



# Full wwPDB EM Validation Report ⓘ

Jun 9, 2024 – 11:43 PM EDT

PDB ID : 8FIZ  
EMDB ID : EMD-29214  
Title : Cryo-EM structure of E. coli 70S Ribosome containing mRNA and tRNA (in the transcription-translation complex)  
Authors : Florez Ariza, A.; Wee, L.; Tong, A.; Canari, C.; Grob, P.; Nogales, E.; Bustamante, C.  
Deposited on : 2022-12-18  
Resolution : 3.80 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](mailto: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>.

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

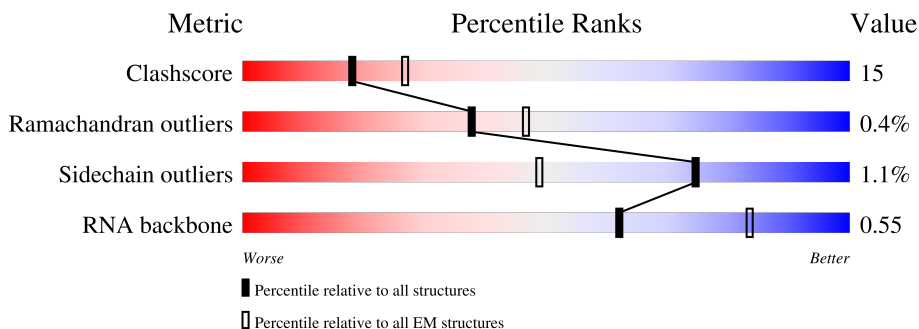
EMDB validation analysis : 0.0.1.dev92  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36.2

# 1 Overall quality at a glance

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

The reported resolution of this entry is 3.80 Å.

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











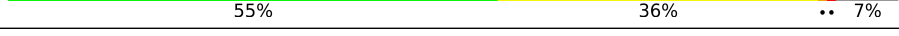

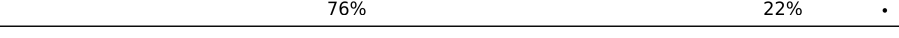
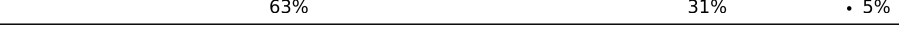

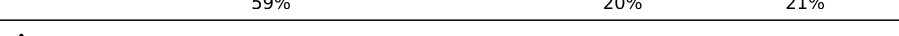


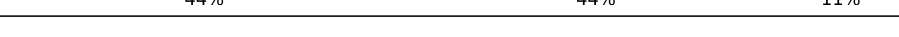

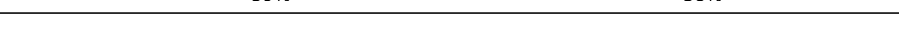






Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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  $\geq 3$ , 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	AA	1534	
2	AB	87	
3	AC	124	
4	AD	92	
5	AE	118	
6	AF	101	
7	AG	233	










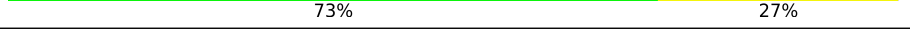

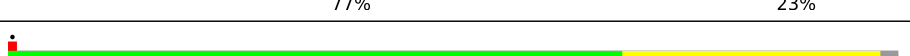

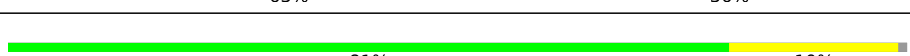
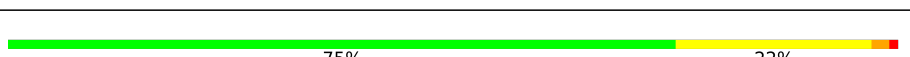
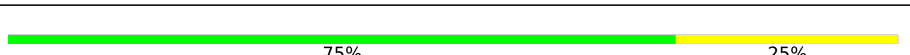





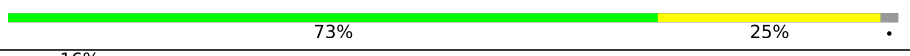


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Mol	Chain	Length	Quality of chain
8	AH	103	 56% 37% . .
9	AI	206	 67% 32%
10	AJ	241	 65% 28% 7%
11	AK	130	 59% 35% . .
12	AL	179	 58% 25% .. 16%
13	AM	129	 65% 24% . 9%
14	AN	135	 57% 21% 21%
15	AO	82	 . 77% 23%
16	AP	167	 55% 36% .. 7%
17	AQ	130	 72% 28% .
18	AR	89	 76% 22% .
19	AS	84	 63% 31% . 5%
20	AT	75	 61% 12% 27%
21	AU	71	 10% 59% 20% 21%
22	AV	70	 . 6% 74% 19% 6% .
23	AW	17	 6% 18% 53% 24% 6%
24	BA	2904	 44% 44% 11%
25	BB	77	 19% 48% 30% .
26	BC	120	 59% 38% .
27	BD	273	 78% 21% .
28	BE	209	 72% 27%
29	BF	201	 78% 22%
30	BG	179	 73% 24% ...
31	BH	117	 75% 25%
32	BI	55	 65% 27% 7%

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Mol	Chain	Length	Quality of chain
33	BJ	177	 75% 24%
34	BK	149	 69% 28%
35	BL	142	 12% 56% 37% 6%
36	BM	57	 82% 16%
37	BN	46	 72% 28%
38	BO	65	 62% 32% 5%
39	BP	38	 74% 26%
40	BQ	59	 80% 19%
41	BR	142	 70% 30%
42	BS	123	 73% 27%
43	BT	144	 77% 23%
44	BU	136	 77% 23%
45	BV	127	 69% 29%
46	BW	115	 63% 36%
47	BX	118	 81% 19%
48	BY	103	 75% 22%
49	BZ	110	 75% 25%
50	DA	100	 67% 26% 7%
51	DB	104	 75% 21%
52	DC	94	 76% 24%
53	DD	85	 78% 12% 11%
54	DE	78	 74% 24%
55	DF	63	 73% 25%
56	DG	165	 16% 43% 37% 18%

## 2 Entry composition [i](#)

There are 56 unique types of molecules in this entry. The entry contains 146125 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 16S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	AA	1534	32917	14681	6041	10661	1534	0	0

- Molecule 2 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	AB	86	670	414	138	115	3	0	0

- Molecule 3 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	AC	122	947	586	195	162	4	0	0

- Molecule 4 is a protein called 30S ribosomal protein S19.

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

- Molecule 5 is a protein called 30S ribosomal protein S13.

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

- Molecule 6 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	AF	100	805	499	164	139	3	0	0

- Molecule 7 is a protein called 30S ribosomal protein S3.

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

- Molecule 8 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	AH	99	795	498	152	144	1	0	0

- Molecule 9 is a protein called 30S ribosomal protein S4.

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

- Molecule 10 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	AJ	224	1753	1109	315	321	8	0	0

- Molecule 11 is a protein called 30S ribosomal protein S9.

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

- Molecule 12 is a protein called 30S ribosomal protein S7.

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

- Molecule 13 is a protein called 30S ribosomal protein S11.

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

- Molecule 14 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	AN	106	862	545	156	154	7	0	0

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

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

- Molecule 16 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	AP	155	1144	711	216	211	6	0	0

- Molecule 17 is a protein called 30S ribosomal protein S8.

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

- Molecule 18 is a protein called 30S ribosomal protein S15.

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

- Molecule 19 is a protein called 30S ribosomal protein S17.

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

- Molecule 20 is a protein called 30S ribosomal protein S18.

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
21	AU	56	Total	C	N	O	S	0	0
			465	290	96	78	1		

- Molecule 22 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	AV	69	Total	C	N	O	S	0	0
			539	333	102	98	6		

- Molecule 23 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	AW	17	Total	C	N	O	P	0	0
			365	162	65	121	17		

- Molecule 24 is a RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	BA	2897	Total	C	N	O	P	2	0
			62218	27755	11451	20114	2898		

- Molecule 25 is a RNA chain called P-site tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	BB	75	Total	C	N	O	P	0	0
			1598	713	290	521	74		

- Molecule 26 is a RNA chain called 5s rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	BC	120	Total	C	N	O	P	0	0
			2569	1144	468	837	120		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
27	BD	271	Total	C	N	O	S	0	0
			2082	1288	423	364	7		

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



Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
28	BE	208	1556	974	286	292	4	0	0

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

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

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

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

- Molecule 31 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	BH	117	900	557	179	163	1	0	0

- Molecule 32 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
32	BI	51	414	266	76	72	0	0

- Molecule 33 is a protein called 50S ribosomal protein L6.

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

- Molecule 34 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
34	BK	149	1110	699	197	213	1	0	0

- Molecule 35 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	BL	134	Total	C	N	O	S	0	0
			979	619	169	185	6		

- Molecule 36 is a protein called 50S ribosomal protein L32.

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

- Molecule 37 is a protein called 50S ribosomal protein L34.

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

- Molecule 38 is a protein called 50S ribosomal protein L35.

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

- Molecule 39 is a protein called 50S ribosomal protein L36.

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

- Molecule 40 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	BQ	58	Total	C	N	O	S	2	0
			463	290	90	81	2		

- Molecule 41 is a protein called 50S ribosomal protein L13.

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

- Molecule 42 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
42	BS	123	946	593	181	166	6	0	0

- Molecule 43 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
43	BT	144	1053	654	207	190	2	0	0

- Molecule 44 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
44	BU	136	1082	691	208	177	6	1	0

- Molecule 45 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
45	BV	125	993	613	202	173	5	0	0

- Molecule 46 is a protein called 50S ribosomal protein L19.

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

- Molecule 47 is a protein called 50S ribosomal protein L20.

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

- Molecule 48 is a protein called Ribosomal protein L21.

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

- Molecule 49 is a protein called 50S ribosomal protein L22.

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

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

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

- Molecule 51 is a protein called 50S ribosomal protein L24.

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

- Molecule 52 is a protein called 50S ribosomal protein L25.

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

- Molecule 53 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
53	DD	76	591	365	121	104	1	1	0

- Molecule 54 is a protein called 50S ribosomal protein L28.

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

- Molecule 55 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
55	DF	62	501	308	98	94	1	0	0

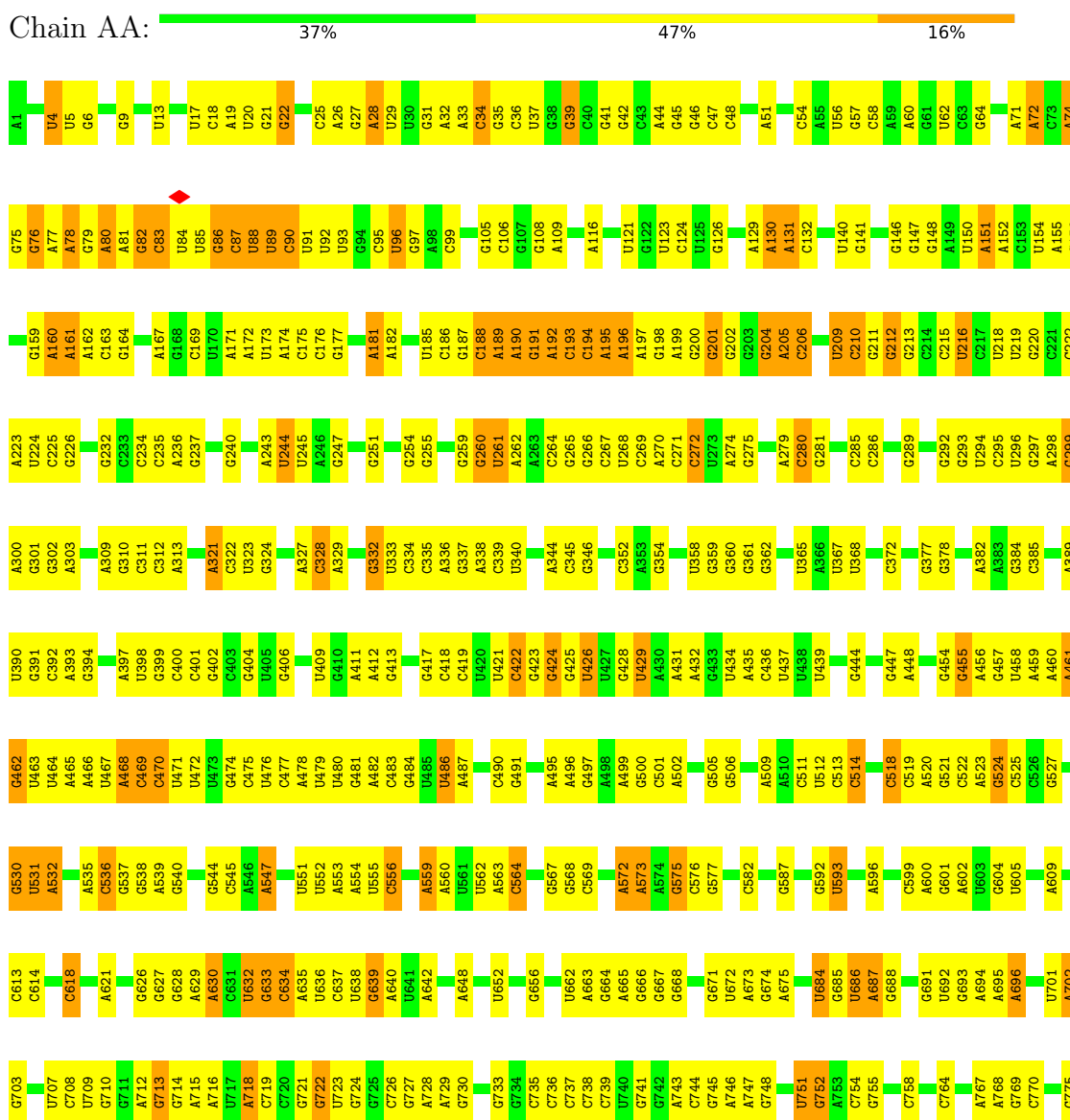
- Molecule 56 is a protein called 50S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
56	DG	135	1023	648	179	192	4	0	0

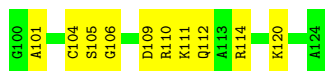
### 3 Residue-property plots

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.

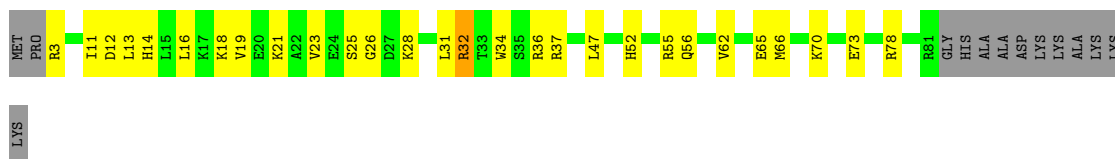
- Molecule 1: 16S rRNA



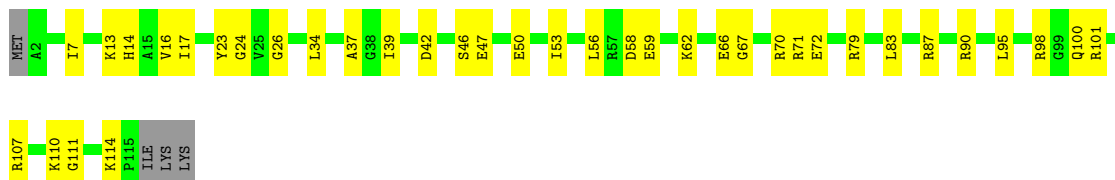




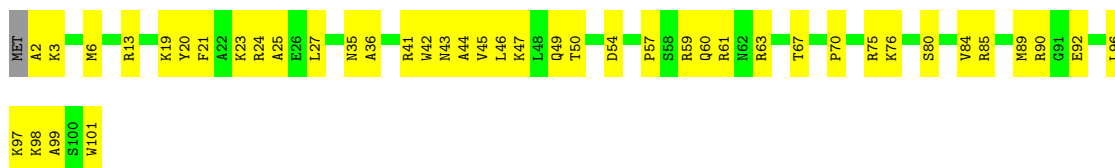
• Molecule 4: 30S ribosomal protein S19



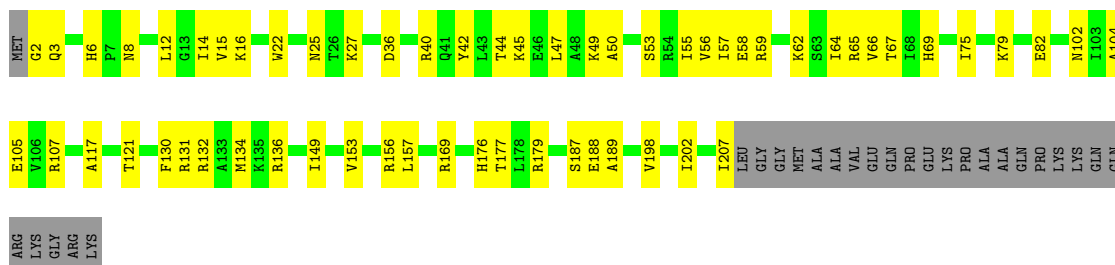
• Molecule 5: 30S ribosomal protein S13



• Molecule 6: 30S ribosomal protein S14



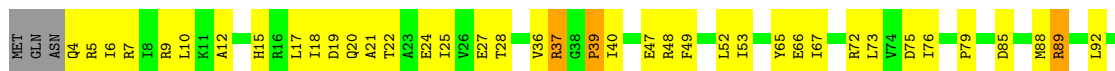
• Molecule 7: 30S ribosomal protein S3



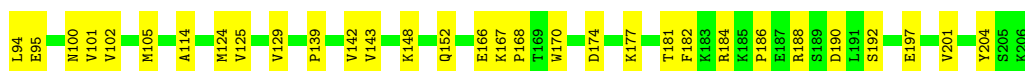
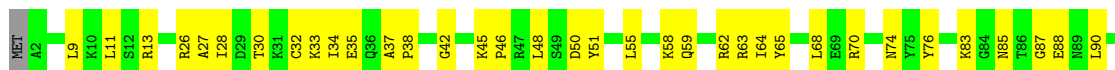
• Molecule 8: 30S ribosomal protein S10



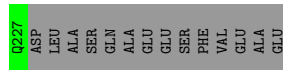
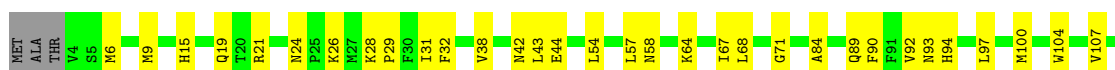




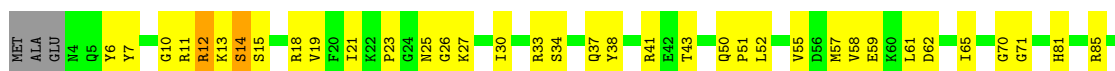
• Molecule 9: 30S ribosomal protein S4



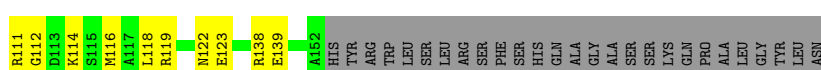
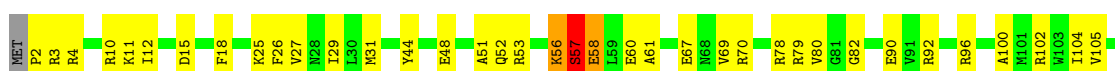
• Molecule 10: 30S ribosomal protein S2



• Molecule 11: 30S ribosomal protein S9

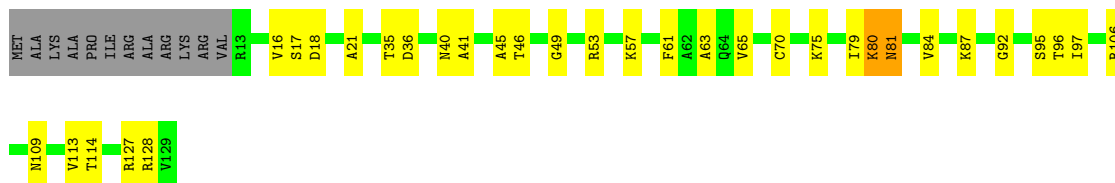


• Molecule 12: 30S ribosomal protein S7



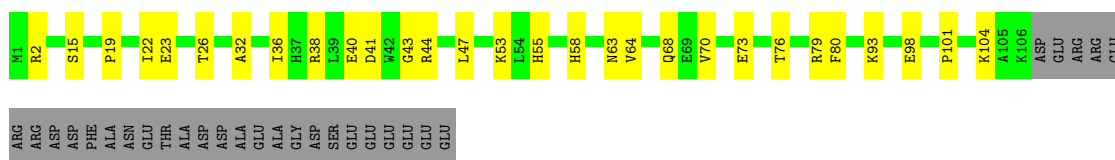
- Molecule 13: 30S ribosomal protein S11

Chain AM:  65% 24% 9%




- Molecule 14: 30S ribosomal protein S6

Chain AN:  57% 21% 21%



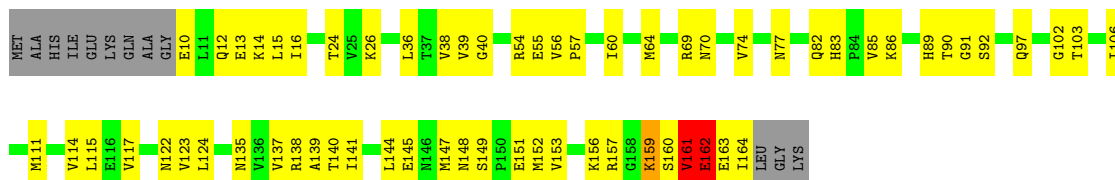
- Molecule 15: 30S ribosomal protein S16

Chain AO:  77% 23%



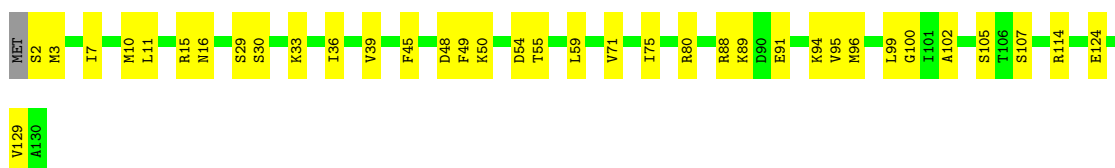
- Molecule 16: 30S ribosomal protein S5

Chain AP:  55% 36% 7%




- Molecule 17: 30S ribosomal protein S8

Chain AQ:  72% 28%



- Molecule 18: 30S ribosomal protein S15

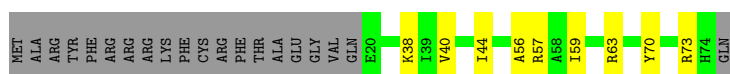
Chain AR:  76% 22%



• Molecule 19: 30S ribosomal protein S17



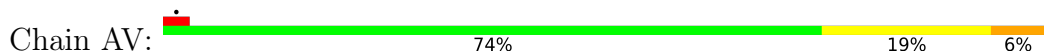
• Molecule 20: 30S ribosomal protein S18



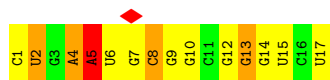
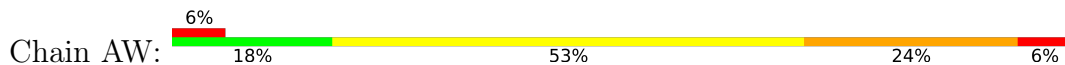
• Molecule 21: 30S ribosomal protein S21



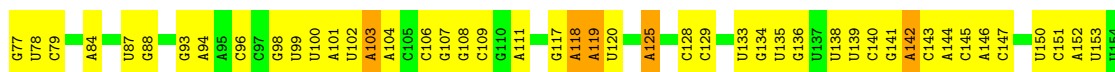
• Molecule 22: 50S ribosomal protein L31



• Molecule 23: mRNA

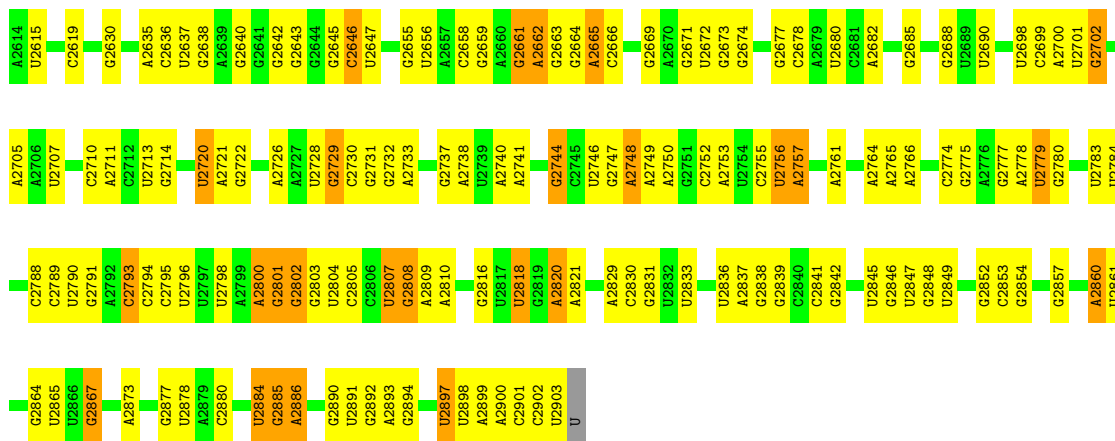


• Molecule 24: 23S rRNA

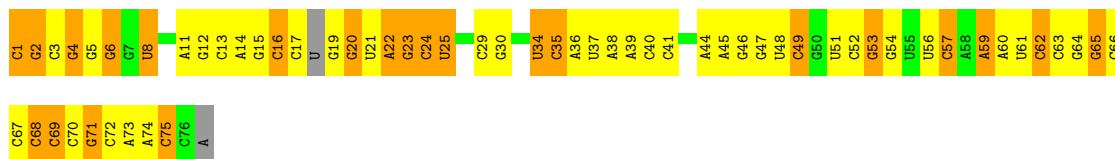
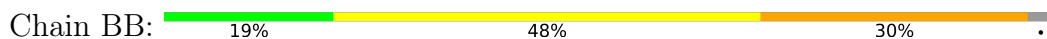


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A401	A404	U405	G406	G411	A412	C413	A414	A415	U416	A417	C418	U419	A420	C421	G424	A425	C426	U427	A428	A429	A430	C431	C435	U435	U436	A437	A438	U439	A442	A443	U444	A445	U448	A449	C456	A457	G458	U463	U464	G465	A466	G467	U468	G469	G473	G474	C393	C394	U395	G396	U397	C398	U399	A460	G481		
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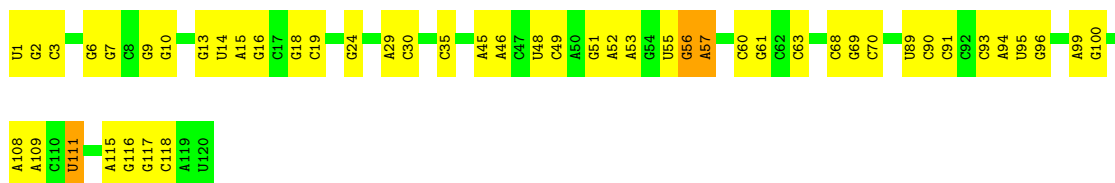
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A2516	G2341	U2243	U2243	U2243	U2166	C2105	A2030	U1780	G1695	A1596	G1527	C1448
A2518	U2344	U2244	U2244	U2244	G2168	U2106	G1942	A1781	C1696	C1597	U1528	C1449
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C2520	A2346	G2246	G2246	G2246	A2170	A2108	G1944	U1783	C1698	C1599	A1533	U1451
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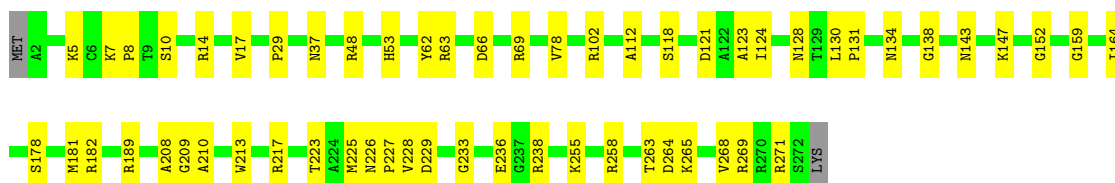
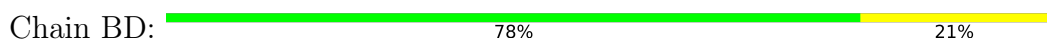
• Molecule 25: P-site tRNA



• Molecule 26: 5s rRNA



• Molecule 27: 50S ribosomal protein L2

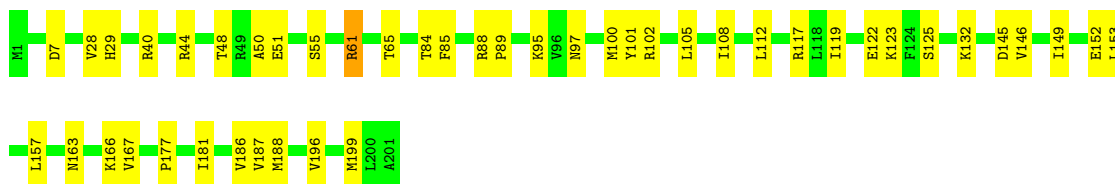
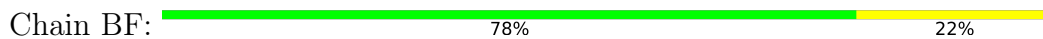


• Molecule 28: 50S ribosomal protein L3

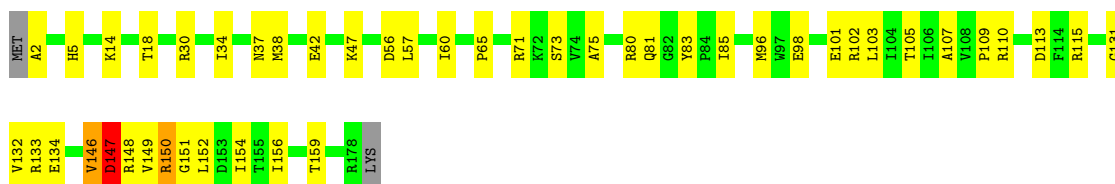
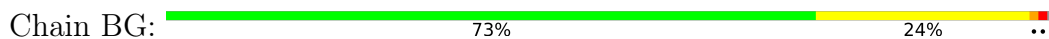




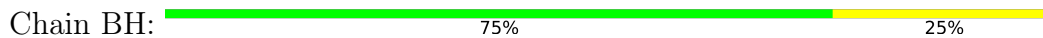
- Molecule 29: 50S ribosomal protein L4



- Molecule 30: 50S ribosomal protein L5



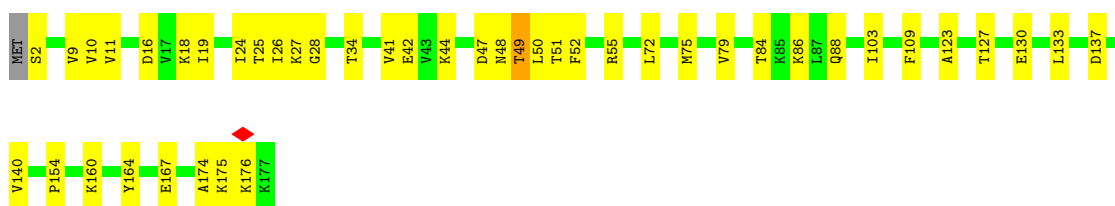
- Molecule 31: 50S ribosomal protein L18



- Molecule 32: 50S ribosomal protein L33

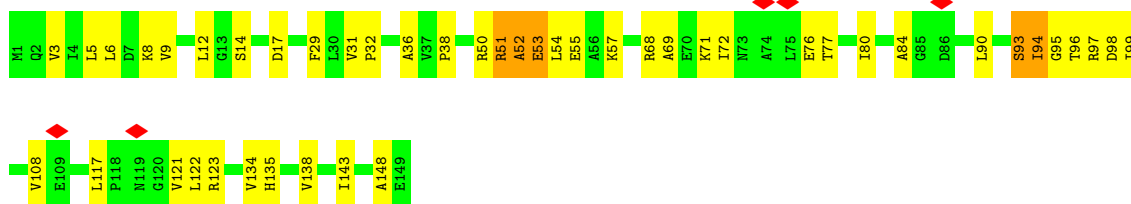


- Molecule 33: 50S ribosomal protein L6



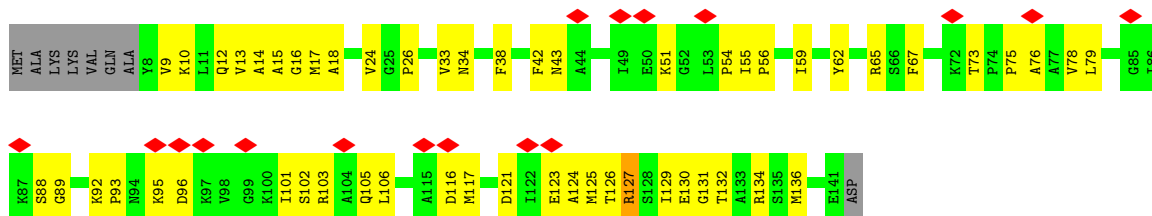
- Molecule 34: 50S ribosomal protein L9

Chain BK:  69% 28%




- Molecule 35: 50S ribosomal protein L11

Chain BL:  12% 56% 37% 6%




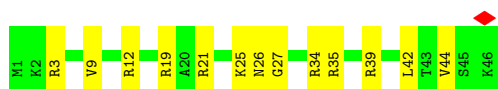
- Molecule 36: 50S ribosomal protein L32

Chain BM:  82% 16%



- Molecule 37: 50S ribosomal protein L34

Chain BN:  72% 28%




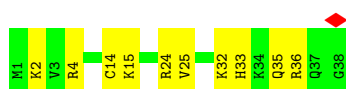
- Molecule 38: 50S ribosomal protein L35

Chain BO:  62% 32% 5%



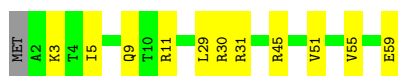
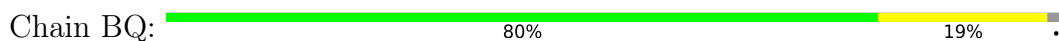
- Molecule 39: 50S ribosomal protein L36

Chain BP:  74% 26%

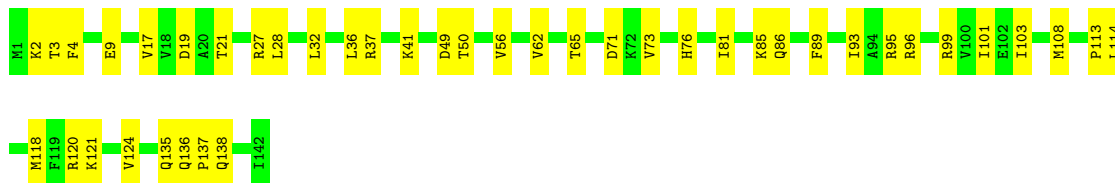




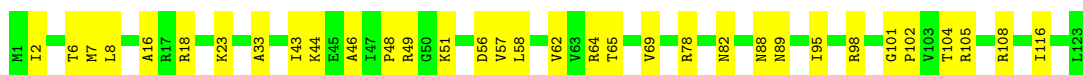
• Molecule 40: 50S ribosomal protein L30



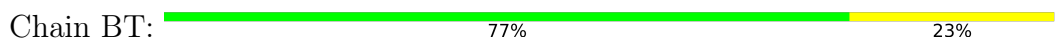
• Molecule 41: 50S ribosomal protein L13



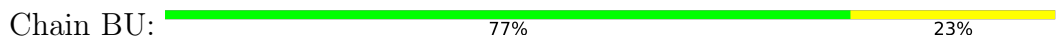
• Molecule 42: 50S ribosomal protein L14



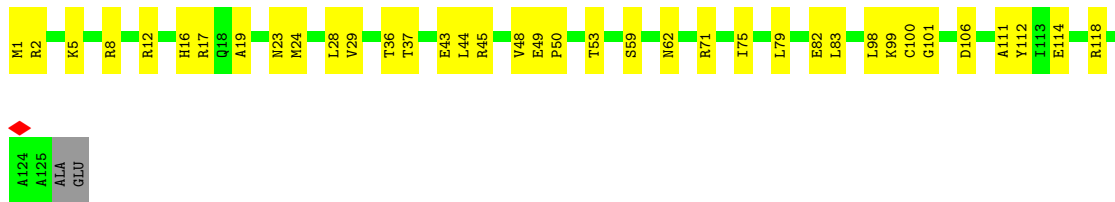
• Molecule 43: 50S ribosomal protein L15



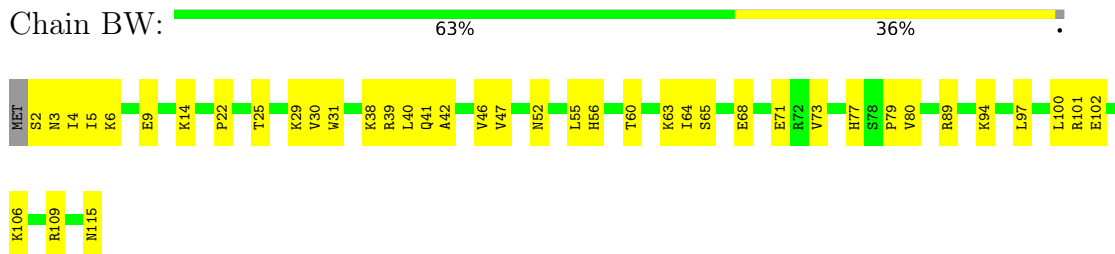
• Molecule 44: 50S ribosomal protein L16



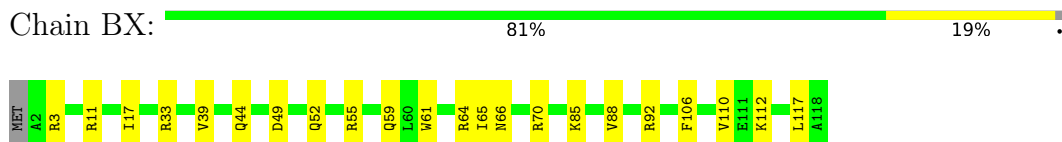
• Molecule 45: 50S ribosomal protein L17



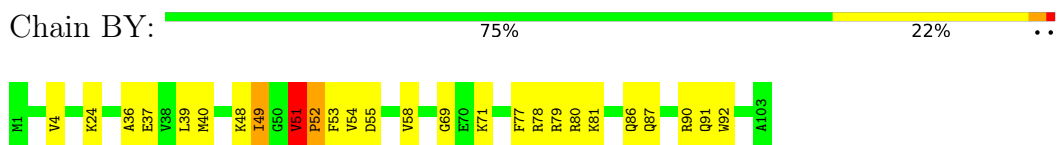
• Molecule 46: 50S ribosomal protein L19



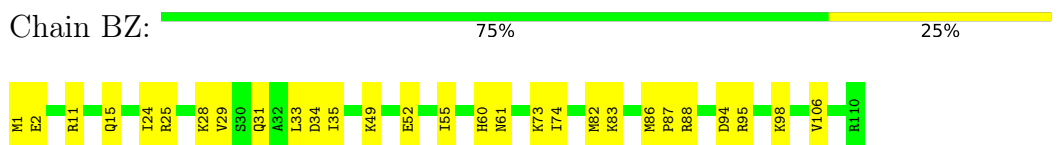
• Molecule 47: 50S ribosomal protein L20



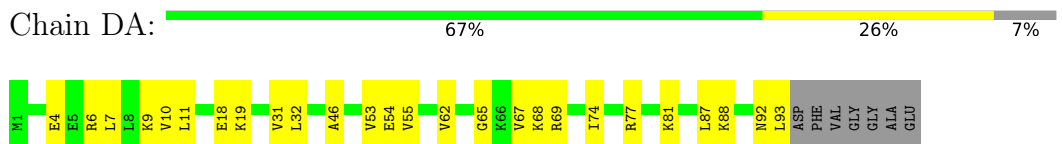
• Molecule 48: Ribosomal protein L21



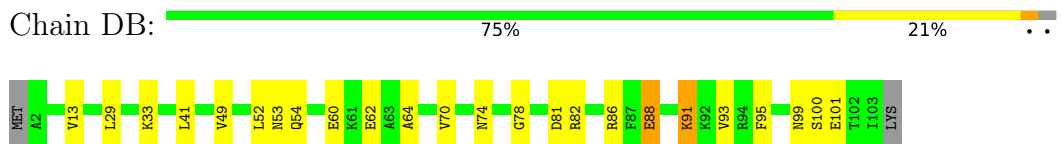
• Molecule 49: 50S ribosomal protein L22



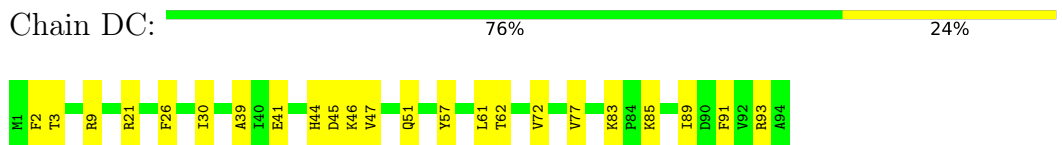
• Molecule 50: 50S ribosomal protein L23



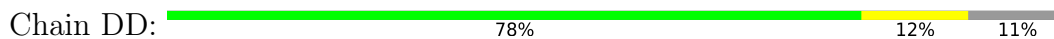
• Molecule 51: 50S ribosomal protein L24



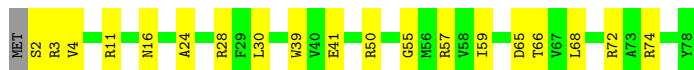
• Molecule 52: 50S ribosomal protein L25



• Molecule 53: 50S ribosomal protein L27



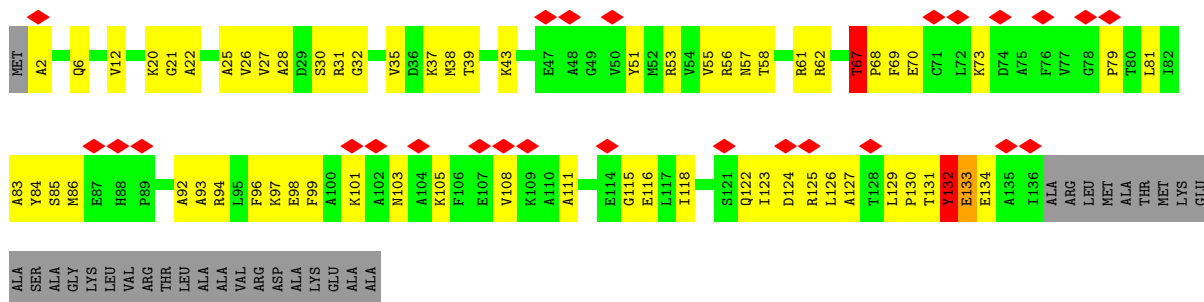
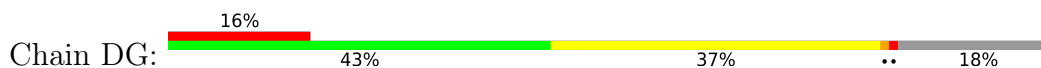
• Molecule 54: 50S ribosomal protein L28



• Molecule 55: 50S ribosomal protein L29



• Molecule 56: 50S ribosomal protein L10



## 4 Experimental information i

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	18629	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	50	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.405	Depositor
Minimum map value	-0.133	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.016	Depositor
Recommended contour level	0.06	Depositor
Map size (Å)	601.952, 601.952, 601.952	wwPDB
Map dimensions	416, 416, 416	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.447, 1.447, 1.447	Depositor

## 5 Model quality i

### 5.1 Standard geometry i

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	AA	0.30	0/36859	0.81	4/57501 (0.0%)
2	AB	0.26	0/676	0.50	0/895
3	AC	0.30	0/960	0.65	0/1286
4	AD	0.26	0/652	0.55	0/877
5	AE	0.25	0/892	0.59	0/1193
6	AF	0.25	0/817	0.60	0/1088
7	AG	0.27	0/1651	0.56	0/2225
8	AH	0.39	0/805	0.72	1/1089 (0.1%)
9	AI	0.26	0/1665	0.53	0/2227
10	AJ	0.25	0/1784	0.53	0/2403
11	AK	0.36	1/1034 (0.1%)	0.63	0/1375
12	AL	0.28	0/1195	0.55	0/1602
13	AM	0.27	0/893	0.56	0/1205
14	AN	0.27	0/881	0.55	0/1189
15	AO	0.26	0/659	0.58	0/884
16	AP	0.30	0/1157	0.60	0/1557
17	AQ	0.27	0/989	0.56	0/1326
18	AR	0.27	0/722	0.60	0/964
19	AS	0.28	0/657	0.62	0/881
20	AT	0.26	0/462	0.58	0/621
21	AU	0.26	0/472	0.58	0/627
22	AV	0.72	0/549	1.14	1/734 (0.1%)
23	AW	0.60	1/407 (0.2%)	0.98	1/633 (0.2%)
24	BA	0.30	1/69710 (0.0%)	0.79	0/108752
25	BB	0.40	0/1784	0.90	0/2778
26	BC	0.27	0/2872	0.77	0/4478
27	BD	0.27	0/2121	0.57	0/2852
28	BE	0.29	0/1576	0.55	0/2119
29	BF	0.26	0/1571	0.51	0/2113
30	BG	0.32	0/1434	0.56	0/1926
31	BH	0.26	0/910	0.59	0/1219
32	BI	0.25	0/421	0.53	0/561
33	BJ	0.28	0/1343	0.53	0/1816
34	BK	0.29	0/1121	0.56	0/1515

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
35	BL	0.26	0/993	0.55	0/1341
36	BM	0.25	0/450	0.56	0/599
37	BN	0.25	0/380	0.65	0/498
38	BO	0.29	0/513	0.54	0/676
39	BP	0.26	0/303	0.55	0/397
40	BQ	0.25	0/467	0.55	0/623
41	BR	0.27	0/1152	0.55	0/1551
42	BS	0.27	0/955	0.59	0/1279
43	BT	0.27	0/1062	0.59	0/1413
44	BU	0.29	0/1104	0.60	0/1474
45	BV	0.27	0/1006	0.58	0/1345
46	BW	0.27	0/929	0.56	0/1242
47	BX	0.27	0/960	0.53	0/1278
48	BY	0.34	0/829	0.58	0/1107
49	BZ	0.25	0/864	0.55	0/1156
50	DA	0.26	0/744	0.58	0/994
51	DB	0.29	0/787	0.53	0/1051
52	DC	0.27	0/766	0.55	0/1025
53	DD	0.26	0/598	0.55	0/790
54	DE	0.26	0/635	0.59	0/848
55	DF	0.27	0/502	0.60	0/667
56	DG	0.29	0/1037	0.56	0/1400
All	All	0.30	3/158737 (0.0%)	0.74	7/237265 (0.0%)

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	AK	129	LYS	C-N	7.15	1.50	1.34
24	BA	1915	U	C1'-N1	7.07	1.59	1.48
23	AW	2	U	C1'-N1	5.88	1.57	1.48

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	AA	1310	G	O3'-P-O5'	-15.99	73.61	104.00
8	AH	39	PRO	CA-N-CD	-8.58	99.49	111.50
1	AA	1310	G	OP2-P-O3'	7.77	122.29	105.20
1	AA	1310	G	C3'-C2'-C1'	-7.29	95.67	101.50
23	AW	5	A	C3'-C2'-C1'	-6.70	96.14	101.50
22	AV	11	GLU	O-C-N	5.29	131.17	122.70
1	AA	1309	G	OP2-P-O3'	5.03	116.27	105.20

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	AA	32917	0	16563	855	0
2	AB	670	0	719	14	0
3	AC	947	0	1011	71	0
4	AD	637	0	665	23	0
5	AE	883	0	941	34	0
6	AF	805	0	844	32	0
7	AG	1624	0	1696	40	0
8	AH	795	0	836	46	0
9	AI	1643	0	1707	52	0
10	AJ	1753	0	1780	48	0
11	AK	1022	0	1070	50	0
12	AL	1181	0	1238	38	0
13	AM	877	0	887	25	0
14	AN	862	0	864	25	0
15	AO	649	0	666	12	0
16	AP	1144	0	1185	57	0
17	AQ	979	0	1031	34	0
18	AR	714	0	734	14	0
19	AS	648	0	691	24	0
20	AT	455	0	478	11	0
21	AU	465	0	491	9	0
22	AV	539	0	539	31	0
23	AW	365	0	184	22	0
24	BA	62218	0	31285	1365	0
25	BB	1598	0	817	97	0
26	BC	2569	0	1301	30	0
27	BD	2082	0	2154	42	0
28	BE	1556	0	1607	63	0
29	BF	1552	0	1619	38	0
30	BG	1410	0	1444	69	0
31	BH	900	0	935	22	0
32	BI	414	0	442	12	0
33	BJ	1323	0	1371	35	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
34	BK	1110	0	1148	57	0
35	BL	979	0	1028	44	0
36	BM	444	0	458	9	0
37	BN	377	0	418	9	0
38	BO	504	0	572	25	0
39	BP	302	0	343	7	0
40	BQ	463	0	504	8	0
41	BR	1129	0	1162	34	0
42	BS	946	0	1023	25	0
43	BT	1053	0	1129	28	0
44	BU	1082	0	1170	24	0
45	BV	993	0	1034	30	0
46	BW	917	0	962	29	0
47	BX	947	0	1019	22	0
48	BY	816	0	839	44	0
49	BZ	857	0	922	21	0
50	DA	738	0	807	21	0
51	DB	779	0	831	29	0
52	DC	753	0	780	14	0
53	DD	591	0	606	10	0
54	DE	625	0	652	18	0
55	DF	501	0	531	17	0
56	DG	1023	0	1050	90	0
All	All	146125	0	98783	3535	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 15.

