



Full wwPDB EM Validation Report ⓘ

Sep 23, 2025 – 02:11 pm BST

PDB ID : 6FRK / pdb_00006frk
EMDB ID : EMD-4300
Title : Structure of a prehandover mammalian ribosomal SRP and SRP receptor targeting complex
Authors : Kobayashi, K.; Jomaa, A.; Ban, N.
Deposited on : 2018-02-16
Resolution : 3.70 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

EMDB validation analysis : 0.0.1.dev129
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.46

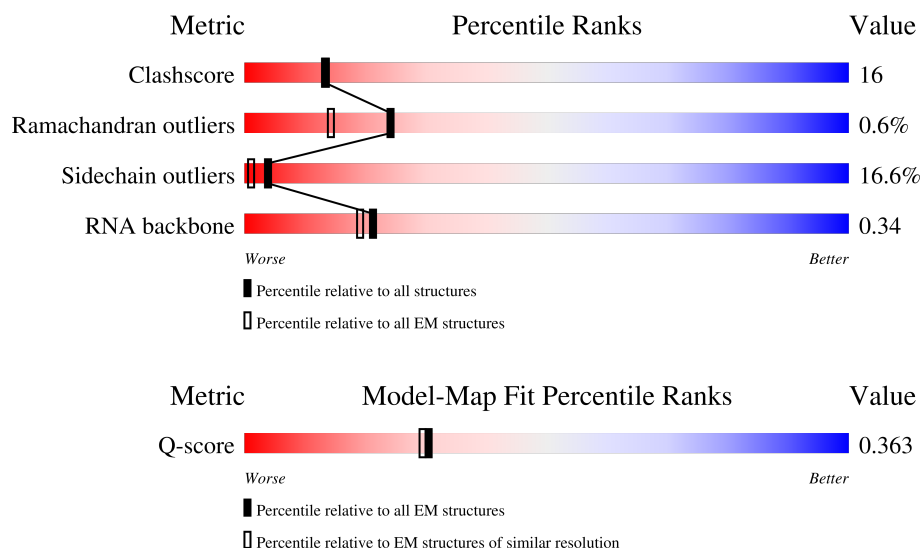
1 Overall quality at a glance i

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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
RNA backbone	6643	2191	-
Q-score	-	25397	11569 (3.20 - 4.20)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	1	299	19% 37% 34% 15% 14%
2	2	76	5% 45% 47% 8%
3	3	125	• 50% 40% 10%

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Mol	Chain	Length	Quality of chain
4	4	163	
5	5	3658	
6	6	202	
7	7	120	
8	8	156	
9	A	244	
10	B	394	
11	C	367	
12	D	292	
13	E	236	
14	F	225	
15	G	238	
16	H	190	
17	I	213	
18	J	170	
19	L	210	
20	M	138	
21	N	203	
22	O	201	
23	P	153	
24	Q	187	
25	R	180	
26	S	175	
27	T	159	
28	U	99	

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Mol	Chain	Length	Quality of chain
29	V	131	
30	W	63	
31	X	119	
32	Y	134	
33	Z	135	
34	a	147	
35	b	75	
36	c	94	
37	d	107	
38	e	128	
39	f	109	
40	g	114	
41	h	122	
42	i	102	
43	j	86	
44	k	69	
45	l	50	
46	m	52	
47	n	23	
48	o	104	
49	p	91	
50	q	105	
51	r	605	
52	t	11	
53	u	568	

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Mol	Chain	Length	Quality of chain
54	v	213	78% 61% 26% 12%
55	w	74	68% 55% 36% 8%
56	x	504	60% 51% 21% 26%
57	y	657	56% 37% 25% 35%
58	z	110	35% 48% 18% 31%

2 Entry composition [i](#)

There are 62 unique types of molecules in this entry. The entry contains 159957 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called Canis lupus familiaris RNA, 7SL, cytoplasmic 1 (RN7SL1), SRP RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	1	258	Total	C	N	O	P	0	0
			5534	2463	1012	1801	258		

- Molecule 2 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	2	76	Total	C	N	O	P	0	0
			1616	723	290	528	75		

- Molecule 3 is a protein called Ribosomal protein eL28.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	3	125	Total	C	N	O	S	0	0
			1001	622	206	168	5		

- Molecule 4 is a protein called Ribosomal protein L12.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	4	163	Total	C	N	O	S	0	0
			1238	773	230	230	5		

- Molecule 5 is a RNA chain called 28S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	5	3658	Total	C	N	O	P	0	0
			78406	34911	14352	25486	3657		

- Molecule 6 is a protein called 60S acidic ribosomal protein P0.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	6	202	Total	C	N	O	S	0	0
			1556	989	272	286	9		

- Molecule 7 is a RNA chain called 5S ribosomal RNA.

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

- Molecule 8 is a RNA chain called 5.8S ribosomal RNA.

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

- Molecule 9 is a protein called Ribosomal protein L8.

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

- Molecule 10 is a protein called Ribosomal protein uL3.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	B	394	Total	C	N	O	S	0	0
			3147	2005	591	538	13		

- Molecule 11 is a protein called Ribosomal protein uL4.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	C	367	Total	C	N	O	S	0	0
			2919	1836	582	486	15		

- Molecule 12 is a protein called Ribosomal protein uL18.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	D	292	Total	C	N	O	S	0	0
			2380	1508	434	426	12		

- Molecule 13 is a protein called Ribosomal protein eL6.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	E	236	Total	C	N	O	S	0	0
			1904	1219	364	316	5		

- Molecule 14 is a protein called Ribosomal protein uL30.

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

- Molecule 15 is a protein called Ribosomal protein eL8.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	G	238	Total	C	N	O	S	0	0
			1912	1218	368	322	4		

- Molecule 16 is a protein called Ribosomal protein uL6.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	H	190	Total	C	N	O	S	0	0
			1518	956	284	272	6		

- Molecule 17 is a protein called Ribosomal protein uL16.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	I	213	Total	C	N	O	S	0	0
			1713	1083	331	284	15		

- Molecule 18 is a protein called Ribosomal protein uL5.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	J	170	Total	C	N	O	S	0	0
			1359	856	256	241	6		

- Molecule 19 is a protein called Ribosomal protein eL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	L	210	Total	C	N	O	S	0	0
			1703	1064	354	280	5		

- Molecule 20 is a protein called Ribosomal protein eL14.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	M	138	Total	C	N	O	S	0	0
			1131	727	216	181	7		

- Molecule 21 is a protein called Ribosomal protein L15.

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

- Molecule 22 is a protein called Ribosomal protein uL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	O	201	Total	C	N	O	S	0	0
			1651	1063	323	260	5		

- Molecule 23 is a protein called Ribosomal protein uL22.

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

- Molecule 24 is a protein called Ribosomal protein eL18.

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

- Molecule 25 is a protein called Ribosomal protein eL19.

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

- Molecule 26 is a protein called Ribosomal protein eL20.

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

- Molecule 27 is a protein called Ribosomal protein eL21.

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

- Molecule 28 is a protein called Ribosomal protein eL22.

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

- Molecule 29 is a protein called Ribosomal protein L23.

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

- Molecule 30 is a protein called Ribosomal protein eL24.

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

- Molecule 31 is a protein called Ribosomal protein uL23.

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

- Molecule 32 is a protein called Ribosomal protein uL24.

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

- Molecule 33 is a protein called 60S ribosomal protein L27.

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

- Molecule 34 is a protein called Ribosomal protein uL15.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	a	147	Total	C	N	O	S	0	0
			1163	735	239	185	4		

- Molecule 35 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	b	75	Total	C	N	O	S	0	0
			610	378	130	99	3		

- Molecule 36 is a protein called Ribosomal protein eL30.

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

- Molecule 37 is a protein called Ribosomal protein eL31.

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

- Molecule 38 is a protein called Ribosomal protein eL32.

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

- Molecule 39 is a protein called Ribosomal protein eL33.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	f	109	Total	C	N	O	S	0	0
			876	555	174	144	3		

- Molecule 40 is a protein called Ribosomal protein eL34.

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

- Molecule 41 is a protein called Ribosomal protein uL29.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	h	122	Total	C	N	O	S	0	0
			1015	642	205	167	1		

- Molecule 42 is a protein called Ribosomal protein eL36.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	i	102	Total	C	N	O	S	0	0
			832	521	177	129	5		

- Molecule 43 is a protein called Ribosomal protein L37.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	j	86	Total	C	N	O	S	0	0
			706	436	155	110	5		

- Molecule 44 is a protein called Ribosomal protein eL38.

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

- Molecule 45 is a protein called Ribosomal protein eL39.

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

- Molecule 46 is a protein called Ribosomal protein eL40.

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

- Molecule 47 is a protein called Ribosomal protein eL41.

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

- Molecule 48 is a protein called Ribosomal protein eL42.

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

- Molecule 49 is a protein called Ribosomal protein eL43.

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

- Molecule 50 is a protein called Signal recognition particle subunit SRP19.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	q	105	Total	C	N	O	S	0	0
			844	534	152	152	6		

- Molecule 51 is a protein called Signal recognition particle subunit SRP72,Signal recognition particle subunit SRP72,Signal recognition particle subunit SRP72.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	r	195	Total	C	N	O	S	1	0
			1540	970	274	291	5		

- Molecule 52 is a protein called Signal sequence.

Mol	Chain	Residues	Atoms				AltConf	Trace
52	t	11	Total	C	N	O	0	0
			88	66	11	11		

- Molecule 53 is a protein called Signal recognition particle subunit SRP68.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	u	218	Total	C	N	O	S	0	0
			1819	1151	335	325	8		

- Molecule 54 is a protein called SRP receptor beta subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	v	188	Total	C	N	O	S	0	0
			1486	943	259	279	5		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
v	59	MET	-	initiating methionine	UNP G1STG2

- Molecule 55 is a protein called Signal recognition particle 9 kDa protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	w	74	Total	C	N	O	S	0	0
			607	386	106	110	5		

- Molecule 56 is a protein called Signal recognition particle 54 kDa protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	x	374	Total	C	N	O	S	0	0
			2915	1848	495	550	22		

- Molecule 57 is a protein called SRP receptor alpha subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	y	424	Total	C	N	O	S	0	0
			3298	2093	572	615	18		

There are 20 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
y	-19	HIS	-	expression tag	UNP G1TCX6
y	-18	HIS	-	expression tag	UNP G1TCX6
y	-17	HIS	-	expression tag	UNP G1TCX6
y	-16	HIS	-	expression tag	UNP G1TCX6
y	-15	HIS	-	expression tag	UNP G1TCX6
y	-14	HIS	-	expression tag	UNP G1TCX6
y	-13	ASP	-	expression tag	UNP G1TCX6
y	-12	TYR	-	expression tag	UNP G1TCX6
y	-11	ASP	-	expression tag	UNP G1TCX6
y	-10	ILE	-	expression tag	UNP G1TCX6
y	-9	PRO	-	expression tag	UNP G1TCX6
y	-8	THR	-	expression tag	UNP G1TCX6
y	-7	THR	-	expression tag	UNP G1TCX6
y	-6	GLU	-	expression tag	UNP G1TCX6
y	-5	ASN	-	expression tag	UNP G1TCX6
y	-4	LEU	-	expression tag	UNP G1TCX6
y	-3	TYR	-	expression tag	UNP G1TCX6
y	-2	PHE	-	expression tag	UNP G1TCX6
y	-1	GLN	-	expression tag	UNP G1TCX6
y	0	GLY	-	expression tag	UNP G1TCX6

- Molecule 58 is a protein called Signal recognition particle 14 kDa protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	z	76	Total	C	N	O	S	0	0
			604	384	105	111	4		

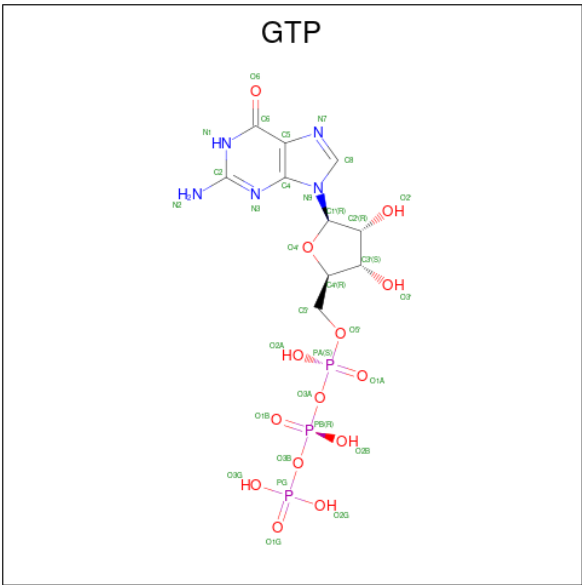
- Molecule 59 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
59	5	119	Total	Mg	0
			119	119	
59	7	5	Total	Mg	0
			5	5	
59	8	4	Total	Mg	0
			4	4	
59	P	1	Total	Mg	0
			1	1	
59	V	1	Total	Mg	0
			1	1	
59	v	1	Total	Mg	0
			1	1	
59	x	1	Total	Mg	0
			1	1	
59	y	1	Total	Mg	0
			1	1	

- Molecule 60 is ZINC ION (CCD ID: ZN) (formula: Zn).

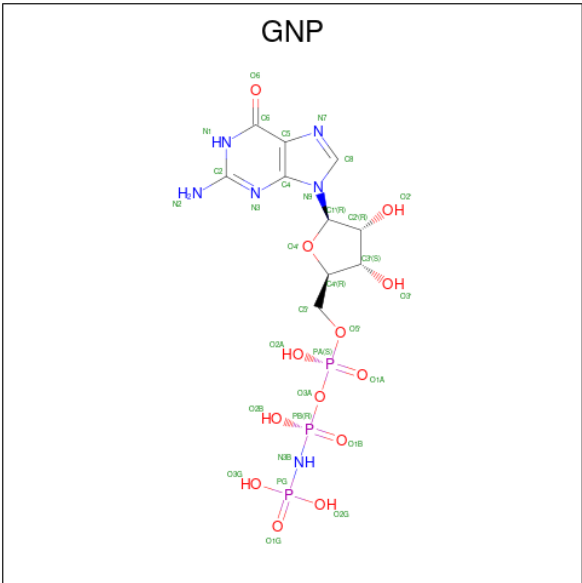
Mol	Chain	Residues	Atoms		AltConf
60	j	1	Total	Zn	0
			1	1	
60	m	1	Total	Zn	0
			1	1	
60	o	1	Total	Zn	0
			1	1	

- Molecule 61 is GUANOSINE-5'-TRIPHOSPHATE (CCD ID: GTP) (formula: C₁₀H₁₆N₅O₁₄P₃).



Mol	Chain	Residues	Atoms					AltConf
61	v	1	Total	C	N	O	P	0
			32	10	5	14	3	

- Molecule 62 is PHOSPHOAMINOPHOSPHONIC ACID-GUANYLATE ESTER (CCD ID: GNP) (formula: C₁₀H₁₇N₆O₁₃P₃).

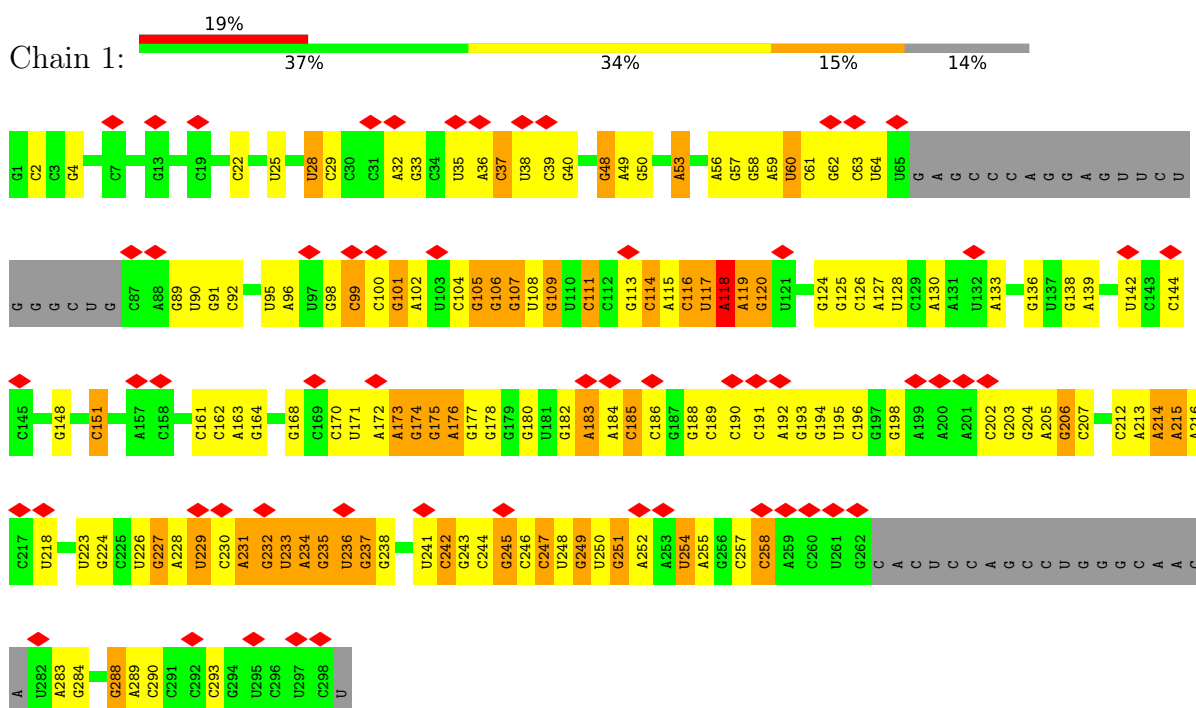


Mol	Chain	Residues	Atoms					AltConf
62	x	1	Total	C	N	O	P	0
			32	10	6	13	3	
62	y	1	Total	C	N	O	P	0
			32	10	6	13	3	

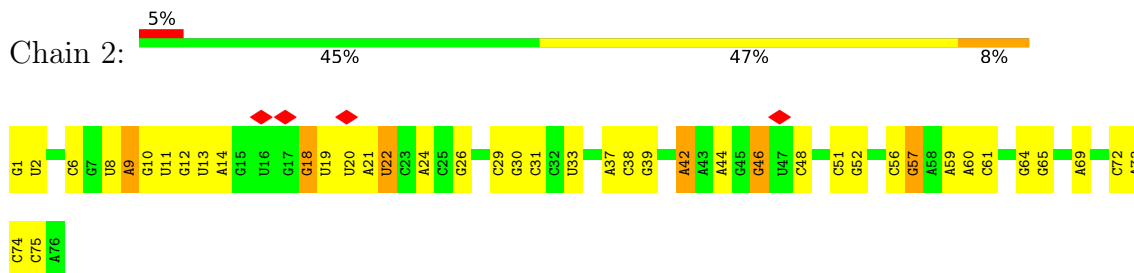
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. 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. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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: *Canis lupus familiaris* RNA, 7SL, cytoplasmic 1 (RN7SL1), SRP RNA

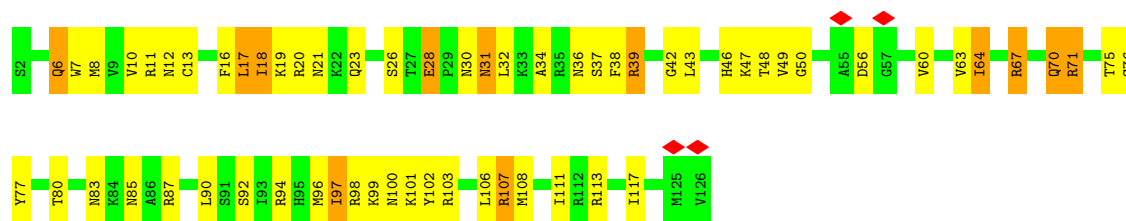


- Molecule 2: tRNA

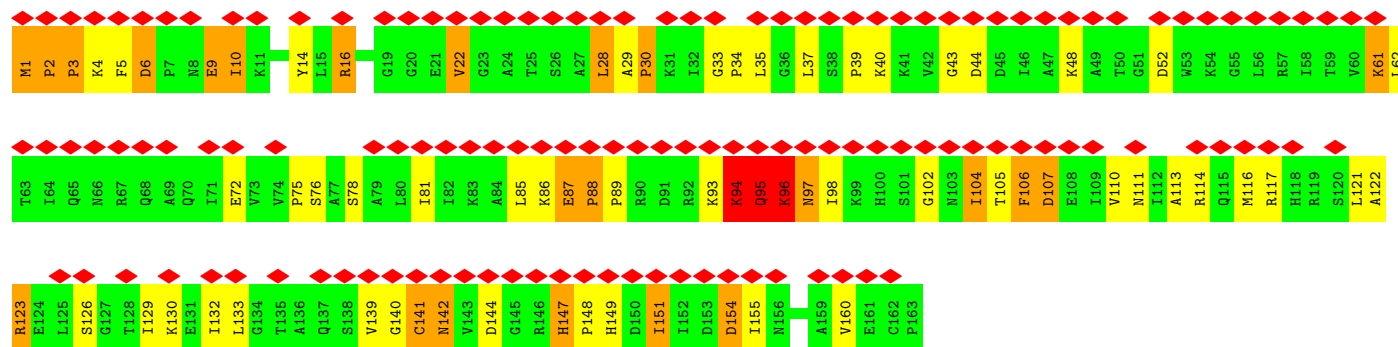
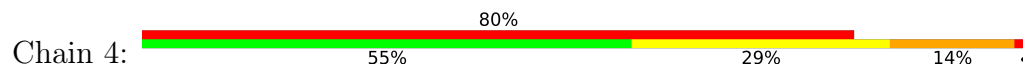


- Molecule 3: Ribosomal protein eL28

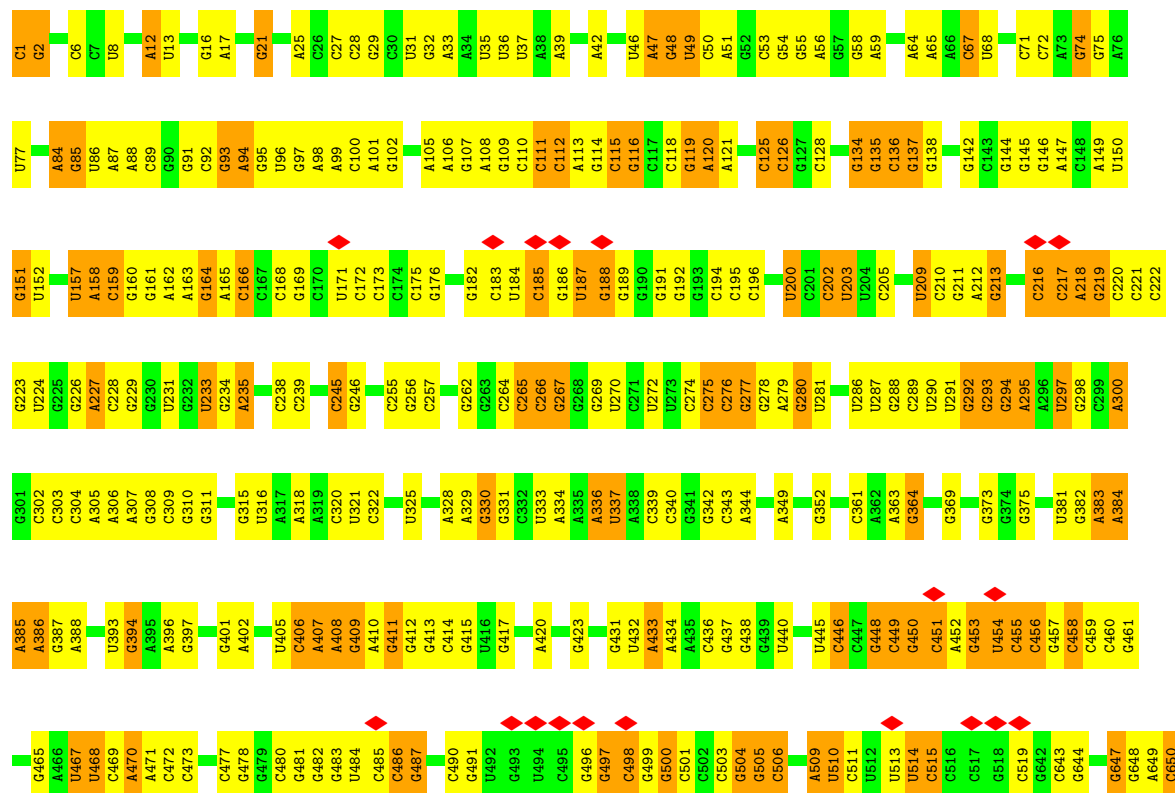


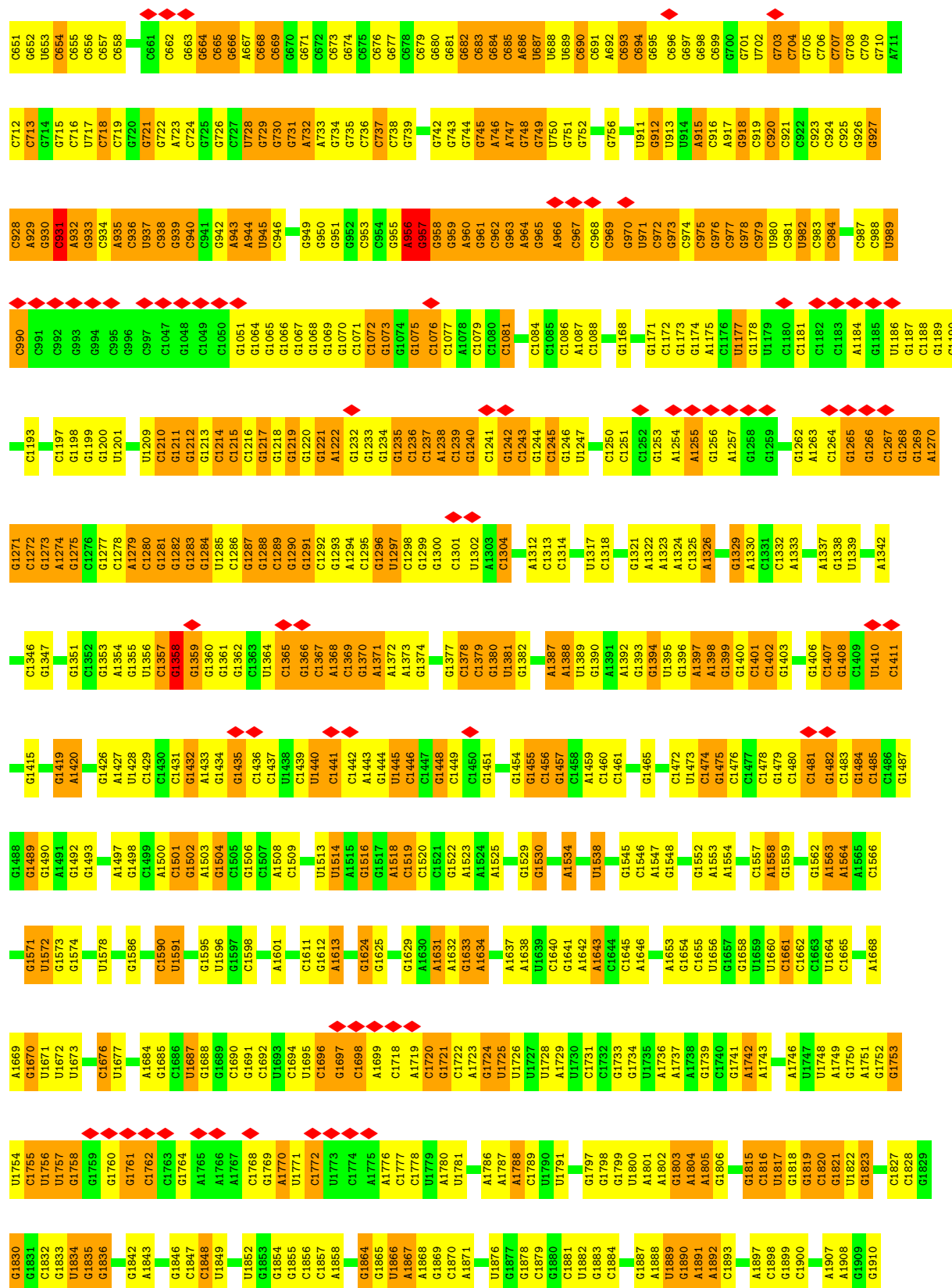


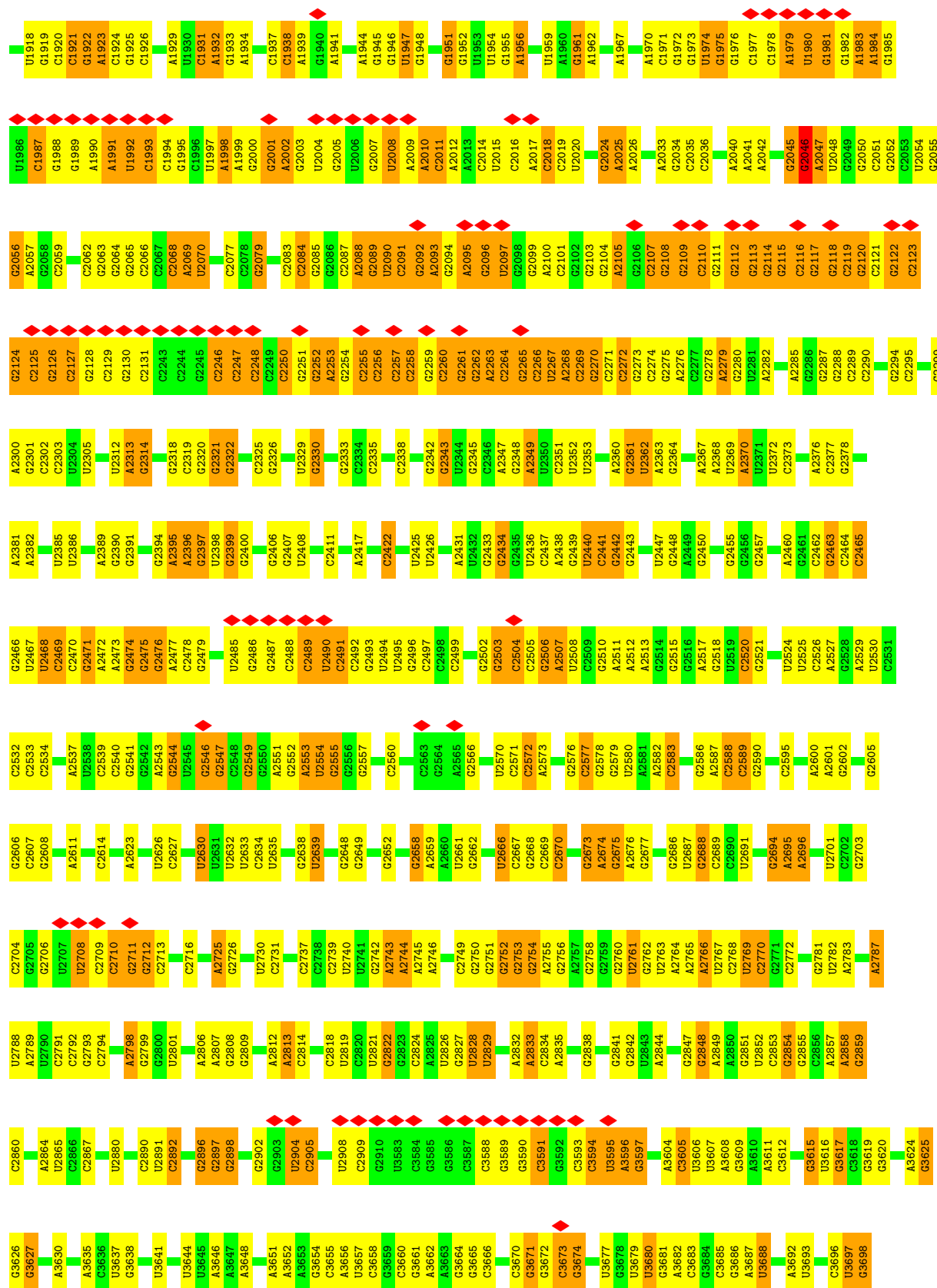
• Molecule 4: Ribosomal protein L12



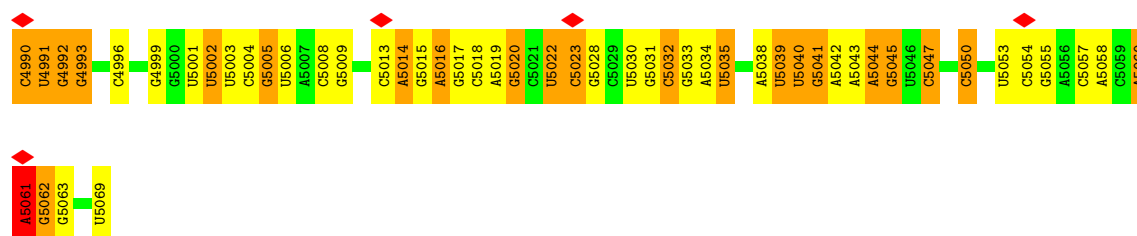
• Molecule 5: 28S ribosomal RNA



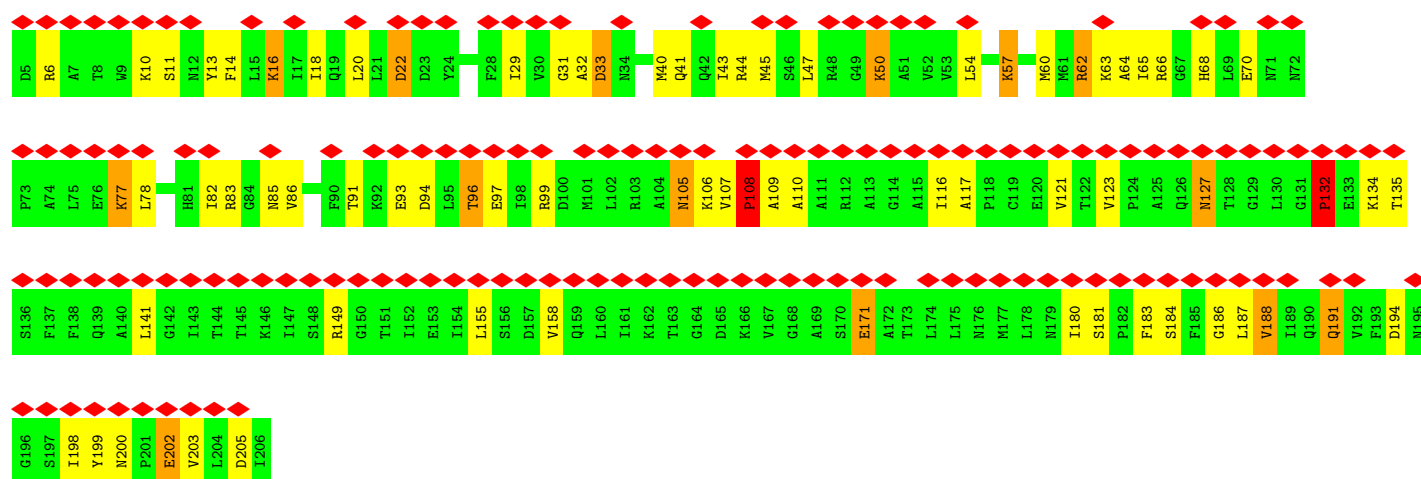
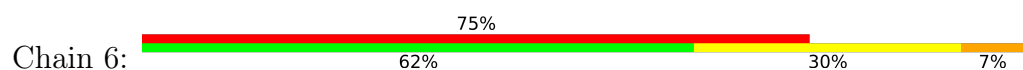








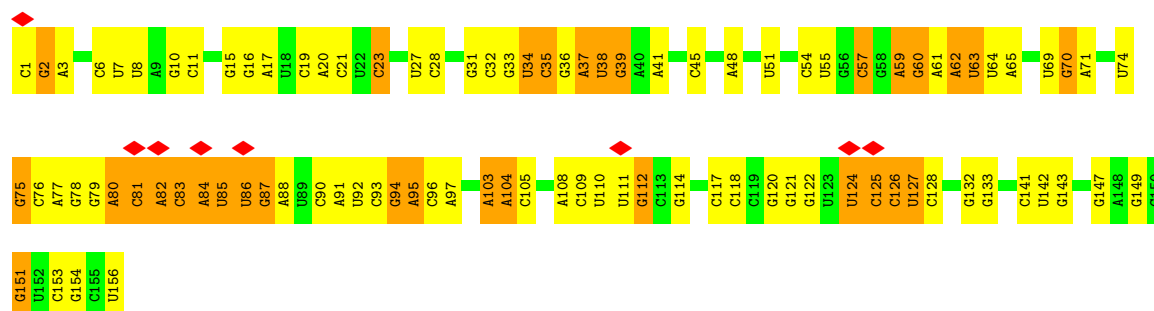
• Molecule 6: 60S acidic ribosomal protein P0



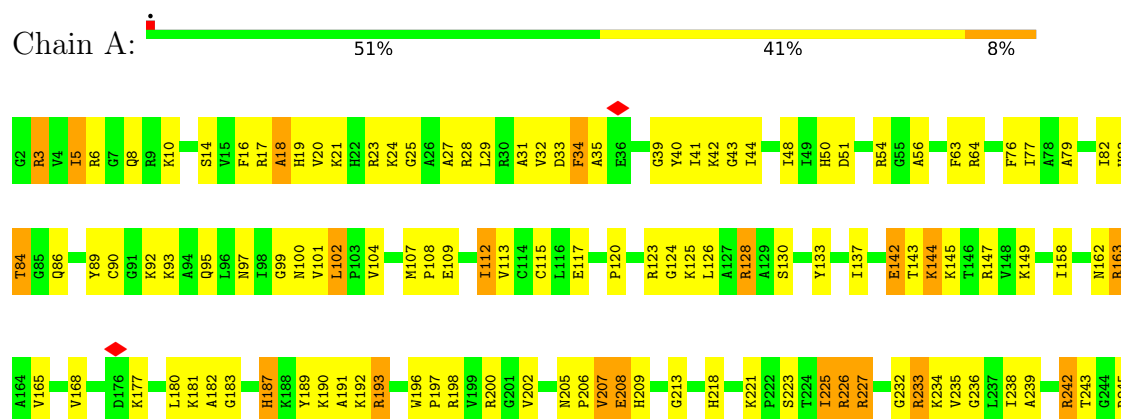
• Molecule 7: 5S ribosomal RNA



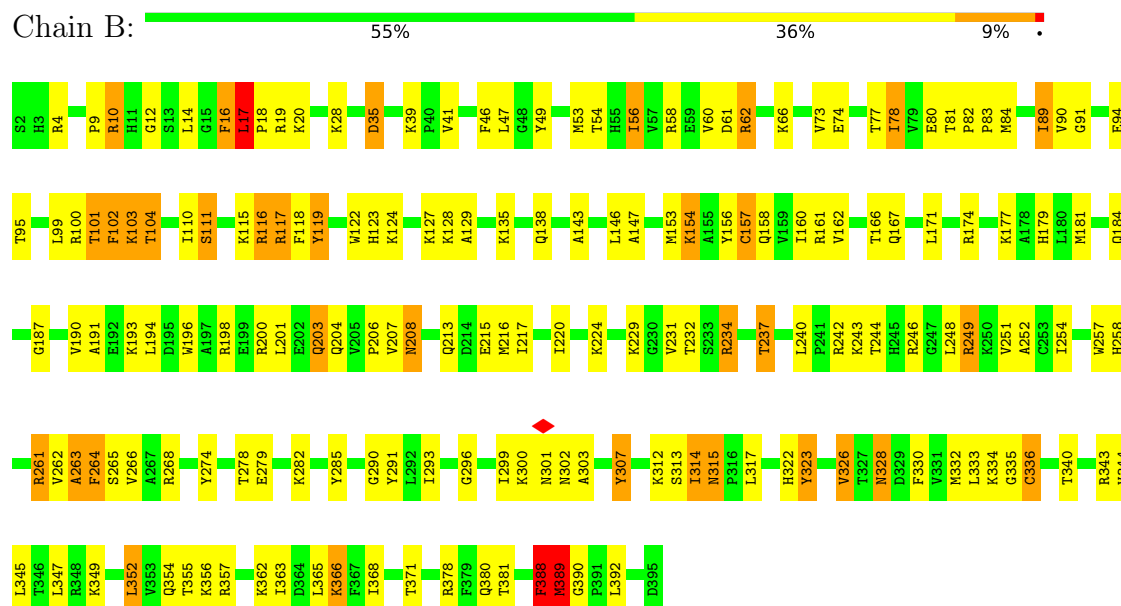
• Molecule 8: 5.8S ribosomal RNA



• Molecule 9: Ribosomal protein L8

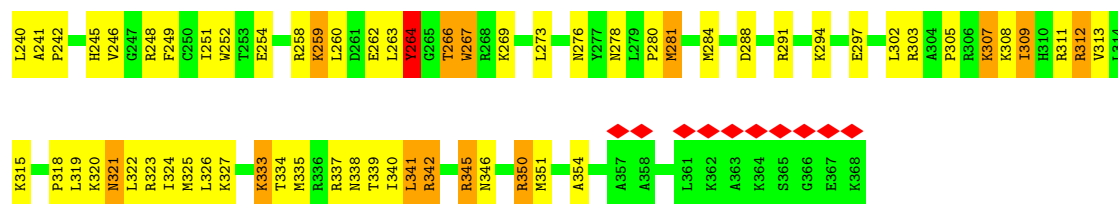


• Molecule 10: Ribosomal protein uL3

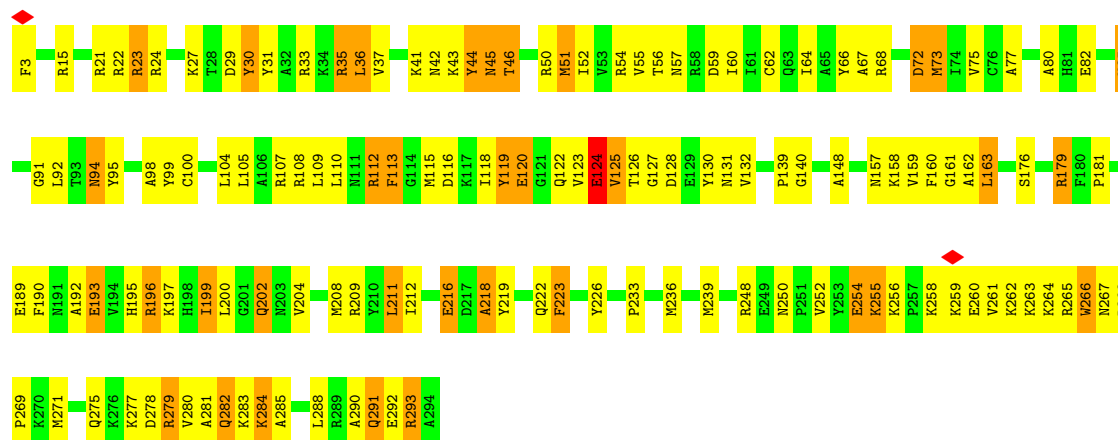


• Molecule 11: Ribosomal protein uL4

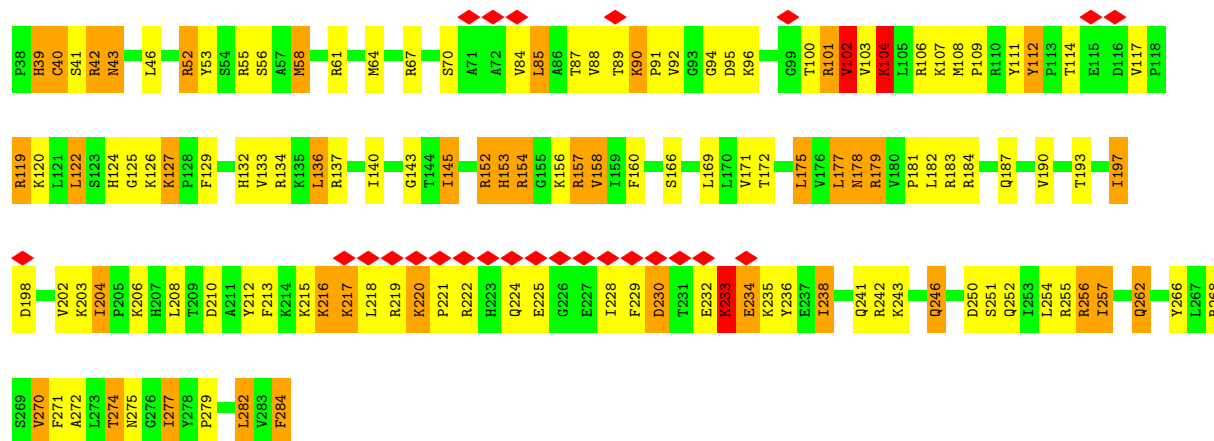




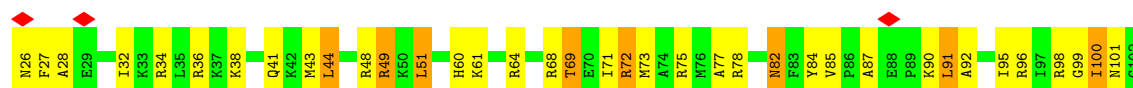
• Molecule 12: Ribosomal protein uL18

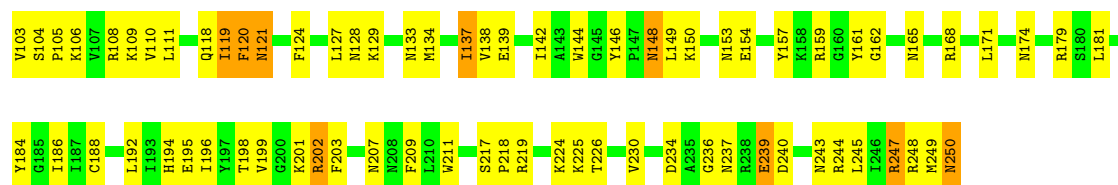


• Molecule 13: Ribosomal protein eL6

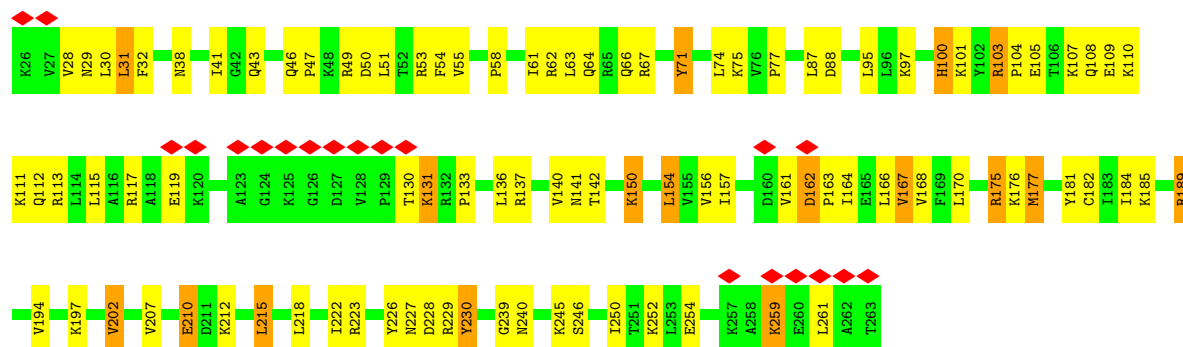


• Molecule 14: Ribosomal protein uL30

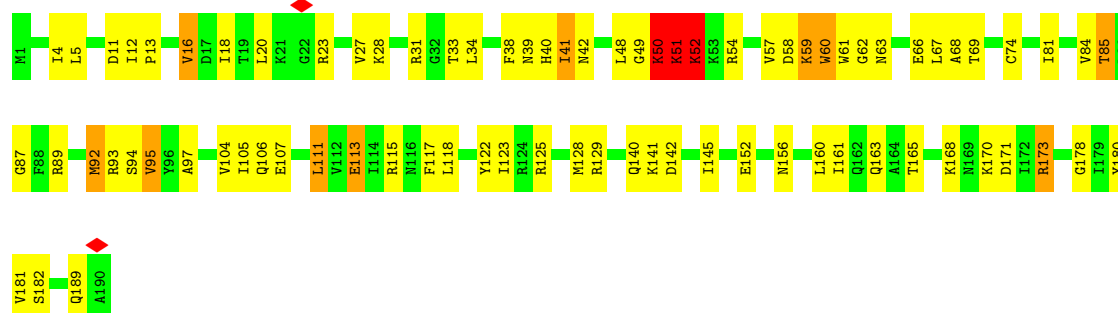




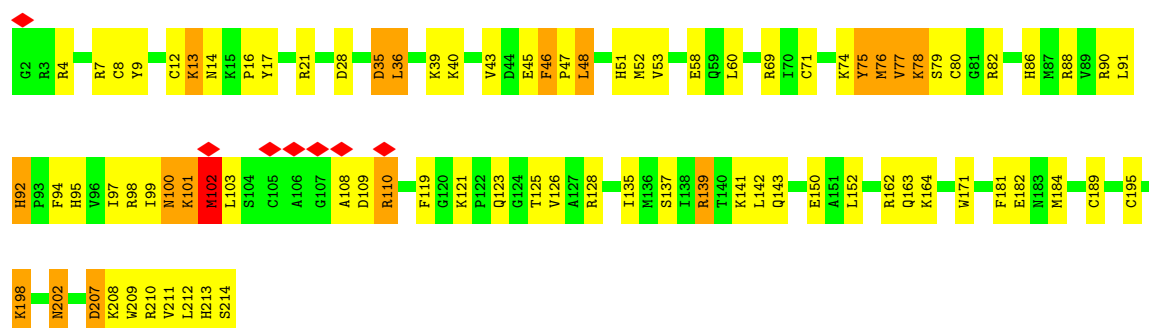
• Molecule 15: Ribosomal protein eL8



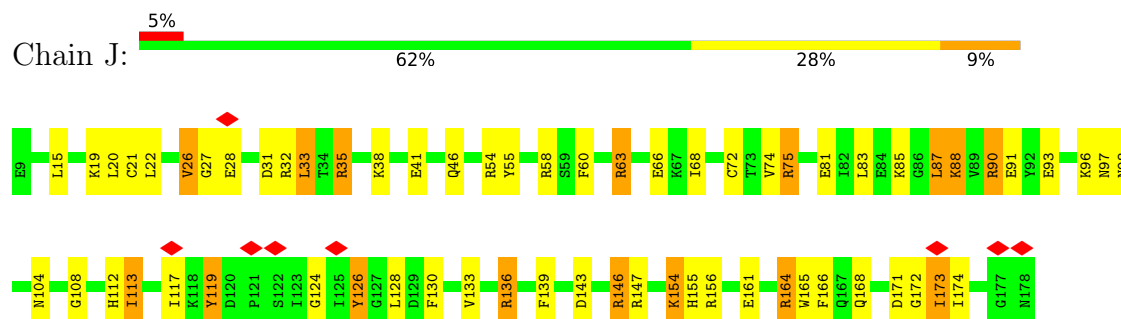
• Molecule 16: Ribosomal protein uL6



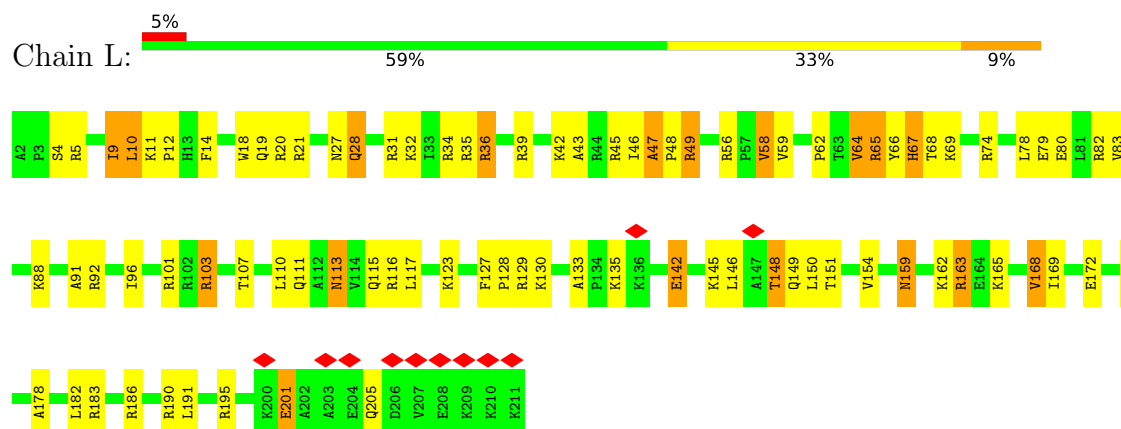
• Molecule 17: Ribosomal protein uL16



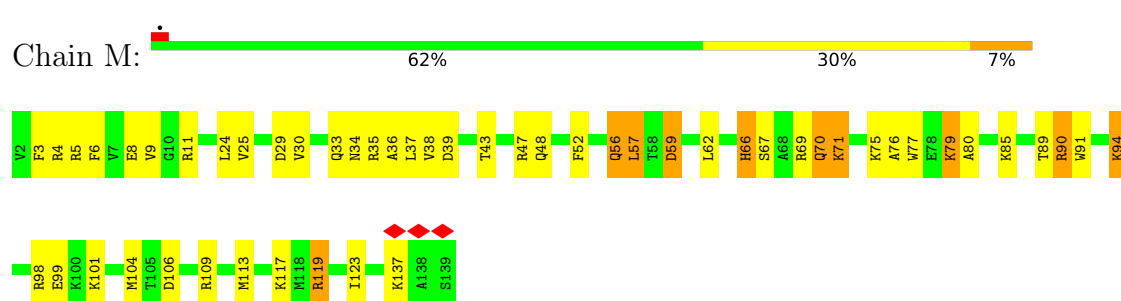
- Molecule 18: Ribosomal protein uL5



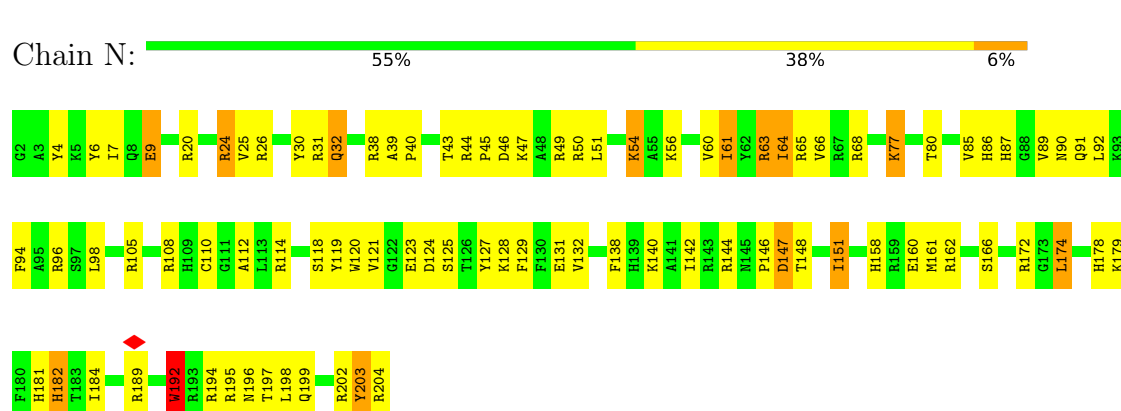
- Molecule 19: Ribosomal protein eL13



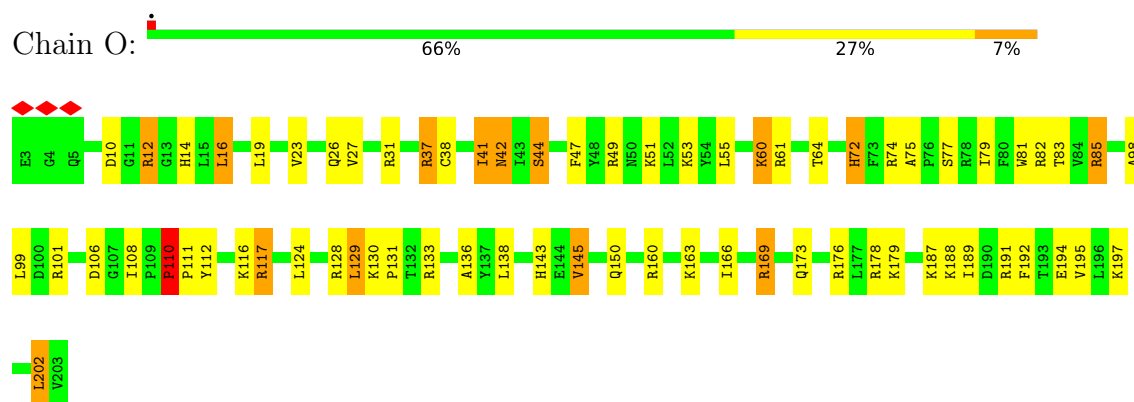
- Molecule 20: Ribosomal protein eL14



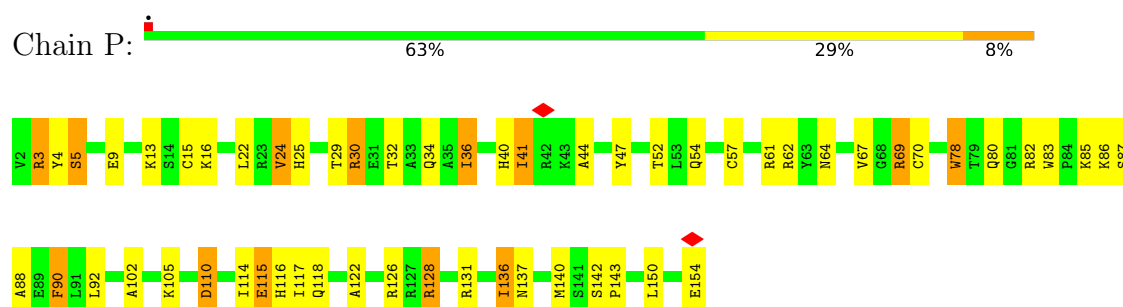
- Molecule 21: Ribosomal protein L15



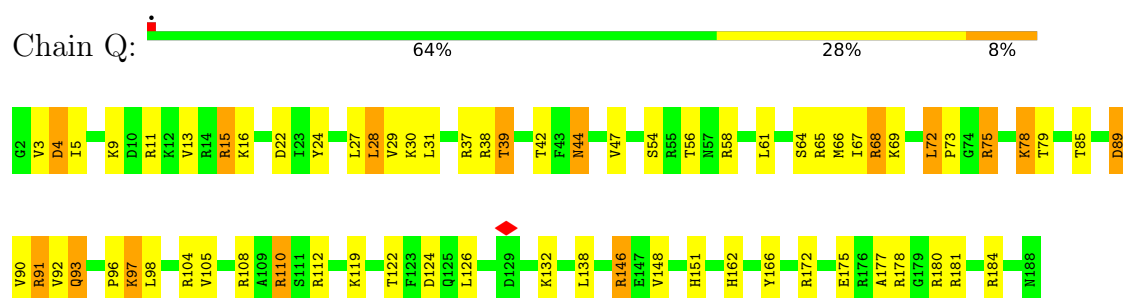
- Molecule 22: Ribosomal protein uL13



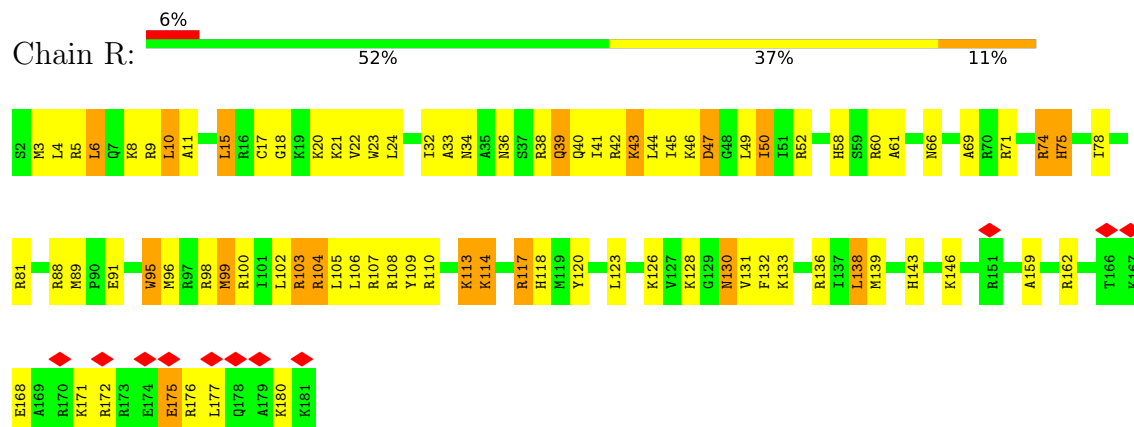
- Molecule 23: Ribosomal protein uL22



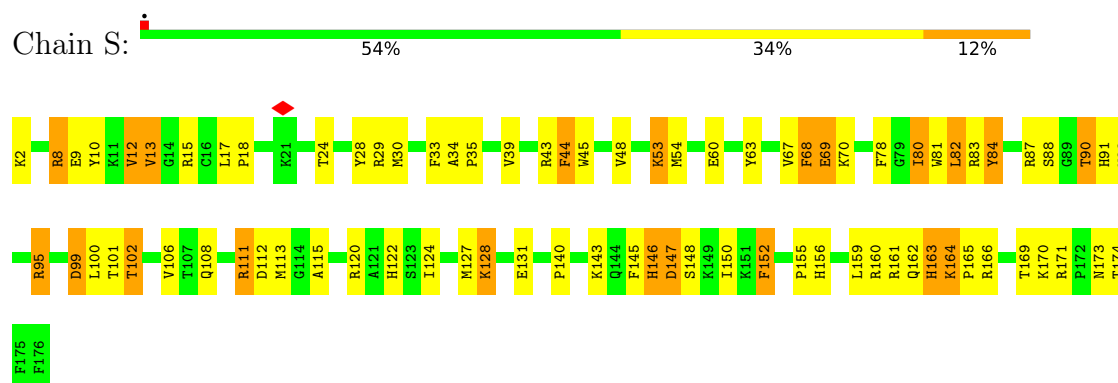
- Molecule 24: Ribosomal protein eL18



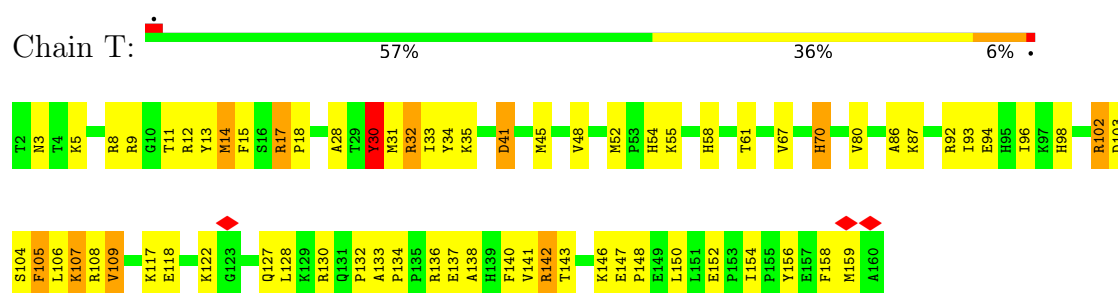
- Molecule 25: Ribosomal protein eL19



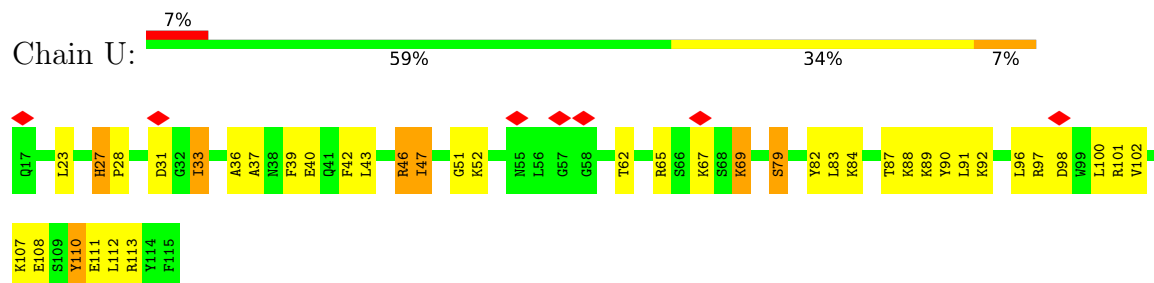
- Molecule 26: Ribosomal protein eL20



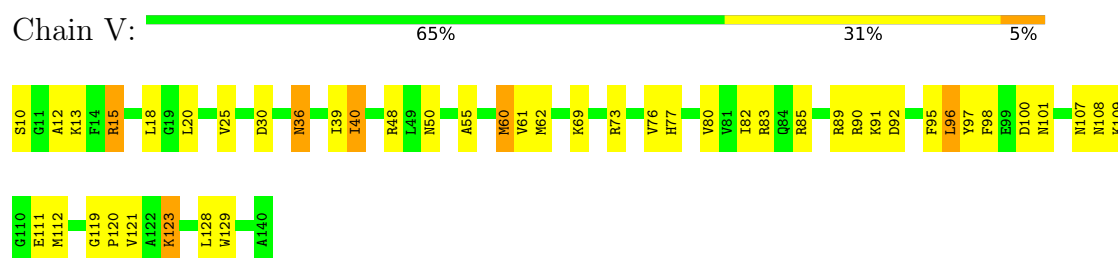
- Molecule 27: Ribosomal protein eL21



- Molecule 28: Ribosomal protein eL22



- Molecule 29: Ribosomal protein L23

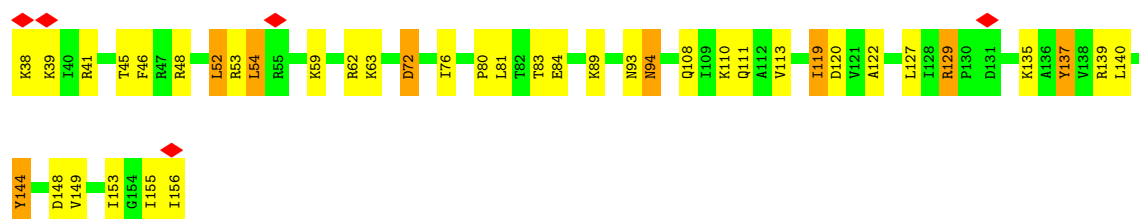


- Molecule 30: Ribosomal protein eL24

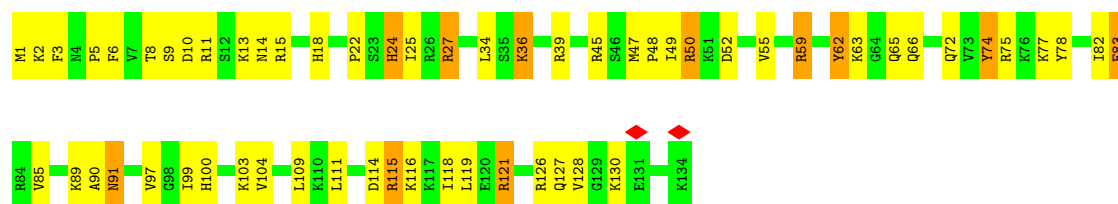




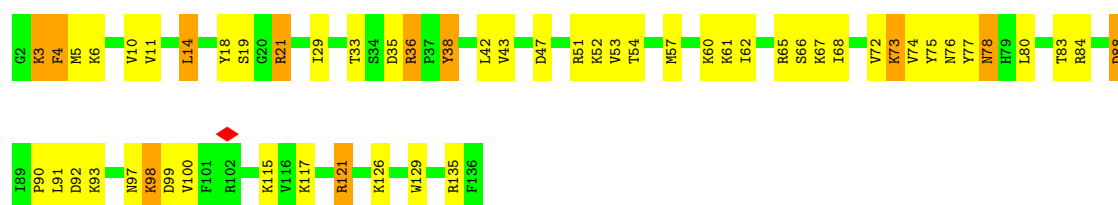
• Molecule 31: Ribosomal protein uL23



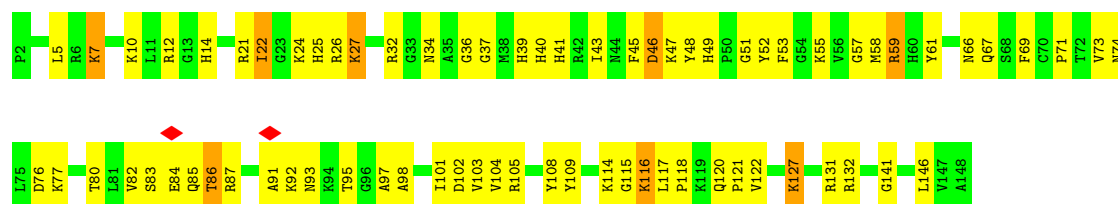
• Molecule 32: Ribosomal protein uL24



• Molecule 33: 60S ribosomal protein L27

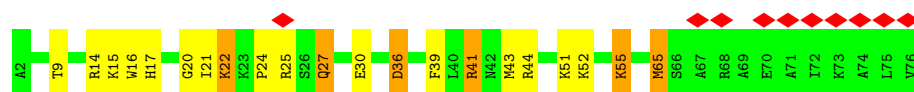


• Molecule 34: Ribosomal protein uL15



• Molecule 35: 60S ribosomal protein L29

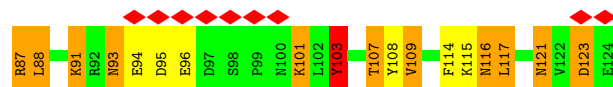
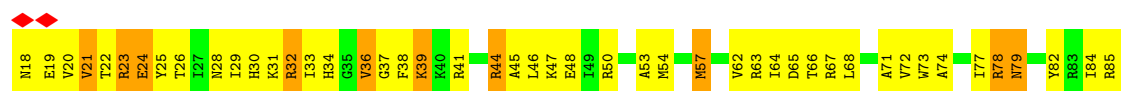




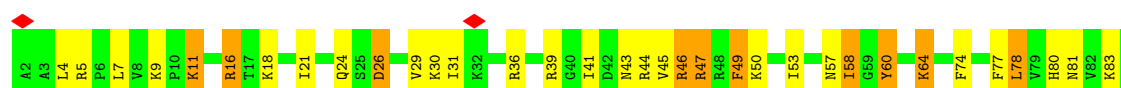
- Molecule 36: Ribosomal protein eL30



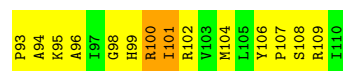
- Molecule 37: Ribosomal protein eL31



- Molecule 38: Ribosomal protein eL32

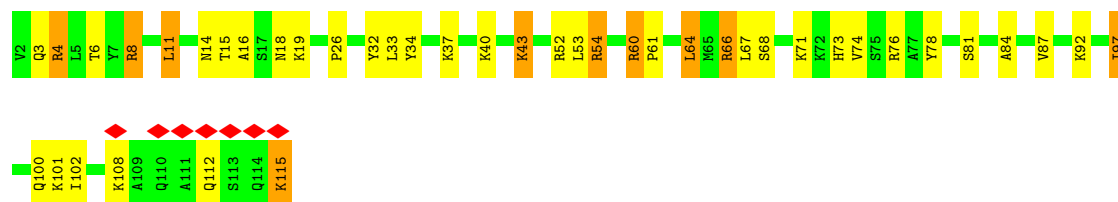


- Molecule 39: Ribosomal protein eL33



- Molecule 40: Ribosomal protein eL34

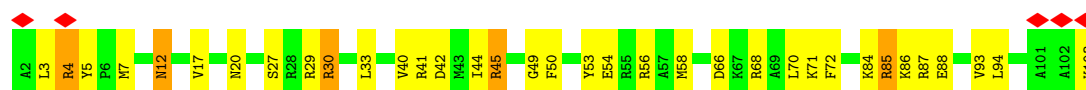




• Molecule 41: Ribosomal protein uL29



• Molecule 42: Ribosomal protein eL36



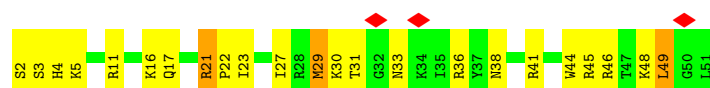
• Molecule 43: Ribosomal protein L37



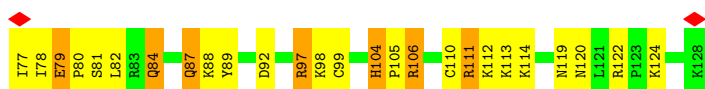
• Molecule 44: Ribosomal protein eL38



• Molecule 45: Ribosomal protein eL39



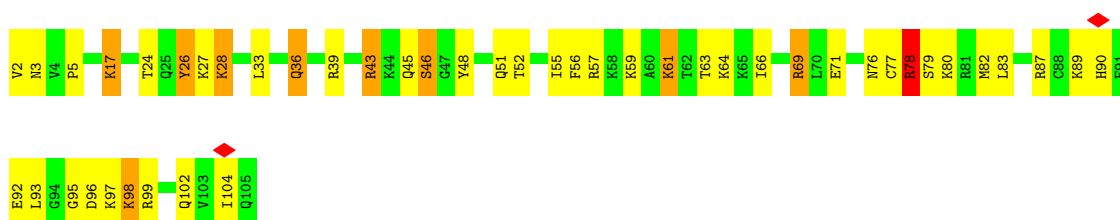
• Molecule 46: Ribosomal protein eL40



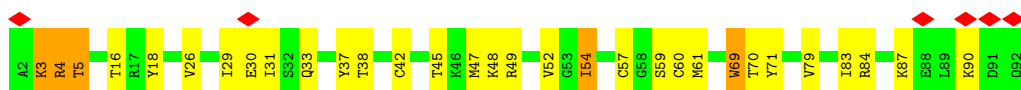
• Molecule 47: Ribosomal protein eL41



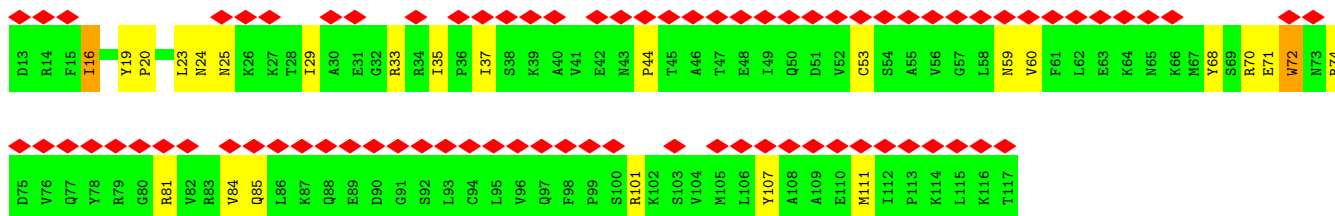
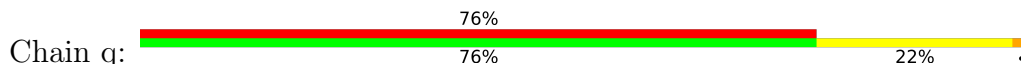
• Molecule 48: Ribosomal protein eL42



