



Full wwPDB EM Validation Report ⓘ

Mar 2, 2024 – 01:35 PM EST

PDB ID : 5UYP
EMDB ID : EMD-8619
Title : 70S ribosome bound with near-cognate ternary complex base-paired to A site codon, open 30S (Structure II-nc)
Authors : Loveland, A.B.; Demo, G.; Grigorieff, N.; Korostelev, A.A.
Deposited on : 2017-02-24
Resolution : 3.90 Å(reported)

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

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev70
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
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

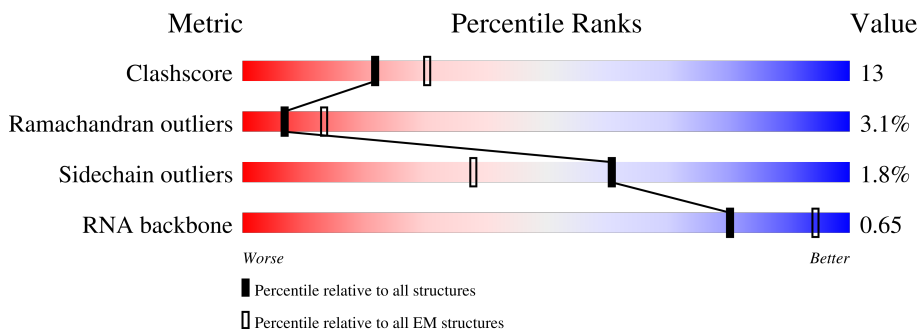
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.90 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.



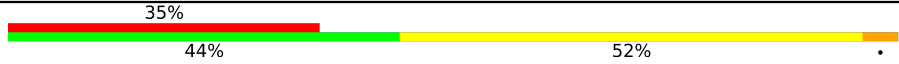
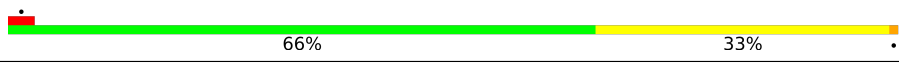



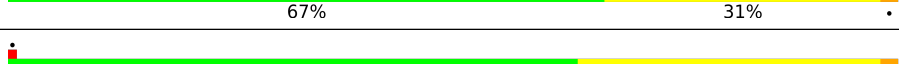
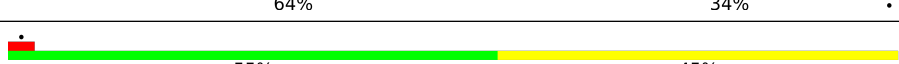
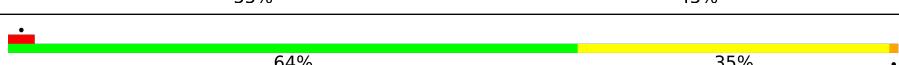



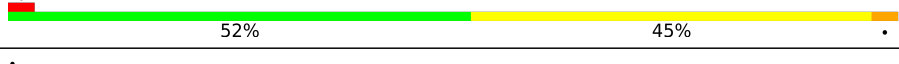
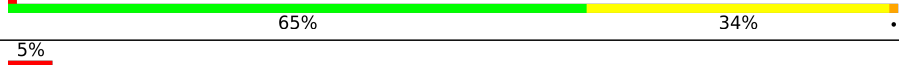

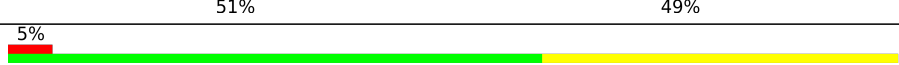
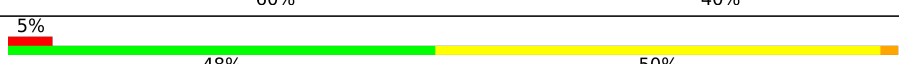









Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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 ≥ 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	04	271	
2	05	209	
3	06	201	
4	07	177	
5	08	176	
6	09	149	
7	10	131	

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Mol	Chain	Length	Quality of chain
8	11	141	
9	12	142	
10	13	122	
11	14	143	
12	15	136	
13	16	120	
14	17	116	
15	18	114	
16	19	117	
17	20	103	
18	21	110	
19	22	93	
20	23	102	
21	24	94	
22	25	75	
23	26	77	
24	27	63	
25	28	58	
26	29	66	
27	30	56	
28	31	50	
29	32	46	
30	33	64	
31	34	38	
32	B	218	

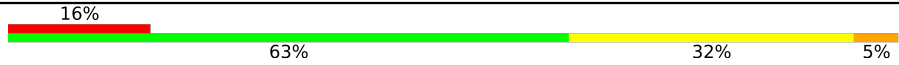
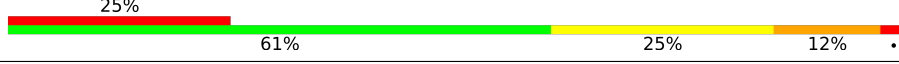

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Mol	Chain	Length	Quality of chain
33	C	206	9% 64% 36%
34	D	205	7% 67% 29% .
35	E	157	6% 50% 46% .
36	F	100	. 48% 46% 6%
37	G	151	8% 52% 47% .
38	H	129	. 66% 33% .
39	I	127	. 49% 48% .
40	J	98	16% 41% 48% 11%
41	K	116	5% 65% 31% .
42	L	123	15% 54% 41% . .
43	M	114	. 61% 34% . .
44	N	100	7% 42% 56% .
45	O	88	. 68% 32%
46	P	82	6% 61% 35% .
47	Q	80	. 46% 51% .
48	R	65	5% 58% 34% 8%
49	S	79	. 53% 44% .
50	T	85	. 60% 39% .
51	U	65	18% 55% 38% 6%
52	03	223	18% 33% 25% . 40%
53	A	1539	. 56% 38% 6%
54	01	2903	. 54% 40% 5%
55	02	120	63% 28% 8%
56	W	77	. 69% 27% .
56	X	77	8% 58% 38% .

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Mol	Chain	Length	Quality of chain
57	V	19	 16% 63% 32% 5%
58	Y	76	 25% 61% 25% 12% .
59	Z	392	 44% 49% 49% ..

2 Entry composition [i](#)

There are 62 unique types of molecules in this entry. The entry contains 153780 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	04	271	2083	1288	423	365	7	0	0

- Molecule 2 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	05	209	1565	979	288	294	4	0	0

- Molecule 3 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	06	201	1552	974	283	290	5	0	0

- Molecule 4 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	07	177	1411	899	249	257	6	0	0

- Molecule 5 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	08	176	1323	832	243	246	2	0	0

- Molecule 6 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	09	149	1111	699	197	214	1	0	0

- Molecule 7 is a protein called 50S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	10	131	989	625	175	184	5	0	0

- Molecule 8 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	11	141	1032	651	179	196	6	0	0

- Molecule 9 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	12	142	1129	714	212	199	4	0	0

- Molecule 10 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	13	122	939	587	180	166	6	0	0

- Molecule 11 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	14	143	1045	649	206	189	1	0	0

- Molecule 12 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	15	136	1074	686	205	177	6	0	0

- Molecule 13 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	16	120	961	593	196	167	5	0	0

- Molecule 14 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
14	17	116	Total	C	N	O	0	0
			892	552	178	162		

- Molecule 15 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	18	114	Total	C	N	O	S	0	0
			917	574	179	163	1		

- Molecule 16 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms				AltConf	Trace
16	19	117	Total	C	N	O	0	0
			947	604	192	151		

- Molecule 17 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	20	103	Total	C	N	O	S	0	0
			816	516	153	145	2		

- Molecule 18 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	21	110	Total	C	N	O	S	0	0
			857	532	166	156	3		

- Molecule 19 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	22	93	Total	C	N	O	S	0	0
			739	466	139	132	2		

- Molecule 20 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	23	102	Total	C	N	O	0	0
			780	492	146	142		

- Molecule 21 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	24	94	Total	C	N	O	S	0	0
			753	479	137	134	3		

- Molecule 22 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	25	75	Total	C	N	O	S	0	0
			575	356	116	102	1		

- Molecule 23 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	26	77	Total	C	N	O	S	0	0
			625	388	129	106	2		

- Molecule 24 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	27	63	Total	C	N	O	S	0	0
			509	313	99	95	2		

- Molecule 25 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	28	58	Total	C	N	O	S	0	0
			449	281	87	79	2		

- Molecule 26 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	29	66	Total	C	N	O	S	0	0
			523	323	99	95	6		

- Molecule 27 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	30	56	Total	C	N	O	S	0	0
			444	269	94	80	1		

- Molecule 28 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
28	31	50	Total	C	N	O	0	0
			410	263	75	72		

- Molecule 29 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	32	46	Total	C	N	O	S	0	0
			377	228	90	57	2		

- Molecule 30 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	33	64	Total	C	N	O	S	0	0
			504	323	105	74	2		

- Molecule 31 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	34	38	Total	C	N	O	S	0	0
			302	185	65	48	4		

- Molecule 32 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	B	218	Total	C	N	O	S	0	0
			1705	1081	305	312	7		

- Molecule 33 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	C	206	Total	C	N	O	S	0	0
			1625	1028	305	289	3		

- Molecule 34 is a protein called 30S ribosomal protein S4.

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

- Molecule 35 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
35	E	157	1157	719	218	214	6	0	0

- Molecule 36 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
36	F	100	818	515	148	149	6	0	0

- Molecule 37 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
37	G	151	1182	735	227	216	4	0	0

- Molecule 38 is a protein called 30S ribosomal protein S8.

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

- Molecule 39 is a protein called 30S ribosomal protein S9.

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

- Molecule 40 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
40	J	98	787	493	150	143	1	0	0

- Molecule 41 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
41	K	116	870	535	173	159	3	0	0

- Molecule 42 is a protein called 30S ribosomal protein S12.

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

- Molecule 43 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
43	M	114	884	546	178	157	3	0	0

- Molecule 44 is a protein called 30S ribosomal protein S14.

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

- Molecule 45 is a protein called 30S ribosomal protein S15.

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

- Molecule 46 is a protein called 30S ribosomal protein S16.

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

- Molecule 47 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
47	Q	80	649	411	121	114	3	0	0

- Molecule 48 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
48	R	65	536	339	100	96	1	0	0

- Molecule 49 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	S	79	Total	C	N	O	S	0	0
			638	408	120	108	2		

- Molecule 50 is a protein called 30S ribosomal protein S20.

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

- Molecule 51 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	U	65	Total	C	N	O	S	0	0
			545	335	117	92	1		

- Molecule 52 is a protein called 50S ribosomal protein L1.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	03	134	Total	C	N	O	S	0	0
			1027	645	186	194	2		

- Molecule 53 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	A	1539	Total	C	N	O	P	0	0
			33012	14725	6052	10697	1538		

- Molecule 54 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	01	2903	Total	C	N	O	P	0	0
			62317	27801	11468	20146	2902		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
01	747	C	U	conflict	GB 802133627

- Molecule 55 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
55	02	120	2568	1145	471	833	119	0	0

- Molecule 56 is a RNA chain called tRNAfMet.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
56	X	77	1640	732	297	535	76	0	0
56	W	77	1640	732	297	535	76	0	0

- Molecule 57 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
57	V	19	417	188	89	122	18	0	0

- Molecule 58 is a RNA chain called tRNA^{Lys}.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	N	O	P	S		
58	Y	76	1618	723	282	536	76	1	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Y	34	U8U	-	insertion	GB 558570689

- Molecule 59 is a protein called Elongation factor Tu 2.

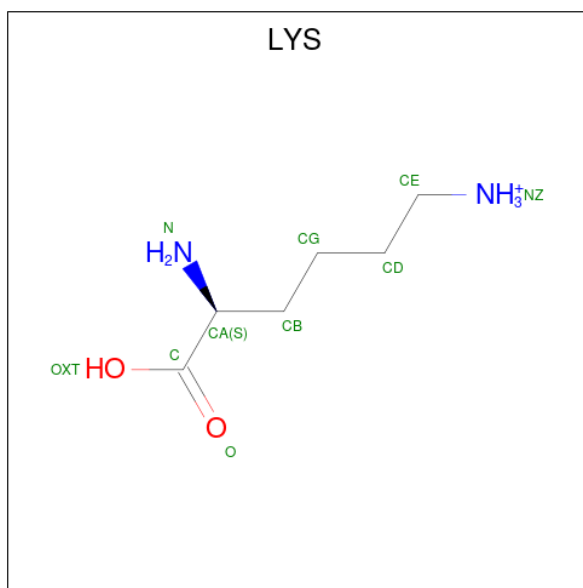
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
59	Z	392	3029	1915	521	580	13	0	0

- Molecule 60 is N-FORMYLMETHIONINE (three-letter code: FME) (formula: C₆H₁₁NO₃S).



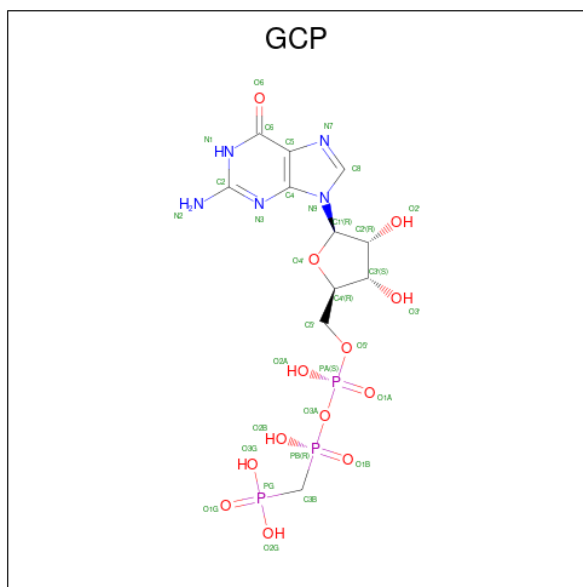
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	S	
60	W	1	10	6	1	2	1	0

- Molecule 61 is LYSINE (three-letter code: LYS) (formula: $C_6H_{15}N_2O_2$).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
61	Y	1	9	6	2	1	0

- Molecule 62 is PHOSPHOMETHYLPHOSPHONIC ACID GUANYLATE ESTER (three-letter code: GCP) (formula: $C_{11}H_{18}N_5O_{13}P_3$).

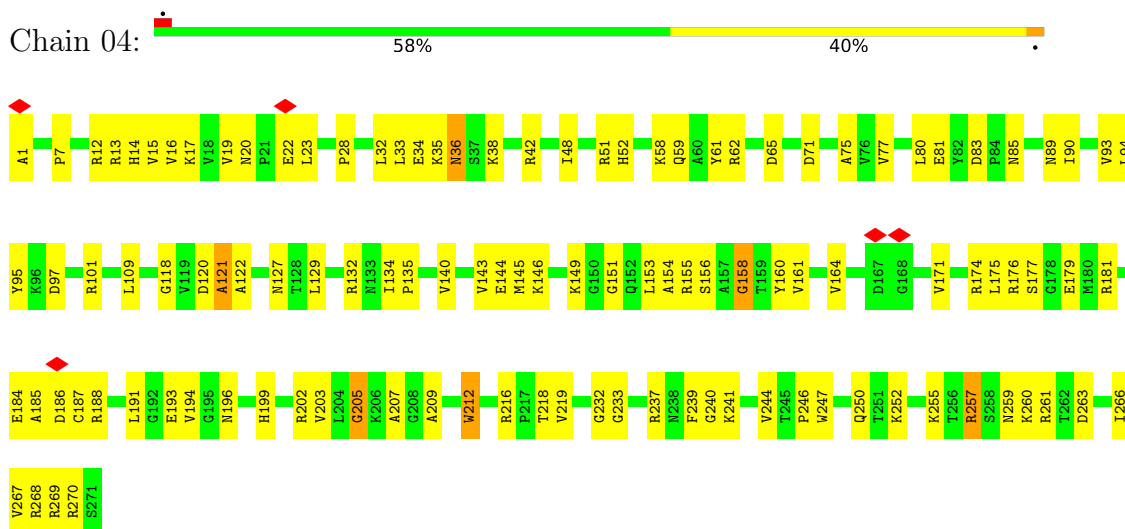


Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
62	Z	1	32	11	5	13	3	0

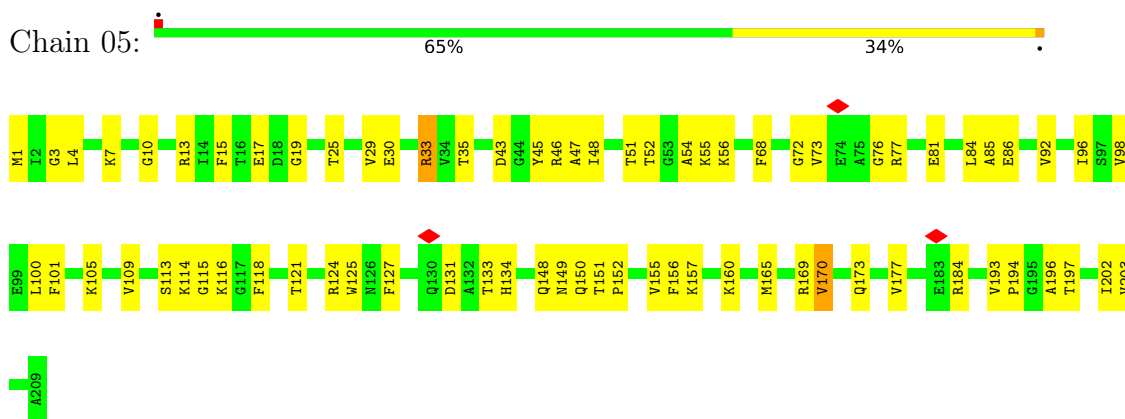
3 Residue-property plots

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: 50S ribosomal protein L2

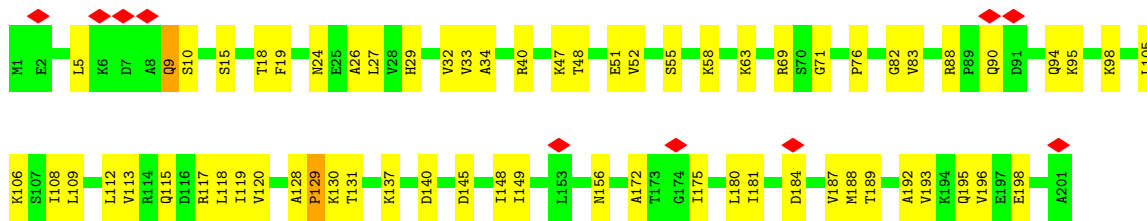


- Molecule 2: 50S ribosomal protein L3

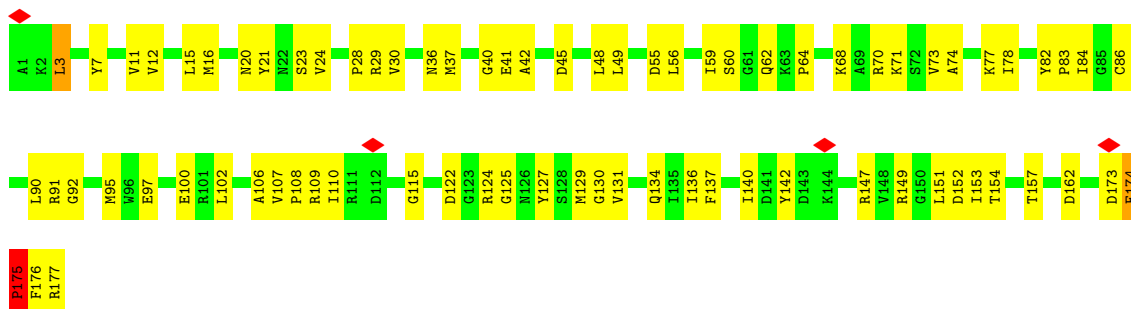


- Molecule 3: 50S ribosomal protein L4

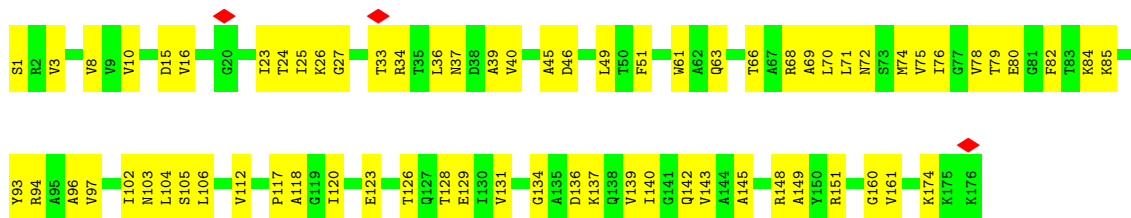




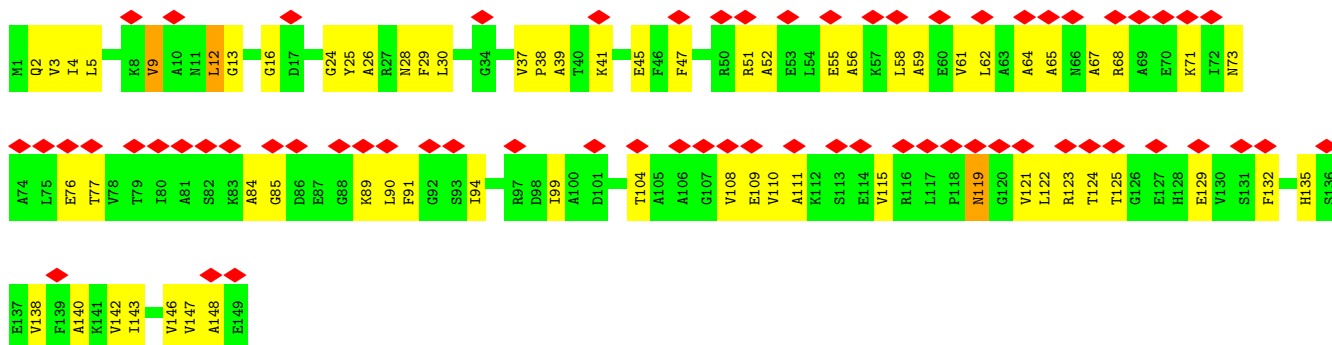
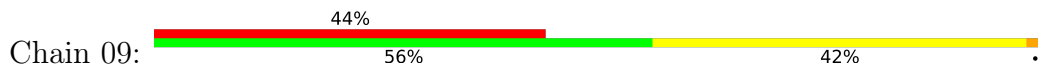
• Molecule 4: 50S ribosomal protein L5



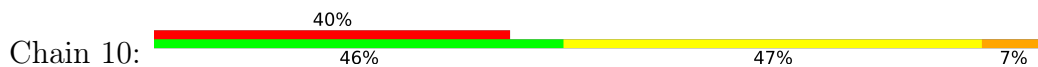
• Molecule 5: 50S ribosomal protein L6

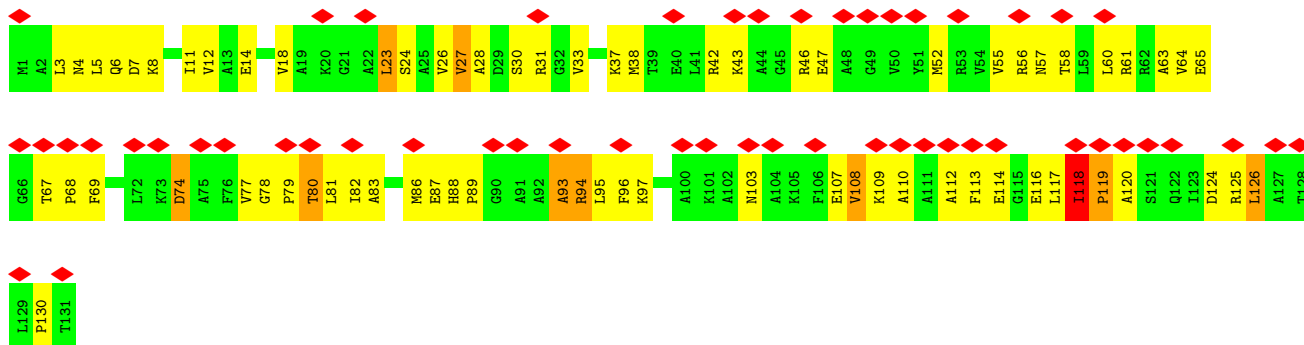


• Molecule 6: 50S ribosomal protein L9

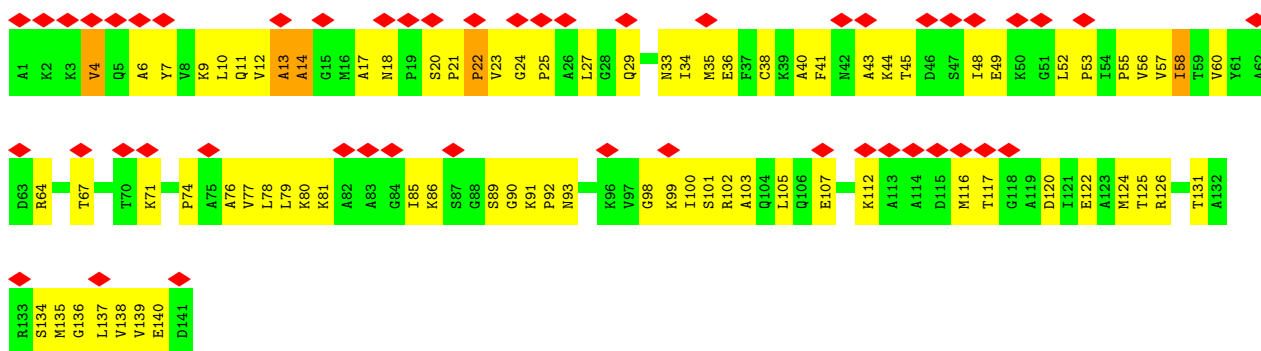
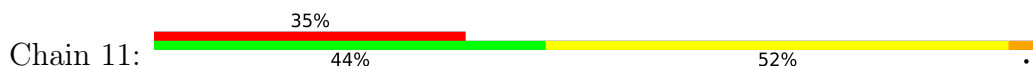


• Molecule 7: 50S ribosomal protein L10

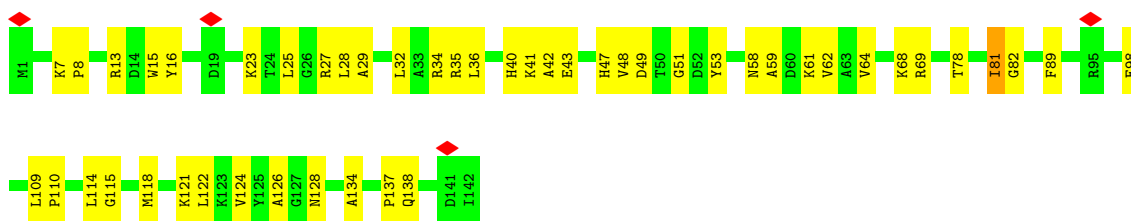




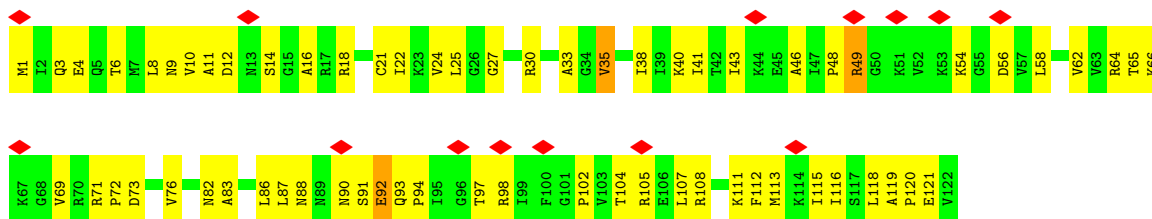
• Molecule 8: 50S ribosomal protein L11



• Molecule 9: 50S ribosomal protein L13

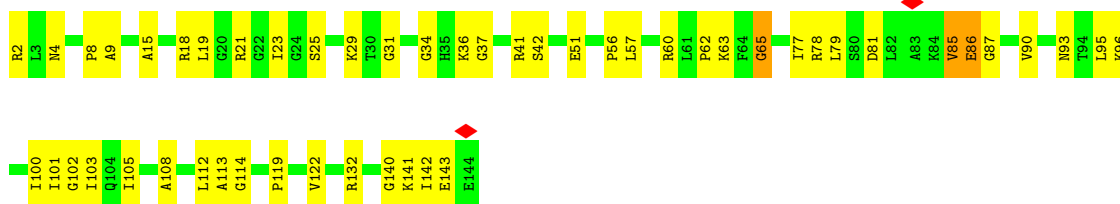


• Molecule 10: 50S ribosomal protein L14



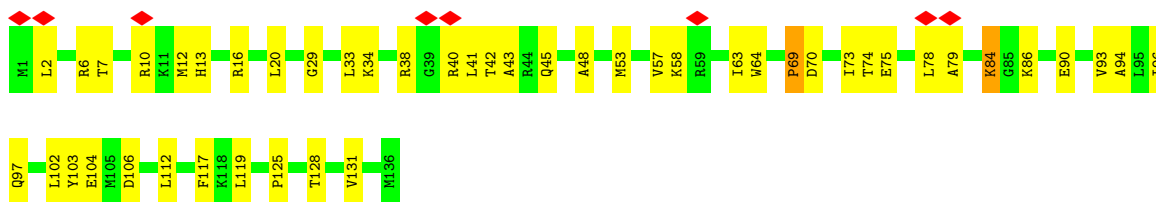
• Molecule 11: 50S ribosomal protein L15

Chain 14:  64% 34%



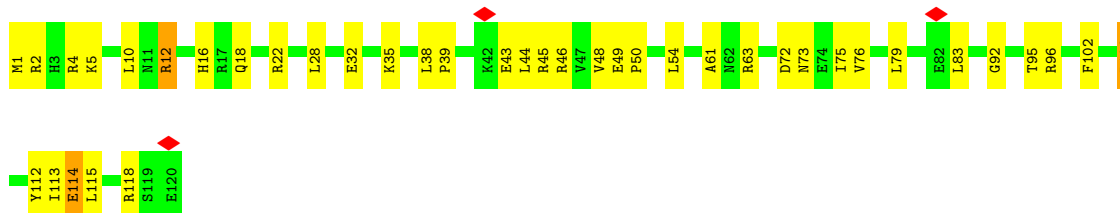
- Molecule 12: 50S ribosomal protein L16

Chain 15:  6% 65% 33%



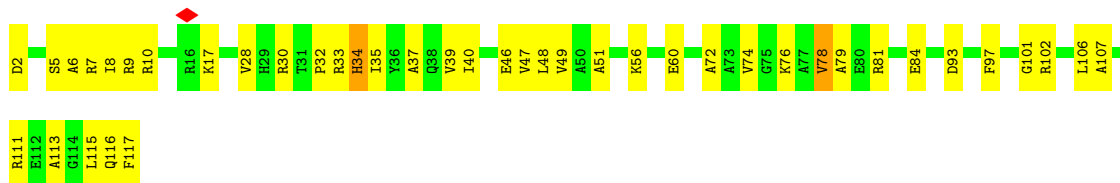
- Molecule 13: 50S ribosomal protein L17

Chain 16:  67% 31%



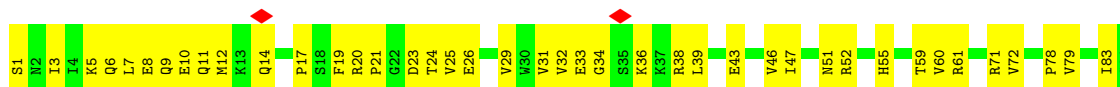
- Molecule 14: 50S ribosomal protein L18

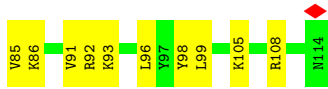
Chain 17:  64% 34%



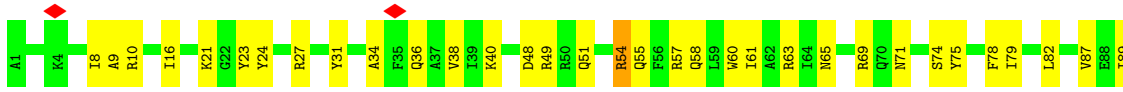
- Molecule 15: 50S ribosomal protein L19

Chain 18:  55% 45%

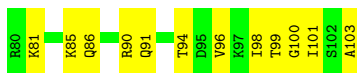
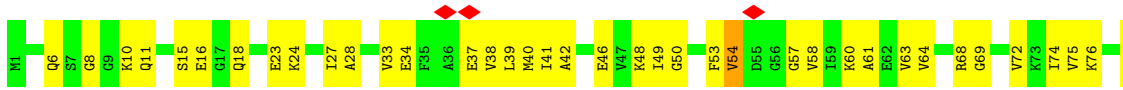




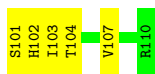
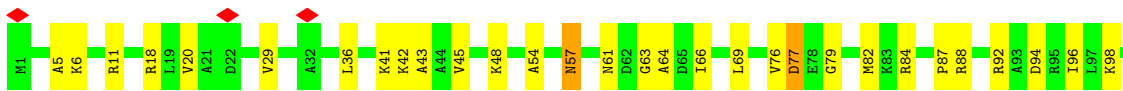
- Molecule 16: 50S ribosomal protein L20



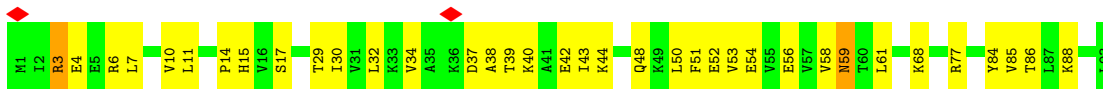
- Molecule 17: 50S ribosomal protein L21



- Molecule 18: 50S ribosomal protein L22

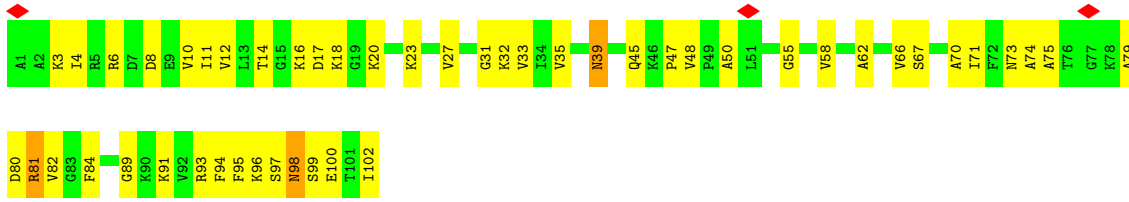


- Molecule 19: 50S ribosomal protein L23

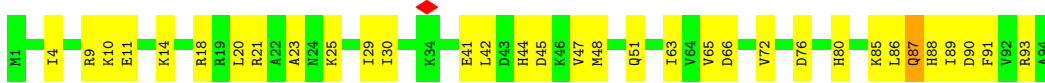


- Molecule 20: 50S ribosomal protein L24





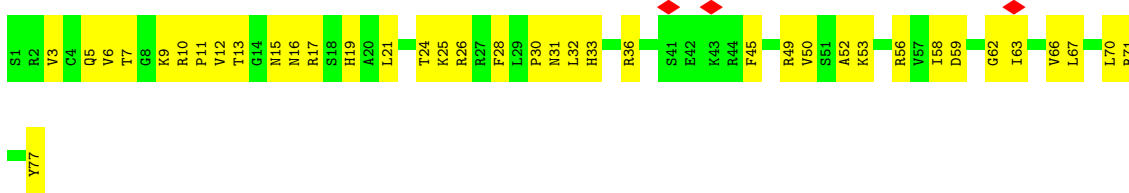
- Molecule 21: 50S ribosomal protein L25



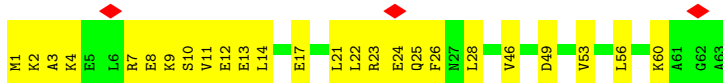
- Molecule 22: 50S ribosomal protein L27



- Molecule 23: 50S ribosomal protein L28



- Molecule 24: 50S ribosomal protein L29



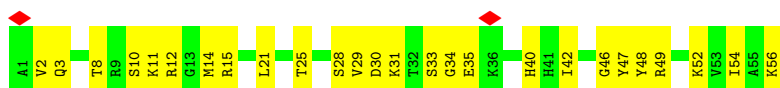
- Molecule 25: 50S ribosomal protein L30



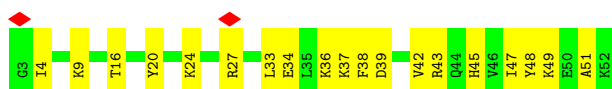
- Molecule 26: 50S ribosomal protein L31



- Molecule 27: 50S ribosomal protein L32



- Molecule 28: 50S ribosomal protein L33



- Molecule 29: 50S ribosomal protein L34



- Molecule 30: 50S ribosomal protein L35

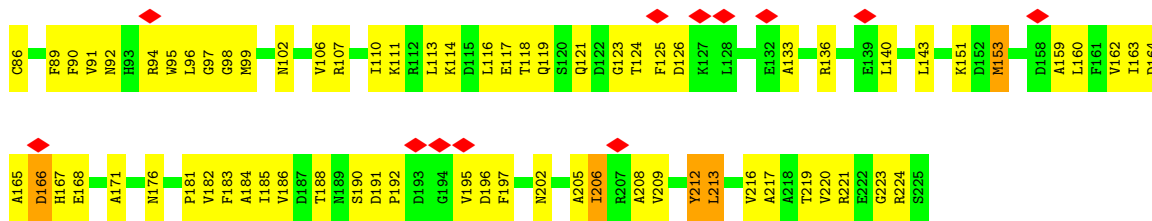


- Molecule 31: 50S ribosomal protein L36

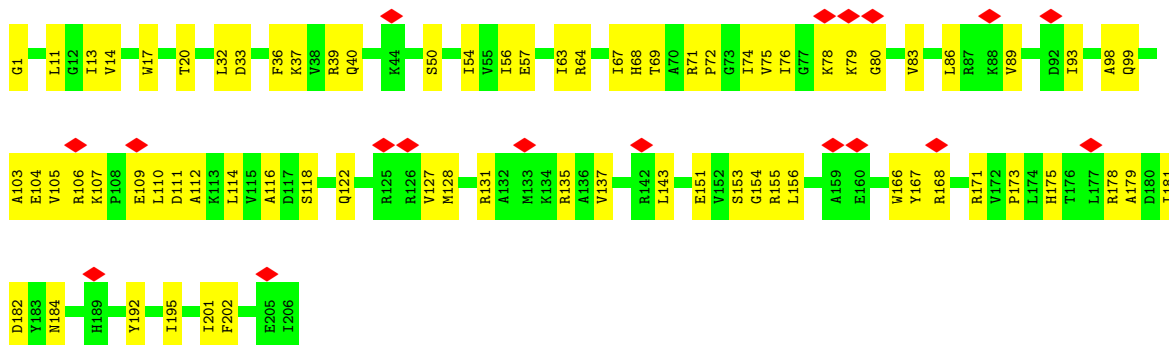


- Molecule 32: 30S ribosomal protein S2

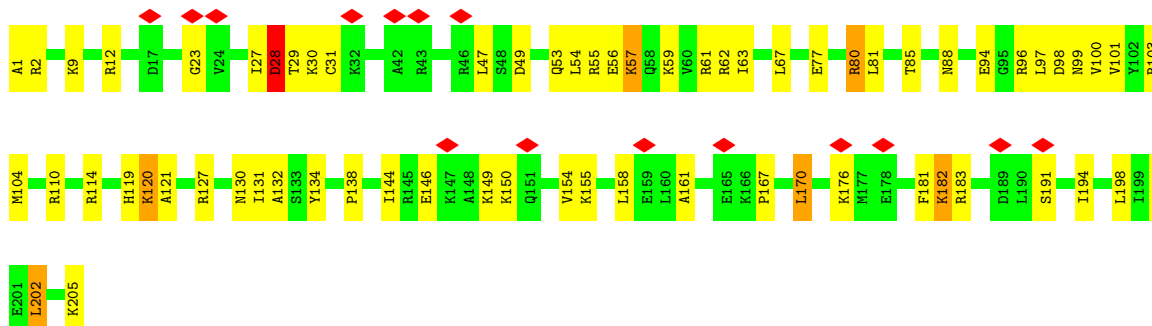




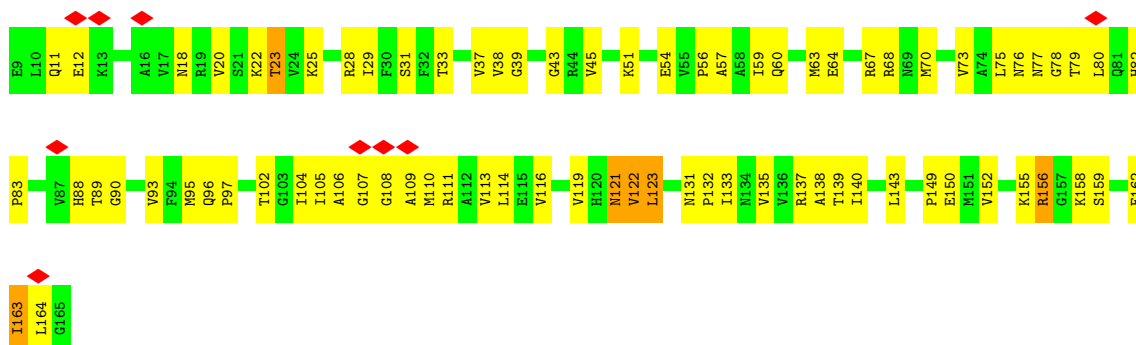
• Molecule 33: 30S ribosomal protein S3



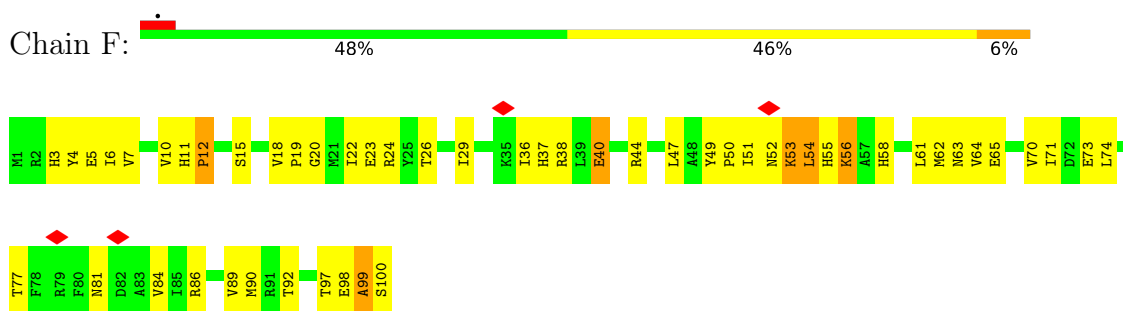
• Molecule 34: 30S ribosomal protein S4



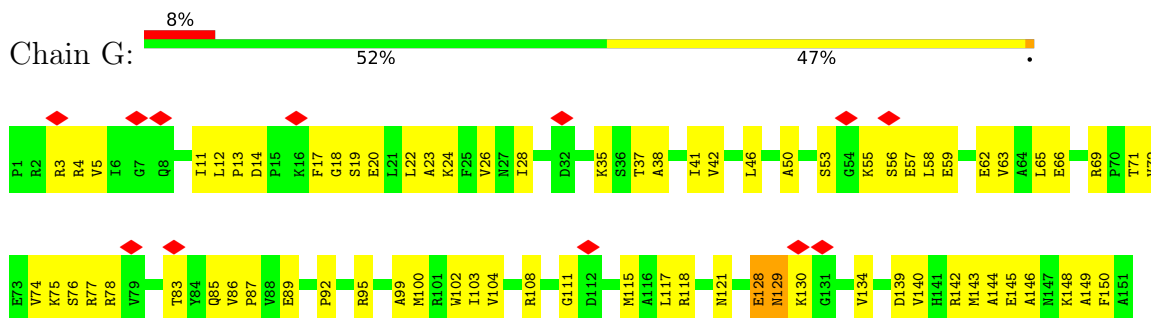
• Molecule 35: 30S ribosomal protein S5



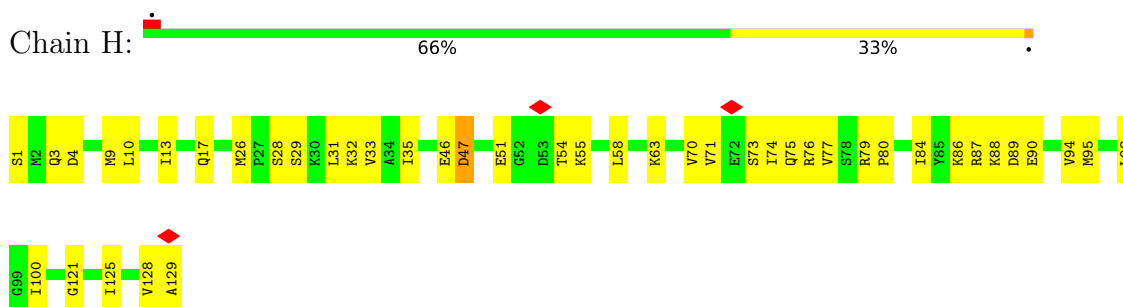
- Molecule 36: 30S ribosomal protein S6



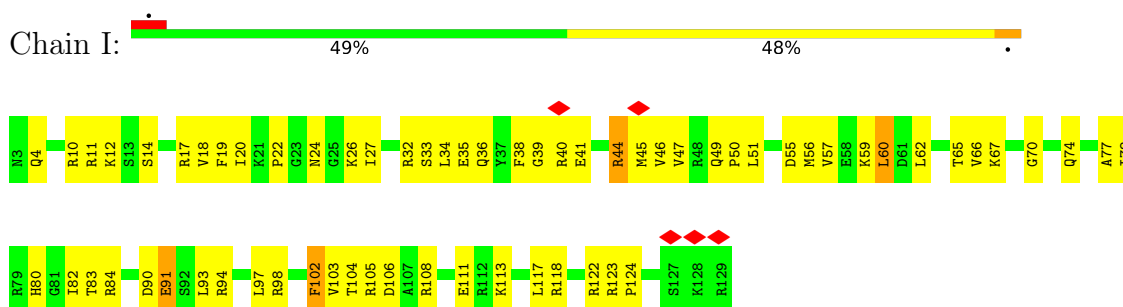
- Molecule 37: 30S ribosomal protein S7



- Molecule 38: 30S ribosomal protein S8

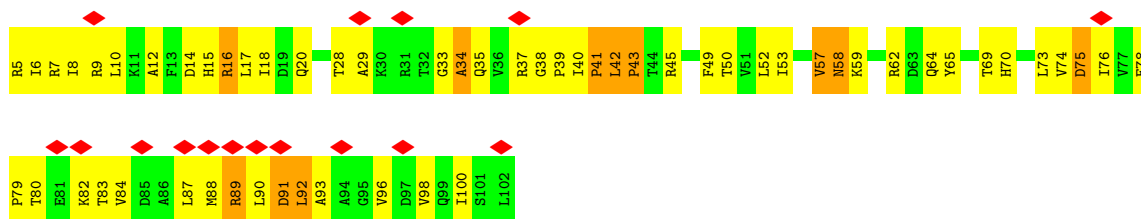


- Molecule 39: 30S ribosomal protein S9

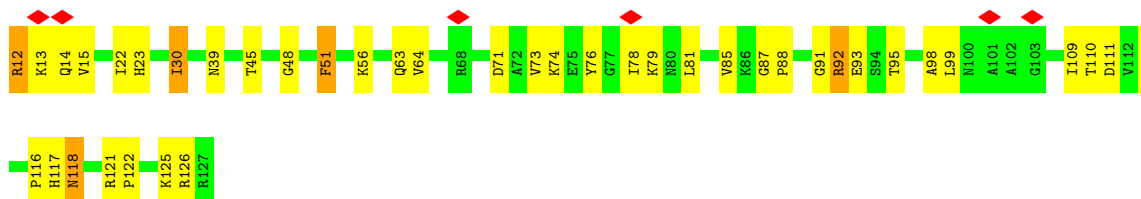


- Molecule 40: 30S ribosomal protein S10

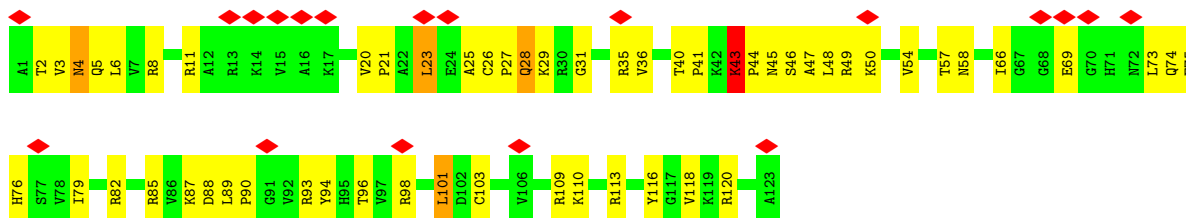




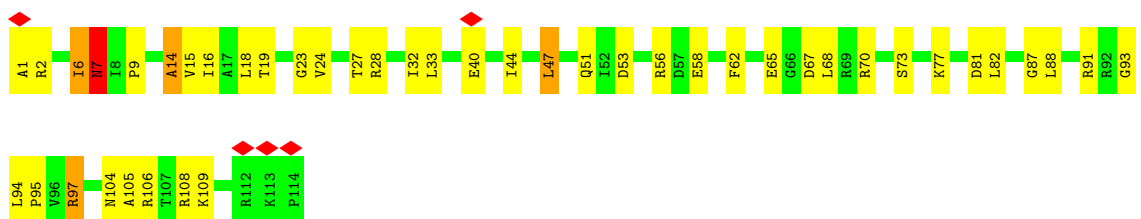
• Molecule 41: 30S ribosomal protein S11



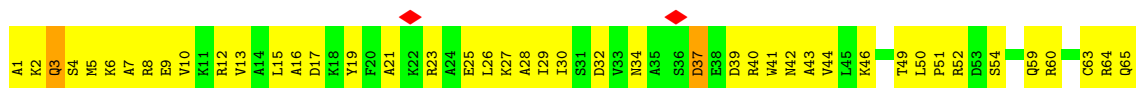
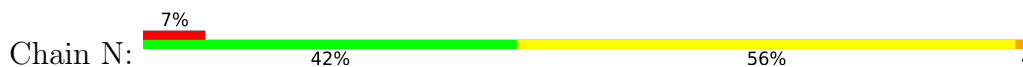
• Molecule 42: 30S ribosomal protein S12

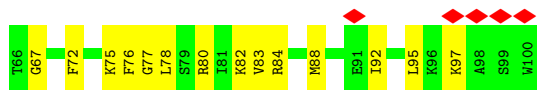


• Molecule 43: 30S ribosomal protein S13



• Molecule 44: 30S ribosomal protein S14

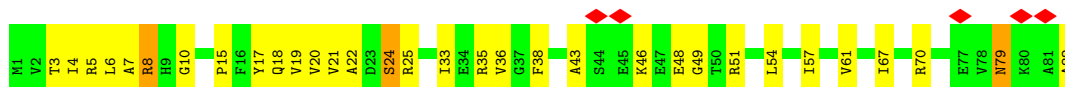




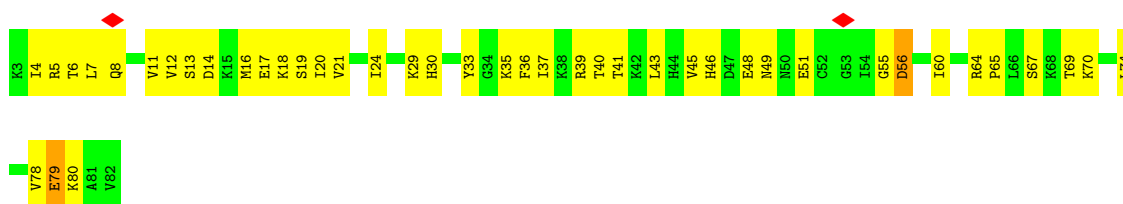
- Molecule 45: 30S ribosomal protein S15



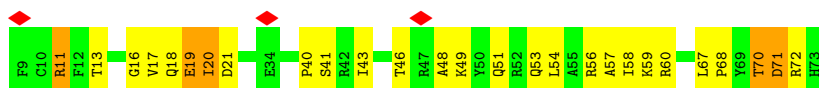
- Molecule 46: 30S ribosomal protein S16



- Molecule 47: 30S ribosomal protein S17



- Molecule 48: 30S ribosomal protein S18



- Molecule 49: 30S ribosomal protein S19

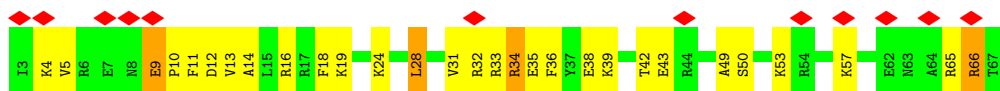


- Molecule 50: 30S ribosomal protein S20

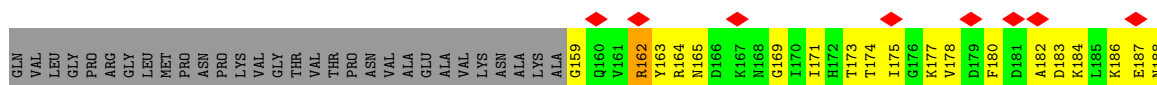
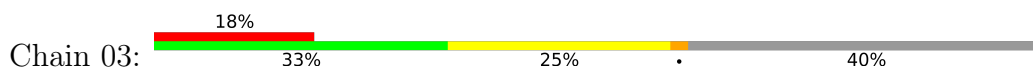