All (3535) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:523:A:C2	3:AC:88:LYS:CB	1.94	1.48
24:BA:222:A:H62	24:BA:232:G:N2	1.14	1.46
3:AC:44:LYS:CG	3:AC:45:PRO:HD2	1.44	1.45
24:BA:222:A:N6	24:BA:232:G:H21	1.15	1.45
1:AA:1347:G:N7	11:AK:13:LYS:HE2	1.14	1.43
24:BA:1062:G:H1	24:BA:1076:C:N4	1.18	1.38
24:BA:1083:U:C4	24:BA:1085:A:P	2.18	1.37
56:DG:22:ALA:N	56:DG:86:MET:CE	1.81	1.36
56:DG:68:PRO:CG	56:DG:115:GLY:O	1.75	1.33
24:BA:1083:U:C4	24:BA:1085:A:OP2	1.80	1.32

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:DG:68:PRO:HG3	56:DG:116:GLU:OE2	1.14	1.31
24:BA:222:A:N7	24:BA:224:U:C4	1.97	1.30
48:BY:40:MET:HG3	48:BY:49:ILE:CD1	1.62	1.29
56:DG:67:THR:HB	56:DG:68:PRO:CD	1.58	1.28
1:AA:1347:G:N7	11:AK:13:LYS:CE	1.94	1.28
24:BA:881:G:C2	24:BA:896:A:N6	2.03	1.27
24:BA:222:A:C8	24:BA:224:U:C6	2.22	1.26
56:DG:68:PRO:HG2	56:DG:115:GLY:O	1.17	1.25
24:BA:1083:U:C5	24:BA:1085:A:OP2	1.88	1.24
48:BY:37:GLU:HG3	48:BY:53:PHE:CE2	1.70	1.24
1:AA:523:A:C2	3:AC:88:LYS:HB2	1.65	1.23
24:BA:222:A:C8	24:BA:224:U:C5	2.26	1.23
56:DG:22:ALA:N	56:DG:86:MET:HE1	1.32	1.21
24:BA:1059:G:N1	24:BA:1081:U:H1'	1.55	1.21
24:BA:1083:U:C2	24:BA:1085:A:OP2	1.93	1.21
24:BA:881:G:N2	24:BA:896:A:C6	2.07	1.20
1:AA:523:A:N1	3:AC:88:LYS:C	1.94	1.20
24:BA:1083:U:N3	24:BA:1085:A:OP2	1.75	1.19
34:BK:93:SER:OG	34:BK:123:ARG:CG	1.91	1.19
25:BB:4:G:N3	25:BB:71:G:N2	1.90	1.18
24:BA:1083:U:C6	24:BA:1085:A:OP2	1.95	1.18
34:BK:93:SER:OG	34:BK:123:ARG:CB	1.92	1.18
34:BK:93:SER:OG	34:BK:123:ARG:HG3	1.37	1.17
3:AC:44:LYS:CB	3:AC:45:PRO:HD2	1.75	1.17
56:DG:129:LEU:CD2	56:DG:132:TYR:HE2	1.60	1.15
30:BG:134:GLU:HG3	30:BG:150:ARG:CG	1.76	1.15
1:AA:1371:G:OP1	11:AK:14:SER:OG	1.64	1.14
48:BY:51:VAL:HG23	48:BY:52:PRO:CD	1.78	1.13
1:AA:1312:G:N2	1:AA:1325:C:C2	2.16	1.12
56:DG:129:LEU:HD21	56:DG:132:TYR:CE2	1.85	1.12
3:AC:44:LYS:HB2	3:AC:45:PRO:CD	1.80	1.10
56:DG:129:LEU:HD21	56:DG:132:TYR:HE2	0.93	1.10
56:DG:67:THR:HB	56:DG:68:PRO:HD2	1.29	1.10
24:BA:2127:G:N2	24:BA:2173:A:H61	1.48	1.10
30:BG:134:GLU:HG3	30:BG:150:ARG:HG3	1.14	1.09
3:AC:44:LYS:CB	3:AC:45:PRO:CD	2.31	1.09
28:BE:148:GLN:HG3	28:BE:152:PRO:HG3	1.19	1.09
3:AC:44:LYS:HG3	3:AC:45:PRO:CD	1.83	1.08
48:BY:51:VAL:CG2	48:BY:52:PRO:HD3	1.84	1.08
1:AA:1312:G:C2	1:AA:1325:C:O2	2.05	1.08
23:AW:8:C:H6	23:AW:8:C:H5''	1.16	1.08

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:1083:U:O4	24:BA:1085:A:OP1	1.72	1.07
24:BA:222:A:N6	24:BA:232:G:N2	1.82	1.07
25:BB:4:G:C2	25:BB:71:G:C2	2.42	1.06
48:BY:51:VAL:CB	48:BY:52:PRO:HD3	1.85	1.06
34:BK:93:SER:CB	34:BK:123:ARG:HG3	1.85	1.06
51:DB:88:GLU:OE1	51:DB:93:VAL:HG21	1.54	1.05
48:BY:37:GLU:HG3	48:BY:53:PHE:CD2	1.91	1.05
1:AA:523:A:H2	3:AC:88:LYS:HB3	0.93	1.05
24:BA:1083:U:H3	24:BA:1085:A:C5'	1.70	1.04
48:BY:51:VAL:HB	48:BY:52:PRO:HD3	1.38	1.04
24:BA:570:G:H21	24:BA:2030:A:H1'	1.21	1.03
24:BA:1040:A:C2	24:BA:1115:G:N1	2.25	1.03
30:BG:146:VAL:CG1	30:BG:149:VAL:CG1	2.36	1.03
56:DG:21:GLY:C	56:DG:86:MET:HE3	1.79	1.03
1:AA:523:A:C2	3:AC:88:LYS:HB3	1.73	1.02
1:AA:523:A:H2	3:AC:88:LYS:CB	1.51	1.02
48:BY:51:VAL:HG23	48:BY:52:PRO:HD2	1.37	1.02
1:AA:1312:G:C2	1:AA:1325:C:C2	2.47	1.02
25:BB:2:G:H1	25:BB:72:C:N4	1.57	1.02
24:BA:1468:U:H3	24:BA:1524:G:H1	1.02	1.01
24:BA:2161:C:C6	24:BA:2164:C:H5	1.78	1.01
24:BA:2305:U:C2	30:BG:131:GLY:HA3	1.94	1.01
24:BA:222:A:N7	24:BA:224:U:C5	2.23	1.01
24:BA:1083:U:C4	24:BA:1085:A:OP1	2.12	1.01
24:BA:1059:G:H1	24:BA:1081:U:H1'	1.07	1.00
1:AA:523:A:C2	3:AC:88:LYS:CA	2.43	1.00
25:BB:23:G:N7	25:BB:47:G:C4	2.30	1.00
24:BA:1059:G:O6	24:BA:1081:U:O2	1.79	1.00
24:BA:1063:G:H1	24:BA:1075:C:N4	1.60	1.00
24:BA:1063:G:H1	24:BA:1075:C:H42	1.05	1.00
56:DG:68:PRO:CG	56:DG:116:GLU:OE2	2.10	0.99
56:DG:21:GLY:C	56:DG:86:MET:CE	2.29	0.99
56:DG:67:THR:CB	56:DG:68:PRO:CD	2.41	0.99
34:BK:93:SER:OG	34:BK:123:ARG:CA	2.11	0.98
25:BB:4:G:C4	25:BB:71:G:N2	2.31	0.98
24:BA:222:A:N6	24:BA:232:G:C2	2.31	0.97
25:BB:6:G:N2	25:BB:69:C:H42	1.62	0.97
3:AC:88:LYS:HA	3:AC:88:LYS:NZ	1.78	0.97
56:DG:68:PRO:HG2	56:DG:116:GLU:HA	1.46	0.97
24:BA:1059:G:H1	24:BA:1081:U:C1'	1.77	0.97
30:BG:146:VAL:HG11	30:BG:149:VAL:CG1	1.94	0.97

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:984:C:N3	1:AA:1221:G:N2	2.12	0.97
24:BA:2789:C:N4	24:BA:2893:A:C2	2.33	0.97
3:AC:44:LYS:CG	3:AC:45:PRO:CD	2.39	0.97
56:DG:67:THR:HB	56:DG:68:PRO:HD3	1.45	0.97
3:AC:44:LYS:HG3	3:AC:45:PRO:HD2	0.97	0.96
24:BA:1083:U:N3	24:BA:1085:A:P	2.36	0.96
1:AA:321:A:H61	1:AA:332:G:H1	1.12	0.96
22:AV:12:ILE:HG21	22:AV:26:SER:HB3	1.44	0.96
24:BA:222:A:N7	24:BA:224:U:N3	2.12	0.96
48:BY:40:MET:HG3	48:BY:49:ILE:HD13	1.45	0.96
51:DB:86:ARG:NH1	51:DB:88:GLU:OE2	1.97	0.96
25:BB:23:G:C5	25:BB:47:G:C2	2.53	0.96
25:BB:4:G:N3	25:BB:71:G:C2	2.33	0.95
25:BB:23:G:C5	25:BB:47:G:N3	2.35	0.95
1:AA:1135:U:H3	1:AA:1140:C:N4	1.64	0.95
48:BY:37:GLU:CG	48:BY:53:PHE:CE2	2.48	0.95
1:AA:1135:U:H3	1:AA:1140:C:H42	0.96	0.94
56:DG:85:SER:OG	56:DG:92:ALA:HB1	1.66	0.94
24:BA:1083:U:N1	24:BA:1085:A:OP2	1.99	0.93
25:BB:6:G:N2	25:BB:69:C:N4	2.16	0.93
56:DG:22:ALA:N	56:DG:86:MET:HE3	1.77	0.93
24:BA:881:G:N2	24:BA:896:A:N6	2.09	0.93
24:BA:881:G:N2	24:BA:896:A:C5	2.37	0.93
24:BA:2127:G:H21	24:BA:2173:A:N6	1.67	0.92
24:BA:881:G:H22	24:BA:894:U:H3	1.16	0.92
48:BY:40:MET:CG	48:BY:49:ILE:CD1	2.47	0.92
24:BA:2305:U:C6	24:BA:2305:U:H5'	2.04	0.92
1:AA:523:A:C2	3:AC:88:LYS:C	2.43	0.92
56:DG:22:ALA:H	56:DG:86:MET:HE1	1.13	0.92
24:BA:1083:U:N3	24:BA:1085:A:C5'	2.32	0.91
56:DG:68:PRO:HG3	56:DG:116:GLU:CD	1.90	0.91
24:BA:6:A:H2'	24:BA:7:G:H8	1.35	0.91
3:AC:87:VAL:HG21	3:AC:93:VAL:CG1	2.01	0.91
30:BG:146:VAL:HG11	30:BG:149:VAL:HG11	1.52	0.91
1:AA:523:A:N3	3:AC:88:LYS:HB2	1.85	0.91
25:BB:23:G:C6	25:BB:47:G:N3	2.39	0.91
1:AA:1133:G:C2	1:AA:1142:G:C6	2.58	0.90
24:BA:1062:G:N1	24:BA:1076:C:N4	1.92	0.90
56:DG:68:PRO:CD	56:DG:115:GLY:O	2.19	0.90
1:AA:1294:G:H3'	1:AA:1295:U:H5''	1.53	0.90
24:BA:2127:G:H21	24:BA:2173:A:H61	0.90	0.90

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:BE:148:GLN:HG3	28:BE:152:PRO:CG	2.02	0.90
24:BA:2808:G:N7	24:BA:2891:U:C6	2.40	0.90
1:AA:466:A:N6	1:AA:469:C:N3	2.19	0.89
8:AH:39:PRO:HD2	8:AH:40:ILE:H	1.36	0.89
24:BA:2394:C:OP1	38:BO:30:ARG:NH2	2.05	0.89
56:DG:129:LEU:CD2	56:DG:132:TYR:CE2	2.49	0.89
1:AA:1123:U:H3	1:AA:1150:A:H61	1.15	0.89
1:AA:1493:A:H2	23:AW:8:C:C6	1.90	0.88
24:BA:222:A:N6	24:BA:232:G:N3	2.20	0.88
1:AA:1410:A:C4	1:AA:1491:G:N2	2.42	0.88
48:BY:40:MET:SD	48:BY:49:ILE:HD11	2.14	0.88
24:BA:879:G:N2	24:BA:898:C:O2	2.07	0.88
1:AA:1127:G:N1	1:AA:1145:A:C6	2.43	0.87
23:AW:8:C:H5''	23:AW:8:C:C6	2.09	0.87
56:DG:68:PRO:CG	56:DG:116:GLU:HA	2.04	0.87
1:AA:1123:U:H3	1:AA:1150:A:N6	1.72	0.87
24:BA:222:A:C5	24:BA:224:U:C2	2.63	0.87
8:AH:40:ILE:CG2	8:AH:73:LEU:HB3	2.06	0.86
24:BA:2161:C:H6	24:BA:2164:C:H5	1.17	0.86
1:AA:988:G:N2	1:AA:1217:C:C2	2.43	0.86
24:BA:570:G:N2	24:BA:2030:A:H1'	1.90	0.86
1:AA:1027:C:N3	1:AA:1034:G:O6	2.09	0.86
24:BA:2068:U:H6	24:BA:2068:U:H5''	1.40	0.86
48:BY:51:VAL:CG2	48:BY:52:PRO:CD	2.45	0.86
56:DG:68:PRO:HG2	56:DG:115:GLY:C	1.95	0.86
24:BA:1059:G:C6	24:BA:1081:U:H1'	2.10	0.86
1:AA:1133:G:N2	1:AA:1142:G:C5	2.44	0.85
35:BL:103:ARG:HA	35:BL:106:LEU:HB2	1.58	0.85
24:BA:2808:G:O2'	24:BA:2890:G:C6	2.30	0.85
48:BY:37:GLU:HG3	48:BY:53:PHE:HE2	1.39	0.85
25:BB:2:G:H1	25:BB:72:C:H42	1.21	0.85
24:BA:1040:A:H2	24:BA:1115:G:N1	1.74	0.85
1:AA:1269:A:N3	1:AA:1325:C:O2'	2.08	0.85
24:BA:1912:A:N3	24:BA:1912:A:H5''	1.92	0.84
26:BC:9:G:H1	26:BC:111:U:H3	1.20	0.84
24:BA:1059:G:C6	24:BA:1081:U:O2	2.28	0.84
24:BA:2789:C:C4	24:BA:2893:A:C6	2.65	0.84
34:BK:93:SER:OG	34:BK:123:ARG:HA	1.76	0.84
22:AV:12:ILE:HG23	22:AV:24:ILE:O	1.78	0.84
24:BA:1083:U:H3	24:BA:1085:A:H5''	1.42	0.83
25:BB:6:G:H22	25:BB:69:C:N4	1.77	0.83