• Molecule 49: Ribosomal protein eL43

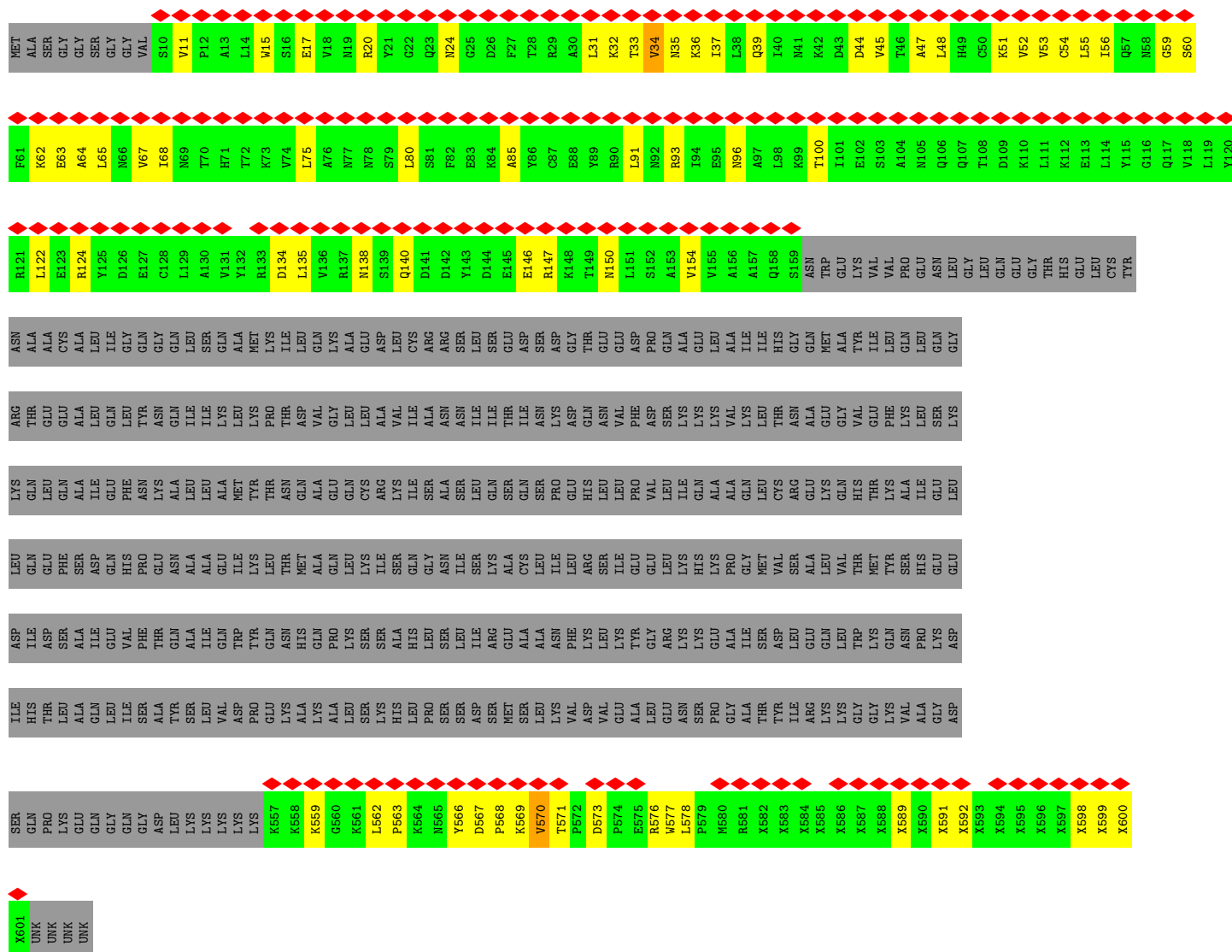


• Molecule 50: Signal recognition particle subunit SRP19

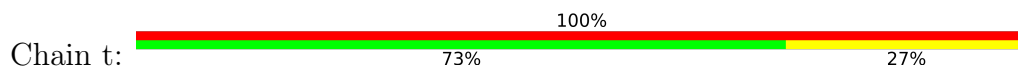


• Molecule 51: Signal recognition particle subunit SRP72,Signal recognition particle subunit SRP72,Signal recognition particle subunit SRP72

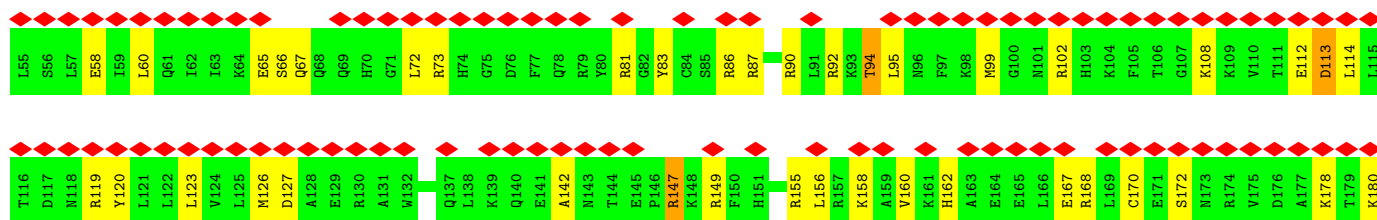


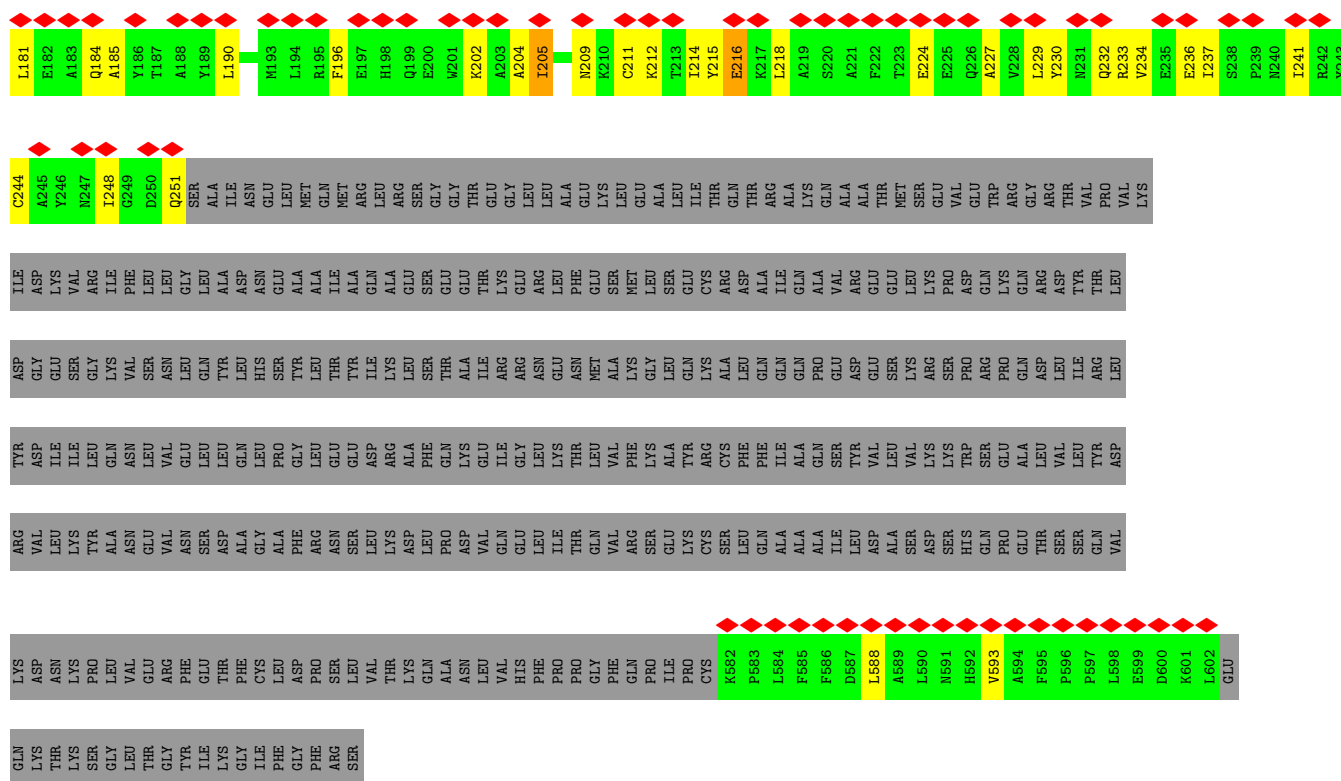


- Molecule 52: Signal sequence

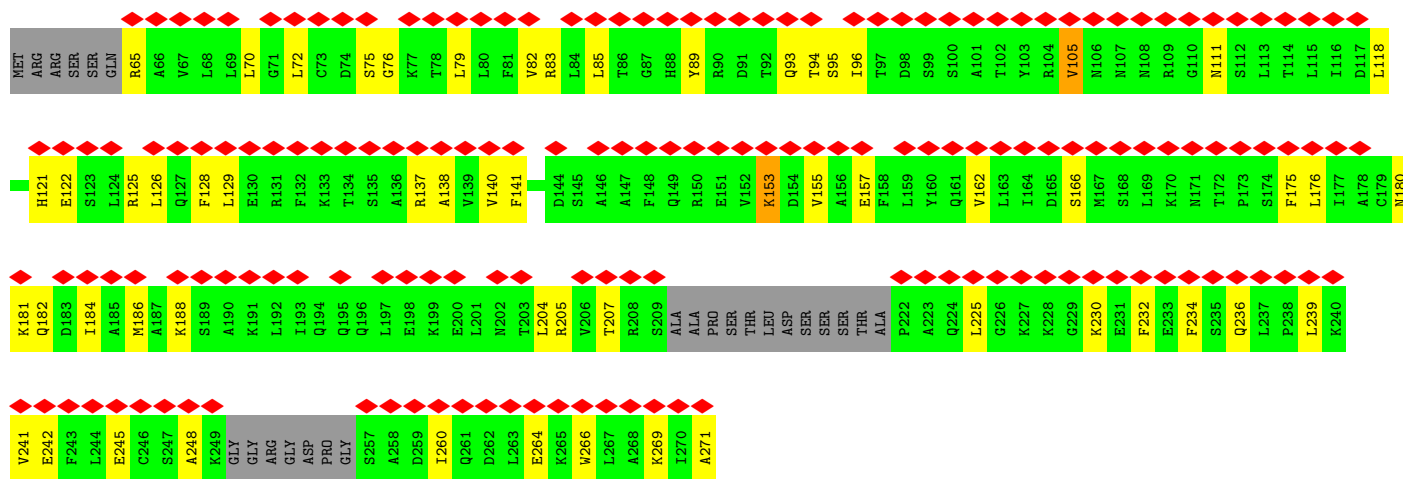
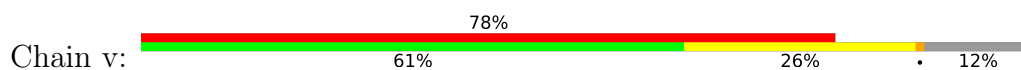


- Molecule 53: Signal recognition particle subunit SRP68

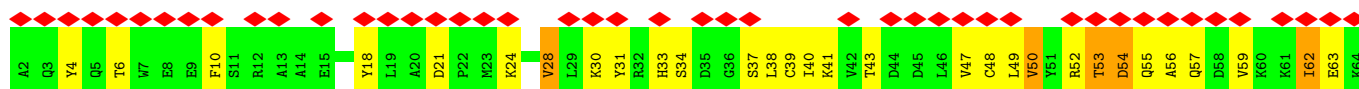


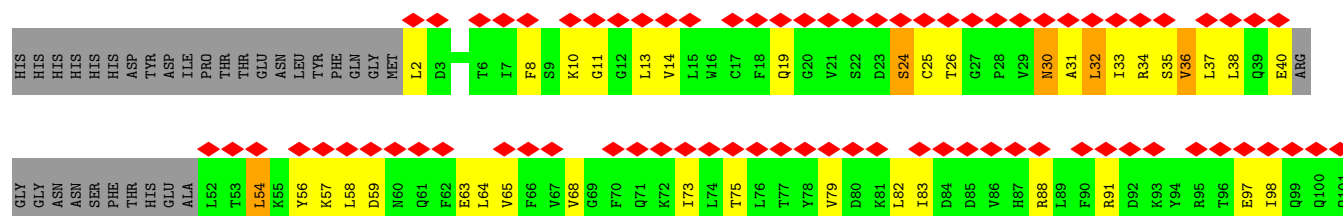
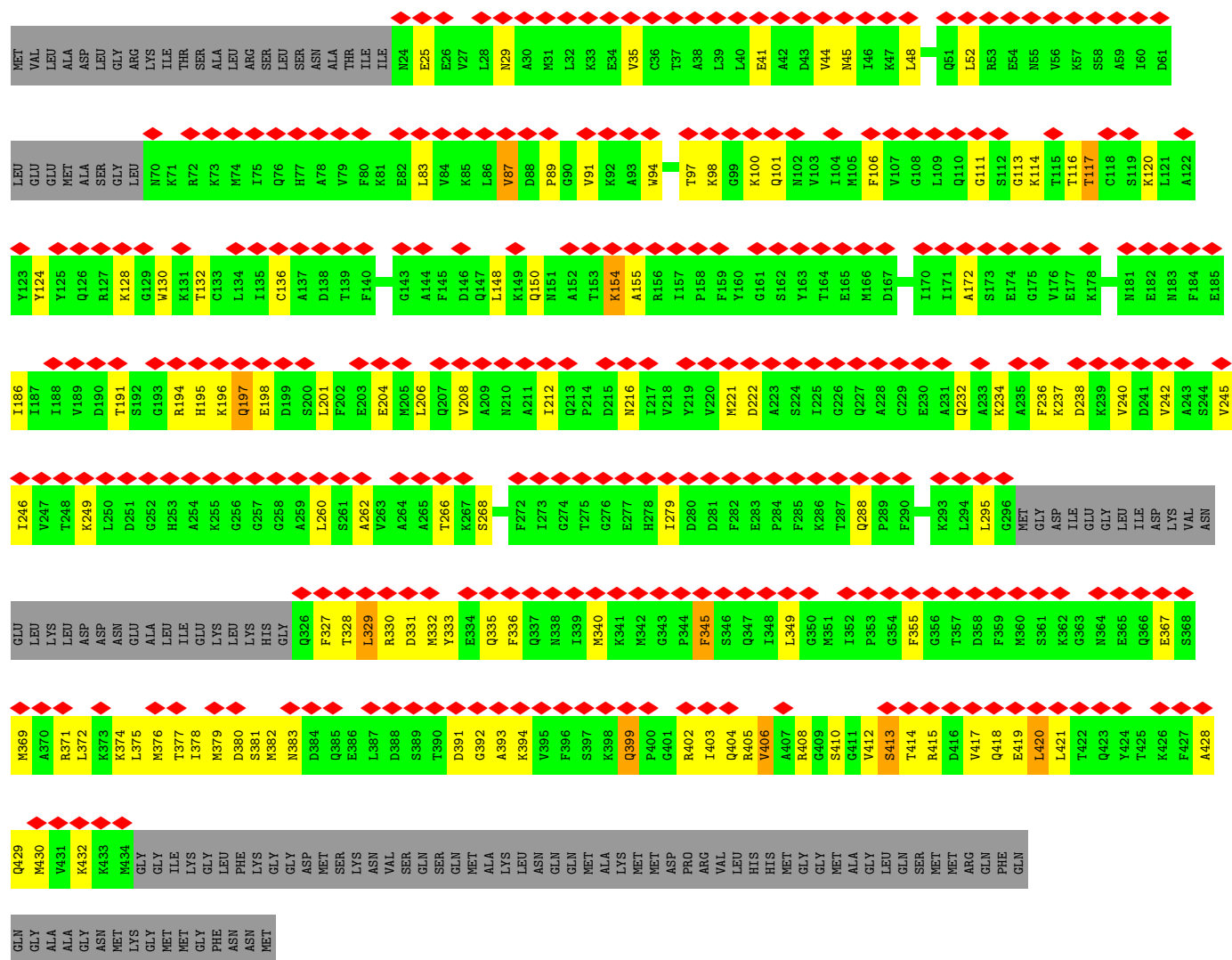


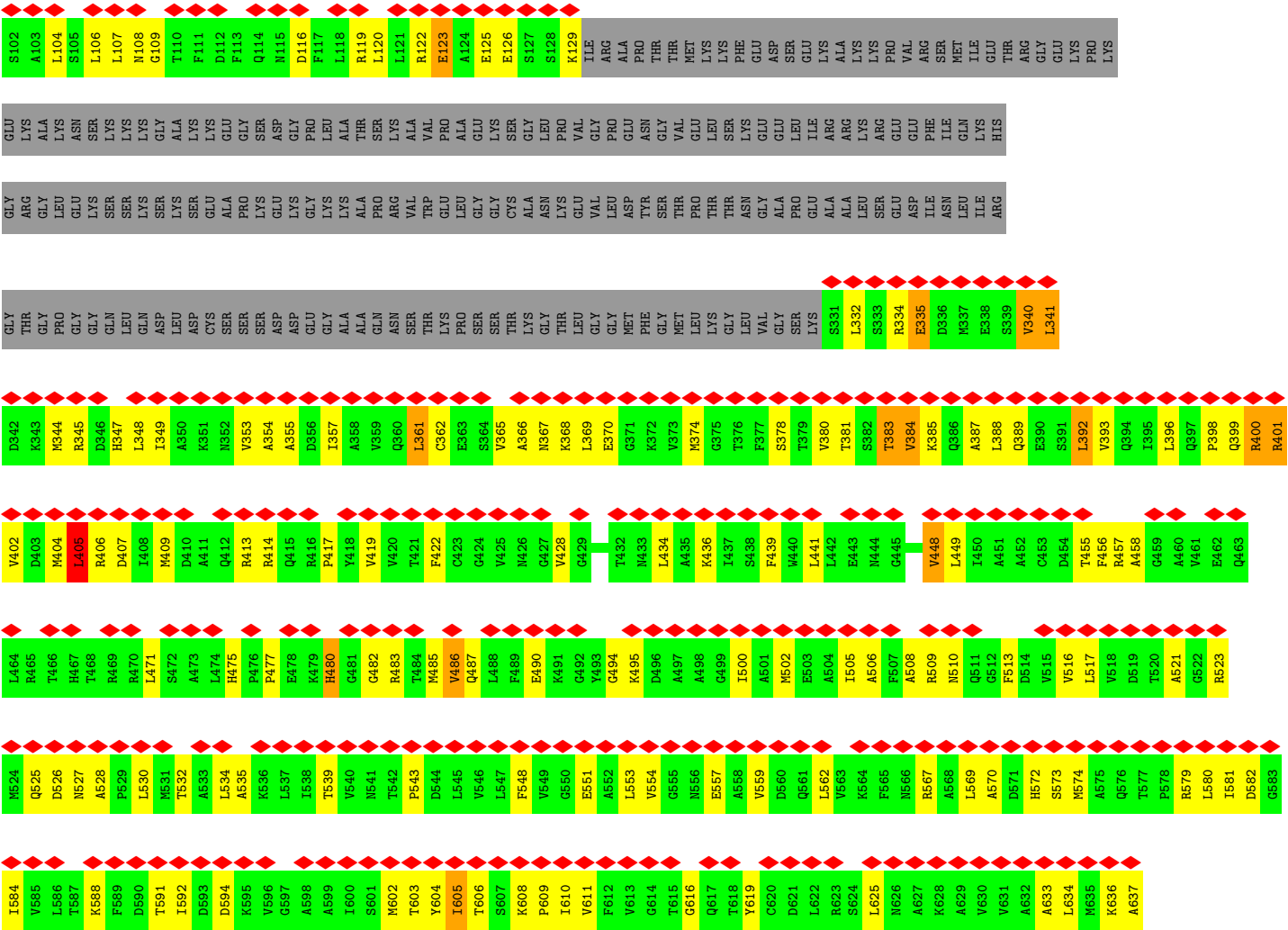
• Molecule 54: SRP receptor beta subunit



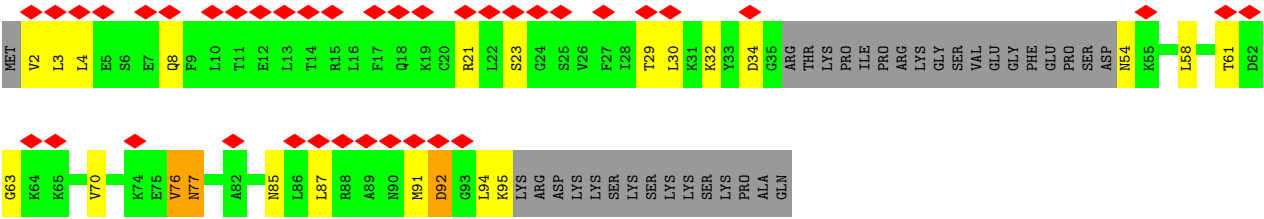
• Molecule 55: Signal recognition particle 9 kDa protein







● Molecule 58: Signal recognition particle 14 kDa protein



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	45800	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	40	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	59000	Depositor
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.504	Depositor
Minimum map value	-0.309	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.028	Depositor
Recommended contour level	0.064	Depositor
Map size (Å)	444.8, 444.8, 444.8	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.39, 1.39, 1.39	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	1	0.35	0/6188	0.53	1/9649 (0.0%)
2	2	0.20	0/1805	0.39	0/2809
3	3	0.36	0/1017	0.62	0/1365
4	4	0.41	0/1257	0.84	3/1697 (0.2%)
5	5	0.30	1/87705 (0.0%)	0.54	9/136813 (0.0%)
6	6	0.21	0/1580	0.50	0/2133
7	7	0.25	0/2858	0.41	0/4455
8	8	0.30	0/3701	0.53	0/5766
9	A	0.36	0/1906	0.63	0/2556
10	B	0.34	0/3214	0.62	2/4308 (0.0%)
11	C	0.35	0/2973	0.62	0/3990
12	D	0.31	0/2426	0.60	0/3252
13	E	0.35	0/1941	0.79	0/2601
14	F	0.34	0/1905	0.60	1/2539 (0.0%)
15	G	0.39	2/1944 (0.1%)	0.60	2/2618 (0.1%)
16	H	0.31	0/1537	0.64	6/2066 (0.3%)
17	I	0.31	0/1753	0.60	1/2343 (0.0%)
18	J	0.28	0/1382	0.53	0/1849
19	L	0.33	0/1734	0.64	0/2318
20	M	0.31	0/1152	0.56	0/1539
21	N	0.35	0/1746	0.65	1/2338 (0.0%)
22	O	0.33	0/1684	0.55	0/2251
23	P	0.34	0/1268	0.59	0/1701
24	Q	0.34	0/1530	0.58	0/2041
25	R	0.30	0/1524	0.56	0/2013
26	S	0.36	0/1493	0.60	0/2002
27	T	0.33	0/1326	0.59	1/1770 (0.1%)
28	U	0.23	0/822	0.53	0/1103
29	V	0.94	1/993 (0.1%)	0.55	0/1332
30	W	0.32	0/541	0.57	0/720
31	X	0.29	0/993	0.52	0/1334
32	Y	0.34	0/1132	0.58	0/1504

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	Z	0.30	0/1130	0.57	0/1507
34	a	0.36	0/1192	0.64	0/1591
35	b	0.31	0/620	0.60	0/819
36	c	0.31	0/742	0.65	0/996
37	d	0.37	0/903	0.62	0/1216
38	e	0.36	0/1071	0.60	0/1429
39	f	0.37	0/895	0.70	0/1198
40	g	0.34	0/916	0.59	0/1220
41	h	0.34	0/1023	0.54	0/1350
42	i	0.29	0/843	0.54	0/1115
43	j	0.38	0/721	0.74	1/953 (0.1%)
44	k	0.30	0/575	0.63	2/761 (0.3%)
45	l	0.31	0/454	0.55	0/599
46	m	0.30	0/435	0.56	0/575
47	n	0.40	0/223	0.57	0/284
48	o	0.28	0/864	0.63	0/1140
49	p	0.33	0/718	0.62	0/953
50	q	0.51	0/858	0.57	0/1156
51	r	0.42	0/1442	0.57	0/1947
52	t	0.44	0/87	0.50	0/118
53	u	0.34	0/1853	0.48	0/2485
54	v	0.45	0/1504	0.54	0/2020
55	w	0.21	0/617	0.53	0/829
56	x	0.43	0/2959	0.52	0/3971
57	y	0.44	0/3344	0.55	0/4514
58	z	0.18	0/608	0.35	0/808
All	All	0.33	4/171627 (0.0%)	0.56	30/252329 (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
1	1	1	0
3	3	0	1
4	4	0	10
6	6	0	6
9	A	0	2
10	B	0	2
11	C	0	1
12	D	0	4

Continued on next page...

Continued from previous page...

Mol	Chain	#Chirality outliers	#Planarity outliers
13	E	0	14
16	H	0	2
17	I	0	2
19	L	0	1
20	M	0	1
22	O	0	1
26	S	0	3
39	f	0	2
48	o	0	1
All	All	1	53

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
29	V	10	SER	C-N	27.95	1.47	1.33
15	G	133	PRO	CA-C	9.47	1.58	1.52
15	G	77	PRO	CA-C	6.40	1.56	1.52
5	5	4941	G	P-O5'	5.65	1.68	1.59

All (30) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
15	G	133	PRO	O-C-N	9.40	125.57	121.15
4	4	94	LYS	CA-C-N	7.26	135.41	121.54
4	4	94	LYS	C-N-CA	7.26	135.41	121.54
21	N	192	TRP	CA-CB-CG	7.14	127.17	113.60
17	I	110	ARG	N-CA-C	-6.57	107.13	114.62
15	G	77	PRO	O-C-N	6.51	124.21	121.15
16	H	50	LYS	CA-C-N	6.40	133.76	121.54
16	H	50	LYS	C-N-CA	6.40	133.76	121.54
43	j	49	TRP	CA-CB-CG	5.82	124.65	113.60
5	5	1358	G	C4'-C3'-O3'	5.65	121.47	113.00
4	4	102	GLY	N-CA-C	5.59	126.42	113.18
5	5	957	G	P-O3'-C3'	5.54	128.50	120.20
5	5	48	G	P-O3'-C3'	5.49	128.44	120.20
10	B	263	ALA	CA-C-N	5.48	127.88	120.38
10	B	263	ALA	C-N-CA	5.48	127.88	120.38
27	T	30	TYR	CA-CB-CG	5.41	123.64	113.90
5	5	2046	G	P-O3'-C3'	5.40	128.30	120.20
5	5	5061	A	P-O3'-C3'	5.35	128.22	120.20
5	5	3876	A	C4'-C3'-O3'	5.34	117.41	109.40
44	k	29	LYS	CA-C-N	5.27	131.61	121.54

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
44	k	29	LYS	C-N-CA	5.27	131.61	121.54
16	H	58	ASP	CA-C-N	-5.21	111.60	121.54
16	H	58	ASP	C-N-CA	-5.21	111.60	121.54
5	5	956	A	P-O3'-C3'	5.15	127.92	120.20
14	F	196	ILE	N-CA-C	-5.05	107.91	112.96
5	5	1329	G	C4'-C3'-O3'	5.04	120.57	113.00
16	H	51	LYS	CA-C-N	5.03	131.16	121.54
16	H	51	LYS	C-N-CA	5.03	131.16	121.54
5	5	931	C	C2'-C3'-O3'	5.02	117.03	109.50
1	1	118	A	O4'-C1'-N9	5.01	116.01	108.50

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
1	1	118	A	C1'

All (53) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	3	76	SER	Peptide
4	4	122	ALA	Peptide
4	4	123	ARG	Peptide
4	4	141	CYS	Peptide
4	4	154	ASP	Peptide
4	4	87	GLU	Peptide
4	4	88	PRO	Peptide
4	4	89	PRO	Peptide
4	4	94	LYS	Peptide
4	4	95	GLN	Peptide
4	4	97	ASN	Peptide
6	6	108	PRO	Peptide
6	6	110	ALA	Peptide
6	6	116	ILE	Peptide
6	6	117	ALA	Peptide
6	6	132	PRO	Peptide
6	6	202	GLU	Peptide
9	A	18	ALA	Peptide
9	A	196	TRP	Peptide
10	B	16	PHE	Peptide
10	B	17	LEU	Peptide
11	C	264	TYR	Peptide
12	D	124	GLU	Peptide

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Mol	Chain	Res	Type	Group
12	D	218	ALA	Peptide
12	D	282	GLN	Peptide
12	D	30	TYR	Peptide
13	E	102	VAL	Peptide
13	E	104	LYS	Peptide
13	E	122	LEU	Peptide
13	E	152	ARG	Peptide
13	E	172	THR	Peptide
13	E	182	LEU	Peptide
13	E	202	VAL	Peptide
13	E	216	LYS	Peptide
13	E	220	LYS	Peptide
13	E	230	ASP	Peptide
13	E	233	LYS	Peptide
13	E	41	SER	Peptide
13	E	58	MET	Peptide
13	E	90	LYS	Peptide
16	H	51	LYS	Peptide
16	H	59	LYS	Peptide
17	I	75	TYR	Peptide
17	I	76	MET	Peptide
19	L	168	VAL	Peptide
20	M	94	LYS	Peptide
22	O	110	PRO	Peptide
26	S	145	PHE	Peptide
26	S	163	HIS	Peptide
26	S	164	LYS	Peptide
39	f	53	ALA	Peptide
39	f	69	VAL	Peptide
48	o	98	LYS	Peptide

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	1	5534	0	2797	147	0
2	2	1616	0	823	17	0
3	3	1001	0	1062	50	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	4	1238	0	1295	60	0
5	5	78406	0	39615	1785	0
6	6	1556	0	1612	53	0
7	7	2558	0	1296	44	0
8	8	3314	0	1683	90	0
9	A	1868	0	1959	98	0
10	B	3147	0	3280	143	0
11	C	2919	0	3100	170	0
12	D	2380	0	2412	129	0
13	E	1904	0	2055	130	0
14	F	1870	0	1996	88	0
15	G	1912	0	2059	66	0
16	H	1518	0	1601	52	0
17	I	1713	0	1752	66	0
18	J	1359	0	1390	42	0
19	L	1703	0	1818	77	0
20	M	1131	0	1209	46	0
21	N	1701	0	1749	81	0
22	O	1651	0	1786	53	0
23	P	1242	0	1269	41	0
24	Q	1506	0	1623	70	0
25	R	1508	0	1664	80	0
26	S	1454	0	1496	75	0
27	T	1298	0	1366	65	0
28	U	808	0	831	26	0
29	V	979	0	1039	35	0
30	W	528	0	541	35	0
31	X	976	0	1053	30	0
32	Y	1115	0	1205	56	0
33	Z	1107	0	1182	39	0
34	a	1163	0	1211	72	0
35	b	610	0	650	17	0
36	c	732	0	769	35	0
37	d	888	0	930	60	0
38	e	1053	0	1147	56	0
39	f	876	0	912	48	0
40	g	906	0	1002	38	0
41	h	1015	0	1150	52	0
42	i	832	0	917	34	0
43	j	706	0	741	33	0
44	k	569	0	637	22	0
45	l	444	0	483	16	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
46	m	429	0	465	29	0
47	n	222	0	264	5	0
48	o	851	0	923	26	0
49	p	708	0	760	24	0
50	q	844	0	861	19	0
51	r	1540	0	1540	48	0
52	t	88	0	120	6	0
53	u	1819	0	1831	78	0
54	v	1486	0	1532	54	0
55	w	607	0	617	27	0
56	x	2915	0	2963	86	0
57	y	3298	0	3372	135	0
58	z	604	0	642	16	0
59	5	119	0	0	0	0
59	7	5	0	0	0	0
59	8	4	0	0	0	0
59	P	1	0	0	0	0
59	V	1	0	0	0	0
59	v	1	0	0	0	0
59	x	1	0	0	0	0
59	y	1	0	0	0	0
60	j	1	0	0	0	0
60	m	1	0	0	0	0
60	o	1	0	0	0	0
61	v	32	0	12	0	0
62	x	32	0	13	1	0
62	y	32	0	13	1	0
All	All	159957	0	118095	4254	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 16.

All (4254) 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)
5:5:4878:C:OP1	20:M:101:LYS:NZ	1.85	1.09
5:5:1358:G:H5''	11:C:114:ARG:HH12	1.14	1.08
5:5:375:G:OP2	43:j:52:LYS:NZ	1.85	1.07
6:6:47:LEU:HD22	6:6:99:ARG:HH12	1.21	1.04
8:8:153:C:OP1	15:G:185:LYS:NZ	1.93	1.01
23:P:30:ARG:HH12	23:P:62:ARG:HH21	1.04	1.01

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:105:A:O2'	19:L:35:ARG:NH1	1.94	1.00
5:5:134:G:O6	41:h:70:ARG:NH1	1.93	1.00
33:Z:68:ILE:O	33:Z:115:LYS:NZ	1.94	0.99
42:i:85:ARG:HH11	42:i:85:ARG:HB2	1.23	0.98
5:5:2791:C:OP1	45:l:48:LYS:NZ	1.93	0.98
5:5:942:G:OP2	14:F:244:ARG:NH1	1.98	0.97
5:5:1554:A:OP2	49:p:4:ARG:NH1	1.97	0.96
56:x:333:TYR:HE1	56:x:375:LEU:HB3	1.31	0.94
5:5:4342:C:OP1	34:a:55:LYS:NZ	2.01	0.94
17:I:162:ARG:HH12	26:S:88:SER:HB3	1.32	0.93
43:j:12:ARG:HB3	43:j:12:ARG:HH11	1.33	0.93
26:S:15:ARG:HH21	27:T:141:VAL:HG22	1.33	0.93
5:5:1502:G:OP1	24:Q:65:ARG:NH1	2.00	0.93
5:5:957:G:N2	5:5:959:G:O6	2.01	0.93
32:Y:50:ARG:HB2	32:Y:115:ARG:HH12	1.31	0.93
5:5:1271:G:H3'	5:5:1272:C:H5'	1.48	0.92
5:5:2285:A:OP2	34:a:7:LYS:NZ	2.03	0.92
19:L:36:ARG:HB2	19:L:36:ARG:HH11	1.33	0.92
42:i:45:ARG:HH12	42:i:50:PHE:HD1	1.14	0.92
5:5:703:G:O6	5:5:706:C:N4	2.01	0.92
5:5:5038:A:OP1	30:W:61:LYS:NZ	2.03	0.92
5:5:921:C:OP1	20:M:69:ARG:NH1	2.02	0.92
13:E:181:PRO:HA	13:E:246:GLN:HE22	1.33	0.92
5:5:3605:C:OP2	25:R:71:ARG:NH1	2.03	0.91
5:5:1187:G:H21	5:5:1188:C:H41	1.19	0.91
16:H:113:GLU:HB3	16:H:115:ARG:HH12	1.36	0.91
1:1:118:A:O2'	53:u:90:ARG:HD2	1.71	0.90
23:P:30:ARG:NH1	23:P:62:ARG:HH21	1.68	0.90
5:5:966:A:H61	5:5:2252:G:H8	1.16	0.90
55:w:40:ILE:HD11	55:w:62:ILE:HG23	1.55	0.87
5:5:1355:G:OP1	24:Q:108:ARG:NH1	2.07	0.87
5:5:210:C:OP1	32:Y:59:ARG:NH1	2.07	0.86
5:5:1726:U:H3	5:5:1836:G:H1	1.23	0.86
5:5:973:G:N2	5:5:1282:G:O2'	2.09	0.86
5:5:1242:G:O6	5:5:1268:G:N2	2.09	0.86
5:5:4636:U:O4	37:d:78:ARG:NH1	2.09	0.86
1:1:227:G:O2'	53:u:102:ARG:NH1	2.08	0.86
1:1:114:C:O2	1:1:237:G:N2	2.09	0.85
19:L:65:ARG:HG2	34:a:66:ASN:HD22	1.40	0.85
5:5:1947:U:O2	5:5:4693:C:N4	2.08	0.85
46:m:106:ARG:HH11	46:m:106:ARG:HB2	1.42	0.85