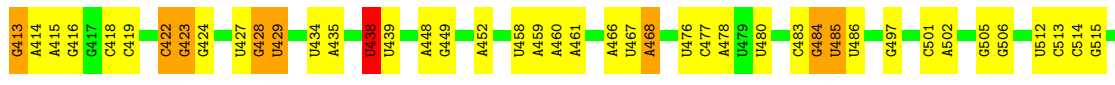
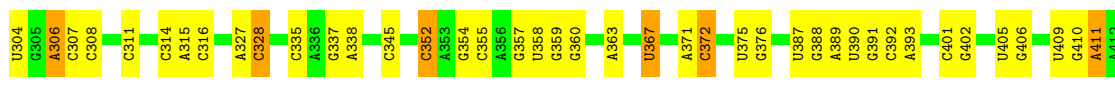
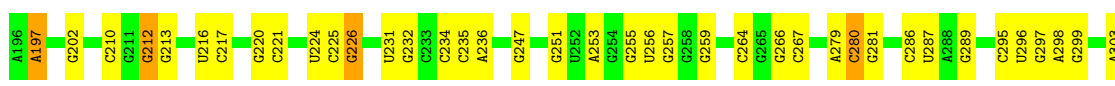
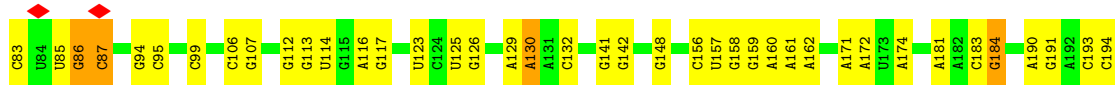
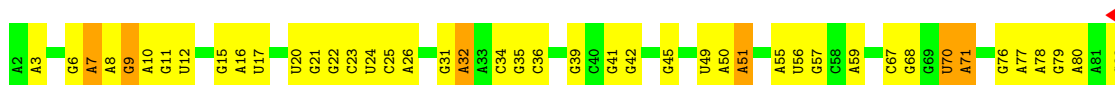
• Molecule 51: 30S ribosomal protein S21

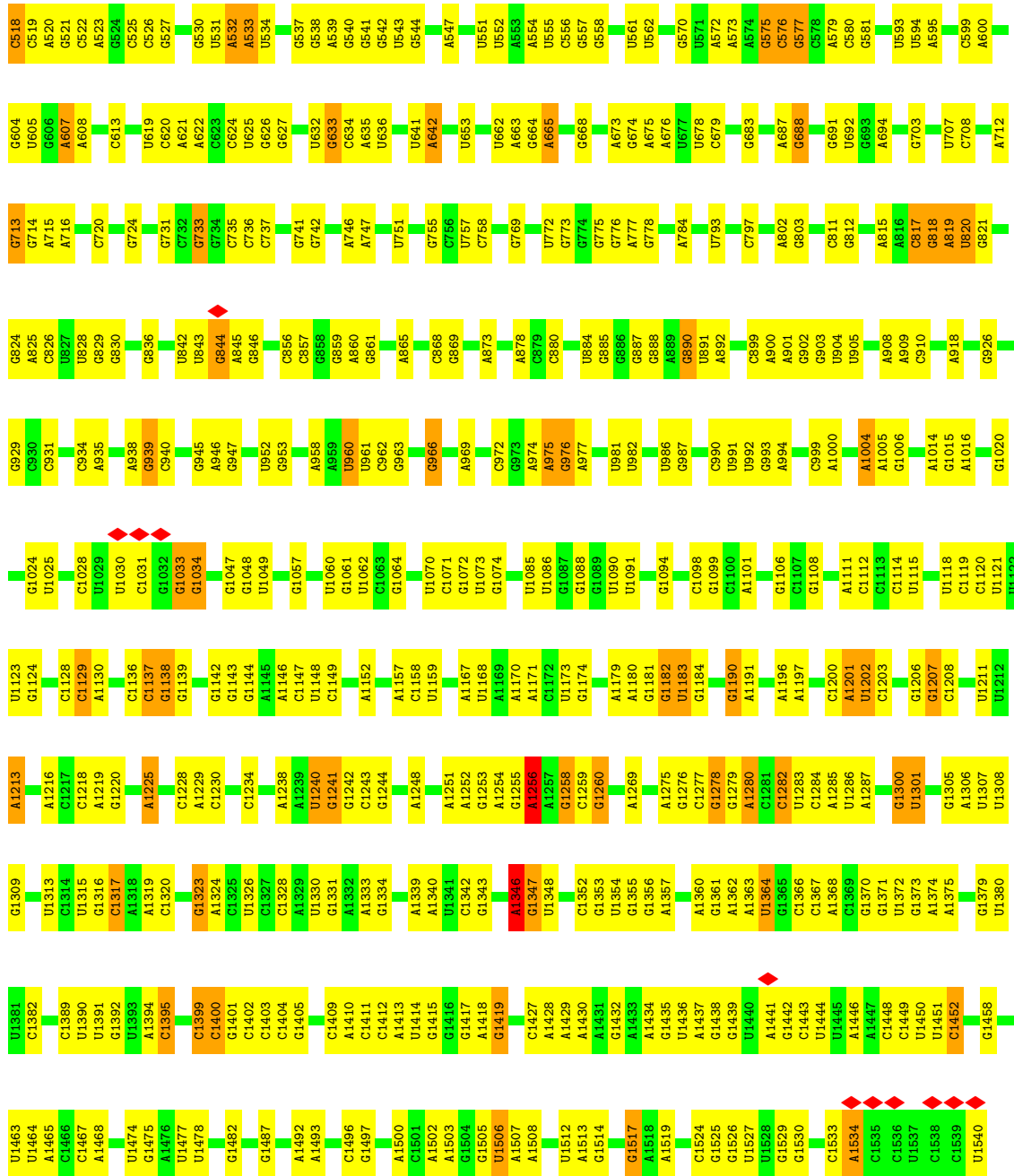


• Molecule 52: 50S ribosomal protein L1

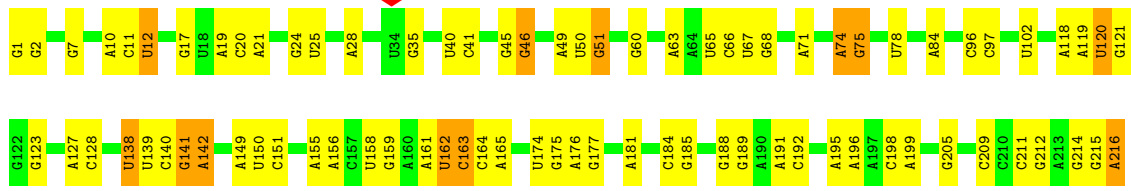


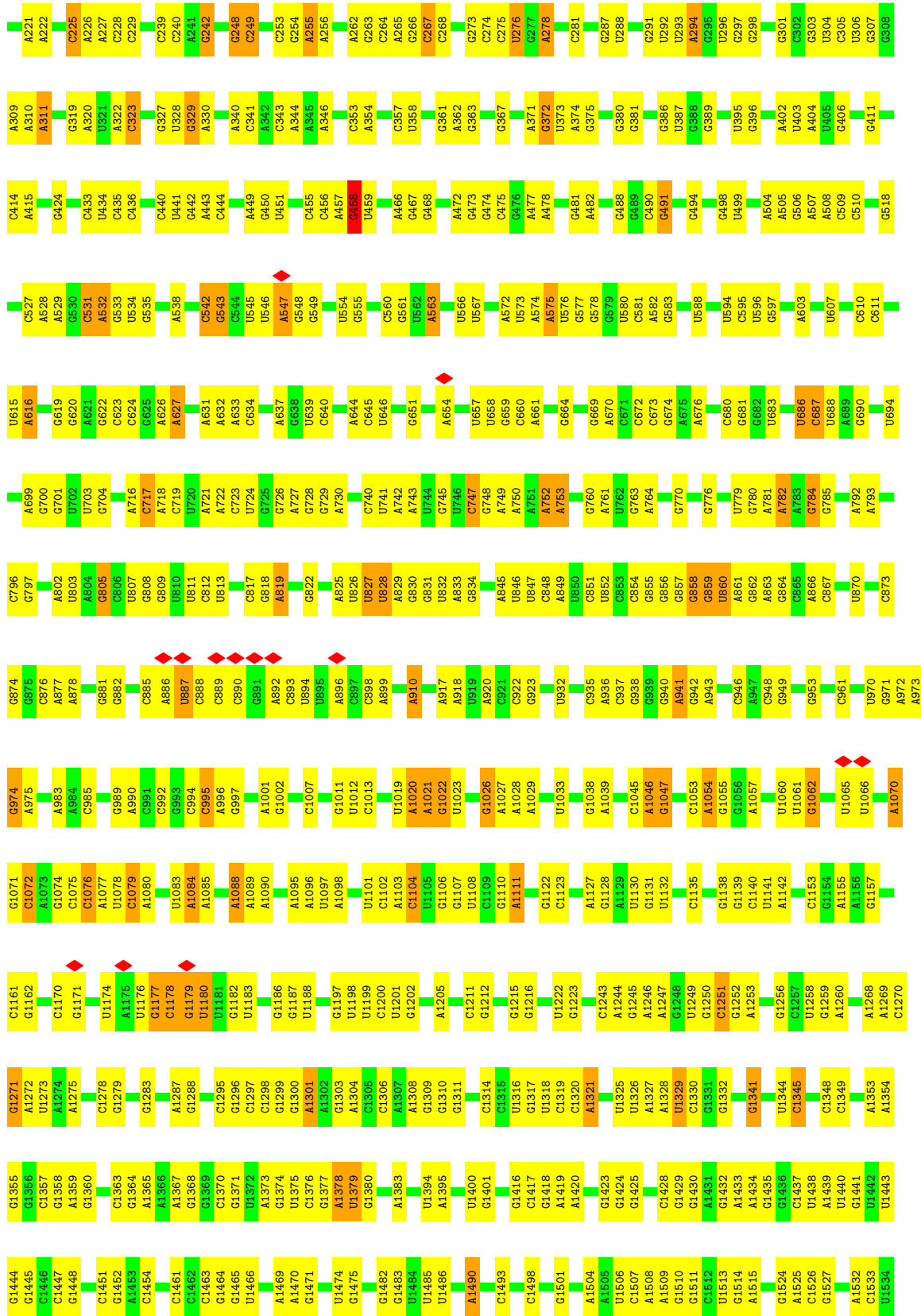
• Molecule 53: 16S ribosomal RNA

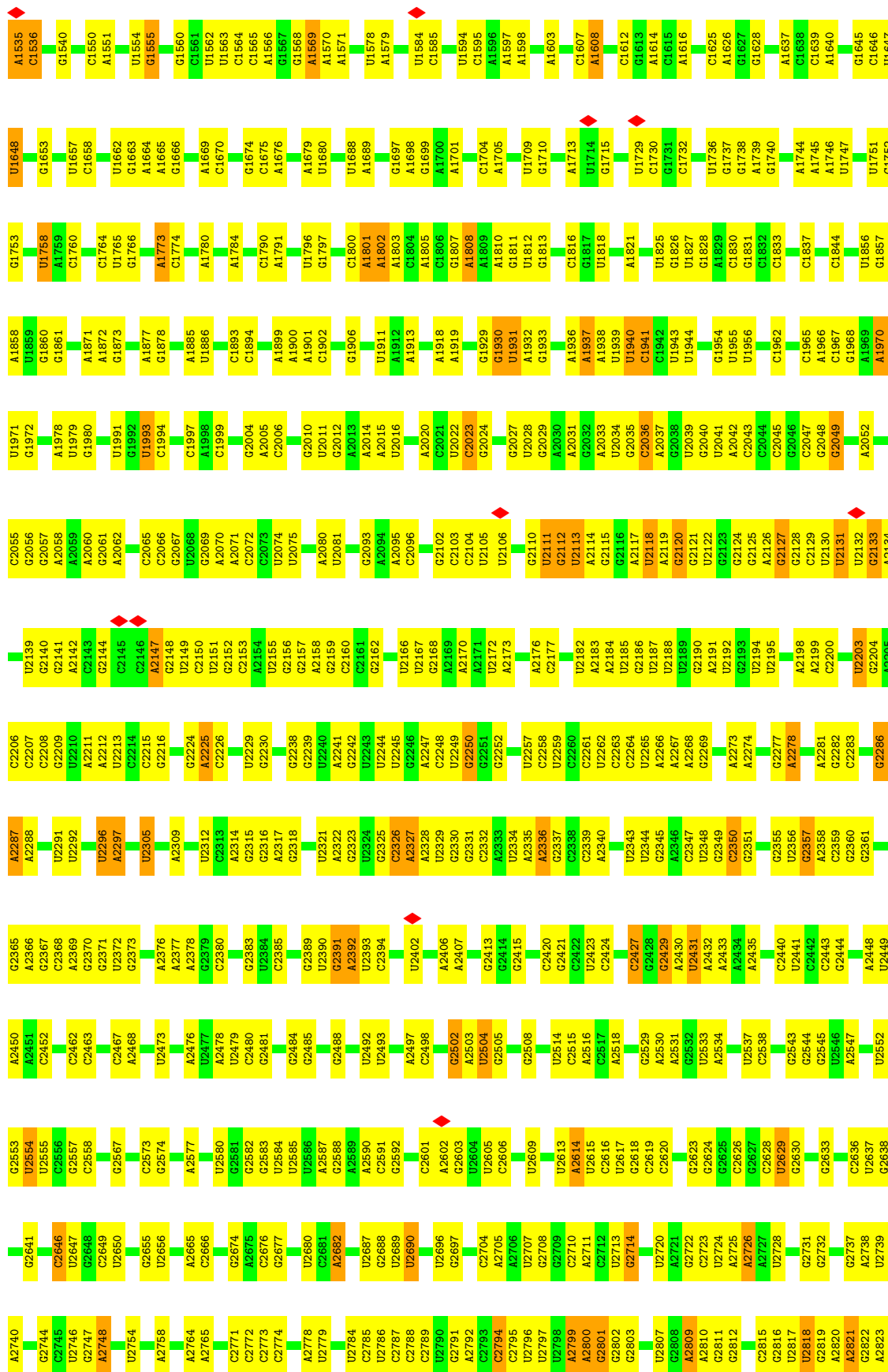


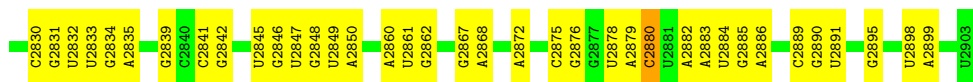


• Molecule 54: 23S ribosomal RNA

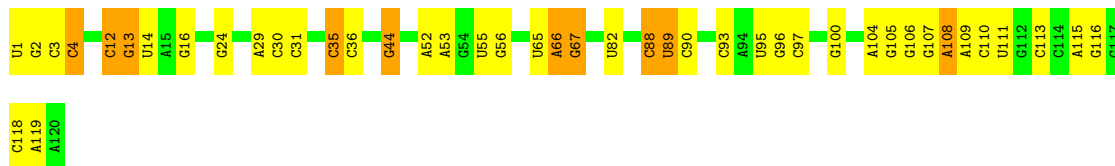








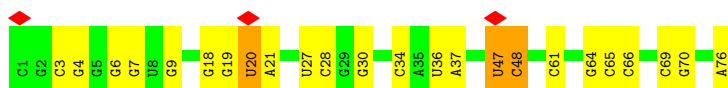
• Molecule 55: 5S ribosomal RNA



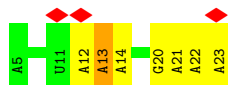
• Molecule 56: tRNAfMet



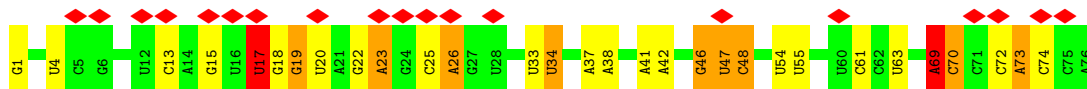
• Molecule 56: tRNAfMet



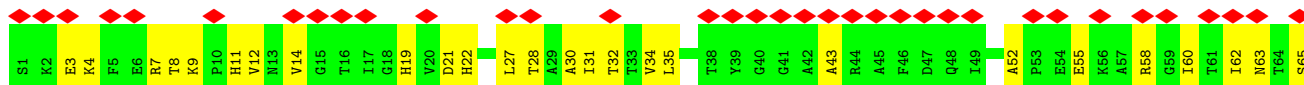
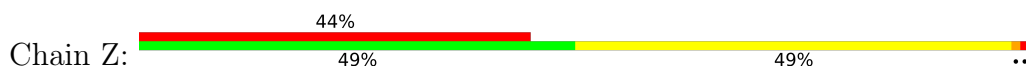
• Molecule 57: mRNA



• Molecule 58: tRNA^{Lys}



• Molecule 59: Elongation factor Tu 2



H66	V67	E88	Y69	D70	T71	P72	T73	R74	H75	Y76	A77	H78	V79	D80	H84	A85	D86	Y87	V88	K89	M90	M91	I92	T93	G94	A95	A96	Q87	M98	A101	I102	L103	V104	V105	A106	A107	T108	D109	G110	P111	M112	P113	Q114	T115	R116	E117	H118	L121	G122	R123	Q124	V125	G126	V127	P128	Y129		
I130	I131	V132	F133	L134	K135	K136	C137	D138	M139	V140	D141	D142	E143	E144	L145	L146	E147	L148	V149	E150	M151	E152	V153	Y160	D161	F162	P163	D166	T167	V170	R171	G172	S173	L178	E179	G180	D181	A182	E183	W184	E185	A186	K187	I188	L189	E190	L191	A192	G193	F194	L195	D196	S197	T198	I199			
P202	E203	R204	A205	I206	D207	K208	P209	F210	L211	L212	P213	I214	E215	D216	V217	F218	S219	I220	S221	G222	R223	V226	V227	T228	G229	R230	E231	V232	R233	G234	I235	L236	K237	V238	V242	V245	G246	I247	K248	E249	T250	Q251	K252	S253	T256	G257	V258	E259	M260	R262	K263	L264	L265					
D266	E267	G268	R269	A270	G271	N273	V274	V275	V276	R279	G280	L281	K282	R283	E284	E285	I286	E287	R288	G289	Q290	V291	L292	A293	K294	P295	G296	T297	L298	H301	T302	K303	F304	E305	S306	E307	V308	Y309	I310	L311	S312	K313	D314	E315	R318	H319	T320	P321	F322	F323	K324	G325	Q329	F330				
Y331	F332	R333	T334	T335	D336	V337	T338	G339	T340	I341	E342	L343	F344	E345	G346	V347	E348	M349	V350	M351	P352	G353	D354	M355	I356	K357	M358	V359	V360	T361	L362	I363	H364	P365	I366	A367	K368	D369	D370	G371	L372	R373	F374	A375	I376	R377	R381	T382	V383	G384	A385	G386	V387	V388	A389	K390	V391	L392

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	6910	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION; CTFFIND3 was used to determine CTF values. FREALIGN applied CTF correction.	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	1.0	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	5000	Depositor
Magnification	60976	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	13.270	Depositor
Minimum map value	-6.345	Depositor
Average map value	-0.332	Depositor
Map value standard deviation	1.036	Depositor
Recommended contour level	2.78	Depositor
Map size (\AA)	393.6, 393.6, 393.6	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	0.82, 0.82, 0.82	Depositor

5 Model quality i

5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: U8U, FME, GCP

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	04	0.30	0/2122	0.59	0/2852
2	05	0.32	0/1586	0.57	0/2134
3	06	0.32	0/1571	0.59	0/2113
4	07	0.35	0/1435	0.58	0/1926
5	08	0.32	0/1343	0.62	0/1816
6	09	0.35	0/1122	0.62	1/1515 (0.1%)
7	10	0.40	0/1002	0.73	0/1350
8	11	0.37	0/1046	0.66	0/1410
9	12	0.33	0/1152	0.59	0/1551
10	13	0.31	0/948	0.58	0/1268
11	14	0.32	0/1054	0.64	0/1403
12	15	0.33	0/1093	0.59	0/1460
13	16	0.32	0/974	0.55	0/1301
14	17	0.31	0/902	0.56	0/1209
15	18	0.32	0/929	0.60	0/1242
16	19	0.33	0/960	0.52	0/1278
17	20	0.34	0/829	0.65	1/1107 (0.1%)
18	21	0.30	0/864	0.59	0/1156
19	22	0.32	0/745	0.58	0/994
20	23	0.33	0/788	0.62	0/1051
21	24	0.35	0/766	0.59	0/1025
22	25	0.33	0/582	0.54	0/769
23	26	0.31	0/635	0.55	0/848
24	27	0.32	0/510	0.60	0/677
25	28	0.30	0/453	0.58	0/605
26	29	0.35	0/532	0.64	0/709
27	30	0.32	0/450	0.56	0/599
28	31	0.35	0/417	0.57	0/554
29	32	0.33	0/380	0.60	0/498
30	33	0.31	0/513	0.58	0/676
31	34	0.32	0/303	0.60	0/397
32	B	0.36	0/1736	0.63	0/2338

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	C	0.34	0/1652	0.54	0/2225
34	D	0.34	0/1665	0.58	0/2227
35	E	0.33	0/1170	0.65	1/1573 (0.1%)
36	F	0.35	0/836	0.64	0/1128
37	G	0.32	0/1196	0.57	0/1602
38	H	0.32	0/989	0.61	0/1326
39	I	0.34	0/1034	0.64	0/1375
40	J	0.34	0/797	0.65	0/1077
41	K	0.33	0/886	0.59	0/1195
42	L	0.32	0/969	0.66	1/1300 (0.1%)
43	M	0.31	0/893	0.59	0/1193
44	N	0.33	0/817	0.56	0/1088
45	O	0.31	0/722	0.53	0/964
46	P	0.33	0/659	0.58	0/884
47	Q	0.34	0/658	0.71	0/881
48	R	0.36	0/545	0.58	0/731
49	S	0.35	0/653	0.63	0/877
50	T	0.31	0/671	0.53	0/888
51	U	0.40	0/551	0.64	0/728
52	03	0.38	0/1034	0.67	0/1387
53	A	0.39	0/36963	0.69	10/57662 (0.0%)
54	01	0.39	0/69796	0.68	3/108888 (0.0%)
55	02	0.41	0/2872	0.68	1/4479 (0.0%)
56	W	0.44	0/1832	0.68	0/2855
56	X	0.48	0/1832	0.68	0/2855
57	V	0.41	0/471	0.63	0/735
58	Y	0.55	1/1780 (0.1%)	0.74	2/2767 (0.1%)
59	Z	0.38	0/3085	0.67	0/4173
All	All	0.38	1/166770 (0.0%)	0.66	20/248894 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
58	Y	1	G	OP3-P	-7.06	1.52	1.61

All (20) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
54	01	1178	C	N1-C1'-C2'	8.80	125.44	114.00
53	A	1301	U	N1-C1'-C2'	6.29	122.18	114.00
53	A	960	U	N1-C1'-C2'	6.09	121.92	114.00
17	20	50	GLY	N-CA-C	-5.95	98.23	113.10

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
53	A	1256	A	N9-C1'-C2'	5.87	121.63	114.00
35	E	123	LEU	N-CA-C	-5.86	95.17	111.00
53	A	1300	G	N9-C1'-C2'	5.79	121.53	114.00
53	A	1346	A	N9-C1'-C2'	5.79	121.53	114.00
58	Y	69	A	C2'-C3'-O3'	5.48	122.47	113.70
53	A	428	G	N9-C1'-C2'	5.38	120.99	114.00
42	L	43	LYS	N-CA-C	5.30	125.30	111.00
53	A	438	U	C2'-C3'-O3'	5.29	122.17	113.70
53	A	733	G	N9-C1'-C2'	5.23	120.79	114.00
55	02	44	G	N9-C1'-C2'	5.21	120.77	114.00
54	01	2326	C	C2'-C3'-O3'	5.14	121.93	113.70
54	01	458	G	C1'-O4'-C4'	-5.12	105.80	109.90
53	A	1181	G	N9-C1'-C2'	5.12	120.65	114.00
58	Y	17	U	N1-C1'-C2'	5.08	120.61	114.00
6	09	85	GLY	N-CA-C	-5.01	100.57	113.10
53	A	890	G	C1'-O4'-C4'	-5.00	105.90	109.90

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	04	2083	0	2157	88	0
2	05	1565	0	1616	53	0
3	06	1552	0	1619	48	0
4	07	1411	0	1447	59	0
5	08	1323	0	1374	55	0
6	09	1111	0	1148	52	0
7	10	989	0	1025	60	0
8	11	1032	0	1088	74	0
9	12	1129	0	1162	44	0
10	13	939	0	1012	39	0
11	14	1045	0	1117	46	0
12	15	1074	0	1157	39	0
13	16	961	0	1000	32	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
14	17	892	0	923	34	0
15	18	917	0	965	43	0
16	19	947	0	1022	34	0
17	20	816	0	839	38	0
18	21	857	0	922	36	0
19	22	739	0	807	26	0
20	23	780	0	834	40	0
21	24	753	0	780	25	0
22	25	575	0	592	24	0
23	26	625	0	655	31	0
24	27	509	0	543	23	0
25	28	449	0	491	22	0
26	29	523	0	524	11	0
27	30	444	0	461	24	0
28	31	410	0	440	17	0
29	32	377	0	418	15	0
30	33	504	0	574	19	0
31	34	302	0	343	9	0
32	B	1705	0	1732	77	0
33	C	1625	0	1699	58	0
34	D	1643	0	1710	55	0
35	E	1157	0	1199	53	0
36	F	818	0	808	44	0
37	G	1182	0	1240	56	0
38	H	979	0	1034	38	0
39	I	1022	0	1070	57	0
40	J	787	0	828	52	0
41	K	870	0	878	33	0
42	L	955	0	1019	48	0
43	M	884	0	944	42	0
44	N	805	0	847	47	0
45	O	714	0	737	17	0
46	P	649	0	666	33	0
47	Q	649	0	691	32	0
48	R	536	0	552	19	0
49	S	638	0	665	32	0
50	T	665	0	714	30	0
51	U	545	0	579	26	0
52	03	1027	0	1092	58	0
53	A	33012	0	16618	489	0
54	01	62317	0	31346	907	0
55	02	2568	0	1303	42	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
56	W	1640	0	836	14	0
56	X	1640	0	837	20	0
57	V	417	0	209	6	0
58	Y	1618	0	820	23	0
59	Z	3029	0	3043	172	0
60	W	10	0	10	0	0
61	Y	9	0	12	4	0
62	Z	32	0	14	3	0
All	All	153780	0	104807	3324	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 13.

All (3324) 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)
54:01:45:G:H5''	54:01:46:G:H5'	1.35	1.07
54:01:1645:G:H5''	54:01:1646:C:H5'	1.42	1.00
7:10:118:ILE:HG23	7:10:119:PRO:HD3	1.43	0.99
4:07:15:LEU:HD13	4:07:28:PRO:HD2	1.41	0.98
39:I:83:THR:HG21	39:I:102:PHE:HB3	1.44	0.96
54:01:475:C:H4'	54:01:510:C:H5'	1.46	0.96
29:32:34:ARG:HE	29:32:39:ARG:HD2	1.30	0.96
6:09:84:ALA:HA	6:09:91:PHE:H	1.31	0.95
53:A:484:G:H4'	53:A:485:U:H5''	1.48	0.94
51:U:66:ARG:HG3	53:A:1099:G:H4'	1.47	0.94
12:15:12:MET:HA	54:01:910:A:H62	1.33	0.94
40:J:53:ILE:HG12	53:A:1060:U:H5''	1.50	0.93
52:03:30:LEU:HD13	52:03:178:VAL:HG23	1.51	0.93
22:25:39:THR:H	54:01:2331:G:H4'	1.34	0.93
43:M:88:LEU:HD13	43:M:91:ARG:HH21	1.33	0.91
15:18:92:ARG:HD3	54:01:1753:G:H5''	1.52	0.91
52:03:162:ARG:HD3	52:03:162:ARG:H	1.35	0.90
3:06:76:PRO:HA	3:06:82:GLY:HA2	1.54	0.90
6:09:5:LEU:HD22	6:09:13:GLY:HA3	1.52	0.90
7:10:27:VAL:HG13	7:10:83:ALA:HB3	1.53	0.90
36:F:3:HIS:H	36:F:92:THR:HG22	1.35	0.89
34:D:103:ARG:HH12	34:D:110:ARG:HH12	1.16	0.89
53:A:1200:C:H5''	53:A:1201:A:H3'	1.53	0.89
53:A:112:G:H21	53:A:354:G:H5'	1.36	0.89
21:24:48:MET:HA	21:24:51:GLN:HE21	1.38	0.88

