Full wwPDB EM Validation Report

Sep 18, 2025 – 04:59 PM EDT

PDB ID	:	9NTA / pdb_00009nta
EMDB ID	:	EMD-49757
Title	:	Methanosarcina acetivorans 50S subunit obtained from methanol-grown cells
Authors	:	Ghosh, A.; Fordjour, G.N.R.; Armache, J.-P.; Ferry, J.G.; Murakami, K.S.; Bevilacqua, P.C.
Deposited on	:	2025-03-18
Resolution	:	2.38 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:

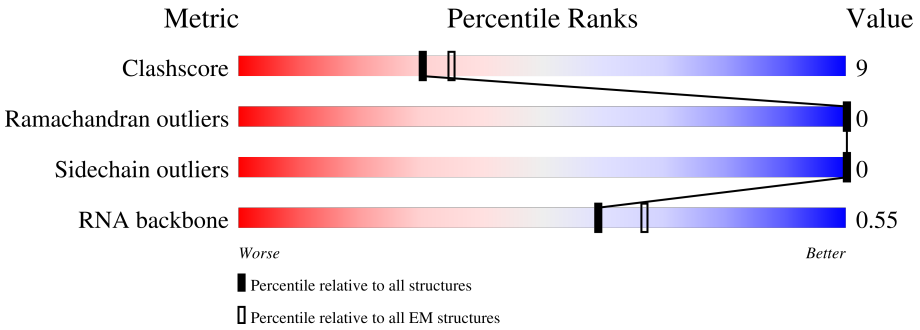
EMDB validation analysis	:	0.0.1.dev126
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0rc1
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.45.1

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 2.38 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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 <=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	BA	2899	8% 73% 23%
2	BB	129	5% 40% 52% 7%
3	BC	238	68% 32%
4	BD	337	66% 34%
5	BE	253	72% 28%
6	BF	165	47% 48% 52%
7	BG	176	10% 55% 45%

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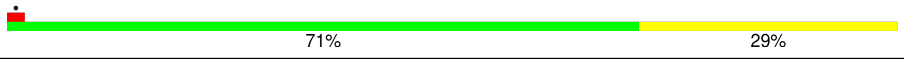
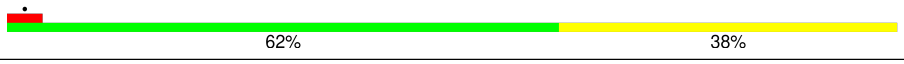
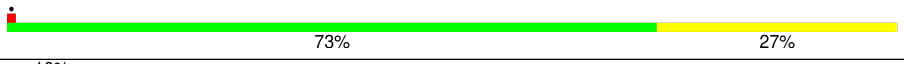
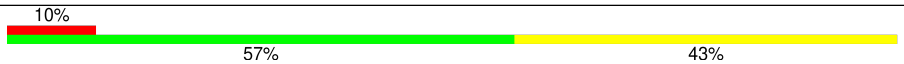
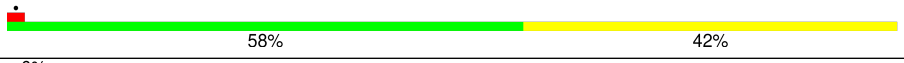
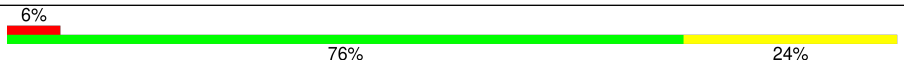
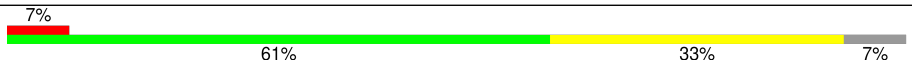
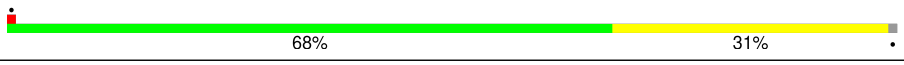
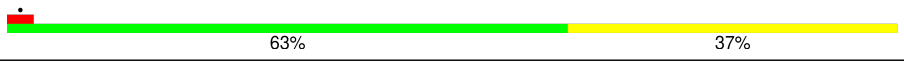
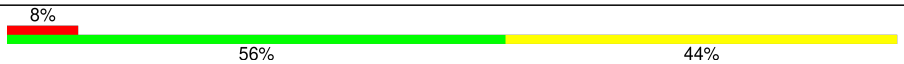
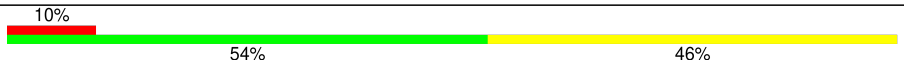
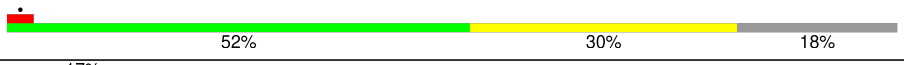
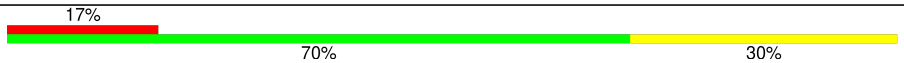
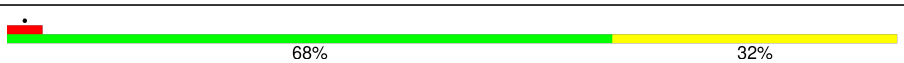
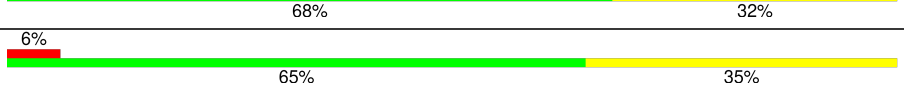
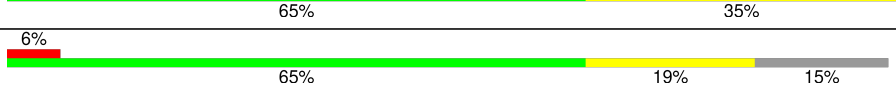
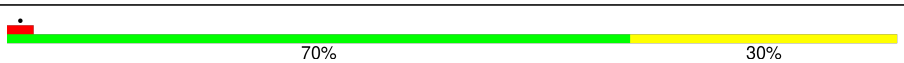
Mol	Chain	Length	Quality of chain
8	BH	120	
9	BI	173	
10	BJ	143	
11	BK	132	
12	BL	140	
13	BM	196	
14	BN	174	
15	BO	126	
16	BP	151	
17	BQ	61	
18	BR	97	
19	BS	151	
20	BT	82	
21	BU	119	
22	BV	62	
23	BW	67	
24	BX	153	
25	BY	99	
26	BZ	89	
27	Ba	161	
28	Bb	94	
29	Bc	56	
30	Bd	51	
31	Be	52	
32	Bf	92	

2 Entry composition (i)

There are 35 unique types of molecules in this entry. The entry contains 126102 atoms, of which 30886 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 23S rRNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	P		
1	BA	2884	92613	27554	30886	11225	20065	2883	0	0

- Molecule 2 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	BB	128	2720	1214	481	897	128	0	0

- Molecule 3 is a protein called Large ribosomal subunit protein uL2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	BC	238	1808	1129	350	321	8	0	0

- Molecule 4 is a protein called Large ribosomal subunit protein uL3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	BD	337	2597	1639	474	476	8	0	0

- Molecule 5 is a protein called Large ribosomal subunit protein uL4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	BE	252	1930	1208	368	353	1	0	0

- Molecule 6 is a protein called Large ribosomal subunit protein uL5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	BF	165	1289	812	234	235	8	0	0

- Molecule 7 is a protein called Large ribosomal subunit protein uL6.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	BG	176	Total	C	N	O	S	0	0
			1371	876	235	254	6		

- Molecule 8 is a protein called Large ribosomal subunit protein eL8.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	BH	115	Total	C	N	O	S	0	0
			857	541	144	170	2		

- Molecule 9 is a protein called Large ribosomal subunit protein uL16.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	BI	159	Total	C	N	O	S	0	0
			1261	794	240	218	9		

- Molecule 10 is a protein called Large ribosomal subunit protein uL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	BJ	138	Total	C	N	O	S	0	0
			1086	683	200	199	4		

- Molecule 11 is a protein called Large ribosomal subunit protein uL14.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	BK	132	Total	C	N	O	S	0	0
			999	623	185	182	9		

- Molecule 12 is a protein called Large ribosomal subunit protein uL15.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	BL	140	Total	C	N	O	S	0	0
			1058	643	204	205	6		

- Molecule 13 is a protein called Large ribosomal subunit protein eL15.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	BM	196	Total	C	N	O	S	0	0
			1593	986	329	273	5		

- Molecule 14 is a protein called Large ribosomal subunit protein uL18.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	BN	174	Total	C	N	O	S	0	0
			1356	853	242	259	2		

- Molecule 15 is a protein called Large ribosomal subunit protein eL18.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	BO	126	Total	C	N	O	S	0	0
			962	608	173	178	3		

- Molecule 16 is a protein called Large ribosomal subunit protein eL19.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	BP	151	Total	C	N	O	S	0	0
			1195	739	242	210	4		

- Molecule 17 is a protein called Large ribosomal subunit protein eL20.

Mol	Chain	Residues	Atoms				AltConf	Trace
17	BQ	57	Total	C	N	O	0	0
			457	289	79	89		

- Molecule 18 is a protein called Large ribosomal subunit protein eL21.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	BR	96	Total	C	N	O	S	0	0
			766	475	146	141	4		

- Molecule 19 is a protein called Large ribosomal subunit protein uL22.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	BS	151	Total	C	N	O	S	0	0
			1169	729	218	212	10		

- Molecule 20 is a protein called Large ribosomal subunit protein uL23.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	BT	82	Total	C	N	O	S	0	0
			656	418	108	122	8		

- Molecule 21 is a protein called Large ribosomal subunit protein uL24.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	BU	119	Total	C	N	O	S	0	0
			910	564	170	169	7		

- Molecule 22 is a protein called Large ribosomal subunit protein eL24.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	BV	62	Total	C	N	O	S	0	0
			499	316	88	87	8		

- Molecule 23 is a protein called Large ribosomal subunit protein uL29.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	BW	67	Total	C	N	O	S	0	0
			532	321	103	106	2		

- Molecule 24 is a protein called Large ribosomal subunit protein uL30.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	BX	153	Total	C	N	O	S	0	0
			1237	779	230	222	6		

- Molecule 25 is a protein called Large ribosomal subunit protein eL30.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	BY	92	Total	C	N	O	S	0	0
			658	415	108	131	4		

- Molecule 26 is a protein called Large ribosomal subunit protein eL31.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	BZ	86	Total	C	N	O	S	0	0
			703	446	131	123	3		

- Molecule 27 is a protein called Large ribosomal subunit protein eL32.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	Ba	132	Total	C	N	O	S	0	0
			1028	645	197	184	2		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Ba	-2	MET	-	conflict	UNP A0A832W8Z7
Ba	-1	ILE	-	conflict	UNP A0A832W8Z7
Ba	0	MET	-	conflict	UNP A0A832W8Z7

- Molecule 28 is a protein called Large ribosomal subunit protein eL43.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	Bb	94	Total	C	N	O	S	0	0
			736	459	145	125	7		

- Molecule 29 is a protein called Large ribosomal subunit protein eL37.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	Bc	56	Total	C	N	O	S	0	0
			445	269	92	76	8		

- Molecule 30 is a protein called Large ribosomal subunit protein eL39.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	Bd	51	Total	C	N	O	S	0	0
			439	272	101	64	2		

- Molecule 31 is a protein called Large ribosomal subunit protein eL40.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	Be	44	Total	C	N	O	S	0	0
			353	215	74	59	5		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Be	-2	MET	-	conflict	UNP Q8TJ19
Be	-1	THR	-	conflict	UNP Q8TJ19
Be	0	LYS	-	conflict	UNP Q8TJ19

- Molecule 32 is a protein called Large ribosomal subunit protein eL42.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	Bf	92	Total	C	N	O	S	0	0
			760	480	151	122	7		

- Molecule 33 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	AltConf
33	BA	42	Total Mg 42 42	0
33	Bc	1	Total Mg 1 1	0

- Molecule 34 is POTASSIUM ION (CCD ID: K) (formula: K).

Mol	Chain	Residues	Atoms	AltConf
34	BA	11	Total K 11 11	0

- Molecule 35 is ZINC ION (CCD ID: ZN) (formula: Zn).

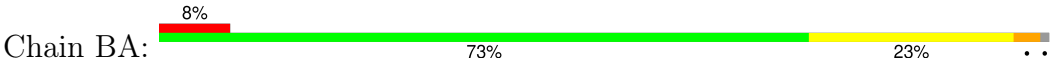
Mol	Chain	Residues	Atoms	AltConf
35	BV	1	Total Zn 1 1	0
35	Bb	1	Total Zn 1 1	0
35	Bc	1	Total Zn 1 1	0
35	Be	1	Total Zn 1 1	0
35	Bf	1	Total Zn 1 1	0

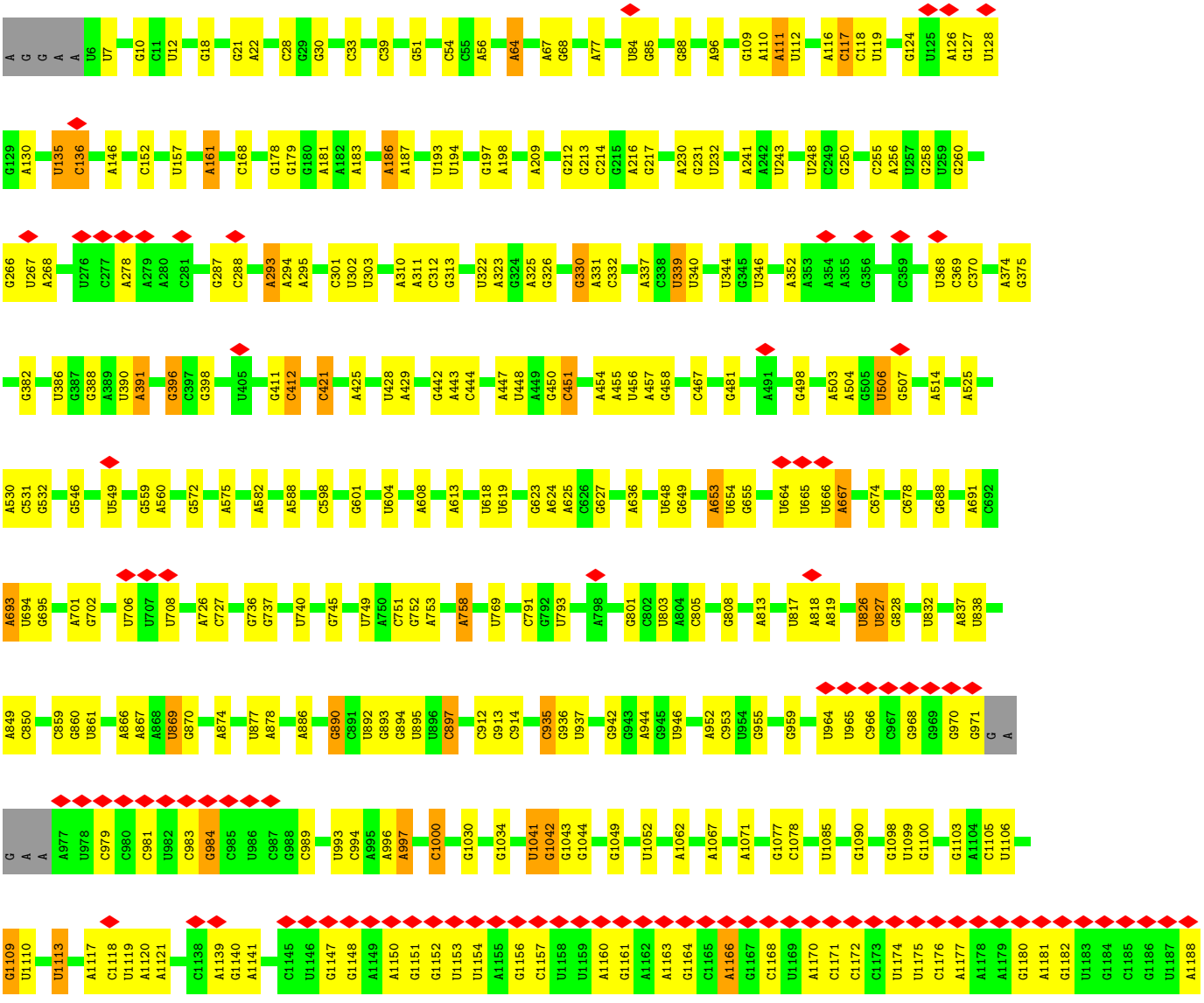
3 Residue-property plots (i)

