



Full wwPDB EM Validation Report ⓘ

Mar 6, 2026 – 03:11 PM UTC

PDB ID : 8FMW / pdb_00008fmw
EMDB ID : EMD-29298
Title : The structure of a hibernating ribosome in the Lyme disease pathogen
Authors : Sharma, M.R.; Manjari, S.R.; Agrawal, E.K.; Keshavan, P.; Koripella, R.K.;
Majumdar, S.; Marcinkiewicz, A.L.; Lin, Y.P.; Agrawal, R.K.; Banavali, N.K.
Deposited on : 2022-12-25
Resolution : 2.86 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:

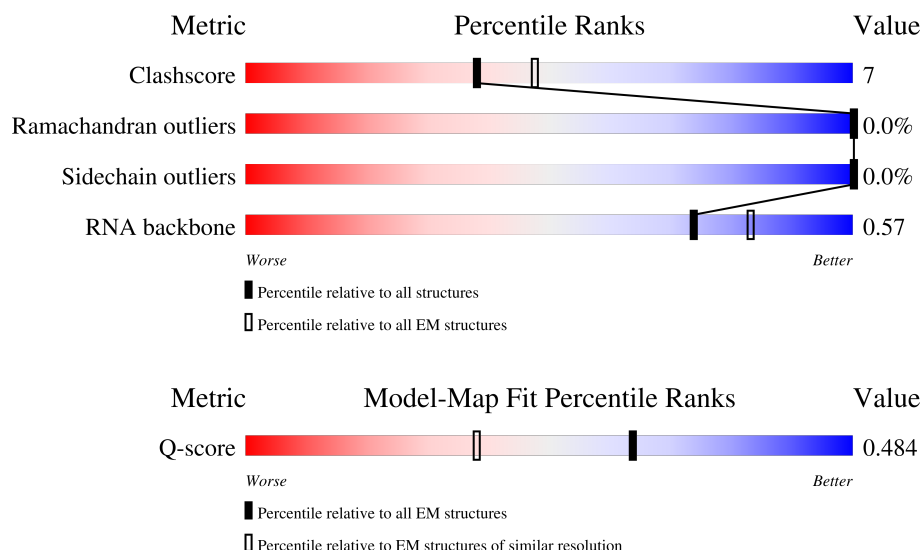
EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

1 Overall quality at a glance

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

The reported resolution of this entry is 2.86 Å.

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



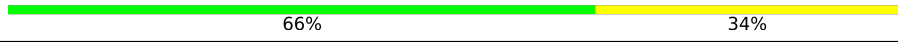
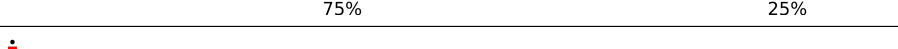
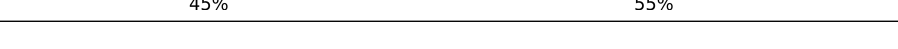
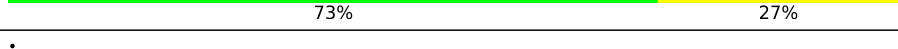
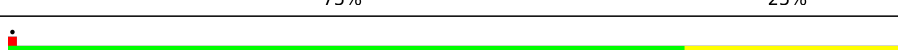
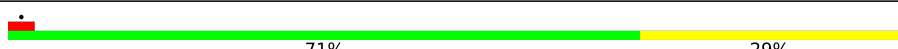
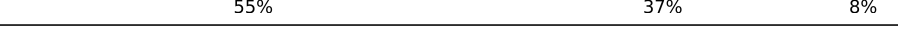
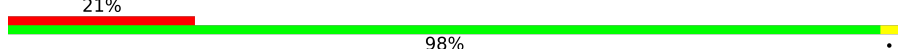
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	12017 (2.36 - 3.36)

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	A	1529	
2	C	206	
3	D	208	

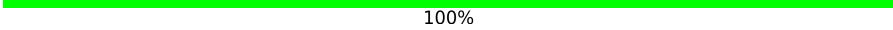
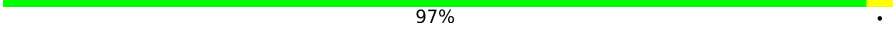
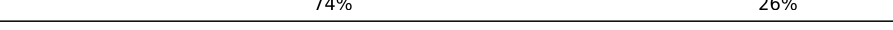
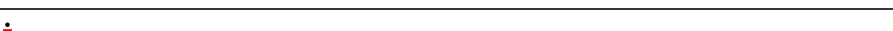
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Mol	Chain	Length	Quality of chain
4	E	158	
5	F	97	
6	G	157	
7	H	132	
8	I	131	
9	J	102	
10	K	117	
11	L	124	
12	M	114	
13	N	60	
14	O	88	
15	P	83	
16	Q	82	
17	R	63	
18	S	84	
19	T	85	
20	U	69	
21	V	28	
22	W	97	
23	X	76	
24	AA	2929	
25	AB	112	
26	AC	221	
27	AD	277	
28	AE	206	

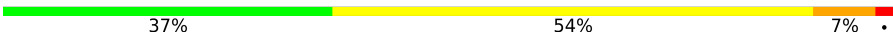
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Mol	Chain	Length	Quality of chain
29	AF	209	 80% 20%
30	AG	182	 71% 29%
31	AH	180	 77% 23%
32	AI	148	 15% 91% 9%
33	AJ	162	 14% 100%
34	AK	139	 6% 97%
35	AL	145	 87% 13%
36	AM	122	 78% 22%
37	AN	145	 66% 34%
38	AO	138	 71% 27%
39	AP	121	 70% 30%
40	AQ	119	 78% 21%
41	AR	117	 73% 27%
42	AS	114	 74% 26%
43	AT	103	 74% 26%
44	AU	115	 81% 19%
45	AV	98	 79% 21%
46	AW	101	 68% 32%
47	AX	181	 69% 31%
48	AY	74	 88% 12%
49	AZ	91	 77% 23%
50	Aa	65	 83% 17%
51	Ab	100	 81% 19%
52	Ac	81	 58% 42%
53	Ad	59	 69% 31%

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Mol	Chain	Length	Quality of chain
54	Ae	51	 57%43%
55	Af	50	 86%14%
56	Ag	66	 83%17%
57	Ah	37	 73%27%
58	Ai	46	 37%54%7%•

2 Entry composition

There are 59 unique types of molecules in this entry. The entry contains 147910 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1529	Total	C	N	O	P	0	0
			32780	14645	5986	10621	1528		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
2	C	206	Total	C	N	O	S	0	0
			1646	1066	294	284	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
3	D	208	Total	C	N	O	S	0	0
			1689	1069	321	296	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
4	E	158	Total	C	N	O	S	0	0
			1196	763	222	206	5		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
5	F	97	Total	C	N	O	S	0	0
			814	529	137	144	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
6	G	157	Total	C	N	O	S	0	0
			1282	809	235	231	7		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
7	H	132	Total	C	N	O	S	0	0
			1039	662	183	188	6		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
8	I	131	Total	C	N	O	S	0	0
			1043	651	201	188	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
9	J	102	Total	C	N	O	S	0	0
			817	524	145	145	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
10	K	117	Total	C	N	O	S	0	0
			876	551	163	159	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
11	L	124	Total	C	N	O	S	0	0
			968	601	198	165	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
12	M	114	Total	C	N	O	S	0	0
			901	554	181	161	5		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
13	N	60	Total	C	N	O	S	0	0
			491	309	99	76	7		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
14	O	88	Total	C	N	O	S	0	0
			718	455	135	126	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
15	P	83	Total	C	N	O	S	0	0
			676	425	127	119	5		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
16	Q	82	Total	C	N	O	S	0	0
			678	436	122	118	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
17	R	63	Total	C	N	O	S	0	0
			521	337	95	86	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
18	S	84	Total	C	N	O	S	0	0
			669	435	114	119	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
19	T	85	Total	C	N	O	S	0	0
			697	439	143	112	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
20	U	69	Total	C	N	O	S	0	0
			603	382	119	100	2		

- Molecule 21 is a protein called 30S ribosomal protein bS22.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	V	27	Total	C	N	O	S	0	0
			240	147	61	31	1		

- Molecule 22 is a protein called Ribosomal subunit interface protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	W	97	Total	C	N	O	S	0	0
			818	528	145	144	1		

- Molecule 23 is a RNA chain called E-site t-RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	X	76	Total	C	N	O	P	0	0
			1618	722	284	536	76		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
X	?	-	U	deletion	GB AE000783.1
X	74	C	U	conflict	GB AE000783.1
X	75	C	U	conflict	GB AE000783.1

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

Mol	Chain	Residues	Atoms					AltConf	Trace
24	AA	2929	Total	C	N	O	P	0	0
			62816	28077	11503	20307	2929		

- Molecule 25 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	AB	112	Total	C	N	O	P	0	0
			2398	1071	434	781	112		

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

Mol	Chain	Residues	Atoms				AltConf	Trace
26	AC	221	Total	C	N	O	0	0
			884	442	221	221		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
27	AD	277	Total	C	N	O	S	0	0
			2156	1354	414	383	5		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
28	AE	206	Total	C	N	O	S	0	0
			1564	995	278	286	5		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
29	AF	209	Total	C	N	O	S	0	0
			1658	1056	301	299	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
30	AG	182	Total	C	N	O	S	0	0
			1439	930	240	265	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
31	AH	180	Total	C	N	O	S	0	0
			1405	895	249	259	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
32	AI	148	Total	C	N	O	S	0	0
			751	423	161	166	1		

- Molecule 33 is a protein called 50S ribosomal protein L10.

Mol	Chain	Residues	Atoms				AltConf	Trace
33	AJ	162	Total	C	N	O	0	0
			648	324	162	162		

- Molecule 34 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms				AltConf	Trace
34	AK	139	Total	C	N	O	0	0
			556	278	139	139		

- Molecule 35 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms				AltConf	Trace
35	AL	145	Total	C	N	O	S	0
			1171	756	211	202	2	0

- Molecule 36 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms				AltConf	Trace
36	AM	122	Total	C	N	O	S	0
			942	593	174	170	5	0

- Molecule 37 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms				AltConf	Trace
37	AN	145	Total	C	N	O	S	0
			1129	716	210	201	2	0

- Molecule 38 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms				AltConf	Trace
38	AO	138	Total	C	N	O	S	0
			1092	693	204	188	7	0

- Molecule 39 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms				AltConf	Trace
39	AP	121	Total	C	N	O	S	0
			1004	643	193	164	4	0

- Molecule 40 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
40	AQ	119	Total	C	N	O	S	0
			968	613	184	170	1	0

- Molecule 41 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	AR	117	Total	C	N	O	S	0	0
			951	613	174	161	3		

- Molecule 42 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	AS	114	Total	C	N	O	S	0	0
			943	597	189	155	2		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AS	40	ARG	UNK	conflict	UNP O51206

- Molecule 43 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	AT	103	Total	C	N	O	S	0	0
			859	552	148	157	2		

- Molecule 44 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	AU	115	Total	C	N	O	S	0	0
			918	574	180	158	6		

- Molecule 45 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	AV	98	Total	C	N	O	S	0	0
			784	507	134	140	3		

- Molecule 46 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	AW	101	Total	C	N	O	S	0	0
			800	501	155	140	4		

- Molecule 47 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	AX	181	Total	C	N	O	S	0	0
			1432	912	245	273	2		

- Molecule 48 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	AY	74	Total	C	N	O		0	0
			571	359	112	100			

- Molecule 49 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	AZ	91	Total	C	N	O	S	0	0
			705	452	135	115	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
50	Aa	65	Total	C	N	O	S	0	0
			553	352	102	95	4		

- Molecule 51 is a protein called 50S ribosomal protein uL30.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	Ab	100	Total	C	N	O	S	0	0
			814	518	158	133	5		

- Molecule 52 is a protein called 50S ribosomal protein L31 type B.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	Ac	81	Total	C	N	O	S	0	0
			656	419	114	121	2		

- Molecule 53 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	Ad	59	Total	C	N	O	S	0	0
			484	300	99	80	5		

- Molecule 54 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	Ae	51	Total	C	N	O	S	0	0
			425	266	80	76	3		

- Molecule 55 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	Af	50	Total	C	N	O	S	0	0
			422	260	95	64	3		

- Molecule 56 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	Ag	66	Total	C	N	O	S	0	0
			548	346	111	88	3		

- Molecule 57 is a protein called 50S ribosomal protein L36.

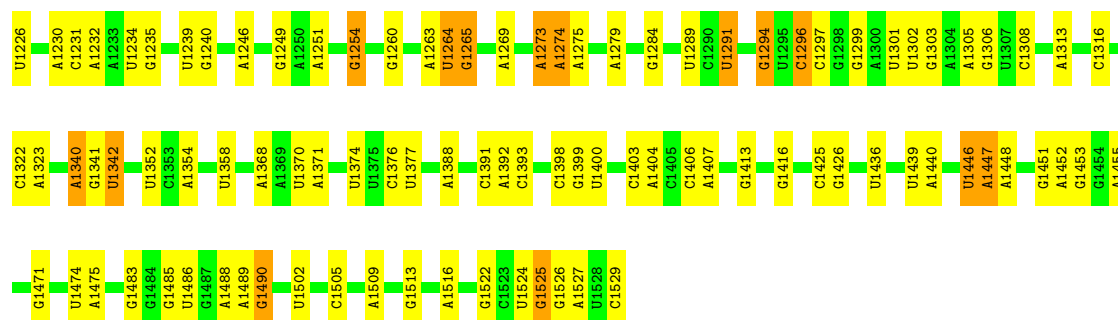
Mol	Chain	Residues	Atoms					AltConf	Trace
57	Ah	37	Total	C	N	O	S	0	0
			305	192	63	46	4		

- Molecule 58 is a protein called 50S ribosomal protein bL38.

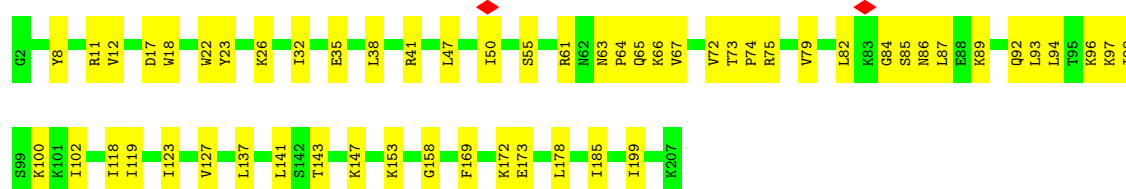
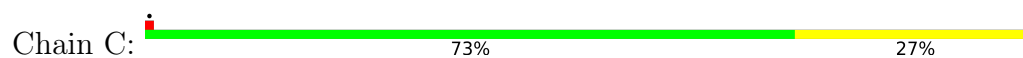
Mol	Chain	Residues	Atoms					AltConf	Trace
58	Ai	46	Total	C	N	O	S	0	0
			375	236	72	65	2		

- Molecule 59 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

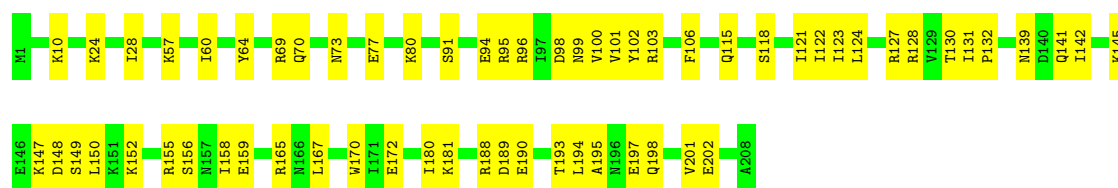
Mol	Chain	Residues	Atoms		AltConf
59	N	1	Total	Zn	0
			1	1	
59	R	1	Total	Zn	0
			1	1	
59	Ad	1	Total	Zn	0
			1	1	
59	Ah	1	Total	Zn	0
			1	1	



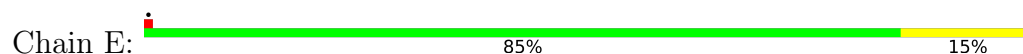
• Molecule 2: 30S ribosomal protein S3



• Molecule 3: 30S ribosomal protein S4



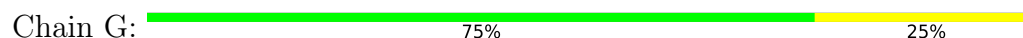
• Molecule 4: 30S ribosomal protein S5

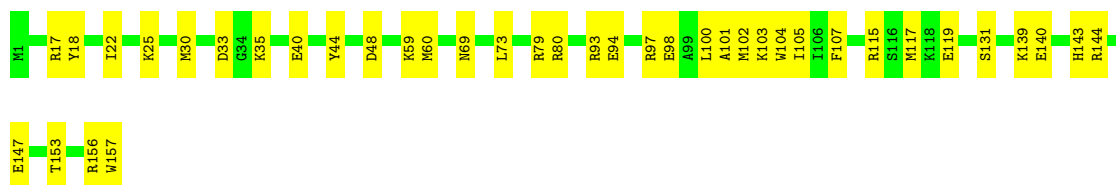


• Molecule 5: 30S ribosomal protein S6

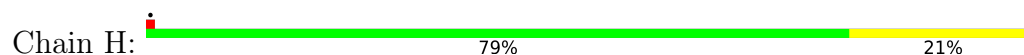


• Molecule 6: 30S ribosomal protein S7

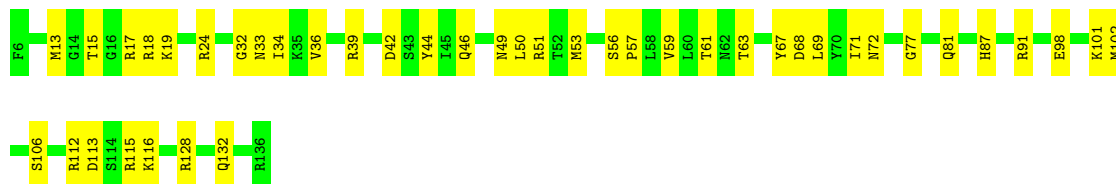




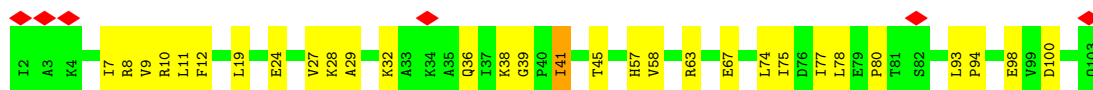
- Molecule 7: 30S ribosomal protein S8



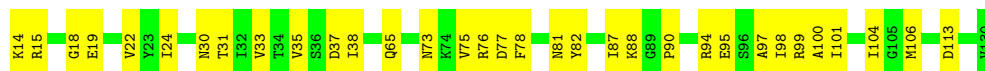
- Molecule 8: 30S ribosomal protein S9



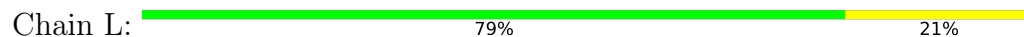
- Molecule 9: 30S ribosomal protein S10



- Molecule 10: 30S ribosomal protein S11

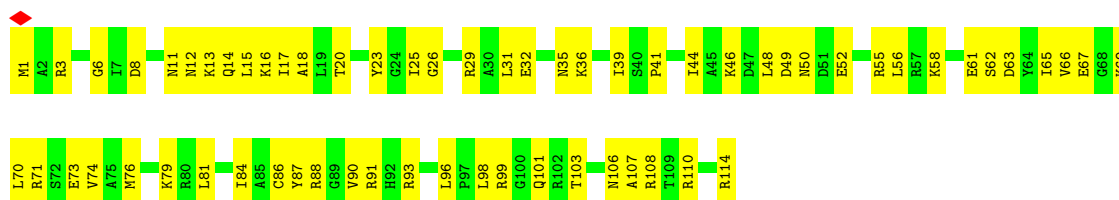


- Molecule 11: 30S ribosomal protein S12



- Molecule 12: 30S ribosomal protein S13





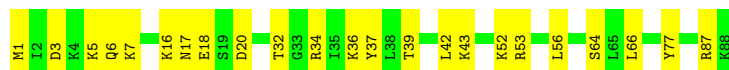
- Molecule 13: 30S ribosomal protein S14 type Z

Chain N: 58% 42%



- Molecule 14: 30S ribosomal protein S15

Chain O: 74% 26%



- Molecule 15: 30S ribosomal protein S16

Chain P: 75% 25%



- Molecule 16: 30S ribosomal protein S17

Chain Q: 77% 23%



- Molecule 17: 30S ribosomal protein S18

Chain R: 73% 27%



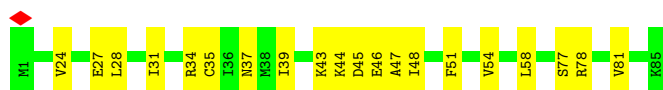
- Molecule 18: 30S ribosomal protein S19

Chain S: 75% 25%



- Molecule 19: 30S ribosomal protein S20

Chain T:  76% 24%



- Molecule 20: 30S ribosomal protein S21

Chain U:  71% 29%



- Molecule 21: 30S ribosomal protein bS22

Chain V:  86% 11%



- Molecule 22: Ribosomal subunit interface protein

Chain W:  71% 28%



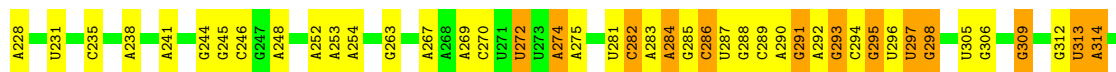
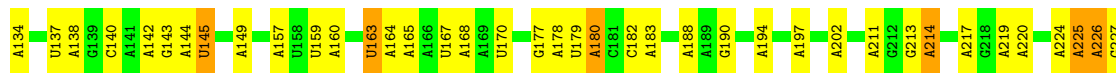
- Molecule 23: E-site t-RNA

Chain X:  5% 55% 37% 8%

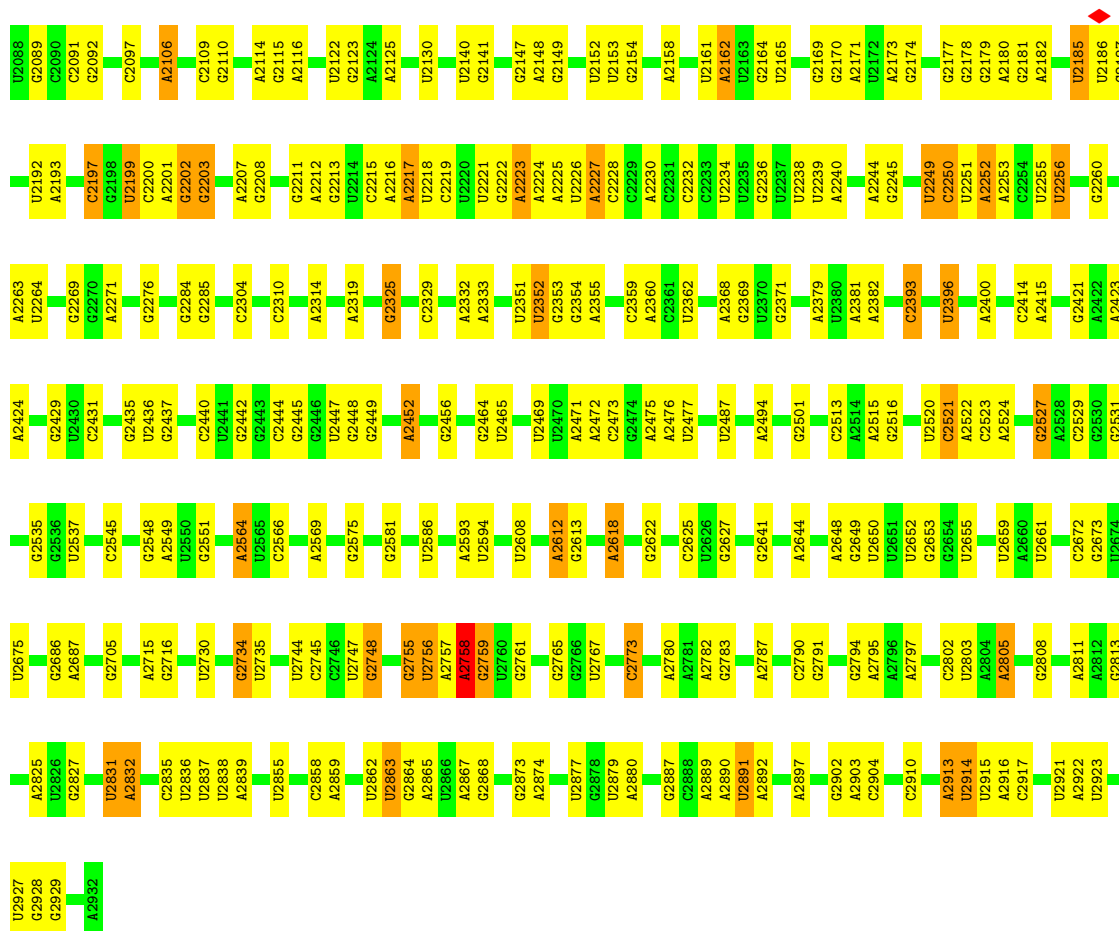


- Molecule 24: 23S ribosomal RNA

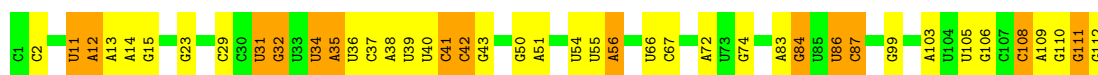
Chain AA:  66% 27% 6%



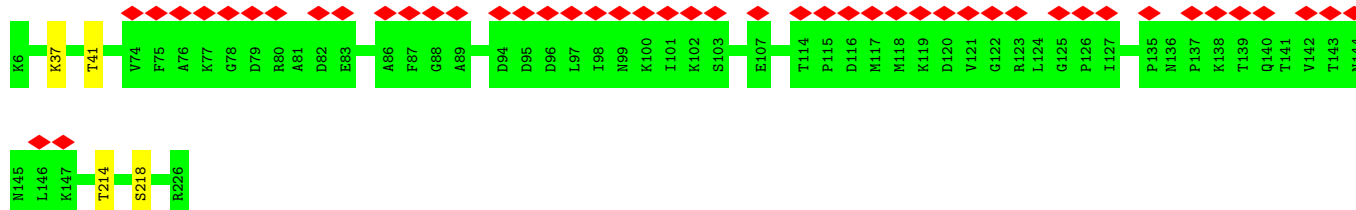




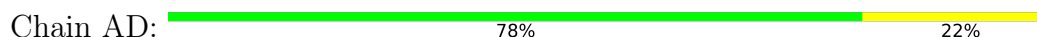
• Molecule 25: 5S ribosomal RNA

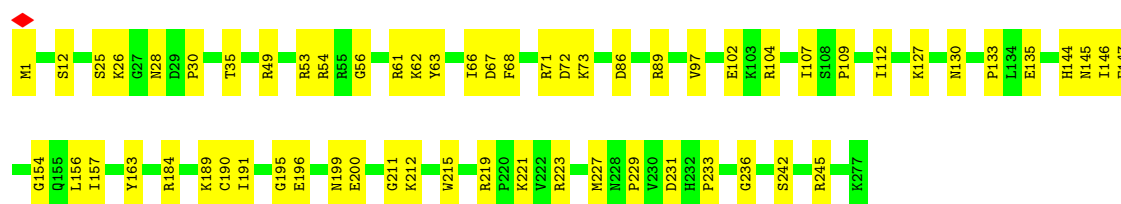


• Molecule 26: 50S ribosomal protein L1



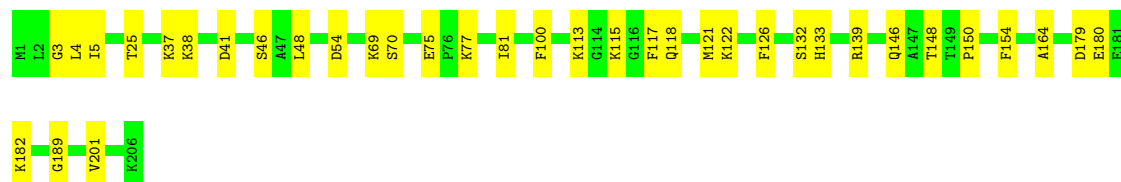
• Molecule 27: 50S ribosomal protein L2





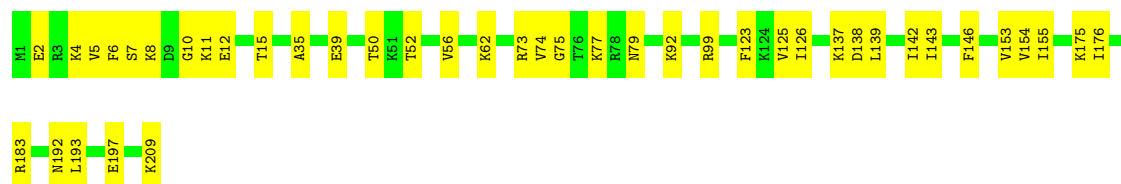
- Molecule 28: 50S ribosomal protein L3

Chain AE: 83% 17%



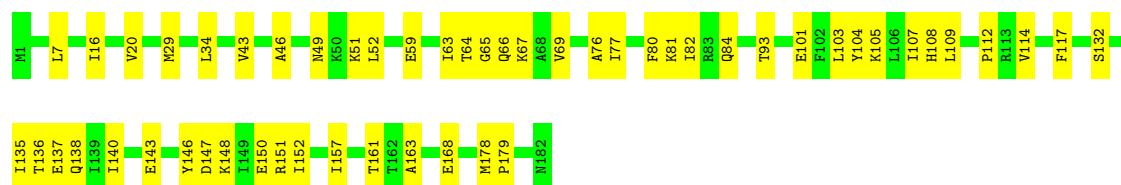
- Molecule 29: 50S ribosomal protein L4

Chain AF: 80% 20%



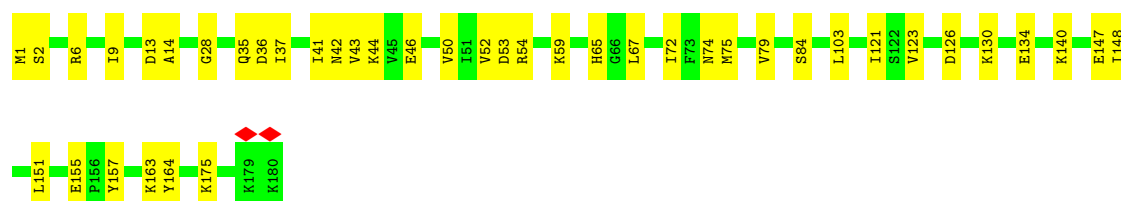
- Molecule 30: 50S ribosomal protein L5

Chain AG: 71% 29%

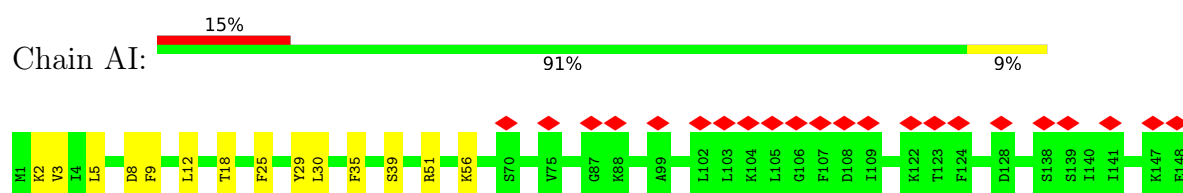


- Molecule 31: 50S ribosomal protein L6

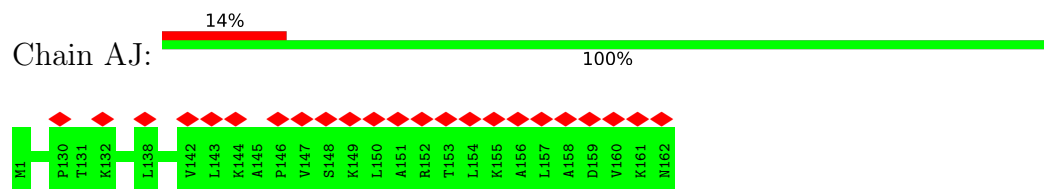
Chain AH: 77% 23%



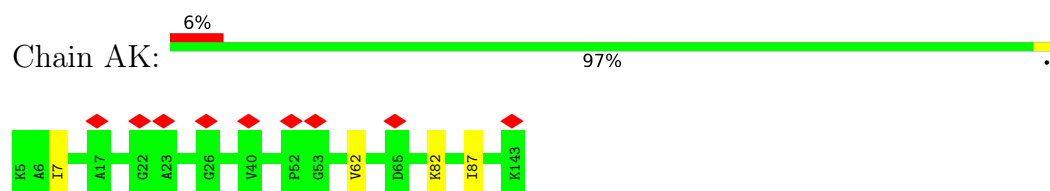
- Molecule 32: 50S ribosomal protein L9



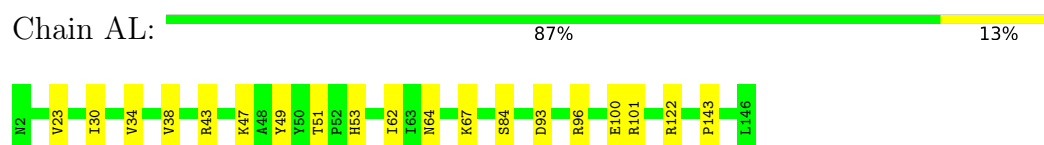
- Molecule 33: 50S ribosomal protein L10



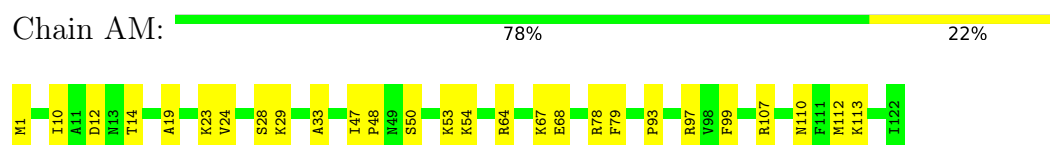
- Molecule 34: 50S ribosomal protein L11