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:BB:15:G:N2	25:BB:49:C:C4	2.46	0.83
1:AA:1347:G:C8	11:AK:13:LYS:HE2	2.09	0.83
3:AC:43:LYS:HG3	3:AC:44:LYS:HG2	1.59	0.83
56:DG:97:LYS:HE3	56:DG:124:ASP:HA	1.61	0.83
1:AA:1347:G:C5	11:AK:13:LYS:NZ	2.47	0.83
3:AC:44:LYS:HB2	3:AC:45:PRO:HD3	1.59	0.83
24:BA:2161:C:C6	24:BA:2164:C:C5	2.67	0.83
12:AL:18:PHE:CE1	12:AL:58:GLU:OE2	2.32	0.83
17:AQ:88:ARG:HE	17:AQ:89:LYS:H	1.21	0.83
1:AA:1494:G:H8	24:BA:1913:A:C5	1.93	0.83
24:BA:1478:G:H1	24:BA:1513:U:H3	1.24	0.83
56:DG:67:THR:CB	56:DG:68:PRO:HD3	2.06	0.83
1:AA:636:U:H5''	19:AS:6:ARG:HH12	1.42	0.82
1:AA:1006:G:H1	1:AA:1023:U:H3	1.25	0.82
24:BA:2808:G:O2'	24:BA:2890:G:O6	1.97	0.82
1:AA:1312:G:N2	1:AA:1325:C:O2	2.10	0.82
30:BG:134:GLU:CG	30:BG:150:ARG:HG3	2.04	0.82
24:BA:1848:A:H5'	24:BA:1849:G:H8	1.44	0.82
24:BA:2028:U:H3	24:BA:2033:A:H62	1.26	0.82
56:DG:85:SER:OG	56:DG:92:ALA:CB	2.28	0.81
1:AA:599:C:O3'	17:AQ:88:ARG:NH1	2.13	0.81
1:AA:523:A:N1	3:AC:88:LYS:CA	2.43	0.81
1:AA:1303:C:N4	1:AA:1305:G:O6	2.14	0.81
24:BA:2793:C:N3	24:BA:2803:G:N1	2.27	0.81
24:BA:1083:U:H3	24:BA:1085:A:H5'	1.44	0.81
1:AA:739:C:HO2'	18:AR:42:HIS:HD1	1.27	0.81
32:BI:35:GLU:HG2	32:BI:50:LYS:HG2	1.61	0.81
1:AA:1127:G:N2	1:AA:1148:U:O4	2.14	0.80
24:BA:9:G:H21	24:BA:2800:A:N6	1.80	0.80
56:DG:67:THR:CG2	56:DG:68:PRO:HD3	2.11	0.80
1:AA:1493:A:C2	23:AW:8:C:C6	2.70	0.80
26:BC:30:C:H1'	26:BC:57:A:H61	1.44	0.80
23:AW:4:A:H2'	23:AW:5:A:C8	2.17	0.80
24:BA:1083:U:N3	24:BA:1085:A:H5''	1.95	0.80
23:AW:8:C:H6	23:AW:8:C:C5'	1.94	0.80
24:BA:2161:C:C5	24:BA:2164:C:C5	2.70	0.80
25:BB:15:G:C2	25:BB:49:C:C4	2.69	0.80
1:AA:160:A:H2'	1:AA:160:A:N3	1.96	0.80
34:BK:93:SER:HB2	34:BK:123:ARG:HG3	1.64	0.80
1:AA:735:C:H5''	20:AT:57:ARG:HH22	1.45	0.79
1:AA:1127:G:N1	1:AA:1145:A:N6	2.30	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:1055:A:N3	7:AG:156:ARG:NH1	2.30	0.79
25:BB:23:G:O6	25:BB:47:G:H1'	1.83	0.79
24:BA:9:G:N2	24:BA:2800:A:H61	1.81	0.79
24:BA:1085:A:C8	24:BA:1105:U:H1'	2.18	0.79
25:BB:15:G:N1	25:BB:49:C:C2	2.50	0.79
1:AA:466:A:C6	1:AA:469:C:N3	2.51	0.79
8:AH:5:ARG:HE	8:AH:7:ARG:HH21	1.30	0.79
1:AA:1125:U:O4	1:AA:1150:A:H2	1.65	0.79
1:AA:985:C:H42	1:AA:1219:A:H61	1.26	0.78
1:AA:1312:G:N3	1:AA:1325:C:O2	2.16	0.78
24:BA:2173:A:N7	24:BA:2174:C:O2'	2.16	0.78
51:DB:91:LYS:H	51:DB:91:LYS:HZ2	1.30	0.78
1:AA:1356:G:H2'	1:AA:1357:A:H8	1.48	0.78
29:BF:88:ARG:HH11	29:BF:89:PRO:HD2	1.48	0.78
24:BA:222:A:H8	24:BA:224:U:C5	1.98	0.78
24:BA:2160:C:H5''	24:BA:2165:C:H41	1.49	0.78
28:BE:148:GLN:CG	28:BE:152:PRO:HG3	2.08	0.78
24:BA:668:A:H2'	24:BA:670:A:H62	1.48	0.78
3:AC:86:ARG:HH22	3:AC:94:ARG:HD3	1.49	0.78
1:AA:1498:U:H3	23:AW:4:A:HO2'	1.31	0.78
24:BA:1056:G:H1	24:BA:1102:C:H5''	1.49	0.78
24:BA:2052:A:H4'	28:BE:148:GLN:O	1.82	0.78
1:AA:201:G:H1	1:AA:216:U:H3	1.31	0.77
24:BA:290:U:O2	24:BA:350:G:O6	2.02	0.77
30:BG:57:LEU:HD22	30:BG:65:PRO:HB3	1.66	0.77
24:BA:2808:G:N7	24:BA:2891:U:C5	2.53	0.77
33:BJ:127:THR:OG1	33:BJ:130:GLU:OE1	2.02	0.77
34:BK:94:ILE:HD11	34:BK:122:LEU:CB	2.14	0.77
41:BR:3:THR:HG21	47:BX:61:TRP:HE1	1.48	0.77
17:AQ:96:MET:HB3	17:AQ:100:GLY:H	1.48	0.77
25:BB:3:C:H42	25:BB:71:G:H1	1.32	0.77
34:BK:94:ILE:O	34:BK:94:ILE:HD13	1.84	0.77
24:BA:1086:A:O2'	24:BA:1087:G:N7	2.18	0.77
1:AA:984:C:C2	1:AA:1221:G:N2	2.53	0.77
1:AA:1015:G:N2	1:AA:1217:C:O2	2.18	0.76
24:BA:2808:G:C5	24:BA:2891:U:C4	2.74	0.76
1:AA:1306:A:OP2	1:AA:1331:G:N2	2.18	0.76
24:BA:2045:C:H5''	36:BM:15:MET:HE1	1.67	0.76
28:BE:148:GLN:HB2	28:BE:152:PRO:CG	2.15	0.76
49:BZ:83:LYS:HD3	49:BZ:95:ARG:HH12	1.50	0.76
44:BU:73:ILE:HD11	44:BU:93:VAL:HG22	1.67	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:988:G:N2	1:AA:1217:C:O2	2.18	0.76
1:AA:1051:C:O2	1:AA:1207:G:N2	2.16	0.76
24:BA:2789:C:C4	24:BA:2893:A:N1	2.54	0.76
25:BB:2:G:N1	25:BB:72:C:N4	2.25	0.76
30:BG:146:VAL:CG1	30:BG:149:VAL:HG12	2.14	0.76
34:BK:94:ILE:HB	34:BK:98:ASP:OD2	1.84	0.76
12:AL:112:GLY:HA2	12:AL:119:ARG:HH21	1.51	0.76
22:AV:12:ILE:HG21	22:AV:26:SER:CB	2.15	0.75
24:BA:222:A:N7	24:BA:224:U:C2	2.55	0.75
25:BB:19:G:N1	25:BB:56:U:H1'	2.02	0.75
1:AA:954:G:H21	1:AA:1227:A:H62	1.33	0.75
1:AA:1019:A:H2'	1:AA:1020:G:H4'	1.69	0.75
1:AA:321:A:N6	1:AA:332:G:H1	1.84	0.75
1:AA:1175:G:H2'	1:AA:1176:A:H8	1.52	0.75
24:BA:177:G:OP2	24:BA:177:G:N2	2.18	0.75
24:BA:1613:G:O2'	37:BN:3:ARG:NH1	2.19	0.75
3:AC:88:LYS:HA	3:AC:88:LYS:HZ2	1.47	0.75
24:BA:2575:C:H5'	28:BE:149:ASN:HB2	1.69	0.75
24:BA:562:U:C4	24:BA:572:A:N7	2.55	0.74
24:BA:1079:C:H1'	35:BL:134:ARG:HH12	1.52	0.74
24:BA:881:G:N1	24:BA:896:A:N6	2.34	0.74
3:AC:88:LYS:HA	3:AC:88:LYS:HZ3	1.51	0.74
8:AH:40:ILE:HG21	8:AH:73:LEU:HB3	1.67	0.74
1:AA:1118:U:O5'	11:AK:106:ARG:NH1	2.19	0.74
24:BA:882:G:H1	24:BA:895:U:H4'	1.51	0.74
24:BA:2808:G:C8	24:BA:2891:U:C2	2.75	0.74
8:AH:39:PRO:HD2	8:AH:40:ILE:N	2.01	0.74
1:AA:62:U:H3	1:AA:105:G:H1	1.36	0.74
13:AM:21:ALA:HB3	13:AM:84:VAL:HG12	1.69	0.74
24:BA:2305:U:H5'	24:BA:2305:U:H6	1.51	0.74
1:AA:875:U:O2'	17:AQ:15:ARG:NH1	2.20	0.73
24:BA:1083:U:C5	24:BA:1085:A:P	2.75	0.73
35:BL:12:GLN:HA	35:BL:54:PRO:HB3	1.69	0.73
1:AA:1320:C:OP1	4:AD:70:LYS:NZ	2.21	0.73
24:BA:1175:A:H4'	24:BA:1176:U:H4'	1.70	0.73
24:BA:2478:A:H5'	39:BP:32:LYS:HE2	1.71	0.73
48:BY:40:MET:HG3	48:BY:49:ILE:HD11	1.65	0.73
17:AQ:88:ARG:HH21	17:AQ:89:LYS:HB2	1.52	0.73
24:BA:2286:G:OP1	32:BI:30:LYS:NZ	2.21	0.73
25:BB:6:G:N2	25:BB:69:C:C4	2.56	0.73
48:BY:40:MET:HG3	48:BY:49:ILE:HD12	1.67	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:28:A:N3	47:BX:11:ARG:NH2	2.35	0.73
24:BA:377:G:H1	24:BA:397:U:H3	1.35	0.73
24:BA:2286:G:H3'	32:BI:30:LYS:HE2	1.71	0.73
24:BA:2789:C:C2	24:BA:2893:A:C5	2.77	0.73
1:AA:1133:G:H2'	1:AA:1134:G:C8	2.23	0.73
11:AK:55:VAL:HG22	11:AK:94:LEU:HD22	1.70	0.72
12:AL:48:GLU:O	12:AL:52:GLN:NE2	2.22	0.72
24:BA:547:A:H2'	24:BA:547:A:N3	2.03	0.72
24:BA:2600:A:N6	27:BD:236:GLU:OE2	2.14	0.72
24:BA:832:U:H2'	24:BA:833:A:H8	1.55	0.72
1:AA:1316:G:H22	1:AA:1319:A:H5''	1.54	0.72
1:AA:1000:A:O2'	1:AA:1039:G:N2	2.22	0.72
16:AP:162:GLU:OE1	16:AP:162:GLU:HA	1.89	0.72
24:BA:284:U:O2	24:BA:356:G:O6	2.07	0.72
1:AA:792:A:O2'	1:AA:794:A:N7	2.23	0.72
34:BK:69:ALA:HB2	34:BK:134:VAL:HG11	1.71	0.72
48:BY:40:MET:CG	48:BY:49:ILE:HD11	2.18	0.72
1:AA:424:G:H2'	1:AA:425:G:C8	2.25	0.72
11:AK:130:ARG:NE	25:BB:36:A:OP1	2.21	0.72
13:AM:109:ASN:HA	21:AU:6:VAL:HG23	1.71	0.72
24:BA:243:U:OP2	38:BO:8:ARG:NH1	2.23	0.72
40:BQ:9:GLN:HB2	40:BQ:29:LEU:HD23	1.71	0.72
1:AA:1267:C:H3'	1:AA:1268:G:H8	1.54	0.72
22:AV:13:THR:HA	22:AV:22:MET:O	1.89	0.72
24:BA:1089:A:C8	24:BA:1102:C:N3	2.58	0.72
34:BK:52:ALA:O	34:BK:55:GLU:N	2.22	0.72
24:BA:2115:G:O2'	24:BA:2118:U:OP1	2.08	0.72
1:AA:1266:G:N1	1:AA:1269:A:OP1	2.21	0.71
1:AA:1131:G:O6	1:AA:1146:A:C6	2.43	0.71
24:BA:371:A:H61	24:BA:401:A:H3'	1.54	0.71
13:AM:80:LYS:HD2	13:AM:81:ASN:HB2	1.72	0.71
24:BA:2793:C:N4	24:BA:2803:G:O6	2.22	0.71
1:AA:775:G:H3'	1:AA:775:G:N3	2.06	0.71
1:AA:826:C:O2	17:AQ:16:ASN:ND2	2.24	0.71
10:AJ:126:PHE:HB2	10:AJ:128:LYS:HD3	1.73	0.71
1:AA:297:G:N2	1:AA:300:A:OP2	2.24	0.71
11:AK:19:VAL:HG23	11:AK:65:ILE:HG22	1.72	0.71
56:DG:35:VAL:HA	56:DG:38:MET:HG3	1.73	0.71
24:BA:882:G:N7	24:BA:896:A:C8	2.59	0.71
24:BA:1042:G:H1	24:BA:1113:U:H3	1.38	0.71
24:BA:2531:A:H1'	33:BJ:174:ALA:HA	1.71	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:1062:G:C6	24:BA:1076:C:N4	2.49	0.71
1:AA:501:C:OP1	3:AC:114:ARG:NH2	2.24	0.71
1:AA:1347:G:C5	11:AK:13:LYS:CE	2.74	0.71
24:BA:562:U:H2'	24:BA:572:A:H1'	1.73	0.71
24:BA:781:A:H5''	24:BA:782:A:N7	2.06	0.70
24:BA:1083:U:C2	24:BA:1085:A:H5''	2.26	0.70
24:BA:2127:G:H2'	24:BA:2128:G:H4'	1.73	0.70
24:BA:2336:A:H61	53:DD:43:THR:HG21	1.56	0.70
13:AM:87:LYS:HG3	13:AM:114:THR:HA	1.72	0.70
56:DG:68:PRO:HD2	56:DG:115:GLY:O	1.90	0.70
1:AA:1006:G:N2	1:AA:1023:U:O2	2.20	0.70
1:AA:1494:G:C8	24:BA:1913:A:C5	2.57	0.70
24:BA:320:A:O5'	29:BF:132:LYS:NZ	2.24	0.70
24:BA:1066:U:N3	24:BA:1069:A:OP2	2.20	0.70
56:DG:68:PRO:HG2	56:DG:116:GLU:CA	2.19	0.70
1:AA:187:G:N2	1:AA:191:G:O6	2.23	0.70
1:AA:1153:G:OP1	8:AH:72:ARG:NH2	2.23	0.70
30:BG:152:LEU:CD2	30:BG:154:ILE:HD11	2.22	0.70
1:AA:303:A:H5'	3:AC:14:ARG:HH22	1.56	0.70
24:BA:1062:G:N2	24:BA:1076:C:N3	2.36	0.70
25:BB:15:G:C2	25:BB:49:C:N3	2.60	0.70
34:BK:3:VAL:HG12	34:BK:38:PRO:HA	1.74	0.70
34:BK:94:ILE:HD11	34:BK:122:LEU:HB2	1.72	0.70
1:AA:1347:G:N7	11:AK:13:LYS:NZ	2.40	0.70
24:BA:1597:A:H5''	24:BA:1598:A:H5'	1.74	0.70
9:AI:70:ARG:NH1	9:AI:74:ASN:OD1	2.25	0.70
24:BA:1252:G:N2	47:BX:33:ARG:O	2.25	0.70
46:BW:60:THR:HG22	46:BW:73:VAL:HG22	1.74	0.70
13:AM:16:VAL:HG12	13:AM:18:ASP:H	1.57	0.69
10:AJ:26:LYS:NZ	10:AJ:194:ASP:OD2	2.23	0.69
24:BA:222:A:C5	24:BA:224:U:N3	2.59	0.69
24:BA:1848:A:H5'	24:BA:1849:G:C8	2.26	0.69
24:BA:2052:A:O2'	28:BE:153:GLY:HA2	1.92	0.69
24:BA:2789:C:N3	24:BA:2893:A:C5	2.60	0.69
30:BG:146:VAL:HG12	30:BG:149:VAL:CG1	2.21	0.69
38:BO:32:ILE:O	38:BO:36:LYS:NZ	2.25	0.69
6:AF:54:ASP:OD1	6:AF:59:ARG:NH1	2.26	0.69
7:AG:131:ARG:HD2	23:AW:14:G:H1	1.57	0.69
24:BA:2118:U:OP2	24:BA:2170:A:N6	2.24	0.69
26:BC:95:U:H2'	26:BC:96:G:H8	1.57	0.69
35:BL:73:THR:HG21	35:BL:116:ASP:HB2	1.74	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:269:C:H2'	1:AA:270:A:H8	1.55	0.69
1:AA:1125:U:O4	1:AA:1150:A:C2	2.45	0.69
1:AA:1131:G:C6	1:AA:1146:A:N1	2.60	0.69
1:AA:1298:U:O2'	12:AL:114:LYS:NZ	2.26	0.69
24:BA:1056:G:H1'	24:BA:1103:A:H61	1.58	0.69
24:BA:1869:G:N2	24:BA:1871:A:O2'	2.24	0.69
24:BA:463:G:N2	24:BA:466:A:OP2	2.24	0.69
24:BA:2602:A:H1'	25:BB:75:C:H2'	1.74	0.69
24:BA:1534:U:HO2'	24:BA:1537:G:H1	1.38	0.69
1:AA:674:G:H2'	1:AA:675:A:H8	1.58	0.69
3:AC:90:LEU:HD23	3:AC:90:LEU:C	2.12	0.69
25:BB:3:C:N4	25:BB:71:G:H1	1.90	0.69
34:BK:72:ILE:HD11	34:BK:108:VAL:HG12	1.75	0.69
1:AA:204:G:N7	1:AA:205:A:N6	2.41	0.69
1:AA:744:C:H2'	1:AA:745:G:H8	1.56	0.69
3:AC:21:VAL:HG13	3:AC:95:TYR:HE1	1.55	0.69
24:BA:1081:U:H3'	24:BA:1081:U:H6	1.57	0.69
24:BA:2483:C:N3	44:BU:123:LYS:NZ	2.40	0.69
24:BA:2575:C:OP1	28:BE:149:ASN:ND2	2.26	0.69
33:BJ:11:VAL:HG12	33:BJ:48:ASN:HA	1.75	0.69
48:BY:37:GLU:CG	48:BY:53:PHE:CD2	2.73	0.69
5:AE:66:GLU:OE2	5:AE:70:ARG:NE	2.26	0.69
3:AC:90:LEU:HG	3:AC:91:PRO:HD2	1.72	0.69
10:AJ:21:ARG:O	10:AJ:21:ARG:NE	2.26	0.69
10:AJ:134:ALA:HA	10:AJ:138:THR:HB	1.75	0.69
24:BA:9:G:N2	24:BA:2800:A:N6	2.40	0.69
24:BA:1084:A:OP2	56:DG:53:ARG:NH1	2.26	0.69
1:AA:78:A:H61	1:AA:90:C:H41	1.40	0.68
24:BA:360:U:H2'	24:BA:361:G:C4	2.28	0.68
24:BA:571:U:H4'	24:BA:2030:A:N7	2.07	0.68
28:BE:152:PRO:C	28:BE:154:LYS:H	1.96	0.68
1:AA:1306:A:N6	1:AA:1332:A:N3	2.40	0.68
24:BA:1040:A:N1	24:BA:1115:G:O6	2.26	0.68
1:AA:201:G:HO2'	1:AA:469:C:HO2'	1.19	0.68
1:AA:202:G:O4'	1:AA:469:C:H1'	1.92	0.68
1:AA:1211:U:O2'	1:AA:1212:U:OP2	2.11	0.68
24:BA:562:U:C4	24:BA:572:A:C8	2.81	0.68
24:BA:1830:C:H2'	24:BA:1831:G:H8	1.58	0.68
24:BA:2106:U:H1'	24:BA:2181:U:H3	1.59	0.68
24:BA:2789:C:C4	24:BA:2893:A:C2	2.80	0.68
48:BY:51:VAL:HB	48:BY:52:PRO:CD	2.16	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:AM:113:VAL:HA	20:AT:73:ARG:HH12	1.57	0.68
24:BA:2808:G:C6	24:BA:2891:U:C4	2.80	0.68
1:AA:988:G:C2	1:AA:1217:C:O2	2.46	0.68
35:BL:54:PRO:HD2	35:BL:78:VAL:HG11	1.76	0.68
3:AC:15:LYS:N	3:AC:15:LYS:HD3	2.08	0.68
24:BA:742:A:H2'	24:BA:743:A:H8	1.57	0.68
24:BA:2136:G:O6	24:BA:2155:U:O2	2.12	0.68
24:BA:2136:G:O6	24:BA:2155:U:C2	2.47	0.68
24:BA:2365:G:N7	38:BO:39:LYS:NZ	2.39	0.68
24:BA:125:A:H5'	37:BN:19:ARG:HD3	1.74	0.68
24:BA:882:G:H2'	24:BA:882:G:N3	2.09	0.68
24:BA:1040:A:N1	24:BA:1115:G:C6	2.62	0.68
24:BA:2327:A:H2'	24:BA:2328:A:C8	2.28	0.68
1:AA:673:A:H2'	1:AA:674:G:C8	2.28	0.68
3:AC:87:VAL:CG2	3:AC:93:VAL:CG1	2.71	0.68
17:AQ:2:SER:OG	17:AQ:3:MET:N	2.27	0.68
24:BA:878:A:N6	24:BA:899:A:O2'	2.27	0.68
34:BK:93:SER:OG	34:BK:123:ARG:HB2	1.90	0.68
29:BF:28:VAL:HG21	29:BF:108:ILE:HD11	1.75	0.67
30:BG:134:GLU:HG3	30:BG:150:ARG:HG2	1.75	0.67
1:AA:1418:A:H2	1:AA:1482:G:H21	1.42	0.67
1:AA:636:U:H5''	19:AS:6:ARG:NH1	2.09	0.67
1:AA:880:C:OP1	3:AC:5:ASN:ND2	2.28	0.67
1:AA:1355:G:H2'	1:AA:1356:G:H8	1.58	0.67
3:AC:87:VAL:HG21	3:AC:90:LEU:HD22	1.74	0.67
37:BN:12:ARG:HD3	37:BN:44:VAL:HG11	1.77	0.67
1:AA:345:C:H3'	46:BW:39:ARG:HH12	1.58	0.67
1:AA:466:A:N1	1:AA:469:C:O2	2.27	0.67
1:AA:1077:G:N2	1:AA:1080:A:OP2	2.24	0.67
6:AF:96:LEU:HD11	8:AH:65:TYR:HB3	1.77	0.67
11:AK:23:PRO:HA	11:AK:61:LEU:HG	1.74	0.67
12:AL:57:SER:O	12:AL:61:ALA:HB2	1.93	0.67
24:BA:572:A:OP2	48:BY:80:ARG:NH2	2.28	0.67
27:BD:225:MET:HG3	27:BD:226:ASN:H	1.59	0.67
24:BA:468:G:N7	37:BN:39:ARG:NH2	2.39	0.67
24:BA:500:G:N1	24:BA:503:A:OP2	2.19	0.67
24:BA:2331:G:OP1	53:DD:44:LYS:NZ	2.26	0.67
29:BF:119:ILE:HB	29:BF:187:VAL:HG22	1.75	0.67
9:AI:50:ASP:OD1	9:AI:51:TYR:N	2.28	0.67
24:BA:1252:G:H21	47:BX:33:ARG:HG2	1.58	0.67
24:BA:2144:G:N1	24:BA:2146:C:O4'	2.28	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:2250:G:OP1	44:BU:84:LYS:NZ	2.28	0.67
24:BA:2808:G:O2'	24:BA:2890:G:N1	2.28	0.67
28:BE:16:THR:HG23	28:BE:18:ASP:H	1.58	0.67
1:AA:219:U:H2'	1:AA:220:G:H8	1.60	0.67
24:BA:476:G:N1	24:BA:479:A:OP2	2.28	0.67
24:BA:1105:U:H2'	24:BA:1106:G:H8	1.60	0.67
24:BA:1715:G:N2	24:BA:1744:A:OP2	2.28	0.67
1:AA:632:U:H5'	1:AA:633:G:H8	1.60	0.67
24:BA:1141:U:H5'	41:BR:65:THR:HG21	1.78	0.67
24:BA:2117:A:N6	24:BA:2161:C:O5'	2.28	0.67
24:BA:2118:U:O2	24:BA:2145:C:O2'	2.12	0.67
1:AA:1129:C:O2'	1:AA:1131:G:N2	2.27	0.66
6:AF:2:ALA:N	6:AF:67:THR:O	2.28	0.66
24:BA:449:A:O2'	47:BX:3:ARG:NH1	2.28	0.66
24:BA:1007:C:OP1	41:BR:37:ARG:NH1	2.29	0.66
25:BB:23:G:N7	25:BB:47:G:C5	2.63	0.66
24:BA:1062:G:H2'	24:BA:1063:G:C8	2.30	0.66
1:AA:1308:U:OP1	5:AE:98:ARG:NH2	2.28	0.66
24:BA:171:U:H2'	24:BA:172:A:H8	1.61	0.66
24:BA:1915:U:H2'	24:BA:1915:U:O2	1.96	0.66
36:BM:31:ASP:O	36:BM:35:GLY:HA2	1.94	0.66
3:AC:109:ASP:OD1	3:AC:111:LYS:NZ	2.27	0.66
22:AV:12:ILE:HA	22:AV:30:HIS:HA	1.76	0.66
22:AV:44:PHE:CE2	30:BG:109:PRO:HA	2.30	0.66
24:BA:1779:U:OP2	24:BA:1784:A:N6	2.25	0.66
1:AA:126:G:OP1	1:AA:605:U:O2'	2.13	0.66
22:AV:44:PHE:HE2	30:BG:109:PRO:CA	2.07	0.66
24:BA:819:A:OP2	24:BA:1187:G:N2	2.27	0.66
24:BA:2839:G:O6	24:BA:2878:U:O2	2.14	0.66
25:BB:15:G:N1	25:BB:49:C:N3	2.44	0.66
29:BF:149:ILE:HB	29:BF:188:MET:HG2	1.77	0.66
1:AA:1144:G:N3	1:AA:1146:A:N6	2.40	0.66
24:BA:1143:A:N7	41:BR:27:ARG:NH1	2.43	0.66
24:BA:2789:C:C5	24:BA:2893:A:C6	2.83	0.66
19:AS:27:ARG:NH1	19:AS:42:THR:OG1	2.29	0.66
24:BA:67:U:O2	24:BA:88:G:C6	2.49	0.66
28:BE:5:VAL:H	28:BE:32:ASN:HD21	1.44	0.66
24:BA:6:A:H2'	24:BA:7:G:C8	2.23	0.66
24:BA:1654:A:OP2	45:BV:1:MET:N	2.29	0.66
24:BA:2246:G:H2'	24:BA:2247:A:H8	1.60	0.66
28:BE:148:GLN:HB2	28:BE:152:PRO:HG2	1.75	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:BS:2:ILE:H	42:BS:33:ALA:H	1.44	0.66
1:AA:71:A:H61	1:AA:99:C:H1'	1.59	0.66
24:BA:404:A:N6	24:BA:421:C:O2'	2.29	0.66
24:BA:870:U:OP1	44:BU:6:ARG:NH2	2.29	0.66
24:BA:2807:U:O2	24:BA:2892:G:N1	2.29	0.66
24:BA:2845:U:OP1	46:BW:52:ASN:ND2	2.29	0.66
39:BP:2:LYS:NZ	39:BP:32:LYS:O	2.29	0.66
51:DB:99:ASN:ND2	51:DB:101:GLU:OE2	2.29	0.66
1:AA:552:U:H2'	1:AA:553:A:H8	1.62	0.65
7:AG:179:ARG:HG2	7:AG:207:ILE:H	1.60	0.65
24:BA:4:U:O5'	24:BA:4:U:H6	1.79	0.65
22:AV:12:ILE:HG12	22:AV:24:ILE:HG23	1.78	0.65
30:BG:42:GLU:OE2	30:BG:148:ARG:NH2	2.29	0.65
1:AA:1139:G:C8	1:AA:1141:C:C5	2.84	0.65
22:AV:24:ILE:HD11	30:BG:102:ARG:HB2	1.79	0.65
34:BK:76:GLU:O	34:BK:77:THR:HG22	1.95	0.65
1:AA:358:U:H2'	1:AA:359:G:H8	1.61	0.65
1:AA:988:G:C2	1:AA:1217:C:C2	2.84	0.65
3:AC:87:VAL:HG21	3:AC:93:VAL:HG12	1.79	0.65
24:BA:2531:A:OP1	24:BA:2534:A:N6	2.26	0.65
29:BF:61:ARG:NH1	29:BF:65:THR:OG1	2.30	0.65
34:BK:94:ILE:HD11	34:BK:122:LEU:HB3	1.79	0.65
1:AA:454:G:H2'	1:AA:455:G:H8	1.61	0.65
1:AA:1247:U:O5'	1:AA:1290:G:N2	2.29	0.65
8:AH:40:ILE:HB	8:AH:73:LEU:O	1.97	0.65
24:BA:1005:C:H1'	24:BA:1012:U:H3	1.60	0.65
24:BA:1652:A:OP1	45:BV:8:ARG:NH1	2.29	0.65
24:BA:2848:G:O2'	24:BA:2867:G:N2	2.28	0.65
1:AA:235:C:H2'	1:AA:236:A:H8	1.61	0.65
1:AA:664:G:H22	1:AA:741:G:H1	1.44	0.65
1:AA:1037:C:H2'	1:AA:1038:C:C6	2.32	0.65
24:BA:1107:G:H4'	56:DG:31:ARG:HD3	1.79	0.65
24:BA:1914:C:N4	24:BA:1916:A:C4	2.58	0.65
24:BA:2223:G:O3'	27:BD:265:LYS:NZ	2.29	0.65
24:BA:2619:C:H5''	28:BE:157:LYS:HB3	1.78	0.65
34:BK:95:GLY:O	34:BK:98:ASP:OD1	2.15	0.65
44:BU:74:THR:HG21	44:BU:86:LYS:HE3	1.77	0.65
1:AA:923:A:OP1	16:AP:26:LYS:NZ	2.30	0.65
24:BA:2793:C:O2	24:BA:2803:G:N2	2.19	0.65
25:BB:23:G:N7	25:BB:47:G:N3	2.43	0.65
1:AA:830:G:O2'	10:AJ:21:ARG:NH2	2.27	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:856:G:H2'	24:BA:857:G:C8	2.32	0.65
24:BA:2160:C:H5''	24:BA:2165:C:N4	2.11	0.65
1:AA:951:G:OP2	5:AE:101:ARG:NH2	2.29	0.65
1:AA:1135:U:O2	1:AA:1140:C:N3	2.30	0.65
17:AQ:88:ARG:HE	17:AQ:89:LYS:N	1.93	0.65
22:AV:22:MET:SD	30:BG:105:THR:CG2	2.85	0.65
24:BA:1995:U:OP1	28:BE:128:ARG:NH2	2.29	0.65
32:BI:23:THR:HG22	32:BI:24:THR:H	1.61	0.65
33:BJ:11:VAL:HG12	33:BJ:48:ASN:CA	2.25	0.65
50:DA:55:VAL:O	50:DA:88:LYS:NZ	2.30	0.65
56:DG:28:ALA:HB2	56:DG:108:VAL:HA	1.79	0.65
4:AD:13:LEU:HD13	6:AF:46:LEU:HD12	1.77	0.64
24:BA:527:C:N4	24:BA:2779:U:OP2	2.30	0.64
25:BB:51:U:H3	25:BB:65:G:H1	1.45	0.64
24:BA:1059:G:O6	24:BA:1081:U:C2	2.50	0.64
24:BA:2160:C:C2	24:BA:2164:C:N4	2.64	0.64
34:BK:93:SER:HG	34:BK:123:ARG:CB	2.08	0.64
1:AA:1193:G:O6	7:AG:2:GLY:N	2.30	0.64
24:BA:586:A:H5'	29:BF:84:THR:HG21	1.78	0.64
24:BA:666:A:OP1	43:BT:48:ARG:NH1	2.29	0.64
24:BA:742:A:H2'	24:BA:743:A:C8	2.31	0.64
24:BA:2789:C:N3	24:BA:2893:A:C4	2.65	0.64
56:DG:26:VAL:HB	56:DG:108:VAL:HG21	1.79	0.64
28:BE:77:ARG:NH1	28:BE:200:ASP:OD2	2.30	0.64
1:AA:673:A:H2'	1:AA:674:G:H8	1.63	0.64
1:AA:938:A:N3	1:AA:1376:U:O2'	2.28	0.64
24:BA:1215:G:H1	24:BA:1234:U:H3	1.43	0.64
24:BA:1315:C:O2'	24:BA:1392:A:N3	2.27	0.64
24:BA:1913:A:N3	24:BA:1913:A:H2'	2.10	0.64
28:BE:152:PRO:O	28:BE:154:LYS:N	2.30	0.64
1:AA:202:G:C1'	1:AA:469:C:H1'	2.28	0.64
1:AA:212:G:H2'	1:AA:213:G:H8	1.62	0.64
24:BA:45:G:H5''	24:BA:46:G:H5'	1.80	0.64
29:BF:48:THR:HG23	29:BF:50:ALA:H	1.63	0.64
34:BK:135:HIS:HB3	34:BK:138:VAL:HB	1.79	0.64
45:BV:100:CYS:SG	45:BV:101:GLY:N	2.70	0.64
47:BX:88:VAL:HB	48:BY:51:VAL:O	1.98	0.64
1:AA:714:G:H2'	1:AA:715:A:C8	2.33	0.64
24:BA:729:G:OP1	27:BD:10:SER:OG	2.16	0.64
24:BA:987:C:H5''	40:BQ:11:ARG:HH22	1.62	0.64
24:BA:1800:C:OP2	27:BD:182:ARG:NH2	2.31	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:2419:U:OP2	38:BO:33:LEU:HD13	1.97	0.64
1:AA:746:A:H2'	1:AA:747:A:C8	2.33	0.64
1:AA:1522:U:H2'	1:AA:1523:G:H8	1.61	0.64
10:AJ:142:GLU:O	10:AJ:146:ASN:ND2	2.30	0.64
45:BV:49:GLU:HG3	45:BV:50:PRO:HD3	1.80	0.64
50:DA:92:ASN:OD1	50:DA:93:LEU:N	2.31	0.64
52:DC:30:ILE:HG12	52:DC:91:PHE:HB2	1.79	0.64
1:AA:876:C:H2'	1:AA:877:G:H8	1.63	0.64
1:AA:1498:U:N3	23:AW:4:A:O2'	2.23	0.64
2:AB:2:ALA:O	2:AB:8:LYS:NZ	2.31	0.64
24:BA:1155:A:H5''	47:BX:55:ARG:HD3	1.78	0.64
1:AA:1444:U:H3	1:AA:1458:G:H1	1.45	0.64
8:AH:25:ILE:O	8:AH:28:THR:OG1	2.15	0.63
13:AM:46:THR:HG23	13:AM:49:GLY:H	1.63	0.63
30:BG:34:ILE:HG12	30:BG:156:ILE:HG22	1.80	0.63
38:BO:16:LYS:HE2	38:BO:20:GLY:HA2	1.80	0.63
42:BS:101:GLY:HA2	46:BW:68:GLU:OE2	1.98	0.63
3:AC:90:LEU:CD2	3:AC:93:VAL:HG12	2.27	0.63
4:AD:25:SER:OG	4:AD:28:LYS:NZ	2.27	0.63
4:AD:26:GLY:O	4:AD:28:LYS:NZ	2.31	0.63
22:AV:24:ILE:HD11	30:BG:102:ARG:CB	2.29	0.63
24:BA:1047:G:OP1	56:DG:2:ALA:N	2.31	0.63
24:BA:1326:U:HO2'	24:BA:2010:G:HO2'	1.46	0.63
5:AE:16:VAL:HG23	5:AE:17:ILE:HD12	1.81	0.63
55:DF:6:LEU:HD23	55:DF:9:LYS:HD3	1.80	0.63
1:AA:692:U:O2'	1:AA:695:A:N6	2.32	0.63
1:AA:1144:G:H1	1:AA:1145:A:H62	1.47	0.63
1:AA:1247:U:N3	11:AK:37:GLN:O	2.27	0.63
24:BA:320:A:O2'	24:BA:322:A:OP2	2.15	0.63
24:BA:358:U:H2'	24:BA:359:G:C8	2.34	0.63
42:BS:16:ALA:HA	42:BS:46:ALA:HA	1.79	0.63
9:AI:142:VAL:HG12	9:AI:181:THR:HB	1.81	0.63
24:BA:1468:U:O4	24:BA:1524:G:O6	2.16	0.63
1:AA:1494:G:O5'	24:BA:1913:A:N7	2.32	0.63
6:AF:19:LYS:O	6:AF:23:LYS:NZ	2.31	0.63
16:AP:149:SER:OG	16:AP:151:GLU:OE1	2.16	0.63
24:BA:1365:A:O2'	54:DE:11:ARG:NH2	2.28	0.63
25:BB:35:C:OP1	25:BB:35:C:H6	1.80	0.63
1:AA:160:A:C8	1:AA:344:A:C4	2.87	0.63
1:AA:1242:G:N2	1:AA:1295:U:O2	2.30	0.63
10:AJ:104:TRP:HA	10:AJ:107:VAL:HG12	1.78	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:833:A:H2'	24:BA:834:G:C8	2.34	0.63
25:BB:8:U:H2'	25:BB:13:C:N4	2.14	0.63
1:AA:1133:G:N2	1:AA:1142:G:C6	2.67	0.63
6:AF:6:MET:HB3	6:AF:63:ARG:HH12	1.64	0.63
24:BA:8:C:H6	24:BA:8:C:H5''	1.64	0.63
24:BA:848:C:H2'	24:BA:849:A:H8	1.64	0.63
1:AA:1312:G:N2	1:AA:1313:U:O2	2.31	0.63
17:AQ:88:ARG:NE	17:AQ:89:LYS:H	1.96	0.62
19:AS:65:ARG:HD2	19:AS:66:PRO:HD2	1.80	0.62
24:BA:2246:G:H2'	24:BA:2247:A:C8	2.34	0.62
28:BE:151:THR:N	28:BE:152:PRO:HD2	2.14	0.62
22:AV:44:PHE:HE2	30:BG:109:PRO:HA	1.62	0.62
24:BA:1364:G:H5''	54:DE:3:ARG:NH1	2.13	0.62
24:BA:2124:G:OP2	24:BA:2125:G:N2	2.30	0.62
1:AA:1013:G:N2	1:AA:1016:A:OP2	2.32	0.62
24:BA:1072:C:N3	24:BA:1091:G:O2'	2.31	0.62
24:BA:1158:C:O3'	40:BQ:31:ARG:NH1	2.31	0.62
25:BB:35:C:O2	25:BB:35:C:H2'	1.99	0.62
1:AA:780:A:N6	1:AA:801:U:OP2	2.30	0.62
1:AA:309:A:H2'	1:AA:310:G:H8	1.64	0.62
1:AA:539:A:OP2	3:AC:112:GLN:NE2	2.33	0.62
7:AG:59:ARG:HG2	7:AG:64:ILE:HG22	1.81	0.62
9:AI:11:LEU:HB3	9:AI:63:ARG:HD3	1.81	0.62
24:BA:1171:G:H21	24:BA:1172:C:N4	1.98	0.62
24:BA:1918:A:O2'	24:BA:1919:A:N7	2.27	0.62
24:BA:2068:U:H5''	24:BA:2068:U:C6	2.29	0.62
24:BA:1068:G:OP1	35:BL:12:GLN:NE2	2.32	0.62
24:BA:2313:C:O4'	30:BG:37:ASN:ND2	2.32	0.62
29:BF:88:ARG:HD2	29:BF:89:PRO:HD2	1.81	0.62
1:AA:1303:C:N4	1:AA:1331:G:O2'	2.32	0.62
2:AB:44:LYS:HE2	2:AB:86:LEU:HG	1.82	0.62
7:AG:40:ARG:NH1	7:AG:55:ILE:O	2.33	0.62
24:BA:353:C:H2'	24:BA:354:A:H8	1.65	0.62
1:AA:82:G:H1'	1:AA:86:G:H5''	1.82	0.62
24:BA:833:A:H2'	24:BA:834:G:H8	1.63	0.62
24:BA:1323:C:OP2	49:BZ:11:ARG:NH2	2.33	0.62
30:BG:30:ARG:H	30:BG:159:THR:HG1	1.47	0.62
14:AN:2:ARG:NH1	14:AN:68:GLN:OE1	2.33	0.62
24:BA:1060:U:H1'	24:BA:1088:A:N1	2.15	0.62
24:BA:1311:G:OP2	24:BA:1311:G:N2	2.25	0.62
24:BA:1482:G:O2'	24:BA:1509:A:N1	2.29	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:1506:U:H2'	24:BA:1507:C:C6	2.35	0.62
24:BA:1693:U:O2'	27:BD:14:ARG:NH1	2.33	0.62
24:BA:2839:G:O6	24:BA:2878:U:C2	2.52	0.62
1:AA:1293:C:N4	1:AA:1295:U:O4	2.33	0.62
10:AJ:67:ILE:HB	10:AJ:89:GLN:HG3	1.82	0.62
22:AV:12:ILE:HG12	22:AV:24:ILE:CG2	2.30	0.62
24:BA:581:C:H2'	24:BA:582:A:H8	1.64	0.62
24:BA:1089:A:C8	24:BA:1102:C:C4	2.88	0.62
24:BA:1094:U:N3	35:BL:26:PRO:O	2.33	0.62
24:BA:1224:U:O2'	48:BY:87:GLN:OE1	2.15	0.62
24:BA:2111:U:H1'	24:BA:2118:U:H4'	1.82	0.62
24:BA:2161:C:H6	24:BA:2164:C:C5	2.09	0.62
24:BA:2838:G:C2	24:BA:2839:G:H1'	2.34	0.62
25:BB:4:G:C2	25:BB:71:G:N1	2.68	0.62
35:BL:103:ARG:NH2	35:BL:130:GLU:OE2	2.28	0.62
48:BY:4:VAL:HG23	48:BY:39:LEU:HB2	1.82	0.62
1:AA:269:C:H2'	1:AA:270:A:C8	2.34	0.61
1:AA:790:A:O2'	1:AA:791:G:N7	2.33	0.61
5:AE:58:ASP:O	5:AE:62:LYS:NZ	2.28	0.61
24:BA:571:U:C4'	24:BA:2030:A:N7	2.63	0.61
44:BU:26:VAL:HG11	44:BU:133:LYS:HA	1.82	0.61
1:AA:691:G:O6	13:AM:57:LYS:NZ	2.31	0.61
1:AA:890:G:O2'	1:AA:906:A:N6	2.33	0.61
7:AG:14:ILE:HG22	7:AG:15:VAL:HG13	1.82	0.61
19:AS:32:PRO:HG2	19:AS:33:ILE:HD12	1.82	0.61
24:BA:2099:U:O2	24:BA:2190:G:O6	2.18	0.61
47:BX:17:ILE:HD11	47:BX:39:VAL:HG21	1.81	0.61
52:DC:77:VAL:HG23	52:DC:89:ILE:HG12	1.82	0.61
1:AA:466:A:N1	1:AA:469:C:N3	2.48	0.61
4:AD:55:ARG:HG3	4:AD:56:GLN:OE1	2.00	0.61
24:BA:2393:U:OP1	38:BO:30:ARG:HG2	1.98	0.61
28:BE:204:LYS:HA	28:BE:204:LYS:HE3	1.82	0.61
56:DG:67:THR:HG22	56:DG:68:PRO:HD3	1.81	0.61
56:DG:68:PRO:CG	56:DG:116:GLU:CD	2.63	0.61
24:BA:858:G:OP1	53:DD:78:LYS:NZ	2.33	0.61
24:BA:1432:G:H2'	24:BA:1433:A:H8	1.64	0.61
1:AA:672:U:H5'	14:AN:79:ARG:HH22	1.65	0.61
1:AA:883:C:H2'	1:AA:884:U:C6	2.36	0.61
1:AA:1224:U:N3	1:AA:1321:U:O2'	2.32	0.61
24:BA:1432:G:H2'	24:BA:1433:A:C8	2.35	0.61
24:BA:1481:U:H3	24:BA:1510:G:H1	1.49	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:BY:49:ILE:O	48:BY:49:ILE:HG22	2.00	0.61
51:DB:91:LYS:H	51:DB:91:LYS:NZ	1.96	0.61
52:DC:51:GLN:OE1	52:DC:57:TYR:OH	2.18	0.61
1:AA:618:C:H1'	15:AO:14:ARG:HH22	1.65	0.61
1:AA:1119:C:H42	1:AA:1155:A:H62	1.46	0.61
24:BA:222:A:C8	24:BA:224:U:N1	2.68	0.61
24:BA:351:C:H2'	24:BA:352:A:C8	2.36	0.61
24:BA:666:A:H5''	43:BT:48:ARG:CZ	2.30	0.61
24:BA:1072:C:N4	24:BA:1093:G:O6	2.26	0.61
24:BA:1386:C:H2'	24:BA:1387:A:C8	2.35	0.61
24:BA:2094:A:H2'	24:BA:2095:A:C8	2.35	0.61
51:DB:74:ASN:HB2	51:DB:81:ASP:HB2	1.81	0.61
1:AA:34:C:H2'	1:AA:35:G:H8	1.65	0.61
1:AA:564:C:OP2	3:AC:12:ARG:NH1	2.33	0.61
1:AA:981:U:OP2	1:AA:982:U:O2'	2.16	0.61
22:AV:24:ILE:HD11	30:BG:102:ARG:HD3	1.83	0.61
24:BA:1478:G:N2	24:BA:1513:U:O2	2.26	0.61
28:BE:148:GLN:HB2	28:BE:152:PRO:HD2	1.82	0.61
42:BS:108:ARG:HD2	42:BS:116:ILE:HD13	1.82	0.61
1:AA:1296:C:O5'	1:AA:1296:C:H6	1.84	0.61
8:AH:85:ASP:HA	8:AH:88:MET:HG2	1.82	0.61
24:BA:171:U:H2'	24:BA:172:A:C8	2.36	0.61
24:BA:411:G:OP2	24:BA:2406:A:O2'	2.17	0.61
24:BA:2515:C:H2'	24:BA:2516:A:H8	1.65	0.61
56:DG:132:TYR:C	56:DG:134:GLU:H	2.03	0.61
1:AA:28:A:O2'	1:AA:296:U:OP1	2.19	0.61
1:AA:1309:G:H2'	1:AA:1310:G:N9	2.15	0.61
10:AJ:118:GLU:O	10:AJ:122:GLN:NE2	2.34	0.61
24:BA:617:G:OP1	29:BF:102:ARG:NH1	2.33	0.61
24:BA:77:G:H4'	55:DF:52:ARG:HH22	1.66	0.61
24:BA:1649:G:O2'	45:BV:106:ASP:OD2	2.18	0.61
24:BA:1728:C:HO2'	24:BA:1729:U:H6	1.46	0.61
1:AA:401:C:O2'	1:AA:621:A:N3	2.33	0.60
1:AA:723:U:O4	21:AU:56:HIS:NE2	2.34	0.60
1:AA:840:C:O2	1:AA:846:G:N2	2.32	0.60
24:BA:706:A:H5'	27:BD:7:LYS:HZ1	1.65	0.60
24:BA:910:A:H62	44:BU:12:MET:HA	1.65	0.60
25:BB:69:C:H6	25:BB:69:C:O5'	1.84	0.60
28:BE:116:LYS:HB2	28:BE:165:MET:HB3	1.83	0.60
56:DG:21:GLY:C	56:DG:86:MET:HE1	2.03	0.60
1:AA:160:A:C8	1:AA:344:A:C5	2.90	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:1071:C:H2'	1:AA:1072:G:H8	1.67	0.60
10:AJ:168:HIS:ND1	10:AJ:169:GLU:OE2	2.33	0.60
16:AP:153:VAL:HG11	17:AQ:99:LEU:HD12	1.82	0.60
24:BA:1063:G:H2'	24:BA:1064:C:C2	2.36	0.60
24:BA:2112:G:O6	24:BA:2114:A:N6	2.31	0.60
33:BJ:25:THR:HG22	33:BJ:34:THR:HG22	1.83	0.60
8:AH:15:HIS:HA	8:AH:18:ILE:HG22	1.82	0.60
24:BA:1:G:N3	24:BA:1:G:H2'	2.16	0.60
24:BA:2120:G:H2'	24:BA:2121:G:C8	2.35	0.60
24:BA:2638:G:O2'	24:BA:2775:G:N2	2.35	0.60
35:BL:62:TYR:HD2	35:BL:67:PHE:HA	1.65	0.60
35:BL:101:ILE:HD12	35:BL:105:GLN:HE21	1.65	0.60
55:DF:3:ALA:HA	55:DF:6:LEU:HD12	1.83	0.60
56:DG:30:SER:N	56:DG:79:PRO:O	2.34	0.60
1:AA:859:G:OP2	1:AA:869:G:N1	2.27	0.60
1:AA:1025:U:O2'	1:AA:1026:G:OP2	2.17	0.60
1:AA:1354:U:H2'	1:AA:1355:G:H8	1.66	0.60
3:AC:46:ASN:OD1	3:AC:46:ASN:N	2.27	0.60
24:BA:280:U:O4	24:BA:361:G:N2	2.34	0.60
24:BA:1225:G:H4'	48:BY:86:GLN:HE22	1.66	0.60
24:BA:1730:C:O2	24:BA:1731:G:N1	2.34	0.60
46:BW:14:LYS:HE2	46:BW:77:HIS:HA	1.82	0.60
1:AA:671:G:O2'	14:AN:79:ARG:NH2	2.35	0.60
3:AC:68:GLY:O	3:AC:99:ARG:NH2	2.33	0.60
9:AI:139:PRO:HA	9:AI:182:PHE:HD2	1.66	0.60
24:BA:630:G:N2	24:BA:633:A:OP2	2.29	0.60
24:BA:2514:U:H2'	24:BA:2515:C:C6	2.36	0.60
25:BB:44:A:H2'	25:BB:45:A:C8	2.37	0.60
1:AA:744:C:H2'	1:AA:745:G:C8	2.36	0.60
24:BA:5:A:N3	24:BA:5:A:H2'	2.16	0.60
24:BA:720:U:H2'	24:BA:721:A:C8	2.36	0.60
24:BA:720:U:H2'	24:BA:721:A:H8	1.66	0.60
24:BA:1068:G:N7	24:BA:1069:A:N6	2.50	0.60
52:DC:26:PHE:HE2	52:DC:89:ILE:HG13	1.66	0.60
1:AA:1129:C:H4'	1:AA:1130:A:H5'	1.83	0.60
1:AA:1294:G:H3'	1:AA:1295:U:C5'	2.30	0.60
1:AA:1342:C:H2'	1:AA:1343:G:H8	1.66	0.60
2:AB:66:LEU:HG	2:AB:67:ILE:HG23	1.84	0.60
13:AM:17:SER:HA	13:AM:79:ILE:HA	1.84	0.60
24:BA:76:C:O2'	55:DF:52:ARG:NH1	2.33	0.60
24:BA:629:G:N3	24:BA:639:U:O2'	2.34	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:878:A:H3'	24:BA:879:G:H8	1.66	0.60
24:BA:1174:U:O2'	24:BA:1175:A:O4'	2.19	0.60
24:BA:1481:U:O2	24:BA:1510:G:N2	2.32	0.60
24:BA:1571:A:H2'	24:BA:1572:A:C8	2.37	0.60
36:BM:46:ASP:O	36:BM:53:LYS:NZ	2.33	0.60
8:AH:39:PRO:CD	8:AH:40:ILE:H	2.10	0.60
12:AL:18:PHE:HE1	12:AL:58:GLU:OE1	1.83	0.60
24:BA:395:U:O2'	24:BA:396:G:N7	2.29	0.60
24:BA:1528:A:OP2	24:BA:1543:G:N2	2.34	0.60
29:BF:181:ILE:HD11	43:BT:2:ARG:HA	1.84	0.60
39:BP:25:VAL:HB	39:BP:35:GLN:HB2	1.84	0.60
1:AA:279:A:H5''	1:AA:280:C:H3'	1.83	0.60
1:AA:1218:C:H2'	1:AA:1219:A:C8	2.36	0.60
21:AU:7:ARG:HE	21:AU:18:ARG:HH12	1.49	0.60
24:BA:2118:U:O4'	24:BA:2147:A:N6	2.35	0.60
24:BA:2591:C:H2'	24:BA:2592:G:H8	1.67	0.60
28:BE:16:THR:HG22	28:BE:20:VAL:H	1.66	0.60
33:BJ:11:VAL:CG1	33:BJ:48:ASN:HA	2.32	0.60
12:AL:118:LEU:O	12:AL:122:ASN:ND2	2.35	0.60
24:BA:177:G:H3'	24:BA:178:G:H8	1.67	0.60
24:BA:741:U:H2'	24:BA:742:A:H8	1.66	0.60
24:BA:2591:C:H2'	24:BA:2592:G:C8	2.36	0.60
24:BA:2636:C:O2'	28:BE:45:TYR:OH	2.19	0.60
24:BA:2788:C:O2'	24:BA:2809:A:N3	2.31	0.60
33:BJ:28:GLY:HA3	33:BJ:79:VAL:HB	1.84	0.60
38:BO:32:ILE:O	38:BO:32:ILE:HD12	2.02	0.60
24:BA:1245:G:OP1	43:BT:13:LYS:NZ	2.29	0.59
24:BA:1443:U:H2'	24:BA:1444:G:H8	1.67	0.59
33:BJ:9:VAL:O	33:BJ:49:THR:HA	2.02	0.59
1:AA:437:U:H5''	9:AI:152:GLN:HE22	1.67	0.59
1:AA:937:A:H1'	1:AA:1379:G:N2	2.17	0.59
1:AA:1241:G:H2'	1:AA:1242:G:H8	1.67	0.59
2:AB:35:VAL:HG11	2:AB:54:MET:HG2	1.84	0.59
6:AF:3:LYS:HB2	6:AF:6:MET:HG2	1.85	0.59
6:AF:21:PHE:HA	6:AF:25:ALA:HB3	1.83	0.59
24:BA:300:A:OP2	51:DB:82:ARG:NH2	2.36	0.59
24:BA:2116:G:N2	24:BA:2135:A:O5'	2.36	0.59
24:BA:2298:A:OP1	30:BG:71:ARG:NH2	2.35	0.59
24:BA:2581:G:N2	24:BA:2581:G:OP2	2.35	0.59
50:DA:54:GLU:OE1	50:DA:54:GLU:N	2.35	0.59
9:AI:65:TYR:CE2	9:AI:94:LEU:HB3	2.37	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:AO:55:ASP:OD1	15:AO:56:ARG:N	2.35	0.59
24:BA:881:G:N2	24:BA:894:U:H3	1.94	0.59
24:BA:2646:C:OP2	24:BA:2732:G:O2'	2.19	0.59
24:BA:2753:A:O2'	39:BP:15:LYS:NZ	2.35	0.59
35:BL:13:VAL:HB	35:BL:18:ALA:HB1	1.84	0.59
1:AA:674:G:H2'	1:AA:675:A:C8	2.36	0.59
1:AA:1405:G:N1	1:AA:1497:G:N7	2.51	0.59
22:AV:22:MET:SD	30:BG:105:THR:HG21	2.42	0.59
24:BA:222:A:N7	24:BA:224:U:C6	2.58	0.59
24:BA:2447:G:O2'	24:BA:2498:C:N3	2.26	0.59
28:BE:148:GLN:HB2	28:BE:152:PRO:CD	2.31	0.59
29:BF:97:ASN:HB2	29:BF:100:MET:HG2	1.84	0.59
46:BW:25:THR:HG22	46:BW:46:VAL:HG12	1.83	0.59
56:DG:27:VAL:HG11	56:DG:69:PHE:HZ	1.66	0.59
1:AA:936:C:H2'	1:AA:937:A:H8	1.68	0.59
1:AA:1014:A:H4'	1:AA:1015:G:OP2	2.03	0.59
3:AC:76:GLU:HG3	3:AC:77:HIS:ND1	2.18	0.59
7:AG:42:TYR:HD1	7:AG:45:LYS:HZ3	1.50	0.59
13:AM:113:VAL:HA	20:AT:73:ARG:NH1	2.18	0.59
16:AP:77:ASN:OD1	16:AP:82:GLN:NE2	2.34	0.59
24:BA:1812:U:H2'	24:BA:1813:G:H8	1.67	0.59
24:BA:2119:A:OP1	24:BA:2170:A:N6	2.26	0.59
24:BA:2357:G:N2	24:BA:2360:G:OP2	2.33	0.59
25:BB:23:G:N7	25:BB:47:G:C2	2.71	0.59
45:BV:12:ARG:HD3	45:BV:16:HIS:HD2	1.68	0.59
56:DG:27:VAL:HG21	56:DG:69:PHE:CE2	2.37	0.59
1:AA:235:C:H2'	1:AA:236:A:C8	2.37	0.59
1:AA:491:G:OP1	9:AI:148:LYS:NZ	2.35	0.59
16:AP:156:LYS:HZ1	17:AQ:71:VAL:HA	1.68	0.59
24:BA:1476:U:H2'	24:BA:1477:A:H8	1.67	0.59
24:BA:2578:G:N7	28:BE:145:SER:OG	2.34	0.59
24:BA:2789:C:N4	24:BA:2893:A:N1	2.50	0.59
28:BE:19:GLY:HA2	46:BW:79:PRO:HG2	1.83	0.59
56:DG:31:ARG:HE	56:DG:32:GLY:H	1.50	0.59
1:AA:466:A:N6	1:AA:469:C:C4	2.71	0.59
1:AA:466:A:N1	1:AA:469:C:C2	2.71	0.59
1:AA:967:C:OP2	1:AA:968:A:O2'	2.15	0.59
1:AA:1316:G:N1	1:AA:1319:A:OP2	2.36	0.59
1:AA:1328:C:O2'	5:AE:24:GLY:HA2	2.02	0.59
24:BA:2635:A:O2'	28:BE:81:GLU:OE1	2.09	0.59
28:BE:53:GLY:HA3	28:BE:77:ARG:HD3	1.84	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:BL:54:PRO:HG2	35:BL:78:VAL:HG21	1.84	0.59
1:AA:1266:G:C6	1:AA:1269:A:C6	2.90	0.59
55:DF:19:LEU:HB3	55:DF:23:ARG:HH12	1.67	0.59
12:AL:51:ALA:HB2	12:AL:58:GLU:HB3	1.84	0.59
44:BU:76:LYS:HD3	44:BU:77:PRO:HD2	1.85	0.59
1:AA:1218:C:H2'	1:AA:1219:A:H8	1.68	0.59
24:BA:2127:G:N2	24:BA:2173:A:N6	2.33	0.59
25:BB:23:G:O5'	25:BB:47:G:O6	2.21	0.59
30:BG:146:VAL:CG1	30:BG:149:VAL:HG13	2.33	0.59
41:BR:114:LEU:O	41:BR:118:MET:HG3	2.02	0.59
56:DG:21:GLY:O	56:DG:86:MET:HE3	2.01	0.59
1:AA:390:U:H2'	1:AA:391:G:H8	1.67	0.58
1:AA:695:A:OP1	13:AM:53:ARG:NH2	2.36	0.58
17:AQ:54:ASP:OD1	17:AQ:55:THR:N	2.35	0.58
24:BA:360:U:H2'	24:BA:361:G:C5	2.38	0.58
24:BA:1089:A:C8	24:BA:1102:C:N4	2.72	0.58
24:BA:1365:A:OP1	54:DE:3:ARG:NH2	2.36	0.58
45:BV:12:ARG:O	45:BV:17:ARG:NH1	2.36	0.58
45:BV:100:CYS:H	45:BV:111:ALA:HA	1.67	0.58
55:DF:59:GLU:HA	55:DF:63:ALA:HB3	1.85	0.58
1:AA:1021:A:H8	1:AA:1022:A:C8	2.21	0.58
8:AH:40:ILE:HD13	8:AH:73:LEU:HD23	1.86	0.58
24:BA:1092:C:N4	24:BA:1100:C:O5'	2.36	0.58
24:BA:1171:G:N2	24:BA:1177:G:O6	2.37	0.58
54:DE:55:GLY:O	54:DE:59:ILE:HG12	2.03	0.58
1:AA:990:C:N4	1:AA:991:U:O4	2.36	0.58
1:AA:1028:C:N3	1:AA:1034:G:C5	2.71	0.58
1:AA:1347:G:C6	11:AK:13:LYS:NZ	2.58	0.58
16:AP:38:VAL:HG11	16:AP:114:VAL:HG12	1.84	0.58
24:BA:832:U:H2'	24:BA:833:A:C8	2.37	0.58
30:BG:147:ASP:OD1	30:BG:147:ASP:N	2.29	0.58
52:DC:44:HIS:O	52:DC:47:VAL:HG12	2.03	0.58
1:AA:946:A:H2'	1:AA:947:G:C8	2.38	0.58
16:AP:161:VAL:HG12	16:AP:161:VAL:O	2.03	0.58
24:BA:1113:U:H2'	24:BA:1114:C:C6	2.39	0.58
24:BA:1353:A:H2'	24:BA:1354:A:H8	1.68	0.58
19:AS:58:VAL:HG13	19:AS:79:VAL:HB	1.86	0.58
24:BA:570:G:O4'	24:BA:983:A:N6	2.37	0.58
24:BA:1063:G:N2	24:BA:1076:C:C2	2.72	0.58
24:BA:1149:G:H2'	24:BA:1150:C:C6	2.38	0.58
24:BA:2136:G:C6	24:BA:2155:U:O2	2.56	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:BU:69:PRO:HA	44:BU:94:ALA:HB2	1.86	0.58
51:DB:91:LYS:HZ2	51:DB:91:LYS:N	1.98	0.58
1:AA:362:G:N2	1:AA:365:U:OP2	2.34	0.58
17:AQ:7:ILE:HD12	17:AQ:7:ILE:H	1.68	0.58
18:AR:71:LYS:HD2	18:AR:78:TYR:CE2	2.39	0.58
24:BA:2532:G:N2	24:BA:2662:A:H61	2.02	0.58
25:BB:35:C:OP1	25:BB:35:C:C6	2.56	0.58
1:AA:1109:C:OP2	7:AG:176:HIS:ND1	2.36	0.58
7:AG:58:GLU:HG2	7:AG:65:ARG:HB2	1.85	0.58
24:BA:151:C:H2'	24:BA:152:A:H8	1.69	0.58
24:BA:475:C:O2	24:BA:479:A:N6	2.36	0.58
50:DA:54:GLU:HG2	50:DA:88:LYS:HE2	1.85	0.58
16:AP:69:ARG:HG2	16:AP:70:ASN:H	1.68	0.58
24:BA:249:C:O2	38:BO:12:LYS:NZ	2.36	0.58
24:BA:896:A:H2'	24:BA:897:C:O4'	2.03	0.58
24:BA:1858:A:H2'	24:BA:1859:U:O4'	2.04	0.58
1:AA:1043:G:O2'	1:AA:1044:A:O4'	2.22	0.58
1:AA:1522:U:OP1	13:AM:128:ARG:NH2	2.36	0.58
16:AP:91:GLY:H	16:AP:135:ASN:HD21	1.52	0.58
19:AS:7:THR:HG22	19:AS:62:ARG:HB2	1.84	0.58
19:AS:79:VAL:HG12	19:AS:80:GLU:OE1	2.04	0.58
24:BA:253:C:OP2	38:BO:5:LYS:NZ	2.37	0.58
24:BA:1159:U:OP1	40:BQ:31:ARG:NH2	2.36	0.58
24:BA:2636:C:H2'	24:BA:2637:U:H6	1.69	0.58
54:DE:65:ASP:OD1	54:DE:66:THR:N	2.37	0.58
56:DG:27:VAL:HG21	56:DG:69:PHE:CZ	2.38	0.58
1:AA:702:A:H62	24:BA:1846:G:H21	1.52	0.58
16:AP:162:GLU:C	16:AP:164:ILE:H	2.06	0.58
24:BA:1278:C:H2'	24:BA:1279:G:H8	1.69	0.58
24:BA:1704:C:H2'	24:BA:1705:A:H8	1.69	0.58
24:BA:2816:G:O3'	45:BV:99:LYS:NZ	2.36	0.58
27:BD:227:PRO:HA	27:BD:233:GLY:HA2	1.86	0.58
1:AA:234:C:H2'	1:AA:235:C:H6	1.69	0.57
3:AC:73:ASN:ND2	3:AC:105:SER:OG	2.37	0.57
13:AM:35:THR:HG22	13:AM:41:ALA:HA	1.86	0.57
14:AN:23:GLU:HA	14:AN:26:THR:HG22	1.84	0.57
24:BA:196:A:HO2'	24:BA:2068:U:H5	1.49	0.57
24:BA:220:G:N1	24:BA:428:A:OP2	2.36	0.57
24:BA:721:A:H2'	24:BA:722:A:H8	1.69	0.57
24:BA:2187:U:H2'	24:BA:2188:U:C6	2.39	0.57
24:BA:2340:A:H2'	24:BA:2341:G:H8	1.68	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:2532:G:O2'	24:BA:2658:C:O2'	2.21	0.57
1:AA:520:A:O2'	3:AC:70:GLU:OE2	2.22	0.57
24:BA:1048:A:N6	24:BA:1112:G:O2'	2.37	0.57
50:DA:53:VAL:HG21	50:DA:92:ASN:HB2	1.86	0.57
1:AA:1125:U:H1'	1:AA:1126:U:H2'	1.86	0.57
1:AA:1356:G:H2'	1:AA:1357:A:C8	2.35	0.57
11:AK:130:ARG:NH2	25:BB:36:A:OP1	2.38	0.57
24:BA:558:U:H5'	41:BR:114:LEU:HD13	1.86	0.57
24:BA:926:G:H2'	24:BA:927:A:C8	2.40	0.57
24:BA:320:A:P	29:BF:132:LYS:HZ3	2.27	0.57
24:BA:1548:A:H2'	24:BA:1549:A:H8	1.68	0.57
35:BL:34:ASN:OD1	35:BL:65:ARG:NH2	2.37	0.57
24:BA:1040:A:H2	24:BA:1115:G:C2	2.22	0.57
24:BA:2114:A:H2'	24:BA:2166:U:H5''	1.87	0.57
33:BJ:19:ILE:HD12	33:BJ:24:ILE:HD12	1.86	0.57
34:BK:50:ARG:NH1	34:BK:53:GLU:HG2	2.19	0.57
1:AA:151:A:H3'	1:AA:152:A:H8	1.70	0.57
1:AA:302:G:O3'	3:AC:14:ARG:NH1	2.38	0.57
9:AI:95:GLU:HA	9:AI:100:ASN:HD22	1.70	0.57
24:BA:441:U:H2'	24:BA:442:G:C8	2.39	0.57
24:BA:581:C:H2'	24:BA:582:A:C8	2.40	0.57
29:BF:125:SER:HA	29:BF:157:LEU:HD21	1.86	0.57
30:BG:103:LEU:HA	30:BG:107:ALA:HB3	1.87	0.57
35:BL:117:MET:HA	35:BL:117:MET:HE3	1.86	0.57
38:BO:24:HIS:ND1	38:BO:25:LYS:O	2.35	0.57
1:AA:4:U:H3	9:AI:83:LYS:HG2	1.70	0.57
1:AA:1060:U:OP1	6:AF:85:ARG:NH2	2.38	0.57
10:AJ:133:GLU:HA	10:AJ:136:MET:HB2	1.87	0.57
24:BA:77:G:O5'	55:DF:52:ARG:NH1	2.37	0.57
24:BA:778:G:H5''	27:BD:48:ARG:HD2	1.85	0.57
24:BA:1510:G:H2'	24:BA:1511:G:H8	1.70	0.57
56:DG:68:PRO:CB	56:DG:116:GLU:HA	2.33	0.57
1:AA:45:G:H2'	1:AA:46:G:C8	2.40	0.57
1:AA:261:U:N3	1:AA:264:C:OP2	2.26	0.57
1:AA:1215:G:OP1	6:AF:3:LYS:NZ	2.32	0.57
24:BA:545:U:H1'	24:BA:550:C:C2	2.39	0.57
24:BA:589:U:H2'	24:BA:590:A:H8	1.70	0.57
24:BA:1288:G:OP2	24:BA:1288:G:N2	2.31	0.57
24:BA:2461:A:H2'	24:BA:2462:C:C6	2.40	0.57
1:AA:715:A:H2'	1:AA:716:A:C8	2.39	0.57
1:AA:998:C:O5'	1:AA:998:C:H6	1.88	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:999:C:O2	1:AA:999:C:H3'	2.04	0.57
1:AA:1221:G:H8	1:AA:1221:G:O5'	1.86	0.57
10:AJ:114:LEU:HD13	10:AJ:144:LEU:HB3	1.86	0.57
17:AQ:48:ASP:OD1	17:AQ:49:PHE:N	2.37	0.57
24:BA:1047:G:O4'	24:BA:1111:A:N6	2.37	0.57
24:BA:1733:G:H2'	24:BA:1734:G:H8	1.69	0.57
24:BA:1857:G:N2	24:BA:1884:G:O2'	2.34	0.57
25:BB:52:C:H2'	25:BB:53:G:C8	2.39	0.57
43:BT:102:GLY:H	43:BT:105:ILE:HD12	1.68	0.57
1:AA:1228:C:O2'	1:AA:1229:A:OP1	2.23	0.57
12:AL:18:PHE:CE1	12:AL:58:GLU:CD	2.78	0.57
24:BA:879:G:H2'	24:BA:880:G:H8	1.70	0.57
24:BA:1704:C:H2'	24:BA:1705:A:C8	2.40	0.57
24:BA:2461:A:H2'	24:BA:2462:C:H6	1.70	0.57
50:DA:67:VAL:O	50:DA:68:LYS:NZ	2.35	0.57
1:AA:204:G:N1	1:AA:465:A:OP1	2.38	0.56
1:AA:460:A:H2'	1:AA:461:A:C8	2.40	0.56
24:BA:1059:G:O2'	24:BA:1060:U:OP1	2.23	0.56
24:BA:1105:U:H2'	24:BA:1106:G:C8	2.39	0.56
24:BA:1533:C:H2'	24:BA:1534:U:H4'	1.87	0.56
24:BA:2857:G:N2	24:BA:2860:A:OP2	2.38	0.56
1:AA:413:G:H1'	1:AA:428:G:H21	1.70	0.56
1:AA:1133:G:N2	1:AA:1142:G:C4	2.73	0.56
4:AD:18:LYS:HE3	4:AD:31:LEU:HD22	1.87	0.56
13:AM:36:ASP:OD1	13:AM:40:ASN:N	2.37	0.56
16:AP:106:ILE:HG21	16:AP:124:LEU:HD23	1.87	0.56
24:BA:1830:C:H2'	24:BA:1831:G:C8	2.40	0.56
24:BA:2356:U:O2'	53:DD:20:ARG:NH2	2.38	0.56
1:AA:537:G:H5''	3:AC:110:ARG:HH12	1.70	0.56
1:AA:694:A:N6	1:AA:695:A:N1	2.54	0.56
1:AA:1423:G:H5'	42:BS:49:ARG:HH22	1.69	0.56
10:AJ:94:HIS:ND1	10:AJ:146:ASN:O	2.39	0.56
24:BA:1223:G:OP2	48:BY:90:ARG:NH1	2.38	0.56
24:BA:1548:A:H2'	24:BA:1549:A:C8	2.40	0.56
24:BA:1570:A:H2'	24:BA:1571:A:C8	2.41	0.56
24:BA:2166:U:O2'	24:BA:2167:U:O4'	2.14	0.56
25:BB:72:C:H3'	25:BB:73:A:C8	2.41	0.56
31:BH:7:ARG:NH1	31:BH:95:SER:O	2.38	0.56
39:BP:2:LYS:HD2	39:BP:4:ARG:HH21	1.69	0.56
51:DB:86:ARG:NH2	51:DB:100:SER:OG	2.39	0.56
1:AA:961:U:OP2	1:AA:1222:G:O2'	2.17	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:1328:C:H5''	5:AE:26:GLY:N	2.21	0.56
16:AP:13:GLU:OE1	16:AP:39:VAL:HG12	2.05	0.56
16:AP:85:VAL:HG11	16:AP:147:MET:HG3	1.88	0.56
24:BA:2534:A:OP1	24:BA:2665:A:O2'	2.23	0.56
27:BD:258:ARG:HH22	27:BD:263:THR:HG23	1.71	0.56
28:BE:148:GLN:CB	28:BE:152:PRO:CG	2.83	0.56
33:BJ:9:VAL:O	33:BJ:50:LEU:N	2.37	0.56
1:AA:592:G:H2'	1:AA:593:U:C6	2.41	0.56
1:AA:1051:C:N3	1:AA:1207:G:N1	2.35	0.56
1:AA:1342:C:H2'	1:AA:1343:G:C8	2.40	0.56
1:AA:1408:A:HO2'	24:BA:1916:A:H61	1.53	0.56
9:AI:64:ILE:HG22	9:AI:65:TYR:CD1	2.41	0.56
24:BA:438:G:H2'	24:BA:439:A:H8	1.71	0.56
24:BA:576:U:H2'	24:BA:577:G:C8	2.40	0.56
24:BA:1482:G:O6	24:BA:1508:A:N6	2.38	0.56
27:BD:8:PRO:HB3	27:BD:14:ARG:HG3	1.87	0.56
28:BE:148:GLN:CG	28:BE:152:PRO:CG	2.77	0.56
41:BR:41:LYS:NZ	41:BR:50:THR:O	2.35	0.56
1:AA:78:A:H61	1:AA:90:C:N4	2.04	0.56
1:AA:921:U:O2	16:AP:24:THR:OG1	2.23	0.56
1:AA:1354:U:C5	1:AA:1368:A:N1	2.74	0.56
1:AA:1375:A:H5''	12:AL:25:LYS:HE3	1.88	0.56
3:AC:99:ARG:NH1	3:AC:104:CYS:SG	2.78	0.56
24:BA:1615:C:OP2	24:BA:1617:C:N4	2.38	0.56
24:BA:2114:A:H8	24:BA:2166:U:H4'	1.70	0.56
24:BA:2116:G:C8	24:BA:2160:C:OP1	2.58	0.56
24:BA:2221:G:P	34:BK:97:ARG:HH22	2.29	0.56
24:BA:2746:U:N3	24:BA:2756:U:O4	2.37	0.56
27:BD:258:ARG:NH2	27:BD:264:ASP:OD1	2.34	0.56
28:BE:97:SER:OG	28:BE:98:VAL:N	2.39	0.56
45:BV:98:LEU:O	45:BV:112:TYR:N	2.38	0.56
1:AA:636:U:H2'	1:AA:637:C:C6	2.39	0.56
12:AL:69:VAL:HG23	12:AL:100:ALA:HB1	1.86	0.56
24:BA:216:A:N7	24:BA:431:U:O2	2.39	0.56
24:BA:1059:G:N1	24:BA:1081:U:C1'	2.44	0.56
24:BA:1081:U:H3'	24:BA:1081:U:C6	2.41	0.56
24:BA:2513:A:H2'	24:BA:2514:U:C6	2.40	0.56
42:BS:2:ILE:HG23	42:BS:6:THR:HG21	1.87	0.56
1:AA:454:G:H2'	1:AA:455:G:C8	2.40	0.56
24:BA:1183:U:H4'	40:BQ:30:ARG:HH12	1.71	0.56
24:BA:1433:A:O2'	24:BA:1434:A:H5'	2.06	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:2666:C:H42	33:BJ:109:PHE:HA	1.71	0.56
25:BB:2:G:C6	25:BB:72:C:N4	2.74	0.56
26:BC:9:G:O6	26:BC:111:U:O4	2.24	0.56
49:BZ:25:ARG:NH2	49:BZ:74:ILE:O	2.29	0.56
1:AA:82:G:O4'	1:AA:88:U:N3	2.39	0.56
1:AA:312:C:H2'	1:AA:313:A:H8	1.71	0.56
24:BA:191:A:H2'	24:BA:192:C:C6	2.41	0.56
24:BA:573:U:H3	24:BA:2030:A:H2'	1.71	0.56
24:BA:1069:A:N1	24:BA:1096:A:O2'	2.39	0.56
24:BA:1096:A:H5'	24:BA:1097:U:C5	2.41	0.56
24:BA:1165:A:H2'	24:BA:1166:G:H8	1.70	0.56
24:BA:2345:G:H5'	24:BA:2347:C:H5''	1.88	0.56
24:BA:2698:U:H2'	24:BA:2699:C:C6	2.41	0.56
24:BA:2807:U:O2	24:BA:2892:G:C2	2.58	0.56
30:BG:133:ARG:O	30:BG:150:ARG:HB3	2.05	0.56
42:BS:2:ILE:HB	42:BS:33:ALA:HB3	1.88	0.56
55:DF:5:GLU:O	55:DF:9:LYS:HG3	2.05	0.56
1:AA:337:G:H2'	1:AA:338:A:C8	2.40	0.56
1:AA:751:U:O2'	1:AA:752:G:O4'	2.24	0.56
1:AA:1149:C:H6	1:AA:1149:C:O5'	1.89	0.56
1:AA:1312:G:N7	4:AD:3:ARG:NH1	2.54	0.56
1:AA:1328:C:H5''	5:AE:26:GLY:H	1.70	0.56
24:BA:370:G:O2'	24:BA:424:G:OP1	2.18	0.56
24:BA:1509:A:O2'	24:BA:1510:G:H8	1.88	0.56
24:BA:2161:C:H5	24:BA:2164:C:C5	2.18	0.56
24:BA:2839:G:H4'	45:BV:49:GLU:OE1	2.06	0.56
27:BD:69:ARG:NH2	27:BD:118:SER:OG	2.38	0.56
34:BK:94:ILE:CB	34:BK:98:ASP:OD2	2.54	0.56
46:BW:106:LYS:O	46:BW:109:ARG:NH1	2.39	0.56
1:AA:82:G:H2'	1:AA:83:C:H4'	1.88	0.55
1:AA:1127:G:N2	1:AA:1145:A:N1	2.47	0.55
1:AA:1304:G:O2'	1:AA:1305:G:O5'	2.23	0.55
22:AV:24:ILE:CD1	30:BG:102:ARG:HD3	2.36	0.55
24:BA:1980:G:O2'	24:BA:1982:U:OP2	2.24	0.55
24:BA:2636:C:HO2'	28:BE:45:TYR:HH	1.54	0.55
25:BB:52:C:H2'	25:BB:53:G:H8	1.69	0.55
25:BB:66:C:H2'	25:BB:67:C:H6	1.72	0.55
28:BE:27:ILE:HG23	28:BE:187:LEU:HB3	1.87	0.55
33:BJ:18:LYS:HB2	33:BJ:25:THR:OG1	2.06	0.55
1:AA:188:C:H2'	1:AA:189:A:H8	1.71	0.55
10:AJ:137:ARG:HD2	10:AJ:138:THR:N	2.21	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:AP:83:HIS:NE2	16:AP:148:ASN:OD1	2.39	0.55
24:BA:1921:G:H2'	24:BA:1922:G:H8	1.72	0.55
51:DB:52:LEU:HD22	51:DB:54:GLN:HB2	1.89	0.55
1:AA:634:C:H2'	1:AA:635:A:H8	1.72	0.55
1:AA:1310:G:H2'	1:AA:1311:A:N1	2.21	0.55
1:AA:1427:C:H2'	1:AA:1428:A:C8	2.42	0.55
24:BA:350:G:O2'	24:BA:351:C:OP1	2.21	0.55
30:BG:152:LEU:HD21	30:BG:154:ILE:HD11	1.86	0.55
35:BL:33:VAL:HG21	35:BL:59:ILE:HG21	1.88	0.55
42:BS:78:ARG:NE	46:BW:71:GLU:OE2	2.39	0.55
4:AD:12:ASP:OD2	4:AD:14:HIS:NE2	2.39	0.55
22:AV:9:TYR:HD1	22:AV:25:ARG:HB3	1.72	0.55
24:BA:320:A:N3	29:BF:163:ASN:ND2	2.50	0.55
24:BA:1059:G:H1'	35:BL:117:MET:SD	2.46	0.55
25:BB:23:G:C8	25:BB:47:G:C6	2.95	0.55
27:BD:123:ALA:O	27:BD:128:ASN:ND2	2.34	0.55
51:DB:88:GLU:CD	51:DB:93:VAL:HG21	2.26	0.55
1:AA:190:A:H5''	1:AA:191:G:N7	2.22	0.55
1:AA:1527:U:H2'	1:AA:1528:U:C6	2.41	0.55
8:AH:40:ILE:HG22	8:AH:40:ILE:O	2.05	0.55
24:BA:2291:U:H2'	24:BA:2292:U:C6	2.42	0.55
24:BA:2728:U:HO2'	24:BA:2729:G:H8	1.55	0.55
27:BD:131:PRO:HA	27:BD:189:ARG:HA	1.87	0.55
49:BZ:28:LYS:H	49:BZ:31:GLN:NE2	2.04	0.55
50:DA:62:VAL:HG12	50:DA:81:LYS:HG3	1.89	0.55
51:DB:91:LYS:H	51:DB:91:LYS:CE	2.19	0.55
54:DE:4:VAL:HG22	54:DE:11:ARG:HG2	1.88	0.55
7:AG:132:ARG:O	7:AG:136:ARG:HG2	2.07	0.55
10:AJ:42:ASN:ND2	10:AJ:44:GLU:OE1	2.40	0.55
11:AK:12:ARG:HD3	11:AK:13:LYS:H	1.72	0.55
24:BA:1435:G:H2'	24:BA:1436:G:H8	1.71	0.55
24:BA:1937:A:N6	24:BA:1967:C:O2'	2.39	0.55
24:BA:2291:U:OP1	24:BA:2380:C:O2'	2.24	0.55
32:BI:13:SER:HB3	32:BI:49:TYR:CZ	2.41	0.55
47:BX:44:GLN:NE2	48:BY:77:PHE:HB3	2.21	0.55
1:AA:1224:U:H3	1:AA:1321:U:HO2'	1.52	0.55
1:AA:1309:G:H2'	1:AA:1310:G:C8	2.42	0.55
14:AN:41:ASP:OD1	14:AN:58:HIS:NE2	2.39	0.55
17:AQ:7:ILE:O	17:AQ:11:LEU:HG	2.05	0.55
17:AQ:88:ARG:HB3	17:AQ:91:GLU:OE2	2.06	0.55
19:AS:69:LYS:HB2	19:AS:70:THR:HG23	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:589:U:H2'	24:BA:590:A:C8	2.42	0.55
24:BA:1258:U:H2'	24:BA:1259:G:H8	1.72	0.55
25:BB:15:G:C6	25:BB:49:C:C2	2.94	0.55
34:BK:52:ALA:O	34:BK:54:LEU:N	2.40	0.55
35:BL:121:ASP:H	35:BL:124:ALA:HB3	1.72	0.55
49:BZ:52:GLU:HA	49:BZ:55:ILE:HG12	1.88	0.55
1:AA:89:U:O2'	1:AA:90:C:O4'	2.19	0.55
1:AA:908:A:H2'	1:AA:909:A:H8	1.70	0.55
1:AA:1061:G:OP2	7:AG:3:GLN:NE2	2.40	0.55
1:AA:1368:A:H4'	8:AH:48:ARG:HH12	1.71	0.55
8:AH:39:PRO:O	8:AH:73:LEU:O	2.23	0.55
17:AQ:75:ILE:HG13	17:AQ:129:VAL:HG12	1.89	0.55
24:BA:142:A:H2'	24:BA:143:C:H6	1.72	0.55
24:BA:614:A:H4'	24:BA:615:U:H5'	1.88	0.55
24:BA:666:A:H1'	38:BO:4:ILE:HD12	1.88	0.55
24:BA:1364:G:OP2	54:DE:2:SER:N	2.40	0.55
1:AA:878:A:OP1	17:AQ:80:ARG:NE	2.38	0.55
3:AC:87:VAL:HG21	3:AC:93:VAL:HG11	1.83	0.55
14:AN:38:ARG:HB3	14:AN:63:ASN:HB2	1.88	0.55
24:BA:1100:C:O2'	24:BA:1101:U:OP1	2.21	0.55
24:BA:1104:C:H2'	24:BA:1105:U:C6	2.41	0.55
24:BA:1825:U:H2'	24:BA:1826:G:H8	1.72	0.55
24:BA:1826:G:OP1	27:BD:223:THR:N	2.39	0.55
24:BA:1954:G:O2'	24:BA:1956:U:O4	2.17	0.55
24:BA:2071:A:H2'	24:BA:2072:C:C6	2.42	0.55
27:BD:29:PRO:HG3	27:BD:63:ARG:HH21	1.71	0.55
48:BY:69:GLY:N	48:BY:91:GLN:O	2.39	0.55
24:BA:1361:G:H2'	24:BA:1362:C:H6	1.71	0.55
24:BA:1614:A:OP1	24:BA:1617:C:N4	2.34	0.55
24:BA:2045:C:C5'	36:BM:15:MET:HE1	2.35	0.55
24:BA:2328:A:H2'	24:BA:2329:U:C6	2.42	0.55
29:BF:196:VAL:HA	29:BF:199:MET:HG2	1.88	0.55
34:BK:31:VAL:HG23	34:BK:32:PRO:HD3	1.88	0.55
56:DG:99:PHE:O	56:DG:103:ASN:HB2	2.07	0.55
1:AA:806:C:H2'	1:AA:807:A:H8	1.70	0.54
3:AC:54:ARG:HD2	3:AC:64:THR:HG22	1.89	0.54
7:AG:57:ILE:HG12	7:AG:66:VAL:HG22	1.89	0.54
24:BA:1149:G:H2'	24:BA:1150:C:H6	1.71	0.54
24:BA:1714:U:H5'	24:BA:1715:G:H5''	1.88	0.54
24:BA:2808:G:N7	24:BA:2891:U:N1	2.54	0.54
28:BE:152:PRO:C	28:BE:154:LYS:N	2.61	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:BK:9:VAL:HG23	34:BK:12:LEU:HB3	1.89	0.54
55:DF:16:THR:O	55:DF:20:ASN:ND2	2.40	0.54
1:AA:222:C:H2'	1:AA:223:A:C8	2.42	0.54
1:AA:337:G:H2'	1:AA:338:A:H8	1.72	0.54
1:AA:1222:G:OP2	4:AD:78:ARG:NH2	2.41	0.54
7:AG:25:ASN:HB2	7:AG:27:LYS:HG2	1.88	0.54
16:AP:26:LYS:HA	16:AP:26:LYS:HE3	1.90	0.54
24:BA:2375:G:N2	24:BA:2378:A:OP2	2.31	0.54
30:BG:132:VAL:HG12	30:BG:152:LEU:HD22	1.89	0.54
34:BK:94:ILE:CD1	34:BK:122:LEU:HB2	2.36	0.54
1:AA:499:A:O4'	1:AA:547:A:N6	2.40	0.54
1:AA:946:A:H2'	1:AA:947:G:H8	1.73	0.54
1:AA:1241:G:H2'	1:AA:1242:G:C8	2.42	0.54
9:AI:101:VAL:O	9:AI:105:MET:HG3	2.07	0.54
18:AR:33:THR:HG21	18:AR:85:LEU:HD13	1.88	0.54
24:BA:721:A:H2'	24:BA:722:A:C8	2.42	0.54
24:BA:1962:C:O2'	24:BA:1963:U:O5'	2.25	0.54
1:AA:19:A:H2'	1:AA:20:U:C6	2.43	0.54
1:AA:630:A:OP2	1:AA:630:A:H8	1.90	0.54
1:AA:1015:G:OP2	1:AA:1015:G:H8	1.91	0.54
1:AA:1021:A:C8	1:AA:1022:A:C8	2.96	0.54
7:AG:105:GLU:OE2	7:AG:107:ARG:NH2	2.40	0.54
19:AS:77:ARG:HH12	19:AS:79:VAL:HG22	1.73	0.54
24:BA:645:C:H2'	24:BA:647:G:C8	2.43	0.54
24:BA:1734:G:H2'	24:BA:1735:A:H8	1.72	0.54
24:BA:1796:U:H2'	24:BA:1797:G:C8	2.43	0.54
24:BA:2443:C:H2'	24:BA:2444:G:H8	1.72	0.54
24:BA:2737:G:H2'	24:BA:2738:A:C8	2.42	0.54
35:BL:102:SER:H	35:BL:105:GLN:NE2	2.06	0.54
41:BR:17:VAL:HG23	41:BR:137:PRO:HB2	1.89	0.54
46:BW:22:PRO:HA	46:BW:47:VAL:HG23	1.89	0.54
1:AA:1220:G:H2'	1:AA:1221:G:C8	2.43	0.54
1:AA:1347:G:N2	1:AA:1374:A:OP2	2.24	0.54
22:AV:59:ARG:HD2	22:AV:59:ARG:N	2.21	0.54
24:BA:275:C:C4	24:BA:276:U:H1'	2.43	0.54
24:BA:706:A:H5'	27:BD:7:LYS:NZ	2.23	0.54
31:BH:98:GLN:CD	31:BH:98:GLN:H	2.11	0.54
34:BK:84:ALA:HB2	34:BK:90:LEU:HD12	1.89	0.54
1:AA:468:A:OP2	1:AA:470:C:N4	2.40	0.54
7:AG:130:PHE:O	7:AG:134:MET:HG2	2.07	0.54
8:AH:6:ILE:HD13	8:AH:102:LEU:HA	1.88	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:279:A:C2	24:BA:362:A:H4'	2.42	0.54
24:BA:987:C:O2'	24:BA:1000:A:N3	2.38	0.54
24:BA:2818:U:OP1	24:BA:2837:A:O2'	2.23	0.54
30:BG:134:GLU:CG	30:BG:150:ARG:CG	2.69	0.54
31:BH:56:LYS:HA	31:BH:59:ALA:HB3	1.88	0.54
51:DB:13:VAL:HA	51:DB:70:VAL:HG12	1.88	0.54
1:AA:413:G:N2	1:AA:428:G:O3'	2.40	0.54
1:AA:1157:A:N7	1:AA:1180:A:N6	2.56	0.54
8:AH:39:PRO:CD	8:AH:40:ILE:N	2.66	0.54
24:BA:133:U:H2'	24:BA:134:G:H8	1.73	0.54
24:BA:571:U:O4'	24:BA:2030:A:C8	2.60	0.54
24:BA:1093:G:O2'	24:BA:1099:G:N7	2.33	0.54
24:BA:1521:G:OP2	24:BA:1522:A:O2'	2.19	0.54
25:BB:72:C:H3'	25:BB:73:A:H8	1.72	0.54
41:BR:81:ILE:H	41:BR:81:ILE:HD12	1.73	0.54
51:DB:41:LEU:HD12	51:DB:60:GLU:HG3	1.89	0.54
1:AA:201:G:O6	1:AA:216:U:O4	2.25	0.54
1:AA:1001:C:H3'	1:AA:1002:G:H8	1.72	0.54
1:AA:1029:U:O2	1:AA:1033:G:O2'	2.23	0.54
12:AL:67:GLU:OE1	12:AL:67:GLU:N	2.35	0.54
18:AR:10:LYS:O	18:AR:13:SER:OG	2.23	0.54
24:BA:4:U:H2'	24:BA:5:A:H5''	1.89	0.54
24:BA:534:U:O2'	47:BX:49:ASP:OD2	2.20	0.54
24:BA:741:U:H2'	24:BA:742:A:C8	2.42	0.54
24:BA:1225:G:OP1	48:BY:71:LYS:NZ	2.30	0.54
24:BA:1571:A:H2'	24:BA:1572:A:H8	1.71	0.54
25:BB:15:G:N2	25:BB:49:C:C5	2.75	0.54
25:BB:19:G:H1	25:BB:56:U:C1'	2.21	0.54
1:AA:41:G:H2'	1:AA:42:G:H8	1.72	0.54
1:AA:1086:U:O2'	1:AA:1087:G:H8	1.89	0.54
24:BA:2640:G:OP1	41:BR:95:ARG:NH1	2.40	0.54
24:BA:2808:G:C5	24:BA:2891:U:C5	2.96	0.54
25:BB:17:C:O2	25:BB:17:C:H2'	2.08	0.54
34:BK:77:THR:HA	34:BK:143:ILE:O	2.08	0.54
3:AC:98:VAL:HG13	3:AC:101:ALA:HB2	1.89	0.54
9:AI:45:LYS:HD2	9:AI:46:PRO:HD2	1.90	0.54
12:AL:18:PHE:CE1	12:AL:58:GLU:OE1	2.61	0.54
12:AL:79:ARG:NE	12:AL:82:GLY:O	2.37	0.54
19:AS:5:ILE:HD12	19:AS:62:ARG:HD3	1.90	0.54
24:BA:315:G:H2'	24:BA:316:C:C6	2.43	0.54
24:BA:659:G:H4'	29:BF:95:LYS:HE2	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:666:A:H2'	24:BA:667:U:C6	2.43	0.54
56:DG:56:ARG:HG3	56:DG:58:THR:HG23	1.90	0.54
1:AA:267:C:OP2	19:AS:69:LYS:NZ	2.40	0.53
24:BA:826:U:C2	24:BA:828:U:H1'	2.43	0.53
25:BB:57:C:O2'	30:BG:75:ALA:N	2.41	0.53
56:DG:83:ALA:HB1	56:DG:96:PHE:CE1	2.43	0.53
1:AA:501:C:H2'	1:AA:502:A:H8	1.73	0.53
3:AC:83:ARG:NH1	3:AC:84:GLY:O	2.42	0.53
24:BA:305:C:H2'	24:BA:306:U:C6	2.43	0.53
24:BA:651:G:H5'	38:BO:19:LYS:HG3	1.89	0.53
24:BA:1266:G:N2	24:BA:2013:A:OP2	2.31	0.53
46:BW:63:LYS:HD2	46:BW:65:SER:HB3	1.90	0.53
46:BW:89:ARG:NH2	46:BW:115:ASN:OD1	2.40	0.53
48:BY:37:GLU:OE2	48:BY:53:PHE:CD2	2.62	0.53
24:BA:1164:C:H2'	24:BA:1165:A:H8	1.73	0.53
24:BA:1447:C:H2'	24:BA:1448:G:H8	1.74	0.53
24:BA:2490:G:H4'	24:BA:2491:U:H5'	1.91	0.53
44:BU:64:TRP:HB2	44:BU:104:GLU:HB2	1.90	0.53
1:AA:1410:A:C5	1:AA:1491:G:N2	2.77	0.53
10:AJ:221:VAL:O	10:AJ:225:ARG:HG2	2.09	0.53
22:AV:9:TYR:CD1	22:AV:25:ARG:HB3	2.44	0.53
24:BA:18:U:H2'	24:BA:19:A:C8	2.43	0.53
24:BA:2749:A:OP1	33:BJ:2:SER:N	2.40	0.53
24:BA:2808:G:N7	24:BA:2891:U:C4	2.77	0.53
24:BA:2898:U:H6	24:BA:2898:U:H3'	1.73	0.53
25:BB:29:C:H2'	25:BB:30:G:H8	1.72	0.53
1:AA:582:C:H5	1:AA:758:C:H5	1.54	0.53
1:AA:1137:C:H1'	1:AA:1138:G:N2	2.23	0.53
5:AE:39:ILE:HG13	5:AE:56:LEU:HD21	1.89	0.53
19:AS:46:VAL:HG11	19:AS:61:ILE:HD12	1.90	0.53
24:BA:1258:U:H2'	24:BA:1259:G:C8	2.44	0.53
24:BA:2160:C:O2'	24:BA:2171:A:N1	2.40	0.53
31:BH:31:THR:HG22	31:BH:33:ARG:H	1.74	0.53
1:AA:27:G:H2'	1:AA:28:A:H8	1.74	0.53
14:AN:32:ALA:HB1	14:AN:70:VAL:HG21	1.90	0.53
24:BA:7:G:O2'	41:BR:135:GLN:NE2	2.37	0.53
24:BA:634:C:H2'	24:BA:635:C:C6	2.43	0.53
24:BA:1443:U:H2'	24:BA:1444:G:C8	2.43	0.53
25:BB:16:C:H2'	25:BB:17:C:H6	1.73	0.53
2:AB:35:VAL:HG12	2:AB:50:ALA:HB1	1.91	0.53
22:AV:24:ILE:HD11	30:BG:102:ARG:CG	2.39	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:625:G:H2'	24:BA:626:A:C8	2.44	0.53
24:BA:1171:G:H1	24:BA:1176:U:H3	1.57	0.53
24:BA:1667:G:O2'	24:BA:1991:U:O4	2.22	0.53
32:BI:23:THR:HG22	32:BI:24:THR:N	2.23	0.53
1:AA:147:G:H2'	1:AA:148:G:C8	2.44	0.53
1:AA:413:G:O3'	1:AA:428:G:N2	2.42	0.53
1:AA:735:C:H5''	20:AT:57:ARG:NH2	2.21	0.53
24:BA:118:A:H5'	24:BA:119:A:H8	1.74	0.53
24:BA:228:C:H4'	24:BA:229:C:H5''	1.91	0.53
24:BA:1386:C:H2'	24:BA:1387:A:H8	1.74	0.53
24:BA:2120:G:H2'	24:BA:2121:G:H8	1.74	0.53
24:BA:2216:G:H2'	24:BA:2217:G:H8	1.74	0.53
27:BD:138:GLY:H	27:BD:164:ILE:HG23	1.74	0.53
1:AA:292:G:O2'	1:AA:609:A:N6	2.42	0.53
1:AA:629:A:H2'	1:AA:630:A:C8	2.44	0.53
1:AA:1352:C:H2'	1:AA:1353:G:C8	2.44	0.53
24:BA:577:G:H2'	24:BA:578:G:C8	2.43	0.53
24:BA:580:U:H2'	24:BA:581:C:H6	1.74	0.53
33:BJ:42:GLU:HB3	33:BJ:55:ARG:HE	1.74	0.53
33:BJ:44:LYS:HB2	33:BJ:51:THR:OG1	2.09	0.53
38:BO:51:SER:O	38:BO:55:LEU:HG	2.08	0.53
45:BV:50:PRO:HA	45:BV:53:THR:HG22	1.90	0.53
46:BW:29:LYS:HE3	46:BW:40:LEU:HG	1.90	0.53
1:AA:1492:A:C2	24:BA:1913:A:O2'	2.61	0.53
6:AF:99:ALA:HB2	8:AH:66:GLU:HG2	1.91	0.53
10:AJ:28:LYS:HG2	10:AJ:29:PRO:HD3	1.90	0.53
24:BA:1469:A:H2'	24:BA:1470:A:H8	1.74	0.53
24:BA:1848:A:H4'	24:BA:1849:G:H5''	1.91	0.53
24:BA:2118:U:H3	24:BA:2147:A:P	2.32	0.53
24:BA:2126:A:OP1	24:BA:2175:C:N4	2.42	0.53
24:BA:2531:A:OP2	33:BJ:175:LYS:NZ	2.41	0.53
35:BL:131:GLY:HA2	35:BL:134:ARG:HG2	1.91	0.53
1:AA:202:G:H1'	1:AA:469:C:H1'	1.91	0.52
1:AA:920:U:H2'	1:AA:921:U:C6	2.44	0.52
1:AA:1315:U:H3	1:AA:1319:A:H2	1.57	0.52
24:BA:287:G:H2'	24:BA:288:U:H6	1.75	0.52
24:BA:288:U:H2'	24:BA:289:G:C8	2.44	0.52
24:BA:1469:A:H2'	24:BA:1470:A:C8	2.44	0.52
24:BA:2230:G:H5''	54:DE:30:LEU:HD21	1.90	0.52
24:BA:2532:G:H2'	24:BA:2533:U:H6	1.74	0.52
1:AA:390:U:H2'	1:AA:391:G:C8	2.44	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:555:U:H2'	1:AA:556:C:C6	2.44	0.52
1:AA:1295:U:H2'	1:AA:1296:C:C2	2.44	0.52
7:AG:6:HIS:CE1	7:AG:8:ASN:HB3	2.44	0.52
10:AJ:64:LYS:HD2	10:AJ:225:ARG:HH22	1.75	0.52
24:BA:593:U:H2'	24:BA:594:U:C6	2.45	0.52
24:BA:1914:C:N4	24:BA:1916:A:C2	2.77	0.52
30:BG:37:ASN:OD1	30:BG:38:MET:N	2.43	0.52
40:BQ:45:ARG:NH1	40:BQ:59:GLU:OE2	2.41	0.52
47:BX:66:ASN:OD1	47:BX:70:ARG:NH1	2.42	0.52
50:DA:92:ASN:OD1	50:DA:93:LEU:HD23	2.09	0.52
1:AA:255:G:OP1	19:AS:71:LYS:NZ	2.34	0.52
1:AA:1279:G:OP1	8:AH:9:ARG:NH2	2.42	0.52
1:AA:1513:A:H2'	1:AA:1514:G:H8	1.75	0.52
6:AF:35:ASN:OD1	6:AF:36:ALA:N	2.42	0.52
24:BA:1055:G:O2'	24:BA:1056:G:O4'	2.28	0.52
24:BA:2233:U:H2'	24:BA:2234:G:H8	1.74	0.52
56:DG:55:VAL:H	56:DG:79:PRO:HB3	1.75	0.52
1:AA:982:U:H1'	1:AA:1222:G:H22	1.74	0.52
1:AA:1242:G:H2'	1:AA:1243:C:H6	1.74	0.52
3:AC:90:LEU:HD22	3:AC:93:VAL:CG1	2.38	0.52
3:AC:99:ARG:HG3	3:AC:99:ARG:HH11	1.74	0.52
9:AI:37:ALA:HB3	9:AI:42:GLY:HA2	1.91	0.52
12:AL:27:VAL:O	12:AL:31:MET:HB2	2.10	0.52
16:AP:162:GLU:O	16:AP:164:ILE:N	2.43	0.52
24:BA:307:G:N1	24:BA:310:A:OP2	2.29	0.52
24:BA:636:G:N7	43:BT:109:LYS:NZ	2.58	0.52
24:BA:1109:C:H2'	24:BA:1110:G:H4'	1.91	0.52
24:BA:2113:U:O2	24:BA:2119:A:N6	2.43	0.52
24:BA:2645:G:OP2	24:BA:2645:G:N2	2.23	0.52
30:BG:132:VAL:CG1	30:BG:152:LEU:HD22	2.40	0.52
30:BG:152:LEU:CD2	30:BG:154:ILE:CD1	2.87	0.52
34:BK:84:ALA:HB3	34:BK:148:ALA:HB1	1.91	0.52
1:AA:328:C:H4'	1:AA:329:A:H5'	1.91	0.52
1:AA:1186:G:N2	6:AF:101:TRP:OXT	2.42	0.52
14:AN:73:GLU:O	14:AN:76:THR:OG1	2.24	0.52
18:AR:88:ARG:NH2	24:BA:716:A:OP2	2.39	0.52
23:AW:5:A:H8	23:AW:5:A:O5'	1.92	0.52
24:BA:133:U:H2'	24:BA:134:G:C8	2.45	0.52
24:BA:562:U:H2'	24:BA:572:A:C1'	2.39	0.52
24:BA:1086:A:H4'	24:BA:1087:G:OP1	2.09	0.52
34:BK:94:ILE:CD1	34:BK:94:ILE:N	2.73	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:BL:15:ALA:HB2	35:BL:51:LYS:HA	1.92	0.52
1:AA:671:G:O3'	14:AN:79:ARG:NH2	2.42	0.52
1:AA:1003:G:O2'	1:AA:1004:A:O3'	2.27	0.52
1:AA:1494:G:H2'	1:AA:1495:U:C6	2.45	0.52
5:AE:46:SER:OG	5:AE:47:GLU:OE1	2.19	0.52
24:BA:43:G:H2'	24:BA:44:A:C8	2.45	0.52
24:BA:871:U:H2'	24:BA:872:U:H6	1.74	0.52
24:BA:1734:G:H2'	24:BA:1735:A:C8	2.45	0.52
24:BA:2028:U:O4	24:BA:2033:A:N7	2.42	0.52
24:BA:2175:C:O2	24:BA:2175:C:H2'	2.08	0.52
25:BB:74:A:H5''	25:BB:75:C:C6	2.44	0.52
28:BE:122:VAL:HA	28:BE:127:PHE:HB2	1.91	0.52
33:BJ:137:ASP:HB3	33:BJ:140:VAL:HB	1.91	0.52
56:DG:68:PRO:HB2	56:DG:116:GLU:HA	1.91	0.52
56:DG:97:LYS:HD2	56:DG:127:ALA:HB3	1.92	0.52
1:AA:1088:G:H21	1:AA:1167:A:N6	2.07	0.52
1:AA:1492:A:C2	24:BA:1913:A:H1'	2.44	0.52
24:BA:871:U:H2'	24:BA:872:U:C6	2.45	0.52
24:BA:1085:A:H8	24:BA:1105:U:H1'	1.70	0.52
24:BA:1138:G:H21	41:BR:108:MET:CE	2.23	0.52
24:BA:1415:U:O2'	24:BA:1416:G:OP1	2.23	0.52
24:BA:1812:U:H2'	24:BA:1813:G:C8	2.44	0.52
24:BA:2051:A:H4'	28:BE:146:ILE:HD13	1.91	0.52
1:AA:171:A:H2'	1:AA:172:A:C8	2.44	0.52
1:AA:522:C:H41	3:AC:50:ARG:NH2	2.06	0.52
1:AA:634:C:H2'	1:AA:635:A:C8	2.45	0.52
1:AA:1175:G:H2'	1:AA:1176:A:C8	2.39	0.52
9:AI:27:ALA:O	9:AI:30:THR:OG1	2.18	0.52
24:BA:638:G:H2'	24:BA:639:U:H6	1.74	0.52
28:BE:82:PHE:CZ	28:BE:202:ILE:HD11	2.45	0.52
1:AA:195:A:H2'	1:AA:196:A:C4	2.44	0.52
1:AA:1312:G:N2	1:AA:1325:C:N1	2.58	0.52
11:AK:6:TYR:HB2	11:AK:21:ILE:HG22	1.91	0.52
24:BA:23:G:H2'	24:BA:24:G:H8	1.74	0.52
24:BA:2795:C:N3	24:BA:2802:G:C2	2.78	0.52
29:BF:146:VAL:HG22	29:BF:167:VAL:HG12	1.92	0.52
33:BJ:41:VAL:O	33:BJ:55:ARG:NH2	2.43	0.52
33:BJ:103:ILE:HD11	33:BJ:123:ALA:HB3	1.91	0.52
42:BS:2:ILE:HG13	42:BS:62:VAL:HG21	1.91	0.52
56:DG:56:ARG:HG3	56:DG:58:THR:H	1.75	0.52
16:AP:115:LEU:HD13	16:AP:123:VAL:HG11	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:777:G:H2'	24:BA:778:G:H8	1.75	0.52
24:BA:1225:G:O2'	48:BY:86:GLN:NE2	2.43	0.52
24:BA:2808:G:C8	24:BA:2891:U:N1	2.77	0.52
25:BB:19:G:N1	25:BB:56:U:C1'	2.73	0.52
43:BT:82:LEU:HD13	43:BT:120:VAL:HG21	1.92	0.52
1:AA:1060:U:H5''	8:AH:53:ILE:HD12	1.92	0.51
10:AJ:187:VAL:HG11	10:AJ:193:PRO:HB3	1.91	0.51
24:BA:2184:A:O2'	24:BA:2185:U:OP1	2.21	0.51
24:BA:2808:G:N7	24:BA:2891:U:C2	2.78	0.51
25:BB:71:G:H2'	25:BB:72:C:C6	2.45	0.51
35:BL:9:VAL:HG12	35:BL:24:VAL:HG23	1.91	0.51
43:BT:121:THR:HG22	43:BT:141:LYS:HG2	1.91	0.51
52:DC:9:ARG:HD3	52:DC:39:ALA:HB1	1.91	0.51
1:AA:735:C:C5'	20:AT:57:ARG:HH22	2.19	0.51
7:AG:121:THR:HG23	7:AG:189:ALA:HB2	1.92	0.51
24:BA:488:G:H22	24:BA:491:G:H5''	1.75	0.51
24:BA:863:A:H2'	24:BA:864:G:H8	1.75	0.51
24:BA:1063:G:H2'	24:BA:1064:C:O2	2.11	0.51
24:BA:1066:U:H3'	24:BA:1067:A:C5'	2.40	0.51
24:BA:1093:G:N2	24:BA:1099:G:OP1	2.39	0.51
24:BA:1746:A:H2'	24:BA:1747:U:H6	1.75	0.51
24:BA:2112:G:OP1	24:BA:2169:A:N6	2.41	0.51
24:BA:2474:U:O4	33:BJ:176:LYS:NZ	2.42	0.51
24:BA:2831:G:N2	24:BA:2884:U:OP2	2.42	0.51
53:DD:45:PHE:CE1	53:DD:78:LYS:HE3	2.45	0.51
1:AA:417:G:N2	1:AA:426:U:O2	2.41	0.51
1:AA:776:G:H5'	1:AA:777:A:OP1	2.09	0.51
1:AA:1000:A:N3	1:AA:1040:U:C2	2.79	0.51
1:AA:1152:A:O2'	1:AA:1153:G:OP1	2.27	0.51
1:AA:1328:C:H4'	5:AE:24:GLY:O	2.10	0.51
1:AA:1408:A:N6	1:AA:1494:G:O6	2.43	0.51
19:AS:61:ILE:HG22	19:AS:73:TRP:HB3	1.91	0.51
24:BA:2359:C:H2'	24:BA:2360:G:C8	2.45	0.51
25:BB:4:G:N2	25:BB:71:G:C2	2.76	0.51
35:BL:132:THR:O	35:BL:136:MET:HG2	2.10	0.51
37:BN:35:ARG:HD3	37:BN:42:LEU:HD11	1.92	0.51
51:DB:49:VAL:O	51:DB:53:ASN:N	2.43	0.51
1:AA:636:U:H2'	1:AA:637:C:H6	1.74	0.51
1:AA:1310:G:H2'	1:AA:1311:A:C2	2.45	0.51
15:AO:6:LEU:HB3	15:AO:17:TYR:HD2	1.75	0.51
24:BA:1062:G:H5'	24:BA:1088:A:C6	2.45	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:1406:U:H2'	24:BA:1407:G:C8	2.45	0.51
24:BA:1870:C:O2'	24:BA:1871:A:O5'	2.28	0.51
28:BE:19:GLY:HA3	46:BW:80:VAL:HG23	1.92	0.51
31:BH:8:ILE:O	31:BH:12:THR:OG1	2.26	0.51
56:DG:6:GLN:H	56:DG:6:GLN:CD	2.14	0.51
1:AA:45:G:H2'	1:AA:46:G:H8	1.74	0.51
1:AA:254:G:H2'	1:AA:255:G:H8	1.76	0.51
1:AA:324:G:N1	1:AA:327:A:OP2	2.43	0.51
1:AA:458:U:H2'	1:AA:459:A:H8	1.75	0.51
1:AA:695:A:O2'	1:AA:696:A:O4'	2.27	0.51
1:AA:1269:A:C2	1:AA:1325:C:O2'	2.58	0.51
1:AA:1494:G:H4'	24:BA:1913:A:O5'	2.10	0.51
6:AF:61:ARG:NH2	6:AF:70:PRO:O	2.40	0.51
9:AI:182:PHE:HZ	9:AI:186:PRO:HD3	1.75	0.51
22:AV:12:ILE:HB	22:AV:30:HIS:HA	1.92	0.51
23:AW:8:C:C6	23:AW:8:C:C4'	2.94	0.51
24:BA:18:U:H2'	24:BA:19:A:H8	1.75	0.51
24:BA:1636:U:H2'	24:BA:1637:A:C8	2.45	0.51
35:BL:123:GLU:HA	35:BL:126:THR:HG22	1.93	0.51
14:AN:15:SER:OG	14:AN:44:ARG:NH1	2.43	0.51
18:AR:79:THR:HA	18:AR:82:ILE:HG12	1.93	0.51
24:BA:181:A:H2'	24:BA:182:A:C8	2.45	0.51
24:BA:542:C:H2'	24:BA:543:G:H8	1.76	0.51
24:BA:1278:C:H2'	24:BA:1279:G:C8	2.46	0.51
32:BI:6:ARG:HG3	32:BI:24:THR:HB	1.92	0.51
45:BV:114:GLU:HG3	45:BV:118:ARG:HE	1.75	0.51
49:BZ:60:HIS:ND1	49:BZ:61:ASN:OD1	2.35	0.51
56:DG:61:ARG:HH11	56:DG:73:LYS:NZ	2.09	0.51
1:AA:966:G:H2'	1:AA:967:C:C6	2.46	0.51
1:AA:1169:A:H2'	1:AA:1170:A:C8	2.45	0.51
1:AA:1225:A:O2'	1:AA:1226:C:OP1	2.24	0.51
1:AA:1296:C:H2'	1:AA:1297:G:C4	2.46	0.51
1:AA:1307:U:H2'	1:AA:1330:U:C4	2.46	0.51
5:AE:50:GLU:HA	5:AE:53:ILE:HG12	1.93	0.51
10:AJ:167:ASP:OD1	10:AJ:168:HIS:N	2.42	0.51
18:AR:79:THR:O	18:AR:83:GLU:OE1	2.29	0.51
24:BA:1457:U:O2	24:BA:2702:G:O6	2.28	0.51
24:BA:1798:U:H5	27:BD:271:ARG:HH22	1.57	0.51
24:BA:2030:A:H5''	24:BA:2031:A:C8	2.45	0.51
24:BA:2305:U:O2	30:BG:131:GLY:HA3	2.10	0.51
24:BA:2661:G:O2'	24:BA:2662:A:OP1	2.23	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:BJ:11:VAL:O	33:BJ:48:ASN:HB3	2.11	0.51
55:DF:17:GLU:HA	55:DF:20:ASN:HD22	1.74	0.51
1:AA:461:A:O2'	1:AA:462:G:OP1	2.25	0.51
16:AP:103:THR:N	16:AP:122:ASN:OD1	2.30	0.51
24:BA:636:G:N1	43:BT:76:GLU:OE1	2.43	0.51
24:BA:1266:G:N7	49:BZ:15:GLN:NE2	2.59	0.51
24:BA:1581:G:H2'	24:BA:1582:C:C6	2.45	0.51
24:BA:1668:A:N3	24:BA:1670:C:N4	2.59	0.51
24:BA:1866:A:H2'	24:BA:1867:G:O4'	2.11	0.51
24:BA:2601:C:H2'	24:BA:2603:G:C8	2.46	0.51
26:BC:13:G:N2	26:BC:16:G:N3	2.59	0.51
26:BC:60:C:H2'	26:BC:61:G:H8	1.76	0.51
28:BE:125:TRP:CE3	28:BE:160:LYS:HD3	2.46	0.51
33:BJ:26:ILE:HG21	33:BJ:75:MET:HB3	1.93	0.51
1:AA:27:G:H2'	1:AA:28:A:C8	2.45	0.51
8:AH:36:VAL:HA	8:AH:76:ILE:HG22	1.92	0.51
11:AK:12:ARG:HE	11:AK:13:LYS:HG3	1.74	0.51
15:AO:58:ALA:HA	15:AO:61:VAL:HG12	1.93	0.51
24:BA:155:A:H2'	24:BA:156:A:C8	2.45	0.51
24:BA:545:U:H3'	24:BA:545:U:O2	2.10	0.51
24:BA:1361:G:H2'	24:BA:1362:C:C6	2.45	0.51
24:BA:2039:U:H2'	24:BA:2040:G:C8	2.45	0.51
25:BB:19:G:H1	25:BB:56:U:H1'	1.75	0.51
44:BU:74:THR:HA	44:BU:89:VAL:HA	1.93	0.51
51:DB:91:LYS:N	51:DB:91:LYS:CD	2.74	0.51
56:DG:93:ALA:HB1	56:DG:126:LEU:HD23	1.92	0.51
56:DG:122:GLN:OE1	56:DG:125:ARG:NH2	2.43	0.51
1:AA:636:U:H4'	19:AS:6:ARG:HH22	1.76	0.51
1:AA:988:G:N1	1:AA:1217:C:N3	2.59	0.51
1:AA:1171:A:H2'	1:AA:1172:C:C6	2.46	0.51
1:AA:1391:U:H2'	1:AA:1392:G:H8	1.76	0.51
9:AI:65:TYR:CD2	9:AI:94:LEU:HB3	2.46	0.51
15:AO:23:ASP:OD2	15:AO:25:ARG:NH2	2.39	0.51
24:BA:75:G:H22	24:BA:111:A:H2	1.59	0.51
24:BA:2305:U:C6	24:BA:2305:U:C5'	2.86	0.51
1:AA:1043:G:H2'	1:AA:1044:A:C8	2.46	0.50
7:AG:117:ALA:HB1	7:AG:187:SER:HB3	1.94	0.50
8:AH:40:ILE:CB	8:AH:73:LEU:HB3	2.41	0.50
15:AO:68:SER:HB3	15:AO:71:VAL:HG22	1.92	0.50
24:BA:1081:U:C6	24:BA:1081:U:C3'	2.94	0.50
24:BA:1224:U:H2'	24:BA:1225:G:C8	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:1563:U:H2'	24:BA:1564:C:C6	2.45	0.50
24:BA:1914:C:N4	24:BA:1916:A:N3	2.59	0.50
24:BA:2090:A:N6	24:BA:2230:G:O6	2.44	0.50
24:BA:2106:U:O4	24:BA:2178:C:N4	2.44	0.50
24:BA:2106:U:O2'	24:BA:2182:U:O4	2.22	0.50
30:BG:149:VAL:HG23	30:BG:150:ARG:HD2	1.92	0.50
48:BY:69:GLY:O	48:BY:90:ARG:NE	2.39	0.50
56:DG:123:ILE:HD12	56:DG:126:LEU:HD22	1.93	0.50
1:AA:187:G:O2'	1:AA:190:A:N6	2.34	0.50
1:AA:459:A:C6	1:AA:474:G:C6	2.99	0.50
11:AK:14:SER:O	11:AK:70:GLY:CA	2.59	0.50
12:AL:57:SER:O	12:AL:61:ALA:CB	2.59	0.50
24:BA:77:G:H4'	55:DF:52:ARG:NH2	2.26	0.50
24:BA:275:C:N3	24:BA:362:A:N6	2.59	0.50
24:BA:286:U:N3	24:BA:287:G:N7	2.59	0.50
24:BA:2311:A:N3	30:BG:85:ILE:HD11	2.25	0.50
31:BH:51:ALA:HB3	31:BH:78:VAL:HB	1.92	0.50
1:AA:21:G:H2'	1:AA:22:G:C8	2.47	0.50
1:AA:260:G:H2'	1:AA:261:U:C6	2.46	0.50
1:AA:1494:G:O5'	24:BA:1913:A:C8	2.64	0.50
24:BA:806:C:OP2	43:BT:41:ARG:NH2	2.41	0.50
24:BA:1164:C:H2'	24:BA:1165:A:C8	2.46	0.50
24:BA:1464:G:H2'	24:BA:1465:G:C8	2.47	0.50
24:BA:2233:U:H2'	24:BA:2234:G:C8	2.45	0.50
24:BA:2897:U:H2'	24:BA:2898:U:C2	2.46	0.50
56:DG:123:ILE:HA	56:DG:126:LEU:HD13	1.93	0.50
1:AA:1133:G:O2'	1:AA:1134:G:OP1	2.26	0.50
6:AF:24:ARG:O	6:AF:27:LEU:HG	2.11	0.50
9:AI:95:GLU:HA	9:AI:100:ASN:ND2	2.26	0.50
24:BA:638:G:H2'	24:BA:639:U:C6	2.46	0.50
24:BA:1000:A:H2'	24:BA:1001:A:C8	2.46	0.50
24:BA:1020:A:N1	24:BA:1141:U:O2'	2.39	0.50
24:BA:1499:C:C2	24:BA:1500:G:C8	2.99	0.50
24:BA:2345:G:N3	24:BA:2381:A:H2'	2.27	0.50
33:BJ:11:VAL:HG12	33:BJ:48:ASN:C	2.31	0.50
1:AA:468:A:N7	1:AA:469:C:N4	2.60	0.50
1:AA:662:U:H2'	1:AA:663:A:C8	2.47	0.50
1:AA:1312:G:C2	1:AA:1313:U:N3	2.79	0.50
1:AA:1412:C:H2'	1:AA:1413:A:C8	2.46	0.50
5:AE:37:ALA:HB2	5:AE:59:GLU:HG3	1.93	0.50
24:BA:151:C:H2'	24:BA:152:A:C8	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:545:U:H4'	24:BA:550:C:H1'	1.93	0.50
24:BA:956:G:OP2	44:BU:86:LYS:NZ	2.44	0.50
24:BA:1093:G:N2	24:BA:1100:C:OP1	2.44	0.50
24:BA:1585:C:H3'	24:BA:1586:A:H8	1.77	0.50
25:BB:74:A:H5''	25:BB:75:C:C5	2.46	0.50
35:BL:38:PHE:O	35:BL:42:PHE:N	2.37	0.50
56:DG:27:VAL:H	56:DG:111:ALA:HA	1.76	0.50
56:DG:70:GLU:OE1	56:DG:70:GLU:N	2.45	0.50
1:AA:398:U:H2'	1:AA:399:G:H8	1.77	0.50
1:AA:735:C:O3'	20:AT:57:ARG:NH2	2.44	0.50
1:AA:834:U:H2'	1:AA:835:U:C6	2.47	0.50
1:AA:1012:A:H2'	1:AA:1013:G:O4'	2.12	0.50
3:AC:21:VAL:HG13	3:AC:95:TYR:CE1	2.41	0.50
4:AD:18:LYS:HA	4:AD:21:LYS:HE2	1.93	0.50
16:AP:16:ILE:HG13	16:AP:36:LEU:HD22	1.94	0.50
16:AP:55:GLU:HB3	16:AP:57:PRO:HD2	1.93	0.50
24:BA:150:U:H2'	24:BA:151:C:C6	2.47	0.50
24:BA:290:U:H2'	24:BA:291:G:C8	2.46	0.50
24:BA:1252:G:N2	47:BX:33:ARG:HG2	2.24	0.50
29:BF:152:GLU:OE2	29:BF:153:LEU:N	2.44	0.50
44:BU:62:LYS:HD3	44:BU:64:TRP:CH2	2.47	0.50
45:BV:28:LEU:HD23	45:BV:48:VAL:HG21	1.94	0.50
1:AA:632:U:H5'	1:AA:633:G:C8	2.43	0.50
1:AA:1354:U:H5	1:AA:1368:A:N1	2.09	0.50
4:AD:70:LYS:HB2	4:AD:73:GLU:HG3	1.94	0.50
6:AF:96:LEU:HA	8:AH:67:ILE:HG22	1.94	0.50
16:AP:106:ILE:HG23	16:AP:124:LEU:HA	1.94	0.50
24:BA:678:C:H2'	24:BA:679:C:H6	1.77	0.50
24:BA:843:G:H2'	24:BA:844:A:C8	2.46	0.50
24:BA:1005:C:H1'	24:BA:1012:U:N3	2.27	0.50
24:BA:1392:A:N6	50:DA:18:GLU:OE2	2.45	0.50
33:BJ:164:TYR:HB2	33:BJ:167:GLU:HB3	1.93	0.50
1:AA:551:U:H2'	1:AA:552:U:C6	2.46	0.50
1:AA:950:U:H3'	5:AE:101:ARG:HH22	1.75	0.50
1:AA:1391:U:H2'	1:AA:1392:G:C8	2.47	0.50
1:AA:1422:G:O3'	42:BS:49:ARG:NH1	2.39	0.50
5:AE:23:TYR:HB3	5:AE:66:GLU:CD	2.32	0.50
16:AP:90:THR:OG1	16:AP:135:ASN:ND2	2.43	0.50
24:BA:175:G:H2'	24:BA:176:A:C8	2.46	0.50
24:BA:1406:U:H2'	24:BA:1407:G:H8	1.76	0.50
24:BA:1410:G:H2'	24:BA:1411:U:C6	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:2305:U:C2	30:BG:131:GLY:CA	2.82	0.50
28:BE:1:MET:SD	28:BE:2:ILE:HG22	2.51	0.50
1:AA:17:U:H2'	1:AA:18:C:C6	2.47	0.50
1:AA:20:U:O2'	1:AA:573:A:N6	2.44	0.50
1:AA:436:C:H2'	1:AA:437:U:C6	2.46	0.50
1:AA:475:C:H2'	1:AA:476:U:C6	2.47	0.50
1:AA:983:A:O2'	1:AA:1201:A:N6	2.45	0.50
1:AA:1178:G:O6	11:AK:99:ARG:NH2	2.45	0.50
1:AA:1408:A:O2'	24:BA:1916:A:N6	2.30	0.50
1:AA:1464:U:H2'	1:AA:1465:A:H8	1.77	0.50
10:AJ:6:MET:HA	10:AJ:9:MET:HG2	1.93	0.50
22:AV:34:LEU:HD22	30:BG:110:ARG:HH11	1.77	0.50
24:BA:682:G:H5''	37:BN:26:ASN:ND2	2.27	0.50
24:BA:1212:G:H8	24:BA:1212:G:OP2	1.94	0.50
24:BA:1353:A:H2'	24:BA:1354:A:C8	2.47	0.50
24:BA:1534:U:O3'	24:BA:1538:G:N2	2.44	0.50
24:BA:1683:U:H2'	24:BA:1684:G:H8	1.77	0.50
24:BA:1748:C:H2'	24:BA:1749:A:H8	1.77	0.50
24:BA:1883:U:H2'	24:BA:1884:G:O4'	2.11	0.50
24:BA:2367:G:C2	24:BA:2368:C:C5	3.00	0.50
24:BA:2455:G:H2'	24:BA:2456:C:C6	2.47	0.50
26:BC:1:U:H2'	26:BC:2:G:C8	2.47	0.50
31:BH:56:LYS:HB2	31:BH:60:GLU:OE1	2.12	0.50
31:BH:76:LYS:NZ	31:BH:80:GLU:OE2	2.44	0.50
56:DG:111:ALA:HB3	56:DG:118:ILE:HB	1.93	0.50
12:AL:12:ILE:H	12:AL:12:ILE:HD12	1.76	0.49
23:AW:2:U:H6	23:AW:2:U:O5'	1.94	0.49
24:BA:357:C:H2'	24:BA:358:U:C6	2.47	0.49
24:BA:1090:A:O3'	24:BA:1091:G:H2'	2.12	0.49
24:BA:1997:C:H2'	24:BA:1998:A:H8	1.77	0.49
24:BA:2460:U:C2	24:BA:2461:A:C8	2.99	0.49
24:BA:2795:C:C4	24:BA:2802:G:N1	2.80	0.49
42:BS:7:MET:HG2	42:BS:18:ARG:HH21	1.77	0.49
1:AA:299:G:H2'	1:AA:300:A:C8	2.47	0.49
1:AA:389:A:H3'	1:AA:390:U:H6	1.77	0.49
1:AA:599:C:H2'	1:AA:600:A:H8	1.77	0.49
1:AA:1028:C:N3	1:AA:1029:U:H1'	2.27	0.49
1:AA:1304:G:H5'	1:AA:1305:G:N2	2.27	0.49
12:AL:26:PHE:HA	12:AL:29:ILE:HG22	1.93	0.49
13:AM:97:ILE:HG12	21:AU:12:PHE:HZ	1.77	0.49
24:BA:48:G:H22	24:BA:177:G:P	2.35	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:500:G:H21	24:BA:505:A:H62	1.59	0.49
24:BA:603:A:H5''	24:BA:655:A:H61	1.76	0.49
24:BA:685:A:N1	24:BA:787:C:H1'	2.27	0.49
24:BA:833:A:H1'	43:BT:51:GLU:HG2	1.94	0.49
24:BA:1463:C:H2'	24:BA:1464:G:H8	1.77	0.49
24:BA:1996:C:OP2	28:BE:128:ARG:NH2	2.45	0.49
24:BA:2068:U:H6	24:BA:2068:U:C5'	2.17	0.49
25:BB:19:G:N2	25:BB:56:U:C6	2.80	0.49
42:BS:105:ARG:O	42:BS:108:ARG:HG2	2.11	0.49
47:BX:88:VAL:CB	48:BY:51:VAL:O	2.60	0.49
49:BZ:83:LYS:HD3	49:BZ:95:ARG:NH1	2.23	0.49
1:AA:501:C:H2'	1:AA:502:A:C8	2.47	0.49
1:AA:1524:C:H2'	1:AA:1525:G:H8	1.77	0.49
8:AH:19:ASP:OD1	8:AH:20:GLN:N	2.44	0.49
12:AL:18:PHE:HE1	12:AL:58:GLU:CD	2.14	0.49
24:BA:8:C:H5''	24:BA:8:C:C6	2.45	0.49
24:BA:287:G:H2'	24:BA:288:U:C6	2.47	0.49
24:BA:621:A:OP2	43:BT:99:ASN:ND2	2.45	0.49
24:BA:1107:G:OP1	56:DG:56:ARG:HD3	2.13	0.49
24:BA:1171:G:H22	24:BA:1176:U:H3	1.59	0.49
24:BA:1538:G:H2'	24:BA:1539:U:C6	2.47	0.49
24:BA:1683:U:H2'	24:BA:1684:G:C8	2.46	0.49
24:BA:2128:G:H2'	24:BA:2129:C:C6	2.47	0.49
24:BA:2419:U:O5'	38:BO:33:LEU:HD12	2.13	0.49
25:BB:17:C:N3	25:BB:20:G:OP2	2.45	0.49
26:BC:14:U:OP2	26:BC:70:C:O2'	2.30	0.49
34:BK:68:ARG:HA	34:BK:71:LYS:HG2	1.94	0.49
34:BK:93:SER:HG	34:BK:123:ARG:CA	2.19	0.49
35:BL:54:PRO:O	35:BL:75:PRO:HD2	2.13	0.49
41:BR:4:PHE:O	47:BX:64:ARG:NH2	2.39	0.49
49:BZ:24:ILE:HG22	49:BZ:35:ILE:HD11	1.93	0.49
1:AA:181:A:N6	1:AA:193:C:O2'	2.45	0.49
1:AA:1513:A:H2'	1:AA:1514:G:C8	2.47	0.49
4:AD:36:ARG:NH1	4:AD:52:HIS:O	2.45	0.49
12:AL:92:ARG:O	12:AL:96:ARG:HG3	2.13	0.49
24:BA:306:U:H2'	24:BA:307:G:O4'	2.12	0.49
24:BA:947:A:H2'	24:BA:948:C:C6	2.47	0.49
24:BA:1040:A:C2	24:BA:1115:G:C6	3.00	0.49
24:BA:1103:A:H5''	24:BA:1104:C:OP2	2.12	0.49
24:BA:1561:C:H2'	24:BA:1562:U:O2	2.12	0.49
24:BA:2171:A:H1'	24:BA:2173:A:H5'	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:2329:U:H2'	24:BA:2330:G:C8	2.47	0.49
24:BA:2677:G:H2'	24:BA:2678:C:C6	2.48	0.49
24:BA:2795:C:C2	24:BA:2802:G:C2	3.00	0.49
25:BB:1:C:O2'	25:BB:2:G:OP1	2.27	0.49
52:DC:45:ASP:OD1	52:DC:46:LYS:N	2.44	0.49
56:DG:129:LEU:HD23	56:DG:132:TYR:CE2	2.46	0.49
1:AA:140:U:H5	1:AA:223:A:N1	2.11	0.49
1:AA:1001:C:P	1:AA:1039:G:H22	2.36	0.49
1:AA:1111:A:N1	7:AG:177:THR:HG22	2.27	0.49
6:AF:97:LYS:NZ	6:AF:98:LYS:O	2.45	0.49
24:BA:571:U:H3'	48:BY:80:ARG:CZ	2.42	0.49
24:BA:885:C:H4'	24:BA:892:A:C2	2.48	0.49
24:BA:1076:C:O2'	35:BL:92:LYS:HD3	2.12	0.49
24:BA:1081:U:H2'	24:BA:1082:U:H5''	1.95	0.49
24:BA:1604:C:H2'	24:BA:1605:C:C6	2.47	0.49
24:BA:2114:A:C8	24:BA:2166:U:H4'	2.48	0.49
25:BB:51:U:O4	25:BB:65:G:O6	2.31	0.49
42:BS:102:PRO:HD3	46:BW:68:GLU:OE2	2.13	0.49
45:BV:24:MET:HG2	45:BV:44:LEU:HD22	1.94	0.49
1:AA:285:C:H2'	1:AA:286:C:C6	2.48	0.49
1:AA:312:C:H2'	1:AA:313:A:C8	2.47	0.49
1:AA:666:G:H5'	1:AA:726:C:H1'	1.94	0.49
1:AA:693:G:C6	1:AA:694:A:C6	3.00	0.49
1:AA:1000:A:H2	1:AA:1040:U:C5	2.30	0.49
1:AA:1131:G:O6	1:AA:1146:A:N1	2.43	0.49
1:AA:1359:C:P	6:AF:75:ARG:HH21	2.34	0.49
24:BA:184:C:H2'	24:BA:185:G:H8	1.77	0.49
24:BA:250:G:H2'	24:BA:251:A:C8	2.46	0.49
24:BA:563:A:OP2	48:BY:79:ARG:NH1	2.43	0.49
24:BA:638:G:C4	24:BA:651:G:N2	2.81	0.49
24:BA:879:G:H2'	24:BA:880:G:C8	2.47	0.49
24:BA:1466:U:O3'	24:BA:1546:G:O2'	2.29	0.49
24:BA:2008:C:H2'	24:BA:2009:A:H8	1.78	0.49
24:BA:2165:C:H6	24:BA:2166:U:H5	1.59	0.49
24:BA:2526:G:H1	24:BA:2537:U:H3	1.60	0.49
35:BL:76:ALA:HA	35:BL:79:LEU:HB3	1.95	0.49
43:BT:22:GLY:O	43:BT:25:SER:OG	2.30	0.49
54:DE:2:SER:O	54:DE:50:ARG:NH1	2.45	0.49
1:AA:978:A:N6	1:AA:1322:C:H41	2.10	0.49
1:AA:1155:A:H1'	1:AA:1156:G:OP1	2.12	0.49
1:AA:1379:G:C6	12:AL:3:ARG:HD2	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:AC:7:LEU:HD22	3:AC:12:ARG:HD3	1.95	0.49
9:AI:45:LYS:HZ1	9:AI:48:LEU:HB2	1.77	0.49
24:BA:29:U:H2'	24:BA:30:G:H8	1.78	0.49
24:BA:546:U:O2	24:BA:546:U:H2'	2.12	0.49
24:BA:1771:C:H2'	24:BA:1772:A:C8	2.47	0.49
24:BA:2216:G:H2'	24:BA:2217:G:C8	2.47	0.49
24:BA:2377:A:O2'	31:BH:117:PHE:O	2.29	0.49
24:BA:2576:G:O2'	24:BA:2579:C:OP2	2.29	0.49
27:BD:210:ALA:HA	27:BD:213:TRP:CE3	2.47	0.49
34:BK:93:SER:HG	34:BK:123:ARG:HB2	1.72	0.49
40:BQ:3[B]:LYS:HE3	40:BQ:5:ILE:HG22	1.94	0.49
53:DD:37:ILE:HG21	53:DD:80:ILE:HG21	1.95	0.49
1:AA:294:U:H2'	1:AA:295:C:C6	2.48	0.49
1:AA:824:G:H2'	1:AA:825:A:H8	1.77	0.49
1:AA:987:G:H2'	1:AA:988:G:C8	2.48	0.49
1:AA:1133:G:N1	1:AA:1142:G:C6	2.81	0.49
1:AA:1312:G:H21	1:AA:1325:C:H1'	1.78	0.49
24:BA:173:A:H2'	24:BA:174:U:C6	2.47	0.49
24:BA:580:U:H2'	24:BA:581:C:C6	2.46	0.49
24:BA:779:U:H2'	24:BA:780:G:C8	2.47	0.49
24:BA:2013:A:N3	49:BZ:88:ARG:NH2	2.61	0.49
24:BA:2443:C:H2'	24:BA:2444:G:C8	2.47	0.49
24:BA:2570:G:H2'	24:BA:2571:U:O4'	2.12	0.49
24:BA:2789:C:C2	24:BA:2893:A:N7	2.81	0.49
33:BJ:10:VAL:HA	33:BJ:49:THR:HA	1.94	0.49
35:BL:9:VAL:HG22	35:BL:10:LYS:H	1.77	0.49
36:BM:44:THR:OG1	36:BM:46:ASP:OD1	2.27	0.49
54:DE:68:LEU:HG	54:DE:72:ARG:NH1	2.28	0.49
1:AA:105:G:H2'	1:AA:106:C:C6	2.48	0.49
1:AA:151:A:OP2	1:AA:169:C:N4	2.46	0.49
1:AA:539:A:H2'	1:AA:540:G:C8	2.48	0.49
1:AA:1251:A:H2'	1:AA:1252:A:C8	2.48	0.49
1:AA:1323:G:C5	1:AA:1324:A:N7	2.80	0.49
11:AK:26:GLY:N	11:AK:59:GLU:OE1	2.46	0.49
22:AV:22:MET:SD	30:BG:105:THR:HG22	2.52	0.49
24:BA:652:U:OP2	38:BO:19:LYS:NZ	2.46	0.49
24:BA:995:C:H42	41:BR:2:LYS:HD3	1.78	0.49
24:BA:1550:C:H2'	24:BA:1551:A:C8	2.47	0.49
34:BK:76:GLU:OE1	34:BK:76:GLU:N	2.44	0.49
34:BK:96:THR:HG23	34:BK:97:ARG:HD2	1.94	0.49
41:BR:28:LEU:O	41:BR:32:LEU:HD23	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
50:DA:53:VAL:HG11	50:DA:87:LEU:HD13	1.95	0.49
1:AA:129:A:H1'	1:AA:130:A:C8	2.48	0.49
1:AA:1124:G:H4'	1:AA:1124:G:OP1	2.13	0.49
1:AA:1150:A:OP1	11:AK:11:ARG:NH1	2.43	0.49
1:AA:1243:C:H2'	1:AA:1244:G:C8	2.48	0.49
8:AH:24:GLU:O	8:AH:28:THR:HG23	2.12	0.49
8:AH:47:GLU:HB2	8:AH:67:ILE:CG1	2.43	0.49
16:AP:91:GLY:N	16:AP:135:ASN:HD21	2.11	0.49
24:BA:283:G:H2'	24:BA:284:U:O4'	2.13	0.49
24:BA:2220:U:H5''	34:BK:97:ARG:NH2	2.28	0.49
24:BA:2557:G:H2'	24:BA:2558:C:C6	2.48	0.49
25:BB:20:G:OP1	25:BB:61:U:O2'	2.25	0.49
35:BL:88:SER:OG	35:BL:89:GLY:N	2.46	0.49
41:BR:96:ARG:HE	41:BR:99:ARG:NH2	2.11	0.49
52:DC:2:PHE:HB2	52:DC:61:LEU:HB2	1.94	0.49
1:AA:1154:G:O6	1:AA:1155:A:N6	2.46	0.48
9:AI:125:VAL:HG22	9:AI:143:VAL:HG12	1.95	0.48
11:AK:130:ARG:HG3	11:AK:130:ARG:O	2.13	0.48
17:AQ:45:PHE:O	17:AQ:71:VAL:HG11	2.12	0.48
24:BA:582:A:H2'	24:BA:583:G:H8	1.78	0.48
24:BA:729:G:H5'	24:BA:730:A:H5''	1.94	0.48
24:BA:948:C:H2'	24:BA:949:G:H8	1.78	0.48
24:BA:1219:U:H2'	24:BA:1220:G:H8	1.78	0.48
43:BT:110:VAL:HB	43:BT:127:VAL:HG22	1.95	0.48
50:DA:10:VAL:HG12	50:DA:11:LEU:HD22	1.95	0.48
1:AA:96:U:H2'	1:AA:97:G:C8	2.48	0.48
1:AA:637:C:H2'	1:AA:638:U:C6	2.48	0.48
1:AA:1005:A:C6	1:AA:1006:G:H1'	2.48	0.48
1:AA:1097:C:H2'	1:AA:1098:C:C6	2.48	0.48
1:AA:1217:C:H2'	1:AA:1218:C:H6	1.78	0.48
3:AC:90:LEU:HD22	3:AC:93:VAL:HG12	1.94	0.48
6:AF:6:MET:HB3	6:AF:63:ARG:NH1	2.26	0.48
8:AH:92:LEU:HD23	8:AH:92:LEU:H	1.78	0.48
23:AW:6:U:H4'	23:AW:7:G:H5'	1.94	0.48
24:BA:438:G:H2'	24:BA:439:A:C8	2.47	0.48
24:BA:935:C:H2'	24:BA:936:A:H8	1.77	0.48