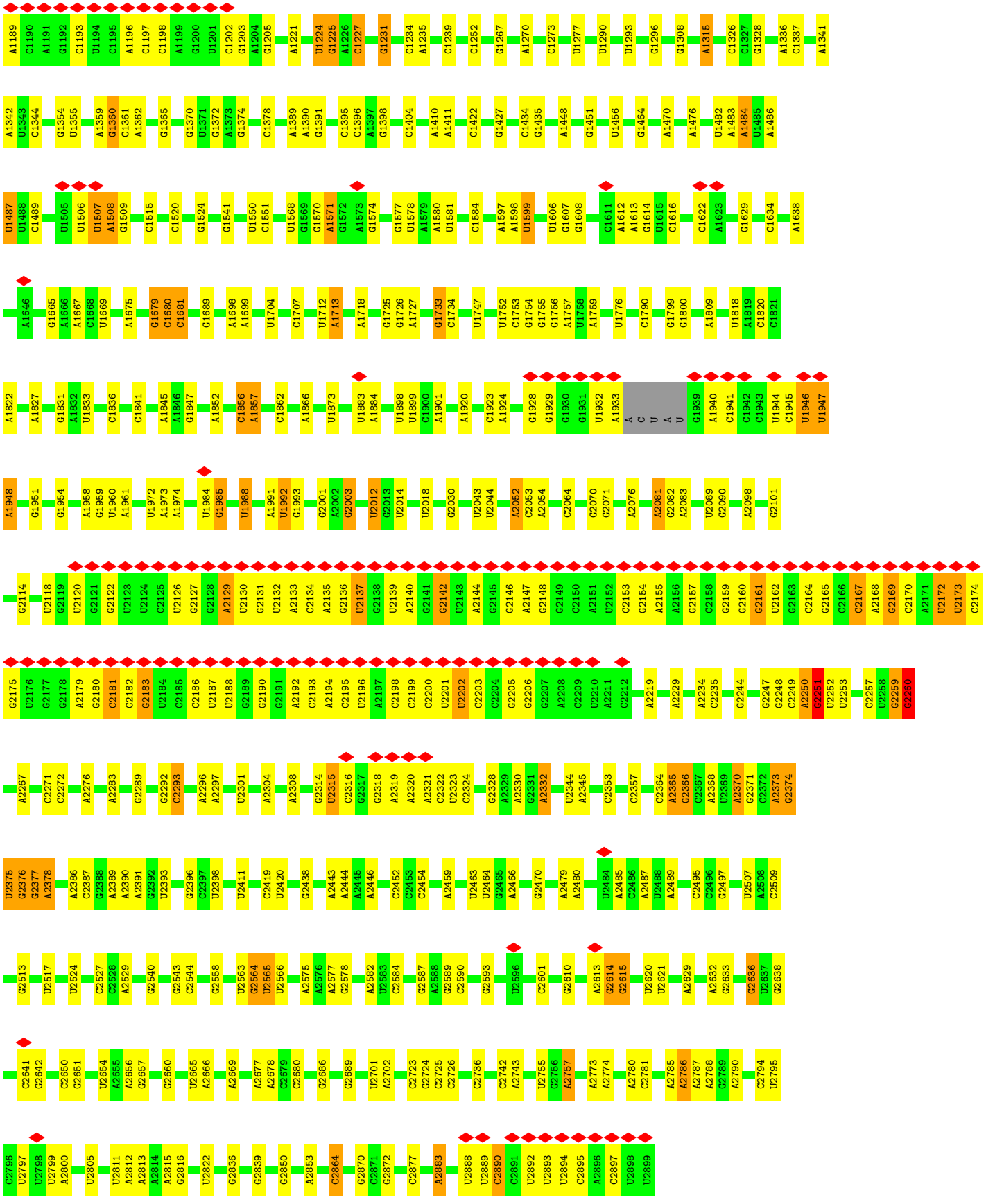
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: 23S rRNA

Chain BA:



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A1342 U1343 C1344 G1354 U1355 A1359 G1360 C1361 A1362 G1365 G1370 U1371 G1372 A1373 G1374 C1378 A1389 A1390 G1391 C1395 C1396 A1397 G1398 C1404 A1410 A1411 C1422 G1427 C1434 G1435 A1448 G1451 U1456 G1464 A1470 A1476 U1482 A1483 A1484 U1485 A1486
U1487 U1488 C1489 U1505 U1506 U1507 A1508 G1509 C1515 C1520 G1524 G1541 U1550 C1551 U1568 G1569 G1570 A1571 G1572 A1573 G1574 G1577 U1578 A1579 A1580 U1581 C1584 A1597 A1598 U1599 U1606 G1607 G1608 C1611 A1612 A1613 G1614 U1615 C1616 C1622 A1623 G1629 C1634 A1638
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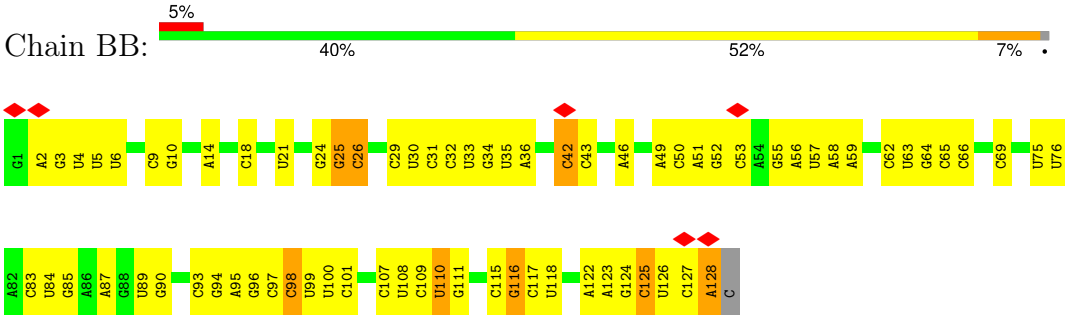
A1948 G1951 G1954 A1958 G1959 U1960 A1961 U1972 A1973 A1974 U1984 G1985 U1988 A1991 U1992 G1993 G2001 A2002 G2003 U2012 G2013 U2014 U2018 G2030 U2043 U2044 A2052 C2053 A2054 C2064 G2070 G2071 A2076 A2081 G2082 A2083 U2089 G2090 A2098 G2101
G2114 U2118 G2119 U2120 G2121 G2122 U2123 U2124 C2125 U2126 G2127 G2128 A2129 U2130 G2131 U2132 A2133 C2134 A2135 G2136 U2137 G2138 U2139 A2140 G2141 G2142 U2143 A2144 G2145 G2146 A2147 G2148 G2149 C2150 A2151 U2152 C2153 G2154 A2155 A2156 G2157 C2158 G2159 G2160 G2161 U2162 G2163 C2164 G2165 C2166 C2167 A2168 G2169 C2170 A2171 U2172 U2173 C2174
G2175 U2176 G2177 G2178 A2179 G2180 C2181 C2182 G2183 U2184 C2185 C2186 U2187 U2188 G2189 G2190 G2191 A2192 C2193 A2194 C2195 U2196 A2197 C2198 C2199 C2200 U2201 U2202 C2203 C2204 G2205 G2206 G2207 A2208 C2209 U2210 A2211 C2212 A2219 A2229 A2234 C2235 G2244 G2247 G2248 C2249 A2250 G2251 U2252 U2253 C2257 U2258 G2259 G2260
A2267 C2271 C2272 A2276 A2283 G2289 G2292 C2293 A2296 A2297 U2301 A2304 A2308 G2314 U2315 C2316 G2317 G2318 A2319 A2320 A2321 C2322 U2323 C2324 G2328 A2329 A2330 G2331 A2332 U2344 A2345 C2353 C2357 C2364 A2365 G2366 C2367 A2368 U2369 A2370 G2371 C2372 A2373 G2374
U2375 G2376 G2377 A2378 A2386 C2387 G2388 A2389 A2390 A2391 G2392 U2393 G2396 C2397 U2398 U2411 C2419 U2420 G2438 A2443 A2444 A2445 A2446 C2452 C2453 C2454 A2459 U2463 U2464 G2465 A2466 G2470 A2479 A2480 U2484 A2485 C2486 A2487 U2488 A2489 C2495 C2496 G2497 U2507 A2508 C2509
G2513 U2517 U2524 C2527 C2528 A2529 G2540 G2543 C2544 G2558 U2563 G2564 U2565 U2566 A2575 A2576 A2577 G2578 A2582 U2583 C2584 G2587 A2588 G2589 C2590 G2593 U2596 C2601 G2610 A2613 G2614 G2615 U2620 U2621 A2629 A2632 G2633 G2636 U2637 G2638
C2641 G2642 C2650 G2651 U2654 A2655 A2656 G2657 G2660 U2665 A2666 A2669 A2677 A2678 C2679 C2680 G2686 G2689 U2701 A2702 C2723 G2724 C2725 C2726 C2736 C2742 A2743 U2755 G2756 A2757 A2773 A2774 A2780 C2781 A2785 A2786 A2787 A2788 G2789 A2790 C2794 U2795
C2796 U2797 U2798 U2799 A2800 U2805 U2811 A2812 A2813 A2814 A2815 G2816 U2822 G2836 G2839 G2850 A2853 C2864 G2870 C2871 G2872 C2877 A2883 U2888 U2889 C2890 C2891 U2892 U2893 U2894 C2895 A2896 C2897 U2898 U2899

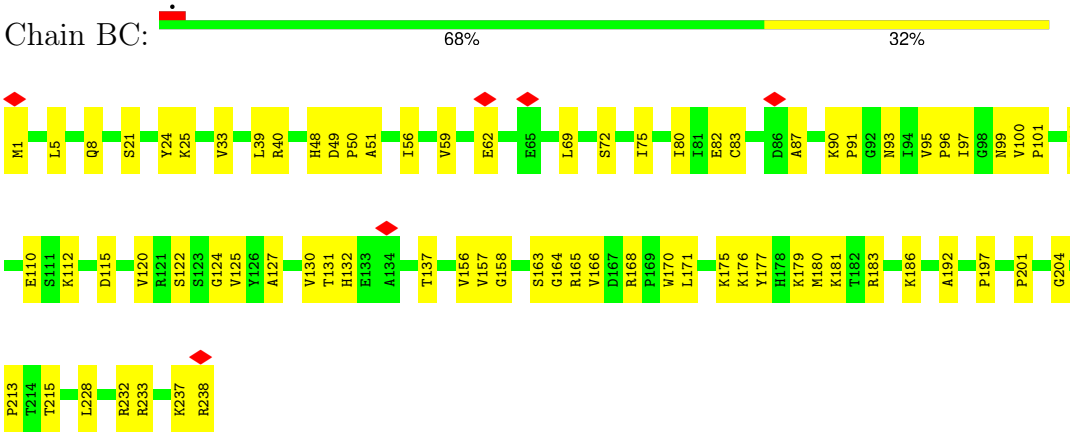
• Molecule 2: 5S rRNA

Chain BB:



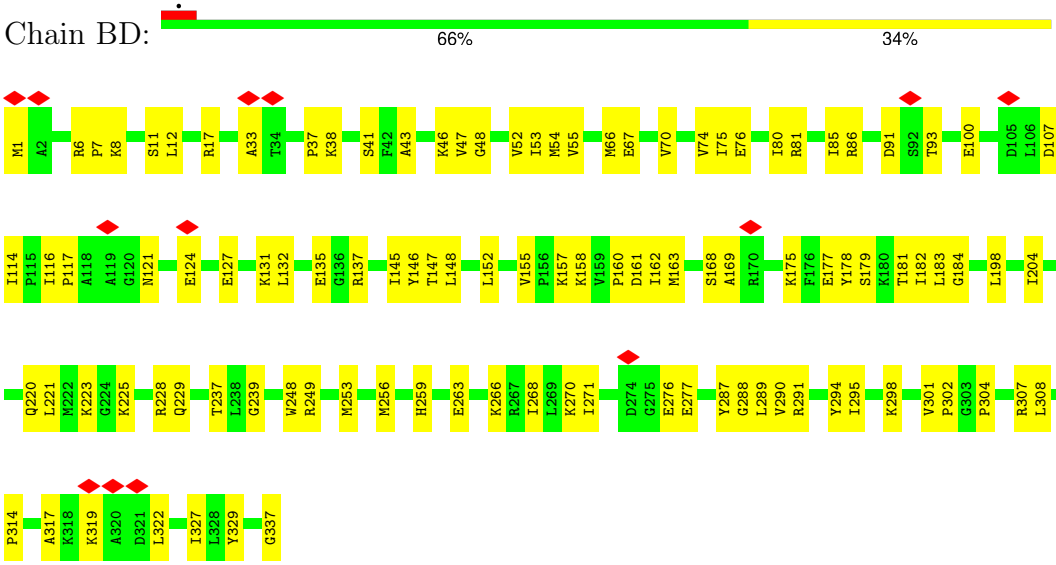
• Molecule 3: Large ribosomal subunit protein uL2

Chain BC:



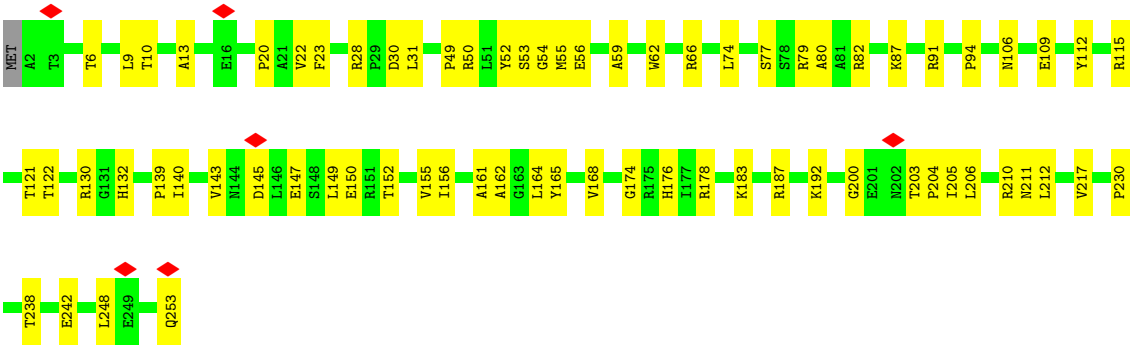
• Molecule 4: Large ribosomal subunit protein uL3

Chain BD:



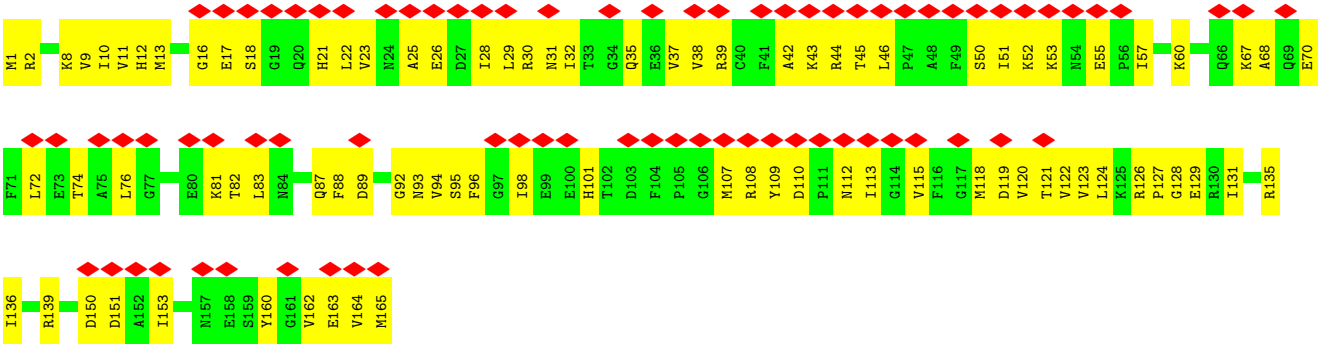
• Molecule 5: Large ribosomal subunit protein uL4

Chain BE:



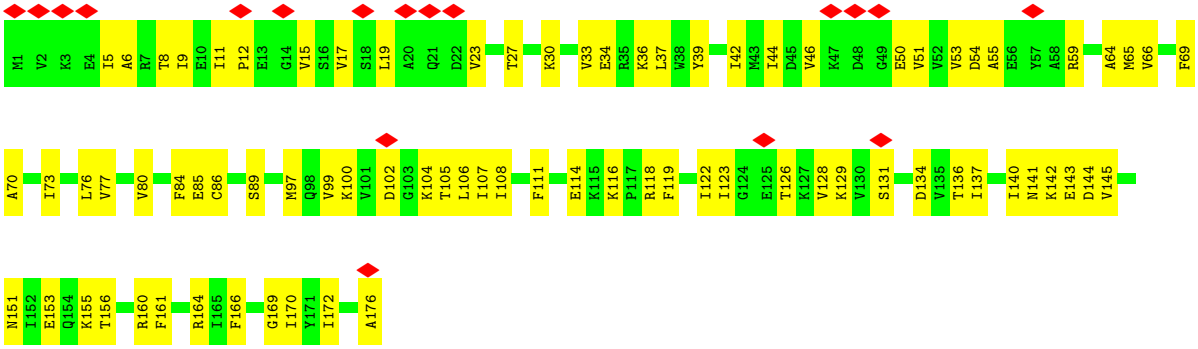
• Molecule 6: Large ribosomal subunit protein uL5