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:B:9:LEU:HD11	32:B:13:VAL:HG22	1.56	0.88
6:09:84:ALA:HB2	6:09:90:LEU:HD12	1.54	0.88
21:24:9:ARG:HG2	21:24:41:GLU:HB2	1.55	0.87
55:02:13:G:H21	55:02:16:G:H1'	1.37	0.87
28:31:33:LEU:HD22	54:01:2286:G:H2'	1.57	0.86
37:G:46:LEU:HD23	37:G:57:GLU:HB3	1.57	0.86
53:A:1206:G:H2'	53:A:1207:G:H5''	1.55	0.86
53:A:85:U:H5''	53:A:86:G:H5'	1.56	0.86
1:04:121:ALA:HB1	1:04:127:ASN:HD22	1.41	0.86
33:C:122:GLN:HE22	33:C:135:ARG:HD2	1.40	0.86
9:12:81:ILE:HD11	54:01:2514:U:H5''	1.58	0.85
46:P:20:VAL:HG23	46:P:35:ARG:HA	1.56	0.85
11:14:96:LYS:HE3	11:14:103:ILE:HA	1.58	0.85
52:03:48:LEU:HD13	52:03:50:ILE:HD11	1.59	0.85
22:25:20:LYS:HG3	54:01:2355:G:H4'	1.59	0.84
54:01:1053:C:H2'	54:01:1054:A:H5''	1.58	0.84
34:D:103:ARG:HD2	34:D:167:PRO:HG2	1.58	0.84
54:01:2452:C:H42	54:01:2504:U:H3	1.21	0.84
42:L:23:LEU:HD22	42:L:58:ASN:HB3	1.59	0.84
34:D:97:LEU:HB2	34:D:134:TYR:HB3	1.59	0.83
39:I:94:ARG:HA	39:I:97:LEU:HB3	1.60	0.83
7:10:24:SER:HB2	7:10:116:GLU:HB2	1.61	0.83
59:Z:210:PHE:H	59:Z:294:LYS:HE2	1.43	0.83
36:F:7:VAL:HG22	36:F:61:LEU:HD13	1.60	0.83
53:A:405:U:H3'	53:A:406:G:H5'	1.60	0.83
15:18:52:ARG:HH22	54:01:2720:U:H5''	1.43	0.83
56:X:13:C:H2'	56:X:14:A:H5''	1.61	0.82
59:Z:245:VAL:HA	59:Z:250:THR:HG22	1.60	0.82
35:E:57:ALA:HA	35:E:60:GLN:HE21	1.45	0.82
49:S:30:LEU:HB2	49:S:48:ILE:HG22	1.61	0.82
4:07:130:GLY:HA3	54:01:2305:U:H5''	1.62	0.82
11:14:37:GLY:H	11:14:41:ARG:HH22	1.23	0.81
12:15:45:GLN:HE21	54:01:2485:G:H5''	1.45	0.81
54:01:1474:U:H2'	54:01:1475:G:H5'	1.63	0.80
18:21:11:ARG:HH21	54:01:1321:A:H4'	1.44	0.80
53:A:1259:C:H3'	53:A:1260:G:H5''	1.63	0.80
41:K:87:GLY:H	41:K:113:THR:HG22	1.47	0.80
41:K:71:ASP:HA	41:K:74:LYS:HG3	1.62	0.79
54:01:121:G:H4'	54:01:149:A:H5'	1.63	0.79
52:03:180:PHE:HB3	52:03:184:LYS:HB2	1.62	0.79
17:20:63:VAL:HA	17:20:96:VAL:HG12	1.63	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:M:15:VAL:HG23	43:M:16:ILE:HD12	1.64	0.79
21:24:72:VAL:HG12	21:24:93:ARG:HA	1.63	0.79
54:01:2277:G:H2'	54:01:2278:A:H5''	1.64	0.79
53:A:1500:A:H5''	53:A:1508:A:H5''	1.64	0.79
13:16:44:LEU:HD23	13:16:113:ILE:HD13	1.65	0.78
17:20:76:LYS:HB2	17:20:85:LYS:HB3	1.65	0.78
13:16:2:ARG:HA	13:16:5:LYS:HD2	1.65	0.78
35:E:107:GLY:HA3	53:A:9:G:H5'	1.65	0.78
13:16:28:LEU:HD23	13:16:48:VAL:HG21	1.63	0.78
54:01:889:C:H2'	54:01:890:C:H5'	1.66	0.78
8:11:38:CYS:HA	8:11:41:PHE:HB3	1.66	0.78
17:20:38:VAL:HG11	17:20:57:GLY:HA3	1.66	0.78
20:23:33:VAL:HG13	20:23:66:VAL:HG22	1.64	0.78
38:H:10:LEU:HD22	38:H:74:ILE:HD11	1.66	0.78
10:13:43:ILE:HD12	10:13:56:ASP:HB2	1.65	0.78
34:D:80:ARG:HH11	34:D:81:LEU:HD23	1.49	0.78
9:12:64:VAL:HB	9:12:68:LYS:HE3	1.65	0.77
54:01:1827:U:H5'	54:01:1971:U:H5''	1.66	0.77
18:21:29:VAL:HG21	18:21:69:LEU:HD23	1.65	0.77
48:R:70:THR:HG23	48:R:71:ASP:H	1.48	0.77
34:D:200:VAL:HG21	35:E:102:THR:HG22	1.66	0.77
40:J:57:VAL:HG22	40:J:58:ASN:H	1.49	0.77
54:01:2553:G:H3'	54:01:2554:U:H5''	1.67	0.77
35:E:105:ILE:HD11	35:E:123:LEU:HD23	1.67	0.77
40:J:39:PRO:HD2	53:A:1123:U:H4'	1.67	0.77
37:G:72:VAL:HG12	37:G:89:GLU:HA	1.65	0.77
2:05:113:SER:HB3	2:05:170:VAL:HG21	1.67	0.77
42:L:26:CYS:SG	42:L:29:LYS:HG3	2.25	0.77
58:Y:46:G:H3'	58:Y:47:U:H4'	1.66	0.77
5:08:137:LYS:HG2	54:01:2746:U:H5''	1.65	0.76
32:B:118:THR:HA	32:B:121:GLN:HE21	1.50	0.76
33:C:106:ARG:HG3	33:C:107:LYS:HG3	1.67	0.76
14:17:49:VAL:HG11	14:17:81:ARG:HB2	1.67	0.76
41:K:15:VAL:HG12	41:K:76:TYR:HB3	1.66	0.76
54:01:2427:C:H5''	54:01:2429:G:H5'	1.67	0.76
59:Z:289:GLY:HA2	59:Z:335:THR:HG22	1.66	0.76
42:L:113:ARG:HB2	42:L:118:VAL:HB	1.68	0.76
38:H:1:SER:HA	53:A:824:G:H1'	1.68	0.75
1:04:20:ASN:HD22	1:04:23:LEU:HG	1.50	0.75
6:09:67:ALA:HA	6:09:138:VAL:HG11	1.67	0.75
12:15:64:TRP:HB2	12:15:104:GLU:HB2	1.69	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:06:129:PRO:HG3	3:06:156:ASN:HA	1.68	0.75
33:C:76:ILE:HB	33:C:80:GLY:HA2	1.68	0.75
37:G:145:GLU:H	37:G:148:LYS:HB2	1.52	0.75
39:I:20:ILE:HD11	39:I:60:LEU:HD22	1.69	0.75
14:17:40:ILE:HG12	14:17:47:VAL:HG12	1.66	0.74
23:26:31:ASN:HD22	23:26:52:ALA:HB2	1.51	0.74
32:B:160:LEU:HB3	32:B:182:VAL:HG12	1.69	0.74
52:03:68:GLY:HA2	52:03:159:GLY:HA3	1.69	0.74
59:Z:211:LEU:HD11	59:Z:298:ILE:HD11	1.67	0.74
52:03:62:ALA:HA	52:03:162:ARG:HA	1.68	0.74
17:20:41:ILE:HG13	17:20:54:VAL:HG21	1.69	0.74
18:21:6:LYS:HG3	54:01:494:G:H4'	1.69	0.74
32:B:66:ILE:HD12	32:B:159:ALA:HB3	1.68	0.74
41:K:22:ILE:HG21	41:K:95:THR:HG21	1.69	0.74
54:01:507:A:H5''	54:01:508:A:H2'	1.70	0.74
2:05:55:LYS:HE2	2:05:77:ARG:HA	1.69	0.74
49:S:77:ARG:HH21	53:A:1225:A:H4'	1.51	0.73
8:11:10:LEU:HD12	8:11:58:ILE:HG13	1.71	0.73
1:04:160:TYR:HB3	1:04:193:GLU:HG2	1.71	0.73
4:07:48:LEU:HD21	4:07:147:ARG:HH12	1.52	0.73
1:04:48:ILE:HD11	1:04:51:ARG:HA	1.70	0.73
54:01:161:A:H3'	54:01:162:U:H5''	1.70	0.73
42:L:98:ARG:HB2	42:L:116:TYR:HA	1.71	0.72
52:03:46:VAL:HG13	52:03:212:VAL:HG22	1.71	0.72
3:06:24:ASN:HD22	3:06:27:LEU:HB2	1.53	0.72
7:10:64:VAL:HG21	7:10:78:GLY:HA2	1.71	0.72
8:11:33:ASN:HD21	8:11:35:MET:HB3	1.54	0.72
32:B:91:VAL:HG11	32:B:95:TRP:HD1	1.54	0.72
43:M:6:ILE:HG13	43:M:7:ASN:H	1.54	0.72
34:D:158:LEU:HA	34:D:161:ALA:HB3	1.72	0.72
20:23:73:ASN:ND2	20:23:75:ALA:HB3	2.05	0.72
23:26:9:LYS:HE2	23:26:53:LYS:HD3	1.69	0.71
55:02:3:C:H2'	55:02:4:C:H5''	1.72	0.71
18:21:20:VAL:HG21	18:21:43:ALA:HB3	1.70	0.71
36:F:3:HIS:HB2	36:F:92:THR:HA	1.69	0.71
1:04:143:VAL:HB	1:04:153:LEU:HB2	1.72	0.71
43:M:94:LEU:HB3	43:M:95:PRO:HD2	1.71	0.71
5:08:3:VAL:HG21	54:01:2748:A:H5'	1.73	0.71
6:09:55:GLU:HA	6:09:58:LEU:HB2	1.71	0.71
6:09:124:THR:HG22	6:09:125:THR:H	1.56	0.71
7:10:87:GLU:HB3	7:10:93:ALA:HB3	1.72	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:11:92:PRO:HA	8:11:136:GLY:HA3	1.73	0.71
39:I:123:ARG:HB3	53:A:1343:G:H4'	1.72	0.71
32:B:205:ALA:HB3	32:B:208:ALA:HB3	1.72	0.71
54:01:805:G:H22	54:01:828:U:H5''	1.55	0.71
10:13:24:VAL:HG13	10:13:33:ALA:HB2	1.73	0.71
43:M:70:ARG:HA	43:M:73:SER:HB2	1.73	0.71
54:01:2628:C:H3'	54:01:2629:U:H5'	1.71	0.70
59:Z:4:LYS:HA	59:Z:264:LEU:HB2	1.72	0.70
7:10:61:ARG:HD3	7:10:65:GLU:HG2	1.73	0.70
43:M:23:GLY:HA2	43:M:68:LEU:HD22	1.74	0.70
14:17:51:ALA:HB2	14:17:78:VAL:HG13	1.73	0.70
42:L:49:ARG:HD2	42:L:89:LEU:HD11	1.73	0.70
17:20:16:GLU:HB2	17:20:101:ILE:HG12	1.72	0.70
35:E:23:THR:HA	35:E:28:ARG:HA	1.73	0.70
3:06:47:LYS:HB2	3:06:51:GLU:HB2	1.73	0.70
58:Y:72:C:H3'	58:Y:73:A:H5''	1.72	0.70
4:07:140:ILE:HG22	4:07:142:TYR:H	1.54	0.70
7:10:33:VAL:HG12	54:01:1055:G:H5''	1.74	0.70
46:P:7:ALA:HB3	46:P:18:GLN:HB3	1.72	0.70
53:A:1502:A:H8	53:A:1505:G:H22	1.35	0.70
47:Q:45:VAL:HG21	47:Q:60:ILE:HD13	1.74	0.70
53:A:819:A:H3'	53:A:820:U:H5'	1.73	0.70
13:16:79:LEU:HD23	13:16:83:LEU:HB2	1.74	0.70
37:G:26:VAL:HG22	37:G:42:VAL:HG21	1.73	0.69
1:04:153:LEU:HD13	1:04:175:LEU:HD21	1.74	0.69
16:19:109:VAL:HG12	16:19:113:LYS:HE2	1.74	0.69
59:Z:116:ARG:HB2	59:Z:160:TYR:HE2	1.57	0.69
1:04:15:VAL:HG22	1:04:205:GLY:HA3	1.74	0.69
5:08:40:VAL:HG23	5:08:63:GLN:HG3	1.72	0.69
15:18:59:THR:HG22	15:18:72:VAL:HG12	1.73	0.69
41:K:30:ILE:HB	41:K:45:THR:HG22	1.74	0.69
53:A:59:A:H5''	53:A:387:U:H5''	1.75	0.69
54:01:917:A:H5''	54:01:2268:A:H61	1.58	0.69
5:08:39:ALA:HB3	5:08:63:GLN:HG2	1.74	0.69
42:L:109:ARG:HB2	42:L:118:VAL:HG21	1.75	0.69
53:A:769:G:H4'	53:A:1513:A:H4'	1.75	0.69
54:01:704:G:H2'	54:01:726:G:N2	2.07	0.69
54:01:1103:A:H3'	54:01:1104:C:H5''	1.75	0.69
59:Z:235:ILE:HG22	59:Z:269:ARG:HA	1.73	0.69
2:05:54:ALA:HA	2:05:76:GLY:HA2	1.73	0.69
43:M:47:LEU:HD21	43:M:51:GLN:HB2	1.74	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:25:12:SER:OG	54:01:2261:C:H3'	1.93	0.68
25:28:8:GLN:HG2	25:28:31:ILE:HG22	1.74	0.68
30:33:32:LEU:HD23	30:33:35:LYS:HD2	1.75	0.68
34:D:81:LEU:HD12	34:D:88:ASN:HB3	1.75	0.68
54:01:873:C:H2'	54:01:874:G:C8	2.29	0.68
7:10:118:ILE:HG23	7:10:119:PRO:CD	2.21	0.68
35:E:159:SER:HB2	35:E:162:GLU:HG2	1.76	0.68
33:C:112:ALA:HB2	33:C:182:ASP:HB3	1.75	0.68
35:E:76:ASN:HB3	35:E:79:THR:HG23	1.75	0.68
37:G:92:PRO:O	37:G:95:ARG:HG2	1.93	0.68
41:K:23:HIS:HB3	41:K:30:ILE:HG23	1.74	0.68
12:15:10:ARG:HH12	56:W:64:G:H4'	1.59	0.68
41:K:116:PRO:HB3	53:A:676:A:H1'	1.76	0.68
50:T:77:ASN:O	50:T:81:GLN:HG2	1.94	0.68
10:13:102:PRO:HB3	10:13:121:GLU:HB3	1.74	0.68
35:E:121:ASN:ND2	35:E:122:VAL:HG13	2.08	0.68
34:D:57:LYS:HG3	34:D:202:LEU:HD22	1.74	0.68
40:J:40:ILE:HB	40:J:73:LEU:HB2	1.76	0.68
53:A:1206:G:C2'	53:A:1207:G:H5''	2.23	0.68
8:11:48:ILE:HG13	8:11:49:GLU:H	1.59	0.68
12:15:34:LYS:HE3	12:15:131:VAL:HG21	1.76	0.67
15:18:32:VAL:HG12	15:18:34:GLY:H	1.58	0.67
20:23:14:THR:HB	54:01:310:A:H5''	1.77	0.67
34:D:9:LYS:HG3	34:D:12:ARG:HH21	1.59	0.67
34:D:127:ARG:HH21	53:A:619:U:H4'	1.59	0.67
42:L:25:ALA:CB	53:A:554:A:H5'	2.23	0.67
36:F:38:ARG:HH21	36:F:40:GLU:HG3	1.59	0.67
54:01:306:U:H3	54:01:310:A:H62	1.42	0.67
54:01:2121:G:H2'	54:01:2122:U:O4'	1.94	0.67
29:32:10:LEU:HD23	54:01:770:G:H5''	1.77	0.67
33:C:179:ALA:HB1	33:C:202:PHE:HE1	1.59	0.67
3:06:34:ALA:HA	3:06:94:GLN:HE21	1.60	0.67
51:U:28:LEU:HA	51:U:31:VAL:HG12	1.75	0.67
7:10:56:ARG:HE	7:10:83:ALA:HB2	1.59	0.67
7:10:58:THR:HG21	7:10:81:LEU:HA	1.77	0.67
39:I:35:GLU:HA	39:I:39:GLY:HA3	1.76	0.67
54:01:1936:A:H2	54:01:1943:U:H3	1.41	0.67
54:01:2249:U:H3'	54:01:2250:G:H5'	1.75	0.67
51:U:4:LYS:HG2	51:U:5:VAL:N	2.09	0.67
5:08:94:ARG:H	5:08:105:SER:HB2	1.60	0.67
8:11:33:ASN:HB2	8:11:64:ARG:HH22	1.59	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:03:37:LYS:HB3	54:01:2127:G:H5'	1.76	0.67
11:14:37:GLY:H	11:14:41:ARG:NH2	1.93	0.67
37:G:111:GLY:HA2	37:G:118:ARG:HD3	1.77	0.67
37:G:118:ARG:HA	37:G:121:ASN:HD22	1.60	0.67
59:Z:194:PHE:HA	59:Z:197:SER:HB3	1.77	0.67
59:Z:242:VAL:HA	59:Z:295:PRO:HD3	1.76	0.67
8:11:102:ARG:HA	8:11:105:LEU:HB2	1.76	0.66
29:32:31:LEU:HD11	29:32:43:THR:HG23	1.77	0.66
53:A:664:G:H22	53:A:741:G:H1	1.42	0.66
1:04:259:ASN:ND2	1:04:261:ARG:HG2	2.11	0.66
8:11:112:LYS:HG2	8:11:116:MET:HG2	1.77	0.66
29:32:26:ASN:O	29:32:30:VAL:HG23	1.96	0.66
6:09:84:ALA:HA	6:09:91:PHE:N	2.08	0.66
53:A:327:A:O2'	53:A:328:C:H4'	1.95	0.66
54:01:1597:A:H5''	54:01:1598:A:H5'	1.77	0.66
8:11:91:LYS:N	8:11:92:PRO:HD3	2.11	0.66
27:30:8:THR:HG23	54:01:2020:A:H5'	1.77	0.66
50:T:55:PRO:HB3	53:A:193:C:H4'	1.77	0.66
20:23:71:ILE:HD13	20:23:82:VAL:HG22	1.77	0.66
53:A:31:G:H3'	53:A:32:A:H5''	1.77	0.66
58:Y:25:C:H3'	58:Y:26:A:H5''	1.78	0.66
59:Z:321:PRO:HB3	59:Z:351:MET:HA	1.78	0.66
14:17:35:ILE:HG23	14:17:74:VAL:HG21	1.77	0.66
32:B:183:PHE:HB3	32:B:197:PHE:HB2	1.76	0.66
49:S:52:ASN:HB2	49:S:76:THR:HG22	1.76	0.66
53:A:212:G:H2'	53:A:213:G:H8	1.61	0.66
59:Z:350:VAL:HG11	59:Z:356:ILE:HG12	1.78	0.66
8:11:93:ASN:HB2	54:01:1077:A:C5'	2.26	0.66
20:23:10:VAL:HG12	20:23:71:ILE:HA	1.77	0.66
36:F:38:ARG:HD3	36:F:97:THR:HA	1.78	0.66
38:H:86:LYS:HD2	38:H:90:GLU:HG2	1.76	0.66
8:11:33:ASN:HD22	8:11:36:GLU:H	1.44	0.65
9:12:98:GLU:OE2	9:12:126:ALA:HB2	1.96	0.65
15:18:12:MET:HB3	15:18:14:GLN:HE21	1.61	0.65
3:06:71:GLY:H	54:01:674:G:H5''	1.60	0.65
1:04:36:ASN:HB2	1:04:61:TYR:HB2	1.79	0.65
38:H:4:ASP:HB2	38:H:80:PRO:HG3	1.76	0.65
42:L:73:LEU:HD21	42:L:79:ILE:HG21	1.76	0.65
48:R:40:PRO:HB3	53:A:720:C:H5''	1.79	0.65
12:15:42:THR:HG22	12:15:93:VAL:HG12	1.77	0.65
31:34:19:ARG:HD2	31:34:24:ARG:HD2	1.78	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
59:Z:297:THR:HG23	59:Z:298:ILE:HG13	1.77	0.65
3:06:18:THR:HG23	3:06:106:LYS:HE3	1.78	0.65
35:E:64:GLU:HB3	35:E:68:ARG:HH12	1.62	0.65
22:25:12:SER:HB2	54:01:2262:U:H5	1.60	0.65
53:A:422:C:H4'	53:A:423:G:H5''	1.79	0.65
42:L:29:LYS:HE2	42:L:58:ASN:ND2	2.12	0.65
54:01:2114:A:H61	54:01:2117:A:H62	1.43	0.65
56:W:47:U:H3'	56:W:48:C:H5'	1.78	0.65
59:Z:256:THR:HG21	59:Z:279:ARG:HB2	1.77	0.65
27:30:8:THR:CG2	54:01:2020:A:H5'	2.27	0.65
3:06:58:LYS:HG2	3:06:71:GLY:HA2	1.77	0.65
6:09:58:LEU:O	6:09:61:VAL:HG22	1.96	0.65
30:33:36:ALA:HB3	30:33:39:ARG:HG3	1.79	0.65
4:07:3:LEU:HD21	4:07:100:GLU:HA	1.78	0.65
5:08:117:PRO:HD2	5:08:120:ILE:HG13	1.79	0.65
46:P:48:GLU:HG3	46:P:49:GLY:H	1.61	0.65
59:Z:213:PRO:HD3	59:Z:232:GLU:HB2	1.78	0.65
32:B:16:GLY:HA3	32:B:39:ILE:HA	1.79	0.64
41:K:63:GLN:HG3	41:K:98:ALA:HB2	1.79	0.64
12:15:96:ILE:HG21	12:15:102:LEU:HD21	1.79	0.64
37:G:35:LYS:HD2	53:A:1373:G:H5''	1.80	0.64
53:A:82:G:H2'	53:A:83:C:O4'	1.97	0.64
8:11:58:ILE:HG22	8:11:60:VAL:HG23	1.79	0.64
13:16:49:GLU:HG3	54:01:2839:G:H4'	1.78	0.64
43:M:87:GLY:O	43:M:91:ARG:HG3	1.98	0.64
51:U:33:ARG:NH2	51:U:34:ARG:HE	1.96	0.64
53:A:50:A:H4'	53:A:51:A:H5'	1.78	0.64
54:01:676:A:H62	54:01:802:A:H61	1.46	0.64
32:B:110:ILE:HG23	32:B:151:LYS:HG3	1.78	0.64
53:A:1506:U:O2'	53:A:1507:A:H5'	1.98	0.64
2:05:151:THR:HB	2:05:152:PRO:HD3	1.80	0.64
38:H:1:SER:N	38:H:3:GLN:HE21	1.95	0.64
18:21:84:ARG:HB2	18:21:96:ILE:HG13	1.79	0.64
36:F:6:ILE:HB	36:F:62:MET:HB2	1.78	0.64
49:S:62:THR:H	49:S:65:MET:HE3	1.62	0.64
50:T:24:ARG:HG3	50:T:65:LEU:HD11	1.80	0.64
55:02:65:U:H3'	55:02:108:A:H61	1.63	0.64
12:15:2:LEU:H	12:15:43:ALA:HB1	1.62	0.64
18:21:57:ASN:ND2	18:21:61:ASN:HD22	1.95	0.64
34:D:131:ILE:H	34:D:131:ILE:HD12	1.62	0.64
37:G:128:GLU:HG3	37:G:130:LYS:HE2	1.80	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:03:46:VAL:HG22	52:03:212:VAL:HG13	1.78	0.64
53:A:1005:A:H2'	53:A:1006:G:O4'	1.98	0.64
54:01:644:A:H2'	54:01:645:C:H4'	1.78	0.64
3:06:71:GLY:N	54:01:674:G:H5''	2.13	0.64
27:30:54:ILE:HG23	27:30:56:LYS:H	1.63	0.64
53:A:358:U:H2'	53:A:359:G:C8	2.33	0.64
35:E:12:GLU:HB3	35:E:38:VAL:HG12	1.78	0.63
54:01:2800:A:H3'	54:01:2801:G:H5'	1.80	0.63
58:Y:46:G:H3'	58:Y:47:U:C4'	2.28	0.63
9:12:29:ALA:HA	9:12:32:LEU:HD12	1.81	0.63
17:20:6:GLN:HG3	17:20:39:LEU:HD11	1.79	0.63
19:22:54:GLU:HB2	19:22:88:LYS:HD2	1.79	0.63
33:C:20:THR:HB	33:C:57:GLU:HG2	1.80	0.63
45:O:24:THR:HG21	45:O:69:LEU:HB2	1.80	0.63
59:Z:258:VAL:HG13	59:Z:276:VAL:HG22	1.80	0.63
11:14:90:VAL:HG13	11:14:95:LEU:HD21	1.81	0.63
15:18:52:ARG:NH2	54:01:2720:U:H5''	2.14	0.63
52:03:59:VAL:HB	52:03:165:ASN:HB3	1.81	0.63
1:04:1:ALA:HB3	1:04:19:VAL:HB	1.80	0.63
15:18:3:ILE:H	15:18:3:ILE:HD12	1.64	0.63
38:H:9:MET:HB2	38:H:32:LYS:HE2	1.81	0.63
3:06:145:ASP:HB3	3:06:184:ASP:HB2	1.81	0.63
4:07:30:VAL:HA	4:07:157:THR:HG22	1.81	0.63
36:F:36:ILE:HA	36:F:64:VAL:HG23	1.79	0.63
49:S:18:VAL:HG11	49:S:43:MET:HG2	1.81	0.63
55:02:106:G:H2'	55:02:107:G:O4'	1.99	0.63
4:07:62:GLN:NE2	4:07:90:LEU:HB3	2.14	0.63
5:08:104:LEU:HB2	5:08:112:VAL:HB	1.80	0.63
11:14:77:ILE:HD11	11:14:108:ALA:HB1	1.80	0.63
49:S:32:THR:HG22	49:S:49:ALA:O	1.98	0.63
54:01:873:C:H2'	54:01:874:G:H8	1.62	0.63
2:05:148:GLN:HB2	2:05:152:PRO:HG2	1.80	0.63
11:14:25:SER:HA	54:01:813:U:C5	2.34	0.63
23:26:31:ASN:ND2	23:26:52:ALA:HB2	2.13	0.63
40:J:89:ARG:HG3	40:J:90:LEU:HG	1.81	0.63
51:U:9:GLU:HB3	51:U:10:PRO:HD3	1.80	0.63
54:01:859:G:H1'	54:01:860:U:H5	1.63	0.63
3:06:26:ALA:HB2	11:14:9:ALA:HB2	1.79	0.63
18:21:42:LYS:HB2	54:01:2010:G:H5''	1.81	0.63
20:23:47:PRO:HD3	20:23:55:GLY:HA2	1.80	0.63
36:F:12:PRO:HD2	36:F:54:LEU:HD21	1.79	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:13:58:LEU:HD11	10:13:86:LEU:HD22	1.81	0.62
11:14:62:PRO:HB2	30:33:29:ARG:HH11	1.63	0.62
21:24:10:LYS:HG3	21:24:11:GLU:HG3	1.81	0.62
38:H:94:VAL:HG12	38:H:95:MET:HG3	1.81	0.62
44:N:25:GLU:HA	44:N:28:ALA:HB3	1.80	0.62
5:08:85:LYS:HG3	5:08:131:VAL:HG22	1.81	0.62
23:26:24:THR:HG21	54:01:2081:U:H4'	1.79	0.62
24:27:1:MET:HA	24:27:4:LYS:HE2	1.81	0.62
56:X:13:C:C2'	56:X:14:A:H5''	2.29	0.62
59:Z:231:VAL:HB	59:Z:270:ALA:HA	1.81	0.62
24:27:9:LYS:HE2	24:27:11:VAL:HG23	1.81	0.62
32:B:60:ALA:HB3	32:B:223:GLY:HA3	1.81	0.62
40:J:50:THR:HG23	40:J:64:GLN:HG2	1.81	0.62
18:21:88:ARG:H	54:01:1614:A:H61	1.45	0.62
37:G:142:ARG:HG3	56:X:41:C:H4'	1.82	0.62
53:A:352:C:H4'	53:A:354:G:OP1	1.98	0.62
53:A:868:C:H2'	53:A:869:G:O4'	1.99	0.62
59:Z:269:ARG:HE	59:Z:272:GLU:HG3	1.63	0.62
2:05:4:LEU:HD23	2:05:29:VAL:HG11	1.80	0.62
8:11:100:ILE:HG22	8:11:101:SER:H	1.64	0.62
31:34:4:ARG:O	31:34:37:GLN:HB3	2.00	0.62
40:J:45:ARG:HB2	40:J:69:THR:HB	1.80	0.62
53:A:884:U:H4'	53:A:885:G:H5''	1.81	0.62
54:01:554:U:H2'	54:01:555:G:O4'	1.99	0.62
8:11:89:SER:HA	8:11:92:PRO:HG3	1.81	0.62
12:15:73:ILE:HD11	12:15:93:VAL:HG22	1.81	0.62
13:16:61:ALA:HB2	54:01:2850:A:H2	1.65	0.62
31:34:36:ARG:O	31:34:37:GLN:HB2	1.98	0.62
53:A:817:C:H4'	53:A:818:G:H5''	1.81	0.62
10:13:87:LEU:HD13	10:13:92:GLU:HB3	1.82	0.62
14:17:79:ALA:HB1	14:17:113:ALA:HB3	1.82	0.62
18:21:76:VAL:HG13	18:21:103:ILE:HG12	1.82	0.62
54:01:2508:G:H1	54:01:2580:U:H3	1.47	0.62
59:Z:113:PRO:HA	59:Z:116:ARG:HG2	1.81	0.62
38:H:29:SER:HB3	38:H:32:LYS:HG3	1.82	0.62
51:U:5:VAL:HG11	51:U:16:ARG:HB3	1.82	0.62
9:12:47:HIS:ND1	9:12:48:VAL:HG23	2.15	0.61
35:E:54:GLU:HG2	35:E:56:PRO:HD2	1.82	0.61
40:J:57:VAL:O	40:J:58:ASN:HB2	2.00	0.61
42:L:79:ILE:HG22	42:L:103:CYS:HB2	1.82	0.61
30:33:23:HIS:HD2	30:33:49:VAL:HG22	1.65	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:1179:G:H2'	54:01:1180:U:H4'	1.81	0.61
54:01:1509:A:H2'	54:01:1510:G:C8	2.35	0.61
54:01:1807:G:H2'	54:01:1808:A:H5'	1.82	0.61
3:06:48:THR:O	3:06:52:VAL:HG23	1.99	0.61
3:06:5:LEU:HD22	3:06:10:SER:HB3	1.83	0.61
23:26:16:ASN:HB2	23:26:26:ARG:HB3	1.81	0.61
25:28:51:SER:HA	25:28:54:VAL:HG22	1.82	0.61
36:F:5:GLU:HA	36:F:63:ASN:HA	1.82	0.61
26:29:42:PRO:O	26:29:46:GLY:HA3	2.01	0.61
48:R:70:THR:HG23	48:R:72:ARG:H	1.65	0.61
50:T:53:MET:HA	50:T:56:ILE:HG22	1.80	0.61
33:C:86:LEU:HA	33:C:89:VAL:HG22	1.83	0.61
55:02:118:C:H2'	55:02:119:A:C8	2.36	0.61
59:Z:58:ARG:NH2	59:Z:62:ILE:HG21	2.15	0.61
7:10:3:LEU:HD12	7:10:6:GLN:H	1.65	0.61
9:12:58:ASN:HD22	9:12:61:LYS:HG3	1.64	0.61
7:10:42:ARG:HD3	8:11:117:THR:HB	1.82	0.61
20:23:73:ASN:HD21	20:23:75:ALA:HB3	1.65	0.61
30:33:18:LYS:HG3	54:01:651:G:H5'	1.81	0.61
54:01:1053:C:C2'	54:01:1054:A:H5''	2.30	0.61
54:01:1535:A:H3'	54:01:1536:C:H5'	1.83	0.61
8:11:93:ASN:HB2	54:01:1077:A:H4'	1.83	0.61
14:17:40:ILE:HA	14:17:47:VAL:HA	1.83	0.61
36:F:3:HIS:HB2	36:F:92:THR:CA	2.30	0.61
53:A:297:G:H4'	53:A:557:G:H4'	1.82	0.61
59:Z:121:LEU:HD23	59:Z:375:ALA:HB1	1.83	0.61
3:06:112:LEU:HB3	3:06:118:LEU:HB2	1.81	0.61
24:27:2:LYS:HE2	54:01:102:U:H1'	1.81	0.61
42:L:109:ARG:NH1	53:A:537:G:H5''	2.14	0.61
53:A:1496:C:H1'	53:A:1517:G:H22	1.66	0.61
54:01:310:A:C2'	54:01:311:A:H5''	2.31	0.61
7:10:28:ALA:H	7:10:110:ALA:HA	1.66	0.60
17:20:27:ILE:HG13	17:20:33:VAL:HG11	1.81	0.60
33:C:109:GLU:HB2	33:C:143:LEU:HD13	1.83	0.60
54:01:189:G:H2'	54:01:205:G:H22	1.66	0.60
8:11:21:PRO:HB2	8:11:22:PRO:HD3	1.83	0.60
14:17:17:LYS:NZ	54:01:2380:C:H5'	2.16	0.60
8:11:93:ASN:HB2	54:01:1077:A:H5''	1.83	0.60
40:J:5:ARG:HG2	40:J:79:PRO:HB3	1.82	0.60
43:M:16:ILE:HD12	43:M:16:ILE:H	1.65	0.60
50:T:4:LYS:HG3	50:T:6:ALA:H	1.66	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:2747:G:H1	54:01:2754:U:H2'	1.66	0.60
59:Z:11:HIS:HA	59:Z:75:HIS:HB3	1.83	0.60
33:C:182:ASP:HB2	33:C:201:ILE:HB	1.82	0.60
35:E:131:ASN:H	35:E:135:VAL:HG13	1.66	0.60
13:16:10:LEU:O	13:16:12:ARG:HD2	2.01	0.60
38:H:46:GLU:O	38:H:47:ASP:HB2	2.00	0.60
38:H:77:VAL:HG12	38:H:84:ILE:HD12	1.83	0.60
52:03:60:ARG:HE	52:03:164:ARG:HG3	1.66	0.60
54:01:1251:C:O2'	54:01:1252:G:H3'	2.01	0.60
54:01:2158:A:H4'	54:01:2159:G:O4'	2.02	0.60
6:09:94:ILE:HB	6:09:122:LEU:HB2	1.82	0.60
7:10:31:ARG:HB3	7:10:108:VAL:HG11	1.82	0.60
11:14:63:LYS:HE3	54:01:2394:C:H5''	1.84	0.60
32:B:159:ALA:HB1	32:B:183:PHE:HE1	1.65	0.60
1:04:259:ASN:HD21	1:04:261:ARG:HG2	1.67	0.60
5:08:40:VAL:CG2	5:08:63:GLN:HG3	2.30	0.60
16:19:40:LYS:HE3	54:01:563:A:H4'	1.83	0.60
17:20:79:ARG:HH22	54:01:572:A:H5'	1.66	0.60
35:E:110:MET:HG3	35:E:139:THR:HG21	1.83	0.60
40:J:9:ARG:NH1	53:A:1279:G:H5''	2.17	0.60
42:L:88:ASP:HB3	42:L:89:LEU:HD12	1.82	0.60
44:N:3:GLN:HG3	53:A:1047:G:H5''	1.83	0.60
54:01:807:U:H2'	54:01:808:G:C8	2.36	0.60
11:14:85:VAL:O	11:14:86:GLU:HB2	2.00	0.60
35:E:104:ILE:HD11	35:E:114:LEU:HD23	1.84	0.60
49:S:54:ARG:HB3	53:A:958:A:C2	2.37	0.60
50:T:25:SER:HB3	53:A:1458:G:H5''	1.84	0.60
5:08:8:VAL:HB	5:08:49:LEU:HB2	1.82	0.60
10:13:11:ALA:HB2	10:13:83:ALA:HB1	1.83	0.60
49:S:5:LYS:HG3	49:S:6:LYS:HG2	1.83	0.60
54:01:293:U:H2'	54:01:294:A:H5''	1.84	0.60
54:01:1186:G:H2'	54:01:1187:G:O4'	2.01	0.60
59:Z:34:VAL:HG22	59:Z:185:GLU:HG3	1.84	0.60
13:16:63:ARG:NH2	54:01:1454:C:H5'	2.17	0.60
16:19:49:ARG:HH21	17:20:74:ILE:HG13	1.67	0.60
48:R:40:PRO:HG2	48:R:43:ILE:HG12	1.83	0.60
51:U:57:LYS:HE2	51:U:57:LYS:HA	1.83	0.60
7:10:96:PHE:HE2	7:10:125:ARG:HA	1.66	0.59
19:22:4:GLU:HA	19:22:7:LEU:HB2	1.83	0.59
44:N:2:LYS:HD3	53:A:1049:U:H2'	1.83	0.59
53:A:1218:C:H2'	53:A:1219:A:C8	2.36	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:31:4:ILE:HG23	28:31:27:ARG:HH21	1.66	0.59
32:B:15:PHE:H	32:B:15:PHE:HD1	1.51	0.59
42:L:101:LEU:HD12	42:L:101:LEU:H	1.66	0.59
5:08:15:ASP:HB2	5:08:26:LYS:H	1.67	0.59
37:G:38:ALA:HA	37:G:41:ILE:HD12	1.84	0.59
48:R:11:ARG:HD3	48:R:11:ARG:H	1.66	0.59
54:01:2267:A:H5''	54:01:2268:A:H5'	1.84	0.59
5:08:84:LYS:HG3	5:08:140:ILE:HB	1.85	0.59
6:09:62:LEU:HA	6:09:65:ALA:HB3	1.84	0.59
8:11:33:ASN:ND2	8:11:36:GLU:H	2.00	0.59
8:11:33:ASN:ND2	8:11:35:MET:HB3	2.16	0.59
15:18:17:PRO:HG2	15:18:83:ILE:HB	1.84	0.59
17:20:81:LYS:HD2	54:01:973:A:H5''	1.83	0.59
19:22:40:LYS:HA	19:22:43:ILE:HD12	1.82	0.59
34:D:59:LYS:NZ	34:D:194:ILE:HG22	2.17	0.59
51:U:36:PHE:C	51:U:38:GLU:H	2.06	0.59
32:B:31:PHE:HB2	32:B:39:ILE:O	2.02	0.59
36:F:15:SER:HA	36:F:18:VAL:HG23	1.84	0.59
54:01:1474:U:C2'	54:01:1475:G:H5'	2.32	0.59
17:20:38:VAL:HG13	17:20:54:VAL:HG23	1.83	0.59
42:L:36:VAL:HG21	42:L:74:GLN:HA	1.85	0.59
46:P:19:VAL:HG13	46:P:36:VAL:O	2.03	0.59
53:A:1342:C:H2'	53:A:1343:G:C8	2.37	0.59
54:01:2296:U:H5''	54:01:2297:A:OP1	2.03	0.59
59:Z:343:LEU:HA	59:Z:358:MET:HB3	1.84	0.59
18:21:41:LYS:NZ	27:30:21:LEU:HD11	2.18	0.59
18:21:76:VAL:HG22	18:21:103:ILE:HG23	1.83	0.59
56:X:21:A:H61	56:X:46:G:H2'	1.68	0.59
59:Z:14:VAL:HG23	59:Z:78:HIS:ND1	2.18	0.59
59:Z:88:VAL:O	59:Z:92:ILE:HG13	2.02	0.59
6:09:64:ALA:O	6:09:68:ARG:HG3	2.03	0.59
9:12:27:ARG:HH22	54:01:1142:A:H4'	1.65	0.59
42:L:25:ALA:HB1	53:A:554:A:H5'	1.85	0.59
53:A:7:A:H5'	53:A:298:A:H5'	1.85	0.59
4:07:68:LYS:HE3	4:07:83:PRO:HB3	1.84	0.59
54:01:1363:C:H2'	54:01:1364:G:H8	1.68	0.59
54:01:1394:U:H4'	54:01:1603:A:H4'	1.85	0.59
20:23:17:ASP:HB3	20:23:20:LYS:HD2	1.85	0.59
34:D:2:ARG:HD2	34:D:114:ARG:HD3	1.85	0.59
48:R:20:ILE:HG21	48:R:54:LEU:HD12	1.84	0.59
51:U:66:ARG:CG	53:A:1099:G:H4'	2.27	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1524:C:H2'	53:A:1525:G:C8	2.37	0.59
4:07:127:TYR:HE2	4:07:129:MET:HB3	1.68	0.58
6:09:94:ILE:HD12	6:09:122:LEU:HB3	1.85	0.58
12:15:69:PRO:HA	12:15:94:ALA:HB2	1.84	0.58
36:F:29:ILE:HG21	36:F:64:VAL:HG21	1.85	0.58
59:Z:106:ALA:HB1	59:Z:136:LYS:HB2	1.85	0.58
3:06:149:ILE:HG22	3:06:188:MET:HA	1.85	0.58
12:15:20:LEU:O	12:15:97:GLN:HG3	2.03	0.58
20:23:12:VAL:HB	20:23:18:LYS:HA	1.85	0.58
52:03:178:VAL:HB	52:03:216:THR:HG21	1.85	0.58
53:A:55:A:C4	59:Z:222:GLY:HA3	2.38	0.58
54:01:1278:C:H2'	54:01:1279:G:H8	1.68	0.58
1:04:42:ARG:HH12	1:04:48:ILE:HD12	1.68	0.58
2:05:133:THR:HG22	54:01:1993:U:H4'	1.85	0.58
15:18:1:SER:HA	54:01:2876:G:H5'	1.84	0.58
54:01:1900:A:O4'	54:01:1970:A:H5''	2.03	0.58
32:B:186:VAL:HG11	32:B:192:PRO:HB3	1.86	0.58
37:G:75:LYS:NZ	37:G:77:ARG:HD3	2.19	0.58
38:H:9:MET:HG3	38:H:26:MET:SD	2.43	0.58
39:I:17:ARG:HH12	39:I:19:PHE:HE2	1.50	0.58
53:A:1033:G:H2'	53:A:1034:G:H5''	1.86	0.58
54:01:639:U:H2'	54:01:640:C:C6	2.38	0.58
54:01:2131:U:O5'	54:01:2133:G:H4'	2.03	0.58
10:13:21:CYS:HA	10:13:41:ILE:HG22	1.85	0.58
18:21:36:LEU:HD13	18:21:48:LYS:HA	1.86	0.58
32:B:221:ARG:HA	32:B:224:ARG:NH1	2.17	0.58
37:G:22:LEU:O	37:G:26:VAL:HG23	2.04	0.58
41:K:88:PRO:HA	41:K:92:ARG:HD2	1.84	0.58
44:N:63:CYS:HB3	44:N:67:GLY:H	1.68	0.58
47:Q:55:GLY:O	47:Q:56:ASP:HB3	2.03	0.58
1:04:184:GLU:HG3	1:04:186:ASP:H	1.69	0.58
18:21:79:GLY:H	18:21:101:SER:HA	1.68	0.58
41:K:85:VAL:HG22	41:K:110:THR:O	2.03	0.58
53:A:842:U:H2'	53:A:844:G:H5'	1.86	0.58
53:A:946:A:H2'	53:A:947:G:H8	1.67	0.58
53:A:1301:U:O2	53:A:1301:U:H2'	2.03	0.58
53:A:1437:A:H2'	53:A:1438:G:H8	1.67	0.58
54:01:239:C:H2'	54:01:240:C:O4'	2.03	0.58
54:01:1434:A:H2'	54:01:1435:G:C8	2.39	0.58
58:Y:41:A:H2'	58:Y:42:A:H8	1.68	0.58
59:Z:7:ARG:HB2	59:Z:269:ARG:NH1	2.18	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:24:21:ARG:HA	21:24:25:LYS:O	2.04	0.58
37:G:145:GLU:N	37:G:148:LYS:HB2	2.19	0.58
46:P:33:ILE:H	46:P:33:ILE:HD12	1.68	0.58
54:01:402:A:H2'	54:01:403:U:H5'	1.84	0.58
54:01:1138:G:H2'	54:01:1139:G:O4'	2.03	0.58
1:04:20:ASN:ND2	1:04:23:LEU:HG	2.18	0.58
32:B:15:PHE:HB2	32:B:39:ILE:HG23	1.84	0.58
47:Q:29:LYS:HA	47:Q:36:PHE:HA	1.86	0.58
53:A:532:A:H3'	53:A:533:A:H5'	1.85	0.58
54:01:1837:C:H2'	54:01:1899:A:H61	1.68	0.58
3:06:29:HIS:HA	3:06:32:VAL:HG12	1.85	0.58
16:19:8:ILE:HD12	16:19:9:ALA:N	2.19	0.58
32:B:96:LEU:H	32:B:99:MET:HE3	1.68	0.58
53:A:197:A:C6	53:A:221:C:H4'	2.39	0.58
7:10:56:ARG:HH21	7:10:83:ALA:HB2	1.68	0.58
28:31:33:LEU:HD13	54:01:2286:G:C8	2.39	0.58
32:B:23:ASN:HD22	32:B:24:PRO:HD2	1.69	0.58
35:E:54:GLU:HB3	35:E:57:ALA:HB3	1.86	0.58
53:A:1230:C:H5'	56:W:30:G:H5''	1.86	0.58
54:01:2633:G:H5''	54:01:2812:G:H5'	1.86	0.58
2:05:113:SER:HB3	2:05:170:VAL:CG2	2.33	0.57
4:07:107:VAL:HG11	4:07:175:PRO:HG2	1.86	0.57
9:12:109:LEU:HD13	9:12:118:MET:HG3	1.85	0.57
16:19:82:LEU:HD21	16:19:108:LEU:HD21	1.86	0.57
30:33:14:LYS:HD3	30:33:22:LYS:HE3	1.86	0.57
32:B:49:PHE:O	32:B:53:LEU:HG	2.04	0.57
46:P:19:VAL:HG12	46:P:38:PHE:HA	1.86	0.57
54:01:323:C:H2'	54:01:1205:A:N1	2.19	0.57
13:16:12:ARG:HG2	13:16:16:HIS:ND1	2.19	0.57
40:J:59:LYS:HE2	40:J:62:ARG:HH21	1.68	0.57
46:P:5:ARG:HB2	53:A:376:G:H5''	1.85	0.57
54:01:581:C:H2'	54:01:582:A:C8	2.39	0.57
57:V:20:G:H2'	57:V:21:A:C8	2.39	0.57
10:13:112:PHE:HB3	10:13:115:ILE:HD12	1.86	0.57
32:B:113:LEU:HD13	32:B:143:LEU:HB3	1.87	0.57
45:O:28:VAL:HG13	45:O:62:ARG:HG3	1.86	0.57
51:U:39:LYS:HA	51:U:42:THR:HB	1.85	0.57
7:10:18:VAL:HA	7:10:86:MET:HG3	1.87	0.57
7:10:55:VAL:HA	54:01:1084:A:H5''	1.86	0.57
51:U:32:ARG:HG3	51:U:33:ARG:HG2	1.86	0.57
54:01:414:C:H2'	54:01:415:A:C8	2.39	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
59:Z:256:THR:CG2	59:Z:279:ARG:HB2	2.34	0.57
1:04:257:ARG:HH21	1:04:266:ILE:HD12	1.69	0.57
4:07:109:ARG:HH12	43:M:2:ARG:NH1	2.03	0.57
7:10:30:SER:HB2	7:10:109:LYS:HD2	1.84	0.57
8:11:116:MET:HB3	8:11:124:MET:SD	2.45	0.57
44:N:37:ASP:OD1	44:N:39:ASP:HB3	2.05	0.57
52:03:206:GLY:HA3	54:01:1860:G:H5''	1.87	0.57
54:01:2112:G:H2'	54:01:2113:U:H5'	1.85	0.57
54:01:2807:U:H3	54:01:2891:U:H3	1.53	0.57
6:09:147:VAL:HG12	6:09:148:ALA:H	1.69	0.57
36:F:90:MET:SD	48:R:60:ARG:HD2	2.44	0.57
38:H:80:PRO:HG2	53:A:878:A:C5'	2.34	0.57
39:I:70:GLY:H	53:A:1371:G:H5''	1.69	0.57
59:Z:148:LEU:O	59:Z:152:GLU:HG3	2.05	0.57
59:Z:149:VAL:O	59:Z:153:VAL:HG23	2.04	0.57
18:21:5:ALA:HB2	18:21:54:ALA:HB2	1.87	0.57
24:27:21:LEU:HA	24:27:25:GLN:HB3	1.86	0.57
25:28:18:LYS:HE3	54:01:920:A:H5''	1.87	0.57
44:N:15:LEU:HD23	44:N:54:SER:HB3	1.87	0.57
47:Q:46:HIS:HA	47:Q:70:LYS:HE3	1.87	0.57
53:A:946:A:H2'	53:A:947:G:C8	2.38	0.57
53:A:1382:C:H1'	56:X:34:C:H5''	1.86	0.57
54:01:2249:U:C3'	54:01:2250:G:H5'	2.34	0.57
55:02:115:A:H2'	55:02:116:G:C8	2.40	0.57
9:12:27:ARG:HH21	54:01:1141:U:H5''	1.69	0.57
13:16:73:ASN:HA	13:16:76:VAL:HG12	1.87	0.57
32:B:46:VAL:HB	32:B:47:PRO:HD3	1.86	0.57
35:E:20:VAL:HG23	35:E:31:SER:OG	2.05	0.57
35:E:82:HIS:HB2	35:E:83:PRO:HD2	1.85	0.57
35:E:155:LYS:HB3	38:H:70:VAL:HG13	1.87	0.57
44:N:4:SER:HB3	53:A:1216:A:H5''	1.87	0.57
52:03:206:GLY:H	54:01:1861:G:P	2.28	0.57
53:A:518:C:H5'	53:A:530:G:H5'	1.86	0.57
53:A:604:G:H2'	53:A:605:U:O4'	2.05	0.57
54:01:1469:A:H2'	54:01:1470:A:C8	2.40	0.57
54:01:1827:U:H5'	54:01:1971:U:C5'	2.35	0.57
1:04:144:GLU:HA	1:04:151:GLY:HA2	1.85	0.57
17:20:40:MET:HG3	17:20:48:LYS:HA	1.87	0.57
40:J:73:LEU:HB3	40:J:75:ASP:OD2	2.04	0.57
46:P:67:ILE:H	46:P:67:ILE:HD12	1.69	0.57
52:03:215:SER:HB3	52:03:221:GLY:HA2	1.87	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:70:U:H5''	53:A:71:A:OP1	2.04	0.57
53:A:1144:G:H21	53:A:1146:A:H62	1.51	0.57
11:14:62:PRO:HB2	30:33:29:ARG:NH1	2.20	0.57
11:14:79:LEU:HG	11:14:113:ALA:H	1.69	0.57
34:D:100:VAL:O	34:D:104:MET:HG2	2.03	0.57
41:K:88:PRO:HD3	51:U:28:LEU:HD13	1.86	0.57
51:U:18:PHE:HB3	51:U:19:LYS:HZ3	1.69	0.57
52:03:67:HIS:NE2	52:03:187:GLU:HB2	2.20	0.57
53:A:225:C:C3'	53:A:226:G:H5''	2.35	0.57
54:01:1083:U:H2'	54:01:1085:A:OP2	2.05	0.57
54:01:2725:A:H2'	54:01:2726:A:H2'	1.86	0.57
59:Z:134:LEU:HD12	59:Z:171:ARG:HG2	1.85	0.57
2:05:4:LEU:HB2	2:05:101:PHE:HE2	1.68	0.56
2:05:47:ALA:HA	2:05:84:LEU:HG	1.87	0.56
32:B:71:THR:HG22	32:B:72:LYS:H	1.70	0.56
35:E:59:ILE:HD12	35:E:60:GLN:N	2.20	0.56
39:I:17:ARG:HH21	53:A:1147:C:H1'	1.70	0.56
40:J:84:VAL:HA	40:J:87:LEU:HD12	1.86	0.56
54:01:306:U:H2'	54:01:307:G:O4'	2.04	0.56
54:01:644:A:H2'	54:01:645:C:C4'	2.34	0.56
54:01:2244:U:H2'	54:01:2245:U:O4'	2.05	0.56
59:Z:27:LEU:O	59:Z:31:ILE:HG13	2.05	0.56
59:Z:70:ASP:HA	59:Z:76:TYR:HD2	1.69	0.56
6:09:2:GLN:O	6:09:39:ALA:HB2	2.05	0.56
8:11:20:SER:HB3	8:11:21:PRO:HD3	1.86	0.56
17:20:74:ILE:HG12	54:01:992:C:O3'	2.04	0.56
19:22:39:THR:O	19:22:43:ILE:HG13	2.05	0.56
52:03:60:ARG:NE	52:03:164:ARG:HG3	2.20	0.56
53:A:860:A:H2'	53:A:861:G:O4'	2.04	0.56
54:01:1078:U:H4'	54:01:1079:C:H5''	1.87	0.56
56:X:18:G:H1	56:X:55:U:H1'	1.69	0.56
58:Y:41:A:H2'	58:Y:42:A:C8	2.39	0.56
59:Z:212:LEU:HD12	59:Z:231:VAL:HG22	1.86	0.56
13:16:4:ARG:HB2	54:01:2722:G:H4'	1.87	0.56
14:17:39:VAL:HG12	14:17:48:LEU:HD12	1.86	0.56
40:J:12:ALA:HB2	40:J:96:VAL:HG22	1.87	0.56
50:T:31:ILE:HG23	50:T:78:LEU:HD21	1.87	0.56
52:03:40:GLU:HB3	52:03:216:THR:HB	1.87	0.56
54:01:527:C:H4'	54:01:528:A:O4'	2.05	0.56
54:01:1287:A:O2'	54:01:1288:G:H5'	2.06	0.56
54:01:2039:U:H2'	54:01:2040:G:C8	2.40	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:2376:A:H2'	54:01:2377:A:O4'	2.04	0.56
55:02:65:U:H3'	55:02:108:A:N6	2.19	0.56
59:Z:343:LEU:HD23	59:Z:358:MET:HB3	1.87	0.56
1:04:89:ASN:OD1	1:04:196:ASN:HB2	2.05	0.56
4:07:134:GLN:HB3	4:07:149:ARG:O	2.06	0.56
8:11:126:ARG:HG3	54:01:1080:A:O2'	2.05	0.56
12:15:34:LYS:O	12:15:128:THR:HB	2.06	0.56
14:17:28:VAL:HG23	14:17:106:LEU:HD13	1.87	0.56
20:23:39:ASN:HB3	20:23:62:ALA:HB3	1.88	0.56
35:E:39:GLY:HA3	35:E:116:VAL:HB	1.88	0.56
35:E:158:LYS:HA	35:E:158:LYS:HE2	1.87	0.56
37:G:87:PRO:HG3	37:G:148:LYS:HG3	1.88	0.56
44:N:16:ALA:HA	44:N:54:SER:HB2	1.85	0.56
53:A:1305:G:H22	53:A:1331:G:H2'	1.70	0.56
55:02:30:C:H2'	55:02:31:C:H5'	1.87	0.56
59:Z:343:LEU:HD13	59:Z:347:VAL:HG12	1.88	0.56
50:T:26:MET:HE3	50:T:27:MET:HB2	1.87	0.56
54:01:353:C:H2'	54:01:354:A:H8	1.69	0.56
59:Z:269:ARG:NE	59:Z:272:GLU:HG3	2.20	0.56
7:10:23:LEU:HB3	7:10:87:GLU:OE1	2.05	0.56
28:31:38:PHE:HA	28:31:45:HIS:HA	1.87	0.56
4:07:107:VAL:HB	4:07:108:PRO:HD3	1.86	0.56
20:23:67:SER:HB2	54:01:327:G:H21	1.71	0.56
20:23:91:LYS:HZ3	54:01:296:U:H5''	1.69	0.56
53:A:1409:C:H2'	53:A:1410:A:C8	2.41	0.56
55:02:3:C:C2'	55:02:4:C:H5''	2.36	0.56
22:25:74:LYS:H	22:25:74:LYS:HD2	1.70	0.56
33:C:131:ARG:HB3	33:C:135:ARG:HH21	1.70	0.56
37:G:12:LEU:HG	37:G:13:PRO:HD2	1.87	0.56
43:M:27:THR:HG21	53:A:1328:C:H5''	1.87	0.56
53:A:181:A:H61	53:A:194:C:H2'	1.70	0.56
5:08:139:VAL:O	5:08:143:VAL:HG23	2.06	0.56
8:11:92:PRO:HD2	54:01:1076:C:O2'	2.05	0.56
9:12:81:ILE:HG23	9:12:82:GLY:H	1.70	0.56
11:14:95:LEU:HB2	11:14:101:ILE:HD13	1.88	0.56
12:15:75:GLU:HB3	12:15:90:GLU:HG3	1.86	0.56
34:D:27:ILE:H	34:D:27:ILE:HD12	1.71	0.56
42:L:43:LYS:HB3	42:L:44:PRO:HD3	1.88	0.56
49:S:18:VAL:HG13	49:S:46:LEU:HD11	1.86	0.56
54:01:833:A:H2'	54:01:834:G:C8	2.41	0.56
59:Z:212:LEU:HD22	59:Z:292:LEU:HD12	1.88	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:04:156:SER:HB2	54:01:1818:U:H5'	1.87	0.56
2:05:30:GLU:HB2	2:05:52:THR:OG1	2.05	0.56
7:10:118:ILE:CG2	7:10:119:PRO:HD3	2.26	0.56
8:11:81:LYS:HA	8:11:86:LYS:NZ	2.21	0.56
21:24:48:MET:HA	21:24:51:GLN:NE2	2.17	0.56
46:P:6:LEU:HD22	46:P:17:TYR:HB3	1.88	0.56
54:01:373:U:H2'	54:01:374:A:H8	1.70	0.56
5:08:96:ALA:HB3	5:08:103:ASN:HB3	1.88	0.55
8:11:131:THR:O	8:11:135:MET:HG2	2.07	0.55
41:K:122:PRO:HB2	51:U:33:ARG:HA	1.87	0.55
53:A:1323:G:H2'	53:A:1324:A:C8	2.41	0.55
59:Z:134:LEU:HB2	59:Z:171:ARG:HA	1.86	0.55
1:04:14:HIS:O	1:04:203:VAL:HG21	2.06	0.55
6:09:84:ALA:CB	6:09:90:LEU:HD12	2.34	0.55
13:16:35:LYS:HB2	13:16:112:TYR:CE1	2.40	0.55
17:20:98:ILE:HG22	17:20:100:GLY:H	1.71	0.55
53:A:171:A:H2'	53:A:172:A:C8	2.41	0.55
53:A:231:U:H2'	53:A:232:G:H8	1.71	0.55
54:01:310:A:H2'	54:01:311:A:H5''	1.87	0.55
10:13:62:VAL:HG11	10:13:65:THR:HG22	1.87	0.55
11:14:57:LEU:HB2	11:14:60:ARG:HH11	1.71	0.55
12:15:75:GLU:HB3	12:15:90:GLU:CD	2.26	0.55
24:27:7:ARG:HG3	24:27:8:GLU:OE2	2.06	0.55
34:D:167:PRO:HB2	34:D:170:LEU:HD11	1.87	0.55
35:E:83:PRO:HB3	35:E:96:GLN:HG3	1.88	0.55
54:01:528:A:C2	54:01:2042:A:H2'	2.41	0.55
54:01:581:C:H2'	54:01:582:A:H8	1.71	0.55
56:X:14:A:H2'	56:X:15:G:O4'	2.06	0.55
59:Z:209:PRO:HB3	59:Z:294:LYS:HD2	1.88	0.55
6:09:89:LYS:H	6:09:124:THR:HA	1.72	0.55
12:15:7:THR:HG22	54:01:870:U:H4'	1.89	0.55
27:30:11:LYS:NZ	54:01:2616:C:H5''	2.22	0.55
53:A:819:A:H3'	53:A:820:U:C5'	2.35	0.55
59:Z:236:ILE:HG13	59:Z:268:GLY:HA3	1.88	0.55
1:04:184:GLU:HB3	1:04:187:CYS:SG	2.47	0.55
19:22:61:LEU:HB3	54:01:1341:G:H4'	1.88	0.55
39:I:98:ARG:HG2	39:I:103:VAL:HG11	1.88	0.55
44:N:84:ARG:O	44:N:88:MET:HG2	2.06	0.55
54:01:2427:C:C5'	54:01:2429:G:H5'	2.36	0.55
4:07:36:ASN:HB3	4:07:152:ASP:OD1	2.06	0.55
4:07:109:ARG:NH1	43:M:2:ARG:HD3	2.21	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:08:8:VAL:HB	5:08:49:LEU:HD12	1.87	0.55
5:08:69:ALA:HB1	54:01:2747:G:H5''	1.88	0.55
7:10:8:LYS:O	7:10:12:VAL:HG23	2.07	0.55
27:30:33:SER:HB3	27:30:35:GLU:HG3	1.89	0.55
46:P:57:ILE:O	46:P:61:VAL:HG23	2.07	0.55
51:U:49:ALA:HB1	51:U:53:LYS:HE3	1.89	0.55
53:A:1130:A:H61	53:A:1144:G:H1'	1.71	0.55
54:01:1697:G:H4'	54:01:1978:A:H5''	1.89	0.55
54:01:1893:C:H2'	54:01:1894:C:H5'	1.87	0.55
59:Z:93:THR:HG23	59:Z:334:THR:HG22	1.88	0.55
1:04:140:VAL:HG12	1:04:191:LEU:HA	1.87	0.55
5:08:15:ASP:O	5:08:25:ILE:HA	2.07	0.55
13:16:32:GLU:O	13:16:114:GLU:HB2	2.07	0.55
33:C:13:ILE:H	33:C:13:ILE:HD12	1.70	0.55
34:D:150:LYS:HB2	34:D:155:LYS:HG2	1.87	0.55
35:E:33:THR:HG22	35:E:51:LYS:HB2	1.88	0.55
53:A:434:U:H2'	53:A:435:A:C8	2.42	0.55
54:01:833:A:H2'	54:01:834:G:H8	1.71	0.55
54:01:1739:A:H2'	54:01:1740:G:O4'	2.06	0.55
56:X:21:A:N6	56:X:46:G:H2'	2.22	0.55
7:10:61:ARG:HB3	54:01:1046:A:H4'	1.88	0.55
13:16:32:GLU:OE1	13:16:118:ARG:HA	2.07	0.55
39:I:49:GLN:N	39:I:50:PRO:HD2	2.22	0.55
42:L:11:ARG:HG3	53:A:562:U:H1'	1.89	0.55
54:01:199:A:H61	54:01:2433:A:H2'	1.72	0.55
54:01:215:G:H4'	54:01:216:A:H4'	1.89	0.55
54:01:703:U:H2'	54:01:704:G:O4'	2.06	0.55
23:26:36:ARG:HD2	23:26:45:PHE:HB3	1.88	0.55
25:28:26:LEU:HD21	25:28:43:ILE:HG23	1.88	0.55
27:30:10:SER:O	27:30:14:MET:HG3	2.07	0.55
44:N:9:GLU:O	44:N:13:VAL:HG23	2.07	0.55
53:A:1277:C:H2'	53:A:1278:G:H5''	1.89	0.55
59:Z:21:ASP:HA	62:Z:401:GCP:H3B1	1.89	0.55
59:Z:129:TYR:HB3	59:Z:199:ILE:HG12	1.89	0.55
1:04:32:LEU:HD11	1:04:101:ARG:HA	1.88	0.55
8:11:100:ILE:HD12	8:11:138:VAL:O	2.06	0.55
9:12:78:THR:HG22	54:01:2641:G:H5''	1.88	0.55
23:26:63:ILE:O	23:26:67:LEU:HD13	2.07	0.55
24:27:24:GLU:O	24:27:28:LEU:HB2	2.07	0.55
33:C:179:ALA:HB1	33:C:202:PHE:CE1	2.41	0.55
36:F:37:HIS:HB2	36:F:63:ASN:O	2.07	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:G:55:LYS:HB3	37:G:59:GLU:HG3	1.89	0.55
40:J:29:ALA:HA	40:J:33:GLY:HA3	1.88	0.55
54:01:2194:U:H2'	54:01:2195:U:C6	2.41	0.55
1:04:144:GLU:HB2	1:04:187:CYS:HB3	1.89	0.54
5:08:1:SER:HB2	5:08:61:TRP:HB3	1.89	0.54
7:10:3:LEU:HD12	7:10:5:LEU:H	1.72	0.54
16:19:36:GLN:HE21	54:01:1252:G:H1	1.55	0.54
33:C:69:THR:HG21	33:C:75:VAL:HG21	1.88	0.54
52:03:26:ALA:HB2	52:03:222:VAL:HG11	1.88	0.54
53:A:358:U:H2'	53:A:359:G:H8	1.72	0.54
53:A:1429:A:H2'	53:A:1430:A:H8	1.71	0.54
54:01:937:C:H2'	54:01:938:G:C8	2.42	0.54
54:01:971:G:H2'	54:01:972:A:O4'	2.06	0.54
54:01:1141:U:H4'	54:01:1142:A:O4'	2.06	0.54
4:07:12:VAL:O	4:07:16:MET:HG2	2.08	0.54
22:25:45:ALA:O	22:25:47:VAL:HG23	2.07	0.54
42:L:49:ARG:HG2	42:L:49:ARG:HH11	1.73	0.54
47:Q:43:LEU:HD21	53:A:236:A:H5''	1.89	0.54
53:A:225:C:H2'	53:A:226:G:H5''	1.90	0.54
53:A:484:G:H4'	53:A:485:U:C5'	2.31	0.54
54:01:255:A:H2'	54:01:256:A:O4'	2.07	0.54
54:01:1316:U:H2'	54:01:1317:G:C8	2.43	0.54
54:01:2039:U:H2'	54:01:2040:G:H8	1.72	0.54
54:01:2809:A:H2'	54:01:2810:A:C8	2.41	0.54
54:01:2884:U:H2'	54:01:2885:G:C8	2.42	0.54
3:06:192:ALA:O	3:06:196:VAL:HG23	2.07	0.54
6:09:73:ASN:HB3	6:09:108:VAL:HG23	1.88	0.54
7:10:80:THR:O	7:10:82:ILE:HG12	2.06	0.54
10:13:30:ARG:HE	54:01:2674:G:H4'	1.71	0.54
18:21:77:ASP:OD1	18:21:102:HIS:HB2	2.07	0.54
53:A:78:A:H2'	53:A:79:G:O4'	2.06	0.54
53:A:1137:C:H5'	53:A:1138:G:H5'	1.90	0.54
53:A:1391:U:H2'	53:A:1392:G:C8	2.42	0.54
8:11:11:GLN:HG3	8:11:41:PHE:HE1	1.72	0.54
37:G:65:LEU:HD23	37:G:69:ARG:HH21	1.72	0.54
46:P:21:VAL:HG12	46:P:33:ILE:HD13	1.90	0.54
47:Q:29:LYS:HB2	47:Q:36:PHE:CE1	2.42	0.54
54:01:1161:C:H2'	54:01:1162:G:C8	2.43	0.54
54:01:1197:G:H2'	54:01:1198:U:C6	2.43	0.54
54:01:1506:U:H2'	54:01:1507:C:C6	2.43	0.54
54:01:2889:C:H2'	54:01:2890:G:O4'	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
59:Z:377:ARG:HA	59:Z:382:THR:HA	1.88	0.54
1:04:52:HIS:NE2	1:04:218:THR:HG23	2.22	0.54
1:04:145:MET:HB2	1:04:149:LYS:HG2	1.89	0.54
5:08:151:ARG:HB3	5:08:161:VAL:HG23	1.88	0.54
9:12:109:LEU:HD22	9:12:118:MET:SD	2.48	0.54
38:H:73:SER:HB3	38:H:129:ALA:HB3	1.89	0.54
52:03:30:LEU:HD22	52:03:216:THR:HG23	1.89	0.54
54:01:322:A:H5'	54:01:340:A:H1'	1.90	0.54
54:01:488:G:N2	54:01:491:G:H5''	2.22	0.54
54:01:1060:U:H5'	54:01:1062:G:H5''	1.89	0.54
3:06:109:LEU:HD11	3:06:180:LEU:HD13	1.89	0.54
3:06:117:ARG:HH12	11:14:2:ARG:HG2	1.72	0.54
7:10:23:LEU:O	7:10:87:GLU:HG3	2.07	0.54
9:12:16:TYR:HA	9:12:138:GLN:O	2.08	0.54
33:C:68:HIS:HA	33:C:103:ALA:HB3	1.90	0.54
34:D:131:ILE:HG21	53:A:620:C:H1'	1.90	0.54
54:01:864:G:H21	54:01:866:A:H62	1.54	0.54
54:01:1268:A:H2'	54:01:1269:A:O4'	2.07	0.54
58:Y:25:C:H3'	58:Y:26:A:C5'	2.38	0.54
5:08:104:LEU:HB3	5:08:106:LEU:HG	1.88	0.54
28:31:16:THR:HG21	28:31:39:ASP:OD2	2.07	0.54
41:K:22:ILE:HD13	41:K:95:THR:HG23	1.90	0.54
53:A:256:U:H2'	53:A:257:G:C8	2.42	0.54
53:A:1475:G:H4'	54:01:1689:A:H4'	1.89	0.54
54:01:1932:A:H2'	54:01:1933:G:O4'	2.08	0.54
54:01:2794:C:H2'	54:01:2795:C:C6	2.43	0.54
59:Z:70:ASP:CB	59:Z:75:HIS:HA	2.37	0.54
4:07:56:LEU:HD21	4:07:151:LEU:HD22	1.89	0.54
8:11:11:GLN:HG3	8:11:41:PHE:CE1	2.43	0.54
8:11:23:VAL:HG12	8:11:27:LEU:HD23	1.89	0.54
9:12:13:ARG:HD3	9:12:51:GLY:O	2.07	0.54
21:24:86:LEU:HD13	21:24:89:ILE:HD11	1.90	0.54
53:A:279:A:H5''	53:A:280:C:O3'	2.07	0.54
53:A:505:G:H5'	53:A:534:U:H2'	1.90	0.54
54:01:543:G:H5'	54:01:543:G:H8	1.73	0.54
54:01:2277:G:C2'	54:01:2278:A:H5''	2.34	0.54
4:07:74:ALA:HA	4:07:77:LYS:HA	1.90	0.54
8:11:40:ALA:HA	8:11:43:ALA:HB3	1.88	0.54
18:21:88:ARG:HH11	54:01:747:C:H2'	1.73	0.54
53:A:427:U:H2'	53:A:428:G:C8	2.42	0.54
53:A:746:A:H2'	53:A:747:A:C8	2.43	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:435:C:H2'	54:01:436:C:H5'	1.90	0.54
54:01:858:G:H21	54:01:2269:G:H5'	1.73	0.54
2:05:109:VAL:HG22	2:05:203:VAL:HG22	1.89	0.54
38:H:46:GLU:O	38:H:47:ASP:CB	2.56	0.54
59:Z:96:ALA:HB2	59:Z:125:VAL:HG21	1.90	0.54
15:18:99:LEU:O	15:18:99:LEU:HD23	2.08	0.53
21:24:76:ASP:HB3	21:24:90:ASP:HB2	1.89	0.53
54:01:65:U:H2'	54:01:66:C:C6	2.43	0.53
54:01:1463:C:H2'	54:01:1464:G:C8	2.43	0.53
54:01:2297:A:N1	54:01:2321:U:H5	2.06	0.53
54:01:2710:C:H2'	54:01:2711:A:C8	2.43	0.53
5:08:37:ASN:HD22	5:08:63:GLN:NE2	2.05	0.53
12:15:78:LEU:HD23	12:15:79:ALA:N	2.23	0.53
21:24:21:ARG:HE	21:24:87:GLN:HA	1.73	0.53
22:25:55:LEU:HD12	22:25:76:ILE:HD12	1.90	0.53
37:G:14:ASP:HB3	37:G:17:PHE:O	2.08	0.53
37:G:58:LEU:HD12	37:G:59:GLU:N	2.23	0.53
54:01:1077:A:H2'	54:01:1078:U:H5'	1.90	0.53
5:08:174:LYS:HG3	54:01:2529:G:H4'	1.90	0.53
10:13:69:VAL:HG21	10:13:104:THR:HG21	1.90	0.53
35:E:119:VAL:HB	35:E:121:ASN:OD1	2.08	0.53
49:S:13:HIS:HE1	49:S:34:SER:HB2	1.73	0.53
53:A:116:A:H2'	53:A:117:G:O4'	2.08	0.53
53:A:392:C:H2'	53:A:393:A:C8	2.44	0.53
53:A:1429:A:H2'	53:A:1430:A:C8	2.42	0.53
54:01:1139:G:O2'	54:01:1140:C:H5'	2.08	0.53
59:Z:19:HIS:HB2	59:Z:115:THR:OG1	2.08	0.53
59:Z:184:TRP:CE3	59:Z:187:LYS:HG3	2.43	0.53
59:Z:259:GLU:HA	59:Z:265:LEU:H	1.72	0.53
6:09:47:PHE:HA	6:09:51:ARG:HD2	1.91	0.53
20:23:97:SER:O	20:23:98:ASN:HB3	2.08	0.53
22:25:17:LEU:HD21	22:25:37:ARG:HH12	1.73	0.53
41:K:87:GLY:N	41:K:113:THR:HG22	2.21	0.53
50:T:67:HIS:HE1	53:A:132:C:H4'	1.73	0.53
53:A:634:C:H2'	53:A:635:A:C8	2.43	0.53
54:01:596:U:H2'	54:01:597:G:H8	1.73	0.53
8:11:85:ILE:HD13	8:11:98:GLY:HA3	1.89	0.53
20:23:47:PRO:HB3	20:23:55:GLY:N	2.24	0.53
22:25:12:SER:HB2	54:01:2262:U:C5	2.41	0.53
34:D:150:LYS:HA	34:D:154:VAL:HB	1.89	0.53
39:I:33:SER:HB3	39:I:36:GLN:HG2	1.89	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:I:45:MET:O	39:I:49:GLN:HG3	2.08	0.53
53:A:225:C:H3'	53:A:226:G:H5''	1.90	0.53
54:01:1326:U:H2'	54:01:1327:A:H8	1.73	0.53
54:01:1526:C:H2'	54:01:1527:G:O4'	2.09	0.53
54:01:1930:G:H1'	54:01:1931:U:H5	1.74	0.53
58:Y:54:U:OP1	59:Z:320:THR:HG21	2.08	0.53
59:Z:323:PHE:HB3	59:Z:349:MET:HA	1.90	0.53
6:09:24:GLY:HA2	6:09:28:ASN:ND2	2.23	0.53
37:G:24:LYS:HE2	53:A:1375:A:H5''	1.90	0.53
50:T:67:HIS:CE1	53:A:132:C:H4'	2.44	0.53
2:05:105:LYS:HA	2:05:177:VAL:HG12	1.91	0.53
6:09:12:LEU:HD12	6:09:13:GLY:N	2.24	0.53
13:16:49:GLU:HB2	13:16:50:PRO:HD3	1.90	0.53
17:20:64:VAL:HG23	17:20:96:VAL:HA	1.90	0.53
33:C:50:SER:HB3	33:C:114:LEU:HD22	1.91	0.53
36:F:19:PRO:HA	36:F:22:ILE:HD12	1.90	0.53
37:G:14:ASP:HB3	37:G:19:SER:H	1.73	0.53
53:A:427:U:H2'	53:A:428:G:H8	1.74	0.53
54:01:327:G:H2'	54:01:328:U:O4'	2.08	0.53
54:01:542:C:H2'	54:01:543:G:H5''	1.91	0.53
54:01:548:G:H2'	54:01:549:G:O4'	2.09	0.53
54:01:940:G:H3'	54:01:941:A:H5''	1.90	0.53
54:01:1222:U:H2'	54:01:1223:G:C8	2.44	0.53
16:19:75:TYR:HE2	54:01:1153:C:H5'	1.73	0.53
26:29:61:ASN:O	26:29:65:ASN:HA	2.08	0.53
54:01:704:G:H2'	54:01:726:G:H22	1.73	0.53
54:01:1872:A:H2'	54:01:1873:G:O4'	2.09	0.53
54:01:2114:A:C2	54:01:2166:U:H2'	2.44	0.53
1:04:77:VAL:HA	1:04:93:VAL:HG22	1.91	0.53
4:07:60:SER:HB2	4:07:90:LEU:HD23	1.91	0.53
4:07:110:ILE:HG12	4:07:136:ILE:HG21	1.89	0.53
9:12:47:HIS:HD1	9:12:48:VAL:HG23	1.73	0.53
32:B:162:VAL:HB	32:B:184:ALA:CB	2.38	0.53
53:A:337:G:H2'	53:A:338:A:C8	2.44	0.53
53:A:757:U:H2'	53:A:758:C:O4'	2.09	0.53
53:A:1339:A:H2'	53:A:1340:A:O4'	2.08	0.53
54:01:2102:G:H2'	54:01:2103:C:O4'	2.09	0.53
1:04:34:GLU:HG3	1:04:61:TYR:HB3	1.90	0.53
17:20:75:VAL:HG22	17:20:86:GLN:OE1	2.09	0.53
26:29:11:GLU:HA	26:29:25:ARG:HA	1.90	0.53
32:B:162:VAL:HB	32:B:184:ALA:HB2	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:D:120:LYS:NZ	34:D:130:ASN:HD21	2.07	0.53
53:A:673:A:H2'	53:A:674:G:C8	2.44	0.53
53:A:952:U:H5'	53:A:972:C:H41	1.74	0.53
54:01:2724:U:H2'	54:01:2725:A:C8	2.44	0.53
56:X:41:C:H2'	56:X:42:G:C8	2.43	0.53
7:10:58:THR:HG22	54:01:1107:G:H5''	1.91	0.52
9:12:40:HIS:CE1	9:12:41:LYS:HG3	2.44	0.52
14:17:81:ARG:HA	14:17:84:GLU:HG3	1.91	0.52
19:22:14:PRO:HA	19:22:32:LEU:HA	1.91	0.52
24:27:8:GLU:HB3	24:27:12:GLU:HG2	1.91	0.52
54:01:2646:C:H2'	54:01:2647:U:O4'	2.09	0.52
59:Z:89:LYS:HA	59:Z:92:ILE:HD12	1.91	0.52
28:31:4:ILE:HG23	28:31:27:ARG:NH2	2.24	0.52
47:Q:6:THR:O	47:Q:7:LEU:HD12	2.09	0.52
53:A:357:G:OP1	53:A:367:U:H5''	2.09	0.52
53:A:662:U:H2'	53:A:663:A:C8	2.44	0.52
54:01:1001:A:H2'	54:01:1002:G:O4'	2.09	0.52
59:Z:22:HIS:ND1	59:Z:105:VAL:HA	2.24	0.52
59:Z:113:PRO:O	59:Z:116:ARG:HG2	2.08	0.52
5:08:126:THR:HB	5:08:129:GLU:HB3	1.91	0.52
13:16:92:GLY:O	54:01:2880:C:H1'	2.09	0.52
14:17:107:ALA:O	14:17:111:ARG:HG3	2.09	0.52
33:C:153:SER:HB2	53:A:1057:G:H5''	1.92	0.52
38:H:95:MET:O	38:H:98:LEU:HG	2.09	0.52
43:M:32:ILE:HD13	43:M:58:GLU:HG3	1.91	0.52
53:A:392:C:H2'	53:A:393:A:H8	1.73	0.52
54:01:209:C:H4'	54:01:681:G:H4'	1.91	0.52
2:05:33:ARG:O	2:05:51:THR:HG22	2.10	0.52
8:11:55:PRO:HG2	8:11:71:LYS:HB2	1.91	0.52
18:21:18:ARG:NH1	54:01:518:G:H4'	2.25	0.52
19:22:59:ASN:OD1	19:22:84:TYR:HB2	2.10	0.52
25:28:3:THR:HB	25:28:36:GLU:HG2	1.90	0.52
31:34:24:ARG:HG2	31:34:36:ARG:HG3	1.90	0.52
53:A:1379:G:O2'	53:A:1380:U:H5'	2.10	0.52
54:01:2118:U:C5	54:01:2149:U:H1'	2.45	0.52
54:01:2144:G:H1'	54:01:2147:A:H61	1.73	0.52
54:01:2208:C:H2'	54:01:2209:G:C8	2.45	0.52
59:Z:312:SER:HB2	59:Z:315:GLU:HG3	1.90	0.52
36:F:97:THR:O	36:F:98:GLU:HG2	2.10	0.52
39:I:55:ASP:HB3	39:I:59:LYS:HG3	1.92	0.52
41:K:51:PHE:HB3	41:K:56:LYS:HA	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1207:G:H2'	53:A:1208:C:O4'	2.09	0.52
53:A:1413:A:H2	53:A:1487:G:H22	1.56	0.52
54:01:184:C:H2'	54:01:185:G:H8	1.74	0.52
54:01:2577:A:H2'	54:01:2614:A:H62	1.73	0.52
55:02:3:C:C3'	55:02:4:C:H5''	2.40	0.52
59:Z:247:ILE:HG23	59:Z:364:HIS:HB3	1.91	0.52
8:11:9:LYS:HD2	8:11:9:LYS:N	2.24	0.52
8:11:33:ASN:HB2	8:11:64:ARG:NH2	2.24	0.52
9:12:36:LEU:O	9:12:51:GLY:HA3	2.10	0.52
11:14:77:ILE:CD1	11:14:108:ALA:HB1	2.40	0.52
16:19:36:GLN:NE2	54:01:1252:G:H22	2.08	0.52
18:21:82:MET:HB3	18:21:84:ARG:HH22	1.75	0.52
42:L:41:PRO:HB2	42:L:45:ASN:HB2	1.90	0.52
47:Q:14:ASP:HA	47:Q:20:ILE:HG13	1.92	0.52
50:T:14:GLU:O	50:T:17:ARG:HG3	2.08	0.52
53:A:77:A:H2'	53:A:78:A:C8	2.45	0.52
53:A:1173:U:H2'	53:A:1174:G:H8	1.73	0.52
54:01:225:C:H2'	54:01:226:A:O4'	2.10	0.52
54:01:1744:A:H3'	54:01:1745:A:H8	1.74	0.52
54:01:2011:U:H2'	54:01:2012:G:O4'	2.09	0.52
1:04:160:TYR:CB	1:04:193:GLU:HG2	2.40	0.52
11:14:51:GLU:OE1	11:14:56:PRO:HA	2.10	0.52
11:14:96:LYS:HB2	11:14:101:ILE:HD11	1.91	0.52
11:14:101:ILE:O	11:14:105:ILE:HG13	2.10	0.52
12:15:119:LEU:HD22	54:01:2468:A:H5'	1.92	0.52
23:26:16:ASN:HD22	54:01:2081:U:H5''	1.74	0.52
32:B:67:LEU:HD23	32:B:89:PHE:HB2	1.92	0.52
32:B:95:TRP:CZ2	32:B:171:ALA:HA	2.45	0.52
33:C:175:HIS:HD2	53:A:1108:G:H5'	1.75	0.52
33:C:178:ARG:HH21	53:A:1112:C:H4'	1.75	0.52
39:I:98:ARG:HG2	39:I:103:VAL:HG21	1.92	0.52
53:A:1412:C:H2'	53:A:1413:A:C8	2.45	0.52
54:01:2130:U:H5''	54:01:2134:A:H4'	1.90	0.52
54:01:2480:C:H2'	54:01:2481:G:O4'	2.10	0.52
59:Z:62:ILE:HB	59:Z:87:TYR:CE2	2.43	0.52
59:Z:186:ALA:HA	59:Z:189:LEU:HD12	1.92	0.52
59:Z:305:GLU:HB3	59:Z:390:LYS:HB3	1.92	0.52
59:Z:341:ILE:HG23	59:Z:358:MET:HG2	1.90	0.52
11:14:79:LEU:H	11:14:113:ALA:HB3	1.74	0.52
12:15:75:GLU:HB3	12:15:90:GLU:CG	2.40	0.52
14:17:30:ARG:HH11	14:17:102:ARG:HH11	1.57	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:29:14:ALA:HA	26:29:32:LEU:HD23	1.92	0.52
36:F:20:GLY:O	36:F:24:ARG:HG3	2.10	0.52
40:J:41:PRO:O	40:J:42:LEU:HB2	2.09	0.52
42:L:88:ASP:HB2	53:A:523:A:N1	2.24	0.52
46:P:79:ASN:HB2	46:P:82:ALA:OXT	2.10	0.52
47:Q:16:MET:HG3	47:Q:19:SER:O	2.10	0.52
52:03:26:ALA:HB1	52:03:214:ILE:HD11	1.91	0.52
53:A:401:C:H2'	53:A:402:G:H8	1.75	0.52
53:A:1360:A:H2'	53:A:1361:G:H5'	1.92	0.52
54:01:296:U:H2'	54:01:297:G:C8	2.45	0.52
54:01:2139:U:H2'	54:01:2140:G:C8	2.45	0.52
6:09:4:ILE:HD11	6:09:16:GLY:HA2	1.92	0.52
7:10:56:ARG:HG2	54:01:1106:G:O2'	2.09	0.52
9:12:110:PRO:HB3	54:01:1007:C:O3'	2.09	0.52
15:18:29:VAL:CG1	15:18:79:VAL:HG22	2.40	0.52
16:19:105:PHE:O	16:19:109:VAL:HG23	2.09	0.52
53:A:1004:A:H2'	53:A:1005:A:O4'	2.09	0.52
54:01:1026:G:H2'	54:01:1027:A:H8	1.75	0.52
54:01:1752:C:H2'	54:01:1753:G:C8	2.45	0.52
54:01:2784:U:H2'	54:01:2785:C:C6	2.45	0.52
59:Z:74:ARG:NH2	59:Z:196:ASP:HA	2.25	0.52
2:05:114:LYS:HE2	2:05:196:ALA:HB2	1.92	0.52
10:13:48:PRO:HB2	10:13:49:ARG:HD2	1.91	0.52
12:15:94:ALA:O	12:15:96:ILE:HG12	2.09	0.52
14:17:56:LYS:O	14:17:60:GLU:HG3	2.10	0.52
53:A:56:U:H2'	53:A:57:G:C8	2.45	0.52
53:A:70:U:H2'	53:A:94:G:N7	2.24	0.52
53:A:1071:C:H2'	53:A:1072:G:H8	1.75	0.52
54:01:191:A:H2'	54:01:192:C:C6	2.45	0.52
54:01:1019:U:H3	54:01:1142:A:N6	2.08	0.52
54:01:1074:G:H2'	54:01:1075:C:O4'	2.10	0.52
54:01:1443:U:H2'	54:01:1444:G:H8	1.75	0.52
54:01:2771:C:H2'	54:01:2772:C:C6	2.45	0.52
54:01:2817:U:H3'	54:01:2818:U:H5''	1.92	0.52
3:06:95:LYS:HD2	54:01:659:G:H4'	1.92	0.51
6:09:5:LEU:HD23	6:09:9:VAL:HG21	1.92	0.51
6:09:94:ILE:HD13	6:09:146:VAL:HG21	1.91	0.51
10:13:97:THR:HA	10:13:118:LEU:HD13	1.92	0.51
18:21:6:LYS:HA	18:21:104:THR:HA	1.92	0.51
27:30:3:GLN:HA	54:01:2615:U:C2	2.45	0.51
42:L:21:PRO:HD2	42:L:93:ARG:HE	1.73	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:248:G:H3'	54:01:249:C:C5'	2.41	0.51
54:01:2553:G:C2	54:01:2583:G:H1'	2.45	0.51
58:Y:46:G:H3'	58:Y:47:U:C5'	2.40	0.51
3:06:5:LEU:HD13	3:06:10:SER:HB3	1.92	0.51
5:08:23:ILE:O	5:08:33:THR:HG23	2.10	0.51
5:08:27:GLY:HA3	5:08:78:VAL:HB	1.91	0.51
16:19:74:SER:HB2	54:01:1011:G:OP1	2.11	0.51
32:B:53:LEU:HA	32:B:56:LEU:HD12	1.92	0.51
33:C:116:ALA:HB3	33:C:184:ASN:HD22	1.75	0.51
34:D:176:LYS:O	34:D:176:LYS:HD3	2.11	0.51
35:E:33:THR:HG22	35:E:51:LYS:HE2	1.92	0.51
35:E:107:GLY:HA2	53:A:8:A:H1'	1.91	0.51
36:F:18:VAL:O	36:F:22:ILE:HG13	2.09	0.51
36:F:64:VAL:HG22	36:F:65:GLU:N	2.25	0.51
43:M:93:GLY:HA2	43:M:108:ARG:HH12	1.75	0.51
53:A:77:A:H2'	53:A:78:A:H8	1.75	0.51
53:A:1121:U:H3	53:A:1152:A:H61	1.56	0.51
54:01:189:G:H2'	54:01:205:G:N2	2.25	0.51
54:01:718:A:H2'	54:01:719:C:O4'	2.10	0.51
54:01:1675:C:H2'	54:01:1676:A:O4'	2.10	0.51
54:01:2159:G:H2'	54:01:2160:C:O4'	2.09	0.51
54:01:2515:C:H2'	54:01:2516:A:H8	1.75	0.51
55:02:55:U:H2'	55:02:56:G:C8	2.45	0.51
59:Z:111:PRO:HD3	59:Z:149:VAL:HG13	1.91	0.51
59:Z:214:ILE:HG23	59:Z:227:VAL:HG23	1.92	0.51
1:04:209:ALA:HA	1:04:212:TRP:CE2	2.46	0.51
9:12:8:PRO:HG3	9:12:48:VAL:HG21	1.91	0.51
11:14:65:GLY:HA2	54:01:2415:G:O3'	2.10	0.51
21:24:20:LEU:HD11	21:24:41:GLU:HG3	1.92	0.51
27:30:49:ARG:HG2	54:01:2884:U:C6	2.44	0.51
43:M:106:ARG:HG2	53:A:947:G:OP1	2.10	0.51
47:Q:30:HIS:HD2	47:Q:33:TYR:H	1.59	0.51
48:R:54:LEU:O	48:R:58:ILE:HG12	2.10	0.51
53:A:1513:A:H2'	53:A:1514:G:C8	2.45	0.51
54:01:825:A:H2'	54:01:826:U:C6	2.45	0.51
54:01:974:G:H1'	54:01:975:A:C8	2.45	0.51
54:01:2637:U:H2'	54:01:2638:G:O4'	2.10	0.51
54:01:2682:A:H61	54:01:2728:U:H1'	1.75	0.51
54:01:2834:G:H2'	54:01:2879:A:H61	1.74	0.51
3:06:88:ARG:O	3:06:90:GLN:N	2.42	0.51
12:15:29:GLY:HA2	12:15:106:ASP:HB2	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:F:18:VAL:HB	36:F:19:PRO:HD3	1.91	0.51
36:F:70:VAL:O	36:F:74:LEU:HG	2.11	0.51
40:J:100:ILE:HD12	40:J:100:ILE:O	2.11	0.51
54:01:1273:U:H5''	54:01:1646:C:H41	1.76	0.51
54:01:2215:C:H2'	54:01:2216:G:C8	2.45	0.51
59:Z:92:ILE:HG12	59:Z:121:LEU:HD13	1.91	0.51
6:09:104:THR:HG23	6:09:109:GLU:HA	1.93	0.51
7:10:60:LEU:HG	7:10:78:GLY:HA3	1.91	0.51
10:13:6:THR:HG23	54:01:1666:G:O3'	2.11	0.51
43:M:24:VAL:HG23	43:M:28:ARG:HB3	1.91	0.51
53:A:811:C:H4'	53:A:901:A:H61	1.75	0.51
58:Y:15:G:H22	58:Y:48:C:H42	1.57	0.51
1:04:177:SER:O	1:04:270:ARG:HG3	2.11	0.51
2:05:116:LYS:HG3	2:05:165:MET:SD	2.50	0.51
4:07:91:ARG:HA	4:07:95:MET:HB3	1.92	0.51
5:08:51:PHE:HE1	5:08:71:LEU:HD22	1.75	0.51
16:19:90:ASP:OD1	17:20:11:GLN:HB2	2.11	0.51
25:28:47:ILE:HG23	25:28:54:VAL:HG21	1.91	0.51
32:B:67:LEU:HD11	32:B:153:MET:HE1	1.92	0.51
34:D:56:GLU:HG2	34:D:198:LEU:HD12	1.93	0.51
53:A:20:U:H2'	53:A:21:G:O4'	2.09	0.51
53:A:1120:C:H2'	53:A:1121:U:C6	2.45	0.51
53:A:1517:G:H1'	54:01:1919:A:O2'	2.10	0.51
54:01:723:C:H2'	54:01:724:U:O4'	2.11	0.51
54:01:819:A:H3'	54:01:973:A:H61	1.75	0.51
1:04:65:ASP:HB2	1:04:101:ARG:HD3	1.92	0.51
5:08:51:PHE:CZ	5:08:68:ARG:HA	2.46	0.51
14:17:17:LYS:HZ2	54:01:2380:C:H5'	1.76	0.51
24:27:2:LYS:HG3	24:27:3:ALA:H	1.76	0.51
33:C:1:GLY:HA3	53:A:1060:U:H5	1.76	0.51
53:A:641:U:H4'	53:A:642:A:H8	1.76	0.51
54:01:275:C:H3'	54:01:276:U:H5''	1.92	0.51
54:01:508:A:O2'	54:01:509:C:H5'	2.10	0.51
54:01:817:C:H2'	54:01:818:G:O4'	2.11	0.51
54:01:948:C:H2'	54:01:949:G:H8	1.75	0.51
54:01:2811:G:H2'	54:01:2812:G:C8	2.46	0.51
59:Z:372:LEU:H	59:Z:388:VAL:HB	1.76	0.51
2:05:1:MET:HA	2:05:85:ALA:HB2	1.92	0.51
2:05:124:ARG:HA	2:05:165:MET:CE	2.41	0.51
3:06:108:ILE:HG21	3:06:181:ILE:HD11	1.93	0.51
14:17:33:ARG:HD2	55:02:52:A:N6	2.25	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:33:38:LYS:HA	30:33:41:ARG:NH2	2.25	0.51
33:C:155:ARG:HG3	33:C:192:TYR:HB3	1.92	0.51
36:F:4:TYR:HB3	36:F:89:VAL:HG13	1.93	0.51
36:F:81:ASN:HB3	36:F:84:VAL:HG23	1.93	0.51
42:L:57:THR:HG21	53:A:363:A:P	2.51	0.51
53:A:575:G:O2'	53:A:821:G:H5'	2.11	0.51
54:01:329:G:O4'	54:01:477:A:H1'	2.09	0.51
54:01:807:U:H2'	54:01:808:G:H8	1.74	0.51
54:01:1178:C:H2'	54:01:1178:C:O2	2.10	0.51
54:01:1709:U:H2'	54:01:1710:G:H8	1.76	0.51
54:01:2343:U:H2'	54:01:2344:U:C6	2.46	0.51
59:Z:62:ILE:HD12	59:Z:63:ASN:ND2	2.25	0.51
59:Z:170:VAL:HG21	59:Z:191:LEU:HB2	1.92	0.51
2:05:46:ARG:HB2	2:05:84:LEU:HD12	1.93	0.51
20:23:3:LYS:HB3	20:23:82:VAL:HG21	1.92	0.51
28:31:34:GLU:OE1	28:31:49:LYS:HG2	2.11	0.51
29:32:35:ARG:HG2	29:32:42:LEU:HD11	1.92	0.51
33:C:112:ALA:HA	33:C:201:ILE:HD12	1.93	0.51
36:F:47:LEU:HD12	36:F:55:HIS:HA	1.93	0.51
40:J:91:ASP:O	40:J:92:LEU:HB2	2.11	0.51
44:N:50:LEU:HB3	44:N:51:PRO:HD2	1.92	0.51
54:01:20:C:H2'	54:01:21:A:C8	2.46	0.51
54:01:2629:U:O2'	54:01:2630:G:H5''	2.11	0.51
58:Y:69:A:H1'	58:Y:70:C:OP1	2.11	0.51
16:19:21:LYS:HG2	54:01:19:A:H5''	1.92	0.51
23:26:16:ASN:HB2	23:26:26:ARG:HD2	1.93	0.51
33:C:175:HIS:CD2	53:A:1108:G:H5'	2.46	0.51
43:M:108:ARG:HD3	53:A:1307:U:O2'	2.10	0.51
53:A:24:U:H2'	53:A:25:C:C6	2.46	0.51
53:A:802:A:H2'	53:A:803:G:O4'	2.12	0.51
4:07:70:ARG:HH22	4:07:71:LYS:HD3	1.75	0.50
8:11:7:TYR:HA	8:11:58:ILE:O	2.11	0.50
9:12:134:ALA:HA	54:01:2899:A:H1'	1.91	0.50
32:B:98:GLY:O	32:B:102:ASN:HB3	2.10	0.50
37:G:117:LEU:HG	37:G:121:ASN:HD21	1.75	0.50
52:03:48:LEU:HD12	52:03:169:GLY:HA2	1.93	0.50
53:A:1464:U:H2'	53:A:1465:A:C8	2.46	0.50
54:01:1825:U:H2'	54:01:1826:G:H8	1.76	0.50
1:04:241:LYS:O	54:01:1902:C:H4'	2.10	0.50
6:09:84:ALA:HB1	6:09:90:LEU:HA	1.92	0.50
17:20:60:LYS:HB2	17:20:100:GLY:HA3	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:31:38:PHE:HB2	28:31:45:HIS:CE1	2.46	0.50
33:C:11:LEU:HD13	33:C:17:TRP:HE1	1.77	0.50
37:G:100:MET:HA	37:G:103:ILE:HD12	1.92	0.50
44:N:40:ARG:HH22	49:S:5:LYS:HZ2	1.59	0.50
44:N:80:ARG:HA	44:N:83:VAL:HG12	1.93	0.50
53:A:476:U:H2'	53:A:477:C:C6	2.46	0.50
53:A:715:A:H2'	53:A:716:A:C8	2.45	0.50
53:A:1111:A:H2'	53:A:1112:C:O4'	2.11	0.50
53:A:1256:A:H1'	53:A:1258:G:C4	2.46	0.50
54:01:362:A:H3'	54:01:363:G:H8	1.76	0.50
54:01:948:C:H2'	54:01:949:G:C8	2.46	0.50
54:01:1434:A:H2'	54:01:1435:G:H8	1.76	0.50
54:01:1758:U:C5	54:01:2696:U:H5'	2.46	0.50
54:01:1790:C:H2'	54:01:1791:A:C5	2.47	0.50
59:Z:217:VAL:HG12	59:Z:227:VAL:HA	1.93	0.50
14:17:33:ARG:O	14:17:34:HIS:HB2	2.10	0.50
17:20:61:ALA:HA	17:20:99:THR:H	1.77	0.50
27:30:49:ARG:HG2	54:01:2884:U:H6	1.76	0.50
35:E:75:LEU:HB2	35:E:79:THR:O	2.11	0.50
51:U:4:LYS:HG2	51:U:5:VAL:H	1.73	0.50
54:01:2811:G:H2'	54:01:2812:G:H8	1.76	0.50
59:Z:103:LEU:HB3	59:Z:132:VAL:HG22	1.93	0.50
1:04:42:ARG:NH1	1:04:48:ILE:HB	2.27	0.50
3:06:112:LEU:HA	3:06:115:GLN:HB2	1.94	0.50
6:09:3:VAL:HG13	6:09:37:VAL:C	2.32	0.50
7:10:61:ARG:C	7:10:65:GLU:HB2	2.32	0.50
11:14:101:ILE:HG13	11:14:102:GLY:N	2.26	0.50
12:15:45:GLN:NE2	54:01:2485:G:H5''	2.20	0.50
25:28:14:GLY:C	25:28:15:ARG:HD2	2.32	0.50
30:33:4:LYS:HG2	54:01:242:G:N7	2.27	0.50
37:G:129:ASN:HA	37:G:134:VAL:HG11	1.93	0.50
49:S:13:HIS:HB2	53:A:1014:A:H5''	1.92	0.50
53:A:514:C:H2'	53:A:515:G:H8	1.77	0.50
53:A:1206:G:C3'	53:A:1207:G:H5''	2.40	0.50
54:01:297:G:H2'	54:01:298:G:O4'	2.11	0.50
54:01:632:A:H2'	54:01:633:A:C8	2.46	0.50
54:01:749:A:H2'	54:01:750:A:H8	1.76	0.50
54:01:889:C:C2'	54:01:890:C:H5'	2.40	0.50
54:01:1509:A:H2'	54:01:1510:G:H8	1.75	0.50
54:01:2366:A:H2'	54:01:2367:G:O4'	2.11	0.50
54:01:2819:G:H2'	54:01:2821:A:N7	2.26	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:Y:18:G:H1	58:Y:55:U:H6	1.59	0.50
9:12:23:LYS:HB2	9:12:28:LEU:HD22	1.92	0.50
10:13:87:LEU:HD23	10:13:94:PRO:HA	1.92	0.50
15:18:26:GLU:HG2	15:18:43:GLU:HB2	1.94	0.50
22:25:79:GLU:HB2	22:25:81:GLU:HG2	1.94	0.50
23:26:12:VAL:O	23:26:28:PHE:HB2	2.12	0.50
25:28:5:LYS:HB2	25:28:57:GLU:HG3	1.94	0.50
28:31:20:TYR:OH	54:01:2348:U:H5'	2.11	0.50
35:E:149:PRO:HA	35:E:152:VAL:HG22	1.93	0.50
38:H:28:SER:HA	38:H:58:LEU:HD23	1.94	0.50
52:03:24:ASN:ND2	52:03:27:ILE:HD11	2.27	0.50
52:03:174:THR:CG2	54:01:2124:G:H5''	2.42	0.50
53:A:184:G:H4'	53:A:224:U:O3'	2.11	0.50
53:A:1251:A:H2'	53:A:1252:A:O4'	2.11	0.50
54:01:848:C:H2'	54:01:849:A:C8	2.46	0.50
54:01:1443:U:H2'	54:01:1444:G:C8	2.47	0.50
54:01:2104:C:H42	54:01:2185:U:H3	1.58	0.50
1:04:219:VAL:HG22	54:01:781:A:H5'	1.92	0.50
6:09:41:LYS:O	6:09:45:GLU:HG3	2.11	0.50
8:11:90:GLY:N	8:11:92:PRO:HD3	2.27	0.50
12:15:33:LEU:HD13	12:15:117:PHE:HB3	1.94	0.50
14:17:46:GLU:HB2	55:02:113:C:O2'	2.12	0.50
32:B:94:ARG:HD2	32:B:94:ARG:N	2.26	0.50
34:D:77:GLU:O	34:D:81:LEU:HG	2.12	0.50
51:U:50:SER:HA	51:U:53:LYS:HD2	1.94	0.50
53:A:1219:A:H2'	53:A:1220:G:C8	2.46	0.50
54:01:372:G:HO2'	54:01:373:U:H6	1.59	0.50
54:01:1999:C:H5''	54:01:2723:C:O2'	2.11	0.50
54:01:2432:A:H1'	56:X:75:C:O4'	2.12	0.50
56:X:33:U:H2'	56:X:35:A:OP2	2.11	0.50
58:Y:25:C:C3'	58:Y:26:A:H5''	2.42	0.50
59:Z:67:VAL:HG23	59:Z:78:HIS:HB3	1.94	0.50
59:Z:289:GLY:CA	59:Z:335:THR:HG22	2.37	0.50
1:04:252:LYS:HB2	1:04:252:LYS:NZ	2.27	0.50
5:08:97:VAL:HG22	5:08:102:ILE:HG12	1.93	0.50
7:10:88:HIS:HB2	7:10:89:PRO:HD3	1.94	0.50
8:11:77:VAL:HG12	8:11:80:LYS:HE2	1.92	0.50
10:13:25:LEU:HD12	10:13:38:ILE:HG22	1.93	0.50
42:L:8:ARG:HB2	42:L:8:ARG:CZ	2.41	0.50
53:A:79:G:H2'	53:A:80:A:O4'	2.12	0.50
53:A:335:C:H4'	53:A:1434:A:H4'	1.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:937:C:H2'	54:01:938:G:H8	1.77	0.50
54:01:1709:U:H2'	54:01:1710:G:C8	2.47	0.50
54:01:2356:U:H2'	54:01:2357:G:C8	2.47	0.50
54:01:2391:G:H4'	54:01:2392:A:OP1	2.11	0.50
55:02:66:A:H5''	55:02:67:G:OP1	2.11	0.50
3:06:149:ILE:HD11	3:06:172:ALA:HA	1.94	0.50
33:C:76:ILE:HA	33:C:83:VAL:HG23	1.93	0.50
39:I:14:SER:HB3	39:I:77:ALA:HB2	1.94	0.50
53:A:909:A:H2'	53:A:910:C:O4'	2.12	0.50
54:01:742:A:H2'	54:01:743:A:C8	2.47	0.50
54:01:1023:U:O2'	54:01:1122:G:H5'	2.12	0.50
58:Y:18:G:O2'	58:Y:19:G:H5''	2.12	0.50
59:Z:35:LEU:HD13	59:Z:70:ASP:O	2.12	0.50
7:10:47:GLU:OE1	7:10:95:LEU:HD21	2.12	0.50
7:10:79:PRO:HA	54:01:1108:U:OP1	2.10	0.50
8:11:11:GLN:HE22	8:11:44:LYS:HG2	1.77	0.50
21:24:44:HIS:NE2	21:24:85:LYS:HB2	2.26	0.50
27:30:11:LYS:HD2	27:30:14:MET:HE3	1.94	0.50
35:E:22:LYS:HB3	35:E:29:ILE:HG23	1.93	0.50
35:E:163:ILE:HG13	35:E:164:LEU:N	2.27	0.50
45:O:10:ILE:HD12	45:O:30:LEU:HD12	1.94	0.50
53:A:26:A:H61	53:A:558:G:H1'	1.76	0.50
53:A:410:G:H2'	53:A:429:U:C4	2.47	0.50
53:A:736:C:H2'	53:A:737:C:C6	2.47	0.50
54:01:1177:G:H2'	54:01:1178:C:C4'	2.41	0.50
54:01:1278:C:H2'	54:01:1279:G:C8	2.47	0.50
54:01:1300:G:H4'	54:01:1301:A:H5'	1.94	0.50
54:01:1400:U:H2'	54:01:1401:G:C8	2.47	0.50
54:01:2841:C:H2'	54:01:2842:G:C8	2.46	0.50
2:05:13:ARG:NH1	15:18:55:HIS:HA	2.26	0.49
7:10:60:LEU:C	7:10:64:VAL:HB	2.33	0.49
21:24:45:ASP:O	21:24:48:MET:HB3	2.11	0.49
34:D:97:LEU:O	34:D:101:VAL:HG23	2.12	0.49
34:D:182:LYS:NZ	34:D:182:LYS:HB2	2.27	0.49
40:J:65:TYR:HB3	44:N:95:LEU:HD11	1.93	0.49
44:N:92:ILE:H	44:N:92:ILE:HD12	1.76	0.49
53:A:1064:G:N2	53:A:1190:G:H1'	2.27	0.49
54:01:1310:G:H3'	54:01:1311:G:C8	2.47	0.49
1:04:75:ALA:HB2	1:04:95:TYR:CD1	2.47	0.49
14:17:28:VAL:HG12	14:17:93:ASP:O	2.11	0.49
20:23:23:LYS:O	20:23:35:VAL:HG13	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:29:58:ASP:O	26:29:62:LYS:HG3	2.12	0.49
40:J:64:GLN:HE22	53:A:1368:A:H5'	1.77	0.49
54:01:1810:A:H2'	54:01:1811:G:O4'	2.12	0.49
54:01:2584:U:H2'	54:01:2585:U:H2'	1.94	0.49
3:06:148:ILE:HD13	3:06:187:VAL:HG13	1.94	0.49
5:08:66:THR:OG1	54:01:2748:A:H1'	2.12	0.49
6:09:94:ILE:HG22	6:09:99:ILE:HD11	1.94	0.49
15:18:7:LEU:O	15:18:10:GLU:HG2	2.12	0.49
33:C:36:PHE:O	33:C:40:GLN:HG3	2.12	0.49
34:D:103:ARG:NH1	34:D:110:ARG:HH12	1.96	0.49
46:P:46:LYS:HG3	46:P:48:GLU:H	1.78	0.49
53:A:1202:U:H2'	53:A:1203:C:H5'	1.93	0.49
53:A:1333:A:H2'	53:A:1334:G:O4'	2.12	0.49
53:A:1356:G:H2'	53:A:1357:A:C8	2.47	0.49
53:A:1435:G:H2'	53:A:1436:U:C6	2.47	0.49
54:01:622:G:H2'	54:01:623:C:C6	2.47	0.49
54:01:2093:G:N7	54:01:2225:A:H2'	2.28	0.49
59:Z:329:GLN:HA	59:Z:338:THR:HA	1.94	0.49
1:04:237:ARG:NE	54:01:2590:A:H5''	2.27	0.49
8:11:27:LEU:HD11	8:11:34:ILE:HG13	1.93	0.49
19:22:15:HIS:HE1	19:22:17:SER:HB3	1.76	0.49
31:34:2:LYS:HB2	31:34:35:GLN:HA	1.93	0.49
32:B:182:VAL:HG23	32:B:195:VAL:HA	1.94	0.49
34:D:85:THR:HB	35:E:102:THR:HG21	1.95	0.49
36:F:51:ILE:C	36:F:53:LYS:H	2.15	0.49
39:I:17:ARG:HB2	39:I:65:THR:HG1	1.77	0.49
53:A:235:C:H2'	53:A:236:A:C8	2.47	0.49
54:01:74:A:H4'	54:01:75:G:O5'	2.13	0.49
54:01:898:C:H2'	54:01:899:A:O4'	2.13	0.49
54:01:1318:U:H2'	54:01:1319:C:C6	2.48	0.49
11:14:79:LEU:HD11	11:14:112:LEU:HA	1.94	0.49
15:18:19:PHE:HB2	15:18:23:ASP:OD2	2.12	0.49
23:26:16:ASN:ND2	54:01:2081:U:H5''	2.27	0.49
32:B:126:ASP:HA	32:B:133:ALA:CB	2.42	0.49
36:F:49:TYR:HE2	36:F:86:ARG:HH22	1.59	0.49
38:H:80:PRO:HG2	53:A:878:A:H5'	1.93	0.49
39:I:27:ILE:HB	39:I:34:LEU:HB2	1.93	0.49
40:J:52:LEU:HD21	40:J:59:LYS:HD2	1.94	0.49
40:J:57:VAL:HG22	40:J:58:ASN:N	2.23	0.49
43:M:104:ASN:O	43:M:105:ALA:HB3	2.12	0.49
52:03:163:TYR:CD2	52:03:171:ILE:HD11	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:477:C:H2'	53:A:478:A:C8	2.48	0.49
54:01:745:G:O2'	54:01:748:G:H1'	2.11	0.49
54:01:760:G:H2'	54:01:761:A:O4'	2.12	0.49
54:01:862:G:H2'	54:01:863:A:O4'	2.12	0.49
54:01:918:A:H5''	55:02:97:C:O2'	2.12	0.49
54:01:1047:G:H2'	54:01:1110:G:N2	2.26	0.49
54:01:1856:U:H2'	54:01:1857:G:O4'	2.12	0.49
58:Y:22:G:H2'	58:Y:23:A:C8	2.47	0.49
1:04:7:PRO:HB3	1:04:13:ARG:HD3	1.94	0.49
4:07:23:SER:HB2	55:02:56:G:H5'	1.94	0.49
20:23:4:ILE:HD12	20:23:4:ILE:H	1.78	0.49
36:F:4:TYR:HB3	36:F:89:VAL:CG1	2.43	0.49
38:H:88:LYS:HB3	53:A:600:A:OP1	2.13	0.49
53:A:1070:U:H2'	53:A:1071:C:C6	2.48	0.49
54:01:1765:U:H2'	54:01:1766:G:H8	1.76	0.49
54:01:2543:G:H2'	54:01:2544:G:C8	2.48	0.49
11:14:18:ARG:HH22	54:01:1249:U:H2'	1.77	0.49
16:19:54:ARG:HG3	54:01:1155:A:OP1	2.13	0.49
18:21:66:ILE:HD12	18:21:66:ILE:N	2.27	0.49
18:21:82:MET:HB2	18:21:98:LYS:HB2	1.95	0.49
21:24:51:GLN:HE22	21:24:86:LEU:HG	1.78	0.49
32:B:181:PRO:HA	32:B:196:ASP:OD2	2.13	0.49
44:N:2:LYS:NZ	53:A:1048:G:H4'	2.28	0.49
53:A:539:A:H2'	53:A:540:G:C8	2.48	0.49
54:01:716:A:H3'	54:01:717:C:H5''	1.94	0.49
54:01:942:G:H2'	54:01:943:A:O4'	2.12	0.49
54:01:2147:A:H2'	54:01:2148:G:O4'	2.11	0.49
54:01:2350:C:H2'	54:01:2351:G:O4'	2.12	0.49
54:01:2368:C:H2'	54:01:2369:A:C8	2.48	0.49
58:Y:69:A:O2'	58:Y:70:C:O5'	2.28	0.49
5:08:34:ARG:HE	5:08:70:LEU:HD13	1.77	0.49
19:22:43:ILE:HG21	19:22:58:VAL:HG11	1.94	0.49
33:C:64:ARG:HG3	33:C:99:GLN:O	2.12	0.49
33:C:151:GLU:HA	33:C:166:TRP:HA	1.95	0.49
39:I:51:LEU:HB3	39:I:56:MET:HB2	1.95	0.49
39:I:78:ILE:O	39:I:82:ILE:HG13	2.12	0.49
42:L:110:LYS:HB2	53:A:538:G:H5''	1.94	0.49
49:S:52:ASN:HD22	49:S:76:THR:HA	1.78	0.49
53:A:1255:G:H2'	53:A:1279:G:H1	1.77	0.49
53:A:1477:U:H2'	53:A:1478:U:C6	2.48	0.49
54:01:278:A:C2	54:01:362:A:H1'	2.48	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:741:U:H2'	54:01:742:A:C8	2.48	0.49
54:01:832:U:H2'	54:01:833:A:C8	2.48	0.49
54:01:1097:U:H2'	54:01:1098:A:O4'	2.13	0.49
54:01:1424:G:H2'	54:01:1425:G:O4'	2.13	0.49
54:01:2047:C:H2'	54:01:2048:G:C8	2.48	0.49
54:01:2533:U:H2'	54:01:2534:A:O4'	2.13	0.49
15:18:3:ILE:HD12	15:18:3:ILE:N	2.27	0.49
52:03:162:ARG:HD3	52:03:162:ARG:N	2.17	0.49
53:A:79:G:O2'	53:A:80:A:H5'	2.13	0.49
53:A:123:U:H5''	53:A:311:C:O2'	2.11	0.49
53:A:1275:A:H2'	53:A:1276:G:O4'	2.12	0.49
54:01:917:A:H5''	54:01:2268:A:N6	2.28	0.49
54:01:2111:U:H3	54:01:2147:A:H1'	1.78	0.49
54:01:2273:A:H2'	54:01:2274:A:C8	2.47	0.49
54:01:2676:C:H2'	54:01:2677:G:C8	2.48	0.49
59:Z:62:ILE:HB	59:Z:87:TYR:CD2	2.48	0.49
59:Z:173:SER:HB3	59:Z:184:TRP:CE3	2.48	0.49
9:12:15:TRP:HH2	54:01:7:G:H4'	1.78	0.49
13:16:96:ARG:HG3	54:01:2882:A:H5'	1.93	0.49
14:17:37:ALA:HB2	14:17:106:LEU:HD11	1.95	0.49
15:18:10:GLU:HG3	15:18:11:GLN:HG3	1.94	0.49
19:22:56:GLU:OE2	19:22:88:LYS:HG2	2.13	0.49
20:23:48:VAL:HG22	20:23:50:ALA:H	1.78	0.49
20:23:70:ALA:HB3	20:23:79:ALA:HB1	1.95	0.49
20:23:80:ASP:OD1	20:23:97:SER:HB3	2.12	0.49
21:24:80:HIS:HB2	21:24:85:LYS:HG3	1.95	0.49
32:B:75:ALA:O	32:B:79:VAL:HG23	2.13	0.49
36:F:71:ILE:HD12	36:F:74:LEU:HD12	1.94	0.49
46:P:6:LEU:HD13	46:P:17:TYR:CG	2.48	0.49
53:A:10:A:H2'	53:A:11:G:C8	2.48	0.49
53:A:580:C:H2'	53:A:581:G:O4'	2.13	0.49
53:A:1346:A:O2'	53:A:1347:G:H4'	2.12	0.49
54:01:1447:C:H2'	54:01:1448:G:C8	2.48	0.49
54:01:2167:U:H3	54:01:2170:A:H62	1.61	0.49
59:Z:88:VAL:O	59:Z:91:MET:HG3	2.13	0.49
59:Z:258:VAL:HG12	59:Z:265:LEU:HD23	1.93	0.49
59:Z:350:VAL:HG22	59:Z:356:ILE:HG21	1.95	0.49
2:05:173:GLN:NE2	54:01:2772:C:H5'	2.28	0.48
13:16:43:GLU:OE2	13:16:46:ARG:HD3	2.13	0.48
25:28:56:VAL:HG22	25:28:57:GLU:N	2.28	0.48
32:B:19:THR:HA	32:B:37:VAL:HG23	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:B:86:CYS:HB2	32:B:217:ALA:HB1	1.95	0.48
51:U:49:ALA:O	51:U:53:LYS:HG3	2.13	0.48
53:A:418:C:H2'	53:A:419:C:C6	2.48	0.48
54:01:1:G:H2'	54:01:2:G:H8	1.78	0.48
54:01:1463:C:H2'	54:01:1464:G:H8	1.78	0.48
54:01:1765:U:H2'	54:01:1766:G:C8	2.48	0.48
54:01:1801:A:H5''	54:01:2203:U:H2'	1.95	0.48
59:Z:19:HIS:HB3	59:Z:22:HIS:CE1	2.48	0.48
10:13:16:ALA:HA	10:13:46:ALA:HA	1.93	0.48
20:23:91:LYS:NZ	54:01:296:U:H5''	2.27	0.48
37:G:35:LYS:CD	53:A:1373:G:H5''	2.44	0.48
39:I:91:GLU:HA	39:I:94:ARG:HB2	1.95	0.48
40:J:8:ILE:HB	40:J:74:VAL:HB	1.94	0.48
42:L:23:LEU:HB2	42:L:58:ASN:HD22	1.79	0.48
42:L:74:GLN:O	42:L:76:HIS:N	2.42	0.48
44:N:42:ASN:O	44:N:46:LYS:HG3	2.13	0.48
53:A:24:U:H4'	53:A:525:C:H5'	1.95	0.48
53:A:632:U:H3'	53:A:633:G:H5'	1.96	0.48
54:01:11:C:H2'	54:01:12:U:H5''	1.95	0.48
54:01:1328:A:H2'	54:01:1330:C:C5	2.48	0.48
2:05:46:ARG:HG3	2:05:84:LEU:HB2	1.96	0.48
8:11:120:ASP:OD2	8:11:122:GLU:HB3	2.14	0.48
14:17:33:ARG:O	14:17:34:HIS:CB	2.60	0.48
30:33:30:HIS:ND1	30:33:31:ILE:HG13	2.28	0.48
35:E:140:ILE:HA	35:E:143:LEU:HD12	1.96	0.48
38:H:28:SER:HB2	38:H:58:LEU:HB3	1.95	0.48
54:01:1023:U:H4'	54:01:1123:C:OP1	2.12	0.48
54:01:2478:A:H2'	54:01:2479:U:O4'	2.12	0.48
54:01:2591:C:H2'	54:01:2592:G:C8	2.48	0.48
59:Z:330:PHE:CD2	59:Z:339:GLY:HA3	2.47	0.48
1:04:22:GLU:HB3	1:04:80:LEU:HD12	1.94	0.48
2:05:35:THR:HA	2:05:92:VAL:HG13	1.96	0.48
4:07:125:GLY:HA2	4:07:162:ASP:HA	1.94	0.48
7:10:7:ASP:O	7:10:11:ILE:HG12	2.13	0.48
7:10:118:ILE:H	7:10:119:PRO:CD	2.26	0.48
8:11:4:VAL:HG13	8:11:7:TYR:HE1	1.77	0.48
8:11:77:VAL:HA	8:11:80:LYS:HE2	1.94	0.48
15:18:5:LYS:O	15:18:8:GLU:HB2	2.14	0.48
18:21:88:ARG:HG3	18:21:94:ASP:OD2	2.12	0.48
23:26:5:GLN:HB3	23:26:70:LEU:HD11	1.94	0.48
34:D:98:ASP:OD2	34:D:132:ALA:HB1	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:F:38:ARG:CD	36:F:97:THR:HA	2.43	0.48
44:N:65:GLN:HG3	44:N:78:LEU:HD22	1.95	0.48
46:P:4:ILE:HD12	46:P:67:ILE:HG13	1.95	0.48
53:A:220:G:O2'	53:A:221:C:H5'	2.13	0.48
53:A:1142:G:H2'	53:A:1143:G:O4'	2.13	0.48
53:A:1417:G:H2'	53:A:1482:G:N2	2.29	0.48
54:01:174:U:H2'	54:01:175:G:C8	2.48	0.48
54:01:828:U:H2'	54:01:829:A:C8	2.48	0.48
54:01:1303:G:H2'	54:01:1304:A:O4'	2.13	0.48
54:01:2368:C:H2'	54:01:2369:A:H8	1.77	0.48
54:01:2554:U:H2'	54:01:2555:U:C6	2.48	0.48
59:Z:309:TYR:HB3	59:Z:385:ALA:H	1.78	0.48
5:08:85:LYS:HB2	5:08:85:LYS:NZ	2.28	0.48
11:14:101:ILE:HG13	11:14:102:GLY:H	1.78	0.48
27:30:47:TYR:CZ	27:30:52:LYS:HD3	2.48	0.48
32:B:60:ALA:HB1	32:B:224:ARG:HG3	1.95	0.48
34:D:96:ARG:O	34:D:100:VAL:HG23	2.13	0.48
37:G:92:PRO:HA	37:G:95:ARG:HE	1.79	0.48
38:H:54:THR:HG23	38:H:55:LYS:HG3	1.94	0.48
40:J:80:THR:HG22	40:J:82:LYS:H	1.78	0.48
52:03:42:VAL:HG11	52:03:175:ILE:HD11	1.96	0.48
53:A:1330:U:H2'	53:A:1331:G:O4'	2.12	0.48
54:01:792:A:H3'	54:01:793:A:H5'	1.96	0.48
54:01:2317:A:H2'	54:01:2318:G:O4'	2.13	0.48
55:02:3:C:H3'	55:02:4:C:H5''	1.94	0.48
59:Z:32:THR:HB	59:Z:43:ALA:N	2.29	0.48
8:11:12:VAL:O	8:11:13:ALA:C	2.52	0.48
13:16:114:GLU:HB2	13:16:118:ARG:HD2	1.96	0.48
14:17:7:ARG:HA	14:17:10:ARG:NH2	2.28	0.48
15:18:25:VAL:HB	15:18:46:VAL:HG23	1.96	0.48
15:18:29:VAL:HG13	15:18:79:VAL:O	2.13	0.48
34:D:1:ALA:HA	34:D:67:LEU:HD11	1.95	0.48
36:F:64:VAL:HG22	36:F:65:GLU:H	1.77	0.48
39:I:44:ARG:O	39:I:47:VAL:HG22	2.14	0.48
43:M:14:ALA:O	43:M:18:LEU:HG	2.12	0.48
43:M:53:ASP:HA	43:M:56:ARG:HH11	1.78	0.48
49:S:49:ALA:HB1	49:S:56:HIS:HB3	1.95	0.48
53:A:1366:C:H2'	53:A:1367:C:C6	2.49	0.48
54:01:353:C:H2'	54:01:354:A:C8	2.48	0.48
54:01:827:U:H4'	54:01:828:U:C5	2.48	0.48
54:01:1432:G:H2'	54:01:1433:A:C8	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:1485:U:H2'	54:01:1486:U:C6	2.49	0.48
59:Z:124:GLN:NE2	59:Z:385:ALA:HB1	2.28	0.48
59:Z:356:ILE:HD12	59:Z:356:ILE:O	2.14	0.48
3:06:189:THR:O	3:06:193:VAL:HG23	2.14	0.48
5:08:148:ARG:HA	5:08:161:VAL:HB	1.96	0.48
20:23:8:ASP:OD1	20:23:71:ILE:HG22	2.12	0.48
33:C:131:ARG:O	33:C:135:ARG:HB2	2.14	0.48
39:I:11:ARG:NH2	39:I:108:ARG:HD3	2.28	0.48
49:S:50:VAL:O	49:S:56:HIS:HA	2.14	0.48
53:A:665:A:C1'	53:A:733:G:H1'	2.44	0.48
54:01:278:A:H2'	54:01:278:A:N3	2.29	0.48
54:01:575:A:O2'	54:01:576:U:H5'	2.12	0.48
54:01:721:A:H2'	54:01:722:A:C8	2.48	0.48
54:01:1028:A:H2'	54:01:1029:A:C8	2.49	0.48
54:01:1594:U:H2'	54:01:1595:C:C6	2.49	0.48
54:01:1746:A:H2'	54:01:1747:U:C6	2.48	0.48
54:01:2185:U:H2'	54:01:2186:G:C8	2.48	0.48
54:01:2287:A:O2'	54:01:2288:A:H2'	2.13	0.48
54:01:2848:G:O2'	54:01:2849:U:H5'	2.13	0.48
59:Z:9:LYS:HG3	59:Z:75:HIS:HB2	1.95	0.48
59:Z:210:PHE:CD2	59:Z:242:VAL:HG11	2.49	0.48
1:04:12:ARG:HH21	54:01:728:G:C5'	2.27	0.48
1:04:83:ASP:HB2	1:04:90:ILE:HG23	1.94	0.48
6:09:76:GLU:C	6:09:142:VAL:HG13	2.34	0.48
23:26:11:PRO:HG3	23:26:30:PRO:HD2	1.96	0.48
23:26:15:ASN:O	54:01:380:G:H4'	2.13	0.48
30:33:61:LEU:HD12	30:33:61:LEU:O	2.14	0.48
31:34:19:ARG:HB2	31:34:24:ARG:HD2	1.96	0.48
37:G:115:MET:HB2	53:A:1240:U:OP1	2.13	0.48
53:A:1128:C:H2'	53:A:1129:C:C6	2.49	0.48
54:01:542:C:H2'	54:01:543:G:C5'	2.44	0.48
54:01:1283:G:H1'	54:01:1329:U:O2	2.14	0.48
54:01:1570:A:H2'	54:01:1571:A:C8	2.48	0.48
54:01:1704:C:H2'	54:01:1705:A:H8	1.79	0.48
54:01:1736:U:H2'	54:01:1737:G:O4'	2.13	0.48
54:01:2802:G:H2'	54:01:2803:G:C8	2.49	0.48
59:Z:52:ALA:HB3	59:Z:55:GLU:HB2	1.95	0.48
1:04:51:ARG:NH2	1:04:246:PRO:HG2	2.29	0.48
2:05:7:LYS:HE3	2:05:77:ARG:NH1	2.29	0.48
2:05:48:ILE:O	2:05:81:GLU:HG3	2.14	0.48
4:07:115:GLY:HA3	4:07:177:ARG:HB2	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:09:58:LEU:HA	6:09:61:VAL:HG13	1.96	0.48
10:13:107:LEU:HD21	10:13:115:ILE:HG21	1.95	0.48
19:22:56:GLU:HB2	19:22:86:THR:OG1	2.14	0.48
22:25:12:SER:HG	54:01:2261:C:H3'	1.77	0.48
26:29:18:CYS:SG	26:29:37:CYS:N	2.87	0.48
27:30:42:ILE:HG22	27:30:48:TYR:HB2	1.96	0.48
29:32:34:ARG:NE	29:32:39:ARG:HD2	2.13	0.48
32:B:22:TRP:CZ3	32:B:24:PRO:HA	2.49	0.48
36:F:37:HIS:O	36:F:38:ARG:HD2	2.14	0.48
50:T:26:MET:HB3	53:A:1458:G:H5'	1.95	0.48
51:U:35:GLU:O	51:U:36:PHE:HB2	2.14	0.48
53:A:35:G:H2'	53:A:36:C:C6	2.49	0.48
54:01:20:C:H2'	54:01:21:A:H8	1.79	0.48
54:01:2345:G:H5'	54:01:2347:C:O4'	2.13	0.48
59:Z:123:ARG:HG3	59:Z:161:ASP:O	2.14	0.48
59:Z:186:ALA:O	59:Z:190:GLU:HG3	2.14	0.48
6:09:135:HIS:HB3	6:09:138:VAL:H	1.79	0.48
11:14:141:LYS:HG2	11:14:142:ILE:N	2.29	0.48
13:16:32:GLU:HG2	13:16:115:LEU:HD12	1.96	0.48
32:B:166:ASP:HB2	32:B:190:SER:OG	2.13	0.48
53:A:448:A:H3'	53:A:449:G:C8	2.47	0.48
53:A:466:A:H2'	53:A:468:A:N7	2.29	0.48
53:A:758:C:H4'	53:A:880:C:H4'	1.96	0.48
54:01:150:U:H2'	54:01:151:C:C6	2.48	0.48
54:01:174:U:H2'	54:01:175:G:H8	1.79	0.48
54:01:195:A:H61	54:01:198:C:H3'	1.78	0.48
54:01:2537:U:H2'	54:01:2538:C:C6	2.49	0.48
56:W:6:G:O2'	56:W:7:G:H5'	2.13	0.48
1:04:77:VAL:HG21	1:04:109:LEU:HD11	1.96	0.47
6:09:4:ILE:HG22	6:09:37:VAL:O	2.14	0.47
8:11:81:LYS:HA	8:11:86:LYS:HZ1	1.79	0.47
12:15:84:LYS:N	12:15:84:LYS:HD2	2.28	0.47
23:26:71:ARG:HD2	23:26:77:TYR:OH	2.14	0.47
32:B:117:GLU:OE2	32:B:151:LYS:HE3	2.14	0.47
37:G:74:VAL:HB	37:G:85:GLN:HB3	1.95	0.47
42:L:28:GLN:HE22	42:L:82:ARG:HB3	1.79	0.47
53:A:1443:C:H2'	53:A:1444:U:O4'	2.14	0.47
54:01:118:A:H2'	54:01:120:U:O4	2.14	0.47
54:01:610:C:H2'	54:01:611:C:C6	2.49	0.47
54:01:717:C:H2'	54:01:718:A:O4'	2.14	0.47
54:01:1319:C:H2'	54:01:1320:C:O4'	2.13	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:1688:U:H2'	54:01:1698:A:N6	2.29	0.47
54:01:2125:G:H2'	54:01:2126:A:O4'	2.14	0.47
59:Z:117:GLU:O	59:Z:121:LEU:HG	2.13	0.47
59:Z:372:LEU:N	59:Z:388:VAL:HB	2.28	0.47
1:04:257:ARG:NH2	1:04:266:ILE:HD12	2.28	0.47
5:08:72:ASN:O	5:08:76:ILE:HG12	2.14	0.47
7:10:31:ARG:O	7:10:108:VAL:HG21	2.14	0.47
10:13:35:VAL:HG13	10:13:69:VAL:HG11	1.96	0.47
11:14:119:PRO:HA	11:14:140:GLY:H	1.78	0.47
26:29:59:ARG:NH1	26:29:63:ARG:HE	2.12	0.47
27:30:2:VAL:HG21	54:01:2057:G:O2'	2.14	0.47
35:E:80:LEU:H	35:E:121:ASN:ND2	2.12	0.47
36:F:44:ARG:HA	36:F:58:HIS:HA	1.96	0.47
37:G:3:ARG:NH2	53:A:931:C:H5''	2.29	0.47
38:H:80:PRO:HG2	53:A:878:A:H5''	1.95	0.47
46:P:38:PHE:CE1	46:P:51:ARG:HB2	2.48	0.47
47:Q:12:VAL:HB	47:Q:21:VAL:HG13	1.96	0.47
53:A:460:A:H2'	53:A:461:A:H8	1.78	0.47
53:A:1441:A:H2'	53:A:1442:G:H5'	1.95	0.47
54:01:1297:C:H2'	54:01:1298:C:C6	2.49	0.47
54:01:2421:G:H2'	56:X:76:A:N6	2.29	0.47
59:Z:84:HIS:O	59:Z:88:VAL:HG23	2.14	0.47
1:04:59:GLN:HA	54:01:1568:G:H5'	1.95	0.47
3:06:40:ARG:NH2	54:01:1246:A:H4'	2.29	0.47
12:15:53:MET:HE3	12:15:63:ILE:HG21	1.96	0.47
24:27:9:LYS:HD3	24:27:10:SER:N	2.29	0.47
33:C:71:ARG:HD2	33:C:74:ILE:HD11	1.96	0.47
39:I:113:LYS:HE2	39:I:118:ARG:O	2.14	0.47
43:M:82:LEU:HD21	49:S:64:GLU:HB3	1.95	0.47
52:03:27:ILE:HD12	52:03:182:ALA:O	2.14	0.47
53:A:501:C:H2'	53:A:502:A:C8	2.50	0.47
54:01:2473:U:H5'	58:Y:17:U:C4	2.49	0.47
54:01:2875:C:H2'	54:01:2876:G:C8	2.49	0.47
55:02:89:U:H5'	55:02:90:C:C6	2.50	0.47
58:Y:26:A:H4'	58:Y:26:A:OP1	2.13	0.47
59:Z:70:ASP:HB3	59:Z:75:HIS:HA	1.95	0.47
59:Z:184:TRP:O	59:Z:188:ILE:HG12	2.15	0.47
2:05:25:THR:HG21	2:05:193:VAL:HG22	1.96	0.47
7:10:52:MET:SD	7:10:95:LEU:HD13	2.54	0.47
8:11:91:LYS:N	8:11:92:PRO:CD	2.77	0.47
22:25:56:PHE:CE1	54:01:2365:G:H4'	2.50	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:B:56:LEU:HD13	32:B:216:VAL:HA	1.96	0.47
32:B:99:MET:HA	32:B:106:VAL:HG21	1.96	0.47
37:G:56:SER:HB3	37:G:59:GLU:HG2	1.96	0.47
38:H:87:ARG:HD2	38:H:89:ASP:OD1	2.15	0.47
43:M:6:ILE:HG13	43:M:7:ASN:N	2.27	0.47