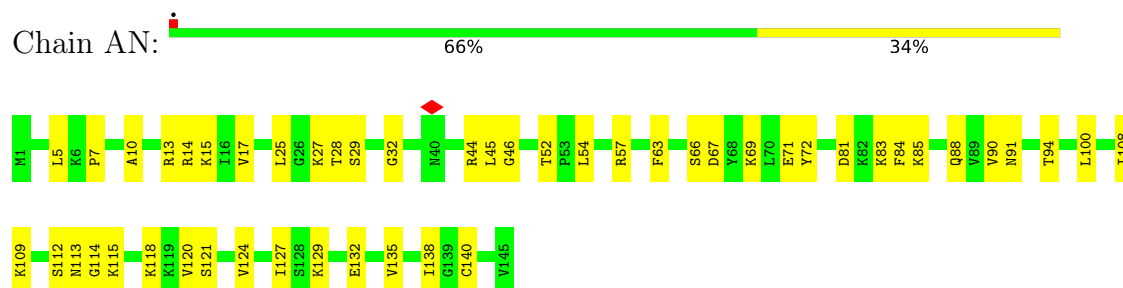
- Molecule 35: 50S ribosomal protein L13



- Molecule 36: 50S ribosomal protein L14



- Molecule 37: 50S ribosomal protein L15



- Molecule 38: 50S ribosomal protein L16





- Molecule 39: 50S ribosomal protein L17

Chain AP: 70% 30%



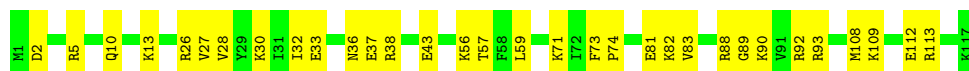
- Molecule 40: 50S ribosomal protein L18

Chain AQ: 78% 21%



- Molecule 41: 50S ribosomal protein L19

Chain AR: 73% 27%



- Molecule 42: 50S ribosomal protein L20

Chain AS: 74% 26%



- Molecule 43: 50S ribosomal protein L21

Chain AT: 74% 26%



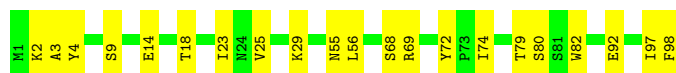
- Molecule 44: 50S ribosomal protein L22

Chain AU: 81% 19%



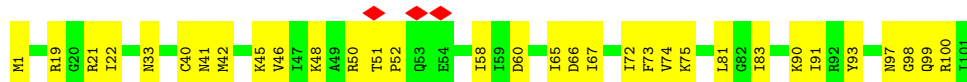
- Molecule 45: 50S ribosomal protein L23

Chain AV:  79% 21%



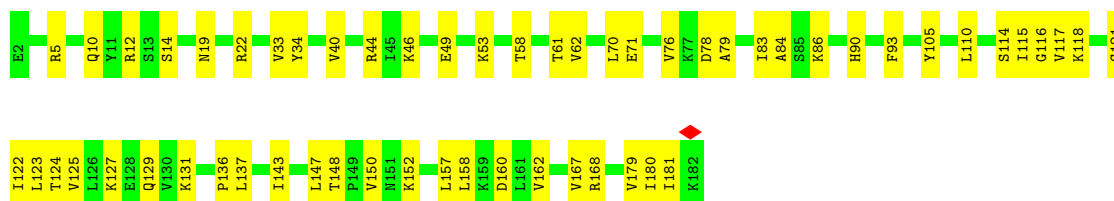
- Molecule 46: 50S ribosomal protein L24

Chain AW:  68% 32%



- Molecule 47: 50S ribosomal protein L25

Chain AX:  69% 31%



- Molecule 48: 50S ribosomal protein L27

Chain AY:  88% 12%



- Molecule 49: 50S ribosomal protein L28

Chain AZ:  77% 23%



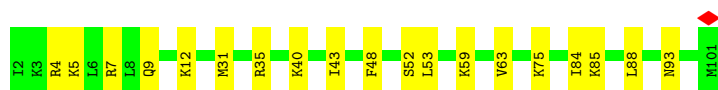
- Molecule 50: 50S ribosomal protein L29

Chain Aa:  83% 17%



- Molecule 51: 50S ribosomal protein uL30

Chain Ab:  81% 19%



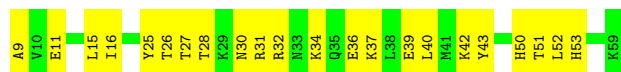
- Molecule 52: 50S ribosomal protein L31 type B



- Molecule 53: 50S ribosomal protein L32



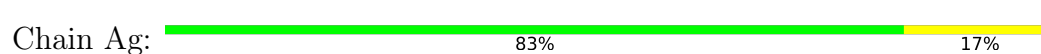
- Molecule 54: 50S ribosomal protein L33



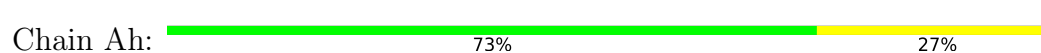
- Molecule 55: 50S ribosomal protein L34



- Molecule 56: 50S ribosomal protein L35

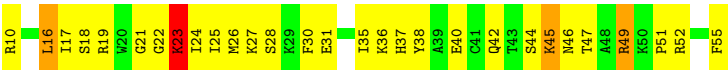


- Molecule 57: 50S ribosomal protein L36



- Molecule 58: 50S ribosomal protein bL38





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	288776	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	67.527	Depositor
Minimum defocus (nm)	820	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	105000	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	1.084	Depositor
Minimum map value	-0.439	Depositor
Average map value	-0.002	Depositor
Map value standard deviation	0.039	Depositor
Recommended contour level	0.07	Depositor
Map size (Å)	493.245, 493.245, 493.245	wwPDB
Map dimensions	450, 450, 450	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.0961, 1.0961, 1.0961	Depositor

5 Model quality

5.1 Standard geometry

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

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	A	0.12	0/36721	0.24	20/57268 (0.0%)
2	C	0.30	0/1673	0.45	0/2240
3	D	0.29	0/1716	0.47	1/2298 (0.0%)
4	E	0.34	0/1215	0.50	0/1626
5	F	0.26	0/826	0.58	0/1098
6	G	0.25	0/1302	0.49	0/1734
7	H	0.38	0/1053	0.57	0/1406
8	I	0.23	0/1056	0.43	0/1405
9	J	0.28	0/828	0.57	1/1108 (0.1%)
10	K	0.31	0/891	0.47	0/1201
11	L	0.33	0/983	0.45	0/1318
12	M	0.26	0/907	0.64	0/1208
13	N	0.29	0/500	0.52	0/662
14	O	0.33	0/724	0.55	1/956 (0.1%)
15	P	0.29	0/685	0.45	0/913
16	Q	0.39	0/686	0.56	0/910
17	R	0.31	0/532	0.50	0/705
18	S	0.23	0/683	0.72	5/917 (0.5%)
19	T	0.37	0/700	0.77	3/918 (0.3%)
20	U	0.26	0/609	0.72	3/800 (0.4%)
21	V	0.35	0/242	0.44	0/307
22	W	0.33	0/832	0.57	1/1110 (0.1%)
23	X	0.10	0/1807	0.18	0/2812
24	AA	0.17	0/70389	0.34	103/109770 (0.1%)
25	AB	0.13	0/2684	0.17	0/4183
26	AC	0.07	0/883	0.17	0/1102
27	AD	0.46	0/2196	0.50	0/2935
28	AE	0.45	0/1588	0.46	0/2122
29	AF	0.43	0/1682	0.48	0/2249
30	AG	0.24	0/1460	0.46	1/1955 (0.1%)
31	AH	0.29	0/1422	0.41	0/1903
32	AI	0.19	0/756	0.33	0/973

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	AJ	0.09	0/647	0.20	0/807
34	AK	0.08	0/555	0.18	0/692
35	AL	0.47	0/1197	0.43	0/1612
36	AM	0.50	0/951	0.48	0/1276
37	AN	0.42	0/1142	0.55	0/1515
38	AO	0.46	0/1110	0.67	2/1480 (0.1%)
39	AP	0.47	0/1020	0.54	0/1353
40	AQ	0.30	0/979	0.56	1/1299 (0.1%)
41	AR	0.48	0/962	0.63	0/1280
42	AS	0.54	0/954	0.53	0/1264
43	AT	0.44	0/872	0.47	0/1163
44	AU	0.47	0/931	0.50	0/1245
45	AV	0.38	0/796	0.49	0/1065
46	AW	0.35	0/803	0.51	0/1059
47	AX	0.28	0/1451	0.44	0/1955
48	AY	0.44	0/577	0.44	0/760
49	AZ	0.43	0/713	0.47	0/943
50	Aa	0.35	0/559	0.59	0/739
51	Ab	0.47	0/818	0.55	0/1079
52	Ac	0.20	0/669	0.46	0/893
53	Ad	0.46	0/492	0.44	0/654
54	Ae	0.35	0/429	0.60	0/568
55	Af	0.50	0/425	0.61	0/551
56	Ag	0.51	0/554	0.57	1/726 (0.1%)
57	Ah	0.46	0/306	0.47	0/400
58	Ai	0.64	0/381	1.33	5/502 (1.0%)
All	All	0.24	0/160524	0.38	148/238992 (0.1%)

There are no bond length outliers.

All (148) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	AA	1677	A	OP1-P-OP2	-13.88	77.96	119.60
1	A	721	A	OP1-P-OP2	-13.77	78.29	119.60
24	AA	1967	A	OP1-P-OP2	-13.53	79.01	119.60
1	A	1265	G	OP1-P-OP2	-13.48	79.15	119.60
1	A	999	A	OP1-P-OP2	-13.37	79.50	119.60
24	AA	1559	G	OP1-P-OP2	-13.34	79.59	119.60
1	A	720	G	OP2-P-O3'	-11.86	72.43	108.00
1	A	999	A	O5'-P-OP1	-11.83	72.51	108.00
24	AA	1559	G	O5'-P-OP1	-11.55	73.36	108.00
24	AA	1558	C	OP2-P-O3'	-11.53	73.40	108.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	AA	1967	A	O5'-P-OP1	-11.53	73.41	108.00
24	AA	1677	A	O5'-P-OP1	-11.52	73.43	108.00
1	A	1265	G	O5'-P-OP1	-11.03	74.93	108.00
1	A	1264	U	OP2-P-O3'	-10.96	75.12	108.00
24	AA	1966	A	OP2-P-O3'	-10.30	77.09	108.00
1	A	720	G	OP1-P-O3'	10.07	138.21	108.00
24	AA	1676	A	OP2-P-O3'	-10.07	77.80	108.00
1	A	721	A	O5'-P-OP1	-10.01	77.97	108.00
1	A	998	U	OP2-P-O3'	-9.51	79.49	108.00
24	AA	1558	C	OP1-P-O3'	9.35	136.05	108.00
24	AA	531	A	OP2-P-O3'	-9.30	80.10	108.00
24	AA	1676	A	OP1-P-O3'	9.24	135.73	108.00
1	A	1264	U	OP1-P-O3'	9.19	135.56	108.00
24	AA	177	G	OP1-P-O3'	-9.19	80.44	108.00
24	AA	272	U	OP1-P-O3'	-9.16	80.53	108.00
24	AA	1736	G	OP1-P-O3'	-9.15	80.55	108.00
24	AA	1966	A	OP1-P-O3'	9.15	135.44	108.00
24	AA	2836	U	OP2-P-O3'	-9.14	80.58	108.00
24	AA	1610	G	OP2-P-O3'	-9.13	80.59	108.00
24	AA	1586	G	OP2-P-O3'	-9.13	80.62	108.00
24	AA	1519	U	OP1-P-O3'	-9.12	80.64	108.00
24	AA	1609	U	OP1-P-O3'	-9.12	80.65	108.00
24	AA	1619	G	OP1-P-O3'	-9.08	80.76	108.00
24	AA	1286	A	OP1-P-O3'	-9.08	80.77	108.00
24	AA	1560	A	OP2-P-O3'	-9.07	80.78	108.00
24	AA	1576	A	OP1-P-O3'	-9.05	80.84	108.00
24	AA	159	U	OP1-P-O3'	-9.05	80.85	108.00
24	AA	349	G	OP2-P-O3'	-9.00	81.01	108.00
24	AA	1500	A	OP1-P-O3'	-8.99	81.03	108.00
24	AA	1584	A	OP1-P-O3'	-8.96	81.10	108.00
24	AA	157	A	OP1-P-O3'	-8.95	81.16	108.00
24	AA	1585	A	OP1-P-O3'	-8.94	81.17	108.00
24	AA	1633	A	OP1-P-O3'	-8.95	81.16	108.00
24	AA	2447	U	OP1-P-O3'	-8.93	81.20	108.00
24	AA	1299	U	OP1-P-O3'	-8.93	81.22	108.00
1	A	999	A	O5'-P-OP2	8.92	134.77	108.00
24	AA	1520	A	OP1-P-O3'	-8.92	81.25	108.00
24	AA	1559	G	OP1-P-O3'	-8.92	81.25	108.00
1	A	833	A	OP1-P-O3'	-8.91	81.27	108.00
24	AA	1580	C	OP2-P-O3'	-8.90	81.29	108.00
24	AA	140	C	OP2-P-O3'	-8.90	81.30	108.00
24	AA	1567	U	OP1-P-O3'	-8.90	81.31	108.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	AA	1490	G	OP1-P-O3'	-8.89	81.33	108.00
24	AA	324	G	OP1-P-O3'	-8.88	81.37	108.00
24	AA	1287	G	OP2-P-O3'	-8.88	81.37	108.00
24	AA	1552	U	OP1-P-O3'	-8.88	81.37	108.00
24	AA	1300	G	OP1-P-O3'	-8.87	81.39	108.00
24	AA	180	A	OP1-P-O3'	-8.87	81.40	108.00
24	AA	1626	G	OP1-P-O3'	-8.87	81.40	108.00
24	AA	1563	A	OP1-P-O3'	-8.86	81.43	108.00
24	AA	1618	G	OP1-P-O3'	-8.84	81.49	108.00
24	AA	1643	G	OP1-P-O3'	-8.84	81.49	108.00
24	AA	2758	A	OP2-P-O3'	-8.84	81.49	108.00
24	AA	1674	A	OP1-P-O3'	-8.83	81.52	108.00
24	AA	1602	U	OP2-P-O3'	-8.82	81.53	108.00
1	A	476	A	OP1-P-O3'	-8.82	81.53	108.00
24	AA	1697	A	OP1-P-O3'	-8.81	81.58	108.00
24	AA	1681	A	OP2-P-O3'	-8.75	81.74	108.00
24	AA	1587	A	OP2-P-O3'	-8.71	81.86	108.00
24	AA	1587	A	OP1-P-O3'	-8.68	81.95	108.00
24	AA	1681	A	OP1-P-O3'	-8.67	81.98	108.00
1	A	998	U	OP1-P-O3'	8.63	133.90	108.00
24	AA	1580	C	OP1-P-O3'	-8.62	82.12	108.00
24	AA	2758	A	OP1-P-O3'	-8.59	82.22	108.00
24	AA	2734	G	OP2-P-O3'	-8.57	82.30	108.00
24	AA	1677	A	O5'-P-OP2	8.51	133.54	108.00
24	AA	1697	A	OP2-P-O3'	-8.47	82.59	108.00
24	AA	140	C	OP1-P-O3'	-8.42	82.73	108.00
24	AA	1602	U	OP1-P-O3'	-8.42	82.75	108.00
1	A	476	A	OP2-P-O3'	-8.41	82.78	108.00
24	AA	1674	A	OP2-P-O3'	-8.36	82.92	108.00
24	AA	2734	G	OP1-P-O3'	-8.36	82.92	108.00
24	AA	1559	G	OP2-P-O3'	-8.35	82.95	108.00
24	AA	1643	G	OP2-P-O3'	-8.28	83.17	108.00
24	AA	1552	U	OP2-P-O3'	-8.25	83.24	108.00
24	AA	1300	G	OP2-P-O3'	-8.25	83.26	108.00
24	AA	324	G	OP2-P-O3'	-8.24	83.27	108.00
24	AA	1967	A	O5'-P-OP2	8.24	132.73	108.00
24	AA	1618	G	OP2-P-O3'	-8.24	83.29	108.00
24	AA	1563	A	OP2-P-O3'	-8.23	83.30	108.00
24	AA	180	A	OP2-P-O3'	-8.17	83.50	108.00
24	AA	1490	G	OP2-P-O3'	-8.17	83.50	108.00
24	AA	1287	G	OP1-P-O3'	-8.12	83.65	108.00
24	AA	1520	A	OP2-P-O3'	-8.09	83.72	108.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	AA	1567	U	OP2-P-O3'	-8.09	83.74	108.00
24	AA	2447	U	OP2-P-O3'	-8.08	83.77	108.00
58	Ai	23	LYS	CG-CD-CE	8.06	129.84	111.30
24	AA	157	A	OP2-P-O3'	-8.05	83.85	108.00
1	A	1265	G	O5'-P-OP2	8.02	132.06	108.00
24	AA	1633	A	OP2-P-O3'	-8.02	83.95	108.00
24	AA	1584	A	OP2-P-O3'	-7.98	84.06	108.00
1	A	833	A	OP2-P-O3'	-7.97	84.09	108.00
24	AA	1500	A	OP2-P-O3'	-7.96	84.12	108.00
24	AA	1626	G	OP2-P-O3'	-7.93	84.20	108.00
24	AA	1585	A	OP2-P-O3'	-7.92	84.23	108.00
18	S	81	ARG	CB-CG-CD	7.92	129.50	111.30
24	AA	1299	U	OP2-P-O3'	-7.92	84.25	108.00
24	AA	1610	G	OP1-P-O3'	-7.89	84.32	108.00
24	AA	1286	A	OP2-P-O3'	-7.72	84.83	108.00
24	AA	1560	A	OP1-P-O3'	-7.69	84.94	108.00
24	AA	1609	U	OP2-P-O3'	-7.64	85.08	108.00
24	AA	159	U	OP2-P-O3'	-7.62	85.13	108.00
24	AA	1576	A	OP2-P-O3'	-7.60	85.21	108.00
18	S	81	ARG	CA-CB-CG	-7.57	98.96	114.10
24	AA	2836	U	OP1-P-O3'	-7.49	85.54	108.00
24	AA	1736	G	OP2-P-O3'	-7.46	85.62	108.00
24	AA	177	G	OP2-P-O3'	-7.42	85.75	108.00
24	AA	1619	G	OP2-P-O3'	-7.40	85.81	108.00
24	AA	272	U	OP2-P-O3'	-7.37	85.88	108.00
24	AA	349	G	OP1-P-O3'	-7.26	86.23	108.00
24	AA	531	A	OP1-P-O3'	-7.22	86.35	108.00
20	U	69	ARG	CG-CD-NE	7.14	127.72	112.00
24	AA	1519	U	OP2-P-O3'	-7.13	86.61	108.00
18	S	81	ARG	CG-CD-NE	7.10	127.62	112.00
24	AA	1559	G	O5'-P-OP2	6.84	128.51	108.00
24	AA	1586	G	OP1-P-O3'	-6.80	87.61	108.00
58	Ai	23	LYS	CB-CG-CD	6.63	126.55	111.30
1	A	721	A	O5'-P-OP2	6.44	127.33	108.00
30	AG	29	MET	CB-CG-SD	6.35	131.75	112.70
20	U	69	ARG	CB-CG-CD	6.09	125.31	111.30
58	Ai	49	ARG	CA-CB-CG	6.06	126.22	114.10
1	A	998	U	O3'-P-O5'	-5.98	95.03	104.00
18	S	13	LYS	CD-CE-NZ	-5.95	92.86	111.90
19	T	34	ARG	CB-CG-CD	5.88	124.83	111.30
56	Ag	55	GLU	CB-CG-CD	5.87	122.58	112.60
38	AO	45	ARG	CA-CB-CG	-5.86	102.38	114.10

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
58	Ai	45	LYS	CG-CD-CE	5.81	124.67	111.30
9	J	41	ILE	CG1-CB-CG2	-5.66	93.71	110.70
19	T	37	ASN	CA-C-N	-5.46	111.91	122.06
19	T	37	ASN	C-N-CA	-5.46	111.91	122.06
40	AQ	64	LEU	CD1-CG-CD2	-5.39	98.95	110.80
20	U	16	LEU	CA-CB-CG	5.35	135.03	116.30
18	S	13	LYS	CG-CD-CE	5.33	123.56	111.30
14	O	18	GLU	CA-CB-CG	5.27	124.65	114.10
3	D	167	LEU	CA-CB-CG	5.20	134.50	116.30
58	Ai	45	LYS	CB-CG-CD	5.18	123.22	111.30
22	W	93	LYS	CA-CB-CG	5.17	124.45	114.10
38	AO	16	ARG	CA-CB-CG	5.10	124.30	114.10

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	A	32780	0	16452	246	0
2	C	1646	0	1778	39	0
3	D	1689	0	1794	47	0
4	E	1196	0	1272	21	0
5	F	814	0	853	28	0
6	G	1282	0	1329	34	0
7	H	1039	0	1103	18	0
8	I	1043	0	1079	36	0
9	J	817	0	893	26	0
10	K	876	0	905	23	0
11	L	968	0	1047	20	0
12	M	901	0	975	56	0
13	N	491	0	521	22	0
14	O	718	0	789	19	0
15	P	676	0	722	20	0
16	Q	678	0	754	15	0
17	R	521	0	550	15	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
18	S	669	0	705	20	0
19	T	697	0	800	14	0
20	U	603	0	672	13	0
21	V	240	0	290	3	0
22	W	818	0	866	17	0
23	X	1618	0	817	18	0
24	AA	62816	0	31504	476	0
25	AB	2398	0	1205	20	0
26	AC	884	0	238	5	0
27	AD	2156	0	2261	47	0
28	AE	1564	0	1651	22	0
29	AF	1658	0	1752	30	0
30	AG	1439	0	1512	40	0
31	AH	1405	0	1494	35	0
32	AI	751	0	443	10	0
33	AJ	648	0	175	0	0
34	AK	556	0	152	2	0
35	AL	1171	0	1235	13	0
36	AM	942	0	1008	21	0
37	AN	1129	0	1232	39	0
38	AO	1092	0	1163	34	0
39	AP	1004	0	1090	25	0
40	AQ	968	0	1039	21	0
41	AR	951	0	1037	21	0
42	AS	943	0	1033	30	0
43	AT	859	0	902	24	0
44	AU	918	0	975	14	0
45	AV	784	0	847	16	0
46	AW	800	0	895	23	0
47	AX	1432	0	1486	41	0
48	AY	571	0	611	7	0
49	AZ	705	0	784	16	0
50	Aa	553	0	595	12	0
51	Ab	814	0	922	13	0
52	Ac	656	0	674	35	0
53	Ad	484	0	500	17	0
54	Ae	425	0	456	18	0
55	Af	422	0	480	9	0
56	Ag	548	0	619	10	0
57	Ah	305	0	357	8	0
58	Ai	375	0	392	62	0
59	Ad	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
59	Ah	1	0	0	0	0
59	N	1	0	0	0	0
59	R	1	0	0	0	0
All	All	147910	0	99685	1685	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 7.