Chain BF:



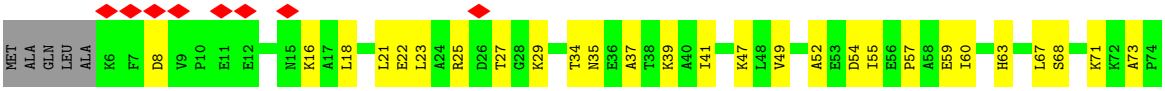
• Molecule 7: Large ribosomal subunit protein uL6

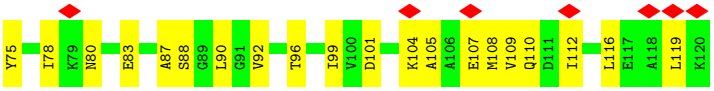
Chain BG:



• Molecule 8: Large ribosomal subunit protein eL8

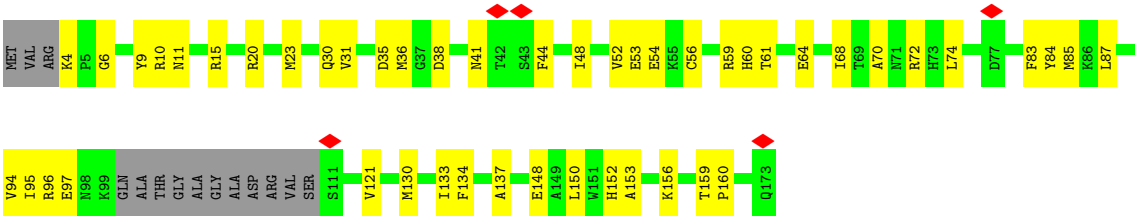
Chain BH:





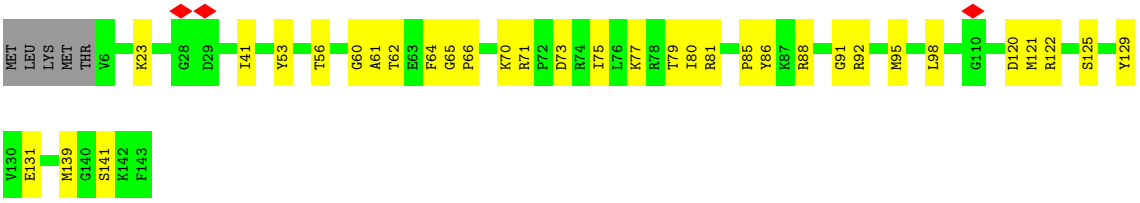
• Molecule 9: Large ribosomal subunit protein uL16

Chain BI:



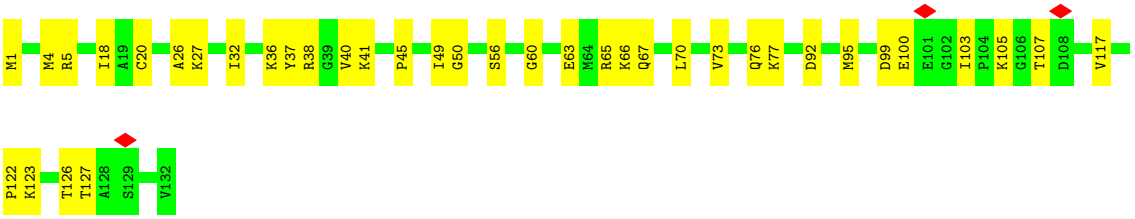
• Molecule 10: Large ribosomal subunit protein uL13

Chain BJ:



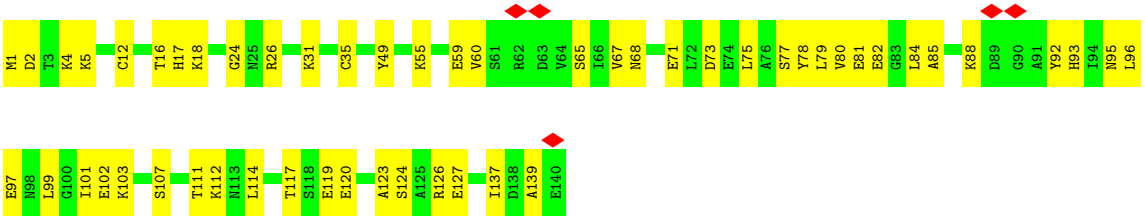
• Molecule 11: Large ribosomal subunit protein uL14

Chain BK:



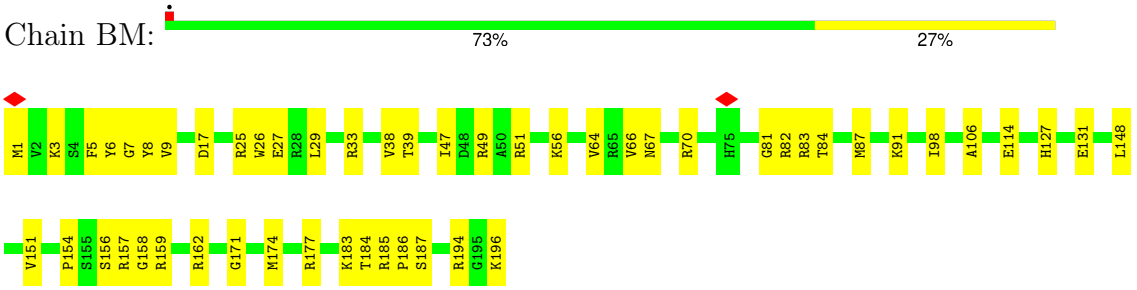
• Molecule 12: Large ribosomal subunit protein uL15

Chain BL:



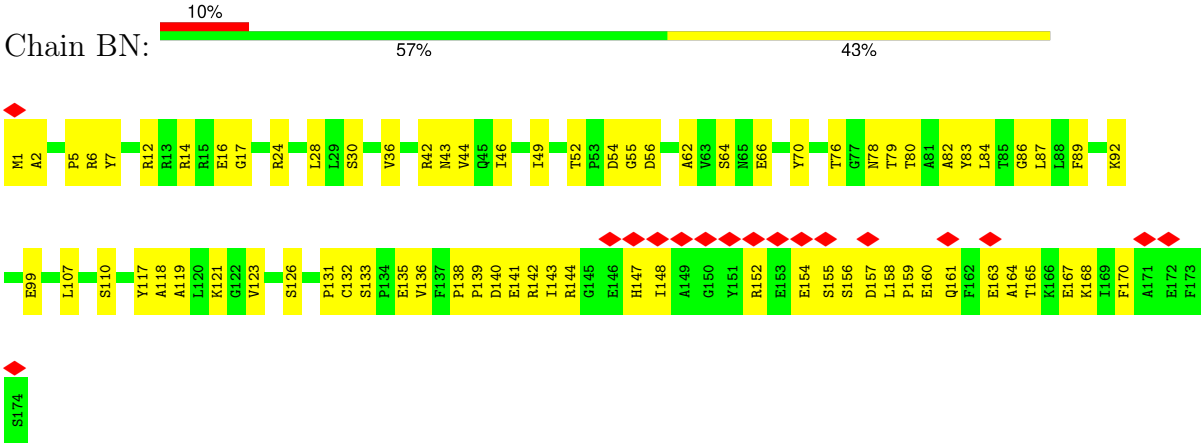
• Molecule 13: Large ribosomal subunit protein eL15

Chain BM:



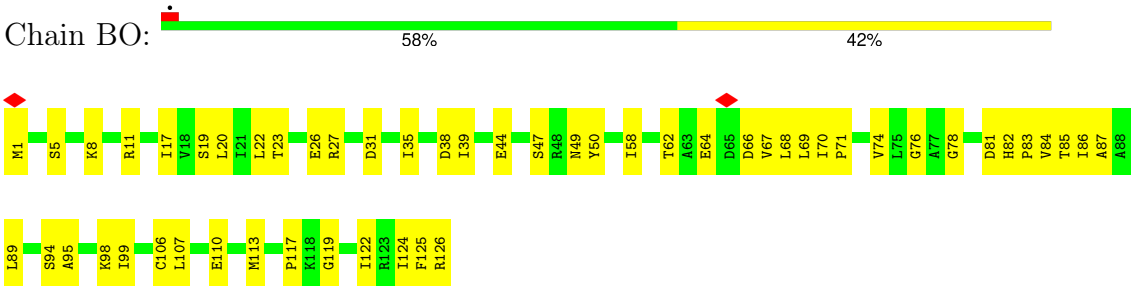
• Molecule 14: Large ribosomal subunit protein uL18

Chain BN:



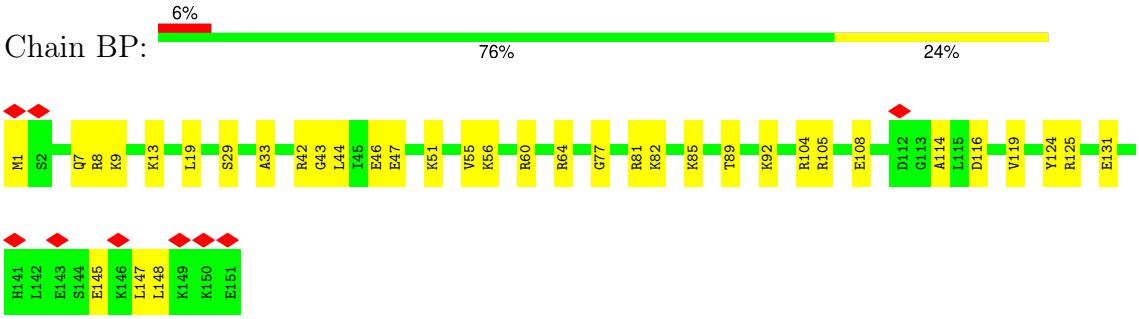
• Molecule 15: Large ribosomal subunit protein eL18

Chain BO:



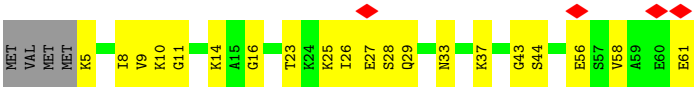
• Molecule 16: Large ribosomal subunit protein eL19

Chain BP:

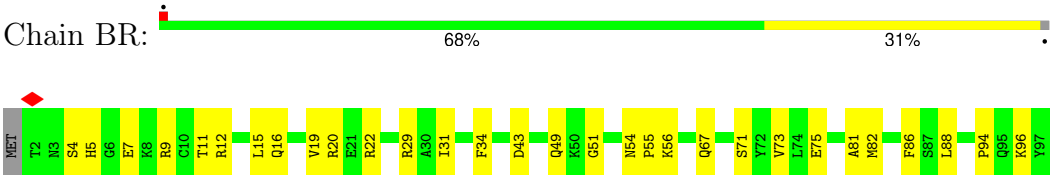


• Molecule 17: Large ribosomal subunit protein eL20

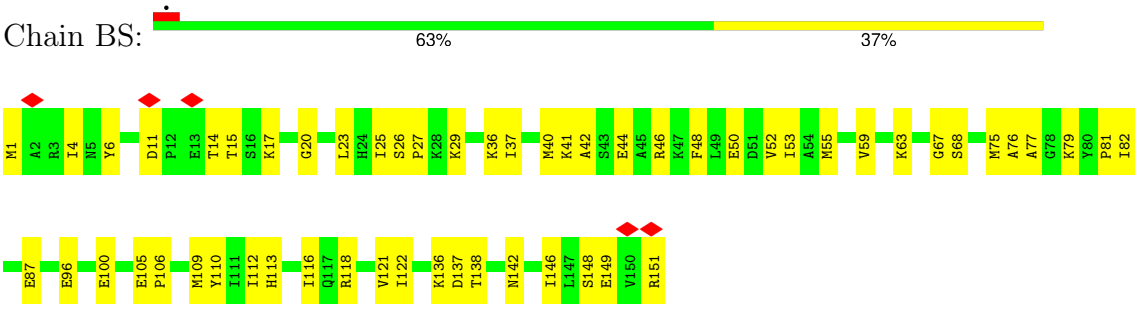
Chain BQ:



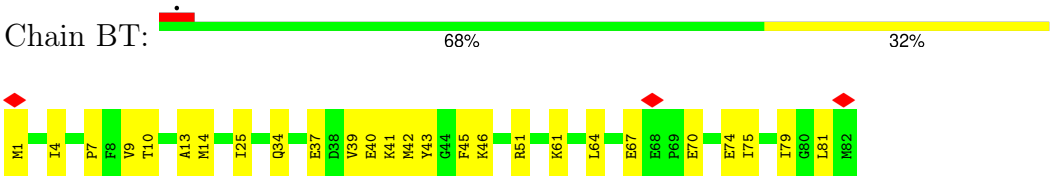
• Molecule 18: Large ribosomal subunit protein eL21



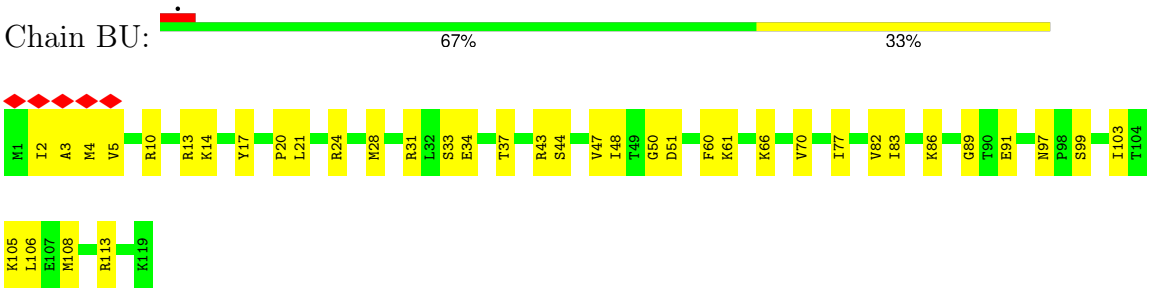
• Molecule 19: Large ribosomal subunit protein uL22



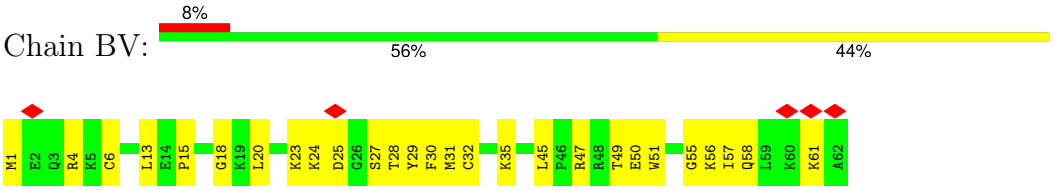
• Molecule 20: Large ribosomal subunit protein uL23



• Molecule 21: Large ribosomal subunit protein uL24

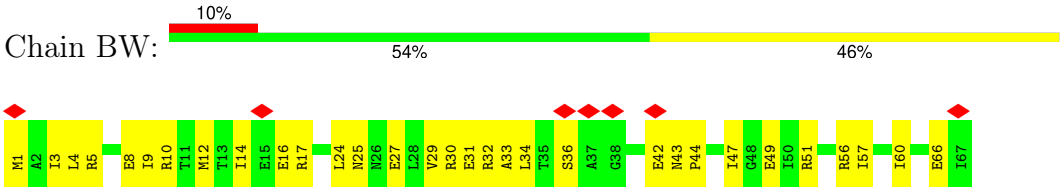


• Molecule 22: Large ribosomal subunit protein eL24



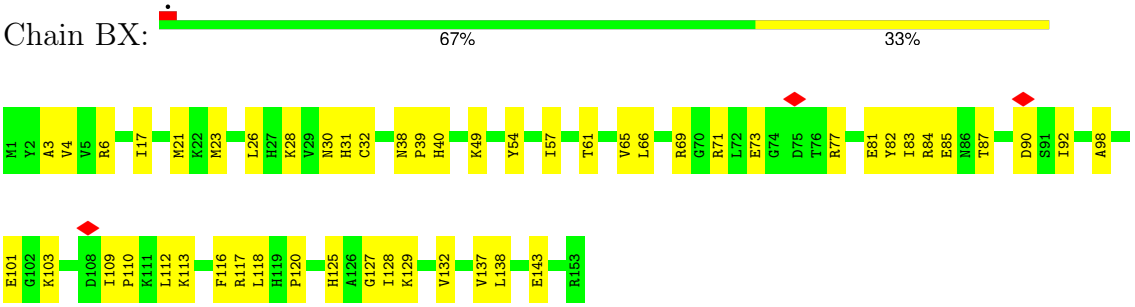
• Molecule 23: Large ribosomal subunit protein uL29