53:A:505:G:H2'	53:A:506:G:C8	2.50	0.47
53:A:634:C:H2'	53:A:635:A:H8	1.80	0.47
54:01:215:G:C4'	54:01:216:A:H4'	2.44	0.47
54:01:1562:U:H2'	54:01:1563:U:O4'	2.15	0.47
54:01:1564:C:H2'	54:01:1565:C:O4'	2.15	0.47
54:01:2006:C:H5''	54:01:2048:G:H5''	1.96	0.47
54:01:2141:G:N2	54:01:2151:U:H1'	2.29	0.47
54:01:2440:C:H5''	54:01:2587:A:H4'	1.95	0.47
54:01:2861:U:H2'	54:01:2862:G:H8	1.79	0.47
59:Z:318:ARG:HB3	59:Z:352:PRO:HG3	1.95	0.47
1:04:260:LYS:HA	1:04:263:ASP:OD2	2.14	0.47
6:09:147:VAL:HG12	6:09:148:ALA:N	2.29	0.47
7:10:94:ARG:O	7:10:97:LYS:HG2	2.15	0.47
11:14:93:ASN:C	11:14:95:LEU:H	2.18	0.47
18:21:41:LYS:HZ3	27:30:21:LEU:HD11	1.80	0.47
24:27:14:LEU:O	24:27:17:GLU:HB3	2.14	0.47
35:E:59:ILE:O	35:E:63:MET:HG2	2.14	0.47
35:E:82:HIS:C	35:E:97:PRO:HD3	2.34	0.47
42:L:3:VAL:HA	42:L:6:LEU:HD12	1.96	0.47
43:M:28:ARG:O	43:M:32:ILE:HG12	2.13	0.47
52:03:42:VAL:HG22	52:03:216:THR:HG23	1.96	0.47
54:01:560:C:H2'	54:01:561:G:O4'	2.14	0.47
54:01:1354:A:H2'	54:01:1355:G:O4'	2.13	0.47
54:01:1625:C:H2'	54:01:1626:A:O4'	2.15	0.47
54:01:2024:G:OP2	54:01:2034:U:H4'	2.14	0.47
54:01:2185:U:H2'	54:01:2186:G:H8	1.80	0.47
54:01:2636:C:H2'	54:01:2637:U:C6	2.50	0.47
54:01:2818:U:H2'	54:01:2819:G:C8	2.49	0.47
59:Z:170:VAL:HG21	59:Z:191:LEU:HD13	1.96	0.47
59:Z:342:GLU:HG3	59:Z:361:THR:CG2	2.44	0.47
59:Z:343:LEU:HA	59:Z:358:MET:CB	2.44	0.47
2:05:10:GLY:N	2:05:197:THR:HG23	2.30	0.47
7:10:77:VAL:HG11	7:10:82:ILE:HG13	1.97	0.47
19:22:3:ARG:NE	19:22:3:ARG:HA	2.30	0.47
32:B:167:HIS:ND1	32:B:168:GLU:HG3	2.29	0.47
45:O:31:LEU:O	45:O:35:ILE:HG13	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
50:T:28:ARG:HA	50:T:31:ILE:HD12	1.97	0.47
53:A:409:U:H2'	53:A:410:G:O4'	2.15	0.47
53:A:1086:U:H5''	53:A:1389:C:H5''	1.97	0.47
53:A:1170:A:H2'	53:A:1171:A:O4'	2.14	0.47
53:A:1402:C:H2'	53:A:1403:C:O4'	2.13	0.47
54:01:163:C:H2'	54:01:164:C:O4'	2.13	0.47
54:01:248:G:C4	54:01:2431:U:H4'	2.50	0.47
54:01:752:A:H1'	54:01:753:A:OP2	2.14	0.47
54:01:1470:A:H2'	54:01:1471:G:O4'	2.13	0.47
54:01:1704:C:H2'	54:01:1705:A:C8	2.50	0.47
54:01:2676:C:H2'	54:01:2677:G:H8	1.80	0.47
59:Z:30:ALA:O	59:Z:34:VAL:HG23	2.14	0.47
59:Z:307:GLU:HA	59:Z:357:LYS:HA	1.97	0.47
1:04:28:PRO:HG2	1:04:33:LEU:HD21	1.96	0.47
4:07:124:ARG:NH2	54:01:2316:G:H4'	2.30	0.47
5:08:123:GLU:HB2	5:08:131:VAL:O	2.15	0.47
8:11:56:VAL:HG22	8:11:57:VAL:N	2.30	0.47
10:13:10:VAL:HG21	10:13:16:ALA:CB	2.45	0.47
14:17:32:PRO:HD2	55:02:29:A:OP2	2.13	0.47
15:18:19:PHE:CE2	15:18:46:VAL:HG21	2.50	0.47
17:20:24:LYS:HA	17:20:94:THR:OG1	2.15	0.47
18:21:11:ARG:NH2	54:01:1321:A:H4'	2.23	0.47
19:22:40:LYS:HE2	19:22:59:ASN:HA	1.97	0.47
23:26:6:VAL:HG23	23:26:50:VAL:HG12	1.97	0.47
28:31:47:ILE:H	28:31:47:ILE:HD12	1.79	0.47
30:33:38:LYS:HA	30:33:41:ARG:HH22	1.79	0.47
33:C:143:LEU:HD23	33:C:143:LEU:O	2.13	0.47
34:D:61:ARG:HH21	34:D:62:ARG:HE	1.63	0.47
38:H:29:SER:O	38:H:33:VAL:HG23	2.15	0.47
38:H:46:GLU:HB2	38:H:63:LYS:HD2	1.96	0.47
40:J:35:GLN:HB3	40:J:78:GLU:HG2	1.96	0.47
41:K:39:ASN:HA	53:A:683:G:H21	1.80	0.47
46:P:43:ALA:HB1	46:P:46:LYS:HE3	1.96	0.47
47:Q:46:HIS:ND1	47:Q:70:LYS:HE2	2.30	0.47
50:T:32:LYS:HE2	53:A:1439:G:OP1	2.14	0.47
53:A:3:A:H1'	53:A:613:C:H1'	1.97	0.47
53:A:34:C:H2'	53:A:35:G:C8	2.50	0.47
53:A:551:U:H2'	53:A:552:U:C6	2.50	0.47
53:A:986:U:H2'	53:A:987:G:C8	2.48	0.47
54:01:49:A:H5'	54:01:51:G:O4'	2.15	0.47
54:01:184:C:H2'	54:01:185:G:C8	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:389:G:C8	54:01:2413:G:H4'	2.48	0.47
54:01:482:A:H1'	54:01:498:G:N2	2.30	0.47
54:01:1201:U:H2'	54:01:1202:G:H8	1.80	0.47
54:01:1525:A:H2'	54:01:1526:C:O4'	2.15	0.47
54:01:2291:U:H2'	54:01:2292:U:C6	2.50	0.47
55:02:104:A:H2'	55:02:105:G:O4'	2.15	0.47
59:Z:222:GLY:O	59:Z:223:ARG:HD2	2.15	0.47
59:Z:302:THR:O	59:Z:362:LEU:HB2	2.14	0.47
59:Z:333:ARG:HH11	59:Z:372:LEU:HD13	1.80	0.47
8:11:103:ALA:O	8:11:107:GLU:HG3	2.15	0.47
9:12:34:ARG:NH2	16:19:69:ARG:HD2	2.30	0.47
12:15:42:THR:OG1	12:15:45:GLN:HG3	2.14	0.47
15:18:38:ARG:HG2	15:18:39:LEU:H	1.80	0.47
15:18:52:ARG:HB3	15:18:55:HIS:HB2	1.95	0.47
33:C:56:ILE:CG2	33:C:63:ILE:HD11	2.45	0.47
35:E:159:SER:HB2	35:E:162:GLU:CG	2.43	0.47
37:G:139:ASP:O	37:G:143:MET:HG2	2.15	0.47
39:I:105:ARG:O	39:I:105:ARG:HD3	2.15	0.47
44:N:52:ARG:HD2	53:A:1317:C:N3	2.30	0.47
50:T:24:ARG:O	50:T:28:ARG:HG2	2.14	0.47
53:A:202:G:H21	53:A:466:A:H61	1.63	0.47
53:A:940:C:H4'	53:A:1374:A:H2	1.80	0.47
53:A:1016:A:H4'	53:A:1218:C:H4'	1.97	0.47
53:A:1409:C:H2'	53:A:1410:A:H8	1.79	0.47
53:A:1449:C:H2'	53:A:1450:U:O4'	2.15	0.47
54:01:2131:U:OP1	54:01:2134:A:H5'	2.14	0.47
54:01:2358:A:H2'	54:01:2359:C:O4'	2.15	0.47
6:09:125:THR:HG23	6:09:146:VAL:O	2.15	0.47
11:14:57:LEU:HA	11:14:60:ARG:HE	1.80	0.47
12:15:73:ILE:HD11	12:15:93:VAL:CG2	2.45	0.47
13:16:28:LEU:CD2	13:16:48:VAL:HG21	2.39	0.47
16:19:49:ARG:NH2	17:20:74:ILE:HG13	2.29	0.47
23:26:31:ASN:HD22	23:26:52:ALA:CB	2.24	0.47
33:C:153:SER:CB	53:A:1057:G:H5''	2.45	0.47
36:F:12:PRO:CD	36:F:54:LEU:HD21	2.43	0.47
39:I:18:VAL:HG11	39:I:82:ILE:HA	1.97	0.47
44:N:13:VAL:HA	44:N:59:GLN:HE22	1.80	0.47
44:N:49:THR:OG1	49:S:12:LEU:HD11	2.15	0.47
48:R:49:LYS:HE3	53:A:663:A:H5''	1.97	0.47
49:S:47:THR:HA	49:S:60:PHE:HA	1.96	0.47
52:03:24:ASN:HA	52:03:27:ILE:HD11	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:570:G:H5'	53:A:820:U:O4'	2.14	0.47
54:01:687:C:H2'	54:01:688:U:O4'	2.14	0.47
54:01:940:G:C3'	54:01:941:A:H5''	2.45	0.47
54:01:1061:U:H4'	54:01:1070:A:N3	2.29	0.47
54:01:1070:A:H5'	54:01:1072:C:OP2	2.14	0.47
54:01:2048:G:H3'	54:01:2049:G:H5''	1.97	0.47
54:01:2114:A:C6	54:01:2115:G:H1'	2.50	0.47
54:01:2140:G:H2'	54:01:2141:G:O4'	2.15	0.47
54:01:2492:U:H2'	54:01:2493:U:C6	2.50	0.47
54:01:2515:C:H2'	54:01:2516:A:C8	2.49	0.47
61:Y:101:LYS:N	59:Z:260:MET:HA	2.29	0.47
5:08:71:LEU:O	5:08:75:VAL:HG23	2.15	0.47
10:13:22:ILE:HD11	10:13:40:LYS:HG3	1.97	0.47
18:21:88:ARG:HB2	18:21:92:ARG:HG3	1.97	0.47
21:24:42:LEU:HD13	21:24:47:VAL:HG21	1.97	0.47
35:E:37:VAL:HG11	35:E:113:VAL:HA	1.97	0.47
35:E:83:PRO:HB3	35:E:96:GLN:CG	2.45	0.47
37:G:24:LYS:O	37:G:28:ILE:HG13	2.15	0.47
48:R:49:LYS:O	48:R:53:GLN:HG3	2.16	0.47
52:03:4:LEU:HD12	52:03:9:ARG:HG3	1.96	0.47
53:A:112:G:H5'	53:A:389:A:H4'	1.97	0.47
53:A:371:A:H2'	53:A:372:C:O4'	2.15	0.47
53:A:687:A:N3	53:A:688:G:H1'	2.30	0.47
53:A:981:U:H2'	53:A:982:U:C5	2.49	0.47
53:A:1352:C:H2'	53:A:1353:G:C8	2.50	0.47
54:01:995:C:H6	54:01:995:C:H5'	1.79	0.47
54:01:1020:A:H1'	54:01:1021:A:OP2	2.15	0.47
54:01:2331:G:H2'	54:01:2332:C:C6	2.50	0.47
2:05:15:PHE:HB3	15:18:78:PRO:HD3	1.97	0.46
20:23:31:GLY:C	20:23:66:VAL:HG23	2.35	0.46
23:26:16:ASN:HB3	23:26:24:THR:HB	1.97	0.46
38:H:100:ILE:CD1	38:H:128:VAL:HB	2.46	0.46
39:I:33:SER:H	39:I:36:GLN:CG	2.28	0.46
39:I:93:LEU:O	39:I:97:LEU:N	2.44	0.46
43:M:28:ARG:HG2	43:M:62:PHE:CE2	2.50	0.46
46:P:6:LEU:HD12	53:A:375:U:H4'	1.97	0.46
50:T:82:ILE:HD12	50:T:83:ASN:N	2.30	0.46
53:A:625:U:H2'	53:A:626:G:C8	2.51	0.46
53:A:887:G:H2'	53:A:888:G:O4'	2.15	0.46
54:01:141:G:H3'	54:01:142:A:O4'	2.14	0.46
54:01:226:A:H2'	54:01:227:A:O4'	2.13	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:2182:U:H2'	54:01:2183:A:C8	2.49	0.46
59:Z:12:VAL:HG21	59:Z:74:ARG:NH1	2.30	0.46
59:Z:21:ASP:H	62:Z:401:GCP:H3B1	1.81	0.46
3:06:5:LEU:HG	3:06:120:VAL:O	2.15	0.46
4:07:24:VAL:HG12	55:02:55:U:H4'	1.97	0.46
8:11:52:LEU:HD12	8:11:53:PRO:HD2	1.96	0.46
11:14:42:SER:HB2	54:01:672:C:H5	1.79	0.46
12:15:13:HIS:HE1	54:01:2265:U:H4'	1.80	0.46
17:20:42:ALA:HB2	17:20:46:GLU:HG2	1.98	0.46
22:25:36:GLN:HE22	22:25:41:PHE:H	1.63	0.46
24:27:21:LEU:HA	24:27:25:GLN:CB	2.45	0.46
35:E:23:THR:HG23	35:E:28:ARG:HB3	1.97	0.46
38:H:17:GLN:HG3	38:H:71:VAL:HB	1.97	0.46
39:I:49:GLN:N	39:I:50:PRO:CD	2.78	0.46
41:K:51:PHE:CE2	41:K:64:VAL:HG11	2.50	0.46
42:L:4:ASN:HB3	53:A:880:C:OP2	2.16	0.46
50:T:27:MET:O	50:T:31:ILE:HG13	2.14	0.46
53:A:12:U:H4'	53:A:526:C:H4'	1.97	0.46
54:01:1429:G:H2'	54:01:1430:G:H8	1.79	0.46
54:01:2393:U:H2'	54:01:2394:C:O4'	2.15	0.46
55:02:88:C:H5''	55:02:89:U:OP1	2.15	0.46
2:05:150:GLN:HE22	54:01:574:A:H2	1.64	0.46
5:08:142:GLN:O	5:08:145:ALA:HB3	2.16	0.46
6:09:12:LEU:HD12	6:09:13:GLY:H	1.79	0.46
12:15:45:GLN:HA	12:15:48:ALA:HB3	1.98	0.46
14:17:5:SER:HA	14:17:8:ILE:HD12	1.97	0.46
16:19:55:GLN:HA	16:19:58:GLN:HG2	1.97	0.46
18:21:69:LEU:HG	18:21:107:VAL:HG22	1.95	0.46
39:I:22:PRO:HA	39:I:60:LEU:HA	1.97	0.46
40:J:15:HIS:HA	40:J:18:ILE:HG22	1.97	0.46
41:K:22:ILE:HD13	41:K:95:THR:CG2	2.46	0.46
47:Q:39:ARG:HH11	53:A:280:C:C1'	2.29	0.46
53:A:595:A:H61	53:A:641:U:H2'	1.80	0.46
53:A:692:U:H2'	53:A:694:A:OP2	2.15	0.46
53:A:1024:G:H2'	53:A:1025:U:O4'	2.14	0.46
53:A:1354:U:H2'	53:A:1355:G:H8	1.80	0.46
54:01:1101:U:H2'	54:01:1102:C:C6	2.50	0.46
54:01:2601:C:H2'	54:01:2603:G:C8	2.51	0.46
4:07:40:GLY:HA2	4:07:84:ILE:HD11	1.96	0.46
11:14:57:LEU:HB2	11:14:60:ARG:NH1	2.31	0.46
34:D:77:GLU:O	34:D:80:ARG:HG3	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:D:131:ILE:HG12	53:A:620:C:C1'	2.45	0.46
44:N:2:LYS:O	44:N:4:SER:N	2.48	0.46
45:O:55:LEU:O	45:O:59:VAL:HG23	2.15	0.46
53:A:390:U:H2'	53:A:391:G:H8	1.80	0.46
53:A:1513:A:H2'	53:A:1514:G:H8	1.80	0.46
54:01:1877:A:H2'	54:01:1878:G:O4'	2.15	0.46
54:01:2322:A:H2'	54:01:2323:G:O4'	2.16	0.46
54:01:2389:G:H5''	54:01:2390:U:O4'	2.15	0.46
55:02:30:C:C2'	55:02:31:C:H5'	2.46	0.46
59:Z:145:LEU:O	59:Z:149:VAL:HG23	2.15	0.46
59:Z:325:GLY:HA2	59:Z:342:GLU:OE2	2.15	0.46
1:04:171:VAL:HG23	1:04:185:ALA:HA	1.98	0.46
7:10:43:LYS:HA	7:10:46:ARG:HG2	1.97	0.46
8:11:74:PRO:HG2	8:11:77:VAL:HG22	1.97	0.46
10:13:1:MET:SD	54:01:1665:A:H1'	2.56	0.46
12:15:86:LYS:HB2	54:01:2277:G:H5'	1.97	0.46
15:18:91:VAL:HG21	15:18:96:LEU:HD11	1.97	0.46
32:B:114:LYS:HB2	32:B:114:LYS:NZ	2.30	0.46
32:B:125:PHE:O	32:B:133:ALA:HB1	2.16	0.46
33:C:39:ARG:HH12	33:C:54:ILE:HG13	1.81	0.46
33:C:173:PRO:O	33:C:181:ILE:HD11	2.15	0.46
48:R:11:ARG:HD2	53:A:845:A:O2'	2.15	0.46
54:01:887:U:H5'	54:01:888:C:OP1	2.16	0.46
54:01:1258:U:H2'	54:01:1259:G:C8	2.51	0.46
54:01:1357:C:H2'	54:01:1358:G:O4'	2.14	0.46
54:01:1751:U:H2'	54:01:1752:C:C6	2.50	0.46
54:01:2176:A:H2'	54:01:2177:C:C6	2.50	0.46
54:01:2183:A:H2'	54:01:2184:A:C8	2.51	0.46
54:01:2573:C:H5''	54:01:2574:G:H5''	1.96	0.46
59:Z:98:MET:SD	59:Z:101:ALA:HA	2.55	0.46
1:04:247:TRP:CD2	54:01:1805:A:H5''	2.51	0.46
2:05:184:ARG:HH11	15:18:6:GLN:HE21	1.62	0.46
3:06:119:ILE:HB	3:06:187:VAL:HA	1.98	0.46
17:20:68:ARG:NH1	17:20:90:ARG:HB2	2.31	0.46
19:22:51:PHE:O	19:22:53:VAL:HG13	2.15	0.46
24:27:9:LYS:O	24:27:12:GLU:HB3	2.15	0.46
32:B:23:ASN:HD22	32:B:24:PRO:CD	2.29	0.46
32:B:66:ILE:HG23	32:B:159:ALA:HB3	1.98	0.46
32:B:102:ASN:O	32:B:106:VAL:HG23	2.15	0.46
34:D:94:GLU:HA	34:D:99:ASN:ND2	2.30	0.46
35:E:149:PRO:HG2	35:E:150:GLU:OE2	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:J:50:THR:HG22	40:J:62:ARG:HG2	1.97	0.46
45:O:10:ILE:HD13	45:O:30:LEU:HA	1.97	0.46
53:A:501:C:H2'	53:A:502:A:H8	1.80	0.46
53:A:599:C:H2'	53:A:600:A:H8	1.80	0.46
54:01:1283:G:H21	54:01:1329:U:H3	1.64	0.46
59:Z:58:ARG:CB	59:Z:60:ILE:HG12	2.46	0.46
59:Z:70:ASP:HB2	59:Z:75:HIS:HA	1.96	0.46
59:Z:366:ILE:HG13	59:Z:367:ALA:N	2.30	0.46
3:06:9:GLN:O	3:06:9:GLN:HG2	2.15	0.46
8:11:93:ASN:HB2	54:01:1077:A:C4'	2.46	0.46
16:19:24:TYR:HE1	54:01:17:G:H4'	1.80	0.46
23:26:56:ARG:O	23:26:59:ASP:HB3	2.16	0.46
32:B:79:VAL:HG12	32:B:90:PHE:HB2	1.96	0.46
38:H:1:SER:H2	38:H:3:GLN:HE21	1.64	0.46
39:I:32:ARG:NH2	53:A:1248:A:H5''	2.31	0.46
40:J:53:ILE:HG23	53:A:1060:U:H4'	1.98	0.46
42:L:5:GLN:HA	42:L:8:ARG:NH1	2.31	0.46
44:N:2:LYS:O	44:N:5:MET:N	2.45	0.46
53:A:458:U:H2'	53:A:459:A:C8	2.51	0.46
53:A:521:G:O2'	53:A:522:C:H5'	2.15	0.46
53:A:1182:G:H5'	53:A:1183:U:OP1	2.16	0.46
54:01:2023:C:H2'	54:01:2024:G:H8	1.80	0.46
54:01:2605:U:H2'	54:01:2606:C:C6	2.51	0.46
54:01:2795:C:H2'	54:01:2796:U:O4'	2.15	0.46
54:01:2898:U:H2'	54:01:2899:A:C8	2.50	0.46
56:W:6:G:H2'	56:W:7:G:H8	1.79	0.46
61:Y:101:LYS:HE2	59:Z:228:THR:HB	1.98	0.46
1:04:35:LYS:NZ	54:01:1353:A:H5''	2.30	0.46
4:07:41:GLU:HB3	4:07:48:LEU:HD23	1.98	0.46
4:07:55:ASP:O	4:07:59:ILE:HG13	2.15	0.46
4:07:102:LEU:O	4:07:106:ALA:HB3	2.16	0.46
5:08:136:ASP:O	5:08:140:ILE:HG12	2.15	0.46
8:11:25:PRO:O	8:11:29:GLN:HG2	2.16	0.46
10:13:10:VAL:HG21	10:13:16:ALA:HB3	1.97	0.46
15:18:93:LYS:HD2	15:18:98:TYR:CE1	2.51	0.46
32:B:216:VAL:O	32:B:220:VAL:HG23	2.15	0.46
35:E:156:ARG:O	35:E:156:ARG:HD3	2.16	0.46
37:G:50:ALA:HA	37:G:53:SER:OG	2.16	0.46
39:I:46:VAL:HA	39:I:49:GLN:HG3	1.97	0.46
39:I:80:HIS:O	39:I:84:ARG:HG2	2.16	0.46
51:U:36:PHE:C	51:U:38:GLU:N	2.68	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:225:C:C2'	53:A:226:G:H5''	2.46	0.46
53:A:298:A:H2'	53:A:299:G:O4'	2.16	0.46
53:A:641:U:H4'	53:A:642:A:C8	2.50	0.46
53:A:1148:U:H2'	53:A:1149:C:O4'	2.16	0.46
53:A:1391:U:H2'	53:A:1392:G:H8	1.81	0.46
54:01:498:G:H2'	54:01:499:U:C6	2.51	0.46
54:01:596:U:H2'	54:01:597:G:C8	2.49	0.46
54:01:1447:C:H2'	54:01:1448:G:H8	1.79	0.46
54:01:1565:C:O2'	54:01:1566:A:H2'	2.15	0.46
54:01:2047:C:H2'	54:01:2048:G:H8	1.80	0.46
54:01:2704:C:H2'	54:01:2705:A:O4'	2.16	0.46
59:Z:304:PHE:CE2	59:Z:388:VAL:HG22	2.51	0.46
4:07:73:VAL:HG22	4:07:78:ILE:HD11	1.98	0.46
9:12:42:ALA:O	16:19:63:ARG:HD3	2.15	0.46
9:12:115:GLY:O	9:12:118:MET:HG2	2.16	0.46
12:15:41:LEU:HA	12:15:45:GLN:OE1	2.15	0.46
17:20:27:ILE:HG13	17:20:33:VAL:CG1	2.46	0.46
18:21:66:ILE:HD12	18:21:66:ILE:H	1.79	0.46
20:23:73:ASN:O	20:23:74:ALA:HB3	2.15	0.46
44:N:40:ARG:O	44:N:44:VAL:HG13	2.16	0.46
47:Q:11:VAL:HG23	47:Q:56:ASP:O	2.15	0.46
47:Q:35:LYS:O	47:Q:37:ILE:HG13	2.16	0.46
53:A:390:U:H2'	53:A:391:G:C8	2.51	0.46
53:A:519:C:H2'	53:A:520:A:O4'	2.16	0.46
53:A:526:C:H2'	53:A:527:G:H4'	1.98	0.46
53:A:595:A:N6	53:A:641:U:H2'	2.30	0.46
53:A:674:G:H2'	53:A:675:A:C8	2.50	0.46
54:01:854:C:H2'	54:01:855:G:H8	1.81	0.46
54:01:1110:G:H2'	54:01:1111:A:H8	1.81	0.46
54:01:1127:A:H2'	54:01:1128:G:H5''	1.97	0.46
54:01:1441:G:H4'	54:01:1628:G:H5'	1.98	0.46
54:01:1444:G:H2'	54:01:1445:G:O4'	2.15	0.46
56:W:6:G:H2'	56:W:7:G:C8	2.51	0.46
59:Z:311:LEU:HG	59:Z:384:GLY:HA2	1.97	0.46
1:04:51:ARG:HH22	1:04:246:PRO:HG2	1.81	0.46
20:23:82:VAL:HG13	20:23:93:ARG:HB3	1.98	0.46
21:24:23:ALA:O	21:24:25:LYS:HG3	2.16	0.46
30:33:41:ARG:HD3	54:01:2350:C:H6	1.81	0.46
34:D:54:LEU:CD2	34:D:55:ARG:HH21	2.28	0.46
35:E:39:GLY:HA2	35:E:45:VAL:HG12	1.98	0.46
39:I:44:ARG:H	39:I:44:ARG:HD2	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:J:6:ILE:HB	40:J:76:ILE:HB	1.98	0.46
44:N:19:TYR:HD1	44:N:23:ARG:HD3	1.80	0.46
44:N:30:ILE:HG21	44:N:43:ALA:CB	2.46	0.46
45:O:42:PHE:HE1	45:O:48:ASP:HB3	1.79	0.46
51:U:9:GLU:HB3	51:U:10:PRO:CD	2.45	0.46
53:A:76:G:H2'	53:A:77:A:O4'	2.16	0.46
53:A:1418:A:H3'	53:A:1419:G:H5''	1.97	0.46
53:A:1467:C:H2'	53:A:1468:A:C8	2.51	0.46
54:01:267:C:H2'	54:01:268:C:C6	2.51	0.46
54:01:473:G:O2'	54:01:474:G:H5'	2.16	0.46
59:Z:65:SER:HB3	59:Z:80:ASP:HB3	1.98	0.46
2:05:133:THR:HG23	2:05:134:HIS:N	2.31	0.45
8:11:79:LEU:HD13	8:11:137:LEU:HD12	1.96	0.45
10:13:66:LYS:NZ	10:13:66:LYS:HB3	2.30	0.45
37:G:144:ALA:C	37:G:146:ALA:H	2.19	0.45
39:I:62:LEU:HD12	39:I:62:LEU:N	2.31	0.45
47:Q:13:SER:H	47:Q:21:VAL:HG13	1.81	0.45
52:03:174:THR:HG22	54:01:2124:G:H5''	1.97	0.45
53:A:401:C:H2'	53:A:402:G:C8	2.50	0.45
53:A:411:A:C4	53:A:413:G:H1'	2.51	0.45
53:A:999:C:H2'	53:A:1000:A:C8	2.52	0.45
54:01:305:C:H2'	54:01:306:U:C6	2.51	0.45
54:01:310:A:O2'	54:01:311:A:H5''	2.16	0.45
54:01:1295:C:H2'	54:01:1296:G:C8	2.51	0.45
54:01:2004:G:H2'	54:01:2005:A:O4'	2.16	0.45
54:01:2199:A:H2'	54:01:2200:C:O4'	2.15	0.45
54:01:2329:U:H2'	54:01:2330:G:C8	2.52	0.45
59:Z:71:THR:HG23	59:Z:195:LEU:HD23	1.97	0.45
2:05:116:LYS:HB2	2:05:165:MET:HB3	1.98	0.45
6:09:132:PHE:HB2	6:09:140:ALA:HB3	1.97	0.45
9:12:81:ILE:HG23	9:12:82:GLY:N	2.31	0.45
13:16:96:ARG:HB3	13:16:114:GLU:OE2	2.17	0.45
18:21:57:ASN:C	18:21:57:ASN:HD22	2.19	0.45
22:25:33:ILE:HD11	22:25:78:ILE:HD11	1.98	0.45
32:B:65:LYS:HD2	32:B:89:PHE:HE2	1.81	0.45
40:J:88:MET:C	40:J:90:LEU:H	2.19	0.45
41:K:48:GLY:HA2	53:A:688:G:O5'	2.16	0.45
50:T:73:ARG:HG2	50:T:77:ASN:HD21	1.81	0.45
54:01:340:A:H2'	54:01:341:C:O4'	2.16	0.45
54:01:357:C:H2'	54:01:358:U:C6	2.51	0.45
54:01:851:C:H2'	54:01:852:U:C6	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:1317:G:H2'	54:01:1318:U:O4'	2.16	0.45
54:01:1796:U:H2'	54:01:1797:G:H8	1.82	0.45
54:01:1802:A:H2'	54:01:1803:A:C8	2.52	0.45
54:01:1812:U:H2'	54:01:1813:G:C8	2.52	0.45
54:01:1830:C:H2'	54:01:1831:G:H8	1.80	0.45
54:01:1858:A:H1'	54:01:1885:A:C2	2.51	0.45
54:01:2467:C:H2'	54:01:2468:A:O4'	2.16	0.45
59:Z:235:ILE:HB	59:Z:268:GLY:O	2.16	0.45
59:Z:301:HIS:HB2	59:Z:368:MET:HB2	1.96	0.45
1:04:154:ALA:HB2	1:04:161:VAL:HG23	1.97	0.45
7:10:26:VAL:HB	7:10:82:ILE:HD12	1.99	0.45
37:G:37:THR:O	37:G:41:ILE:HG13	2.14	0.45
44:N:97:LYS:NZ	44:N:97:LYS:HB3	2.30	0.45
51:U:11:PHE:C	51:U:13:VAL:H	2.19	0.45
52:03:16:ASP:HB3	52:03:19:LYS:HB2	1.98	0.45
52:03:60:ARG:CD	52:03:164:ARG:HG3	2.47	0.45
53:A:106:C:H2'	53:A:107:G:H8	1.82	0.45
53:A:303:A:H2'	53:A:304:U:O4'	2.16	0.45
53:A:1524:C:H2'	53:A:1525:G:H8	1.79	0.45
54:01:808:G:H2'	54:01:809:G:C8	2.52	0.45
54:01:996:A:H2'	54:01:997:G:H8	1.81	0.45
54:01:1451:C:H4'	54:01:1452:G:C4	2.52	0.45
54:01:1657:U:H2'	54:01:1658:C:C6	2.51	0.45
54:01:2687:U:H2'	54:01:2688:G:O4'	2.16	0.45
54:01:2737:G:H2'	54:01:2738:A:C8	2.51	0.45
59:Z:105:VAL:O	59:Z:134:LEU:HA	2.16	0.45
2:05:121:THR:HB	2:05:127:PHE:CD2	2.51	0.45
4:07:90:LEU:HD12	4:07:90:LEU:O	2.16	0.45
6:09:115:VAL:HG22	6:09:132:PHE:HE1	1.80	0.45
8:11:14:ALA:HB1	8:11:45:THR:HG23	1.97	0.45
14:17:72:ALA:O	14:17:76:LYS:HB2	2.16	0.45
17:20:37:GLU:HA	17:20:53:PHE:CD1	2.51	0.45
23:26:15:ASN:ND2	54:01:381:G:H5''	2.31	0.45
23:26:30:PRO:HG2	23:26:32:LEU:HG	1.99	0.45
33:C:168:ARG:HH12	53:A:1106:G:H1'	1.81	0.45
43:M:94:LEU:HB3	43:M:95:PRO:CD	2.44	0.45
44:N:25:GLU:HB2	44:N:29:ILE:CD1	2.47	0.45
45:O:17:ASP:OD1	45:O:19:ASN:HB3	2.16	0.45
47:Q:64:ARG:HD2	53:A:264:C:H4'	1.99	0.45
53:A:355:C:H1'	53:A:388:G:H1'	1.97	0.45
53:A:514:C:H2'	53:A:515:G:C8	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:543:U:H2'	53:A:544:G:H8	1.80	0.45
53:A:1228:C:H2'	53:A:1229:A:H8	1.81	0.45
53:A:1432:G:H1'	53:A:1468:A:N6	2.30	0.45
54:01:657:U:H2'	54:01:658:U:C6	2.52	0.45
54:01:876:C:H2'	54:01:877:A:O4'	2.17	0.45
54:01:1348:C:H2'	54:01:1349:C:H5'	1.98	0.45
54:01:2155:U:H2'	54:01:2156:G:H5'	1.98	0.45
54:01:2739:U:O2'	54:01:2740:A:H5'	2.17	0.45
54:01:2847:U:H2'	54:01:2848:G:O4'	2.16	0.45
59:Z:58:ARG:HB3	59:Z:60:ILE:HG12	1.99	0.45
59:Z:259:GLU:HG3	59:Z:263:LYS:C	2.36	0.45
2:05:202:ILE:N	2:05:202:ILE:HD12	2.31	0.45
3:06:98:LYS:H	54:01:607:U:P	2.39	0.45
8:11:17:ALA:O	8:11:18:ASN:HB3	2.15	0.45
20:23:11:ILE:HG12	20:23:12:VAL:N	2.32	0.45
21:24:65:VAL:HG22	21:24:66:ASP:OD2	2.16	0.45
24:27:22:LEU:HG	24:27:23:ARG:NH1	2.32	0.45
32:B:75:ALA:HB1	32:B:163:ILE:HD13	1.99	0.45
33:C:37:LYS:HB3	33:C:93:ILE:CG2	2.47	0.45
33:C:127:VAL:HG22	33:C:128:MET:N	2.31	0.45
42:L:73:LEU:HD11	42:L:103:CYS:HA	1.99	0.45
43:M:15:VAL:O	43:M:19:THR:HG23	2.17	0.45
45:O:42:PHE:CE1	45:O:48:ASP:HB3	2.51	0.45
46:P:51:ARG:NH1	53:A:627:G:H5'	2.32	0.45
46:P:51:ARG:HH12	53:A:627:G:H5'	1.81	0.45
47:Q:40:THR:HG22	47:Q:41:THR:N	2.31	0.45
53:A:1173:U:H2'	53:A:1174:G:C8	2.50	0.45
56:W:69:C:H2'	56:W:70:G:H8	1.82	0.45
59:Z:186:ALA:HA	59:Z:189:LEU:HB2	1.98	0.45
2:05:35:THR:HG22	2:05:73:VAL:HG21	1.99	0.45
3:06:40:ARG:HH22	54:01:1246:A:H4'	1.82	0.45
9:12:27:ARG:NH2	54:01:1142:A:H4'	2.31	0.45
19:22:29:THR:HG23	19:22:85:VAL:C	2.37	0.45
23:26:33:HIS:N	23:26:50:VAL:O	2.49	0.45
29:32:30:VAL:HA	29:32:33:ARG:NH1	2.31	0.45
32:B:55:GLU:O	32:B:59:ILE:HG12	2.17	0.45
35:E:106:ALA:HB1	35:E:110:MET:HE3	1.99	0.45
42:L:47:ALA:HB1	53:A:520:A:OP2	2.17	0.45
47:Q:5:ARG:HD2	53:A:636:U:OP1	2.17	0.45
50:T:50:PHE:HA	50:T:53:MET:HG2	1.97	0.45
52:03:221:GLY:N	54:01:2176:A:H5''	2.32	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:156:C:H2'	53:A:157:U:O4'	2.16	0.45
53:A:555:U:H2'	53:A:556:C:C6	2.52	0.45
53:A:1033:G:C3'	53:A:1034:G:H5''	2.47	0.45
54:01:441:U:O2'	54:01:442:G:H5'	2.17	0.45
54:01:2553:G:H2'	54:01:2554:U:H4'	1.98	0.45
56:W:65:C:H2'	56:W:66:C:C6	2.52	0.45
58:Y:37:A:H2'	58:Y:38:A:O4'	2.16	0.45
58:Y:73:A:H2'	58:Y:74:C:O4'	2.17	0.45
1:04:216:ARG:HH22	54:01:690:G:H4'	1.81	0.45
2:05:56:LYS:HZ1	54:01:2830:C:H5''	1.82	0.45
6:09:110:VAL:HG22	6:09:111:ALA:N	2.32	0.45
6:09:129:GLU:HG3	6:09:143:ILE:HD13	1.98	0.45
8:11:134:SER:CB	54:01:1088:A:H61	2.29	0.45
23:26:6:VAL:HG21	23:26:58:ILE:HD11	1.99	0.45
27:30:12:ARG:HG3	27:30:15:ARG:NH1	2.32	0.45
31:34:1:MET:HB2	31:34:34:LYS:O	2.17	0.45
33:C:33:ASP:HB2	44:N:64:ARG:HD3	1.99	0.45
33:C:137:VAL:HG21	33:C:167:TYR:CD2	2.52	0.45
40:J:40:ILE:HD12	40:J:75:ASP:OD2	2.16	0.45
44:N:40:ARG:HH12	49:S:6:LYS:HG3	1.82	0.45
50:T:56:ILE:O	50:T:60:GLN:HG2	2.16	0.45
53:A:212:G:H2'	53:A:213:G:C8	2.47	0.45
53:A:359:G:H2'	53:A:360:G:O4'	2.17	0.45
53:A:1064:G:H1'	53:A:1190:G:N2	2.32	0.45
54:01:45:G:H5''	54:01:46:G:C5'	2.25	0.45
54:01:253:C:H2'	54:01:254:G:O4'	2.16	0.45
54:01:1662:U:H2'	54:01:1663:G:C8	2.52	0.45
54:01:2883:A:H3'	54:01:2884:U:H5'	1.99	0.45
55:02:1:U:H2'	55:02:2:G:C8	2.51	0.45
55:02:110:C:H2'	55:02:111:U:O4'	2.17	0.45
59:Z:182:ALA:HA	59:Z:185:GLU:HB3	1.98	0.45
1:04:261:ARG:HH21	54:01:1801:A:H2'	1.82	0.45
3:06:195:GLN:HA	3:06:198:GLU:HB3	1.98	0.45
4:07:40:GLY:HA2	4:07:84:ILE:CD1	2.47	0.45
5:08:10:VAL:HG21	5:08:16:VAL:CG2	2.46	0.45
9:12:53:TYR:CD1	9:12:121:LYS:HA	2.52	0.45
15:18:33:GLU:HB2	15:18:36:LYS:HB2	1.99	0.45
19:22:68:LYS:HG3	19:22:77:ARG:HD3	1.99	0.45
27:30:42:ILE:HB	27:30:46:GLY:HA2	1.99	0.45
28:31:36:LYS:HE2	28:31:45:HIS:HB3	1.99	0.45
32:B:51:GLU:O	32:B:55:GLU:HG2	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:F:24:ARG:NH1	36:F:24:ARG:HB3	2.32	0.45
46:P:6:LEU:HD11	46:P:70:ARG:HG2	1.99	0.45
52:03:23:ILE:HG13	52:03:24:ASN:N	2.31	0.45
53:A:45:G:H5''	53:A:307:C:O2'	2.17	0.45
53:A:715:A:H2'	53:A:716:A:H8	1.81	0.45
53:A:812:G:OP1	53:A:903:G:H1'	2.17	0.45
53:A:1306:A:H62	53:A:1331:G:H1'	1.82	0.45
54:01:158:U:H2'	54:01:159:G:O4'	2.16	0.45
54:01:2070:A:H2'	54:01:2071:A:O4'	2.16	0.45
54:01:2617:U:H2'	54:01:2618:G:O4'	2.17	0.45
54:01:2834:G:O2'	54:01:2835:A:H5'	2.17	0.45
55:02:95:U:H2'	55:02:96:G:C8	2.52	0.45
1:04:97:ASP:HB3	54:01:1490:A:N7	2.32	0.45
6:09:24:GLY:HA2	6:09:28:ASN:HD22	1.81	0.45
7:10:94:ARG:HD3	7:10:94:ARG:H	1.82	0.45
9:12:35:ARG:HA	9:12:40:HIS:CD2	2.52	0.45
10:13:12:ASP:OD2	10:13:14:SER:HB3	2.16	0.45
36:F:52:ASN:O	36:F:53:LYS:HG3	2.17	0.45
41:K:78:ILE:HG22	41:K:79:LYS:N	2.32	0.45
43:M:94:LEU:HD23	43:M:109:LYS:HG3	1.97	0.45
47:Q:16:MET:HG3	47:Q:19:SER:C	2.37	0.45
53:A:452:A:H61	53:A:480:U:H3	1.63	0.45
54:01:96:C:H2'	54:01:97:C:C6	2.52	0.45
54:01:861:A:H2'	54:01:862:G:O4'	2.17	0.45
54:01:1182:G:H2'	54:01:1183:U:O4'	2.17	0.45
54:01:1440:U:H2'	54:01:1441:G:C8	2.51	0.45
54:01:2033:A:H1'	54:01:2035:G:OP2	2.17	0.45
54:01:2327:A:H2'	54:01:2328:A:C8	2.52	0.45
4:07:7:TYR:OH	4:07:29:ARG:HB3	2.16	0.45
13:16:12:ARG:HG2	13:16:16:HIS:CE1	2.52	0.45
21:24:18:ARG:HB3	55:02:93:C:OP1	2.17	0.45
21:24:42:LEU:CD1	21:24:47:VAL:HG21	2.47	0.45
34:D:55:ARG:HA	34:D:55:ARG:NE	2.32	0.45
41:K:126:ARG:NH2	53:A:692:U:H5''	2.32	0.45
42:L:101:LEU:HD12	42:L:101:LEU:N	2.32	0.45
43:M:9:PRO:HG2	43:M:44:ILE:HG21	1.99	0.45
47:Q:18:LYS:NZ	47:Q:18:LYS:HB2	2.31	0.45
52:03:30:LEU:HA	52:03:33:LEU:HB2	1.99	0.45
53:A:981:U:H5	53:A:982:U:HO2'	1.64	0.45
53:A:1315:U:H2'	53:A:1316:G:O4'	2.17	0.45
54:01:138:U:H5	54:01:141:G:H22	1.65	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:582:A:H2'	54:01:583:G:C8	2.52	0.45
54:01:1071:G:O2'	54:01:1089:A:H2'	2.16	0.45
54:01:1259:G:H2'	54:01:1260:A:C8	2.52	0.45
54:01:1713:A:H61	54:01:1745:A:H61	1.65	0.45
54:01:2028:U:H2'	54:01:2029:G:O4'	2.16	0.45
54:01:2360:G:H2'	54:01:2361:G:H5'	1.98	0.45
54:01:2710:C:H2'	54:01:2711:A:H8	1.82	0.45
57:V:21:A:H2'	57:V:22:A:O4'	2.17	0.45
59:Z:71:THR:CG2	59:Z:195:LEU:HD23	2.47	0.45
5:08:93:TYR:HD1	5:08:106:LEU:HA	1.82	0.44
8:11:33:ASN:HD22	8:11:36:GLU:HG3	1.82	0.44
11:14:4:ASN:O	54:01:1243:C:H1'	2.17	0.44
12:15:42:THR:HA	12:15:93:VAL:HA	1.98	0.44
29:32:21:ARG:HB3	29:32:31:LEU:HD23	1.99	0.44
34:D:59:LYS:O	34:D:63:ILE:HG13	2.17	0.44
35:E:67:ARG:O	35:E:70:MET:HG3	2.17	0.44
35:E:156:ARG:CD	35:E:163:ILE:HG22	2.47	0.44
39:I:104:THR:HG23	53:A:1180:A:H5'	2.00	0.44
39:I:118:ARG:HD3	39:I:122:ARG:HG3	1.98	0.44
53:A:533:A:O2'	53:A:534:U:H5''	2.17	0.44
54:01:1513:U:H2'	54:01:1514:G:C8	2.52	0.44
54:01:1744:A:H3'	54:01:1745:A:C8	2.52	0.44
54:01:1939:U:O2'	54:01:1940:U:H5'	2.17	0.44
54:01:2027:G:H2'	54:01:2028:U:C6	2.51	0.44
54:01:2036:C:H2'	54:01:2037:A:H8	1.82	0.44
56:W:20:U:H3'	56:W:21:A:H5'	1.99	0.44
58:Y:72:C:H2'	58:Y:73:A:H4'	1.99	0.44
1:04:75:ALA:HB2	1:04:95:TYR:HD1	1.82	0.44
4:07:84:ILE:HG21	54:01:2312:U:H4'	1.99	0.44
4:07:153:ILE:HD12	4:07:153:ILE:N	2.32	0.44
9:12:35:ARG:HA	9:12:40:HIS:HD2	1.81	0.44
12:15:125:PRO:HB3	54:01:2485:G:O3'	2.16	0.44
14:17:6:ALA:HA	14:17:9:ARG:NE	2.32	0.44
18:21:79:GLY:N	18:21:101:SER:HA	2.31	0.44
24:27:2:LYS:HD2	54:01:78:U:OP2	2.17	0.44
24:27:9:LYS:O	24:27:13:GLU:HG2	2.16	0.44
29:32:34:ARG:HD3	54:01:467:G:OP2	2.18	0.44
30:33:21:PHE:O	30:33:49:VAL:HG23	2.17	0.44
32:B:19:THR:HA	32:B:37:VAL:HA	1.99	0.44
32:B:19:THR:HG23	32:B:20:ARG:N	2.32	0.44
37:G:74:VAL:HG12	37:G:87:PRO:HA	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:S:27:LYS:HG2	49:S:28:LYS:H	1.82	0.44
52:03:65:LEU:HD13	52:03:188:ASN:HB3	1.98	0.44
53:A:148:G:H1	53:A:174:A:H61	1.65	0.44
53:A:691:G:O2'	53:A:797:C:H4'	2.17	0.44
53:A:1228:C:H2'	53:A:1229:A:C8	2.52	0.44
54:01:199:A:N6	54:01:2433:A:H2'	2.33	0.44
54:01:435:C:C2'	54:01:436:C:H5'	2.48	0.44
54:01:534:U:H2'	54:01:535:G:H8	1.81	0.44
54:01:580:U:H2'	54:01:581:C:C6	2.52	0.44
54:01:892:A:H2'	54:01:893:C:C6	2.52	0.44
54:01:1170:C:H2'	54:01:1171:G:C8	2.52	0.44
54:01:1316:U:H2'	54:01:1317:G:H8	1.83	0.44
54:01:1940:U:H3'	54:01:1940:U:OP2	2.17	0.44
54:01:2105:U:H2'	54:01:2106:U:O4'	2.18	0.44
54:01:2707:U:H2'	54:01:2708:G:C8	2.52	0.44
54:01:2839:G:H1	54:01:2878:U:H3	1.65	0.44
59:Z:122:GLY:O	59:Z:125:VAL:HG12	2.16	0.44
59:Z:236:ILE:O	59:Z:267:GLU:HG3	2.17	0.44
59:Z:313:LYS:HB2	59:Z:319:HIS:HA	1.99	0.44
4:07:174:PHE:O	4:07:176:PHE:N	2.51	0.44
7:10:67:THR:C	7:10:69:PHE:H	2.21	0.44
9:12:25:LEU:HB3	54:01:1140:C:OP1	2.17	0.44
23:26:7:THR:HB	23:26:9:LYS:HZ2	1.83	0.44
33:C:32:LEU:HD23	44:N:76:PHE:O	2.17	0.44
34:D:205:LYS:HB3	53:A:8:A:C5	2.51	0.44
39:I:104:THR:HG22	39:I:106:ASP:H	1.82	0.44
50:T:80:ALA:HA	50:T:83:ASN:HD21	1.81	0.44
53:A:26:A:N6	53:A:558:G:H1'	2.33	0.44
53:A:483:C:H2'	53:A:484:G:C8	2.53	0.44
53:A:741:G:H2'	53:A:742:G:C8	2.53	0.44
53:A:825:A:H2'	53:A:826:C:C6	2.53	0.44
53:A:1157:A:H4'	53:A:1158:C:O5'	2.17	0.44
53:A:1399:C:H1'	53:A:1400:C:OP2	2.17	0.44
53:A:1450:U:H2'	53:A:1452:C:H5'	1.98	0.44
54:01:577:G:OP1	54:01:2502:G:H2'	2.17	0.44
54:01:669:G:H2'	54:01:669:G:N3	2.32	0.44
54:01:680:C:H2'	54:01:681:G:H8	1.81	0.44
54:01:802:A:H2'	54:01:803:U:O4'	2.17	0.44
54:01:935:C:H2'	54:01:936:A:C8	2.53	0.44
54:01:1417:C:H2'	54:01:1418:G:O4'	2.17	0.44
54:01:1825:U:H2'	54:01:1826:G:C8	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:2266:A:H4'	54:01:2267:A:N3	2.31	0.44
59:Z:206:ILE:HG13	59:Z:207:ASP:N	2.33	0.44
1:04:17:LYS:HD2	54:01:1565:C:H5''	1.99	0.44
2:05:43:ASP:HB3	2:05:45:TYR:CE1	2.53	0.44
4:07:7:TYR:HA	4:07:11:VAL:CG2	2.47	0.44
9:12:49:ASP:HB2	9:12:114:LEU:HD11	1.99	0.44
11:14:21:ARG:HA	54:01:811:U:H2'	2.00	0.44
17:20:49:ILE:HG22	17:20:54:VAL:HA	1.99	0.44
19:22:39:THR:OG1	19:22:42:GLU:HG3	2.17	0.44
26:29:22:MET:HG2	26:29:23:LYS:N	2.32	0.44
37:G:99:ALA:O	37:G:103:ILE:HG13	2.17	0.44
39:I:10:ARG:HG3	39:I:105:ARG:HE	1.83	0.44
53:A:513:C:H2'	53:A:514:C:C6	2.52	0.44
53:A:1071:C:H2'	53:A:1072:G:C8	2.52	0.44
53:A:1282:C:H2'	53:A:1283:U:C6	2.53	0.44
54:01:40:U:H2'	54:01:41:C:C6	2.52	0.44
54:01:433:C:H2'	54:01:434:U:C6	2.53	0.44
54:01:619:G:H3'	54:01:620:G:H21	1.83	0.44
54:01:1045:C:H5'	54:01:1046:A:C5'	2.48	0.44
54:01:1679:A:H2'	54:01:1680:U:C6	2.52	0.44
54:01:1954:G:N2	54:01:1956:U:H3	2.15	0.44
54:01:2348:U:H2'	54:01:2349:G:H8	1.82	0.44
54:01:2845:U:H2'	54:01:2846:G:C8	2.52	0.44
56:X:35:A:H61	57:V:14:A:N6	2.15	0.44
59:Z:103:LEU:O	59:Z:132:VAL:HG13	2.17	0.44
2:05:194:PRO:HA	54:01:2680:U:H5'	2.00	0.44
5:08:145:ALA:O	5:08:149:ALA:HB2	2.17	0.44
6:09:3:VAL:HA	6:09:38:PRO:HA	2.00	0.44
10:13:8:LEU:O	10:13:18:ARG:HD3	2.18	0.44
11:14:132:ARG:HA	11:14:142:ILE:HD11	2.00	0.44
18:21:41:LYS:O	18:21:45:VAL:HG23	2.18	0.44
25:28:29:ARG:NE	54:01:1183:U:H5''	2.33	0.44
33:C:105:VAL:HG21	33:C:111:ASP:OD2	2.17	0.44
39:I:34:LEU:HD11	39:I:47:VAL:HG21	1.99	0.44
39:I:123:ARG:HB3	53:A:1343:G:C4'	2.46	0.44
41:K:121:ARG:HB3	53:A:778:G:H21	1.83	0.44
42:L:98:ARG:HD2	42:L:103:CYS:SG	2.57	0.44
43:M:33:LEU:HD23	43:M:40:GLU:HA	1.99	0.44
46:P:3:THR:HG22	46:P:24:SER:HA	1.99	0.44
49:S:54:ARG:HH22	49:S:78:THR:HG21	1.81	0.44
53:A:891:U:O2'	53:A:892:A:H5'	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:974:A:C5'	53:A:975:A:H3'	2.48	0.44
54:01:455:C:O2	54:01:472:A:H2'	2.18	0.44
54:01:576:U:H2'	54:01:577:G:C8	2.52	0.44
54:01:577:G:H2'	54:01:578:G:C8	2.53	0.44
54:01:780:G:H2'	54:01:782:A:N7	2.33	0.44
54:01:1438:U:H2'	54:01:1439:A:H8	1.83	0.44
54:01:1510:G:H2'	54:01:1511:G:O4'	2.18	0.44
54:01:1532:A:H1'	54:01:1540:G:N2	2.32	0.44
54:01:2286:G:H5''	54:01:2287:A:OP1	2.17	0.44
56:X:31:G:H2'	56:X:32:C:H5'	2.00	0.44
59:Z:124:GLN:HA	59:Z:373:ARG:HH12	1.83	0.44
59:Z:220:ILE:HG13	59:Z:226:VAL:HB	2.00	0.44
59:Z:304:PHE:HB2	59:Z:391:VAL:HA	1.99	0.44
2:05:56:LYS:NZ	54:01:2830:C:H5''	2.33	0.44
2:05:68:PHE:O	2:05:72:GLY:N	2.49	0.44
12:15:16:ARG:HD2	55:02:90:C:OP2	2.17	0.44
16:19:16:ILE:HG13	16:19:31:TYR:HE1	1.83	0.44
17:20:74:ILE:N	17:20:74:ILE:HD12	2.33	0.44
20:23:45:GLN:OE1	20:23:58:VAL:HG21	2.17	0.44
25:28:16:LEU:CD1	55:02:82:U:H5''	2.47	0.44
39:I:17:ARG:HB2	39:I:65:THR:OG1	2.17	0.44
39:I:24:ASN:HB3	39:I:26:LYS:HG2	1.99	0.44
40:J:83:THR:O	40:J:87:LEU:HG	2.18	0.44
44:N:41:TRP:O	44:N:44:VAL:HG22	2.18	0.44
49:S:18:VAL:O	49:S:22:VAL:HG23	2.18	0.44
53:A:34:C:H2'	53:A:35:G:H8	1.83	0.44
54:01:262:A:H3'	54:01:263:G:H8	1.83	0.44
54:01:2557:G:H2'	54:01:2558:C:C6	2.53	0.44
54:01:2788:C:H2'	54:01:2789:C:C6	2.51	0.44
59:Z:338:THR:HB	59:Z:363:ILE:HD13	1.99	0.44
5:08:75:VAL:HA	5:08:78:VAL:HG22	1.98	0.44
6:09:26:ALA:HA	6:09:30:LEU:HD12	1.99	0.44
11:14:8:PRO:HD3	54:01:1244:A:H4'	1.99	0.44
15:18:23:ASP:HB3	15:18:85:VAL:HG13	1.99	0.44
15:18:61:ARG:HG3	15:18:61:ARG:HH21	1.83	0.44
19:22:61:LEU:HD23	54:01:1341:G:O4'	2.17	0.44
30:33:5:THR:O	30:33:7:ARG:N	2.51	0.44
33:C:56:ILE:HG23	33:C:63:ILE:HD11	1.98	0.44
33:C:137:VAL:HG21	33:C:167:TYR:HD2	1.82	0.44
39:I:117:LEU:HD21	39:I:123:ARG:CZ	2.46	0.44
43:M:9:PRO:CG	43:M:44:ILE:HG13	2.47	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:M:28:ARG:HG2	43:M:62:PHE:CD2	2.53	0.44
44:N:7:ALA:HA	44:N:10:VAL:HG12	1.99	0.44
52:03:7:ARG:HB3	54:01:2129:C:OP1	2.18	0.44
52:03:173:THR:HG21	52:03:192:LEU:HD13	1.99	0.44
53:A:707:U:H2'	53:A:708:C:C6	2.52	0.44
53:A:1144:G:N2	53:A:1146:A:H62	2.16	0.44
54:01:716:A:C3'	54:01:717:C:H5''	2.47	0.44
54:01:1045:C:OP1	54:01:1046:A:H3'	2.17	0.44
54:01:1270:C:H5''	54:01:1271:G:O5'	2.17	0.44
54:01:1940:U:H4'	54:01:1941:C:O5'	2.18	0.44
54:01:2450:A:OP1	54:01:2497:A:H2'	2.17	0.44
59:Z:189:LEU:HA	59:Z:192:ALA:HB3	2.00	0.44
3:06:55:SER:HB3	54:01:468:G:H5''	2.00	0.44
3:06:63:LYS:HD2	54:01:2444:G:OP2	2.18	0.44
3:06:128:ALA:O	3:06:130:LYS:N	2.50	0.44
5:08:126:THR:HG22	5:08:128:THR:H	1.83	0.44
7:10:124:ASP:O	7:10:126:LEU:N	2.47	0.44
18:21:6:LYS:O	54:01:494:G:H4'	2.18	0.44
18:21:87:PRO:HA	54:01:1614:A:N1	2.33	0.44
23:26:3:VAL:HG22	23:26:10:ARG:HB3	1.99	0.44
35:E:133:ILE:O	35:E:137:ARG:HG3	2.17	0.44
39:I:32:ARG:HD2	39:I:36:GLN:HG3	1.99	0.44
42:L:66:ILE:HA	42:L:96:THR:OG1	2.17	0.44
43:M:1:ALA:HA	43:M:9:PRO:HD2	1.99	0.44
43:M:67:ASP:HA	43:M:70:ARG:NH1	2.33	0.44
50:T:54:GLN:O	50:T:57:VAL:HG12	2.18	0.44
51:U:36:PHE:CE1	51:U:39:LYS:HD3	2.53	0.44
53:A:70:U:H4'	53:A:71:A:H8	1.83	0.44
53:A:1410:A:H2'	53:A:1411:C:C6	2.52	0.44
54:01:24:G:H2'	54:01:25:U:C6	2.53	0.44
54:01:680:C:H2'	54:01:681:G:C8	2.52	0.44
54:01:1578:U:O2'	54:01:1579:A:H5'	2.17	0.44
54:01:2120:G:H2'	54:01:2121:G:C8	2.52	0.44
54:01:2344:U:H5'	54:01:2373:G:H4'	1.99	0.44
54:01:2649:C:H2'	54:01:2650:U:C6	2.52	0.44
54:01:2786:U:H2'	54:01:2787:C:C6	2.52	0.44
54:01:2832:U:H1'	54:01:2834:G:C2	2.53	0.44
1:04:267:VAL:HG12	1:04:268:ARG:NH1	2.33	0.44
4:07:37:MET:HE2	4:07:151:LEU:HB3	1.99	0.44
9:12:15:TRP:CH2	54:01:7:G:H4'	2.53	0.44
10:13:64:ARG:O	10:13:82:ASN:HA	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:27:1:MET:HG3	24:27:4:LYS:HE3	1.98	0.44
34:D:94:GLU:HA	34:D:99:ASN:HD22	1.83	0.44
34:D:103:ARG:HB3	34:D:170:LEU:HD21	1.99	0.44
37:G:59:GLU:O	37:G:63:VAL:HG23	2.18	0.44
45:O:16:ARG:H	45:O:20:ASP:HB3	1.83	0.44
47:Q:11:VAL:HG11	47:Q:20:ILE:HD11	1.99	0.44
47:Q:11:VAL:CG1	47:Q:55:GLY:H	2.30	0.44
50:T:23:ARG:HH11	50:T:23:ARG:HG3	1.82	0.44
53:A:899:C:H2'	53:A:900:A:O4'	2.18	0.44
53:A:938:A:H2'	53:A:939:G:O4'	2.18	0.44
53:A:1015:G:O2'	53:A:1016:A:H5'	2.18	0.44
54:01:741:U:H2'	54:01:742:A:H8	1.83	0.44
54:01:970:U:H2'	54:01:971:G:C8	2.53	0.44
54:01:1428:C:C4	54:01:1569:A:H5''	2.53	0.44
54:01:1507:C:H2'	54:01:1508:A:C4'	2.48	0.44
54:01:2348:U:H2'	54:01:2349:G:C8	2.52	0.44
1:04:158:GLY:HA2	1:04:194:VAL:O	2.18	0.43
3:06:131:THR:HG21	54:01:320:A:H2'	1.99	0.43
4:07:78:ILE:O	4:07:78:ILE:HG13	2.18	0.43
9:12:28:LEU:O	9:12:32:LEU:HG	2.17	0.43
9:12:59:ALA:O	9:12:62:VAL:HG12	2.18	0.43
10:13:35:VAL:HG22	10:13:69:VAL:HG12	2.00	0.43
10:13:105:ARG:CZ	10:13:108:ARG:HE	2.30	0.43
12:15:38:ARG:CD	55:02:90:C:H4'	2.48	0.43
19:22:44:LYS:O	19:22:48:GLN:HG2	2.18	0.43
29:32:7:PRO:HG3	54:01:1612:C:H5'	1.99	0.43
29:32:46:LYS:O	29:32:46:LYS:HD3	2.18	0.43
34:D:80:ARG:HD3	34:D:80:ARG:C	2.38	0.43
38:H:73:SER:HG	38:H:75:GLN:HE22	1.64	0.43
42:L:31:GLY:HA3	42:L:54:VAL:CG1	2.47	0.43
50:T:77:ASN:HA	50:T:80:ALA:HB3	2.00	0.43
52:03:60:ARG:HD2	52:03:164:ARG:HG3	1.99	0.43
53:A:579:A:H2'	53:A:580:C:C6	2.53	0.43
53:A:1251:A:O2'	53:A:1370:G:H5'	2.17	0.43
53:A:1496:C:H2'	53:A:1497:G:C8	2.53	0.43
54:01:1429:G:H2'	54:01:1430:G:C8	2.53	0.43
54:01:1437:C:H2'	54:01:1438:U:C6	2.53	0.43
54:01:1464:G:H2'	54:01:1465:G:C8	2.53	0.43
54:01:2114:A:H2'	54:01:2167:U:H5'	1.99	0.43
3:06:105:LEU:HD13	3:06:175:ILE:HD11	2.00	0.43
7:10:14:GLU:O	7:10:18:VAL:HG23	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:11:89:SER:CB	54:01:1062:G:H21	2.31	0.43
10:13:111:LYS:HG3	10:13:112:PHE:CD2	2.53	0.43
11:14:36:LYS:HE2	54:01:808:G:OP2	2.18	0.43
16:19:24:TYR:CE1	54:01:17:G:H4'	2.52	0.43
17:20:69:GLY:N	17:20:91:GLN:O	2.51	0.43
19:22:54:GLU:CB	19:22:88:LYS:HD2	2.48	0.43
20:23:16:LYS:N	54:01:309:A:H4'	2.33	0.43
23:26:15:ASN:HD22	54:01:381:G:H5''	1.83	0.43
23:26:19:HIS:HB3	54:01:2080:A:OP1	2.18	0.43
27:30:28:SER:HA	54:01:2886:A:H2	1.82	0.43
31:34:24:ARG:HA	31:34:36:ARG:HG3	1.99	0.43
36:F:50:PRO:HG3	36:F:55:HIS:CE1	2.53	0.43
40:J:10:LEU:HB3	40:J:98:VAL:HG23	2.00	0.43
43:M:91:ARG:HD2	54:01:888:C:C5	2.53	0.43
45:O:77:TYR:O	45:O:81:ILE:HG12	2.18	0.43
48:R:13:THR:C	48:R:16:GLY:H	2.21	0.43
53:A:106:C:H2'	53:A:107:G:C8	2.52	0.43
53:A:184:G:H4'	53:A:224:U:H4'	2.00	0.43
53:A:1088:G:H21	53:A:1167:A:H61	1.66	0.43
53:A:1243:C:H2'	53:A:1244:G:C8	2.52	0.43
53:A:1526:G:H2'	53:A:1527:U:C6	2.53	0.43
54:01:449:A:H2'	54:01:450:G:O4'	2.18	0.43
54:01:1095:A:H3'	54:01:1096:A:H8	1.83	0.43
54:01:1295:C:H2'	54:01:1296:G:H8	1.82	0.43
54:01:2066:C:O2'	54:01:2067:G:H5'	2.18	0.43
54:01:2339:C:H2'	54:01:2340:A:C8	2.53	0.43
6:09:76:GLU:HB3	6:09:142:VAL:HA	1.99	0.43
6:09:121:VAL:HG23	6:09:123:ARG:HG3	2.00	0.43
11:14:77:ILE:N	11:14:77:ILE:HD12	2.33	0.43
16:19:71:ASN:OD1	16:19:109:VAL:HG21	2.19	0.43
16:19:92:LYS:HD3	16:19:93:ILE:HD13	2.01	0.43
16:19:111:LYS:HB2	17:20:48:LYS:HE3	1.99	0.43
20:23:27:VAL:HG23	20:23:33:VAL:HG12	2.00	0.43
20:23:93:ARG:HB2	20:23:102:ILE:HD12	1.99	0.43
34:D:120:LYS:CE	34:D:130:ASN:HD21	2.31	0.43
35:E:111:ARG:HH11	35:E:111:ARG:HG3	1.83	0.43
38:H:87:ARG:HA	53:A:599:C:H5''	2.01	0.43
39:I:123:ARG:HD3	39:I:124:PRO:HD2	1.99	0.43
41:K:78:ILE:HG22	41:K:79:LYS:H	1.82	0.43
52:03:40:GLU:HG2	52:03:218:MET:H	1.84	0.43
53:A:1316:G:H2'	53:A:1317:C:H5''	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1404:C:H2'	53:A:1405:G:C8	2.53	0.43
54:01:1911:U:H2'	54:01:1918:A:N1	2.33	0.43
54:01:2263:C:H2'	54:01:2264:C:C6	2.53	0.43
55:02:29:A:H2'	55:02:30:C:C6	2.53	0.43
56:X:35:A:H61	57:V:14:A:H61	1.66	0.43
59:Z:106:ALA:HB3	59:Z:109:ASP:OD2	2.17	0.43
59:Z:265:LEU:HD21	59:Z:268:GLY:HA2	1.99	0.43
59:Z:309:TYR:O	59:Z:384:GLY:HA3	2.18	0.43
5:08:93:TYR:CD1	5:08:106:LEU:HA	2.53	0.43
8:11:6:ALA:HB3	8:11:60:VAL:O	2.18	0.43
9:12:15:TRP:HB3	9:12:137:PRO:HB3	2.00	0.43
19:22:6:ARG:O	19:22:10:VAL:HG23	2.18	0.43
19:22:29:THR:OG1	19:22:86:THR:HG22	2.18	0.43
28:31:9:LYS:O	28:31:51:ALA:N	2.52	0.43
31:34:2:LYS:HB2	31:34:35:GLN:CB	2.49	0.43
37:G:104:VAL:O	37:G:108:ARG:HG2	2.19	0.43
38:H:100:ILE:HD12	38:H:128:VAL:HB	2.00	0.43
42:L:50:LYS:HD2	42:L:50:LYS:N	2.34	0.43
46:P:20:VAL:HG22	46:P:21:VAL:N	2.33	0.43
48:R:41:SER:HB3	48:R:51:GLN:HE21	1.84	0.43
53:A:129:A:H1'	53:A:130:A:C8	2.53	0.43
53:A:663:A:H5'	53:A:836:G:OP1	2.18	0.43
53:A:945:G:H2'	53:A:945:G:N3	2.33	0.43
54:01:242:G:N2	54:01:254:G:H2'	2.33	0.43
54:01:740:C:H5''	54:01:1784:A:OP1	2.18	0.43
54:01:1101:U:H2'	54:01:1102:C:H6	1.84	0.43
54:01:1827:U:O2'	54:01:1828:G:H5'	2.18	0.43
59:Z:28:THR:HA	59:Z:31:ILE:HD12	2.01	0.43
59:Z:101:ALA:HB3	59:Z:130:ILE:HG12	1.99	0.43
1:04:16:VAL:HB	1:04:203:VAL:HG22	2.00	0.43
4:07:56:LEU:HB2	4:07:64:PRO:HG3	2.00	0.43
4:07:56:LEU:HD12	4:07:86:CYS:SG	2.59	0.43
7:10:112:ALA:O	7:10:114:GLU:N	2.51	0.43
10:13:54:LYS:NZ	10:13:54:LYS:HB3	2.33	0.43
37:G:12:LEU:HD11	39:I:49:GLN:HE22	1.83	0.43
39:I:111:GLU:OE2	53:A:1348:U:H5'	2.18	0.43
40:J:49:PHE:CZ	44:N:75:LYS:HG2	2.53	0.43
43:M:9:PRO:HG2	43:M:44:ILE:HG13	2.00	0.43
46:P:36:VAL:O	46:P:36:VAL:HG13	2.19	0.43
50:T:25:SER:CB	53:A:1458:G:H5''	2.47	0.43
53:A:576:C:OP2	53:A:577:G:H5''	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1395:C:H5''	53:A:1401:G:H21	1.83	0.43
53:A:1399:C:H4'	53:A:1400:C:O5'	2.19	0.43
54:01:935:C:H2'	54:01:936:A:H8	1.83	0.43
54:01:1177:G:H2'	54:01:1178:C:H4'	2.00	0.43
54:01:1978:A:H2'	54:01:1979:U:O4'	2.19	0.43
54:01:2114:A:N6	54:01:2115:G:H1'	2.34	0.43
54:01:2142:A:C2	54:01:2150:C:H1'	2.54	0.43
54:01:2860:A:H2'	54:01:2861:U:H5'	2.01	0.43
55:02:35:C:H2'	55:02:36:C:O4'	2.18	0.43
1:04:12:ARG:HH21	54:01:728:G:H5'	1.84	0.43
1:04:94:LEU:HD21	54:01:1501:G:H4'	2.00	0.43
1:04:129:LEU:N	1:04:129:LEU:HD23	2.34	0.43
3:06:33:VAL:HG13	54:01:1245:G:H4'	2.01	0.43
12:15:40:ARG:NH1	12:15:73:ILE:HD12	2.33	0.43
19:22:11:LEU:HA	19:22:34:VAL:HG12	2.01	0.43
25:28:15:ARG:O	25:28:20:LYS:HE2	2.19	0.43
34:D:119:HIS:ND1	53:A:438:U:H5'	2.34	0.43
37:G:75:LYS:HZ2	37:G:77:ARG:HD3	1.82	0.43
42:L:87:LYS:HG2	42:L:87:LYS:O	2.18	0.43
50:T:53:MET:O	50:T:56:ILE:HG22	2.19	0.43
52:03:190:GLU:HA	52:03:193:LEU:HD12	2.01	0.43
53:A:678:U:H2'	53:A:679:C:C6	2.52	0.43
53:A:1474:U:H4'	54:01:1701:A:N3	2.34	0.43
54:01:1215:G:H2'	54:01:1216:G:O4'	2.18	0.43
54:01:2065:C:H5''	54:01:2252:G:H1'	2.00	0.43
54:01:2339:C:H2'	54:01:2340:A:H8	1.84	0.43
1:04:155:ARG:CZ	54:01:1818:U:H5	2.32	0.43
1:04:207:ALA:CB	54:01:1790:C:H4'	2.49	0.43
1:04:255:LYS:NZ	54:01:1844:C:H4'	2.34	0.43
5:08:136:ASP:OD2	5:08:139:VAL:HG23	2.18	0.43
7:10:74:ASP:OD1	7:10:116:GLU:HB3	2.19	0.43
10:13:88:ASN:HB2	10:13:91:SER:O	2.19	0.43
12:15:57:VAL:HA	12:15:112:LEU:HD11	1.99	0.43
15:18:105:LYS:O	15:18:108:ARG:HG2	2.19	0.43
20:23:32:LYS:NZ	54:01:478:A:H5''	2.34	0.43
39:I:70:GLY:O	39:I:74:GLN:HG3	2.19	0.43
40:J:34:ALA:HB1	40:J:78:GLU:OE2	2.18	0.43
44:N:8:ARG:HG2	44:N:12:ARG:NH1	2.33	0.43
49:S:28:LYS:CD	49:S:29:PRO:HD2	2.48	0.43
53:A:1179:A:H2'	53:A:1180:A:O4'	2.19	0.43
53:A:1211:U:H4'	53:A:1213:A:N3	2.33	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1306:A:N6	53:A:1331:G:H1'	2.34	0.43
54:01:67:U:H2'	54:01:68:G:H8	1.84	0.43
54:01:395:U:H2'	54:01:396:G:C8	2.53	0.43
54:01:700:G:H2'	54:01:701:G:H8	1.83	0.43
54:01:866:A:H2'	54:01:867:C:O4'	2.19	0.43
54:01:1359:A:H2'	54:01:1360:G:O4'	2.19	0.43
6:09:52:ALA:O	6:09:56:ALA:HB3	2.19	0.43
21:24:4:ILE:HD12	21:24:63:ILE:HG12	2.00	0.43
24:27:49:ASP:O	24:27:53:VAL:HG23	2.19	0.43
32:B:15:PHE:CD1	32:B:15:PHE:N	2.87	0.43
36:F:40:GLU:OE1	36:F:100:SER:HA	2.18	0.43
37:G:3:ARG:O	37:G:5:VAL:N	2.51	0.43
37:G:20:GLU:HA	37:G:23:ALA:HB3	1.99	0.43
39:I:98:ARG:CZ	39:I:103:VAL:HG21	2.48	0.43
41:K:116:PRO:HB3	53:A:676:A:C1'	2.46	0.43
45:O:23:SER:HA	53:A:751:U:H4'	2.01	0.43
46:P:8:ARG:NE	46:P:15:PRO:HB3	2.34	0.43
52:03:46:VAL:HG11	52:03:196:LEU:HD23	1.99	0.43
53:A:113:G:H1'	53:A:354:G:H5''	1.99	0.43
53:A:976:G:N2	53:A:1362:A:H2'	2.34	0.43
53:A:1414:U:H2'	53:A:1415:G:H8	1.84	0.43
54:01:1027:A:C2	54:01:2488:G:H5'	2.54	0.43
1:04:77:VAL:HG21	1:04:109:LEU:HD21	2.01	0.43
4:07:56:LEU:HA	4:07:59:ILE:HB	2.00	0.43
11:14:132:ARG:HA	11:14:142:ILE:CD1	2.49	0.43
22:25:22:PHE:CD2	54:01:922:C:H1'	2.53	0.43
24:27:9:LYS:HD3	24:27:11:VAL:N	2.33	0.43
30:33:2:LYS:HE3	54:01:242:G:C5	2.54	0.43
33:C:1:GLY:HA3	53:A:1060:U:C5	2.53	0.43
35:E:64:GLU:HB3	35:E:68:ARG:NH1	2.30	0.43
38:H:31:LEU:O	38:H:35:ILE:HG13	2.19	0.43
39:I:65:THR:HG21	53:A:1130:A:OP1	2.19	0.43
40:J:9:ARG:CZ	53:A:1279:G:H5''	2.48	0.43
45:O:23:SER:O	45:O:27:GLN:HG3	2.17	0.43
46:P:54:LEU:HA	46:P:57:ILE:HD12	2.00	0.43
51:U:39:LYS:O	51:U:43:GLU:HG2	2.19	0.43
52:03:48:LEU:HB3	52:03:50:ILE:HG13	2.00	0.43
52:03:67:HIS:CD2	52:03:187:GLU:HB2	2.53	0.43
53:A:415:A:H2'	53:A:416:G:O4'	2.19	0.43
53:A:458:U:H2'	53:A:459:A:H8	1.83	0.43
54:01:633:A:H2'	54:01:634:C:O4'	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:1563:U:H2'	54:01:1564:C:C6	2.54	0.43
54:01:1637:A:H5'	54:01:1760:C:O2'	2.19	0.43
54:01:2186:G:H2'	54:01:2187:U:O4'	2.19	0.43
54:01:2696:U:H2'	54:01:2697:G:C8	2.54	0.43
54:01:2773:C:H2'	54:01:2774:C:C6	2.53	0.43
54:01:2799:A:H2'	54:01:2800:A:H5'	2.00	0.43
59:Z:331:TYR:CD1	59:Z:336:ASP:HA	2.54	0.43
1:04:244:VAL:HG12	1:04:250:GLN:HA	1.99	0.43
3:06:33:VAL:CG1	54:01:1245:G:H4'	2.49	0.43
4:07:82:TYR:CD1	4:07:83:PRO:HD2	2.54	0.43
4:07:173:ASP:O	4:07:174:PHE:C	2.57	0.43
5:08:79:THR:O	5:08:80:GLU:HG3	2.19	0.43
23:26:62:GLY:O	23:26:66:VAL:HG23	2.19	0.43
25:28:13:ILE:HG12	54:01:989:G:N7	2.33	0.43
28:31:47:ILE:HD12	28:31:47:ILE:N	2.34	0.43
29:32:44:VAL:HG13	29:32:44:VAL:O	2.19	0.43
39:I:27:ILE:HG21	39:I:34:LEU:HD13	2.00	0.43
52:03:42:VAL:HB	52:03:175:ILE:CG1	2.49	0.43
53:A:216:U:H2'	53:A:217:C:C6	2.54	0.43
53:A:772:U:H2'	53:A:773:G:C8	2.54	0.43
53:A:1073:U:H2'	53:A:1074:G:H8	1.84	0.43
53:A:1090:U:H2'	53:A:1091:U:C6	2.54	0.43
54:01:319:G:H2'	54:01:320:A:O4'	2.19	0.43
54:01:1483:G:H4'	54:01:1510:G:N2	2.34	0.43
4:07:109:ARG:HD3	4:07:136:ILE:O	2.18	0.42
8:11:21:PRO:CB	8:11:22:PRO:HD3	2.49	0.42
8:11:89:SER:HB3	54:01:1062:G:H21	1.83	0.42
10:13:116:ILE:HA	10:13:119:ALA:HB2	2.01	0.42
20:23:4:ILE:HD12	20:23:4:ILE:N	2.33	0.42
22:25:51:ARG:HH11	22:25:51:ARG:HG3	1.83	0.42
38:H:100:ILE:HD12	38:H:100:ILE:O	2.19	0.42
44:N:27:LYS:HE2	53:A:1317:C:OP2	2.19	0.42
47:Q:24:ILE:HD12	47:Q:43:LEU:HD12	2.01	0.42
53:A:314:C:H2'	53:A:315:A:C8	2.54	0.42
53:A:1474:U:H4'	54:01:1701:A:C2	2.54	0.42
54:01:1376:C:H2'	54:01:1377:G:O4'	2.19	0.42
54:01:2238:G:N3	54:01:2238:G:H2'	2.33	0.42
59:Z:216:ASP:HB2	59:Z:228:THR:OG1	2.19	0.42
1:04:14:HIS:CE1	54:01:1830:C:H4'	2.54	0.42
5:08:82:PHE:N	5:08:134:GLY:O	2.52	0.42
8:11:20:SER:O	8:11:25:PRO:HD3	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:18:3:ILE:H	15:18:3:ILE:CD1	2.32	0.42
15:18:51:ASN:O	54:01:2845:U:H5''	2.19	0.42
21:24:18:ARG:HD3	55:02:93:C:OP2	2.19	0.42
25:28:56:VAL:HG22	25:28:57:GLU:H	1.84	0.42
32:B:162:VAL:HG12	32:B:164:ASP:H	1.84	0.42
35:E:28:ARG:NH1	53:A:15:G:H4'	2.34	0.42
39:I:4:GLN:HE21	39:I:19:PHE:HB3	1.84	0.42
40:J:88:MET:O	40:J:89:ARG:HG2	2.19	0.42
42:L:113:ARG:HH21	42:L:120:ARG:HG3	1.83	0.42
44:N:1:ALA:H1	44:N:6:LYS:HD2	1.84	0.42
44:N:32:ASP:HB3	44:N:34:ASN:ND2	2.34	0.42
46:P:67:ILE:HD12	46:P:67:ILE:N	2.33	0.42
47:Q:18:LYS:HD2	53:A:255:G:H4'	2.01	0.42
47:Q:60:ILE:HA	47:Q:74:LEU:HA	2.00	0.42
52:03:42:VAL:HG22	52:03:216:THR:CG2	2.50	0.42
53:A:16:A:O2'	53:A:17:U:H5'	2.19	0.42
53:A:460:A:H2'	53:A:461:A:C8	2.54	0.42
53:A:929:G:H5''	53:A:1534:A:O2'	2.19	0.42
54:01:303:G:H2'	54:01:304:U:O4'	2.18	0.42
54:01:2747:G:N1	54:01:2754:U:H2'	2.32	0.42
1:04:255:LYS:HE3	1:04:269:ARG:HH22	1.84	0.42
2:05:125:TRP:CD1	2:05:160:LYS:HB3	2.54	0.42
4:07:140:ILE:HD12	4:07:140:ILE:N	2.34	0.42
5:08:36:LEU:HD11	5:08:71:LEU:HD11	2.02	0.42
5:08:70:LEU:HD11	54:01:2758:A:C2	2.54	0.42
9:12:58:ASN:OD1	9:12:128:ASN:HA	2.19	0.42
9:12:122:LEU:HG	9:12:124:VAL:HG13	2.01	0.42
15:18:20:ARG:HB3	15:18:21:PRO:HD2	2.02	0.42
18:21:92:ARG:HD2	54:01:747:C:O2'	2.19	0.42
32:B:29:PHE:HB3	32:B:40:ILE:HG23	2.01	0.42
32:B:107:ARG:HD2	32:B:107:ARG:C	2.40	0.42
36:F:73:GLU:O	36:F:77:THR:HG23	2.20	0.42
42:L:20:VAL:HB	42:L:94:TYR:CE1	2.54	0.42
42:L:66:ILE:HD12	42:L:66:ILE:N	2.35	0.42
48:R:57:ALA:HA	48:R:60:ARG:HE	1.83	0.42
49:S:35:ARG:HD2	49:S:51:HIS:O	2.19	0.42
49:S:69:LYS:HE3	53:A:1319:A:H5''	2.00	0.42
49:S:79:TYR:CG	49:S:80:ARG:N	2.86	0.42
53:A:160:A:H2'	53:A:161:A:O4'	2.19	0.42
53:A:286:C:H2'	53:A:287:U:C6	2.55	0.42
53:A:410:G:H2'	53:A:429:U:O4	2.18	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:A:1269:A:H1'	53:A:1326:U:H1'	2.02	0.42
54:01:248:G:N3	54:01:2431:U:H4'	2.34	0.42
54:01:699:A:H2'	54:01:700:G:O4'	2.18	0.42
54:01:722:A:H2'	54:01:723:C:O4'	2.19	0.42
54:01:752:A:N3	54:01:752:A:H5'	2.35	0.42
54:01:1308:A:H2'	54:01:1309:G:O4'	2.18	0.42
54:01:1507:C:H2'	54:01:1508:A:H4'	2.01	0.42
54:01:1965:C:H5''	54:01:1966:A:H2'	2.02	0.42
54:01:2041:U:H2'	54:01:2042:A:C8	2.55	0.42
54:01:2114:A:N6	54:01:2117:A:H62	2.15	0.42
54:01:2553:G:H1'	54:01:2582:G:H21	1.84	0.42
54:01:2800:A:C2	54:01:2895:G:H1'	2.54	0.42
59:Z:52:ALA:HB3	59:Z:55:GLU:CB	2.49	0.42
59:Z:211:LEU:CD1	59:Z:298:ILE:HD11	2.45	0.42
59:Z:301:HIS:CD2	59:Z:368:MET:HB2	2.55	0.42
1:04:71:ASP:CG	1:04:118:GLY:HA2	2.39	0.42
2:05:3:GLY:O	2:05:4:LEU:HD12	2.19	0.42
2:05:118:PHE:HB2	54:01:2823:A:OP1	2.19	0.42
7:10:28:ALA:O	7:10:109:LYS:HG3	2.20	0.42
7:10:61:ARG:O	54:01:1046:A:H4'	2.20	0.42
8:11:4:VAL:HG13	8:11:7:TYR:CE1	2.54	0.42
10:13:3:GLN:HB2	10:13:4:GLU:H	1.74	0.42
13:16:102:PHE:HE1	13:16:109:PRO:HG3	1.84	0.42
18:21:82:MET:HB3	18:21:84:ARG:NH2	2.35	0.42
32:B:212:TYR:O	32:B:216:VAL:HG23	2.20	0.42
33:C:54:ILE:HG22	33:C:67:ILE:HA	2.01	0.42
33:C:69:THR:O	33:C:105:VAL:HG12	2.19	0.42
34:D:150:LYS:HE3	34:D:155:LYS:HG3	2.01	0.42
37:G:102:TRP:CZ2	37:G:140:VAL:HG21	2.55	0.42
40:J:14:ASP:OD2	40:J:16:ARG:HG3	2.19	0.42
40:J:28:THR:O	40:J:28:THR:HG22	2.19	0.42
40:J:37:ARG:HD2	53:A:1124:G:H5''	2.01	0.42
41:K:118:ASN:HD22	41:K:118:ASN:HA	1.54	0.42
43:M:23:GLY:CA	43:M:68:LEU:HD22	2.45	0.42
53:A:952:U:H2'	53:A:953:G:H8	1.84	0.42
54:01:443:A:H5''	54:01:444:C:C5'	2.49	0.42
54:01:664:G:H4'	54:01:941:A:OP1	2.19	0.42
54:01:704:G:H1'	54:01:727:A:H61	1.84	0.42
54:01:784:G:OP1	54:01:2588:G:H5''	2.19	0.42
54:01:1246:A:H2'	54:01:1247:A:C4'	2.50	0.42
54:01:1796:U:O2'	54:01:1797:G:H5'	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:2264:C:H2'	54:01:2265:U:O4'	2.19	0.42
54:01:2553:G:H3'	54:01:2554:U:C5'	2.43	0.42
59:Z:260:MET:CE	59:Z:272:GLU:HB3	2.49	0.42
59:Z:305:GLU:HA	59:Z:359:VAL:HA	2.02	0.42
59:Z:370:ASP:OD1	59:Z:391:VAL:HG23	2.20	0.42
1:04:20:ASN:HD22	1:04:23:LEU:CG	2.26	0.42
1:04:81:GLU:HB2	1:04:90:ILE:HG13	2.01	0.42
1:04:209:ALA:HA	1:04:212:TRP:NE1	2.34	0.42
4:07:154:THR:HG21	54:01:2314:A:O4'	2.20	0.42
6:09:124:THR:HG22	6:09:125:THR:N	2.31	0.42
7:10:37:LYS:HE3	7:10:38:MET:HG3	2.01	0.42
8:11:76:ALA:O	8:11:80:LYS:HG3	2.20	0.42
22:25:22:PHE:HD2	54:01:922:C:H1'	1.84	0.42
22:25:42:HIS:HB2	22:25:75:PHE:CD1	2.55	0.42
25:28:41:PRO:HA	25:28:44:ARG:HB3	2.02	0.42
28:31:37:LYS:HB2	28:31:48:TYR:CD2	2.54	0.42
32:B:60:ALA:HB2	32:B:220:VAL:HG13	2.01	0.42
32:B:119:GLN:HA	32:B:123:GLY:HA3	2.01	0.42
42:L:109:ARG:CB	42:L:118:VAL:HG21	2.46	0.42
47:Q:6:THR:C	47:Q:7:LEU:HD12	2.40	0.42
53:A:125:U:H2'	53:A:126:G:C8	2.55	0.42
53:A:158:G:H2'	53:A:159:G:O4'	2.18	0.42
53:A:190:A:H2'	53:A:191:G:O4'	2.18	0.42
53:A:593:U:H2'	53:A:594:U:C6	2.54	0.42
53:A:856:C:O2'	53:A:857:C:H5'	2.20	0.42
53:A:929:G:H4'	53:A:1534:A:H4'	2.01	0.42
53:A:1399:C:H4'	53:A:1400:C:H2'	2.01	0.42
54:01:631:A:H1'	54:01:2415:G:O2'	2.19	0.42
54:01:1508:A:H2'	54:01:1509:A:O4'	2.19	0.42
54:01:1550:C:H2'	54:01:1551:A:C8	2.54	0.42
54:01:2544:G:H2'	54:01:2545:G:O4'	2.19	0.42
59:Z:260:MET:HE2	59:Z:272:GLU:HB3	2.01	0.42
4:07:174:PHE:HA	4:07:175:PRO:HD2	1.77	0.42
5:08:36:LEU:HD13	5:08:40:VAL:HG11	2.00	0.42
8:11:9:LYS:HA	8:11:56:VAL:O	2.20	0.42
8:11:99:LYS:HD3	8:11:140:GLU:HB2	2.02	0.42
20:23:81:ARG:NH2	20:23:96:LYS:HG3	2.34	0.42
22:25:39:THR:HG21	54:01:2336:A:H61	1.84	0.42
25:28:51:SER:HA	25:28:54:VAL:CG2	2.49	0.42
26:29:50:ASP:OD1	43:M:70:ARG:HD2	2.19	0.42
37:G:11:ILE:HD13	37:G:24:LYS:HD3	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:G:42:VAL:O	37:G:46:LEU:HD13	2.20	0.42
37:G:69:ARG:HA	37:G:99:ALA:HB2	2.01	0.42
37:G:76:SER:HB2	37:G:83:THR:HG23	2.00	0.42
46:P:25:ARG:NH1	46:P:25:ARG:HB2	2.34	0.42
49:S:27:LYS:HD3	49:S:30:LEU:HG	2.01	0.42
50:T:54:GLN:N	50:T:55:PRO:HD2	2.34	0.42
53:A:962:C:H2'	53:A:963:G:H8	1.85	0.42
54:01:594:U:H2'	54:01:595:C:C6	2.53	0.42
54:01:1669:A:H2'	54:01:1670:C:H5'	2.01	0.42
54:01:1930:G:N2	54:01:1968:G:H2'	2.34	0.42
54:01:2074:U:H2'	54:01:2075:U:C6	2.55	0.42
59:Z:331:TYR:OH	59:Z:377:ARG:HB2	2.20	0.42
1:04:239:PHE:O	1:04:241:LYS:HG3	2.20	0.42
2:05:115:GLY:HA3	54:01:2822:G:P	2.59	0.42
2:05:155:VAL:O	54:01:2619:C:H5'	2.19	0.42
4:07:74:ALA:C	4:07:77:LYS:H	2.23	0.42
8:11:74:PRO:O	8:11:78:LEU:HG	2.19	0.42
8:11:131:THR:O	8:11:135:MET:N	2.51	0.42
13:16:118:ARG:NH2	13:16:118:ARG:HB3	2.35	0.42
16:19:23:TYR:CD1	54:01:533:G:H5'	2.55	0.42
17:20:41:ILE:HD13	17:20:103:ALA:HA	2.01	0.42
18:21:41:LYS:HZ2	27:30:21:LEU:HD11	1.84	0.42
18:21:69:LEU:HG	18:21:107:VAL:CG2	2.50	0.42
19:22:30:ILE:HG23	19:22:85:VAL:HB	2.01	0.42
24:27:28:LEU:HD12	24:27:46:VAL:HG21	2.02	0.42
32:B:56:LEU:HD13	32:B:219:THR:OG1	2.19	0.42
34:D:131:ILE:HG12	53:A:620:C:N1	2.34	0.42
38:H:9:MET:O	38:H:13:ILE:HG13	2.20	0.42
44:N:26:LEU:O	44:N:30:ILE:HD12	2.19	0.42
53:A:67:C:H2'	53:A:68:G:C8	2.54	0.42
53:A:184:G:C4'	53:A:224:U:H4'	2.49	0.42
53:A:904:U:H2'	53:A:905:U:C6	2.54	0.42
53:A:1061:G:H2'	53:A:1062:U:O4'	2.20	0.42
54:01:848:C:H2'	54:01:849:A:H8	1.85	0.42
54:01:922:C:H2'	54:01:923:G:C8	2.55	0.42
54:01:1019:U:H2'	54:01:1020:A:H8	1.85	0.42
54:01:2821:A:H2'	54:01:2822:G:C8	2.54	0.42
59:Z:60:ILE:HB	62:Z:401:GCP:O2G	2.20	0.42
59:Z:363:ILE:HG13	59:Z:364:HIS:N	2.35	0.42
13:16:1:MET:SD	54:01:2723:C:H4'	2.60	0.42
13:16:45:ARG:HG2	13:16:95:THR:HG21	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:19:34:ALA:O	16:19:38:VAL:HG23	2.20	0.42
17:20:72:VAL:O	17:20:74:ILE:HD12	2.19	0.42
20:23:94:PHE:HB2	20:23:100:GLU:O	2.20	0.42
30:33:33:THR:HB	54:01:2420:C:OP1	2.20	0.42
32:B:165:ALA:HB3	32:B:190:SER:HB3	2.02	0.42
33:C:78:LYS:O	33:C:79:LYS:HB3	2.19	0.42
33:C:118:SER:O	33:C:122:GLN:HG3	2.19	0.42
34:D:28:ASP:O	34:D:30:LYS:N	2.46	0.42
38:H:79:ARG:HB2	53:A:878:A:OP1	2.20	0.42
40:J:59:LYS:HE2	40:J:62:ARG:NH2	2.34	0.42
40:J:59:LYS:HB2	53:A:972:C:H4'	2.01	0.42
45:O:44:GLU:O	45:O:45:HIS:HB2	2.20	0.42
46:P:22:ALA:HA	46:P:33:ILE:HD12	2.01	0.42
53:A:448:A:H3'	53:A:449:G:H8	1.85	0.42
53:A:865:A:H2	53:A:918:A:H4'	1.84	0.42
54:01:195:A:H2'	54:01:198:C:N4	2.34	0.42
54:01:374:A:H2'	54:01:375:G:O4'	2.19	0.42
54:01:1187:G:HO2'	54:01:1188:U:H6	1.67	0.42
54:01:2128:G:H2'	54:01:2129:C:O4'	2.19	0.42
4:07:42:ALA:HB2	4:07:49:LEU:HB2	2.00	0.42
5:08:151:ARG:HG3	5:08:160:GLY:HA2	2.02	0.42
7:10:67:THR:HB	7:10:68:PRO:HD3	2.01	0.42
8:11:112:LYS:HB2	8:11:112:LYS:NZ	2.35	0.42
16:19:57:ARG:HA	16:19:60:TRP:CE3	2.55	0.42
21:24:29:ILE:HG22	21:24:88:HIS:NE2	2.35	0.42
25:28:6:ILE:O	25:28:34:THR:HA	2.20	0.42
32:B:25:LYS:HE3	32:B:191:ASP:OD2	2.20	0.42
32:B:212:TYR:HB2	32:B:213:LEU:H	1.74	0.42
34:D:31:CYS:HA	53:A:429:U:OP2	2.20	0.42
34:D:131:ILE:HG12	53:A:620:C:C2	2.55	0.42
38:H:84:ILE:HG21	38:H:86:LYS:HE3	2.02	0.42
42:L:69:GLU:HA	53:A:521:G:OP1	2.20	0.42
52:03:30:LEU:HA	52:03:33:LEU:HD12	2.01	0.42
52:03:53:ARG:HB3	56:X:62:C:H4'	2.02	0.42
53:A:41:G:H2'	53:A:42:G:H8	1.84	0.42
54:01:248:G:H3'	54:01:249:C:H5'	2.01	0.42
54:01:694:U:OP1	54:01:1569:A:H1'	2.20	0.42
54:01:1554:U:H3'	54:01:1555:G:H5'	2.01	0.42
54:01:1856:U:H3	54:01:1886:U:H3	1.67	0.42
54:01:2257:U:H2'	54:01:2258:C:C6	2.54	0.42
56:W:3:C:H2'	56:W:4:G:H8	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:W:65:C:H2'	56:W:66:C:H6	1.84	0.42
1:04:132:ARG:HB2	6:09:123:ARG:NH1	2.35	0.42
1:04:164:VAL:CG2	1:04:174:ARG:HB2	2.49	0.42
3:06:76:PRO:HD2	54:01:673:C:H5''	2.01	0.42
3:06:148:ILE:HD13	3:06:187:VAL:CG1	2.50	0.42
7:10:33:VAL:HA	54:01:1055:G:H4'	2.02	0.42
7:10:60:LEU:O	7:10:64:VAL:HB	2.19	0.42
8:11:74:PRO:O	8:11:77:VAL:HG22	2.20	0.42
8:11:138:VAL:HG12	8:11:139:VAL:N	2.35	0.42
11:14:78:ARG:HB2	11:14:81:ASP:OD1	2.20	0.42
17:20:34:GLU:HB3	17:20:58:VAL:HG23	2.02	0.42
21:24:20:LEU:HD21	21:24:41:GLU:OE2	2.20	0.42
24:27:8:GLU:HB2	24:27:13:GLU:OE1	2.20	0.42
32:B:106:VAL:O	32:B:110:ILE:HG13	2.20	0.42
32:B:126:ASP:HA	32:B:133:ALA:HB3	2.01	0.42
33:C:63:ILE:O	33:C:98:ALA:HA	2.20	0.42
34:D:27:ILE:HD12	34:D:27:ILE:N	2.34	0.42
36:F:23:GLU:HA	36:F:26:THR:HG22	2.02	0.42
40:J:91:ASP:O	40:J:92:LEU:CB	2.67	0.42
49:S:30:LEU:HD12	49:S:30:LEU:N	2.35	0.42
53:A:974:A:H5'	53:A:976:G:OP1	2.19	0.42
53:A:1118:U:H2'	53:A:1119:C:O4'	2.20	0.42
54:01:123:G:H5''	54:01:1375:U:O2'	2.20	0.42
54:01:626:A:H3'	54:01:627:A:C5'	2.50	0.42
54:01:1199:U:H2'	54:01:1200:C:C6	2.55	0.42
54:01:1325:U:H5''	54:01:1648:U:OP2	2.20	0.42
54:01:1423:G:H2'	54:01:1424:G:H8	1.85	0.42
54:01:1993:U:H2'	54:01:1994:C:O4'	2.20	0.42
54:01:2861:U:H2'	54:01:2862:G:C8	2.55	0.42
55:02:95:U:H2'	55:02:96:G:H8	1.85	0.42
55:02:115:A:H2'	55:02:116:G:H8	1.85	0.42
56:X:65:C:H2'	56:X:66:C:C6	2.54	0.42
59:Z:116:ARG:NH1	59:Z:116:ARG:HB3	2.35	0.42
59:Z:212:LEU:HA	59:Z:213:PRO:HD3	1.89	0.42
59:Z:372:LEU:O	59:Z:388:VAL:HG23	2.20	0.42
1:04:48:ILE:O	1:04:48:ILE:HG23	2.20	0.41
2:05:156:PHE:O	54:01:2619:C:H4'	2.19	0.41
2:05:157:LYS:HA	54:01:2619:C:O3'	2.20	0.41
4:07:134:GLN:O	4:07:137:PHE:HB2	2.20	0.41
5:08:66:THR:HG23	54:01:2747:G:O2'	2.20	0.41
11:14:23:ILE:N	11:14:23:ILE:HD12	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:15:73:ILE:HG13	12:15:93:VAL:HG13	2.02	0.41
14:17:30:ARG:HB3	14:17:97:PHE:CE1	2.55	0.41
17:20:38:VAL:CG1	17:20:57:GLY:HA3	2.44	0.41
25:28:45:GLY:O	25:28:48:ASN:HB3	2.20	0.41
32:B:18:GLN:HG2	32:B:188:THR:OG1	2.20	0.41
42:L:47:ALA:C	42:L:48:LEU:HD12	2.40	0.41
47:Q:4:ILE:HD12	47:Q:4:ILE:O	2.20	0.41
53:A:49:U:O2'	53:A:50:A:H2'	2.21	0.41
53:A:1114:C:H2'	53:A:1115:U:O4'	2.19	0.41
53:A:1372:U:H2'	53:A:1373:G:O4'	2.19	0.41
53:A:1463:U:H2'	53:A:1464:U:C6	2.55	0.41
53:A:1464:U:H2'	53:A:1465:A:H8	1.85	0.41
54:01:343:C:O2'	54:01:344:A:H5'	2.20	0.41
55:02:53:A:H2'	55:02:53:A:N3	2.35	0.41
58:Y:33:U:H2'	58:Y:34:U8U:H5''	2.01	0.41
58:Y:72:C:H2'	58:Y:73:A:C4'	2.50	0.41
59:Z:210:PHE:HD2	59:Z:242:VAL:HG11	1.85	0.41
1:04:199:HIS:CE1	1:04:202:ARG:HH12	2.38	0.41
3:06:137:LYS:HA	3:06:140:ASP:OD2	2.19	0.41
6:09:56:ALA:O	6:09:59:ALA:HB3	2.20	0.41
17:20:15:SER:O	17:20:18:GLN:HG2	2.19	0.41
30:33:18:LYS:HB2	54:01:651:G:OP1	2.20	0.41
32:B:19:THR:CG2	32:B:20:ARG:N	2.83	0.41
33:C:154:GLY:HA3	33:C:195:ILE:HG23	2.01	0.41
35:E:88:HIS:HB3	35:E:138:ALA:HA	2.02	0.41
40:J:16:ARG:O	40:J:20:GLN:HG2	2.19	0.41
44:N:65:GLN:OE1	44:N:82:LYS:HB3	2.20	0.41
45:O:47:LYS:HB2	53:A:668:G:H4'	2.02	0.41
48:R:11:ARG:HH21	53:A:845:A:H1'	1.85	0.41
53:A:295:C:H2'	53:A:296:U:O4'	2.20	0.41
53:A:908:A:H2'	53:A:909:A:C8	2.55	0.41
53:A:966:G:C2	56:W:34:C:H5'	2.55	0.41
54:01:1038:G:H2'	54:01:1039:A:C8	2.55	0.41
54:01:1270:C:OP1	54:01:1271:G:H5'	2.20	0.41
54:01:1373:A:H5'	54:01:2212:A:H1'	2.02	0.41
54:01:2187:U:H2'	54:01:2188:U:C6	2.55	0.41
54:01:2206:C:H2'	54:01:2207:C:C6	2.55	0.41
55:02:30:C:H2'	55:02:31:C:C5'	2.49	0.41
59:Z:191:LEU:O	59:Z:195:LEU:N	2.53	0.41
2:05:46:ARG:HD3	2:05:86:GLU:HA	2.02	0.41
4:07:92:GLY:O	4:07:95:MET:HG2	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:08:174:LYS:HB2	54:01:2531:A:OP2	2.20	0.41
6:09:25:TYR:O	6:09:29:PHE:HB3	2.20	0.41
7:10:119:PRO:O	7:10:120:ALA:HB3	2.20	0.41
10:13:9:ASN:O	10:13:83:ALA:HA	2.20	0.41
12:15:74:THR:HG21	12:15:86:LYS:HE2	2.03	0.41
20:23:95:PHE:HB2	20:23:100:GLU:HB2	2.02	0.41
29:32:31:LEU:HD11	29:32:43:THR:CG2	2.48	0.41
37:G:71:THR:HG22	37:G:72:VAL:HG13	2.02	0.41
41:K:12:ARG:O	41:K:14:GLN:N	2.48	0.41
43:M:97:ARG:HG2	43:M:97:ARG:HH11	1.84	0.41
44:N:15:LEU:CD2	44:N:54:SER:HB3	2.49	0.41
44:N:30:ILE:HG21	44:N:43:ALA:HB3	2.02	0.41
46:P:5:ARG:HD2	53:A:376:G:H4'	2.02	0.41
48:R:67:LEU:HA	48:R:68:PRO:HD3	1.93	0.41
49:S:15:LEU:O	49:S:19:GLU:HG2	2.20	0.41
53:A:512:U:H2'	53:A:513:C:C6	2.55	0.41
53:A:621:A:H2'	53:A:622:A:C8	2.55	0.41
53:A:775:G:H2'	53:A:776:G:O4'	2.20	0.41
54:01:863:A:H4'	55:02:100:G:N2	2.35	0.41
54:01:881:G:H2'	54:01:882:G:H5'	2.03	0.41
54:01:1367:A:H2'	54:01:1368:G:H5'	2.02	0.41
54:01:2152:G:H2'	54:01:2153:C:C6	2.55	0.41
54:01:2190:G:H2'	54:01:2191:A:C8	2.54	0.41
54:01:2786:U:H2'	54:01:2787:C:H6	1.85	0.41
56:X:1:C:H2'	56:X:2:G:O4'	2.20	0.41
59:Z:287:GLU:HG2	59:Z:290:GLN:HE22	1.85	0.41
59:Z:331:TYR:HD1	59:Z:336:ASP:HA	1.85	0.41
3:06:109:LEU:O	3:06:113:VAL:HG23	2.20	0.41
14:17:40:ILE:HG23	14:17:46:GLU:O	2.20	0.41
27:30:11:LYS:HZ3	54:01:2616:C:H5''	1.86	0.41
32:B:206:ILE:O	32:B:209:VAL:HG22	2.20	0.41
33:C:13:ILE:HG22	33:C:14:VAL:HG23	2.03	0.41
34:D:53:GLN:HE22	53:A:8:A:N6	2.19	0.41
38:H:76:ARG:NH1	38:H:125:ILE:HG23	2.35	0.41
41:K:81:LEU:HD11	41:K:99:LEU:HD23	2.02	0.41
53:A:113:G:H2'	53:A:114:U:C6	2.55	0.41
53:A:1430:A:H5'	54:01:1704:C:H5''	2.02	0.41
54:01:164:C:H2'	54:01:165:A:H5'	2.02	0.41
54:01:176:A:O2'	54:01:177:G:H5'	2.19	0.41
54:01:264:C:H5'	54:01:265:A:OP1	2.20	0.41
54:01:1374:G:H2'	54:01:1375:U:O4'	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:2016:U:OP1	54:01:2058:A:H5''	2.20	0.41
54:01:2133:G:H2'	54:01:2157:G:N2	2.35	0.41
54:01:2247:A:H2'	54:01:2248:C:C6	2.56	0.41
54:01:2443:C:H2'	54:01:2444:G:C8	2.55	0.41
56:W:36:U:H2'	56:W:37:A:C8	2.55	0.41
59:Z:19:HIS:CD2	59:Z:114:GLN:HB3	2.56	0.41
59:Z:333:ARG:O	59:Z:334:THR:HG23	2.20	0.41
1:04:38:LYS:NZ	1:04:58:LYS:HA	2.35	0.41
1:04:146:LYS:HB2	1:04:149:LYS:HB2	2.02	0.41
1:04:179:GLU:OE1	1:04:181:ARG:HB2	2.21	0.41
10:13:30:ARG:NE	54:01:2674:G:H4'	2.36	0.41
10:13:71:ARG:HH12	15:18:71:ARG:NH2	2.17	0.41
13:16:72:ASP:OD2	13:16:75:ILE:HG12	2.19	0.41
14:17:115:LEU:HD23	14:17:117:PHE:CE1	2.54	0.41
15:18:47:ILE:HG22	15:18:96:LEU:HB2	2.02	0.41
17:20:10:LYS:HE2	54:01:994:C:O2'	2.20	0.41
22:25:38:GLY:HA2	54:01:2330:G:H21	1.85	0.41
27:30:29:VAL:HA	27:30:35:GLU:O	2.20	0.41
32:B:136:ARG:O	32:B:140:LEU:HB2	2.19	0.41
33:C:33:ASP:O	33:C:37:LYS:HG2	2.19	0.41
37:G:75:LYS:HZ1	37:G:77:ARG:HD3	1.83	0.41
43:M:77:LYS:HG2	43:M:81:ASP:OD2	2.21	0.41
43:M:82:LEU:HD23	49:S:65:MET:HG2	2.02	0.41
47:Q:78:VAL:O	47:Q:79:GLU:C	2.58	0.41
52:03:183:ASP:HA	52:03:186:LYS:HB3	2.03	0.41
53:A:194:C:O2'	53:A:195:A:H5'	2.21	0.41
53:A:335:C:H4'	53:A:1434:A:C4'	2.51	0.41
53:A:1234:C:H4'	53:A:1364:U:H4'	2.01	0.41
53:A:1284:C:H2'	53:A:1285:A:C8	2.56	0.41
53:A:1512:U:H2'	53:A:1513:A:C8	2.56	0.41
54:01:310:A:O2'	54:01:311:A:H2'	2.20	0.41
54:01:546:U:H2'	54:01:547:A:C4'	2.51	0.41
54:01:779:U:H2'	54:01:780:G:O4'	2.20	0.41
54:01:856:G:H2'	54:01:857:G:C8	2.55	0.41
54:01:1380:G:H21	54:01:1570:A:H2	1.67	0.41
54:01:1423:G:H2'	54:01:1424:G:C8	2.56	0.41
54:01:2377:A:O2'	54:01:2378:A:H5'	2.21	0.41
59:Z:9:LYS:HD2	59:Z:70:ASP:OD2	2.20	0.41
59:Z:183:GLU:O	59:Z:186:ALA:HB3	2.20	0.41
4:07:15:LEU:HB3	4:07:21:TYR:HE2	1.84	0.41
4:07:109:ARG:HD3	4:07:136:ILE:HA	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:09:119:ASN:HD22	6:09:119:ASN:HA	1.65	0.41
8:11:85:ILE:HD12	8:11:137:LEU:HD22	2.02	0.41
9:12:78:THR:CG2	54:01:2641:G:H5''	2.51	0.41
13:16:50:PRO:O	13:16:54:LEU:N	2.53	0.41
14:17:28:VAL:HG13	14:17:28:VAL:O	2.20	0.41
29:32:4:THR:O	54:01:687:C:H5''	2.21	0.41
29:32:7:PRO:HD3	54:01:1612:C:H4'	2.02	0.41
34:D:121:ALA:O	34:D:144:ILE:HG23	2.21	0.41
36:F:3:HIS:O	36:F:92:THR:HA	2.20	0.41
40:J:14:ASP:OD2	40:J:17:LEU:HB2	2.20	0.41
52:03:43:ASP:HB3	54:01:2124:G:C4'	2.51	0.41
52:03:50:ILE:HD12	52:03:50:ILE:O	2.20	0.41
53:A:141:G:H2'	53:A:142:G:H8	1.85	0.41
53:A:714:G:H2'	53:A:715:A:C8	2.56	0.41
53:A:741:G:H2'	53:A:742:G:H8	1.86	0.41
53:A:1033:G:C2'	53:A:1034:G:H5''	2.48	0.41
54:01:214:G:H2'	54:01:215:G:C8	2.55	0.41
54:01:858:G:H5'	54:01:859:G:OP2	2.20	0.41
54:01:1979:U:O2'	54:01:1980:G:H5'	2.21	0.41
54:01:2048:G:C3'	54:01:2049:G:H5''	2.50	0.41
54:01:2713:U:H3'	54:01:2714:G:H5''	2.01	0.41
2:05:121:THR:HB	2:05:127:PHE:CE2	2.55	0.41
13:16:18:GLN:HE21	13:16:22:ARG:NH1	2.18	0.41
13:16:38:LEU:HB3	13:16:39:PRO:HD3	2.02	0.41
17:20:27:ILE:HG22	17:20:28:ALA:N	2.36	0.41
33:C:154:GLY:O	33:C:156:LEU:HG	2.21	0.41
44:N:17:ASP:HA	44:N:21:ALA:HB2	2.03	0.41
46:P:20:VAL:HG23	46:P:35:ARG:CA	2.39	0.41
53:A:784:A:H4'	54:01:1837:C:OP1	2.20	0.41
53:A:884:U:H4'	53:A:885:G:C5'	2.49	0.41
53:A:1308:U:H2'	53:A:1309:G:C8	2.56	0.41
53:A:1427:C:H2'	53:A:1428:A:C8	2.55	0.41
54:01:273:G:H2'	54:01:274:C:C6	2.56	0.41
54:01:291:G:H2'	54:01:292:U:C6	2.55	0.41
54:01:458:G:O2'	54:01:459:U:H5	2.03	0.41
54:01:2266:A:H4'	54:01:2267:A:C2	2.56	0.41
54:01:2529:G:OP2	54:01:2530:A:H5''	2.21	0.41
54:01:2619:C:O2'	54:01:2620:C:H5'	2.21	0.41
54:01:2707:U:H2'	54:01:2708:G:H8	1.84	0.41
54:01:2834:G:H2'	54:01:2879:A:N6	2.36	0.41
59:Z:304:PHE:HE1	59:Z:362:LEU:HD21	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:05:96:ILE:HG23	2:05:100:LEU:HD13	2.03	0.41
3:06:105:LEU:O	3:06:109:LEU:HD13	2.19	0.41
7:10:56:ARG:HG2	7:10:56:ARG:HH11	1.85	0.41
7:10:60:LEU:HA	7:10:64:VAL:HB	2.02	0.41
8:11:10:LEU:HD13	8:11:23:VAL:CG1	2.51	0.41
9:12:7:LYS:HG2	54:01:538:A:H5''	2.02	0.41
10:13:113:MET:SD	10:13:116:ILE:HD11	2.60	0.41
16:19:75:TYR:O	16:19:79:ILE:HG12	2.20	0.41
19:22:29:THR:HG23	19:22:86:THR:N	2.36	0.41
20:23:84:PHE:HB3	54:01:297:G:H5''	2.03	0.41
23:26:17:ARG:HH11	23:26:21:LEU:HD22	1.86	0.41
27:30:30:ASP:HB3	27:30:34:GLY:N	2.35	0.41
27:30:40:HIS:HA	27:30:48:TYR:OH	2.21	0.41
34:D:49:ASP:O	34:D:53:GLN:HG3	2.21	0.41
34:D:144:ILE:N	34:D:144:ILE:HD12	2.36	0.41
40:J:42:LEU:HA	40:J:43:PRO:HD2	1.81	0.41
40:J:53:ILE:HG12	53:A:1060:U:C5'	2.36	0.41
41:K:91:GLY:O	41:K:93:GLU:N	2.47	0.41
42:L:48:LEU:HB2	53:A:520:A:OP1	2.20	0.41
44:N:72:PHE:CZ	44:N:77:GLY:HA2	2.56	0.41
47:Q:48:GLU:HB2	47:Q:51:GLU:OE1	2.21	0.41
48:R:17:VAL:O	48:R:18:GLN:HB2	2.20	0.41
48:R:19:GLU:CD	48:R:53:GLN:HE22	2.24	0.41
53:A:161:A:H2'	53:A:162:A:O4'	2.21	0.41
53:A:427:U:H3'	53:A:428:G:H2'	2.03	0.41
53:A:530:G:H2'	53:A:530:G:N3	2.36	0.41
53:A:712:A:H2'	53:A:713:G:O4'	2.21	0.41
53:A:1202:U:C2'	53:A:1203:C:H5'	2.51	0.41
54:01:528:A:H2	54:01:2042:A:H2'	1.85	0.41
54:01:686:U:H3'	54:01:687:C:H5'	2.03	0.41
54:01:1077:A:C2'	54:01:1078:U:H5'	2.51	0.41
54:01:2241:A:H2'	54:01:2242:G:C8	2.55	0.41
54:01:2281:A:O2'	54:01:2282:G:H5'	2.21	0.41
54:01:2690:U:O2'	54:01:2872:A:H1'	2.21	0.41
56:X:35:A:N6	57:V:14:A:H61	2.19	0.41
4:07:97:GLU:HG2	26:29:25:ARG:HB2	2.03	0.41
4:07:131:VAL:HG23	4:07:151:LEU:H	1.85	0.41
6:09:77:THR:N	6:09:142:VAL:HG13	2.36	0.41
7:10:57:ASN:OD1	7:10:63:ALA:HB2	2.21	0.41
10:13:76:VAL:H	15:18:72:VAL:HG22	1.86	0.41
14:17:30:ARG:HH11	14:17:102:ARG:NH1	2.17	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:17:115:LEU:HD23	14:17:117:PHE:HE1	1.85	0.41
15:18:24:THR:HB	15:18:86:LYS:HB2	2.03	0.41
16:19:65:ASN:O	16:19:69:ARG:HG3	2.20	0.41
20:23:67:SER:HB2	54:01:327:G:N2	2.36	0.41
20:23:91:LYS:HD3	54:01:297:G:OP1	2.21	0.41
21:24:14:LYS:CG	21:24:18:ARG:HE	2.33	0.41
22:25:39:THR:C	22:25:41:PHE:H	2.23	0.41
22:25:70:PRO:HB3	55:02:12:C:C4	2.56	0.41
22:25:74:LYS:H	22:25:74:LYS:CD	2.34	0.41
23:26:5:GLN:HG2	23:26:49:ARG:O	2.21	0.41
25:28:11:SER:OG	25:28:12:ALA:N	2.54	0.41
34:D:138:PRO:HA	34:D:181:PHE:CE2	2.56	0.41
36:F:98:GLU:HB3	36:F:99:ALA:H	1.73	0.41
37:G:62:GLU:O	37:G:66:GLU:HG2	2.21	0.41
39:I:10:ARG:HA	39:I:14:SER:O	2.20	0.41
39:I:12:LYS:HG2	53:A:1371:G:OP1	2.21	0.41
39:I:66:VAL:HG22	39:I:67:LYS:N	2.36	0.41
40:J:7:ARG:HD3	40:J:75:ASP:HB3	2.02	0.41
41:K:109:ILE:HG21	51:U:16:ARG:HE	1.86	0.41
46:P:10:GLY:HA2	53:A:624:C:O3'	2.21	0.41
46:P:79:ASN:HD22	46:P:79:ASN:HA	1.65	0.41
52:03:21:TYR:CD2	52:03:222:VAL:HG13	2.56	0.41
52:03:43:ASP:HB3	54:01:2124:G:H4'	2.01	0.41
53:A:23:C:H2'	53:A:24:U:C6	2.56	0.41
53:A:428:G:H4'	53:A:429:U:O5'	2.21	0.41
53:A:625:U:H2'	53:A:626:G:H8	1.85	0.41
53:A:828:U:H3	53:A:859:G:H1'	1.86	0.41
53:A:1064:G:H21	53:A:1190:G:H1'	1.84	0.41
53:A:1241:G:H2'	53:A:1242:G:H8	1.86	0.41
53:A:1412:C:H2'	53:A:1413:A:H8	1.83	0.41
54:01:28:A:O2'	54:01:583:G:H5'	2.21	0.41
54:01:779:U:H2'	54:01:780:G:C8	2.56	0.41
54:01:893:C:H2'	54:01:894:U:O4'	2.19	0.41
54:01:970:U:H2'	54:01:971:G:H8	1.85	0.41
54:01:1179:G:C5	54:01:1180:U:H1'	2.55	0.41
54:01:1299:G:H5''	54:01:1300:G:OP1	2.21	0.41
54:01:1370:C:H2'	54:01:1371:G:C8	2.56	0.41
54:01:1378:A:H1'	54:01:1379:U:C6	2.55	0.41
54:01:1465:G:H2'	54:01:1466:U:O4'	2.20	0.41
54:01:1639:C:O2'	54:01:1640:A:H5'	2.21	0.41
54:01:1837:C:H2'	54:01:1899:A:N6	2.34	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:2229:U:H2'	54:01:2230:G:C8	2.56	0.41
54:01:2623:G:H2'	54:01:2624:G:H8	1.86	0.41
54:01:2731:G:H2'	54:01:2732:G:C8	2.56	0.41
59:Z:74:ARG:HH21	59:Z:196:ASP:HA	1.85	0.41
59:Z:220:ILE:HG13	59:Z:226:VAL:CG2	2.51	0.41
59:Z:342:GLU:HG3	59:Z:361:THR:HG23	2.02	0.41
1:04:132:ARG:HD3	1:04:186:ASP:OD1	2.21	0.41
2:05:19:GLY:HA2	15:18:78:PRO:HD2	2.03	0.41
16:19:10:ARG:HG2	16:19:10:ARG:HH11	1.85	0.41
16:19:78:PHE:HE1	16:19:109:VAL:HA	1.85	0.41
17:20:8:GLY:HA3	17:20:23:GLU:OE1	2.20	0.41
21:24:30:ILE:HG12	21:24:91:PHE:HB2	2.03	0.41
28:31:43:ARG:NH1	54:01:2370:G:H4'	2.36	0.41
34:D:149:LYS:HE3	34:D:176:LYS:HE2	2.02	0.41
36:F:12:PRO:HG3	36:F:56:LYS:O	2.21	0.41
37:G:76:SER:CB	37:G:83:THR:HG23	2.51	0.41
39:I:38:PHE:O	39:I:41:GLU:HB2	2.20	0.41
41:K:92:ARG:HE	51:U:24:LYS:HE2	1.86	0.41
45:O:55:LEU:O	45:O:58:MET:HG2	2.20	0.41
48:R:59:LYS:CD	53:A:735:C:H5'	2.50	0.41
50:T:30:PHE:O	50:T:34:VAL:HG23	2.20	0.41
52:03:192:LEU:O	52:03:196:LEU:HD13	2.21	0.41
53:A:86:G:H4'	53:A:87:C:C5	2.55	0.41
53:A:518:C:H2'	53:A:530:G:C8	2.55	0.41
53:A:1064:G:H1'	53:A:1190:G:H21	1.86	0.41
53:A:1254:A:H2'	53:A:1255:G:C8	2.56	0.41
53:A:1390:U:H2'	53:A:1391:U:C6	2.56	0.41
53:A:1394:A:H3'	53:A:1395:C:H5'	2.03	0.41
54:01:12:U:O2	54:01:2626:C:H4'	2.21	0.41
54:01:267:C:H2'	54:01:268:C:H6	1.85	0.41
54:01:566:U:H2'	54:01:567:U:O4'	2.20	0.41
54:01:828:U:H4'	54:01:831:G:C2	2.55	0.41
54:01:2014:A:H2'	54:01:2015:A:C8	2.56	0.41
54:01:2462:C:H2'	54:01:2463:C:C6	2.55	0.41
61:Y:101:LYS:CB	59:Z:261:PHE:H	2.34	0.41
1:04:120:ASP:O	1:04:121:ALA:C	2.59	0.40
5:08:137:LYS:HG2	54:01:2746:U:C5'	2.44	0.40
7:10:103:ASN:HA	7:10:107:GLU:HB3	2.03	0.40
9:12:68:LYS:HD3	54:01:1022:G:O6	2.21	0.40
12:15:33:LEU:HD23	12:15:103:TYR:HD2	1.86	0.40
17:20:68:ARG:HH11	17:20:90:ARG:HB2	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:23:39:ASN:HD22	20:23:39:ASN:HA	1.57	0.40
24:27:56:LEU:O	24:27:60:LYS:HG2	2.21	0.40
26:29:14:ALA:HB1	26:29:34:LEU:HD11	2.03	0.40
35:E:95:MET:HE3	35:E:122:VAL:HG21	2.04	0.40
35:E:108:GLY:O	35:E:109:ALA:HB3	2.21	0.40
38:H:121:GLY:C	53:A:599:C:H4'	2.42	0.40
39:I:35:GLU:O	39:I:40:ARG:HG3	2.20	0.40
40:J:40:ILE:HB	40:J:73:LEU:HD12	2.02	0.40
41:K:56:LYS:HE2	53:A:691:G:O6	2.21	0.40
44:N:5:MET:HE1	53:A:982:U:H3'	2.03	0.40
44:N:80:ARG:HH11	44:N:80:ARG:HG3	1.85	0.40
49:S:36:ARG:HB3	53:A:1320:C:N4	2.36	0.40
50:T:19:HIS:O	50:T:23:ARG:HG2	2.21	0.40
52:03:42:VAL:HA	52:03:216:THR:HA	2.02	0.40
53:A:427:U:H4'	53:A:541:G:H5''	2.02	0.40
53:A:542:G:H2'	53:A:543:U:C6	2.56	0.40
54:01:127:A:H5''	54:01:128:C:O4'	2.20	0.40
54:01:287:G:H2'	54:01:288:U:C6	2.56	0.40
54:01:531:C:O2'	54:01:563:A:H5''	2.21	0.40
54:01:796:C:H2'	54:01:797:G:C8	2.56	0.40
54:01:2208:C:H2'	54:01:2209:G:H8	1.86	0.40
57:V:13:A:H2'	57:V:14:A:C8	2.57	0.40
1:04:134:ILE:HA	1:04:135:PRO:HD3	1.95	0.40
1:04:140:VAL:HG12	1:04:191:LEU:HD23	2.02	0.40
2:05:131:ASP:OD2	2:05:134:HIS:HB2	2.20	0.40
9:12:49:ASP:H	9:12:114:LEU:HD11	1.87	0.40
11:14:79:LEU:HB2	11:14:114:GLY:H	1.86	0.40
14:17:2:ASP:O	14:17:6:ALA:N	2.53	0.40
14:17:33:ARG:HB2	55:02:52:A:N6	2.37	0.40
15:18:59:THR:HA	15:18:72:VAL:HA	2.03	0.40
20:23:97:SER:O	20:23:98:ASN:CB	2.69	0.40
22:25:42:HIS:NE2	22:25:73:ARG:HB2	2.36	0.40
25:28:8:GLN:HB3	25:28:31:ILE:HA	2.03	0.40
32:B:71:THR:HA	32:B:92:ASN:O	2.21	0.40
32:B:184:ALA:H	32:B:195:VAL:HG11	1.86	0.40
35:E:43:GLY:HA2	35:E:73:VAL:HB	2.02	0.40
36:F:81:ASN:HB3	36:F:84:VAL:CG2	2.51	0.40
49:S:5:LYS:HA	53:A:1313:U:OP2	2.21	0.40
53:A:71:A:H61	53:A:99:C:H1'	1.86	0.40
53:A:1098:C:H2'	53:A:1099:G:O4'	2.20	0.40
53:A:1128:C:O2'	53:A:1129:C:H5'	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:01:443:A:H5''	54:01:444:C:H5''	2.03	0.40
54:01:729:G:H4'	54:01:763:G:C5'	2.51	0.40
54:01:1664:A:H2'	54:01:1664:A:N3	2.36	0.40
54:01:1773:A:H2'	54:01:1774:C:O4'	2.21	0.40
54:01:1937:A:H62	54:01:1940:U:H5	1.67	0.40
54:01:2628:C:H3'	54:01:2629:U:C5'	2.48	0.40
55:02:14:U:O2	55:02:107:G:H4'	2.21	0.40
56:X:48:C:H5''	56:X:50:U:OP2	2.21	0.40
2:05:56:LYS:HE3	54:01:2831:G:P	2.61	0.40
5:08:70:LEU:O	5:08:74:MET:HG3	2.20	0.40
8:11:122:GLU:HA	8:11:125:THR:OG1	2.22	0.40
9:12:53:TYR:CE1	9:12:121:LYS:HD3	2.56	0.40
11:14:78:ARG:NH2	11:14:78:ARG:HB3	2.37	0.40
11:14:122:VAL:O	11:14:143:GLU:HG2	2.20	0.40
13:16:2:ARG:HD2	54:01:1653:G:H3'	2.01	0.40
16:19:48:ASP:HA	16:19:51:GLN:HB2	2.02	0.40
16:19:87:VAL:HG12	16:19:89:ILE:HG13	2.04	0.40
19:22:50:LEU:HD23	24:27:26:PHE:CZ	2.57	0.40
28:31:24:LYS:HG3	28:31:33:LEU:HD12	2.04	0.40
28:31:42:VAL:O	28:31:43:ARG:HB2	2.21	0.40
30:33:63:TYR:CE2	54:01:242:G:H5''	2.57	0.40
32:B:95:TRP:CZ3	32:B:97:GLY:HA2	2.56	0.40
33:C:110:LEU:HG	33:C:143:LEU:HD22	2.03	0.40
36:F:10:VAL:HG12	36:F:11:HIS:N	2.35	0.40
37:G:28:ILE:HG22	37:G:104:VAL:HG21	2.02	0.40
40:J:15:HIS:HB3	40:J:70:HIS:CE1	2.57	0.40
44:N:60:ARG:HG2	53:A:981:U:H4'	2.03	0.40
47:Q:65:PRO:HG2	53:A:234:C:H4'	2.02	0.40
47:Q:67:SER:OG	47:Q:70:LYS:HB3	2.21	0.40
50:T:35:TYR:OH	53:A:259:G:H5''	2.22	0.40
53:A:607:A:H2'	53:A:608:A:C8	2.56	0.40
53:A:829:G:H2'	53:A:830:G:C8	2.56	0.40
54:01:155:A:H2'	54:01:156:A:C8	2.56	0.40
54:01:211:C:H2'	54:01:212:G:H8	1.87	0.40
54:01:466:A:N3	54:01:683:U:H1'	2.36	0.40
54:01:624:C:O2'	54:01:657:U:H5''	2.20	0.40
54:01:863:A:H2'	54:01:864:G:H8	1.86	0.40
54:01:1344:U:H3'	54:01:1345:C:H5'	2.03	0.40
54:01:1956:U:H1'	54:01:2552:U:OP1	2.22	0.40
54:01:2746:U:H2'	54:01:2747:G:O4'	2.22	0.40
56:W:27:U:H2'	56:W:28:C:C6	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
61:Y:101:LYS:HB3	59:Z:261:PHE:H	1.86	0.40
59:Z:373:ARG:HG2	59:Z:387:VAL:HG23	2.03	0.40
1:04:62:ARG:HG3	1:04:62:ARG:HH11	1.86	0.40
1:04:144:GLU:HG3	1:04:188:ARG:O	2.20	0.40
3:06:117:ARG:NH1	11:14:2:ARG:HG2	2.36	0.40
5:08:23:ILE:HG22	5:08:24:THR:N	2.36	0.40
6:09:67:ALA:O	6:09:71:LYS:HG3	2.21	0.40
9:12:69:ARG:HA	9:12:89:PHE:CD2	2.57	0.40
14:17:51:ALA:CB	14:17:78:VAL:HG13	2.46	0.40
15:18:9:GLN:HA	15:18:12:MET:HG3	2.02	0.40
15:18:31:VAL:HG13	15:18:38:ARG:HB3	2.04	0.40
15:18:46:VAL:HG22	15:18:60:VAL:HG22	2.03	0.40
16:19:27:ARG:HH12	54:01:532:A:H5''	1.87	0.40
23:26:13:THR:CG2	54:01:188:G:H5'	2.52	0.40
24:27:56:LEU:O	24:27:60:LYS:N	2.43	0.40
25:28:11:SER:OG	25:28:13:ILE:HG13	2.22	0.40
27:30:14:MET:SD	54:01:2045:C:H5''	2.62	0.40
32:B:70:GLY:HA2	32:B:163:ILE:HG22	2.03	0.40
33:C:37:LYS:HB3	33:C:93:ILE:HG22	2.02	0.40
33:C:72:PRO:HG3	33:C:104:GLU:OE1	2.21	0.40
33:C:171:ARG:HG2	33:C:173:PRO:HD3	2.02	0.40
37:G:86:VAL:HG13	37:G:150:PHE:O	2.21	0.40
42:L:40:THR:HA	42:L:47:ALA:O	2.21	0.40
43:M:27:THR:CG2	53:A:1328:C:H5''	2.51	0.40
45:O:63:ARG:NH1	45:O:87:ARG:HH21	2.19	0.40
53:A:990:C:H2'	53:A:991:U:O4'	2.22	0.40
54:01:320:A:H4'	54:01:322:A:N7	2.36	0.40
54:01:440:C:H2'	54:01:441:U:C6	2.56	0.40
54:01:615:U:H5''	54:01:616:A:OP2	2.22	0.40
54:01:1054:A:H2'	54:01:1055:G:C8	2.56	0.40
54:01:1657:U:H2'	54:01:1658:C:H6	1.86	0.40
54:01:2065:C:H1'	54:01:2449:U:H3	1.86	0.40
54:01:2665:A:O2'	54:01:2666:C:H5'	2.22	0.40
55:02:106:G:C2	55:02:107:G:H1'	2.56	0.40
3:06:15:SER:HB2	3:06:18:THR:HB	2.02	0.40
4:07:122:ASP:OD2	54:01:2315:G:H1'	2.20	0.40
7:10:56:ARG:NH1	7:10:81:LEU:HD21	2.36	0.40
11:14:19:LEU:HG	11:14:31:GLY:HA3	2.04	0.40
11:14:95:LEU:O	11:14:100:ILE:HG12	2.21	0.40
16:19:57:ARG:O	16:19:61:ILE:HG13	2.22	0.40
25:28:35:VAL:HG13	25:28:37:ARG:HG2	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:G:145:GLU:HA	37:G:148:LYS:HE3	2.04	0.40
40:J:42:LEU:HD22	53:A:1280:A:H5'	2.03	0.40
40:J:59:LYS:CE	40:J:62:ARG:HH21	2.34	0.40
41:K:85:VAL:HG23	41:K:111:ASP:OD1	2.22	0.40
41:K:111:ASP:OD1	41:K:113:THR:HG23	2.21	0.40
42:L:29:LYS:HA	53:A:363:A:OP1	2.21	0.40
42:L:85:ARG:HA	42:L:93:ARG:HA	2.04	0.40
43:M:97:ARG:HD3	53:A:1308:U:OP2	2.21	0.40
52:03:54:LYS:HB2	52:03:57:GLN:CG	2.52	0.40
53:A:306:A:H2'	53:A:307:C:O4'	2.22	0.40
53:A:842:U:H2'	53:A:844:G:C5'	2.50	0.40
53:A:1073:U:H2'	53:A:1074:G:C8	2.57	0.40
54:01:660:C:H2'	54:01:661:A:C8	2.57	0.40
54:01:1370:C:H2'	54:01:1371:G:O4'	2.21	0.40
54:01:1607:C:H4'	54:01:1608:A:C8	2.57	0.40
54:01:1669:A:C2'	54:01:1670:C:H5'	2.52	0.40
54:01:2224:G:H4'	54:01:2226:C:C2	2.57	0.40
54:01:2371:G:O2'	54:01:2372:U:H5'	2.21	0.40
54:01:2815:C:H2'	54:01:2816:G:H8	1.87	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	04	269/271 (99%)	227 (84%)	35 (13%)	7 (3%)	5	35
2	05	207/209 (99%)	171 (83%)	31 (15%)	5 (2%)	6	37
3	06	199/201 (99%)	172 (86%)	24 (12%)	3 (2%)	10	45
4	07	175/177 (99%)	150 (86%)	22 (13%)	3 (2%)	9	43
5	08	174/176 (99%)	151 (87%)	20 (12%)	3 (2%)	9	43

