%)	7	48
11	l	121/124 (98%)	105 (87%)	14 (12%)	2 (2%)	11	57
12	m	112/118 (95%)	103 (92%)	5 (4%)	4 (4%)	4	41
13	n	92/101 (91%)	77 (84%)	8 (9%)	7 (8%)	1	19
14	o	86/89 (97%)	78 (91%)	7 (8%)	1 (1%)	16	63
15	p	80/82 (98%)	70 (88%)	8 (10%)	2 (2%)	7	49
16	q	78/84 (93%)	65 (83%)	8 (10%)	5 (6%)	2	25
17	r	53/75 (71%)	51 (96%)	1 (2%)	1 (2%)	10	55
18	s	77/92 (84%)	68 (88%)	6 (8%)	3 (4%)	4	38
19	t	83/87 (95%)	80 (96%)	1 (1%)	2 (2%)	7	51
20	u	49/71 (69%)	36 (74%)	10 (20%)	3 (6%)	2	26
21	0	54/57 (95%)	49 (91%)	2 (4%)	3 (6%)	2	28
22	1	48/55 (87%)	43 (90%)	3 (6%)	2 (4%)	3	36
23	2	44/46 (96%)	39 (89%)	3 (7%)	2 (4%)	3	34
24	3	62/64 (97%)	54 (87%)	7 (11%)	1 (2%)	12	58
25	4	36/38 (95%)	29 (81%)	2 (6%)	5 (14%)	0	6
26	5	232/234 (99%)	198 (85%)	32 (14%)	2 (1%)	21	68
27	C	268/273 (98%)	233 (87%)	20 (8%)	15 (6%)	2	28
28	D	207/209 (99%)	168 (81%)	28 (14%)	11 (5%)	2	29
29	E	199/201 (99%)	170 (85%)	18 (9%)	11 (6%)	2	29
30	F	175/179 (98%)	153 (87%)	13 (7%)	9 (5%)	2	31
31	G	174/177 (98%)	142 (82%)	24 (14%)	8 (5%)	3	33
32	H	147/149 (99%)	114 (78%)	22 (15%)	11 (8%)	1	20

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
33	I	139/142 (98%)	121 (87%)	13 (9%)	5 (4%)	4	41
34	J	140/142 (99%)	120 (86%)	13 (9%)	7 (5%)	3	31
35	K	120/123 (98%)	96 (80%)	17 (14%)	7 (6%)	2	27
36	L	141/144 (98%)	115 (82%)	14 (10%)	12 (8%)	1	16
37	M	134/136 (98%)	114 (85%)	13 (10%)	7 (5%)	2	30
38	N	118/127 (93%)	105 (89%)	10 (8%)	3 (2%)	7	49
39	O	114/117 (97%)	105 (92%)	7 (6%)	2 (2%)	11	56
40	P	112/115 (97%)	98 (88%)	8 (7%)	6 (5%)	2	29
41	Q	115/118 (98%)	109 (95%)	5 (4%)	1 (1%)	21	68
42	R	101/103 (98%)	86 (85%)	11 (11%)	4 (4%)	4	38
43	S	108/110 (98%)	93 (86%)	9 (8%)	6 (6%)	2	28
44	T	91/100 (91%)	65 (71%)	17 (19%)	9 (10%)	1	13
45	U	100/104 (96%)	79 (79%)	13 (13%)	8 (8%)	1	18
46	V	92/94 (98%)	84 (91%)	6 (6%)	2 (2%)	8	52
47	W	77/85 (91%)	55 (71%)	13 (17%)	9 (12%)	0	8
48	X	75/78 (96%)	65 (87%)	7 (9%)	3 (4%)	4	38
49	Y	61/63 (97%)	51 (84%)	7 (12%)	3 (5%)	3	32
50	Z	56/59 (95%)	48 (86%)	6 (11%)	2 (4%)	4	41
51	x	24/599 (4%)	23 (96%)	1 (4%)	0	100	100
All	All	5878/6817 (86%)	5045 (86%)	567 (10%)	266 (4%)	6	34

All (266) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	b	72	LYS
1	b	163	ILE
3	d	151	LYS
5	f	63	ASN
5	f	93	LYS
5	f	98	GLU
8	i	58	VAL
12	m	4	ILE
13	n	29	ALA
13	n	52	PRO
16	q	50	ASN