All (1685) 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)
24:AA:2716:G:P	58:Ai:52:ARG:NH2	2.02	1.33
31:AH:147:GLU:OE2	58:Ai:30:PHE:CZ	2.16	0.99
58:Ai:40:GLU:OE2	58:Ai:45:LYS:HE3	1.72	0.90
24:AA:2715:A:O5'	58:Ai:26:MET:HE3	1.72	0.90
38:AO:34:LEU:HB2	38:AO:118:MET:HE3	1.53	0.90
30:AG:66:GLN:NE2	30:AG:93:THR:O	2.06	0.89
41:AR:90:LYS:HB2	41:AR:113:ARG:HG3	1.55	0.88
58:Ai:40:GLU:OE2	58:Ai:45:LYS:CE	2.22	0.88
37:AN:81:ASP:OD1	37:AN:118:LYS:NZ	2.10	0.85
58:Ai:49:ARG:HD2	58:Ai:49:ARG:O	1.78	0.84
24:AA:2716:G:OP1	58:Ai:52:ARG:NH2	2.08	0.83
41:AR:26:ARG:HD3	41:AR:43:GLU:HG2	1.58	0.83
24:AA:2716:G:O5'	58:Ai:52:ARG:NH2	2.12	0.83
16:Q:30:LYS:NZ	16:Q:31:MET:O	2.10	0.83
24:AA:2782:A:OP1	58:Ai:49:ARG:NE	2.11	0.83
58:Ai:16:LEU:HD11	58:Ai:24:ILE:HB	1.58	0.83
5:F:49:TYR:OH	5:F:86:ARG:NH1	2.12	0.82
37:AN:44:ARG:NH1	37:AN:44:ARG:O	2.13	0.82
16:Q:55:LYS:HG2	16:Q:82:LYS:HZ1	1.43	0.82
31:AH:121:ILE:HD11	31:AH:140:LYS:HB3	1.59	0.82
1:A:449:A:O2'	15:P:72:MET:SD	2.37	0.81
1:A:1323:A:H5'	12:M:29:ARG:HE	1.45	0.81
58:Ai:42:GLN:HA	58:Ai:45:LYS:NZ	1.96	0.80
58:Ai:16:LEU:HD13	58:Ai:16:LEU:C	2.07	0.80
51:Ab:31:MET:HE1	51:Ab:93:ASN:HA	1.62	0.80
1:A:1529:C:H42	20:U:50:LYS:HD3	1.47	0.80
27:AD:30:PRO:HB2	27:AD:35:THR:HG21	1.62	0.80
18:S:60:ILE:HD11	18:S:74:PHE:HB2	1.62	0.80
27:AD:86:ASP:OD2	27:AD:89:ARG:NH1	2.15	0.79
1:A:662:G:H22	1:A:739:G:H1	1.30	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:AN:72:TYR:HE2	37:AN:109:LYS:HB2	1.47	0.79
2:C:65:GLN:HA	2:C:100:LYS:HE3	1.64	0.79
24:AA:2782:A:P	58:AI:49:ARG:HE	2.06	0.78
12:M:66:VAL:HG12	12:M:67:GLU:H	1.47	0.78
41:AR:33:GLU:OE2	41:AR:38:ARG:NH1	2.16	0.78
24:AA:639:G:OP2	43:AT:79:ARG:NH1	2.16	0.78
27:AD:144:HIS:ND1	27:AD:195:GLY:O	2.17	0.78
1:A:918:G:H21	22:W:96:ASN:HB3	1.47	0.78
47:AX:110:LEU:HD11	47:AX:147:LEU:HG	1.66	0.77
58:AI:16:LEU:CD1	58:AI:24:ILE:HB	2.13	0.77
1:A:656:C:H5''	14:O:7:LYS:HD3	1.66	0.77
12:M:36:LYS:NZ	12:M:63:ASP:OD2	2.16	0.77
24:AA:1075:A:H4'	42:AS:91:ASN:HD21	1.49	0.76
37:AN:17:VAL:HG23	37:AN:25:LEU:HB3	1.67	0.76
24:AA:472:U:O2'	49:AZ:13:MET:SD	2.44	0.76
15:P:23:MET:HA	15:P:34:ILE:HD12	1.67	0.76
52:Ac:52:SER:O	52:Ac:55:HIS:ND1	2.18	0.76
13:N:2:ALA:N	13:N:27:CYS:O	2.18	0.76
14:O:87:ARG:HH22	24:AA:795:G:H5''	1.51	0.75
56:Ag:32:HIS:O	56:Ag:34:LEU:HG	1.87	0.75
27:AD:25:SER:O	27:AD:28:ASN:ND2	2.20	0.75
39:AP:56:LYS:NZ	39:AP:87:PHE:O	2.20	0.75
38:AO:62:GLY:HA3	38:AO:107:SER:O	1.86	0.74
1:A:1306:G:H5'	18:S:5:ILE:HD11	1.70	0.74
8:I:36:VAL:HG12	8:I:71:ILE:HB	1.68	0.74
27:AD:26:LYS:O	27:AD:28:ASN:ND2	2.20	0.74
24:AA:2716:G:OP2	58:AI:52:ARG:NH2	2.21	0.74
24:AA:1833:U:OP2	24:AA:1838:A:N6	2.21	0.74
1:A:1284:G:H21	8:I:46:GLN:HE22	1.36	0.73
35:AL:93:ASP:OD2	35:AL:101:ARG:NH2	2.22	0.73
3:D:91:SER:OG	3:D:95:ARG:NH1	2.21	0.73
42:AS:50:ARG:NH2	43:AT:73:VAL:O	2.22	0.73
1:A:1291:U:O2'	6:G:115:ARG:NH1	2.22	0.73
46:AW:21:ARG:NH1	46:AW:40:CYS:SG	2.62	0.72
47:AX:14:SER:HB3	47:AX:19:ASN:HB3	1.71	0.72
4:E:13:LYS:NZ	4:E:115:GLU:OE2	2.18	0.72
9:J:93:LEU:HD12	9:J:94:PRO:HD2	1.70	0.72
24:AA:2276:G:H1'	49:AZ:45:ASN:HB3	1.72	0.72
44:AU:63:MET:HE1	44:AU:71:GLU:HG2	1.71	0.72
24:AA:1843:A:OP2	27:AD:223:ARG:NH1	2.23	0.71
38:AO:30:GLY:N	38:AO:105:GLU:OE2	2.23	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:AX:114:SER:HB2	47:AX:147:LEU:HB3	1.73	0.71
58:Ai:31:GLU:HA	58:Ai:31:GLU:OE2	1.90	0.71
36:AM:93:PRO:HD2	36:AM:113:LYS:HD2	1.73	0.71
24:AA:474:U:OP2	49:AZ:10:LYS:NZ	2.23	0.71
47:AX:83:ILE:O	47:AX:86:LYS:NZ	2.23	0.71
10:K:65:GLN:HG2	10:K:100:ALA:HB2	1.73	0.71
41:AR:30:LYS:NZ	41:AR:81:GLU:OE2	2.19	0.71
31:AH:9:ILE:HB	31:AH:50:VAL:HB	1.71	0.70
31:AH:126:ASP:HB2	31:AH:130:LYS:HB2	1.72	0.70
12:M:17:ILE:O	12:M:20:THR:OG1	2.09	0.70
58:Ai:42:GLN:HA	58:Ai:45:LYS:HZ2	1.54	0.70
24:AA:2794:G:OP1	31:AH:74:ASN:ND2	2.25	0.70
40:AQ:66:LEU:HD12	40:AQ:72:ASP:HA	1.71	0.70
44:AU:91:TRP:HB2	44:AU:101:LEU:HD22	1.73	0.70
31:AH:43:VAL:HG22	31:AH:52:VAL:HG12	1.74	0.70
1:A:1525:G:H1	21:V:7:ARG:HH21	1.40	0.70
1:A:1303:G:OP2	12:M:99:ARG:NH1	2.25	0.69
24:AA:726:A:H5'	24:AA:727:A:H2'	1.74	0.69
24:AA:1142:C:N4	24:AA:1147:A:O2'	2.25	0.69
37:AN:45:LEU:HA	56:Ag:8:ARG:HH22	1.56	0.69
41:AR:89:GLY:HA2	41:AR:112:GLU:HA	1.73	0.69
15:P:6:ARG:HH21	15:P:23:MET:HE3	1.57	0.69
24:AA:717:G:HO2'	24:AA:719:G:HO2'	1.40	0.69
11:L:50:ARG:HG3	11:L:90:LEU:HD21	1.75	0.69
56:Ag:29:ASN:O	56:Ag:37:LYS:NZ	2.25	0.69
2:C:84:GLY:HA2	2:C:87:LEU:HD23	1.75	0.69
7:H:43:GLU:HG3	7:H:103:ILE:HD13	1.74	0.69
12:M:25:ILE:HA	12:M:29:ARG:HD2	1.74	0.68
39:AP:90:ARG:NH2	39:AP:117:GLU:OE1	2.26	0.68
24:AA:1072:A:OP1	42:AS:50:ARG:NH1	2.27	0.68
1:A:1305:A:OP1	52:Ac:70:ARG:NH1	2.26	0.68
29:AF:10:GLY:HA2	29:AF:146:PHE:HE1	1.59	0.68
58:Ai:26:MET:C	58:Ai:27:LYS:HD2	2.18	0.68
16:Q:70:LYS:O	16:Q:73:ARG:NH1	2.20	0.68
24:AA:829:U:O2'	44:AU:97:ARG:NH2	2.26	0.68
46:AW:97:ASN:HB2	46:AW:99:GLN:HE22	1.59	0.68
58:Ai:18:SER:HB2	58:Ai:24:ILE:HD11	1.75	0.68
1:A:1416:G:H5'	36:AM:48:PRO:HB3	1.75	0.68
37:AN:44:ARG:O	37:AN:46:GLY:N	2.27	0.68
52:Ac:16:ASP:OD2	52:Ac:51:THR:OG1	2.09	0.68
5:F:88:MET:HE3	17:R:88:MET:HG2	1.75	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:R:71:SER:OG	17:R:74:HIS:ND1	2.27	0.67
24:AA:2612:A:N1	36:AM:28:SER:OG	2.28	0.67
24:AA:696:U:OP1	29:AF:183:ARG:NH1	2.27	0.67
25:AB:41:C:O3'	52:Ac:2:ARG:NH2	2.28	0.67
38:AO:58:ILE:HD12	38:AO:109:VAL:HG11	1.75	0.67
8:I:87:HIS:CE1	8:I:91:ARG:HE	2.13	0.67
24:AA:1121:C:HO2'	24:AA:1126:A:HO2'	1.34	0.67
1:A:945:G:H4'	22:W:6:GLN:HE21	1.58	0.67
24:AA:2515:A:O2'	38:AO:56:ARG:NH1	2.28	0.67
49:AZ:24:ALA:HB2	49:AZ:32:GLN:HE21	1.60	0.67
17:R:38:CYS:SG	17:R:74:HIS:HE1	2.08	0.67
27:AD:227:MET:HE3	27:AD:231:ASP:HB3	1.75	0.66
35:AL:23:VAL:HG23	35:AL:143:PRO:HB2	1.76	0.66
37:AN:85:LYS:HA	37:AN:118:LYS:HD2	1.75	0.66
1:A:11:G:OP2	4:E:125:LYS:NZ	2.26	0.66
24:AA:246:C:O2	56:Ag:13:LYS:NZ	2.28	0.66
5:F:79:LYS:HZ2	5:F:87:TYR:HH	1.41	0.66
24:AA:2178:G:N2	26:AC:214:THR:O	2.27	0.66
58:AI:27:LYS:HA	58:AI:27:LYS:HE2	1.77	0.66
2:C:93:LEU:O	2:C:97:LYS:NZ	2.29	0.66
24:AA:2073:A:H1'	42:AS:34:LYS:HE2	1.77	0.66
24:AA:2230:A:H4'	26:AC:218:SER:H	1.61	0.66
24:AA:241:A:O2'	37:AN:67:ASP:OD2	2.14	0.66
3:D:141:GLN:HE21	3:D:181:LYS:HD3	1.59	0.66
7:H:15:ARG:NH1	7:H:77:ILE:O	2.28	0.66
58:AI:16:LEU:HD13	58:AI:16:LEU:O	1.96	0.66
2:C:86:ASN:HA	2:C:89:LYS:HD2	1.77	0.66
24:AA:857:G:H4'	24:AA:858:G:H5'	1.78	0.66
5:F:24:GLU:O	5:F:28:SER:OG	2.14	0.65
39:AP:10:LEU:HD21	39:AP:43:GLU:HG3	1.77	0.65
1:A:398:U:O2'	1:A:619:A:N3	2.29	0.65
24:AA:1134:G:H4'	24:AA:1165:A:H8	1.61	0.65
24:AA:1690:C:N4	24:AA:1705:A:OP2	2.30	0.65
30:AG:77:ILE:HG22	30:AG:82:ILE:HB	1.78	0.65
48:AY:31:VAL:HB	48:AY:35:GLU:HG3	1.77	0.65
1:A:462:G:N2	1:A:465:A:OP2	2.28	0.65
27:AD:135:GLU:OE2	27:AD:189:LYS:NZ	2.18	0.65
30:AG:147:ASP:OD1	30:AG:148:LYS:N	2.30	0.65
42:AS:18:LEU:HA	42:AS:21:THR:HG22	1.79	0.65
12:M:91:ARG:HD2	12:M:96:LEU:HB2	1.77	0.65
46:AW:46:VAL:HG12	46:AW:58:ILE:HG12	1.77	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:M:76:MET:HG3	12:M:79:LYS:HE2	1.79	0.65
24:AA:1637:A:O2'	24:AA:1638:G:O5'	2.13	0.65
47:AX:114:SER:OG	47:AX:150:VAL:O	2.13	0.65
1:A:1302:U:H5'	12:M:110:ARG:HH12	1.61	0.65
9:J:7:ILE:HB	9:J:77:ILE:HB	1.77	0.65
18:S:63:THR:OG1	18:S:65:ASP:OD1	2.12	0.65
24:AA:748:G:N2	56:Ag:3:ASN:O	2.29	0.65
38:AO:70:PRO:HA	38:AO:95:ALA:HB2	1.78	0.65
15:P:68:ASP:OD1	15:P:69:THR:N	2.30	0.65
37:AN:91:ASN:H	37:AN:94:THR:HG22	1.62	0.65
31:AH:1:MET:SD	31:AH:6:ARG:NH1	2.70	0.65
1:A:1260:G:N2	1:A:1263:A:OP2	2.29	0.64
54:Ae:9:ALA:O	54:Ae:30:ASN:ND2	2.30	0.64
1:A:1376:C:O2'	6:G:80:ARG:NH1	2.31	0.64
1:A:1439:U:H3	1:A:1452:A:H61	1.45	0.64
3:D:94:GLU:O	3:D:99:ASN:ND2	2.30	0.64
24:AA:272:U:O2	24:AA:306:G:N2	2.31	0.64
24:AA:966:G:N2	24:AA:967:U:O2'	2.31	0.64
24:AA:2182:A:OP1	26:AC:37:LYS:N	2.29	0.64
24:AA:2627:G:N2	24:AA:2627:G:OP2	2.31	0.64
19:T:44:LYS:O	19:T:48:ILE:HG12	1.97	0.64
42:AS:26:GLY:O	42:AS:29:LYS:NZ	2.30	0.64
47:AX:33:VAL:HG22	47:AX:93:PHE:HB2	1.80	0.64
23:X:7:G:O2'	23:X:49:A:OP2	2.15	0.64
24:AA:488:G:OP2	24:AA:2452:A:O2'	2.16	0.64
24:AA:990:A:H62	38:AO:12:LYS:HA	1.61	0.64
24:AA:2177:G:H2'	24:AA:2178:G:H8	1.62	0.64
1:A:809:U:O2'	1:A:893:A:N1	2.30	0.64
24:AA:539:G:N2	24:AA:542:A:OP2	2.27	0.64
29:AF:126:ILE:HB	29:AF:146:PHE:HE2	1.63	0.64
24:AA:2913:A:OP1	53:Ad:50:TYR:OH	2.14	0.64
57:Ah:1:MET:HG2	57:Ah:2:LYS:HG3	1.79	0.64
24:AA:1880:C:O2'	24:AA:2025:U:OP2	2.17	0.63
24:AA:1086:C:OP1	35:AL:43:ARG:NH1	2.31	0.63
1:A:565:G:N7	11:L:1:MET:N	2.46	0.63
41:AR:27:VAL:HG12	41:AR:83:VAL:HG22	1.81	0.63
6:G:140:GLU:O	6:G:144:ARG:HG3	1.99	0.63
58:Ai:30:PHE:HE1	58:Ai:35:ILE:HG13	1.61	0.63
39:AP:30:LYS:HB2	39:AP:75:ILE:HD11	1.81	0.63
12:M:14:GLN:HB3	12:M:17:ILE:HD12	1.79	0.63
7:H:94:MET:HE1	7:H:106:ILE:HG21	1.79	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:S:9:PRO:O	52:Ac:81:SER:OG	2.17	0.63
18:S:40:ILE:HG23	18:S:44:MET:SD	2.38	0.63
31:AH:44:LYS:NZ	31:AH:53:ASP:OD1	2.32	0.63
58:Ai:16:LEU:CD1	58:Ai:16:LEU:O	2.46	0.63
1:A:640:A:N3	7:H:107:SER:OG	2.31	0.62
24:AA:2239:U:H2'	24:AA:2240:A:H8	1.64	0.62
43:AT:43:LYS:NZ	43:AT:103:PHE:OXT	2.31	0.62
24:AA:1651:G:H5'	27:AD:61:ARG:HA	1.81	0.62
29:AF:155:ILE:HB	29:AF:176:ILE:HD13	1.81	0.62
52:Ac:15:LYS:HD3	52:Ac:22:MET:HG2	1.80	0.62
10:K:14:LYS:NZ	24:AA:2197:C:OP2	2.31	0.62
16:Q:4:GLU:OE1	16:Q:4:GLU:N	2.26	0.62
20:U:7:ASP:HB2	20:U:10:GLU:HB2	1.80	0.62
24:AA:460:C:H2'	24:AA:462:C:H41	1.64	0.62
38:AO:135:ARG:HG3	47:AX:86:LYS:HE3	1.81	0.62
1:A:1216:G:OP2	1:A:1316:C:N4	2.25	0.62
28:AE:54:ASP:OD2	28:AE:77:LYS:NZ	2.25	0.62
47:AX:19:ASN:OD1	47:AX:22:ARG:NH1	2.29	0.62
49:AZ:18:VAL:HG22	49:AZ:37:LYS:HG2	1.81	0.62
24:AA:2046:G:N2	24:AA:2050:C:O2'	2.32	0.62
38:AO:65:TRP:HZ3	38:AO:107:SER:HB3	1.64	0.62
47:AX:124:THR:HB	47:AX:180:ILE:HG22	1.81	0.62
1:A:450:U:H2'	1:A:451:A:H8	1.65	0.62
18:S:50:SER:HB3	18:S:57:PHE:HB3	1.81	0.62
9:J:38:LYS:HG3	9:J:78:LEU:HD11	1.82	0.62
46:AW:91:ILE:HB	46:AW:100:ARG:HH12	1.65	0.62
3:D:64:TYR:OH	3:D:94:GLU:OE2	2.15	0.61
4:E:143:PHE:O	4:E:146:VAL:HG12	1.99	0.61
24:AA:1111:G:O2'	24:AA:2797:A:N6	2.33	0.61
28:AE:132:SER:OG	28:AE:133:HIS:N	2.31	0.61
36:AM:50:SER:O	36:AM:53:LYS:NZ	2.30	0.61
40:AQ:34:VAL:O	40:AQ:97:ASN:ND2	2.28	0.61
1:A:1249:G:OP1	2:C:26:LYS:NZ	2.33	0.61
12:M:32:GLU:O	12:M:36:LYS:HB2	2.01	0.61
42:AS:27:THR:OG1	42:AS:31:ASN:OD1	2.19	0.61
30:AG:179:PRO:HB3	52:Ac:58:TYR:HE1	1.65	0.61
24:AA:1089:A:H5''	42:AS:76:TYR:HE2	1.65	0.61
24:AA:1926:U:H3'	24:AA:1927:G:C8	2.36	0.61
29:AF:139:LEU:O	29:AF:143:ILE:HD12	2.01	0.61
30:AG:179:PRO:HB3	52:Ac:58:TYR:CE1	2.36	0.61
15:P:69:THR:HG23	15:P:72:MET:HE2	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:AA:1134:G:O2'	24:AA:1182:A:N6	2.34	0.61
37:AN:72:TYR:CE2	37:AN:109:LYS:HB2	2.31	0.61
50:Aa:57:GLU:OE1	50:Aa:63:ARG:NH2	2.32	0.61
1:A:1022:G:N2	1:A:1025:U:OP2	2.26	0.61
44:AU:93:ARG:NH1	44:AU:99:ASP:OD1	2.31	0.61
24:AA:863:A:OP1	27:AD:219:ARG:NH2	2.34	0.60
24:AA:1926:U:H3'	24:AA:1927:G:H8	1.64	0.60
12:M:87:TYR:OH	12:M:91:ARG:NH2	2.24	0.60
24:AA:1232:C:OP1	42:AS:92:ARG:NH2	2.32	0.60
1:A:700:U:OP2	24:AA:1902:A:O2'	2.18	0.60
5:F:88:MET:HE2	17:R:87:TYR:HD2	1.66	0.60
27:AD:73:LYS:NZ	27:AD:102:GLU:OE2	2.30	0.60
11:L:68:PRO:O	11:L:99:ARG:NH1	2.34	0.60
15:P:5:ILE:HG12	15:P:22:VAL:HG22	1.82	0.60
24:AA:190:G:N2	24:AA:190:G:OP2	2.32	0.60
47:AX:78:ASP:OD1	47:AX:79:ALA:N	2.34	0.60
10:K:22:VAL:HG11	10:K:101:ILE:HD11	1.84	0.60
24:AA:244:G:N2	24:AA:248:A:OP2	2.34	0.60
48:AY:37:ILE:HG22	48:AY:38:VAL:HG23	1.82	0.60
24:AA:2783:G:P	58:Ai:36:LYS:HZ2	2.23	0.60
3:D:122:ILE:HG23	3:D:142:ILE:HG23	1.84	0.60
10:K:87:ILE:HB	10:K:113:ASP:OD1	2.01	0.60
1:A:763:G:N1	1:A:810:G:O2'	2.30	0.59
10:K:37:ASP:OD1	10:K:38:ILE:N	2.33	0.59
18:S:42:PRO:HD3	52:Ac:74:PHE:HE2	1.67	0.59
6:G:73:LEU:HB2	6:G:143:HIS:HE1	1.66	0.59
23:X:6:U:O2	23:X:68:G:N2	2.35	0.59
24:AA:2520:U:OP2	24:AA:2521:C:N4	2.29	0.59
3:D:147:LYS:HB3	3:D:150:LEU:HG	1.85	0.59
12:M:16:LYS:HD3	12:M:41:PRO:HB2	1.83	0.59
14:O:34:ARG:HA	14:O:37:TYR:CE1	2.38	0.59
23:X:18:G:H1	23:X:55:U:H1'	1.68	0.59
24:AA:990:A:N3	24:AA:2310:C:O2'	2.31	0.59
47:AX:167:VAL:C	47:AX:168:ARG:HD3	2.27	0.59
58:Ai:16:LEU:C	58:Ai:16:LEU:CD1	2.74	0.59
28:AE:3:GLY:HA2	28:AE:201:VAL:O	2.02	0.59
2:C:17:ASP:OD1	2:C:18:TRP:N	2.36	0.59
12:M:1:MET:HE3	30:AG:146:TYR:HB3	1.83	0.59
24:AA:392:C:OP2	29:AF:137:LYS:NZ	2.36	0.59
24:AA:2073:A:H61	24:AA:2089:G:H1	1.50	0.59
30:AG:136:THR:OG1	30:AG:137:GLU:OE1	2.15	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:Ai:17:ILE:HD12	58:Ai:18:SER:H	1.68	0.59
46:AW:66:ASP:OD1	46:AW:67:ILE:N	2.35	0.58
1:A:1040:G:O2'	1:A:1210:U:OP1	2.18	0.58
24:AA:967:U:H2'	24:AA:968:C:H3'	1.85	0.58
24:AA:2179:G:H2'	24:AA:2227:A:H61	1.66	0.58
1:A:1273:A:OP1	9:J:10:ARG:NH2	2.31	0.58
2:C:98:ILE:HD11	2:C:102:ILE:HD11	1.85	0.58
10:K:95:GLU:OE1	10:K:99:ARG:NH2	2.35	0.58
24:AA:2464:G:OP1	56:Ag:46:ARG:NH1	2.36	0.58
1:A:398:U:OP1	3:D:69:ARG:NH1	2.31	0.58
27:AD:1:MET:SD	27:AD:199:ASN:HA	2.43	0.58
3:D:148:ASP:OD1	3:D:149:SER:N	2.36	0.58
35:AL:38:VAL:HG21	35:AL:62:ILE:HD11	1.85	0.58
43:AT:34:GLU:HG2	43:AT:58:LEU:HD12	1.86	0.58
47:AX:115:ILE:HA	47:AX:118:LYS:HD2	1.86	0.58
1:A:1376:C:O3'	6:G:80:ARG:NH2	2.37	0.58
12:M:23:TYR:HB3	12:M:67:GLU:HB3	1.86	0.58
19:T:35:CYS:O	19:T:39:ILE:HG12	2.03	0.58
24:AA:556:A:OP2	46:AW:45:LYS:NZ	2.33	0.58
24:AA:2531:G:OP1	38:AO:46:GLN:NE2	2.26	0.58
38:AO:29:PHE:N	38:AO:105:GLU:OE2	2.37	0.58
40:AQ:66:LEU:HB3	40:AQ:72:ASP:HB3	1.86	0.58
43:AT:40:LEU:HD12	43:AT:49:ILE:HG22	1.86	0.58
54:Ae:27:THR:HG22	54:Ae:28:THR:H	1.69	0.58
24:AA:190:G:O2'	24:AA:759:G:N2	2.35	0.57
24:AA:875:A:OP2	24:AA:2125:A:O2'	2.22	0.57
58:Ai:17:ILE:HD11	58:Ai:21:GLY:C	2.29	0.57
1:A:424:U:H5''	3:D:10:LYS:HE2	1.86	0.57
7:H:68:ASN:OD1	7:H:69:LYS:HG2	2.04	0.57
35:AL:64:ASN:OD1	35:AL:67:LYS:NZ	2.37	0.57
9:J:9:VAL:CG1	9:J:75:ILE:HB	2.34	0.57
58:Ai:27:LYS:HD2	58:Ai:27:LYS:N	2.20	0.57
19:T:51:PHE:HA	19:T:54:VAL:HG12	1.85	0.57
28:AE:115:LYS:HD2	39:AP:1:MET:HE2	1.85	0.57
1:A:813:A:N7	1:A:1505:C:O2'	2.35	0.57
42:AS:109:ILE:O	42:AS:113:ILE:HG12	2.04	0.57
1:A:129:G:H1'	1:A:172:G:H1	1.70	0.57
3:D:148:ASP:HB2	3:D:152:LYS:NZ	2.19	0.57
24:AA:1540:C:HO2'	24:AA:2748:G:HO2'	1.49	0.57
28:AE:179:ASP:OD2	28:AE:182:LYS:HB2	2.05	0.57
1:A:739:G:OP1	14:O:34:ARG:NH2	2.33	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:AA:1123:U:OP1	24:AA:1124:A:O2'	2.19	0.57
58:Ai:45:LYS:HE3	58:Ai:45:LYS:HA	1.86	0.57
1:A:1284:G:OP1	6:G:35:LYS:NZ	2.37	0.57
34:AK:82:LYS:O	34:AK:87:ILE:N	2.35	0.57
24:AA:717:G:OP1	37:AN:129:LYS:NZ	2.34	0.57
29:AF:126:ILE:HD12	29:AF:146:PHE:CE2	2.39	0.57
1:A:125:C:H4'	15:P:65:ILE:HD11	1.87	0.57
3:D:148:ASP:HB2	3:D:152:LYS:HZ3	1.69	0.57
22:W:3:PRO:HB3	22:W:38:LEU:HD22	1.87	0.57
24:AA:1157:A:N6	47:AX:118:LYS:O	2.38	0.57
24:AA:1387:G:OP2	55:Af:9:ARG:NH2	2.37	0.57
38:AO:1:MET:HE1	38:AO:45:ARG:HG3	1.86	0.57
2:C:73:THR:HG21	2:C:79:VAL:HG21	1.87	0.56
9:J:29:ALA:HA	9:J:32:LYS:HE2	1.87	0.56
24:AA:1455:A:O2'	24:AA:1457:G:OP2	2.23	0.56
24:AA:1871:G:OP1	27:AD:89:ARG:NH2	2.37	0.56
22:W:90:GLU:HA	22:W:93:LYS:HG2	1.87	0.56
27:AD:146:ILE:HB	27:AD:156:LEU:HB2	1.86	0.56
47:AX:105:TYR:HB3	47:AX:129:GLN:HG3	1.87	0.56
47:AX:117:VAL:HG21	47:AX:123:LEU:HD22	1.87	0.56
1:A:403:G:H21	3:D:115:GLN:HE22	1.53	0.56
1:A:738:U:OP1	14:O:1:MET:N	2.38	0.56
1:A:1322:C:O2'	12:M:29:ARG:NH2	2.38	0.56
6:G:144:ARG:NH1	23:X:41:C:O2'	2.38	0.56
12:M:3:ARG:HE	12:M:6:GLY:HA2	1.71	0.56
24:AA:354:A:H2'	24:AA:355:A:H8	1.70	0.56
24:AA:2535:G:O2'	24:AA:2564:A:N6	2.37	0.56
6:G:153:THR:OG1	6:G:156:ARG:NH2	2.39	0.56
24:AA:1747:A:H61	24:AA:2050:C:H42	1.53	0.56
29:AF:7:SER:N	29:AF:11:LYS:O	2.23	0.56
1:A:399:G:OP1	3:D:70:GLN:NE2	2.39	0.56
22:W:73:LEU:HD23	24:AA:1967:A:H2	1.69	0.56
24:AA:305:U:H2'	24:AA:306:G:C8	2.40	0.56
1:A:1141:C:O2	8:I:24:ARG:NH1	2.39	0.56
1:A:1172:G:N2	1:A:1175:G:OP2	2.39	0.56
24:AA:967:U:H3'	24:AA:968:C:H5''	1.87	0.56
25:AB:84:G:O6	51:Ab:35:ARG:NH2	2.39	0.56
30:AG:104:TYR:HH	52:Ac:23:PHE:HD1	1.53	0.56
38:AO:130:MET:HE1	47:AX:84:ALA:O	2.06	0.56
42:AS:72:THR:OG1	42:AS:114:ARG:NH2	2.38	0.56
45:AV:68:SER:OG	45:AV:69:ARG:N	2.39	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:Ac:15:LYS:HB2	52:Ac:45:LEU:HD11	1.88	0.56
2:C:32:ILE:O	2:C:35:GLU:HG2	2.06	0.56
3:D:94:GLU:OE1	3:D:103:ARG:NE	2.32	0.56
24:AA:97:C:O2'	24:AA:98:A:O5'	2.20	0.56
24:AA:330:G:H5'	24:AA:331:U:H5''	1.87	0.56
36:AM:110:ASN:HD21	58:Ai:10:ARG:HG3	1.71	0.56
1:A:1210:U:O3'	13:N:9:ARG:NH2	2.39	0.56
14:O:3:ASP:OD1	14:O:6:GLN:NE2	2.37	0.56
24:AA:952:U:OP2	38:AO:5:LYS:NZ	2.39	0.56
32:AI:9:PHE:HB2	32:AI:12:LEU:HB2	1.87	0.56
43:AT:43:LYS:HE2	43:AT:103:PHE:HB2	1.87	0.56
24:AA:1066:C:O2'	24:AA:1079:A:N3	2.37	0.56
31:AH:28:GLY:HA3	31:AH:79:VAL:HB	1.88	0.56
1:A:567:G:O6	1:A:857:A:N6	2.39	0.55
12:M:44:ILE:HG23	12:M:46:LYS:H	1.71	0.55
17:R:81:GLU:OE2	17:R:84:ARG:NH1	2.39	0.55
31:AH:147:GLU:OE2	58:Ai:30:PHE:CE1	2.59	0.55
1:A:444:G:O2'	1:A:484:A:N6	2.39	0.55
1:A:670:U:H3	1:A:732:A:H61	1.54	0.55
24:AA:1168:G:N2	24:AA:1169:U:O4	2.31	0.55
24:AA:2641:G:N2	24:AA:2644:A:OP2	2.32	0.55
31:AH:35:GLN:OE1	31:AH:36:ASP:N	2.40	0.55
42:AS:76:TYR:HA	42:AS:79:PHE:HB3	1.89	0.55
53:Ad:16:ARG:O	53:Ad:20:ASN:ND2	2.35	0.55
1:A:1145:G:H5''	9:J:45:THR:HG23	1.89	0.55
4:E:150:GLU:HG2	4:E:151:LYS:N	2.21	0.55
24:AA:2513:C:O2	38:AO:124:LYS:NZ	2.38	0.55
22:W:95:ASN:OD1	23:X:34:G:N1	2.39	0.55
24:AA:2879:U:H4'	24:AA:2880:A:H5'	1.88	0.55
39:AP:12:ARG:HD3	39:AP:16:HIS:CD2	2.42	0.55
37:AN:28:THR:OG1	37:AN:32:GLY:O	2.25	0.55
58:Ai:42:GLN:HA	58:Ai:45:LYS:HZ1	1.71	0.55
20:U:31:GLU:OE2	20:U:35:ARG:NE	2.35	0.55
22:W:7:THR:OG1	22:W:12:LEU:HD21	2.06	0.55
24:AA:1872:U:O2'	27:AD:156:LEU:O	2.23	0.55
57:Ah:25:ILE:HB	57:Ah:34:GLN:HB2	1.88	0.55
25:AB:29:C:H1'	25:AB:56:A:H61	1.71	0.55
30:AG:101:GLU:HG3	52:Ac:26:LYS:HB2	1.88	0.55
1:A:294:G:N2	1:A:297:A:OP2	2.37	0.55
5:F:15:GLU:HG2	5:F:58:ARG:NH2	2.22	0.55
24:AA:1563:A:O2'	24:AA:1564:U:O5'	2.24	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:AH:103:LEU:HD11	31:AH:123:VAL:HG11	1.88	0.55
38:AO:97:VAL:HG11	38:AO:103:MET:HE2	1.89	0.55
54:Ae:39:GLU:HB3	54:Ae:52:LEU:HD11	1.88	0.55
1:A:312:A:O2'	1:A:313:C:OP2	2.25	0.55
5:F:12:LYS:NZ	5:F:83:ASN:HA	2.22	0.55
24:AA:1993:U:OP1	24:AA:2650:U:O2'	2.24	0.55
24:AA:2831:U:H2'	24:AA:2832:A:C8	2.42	0.55
29:AF:153:VAL:HG22	29:AF:192:ASN:HB2	1.89	0.55
43:AT:58:LEU:H	43:AT:102:VAL:HB	1.72	0.55
1:A:1070:G:N2	1:A:1073:A:OP2	2.37	0.55
24:AA:36:C:N4	24:AA:524:A:OP2	2.40	0.55
30:AG:114:VAL:HB	30:AG:117:PHE:HB2	1.88	0.55
3:D:139:ASN:OD1	3:D:181:LYS:NZ	2.23	0.54
9:J:24:GLU:HA	9:J:27:VAL:HG12	1.88	0.54
24:AA:163:U:O2'	49:AZ:89:GLU:OE1	2.21	0.54
24:AA:1636:U:O2'	24:AA:1637:A:OP1	2.24	0.54
24:AA:2887:G:N2	24:AA:2890:A:OP2	2.30	0.54
27:AD:56:GLY:HA3	27:AD:219:ARG:HG3	1.89	0.54
30:AG:59:GLU:O	30:AG:63:ILE:HG12	2.07	0.54
43:AT:32:LYS:HE2	43:AT:62:THR:HG22	1.88	0.54
47:AX:147:LEU:HD13	47:AX:181:ILE:HD11	1.88	0.54
52:Ac:52:SER:HA	52:Ac:55:HIS:CE1	2.42	0.54
53:Ad:29:GLN:OE1	53:Ad:40:ARG:NH1	2.40	0.54
12:M:49:ASP:N	12:M:52:GLU:OE2	2.36	0.54
37:AN:90:VAL:HG23	37:AN:120:VAL:HG11	1.88	0.54
1:A:997:A:O5'	1:A:1032:U:O2'	2.25	0.54
24:AA:383:A:P	46:AW:19:ARG:HH12	2.30	0.54
24:AA:1181:C:H2'	24:AA:1182:A:H8	1.71	0.54
40:AQ:92:LEU:HB2	40:AQ:119:ILE:HG22	1.90	0.54
24:AA:1572:G:H21	24:AA:1575:A:H8	1.55	0.54
42:AS:108:LYS:NZ	43:AT:47:VAL:O	2.38	0.54
52:Ac:38:ILE:H	52:Ac:38:ILE:HD12	1.71	0.54
1:A:780:A:H62	1:A:798:G:H21	1.55	0.54
4:E:81:PRO:HB2	4:E:82:HIS:HD1	1.72	0.54
24:AA:313:U:H1'	24:AA:314:A:C8	2.42	0.54
24:AA:1158:C:N4	24:AA:1167:A:OP2	2.41	0.54
24:AA:2734:G:N1	24:AA:2767:U:OP2	2.34	0.54
1:A:1529:C:H41	20:U:54:ARG:HH21	1.53	0.54
24:AA:2185:U:O4'	24:AA:2212:A:N6	2.41	0.54
31:AH:59:LYS:N	31:AH:59:LYS:HD2	2.23	0.54
58:Ai:27:LYS:HB2	58:Ai:38:TYR:CZ	2.43	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:526:G:N1	11:L:47:SER:OG	2.37	0.54
8:I:18:ARG:HG3	8:I:19:LYS:H	1.73	0.54
46:AW:48:LYS:O	46:AW:50:ARG:NH1	2.41	0.54
1:A:400:C:H5'	3:D:132:PRO:HD2	1.89	0.54
2:C:63:ASN:HB3	2:C:66:LYS:HB3	1.90	0.54
24:AA:718:A:H8	37:AN:113:ASN:HD21	1.54	0.54
35:AL:96:ARG:O	35:AL:100:GLU:HG3	2.08	0.54
12:M:13:LYS:HD2	12:M:18:ALA:HA	1.90	0.54
16:Q:9:LEU:HB3	16:Q:26:ILE:HD12	1.90	0.54
24:AA:2421:G:N2	24:AA:2424:A:OP2	2.37	0.54
29:AF:4:LYS:HE3	29:AF:12:GLU:HG3	1.89	0.54
31:AH:59:LYS:HD2	31:AH:59:LYS:H	1.71	0.54
1:A:1341:G:C8	8:I:115:ARG:HG2	2.43	0.54
10:K:90:PRO:HG3	20:U:32:TRP:CZ3	2.44	0.54
12:M:86:CYS:HB2	18:S:73:GLU:HG3	1.90	0.54
27:AD:144:HIS:HA	27:AD:157:ILE:HD11	1.90	0.54
46:AW:91:ILE:HB	46:AW:100:ARG:NH1	2.23	0.54
1:A:882:G:O2'	1:A:898:G:O6	2.25	0.53
1:A:1446:U:H5'	1:A:1447:A:H3'	1.89	0.53
24:AA:2783:G:P	58:Ai:36:LYS:NZ	2.81	0.53
27:AD:233:PRO:HB3	27:AD:245:ARG:NH1	2.24	0.53
30:AG:77:ILE:O	30:AG:82:ILE:N	2.33	0.53
58:Ai:25:ILE:HD12	58:Ai:42:GLN:CD	2.32	0.53
24:AA:348:A:H61	24:AA:430:C:H42	1.55	0.53
24:AA:592:G:OP1	53:Ad:17:ARG:NH1	2.41	0.53
24:AA:2622:G:O2'	24:AA:2625:C:OP2	2.26	0.53
30:AG:80:PHE:HB2	30:AG:82:ILE:HG12	1.90	0.53
1:A:650:U:O4	1:A:750:G:O2'	2.19	0.53
12:M:39:ILE:HG13	12:M:56:LEU:HD11	1.90	0.53
54:Ae:43:TYR:HB2	54:Ae:50:HIS:CE1	2.42	0.53
58:Ai:23:LYS:C	58:Ai:24:ILE:HD13	2.33	0.53
2:C:8:TYR:O	2:C:12:VAL:HG23	2.08	0.53
24:AA:1029:A:OP1	51:Ab:12:LYS:NZ	2.42	0.53
24:AA:2025:U:H1'	27:AD:242:SER:HB3	1.90	0.53
3:D:156:SER:O	3:D:159:GLU:HG3	2.08	0.53
5:F:15:GLU:HG2	5:F:58:ARG:HH22	1.74	0.53
7:H:67:ASP:OD1	7:H:71:ASN:N	2.38	0.53
24:AA:1623:C:H2'	24:AA:1624:A:H8	1.74	0.53
32:AI:29:TYR:HD2	32:AI:30:LEU:HD23	1.73	0.53
1:A:123:A:H61	15:P:1:MET:HG3	1.73	0.53
10:K:18:GLY:O	10:K:82:TYR:HB2	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:N:13:LYS:NZ	13:N:14:PRO:O	2.34	0.53
17:R:57:THR:HG23	17:R:59:GLN:H	1.73	0.53
24:AA:1003:A:H4'	48:AY:29:GLN:HG3	1.89	0.53
31:AH:72:ILE:HA	31:AH:75:MET:HE2	1.91	0.53
39:AP:8:ASN:C	39:AP:10:LEU:H	2.14	0.53
45:AV:4:TYR:CD1	50:Aa:20:LYS:HB3	2.43	0.53
51:Ab:4:ARG:HA	51:Ab:7:ARG:HG2	1.90	0.53
55:Af:49:LYS:O	55:Af:50:LYS:HB2	2.09	0.53
1:A:8:G:O2'	1:A:9:A:O5'	2.26	0.53
1:A:1040:G:H5''	13:N:4:LYS:HD2	1.91	0.53
3:D:152:LYS:HD3	3:D:155:ARG:HH21	1.74	0.53
18:S:5:ILE:HG21	52:Ac:77:ARG:NH2	2.23	0.53
24:AA:1621:A:H2'	24:AA:1622:G:C8	2.44	0.53
41:AR:88:ARG:O	41:AR:112:GLU:HB2	2.09	0.53
47:AX:34:TYR:HB3	47:AX:40:VAL:HG12	1.90	0.53
1:A:1110:G:H5''	8:I:112:ARG:HH22	1.73	0.53
24:AA:2056:G:P	39:AP:9:ARG:HH21	2.32	0.53
24:AA:1920:A:N6	24:AA:1929:G:O2'	2.42	0.53
24:AA:2264:U:OP1	49:AZ:59:SER:OG	2.25	0.53
25:AB:34:U:O2'	25:AB:35:A:O5'	2.19	0.53
39:AP:100:LEU:HD13	53:Ad:43:ILE:HD12	1.91	0.53
43:AT:4:LEU:HB2	43:AT:40:LEU:HB3	1.90	0.53
16:Q:69:SER:OG	16:Q:70:LYS:N	2.42	0.53
24:AA:362:U:N3	24:AA:417:U:OP1	2.28	0.53
24:AA:1462:A:O2'	24:AA:1473:U:O2	2.27	0.53
27:AD:145:ASN:OD1	27:AD:154:GLY:HA3	2.09	0.53
37:AN:27:LYS:HG3	37:AN:28:THR:N	2.22	0.53
46:AW:19:ARG:O	46:AW:21:ARG:N	2.42	0.53
1:A:498:C:OP1	11:L:114:ARG:NH2	2.29	0.52
3:D:77:GLU:HA	3:D:80:LYS:HD3	1.91	0.52
3:D:197:GLU:O	3:D:201:VAL:HG23	2.08	0.52
12:M:16:LYS:HG3	12:M:17:ILE:HG13	1.92	0.52
12:M:49:ASP:OD1	12:M:50:ASN:N	2.37	0.52
29:AF:154:VAL:HG22	29:AF:175:LYS:HB2	1.90	0.52
32:AI:51:ARG:O	32:AI:56:LYS:N	2.27	0.52
42:AS:89:LYS:NZ	43:AT:6:GLU:OE1	2.42	0.52
14:O:42:LEU:HD21	14:O:52:LYS:HG3	1.91	0.52
24:AA:1281:A:H62	24:AA:1318:A:H62	1.57	0.52
36:AM:107:ARG:HD2	36:AM:112:MET:SD	2.50	0.52
42:AS:91:ASN:OD1	42:AS:92:ARG:N	2.42	0.52
1:A:176:A:H2'	1:A:177:G:H8	1.74	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:AA:592:G:H21	44:AU:80:MET:HE3	1.74	0.52
24:AA:633:U:O2'	35:AL:53:HIS:O	2.26	0.52
24:AA:2148:A:H5'	32:AI:25:PHE:HD1	1.74	0.52
24:AA:2755:G:O2'	24:AA:2756:U:OP1	2.27	0.52
37:AN:85:LYS:HG3	37:AN:88:GLN:HE22	1.74	0.52
47:AX:10:GLN:OE1	47:AX:46:LYS:NZ	2.42	0.52
47:AX:125:VAL:HA	47:AX:179:VAL:HG12	1.91	0.52
6:G:69:ASN:OD1	6:G:131:SER:OG	2.24	0.52
9:J:57:HIS:CE1	9:J:58:VAL:HG13	2.44	0.52
24:AA:1703:G:O2'	24:AA:1704:U:OP1	2.26	0.52
46:AW:93:TYR:HD2	46:AW:98:GLY:HA2	1.73	0.52
20:U:45:ARG:O	20:U:49:GLU:HG2	2.10	0.52
24:AA:737:A:H4'	24:AA:738:G:H5'	1.90	0.52
24:AA:1184:U:H2'	24:AA:1185:G:H8	1.75	0.52
58:AI:27:LYS:HB2	58:AI:38:TYR:CE1	2.44	0.52
58:AI:44:SER:HB2	58:AI:46:ASN:OD1	2.09	0.52
1:A:370:A:N1	1:A:388:G:O2'	2.39	0.52
1:A:444:G:N1	1:A:483:U:OP1	2.35	0.52
12:M:93:ARG:HG3	24:AA:968:C:C5	2.45	0.52
13:N:13:LYS:HD2	13:N:14:PRO:HD2	1.91	0.52
54:Ae:27:THR:HG22	54:Ae:28:THR:N	2.24	0.52
58:AI:23:LYS:O	58:AI:24:ILE:HD13	2.09	0.52
58:AI:30:PHE:CE1	58:AI:35:ILE:HG13	2.43	0.52
3:D:142:ILE:HB	3:D:180:ILE:HB	1.90	0.52
13:N:48:ALA:HB2	13:N:53:ILE:HD12	1.92	0.52
24:AA:1157:A:C5	47:AX:118:LYS:HB3	2.44	0.52
24:AA:2260:G:N2	24:AA:2263:A:OP2	2.43	0.52
29:AF:138:ASP:O	29:AF:142:ILE:HG12	2.09	0.52
39:AP:100:LEU:HD11	53:Ad:56:LEU:HD11	1.92	0.52
42:AS:69:LEU:HD12	42:AS:76:TYR:HB3	1.91	0.52
1:A:1213:U:OP1	13:N:19:ARG:NH2	2.42	0.52
5:F:22:LEU:HD21	5:F:26:LYS:HZ2	1.75	0.52
10:K:94:ARG:O	10:K:98:ILE:HD12	2.10	0.52
12:M:31:LEU:O	12:M:35:ASN:ND2	2.43	0.52
12:M:88:ARG:HG2	12:M:98:LEU:HD12	1.91	0.52
52:Ac:55:HIS:HB3	52:Ac:57:PHE:H	1.75	0.52
1:A:451:A:OP2	1:A:475:G:N1	2.30	0.52
2:C:11:ARG:NH2	2:C:178:LEU:O	2.42	0.52
3:D:170:TRP:CD1	3:D:170:TRP:H	2.27	0.52
11:L:69:GLY:HA3	11:L:107:VAL:HG11	1.92	0.52
12:M:29:ARG:HA	12:M:32:GLU:OE1	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:AN:54:LEU:HD13	37:AN:57:ARG:HH21	1.75	0.52
40:AQ:82:LYS:HA	40:AQ:85:LYS:HE2	1.92	0.52
44:AU:88:LYS:HD2	44:AU:100:ARG:NH2	2.24	0.52
24:AA:1376:G:N1	24:AA:1723:A:OP2	2.31	0.52
24:AA:1990:A:OP2	24:AA:2016:C:N4	2.39	0.52
24:AA:2730:U:O2'	36:AM:68:GLU:OE2	2.27	0.52
24:AA:2758:A:H2'	24:AA:2759:G:C8	2.45	0.52
58:AI:40:GLU:OE2	58:AI:45:LYS:NZ	2.43	0.52
1:A:967:G:H1	9:J:63:ARG:HH12	1.55	0.51
11:L:46:ASN:ND2	11:L:89:ASP:OD1	2.43	0.51
24:AA:1134:G:N1	24:AA:1181:C:OP2	2.33	0.51
31:AH:42:ASN:C	31:AH:44:LYS:HZ3	2.18	0.51
1:A:241:U:O4	1:A:884:A:N6	2.42	0.51
10:K:81:ASN:HA	10:K:106:MET:HG3	1.92	0.51