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
6	09	147/149 (99%)	119 (81%)	26 (18%)	2 (1%)	11	46
7	10	129/131 (98%)	82 (64%)	37 (29%)	10 (8%)	1	15
8	11	139/141 (99%)	109 (78%)	24 (17%)	6 (4%)	2	26
9	12	140/142 (99%)	123 (88%)	15 (11%)	2 (1%)	11	46
10	13	120/122 (98%)	94 (78%)	18 (15%)	8 (7%)	1	18
11	14	141/143 (99%)	110 (78%)	24 (17%)	7 (5%)	2	23
12	15	134/136 (98%)	112 (84%)	19 (14%)	3 (2%)	6	38
13	16	118/120 (98%)	99 (84%)	18 (15%)	1 (1%)	19	57
14	17	114/116 (98%)	98 (86%)	13 (11%)	3 (3%)	5	35
15	18	112/114 (98%)	91 (81%)	21 (19%)	0	100	100
16	19	115/117 (98%)	105 (91%)	10 (9%)	0	100	100
17	20	101/103 (98%)	83 (82%)	17 (17%)	1 (1%)	15	52
18	21	108/110 (98%)	97 (90%)	9 (8%)	2 (2%)	8	41
19	22	91/93 (98%)	64 (70%)	24 (26%)	3 (3%)	4	31
20	23	100/102 (98%)	78 (78%)	18 (18%)	4 (4%)	3	27
21	24	92/94 (98%)	79 (86%)	13 (14%)	0	100	100
22	25	73/75 (97%)	62 (85%)	9 (12%)	2 (3%)	5	35
23	26	75/77 (97%)	70 (93%)	4 (5%)	1 (1%)	12	48
24	27	61/63 (97%)	54 (88%)	7 (12%)	0	100	100
25	28	56/58 (97%)	51 (91%)	4 (7%)	1 (2%)	8	42
26	29	64/66 (97%)	50 (78%)	11 (17%)	3 (5%)	2	24
27	30	54/56 (96%)	47 (87%)	6 (11%)	1 (2%)	8	41
28	31	48/50 (96%)	44 (92%)	4 (8%)	0	100	100
29	32	44/46 (96%)	41 (93%)	3 (7%)	0	100	100
30	33	62/64 (97%)	49 (79%)	10 (16%)	3 (5%)	2	24
31	34	36/38 (95%)	32 (89%)	3 (8%)	1 (3%)	5	34
32	B	216/218 (99%)	177 (82%)	30 (14%)	9 (4%)	3	26
33	C	204/206 (99%)	188 (92%)	16 (8%)	0	100	100
34	D	203/205 (99%)	169 (83%)	26 (13%)	8 (4%)	3	28
35	E	155/157 (99%)	118 (76%)	27 (17%)	10 (6%)	1	19
36	F	98/100 (98%)	75 (76%)	17 (17%)	6 (6%)	1	20