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Mol	Chain	Res	Type
22	1	4	ILE
24	3	22	LYS
25	4	8	LYS
28	D	170	VAL
29	E	79	ARG
31	G	16	VAL
31	G	47	ASN
31	G	84	LYS
31	G	168	VAL
32	H	65	ALA
32	H	67	ALA
32	H	99	ILE
33	I	22	PRO
34	J	44	TYR
40	P	50	ARG
43	S	96	ILE
43	S	109	ASP
44	T	29	THR
44	T	40	LYS
45	U	92	VAL
1	b	18	GLN
1	b	76	SER
1	b	85	SER
1	b	120	SER
1	b	136	ARG
2	c	206	GLU
3	d	24	GLY
3	d	32	CYS
3	d	125	VAL
4	e	90	THR
5	f	69	GLU
5	f	92	THR
6	g	113	ASP
6	g	130	ASN
8	i	90	TYR
8	i	96	SER
9	j	61	ALA
12	m	10	PRO
12	m	47	GLU
13	n	23	LYS
13	n	53	ARG
16	q	14	SER

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Mol	Chain	Res	Type
16	q	71	LYS
19	t	4	ILE
19	t	68	HIS
21	0	34	GLY
21	0	35	GLU
25	4	4	ARG
25	4	29	ALA
26	5	167	LYS
27	C	231	HIS
27	C	239	PHE
28	D	11	MET
28	D	74	GLU
28	D	93	GLY
28	D	175	LEU
28	D	184	ARG
29	E	148	ILE
30	F	11	VAL
30	F	44	ALA
30	F	59	ILE
30	F	111	ARG
30	F	176	PHE
31	G	117	PRO
31	G	163	TYR
32	H	27	ARG
32	H	76	GLU
32	H	134	VAL
33	I	90	GLY
34	J	45	THR
34	J	65	THR
35	K	13	ASN
36	L	29	LYS
36	L	111	ILE
37	M	69	PRO
40	P	4	ILE
40	P	5	LYS
43	S	14	ALA
43	S	18	ARG
44	T	55	VAL
44	T	89	GLU
45	U	87	GLU
45	U	98	ASN
47	W	9	THR

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Mol	Chain	Res	Type
47	W	17	ALA
48	X	17	ARG
50	Z	34	THR
1	b	67	LEU
1	b	200	PRO
2	c	61	ALA
2	c	82	GLU
2	c	146	ALA
3	d	5	LEU
3	d	27	ALA
4	e	24	THR
4	e	45	ARG
5	f	54	LEU
6	g	58	GLU
9	j	57	VAL
10	k	120	GLY
12	m	114	LYS
15	p	81	ALA
18	s	4	SER
18	s	5	LEU
18	s	6	LYS
23	2	45	SER
27	C	37	SER
27	C	94	LEU
27	C	110	LYS
27	C	121	ALA
27	C	185	ALA
27	C	237	ARG
27	C	256	THR
27	C	260	LYS
29	E	6	LYS
29	E	13	THR
30	F	133	GLU
31	G	32	LEU
32	H	116	ARG
33	I	19	PRO
34	J	82	GLY
34	J	125	TYR
35	K	6	THR
35	K	46	ALA
36	L	69	ARG
36	L	82	LEU

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Mol	Chain	Res	Type
36	L	86	GLU
37	M	70	ASP
37	M	107	GLY
37	M	134	THR
40	P	51	ASN
41	Q	87	VAL
42	R	65	ALA
42	R	91	GLN
43	S	3	THR
43	S	19	LEU
44	T	49	LYS
45	U	16	LYS
45	U	74	ALA
45	U	101	THR
46	V	65	VAL
46	V	71	LYS
47	W	29	SER
47	W	41	GLY
47	W	68	PHE
49	Y	57	LEU
5	f	99	ALA
6	g	84	THR
7	h	114	ARG
9	j	36	VAL
9	j	62	ARG
13	n	3	LYS
14	o	46	HIS
15	p	49	GLY
16	q	17	MET
17	r	73	ARG
20	u	33	ARG
20	u	37	PHE
27	C	64	VAL
27	C	154	ALA
27	C	196	ASN
27	C	254	LYS
28	D	52	THR
29	E	42	GLY
29	E	46	GLN
29	E	96	VAL
29	E	123	LYS
29	E	188	MET

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Mol	Chain	Res	Type
30	F	128	SER
30	F	132	ARG
31	G	46	ASP
32	H	6	LEU
32	H	15	LEU
32	H	113	SER
35	K	93	GLN
35	K	119	ALA
36	L	36	LYS
36	L	40	SER
36	L	41	ARG
36	L	115	GLU
37	M	73	ILE
38	N	106	ASP
39	O	89	ASP
39	O	100	HIS
40	P	63	ILE
44	T	70	HIS
45	U	38	ILE
47	W	34	SER
48	X	40	GLU
48	X	70	LEU
49	Y	9	LYS
50	Z	3	THR
1	b	219	THR
2	c	66	VAL
2	c	101	ILE
3	d	33	LYS
6	g	57	SER
8	i	56	ASP
10	k	89	PRO
11	l	98	VAL
13	n	70	PRO
13	n	92	GLU
16	q	18	GLU
21	0	54	ILE
22	1	28	THR
23	2	44	VAL
25	4	16	ILE
25	4	37	GLN
27	C	59	GLN
28	D	109	VAL