24:BA:1283:G:N2	24:BA:1286:A:OP2	2.42	0.48
24:BA:1914:C:N3	24:BA:1916:A:C5	2.81	0.48
24:BA:2069:G:C2'	24:BA:2069:G:N3	2.76	0.48
25:BB:4:G:N2	25:BB:71:G:N3	2.61	0.48
26:BC:115:A:H2'	26:BC:116:G:H8	1.77	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:DB:33:LYS:HB3	51:DB:64:ALA:HB1	1.94	0.48
1:AA:160:A:OP2	1:AA:160:A:H4'	2.14	0.48
1:AA:181:A:O2'	1:AA:193:C:N4	2.46	0.48
1:AA:224:U:H2'	1:AA:225:C:C6	2.48	0.48
1:AA:393:A:C2	1:AA:394:G:C8	3.01	0.48
1:AA:519:C:H2'	1:AA:520:A:C8	2.48	0.48
1:AA:575:G:O2'	1:AA:821:G:OP2	2.21	0.48
1:AA:993:G:N7	1:AA:1213:A:N6	2.61	0.48
1:AA:1305:G:H3'	1:AA:1331:G:N2	2.28	0.48
16:AP:156:LYS:HD2	16:AP:156:LYS:O	2.12	0.48
23:AW:9:G:H2'	23:AW:10:G:C8	2.48	0.48
24:BA:277:G:H4'	24:BA:278:A:C6	2.49	0.48
24:BA:646:U:H2'	24:BA:647:G:H5'	1.95	0.48
24:BA:997:G:OP1	47:BX:92:ARG:HG2	2.12	0.48
24:BA:1059:G:P	24:BA:1059:G:H8	2.36	0.48
24:BA:1333:G:H2'	24:BA:1334:G:H8	1.77	0.48
24:BA:1754:A:OP1	46:BW:94:LYS:NZ	2.28	0.48
24:BA:2229:U:H2'	24:BA:2230:G:H8	1.77	0.48
24:BA:2287:A:C8	24:BA:2289:G:C8	3.02	0.48
24:BA:2462:C:H2'	24:BA:2463:C:C6	2.48	0.48
24:BA:2537:U:H2'	24:BA:2538:C:H6	1.78	0.48
41:BR:49:ASP:OD1	41:BR:121:LYS:NZ	2.41	0.48
1:AA:335:C:H2'	1:AA:336:A:H8	1.78	0.48
1:AA:455:G:H2'	1:AA:456:A:H8	1.77	0.48
1:AA:459:A:H2'	1:AA:460:A:H8	1.78	0.48
1:AA:563:A:H2'	1:AA:567:G:C8	2.48	0.48
1:AA:613:C:H2'	1:AA:614:C:C6	2.49	0.48
1:AA:1028:C:H2'	1:AA:1029:U:H4'	1.95	0.48
1:AA:1139:G:C8	1:AA:1141:C:C6	3.02	0.48
10:AJ:58:ASN:ND2	10:AJ:220:THR:O	2.29	0.48
24:BA:562:U:C5	24:BA:572:A:C8	3.01	0.48
24:BA:623:C:H2'	24:BA:624:C:C6	2.49	0.48
24:BA:698:C:O2'	24:BA:734:A:N6	2.43	0.48
24:BA:826:U:O2'	43:BT:53:GLY:HA3	2.14	0.48
24:BA:1083:U:O2	24:BA:1085:A:H5''	2.13	0.48
24:BA:1313:U:H3'	24:BA:1313:U:O2	2.12	0.48
24:BA:1586:A:H2'	24:BA:1587:G:O4'	2.14	0.48
24:BA:1871:A:HO2'	24:BA:1872:A:H8	1.56	0.48
24:BA:1935:G:O2'	24:BA:1939:U:O4	2.29	0.48
24:BA:2113:U:O4	24:BA:2117:A:O2'	2.25	0.48
25:BB:23:G:O6	25:BB:47:G:N3	2.45	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:BJ:16:ASP:HB3	33:BJ:27:LYS:HB3	1.94	0.48
48:BY:39:LEU:O	48:BY:54:VAL:CG2	2.61	0.48
1:AA:131:A:H2'	1:AA:132:C:C6	2.49	0.48
1:AA:154:U:H2'	1:AA:155:A:C8	2.48	0.48
1:AA:1034:G:H3'	1:AA:1035:A:H8	1.78	0.48
1:AA:1140:C:H2'	1:AA:1141:C:C6	2.48	0.48
1:AA:1507:A:H2'	1:AA:1508:A:C8	2.48	0.48
7:AG:62:LYS:HE2	7:AG:62:LYS:HA	1.95	0.48
16:AP:162:GLU:C	16:AP:164:ILE:N	2.66	0.48
24:BA:1084:A:O2'	24:BA:1105:U:O2'	2.31	0.48
24:BA:1281:G:H2'	24:BA:1282:U:C6	2.48	0.48
24:BA:2039:U:H2'	24:BA:2040:G:H8	1.79	0.48
24:BA:2052:A:O2'	28:BE:153:GLY:CA	2.59	0.48
24:BA:2167:U:H1'	24:BA:2170:A:H8	1.78	0.48
24:BA:2531:A:H5''	33:BJ:175:LYS:HD3	1.94	0.48
25:BB:3:C:C2	25:BB:4:G:H1'	2.48	0.48
1:AA:486:U:H2'	1:AA:487:A:H8	1.79	0.48
1:AA:1057:G:O2'	7:AG:188:GLU:OE1	2.30	0.48
24:BA:108:G:H2'	24:BA:109:C:C6	2.49	0.48
24:BA:2829:A:H2'	24:BA:2830:C:C6	2.49	0.48
26:BC:115:A:H2'	26:BC:116:G:C8	2.49	0.48
30:BG:132:VAL:CG1	30:BG:152:LEU:HB3	2.44	0.48
33:BJ:52:PHE:HZ	33:BJ:72:LEU:HG	1.78	0.48
34:BK:50:ARG:HH12	34:BK:54:LEU:H	1.61	0.48
34:BK:80:ILE:HD11	34:BK:99:ILE:HD13	1.96	0.48
34:BK:94:ILE:O	34:BK:121:VAL:O	2.30	0.48
45:BV:19:ALA:O	45:BV:23:ASN:ND2	2.43	0.48
45:BV:29:VAL:HG13	45:BV:75:ILE:HD12	1.95	0.48
49:BZ:88:ARG:HG3	49:BZ:94:ASP:OD2	2.13	0.48
1:AA:21:G:H2'	1:AA:22:G:H8	1.78	0.48
1:AA:79:G:N2	1:AA:87:C:O2	2.43	0.48
9:AI:170:TRP:CD1	9:AI:186:PRO:HG3	2.49	0.48
13:AM:92:GLY:HA2	13:AM:95:SER:HB3	1.95	0.48
18:AR:57:LEU:HA	18:AR:60:VAL:HG12	1.95	0.48
24:BA:118:A:H5'	24:BA:119:A:C8	2.49	0.48
24:BA:299:A:N3	24:BA:319:G:O2'	2.36	0.48
24:BA:764:A:H5'	27:BD:209:GLY:HA2	1.94	0.48
24:BA:1405:U:H2'	24:BA:1406:U:C6	2.49	0.48
24:BA:1463:C:H2'	24:BA:1464:G:C8	2.49	0.48
24:BA:1524:G:H2'	24:BA:1525:A:C8	2.49	0.48
24:BA:1962:C:H4'	24:BA:1963:U:OP1	2.12	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:2072:C:H2'	24:BA:2073:C:H6	1.78	0.48
24:BA:2186:G:O2'	24:BA:2187:U:OP1	2.29	0.48
24:BA:2802:G:H2'	24:BA:2803:G:C8	2.48	0.48
28:BE:8:LYS:NZ	28:BE:195:GLY:O	2.40	0.48
38:BO:30:ARG:NH2	43:BT:62:PRO:HB2	2.29	0.48
1:AA:201:G:O2'	1:AA:469:C:O2'	2.02	0.48
1:AA:360:G:H2'	1:AA:361:G:C8	2.49	0.48
1:AA:712:A:H2'	1:AA:713:G:C8	2.49	0.48
1:AA:1409:C:H2'	1:AA:1410:A:H8	1.79	0.48
15:AO:21:VAL:HG13	15:AO:33:ILE:HB	1.94	0.48
16:AP:159:LYS:HZ1	16:AP:162:GLU:HB2	1.79	0.48
24:BA:1196:C:H2'	24:BA:1197:G:H8	1.79	0.48
24:BA:2289:G:H2'	24:BA:2290:G:H8	1.79	0.48
24:BA:2335:A:OP2	31:BH:9:ARG:NH2	2.45	0.48
24:BA:2505:G:O2'	24:BA:2506:U:O5'	2.30	0.48
24:BA:2820:A:OP2	45:BV:2:ARG:NH2	2.47	0.48
27:BD:225:MET:HG3	27:BD:226:ASN:N	2.25	0.48
48:BY:24:LYS:HD3	48:BY:92:TRP:HB3	1.95	0.48
50:DA:7:LEU:HD11	50:DA:46:ALA:HA	1.95	0.48
51:DB:91:LYS:HZ2	51:DB:91:LYS:C	2.16	0.48
1:AA:25:C:H2'	1:AA:26:A:C8	2.49	0.48
1:AA:816:A:OP1	1:AA:1526:G:O2'	2.31	0.48
1:AA:1152:A:H2'	1:AA:1153:G:H8	1.79	0.48
5:AE:7:ILE:H	5:AE:7:ILE:HD12	1.78	0.48
6:AF:76:LYS:HG2	8:AH:49:PHE:HZ	1.79	0.48
8:AH:10:LEU:HG	8:AH:22:THR:HG22	1.96	0.48
14:AN:47:LEU:HD12	14:AN:55:HIS:HA	1.95	0.48
24:BA:807:U:H2'	24:BA:808:G:H8	1.79	0.48
24:BA:863:A:H2'	24:BA:864:G:C8	2.49	0.48
24:BA:1199:U:H2'	24:BA:1200:C:H6	1.77	0.48
24:BA:2290:G:H2'	24:BA:2291:U:C6	2.49	0.48
24:BA:2320:U:O2'	24:BA:2322:A:N7	2.38	0.48
29:BF:117:ARG:NH2	43:BT:1:MET:SD	2.87	0.48
33:BJ:86:LYS:HZ3	33:BJ:88:GLN:HG2	1.79	0.48
41:BR:56:VAL:HB	41:BR:124:VAL:HG23	1.96	0.48
55:DF:36:GLN:OE1	55:DF:36:GLN:N	2.47	0.48
1:AA:500:G:H2'	1:AA:501:C:C6	2.49	0.48
1:AA:960:U:H6	1:AA:1221:G:O2'	1.97	0.48
1:AA:1007:U:H5	1:AA:1022:A:N1	2.12	0.48
1:AA:1242:G:H2'	1:AA:1243:C:C6	2.48	0.48
1:AA:1427:C:H2'	1:AA:1428:A:H8	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:AW:14:G:N2	23:AW:15:U:O4	2.47	0.48
24:BA:1062:G:N2	24:BA:1077:A:H1'	2.29	0.48
24:BA:1081:U:C4	24:BA:1086:A:N6	2.82	0.48
24:BA:2165:C:H3'	24:BA:2166:U:C5	2.49	0.48
24:BA:2747:G:O6	24:BA:2755:C:H5''	2.14	0.48
27:BD:5:LYS:HG3	27:BD:17:VAL:HG22	1.96	0.48
30:BG:149:VAL:HG23	30:BG:150:ARG:CD	2.43	0.48
35:BL:125:MET:O	35:BL:129:ILE:HG13	2.14	0.48
39:BP:24:ARG:NH1	39:BP:36:ARG:HG3	2.29	0.48
41:BR:86:GLN:OE1	41:BR:86:GLN:N	2.46	0.48
50:DA:6:ARG:O	50:DA:10:VAL:HG23	2.13	0.48
54:DE:16:ASN:HD21	54:DE:24:ALA:HB1	1.79	0.48
1:AA:322:C:H2'	1:AA:323:U:C6	2.49	0.47
1:AA:413:G:H22	1:AA:429:U:P	2.36	0.47
1:AA:458:U:H2'	1:AA:459:A:C8	2.48	0.47
1:AA:471:U:H2'	1:AA:472:U:C6	2.49	0.47
1:AA:1023:U:C2	1:AA:1024:G:C8	3.02	0.47
1:AA:1149:C:H2'	1:AA:1150:A:C8	2.49	0.47
17:AQ:95:VAL:HG21	17:AQ:102:ALA:HB2	1.95	0.47
24:BA:170:U:H2'	24:BA:171:U:H6	1.79	0.47
24:BA:1012:U:OP2	47:BX:70:ARG:NH2	2.47	0.47
24:BA:1418:G:N1	24:BA:1579:A:OP2	2.47	0.47
26:BC:93:C:H2'	26:BC:94:A:H8	1.79	0.47
34:BK:29:PHE:C	34:BK:32:PRO:HD2	2.33	0.47
38:BO:50:VAL:HG11	38:BO:58:VAL:HG21	1.96	0.47
51:DB:74:ASN:O	51:DB:78:GLY:N	2.45	0.47
1:AA:572:A:O2'	1:AA:916:U:O2'	2.30	0.47
1:AA:954:G:N2	1:AA:1227:A:H62	2.07	0.47
1:AA:1297:G:H4'	5:AE:13:LYS:HZ2	1.79	0.47
6:AF:47:LYS:O	6:AF:50:THR:OG1	2.32	0.47
10:AJ:129:LEU:HB3	10:AJ:133:GLU:OE2	2.13	0.47
24:BA:1000:A:OP2	24:BA:1154:G:N1	2.25	0.47
24:BA:1106:G:O2'	56:DG:31:ARG:NH1	2.35	0.47
24:BA:1138:G:H21	41:BR:108:MET:HE1	1.79	0.47
24:BA:1430:G:H2'	24:BA:1431:A:C8	2.49	0.47
24:BA:2025:C:H2'	24:BA:2026:U:C6	2.50	0.47
24:BA:2495:G:H2'	24:BA:2496:C:C6	2.49	0.47
24:BA:2549:G:H2'	24:BA:2550:G:H8	1.79	0.47
24:BA:2790:U:H5''	24:BA:2893:A:H62	1.78	0.47
34:BK:53:GLU:O	34:BK:57:LYS:HG2	2.14	0.47
1:AA:769:G:H2'	1:AA:770:C:H6	1.79	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:868:C:H2'	1:AA:869:G:O4'	2.15	0.47
1:AA:1355:G:H2'	1:AA:1356:G:C8	2.43	0.47
3:AC:99:ARG:HG2	3:AC:106:GLY:HA2	1.96	0.47
7:AG:15:VAL:HG23	7:AG:16:LYS:HG2	1.97	0.47
10:AJ:57:LEU:HD12	10:AJ:184:PHE:HD2	1.79	0.47
24:BA:48:G:N2	24:BA:177:G:OP2	2.47	0.47
24:BA:181:A:H2'	24:BA:182:A:H8	1.79	0.47
24:BA:2152:G:H2'	24:BA:2153:C:O4'	2.13	0.47
24:BA:2700:A:H2'	24:BA:2701:U:C6	2.48	0.47
1:AA:191:G:H4'	1:AA:192:A:OP1	2.14	0.47
1:AA:482:A:H2'	1:AA:483:C:O4'	2.15	0.47
1:AA:692:U:N3	1:AA:695:A:OP2	2.35	0.47
1:AA:1315:U:H2'	1:AA:1316:G:C8	2.50	0.47
2:AB:4:ILE:HG22	2:AB:6:SER:H	1.79	0.47
11:AK:25:ASN:O	11:AK:62:ASP:HB3	2.14	0.47
24:BA:498:G:H2'	24:BA:499:U:C6	2.49	0.47
24:BA:612:G:H1	24:BA:617:G:N2	2.13	0.47
24:BA:788:A:OP1	24:BA:791:C:N4	2.40	0.47
24:BA:963:U:H2'	24:BA:964:C:H6	1.80	0.47
24:BA:1528:A:N6	24:BA:1543:G:O2'	2.48	0.47
24:BA:2110:G:O6	24:BA:2120:G:N2	2.39	0.47
26:BC:15:A:OP2	26:BC:69:G:N2	2.38	0.47
32:BI:11:LEU:HD23	32:BI:51:GLU:HA	1.95	0.47
1:AA:335:C:C2	1:AA:336:A:C8	3.03	0.47
1:AA:523:A:N1	3:AC:88:LYS:N	2.63	0.47
1:AA:1369:C:H2'	1:AA:1370:G:C8	2.50	0.47
3:AC:90:LEU:CD2	3:AC:93:VAL:CG1	2.92	0.47
10:AJ:111:ILE:HD13	10:AJ:148:LEU:HD13	1.96	0.47
17:AQ:11:LEU:HD22	17:AQ:75:ILE:HD11	1.95	0.47
24:BA:542:C:H2'	24:BA:543:G:C8	2.49	0.47
24:BA:594:U:H2'	24:BA:595:C:C6	2.48	0.47
24:BA:2078:C:H2'	24:BA:2079:U:C6	2.49	0.47
24:BA:2103:C:H4'	24:BA:2186:G:O6	2.13	0.47
24:BA:2722:G:O2'	45:BV:5:LYS:NZ	2.33	0.47
24:BA:2897:U:H6	24:BA:2897:U:H5''	1.79	0.47
25:BB:15:G:C6	25:BB:49:C:O2	2.68	0.47
26:BC:9:G:C2	26:BC:10:G:C8	3.03	0.47
1:AA:160:A:H5''	1:AA:161:A:C5	2.49	0.47
1:AA:212:G:H2'	1:AA:213:G:C8	2.47	0.47
1:AA:466:A:N6	1:AA:469:C:N4	2.63	0.47
1:AA:478:A:H2'	1:AA:479:U:O4'	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:513:C:H2'	1:AA:514:C:C6	2.50	0.47
1:AA:754:C:H3'	1:AA:754:C:O2	2.14	0.47
1:AA:944:G:N1	1:AA:1338:G:OP2	2.47	0.47
1:AA:1171:A:H2'	1:AA:1172:C:H6	1.78	0.47
1:AA:1187:G:H2'	1:AA:1188:A:C8	2.50	0.47
1:AA:1279:G:O2'	1:AA:1280:A:OP1	2.27	0.47
5:AE:72:GLU:OE1	5:AE:72:GLU:N	2.46	0.47
8:AH:21:ALA:O	8:AH:25:ILE:HG12	2.14	0.47
9:AI:9:LEU:HD13	9:AI:32:CYS:HB3	1.96	0.47
9:AI:34:ILE:H	9:AI:34:ILE:HD12	1.79	0.47
9:AI:184:ARG:NH2	9:AI:190:ASP:OD2	2.47	0.47
10:AJ:117:LEU:O	10:AJ:120:GLN:HG3	2.14	0.47
12:AL:56:LYS:HA	12:AL:56:LYS:HD2	1.44	0.47
18:AR:78:TYR:OH	18:AR:89:ARG:OXT	2.25	0.47
24:BA:145:C:H2'	24:BA:146:A:H8	1.79	0.47
24:BA:935:C:H2'	24:BA:936:A:C8	2.49	0.47
24:BA:2462:C:H2'	24:BA:2463:C:H6	1.79	0.47
24:BA:2655:G:N2	24:BA:2665:A:OP2	2.47	0.47
24:BA:2788:C:OP1	28:BE:62:LYS:NZ	2.47	0.47
43:BT:20:GLY:HA2	43:BT:29:LYS:H	1.80	0.47
1:AA:88:U:H2'	1:AA:89:U:H5	1.80	0.47
1:AA:377:G:H2'	1:AA:378:G:H8	1.79	0.47
1:AA:710:G:OP1	14:AN:53:LYS:NZ	2.32	0.47
1:AA:1163:A:H2'	1:AA:1164:G:H8	1.79	0.47
1:AA:1319:A:H62	1:AA:1322:C:H2'	1.79	0.47
1:AA:1354:U:H2'	1:AA:1355:G:C8	2.47	0.47
9:AI:170:TRP:NE1	9:AI:186:PRO:HG3	2.30	0.47
11:AK:34:SER:H	11:AK:37:GLN:NE2	2.13	0.47
11:AK:120:LYS:HB2	11:AK:123:ARG:HB2	1.96	0.47
14:AN:19:PRO:O	14:AN:22:ILE:HB	2.14	0.47
16:AP:89:HIS:ND1	16:AP:90:THR:HG23	2.30	0.47
24:BA:59:U:H3	24:BA:68:G:H1	1.63	0.47
24:BA:64:A:H2'	24:BA:65:U:H6	1.78	0.47
24:BA:117:G:OP2	24:BA:119:A:O2'	2.24	0.47
24:BA:145:C:H2'	24:BA:146:A:C8	2.49	0.47
24:BA:172:A:H2'	24:BA:173:A:C8	2.50	0.47
24:BA:355:U:O2'	24:BA:356:G:O5'	2.25	0.47
24:BA:1098:A:O2'	24:BA:1099:G:OP1	2.27	0.47
24:BA:1268:A:H1'	24:BA:2013:A:N6	2.30	0.47
24:BA:1298:C:H2'	24:BA:1299:G:O4'	2.15	0.47
24:BA:2119:A:P	24:BA:2170:A:H61	2.35	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:2523:G:HO2'	24:BA:2764:A:HO2'	1.61	0.47
24:BA:2661:G:HO2'	24:BA:2662:A:P	2.37	0.47
28:BE:13:ARG:HH21	46:BW:56:HIS:HA	1.78	0.47
46:BW:101:ARG:HG3	46:BW:102:GLU:OE1	2.15	0.47
56:DG:124:ASP:OD1	56:DG:125:ARG:N	2.47	0.47
1:AA:77:A:H3'	1:AA:78:A:H8	1.79	0.47
1:AA:232:G:O2'	1:AA:262:A:N6	2.31	0.47
1:AA:234:C:H2'	1:AA:235:C:C6	2.47	0.47
1:AA:1151:A:H2'	1:AA:1152:A:C8	2.50	0.47
1:AA:1320:C:OP1	4:AD:70:LYS:CE	2.63	0.47
11:AK:33:ARG:HE	11:AK:38:TYR:HD1	1.61	0.47
12:AL:51:ALA:HB1	12:AL:56:LYS:HE3	1.97	0.47
14:AN:36:ILE:HG12	14:AN:64:VAL:HG22	1.97	0.47
24:BA:360:U:H5''	24:BA:361:G:N7	2.29	0.47
24:BA:587:C:OP2	43:BT:21:ARG:NH1	2.41	0.47
24:BA:722:A:H2'	24:BA:723:C:C6	2.50	0.47
24:BA:828:U:H2'	24:BA:829:A:C8	2.49	0.47
24:BA:858:G:N2	24:BA:919:U:O4	2.47	0.47
24:BA:1796:U:H2'	24:BA:1797:G:H8	1.77	0.47
24:BA:1844:C:H2'	24:BA:1845:G:H8	1.80	0.47
24:BA:2117:A:N7	24:BA:2161:C:OP1	2.47	0.47
24:BA:2688:G:N1	24:BA:2720:U:OP2	2.30	0.47
1:AA:187:G:N2	1:AA:190:A:OP2	2.47	0.47
1:AA:539:A:H2'	1:AA:540:G:H8	1.80	0.47
1:AA:718:A:N1	20:AT:38:LYS:NZ	2.37	0.47
1:AA:1095:U:P	1:AA:1108:G:H1	2.38	0.47
1:AA:1219:A:H2'	1:AA:1220:G:C8	2.50	0.47
1:AA:1318:A:H1'	4:AD:37:ARG:HH21	1.79	0.47
5:AE:90:ARG:HD2	5:AE:95:LEU:HB2	1.97	0.47
9:AI:64:ILE:HG22	9:AI:65:TYR:HD1	1.79	0.47
10:AJ:68:LEU:HD11	10:AJ:92:VAL:HG23	1.97	0.47
12:AL:78:ARG:HB3	12:AL:80:VAL:HG23	1.96	0.47
15:AO:20:VAL:HG23	15:AO:35:ARG:HA	1.97	0.47
16:AP:89:HIS:ND1	16:AP:135:ASN:OD1	2.47	0.47
24:BA:550:C:C2	24:BA:551:G:C8	3.03	0.47
24:BA:739:A:H1'	24:BA:740:C:H5	1.79	0.47
24:BA:779:U:H2'	24:BA:780:G:H8	1.79	0.47
24:BA:1051:G:H1	24:BA:1108:U:H5	1.61	0.47
24:BA:1173:U:O2'	24:BA:1177:G:N1	2.48	0.47
24:BA:1198:U:H2'	24:BA:1199:U:H6	1.80	0.47
24:BA:1435:G:H2'	24:BA:1436:G:C8	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:2705:A:O2'	24:BA:2852:G:OP1	2.31	0.47
24:BA:2789:C:C4	24:BA:2893:A:C5	3.02	0.47
28:BE:48:ILE:HG23	28:BE:84:LEU:HD21	1.97	0.47
39:BP:14:CYS:SG	39:BP:33:HIS:ND1	2.88	0.47
44:BU:77:PRO:HG2	44:BU:80:VAL:HG21	1.96	0.47
54:DE:74:ARG:HG3	54:DE:74:ARG:HH11	1.80	0.47
1:AA:554:A:H2'	1:AA:555:U:O2	2.15	0.47
1:AA:1124:G:H5''	1:AA:1145:A:O2'	2.15	0.47
7:AG:50:ALA:HA	7:AG:75:ILE:HD11	1.97	0.47
8:AH:52:LEU:HD23	8:AH:52:LEU:H	1.79	0.47
24:BA:17:G:H2'	24:BA:18:U:C6	2.50	0.47
24:BA:17:G:H2'	24:BA:18:U:H6	1.80	0.47
24:BA:29:U:H2'	24:BA:30:G:C8	2.50	0.47
24:BA:475:C:H2'	24:BA:476:G:O4'	2.15	0.47
24:BA:1410:G:H2'	24:BA:1411:U:H6	1.80	0.47
24:BA:1590:A:H2'	24:BA:1591:A:C8	2.50	0.47
24:BA:1941:C:N4	24:BA:1965:C:O4'	2.48	0.47
24:BA:2230:G:H2'	24:BA:2231:U:C6	2.50	0.47
24:BA:2642:G:H2'	24:BA:2643:G:H8	1.80	0.47
33:BJ:164:TYR:H	33:BJ:167:GLU:HG2	1.80	0.47
35:BL:62:TYR:CD2	35:BL:67:PHE:HA	2.48	0.47
1:AA:123:U:H2'	1:AA:124:C:H6	1.80	0.46
1:AA:413:G:H21	1:AA:428:G:H1'	1.79	0.46
1:AA:715:A:H2'	1:AA:716:A:H8	1.78	0.46
1:AA:722:G:H1	1:AA:733:G:H1	1.62	0.46
1:AA:727:G:N2	1:AA:730:G:OP2	2.46	0.46
1:AA:794:A:H2'	1:AA:795:C:C6	2.51	0.46
1:AA:1038:C:H2'	1:AA:1039:G:C8	2.50	0.46
1:AA:1128:C:H1'	1:AA:1147:C:N4	2.30	0.46
7:AG:47:LEU:HB3	7:AG:50:ALA:HB3	1.98	0.46
9:AI:188:ARG:NH1	9:AI:192:SER:O	2.34	0.46
17:AQ:33:LYS:HA	17:AQ:36:ILE:HG22	1.95	0.46
24:BA:874:G:H2'	24:BA:875:G:H8	1.79	0.46
24:BA:1005:C:O2	24:BA:1005:C:H2'	2.14	0.46
24:BA:1447:C:H2'	24:BA:1448:G:C8	2.50	0.46
24:BA:1843:C:H5''	27:BD:255:LYS:HD3	1.96	0.46
24:BA:2521:C:C2	24:BA:2545:G:N2	2.83	0.46
25:BB:23:G:C4	25:BB:47:G:C2	3.00	0.46
26:BC:116:G:H2'	26:BC:117:G:C8	2.50	0.46
42:BS:43:ILE:HD12	42:BS:56:ASP:HB2	1.97	0.46
46:BW:9:GLU:HB2	46:BW:55:LEU:HD22	1.95	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
46:BW:97:LEU:HB3	46:BW:100:LEU:HD23	1.97	0.46
49:BZ:83:LYS:HD3	49:BZ:95:ARG:HH22	1.79	0.46
56:DG:25:ALA:HB2	56:DG:84:TYR:CD2	2.51	0.46
1:AA:417:G:N1	1:AA:426:U:N3	2.53	0.46
1:AA:490:C:H2'	1:AA:491:G:C8	2.50	0.46
6:AF:92:GLU:N	6:AF:92:GLU:OE1	2.49	0.46
10:AJ:28:LYS:O	10:AJ:31:ILE:HG22	2.15	0.46
11:AK:130:ARG:CZ	25:BB:36:A:OP1	2.63	0.46
24:BA:534:U:H2'	24:BA:535:G:C8	2.50	0.46
24:BA:571:U:OP1	48:BY:80:ARG:NH1	2.45	0.46
24:BA:632:A:H2'	24:BA:633:A:C8	2.50	0.46
24:BA:924:G:H2'	24:BA:925:A:H8	1.80	0.46
24:BA:1056:G:N1	24:BA:1102:C:H5''	2.25	0.46
24:BA:1413:A:H2'	24:BA:1414:C:C6	2.50	0.46
24:BA:1734:G:C2	24:BA:1735:A:C5	3.03	0.46
24:BA:2064:C:H2'	24:BA:2065:C:H6	1.80	0.46
24:BA:2096:C:H2'	24:BA:2097:A:C8	2.50	0.46
24:BA:2162:G:C6	24:BA:2171:A:H5''	2.50	0.46
25:BB:19:G:N3	25:BB:59:A:C6	2.84	0.46
30:BG:38:MET:SD	30:BG:151:GLY:O	2.73	0.46
1:AA:599:C:H2'	1:AA:600:A:C8	2.50	0.46
1:AA:1023:U:H2'	1:AA:1024:G:C8	2.50	0.46
1:AA:1250:A:H2'	1:AA:1251:A:C8	2.51	0.46
1:AA:1309:G:OP1	5:AE:87:ARG:NH1	2.47	0.46
1:AA:1521:C:H2'	1:AA:1522:U:C6	2.51	0.46
6:AF:42:TRP:HD1	6:AF:44:ALA:H	1.62	0.46
7:AG:79:LYS:O	7:AG:82:GLU:HG3	2.15	0.46
24:BA:93:G:H2'	24:BA:94:A:C8	2.51	0.46
24:BA:1083:U:C6	24:BA:1083:U:H3'	2.50	0.46
45:BV:59:SER:OG	45:BV:62:ASN:OD1	2.27	0.46
49:BZ:82:MET:HG2	49:BZ:98:LYS:HB2	1.96	0.46
1:AA:160:A:N3	1:AA:160:A:C2'	2.73	0.46
1:AA:254:G:H2'	1:AA:255:G:C8	2.50	0.46
1:AA:943:U:H2'	1:AA:944:G:H8	1.80	0.46
1:AA:1000:A:C2	1:AA:1040:U:C6	3.04	0.46
1:AA:1312:G:H5''	4:AD:3:ARG:NH2	2.30	0.46
4:AD:11:ILE:HD13	4:AD:16:LEU:HD12	1.97	0.46
8:AH:40:ILE:HG21	8:AH:73:LEU:HD23	1.96	0.46
23:AW:1:C:C4	23:AW:2:U:O4	2.68	0.46
24:BA:479:A:H1'	24:BA:481:G:H5'	1.97	0.46
24:BA:572:A:H2'	24:BA:572:A:N3	2.28	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:963:U:C2	24:BA:964:C:C5	3.04	0.46
24:BA:1090:A:H5'	24:BA:1091:G:C5	2.50	0.46
24:BA:1319:C:N4	24:BA:1334:G:O6	2.47	0.46
24:BA:1408:G:H2'	24:BA:1409:U:C6	2.50	0.46
24:BA:1747:U:H2'	24:BA:1748:C:C6	2.50	0.46
24:BA:2532:G:H22	24:BA:2662:A:H61	1.64	0.46
25:BB:67:C:C2	25:BB:68:C:H1'	2.49	0.46
25:BB:68:C:H2'	25:BB:69:C:C5	2.50	0.46
28:BE:151:THR:N	28:BE:152:PRO:CD	2.77	0.46
41:BR:19:ASP:OD1	41:BR:21:THR:HG22	2.15	0.46
44:BU:105:MET:HE2	44:BU:117:PHE:CE1	2.50	0.46
1:AA:384:G:H2'	1:AA:385:C:C6	2.51	0.46
1:AA:538:G:H3'	3:AC:112:GLN:HE22	1.80	0.46
1:AA:559:A:H4'	1:AA:560:A:H3'	1.96	0.46
1:AA:864:A:H2'	1:AA:865:A:C8	2.51	0.46
1:AA:1097:C:H2'	1:AA:1098:C:H6	1.81	0.46
1:AA:1178:G:N2	1:AA:1181:G:OP2	2.46	0.46
1:AA:1349:A:H1'	1:AA:1374:A:N6	2.31	0.46
1:AA:1479:C:H2'	1:AA:1480:A:H8	1.80	0.46
11:AK:15:SER:HB3	11:AK:70:GLY:HA3	1.96	0.46
22:AV:24:ILE:HD11	30:BG:102:ARG:CD	2.46	0.46
24:BA:222:A:H8	24:BA:224:U:C6	2.06	0.46
24:BA:458:G:O2'	24:BA:469:G:O6	2.31	0.46
24:BA:551:G:H2'	24:BA:552:U:H6	1.80	0.46
24:BA:644:A:H2	24:BA:2369:A:HO2'	1.62	0.46
24:BA:981:A:OP2	24:BA:982:C:N4	2.45	0.46
24:BA:1436:G:H2'	24:BA:1437:C:O4'	2.16	0.46
24:BA:1712:U:OP2	24:BA:1713:A:O2'	2.27	0.46
24:BA:2037:A:H2'	24:BA:2038:G:C8	2.50	0.46
24:BA:2243:U:H2'	24:BA:2244:U:C6	2.50	0.46
24:BA:2484:G:O2'	44:BU:123:LYS:O	2.34	0.46
24:BA:2505:G:H2'	24:BA:2576:G:H1	1.79	0.46
26:BC:52:A:N7	31:BH:33:ARG:NH1	2.63	0.46
50:DA:4:GLU:HA	50:DA:7:LEU:HB3	1.97	0.46
56:DG:130:PRO:C	56:DG:132:TYR:H	2.19	0.46
1:AA:949:A:H2'	1:AA:950:U:C6	2.51	0.46
1:AA:1135:U:O2'	1:AA:1136:C:H2'	2.15	0.46
1:AA:1214:C:H3'	1:AA:1215:G:C8	2.50	0.46
1:AA:1250:A:H2	1:AA:1370:G:H1'	1.80	0.46
9:AI:85:ASN:OD1	9:AI:88:GLU:N	2.36	0.46
12:AL:70:ARG:HG3	12:AL:96:ARG:HB3	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:146:A:H2'	24:BA:147:C:C6	2.51	0.46
24:BA:882:G:N7	24:BA:896:A:N9	2.64	0.46
24:BA:948:C:H2'	24:BA:949:G:C8	2.51	0.46
24:BA:1063:G:H2'	24:BA:1064:C:N3	2.31	0.46
24:BA:1295:C:H2'	24:BA:1296:G:H8	1.81	0.46
24:BA:1476:U:H2'	24:BA:1477:A:C8	2.48	0.46
24:BA:1518:C:H2'	24:BA:1519:G:H8	1.80	0.46
24:BA:1780:A:H3'	24:BA:1781:U:H2'	1.97	0.46
24:BA:2656:U:H3	24:BA:2665:A:H2	1.63	0.46
24:BA:2804:U:H2'	24:BA:2805:C:C6	2.50	0.46
25:BB:66:C:H2'	25:BB:67:C:C6	2.50	0.46
26:BC:2:G:H2'	26:BC:3:C:C6	2.50	0.46
33:BJ:84:THR:HA	33:BJ:133:LEU:O	2.16	0.46
44:BU:53:MET:HB3	44:BU:120:ALA:HB2	1.98	0.46
1:AA:236:A:H2'	1:AA:237:G:C8	2.50	0.46
1:AA:298:A:O2'	1:AA:299:G:C8	2.68	0.46
1:AA:1133:G:N1	1:AA:1142:G:O6	2.49	0.46
1:AA:1233:G:P	11:AK:126:GLN:HE22	2.38	0.46
8:AH:17:LEU:O	8:AH:20:GLN:HG3	2.15	0.46
8:AH:40:ILE:HB	8:AH:73:LEU:HB3	1.97	0.46
9:AI:35:GLU:CD	9:AI:35:GLU:H	2.17	0.46
16:AP:86:LYS:HA	16:AP:86:LYS:HD2	1.72	0.46
17:AQ:29:SER:HB3	17:AQ:59:LEU:HB2	1.96	0.46
24:BA:8:C:H6	24:BA:8:C:C5'	2.29	0.46
24:BA:666:A:H5''	43:BT:48:ARG:NH1	2.31	0.46
24:BA:729:G:O2'	24:BA:763:G:H4'	2.15	0.46
24:BA:925:A:H2'	24:BA:926:G:H8	1.80	0.46
24:BA:1040:A:C2	24:BA:1115:G:C2	2.99	0.46
24:BA:2217:G:H2'	24:BA:2218:G:H8	1.80	0.46
24:BA:2405:G:O2'	24:BA:2411:A:N6	2.49	0.46
24:BA:2752:C:H2'	24:BA:2753:A:O4'	2.15	0.46
24:BA:2809:A:H2'	24:BA:2810:A:C8	2.51	0.46
27:BD:37:ASN:HB2	27:BD:62:TYR:HB2	1.98	0.46
54:DE:39:TRP:NE1	54:DE:41:GLU:HB3	2.31	0.46
1:AA:469:C:H3'	1:AA:470:C:H6	1.81	0.46
1:AA:672:U:H5'	14:AN:79:ARG:NH2	2.29	0.46
1:AA:865:A:H1'	1:AA:918:A:O2'	2.16	0.46
1:AA:1279:G:O2'	1:AA:1281:C:OP2	2.34	0.46
7:AG:22:TRP:NE1	7:AG:36:ASP:OD2	2.49	0.46
13:AM:63:ALA:HB1	13:AM:96:THR:OG1	2.16	0.46
24:BA:794:A:H2'	24:BA:795:C:C6	2.51	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:1058:U:O2'	35:BL:116:ASP:OD1	2.31	0.46
24:BA:1072:C:H42	24:BA:1091:G:H8	1.64	0.46
24:BA:1283:G:H22	24:BA:1286:A:H5'	1.80	0.46
24:BA:1747:U:H2'	24:BA:1748:C:H6	1.81	0.46
24:BA:2532:G:H2'	24:BA:2533:U:C6	2.51	0.46
24:BA:2671:G:H2'	24:BA:2672:U:C6	2.50	0.46
24:BA:2885:G:N3	36:BM:32:LYS:NZ	2.64	0.46
26:BC:18:G:H2'	26:BC:19:C:C6	2.51	0.46
32:BI:19:HIS:HE1	32:BI:21:TYR:CZ	2.34	0.46
42:BS:69:VAL:HG21	42:BS:104:THR:HG21	1.97	0.46
1:AA:17:U:H2'	1:AA:18:C:H6	1.80	0.46
1:AA:41:G:H2'	1:AA:42:G:C8	2.49	0.46
1:AA:490:C:H2'	1:AA:491:G:H8	1.81	0.46
2:AB:11:ALA:O	2:AB:14:SER:OG	2.23	0.46
3:AC:31:ARG:O	3:AC:58:THR:HG23	2.16	0.46
13:AM:61:PHE:O	13:AM:65:VAL:HG23	2.16	0.46
21:AU:46:LYS:HD3	21:AU:47:ARG:HH21	1.81	0.46
24:BA:165:A:H2'	24:BA:166:U:O4'	2.15	0.46
24:BA:176:A:H2'	24:BA:177:G:C4	2.50	0.46
24:BA:399:U:OP2	54:DE:57:ARG:NH1	2.49	0.46
24:BA:1771:C:H2'	24:BA:1772:A:H8	1.78	0.46
24:BA:2329:U:H2'	24:BA:2330:G:H8	1.79	0.46
24:BA:2369:A:H2'	24:BA:2370:G:H8	1.81	0.46
24:BA:2802:G:H2'	24:BA:2803:G:H8	1.81	0.46
25:BB:23:G:C5	25:BB:47:G:C4	2.91	0.46
49:BZ:73:LYS:HB2	49:BZ:106:VAL:HB	1.98	0.46
51:DB:91:LYS:HZ3	51:DB:91:LYS:HG2	1.58	0.46
1:AA:37:U:OP1	3:AC:120:LYS:NZ	2.47	0.46
1:AA:392:C:C2	1:AA:393:A:C8	3.04	0.46
1:AA:592:G:H2'	1:AA:593:U:H6	1.80	0.46
1:AA:618:C:O2'	15:AO:14:ARG:NH1	2.39	0.46
1:AA:845:A:H2'	1:AA:845:A:N3	2.29	0.46
1:AA:1239:A:O2'	1:AA:1240:U:OP2	2.31	0.46
8:AH:89:ARG:O	8:AH:89:ARG:HG2	2.16	0.46
13:AM:45:ALA:HB3	13:AM:70:CYS:HB2	1.98	0.46
16:AP:40:GLY:HA3	16:AP:117:VAL:HB	1.97	0.46
24:BA:24:G:H2'	24:BA:25:U:C6	2.52	0.46
24:BA:78:U:H2'	24:BA:79:C:C6	2.50	0.46
24:BA:106:C:H2'	24:BA:107:G:H8	1.80	0.46
24:BA:347:A:H2'	24:BA:348:A:C8	2.51	0.46
24:BA:418:C:H2'	24:BA:419:U:C6	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:571:U:H3'	48:BY:80:ARG:NH2	2.31	0.46
24:BA:1383:A:H2'	24:BA:1384:A:C8	2.50	0.46
24:BA:1746:A:H2'	24:BA:1747:U:C6	2.50	0.46
24:BA:1748:C:H2'	24:BA:1749:A:C8	2.51	0.46
24:BA:1753:G:N2	24:BA:1756:G:O5'	2.49	0.46
24:BA:2334:U:H5''	31:BH:9:ARG:NH2	2.30	0.46
25:BB:23:G:C6	25:BB:47:G:C2	2.96	0.46
56:DG:31:ARG:NE	56:DG:31:ARG:HA	2.31	0.46
1:AA:34:C:H2'	1:AA:35:G:C8	2.47	0.45
1:AA:476:U:H2'	1:AA:477:C:C6	2.50	0.45
1:AA:601:G:H2'	1:AA:602:A:C8	2.50	0.45
1:AA:918:A:H2'	1:AA:919:A:C8	2.50	0.45
19:AS:65:ARG:HH11	19:AS:66:PRO:HD2	1.80	0.45
24:BA:170:U:H2'	24:BA:171:U:C6	2.51	0.45
24:BA:429:A:H2'	24:BA:430:A:C8	2.50	0.45
24:BA:1405:U:H2'	24:BA:1406:U:H6	1.80	0.45
24:BA:1429:G:H2'	24:BA:1430:G:H8	1.82	0.45
24:BA:1465:G:HO2'	24:BA:1545:A:H2	1.63	0.45
24:BA:1676:A:H2'	24:BA:1677:A:O4'	2.16	0.45
24:BA:2072:C:H2'	24:BA:2073:C:C6	2.52	0.45
24:BA:2250:G:H5'	24:BA:2250:G:N3	2.31	0.45
24:BA:2334:U:N3	31:BH:16:ARG:HG2	2.31	0.45
24:BA:2368:C:H2'	24:BA:2369:A:H8	1.81	0.45
27:BD:66:ASP:OD2	27:BD:102:ARG:NH1	2.49	0.45
50:DA:69:ARG:NH2	50:DA:74:ILE:HG22	2.31	0.45
1:AA:693:G:C6	23:AW:1:C:H1'	2.51	0.45
1:AA:1038:C:H2'	1:AA:1039:G:H8	1.80	0.45
1:AA:1266:G:O6	1:AA:1269:A:C5	2.69	0.45
1:AA:1408:A:N6	1:AA:1494:G:C6	2.84	0.45
6:AF:90:ARG:HD2	6:AF:92:GLU:OE2	2.17	0.45
8:AH:12:ALA:HB3	8:AH:18:ILE:HB	1.97	0.45
8:AH:37:ARG:HB2	8:AH:75:ASP:O	2.16	0.45
18:AR:29:VAL:HG11	18:AR:67:LEU:HD21	1.98	0.45
21:AU:41:PRO:O	21:AU:45:ARG:HG2	2.15	0.45
24:BA:172:A:H2'	24:BA:173:A:H8	1.81	0.45
24:BA:482:A:H1'	24:BA:498:G:N2	2.30	0.45
24:BA:760:G:H2'	24:BA:761:A:O4'	2.16	0.45
24:BA:765:C:H2'	24:BA:766:U:C6	2.51	0.45
24:BA:1028:A:N6	24:BA:1125:G:H2'	2.30	0.45
24:BA:1104:C:H2'	24:BA:1105:U:H6	1.82	0.45
24:BA:1309:G:OP1	37:BN:9:VAL:HG12	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:1326:U:O2	24:BA:1326:U:H2'	2.17	0.45
24:BA:1996:C:H5''	28:BE:128:ARG:HH12	1.81	0.45
24:BA:2196:C:H2'	24:BA:2197:U:C6	2.51	0.45
24:BA:2841:C:H2'	24:BA:2842:G:C8	2.51	0.45
30:BG:146:VAL:HG12	30:BG:149:VAL:HG13	1.95	0.45
31:BH:69:ASP:OD1	31:BH:70:ALA:N	2.49	0.45
43:BT:29:LYS:HD3	43:BT:30:THR:HG23	1.98	0.45
53:DD:41[B]:ARG:HA	53:DD:41[B]:ARG:HD3	1.60	0.45
56:DG:85:SER:OG	56:DG:92:ALA:HB2	2.15	0.45
1:AA:893:C:H2'	1:AA:894:G:H8	1.81	0.45
1:AA:1320:C:O2	1:AA:1320:C:H3'	2.15	0.45
4:AD:65:GLU:HA	22:AV:59:ARG:HG2	1.97	0.45
8:AH:85:ASP:O	8:AH:89:ARG:HD3	2.16	0.45
10:AJ:54:LEU:HD22	10:AJ:220:THR:HG21	1.98	0.45
20:AT:40:VAL:HB	20:AT:44:ILE:HD11	1.98	0.45
23:AW:8:C:C6	23:AW:8:C:C3'	2.99	0.45
24:BA:937:C:OP2	38:BO:52:LYS:NZ	2.49	0.45
28:BE:2:ILE:HD11	28:BE:48:ILE:HD11	1.99	0.45
42:BS:88:ASN:OD1	42:BS:89:ASN:N	2.50	0.45
43:BT:96:LYS:NZ	43:BT:103:ILE:O	2.49	0.45
51:DB:88:GLU:HB2	51:DB:93:VAL:HG21	1.98	0.45
54:DE:3:ARG:HE	54:DE:30:LEU:HD12	1.81	0.45
1:AA:628:G:H2'	1:AA:629:A:C8	2.52	0.45
1:AA:686:U:O2'	1:AA:687:A:H8	1.99	0.45
9:AI:87:GLY:HA3	9:AI:197:GLU:HG3	1.98	0.45
15:AO:48:GLU:HG2	15:AO:49:GLY:H	1.81	0.45
24:BA:142:A:H2'	24:BA:143:C:C6	2.50	0.45
24:BA:220:G:H22	24:BA:427:U:H2'	1.80	0.45
24:BA:640:C:H2'	24:BA:641:U:H6	1.81	0.45
24:BA:1364:G:H5''	54:DE:3:ARG:HH11	1.81	0.45
24:BA:1409:U:H2'	24:BA:1410:G:C8	2.51	0.45
24:BA:2161:C:O2'	24:BA:2171:A:OP1	2.34	0.45
24:BA:2656:U:N3	24:BA:2665:A:H2	2.15	0.45
24:BA:2659:G:H1'	24:BA:2662:A:H61	1.81	0.45
24:BA:2898:U:C3'	24:BA:2898:U:C6	2.98	0.45
34:BK:94:ILE:HB	34:BK:98:ASP:CG	2.37	0.45
38:BO:30:ARG:HE	43:BT:62:PRO:HB3	1.80	0.45
49:BZ:1:MET:SD	49:BZ:2:GLU:N	2.89	0.45
50:DA:9:LYS:HE2	50:DA:9:LYS:HB3	1.78	0.45
55:DF:20:ASN:O	55:DF:24:GLU:OE1	2.35	0.45
1:AA:274:A:H4'	1:AA:275:G:O5'	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:455:G:H2'	1:AA:456:A:C8	2.52	0.45
1:AA:1015:G:H21	1:AA:1217:C:H1'	1.81	0.45
1:AA:1063:C:OP2	1:AA:1064:G:O2'	2.30	0.45
1:AA:1247:U:O2	11:AK:33:ARG:NH1	2.50	0.45
1:AA:1435:G:H2'	1:AA:1436:U:C6	2.51	0.45
10:AJ:141:LEU:HG	10:AJ:144:LEU:HD23	1.99	0.45
24:BA:363:G:H2'	24:BA:364:C:C6	2.52	0.45
24:BA:1055:G:HO2'	24:BA:1056:G:C1'	2.30	0.45
24:BA:1071:G:H1	24:BA:1093:G:H1	1.65	0.45
24:BA:1831:G:C6	24:BA:1975:G:N1	2.85	0.45
24:BA:1860:G:H2'	24:BA:1861:G:C8	2.52	0.45
24:BA:2533:U:O2'	24:BA:2664:G:O2'	2.34	0.45
24:BA:2601:C:H2'	24:BA:2603:G:H8	1.80	0.45
25:BB:11:A:H2'	25:BB:12:G:C8	2.51	0.45
26:BC:95:U:H2'	26:BC:96:G:C8	2.45	0.45
1:AA:461:A:HO2'	1:AA:462:G:P	2.38	0.45
1:AA:775:G:N3	1:AA:775:G:C3'	2.79	0.45
1:AA:1152:A:HO2'	1:AA:1153:G:P	2.39	0.45
1:AA:1334:G:H4'	1:AA:1335:U:OP1	2.16	0.45
1:AA:1486:G:H2'	1:AA:1487:G:C8	2.52	0.45
1:AA:1497:G:H2'	1:AA:1519:A:H2	1.82	0.45
2:AB:61:GLN:HB3	2:AB:66:LEU:HD23	1.98	0.45
3:AC:38:TYR:HE1	3:AC:54:ARG:HG2	1.81	0.45
3:AC:90:LEU:HD23	3:AC:90:LEU:O	2.16	0.45
16:AP:60:ILE:O	16:AP:64:MET:HB2	2.17	0.45
24:BA:465:G:H2'	24:BA:466:A:C8	2.51	0.45
24:BA:689:A:H2'	24:BA:690:G:H8	1.82	0.45
24:BA:2116:G:H2'	24:BA:2116:G:N3	2.31	0.45
28:BE:121:THR:HB	28:BE:127:PHE:CD2	2.52	0.45
29:BF:88:ARG:HH11	29:BF:89:PRO:CD	2.24	0.45
34:BK:6:LEU:HG	34:BK:36:ALA:HA	1.99	0.45
56:DG:31:ARG:HD2	56:DG:79:PRO:HD2	1.98	0.45
56:DG:39:THR:O	56:DG:43:LYS:HG2	2.16	0.45
1:AA:684:U:O2'	13:AM:41:ALA:N	2.49	0.45
1:AA:1046:A:N1	1:AA:1213:A:N6	2.65	0.45
3:AC:112:GLN:N	3:AC:112:GLN:OE1	2.49	0.45
7:AG:69:HIS:HA	7:AG:104:ALA:O	2.16	0.45
11:AK:10:GLY:HA2	11:AK:81:HIS:ND1	2.31	0.45
24:BA:439:A:H2'	24:BA:440:C:C6	2.51	0.45
24:BA:1326:U:O2	24:BA:1327:A:H8	1.99	0.45
24:BA:1965:C:H5''	24:BA:1966:A:H2'	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:2469:A:H2'	24:BA:2470:G:O4'	2.17	0.45
1:AA:337:G:C2	1:AA:338:A:C5	3.05	0.45
1:AA:531:U:O2'	1:AA:532:A:OP1	2.34	0.45
1:AA:536:C:H2'	1:AA:537:G:H8	1.82	0.45
1:AA:592:G:C6	1:AA:648:A:C6	3.05	0.45
1:AA:736:C:H2'	1:AA:737:C:H6	1.81	0.45
1:AA:806:C:H2'	1:AA:807:A:C8	2.51	0.45
1:AA:1139:G:C8	1:AA:1141:C:H5	2.33	0.45
17:AQ:88:ARG:HG3	17:AQ:89:LYS:H	1.81	0.45
24:BA:600:G:H1	24:BA:657:U:H3	1.65	0.45
24:BA:1111:A:H2	24:BA:1112:G:C2	2.34	0.45
24:BA:1722:A:H2'	24:BA:1723:G:H8	1.82	0.45
24:BA:1853:A:H2'	24:BA:1854:A:C8	2.52	0.45
24:BA:1943:U:H4'	24:BA:1944:U:H3'	1.99	0.45
24:BA:2052:A:N3	28:BE:153:GLY:O	2.50	0.45
24:BA:2489:U:O2'	24:BA:2518:A:N6	2.46	0.45
24:BA:2580:U:H2'	24:BA:2581:G:C4	2.51	0.45
25:BB:68:C:H2'	25:BB:69:C:H5	1.82	0.45
52:DC:72:VAL:HG12	52:DC:93:ARG:HA	1.97	0.45
1:AA:323:U:H2'	1:AA:324:G:O4'	2.17	0.45
1:AA:434:U:H2'	1:AA:435:A:C8	2.52	0.45
1:AA:714:G:O2'	1:AA:777:A:N7	2.45	0.45
1:AA:1078:U:O2'	16:AP:138:ARG:NH2	2.50	0.45
1:AA:1396:A:H4'	1:AA:1397:C:H5''	1.98	0.45
3:AC:44:LYS:HE2	3:AC:44:LYS:HB3	1.83	0.45
4:AD:19:VAL:O	4:AD:23:VAL:HG23	2.17	0.45
4:AD:66:MET:HB3	5:AE:83:LEU:HD11	1.99	0.45
5:AE:14:HIS:ND1	5:AE:42:ASP:O	2.45	0.45
6:AF:45:VAL:O	6:AF:49:GLN:HG3	2.16	0.45
9:AI:55:LEU:O	9:AI:59:GLN:HG2	2.17	0.45
13:AM:87:LYS:HB2	13:AM:113:VAL:HG13	1.99	0.45
18:AR:54:ARG:O	18:AR:57:LEU:HG	2.17	0.45
23:AW:17:U:O5'	23:AW:17:U:H6	1.99	0.45
24:BA:67:U:H2'	24:BA:68:G:C8	2.52	0.45
24:BA:1399:C:H2'	24:BA:1400:U:C6	2.52	0.45
24:BA:2898:U:H3'	24:BA:2898:U:C6	2.51	0.45
25:BB:2:G:N2	25:BB:73:A:H1'	2.32	0.45
25:BB:11:A:H2'	25:BB:12:G:H8	1.81	0.45
30:BG:146:VAL:CG1	30:BG:149:VAL:HG11	2.24	0.45
31:BH:3:LYS:O	31:BH:7:ARG:HG3	2.17	0.45
45:BV:12:ARG:HH11	45:BV:16:HIS:CD2	2.35	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:DB:91:LYS:N	51:DB:91:LYS:CE	2.79	0.45
1:AA:513:C:H2'	1:AA:514:C:H6	1.82	0.45
1:AA:722:G:H2'	1:AA:722:G:N3	2.32	0.45
1:AA:820:U:H4'	1:AA:821:G:OP2	2.17	0.45
1:AA:988:G:H22	1:AA:1216:A:H2	1.64	0.45
1:AA:1074:G:O2'	1:AA:1101:A:N1	2.43	0.45
1:AA:1212:U:H5'	1:AA:1213:A:H8	1.82	0.45
1:AA:1531:A:H2'	1:AA:1532:U:C6	2.52	0.45
2:AB:27:MET:O	2:AB:30:THR:OG1	2.31	0.45
9:AI:62:ARG:HH21	9:AI:68:LEU:HA	1.82	0.45
9:AI:167:LYS:HD3	9:AI:168:PRO:HD2	1.99	0.45
16:AP:162:GLU:O	17:AQ:114:ARG:NH1	2.49	0.45
21:AU:49:LYS:O	21:AU:53:VAL:HG23	2.17	0.45
24:BA:443:A:C6	29:BF:40:ARG:HD2	2.53	0.45
24:BA:558:U:OP1	41:BR:113:PRO:HD2	2.17	0.45
24:BA:966:G:H2'	24:BA:967:U:C6	2.52	0.45
24:BA:1059:G:H3'	24:BA:1060:U:H3'	2.00	0.45
24:BA:1467:U:H5	24:BA:1546:G:H2'	1.82	0.45
24:BA:1946:U:H2'	24:BA:1947:C:C6	2.51	0.45
24:BA:2138:G:N7	24:BA:2154:A:N6	2.64	0.45
24:BA:2220:U:H2'	24:BA:2221:G:C8	2.52	0.45
50:DA:69:ARG:NE	50:DA:69:ARG:HA	2.33	0.45
1:AA:505:G:H2'	1:AA:506:G:C8	2.52	0.44
1:AA:1071:C:OP1	16:AP:54:ARG:NH2	2.50	0.44
2:AB:59:ASP:OD1	2:AB:60:ARG:N	2.50	0.44
6:AF:89:MET:SD	7:AG:6:HIS:CD2	3.10	0.44
9:AI:197:GLU:O	9:AI:201:VAL:HG23	2.17	0.44
12:AL:53:ARG:HH22	12:AL:122:ASN:HA	1.82	0.44
20:AT:56:ALA:HA	20:AT:59:ILE:HG22	1.99	0.44
24:BA:106:C:H2'	24:BA:107:G:C8	2.52	0.44
24:BA:879:G:N1	24:BA:898:C:N3	2.50	0.44
24:BA:957:C:H5'	44:BU:75:GLU:OE1	2.16	0.44
24:BA:1050:A:C4	24:BA:1051:G:C8	3.04	0.44
24:BA:1295:C:C2	24:BA:1296:G:C8	3.06	0.44
24:BA:2458:G:H21	24:BA:2459:A:H61	1.65	0.44
24:BA:2590:A:O3'	27:BD:238:ARG:NH1	2.50	0.44
24:BA:2807:U:O2	24:BA:2892:G:C6	2.70	0.44
25:BB:40:C:H2'	25:BB:41:C:H6	1.82	0.44
29:BF:48:THR:HG22	29:BF:51:GLU:OE2	2.17	0.44
34:BK:8:LYS:HG2	34:BK:14:SER:HA	1.97	0.44
35:BL:124:ALA:O	35:BL:127:ARG:HD3	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:BU:102:LEU:HB3	44:BU:103:TYR:CD1	2.51	0.44
1:AA:130:A:O2'	1:AA:131:A:O5'	2.30	0.44
1:AA:639:G:C2	1:AA:640:A:C8	3.05	0.44
1:AA:997:U:H2'	1:AA:998:C:C2	2.53	0.44
1:AA:1297:G:H4'	5:AE:13:LYS:NZ	2.32	0.44
1:AA:1524:C:H2'	1:AA:1525:G:C8	2.53	0.44
4:AD:47:LEU:O	4:AD:62:VAL:HG12	2.17	0.44
10:AJ:19:GLN:HA	10:AJ:38:VAL:HA	1.99	0.44
14:AN:41:ASP:CG	14:AN:58:HIS:HE2	2.21	0.44
19:AS:21:ILE:HG12	19:AS:46:VAL:HB	1.99	0.44
24:BA:13:A:O2'	24:BA:15:G:N7	2.46	0.44
24:BA:271:G:C2	24:BA:272:A:C5	3.05	0.44
24:BA:327:G:H2'	24:BA:328:U:C6	2.52	0.44
24:BA:1056:G:H4'	24:BA:1082:U:H3	1.82	0.44
24:BA:1537:G:H2'	24:BA:1538:G:O4'	2.17	0.44
24:BA:1685:C:H2'	24:BA:1686:C:H6	1.81	0.44
24:BA:1794:A:H2'	24:BA:1795:C:C6	2.52	0.44
24:BA:2789:C:C6	24:BA:2893:A:N6	2.85	0.44
24:BA:2808:G:C6	24:BA:2891:U:C5	3.04	0.44
24:BA:2808:G:O6	24:BA:2891:U:C5	2.70	0.44
24:BA:2853:C:H2'	24:BA:2854:G:C8	2.52	0.44
24:BA:2898:U:C6	24:BA:2898:U:O5'	2.70	0.44
28:BE:172:VAL:HG12	28:BE:175:LEU:HD21	1.98	0.44
38:BO:26:HIS:HB3	38:BO:44:LEU:HD22	1.99	0.44
43:BT:132:ARG:HG3	43:BT:142:ILE:HD13	1.99	0.44
56:DG:56:ARG:HD2	56:DG:57:ASN:H	1.81	0.44
1:AA:205:A:N6	1:AA:215:C:H1'	2.33	0.44
1:AA:1295:U:H4'	1:AA:1295:U:OP1	2.18	0.44
7:AG:153:VAL:HG22	7:AG:198:VAL:HG22	1.98	0.44
10:AJ:124:GLY:HA3	10:AJ:126:PHE:HD1	1.83	0.44
16:AP:92:SER:OG	16:AP:135:ASN:O	2.34	0.44
20:AT:63:ARG:HB3	20:AT:70:TYR:CE1	2.53	0.44
23:AW:13:G:H2'	23:AW:14:G:C8	2.53	0.44
24:BA:910:A:H2'	24:BA:911:A:C8	2.52	0.44
24:BA:1090:A:H2'	24:BA:1090:A:N3	2.33	0.44
24:BA:2266:A:H4'	24:BA:2267:A:N3	2.32	0.44
24:BA:2308:G:N3	24:BA:2308:G:H2'	2.31	0.44
24:BA:2356:U:H4'	53:DD:20:ARG:HH21	1.83	0.44
24:BA:2789:C:C5	24:BA:2893:A:N6	2.86	0.44
1:AA:81:A:H2'	1:AA:82:G:H5'	1.99	0.44
1:AA:212:G:C4	1:AA:213:G:C8	3.06	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:637:C:H2'	1:AA:638:U:H6	1.82	0.44
1:AA:1325:C:C5	1:AA:1325:C:OP2	2.71	0.44
15:AO:45:GLU:OE1	15:AO:46:LYS:NZ	2.48	0.44
18:AR:8:THR:O	18:AR:12:VAL:HG23	2.17	0.44
24:BA:213:A:H2'	24:BA:214:G:C8	2.52	0.44
24:BA:634:C:H2'	24:BA:635:C:H6	1.82	0.44
24:BA:2298:A:P	30:BG:71:ARG:HH21	2.40	0.44
24:BA:2673:G:H2'	24:BA:2674:G:H8	1.83	0.44
34:BK:94:ILE:CD1	34:BK:122:LEU:CB	2.90	0.44
42:BS:64:ARG:NH1	42:BS:101:GLY:HA3	2.31	0.44
50:DA:55:VAL:N	50:DA:88:LYS:HZ3	2.16	0.44
52:DC:3:THR:HA	52:DC:62:THR:HG23	2.00	0.44
56:DG:68:PRO:HG2	56:DG:116:GLU:N	2.33	0.44
1:AA:268:U:H2'	1:AA:269:C:C6	2.53	0.44
1:AA:830:G:O3'	10:AJ:21:ARG:NH1	2.51	0.44
1:AA:912:C:H2'	1:AA:913:A:C8	2.52	0.44
1:AA:1011:C:H2'	1:AA:1012:A:H8	1.82	0.44
6:AF:80:SER:O	6:AF:84:VAL:HG23	2.18	0.44
11:AK:58:VAL:HG23	11:AK:59:GLU:H	1.83	0.44
24:BA:58:G:H2'	24:BA:59:U:C6	2.51	0.44
24:BA:276:U:O2'	24:BA:362:A:N6	2.50	0.44
24:BA:441:U:H2'	24:BA:442:G:H8	1.78	0.44
24:BA:689:A:H2'	24:BA:690:G:C8	2.52	0.44
24:BA:746:U:H1'	24:BA:748:G:H21	1.82	0.44
24:BA:926:G:H2'	24:BA:927:A:H8	1.80	0.44
24:BA:1041:G:H2'	24:BA:1042:G:H8	1.82	0.44
24:BA:1198:U:H2'	24:BA:1199:U:C6	2.53	0.44
24:BA:1291:C:C2	24:BA:1292:G:C8	3.05	0.44
24:BA:1808:A:N1	54:DE:28:ARG:HD2	2.33	0.44
24:BA:2071:A:H2'	24:BA:2072:C:H6	1.82	0.44
27:BD:121:ASP:OD1	27:BD:121:ASP:N	2.48	0.44
28:BE:181:ASP:HB3	28:BE:186:LEU:HB2	1.98	0.44
31:BH:94:ARG:HB2	31:BH:97:PHE:O	2.17	0.44
35:BL:92:LYS:HG2	35:BL:93:PRO:HD2	1.99	0.44
35:BL:124:ALA:HA	35:BL:127:ARG:CD	2.47	0.44
46:BW:41:GLN:OE1	46:BW:42:ALA:N	2.42	0.44
48:BY:36:ALA:HA	48:BY:58:VAL:HG12	1.99	0.44
1:AA:33:A:H2'	1:AA:34:C:C6	2.53	0.44
1:AA:77:A:H3'	1:AA:78:A:C8	2.53	0.44
1:AA:254:G:H5''	19:AS:71:LYS:HD2	1.99	0.44
1:AA:338:A:H2'	1:AA:339:C:C6	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:1198:G:H2'	1:AA:1199:U:C6	2.53	0.44
5:AE:107:ARG:HD2	5:AE:111:GLY:O	2.18	0.44
8:AH:24:GLU:O	8:AH:27:GLU:HG3	2.17	0.44
13:AM:18:ASP:HA	13:AM:81:ASN:O	2.18	0.44
24:BA:835:C:C2	24:BA:836:G:C8	3.06	0.44
24:BA:893:C:C6	24:BA:893:C:O5'	2.70	0.44
24:BA:1077:A:H8	24:BA:1077:A:OP2	2.01	0.44
24:BA:1387:A:H2'	24:BA:1388:G:C8	2.53	0.44
24:BA:1412:U:H2'	24:BA:1413:A:C8	2.53	0.44
24:BA:1838:C:N4	24:BA:1899:A:OP2	2.37	0.44
24:BA:2285:C:OP2	32:BI:6:ARG:NH2	2.44	0.44
24:BA:2455:G:H2'	24:BA:2456:C:H6	1.82	0.44
29:BF:29:HIS:CE1	43:BT:8:PRO:HB3	2.52	0.44
29:BF:61:ARG:HH12	29:BF:65:THR:N	2.15	0.44
34:BK:14:SER:N	34:BK:17:ASP:OD2	2.46	0.44
52:DC:26:PHE:CE1	52:DC:47:VAL:HG11	2.52	0.44
56:DG:69:PHE:O	56:DG:69:PHE:CD1	2.70	0.44
1:AA:399:G:H2'	1:AA:400:C:C6	2.52	0.44
1:AA:998:C:C5	1:AA:998:C:OP2	2.70	0.44
1:AA:1181:G:H1'	1:AA:1182:G:C5	2.52	0.44
11:AK:26:GLY:HA2	11:AK:62:ASP:HA	2.00	0.44
11:AK:129:LYS:HE3	25:BB:34:U:OP1	2.18	0.44
14:AN:93:LYS:HE2	14:AN:93:LYS:HB3	1.83	0.44
16:AP:15:LEU:HD23	16:AP:16:ILE:N	2.32	0.44
16:AP:159:LYS:HA	16:AP:159:LYS:HD2	1.77	0.44
24:BA:103:A:H3'	24:BA:104:A:H8	1.82	0.44
24:BA:468:G:H5''	29:BF:55:SER:HB2	2.00	0.44
24:BA:722:A:H2'	24:BA:723:C:H6	1.83	0.44
24:BA:1303:G:O6	24:BA:1304:A:N6	2.51	0.44
24:BA:1407:G:H2'	24:BA:1408:G:H8	1.82	0.44
24:BA:1547:C:H2'	24:BA:1548:A:H8	1.81	0.44
24:BA:1713:A:N6	24:BA:1746:A:N1	2.66	0.44
24:BA:2484:G:OP1	44:BU:44:ARG:NH1	2.50	0.44
24:BA:2707:U:O2'	45:BV:71:ARG:NH1	2.51	0.44
24:BA:2720:U:H2'	24:BA:2721:A:H8	1.83	0.44
26:BC:16:G:N2	26:BC:69:G:H1'	2.33	0.44
30:BG:132:VAL:HG12	30:BG:152:LEU:CD2	2.47	0.44
30:BG:133:ARG:HD2	30:BG:133:ARG:HA	1.70	0.44
45:BV:71:ARG:HA	45:BV:71:ARG:HD2	1.76	0.44
49:BZ:82:MET:CG	49:BZ:98:LYS:HB2	2.47	0.44
53:DD:70:GLU:OE1	53:DD:72:LYS:HB2	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:DG:27:VAL:HG11	56:DG:69:PHE:CZ	2.50	0.44
1:AA:524:G:H2'	1:AA:525:C:C6	2.52	0.44
1:AA:1322:C:O2'	1:AA:1323:G:O5'	2.30	0.44
1:AA:1479:C:H2'	1:AA:1480:A:C8	2.53	0.44
1:AA:1495:U:O2'	24:BA:1919:A:N1	2.38	0.44
3:AC:99:ARG:NH1	3:AC:99:ARG:HG3	2.33	0.44
10:AJ:138:THR:HG22	10:AJ:139:ARG:HH11	1.82	0.44
11:AK:30:ILE:HG13	11:AK:65:ILE:HD11	2.00	0.44
24:BA:582:A:H2'	24:BA:583:G:C8	2.53	0.44
24:BA:1151:A:H2'	24:BA:1152:C:H6	1.82	0.44
24:BA:1441:G:H2'	24:BA:1442:U:C6	2.52	0.44
24:BA:1703:G:H2'	24:BA:1704:C:C6	2.52	0.44
24:BA:1802:A:H2'	24:BA:1803:A:C8	2.53	0.44
24:BA:1921:G:H2'	24:BA:1922:G:C8	2.52	0.44
24:BA:2313:C:H2'	24:BA:2314:A:H8	1.83	0.44
24:BA:2531:A:O4'	33:BJ:175:LYS:HG2	2.17	0.44
24:BA:2729:G:H2'	24:BA:2730:C:H6	1.83	0.44
24:BA:2756:U:H1'	24:BA:2757:A:H5''	2.00	0.44
24:BA:2795:C:C2	24:BA:2802:G:N2	2.85	0.44
26:BC:45:A:C4	26:BC:46:A:C8	3.05	0.44
29:BF:112:LEU:HD13	29:BF:186:VAL:HG11	1.99	0.44
47:BX:106:PHE:O	47:BX:110:VAL:HG23	2.18	0.44
49:BZ:31:GLN:HA	49:BZ:34:ASP:OD2	2.17	0.44
51:DB:91:LYS:N	51:DB:91:LYS:HD3	2.33	0.44
1:AA:553:A:C4	1:AA:554:A:C2	3.06	0.44
1:AA:747:A:H2'	1:AA:748:G:O4'	2.18	0.44
1:AA:1107:C:H5'	7:AG:169:ARG:HH22	1.82	0.44
1:AA:1137:C:H1'	1:AA:1138:G:H22	1.83	0.44
1:AA:1163:A:H2'	1:AA:1164:G:C8	2.53	0.44
1:AA:1312:G:C2	1:AA:1325:C:N3	2.84	0.44
4:AD:18:LYS:HE3	4:AD:31:LEU:HD13	2.00	0.44
8:AH:47:GLU:O	8:AH:66:GLU:HA	2.18	0.44
9:AI:28:ILE:HG22	9:AI:34:ILE:HD11	2.00	0.44
16:AP:69:ARG:HG2	16:AP:70:ASN:N	2.32	0.44
24:BA:225:C:H2'	24:BA:226:A:O4'	2.17	0.44
24:BA:702:U:H2'	24:BA:703:U:C6	2.53	0.44
24:BA:1009:A:H5'	47:BX:59:GLN:HE22	1.81	0.44
24:BA:1083:U:C6	24:BA:1083:U:C3'	3.01	0.44
24:BA:1151:A:H2'	24:BA:1152:C:C6	2.53	0.44
24:BA:1219:U:H2'	24:BA:1220:G:C8	2.53	0.44
24:BA:2285:C:P	32:BI:6:ARG:HH21	2.40	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:2473:U:OP1	24:BA:2475:C:N4	2.51	0.44
24:BA:2640:G:OP2	41:BR:95:ARG:NH2	2.39	0.44
24:BA:2897:U:C6	24:BA:2897:U:OP2	2.71	0.44
29:BF:188:MET:HE2	29:BF:188:MET:HB2	1.68	0.44
45:BV:82:GLU:HG3	45:BV:83:LEU:HD22	1.99	0.44
47:BX:85:LYS:HZ2	47:BX:117:LEU:HD12	1.83	0.44
1:AA:1010:U:C2	1:AA:1021:A:C2	3.05	0.43
1:AA:1128:C:H1'	1:AA:1147:C:H42	1.83	0.43
10:AJ:137:ARG:HA	10:AJ:141:LEU:HB2	1.98	0.43
14:AN:38:ARG:HD2	14:AN:40:GLU:OE2	2.18	0.43
18:AR:70:LEU:HG	18:AR:78:TYR:HB2	2.00	0.43
24:BA:358:U:H2'	24:BA:359:G:H8	1.79	0.43
24:BA:592:A:H2'	24:BA:593:U:C6	2.53	0.43
24:BA:927:A:H2'	24:BA:928:A:C8	2.53	0.43
24:BA:1037:G:H2'	24:BA:1038:G:C8	2.53	0.43
24:BA:1351:C:H2'	24:BA:1352:U:C6	2.53	0.43
24:BA:1357:C:H2'	24:BA:1358:G:O4'	2.18	0.43
25:BB:29:C:H2'	25:BB:30:G:C8	2.52	0.43
27:BD:130:LEU:HD12	27:BD:134:ASN:HB2	2.00	0.43
35:BL:129:ILE:HA	35:BL:132:THR:HG22	2.00	0.43
46:BW:31:TRP:HB3	46:BW:38:LYS:HE2	2.00	0.43
55:DF:52:ARG:HD2	55:DF:52:ARG:HA	1.74	0.43
1:AA:1028:C:N3	1:AA:1034:G:C6	2.87	0.43
1:AA:1277:C:HO2'	1:AA:1279:G:H8	1.61	0.43
9:AI:65:TYR:HE2	9:AI:94:LEU:HB3	1.82	0.43
12:AL:138:ARG:NH2	12:AL:139:GLU:OE2	2.51	0.43
14:AN:101:PRO:HA	14:AN:104:LYS:HG2	1.99	0.43
24:BA:152:A:H2'	24:BA:153:U:C6	2.53	0.43
24:BA:645:C:H2'	24:BA:647:G:N7	2.32	0.43
24:BA:1072:C:N4	24:BA:1091:G:H8	2.16	0.43
24:BA:1083:U:N3	24:BA:1085:A:H5'	2.18	0.43
24:BA:1299:G:N1	24:BA:1640:A:OP2	2.39	0.43
24:BA:1387:A:H2'	24:BA:1388:G:H8	1.83	0.43
24:BA:1432:G:C2	24:BA:1433:A:C5	3.06	0.43
24:BA:2113:U:O4	24:BA:2166:U:H1'	2.17	0.43
24:BA:2447:G:N7	24:BA:2501:C:H5'	2.33	0.43
24:BA:2567:G:H2'	24:BA:2568:U:C6	2.52	0.43
26:BC:55:U:H2'	26:BC:56:G:C8	2.54	0.43
27:BD:268:VAL:HG12	27:BD:269:ARG:HG2	2.01	0.43
49:BZ:29:VAL:O	49:BZ:33:LEU:HD23	2.19	0.43
56:DG:28:ALA:HB3	56:DG:81:LEU:HD21	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:123:U:H2'	1:AA:124:C:C6	2.53	0.43
1:AA:333:U:C2	1:AA:334:C:C5	3.07	0.43
1:AA:336:A:H2'	1:AA:337:G:H8	1.83	0.43
1:AA:1001:C:H5''	1:AA:1002:G:C8	2.54	0.43
5:AE:67:GLY:HA2	30:BG:113:ASP:OD1	2.18	0.43
10:AJ:32:PHE:HB2	10:AJ:42:ASN:HA	2.00	0.43
12:AL:10:ARG:HD3	12:AL:11:LYS:O	2.17	0.43
14:AN:36:ILE:HA	14:AN:64:VAL:HA	2.00	0.43
24:BA:571:U:O4'	24:BA:2030:A:N7	2.51	0.43
24:BA:584:C:N4	24:BA:585:G:O6	2.51	0.43
24:BA:873:C:H2'	24:BA:874:G:C8	2.53	0.43
24:BA:1094:U:H2'	24:BA:1095:A:H2	1.82	0.43
24:BA:1360:G:N7	24:BA:1361:G:C8	2.86	0.43
24:BA:2780:G:O4'	41:BR:120:ARG:NH1	2.51	0.43
31:BH:81:ARG:O	31:BH:84:GLU:HG3	2.17	0.43
37:BN:34:ARG:NH2	37:BN:39:ARG:HD2	2.33	0.43
1:AA:219:U:H2'	1:AA:220:G:C8	2.46	0.43
1:AA:384:G:H2'	1:AA:385:C:H6	1.83	0.43
1:AA:454:G:O2'	1:AA:455:G:H5'	2.19	0.43
1:AA:555:U:H2'	1:AA:556:C:H6	1.82	0.43
1:AA:601:G:H2'	1:AA:602:A:H8	1.82	0.43
1:AA:691:G:H21	1:AA:695:A:H8	1.66	0.43
1:AA:943:U:H2'	1:AA:944:G:C8	2.53	0.43
1:AA:1133:G:C2	1:AA:1142:G:N1	2.87	0.43
1:AA:1219:A:H2'	1:AA:1220:G:H8	1.82	0.43
5:AE:79:ARG:O	5:AE:83:LEU:HD23	2.18	0.43
12:AL:111:ARG:NH2	12:AL:123:GLU:OE1	2.51	0.43
24:BA:550:C:H2'	24:BA:551:G:H8	1.83	0.43
24:BA:1090:A:H5'	24:BA:1091:G:N7	2.32	0.43
24:BA:1839:G:C5	24:BA:1840:G:C8	3.06	0.43
24:BA:2027:G:H2'	24:BA:2028:U:C6	2.53	0.43
33:BJ:154:PRO:HA	33:BJ:160:LYS:O	2.17	0.43
36:BM:32:LYS:HE2	36:BM:32:LYS:HB2	1.85	0.43
47:BX:112:LYS:HD2	48:BY:49:ILE:HG22	1.99	0.43
1:AA:154:U:H2'	1:AA:155:A:H8	1.82	0.43
1:AA:358:U:H2'	1:AA:359:G:C8	2.48	0.43
1:AA:434:U:H2'	1:AA:435:A:H8	1.82	0.43
1:AA:459:A:H2'	1:AA:460:A:C8	2.53	0.43
1:AA:719:C:H1'	20:AT:38:LYS:HE3	2.00	0.43
1:AA:872:A:C4	1:AA:874:G:N7	2.87	0.43
1:AA:908:A:H2'	1:AA:909:A:C8	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:1245:C:H3'	1:AA:1246:A:H8	1.84	0.43
1:AA:1352:C:H2'	1:AA:1353:G:H8	1.84	0.43
5:AE:71:ARG:H	5:AE:71:ARG:HD2	1.83	0.43
7:AG:56:VAL:HB	7:AG:67:THR:OG1	2.19	0.43
17:AQ:10:MET:HE1	17:AQ:36:ILE:HG21	2.00	0.43
24:BA:597:G:H2'	24:BA:598:U:C6	2.53	0.43
24:BA:656:G:H2'	24:BA:657:U:C6	2.53	0.43
24:BA:1039:A:H2'	24:BA:1040:A:O4'	2.18	0.43
24:BA:1196:C:C2	24:BA:1197:G:C8	3.06	0.43
24:BA:1529:G:O6	24:BA:1542:U:O2	2.36	0.43
24:BA:1682:G:H2'	24:BA:1683:U:C6	2.53	0.43
24:BA:2411:A:H2'	24:BA:2412:A:H8	1.84	0.43
26:BC:9:G:N2	26:BC:111:U:O2	2.45	0.43
45:BV:8:ARG:HG2	45:BV:43:GLU:OE2	2.19	0.43
49:BZ:49:LYS:HA	49:BZ:52:GLU:OE2	2.18	0.43
1:AA:512:U:H2'	1:AA:513:C:C6	2.54	0.43
1:AA:518:C:H2'	1:AA:530:G:C8	2.54	0.43
1:AA:893:C:C2	1:AA:894:G:C8	3.07	0.43
1:AA:1160:G:O6	1:AA:1182:G:O6	2.37	0.43
1:AA:1229:A:H2'	1:AA:1230:C:C6	2.54	0.43
1:AA:1305:G:N7	1:AA:1332:A:H2	2.16	0.43
5:AE:110:LYS:HG2	5:AE:114:LYS:HZ3	1.84	0.43
12:AL:116:MET:SD	12:AL:116:MET:N	2.90	0.43
16:AP:106:ILE:CG2	16:AP:124:LEU:HD23	2.49	0.43
24:BA:225:C:N3	24:BA:231:A:N6	2.66	0.43
24:BA:1981:A:H5''	24:BA:1982:U:OP2	2.17	0.43
1:AA:626:G:H2'	1:AA:627:G:H8	1.83	0.43
1:AA:1313:U:O2'	1:AA:1314:C:H5'	2.19	0.43
1:AA:1418:A:C8	24:BA:1959:G:H1'	2.53	0.43
9:AI:45:LYS:NZ	9:AI:48:LEU:HB2	2.34	0.43
9:AI:182:PHE:CZ	9:AI:186:PRO:HD3	2.51	0.43
12:AL:69:VAL:HG21	12:AL:104:ILE:HD11	2.01	0.43
15:AO:6:LEU:HD22	15:AO:17:TYR:HB3	2.01	0.43
24:BA:64:A:H2'	24:BA:65:U:C6	2.54	0.43
24:BA:184:C:H2'	24:BA:185:G:C8	2.54	0.43
24:BA:417:C:H2'	24:BA:418:C:H6	1.82	0.43
24:BA:680:C:H2'	24:BA:681:G:C8	2.54	0.43
24:BA:1327:A:C4	24:BA:1328:A:C8	3.06	0.43
24:BA:1413:A:H2'	24:BA:1414:C:H6	1.82	0.43
24:BA:2113:U:H5'	24:BA:2115:G:H21	1.83	0.43
24:BA:2636:C:H2'	24:BA:2637:U:C6	2.50	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:BL:123:GLU:O	35:BL:126:THR:HG22	2.19	0.43
1:AA:132:C:H4'	1:AA:262:A:H1'	2.01	0.43
1:AA:859:G:H2'	1:AA:860:A:C8	2.54	0.43
1:AA:869:G:O2'	1:AA:872:A:N7	2.51	0.43
1:AA:1371:G:O3'	11:AK:71:GLY:HA3	2.18	0.43
5:AE:100:GLN:OE1	5:AE:100:GLN:N	2.52	0.43
9:AI:33:LYS:HB2	9:AI:33:LYS:HE3	1.83	0.43
12:AL:100:ALA:O	12:AL:104:ILE:HG12	2.18	0.43
13:AM:17:SER:H	13:AM:79:ILE:HD13	1.84	0.43
16:AP:156:LYS:NZ	17:AQ:71:VAL:HA	2.32	0.43
24:BA:418:C:H2'	24:BA:419:U:H6	1.83	0.43
24:BA:538:A:H2'	24:BA:539:G:O4'	2.19	0.43
24:BA:635:C:H2'	24:BA:636:G:C8	2.54	0.43
24:BA:640:C:C2	24:BA:641:U:C5	3.06	0.43
24:BA:873:C:H2'	24:BA:874:G:H8	1.84	0.43
24:BA:1049:C:C2	24:BA:1050:A:C8	3.07	0.43
24:BA:1359:A:H2'	24:BA:1360:G:O4'	2.19	0.43
24:BA:1820:U:N3	27:BD:159:GLY:HA3	2.34	0.43
24:BA:1914:C:O2	24:BA:1914:C:H3'	2.18	0.43
26:BC:48:U:H2'	26:BC:49:C:C6	2.54	0.43
30:BG:2:ALA:HB1	30:BG:5:HIS:HB3	2.00	0.43
30:BG:146:VAL:HG12	30:BG:149:VAL:HG12	1.89	0.43
34:BK:117:LEU:HD23	34:BK:122:LEU:HD23	2.00	0.43
46:BW:63:LYS:HG2	46:BW:64:ILE:N	2.34	0.43
56:DG:37:LYS:HA	56:DG:105:LYS:HE3	2.00	0.43
56:DG:132:TYR:C	56:DG:134:GLU:N	2.70	0.43
1:AA:198:G:C2	1:AA:220:G:H1'	2.53	0.43
1:AA:466:A:N6	1:AA:469:C:H42	2.17	0.43
1:AA:652:U:O4	1:AA:752:G:O2'	2.33	0.43
1:AA:840:C:O2	1:AA:847:G:N1	2.52	0.43
1:AA:1463:U:H2'	1:AA:1464:U:C6	2.54	0.43
4:AD:32:ARG:NH2	4:AD:34:TRP:HE3	2.17	0.43
10:AJ:15:HIS:HB3	10:AJ:43:LEU:HD11	2.01	0.43
11:AK:41:ARG:HD3	11:AK:43:THR:OG1	2.18	0.43
22:AV:13:THR:HG23	22:AV:22:MET:O	2.19	0.43
24:BA:414:C:H2'	24:BA:415:A:C8	2.53	0.43
24:BA:414:C:H2'	24:BA:415:A:H8	1.84	0.43
24:BA:576:U:O2'	24:BA:577:G:H5'	2.18	0.43
24:BA:598:U:H2'	24:BA:599:A:H8	1.83	0.43
24:BA:807:U:H2'	24:BA:808:G:C8	2.54	0.43
24:BA:877:A:O2'	24:BA:900:A:N6	2.50	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:973:A:H5''	48:BY:81:LYS:NZ	2.34	0.43
24:BA:1722:A:N6	24:BA:1739:A:C8	2.86	0.43
24:BA:2100:G:O6	24:BA:2189:U:O2	2.37	0.43
24:BA:2460:U:N3	24:BA:2461:A:N7	2.66	0.43
26:BC:48:U:H5''	31:BH:98:GLN:NE2	2.34	0.43
29:BF:132:LYS:HD2	29:BF:132:LYS:N	2.33	0.43
41:BR:9:GLU:OE1	41:BR:9:GLU:N	2.51	0.43
41:BR:76:HIS:CE1	41:BR:85:LYS:HB2	2.54	0.43
41:BR:89:PHE:O	41:BR:93:ILE:HG12	2.19	0.43
1:AA:74:A:H2'	1:AA:75:G:C8	2.54	0.43
1:AA:360:G:H2'	1:AA:361:G:H8	1.84	0.43
1:AA:613:C:H2'	1:AA:614:C:H6	1.83	0.43
1:AA:1314:C:H1'	1:AA:1315:U:C6	2.54	0.43
24:BA:1060:U:H3	24:BA:1080:A:H4'	1.84	0.43
24:BA:1210:G:OP1	24:BA:1211:C:O2'	2.27	0.43
24:BA:1482:G:H2'	24:BA:1483:G:H8	1.84	0.43
24:BA:1509:A:O2'	24:BA:1510:G:O5'	2.36	0.43
24:BA:1799:G:N7	27:BD:178:SER:OG	2.44	0.43
24:BA:2112:G:H2'	24:BA:2113:U:H4'	2.01	0.43
24:BA:2122:U:O2	24:BA:2162:G:H8	2.01	0.43
24:BA:2591:C:C2	24:BA:2592:G:N7	2.87	0.43
25:BB:22:A:OP2	25:BB:22:A:H8	2.02	0.43
26:BC:6:G:H2'	26:BC:7:G:H8	1.84	0.43
29:BF:177:PRO:O	29:BF:181:ILE:HG22	2.18	0.43
31:BH:11:ALA:HB2	31:BH:96:GLY:N	2.34	0.43
34:BK:72:ILE:O	34:BK:76:GLU:HB3	2.18	0.43
35:BL:55:ILE:HA	35:BL:56:PRO:HD3	1.92	0.43
46:BW:2:SER:HB3	46:BW:5:ILE:HG12	2.00	0.43
56:DG:94:ARG:HG2	56:DG:126:LEU:O	2.18	0.43
1:AA:185:U:H2'	1:AA:186:C:C6	2.54	0.42
1:AA:209:U:H5''	1:AA:210:C:H5	1.84	0.42
1:AA:409:U:H5'	9:AI:26:ARG:HH12	1.83	0.42
1:AA:827:U:H2'	1:AA:870:U:O4	2.19	0.42
1:AA:838:G:C6	1:AA:849:G:C6	3.07	0.42
1:AA:841:C:O2'	1:AA:842:U:O5'	2.30	0.42
1:AA:899:C:H2'	1:AA:900:A:C8	2.53	0.42
1:AA:937:A:H1'	1:AA:1379:G:H22	1.82	0.42
1:AA:1246:A:C6	1:AA:1290:G:N7	2.87	0.42
5:AE:23:TYR:O	5:AE:66:GLU:HG2	2.19	0.42
19:AS:59:VAL:HG12	19:AS:78:VAL:HG22	2.00	0.42
24:BA:202:U:H2'	24:BA:203:A:O4'	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:477:A:OP1	24:BA:501:A:N6	2.52	0.42
24:BA:711:G:C6	24:BA:721:A:C6	3.07	0.42
24:BA:1010:A:N3	24:BA:1153:C:H1'	2.34	0.42
24:BA:1059:G:HO2'	24:BA:1060:U:P	2.41	0.42
24:BA:1085:A:H2	24:BA:1103:A:N6	2.17	0.42
24:BA:1890:A:C2	24:BA:1891:G:H1'	2.54	0.42
28:BE:30:GLU:OE1	28:BE:30:GLU:HA	2.19	0.42
29:BF:101:TYR:CE2	29:BF:105:LEU:HD11	2.55	0.42
35:BL:129:ILE:O	35:BL:132:THR:HG22	2.19	0.42
37:BN:21:ARG:O	37:BN:27:GLY:HA3	2.19	0.42
45:BV:36:THR:OG1	45:BV:37:THR:N	2.52	0.42
51:DB:86:ARG:HB3	51:DB:95:PHE:CE2	2.54	0.42
1:AA:264:C:H2'	1:AA:265:G:O4'	2.19	0.42
1:AA:311:C:H2'	1:AA:312:C:H6	1.83	0.42
1:AA:1138:G:C2	1:AA:1140:C:C4	3.07	0.42
1:AA:1251:A:H2'	1:AA:1252:A:H8	1.84	0.42
1:AA:1254:A:H2'	1:AA:1255:G:C8	2.54	0.42
8:AH:4:GLN:HA	8:AH:79:PRO:HG3	2.00	0.42
9:AI:58:LYS:HD2	9:AI:204:TYR:OH	2.19	0.42
13:AM:127:ARG:HG3	21:AU:37:PHE:CE1	2.53	0.42
16:AP:137:VAL:O	16:AP:141:ILE:HG12	2.19	0.42
24:BA:488:G:N2	24:BA:491:G:H5''	2.34	0.42
24:BA:562:U:O4	24:BA:572:A:N7	2.52	0.42
24:BA:1372:U:H2'	24:BA:1373:A:C8	2.53	0.42
24:BA:1408:G:H1	24:BA:1594:U:H3	1.67	0.42
24:BA:1419:A:O2'	24:BA:1421:G:N7	2.42	0.42
24:BA:1687:G:H2'	24:BA:1688:U:C6	2.53	0.42
24:BA:1710:G:H2'	24:BA:1711:A:C8	2.53	0.42
24:BA:1799:G:OP1	27:BD:258:ARG:HD2	2.18	0.42
24:BA:1923:U:H2'	24:BA:1924:C:C6	2.55	0.42
24:BA:2537:U:H2'	24:BA:2538:C:C6	2.54	0.42
27:BD:181:MET:HB2	27:BD:269:ARG:HB2	2.00	0.42
30:BG:14:LYS:O	30:BG:18:THR:HG23	2.19	0.42
30:BG:80:ARG:HB2	30:BG:83:TYR:CE2	2.53	0.42
1:AA:458:U:H3	1:AA:474:G:H1	1.66	0.42
1:AA:1401:G:H2'	1:AA:1402:C:O4'	2.19	0.42
2:AB:21:ASN:OD1	2:AB:66:LEU:HD13	2.20	0.42
10:AJ:71:GLY:O	10:AJ:93:ASN:HA	2.19	0.42
12:AL:2:PRO:HG2	12:AL:4:ARG:HH21	1.84	0.42
14:AN:38:ARG:NH1	14:AN:98:GLU:O	2.52	0.42
16:AP:14:LYS:HE2	16:AP:14:LYS:HB2	1.90	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:AP:89:HIS:HB2	16:AP:139:ALA:HB2	2.00	0.42
16:AP:148:ASN:HB2	16:AP:152:MET:SD	2.59	0.42
24:BA:285:G:C4	24:BA:356:G:C6	3.08	0.42
24:BA:675:A:N3	24:BA:2443:C:O2'	2.50	0.42
24:BA:1126:A:H4'	24:BA:1127:A:H5''	2.00	0.42
24:BA:1987:A:H2'	24:BA:1988:G:H8	1.84	0.42
24:BA:2306:C:OP2	24:BA:2307:G:O2'	2.33	0.42
24:BA:2390:U:OP2	38:BO:35:LYS:NZ	2.46	0.42
26:BC:117:G:H2'	26:BC:118:C:C6	2.53	0.42
29:BF:145:ASP:HB3	29:BF:166:LYS:HB3	2.01	0.42
43:BT:75:ALA:HB2	43:BT:105:ILE:HD13	2.02	0.42
56:DG:12:VAL:HG21	56:DG:62:ARG:HG3	2.00	0.42
1:AA:75:G:C6	1:AA:76:G:C6	3.07	0.42
1:AA:80:A:O2'	1:AA:81:A:O4'	2.32	0.42
1:AA:422:C:H1'	1:AA:423:G:C2	2.54	0.42
1:AA:843:U:O2'	1:AA:844:G:H4'	2.20	0.42
1:AA:865:A:H2'	1:AA:866:C:C6	2.54	0.42
1:AA:1220:G:OP1	1:AA:1320:C:H6	2.02	0.42
1:AA:1310:G:C8	1:AA:1310:G:H3'	2.54	0.42
1:AA:1408:A:C2	24:BA:1913:A:H2	2.37	0.42
3:AC:20:ASN:OD1	3:AC:21:VAL:HG23	2.20	0.42
10:AJ:90:PHE:CZ	10:AJ:154:MET:HA	2.54	0.42
24:BA:278:A:H2'	24:BA:278:A:N3	2.34	0.42
24:BA:552:U:H2'	24:BA:553:G:H8	1.84	0.42
24:BA:1827:U:H5'	24:BA:1971:U:H4'	2.01	0.42
24:BA:1839:G:C6	24:BA:1927:A:N1	2.88	0.42
24:BA:1860:G:N2	24:BA:1882:U:O2	2.49	0.42
24:BA:2220:U:O3'	34:BK:97:ARG:NH2	2.52	0.42
24:BA:2458:G:H21	24:BA:2459:A:N6	2.17	0.42
24:BA:2505:G:H2'	24:BA:2576:G:N1	2.35	0.42
24:BA:2841:C:H2'	24:BA:2842:G:H8	1.83	0.42
55:DF:16:THR:HG22	55:DF:20:ASN:HD21	1.83	0.42
56:DG:98:GLU:OE1	56:DG:101:LYS:HE3	2.19	0.42
1:AA:192:A:H4'	2:AB:55:GLN:OE1	2.20	0.42
1:AA:389:A:H3'	1:AA:390:U:C6	2.54	0.42
1:AA:401:C:H2'	1:AA:402:G:H8	1.84	0.42
1:AA:626:G:H2'	1:AA:627:G:C8	2.55	0.42
1:AA:1214:C:H3'	1:AA:1215:G:H8	1.83	0.42
1:AA:1304:G:H1'	1:AA:1331:G:N7	2.35	0.42
7:AG:8:ASN:O	7:AG:12:LEU:HG	2.20	0.42
9:AI:68:LEU:HA	9:AI:68:LEU:HD23	1.87	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:417:C:H2'	24:BA:418:C:C6	2.54	0.42
24:BA:836:G:C5	24:BA:837:C:C5	3.08	0.42
24:BA:947:A:C6	24:BA:971:G:C6	3.07	0.42
24:BA:974:G:H4'	48:BY:78:ARG:NH2	2.34	0.42
24:BA:1082:U:O2	24:BA:1082:U:H2'	2.19	0.42
24:BA:1292:G:H2'	24:BA:1293:C:H6	1.84	0.42
24:BA:1670:C:H2'	24:BA:1671:U:O4'	2.20	0.42
24:BA:1724:G:O6	24:BA:1737:G:N2	2.47	0.42
24:BA:1915:U:O2	24:BA:1915:U:C2'	2.65	0.42
24:BA:2331:G:P	53:DD:44:LYS:HZ1	2.42	0.42
24:BA:2710:C:H2'	24:BA:2711:A:C8	2.55	0.42
24:BA:2804:U:H2'	24:BA:2805:C:H6	1.83	0.42
28:BE:128:ARG:HD2	28:BE:128:ARG:HA	1.83	0.42
34:BK:31:VAL:CG2	34:BK:32:PRO:HD3	2.50	0.42
35:BL:96:ASP:OD1	35:BL:96:ASP:N	2.53	0.42
52:DC:83:LYS:HE3	52:DC:85:LYS:HD2	2.01	0.42
56:DG:20:LYS:HE2	56:DG:20:LYS:HA	2.01	0.42
1:AA:74:A:H2'	1:AA:75:G:H8	1.84	0.42
1:AA:346:G:OP1	46:BW:41:GLN:NE2	2.52	0.42
1:AA:460:A:H2'	1:AA:461:A:H8	1.80	0.42
1:AA:945:G:C2	1:AA:946:A:C8	3.07	0.42
1:AA:1131:G:H3'	1:AA:1131:G:N3	2.34	0.42
1:AA:1224:U:C4	1:AA:1320:C:N4	2.75	0.42
1:AA:1236:A:O2'	1:AA:1305:G:N2	2.53	0.42
1:AA:1334:G:H1'	1:AA:1335:U:O5'	2.19	0.42
9:AI:166:GLU:N	9:AI:166:GLU:OE1	2.52	0.42
10:AJ:57:LEU:HD12	10:AJ:184:PHE:CD2	2.53	0.42
16:AP:97:GLN:HB3	16:AP:124:LEU:HB2	2.02	0.42
24:BA:203:A:H3'	24:BA:204:A:H8	1.84	0.42
24:BA:393:C:C2	24:BA:394:C:C5	3.06	0.42
24:BA:519:U:H2'	24:BA:520:G:H8	1.84	0.42
24:BA:656:G:H2'	24:BA:657:U:H6	1.85	0.42
24:BA:1100:C:HO2'	24:BA:1101:U:P	2.40	0.42
24:BA:1496:A:H2'	24:BA:1498:C:C5	2.54	0.42
24:BA:1509:A:C4	24:BA:1510:G:C8	3.08	0.42
24:BA:1510:G:H2'	24:BA:1511:G:C8	2.50	0.42
24:BA:1527:G:H3'	24:BA:1543:G:N2	2.35	0.42
24:BA:2011:U:H2'	24:BA:2012:G:O4'	2.19	0.42
24:BA:2178:C:H5''	24:BA:2180:U:H5	1.84	0.42
24:BA:2472:G:C5	24:BA:2475:C:C4	3.08	0.42
24:BA:2808:G:C6	24:BA:2891:U:O4	2.72	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:BB:24:C:H2'	25:BB:25:U:C6	2.55	0.42
45:BV:12:ARG:HD3	45:BV:16:HIS:CD2	2.52	0.42
1:AA:686:U:N3	1:AA:687:A:C5	2.88	0.42
1:AA:1118:U:H1'	1:AA:1179:A:N6	2.35	0.42
2:AB:57:ILE:HA	2:AB:60:ARG:HG2	2.00	0.42
16:AP:157:ARG:NH1	17:AQ:99:LEU:O	2.51	0.42
24:BA:150:U:H2'	24:BA:151:C:H6	1.85	0.42
24:BA:576:U:H2'	24:BA:577:G:H8	1.84	0.42
24:BA:1051:G:N1	24:BA:1108:U:H5	2.17	0.42
24:BA:1614:A:C6	49:BZ:87:PRO:HB3	2.55	0.42
24:BA:2047:C:H2'	24:BA:2048:G:H8	1.85	0.42
24:BA:2065:C:H1'	24:BA:2449:U:H3	1.84	0.42
24:BA:2562:U:H1'	42:BS:23:LYS:NZ	2.34	0.42
30:BG:152:LEU:HD21	30:BG:154:ILE:CD1	2.50	0.42
1:AA:159:G:O2'	1:AA:162:A:N6	2.52	0.42
1:AA:244:U:O4	1:AA:893:C:N3	2.52	0.42
1:AA:271:C:H2'	1:AA:272:C:C6	2.54	0.42
1:AA:422:C:O2	1:AA:423:G:N2	2.53	0.42
1:AA:708:C:H2'	1:AA:709:U:C6	2.55	0.42
1:AA:1390:U:H2'	1:AA:1391:U:C6	2.54	0.42
1:AA:1436:U:H2'	1:AA:1437:A:H8	1.84	0.42
1:AA:1458:G:H2'	1:AA:1459:G:C8	2.55	0.42
7:AG:107:ARG:HD3	7:AG:107:ARG:HA	1.83	0.42
8:AH:37:ARG:HD2	8:AH:37:ARG:HA	1.49	0.42
9:AI:124:MET:HA	9:AI:129:VAL:HA	2.01	0.42
11:AK:14:SER:O	11:AK:70:GLY:N	2.53	0.42
16:AP:12:GLN:N	16:AP:12:GLN:OE1	2.53	0.42
24:BA:135:U:H2'	24:BA:136:G:H8	1.84	0.42
24:BA:439:A:H2'	24:BA:440:C:H6	1.85	0.42
24:BA:1165:A:H2'	24:BA:1166:G:C8	2.53	0.42
24:BA:1265:A:H3'	36:BM:16:ARG:NH2	2.34	0.42
24:BA:1594:U:H2'	24:BA:1595:C:C6	2.55	0.42
24:BA:1791:A:N6	24:BA:1828:G:O2'	2.52	0.42
24:BA:2088:A:H2'	24:BA:2089:C:C6	2.54	0.42
24:BA:2095:A:C2	24:BA:2194:U:H5	2.38	0.42
24:BA:2121:G:N2	24:BA:2178:C:H2'	2.35	0.42
24:BA:2589:A:H2'	24:BA:2590:A:H8	1.84	0.42
24:BA:2680:U:OP1	28:BE:114:LYS:HG2	2.19	0.42
24:BA:2748:A:H2'	24:BA:2749:A:O4'	2.20	0.42
24:BA:2801:G:C2'	24:BA:2802:G:H5'	2.49	0.42
25:BB:35:C:O2	25:BB:35:C:C2'	2.64	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:BG:34:ILE:HG13	30:BG:96:MET:HG3	2.02	0.42
31:BH:78:VAL:HA	31:BH:81:ARG:HD3	2.02	0.42
31:BH:92:PHE:HB2	31:BH:117:PHE:CE2	2.55	0.42
44:BU:17:ASN:OD1	44:BU:97:GLN:NE2	2.47	0.42
55:DF:19:LEU:HB3	55:DF:23:ARG:NH1	2.34	0.42
1:AA:259:G:H2'	1:AA:260:G:H8	1.85	0.42
1:AA:1106:G:O2'	7:AG:169:ARG:NH2	2.53	0.42
1:AA:1530:G:H2'	1:AA:1531:A:C8	2.55	0.42
5:AE:90:ARG:HH11	5:AE:95:LEU:HD12	1.84	0.42
11:AK:25:ASN:O	11:AK:27:LYS:N	2.47	0.42
16:AP:114:VAL:HG11	16:AP:137:VAL:HG13	2.01	0.42
23:AW:8:C:C6	23:AW:8:C:C5'	2.85	0.42
24:BA:587:C:H5'	29:BF:85:PHE:HE2	1.85	0.42
24:BA:882:G:N3	24:BA:882:G:C2'	2.81	0.42
24:BA:1290:C:C2	24:BA:1291:C:C5	3.08	0.42
24:BA:1534:U:H2'	24:BA:1536:C:C6	2.55	0.42
24:BA:2292:U:H2'	24:BA:2293:G:H8	1.84	0.42
24:BA:2335:A:O2'	24:BA:2336:A:OP1	2.36	0.42
27:BD:53:HIS:HA	27:BD:217:ARG:HB2	2.02	0.42
27:BD:78:VAL:HG13	27:BD:112:ALA:HA	2.02	0.42
28:BE:148:GLN:CB	28:BE:152:PRO:HD2	2.48	0.42
30:BG:73:SER:N	30:BG:81:GLN:OE1	2.53	0.42
46:BW:3:ASN:HA	46:BW:6:LYS:HE2	2.02	0.42
51:DB:29:LEU:HB2	51:DB:33:LYS:HB2	2.00	0.42
56:DG:97:LYS:HG3	56:DG:123:ILE:O	2.20	0.42
1:AA:56:U:H2'	1:AA:57:G:C8	2.54	0.42
1:AA:56:U:H2'	1:AA:57:G:H8	1.84	0.42
1:AA:175:C:H2'	1:AA:176:C:C6	2.55	0.42
1:AA:199:A:H2'	1:AA:200:G:H8	1.85	0.42
1:AA:470:C:H2'	1:AA:471:U:H6	1.85	0.42
1:AA:486:U:H2'	1:AA:487:A:C8	2.55	0.42
1:AA:767:A:C4	1:AA:768:A:C8	3.08	0.42
1:AA:925:G:C2	1:AA:927:G:C8	3.08	0.42
1:AA:1060:U:P	6:AF:85:ARG:HH22	2.43	0.42
1:AA:1090:U:H2'	1:AA:1091:U:C6	2.55	0.42
1:AA:1126:U:C2	1:AA:1280:A:H2'	2.54	0.42
1:AA:1228:C:HO2'	1:AA:1229:A:P	2.42	0.42
1:AA:1522:U:H5''	13:AM:128:ARG:HH22	1.84	0.42
6:AF:57:PRO:O	6:AF:60:GLN:NE2	2.53	0.42
9:AI:76:TYR:HA	9:AI:90:LEU:HD13	2.01	0.42
12:AL:15:ASP:OD1	12:AL:44:TYR:OH	2.35	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:AQ:50:LYS:HE2	17:AQ:50:LYS:HB2	1.88	0.42
22:AV:12:ILE:O	22:AV:24:ILE:N	2.38	0.42
24:BA:756:A:H2'	24:BA:757:G:O4'	2.20	0.42
24:BA:910:A:N6	44:BU:12:MET:HA	2.35	0.42
24:BA:1504:A:H2'	24:BA:1505:A:C8	2.55	0.42
24:BA:1518:C:H2'	24:BA:1519:G:C8	2.55	0.42
24:BA:2064:C:H2'	24:BA:2065:C:C6	2.54	0.42
24:BA:2074:U:H2'	24:BA:2075:U:C6	2.55	0.42
24:BA:2086:U:H2'	24:BA:2087:G:C8	2.55	0.42
25:BB:45:A:H2'	25:BB:46:G:O4'	2.20	0.42
25:BB:53:G:H2'	25:BB:54:G:H8	1.85	0.42
34:BK:5:LEU:HD13	34:BK:17:ASP:HB2	2.02	0.42
46:BW:4:ILE:H	46:BW:4:ILE:HD12	1.85	0.42
50:DA:65:GLY:HA3	50:DA:77:ARG:O	2.20	0.42
56:DG:35:VAL:HA	56:DG:38:MET:CG	2.47	0.42
1:AA:707:U:H2'	1:AA:708:C:C6	2.55	0.41
1:AA:728:A:H2'	1:AA:729:A:C8	2.55	0.41
1:AA:917:G:H2'	1:AA:918:A:H8	1.84	0.41
1:AA:1129:C:O2	1:AA:1131:G:N2	2.43	0.41
1:AA:1426:G:C6	1:AA:1475:G:C6	3.08	0.41
11:AK:96:SER:HB2	11:AK:100:LYS:NZ	2.34	0.41
19:AS:47:HIS:HB2	19:AS:71:LYS:HE2	2.02	0.41
24:BA:419:U:H2'	24:BA:420:C:C6	2.54	0.41
24:BA:573:U:N3	24:BA:2030:A:H2'	2.35	0.41
24:BA:779:U:C2	24:BA:780:G:C8	3.08	0.41
24:BA:813:U:H2'	24:BA:814:C:H6	1.84	0.41
24:BA:1682:G:H2'	24:BA:1683:U:H6	1.85	0.41
24:BA:2677:G:H2'	24:BA:2678:C:H6	1.82	0.41
28:BE:105:LYS:O	28:BE:177:VAL:HG12	2.20	0.41
38:BO:54:ASP:HB2	43:BT:57:LEU:HD11	2.02	0.41
45:BV:28:LEU:HD22	45:BV:44:LEU:HD21	2.02	0.41
1:AA:264:C:H1'	19:AS:65:ARG:NH2	2.35	0.41
1:AA:1331:G:H4'	1:AA:1332:A:O5'	2.20	0.41
5:AE:34:LEU:HD23	5:AE:56:LEU:HD11	2.01	0.41
9:AI:13:ARG:NH2	9:AI:38:PRO:HA	2.35	0.41
16:AP:56:VAL:N	16:AP:57:PRO:HD2	2.34	0.41
24:BA:820:A:C2	24:BA:943:A:H4'	2.55	0.41
24:BA:1292:G:H2'	24:BA:1293:C:C6	2.54	0.41
24:BA:1744:A:H3'	24:BA:1745:A:H8	1.85	0.41
24:BA:2142:A:H2'	24:BA:2143:C:C6	2.55	0.41
24:BA:2637:U:H5''	28:BE:83:ARG:NH1	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:2774:C:H2'	24:BA:2775:G:O4'	2.20	0.41
30:BG:98:GLU:O	30:BG:101:GLU:HG3	2.20	0.41
36:BM:38:HIS:CG	36:BM:44:THR:HG22	2.55	0.41
41:BR:62:VAL:HG11	41:BR:101:ILE:HD11	2.01	0.41
1:AA:88:U:H2'	1:AA:89:U:C5	2.55	0.41
1:AA:301:G:H2'	1:AA:302:G:H8	1.85	0.41
1:AA:984:C:O2	1:AA:984:C:H2'	2.20	0.41
4:AD:62:VAL:HA	4:AD:66:MET:SD	2.60	0.41
6:AF:42:TRP:CD1	6:AF:43:ASN:N	2.88	0.41
11:AK:52:LEU:HB3	11:AK:57:MET:HB2	2.02	0.41
12:AL:57:SER:HB2	12:AL:60:GLU:HB2	2.02	0.41
14:AN:80:PHE:HE2	27:BD:124:ILE:HB	1.85	0.41
17:AQ:30:SER:OG	17:AQ:33:LYS:HG3	2.19	0.41
22:AV:12:ILE:CA	22:AV:30:HIS:HA	2.46	0.41
24:BA:144:A:H2'	24:BA:145:C:C6	2.55	0.41
24:BA:239:C:H2'	24:BA:240:C:O4'	2.20	0.41
24:BA:923:G:H2'	24:BA:924:G:H8	1.84	0.41
24:BA:966:G:C6	24:BA:967:U:C4	3.08	0.41
24:BA:1171:G:N1	24:BA:1173:U:O2	2.53	0.41
24:BA:1632:A:H2'	24:BA:1633:G:C8	2.56	0.41
24:BA:1709:U:H2'	24:BA:1710:G:C8	2.56	0.41
24:BA:1750:G:H2'	24:BA:1751:U:C6	2.55	0.41
24:BA:1889:A:H2'	24:BA:1890:A:C8	2.55	0.41
25:BB:16:C:O5'	25:BB:16:C:C6	2.73	0.41
25:BB:51:U:H2'	25:BB:52:C:H6	1.85	0.41
33:BJ:42:GLU:HA	33:BJ:55:ARG:HH21	1.85	0.41
42:BS:51:LYS:HE2	42:BS:95:ILE:HG22	2.01	0.41
48:BY:40:MET:CG	48:BY:49:ILE:HD13	2.31	0.41
51:DB:29:LEU:HD22	51:DB:33:LYS:HB2	2.02	0.41
1:AA:218:U:H2'	1:AA:219:U:O4'	2.19	0.41
1:AA:259:G:H2'	1:AA:260:G:C8	2.55	0.41
1:AA:911:U:H2'	1:AA:912:C:C6	2.56	0.41
1:AA:932:C:H2'	1:AA:933:G:C8	2.55	0.41
1:AA:1071:C:H2'	1:AA:1072:G:C8	2.51	0.41
1:AA:1125:U:O2'	1:AA:1126:U:O5'	2.38	0.41
1:AA:1207:G:H2'	1:AA:1208:C:H6	1.84	0.41
5:AE:13:LYS:HG3	5:AE:14:HIS:N	2.35	0.41
8:AH:99:GLN:OE1	8:AH:99:GLN:HA	2.20	0.41
10:AJ:217:VAL:HA	10:AJ:220:THR:HG22	2.03	0.41
11:AK:12:ARG:HH11	11:AK:12:ARG:CG	2.33	0.41
11:AK:85:ARG:O	11:AK:89:GLU:HG2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:135:U:C2	24:BA:136:G:C8	3.09	0.41
24:BA:259:G:H2'	24:BA:260:G:H8	1.84	0.41
24:BA:1016:G:O6	24:BA:1147:A:N6	2.54	0.41
24:BA:1047:G:H1'	24:BA:1110:G:H2'	2.03	0.41
24:BA:1063:G:N3	24:BA:1064:C:N3	2.68	0.41
24:BA:1319:C:H2'	24:BA:1320:C:C6	2.55	0.41
24:BA:1401:G:H2'	24:BA:1402:U:C6	2.55	0.41
24:BA:1790:C:O2'	27:BD:208:ALA:HB2	2.19	0.41
24:BA:1791:A:C2	24:BA:1829:A:H4'	2.56	0.41
24:BA:1911:U:C4	24:BA:1918:A:H2'	2.55	0.41
24:BA:2204:G:H5'	27:BD:147:LYS:HD2	2.03	0.41
24:BA:2215:C:H2'	24:BA:2216:G:C8	2.54	0.41
24:BA:2471:A:H2'	24:BA:2472:G:O4'	2.20	0.41
24:BA:2483:C:H1'	44:BU:51:ARG:NH2	2.35	0.41
24:BA:2699:C:H2'	24:BA:2700:A:C8	2.56	0.41
24:BA:2820:A:N6	28:BE:197:THR:O	2.54	0.41
24:BA:2864:G:H2'	24:BA:2865:U:C6	2.55	0.41
25:BB:38:A:C2	25:BB:39:A:H1'	2.55	0.41
46:BW:30:VAL:HG13	46:BW:80:VAL:HG12	2.02	0.41
49:BZ:86:MET:HA	49:BZ:87:PRO:HD3	1.92	0.41
56:DG:68:PRO:O	56:DG:116:GLU:C	2.59	0.41
1:AA:194:C:O2'	2:AB:60:ARG:HB2	2.20	0.41
1:AA:205:A:H2'	1:AA:206:C:C2	2.55	0.41
1:AA:424:G:N1	1:AA:425:G:C6	2.89	0.41
1:AA:920:U:H2'	1:AA:921:U:H6	1.86	0.41
1:AA:1148:U:O2'	11:AK:18:ARG:HD2	2.20	0.41
1:AA:1417:G:C6	1:AA:1482:G:C6	3.09	0.41
7:AG:40:ARG:O	7:AG:44:THR:HG23	2.20	0.41
9:AI:102:VAL:HG13	9:AI:114:ALA:HB1	2.02	0.41
16:AP:10:GLU:N	16:AP:10:GLU:OE1	2.53	0.41
17:AQ:36:ILE:HA	17:AQ:39:VAL:HG12	2.03	0.41
22:AV:44:PHE:CE2	30:BG:109:PRO:HG3	2.56	0.41
23:AW:8:C:H6	23:AW:8:C:C4'	2.31	0.41
24:BA:372:G:H22	24:BA:400:G:H3'	1.85	0.41
24:BA:963:U:H2'	24:BA:964:C:C6	2.55	0.41
24:BA:1426:G:OP2	24:BA:1427:A:O2'	2.24	0.41
24:BA:1433:A:H61	24:BA:1560:G:H1	1.68	0.41
24:BA:1589:U:H2'	24:BA:1590:A:C8	2.56	0.41
24:BA:2040:G:H2'	24:BA:2041:U:C6	2.56	0.41
26:BC:2:G:H2'	26:BC:3:C:H6	1.86	0.41
26:BC:29:A:H2'	26:BC:30:C:O4'	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:BD:228:VAL:HG13	27:BD:229:ASP:OD1	2.21	0.41
32:BI:39:PHE:HB2	32:BI:46:HIS:CD2	2.56	0.41
47:BX:61:TRP:O	47:BX:65:ILE:HG12	2.20	0.41
1:AA:72:A:H2'	1:AA:72:A:N3	2.35	0.41
1:AA:544:G:H2'	1:AA:545:C:C6	2.55	0.41
1:AA:982:U:H5'	1:AA:983:A:C8	2.55	0.41
1:AA:999:C:C2	1:AA:999:C:OP2	2.73	0.41
1:AA:1023:U:H2'	1:AA:1024:G:H8	1.84	0.41
1:AA:1055:A:C2	1:AA:1206:G:C4	3.09	0.41
1:AA:1148:U:O3'	11:AK:7:TYR:OH	2.35	0.41
1:AA:1266:G:H2'	1:AA:1268:G:N7	2.36	0.41
1:AA:1315:U:H2'	1:AA:1316:G:O4'	2.20	0.41
1:AA:1357:A:C4	1:AA:1358:U:C5	3.09	0.41
7:AG:65:ARG:HH22	7:AG:102:ASN:HD21	1.67	0.41
8:AH:47:GLU:HB2	8:AH:67:ILE:HG13	2.02	0.41
10:AJ:132:LYS:O	10:AJ:136:MET:HG2	2.20	0.41
19:AS:46:VAL:HG22	19:AS:61:ILE:HG21	2.02	0.41
24:BA:604:G:H2'	24:BA:605:G:C8	2.56	0.41
24:BA:967:U:H2'	24:BA:968:C:C6	2.55	0.41
24:BA:1590:A:H2'	24:BA:1591:A:H8	1.85	0.41
24:BA:1668:A:O2'	24:BA:1674:G:N7	2.44	0.41
24:BA:1912:A:N3	24:BA:1912:A:C5'	2.73	0.41
24:BA:2740:A:H2'	24:BA:2741:A:C8	2.56	0.41
24:BA:2846:G:H2'	24:BA:2847:U:C6	2.55	0.41
30:BG:38:MET:HB3	30:BG:152:LEU:HA	2.03	0.41
34:BK:32:PRO:HA	54:DE:39:TRP:CD1	2.55	0.41
35:BL:92:LYS:HB3	35:BL:95:LYS:HE2	2.03	0.41
1:AA:32:A:H2'	1:AA:33:A:C8	2.56	0.41
1:AA:75:G:O6	1:AA:76:G:O6	2.39	0.41
1:AA:523:A:N3	3:AC:88:LYS:CB	2.54	0.41
1:AA:917:G:H2'	1:AA:918:A:C8	2.55	0.41
1:AA:999:C:H2'	1:AA:1000:A:H5'	2.02	0.41
1:AA:1035:A:H3'	1:AA:1036:A:H2	1.84	0.41
1:AA:1127:G:C6	1:AA:1145:A:N6	2.88	0.41
1:AA:1178:G:H2'	1:AA:1180:A:OP2	2.21	0.41
1:AA:1367:C:OP2	11:AK:114:LYS:NZ	2.52	0.41
3:AC:87:VAL:CG2	3:AC:93:VAL:HG13	2.50	0.41
8:AH:47:GLU:HB2	8:AH:67:ILE:HG12	2.02	0.41
10:AJ:24:ASN:OD1	10:AJ:26:LYS:HG2	2.21	0.41
12:AL:90:GLU:OE1	12:AL:90:GLU:N	2.51	0.41
12:AL:102:ARG:HA	12:AL:105:VAL:HG12	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:AN:43:GLY:HA2	14:AN:58:HIS:CE1	2.54	0.41
24:BA:9:G:N2	24:BA:2800:A:C6	2.86	0.41
24:BA:128:C:H2'	24:BA:129:C:C6	2.56	0.41
24:BA:289:G:H2'	24:BA:290:U:O4'	2.21	0.41
24:BA:301:G:C6	24:BA:317:G:C6	3.08	0.41
24:BA:807:U:C2	24:BA:808:G:C8	3.08	0.41
24:BA:1171:G:H21	24:BA:1172:C:H41	1.66	0.41
24:BA:1582:C:O2'	24:BA:1585:C:N4	2.53	0.41
24:BA:1859:U:H2'	24:BA:1860:G:O4'	2.21	0.41
24:BA:2377:A:H2'	24:BA:2378:A:C8	2.56	0.41
24:BA:2547:A:H2'	24:BA:2548:U:C6	2.56	0.41
25:BB:12:G:C2	25:BB:13:C:H1'	2.56	0.41
26:BC:55:U:H2'	26:BC:56:G:H8	1.85	0.41
34:BK:71:LYS:NZ	34:BK:108:VAL:HB	2.35	0.41
35:BL:131:GLY:HA2	35:BL:134:ARG:NE	2.36	0.41
40:BQ:51:VAL:O	40:BQ:55:VAL:HG22	2.20	0.41
55:DF:4:LYS:HD2	55:DF:4:LYS:HA	1.81	0.41
1:AA:398:U:H2'	1:AA:399:G:C8	2.55	0.41
1:AA:457:G:H2'	1:AA:458:U:C6	2.56	0.41
1:AA:520:A:OP1	3:AC:49:LEU:HB2	2.21	0.41
1:AA:642:A:C5	17:AQ:107:SER:HA	2.55	0.41
1:AA:708:C:H2'	1:AA:709:U:H6	1.85	0.41
7:AG:153:VAL:HG12	7:AG:157:LEU:HD21	2.03	0.41
9:AI:95:GLU:HG2	9:AI:186:PRO:HG2	2.02	0.41
16:AP:102:GLY:N	16:AP:122:ASN:OD1	2.53	0.41
24:BA:298:G:O2'	24:BA:322:A:N1	2.48	0.41
24:BA:627:A:C6	43:BT:111:ILE:HD11	2.56	0.41
24:BA:1535:A:H5'	24:BA:1537:G:O6	2.20	0.41
24:BA:2340:A:H2'	24:BA:2341:G:C8	2.53	0.41
24:BA:2350:C:H2'	24:BA:2351:G:O4'	2.21	0.41
35:BL:14:ALA:HB3	35:BL:17:MET:O	2.21	0.41
42:BS:65:THR:HA	42:BS:82:ASN:OD1	2.20	0.41
1:AA:35:G:H2'	1:AA:36:C:C6	2.56	0.41
1:AA:39:G:C4	1:AA:404:G:N2	2.89	0.41
1:AA:160:A:H1'	1:AA:344:A:C2	2.55	0.41
1:AA:512:U:H2'	1:AA:513:C:H6	1.84	0.41
1:AA:552:U:C2	1:AA:553:A:C8	3.09	0.41
1:AA:604:G:H2'	1:AA:605:U:O4'	2.21	0.41
1:AA:667:G:H2'	1:AA:668:G:H8	1.86	0.41
1:AA:738:C:H5'	14:AN:68:GLN:HE22	1.86	0.41
1:AA:743:A:H2'	1:AA:744:C:C6	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:867:G:H2'	1:AA:868:C:C6	2.56	0.41
1:AA:999:C:O2	1:AA:999:C:C3'	2.69	0.41
1:AA:1008:U:H2'	1:AA:1009:U:C6	2.56	0.41
1:AA:1010:U:H2'	1:AA:1011:C:C6	2.56	0.41
1:AA:1035:A:H3'	1:AA:1036:A:C2	2.56	0.41
1:AA:1053:G:N7	1:AA:1200:C:H5''	2.35	0.41
1:AA:1086:U:O2'	1:AA:1087:G:C8	2.72	0.41
1:AA:1152:A:N6	1:AA:1153:G:O6	2.54	0.41
1:AA:1187:G:OP1	11:AK:115:LYS:NZ	2.54	0.41
1:AA:1273:C:H2'	1:AA:1274:A:O4'	2.21	0.41
1:AA:1326:U:H3'	1:AA:1326:U:O2	2.21	0.41
9:AI:174:ASP:OD2	9:AI:177:LYS:NZ	2.36	0.41
10:AJ:97:LEU:HB2	10:AJ:100:MET:CG	2.51	0.41
10:AJ:199:VAL:HG12	10:AJ:201:PRO:HD3	2.02	0.41
14:AN:19:PRO:O	14:AN:23:GLU:OE1	2.38	0.41
16:AP:111:MET:HG2	16:AP:140:THR:HG21	2.03	0.41
17:AQ:105:SER:HB3	17:AQ:124:GLU:HB2	2.01	0.41
24:BA:23:G:H2'	24:BA:24:G:C8	2.55	0.41
24:BA:38:A:H2'	24:BA:39:G:O4'	2.20	0.41
24:BA:300:A:N3	24:BA:319:G:H1'	2.36	0.41
24:BA:307:G:N2	24:BA:309:A:H3'	2.35	0.41
24:BA:351:C:H2'	24:BA:352:A:H8	1.84	0.41
24:BA:392:U:C2	24:BA:393:C:C5	3.09	0.41
24:BA:595:C:H2'	24:BA:596:U:C6	2.55	0.41
24:BA:604:G:H2'	24:BA:605:G:H8	1.86	0.41
24:BA:676:A:C2	24:BA:2070:A:H1'	2.56	0.41
24:BA:1047:G:H8	24:BA:1110:G:H3'	1.86	0.41
24:BA:1063:G:C8	24:BA:1063:G:OP2	2.74	0.41
24:BA:1173:U:HO2'	24:BA:1177:G:H1	1.63	0.41
24:BA:1390:U:H3	24:BA:1395:A:H62	1.68	0.41
24:BA:1441:G:H2'	24:BA:1442:U:H6	1.86	0.41
24:BA:1547:C:H2'	24:BA:1548:A:C8	2.56	0.41
24:BA:1737:G:H2'	24:BA:1738:G:C4	2.56	0.41
24:BA:2028:U:H3	24:BA:2033:A:N6	2.05	0.41
24:BA:2106:U:H1'	24:BA:2181:U:N3	2.30	0.41
24:BA:2106:U:O2'	24:BA:2181:U:O2	2.39	0.41
25:BB:36:A:H2'	25:BB:37:U:H6	1.86	0.41
25:BB:62:C:H2'	25:BB:63:C:C6	2.56	0.41
25:BB:63:C:H2'	25:BB:64:G:O4'	2.21	0.41
28:BE:4:LEU:HB2	28:BE:101:PHE:HE2	1.85	0.41
29:BF:7:ASP:CG	29:BF:122:GLU:H	2.23	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:BG:47:LYS:HD3	30:BG:47:LYS:HA	1.93	0.41
41:BR:32:LEU:O	41:BR:36:LEU:HD23	2.21	0.41
41:BR:136:GLN:O	41:BR:138:GLN:NE2	2.54	0.41
42:BS:44:LYS:HA	42:BS:44:LYS:HD2	1.87	0.41
45:BV:79:LEU:HD12	45:BV:83:LEU:HG	2.02	0.41
50:DA:18:GLU:HG2	50:DA:19:LYS:N	2.36	0.41
51:DB:91:LYS:NZ	51:DB:91:LYS:C	2.74	0.41
56:DG:108:VAL:O	56:DG:108:VAL:HG13	2.21	0.41
1:AA:359:G:C4	1:AA:360:G:C8	3.09	0.41
1:AA:418:C:H2'	1:AA:419:C:C6	2.56	0.41
1:AA:656:G:N1	1:AA:751:U:O4	2.54	0.41
1:AA:802:A:C5	1:AA:803:G:H1'	2.55	0.41
1:AA:1037:C:H2'	1:AA:1038:C:H6	1.83	0.41
1:AA:1296:C:O5'	1:AA:1296:C:C6	2.70	0.41
11:AK:119:ARG:HH22	11:AK:123:ARG:NH2	2.19	0.41
16:AP:74:VAL:HG11	16:AP:144:LEU:HB3	2.02	0.41
16:AP:141:ILE:O	16:AP:145:GLU:HG2	2.21	0.41
24:BA:30:G:H2'	24:BA:31:C:H6	1.85	0.41
24:BA:594:U:H2'	24:BA:595:C:H6	1.86	0.41
24:BA:968:C:H2'	24:BA:969:G:C8	2.56	0.41
24:BA:1045:C:OP1	24:BA:1046:A:H5''	2.21	0.41
24:BA:1133:A:H4'	24:BA:1134:A:H5''	2.03	0.41
24:BA:1234:U:H2'	24:BA:1235:G:O4'	2.21	0.41
24:BA:1604:C:H2'	24:BA:1605:C:H6	1.86	0.41
24:BA:2078:C:H2'	24:BA:2079:U:H6	1.85	0.41
24:BA:2306:C:O4'	30:BG:133:ARG:NH2	2.50	0.41
24:BA:2836:U:H2'	24:BA:2837:A:C8	2.56	0.41
25:BB:23:G:C8	25:BB:47:G:C5	3.08	0.41
31:BH:53:THR:HB	31:BH:65:THR:OG1	2.21	0.41
46:BW:68:GLU:OE1	46:BW:68:GLU:N	2.54	0.41
51:DB:62:GLU:OE1	51:DB:62:GLU:N	2.53	0.41
52:DC:9:ARG:HG3	52:DC:39:ALA:C	2.41	0.41
1:AA:467:U:H3'	1:AA:468:A:O4'	2.21	0.40
1:AA:988:G:H1	1:AA:1216:A:H2	1.68	0.40
1:AA:1064:G:H1'	1:AA:1190:G:H21	1.85	0.40
1:AA:1133:G:HO2'	1:AA:1134:G:P	2.44	0.40
1:AA:1380:U:C2	12:AL:3:ARG:NH1	2.89	0.40
1:AA:1399:C:O2	1:AA:1502:A:N6	2.54	0.40
9:AI:11:LEU:HD22	9:AI:63:ARG:CZ	2.50	0.40
10:AJ:84:ALA:HB1	10:AJ:89:GLN:O	2.21	0.40
10:AJ:90:PHE:CD2	10:AJ:154:MET:HG2	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:AJ:97:LEU:HB2	10:AJ:100:MET:HG3	2.03	0.40
22:AV:57:VAL:HG13	22:AV:58:ASP:H	1.85	0.40
24:BA:214:G:H2'	24:BA:215:G:C8	2.55	0.40
24:BA:667:U:H2'	24:BA:668:A:O4'	2.22	0.40
24:BA:1080:A:H61	24:BA:1086:A:H3'	1.85	0.40
24:BA:1183:U:H2'	24:BA:1184:U:C6	2.55	0.40
24:BA:1248:G:OP1	29:BF:44:ARG:NH1	2.39	0.40
24:BA:2111:U:O5'	24:BA:2119:A:H3'	2.21	0.40
24:BA:2129:C:N4	24:BA:2158:A:N1	2.70	0.40
24:BA:2366:A:C2	24:BA:2367:G:H1'	2.56	0.40
24:BA:2468:A:H2'	24:BA:2476:A:C6	2.55	0.40
24:BA:2897:U:H6	24:BA:2897:U:OP2	2.04	0.40
25:BB:4:G:C4	25:BB:71:G:C2	2.99	0.40
26:BC:99:A:C4	26:BC:100:G:C8	3.09	0.40
27:BD:143:ASN:OD1	27:BD:152:GLY:HA3	2.22	0.40
29:BF:112:LEU:HD23	29:BF:112:LEU:HA	1.96	0.40
29:BF:132:LYS:HD2	29:BF:132:LYS:H	1.86	0.40
47:BX:49:ASP:HA	47:BX:52:GLN:HB2	2.02	0.40
56:DG:103:ASN:OD1	56:DG:105:LYS:HE2	2.20	0.40
1:AA:88:U:H5''	1:AA:89:U:OP2	2.21	0.40
1:AA:339:C:H2'	1:AA:340:U:C6	2.55	0.40
1:AA:901:A:OP2	1:AA:901:A:H8	2.05	0.40
1:AA:999:C:O2	1:AA:999:C:C2'	2.69	0.40
1:AA:1010:U:N3	1:AA:1021:A:N1	2.69	0.40
1:AA:1386:G:H2'	1:AA:1387:G:H8	1.86	0.40
5:AE:71:ARG:HH22	30:BG:115:ARG:HD3	1.86	0.40
11:AK:50:GLN:HB3	11:AK:51:PRO:HD3	2.04	0.40
19:AS:31:HIS:HB3	19:AS:35:GLY:H	1.86	0.40
24:BA:727:A:H2'	24:BA:728:G:C8	2.56	0.40
24:BA:878:A:N3	24:BA:878:A:H2'	2.36	0.40
24:BA:1017:G:H2'	24:BA:1018:U:C6	2.56	0.40
24:BA:1026:G:H2'	24:BA:1027:A:H8	1.86	0.40
24:BA:1526:C:H2'	24:BA:1527:G:O4'	2.21	0.40
24:BA:1592:C:H2'	24:BA:1593:A:C8	2.56	0.40
24:BA:2575:C:P	28:BE:149:ASN:HD22	2.42	0.40
24:BA:2744:G:C6	24:BA:2761:A:C6	3.09	0.40
24:BA:2783:U:H2'	24:BA:2784:U:H6	1.86	0.40
24:BA:2846:G:H2'	24:BA:2847:U:H6	1.86	0.40
33:BJ:18:LYS:HB3	33:BJ:18:LYS:HE3	1.91	0.40
34:BK:72:ILE:HD13	34:BK:72:ILE:HA	1.91	0.40
41:BR:99:ARG:O	41:BR:103:ILE:HG23	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:BS:57:VAL:C	42:BS:58:LEU:HD12	2.41	0.40
52:DC:9:ARG:HG2	52:DC:41:GLU:CD	2.41	0.40
1:AA:339:C:OP1	42:BS:98:ARG:NH1	2.55	0.40
1:AA:431:A:C4	1:AA:432:A:C8	3.10	0.40
1:AA:444:G:C6	1:AA:491:G:C6	3.10	0.40
1:AA:470:C:H2'	1:AA:471:U:C6	2.55	0.40
1:AA:475:C:H2'	1:AA:476:U:H6	1.85	0.40
1:AA:634:C:C2	1:AA:635:A:C8	3.09	0.40
1:AA:1010:U:H2'	1:AA:1011:C:H6	1.85	0.40
1:AA:1109:C:C2	1:AA:1110:A:C8	3.08	0.40
7:AG:149:ILE:HG13	7:AG:202:ILE:HG12	2.02	0.40
9:AI:139:PRO:HA	9:AI:182:PHE:CD2	2.53	0.40
17:AQ:94:LYS:HE2	17:AQ:94:LYS:HB3	1.78	0.40
18:AR:88:ARG:NH1	24:BA:716:A:OP1	2.54	0.40
22:AV:30:HIS:ND1	22:AV:30:HIS:C	2.74	0.40
24:BA:356:G:H2'	24:BA:357:C:C6	2.57	0.40
24:BA:557:C:H2'	24:BA:558:U:C6	2.56	0.40
24:BA:595:C:H2'	24:BA:596:U:H6	1.85	0.40
24:BA:612:G:C6	24:BA:616:A:N6	2.90	0.40
24:BA:619:G:P	24:BA:620:G:H22	2.45	0.40
24:BA:708:G:H2'	24:BA:709:U:C6	2.56	0.40
24:BA:732:C:H2'	24:BA:733:G:O4'	2.21	0.40
24:BA:1055:G:H2'	24:BA:1056:G:C5	2.57	0.40
24:BA:1180:U:H6	24:BA:1180:U:O5'	2.05	0.40
24:BA:1326:U:O2	24:BA:1327:A:C8	2.74	0.40
24:BA:1425:G:N2	24:BA:1574:C:C4	2.90	0.40
24:BA:1675:C:H2'	24:BA:1676:A:O4'	2.22	0.40
24:BA:1857:G:C2	24:BA:1884:G:N3	2.89	0.40
24:BA:2148:G:C2	24:BA:2149:U:C4	3.09	0.40
24:BA:2885:G:C5	24:BA:2886:A:H1'	2.56	0.40
30:BG:56:ASP:O	30:BG:60:ILE:HG12	2.21	0.40
42:BS:8:LEU:HD13	42:BS:82:ASN:HB3	2.02	0.40
51:DB:91:LYS:NZ	51:DB:91:LYS:O	2.55	0.40
56:DG:51:TYR:HB3	56:DG:53:ARG:HE	1.86	0.40
1:AA:155:A:H2'	1:AA:156:C:H6	1.86	0.40
1:AA:175:C:H2'	1:AA:176:C:H6	1.85	0.40
1:AA:339:C:H2'	1:AA:340:U:H6	1.86	0.40
1:AA:505:G:H2'	1:AA:506:G:H8	1.86	0.40
6:AF:19:LYS:HZ2	6:AF:20:TYR:HE1	1.68	0.40
16:AP:161:VAL:O	16:AP:161:VAL:CG1	2.69	0.40
21:AU:13:ASP:O	21:AU:16:LEU:HG	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:BA:190:A:OP2	24:BA:205:G:N2	2.41	0.40
24:BA:557:C:O2'	41:BR:114:LEU:HD11	2.21	0.40
24:BA:877:A:H5'	24:BA:878:A:OP1	2.21	0.40
24:BA:1102:C:O2	24:BA:1102:C:C2'	2.70	0.40
24:BA:1170:C:H2'	24:BA:1171:G:O4'	2.22	0.40
24:BA:1636:U:H2'	24:BA:1637:A:H8	1.87	0.40
24:BA:1835:G:O6	24:BA:1905:C:N3	2.54	0.40
24:BA:1932:A:H2'	24:BA:1933:G:O4'	2.21	0.40
24:BA:2530:A:H5'	24:BA:2531:A:OP2	2.22	0.40
29:BF:123:LYS:HE3	29:BF:123:LYS:HB2	1.81	0.40
30:BG:80:ARG:HB2	30:BG:83:TYR:CZ	2.57	0.40
35:BL:16:GLY:O	35:BL:43:ASN:HB3	2.20	0.40
38:BO:31:HIS:ND1	38:BO:31:HIS:C	2.74	0.40
38:BO:32:ILE:O	38:BO:32:ILE:CG1	2.69	0.40
41:BR:96:ARG:HH21	41:BR:99:ARG:HH21	1.69	0.40
42:BS:48:PRO:HB2	42:BS:49:ARG:HH11	1.86	0.40
45:BV:45:ARG:O	45:BV:49:GLU:HG2	2.21	0.40
50:DA:31:VAL:O	50:DA:32:LEU:HD23	2.21	0.40
1:AA:298:A:O2'	1:AA:299:G:O4'	2.40	0.40
1:AA:345:C:H5'	1:AA:346:G:C5	2.56	0.40
1:AA:777:A:C4	1:AA:778:G:C8	3.10	0.40
1:AA:841:C:HO2'	1:AA:842:U:P	2.45	0.40
1:AA:956:U:H2'	1:AA:957:U:C6	2.56	0.40
1:AA:1188:A:H4'	6:AF:98:LYS:HZ3	1.87	0.40
7:AG:53:SER:N	7:AG:69:HIS:O	2.53	0.40
9:AI:95:GLU:OE1	9:AI:100:ASN:ND2	2.54	0.40
24:BA:146:A:H2'	24:BA:147:C:H6	1.87	0.40
24:BA:190:A:N6	24:BA:207:A:H1'	2.37	0.40
24:BA:521:U:H2'	24:BA:522:A:C8	2.56	0.40
24:BA:922:C:C2	24:BA:923:G:C8	3.10	0.40
24:BA:1199:U:H2'	24:BA:1200:C:C6	2.55	0.40
24:BA:1425:G:H2'	24:BA:1426:G:C8	2.57	0.40
24:BA:1829:A:H3'	24:BA:1830:C:H6	1.87	0.40
24:BA:2730:C:O3'	28:BE:174:SER:OG	2.37	0.40
24:BA:2731:G:H2'	24:BA:2732:G:C8	2.57	0.40
28:BE:88:GLU:H	28:BE:88:GLU:CD	2.25	0.40
34:BK:52:ALA:C	34:BK:54:LEU:N	2.75	0.40
41:BR:71:ASP:O	41:BR:73:VAL:HG13	2.22	0.40
44:BU:17:ASN:O	44:BU:38:ARG:HD3	2.22	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles

### 5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	AB	84/87 (97%)	83 (99%)	1 (1%)	0	100	100
3	AC	118/124 (95%)	110 (93%)	6 (5%)	2 (2%)	9	43
4	AD	77/92 (84%)	73 (95%)	4 (5%)	0	100	100
5	AE	112/118 (95%)	104 (93%)	8 (7%)	0	100	100
6	AF	98/101 (97%)	94 (96%)	4 (4%)	0	100	100
7	AG	204/233 (88%)	198 (97%)	6 (3%)	0	100	100
8	AH	97/103 (94%)	89 (92%)	8 (8%)	0	100	100
9	AI	203/206 (98%)	201 (99%)	2 (1%)	0	100	100
10	AJ	222/241 (92%)	208 (94%)	14 (6%)	0	100	100
11	AK	125/130 (96%)	116 (93%)	9 (7%)	0	100	100
12	AL	149/179 (83%)	142 (95%)	6 (4%)	1 (1%)	22	60
13	AM	115/129 (89%)	110 (96%)	5 (4%)	0	100	100
14	AN	104/135 (77%)	103 (99%)	1 (1%)	0	100	100
15	AO	80/82 (98%)	73 (91%)	7 (9%)	0	100	100
16	AP	153/167 (92%)	143 (94%)	6 (4%)	4 (3%)	5	36
17	AQ	127/130 (98%)	123 (97%)	4 (3%)	0	100	100
18	AR	86/89 (97%)	86 (100%)	0	0	100	100
19	AS	78/84 (93%)	75 (96%)	3 (4%)	0	100	100
20	AT	53/75 (71%)	53 (100%)	0	0	100	100
21	AU	54/71 (76%)	53 (98%)	1 (2%)	0	100	100
22	AV	67/70 (96%)	53 (79%)	11 (16%)	3 (4%)	2	25
27	BD	269/273 (98%)	260 (97%)	9 (3%)	0	100	100
28	BE	204/209 (98%)	197 (97%)	6 (3%)	1 (0%)	29	66
29	BF	199/201 (99%)	194 (98%)	5 (2%)	0	100	100
30	BG	175/179 (98%)	159 (91%)	15 (9%)	1 (1%)	25	62