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
37	G	149/151 (99%)	124 (83%)	20 (13%)	5 (3%)	3	31
38	H	127/129 (98%)	111 (87%)	14 (11%)	2 (2%)	9	44
39	I	125/127 (98%)	92 (74%)	29 (23%)	4 (3%)	4	32
40	J	96/98 (98%)	74 (77%)	11 (12%)	11 (12%)	0	7
41	K	114/116 (98%)	89 (78%)	20 (18%)	5 (4%)	2	25
42	L	121/123 (98%)	94 (78%)	19 (16%)	8 (7%)	1	19
43	M	112/114 (98%)	91 (81%)	17 (15%)	4 (4%)	3	29
44	N	98/100 (98%)	80 (82%)	16 (16%)	2 (2%)	7	40
45	O	86/88 (98%)	71 (83%)	13 (15%)	2 (2%)	6	38
46	P	80/82 (98%)	64 (80%)	13 (16%)	3 (4%)	3	28
47	Q	78/80 (98%)	57 (73%)	15 (19%)	6 (8%)	1	16
48	R	63/65 (97%)	50 (79%)	8 (13%)	5 (8%)	1	15
49	S	77/79 (98%)	62 (80%)	12 (16%)	3 (4%)	3	28
50	T	83/85 (98%)	79 (95%)	2 (2%)	2 (2%)	6	37
51	U	63/65 (97%)	39 (62%)	19 (30%)	5 (8%)	1	15
52	03	130/223 (58%)	112 (86%)	15 (12%)	3 (2%)	6	38
59	Z	390/392 (100%)	330 (85%)	53 (14%)	7 (2%)	8	42
All	All	6366/6563 (97%)	5260 (83%)	911 (14%)	195 (3%)	7	32