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Mol	Chain	Res	Type
28	D	118	PHE
28	D	119	ALA
29	E	83	VAL
32	H	39	ALA
33	I	20	SER
33	I	106	GLN
34	J	13	ARG
34	J	113	PRO
35	K	50	GLY
36	L	19	LEU
36	L	94	THR
37	M	77	PRO
38	N	2	ARG
38	N	119	SER
42	R	98	ILE
44	T	84	TYR
44	T	92	ASN
45	U	85	ARG
47	W	14	ASP
1	b	71	THR
1	b	128	LEU
3	d	36	GLN
4	e	111	MET
5	f	85	ILE
10	k	14	LYS
20	u	38	TYR
28	D	183	GLU
30	F	113	PHE
36	L	66	PHE
42	R	101	ILE
47	W	46	ALA
3	d	167	LYS
6	g	8	GLY
35	K	35	VAL
44	T	53	VAL
9	j	42	LEU
11	l	44	LYS
26	5	15	VAL
40	P	34	GLY
47	W	30	VAL
2	c	15	VAL
4	e	102	GLY

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Mol	Chain	Res	Type
49	Y	46	VAL
29	E	129	PRO
37	M	36	VAL

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	b	180/199 (90%)	180 (100%)	0	100	100
2	c	170/190 (90%)	170 (100%)	0	100	100
3	d	172/173 (99%)	172 (100%)	0	100	100
4	e	113/126 (90%)	113 (100%)	0	100	100
5	f	89/116 (77%)	89 (100%)	0	100	100
6	g	124/147 (84%)	124 (100%)	0	100	100
7	h	104/105 (99%)	104 (100%)	0	100	100
8	i	105/107 (98%)	105 (100%)	0	100	100
9	j	86/90 (96%)	86 (100%)	0	100	100
10	k	90/99 (91%)	90 (100%)	0	100	100
11	l	103/104 (99%)	103 (100%)	0	100	100
12	m	92/96 (96%)	92 (100%)	0	100	100
13	n	79/84 (94%)	79 (100%)	0	100	100
14	o	76/77 (99%)	76 (100%)	0	100	100
15	p	65/65 (100%)	65 (100%)	0	100	100
16	q	74/78 (95%)	74 (100%)	0	100	100
17	r	48/65 (74%)	48 (100%)	0	100	100
18	s	70/79 (89%)	70 (100%)	0	100	100
19	t	65/66 (98%)	65 (100%)	0	100	100
20	u	44/61 (72%)	44 (100%)	0	100	100
21	0	47/48 (98%)	47 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
22	1	45/49 (92%)	45 (100%)	0	100	100
23	2	38/38 (100%)	38 (100%)	0	100	100
24	3	51/51 (100%)	51 (100%)	0	100	100
25	4	34/34 (100%)	34 (100%)	0	100	100
26	5	181/181 (100%)	181 (100%)	0	100	100
27	C	215/218 (99%)	215 (100%)	0	100	100
28	D	164/164 (100%)	164 (100%)	0	100	100
29	E	165/165 (100%)	165 (100%)	0	100	100
30	F	148/150 (99%)	148 (100%)	0	100	100
31	G	137/138 (99%)	137 (100%)	0	100	100
32	H	114/114 (100%)	114 (100%)	0	100	100
33	I	109/110 (99%)	109 (100%)	0	100	100
34	J	116/116 (100%)	116 (100%)	0	100	100
35	K	103/104 (99%)	103 (100%)	0	100	100
36	L	102/103 (99%)	102 (100%)	0	100	100
37	M	109/109 (100%)	109 (100%)	0	100	100
38	N	100/103 (97%)	100 (100%)	0	100	100
39	O	86/87 (99%)	86 (100%)	0	100	100
40	P	99/100 (99%)	99 (100%)	0	100	100
41	Q	89/90 (99%)	89 (100%)	0	100	100
42	R	84/84 (100%)	84 (100%)	0	100	100
43	S	93/93 (100%)	93 (100%)	0	100	100
44	T	80/84 (95%)	80 (100%)	0	100	100
45	U	83/85 (98%)	83 (100%)	0	100	100
46	V	78/78 (100%)	78 (100%)	0	100	100
47	W	59/63 (94%)	59 (100%)	0	100	100
48	X	67/68 (98%)	67 (100%)	0	100	100
49	Y	55/55 (100%)	55 (100%)	0	100	100
50	Z	48/49 (98%)	48 (100%)	0	100	100
51	x	23/511 (4%)	23 (100%)	0	100	100
All	All	4871/5569 (88%)	4871 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (55) such sidechains are listed below:

Mol	Chain	Res	Type
2	c	69	HIS
2	c	139	GLN
3	d	120	HIS
3	d	152	GLN
4	e	121	HIS
5	f	3	HIS
5	f	55	HIS
5	f	63	ASN
6	g	86	GLN
6	g	148	ASN
7	h	76	GLN
8	i	32	GLN
9	j	56	HIS
10	k	22	HIS
12	m	14	HIS
16	q	45	HIS
16	q	51	ASN
18	s	57	HIS
21	0	5	ASN
23	2	6	GLN
24	3	23	HIS
25	4	37	GLN
26	5	83	ASN
26	5	155	ASN
26	5	234	ASN
27	C	52	HIS
27	C	57	HIS
27	C	199	HIS
27	C	259	ASN
28	D	32	ASN
28	D	49	GLN
28	D	130	GLN
28	D	164	GLN
29	E	41	GLN
29	E	165	HIS
30	F	51	ASN
31	G	21	GLN
31	G	87	GLN
31	G	110	HIS

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Mol	Chain	Res	Type
31	G	138	GLN
32	H	2	GLN
32	H	18	GLN
32	H	135	HIS
34	J	40	HIS
34	J	135	GLN
39	O	34	HIS
40	P	40	GLN
41	Q	36	GLN
41	Q	43	GLN
42	R	66	HIS
44	T	70	HIS
44	T	91	GLN
45	U	65	GLN
49	Y	27	ASN
49	Y	41	HIS

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
52	a	1532/1533 (99%)	301 (19%)	0
53	A	2902/2904 (99%)	597 (20%)	16 (0%)
54	B	117/120 (97%)	21 (17%)	0
55	7	8/15 (53%)	4 (50%)	0
56	8	75/76 (98%)	8 (10%)	2 (2%)
56	9	75/76 (98%)	33 (44%)	1 (1%)
All	All	4709/4724 (99%)	964 (20%)	19 (0%)

All (964) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
52	a	4	U
52	a	6	G
52	a	9	G
52	a	12	U
52	a	15	G
52	a	29	U
52	a	31	G
52	a	32	A
52	a	35	G
52	a	39	G

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Mol	Chain	Res	Type
52	a	47	C
52	a	48	C
52	a	51	A
52	a	54	C
52	a	63	C
52	a	66	A
52	a	69	G
52	a	70	U
52	a	73	C
52	a	74	A
52	a	77	A
52	a	78	A
52	a	79	G
52	a	80	A
52	a	83	C
52	a	84	U
52	a	85	U
52	a	86	G
52	a	89	U
52	a	90	C
52	a	93	U
52	a	96	U
52	a	97	G
52	a	116	A
52	a	117	G
52	a	121	U
52	a	130	A
52	a	131	A
52	a	143	A
52	a	144	G
52	a	149	A
52	a	156	C
52	a	164	G
52	a	184	G
52	a	195	A
52	a	197	A
52	a	204	G
52	a	205	A
52	a	206	C
52	a	209	U
52	a	210	C
52	a	212	G

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Mol	Chain	Res	Type
52	a	226	G
52	a	238	A
52	a	247	G
52	a	251	G
52	a	262	A
52	a	266	G
52	a	267	C
52	a	289	G
52	a	298	A
52	a	304	U
52	a	306	A
52	a	316	C
52	a	328	C
52	a	329	A
52	a	332	G
52	a	341	C
52	a	344	A
52	a	345	C
52	a	347	G
52	a	352	C
52	a	354	G
52	a	367	U
52	a	368	U
52	a	370	C
52	a	372	C
52	a	384	G
52	a	397	A
52	a	406	G
52	a	408	A
52	a	411	A
52	a	412	A
52	a	413	G
52	a	414	A
52	a	421	U
52	a	422	C
52	a	423	G
52	a	424	G
52	a	429	U
52	a	430	A
52	a	449	G
52	a	453	G
52	a	456	A

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Mol	Chain	Res	Type
52	a	457	G
52	a	459	A
52	a	461	A
52	a	466	A
52	a	467	U
52	a	468	A
52	a	474	G
52	a	478	A
52	a	479	U
52	a	480	U
52	a	481	G
52	a	484	G
52	a	485	U
52	a	486	U
52	a	491	G
52	a	495	A
52	a	497	G
52	a	511	C
52	a	512	U
52	a	513	C
52	a	518	C
52	a	521	G
52	a	526	C
52	a	527	G
52	a	532	A
52	a	540	G
52	a	547	A
52	a	548	G
52	a	559	A
52	a	560	A
52	a	562	U
52	a	563	A
52	a	564	C
52	a	572	A
52	a	573	A
52	a	576	C
52	a	577	G
52	a	596	A
52	a	615	G
52	a	633	G
52	a	653	U
52	a	661	G