24:AA:766:G:O2'	24:AA:870:A:N7	2.43	0.51
1:A:1006:G:N2	1:A:1009:A:OP2	2.38	0.51
8:I:50:LEU:O	8:I:53:MET:HB3	2.10	0.51
24:AA:1192:U:H2'	24:AA:1193:A:H8	1.74	0.51
45:AV:4:TYR:HD1	50:Aa:20:LYS:HB3	1.76	0.51
47:AX:116:GLY:O	47:AX:121:GLY:N	2.43	0.51
22:W:13:ASN:O	22:W:16:GLU:HG2	2.11	0.51
24:AA:1192:U:H2'	24:AA:1193:A:C8	2.45	0.51
24:AA:1526:A:HO2'	24:AA:1608:G:HO2'	1.58	0.51
39:AP:49:GLU:OE1	39:AP:94:TYR:N	2.41	0.51
24:AA:328:U:O4	24:AA:329:A:N6	2.43	0.51
24:AA:846:A:H5''	27:AD:211:GLY:HA2	1.93	0.51
47:AX:14:SER:HB3	47:AX:19:ASN:CB	2.40	0.51
6:G:48:ASP:OD1	6:G:59:LYS:NZ	2.32	0.51
8:I:33:ASN:OD1	8:I:34:ILE:N	2.44	0.51
24:AA:2178:G:O2'	26:AC:41:THR:O	2.28	0.51
1:A:556:G:H4'	1:A:557:A:H3'	1.93	0.51
1:A:1132:U:O2'	1:A:1134:G:OP1	2.28	0.51
6:G:101:ALA:O	6:G:105:ILE:HD12	2.11	0.51
43:AT:19:PHE:HE1	43:AT:64:LYS:HG3	1.75	0.51
9:J:36:GLN:HG2	9:J:78:LEU:HB2	1.93	0.51
23:X:51:G:H2'	23:X:52:A:H8	1.76	0.51
24:AA:722:U:O2'	24:AA:2396:U:OP1	2.29	0.51
24:AA:862:G:N1	27:AD:231:ASP:OD1	2.40	0.51
24:AA:997:A:H5''	24:AA:2314:A:H61	1.76	0.51
24:AA:1240:U:O2'	43:AT:23:ASP:OD1	2.24	0.51
38:AO:74:TYR:HB2	38:AO:94:ASN:OD1	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:753:G:OP2	14:O:64:SER:OG	2.28	0.51
24:AA:359:A:H2'	24:AA:360:U:O4'	2.11	0.51
24:AA:591:C:O2'	44:AU:22:ARG:NH2	2.43	0.51
24:AA:1122:G:O2'	24:AA:1190:A:N6	2.44	0.51
24:AA:2586:U:O2'	24:AA:2787:A:N3	2.42	0.51
42:AS:90:ILE:HG22	42:AS:91:ASN:H	1.75	0.51
48:AY:12:ASN:HA	48:AY:14:ARG:NH2	2.25	0.51
12:M:48:LEU:HD23	12:M:48:LEU:H	1.76	0.50
24:AA:2325:G:N7	48:AY:14:ARG:NH1	2.59	0.50
24:AA:2914:U:O4	53:Ad:41:HIS:HA	2.11	0.50
37:AN:7:PRO:HG2	37:AN:10:ALA:HB2	1.93	0.50
50:Aa:10:GLU:CD	50:Aa:10:GLU:H	2.18	0.50
24:AA:1489:A:O2'	24:AA:1490:G:O5'	2.22	0.50
24:AA:1737:A:O2'	28:AE:117:PHE:O	2.25	0.50
1:A:941:A:N7	12:M:106:ASN:ND2	2.59	0.50
1:A:992:A:O2'	1:A:993:U:O5'	2.27	0.50
8:I:113:ASP:OD2	8:I:115:ARG:NH2	2.34	0.50
10:K:30:ASN:OD1	10:K:31:THR:N	2.44	0.50
12:M:49:ASP:CG	12:M:50:ASN:H	2.19	0.50
24:AA:224:A:H1'	24:AA:226:A:N1	2.26	0.50
28:AE:121:MET:HG3	28:AE:126:PHE:O	2.11	0.50
29:AF:8:LYS:HA	29:AF:126:ILE:HD11	1.93	0.50
17:R:56:ILE:HG22	17:R:57:THR:O	2.12	0.50
24:AA:1121:C:H2'	24:AA:1122:G:C8	2.46	0.50
41:AR:32:ILE:HG22	41:AR:37:GLU:HG3	1.93	0.50
1:A:940:C:H2'	1:A:941:A:H8	1.77	0.50
9:J:8:ARG:HG3	9:J:74:LEU:HD11	1.94	0.50
25:AB:11:U:O2'	25:AB:13:A:OP2	2.29	0.50
27:AD:163:TYR:HB3	27:AD:196:GLU:HG2	1.93	0.50
31:AH:54:ARG:HH11	31:AH:65:HIS:CD2	2.29	0.50
1:A:377:G:N2	1:A:380:A:OP2	2.30	0.50
18:S:62:ILE:HA	18:S:66:LEU:HD22	1.93	0.50
19:T:24:VAL:O	19:T:27:GLU:HB3	2.12	0.50
39:AP:99:LYS:O	53:Ad:43:ILE:HG13	2.12	0.50
1:A:1195:A:H4'	1:A:1196:U:O5'	2.11	0.50
24:AA:1192:U:O2'	24:AA:1193:A:OP1	2.26	0.50
39:AP:83:ILE:O	39:AP:86:VAL:HG22	2.11	0.50
1:A:398:U:H2'	1:A:399:G:C8	2.46	0.50
11:L:107:VAL:HG23	11:L:110:ARG:HB2	1.92	0.50
24:AA:745:G:H5''	37:AN:15:LYS:HB2	1.94	0.50
24:AA:966:G:H1	24:AA:971:A:H61	1.60	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:AA:1190:A:O2'	24:AA:1191:G:O4'	2.28	0.50
24:AA:1523:G:O2'	24:AA:1524:C:OP1	2.27	0.50
24:AA:1579:C:H2'	24:AA:1580:C:H4'	1.94	0.50
24:AA:2085:A:N3	24:AA:2501:G:O2'	2.40	0.50
32:AI:9:PHE:HZ	32:AI:35:PHE:CD2	2.29	0.50
52:Ac:37:TYR:HD1	52:Ac:39:ASP:H	1.59	0.50
1:A:118:G:N2	1:A:185:G:OP2	2.33	0.50
25:AB:29:C:O2'	25:AB:56:A:N1	2.44	0.50
30:AG:151:ARG:NH1	30:AG:152:ILE:O	2.45	0.50
30:AG:178:MET:SD	30:AG:179:PRO:HD2	2.52	0.50
38:AO:37:LEU:HD21	38:AO:130:MET:HB2	1.93	0.50
1:A:966:A:O4'	13:N:31:ARG:NH2	2.45	0.49
1:A:1341:G:O6	8:I:18:ARG:NH2	2.44	0.49
2:C:82:LEU:O	2:C:85:SER:OG	2.19	0.49
4:E:81:PRO:HB2	4:E:82:HIS:ND1	2.27	0.49
24:AA:286:C:O2'	24:AA:330:G:O3'	2.29	0.49
31:AH:36:ASP:OD2	31:AH:37:ILE:N	2.45	0.49
41:AR:88:ARG:CZ	41:AR:113:ARG:HH12	2.25	0.49
45:AV:2:LYS:HD2	45:AV:3:ALA:H	1.77	0.49
45:AV:79:THR:HG22	45:AV:80:SER:H	1.76	0.49
53:Ad:36:ASN:OD1	53:Ad:37:LEU:N	2.45	0.49
1:A:88:C:H2'	1:A:89:A:C8	2.47	0.49
1:A:520:A:N6	11:L:89:ASP:OD2	2.45	0.49
5:F:28:SER:HA	5:F:77:ARG:HH22	1.77	0.49
6:G:93:ARG:O	6:G:97:ARG:HG3	2.12	0.49
6:G:98:GLU:HB3	6:G:102:MET:HE2	1.94	0.49
19:T:24:VAL:O	19:T:28:LEU:HD23	2.12	0.49
22:W:90:GLU:HA	22:W:93:LYS:CG	2.42	0.49
24:AA:603:A:OP2	35:AL:122:ARG:NH2	2.45	0.49
24:AA:1918:U:OP1	24:AA:2456:G:O2'	2.25	0.49
41:AR:10:GLN:O	41:AR:13:LYS:NZ	2.45	0.49
47:AX:122:ILE:O	47:AX:181:ILE:HA	2.12	0.49
6:G:18:TYR:CD1	6:G:60:MET:HE3	2.46	0.49
9:J:10:ARG:HG2	9:J:74:LEU:HD13	1.94	0.49
12:M:66:VAL:CG1	12:M:67:GLU:H	2.21	0.49
24:AA:1089:A:H5''	42:AS:76:TYR:CE2	2.46	0.49
24:AA:1141:G:N2	24:AA:1154:C:O2	2.46	0.49
24:AA:1854:C:OP2	27:AD:184:ARG:NH2	2.45	0.49
27:AD:54:ARG:HD2	27:AD:221:LYS:HA	1.93	0.49
27:AD:109:PRO:HD2	27:AD:112:ILE:HD13	1.93	0.49
55:Af:8:SER:OG	55:Af:9:ARG:N	2.46	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:M:66:VAL:HG12	12:M:67:GLU:N	2.21	0.49
16:Q:4:GLU:H	16:Q:4:GLU:CD	2.07	0.49
24:AA:1617:A:H4'	24:AA:1618:G:O5'	2.13	0.49
24:AA:2423:A:O2'	40:AQ:119:ILE:OXT	2.26	0.49
24:AA:2858:C:H2'	24:AA:2859:A:H8	1.77	0.49
4:E:148:ASN:ND2	4:E:150:GLU:OE2	2.45	0.49
7:H:29:MET:HG3	7:H:60:ILE:HD11	1.95	0.49
14:O:16:LYS:HG3	14:O:17:ASN:ND2	2.27	0.49
24:AA:578:A:H4'	24:AA:579:U:O5'	2.13	0.49
25:AB:86:U:H4'	25:AB:87:C:O5'	2.12	0.49
1:A:449:A:H1'	15:P:72:MET:HE1	1.95	0.49
1:A:814:A:OP1	1:A:1522:G:O2'	2.26	0.49
1:A:1342:U:H4'	8:I:128:ARG:HG3	1.95	0.49
7:H:36:ILE:O	7:H:40:LEU:HD23	2.12	0.49
24:AA:472:U:H2'	24:AA:473:G:C8	2.48	0.49
37:AN:66:SER:O	37:AN:67:ASP:HB2	2.12	0.49
54:Ae:43:TYR:HA	54:Ae:50:HIS:HA	1.93	0.49
1:A:649:C:O2'	1:A:650:U:OP1	2.28	0.49
2:C:92:GLN:O	2:C:96:LYS:HG3	2.12	0.49
3:D:24:LYS:O	3:D:28:ILE:HG12	2.13	0.49
8:I:32:GLY:N	8:I:68:ASP:OD1	2.44	0.49
23:X:69:C:N4	23:X:70:G:O6	2.46	0.49
24:AA:320:U:H3	24:AA:439:A:H2	1.60	0.49
24:AA:718:A:OP1	37:AN:112:SER:OG	2.28	0.49
2:C:74:PRO:HG2	2:C:75:ARG:NH1	2.28	0.49
5:F:86:ARG:HG2	17:R:88:MET:HE1	1.95	0.49
24:AA:651:A:OP2	24:AA:2545:C:O2'	2.29	0.49
24:AA:959:A:H3'	24:AA:960:G:H8	1.76	0.49
24:AA:1135:A:H2'	24:AA:1136:G:H8	1.76	0.49
24:AA:2207:A:H2'	24:AA:2208:G:C8	2.47	0.49
24:AA:2716:G:OP1	58:Ai:51:PRO:HB2	2.12	0.49
28:AE:37:LYS:HG3	28:AE:48:LEU:HD23	1.95	0.49
30:AG:80:PHE:O	30:AG:81:LYS:HG3	2.12	0.49
1:A:1264:U:H2'	1:A:1265:G:H8	1.77	0.49
20:U:2:VAL:HG13	20:U:22:MET:HE2	1.94	0.49
24:AA:1484:C:O2'	24:AA:1485:U:OP1	2.28	0.49
24:AA:2202:G:H2'	24:AA:2203:G:C8	2.47	0.49
41:AR:28:VAL:HB	41:AR:82:LYS:HG2	1.93	0.49
51:Ab:31:MET:CE	51:Ab:93:ASN:HA	2.40	0.49
24:AA:1529:C:O2'	24:AA:1530:G:N2	2.46	0.49
24:AA:1807:G:H5''	41:AR:92:ARG:HD3	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:AN:84:PHE:O	37:AN:118:LYS:HE3	2.13	0.49
51:Ab:40:LYS:HB3	51:Ab:43:ILE:HD13	1.94	0.49
1:A:212:G:H1'	1:A:463:A:H61	1.77	0.48
1:A:1111:U:P	8:I:112:ARG:HH21	2.36	0.48
22:W:22:LYS:HA	22:W:25:GLU:OE1	2.12	0.48
24:AA:284:A:H2'	24:AA:285:G:O4'	2.13	0.48
53:Ad:57:GLU:N	53:Ad:57:GLU:OE1	2.46	0.48
10:K:24:ILE:HB	10:K:87:ILE:HD13	1.93	0.48
24:AA:1147:A:H4'	24:AA:1148:A:H5''	1.94	0.48
24:AA:2207:A:H2'	24:AA:2208:G:H8	1.77	0.48
24:AA:2831:U:O2'	24:AA:2832:A:OP1	2.28	0.48
35:AL:51:THR:HG22	35:AL:53:HIS:H	1.78	0.48
4:E:11:ILE:H	4:E:11:ILE:HD12	1.78	0.48
24:AA:305:U:H2'	24:AA:306:G:H8	1.77	0.48
24:AA:840:G:H2'	24:AA:841:G:H8	1.79	0.48
24:AA:1500:A:H2'	24:AA:1501:G:H8	1.79	0.48
24:AA:1572:G:N2	24:AA:1575:A:OP2	2.45	0.48
1:A:176:A:H2'	1:A:177:G:C8	2.48	0.48
1:A:515:C:O2'	1:A:527:G:N2	2.47	0.48
1:A:1144:A:N6	1:A:1145:G:O6	2.46	0.48
24:AA:1360:G:N2	24:AA:1363:A:OP2	2.46	0.48
58:Ai:27:LYS:HE2	58:Ai:27:LYS:CA	2.43	0.48
15:P:17:TYR:HD1	15:P:41:HIS:CD2	2.32	0.48
24:AA:282:C:N4	24:AA:295:G:OP2	2.47	0.48
24:AA:555:A:H4'	24:AA:556:A:H5'	1.96	0.48
24:AA:1585:A:O2'	24:AA:1586:G:O5'	2.26	0.48
38:AO:66:ILE:HG12	38:AO:104:PHE:HE1	1.79	0.48
43:AT:27:PRO:HA	43:AT:30:LYS:HG3	1.96	0.48
1:A:560:A:H61	1:A:876:U:H3	1.60	0.48
3:D:189:ASP:OD2	3:D:190:GLU:N	2.46	0.48
24:AA:2177:G:H2'	24:AA:2178:G:C8	2.47	0.48
24:AA:2773:C:O2	36:AM:67:LYS:NZ	2.47	0.48
30:AG:103:LEU:O	30:AG:107:ILE:HG22	2.14	0.48
30:AG:114:VAL:HG22	30:AG:140:ILE:HG21	1.94	0.48
38:AO:52:ILE:HG22	38:AO:56:ARG:HH21	1.78	0.48
46:AW:41:ASN:HB2	46:AW:65:ILE:HD11	1.95	0.48
51:Ab:59:LYS:O	51:Ab:63:VAL:HG23	2.14	0.48
57:Ah:33:LYS:O	57:Ah:34:GLN:HG3	2.14	0.48
1:A:1341:G:O5'	8:I:115:ARG:HG3	2.13	0.48
3:D:172:GLU:HB3	3:D:181:LYS:HB3	1.96	0.48
6:G:33:ASP:HB3	6:G:35:LYS:HD2	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:G:79:ARG:NH1	6:G:157:TRP:O	2.46	0.48
9:J:41:ILE:HG22	9:J:74:LEU:HB3	1.95	0.48
10:K:73:ASN:HB3	10:K:76:ARG:NH2	2.28	0.48
24:AA:1157:A:C6	47:AX:118:LYS:HB3	2.48	0.48
24:AA:1792:C:O2'	24:AA:2889:A:N3	2.45	0.48
24:AA:2173:A:H61	24:AA:2222:G:H1'	1.79	0.48
1:A:1135:U:H2'	1:A:1136:G:C8	2.49	0.48
5:F:32:PHE:HB3	5:F:66:MET:HE3	1.96	0.48
8:I:98:GLU:OE2	8:I:101:LYS:HD3	2.14	0.48
19:T:43:LYS:HD3	19:T:46:GLU:OE2	2.14	0.48
24:AA:235:C:O2'	24:AA:684:A:N3	2.46	0.48
24:AA:1037:U:O2	38:AO:16:ARG:NH1	2.47	0.48
45:AV:79:THR:HG22	45:AV:80:SER:N	2.29	0.48
1:A:915:A:O2'	1:A:1393:C:OP2	2.30	0.48
1:A:1010:U:O4	1:A:1011:A:N6	2.46	0.48
1:A:1110:G:H5''	8:I:112:ARG:NH2	2.29	0.48
8:I:34:ILE:HD12	8:I:69:LEU:HD12	1.96	0.48
22:W:36:ASP:OD2	22:W:56:HIS:ND1	2.45	0.48
23:X:9:A:O3'	23:X:45:U:O2'	2.29	0.48
24:AA:1623:C:H2'	24:AA:1624:A:C8	2.48	0.48
24:AA:2052:A:OP2	28:AE:139:ARG:NH2	2.47	0.48
24:AA:2790:C:OP2	24:AA:2802:C:N4	2.46	0.48
24:AA:2803:U:OP2	57:Ah:19:ARG:NE	2.35	0.48
24:AA:2862:U:H4'	24:AA:2863:U:H5''	1.96	0.48
6:G:100:LEU:HD12	6:G:104:TRP:CZ2	2.49	0.48
8:I:42:ASP:HA	8:I:51:ARG:HD3	1.95	0.48
24:AA:532:G:O2'	24:AA:533:A:OP1	2.27	0.48
24:AA:2169:G:O2'	24:AA:2221:U:O2	2.29	0.48
52:Ac:8:LYS:NZ	52:Ac:9:ASN:O	2.43	0.48
1:A:968:G:OP2	1:A:1352:U:O2'	2.32	0.47
1:A:978:A:N3	18:S:52:TYR:OH	2.39	0.47
1:A:1341:G:H5''	8:I:116:LYS:O	2.14	0.47
2:C:153:LYS:HG3	2:C:172:LYS:HB2	1.96	0.47
5:F:21:SER:HA	5:F:24:GLU:CD	2.40	0.47
13:N:5:SER:HB2	13:N:9:ARG:NH2	2.29	0.47
16:Q:4:GLU:HG2	16:Q:5:ASN:H	1.79	0.47
24:AA:401:U:H4'	46:AW:66:ASP:OD2	2.13	0.47
24:AA:2192:U:H2'	24:AA:2193:A:H8	1.79	0.47
28:AE:25:THR:OG1	28:AE:189:GLY:O	2.27	0.47
1:A:478:G:O2'	1:A:480:C:N4	2.46	0.47
1:A:1002:G:H1	1:A:1013:U:H3	1.62	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1122:C:O2'	1:A:1123:A:O5'	2.31	0.47
5:F:13:SER:O	5:F:58:ARG:HD2	2.14	0.47
13:N:17:LYS:O	13:N:20:GLN:HG3	2.13	0.47
24:AA:1568:A:H2'	24:AA:1569:A:C8	2.49	0.47
30:AG:67:LYS:HD3	52:Ac:5:ILE:HD12	1.96	0.47
32:AI:5:LEU:HD23	32:AI:9:PHE:HD2	1.78	0.47
40:AQ:64:LEU:HB3	40:AQ:66:LEU:HD23	1.96	0.47
2:C:119:ILE:O	2:C:123:ILE:HG12	2.13	0.47
16:Q:51:LYS:HB2	16:Q:53:VAL:HG23	1.96	0.47
24:AA:76:A:C2	50:Aa:53:THR:HG23	2.49	0.47
24:AA:436:A:H2'	24:AA:437:A:C8	2.49	0.47
24:AA:828:U:H5'	24:AA:830:U:H1'	1.95	0.47
24:AA:2249:U:H2'	24:AA:2250:C:C6	2.49	0.47
30:AG:51:LYS:NZ	30:AG:150:GLU:HB3	2.29	0.47
30:AG:143:GLU:OE2	52:Ac:29:LEU:N	2.47	0.47
43:AT:31:ASP:OD1	43:AT:31:ASP:N	2.45	0.47
50:Aa:12:MET:HE1	50:Aa:54:MET:HB3	1.94	0.47
50:Aa:21:LYS:HE2	50:Aa:21:LYS:HA	1.97	0.47
1:A:76:U:H2'	1:A:77:A:H8	1.79	0.47
3:D:145:LYS:HB3	3:D:150:LEU:HD12	1.96	0.47
6:G:139:LYS:HE3	6:G:143:HIS:CD2	2.50	0.47
12:M:90:VAL:HG23	12:M:93:ARG:HD2	1.95	0.47
24:AA:887:G:H22	24:AA:910:U:H5''	1.79	0.47
25:AB:37:C:H2'	25:AB:38:A:C8	2.48	0.47
30:AG:163:ALA:HB1	30:AG:168:GLU:HB2	1.96	0.47
31:AH:163:LYS:NZ	31:AH:164:TYR:O	2.45	0.47
24:AA:799:A:H2'	24:AA:800:A:O4'	2.15	0.47
24:AA:1190:A:H8	24:AA:1191:G:H1'	1.80	0.47
24:AA:1563:A:H61	24:AA:1588:G:H2'	1.80	0.47
24:AA:2170:G:N2	24:AA:2216:A:OP1	2.44	0.47
47:AX:116:GLY:HA2	47:AX:152:LYS:HG3	1.95	0.47
1:A:873:G:P	11:L:9:ARG:HH22	2.37	0.47
2:C:137:LEU:HD12	2:C:169:PHE:HD1	1.80	0.47
24:AA:1035:G:OP2	38:AO:14:ARG:NH1	2.47	0.47
24:AA:2074:A:H3'	53:Ad:9:SER:HB3	1.96	0.47
24:AA:2352:U:H5''	24:AA:2353:G:H2'	1.96	0.47
44:AU:63:MET:HE1	44:AU:71:GLU:CG	2.44	0.47
45:AV:23:ILE:HG13	45:AV:25:VAL:HG23	1.95	0.47
1:A:562:U:OP2	1:A:563:G:O2'	2.32	0.47
1:A:839:A:H3'	1:A:840:A:H8	1.79	0.47
1:A:952:U:H4'	1:A:953:U:H5''	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:E:36:MET:HG2	4:E:63:LEU:HD23	1.97	0.47
4:E:148:ASN:OD1	4:E:151:LYS:HB2	2.15	0.47
6:G:143:HIS:O	6:G:147:GLU:HG3	2.14	0.47
10:K:75:VAL:HG22	10:K:78:PHE:HB2	1.96	0.47
11:L:105:LEU:HD23	11:L:105:LEU:H	1.79	0.47
15:P:4:LYS:HG2	15:P:65:ILE:HB	1.97	0.47
17:R:56:ILE:HD11	17:R:82:ILE:HD13	1.95	0.47
24:AA:5:G:H2'	24:AA:6:G:C8	2.50	0.47
24:AA:606:A:H4'	24:AA:607:G:C8	2.49	0.47
24:AA:670:U:H2'	24:AA:671:G:C8	2.50	0.47
24:AA:756:G:H5''	29:AF:75:GLY:N	2.30	0.47
24:AA:958:U:H1'	24:AA:980:A:H61	1.79	0.47
24:AA:1402:G:OP1	24:AA:1730:G:O2'	2.27	0.47
24:AA:1622:G:HO2'	24:AA:1623:C:P	2.37	0.47
24:AA:2192:U:H2'	24:AA:2193:A:C8	2.50	0.47
25:AB:31:U:H2'	25:AB:32:G:C8	2.50	0.47
27:AD:68:PHE:HE1	27:AD:107:ILE:HD11	1.80	0.47
37:AN:17:VAL:HG22	37:AN:29:SER:HB3	1.97	0.47
40:AQ:3:LYS:O	40:AQ:6:GLU:HG3	2.15	0.47
42:AS:76:TYR:CD1	42:AS:76:TYR:N	2.80	0.47
43:AT:60:ARG:NE	43:AT:100:GLU:OE2	2.41	0.47
52:Ac:14:PHE:CD1	52:Ac:46:VAL:HB	2.50	0.47
1:A:410:G:H4'	1:A:411:A:H5''	1.97	0.47
1:A:493:A:H2'	1:A:494:U:H5	1.80	0.47
1:A:533:C:N4	1:A:534:G:O6	2.48	0.47
1:A:1138:G:H21	1:A:1140:A:H62	1.63	0.47
5:F:5:TYR:CE2	5:F:71:LEU:HD21	2.49	0.47
5:F:10:LEU:HD22	5:F:85:LEU:HD12	1.96	0.47
6:G:40:GLU:OE1	8:I:49:ASN:ND2	2.48	0.47
7:H:11:LEU:HD22	7:H:77:ILE:HD11	1.96	0.47
17:R:37:PHE:CE1	17:R:78:LEU:HD12	2.50	0.47
24:AA:144:A:H5'	24:AA:145:U:H5''	1.96	0.47
24:AA:1538:U:H4'	24:AA:1539:C:O5'	2.15	0.47
24:AA:1714:G:N2	24:AA:1717:A:OP2	2.41	0.47
24:AA:1936:U:O2'	24:AA:1937:G:OP1	2.27	0.47
45:AV:97:ILE:HG23	45:AV:98:PHE:HD2	1.80	0.47
47:AX:105:TYR:HE1	47:AX:131:LYS:HB2	1.80	0.47
1:A:1040:G:OP1	13:N:4:LYS:NZ	2.39	0.47
1:A:1118:U:OP1	9:J:38:LYS:NZ	2.43	0.47
2:C:22:TRP:HB3	2:C:61:ARG:HB3	1.96	0.47
24:AA:2716:G:H5''	58:Ai:55:PHE:HZ	1.79	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:AA:2914:U:O4	53:Ad:50:TYR:OH	2.33	0.47
36:AM:68:GLU:HB3	36:AM:78:ARG:HB2	1.96	0.47
37:AN:135:VAL:CG1	37:AN:140:CYS:HB2	2.44	0.47
41:AR:2:ASP:HB2	41:AR:5:ARG:HD3	1.96	0.47
49:AZ:71:SER:O	49:AZ:75:ILE:HG22	2.15	0.47
50:Aa:58:TYR:CE1	50:Aa:63:ARG:HD2	2.50	0.47
1:A:839:A:H3'	1:A:840:A:C8	2.50	0.47
24:AA:246:C:OP2	24:AA:2440:C:O2'	2.30	0.47
24:AA:1622:G:O2'	24:AA:1623:C:OP1	2.27	0.47
24:AA:2661:U:C2	53:Ad:4:PRO:HA	2.50	0.47
53:Ad:25:ILE:HD12	53:Ad:25:ILE:H	1.80	0.47
1:A:542:C:OP1	3:D:57:LYS:NZ	2.48	0.46
2:C:141:LEU:HD11	2:C:173:GLU:OE1	2.15	0.46
3:D:155:ARG:HA	3:D:158:ILE:HG22	1.97	0.46
18:S:60:ILE:HG22	18:S:61:TYR:O	2.15	0.46
19:T:45:ASP:O	19:T:48:ILE:HB	2.14	0.46
24:AA:35:C:O2'	24:AA:1315:G:OP1	2.29	0.46
24:AA:928:A:H1'	24:AA:929:G:P	2.54	0.46
24:AA:1105:A:H61	24:AA:1206:U:H5	1.63	0.46
31:AH:44:LYS:HB3	31:AH:46:GLU:OE1	2.14	0.46
41:AR:57:THR:HG22	41:AR:74:PRO:HA	1.97	0.46
42:AS:94:ILE:HG21	43:AT:4:LEU:HD13	1.96	0.46
44:AU:17:SER:O	44:AU:21:VAL:HG23	2.15	0.46
1:A:1289:U:O2'	1:A:1296:C:N4	2.48	0.46
5:F:21:SER:HA	5:F:24:GLU:OE2	2.16	0.46
24:AA:670:U:H2'	24:AA:671:G:H8	1.79	0.46
24:AA:2715:A:O3'	58:Ai:51:PRO:HG2	2.15	0.46
29:AF:62:LYS:NZ	29:AF:74:VAL:O	2.39	0.46
38:AO:54:MET:HE1	38:AO:104:PHE:CG	2.50	0.46
46:AW:97:ASN:CB	46:AW:99:GLN:HE22	2.27	0.46
1:A:172:G:H3'	1:A:173:G:H5'	1.98	0.46
1:A:1154:G:H22	1:A:1170:A:H2	1.62	0.46
1:A:1246:A:H61	1:A:1279:A:H61	1.61	0.46
3:D:60:ILE:HD11	3:D:195:ALA:HB3	1.97	0.46
6:G:22:ILE:HD11	6:G:98:GLU:HG2	1.98	0.46
7:H:114:THR:HG23	7:H:117:GLU:H	1.81	0.46
9:J:9:VAL:HG13	9:J:75:ILE:HB	1.97	0.46
24:AA:1675:U:H2'	24:AA:1676:A:C8	2.50	0.46
24:AA:1703:G:HO2'	24:AA:1704:U:P	2.38	0.46
24:AA:1923:U:N3	24:AA:1925:A:H5''	2.31	0.46
31:AH:1:MET:SD	31:AH:2:SER:N	2.88	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:AQ:33:THR:HG22	40:AQ:95:ASP:HB3	1.96	0.46
10:K:35:VAL:HG11	10:K:75:VAL:HG11	1.97	0.46
22:W:59:TRP:CG	22:W:94:LYS:HZ2	2.34	0.46
24:AA:88:A:N1	24:AA:102:A:O2'	2.46	0.46
44:AU:79:VAL:HG22	44:AU:110:VAL:HG22	1.97	0.46
1:A:74:U:H2'	1:A:75:G:C8	2.51	0.46
1:A:560:A:O2'	1:A:563:G:O2'	2.24	0.46
1:A:1004:U:H2'	1:A:1005:A:C8	2.50	0.46
11:L:30:ARG:O	11:L:81:LEU:HD12	2.16	0.46
12:M:58:LYS:O	12:M:62:SER:HB3	2.16	0.46
24:AA:1172:G:H21	24:AA:1177:A:H62	1.62	0.46
24:AA:1294:U:H2'	24:AA:1295:A:C8	2.50	0.46
24:AA:1651:G:H5''	27:AD:62:LYS:HG3	1.96	0.46
1:A:987:C:H4'	13:N:8:ILE:HD13	1.98	0.46
8:I:77:GLY:O	8:I:81:GLN:HG3	2.16	0.46
15:P:60:ILE:HG12	15:P:66:LEU:HD11	1.96	0.46
24:AA:120:G:OP2	24:AA:122:A:O2'	2.33	0.46
24:AA:627:C:H3'	24:AA:628:G:H5''	1.97	0.46
24:AA:2715:A:P	58:AI:26:MET:HE3	2.55	0.46
27:AD:53:ARG:HB2	27:AD:54:ARG:HG3	1.97	0.46
40:AQ:84:LEU:HD11	40:AQ:89:ILE:HB	1.98	0.46
1:A:1374:U:O2	1:A:1376:C:N4	2.47	0.46
6:G:103:LYS:NZ	6:G:107:PHE:HB2	2.31	0.46
24:AA:101:U:O4	24:AA:102:A:N6	2.49	0.46
24:AA:267:A:OP2	24:AA:309:G:N1	2.33	0.46
24:AA:473:G:OP1	49:AZ:10:LYS:HE2	2.16	0.46
30:AG:51:LYS:HD3	30:AG:150:GLU:HG2	1.97	0.46
38:AO:33:GLY:C	38:AO:118:MET:HE1	2.41	0.46
47:AX:62:VAL:HG11	47:AX:136:PRO:O	2.16	0.46
52:Ac:14:PHE:CE1	52:Ac:46:VAL:HB	2.51	0.46
1:A:630:U:HO2'	1:A:631:A:H8	1.63	0.46
1:A:1141:C:H5'	8:I:13:MET:HE1	1.98	0.46
12:M:52:GLU:HA	12:M:55:ARG:NH1	2.30	0.46
15:P:9:ARG:NH2	15:P:16:PRO:HB3	2.31	0.46
15:P:69:THR:HA	15:P:72:MET:HE2	1.98	0.46
24:AA:2249:U:O2'	24:AA:2250:C:OP1	2.34	0.46
24:AA:2465:U:H4'	54:Ae:26:THR:HG21	1.96	0.46
24:AA:2515:A:H62	24:AA:2527:G:H21	1.63	0.46
24:AA:2524:A:OP2	57:Ah:2:LYS:NZ	2.44	0.46
38:AO:135:ARG:NE	38:AO:135:ARG:HA	2.31	0.46
58:AI:28:SER:HA	58:AI:36:LYS:O	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:E:106:ALA:HB1	4:E:110:VAL:HB	1.97	0.46
24:AA:522:C:OP1	42:AS:2:ALA:N	2.48	0.46
24:AA:774:U:H2'	24:AA:775:A:C8	2.50	0.46
24:AA:2304:C:O2'	24:AA:2473:C:OP2	2.33	0.46
24:AA:2927:U:H2'	24:AA:2928:G:C8	2.50	0.46
42:AS:34:LYS:HA	42:AS:34:LYS:HD2	1.70	0.46
1:A:1127:U:H4'	1:A:1128:G:OP1	2.16	0.46
2:C:47:LEU:O	2:C:50:ILE:N	2.48	0.46
3:D:124:LEU:N	3:D:127:ARG:O	2.46	0.46
3:D:181:LYS:HD2	3:D:181:LYS:HA	1.72	0.46
23:X:66:C:N4	23:X:67:G:O6	2.49	0.46
24:AA:350:U:O2'	24:AA:351:U:O5'	2.25	0.46
24:AA:2362:U:OP1	40:AQ:3:LYS:NZ	2.50	0.46
29:AF:10:GLY:HA2	29:AF:146:PHE:CE1	2.44	0.46
37:AN:114:GLY:O	37:AN:115:LYS:HE2	2.16	0.46
38:AO:54:MET:HG3	38:AO:121:ALA:HB2	1.98	0.46
47:AX:105:TYR:CE1	47:AX:131:LYS:HB2	2.51	0.46
51:Ab:5:LYS:O	51:Ab:9:GLN:HG3	2.16	0.46
54:Ae:15:LEU:HB2	54:Ae:25:TYR:HB2	1.97	0.46
11:L:106:GLY:HA3	11:L:119:THR:HG22	1.97	0.45
24:AA:1573:G:H2'	24:AA:1574:A:H5''	1.98	0.45
25:AB:12:A:H2'	25:AB:13:A:H3'	1.98	0.45
38:AO:134:ARG:C	38:AO:136:ASP:H	2.23	0.45
5:F:4:ARG:HD3	5:F:64:PHE:O	2.15	0.45
7:H:65:LYS:HG2	7:H:73:VAL:HG21	1.98	0.45
24:AA:225:A:H4'	24:AA:226:A:O5'	2.15	0.45
24:AA:1582:U:H4'	27:AD:97:VAL:HG11	1.97	0.45
24:AA:2414:C:H2'	24:AA:2415:A:H8	1.81	0.45
41:AR:36:ASN:OD1	41:AR:37:GLU:N	2.49	0.45
44:AU:70:SER:H	44:AU:73:MET:HE2	1.81	0.45
1:A:705:U:OP1	10:K:88:LYS:NZ	2.40	0.45
1:A:767:G:H4'	1:A:1509:A:H4'	1.98	0.45
1:A:996:G:C8	1:A:1017:U:H2'	2.52	0.45
12:M:32:GLU:HA	12:M:35:ASN:ND2	2.32	0.45
14:O:66:LEU:HD22	14:O:77:TYR:HE1	1.81	0.45
22:W:45:GLU:HG2	22:W:46:HIS:CE1	2.50	0.45
24:AA:654:A:OP1	24:AA:1332:U:O2'	2.32	0.45
24:AA:775:A:O2'	24:AA:1430:A:N3	2.46	0.45
24:AA:1074:C:OP1	42:AS:53:ARG:NH1	2.49	0.45
24:AA:1555:A:H2'	24:AA:1556:G:O4'	2.16	0.45
36:AM:12:ASP:OD2	36:AM:14:THR:HG23	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:AN:69:LYS:HB3	37:AN:71:GLU:HG2	1.99	0.45
1:A:519:C:OP2	11:L:66:TYR:OH	2.30	0.45
5:F:28:SER:CA	5:F:77:ARG:HH22	2.28	0.45
10:K:24:ILE:HG12	10:K:33:VAL:HG22	1.98	0.45
12:M:23:TYR:HD2	12:M:67:GLU:HA	1.81	0.45
23:X:51:G:H2'	23:X:52:A:C8	2.52	0.45
24:AA:2835:C:O2'	24:AA:2839:A:N3	2.41	0.45
30:AG:132:SER:HA	30:AG:157:ILE:O	2.16	0.45
39:AP:51:LEU:HD11	39:AP:69:PHE:CD2	2.51	0.45
40:AQ:64:LEU:O	40:AQ:66:LEU:HD22	2.15	0.45
54:Ae:16:ILE:O	54:Ae:53:HIS:HA	2.17	0.45
55:Af:50:LYS:HB3	55:Af:50:LYS:HE2	1.75	0.45
58:Ai:37:HIS:O	58:Ai:49:ARG:HD3	2.16	0.45
58:Ai:49:ARG:HD2	58:Ai:49:ARG:C	2.40	0.45
1:A:56:C:OP1	1:A:348:G:N2	2.50	0.45
1:A:927:A:O2'	1:A:1377:U:O2	2.29	0.45
24:AA:91:A:H5''	24:AA:92:G:H5'	1.99	0.45
24:AA:802:C:N4	24:AA:803:A:H62	2.14	0.45
28:AE:180:GLU:OE1	28:AE:180:GLU:N	2.44	0.45
1:A:1064:C:H2'	1:A:1065:G:H8	1.82	0.45
4:E:71:ARG:NH2	4:E:144:ASP:OD2	2.49	0.45
24:AA:292:A:H2'	24:AA:293:G:H5'	1.99	0.45
24:AA:1525:U:H2'	24:AA:1526:A:C8	2.51	0.45
24:AA:2181:G:H2'	24:AA:2182:A:C8	2.52	0.45
27:AD:147:GLU:HB3	27:AD:190:CYS:HB3	1.99	0.45
28:AE:69:LYS:HG3	28:AE:70:SER:N	2.32	0.45
28:AE:75:GLU:O	28:AE:77:LYS:HD3	2.17	0.45
29:AF:6:PHE:HA	29:AF:12:GLU:HA	1.98	0.45
39:AP:95:THR:HB	39:AP:113:LEU:HD11	1.99	0.45
43:AT:43:LYS:HZ2	43:AT:48:LYS:HE2	1.81	0.45
46:AW:51:THR:N	46:AW:52:PRO:HD2	2.32	0.45
47:AX:127:LYS:HZ2	47:AX:158:LEU:HD11	1.81	0.45
49:AZ:23:LEU:HB3	49:AZ:29:GLY:HA3	1.97	0.45
1:A:1122:C:H5''	8:I:72:ASN:ND2	2.32	0.45
1:A:1254:G:O2'	1:A:1269:A:N6	2.50	0.45
2:C:178:LEU:HD23	2:C:185:ILE:HD13	1.98	0.45
5:F:74:PHE:CZ	5:F:78:LEU:HD11	2.51	0.45
13:N:23:ARG:HG2	13:N:30:PRO:HA	1.98	0.45
24:AA:648:A:OP2	43:AT:80:ARG:NH2	2.30	0.45
24:AA:1500:A:H2'	24:AA:1501:G:C8	2.51	0.45
24:AA:1568:A:H2'	24:AA:1569:A:H8	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:AN:118:LYS:O	37:AN:120:VAL:HG23	2.17	0.45
37:AN:120:VAL:HG12	37:AN:121:SER:N	2.32	0.45
50:Aa:6:ASN:OD1	50:Aa:6:ASN:N	2.50	0.45
1:A:1406:C:H2'	1:A:1407:A:C8	2.52	0.45
4:E:82:HIS:CE1	4:E:147:LEU:H	2.35	0.45
6:G:144:ARG:NH1	23:X:41:C:O3'	2.49	0.45
9:J:28:LYS:O	9:J:32:LYS:HG3	2.16	0.45
18:S:9:PRO:HD3	52:Ac:78:TYR:HA	1.98	0.45
24:AA:1082:G:O2'	24:AA:1089:A:N1	2.45	0.45
24:AA:1155:A:H1'	24:AA:1156:U:H5'	1.99	0.45
24:AA:1587:A:N6	24:AA:1588:G:N7	2.65	0.45
28:AE:41:ASP:OD1	28:AE:41:ASP:N	2.45	0.45
31:AH:148:ILE:O	31:AH:151:LEU:HB2	2.16	0.45
46:AW:42:MET:HE3	46:AW:60:ASP:HB3	1.97	0.45
47:AX:12:ARG:HB3	47:AX:44:ARG:HE	1.82	0.45
50:Aa:12:MET:SD	50:Aa:54:MET:HE2	2.57	0.45
1:A:1072:G:H4'	4:E:133:MET:HE1	1.99	0.45
1:A:1120:A:H1'	1:A:1274:A:N6	2.32	0.45
18:S:5:ILE:HG21	52:Ac:77:ARG:CZ	2.47	0.45
18:S:30:VAL:HG23	18:S:48:THR:HG22	1.99	0.45
23:X:9:A:H5'	23:X:46:G:H21	1.81	0.45
24:AA:313:U:H3	24:AA:446:U:H3	1.65	0.45
25:AB:109:A:H2'	25:AB:110:G:C8	2.52	0.45
30:AG:59:GLU:OE1	30:AG:138:GLN:NE2	2.50	0.45
39:AP:22:LYS:O	39:AP:26:ILE:HG12	2.17	0.45
1:A:23:G:H2'	1:A:24:G:C8	2.51	0.45
1:A:321:G:N2	1:A:324:A:OP2	2.50	0.45
1:A:851:A:OP2	1:A:861:G:N1	2.30	0.45
1:A:1273:A:H5''	9:J:10:ARG:HH12	1.82	0.45
3:D:198:GLN:O	3:D:202:GLU:HG3	2.16	0.45
12:M:32:GLU:O	12:M:36:LYS:CB	2.65	0.45
12:M:32:GLU:HA	12:M:35:ASN:HD21	1.81	0.45
20:U:33:LYS:HE3	20:U:33:LYS:HB3	1.74	0.45
24:AA:118:C:HO2'	24:AA:130:A:HO2'	1.57	0.45
29:AF:2:GLU:OE2	29:AF:15:THR:HB	2.16	0.45
44:AU:24:ILE:HD12	44:AU:43:MET:SD	2.57	0.45
58:Ai:38:TYR:CD2	58:Ai:47:THR:HG23	2.52	0.45
1:A:518:G:N7	11:L:50:ARG:NH1	2.65	0.44
1:A:1340:A:N1	1:A:1368:A:H5''	2.32	0.44
2:C:123:ILE:O	2:C:127:VAL:HG22	2.17	0.44
12:M:65:ILE:HG23	12:M:69:LYS:HB2	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:M:99:ARG:HB2	12:M:101:GLN:OE1	2.18	0.44
14:O:32:THR:HG23	14:O:36:LYS:HE2	1.99	0.44
22:W:30:HIS:NE2	22:W:91:LYS:HD3	2.32	0.44
24:AA:990:A:C5	38:AO:13:GLN:HG3	2.52	0.44
24:AA:1043:U:O2'	24:AA:2319:A:N3	2.37	0.44
24:AA:1148:A:H2'	24:AA:1176:U:H4'	1.99	0.44
24:AA:1496:A:N7	24:AA:1574:A:N6	2.65	0.44
24:AA:1637:A:O2'	24:AA:1638:G:H8	2.00	0.44
24:AA:2715:A:C5'	58:AI:26:MET:CE	2.95	0.44
37:AN:45:LEU:HD23	37:AN:45:LEU:H	1.82	0.44
37:AN:120:VAL:O	37:AN:140:CYS:HB3	2.16	0.44
1:A:755:U:H2'	1:A:756:G:O4'	2.18	0.44
2:C:38:LEU:HD12	2:C:41:ARG:NH2	2.33	0.44
12:M:11:ASN:OD1	12:M:12:ASN:N	2.50	0.44
24:AA:802:C:H2'	24:AA:803:A:H8	1.82	0.44
24:AA:1146:G:O2'	24:AA:1147:A:OP1	2.27	0.44
24:AA:1914:G:H2'	24:AA:1915:A:H8	1.83	0.44
42:AS:72:THR:OG1	42:AS:73:GLY:N	2.50	0.44
1:A:8:G:H4'	1:A:9:A:OP1	2.17	0.44
1:A:1143:C:P	8:I:17:ARG:HH21	2.41	0.44
8:I:15:THR:O	8:I:91:ARG:HD2	2.18	0.44
12:M:69:LYS:O	12:M:73:GLU:OE1	2.35	0.44
21:V:25:ARG:C	21:V:27:LYS:H	2.25	0.44
24:AA:2276:G:O2'	49:AZ:43:LYS:O	2.33	0.44
24:AA:2805:A:C4	31:AH:67:LEU:HD21	2.52	0.44
25:AB:111:G:OP2	25:AB:111:G:H8	2.00	0.44
27:AD:35:THR:HA	27:AD:63:TYR:O	2.17	0.44
27:AD:71:ARG:NH2	27:AD:147:GLU:OE1	2.49	0.44
53:AD:41:HIS:O	53:AD:42:ARG:HD3	2.18	0.44
1:A:594:G:O3'	16:Q:38:TYR:OH	2.34	0.44
1:A:632:U:H2'	1:A:633:G:H8	1.82	0.44
4:E:155:MET:HE2	7:H:73:VAL:HA	1.98	0.44
9:J:7:ILE:HD11	9:J:80:PRO:HB3	2.00	0.44
9:J:9:VAL:HA	9:J:100:ASP:O	2.18	0.44
24:AA:1355:U:H2'	24:AA:1356:G:C8	2.53	0.44
37:AN:135:VAL:O	37:AN:138:ILE:HG22	2.17	0.44
40:AQ:32:ILE:HD12	40:AQ:44:GLN:O	2.17	0.44
41:AR:109:LYS:HB2	41:AR:109:LYS:HE2	1.79	0.44
42:AS:111:LEU:HD13	42:AS:114:ARG:HH12	1.82	0.44
58:AI:30:PHE:O	58:AI:31:GLU:OE2	2.35	0.44
1:A:1177:U:O2'	1:A:1178:G:OP1	2.35	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1234:U:H5'	6:G:117:MET:HE1	1.99	0.44
1:A:1407:A:H2	1:A:1483:G:H22	1.65	0.44
2:C:74:PRO:HG2	2:C:75:ARG:HH11	1.80	0.44
5:F:4:ARG:O	5:F:92:LYS:HG2	2.18	0.44
6:G:17:ARG:NH1	6:G:44:TYR:HB3	2.31	0.44
9:J:11:LEU:HB3	9:J:19:LEU:HD11	1.99	0.44
24:AA:118:C:O2'	24:AA:130:A:O2'	2.29	0.44
24:AA:684:A:OP2	29:AF:99:ARG:NH2	2.50	0.44
24:AA:1365:U:H5	24:AA:1403:U:H3	1.65	0.44
24:AA:1484:C:H2'	24:AA:1485:U:C6	2.53	0.44
24:AA:2148:A:H5'	32:AI:25:PHE:CD1	2.52	0.44
24:AA:2223:A:H2'	24:AA:2224:A:C8	2.53	0.44
24:AA:2238:U:H2'	24:AA:2239:U:C6	2.53	0.44
24:AA:2705:G:H4'	31:AH:175:LYS:HG3	1.98	0.44
24:AA:2715:A:C5'	58:AI:26:MET:HE3	2.47	0.44
40:AQ:37:SER:OG	40:AQ:38:ASN:N	2.51	0.44
45:AV:29:LYS:HG2	45:AV:82:TRP:CZ3	2.52	0.44
46:AW:72:ILE:HG21	46:AW:81:LEU:HD21	1.98	0.44
51:Ab:48:PHE:CE2	51:Ab:75:LYS:HD3	2.53	0.44
57:Ah:1:MET:HE1	57:Ah:31:LYS:HA	1.99	0.44
2:C:84:GLY:O	2:C:87:LEU:HB2	2.18	0.44
3:D:118:SER:HA	3:D:130:THR:O	2.18	0.44
24:AA:354:A:H2'	24:AA:355:A:C8	2.53	0.44
24:AA:755:C:O3'	29:AF:79:ASN:ND2	2.51	0.44
39:AP:81:THR:HG22	39:AP:82:LYS:HD2	1.99	0.44
1:A:1116:U:H4'	9:J:39:GLY:HA3	1.98	0.44