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:A:35:ALA:HB1	9:A:41:ILE:HB	1.57	0.84
5:5:2525:U:P	5:5:2711:G:H1	2.00	0.84
5:5:1984:A:N6	5:5:2011:C:O2'	2.10	0.84
5:5:2079:G:OP2	38:e:64:LYS:NZ	2.11	0.84
5:5:1835:G:O2'	27:T:108:ARG:NH1	2.10	0.84
54:v:204:LEU:HG	57:y:406:ARG:NH1	1.93	0.84
5:5:1439:C:H5'	14:F:36:ARG:HH12	1.42	0.83
5:5:4085:A:H61	15:G:62:ARG:HH12	1.26	0.83
32:Y:27:ARG:HG3	32:Y:75:ARG:HH12	1.41	0.83
14:F:184:TYR:HB3	14:F:202:ARG:HG2	1.60	0.83
22:O:16:LEU:HD11	22:O:83:THR:HG21	1.59	0.83
1:1:116:C:N4	1:1:235:G:O6	2.11	0.83
1:1:117:U:H4'	53:u:119:ARG:NH2	1.94	0.83
57:y:125:GLU:O	57:y:129:LYS:NZ	2.12	0.82
5:5:2422:C:HO2'	5:5:3857:G:HO2'	1.26	0.82
5:5:1410:U:H3	35:b:52:LYS:HZ3	1.26	0.82
5:5:2710:C:OP1	25:R:39:GLN:NE2	2.12	0.82
5:5:3723:A:OP2	42:i:68:ARG:NH2	2.13	0.82
5:5:3625:G:H21	5:5:3627:G:H5'	1.44	0.82
51:r:135:LEU:HB3	51:r:147:ARG:HD3	1.61	0.82
8:8:57:C:H4'	8:8:63:U:H5	1.42	0.81
57:y:543:PRO:O	57:y:579:ARG:NH1	2.13	0.81
34:a:59:ARG:HB2	34:a:59:ARG:HH11	1.45	0.81
5:5:4622:A:H5'	10:B:12:GLY:HA2	1.62	0.81
5:5:1213:G:OP1	14:F:61:LYS:NZ	2.13	0.81
5:5:151:G:OP2	21:N:4:TYR:OH	1.99	0.81
5:5:713:C:H42	5:5:955:G:H1	1.24	0.81
5:5:2457:G:OP1	21:N:65:ARG:NH1	2.14	0.81
30:W:19:ARG:NH2	30:W:37:GLU:OE1	2.13	0.81
1:1:118:A:N6	1:1:233:U:O2	2.13	0.81
5:5:1408:G:O2'	5:5:1411:C:N4	2.14	0.81
4:4:94:LYS:HA	4:4:96:LYS:HB3	1.63	0.81
11:C:33:ARG:HH21	24:Q:22:ASP:HB3	1.46	0.81
12:D:95:TYR:HE1	12:D:161:GLY:HA3	1.46	0.81
5:5:940:C:H4'	26:S:8:ARG:HH22	1.46	0.80
4:4:106:PHE:HB2	4:4:110:VAL:HG23	1.62	0.80
5:5:417:G:O2'	8:8:16:G:N2	2.13	0.80
5:5:4088:C:N3	15:G:53:ARG:NH2	2.29	0.80
5:5:4949:G:H3'	5:5:4950:U:H5''	1.62	0.80
23:P:41:ILE:HD11	23:P:150:LEU:HD13	1.62	0.80
51:r:599:UNK:HB2	56:x:154:LYS:HE3	1.61	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:747:A:O2'	5:5:748:G:OP2	1.98	0.80
9:A:20:VAL:HG12	9:A:23:ARG:HD2	1.62	0.80
1:1:118:A:H2'	53:u:90:ARG:HB3	1.64	0.80
5:5:111:C:OP1	41:h:110:LYS:NZ	2.14	0.80
13:E:184:ARG:NH2	13:E:210:ASP:OD1	2.14	0.80
53:u:160:VAL:HG22	53:u:190:LEU:HB3	1.64	0.80
5:5:1073:G:N2	5:5:1239:C:N3	2.29	0.80
5:5:3860:A:H61	5:5:4560:C:H5	1.26	0.80
5:5:1217:G:HO2'	5:5:1218:G:H8	1.29	0.80
13:E:236:TYR:OH	13:E:242:ARG:NH2	2.15	0.80
5:5:2555:G:O6	5:5:2572:C:N4	2.15	0.79
46:m:106:ARG:HB2	46:m:106:ARG:NH1	1.97	0.79
5:5:126:C:N4	5:5:142:G:O6	2.16	0.79
5:5:1364:U:H3	5:5:1373:A:H61	1.28	0.79
13:E:224:GLN:HA	13:E:229:PHE:HB2	1.63	0.79
22:O:166:ILE:HA	22:O:169:ARG:HH12	1.48	0.79
5:5:746:A:H2'	5:5:915:A:H61	1.48	0.79
1:1:242:C:OP2	51:r:576:ARG:NH2	2.16	0.78
5:5:1699:A:OP2	14:F:179:ARG:NH2	2.17	0.78
5:5:2533:C:OP1	31:X:139:ARG:NH2	2.16	0.78
11:C:100:ARG:HH11	11:C:100:ARG:H	1.28	0.78
5:5:1077:C:O2	5:5:1234:G:N2	2.16	0.78
5:5:2515:G:OP1	40:g:37:LYS:NZ	2.14	0.78
1:1:104:C:H2'	1:1:105:G:H8	1.48	0.78
33:Z:90:PRO:HB2	33:Z:117:LYS:HZ2	1.48	0.78
10:B:66:LYS:NZ	29:V:12:ALA:O	2.16	0.78
5:5:969:C:O2'	5:5:970:G:N3	2.16	0.78
7:7:26:C:H5''	12:D:56:THR:HG21	1.65	0.78
23:P:30:ARG:NH1	23:P:62:ARG:HD2	1.98	0.78
56:x:327:PHE:HD2	56:x:428:ALA:HA	1.49	0.78
5:5:1899:G:O2'	38:e:57:ASN:ND2	2.14	0.77
36:c:53:PRO:HG2	36:c:56:ARG:HG3	1.66	0.77
41:h:89:ARG:HG2	41:h:89:ARG:HH11	1.48	0.77
42:i:45:ARG:HH22	42:i:50:PHE:HE1	1.32	0.77
5:5:1394:G:H5''	19:L:186:ARG:NH1	1.98	0.77
41:h:15:GLU:OE1	41:h:19:LYS:NZ	2.16	0.77
5:5:662:C:H2'	5:5:663:G:H8	1.49	0.77
5:5:1398:A:H61	5:5:1419:G:H2'	1.49	0.77
32:Y:82:ILE:HG22	32:Y:83:GLU:H	1.49	0.77
5:5:1266:G:N2	5:5:2111:G:N3	2.32	0.77
5:5:102:G:O2'	5:5:1381:U:O2'	1.98	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:4633:G:O2'	5:5:4635:A:OP2	2.02	0.77
27:T:41:ASP:HB3	27:T:61:THR:HG22	1.67	0.77
5:5:1371:A:N6	8:8:28:C:O2'	2.18	0.77
5:5:2397:G:O6	40:g:4:ARG:NH2	2.17	0.77
5:5:4985:U:O2	10:B:174:ARG:NH1	2.17	0.77
30:W:53:VAL:HG13	30:W:56:ARG:HH12	1.49	0.77
5:5:1501:C:H2'	24:Q:68:ARG:HH12	1.50	0.77
12:D:72:ASP:OD1	12:D:72:ASP:N	2.16	0.77
12:D:196:ARG:HA	12:D:196:ARG:HH11	1.49	0.77
55:w:37:SER:HA	55:w:54:ASP:HB3	1.67	0.77
5:5:705:G:H1	5:5:1292:C:H42	1.30	0.76
18:J:15:LEU:HB3	18:J:165:TRP:CD1	2.20	0.76
5:5:1436:C:H5''	5:5:2119:C:H41	1.50	0.76
6:6:109:ALA:HB2	6:6:181:SER:HB2	1.67	0.76
42:i:85:ARG:HH11	42:i:85:ARG:CB	1.98	0.76
5:5:8:U:H5'	21:N:40:PRO:HG3	1.67	0.76
5:5:931:C:O2'	5:5:932:A:OP1	2.04	0.76
5:5:2326:G:OP1	38:e:108:ARG:NH2	2.18	0.76
13:E:153:HIS:HD2	13:E:183:ARG:NH1	1.82	0.76
5:5:3937:C:H1'	21:N:125:SER:HB3	1.66	0.76
5:5:4305:G:H22	27:T:87:LYS:HZ2	1.32	0.76
15:G:58:PRO:HD2	15:G:61:ILE:HD12	1.67	0.76
56:x:399:GLN:HG3	56:x:402:ARG:HE	1.51	0.76
5:5:960:A:N6	5:5:1283:G:O6	2.17	0.76
5:5:2658:G:H22	5:5:2675:G:H2'	1.46	0.76
5:5:2322:G:OP1	38:e:36:ARG:NH1	2.18	0.76
1:1:118:A:O2'	53:u:90:ARG:NH2	2.18	0.76
5:5:1338:G:H5'	11:C:102:PHE:HE2	1.51	0.76
5:5:4906:C:N4	5:5:4915:G:O6	2.19	0.76
40:g:11:LEU:HB3	40:g:18:ASN:HD21	1.50	0.76
5:5:1351:G:OP1	11:C:33:ARG:NH1	2.19	0.76
5:5:2580:U:H1'	33:Z:38:TYR:OH	1.86	0.76
54:v:162:VAL:O	54:v:166:SER:OG	2.00	0.76
5:5:2648:G:HO2'	5:5:2649:G:H8	1.34	0.75
34:a:91:ALA:H	34:a:120:GLN:HE22	1.34	0.75
5:5:293:G:H4'	5:5:294:G:C8	2.21	0.75
5:5:1280:C:N4	5:5:1282:G:O6	2.18	0.75
5:5:1358:G:C5'	11:C:114:ARG:HH12	1.98	0.75
5:5:1864:G:OP2	17:I:14:ASN:ND2	2.20	0.75
5:5:2092:G:N1	11:C:305:PRO:O	2.19	0.75
11:C:305:PRO:HG3	24:Q:38:ARG:HH12	1.51	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:d:115:LYS:O	37:d:116:ASN:ND2	2.14	0.75
4:4:86:LYS:HE2	4:4:139:VAL:HG11	1.68	0.75
5:5:194:C:O2'	32:Y:121:ARG:NH2	2.20	0.75
5:5:715:G:H1	5:5:953:C:H42	1.35	0.75
5:5:976:G:H2'	5:5:977:C:O4'	1.87	0.75
5:5:4096:C:O2'	40:g:112:GLN:NE2	2.17	0.75
5:5:977:C:H2'	5:5:978:G:H8	1.48	0.75
6:6:50:LYS:NZ	6:6:93:GLU:OE2	2.18	0.75
10:B:80:GLU:OE1	10:B:323:TYR:OH	2.04	0.75
33:Z:97:ASN:ND2	33:Z:99:ASP:OD1	2.20	0.75
54:v:65:ARG:HB2	54:v:137:ARG:HB2	1.69	0.75
18:J:35:ARG:NH1	18:J:126:TYR:OH	2.19	0.75
1:1:138:G:H4'	1:1:188:G:H4'	1.66	0.75
5:5:738:C:H2'	5:5:739:G:C8	2.22	0.75
5:5:1215:C:H2'	5:5:1216:C:H5'	1.68	0.75
5:5:4085:A:H61	15:G:62:ARG:NH1	1.84	0.75
5:5:4525:C:OP1	10:B:246:ARG:NH2	2.20	0.75
10:B:46:PHE:HD1	10:B:47:LEU:H	1.31	0.75
16:H:93:ARG:HH11	46:m:82:LEU:HD21	1.50	0.75
31:X:135:LYS:HD2	31:X:137:TYR:HE1	1.52	0.75
39:f:36:ARG:HG2	39:f:36:ARG:HH11	1.52	0.75
5:5:2583:C:OP2	40:g:76:ARG:NH1	2.20	0.74
33:Z:90:PRO:HB2	33:Z:117:LYS:NZ	2.02	0.74
1:1:194:G:O2'	56:x:410:SER:O	2.03	0.74
9:A:180:LEU:HD22	49:p:26:VAL:HG21	1.67	0.74
12:D:62:CYS:HB3	12:D:105:LEU:HD22	1.67	0.74
29:V:123:LYS:NZ	29:V:123:LYS:HB2	2.02	0.74
5:5:944:A:H5''	14:F:149:LEU:HD23	1.70	0.74
5:5:106:A:H1'	5:5:336:A:C8	2.22	0.74
5:5:1359:G:H2'	5:5:1360:G:C8	2.22	0.74
12:D:119:TYR:OH	12:D:139:PRO:O	2.05	0.74
37:d:32:ARG:HG2	37:d:48:GLU:HG2	1.69	0.74
56:x:333:TYR:CE1	56:x:375:LEU:HB3	2.22	0.74
5:5:159:C:O2	19:L:88:LYS:NZ	2.21	0.73
5:5:977:C:H2'	5:5:978:G:C8	2.23	0.73
25:R:11:ALA:HB1	25:R:50:ILE:HD13	1.70	0.73
26:S:29:ARG:NH2	27:T:147:GLU:OE1	2.22	0.73
5:5:1394:G:H5''	19:L:186:ARG:HH12	1.51	0.73
5:5:2524:U:H5''	5:5:2711:G:C2	2.22	0.73
6:6:47:LEU:HD13	6:6:99:ARG:HH22	1.53	0.73
32:Y:50:ARG:CB	32:Y:115:ARG:HH12	2.01	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:j:12:ARG:HB3	43:j:12:ARG:NH1	2.02	0.73
13:E:268:ARG:HB3	13:E:268:ARG:HH11	1.52	0.73
41:h:89:ARG:HG2	41:h:89:ARG:NH1	2.02	0.73
5:5:1866:U:OP1	17:I:100:ASN:ND2	2.20	0.73
11:C:143:ARG:HH21	11:C:145:GLU:HG3	1.51	0.73
5:5:1368:A:O2'	5:5:1369:C:O4'	2.05	0.73
5:5:1961:G:O2'	5:5:2025:A:N6	2.21	0.73
5:5:2066:C:OP1	39:f:36:ARG:NH2	2.22	0.73
22:O:44:SER:HB3	22:O:129:LEU:HD11	1.70	0.73
5:5:4208:U:O2'	5:5:4274:A:N3	2.21	0.73
5:5:4472:G:H2'	5:5:4473:A:H5''	1.71	0.73
22:O:26:GLN:OE1	22:O:31:ARG:NH1	2.21	0.73
54:v:126:LEU:HD23	54:v:129:LEU:HD23	1.71	0.73
5:5:2468:U:H2'	5:5:2506:G:H1	1.54	0.72
5:5:4730:C:O5'	5:5:4731:G:N2	2.22	0.72
56:x:329:LEU:HB2	56:x:393:ALA:HB2	1.70	0.72
5:5:1212:G:H2'	5:5:1213:G:H8	1.54	0.72
5:5:1317:U:OP1	34:a:21:ARG:NH1	2.23	0.72
11:C:80:ARG:HB2	11:C:80:ARG:HH11	1.53	0.72
5:5:931:C:O2'	5:5:932:A:O4'	2.04	0.72
5:5:1696:C:O2'	5:5:1697:G:OP2	2.07	0.72
5:5:2261:G:H2'	5:5:2262:G:C8	2.24	0.72
16:H:93:ARG:HH12	46:m:82:LEU:HD11	1.54	0.72
22:O:98:ALA:HA	22:O:101:ARG:NH1	2.04	0.72
33:Z:88:ASP:OD1	33:Z:88:ASP:N	2.22	0.72
5:5:1410:U:H3	35:b:52:LYS:NZ	1.87	0.72
5:5:2113:G:C8	5:5:2115:G:H1'	2.24	0.72
5:5:2614:C:O2'	5:5:2808:G:OP1	2.07	0.72
8:8:57:C:H4'	8:8:63:U:C5	2.23	0.72
11:C:86:ARG:HA	11:C:89:GLN:HG3	1.68	0.72
19:L:146:LEU:HB2	19:L:148:THR:HG22	1.72	0.72
30:W:25:ASP:OD2	30:W:27:LYS:NZ	2.19	0.72
5:5:328:A:OP2	42:i:30:ARG:NH1	2.23	0.72
5:5:2630:U:O4	28:U:89:LYS:NZ	2.21	0.72
5:5:4951:G:O2'	5:5:4952:G:OP1	2.07	0.72
5:5:975:C:OP1	14:F:49:ARG:NH1	2.23	0.72
9:A:27:ALA:O	9:A:128:ARG:NH2	2.23	0.72
53:u:94:THR:HG22	53:u:95:LEU:HD22	1.72	0.72
39:f:36:ARG:HG2	39:f:36:ARG:NH1	2.03	0.72
10:B:302:ASN:HB2	10:B:313:SER:HA	1.71	0.72
5:5:744:G:H1	5:5:920:C:H42	1.38	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:u:73:ARG:HH22	57:y:567:ARG:HA	1.54	0.71
57:y:59:ASP:HB3	57:y:64:LEU:HB2	1.72	0.71
8:8:87:G:N2	32:Y:114:ASP:OD2	2.23	0.71
5:5:1433:A:N6	5:5:1451:G:O2'	2.24	0.71
5:5:2248:C:OP1	14:F:26:ASN:N	2.23	0.71
10:B:154:LYS:HB2	10:B:154:LYS:NZ	2.05	0.71
13:E:89:THR:HG22	13:E:90:LYS:HG3	1.73	0.71
13:E:157:ARG:HH22	13:E:271:PHE:HB2	1.56	0.71
19:L:14:PHE:HE1	21:N:198:LEU:HD11	1.54	0.71
5:5:2706:G:O2'	5:5:2709:C:N4	2.23	0.71
5:5:4078:C:O2'	5:5:4172:A:N6	2.24	0.71
5:5:1780:A:N3	17:I:198:LYS:NZ	2.38	0.71
6:6:6:ARG:HG2	6:6:10:LYS:HE3	1.72	0.71
10:B:83:PRO:O	10:B:167:GLN:NE2	2.24	0.71
23:P:30:ARG:NH2	23:P:34:GLN:OE1	2.19	0.71
33:Z:54:THR:OG1	33:Z:57:MET:SD	2.49	0.71
5:5:1079:C:H42	5:5:1221:G:H1	1.37	0.71
5:5:4325:A:H1'	12:D:36:LEU:HD23	1.73	0.71
19:L:128:PRO:HB2	19:L:133:ALA:HB3	1.73	0.71
30:W:50:ASN:N	30:W:50:ASN:OD1	2.24	0.71
57:y:523:ARG:NH1	57:y:534:LEU:HB2	2.05	0.71
57:y:570:ALA:HB2	57:y:580:LEU:HD21	1.73	0.71
6:6:62:ARG:HE	6:6:65:ILE:HB	1.55	0.71
11:C:222:ARG:HH21	32:Y:3:PHE:HE2	1.37	0.71
56:x:97:THR:HB	56:x:100:LYS:HG2	1.72	0.71
40:g:60:ARG:HG3	40:g:61:PRO:HD2	1.72	0.71
11:C:200:ARG:HH12	32:Y:11:ARG:NH2	1.89	0.70
54:v:85:LEU:HB3	57:y:104:LEU:HD21	1.71	0.70
5:5:695:G:OP2	13:E:219:ARG:NH2	2.23	0.70
7:7:40:U:O2	18:J:75:ARG:NH1	2.23	0.70
26:S:29:ARG:HH12	27:T:150:LEU:HB2	1.54	0.70
26:S:95:ARG:HB3	26:S:95:ARG:HH11	1.56	0.70
54:v:204:LEU:HG	57:y:406:ARG:HH12	1.56	0.70
25:R:104:ARG:HA	25:R:107:ARG:NH1	2.06	0.70
5:5:292:G:O2'	5:5:293:G:O5'	2.08	0.70
8:8:62:A:OP2	41:h:51:ARG:NH2	2.25	0.70
51:r:68:ILE:HG12	51:r:80:LEU:HD12	1.72	0.70
53:u:114:LEU:HD23	53:u:120:TYR:HE2	1.57	0.70
57:y:19:GLN:HG2	57:y:26:THR:H	1.57	0.70
1:1:226:U:OP2	53:u:92:ARG:NH1	2.25	0.70
5:5:738:C:H2'	5:5:739:G:H8	1.56	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:1399:G:H22	5:5:1419:G:H1'	1.56	0.70
5:5:2464:C:HO2'	5:5:2465:C:H6	1.40	0.70
4:4:28:LEU:C	4:4:30:PRO:HD2	2.17	0.70
57:y:344:MET:HE1	57:y:637:ALA:HB3	1.74	0.70
5:5:4945:G:H21	39:f:69:VAL:HG22	1.57	0.69
10:B:285:TYR:HD1	10:B:363:ILE:HG21	1.57	0.69
13:E:175:LEU:HB2	13:E:246:GLN:HE21	1.56	0.69
14:F:95:ILE:HG21	14:F:249:MET:HE1	1.72	0.69
5:5:4223:C:H4'	17:I:119:PHE:CE2	2.26	0.69
12:D:160:PHE:CZ	12:D:179:ARG:HB2	2.28	0.69
26:S:29:ARG:HH12	27:T:150:LEU:CB	2.05	0.69
56:x:377:THR:HB	56:x:410:SER:HB2	1.73	0.69
5:5:185:C:O2'	5:5:188:G:OP2	2.11	0.69
5:5:2703:G:OP1	28:U:113:ARG:NH1	2.24	0.69
8:8:21:C:OP1	11:C:195:LYS:NZ	2.23	0.69
37:d:65:ASP:OD1	37:d:66:THR:N	2.24	0.69
18:J:146:ARG:HD3	18:J:147:ARG:NH1	2.07	0.69
1:1:59:A:OP1	55:w:52:ARG:NH2	2.25	0.69
5:5:277:G:O2'	42:i:30:ARG:NH2	2.25	0.69
5:5:2601:A:N6	5:5:2744:A:OP2	2.26	0.69
8:8:103:A:H3'	8:8:104:A:H5'	1.75	0.69
19:L:36:ARG:HB2	19:L:36:ARG:NH1	2.05	0.69
24:Q:15:ARG:HH22	24:Q:54:SER:HB3	1.58	0.69
33:Z:11:VAL:HG11	33:Z:80:LEU:HD13	1.75	0.69
1:1:109:G:N2	1:1:245:G:H1	1.90	0.69
1:1:234:A:H4'	1:1:235:G:OP1	1.91	0.69
8:8:83:C:O2	32:Y:50:ARG:NH2	2.26	0.69
10:B:254:ILE:HG23	10:B:266:VAL:HG11	1.75	0.69
23:P:30:ARG:HH12	23:P:62:ARG:HD2	1.56	0.69
1:1:116:C:N3	1:1:235:G:N1	2.40	0.69
5:5:1279:A:H2'	5:5:1280:C:C6	2.28	0.69
5:5:1368:A:O2'	5:5:1369:C:O5'	2.09	0.69
5:5:1501:C:O2'	24:Q:64:SER:OG	2.11	0.69
5:5:2457:G:H21	5:5:3672:G:H21	1.39	0.69
5:5:2485:U:H2'	5:5:2486:G:H8	1.58	0.69
5:5:3615:G:O6	5:5:5005:G:H5''	1.92	0.69
10:B:10:ARG:HH12	10:B:265:SER:HB2	1.58	0.69
11:C:325:MET:HE1	14:F:157:TYR:CZ	2.28	0.69
18:J:15:LEU:HB3	18:J:165:TRP:HD1	1.58	0.69
56:x:150:GLN:HB2	57:y:458:ALA:HB1	1.75	0.69
5:5:1867:A:OP1	17:I:13:LYS:NZ	2.26	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:2019:C:OP1	6:6:6:ARG:NH1	2.26	0.69
5:5:3726:A:N6	5:5:4359:U:O2'	2.23	0.69
5:5:4670:C:O2	29:V:15:ARG:NH2	2.26	0.69
10:B:302:ASN:HB3	10:B:314:ILE:HG13	1.75	0.69
38:e:98:GLU:OE1	38:e:123:THR:OG1	2.11	0.69
5:5:1378:C:H3'	5:5:1379:C:H5'	1.75	0.69
5:5:3686:G:P	9:A:193:ARG:HH12	2.16	0.68
6:6:50:LYS:HG2	6:6:99:ARG:HD2	1.75	0.68
32:Y:74:TYR:O	32:Y:78:TYR:N	2.26	0.68
37:d:87:ARG:NH1	37:d:87:ARG:HB2	2.08	0.68
5:5:728:U:H5''	14:F:78:ARG:HD3	1.75	0.68
3:3:11:ARG:CZ	5:5:2269:C:H5	2.06	0.68
4:4:81:ILE:O	4:4:85:LEU:N	2.26	0.68
5:5:1755:C:H3'	5:5:1756:U:H5''	1.75	0.68
10:B:117:ARG:HH21	10:B:177:LYS:HB3	1.59	0.68
5:5:1280:C:O2	11:C:323:ARG:NH1	2.27	0.68
5:5:1983:A:C2	5:5:2010:A:H5''	2.29	0.68
5:5:1214:C:H4'	5:5:1215:C:H4'	1.75	0.68
45:l:3:SER:H	45:l:5:LYS:HZ3	1.40	0.68
5:5:935:A:O2'	5:5:937:U:OP2	2.10	0.68
13:E:157:ARG:HH12	13:E:271:PHE:HB2	1.58	0.68
20:M:90:ARG:NH1	20:M:90:ARG:HB3	2.08	0.68
51:r:45:VAL:HG13	51:r:75:LEU:HD23	1.76	0.68
57:y:30:ASN:OD1	57:y:30:ASN:N	2.27	0.68
57:y:368:LYS:HD3	57:y:387:ALA:HB1	1.75	0.68
4:4:141:CYS:O	4:4:148:PRO:HD3	1.94	0.68
5:5:276:C:O2'	5:5:277:G:O5'	2.12	0.68
5:5:1359:G:O6	5:5:1378:C:N4	2.27	0.68
5:5:2368:A:N6	5:5:2827:G:O2'	2.27	0.68
5:5:2668:G:H2'	5:5:2669:C:H5'	1.76	0.68
5:5:3683:C:O2	9:A:130:SER:OG	2.12	0.68
5:5:3688:U:OP2	9:A:198:ARG:NH1	2.24	0.68
5:5:4617:G:OP1	10:B:62:ARG:NH1	2.25	0.68
11:C:195:LYS:NZ	11:C:195:LYS:HB2	2.08	0.68
2:2:56:C:O2'	2:2:57:G:O4'	2.11	0.68
5:5:1552:G:H2'	5:5:1574:G:N2	2.09	0.68
10:B:208:ASN:OD1	10:B:208:ASN:N	2.24	0.68
11:C:321:ASN:HB3	11:C:324:ILE:HB	1.74	0.68
12:D:64:ILE:HD13	12:D:109:LEU:HD22	1.74	0.68
21:N:182:HIS:H	21:N:182:HIS:CD2	2.09	0.68
39:f:33:VAL:HG23	39:f:38:GLU:HB3	1.76	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:510:U:H5''	34:a:86:THR:HG22	1.76	0.67
5:5:726:G:H1	5:5:940:C:H42	1.40	0.67
5:5:4305:G:H22	27:T:87:LYS:NZ	1.92	0.67
5:5:4452:U:H4'	5:5:4453:C:OP1	1.94	0.67
5:5:4736:C:O2'	5:5:4737:G:H5'	1.93	0.67
19:L:28:GLN:HG2	21:N:202:ARG:HH11	1.58	0.67
5:5:2125:C:H5'	14:F:36:ARG:HD3	1.76	0.67
5:5:3612:C:H1'	5:5:5016:A:H8	1.59	0.67
13:E:137:ARG:NH2	39:f:108:SER:OG	2.26	0.67
18:J:58:ARG:HB3	18:J:58:ARG:NH1	2.09	0.67
34:a:131:ARG:NH2	34:a:132:ARG:HH12	1.92	0.67
37:d:87:ARG:HB2	37:d:87:ARG:HH11	1.59	0.67
8:8:122:G:H21	8:8:128:C:H5	1.41	0.67
22:O:143:HIS:ND1	22:O:150:GLN:OE1	2.26	0.67
22:O:169:ARG:HB3	22:O:169:ARG:HH11	1.60	0.67
25:R:8:LYS:HG3	25:R:22:VAL:HG11	1.76	0.67
22:O:116:LYS:HE3	26:S:169:THR:HG21	1.77	0.67
56:x:374:LYS:HE2	56:x:412:VAL:HG23	1.75	0.67
5:5:218:A:H5'	11:C:181:LYS:HZ1	1.58	0.67
5:5:1177:U:H2'	5:5:1178:G:H8	1.60	0.67
5:5:1238:A:O2'	5:5:1239:C:O5'	2.11	0.67
7:7:75:G:N2	7:7:100:A:OP2	2.24	0.67
7:7:48:G:O2'	12:D:222:GLN:O	2.11	0.67
10:B:10:ARG:HH11	10:B:14:LEU:HD21	1.59	0.67
13:E:184:ARG:HD3	13:E:213:PHE:HB2	1.77	0.67
33:Z:14:LEU:HD21	40:g:92:LYS:HD3	1.76	0.67
4:4:105:THR:HA	4:4:142:ASN:O	1.95	0.67
5:5:3823:G:O2'	5:5:3824:A:H8	1.77	0.67
19:L:10:LEU:O	19:L:12:PRO:HD3	1.95	0.67
38:e:43:ASN:HD22	38:e:46:ARG:H	1.42	0.67
38:e:74:PHE:HB3	38:e:95:TYR:HA	1.77	0.67
8:8:86:U:H4'	8:8:87:G:C8	2.29	0.67
25:R:126:LYS:HB3	25:R:132:PHE:CE2	2.29	0.67
41:h:13:LYS:HG2	41:h:15:GLU:HG3	1.77	0.67
51:r:569:LYS:O	51:r:571:THR:N	2.28	0.67
55:w:4:TYR:HE1	55:w:49:LEU:HD22	1.59	0.67
4:4:123:ARG:HB2	4:4:129:ILE:HD11	1.77	0.67
5:5:2752:G:H3'	5:5:2753:G:H8	1.59	0.67
13:E:157:ARG:HH12	13:E:271:PHE:CB	2.07	0.67
14:F:148:ASN:H	14:F:243:ASN:HD21	1.42	0.67
39:f:4:ARG:C	39:f:6:TRP:H	2.00	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:H:31:ARG:NH1	16:H:87:GLY:HA3	2.10	0.66
5:5:1697:G:O2'	14:F:165:ASN:ND2	2.29	0.66
5:5:1866:U:O2'	5:5:1867:A:O5'	2.14	0.66
20:M:9:VAL:HG11	20:M:66:HIS:HA	1.77	0.66
22:O:130:LYS:HG3	22:O:131:PRO:HD2	1.75	0.66
4:4:30:PRO:HA	4:4:34:PRO:HD3	1.78	0.66
5:5:977:C:O2'	5:5:978:G:H5'	1.95	0.66
5:5:4704:C:H4'	16:H:129:ARG:HH22	1.60	0.66
8:8:38:U:O4	41:h:92:ARG:HD2	1.96	0.66
11:C:93:GLY:C	11:C:100:ARG:HH12	2.04	0.66
16:H:93:ARG:NH1	46:m:82:LEU:HD21	2.09	0.66
53:u:99:MET:HE2	53:u:108:LYS:HD2	1.78	0.66
5:5:5047:C:H5''	5:5:5050:C:H5	1.60	0.66
11:C:169:LEU:HA	11:C:172:LYS:HE3	1.76	0.66
57:y:562:LEU:HD22	57:y:606:THR:HG21	1.77	0.66
5:5:1398:A:O2'	5:5:1399:G:OP2	2.12	0.66
13:E:94:GLY:HA2	13:E:100:THR:HB	1.76	0.66
22:O:166:ILE:HA	22:O:169:ARG:NH1	2.09	0.66
57:y:35:SER:HB3	57:y:56:TYR:HB3	1.78	0.66
1:1:59:A:H5''	55:w:52:ARG:NH2	2.11	0.66
5:5:477:C:H42	5:5:677:G:H1	1.43	0.66
5:5:1786:A:H2'	5:5:1789:C:C5	2.30	0.66
5:5:4124:G:N2	15:G:43:GLN:O	2.28	0.66
8:8:125:C:H4'	8:8:126:C:H3'	1.78	0.66
3:3:30:ASN:OD1	3:3:77:TYR:OH	2.13	0.66
5:5:730:G:H1	5:5:939:G:H1	1.43	0.66
5:5:1265:G:OP1	5:5:2115:G:N1	2.28	0.66
5:5:3625:G:N2	5:5:3627:G:H5'	2.09	0.66
10:B:110:ILE:HG23	10:B:111:SER:H	1.59	0.66
11:C:7:LEU:HD12	11:C:23:THR:HA	1.78	0.66
11:C:303:ARG:HH21	24:Q:38:ARG:HG2	1.61	0.66
38:e:11:LYS:HB2	38:e:11:LYS:HZ3	1.60	0.66
26:S:95:ARG:HB3	26:S:95:ARG:NH1	2.10	0.66
5:5:1489:G:OP1	34:a:131:ARG:NE	2.29	0.66
5:5:2793:G:H5'	5:5:2794:C:H5''	1.77	0.66
13:E:102:VAL:HG23	13:E:103:VAL:HG22	1.78	0.66
32:Y:10:ASP:HB3	32:Y:13:LYS:HB2	1.77	0.66
57:y:8:PHE:HB3	57:y:14:VAL:HA	1.78	0.66
12:D:223:PHE:HB2	12:D:226:TYR:HB2	1.78	0.65
19:L:69:LYS:HA	19:L:159:ASN:HD21	1.60	0.65
22:O:169:ARG:HB3	22:O:169:ARG:NH1	2.11	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:R:114:LYS:HG3	25:R:146:LYS:HZ1	1.61	0.65
5:5:1187:G:N2	5:5:1188:C:H41	1.90	0.65
5:5:1755:C:O2'	5:5:1756:U:OP1	2.11	0.65
5:5:1889:U:H3'	5:5:1890:G:H8	1.60	0.65
5:5:4691:A:O2'	16:H:68:ALA:O	2.15	0.65
11:C:213:GLU:OE1	11:C:213:GLU:N	2.29	0.65
12:D:293:ARG:HH11	12:D:293:ARG:HB2	1.59	0.65
26:S:35:PRO:HD2	26:S:39:VAL:HG21	1.77	0.65
37:d:38:PHE:H	37:d:41:ARG:HG3	1.61	0.65
5:5:2406:G:N7	45:l:2:SER:N	2.44	0.65
5:5:3859:G:H5'	23:P:140:MET:O	1.95	0.65
56:x:417:VAL:HG12	56:x:421:LEU:HG	1.78	0.65
5:5:2:G:OP2	31:X:38:LYS:N	2.30	0.65
56:x:406:VAL:O	56:x:410:SER:OG	2.13	0.65
4:4:48:LYS:O	4:4:52:ASP:HB2	1.97	0.65
5:5:383:A:O2'	5:5:384:A:O5'	2.14	0.65
5:5:662:C:H2'	5:5:663:G:C8	2.30	0.65
5:5:1211:G:H2'	5:5:1212:G:C8	2.31	0.65
5:5:1379:C:H4'	5:5:1380:G:C8	2.31	0.65
10:B:371:THR:HG21	30:W:17:HIS:HE1	1.62	0.65
20:M:119:ARG:HH21	22:O:189:ILE:HD12	1.60	0.65
25:R:60:ARG:HH11	25:R:60:ARG:HG3	1.60	0.65
51:r:573:ASP:O	51:r:576:ARG:HB2	1.97	0.65
57:y:633:ALA:HA	57:y:636:LYS:NZ	2.12	0.65
5:5:6:C:H5''	15:G:197:LYS:HB3	1.78	0.65
13:E:197:ILE:HD12	13:E:257:ILE:HG23	1.78	0.65
5:5:1538:U:O2'	5:5:1629:G:OP1	2.14	0.65
5:5:2902:G:N2	5:5:3597:G:H1	1.95	0.65
5:5:4305:G:N2	27:T:87:LYS:HZ2	1.94	0.65
7:7:7:G:O2'	12:D:72:ASP:OD1	2.12	0.65
54:v:205:ARG:NH2	54:v:230:LYS:O	2.30	0.65
5:5:218:A:H4'	5:5:219:G:H5''	1.78	0.65
5:5:2411:C:O2'	5:5:2526:C:O2	2.13	0.65
5:5:4399:U:H2'	5:5:4400:G:O4'	1.96	0.65
12:D:43:LYS:HB3	12:D:46:THR:HG23	1.78	0.65
32:Y:91:ASN:N	32:Y:91:ASN:OD1	2.30	0.65
37:d:87:ARG:HH12	37:d:109:VAL:HG22	1.61	0.65
4:4:1:MET:N	4:4:6:ASP:O	2.29	0.65
12:D:288:LEU:O	12:D:292:GLU:HG2	1.97	0.65
5:5:724:C:H42	5:5:942:G:H1	1.43	0.65
5:5:5019:A:H2'	5:5:5020:G:C8	2.31	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:5061:A:O2'	5:5:5062:G:OP2	2.12	0.65
12:D:266:TRP:CD1	12:D:266:TRP:H	2.15	0.65
4:4:39:PRO:HG2	4:4:43:GLY:H	1.62	0.64
5:5:217:C:H1'	11:C:172:LYS:HD3	1.80	0.64
5:5:650:C:H2'	5:5:651:C:C6	2.32	0.64
9:A:43:GLY:HA3	9:A:63:PHE:HD1	1.62	0.64
12:D:66:TYR:HE1	12:D:73:MET:HG3	1.61	0.64
16:H:180:TYR:HD2	46:m:89:TYR:HD2	1.45	0.64
5:5:135:G:O6	41:h:97:LYS:NZ	2.31	0.64
5:5:961:G:H22	5:5:969:C:H5'	1.62	0.64
5:5:1353:G:N7	24:Q:104:ARG:NH2	2.45	0.64
5:5:1503:A:H4'	5:5:1504:G:H5'	1.79	0.64
5:5:2313:A:O2'	5:5:2314:G:OP1	2.15	0.64
5:5:4945:G:N2	39:f:69:VAL:HG22	2.12	0.64
7:7:6:C:H4'	12:D:52:ILE:HD13	1.78	0.64
12:D:157:ASN:HD21	12:D:159:VAL:HB	1.62	0.64
51:r:567:ASP:HB3	51:r:568:PRO:HD3	1.79	0.64
5:5:300:A:O2'	21:N:94:PHE:O	2.13	0.64
5:5:735:G:H1	5:5:928:C:H42	1.46	0.64
5:5:1282:G:C6	13:E:124:HIS:HB2	2.32	0.64
5:5:2096:G:O6	14:F:48:ARG:NH1	2.31	0.64
5:5:2440:U:O2'	5:5:2441:C:OP1	2.14	0.64
5:5:2857:A:HO2'	5:5:2858:A:H8	1.41	0.64
5:5:4289:U:HO2'	5:5:4320:G:HO2'	1.45	0.64
6:6:77:LYS:NZ	6:6:198:ILE:HD13	2.13	0.64
8:8:90:C:H2'	8:8:91:A:H8	1.62	0.64
1:1:118:A:H2'	53:u:90:ARG:CB	2.27	0.64
3:3:17:LEU:HD12	3:3:36:ASN:HD21	1.61	0.64
5:5:509:A:H5'	5:5:510:U:OP2	1.97	0.64
5:5:2250:C:OP2	5:5:2250:C:H4'	1.96	0.64
5:5:2503:G:H1'	5:5:4084:G:C2	2.33	0.64
5:5:4586:G:OP1	22:O:72:HIS:N	2.29	0.64
11:C:195:LYS:HB3	11:C:200:ARG:HH21	1.62	0.64
11:C:237:ILE:HD12	11:C:237:ILE:H	1.61	0.64
24:Q:93:GLN:CG	34:a:87:ARG:HH12	2.10	0.64
24:Q:93:GLN:HG3	34:a:87:ARG:HH12	1.63	0.64
1:1:171:U:H1'	1:1:174:G:C6	2.33	0.64
5:5:957:G:OP2	5:5:1284:G:N2	2.31	0.64
5:5:962:C:OP1	5:5:2264:C:N4	2.30	0.64
5:5:5061:A:C4'	5:5:5062:G:H5''	2.27	0.64
8:8:38:U:H5	41:h:84:ARG:HB2	1.62	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:e:89:LEU:HD13	38:e:118:LEU:HD22	1.79	0.64
3:3:13:CYS:SG	11:C:245:HIS:ND1	2.59	0.64
5:5:342:G:N2	8:8:34:U:O4	2.30	0.64
5:5:1273:G:N2	5:5:2123:C:OP1	2.31	0.64
14:F:82:ASN:ND2	27:T:141:VAL:O	2.31	0.64
48:o:45:GLN:HE22	48:o:52:THR:H	1.46	0.64
5:5:961:G:H2'	13:E:119:ARG:HH11	1.63	0.64
5:5:1380:G:N2	5:5:1381:U:O4	2.31	0.64
6:6:63:LYS:HZ2	6:6:78:LEU:HB3	1.62	0.64
15:G:181:TYR:H	15:G:227:ASN:HD21	1.46	0.64
42:i:45:ARG:NH1	42:i:49:GLY:O	2.31	0.64
1:1:59:A:H5''	55:w:52:ARG:HH21	1.63	0.64
1:1:114:C:H2'	1:1:115:A:C8	2.33	0.64
5:5:1961:G:N2	5:5:2024:G:O2'	2.29	0.64
11:C:40:VAL:HG22	11:C:115:VAL:HG11	1.78	0.64
50:q:59:ASN:HB3	50:q:85:GLN:HB3	1.80	0.64
5:5:1437:C:H1'	5:5:2097:U:H5'	1.80	0.64
5:5:1440:U:H3	5:5:2104:G:H1	1.46	0.64
5:5:3605:C:P	25:R:71:ARG:HH12	2.19	0.64
1:1:124:G:N1	1:1:226:U:O2	2.19	0.64
4:4:28:LEU:HD13	4:4:29:ALA:H	1.62	0.64
4:4:111:ASN:OD1	4:4:114:ARG:NH2	2.22	0.64
5:5:702:U:H2'	5:5:703:G:H4'	1.80	0.64
5:5:2065:G:O2'	39:f:80:ASN:ND2	2.30	0.64
5:5:2468:U:H2'	5:5:2506:G:N1	2.13	0.64
6:6:47:LEU:HD22	6:6:99:ARG:NH1	2.04	0.64
18:J:146:ARG:HD3	18:J:147:ARG:HH12	1.62	0.64
54:v:82:VAL:HG22	57:y:107:LEU:HD21	1.80	0.64
1:1:118:A:C2'	53:u:90:ARG:HD2	2.29	0.63
4:4:121:LEU:HD13	4:4:129:ILE:HD13	1.79	0.63
5:5:4230:C:N3	5:5:4231:C:H5	1.97	0.63
5:5:4271:A:H5''	5:5:4272:G:N2	2.13	0.63
25:R:110:ARG:HH11	25:R:120:TYR:HE2	1.46	0.63
38:e:58:ILE:C	38:e:60:TYR:H	2.04	0.63
53:u:87:ARG:HG2	53:u:126:MET:HG3	1.78	0.63
5:5:1268:G:H4'	5:5:1269:G:OP1	1.97	0.63
5:5:2011:C:H2'	5:5:2012:A:O4'	1.98	0.63
6:6:107:VAL:HB	6:6:108:PRO:HD2	1.80	0.63
7:7:11:A:O2'	7:7:13:A:OP2	2.16	0.63
9:A:209:HIS:NE2	9:A:235:VAL:HG11	2.13	0.63
10:B:10:ARG:HB2	10:B:10:ARG:HH21	1.62	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:Q:44:ASN:OD1	24:Q:44:ASN:N	2.31	0.63
26:S:29:ARG:NH1	27:T:150:LEU:HD13	2.14	0.63
30:W:45:ASN:HD22	30:W:47:ARG:H	1.45	0.63
56:x:155:ALA:HB2	56:x:279:ILE:HD13	1.79	0.63
4:4:3:PRO:HG2	4:4:4:LYS:HG2	1.80	0.63
5:5:3612:C:H1'	5:5:5016:A:C8	2.33	0.63
5:5:4730:C:H1'	5:5:4731:G:H5''	1.79	0.63
5:5:4985:U:OP1	10:B:117:ARG:NH2	2.31	0.63
14:F:87:ALA:N	27:T:138:ALA:HB2	2.13	0.63
19:L:56:ARG:O	19:L:116:ARG:NH2	2.31	0.63
27:T:17:ARG:NH1	27:T:45:MET:HE2	2.12	0.63
1:1:192:A:OP2	1:1:206:G:N2	2.29	0.63
1:1:241:U:H5''	51:r:559:LYS:HZ3	1.64	0.63
5:5:664:G:H21	5:5:665:C:H5	1.45	0.63
5:5:1351:G:P	11:C:33:ARG:HH12	2.21	0.63
5:5:1365:C:H4'	5:5:1366:G:OP1	1.97	0.63
5:5:2396:A:H4'	5:5:2397:G:OP2	1.98	0.63
23:P:61:ARG:HA	23:P:78:TRP:HE1	1.63	0.63
32:Y:48:PRO:O	32:Y:115:ARG:NH2	2.32	0.63
5:5:676:C:H2'	5:5:677:G:C8	2.34	0.63
5:5:2299:G:N7	11:C:204:ARG:NH1	2.45	0.63
23:P:30:ARG:HH12	23:P:62:ARG:NH2	1.89	0.63
56:x:417:VAL:O	56:x:421:LEU:N	2.30	0.63
5:5:137:G:H2'	5:5:138:G:H8	1.63	0.63
5:5:751:G:N2	5:5:912:G:C4	2.67	0.63
5:5:1889:U:H3'	5:5:1890:G:C8	2.34	0.63
5:5:4885:U:O4	13:E:268:ARG:NH2	2.31	0.63
16:H:12:ILE:HD11	16:H:16:VAL:HB	1.80	0.63
27:T:41:ASP:OD1	27:T:41:ASP:N	2.30	0.63
36:c:30:GLY:O	36:c:93:THR:HB	1.99	0.63
5:5:1236:C:O2'	5:5:1237:C:O5'	2.16	0.63
5:5:3783:A:H4'	5:5:3784:A:H5''	1.79	0.63
19:L:5:ARG:HA	34:a:48:TYR:CE2	2.33	0.63
5:5:4405:G:OP1	17:I:7:ARG:NH2	2.32	0.63
6:6:18:ILE:HG13	6:6:66:ARG:HD3	1.79	0.63
9:A:112:ILE:HD12	49:p:79:VAL:HG22	1.80	0.63
13:E:268:ARG:HB3	13:E:268:ARG:NH1	2.12	0.63
37:d:64:ILE:HG13	37:d:68:LEU:HD23	1.81	0.63
56:x:237:LYS:NZ	56:x:242:VAL:O	2.31	0.63
5:5:74:G:N7	19:L:103:ARG:NH2	2.39	0.63
5:5:1529:G:H21	43:j:49:TRP:HZ2	1.46	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:2246:C:O2'	5:5:2247:C:OP1	2.15	0.63
11:C:114:ARG:HB3	11:C:114:ARG:CZ	2.29	0.63
1:1:173:A:O2'	1:1:174:G:O4'	2.16	0.62
5:5:3709:U:H3'	5:5:3710:G:H5'	1.79	0.62
10:B:160:ILE:HD13	10:B:194:LEU:HD13	1.81	0.62
22:O:42:ASN:N	22:O:42:ASN:OD1	2.31	0.62
53:u:67:GLN:HB3	53:u:72:LEU:HB2	1.81	0.62
5:5:264:C:O2'	5:5:266:C:O2	2.13	0.62
9:A:18:ALA:O	9:A:20:VAL:HG13	1.99	0.62
17:I:35:ASP:N	17:I:35:ASP:OD1	2.31	0.62
19:L:35:ARG:HB3	19:L:39:ARG:HH22	1.64	0.62
20:M:123:ILE:HD13	22:O:178:ARG:HH11	1.64	0.62
5:5:275:C:O2'	5:5:276:C:O4'	2.17	0.62
10:B:240:LEU:HB3	10:B:244:THR:HG21	1.81	0.62
5:5:705:G:H1	5:5:1292:C:N4	1.98	0.62
5:5:1077:C:H5''	5:5:1215:C:P	2.38	0.62
10:B:366:LYS:NZ	10:B:366:LYS:HB3	2.14	0.62
14:F:146:TYR:CE2	14:F:239:GLU:HB3	2.33	0.62
57:y:2:LEU:HD21	57:y:79:VAL:HG13	1.81	0.62
1:1:91:G:HO2'	1:1:92:C:H6	1.47	0.62
5:5:980:U:H2'	5:5:981:C:C6	2.34	0.62
5:5:1212:G:H2'	5:5:1213:G:C8	2.33	0.62
5:5:2891:U:OP2	25:R:74:ARG:NH2	2.33	0.62
7:7:7:G:O3'	12:D:33:ARG:NH2	2.32	0.62
10:B:224:LYS:HG3	10:B:340:THR:HB	1.81	0.62
13:E:279:PRO:HA	13:E:282:LEU:HD22	1.80	0.62
26:S:33:PHE:CE1	26:S:106:VAL:HB	2.33	0.62
57:y:404:MET:O	57:y:407:ASP:N	2.25	0.62
57:y:579:ARG:NH2	57:y:582:ASP:OD2	2.32	0.62
5:5:2088:A:H61	24:Q:30:LYS:HD3	1.65	0.62
5:5:2518:G:H5'	40:g:66:ARG:HH21	1.64	0.62
35:b:55:LYS:HA	35:b:55:LYS:HZ3	1.64	0.62
56:x:194:ARG:NH1	56:x:201:LEU:O	2.31	0.62
4:4:95:GLN:C	4:4:97:ASN:H	2.08	0.62
5:5:151:G:H1	15:G:142:THR:HG23	1.64	0.62
5:5:288:G:H2'	5:5:289:C:C6	2.35	0.62
5:5:4767:C:O2'	5:5:4874:A:N6	2.32	0.62
8:8:1:C:H2'	8:8:2:G:H5'	1.81	0.62
12:D:223:PHE:N	12:D:223:PHE:CD1	2.68	0.62
20:M:29:ASP:OD1	20:M:30:VAL:N	2.33	0.62
5:5:279:A:O2'	5:5:280:G:OP2	2.16	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:1270:A:C5	5:5:1271:G:H1'	2.34	0.62
35:b:55:LYS:HA	35:b:55:LYS:NZ	2.14	0.62
5:5:1846:G:H2'	5:5:1847:C:H6	1.65	0.62
5:5:2847:G:OP1	29:V:85:ARG:NH1	2.33	0.62
5:5:5057:C:HO2'	37:d:25:TYR:HH	1.36	0.62
12:D:265:ARG:HH21	12:D:269:PRO:HA	1.64	0.62
17:I:91:LEU:HD12	17:I:135:ILE:HG23	1.81	0.62
28:U:33:ILE:HD11	28:U:96:LEU:HD22	1.80	0.62
53:u:181:LEU:HD13	53:u:218:LEU:HD22	1.82	0.62
5:5:4423:U:N3	46:m:97:ARG:NH1	2.48	0.62
16:H:18:ILE:HG22	16:H:27:VAL:HG22	1.81	0.62
51:r:62:LYS:HE2	51:r:93:ARG:HH22	1.63	0.62
3:3:16:PHE:HE2	3:3:43:LEU:HD11	1.63	0.61
5:5:1282:G:N7	13:E:124:HIS:ND1	2.46	0.61
5:5:5019:A:H2'	5:5:5020:G:H8	1.65	0.61
14:F:120:PHE:CZ	14:F:218:PRO:HD3	2.34	0.61
27:T:17:ARG:HH12	27:T:45:MET:HE2	1.65	0.61
3:3:67:ARG:NH1	5:5:481:G:OP1	2.33	0.61
5:5:1209:U:O3'	14:F:72:ARG:NH1	2.33	0.61
5:5:1697:G:H4'	5:5:1698:C:OP1	2.00	0.61
8:8:16:G:HO2'	8:8:17:A:H8	1.47	0.61
15:G:182:CYS:HB3	15:G:222:ILE:HD13	1.82	0.61
37:d:93:ASN:HD21	37:d:96:GLU:HB2	1.64	0.61
48:o:78:ARG:HH21	48:o:78:ARG:HB3	1.64	0.61
5:5:708:G:OP1	39:f:46:ARG:NH2	2.33	0.61
5:5:1501:C:H2'	24:Q:68:ARG:NH1	2.15	0.61
8:8:75:G:OP1	45:l:31:THR:OG1	2.16	0.61
11:C:22:VAL:O	11:C:23:THR:OG1	2.17	0.61
17:I:162:ARG:NH1	26:S:88:SER:HB3	2.09	0.61
29:V:83:ARG:HH12	29:V:119:GLY:HA3	1.62	0.61
5:5:223:G:O2'	11:C:223:ASN:ND2	2.33	0.61
5:5:279:A:OP2	21:N:50:ARG:NH2	2.33	0.61
5:5:724:C:OP1	11:C:350:ARG:NH2	2.33	0.61
5:5:744:G:H2'	5:5:745:G:C8	2.35	0.61
5:5:2474:G:O2'	5:5:2475:G:OP1	2.19	0.61
5:5:4119:C:N4	40:g:100:GLN:OE1	2.34	0.61
15:G:108:GLN:HA	15:G:111:LYS:HD3	1.82	0.61
20:M:123:ILE:HD13	22:O:178:ARG:NH1	2.15	0.61
26:S:120:ARG:HB2	26:S:122:HIS:HD2	1.66	0.61
5:5:717:U:H3	5:5:951:G:H1	1.49	0.61
5:5:1271:G:N2	5:5:2122:G:OP2	2.33	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:2691:U:O2'	44:k:4:LYS:NZ	2.27	0.61
5:5:4661:G:H5'	5:5:4661:G:H8	1.66	0.61
11:C:305:PRO:HG3	24:Q:38:ARG:HH22	1.66	0.61
28:U:27:HIS:HD2	28:U:28:PRO:HD3	1.64	0.61
32:Y:36:LYS:HZ3	32:Y:39:ARG:NH2	1.98	0.61
1:1:120:G:N1	1:1:231:A:C2	2.68	0.61
5:5:218:A:C4'	5:5:219:G:H5''	2.30	0.61
5:5:706:C:H42	5:5:1291:G:H1	1.48	0.61
5:5:712:C:H42	5:5:956:A:H61	1.47	0.61
5:5:1854:G:N2	5:5:4394:A:O4'	2.34	0.61
5:5:2399:G:HO2'	5:5:2822:G:HO2'	1.46	0.61
13:E:212:TYR:HE1	13:E:242:ARG:HH11	1.49	0.61
5:5:2256:C:H4'	5:5:2257:C:O5'	1.99	0.61
10:B:116:ARG:HB3	10:B:177:LYS:HA	1.82	0.61
11:C:284:MET:HE3	24:Q:28:LEU:HB3	1.82	0.61
12:D:85:LYS:NZ	12:D:254:GLU:OE2	2.24	0.61
14:F:73:MET:HB3	14:F:84:TYR:CE2	2.35	0.61
17:I:100:ASN:O	17:I:102:MET:N	2.29	0.61
18:J:164:ARG:HH21	18:J:164:ARG:HB2	1.66	0.61
51:r:85:ALA:HB2	51:r:100:THR:HB	1.80	0.61
57:y:495:LYS:HB2	57:y:500:ILE:HD11	1.83	0.61
1:1:205:A:H5'	50:q:70:ARG:HG2	1.83	0.61
5:5:1660:U:C4	34:a:12:ARG:NH1	2.69	0.61
5:5:1870:C:H2'	5:5:1871:A:H8	1.65	0.61
10:B:161:ARG:HD3	10:B:184:GLN:HB2	1.83	0.61
23:P:54:GLN:HA	23:P:83:TRP:CD1	2.36	0.61
41:h:89:ARG:HH11	41:h:89:ARG:CG	2.13	0.61
5:5:408:A:O2'	5:5:411:G:OP2	2.13	0.61
5:5:1198:G:H2'	5:5:1199:G:C8	2.36	0.61
13:E:197:ILE:HD11	13:E:256:ARG:HB2	1.83	0.61
1:1:2:C:H5'	1:1:50:G:H5'	1.82	0.61
1:1:104:C:H2'	1:1:105:G:C8	2.35	0.61
5:5:1645:C:H2'	5:5:1646:A:C8	2.36	0.61
5:5:1820:C:O2'	5:5:1821:G:O4'	2.15	0.61
5:5:4885:U:H2'	5:5:4886:C:O4'	2.01	0.61
5:5:4937:C:H5'	13:E:179:ARG:HD2	1.83	0.61
7:7:60:G:O2'	12:D:268:ARG:NH1	2.28	0.61
20:M:11:ARG:HD2	20:M:57:LEU:HD12	1.82	0.61
5:5:1187:G:H21	5:5:1188:C:N4	1.93	0.60
5:5:3751:G:H21	5:5:3775:A:H8	1.48	0.60
41:h:10:ARG:HH11	41:h:60:VAL:HG22	1.66	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:222:C:H2'	5:5:223:G:O4'	2.01	0.60
5:5:713:C:OP1	5:5:1281:G:H5'	1.99	0.60
5:5:2648:G:O2'	5:5:2649:G:H8	1.84	0.60
8:8:39:G:O2'	8:8:104:A:N6	2.34	0.60
17:I:209:TRP:HE1	17:I:213:HIS:CG	2.19	0.60
34:a:74:ASN:HB3	34:a:114:LYS:HB3	1.83	0.60
9:A:29:LEU:HD23	9:A:76:PHE:HE1	1.65	0.60
11:C:156:ASP:OD1	11:C:156:ASP:N	2.33	0.60
13:E:102:VAL:HB	13:E:103:VAL:HG13	1.82	0.60
17:I:4:ARG:NH2	17:I:9:TYR:OH	2.34	0.60
19:L:129:ARG:NH1	41:h:115:PRO:HG3	2.16	0.60
24:Q:56:THR:HB	24:Q:146:ARG:HH21	1.65	0.60
42:i:50:PHE:HZ	42:i:93:VAL:HG11	1.66	0.60
1:1:29:C:OP1	58:z:2:VAL:N	2.34	0.60
5:5:2036:C:O2	5:5:2036:C:H3'	2.01	0.60
5:5:4725:C:OP1	10:B:103:LYS:NZ	2.20	0.60
8:8:90:C:H2'	8:8:91:A:C8	2.37	0.60
9:A:28:ARG:HD3	9:A:123:ARG:NH1	2.17	0.60
19:L:5:ARG:HA	34:a:48:TYR:HE2	1.66	0.60
26:S:15:ARG:NH1	26:S:18:PRO:HD3	2.16	0.60
46:m:110:CYS:SG	46:m:111:ARG:N	2.75	0.60
56:x:378:ILE:HG22	56:x:382:MET:HE3	1.83	0.60
5:5:2695:A:OP2	44:k:28:ASN:ND2	2.34	0.60
5:5:2904:U:H5''	5:5:2905:C:H5	1.66	0.60
5:5:4216:G:C2'	5:5:4217:G:H5'	2.32	0.60
5:5:4260:U:H2'	5:5:4261:C:C6	2.36	0.60
8:8:60:G:O6	8:8:96:C:O2'	2.18	0.60
19:L:9:ILE:HG12	34:a:49:HIS:HD2	1.67	0.60
19:L:43:ALA:O	19:L:149:GLN:NE2	2.33	0.60
21:N:121:VAL:HG22	21:N:129:PHE:O	2.01	0.60
54:v:70:LEU:HD11	54:v:129:LEU:HD13	1.84	0.60
54:v:118:LEU:HD22	54:v:128:PHE:HB3	1.83	0.60
5:5:972:C:H2'	5:5:973:G:C8	2.37	0.60
5:5:3892:U:O2'	23:P:80:GLN:NE2	2.35	0.60
9:A:42:LYS:HG2	9:A:43:GLY:H	1.66	0.60
28:U:37:ALA:HA	28:U:65:ARG:NH1	2.15	0.60
39:f:50:VAL:HG22	39:f:69:VAL:HG12	1.84	0.60
43:j:12:ARG:HH11	43:j:12:ARG:CB	2.11	0.60
1:1:107:G:N2	1:1:247:C:O2	2.34	0.60
1:1:113:G:O2'	1:1:114:C:H5'	2.01	0.60
1:1:120:G:H8	53:u:90:ARG:NH1	1.98	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:254:U:H3'	1:1:255:A:H8	1.66	0.60
5:5:1271:G:H3'	5:5:1272:C:C5'	2.28	0.60
5:5:1442:C:O2	5:5:2103:G:N2	2.35	0.60
6:6:14:PHE:O	6:6:62:ARG:NH1	2.34	0.60
10:B:279:GLU:HG2	10:B:282:LYS:NZ	2.17	0.60
50:q:72:TRP:CD1	56:x:408:ARG:HG2	2.37	0.60
51:r:60:SER:HB3	51:r:63:GLU:HB3	1.83	0.60
1:1:98:G:H2'	1:1:99:C:H5''	1.83	0.60
5:5:212:A:H2'	5:5:213:G:H8	1.66	0.60
5:5:1321:G:H2'	5:5:3876:A:N7	2.16	0.60
5:5:1358:G:N2	5:5:1359:G:O6	2.35	0.60
11:C:266:THR:OG1	11:C:267:TRP:N	2.33	0.60
14:F:202:ARG:HG3	14:F:202:ARG:NH1	2.16	0.60
16:H:152:GLU:O	16:H:156:ASN:ND2	2.35	0.60
19:L:28:GLN:HG2	21:N:202:ARG:NH1	2.16	0.60
20:M:36:ALA:HB2	20:M:52:PHE:CZ	2.37	0.60
27:T:122:LYS:HB3	27:T:122:LYS:NZ	2.16	0.60
35:b:36:ASP:OD1	35:b:39:PHE:HB2	2.02	0.60
55:w:28:VAL:HG22	55:w:41:LYS:HB3	1.83	0.60
5:5:1378:C:H3'	5:5:1379:C:C5'	2.31	0.60
5:5:1951:G:O2'	26:S:95:ARG:NH2	2.35	0.60
5:5:2457:G:H21	5:5:3672:G:N2	1.99	0.60
5:5:956:A:H3'	5:5:957:G:C4	2.37	0.60
5:5:1883:G:H5'	38:e:49:PHE:CE1	2.37	0.60
5:5:2490:U:O2'	5:5:2491:C:O4'	2.10	0.60
5:5:2812:A:O2'	5:5:2813:A:O4'	2.19	0.60
5:5:3677:U:H5''	9:A:18:ALA:HB2	1.84	0.60
6:6:33:ASP:N	6:6:33:ASP:OD1	2.34	0.60
12:D:66:TYR:CE1	12:D:73:MET:HG3	2.36	0.60
37:d:68:LEU:HA	37:d:108:TYR:HD2	1.67	0.60
58:z:92:ASP:N	58:z:92:ASP:OD1	2.32	0.60
5:5:1501:C:H6	24:Q:68:ARG:HH12	1.50	0.59
5:5:3860:A:N6	5:5:4560:C:H5	1.98	0.59
14:F:120:PHE:HZ	14:F:218:PRO:HD3	1.66	0.59
14:F:128:ASN:HD21	27:T:132:PRO:HG2	1.67	0.59
1:1:117:U:H3	1:1:234:A:N6	2.00	0.59
5:5:137:G:H2'	5:5:138:G:C8	2.37	0.59
5:5:2633:U:H5''	25:R:61:ALA:HB2	1.84	0.59
9:A:234:LYS:HG2	9:A:238:ILE:HD12	1.83	0.59
5:5:292:G:N1	5:5:293:G:C2	2.70	0.59
15:G:47:PRO:HD2	15:G:49:ARG:HH12	1.68	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:L:107:THR:HG22	42:i:20:ASN:HB3	1.84	0.59
24:Q:93:GLN:CB	34:a:87:ARG:HH12	2.15	0.59
37:d:79:ASN:OD1	37:d:79:ASN:N	2.36	0.59
54:v:83:ARG:NH1	54:v:89:TYR:HB2	2.17	0.59
55:w:33:HIS:HD2	58:z:21:ARG:HG3	1.67	0.59
5:5:1213:G:C4	5:5:1215:C:H1'	2.37	0.59
5:5:1253:G:C6	5:5:1255:A:H5'	2.36	0.59
10:B:17:LEU:HA	10:B:19:ARG:HG2	1.82	0.59
12:D:75:VAL:O	12:D:112:ARG:NH1	2.36	0.59
17:I:46:PHE:HB3	17:I:139:ARG:HD3	1.84	0.59
48:o:43:ARG:HA	48:o:46:SER:HB3	1.85	0.59
54:v:122:GLU:HA	54:v:125:ARG:HG2	1.83	0.59
4:4:123:ARG:CB	4:4:129:ILE:HD11	2.32	0.59
5:5:718:C:OP2	14:F:219:ARG:HD2	2.02	0.59
5:5:1888:A:N6	5:5:3873:G:O2'	2.35	0.59
5:5:1994:C:H2'	5:5:1995:G:H8	1.68	0.59
11:C:305:PRO:CG	24:Q:38:ARG:HH12	2.13	0.59
13:E:233:LYS:O	13:E:235:LYS:N	2.34	0.59
26:S:34:ALA:HB1	26:S:39:VAL:HG23	1.83	0.59
37:d:73:TRP:CZ3	37:d:77:ILE:HG12	2.37	0.59
5:5:119:G:N7	15:G:113:ARG:NH1	2.51	0.59
5:5:1271:G:C3'	5:5:1272:C:H5'	2.30	0.59
5:5:1590:C:H5''	5:5:1591:U:H4'	1.84	0.59
5:5:1879:C:O2'	5:5:1891:A:N3	2.32	0.59
5:5:2045:G:O6	5:5:3870:C:O2'	2.17	0.59
5:5:2897:G:H2'	5:5:2898:G:H8	1.67	0.59
5:5:4451:G:H3'	5:5:4522:G:H22	1.68	0.59
5:5:5023:C:N4	5:5:5028:G:N3	2.51	0.59
7:7:87:G:H5'	26:S:87:ARG:HD3	1.84	0.59
12:D:284:LYS:HB2	17:I:209:TRP:CZ3	2.36	0.59
24:Q:175:GLU:HA	34:a:51:GLY:O	2.03	0.59
5:5:3754:G:H1	5:5:3770:U:H3	1.51	0.59
5:5:3827:G:O2'	5:5:3829:G:OP2	2.17	0.59
5:5:4123:C:O2'	33:Z:135:ARG:HB3	2.02	0.59
10:B:10:ARG:NH1	10:B:265:SER:HB2	2.17	0.59
22:O:131:PRO:HG3	26:S:156:HIS:HD2	1.68	0.59
37:d:63:ARG:HD2	37:d:103:TYR:CE1	2.37	0.59
38:e:107:ASN:OD1	38:e:107:ASN:N	2.27	0.59
56:x:195:HIS:CD2	56:x:197:GLN:HG2	2.37	0.59
1:1:227:G:HO2'	53:u:102:ARG:NH1	2.00	0.59
5:5:504:G:H22	5:5:654:C:H1'	1.68	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:673:C:H2'	5:5:674:G:C8	2.37	0.59
5:5:969:C:O2'	5:5:970:G:O4'	2.21	0.59
5:5:1241:C:H3'	5:5:1242:G:H5''	1.85	0.59
5:5:1633:G:C6	9:A:207:VAL:HG11	2.38	0.59
5:5:4746:C:H42	5:5:4954:G:H1	1.50	0.59
5:5:4760:G:OP2	22:O:37:ARG:NH2	2.35	0.59
51:r:598:UNK:HB1	57:y:456:PHE:CD1	2.38	0.59
52:t:77:LEU:HA	56:x:355:PHE:HZ	1.68	0.59
54:v:205:ARG:NH1	54:v:225:LEU:O	2.32	0.59
1:1:195:U:O2'	50:q:74:ARG:NH2	2.36	0.59
5:5:89:C:H4'	5:5:293:G:OP1	2.02	0.59
5:5:106:A:H1'	5:5:336:A:H8	1.64	0.59
5:5:318:A:O2'	5:5:3727:A:H1'	2.03	0.59
5:5:1280:C:C4	5:5:1282:G:C6	2.90	0.59
5:5:2590:G:O2'	5:5:2755:A:N6	2.35	0.59
5:5:4908:G:H1	5:5:4913:G:H21	1.51	0.59
10:B:154:LYS:HG3	10:B:191:ALA:HB2	1.83	0.59
23:P:78:TRP:CE3	23:P:78:TRP:HA	2.36	0.59
40:g:64:LEU:HD12	40:g:67:LEU:HD12	1.84	0.59
4:4:76:SER:OG	4:4:117:ARG:NH2	2.35	0.59
4:4:154:ASP:O	4:4:155:ILE:HG13	2.03	0.59
11:C:307:LYS:NZ	11:C:307:LYS:HB3	2.17	0.59
15:G:150:LYS:HE2	15:G:177:MET:HG3	1.84	0.59
17:I:77:VAL:HG22	17:I:82:ARG:HA	1.84	0.59
5:5:483:G:H1	5:5:671:G:H1	1.49	0.58
5:5:1696:C:HO2'	5:5:1697:G:P	2.26	0.58
5:5:2267:U:H3'	5:5:2268:A:H5''	1.84	0.58
5:5:4251:A:H5''	18:J:108:GLY:HA3	1.84	0.58
13:E:104:LYS:HG3	13:E:107:LYS:HB3	1.85	0.58
18:J:20:LEU:HD11	18:J:130:PHE:HD1	1.68	0.58
25:R:44:LEU:HD22	25:R:49:LEU:HD12	1.84	0.58
51:r:599:UNK:O	51:r:600:UNK:HG3	2.03	0.58
57:y:633:ALA:HA	57:y:636:LYS:HZ3	1.67	0.58
5:5:307:A:H3'	5:5:308:G:N2	2.18	0.58
5:5:3823:G:O2'	5:5:3824:A:C8	2.56	0.58
5:5:4134:C:H2'	5:5:4135:G:H8	1.67	0.58
7:7:59:G:H4'	12:D:267:ASN:HD21	1.67	0.58
9:A:29:LEU:HD23	9:A:76:PHE:CE1	2.38	0.58
32:Y:89:LYS:HG2	32:Y:90:ALA:H	1.68	0.58
40:g:8:ARG:HB2	40:g:34:TYR:HE2	1.68	0.58
54:v:96:ILE:HD13	57:y:36:VAL:HG12	1.84	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:237:G:O2'	1:1:238:G:O4'	2.13	0.58
4:4:116:MET:HG3	4:4:117:ARG:HH21	1.68	0.58
5:5:2853:C:N4	5:5:2854:G:C6	2.71	0.58
5:5:4605:A:O2'	5:5:4606:G:O4'	2.21	0.58
33:Z:51:ARG:HB2	33:Z:65:ARG:HD2	1.84	0.58
3:3:71:ARG:HH21	11:C:133:LEU:HA	1.68	0.58
5:5:438:G:OP1	38:e:16:ARG:NH1	2.37	0.58
7:7:119:U:C4	12:D:261:VAL:HG21	2.37	0.58
11:C:140:LYS:HZ3	11:C:242:PRO:HG2	1.68	0.58
23:P:32:THR:HG21	23:P:87:SER:HB3	1.84	0.58
53:u:112:GLU:OE2	53:u:172:SER:OG	2.21	0.58
5:5:1241:C:N4	5:5:1270:A:O2'	2.36	0.58
5:5:1281:G:H1'	11:C:322:LEU:H	1.68	0.58
17:I:207:ASP:N	17:I:207:ASP:OD1	2.34	0.58
20:M:24:LEU:HB2	20:M:43:THR:HG21	1.85	0.58
20:M:30:VAL:HG11	26:S:152:PHE:HZ	1.68	0.58
21:N:44:ARG:HH11	21:N:47:LYS:HB2	1.67	0.58
30:W:13:ILE:HG12	30:W:32:LEU:HD13	1.84	0.58
36:c:15:ASN:ND2	36:c:74:TYR:OH	2.37	0.58
37:d:63:ARG:NH1	37:d:103:TYR:OH	2.36	0.58
39:f:46:ARG:HD2	39:f:106:TYR:HE1	1.69	0.58
57:y:436:LYS:NZ	57:y:616:GLY:O	2.22	0.58
1:1:162:C:O2'	1:1:213:A:N3	2.35	0.58
1:1:180:G:N2	1:1:218:U:H1'	2.19	0.58
5:5:3615:G:C8	30:W:49:ILE:HG12	2.38	0.58
9:A:83:HIS:CD2	9:A:86:GLN:HB2	2.39	0.58
11:C:122:TYR:CD1	11:C:280:PRO:HG2	2.39	0.58
11:C:219:LYS:HA	11:C:222:ARG:NH1	2.19	0.58
12:D:52:ILE:HG23	12:D:54:ARG:NH1	2.19	0.58
17:I:209:TRP:HE1	17:I:213:HIS:HB2	1.69	0.58
28:U:84:LYS:HG2	28:U:88:LYS:HE2	1.85	0.58
53:u:65:GLU:HB2	57:y:574:MET:HE1	1.85	0.58
54:v:94:THR:HB	57:y:32:LEU:HD11	1.84	0.58
54:v:207:THR:HG22	57:y:405:LEU:HD12	1.85	0.58
5:5:965:G:O2'	5:5:966:A:OP1	2.20	0.58
5:5:1186:U:H2'	5:5:1187:G:O4'	2.04	0.58
5:5:1272:C:H5''	5:5:2122:G:C8	2.39	0.58
5:5:3751:G:O2'	5:5:3775:A:N6	2.36	0.58
5:5:4524:G:N3	10:B:252:ALA:HB1	2.19	0.58
9:A:104:VAL:HA	9:A:107:MET:HE3	1.84	0.58
20:M:6:PHE:O	20:M:11:ARG:NE	2.33	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:Q:93:GLN:HB2	34:a:87:ARG:HH22	1.68	0.58
5:5:956:A:H4'	5:5:957:G:OP2	2.04	0.58
6:6:29:ILE:HG23	6:6:86:VAL:HG13	1.86	0.58
8:8:41:A:H4'	43:j:59:THR:HG22	1.86	0.58
11:C:178:ASN:HD22	11:C:181:LYS:HE2	1.69	0.58
25:R:24:LEU:HD22	25:R:32:ILE:HG21	1.86	0.58
31:X:52:LEU:HD22	31:X:53:ARG:N	2.18	0.58
37:d:29:ILE:HD12	37:d:84:ILE:HD12	1.85	0.58
5:5:728:U:O2'	5:5:729:G:OP1	2.19	0.58
5:5:1213:G:C6	5:5:1215:C:C2	2.92	0.58
13:E:157:ARG:HH12	13:E:271:PHE:N	2.01	0.58
13:E:222:ARG:O	13:E:224:GLN:HB2	2.04	0.58
24:Q:72:LEU:HB2	24:Q:75:ARG:HD3	1.86	0.58
29:V:39:ILE:HG12	29:V:61:VAL:HG11	1.85	0.58
42:i:12:ASN:HD22	42:i:12:ASN:H	1.51	0.58
5:5:4723:A:H2'	5:5:4724:A:C8	2.38	0.58
5:5:5061:A:H4'	5:5:5062:G:H5''	1.85	0.58
14:F:144:TRP:CZ2	14:F:237:ASN:HB2	2.39	0.58
30:W:45:ASN:HD21	30:W:47:ARG:HG3	1.69	0.58
45:l:44:TRP:CZ3	45:l:45:ARG:HD3	2.38	0.58
4:4:28:LEU:HG	4:4:44:ASP:HB2	1.84	0.57
5:5:1921:C:O2	26:S:160:ARG:HB2	2.04	0.57
5:5:5041:G:C6	10:B:389:MET:HB3	2.39	0.57
9:A:14:SER:H	9:A:17:ARG:HE	1.50	0.57
10:B:293:ILE:HG23	10:B:296:GLY:HA2	1.85	0.57
13:E:153:HIS:HD2	13:E:183:ARG:HH11	1.51	0.57
13:E:274:THR:OG1	13:E:275:ASN:N	2.37	0.57
54:v:94:THR:HG21	57:y:37:LEU:HD13	1.86	0.57
5:5:2623:A:OP1	28:U:101:ARG:NH1	2.37	0.57
5:5:5008:C:H2'	5:5:5009:G:O4'	2.05	0.57
6:6:13:TYR:HA	6:6:16:LYS:HD2	1.86	0.57
12:D:77:ALA:O	12:D:108:ARG:NH2	2.36	0.57
25:R:42:ARG:HA	25:R:45:ILE:HD12	1.85	0.57
1:1:119:A:H4'	53:u:83:TYR:CD1	2.39	0.57
1:1:283:A:H2'	1:1:284:G:C8	2.38	0.57
5:5:280:G:OP2	21:N:44:ARG:NH2	2.37	0.57
5:5:691:C:H2'	5:5:692:A:C8	2.38	0.57
5:5:2527:A:OP2	25:R:38:ARG:NH2	2.34	0.57
7:7:59:G:O2'	12:D:267:ASN:OD1	2.18	0.57
11:C:78:ARG:HB3	11:C:88:GLY:HA2	1.86	0.57
38:e:46:ARG:HG2	38:e:46:ARG:HH11	1.69	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:i:12:ASN:H	42:i:12:ASN:ND2	2.00	0.57
44:k:37:ARG:HH21	44:k:42:LEU:HB2	1.69	0.57
56:x:117:THR:HG21	56:x:246:ILE:HG21	1.86	0.57
57:y:584:ILE:HD13	57:y:602:MET:HB3	1.86	0.57
1:1:105:G:O6	1:1:249:G:O2'	2.22	0.57
5:5:472:C:N3	5:5:682:G:N2	2.52	0.57
5:5:930:G:H4'	5:5:931:C:O5'	2.05	0.57
5:5:1236:C:N3	5:5:1238:A:N6	2.53	0.57
5:5:2431:A:OP1	45:l:41:ARG:NH1	2.34	0.57
5:5:4271:A:H5''	5:5:4272:G:H21	1.70	0.57
5:5:4745:G:H8	5:5:4745:G:O5'	1.88	0.57
5:5:302:C:OP1	21:N:68:ARG:HG3	2.05	0.57
5:5:1267:C:H1'	5:5:1268:G:N7	2.19	0.57
5:5:1771:U:H2'	5:5:1772:C:O4'	2.05	0.57
5:5:2478:C:H2'	5:5:2479:G:C8	2.39	0.57
5:5:2639:U:H2'	5:5:2694:G:N1	2.18	0.57
5:5:4216:G:H2'	5:5:4217:G:H5'	1.86	0.57
12:D:41:LYS:HG3	27:T:93:ILE:HD11	1.86	0.57
21:N:124:ASP:OD1	21:N:125:SER:N	2.38	0.57
23:P:78:TRP:HA	23:P:78:TRP:HE3	1.70	0.57
5:5:1804:A:H4'	5:5:1805:A:O5'	2.04	0.57
5:5:3718:A:H2'	5:5:3719:A:O4'	2.05	0.57
6:6:64:ALA:O	6:6:68:HIS:N	2.38	0.57
9:A:225:ILE:HG13	9:A:226:ARG:N	2.19	0.57
19:L:9:ILE:O	34:a:34:ASN:ND2	2.37	0.57
29:V:107:ASN:O	29:V:109:LYS:N	2.36	0.57
4:4:61:LYS:HE3	4:4:72:GLU:HB3	1.87	0.57
5:5:337:U:OP1	19:L:31:ARG:HD2	2.05	0.57
5:5:1271:G:H5''	5:5:1272:C:N1	2.18	0.57
5:5:2485:U:H2'	5:5:2486:G:C8	2.38	0.57
5:5:3595:U:HO2'	25:R:114:LYS:HG3	1.69	0.57
5:5:3858:C:O5'	23:P:25:HIS:HE1	1.87	0.57
7:7:118:C:H41	12:D:258:LYS:HZ3	1.51	0.57
11:C:338:ASN:C	11:C:340:ILE:H	2.13	0.57
21:N:140:LYS:HB3	21:N:144:ARG:HE	1.68	0.57
37:d:23:ARG:HG3	37:d:25:TYR:CD1	2.40	0.57
54:v:83:ARG:HH12	54:v:89:TYR:HB2	1.70	0.57
54:v:93:GLN:HE21	57:y:32:LEU:HD22	1.70	0.57
1:1:117:U:H5''	53:u:94:THR:HG21	1.87	0.57
1:1:119:A:P	53:u:87:ARG:HA	2.43	0.57
4:4:142:ASN:ND2	4:4:147:HIS:O	2.37	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:938:C:H2'	5:5:939:G:C8	2.39	0.57
5:5:1217:G:O2'	5:5:1218:G:H8	1.86	0.57
5:5:2089:G:O2'	5:5:2090:U:OP1	2.23	0.57
5:5:2436:U:OP2	31:X:135:LYS:NZ	2.32	0.57
5:5:4883:C:O2'	5:5:4884:G:OP2	2.20	0.57
7:7:57:C:H2'	7:7:58:A:H8	1.70	0.57
10:B:315:ASN:N	10:B:315:ASN:OD1	2.34	0.57
11:C:219:LYS:HA	11:C:222:ARG:HH11	1.69	0.57
12:D:283:LYS:C	12:D:285:ALA:H	2.12	0.57
16:H:60:TRP:O	16:H:62:GLY:N	2.37	0.57
28:U:36:ALA:C	28:U:65:ARG:HH12	2.13	0.57
33:Z:78:ASN:N	33:Z:78:ASN:OD1	2.38	0.57
34:a:98:ALA:HB2	34:a:121:PRO:HB2	1.86	0.57
39:f:45:LYS:HA	39:f:107:PRO:HG2	1.86	0.57
41:h:88:THR:HB	41:h:91:MET:HB2	1.87	0.57
48:o:26:TYR:HD1	48:o:27:LYS:N	2.02	0.57
48:o:61:LYS:HE2	48:o:87:ARG:HH12	1.69	0.57
5:5:218:A:H5'	11:C:181:LYS:NZ	2.19	0.57
5:5:1280:C:O3'	5:5:1281:G:H3'	2.03	0.57
5:5:1433:A:H2'	5:5:1434:G:O4'	2.05	0.57
5:5:4723:A:H4'	10:B:100:ARG:HD2	1.87	0.57
14:F:139:GLU:HG2	14:F:236:GLY:HA2	1.87	0.57
26:S:13:VAL:HG12	26:S:29:ARG:HB2	1.87	0.57
5:5:5043:A:O2'	5:5:5044:A:C8	2.56	0.57
10:B:41:VAL:HG12	10:B:187:GLY:HA3	1.87	0.57
11:C:200:ARG:HH12	32:Y:11:ARG:CZ	2.17	0.57
12:D:267:ASN:OD1	12:D:268:ARG:N	2.37	0.57
37:d:37:GLY:O	37:d:38:PHE:HB2	2.04	0.57
1:1:91:G:O2'	1:1:92:C:O4'	2.23	0.56
1:1:242:C:OP2	51:r:559:LYS:NZ	2.33	0.56
5:5:1402:C:H2'	5:5:1403:G:C8	2.40	0.56
5:5:1980:U:O2'	5:5:1982:G:OP2	2.22	0.56
5:5:4660:G:H2'	5:5:4661:G:H5''	1.86	0.56
8:8:132:G:OP1	31:X:108:GLN:NE2	2.37	0.56
9:A:163:ARG:HB2	9:A:163:ARG:HH11	1.70	0.56
10:B:388:PHE:O	10:B:390:GLY:N	2.37	0.56
53:u:215:TYR:CE2	53:u:233:ARG:HG2	2.40	0.56
5:5:1267:C:H5''	5:5:2110:C:O2'	2.04	0.56
5:5:2904:U:OP2	5:5:2905:C:N4	2.29	0.56
5:5:4139:G:H1	5:5:4145:C:H42	1.54	0.56
5:5:4883:C:N3	13:E:272:ALA:HB3	2.20	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:D:95:TYR:CE1	12:D:161:GLY:HA3	2.36	0.56
21:N:182:HIS:CD2	21:N:182:HIS:N	2.72	0.56
36:c:50:ASN:O	36:c:51:ASN:HB2	2.04	0.56
43:j:4:GLY:C	43:j:6:SER:H	2.13	0.56
53:u:113:ASP:N	53:u:113:ASP:OD1	2.38	0.56
5:5:49:U:H5'	21:N:192:TRP:CZ2	2.41	0.56
5:5:98:A:OP1	21:N:195:ARG:HD3	2.06	0.56
5:5:212:A:H2'	5:5:213:G:C8	2.39	0.56
5:5:288:G:H2'	5:5:289:C:H6	1.69	0.56
5:5:651:C:H2'	5:5:652:G:H8	1.70	0.56
5:5:715:G:H1	5:5:953:C:N4	2.00	0.56
5:5:973:G:H21	11:C:327:LYS:HD2	1.69	0.56
5:5:1214:C:OP1	5:5:1215:C:O2'	2.23	0.56
5:5:1279:A:H2'	5:5:1280:C:C5	2.39	0.56
5:5:1724:G:H4'	5:5:1725:U:OP2	2.06	0.56
5:5:4117:U:C4	9:A:40:TYR:CD1	2.93	0.56
5:5:4949:G:N2	5:5:4950:U:H2'	2.20	0.56
9:A:144:LYS:HB3	9:A:144:LYS:NZ	2.19	0.56
10:B:153:MET:O	10:B:157:CYS:HB2	2.05	0.56
11:C:302:LEU:HD22	24:Q:38:ARG:HD2	1.87	0.56
12:D:107:ARG:NH2	12:D:116:ASP:OD1	2.27	0.56
12:D:123:VAL:HA	12:D:248:ARG:HH22	1.69	0.56
13:E:104:LYS:NZ	13:E:107:LYS:HA	2.19	0.56
22:O:10:ASP:OD1	22:O:37:ARG:NH1	2.38	0.56
37:d:87:ARG:NH1	37:d:109:VAL:HG13	2.19	0.56
37:d:101:LYS:H	37:d:101:LYS:HD3	1.71	0.56
42:i:54:GLU:O	42:i:58:MET:HG2	2.06	0.56
49:p:3:LYS:NZ	49:p:3:LYS:HB3	2.21	0.56
54:v:122:GLU:HG3	54:v:125:ARG:CZ	2.36	0.56
5:5:120:A:H61	5:5:151:G:H1'	1.71	0.56
5:5:121:A:OP1	15:G:110:LYS:HE2	2.05	0.56
5:5:2769:U:C2	5:5:2770:C:C5	2.94	0.56
5:5:2769:U:H1'	5:5:2770:C:C6	2.40	0.56
5:5:4085:A:N6	15:G:62:ARG:NH1	2.53	0.56
5:5:4765:G:H22	5:5:4869:U:H3	1.52	0.56
22:O:19:LEU:HD23	22:O:41:ILE:HD11	1.86	0.56
24:Q:105:VAL:HB	24:Q:110:ARG:NH1	2.19	0.56
56:x:116:THR:HG22	56:x:120:LYS:HE3	1.88	0.56
56:x:345:PHE:N	56:x:345:PHE:CD1	2.73	0.56
5:5:2857:A:O2'	5:5:2858:A:C8	2.58	0.56
13:E:238:ILE:HG21	13:E:243:LYS:HE3	1.86	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:h:93:ARG:HH11	41:h:93:ARG:HG3	1.70	0.56
5:5:2107:C:N3	5:5:2125:C:N4	2.53	0.56
5:5:4083:U:H2'	5:5:4084:G:H3'	1.88	0.56
5:5:4231:C:N4	5:5:4330:G:O6	2.39	0.56
5:5:4887:C:O2'	5:5:4888:U:OP1	2.19	0.56
10:B:90:VAL:HB	10:B:104:THR:HG23	1.87	0.56
10:B:290:GLY:HA3	10:B:328:ASN:HA	1.86	0.56
20:M:69:ARG:O	20:M:71:LYS:N	2.39	0.56
26:S:12:VAL:HB	26:S:44:PHE:HD2	1.69	0.56
31:X:129:ARG:HD3	31:X:135:LYS:HE2	1.86	0.56
38:e:11:LYS:HB2	38:e:11:LYS:NZ	2.21	0.56
38:e:104:SER:OG	38:e:107:ASN:OD1	2.23	0.56
1:1:162:C:H2'	1:1:163:A:C8	2.40	0.56
5:5:4223:C:H4'	17:I:119:PHE:HE2	1.68	0.56
5:5:5060:A:O2'	5:5:5061:A:OP1	2.17	0.56
11:C:228:THR:OG1	11:C:248:ARG:NH2	2.38	0.56
12:D:250:ASN:HD21	12:D:252:VAL:HG12	1.70	0.56
17:I:47:PRO:HB3	17:I:171:TRP:CE2	2.41	0.56
34:a:103:VAL:HG12	34:a:108:TYR:HB2	1.86	0.56
1:1:95:U:H2'	1:1:96:A:C8	2.41	0.56
5:5:726:G:H1	5:5:940:C:N4	2.03	0.56
5:5:1075:G:H2'	5:5:1076:C:C6	2.41	0.56
5:5:1980:U:O2'	5:5:1981:G:H3'	2.06	0.56
5:5:4582:C:OP2	10:B:28:LYS:NZ	2.25	0.56
6:6:40:MET:O	6:6:44:ARG:HG2	2.06	0.56
13:E:272:ALA:HB1	39:f:3:GLY:HA3	1.88	0.56
17:I:86:HIS:HB3	17:I:139:ARG:HG3	1.86	0.56
19:L:9:ILE:HG13	34:a:52:TYR:CE2	2.41	0.56
5:5:1362:G:OP1	19:L:39:ARG:NH2	2.39	0.56
5:5:2472:A:H1'	31:X:48:ARG:HB3	1.88	0.56
5:5:3648:A:C4	5:5:3785:A:N6	2.74	0.56
5:5:3712:A:N6	5:5:3737:A:OP2	2.38	0.56
5:5:3896:C:O2'	10:B:268:ARG:NH2	2.30	0.56
5:5:4697:U:H4'	46:m:104:HIS:CD2	2.41	0.56
5:5:4768:G:H3'	5:5:4769:G:H8	1.71	0.56
5:5:4941:G:O3'	13:E:183:ARG:NH2	2.37	0.56
8:8:80:A:C8	8:8:81:C:H1'	2.41	0.56
24:Q:90:VAL:HB	34:a:80:THR:HG21	1.87	0.56
29:V:85:ARG:N	29:V:101:ASN:OD1	2.33	0.56
35:b:27:GLN:N	35:b:27:GLN:HE21	2.03	0.56
37:d:93:ASN:C	37:d:93:ASN:HD22	2.13	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:k:24:LYS:HD2	44:k:69:LEU:HD23	1.86	0.56
3:3:11:ARG:HG3	3:3:12:ASN:H	1.69	0.56
5:5:959:G:O2'	13:E:119:ARG:O	2.22	0.56
5:5:2361:G:O2'	5:5:2362:U:P	2.63	0.56
5:5:3700:C:H2'	5:5:3746:A:H61	1.71	0.56
5:5:4524:G:C2	10:B:252:ALA:HB1	2.41	0.56
27:T:143:THR:OG1	27:T:146:LYS:O	2.23	0.56
29:V:73:ARG:HB3	29:V:73:ARG:NH1	2.21	0.56
48:o:45:GLN:HE22	48:o:52:THR:N	2.04	0.56
4:4:93:LYS:O	4:4:94:LYS:HB2	2.04	0.55
5:5:93:G:O2'	5:5:94:A:C8	2.59	0.55
5:5:1393:G:O2'	19:L:190:ARG:NH2	2.39	0.55
5:5:2553:A:H1'	5:5:2554:U:O4'	2.05	0.55
5:5:2745:A:H2'	5:5:2746:A:C8	2.41	0.55
5:5:3795:A:H2'	5:5:3796:U:C6	2.41	0.55
5:5:4759:C:OP1	22:O:160:ARG:NH2	2.39	0.55
5:5:4935:C:C4	13:E:179:ARG:HG2	2.41	0.55
10:B:14:LEU:HD13	10:B:264:PHE:HE1	1.71	0.55
11:C:252:TRP:CZ3	11:C:260:LEU:HD11	2.40	0.55
19:L:47:ALA:HB3	19:L:48:PRO:HD3	1.88	0.55
39:f:71:TRP:HD1	39:f:89:ARG:HH11	1.54	0.55
53:u:86:ARG:O	53:u:90:ARG:HG3	2.06	0.55
5:5:939:G:H2'	5:5:939:G:N3	2.21	0.55
5:5:1852:U:H5''	34:a:22:ILE:HD12	1.88	0.55
5:5:3727:A:H2'	5:5:3728:A:C8	2.41	0.55
10:B:10:ARG:NH1	10:B:14:LEU:HD21	2.21	0.55
10:B:232:THR:HB	10:B:249:ARG:NH1	2.22	0.55
13:E:217:LYS:HD3	13:E:218:LEU:HG	1.89	0.55
19:L:36:ARG:HA	19:L:39:ARG:NH1	2.21	0.55
20:M:90:ARG:HB3	20:M:90:ARG:HH11	1.71	0.55
26:S:120:ARG:HB2	26:S:122:HIS:CD2	2.41	0.55
53:u:60:LEU:HB3	53:u:229:LEU:HD11	1.88	0.55
57:y:548:PHE:HB2	57:y:581:ILE:HD13	1.87	0.55
5:5:1253:G:O2'	5:5:1257:A:N6	2.38	0.55
5:5:4935:C:N4	13:E:179:ARG:HG2	2.20	0.55
11:C:235:LEU:HD22	11:C:240:LEU:HD11	1.87	0.55
13:E:88:VAL:HB	13:E:91:PRO:HD2	1.88	0.55
56:x:404:GLN:O	56:x:408:ARG:HG3	2.06	0.55
5:5:303:C:OP2	21:N:68:ARG:NH2	2.40	0.55
5:5:688:U:H2'	5:5:689:U:O4'	2.07	0.55
5:5:1455:G:O2'	5:5:1456:C:OP1	2.18	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:2857:A:O2'	5:5:2858:A:H8	1.89	0.55
5:5:4518:A:H5''	5:5:4520:G:H4'	1.88	0.55
13:E:250:ASP:O	13:E:251:SER:OG	2.21	0.55
39:f:4:ARG:C	39:f:6:TRP:N	2.64	0.55
40:g:67:LEU:HD22	40:g:71:LYS:HD3	1.88	0.55
54:v:93:GLN:HG2	57:y:14:VAL:HG22	1.88	0.55
5:5:2851:G:C5	5:5:2852:U:C6	2.95	0.55
5:5:3672:G:H2'	5:5:3674:G:H5''	1.88	0.55
5:5:4736:C:O2'	5:5:4737:G:C8	2.57	0.55
5:5:5039:U:C4	5:5:5040:U:C4	2.95	0.55
25:R:69:ALA:HB1	25:R:74:ARG:HB2	1.89	0.55
37:d:115:LYS:C	37:d:116:ASN:HD22	2.12	0.55
43:j:8:PHE:HA	43:j:11:ARG:HD2	1.89	0.55
57:y:334:ARG:NH2	57:y:367:ASN:OD1	2.33	0.55
1:1:185:C:OP1	56:x:405:ARG:NH1	2.39	0.55
4:4:113:ALA:HA	4:4:116:MET:HE2	1.88	0.55
5:5:218:A:C8	11:C:181:LYS:HG3	2.42	0.55
5:5:1554:A:N6	5:5:1573:G:O2'	2.35	0.55
5:5:2710:C:H3'	5:5:2711:G:C5'	2.36	0.55
5:5:4523:A:H5''	5:5:4524:G:H5'	1.87	0.55
5:5:4610:A:H2	16:H:170:LYS:HZ1	1.55	0.55
7:7:62:U:C5'	12:D:279:ARG:HH12	2.20	0.55
33:Z:76:ASN:OD1	33:Z:77:TYR:N	2.39	0.55
4:4:106:PHE:CE2	4:4:140:GLY:HA3	2.41	0.55
5:5:344:A:H5'	43:j:75:ARG:NH1	2.22	0.55
5:5:1571:G:C2	5:5:1572:U:H1'	2.42	0.55
5:5:4990:C:O2	51:r:589:UNK:HG1	2.07	0.55
10:B:279:GLU:HG2	10:B:282:LYS:HZ3	1.72	0.55
13:E:157:ARG:NH2	13:E:271:PHE:HB2	2.19	0.55
57:y:353:VAL:HG21	57:y:634:LEU:HD21	1.88	0.55
1:1:117:U:H5''	53:u:94:THR:CG2	2.37	0.55
5:5:686:A:C3'	5:5:687:U:H5'	2.37	0.55
5:5:1970:A:N6	5:5:2016:C:OP2	2.30	0.55
5:5:2493:G:O2'	8:8:127:U:OP2	2.21	0.55
5:5:2586:G:C8	5:5:2770:C:H1'	2.42	0.55
5:5:3870:C:H4'	10:B:261:ARG:HE	1.72	0.55
15:G:103:ARG:HB2	15:G:103:ARG:HH11	1.72	0.55
17:I:35:ASP:HB3	17:I:88:ARG:HD2	1.88	0.55
17:I:100:ASN:H	17:I:100:ASN:HD22	1.55	0.55
24:Q:85:THR:HG22	24:Q:104:ARG:HB2	1.88	0.55
51:r:134:ASP:OD1	51:r:138:ASN:ND2	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:114:C:H2'	1:1:115:A:H8	1.72	0.55
5:5:1296:G:H1'	5:5:1297:U:P	2.47	0.55
5:5:3595:U:O2'	25:R:114:LYS:HG3	2.07	0.55
5:5:4951:G:HO2'	5:5:4952:G:P	2.30	0.55
5:5:5063:G:O6	10:B:124:LYS:NZ	2.35	0.55
11:C:140:LYS:NZ	11:C:242:PRO:HG2	2.21	0.55
14:F:82:ASN:HD21	27:T:142:ARG:HB3	1.72	0.55
53:u:108:LYS:HE3	53:u:123:LEU:HD23	1.88	0.55
58:z:77:ASN:N	58:z:77:ASN:OD1	2.39	0.55
5:5:275:C:O2'	5:5:276:C:OP1	2.25	0.55
5:5:2046:G:C4	22:O:60:LYS:HD3	2.41	0.55
5:5:4476:C:O2'	5:5:4478:G:OP2	2.23	0.55
5:5:5003:U:OP2	10:B:378:ARG:NH2	2.37	0.55
9:A:31:ALA:HB2	9:A:123:ARG:HE	1.71	0.55
19:L:9:ILE:HG13	34:a:52:TYR:HE2	1.71	0.55
21:N:158:HIS:HB3	21:N:161:MET:CG	2.37	0.55
21:N:172:ARG:NH1	21:N:174:LEU:HD21	2.22	0.55
21:N:178:HIS:CD2	21:N:179:LYS:HG2	2.42	0.55
32:Y:47:MET:HE2	32:Y:115:ARG:HE	1.70	0.55
36:c:48:LEU:HD13	36:c:57:LYS:HG3	1.89	0.55
43:j:17:THR:OG1	43:j:18:LEU:N	2.40	0.55
46:m:112:LYS:HB3	46:m:114:LYS:HG2	1.87	0.55
55:w:53:THR:HG23	55:w:55:GLN:HG3	1.88	0.55
56:x:415:ARG:HH22	56:x:419:GLU:CD	2.14	0.55
58:z:4:LEU:HD22	58:z:8:GLN:HG2	1.88	0.55
5:5:21:G:H1'	8:8:103:A:N3	2.21	0.54
5:5:456:C:H2'	5:5:457:G:C8	2.41	0.54
5:5:497:G:H3'	5:5:498:C:H5''	1.88	0.54
5:5:1788:A:H61	17:I:17:TYR:HE1	1.55	0.54
5:5:2385:U:H2'	5:5:2386:U:C6	2.42	0.54
10:B:94:GLU:HG3	10:B:99:LEU:HD23	1.89	0.54
10:B:203:GLN:HA	10:B:203:GLN:HE21	1.70	0.54
11:C:303:ARG:NH2	24:Q:38:ARG:HG2	2.21	0.54
15:G:166:LEU:HD21	21:N:45:PRO:HG2	1.89	0.54
30:W:2:LYS:NZ	30:W:2:LYS:HB3	2.22	0.54
38:e:26:ASP:OD1	38:e:26:ASP:N	2.30	0.54
57:y:398:PRO:HG3	57:y:609:PRO:HA	1.90	0.54
1:1:98:G:N2	1:1:251:G:O6	2.40	0.54
5:5:279:A:HO2'	5:5:280:G:P	2.30	0.54
5:5:961:G:H2'	13:E:119:ARG:NH1	2.21	0.54
5:5:979:C:H2'	5:5:980:U:O4'	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:1557:C:H2'	5:5:1558:A:C8	2.42	0.54
5:5:3799:A:N3	29:V:40:ILE:HD12	2.22	0.54
5:5:5005:G:O2'	5:5:5042:A:N6	2.40	0.54
6:6:50:LYS:NZ	6:6:50:LYS:HB2	2.22	0.54
11:C:351:MET:HA	11:C:354:ALA:HB3	1.88	0.54
15:G:182:CYS:HA	15:G:226:TYR:CD2	2.42	0.54
16:H:173:ARG:HD2	46:m:124:LYS:HE2	1.88	0.54
1:1:117:U:H4'	53:u:119:ARG:HH22	1.68	0.54
1:1:117:U:H4'	53:u:119:ARG:HH21	1.70	0.54
4:4:86:LYS:C	4:4:104:ILE:HG21	2.32	0.54
5:5:1221:G:O2'	5:5:1222:A:O5'	2.18	0.54
5:5:1358:G:C8	5:5:1358:G:H3'	2.43	0.54
5:5:1361:G:N2	5:5:1378:C:O2	2.40	0.54
5:5:1401:C:H2'	5:5:1402:C:C6	2.41	0.54
40:g:84:ALA:HA	40:g:87:VAL:HB	1.89	0.54
51:r:150:ASN:O	51:r:154:VAL:HG23	2.08	0.54
57:y:400:ARG:HG3	57:y:609:PRO:HD3	1.89	0.54
5:5:1931:C:N4	5:5:2040:A:O2'	2.39	0.54
18:J:19:LYS:HE2	18:J:133:VAL:HG21	1.89	0.54
23:P:88:ALA:O	23:P:92:LEU:HB2	2.08	0.54
55:w:41:LYS:HB2	55:w:50:VAL:HG23	1.90	0.54
5:5:931:C:O2'	5:5:932:A:P	2.66	0.54
5:5:2399:G:C2	40:g:4:ARG:NH1	2.74	0.54
5:5:2464:C:O2'	5:5:2465:C:H6	1.91	0.54
5:5:4459:U:H5''	10:B:10:ARG:NH2	2.23	0.54
12:D:51:MET:HE1	12:D:163:LEU:HA	1.90	0.54
18:J:19:LYS:HD3	18:J:75:ARG:NH2	2.22	0.54
28:U:91:LEU:HB3	28:U:96:LEU:HB2	1.90	0.54
54:v:225:LEU:HB3	54:v:232:PHE:CE1	2.43	0.54
57:y:553:LEU:HD12	57:y:588:LYS:HD3	1.90	0.54
1:1:254:U:H3'	1:1:255:A:C8	2.42	0.54
5:5:1439:C:H5'	14:F:36:ARG:NH1	2.19	0.54
5:5:1506:G:H21	11:C:116:ASN:ND2	2.06	0.54
5:5:2096:G:O2'	5:5:2097:U:OP2	2.21	0.54
5:5:2258:C:O2	5:5:2258:C:H2'	2.08	0.54
5:5:4244:A:OP1	18:J:54:ARG:NH2	2.39	0.54
6:6:99:ARG:HH11	6:6:99:ARG:HG3	1.71	0.54
11:C:173:LYS:HZ3	11:C:173:LYS:N	2.06	0.54
11:C:305:PRO:HG3	24:Q:38:ARG:NH1	2.21	0.54
13:E:230:ASP:OD1	13:E:230:ASP:N	2.40	0.54
57:y:475:HIS:HB3	57:y:480:HIS:CD2	2.42	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:4:2:PRO:HB2	4:4:3:PRO:HD3	1.90	0.54
5:5:29:G:H5'	21:N:172:ARG:HG2	1.90	0.54
5:5:1278:C:C2	5:5:1279:A:H1'	2.43	0.54
5:5:1571:G:O2'	25:R:130:ASN:ND2	2.41	0.54
5:5:2758:G:O2'	5:5:2764:A:N3	2.36	0.54
5:5:4092:G:N2	5:5:4158:C:C2	2.76	0.54
5:5:4170:A:H4'	5:5:4171:C:O5'	2.08	0.54
5:5:4548:A:H4'	5:5:4549:G:H5'	1.88	0.54
8:8:37:A:H4'	8:8:38:U:H5''	1.88	0.54
8:8:90:C:O2	32:Y:24:HIS:HB2	2.07	0.54
17:I:86:HIS:HD2	17:I:139:ARG:NH1	2.05	0.54
18:J:58:ARG:HB3	18:J:58:ARG:HH11	1.72	0.54
28:U:69:LYS:NZ	28:U:69:LYS:HB2	2.22	0.54
34:a:117:LEU:HD12	34:a:118:PRO:HD2	1.90	0.54
50:q:20:PRO:HB3	50:q:44:PRO:O	2.07	0.54
51:r:34:VAL:HG11	51:r:51:LYS:HB2	1.90	0.54
3:3:46:HIS:HB2	3:3:70:GLN:OE1	2.07	0.54
5:5:134:G:OP1	5:5:134:G:H2'	2.08	0.54
5:5:187:U:H3'	5:5:245:C:O2	2.08	0.54
5:5:1907:A:H4'	14:F:225:LYS:HE3	1.88	0.54
5:5:1934:A:O2'	5:5:2059:C:OP1	2.23	0.54
5:5:2087:C:C5	24:Q:37:ARG:NH1	2.76	0.54
5:5:2668:G:OP2	25:R:103:ARG:NH2	2.40	0.54
13:E:95:ASP:OD1	13:E:96:LYS:N	2.27	0.54
13:E:181:PRO:HA	13:E:246:GLN:NE2	2.13	0.54
15:G:175:ARG:HH21	15:G:230:TYR:HB3	1.72	0.54
23:P:24:VAL:HG22	23:P:90:PHE:HD2	1.72	0.54
57:y:559:VAL:HG13	57:y:605:ILE:HG21	1.90	0.54
5:5:175:C:H2'	5:5:176:G:H8	1.73	0.54
5:5:751:G:N2	5:5:912:G:N3	2.56	0.54
5:5:1312:A:O2'	38:e:44:ARG:NH2	2.41	0.54
5:5:2127:C:H2'	5:5:2128:G:C8	2.43	0.54
5:5:2462:C:H5'	21:N:108:ARG:HH22	1.72	0.54
5:5:3680:U:H5'	9:A:54:ARG:HH12	1.73	0.54
5:5:4119:C:O2'	5:5:4120:U:OP1	2.25	0.54
7:7:119:U:O4	12:D:258:LYS:NZ	2.33	0.54
9:A:97:ASN:N	9:A:97:ASN:OD1	2.41	0.54
37:d:71:ALA:HB3	37:d:108:TYR:CE2	2.42	0.54
51:r:56:ILE:HG21	53:u:593:VAL:HG21	1.90	0.54
55:w:38:LEU:HD21	55:w:62:ILE:HG21	1.89	0.54
5:5:2579:G:N2	5:5:2582:A:OP2	2.29	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:2739:C:H4'	49:p:52:VAL:HG21	1.90	0.54
5:5:3660:C:H2'	5:5:3682:A:H61	1.73	0.54
5:5:4973:U:H1'	5:5:4986:G:C2	2.43	0.54
10:B:257:TRP:O	10:B:257:TRP:HD1	1.91	0.54
13:E:157:ARG:HD3	13:E:266:TYR:CZ	2.43	0.54
13:E:277:ILE:HD11	13:E:282:LEU:HD22	1.88	0.54
17:I:98:ARG:HD2	17:I:119:PHE:HE1	1.72	0.54
20:M:75:LYS:C	20:M:77:TRP:H	2.16	0.54
25:R:139:MET:HB3	25:R:143:HIS:NE2	2.23	0.54
28:U:23:LEU:HD12	28:U:83:LEU:HD23	1.90	0.54
40:g:15:THR:HG22	40:g:16:ALA:H	1.72	0.54
55:w:18:TYR:OH	55:w:73:MET:HG2	2.07	0.54
5:5:454:U:H3'	13:E:220:LYS:NZ	2.23	0.53
5:5:465:G:N2	5:5:690:C:N3	2.55	0.53
5:5:4305:G:H22	27:T:87:LYS:CE	2.21	0.53
5:5:4730:C:H4'	5:5:4731:G:OP1	2.08	0.53
8:8:127:U:H2'	8:8:128:C:O4'	2.08	0.53
9:A:117:GLU:HB2	9:A:162:ASN:HB2	1.90	0.53
24:Q:22:ASP:N	24:Q:22:ASP:OD1	2.40	0.53
5:5:651:C:H2'	5:5:652:G:C8	2.43	0.53
5:5:702:U:C2'	5:5:703:G:H4'	2.37	0.53
5:5:715:G:N2	5:5:953:C:N3	2.44	0.53
5:5:2088:A:N6	24:Q:30:LYS:HB3	2.22	0.53
5:5:4935:C:C5	13:E:179:ARG:NH1	2.76	0.53
6:6:200:ASN:N	6:6:205:ASP:OD2	2.35	0.53
8:8:141:C:H2'	8:8:142:U:C6	2.42	0.53
11:C:172:LYS:HG2	11:C:177:TRP:CD1	2.44	0.53
12:D:254:GLU:HG2	12:D:254:GLU:O	2.07	0.53
17:I:100:ASN:HD22	17:I:100:ASN:N	2.06	0.53
19:L:20:ARG:HG2	19:L:21:ARG:HG3	1.91	0.53
56:x:132:THR:HG22	56:x:186:ILE:HB	1.88	0.53
5:5:459:C:H5'	13:E:109:PRO:HB3	1.90	0.53
8:8:81:C:H2'	8:8:83:C:OP1	2.08	0.53
13:E:160:PHE:HE1	13:E:169:LEU:HD22	1.73	0.53
22:O:79:ILE:O	22:O:83:THR:HG23	2.08	0.53
28:U:111:GLU:OE1	28:U:113:ARG:NE	2.32	0.53
41:h:101:ASN:OD1	41:h:101:ASN:N	2.30	0.53
3:3:90:LEU:HG	3:3:111:ILE:HG23	1.89	0.53
5:5:100:C:H2'	5:5:101:A:O4'	2.09	0.53
5:5:1506:G:H21	11:C:116:ASN:HD21	1.57	0.53
5:5:1846:G:H2'	5:5:1847:C:C6	2.42	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:2115:G:H3'	5:5:2116:C:H6	1.74	0.53
7:7:1:G:C8	12:D:263:LYS:NZ	2.76	0.53
22:O:110:PRO:O	22:O:112:TYR:N	2.41	0.53
34:a:14:HIS:CE1	38:e:39:ARG:NH1	2.76	0.53
39:f:8:LYS:HD3	39:f:100:ARG:NH1	2.23	0.53
39:f:28:LEU:HG	39:f:101:ILE:HD11	1.91	0.53
39:f:36:ARG:HH11	39:f:36:ARG:CG	2.22	0.53
53:u:99:MET:HG2	53:u:108:LYS:HB2	1.90	0.53
5:5:2091:C:H1'	5:5:2092:G:H2'	1.91	0.53
5:5:2475:G:N2	31:X:53:ARG:HG2	2.23	0.53
5:5:4769:G:H2'	5:5:4770:U:O4'	2.07	0.53
13:E:282:LEU:HD12	20:M:109:ARG:CZ	2.39	0.53
14:F:202:ARG:HG3	14:F:202:ARG:HH11	1.73	0.53
17:I:184:MET:HE2	17:I:189:CYS:HB3	1.91	0.53
21:N:184:ILE:HG23	21:N:194:ARG:HH12	1.74	0.53
26:S:83:ARG:NH2	27:T:156:TYR:HB2	2.23	0.53
39:f:50:VAL:HG21	39:f:102:ARG:HH11	1.74	0.53
42:i:66:ASP:OD1	42:i:66:ASP:N	2.41	0.53
54:v:181:LYS:HB3	54:v:184:ILE:HD12	1.90	0.53
1:1:106:G:H1	1:1:248:U:H3	1.57	0.53
3:3:23:GLN:HG2	38:e:95:TYR:CE2	2.43	0.53
5:5:713:C:N3	5:5:955:G:N2	2.45	0.53
5:5:719:C:H42	5:5:949:G:H1	1.57	0.53
5:5:1087:A:H2'	5:5:1088:C:C6	2.44	0.53
5:5:1864:G:H5'	5:5:1865:G:OP2	2.08	0.53
5:5:3685:C:H5''	9:A:193:ARG:NH2	2.23	0.53
5:5:4751:G:OP2	39:f:100:ARG:HB2	2.08	0.53
10:B:371:THR:HG21	30:W:17:HIS:CE1	2.44	0.53
11:C:318:PRO:C	11:C:320:LYS:H	2.17	0.53
24:Q:66:MET:HE3	24:Q:98:LEU:HD13	1.90	0.53
37:d:24:GLU:HB3	37:d:87:ARG:HH21	1.73	0.53
39:f:43:LEU:HD22	39:f:76:ARG:HA	1.90	0.53
49:p:37:TYR:CD2	49:p:71:TYR:HB2	2.44	0.53
56:x:405:ARG:HA	56:x:408:ARG:HE	1.72	0.53
5:5:200:U:OP2	32:Y:36:LYS:NZ	2.41	0.53
5:5:2434:G:O3'	31:X:83:THR:HG21	2.09	0.53
6:6:11:SER:HA	6:6:14:PHE:CD2	2.44	0.53
11:C:66:SER:O	11:C:66:SER:OG	2.21	0.53
13:E:104:LYS:HE2	13:E:104:LYS:HA	1.90	0.53
15:G:162:ASP:HB3	15:G:163:PRO:HD3	1.90	0.53
16:H:97:ALA:HB1	46:m:77:ILE:HD11	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:H:171:ASP:OD2	16:H:173:ARG:NH1	2.42	0.53
17:I:14:ASN:O	17:I:128:ARG:NH2	2.42	0.53
25:R:95:TRP:O	25:R:99:MET:N	2.41	0.53
31:X:72:ASP:N	31:X:72:ASP:OD1	2.40	0.53
53:u:170:CYS:O	53:u:180:LYS:HG2	2.08	0.53
57:y:334:ARG:HG2	57:y:366:ALA:HB1	1.90	0.53
3:3:39:ARG:O	3:3:103:ARG:NH2	2.39	0.53
5:5:2263:A:O3'	5:5:2264:C:H6	1.91	0.53
5:5:4368:G:H21	48:o:26:TYR:HE2	1.56	0.53
7:7:57:C:H2'	7:7:58:A:C8	2.44	0.53
8:8:87:G:O2'	8:8:88:A:N7	2.42	0.53
11:C:33:ARG:HH21	24:Q:22:ASP:CB	2.20	0.53
13:E:157:ARG:NH1	13:E:271:PHE:HB2	2.21	0.53