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
31	BH	115/117 (98%)	111 (96%)	4 (4%)	0	100	100
32	BI	49/55 (89%)	48 (98%)	1 (2%)	0	100	100
33	BJ	174/177 (98%)	166 (95%)	6 (3%)	2 (1%)	14	51
34	BK	147/149 (99%)	133 (90%)	11 (8%)	3 (2%)	7	41
35	BL	132/142 (93%)	123 (93%)	9 (7%)	0	100	100
36	BM	54/57 (95%)	51 (94%)	3 (6%)	0	100	100
37	BN	44/46 (96%)	44 (100%)	0	0	100	100
38	BO	62/65 (95%)	58 (94%)	3 (5%)	1 (2%)	9	44
39	BP	36/38 (95%)	35 (97%)	1 (3%)	0	100	100
40	BQ	57/59 (97%)	56 (98%)	1 (2%)	0	100	100
41	BR	140/142 (99%)	138 (99%)	2 (1%)	0	100	100
42	BS	121/123 (98%)	118 (98%)	3 (2%)	0	100	100
43	BT	142/144 (99%)	136 (96%)	6 (4%)	0	100	100
44	BU	135/136 (99%)	130 (96%)	5 (4%)	0	100	100
45	BV	123/127 (97%)	112 (91%)	11 (9%)	0	100	100
46	BW	112/115 (97%)	112 (100%)	0	0	100	100
47	BX	115/118 (98%)	113 (98%)	2 (2%)	0	100	100
48	BY	101/103 (98%)	94 (93%)	5 (5%)	2 (2%)	7	41
49	BZ	108/110 (98%)	103 (95%)	5 (5%)	0	100	100
50	DA	91/100 (91%)	84 (92%)	7 (8%)	0	100	100
51	DB	100/104 (96%)	96 (96%)	4 (4%)	0	100	100
52	DC	92/94 (98%)	90 (98%)	2 (2%)	0	100	100
53	DD	75/85 (88%)	73 (97%)	2 (3%)	0	100	100
54	DE	75/78 (96%)	72 (96%)	3 (4%)	0	100	100
55	DF	60/63 (95%)	57 (95%)	3 (5%)	0	100	100
56	DG	133/165 (81%)	114 (86%)	15 (11%)	4 (3%)	4	33
All	All	5846/6220 (94%)	5567 (95%)	255 (4%)	24 (0%)	38	70