1:A:1156:C:H2'	1:A:1157:G:H8	1.82	0.44
1:A:1239:U:H2'	1:A:1240:G:C8	2.53	0.44
1:A:1371:A:OP1	6:G:93:ARG:NH2	2.34	0.44
2:C:23:TYR:CE2	9:J:12:PHE:HB3	2.52	0.44
3:D:121:ILE:HG23	3:D:150:LEU:HD13	2.00	0.44
8:I:56:SER:O	8:I:59:VAL:HG22	2.17	0.44
13:N:30:PRO:HG2	13:N:31:ARG:HG2	1.99	0.44
16:Q:51:LYS:HB2	16:Q:51:LYS:HE2	1.83	0.44
18:S:5:ILE:HA	52:Ac:78:TYR:HE1	1.83	0.44
19:T:28:LEU:O	19:T:31:ILE:HG22	2.17	0.44
19:T:54:VAL:O	19:T:58:LEU:HD23	2.18	0.44
24:AA:724:A:N1	24:AA:2415:A:O2'	2.49	0.44
24:AA:2393:C:HO2'	54:Ae:25:TYR:HH	1.40	0.44
30:AG:107:ILE:HG23	30:AG:108:HIS:ND1	2.33	0.44
41:AR:108:MET:HG3	41:AR:108:MET:O	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:AZ:2:ALA:O	49:AZ:4:LYS:N	2.50	0.44
49:AZ:58:ARG:HD2	49:AZ:59:SER:O	2.18	0.44
1:A:76:U:H2'	1:A:77:A:C8	2.52	0.44
1:A:395:C:H2'	1:A:396:A:C8	2.53	0.44
11:L:2:PRO:HG2	11:L:7:LEU:HD21	1.99	0.44
13:N:16:TYR:CZ	13:N:17:LYS:HG2	2.52	0.44
14:O:87:ARG:NH2	24:AA:795:G:H5''	2.27	0.44
20:U:48:LYS:HB2	20:U:48:LYS:HE3	1.74	0.44
24:AA:1184:U:H2'	24:AA:1185:G:C8	2.53	0.44
24:AA:1538:U:H1'	24:AA:1539:C:OP2	2.17	0.44
54:Ae:15:LEU:HD11	54:Ae:40:LEU:HD12	1.99	0.44
58:Ai:27:LYS:N	58:Ai:27:LYS:CD	2.79	0.44
1:A:69:C:H2'	1:A:70:G:C8	2.53	0.44
1:A:114:G:OP1	1:A:603:U:O2'	2.25	0.44
1:A:631:A:H2'	1:A:632:U:C6	2.53	0.44
1:A:1471:G:H4'	24:AA:1772:A:H4'	1.99	0.44
3:D:98:ASP:OD1	3:D:98:ASP:N	2.50	0.44
15:P:54:ASP:N	15:P:54:ASP:OD1	2.48	0.44
23:X:71:A:H4'	24:AA:1905:U:H4'	2.00	0.44
30:AG:135:ILE:HD13	30:AG:140:ILE:HD11	1.98	0.44
1:A:1142:U:H2'	1:A:1143:C:O4'	2.18	0.43
2:C:94:LEU:O	2:C:98:ILE:HG12	2.18	0.43
6:G:73:LEU:H	6:G:143:HIS:CE1	2.36	0.43
24:AA:34:G:O2'	24:AA:1291:A:N3	2.45	0.43
24:AA:1278:U:H2'	24:AA:1279:G:C8	2.53	0.43
24:AA:2140:U:H2'	24:AA:2141:G:C8	2.53	0.43
30:AG:76:ALA:HB2	30:AG:84:GLN:H	1.83	0.43
30:AG:109:LEU:C	30:AG:112:PRO:HD2	2.42	0.43
39:AP:87:PHE:CE2	39:AP:94:TYR:HB3	2.53	0.43
46:AW:22:ILE:HD13	46:AW:73:PHE:CE1	2.53	0.43
47:AX:143:ILE:HD11	47:AX:162:VAL:O	2.18	0.43
51:Ab:84:ILE:O	51:Ab:88:LEU:HG	2.18	0.43
1:A:227:G:H4'	15:P:1:MET:HE1	1.99	0.43
1:A:1226:U:OP1	8:I:132:GLN:NE2	2.51	0.43
1:A:1354:A:OP2	13:N:35:ARG:NH2	2.51	0.43
24:AA:683:U:H2'	24:AA:684:A:H8	1.82	0.43
24:AA:940:G:O2'	24:AA:941:U:O5'	2.32	0.43
24:AA:1134:G:H5''	24:AA:1135:A:O4'	2.18	0.43
24:AA:1343:G:C8	44:AU:19:LYS:HD3	2.53	0.43
24:AA:2216:A:N1	24:AA:2217:A:N6	2.65	0.43
24:AA:2393:C:OP1	54:Ae:42:LYS:NZ	2.41	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:AA:2548:G:H5''	24:AA:2549:A:H5''	1.98	0.43
56:Ag:33:ILE:HG13	56:Ag:33:ILE:O	2.17	0.43
1:A:250:U:H2'	1:A:251:G:C8	2.53	0.43
6:G:144:ARG:NH1	23:X:42:U:H5'	2.33	0.43
53:Ad:19:ILE:HD13	53:Ad:19:ILE:HA	1.87	0.43
1:A:445:A:H3'	1:A:446:G:H8	1.82	0.43
1:A:1264:U:H2'	1:A:1265:G:C8	2.53	0.43
24:AA:1553:U:O2'	24:AA:1554:A:H8	2.01	0.43
24:AA:2038:U:H2'	24:AA:2039:G:C8	2.54	0.43
24:AA:2106:A:H4'	28:AE:146:GLN:O	2.19	0.43
24:AA:2593:A:H2'	24:AA:2594:U:C6	2.54	0.43
25:AB:41:C:O4'	30:AG:69:VAL:HG13	2.18	0.43
27:AD:66:ILE:HG22	27:AD:67:ASP:N	2.33	0.43
29:AF:35:ALA:O	29:AF:39:GLU:HG3	2.19	0.43
54:Ae:51:THR:OG1	54:Ae:52:LEU:N	2.45	0.43
1:A:469:C:H2'	1:A:470:A:H8	1.82	0.43
1:A:1231:C:O3'	1:A:1294:G:N2	2.52	0.43
5:F:48:GLU:O	17:R:96:LYS:NZ	2.50	0.43
7:H:47:LYS:HE3	7:H:47:LYS:HB2	1.83	0.43
7:H:51:PHE:C	7:H:52:LEU:HD12	2.44	0.43
10:K:19:GLU:OE1	10:K:82:TYR:HB3	2.19	0.43
11:L:123:LYS:HA	11:L:123:LYS:HD2	1.71	0.43
19:T:54:VAL:HG22	19:T:58:LEU:HD23	2.00	0.43
24:AA:2053:C:H2'	24:AA:2054:G:H8	1.83	0.43
24:AA:2686:G:OP1	35:AL:101:ARG:NH1	2.51	0.43
25:AB:111:G:OP1	40:AQ:62:LYS:NZ	2.46	0.43
30:AG:34:LEU:HD23	30:AG:161:THR:HG22	2.01	0.43
36:AM:110:ASN:ND2	58:Ai:10:ARG:HG3	2.33	0.43
46:AW:1:MET:N	46:AW:33:ASN:OD1	2.51	0.43
58:Ai:17:ILE:HD12	58:Ai:22:GLY:O	2.18	0.43
1:A:1370:U:H2'	1:A:1371:A:C8	2.53	0.43
24:AA:870:A:OP1	24:AA:873:C:N4	2.44	0.43
24:AA:1181:C:H2'	24:AA:1182:A:C8	2.52	0.43
27:AD:67:ASP:OD1	27:AD:104:ARG:HD3	2.18	0.43
36:AM:78:ARG:NH2	41:AR:59:LEU:HD11	2.33	0.43
52:Ac:2:ARG:NH2	52:Ac:5:ILE:HD11	2.32	0.43
54:Ae:11:GLU:OE2	54:Ae:31:ARG:NE	2.52	0.43
1:A:256:G:P	19:T:78:ARG:HH12	2.42	0.43
1:A:618:C:H1'	3:D:131:ILE:HD11	2.00	0.43
1:A:672:G:H2'	1:A:673:A:C8	2.53	0.43
1:A:686:A:O2'	1:A:702:A:N1	2.43	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:188:ARG:HH22	3:D:193:THR:HB	1.84	0.43
5:F:16:ILE:HG13	5:F:17:GLU:N	2.33	0.43
8:I:87:HIS:HE1	8:I:91:ARG:HE	1.65	0.43
10:K:14:LYS:C	10:K:15:ARG:HD3	2.43	0.43
12:M:26:GLY:H	12:M:29:ARG:HG2	1.83	0.43
18:S:65:ASP:OD1	18:S:65:ASP:N	2.52	0.43
24:AA:1278:U:H2'	24:AA:1279:G:H8	1.83	0.43
24:AA:2252:A:H8	24:AA:2252:A:OP1	2.02	0.43
36:AM:24:VAL:HG13	36:AM:33:ALA:HB2	2.00	0.43
1:A:395:C:H2'	1:A:396:A:H8	1.84	0.43
1:A:1014:U:O4	1:A:1015:A:N6	2.38	0.43
1:A:1076:U:O2'	1:A:1095:A:OP2	2.32	0.43
1:A:1452:A:O2'	19:T:27:GLU:OE1	2.29	0.43
5:F:1:MET:HE3	5:F:3:LYS:HE3	2.00	0.43
24:AA:182:C:H2'	24:AA:183:A:H8	1.83	0.43
28:AE:113:LYS:O	28:AE:164:ALA:HB1	2.19	0.43
47:AX:117:VAL:HG21	47:AX:123:LEU:CD2	2.48	0.43
1:A:202:A:H2'	1:A:203:G:C8	2.54	0.43
1:A:1009:A:C5	1:A:1010:U:H1'	2.54	0.43
1:A:1398:C:H2'	1:A:1399:G:C8	2.54	0.43
7:H:89:SER:HB3	7:H:127:LEU:HD21	2.00	0.43
14:O:3:ASP:OD2	14:O:5:LYS:HB2	2.18	0.43
19:T:39:ILE:HD13	19:T:47:ALA:HB1	2.00	0.43
23:X:3:C:H2'	23:X:4:G:C8	2.53	0.43
24:AA:364:U:H2'	24:AA:365:A:H8	1.83	0.43
24:AA:945:G:H21	24:AA:947:A:H61	1.67	0.43
24:AA:1144:U:H2'	24:AA:1145:A:H2'	2.01	0.43
27:AD:67:ASP:OD1	27:AD:104:ARG:NH1	2.48	0.43
27:AD:133:PRO:HA	27:AD:191:ILE:HA	2.01	0.43
30:AG:105:LYS:HA	30:AG:109:LEU:HD12	1.99	0.43
39:AP:10:LEU:HD12	39:AP:40:LYS:HG2	2.01	0.43
41:AR:56:LYS:HE3	41:AR:56:LYS:HB2	1.61	0.43
45:AV:4:TYR:HD1	50:Aa:20:LYS:HD3	1.83	0.43
11:L:38:MET:N	11:L:38:MET:SD	2.92	0.43
13:N:3:LYS:O	13:N:7:ILE:HG13	2.19	0.43
24:AA:748:G:H22	56:Ag:3:ASN:HB3	1.84	0.43
24:AA:1248:A:H2'	24:AA:1249:A:C8	2.54	0.43
24:AA:2716:G:OP1	58:Ai:52:ARG:CZ	2.64	0.43
31:AH:44:LYS:HB2	31:AH:44:LYS:HE2	1.75	0.43
43:AT:1:MET:HA	43:AT:42:ASN:O	2.18	0.43
47:AX:5:ARG:NH2	47:AX:137:LEU:O	2.50	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:AX:70:LEU:HD12	47:AX:71:GLU:H	1.84	0.43
56:Ag:28:GLN:HG3	56:Ag:29:ASN:OD1	2.19	0.43
1:A:402:U:OP1	1:A:403:G:O2'	2.27	0.42
10:K:76:ARG:HG3	10:K:77:ASP:N	2.34	0.42
24:AA:383:A:OP2	46:AW:19:ARG:NH2	2.37	0.42
24:AA:646:G:H2'	24:AA:2084:A:N7	2.34	0.42
24:AA:1050:C:O2'	24:AA:1062:A:N3	2.52	0.42
24:AA:1161:U:C4	24:AA:1162:U:H1'	2.54	0.42
24:AA:2165:U:N3	24:AA:2199:U:O2'	2.50	0.42
24:AA:2332:A:H61	54:Ae:27:THR:HG21	1.84	0.42
24:AA:2442:G:H4'	49:AZ:30:ALA:HA	2.01	0.42
28:AE:150:PRO:HG3	28:AE:154:PHE:CZ	2.54	0.42
29:AF:5:VAL:HA	29:AF:125:VAL:HG13	2.01	0.42
31:AH:13:ASP:OD1	31:AH:14:ALA:N	2.50	0.42
31:AH:155:GLU:OE1	31:AH:157:TYR:N	2.52	0.42
37:AN:83:LYS:HG2	37:AN:100:LEU:HD21	2.00	0.42
41:AR:71:LYS:HG2	41:AR:73:PHE:CE2	2.54	0.42
45:AV:14:GLU:O	45:AV:18:THR:HG23	2.19	0.42
56:Ag:32:HIS:CG	56:Ag:33:ILE:H	2.37	0.42
1:A:617:U:HO2'	3:D:127:ARG:HH22	1.63	0.42
2:C:55:SER:HB3	2:C:118:ILE:HD11	2.00	0.42
10:K:101:ILE:O	10:K:104:ILE:HG22	2.19	0.42
20:U:40:LYS:O	20:U:43:THR:HG22	2.19	0.42
24:AA:1463:C:H2'	24:AA:1464:G:C8	2.53	0.42
24:AA:1516:A:H62	24:AA:1636:U:H3	1.67	0.42
24:AA:1622:G:H2'	24:AA:1623:C:C6	2.54	0.42
24:AA:1786:U:H2'	24:AA:1787:A:C8	2.54	0.42
24:AA:2400:A:H4'	48:AY:35:GLU:OE2	2.19	0.42
24:AA:2444:C:H2'	24:AA:2445:G:H8	1.83	0.42
24:AA:2765:G:O2'	24:AA:2877:U:OP1	2.32	0.42
28:AE:118:GLN:OE1	28:AE:122:LYS:HD3	2.19	0.42
52:Ac:34:THR:HB	52:Ac:42:GLU:CD	2.44	0.42
1:A:11:G:H5'	4:E:107:GLY:HA3	2.00	0.42
1:A:938:A:H5''	12:M:108:ARG:HH22	1.84	0.42
1:A:1234:U:H3	6:G:30:MET:HG2	1.84	0.42
1:A:1301:U:O2'	12:M:110:ARG:NH1	2.38	0.42
10:K:73:ASN:OD1	10:K:104:ILE:HD11	2.20	0.42
12:M:81:LEU:O	12:M:84:ILE:HG22	2.19	0.42
20:U:31:GLU:CD	20:U:34:ARG:HH21	2.27	0.42
24:AA:7:U:H3	24:AA:2929:G:H1	1.66	0.42
24:AA:1052:A:H5'	24:AA:1265:U:H1'	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:AA:1786:U:H2'	24:AA:1787:A:H8	1.84	0.42
24:AA:2091:C:H2'	24:AA:2092:G:C8	2.54	0.42
24:AA:2255:U:O2'	24:AA:2256:U:O4'	2.38	0.42
38:AO:1:MET:HE1	38:AO:45:ARG:NE	2.35	0.42
40:AQ:4:ILE:HD12	40:AQ:4:ILE:H	1.85	0.42
40:AQ:62:LYS:HD3	40:AQ:62:LYS:N	2.34	0.42
52:Ac:31:SER:OG	52:Ac:45:LEU:O	2.31	0.42
54:Ae:31:ARG:HG3	54:Ae:32:ARG:HG2	1.99	0.42
1:A:359:G:N2	1:A:362:U:OP2	2.52	0.42
1:A:403:G:H21	3:D:115:GLN:NE2	2.15	0.42
1:A:632:U:H2'	1:A:633:G:C8	2.54	0.42
1:A:701:G:H4'	1:A:702:A:H5'	2.02	0.42
1:A:1211:C:H5''	13:N:9:ARG:HE	1.83	0.42
3:D:102:TYR:O	3:D:165:ARG:NH2	2.53	0.42
6:G:144:ARG:HH22	23:X:42:U:H4'	1.84	0.42
11:L:57:LEU:HD23	11:L:57:LEU:HA	1.89	0.42
22:W:65:ILE:HD12	22:W:83:LEU:HA	2.01	0.42
24:AA:1621:A:H2'	24:AA:1622:G:H8	1.85	0.42
25:AB:42:C:OP1	30:AG:66:GLN:HB2	2.19	0.42
27:AD:72:ASP:OD1	27:AD:73:LYS:HG2	2.19	0.42
31:AH:42:ASN:O	31:AH:44:LYS:NZ	2.52	0.42
37:AN:127:ILE:HG12	37:AN:132:GLU:HB3	2.01	0.42
1:A:332:C:H2'	1:A:333:A:H8	1.84	0.42
1:A:723:G:OP1	1:A:845:G:N2	2.45	0.42
2:C:158:GLY:HA3	2:C:199:ILE:HD13	2.01	0.42
5:F:3:LYS:HB3	5:F:5:TYR:CE2	2.55	0.42
7:H:128:ILE:HD13	7:H:128:ILE:HA	1.92	0.42
17:R:88:MET:CB	17:R:90:LEU:HD23	2.49	0.42
24:AA:1158:C:OP2	24:AA:1158:C:H4'	2.20	0.42
24:AA:1191:G:H2'	24:AA:1192:U:C6	2.54	0.42
24:AA:2569:A:O2'	24:AA:2811:A:O2'	2.29	0.42
24:AA:2744:U:H2'	24:AA:2745:C:C6	2.53	0.42
24:AA:2873:G:H2'	24:AA:2874:A:H8	1.83	0.42
25:AB:74:G:H21	47:AX:90:HIS:CE1	2.38	0.42
30:AG:43:VAL:O	30:AG:43:VAL:HG13	2.19	0.42
30:AG:63:ILE:O	30:AG:105:LYS:NZ	2.44	0.42
52:Ac:55:HIS:HB3	52:Ac:58:TYR:H	1.84	0.42
58:Ai:25:ILE:HD12	58:Ai:42:GLN:NE2	2.33	0.42
31:AH:42:ASN:HB3	31:AH:44:LYS:NZ	2.34	0.42
31:AH:130:LYS:HE2	31:AH:130:LYS:HB3	1.91	0.42
35:AL:47:LYS:HD3	35:AL:49:TYR:CZ	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:AQ:110:THR:O	40:AQ:114:GLU:OE1	2.38	0.42
44:AU:18:PRO:HG3	44:AU:83:ASP:HB3	2.02	0.42
1:A:1206:U:H4'	1:A:1207:A:C8	2.54	0.42
1:A:1224:C:H2'	1:A:1225:G:H8	1.83	0.42
1:A:1524:U:OP2	20:U:45:ARG:NH1	2.44	0.42
4:E:42:GLU:CG	4:E:42:GLU:O	2.68	0.42
5:F:32:PHE:HE2	5:F:77:ARG:HE	1.68	0.42
6:G:94:GLU:O	6:G:97:ARG:HB2	2.19	0.42
17:R:88:MET:HB3	17:R:90:LEU:HD23	2.01	0.42
24:AA:1463:C:H2'	24:AA:1464:G:H8	1.84	0.42
38:AO:1:MET:HE1	38:AO:45:ARG:HE	1.84	0.42
42:AS:58:ARG:HA	42:AS:61:TRP:CE3	2.55	0.42
45:AV:72:TYR:O	45:AV:74:ILE:HG23	2.19	0.42
47:AX:58:THR:O	47:AX:61:THR:HG22	2.19	0.42
1:A:352:C:H1'	1:A:385:G:H1'	2.02	0.42
1:A:944:U:H4'	1:A:956:A:H61	1.84	0.42
2:C:38:LEU:HA	2:C:41:ARG:HG2	2.02	0.42
2:C:173:GLU:OE1	2:C:173:GLU:N	2.53	0.42
3:D:101:VAL:HG13	3:D:106:PHE:HB2	2.01	0.42
7:H:45:TYR:HD1	7:H:73:VAL:HG12	1.84	0.42
12:M:108:ARG:HH21	12:M:114:ARG:HH21	1.66	0.42
14:O:56:LEU:HD23	14:O:56:LEU:HA	1.91	0.42
14:O:66:LEU:HD22	14:O:77:TYR:CE1	2.55	0.42
19:T:77:SER:O	19:T:81:VAL:HG23	2.20	0.42
24:AA:290:A:H2'	24:AA:291:G:C8	2.55	0.42
24:AA:2756:U:H2'	24:AA:2757:A:C8	2.55	0.42
39:AP:84:SER:O	39:AP:87:PHE:N	2.50	0.42
1:A:160:A:H2'	1:A:161:A:C8	2.55	0.42
8:I:61:THR:O	8:I:63:THR:OG1	2.23	0.42
12:M:61:GLU:O	52:Ac:63:LYS:NZ	2.52	0.42
24:AA:30:G:H1'	24:AA:589:A:H61	1.85	0.42
24:AA:297:U:H1'	24:AA:298:G:C8	2.55	0.42
24:AA:372:A:O2'	24:AA:373:A:OP1	2.31	0.42
24:AA:557:G:H1	24:AA:583:A:H61	1.67	0.42
24:AA:1557:G:O2'	24:AA:1643:G:O2'	2.37	0.42
24:AA:2074:A:O2'	24:AA:2075:G:OP2	2.34	0.42
24:AA:2747:U:H3'	24:AA:2748:G:H5''	2.01	0.42
24:AA:2927:U:H2'	24:AA:2928:G:H8	1.85	0.42
37:AN:108:ILE:HD11	37:AN:124:VAL:HG12	2.02	0.42
39:AP:94:TYR:O	39:AP:116:VAL:HG22	2.19	0.42
43:AT:32:LYS:HB2	43:AT:32:LYS:HE3	1.82	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:AZ:7:ILE:HG21	49:AZ:80:PHE:CE1	2.54	0.42
1:A:271:A:H4'	1:A:272:G:H5'	2.02	0.42
1:A:660:U:H2'	1:A:661:A:C8	2.55	0.42
1:A:959:A:OP2	1:A:960:U:O2'	2.33	0.42
17:R:82:ILE:O	17:R:86:ARG:HG3	2.20	0.42
23:X:9:A:H61	23:X:22:G:H3'	1.85	0.42
24:AA:137:U:H2'	24:AA:138:A:H8	1.84	0.42
24:AA:1637:A:HO2'	24:AA:1638:G:P	2.41	0.42
24:AA:1788:C:N4	24:AA:1789:G:O6	2.53	0.42
24:AA:2053:C:H2'	24:AA:2054:G:C8	2.54	0.42
27:AD:229:PRO:HD3	27:AD:236:GLY:N	2.35	0.42
28:AE:38:LYS:O	28:AE:46:SER:HA	2.20	0.42
29:AF:123:PHE:CE2	29:AF:193:LEU:HD22	2.55	0.42
35:AL:30:ILE:O	35:AL:34:VAL:HG23	2.20	0.42
37:AN:5:LEU:O	37:AN:5:LEU:HD23	2.20	0.42
2:C:67:VAL:HG13	2:C:102:ILE:HA	2.02	0.41
3:D:69:ARG:NH1	3:D:73:ASN:OD1	2.53	0.41
4:E:15:ILE:HD12	4:E:15:ILE:H	1.85	0.41
23:X:3:C:H2'	23:X:4:G:H8	1.85	0.41
24:AA:931:U:O2'	51:Ab:63:VAL:HG22	2.20	0.41
24:AA:2448:G:N2	24:AA:2449:G:O6	2.44	0.41
25:AB:105:U:H2'	25:AB:106:G:H8	1.85	0.41
27:AD:66:ILE:HG22	27:AD:67:ASP:H	1.85	0.41
27:AD:127:LYS:HB3	27:AD:130:ASN:ND2	2.35	0.41
29:AF:197:GLU:OE1	29:AF:197:GLU:N	2.40	0.41
36:AM:64:ARG:HD2	36:AM:79:PHE:CD1	2.55	0.41
52:Ac:35:ILE:HG21	52:Ac:45:LEU:HD13	2.02	0.41
1:A:869:U:H2'	1:A:870:G:H8	1.85	0.41
3:D:127:ARG:NH1	3:D:128:ARG:O	2.53	0.41
5:F:91:VAL:HG12	5:F:92:LYS:H	1.85	0.41
22:W:78:SER:O	22:W:82:ARG:HG3	2.19	0.41
24:AA:369:A:O3'	46:AW:90:LYS:NZ	2.45	0.41
24:AA:780:C:O2'	24:AA:816:A:N6	2.53	0.41
24:AA:965:U:H3	24:AA:972:G:H1	1.66	0.41
24:AA:2529:C:O3'	38:AO:45:ARG:NH1	2.53	0.41
28:AE:5:ILE:HD11	28:AE:81:ILE:HG12	2.01	0.41
29:AF:52:THR:O	29:AF:56:VAL:HG23	2.20	0.41
30:AG:49:ASN:ND2	30:AG:52:LEU:HG	2.35	0.41
47:AX:49:GLU:HG3	47:AX:53:LYS:HE2	2.02	0.41
51:Ab:52:SER:OG	51:Ab:53:LEU:N	2.53	0.41
57:Ah:4:ARG:O	57:Ah:37:LYS:N	2.52	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:Ai:19:ARG:HB3	58:Ai:55:PHE:C	2.44	0.41
1:A:78:G:H2'	1:A:80:A:OP2	2.21	0.41
1:A:389:G:O2'	1:A:480:C:O2'	2.30	0.41
1:A:993:U:O2'	1:A:994:A:O4'	2.37	0.41
5:F:21:SER:HB3	5:F:83:ASN:HB2	2.02	0.41
18:S:60:ILE:HD13	18:S:60:ILE:HG21	1.74	0.41
24:AA:217:A:N3	24:AA:231:U:O2'	2.47	0.41
24:AA:359:A:H61	24:AA:426:A:H61	1.68	0.41
24:AA:940:G:O2'	24:AA:941:U:P	2.78	0.41
24:AA:1147:A:H5''	24:AA:1148:A:C8	2.55	0.41
24:AA:1963:C:H2'	24:AA:1964:G:C8	2.55	0.41
24:AA:2071:U:HO2'	53:Ad:7:LYS:H	1.67	0.41
24:AA:2435:G:H5''	24:AA:2436:U:O4'	2.21	0.41
25:AB:108:C:H2'	25:AB:109:A:C8	2.55	0.41
43:AT:43:LYS:HZ3	43:AT:103:PHE:HD2	1.69	0.41
45:AV:55:ASN:O	45:AV:56:LEU:HD23	2.21	0.41
48:AY:53:LEU:HD21	48:AY:57:TYR:HD1	1.85	0.41
1:A:576:G:H5'	1:A:726:A:H1'	2.03	0.41
1:A:640:A:N7	7:H:109:SER:HA	2.35	0.41
1:A:649:C:HO2'	1:A:650:U:P	2.43	0.41
1:A:1425:C:H2'	1:A:1426:G:O4'	2.21	0.41
2:C:18:TRP:CD1	13:N:54:PRO:HA	2.55	0.41
2:C:172:LYS:HG2	2:C:173:GLU:N	2.34	0.41
9:J:57:HIS:ND1	9:J:58:VAL:HG13	2.35	0.41
24:AA:274:A:H2'	24:AA:275:A:C8	2.55	0.41
24:AA:380:G:N2	24:AA:383:A:OP2	2.47	0.41
24:AA:794:G:N7	24:AA:796:U:N3	2.59	0.41
24:AA:1436:A:OP2	24:AA:1448:G:N2	2.39	0.41
32:AI:3:VAL:O	32:AI:18:THR:HA	2.20	0.41
45:AV:9:SER:HB2	50:Aa:31:VAL:HG21	2.02	0.41
55:Af:1:MET:HE2	55:Af:1:MET:HB3	1.90	0.41
1:A:1399:G:H2'	1:A:1400:U:C6	2.56	0.41
24:AA:188:A:H5''	24:AA:202:A:N1	2.35	0.41
29:AF:92:LYS:HD3	29:AF:92:LYS:HA	1.90	0.41
30:AG:16:ILE:O	30:AG:20:VAL:HG23	2.20	0.41
30:AG:46:ALA:HA	30:AG:49:ASN:O	2.20	0.41
32:AI:8:ASP:OD1	32:AI:9:PHE:N	2.53	0.41
38:AO:45:ARG:O	38:AO:48:GLU:HG3	2.21	0.41
4:E:63:LEU:HD23	4:E:63:LEU:HA	1.91	0.41
4:E:150:GLU:OE1	4:E:150:GLU:N	2.38	0.41
6:G:73:LEU:HB2	6:G:143:HIS:CE1	2.51	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:I:102:MET:O	8:I:106:SER:OG	2.32	0.41
13:N:33:TYR:CZ	13:N:38:CYS:HA	2.55	0.41
18:S:42:PRO:HG3	52:Ac:74:PHE:HD2	1.85	0.41
24:AA:1668:U:O2'	24:AA:1669:A:O5'	2.30	0.41
24:AA:2867:A:H2'	24:AA:2868:G:H8	1.86	0.41
25:AB:39:U:O4	52:Ac:1:MET:HA	2.20	0.41
38:AO:87:LYS:HD2	38:AO:87:LYS:HA	1.95	0.41
40:AQ:62:LYS:HD3	40:AQ:62:LYS:H	1.86	0.41
47:AX:157:LEU:HB2	47:AX:160:ASP:CG	2.46	0.41
54:Ae:34:LYS:O	54:Ae:36:GLU:HG3	2.21	0.41
54:Ae:37:LYS:HD3	54:Ae:37:LYS:HA	1.73	0.41
1:A:1308:C:OP2	18:S:4:SER:OG	2.23	0.41
1:A:1490:G:O2'	24:AA:1966:A:O2'	2.23	0.41
2:C:55:SER:OG	2:C:72:VAL:HG13	2.20	0.41
14:O:16:LYS:HE2	14:O:20:ASP:OD1	2.20	0.41
24:AA:773:U:OP1	27:AD:219:ARG:NH1	2.53	0.41
24:AA:811:G:OP1	27:AD:12:SER:HB2	2.20	0.41
24:AA:2162:A:N6	24:AA:2234:U:O4	2.54	0.41
24:AA:2181:G:N2	24:AA:2227:A:O2'	2.54	0.41
24:AA:2593:A:H4'	36:AM:29:LYS:HD3	2.02	0.41
27:AD:212:LYS:HA	27:AD:215:TRP:CD2	2.55	0.41
36:AM:10:ILE:HD11	36:AM:19:ALA:HB2	2.02	0.41
43:AT:62:THR:HG23	43:AT:99:ASP:OD2	2.20	0.41
49:AZ:83:LYS:HE2	49:AZ:83:LYS:HB2	1.92	0.41
1:A:706:C:H2'	1:A:707:A:H8	1.86	0.41
4:E:70:LEU:HA	4:E:70:LEU:HD23	1.80	0.41
8:I:18:ARG:HD2	8:I:18:ARG:HA	1.92	0.41
14:O:36:LYS:O	14:O:39:THR:HG22	2.19	0.41
15:P:58:ASP:O	15:P:61:SER:OG	2.32	0.41
15:P:58:ASP:OD2	15:P:62:LYS:HE2	2.20	0.41
20:U:61:ARG:NH2	20:U:65:GLN:OE1	2.53	0.41
24:AA:756:G:H1'	29:AF:73:ARG:HD3	2.03	0.41
24:AA:768:U:H3	55:Af:5:TYR:HE1	1.68	0.41
24:AA:940:G:HO2'	24:AA:941:U:P	2.44	0.41
24:AA:1471:U:H4'	24:AA:1686:A:H4'	2.02	0.41
25:AB:55:U:H4'	25:AB:56:A:H5'	2.02	0.41
28:AE:4:LEU:HD12	28:AE:100:PHE:HE2	1.85	0.41
36:AM:97:ARG:NH1	36:AM:99:PHE:CE2	2.88	0.41
40:AQ:32:ILE:HD11	40:AQ:43:ALA:HB1	2.03	0.41
42:AS:83:LEU:HA	42:AS:113:ILE:HD12	2.03	0.41
51:Ab:85:LYS:HE3	51:Ab:85:LYS:HB2	1.90	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:Ac:36:LYS:HD2	52:Ac:40:GLY:HA2	2.02	0.41
55:Af:5:TYR:O	55:Af:5:TYR:CG	2.70	0.41
1:A:465:A:O2'	1:A:466:U:O4'	2.39	0.41
1:A:589:U:H2'	1:A:590:A:C8	2.56	0.41
1:A:617:U:O2'	3:D:127:ARG:NH2	2.43	0.41
1:A:977:C:H2'	1:A:978:A:C8	2.55	0.41
1:A:1209:G:O2'	1:A:1210:U:OP1	2.35	0.41
1:A:1525:G:H22	21:V:7:ARG:HE	1.68	0.41
2:C:63:ASN:OD1	2:C:64:PRO:HD2	2.21	0.41
3:D:96:ARG:O	3:D:100:VAL:HG23	2.21	0.41
3:D:193:THR:O	3:D:194:LEU:HD22	2.21	0.41
8:I:34:ILE:HD12	8:I:69:LEU:HB2	2.03	0.41
12:M:3:ARG:HA	12:M:8:ASP:HA	2.01	0.41
12:M:91:ARG:CD	12:M:96:LEU:HB2	2.47	0.41
14:O:43:LYS:HE3	14:O:43:LYS:HB2	1.86	0.41
22:W:33:LYS:HG3	22:W:34:HIS:CE1	2.55	0.41
24:AA:8:C:H2'	24:AA:9:A:H8	1.85	0.41
24:AA:238:A:N1	24:AA:252:A:H5''	2.36	0.41
24:AA:855:U:O3'	27:AD:49:ARG:NH1	2.54	0.41
24:AA:966:G:H1	24:AA:971:A:N6	2.18	0.41
24:AA:1115:U:H2'	24:AA:1116:A:C8	2.56	0.41
24:AA:1115:U:H2'	24:AA:1116:A:H8	1.85	0.41
24:AA:1386:G:OP1	55:Af:9:ARG:N	2.54	0.41
24:AA:1523:G:H2'	24:AA:1524:C:C6	2.56	0.41
24:AA:1550:C:H2'	24:AA:1551:A:C8	2.56	0.41
24:AA:1586:G:H1'	24:AA:1587:A:C8	2.55	0.41
24:AA:2001:C:H2'	24:AA:2002:G:H8	1.85	0.41
24:AA:2038:U:H2'	24:AA:2039:G:H8	1.86	0.41
24:AA:2181:G:H1	24:AA:2215:C:H42	1.68	0.41
24:AA:2230:A:H4'	26:AC:218:SER:N	2.33	0.41
29:AF:209:LYS:HB2	29:AF:209:LYS:HE3	1.87	0.41
30:AG:7:LEU:HD23	30:AG:7:LEU:HA	1.90	0.41
30:AG:64:THR:OG1	30:AG:65:GLY:N	2.54	0.41
31:AH:147:GLU:OE2	58:Ai:30:PHE:CE2	2.72	0.41
32:AI:2:LYS:HG3	32:AI:39:SER:HB3	2.02	0.41
36:AM:47:ILE:HD13	36:AM:47:ILE:HA	1.91	0.41
37:AN:52:THR:O	37:AN:57:ARG:NH1	2.54	0.41
37:AN:63:PHE:HD1	37:AN:63:PHE:HA	1.78	0.41
37:AN:90:VAL:HA	37:AN:94:THR:HG21	2.02	0.41
39:AP:50:ARG:O	39:AP:53:THR:HG22	2.20	0.41
47:AX:76:VAL:HG22	47:AX:93:PHE:HE1	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:Ac:55:HIS:CB	52:Ac:58:TYR:H	2.33	0.41
1:A:833:A:H2'	1:A:834:A:C8	2.55	0.41
1:A:890:G:N2	1:A:893:A:OP2	2.51	0.41
12:M:103:THR:HA	12:M:107:ALA:HB2	2.03	0.41
15:P:6:ARG:NH2	15:P:23:MET:HE3	2.32	0.41
24:AA:190:G:O2'	24:AA:884:A:N3	2.44	0.41
24:AA:1503:G:H21	24:AA:1656:A:H62	1.67	0.41
24:AA:2618:A:OP2	28:AE:148:THR:N	2.47	0.41
29:AF:77:LYS:HB2	29:AF:77:LYS:HE2	1.91	0.41
31:AH:44:LYS:HB3	31:AH:46:GLU:OE2	2.21	0.41
36:AM:23:LYS:HA	36:AM:23:LYS:HD3	1.89	0.41
39:AP:103:ARG:HG2	39:AP:104:TYR:O	2.21	0.41
45:AV:29:LYS:HG2	45:AV:82:TRP:CE3	2.56	0.41
46:AW:74:VAL:HG13	46:AW:75:LYS:HG2	2.02	0.41
58:AI:17:ILE:HD12	58:AI:18:SER:N	2.34	0.41
1:A:334:G:H2'	1:A:335:A:C8	2.56	0.40
1:A:726:A:OP1	14:O:53:ARG:NH2	2.54	0.40
2:C:23:TYR:HB3	9:J:98:GLU:OE1	2.21	0.40
8:I:57:PRO:O	8:I:61:THR:HG22	2.21	0.40
9:J:67:GLU:O	13:N:56:VAL:HA	2.20	0.40
10:K:24:ILE:HD13	10:K:97:ALA:HB1	2.03	0.40
12:M:15:LEU:HA	12:M:18:ALA:HB3	2.03	0.40
12:M:70:LEU:HD12	12:M:70:LEU:HA	1.89	0.40
16:Q:63:ILE:HG13	16:Q:64:GLU:N	2.36	0.40
16:Q:77:VAL:O	16:Q:78:GLU:HB2	2.19	0.40
24:AA:544:G:OP2	55:Af:37:LYS:NZ	2.54	0.40
24:AA:2368:A:H2'	24:AA:2369:G:O4'	2.22	0.40
38:AO:2:LEU:HA	38:AO:2:LEU:HD12	1.86	0.40
45:AV:92:GLU:OE1	45:AV:92:GLU:N	2.47	0.40
47:AX:114:SER:HA	47:AX:148:THR:HA	2.03	0.40
1:A:146:U:H2'	1:A:147:A:H8	1.86	0.40
1:A:869:U:H2'	1:A:870:G:C8	2.57	0.40
1:A:991:U:O4	1:A:992:A:N6	2.41	0.40
6:G:25:LYS:HG3	6:G:102:MET:HE1	2.04	0.40
8:I:32:GLY:HA2	8:I:67:TYR:O	2.22	0.40
11:L:3:THR:OG1	11:L:6:GLN:HG3	2.21	0.40
24:AA:4:U:H2'	24:AA:5:G:C8	2.55	0.40
24:AA:67:A:H2'	24:AA:68:A:N7	2.36	0.40
24:AA:213:G:H4'	24:AA:214:A:H4'	2.03	0.40
24:AA:253:A:H2'	24:AA:254:A:C8	2.56	0.40
24:AA:364:U:H2'	24:AA:365:A:C8	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:AA:824:U:H2'	24:AA:825:C:C6	2.56	0.40
24:AA:1753:C:O2	24:AA:2047:U:O2'	2.26	0.40
24:AA:2359:C:H2'	24:AA:2360:A:C8	2.56	0.40
24:AA:2414:C:H2'	24:AA:2415:A:C8	2.56	0.40
24:AA:2444:C:H2'	24:AA:2445:G:C8	2.56	0.40
27:AD:200:GLU:OE1	27:AD:200:GLU:N	2.41	0.40
46:AW:83:ILE:HD12	46:AW:90:LYS:HE2	2.03	0.40
1:A:116:A:O3'	16:Q:6:LYS:NZ	2.54	0.40
1:A:1403:C:H2'	1:A:1404:A:C8	2.57	0.40
8:I:39:ARG:HE	8:I:44:TYR:HD1	1.69	0.40
24:AA:418:A:N3	24:AA:420:A:N6	2.70	0.40
24:AA:856:A:P	27:AD:49:ARG:HH12	2.44	0.40
24:AA:1295:A:H2'	24:AA:1296:A:C8	2.57	0.40
31:AH:84:SER:HB2	31:AH:134:GLU:HG3	2.03	0.40
37:AN:13:ARG:O	37:AN:14:ARG:HB2	2.22	0.40
39:AP:26:ILE:CD1	39:AP:70:ILE:HG23	2.51	0.40
42:AS:94:ILE:CG2	43:AT:4:LEU:HD13	2.51	0.40
1:A:942:U:H2'	1:A:943:G:H8	1.86	0.40
12:M:71:ARG:HA	12:M:74:VAL:HG22	2.04	0.40
13:N:11:LEU:HD23	13:N:11:LEU:HA	1.95	0.40
15:P:6:ARG:HE	15:P:23:MET:HE2	1.86	0.40
17:R:58:GLU:H	17:R:58:GLU:CD	2.29	0.40
24:AA:137:U:H2'	24:AA:138:A:C8	2.57	0.40
24:AA:314:A:H61	24:AA:445:C:H42	1.69	0.40
24:AA:320:U:N3	24:AA:439:A:H2	2.20	0.40
24:AA:1135:A:N7	24:AA:1165:A:H2'	2.36	0.40
24:AA:1542:A:H2'	24:AA:1543:G:C8	2.56	0.40
24:AA:1808:C:OP1	41:AR:93:ARG:NH1	2.54	0.40
24:AA:2523:C:N4	57:Ah:10:ILE:HG12	2.36	0.40
24:AA:2672:C:H2'	24:AA:2673:G:C8	2.57	0.40
24:AA:2687:A:H5''	35:AL:84:SER:HB2	2.03	0.40
29:AF:50:THR:O	29:AF:92:LYS:NZ	2.41	0.40
31:AH:37:ILE:HD11	31:AH:41:ILE:HB	2.03	0.40
39:AP:103:ARG:HB2	39:AP:110:MET:HG2	2.04	0.40
40:AQ:73:VAL:HG11	40:AQ:104:LEU:HD12	2.02	0.40
42:AS:107:LYS:O	42:AS:111:LEU:HD23	2.22	0.40
1:A:113:U:H2'	1:A:114:G:C8	2.57	0.40
1:A:1474:U:H2'	1:A:1475:A:C8	2.57	0.40
2:C:143:THR:O	2:C:147:LYS:HG2	2.22	0.40
3:D:123:ILE:HD13	3:D:128:ARG:HA	2.04	0.40
6:G:115:ARG:HB3	6:G:119:GLU:CD	2.47	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:Q:63:ILE:HB	16:Q:77:VAL:HG21	2.03	0.40
24:AA:98:A:O2'	24:AA:99:U:O4'	2.39	0.40
24:AA:269:A:N6	24:AA:309:G:N3	2.70	0.40
24:AA:329:A:O2'	24:AA:330:G:H5''	2.22	0.40
24:AA:441:G:H2'	24:AA:442:U:C6	2.57	0.40
24:AA:1121:C:O2'	24:AA:1126:A:O2'	2.14	0.40
24:AA:1927:G:H2'	24:AA:1928:C:O4'	2.21	0.40
24:AA:2652:U:H2'	24:AA:2653:G:C8	2.57	0.40
24:AA:2715:A:O5'	58:AI:26:MET:CE	2.57	0.40
24:AA:2891:U:H2'	24:AA:2892:A:C8	2.56	0.40
31:AH:44:LYS:HB3	31:AH:46:GLU:CD	2.46	0.40
34:AK:7:ILE:N	34:AK:62:VAL:O	2.55	0.40
36:AM:1:MET:HE3	36:AM:1:MET:HB2	1.91	0.40
36:AM:54:LYS:HE2	36:AM:54:LYS:HB3	1.90	0.40
42:AS:21:THR:HG21	42:AS:35:ALA:HB1	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	C	204/206 (99%)	194 (95%)	10 (5%)	0	100	100
3	D	206/208 (99%)	196 (95%)	10 (5%)	0	100	100
4	E	156/158 (99%)	147 (94%)	9 (6%)	0	100	100
5	F	95/97 (98%)	88 (93%)	7 (7%)	0	100	100
6	G	155/157 (99%)	138 (89%)	17 (11%)	0	100	100
7	H	130/132 (98%)	123 (95%)	7 (5%)	0	100	100
8	I	129/131 (98%)	118 (92%)	11 (8%)	0	100	100
9	J	100/102 (98%)	92 (92%)	8 (8%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
10	K	115/117 (98%)	105 (91%)	10 (9%)	0	100	100
11	L	122/124 (98%)	114 (93%)	8 (7%)	0	100	100
12	M	112/114 (98%)	105 (94%)	7 (6%)	0	100	100
13	N	58/60 (97%)	57 (98%)	1 (2%)	0	100	100
14	O	86/88 (98%)	84 (98%)	2 (2%)	0	100	100
15	P	81/83 (98%)	79 (98%)	2 (2%)	0	100	100
16	Q	80/82 (98%)	74 (92%)	6 (8%)	0	100	100
17	R	61/63 (97%)	57 (93%)	4 (7%)	0	100	100
18	S	82/84 (98%)	76 (93%)	6 (7%)	0	100	100
19	T	83/85 (98%)	81 (98%)	2 (2%)	0	100	100
20	U	67/69 (97%)	65 (97%)	2 (3%)	0	100	100
21	V	25/28 (89%)	24 (96%)	1 (4%)	0	100	100
22	W	95/97 (98%)	87 (92%)	8 (8%)	0	100	100
26	AC	219/221 (99%)	211 (96%)	8 (4%)	0	100	100
27	AD	275/277 (99%)	259 (94%)	16 (6%)	0	100	100
28	AE	204/206 (99%)	195 (96%)	9 (4%)	0	100	100
29	AF	207/209 (99%)	198 (96%)	9 (4%)	0	100	100
30	AG	180/182 (99%)	168 (93%)	12 (7%)	0	100	100
31	AH	178/180 (99%)	170 (96%)	8 (4%)	0	100	100
32	AI	146/148 (99%)	134 (92%)	12 (8%)	0	100	100
33	AJ	160/162 (99%)	153 (96%)	7 (4%)	0	100	100
34	AK	137/139 (99%)	131 (96%)	6 (4%)	0	100	100
35	AL	143/145 (99%)	136 (95%)	7 (5%)	0	100	100
36	AM	120/122 (98%)	113 (94%)	7 (6%)	0	100	100
37	AN	143/145 (99%)	116 (81%)	27 (19%)	0	100	100
38	AO	136/138 (99%)	118 (87%)	17 (12%)	1 (1%)	18	35
39	AP	119/121 (98%)	111 (93%)	8 (7%)	0	100	100
40	AQ	117/119 (98%)	111 (95%)	6 (5%)	0	100	100
41	AR	115/117 (98%)	105 (91%)	10 (9%)	0	100	100
42	AS	112/114 (98%)	104 (93%)	8 (7%)	0	100	100
43	AT	101/103 (98%)	94 (93%)	7 (7%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
44	AU	113/115 (98%)	108 (96%)	5 (4%)	0	100	100
45	AV	96/98 (98%)	92 (96%)	4 (4%)	0	100	100
46	AW	99/101 (98%)	90 (91%)	9 (9%)	0	100	100
47	AX	179/181 (99%)	168 (94%)	11 (6%)	0	100	100
48	AY	72/74 (97%)	69 (96%)	3 (4%)	0	100	100
49	AZ	89/91 (98%)	86 (97%)	3 (3%)	0	100	100
50	Aa	63/65 (97%)	61 (97%)	2 (3%)	0	100	100
51	Ab	98/100 (98%)	95 (97%)	3 (3%)	0	100	100
52	Ac	79/81 (98%)	67 (85%)	12 (15%)	0	100	100
53	Ad	57/59 (97%)	52 (91%)	5 (9%)	0	100	100
54	Ae	49/51 (96%)	42 (86%)	7 (14%)	0	100	100
55	Af	48/50 (96%)	42 (88%)	6 (12%)	0	100	100
56	Ag	64/66 (97%)	57 (89%)	7 (11%)	0	100	100
57	Ah	35/37 (95%)	32 (91%)	3 (9%)	0	100	100
58	Ai	44/46 (96%)	39 (89%)	5 (11%)	0	100	100
All	All	6239/6348 (98%)	5831 (94%)	407 (6%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
38	AO	70	PRO