14:F:28:ALA:O	14:F:32:ILE:HD13	2.09	0.53
38:e:16:ARG:NH1	38:e:18:LYS:HB2	2.23	0.53
57:y:508:ALA:HB1	57:y:513:PHE:HB2	1.91	0.53
58:z:61:THR:HG22	58:z:63:GLY:H	1.74	0.53
5:5:211:G:H5'	5:5:234:G:O2'	2.09	0.53
5:5:509:A:N7	34:a:82:VAL:HG13	2.24	0.53
5:5:704:C:OP1	38:e:5:ARG:NH2	2.42	0.53
5:5:1280:C:N4	5:5:1282:G:C6	2.77	0.53
5:5:1441:C:H2'	5:5:1442:C:O4'	2.09	0.53
5:5:2489:C:O2'	5:5:2491:C:N4	2.42	0.53
5:5:2658:G:N2	5:5:2675:G:H2'	2.19	0.53
5:5:3762:U:H2'	5:5:3763:A:O4'	2.09	0.53
5:5:4945:G:H21	39:f:69:VAL:H	1.56	0.53
11:C:207:PRO:HB3	11:C:249:PHE:CD2	2.44	0.53
17:I:98:ARG:CD	17:I:119:PHE:HE1	2.22	0.53
19:L:135:LYS:H	19:L:135:LYS:HD2	1.74	0.53
25:R:95:TRP:CZ2	25:R:99:MET:HE1	2.43	0.53
26:S:12:VAL:HB	26:S:44:PHE:CD2	2.44	0.53
42:i:84:LYS:O	42:i:88:GLU:HG2	2.08	0.53
1:1:228:A:H2'	1:1:229:U:C6	2.44	0.53
5:5:1075:G:N2	5:5:1236:C:O2	2.42	0.53
5:5:3679:U:C5	9:A:20:VAL:HB	2.43	0.53
12:D:123:VAL:HG13	12:D:248:ARG:HH22	1.73	0.53
33:Z:4:PHE:CD2	36:c:66:LEU:HB3	2.44	0.53
42:i:29:ARG:HG3	42:i:29:ARG:O	2.08	0.53
54:v:105:VAL:HG21	54:v:271:ALA:HB2	1.90	0.53
54:v:175:PHE:HE2	54:v:239:LEU:HD22	1.74	0.53
5:5:35:U:O2'	5:5:1525:A:N1	2.39	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:1279:A:O2'	5:5:1280:C:O4'	2.26	0.52
5:5:1629:G:N1	9:A:208:GLU:OE1	2.32	0.52
5:5:1729:A:O2'	27:T:104:SER:HB3	2.08	0.52
5:5:2114:G:H4'	5:5:2115:G:C8	2.43	0.52
5:5:2772:C:O3'	44:k:17:ARG:NH1	2.40	0.52
6:6:77:LYS:HZ2	6:6:198:ILE:HD13	1.74	0.52
7:7:63:C:O4'	12:D:280:VAL:HG11	2.08	0.52
8:8:83:C:H4'	8:8:85:U:O2	2.09	0.52
9:A:242:ARG:CB	9:A:242:ARG:HH11	2.21	0.52
20:M:39:ASP:HB2	20:M:47:ARG:HD3	1.90	0.52
20:M:80:ALA:O	20:M:85:LYS:NZ	2.38	0.52
32:Y:121:ARG:CZ	32:Y:121:ARG:HB3	2.39	0.52
43:j:76:HIS:C	43:j:79:ARG:NH1	2.67	0.52
1:1:57:G:C6	1:1:289:A:C6	2.98	0.52
5:5:684:G:O2'	5:5:685:C:O5'	2.26	0.52
5:5:919:C:N4	5:5:920:C:C4	2.78	0.52
5:5:926:G:O2'	5:5:927:G:H5'	2.08	0.52
5:5:956:A:H3'	5:5:957:G:C5	2.45	0.52
5:5:1068:G:H2'	5:5:1069:G:H8	1.73	0.52
5:5:1439:C:OP2	14:F:36:ARG:NH2	2.42	0.52
5:5:2091:C:O2	5:5:2092:G:O2'	2.24	0.52
5:5:3596:A:OP2	25:R:146:LYS:HD3	2.09	0.52
5:5:3617:G:O2'	5:5:3620:G:N7	2.42	0.52
5:5:4076:G:H8	5:5:4076:G:OP1	1.93	0.52
5:5:4768:G:H3'	5:5:4769:G:C8	2.43	0.52
5:5:4900:C:H4'	5:5:4901:G:H5''	1.91	0.52
5:5:4910:G:H1	22:O:108:ILE:H	1.58	0.52
8:8:65:A:OP1	41:h:56:ARG:HG3	2.09	0.52
8:8:84:A:H5'	8:8:85:U:C6	2.44	0.52
10:B:110:ILE:HG21	10:B:115:LYS:HD3	1.91	0.52
19:L:127:PHE:HB2	41:h:118:LYS:O	2.09	0.52
41:h:4:ILE:O	41:h:56:ARG:HD2	2.10	0.52
53:u:212:LYS:HG3	53:u:234:VAL:HG13	1.90	0.52
1:1:56:A:H61	1:1:290:C:H42	1.57	0.52
3:3:30:ASN:HB2	3:3:50:GLY:HA3	1.92	0.52
5:5:1357:C:N4	5:5:1380:G:N7	2.57	0.52
5:5:1613:A:H62	5:5:3637:U:H3	1.56	0.52
9:A:42:LYS:HG3	9:A:89:TYR:CE2	2.44	0.52
13:E:284:PHE:HB2	20:M:106:ASP:HB2	1.91	0.52
37:d:91:LYS:NZ	37:d:103:TYR:HD2	2.07	0.52
39:f:46:ARG:HD2	39:f:106:TYR:CE1	2.43	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:h:77:LYS:HD2	41:h:78:TYR:CE1	2.45	0.52
42:i:12:ASN:HD22	42:i:12:ASN:N	2.06	0.52
57:y:119:ARG:O	57:y:123:GLU:HB3	2.09	0.52
57:y:554:VAL:HG22	57:y:557:GLU:HB2	1.90	0.52
1:1:53:A:H61	1:1:293:C:H42	1.56	0.52
4:4:16:ARG:O	4:4:61:LYS:N	2.40	0.52
5:5:2544:G:N2	8:8:124:U:OP1	2.42	0.52
5:5:4095:G:H1	5:5:4113:U:H3	1.57	0.52
9:A:43:GLY:HA3	9:A:63:PHE:CD1	2.42	0.52
9:A:89:TYR:HB2	9:A:100:ASN:ND2	2.24	0.52
13:E:42:ARG:O	13:E:43:ASN:HB3	2.10	0.52
26:S:44:PHE:C	26:S:44:PHE:CD1	2.88	0.52
49:p:33:GLN:OE1	49:p:49:ARG:NH2	2.37	0.52
56:x:328:THR:HG21	56:x:391:ASP:HA	1.90	0.52
4:4:1:MET:N	4:4:2:PRO:HD3	2.25	0.52
5:5:294:G:H2'	5:5:294:G:N3	2.24	0.52
5:5:979:C:H5''	13:E:40:CYS:H	1.73	0.52
5:5:1240:G:N7	5:5:1271:G:H4'	2.25	0.52
5:5:1865:G:N2	5:5:1867:A:H3'	2.24	0.52
5:5:2583:C:OP1	40:g:54:ARG:HB2	2.09	0.52
5:5:4122:G:O6	40:g:101:LYS:NZ	2.35	0.52
8:8:31:G:H2'	8:8:32:C:O4'	2.09	0.52
27:T:8:ARG:HD2	27:T:52:MET:HE1	1.90	0.52
34:a:131:ARG:HH22	34:a:132:ARG:HH12	1.57	0.52
55:w:33:HIS:CD2	58:z:21:ARG:HG3	2.44	0.52
57:y:527:ASN:ND2	57:y:530:LEU:HD12	2.24	0.52
58:z:30:LEU:HD13	58:z:58:LEU:HD13	1.90	0.52
5:5:27:C:H2'	5:5:28:C:H6	1.74	0.52
5:5:486:C:O2'	5:5:487:G:OP1	2.25	0.52
5:5:5005:G:N7	30:W:51:TRP:CD1	2.78	0.52
14:F:159:ARG:NH2	14:F:250:ASN:OXT	2.43	0.52
20:M:119:ARG:HH11	22:O:202:LEU:HD13	1.74	0.52
23:P:29:THR:HA	23:P:32:THR:HG22	1.92	0.52
30:W:17:HIS:H	30:W:17:HIS:CD2	2.28	0.52
45:l:21:ARG:NH2	45:l:22:PRO:O	2.43	0.52
5:5:33:A:H5'	21:N:86:HIS:CD2	2.45	0.52
5:5:364:G:N7	43:j:55:ARG:NH2	2.57	0.52
5:5:722:G:H2'	5:5:723:A:C8	2.44	0.52
5:5:975:C:O2	11:C:323:ARG:NH2	2.42	0.52
5:5:1210:C:H5'	14:F:72:ARG:HH22	1.74	0.52
5:5:1358:G:H5''	11:C:114:ARG:NH1	2.00	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:4075:U:OP1	15:G:246:SER:OG	2.19	0.52
5:5:4223:C:H4'	17:I:119:PHE:CD2	2.44	0.52
5:5:4909:A:OP1	22:O:163:LYS:NZ	2.42	0.52
8:8:76:C:H2'	8:8:77:A:O4'	2.10	0.52
11:C:137:VAL:HG11	11:C:144:ILE:HD12	1.92	0.52
14:F:99:GLY:HA2	14:F:119:ILE:HB	1.92	0.52
19:L:163:ARG:HB3	19:L:163:ARG:NH1	2.24	0.52
28:U:43:LEU:O	28:U:47:ILE:HD13	2.10	0.52
5:5:49:U:H5'	21:N:192:TRP:HZ2	1.74	0.52
5:5:175:C:H2'	5:5:176:G:C8	2.45	0.52
5:5:1687:U:H2'	5:5:1688:G:C8	2.45	0.52
5:5:2083:C:H3'	5:5:2084:C:C5'	2.39	0.52
5:5:2822:G:H5''	25:R:18:GLY:HA3	1.91	0.52
5:5:3748:A:HO2'	9:A:223:SER:HG	1.58	0.52
25:R:98:ARG:NH1	25:R:133:LYS:HB2	2.25	0.52
53:u:95:LEU:HG	53:u:120:TYR:HE1	1.75	0.52
1:1:35:U:H4'	1:1:37:C:H5	1.75	0.52
5:5:730:G:N2	5:5:939:G:N2	2.58	0.52
5:5:2553:A:O2'	5:5:2554:U:H5''	2.10	0.52
5:5:3697:U:O2'	5:5:3698:G:OP2	2.24	0.52
5:5:3717:A:OP2	5:5:3735:G:N2	2.43	0.52
8:8:37:A:OP2	41:h:89:ARG:HD3	2.10	0.52
9:A:207:VAL:HG22	9:A:208:GLU:HG2	1.92	0.52
10:B:10:ARG:HH11	10:B:14:LEU:CD2	2.22	0.52
13:E:143:GLY:O	13:E:197:ILE:HG22	2.10	0.52
16:H:16:VAL:HG21	16:H:81:ILE:HG23	1.91	0.52
57:y:419:VAL:HG22	57:y:516:VAL:HB	1.91	0.52
3:3:17:LEU:HD12	3:3:36:ASN:ND2	2.25	0.52
5:5:113:A:H2'	5:5:114:G:O4'	2.10	0.52
5:5:134:G:C6	41:h:70:ARG:NH1	2.76	0.52
5:5:966:A:N6	5:5:2252:G:C8	2.70	0.52
5:5:1479:G:C6	5:5:1487:G:C2	2.97	0.52
5:5:1572:U:H4'	25:R:95:TRP:NE1	2.24	0.52
5:5:1929:A:C8	5:5:1932:A:H1'	2.45	0.52
5:5:2119:C:H1'	5:5:2120:G:OP2	2.10	0.52
5:5:4507:A:H2'	5:5:4508:C:C6	2.45	0.52
5:5:4895:C:H1'	5:5:4896:G:C8	2.45	0.52
5:5:4920:C:H2'	5:5:4921:C:C6	2.45	0.52
5:5:5014:A:H3'	5:5:5014:A:OP1	2.10	0.52
6:6:22:ASP:CG	6:6:66:ARG:HE	2.17	0.52
11:C:104:PRO:O	11:C:106:LYS:HD2	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:C:342:ARG:CZ	11:C:342:ARG:HB2	2.40	0.52
16:H:33:THR:O	16:H:34:LEU:HD23	2.10	0.52
22:O:47:PHE:HA	22:O:136:ALA:HB2	1.91	0.52
28:U:31:ASP:HB2	28:U:33:ILE:HG22	1.90	0.52
30:W:45:ASN:ND2	30:W:47:ARG:H	2.08	0.52
38:e:43:ASN:ND2	38:e:45:VAL:H	2.08	0.52
54:v:76:GLY:HA3	54:v:180:ASN:ND2	2.25	0.52
56:x:327:PHE:CD2	56:x:428:ALA:HA	2.38	0.52
3:3:30:ASN:O	3:3:30:ASN:ND2	2.43	0.51
5:5:87:A:H2	5:5:292:G:C2	2.28	0.51
5:5:320:C:H2'	5:5:321:U:O4'	2.09	0.51
5:5:1280:C:O2'	5:5:1281:G:O3'	2.28	0.51
5:5:4364:G:H4'	34:a:57:GLY:O	2.10	0.51
7:7:107:G:OP1	12:D:277:LYS:NZ	2.42	0.51
8:8:36:G:C2	41:h:89:ARG:NH2	2.78	0.51
13:E:104:LYS:HZ3	13:E:107:LYS:HA	1.76	0.51
18:J:27:GLY:HA2	18:J:68:ILE:HG23	1.91	0.51
28:U:102:VAL:HG22	28:U:112:LEU:HD22	1.92	0.51
33:Z:3:LYS:HD3	36:c:40:GLN:O	2.10	0.51
38:e:64:LYS:HZ2	38:e:64:LYS:HB2	1.75	0.51
53:u:216:GLU:HG3	53:u:234:VAL:HG21	1.91	0.51
57:y:448:VAL:HG13	57:y:486:VAL:HG13	1.91	0.51
5:5:1084:C:H42	5:5:1215:C:N4	2.07	0.51
5:5:1282:G:O6	13:E:124:HIS:HB2	2.10	0.51
5:5:1358:G:H2'	5:5:1359:G:C8	2.44	0.51
5:5:1848:C:H5'	5:5:1849:U:OP2	2.10	0.51
5:5:1890:G:N2	5:5:1938:C:H41	2.07	0.51
5:5:2257:C:H1'	5:5:2258:C:O5'	2.10	0.51
5:5:2546:G:O2'	5:5:2547:G:H5'	2.09	0.51
5:5:2821:U:OP1	25:R:21:LYS:NZ	2.32	0.51
5:5:4113:U:H2'	5:5:4114:C:O4'	2.10	0.51
6:6:105:ASN:O	6:6:107:VAL:HG22	2.09	0.51
7:7:24:C:H2'	7:7:25:G:O4'	2.10	0.51
17:I:48:LEU:O	17:I:139:ARG:HA	2.10	0.51
28:U:107:LYS:HG3	28:U:108:GLU:HG2	1.93	0.51
34:a:24:LYS:H	34:a:24:LYS:HD2	1.74	0.51
45:l:21:ARG:NH1	45:l:21:ARG:HB2	2.25	0.51
50:q:25:ASN:HB2	50:q:37:ILE:HG23	1.93	0.51
57:y:404:MET:HE1	57:y:441:LEU:HD23	1.92	0.51
5:5:961:G:H22	5:5:969:C:C5'	2.23	0.51
5:5:1214:C:H1'	5:5:1215:C:OP2	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:1926:C:H42	5:5:2056:G:H22	1.58	0.51
5:5:2107:C:N4	5:5:2126:G:O2'	2.43	0.51
5:5:2118:G:H5'	5:5:2119:C:O3'	2.11	0.51
5:5:2399:G:N2	40:g:4:ARG:HH11	2.09	0.51
5:5:2626:U:C6	28:U:92:LYS:HG2	2.44	0.51
5:5:3679:U:O2	9:A:25:GLY:HA2	2.10	0.51
5:5:4660:G:C2'	5:5:4661:G:H5''	2.40	0.51
6:6:108:PRO:HB2	6:6:184:SER:HB2	1.92	0.51
9:A:10:LYS:HG2	9:A:16:PHE:CD2	2.46	0.51
15:G:207:VAL:HG11	15:G:215:LEU:HG	1.92	0.51
21:N:118:SER:HB3	21:N:132:VAL:HG22	1.92	0.51
50:q:33:ARG:NH1	50:q:35:ILE:O	2.40	0.51
54:v:153:LYS:HE3	57:y:406:ARG:HE	1.75	0.51
1:1:25:U:N3	1:1:28:U:OP2	2.37	0.51
3:3:113:ARG:O	3:3:117:ILE:HG12	2.10	0.51
5:5:496:G:H1	5:5:657:C:H42	1.58	0.51
10:B:10:ARG:HD2	10:B:12:GLY:O	2.11	0.51
12:D:278:ASP:O	12:D:282:GLN:N	2.44	0.51
32:Y:14:ASN:OD1	32:Y:14:ASN:N	2.40	0.51
33:Z:3:LYS:HB2	33:Z:3:LYS:NZ	2.25	0.51
34:a:93:ASN:HD22	34:a:97:ALA:HB2	1.76	0.51
44:k:51:GLU:O	44:k:54:GLU:HG2	2.11	0.51
1:1:192:A:H61	56:x:380:ASP:HB3	1.75	0.51
5:5:152:U:P	21:N:49:ARG:HH22	2.33	0.51
5:5:1263:A:H2'	5:5:1264:C:O4'	2.10	0.51
5:5:1410:U:H4'	5:5:1411:C:OP2	2.10	0.51
5:5:1755:C:C2	12:D:3:PHE:HB2	2.46	0.51
5:5:1955:G:H2'	5:5:1956:A:O4'	2.11	0.51
5:5:2832:A:H2'	5:5:2833:A:H5''	1.92	0.51
5:5:3717:A:C6	5:5:3736:A:C6	2.98	0.51
13:E:181:PRO:HG2	13:E:183:ARG:HB2	1.92	0.51
19:L:69:LYS:CA	19:L:159:ASN:HD21	2.24	0.51
5:5:1448:G:H2'	5:5:1449:C:C6	2.46	0.51
5:5:2395:A:H2'	5:5:2806:A:O2'	2.10	0.51
5:5:4611:A:H2'	5:5:4612:C:C6	2.45	0.51
10:B:82:PRO:HG3	10:B:171:LEU:HD21	1.92	0.51
11:C:305:PRO:CD	24:Q:38:ARG:HH12	2.23	0.51
33:Z:97:ASN:OD1	33:Z:98:LYS:N	2.42	0.51
56:x:345:PHE:N	56:x:345:PHE:HD1	2.08	0.51
5:5:1530:G:O6	5:5:1643:A:N6	2.44	0.51
5:5:1552:G:H2'	5:5:1574:G:H22	1.74	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:1669:A:N3	5:5:1852:U:O2'	2.39	0.51
5:5:4684:A:H2'	5:5:4685:U:O4'	2.11	0.51
5:5:4767:C:HO2'	5:5:4874:A:N6	2.07	0.51
11:C:67:TRP:HD1	11:C:71:ARG:HG3	1.75	0.51
14:F:96:ARG:HE	14:F:111:LEU:HD13	1.75	0.51
15:G:117:ARG:HH12	15:G:130:THR:HG21	1.76	0.51
19:L:9:ILE:HG12	34:a:49:HIS:CD2	2.45	0.51
19:L:58:VAL:H	19:L:113:ASN:HD21	1.57	0.51
52:t:80:LEU:HD11	56:x:349:LEU:HB3	1.92	0.51
1:1:108:U:H2'	1:1:109:G:H8	1.74	0.51
5:5:27:C:H2'	5:5:28:C:C6	2.45	0.51
5:5:944:A:H8	14:F:60:HIS:ND1	2.09	0.51
5:5:989:U:H2'	5:5:990:C:C5	2.46	0.51
5:5:1270:A:H2'	5:5:1271:G:O4'	2.11	0.51
5:5:2668:G:C2'	5:5:2669:C:H5'	2.40	0.51
5:5:2691:U:HO2'	44:k:4:LYS:NZ	2.09	0.51
5:5:2828:U:O2'	5:5:2829:U:OP1	2.28	0.51
5:5:4890:G:N2	5:5:4930:C:H1'	2.25	0.51
8:8:35:C:OP1	41:h:88:THR:HG21	2.11	0.51
10:B:261:ARG:NH1	22:O:64:THR:HG21	2.26	0.51
11:C:14:LYS:HB3	11:C:14:LYS:NZ	2.26	0.51
14:F:91:LEU:HD11	14:F:124:PHE:CD2	2.46	0.51
23:P:128:ARG:NH1	23:P:136:ILE:HG21	2.26	0.51
24:Q:172:ARG:NH1	34:a:58:MET:O	2.44	0.51
1:1:109:G:N2	1:1:245:G:N1	2.57	0.51
5:5:265:C:H4'	5:5:266:C:OP2	2.09	0.51
5:5:294:G:O2'	5:5:295:A:OP1	2.26	0.51
5:5:723:A:C2	5:5:943:A:N1	2.78	0.51
5:5:1266:G:O2'	5:5:1267:C:OP1	2.28	0.51
5:5:1634:A:H62	9:A:3:ARG:NH2	2.09	0.51
5:5:1696:C:H1'	5:5:1697:G:O5'	2.10	0.51
5:5:3641:U:H5	5:5:3646:A:N7	2.09	0.51
5:5:4260:U:H2'	5:5:4261:C:H6	1.75	0.51
5:5:4364:G:H1'	34:a:58:MET:HE2	1.93	0.51
5:5:4492:U:O2'	5:5:4512:U:O2	2.20	0.51
17:I:209:TRP:O	17:I:212:LEU:N	2.43	0.51
24:Q:172:ARG:HH12	34:a:59:ARG:HA	1.75	0.51
26:S:163:HIS:HD2	26:S:166:ARG:HE	1.59	0.51
37:d:44:ARG:HG2	37:d:48:GLU:OE1	2.11	0.51
38:e:43:ASN:ND2	38:e:46:ARG:H	2.09	0.51
39:f:14:TYR:OH	39:f:94:ALA:HB2	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:g:76:ARG:CZ	40:g:84:ALA:HB2	2.41	0.51
40:g:108:LYS:O	40:g:112:GLN:HG2	2.11	0.51
5:5:469:C:H2'	5:5:470:A:O4'	2.11	0.51
5:5:709:C:H2'	5:5:710:G:H8	1.76	0.51
5:5:709:C:H42	5:5:1287:G:H1	1.59	0.51
5:5:978:G:H3'	5:5:978:G:OP2	2.11	0.51
5:5:1459:A:H2'	5:5:1460:C:O4'	2.11	0.51
5:5:1724:G:H22	14:F:108:ARG:HH21	1.57	0.51
5:5:2557:G:H1	5:5:2570:U:H3	1.59	0.51
5:5:2769:U:H4'	5:5:2770:C:OP1	2.11	0.51
5:5:4090:G:H5'	5:5:4091:G:OP2	2.10	0.51
5:5:4301:U:H5''	27:T:54:HIS:CD2	2.46	0.51
5:5:4686:G:N3	16:H:163:GLN:NE2	2.55	0.51
10:B:143:ALA:O	10:B:147:ALA:HB3	2.10	0.51
16:H:111:LEU:HD12	16:H:113:GLU:OE1	2.10	0.51
24:Q:122:THR:OG1	24:Q:124:ASP:OD1	2.27	0.51
25:R:3:MET:SD	25:R:5:ARG:HD2	2.51	0.51
26:S:33:PHE:CZ	26:S:106:VAL:HB	2.45	0.51
29:V:60:MET:HG3	29:V:129:TRP:CH2	2.46	0.51
29:V:123:LYS:HB2	29:V:123:LYS:HZ3	1.74	0.51
32:Y:111:LEU:HD13	32:Y:116:LYS:NZ	2.26	0.51
36:c:48:LEU:HD23	36:c:93:THR:HG23	1.93	0.51
42:i:45:ARG:NH1	42:i:50:PHE:HD1	1.97	0.51
1:1:118:A:P	53:u:119:ARG:NH2	2.84	0.50
3:3:85:ASN:OD1	3:3:85:ASN:N	2.44	0.50
5:5:967:C:N4	5:5:2255:C:H41	2.09	0.50
5:5:1245:C:O2	5:5:2111:G:O2'	2.28	0.50
5:5:1945:G:H2'	5:5:1946:G:H5'	1.93	0.50
5:5:2667:C:O4'	25:R:96:MET:HG2	2.11	0.50
5:5:4371:G:O2'	5:5:4372:U:OP2	2.26	0.50
5:5:4568:A:N3	23:P:69:ARG:NH2	2.59	0.50
5:5:4966:A:C6	5:5:4967:A:C6	2.99	0.50
5:5:5043:A:O2'	5:5:5044:A:O5'	2.29	0.50
6:6:63:LYS:NZ	6:6:78:LEU:HB3	2.26	0.50
7:7:14:C:H5'	12:D:24:ARG:HH21	1.76	0.50
10:B:232:THR:HB	10:B:249:ARG:HH12	1.75	0.50
19:L:182:LEU:HD23	42:i:7:MET:HE2	1.93	0.50
32:Y:39:ARG:HD2	32:Y:45:ARG:HD3	1.92	0.50
32:Y:111:LEU:HD13	32:Y:116:LYS:HZ3	1.77	0.50
48:o:3:ASN:HD21	48:o:95:GLY:HA3	1.76	0.50
5:5:499:G:N2	5:5:656:C:C2	2.80	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:2377:C:O2	5:5:2381:A:N6	2.43	0.50
5:5:3607:U:H2'	5:5:3608:A:H8	1.77	0.50
5:5:4736:C:HO2'	5:5:4737:G:H8	1.54	0.50
5:5:4939:C:OP2	13:E:215:LYS:NZ	2.44	0.50
5:5:4992:G:H3'	5:5:4993:G:H8	1.76	0.50
6:6:20:LEU:HD12	6:6:54:LEU:HD22	1.91	0.50
8:8:6:C:H2'	8:8:7:U:C6	2.46	0.50
21:N:38:ARG:HG2	21:N:39:ALA:N	2.26	0.50
27:T:11:THR:HB	27:T:15:PHE:HD1	1.76	0.50
29:V:83:ARG:NH1	29:V:120:PRO:HD2	2.26	0.50
32:Y:62:TYR:OH	32:Y:97:VAL:HB	2.10	0.50
44:k:23:VAL:HB	44:k:36:VAL:HG12	1.94	0.50
56:x:262:ALA:O	56:x:266:THR:OG1	2.20	0.50
57:y:419:VAL:HG21	57:y:505:ILE:HG12	1.93	0.50
3:3:49:VAL:HG11	3:3:97:ILE:HD11	1.93	0.50
5:5:436:C:H2'	5:5:437:G:C8	2.46	0.50
5:5:1342:A:OP1	21:N:204:ARG:NH1	2.44	0.50
5:5:1399:G:N2	5:5:1419:G:H1'	2.26	0.50
5:5:2674:A:H4'	5:5:2675:G:OP2	2.11	0.50
11:C:80:ARG:HH11	11:C:80:ARG:CB	2.24	0.50
12:D:281:ALA:H	12:D:284:LYS:HD3	1.77	0.50
15:G:100:HIS:HA	15:G:103:ARG:HD2	1.94	0.50
19:L:58:VAL:H	19:L:113:ASN:ND2	2.09	0.50
20:M:119:ARG:HH11	22:O:202:LEU:CD1	2.24	0.50
25:R:4:LEU:HD21	25:R:33:ALA:HB2	1.94	0.50
29:V:62:MET:HE3	29:V:76:VAL:HG12	1.93	0.50
34:a:109:TYR:HD1	34:a:127:LYS:HD3	1.76	0.50
44:k:31:ASN:O	44:k:33:LYS:HG3	2.11	0.50
1:1:161:C:H5'	1:1:216:A:OP1	2.11	0.50
5:5:106:A:H2'	5:5:107:G:O4'	2.11	0.50
5:5:1237:C:C4	13:E:55:ARG:NH1	2.79	0.50
5:5:2552:G:H3'	5:5:2553:A:H5''	1.94	0.50
5:5:2573:A:H62	5:5:2761:U:H3	1.60	0.50
5:5:2666:U:C2	5:5:2669:C:C4	2.99	0.50
5:5:4755:G:H1	5:5:4878:C:H42	1.60	0.50
6:6:123:VAL:HG22	6:6:180:ILE:HD12	1.93	0.50
9:A:124:GLY:O	9:A:125:LYS:HD2	2.11	0.50
12:D:199:ILE:HG22	12:D:200:LEU:HG	1.92	0.50
24:Q:69:LYS:O	24:Q:75:ARG:NH1	2.44	0.50
29:V:100:ASP:OD1	29:V:100:ASP:N	2.43	0.50
30:W:23:ARG:NH1	30:W:29:PHE:CE2	2.80	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:y:64:LEU:HD11	57:y:98:ILE:HD12	1.92	0.50
57:y:68:VAL:HG11	57:y:83:ILE:HD11	1.94	0.50
57:y:357:ILE:HD12	57:y:604:TYR:CD1	2.46	0.50
57:y:480:HIS:CD2	57:y:485:MET:HG3	2.45	0.50
1:1:57:G:C2	1:1:289:A:C2	2.99	0.50
1:1:130:A:H1'	1:1:168:G:N2	2.27	0.50
4:4:114:ARG:NH1	4:4:130:LYS:HA	2.27	0.50
5:5:1268:G:C6	5:5:1270:A:N7	2.80	0.50
5:5:1994:C:H2'	5:5:1995:G:C8	2.46	0.50
5:5:3664:G:H2'	5:5:3665:G:C8	2.47	0.50
5:5:4208:U:OP1	5:5:4334:U:O2'	2.28	0.50
8:8:125:C:C4'	8:8:126:C:H3'	2.40	0.50
15:G:110:LYS:HZ2	15:G:113:ARG:HH22	1.59	0.50
21:N:158:HIS:HB3	21:N:161:MET:HG2	1.94	0.50
54:v:242:GLU:OE2	54:v:269:LYS:NZ	2.33	0.50
57:y:347:HIS:CD2	57:y:637:ALA:HB2	2.45	0.50
5:5:218:A:H2'	11:C:181:LYS:NZ	2.27	0.50
5:5:1898:C:C5	5:5:2279:A:H1'	2.47	0.50
5:5:4301:U:OP2	27:T:87:LYS:NZ	2.41	0.50
5:5:4355:G:H2'	5:5:4356:G:H5''	1.94	0.50
5:5:4665:A:H2'	5:5:4666:G:O4'	2.11	0.50
5:5:4880:C:C2'	5:5:4881:U:H5'	2.42	0.50
10:B:89:ILE:HG22	10:B:162:VAL:HG22	1.93	0.50
11:C:106:LYS:HE3	19:L:19:GLN:HE22	1.76	0.50
13:E:152:ARG:HG3	13:E:153:HIS:H	1.76	0.50
23:P:122:ALA:HB3	23:P:143:PRO:HB2	1.94	0.50
26:S:80:ILE:HD12	26:S:106:VAL:HG22	1.93	0.50
28:U:69:LYS:HB2	28:U:69:LYS:HZ3	1.77	0.50
38:e:30:LYS:HG2	38:e:31:ILE:HG13	1.94	0.50
45:l:27:ILE:HD13	45:l:30:LYS:HE3	1.92	0.50
48:o:26:TYR:C	48:o:26:TYR:CD1	2.90	0.50
57:y:506:ALA:O	57:y:510:ASN:ND2	2.38	0.50
1:1:195:U:H2'	1:1:196:C:C6	2.46	0.50
5:5:747:A:C2	5:5:918:G:N1	2.80	0.50
5:5:1065:G:H2'	5:5:1066:G:C8	2.45	0.50
5:5:1337:A:N1	5:5:1658:G:O2'	2.43	0.50
5:5:1420:A:O5'	24:Q:68:ARG:NH2	2.43	0.50
5:5:1456:C:O2'	24:Q:73:PRO:O	2.30	0.50
5:5:1598:C:H1'	5:5:2798:A:H8	1.76	0.50
5:5:2125:C:O2'	5:5:2126:G:O5'	2.18	0.50
5:5:2769:U:H1'	5:5:2770:C:C5	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:3845:A:OP2	10:B:249:ARG:NH2	2.45	0.50
5:5:4750:G:H3'	5:5:4751:G:H21	1.77	0.50
10:B:285:TYR:CE2	10:B:334:LYS:HB2	2.47	0.50
15:G:58:PRO:HD3	31:X:46:PHE:HD2	1.77	0.50
23:P:15:CYS:SG	23:P:102:ALA:HB2	2.52	0.50
28:U:84:LYS:HA	28:U:87:THR:HG22	1.93	0.50
32:Y:22:PRO:HD2	32:Y:25:ILE:HD12	1.93	0.50
46:m:104:HIS:HB2	46:m:105:PRO:HD2	1.94	0.50
50:q:23:LEU:HB2	50:q:44:PRO:HG3	1.94	0.50
56:x:381:SER:O	56:x:405:ARG:NH2	2.45	0.50
3:3:31:ASN:ND2	3:3:34:ALA:HA	2.27	0.50
5:5:686:A:H3'	5:5:687:U:H5'	1.93	0.50
5:5:932:A:H2'	5:5:932:A:N3	2.26	0.50
5:5:966:A:H5''	5:5:966:A:H8	1.76	0.50
5:5:1970:A:O2'	5:5:2017:A:N6	2.45	0.50
5:5:2113:G:H8	5:5:2115:G:H1'	1.74	0.50
5:5:2477:A:H2'	5:5:2478:C:C6	2.47	0.50
5:5:2639:U:H2'	5:5:2694:G:H1	1.77	0.50
5:5:2752:G:H3'	5:5:2753:G:C8	2.45	0.50
13:E:232:GLU:C	13:E:234:GLU:H	2.20	0.50
25:R:110:ARG:NH1	25:R:120:TYR:CE2	2.80	0.50
34:a:59:ARG:HB2	34:a:59:ARG:NH1	2.21	0.50
5:5:111:C:P	41:h:110:LYS:NZ	2.85	0.50
5:5:394:G:N2	5:5:397:G:OP2	2.42	0.50
5:5:471:A:C2	13:E:101:ARG:NH1	2.79	0.50
5:5:990:C:C4	5:5:1064:G:C2	3.00	0.50
5:5:1073:G:N2	5:5:1239:C:C2	2.79	0.50
5:5:3925:U:H2'	5:5:3926:C:O4'	2.12	0.50
5:5:4605:A:O2'	5:5:4606:G:O5'	2.30	0.50
9:A:242:ARG:HB2	9:A:242:ARG:NH1	2.26	0.50
11:C:11:TYR:HD1	11:C:17:SER:HA	1.77	0.50
11:C:177:TRP:CE3	11:C:177:TRP:HA	2.46	0.50
11:C:334:THR:HG22	11:C:337:ARG:HH22	1.76	0.50
13:E:136:LEU:HD23	13:E:187:GLN:OE1	2.11	0.50
29:V:73:ARG:HB3	29:V:73:ARG:HH11	1.77	0.50
30:W:46:PRO:HB2	30:W:54:LEU:HD23	1.93	0.50
43:j:7:SER:C	43:j:9:GLY:H	2.19	0.50
56:x:418:GLN:HA	56:x:421:LEU:HD12	1.93	0.50
1:1:118:A:H2'	53:u:90:ARG:HD2	1.94	0.49
1:1:236:U:O2'	1:1:237:G:H8	1.95	0.49
5:5:1177:U:O2	12:D:282:GLN:NE2	2.45	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:1237:C:C2	13:E:55:ARG:NH1	2.80	0.49
5:5:1369:C:H3'	5:5:1370:G:H5'	1.94	0.49
5:5:1755:C:C5	5:5:1778:C:H1'	2.47	0.49
5:5:1941:A:C2	5:5:4434:C:H5'	2.47	0.49
5:5:2385:U:H2'	5:5:2386:U:H6	1.75	0.49
5:5:4565:C:H2'	5:5:4566:U:C6	2.47	0.49
9:A:5:ILE:HG12	9:A:6:ARG:N	2.26	0.49
10:B:154:LYS:HB2	10:B:154:LYS:HZ3	1.76	0.49
10:B:190:VAL:HA	10:B:193:LYS:HB3	1.94	0.49
13:E:157:ARG:HH12	13:E:271:PHE:CA	2.24	0.49
19:L:146:LEU:HD13	41:h:123:ALA:HB3	1.94	0.49
22:O:98:ALA:HA	22:O:101:ARG:HH12	1.77	0.49
25:R:110:ARG:NH1	25:R:120:TYR:HE2	2.08	0.49
25:R:114:LYS:O	25:R:146:LYS:NZ	2.43	0.49
27:T:48:VAL:HG21	27:T:94:GLU:HG2	1.92	0.49
32:Y:52:ASP:OD1	32:Y:52:ASP:N	2.44	0.49
57:y:605:ILE:HG13	57:y:606:THR:H	1.77	0.49
1:1:22:C:O2'	1:1:58:G:N2	2.45	0.49
5:5:978:G:H2'	5:5:979:C:C6	2.47	0.49
5:5:1444:G:H2'	5:5:1445:U:C6	2.47	0.49
5:5:1479:G:H22	5:5:1487:G:H1'	1.77	0.49
5:5:1752:G:H2'	5:5:1753:G:O4'	2.12	0.49
5:5:4992:G:H1	5:5:5060:A:H1'	1.76	0.49
6:6:132:PRO:O	6:6:134:LYS:HB2	2.12	0.49
7:7:2:U:H5'	12:D:267:ASN:HD22	1.76	0.49
23:P:67:VAL:O	23:P:80:GLN:HG2	2.12	0.49
37:d:24:GLU:OE1	37:d:87:ARG:NH2	2.42	0.49
47:n:4:LYS:HG2	47:n:5:TRP:CZ3	2.47	0.49
56:x:403:ILE:HG22	56:x:414:THR:HG23	1.93	0.49
57:y:535:ALA:HB3	57:y:572:HIS:HB2	1.92	0.49
1:1:175:G:H3'	1:1:176:A:H4'	1.94	0.49
5:5:1554:A:OP1	49:p:5:THR:OG1	2.29	0.49
5:5:1802:A:H5''	5:5:1803:G:H5'	1.94	0.49
5:5:1990:A:H2'	5:5:1991:A:H4'	1.94	0.49
5:5:2302:C:O2'	38:e:102:ASN:O	2.30	0.49
5:5:3595:U:O2'	25:R:146:LYS:NZ	2.45	0.49
8:8:142:U:H2'	8:8:143:G:O4'	2.12	0.49
19:L:128:PRO:HB2	19:L:133:ALA:CB	2.42	0.49
19:L:163:ARG:HB3	19:L:163:ARG:HH11	1.78	0.49
50:q:19:TYR:CZ	50:q:81:ARG:HD3	2.48	0.49
56:x:417:VAL:HA	56:x:420:LEU:HB3	1.93	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:y:344:MET:O	57:y:348:LEU:HG	2.12	0.49
1:1:114:C:N3	1:1:237:G:N1	2.47	0.49
5:5:307:A:N3	5:5:310:G:O2'	2.45	0.49
5:5:449:C:C4	5:5:450:G:N7	2.81	0.49
5:5:2394:G:O2'	5:5:2819:U:O4	2.24	0.49
5:5:2473:A:H5''	5:5:2474:G:OP2	2.12	0.49
11:C:59:GLY:HA3	11:C:99:GLY:O	2.13	0.49
13:E:91:PRO:HB3	13:E:104:LYS:N	2.27	0.49
13:E:175:LEU:HD11	13:E:179:ARG:NH1	2.28	0.49
26:S:68:PHE:N	26:S:68:PHE:CD1	2.80	0.49
46:m:79:GLU:OE1	46:m:81:SER:N	2.44	0.49
53:u:142:ALA:HB1	53:u:149:ARG:HG3	1.94	0.49
53:u:155:ARG:HH12	53:u:158:LYS:HZ3	1.60	0.49
57:y:88:ARG:HG2	57:y:91:ARG:HH12	1.77	0.49
5:5:35:U:H5'	5:5:36:U:OP2	2.13	0.49
5:5:310:G:H2'	5:5:311:G:H8	1.78	0.49
5:5:676:C:H2'	5:5:677:G:H8	1.77	0.49
5:5:735:G:H1	5:5:928:C:N4	2.11	0.49
5:5:1264:C:O2'	5:5:2114:G:OP2	2.25	0.49
5:5:1519:C:H2'	5:5:1520:C:H6	1.77	0.49
5:5:2601:A:N6	5:5:2743:A:H3'	2.28	0.49
5:5:3763:A:H2'	5:5:3764:U:O4'	2.13	0.49
5:5:4285:U:H2'	5:5:4286:C:H6	1.77	0.49
5:5:4352:U:OP1	19:L:190:ARG:NH2	2.43	0.49
7:7:27:G:OP2	12:D:57:ASN:HB2	2.13	0.49
7:7:61:G:H5''	12:D:271:MET:HE3	1.94	0.49
8:8:69:U:C4	8:8:70:G:C2	3.01	0.49
9:A:120:PRO:HA	9:A:162:ASN:HB3	1.94	0.49
10:B:78:ILE:HG23	10:B:332:MET:HG3	1.94	0.49
12:D:193:GLU:HA	12:D:196:ARG:HB2	1.93	0.49
13:E:58:MET:HA	13:E:61:ARG:HB2	1.93	0.49
34:a:37:GLY:HA3	34:a:53:PHE:HZ	1.78	0.49
46:m:77:ILE:HG23	46:m:78:ILE:H	1.78	0.49
54:v:153:LYS:HA	57:y:406:ARG:HH21	1.76	0.49
57:y:347:HIS:CG	57:y:637:ALA:HB2	2.47	0.49
1:1:57:G:H22	1:1:290:C:H1'	1.78	0.49
5:5:84:A:H4'	5:5:85:G:OP1	2.13	0.49
5:5:1332:C:H2'	5:5:1333:A:H8	1.77	0.49
5:5:2001:G:H5''	5:5:2002:A:OP2	2.12	0.49
5:5:3777:G:N2	5:5:3815:G:H2'	2.27	0.49
8:8:64:U:O2'	41:h:59:THR:OG1	2.25	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:8:149:G:H21	15:G:64:GLN:HE22	1.61	0.49
16:H:115:ARG:HG2	16:H:115:ARG:HH11	1.76	0.49
22:O:77:SER:N	22:O:106:ASP:OD1	2.40	0.49
31:X:127:LEU:HD11	31:X:135:LYS:HE3	1.95	0.49
38:e:126:ASN:C	38:e:126:ASN:HD22	2.20	0.49
57:y:422:PHE:HE1	57:y:517:LEU:HD22	1.77	0.49
5:5:1267:C:O2'	5:5:2109:G:N7	2.32	0.49
5:5:1392:A:H2'	5:5:1393:G:C8	2.47	0.49
5:5:1402:C:H2'	5:5:1403:G:H8	1.78	0.49
5:5:1518:A:OP1	34:a:27:LYS:NZ	2.32	0.49
5:5:1724:G:N2	14:F:108:ARG:HH21	2.11	0.49
5:5:3737:A:H2'	5:5:3738:G:O4'	2.13	0.49
5:5:4729:A:H5''	5:5:4734:A:H61	1.77	0.49
10:B:77:THR:HG23	10:B:335:GLY:O	2.13	0.49
11:C:197:ARG:O	11:C:199:ARG:N	2.44	0.49
13:E:111:TYR:HD1	13:E:112:TYR:N	2.11	0.49
25:R:117:ARG:HH21	25:R:118:HIS:CE1	2.31	0.49
27:T:34:TYR:HE2	27:T:93:ILE:HG23	1.77	0.49
36:c:79:ILE:C	36:c:81:LEU:H	2.20	0.49
41:h:8:ASP:OD1	41:h:8:ASP:N	2.39	0.49
50:q:72:TRP:HD1	56:x:408:ARG:HG2	1.75	0.49
53:u:155:ARG:HH12	53:u:158:LYS:NZ	2.10	0.49
57:y:366:ALA:O	57:y:370:GLU:HB2	2.13	0.49
1:1:233:U:H2'	1:1:234:A:C8	2.47	0.49
4:4:114:ARG:NE	4:4:130:LYS:HG2	2.27	0.49
5:5:279:A:OP1	5:5:279:A:H3'	2.12	0.49
5:5:1265:G:H2'	5:5:1266:G:O4'	2.12	0.49
5:5:4231:C:O2	5:5:4231:C:H2'	2.12	0.49
5:5:4701:A:C2	5:5:4702:G:H1'	2.48	0.49
8:8:81:C:H3'	8:8:82:A:H4'	1.94	0.49
10:B:307:TYR:CD2	10:B:366:LYS:HD2	2.48	0.49
11:C:193:LYS:HD2	11:C:196:MET:HE3	1.94	0.49
14:F:129:LYS:HB2	27:T:133:ALA:HB3	1.93	0.49
16:H:94:SER:HB2	16:H:142:ASP:HB3	1.94	0.49
24:Q:67:ILE:HD12	24:Q:96:PRO:HD2	1.94	0.49
34:a:121:PRO:HA	34:a:141:GLY:O	2.13	0.49
36:c:31:TYR:C	36:c:33:GLN:H	2.20	0.49
37:d:114:PHE:HA	37:d:117:LEU:HD23	1.94	0.49
52:t:77:LEU:HA	56:x:355:PHE:CZ	2.47	0.49
54:v:153:LYS:HA	57:y:406:ARG:NH2	2.28	0.49
5:5:933:G:C2	5:5:940:C:C6	3.01	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:1370:G:H22	11:C:239:LYS:NZ	2.10	0.49
5:5:1456:C:N3	5:5:1457:G:H1'	2.28	0.49
5:5:1475:G:H2'	5:5:1476:C:C6	2.48	0.49
5:5:2125:C:O2'	5:5:2126:G:H2'	2.13	0.49
5:5:2465:C:H2'	5:5:2466:G:O4'	2.13	0.49
5:5:2852:U:O2	5:5:2853:C:H3'	2.13	0.49
5:5:2880:U:N3	5:5:3625:G:N7	2.60	0.49
5:5:4163:U:H5'	5:5:4164:C:H5''	1.94	0.49
5:5:4992:G:H5'	5:5:4993:G:OP2	2.13	0.49
6:6:63:LYS:HZ3	6:6:78:LEU:HD22	1.78	0.49
8:8:27:U:H4'	11:C:53:ALA:HB3	1.95	0.49
9:A:112:ILE:H	49:p:83:ILE:HD11	1.77	0.49
13:E:129:PHE:HA	13:E:132:HIS:CE1	2.48	0.49
19:L:142:GLU:HA	19:L:145:LYS:HG2	1.93	0.49
37:d:30:HIS:HB2	37:d:82:TYR:CD1	2.47	0.49
42:i:71:LYS:HB3	42:i:71:LYS:NZ	2.28	0.49
48:o:71:GLU:HB3	48:o:80:LYS:HG2	1.95	0.49
51:r:15:TRP:CE2	51:r:37:ILE:HD13	2.48	0.49
51:r:53:VAL:HG13	53:u:593:VAL:HG12	1.95	0.49
57:y:332:LEU:HD11	57:y:383:THR:HG21	1.94	0.49
1:1:173:A:OP1	53:u:158:LYS:NZ	2.39	0.49
5:5:227:A:N3	32:Y:9:SER:HB2	2.28	0.49
5:5:433:A:H2'	5:5:434:A:O4'	2.13	0.49
5:5:1720:C:H2'	5:5:1721:G:O4'	2.13	0.49
5:5:1856:C:O2'	5:5:1892:A:N1	2.45	0.49
5:5:2020:U:H5'	6:6:57:LYS:HE2	1.93	0.49
5:5:2455:G:H1'	5:5:2471:G:C2	2.48	0.49
8:8:124:U:H4'	8:8:125:C:O5'	2.12	0.49
10:B:80:GLU:HG3	10:B:326:VAL:HG23	1.94	0.49
19:L:43:ALA:C	19:L:149:GLN:HE22	2.20	0.49
32:Y:9:SER:O	32:Y:9:SER:OG	2.31	0.49
51:r:35:ASN:O	51:r:39:GLN:HG2	2.12	0.49
56:x:367:GLU:O	56:x:371:ARG:HG3	2.12	0.49
56:x:378:ILE:O	56:x:382:MET:HG3	2.13	0.49
5:5:227:A:C2	32:Y:9:SER:HB2	2.48	0.48
5:5:746:A:H2'	5:5:915:A:N6	2.24	0.48
5:5:1358:G:OP1	5:5:1506:G:O2'	2.24	0.48
5:5:2857:A:O2'	5:5:2858:A:O5'	2.30	0.48
5:5:4742:G:H2'	5:5:4742:G:N3	2.28	0.48
9:A:137:ILE:HD11	9:A:149:LYS:HB2	1.94	0.48
14:F:91:LEU:HD11	14:F:124:PHE:HD2	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:J:112:HIS:HE1	18:J:124:GLY:O	1.94	0.48
20:M:90:ARG:O	20:M:94:LYS:HG2	2.13	0.48
22:O:41:ILE:HG22	22:O:138:LEU:HB2	1.94	0.48
26:S:92:ASN:HD21	27:T:156:TYR:N	2.11	0.48
32:Y:50:ARG:HB2	32:Y:115:ARG:NH1	2.13	0.48
36:c:78:ASN:ND2	36:c:90:ARG:HG3	2.28	0.48
39:f:8:LYS:HB3	39:f:100:ARG:CZ	2.43	0.48
53:u:214:ILE:O	53:u:218:LEU:HG	2.13	0.48
57:y:36:VAL:HG22	57:y:65:VAL:HG11	1.95	0.48
1:1:117:U:O5'	1:1:117:U:H6	1.96	0.48
2:2:11:U:H2'	2:2:12:G:C8	2.48	0.48
4:4:110:VAL:HA	4:4:113:ALA:HB3	1.94	0.48
5:5:409:G:C4	23:P:3:ARG:NH1	2.81	0.48
5:5:465:G:H1	5:5:690:C:N4	2.11	0.48
5:5:1454:G:H2'	5:5:1455:G:H5''	1.95	0.48
5:5:1664:U:H2'	5:5:1665:C:C6	2.48	0.48
5:5:1884:C:OP1	38:e:50:LYS:HB2	2.12	0.48
5:5:1889:U:H5''	5:5:1890:G:OP2	2.13	0.48
5:5:2100:A:N6	5:5:2101:C:O2	2.45	0.48
5:5:2506:G:H4'	5:5:2507:A:OP1	2.13	0.48
5:5:2706:G:N2	25:R:43:LYS:NZ	2.61	0.48
5:5:4945:G:N7	39:f:60:PRO:HD2	2.26	0.48
8:8:94:G:H4'	8:8:95:A:OP1	2.12	0.48
26:S:82:LEU:HD11	26:S:124:ILE:HG23	1.94	0.48
32:Y:66:GLN:OE1	32:Y:66:GLN:N	2.38	0.48
57:y:340:VAL:HG22	57:y:384:VAL:HG22	1.95	0.48
5:5:37:U:H5''	34:a:32:ARG:HD2	1.96	0.48
5:5:163:A:H2'	5:5:164:G:O4'	2.12	0.48
5:5:1265:G:H4'	5:5:2113:G:H5''	1.95	0.48
5:5:1367:C:C2	5:5:1370:G:H2'	2.47	0.48
5:5:1834:U:O2'	5:5:1835:G:OP1	2.29	0.48
5:5:2114:G:H5'	5:5:2115:G:OP1	2.14	0.48
5:5:2294:G:H2'	5:5:2295:C:C6	2.49	0.48
5:5:2352:U:H2'	5:5:2353:U:C6	2.47	0.48
27:T:122:LYS:HB3	27:T:122:LYS:HZ3	1.77	0.48
32:Y:82:ILE:HD12	32:Y:99:ILE:HD12	1.95	0.48
33:Z:62:ILE:O	33:Z:66:SER:OG	2.28	0.48
49:p:4:ARG:O	49:p:5:THR:HG23	2.13	0.48
51:r:55:LEU:HB2	51:r:64:ALA:HB2	1.94	0.48
1:1:236:U:H4'	1:1:237:G:OP1	2.13	0.48
3:3:37:SER:OG	3:3:38:PHE:N	2.46	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:405:U:H5'	5:5:406:C:OP2	2.14	0.48
5:5:2046:G:H1'	5:5:2047:A:C8	2.49	0.48
5:5:2634:C:H2'	5:5:2635:U:C6	2.48	0.48
5:5:2752:G:H4'	40:g:78:TYR:HE1	1.77	0.48
5:5:3900:G:H5''	5:5:3901:A:H4'	1.95	0.48
5:5:4219:A:H2'	5:5:4220:A:C8	2.48	0.48
5:5:4278:C:O2'	5:5:4281:A:H8	1.95	0.48
10:B:115:LYS:HA	10:B:118:PHE:HD2	1.78	0.48
22:O:197:LYS:NZ	22:O:197:LYS:HB3	2.28	0.48
24:Q:64:SER:OG	24:Q:89:ASP:OD2	2.24	0.48
25:R:96:MET:HE3	25:R:100:ARG:HH21	1.78	0.48
32:Y:62:TYR:CD1	32:Y:62:TYR:N	2.81	0.48
47:n:8:LYS:HD3	47:n:12:ARG:NH2	2.28	0.48
54:v:182:GLN:HG3	54:v:245:GLU:HB3	1.96	0.48
3:3:92:SER:O	3:3:96:MET:HB2	2.13	0.48
4:4:22:VAL:HG11	4:4:44:ASP:O	2.14	0.48
5:5:499:G:C2	5:5:500:G:C8	3.01	0.48
5:5:1075:G:H1	5:5:1235:G:H22	1.59	0.48
5:5:1755:C:O2'	5:5:1756:U:O4'	2.31	0.48
5:5:2068:C:O2'	5:5:2069:A:OP1	2.22	0.48
5:5:3641:U:OP2	5:5:3646:A:N6	2.45	0.48
5:5:4977:A:H5''	10:B:274:TYR:CD1	2.48	0.48
7:7:29:C:O2'	7:7:50:A:N1	2.38	0.48
7:7:74:A:O2'	26:S:53:LYS:NZ	2.47	0.48
9:A:77:ILE:HD13	9:A:128:ARG:HB2	1.96	0.48
11:C:188:ARG:HH22	11:C:204:ARG:HH12	1.62	0.48
14:F:239:GLU:H	14:F:239:GLU:HG2	1.45	0.48
36:c:53:PRO:O	36:c:55:LEU:N	2.47	0.48
39:f:8:LYS:HD3	39:f:100:ARG:HH12	1.77	0.48
39:f:98:GLY:O	39:f:99:HIS:ND1	2.47	0.48
1:1:127:A:H1'	1:1:224:G:N2	2.29	0.48
1:1:215:A:H2'	1:1:216:A:O4'	2.14	0.48
1:1:231:A:C6	1:1:233:U:C5	3.02	0.48
3:3:18:ILE:HD11	3:3:20:ARG:HE	1.78	0.48
5:5:1866:U:O2'	5:5:1867:A:O4'	2.32	0.48
5:5:2246:C:HO2'	5:5:2247:C:P	2.36	0.48
5:5:2376:A:H2'	5:5:2377:C:O4'	2.14	0.48
5:5:2400:G:H21	40:g:6:THR:HG22	1.78	0.48
5:5:2711:G:N2	25:R:42:ARG:NH1	2.61	0.48
5:5:2853:C:O2	5:5:4528:G:H5'	2.14	0.48
5:5:4767:C:H42	5:5:4867:G:H1	1.62	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:4992:G:H3'	5:5:4993:G:C8	2.47	0.48
20:M:106:ASP:HA	20:M:109:ARG:HH21	1.78	0.48
21:N:39:ALA:HB3	21:N:61:ILE:HG13	1.95	0.48
24:Q:44:ASN:HA	24:Q:47:VAL:HB	1.96	0.48
29:V:20:LEU:HB2	29:V:55:ALA:O	2.12	0.48
31:X:113:VAL:HG12	31:X:119:ILE:HG21	1.95	0.48
33:Z:36:ARG:HH11	33:Z:36:ARG:HB2	1.79	0.48
39:f:6:TRP:NE1	39:f:102:ARG:HH21	2.11	0.48
46:m:79:GLU:HG2	46:m:80:PRO:HD2	1.94	0.48
3:3:28:GLU:OE1	3:3:31:ASN:ND2	2.46	0.48
4:4:111:ASN:HA	4:4:114:ARG:HE	1.78	0.48
5:5:84:A:N6	5:5:98:A:C8	2.81	0.48
5:5:984:C:C2	5:5:1070:G:C2	3.02	0.48
5:5:1069:G:C2	5:5:1070:G:H1'	2.48	0.48
5:5:1929:A:H5'	46:m:113:LYS:NZ	2.29	0.48
5:5:2089:G:N2	5:5:2090:U:O4	2.47	0.48
5:5:2329:U:O2'	5:5:2330:G:O5'	2.32	0.48
5:5:2367:A:N6	5:5:2798:A:O4'	2.46	0.48
5:5:4912:G:H2'	5:5:4913:G:H1'	1.95	0.48
8:8:33:G:H5''	8:8:34:U:OP1	2.14	0.48
10:B:122:TRP:NE1	10:B:127:LYS:HE3	2.29	0.48
12:D:271:MET:HG2	12:D:275:GLN:HB2	1.95	0.48
19:L:91:ALA:HB1	19:L:96:ILE:HB	1.96	0.48
26:S:161:ARG:NH1	26:S:164:LYS:HG3	2.28	0.48
46:m:84:GLN:HA	46:m:87:GLN:HG3	1.95	0.48
4:4:110:VAL:HG12	4:4:114:ARG:HD3	1.96	0.48
5:5:115:C:H2'	5:5:116:G:O4'	2.14	0.48
5:5:929:A:H3'	5:5:930:G:H5''	1.96	0.48
5:5:938:C:H2'	5:5:939:G:H8	1.78	0.48
5:5:2468:U:H4'	5:5:2469:C:OP1	2.14	0.48
5:5:4271:A:H2'	5:5:4271:A:N3	2.29	0.48
9:A:40:TYR:CG	9:A:40:TYR:O	2.66	0.48
11:C:152:LEU:HD23	11:C:251:ILE:HG12	1.95	0.48
13:E:117:VAL:HG13	38:e:7:LEU:HD11	1.96	0.48
17:I:36:LEU:HD21	17:I:69:ARG:HD2	1.95	0.48
18:J:31:ASP:O	18:J:32:ARG:HB2	2.13	0.48
22:O:85:ARG:HG3	22:O:99:LEU:HD11	1.96	0.48
31:X:52:LEU:HD22	31:X:53:ARG:H	1.77	0.48
39:f:23:GLU:OE1	39:f:23:GLU:N	2.47	0.48
49:p:3:LYS:HB3	49:p:3:LYS:HZ3	1.79	0.48
3:3:12:ASN:HD21	3:3:19:LYS:NZ	2.11	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:420:A:H61	8:8:15:G:H1'	1.78	0.48
5:5:1368:A:H1'	32:Y:1:MET:HE2	1.95	0.48
5:5:2034:G:C6	5:5:2035:C:N3	2.82	0.48
5:5:2266:C:H4'	5:5:2267:U:O5'	2.13	0.48
5:5:4189:U:H2'	5:5:4190:U:O4'	2.14	0.48
13:E:153:HIS:CD2	13:E:183:ARG:HH11	2.31	0.48
19:L:14:PHE:CE1	21:N:198:LEU:HD11	2.42	0.48
23:P:30:ARG:NH1	23:P:62:ARG:HB3	2.29	0.48
37:d:24:GLU:OE1	37:d:87:ARG:NE	2.43	0.48
51:r:562:LEU:N	51:r:563:PRO:HD2	2.29	0.48
56:x:44:VAL:HG13	56:x:260:LEU:HD12	1.96	0.48
4:4:114:ARG:HH11	4:4:130:LYS:HA	1.79	0.48
5:5:228:C:H2'	5:5:229:G:H8	1.79	0.48
5:5:460:C:H2'	5:5:461:G:H8	1.78	0.48
5:5:681:G:H5'	5:5:682:G:OP2	2.13	0.48
5:5:1266:G:O2'	5:5:1267:C:H5'	2.14	0.48
5:5:1804:A:H5'	5:5:1806:G:O4'	2.14	0.48
5:5:1979:A:H3'	5:5:1980:U:C5'	2.44	0.48
5:5:2263:A:H1'	5:5:2264:C:C5	2.49	0.48
5:5:4199:C:H2'	5:5:4200:G:H5'	1.94	0.48
5:5:4457:U:OP1	29:V:50:ASN:ND2	2.34	0.48
5:5:4746:C:N4	5:5:4954:G:H1	2.12	0.48
14:F:77:ALA:HB2	27:T:140:PHE:HE1	1.79	0.48
16:H:92:MET:HE3	16:H:181:VAL:HG22	1.96	0.48
16:H:189:GLN:OE1	16:H:189:GLN:N	2.47	0.48
27:T:28:ALA:O	27:T:32:ARG:HD2	2.14	0.48
43:j:16:HIS:HA	43:j:27:TYR:O	2.14	0.48
48:o:45:GLN:NE2	48:o:52:THR:H	2.10	0.48
54:v:76:GLY:HA3	54:v:180:ASN:HD22	1.77	0.48
57:y:349:ILE:HG12	57:y:355:ALA:HA	1.95	0.48
57:y:455:THR:HB	57:y:494:GLY:N	2.29	0.48
1:1:231:A:O2'	1:1:233:U:P	2.71	0.47
5:5:77:U:H3	5:5:336:A:N6	2.12	0.47
5:5:396:A:C6	5:5:397:G:C6	3.02	0.47
5:5:454:U:H4'	5:5:455:C:C5'	2.44	0.47
5:5:959:G:N2	13:E:120:LYS:HB3	2.28	0.47
5:5:1267:C:N3	5:5:1271:G:N2	2.62	0.47
5:5:1372:A:OP1	21:N:202:ARG:NH2	2.46	0.47
5:5:1443:A:H2'	5:5:1444:G:O4'	2.14	0.47
5:5:2116:C:H4'	5:5:2117:G:O4'	2.14	0.47
5:5:2743:A:H1'	9:A:21:LYS:HE3	1.95	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:4759:C:H2'	5:5:4760:G:O4'	2.14	0.47
9:A:8:GLN:HE21	9:A:232:GLY:CA	2.27	0.47
10:B:53:MET:HE1	10:B:336:CYS:HB3	1.96	0.47
13:E:95:ASP:O	13:E:100:THR:HG22	2.14	0.47
15:G:95:LEU:HD21	15:G:154:LEU:HD13	1.96	0.47
21:N:182:HIS:H	21:N:182:HIS:HD2	1.62	0.47
5:5:136:C:O2'	5:5:137:G:O4'	2.32	0.47
5:5:279:A:H5'	5:5:329:A:N3	2.29	0.47
5:5:437:G:H5'	38:e:53:ILE:HG22	1.95	0.47
5:5:708:G:H1	5:5:1289:C:H42	1.60	0.47
5:5:744:G:H2'	5:5:745:G:H8	1.78	0.47
5:5:1296:G:O2'	5:5:1297:U:OP1	2.30	0.47
5:5:2093:A:H5''	5:5:2093:A:N3	2.29	0.47
5:5:2123:C:O2'	5:5:2124:G:OP2	2.23	0.47
5:5:2361:G:H2'	5:5:3859:G:O6	2.13	0.47
5:5:2464:C:O2'	5:5:2465:C:O5'	2.32	0.47
5:5:4242:U:H3	5:5:4281:A:H2	1.58	0.47
8:8:92:U:H2'	8:8:93:C:O4'	2.13	0.47
12:D:211:LEU:HD23	12:D:211:LEU:HA	1.80	0.47
12:D:255:LYS:HE3	12:D:255:LYS:HB2	1.73	0.47
14:F:128:ASN:ND2	27:T:132:PRO:HG2	2.30	0.47
19:L:107:THR:CG2	42:i:20:ASN:HB3	2.43	0.47
21:N:160:GLU:OE1	21:N:160:GLU:N	2.36	0.47
25:R:159:ALA:HA	25:R:162:ARG:HB2	1.96	0.47
1:1:125:G:N2	1:1:226:U:H1'	2.29	0.47
5:5:478:G:H1	5:5:676:C:H42	1.61	0.47
5:5:482:G:H2'	5:5:483:G:C8	2.49	0.47
5:5:748:G:C6	5:5:918:G:H1'	2.49	0.47
5:5:1216:C:H2'	5:5:1217:G:O4'	2.15	0.47
5:5:1591:U:OP2	10:B:242:ARG:NH2	2.47	0.47
5:5:2024:G:H8	5:5:2024:G:OP2	1.96	0.47
5:5:2611:A:H5'	5:5:2688:G:H4'	1.96	0.47
5:5:3880:G:O2'	5:5:3881:G:O5'	2.33	0.47
9:A:142:GLU:C	9:A:144:LYS:H	2.20	0.47
14:F:71:ILE:O	14:F:75:ARG:HG3	2.14	0.47
14:F:91:LEU:HD22	14:F:92:ALA:N	2.29	0.47
21:N:65:ARG:HD2	21:N:127:TYR:CD2	2.49	0.47
26:S:8:ARG:HD3	26:S:10:TYR:HE2	1.79	0.47
27:T:14:MET:HE3	27:T:58:HIS:CD2	2.49	0.47
34:a:36:GLY:O	34:a:41:HIS:HB2	2.14	0.47
53:u:167:GLU:HG3	53:u:184:GLN:HG2	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:y:559:VAL:HA	57:y:605:ILE:HD13	1.96	0.47
3:3:98:ARG:C	3:3:100:ASN:H	2.21	0.47
4:4:106:PHE:HE2	4:4:140:GLY:HA3	1.77	0.47
5:5:209:U:C2	5:5:233:U:C4	3.02	0.47
5:5:1235:G:H2'	5:5:1236:C:H5'	1.95	0.47
5:5:1247:U:H3	5:5:1263:A:H61	1.61	0.47
5:5:1388:A:H2'	5:5:1389:U:O4'	2.15	0.47
5:5:1519:C:H2'	5:5:1520:C:C6	2.50	0.47
5:5:2079:G:O6	5:5:2276:A:N6	2.47	0.47
5:5:2437:C:H42	31:X:89:LYS:NZ	2.11	0.47
9:A:79:ALA:HB3	9:A:82:ILE:HD13	1.97	0.47
9:A:117:GLU:HG2	9:A:124:GLY:H	1.79	0.47
14:F:118:GLN:HB3	14:F:121:ASN:OD1	2.13	0.47
25:R:36:ASN:OD1	25:R:36:ASN:N	2.46	0.47
25:R:102:LEU:HD22	25:R:138:LEU:HD12	1.97	0.47
33:Z:97:ASN:HB3	33:Z:100:VAL:HG23	1.95	0.47
41:h:72:PHE:HB3	41:h:73:TYR:CD1	2.50	0.47
42:i:12:ASN:ND2	42:i:12:ASN:O	2.46	0.47
44:k:16:ARG:NH1	44:k:61:PRO:HG3	2.29	0.47
53:u:215:TYR:CZ	53:u:233:ARG:HG2	2.49	0.47
56:x:196:LYS:NZ	56:x:197:GLN:HE22	2.11	0.47
57:y:357:ILE:O	57:y:361:LEU:HB2	2.14	0.47
4:4:147:HIS:CD2	4:4:147:HIS:N	2.81	0.47
5:5:269:G:H2'	5:5:269:G:N3	2.29	0.47
5:5:1262:G:C2	5:5:1263:A:C8	3.02	0.47
5:5:2104:G:H2'	5:5:2105:A:O4'	2.14	0.47
5:5:2520:C:H2'	5:5:2521:G:C8	2.49	0.47
5:5:2533:C:H2'	5:5:2534:C:C6	2.50	0.47
5:5:4750:G:C2	5:5:4751:G:C2	3.03	0.47
5:5:4927:G:O2'	20:M:117:LYS:HD2	2.13	0.47
5:5:4941:G:H2'	5:5:4942:C:O2	2.15	0.47
7:7:118:C:N4	12:D:258:LYS:NZ	2.61	0.47
11:C:204:ARG:HA	11:C:204:ARG:HD3	1.61	0.47
11:C:230:LEU:HD21	11:C:239:LYS:HD2	1.97	0.47
12:D:202:GLN:N	12:D:202:GLN:HE21	2.12	0.47
15:G:51:LEU:O	15:G:54:PHE:N	2.40	0.47
16:H:28:LYS:HB3	16:H:33:THR:HG22	1.97	0.47
17:I:16:PRO:CA	17:I:128:ARG:HH12	2.27	0.47
26:S:140:PRO:HA	26:S:143:LYS:HB3	1.95	0.47
33:Z:57:MET:HG3	33:Z:61:LYS:HD3	1.97	0.47
38:e:77:PHE:HD1	38:e:78:LEU:N	2.12	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:g:33:LEU:HA	40:g:33:LEU:HD23	1.65	0.47
41:h:97:LYS:NZ	41:h:97:LYS:HB2	2.30	0.47
51:r:63:GLU:O	51:r:67:VAL:HG23	2.15	0.47
54:v:93:GLN:HB3	57:y:32:LEU:HD13	1.96	0.47
1:1:98:G:O2'	1:1:101:G:H4'	2.14	0.47
1:1:233:U:H4'	1:1:234:A:OP1	2.14	0.47
5:5:450:G:H2'	5:5:451:C:H4'	1.96	0.47
5:5:1481:C:N4	42:i:4:ARG:NH1	2.63	0.47
5:5:2252:G:H3'	13:E:85:LEU:HB2	1.97	0.47
5:5:2601:A:OP1	40:g:40:LYS:NZ	2.44	0.47
5:5:3939:G:N7	5:5:4170:A:O2'	2.35	0.47
5:5:4478:G:O2'	5:5:4602:A:N1	2.47	0.47
6:6:63:LYS:HD2	6:6:82:ILE:HD11	1.96	0.47
6:6:94:ASP:OD1	6:6:94:ASP:N	2.48	0.47
8:8:83:C:H4'	8:8:85:U:C2	2.50	0.47
10:B:10:ARG:HH11	10:B:14:LEU:CG	2.28	0.47
16:H:54:ARG:HG3	16:H:54:ARG:HH11	1.79	0.47
18:J:164:ARG:HB2	18:J:164:ARG:NH2	2.29	0.47
21:N:30:TYR:CE1	21:N:63:ARG:NH1	2.82	0.47
33:Z:57:MET:HB3	33:Z:61:LYS:HB3	1.96	0.47
36:c:50:ASN:OD1	36:c:50:ASN:N	2.42	0.47
42:i:70:LEU:HB3	42:i:87:ARG:HD3	1.96	0.47
49:p:37:TYR:HD2	49:p:71:TYR:HB2	1.80	0.47
1:1:185:C:P	56:x:405:ARG:HD3	2.55	0.47
3:3:107:ARG:HG3	3:3:108:MET:N	2.29	0.47
5:5:457:G:N2	5:5:699:C:N3	2.56	0.47
5:5:499:G:H2'	5:5:499:G:N3	2.30	0.47
5:5:1210:C:H4'	5:5:1211:G:OP2	2.15	0.47
5:5:1273:G:H1'	13:E:70:SER:HA	1.97	0.47
5:5:1757:U:H2'	5:5:1758:G:O4'	2.14	0.47
5:5:1971:C:C5	5:5:2000:G:H2'	2.50	0.47
5:5:1998:A:N3	5:5:2019:C:O2'	2.46	0.47
5:5:2014:C:H2'	5:5:2015:U:O4'	2.15	0.47
5:5:2674:A:H5'	36:c:56:ARG:NH2	2.30	0.47
5:5:2896:G:H5''	5:5:2897:G:OP2	2.14	0.47
5:5:2897:G:H2'	5:5:2898:G:C8	2.47	0.47
5:5:2902:G:C6	5:5:3594:C:N4	2.83	0.47
5:5:4212:A:H61	27:T:3:ASN:HD21	1.62	0.47
5:5:4459:U:H5''	10:B:10:ARG:HH22	1.80	0.47
5:5:4737:G:H5''	5:5:5069:U:C5	2.50	0.47
6:6:96:THR:HG22	6:6:97:GLU:H	1.79	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:8:38:U:H3	41:h:92:ARG:CZ	2.27	0.47
9:A:5:ILE:HG23	9:A:8:GLN:HG3	1.97	0.47
10:B:217:ILE:HD12	10:B:347:LEU:HG	1.96	0.47
11:C:315:LYS:HD2	14:F:161:TYR:HE1	1.80	0.47
13:E:145:ILE:HG22	13:E:193:THR:HB	1.96	0.47
13:E:160:PHE:CE1	13:E:169:LEU:HD22	2.50	0.47
14:F:96:ARG:HH22	14:F:100:ILE:HB	1.79	0.47
15:G:62:ARG:O	15:G:66:GLN:HG2	2.15	0.47
19:L:35:ARG:HB3	19:L:39:ARG:NH2	2.28	0.47
20:M:69:ARG:C	20:M:71:LYS:H	2.22	0.47
21:N:192:TRP:HE3	21:N:192:TRP:O	1.97	0.47
26:S:43:ARG:HA	26:S:43:ARG:HD2	1.77	0.47
28:U:79:SER:OG	28:U:82:TYR:N	2.47	0.47
37:d:23:ARG:HD3	37:d:57:MET:HE1	1.97	0.47
38:e:83:LYS:HA	38:e:86:GLU:OE1	2.15	0.47
41:h:35:LYS:HA	41:h:44:LEU:HD21	1.96	0.47
45:l:27:ILE:O	45:l:33:ASN:ND2	2.48	0.47
53:u:212:LYS:HD2	53:u:241:ILE:HD13	1.97	0.47
56:x:415:ARG:NH2	56:x:419:GLU:OE1	2.42	0.47
57:y:10:LYS:HB2	57:y:63:GLU:HB3	1.96	0.47
57:y:341:LEU:HD13	57:y:384:VAL:HG23	1.97	0.47
1:1:58:G:C6	1:1:289:A:C4	3.02	0.47
4:4:142:ASN:HD21	4:4:151:ILE:HG13	1.80	0.47
5:5:298:G:OP1	21:N:179:LYS:HD3	2.15	0.47
5:5:401:G:C2	5:5:402:A:H1'	2.49	0.47
5:5:687:U:O2'	13:E:101:ARG:HG2	2.14	0.47
5:5:749:G:H2'	5:5:750:U:O4'	2.14	0.47
5:5:1072:C:H42	5:5:1239:C:N4	2.13	0.47
5:5:1079:C:N4	5:5:1221:G:H1	2.10	0.47
5:5:1407:C:O2'	5:5:1408:G:OP1	2.25	0.47
5:5:1755:C:H41	5:5:1778:C:C4'	2.28	0.47
5:5:2725:A:N6	25:R:88:ARG:O	2.48	0.47
5:5:4089:G:H2'	5:5:4090:G:O4'	2.15	0.47
5:5:4500:U:H2'	5:5:4501:U:C6	2.49	0.47
5:5:4594:U:H2'	5:5:4595:G:H8	1.80	0.47
7:7:83:A:H4'	14:F:226:THR:HB	1.96	0.47
10:B:56:ILE:O	10:B:73:VAL:HA	2.15	0.47
10:B:204:GLN:HE21	10:B:204:GLN:HB3	1.53	0.47
12:D:27:LYS:HE2	18:J:147:ARG:NH2	2.30	0.47
12:D:41:LYS:HE3	27:T:93:ILE:HD13	1.97	0.47
12:D:148:ALA:HA	12:D:159:VAL:HG11	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:E:91:PRO:HB3	13:E:104:LYS:H	1.79	0.47
14:F:127:LEU:HD23	14:F:127:LEU:HA	1.64	0.47
21:N:68:ARG:HH11	21:N:128:LYS:HG3	1.79	0.47
22:O:23:VAL:O	22:O:27:VAL:HG23	2.15	0.47
29:V:96:LEU:HD13	30:W:20:ARG:HB3	1.97	0.47
30:W:51:TRP:CD1	30:W:51:TRP:H	2.31	0.47
32:Y:5:PRO:O	32:Y:6:PHE:HB2	2.14	0.47
34:a:83:SER:O	34:a:86:THR:HG23	2.14	0.47
37:d:71:ALA:HA	37:d:74:ALA:HB2	1.95	0.47
46:m:99:CYS:HB2	46:m:114:LYS:HE2	1.97	0.47
55:w:21:ASP:OD2	55:w:24:LYS:HE3	2.15	0.47
56:x:195:HIS:CE1	56:x:198:GLU:HB2	2.50	0.47
57:y:455:THR:HB	57:y:494:GLY:H	1.80	0.47
1:1:119:A:H4'	53:u:83:TYR:HD1	1.78	0.47
3:3:12:ASN:HD22	5:5:2338:C:H5''	1.78	0.47
5:5:120:A:N6	5:5:151:G:H1'	2.28	0.47
5:5:977:C:C2	5:5:978:G:C8	3.03	0.47
5:5:979:C:H5''	13:E:40:CYS:N	2.30	0.47
5:5:1279:A:H4'	5:5:1279:A:OP1	2.15	0.47
5:5:1553:A:OP1	49:p:4:ARG:HD2	2.14	0.47
5:5:2352:U:H1'	11:C:96:CYS:HA	1.97	0.47
5:5:2696:A:H62	44:k:35:LYS:NZ	2.13	0.47
5:5:2832:A:OP1	37:d:47:LYS:NZ	2.42	0.47
5:5:3661:G:H21	9:A:126:LEU:HD22	1.79	0.47
5:5:4530:U:H5'	5:5:4531:U:OP2	2.14	0.47
8:8:55:U:H3	8:8:62:A:H2	1.61	0.47
17:I:202:ASN:N	17:I:202:ASN:OD1	2.46	0.47
21:N:184:ILE:HG23	21:N:194:ARG:NH1	2.30	0.47
26:S:45:TRP:HA	26:S:48:VAL:HG12	1.96	0.47
26:S:69:GLU:OE2	26:S:102:THR:N	2.47	0.47
43:j:28:HIS:ND1	43:j:31:LYS:HE2	2.29	0.47
56:x:222:ASP:CG	56:x:249:LYS:HD2	2.39	0.47
57:y:104:LEU:O	57:y:108:ASN:ND2	2.48	0.47
57:y:480:HIS:CG	57:y:485:MET:HG3	2.50	0.47
1:1:136:G:O2'	1:1:214:A:N1	2.43	0.47
2:2:1:G:H1	2:2:72:C:H42	1.63	0.47
4:4:105:THR:O	4:4:107:ASP:N	2.48	0.47
5:5:84:A:C8	5:5:86:U:C2	3.01	0.47
5:5:120:A:H2'	5:5:149:A:H61	1.80	0.47
5:5:1601:A:H61	5:5:4555:U:H3	1.63	0.47
5:5:1690:C:OP2	24:Q:11:ARG:NH2	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:1815:G:H8	35:b:41:ARG:HH22	1.62	0.47
5:5:2253:A:H2	5:5:2260:C:H42	1.62	0.47
5:5:2634:C:H2'	5:5:2635:U:H6	1.79	0.47
5:5:2706:G:N2	25:R:43:LYS:HZ3	2.13	0.47
5:5:3945:A:H2'	5:5:3946:G:C8	2.50	0.47
5:5:4508:C:N3	5:5:4512:U:H5	2.13	0.47
5:5:4633:G:O3'	5:5:4634:U:H3'	2.14	0.47
5:5:4884:G:H1	5:5:4934:A:H61	1.62	0.47
5:5:4945:G:N2	39:f:69:VAL:H	2.12	0.47
11:C:195:LYS:HB2	11:C:195:LYS:HZ3	1.78	0.47
17:I:16:PRO:HA	17:I:128:ARG:HH12	1.80	0.47
17:I:141:LYS:HE3	17:I:141:LYS:HB3	1.81	0.47
20:M:35:ARG:HH12	26:S:99:ASP:HB2	1.80	0.47
33:Z:121:ARG:HH21	33:Z:126:LYS:NZ	2.12	0.47
37:d:107:THR:HG22	37:d:108:TYR:H	1.79	0.47
52:t:80:LEU:HD11	56:x:349:LEU:HD13	1.97	0.47
53:u:178:LYS:HG3	53:u:230:TYR:OH	2.15	0.47
3:3:23:GLN:HG2	38:e:95:TYR:HE2	1.79	0.46
5:5:202:C:H5'	5:5:203:U:OP2	2.14	0.46
5:5:962:C:OP2	5:5:2264:C:N3	2.48	0.46
5:5:1474:C:O2'	5:5:1475:G:OP1	2.28	0.46
5:5:2546:G:H4'	5:5:2547:G:OP1	2.15	0.46
5:5:2658:G:O2'	5:5:2659:A:H8	1.98	0.46
5:5:4565:C:H2'	5:5:4566:U:H6	1.80	0.46
5:5:4736:C:O2'	5:5:4737:G:H8	1.98	0.46
5:5:4996:C:OP1	37:d:28:ASN:HB3	2.15	0.46
9:A:82:ILE:HD11	9:A:99:GLY:HA3	1.97	0.46
10:B:181:MET:HE3	10:B:181:MET:HB2	1.83	0.46
10:B:332:MET:HE1	10:B:365:LEU:HD11	1.97	0.46
12:D:107:ARG:HH12	12:D:120:GLU:HA	1.79	0.46
13:E:153:HIS:CD2	13:E:183:ARG:NH1	2.72	0.46
15:G:156:VAL:HB	15:G:202:VAL:HG12	1.97	0.46
26:S:44:PHE:C	26:S:44:PHE:HD1	2.23	0.46
27:T:106:LEU:HA	27:T:109:VAL:HB	1.97	0.46
29:V:60:MET:HG2	29:V:80:VAL:HG22	1.97	0.46
43:j:13:ASN:OD1	43:j:13:ASN:N	2.28	0.46
57:y:354:ALA:HB3	57:y:357:ILE:HG12	1.96	0.46
4:4:141:CYS:O	4:4:142:ASN:HB2	2.13	0.46
5:5:162:A:H2'	5:5:163:A:O4'	2.16	0.46
5:5:449:C:H3'	5:5:450:G:H5''	1.97	0.46
5:5:1072:C:N4	5:5:1239:C:C4	2.83	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:1431:C:H2'	5:5:1432:G:O4'	2.15	0.46
5:5:3638:G:N2	5:5:3651:A:H1'	2.30	0.46
5:5:4880:C:H2'	5:5:4881:U:H5'	1.97	0.46
5:5:4933:C:H2'	5:5:4934:A:O4'	2.15	0.46
11:C:221:PHE:HB3	11:C:227:ILE:HG21	1.97	0.46
12:D:204:VAL:HG12	12:D:236:MET:HE1	1.98	0.46
15:G:31:LEU:HB3	33:Z:53:VAL:HG11	1.97	0.46
17:I:17:TYR:CE2	17:I:98:ARG:HD3	2.50	0.46
20:M:106:ASP:HA	20:M:109:ARG:NH2	2.30	0.46
21:N:30:TYR:CD1	21:N:63:ARG:NH1	2.82	0.46
51:r:591:UNK:HG2	51:r:592:UNK:HG3	1.97	0.46
53:u:202:LYS:HA	53:u:248:ILE:HD11	1.96	0.46
55:w:4:TYR:HB2	55:w:10:PHE:HB2	1.98	0.46
5:5:1369:C:H3'	5:5:1370:G:C5'	2.45	0.46
5:5:1382:G:OP1	19:L:66:TYR:OH	2.27	0.46
5:5:1739:G:N3	5:5:1742:A:N6	2.64	0.46
5:5:1823:G:H4'	12:D:44:TYR:CD2	2.51	0.46
5:5:2303:C:H5''	38:e:104:SER:HB3	1.97	0.46
5:5:2361:G:O6	23:P:25:HIS:CD2	2.68	0.46
5:5:2431:A:OP1	45:l:22:PRO:HG3	2.15	0.46
5:5:3648:A:H1'	5:5:3785:A:N6	2.29	0.46
9:A:39:GLY:HA3	15:G:41:ILE:HG21	1.97	0.46
14:F:120:PHE:CE2	14:F:217:SER:HA	2.50	0.46
22:O:130:LYS:HE3	22:O:133:ARG:HH21	1.80	0.46
32:Y:59:ARG:HG3	32:Y:103:LYS:HD2	1.98	0.46
37:d:72:VAL:HG22	37:d:84:ILE:HD13	1.97	0.46
50:q:60:VAL:HG12	50:q:84:VAL:HG22	1.97	0.46
56:x:340:MET:HB2	56:x:372:LEU:HD12	1.97	0.46
1:1:118:A:HO2'	53:u:90:ARG:NH2	2.12	0.46
1:1:251:G:P	51:r:59:GLY:HA3	2.55	0.46
5:5:280:G:H5'	21:N:120:TRP:CE3	2.50	0.46
5:5:713:C:N4	5:5:955:G:H1	2.03	0.46
5:5:723:A:H2	5:5:943:A:N1	2.14	0.46
5:5:989:U:H2'	5:5:990:C:H5	1.81	0.46
5:5:1387:A:C5	5:5:1397:A:N7	2.83	0.46
5:5:1398:A:N6	5:5:1419:G:H2'	2.26	0.46
5:5:1836:G:O2'	27:T:132:PRO:HD3	2.16	0.46
5:5:2303:C:OP1	38:e:104:SER:OG	2.33	0.46
5:5:4069:U:H2'	5:5:4070:U:C6	2.51	0.46
5:5:4423:U:C2	46:m:97:ARG:NH1	2.82	0.46
5:5:4693:C:H4'	5:5:4694:G:OP2	2.10	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:4950:U:N3	5:5:4952:G:H1'	2.30	0.46
8:8:103:A:H3'	8:8:104:A:C5'	2.44	0.46
9:A:177:LYS:HB2	49:p:29:ILE:HG21	1.97	0.46
12:D:123:VAL:HG13	12:D:248:ARG:NH2	2.31	0.46
16:H:66:GLU:OE1	16:H:66:GLU:N	2.48	0.46
21:N:114:ARG:HD2	21:N:151:ILE:HG22	1.96	0.46
25:R:10:LEU:HB3	25:R:41:ILE:HD12	1.98	0.46
34:a:37:GLY:HA3	34:a:53:PHE:CZ	2.51	0.46
35:b:22:LYS:NZ	35:b:22:LYS:HB3	2.30	0.46
41:h:117:ARG:NH1	41:h:117:ARG:HG2	2.29	0.46
1:1:117:U:O2'	1:1:118:A:P	2.74	0.46
1:1:223:U:H5''	53:u:81:ARG:NH1	2.30	0.46
3:3:87:ARG:HH11	13:E:107:LYS:CD	2.29	0.46
5:5:274:C:O2'	5:5:275:C:O5'	2.28	0.46
5:5:369:G:N1	5:5:373:G:C6	2.84	0.46
5:5:747:A:C5	5:5:916:C:N4	2.84	0.46
5:5:1660:U:N3	5:5:2345:G:OP1	2.47	0.46
5:5:1699:A:H4'	5:5:1718:C:P	2.56	0.46
5:5:2117:G:H1'	14:F:51:LEU:HD22	1.97	0.46
5:5:4752:U:O2'	39:f:4:ARG:NH2	2.49	0.46
8:8:127:U:C4	8:8:128:C:C5	3.03	0.46
9:A:143:THR:O	9:A:145:LYS:HG3	2.15	0.46
9:A:189:TYR:C	9:A:191:ALA:H	2.21	0.46
11:C:180:ILE:HD12	11:C:180:ILE:H	1.80	0.46
12:D:68:ARG:HD3	12:D:68:ARG:HA	1.69	0.46
15:G:250:ILE:O	15:G:254:GLU:HG2	2.16	0.46
17:I:209:TRP:HE1	17:I:213:HIS:CB	2.28	0.46
19:L:78:LEU:HB3	19:L:82:ARG:NH2	2.30	0.46
25:R:78:ILE:H	25:R:78:ILE:HD12	1.80	0.46
25:R:136:ARG:HB3	25:R:136:ARG:HH11	1.80	0.46
33:Z:51:ARG:HD2	33:Z:65:ARG:HD3	1.97	0.46
36:c:59:GLU:O	36:c:63:TYR:HB2	2.16	0.46
38:e:4:LEU:O	38:e:74:PHE:HZ	1.98	0.46
51:r:44:ASP:HB3	51:r:47:ALA:HB3	1.98	0.46
3:3:75:THR:C	3:3:77:TYR:H	2.23	0.46
3:3:107:ARG:HG2	3:3:107:ARG:HH11	1.81	0.46
5:5:235:A:H61	32:Y:103:LYS:HZ3	1.63	0.46
5:5:1724:G:C8	35:b:17:HIS:CG	3.04	0.46
5:5:1797:G:OP1	14:F:106:LYS:NZ	2.49	0.46
5:5:2008:U:H1'	5:5:2011:C:C5	2.50	0.46
5:5:2822:G:H5''	25:R:18:GLY:CA	2.46	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:3660:C:H2'	5:5:3682:A:N6	2.30	0.46
5:5:4320:G:H2'	5:5:4321:U:O4'	2.15	0.46
5:5:4900:C:H4'	5:5:4901:G:OP2	2.15	0.46
5:5:4941:G:H5''	13:E:183:ARG:HE	1.80	0.46
5:5:5022:U:O2'	5:5:5023:C:OP1	2.31	0.46
7:7:75:G:O4'	26:S:53:LYS:HD3	2.16	0.46
7:7:118:C:H41	12:D:258:LYS:NZ	2.14	0.46
10:B:215:GLU:OE2	10:B:349:LYS:HE3	2.15	0.46
11:C:339:THR:HA	11:C:342:ARG:HB3	1.98	0.46
14:F:162:GLY:HA3	14:F:171:LEU:HD21	1.98	0.46
21:N:192:TRP:HE3	21:N:192:TRP:C	2.23	0.46
23:P:36:ILE:HG13	23:P:44:ALA:HB1	1.98	0.46
24:Q:178:ARG:NH2	34:a:46:ASP:OD2	2.49	0.46
25:R:60:ARG:HG3	25:R:60:ARG:NH1	2.30	0.46
48:o:45:GLN:HE22	48:o:51:GLN:HA	1.81	0.46
53:u:224:GLU:HA	53:u:227:ALA:HB3	1.96	0.46
56:x:83:LEU:HD11	56:x:295:LEU:HD13	1.96	0.46
4:4:78:SER:HB2	4:4:133:LEU:HD22	1.96	0.46
5:5:161:G:H2'	5:5:162:A:C8	2.50	0.46
5:5:457:G:H1	5:5:699:C:H42	1.64	0.46
5:5:706:C:N4	5:5:1291:G:H1	2.12	0.46
5:5:957:G:H1'	5:5:958:G:OP2	2.15	0.46
5:5:1591:U:N3	5:5:4555:U:OP1	2.49	0.46
5:5:4619:U:H2'	5:5:4620:U:C6	2.50	0.46
5:5:4930:C:OP1	13:E:262:GLN:N	2.48	0.46
12:D:284:LYS:HD2	17:I:209:TRP:HZ3	1.81	0.46
13:E:52:ARG:HB3	13:E:53:TYR:CD1	2.51	0.46
14:F:230:VAL:HA	26:S:39:VAL:HG12	1.98	0.46
16:H:117:PHE:CE2	16:H:165:THR:HB	2.50	0.46
20:M:47:ARG:HH21	20:M:70:GLN:HB2	1.80	0.46
34:a:12:ARG:HD3	34:a:12:ARG:HA	1.75	0.46
38:e:104:SER:O	38:e:108:ARG:HB2	2.15	0.46
51:r:52:VAL:HG13	51:r:64:ALA:HB1	1.97	0.46
53:u:211:CYS:SG	53:u:237:ILE:HD13	2.56	0.46
1:1:35:U:H4'	1:1:37:C:C5	2.51	0.46
5:5:94:A:H2'	5:5:95:G:O4'	2.15	0.46
5:5:448:G:H1	5:5:1298:C:H42	1.63	0.46
5:5:1516:G:C5	5:5:1518:A:C8	3.04	0.46
5:5:1743:A:O2'	12:D:15:ARG:NH2	2.48	0.46
5:5:2274:C:H5'	11:C:312:ARG:HB3	1.98	0.46
5:5:2478:C:N4	5:5:2479:G:O6	2.49	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:2890:C:H2'	5:5:2891:U:C6	2.51	0.46
5:5:2904:U:H5''	5:5:2905:C:C5	2.48	0.46
5:5:3652:A:O2'	9:A:182:ALA:HB2	2.16	0.46
5:5:4274:A:H2'	5:5:4275:G:C8	2.50	0.46
5:5:4593:C:H2'	5:5:4594:U:C6	2.50	0.46
5:5:4646:U:OP1	25:R:58:HIS:HA	2.16	0.46
6:6:127:ASN:OD1	6:6:127:ASN:N	2.48	0.46
8:8:34:U:H4'	8:8:35:C:OP1	2.16	0.46
10:B:14:LEU:C	10:B:16:PHE:H	2.24	0.46
12:D:216:GLU:C	12:D:218:ALA:H	2.24	0.46
14:F:124:PHE:HB2	14:F:207:ASN:OD1	2.16	0.46
14:F:146:TYR:HE2	14:F:239:GLU:HB3	1.78	0.46
15:G:137:ARG:O	15:G:202:VAL:HA	2.15	0.46
19:L:64:VAL:HA	19:L:67:HIS:CD2	2.50	0.46
20:M:47:ARG:HH22	20:M:69:ARG:HA	1.80	0.46
22:O:53:LYS:HE3	22:O:53:LYS:HB2	1.73	0.46
23:P:24:VAL:CG2	23:P:90:PHE:HD2	2.29	0.46
25:R:96:MET:O	25:R:100:ARG:HB2	2.15	0.46
25:R:176:ARG:O	25:R:180:LYS:HB2	2.16	0.46
27:T:11:THR:HB	27:T:15:PHE:CD1	2.51	0.46
33:Z:3:LYS:O	33:Z:6:LYS:NZ	2.40	0.46
33:Z:33:THR:C	33:Z:35:ASP:H	2.23	0.46
44:k:64:LEU:HD12	44:k:64:LEU:HA	1.78	0.46
51:r:20:ARG:O	51:r:24:ASN:ND2	2.49	0.46
56:x:429:GLN:HA	56:x:432:LYS:NZ	2.31	0.46
57:y:58:LEU:HD23	57:y:65:VAL:HG13	1.97	0.46
1:1:117:U:C2	1:1:234:A:N1	2.84	0.46
1:1:232:G:C5	57:y:530:LEU:HD13	2.51	0.46
5:5:16:G:O3'	41:h:78:TYR:HE2	1.99	0.46
5:5:1346:C:H2'	5:5:1347:G:H8	1.79	0.46
5:5:1366:G:H2'	5:5:1367:C:H5'	1.97	0.46
5:5:1374:G:OP1	11:C:120:LYS:HD3	2.15	0.46
5:5:1545:G:H2'	5:5:1546:C:C6	2.51	0.46
5:5:2590:G:H22	5:5:2754:G:H2'	1.81	0.46
5:5:4882:U:O2'	5:5:4883:C:H2'	2.16	0.46
9:A:108:PRO:HD3	49:p:90:LYS:HE3	1.97	0.46
9:A:206:PRO:HD3	9:A:213:GLY:CA	2.46	0.46
11:C:95:MET:HG2	11:C:96:CYS:N	2.30	0.46
11:C:305:PRO:HG3	24:Q:38:ARG:NH2	2.31	0.46
14:F:82:ASN:ND2	27:T:142:ARG:HA	2.30	0.46
15:G:50:ASP:O	15:G:51:LEU:HD23	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:J:154:LYS:C	18:J:156:ARG:H	2.24	0.46
21:N:192:TRP:C	21:N:192:TRP:CE3	2.94	0.46
22:O:191:ARG:NH1	22:O:192:PHE:CZ	2.84	0.46
23:P:52:THR:HG23	23:P:85:LYS:HG3	1.96	0.46
30:W:23:ARG:HB3	30:W:25:ASP:OD1	2.15	0.46
37:d:85:ARG:HB3	37:d:109:VAL:HG23	1.98	0.46
45:l:23:ILE:HD11	45:l:38:ASN:HA	1.98	0.46
55:w:56:ALA:HA	55:w:59:VAL:HG23	1.97	0.46
1:1:58:G:C5	1:1:289:A:C2	3.04	0.46
5:5:411:G:H5'	5:5:414:C:O2'	2.16	0.46
5:5:737:C:H2'	5:5:738:C:C6	2.51	0.46
5:5:1271:G:C2	5:5:2122:G:OP2	2.70	0.46
5:5:1819:G:H2'	5:5:1819:G:N3	2.30	0.46
5:5:1819:G:O2'	12:D:140:GLY:O	2.30	0.46
5:5:2639:U:H2'	5:5:2694:G:C6	2.51	0.46
5:5:2851:G:N7	5:5:2852:U:H5	2.14	0.46
5:5:4622:A:H5'	10:B:12:GLY:CA	2.39	0.46
5:5:4883:C:H1'	13:E:270:VAL:HG12	1.98	0.46
5:5:4898:G:H2'	5:5:4899:G:C8	2.51	0.46
10:B:49:TYR:CE2	10:B:344:VAL:HG22	2.51	0.46
10:B:300:LYS:NZ	10:B:301:ASN:ND2	2.63	0.46
12:D:55:VAL:HG22	12:D:60:ILE:HG12	1.98	0.46
12:D:60:ILE:H	12:D:80:ALA:HB3	1.81	0.46
12:D:278:ASP:OD1	12:D:279:ARG:N	2.49	0.46
17:I:211:VAL:O	17:I:214:SER:OG	2.30	0.46
19:L:36:ARG:HH11	19:L:36:ARG:CB	2.17	0.46
22:O:12:ARG:HD3	22:O:37:ARG:NH2	2.31	0.46
36:c:52:CYS:SG	36:c:57:LYS:HB2	2.56	0.46
57:y:422:PHE:CD1	57:y:434:LEU:HD12	2.51	0.46
57:y:535:ALA:HA	57:y:569:LEU:HD23	1.97	0.46
1:1:48:G:H2'	1:1:49:A:C8	2.52	0.45
1:1:243:G:O6	51:r:577:TRP:HZ2	1.99	0.45
3:3:85:ASN:HD22	5:5:689:U:H4'	1.80	0.45
5:5:344:A:H5'	43:j:75:ARG:HH12	1.81	0.45
5:5:382:G:H4'	5:5:407:A:N1	2.31	0.45
5:5:469:C:H5'	5:5:683:C:H42	1.80	0.45
5:5:505:G:H2'	5:5:506:C:C6	2.52	0.45
5:5:960:A:H2'	5:5:2256:C:H41	1.81	0.45
5:5:979:C:H4'	13:E:39:HIS:HB3	1.98	0.45
5:5:1420:A:H2'	5:5:1501:C:OP2	2.16	0.45
5:5:2532:C:O2'	31:X:93:ASN:ND2	2.49	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:3588:C:H2'	5:5:3589:G:C8	2.51	0.45
5:5:3654:G:O2'	5:5:3693:U:OP1	2.31	0.45
5:5:3880:G:O2'	5:5:3881:G:C8	2.61	0.45
5:5:4121:G:H4'	5:5:4122:G:OP2	2.15	0.45
5:5:4625:C:O2'	5:5:4626:A:H5'	2.16	0.45
8:8:39:G:O2'	8:8:103:A:N6	2.49	0.45
8:8:59:A:H4'	8:8:60:G:H3'	1.98	0.45
10:B:154:LYS:HB2	10:B:154:LYS:HZ2	1.76	0.45
11:C:94:ASN:ND2	11:C:94:ASN:H	2.12	0.45
14:F:144:TRP:CE2	14:F:237:ASN:HB2	2.51	0.45
23:P:24:VAL:HG22	23:P:90:PHE:CD2	2.50	0.45
26:S:83:ARG:HH21	27:T:156:TYR:HB2	1.80	0.45
33:Z:4:PHE:H	33:Z:4:PHE:HD1	1.64	0.45
58:z:3:LEU:HD11	58:z:70:VAL:HG23	1.97	0.45
1:1:227:G:C2	1:1:228:A:H1'	2.51	0.45
5:5:266:C:H5'	5:5:267:G:OP2	2.16	0.45
5:5:294:G:HO2'	5:5:295:A:P	2.39	0.45
5:5:975:C:N4	5:5:976:G:C6	2.85	0.45
5:5:977:C:C2'	5:5:978:G:H5'	2.45	0.45
5:5:1668:A:OP2	5:5:2280:G:N2	2.43	0.45
5:5:1724:G:N7	35:b:17:HIS:CG	2.85	0.45
5:5:2595:C:C2	5:5:2751:G:N2	2.84	0.45
5:5:2844:A:O2'	5:5:4631:G:H4'	2.16	0.45
5:5:4739:C:H2'	5:5:4740:G:O4'	2.17	0.45
5:5:4935:C:O2'	5:5:4936:G:OP1	2.33	0.45
5:5:4966:A:N6	5:5:4967:A:C6	2.84	0.45
5:5:5043:A:O2'	5:5:5044:A:H8	1.97	0.45
10:B:46:PHE:CD1	10:B:84:MET:HE2	2.51	0.45
10:B:135:LYS:HA	10:B:135:LYS:HD2	1.82	0.45
11:C:22:VAL:HG13	11:C:258:ARG:HE	1.81	0.45
11:C:231:ASN:OD1	11:C:232:VAL:N	2.49	0.45
13:E:156:LYS:HE3	13:E:178:ASN:HD22	1.81	0.45
17:I:53:VAL:HG11	27:T:158:PHE:HZ	1.79	0.45
18:J:19:LYS:HD2	18:J:21:CYS:SG	2.56	0.45
19:L:27:ASN:ND2	19:L:27:ASN:H	2.14	0.45
29:V:123:LYS:HB2	29:V:123:LYS:HZ2	1.77	0.45
30:W:4:GLU:OE2	30:W:30:GLN:NE2	2.49	0.45
34:a:92:LYS:O	34:a:93:ASN:HB3	2.17	0.45
50:q:107:TYR:CZ	50:q:111:MET:HG3	2.51	0.45
5:5:158:A:N6	5:5:277:G:C4	2.84	0.45
5:5:500:G:H21	5:5:655:C:H1'	1.80	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:1823:G:H4'	12:D:44:TYR:CE2	2.51	0.45
5:5:4121:G:H1	9:A:84:THR:HB	1.81	0.45
5:5:4763:U:H1'	20:M:3:PHE:CZ	2.52	0.45
5:5:5016:A:H2	5:5:5033:G:H21	1.64	0.45
5:5:5047:C:H5''	5:5:5050:C:C5	2.48	0.45
11:C:71:ARG:HB3	11:C:71:ARG:CZ	2.46	0.45
13:E:119:ARG:HH11	13:E:119:ARG:HG3	1.81	0.45
13:E:152:ARG:O	13:E:154:ARG:N	2.49	0.45
15:G:228:ASP:O	15:G:229:ARG:HG2	2.16	0.45
17:I:35:ASP:HB2	17:I:86:HIS:HE1	1.81	0.45
18:J:166:PHE:CE2	18:J:172:GLY:HA3	2.51	0.45
26:S:29:ARG:NH2	27:T:148:PRO:O	2.49	0.45
30:W:42:SER:HB2	30:W:44:ARG:HH12	1.81	0.45
53:u:58:GLU:HG2	53:u:178:LYS:HZ1	1.80	0.45
54:v:72:LEU:HD22	54:v:125:ARG:HH22	1.81	0.45
55:w:31:TYR:CE2	55:w:33:HIS:HB2	2.51	0.45
55:w:53:THR:HG22	55:w:53:THR:O	2.16	0.45
56:x:98:LYS:HG2	56:x:130:TRP:CH2	2.51	0.45
1:1:182:G:H4'	1:1:183:A:C4	2.51	0.45
5:5:216:C:O2'	5:5:217:C:P	2.75	0.45
5:5:731:G:H5''	5:5:732:A:OP2	2.17	0.45
5:5:1803:G:C6	27:T:109:VAL:HG22	2.51	0.45
5:5:1868:A:N7	5:5:1870:C:C2	2.84	0.45
5:5:1945:G:C2'	5:5:1946:G:H5'	2.46	0.45
5:5:2851:G:C4	5:5:2852:U:H6	2.34	0.45
5:5:4518:A:OP1	5:5:4520:G:H4'	2.16	0.45
11:C:71:ARG:HB3	11:C:71:ARG:NH1	2.31	0.45
11:C:259:LYS:O	11:C:263:LEU:N	2.50	0.45
18:J:136:ARG:NH1	18:J:161:GLU:OE1	2.43	0.45
20:M:101:LYS:HA	20:M:104:MET:HE3	1.99	0.45
25:R:117:ARG:H	25:R:117:ARG:HG3	1.49	0.45
34:a:116:LYS:HG2	34:a:117:LEU:N	2.31	0.45
48:o:17:LYS:HE3	48:o:17:LYS:HB2	1.61	0.45
5:5:126:C:H4'	5:5:126:C:OP1	2.17	0.45
5:5:277:G:OP1	5:5:277:G:H3'	2.16	0.45
5:5:747:A:H1'	5:5:918:G:H22	1.82	0.45
5:5:987:C:H2'	5:5:988:C:C6	2.52	0.45
5:5:1268:G:H5''	5:5:2109:G:O5'	2.16	0.45
5:5:2017:A:H3'	5:5:2018:C:H6	1.81	0.45
5:5:2395:A:O2'	5:5:2806:A:N3	2.46	0.45
5:5:2750:G:H2'	5:5:2751:G:O4'	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:3899:G:H5''	10:B:257:TRP:CD1	2.51	0.45
10:B:314:ILE:HG12	10:B:330:PHE:CZ	2.51	0.45
11:C:294:LYS:HE2	11:C:294:LYS:HB3	1.75	0.45
14:F:100:ILE:HG23	14:F:100:ILE:O	2.17	0.45
18:J:26:VAL:O	18:J:28:GLU:N	2.48	0.45
24:Q:89:ASP:OD1	24:Q:91:ARG:NH2	2.49	0.45
25:R:8:LYS:HE3	25:R:24:LEU:HD12	1.99	0.45
30:W:44:ARG:HH11	30:W:44:ARG:HG3	1.81	0.45
38:e:64:LYS:NZ	38:e:64:LYS:HB2	2.31	0.45
56:x:124:TYR:O	56:x:128:LYS:HG2	2.17	0.45
57:y:369:LEU:HD22	57:y:383:THR:HG22	1.97	0.45
57:y:388:LEU:O	57:y:392:LEU:HB2	2.15	0.45
1:1:59:A:H61	1:1:288:G:H1'	1.81	0.45
5:5:159:C:OP2	42:i:27:SER:OG	2.32	0.45
5:5:303:C:P	21:N:68:ARG:HH21	2.38	0.45
5:5:2851:G:N7	5:5:2852:U:C5	2.85	0.45
5:5:2905:C:H42	5:5:3589:G:H1	1.64	0.45
5:5:4087:G:C6	9:A:34:PHE:CD2	3.04	0.45
5:5:4122:G:C5	40:g:97:ILE:HG21	2.52	0.45
5:5:4385:A:N6	5:5:4531:U:H5'	2.31	0.45
5:5:4699:U:OP2	46:m:111:ARG:HD2	2.16	0.45
5:5:4898:G:H2'	5:5:4899:G:H8	1.82	0.45
6:6:109:ALA:CB	6:6:181:SER:HB2	2.41	0.45
7:7:40:U:C2	18:J:75:ARG:NH1	2.84	0.45
12:D:29:ASP:O	12:D:33:ARG:N	2.50	0.45
21:N:146:PRO:O	21:N:147:ASP:HB2	2.17	0.45
25:R:133:LYS:H	25:R:133:LYS:HG3	1.64	0.45
26:S:99:ASP:CG	26:S:100:LEU:N	2.74	0.45
36:c:14:ILE:O	36:c:14:ILE:HG22	2.17	0.45
39:f:72:GLY:HA3	39:f:88:PHE:CD2	2.51	0.45
42:i:53:TYR:OH	42:i:86:LYS:NZ	2.50	0.45
57:y:361:LEU:HD13	57:y:604:TYR:HE2	1.81	0.45
5:5:1279:A:P	13:E:127:LYS:NZ	2.90	0.45
5:5:1995:G:O6	5:5:2000:G:N2	2.50	0.45
5:5:2247:C:H5''	5:5:2248:C:H6	1.82	0.45
5:5:2266:C:H5'	5:5:2270:G:N3	2.30	0.45
5:5:2496:G:C2	5:5:2497:C:C2	3.05	0.45
5:5:4541:G:N2	5:5:4544:A:OP2	2.42	0.45
5:5:4996:C:OP1	37:d:32:ARG:NH2	2.50	0.45
8:8:16:G:O2'	8:8:17:A:H8	1.99	0.45
12:D:122:GLN:NE2	12:D:126:THR:OG1	2.49	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:E:204:ILE:HD12	13:E:204:ILE:HA	1.80	0.45
18:J:88:LYS:HA	18:J:91:GLU:HA	1.97	0.45
20:M:5:ARG:NH2	20:M:59:ASP:OD1	2.38	0.45
21:N:94:PHE:CE2	21:N:96:ARG:HB2	2.51	0.45
21:N:112:ALA:HB1	21:N:138:PHE:HZ	1.82	0.45
24:Q:4:ASP:OD1	24:Q:4:ASP:N	2.49	0.45
27:T:30:TYR:CD1	27:T:30:TYR:N	2.84	0.45
31:X:59:LYS:HB2	31:X:59:LYS:HE3	1.74	0.45
38:e:77:PHE:C	38:e:77:PHE:CD1	2.95	0.45
47:n:7:LYS:HD2	47:n:11:ARG:NH2	2.32	0.45
5:5:53:C:H2'	5:5:54:G:O4'	2.16	0.45
5:5:497:G:H1	5:5:656:C:H42	1.65	0.45
5:5:945:U:OP2	14:F:64:ARG:HD3	2.17	0.45
5:5:1177:U:H2'	5:5:1178:G:C8	2.44	0.45
5:5:1924:C:H2'	5:5:1925:G:O4'	2.16	0.45
5:5:2008:U:O2'	5:5:2010:A:N7	2.29	0.45
5:5:3874:G:O6	5:5:3875:G:C6	2.70	0.45
5:5:4101:C:C2	5:5:4109:G:C2	3.05	0.45
5:5:4670:C:C2	29:V:15:ARG:NH2	2.84	0.45
6:6:57:LYS:O	6:6:60:MET:HG2	2.17	0.45
6:6:141:LEU:HD21	6:6:171:GLU:HB3	1.97	0.45
9:A:42:LYS:HG2	9:A:43:GLY:N	2.32	0.45
9:A:158:ILE:HG22	9:A:162:ASN:HD21	1.82	0.45
10:B:303:ALA:HB3	10:B:312:LYS:HB2	1.99	0.45
11:C:144:ILE:HD11	11:C:249:PHE:CD1	2.52	0.45
12:D:60:ILE:HD13	12:D:98:ALA:HB2	1.98	0.45
12:D:181:PRO:HD2	12:D:195:HIS:HE1	1.82	0.45
13:E:157:ARG:NH1	13:E:271:PHE:N	2.65	0.45
26:S:95:ARG:HH11	26:S:95:ARG:CB	2.29	0.45
30:W:45:ASN:ND2	30:W:47:ARG:HG3	2.31	0.45
36:c:74:TYR:CD1	36:c:74:TYR:C	2.95	0.45
56:x:87:VAL:O	56:x:89:PRO:HD3	2.17	0.45
2:2:29:C:H2'	2:2:30:G:O4'	2.16	0.45
5:5:409:G:N2	5:5:2329:U:H4'	2.32	0.45
5:5:436:C:H2'	5:5:437:G:H8	1.82	0.45
5:5:748:G:H3'	5:5:749:G:H5'	1.99	0.45
5:5:967:C:H2'	5:5:969:C:OP1	2.17	0.45
5:5:1065:G:C6	5:5:1066:G:C6	3.05	0.45
5:5:1174:G:N2	5:5:1175:A:N7	2.65	0.45
5:5:1472:C:H2'	5:5:1473:U:C6	2.52	0.45
5:5:2253:A:H2	5:5:2260:C:N4	2.15	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:2457:G:N2	5:5:2465:C:C2	2.85	0.45
5:5:5044:A:O2'	5:5:5045:G:H5'	2.17	0.45
6:6:22:ASP:N	6:6:22:ASP:OD1	2.49	0.45
6:6:77:LYS:HZ3	6:6:198:ILE:HD13	1.81	0.45
9:A:27:ALA:HB1	9:A:77:ILE:HG13	1.99	0.45
9:A:102:LEU:HB2	9:A:107:MET:HE2	1.99	0.45
10:B:388:PHE:HB3	10:B:389:MET:H	1.61	0.45
11:C:144:ILE:HD11	11:C:249:PHE:CG	2.52	0.45
16:H:52:LYS:HA	16:H:52:LYS:HD2	1.59	0.45
21:N:204:ARG:HH11	21:N:204:ARG:HG3	1.81	0.45
38:e:96:CYS:HB2	38:e:121:ARG:O	2.17	0.45
46:m:97:ARG:HB2	46:m:120:ASN:O	2.17	0.45
53:u:185:ALA:HB2	53:u:214:ILE:CG2	2.47	0.45
57:y:417:PRO:HD3	57:y:509:ARG:HG3	1.99	0.45
57:y:436:LYS:HG2	57:y:619:TYR:HA	1.99	0.45
2:2:29:C:C2	2:2:30:G:C8	3.05	0.45
5:5:85:G:O2'	5:5:97:G:O6	2.32	0.45
5:5:664:G:N2	5:5:665:C:H5	2.13	0.45
5:5:1254:A:O2'	5:5:1255:A:H5''	2.17	0.45
5:5:1358:G:H3'	5:5:1358:G:H8	1.82	0.45
5:5:1857:C:H2'	5:5:1858:A:C8	2.52	0.45
5:5:2122:G:O2'	5:5:2123:C:P	2.75	0.45
5:5:3799:A:N3	5:5:4506:C:O2'	2.49	0.45
5:5:3901:A:H2'	5:5:3901:A:N3	2.31	0.45
5:5:4472:G:C2'	5:5:4473:A:H5''	2.44	0.45
5:5:4765:G:N2	5:5:4869:U:H3	2.14	0.45
8:8:27:U:H2'	8:8:28:C:C6	2.52	0.45
10:B:56:ILE:HG13	10:B:365:LEU:HD22	1.98	0.45
10:B:220:ILE:HG12	10:B:278:THR:HG23	1.99	0.45
11:C:201:ARG:HH11	11:C:201:ARG:HB2	1.82	0.45
11:C:241:ALA:HB1	11:C:245:HIS:O	2.17	0.45
12:D:128:ASP:OD1	12:D:192:ALA:HB1	2.17	0.45
19:L:80:GLU:HG2	19:L:110:LEU:HD12	1.99	0.45
25:R:104:ARG:HA	25:R:107:ARG:HH11	1.81	0.45
27:T:133:ALA:HA	27:T:134:PRO:HD3	1.85	0.45
36:c:77:ASN:HD22	36:c:77:ASN:HA	1.59	0.45
37:d:68:LEU:HA	37:d:108:TYR:CD2	2.49	0.45
53:u:66:SER:HB3	53:u:83:TYR:HE2	1.82	0.45
57:y:365:VAL:HG13	57:y:387:ALA:HB3	1.98	0.45