All (195) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	04	121	ALA
1	04	233	GLY
2	05	170	VAL
3	06	83	VAL
4	07	175	PRO
5	08	45	ALA
5	08	46	ASP
6	09	9	VAL
6	09	12	LEU
7	10	113	PHE
9	12	43	GLU
9	12	81	ILE
10	13	35	VAL
10	13	92	GLU

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Mol	Chain	Res	Type
11	14	85	VAL
12	15	58	LYS
14	17	34	HIS
17	20	54	VAL
18	21	63	GLY
26	29	65	ASN
31	34	37	GLN
32	B	19	THR
34	D	29	THR
34	D	191	SER
35	E	89	THR
35	E	93	VAL
35	E	122	VAL
36	F	53	LYS
36	F	99	ALA
38	H	47	ASP
39	I	57	VAL
39	I	90	ASP
39	I	91	GLU
40	J	34	ALA
40	J	92	LEU
41	K	125	LYS
42	L	43	LYS
42	L	101	LEU
43	M	7	ASN
43	M	65	GLU
44	N	3	GLN
45	O	46	LYS
46	P	79	ASN
47	Q	17	GLU
47	Q	49	ASN
47	Q	80	LYS
48	R	48	ALA
48	R	71	ASP
59	Z	295	PRO
59	Z	345	GLU
1	04	205	GLY
1	04	240	GLY
2	05	149	ASN
2	05	169	ARG
4	07	20	ASN
5	08	118	ALA

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Mol	Chain	Res	Type
7	10	23	LEU
7	10	108	VAL
7	10	126	LEU
8	11	24	GLY
10	13	73	ASP
11	14	34	GLY
11	14	65	GLY
11	14	86	GLU
12	15	69	PRO
18	21	64	ALA
19	22	38	ALA
20	23	6	ARG
20	23	81	ARG
20	23	98	ASN
26	29	4	ASP
26	29	52	ALA
32	B	73	ARG
32	B	153	MET
34	D	23	GLY
34	D	28	ASP
34	D	120	LYS
34	D	146	GLU
35	E	23	THR
36	F	54	LEU
37	G	4	ARG
37	G	18	GLY
38	H	51	GLU
40	J	38	GLY
40	J	89	ARG
41	K	13	LYS
42	L	23	LEU
42	L	75	GLU
43	M	6	ILE
43	M	14	ALA
44	N	37	ASP
46	P	24	SER
48	R	19	GLU
49	S	5	LYS
49	S	42	ASN
49	S	48	ILE
50	T	68	LYS
50	T	76	ALA

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Mol	Chain	Res	Type
51	U	9	GLU
51	U	34	ARG
52	03	55	SER
59	Z	3	GLU
59	Z	264	LEU
59	Z	334	THR
7	10	93	ALA
8	11	13	ALA
8	11	14	ALA
10	13	98	ARG
19	22	52	GLU
22	25	74	LYS
27	30	25	THR
30	33	31	ILE
34	D	47	LEU
35	E	11	GLN
35	E	25	LYS
36	F	12	PRO
36	F	40	GLU
37	G	149	ALA
39	I	102	PHE
40	J	43	PRO
40	J	58	ASN
40	J	91	ASP
40	J	93	ALA
42	L	35	ARG
42	L	46	SER
47	Q	56	ASP
47	Q	79	GLU
48	R	46	THR
3	06	9	GLN
8	11	4	VAL
11	14	15	ALA
11	14	87	GLY
32	B	82	ALA
32	B	124	THR
32	B	166	ASP
32	B	212	TYR
32	B	213	LEU
35	E	90	GLY
35	E	121	ASN
37	G	78	ARG

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Mol	Chain	Res	Type
37	G	129	ASN
40	J	42	LEU
40	J	57	VAL
45	O	13	GLU
48	R	20	ILE
51	U	14	ALA
52	03	52	ALA
59	Z	128	PRO
2	05	17	GLU
4	07	174	PHE
7	10	27	VAL
7	10	80	THR
7	10	118	ILE
7	10	119	PRO
11	14	29	LYS
12	15	6	ARG
14	17	116	GLN
19	22	3	ARG
22	25	9	GLY
30	33	62	PRO
34	D	183	ARG
35	E	77	ASN
35	E	78	GLY
41	K	51	PHE
41	K	92	ARG
46	P	8	ARG
47	Q	8	GLN
51	U	12	ASP
59	Z	8	THR
1	04	122	ALA
20	23	89	GLY
23	26	25	LYS
36	F	56	LYS
42	L	90	PRO
51	U	66	ARG
52	03	27	ILE
8	11	58	ILE
13	16	109	PRO
32	B	206	ILE
41	K	73	VAL
1	04	232	GLY
3	06	129	PRO

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Mol	Chain	Res	Type
10	13	27	GLY
10	13	120	PRO
1	04	158	GLY
8	11	22	PRO
10	13	72	PRO
10	13	93	GLN
14	17	101	GLY
42	L	27	PRO
2	05	98	VAL
7	10	130	PRO
25	28	50	VAL
30	33	6	VAL
40	J	41	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	
1	04	216/216 (100%)	211 (98%)	5 (2%)	50	71
2	05	164/164 (100%)	163 (99%)	1 (1%)	86	91
3	06	165/165 (100%)	163 (99%)	2 (1%)	71	83
4	07	148/148 (100%)	145 (98%)	3 (2%)	55	74
5	08	137/137 (100%)	137 (100%)	0	100	100
6	09	114/114 (100%)	113 (99%)	1 (1%)	78	87
7	10	100/100 (100%)	95 (95%)	5 (5%)	24	53
8	11	109/109 (100%)	108 (99%)	1 (1%)	78	87
9	12	116/116 (100%)	116 (100%)	0	100	100
10	13	103/103 (100%)	101 (98%)	2 (2%)	57	75
11	14	102/102 (100%)	102 (100%)	0	100	100
12	15	109/109 (100%)	107 (98%)	2 (2%)	59	77
13	16	100/100 (100%)	98 (98%)	2 (2%)	55	74
14	17	86/86 (100%)	85 (99%)	1 (1%)	71	83

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
15	18	99/99 (100%)	99 (100%)	0	100	100
16	19	89/89 (100%)	87 (98%)	2 (2%)	52	71
17	20	84/84 (100%)	84 (100%)	0	100	100
18	21	93/93 (100%)	91 (98%)	2 (2%)	52	71
19	22	80/80 (100%)	78 (98%)	2 (2%)	47	69
20	23	83/83 (100%)	81 (98%)	2 (2%)	49	69
21	24	78/78 (100%)	77 (99%)	1 (1%)	69	82
22	25	57/57 (100%)	56 (98%)	1 (2%)	59	77
23	26	67/67 (100%)	67 (100%)	0	100	100
24	27	55/55 (100%)	55 (100%)	0	100	100
25	28	48/48 (100%)	47 (98%)	1 (2%)	53	73
26	29	59/59 (100%)	59 (100%)	0	100	100
27	30	47/47 (100%)	46 (98%)	1 (2%)	53	73
28	31	45/45 (100%)	45 (100%)	0	100	100
29	32	38/38 (100%)	38 (100%)	0	100	100
30	33	51/51 (100%)	50 (98%)	1 (2%)	55	74
31	34	34/34 (100%)	34 (100%)	0	100	100
32	B	180/180 (100%)	170 (94%)	10 (6%)	21	51
33	C	170/170 (100%)	170 (100%)	0	100	100
34	D	172/172 (100%)	166 (96%)	6 (4%)	36	62
35	E	119/119 (100%)	115 (97%)	4 (3%)	37	62
36	F	87/87 (100%)	87 (100%)	0	100	100
37	G	124/124 (100%)	123 (99%)	1 (1%)	81	89
38	H	104/104 (100%)	104 (100%)	0	100	100
39	I	105/105 (100%)	103 (98%)	2 (2%)	57	75
40	J	86/86 (100%)	84 (98%)	2 (2%)	50	71
41	K	89/89 (100%)	85 (96%)	4 (4%)	27	56
42	L	103/103 (100%)	100 (97%)	3 (3%)	42	65
43	M	92/92 (100%)	89 (97%)	3 (3%)	38	63
44	N	83/83 (100%)	83 (100%)	0	100	100
45	O	76/76 (100%)	76 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
46	P	65/65 (100%)	65 (100%)	0	100	100
47	Q	74/74 (100%)	73 (99%)	1 (1%)	67	81
48	R	56/56 (100%)	52 (93%)	4 (7%)	14	44
49	S	70/70 (100%)	70 (100%)	0	100	100
50	T	65/65 (100%)	64 (98%)	1 (2%)	65	80
51	U	55/55 (100%)	53 (96%)	2 (4%)	35	61
52	03	110/174 (63%)	105 (96%)	5 (4%)	27	56
59	Z	324/325 (100%)	315 (97%)	9 (3%)	43	66
All	All	5285/5350 (99%)	5190 (98%)	95 (2%)	61	77

All (95) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	04	36	ASN
1	04	85	ASN
1	04	176	ARG
1	04	212	TRP
1	04	257	ARG
2	05	33	ARG
3	06	19	PHE
3	06	69	ARG
4	07	3	LEU
4	07	45	ASP
4	07	175	PRO
6	09	119	ASN
7	10	4	ASN
7	10	74	ASP
7	10	94	ARG
7	10	117	LEU
7	10	118	ILE
8	11	67	THR
10	13	49	ARG
10	13	90	ASN
12	15	70	ASP
12	15	84	LYS
13	16	12	ARG
13	16	114	GLU
14	17	78	VAL
16	19	54	ARG

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Mol	Chain	Res	Type
16	19	94	LEU
18	21	57	ASN
18	21	77	ASP
19	22	37	ASP
19	22	59	ASN
20	23	39	ASN
20	23	99	SER
21	24	87	GLN
22	25	10	ARG
25	28	15	ARG
27	30	31	LYS
30	33	25	HIS
32	B	15	PHE
32	B	19	THR
32	B	21	TYR
32	B	23	ASN
32	B	35	ASN
32	B	111	LYS
32	B	116	LEU
32	B	176	ASN
32	B	185	ILE
32	B	202	ASN
34	D	28	ASP
34	D	57	LYS
34	D	80	ARG
34	D	170	LEU
34	D	182	LYS
34	D	202	LEU
35	E	18	ASN
35	E	132	PRO
35	E	156	ARG
35	E	163	ILE
37	G	128	GLU
39	I	44	ARG
39	I	60	LEU
40	J	16	ARG
40	J	75	ASP
41	K	12	ARG
41	K	30	ILE
41	K	117	HIS
41	K	118	ASN
42	L	2	THR

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Mol	Chain	Res	Type
42	L	4	ASN
42	L	28	GLN
43	M	7	ASN
43	M	47	LEU
43	M	97	ARG
47	Q	69	THR
48	R	11	ARG
48	R	21	ASP
48	R	56	ARG
48	R	70	THR
50	T	26	MET
51	U	28	LEU
51	U	65	ARG
52	03	24	ASN
52	03	30	LEU
52	03	162	ARG
52	03	177	LYS
52	03	216	THR
59	Z	91	MET
59	Z	237	LYS
59	Z	266	ASP
59	Z	273	ASN
59	Z	288	ARG
59	Z	295	PRO
59	Z	334	THR
59	Z	349	MET
59	Z	358	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (97) such sidechains are listed below:

Mol	Chain	Res	Type
1	04	20	ASN
1	04	36	ASN
1	04	44	ASN
1	04	45	ASN
1	04	85	ASN
1	04	127	ASN
1	04	259	ASN
2	05	32	ASN
2	05	49	GLN
2	05	130	GLN
2	05	150	GLN

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Mol	Chain	Res	Type
2	05	164	GLN
3	06	24	ASN
3	06	94	GLN
3	06	156	ASN
3	06	165	HIS
5	08	21	GLN
5	08	29	ASN
5	08	63	GLN
5	08	138	GLN
6	09	28	ASN
6	09	33	GLN
6	09	119	ASN
6	09	135	HIS
7	10	103	ASN
8	11	11	GLN
8	11	33	ASN
9	12	40	HIS
9	12	86	GLN
10	13	88	ASN
12	15	13	HIS
13	16	18	GLN
14	17	19	GLN
15	18	6	GLN
15	18	14	GLN
15	18	65	ASN
16	19	36	GLN
16	19	51	GLN
16	19	55	GLN
16	19	80	ASN
17	20	18	GLN
18	21	7	HIS
18	21	57	ASN
20	23	39	ASN
20	23	73	ASN
21	24	51	GLN
21	24	87	GLN
23	26	16	ASN
23	26	31	ASN
24	27	39	GLN
26	29	61	ASN
32	B	23	ASN
32	B	35	ASN

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Mol	Chain	Res	Type
32	B	121	GLN
32	B	176	ASN
32	B	177	ASN
32	B	202	ASN
33	C	122	GLN
33	C	175	HIS
33	C	184	ASN
34	D	35	GLN
34	D	88	ASN
34	D	125	ASN
34	D	130	ASN
35	E	18	ASN
35	E	60	GLN
35	E	81	GLN
35	E	121	ASN
37	G	27	ASN
37	G	67	ASN
37	G	121	ASN
37	G	129	ASN
37	G	147	ASN
38	H	3	GLN
39	I	36	GLN
39	I	125	GLN
40	J	58	ASN
40	J	64	GLN
41	K	21	HIS
41	K	39	ASN
41	K	80	ASN
42	L	4	ASN
42	L	28	GLN
42	L	45	ASN
43	M	7	ASN
45	O	34	GLN
46	P	79	ASN
47	Q	30	HIS
48	R	51	GLN
48	R	53	GLN
49	S	13	HIS
49	S	52	ASN
50	T	20	ASN
52	03	24	ASN
59	Z	63	ASN

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Mol	Chain	Res	Type
59	Z	97	GLN
59	Z	273	ASN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
53	A	1538/1539 (99%)	161 (10%)	7 (0%)
54	01	2902/2903 (99%)	353 (12%)	13 (0%)
55	02	119/120 (99%)	10 (8%)	2 (1%)
56	W	76/77 (98%)	8 (10%)	0
56	X	76/77 (98%)	12 (15%)	1 (1%)
57	V	18/19 (94%)	3 (16%)	0
58	Y	74/76 (97%)	14 (18%)	3 (4%)
All	All	4803/4811 (99%)	561 (11%)	26 (0%)

All (561) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
53	A	6	G
53	A	7	A
53	A	9	G
53	A	22	G
53	A	32	A
53	A	39	G
53	A	51	A
53	A	71	A
53	A	86	G
53	A	87	C
53	A	95	C
53	A	130	A
53	A	183	C
53	A	184	G
53	A	197	A
53	A	210	C
53	A	212	G
53	A	226	G
53	A	247	G
53	A	251	G
53	A	253	A
53	A	266	G
53	A	267	C

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Mol	Chain	Res	Type
53	A	281	G
53	A	289	G
53	A	306	A
53	A	308	C
53	A	316	C
53	A	328	C
53	A	345	C
53	A	352	C
53	A	367	U
53	A	372	C
53	A	411	A
53	A	413	G
53	A	414	A
53	A	422	C
53	A	423	G
53	A	424	G
53	A	429	U
53	A	439	U
53	A	467	U
53	A	468	A
53	A	484	G
53	A	485	U
53	A	486	U
53	A	497	G
53	A	518	C
53	A	531	U
53	A	532	A
53	A	533	A
53	A	547	A
53	A	561	U
53	A	572	A
53	A	573	A
53	A	575	G
53	A	576	C
53	A	577	G
53	A	607	A
53	A	633	G
53	A	642	A
53	A	653	U
53	A	665	A
53	A	688	G
53	A	703	G

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Mol	Chain	Res	Type
53	A	713	G
53	A	724	G
53	A	731	G
53	A	755	G
53	A	777	A
53	A	793	U
53	A	815	A
53	A	817	C
53	A	818	G
53	A	819	A
53	A	820	U
53	A	843	U
53	A	844	G
53	A	846	G
53	A	873	A
53	A	890	G
53	A	902	G
53	A	926	G
53	A	934	C
53	A	935	A
53	A	939	G
53	A	960	U
53	A	961	U
53	A	966	G
53	A	969	A
53	A	975	A
53	A	976	G
53	A	977	A
53	A	992	U
53	A	993	G
53	A	994	A
53	A	1004	A
53	A	1020	G
53	A	1028	C
53	A	1030	U
53	A	1031	C
53	A	1033	G
53	A	1034	G
53	A	1085	U
53	A	1094	G
53	A	1101	A
53	A	1129	C

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Mol	Chain	Res	Type
53	A	1136	C
53	A	1137	C
53	A	1138	G
53	A	1139	G
53	A	1159	U
53	A	1168	U
53	A	1183	U
53	A	1184	G
53	A	1191	A
53	A	1196	A
53	A	1197	A
53	A	1201	A
53	A	1202	U
53	A	1207	G
53	A	1213	A
53	A	1225	A
53	A	1238	A
53	A	1240	U
53	A	1241	G
53	A	1253	G
53	A	1256	A
53	A	1258	G
53	A	1260	G
53	A	1278	G
53	A	1280	A
53	A	1282	C
53	A	1286	U
53	A	1287	A
53	A	1300	G
53	A	1317	C
53	A	1323	G
53	A	1346	A
53	A	1347	G
53	A	1363	A
53	A	1364	U
53	A	1395	C
53	A	1399	C
53	A	1400	C
53	A	1419	G
53	A	1446	A
53	A	1448	C
53	A	1451	U

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Mol	Chain	Res	Type
53	A	1452	C
53	A	1492	A
53	A	1493	A
53	A	1503	A
53	A	1506	U
53	A	1517	G
53	A	1519	A
53	A	1529	G
53	A	1530	G
53	A	1533	C
53	A	1534	A
53	A	1540	U
54	01	10	A
54	01	12	U
54	01	35	G
54	01	46	G
54	01	50	U
54	01	51	G
54	01	60	G
54	01	63	A
54	01	71	A
54	01	74	A
54	01	75	G
54	01	84	A
54	01	119	A
54	01	120	U
54	01	138	U
54	01	139	U
54	01	140	C
54	01	141	G
54	01	142	A
54	01	162	U
54	01	163	C
54	01	181	A
54	01	196	A
54	01	216	A
54	01	221	A
54	01	222	A
54	01	225	C
54	01	228	C
54	01	229	C
54	01	242	G

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Mol	Chain	Res	Type
54	01	248	G
54	01	249	C
54	01	255	A
54	01	266	G
54	01	267	C
54	01	276	U
54	01	278	A
54	01	281	C
54	01	294	A
54	01	301	G
54	01	311	A
54	01	323	C
54	01	329	G
54	01	330	A
54	01	346	A
54	01	361	G
54	01	367	G
54	01	371	A
54	01	372	G
54	01	386	G
54	01	387	U
54	01	404	A
54	01	406	G
54	01	411	G
54	01	424	G
54	01	451	U
54	01	456	C
54	01	457	A
54	01	458	G
54	01	481	G
54	01	491	G
54	01	504	A
54	01	505	A
54	01	506	G
54	01	529	A
54	01	531	C
54	01	532	A
54	01	542	C
54	01	543	G
54	01	545	U
54	01	547	A
54	01	563	A

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Mol	Chain	Res	Type
54	01	573	U
54	01	575	A
54	01	588	U
54	01	603	A
54	01	616	A
54	01	627	A
54	01	637	A
54	01	646	U
54	01	654	A
54	01	670	A
54	01	686	U
54	01	687	C
54	01	717	C
54	01	730	A
54	01	747	C
54	01	752	A
54	01	753	A
54	01	764	A
54	01	776	G
54	01	782	A
54	01	784	G
54	01	785	G
54	01	805	G
54	01	812	C
54	01	819	A
54	01	822	G
54	01	827	U
54	01	828	U
54	01	830	G
54	01	845	A
54	01	846	U
54	01	847	U
54	01	858	G
54	01	860	U
54	01	878	A
54	01	885	C
54	01	886	A
54	01	887	U
54	01	896	A
54	01	910	A
54	01	932	U
54	01	941	A

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Mol	Chain	Res	Type
54	01	946	C
54	01	953	G
54	01	961	C
54	01	974	G
54	01	983	A
54	01	985	C
54	01	990	A
54	01	995	C
54	01	1012	U
54	01	1013	C
54	01	1021	A
54	01	1022	G
54	01	1026	G
54	01	1033	U
54	01	1046	A
54	01	1047	G
54	01	1054	A
54	01	1057	A
54	01	1062	G
54	01	1065	U
54	01	1066	U
54	01	1070	A
54	01	1072	C
54	01	1076	C
54	01	1079	C
54	01	1084	A
54	01	1088	A
54	01	1090	A
54	01	1104	C
54	01	1111	A
54	01	1130	U
54	01	1131	G
54	01	1132	U
54	01	1135	C
54	01	1157	G
54	01	1174	U
54	01	1176	U
54	01	1177	G
54	01	1179	G
54	01	1180	U
54	01	1211	C
54	01	1212	G

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Mol	Chain	Res	Type
54	01	1250	G
54	01	1251	C
54	01	1253	A
54	01	1256	G
54	01	1271	G
54	01	1272	A
54	01	1275	A
54	01	1301	A
54	01	1306	C
54	01	1314	C
54	01	1321	A
54	01	1329	U
54	01	1332	G
54	01	1341	G
54	01	1345	C
54	01	1365	A
54	01	1378	A
54	01	1379	U
54	01	1383	A
54	01	1395	A
54	01	1416	G
54	01	1419	A
54	01	1420	A
54	01	1461	C
54	01	1482	G
54	01	1490	A
54	01	1493	C
54	01	1498	C
54	01	1504	A
54	01	1515	A
54	01	1524	G
54	01	1533	C
54	01	1535	A
54	01	1536	C
54	01	1555	G
54	01	1560	G
54	01	1569	A
54	01	1584	U
54	01	1585	C
54	01	1608	A
54	01	1616	A
54	01	1647	U

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Mol	Chain	Res	Type
54	01	1648	U
54	01	1674	G
54	01	1699	G
54	01	1715	G
54	01	1729	U
54	01	1730	C
54	01	1732	C
54	01	1738	G
54	01	1758	U
54	01	1764	C
54	01	1773	A
54	01	1780	A
54	01	1800	C
54	01	1801	A
54	01	1802	A
54	01	1808	A
54	01	1816	C
54	01	1821	A
54	01	1833	C
54	01	1871	A
54	01	1901	A
54	01	1906	G
54	01	1913	A
54	01	1929	G
54	01	1930	G
54	01	1931	U
54	01	1937	A
54	01	1938	A
54	01	1940	U
54	01	1941	C
54	01	1944	U
54	01	1955	U
54	01	1962	C
54	01	1967	C
54	01	1970	A
54	01	1972	G
54	01	1991	U
54	01	1993	U
54	01	1997	C
54	01	2022	U
54	01	2023	C
54	01	2031	A

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Mol	Chain	Res	Type
54	01	2036	C
54	01	2043	C
54	01	2049	G
54	01	2052	A
54	01	2055	C
54	01	2056	G
54	01	2060	A
54	01	2061	G
54	01	2062	A
54	01	2069	G
54	01	2072	C
54	01	2095	A
54	01	2096	C
54	01	2110	G
54	01	2111	U
54	01	2112	G
54	01	2113	U
54	01	2118	U
54	01	2119	A
54	01	2120	G
54	01	2127	G
54	01	2131	U
54	01	2132	U
54	01	2133	G
54	01	2147	A
54	01	2162	G
54	01	2168	G
54	01	2172	U
54	01	2173	A
54	01	2192	U
54	01	2198	A
54	01	2203	U
54	01	2204	G
54	01	2211	A
54	01	2213	U
54	01	2225	A
54	01	2239	G
54	01	2250	G
54	01	2259	U
54	01	2278	A
54	01	2283	C
54	01	2287	A

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Mol	Chain	Res	Type
54	01	2297	A
54	01	2305	U
54	01	2309	A
54	01	2325	G
54	01	2327	A
54	01	2334	U
54	01	2335	A
54	01	2336	A
54	01	2337	G
54	01	2350	C
54	01	2357	G
54	01	2383	G
54	01	2385	C
54	01	2392	A
54	01	2402	U
54	01	2406	A
54	01	2407	A
54	01	2423	U
54	01	2424	C
54	01	2427	C
54	01	2429	G
54	01	2430	A
54	01	2431	U
54	01	2435	A
54	01	2441	U
54	01	2448	A
54	01	2476	A
54	01	2484	G
54	01	2498	C
54	01	2502	G
54	01	2503	A
54	01	2504	U
54	01	2505	G
54	01	2518	A
54	01	2547	A
54	01	2554	U
54	01	2567	G
54	01	2602	A
54	01	2609	U
54	01	2613	U
54	01	2614	A
54	01	2629	U

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Mol	Chain	Res	Type
54	01	2646	C
54	01	2655	G
54	01	2656	U
54	01	2682	A
54	01	2689	U
54	01	2690	U
54	01	2714	G
54	01	2726	A
54	01	2744	G
54	01	2748	A
54	01	2764	A
54	01	2765	A
54	01	2778	A
54	01	2779	U
54	01	2791	G
54	01	2792	A
54	01	2794	C
54	01	2797	U
54	01	2799	A
54	01	2800	A
54	01	2801	G
54	01	2809	A
54	01	2818	U
54	01	2820	A
54	01	2821	A
54	01	2833	U
54	01	2867	G
54	01	2868	A
54	01	2880	C
55	02	4	C
55	02	12	C
55	02	13	G
55	02	24	G
55	02	35	C
55	02	44	G
55	02	67	G
55	02	89	U
55	02	108	A
55	02	109	A
56	X	8	U
56	X	9	G
56	X	14	A

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Mol	Chain	Res	Type
56	X	19	G
56	X	21	A
56	X	34	C
56	X	38	A
56	X	61	C
56	X	64	G
56	X	69	C
56	X	70	G
56	X	71	C
57	V	12	A
57	V	13	A
57	V	23	A
56	W	9	G
56	W	18	G
56	W	19	G
56	W	20	U
56	W	47	U
56	W	48	C
56	W	61	C
56	W	76	A
58	Y	4	U
58	Y	13	C
58	Y	17	U
58	Y	19	G
58	Y	20	U
58	Y	23	A
58	Y	26	A
58	Y	46	G
58	Y	47	U
58	Y	48	C
58	Y	61	C
58	Y	63	U
58	Y	70	C
58	Y	73	A

All (26) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
53	A	70	U
53	A	280	C
53	A	438	U
53	A	1182	G

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Mol	Chain	Res	Type
53	A	1190	G
53	A	1201	A
53	A	1399	C
54	01	490	C
54	01	752	A
54	01	859	G
54	01	1020	A
54	01	1130	U
54	01	1378	A
54	01	1930	G
54	01	1940	U
54	01	2286	G
54	01	2296	U
54	01	2326	C
54	01	2391	G
54	01	2655	G
55	02	66	A
55	02	88	C
56	X	69	C
58	Y	17	U
58	Y	19	G
58	Y	69	A

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

1 non-standard protein/DNA/RNA residue is modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
58	U8U	Y	34	58	19,24,25	1.41	3 (15%)	23,34,37	1.20	2 (8%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
58	U8U	Y	34	58	-	3/9/28/29	0/2/2/2

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
58	Y	34	U8U	C6-N1	4.17	1.45	1.38
58	Y	34	U8U	C4-C5	2.43	1.50	1.45
58	Y	34	U8U	C2-N3	2.29	1.42	1.37

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
58	Y	34	U8U	C5-C6-N1	2.66	126.48	122.91
58	Y	34	U8U	C1'-N1-C6	-2.17	117.52	121.12

There are no chirality outliers.