Chain BW:



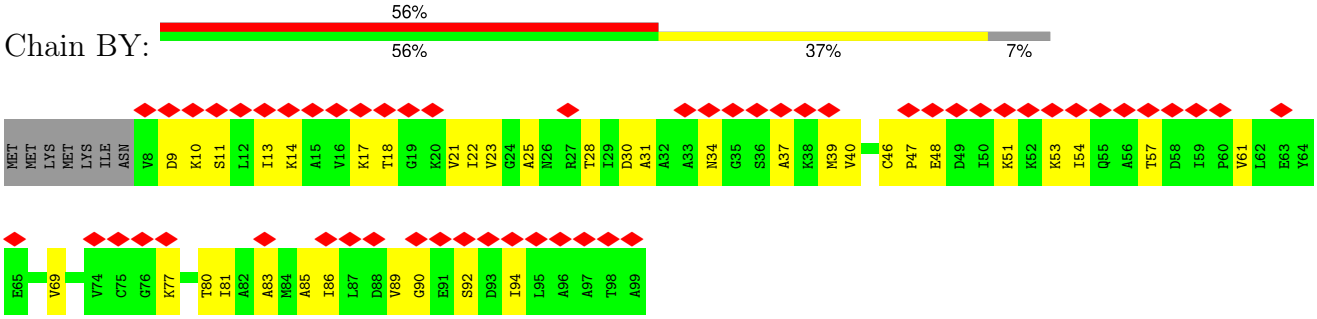
• Molecule 24: Large ribosomal subunit protein uL30

Chain BX:



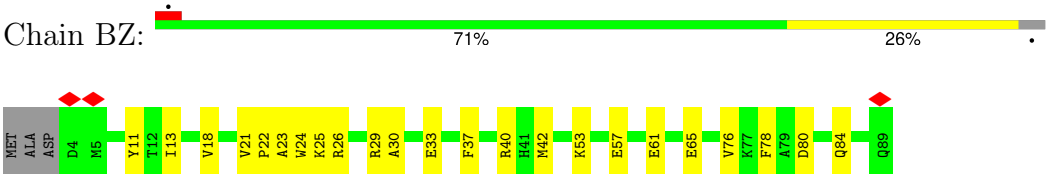
• Molecule 25: Large ribosomal subunit protein eL30

Chain BY:



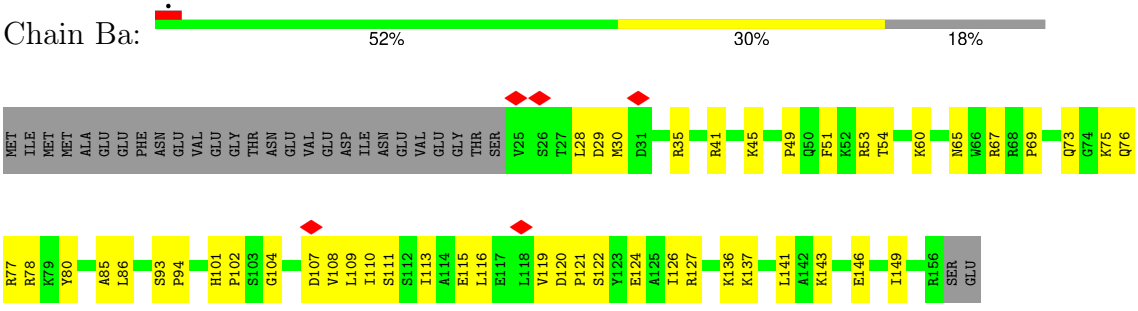
• Molecule 26: Large ribosomal subunit protein eL31

Chain BZ:



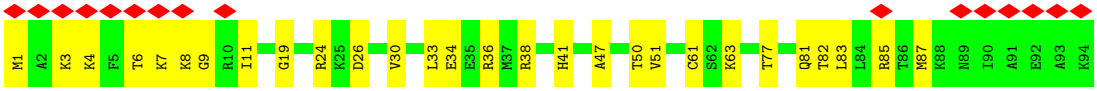
• Molecule 27: Large ribosomal subunit protein eL32

Chain Ba:



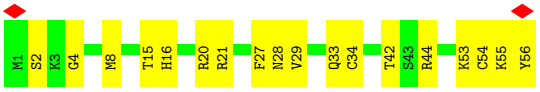
• Molecule 28: Large ribosomal subunit protein eL43

Chain Bb:



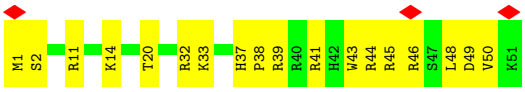
• Molecule 29: Large ribosomal subunit protein eL37

Chain Bc:



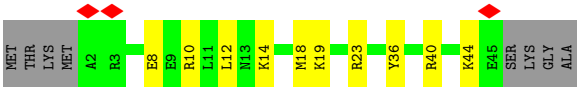
• Molecule 30: Large ribosomal subunit protein eL39

Chain Bd:



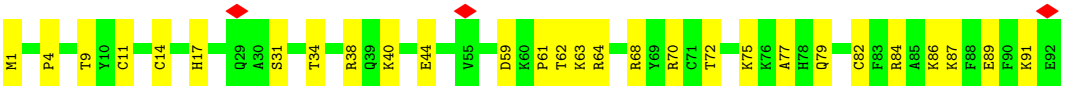
• Molecule 31: Large ribosomal subunit protein eL40

Chain Be:



• Molecule 32: Large ribosomal subunit protein eL42

Chain Bf:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	197922	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	0.706	Depositor
Minimum map value	-0.427	Depositor
Average map value	0.004	Depositor
Map value standard deviation	0.022	Depositor
Recommended contour level	0.066	Depositor
Map size (Å)	351.84, 351.84, 351.84	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.733, 0.733, 0.733	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: K, MG, OMU, G7M, ZN, OMG

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	BA	0.31	0/68954	0.38	0/107525
2	BB	0.22	0/3037	0.28	0/4728
3	BC	0.23	0/1850	0.34	0/2497
4	BD	0.25	0/2646	0.34	0/3569
5	BE	0.22	0/1964	0.35	0/2654
6	BF	0.14	0/1310	0.29	0/1762
7	BG	0.16	0/1392	0.28	0/1870
8	BH	0.16	0/864	0.28	0/1161
9	BI	0.21	0/1284	0.33	0/1719
10	BJ	0.23	0/1101	0.35	0/1474
11	BK	0.22	0/1010	0.33	0/1355
12	BL	0.21	0/1071	0.38	0/1425
13	BM	0.24	0/1625	0.41	0/2176
14	BN	0.16	0/1382	0.29	0/1863
15	BO	0.21	0/975	0.34	0/1312
16	BP	0.22	0/1209	0.32	0/1602
17	BQ	0.18	0/464	0.29	0/614
18	BR	0.24	0/780	0.34	0/1042
19	BS	0.21	0/1189	0.34	0/1588
20	BT	0.19	0/664	0.30	0/884
21	BU	0.21	0/919	0.33	0/1227
22	BV	0.16	0/508	0.24	0/670
23	BW	0.19	0/534	0.29	0/716
24	BX	0.21	0/1259	0.33	0/1692
25	BY	0.11	0/663	0.25	0/897
26	BZ	0.21	0/715	0.34	0/960
27	Ba	0.22	0/1044	0.32	0/1397
28	Bb	0.20	0/749	0.33	0/997
29	Bc	0.32	0/452	0.39	0/593
30	Bd	0.25	0/448	0.36	0/595
31	Be	0.18	0/355	0.29	0/468
32	Bf	0.23	0/777	0.34	0/1029

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\|>5$	RMSZ	$\#\|Z\|>5$
All	All	0.28	0/103194	0.37	0/154061

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

Mol	Chain	#Chirality outliers	#Planarity outliers
10	BJ	0	1
26	BZ	0	1
All	All	0	2

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
10	BJ	64	PHE	Peptide
26	BZ	40	ARG	Sidechain

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	BA	61727	30886	31126	358	0
2	BB	2720	0	1382	72	0
3	BC	1808	0	1842	77	0
4	BD	2597	0	2692	96	0
5	BE	1930	0	1989	71	0
6	BF	1289	0	1317	88	0
7	BG	1371	0	1426	67	0
8	BH	857	0	898	38	0
9	BI	1261	0	1300	39	0
10	BJ	1086	0	1135	26	0
11	BK	999	0	1059	37	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
12	BL	1058	0	1044	47	0
13	BM	1593	0	1637	45	0
14	BN	1356	0	1358	73	0
15	BO	962	0	1021	47	0
16	BP	1195	0	1277	31	0
17	BQ	457	0	463	14	0
18	BR	766	0	777	27	0
19	BS	1169	0	1211	49	0
20	BT	656	0	688	25	0
21	BU	910	0	972	35	0
22	BV	499	0	515	24	0
23	BW	532	0	547	27	0
24	BX	1237	0	1269	42	0
25	BY	658	0	696	39	0
26	BZ	703	0	735	13	0
27	Ba	1028	0	1079	35	0
28	Bb	736	0	771	35	0
29	Bc	445	0	455	16	0
30	Bd	439	0	479	16	0
31	Be	353	0	374	8	0
32	Bf	760	0	797	22	0
33	BA	42	0	0	0	0
33	Bc	1	0	0	0	0
34	BA	11	0	0	0	0
35	BV	1	0	0	0	0
35	Bb	1	0	0	0	0
35	Bc	1	0	0	0	0
35	Be	1	0	0	0	0
35	Bf	1	0	0	0	0
All	All	95216	30886	64331	1377	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 9.

All (1377) 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)
4:BD:304:PRO:HD2	4:BD:307:ARG:HG3	1.49	0.94
5:BE:122:THR:HG23	5:BE:139:PRO:HD3	1.48	0.93
6:BF:82:THR:HB	6:BF:165:MET:HE1	1.50	0.91
4:BD:169:ALA:HB3	4:BD:175:LYS:HG3	1.51	0.91