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Mol	Chain	Res	Type
52	a	665	A
52	a	668	G
52	a	674	G
52	a	675	A
52	a	684	U
52	a	687	A
52	a	701	U
52	a	702	A
52	a	710	G
52	a	717	U
52	a	718	A
52	a	721	G
52	a	723	U
52	a	731	G
52	a	747	A
52	a	755	G
52	a	776	G
52	a	793	U
52	a	794	A
52	a	801	U
52	a	813	U
52	a	814	A
52	a	815	A
52	a	817	C
52	a	821	G
52	a	828	U
52	a	841	C
52	a	843	U
52	a	844	G
52	a	845	A
52	a	846	G
52	a	855	U
52	a	859	G
52	a	873	A
52	a	889	A
52	a	894	G
52	a	914	A
52	a	918	A
52	a	921	U
52	a	926	G
52	a	927	G
52	a	932	C

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Mol	Chain	Res	Type
52	a	934	C
52	a	935	A
52	a	939	G
52	a	960	U
52	a	966	G
52	a	969	A
52	a	975	A
52	a	976	G
52	a	977	A
52	a	983	A
52	a	992	U
52	a	993	G
52	a	994	A
52	a	1000	A
52	a	1002	G
52	a	1004	A
52	a	1006	G
52	a	1008	U
52	a	1018	G
52	a	1028	C
52	a	1029	U
52	a	1030	U
52	a	1031	C
52	a	1032	G
52	a	1033	G
52	a	1037	C
52	a	1042	A
52	a	1043	G
52	a	1045	C
52	a	1046	A
52	a	1052	U
52	a	1054	C
52	a	1065	U
52	a	1066	C
52	a	1070	U
52	a	1081	A
52	a	1085	U
52	a	1086	U
52	a	1087	G
52	a	1089	G
52	a	1094	G
52	a	1095	U

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Mol	Chain	Res	Type
52	a	1101	A
52	a	1124	G
52	a	1130	A
52	a	1132	C
52	a	1133	G
52	a	1134	G
52	a	1136	C
52	a	1137	C
52	a	1139	G
52	a	1142	G
52	a	1145	A
52	a	1159	U
52	a	1167	A
52	a	1168	U
52	a	1171	A
52	a	1181	G
52	a	1182	G
52	a	1196	A
52	a	1197	A
52	a	1200	C
52	a	1202	U
52	a	1208	C
52	a	1212	U
52	a	1213	A
52	a	1215	G
52	a	1226	C
52	a	1227	A
52	a	1230	C
52	a	1232	U
52	a	1240	U
52	a	1241	G
52	a	1252	A
52	a	1253	G
52	a	1256	A
52	a	1257	A
52	a	1258	G
52	a	1260	G
52	a	1287	A
52	a	1289	A
52	a	1299	A
52	a	1300	G
52	a	1302	C

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Mol	Chain	Res	Type
52	a	1303	C
52	a	1305	G
52	a	1312	G
52	a	1317	C
52	a	1318	A
52	a	1322	C
52	a	1323	G
52	a	1332	A
52	a	1336	C
52	a	1337	G
52	a	1346	A
52	a	1363	A
52	a	1364	U
52	a	1365	G
52	a	1378	C
52	a	1397	C
52	a	1402	C
52	a	1417	G
52	a	1418	A
52	a	1419	G
52	a	1429	A
52	a	1441	A
52	a	1442	G
52	a	1446	A
52	a	1447	A
52	a	1451	U
52	a	1454	G
52	a	1487	G
52	a	1491	G
52	a	1492	A
52	a	1493	A
52	a	1494	G
52	a	1497	G
52	a	1503	A
52	a	1505	G
52	a	1506	U
52	a	1517	G
52	a	1529	G
52	a	1530	G
53	A	10	A
53	A	14	A
53	A	34	U

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Mol	Chain	Res	Type
53	A	35	G
53	A	46	G
53	A	50	U
53	A	51	G
53	A	61	C
53	A	62	U
53	A	63	A
53	A	71	A
53	A	74	A
53	A	75	G
53	A	80	G
53	A	84	A
53	A	88	G
53	A	92	U
53	A	96	C
53	A	102	U
53	A	118	A
53	A	120	U
53	A	121	G
53	A	138	U
53	A	139	U
53	A	140	C
53	A	141	G
53	A	142	A
53	A	149	A
53	A	160	A
53	A	162	U
53	A	163	C
53	A	164	C
53	A	173	A
53	A	174	U
53	A	181	A
53	A	186	G
53	A	196	A
53	A	199	A
53	A	200	U
53	A	204	A
53	A	205	G
53	A	210	C
53	A	216	A
53	A	222	A
53	A	226	A