4:4:76:SER:CB	4:4:117:ARG:HH22	2.29	0.44
5:5:981:C:H42	5:5:1274:A:N6	2.15	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:1238:A:H8	5:5:1238:A:H5''	1.82	0.44
5:5:1266:G:H5''	5:5:2112:G:C2	2.52	0.44
5:5:1318:C:OP1	34:a:21:ARG:HB2	2.17	0.44
5:5:1379:C:C4'	5:5:1380:G:C8	3.00	0.44
5:5:1624:G:N2	5:5:1642:A:O2'	2.50	0.44
5:5:3723:A:H2'	5:5:3724:A:C8	2.52	0.44
5:5:4288:C:H2'	5:5:4289:U:O4'	2.17	0.44
7:7:46:C:OP1	12:D:158:LYS:HG3	2.16	0.44
8:8:54:C:H2'	8:8:55:U:O4'	2.17	0.44
9:A:180:LEU:HD11	49:p:18:TYR:HB3	1.98	0.44
10:B:161:ARG:HA	10:B:184:GLN:HA	1.99	0.44
10:B:179:HIS:CE1	10:B:344:VAL:HG21	2.52	0.44
11:C:140:LYS:NZ	11:C:242:PRO:HD2	2.32	0.44
11:C:143:ARG:HB3	11:C:179:ASP:OD1	2.18	0.44
11:C:222:ARG:HE	32:Y:3:PHE:HZ	1.63	0.44
23:P:114:ILE:HD11	23:P:117:ILE:HD12	1.98	0.44
27:T:14:MET:HE3	27:T:58:HIS:CG	2.52	0.44
33:Z:10:VAL:HG11	33:Z:129:TRP:HZ3	1.83	0.44
37:d:39:LYS:HA	37:d:77:ILE:HG21	1.99	0.44
51:r:93:ARG:HD3	51:r:96:ASN:HD22	1.82	0.44
54:v:166:SER:HB3	54:v:175:PHE:CZ	2.52	0.44
56:x:111:GLY:O	56:x:249:LYS:NZ	2.47	0.44
56:x:113:GLY:O	56:x:117:THR:OG1	2.34	0.44
57:y:365:VAL:HG21	57:y:388:LEU:HA	1.99	0.44
58:z:87:LEU:HB3	58:z:91:MET:HE2	1.99	0.44
1:1:133:A:C6	1:1:164:G:N2	2.85	0.44
3:3:16:PHE:CD2	3:3:28:GLU:HB3	2.52	0.44
3:3:97:ILE:HG21	3:3:107:ARG:HA	2.00	0.44
5:5:1725:U:O2'	14:F:110:VAL:HG22	2.17	0.44
5:5:2034:G:H5'	26:S:87:ARG:NH2	2.31	0.44
5:5:2674:A:OP1	36:c:92:CYS:HB3	2.17	0.44
5:5:2696:A:H5'	44:k:26:LYS:HE2	1.99	0.44
5:5:3596:A:H4'	25:R:143:HIS:CD2	2.53	0.44
5:5:3848:U:H2'	5:5:3849:A:C8	2.52	0.44
5:5:4085:A:N6	15:G:62:ARG:HH12	2.03	0.44
5:5:4097:G:H5''	40:g:115:LYS:HD3	1.99	0.44
5:5:4390:A:OP1	11:C:69:THR:HG21	2.17	0.44
5:5:4751:G:H3'	5:5:4752:U:H5''	2.00	0.44
5:5:4908:G:H1	5:5:4913:G:N2	2.14	0.44
6:6:57:LYS:HE2	6:6:57:LYS:HB2	1.67	0.44
11:C:138:MET:HE2	11:C:138:MET:HB3	1.80	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:C:297:GLU:OE1	11:C:297:GLU:N	2.44	0.44
18:J:113:ILE:HG21	18:J:119:TYR:HB2	1.97	0.44
26:S:13:VAL:HG22	26:S:63:TYR:HB3	1.99	0.44
33:Z:4:PHE:CE2	36:c:66:LEU:HB3	2.53	0.44
34:a:39:HIS:O	34:a:40:HIS:ND1	2.50	0.44
43:j:34:CYS:H	43:j:39:TYR:H	1.64	0.44
54:v:260:ILE:O	54:v:264:GLU:HG3	2.16	0.44
56:x:25:GLU:O	56:x:29:ASN:ND2	2.41	0.44
5:5:458:C:H42	5:5:698:G:H1	1.65	0.44
5:5:923:C:H2'	5:5:924:C:O4'	2.17	0.44
5:5:940:C:H4'	26:S:8:ARG:NH2	2.22	0.44
5:5:1068:G:H2'	5:5:1069:G:C8	2.51	0.44
5:5:1595:G:N1	5:5:4557:U:H5'	2.32	0.44
5:5:1755:C:H5	5:5:1778:C:H1'	1.83	0.44
5:5:1769:G:H2'	5:5:1770:A:C8	2.53	0.44
5:5:2046:G:H5'	22:O:60:LYS:NZ	2.33	0.44
5:5:2739:C:H4'	49:p:52:VAL:CG2	2.47	0.44
5:5:2792:C:O2	43:j:9:GLY:HA2	2.17	0.44
5:5:3687:A:O2'	9:A:236:GLY:N	2.47	0.44
5:5:3836:A:H2'	5:5:3837:C:O4'	2.18	0.44
5:5:4196:G:H4'	5:5:4395:U:H4'	1.98	0.44
5:5:4239:A:OP1	5:5:4324:A:N6	2.50	0.44
5:5:4594:U:H2'	5:5:4595:G:C8	2.52	0.44
5:5:4881:U:O2'	5:5:4882:U:O5'	2.35	0.44
6:6:186:GLY:O	6:6:188:VAL:N	2.48	0.44
8:8:151:G:H8	8:8:151:G:OP1	2.00	0.44
9:A:33:ASP:N	9:A:33:ASP:OD1	2.49	0.44
11:C:74:ALA:O	11:C:75:ARG:HB2	2.18	0.44
11:C:201:ARG:HH11	11:C:201:ARG:CB	2.31	0.44
15:G:74:LEU:O	15:G:239:GLY:HA3	2.17	0.44
16:H:50:LYS:C	16:H:51:LYS:HG3	2.42	0.44
17:I:75:TYR:CE2	17:I:150:GLU:HB3	2.53	0.44
22:O:14:HIS:CD2	22:O:124:LEU:HD12	2.52	0.44
25:R:113:LYS:N	25:R:113:LYS:HE3	2.32	0.44
26:S:112:ASP:O	26:S:115:ALA:N	2.50	0.44
30:W:17:HIS:CD2	30:W:17:HIS:N	2.85	0.44
43:j:28:HIS:CE1	43:j:31:LYS:HG3	2.53	0.44
48:o:69:ARG:HD3	48:o:80:LYS:HB3	1.99	0.44
56:x:221:MET:HE3	56:x:222:ASP:O	2.17	0.44
57:y:389:GLN:O	57:y:393:VAL:HG23	2.18	0.44
4:4:149:HIS:CD2	4:4:149:HIS:N	2.85	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:342:G:H2'	5:5:343:C:C6	2.53	0.44
5:5:1820:C:O2'	5:5:1821:G:O5'	2.35	0.44
5:5:2305:U:O2	38:e:106:LYS:HB3	2.16	0.44
5:5:2787:A:H2'	5:5:2787:A:N3	2.33	0.44
5:5:3717:A:N6	5:5:3736:A:C5	2.86	0.44
5:5:4913:G:O2'	5:5:4914:C:O4'	2.26	0.44
7:7:46:C:P	12:D:158:LYS:HE3	2.58	0.44
13:E:216:LYS:HD3	13:E:216:LYS:HA	1.75	0.44
14:F:120:PHE:HD1	14:F:120:PHE:HA	1.57	0.44
22:O:79:ILE:HG21	22:O:138:LEU:HD11	1.98	0.44
22:O:163:LYS:HB2	22:O:163:LYS:HE3	1.79	0.44
23:P:4:TYR:HE2	23:P:16:LYS:HD3	1.81	0.44
24:Q:27:LEU:HD23	24:Q:27:LEU:HA	1.76	0.44
32:Y:36:LYS:NZ	32:Y:39:ARG:NH2	2.64	0.44
38:e:109:LYS:HB3	38:e:109:LYS:HZ3	1.82	0.44
57:y:417:PRO:HB3	57:y:513:PHE:O	2.18	0.44
2:2:26:G:H22	2:2:44:A:H2	1.65	0.44
5:5:1241:C:H41	5:5:1270:A:H1'	1.83	0.44
5:5:1672:U:H2'	5:5:1673:U:C6	2.53	0.44
5:5:1798:G:C2	5:5:1799:G:C8	3.05	0.44
5:5:2476:G:C6	5:5:2477:A:C6	3.05	0.44
5:5:2491:C:H2'	5:5:2492:C:C6	2.52	0.44
5:5:2495:U:H2'	5:5:2496:G:H8	1.83	0.44
5:5:2607:C:H2'	5:5:2608:G:H8	1.82	0.44
5:5:2669:C:OP2	25:R:128:LYS:NZ	2.45	0.44
5:5:2673:G:C8	5:5:2675:G:N2	2.85	0.44
5:5:2851:G:C5	5:5:2852:U:C5	3.05	0.44
5:5:2864:A:H2'	5:5:2865:U:C6	2.52	0.44
5:5:4117:U:H5'	5:5:4118:U:OP2	2.17	0.44
5:5:4304:A:C2	34:a:43:ILE:HG23	2.53	0.44
6:6:32:ALA:C	6:6:85:ASN:HD21	2.26	0.44
8:8:19:C:H2'	8:8:20:A:C8	2.52	0.44
8:8:97:A:H5'	41:h:62:ASN:HD22	1.80	0.44
8:8:108:A:H1'	8:8:112:G:N2	2.33	0.44
9:A:48:ILE:O	49:p:54:ILE:HD12	2.16	0.44
10:B:237:THR:HG21	10:B:251:VAL:HG22	1.98	0.44
11:C:219:LYS:HG3	11:C:222:ARG:HH12	1.82	0.44
12:D:21:ARG:HG2	12:D:21:ARG:HH11	1.83	0.44
12:D:261:VAL:HG12	12:D:263:LYS:H	1.82	0.44
15:G:136:LEU:O	15:G:137:ARG:HD3	2.17	0.44
15:G:259:LYS:HB3	15:G:259:LYS:NZ	2.33	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:L:80:GLU:OE2	19:L:113:ASN:HB3	2.18	0.44
22:O:81:TRP:NE1	22:O:99:LEU:HD22	2.33	0.44
24:Q:178:ARG:HA	24:Q:184:ARG:O	2.18	0.44
29:V:92:ASP:OD1	29:V:92:ASP:N	2.35	0.44
31:X:54:LEU:H	31:X:54:LEU:HD12	1.83	0.44
31:X:148:ASP:N	31:X:148:ASP:OD1	2.51	0.44
32:Y:8:THR:HG21	32:Y:13:LYS:HD2	1.99	0.44
36:c:31:TYR:HD1	36:c:32:LYS:N	2.15	0.44
46:m:106:ARG:HH11	46:m:106:ARG:CB	2.20	0.44
54:v:157:GLU:HG2	57:y:401:ARG:NH1	2.32	0.44
55:w:34:SER:HB3	58:z:23:SER:HA	1.99	0.44
57:y:417:PRO:CD	57:y:509:ARG:HG3	2.48	0.44
1:1:57:G:N1	1:1:290:C:C2	2.86	0.44
1:1:193:G:H3'	1:1:194:G:H8	1.83	0.44
2:2:38:C:H2'	2:2:39:G:O4'	2.17	0.44
5:5:191:G:H2'	5:5:192:G:H8	1.81	0.44
5:5:722:G:H2'	5:5:723:A:H8	1.83	0.44
5:5:970:G:H21	13:E:122:LEU:HD21	1.82	0.44
5:5:1534:A:C8	43:j:15:THR:HG23	2.52	0.44
5:5:1922:G:H2'	5:5:1923:A:H5''	1.99	0.44
5:5:1975:G:O4'	5:5:1984:A:H1'	2.18	0.44
5:5:2347:A:H61	38:e:24:GLN:NE2	2.16	0.44
5:5:2437:C:C4	31:X:137:TYR:HE2	2.36	0.44
5:5:2607:C:H2'	5:5:2608:G:C8	2.53	0.44
5:5:2659:A:N6	5:5:2675:G:O2'	2.51	0.44
5:5:3594:C:H2'	5:5:3597:G:H1'	2.00	0.44
5:5:4593:C:H2'	5:5:4594:U:H6	1.83	0.44
10:B:91:GLY:HA3	10:B:153:MET:HE3	1.98	0.44
10:B:116:ARG:HD2	10:B:122:TRP:CE3	2.53	0.44
11:C:195:LYS:HB2	11:C:195:LYS:HZ2	1.82	0.44
11:C:326:LEU:HD11	11:C:333:LYS:HG2	1.99	0.44
15:G:115:LEU:O	15:G:119:GLU:HG2	2.16	0.44
15:G:245:LYS:HB2	15:G:245:LYS:HE3	1.75	0.44
16:H:5:LEU:HB2	16:H:60:TRP:CZ3	2.52	0.44
20:M:76:ALA:HA	20:M:79:LYS:HD3	1.98	0.44
21:N:30:TYR:HB3	21:N:129:PHE:CE2	2.52	0.44
22:O:166:ILE:CA	22:O:169:ARG:HH12	2.26	0.44
29:V:60:MET:HE1	29:V:108:ASN:HA	1.99	0.44
32:Y:34:LEU:HD21	32:Y:109:LEU:HD11	2.00	0.44
39:f:4:ARG:O	39:f:6:TRP:CD1	2.71	0.44
50:q:24:ASN:O	50:q:33:ARG:HD3	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:u:156:LEU:O	53:u:160:VAL:HG23	2.17	0.44
54:v:94:THR:OG1	57:y:32:LEU:HD21	2.16	0.44
55:w:4:TYR:CE1	55:w:49:LEU:HD22	2.46	0.44
58:z:4:LEU:HD13	58:z:8:GLN:HG3	2.00	0.44
4:4:33:GLY:N	4:4:34:PRO:HD2	2.33	0.44
5:5:136:C:O2'	5:5:137:G:H8	2.00	0.44
5:5:979:C:OP1	13:E:42:ARG:HB2	2.17	0.44
5:5:1397:A:HO2'	5:5:1398:A:P	2.41	0.44
5:5:1513:U:H2'	5:5:1514:U:O4'	2.17	0.44
5:5:1516:G:O2'	19:L:18:TRP:NE1	2.39	0.44
5:5:1870:C:H2'	5:5:1871:A:C8	2.50	0.44
5:5:2034:G:C5	5:5:2035:C:C4	3.05	0.44
5:5:2095:A:H61	14:F:41:GLN:HG2	1.82	0.44
5:5:2399:G:O2'	5:5:2822:G:O2'	2.29	0.44
5:5:2749:C:H4'	40:g:64:LEU:HB3	1.99	0.44
5:5:3719:A:H2'	5:5:3720:G:O4'	2.18	0.44
10:B:102:PHE:CE2	10:B:156:TYR:HB2	2.53	0.44
11:C:142:HIS:O	11:C:144:ILE:HG13	2.18	0.44
11:C:144:ILE:HG23	11:C:147:VAL:HB	2.00	0.44
12:D:281:ALA:N	12:D:284:LYS:HD3	2.33	0.44
12:D:291:GLN:NE2	17:I:214:SER:O	2.51	0.44
14:F:174:ASN:HB2	14:F:188:CYS:HA	2.00	0.44
15:G:157:ILE:HG23	15:G:167:VAL:HG11	2.00	0.44
17:I:210:ARG:O	17:I:214:SER:HB3	2.17	0.44
20:M:56:GLN:HE21	20:M:56:GLN:HB3	1.50	0.44
24:Q:37:ARG:HG3	24:Q:38:ARG:N	2.32	0.44
37:d:73:TRP:HZ3	37:d:77:ILE:HG12	1.78	0.44
38:e:77:PHE:HD1	38:e:77:PHE:C	2.25	0.44
42:i:85:ARG:HH11	42:i:85:ARG:CG	2.30	0.44
53:u:58:GLU:HG2	53:u:178:LYS:NZ	2.33	0.44
57:y:97:GLU:HG2	57:y:109:GLY:HA3	1.99	0.44
57:y:369:LEU:HD11	57:y:387:ALA:HB3	2.00	0.44
1:1:127:A:H2	1:1:223:U:H3	1.64	0.44
1:1:128:U:O2'	1:1:174:G:H1'	2.18	0.44
5:5:465:G:H1	5:5:690:C:H42	1.64	0.44
5:5:1073:G:H1	5:5:1239:C:H42	1.64	0.44
5:5:1474:C:H2'	5:5:1475:G:C8	2.53	0.44
5:5:1670:G:OP1	35:b:15:LYS:NZ	2.33	0.44
5:5:1755:C:O2'	5:5:1755:C:O2	2.36	0.44
5:5:2543:A:O3'	5:5:2544:G:H8	2.00	0.44
5:5:2848:G:O2'	5:5:3838:U:O4	2.31	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:3748:A:O2'	9:A:223:SER:OG	2.30	0.44
5:5:3806:G:C6	5:5:3807:A:C5	3.06	0.44
5:5:4220:A:H2'	5:5:4222:G:H5''	1.98	0.44
5:5:4232:U:H4'	5:5:4233:A:O5'	2.17	0.44
5:5:4414:A:C6	5:5:4427:G:C6	3.05	0.44
7:7:82:G:H2'	7:7:83:A:C8	2.52	0.44
8:8:82:A:H2'	8:8:82:A:N3	2.33	0.44
8:8:121:G:C6	8:8:122:G:C4	3.06	0.44
10:B:102:PHE:HD1	10:B:102:PHE:HA	1.69	0.44
11:C:65:GLU:O	11:C:66:SER:HB3	2.18	0.44
15:G:184:ILE:HG12	15:G:185:LYS:H	1.82	0.44
23:P:131:ARG:HD3	23:P:137:ASN:ND2	2.33	0.44
31:X:81:LEU:HD12	31:X:135:LYS:HD3	1.99	0.44
32:Y:34:LEU:HD11	32:Y:47:MET:HB2	2.00	0.44
34:a:71:PRO:HD2	34:a:109:TYR:HD2	1.83	0.44
37:d:37:GLY:C	37:d:39:LYS:H	2.25	0.44
38:e:123:THR:C	38:e:125:PRO:HD3	2.42	0.44
41:h:88:THR:HG22	41:h:90:ALA:H	1.82	0.44
49:p:42:CYS:HG	49:p:59:SER:HG	1.65	0.44
56:x:330:ARG:NH2	56:x:382:MET:SD	2.80	0.44
57:y:19:GLN:NE2	57:y:26:THR:OG1	2.51	0.44
3:3:85:ASN:C	3:3:87:ARG:H	2.26	0.44
5:5:504:G:N2	5:5:654:C:H1'	2.31	0.44
5:5:990:C:N3	5:5:1064:G:C2	2.86	0.44
5:5:1982:G:O6	5:5:1987:C:N4	2.51	0.44
5:5:2120:G:H4'	14:F:43:MET:HE3	2.00	0.44
5:5:2255:C:H5'	5:5:2256:C:OP2	2.18	0.44
5:5:2527:A:OP1	25:R:9:ARG:NH1	2.51	0.44
5:5:3870:C:H4'	10:B:261:ARG:NE	2.33	0.44
5:5:4578:G:O2'	10:B:118:PHE:O	2.36	0.44
7:7:7:G:H8	12:D:22:ARG:NH1	2.15	0.44
9:A:133:TYR:HB3	9:A:168:VAL:HG12	1.99	0.44
13:E:282:LEU:HB2	20:M:109:ARG:NH1	2.33	0.44
14:F:199:VAL:O	14:F:203:PHE:HB2	2.18	0.44
16:H:117:PHE:HE2	16:H:178:GLY:HA2	1.83	0.44
21:N:4:TYR:HA	21:N:7:ILE:HD12	1.99	0.44
21:N:146:PRO:C	21:N:148:THR:H	2.26	0.44
22:O:75:ALA:HB1	22:O:106:ASP:OD2	2.18	0.44
24:Q:85:THR:HA	24:Q:104:ARG:O	2.18	0.44
26:S:30:MET:HE2	26:S:30:MET:HB3	1.90	0.44
34:a:73:VAL:HG12	34:a:74:ASN:O	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:g:73:HIS:C	40:g:73:HIS:CD2	2.95	0.44
42:i:45:ARG:NH2	42:i:50:PHE:HE1	2.10	0.44
48:o:26:TYR:HE1	48:o:28:LYS:HA	1.83	0.44
56:x:94:TRP:CD2	56:x:216:ASN:HB2	2.53	0.44
57:y:34:ARG:HA	57:y:38:LEU:HD12	2.00	0.44
1:1:59:A:C5'	55:w:52:ARG:HH21	2.30	0.43
1:1:148:G:N2	1:1:198:G:O3'	2.51	0.43
5:5:458:C:N3	5:5:698:G:N2	2.66	0.43
5:5:1076:C:H2'	5:5:1077:C:O4'	2.17	0.43
5:5:1361:G:N2	5:5:1378:C:C2	2.86	0.43
5:5:1460:C:H2'	5:5:1461:C:C6	2.52	0.43
5:5:2050:G:H2'	5:5:2051:C:O4'	2.18	0.43
5:5:2395:A:N3	5:5:2806:A:O2'	2.50	0.43
5:5:3608:A:H2'	5:5:3609:G:H8	1.83	0.43
5:5:3774:A:H8	5:5:3774:A:OP1	2.01	0.43
5:5:4230:C:H6	5:5:4230:C:O5'	2.01	0.43
5:5:4555:U:O2'	5:5:4556:U:H5'	2.18	0.43
5:5:4566:U:O2'	10:B:234:ARG:NH2	2.51	0.43
5:5:4719:G:O2'	5:5:4720:C:O5'	2.32	0.43
5:5:4752:U:OP1	39:f:100:ARG:NH1	2.50	0.43
5:5:4990:C:H3'	5:5:4991:U:H4'	1.99	0.43
9:A:40:TYR:HA	9:A:90:CYS:O	2.17	0.43
9:A:205:ASN:O	9:A:208:GLU:HG3	2.17	0.43
11:C:73:VAL:HG23	11:C:74:ALA:H	1.83	0.43
11:C:269:LYS:O	11:C:278:ASN:ND2	2.51	0.43
11:C:302:LEU:HD22	24:Q:38:ARG:HB3	2.00	0.43
16:H:160:LEU:HD23	16:H:160:LEU:HA	1.72	0.43
17:I:4:ARG:HH22	17:I:99:ILE:HG13	1.82	0.43
26:S:147:ASP:OD1	26:S:148:SER:N	2.51	0.43
27:T:86:ALA:HB2	35:b:24:PRO:HG2	1.99	0.43
27:T:105:PHE:HB2	27:T:108:ARG:NH2	2.33	0.43
30:W:9:SER:HB2	30:W:51:TRP:HZ3	1.83	0.43
33:Z:52:LYS:O	33:Z:65:ARG:NH2	2.51	0.43
38:e:95:TYR:N	38:e:95:TYR:CD1	2.86	0.43
39:f:93:PRO:C	39:f:95:LYS:H	2.25	0.43
49:p:59:SER:OG	49:p:60:CYS:N	2.51	0.43
52:t:77:LEU:HD22	56:x:355:PHE:CE1	2.53	0.43
3:3:31:ASN:HD21	3:3:34:ALA:HA	1.83	0.43
5:5:105:A:C2	5:5:336:A:C8	3.06	0.43
5:5:393:U:H2'	5:5:394:G:O4'	2.18	0.43
5:5:423:G:O2'	23:P:118:GLN:HG3	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:469:C:H5''	5:5:683:C:N4	2.33	0.43
5:5:1508:A:H5'	5:5:1509:C:OP2	2.18	0.43
5:5:1978:C:H1'	5:5:1989:G:N2	2.33	0.43
5:5:2090:U:O2'	11:C:305:PRO:HD2	2.18	0.43
5:5:2440:U:O2'	5:5:2441:C:P	2.77	0.43
5:5:4068:U:C2	5:5:4069:U:H1'	2.53	0.43
5:5:4082:G:H2'	5:5:4083:U:C6	2.53	0.43
5:5:4693:C:O5'	5:5:4693:C:H6	2.01	0.43
5:5:4871:C:H5''	20:M:91:TRP:CZ2	2.53	0.43
9:A:142:GLU:O	9:A:143:THR:OG1	2.30	0.43
11:C:136:LEU:HD23	11:C:136:LEU:HA	1.84	0.43
12:D:160:PHE:CE1	12:D:179:ARG:HB2	2.52	0.43
22:O:51:LYS:O	22:O:55:LEU:HG	2.18	0.43
25:R:17:CYS:SG	25:R:18:GLY:N	2.91	0.43
28:U:42:PHE:CE1	28:U:46:ARG:HD3	2.53	0.43
30:W:8:PHE:HE2	30:W:36:CYS:HA	1.83	0.43
37:d:117:LEU:HD13	37:d:117:LEU:HA	1.75	0.43
42:i:58:MET:HE3	42:i:94:LEU:HD13	2.00	0.43
54:v:122:GLU:HG3	54:v:125:ARG:NE	2.33	0.43
55:w:28:VAL:HG12	58:z:29:THR:HG22	1.99	0.43
1:1:108:U:H2'	1:1:109:G:C8	2.52	0.43
1:1:117:U:H3	1:1:234:A:H61	1.57	0.43
2:2:29:C:C2	2:2:42:A:C2	3.06	0.43
5:5:445:U:H2'	5:5:446:C:O4'	2.18	0.43
5:5:751:G:C2	5:5:912:G:C2	3.06	0.43
5:5:1724:G:N7	35:b:17:HIS:ND1	2.67	0.43
5:5:2264:C:O2'	5:5:2265:G:O5'	2.36	0.43
5:5:2271:C:H2'	5:5:2272:C:H6	1.83	0.43
5:5:2902:G:H22	5:5:3597:G:H1	1.62	0.43
5:5:3666:C:H5''	9:A:234:LYS:HD3	2.00	0.43
5:5:4767:C:H2'	5:5:4768:G:H8	1.83	0.43
9:A:93:LYS:HD3	9:A:93:LYS:HA	1.69	0.43
12:D:283:LYS:C	12:D:285:ALA:N	2.75	0.43
28:U:36:ALA:HB3	28:U:65:ARG:HH22	1.83	0.43
38:e:77:PHE:HB3	38:e:88:LEU:HD11	2.01	0.43
45:l:49:LEU:HA	45:l:49:LEU:HD22	1.80	0.43
1:1:184:A:H4'	56:x:402:ARG:HG2	2.00	0.43
5:5:12:A:O2'	31:X:53:ARG:HB2	2.18	0.43
5:5:291:U:H2'	5:5:292:G:H2'	2.01	0.43
5:5:748:G:O6	5:5:918:G:H1'	2.18	0.43
5:5:967:C:H42	5:5:2255:C:N4	2.16	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:1218:G:H3'	5:5:1219:G:H5''	1.99	0.43
5:5:1573:G:C6	5:5:1574:G:N1	2.86	0.43
5:5:1591:U:OP2	10:B:243:LYS:HG2	2.18	0.43
5:5:1698:C:OP1	5:5:1698:C:H2'	2.18	0.43
5:5:1890:G:N2	5:5:1938:C:N4	2.66	0.43
5:5:2517:A:N3	5:5:2539:C:O2'	2.50	0.43
5:5:2639:U:O2'	40:g:26:PRO:HD3	2.18	0.43
5:5:2772:C:O2'	44:k:17:ARG:NH1	2.52	0.43
5:5:2858:A:O2'	5:5:2859:G:C8	2.68	0.43
5:5:3728:A:N7	5:5:3729:U:H1'	2.34	0.43
5:5:3753:G:N7	5:5:3776:G:H2'	2.33	0.43
5:5:3871:A:H2'	5:5:3872:A:C8	2.53	0.43
5:5:4134:C:H2'	5:5:4135:G:C8	2.51	0.43
13:E:250:ASP:C	13:E:252:GLN:H	2.26	0.43
19:L:74:ARG:HH11	19:L:74:ARG:HG2	1.83	0.43
21:N:38:ARG:HG2	21:N:39:ALA:H	1.84	0.43
25:R:114:LYS:CG	25:R:146:LYS:HZ1	2.30	0.43
27:T:28:ALA:HA	27:T:31:MET:HG2	1.99	0.43
28:U:84:LYS:HD2	28:U:110:TYR:OH	2.18	0.43
29:V:13:LYS:HG2	29:V:128:LEU:HD13	2.00	0.43
34:a:131:ARG:NH2	34:a:132:ARG:NH1	2.65	0.43
37:d:30:HIS:HB2	37:d:82:TYR:HD1	1.83	0.43
49:p:47:MET:HE2	49:p:57:CYS:HB2	1.99	0.43
57:y:340:VAL:HG21	57:y:381:THR:O	2.18	0.43
1:1:111:C:O2'	51:r:577:TRP:HB2	2.18	0.43
1:1:120:G:C8	53:u:90:ARG:NH1	2.84	0.43
5:5:46:U:H3'	5:5:47:A:H2'	2.00	0.43
5:5:235:A:N6	32:Y:103:LYS:NZ	2.66	0.43
5:5:701:G:N3	5:5:701:G:H2'	2.34	0.43
5:5:751:G:C2	5:5:752:G:C5	3.07	0.43
5:5:959:G:N2	5:5:1286:C:OP1	2.32	0.43
5:5:963:G:O2'	5:5:964:A:C8	2.70	0.43
5:5:975:C:H3'	5:5:976:G:O4'	2.18	0.43
5:5:2294:G:H2'	5:5:2295:C:H6	1.82	0.43
5:5:2343:G:C2	11:C:101:MET:HE2	2.52	0.43
5:5:5001:U:H4'	10:B:317:LEU:HB3	1.99	0.43
5:5:5015:G:H21	5:5:5034:A:H2	1.66	0.43
6:6:191:GLN:NE2	6:6:199:TYR:O	2.51	0.43
8:8:38:U:H6	41:h:81:LEU:O	2.01	0.43
9:A:177:LYS:HB3	49:p:69:TRP:CH2	2.53	0.43
14:F:87:ALA:CA	27:T:138:ALA:HB2	2.49	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:F:134:MET:O	14:F:137:ILE:HG22	2.18	0.43
17:I:40:LYS:HE3	17:I:40:LYS:HB2	1.89	0.43
18:J:90:ARG:HB3	18:J:90:ARG:CZ	2.47	0.43
20:M:24:LEU:HD23	20:M:24:LEU:HA	1.81	0.43
22:O:117:ARG:HH11	22:O:117:ARG:HG3	1.83	0.43
37:d:23:ARG:HG3	37:d:25:TYR:HD1	1.83	0.43
39:f:4:ARG:NH1	39:f:4:ARG:HG2	2.34	0.43
39:f:49:TYR:CZ	39:f:96:ALA:HB2	2.53	0.43
41:h:30:GLN:H	41:h:30:GLN:HG2	1.54	0.43
43:j:4:GLY:C	43:j:6:SER:N	2.76	0.43
43:j:68:LYS:HB2	43:j:68:LYS:HE2	1.93	0.43
47:n:2:ARG:HD2	47:n:5:TRP:CD1	2.53	0.43
51:r:62:LYS:HD2	51:r:91:LEU:HD13	2.00	0.43
56:x:45:ASN:HB3	56:x:48:LEU:HG	1.99	0.43
56:x:381:SER:OG	56:x:410:SER:HB3	2.18	0.43
2:2:18:G:H4'	2:2:60:A:C2	2.54	0.43
3:3:98:ARG:HG2	3:3:99:LYS:H	1.83	0.43
5:5:709:C:H2'	5:5:710:G:C8	2.52	0.43
5:5:935:A:O3'	5:5:936:C:H4'	2.17	0.43
5:5:975:C:C4	5:5:976:G:C5	3.06	0.43
5:5:2282:A:H5''	34:a:21:ARG:HD2	1.99	0.43
5:5:2440:U:OP1	5:5:2441:C:N4	2.49	0.43
5:5:3679:U:H5	9:A:20:VAL:HB	1.81	0.43
5:5:4268:A:H2'	5:5:4269:G:O4'	2.18	0.43
5:5:4617:G:OP2	10:B:62:ARG:NH2	2.51	0.43
7:7:2:U:OP1	12:D:267:ASN:ND2	2.51	0.43
7:7:62:U:H5''	12:D:279:ARG:HH12	1.82	0.43
10:B:196:TRP:O	10:B:200:ARG:HG3	2.18	0.43
11:C:302:LEU:HD23	11:C:302:LEU:HA	1.81	0.43
14:F:110:VAL:HB	14:F:138:VAL:HG11	2.01	0.43
17:I:12:CYS:HB3	17:I:128:ARG:HE	1.82	0.43
26:S:81:TRP:CE3	26:S:128:LYS:HD3	2.54	0.43
26:S:90:THR:HG23	27:T:156:TYR:CE2	2.52	0.43
31:X:80:PRO:HG3	31:X:153:ILE:HD12	2.00	0.43
31:X:122:ALA:HB3	31:X:139:ARG:HG3	2.00	0.43
34:a:45:PHE:HD2	34:a:53:PHE:HE1	1.67	0.43
36:c:74:TYR:C	36:c:74:TYR:HD1	2.26	0.43
53:u:196:PHE:HD2	53:u:204:ALA:HB1	1.84	0.43
56:x:245:VAL:HG23	56:x:268:SER:HB2	2.01	0.43
57:y:477:PRO:O	57:y:482:GLY:N	2.49	0.43
2:2:24:A:O2'	5:5:3770:U:OP1	2.36	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:4:76:SER:C	4:4:117:ARG:HH12	2.27	0.43
5:5:149:A:H5'	5:5:151:G:O4'	2.18	0.43
5:5:490:C:H2'	5:5:491:G:C8	2.54	0.43
5:5:912:G:N2	5:5:913:U:C2	2.87	0.43
5:5:967:C:H42	5:5:2255:C:H41	1.66	0.43
5:5:1664:U:H2'	5:5:1665:C:H6	1.84	0.43
5:5:3738:G:H2'	5:5:3739:C:O4'	2.18	0.43
5:5:4879:C:H2'	5:5:4880:C:H6	1.84	0.43
8:8:75:G:H2'	8:8:76:C:C6	2.53	0.43
12:D:196:ARG:HH11	12:D:196:ARG:CA	2.26	0.43
14:F:247:ARG:HA	14:F:247:ARG:HD3	1.74	0.43
17:I:109:ASP:OD1	17:I:110:ARG:N	2.47	0.43
19:L:201:GLU:O	19:L:205:GLN:HG2	2.19	0.43
24:Q:105:VAL:HB	24:Q:110:ARG:HH12	1.81	0.43
25:R:6:LEU:HD22	25:R:10:LEU:HD22	2.01	0.43
26:S:78:PHE:CE1	26:S:102:THR:HG22	2.53	0.43
26:S:170:LYS:HB2	26:S:170:LYS:HE3	1.66	0.43
27:T:14:MET:HE2	27:T:14:MET:HB3	1.77	0.43
33:Z:76:ASN:O	33:Z:80:LEU:HG	2.18	0.43
43:j:53:ALA:HA	43:j:56:ARG:NH2	2.34	0.43
46:m:88:LYS:NZ	46:m:89:TYR:CZ	2.71	0.43
55:w:30:LYS:HB3	55:w:39:CYS:HB3	2.00	0.43
57:y:98:ILE:HA	57:y:106:LEU:HD21	2.00	0.43
57:y:539:THR:HG21	57:y:573:SER:HA	2.01	0.43
5:5:231:U:H4'	32:Y:100:HIS:CD2	2.54	0.43
5:5:477:C:N4	5:5:677:G:H1	2.12	0.43
5:5:736:C:H2'	5:5:737:C:O4'	2.19	0.43
5:5:1254:A:O2'	5:5:1256:G:N7	2.41	0.43
5:5:1280:C:C4	5:5:1282:G:C5	3.07	0.43
5:5:1898:C:H1'	5:5:2070:U:O2	2.19	0.43
5:5:2268:A:H4'	5:5:2269:C:C5'	2.49	0.43
5:5:2520:C:H2'	5:5:2521:G:H8	1.84	0.43
5:5:4163:U:H5'	5:5:4164:C:C5'	2.47	0.43
5:5:4737:G:N2	5:5:4963:G:H1'	2.34	0.43
11:C:229:LEU:HD13	11:C:229:LEU:HA	1.67	0.43
12:D:196:ARG:HA	12:D:196:ARG:NH1	2.25	0.43
13:E:197:ILE:HG12	13:E:198:ASP:H	1.84	0.43
16:H:12:ILE:HD13	16:H:18:ILE:HD13	2.00	0.43
18:J:173:ILE:O	18:J:174:ILE:C	2.61	0.43
33:Z:10:VAL:O	33:Z:83:THR:HG22	2.18	0.43
33:Z:121:ARG:HH21	33:Z:126:LYS:HZ2	1.67	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:f:6:TRP:HB2	39:f:102:ARG:HB3	2.01	0.43
39:f:36:ARG:HD3	39:f:79:GLY:O	2.19	0.43
41:h:73:TYR:CD2	41:h:80:PRO:HD3	2.53	0.43
48:o:36:GLN:HG2	48:o:39:ARG:NH2	2.33	0.43
54:v:140:VAL:HG13	54:v:176:LEU:HD23	2.00	0.43
56:x:204:GLU:O	56:x:208:VAL:HG23	2.18	0.43
56:x:330:ARG:HE	56:x:392:GLY:HA3	1.83	0.43
57:y:33:ILE:O	57:y:38:LEU:HG	2.19	0.43
4:4:87:GLU:HA	4:4:88:PRO:HD3	1.83	0.43
5:5:165:A:C4	5:5:166:C:C6	3.06	0.43
5:5:1173:G:C2	5:5:1189:G:C5	3.06	0.43
5:5:1279:A:C4	5:5:1280:C:N3	2.87	0.43
5:5:1323:A:C2	5:5:3879:G:C2	3.07	0.43
5:5:1420:A:H62	34:a:115:GLY:HA2	1.83	0.43
5:5:1548:G:O2'	5:5:2812:A:N3	2.43	0.43
5:5:1959:U:O4'	5:5:1961:G:H1'	2.18	0.43
5:5:2891:U:H2'	5:5:2892:C:O4'	2.19	0.43
5:5:3590:G:C2	5:5:3591:C:C2	3.07	0.43
5:5:4303:C:H2'	5:5:4305:G:C8	2.54	0.43
5:5:4518:A:OP2	10:B:258:HIS:HB2	2.18	0.43
7:7:62:U:H5'	12:D:279:ARG:HH22	1.84	0.43
9:A:51:ASP:OD1	9:A:54:ARG:HB3	2.19	0.43
10:B:206:PRO:HB2	10:B:208:ASN:OD1	2.19	0.43
11:C:341:LEU:HD13	11:C:341:LEU:HA	1.84	0.43
14:F:98:ARG:NH2	14:F:226:THR:HG22	2.34	0.43
15:G:71:TYR:HD1	15:G:71:TYR:HA	1.71	0.43
16:H:41:ILE:HD12	16:H:41:ILE:HA	1.83	0.43
16:H:95:VAL:HG22	46:m:82:LEU:HD22	2.00	0.43
19:L:65:ARG:HG3	19:L:66:TYR:N	2.29	0.43
24:Q:177:ALA:O	24:Q:178:ARG:C	2.61	0.43
30:W:42:SER:HB2	30:W:44:ARG:NH1	2.34	0.43
32:Y:18:HIS:CD2	32:Y:78:TYR:HH	2.21	0.43
33:Z:73:LYS:HB3	33:Z:75:TYR:CE2	2.54	0.43
40:g:43:LYS:NZ	40:g:43:LYS:HB3	2.33	0.43
44:k:23:VAL:HG11	44:k:60:LEU:HG	2.01	0.43
45:l:29:MET:HE2	45:l:29:MET:HB2	1.82	0.43
48:o:61:LYS:HE3	48:o:61:LYS:HB3	1.50	0.43
51:r:17:GLU:HB3	51:r:33:THR:HG21	2.01	0.43
51:r:62:LYS:HZ2	51:r:65:LEU:HB3	1.84	0.43
53:u:114:LEU:HD23	53:u:120:TYR:CE2	2.45	0.43
56:x:379:MET:HB3	56:x:379:MET:HE3	1.76	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:196:C:H1'	1:1:204:G:N2	2.33	0.43
4:4:87:GLU:HG3	4:4:104:ILE:HG23	2.00	0.43
5:5:72:C:H41	19:L:68:THR:HA	1.83	0.43
5:5:158:A:C6	5:5:277:G:C5	3.06	0.43
5:5:293:G:C8	5:5:297:U:H1'	2.54	0.43
5:5:1287:G:H5'	5:5:1288:G:H21	1.83	0.43
5:5:1655:C:H3'	34:a:26:ARG:HH12	1.82	0.43
5:5:1983:A:N7	5:5:1987:C:C6	2.87	0.43
5:5:2460:A:O2'	21:N:96:ARG:NH1	2.51	0.43
5:5:2539:C:H2'	5:5:2540:C:C6	2.53	0.43
5:5:3747:A:OP1	9:A:245:ARG:NH1	2.52	0.43
5:5:4067:U:H2'	5:5:4068:U:C6	2.54	0.43
5:5:4178:A:H2'	5:5:4179:G:C8	2.54	0.43
11:C:339:THR:H	11:C:342:ARG:HB3	1.84	0.43
12:D:31:TYR:CD1	12:D:35:ARG:NH2	2.84	0.43
13:E:126:LYS:HD2	13:E:126:LYS:N	2.33	0.43
13:E:284:PHE:CB	20:M:106:ASP:HB2	2.49	0.43
14:F:168:ARG:HD2	14:F:211:TRP:NE1	2.34	0.43
16:H:81:ILE:O	16:H:85:THR:OG1	2.32	0.43
18:J:38:LYS:HA	18:J:41:GLU:HB3	2.01	0.43
21:N:64:ILE:HD11	21:N:105:ARG:HB2	2.01	0.43
36:c:93:THR:HG22	36:c:94:LEU:H	1.84	0.43
50:q:53:CYS:HB3	50:q:60:VAL:HG11	2.01	0.43
53:u:158:LYS:HE2	53:u:158:LYS:HB3	1.74	0.43
55:w:69:LEU:O	55:w:73:MET:HG3	2.18	0.43
3:3:6:GLN:HE21	3:3:6:GLN:HB3	1.54	0.42
3:3:13:CYS:HG	11:C:245:HIS:CE1	2.36	0.42
3:3:39:ARG:HH22	5:5:2263:A:H5'	1.84	0.42
5:5:971:U:C2'	5:5:972:C:H5'	2.48	0.42
5:5:1200:G:C6	5:5:1201:U:C4	3.07	0.42
5:5:1337:A:C2	5:5:2349:A:C2	3.07	0.42
5:5:1974:U:H4'	5:5:1975:G:OP1	2.15	0.42
5:5:2711:G:H5''	5:5:2712:G:H5''	2.01	0.42
5:5:2787:A:H2	5:5:2801:U:H3	1.67	0.42
5:5:3772:U:O2'	5:5:3773:U:H5'	2.19	0.42
5:5:3904:G:H5''	5:5:3905:A:OP2	2.19	0.42
5:5:4232:U:C2	48:o:5:PRO:HD3	2.54	0.42
5:5:4258:C:H2'	5:5:4259:C:C6	2.53	0.42
5:5:4699:U:H1'	5:5:4700:A:H5''	2.00	0.42
8:8:10:G:H2'	8:8:11:C:O4'	2.18	0.42
8:8:33:G:H4'	8:8:34:U:C5	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:A:28:ARG:HD3	9:A:123:ARG:HH12	1.81	0.42
10:B:56:ILE:HD12	10:B:56:ILE:HA	1.75	0.42
10:B:78:ILE:H	10:B:78:ILE:HD12	1.84	0.42
10:B:119:TYR:HE1	10:B:129:ALA:HB2	1.83	0.42
10:B:263:ALA:HB3	10:B:266:VAL:HG23	2.00	0.42
12:D:21:ARG:HG2	12:D:21:ARG:NH1	2.34	0.42
12:D:112:ARG:H	12:D:112:ARG:HG3	1.51	0.42
15:G:164:ILE:O	15:G:168:VAL:HG23	2.18	0.42
15:G:252:LYS:HE3	15:G:252:LYS:HB3	1.78	0.42
16:H:41:ILE:HD11	16:H:69:THR:HB	2.00	0.42
16:H:63:ASN:O	16:H:67:LEU:HG	2.18	0.42
29:V:112:MET:HE2	29:V:112:MET:HB3	1.87	0.42
37:d:88:LEU:HD12	37:d:88:LEU:HA	1.72	0.42
54:v:121:HIS:CD2	57:y:37:LEU:HD11	2.54	0.42
55:w:40:ILE:HD11	55:w:62:ILE:CG2	2.37	0.42
57:y:603:THR:HG22	57:y:608:LYS:O	2.18	0.42
1:1:61:C:H2'	1:1:62:G:O4'	2.19	0.42
1:1:231:A:O2'	1:1:233:U:OP1	2.31	0.42
1:1:249:G:H2'	1:1:250:U:C5	2.53	0.42
5:5:470:A:H61	13:E:101:ARG:CZ	2.32	0.42
5:5:500:G:O2'	5:5:504:G:H5''	2.19	0.42
5:5:929:A:H5''	5:5:929:A:N3	2.34	0.42
5:5:1064:G:C2	5:5:1065:G:C4	3.07	0.42
5:5:1534:A:OP1	43:j:30:GLN:NE2	2.51	0.42
5:5:1558:A:H2'	5:5:1559:G:C8	2.54	0.42
5:5:2652:G:H22	49:p:61:MET:HG2	1.84	0.42
5:5:3680:U:H5'	9:A:54:ARG:NH1	2.34	0.42
5:5:4285:U:H2'	5:5:4286:C:C6	2.53	0.42
5:5:4945:G:H21	39:f:69:VAL:N	2.16	0.42
5:5:4988:U:H4'	5:5:4989:U:O2	2.19	0.42
5:5:5034:A:C2	5:5:5035:U:C2	3.07	0.42
6:6:18:ILE:HD12	6:6:62:ARG:HH22	1.84	0.42
6:6:106:LYS:HA	6:6:106:LYS:HD3	1.89	0.42
8:8:91:A:C2	8:8:92:U:C2	3.07	0.42
11:C:173:LYS:N	11:C:173:LYS:NZ	2.67	0.42
15:G:95:LEU:HG	15:G:218:LEU:HD13	2.01	0.42
16:H:111:LEU:HD13	16:H:111:LEU:HA	1.84	0.42
17:I:164:LYS:HE2	17:I:164:LYS:HB2	1.83	0.42
20:M:137:LYS:HB3	20:M:137:LYS:HE2	1.82	0.42
24:Q:39:THR:HG23	24:Q:44:ASN:HD21	1.84	0.42
32:Y:18:HIS:HE2	32:Y:78:TYR:HH	0.49	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:e:58:ILE:C	38:e:60:TYR:N	2.74	0.42
39:f:63:LYS:HB2	39:f:64:PRO:HD2	2.00	0.42
48:o:69:ARG:HE	48:o:80:LYS:HD3	1.84	0.42
56:x:136:CYS:HB2	56:x:148:LEU:HD22	2.01	0.42
4:4:62:LEU:HD23	4:4:75:PRO:HG3	2.02	0.42
5:5:458:C:N4	5:5:698:G:H1	2.18	0.42
5:5:1064:G:N2	5:5:1065:G:C4	2.87	0.42
5:5:1242:G:H5'	5:5:1243:C:C5	2.55	0.42
5:5:1661:C:OP1	38:e:36:ARG:NH2	2.51	0.42
5:5:1755:C:C3'	5:5:1756:U:H5''	2.47	0.42
5:5:2474:G:HO2'	5:5:2475:G:P	2.42	0.42
5:5:2549:G:H1	5:5:2770:C:N4	2.17	0.42
5:5:2580:U:H4'	33:Z:74:VAL:O	2.19	0.42
5:5:2674:A:N6	36:c:51:ASN:O	2.51	0.42
5:5:4092:G:H3'	5:5:4093:G:H5''	2.00	0.42
5:5:4950:U:C2	5:5:4952:G:H1'	2.54	0.42
10:B:128:LYS:HE3	10:B:128:LYS:HB3	1.93	0.42
12:D:99:TYR:C	12:D:99:TYR:CD1	2.97	0.42
12:D:113:PHE:O	12:D:115:MET:HG3	2.19	0.42
14:F:138:VAL:HG23	14:F:142:ILE:HD13	2.00	0.42
14:F:181:LEU:HB3	14:F:186:ILE:HB	1.99	0.42
14:F:248:ARG:HB3	14:F:248:ARG:NH1	2.35	0.42
15:G:53:ARG:CZ	15:G:53:ARG:HB3	2.48	0.42
16:H:48:LEU:HD12	16:H:49:GLY:N	2.33	0.42
17:I:101:LYS:O	17:I:103:LEU:N	2.52	0.42
19:L:191:LEU:O	19:L:195:ARG:HD2	2.19	0.42
21:N:51:LEU:HD12	21:N:119:TYR:HD1	1.84	0.42
21:N:178:HIS:HD2	21:N:179:LYS:HG2	1.83	0.42
25:R:75:HIS:CD2	25:R:75:HIS:N	2.88	0.42
36:c:31:TYR:HA	36:c:34:THR:OG1	2.20	0.42
36:c:77:ASN:HB3	36:c:79:ILE:H	1.84	0.42
46:m:87:GLN:HE21	46:m:87:GLN:HB3	1.49	0.42
48:o:96:ASP:O	48:o:98:LYS:N	2.53	0.42
51:r:48:LEU:HB2	51:r:75:LEU:HD21	2.02	0.42
53:u:147:ARG:O	53:u:147:ARG:HG3	2.19	0.42
57:y:374:MET:HB3	57:y:378:SER:HB2	2.02	0.42
4:4:129:ILE:HA	4:4:132:ILE:HB	2.01	0.42
5:5:294:G:N3	5:5:294:G:C2'	2.82	0.42
5:5:364:G:O6	43:j:52:LYS:HE2	2.18	0.42
5:5:385:A:H4'	5:5:386:A:OP1	2.18	0.42
5:5:657:C:H2'	5:5:658:C:O4'	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:721:G:H5'	5:5:722:G:OP2	2.19	0.42
5:5:723:A:H4'	11:C:346:ASN:HB2	2.01	0.42
5:5:734:G:H2'	5:5:735:G:C8	2.54	0.42
5:5:1322:A:C6	5:5:1326:A:C8	3.07	0.42
5:5:1954:U:H2'	5:5:1955:G:C8	2.55	0.42
5:5:2128:G:H2'	5:5:2129:C:O4'	2.20	0.42
5:5:2639:U:O2	40:g:26:PRO:HB3	2.20	0.42
5:5:2801:U:O2'	43:j:12:ARG:NH2	2.52	0.42
5:5:4323:A:H4'	12:D:176:SER:HB3	2.02	0.42
5:5:4921:C:H2'	5:5:4922:C:C6	2.54	0.42
6:6:31:GLY:O	6:6:187:LEU:HA	2.19	0.42
10:B:58:ARG:HA	10:B:366:LYS:HG3	2.01	0.42
11:C:74:ALA:CB	11:C:78:ARG:HH21	2.33	0.42
16:H:50:LYS:O	16:H:51:LYS:HG3	2.20	0.42
18:J:104:ASN:OD1	18:J:133:VAL:HA	2.19	0.42
24:Q:75:ARG:HA	24:Q:78:LYS:HE2	2.02	0.42
24:Q:93:GLN:HE21	34:a:87:ARG:NH1	2.17	0.42
28:U:42:PHE:HE1	28:U:46:ARG:HD3	1.84	0.42
28:U:111:GLU:HG2	28:U:112:LEU:N	2.34	0.42
41:h:52:LYS:HA	41:h:52:LYS:HD3	1.77	0.42
41:h:88:THR:O	41:h:91:MET:N	2.52	0.42
53:u:92:ARG:NE	53:u:99:MET:HE3	2.34	0.42
56:x:234:LYS:HE2	56:x:238:ASP:OD1	2.18	0.42
57:y:57:LYS:HB2	57:y:83:ILE:HG21	2.00	0.42
57:y:449:LEU:HD12	57:y:487:GLN:O	2.19	0.42
3:3:6:GLN:H	3:3:6:GLN:HG2	1.42	0.42
3:3:80:THR:HG21	3:3:96:MET:HE1	2.00	0.42
5:5:134:G:H21	41:h:85:PRO:HA	1.84	0.42
5:5:166:C:O2	5:5:166:C:H2'	2.20	0.42
5:5:702:U:O2	5:5:703:G:O2'	2.37	0.42
5:5:1065:G:H2'	5:5:1066:G:H8	1.84	0.42
5:5:1287:G:H5'	5:5:1288:G:N2	2.34	0.42
5:5:1351:G:H5'	11:C:36:ILE:HD11	2.01	0.42
5:5:1406:G:H1	5:5:1411:C:H42	1.68	0.42
5:5:1448:G:C2	5:5:2097:U:C4	3.08	0.42
5:5:1786:A:H2'	5:5:1789:C:H5	1.80	0.42
5:5:2503:G:H5'	5:5:2504:C:O5'	2.20	0.42
5:5:2708:U:O2'	5:5:2709:C:O4'	2.38	0.42
5:5:3709:U:C3'	5:5:3710:G:H5'	2.46	0.42
5:5:4091:G:N2	5:5:4159:C:C2	2.87	0.42
5:5:4253:A:H5'	5:5:4254:G:N7	2.34	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:8:63:U:C2	8:8:64:U:H5	2.38	0.42
11:C:26:ALA:HB3	11:C:266:THR:HA	2.02	0.42
15:G:63:LEU:HD12	21:N:32:GLN:HB3	2.02	0.42
24:Q:151:HIS:CD2	24:Q:166:TYR:CE2	3.07	0.42
25:R:95:TRP:HA	25:R:95:TRP:CE3	2.54	0.42
26:S:113:MET:HB2	26:S:124:ILE:HD11	2.02	0.42
30:W:23:ARG:NH1	30:W:29:PHE:CZ	2.87	0.42
31:X:94:ASN:ND2	31:X:140:LEU:HB2	2.35	0.42
34:a:93:ASN:ND2	34:a:97:ALA:HB2	2.33	0.42
35:b:20:GLY:O	35:b:21:ILE:C	2.62	0.42
37:d:21:VAL:HG12	37:d:22:THR:H	1.85	0.42
37:d:78:ARG:CB	37:d:78:ARG:HH11	2.32	0.42
37:d:87:ARG:HH22	37:d:109:VAL:HG21	1.84	0.42
40:g:19:LYS:HD3	40:g:19:LYS:HA	1.69	0.42
48:o:55:ILE:HD12	48:o:57:ARG:HH12	1.83	0.42
57:y:2:LEU:HD22	57:y:68:VAL:HG22	2.02	0.42
1:1:106:G:N2	1:1:248:U:O2	2.53	0.42
1:1:231:A:N1	1:1:233:U:C5	2.88	0.42
2:2:30:G:H2'	2:2:31:C:H5'	2.01	0.42
3:3:94:ARG:NH1	13:E:108:MET:HE3	2.35	0.42
5:5:88:A:N6	5:5:97:G:C2	2.88	0.42
5:5:330:G:C2	5:5:331:G:C8	3.08	0.42
5:5:497:G:H5''	5:5:498:C:OP2	2.20	0.42
5:5:668:C:O2'	5:5:669:C:OP1	2.35	0.42
5:5:673:C:H2'	5:5:674:G:H8	1.84	0.42
5:5:978:G:C6	5:5:979:C:C4	3.08	0.42
5:5:1214:C:H4'	5:5:1215:C:O5'	2.20	0.42
5:5:1250:C:H2'	5:5:1251:C:C6	2.54	0.42
5:5:1598:C:C6	5:5:2798:A:N7	2.88	0.42
5:5:1736:A:H2'	5:5:1737:A:O4'	2.19	0.42
5:5:4280:A:C5	12:D:23:ARG:NH1	2.86	0.42
5:5:4414:A:C8	5:5:4422:A:N1	2.88	0.42
5:5:4538:G:H2'	5:5:4539:U:C6	2.54	0.42
5:5:4975:G:N2	5:5:4984:C:C2	2.88	0.42
6:6:29:ILE:HB	6:6:191:GLN:O	2.20	0.42
6:6:40:MET:SD	6:6:43:ILE:HD12	2.59	0.42
8:8:132:G:C2	8:8:133:G:C8	3.08	0.42
9:A:242:ARG:CB	9:A:242:ARG:NH1	2.82	0.42
10:B:19:ARG:HH21	10:B:234:ARG:HG3	1.85	0.42
11:C:112:HIS:HB3	21:N:203:TYR:CE1	2.55	0.42
12:D:127:GLY:HA2	12:D:195:HIS:HD2	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:H:129:ARG:HA	16:H:129:ARG:HD3	1.71	0.42
18:J:31:ASP:C	18:J:33:LEU:H	2.28	0.42
19:L:65:ARG:HB2	34:a:69:PHE:CD2	2.55	0.42
21:N:6:TYR:CZ	42:i:40:VAL:HG22	2.55	0.42
23:P:110:ASP:OD1	23:P:110:ASP:N	2.50	0.42
25:R:43:LYS:HB2	25:R:43:LYS:HE3	1.66	0.42
32:Y:74:TYR:HB3	32:Y:77:LYS:HB2	2.01	0.42
32:Y:109:LEU:HD13	32:Y:119:LEU:HD21	2.02	0.42
36:c:26:LYS:HE2	36:c:26:LYS:HB3	1.87	0.42
44:k:28:ASN:HB3	44:k:31:ASN:HB2	2.02	0.42
46:m:119:ASN:C	46:m:119:ASN:OD1	2.62	0.42
48:o:78:ARG:HB3	48:o:78:ARG:NH2	2.33	0.42
56:x:172:ALA:HB1	56:x:212:ILE:HG21	2.00	0.42
1:1:117:U:OP1	53:u:94:THR:HG23	2.19	0.42
1:1:237:G:H2'	1:1:238:G:H8	1.83	0.42
1:1:242:C:H3'	1:1:243:G:H8	1.84	0.42
5:5:12:A:H5''	5:5:12:A:H8	1.85	0.42
5:5:75:G:H3'	19:L:74:ARG:HG3	2.00	0.42
5:5:168:C:H2'	5:5:169:G:C8	2.55	0.42
5:5:747:A:C2	5:5:749:G:H1'	2.53	0.42
5:5:929:A:H3'	5:5:930:G:C5'	2.49	0.42
5:5:932:A:O2'	5:5:933:G:OP2	2.32	0.42
5:5:1237:C:N3	13:E:55:ARG:NH1	2.66	0.42
5:5:1338:G:H22	34:a:25:HIS:CG	2.38	0.42
5:5:1492:G:H4'	35:b:41:ARG:NH1	2.34	0.42
5:5:1522:G:H2'	5:5:1653:A:H61	1.84	0.42
5:5:1816:C:C2'	5:5:1817:U:H5'	2.49	0.42
5:5:2093:A:H4'	5:5:2095:A:N7	2.34	0.42
5:5:2442:G:C2	5:5:2781:G:C2	3.07	0.42
5:5:3779:A:H2'	5:5:3780:G:O4'	2.20	0.42
5:5:5030:U:C2	5:5:5031:G:C8	3.08	0.42
8:8:62:A:H4'	8:8:63:U:O5'	2.19	0.42
10:B:117:ARG:O	10:B:117:ARG:HG3	2.18	0.42
10:B:257:TRP:O	10:B:257:TRP:CD1	2.70	0.42
11:C:31:PRO:HB3	24:Q:24:TYR:HE2	1.84	0.42
13:E:125:GLY:C	13:E:126:LYS:HD2	2.44	0.42
13:E:157:ARG:NH1	13:E:270:VAL:C	2.78	0.42
13:E:212:TYR:HE1	13:E:242:ARG:HD3	1.85	0.42
14:F:69:THR:HA	14:F:72:ARG:HB2	2.00	0.42
21:N:20:ARG:O	21:N:24:ARG:HB3	2.19	0.42
27:T:103:ASP:O	27:T:107:LYS:HD2	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:Y:27:ARG:CG	32:Y:75:ARG:HH12	2.22	0.42
33:Z:18:TYR:O	33:Z:21:ARG:HG2	2.20	0.42
39:f:4:ARG:HG2	39:f:4:ARG:HH11	1.84	0.42
48:o:69:ARG:NE	48:o:80:LYS:HD3	2.34	0.42
49:p:38:THR:HA	49:p:45:THR:HA	2.01	0.42
55:w:74:VAL:HG11	58:z:76:VAL:HG21	2.00	0.42
56:x:331:ASP:O	56:x:335:GLN:HG2	2.19	0.42
57:y:31:ALA:HA	57:y:54:LEU:HG	2.01	0.42
1:1:59:A:C6	1:1:60:U:C2	3.07	0.42
1:1:119:A:H4'	53:u:83:TYR:CE1	2.55	0.42
4:4:95:GLN:C	4:4:97:ASN:N	2.75	0.42
5:5:31:U:C4	5:5:32:G:C6	3.08	0.42
5:5:67:C:H2'	5:5:68:U:O4'	2.19	0.42
5:5:107:G:P	19:L:42:LYS:HZ2	2.43	0.42
5:5:307:A:H3'	5:5:308:G:H21	1.85	0.42
5:5:480:C:H2'	5:5:481:G:C8	2.55	0.42
5:5:1266:G:N2	5:5:2111:G:C2	2.87	0.42
5:5:1631:A:H5'	5:5:1632:A:N7	2.35	0.42
5:5:2130:G:H2'	5:5:2131:C:H5'	2.01	0.42
5:5:2363:A:C2	5:5:3860:A:C4	3.08	0.42
5:5:2632:U:H2'	5:5:2633:U:C6	2.55	0.42
5:5:2696:A:C4	44:k:69:LEU:HD11	2.54	0.42
5:5:4097:G:H5''	40:g:115:LYS:CD	2.50	0.42
7:7:2:U:C5'	12:D:267:ASN:HD22	2.32	0.42
7:7:47:G:C2	7:7:48:G:H1'	2.55	0.42
9:A:24:LYS:HA	9:A:24:LYS:HD3	1.91	0.42
10:B:14:LEU:HA	10:B:17:LEU:HG	2.01	0.42
12:D:282:GLN:OE1	12:D:282:GLN:HA	2.20	0.42
15:G:29:ASN:HB3	15:G:32:PHE:CZ	2.54	0.42
16:H:113:GLU:HB3	16:H:115:ARG:NH1	2.17	0.42
17:I:99:ILE:HG22	17:I:123:GLN:HB2	2.02	0.42
27:T:70:HIS:O	27:T:92:ARG:HG3	2.20	0.42
36:c:32:LYS:O	36:c:36:LYS:HE2	2.20	0.42
43:j:19:CYS:HB3	43:j:22:CYS:HB2	2.01	0.42
43:j:46:LYS:NZ	43:j:54:LYS:HD2	2.35	0.42
45:l:44:TRP:CD1	45:l:44:TRP:H	2.37	0.42
51:r:559:LYS:HA	51:r:559:LYS:HD3	1.87	0.42
54:v:79:LEU:HG	54:v:248:ALA:HB1	2.01	0.42
57:y:79:VAL:O	57:y:83:ILE:HG13	2.19	0.42
57:y:610:ILE:HB	57:y:625:LEU:HD22	2.01	0.42
58:z:85:ASN:N	58:z:85:ASN:HD22	2.17	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:4:126:SER:O	4:4:130:LYS:HG3	2.19	0.42
5:5:218:A:H4'	5:5:219:G:OP1	2.20	0.42
5:5:286:U:H2'	5:5:287:U:C6	2.55	0.42
5:5:304:C:H2'	5:5:305:A:O4'	2.20	0.42
5:5:747:A:C2	5:5:918:G:C6	3.08	0.42
5:5:1280:C:C4	5:5:1282:G:O6	2.73	0.42
5:5:1446:C:C2	5:5:2099:G:N2	2.88	0.42
5:5:1944:A:O2'	5:5:4412:C:H4'	2.20	0.42
5:5:1972:G:H1'	6:6:41:GLN:HE22	1.85	0.42
5:5:1979:A:N1	5:5:1983:A:H5'	2.35	0.42
5:5:1987:C:O2	5:5:1987:C:H2'	2.20	0.42
5:5:2108:G:C4	5:5:2109:G:H1'	2.54	0.42
5:5:2370:A:C6	37:d:77:ILE:HG13	2.55	0.42
5:5:3607:U:H2'	5:5:3608:A:C8	2.55	0.42
5:5:3911:C:H2'	5:5:3912:U:C6	2.54	0.42
5:5:4643:G:H2'	5:5:4644:G:O4'	2.19	0.42
5:5:4947:U:O2'	39:f:2:SER:HB3	2.19	0.42
5:5:4978:G:H2'	5:5:4979:A:H5''	2.00	0.42
8:8:154:G:H4'	15:G:189:ARG:NH1	2.34	0.42
9:A:41:ILE:HG22	9:A:90:CYS:HB2	2.02	0.42
10:B:18:PRO:O	10:B:20:LYS:N	2.53	0.42
11:C:195:LYS:NZ	11:C:195:LYS:CB	2.81	0.42
11:C:264:TYR:N	11:C:264:TYR:CD1	2.88	0.42
13:E:197:ILE:HG12	13:E:198:ASP:N	2.35	0.42
19:L:4:SER:C	19:L:5:ARG:HG3	2.45	0.42
25:R:126:LYS:HB3	25:R:132:PHE:HE2	1.78	0.42
26:S:111:ARG:HD3	26:S:111:ARG:HA	1.80	0.42
29:V:25:VAL:HB	29:V:36:ASN:ND2	2.35	0.42
38:e:81:ASN:HA	38:e:111:ILE:HD11	2.01	0.42
42:i:56:ARG:NH1	42:i:72:PHE:CE2	2.87	0.42
51:r:146:GLU:HB3	53:u:588:LEU:HD21	2.01	0.42
4:4:96:LYS:O	4:4:96:LYS:HG2	2.20	0.42
4:4:105:THR:O	4:4:106:PHE:C	2.63	0.42
5:5:147:A:OP1	15:G:197:LYS:HD3	2.20	0.42
5:5:330:G:OP2	21:N:166:SER:HB2	2.19	0.42
5:5:467:U:C4	5:5:468:U:C5	3.08	0.42
5:5:1408:G:HO2'	5:5:1411:C:N4	2.14	0.42
5:5:1724:G:N2	14:F:105:PRO:HA	2.35	0.42
5:5:3641:U:C5	5:5:3646:A:N7	2.88	0.42
5:5:4185:G:O2'	5:5:4186:A:H5'	2.20	0.42
7:7:119:U:C2	12:D:261:VAL:HG11	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:8:45:C:H4'	45:l:11:ARG:HE	1.85	0.42
8:8:120:G:C6	8:8:121:G:N7	2.88	0.42
10:B:116:ARG:HB3	10:B:177:LYS:CG	2.49	0.42
12:D:107:ARG:HG3	12:D:248:ARG:HG3	2.02	0.42
18:J:98:ASN:N	18:J:98:ASN:OD1	2.51	0.42
21:N:151:ILE:H	21:N:151:ILE:HG13	1.64	0.42
30:W:7:SER:OG	30:W:29:PHE:HB3	2.20	0.42
33:Z:4:PHE:N	33:Z:4:PHE:CD1	2.88	0.42
37:d:50:ARG:HG3	37:d:62:VAL:HB	2.02	0.42
41:h:80:PRO:O	41:h:84:ARG:HG3	2.19	0.42
44:k:40:ARG:HE	44:k:41:TYR:HE2	1.66	0.42
52:t:82:LEU:HD13	56:x:430:MET:SD	2.60	0.42
56:x:114:LYS:NZ	62:x:601:GNP:O2B	2.47	0.42
57:y:116:ASP:O	57:y:120:LEU:HG	2.19	0.42
57:y:428:VAL:HG12	57:y:551:GLU:HG2	2.02	0.42
5:5:510:U:H5''	34:a:86:THR:CG2	2.46	0.41
5:5:1457:G:OP1	24:Q:72:LEU:HG	2.20	0.41
5:5:1474:C:HO2'	5:5:1475:G:P	2.43	0.41
5:5:1482:G:H5''	5:5:1484:G:H1	1.84	0.41
5:5:1484:G:H4'	5:5:1485:C:OP2	2.18	0.41
5:5:1748:U:H2'	5:5:1749:A:O4'	2.20	0.41
5:5:1907:A:H2'	5:5:1908:A:C8	2.55	0.41
5:5:1938:C:H4'	5:5:1939:A:O5'	2.20	0.41
5:5:2494:U:H2'	5:5:2495:U:O4'	2.20	0.41
5:5:2787:A:H2	5:5:2801:U:N3	2.18	0.41
5:5:4507:A:H2'	5:5:4508:C:H6	1.84	0.41
5:5:5003:U:H2'	5:5:5004:C:O4'	2.20	0.41
11:C:7:LEU:HD12	11:C:7:LEU:HA	1.80	0.41
17:I:209:TRP:HE1	17:I:213:HIS:CD2	2.38	0.41
19:L:150:LEU:HD11	41:h:122:LYS:HB3	2.02	0.41
21:N:54:LYS:O	21:N:56:LYS:N	2.51	0.41
22:O:74:ARG:HG3	22:O:145:VAL:HG12	2.02	0.41
23:P:5:SER:OG	23:P:118:GLN:OE1	2.38	0.41
24:Q:138:LEU:HD23	24:Q:138:LEU:HA	1.86	0.41
25:R:15:LEU:O	25:R:52:ARG:NH2	2.53	0.41
25:R:95:TRP:CE2	25:R:99:MET:HE1	2.55	0.41
25:R:139:MET:HB3	25:R:143:HIS:CE1	2.55	0.41
39:f:63:LYS:HB2	39:f:63:LYS:HE3	1.82	0.41
44:k:17:ARG:HD2	44:k:19:ASP:OD1	2.20	0.41
1:1:59:A:C2	1:1:60:U:H1'	2.55	0.41
1:1:257:C:H2'	1:1:258:C:H4'	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:12:G:H2'	2:2:13:U:O4'	2.20	0.41
3:3:42:GLY:HA2	3:3:48:THR:HG21	2.02	0.41
5:5:643:C:H2'	5:5:644:G:H8	1.85	0.41
5:5:707:C:H42	5:5:1290:G:H1	1.67	0.41
5:5:972:C:H42	5:5:1283:G:H5''	1.84	0.41
5:5:1395:U:H2'	5:5:1396:G:O4'	2.20	0.41
5:5:1755:C:HO2'	5:5:1756:U:P	2.42	0.41
5:5:1820:C:HO2'	5:5:1821:G:C4'	2.30	0.41
5:5:2268:A:H4'	5:5:2269:C:O5'	2.19	0.41
5:5:2518:G:H1'	5:5:2539:C:H1'	2.00	0.41
5:5:3810:C:H2'	5:5:3810:C:O2	2.20	0.41
5:5:4139:G:H1	5:5:4145:C:N4	2.15	0.41
5:5:4324:A:H2'	5:5:4325:A:C8	2.55	0.41
5:5:4349:C:H4'	5:5:4350:C:OP2	2.20	0.41
5:5:4749:C:C4	5:5:4750:G:C2	3.07	0.41
5:5:4888:U:HO2'	5:5:4889:G:H8	1.61	0.41
11:C:342:ARG:HA	11:C:345:ARG:NH1	2.36	0.41
12:D:43:LYS:HB3	12:D:46:THR:CG2	2.48	0.41
14:F:43:MET:SD	14:F:44:LEU:HD12	2.59	0.41
15:G:210:GLU:H	15:G:210:GLU:HG3	1.65	0.41
16:H:38:PHE:C	16:H:40:HIS:H	2.28	0.41
16:H:89:ARG:HH21	16:H:145:ILE:HD13	1.84	0.41
18:J:35:ARG:HH11	18:J:35:ARG:HB2	1.85	0.41
19:L:96:ILE:HG21	19:L:117:LEU:HD21	2.02	0.41
20:M:47:ARG:NH2	20:M:69:ARG:HA	2.35	0.41
22:O:12:ARG:O	26:S:171:ARG:NH2	2.53	0.41
22:O:117:ARG:HH11	22:O:117:ARG:CG	2.32	0.41
25:R:44:LEU:HA	25:R:47:ASP:OD1	2.20	0.41
26:S:9:GLU:HB3	26:S:67:VAL:HG13	2.01	0.41
29:V:98:PHE:HE2	29:V:120:PRO:HG2	1.85	0.41
38:e:109:LYS:NZ	38:e:109:LYS:CB	2.83	0.41
41:h:117:ARG:CA	41:h:117:ARG:HH11	2.32	0.41
42:i:3:LEU:HD12	42:i:5:TYR:CZ	2.54	0.41
51:r:31:LEU:HD11	51:r:51:LYS:HG3	2.02	0.41
53:u:127:ASP:HB3	53:u:162:HIS:CE1	2.55	0.41
54:v:230:LYS:HD3	54:v:236:GLN:NE2	2.35	0.41
57:y:335:GLU:H	57:y:335:GLU:HG3	1.68	0.41
57:y:381:THR:O	57:y:385:LYS:HB2	2.20	0.41
1:1:151:C:H4'	1:1:203:G:O2'	2.20	0.41
3:3:64:ILE:HG23	3:3:102:TYR:CZ	2.55	0.41
5:5:744:G:N2	5:5:921:C:C2	2.88	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:976:G:C5	5:5:977:C:C4	3.08	0.41
5:5:1266:G:H22	5:5:2111:G:N2	2.18	0.41
5:5:1761:G:C6	5:5:1762:C:C4	3.08	0.41
5:5:2041:A:O2'	5:5:2042:A:H5''	2.20	0.41
5:5:2046:G:C5	22:O:60:LYS:HG2	2.55	0.41
5:5:2370:A:C4	37:d:77:ILE:HD11	2.56	0.41
5:5:2852:U:O2	5:5:2852:U:H2'	2.20	0.41
5:5:3673:C:O2'	5:5:3674:G:OP1	2.32	0.41
5:5:4323:A:H2'	5:5:4324:A:O4'	2.20	0.41
5:5:4683:U:C4	5:5:4707:A:C5	3.09	0.41
10:B:216:MET:HG3	10:B:354:GLN:HG2	2.02	0.41
11:C:24:LEU:HD12	11:C:24:LEU:HA	1.92	0.41
11:C:164:THR:HG22	11:C:220:ALA:O	2.21	0.41
11:C:200:ARG:HG2	11:C:201:ARG:HG3	2.01	0.41
12:D:73:MET:H	12:D:73:MET:HG2	1.69	0.41
19:L:65:ARG:HE	34:a:66:ASN:ND2	2.17	0.41
26:S:29:ARG:HH11	27:T:150:LEU:HD13	1.86	0.41
26:S:163:HIS:CD2	26:S:166:ARG:HE	2.36	0.41
34:a:52:TYR:CD1	34:a:52:TYR:C	2.98	0.41
36:c:17:ARG:O	36:c:21:VAL:HG23	2.21	0.41
36:c:74:TYR:HD1	36:c:75:SER:N	2.17	0.41
38:e:36:ARG:HD3	38:e:36:ARG:HA	1.89	0.41
43:j:76:HIS:CG	43:j:79:ARG:NH1	2.88	0.41
51:r:122:LEU:HD13	51:r:124:ARG:HH11	1.85	0.41
53:u:73:ARG:CZ	57:y:570:ALA:HB3	2.51	0.41
54:v:122:GLU:HB2	57:y:399:GLN:OE1	2.19	0.41
1:1:117:U:HO2'	1:1:118:A:P	2.43	0.41
1:1:241:U:H3'	51:r:559:LYS:HZ1	1.85	0.41
1:1:251:G:OP1	51:r:59:GLY:HA3	2.21	0.41
4:4:105:THR:CG2	4:4:144:ASP:HA	2.50	0.41
5:5:50:C:H2'	5:5:51:A:O4'	2.20	0.41
5:5:733:A:H2'	5:5:734:G:O4'	2.20	0.41
5:5:1070:G:C2	5:5:1071:C:C2	3.09	0.41
5:5:1189:G:C2	5:5:1190:C:C2	3.08	0.41
5:5:1198:G:N2	5:5:1199:G:C6	2.88	0.41
5:5:1209:U:O2'	14:F:72:ARG:NH1	2.54	0.41
5:5:1481:C:O2'	5:5:1482:G:OP2	2.32	0.41
5:5:1633:G:O2'	5:5:1634:A:H5''	2.21	0.41
5:5:1991:A:H2'	5:5:1992:U:H2'	2.01	0.41
5:5:1992:U:O2'	5:5:1993:C:P	2.78	0.41
5:5:2122:G:O2'	5:5:2123:C:OP1	2.37	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:2399:G:N2	40:g:4:ARG:HD3	2.35	0.41
5:5:3700:C:H2'	5:5:3746:A:N6	2.34	0.41
5:5:3721:U:H3	5:5:3732:A:H61	1.67	0.41
5:5:3878:C:O2	10:B:258:HIS:NE2	2.53	0.41
5:5:4975:G:H2'	5:5:4977:A:N7	2.34	0.41
8:8:95:A:N3	8:8:95:A:H2'	2.34	0.41
8:8:125:C:H4'	8:8:126:C:OP1	2.20	0.41
10:B:17:LEU:HD13	10:B:17:LEU:O	2.21	0.41
10:B:229:LYS:HD3	10:B:229:LYS:HA	1.91	0.41
11:C:81:GLY:O	11:C:87:SER:HB2	2.20	0.41
12:D:283:LYS:O	12:D:285:ALA:N	2.52	0.41
13:E:84:VAL:HG13	13:E:87:THR:O	2.21	0.41
14:F:95:ILE:HD13	14:F:249:MET:HE1	2.02	0.41
17:I:92:HIS:ND1	17:I:92:HIS:N	2.68	0.41
20:M:57:LEU:H	20:M:57:LEU:CD2	2.33	0.41
21:N:46:ASP:OD2	21:N:50:ARG:NH1	2.53	0.41
21:N:181:HIS:O	21:N:184:ILE:HB	2.20	0.41
23:P:47:TYR:OH	23:P:57:CYS:O	2.38	0.41
25:R:74:ARG:N	25:R:74:ARG:HD2	2.36	0.41
25:R:91:GLU:H	25:R:91:GLU:HG3	1.59	0.41
28:U:37:ALA:C	28:U:39:PHE:H	2.28	0.41
33:Z:5:MET:HG2	33:Z:77:TYR:CE1	2.55	0.41
38:e:47:ARG:O	38:e:49:PHE:N	2.53	0.41
54:v:207:THR:HB	57:y:404:MET:HB3	2.01	0.41
56:x:340:MET:CB	56:x:372:LEU:HD12	2.51	0.41
57:y:588:LYS:H	62:y:701:GNP:C6	2.33	0.41
5:5:151:G:H1	15:G:142:THR:CG2	2.31	0.41
5:5:235:A:N6	32:Y:103:LYS:HZ3	2.18	0.41
5:5:1367:C:C2	5:5:1368:A:H3'	2.56	0.41
5:5:1399:G:H2'	5:5:1400:G:H8	1.84	0.41
5:5:1435:G:C6	5:5:1436:C:C4	3.08	0.41
5:5:1695:U:O2'	5:5:1696:C:H5'	2.20	0.41
5:5:1887:G:N2	5:5:1893:C:C2	2.88	0.41
5:5:2318:G:C2	5:5:2322:G:C2	3.09	0.41
5:5:2353:U:H5''	11:C:89:GLN:OE1	2.20	0.41
5:5:2373:C:H5'	37:d:46:LEU:HD22	2.02	0.41
5:5:2668:G:P	25:R:103:ARG:HH22	2.43	0.41
5:5:3670:C:O2'	5:5:3671:G:O5'	2.38	0.41
5:5:3879:G:O2'	5:5:3881:G:OP2	2.35	0.41
5:5:4155:C:N4	5:5:4156:G:C2	2.89	0.41
5:5:4233:A:C8	5:5:4235:G:C8	3.08	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:4235:G:O2'	5:5:4330:G:O2'	2.35	0.41
5:5:4254:G:H3'	5:5:4256:A:OP2	2.20	0.41
5:5:4257:A:C6	18:J:60:PHE:HD2	2.38	0.41
5:5:4764:A:H62	20:M:4:ARG:HH12	1.67	0.41
7:7:23:A:OP2	7:7:23:A:H2'	2.20	0.41
9:A:10:LYS:HA	9:A:16:PHE:HD2	1.85	0.41
10:B:366:LYS:HB3	10:B:366:LYS:HZ2	1.84	0.41
11:C:78:ARG:HH11	11:C:78:ARG:HG2	1.86	0.41
11:C:209:ILE:HG13	11:C:251:ILE:HB	2.03	0.41
11:C:267:TRP:CD1	11:C:281:MET:HE2	2.55	0.41
12:D:98:ALA:HB1	12:D:162:ALA:HB2	2.01	0.41
13:E:279:PRO:HA	13:E:282:LEU:CD2	2.47	0.41
15:G:105:GLU:OE2	15:G:113:ARG:HD3	2.20	0.41
15:G:107:LYS:C	15:G:109:GLU:H	2.28	0.41
17:I:209:TRP:CD1	17:I:209:TRP:C	2.95	0.41
18:J:112:HIS:CD2	18:J:117:ILE:HG21	2.54	0.41
20:M:39:ASP:OD2	20:M:70:GLN:NE2	2.54	0.41
30:W:9:SER:HA	30:W:52:THR:HG22	2.01	0.41
30:W:44:ARG:HG3	30:W:44:ARG:NH1	2.36	0.41
36:c:21:VAL:HG22	36:c:102:SER:OG	2.21	0.41
43:j:42:LYS:HE3	43:j:42:LYS:HB2	1.86	0.41
54:v:75:SER:O	54:v:181:LYS:HE3	2.21	0.41
54:v:122:GLU:HB2	57:y:399:GLN:HE22	1.85	0.41
54:v:184:ILE:HG22	54:v:186:MET:HG2	2.01	0.41
54:v:234:PHE:CD1	54:v:241:VAL:HG11	2.55	0.41
1:1:118:A:N3	1:1:118:A:H4'	2.36	0.41
2:2:10:G:C2	2:2:26:G:H1'	2.55	0.41
4:4:9:GLU:O	4:4:10:ILE:C	2.64	0.41
5:5:216:C:HO2'	5:5:217:C:P	2.44	0.41
5:5:287:U:O2'	21:N:91:GLN:OE1	2.29	0.41
5:5:470:A:C5	5:5:471:A:C8	3.08	0.41
5:5:747:A:HO2'	5:5:748:G:P	2.37	0.41
5:5:1271:G:H5''	5:5:1272:C:C2	2.55	0.41
5:5:1273:G:H21	5:5:2123:C:H5''	1.86	0.41
5:5:1563:A:O2'	5:5:1564:A:O5'	2.33	0.41
5:5:1816:C:H2'	5:5:1817:U:H5'	2.03	0.41
5:5:2521:G:P	40:g:8:ARG:HH22	2.44	0.41
5:5:2576:G:C6	5:5:2577:C:C4	3.08	0.41
5:5:3706:C:H2'	5:5:3707:U:O4'	2.20	0.41
5:5:3884:U:H2'	5:5:3885:G:O4'	2.21	0.41
8:8:77:A:H2'	8:8:78:G:O4'	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:B:35:ASP:OD1	10:B:35:ASP:N	2.46	0.41
10:B:102:PHE:HE2	10:B:156:TYR:HB2	1.85	0.41
15:G:131:LYS:HZ3	15:G:131:LYS:HA	1.85	0.41
29:V:89:ARG:HD2	29:V:95:PHE:CZ	2.56	0.41
29:V:90:ARG:NH2	29:V:123:LYS:HG2	2.36	0.41
32:Y:82:ILE:HB	32:Y:85:VAL:HB	2.03	0.41
34:a:116:LYS:HE2	34:a:116:LYS:HB3	1.90	0.41
37:d:121:ASN:ND2	37:d:121:ASN:H	2.19	0.41
39:f:27:LEU:HD22	39:f:78:HIS:CD2	2.55	0.41
39:f:87:LYS:HB2	39:f:87:LYS:HE2	1.81	0.41
43:j:47:TYR:HD1	43:j:47:TYR:HA	1.77	0.41
56:x:195:HIS:CD2	57:y:591:THR:HG22	2.56	0.41
56:x:234:LYS:HD2	56:x:234:LYS:HA	1.79	0.41
56:x:378:ILE:HG23	56:x:406:VAL:HG11	2.03	0.41
57:y:345:ARG:HB2	57:y:362:CYS:SG	2.60	0.41
3:3:28:GLU:H	3:3:28:GLU:HG3	1.51	0.41
5:5:228:C:H2'	5:5:229:G:C8	2.56	0.41
5:5:382:G:H2'	5:5:383:A:H2'	2.02	0.41
5:5:453:G:N2	5:5:454:U:O2	2.53	0.41
5:5:960:A:C8	5:5:2256:C:N4	2.89	0.41
5:5:1346:C:H2'	5:5:1347:G:C8	2.55	0.41
5:5:2065:G:H2'	5:5:2066:C:O4'	2.21	0.41
5:5:2525:U:OP1	5:5:2711:G:N1	2.52	0.41
5:5:2551:A:H61	5:5:2766:A:N6	2.19	0.41
5:5:2809:G:O2'	5:5:4644:G:H5''	2.20	0.41
5:5:4257:A:C5	18:J:60:PHE:HD2	2.38	0.41
10:B:9:PRO:HD2	29:V:48:ARG:NH1	2.35	0.41
10:B:332:MET:HE2	10:B:332:MET:HB3	1.88	0.41
12:D:290:ALA:HA	12:D:293:ARG:HH12	1.86	0.41
13:E:157:ARG:O	13:E:158:VAL:HG23	2.20	0.41
13:E:220:LYS:N	13:E:221:PRO:HD3	2.35	0.41
15:G:104:PRO:HG3	15:G:194:VAL:HG12	2.03	0.41
17:I:152:LEU:HD23	17:I:152:LEU:HA	1.90	0.41
21:N:9:GLU:HB3	42:i:44:ILE:HD12	2.03	0.41
21:N:184:ILE:CG2	21:N:194:ARG:HH12	2.32	0.41
37:d:34:HIS:C	37:d:36:VAL:HG12	2.46	0.41
50:q:74:ARG:HB3	56:x:413:SER:HB3	2.02	0.41
56:x:106:PHE:O	56:x:191:THR:OG1	2.32	0.41
2:2:14:A:C2	2:2:22:U:H1'	2.56	0.41
5:5:515:C:C2	5:5:647:G:C2	3.09	0.41
5:5:972:C:N4	5:5:1283:G:H5''	2.36	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:1177:U:H3	5:5:1184:A:H61	1.69	0.41
5:5:1304:C:HO2'	8:8:8:U:HO2'	1.62	0.41
5:5:1398:A:HO2'	5:5:1399:G:P	2.41	0.41
5:5:1661:C:H2'	5:5:1662:C:H6	1.85	0.41
5:5:2099:G:C2	5:5:2100:A:C8	3.08	0.41
5:5:2473:A:N1	5:5:2506:G:N7	2.69	0.41
5:5:2540:C:H2'	5:5:2541:G:C8	2.56	0.41
5:5:3877:A:H2	5:5:4401:G:N3	2.18	0.41
5:5:4613:C:O4'	16:H:122:TYR:HB2	2.20	0.41
10:B:307:TYR:CE2	10:B:366:LYS:HD2	2.56	0.41
11:C:38:ASN:O	11:C:42:THR:HG23	2.20	0.41
11:C:308:LYS:O	11:C:309:ILE:C	2.64	0.41
12:D:91:GLY:O	12:D:94:ASN:ND2	2.45	0.41
12:D:209:ARG:HA	12:D:212:ILE:HG22	2.01	0.41
13:E:136:LEU:HD23	13:E:136:LEU:HA	1.76	0.41
16:H:23:ARG:NH2	16:H:39:ASN:HA	2.36	0.41
17:I:51:HIS:ND1	17:I:137:SER:HB3	2.36	0.41
17:I:60:LEU:HD23	17:I:60:LEU:HA	1.91	0.41
24:Q:54:SER:O	24:Q:58:ARG:HG2	2.21	0.41
24:Q:97:LYS:HB2	24:Q:97:LYS:HE2	1.67	0.41
26:S:8:ARG:HD3	26:S:10:TYR:CE2	2.56	0.41
29:V:83:ARG:HH11	29:V:120:PRO:HD2	1.84	0.41
30:W:55:TYR:CD1	30:W:55:TYR:C	2.99	0.41
30:W:56:ARG:HB3	30:W:56:ARG:CZ	2.51	0.41
31:X:153:ILE:HG13	31:X:155:ILE:HG23	2.03	0.41
37:d:123:ASP:OD1	37:d:123:ASP:N	2.54	0.41
40:g:11:LEU:CB	40:g:18:ASN:HD21	2.27	0.41
41:h:72:PHE:HD1	41:h:72:PHE:HA	1.66	0.41
47:n:8:LYS:HD3	47:n:12:ARG:CZ	2.51	0.41
48:o:2:VAL:N	48:o:90:HIS:O	2.54	0.41
54:v:175:PHE:CE2	54:v:239:LEU:HD22	2.55	0.41
57:y:24:SER:O	57:y:26:THR:HG23	2.21	0.41
1:1:244:C:H2'	1:1:245:G:C8	2.56	0.41
3:3:7:TRP:CZ3	3:3:11:ARG:HA	2.55	0.41
5:5:112:C:H3'	5:5:157:U:O4	2.21	0.41
5:5:328:A:C6	5:5:329:A:C6	3.09	0.41
5:5:342:G:H2'	5:5:343:C:H6	1.86	0.41
5:5:989:U:O2'	5:5:990:C:OP1	2.24	0.41
5:5:1067:G:H2'	5:5:1068:G:O4'	2.20	0.41
5:5:1237:C:OP2	13:E:56:SER:HB3	2.20	0.41
5:5:1274:A:O2'	5:5:1275:G:O5'	2.34	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:1361:G:OP2	19:L:32:LYS:HE3	2.20	0.41
5:5:1836:G:OP1	27:T:130:ARG:HB2	2.21	0.41
5:5:2068:C:HO2'	5:5:2069:A:P	2.39	0.41
5:5:2260:C:O2'	5:5:2261:G:C8	2.71	0.41
5:5:2524:U:OP1	5:5:2711:G:N2	2.54	0.41
5:5:2588:C:H4'	5:5:2589:C:C5'	2.51	0.41
5:5:2605:G:H2'	5:5:2606:G:C8	2.56	0.41
5:5:2730:U:H2'	5:5:2731:C:C6	2.56	0.41
5:5:2744:A:H2'	5:5:2745:A:C8	2.56	0.41
5:5:3801:U:O2	5:5:4497:U:H5'	2.20	0.41
5:5:3911:C:H2'	5:5:3912:U:H6	1.84	0.41
5:5:4073:A:H2'	5:5:4074:C:H5'	2.02	0.41
5:5:4172:A:C2	5:5:4173:G:C5	3.08	0.41
5:5:4458:C:H2'	5:5:4459:U:C6	2.56	0.41
5:5:4526:U:C5	5:5:4527:G:C6	3.09	0.41
5:5:4761:G:H8	5:5:4761:G:O5'	2.04	0.41
5:5:4968:A:C6	5:5:4969:C:C4	3.09	0.41
5:5:4977:A:C2	5:5:4978:G:C4	3.08	0.41
5:5:5042:A:C6	5:5:5043:A:C6	3.09	0.41
8:8:23:C:OP1	32:Y:15:ARG:NH2	2.46	0.41
8:8:70:G:C5	8:8:87:G:C2	3.09	0.41
10:B:389:MET:H	10:B:389:MET:HG2	1.50	0.41
11:C:78:ARG:HG2	11:C:78:ARG:NH1	2.35	0.41
11:C:339:THR:CA	11:C:342:ARG:HB3	2.51	0.41
11:C:339:THR:N	11:C:342:ARG:HB3	2.35	0.41
12:D:157:ASN:ND2	12:D:159:VAL:HB	2.33	0.41
12:D:195:HIS:O	12:D:199:ILE:HB	2.20	0.41
12:D:208:MET:HE2	12:D:233:PRO:HD3	2.02	0.41
13:E:232:GLU:HA	13:E:234:GLU:HG2	2.03	0.41
14:F:119:ILE:HG12	14:F:120:PHE:N	2.36	0.41
15:G:182:CYS:HA	15:G:226:TYR:HD2	1.82	0.41
16:H:93:ARG:HG3	16:H:182:SER:HB3	2.03	0.41
18:J:90:ARG:O	18:J:93:GLU:HG2	2.20	0.41
20:M:69:ARG:HH21	20:M:71:LYS:HZ1	1.69	0.41
23:P:64:ASN:HB2	23:P:80:GLN:OE1	2.21	0.41
23:P:67:VAL:HA	23:P:82:ARG:HH21	1.85	0.41
23:P:115:GLU:HG3	23:P:116:HIS:N	2.35	0.41
24:Q:132:LYS:HE3	24:Q:132:LYS:HB3	1.93	0.41
24:Q:146:ARG:CB	24:Q:146:ARG:HH11	2.34	0.41
24:Q:177:ALA:HB3	34:a:51:GLY:O	2.21	0.41
25:R:34:ASN:OD1	25:R:34:ASN:N	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:S:54:MET:HE3	26:S:54:MET:HB2	1.86	0.41
26:S:83:ARG:HD2	27:T:156:TYR:HB2	2.03	0.41
26:S:84:TYR:H	26:S:84:TYR:HD1	1.68	0.41
26:S:128:LYS:HE2	26:S:128:LYS:HB2	1.60	0.41
26:S:140:PRO:HA	26:S:143:LYS:CB	2.51	0.41
27:T:54:HIS:CE1	27:T:55:LYS:HG2	2.55	0.41
31:X:119:ILE:HD12	31:X:149:VAL:HG21	2.02	0.41
36:c:93:THR:HG22	36:c:94:LEU:N	2.36	0.41
40:g:76:ARG:NH1	40:g:84:ALA:HB2	2.35	0.41
41:h:28:LEU:HD11	41:h:51:ARG:HG3	2.03	0.41
41:h:63:GLN:O	41:h:67:GLU:HB2	2.20	0.41
53:u:155:ARG:NH1	53:u:158:LYS:NZ	2.68	0.41
53:u:232:GLN:O	53:u:236:GLU:HB2	2.21	0.41
54:v:95:SER:OG	57:y:11:GLY:O	2.38	0.41
55:w:55:GLN:O	55:w:57:GLN:N	2.54	0.41
56:x:232:GLN:O	56:x:236:PHE:HD1	2.03	0.41
57:y:19:GLN:HB3	57:y:25:CYS:H	1.86	0.41
57:y:75:THR:O	57:y:79:VAL:HG23	2.21	0.41
57:y:439:PHE:HB2	57:y:471:LEU:HD21	2.02	0.41
57:y:528:ALA:O	57:y:532:THR:OG1	2.34	0.41
1:1:120:G:OP2	53:u:86:ARG:HD2	2.21	0.41
1:1:232:G:H22	57:y:521:ALA:HB3	1.85	0.41
2:2:14:A:N1	2:2:22:U:H1'	2.36	0.41
3:3:32:LEU:HD22	3:3:113:ARG:HD3	2.03	0.41
3:3:47:LYS:O	3:3:103:ARG:HG3	2.21	0.41
5:5:514:U:OP1	5:5:515:C:H5''	2.21	0.41
5:5:650:C:H2'	5:5:651:C:H6	1.83	0.41
5:5:1380:G:N3	5:5:1382:G:C5	2.89	0.41
5:5:2287:G:O6	34:a:10:LYS:HE2	2.20	0.41
5:5:3802:U:O2'	5:5:3803:A:H5'	2.21	0.41
5:5:4112:C:H2'	5:5:4113:U:O4'	2.21	0.41
5:5:4305:G:H1	27:T:87:LYS:HZ2	1.69	0.41
5:5:4340:U:H4'	24:Q:178:ARG:HG3	2.03	0.41
5:5:4481:U:H2'	5:5:4482:U:C6	2.56	0.41
9:A:163:ARG:HB2	9:A:163:ARG:NH1	2.34	0.41
10:B:365:LEU:HD13	10:B:368:ILE:HD11	2.03	0.41
11:C:338:ASN:C	11:C:340:ILE:N	2.76	0.41
14:F:198:THR:O	14:F:199:VAL:C	2.64	0.41
16:H:180:TYR:CD2	46:m:89:TYR:HD2	2.31	0.41
26:S:84:TYR:HE1	26:S:91:HIS:HB2	1.85	0.41
38:e:44:ARG:O	38:e:49:PHE:HB2	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:h:89:ARG:HA	41:h:92:ARG:NH2	2.36	0.41
44:k:21:LYS:HA	44:k:64:LEU:HD11	2.03	0.41
50:q:16:ILE:HD13	50:q:101:ARG:HG2	2.02	0.41
57:y:527:ASN:CG	57:y:530:LEU:HD12	2.46	0.41
57:y:584:ILE:O	57:y:611:VAL:N	2.54	0.41
3:3:6:GLN:O	3:3:10:VAL:HG23	2.21	0.40
5:5:478:G:H1	5:5:676:C:N4	2.18	0.40
5:5:1264:C:H2'	5:5:1265:G:O4'	2.21	0.40
5:5:1283:G:H8	5:5:1283:G:H3'	1.85	0.40
5:5:1724:G:O6	35:b:14:ARG:HA	2.20	0.40
5:5:2463:G:C6	5:5:2464:C:N4	2.89	0.40
5:5:2607:C:H5''	25:R:96:MET:CE	2.51	0.40
5:5:2828:U:HO2'	5:5:2829:U:P	2.44	0.40
5:5:4129:G:C6	5:5:4130:C:C4	3.09	0.40
5:5:4219:A:OP2	27:T:3:ASN:ND2	2.54	0.40
5:5:4909:A:O2'	5:5:4910:G:O5'	2.36	0.40
5:5:4976:U:H1'	10:B:343:ARG:HH21	1.86	0.40
12:D:67:ALA:HA	12:D:72:ASP:HB3	2.03	0.40
12:D:197:LYS:HB3	12:D:202:GLN:HB2	2.03	0.40
12:D:266:TRP:H	12:D:266:TRP:HD1	1.66	0.40
12:D:284:LYS:CD	17:I:209:TRP:HZ3	2.34	0.40
15:G:51:LEU:O	15:G:55:VAL:HG23	2.21	0.40
17:I:47:PRO:HD2	17:I:141:LYS:HA	2.02	0.40
18:J:136:ARG:HD2	18:J:155:HIS:CD2	2.57	0.40
19:L:9:ILE:HD13	19:L:9:ILE:HA	1.70	0.40
19:L:178:ALA:HB1	34:a:146:LEU:HD21	2.03	0.40
25:R:46:LYS:HE3	25:R:46:LYS:HB2	1.77	0.40
25:R:60:ARG:HH11	25:R:60:ARG:CG	2.29	0.40
44:k:29:LYS:O	44:k:30:ASP:CG	2.64	0.40
46:m:88:LYS:HE3	46:m:88:LYS:HB3	1.83	0.40
51:r:31:LEU:HD13	51:r:54:CYS:HB2	2.02	0.40
56:x:333:TYR:OH	56:x:376:MET:HG3	2.22	0.40
1:1:126:C:H2'	1:1:127:A:O4'	2.22	0.40
4:4:5:PHE:O	4:4:5:PHE:CG	2.74	0.40
5:5:55:G:O2'	21:N:162:ARG:HD2	2.21	0.40
5:5:95:G:N7	19:L:11:LYS:HE2	2.37	0.40
5:5:290:U:H2'	5:5:291:U:C6	2.56	0.40
5:5:469:C:N3	5:5:470:A:C5	2.89	0.40
5:5:483:G:C2	5:5:484:U:C4	3.09	0.40
5:5:943:A:H3'	14:F:150:LYS:HB2	2.03	0.40
5:5:982:U:C6	13:E:67:ARG:HG3	2.55	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:1197:C:H2'	5:5:1198:G:O4'	2.21	0.40
5:5:1237:C:O2	13:E:55:ARG:HD3	2.21	0.40
5:5:1801:A:H4'	27:T:102:ARG:NH1	2.36	0.40
5:5:1999:A:H5'	5:5:2019:C:H4'	2.02	0.40
5:5:2117:G:H1'	14:F:51:LEU:HD13	2.03	0.40
5:5:2669:C:H1'	5:5:2670:C:O4'	2.21	0.40
5:5:4178:A:H2'	5:5:4179:G:H8	1.86	0.40
5:5:4254:G:N3	5:5:4254:G:H2'	2.36	0.40
5:5:4291:G:H2'	5:5:4328:G:H21	1.86	0.40
9:A:183:GLY:O	9:A:187:HIS:HB2	2.21	0.40
9:A:227:ARG:HB2	9:A:239:ALA:HB2	2.04	0.40
11:C:184:TYR:CE1	11:C:225:PRO:HG2	2.56	0.40
12:D:123:VAL:HG22	12:D:248:ARG:NH2	2.36	0.40
12:D:278:ASP:O	12:D:282:GLN:HG2	2.20	0.40
13:E:177:LEU:H	13:E:177:LEU:HG	1.77	0.40
13:E:208:LEU:HA	13:E:208:LEU:HD23	1.82	0.40
15:G:30:LEU:HD13	15:G:30:LEU:HA	1.95	0.40
15:G:161:VAL:HG11	15:G:167:VAL:HG23	2.03	0.40
18:J:63:ARG:O	18:J:66:GLU:HB3	2.21	0.40
19:L:46:ILE:O	19:L:49:ARG:HB2	2.21	0.40
32:Y:62:TYR:CE2	32:Y:85:VAL:HG13	2.56	0.40
36:c:31:TYR:HE2	36:c:56:ARG:HB3	1.86	0.40
37:d:50:ARG:O	37:d:54:MET:HG2	2.21	0.40
51:r:32:LYS:O	51:r:36:LYS:HG3	2.22	0.40
53:u:205:ILE:HG12	53:u:209:ASN:ND2	2.36	0.40
54:v:141:PHE:HE2	54:v:155:VAL:HG13	1.86	0.40
58:z:76:VAL:HG23	58:z:77:ASN:OD1	2.21	0.40
1:1:142:U:H5	50:q:29:ILE:HD13	1.87	0.40
1:1:207:C:H4'	56:x:405:ARG:HG2	2.03	0.40
4:4:148:PRO:HD2	4:4:149:HIS:CD2	2.55	0.40
5:5:1:C:H4'	5:5:2:G:OP1	2.21	0.40
5:5:99:A:H2'	5:5:100:C:O2	2.21	0.40
5:5:111:C:C2	5:5:331:G:C2	3.10	0.40
5:5:125:C:O2'	5:5:126:C:OP1	2.30	0.40
5:5:665:C:H3'	5:5:666:G:C5'	2.50	0.40
5:5:693:C:O2'	5:5:694:C:OP1	2.34	0.40
5:5:709:C:N4	5:5:1287:G:H1	2.20	0.40
5:5:756:G:OP1	16:H:50:LYS:HB3	2.20	0.40
5:5:1081:C:C2	5:5:1220:G:C2	3.09	0.40
5:5:1442:C:C2	5:5:1443:A:C8	3.10	0.40
5:5:1442:C:H2'	5:5:1443:A:H8	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:1933:G:H8	5:5:1933:G:O5'	2.05	0.40
5:5:2321:G:C8	5:5:2322:G:H1'	2.56	0.40
5:5:2769:U:OP1	40:g:68:SER:HA	2.21	0.40
5:5:4119:C:HO2'	5:5:4120:U:P	2.44	0.40
5:5:4677:U:O2'	10:B:352:LEU:HG	2.21	0.40
5:5:4755:G:N2	5:5:4878:C:N3	2.60	0.40
5:5:4762:A:H2	26:S:173:ASN:HA	1.86	0.40
5:5:5002:U:O2'	5:5:5003:U:H5'	2.21	0.40
9:A:54:ARG:HG2	9:A:56:ALA:H	1.86	0.40
9:A:92:LYS:HE3	9:A:93:LYS:HE2	2.02	0.40
11:C:23:THR:HG22	11:C:24:LEU:N	2.36	0.40
11:C:44:LEU:HD23	11:C:44:LEU:HA	1.90	0.40
13:E:157:ARG:CZ	13:E:271:PHE:HB2	2.52	0.40
16:H:12:ILE:HD12	16:H:13:PRO:HD2	2.03	0.40
21:N:158:HIS:HB3	21:N:161:MET:HG3	2.03	0.40
25:R:171:LYS:O	25:R:175:GLU:HB3	2.21	0.40
29:V:20:LEU:HA	29:V:20:LEU:HD23	1.76	0.40
29:V:97:TYR:CE2	30:W:21:TYR:CD2	3.09	0.40
31:X:155:ILE:O	31:X:156:ILE:HB	2.20	0.40
43:j:76:HIS:C	43:j:79:ARG:HH11	2.29	0.40
44:k:18:LYS:HE3	44:k:18:LYS:HB3	1.72	0.40
48:o:77:CYS:O	48:o:79:SER:N	2.55	0.40
50:q:68:TYR:HB3	50:q:71:GLU:CB	2.50	0.40
51:r:576:ARG:O	51:r:577:TRP:HB3	2.20	0.40
53:u:83:TYR:OH	53:u:87:ARG:NH1	2.54	0.40
53:u:205:ILE:HB	53:u:244:CYS:HB2	2.03	0.40
5:5:134:G:N2	41:h:85:PRO:HA	2.36	0.40
5:5:1071:C:N4	13:E:61:ARG:O	2.33	0.40
5:5:1171:G:C6	5:5:1172:C:C4	3.09	0.40
5:5:1283:G:H3'	5:5:1283:G:C8	2.55	0.40
5:5:1427:A:H3'	5:5:1428:U:C6	2.57	0.40
5:5:1676:C:O2'	5:5:3914:U:N3	2.43	0.40
5:5:1755:C:H41	5:5:1778:C:H4'	1.86	0.40
5:5:1830:G:H4'	35:b:65:MET:HE2	2.03	0.40
5:5:1937:C:H3'	5:5:1938:C:H2'	2.02	0.40
5:5:1975:G:N2	5:5:1983:A:OP1	2.54	0.40
5:5:2068:C:C2'	5:5:2069:A:H5''	2.50	0.40
5:5:2320:G:N2	5:5:2321:G:N2	2.69	0.40
5:5:2447:U:O2'	5:5:2510:G:N1	2.51	0.40
5:5:2827:G:N3	5:5:2827:G:H2'	2.37	0.40
5:5:3619:G:H22	5:5:3624:A:H1'	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:3651:A:H2'	5:5:3652:A:O4'	2.21	0.40
5:5:3655:C:H2'	5:5:3656:A:O4'	2.21	0.40
5:5:4184:G:OP1	9:A:233:ARG:HG3	2.21	0.40
5:5:4697:U:H5'	5:5:4698:C:OP2	2.22	0.40
5:5:4723:A:O2'	10:B:101:THR:HG23	2.20	0.40
5:5:5032:C:N4	5:5:5033:G:C6	2.90	0.40
10:B:314:ILE:HG13	10:B:314:ILE:H	1.58	0.40
11:C:50:GLN:HA	11:C:51:PRO:HD3	1.88	0.40
11:C:183:VAL:HG22	11:C:204:ARG:HB2	2.03	0.40
12:D:45:ASN:HD22	12:D:45:ASN:HA	1.65	0.40
17:I:47:PRO:HB3	17:I:171:TRP:CZ2	2.55	0.40
17:I:90:ARG:HD2	17:I:137:SER:OG	2.21	0.40
19:L:183:ARG:HD2	19:L:183:ARG:HA	1.88	0.40
20:M:3:PHE:CE1	26:S:155:PRO:HA	2.57	0.40
21:N:66:VAL:HG11	21:N:98:LEU:HD22	2.03	0.40
21:N:108:ARG:HH11	21:N:108:ARG:HG2	1.86	0.40
21:N:192:TRP:CE3	21:N:196:ASN:HB2	2.56	0.40
23:P:36:ILE:O	23:P:36:ILE:HG12	2.21	0.40
48:o:92:GLU:O	48:o:93:LEU:HD12	2.21	0.40
51:r:52:VAL:HG11	51:r:68:ILE:HD11	2.02	0.40
53:u:181:LEU:HB3	53:u:218:LEU:HD22	2.03	0.40
1:1:188:G:H2'	1:1:189:C:O4'	2.21	0.40
1:1:228:A:H2'	1:1:229:U:H6	1.85	0.40
2:2:9:A:C4'	2:2:46:G:H1'	2.51	0.40
2:2:64:G:H2'	2:2:65:G:O4'	2.21	0.40
5:5:146:G:H2'	5:5:147:A:H8	1.86	0.40
5:5:279:A:OP1	21:N:47:LYS:HE2	2.21	0.40
5:5:679:C:H2'	5:5:680:G:O4'	2.21	0.40
5:5:747:A:O2'	5:5:748:G:P	2.79	0.40
5:5:1066:G:C6	5:5:1067:G:C5	3.09	0.40
5:5:1281:G:H4'	5:5:1282:G:OP1	2.21	0.40
5:5:1359:G:C2	5:5:1381:U:O4	2.74	0.40
5:5:1984:A:N7	5:5:2011:C:H4'	2.37	0.40
5:5:2089:G:O6	5:5:2263:A:C8	2.74	0.40
5:5:2263:A:H4'	5:5:2264:C:OP1	2.16	0.40
5:5:2908:U:H2'	5:5:2909:C:H6	1.87	0.40
5:5:4138:C:C2	5:5:4139:G:C8	3.10	0.40
5:5:4582:C:H2'	5:5:4583:C:O4'	2.21	0.40
5:5:4748:U:H2'	5:5:4749:C:O4'	2.21	0.40
6:6:121:VAL:HG21	6:6:183:PHE:CZ	2.56	0.40
9:A:32:VAL:HG12	9:A:163:ARG:HE	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:C:172:LYS:HB2	11:C:173:LYS:NZ	2.35	0.40
12:D:130:TYR:HE2	12:D:132:VAL:HG22	1.86	0.40
15:G:97:LYS:HB2	15:G:97:LYS:HE2	1.83	0.40
17:I:101:LYS:HE2	17:I:121:LYS:HG2	2.03	0.40
17:I:108:ALA:O	17:I:109:ASP:HB2	2.20	0.40
18:J:87:LEU:H	18:J:87:LEU:HG	1.71	0.40
18:J:136:ARG:HB2	18:J:139:PHE:HE2	1.87	0.40
24:Q:89:ASP:O	24:Q:92:VAL:HG12	2.22	0.40
26:S:13:VAL:HA	26:S:28:TYR:O	2.21	0.40
26:S:60:GLU:HB3	27:T:136:ARG:NH2	2.37	0.40
29:V:82:ILE:HG23	29:V:121:VAL:HG13	2.02	0.40
31:X:144:TYR:HD1	31:X:144:TYR:HA	1.64	0.40
32:Y:82:ILE:HG22	32:Y:83:GLU:N	2.25	0.40
34:a:82:VAL:HG21	34:a:101:ILE:HG12	2.04	0.40
36:c:28:VAL:CG1	36:c:33:GLN:HB3	2.51	0.40
37:d:33:ILE:HD11	37:d:45:ALA:HB2	2.04	0.40
37:d:53:ALA:HB2	37:d:88:LEU:HD11	2.04	0.40
38:e:109:LYS:HB3	38:e:109:LYS:NZ	2.37	0.40
41:h:58:LEU:HA	41:h:61:ILE:HD12	2.04	0.40
41:h:93:ARG:HG3	41:h:93:ARG:NH1	2.36	0.40
42:i:12:ASN:ND2	42:i:12:ASN:N	2.63	0.40
50:q:59:ASN:ND2	50:q:85:GLN:OE1	2.55	0.40
54:v:111:ASN:HB2	54:v:271:ALA:HB1	2.02	0.40
54:v:138:ALA:HB1	54:v:266:TRP:CH2	2.56	0.40
56:x:340:MET:HG3	56:x:369:MET:HA	2.04	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	3	123/125 (98%)	109 (89%)	14 (11%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	4	161/163 (99%)	108 (67%)	46 (29%)	7 (4%)	2	20
6	6	200/202 (99%)	158 (79%)	40 (20%)	2 (1%)	13	44
9	A	242/244 (99%)	203 (84%)	38 (16%)	1 (0%)	30	62
10	B	392/394 (100%)	334 (85%)	55 (14%)	3 (1%)	16	49
11	C	365/367 (100%)	317 (87%)	46 (13%)	2 (0%)	25	57
12	D	290/292 (99%)	252 (87%)	36 (12%)	2 (1%)	19	51
13	E	232/236 (98%)	171 (74%)	56 (24%)	5 (2%)	5	32
14	F	223/225 (99%)	202 (91%)	21 (9%)	0	100	100
15	G	236/238 (99%)	209 (89%)	27 (11%)	0	100	100
16	H	188/190 (99%)	164 (87%)	21 (11%)	3 (2%)	8	37
17	I	211/213 (99%)	188 (89%)	19 (9%)	4 (2%)	6	35
18	J	168/170 (99%)	145 (86%)	23 (14%)	0	100	100
19	L	208/210 (99%)	175 (84%)	30 (14%)	3 (1%)	9	39
20	M	136/138 (99%)	118 (87%)	17 (12%)	1 (1%)	19	51
21	N	201/203 (99%)	179 (89%)	21 (10%)	1 (0%)	25	57
22	O	199/201 (99%)	186 (94%)	11 (6%)	2 (1%)	13	44
23	P	151/153 (99%)	138 (91%)	13 (9%)	0	100	100
24	Q	185/187 (99%)	164 (89%)	21 (11%)	0	100	100
25	R	178/180 (99%)	160 (90%)	18 (10%)	0	100	100
26	S	173/175 (99%)	151 (87%)	20 (12%)	2 (1%)	11	41
27	T	157/159 (99%)	138 (88%)	18 (12%)	1 (1%)	22	54
28	U	97/99 (98%)	83 (86%)	13 (13%)	1 (1%)	13	44
29	V	129/131 (98%)	123 (95%)	6 (5%)	0	100	100
30	W	61/63 (97%)	60 (98%)	1 (2%)	0	100	100
31	X	117/119 (98%)	110 (94%)	7 (6%)	0	100	100
32	Y	132/134 (98%)	120 (91%)	12 (9%)	0	100	100
33	Z	133/135 (98%)	119 (90%)	14 (10%)	0	100	100
34	a	145/147 (99%)	122 (84%)	23 (16%)	0	100	100
35	b	73/75 (97%)	64 (88%)	9 (12%)	0	100	100
36	c	92/94 (98%)	82 (89%)	10 (11%)	0	100	100
37	d	105/107 (98%)	89 (85%)	15 (14%)	1 (1%)	13	44