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:BF:98:ILE:HD11	6:BF:118:MET:HE2	1.51	0.90
4:BD:47:VAL:HB	4:BD:74:VAL:HG13	1.56	0.87
25:BY:28:THR:HG23	25:BY:85:ALA:HB2	1.58	0.85
3:BC:163:SER:HB3	28:Bb:77:THR:HG21	1.59	0.84
7:BG:30:LYS:HG2	7:BG:140:ILE:HG22	1.61	0.83
1:BA:1370:G:O2'	16:BP:1:MET:N	2.13	0.82
4:BD:85:ILE:HD12	4:BD:179:SER:HB2	1.60	0.82
1:BA:2001:G:O2'	1:BA:2003:G:OP2	1.96	0.82
4:BD:80:ILE:HD12	4:BD:145:ILE:HD12	1.62	0.82
7:BG:137:ILE:HG22	7:BG:145:VAL:HG23	1.59	0.82
1:BA:2250:A:OP1	3:BC:1:MET:N	2.13	0.81
31:Be:8:GLU:HG2	31:Be:12:LEU:HD12	1.63	0.81
1:BA:2391:A:HO2'	14:BN:30:SER:HG	1.28	0.81
10:BJ:60:GLY:HA3	10:BJ:66:PRO:HD2	1.64	0.80
7:BG:5:ILE:HD13	7:BG:55:ALA:HB3	1.62	0.80
6:BF:76:LEU:HD13	6:BF:162:VAL:HG21	1.61	0.80
3:BC:40:ARG:HG2	3:BC:82:GLU:HG2	1.62	0.80
11:BK:4:MET:HE1	11:BK:50:GLY:HA3	1.63	0.79
21:BU:28:MET:HE2	21:BU:70:VAL:HG13	1.63	0.79
5:BE:28:ARG:HG3	5:BE:112:TYR:HE2	1.46	0.79
3:BC:130:VAL:HG12	3:BC:131:THR:HG23	1.65	0.78
6:BF:45:THR:HG22	6:BF:53:LYS:HE2	1.64	0.77
14:BN:110:SER:HG	14:BN:117:TYR:HH	1.31	0.77
1:BA:601:G:O2'	1:BA:1308:G:OP1	2.01	0.77
5:BE:156:ILE:HD11	5:BE:212:LEU:HD11	1.66	0.77
1:BA:2686:G:O2'	11:BK:38:ARG:O	2.04	0.76
20:BT:7:PRO:HD2	23:BW:33:ALA:HB2	1.67	0.76
1:BA:135:U:O2'	1:BA:136:C:OP1	2.04	0.76
2:BB:52:G:H21	2:BB:53:C:H41	1.32	0.76
25:BY:11:SER:HA	25:BY:14:LYS:HG2	1.66	0.76
1:BA:627:G:O2'	1:BA:1342:A:OP1	2.04	0.75
25:BY:40:VAL:HG12	25:BY:85:ALA:HB2	1.68	0.75
32:Bf:11:CYS:HB3	32:Bf:14:CYS:SG	2.26	0.75
8:BH:27:THR:HG21	8:BH:104:LYS:HG3	1.66	0.75
1:BA:88:G:O2'	23:BW:43:ASN:OD1	2.05	0.75
1:BA:340:U:H4'	21:BU:4:MET:HB2	1.67	0.74
1:BA:1578:U:OP2	16:BP:124:TYR:OH	2.05	0.74
25:BY:40:VAL:HA	25:BY:85:ALA:HA	1.69	0.74
1:BA:2139:U:OP1	1:BA:2169:G:O2'	2.05	0.74
1:BA:1776:U:OP1	16:BP:104:ARG:NH2	2.18	0.74
1:BA:1224:U:O2'	1:BA:1225:G:O5'	2.05	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:BD:163:MET:HE1	4:BD:308:LEU:HD21	1.68	0.74
4:BD:53:ILE:HG21	22:BV:1:MET:HE2	1.69	0.74
2:BB:4:U:H3	2:BB:124:G:H1	1.32	0.74
3:BC:105:PHE:HB2	28:Bb:83:LEU:HD12	1.68	0.74
6:BF:1:MET:HG2	6:BF:127:PRO:HB2	1.70	0.74
22:BV:13:LEU:HD12	22:BV:18:GLY:HA3	1.70	0.74
23:BW:30:ARG:HE	23:BW:34:LEU:HD11	1.53	0.73
1:BA:1680:C:O2'	1:BA:1681:C:OP2	2.06	0.73
21:BU:3:ALA:HB3	21:BU:5:VAL:HG22	1.69	0.73
1:BA:653:A:N7	1:BA:737:G:O2'	2.19	0.73
27:Ba:116:LEU:HD21	27:Ba:126:ILE:HD13	1.70	0.73
1:BA:425:A:OP1	13:BM:49:ARG:NH2	2.21	0.73
14:BN:44:VAL:HG11	14:BN:82:ALA:HA	1.70	0.73
13:BM:38:VAL:HG13	13:BM:64:VAL:HG11	1.71	0.73
14:BN:148:ILE:HD12	14:BN:156:SER:HA	1.71	0.73
20:BT:4:ILE:HB	20:BT:42:MET:HE1	1.71	0.73
1:BA:1734:C:O2	4:BD:228:ARG:NH2	2.22	0.72
4:BD:263:GLU:HG3	4:BD:302:PRO:HD3	1.70	0.72
16:BP:1:MET:HE2	16:BP:29:SER:HB2	1.71	0.72
1:BA:2391:A:O2'	14:BN:30:SER:OG	2.05	0.72
2:BB:21:U:H3	2:BB:64:G:H1	1.37	0.72
14:BN:52:THR:HG22	14:BN:54:ASP:H	1.53	0.72
19:BS:46:ARG:NH2	19:BS:96:GLU:OE1	2.23	0.72
25:BY:48:GLU:HA	25:BY:51:LYS:HB2	1.71	0.72
3:BC:91:PRO:HD3	28:Bb:87:MET:HE1	1.72	0.72
11:BK:60:GLY:O	11:BK:65:ARG:NH2	2.23	0.71
15:BO:1:MET:HG2	15:BO:5:SER:HB2	1.73	0.71
12:BL:67:VAL:HG12	12:BL:101:ILE:HG21	1.73	0.71
1:BA:861:U:O2	3:BC:1:MET:N	2.22	0.71
1:BA:293:A:N7	1:BA:346:U:O2'	2.22	0.71
19:BS:122:ILE:HB	19:BS:138:THR:HB	1.72	0.71
1:BA:2480:A:O2'	9:BI:72:ARG:NH1	2.25	0.70
1:BA:2366:G:OP1	18:BR:9:ARG:NH2	2.23	0.70
11:BK:50:GLY:HA2	11:BK:117:VAL:HG12	1.73	0.70
1:BA:109:G:OP1	29:Bc:20:ARG:NH1	2.24	0.70
1:BA:2370:A:OP2	18:BR:81:ALA:HB2	1.91	0.70
5:BE:52:TYR:OH	29:Bc:54:CYS:O	2.08	0.70
11:BK:63:GLU:O	11:BK:67:GLN:NE2	2.25	0.70
14:BN:110:SER:OG	14:BN:117:TYR:OH	2.09	0.70
3:BC:50:PRO:O	3:BC:183:ARG:NH1	2.25	0.69
1:BA:1960:U:OP1	1:BA:2615:G7M:O2'	2.08	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:BI:70:ALA:HB3	9:BI:85:MET:HE1	1.73	0.69
1:BA:157:U:O4	1:BA:168:C:O2'	2.09	0.69
27:Ba:45:LYS:HE3	27:Ba:93:SER:HB3	1.74	0.69
10:BJ:120:ASP:OD2	10:BJ:122:ARG:NH1	2.26	0.69
19:BS:23:LEU:HD13	19:BS:87:GLU:HB3	1.75	0.69
1:BA:1109:G:N2	1:BA:1110:U:O4	2.25	0.69
25:BY:22:ILE:HD11	25:BY:31:ALA:HB2	1.75	0.69
1:BA:2755:U:O2'	7:BG:143:GLU:OE2	2.07	0.69
3:BC:90:LYS:HA	28:Bb:87:MET:HE1	1.75	0.69
1:BA:1857:A:OP1	3:BC:165:ARG:NH2	2.24	0.68
14:BN:87:LEU:HD12	14:BN:126:SER:HB3	1.74	0.68
15:BO:17:ILE:HD11	15:BO:89:LEU:HD21	1.75	0.68
1:BA:2137:U:O2'	1:BA:2181:C:OP2	2.11	0.68
5:BE:50:ARG:HG3	5:BE:53:SER:HB3	1.76	0.68
8:BH:116:LEU:HD23	8:BH:119:LEU:HD21	1.76	0.68
23:BW:1:MET:SD	23:BW:5:ARG:NH1	2.65	0.68
9:BI:56:CYS:SG	9:BI:159:THR:OG1	2.42	0.68
5:BE:22:VAL:HG23	5:BE:115:ARG:HG2	1.74	0.68
1:BA:653:A:OP1	15:BO:94:SER:OG	2.10	0.68
28:Bb:30:VAL:O	28:Bb:34:GLU:HG2	1.93	0.68
1:BA:2131:G:N2	1:BA:2142:G:O2'	2.26	0.67
14:BN:144:ARG:NH2	14:BN:163:GLU:OE1	2.25	0.67
15:BO:86:ILE:HD12	15:BO:99:ILE:HD13	1.76	0.67
1:BA:1754:G:OP2	28:Bb:9:GLY:HA2	1.94	0.67
1:BA:2470:G:O2'	9:BI:4:LYS:NZ	2.27	0.67
5:BE:22:VAL:HG11	5:BE:248:LEU:HG	1.74	0.67
5:BE:91:ARG:HG2	5:BE:94:PRO:HB3	1.77	0.67
31:Be:18:MET:HE3	31:Be:40:ARG:HB3	1.77	0.67
24:BX:101:GLU:OE1	24:BX:103:LYS:NZ	2.28	0.67
1:BA:878:A:N6	3:BC:1:MET:O	2.27	0.67
12:BL:92:TYR:HB2	12:BL:114:LEU:HD23	1.77	0.67
19:BS:53:ILE:HA	19:BS:82:ILE:HD12	1.77	0.66
8:BH:16:LYS:HG2	8:BH:112:ILE:HD11	1.76	0.66
9:BI:20:ARG:HA	9:BI:23:MET:HG2	1.76	0.66
14:BN:28:LEU:HB3	18:BR:31:ILE:HG21	1.76	0.66
5:BE:115:ARG:HD2	5:BE:253:GLN:HG3	1.76	0.66
4:BD:37:PRO:HA	4:BD:168:SER:O	1.95	0.66
1:BA:370:C:H5"	13:BM:1:MET:HA	1.78	0.66
1:BA:2575:A:OP1	1:BA:2660:G:O2'	2.11	0.66
14:BN:52:THR:HB	14:BN:55:GLY:O	1.95	0.66
4:BD:271:ILE:HD13	4:BD:295:ILE:HG13	1.78	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:BT:9:VAL:HG22	23:BW:36:SER:HB3	1.78	0.65
1:BA:412:C:OP2	1:BA:2419:C:N4	2.28	0.65
1:BA:186:A:OP1	13:BM:177:ARG:NH2	2.28	0.65
1:BA:2301:U:OP1	1:BA:2393:U:O2'	2.14	0.65
1:BA:2544:C:OP1	7:BG:160:ARG:NH1	2.24	0.65
10:BJ:53:TYR:HA	10:BJ:56:THR:HG22	1.77	0.65
1:BA:758:A:N3	1:BA:2454:C:O2'	2.28	0.65
1:BA:1550:U:O3'	1:BA:1614:G:O2'	2.13	0.65
1:BA:1571:A:N1	1:BA:1584:C:O2'	2.28	0.65
5:BE:156:ILE:CD1	5:BE:212:LEU:HD11	2.27	0.65
31:Be:10:ARG:O	31:Be:14:LYS:NZ	2.29	0.65
1:BA:2259:G:O2'	1:BA:2507:U:OP1	2.15	0.65
4:BD:43:ALA:HB1	4:BD:308:LEU:HD11	1.78	0.65
6:BF:10:ILE:HB	6:BF:121:THR:HG23	1.79	0.65
1:BA:1484:A:OP1	16:BP:13:LYS:NZ	2.19	0.65
4:BD:204:ILE:O	4:BD:307:ARG:NH1	2.30	0.64
18:BR:4:SER:O	18:BR:9:ARG:HD3	1.97	0.64
1:BA:2165:G:N2	1:BA:2167:C:OP1	2.30	0.64
1:BA:953:C:O2'	14:BN:6:ARG:NH1	2.31	0.64
11:BK:99:ASP:HB3	11:BK:105:LYS:HZ1	1.63	0.64
15:BO:67:VAL:HA	15:BO:85:THR:HG23	1.77	0.64
15:BO:70:ILE:HD12	15:BO:74:VAL:HG22	1.79	0.64
27:Ba:143:LYS:O	27:Ba:146:GLU:HG3	1.98	0.64
1:BA:2364:C:O2'	1:BA:2365:A:OP1	2.14	0.64
7:BG:108:ILE:HB	7:BG:118:ARG:HB2	1.78	0.64
8:BH:29:LYS:H	8:BH:101:ASP:HB3	1.61	0.64
4:BD:268:ILE:HD13	4:BD:295:ILE:HD11	1.79	0.64
1:BA:649:G:O2'	5:BE:31:LEU:HD21	1.97	0.64
8:BH:35:ASN:O	8:BH:39:LYS:HG2	1.97	0.64
14:BN:154:GLU:OE1	14:BN:154:GLU:N	2.29	0.64
7:BG:123:ILE:O	7:BG:126:THR:OG1	2.11	0.64
14:BN:28:LEU:HD13	18:BR:31:ILE:HD13	1.78	0.64
25:BY:28:THR:HG23	25:BY:85:ALA:CB	2.28	0.64
19:BS:25:ILE:HG21	19:BS:87:GLU:HG3	1.80	0.63
32:Bf:72:THR:O	32:Bf:75:LYS:NZ	2.30	0.63
5:BE:62:TRP:CE3	5:BE:66:ARG:HD3	2.33	0.63
1:BA:2375:U:O2'	1:BA:2376:G:O5'	2.10	0.63
4:BD:220:GLN:HG2	4:BD:221:LEU:O	1.98	0.63
6:BF:42:ALA:HB2	6:BF:57:ILE:HG13	1.80	0.63
1:BA:861:U:H1'	3:BC:1:MET:HB3	1.80	0.63
1:BA:1873:U:O2'	1:BA:1948:A:N3	2.28	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:BL:71:GLU:O	12:BL:75:LEU:HG	1.98	0.63
14:BN:83:TYR:HE1	14:BN:121:LYS:HG2	1.64	0.63
14:BN:164:ALA:O	14:BN:167:GLU:HG3	1.97	0.63
5:BE:140:ILE:HD13	5:BE:164:LEU:HD11	1.81	0.63
1:BA:701:A:O2'	15:BO:38:ASP:OD2	2.15	0.63
2:BB:2:A:H2'	2:BB:3:G:C8	2.33	0.63
7:BG:118:ARG:NH1	7:BG:155:LYS:O	2.31	0.63
28:Bb:34:GLU:HB3	28:Bb:38:ARG:NH1	2.14	0.63
8:BH:52:ALA:HB3	8:BH:55:ILE:HD11	1.80	0.63
19:BS:68:SER:CB	19:BS:79:LYS:HD3	2.28	0.63
19:BS:110:TYR:CG	19:BS:151:ARG:HD2	2.34	0.63
32:Bf:40:LYS:O	32:Bf:44:GLU:HG2	1.99	0.63
1:BA:2797:U:O2'	1:BA:2800:A:N3	2.27	0.62
1:BA:749:U:OP1	12:BL:26:ARG:HD2	1.99	0.62
1:BA:2249:C:C2'	1:BA:2250:A:H5'	2.29	0.62
5:BE:152:THR:HG23	5:BE:212:LEU:HD21	1.80	0.62
11:BK:77:LYS:HD3	11:BK:92:ASP:HA	1.80	0.62
6:BF:110:ASP:OD2	6:BF:113:ILE:HG12	2.00	0.62
3:BC:40:ARG:O	3:BC:62:GLU:HG2	1.99	0.62
24:BX:83:ILE:O	24:BX:87:THR:OG1	2.12	0.62
26:BZ:29:ARG:NH1	26:BZ:33:GLU:HG2	2.15	0.62
6:BF:18:SER:OG	6:BF:55:GLU:OE2	2.11	0.62
13:BM:148:LEU:O	13:BM:151:VAL:HG12	2.00	0.62
15:BO:119:GLY:HA2	15:BO:122:ILE:HD12	1.82	0.62
17:BQ:11:GLY:HA2	17:BQ:56:GLU:HG3	1.80	0.62
25:BY:28:THR:HG21	25:BY:83:ALA:HB1	1.80	0.62
22:BV:13:LEU:CD1	22:BV:18:GLY:HA3	2.30	0.62
1:BA:2250:A:H1'	1:BA:2251:G7M:OP1	2.00	0.61
24:BX:6:ARG:HD2	24:BX:21:MET:HE2	1.80	0.61
25:BY:89:VAL:HG12	25:BY:94:ILE:HG22	1.82	0.61
27:Ba:76:GLN:O	27:Ba:86:LEU:HD21	2.00	0.61
5:BE:74:LEU:HD11	5:BE:79:ARG:HH21	1.65	0.61
6:BF:13:MET:HG3	6:BF:29:LEU:HD12	1.81	0.61
9:BI:70:ALA:HB2	9:BI:153:ALA:HB2	1.82	0.61
1:BA:77:A:H3'	21:BU:48:ILE:HG23	1.83	0.61
6:BF:8:LYS:HG2	6:BF:123:VAL:HG12	1.82	0.61
29:Bc:15:THR:HG23	29:Bc:16:HIS:ND1	2.16	0.61
1:BA:2301:U:O2'	1:BA:2387:C:O2	2.18	0.61
15:BO:1:MET:HG2	15:BO:5:SER:CB	2.30	0.61
21:BU:17:TYR:O	21:BU:24:ARG:NH2	2.32	0.61
1:BA:2249:C:H5"	3:BC:1:MET:HA	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:BF:81:LYS:HD3	6:BF:162:VAL:HG22	1.82	0.61