All (24) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	AC	44	LYS
16	AP	160	SER

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Mol	Chain	Res	Type
22	AV	31	ASP
22	AV	62	LYS
22	AV	65	ASN
33	BJ	47	ASP
34	BK	51	ARG
34	BK	53	GLU
48	BY	51	VAL
56	DG	67	THR
56	DG	132	TYR
12	AL	57	SER
16	AP	161	VAL
16	AP	162	GLU
16	AP	163	GLU
28	BE	153	GLY
33	BJ	49	THR
48	BY	52	PRO
56	DG	131	THR
34	BK	52	ALA
56	DG	133	GLU
30	BG	147	ASP
38	BO	32	ILE
3	AC	45	PRO

### 5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
2	AB	65/66 (98%)	65 (100%)	0	100 100
3	AC	102/104 (98%)	96 (94%)	6 (6%)	19 51
4	AD	70/79 (89%)	69 (99%)	1 (1%)	67 81
5	AE	92/96 (96%)	92 (100%)	0	100 100
6	AF	83/84 (99%)	81 (98%)	2 (2%)	49 71
7	AG	170/190 (90%)	169 (99%)	1 (1%)	86 92
8	AH	87/90 (97%)	85 (98%)	2 (2%)	50 72

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
9	AI	172/173 (99%)	172 (100%)	0	100	100
10	AJ	186/199 (94%)	186 (100%)	0	100	100
11	AK	105/107 (98%)	102 (97%)	3 (3%)	42	67
12	AL	124/147 (84%)	121 (98%)	3 (2%)	49	71
13	AM	90/99 (91%)	86 (96%)	4 (4%)	28	57
14	AN	92/116 (79%)	92 (100%)	0	100	100
15	AO	65/65 (100%)	65 (100%)	0	100	100
16	AP	118/126 (94%)	115 (98%)	3 (2%)	47	70
17	AQ	104/105 (99%)	104 (100%)	0	100	100
18	AR	76/77 (99%)	76 (100%)	0	100	100
19	AS	74/78 (95%)	72 (97%)	2 (3%)	44	69
20	AT	48/65 (74%)	48 (100%)	0	100	100
21	AU	48/61 (79%)	48 (100%)	0	100	100
22	AV	61/62 (98%)	57 (93%)	4 (7%)	16	48
27	BD	216/218 (99%)	216 (100%)	0	100	100
28	BE	163/164 (99%)	163 (100%)	0	100	100
29	BF	165/165 (100%)	164 (99%)	1 (1%)	86	92
30	BG	148/150 (99%)	145 (98%)	3 (2%)	55	75
31	BH	87/87 (100%)	87 (100%)	0	100	100
32	BI	45/49 (92%)	44 (98%)	1 (2%)	52	72
33	BJ	137/138 (99%)	137 (100%)	0	100	100
34	BK	114/114 (100%)	111 (97%)	3 (3%)	46	69
35	BL	104/110 (94%)	103 (99%)	1 (1%)	76	86
36	BM	47/48 (98%)	47 (100%)	0	100	100
37	BN	38/38 (100%)	37 (97%)	1 (3%)	46	69
38	BO	51/52 (98%)	49 (96%)	2 (4%)	32	60
39	BP	34/34 (100%)	34 (100%)	0	100	100
40	BQ	49/49 (100%)	49 (100%)	0	100	100
41	BR	116/116 (100%)	116 (100%)	0	100	100
42	BS	104/104 (100%)	104 (100%)	0	100	100
43	BT	103/103 (100%)	103 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
44	BU	110/109 (101%)	110 (100%)	0	100	100
45	BV	102/103 (99%)	102 (100%)	0	100	100
46	BW	99/100 (99%)	99 (100%)	0	100	100
47	BX	89/90 (99%)	89 (100%)	0	100	100
48	BY	84/84 (100%)	80 (95%)	4 (5%)	25	56
49	BZ	93/93 (100%)	93 (100%)	0	100	100
50	DA	80/84 (95%)	80 (100%)	0	100	100
51	DB	83/85 (98%)	81 (98%)	2 (2%)	49	71
52	DC	78/78 (100%)	77 (99%)	1 (1%)	69	82
53	DD	58/63 (92%)	58 (100%)	0	100	100
54	DE	67/68 (98%)	67 (100%)	0	100	100
55	DF	54/55 (98%)	53 (98%)	1 (2%)	57	76
56	DG	103/123 (84%)	100 (97%)	3 (3%)	42	67
All	All	4853/5063 (96%)	4799 (99%)	54 (1%)	74	85

All (54) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	AC	43	LYS
3	AC	44	LYS
3	AC	46	ASN
3	AC	87	VAL
3	AC	88	LYS
3	AC	90	LEU
4	AD	32	ARG
6	AF	13	ARG
6	AF	41	ARG
7	AG	49	LYS
8	AH	37	ARG
8	AH	89	ARG
11	AK	12	ARG
11	AK	14	SER
11	AK	99	ARG
12	AL	56	LYS
12	AL	57	SER
12	AL	58	GLU
13	AM	75	LYS

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
13	AM	80	LYS
13	AM	81	ASN
13	AM	106	ARG
16	AP	159	LYS
16	AP	161	VAL
16	AP	162	GLU
19	AS	16	LYS
19	AS	77	ARG
22	AV	9	TYR
22	AV	12	ILE
22	AV	30	HIS
22	AV	59	ARG
29	BF	61	ARG
30	BG	146	VAL
30	BG	147	ASP
30	BG	150	ARG
32	BI	53	LYS
34	BK	51	ARG
34	BK	93	SER
34	BK	94	ILE
35	BL	127	ARG
37	BN	25	LYS
38	BO	31	HIS
38	BO	33	LEU
48	BY	48	LYS
48	BY	49	ILE
48	BY	51	VAL
48	BY	55	ASP
51	DB	88	GLU
51	DB	91	LYS
52	DC	21	ARG
55	DF	58	ASN
56	DG	67	THR
56	DG	132	TYR
56	DG	133	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (14) such sidechains are listed below:

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
3	AC	5	ASN
3	AC	73	ASN
7	AG	3	GLN

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Mol	Chain	Res	Type
9	AI	152	GLN
10	AJ	122	GLN
10	AJ	146	ASN
14	AN	17	GLN
27	BD	53	HIS
27	BD	153	GLN
28	BE	32	ASN
33	BJ	88	GLN
35	BL	105	GLN
44	BU	13	HIS
47	BX	59	GLN

### 5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	AA	1533/1534 (99%)	420 (27%)	36 (2%)
23	AW	16/17 (94%)	5 (31%)	0
24	BA	2893/2904 (99%)	637 (22%)	35 (1%)
25	BB	74/77 (96%)	28 (37%)	1 (1%)
26	BC	119/120 (99%)	14 (11%)	0
All	All	4635/4652 (99%)	1104 (23%)	72 (1%)

All (1104) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	AA	4	U
1	AA	5	U
1	AA	6	G
1	AA	9	G
1	AA	13	U
1	AA	22	G
1	AA	28	A
1	AA	29	U
1	AA	31	G
1	AA	34	C
1	AA	39	G
1	AA	44	A
1	AA	47	C
1	AA	48	C
1	AA	51	A
1	AA	54	C

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	AA	58	C
1	AA	60	A
1	AA	64	G
1	AA	72	A
1	AA	74	A
1	AA	76	G
1	AA	78	A
1	AA	80	A
1	AA	82	G
1	AA	83	C
1	AA	84	U
1	AA	85	U
1	AA	86	G
1	AA	87	C
1	AA	88	U
1	AA	89	U
1	AA	90	C
1	AA	91	U
1	AA	92	U
1	AA	93	U
1	AA	95	C
1	AA	96	U
1	AA	108	G
1	AA	109	A
1	AA	116	A
1	AA	121	U
1	AA	130	A
1	AA	131	A
1	AA	141	G
1	AA	146	G
1	AA	150	U
1	AA	151	A
1	AA	160	A
1	AA	161	A
1	AA	163	C
1	AA	164	G
1	AA	167	A
1	AA	173	U
1	AA	174	A
1	AA	177	G
1	AA	181	A
1	AA	182	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	AA	188	C
1	AA	189	A
1	AA	190	A
1	AA	191	G
1	AA	192	A
1	AA	193	C
1	AA	194	C
1	AA	195	A
1	AA	196	A
1	AA	197	A
1	AA	201	G
1	AA	204	G
1	AA	205	A
1	AA	206	C
1	AA	209	U
1	AA	210	C
1	AA	211	G
1	AA	212	G
1	AA	216	U
1	AA	226	G
1	AA	240	G
1	AA	243	A
1	AA	244	U
1	AA	245	U
1	AA	247	G
1	AA	251	G
1	AA	261	U
1	AA	266	G
1	AA	272	C
1	AA	280	C
1	AA	281	G
1	AA	289	G
1	AA	293	G
1	AA	299	G
1	AA	321	A
1	AA	328	C
1	AA	332	G
1	AA	352	C
1	AA	354	G
1	AA	367	U
1	AA	368	U
1	AA	372	C

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	AA	382	A
1	AA	397	A
1	AA	406	G
1	AA	411	A
1	AA	412	A
1	AA	421	U
1	AA	422	C
1	AA	424	G
1	AA	426	U
1	AA	429	U
1	AA	439	U
1	AA	447	G
1	AA	448	A
1	AA	455	G
1	AA	462	G
1	AA	463	U
1	AA	464	U
1	AA	468	A
1	AA	469	C
1	AA	470	C
1	AA	480	U
1	AA	481	G
1	AA	484	G
1	AA	486	U
1	AA	495	A
1	AA	496	A
1	AA	497	G
1	AA	509	A
1	AA	511	C
1	AA	514	C
1	AA	518	C
1	AA	521	G
1	AA	524	G
1	AA	527	G
1	AA	530	G
1	AA	531	U
1	AA	532	A
1	AA	535	A
1	AA	536	C
1	AA	547	A
1	AA	556	C
1	AA	559	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	AA	562	U
1	AA	564	C
1	AA	568	G
1	AA	569	C
1	AA	572	A
1	AA	573	A
1	AA	575	G
1	AA	576	C
1	AA	577	G
1	AA	587	G
1	AA	593	U
1	AA	596	A
1	AA	618	C
1	AA	630	A
1	AA	632	U
1	AA	633	G
1	AA	634	C
1	AA	639	G
1	AA	665	A
1	AA	684	U
1	AA	685	G
1	AA	686	U
1	AA	687	A
1	AA	688	G
1	AA	696	A
1	AA	701	U
1	AA	702	A
1	AA	703	G
1	AA	713	G
1	AA	718	A
1	AA	721	G
1	AA	722	G
1	AA	724	G
1	AA	751	U
1	AA	752	G
1	AA	755	G
1	AA	764	C
1	AA	777	A
1	AA	781	A
1	AA	787	A
1	AA	790	A
1	AA	791	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	AA	792	A
1	AA	793	U
1	AA	794	A
1	AA	815	A
1	AA	817	C
1	AA	828	U
1	AA	829	G
1	AA	831	A
1	AA	832	G
1	AA	841	C
1	AA	842	U
1	AA	843	U
1	AA	844	G
1	AA	846	G
1	AA	849	G
1	AA	864	A
1	AA	867	G
1	AA	872	A
1	AA	885	G
1	AA	889	A
1	AA	901	A
1	AA	902	G
1	AA	914	A
1	AA	934	C
1	AA	935	A
1	AA	958	A
1	AA	960	U
1	AA	961	U
1	AA	969	A
1	AA	971	G
1	AA	975	A
1	AA	976	G
1	AA	977	A
1	AA	981	U
1	AA	982	U
1	AA	989	U
1	AA	992	U
1	AA	993	G
1	AA	994	A
1	AA	995	C
1	AA	996	A
1	AA	997	U

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	AA	999	C
1	AA	1000	A
1	AA	1002	G
1	AA	1003	G
1	AA	1004	A
1	AA	1007	U
1	AA	1014	A
1	AA	1015	G
1	AA	1018	G
1	AA	1020	G
1	AA	1022	A
1	AA	1025	U
1	AA	1026	G
1	AA	1029	U
1	AA	1030	U
1	AA	1031	C
1	AA	1032	G
1	AA	1033	G
1	AA	1034	G
1	AA	1035	A
1	AA	1040	U
1	AA	1041	G
1	AA	1042	A
1	AA	1043	G
1	AA	1044	A
1	AA	1045	C
1	AA	1050	G
1	AA	1054	C
1	AA	1065	U
1	AA	1081	A
1	AA	1085	U
1	AA	1086	U
1	AA	1087	G
1	AA	1089	G
1	AA	1094	G
1	AA	1095	U
1	AA	1101	A
1	AA	1108	G
1	AA	1116	U
1	AA	1117	A
1	AA	1118	U
1	AA	1119	C

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	AA	1120	C
1	AA	1123	U
1	AA	1124	G
1	AA	1125	U
1	AA	1126	U
1	AA	1127	G
1	AA	1128	C
1	AA	1130	A
1	AA	1131	G
1	AA	1132	C
1	AA	1133	G
1	AA	1134	G
1	AA	1135	U
1	AA	1136	C
1	AA	1137	C
1	AA	1139	G
1	AA	1140	C
1	AA	1141	C
1	AA	1142	G
1	AA	1144	G
1	AA	1145	A
1	AA	1146	A
1	AA	1148	U
1	AA	1149	C
1	AA	1151	A
1	AA	1152	A
1	AA	1153	G
1	AA	1154	G
1	AA	1155	A
1	AA	1156	G
1	AA	1157	A
1	AA	1159	U
1	AA	1160	G
1	AA	1164	G
1	AA	1168	U
1	AA	1179	A
1	AA	1183	U
1	AA	1191	A
1	AA	1193	G
1	AA	1196	A
1	AA	1197	A
1	AA	1201	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	AA	1212	U
1	AA	1213	A
1	AA	1215	G
1	AA	1216	A
1	AA	1222	G
1	AA	1223	C
1	AA	1224	U
1	AA	1225	A
1	AA	1226	C
1	AA	1227	A
1	AA	1229	A
1	AA	1236	A
1	AA	1238	A
1	AA	1239	A
1	AA	1240	U
1	AA	1241	G
1	AA	1244	G
1	AA	1245	C
1	AA	1246	A
1	AA	1248	A
1	AA	1260	G
1	AA	1261	A
1	AA	1266	G
1	AA	1267	C
1	AA	1269	A
1	AA	1270	G
1	AA	1279	G
1	AA	1280	A
1	AA	1286	U
1	AA	1287	A
1	AA	1289	A
1	AA	1290	G
1	AA	1292	G
1	AA	1295	U
1	AA	1297	G
1	AA	1298	U
1	AA	1300	G
1	AA	1301	U
1	AA	1302	C
1	AA	1303	C
1	AA	1304	G
1	AA	1305	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	AA	1306	A
1	AA	1307	U
1	AA	1308	U
1	AA	1309	G
1	AA	1310	G
1	AA	1311	A
1	AA	1312	G
1	AA	1314	C
1	AA	1315	U
1	AA	1317	C
1	AA	1318	A
1	AA	1320	C
1	AA	1321	U
1	AA	1322	C
1	AA	1323	G
1	AA	1325	C
1	AA	1326	U
1	AA	1327	C
1	AA	1329	A
1	AA	1330	U
1	AA	1331	G
1	AA	1332	A
1	AA	1333	A
1	AA	1334	G
1	AA	1335	U
1	AA	1336	C
1	AA	1346	A
1	AA	1347	G
1	AA	1353	G
1	AA	1363	A
1	AA	1364	U
1	AA	1365	G
1	AA	1368	A
1	AA	1373	G
1	AA	1374	A
1	AA	1377	A
1	AA	1378	C
1	AA	1379	G
1	AA	1380	U
1	AA	1395	C
1	AA	1398	A
1	AA	1419	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	AA	1429	A
1	AA	1430	A
1	AA	1431	A
1	AA	1432	G
1	AA	1441	A
1	AA	1442	G
1	AA	1446	A
1	AA	1452	C
1	AA	1453	G
1	AA	1454	G
1	AA	1469	C
1	AA	1475	G
1	AA	1492	A
1	AA	1493	A
1	AA	1494	G
1	AA	1497	G
1	AA	1498	U
1	AA	1499	A
1	AA	1502	A
1	AA	1503	A
1	AA	1506	U
1	AA	1517	G
1	AA	1520	C
1	AA	1529	G
1	AA	1530	G
1	AA	1534	A
23	AW	4	A
23	AW	5	A
23	AW	8	C
23	AW	12	G
23	AW	13	G
24	BA	2	G
24	BA	3	U
24	BA	5	A
24	BA	6	A
24	BA	9	G
24	BA	10	A
24	BA	15	G
24	BA	27	G
24	BA	34	U
24	BA	35	G
24	BA	46	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
24	BA	51	G
24	BA	62	U
24	BA	71	A
24	BA	74	A
24	BA	75	G
24	BA	84	A
24	BA	87	U
24	BA	96	C
24	BA	98	G
24	BA	99	U
24	BA	100	U
24	BA	101	A
24	BA	102	U
24	BA	103	A
24	BA	118	A
24	BA	119	A
24	BA	120	U
24	BA	125	A
24	BA	138	U
24	BA	139	U
24	BA	140	C
24	BA	141	G
24	BA	142	A
24	BA	162	U
24	BA	164	C
24	BA	181	A
24	BA	190	A
24	BA	194	G
24	BA	196	A
24	BA	199	A
24	BA	205	G
24	BA	209	C
24	BA	216	A
24	BA	222	A
24	BA	223	A
24	BA	229	C
24	BA	233	A
24	BA	248	G
24	BA	250	G
24	BA	252	G
24	BA	255	A
24	BA	265	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
24	BA	271	G
24	BA	276	U
24	BA	277	G
24	BA	278	A
24	BA	281	C
24	BA	294	A
24	BA	307	G
24	BA	311	A
24	BA	322	A
24	BA	323	C
24	BA	329	G
24	BA	330	A
24	BA	332	A
24	BA	345	A
24	BA	350	G
24	BA	351	C
24	BA	355	U
24	BA	356	G
24	BA	359	G
24	BA	360	U
24	BA	364	C
24	BA	367	G
24	BA	371	A
24	BA	372	G
24	BA	386	G
24	BA	388	G
24	BA	389	G
24	BA	396	G
24	BA	401	A
24	BA	404	A
24	BA	406	G
24	BA	411	G
24	BA	412	A
24	BA	415	A
24	BA	420	C
24	BA	424	G
24	BA	425	G
24	BA	429	A
24	BA	435	C
24	BA	448	U
24	BA	456	C
24	BA	473	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
24	BA	480	A
24	BA	481	G
24	BA	491	G
24	BA	500	G
24	BA	503	A
24	BA	505	A
24	BA	508	A
24	BA	509	C
24	BA	518	G
24	BA	526	A
24	BA	527	C
24	BA	529	A
24	BA	530	G
24	BA	532	A
24	BA	533	G
24	BA	544	C
24	BA	545	U
24	BA	546	U
24	BA	547	A
24	BA	548	G
24	BA	550	C
24	BA	563	A
24	BA	568	U
24	BA	573	U
24	BA	574	A
24	BA	575	A
24	BA	577	G
24	BA	584	C
24	BA	588	U
24	BA	596	U
24	BA	603	A
24	BA	612	G
24	BA	613	A
24	BA	614	A
24	BA	615	U
24	BA	616	A
24	BA	621	A
24	BA	627	A
24	BA	637	A
24	BA	643	A
24	BA	645	C
24	BA	646	U

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
24	BA	647	G
24	BA	653	U
24	BA	655	A
24	BA	686	U
24	BA	701	G
24	BA	705	A
24	BA	717	C
24	BA	730	A
24	BA	747	U
24	BA	748	G
24	BA	753	A
24	BA	762	U
24	BA	764	A
24	BA	775	G
24	BA	776	G
24	BA	782	A
24	BA	784	G
24	BA	785	G
24	BA	790	U
24	BA	792	A
24	BA	805	G
24	BA	812	C
24	BA	827	U
24	BA	830	G
24	BA	845	A
24	BA	846	U
24	BA	859	G
24	BA	869	G
24	BA	877	A
24	BA	878	A
24	BA	881	G
24	BA	882	G
24	BA	885	C
24	BA	894	U
24	BA	896	A
24	BA	900	A
24	BA	910	A
24	BA	912	C
24	BA	914	G
24	BA	926	G
24	BA	945	A
24	BA	946	C

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
24	BA	958	U
24	BA	961	C
24	BA	974	G
24	BA	983	A
24	BA	996	A
24	BA	999	U
24	BA	1003	G
24	BA	1005	C
24	BA	1010	A
24	BA	1012	U
24	BA	1013	C
24	BA	1022	G
24	BA	1026	G
24	BA	1033	U
24	BA	1034	G
24	BA	1043	C
24	BA	1045	C
24	BA	1046	A
24	BA	1047	G
24	BA	1048	A
24	BA	1055	G
24	BA	1056	G
24	BA	1057	A
24	BA	1058	U
24	BA	1059	G
24	BA	1060	U
24	BA	1061	U
24	BA	1063	G
24	BA	1064	C
24	BA	1067	A
24	BA	1068	G
24	BA	1069	A
24	BA	1070	A
24	BA	1071	G
24	BA	1072	C
24	BA	1076	C
24	BA	1077	A
24	BA	1079	C
24	BA	1080	A
24	BA	1082	U
24	BA	1083	U
24	BA	1084	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
24	BA	1086	A
24	BA	1087	G
24	BA	1088	A
24	BA	1089	A
24	BA	1090	A
24	BA	1091	G
24	BA	1094	U
24	BA	1095	A
24	BA	1098	A
24	BA	1099	G
24	BA	1101	U
24	BA	1102	C
24	BA	1103	A
24	BA	1107	G
24	BA	1109	C
24	BA	1110	G
24	BA	1111	A
24	BA	1112	G
24	BA	1113	U
24	BA	1115	G
24	BA	1116	G
24	BA	1127	A
24	BA	1128	G
24	BA	1132	U
24	BA	1133	A
24	BA	1135	C
24	BA	1136	G
24	BA	1139	G
24	BA	1142	A
24	BA	1143	A
24	BA	1170	C
24	BA	1173	U
24	BA	1175	A
24	BA	1176	U
24	BA	1177	G
24	BA	1178	C
24	BA	1179	G
24	BA	1206	G
24	BA	1212	G
24	BA	1227	G
24	BA	1236	G
24	BA	1238	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
24	BA	1247	A
24	BA	1248	G
24	BA	1249	U
24	BA	1253	A
24	BA	1256	G
24	BA	1271	G
24	BA	1272	A
24	BA	1283	G
24	BA	1284	A
24	BA	1300	G
24	BA	1301	A
24	BA	1302	A
24	BA	1325	U
24	BA	1329	U
24	BA	1330	C
24	BA	1334	G
24	BA	1345	C
24	BA	1365	A
24	BA	1378	A
24	BA	1379	U
24	BA	1383	A
24	BA	1386	C
24	BA	1395	A
24	BA	1396	U
24	BA	1416	G
24	BA	1419	A
24	BA	1420	A
24	BA	1421	G
24	BA	1428	C
24	BA	1434	A
24	BA	1435	G
24	BA	1437	C
24	BA	1452	G
24	BA	1453	A
24	BA	1458	U
24	BA	1460	U
24	BA	1468	U
24	BA	1476	U
24	BA	1482	G
24	BA	1493	C
24	BA	1494	A
24	BA	1497	U

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
24	BA	1505	A
24	BA	1509	A
24	BA	1510	G
24	BA	1515	A
24	BA	1522	A
24	BA	1524	G
24	BA	1529	G
24	BA	1534	U
24	BA	1536	C
24	BA	1537	G
24	BA	1538	G
24	BA	1541	C
24	BA	1544	A
24	BA	1553	A
24	BA	1558	C
24	BA	1566	A
24	BA	1568	G
24	BA	1569	A
24	BA	1578	U
24	BA	1583	A
24	BA	1586	A
24	BA	1610	A
24	BA	1611	C
24	BA	1614	A
24	BA	1615	C
24	BA	1617	C
24	BA	1618	A
24	BA	1619	G
24	BA	1634	A
24	BA	1646	C
24	BA	1647	U
24	BA	1648	U
24	BA	1651	G
24	BA	1653	G
24	BA	1654	A
24	BA	1674	G
24	BA	1693	U
24	BA	1694	C
24	BA	1696	G
24	BA	1700	A
24	BA	1714	U
24	BA	1729	U