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
38	e	126/128 (98%)	116 (92%)	10 (8%)	0	100	100
39	f	107/109 (98%)	94 (88%)	13 (12%)	0	100	100
40	g	112/114 (98%)	106 (95%)	6 (5%)	0	100	100
41	h	120/122 (98%)	111 (92%)	9 (8%)	0	100	100
42	i	100/102 (98%)	95 (95%)	5 (5%)	0	100	100
43	j	84/86 (98%)	72 (86%)	12 (14%)	0	100	100
44	k	67/69 (97%)	54 (81%)	13 (19%)	0	100	100
45	l	48/50 (96%)	38 (79%)	10 (21%)	0	100	100
46	m	50/52 (96%)	46 (92%)	4 (8%)	0	100	100
47	n	21/23 (91%)	21 (100%)	0	0	100	100
48	o	102/104 (98%)	87 (85%)	13 (13%)	2 (2%)	6	34
49	p	89/91 (98%)	82 (92%)	7 (8%)	0	100	100
50	q	103/105 (98%)	99 (96%)	4 (4%)	0	100	100
51	r	172/605 (28%)	156 (91%)	15 (9%)	1 (1%)	22	54
52	t	9/11 (82%)	9 (100%)	0	0	100	100
53	u	214/568 (38%)	207 (97%)	7 (3%)	0	100	100
54	v	182/213 (85%)	174 (96%)	8 (4%)	0	100	100
55	w	72/74 (97%)	63 (88%)	9 (12%)	0	100	100
56	x	368/504 (73%)	361 (98%)	7 (2%)	0	100	100
57	y	418/657 (64%)	389 (93%)	26 (6%)	3 (1%)	19	51
58	z	72/110 (66%)	71 (99%)	1 (1%)	0	100	100
All	All	8339/9666 (86%)	7392 (89%)	900 (11%)	47 (1%)	24	54