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	C	179/179 (100%)	179 (100%)	0	100	100
3	D	184/184 (100%)	184 (100%)	0	100	100
4	E	125/125 (100%)	125 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
5	F	88/88 (100%)	88 (100%)	0	100	100
6	G	136/136 (100%)	136 (100%)	0	100	100
7	H	115/115 (100%)	115 (100%)	0	100	100
8	I	113/113 (100%)	113 (100%)	0	100	100
9	J	93/93 (100%)	93 (100%)	0	100	100
10	K	91/91 (100%)	91 (100%)	0	100	100
11	L	106/106 (100%)	106 (100%)	0	100	100
12	M	99/99 (100%)	99 (100%)	0	100	100
13	N	53/53 (100%)	53 (100%)	0	100	100
14	O	79/79 (100%)	79 (100%)	0	100	100
15	P	75/75 (100%)	75 (100%)	0	100	100
16	Q	79/79 (100%)	79 (100%)	0	100	100
17	R	56/56 (100%)	56 (100%)	0	100	100
18	S	76/76 (100%)	76 (100%)	0	100	100
19	T	75/75 (100%)	75 (100%)	0	100	100
20	U	65/65 (100%)	65 (100%)	0	100	100
21	V	26/27 (96%)	26 (100%)	0	100	100
22	W	91/91 (100%)	91 (100%)	0	100	100
27	AD	229/229 (100%)	229 (100%)	0	100	100
28	AE	168/168 (100%)	168 (100%)	0	100	100
29	AF	181/181 (100%)	181 (100%)	0	100	100
30	AG	155/155 (100%)	155 (100%)	0	100	100
31	AH	156/156 (100%)	156 (100%)	0	100	100
32	AI	34/134 (25%)	34 (100%)	0	100	100
35	AL	127/127 (100%)	127 (100%)	0	100	100
36	AM	103/103 (100%)	103 (100%)	0	100	100
37	AN	124/124 (100%)	124 (100%)	0	100	100
38	AO	115/115 (100%)	115 (100%)	0	100	100
39	AP	110/110 (100%)	110 (100%)	0	100	100
40	AQ	104/104 (100%)	104 (100%)	0	100	100
41	AR	103/103 (100%)	103 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
42	AS	99/99 (100%)	99 (100%)	0	100	100
43	AT	96/96 (100%)	96 (100%)	0	100	100
44	AU	100/100 (100%)	100 (100%)	0	100	100
45	AV	88/88 (100%)	88 (100%)	0	100	100
46	AW	89/89 (100%)	89 (100%)	0	100	100
47	AX	163/163 (100%)	163 (100%)	0	100	100
48	AY	60/60 (100%)	60 (100%)	0	100	100
49	AZ	76/76 (100%)	76 (100%)	0	100	100
50	Aa	61/61 (100%)	61 (100%)	0	100	100
51	Ab	93/93 (100%)	93 (100%)	0	100	100
52	Ac	73/73 (100%)	73 (100%)	0	100	100
53	Ad	54/54 (100%)	54 (100%)	0	100	100
54	Ae	48/48 (100%)	48 (100%)	0	100	100
55	Af	44/44 (100%)	44 (100%)	0	100	100
56	Ag	61/61 (100%)	61 (100%)	0	100	100
57	Ah	36/36 (100%)	36 (100%)	0	100	100
58	Ai	40/40 (100%)	38 (95%)	2 (5%)	22	44
All	All	4994/5095 (98%)	4992 (100%)	2 (0%)	100	100