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Mol	Chain	Res	Type
53	A	228	C
53	A	229	C
53	A	230	G
53	A	233	A
53	A	241	A
53	A	248	G
53	A	255	A
53	A	264	C
53	A	266	G
53	A	271	G
53	A	272	A
53	A	273	G
53	A	276	U
53	A	277	G
53	A	278	A
53	A	285	G
53	A	289	G
53	A	294	A
53	A	299	A
53	A	300	A
53	A	302	C
53	A	311	A
53	A	329	G
53	A	330	A
53	A	335	C
53	A	338	G
53	A	353	C
53	A	361	G
53	A	367	G
53	A	371	A
53	A	372	G
53	A	380	G
53	A	386	G
53	A	396	G
53	A	399	U
53	A	404	A
53	A	405	U
53	A	411	G
53	A	412	A
53	A	413	C
53	A	420	C
53	A	424	G

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Mol	Chain	Res	Type
53	A	429	A
53	A	435	C
53	A	451	U
53	A	456	C
53	A	457	A
53	A	458	G
53	A	467	G
53	A	475	C
53	A	481	G
53	A	490	C
53	A	491	G
53	A	504	A
53	A	505	A
53	A	509	C
53	A	510	C
53	A	528	A
53	A	529	A
53	A	531	C
53	A	532	A
53	A	533	G
53	A	543	G
53	A	544	C
53	A	546	U
53	A	548	G
53	A	549	G
53	A	550	C
53	A	551	G
53	A	563	A
53	A	571	U
53	A	572	A
53	A	573	U
53	A	575	A
53	A	586	A
53	A	588	U
53	A	603	A
53	A	604	G
53	A	613	A
53	A	615	U
53	A	622	G
53	A	627	A
53	A	628	G
53	A	637	A

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Mol	Chain	Res	Type
53	A	638	G
53	A	645	C
53	A	647	G
53	A	653	U
53	A	654	A
53	A	655	A
53	A	656	G
53	A	668	A
53	A	677	A
53	A	686	U
53	A	690	G
53	A	701	G
53	A	715	A
53	A	724	U
53	A	726	G
53	A	730	A
53	A	744	U
53	A	747	U
53	A	748	G
53	A	770	G
53	A	775	G
53	A	776	G
53	A	782	A
53	A	784	G
53	A	785	G
53	A	788	A
53	A	789	A
53	A	792	A
53	A	800	A
53	A	805	G
53	A	812	C
53	A	819	A
53	A	827	U
53	A	830	G
53	A	845	A
53	A	846	U
53	A	847	U
53	A	859	G
53	A	871	U
53	A	872	U
53	A	879	G
53	A	880	G

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Mol	Chain	Res	Type
53	A	881	G
53	A	882	G
53	A	884	U
53	A	887	U
53	A	888	C
53	A	892	A
53	A	896	A
53	A	897	C
53	A	898	C
53	A	902	C
53	A	907	G
53	A	910	A
53	A	915	C
53	A	916	G
53	A	931	U
53	A	932	U
53	A	941	A
53	A	945	A
53	A	946	C
53	A	957	C
53	A	958	U
53	A	959	A
53	A	961	C
53	A	974	G
53	A	975	A
53	A	983	A
53	A	984	A
53	A	985	C
53	A	995	C
53	A	997	G
53	A	1002	G
53	A	1003	G
53	A	1005	C
53	A	1009	A
53	A	1012	U
53	A	1013	C
53	A	1021	A
53	A	1022	G
53	A	1023	U
53	A	1026	G
53	A	1033	U
53	A	1047	G

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Mol	Chain	Res	Type
53	A	1051	G
53	A	1057	A
53	A	1061	U
53	A	1062	G
53	A	1069	A
53	A	1070	A
53	A	1071	G
53	A	1072	C
53	A	1073	A
53	A	1074	G
53	A	1075	C
53	A	1077	A
53	A	1080	A
53	A	1088	A
53	A	1090	A
53	A	1095	A
53	A	1097	U
53	A	1101	U
53	A	1110	G
53	A	1111	A
53	A	1112	G
53	A	1132	U
53	A	1133	A
53	A	1135	C
53	A	1139	G
53	A	1142	A
53	A	1143	A
53	A	1155	A
53	A	1157	G
53	A	1168	G
53	A	1169	A
53	A	1171	G
53	A	1174	U
53	A	1175	A
53	A	1176	U
53	A	1180	U
53	A	1186	G
53	A	1200	C
53	A	1212	G
53	A	1225	G
53	A	1236	G
53	A	1238	G