All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
58	Y	34	U8U	N-C-C5-C4
58	Y	34	U8U	C2'-C1'-N1-C2
58	Y	34	U8U	N-C-C5-C6

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
58	Y	34	U8U	1	0

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

3 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond

length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
61	LYS	Y	101	58	7,8,9	0.70	0	3,8,10	0.19	0
62	GCP	Z	401	-	27,34,34	1.98	7 (25%)	34,54,54	3.98	17 (50%)
60	FME	W	101	-	8,9,10	0.85	0	7,9,11	1.17	1 (14%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
61	LYS	Y	101	58	-	3/6/7/9	-
62	GCP	Z	401	-	-	8/15/38/38	0/3/3/3
60	FME	W	101	-	-	4/7/9/11	-

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
62	Z	401	GCP	PB-O3A	-4.91	1.52	1.58
62	Z	401	GCP	O4'-C1'	4.66	1.47	1.41
62	Z	401	GCP	C2'-C1'	3.31	1.58	1.53
62	Z	401	GCP	C5-C6	3.30	1.47	1.41
62	Z	401	GCP	C6-N1	2.85	1.38	1.33
62	Z	401	GCP	PB-O2B	-2.11	1.51	1.56
62	Z	401	GCP	C2-N1	2.09	1.39	1.35

All (18) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
62	Z	401	GCP	C1'-N9-C4	14.24	151.65	126.64
62	Z	401	GCP	C5-C6-N1	-8.82	111.37	123.43
62	Z	401	GCP	O1G-PG-C3B	-7.57	94.92	111.24
62	Z	401	GCP	C2-N1-C6	6.64	126.48	115.93
62	Z	401	GCP	O4'-C1'-C2'	-4.55	100.28	106.93
62	Z	401	GCP	O5'-PA-O1A	-4.03	93.31	109.07
62	Z	401	GCP	C2-N3-C4	-4.01	110.78	115.36
62	Z	401	GCP	C4-C5-C6	-3.75	117.21	120.80
62	Z	401	GCP	PB-O3A-PA	3.74	144.41	132.56

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
62	Z	401	GCP	O2B-PB-O1B	3.71	122.45	110.07
62	Z	401	GCP	O3'-C3'-C4'	-3.36	101.32	111.05
62	Z	401	GCP	O2G-PG-C3B	2.98	113.63	106.40
62	Z	401	GCP	O3G-PG-O1G	2.97	120.23	112.39
62	Z	401	GCP	C4-C5-N7	2.76	112.27	109.40
62	Z	401	GCP	O4'-C4'-C5'	2.26	116.81	109.37
62	Z	401	GCP	O2A-PA-O1A	2.25	123.36	112.24
60	W	101	FME	O-C-CA	-2.13	119.21	124.78
62	Z	401	GCP	N3-C2-N1	-2.06	124.47	127.22

There are no chirality outliers.

All (15) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
60	W	101	FME	O1-CN-N-CA
60	W	101	FME	C-CA-CB-CG
60	W	101	FME	O-C-CA-CB
61	Y	101	LYS	N-CA-CB-CG
61	Y	101	LYS	C-CA-CB-CG
62	Z	401	GCP	PB-C3B-PG-O1G
62	Z	401	GCP	PB-C3B-PG-O2G
62	Z	401	GCP	PG-C3B-PB-O1B
62	Z	401	GCP	C5'-O5'-PA-O3A
61	Y	101	LYS	CE-CD-CG-CB
62	Z	401	GCP	O4'-C4'-C5'-O5'
62	Z	401	GCP	C5'-O5'-PA-O1A
62	Z	401	GCP	C5'-O5'-PA-O2A
62	Z	401	GCP	PB-C3B-PG-O3G
60	W	101	FME	N-CA-CB-CG

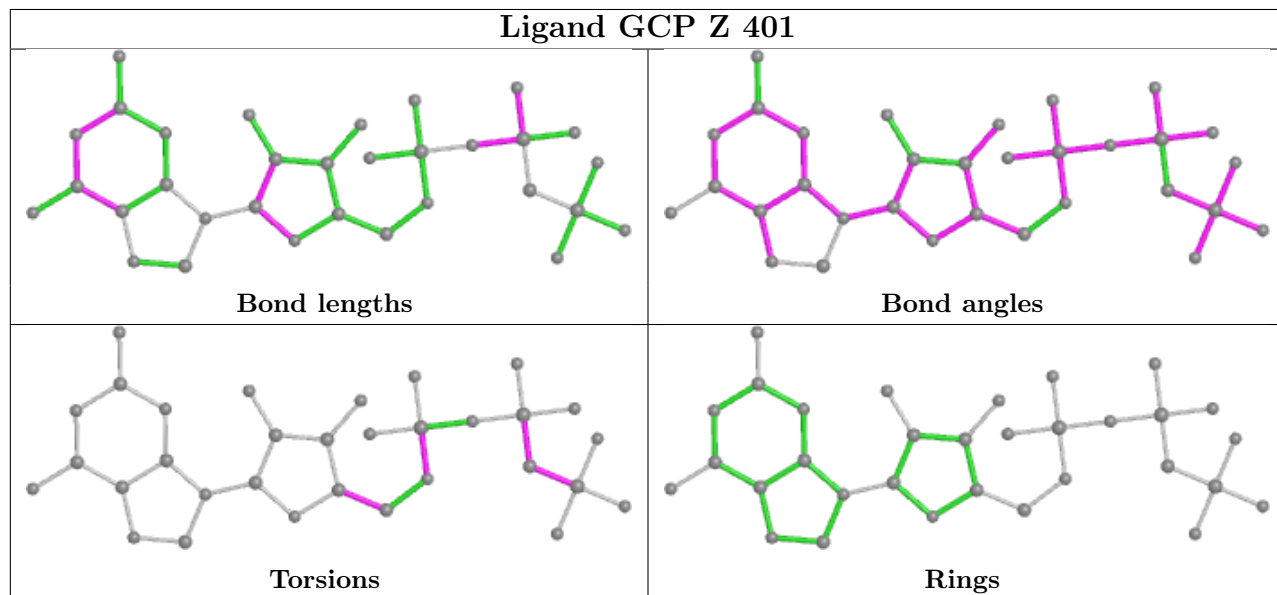
There are no ring outliers.

2 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
61	Y	101	LYS	4	0
62	Z	401	GCP	3	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier.

Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

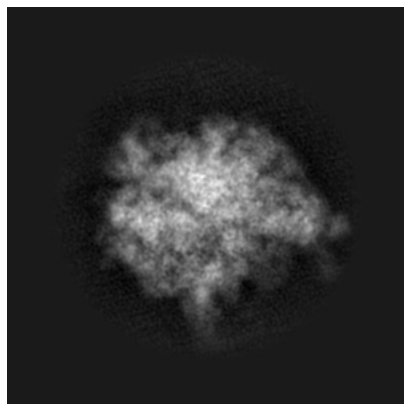
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-8619. These allow visual inspection of the internal detail of the map and identification of artifacts.

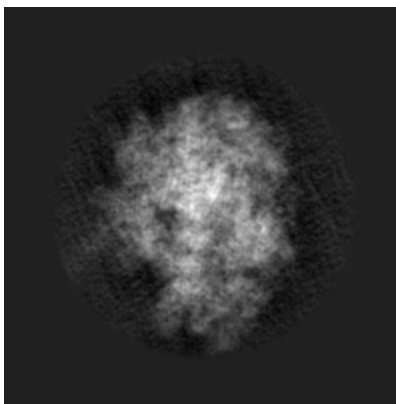
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

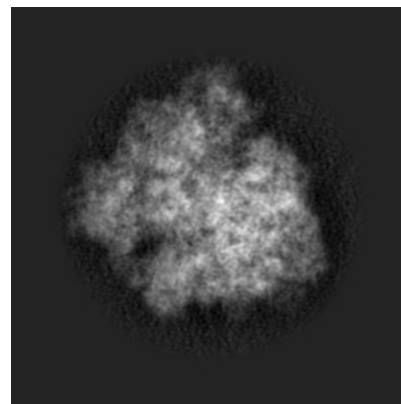
6.1.1 Primary map



X

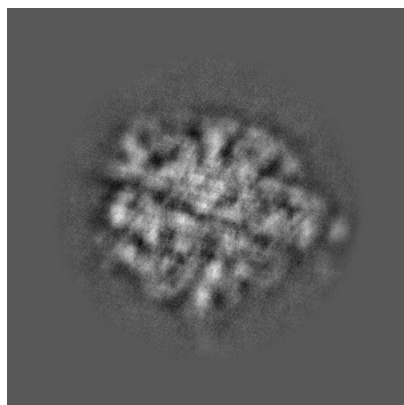


Y

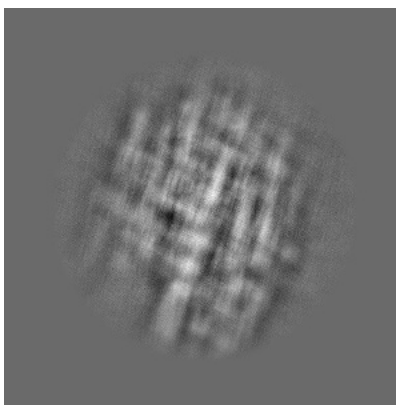


Z

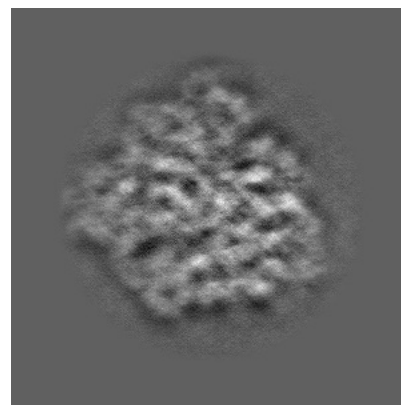
6.1.2 Raw map



X



Y

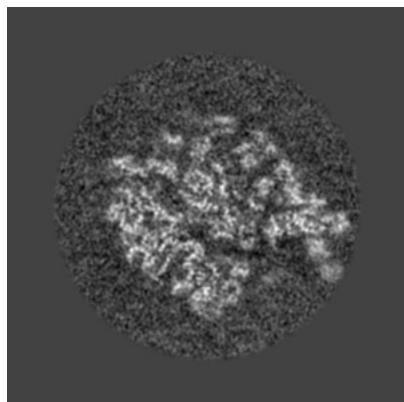


Z

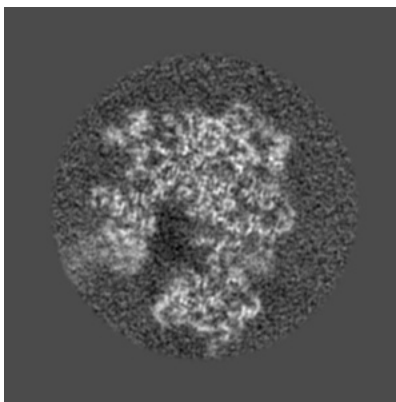
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

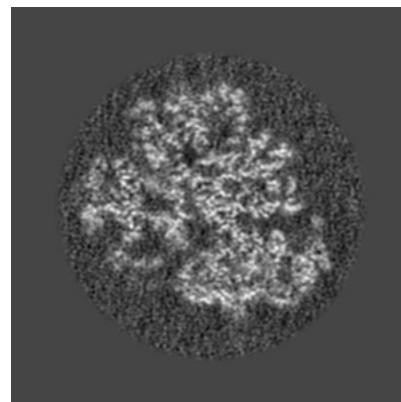
6.2.1 Primary map



X Index: 240

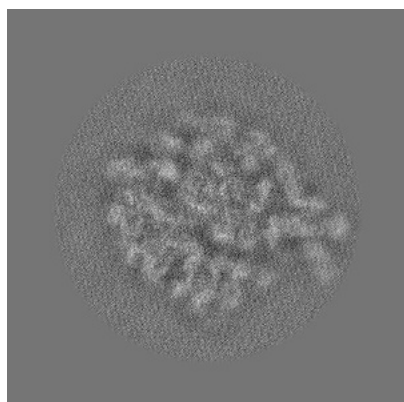


Y Index: 240

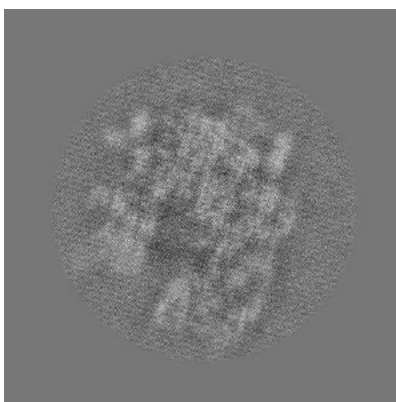


Z Index: 240

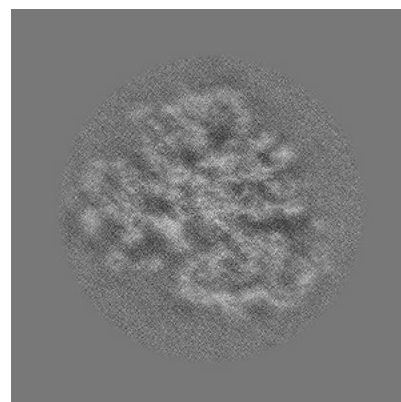
6.2.2 Raw map



X Index: 240



Y Index: 240

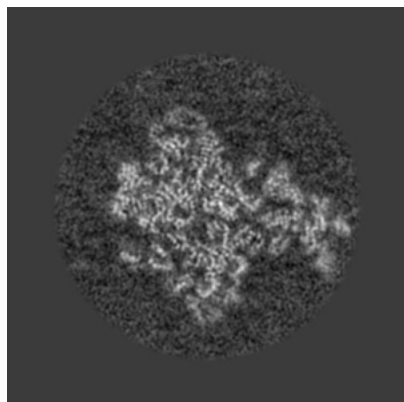


Z Index: 240

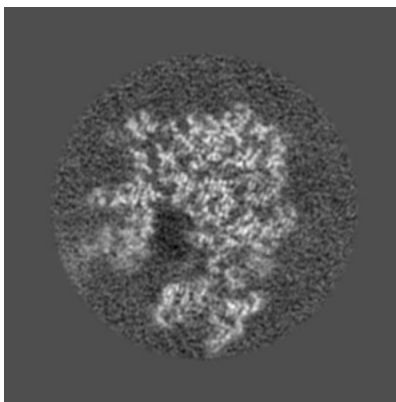
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

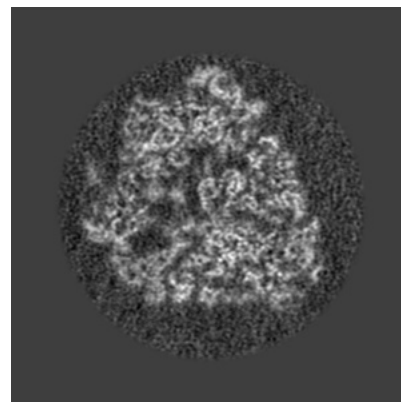
6.3.1 Primary map



X Index: 252

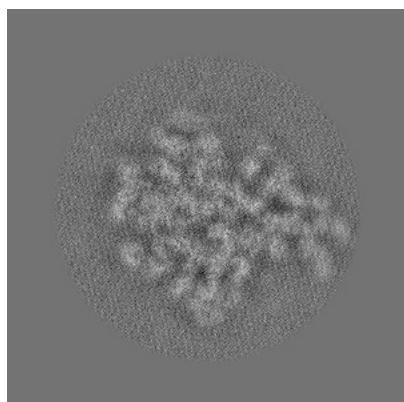


Y Index: 245

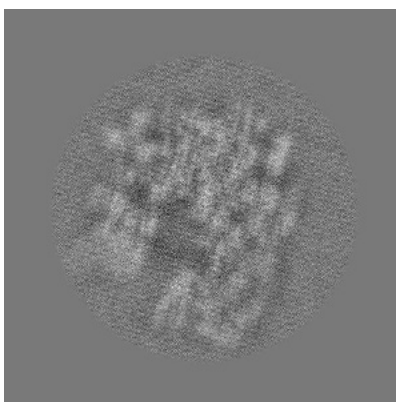


Z Index: 225

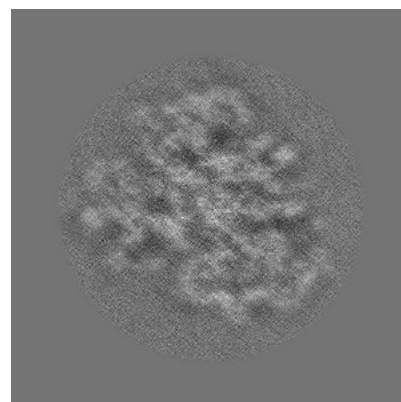
6.3.2 Raw map



X Index: 250



Y Index: 237

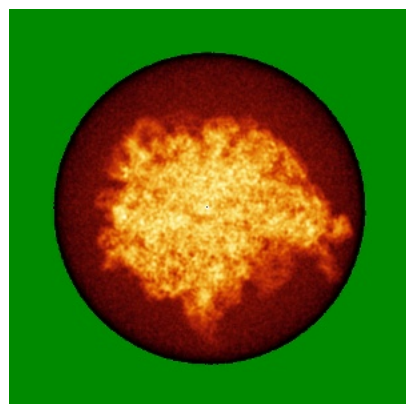


Z Index: 242

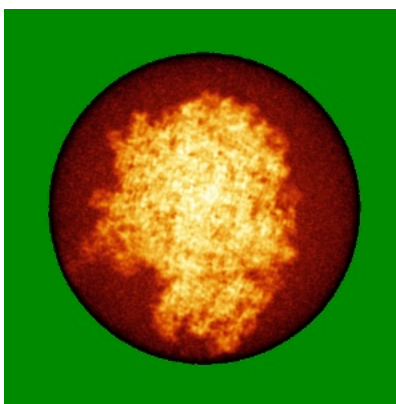
The images above show the largest variance slices of the map in three orthogonal directions.

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

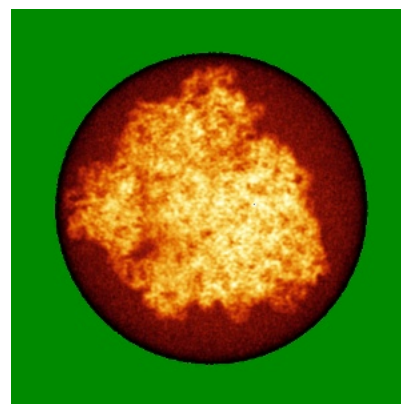
6.4.1 Primary map



X

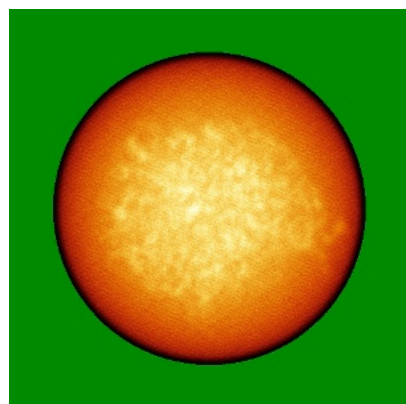


Y

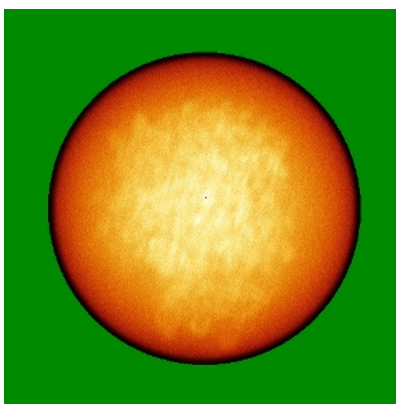


Z

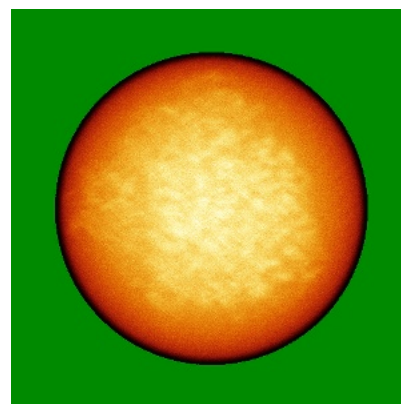
6.4.2 Raw map



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.

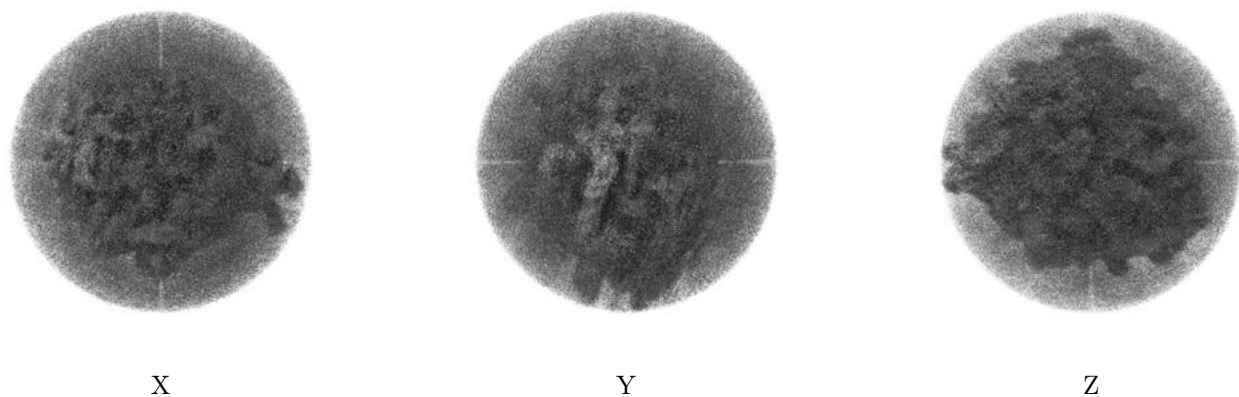
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 2.78. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

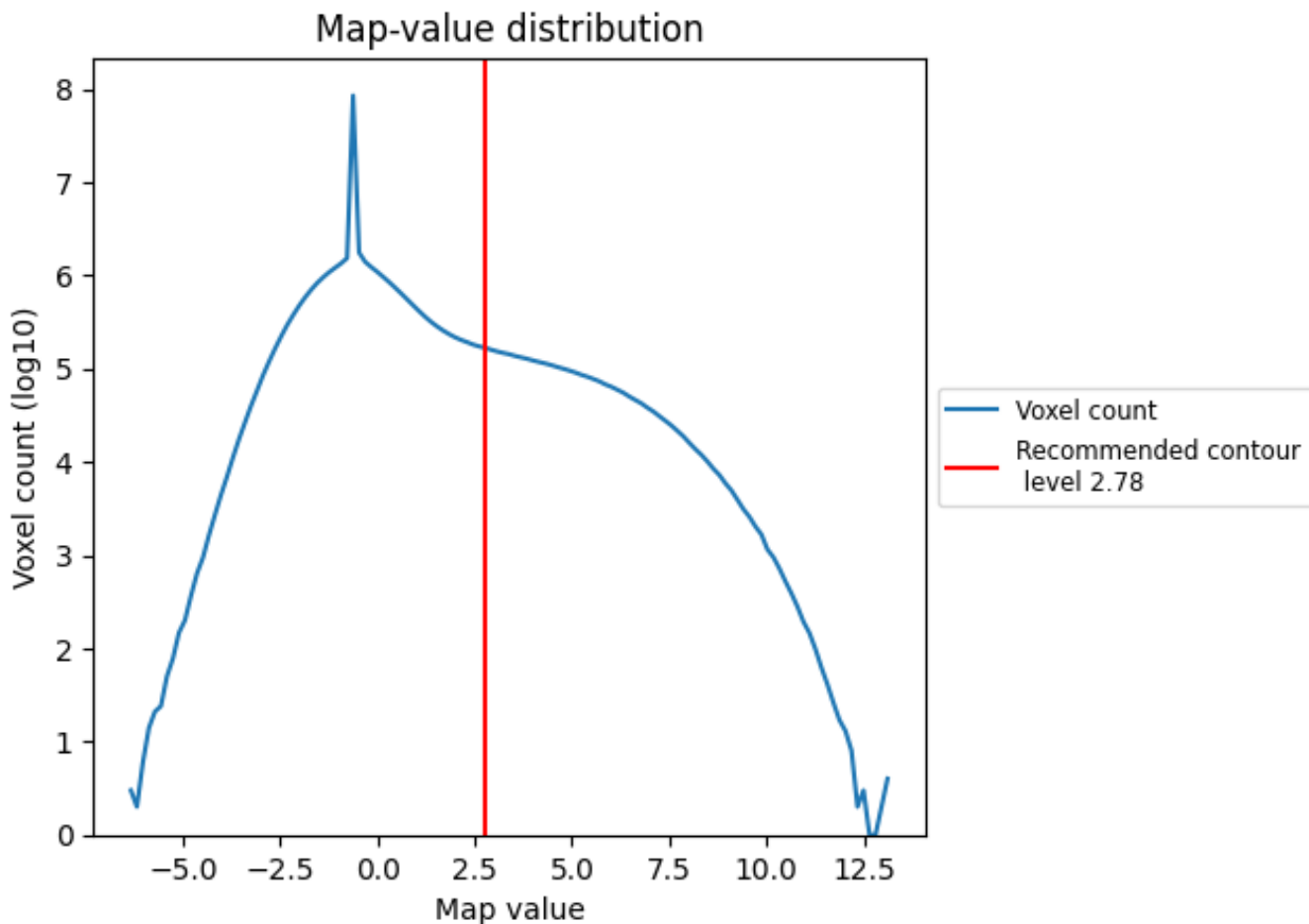
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

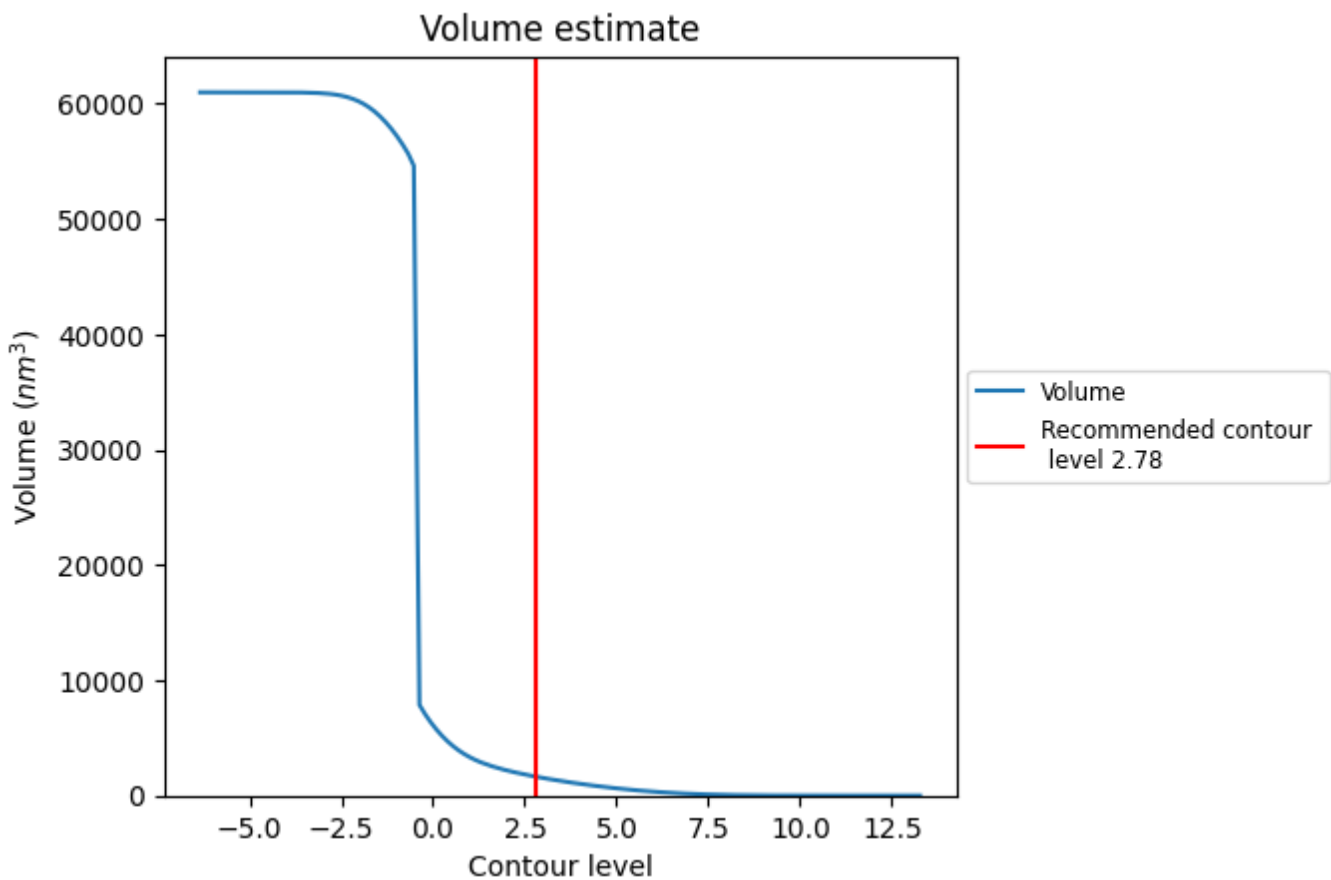
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

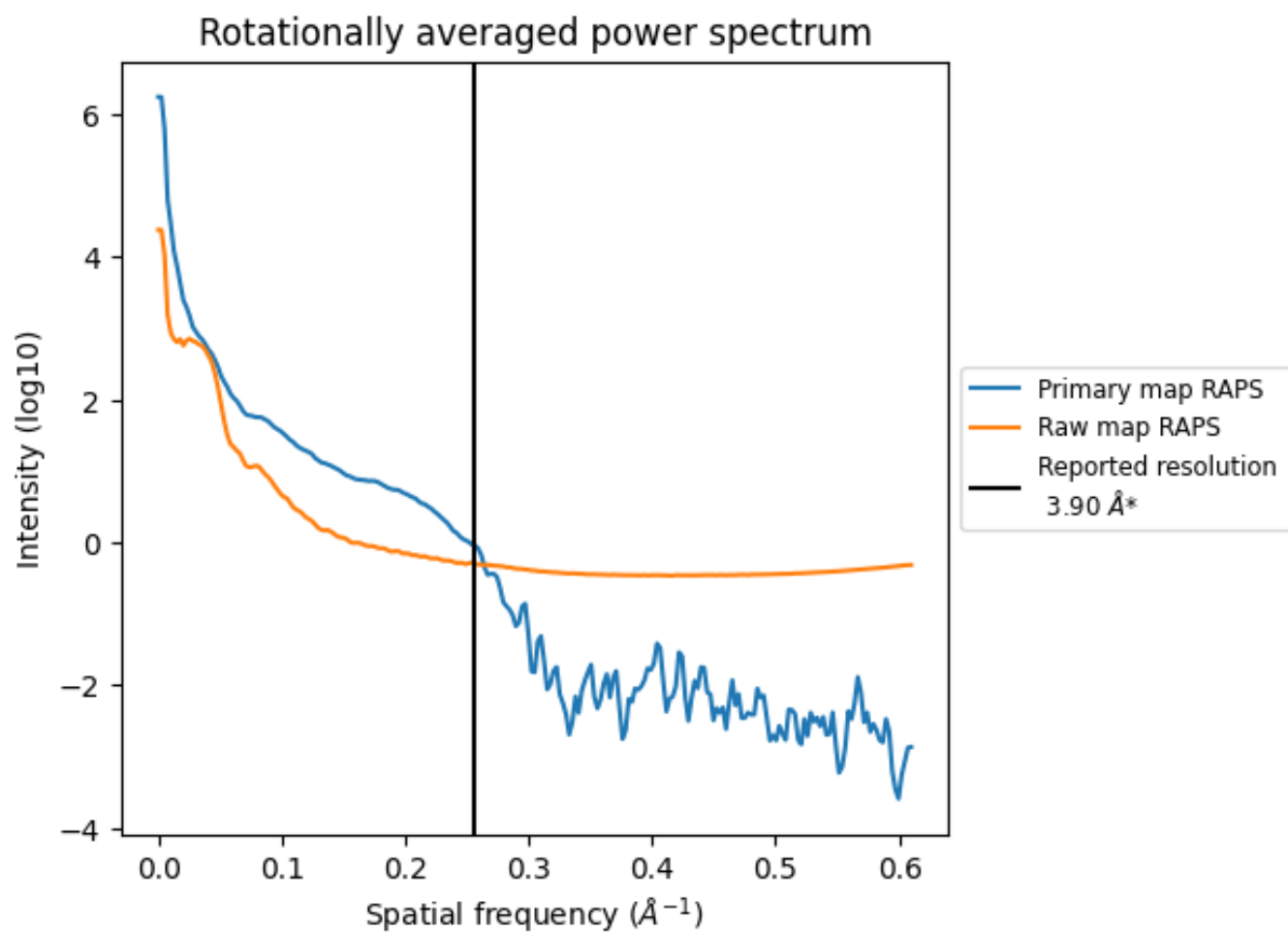
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 1654 nm³; this corresponds to an approximate mass of 1494 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](#)

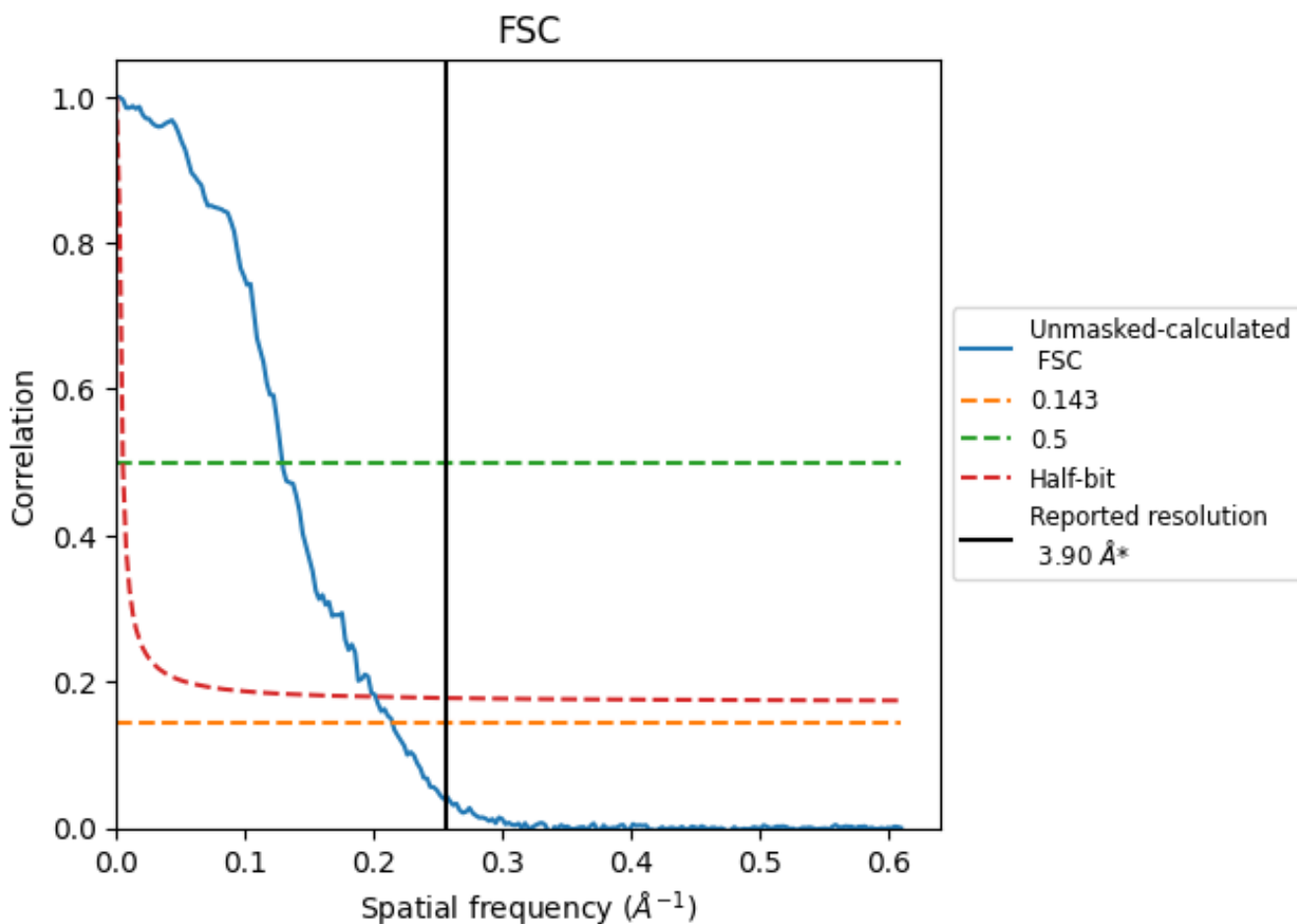


*Reported resolution corresponds to spatial frequency of 0.256 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.256 Å⁻¹

8.2 Resolution estimates [i](#)

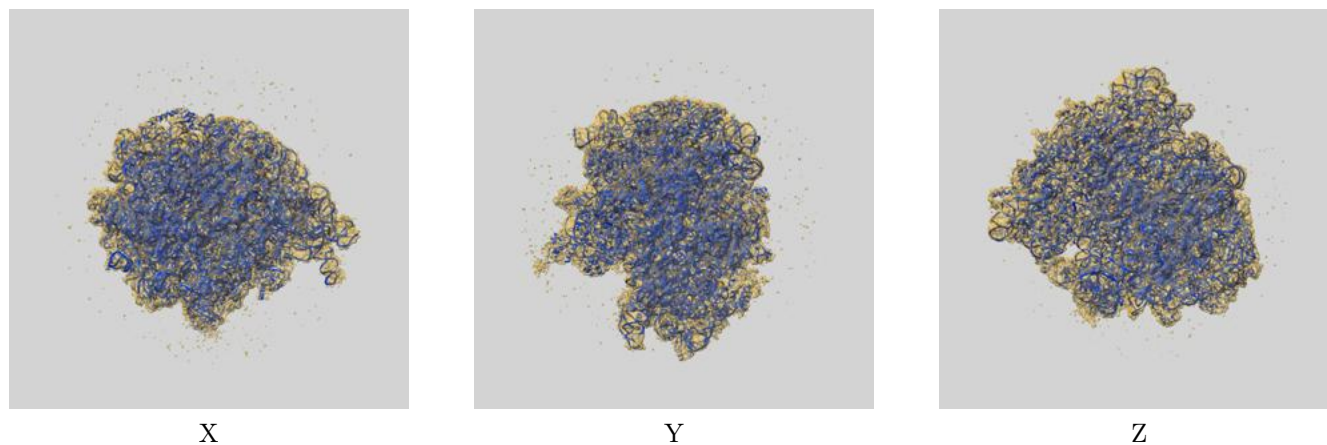
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.90	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.66	7.76	4.97

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.66 differs from the reported value 3.9 by more than 10 %

9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-8619 and PDB model 5UYP. Per-residue inclusion information can be found in section 3 on page 17.

9.1 Map-model overlay [i](#)



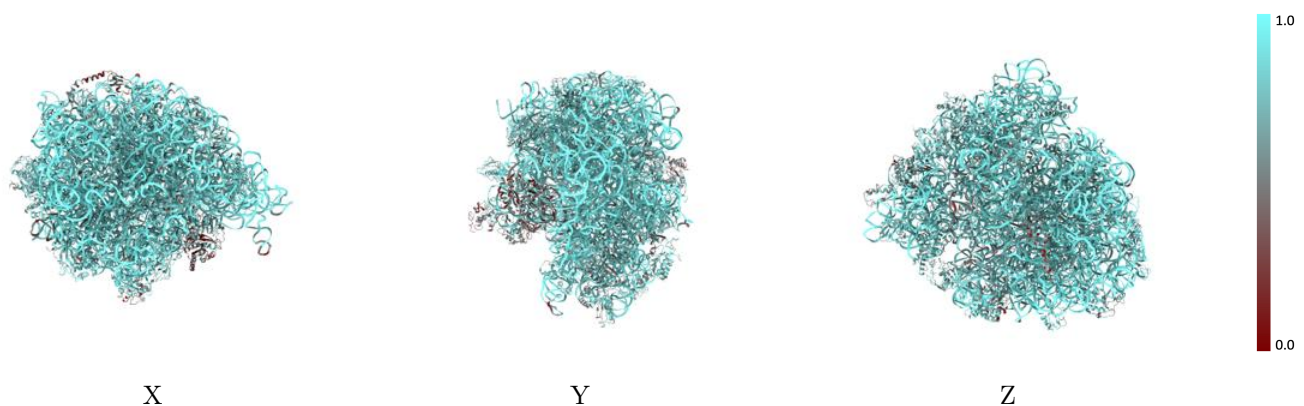
The images above show the 3D surface view of the map at the recommended contour level 2.78 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



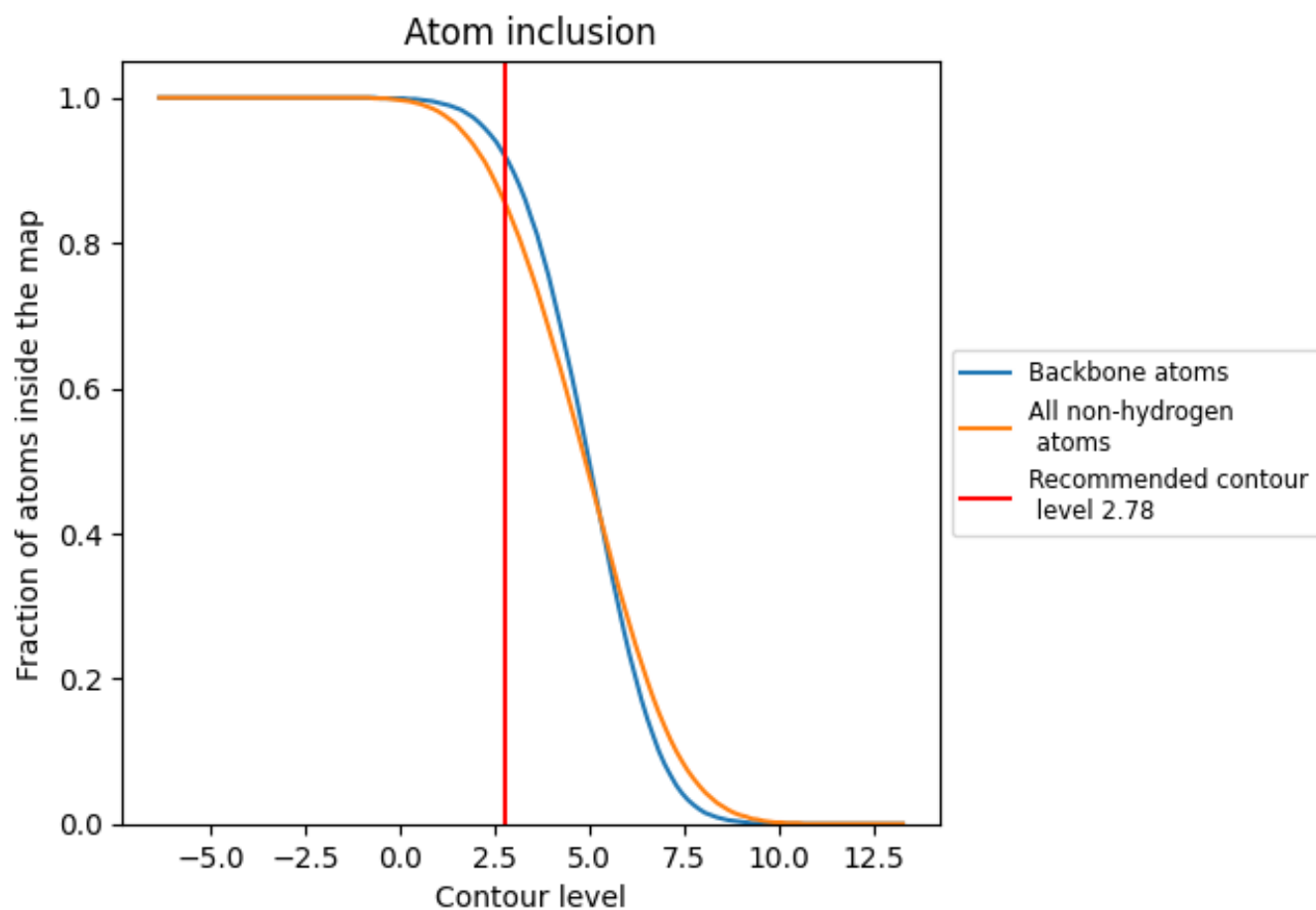
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (2.78).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 92% of all backbone atoms, 85% 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 (2.78) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8540	 0.3380
01	 0.9360	 0.3520
02	 0.9460	 0.3400
03	 0.5680	 0.2060
04	 0.7850	 0.3870
05	 0.7590	 0.3810
06	 0.7420	 0.3480
07	 0.7700	 0.3230
08	 0.7750	 0.3350
09	 0.4580	 0.2710
10	 0.4770	 0.1730
11	 0.5530	 0.1990
12	 0.7660	 0.3710
13	 0.6660	 0.3750
14	 0.8070	 0.3590
15	 0.7030	 0.3730
16	 0.7930	 0.3510
17	 0.8120	 0.3460
18	 0.7080	 0.3650
19	 0.7830	 0.3500
20	 0.7540	 0.3540
21	 0.7290	 0.3450
22	 0.8020	 0.3590
23	 0.7750	 0.3140
24	 0.7740	 0.3580
25	 0.7510	 0.3800
26	 0.7520	 0.3600
27	 0.7490	 0.2860
28	 0.7870	 0.3610
29	 0.7500	 0.3190
30	 0.7620	 0.3640
31	 0.7840	 0.3330
32	 0.8140	 0.3800
33	 0.8230	 0.3910
34	 0.8190	 0.3770



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Chain	Atom inclusion	Q-score
A	 0.9280	 0.3450
B	 0.7020	 0.3070
C	 0.6690	 0.3510
D	 0.7200	 0.3200
E	 0.7210	 0.3510
F	 0.7450	 0.3290
G	 0.7100	 0.3090
H	 0.7590	 0.3480
I	 0.7730	 0.3170
J	 0.6340	 0.3060
K	 0.7660	 0.3610
L	 0.6830	 0.3740
M	 0.7170	 0.3070
N	 0.7470	 0.3210
O	 0.7700	 0.3340
P	 0.8200	 0.3540
Q	 0.7850	 0.3370
R	 0.7630	 0.3440
S	 0.7720	 0.3420
T	 0.7650	 0.3150
U	 0.6040	 0.2860
V	 0.6830	 0.2740
W	 0.8660	 0.3150
X	 0.6800	 0.1870
Y	 0.6270	 0.1960
Z	 0.4480	 0.2260