All (2) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
58	Ai	16	LEU
58	Ai	23	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (29) such sidechains are listed below:

Mol	Chain	Res	Type
3	D	81	HIS
3	D	82	HIS
4	E	44	HIS
6	G	143	HIS
7	H	110	GLN
12	M	35	ASN
12	M	106	ASN

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Mol	Chain	Res	Type
14	O	49	HIS
19	T	4	ASN
28	AE	125	ASN
29	AF	66	GLN
29	AF	128	ASN
31	AH	42	ASN
36	AM	110	ASN
37	AN	36	GLN
37	AN	51	GLN
39	AP	8	ASN
39	AP	31	HIS
40	AQ	52	HIS
41	AR	11	ASN
41	AR	101	ASN
46	AW	88	ASN
48	AY	46	HIS
49	AZ	55	ASN
50	Aa	37	ASN
51	Ab	42	ASN
53	Ad	52	ASN
53	Ad	54	GLN
56	Ag	50	ASN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	1528/1529 (99%)	217 (14%)	17 (1%)
23	X	75/76 (98%)	18 (24%)	1 (1%)
24	AA	2928/2929 (99%)	524 (17%)	42 (1%)
25	AB	111/112 (99%)	31 (27%)	4 (3%)
All	All	4642/4646 (99%)	790 (17%)	64 (1%)

All (790) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	2	A
1	A	9	A
1	A	11	G
1	A	33	U
1	A	34	A
1	A	41	G

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Mol	Chain	Res	Type
1	A	49	U
1	A	50	C
1	A	53	A
1	A	57	A
1	A	79	C
1	A	84	C
1	A	109	C
1	A	110	G
1	A	118	G
1	A	120	U
1	A	131	G
1	A	140	A
1	A	152	U
1	A	153	A
1	A	154	G
1	A	163	A
1	A	171	A
1	A	172	G
1	A	173	G
1	A	181	A
1	A	184	U
1	A	198	A
1	A	199	G
1	A	241	U
1	A	244	G
1	A	248	G
1	A	263	G
1	A	264	C
1	A	286	A
1	A	295	A
1	A	303	A
1	A	313	C
1	A	318	A
1	A	325	U
1	A	329	G
1	A	341	A
1	A	344	G
1	A	349	C
1	A	351	G
1	A	362	U
1	A	364	U
1	A	369	C

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Mol	Chain	Res	Type
1	A	388	G
1	A	389	G
1	A	403	G
1	A	409	A
1	A	410	G
1	A	411	A
1	A	419	A
1	A	421	G
1	A	426	U
1	A	445	A
1	A	450	U
1	A	464	A
1	A	466	U
1	A	481	G
1	A	493	A
1	A	497	G
1	A	508	U
1	A	515	C
1	A	516	C
1	A	524	G
1	A	528	U
1	A	529	A
1	A	544	A
1	A	561	U
1	A	564	G
1	A	569	A
1	A	570	A
1	A	573	G
1	A	574	G
1	A	585	G
1	A	599	U
1	A	600	G
1	A	602	A
1	A	604	A
1	A	631	A
1	A	640	A
1	A	650	U
1	A	651	A
1	A	663	A
1	A	685	A
1	A	693	A
1	A	701	G

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Mol	Chain	Res	Type
1	A	702	A
1	A	716	A
1	A	719	G
1	A	720	G
1	A	721	A
1	A	722	G
1	A	729	G
1	A	745	A
1	A	747	A
1	A	753	G
1	A	775	A
1	A	791	U
1	A	792	A
1	A	813	A
1	A	815	C
1	A	819	G
1	A	835	C
1	A	840	A
1	A	845	G
1	A	864	A
1	A	906	A
1	A	918	G
1	A	919	G
1	A	926	C
1	A	927	A
1	A	934	G
1	A	939	G
1	A	952	U
1	A	954	C
1	A	961	A
1	A	963	G
1	A	967	G
1	A	968	G
1	A	969	A
1	A	980	G
1	A	984	U
1	A	985	G
1	A	988	A
1	A	993	U
1	A	995	G
1	A	996	G
1	A	997	A

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Mol	Chain	Res	Type
1	A	998	U
1	A	999	A
1	A	1004	U
1	A	1011	A
1	A	1013	U
1	A	1014	U
1	A	1018	C
1	A	1022	G
1	A	1026	G
1	A	1027	G
1	A	1028	G
1	A	1030	U
1	A	1031	C
1	A	1038	C
1	A	1039	A
1	A	1043	G
1	A	1048	A
1	A	1058	U
1	A	1079	U
1	A	1080	G
1	A	1087	G
1	A	1088	U
1	A	1094	A
1	A	1116	U
1	A	1118	U
1	A	1123	A
1	A	1124	G
1	A	1125	C
1	A	1126	A
1	A	1128	G
1	A	1130	A
1	A	1132	U
1	A	1133	G
1	A	1152	C
1	A	1153	U
1	A	1163	A
1	A	1178	G
1	A	1190	A
1	A	1191	A
1	A	1194	C
1	A	1196	U
1	A	1209	G

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Mol	Chain	Res	Type
1	A	1210	U
1	A	1211	C
1	A	1219	A
1	A	1220	C
1	A	1230	A
1	A	1232	A
1	A	1235	G
1	A	1251	A
1	A	1254	G
1	A	1273	A
1	A	1274	A
1	A	1275	A
1	A	1291	U
1	A	1294	G
1	A	1296	C
1	A	1297	C
1	A	1299	G
1	A	1313	A
1	A	1340	A
1	A	1342	U
1	A	1358	U
1	A	1388	A
1	A	1391	C
1	A	1392	A
1	A	1413	G
1	A	1436	U
1	A	1440	A
1	A	1446	U
1	A	1447	A
1	A	1448	A
1	A	1451	G
1	A	1453	G
1	A	1455	A
1	A	1486	U
1	A	1488	A
1	A	1489	A
1	A	1490	G
1	A	1502	U
1	A	1513	G
1	A	1516	A
1	A	1525	G
1	A	1526	G

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Mol	Chain	Res	Type
1	A	1527	A
23	X	5	C
23	X	8	U
23	X	14	A
23	X	16	U
23	X	17	U
23	X	18	G
23	X	19	G
23	X	20	U
23	X	21	A
23	X	22	G
23	X	44	G
23	X	45	U
23	X	46	G
23	X	47	U
23	X	48	C
23	X	61	C
23	X	69	C
23	X	70	G
24	AA	9	A
24	AA	17	A
24	AA	27	G
24	AA	38	A
24	AA	39	G
24	AA	40	G
24	AA	55	G
24	AA	64	G
24	AA	67	A
24	AA	68	A
24	AA	75	A
24	AA	78	A
24	AA	79	G
24	AA	87	G
24	AA	89	G
24	AA	94	A
24	AA	97	C
24	AA	98	A
24	AA	99	U
24	AA	121	A
24	AA	123	U
24	AA	131	U
24	AA	134	A

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Mol	Chain	Res	Type
24	AA	142	A
24	AA	143	G
24	AA	145	U
24	AA	149	A
24	AA	160	A
24	AA	163	U
24	AA	164	A
24	AA	165	A
24	AA	167	U
24	AA	168	A
24	AA	170	U
24	AA	178	A
24	AA	179	U
24	AA	180	A
24	AA	194	A
24	AA	197	A
24	AA	211	A
24	AA	214	A
24	AA	219	A
24	AA	220	A
24	AA	226	A
24	AA	227	G
24	AA	228	A
24	AA	245	G
24	AA	263	G
24	AA	270	C
24	AA	274	A
24	AA	281	U
24	AA	282	C
24	AA	283	A
24	AA	284	A
24	AA	286	C
24	AA	287	U
24	AA	288	G
24	AA	289	C
24	AA	291	G
24	AA	293	G
24	AA	294	C
24	AA	295	G
24	AA	296	U
24	AA	297	U
24	AA	298	G

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Mol	Chain	Res	Type
24	AA	309	G
24	AA	312	G
24	AA	313	U
24	AA	314	A
24	AA	319	G
24	AA	322	U
24	AA	330	G
24	AA	336	A
24	AA	337	A
24	AA	340	A
24	AA	344	A
24	AA	347	A
24	AA	349	G
24	AA	350	U
24	AA	351	U
24	AA	353	C
24	AA	358	U
24	AA	361	U
24	AA	362	U
24	AA	373	A
24	AA	374	U
24	AA	384	A
24	AA	403	A
24	AA	415	U
24	AA	425	A
24	AA	428	A
24	AA	435	U
24	AA	436	A
24	AA	439	A
24	AA	440	U
24	AA	443	U
24	AA	449	G
24	AA	461	A
24	AA	463	G
24	AA	478	A
24	AA	482	U
24	AA	496	U
24	AA	501	G
24	AA	513	G
24	AA	532	G
24	AA	533	A
24	AA	557	G

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Mol	Chain	Res	Type
24	AA	577	A
24	AA	579	U
24	AA	580	A
24	AA	582	A
24	AA	584	C
24	AA	592	G
24	AA	604	G
24	AA	605	C
24	AA	606	A
24	AA	607	G
24	AA	621	U
24	AA	622	U
24	AA	623	A
24	AA	624	U
24	AA	626	G
24	AA	628	G
24	AA	631	G
24	AA	639	G
24	AA	649	U
24	AA	650	A
24	AA	651	A
24	AA	662	A
24	AA	663	G
24	AA	679	A
24	AA	694	A
24	AA	695	G
24	AA	696	U
24	AA	697	G
24	AA	708	A
24	AA	718	A
24	AA	726	A
24	AA	727	A
24	AA	728	G
24	AA	732	G
24	AA	734	U
24	AA	736	U
24	AA	737	A
24	AA	738	G
24	AA	751	G
24	AA	752	A
24	AA	768	U
24	AA	794	G

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Mol	Chain	Res	Type
24	AA	795	G
24	AA	796	U
24	AA	797	A
24	AA	799	A
24	AA	803	A
24	AA	805	G
24	AA	808	G
24	AA	812	G
24	AA	820	C
24	AA	822	A
24	AA	829	U
24	AA	830	U
24	AA	835	A
24	AA	839	A
24	AA	845	G
24	AA	846	A
24	AA	847	G
24	AA	857	G
24	AA	864	A
24	AA	866	G
24	AA	871	A
24	AA	884	A
24	AA	887	G
24	AA	888	C
24	AA	894	C
24	AA	909	U
24	AA	928	A
24	AA	929	G
24	AA	932	U
24	AA	940	G
24	AA	941	U
24	AA	959	A
24	AA	966	G
24	AA	967	U
24	AA	968	C
24	AA	970	A
24	AA	972	G
24	AA	973	G
24	AA	975	U
24	AA	976	A
24	AA	978	C
24	AA	979	A

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Mol	Chain	Res	Type
24	AA	990	A
24	AA	995	C
24	AA	1011	A
24	AA	1025	G
24	AA	1032	G
24	AA	1038	A
24	AA	1040	G
24	AA	1053	G
24	AA	1062	A
24	AA	1069	A
24	AA	1075	A
24	AA	1090	A
24	AA	1092	U
24	AA	1100	G
24	AA	1104	A
24	AA	1111	G
24	AA	1124	A
24	AA	1125	A
24	AA	1127	C
24	AA	1135	A
24	AA	1139	U
24	AA	1142	C
24	AA	1147	A
24	AA	1148	A
24	AA	1149	G
24	AA	1151	A
24	AA	1152	G
24	AA	1156	U
24	AA	1157	A
24	AA	1158	C
24	AA	1162	U
24	AA	1163	A
24	AA	1164	A
24	AA	1166	G
24	AA	1168	G
24	AA	1169	U
24	AA	1174	A
24	AA	1175	A
24	AA	1176	U
24	AA	1186	G
24	AA	1187	U
24	AA	1191	G

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Mol	Chain	Res	Type
24	AA	1193	A
24	AA	1198	A
24	AA	1201	G
24	AA	1208	A
24	AA	1211	U
24	AA	1212	A
24	AA	1214	C
24	AA	1215	G
24	AA	1221	A
24	AA	1230	A
24	AA	1241	G
24	AA	1261	A
24	AA	1286	A
24	AA	1289	G
24	AA	1294	U
24	AA	1304	A
24	AA	1307	U
24	AA	1313	G
24	AA	1315	G
24	AA	1327	G
24	AA	1330	A
24	AA	1333	G
24	AA	1348	G
24	AA	1349	A
24	AA	1350	A
24	AA	1377	A
24	AA	1378	A
24	AA	1398	A
24	AA	1410	C
24	AA	1418	U
24	AA	1427	C
24	AA	1429	U
24	AA	1442	A
24	AA	1455	A
24	AA	1456	U
24	AA	1460	A
24	AA	1469	A
24	AA	1472	A
24	AA	1473	U
24	AA	1484	C
24	AA	1485	U
24	AA	1490	G

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Mol	Chain	Res	Type
24	AA	1491	U
24	AA	1493	U
24	AA	1494	C
24	AA	1497	U
24	AA	1498	G
24	AA	1505	C
24	AA	1520	A
24	AA	1524	C
24	AA	1530	G
24	AA	1531	A
24	AA	1532	U
24	AA	1536	U
24	AA	1538	U
24	AA	1539	C
24	AA	1554	A
24	AA	1559	G
24	AA	1560	A
24	AA	1562	G
24	AA	1563	A
24	AA	1564	U
24	AA	1565	C
24	AA	1568	A
24	AA	1571	A
24	AA	1572	G
24	AA	1577	A
24	AA	1578	U
24	AA	1580	C
24	AA	1581	G
24	AA	1583	U
24	AA	1584	A
24	AA	1588	G
24	AA	1590	G
24	AA	1594	A
24	AA	1603	G
24	AA	1610	G
24	AA	1611	C
24	AA	1613	A
24	AA	1616	U
24	AA	1618	G
24	AA	1620	U
24	AA	1621	A
24	AA	1623	C

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Mol	Chain	Res	Type
24	AA	1627	A
24	AA	1629	A
24	AA	1630	U
24	AA	1631	G
24	AA	1636	U
24	AA	1637	A
24	AA	1638	G
24	AA	1649	A
24	AA	1652	A
24	AA	1655	U
24	AA	1662	U
24	AA	1665	G
24	AA	1666	G
24	AA	1668	U
24	AA	1669	A
24	AA	1670	G
24	AA	1671	G
24	AA	1677	A
24	AA	1679	G
24	AA	1680	G
24	AA	1681	A
24	AA	1682	C
24	AA	1691	A
24	AA	1699	A
24	AA	1704	U
24	AA	1709	G
24	AA	1729	C
24	AA	1730	G
24	AA	1731	C
24	AA	1736	G
24	AA	1737	A
24	AA	1757	G
24	AA	1758	C
24	AA	1799	A
24	AA	1810	U
24	AA	1812	A
24	AA	1818	G
24	AA	1827	A
24	AA	1854	C
24	AA	1870	A
24	AA	1883	A
24	AA	1901	A

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Mol	Chain	Res	Type
24	AA	1903	G
24	AA	1912	G
24	AA	1925	A
24	AA	1927	G
24	AA	1937	G
24	AA	1941	U
24	AA	1942	U
24	AA	1960	G
24	AA	1968	C
24	AA	1971	U
24	AA	1983	G
24	AA	1984	G
24	AA	1992	A
24	AA	1993	U
24	AA	2009	U
24	AA	2020	A
24	AA	2021	C
24	AA	2024	A
24	AA	2025	U
24	AA	2026	G
24	AA	2045	U
24	AA	2047	U
24	AA	2051	A
24	AA	2073	A
24	AA	2074	A
24	AA	2075	G
24	AA	2076	U
24	AA	2077	A
24	AA	2081	G
24	AA	2084	A
24	AA	2085	A
24	AA	2086	G
24	AA	2087	A
24	AA	2097	C
24	AA	2106	A
24	AA	2109	C
24	AA	2110	G
24	AA	2114	A
24	AA	2115	G
24	AA	2116	A
24	AA	2122	U
24	AA	2123	G

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Mol	Chain	Res	Type
24	AA	2130	U
24	AA	2147	G
24	AA	2149	G
24	AA	2153	U
24	AA	2154	G
24	AA	2158	A
24	AA	2161	U
24	AA	2162	A
24	AA	2164	G
24	AA	2171	A
24	AA	2174	G
24	AA	2180	A
24	AA	2185	U
24	AA	2186	U
24	AA	2187	G
24	AA	2197	C
24	AA	2199	U
24	AA	2200	C
24	AA	2201	A
24	AA	2202	G
24	AA	2203	G
24	AA	2211	G
24	AA	2213	G
24	AA	2217	A
24	AA	2218	U
24	AA	2219	C
24	AA	2223	A
24	AA	2225	A
24	AA	2226	U
24	AA	2227	A
24	AA	2228	C
24	AA	2232	C
24	AA	2236	G
24	AA	2244	A
24	AA	2245	G
24	AA	2249	U
24	AA	2250	C
24	AA	2252	A
24	AA	2253	A
24	AA	2256	U
24	AA	2269	G
24	AA	2271	A

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Mol	Chain	Res	Type
24	AA	2284	G
24	AA	2285	G
24	AA	2325	G
24	AA	2329	C
24	AA	2333	A
24	AA	2351	U
24	AA	2352	U
24	AA	2354	G
24	AA	2355	A
24	AA	2371	G
24	AA	2379	A
24	AA	2381	A
24	AA	2382	A
24	AA	2393	C
24	AA	2396	U
24	AA	2429	G
24	AA	2431	C
24	AA	2437	G
24	AA	2452	A
24	AA	2469	U
24	AA	2471	A
24	AA	2472	A
24	AA	2475	A
24	AA	2476	A
24	AA	2477	U
24	AA	2487	U
24	AA	2494	A
24	AA	2516	G
24	AA	2521	C
24	AA	2522	A
24	AA	2527	G
24	AA	2537	U
24	AA	2551	G
24	AA	2564	A
24	AA	2566	C
24	AA	2575	G
24	AA	2581	G
24	AA	2608	U
24	AA	2612	A
24	AA	2613	G
24	AA	2618	A
24	AA	2648	A

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Mol	Chain	Res	Type
24	AA	2649	G
24	AA	2655	U
24	AA	2659	U
24	AA	2675	U
24	AA	2735	U
24	AA	2748	G
24	AA	2756	U
24	AA	2758	A
24	AA	2759	G
24	AA	2761	G
24	AA	2773	C
24	AA	2780	A
24	AA	2791	G
24	AA	2795	A
24	AA	2805	A
24	AA	2808	G
24	AA	2813	G
24	AA	2825	A
24	AA	2827	G
24	AA	2832	A
24	AA	2837	U
24	AA	2838	U
24	AA	2855	U
24	AA	2863	U
24	AA	2864	G
24	AA	2865	A
24	AA	2891	U
24	AA	2897	A
24	AA	2902	G
24	AA	2903	A
24	AA	2904	C
24	AA	2910	C
24	AA	2913	A
24	AA	2914	U
24	AA	2915	U
24	AA	2916	A
24	AA	2917	C
24	AA	2921	U
24	AA	2923	U
25	AB	2	C
25	AB	11	U
25	AB	12	A

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Mol	Chain	Res	Type
25	AB	14	A
25	AB	15	G
25	AB	23	G
25	AB	31	U
25	AB	32	G
25	AB	34	U
25	AB	35	A
25	AB	36	U
25	AB	40	U
25	AB	41	C
25	AB	42	C
25	AB	43	G
25	AB	50	G
25	AB	51	A
25	AB	54	U
25	AB	56	A
25	AB	66	U
25	AB	67	C
25	AB	72	A
25	AB	83	A
25	AB	84	G
25	AB	86	U
25	AB	87	C
25	AB	99	G
25	AB	103	A
25	AB	108	C
25	AB	111	G
25	AB	112	G

All (64) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	A	8	G
1	A	171	A
1	A	312	A
1	A	492	A
1	A	496	A
1	A	639	A
1	A	649	C
1	A	701	G
1	A	720	G
1	A	834	A

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Mol	Chain	Res	Type
1	A	995	G
1	A	996	G
1	A	1122	C
1	A	1127	U
1	A	1195	A
1	A	1209	G
1	A	1485	G
23	X	18	G
24	AA	8	C
24	AA	142	A
24	AA	179	U
24	AA	225	A
24	AA	329	A
24	AA	350	U
24	AA	372	A
24	AA	532	G
24	AA	578	A
24	AA	733	A
24	AA	928	A
24	AA	940	G
24	AA	967	U
24	AA	1091	A
24	AA	1146	G
24	AA	1155	A
24	AA	1192	U
24	AA	1293	U
24	AA	1426	C
24	AA	1484	C
24	AA	1523	G
24	AA	1538	U
24	AA	1577	A
24	AA	1583	U
24	AA	1617	A
24	AA	1622	G
24	AA	1635	G
24	AA	1636	U
24	AA	1668	U
24	AA	1670	G
24	AA	1676	A
24	AA	1698	C
24	AA	1703	G
24	AA	1936	U

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Mol	Chain	Res	Type
24	AA	2073	A
24	AA	2152	U
24	AA	2249	U
24	AA	2251	U
24	AA	2755	G
24	AA	2831	U
24	AA	2837	U
24	AA	2922	A
25	AB	31	U
25	AB	34	U
25	AB	35	A
25	AB	86	U

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 4 ligands modelled in this entry, 4 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

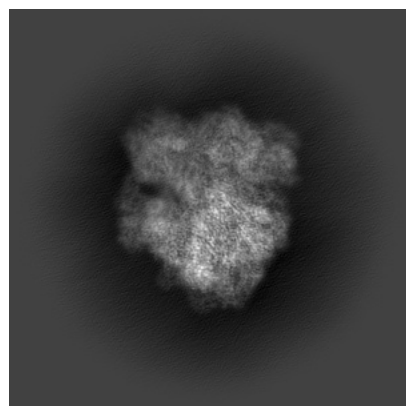
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-29298. These allow visual inspection of the internal detail of the map and identification of artifacts.

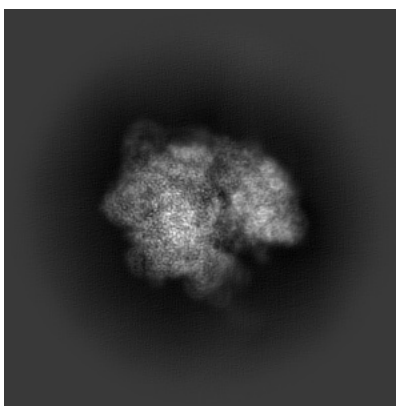
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

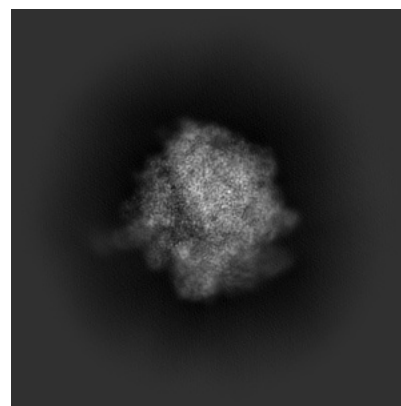
6.1.1 Primary map



X

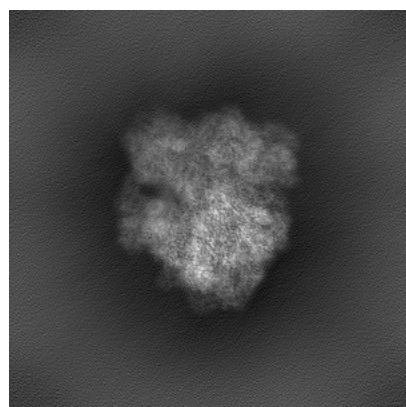


Y

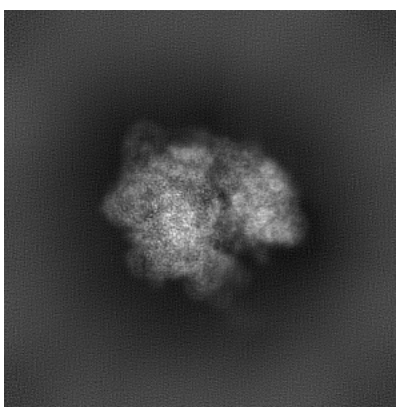


Z

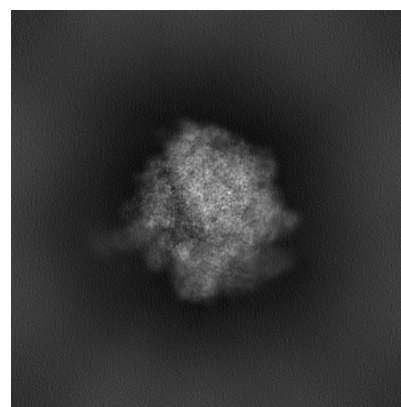
6.1.2 Raw map



X



Y

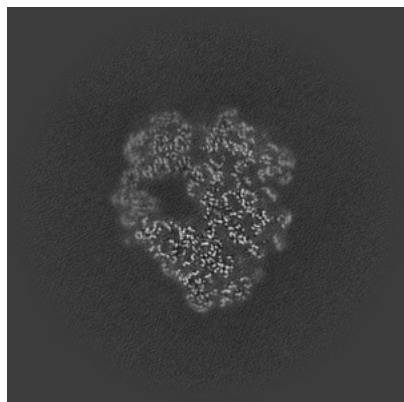


Z

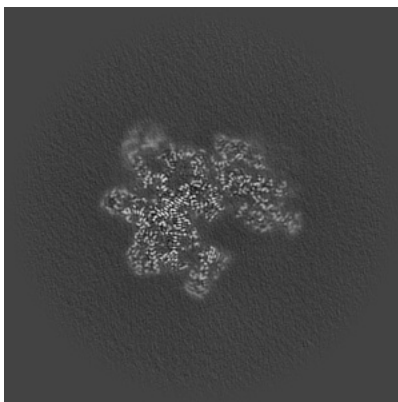
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

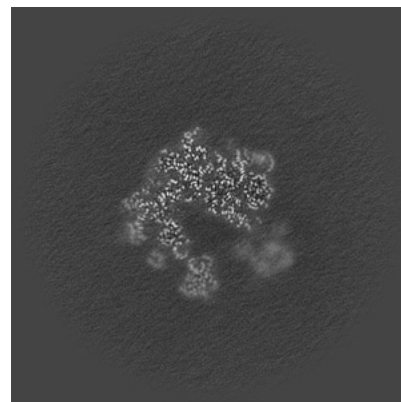
6.2.1 Primary map



X Index: 225

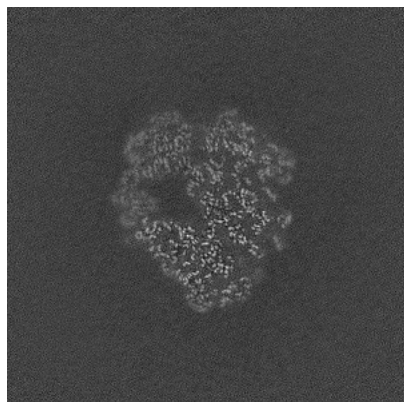


Y Index: 225

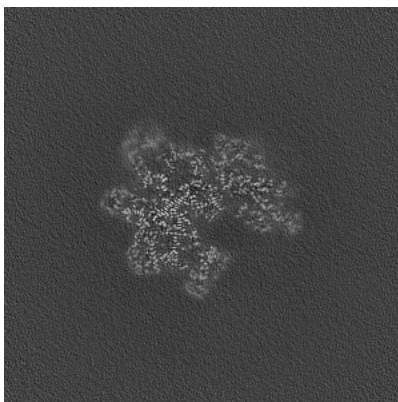


Z Index: 225

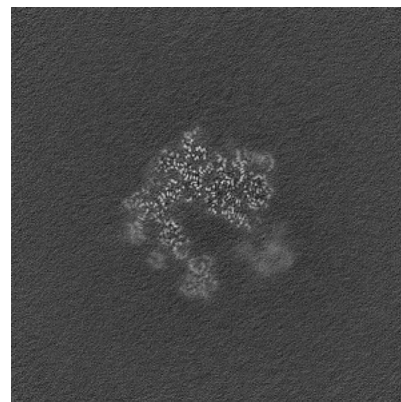
6.2.2 Raw map



X Index: 225



Y Index: 225

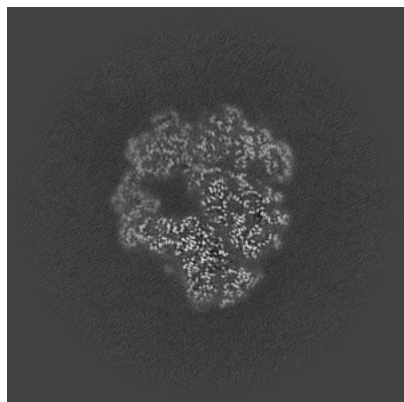


Z Index: 225

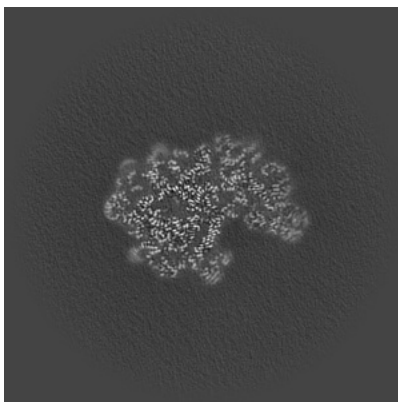
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

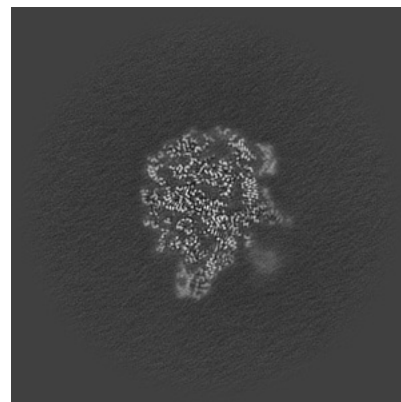
6.3.1 Primary map



X Index: 220

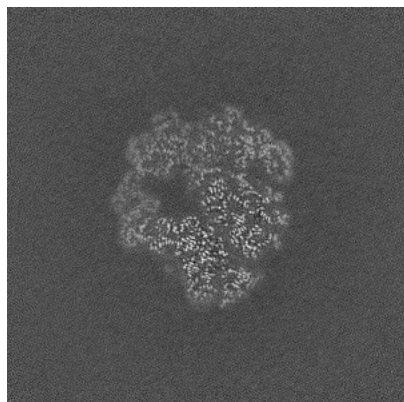


Y Index: 243

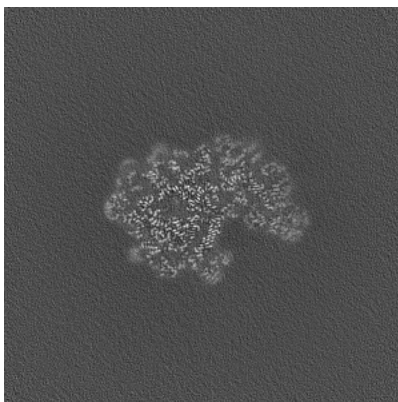


Z Index: 191

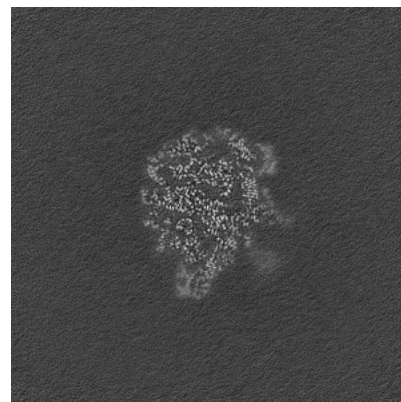
6.3.2 Raw map



X Index: 220



Y Index: 243

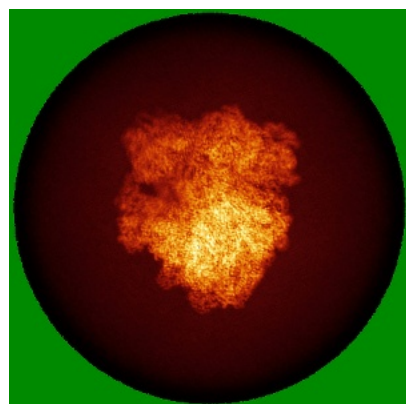


Z Index: 191

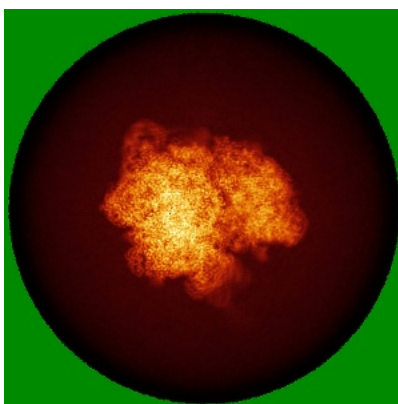
The images above show the largest variance slices of the map in three orthogonal directions.