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Mol	Chain	Res	Type
53	A	1240	U
53	A	1241	A
53	A	1247	A
53	A	1248	G
53	A	1250	G
53	A	1253	A
53	A	1256	G
53	A	1262	A
53	A	1266	G
53	A	1271	G
53	A	1272	A
53	A	1273	U
53	A	1275	A
53	A	1294	U
53	A	1300	G
53	A	1301	A
53	A	1302	A
53	A	1306	C
53	A	1321	A
53	A	1329	U
53	A	1345	C
53	A	1352	U
53	A	1359	A
53	A	1364	G
53	A	1365	A
53	A	1368	G
53	A	1378	A
53	A	1383	A
53	A	1392	A
53	A	1407	G
53	A	1415	U
53	A	1416	G
53	A	1419	A
53	A	1420	A
53	A	1424	G
53	A	1428	C
53	A	1452	G
53	A	1453	A
53	A	1458	U
53	A	1460	U
53	A	1467	U
53	A	1468	U

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Mol	Chain	Res	Type
53	A	1482	G
53	A	1488	C
53	A	1493	C
53	A	1494	A
53	A	1497	U
53	A	1504	A
53	A	1508	A
53	A	1509	A
53	A	1510	G
53	A	1515	A
53	A	1522	A
53	A	1523	U
53	A	1524	G
53	A	1529	G
53	A	1532	A
53	A	1535	A
53	A	1536	C
53	A	1537	G
53	A	1538	G
53	A	1542	U
53	A	1543	G
53	A	1550	C
53	A	1560	G
53	A	1563	U
53	A	1566	A
53	A	1569	A
53	A	1578	U
53	A	1583	A
53	A	1584	U
53	A	1585	C
53	A	1587	G
53	A	1591	A
53	A	1593	A
53	A	1595	C
53	A	1608	A
53	A	1610	A
53	A	1639	C
53	A	1645	G
53	A	1646	C
53	A	1647	U
53	A	1648	U
53	A	1649	G

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Mol	Chain	Res	Type
53	A	1652	A
53	A	1654	A
53	A	1655	A
53	A	1656	C
53	A	1664	A
53	A	1674	G
53	A	1675	C
53	A	1679	A
53	A	1694	C
53	A	1698	A
53	A	1699	G
53	A	1703	G
53	A	1715	G
53	A	1729	U
53	A	1730	C
53	A	1732	C
53	A	1738	G
53	A	1764	C
53	A	1773	A
53	A	1781	U
53	A	1785	A
53	A	1791	A
53	A	1800	C
53	A	1801	A
53	A	1802	A
53	A	1807	G
53	A	1808	A
53	A	1811	G
53	A	1816	C
53	A	1829	A
53	A	1848	A
53	A	1852	U
53	A	1866	A
53	A	1869	G
53	A	1870	C
53	A	1872	A
53	A	1875	G
53	A	1881	C
53	A	1882	U
53	A	1896	G
53	A	1903	G
53	A	1906	G

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Mol	Chain	Res	Type
53	A	1913	A
53	A	1914	C
53	A	1927	A
53	A	1929	G
53	A	1936	A
53	A	1938	A
53	A	1955	U
53	A	1960	A
53	A	1966	A
53	A	1967	C
53	A	1970	A
53	A	1971	U
53	A	1972	G
53	A	1991	U
53	A	1993	U
53	A	1997	C
53	A	2011	U
53	A	2021	C
53	A	2022	U
53	A	2023	C
53	A	2030	A
53	A	2031	A
53	A	2033	A
53	A	2034	U
53	A	2043	C
53	A	2050	C
53	A	2052	A
53	A	2055	C
53	A	2056	G
53	A	2059	A
53	A	2060	A
53	A	2061	G
53	A	2062	A
53	A	2069	G
53	A	2072	C
53	A	2075	U
53	A	2085	U
53	A	2092	U
53	A	2093	G
53	A	2104	C
53	A	2107	G
53	A	2110	G

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Mol	Chain	Res	Type
53	A	2111	U
53	A	2112	G
53	A	2113	U
53	A	2115	G
53	A	2119	A
53	A	2127	G
53	A	2128	G
53	A	2129	C
53	A	2131	U
53	A	2132	U
53	A	2133	G
53	A	2134	A
53	A	2135	A
53	A	2136	G
53	A	2139	U
53	A	2143	C
53	A	2144	G
53	A	2145	C
53	A	2146	C
53	A	2147	A
53	A	2148	G
53	A	2150	C
53	A	2152	G
53	A	2153	C
53	A	2155	U
53	A	2158	A
53	A	2159	G
53	A	2161	C
53	A	2162	G
53	A	2164	C
53	A	2165	C
53	A	2166	U
53	A	2168	G
53	A	2171	A
53	A	2173	A
53	A	2174	C
53	A	2176	A
53	A	2178	C
53	A	2182	U
53	A	2183	A
53	A	2185	U
53	A	2186	G