12:BL:92:TYR:CE1	12:BL:112:LYS:HD3	2.35	0.61
14:BN:140:ASP:O	14:BN:144:ARG:HG3	2.00	0.61
1:BA:1833:U:OP1	3:BC:232:ARG:HD3	2.01	0.61
6:BF:8:LYS:HG2	6:BF:123:VAL:CG1	2.31	0.61
10:BJ:75:ILE:HD11	10:BJ:139:MET:HE1	1.82	0.61
29:Bc:53:LYS:O	29:Bc:55:LYS:HD3	2.00	0.61
1:BA:1520:C:H4'	16:BP:92:LYS:HE2	1.82	0.61
7:BG:11:ILE:HD11	7:BG:51:VAL:HG23	1.82	0.61
10:BJ:60:GLY:CA	10:BJ:66:PRO:HD2	2.31	0.61
14:BN:155:SER:O	14:BN:158:LEU:HD23	2.01	0.61
1:BA:2251:G7M:P	13:BM:82:ARG:H	2.24	0.61
27:Ba:69:PRO:HB2	27:Ba:77:ARG:HB2	1.82	0.61
22:BV:58:GLN:HA	22:BV:61:LYS:HE3	1.82	0.60
24:BX:81:GLU:O	24:BX:85:GLU:HG2	2.00	0.60
1:BA:1483:A:O2'	1:BA:1484:A:O4'	2.20	0.60
5:BE:22:VAL:HG23	5:BE:115:ARG:CG	2.30	0.60
13:BM:156:SER:O	13:BM:159:ARG:HG3	2.02	0.60
15:BO:35:ILE:O	15:BO:39:ILE:HG12	2.02	0.60
14:BN:42:ARG:O	14:BN:76:THR:OG1	2.16	0.60
27:Ba:111:SER:N	27:Ba:115:GLU:OE1	2.30	0.60
1:BA:325:A:C2	21:BU:4:MET:HA	2.36	0.60
1:BA:506:U:O2'	30:Bd:32:ARG:HD2	2.01	0.60
1:BA:2250:A:OP2	1:BA:2250:A:H2'	2.01	0.60
1:BA:1043:G:O3'	9:BI:15:ARG:NH1	2.33	0.60
4:BD:178:TYR:O	4:BD:181:THR:OG1	2.15	0.60
6:BF:89:ASP:N	6:BF:93:ASN:O	2.31	0.60
6:BF:101:HIS:HE2	6:BF:115:VAL:HA	1.66	0.60
1:BA:18:G:C5'	19:BS:4:ILE:HG23	2.31	0.60
1:BA:793:U:O2'	16:BP:131:GLU:OE2	2.12	0.60
1:BA:2680:C:H4'	7:BG:116:LYS:HD2	1.84	0.60
17:BQ:26:ILE:HG23	17:BQ:37:LYS:HD2	1.83	0.60
1:BA:18:G:H5"	19:BS:4:ILE:HD12	1.82	0.60
7:BG:39:TYR:CE2	7:BG:65:MET:HG3	2.37	0.60
14:BN:148:ILE:HG21	14:BN:158:LEU:HB2	1.83	0.60
14:BN:158:LEU:HA	14:BN:161:GLN:HE21	1.66	0.60
2:BB:30:U:H2'	2:BB:31:C:C6	2.36	0.60
1:BA:1336:A:N1	5:BE:49:PRO:HG3	2.15	0.60
1:BA:1669:U:O2'	29:Bc:8:MET:O	2.19	0.60
6:BF:9:VAL:HG23	6:BF:68:ALA:HB1	1.84	0.60
8:BH:23:LEU:HD23	8:BH:105:ALA:HB2	1.84	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:BD:6:ARG:HD3	11:BK:41:LYS:HB3	1.83	0.59
15:BO:66:ASP:O	15:BO:84:VAL:HG13	2.02	0.59
1:BA:256:A:C6	8:BH:90:LEU:HD11	2.37	0.59
1:BA:874:A:C5	29:Bc:8:MET:HE1	2.38	0.59
1:BA:2322:C:OP1	6:BF:43:LYS:N	2.31	0.59
1:BA:10:G:OP1	19:BS:63:LYS:HD2	2.02	0.59
1:BA:293:A:O2'	1:BA:294:A:O4'	2.12	0.59
9:BI:31:VAL:HA	9:BI:64:GLU:OE1	2.02	0.59
12:BL:75:LEU:O	12:BL:79:LEU:HD23	2.03	0.59
1:BA:2249:C:O2'	1:BA:2250:A:H5'	2.02	0.59
2:BB:2:A:H2'	2:BB:3:G:H8	1.67	0.59
2:BB:21:U:O2	2:BB:64:G:N2	2.25	0.59
2:BB:122:A:H2'	2:BB:123:A:C8	2.38	0.59
7:BG:102:ASP:OD1	7:BG:105:THR:OG1	2.19	0.59
1:BA:398:G:OP2	13:BM:70:ARG:NH2	2.34	0.59
1:BA:1296:G:OP1	27:Ba:136:LYS:HE2	2.02	0.59
2:BB:42:C:N4	6:BF:39:ARG:O	2.35	0.59
5:BE:152:THR:O	5:BE:156:ILE:HG12	2.03	0.59
9:BI:30:GLN:HG3	9:BI:61:THR:HG22	1.84	0.59
1:BA:2781:C:OP1	4:BD:312:ARG:NH2	2.29	0.59
7:BG:30:LYS:HG2	7:BG:140:ILE:CG2	2.32	0.59
11:BK:103:ILE:HD12	11:BK:123:LYS:HG3	1.83	0.59
22:BV:13:LEU:CD1	22:BV:32:CYS:HA	2.33	0.59
3:BC:197:PRO:HD3	3:BC:204:GLY:CA	2.32	0.59
2:BB:33:U:H1'	2:BB:53:C:H42	1.68	0.59
13:BM:157:ARG:O	13:BM:162:ARG:NH1	2.35	0.59
1:BA:1113:U:OP1	1:BA:1227:C:O2'	2.18	0.58
1:BA:2565:U:H2'	1:BA:2566:U:C6	2.38	0.58
13:BM:174:MET:HE2	13:BM:184:THR:O	2.03	0.58
1:BA:339:U:O2'	21:BU:2:ILE:O	2.18	0.58
3:BC:122:SER:O	3:BC:125:VAL:HG22	2.03	0.58
6:BF:9:VAL:HG22	6:BF:122:VAL:HG23	1.85	0.58
1:BA:260:G:OP2	13:BM:56:LYS:NZ	2.37	0.58
4:BD:248:TRP:NE1	10:BJ:62:THR:HG21	2.18	0.58
7:BG:104:LYS:HE3	7:BG:122:ILE:HB	1.85	0.58
15:BO:23:THR:O	15:BO:27:ARG:HG2	2.03	0.58
19:BS:48:PHE:CZ	19:BS:59:VAL:HG12	2.39	0.58
25:BY:39:MET:HE2	25:BY:86:ILE:HD13	1.85	0.58
5:BE:152:THR:HG23	5:BE:212:LEU:CD2	2.33	0.58
1:BA:230:A:N1	1:BA:428:U:O2'	2.35	0.58
12:BL:96:LEU:HD12	12:BL:101:ILE:HB	1.84	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:BN:138:PRO:HG2	14:BN:143:ILE:HD11	1.86	0.58
1:BA:559:G:O2'	1:BA:588:A:N6	2.37	0.58
4:BD:54:MET:HB3	4:BD:327:ILE:HD13	1.85	0.58
16:BP:60:ARG:O	16:BP:64:ARG:HG3	2.04	0.58
17:BQ:29:GLN:HB2	17:BQ:33:ASN:HD22	1.68	0.58
19:BS:37:ILE:HA	19:BS:40:MET:SD	2.44	0.58
23:BW:27:GLU:O	23:BW:31:GLU:HG2	2.04	0.58
1:BA:18:G:H5"	19:BS:4:ILE:HG23	1.85	0.58
1:BA:2353:C:O2'	1:BA:2386:A:O2'	2.18	0.58
2:BB:89:U:H2'	24:BX:129:LYS:CD	2.34	0.58
6:BF:150:ASP:HA	6:BF:153:ILE:HG12	1.86	0.58
20:BT:70:GLU:O	20:BT:74:GLU:HG3	2.04	0.58
24:BX:83:ILE:HG13	24:BX:92:ILE:HG12	1.85	0.58
28:Bb:50:THR:HG21	28:Bb:63:LYS:HG2	1.86	0.58
2:BB:18:C:H5'	14:BN:1:MET:N	2.18	0.57
2:BB:30:U:O2'	2:BB:59:A:N1	2.33	0.57
2:BB:31:C:O3'	6:BF:128:GLY:HA2	2.03	0.57
6:BF:129:GLU:N	6:BF:129:GLU:OE1	2.35	0.57
19:BS:46:ARG:O	19:BS:50:GLU:HG2	2.03	0.57
31:Be:18:MET:CE	31:Be:40:ARG:HB3	2.34	0.57
1:BA:311:A:OP1	21:BU:61:LYS:HD3	2.04	0.57
1:BA:805:C:H5	28:Bb:4:LYS:HB3	1.67	0.57
1:BA:1157:C:O2	1:BA:1166:A:N6	2.37	0.57
1:BA:1754:G:OP2	28:Bb:8:LYS:HD2	2.04	0.57
2:BB:75:U:H2'	2:BB:76:U:C6	2.39	0.57
19:BS:14:THR:HB	19:BS:149:GLU:HG2	1.86	0.57
27:Ba:101:HIS:HB2	27:Ba:107:ASP:OD1	2.04	0.57
1:BA:2251:G7M:H2'	1:BA:2252:U:O4'	2.04	0.57
1:BA:2411:U:O2	32:Bf:79:GLN:NE2	2.33	0.57
3:BC:112:LYS:O	3:BC:115:ASP:HB2	2.04	0.57
4:BD:289:LEU:HD11	4:BD:291:ARG:NH1	2.19	0.57
19:BS:41:LYS:HB2	19:BS:44:GLU:HG2	1.85	0.57
32:Bf:11:CYS:CB	32:Bf:14:CYS:SG	2.90	0.57
1:BA:2043:U:O2'	1:BA:2629:A:OP1	2.22	0.57
16:BP:43:GLY:O	16:BP:46:GLU:HG2	2.04	0.57
1:BA:886:A:C8	5:BE:55:MET:HE1	2.39	0.57
3:BC:33:VAL:HG22	3:BC:39:LEU:HD22	1.86	0.57
14:BN:80:THR:HG22	14:BN:143:ILE:O	2.04	0.57
15:BO:67:VAL:HG13	15:BO:85:THR:HG23	1.87	0.57
1:BA:678:C:O2'	1:BA:740:U:OP1	2.22	0.57
1:BA:1052:U:O2'	1:BA:2283:A:N3	2.33	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:BE:106:ASN:HB2	5:BE:109:GLU:HG2	1.85	0.57
8:BH:83:GLU:N	8:BH:83:GLU:OE1	2.36	0.57
19:BS:6:TYR:CZ	19:BS:17:LYS:HD3	2.39	0.57
23:BW:17:ARG:NH2	23:BW:66:GLU:OE2	2.36	0.57
5:BE:168:VAL:HG11	5:BE:212:LEU:HD12	1.87	0.57
8:BH:34:THR:HA	8:BH:96:THR:CG2	2.35	0.57
24:BX:84:ARG:NH1	24:BX:90:ASP:OD1	2.37	0.57
6:BF:10:ILE:HB	6:BF:121:THR:CG2	2.33	0.57
2:BB:89:U:H2'	24:BX:129:LYS:HD2	1.86	0.56
5:BE:174:GLY:HA3	5:BE:192:LYS:HE2	1.86	0.56
10:BJ:61:ALA:H	10:BJ:65:GLY:HA3	1.70	0.56
2:BB:9:C:O2'	14:BN:56:ASP:OD2	2.18	0.56
5:BE:59:ALA:O	5:BE:82:ARG:NH2	2.37	0.56
7:BG:122:ILE:HD12	7:BG:128:VAL:HG21	1.86	0.56
10:BJ:41:ILE:HD13	10:BJ:131:GLU:HG2	1.87	0.56
27:Ba:53:ARG:HG3	27:Ba:67:ARG:HB2	1.87	0.56
1:BA:1121:A:N3	1:BA:2497:G:O2'	2.35	0.56
1:BA:2324:C:H4'	6:BF:10:ILE:HD12	1.87	0.56
1:BA:2365:A:O2'	1:BA:2366:G:OP2	2.21	0.56
2:BB:100:U:H2'	2:BB:101:C:C6	2.41	0.56
8:BH:18:LEU:CD2	8:BH:78:ILE:HD12	2.34	0.56
14:BN:87:LEU:HD21	14:BN:170:PHE:CE2	2.40	0.56
23:BW:8:GLU:O	23:BW:12:MET:HG3	2.05	0.56
28:Bb:50:THR:OG1	28:Bb:61:CYS:SG	2.64	0.56
1:BA:288:C:N4	1:BA:352:A:O2'	2.39	0.56
4:BD:147:THR:O	4:BD:160:PRO:HB3	2.05	0.56
22:BV:20:LEU:HD11	22:BV:28:THR:HB	1.88	0.56
8:BH:107:GLU:O	8:BH:110:GLN:HG3	2.04	0.56
27:Ba:29:ASP:OD2	27:Ba:122:SER:HB2	2.06	0.56
1:BA:96:A:C2	21:BU:21:LEU:HB3	2.41	0.56
1:BA:1634:C:C5	3:BC:166:VAL:HG12	2.40	0.56
4:BD:76:GLU:HG2	4:BD:290:VAL:HG13	1.88	0.56
24:BX:21:MET:HE3	24:BX:26:LEU:HB2	1.87	0.56
1:BA:2308:A:O2'	1:BA:2332:A:OP1	2.17	0.56
16:BP:116:ASP:OD1	16:BP:119:VAL:HG12	2.06	0.56
25:BY:13:ILE:O	25:BY:17:LYS:HG2	2.06	0.56
2:BB:109:C:C2'	2:BB:110:U:H5'	2.35	0.56
12:BL:95:ASN:OD1	12:BL:97:GLU:HB2	2.06	0.56
1:BA:828:G:O2'	1:BA:1718:A:OP1	2.23	0.56
3:BC:158:GLY:HA2	28:Bb:83:LEU:CD1	2.35	0.56
6:BF:70:GLU:O	6:BF:74:THR:HG23	2.05	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:BD:76:GLU:OE1	4:BD:152:LEU:HD22	2.04	0.55
14:BN:121:LYS:HD3	14:BN:143:ILE:CD1	2.36	0.55
10:BJ:41:ILE:CD1	10:BJ:131:GLU:HG2	2.36	0.55
12:BL:2:ASP:O	12:BL:5:LYS:HG2	2.06	0.55
19:BS:11:ASP:O	19:BS:15:THR:HB	2.06	0.55
27:Ba:108:VAL:HG21	27:Ba:124:GLU:OE1	2.06	0.55
1:BA:507:G:H2'	19:BS:1:MET:HE1	1.88	0.55
2:BB:18:C:H5'	14:BN:1:MET:H1	1.71	0.55
4:BD:135:GLU:HG3	4:BD:137:ARG:HG3	1.89	0.55
11:BK:103:ILE:CD1	11:BK:123:LYS:HG3	2.37	0.55
25:BY:39:MET:HE1	25:BY:94:ILE:HG13	1.89	0.55
25:BY:40:VAL:CG2	25:BY:61:VAL:HG22	2.36	0.55
28:Bb:77:THR:O	28:Bb:81:GLN:HG2	2.07	0.55
1:BA:827:U:OP2	1:BA:1734:C:O2'	2.16	0.55
12:BL:1:MET:HE1	12:BL:12:CYS:HB3	1.89	0.55
15:BO:64:GLU:OE1	15:BO:83:PRO:HD2	2.07	0.55
22:BV:57:ILE:O	22:BV:61:LYS:HG3	2.07	0.55
1:BA:337:A:OP1	21:BU:44:SER:HB2	2.07	0.55
1:BA:803:U:OP1	28:Bb:7:LYS:HA	2.06	0.55
1:BA:1361:C:H5	1:BA:1665:G:H22	1.53	0.55
3:BC:25:LYS:NZ	3:BC:48:HIS:O	2.39	0.55
25:BY:46:CYS:SG	25:BY:51:LYS:HE2	2.47	0.55
1:BA:28:C:OP1	21:BU:13:ARG:NE	2.31	0.55
7:BG:142:LYS:HA	7:BG:145:VAL:HG12	1.88	0.55
24:BX:82:TYR:OH	24:BX:110:PRO:O	2.16	0.55
27:Ba:73:GLN:HA	27:Ba:78:ARG:NH2	2.21	0.55
1:BA:2322:C:O2'	6:BF:12:HIS:NE2	2.36	0.55
5:BE:149:LEU:HD11	5:BE:155:VAL:HG22	1.89	0.55
6:BF:45:THR:OG1	6:BF:51:ILE:O	2.15	0.55
12:BL:35:CYS:HB2	12:BL:49:TYR:CE2	2.42	0.55
30:Bd:43:TRP:CZ3	30:Bd:44:ARG:HB2	2.41	0.55
1:BA:2365:A:OP2	18:BR:54:ASN:HB2	2.07	0.55
9:BI:6:GLY:HA2	9:BI:59:ARG:HH11	1.71	0.55
1:BA:2375:U:HO2'	1:BA:2376:G:P	2.28	0.55
1:BA:2601:C:OP1	3:BC:208:LYS:NZ	2.40	0.55
2:BB:18:C:H4'	14:BN:1:MET:HA	1.89	0.55
3:BC:158:GLY:HA2	28:Bb:83:LEU:HD11	1.89	0.55
14:BN:139:PRO:HG2	14:BN:142:ARG:HG2	1.89	0.55
15:BO:22:LEU:O	15:BO:26:GLU:HG2	2.06	0.55
21:BU:51:ASP:HB2	21:BU:105:LYS:O	2.06	0.55
22:BV:45:LEU:O	22:BV:49:THR:HG23	2.07	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:BA:209:A:OP1	12:BL:55:LYS:NZ	2.40	0.54
1:BA:216:A:OP1	12:BL:31:LYS:HE2	2.07	0.54
1:BA:1041:U:O4	9:BI:15:ARG:HA	2.07	0.54
1:BA:1790:C:N3	1:BA:2726:C:O2'	2.34	0.54