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

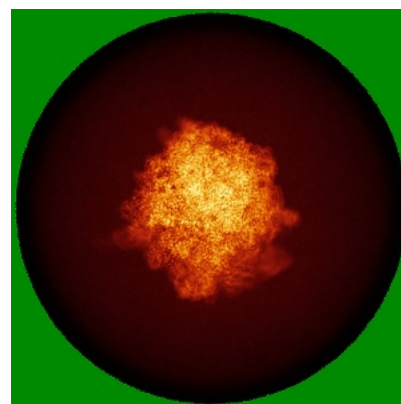
6.4.1 Primary map



X

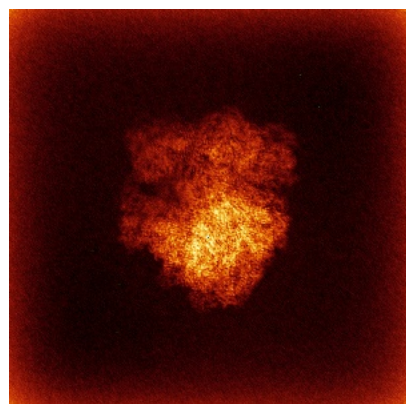


Y

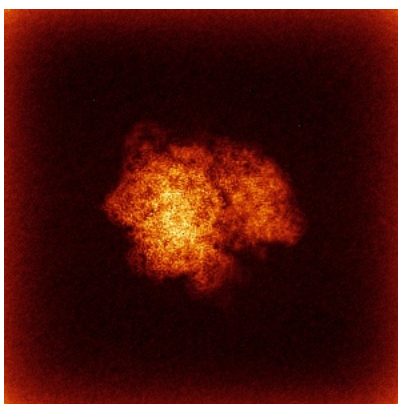


Z

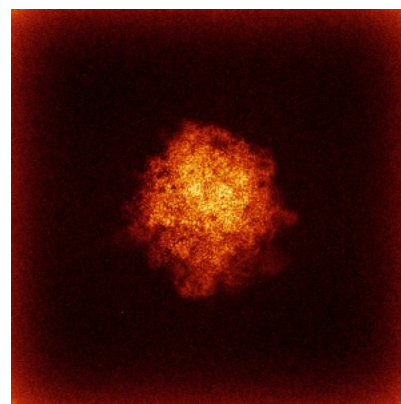
6.4.2 Raw map



X



Y

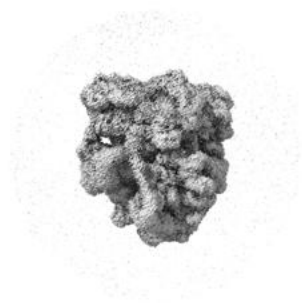


Z

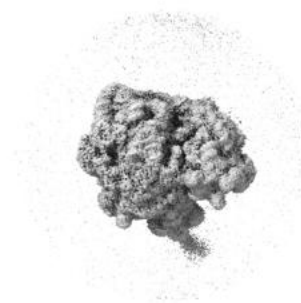
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



X



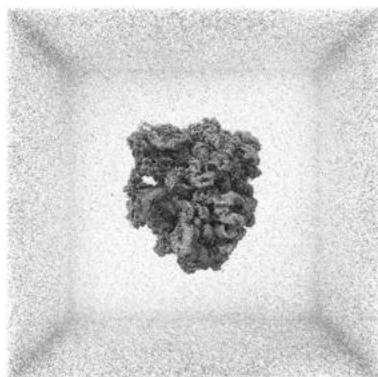
Y



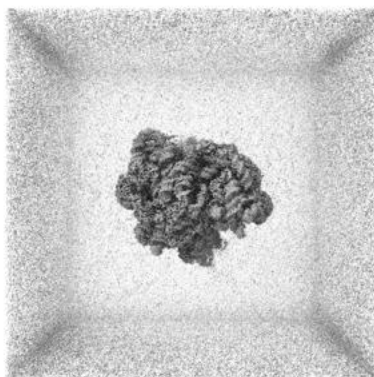
Z

The images above show the 3D surface view of the map at the recommended contour level 0.07. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

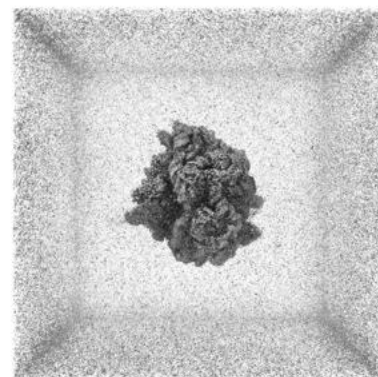
6.5.2 Raw map



X



Y



Z

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

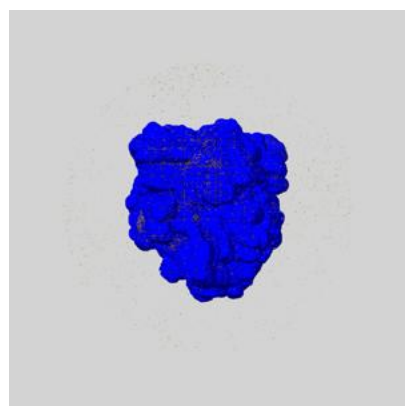
6.6 Mask visualisation [i](#)

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

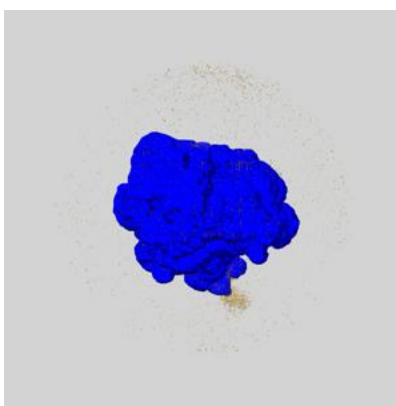
A mask typically either:

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

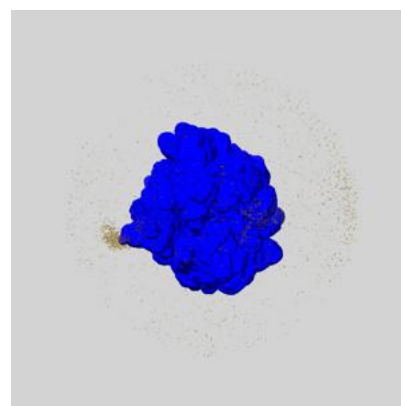
6.6.1 emd_29298_msk_1.map [i](#)



X



Y

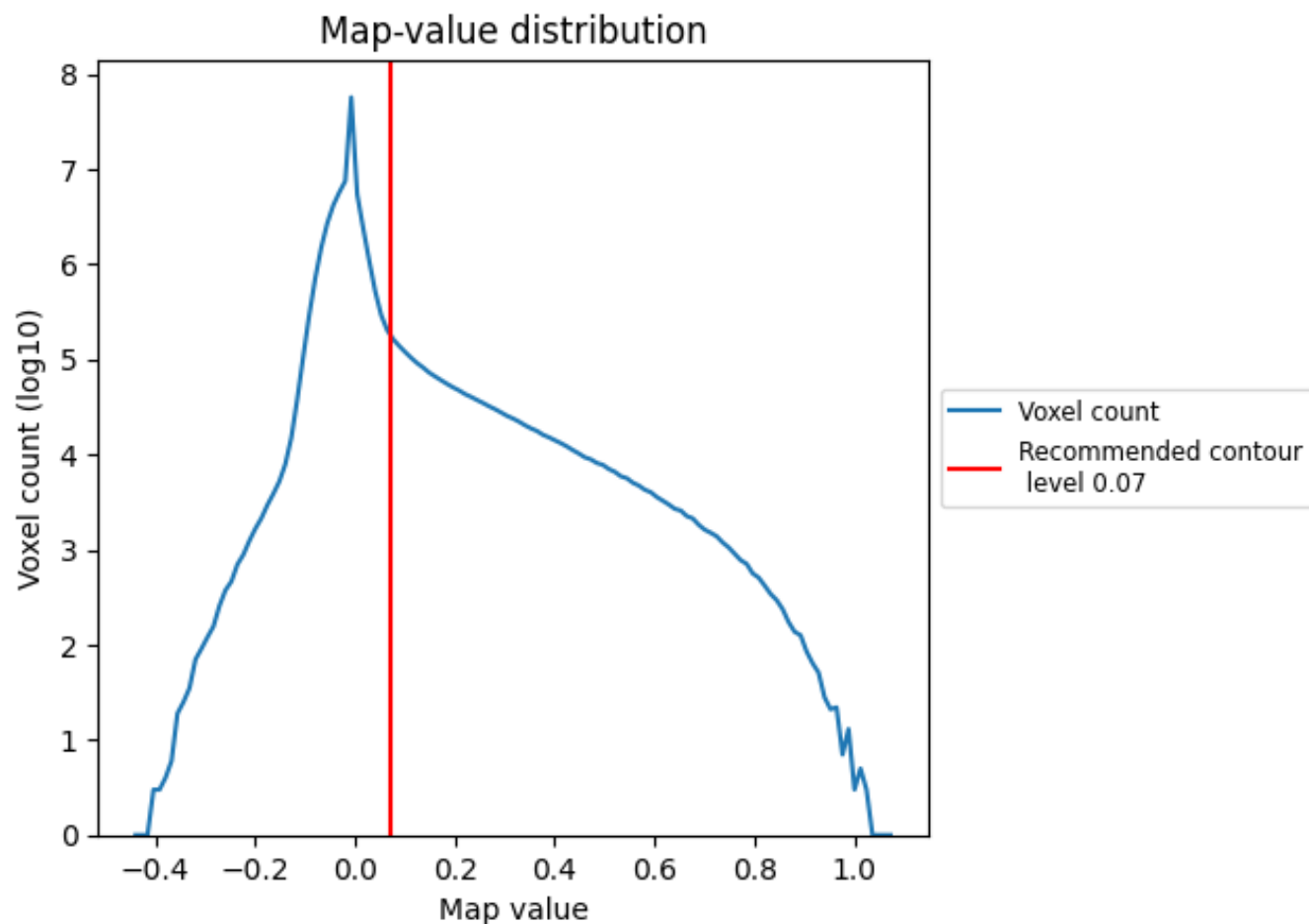


Z

7 Map analysis [i](#)

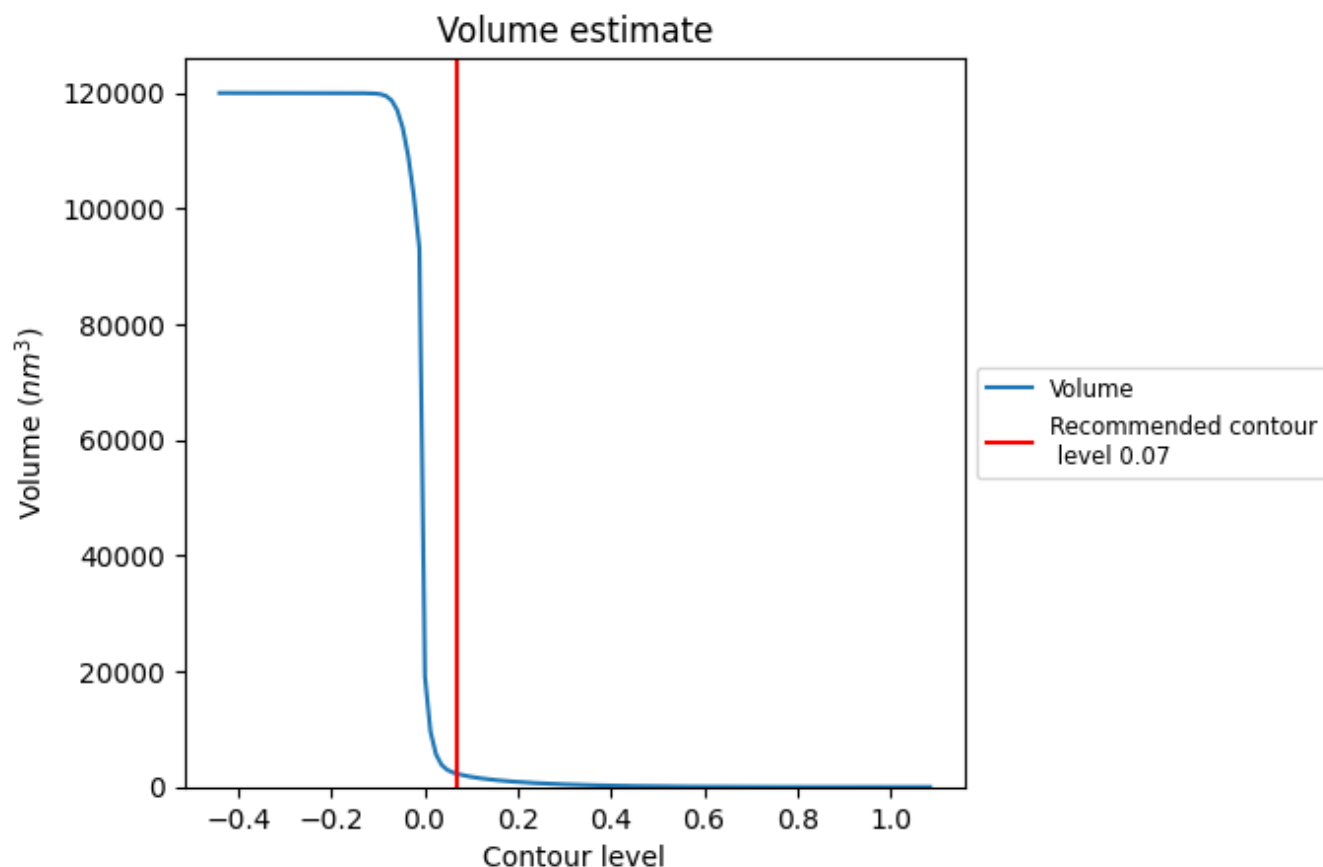
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

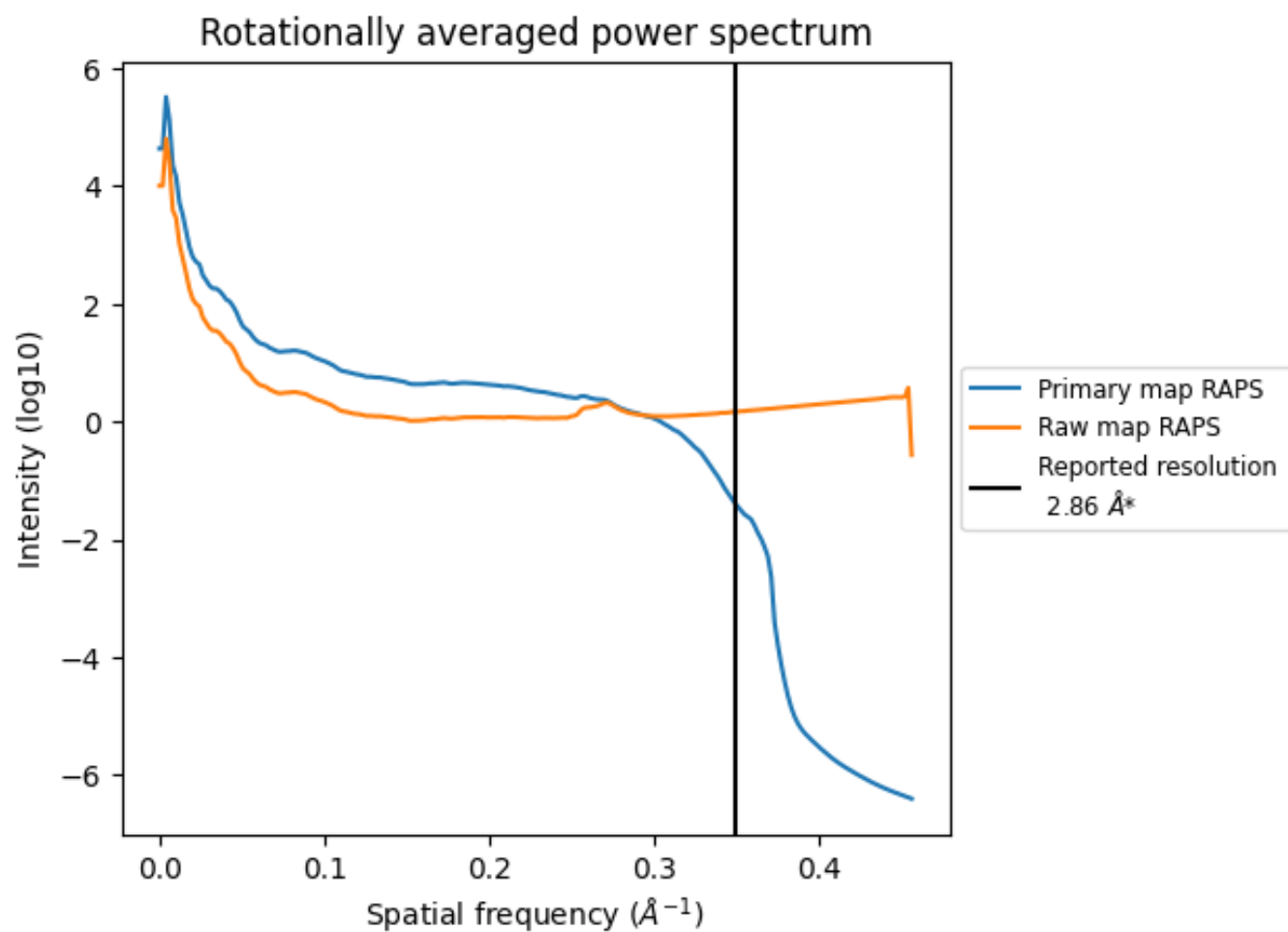
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2290 nm^3 ; this corresponds to an approximate mass of 2069 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ

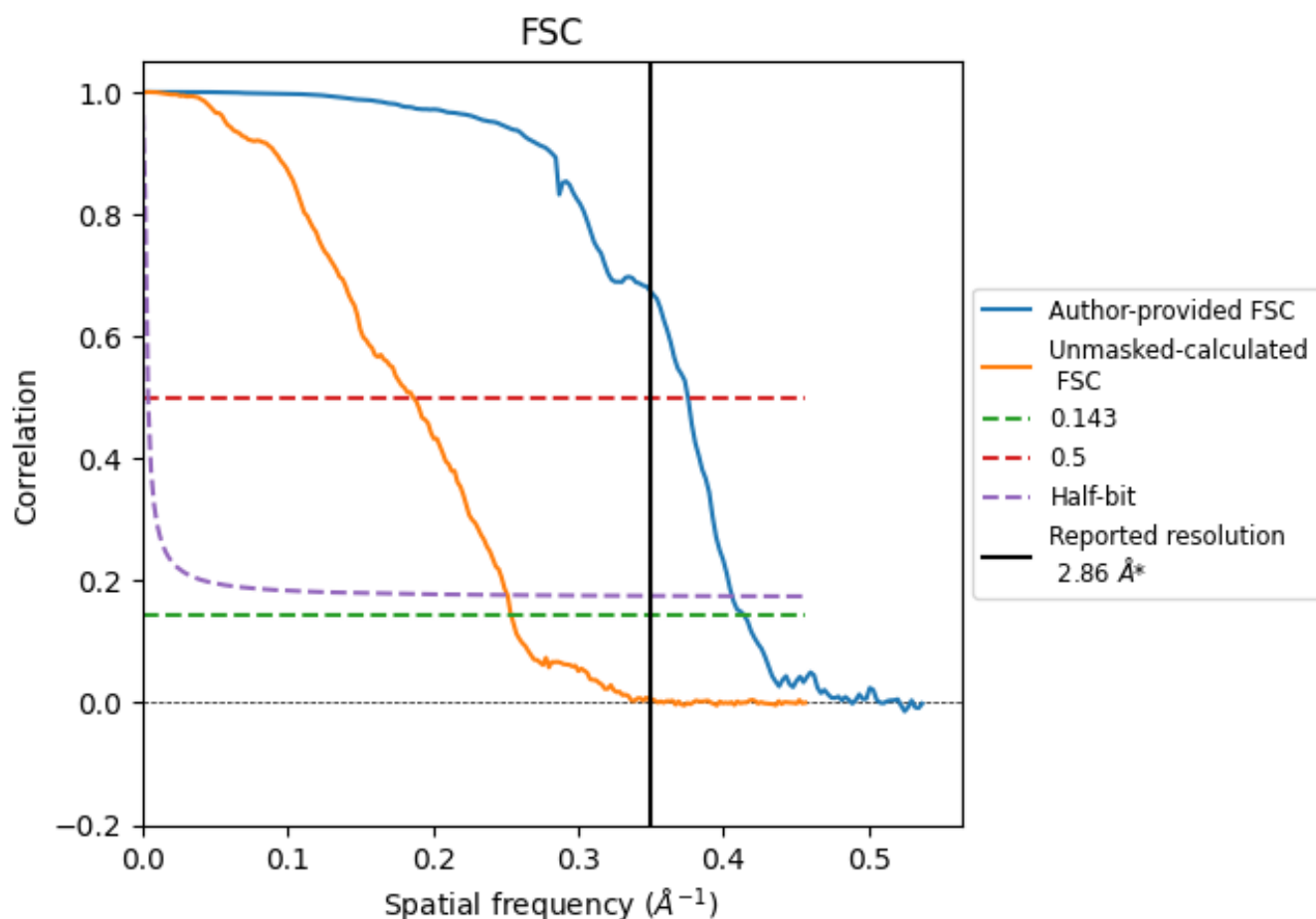


*Reported resolution corresponds to spatial frequency of $0.350 \text{ \AA}^{-1}$

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 0.350 Å⁻¹

8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.86	-	-
Author-provided FSC curve	2.41	2.66	2.46
Unmasked-calculated*	3.94	5.36	3.98

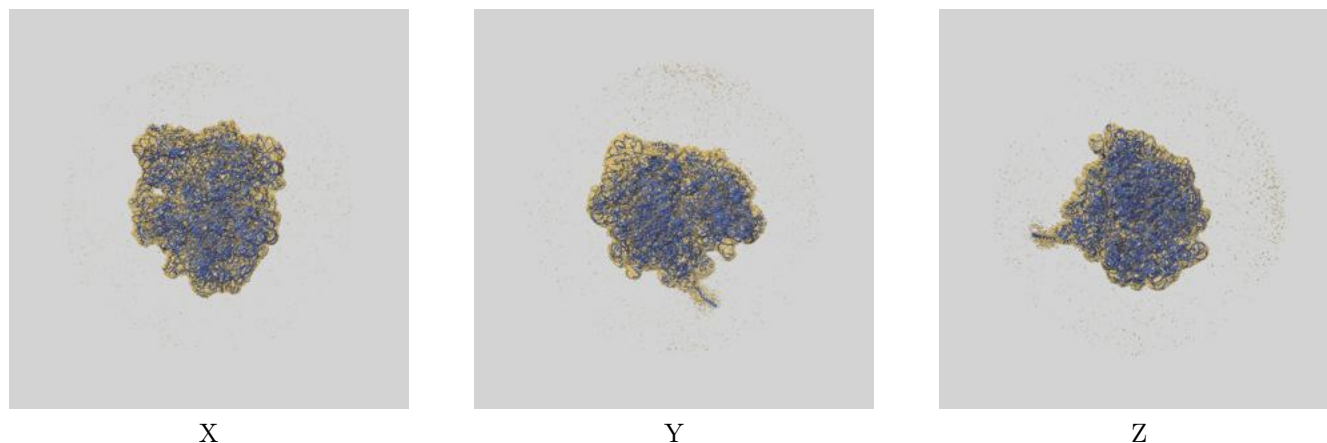
*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from author-provided FSC intersecting FSC 0.143 CUT-OFF 2.41 differs from the reported value 2.86 by more than 10 %

The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.94 differs from the reported value 2.86 by more than 10 %

9 Map-model fit [i](#)

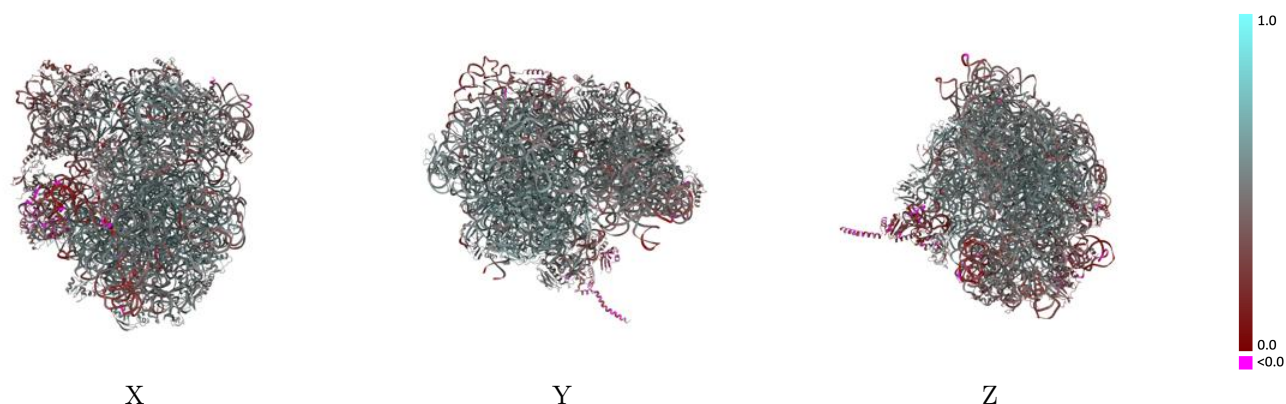
This section contains information regarding the fit between EMDB map EMD-29298 and PDB model 8FMW. Per-residue inclusion information can be found in section 3 on page 15.

9.1 Map-model overlay [i](#)



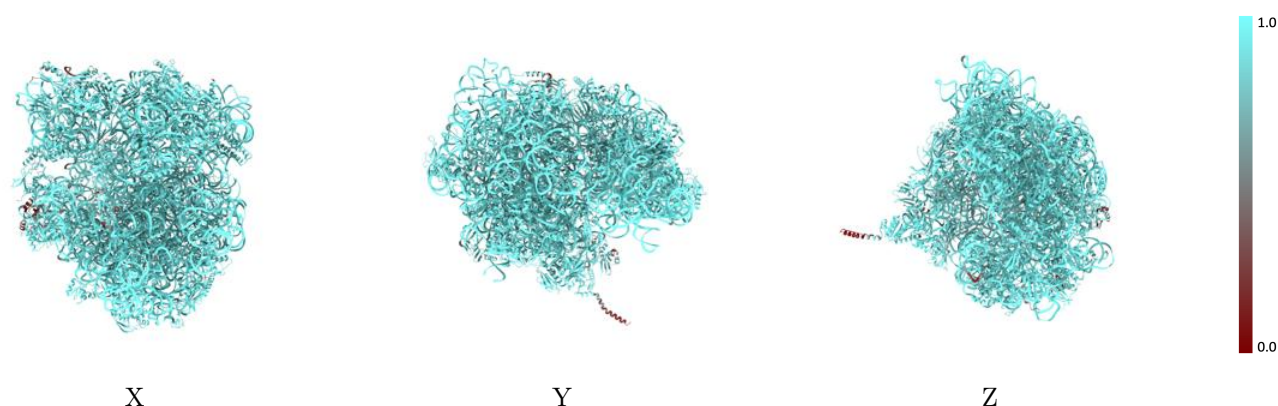
The images above show the 3D surface view of the map at the recommended contour level 0.07 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



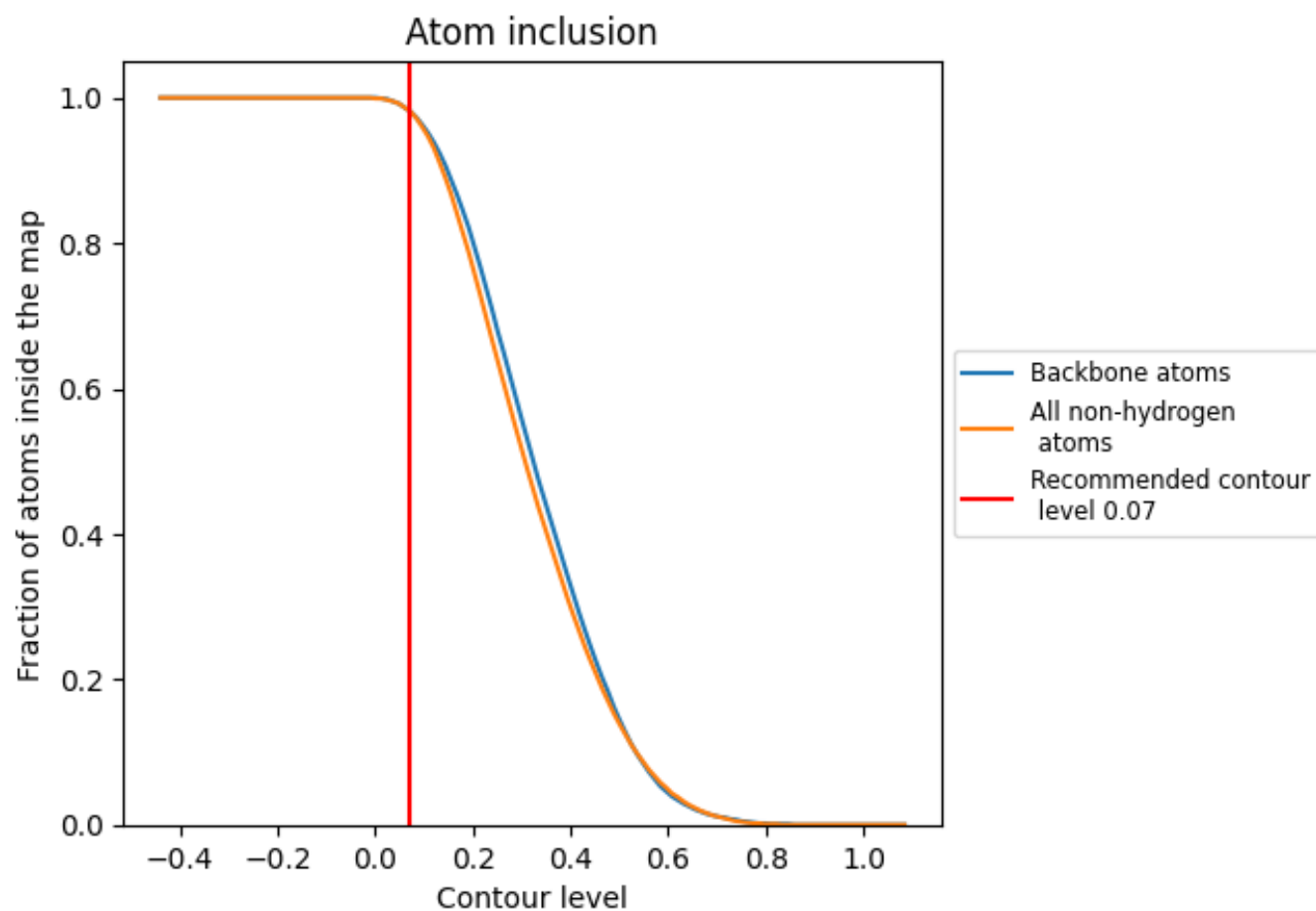
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.07).

9.4 Atom inclusion ⓘ



At the recommended contour level, 98% of all backbone atoms, 98% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.07) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9820	 0.4840
A	 0.9910	 0.4700
AA	 0.9930	 0.5000
AB	 0.9970	 0.4510
AC	 0.7340	 0.1960
AD	 0.9880	 0.5780
AE	 0.9940	 0.5670
AF	 0.9970	 0.5480
AG	 0.9860	 0.4340
AH	 0.9800	 0.4740
AI	 0.8320	 0.3580
AJ	 0.8300	 0.2170
AK	 0.8880	 0.2360
AL	 0.9930	 0.5710
AM	 0.9880	 0.5760
AN	 0.9730	 0.5120
AO	 0.9830	 0.5420
AP	 0.9890	 0.5660
AQ	 0.9870	 0.4750
AR	 0.9910	 0.5480
AS	 0.9820	 0.5510
AT	 0.9850	 0.5370
AU	 0.9880	 0.5640
AV	 0.9790	 0.5270
AW	 0.9400	 0.4880
AX	 0.9780	 0.4350
AY	 0.9980	 0.5920
AZ	 0.9860	 0.5530
Aa	 0.9760	 0.4790
Ab	 0.9910	 0.5640
Ac	 0.9290	 0.3210
Ad	 0.9810	 0.5560
Ae	 0.9810	 0.5340
Af	 0.9980	 0.5930
Ag	 0.9910	 0.5820



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Chain	Atom inclusion	Q-score
Ah	 0.9770	 0.5590
Ai	 0.9640	 0.3980
C	 0.9450	 0.4380
D	 0.9760	 0.4510
E	 0.9750	 0.5080
F	 0.9750	 0.4180
G	 0.9620	 0.3930
H	 0.9820	 0.4960
I	 0.9670	 0.3780
J	 0.8770	 0.3970
K	 0.9840	 0.4780
L	 0.9820	 0.5340
M	 0.9460	 0.4190
N	 0.9550	 0.4430
O	 0.9870	 0.4820
P	 0.9880	 0.4870
Q	 0.9850	 0.5020
R	 0.9880	 0.4800
S	 0.9620	 0.3940
T	 0.9440	 0.4220
U	 0.8830	 0.3720
V	 0.9830	 0.5760
W	 0.9490	 0.5020
X	 0.8620	 0.2780