All (47) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	4	96	LYS
4	4	106	PHE
10	B	389	MET
13	E	153	HIS
16	H	60	TRP
16	H	61	TRP
17	I	77	VAL
17	I	78	LYS
22	O	111	PRO

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Mol	Chain	Res	Type
51	r	570	VAL
4	4	95	GLN
16	H	52	LYS
17	I	79	SER
48	o	97	LYS
4	4	142	ASN
10	B	388	PHE
13	E	42	ARG
13	E	234	GLU
17	I	102	MET
22	O	110	PRO
48	o	78	ARG
57	y	24	SER
57	y	405	LEU
11	C	23	THR
11	C	198	ASN
12	D	124	GLU
19	L	47	ALA
20	M	70	GLN
21	N	77	LYS
37	d	103	TYR
4	4	3	PRO
4	4	30	PRO
9	A	197	PRO
12	D	125	VAL
26	S	146	HIS
27	T	18	PRO
10	B	111	SER
26	S	165	PRO
4	4	2	PRO
6	6	108	PRO
13	E	43	ASN
19	L	62	PRO
19	L	169	ILE
28	U	51	GLY
57	y	73	ILE
13	E	127	LYS
6	6	132	PRO

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	
3	3	109/109 (100%)	88 (81%)	21 (19%)	1	8
4	4	136/136 (100%)	117 (86%)	19 (14%)	3	17
6	6	170/170 (100%)	146 (86%)	24 (14%)	3	17
9	A	187/187 (100%)	149 (80%)	38 (20%)	1	7
10	B	335/335 (100%)	269 (80%)	66 (20%)	1	7
11	C	305/305 (100%)	239 (78%)	66 (22%)	1	6
12	D	246/247 (100%)	192 (78%)	54 (22%)	1	6
13	E	209/209 (100%)	159 (76%)	50 (24%)	0	4
14	F	194/194 (100%)	155 (80%)	39 (20%)	1	7
15	G	204/206 (99%)	170 (83%)	34 (17%)	2	12
16	H	169/169 (100%)	138 (82%)	31 (18%)	1	8
17	I	180/180 (100%)	142 (79%)	38 (21%)	1	6
18	J	143/143 (100%)	113 (79%)	30 (21%)	1	6
19	L	176/176 (100%)	142 (81%)	34 (19%)	1	8
20	M	116/116 (100%)	95 (82%)	21 (18%)	1	9
21	N	171/171 (100%)	139 (81%)	32 (19%)	1	8
22	O	172/172 (100%)	146 (85%)	26 (15%)	2	15
23	P	134/134 (100%)	111 (83%)	23 (17%)	1	11
24	Q	163/163 (100%)	131 (80%)	32 (20%)	1	7
25	R	159/159 (100%)	125 (79%)	34 (21%)	1	6
26	S	156/156 (100%)	125 (80%)	31 (20%)	1	7
27	T	139/139 (100%)	110 (79%)	29 (21%)	1	6
28	U	89/89 (100%)	74 (83%)	15 (17%)	1	11
29	V	101/101 (100%)	89 (88%)	12 (12%)	4	21
30	W	55/55 (100%)	44 (80%)	11 (20%)	1	7
31	X	107/107 (100%)	89 (83%)	18 (17%)	1	11

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
32	Y	124/124 (100%)	101 (82%)	23 (18%)	1	8
33	Z	117/117 (100%)	94 (80%)	23 (20%)	1	7
34	a	119/119 (100%)	98 (82%)	21 (18%)	1	10
35	b	63/63 (100%)	50 (79%)	13 (21%)	1	6
36	c	79/79 (100%)	64 (81%)	15 (19%)	1	8
37	d	98/98 (100%)	67 (68%)	31 (32%)	0	1
38	e	114/114 (100%)	90 (79%)	24 (21%)	1	6
39	f	88/88 (100%)	74 (84%)	14 (16%)	2	13
40	g	98/98 (100%)	80 (82%)	18 (18%)	1	8
41	h	109/109 (100%)	94 (86%)	15 (14%)	3	17
42	i	86/86 (100%)	76 (88%)	10 (12%)	4	22
43	j	73/73 (100%)	63 (86%)	10 (14%)	3	17
44	k	64/64 (100%)	53 (83%)	11 (17%)	1	11
45	l	47/47 (100%)	39 (83%)	8 (17%)	1	11
46	m	48/48 (100%)	38 (79%)	10 (21%)	1	6
47	n	22/22 (100%)	20 (91%)	2 (9%)	7	30
48	o	92/92 (100%)	68 (74%)	24 (26%)	0	3
49	p	74/74 (100%)	62 (84%)	12 (16%)	2	12
50	q	92/94 (98%)	90 (98%)	2 (2%)	47	65
51	r	158/503 (31%)	152 (96%)	6 (4%)	28	53
52	t	11/11 (100%)	11 (100%)	0	100	100
53	u	192/498 (39%)	185 (96%)	7 (4%)	30	55
54	v	165/183 (90%)	162 (98%)	3 (2%)	54	71
55	w	66/66 (100%)	55 (83%)	11 (17%)	2	12
56	x	317/420 (76%)	295 (93%)	22 (7%)	13	39
57	y	360/550 (66%)	322 (89%)	38 (11%)	5	25
58	z	69/100 (69%)	61 (88%)	8 (12%)	4	22
All	All	7270/8268 (88%)	6061 (83%)	1209 (17%)	4	12

All (1209) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	3	6	GLN

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Mol	Chain	Res	Type
3	3	8	MET
3	3	17	LEU
3	3	18	ILE
3	3	21	ASN
3	3	26	SER
3	3	28	GLU
3	3	31	ASN
3	3	39	ARG
3	3	56	ASP
3	3	60	VAL
3	3	63	VAL
3	3	64	ILE
3	3	67	ARG
3	3	70	GLN
3	3	71	ARG
3	3	83	ASN
3	3	97	ILE
3	3	101	LYS
3	3	106	LEU
3	3	107	ARG
4	4	1	MET
4	4	6	ASP
4	4	9	GLU
4	4	10	ILE
4	4	14	TYR
4	4	16	ARG
4	4	22	VAL
4	4	28	LEU
4	4	35	LEU
4	4	37	LEU
4	4	40	LYS
4	4	61	LYS
4	4	96	LYS
4	4	98	ILE
4	4	104	ILE
4	4	107	ASP
4	4	147	HIS
4	4	151	ILE
4	4	160	VAL
6	6	16	LYS
6	6	22	ASP
6	6	33	ASP

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Mol	Chain	Res	Type
6	6	45	MET
6	6	50	LYS
6	6	57	LYS
6	6	62	ARG
6	6	70	GLU
6	6	77	LYS
6	6	83	ARG
6	6	91	THR
6	6	96	THR
6	6	105	ASN
6	6	127	ASN
6	6	135	THR
6	6	149	ARG
6	6	155	LEU
6	6	158	VAL
6	6	171	GLU
6	6	188	VAL
6	6	191	GLN
6	6	194	ASP
6	6	202	GLU
6	6	203	VAL
9	A	3	ARG
9	A	5	ILE
9	A	19	HIS
9	A	34	PHE
9	A	44	ILE
9	A	50	HIS
9	A	64	ARG
9	A	84	THR
9	A	95	GLN
9	A	101	VAL
9	A	102	LEU
9	A	109	GLU
9	A	112	ILE
9	A	113	VAL
9	A	115	CYS
9	A	128	ARG
9	A	142	GLU
9	A	144	LYS
9	A	147	ARG
9	A	163	ARG
9	A	165	VAL

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Mol	Chain	Res	Type
9	A	181	LYS
9	A	187	HIS
9	A	190	LYS
9	A	192	LYS
9	A	193	ARG
9	A	200	ARG
9	A	202	VAL
9	A	207	VAL
9	A	208	GLU
9	A	218	HIS
9	A	221	LYS
9	A	225	ILE
9	A	226	ARG
9	A	227	ARG
9	A	233	ARG
9	A	242	ARG
9	A	243	THR
10	B	4	ARG
10	B	10	ARG
10	B	17	LEU
10	B	35	ASP
10	B	39	LYS
10	B	54	THR
10	B	56	ILE
10	B	60	VAL
10	B	61	ASP
10	B	62	ARG
10	B	74	GLU
10	B	78	ILE
10	B	81	THR
10	B	89	ILE
10	B	95	THR
10	B	101	THR
10	B	102	PHE
10	B	103	LYS
10	B	104	THR
10	B	116	ARG
10	B	117	ARG
10	B	119	TYR
10	B	123	HIS
10	B	138	GLN
10	B	146	LEU

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Mol	Chain	Res	Type
10	B	154	LYS
10	B	157	CYS
10	B	158	GLN
10	B	166	THR
10	B	198	ARG
10	B	201	LEU
10	B	203	GLN
10	B	207	VAL
10	B	208	ASN
10	B	213	GLN
10	B	231	VAL
10	B	234	ARG
10	B	237	THR
10	B	248	LEU
10	B	249	ARG
10	B	261	ARG
10	B	262	VAL
10	B	264	PHE
10	B	291	TYR
10	B	299	ILE
10	B	307	TYR
10	B	314	ILE
10	B	315	ASN
10	B	322	HIS
10	B	323	TYR
10	B	326	VAL
10	B	328	ASN
10	B	333	LEU
10	B	336	CYS
10	B	345	LEU
10	B	352	LEU
10	B	355	THR
10	B	356	LYS
10	B	357	ARG
10	B	362	LYS
10	B	366	LYS
10	B	380	GLN
10	B	381	THR
10	B	388	PHE
10	B	389	MET
10	B	392	LEU
11	C	7	LEU

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Mol	Chain	Res	Type
11	C	14	LYS
11	C	16	GLU
11	C	29	LYS
11	C	33	ARG
11	C	36	ILE
11	C	60	HIS
11	C	61	GLN
11	C	71	ARG
11	C	80	ARG
11	C	84	THR
11	C	86	ARG
11	C	92	PHE
11	C	94	ASN
11	C	96	CYS
11	C	100	ARG
11	C	107	THR
11	C	115	VAL
11	C	128	LEU
11	C	140	LYS
11	C	150	LEU
11	C	156	ASP
11	C	159	GLU
11	C	165	LYS
11	C	173	LYS
11	C	175	LYS
11	C	177	TRP
11	C	184	TYR
11	C	188	ARG
11	C	193	LYS
11	C	195	LYS
11	C	196	MET
11	C	198	ASN
11	C	201	ARG
11	C	210	ILE
11	C	212	ASN
11	C	218	ILE
11	C	222	ARG
11	C	224	ILE
11	C	232	VAL
11	C	233	SER
11	C	246	VAL
11	C	254	GLU

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Mol	Chain	Res	Type
11	C	259	LYS
11	C	262	GLU
11	C	264	TYR
11	C	266	THR
11	C	267	TRP
11	C	273	LEU
11	C	276	ASN
11	C	281	MET
11	C	288	ASP
11	C	291	ARG
11	C	307	LYS
11	C	309	ILE
11	C	311	ARG
11	C	312	ARG
11	C	313	VAL
11	C	319	LEU
11	C	321	ASN
11	C	333	LYS
11	C	335	MET
11	C	341	LEU
11	C	342	ARG
11	C	345	ARG
11	C	350	ARG
12	D	23	ARG
12	D	30	TYR
12	D	35	ARG
12	D	36	LEU
12	D	37	VAL
12	D	42	ASN
12	D	44	TYR
12	D	45	ASN
12	D	46	THR
12	D	50	ARG
12	D	51	MET
12	D	59	ASP
12	D	72	ASP
12	D	73	MET
12	D	82	GLU
12	D	85	LYS
12	D	92	LEU
12	D	94	ASN
12	D	100	CYS

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Mol	Chain	Res	Type
12	D	104	LEU
12	D	110	LEU
12	D	112	ARG
12	D	113	PHE
12	D	118	ILE
12	D	119	TYR
12	D	120	GLU
12	D	124	GLU
12	D	125	VAL
12	D	131	ASN
12	D	163	LEU
12	D	179	ARG
12	D	189	GLU
12	D	190	PHE
12	D	193	GLU
12	D	196	ARG
12	D	199	ILE
12	D	202	GLN
12	D	211	LEU
12	D	216	GLU
12	D	219	TYR
12	D	223	PHE
12	D	239	MET
12	D	254	GLU
12	D	255	LYS
12	D	256	LYS
12	D	259	LYS
12	D	260	GLU
12	D	262	LYS
12	D	264	LYS
12	D	266	TRP
12	D	279	ARG
12	D	284	LYS
12	D	291	GLN
12	D	293	ARG
13	E	39	HIS
13	E	40	CYS
13	E	46	LEU
13	E	52	ARG
13	E	64	MET
13	E	85	LEU
13	E	92	VAL

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Mol	Chain	Res	Type
13	E	101	ARG
13	E	102	VAL
13	E	104	LYS
13	E	106	ARG
13	E	112	TYR
13	E	114	THR
13	E	119	ARG
13	E	133	VAL
13	E	134	ARG
13	E	136	LEU
13	E	140	ILE
13	E	145	ILE
13	E	154	ARG
13	E	157	ARG
13	E	158	VAL
13	E	166	SER
13	E	171	VAL
13	E	175	LEU
13	E	177	LEU
13	E	178	ASN
13	E	179	ARG
13	E	190	VAL
13	E	197	ILE
13	E	203	LYS
13	E	204	ILE
13	E	206	LYS
13	E	217	LYS
13	E	225	GLU
13	E	228	ILE
13	E	233	LYS
13	E	238	ILE
13	E	241	GLN
13	E	246	GLN
13	E	254	LEU
13	E	255	ARG
13	E	256	ARG
13	E	257	ILE
13	E	262	GLN
13	E	270	VAL
13	E	274	THR
13	E	277	ILE
13	E	282	LEU

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Mol	Chain	Res	Type
13	E	284	PHE
14	F	27	PHE
14	F	34	ARG
14	F	38	LYS
14	F	44	LEU
14	F	49	ARG
14	F	51	LEU
14	F	68	ARG
14	F	69	THR
14	F	72	ARG
14	F	82	ASN
14	F	85	VAL
14	F	90	LYS
14	F	91	LEU
14	F	100	ILE
14	F	101	ASN
14	F	103	VAL
14	F	104	SER
14	F	109	LYS
14	F	119	ILE
14	F	120	PHE
14	F	121	ASN
14	F	133	ASN
14	F	137	ILE
14	F	148	ASN
14	F	153	ASN
14	F	154	GLU
14	F	192	LEU
14	F	194	HIS
14	F	195	GLU
14	F	201	LYS
14	F	202	ARG
14	F	209	PHE
14	F	224	LYS
14	F	234	ASP
14	F	239	GLU
14	F	240	ASP
14	F	245	LEU
14	F	247	ARG
14	F	250	ASN
15	G	28	VAL
15	G	31	LEU

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Mol	Chain	Res	Type
15	G	38	ASN
15	G	46	GLN
15	G	67	ARG
15	G	71	TYR
15	G	75	LYS
15	G	87	LEU
15	G	88	ASP
15	G	100	HIS
15	G	101	LYS
15	G	103	ARG
15	G	112	GLN
15	G	131	LYS
15	G	140	VAL
15	G	141	ASN
15	G	150	LYS
15	G	154	LEU
15	G	162	ASP
15	G	167	VAL
15	G	170	LEU
15	G	175	ARG
15	G	176	LYS
15	G	177	MET
15	G	189	ARG
15	G	202	VAL
15	G	210	GLU
15	G	212	LYS
15	G	215	LEU
15	G	223	ARG
15	G	230	TYR
15	G	240	ASN
15	G	259	LYS
15	G	261	LEU
16	H	4	ILE
16	H	11	ASP
16	H	16	VAL
16	H	20	LEU
16	H	41	ILE
16	H	42	ASN
16	H	50	LYS
16	H	51	LYS
16	H	52	LYS
16	H	57	VAL

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Mol	Chain	Res	Type
16	H	59	LYS
16	H	74	CYS
16	H	84	VAL
16	H	85	THR
16	H	92	MET
16	H	95	VAL
16	H	104	VAL
16	H	105	ILE
16	H	106	GLN
16	H	107	GLU
16	H	111	LEU
16	H	113	GLU
16	H	118	LEU
16	H	123	ILE
16	H	125	ARG
16	H	128	MET
16	H	140	GLN
16	H	141	LYS
16	H	161	ILE
16	H	168	LYS
16	H	173	ARG
17	I	8	CYS
17	I	13	LYS
17	I	21	ARG
17	I	28	ASP
17	I	35	ASP
17	I	36	LEU
17	I	39	LYS
17	I	43	VAL
17	I	45	GLU
17	I	46	PHE
17	I	48	LEU
17	I	52	MET
17	I	58	GLU
17	I	71	CYS
17	I	74	LYS
17	I	76	MET
17	I	78	LYS
17	I	80	CYS
17	I	92	HIS
17	I	94	PHE
17	I	95	HIS

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Mol	Chain	Res	Type
17	I	97	ILE
17	I	100	ASN
17	I	101	LYS
17	I	102	MET
17	I	125	THR
17	I	126	VAL
17	I	139	ARG
17	I	142	LEU
17	I	143	GLN
17	I	163	GLN
17	I	181	PHE
17	I	182	GLU
17	I	195	CYS
17	I	198	LYS
17	I	202	ASN
17	I	207	ASP
17	I	208	LYS
18	J	22	LEU
18	J	26	VAL
18	J	33	LEU
18	J	35	ARG
18	J	46	GLN
18	J	55	TYR
18	J	63	ARG
18	J	72	CYS
18	J	74	VAL
18	J	75	ARG
18	J	81	GLU
18	J	83	LEU
18	J	85	LYS
18	J	87	LEU
18	J	88	LYS
18	J	90	ARG
18	J	96	LYS
18	J	97	ASN
18	J	113	ILE
18	J	119	TYR
18	J	126	TYR
18	J	128	LEU
18	J	136	ARG
18	J	143	ASP
18	J	146	ARG

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Mol	Chain	Res	Type
18	J	154	LYS
18	J	164	ARG
18	J	168	GLN
18	J	171	ASP
18	J	173	ILE
19	L	9	ILE
19	L	10	LEU
19	L	28	GLN
19	L	34	ARG
19	L	36	ARG
19	L	45	ARG
19	L	49	ARG
19	L	58	VAL
19	L	59	VAL
19	L	64	VAL
19	L	65	ARG
19	L	67	HIS
19	L	79	GLU
19	L	83	VAL
19	L	92	ARG
19	L	101	ARG
19	L	103	ARG
19	L	111	GLN
19	L	113	ASN
19	L	115	GLN
19	L	123	LYS
19	L	130	LYS
19	L	142	GLU
19	L	148	THR
19	L	151	THR
19	L	154	VAL
19	L	159	ASN
19	L	162	LYS
19	L	163	ARG
19	L	165	LYS
19	L	168	VAL
19	L	172	GLU
19	L	175	ASN
19	L	201	GLU
20	M	8	GLU
20	M	25	VAL
20	M	33	GLN

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Mol	Chain	Res	Type
20	M	34	ASN
20	M	37	LEU
20	M	38	VAL
20	M	48	GLN
20	M	56	GLN
20	M	57	LEU
20	M	59	ASP
20	M	62	LEU
20	M	66	HIS
20	M	67	SER
20	M	71	LYS
20	M	79	LYS
20	M	89	THR
20	M	90	ARG
20	M	98	ARG
20	M	99	GLU
20	M	113	MET
20	M	119	ARG
21	N	9	GLU
21	N	24	ARG
21	N	25	VAL
21	N	26	ARG
21	N	31	ARG
21	N	32	GLN
21	N	43	THR
21	N	54	LYS
21	N	60	VAL
21	N	61	ILE
21	N	63	ARG
21	N	64	ILE
21	N	77	LYS
21	N	80	THR
21	N	85	VAL
21	N	87	HIS
21	N	89	VAL
21	N	90	ASN
21	N	92	LEU
21	N	110	CYS
21	N	123	GLU
21	N	131	GLU
21	N	142	ILE
21	N	147	ASP

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Mol	Chain	Res	Type
21	N	151	ILE
21	N	174	LEU
21	N	182	HIS
21	N	189	ARG
21	N	192	TRP
21	N	197	THR
21	N	199	GLN
21	N	203	TYR
22	O	12	ARG
22	O	16	LEU
22	O	37	ARG
22	O	38	CYS
22	O	41	ILE
22	O	42	ASN
22	O	44	SER
22	O	49	ARG
22	O	60	LYS
22	O	61	ARG
22	O	72	HIS
22	O	82	ARG
22	O	85	ARG
22	O	117	ARG
22	O	128	ARG
22	O	129	LEU
22	O	145	VAL
22	O	169	ARG
22	O	173	GLN
22	O	176	ARG
22	O	179	LYS
22	O	187	LYS
22	O	188	LYS
22	O	194	GLU
22	O	195	VAL
22	O	202	LEU
23	P	3	ARG
23	P	5	SER
23	P	9	GLU
23	P	13	LYS
23	P	22	LEU
23	P	24	VAL
23	P	30	ARG
23	P	36	ILE

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Mol	Chain	Res	Type
23	P	40	HIS
23	P	41	ILE
23	P	69	ARG
23	P	70	CYS
23	P	78	TRP
23	P	86	LYS
23	P	90	PHE
23	P	105	LYS
23	P	110	ASP
23	P	115	GLU
23	P	126	ARG
23	P	128	ARG
23	P	136	ILE
23	P	142	SER
23	P	154	GLU
24	Q	3	VAL
24	Q	4	ASP
24	Q	5	ILE
24	Q	9	LYS
24	Q	13	VAL
24	Q	15	ARG
24	Q	16	LYS
24	Q	28	LEU
24	Q	29	VAL
24	Q	31	LEU
24	Q	39	THR
24	Q	42	THR
24	Q	44	ASN
24	Q	61	LEU
24	Q	68	ARG
24	Q	72	LEU
24	Q	75	ARG
24	Q	78	LYS
24	Q	79	THR
24	Q	89	ASP
24	Q	91	ARG
24	Q	93	GLN
24	Q	97	LYS
24	Q	110	ARG
24	Q	112	ARG
24	Q	119	LYS
24	Q	126	LEU

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Mol	Chain	Res	Type
24	Q	146	ARG
24	Q	148	VAL
24	Q	162	HIS
24	Q	180	ARG
24	Q	181	ARG
25	R	6	LEU
25	R	10	LEU
25	R	15	LEU
25	R	20	LYS
25	R	23	TRP
25	R	39	GLN
25	R	40	GLN
25	R	43	LYS
25	R	47	ASP
25	R	50	ILE
25	R	66	ASN
25	R	74	ARG
25	R	75	HIS
25	R	81	ARG
25	R	89	MET
25	R	95	TRP
25	R	99	MET
25	R	103	ARG
25	R	104	ARG
25	R	105	LEU
25	R	106	LEU
25	R	108	ARG
25	R	109	TYR
25	R	113	LYS
25	R	114	LYS
25	R	117	ARG
25	R	123	LEU
25	R	130	ASN
25	R	131	VAL
25	R	138	LEU
25	R	168	GLU
25	R	172	ARG
25	R	175	GLU
25	R	177	LEU
26	S	2	LYS
26	S	8	ARG
26	S	12	VAL

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Mol	Chain	Res	Type
26	S	13	VAL
26	S	17	LEU
26	S	24	THR
26	S	44	PHE
26	S	53	LYS
26	S	68	PHE
26	S	69	GLU
26	S	70	LYS
26	S	80	ILE
26	S	82	LEU
26	S	84	TYR
26	S	90	THR
26	S	95	ARG
26	S	99	ASP
26	S	101	THR
26	S	102	THR
26	S	108	GLN
26	S	111	ARG
26	S	127	MET
26	S	128	LYS
26	S	131	GLU
26	S	146	HIS
26	S	147	ASP
26	S	150	ILE
26	S	152	PHE
26	S	159	LEU
26	S	162	GLN
26	S	174	THR
27	T	5	LYS
27	T	9	ARG
27	T	12	ARG
27	T	13	TYR
27	T	14	MET
27	T	17	ARG
27	T	30	TYR
27	T	32	ARG
27	T	33	ILE
27	T	35	LYS
27	T	41	ASP
27	T	67	VAL
27	T	70	HIS
27	T	80	VAL

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Mol	Chain	Res	Type
27	T	96	ILE
27	T	98	HIS
27	T	102	ARG
27	T	105	PHE
27	T	107	LYS
27	T	109	VAL
27	T	117	LYS
27	T	118	GLU
27	T	127	GLN
27	T	128	LEU
27	T	137	GLU
27	T	142	ARG
27	T	152	GLU
27	T	154	ILE
27	T	159	MET
28	U	27	HIS
28	U	33	ILE
28	U	40	GLU
28	U	46	ARG
28	U	47	ILE
28	U	52	LYS
28	U	62	THR
28	U	67	LYS
28	U	69	LYS
28	U	79	SER
28	U	90	TYR
28	U	97	ARG
28	U	98	ASP
28	U	100	LEU
28	U	110	TYR
29	V	15	ARG
29	V	18	LEU
29	V	30	ASP
29	V	36	ASN
29	V	40	ILE
29	V	60	MET
29	V	69	LYS
29	V	77	HIS
29	V	91	LYS
29	V	96	LEU
29	V	111	GLU
29	V	123	LYS

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Mol	Chain	Res	Type
30	W	2	LYS
30	W	3	VAL
30	W	8	PHE
30	W	12	LYS
30	W	17	HIS
30	W	24	THR
30	W	28	VAL
30	W	33	ASN
30	W	37	GLU
30	W	50	ASN
30	W	55	TYR
31	X	39	LYS
31	X	41	ARG
31	X	45	THR
31	X	52	LEU
31	X	54	LEU
31	X	62	ARG
31	X	63	LYS
31	X	72	ASP
31	X	76	ILE
31	X	84	GLU
31	X	94	ASN
31	X	110	LYS
31	X	111	GLN
31	X	119	ILE
31	X	120	ASP
31	X	129	ARG
31	X	137	TYR
31	X	144	TYR
32	Y	2	LYS
32	Y	24	HIS
32	Y	27	ARG
32	Y	36	LYS
32	Y	49	ILE
32	Y	50	ARG
32	Y	55	VAL
32	Y	59	ARG
32	Y	62	TYR
32	Y	63	LYS
32	Y	65	GLN
32	Y	72	GLN
32	Y	74	TYR

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Mol	Chain	Res	Type
32	Y	83	GLU
32	Y	91	ASN
32	Y	104	VAL
32	Y	115	ARG
32	Y	118	ILE
32	Y	121	ARG
32	Y	126	ARG
32	Y	127	GLN
32	Y	128	VAL
32	Y	130	LYS
33	Z	3	LYS
33	Z	4	PHE
33	Z	14	LEU
33	Z	19	SER
33	Z	21	ARG
33	Z	29	ILE
33	Z	36	ARG
33	Z	38	TYR
33	Z	42	LEU
33	Z	43	VAL
33	Z	47	ASP
33	Z	60	LYS
33	Z	67	LYS
33	Z	72	VAL
33	Z	73	LYS
33	Z	78	ASN
33	Z	84	ARG
33	Z	88	ASP
33	Z	91	LEU
33	Z	92	ASP
33	Z	93	LYS
33	Z	98	LYS
33	Z	121	ARG
34	a	5	LEU
34	a	7	LYS
34	a	22	ILE
34	a	27	LYS
34	a	46	ASP
34	a	47	LYS
34	a	59	ARG
34	a	61	TYR
34	a	67	GLN

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Mol	Chain	Res	Type
34	a	76	ASP
34	a	77	LYS
34	a	84	GLU
34	a	85	GLN
34	a	86	THR
34	a	95	THR
34	a	102	ASP
34	a	104	VAL
34	a	105	ARG
34	a	116	LYS
34	a	122	VAL
34	a	127	LYS
35	b	9	THR
35	b	16	TRP
35	b	22	LYS
35	b	25	ARG
35	b	27	GLN
35	b	30	GLU
35	b	36	ASP
35	b	41	ARG
35	b	43	MET
35	b	44	ARG
35	b	51	LYS
35	b	55	LYS
35	b	65	MET
36	c	14	ILE
36	c	35	LEU
36	c	37	MET
36	c	40	GLN
36	c	42	LYS
36	c	44	LYS
36	c	55	LEU
36	c	59	GLU
36	c	66	LEU
36	c	74	TYR
36	c	77	ASN
36	c	78	ASN
36	c	81	LEU
36	c	92	CYS
36	c	94	LEU
37	d	18	ASN
37	d	19	GLU

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Mol	Chain	Res	Type
37	d	20	VAL
37	d	21	VAL
37	d	23	ARG
37	d	24	GLU
37	d	26	THR
37	d	31	LYS
37	d	32	ARG
37	d	36	VAL
37	d	39	LYS
37	d	44	ARG
37	d	57	MET
37	d	67	ARG
37	d	78	ARG
37	d	79	ASN
37	d	86	VAL
37	d	87	ARG
37	d	88	LEU
37	d	91	LYS
37	d	93	ASN
37	d	94	GLU
37	d	95	ASP
37	d	101	LYS
37	d	103	TYR
37	d	107	THR
37	d	109	VAL
37	d	116	ASN
37	d	117	LEU
37	d	121	ASN
37	d	123	ASP
38	e	9	LYS
38	e	11	LYS
38	e	16	ARG
38	e	21	ILE
38	e	26	ASP
38	e	29	VAL
38	e	41	ILE
38	e	46	ARG
38	e	47	ARG
38	e	49	PHE
38	e	58	ILE
38	e	60	TYR
38	e	64	LYS

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Mol	Chain	Res	Type
38	e	78	LEU
38	e	80	HIS
38	e	85	LEU
38	e	92	ASN
38	e	95	TYR
38	e	106	LYS
38	e	107	ASN
38	e	109	LYS
38	e	117	GLN
38	e	118	LEU
38	e	126	ASN
39	f	14	TYR
39	f	16	ARG
39	f	19	ARG
39	f	24	HIS
39	f	25	THR
39	f	33	VAL
39	f	38	GLU
39	f	47	CYS
39	f	54	LYS
39	f	87	LYS
39	f	100	ARG
39	f	101	ILE
39	f	104	MET
39	f	109	ARG
40	g	3	GLN
40	g	4	ARG
40	g	8	ARG
40	g	11	LEU
40	g	14	ASN
40	g	32	TYR
40	g	43	LYS
40	g	52	ARG
40	g	53	LEU
40	g	54	ARG
40	g	60	ARG
40	g	64	LEU
40	g	66	ARG
40	g	74	VAL
40	g	81	SER
40	g	97	ILE
40	g	102	ILE

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Mol	Chain	Res	Type
40	g	115	LYS
41	h	8	ASP
41	h	28	LEU
41	h	30	GLN
41	h	51	ARG
41	h	67	GLU
41	h	68	ASN
41	h	69	LEU
41	h	72	PHE
41	h	77	LYS
41	h	89	ARG
41	h	97	LYS
41	h	98	HIS
41	h	100	GLU
41	h	117	ARG
41	h	119	PHE
42	i	4	ARG
42	i	12	ASN
42	i	17	VAL
42	i	30	ARG
42	i	33	LEU
42	i	41	ARG
42	i	42	ASP
42	i	45	ARG
42	i	85	ARG
42	i	103	LYS
43	j	12	ARG
43	j	13	ASN
43	j	25	LYS
43	j	48	ASN
43	j	49	TRP
43	j	56	ARG
43	j	59	THR
43	j	68	LYS
43	j	79	ARG
43	j	80	GLU
44	k	14	THR
44	k	23	VAL
44	k	27	LYS
44	k	28	ASN
44	k	35	LYS
44	k	37	ARG

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Mol	Chain	Res	Type
44	k	44	THR
44	k	56	LEU
44	k	60	LEU
44	k	69	LEU
44	k	70	LYS
45	l	4	HIS
45	l	16	LYS
45	l	17	GLN
45	l	21	ARG
45	l	29	MET
45	l	36	ARG
45	l	46	ARG
45	l	49	LEU
46	m	79	GLU
46	m	84	GLN
46	m	87	GLN
46	m	92	ASP
46	m	97	ARG
46	m	98	LYS
46	m	104	HIS
46	m	106	ARG
46	m	111	ARG
46	m	122	ARG
47	n	9	ARG
47	n	21	ARG
48	o	17	LYS
48	o	24	THR
48	o	26	TYR
48	o	28	LYS
48	o	33	LEU
48	o	36	GLN
48	o	43	ARG
48	o	46	SER
48	o	48	TYR
48	o	56	PHE
48	o	59	LYS
48	o	61	LYS
48	o	63	THR
48	o	64	LYS
48	o	66	ILE
48	o	69	ARG
48	o	76	ASN

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Mol	Chain	Res	Type
48	o	78	ARG
48	o	82	MET
48	o	83	LEU
48	o	89	LYS
48	o	99	ARG
48	o	102	GLN
48	o	104	ILE
49	p	3	LYS
49	p	4	ARG
49	p	5	THR
49	p	16	THR
49	p	30	GLU
49	p	31	ILE
49	p	48	LYS
49	p	54	ILE
49	p	69	TRP
49	p	70	THR
49	p	84	ARG
49	p	87	LYS
50	q	16	ILE
50	q	72	TRP
51	r	11	VAL
51	r	34	VAL
51	r	140	GLN
51	r	566	TYR
51	r	570	VAL
51	r	578	LEU
53	u	94	THR
53	u	113	ASP
53	u	147	ARG
53	u	168	ARG
53	u	205	ILE
53	u	216	GLU
53	u	251	GLN
54	v	105	VAL
54	v	153	LYS
54	v	188	LYS
55	w	6	THR
55	w	28	VAL
55	w	43	THR
55	w	47	VAL
55	w	48	CYS

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Mol	Chain	Res	Type
55	w	50	VAL
55	w	53	THR
55	w	54	ASP
55	w	62	ILE
55	w	63	GLU
55	w	74	VAL
56	x	35	VAL
56	x	41	GLU
56	x	52	LEU
56	x	87	VAL
56	x	91	VAL
56	x	101	GLN
56	x	117	THR
56	x	154	LYS
56	x	197	GLN
56	x	206	LEU
56	x	240	VAL
56	x	288	GLN
56	x	329	LEU
56	x	332	MET
56	x	336	PHE
56	x	345	PHE
56	x	383	ASN
56	x	394	LYS
56	x	399	GLN
56	x	406	VAL
56	x	413	SER
56	x	420	LEU
57	y	13	LEU
57	y	30	ASN
57	y	32	LEU
57	y	36	VAL
57	y	40	GLU
57	y	54	LEU
57	y	82	LEU
57	y	122	ARG
57	y	123	GLU
57	y	126	GLU
57	y	335	GLU
57	y	340	VAL
57	y	341	LEU
57	y	361	LEU

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Mol	Chain	Res	Type
57	y	380	VAL
57	y	383	THR
57	y	384	VAL
57	y	392	LEU
57	y	396	LEU
57	y	400	ARG
57	y	401	ARG
57	y	402	VAL
57	y	405	LEU
57	y	409	MET
57	y	413	ARG
57	y	414	ARG
57	y	448	VAL
57	y	457	ARG
57	y	480	HIS
57	y	483	ARG
57	y	486	VAL
57	y	490	GLU
57	y	502	MET
57	y	525	GLN
57	y	526	ASP
57	y	592	ILE
57	y	594	ASP
57	y	605	ILE
58	z	32	LYS
58	z	34	ASP
58	z	54	ASN
58	z	76	VAL
58	z	77	ASN
58	z	92	ASP
58	z	94	LEU
58	z	95	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (232) such sidechains are listed below:

Mol	Chain	Res	Type
3	3	6	GLN
3	3	12	ASN
3	3	21	ASN
3	3	36	ASN
3	3	70	GLN
3	3	95	HIS

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Mol	Chain	Res	Type
4	4	70	GLN
4	4	147	HIS
4	4	149	HIS
6	6	41	GLN
6	6	68	HIS
6	6	85	ASN
6	6	191	GLN
9	A	8	GLN
9	A	50	HIS
9	A	140	ASN
9	A	217	GLN
10	B	25	HIS
10	B	179	HIS
10	B	203	GLN
10	B	204	GLN
10	B	276	HIS
10	B	289	GLN
10	B	301	ASN
10	B	354	GLN
11	C	50	GLN
11	C	85	HIS
11	C	94	ASN
11	C	112	HIS
11	C	116	ASN
11	C	119	GLN
11	C	142	HIS
11	C	178	ASN
11	C	187	GLN
11	C	215	ASN
11	C	223	ASN
11	C	278	ASN
11	C	329	ASN
12	D	45	ASN
12	D	81	HIS
12	D	111	ASN
12	D	122	GLN
12	D	157	ASN
12	D	191	ASN
12	D	195	HIS
12	D	202	GLN
12	D	250	ASN
12	D	291	GLN

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Mol	Chain	Res	Type
13	E	43	ASN
13	E	97	ASN
13	E	153	HIS
13	E	178	ASN
13	E	186	HIS
13	E	207	HIS
13	E	246	GLN
13	E	252	GLN
13	E	280	HIS
14	F	65	GLN
14	F	82	ASN
14	F	112	GLN
14	F	148	ASN
14	F	165	ASN
14	F	207	ASN
14	F	241	GLN
14	F	243	ASN
15	G	43	GLN
15	G	64	GLN
15	G	141	ASN
15	G	195	HIS
15	G	227	ASN
16	H	106	GLN
16	H	108	ASN
16	H	162	GLN
17	I	86	HIS
17	I	100	ASN
17	I	147	HIS
17	I	183	ASN
18	J	112	HIS
18	J	155	HIS
19	L	19	GLN
19	L	27	ASN
19	L	28	GLN
19	L	159	ASN
19	L	205	GLN
20	M	33	GLN
20	M	56	GLN
21	N	86	HIS
21	N	90	ASN
21	N	99	GLN
21	N	145	ASN

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Mol	Chain	Res	Type
21	N	178	HIS
21	N	182	HIS
21	N	196	ASN
22	O	65	ASN
22	O	167	HIS
22	O	173	GLN
22	O	199	HIS
23	P	28	ASN
23	P	54	GLN
23	P	56	GLN
23	P	64	ASN
23	P	80	GLN
23	P	145	HIS
24	Q	40	ASN
24	Q	93	GLN
25	R	66	ASN
25	R	118	HIS
25	R	121	HIS
25	R	130	ASN
25	R	178	GLN
26	S	37	HIS
26	S	77	ASN
26	S	91	HIS
26	S	92	ASN
26	S	122	HIS
26	S	156	HIS
26	S	163	HIS
27	T	54	HIS
27	T	70	HIS
27	T	77	ASN
27	T	79	GLN
27	T	98	HIS
28	U	27	HIS
28	U	38	ASN
29	V	36	ASN
30	W	17	HIS
30	W	30	GLN
30	W	45	ASN
30	W	63	GLN
31	X	69	ASN
31	X	93	ASN
31	X	94	ASN

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Mol	Chain	Res	Type
31	X	105	ASN
31	X	111	GLN
32	Y	24	HIS
32	Y	56	GLN
32	Y	65	GLN
32	Y	86	GLN
32	Y	100	HIS
32	Y	127	GLN
33	Z	79	HIS
33	Z	127	ASN
34	a	28	HIS
34	a	66	ASN
34	a	67	GLN
34	a	93	ASN
34	a	120	GLN
35	b	12	GLN
35	b	19	ASN
35	b	27	GLN
35	b	42	ASN
35	b	58	GLN
36	c	15	ASN
36	c	19	GLN
36	c	40	GLN
36	c	77	ASN
36	c	78	ASN
37	d	30	HIS
37	d	93	ASN
37	d	121	ASN
38	e	24	GLN
38	e	43	ASN
38	e	52	GLN
38	e	57	ASN
38	e	126	ASN
39	f	20	ASN
39	f	55	ASN
39	f	56	ASN
39	f	65	ASN
39	f	78	HIS
39	f	80	ASN
40	g	18	ASN
40	g	110	GLN
40	g	112	GLN

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Mol	Chain	Res	Type
41	h	30	GLN
41	h	65	GLN
41	h	68	ASN
41	h	108	GLN
42	i	12	ASN
42	i	20	ASN
42	i	80	HIS
43	j	16	HIS
43	j	30	GLN
43	j	48	ASN
44	k	58	GLN
45	l	4	HIS
45	l	17	GLN
45	l	43	HIS
46	m	84	GLN
46	m	87	GLN
48	o	3	ASN
48	o	45	GLN
48	o	90	HIS
48	o	102	GLN
49	p	92	GLN
50	q	24	ASN
50	q	59	ASN
50	q	65	ASN
51	r	24	ASN
51	r	35	ASN
51	r	41	ASN
51	r	96	ASN
51	r	117	GLN
51	r	140	GLN
53	u	74	HIS
53	u	88	GLN
53	u	118	ASN
53	u	162	HIS
54	v	93	GLN
54	v	111	ASN
54	v	180	ASN
54	v	196	GLN
54	v	202	ASN
54	v	236	GLN
55	w	68	GLN
56	x	51	GLN

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Mol	Chain	Res	Type
56	x	181	ASN
56	x	195	HIS
56	x	197	GLN
56	x	232	GLN
56	x	288	GLN
56	x	364	ASN
56	x	385	GLN
56	x	404	GLN
56	x	429	GLN
57	y	99	GLN
57	y	108	ASN
57	y	114	GLN
57	y	397	GLN
57	y	399	GLN
57	y	527	ASN
58	z	85	ASN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	1	255/299 (85%)	71 (27%)	11 (4%)
2	2	74/76 (97%)	23 (31%)	1 (1%)
5	5	3645/3658 (99%)	1239 (33%)	185 (5%)
7	7	119/120 (99%)	27 (22%)	2 (1%)
8	8	155/156 (99%)	46 (29%)	6 (3%)
All	All	4248/4309 (98%)	1406 (33%)	205 (4%)

All (1406) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	1	4	G
1	1	28	U
1	1	32	A
1	1	33	G
1	1	36	A
1	1	38	U
1	1	39	C
1	1	40	G
1	1	48	G
1	1	53	A
1	1	60	U

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Mol	Chain	Res	Type
1	1	63	C
1	1	64	U
1	1	89	G
1	1	90	U
1	1	99	C
1	1	100	C
1	1	101	G
1	1	102	A
1	1	105	G
1	1	106	G
1	1	107	G
1	1	109	G
1	1	111	C
1	1	114	C
1	1	116	C
1	1	117	U
1	1	118	A
1	1	119	A
1	1	120	G
1	1	139	A
1	1	144	C
1	1	151	C
1	1	170	C
1	1	172	A
1	1	173	A
1	1	174	G
1	1	175	G
1	1	176	A
1	1	177	G
1	1	178	G
1	1	183	A
1	1	185	C
1	1	186	C
1	1	190	C
1	1	191	C
1	1	202	C
1	1	206	G
1	1	212	C
1	1	214	A
1	1	215	A
1	1	227	G
1	1	229	U

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Mol	Chain	Res	Type
1	1	230	C
1	1	231	A
1	1	232	G
1	1	233	U
1	1	234	A
1	1	235	G
1	1	236	U
1	1	237	G
1	1	242	C
1	1	245	G
1	1	246	C
1	1	247	C
1	1	249	G
1	1	251	G
1	1	252	A
1	1	254	U
1	1	258	C
1	1	288	G
2	2	2	U
2	2	6	C
2	2	8	U
2	2	9	A
2	2	18	G
2	2	19	U
2	2	20	U
2	2	21	A
2	2	22	U
2	2	33	U
2	2	37	A
2	2	42	A
2	2	46	G
2	2	48	C
2	2	51	C
2	2	52	G
2	2	57	G
2	2	59	A
2	2	61	C
2	2	69	A
2	2	73	A
2	2	74	C
2	2	75	C
5	5	2	G

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Mol	Chain	Res	Type
5	5	12	A
5	5	13	U
5	5	17	A
5	5	21	G
5	5	25	A
5	5	39	A
5	5	42	A
5	5	48	G
5	5	49	U
5	5	56	A
5	5	58	G
5	5	59	A
5	5	64	A
5	5	65	A
5	5	67	C
5	5	71	C
5	5	74	G
5	5	85	G
5	5	91	G
5	5	92	C
5	5	93	G
5	5	94	A
5	5	96	U
5	5	108	A
5	5	109	G
5	5	110	C
5	5	111	C
5	5	112	C
5	5	115	C
5	5	116	G
5	5	118	C
5	5	119	G
5	5	120	A
5	5	126	C
5	5	128	C
5	5	134	G
5	5	135	G
5	5	136	C
5	5	137	G
5	5	144	G
5	5	145	G
5	5	150	U

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Mol	Chain	Res	Type
5	5	151	G
5	5	157	U
5	5	158	A
5	5	159	C
5	5	160	G
5	5	164	G
5	5	166	C
5	5	171	U
5	5	172	C
5	5	173	C
5	5	182	G
5	5	183	C
5	5	184	U
5	5	185	C
5	5	186	G
5	5	187	U
5	5	188	G
5	5	189	G
5	5	195	C
5	5	196	C
5	5	200	U
5	5	202	C
5	5	203	U
5	5	205	C
5	5	209	U
5	5	213	G
5	5	216	C
5	5	217	C
5	5	218	A
5	5	219	G
5	5	220	C
5	5	221	C
5	5	224	U
5	5	226	G
5	5	227	A
5	5	233	U
5	5	235	A
5	5	238	C
5	5	239	C
5	5	245	C
5	5	246	G
5	5	255	C

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Mol	Chain	Res	Type
5	5	256	G
5	5	257	C
5	5	262	G
5	5	265	C
5	5	266	C
5	5	267	G
5	5	270	U
5	5	272	U
5	5	275	C
5	5	276	C
5	5	277	G
5	5	278	G
5	5	280	G
5	5	281	U
5	5	292	G
5	5	293	G
5	5	294	G
5	5	295	A
5	5	297	U
5	5	300	A
5	5	306	A
5	5	309	C
5	5	315	G
5	5	316	U
5	5	322	C
5	5	325	U
5	5	330	G
5	5	334	A
5	5	336	A
5	5	337	U
5	5	339	C
5	5	340	C
5	5	349	A
5	5	352	G
5	5	361	C
5	5	363	A
5	5	381	U
5	5	383	A
5	5	384	A
5	5	386	A
5	5	387	G
5	5	388	A

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Mol	Chain	Res	Type
5	5	394	G
5	5	406	C
5	5	407	A
5	5	408	A
5	5	409	G
5	5	410	A
5	5	411	G
5	5	412	G
5	5	413	G
5	5	415	G
5	5	431	G
5	5	432	U
5	5	433	A
5	5	440	U
5	5	446	C
5	5	448	G
5	5	449	C
5	5	450	G
5	5	451	C
5	5	452	A
5	5	453	G
5	5	454	U
5	5	455	C
5	5	456	C
5	5	458	C
5	5	467	U
5	5	468	U
5	5	470	A
5	5	473	C
5	5	485	C
5	5	486	C
5	5	487	G
5	5	498	C
5	5	500	G
5	5	501	C
5	5	503	C
5	5	504	G
5	5	506	C
5	5	509	A
5	5	510	U
5	5	511	C
5	5	513	U

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Mol	Chain	Res	Type
5	5	514	U
5	5	515	C
5	5	519	C
5	5	647	G
5	5	649	A
5	5	650	C
5	5	653	U
5	5	654	C
5	5	664	G
5	5	665	C
5	5	666	G
5	5	667	A
5	5	668	C
5	5	669	C
5	5	682	G
5	5	683	C
5	5	684	G
5	5	685	C
5	5	686	A
5	5	687	U
5	5	690	C
5	5	694	C
5	5	696	C
5	5	697	G
5	5	703	G
5	5	704	C
5	5	707	C
5	5	713	C
5	5	716	C
5	5	718	C
5	5	721	G
5	5	728	U
5	5	729	G
5	5	730	G
5	5	731	G
5	5	732	A
5	5	737	C
5	5	742	G
5	5	743	G
5	5	745	G
5	5	746	A
5	5	747	A

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Mol	Chain	Res	Type
5	5	748	G
5	5	749	G
5	5	912	G
5	5	915	A
5	5	918	G
5	5	920	C
5	5	925	C
5	5	927	G
5	5	928	C
5	5	929	A
5	5	930	G
5	5	931	C
5	5	932	A
5	5	933	G
5	5	934	C
5	5	935	A
5	5	936	C
5	5	937	U
5	5	938	C
5	5	939	G
5	5	940	C
5	5	944	A
5	5	945	U
5	5	946	C
5	5	950	G
5	5	957	G
5	5	958	G
5	5	959	G
5	5	960	A
5	5	961	G
5	5	962	C
5	5	963	G
5	5	964	A
5	5	965	G
5	5	966	A
5	5	967	C
5	5	968	C
5	5	969	C
5	5	970	G
5	5	971	U
5	5	972	C
5	5	973	G

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Mol	Chain	Res	Type
5	5	974	C
5	5	975	C
5	5	976	G
5	5	977	C
5	5	978	G
5	5	979	C
5	5	982	U
5	5	983	C
5	5	984	C
5	5	989	U
5	5	990	C
5	5	1051	G
5	5	1072	C
5	5	1073	G
5	5	1075	G
5	5	1076	C
5	5	1081	C
5	5	1086	C
5	5	1168	G
5	5	1177	U
5	5	1181	C
5	5	1193	C
5	5	1210	C
5	5	1211	G
5	5	1212	G
5	5	1214	C
5	5	1215	C
5	5	1217	G
5	5	1219	G
5	5	1221	G
5	5	1222	A
5	5	1233	G
5	5	1235	G
5	5	1236	C
5	5	1237	C
5	5	1238	A
5	5	1239	C
5	5	1240	G
5	5	1242	G
5	5	1243	C
5	5	1244	G
5	5	1245	C

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Mol	Chain	Res	Type
5	5	1246	G
5	5	1255	A
5	5	1265	G
5	5	1267	C
5	5	1268	G
5	5	1269	G
5	5	1270	A
5	5	1271	G
5	5	1272	C
5	5	1273	G
5	5	1274	A
5	5	1275	G
5	5	1277	G
5	5	1279	A
5	5	1280	C
5	5	1281	G
5	5	1282	G
5	5	1283	G
5	5	1284	G
5	5	1285	U
5	5	1287	G
5	5	1288	G
5	5	1289	C
5	5	1290	G
5	5	1291	G
5	5	1293	G
5	5	1294	A
5	5	1295	C
5	5	1296	G
5	5	1297	U
5	5	1299	G
5	5	1300	G
5	5	1301	C
5	5	1302	U
5	5	1304	C
5	5	1313	C
5	5	1314	C
5	5	1325	C
5	5	1326	A
5	5	1330	A
5	5	1339	U
5	5	1354	A

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Mol	Chain	Res	Type
5	5	1357	C
5	5	1358	G
5	5	1359	G
5	5	1366	G
5	5	1367	C
5	5	1368	A
5	5	1369	C
5	5	1370	G
5	5	1371	A
5	5	1377	G
5	5	1378	C
5	5	1379	C
5	5	1380	G
5	5	1381	U
5	5	1387	A
5	5	1388	A
5	5	1390	G
5	5	1394	G
5	5	1397	A
5	5	1398	A
5	5	1399	G
5	5	1401	C
5	5	1402	C
5	5	1407	C
5	5	1408	G
5	5	1410	U
5	5	1411	C
5	5	1415	G
5	5	1420	A
5	5	1426	G
5	5	1429	C
5	5	1432	G
5	5	1435	G
5	5	1440	U
5	5	1441	C
5	5	1445	U
5	5	1446	C
5	5	1448	G
5	5	1455	G
5	5	1456	C
5	5	1457	G
5	5	1465	G

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Mol	Chain	Res	Type
5	5	1474	C
5	5	1475	G
5	5	1478	C
5	5	1480	C
5	5	1481	C
5	5	1482	G
5	5	1483	C
5	5	1484	G
5	5	1485	C
5	5	1489	G
5	5	1490	G
5	5	1493	G
5	5	1497	A
5	5	1498	G
5	5	1501	C
5	5	1502	G
5	5	1504	G
5	5	1514	U
5	5	1516	G
5	5	1518	A
5	5	1519	C
5	5	1523	A
5	5	1530	G
5	5	1534	A
5	5	1538	U
5	5	1547	A
5	5	1558	A
5	5	1562	G
5	5	1563	A
5	5	1564	A
5	5	1566	C
5	5	1571	G
5	5	1572	U
5	5	1578	U
5	5	1586	G
5	5	1590	C
5	5	1591	U
5	5	1596	U
5	5	1611	C
5	5	1612	G
5	5	1613	A
5	5	1624	G

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Mol	Chain	Res	Type
5	5	1625	G
5	5	1631	A
5	5	1633	G
5	5	1634	A
5	5	1637	A
5	5	1638	A
5	5	1640	C
5	5	1641	G
5	5	1643	A
5	5	1654	G
5	5	1656	U
5	5	1661	C
5	5	1670	G
5	5	1671	U
5	5	1676	C
5	5	1677	U
5	5	1684	A
5	5	1685	G
5	5	1687	U
5	5	1691	G
5	5	1692	C
5	5	1694	C
5	5	1696	C
5	5	1697	G
5	5	1698	C
5	5	1719	A
5	5	1720	C
5	5	1721	G
5	5	1722	C
5	5	1723	A
5	5	1724	G
5	5	1725	U
5	5	1728	U
5	5	1731	C
5	5	1734	G
5	5	1741	G
5	5	1742	A
5	5	1746	A
5	5	1750	G
5	5	1751	A
5	5	1753	G
5	5	1754	U

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Mol	Chain	Res	Type
5	5	1755	C
5	5	1756	U
5	5	1757	U
5	5	1758	G
5	5	1760	G
5	5	1761	G
5	5	1762	C
5	5	1764	G
5	5	1768	C
5	5	1770	A
5	5	1772	C
5	5	1776	A
5	5	1777	C
5	5	1781	U
5	5	1787	A
5	5	1788	A
5	5	1791	U
5	5	1800	U
5	5	1803	G
5	5	1804	A
5	5	1805	A
5	5	1815	G
5	5	1816	C
5	5	1817	U
5	5	1818	G
5	5	1819	G
5	5	1820	C
5	5	1821	G
5	5	1822	U
5	5	1823	G
5	5	1827	C
5	5	1828	C
5	5	1830	G
5	5	1832	C
5	5	1833	G
5	5	1834	U
5	5	1835	G
5	5	1836	G
5	5	1842	G
5	5	1843	A
5	5	1848	C
5	5	1855	G

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Mol	Chain	Res	Type
5	5	1864	G
5	5	1866	U
5	5	1867	A
5	5	1869	G
5	5	1876	U
5	5	1878	G
5	5	1881	C
5	5	1882	U
5	5	1889	U
5	5	1890	G
5	5	1891	A
5	5	1892	A
5	5	1897	A
5	5	1900	C
5	5	1910	G
5	5	1918	U
5	5	1919	G
5	5	1920	C
5	5	1921	C
5	5	1922	G
5	5	1923	A
5	5	1931	C
5	5	1932	A
5	5	1938	C
5	5	1947	U
5	5	1948	G
5	5	1951	G
5	5	1952	G
5	5	1956	A
5	5	1961	G
5	5	1962	A
5	5	1967	A
5	5	1973	G
5	5	1975	G
5	5	1976	G
5	5	1977	C
5	5	1979	A
5	5	1980	U
5	5	1981	G
5	5	1983	A
5	5	1984	A
5	5	1985	G

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Mol	Chain	Res	Type
5	5	1987	C
5	5	1988	G
5	5	1991	A
5	5	1992	U
5	5	1993	C
5	5	1997	U
5	5	1998	A
5	5	2001	G
5	5	2002	A
5	5	2003	G
5	5	2004	U
5	5	2005	G
5	5	2007	G
5	5	2008	U
5	5	2009	A
5	5	2010	A
5	5	2011	C
5	5	2018	C
5	5	2024	G
5	5	2025	A
5	5	2026	A
5	5	2033	A
5	5	2045	G
5	5	2046	G
5	5	2047	A
5	5	2048	U
5	5	2052	G
5	5	2054	U
5	5	2055	G
5	5	2056	G
5	5	2057	A
5	5	2062	C
5	5	2063	G
5	5	2064	G
5	5	2069	A
5	5	2070	U
5	5	2077	C
5	5	2079	G
5	5	2084	C
5	5	2085	G
5	5	2088	A
5	5	2089	G

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Mol	Chain	Res	Type
5	5	2090	U
5	5	2091	C
5	5	2092	G
5	5	2093	A
5	5	2094	G
5	5	2095	A
5	5	2096	G
5	5	2097	U
5	5	2105	A
5	5	2107	C
5	5	2108	G
5	5	2109	G
5	5	2110	C
5	5	2112	G
5	5	2113	G
5	5	2114	G
5	5	2115	G
5	5	2116	C
5	5	2117	G
5	5	2118	G
5	5	2119	C
5	5	2120	G
5	5	2121	C
5	5	2122	G
5	5	2123	C
5	5	2124	G
5	5	2125	C
5	5	2126	G
5	5	2127	C
5	5	2247	C
5	5	2248	C
5	5	2250	C
5	5	2251	G
5	5	2252	G
5	5	2253	A
5	5	2254	G
5	5	2255	C
5	5	2256	C
5	5	2257	C
5	5	2258	C
5	5	2259	G
5	5	2260	C

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Mol	Chain	Res	Type
5	5	2261	G
5	5	2263	A
5	5	2264	C
5	5	2265	G
5	5	2266	C
5	5	2267	U
5	5	2268	A
5	5	2269	C
5	5	2270	G
5	5	2273	G
5	5	2275	G
5	5	2279	A
5	5	2288	G
5	5	2289	C
5	5	2290	C
5	5	2300	A
5	5	2301	G
5	5	2312	U
5	5	2313	A
5	5	2314	G
5	5	2319	C
5	5	2321	G
5	5	2322	G
5	5	2325	C
5	5	2330	G
5	5	2333	G
5	5	2335	C
5	5	2342	G
5	5	2343	G
5	5	2348	G
5	5	2349	A
5	5	2351	C
5	5	2360	A
5	5	2361	G
5	5	2362	U
5	5	2364	G
5	5	2369	U
5	5	2370	A
5	5	2372	U
5	5	2378	G
5	5	2382	A
5	5	2390	G

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Mol	Chain	Res	Type
5	5	2391	G
5	5	2395	A
5	5	2396	A
5	5	2397	G
5	5	2399	G
5	5	2407	G
5	5	2408	U
5	5	2417	A
5	5	2422	C
5	5	2425	U
5	5	2426	U
5	5	2433	G
5	5	2434	G
5	5	2438	A
5	5	2439	G
5	5	2440	U
5	5	2441	C
5	5	2442	G
5	5	2443	G
5	5	2448	G
5	5	2450	G
5	5	2463	G
5	5	2465	C
5	5	2467	U
5	5	2469	C
5	5	2470	C
5	5	2471	G
5	5	2474	G
5	5	2475	G
5	5	2476	G
5	5	2487	G
5	5	2488	C
5	5	2489	C
5	5	2490	U
5	5	2491	C
5	5	2499	C
5	5	2503	G
5	5	2504	C
5	5	2505	C
5	5	2506	G
5	5	2507	A
5	5	2508	U

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Mol	Chain	Res	Type
5	5	2511	A
5	5	2512	A
5	5	2513	A
5	5	2520	C
5	5	2529	A
5	5	2530	U
5	5	2537	A
5	5	2544	G
5	5	2546	G
5	5	2547	G
5	5	2549	G
5	5	2553	A
5	5	2554	U
5	5	2555	G
5	5	2560	C
5	5	2566	G
5	5	2571	C
5	5	2572	C
5	5	2577	C
5	5	2578	G
5	5	2583	C
5	5	2587	A
5	5	2588	C
5	5	2589	C
5	5	2600	A
5	5	2602	G
5	5	2627	C
5	5	2630	U
5	5	2638	G
5	5	2639	U
5	5	2658	G
5	5	2661	U
5	5	2662	G
5	5	2666	U
5	5	2670	C
5	5	2673	G
5	5	2674	A
5	5	2675	G
5	5	2676	A
5	5	2677	G
5	5	2686	G
5	5	2687	U

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Mol	Chain	Res	Type
5	5	2688	G
5	5	2689	C
5	5	2694	G
5	5	2695	A
5	5	2696	A
5	5	2701	U
5	5	2704	C
5	5	2710	C
5	5	2711	G
5	5	2712	G
5	5	2713	C
5	5	2716	C
5	5	2725	A
5	5	2726	G
5	5	2737	C
5	5	2740	U
5	5	2742	G
5	5	2743	A
5	5	2744	A
5	5	2752	G
5	5	2753	G
5	5	2754	G
5	5	2756	G
5	5	2760	G
5	5	2761	U
5	5	2762	G
5	5	2763	U
5	5	2765	A
5	5	2766	A
5	5	2767	U
5	5	2768	C
5	5	2769	U
5	5	2770	C
5	5	2783	A
5	5	2787	A
5	5	2788	U
5	5	2789	A
5	5	2798	A
5	5	2799	G
5	5	2807	A
5	5	2813	A
5	5	2814	C