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Mol	Chain	Res	Type
53	A	2192	U
53	A	2198	A
53	A	2199	A
53	A	2204	G
53	A	2211	A
53	A	2225	A
53	A	2226	C
53	A	2238	G
53	A	2239	G
53	A	2250	G
53	A	2268	A
53	A	2279	G
53	A	2283	C
53	A	2286	G
53	A	2287	A
53	A	2305	U
53	A	2308	G
53	A	2309	A
53	A	2322	A
53	A	2325	G
53	A	2327	A
53	A	2333	A
53	A	2334	U
53	A	2335	A
53	A	2344	U
53	A	2347	C
53	A	2353	G
53	A	2354	C
53	A	2357	G
53	A	2358	A
53	A	2359	C
53	A	2361	G
53	A	2383	G
53	A	2384	U
53	A	2385	C
53	A	2389	G
53	A	2396	G
53	A	2400	G
53	A	2402	U
53	A	2403	C
53	A	2406	A
53	A	2413	G

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Mol	Chain	Res	Type
53	A	2419	U
53	A	2423	U
53	A	2424	C
53	A	2425	A
53	A	2427	C
53	A	2429	G
53	A	2430	A
53	A	2441	U
53	A	2448	A
53	A	2449	U
53	A	2468	A
53	A	2475	C
53	A	2476	A
53	A	2480	C
53	A	2491	U
53	A	2498	C
53	A	2502	G
53	A	2503	A
53	A	2504	U
53	A	2505	G
53	A	2506	U
53	A	2507	C
53	A	2513	A
53	A	2518	A
53	A	2530	A
53	A	2535	G
53	A	2548	U
53	A	2549	G
53	A	2554	U
53	A	2562	U
53	A	2566	A
53	A	2567	G
53	A	2572	A
53	A	2573	C
53	A	2578	G
53	A	2585	U
53	A	2586	U
53	A	2602	A
53	A	2608	G
53	A	2609	U
53	A	2613	U
53	A	2615	U

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Mol	Chain	Res	Type
53	A	2621	G
53	A	2629	U
53	A	2630	G
53	A	2636	C
53	A	2650	U
53	A	2682	A
53	A	2689	U
53	A	2690	U
53	A	2714	G
53	A	2716	C
53	A	2729	G
53	A	2733	A
53	A	2739	U
53	A	2744	G
53	A	2748	A
53	A	2758	A
53	A	2759	G
53	A	2775	G
53	A	2778	A
53	A	2781	A
53	A	2791	G
53	A	2792	A
53	A	2797	U
53	A	2798	U
53	A	2801	G
53	A	2803	G
53	A	2809	A
53	A	2820	A
53	A	2825	G
53	A	2833	U
53	A	2834	G
53	A	2835	A
53	A	2849	U
53	A	2861	U
53	A	2867	G
53	A	2869	G
53	A	2870	C
53	A	2872	A
53	A	2873	A
53	A	2879	A
53	A	2883	A
53	A	2884	U

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Mol	Chain	Res	Type
53	A	2885	G
53	A	2886	A
53	A	2891	U
53	A	2899	A
53	A	2901	C
53	A	2903	U
54	B	9	G
54	B	15	A
54	B	35	C
54	B	37	C
54	B	42	C
54	B	44	G
54	B	54	G
54	B	56	G
54	B	57	A
54	B	66	A
54	B	67	G
54	B	82	U
54	B	87	U
54	B	88	C
54	B	89	U
54	B	90	C
54	B	96	G
54	B	99	A
54	B	109	A
54	B	114	C
54	B	119	A
55	7	14	U
55	7	15	G
55	7	16	U
55	7	19	A
56	8	17	C
56	8	19	G
56	8	20	U
56	8	21	A
56	8	37	A
56	8	44	G
56	8	45	U
56	8	46	G
56	9	2	C
56	9	8	U
56	9	13	C

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Mol	Chain	Res	Type
56	9	16	U
56	9	18	G
56	9	19	G
56	9	20	U
56	9	21	A
56	9	22	G
56	9	25	C
56	9	26	A
56	9	27	G
56	9	32	U
56	9	33	U
56	9	34	G
56	9	35	A
56	9	36	A
56	9	37	A
56	9	39	U
56	9	41	C
56	9	43	C
56	9	44	G
56	9	45	U
56	9	46	G
56	9	48	C
56	9	50	U
56	9	58	A
56	9	59	U
56	9	61	C
56	9	72	C
56	9	74	C
56	9	75	C
56	9	76	A

All (19) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
53	A	119	A
53	A	271	G
53	A	344	A
53	A	403	U
53	A	404	A
53	A	527	C
53	A	784	G
53	A	880	G

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Mol	Chain	Res	Type
53	A	1020	A
53	A	1025	G
53	A	1331	G
53	A	1847	A
53	A	1935	G
53	A	2326	C
53	A	2423	U
53	A	2474	U
56	8	20	U
56	8	45	U
56	9	71	G

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

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

5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.