25:BY:14:LYS:NZ	25:BY:92:SER:HA	2.23	0.54
1:BA:2813:A:O2'	1:BA:2815:A:OP2	2.16	0.54
9:BI:38:ASP:OD2	9:BI:41:ASN:HB2	2.07	0.54
9:BI:54:GLU:HB2	9:BI:159:THR:HG23	1.90	0.54
11:BK:1:MET:HG3	11:BK:36:LYS:HE3	1.89	0.54
1:BA:805:C:C5	28:Bb:4:LYS:HE3	2.42	0.54
1:BA:942:G:OP1	18:BR:96:LYS:NZ	2.40	0.54
1:BA:1476:A:O2'	1:BA:1487:U:O2	2.24	0.54
4:BD:75:ILE:HB	4:BD:295:ILE:HG22	1.88	0.54
9:BI:36:MET:HB2	9:BI:85:MET:HB3	1.87	0.54
13:BM:29:LEU:O	13:BM:33:ARG:HG3	2.06	0.54
15:BO:35:ILE:HG21	15:BO:119:GLY:HA3	1.88	0.54
25:BY:10:LYS:O	25:BY:14:LYS:N	2.31	0.54
1:BA:2030:G:OP2	19:BS:79:LYS:HE2	2.07	0.54
5:BE:54:GLY:O	5:BE:82:ARG:HA	2.08	0.54
16:BP:44:LEU:HD23	16:BP:47:GLU:OE2	2.08	0.54
19:BS:48:PHE:HZ	19:BS:59:VAL:HG12	1.72	0.54
5:BE:50:ARG:CG	5:BE:53:SER:HB3	2.37	0.54
29:Bc:21:ARG:NH2	29:Bc:44:ARG:O	2.40	0.54
2:BB:4:U:H2'	2:BB:5:U:C6	2.43	0.54
4:BD:314:PRO:HB2	4:BD:317:ALA:HB2	1.90	0.54
13:BM:5:PHE:O	13:BM:9:VAL:HG23	2.08	0.54
19:BS:68:SER:OG	19:BS:77:ALA:HB1	2.07	0.54
4:BD:301:VAL:HG13	4:BD:302:PRO:HD2	1.90	0.54
11:BK:18:ILE:HG21	11:BK:95:MET:HG3	1.88	0.54
25:BY:25:ALA:HA	25:BY:83:ALA:HB3	1.88	0.54
1:BA:88:G:H1'	23:BW:44:PRO:HG2	1.89	0.54
1:BA:382:G:O2'	13:BM:91:LYS:NZ	2.38	0.54
1:BA:1726:G:O2'	1:BA:2012:U:O4	2.22	0.54
1:BA:2328:G:H5"	14:BN:1:MET:HG2	1.89	0.54
3:BC:91:PRO:HD3	28:Bb:87:MET:CE	2.38	0.54
6:BF:28:ILE:O	6:BF:32:ILE:HG23	2.08	0.54
14:BN:99:GLU:N	14:BN:99:GLU:OE1	2.40	0.54
20:BT:10:THR:O	20:BT:14:MET:HG2	2.08	0.54
28:Bb:50:THR:HG21	28:Bb:63:LYS:CG	2.37	0.54
32:Bf:34:THR:O	32:Bf:38:ARG:HG3	2.07	0.54
1:BA:2183:G:N7	1:BA:2193:C:N4	2.55	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:BK:99:ASP:HB3	11:BK:105:LYS:NZ	2.22	0.54
14:BN:119:ALA:O	14:BN:123:VAL:HG23	2.07	0.54
1:BA:892:U:O2'	1:BA:2081:A:N1	2.40	0.54
1:BA:1841:C:O2'	3:BC:8:GLN:HA	2.07	0.54
1:BA:2398:U:O2'	18:BR:49:GLN:OE1	2.16	0.54
6:BF:131:ILE:HG22	6:BF:139:ARG:O	2.07	0.54
11:BK:49:ILE:HA	11:BK:73:VAL:HG13	1.90	0.54
20:BT:34:GLN:O	20:BT:37:GLU:HG2	2.08	0.54
1:BA:2678:A:H2	7:BG:114:GLU:HG2	1.73	0.53
7:BG:128:VAL:O	7:BG:129:LYS:HD3	2.08	0.53
14:BN:62:ALA:HB3	14:BN:89:PHE:HB2	1.90	0.53
19:BS:113:HIS:HB3	19:BS:146:ILE:HB	1.90	0.53
25:BY:31:ALA:HB1	25:BY:37:ALA:HB2	1.90	0.53
1:BA:1946:U:O2'	1:BA:1947:U:OP1	2.26	0.53
1:BA:33:C:O2'	1:BA:667:A:N1	2.38	0.53
1:BA:1689:G:O3'	16:BP:82:LYS:HB3	2.08	0.53
5:BE:20:PRO:HD2	5:BE:23:PHE:CD1	2.44	0.53
7:BG:129:LYS:HB2	7:BG:136:THR:CG2	2.38	0.53
22:BV:35:LYS:HE2	22:BV:51:TRP:CZ2	2.44	0.53
1:BA:636:A:N1	1:BA:894:G:O2'	2.37	0.53
1:BA:2251:G7M:P	13:BM:81:GLY:HA2	2.48	0.53
1:BA:2344:U:OP2	14:BN:14:ARG:NE	2.34	0.53
27:Ba:30:MET:SD	27:Ba:35:ARG:HD2	2.48	0.53
1:BA:301:C:OP2	21:BU:43:ARG:NH2	2.34	0.53
1:BA:1290:U:OP1	5:BE:187:ARG:NE	2.38	0.53
1:BA:1524:G:O2'	1:BA:1599:U:O2'	2.22	0.53
1:BA:2390:A:H4'	14:BN:131:PRO:HB2	1.90	0.53
3:BC:170:TRP:CZ3	3:BC:175:LYS:HG3	2.43	0.53
3:BC:180:MET:HA	3:BC:180:MET:HE2	1.89	0.53
9:BI:30:GLN:HG2	9:BI:60:HIS:CE1	2.43	0.53
14:BN:43:ASN:HB2	14:BN:64:SER:HB2	1.90	0.53
14:BN:135:GLU:N	14:BN:135:GLU:OE1	2.40	0.53
20:BT:75:ILE:O	20:BT:79:ILE:HG12	2.09	0.53
6:BF:2:ARG:O	6:BF:126:ARG:NH1	2.42	0.53
22:BV:58:GLN:HA	22:BV:61:LYS:CE	2.39	0.53
2:BB:117:C:H2'	2:BB:118:U:O4'	2.08	0.53
4:BD:268:ILE:HG21	4:BD:271:ILE:HD11	1.89	0.53
5:BE:62:TRP:HB3	5:BE:66:ARG:CD	2.39	0.53
6:BF:22:LEU:HD13	6:BF:39:ARG:HH21	1.73	0.53
11:BK:107:THR:O	11:BK:127:THR:HG23	2.09	0.53
12:BL:99:LEU:HB3	12:BL:101:ILE:CD1	2.39	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:BO:35:ILE:HD12	15:BO:124:ILE:HD11	1.91	0.53
23:BW:56:ARG:O	23:BW:60:ILE:HG12	2.07	0.53
25:BY:18:THR:O	25:BY:90:GLY:HA3	2.09	0.53
4:BD:76:GLU:OE2	4:BD:290:VAL:HA	2.08	0.53
4:BD:263:GLU:CG	4:BD:302:PRO:HD3	2.37	0.53
1:BA:386:U:O2'	1:BA:388:G:N7	2.39	0.53
2:BB:34:G:O2'	2:BB:35:U:H5'	2.09	0.53
4:BD:124:GLU:O	4:BD:127:GLU:HG2	2.09	0.53
6:BF:16:GLY:HA2	6:BF:57:ILE:HG23	1.91	0.53
7:BG:107:ILE:HD12	7:BG:119:PHE:CE1	2.44	0.53
8:BH:29:LYS:N	8:BH:101:ASP:HB3	2.24	0.53
12:BL:16:THR:HG22	12:BL:18:LYS:H	1.74	0.53
25:BY:77:LYS:HG3	25:BY:81:ILE:HD11	1.90	0.53
25:BY:89:VAL:O	25:BY:92:SER:HB3	2.09	0.53
26:BZ:23:ALA:O	26:BZ:26:ARG:HG3	2.08	0.53
2:BB:25:G:H4'	2:BB:26:C:C5	2.44	0.53
4:BD:132:LEU:HD23	4:BD:135:GLU:OE2	2.09	0.53
15:BO:49:ASN:O	15:BO:126:ARG:NH1	2.33	0.53
26:BZ:57:GLU:O	26:BZ:61:GLU:HG3	2.08	0.53
1:BA:936:G:C8	24:BX:23:MET:HE1	2.44	0.52
1:BA:1354:G:N7	19:BS:26:SER:OG	2.32	0.52
7:BG:97:MET:HE1	7:BG:169:GLY:N	2.24	0.52
7:BG:131:SER:HB2	7:BG:134:ASP:OD1	2.08	0.52
10:BJ:81:ARG:HD3	10:BJ:86:TYR:CD2	2.44	0.52
19:BS:106:PRO:HA	19:BS:109:MET:HG3	1.91	0.52
25:BY:69:VAL:HA	25:BY:80:THR:HG22	1.90	0.52
27:Ba:53:ARG:HB2	27:Ba:65:ASN:O	2.09	0.52
1:BA:117:C:C2	29:Bc:29:VAL:HB	2.44	0.52
1:BA:968:G:N2	1:BA:984:G:O6	2.42	0.52
1:BA:2812:A:OP1	4:BD:307:ARG:NH2	2.42	0.52
2:BB:18:C:C4'	14:BN:1:MET:HA	2.39	0.52
7:BG:11:ILE:HD12	7:BG:17:VAL:HG11	1.91	0.52
1:BA:1044:G:P	9:BI:15:ARG:HH12	2.32	0.52
1:BA:1252:C:OP1	24:BX:117:ARG:HB3	2.09	0.52
1:BA:1972:U:OP2	11:BK:66:LYS:NZ	2.36	0.52
2:BB:98:C:H2'	2:BB:99:U:O2	2.09	0.52
8:BH:116:LEU:HA	8:BH:119:LEU:HD21	1.91	0.52
10:BJ:73:ASP:OD1	10:BJ:73:ASP:N	2.41	0.52
24:BX:132:VAL:HG23	24:BX:138:LEU:O	2.10	0.52
26:BZ:21:VAL:HG13	26:BZ:22:PRO:HD2	1.91	0.52
1:BA:2323:U:H4'	6:BF:60:LYS:HD3	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:BD:276:GLU:N	4:BD:276:GLU:OE1	2.42	0.52
6:BF:160:TYR:HB3	6:BF:162:VAL:HG23	1.90	0.52
17:BQ:5:LYS:HB2	17:BQ:28:SER:O	2.08	0.52
25:BY:30:ASP:O	25:BY:34:ASN:ND2	2.43	0.52
1:BA:996:A:O2'	1:BA:997:A:O4'	2.26	0.52
4:BD:177:GLU:O	4:BD:181:THR:HG23	2.08	0.52
8:BH:57:PRO:HB2	8:BH:59:GLU:OE1	2.09	0.52
17:BQ:27:GLU:O	17:BQ:37:LYS:HE3	2.09	0.52
18:BR:11:THR:HB	18:BR:15:LEU:HD12	1.92	0.52
30:Bd:44:ARG:O	30:Bd:45:ARG:HG3	2.10	0.52
2:BB:24:G:O2'	2:BB:25:G:O5'	2.22	0.52
3:BC:110:GLU:HB3	3:BC:112:LYS:O	2.10	0.52
4:BD:155:VAL:HG12	4:BD:157:LYS:HG2	1.92	0.52
4:BD:198:LEU:O	4:BD:314:PRO:HD3	2.09	0.52
8:BH:68:SER:OG	8:BH:73:ALA:O	2.26	0.52
23:BW:32:ARG:NH2	23:BW:51:ARG:HD3	2.25	0.52
1:BA:323:A:OP2	5:BE:211:ASN:HB2	2.10	0.52
2:BB:65:C:O2'	2:BB:66:C:H5'	2.09	0.52
14:BN:148:ILE:HD13	14:BN:159:PRO:HD3	1.92	0.52
18:BR:34:PHE:HE1	18:BR:94:PRO:HG3	1.74	0.52
1:BA:1753:C:H1'	28:Bb:8:LYS:HD3	1.92	0.52
1:BA:2249:C:H5"	3:BC:1:MET:HG2	1.91	0.52
4:BD:121:ASN:HB2	4:BD:124:GLU:HG2	1.92	0.52
5:BE:74:LEU:HD11	5:BE:79:ARG:HE	1.75	0.52
6:BF:8:LYS:HE3	6:BF:10:ILE:HD11	1.92	0.52
6:BF:17:GLU:OE2	6:BF:21:HIS:ND1	2.39	0.52
8:BH:18:LEU:HD21	8:BH:78:ILE:HD12	1.92	0.52
28:Bb:33:LEU:HD12	28:Bb:36:ARG:HH21	1.74	0.52
32:Bf:31:SER:HB3	32:Bf:34:THR:HG23	1.91	0.52
1:BA:1580:A:N1	1:BA:1629:G:O2'	2.40	0.52
1:BA:2524:U:H5"	4:BD:8:LYS:HE2	1.92	0.52
5:BE:130:ARG:NH2	5:BE:230:PRO:HB2	2.24	0.52
1:BA:935:C:N3	24:BX:23:MET:HE2	2.25	0.52
1:BA:507:G:C2'	19:BS:1:MET:HE1	2.40	0.51
1:BA:2250:A:H4'	1:BA:2251:G7M:OP2	2.10	0.51
12:BL:124:SER:HA	12:BL:127:GLU:OE1	2.11	0.51
17:BQ:14:LYS:HD2	17:BQ:16:GLY:O	2.09	0.51
3:BC:97:ILE:HG13	3:BC:137:THR:HG21	1.92	0.51
7:BG:37:LEU:HD12	7:BG:73:ILE:HD11	1.92	0.51
7:BG:102:ASP:CG	7:BG:107:ILE:HD11	2.36	0.51
15:BO:67:VAL:HG22	15:BO:85:THR:CG2	2.40	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:BO:67:VAL:HG22	15:BO:85:THR:HG21	1.92	0.51
15:BO:87:ALA:HA	15:BO:107:LEU:O	2.10	0.51
1:BA:325:A:N3	21:BU:4:MET:HG3	2.25	0.51
2:BB:101:C:O2	24:BX:49:LYS:HE2	2.11	0.51
14:BN:70:TYR:O	14:BN:168:LYS:HD2	2.10	0.51
20:BT:79:ILE:O	23:BW:30:ARG:HD3	2.11	0.51
21:BU:70:VAL:HG22	21:BU:77:ILE:HG22	1.91	0.51
24:BX:17:ILE:O	24:BX:21:MET:HG2	2.10	0.51
24:BX:143:GLU:OE1	24:BX:143:GLU:N	2.43	0.51
1:BA:1831:G:H21	3:BC:228:LEU:CD2	2.24	0.51
7:BG:19:LEU:HD21	7:BG:44:ILE:HB	1.91	0.51
28:Bb:41:HIS:HB2	28:Bb:51:VAL:HB	1.93	0.51
1:BA:1608:G:H22	1:BA:1614:G:H22	1.57	0.51
3:BC:87:ALA:HB3	3:BC:95:VAL:HG12	1.93	0.51
3:BC:170:TRP:CZ2	3:BC:179:LYS:HD3	2.45	0.51
5:BE:10:THR:O	5:BE:161:ALA:HB1	2.10	0.51
7:BG:164:ARG:HD3	31:Be:44:LYS:HA	1.93	0.51
20:BT:9:VAL:HG11	20:BT:81:LEU:HG	1.92	0.51
25:BY:21:VAL:HG12	25:BY:86:ILE:HA	1.92	0.51
16:BP:105:ARG:O	16:BP:108:GLU:HG2	2.11	0.51
1:BA:808:G:OP1	16:BP:92:LYS:NZ	2.43	0.51
19:BS:121:VAL:CG1	19:BS:137:ASP:HB3	2.41	0.51
2:BB:49:A:H2'	2:BB:50:C:C6	2.45	0.51
6:BF:52:LYS:HG3	6:BF:53:LYS:H	1.74	0.51
6:BF:153:ILE:HG22	6:BF:164:VAL:HG21	1.92	0.51
18:BR:5:HIS:HA	18:BR:9:ARG:HE	1.76	0.51
1:BA:2315:U:C5	6:BF:119:ASP:HB3	2.46	0.51
6:BF:72:LEU:HG	6:BF:160:TYR:HE2	1.75	0.51
8:BH:116:LEU:HA	8:BH:119:LEU:CD2	2.41	0.51
9:BI:52:VAL:HG13	9:BI:133:ILE:HG13	1.92	0.51
1:BA:1920:A:OP2	3:BC:238:ARG:NH1	2.44	0.51
1:BA:2250:A:O2'	1:BA:2251:G7M:HN73	2.11	0.51
14:BN:158:LEU:HD22	14:BN:161:GLN:NE2	2.26	0.51
2:BB:123:A:H2'	2:BB:124:G:C8	2.46	0.50
2:BB:127:C:H2'	2:BB:128:A:N3	2.25	0.50
1:BA:525:A:O2'	1:BA:2064:C:O2	2.25	0.50
1:BA:869:U:O2'	1:BA:877:U:OP2	2.28	0.50
1:BA:1898:U:O2'	1:BA:1901:A:N7	2.42	0.50
13:BM:154:PRO:O	13:BM:157:ARG:HG2	2.11	0.50
14:BN:158:LEU:HD13	14:BN:161:GLN:HE21	1.75	0.50
25:BY:14:LYS:HE3	25:BY:92:SER:CB	2.41	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:Bf:64:ARG:HB3	32:Bf:82:CYS:SG	2.51	0.50
2:BB:107:C:H2'	2:BB:108:U:O4'	2.12	0.50
4:BD:70:VAL:HG11	4:BD:298:LYS:HG3	1.92	0.50
5:BE:22:VAL:HG11	5:BE:248:LEU:CG	2.42	0.50
5:BE:174:GLY:HA3	5:BE:192:LYS:CE	2.42	0.50
6:BF:31:ASN:ND2	6:BF:107:MET:HB2	2.26	0.50
7:BG:46:VAL:HG12	7:BG:51:VAL:HG22	1.92	0.50
23:BW:14:ILE:H	23:BW:14:ILE:HD12	1.76	0.50