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Mol	Chain	Res	Type
5	5	2818	C
5	5	2822	G
5	5	2824	C
5	5	2826	U
5	5	2828	U
5	5	2829	U
5	5	2833	A
5	5	2834	C
5	5	2835	A
5	5	2838	G
5	5	2841	G
5	5	2842	G
5	5	2848	G
5	5	2849	A
5	5	2854	G
5	5	2855	G
5	5	2858	A
5	5	2859	G
5	5	2860	C
5	5	2867	C
5	5	2892	C
5	5	2896	G
5	5	2897	G
5	5	2898	G
5	5	2904	U
5	5	2905	C
5	5	3591	C
5	5	3593	C
5	5	3594	C
5	5	3595	U
5	5	3596	A
5	5	3597	G
5	5	3604	A
5	5	3605	C
5	5	3606	U
5	5	3611	A
5	5	3615	G
5	5	3616	U
5	5	3617	G
5	5	3625	G
5	5	3626	G
5	5	3627	G

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Mol	Chain	Res	Type
5	5	3630	A
5	5	3635	A
5	5	3644	U
5	5	3657	U
5	5	3658	C
5	5	3662	A
5	5	3671	G
5	5	3673	C
5	5	3674	G
5	5	3680	U
5	5	3681	G
5	5	3688	U
5	5	3692	A
5	5	3696	C
5	5	3698	G
5	5	3701	C
5	5	3709	U
5	5	3711	A
5	5	3712	A
5	5	3713	U
5	5	3715	U
5	5	3717	A
5	5	3718	A
5	5	3729	U
5	5	3736	A
5	5	3737	A
5	5	3748	A
5	5	3753	G
5	5	3754	G
5	5	3759	A
5	5	3760	A
5	5	3765	G
5	5	3769	C
5	5	3770	U
5	5	3773	U
5	5	3774	A
5	5	3776	G
5	5	3777	G
5	5	3784	A
5	5	3785	A
5	5	3786	U
5	5	3791	C

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Mol	Chain	Res	Type
5	5	3792	G
5	5	3799	A
5	5	3811	G
5	5	3813	A
5	5	3814	U
5	5	3817	A
5	5	3819	G
5	5	3822	U
5	5	3831	U
5	5	3838	U
5	5	3840	U
5	5	3851	U
5	5	3867	A
5	5	3868	G
5	5	3876	A
5	5	3877	A
5	5	3878	C
5	5	3879	G
5	5	3880	G
5	5	3881	G
5	5	3889	G
5	5	3895	G
5	5	3897	G
5	5	3900	G
5	5	3901	A
5	5	3902	A
5	5	3905	A
5	5	3906	A
5	5	3907	G
5	5	3912	U
5	5	3913	G
5	5	3915	U
5	5	3916	G
5	5	3917	A
5	5	3918	G
5	5	3923	A
5	5	3926	C
5	5	3938	G
5	5	3939	G
5	5	3943	A
5	5	4069	U
5	5	4070	U

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Mol	Chain	Res	Type
5	5	4073	A
5	5	4075	U
5	5	4076	G
5	5	4084	G
5	5	4085	A
5	5	4086	G
5	5	4088	C
5	5	4089	G
5	5	4091	G
5	5	4092	G
5	5	4093	G
5	5	4095	G
5	5	4104	G
5	5	4105	A
5	5	4107	G
5	5	4114	C
5	5	4115	G
5	5	4116	C
5	5	4117	U
5	5	4118	U
5	5	4119	C
5	5	4120	U
5	5	4121	G
5	5	4122	G
5	5	4124	G
5	5	4125	C
5	5	4126	C
5	5	4127	A
5	5	4140	C
5	5	4143	G
5	5	4145	C
5	5	4151	G
5	5	4162	C
5	5	4164	C
5	5	4165	C
5	5	4166	G
5	5	4171	C
5	5	4182	G
5	5	4183	G
5	5	4184	G
5	5	4191	G
5	5	4194	U

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Mol	Chain	Res	Type
5	5	4195	G
5	5	4197	G
5	5	4199	C
5	5	4203	A
5	5	4205	A
5	5	4206	C
5	5	4209	G
5	5	4215	C
5	5	4217	G
5	5	4219	A
5	5	4222	G
5	5	4223	C
5	5	4225	G
5	5	4226	G
5	5	4228	G
5	5	4229	U
5	5	4230	C
5	5	4232	U
5	5	4233	A
5	5	4234	A
5	5	4235	G
5	5	4236	G
5	5	4239	A
5	5	4241	C
5	5	4243	C
5	5	4249	G
5	5	4251	A
5	5	4252	C
5	5	4254	G
5	5	4265	U
5	5	4268	A
5	5	4271	A
5	5	4276	G
5	5	4280	A
5	5	4281	A
5	5	4282	A
5	5	4288	C
5	5	4290	U
5	5	4291	G
5	5	4297	G
5	5	4302	U
5	5	4305	G

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Mol	Chain	Res	Type
5	5	4306	U
5	5	4312	U
5	5	4314	C
5	5	4317	A
5	5	4318	C
5	5	4319	C
5	5	4329	G
5	5	4330	G
5	5	4331	G
5	5	4332	C
5	5	4337	C
5	5	4338	G
5	5	4349	C
5	5	4350	C
5	5	4354	U
5	5	4356	G
5	5	4360	U
5	5	4364	G
5	5	4368	G
5	5	4372	U
5	5	4373	G
5	5	4376	A
5	5	4377	G
5	5	4378	A
5	5	4379	A
5	5	4387	C
5	5	4391	G
5	5	4394	A
5	5	4396	A
5	5	4401	G
5	5	4405	G
5	5	4419	U
5	5	4422	A
5	5	4426	C
5	5	4437	U
5	5	4438	U
5	5	4440	G
5	5	4444	C
5	5	4448	G
5	5	4449	A
5	5	4450	U
5	5	4452	U

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Mol	Chain	Res	Type
5	5	4453	C
5	5	4463	U
5	5	4464	A
5	5	4465	U
5	5	4466	C
5	5	4467	A
5	5	4473	A
5	5	4475	G
5	5	4476	C
5	5	4482	U
5	5	4488	A
5	5	4489	G
5	5	4500	U
5	5	4510	A
5	5	4512	U
5	5	4513	A
5	5	4518	A
5	5	4519	C
5	5	4520	G
5	5	4522	G
5	5	4523	A
5	5	4524	G
5	5	4528	G
5	5	4529	G
5	5	4530	U
5	5	4531	U
5	5	4534	G
5	5	4537	C
5	5	4548	A
5	5	4549	G
5	5	4550	G
5	5	4557	U
5	5	4559	A
5	5	4567	G
5	5	4569	U
5	5	4570	G
5	5	4572	U
5	5	4575	G
5	5	4586	G
5	5	4590	A
5	5	4600	G
5	5	4605	A

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Mol	Chain	Res	Type
5	5	4606	G
5	5	4617	G
5	5	4624	A
5	5	4636	U
5	5	4637	G
5	5	4646	U
5	5	4647	G
5	5	4648	A
5	5	4652	G
5	5	4656	A
5	5	4657	U
5	5	4661	G
5	5	4670	C
5	5	4671	C
5	5	4672	A
5	5	4693	C
5	5	4694	G
5	5	4695	C
5	5	4700	A
5	5	4703	U
5	5	4709	U
5	5	4714	C
5	5	4720	C
5	5	4729	A
5	5	4730	C
5	5	4731	G
5	5	4732	G
5	5	4733	C
5	5	4734	A
5	5	4736	C
5	5	4737	G
5	5	4739	C
5	5	4743	G
5	5	4745	G
5	5	4746	C
5	5	4748	U
5	5	4749	C
5	5	4750	G
5	5	4751	G
5	5	4752	U
5	5	4753	U
5	5	4756	C

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Mol	Chain	Res	Type
5	5	4757	C
5	5	4758	U
5	5	4760	G
5	5	4763	U
5	5	4764	A
5	5	4767	C
5	5	4770	U
5	5	4771	C
5	5	4860	G
5	5	4865	C
5	5	4869	U
5	5	4870	G
5	5	4871	C
5	5	4872	G
5	5	4873	G
5	5	4874	A
5	5	4875	G
5	5	4876	U
5	5	4877	G
5	5	4878	C
5	5	4881	U
5	5	4882	U
5	5	4883	C
5	5	4884	G
5	5	4886	C
5	5	4888	U
5	5	4889	G
5	5	4890	G
5	5	4891	G
5	5	4893	A
5	5	4895	C
5	5	4896	G
5	5	4898	G
5	5	4900	C
5	5	4901	G
5	5	4903	G
5	5	4906	C
5	5	4910	G
5	5	4911	A
5	5	4912	G
5	5	4913	G
5	5	4915	G

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Mol	Chain	Res	Type
5	5	4926	C
5	5	4927	G
5	5	4930	C
5	5	4932	U
5	5	4936	G
5	5	4938	A
5	5	4942	C
5	5	4944	C
5	5	4945	G
5	5	4948	C
5	5	4949	G
5	5	4950	U
5	5	4951	G
5	5	4952	G
5	5	4956	A
5	5	4957	C
5	5	4959	U
5	5	4960	G
5	5	4961	G
5	5	4963	G
5	5	4964	C
5	5	4965	U
5	5	4966	A
5	5	4967	A
5	5	4975	G
5	5	4977	A
5	5	4979	A
5	5	4981	G
5	5	4985	U
5	5	4988	U
5	5	4989	U
5	5	4990	C
5	5	4991	U
5	5	4992	G
5	5	4993	G
5	5	4999	G
5	5	5002	U
5	5	5005	G
5	5	5006	U
5	5	5013	C
5	5	5014	A
5	5	5016	A

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Mol	Chain	Res	Type
5	5	5017	G
5	5	5018	C
5	5	5020	G
5	5	5022	U
5	5	5023	C
5	5	5032	C
5	5	5035	U
5	5	5039	U
5	5	5040	U
5	5	5041	G
5	5	5044	A
5	5	5045	G
5	5	5047	C
5	5	5050	C
5	5	5053	U
5	5	5054	C
5	5	5055	G
5	5	5058	A
5	5	5061	A
5	5	5062	G
7	7	7	G
7	7	13	A
7	7	17	C
7	7	22	A
7	7	23	A
7	7	24	C
7	7	30	C
7	7	53	U
7	7	54	A
7	7	57	C
7	7	60	G
7	7	63	C
7	7	64	G
7	7	69	U
7	7	70	G
7	7	73	U
7	7	80	U
7	7	90	A
7	7	91	C
7	7	97	G
7	7	100	A
7	7	102	U

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Mol	Chain	Res	Type
7	7	105	C
7	7	106	G
7	7	110	G
7	7	112	U
7	7	120	U
8	8	2	G
8	8	3	A
8	8	23	C
8	8	34	U
8	8	35	C
8	8	37	A
8	8	38	U
8	8	39	G
8	8	48	A
8	8	51	U
8	8	57	C
8	8	59	A
8	8	61	A
8	8	62	A
8	8	63	U
8	8	70	G
8	8	71	A
8	8	74	U
8	8	75	G
8	8	79	G
8	8	80	A
8	8	81	C
8	8	82	A
8	8	83	C
8	8	84	A
8	8	85	U
8	8	86	U
8	8	87	G
8	8	94	G
8	8	95	A
8	8	103	A
8	8	104	A
8	8	105	C
8	8	109	C
8	8	110	U
8	8	111	U
8	8	112	G

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Mol	Chain	Res	Type
8	8	114	G
8	8	117	C
8	8	118	C
8	8	125	C
8	8	126	C
8	8	127	U
8	8	147	G
8	8	151	G
8	8	156	U

All (205) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	1	37	C
1	1	38	U
1	1	39	C
1	1	117	U
1	1	118	A
1	1	231	A
1	1	232	G
1	1	233	U
1	1	234	A
1	1	235	G
1	1	236	U
2	2	19	U
5	5	1	C
5	5	12	A
5	5	47	A
5	5	48	G
5	5	84	A
5	5	92	C
5	5	125	C
5	5	136	C
5	5	187	U
5	5	216	C
5	5	219	G
5	5	224	U
5	5	226	G
5	5	245	C
5	5	265	C
5	5	275	C
5	5	276	C

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Mol	Chain	Res	Type
5	5	333	U
5	5	364	G
5	5	385	A
5	5	406	C
5	5	451	C
5	5	454	U
5	5	486	C
5	5	497	G
5	5	505	G
5	5	648	G
5	5	664	G
5	5	668	C
5	5	684	G
5	5	693	C
5	5	746	A
5	5	911	U
5	5	917	A
5	5	930	G
5	5	931	C
5	5	932	A
5	5	936	C
5	5	943	A
5	5	956	A
5	5	957	G
5	5	958	G
5	5	961	G
5	5	965	G
5	5	968	C
5	5	970	G
5	5	974	C
5	5	978	G
5	5	989	U
5	5	1211	G
5	5	1214	C
5	5	1232	G
5	5	1236	C
5	5	1238	A
5	5	1239	C
5	5	1266	G
5	5	1268	G
5	5	1279	A
5	5	1280	C

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Mol	Chain	Res	Type
5	5	1281	G
5	5	1296	G
5	5	1324	A
5	5	1329	G
5	5	1356	U
5	5	1357	C
5	5	1365	C
5	5	1370	G
5	5	1397	A
5	5	1407	C
5	5	1410	U
5	5	1419	G
5	5	1440	U
5	5	1445	U
5	5	1455	G
5	5	1474	C
5	5	1480	C
5	5	1484	G
5	5	1500	A
5	5	1501	C
5	5	1633	G
5	5	1637	A
5	5	1696	C
5	5	1697	G
5	5	1724	G
5	5	1733	G
5	5	1804	A
5	5	1815	G
5	5	1835	G
5	5	1890	G
5	5	1921	C
5	5	1974	U
5	5	1975	G
5	5	2009	A
5	5	2046	G
5	5	2056	G
5	5	2068	C
5	5	2089	G
5	5	2093	A
5	5	2096	G
5	5	2107	C
5	5	2116	C

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Mol	Chain	Res	Type
5	5	2119	C
5	5	2122	G
5	5	2123	C
5	5	2124	G
5	5	2246	C
5	5	2251	G
5	5	2256	C
5	5	2257	C
5	5	2260	C
5	5	2262	G
5	5	2263	A
5	5	2265	G
5	5	2266	C
5	5	2268	A
5	5	2272	C
5	5	2278	G
5	5	2313	A
5	5	2361	G
5	5	2389	A
5	5	2396	A
5	5	2398	U
5	5	2438	A
5	5	2468	U
5	5	2474	G
5	5	2487	G
5	5	2502	G
5	5	2506	G
5	5	2546	G
5	5	2554	U
5	5	2588	C
5	5	2661	U
5	5	2695	A
5	5	2708	U
5	5	2768	C
5	5	2769	U
5	5	2782	U
5	5	2828	U
5	5	2833	A
5	5	2848	G
5	5	3625	G
5	5	3673	C
5	5	3697	U

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Mol	Chain	Res	Type
5	5	3716	C
5	5	3773	U
5	5	3790	U
5	5	3791	C
5	5	3876	A
5	5	3888	G
5	5	3901	A
5	5	4069	U
5	5	4075	U
5	5	4084	G
5	5	4119	C
5	5	4121	G
5	5	4124	G
5	5	4170	A
5	5	4194	U
5	5	4232	U
5	5	4404	U
5	5	4448	G
5	5	4449	A
5	5	4452	U
5	5	4463	U
5	5	4464	A
5	5	4528	G
5	5	4656	A
5	5	4670	C
5	5	4693	C
5	5	4699	U
5	5	4719	G
5	5	4730	C
5	5	4885	U
5	5	4887	C
5	5	4888	U
5	5	4889	G
5	5	4900	C
5	5	4909	A
5	5	4935	C
5	5	4948	C
5	5	4951	G
5	5	5022	U
5	5	5054	C
5	5	5060	A
5	5	5061	A

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Mol	Chain	Res	Type
7	7	56	G
7	7	72	U
8	8	34	U
8	8	60	G
8	8	94	G
8	8	124	U
8	8	125	C
8	8	126	C

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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 139 ligands modelled in this entry, 136 are monoatomic - leaving 3 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
62	GNP	y	701	59	29,34,34	1.52	7 (24%)	33,54,54	2.22	8 (24%)
62	GNP	x	601	59	29,34,34	1.65	8 (27%)	33,54,54	2.13	6 (18%)
61	GTP	v	302	59	26,34,34	1.05	2 (7%)	32,54,54	1.64	8 (25%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
62	GNP	y	701	59	-	8/14/38/38	0/3/3/3
62	GNP	x	601	59	-	2/14/38/38	0/3/3/3
61	GTP	v	302	59	-	0/18/38/38	0/3/3/3

All (17) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
62	x	601	GNP	PG-O1G	4.49	1.53	1.46
62	x	601	GNP	PB-O3A	3.57	1.63	1.59
62	y	701	GNP	C6-N1	3.56	1.39	1.33
62	y	701	GNP	PB-O3A	3.44	1.63	1.59
61	v	302	GTP	C5-C6	-3.42	1.40	1.47
62	x	601	GNP	C6-N1	3.35	1.38	1.33
62	y	701	GNP	PB-O1B	2.98	1.50	1.46
62	y	701	GNP	PG-O1G	2.75	1.50	1.46
62	x	601	GNP	PB-O1B	2.58	1.50	1.46
61	v	302	GTP	C2-N3	2.57	1.39	1.33
62	x	601	GNP	PB-O2B	-2.31	1.50	1.56
62	y	701	GNP	PB-O2B	-2.28	1.50	1.56
62	y	701	GNP	PG-N3B	2.26	1.69	1.63
62	x	601	GNP	PG-N3B	2.24	1.69	1.63
62	y	701	GNP	C5-C6	2.22	1.45	1.41
62	x	601	GNP	C5-C6	2.19	1.45	1.41
62	x	601	GNP	PG-O2G	-2.14	1.51	1.56

All (22) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
62	y	701	GNP	C5-C6-N1	-8.63	111.63	123.43
62	x	601	GNP	C5-C6-N1	-8.47	111.84	123.43
62	y	701	GNP	C2-N1-C6	6.05	125.54	115.93
62	x	601	GNP	C2-N1-C6	5.94	125.36	115.93
61	v	302	GTP	C5-C6-N1	3.79	120.65	113.95
61	v	302	GTP	C8-N7-C5	3.32	109.31	102.99
61	v	302	GTP	C3'-C2'-C1'	3.03	105.54	100.98
61	v	302	GTP	PB-O3B-PG	-2.89	122.91	132.83
61	v	302	GTP	N1-C2-N3	-2.80	118.08	123.32
62	x	601	GNP	C4-C5-C6	-2.78	118.14	120.80
62	x	601	GNP	N3-C2-N1	-2.75	123.56	127.22
62	y	701	GNP	N3-C2-N1	-2.74	123.57	127.22
62	y	701	GNP	C4-C5-C6	-2.71	118.21	120.80
62	y	701	GNP	PB-O3A-PA	-2.64	123.33	132.62
61	v	302	GTP	PA-O3A-PB	-2.56	124.04	132.83

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
61	v	302	GTP	C2-N1-C6	-2.55	120.41	125.10
62	x	601	GNP	O1B-PB-N3B	-2.30	108.39	111.77
62	y	701	GNP	O1G-PG-N3B	-2.25	108.45	111.77
62	y	701	GNP	O3G-PG-O1G	-2.24	107.83	113.45
62	y	701	GNP	C2-N3-C4	-2.20	112.85	115.36
61	v	302	GTP	O6-C6-C5	-2.18	120.12	124.37
62	x	601	GNP	C2-N3-C4	-2.14	112.91	115.36

There are no chirality outliers.

All (10) torsion outliers are listed below:

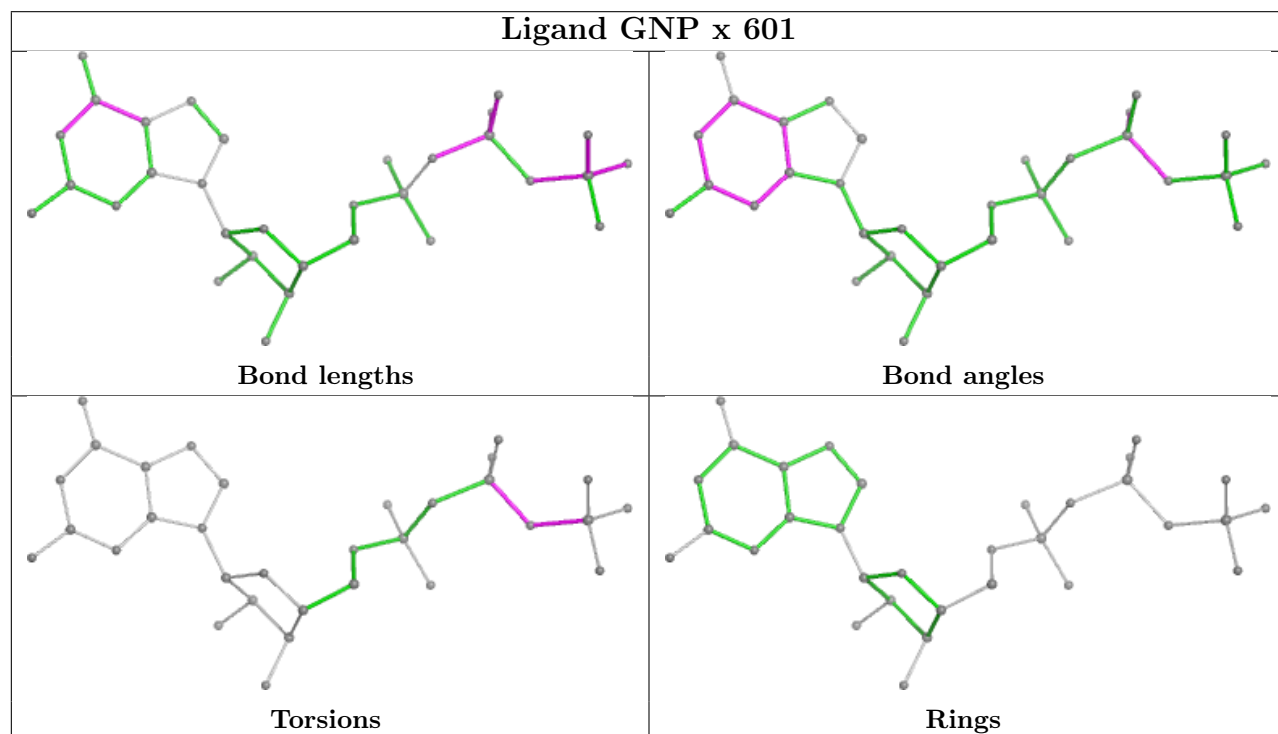
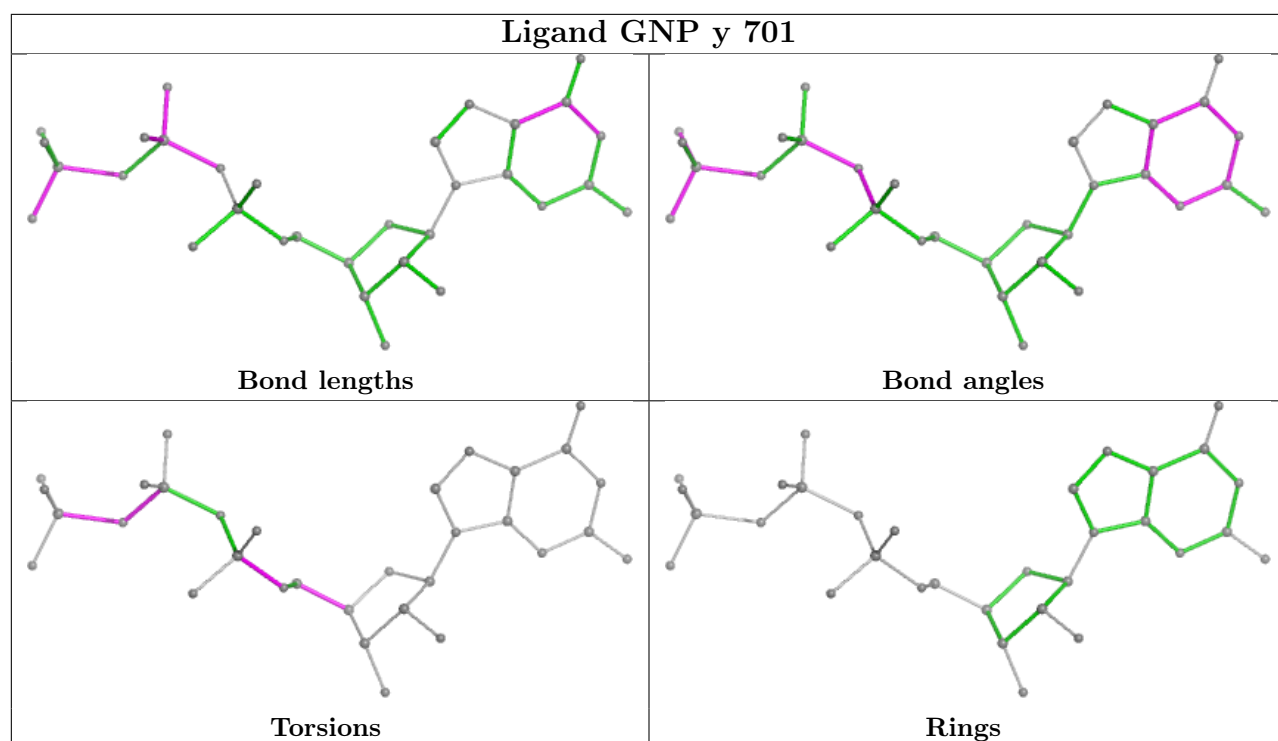
Mol	Chain	Res	Type	Atoms
62	x	601	GNP	PB-N3B-PG-O1G
62	x	601	GNP	PG-N3B-PB-O1B
62	y	701	GNP	PB-N3B-PG-O1G
62	y	701	GNP	PG-N3B-PB-O1B
62	y	701	GNP	C5'-O5'-PA-O3A
62	y	701	GNP	C3'-C4'-C5'-O5'
62	y	701	GNP	O4'-C4'-C5'-O5'
62	y	701	GNP	C5'-O5'-PA-O1A
62	y	701	GNP	C5'-O5'-PA-O2A
62	y	701	GNP	PG-N3B-PB-O3A

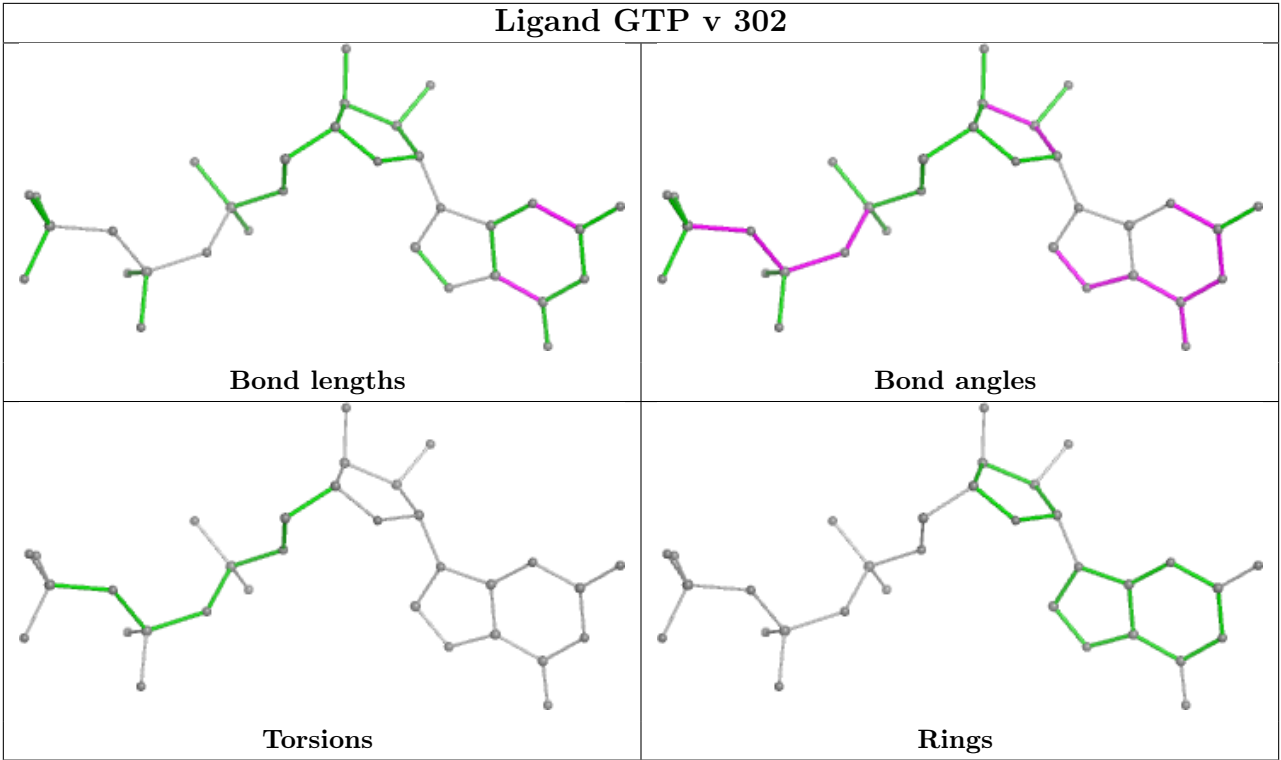
There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
62	y	701	GNP	1	0
62	x	601	GNP	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.





5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

The following chains have linkage breaks:

Mol	Chain	Number of breaks
5	5	13
13	E	1
2	2	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	E	72:ALA	C	84:VAL	N	24.42
1	5	4776:G	O3'	4859:C	P	17.73
1	5	757:G	O3'	906:C	P	17.30
1	5	519:C	O3'	642:G	P	16.88
1	5	2910:G	O3'	3583:U	P	16.78
1	5	2131:C	O3'	2243:C	P	15.12
1	5	3950:U	O3'	4065:G	P	14.33

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Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	5	997:C	O3'	1047:C	P	12.99
1	5	5023:C	O3'	5028:G	P	12.81
1	5	1051:G	O3'	1064:G	P	9.62
1	5	1699:A	O3'	1718:C	P	4.41
1	2	46:G	O3'	47:U	P	4.07
1	5	1222:A	O3'	1232:G	P	3.98
1	5	1100:U	O3'	1167:C	P	3.55
1	5	4942:C	O3'	4944:C	P	3.23

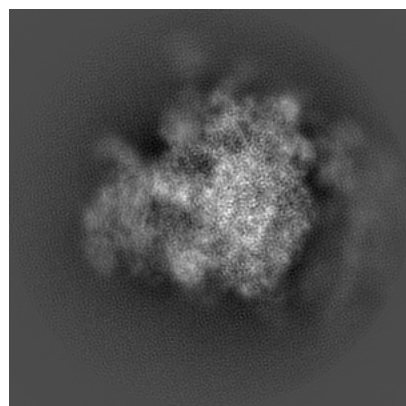
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-4300. These allow visual inspection of the internal detail of the map and identification of artifacts.

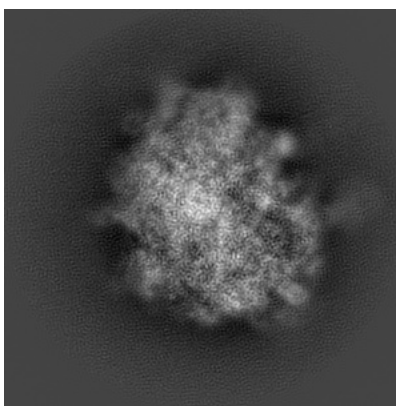
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

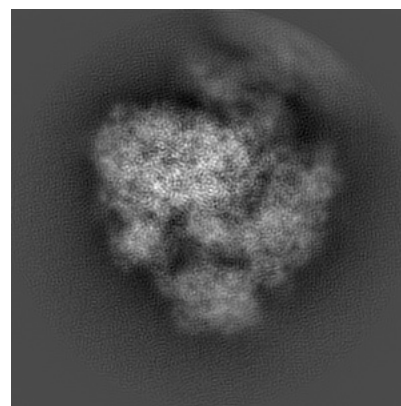
6.1.1 Primary map



X

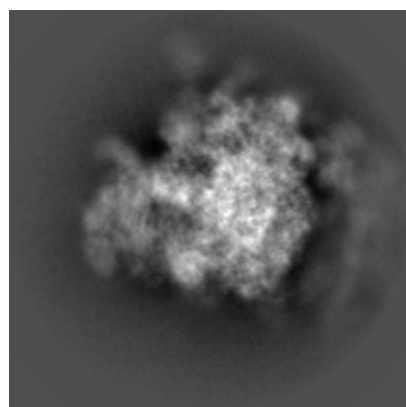


Y

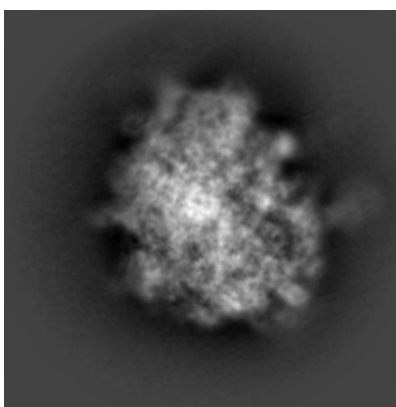


Z

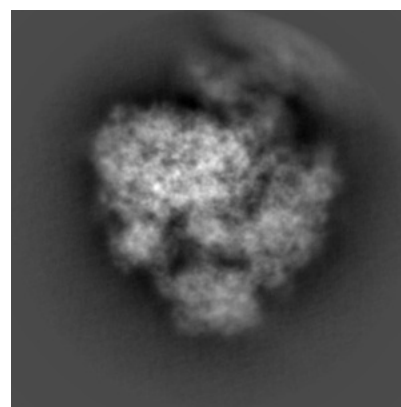
6.1.2 Raw map



X



Y

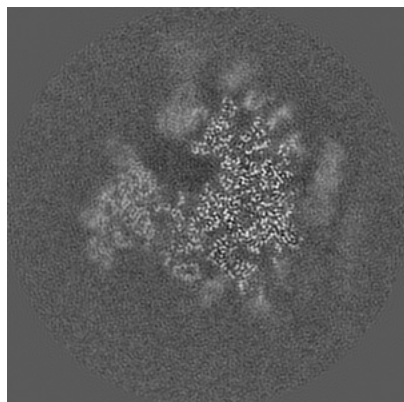


Z

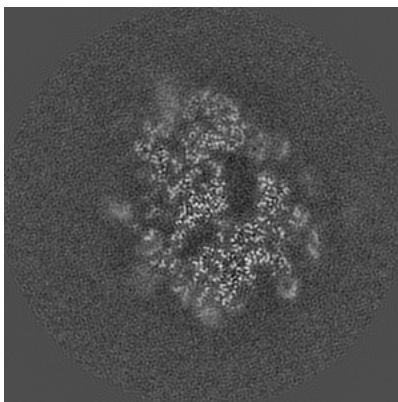
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

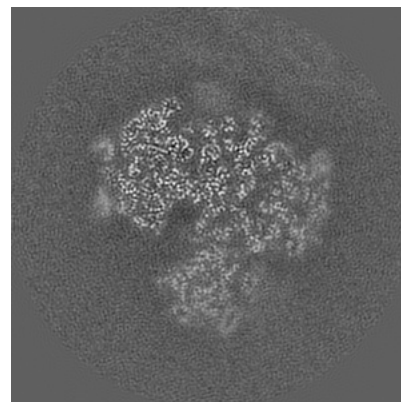
6.2.1 Primary map



X Index: 160

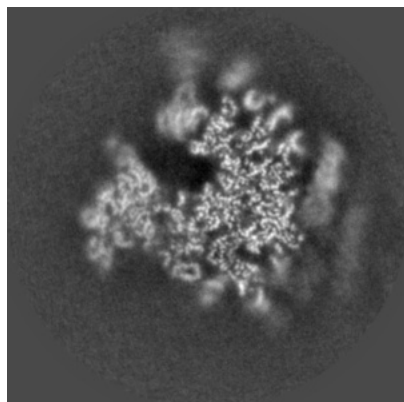


Y Index: 160

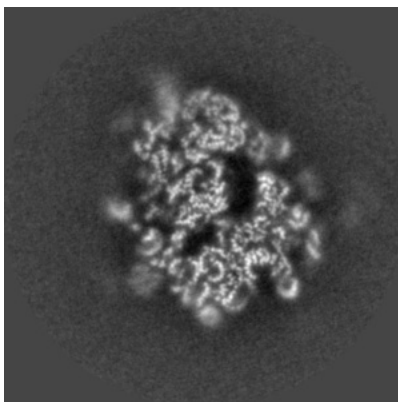


Z Index: 160

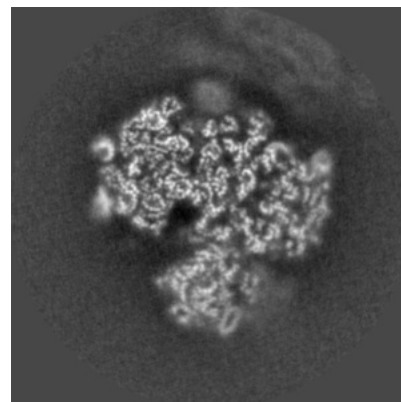
6.2.2 Raw map



X Index: 160



Y Index: 160

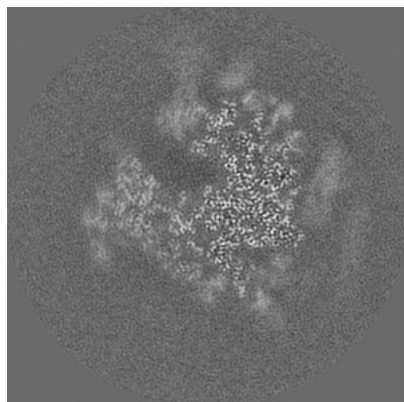


Z Index: 160

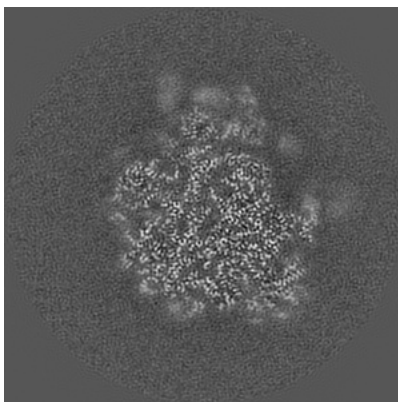
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

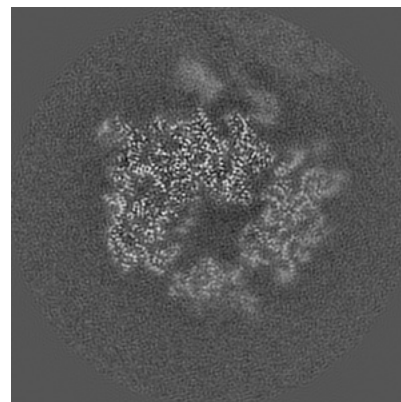
6.3.1 Primary map



X Index: 158

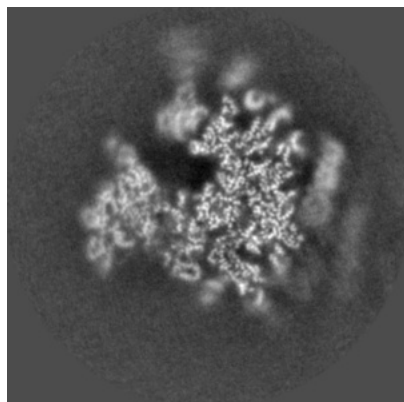


Y Index: 192

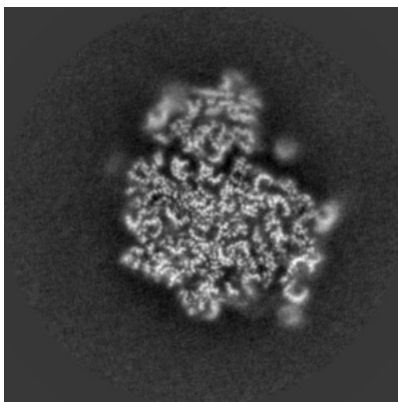


Z Index: 181

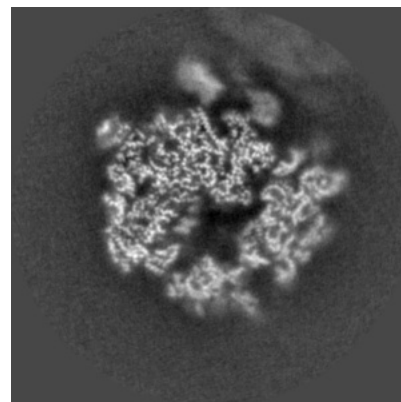
6.3.2 Raw map



X Index: 161



Y Index: 177

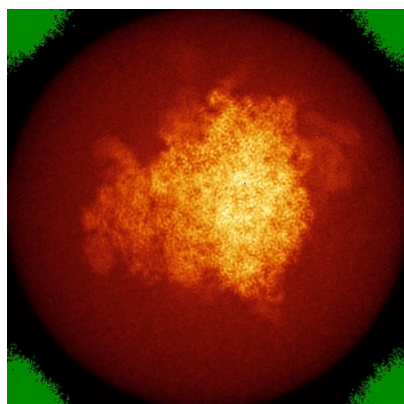


Z Index: 180

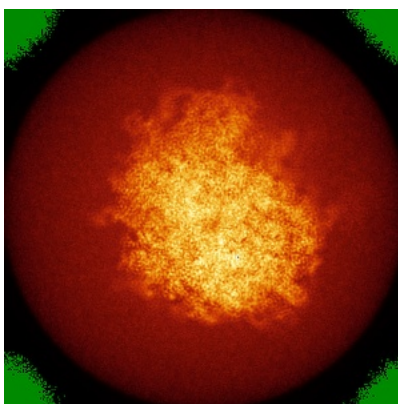
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

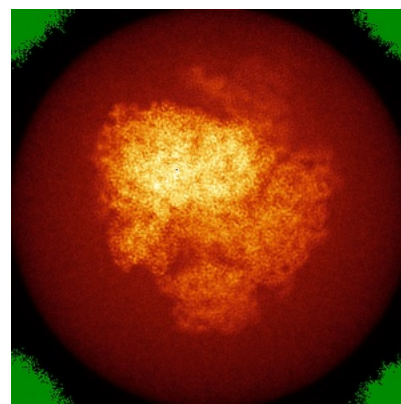
6.4.1 Primary map



X

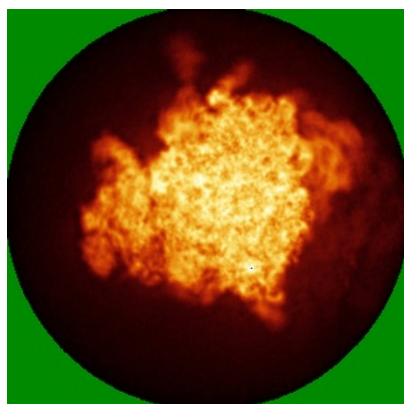


Y

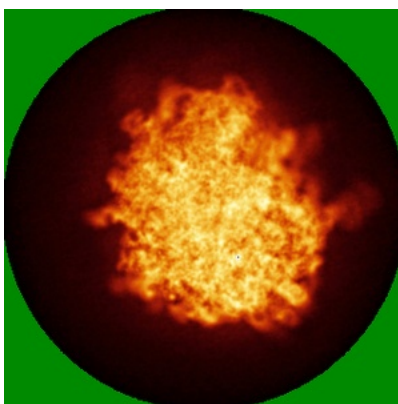


Z

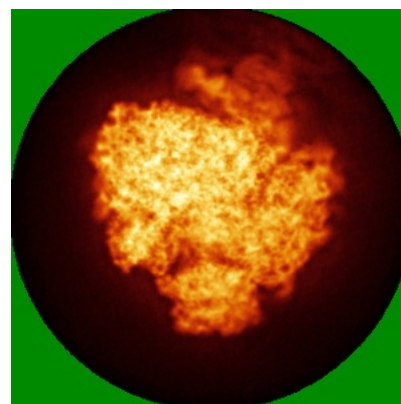
6.4.2 Raw map



X



Y

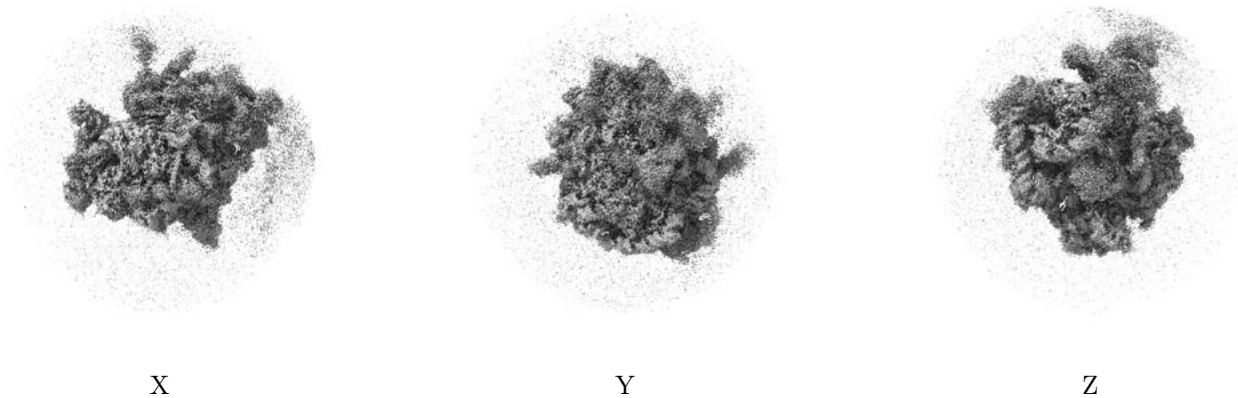


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

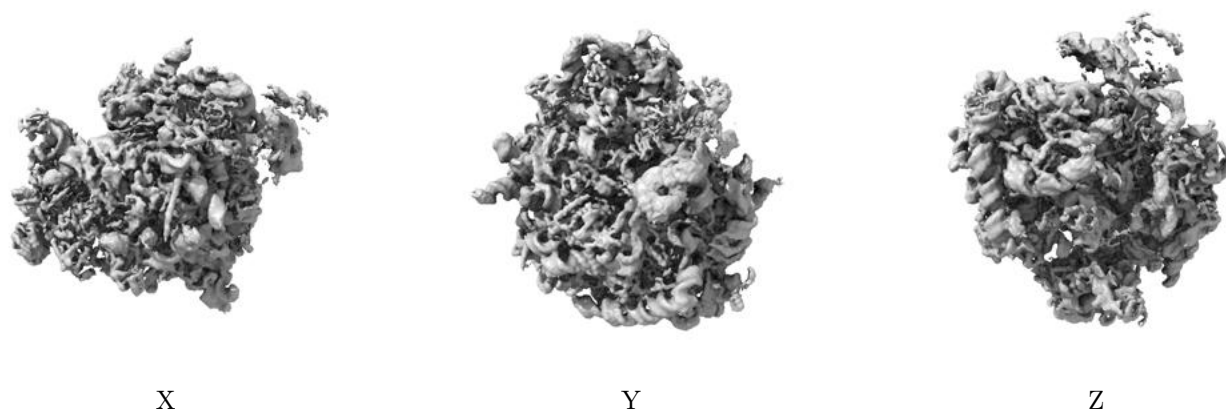
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.064. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

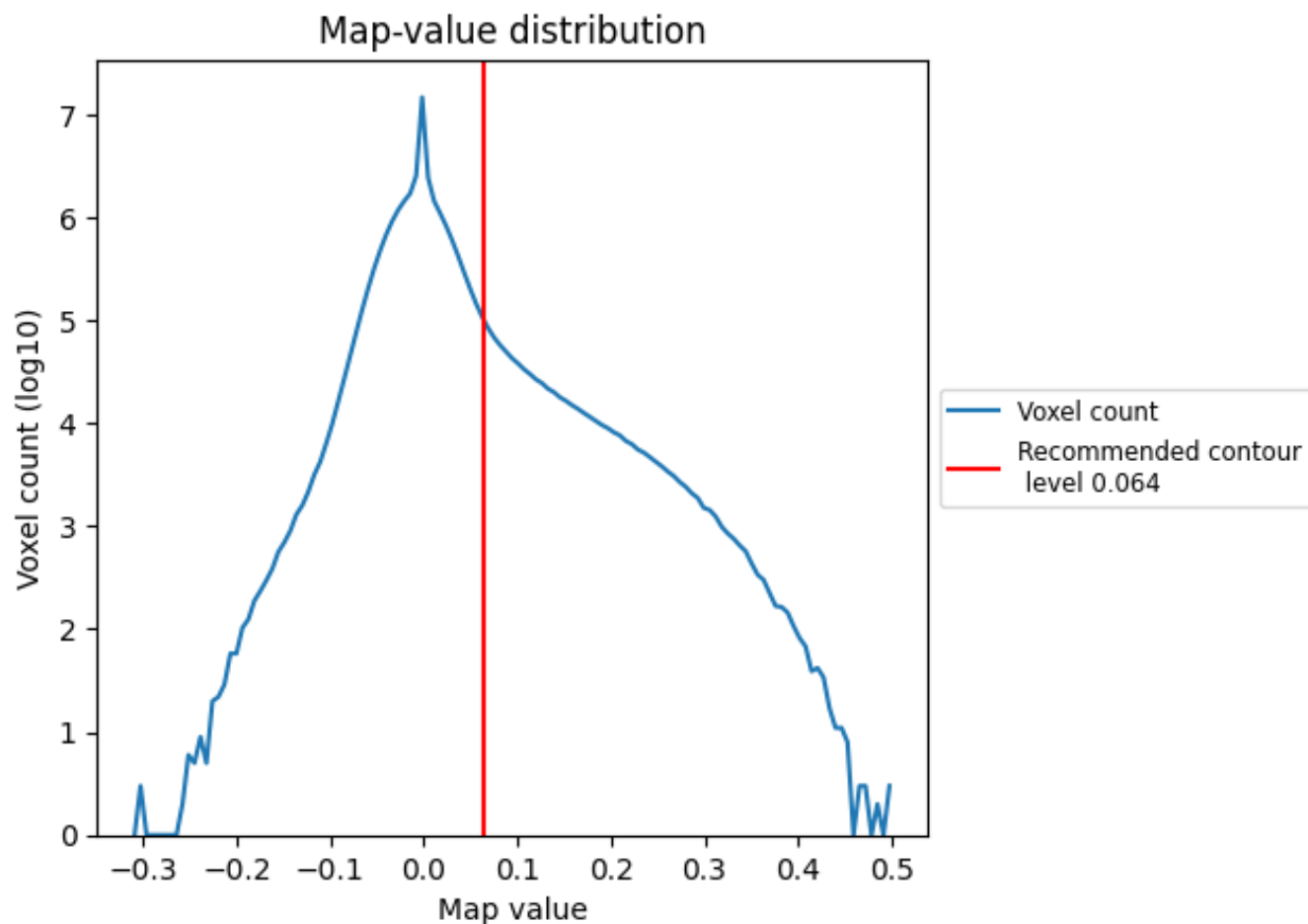
6.6 Mask visualisation [i](#)

This section was not generated. No masks/segmentation were deposited.

7 Map analysis [i](#)

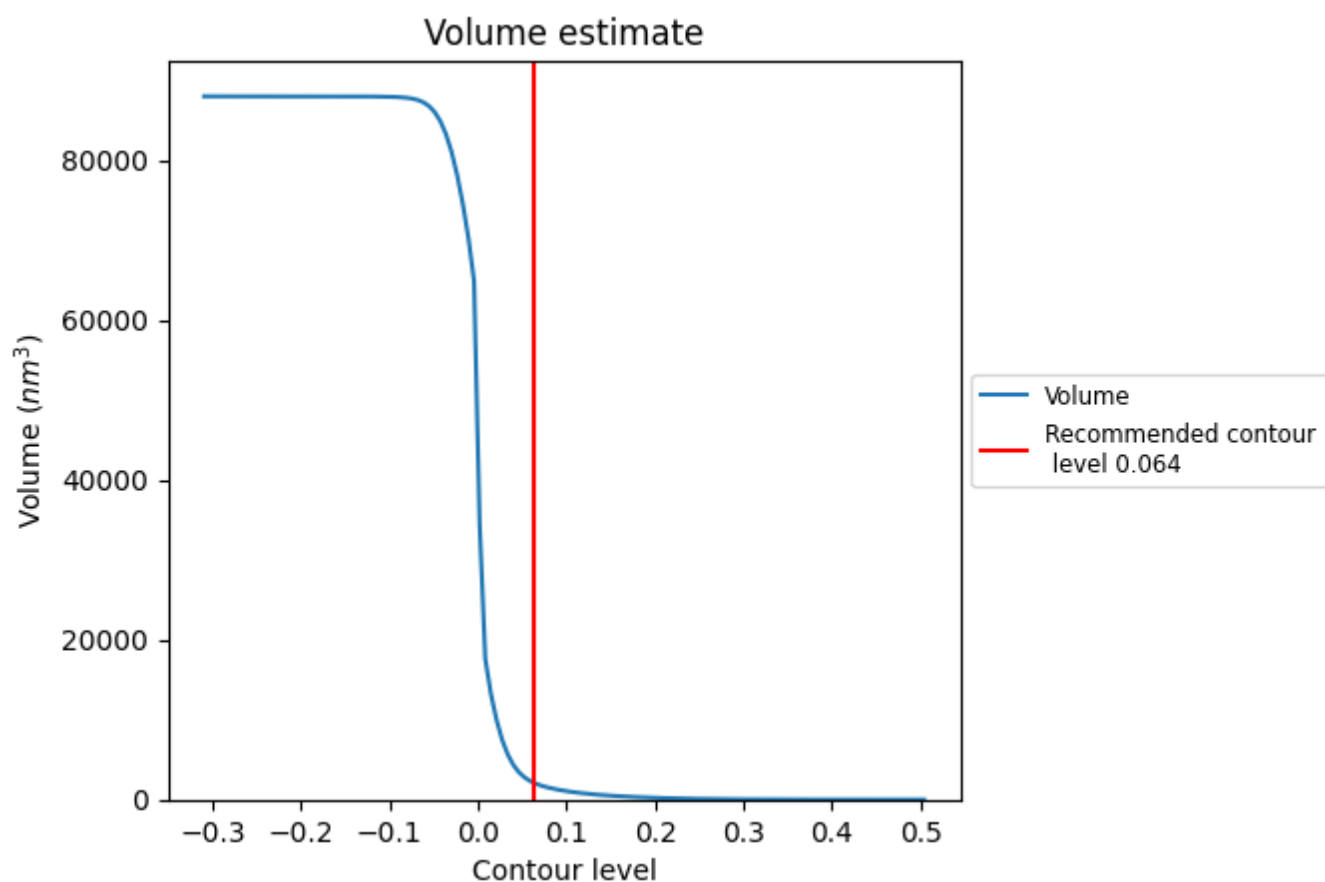
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

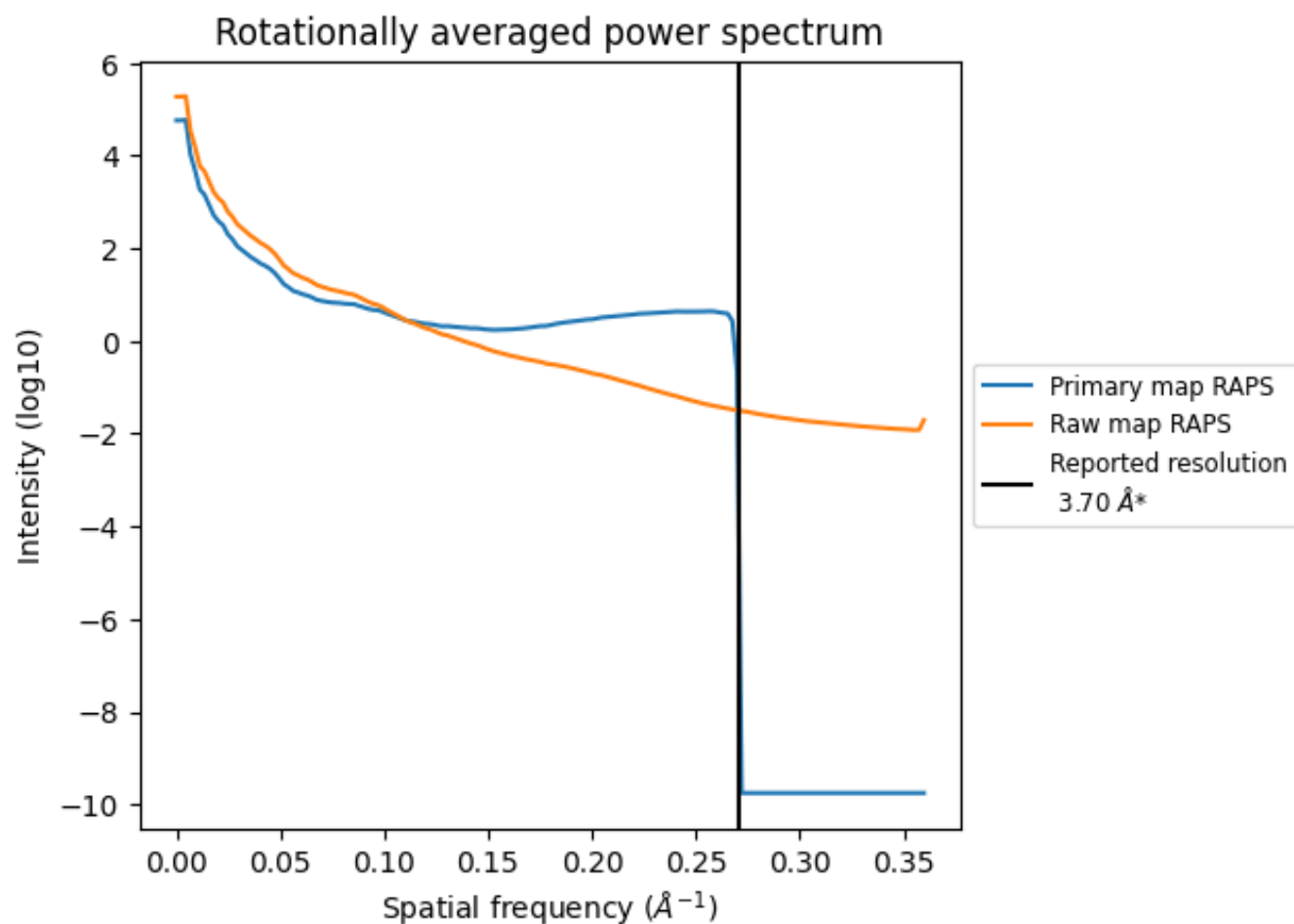
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2065 nm³; this corresponds to an approximate mass of 1865 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum ⓘ

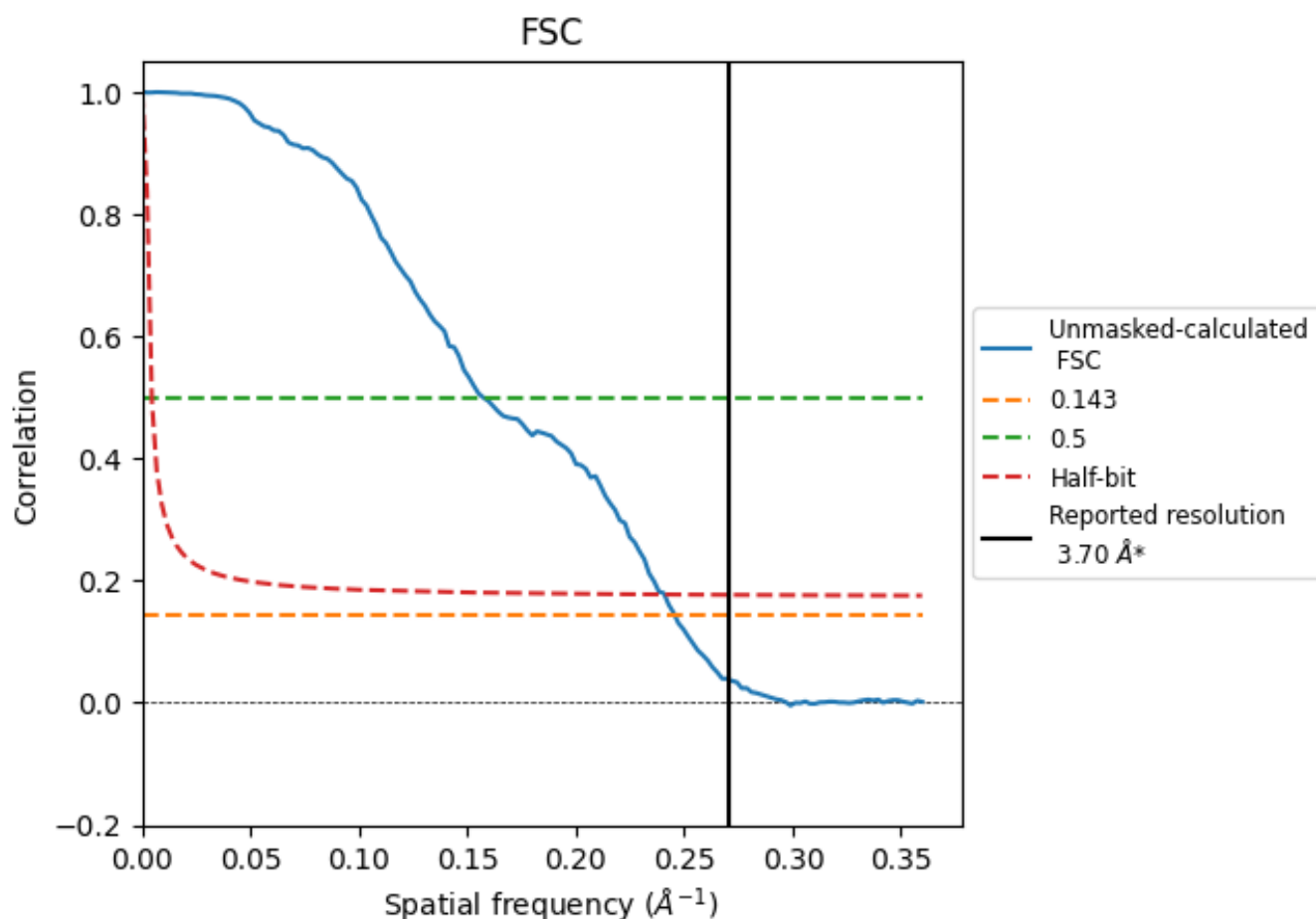


*Reported resolution corresponds to spatial frequency of 0.270 Å⁻¹

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.270 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

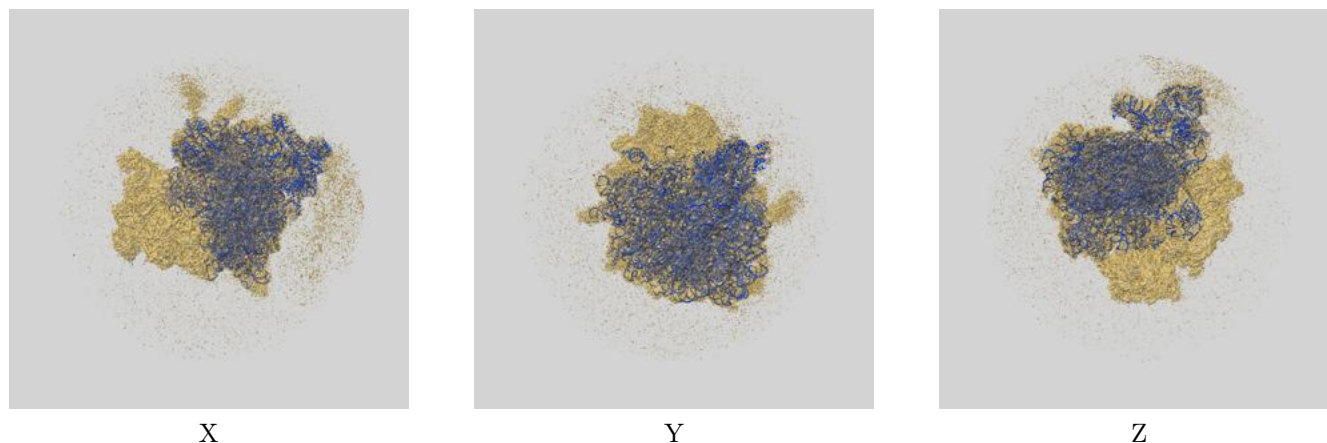
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.70	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.07	6.37	4.15

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.07 differs from the reported value 3.7 by more than 10 %

9 Map-model fit [i](#)

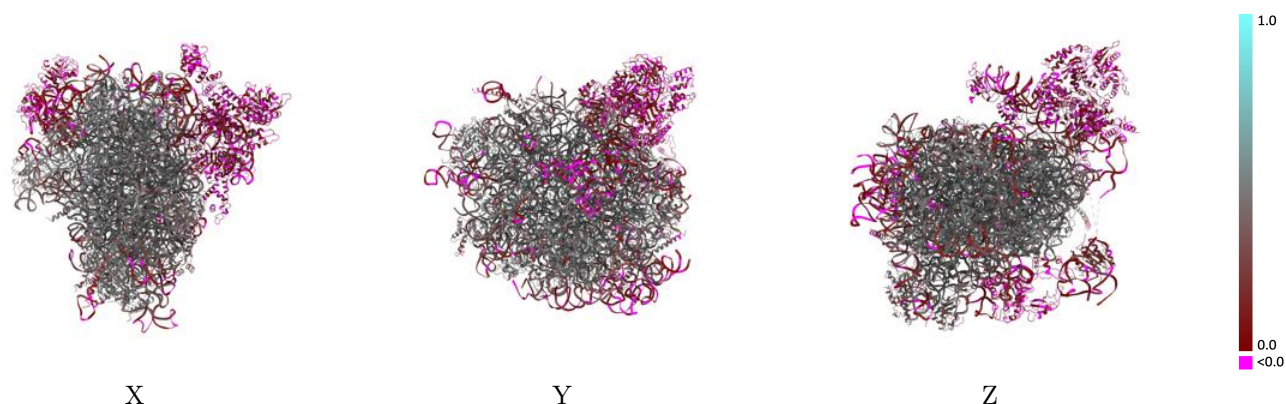
This section contains information regarding the fit between EMDB map EMD-4300 and PDB model 6FRK. Per-residue inclusion information can be found in section 3 on page 17.

9.1 Map-model overlay [i](#)



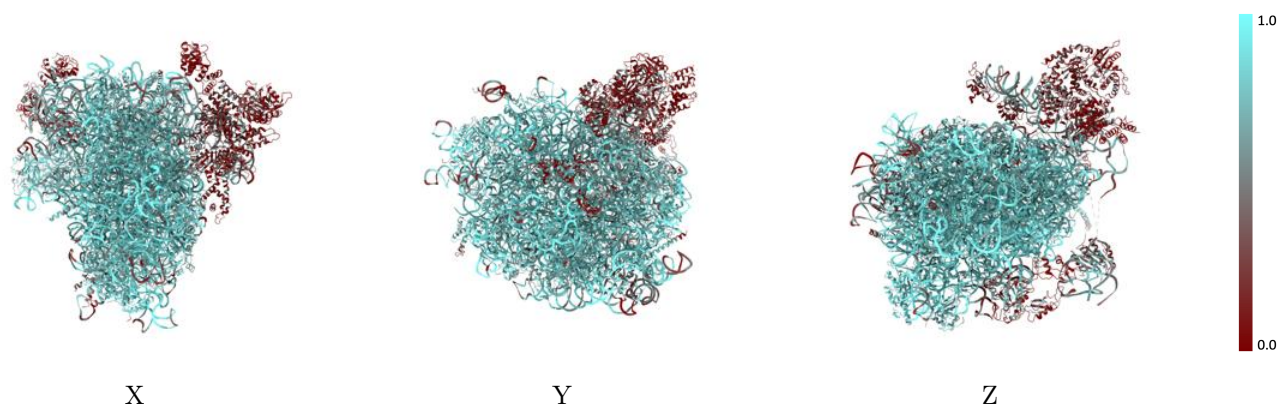
The images above show the 3D surface view of the map at the recommended contour level 0.064 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



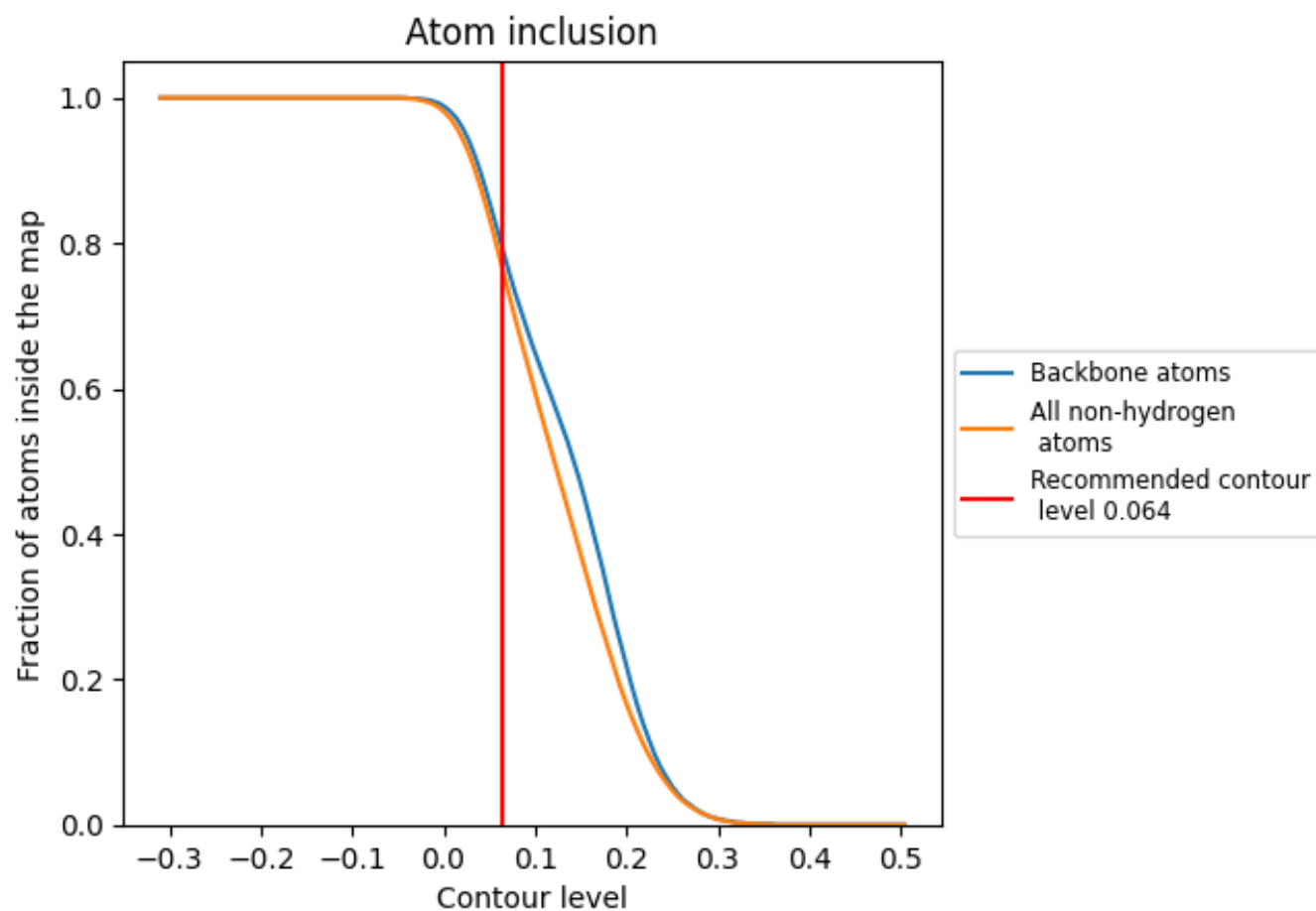
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.064).

9.4 Atom inclusion [i](#)



At the recommended contour level, 79% of all backbone atoms, 77% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.064) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7670	 0.3630
1	 0.5640	 0.0980
2	 0.7580	 0.3260
3	 0.8250	 0.4660
4	 0.1840	 0.0010
5	 0.8610	 0.3770
6	 0.2340	 0.0670
7	 0.9670	 0.4490
8	 0.8820	 0.3960
A	 0.8110	 0.4860
B	 0.7970	 0.4720
C	 0.8110	 0.4630
D	 0.8460	 0.4260
E	 0.7550	 0.3860
F	 0.8090	 0.4620
G	 0.7620	 0.4150
H	 0.8050	 0.4640
I	 0.7900	 0.4540
J	 0.7790	 0.4030
L	 0.7910	 0.4260
M	 0.8550	 0.4590
N	 0.8480	 0.4890
O	 0.8080	 0.4660
P	 0.7920	 0.4850
Q	 0.8150	 0.4780
R	 0.7370	 0.4040
S	 0.8410	 0.4830
T	 0.8100	 0.4690
U	 0.7060	 0.3710
V	 0.7690	 0.4790
W	 0.7490	 0.4350
X	 0.7630	 0.4450
Y	 0.8130	 0.4540
Z	 0.8280	 0.4370
a	 0.8710	 0.4870



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Chain	Atom inclusion	Q-score
b	 0.7310	 0.3950
c	 0.8150	 0.4460
d	 0.7050	 0.4350
e	 0.8220	 0.4760
f	 0.8490	 0.4890
g	 0.7740	 0.4510
h	 0.7790	 0.4280
i	 0.7980	 0.4230
j	 0.8580	 0.4810
k	 0.6790	 0.3830
l	 0.7680	 0.4710
m	 0.8030	 0.4590
n	 0.7360	 0.4400
o	 0.7740	 0.4430
p	 0.7600	 0.4670
q	 0.2290	 0.0270
r	 0.0860	 0.0610
t	 0.0450	 -0.0330
u	 0.2600	 0.0510
v	 0.1670	 0.0640
w	 0.3400	 0.2040
x	 0.2300	 0.1160
y	 0.1930	 0.0840
z	 0.4070	 0.2630