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
24	BA	1730	C
24	BA	1732	C
24	BA	1733	G
24	BA	1736	U
24	BA	1737	G
24	BA	1738	G
24	BA	1744	A
24	BA	1745	A
24	BA	1758	U
24	BA	1759	A
24	BA	1764	C
24	BA	1773	A
24	BA	1776	G
24	BA	1784	A
24	BA	1787	A
24	BA	1799	G
24	BA	1800	C
24	BA	1801	A
24	BA	1808	A
24	BA	1810	A
24	BA	1811	G
24	BA	1816	C
24	BA	1821	A
24	BA	1829	A
24	BA	1833	C
24	BA	1835	G
24	BA	1846	G
24	BA	1847	A
24	BA	1849	G
24	BA	1866	A
24	BA	1871	A
24	BA	1872	A
24	BA	1899	A
24	BA	1901	A
24	BA	1906	G
24	BA	1912	A
24	BA	1913	A
24	BA	1914	C
24	BA	1915	U
24	BA	1916	A
24	BA	1917	U
24	BA	1918	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
24	BA	1919	A
24	BA	1927	A
24	BA	1929	G
24	BA	1930	G
24	BA	1936	A
24	BA	1937	A
24	BA	1938	A
24	BA	1939	U
24	BA	1940	U
24	BA	1954	G
24	BA	1955	U
24	BA	1963	U
24	BA	1964	G
24	BA	1967	C
24	BA	1970	A
24	BA	1971	U
24	BA	1972	G
24	BA	1982	U
24	BA	1991	U
24	BA	1993	U
24	BA	1997	C
24	BA	2002	G
24	BA	2020	A
24	BA	2023	C
24	BA	2031	A
24	BA	2033	A
24	BA	2034	U
24	BA	2046	G
24	BA	2055	C
24	BA	2056	G
24	BA	2060	A
24	BA	2061	G
24	BA	2062	A
24	BA	2069	G
24	BA	2070	A
24	BA	2093	G
24	BA	2097	A
24	BA	2102	G
24	BA	2103	C
24	BA	2104	C
24	BA	2105	U
24	BA	2106	U

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
24	BA	2108	A
24	BA	2109	U
24	BA	2111	U
24	BA	2112	G
24	BA	2113	U
24	BA	2115	G
24	BA	2116	G
24	BA	2117	A
24	BA	2118	U
24	BA	2119	A
24	BA	2121	G
24	BA	2122	U
24	BA	2123	G
24	BA	2124	G
24	BA	2125	G
24	BA	2126	A
24	BA	2128	G
24	BA	2130	U
24	BA	2131	U
24	BA	2132	U
24	BA	2133	G
24	BA	2134	A
24	BA	2135	A
24	BA	2136	G
24	BA	2137	U
24	BA	2138	G
24	BA	2143	C
24	BA	2146	C
24	BA	2148	G
24	BA	2150	C
24	BA	2151	U
24	BA	2155	U
24	BA	2156	G
24	BA	2157	G
24	BA	2158	A
24	BA	2159	G
24	BA	2161	C
24	BA	2163	A
24	BA	2165	C
24	BA	2166	U
24	BA	2168	G
24	BA	2169	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
24	BA	2170	A
24	BA	2171	A
24	BA	2172	U
24	BA	2173	A
24	BA	2174	C
24	BA	2175	C
24	BA	2176	A
24	BA	2177	C
24	BA	2178	C
24	BA	2183	A
24	BA	2184	A
24	BA	2185	U
24	BA	2186	G
24	BA	2187	U
24	BA	2190	G
24	BA	2193	G
24	BA	2198	A
24	BA	2199	A
24	BA	2203	U
24	BA	2211	A
24	BA	2212	A
24	BA	2225	A
24	BA	2238	G
24	BA	2239	G
24	BA	2243	U
24	BA	2250	G
24	BA	2268	A
24	BA	2278	A
24	BA	2283	C
24	BA	2287	A
24	BA	2288	A
24	BA	2294	G
24	BA	2304	G
24	BA	2305	U
24	BA	2308	G
24	BA	2310	C
24	BA	2311	A
24	BA	2312	U
24	BA	2320	U
24	BA	2322	A
24	BA	2325	G
24	BA	2327	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
24	BA	2328	A
24	BA	2333	A
24	BA	2335	A
24	BA	2336	A
24	BA	2344	U
24	BA	2347	C
24	BA	2350	C
24	BA	2354	C
24	BA	2357	G
24	BA	2374	C
24	BA	2377	A
24	BA	2382	G
24	BA	2383	G
24	BA	2385	C
24	BA	2387	U
24	BA	2402	U
24	BA	2422	C
24	BA	2425	A
24	BA	2427	C
24	BA	2431	U
24	BA	2441	U
24	BA	2445	G
24	BA	2447	G
24	BA	2448	A
24	BA	2450	A
24	BA	2473	U
24	BA	2474	U
24	BA	2476	A
24	BA	2490	G
24	BA	2491	U
24	BA	2494	G
24	BA	2496	C
24	BA	2497	A
24	BA	2498	C
24	BA	2499	C
24	BA	2501	C
24	BA	2502	G
24	BA	2503	A
24	BA	2504	U
24	BA	2505	G
24	BA	2506	U
24	BA	2518	A

*Continued on next page...*

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
24	BA	2520	C
24	BA	2525	G
24	BA	2530	A
24	BA	2531	A
24	BA	2532	G
24	BA	2534	A
24	BA	2535	G
24	BA	2536	G
24	BA	2547	A
24	BA	2566	A
24	BA	2567	G
24	BA	2572	A
24	BA	2574	G
24	BA	2576	G
24	BA	2582	G
24	BA	2585	U
24	BA	2598	A
24	BA	2599	G
24	BA	2602	A
24	BA	2603	G
24	BA	2609	U
24	BA	2610	C
24	BA	2613	U
24	BA	2615	U
24	BA	2630	G
24	BA	2646	C
24	BA	2647	U
24	BA	2662	A
24	BA	2663	G
24	BA	2665	A
24	BA	2669	G
24	BA	2682	A
24	BA	2685	G
24	BA	2690	U
24	BA	2702	G
24	BA	2713	U
24	BA	2714	G
24	BA	2720	U
24	BA	2726	A
24	BA	2729	G
24	BA	2733	A
24	BA	2744	G

*Continued on next page...*

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
24	BA	2748	A
24	BA	2750	A
24	BA	2757	A
24	BA	2765	A
24	BA	2766	A
24	BA	2777	G
24	BA	2778	A
24	BA	2779	U
24	BA	2791	G
24	BA	2793	C
24	BA	2794	C
24	BA	2796	U
24	BA	2798	U
24	BA	2800	A
24	BA	2801	G
24	BA	2802	G
24	BA	2807	U
24	BA	2808	G
24	BA	2818	U
24	BA	2820	A
24	BA	2821	A
24	BA	2833	U
24	BA	2849	U
24	BA	2860	A
24	BA	2861	U
24	BA	2867	G
24	BA	2873	A
24	BA	2877	G
24	BA	2880	C
24	BA	2884	U
24	BA	2885	G
24	BA	2886	A
24	BA	2894	G
24	BA	2897	U
24	BA	2899	A
24	BA	2901	C
24	BA	2902	C
24	BA	2903	U
25	BB	2	G
25	BB	4	G
25	BB	5	G
25	BB	6	G

*Continued on next page...*

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
25	BB	8	U
25	BB	14	A
25	BB	16	C
25	BB	20	G
25	BB	21	U
25	BB	22	A
25	BB	23	G
25	BB	24	C
25	BB	25	U
25	BB	34	U
25	BB	35	C
25	BB	48	U
25	BB	49	C
25	BB	53	G
25	BB	57	C
25	BB	59	A
25	BB	60	A
25	BB	62	C
25	BB	65	G
25	BB	68	C
25	BB	69	C
25	BB	70	C
25	BB	71	G
25	BB	75	C
26	BC	24	G
26	BC	35	C
26	BC	51	G
26	BC	53	A
26	BC	56	G
26	BC	57	A
26	BC	63	C
26	BC	68	C
26	BC	89	U
26	BC	90	C
26	BC	91	C
26	BC	108	A
26	BC	109	A
26	BC	111	U

All (72) RNA pucker outliers are listed below:

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
1	AA	86	G
1	AA	188	C
1	AA	191	G
1	AA	260	G
1	AA	421	U
1	AA	461	A
1	AA	462	G
1	AA	469	C
1	AA	531	U
1	AA	790	A
1	AA	840	C
1	AA	841	C
1	AA	996	A
1	AA	1014	A
1	AA	1025	U
1	AA	1031	C
1	AA	1043	G
1	AA	1133	G
1	AA	1141	C
1	AA	1145	A
1	AA	1152	A
1	AA	1155	A
1	AA	1163	A
1	AA	1211	U
1	AA	1225	A
1	AA	1228	C
1	AA	1279	G
1	AA	1296	C
1	AA	1300	G
1	AA	1304	G
1	AA	1331	G
1	AA	1334	G
1	AA	1335	U
1	AA	1379	G
1	AA	1441	A
1	AA	1492	A
24	BA	350	G
24	BA	355	U
24	BA	479	A
24	BA	543	G
24	BA	573	U

*Continued on next page...*



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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
24	BA	574	A
24	BA	784	G
24	BA	1047	G
24	BA	1055	G
24	BA	1059	G
24	BA	1086	A
24	BA	1098	A
24	BA	1100	C
24	BA	1169	A
24	BA	1415	U
24	BA	1420	A
24	BA	1537	G
24	BA	1652	A
24	BA	1913	A
24	BA	1962	C
24	BA	2122	U
24	BA	2145	C
24	BA	2170	A
24	BA	2184	A
24	BA	2186	G
24	BA	2305	U
24	BA	2335	A
24	BA	2498	C
24	BA	2503	A
24	BA	2504	U
24	BA	2505	G
24	BA	2661	G
24	BA	2756	U
24	BA	2900	A
24	BA	2902	C
25	BB	1	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 monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

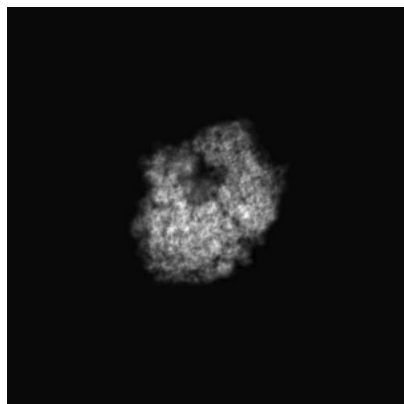
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-29214. These allow visual inspection of the internal detail of the map and identification of artifacts.

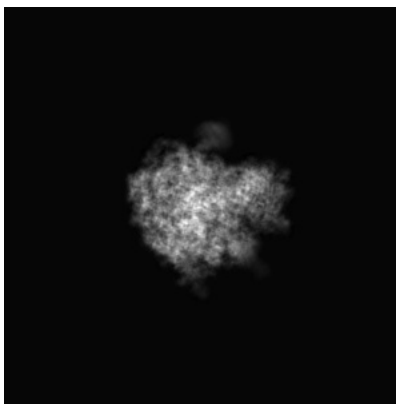
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

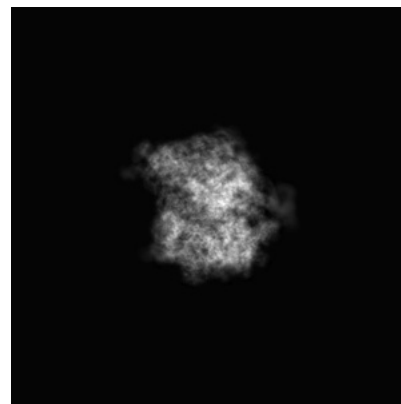
#### 6.1.1 Primary map



X

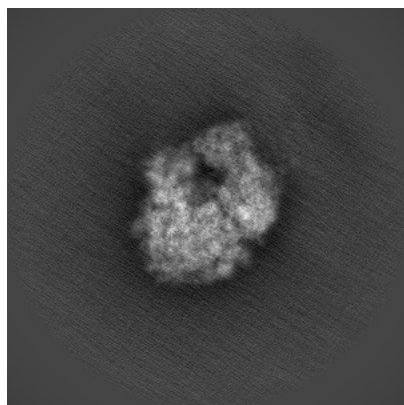


Y

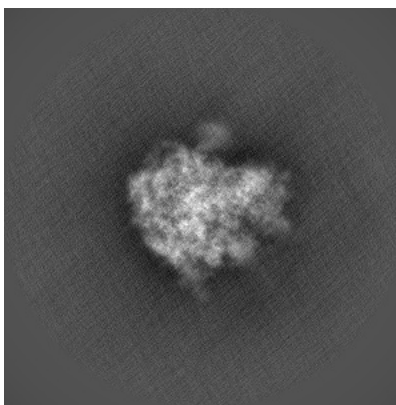


Z

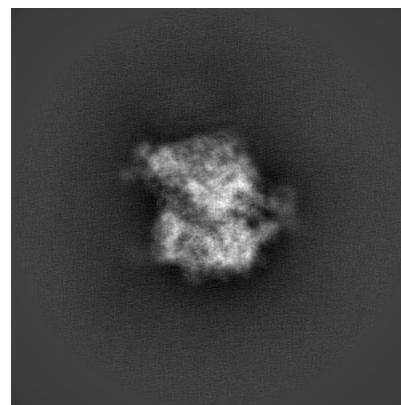
#### 6.1.2 Raw map



X



Y

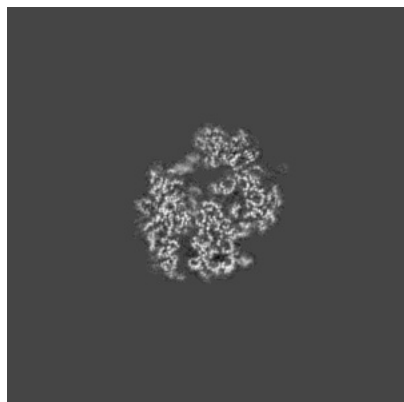


Z

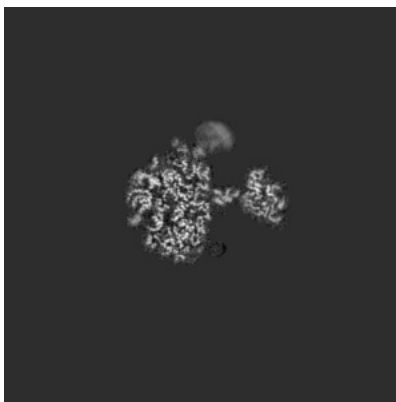
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

### 6.2.1 Primary map



X Index: 208

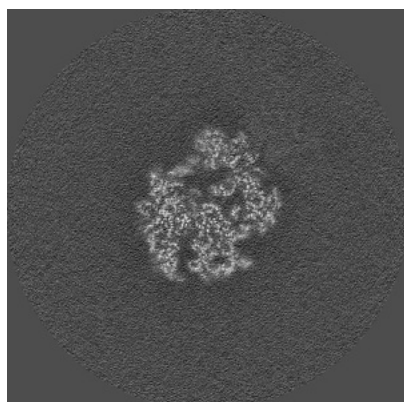


Y Index: 208

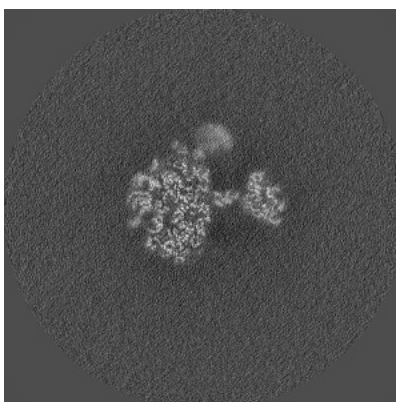


Z Index: 208

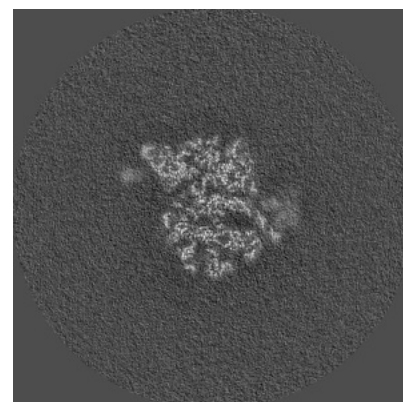
### 6.2.2 Raw map



X Index: 208



Y Index: 208

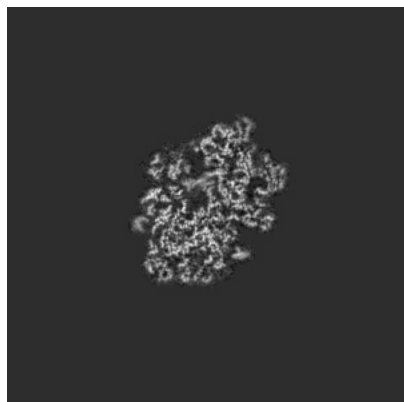


Z Index: 208

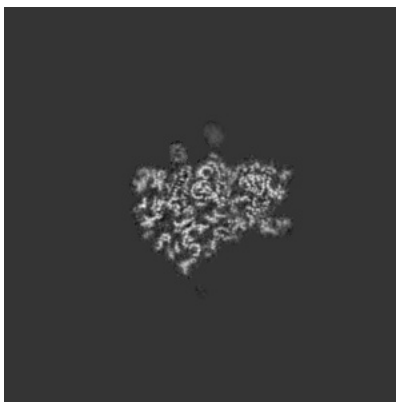
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

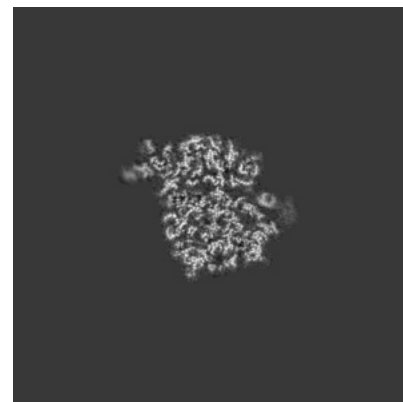
### 6.3.1 Primary map



X Index: 221

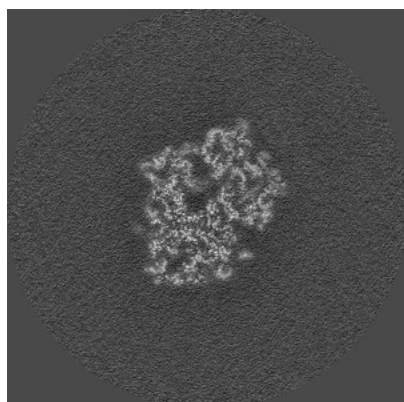


Y Index: 231

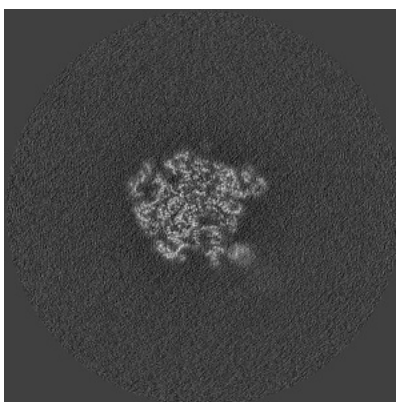


Z Index: 202

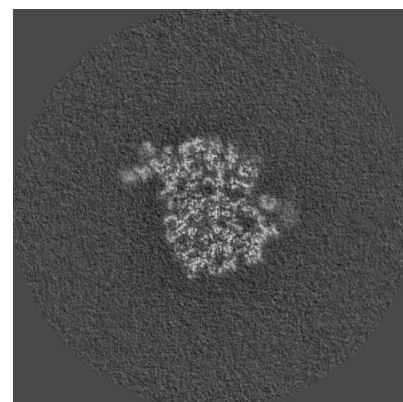
### 6.3.2 Raw map



X Index: 227



Y Index: 171

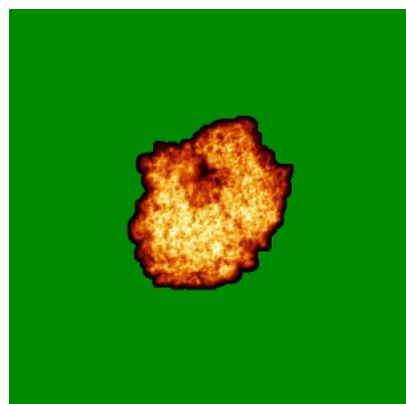


Z Index: 203

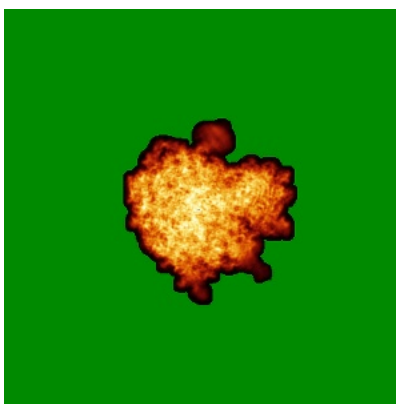
The images above show the largest variance slices of the map in three orthogonal directions.

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

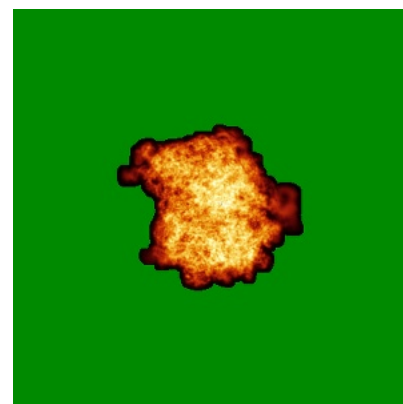
### 6.4.1 Primary map



X

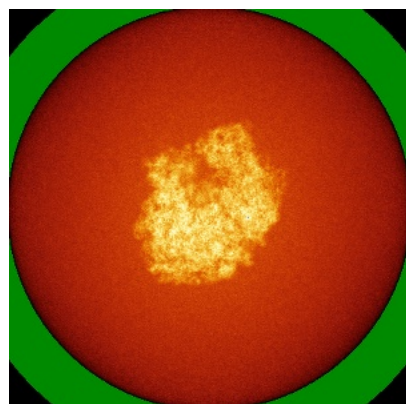


Y

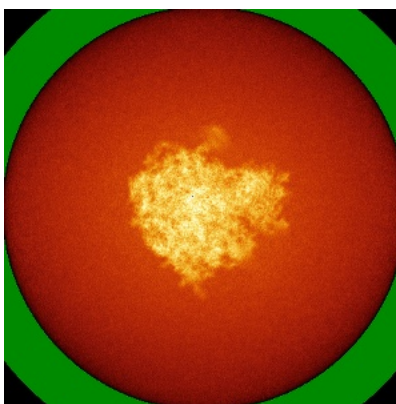


Z

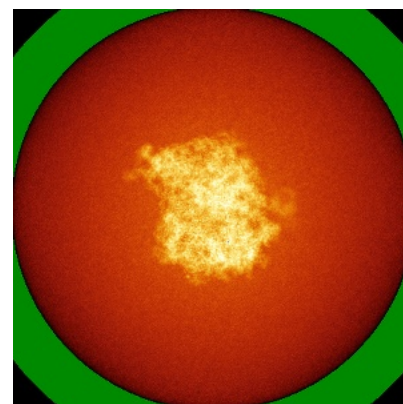
### 6.4.2 Raw map



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.

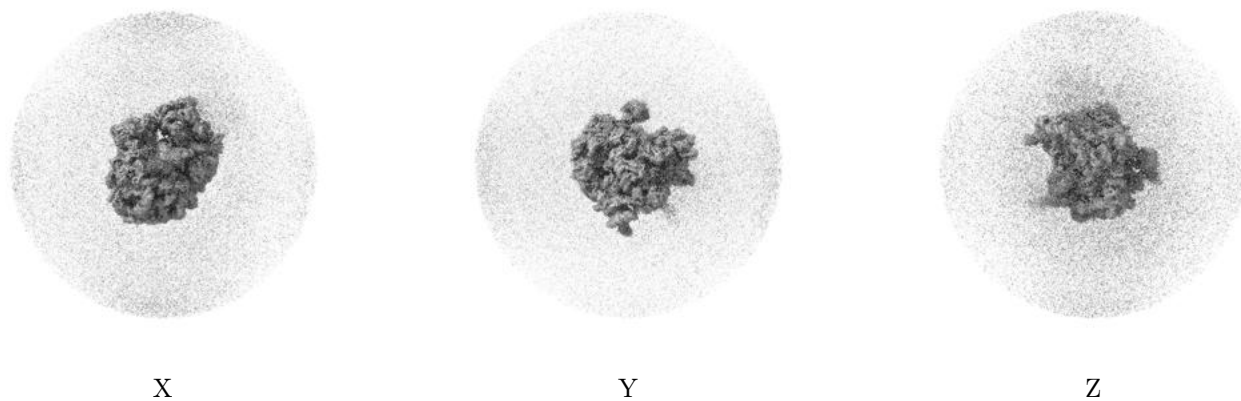
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.06. 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.

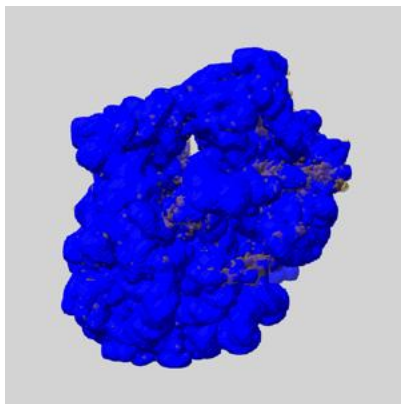
## 6.6 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

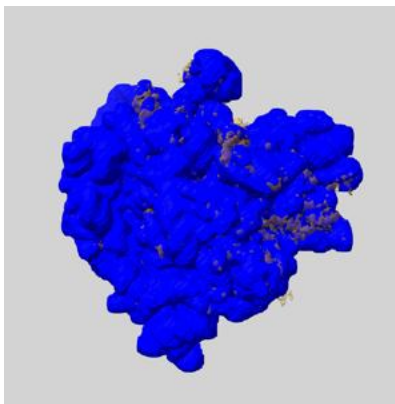
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

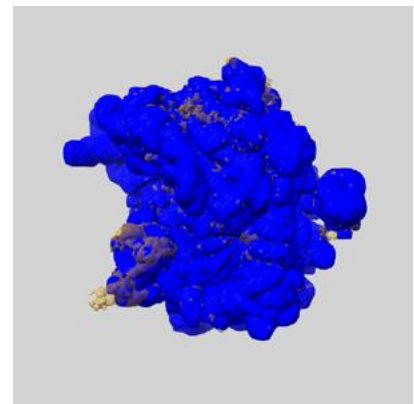
### 6.6.1 emd\_29214\_msk\_1.map [i](#)



X



Y



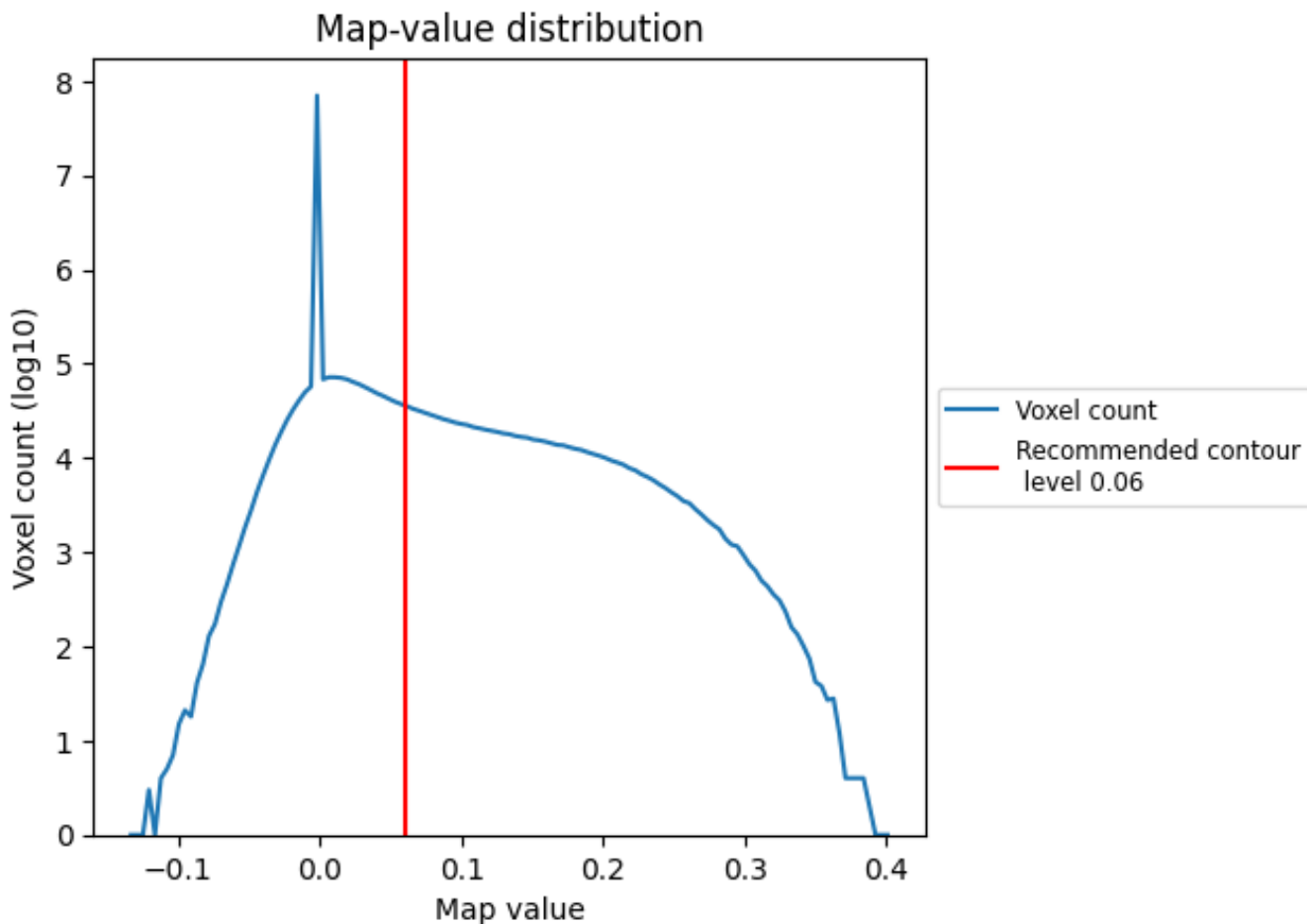
Z



## 7 Map analysis [i](#)

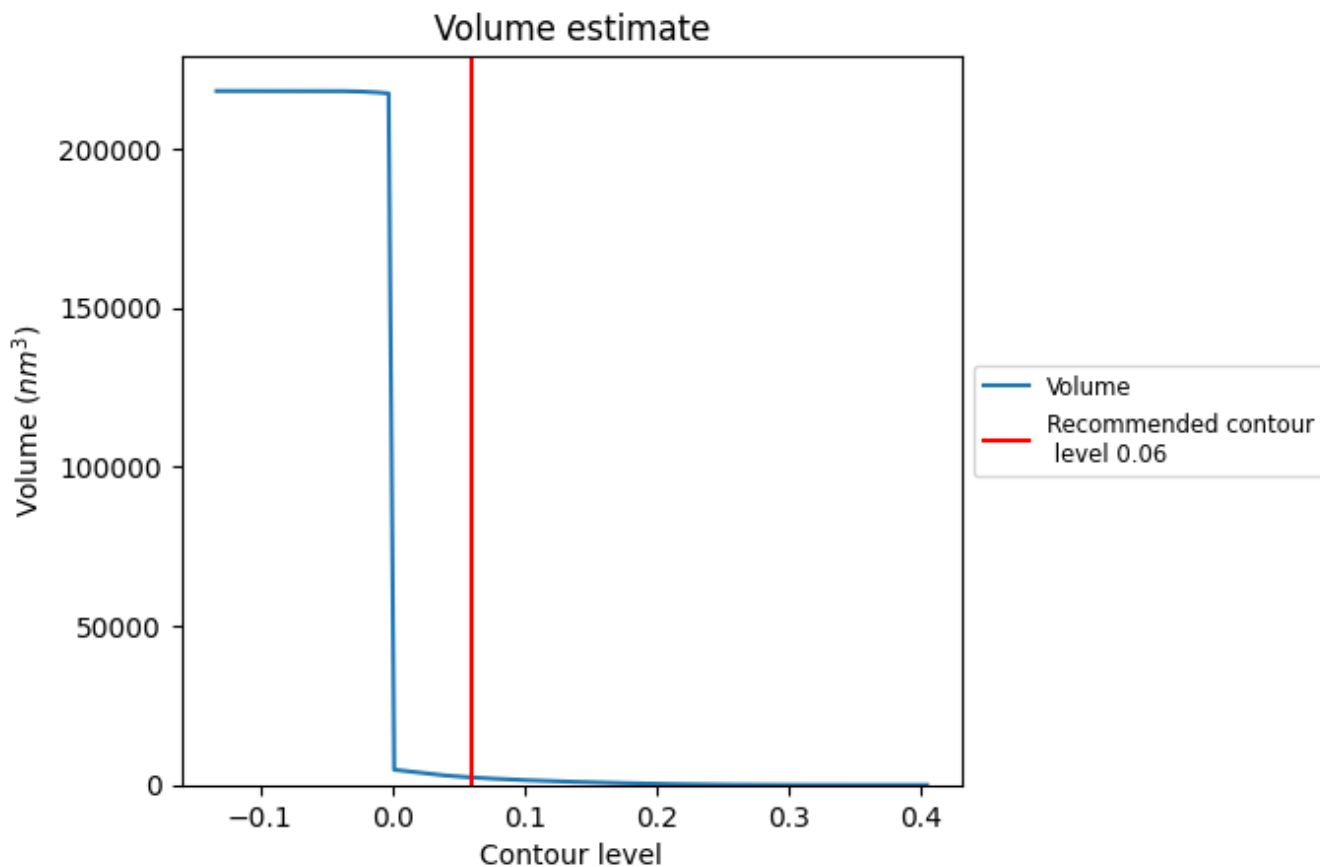
This section contains the results of statistical analysis of the map.

### 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.

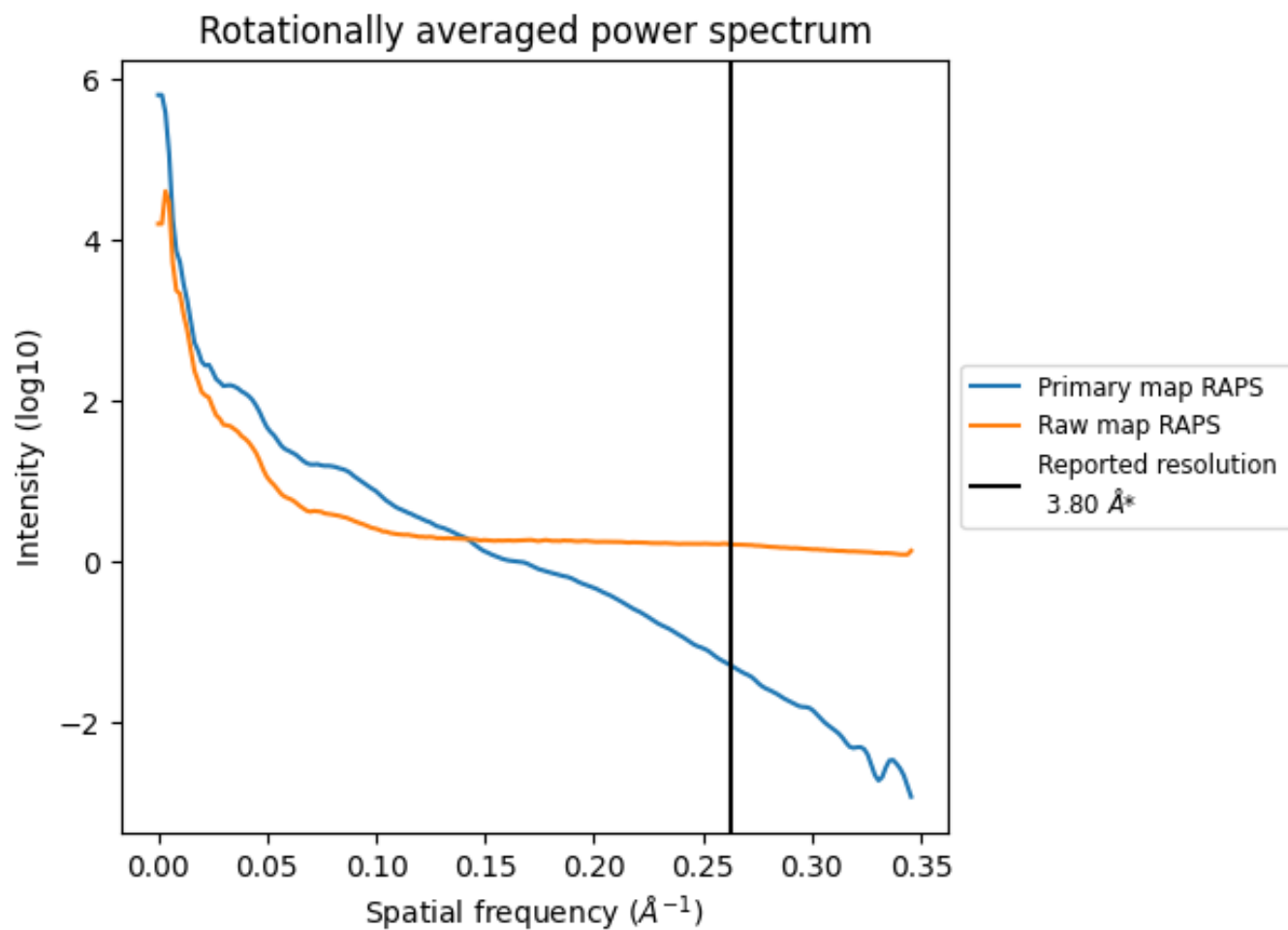
## 7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 2370 nm<sup>3</sup>; this corresponds to an approximate mass of 2141 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 i

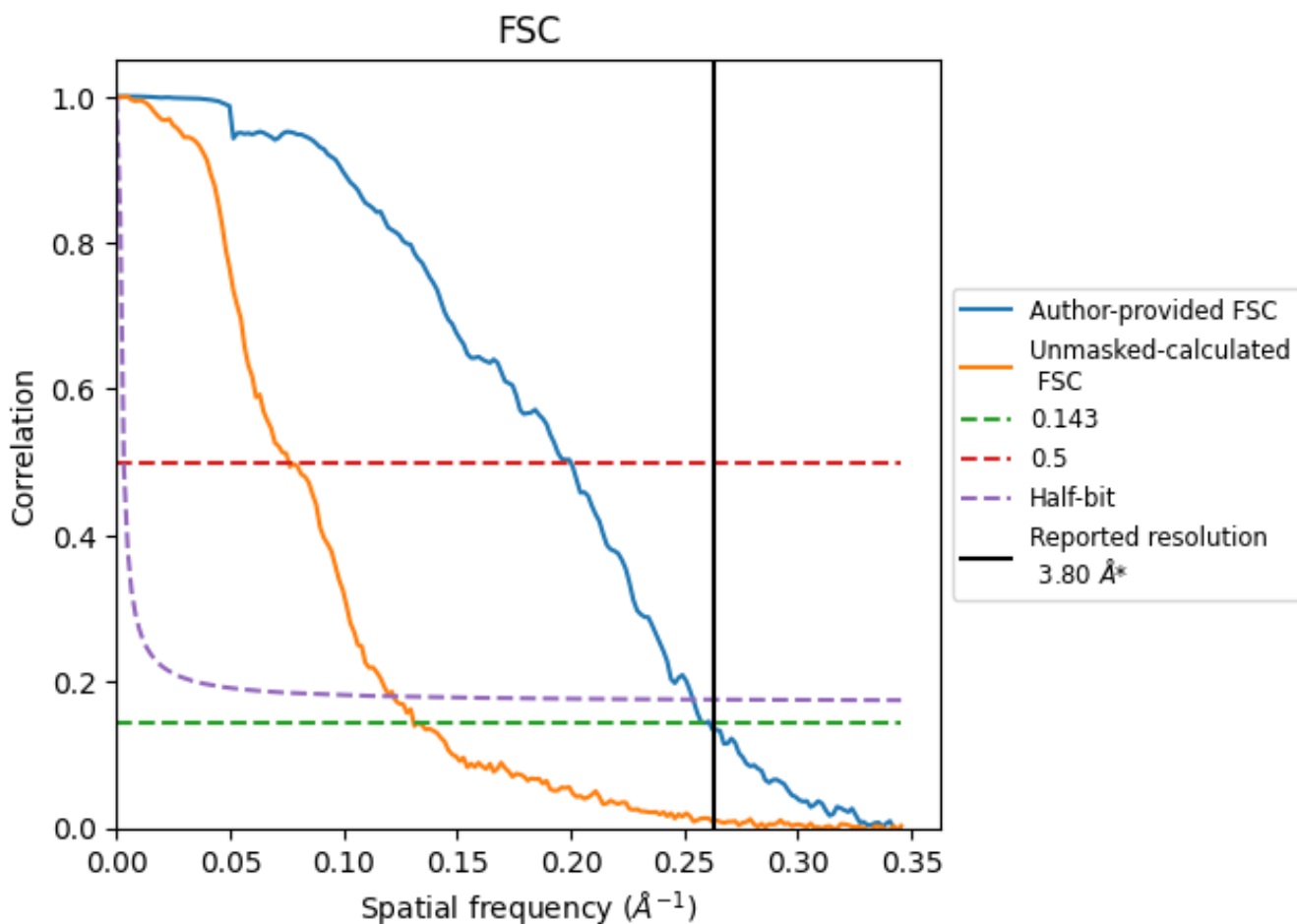


\*Reported resolution corresponds to spatial frequency of 0.263 Å<sup>-1</sup>

## 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 0.263 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

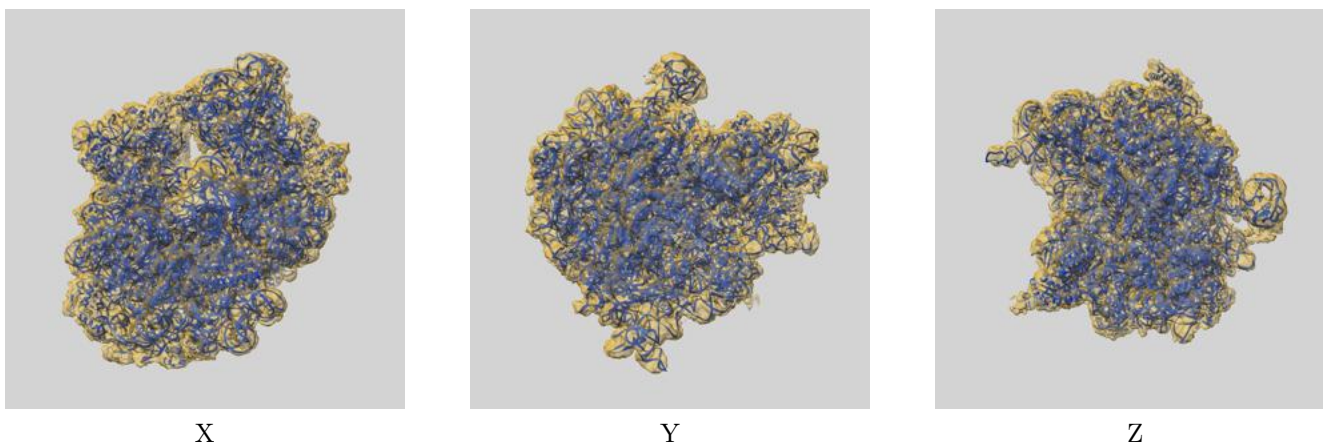
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.80	-	-
Author-provided FSC curve	3.83	5.00	3.94
Unmasked-calculated*	7.63	13.19	8.19

\*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 7.63 differs from the reported value 3.8 by more than 10 %

## 9 Map-model fit [i](#)

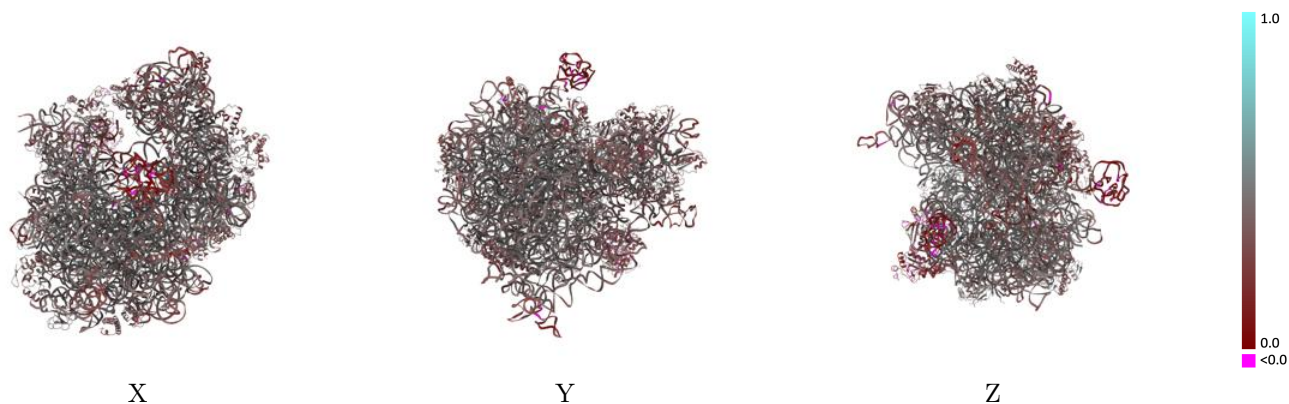
This section contains information regarding the fit between EMDB map EMD-29214 and PDB model 8FIZ. Per-residue inclusion information can be found in section 3 on page 14.

### 9.1 Map-model overlay [i](#)



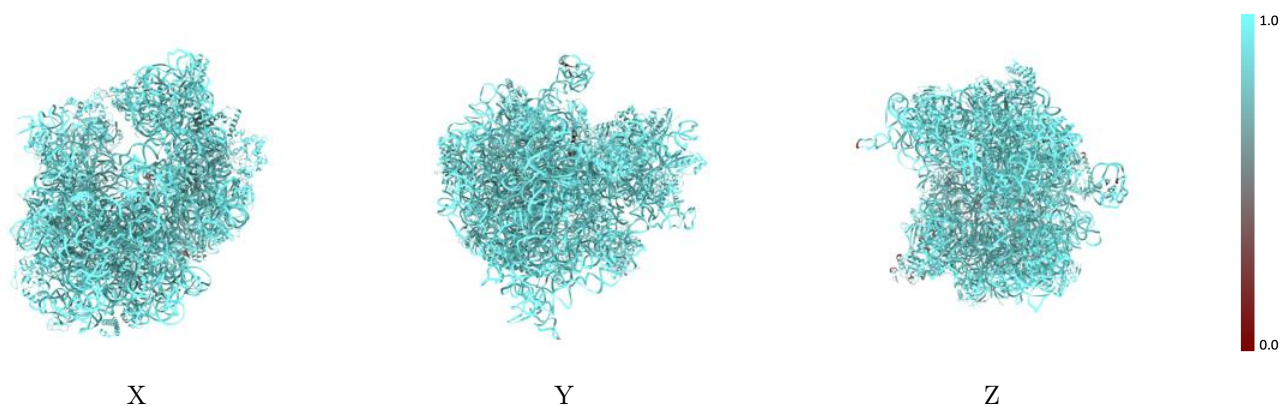
The images above show the 3D surface view of the map at the recommended contour level 0.06 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



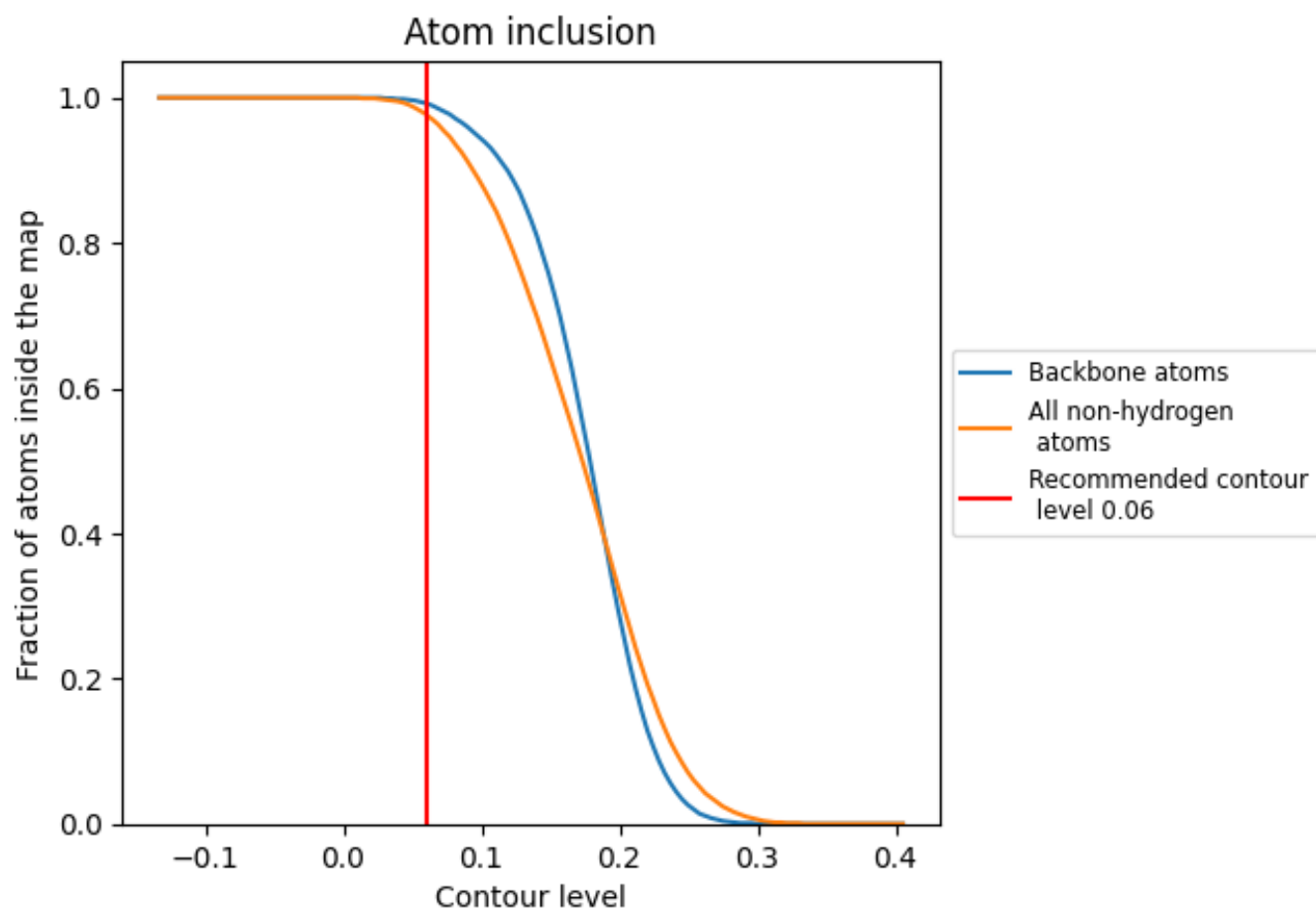
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.06).

## 9.4 Atom inclusion [i](#)









































































At the recommended contour level, 99% of all backbone atoms, 98% 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 (0.06) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9770	 0.3940
AA	 0.9930	 0.3980
AB	 0.9280	 0.3370
AC	 0.9560	 0.4160
AD	 0.9530	 0.3690
AE	 0.9800	 0.3710
AF	 0.9570	 0.3720
AG	 0.9350	 0.3930
AH	 0.9550	 0.3630
AI	 0.9420	 0.3770
AJ	 0.9310	 0.3390
AK	 0.9600	 0.3680
AL	 0.9330	 0.3320
AM	 0.9730	 0.3840
AN	 0.9770	 0.3740
AO	 0.9410	 0.4140
AP	 0.9720	 0.4120
AQ	 0.9620	 0.4070
AR	 0.9730	 0.3750
AS	 0.9490	 0.3750
AT	 0.9630	 0.3780
AU	 0.7320	 0.3420
AV	 0.8750	 0.2720
AW	 0.8740	 0.2470
BA	 0.9950	 0.4060
BB	 0.9730	 0.3040
BC	 1.0000	 0.4080
BD	 0.9710	 0.4410
BE	 0.9610	 0.4240
BF	 0.9600	 0.4020
BG	 0.9530	 0.3730
BH	 0.9690	 0.3930
BI	 0.9410	 0.4180
BJ	 0.9380	 0.3760
BK	 0.8180	 0.3130



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Chain	Atom inclusion	Q-score
BL	 0.8090	 0.1180
BM	 0.9630	 0.4190
BN	 0.9440	 0.4260
BO	 0.9510	 0.4420
BP	 0.9450	 0.4480
BQ	 0.9430	 0.4190
BR	 0.9660	 0.4210
BS	 0.9390	 0.4250
BT	 0.9560	 0.4250
BU	 0.9550	 0.4250
BV	 0.9530	 0.4020
BW	 0.9600	 0.4180
BX	 0.9800	 0.4030
BY	 0.9850	 0.4140
BZ	 0.9390	 0.4170
DA	 0.9400	 0.3820
DB	 0.9470	 0.3880
DC	 0.9700	 0.4010
DD	 0.9650	 0.4420
DE	 0.9570	 0.4190
DF	 0.9320	 0.3100
DG	 0.7120	 0.1490