1:BA:2251:G7M:OP2	13:BM:82:ARG:N	2.41	0.50
5:BE:203:THR:OG1	5:BE:205:ILE:HG22	2.12	0.50
10:BJ:88:ARG:O	10:BJ:92:ARG:HG3	2.11	0.50
10:BJ:121:MET:HE1	10:BJ:129:TYR:CZ	2.46	0.50
11:BK:20:CYS:HB3	11:BK:26:ALA:O	2.11	0.50
1:BA:2638:G:O2'	1:BA:2790:A:N1	2.37	0.50
4:BD:70:VAL:CG1	4:BD:298:LYS:HG3	2.41	0.50
12:BL:79:LEU:HD12	12:BL:84:LEU:HB2	1.93	0.50
1:BA:2723:C:O2'	1:BA:2725:C:OP2	2.14	0.50
2:BB:93:C:H2'	2:BB:94:G:O4'	2.10	0.50
8:BH:116:LEU:HA	8:BH:119:LEU:HG	1.93	0.50
24:BX:127:GLY:O	24:BX:137:VAL:HG12	2.10	0.50
2:BB:110:U:H2'	2:BB:111:G:O4'	2.11	0.50
5:BE:203:THR:HB	5:BE:204:PRO:HD2	1.92	0.50
6:BF:30:ARG:HG3	6:BF:35:GLN:O	2.12	0.50
7:BG:161:PHE:HB3	7:BG:166:PHE:CD1	2.46	0.50
15:BO:23:THR:HG23	15:BO:113:MET:HE1	1.93	0.50
15:BO:58:ILE:HD13	15:BO:86:ILE:HD13	1.93	0.50
25:BY:23:VAL:HB	25:BY:81:ILE:HD13	1.92	0.50
5:BE:20:PRO:HD2	5:BE:23:PHE:CE1	2.45	0.50
9:BI:130:MET:HE2	9:BI:130:MET:HA	1.93	0.50
13:BM:47:ILE:O	13:BM:51:ARG:HG3	2.12	0.50
13:BM:114:GLU:OE2	13:BM:157:ARG:HA	2.12	0.50
18:BR:54:ASN:HB3	18:BR:56:LYS:HG2	1.93	0.50
1:BA:649:G:HO2'	5:BE:31:LEU:HD21	1.77	0.50
1:BA:1756:G:OP2	1:BA:1757:A:O2'	2.21	0.50
8:BH:63:HIS:CE1	13:BM:5:PHE:HB2	2.46	0.50
14:BN:157:ASP:O	14:BN:161:GLN:HG2	2.11	0.50
15:BO:81:ASP:OD1	15:BO:82:HIS:ND1	2.45	0.50
32:Bf:70:ARG:HA	32:Bf:77:ALA:HA	1.94	0.50
1:BA:2293:C:OP1	32:Bf:61:PRO:HB2	2.12	0.49
2:BB:31:C:H2'	2:BB:32:C:H5'	1.92	0.49
3:BC:91:PRO:HD3	28:Bb:87:MET:SD	2.51	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:BD:85:ILE:CD1	4:BD:179:SER:HB2	2.36	0.49
6:BF:101:HIS:NE2	6:BF:115:VAL:HA	2.26	0.49
7:BG:129:LYS:HB2	7:BG:136:THR:HG22	1.94	0.49
12:BL:82:GLU:OE1	12:BL:84:LEU:HG	2.11	0.49
15:BO:67:VAL:HA	15:BO:85:THR:CG2	2.42	0.49
23:BW:24:LEU:HD12	23:BW:57:ILE:HD12	1.93	0.49
1:BA:1359:A:H2'	1:BA:1360:G:H5'	1.94	0.49
1:BA:2130:U:N3	1:BA:2202:U:O2	2.45	0.49
7:BG:8:THR:HG23	7:BG:50:GLU:OE2	2.11	0.49
7:BG:15:VAL:HA	7:BG:27:THR:O	2.12	0.49
18:BR:75:GLU:OE2	18:BR:82:MET:HB3	2.12	0.49
20:BT:34:GLN:HA	20:BT:37:GLU:CD	2.37	0.49
20:BT:40:GLU:HG2	20:BT:45:PHE:O	2.11	0.49
2:BB:29:C:H2'	2:BB:30:U:O4'	2.11	0.49
2:BB:79:U:H4'	2:BB:80:G:OP1	2.11	0.49
30:Bd:46:ARG:NH1	30:Bd:49:ASP:OD2	2.45	0.49
1:BA:325:A:H1'	21:BU:4:MET:HE3	1.94	0.49
1:BA:1578:U:O2'	1:BA:1580:A:N7	2.40	0.49
1:BA:1972:U:O2'	1:BA:1974:A:N7	2.40	0.49
4:BD:111:LYS:HA	4:BD:114:ILE:O	2.11	0.49
6:BF:29:LEU:HD22	6:BF:37:VAL:CG2	2.43	0.49
6:BF:45:THR:HB	6:BF:52:LYS:HA	1.94	0.49
12:BL:77:SER:O	12:BL:80:VAL:HG22	2.12	0.49
19:BS:75:MET:HG2	19:BS:76:ALA:O	2.12	0.49
23:BW:3:ILE:CD1	23:BW:49:GLU:HG3	2.42	0.49
1:BA:1608:G:H22	1:BA:1614:G:N2	2.10	0.49
8:BH:105:ALA:O	8:BH:109:VAL:HG23	2.11	0.49
24:BX:4:VAL:HG12	24:BX:26:LEU:HD11	1.94	0.49
1:BA:1042:G:O2'	1:BA:2276:A:OP2	2.28	0.49
1:BA:2249:C:H2'	1:BA:2250:A:H5'	1.92	0.49
1:BA:2314:G:O2'	6:BF:119:ASP:HB2	2.13	0.49
2:BB:3:G:H2'	2:BB:4:U:H6	1.78	0.49
9:BI:95:ILE:HG22	9:BI:121:VAL:CG2	2.43	0.49
24:BX:73:GLU:HA	24:BX:113:LYS:NZ	2.28	0.49
32:Bf:62:THR:O	32:Bf:84:ARG:HD3	2.11	0.49
4:BD:107:ASP:OD2	4:BD:148:LEU:HD21	2.12	0.49
9:BI:9:TYR:HB3	9:BI:95:ILE:HD12	1.94	0.49
16:BP:7:GLN:NE2	16:BP:33:ALA:HA	2.28	0.49
22:BV:13:LEU:HD13	22:BV:32:CYS:HA	1.93	0.49
23:BW:32:ARG:HH21	23:BW:51:ARG:HD3	1.77	0.49
25:BY:53:LYS:O	25:BY:57:THR:HG23	2.11	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:BE:150:GLU:HG2	5:BE:204:PRO:HB2	1.94	0.49
10:BJ:71:ARG:HB3	10:BJ:73:ASP:OD1	2.12	0.49
25:BY:89:VAL:HG12	25:BY:94:ILE:CG2	2.42	0.49
1:BA:1396:C:OP2	30:Bd:1:MET:HB2	2.13	0.49
1:BA:2018:U:OP2	4:BD:223:LYS:NZ	2.40	0.49
1:BA:2129:A:N6	1:BA:2200:C:OP2	2.45	0.49
4:BD:263:GLU:HB3	4:BD:266:LYS:HE2	1.95	0.49
5:BE:206:LEU:O	5:BE:210:ARG:HB2	2.13	0.49
21:BU:47:VAL:C	21:BU:48:ILE:HD13	2.38	0.49
25:BY:51:LYS:O	25:BY:54:ILE:HG12	2.12	0.49
1:BA:1231:G:H5'	10:BJ:79:THR:HG23	1.94	0.49
3:BC:59:VAL:HG21	3:BC:69:LEU:HD12	1.95	0.49
12:BL:95:ASN:HA	12:BL:117:THR:HG23	1.94	0.49
15:BO:64:GLU:CD	15:BO:83:PRO:HD2	2.38	0.49
20:BT:43:TYR:CE1	20:BT:79:ILE:HD11	2.48	0.49
23:BW:25:ASN:O	23:BW:29:VAL:HG23	2.12	0.49
1:BA:1427:G:O2'	1:BA:1484:A:N1	2.37	0.48
1:BA:2365:A:O5'	18:BR:54:ASN:HB2	2.13	0.48
2:BB:63:U:O2'	2:BB:64:G:H5'	2.13	0.48
4:BD:111:LYS:N	4:BD:116:ILE:HD11	2.28	0.48
6:BF:42:ALA:HB2	6:BF:57:ILE:CG1	2.43	0.48
12:BL:119:GLU:OE1	12:BL:119:GLU:N	2.44	0.48
15:BO:20:LEU:HD21	15:BO:110:GLU:CD	2.37	0.48
21:BU:34:GLU:HA	21:BU:37:THR:HG22	1.95	0.48
21:BU:108:MET:SD	21:BU:113:ARG:HG2	2.53	0.48
27:Ba:49:PRO:HG2	27:Ba:51:PHE:CZ	2.48	0.48
1:BA:54:C:OP2	23:BW:51:ARG:NH2	2.24	0.48
1:BA:1398:G:O6	30:Bd:1:MET:N	2.38	0.48
8:BH:108:MET:O	8:BH:112:ILE:HG13	2.13	0.48
9:BI:6:GLY:O	9:BI:10:ARG:HB2	2.13	0.48
25:BY:40:VAL:HG12	25:BY:85:ALA:CB	2.42	0.48
26:BZ:18:VAL:HG21	26:BZ:30:ALA:HA	1.94	0.48
1:BA:340:U:OP1	21:BU:3:ALA:HA	2.13	0.48
1:BA:691:A:OP1	12:BL:124:SER:HB3	2.13	0.48
7:BG:23:VAL:HG12	7:BG:36:LYS:HD3	1.95	0.48
7:BG:89:SER:O	7:BG:170:ILE:HA	2.13	0.48
11:BK:40:VAL:HG22	11:BK:41:LYS:H	1.78	0.48
14:BN:2:ALA:HA	14:BN:7:TYR:CD2	2.48	0.48
1:BA:2365:A:P	18:BR:54:ASN:HB2	2.53	0.48
8:BH:54:ASP:OD2	8:BH:80:ASN:HB2	2.14	0.48
1:BA:217:G:OP2	12:BL:31:LYS:NZ	2.45	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:BA:258:G:OP2	13:BM:6:TYR:OH	2.21	0.48
1:BA:1411:A:N1	1:BA:1422:C:O2'	2.41	0.48
2:BB:25:G:H5"	2:BB:26:C:OP1	2.13	0.48
2:BB:79:U:H5'	2:BB:81:U:O4'	2.12	0.48
1:BA:448:U:O4'	5:BE:87:LYS:HE2	2.13	0.48
1:BA:1044:G:OP1	9:BI:96:ARG:NH2	2.45	0.48
1:BA:1105:C:OP1	7:BG:59:ARG:NH1	2.46	0.48
4:BD:169:ALA:HB3	4:BD:175:LYS:CG	2.33	0.48
19:BS:20:GLY:O	19:BS:142:ASN:HA	2.13	0.48
24:BX:66:LEU:HD23	24:BX:116:PHE:CE2	2.48	0.48
26:BZ:24:TRP:HA	26:BZ:65:GLU:HG2	1.95	0.48
2:BB:32:C:O2'	2:BB:33:U:H5'	2.14	0.48
15:BO:31:ASP:CG	15:BO:117:PRO:HB2	2.39	0.48
18:BR:29:ARG:HH22	18:BR:43:ASP:HB3	1.78	0.48
20:BT:39:VAL:HG11	20:BT:64:LEU:HD22	1.95	0.48
1:BA:2689:G:H4'	4:BD:11:SER:HB2	1.95	0.48
1:BA:2805:U:H3	1:BA:2883:A:H62	1.62	0.48
4:BD:124:GLU:HA	4:BD:127:GLU:HG2	1.95	0.48
4:BD:237:THR:HG22	4:BD:239:GLY:H	1.78	0.48
8:BH:116:LEU:HA	8:BH:119:LEU:CG	2.44	0.48
13:BM:83:ARG:O	13:BM:84:THR:OG1	2.28	0.48
14:BN:24:ARG:O	14:BN:28:LEU:HG	2.14	0.48
4:BD:48:GLY:O	4:BD:74:VAL:HG12	2.14	0.48
5:BE:50:ARG:NH2	5:BE:56:GLU:OE2	2.47	0.48
12:BL:78:TYR:HA	12:BL:81:GLU:HG2	1.96	0.48
12:BL:117:THR:HA	12:BL:137:ILE:O	2.14	0.48
13:BM:185:ARG:HG3	13:BM:186:PRO:HA	1.96	0.48
15:BO:78:GLY:O	15:BO:98:LYS:NZ	2.34	0.48
24:BX:61:THR:O	24:BX:65:VAL:HG23	2.13	0.48
27:Ba:119:VAL:HG23	27:Ba:124:GLU:OE1	2.14	0.48
29:Bc:54:CYS:O	29:Bc:56:TYR:N	2.42	0.48
1:BA:648:U:H5'	15:BO:11:ARG:HG2	1.95	0.48
1:BA:893:G:OP2	12:BL:18:LYS:HE2	2.14	0.48
3:BC:90:LYS:HG2	3:BC:91:PRO:HD2	1.94	0.48
16:BP:145:GLU:OE1	16:BP:147:LEU:HD11	2.14	0.48
23:BW:47:ILE:HD12	23:BW:47:ILE:H	1.78	0.48
24:BX:3:ALA:O	24:BX:54:TYR:HA	2.13	0.48
1:BA:340:U:C4'	21:BU:4:MET:HB2	2.41	0.47
1:BA:442:G:O2'	1:BA:444:C:OP2	2.32	0.47
1:BA:1862:C:O2'	1:BA:1992:U:OP2	2.30	0.47
1:BA:2172:U:O2'	1:BA:2173:U:O5'	2.31	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:BA:2250:A:P	3:BC:1:MET:H1	2.34	0.47
1:BA:2296:A:C2	32:Bf:4:PRO:HG2	2.49	0.47
12:BL:95:ASN:HA	12:BL:117:THR:CG2	2.44	0.47
1:BA:1752:U:O2'	1:BA:1754:G:N7	2.47	0.47
4:BD:131:LYS:O	4:BD:135:GLU:HG2	2.14	0.47
14:BN:64:SER:HB3	14:BN:76:THR:HB	1.95	0.47
19:BS:68:SER:HB2	19:BS:79:LYS:HD3	1.94	0.47
23:BW:9:ILE:HA	23:BW:12:MET:HE2	1.96	0.47
24:BX:98:ALA:HA	24:BX:103:LYS:NZ	2.28	0.47
26:BZ:23:ALA:O	26:BZ:65:GLU:HA	2.13	0.47
30:Bd:11:ARG:HB3	30:Bd:50:VAL:CG1	2.43	0.47
1:BA:1973:A:OP1	11:BK:56:SER:OG	2.31	0.47
1:BA:2364:C:O2'	1:BA:2365:A:O4'	2.32	0.47
1:BA:2543:G:O2'	1:BA:2669:A:N1	2.47	0.47
4:BD:109:GLU:OE2	4:BD:148:LEU:HD23	2.13	0.47
6:BF:110:ASP:HB3	6:BF:113:ILE:HG12	1.95	0.47
12:BL:73:ASP:OD1	12:BL:112:LYS:HG2	2.14	0.47
16:BP:1:MET:HE2	16:BP:29:SER:CB	2.43	0.47
22:BV:13:LEU:HD11	22:BV:32:CYS:HA	1.96	0.47
26:BZ:76:VAL:CG2	26:BZ:84:GLN:HB2	2.44	0.47
1:BA:2786:A:H2	1:BA:2788:A:H62	1.62	0.47
4:BD:319:LYS:HE3	4:BD:322:LEU:CD2	2.45	0.47
11:BK:27:LYS:HE2	11:BK:27:LYS:HA	1.97	0.47
15:BO:19:SER:O	15:BO:23:THR:HG22	2.14	0.47
15:BO:70:ILE:CD1	15:BO:74:VAL:HG22	2.45	0.47
32:Bf:59:ASP:HB3	32:Bf:63:LYS:NZ	2.29	0.47
1:BA:178:G:H5"	13:BM:157:ARG:HG3	1.96	0.47
1:BA:1866:A:O2'	28:Bb:24:ARG:HG2	2.14	0.47
1:BA:2389:A:O2'	14:BN:132:CYS:HA	2.13	0.47
7:BG:19:LEU:CD2	7:BG:44:ILE:HB	2.45	0.47
22:BV:49:THR:O	22:BV:55:GLY:HA3	2.14	0.47
2:BB:122:A:H2'	2:BB:123:A:H8	1.77	0.47
11:BK:37:TYR:CE2	11:BK:45:PRO:HA	2.49	0.47
14:BN:148:ILE:CD1	14:BN:159:PRO:HD3	2.45	0.47
32:Bf:87:LYS:HE2	32:Bf:89:GLU:HG2	1.97	0.47
1:BA:396:G:OP1	13:BM:98:ILE:HG13	2.15	0.47
1:BA:1404:C:O2'	1:BA:1483:A:N3	2.40	0.47
1:BA:1747:U:O2'	1:BA:1759:A:N7	2.45	0.47
3:BC:90:LYS:O	3:BC:157:VAL:HB	2.14	0.47
4:BD:66:MET:SD	11:BK:5:ARG:NH1	2.88	0.47
4:BD:91:ASP:OD1	4:BD:93:THR:N	2.40	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:BF:45:THR:O	6:BF:46:LEU:HD23	2.15	0.47
8:BH:68:SER:OG	8:BH:73:ALA:HB3	2.15	0.47
9:BI:23:MET:SD	9:BI:94:VAL:HG21	2.55	0.47
11:BK:49:ILE:CG2	11:BK:117:VAL:HG13	2.44	0.47
18:BR:54:ASN:OD1	18:BR:55:PRO:HD2	2.15	0.47
21:BU:31:ARG:NH1	21:BU:43:ARG:HG3	2.30	0.47
21:BU:50:GLY:O	21:BU:66:LYS:NZ	2.26	0.47
24:BX:125:HIS:CE1	24:BX:128:ILE:HG23	2.49	0.47
1:BA:21:G:O2'	1:BA:22:A:OP2	2.29	0.47
1:BA:179:G:OP1	13:BM:157:ARG:HD2	2.15	0.47
1:BA:241:A:N1	1:BA:255:C:O2'	2.43	0.47
2:BB:99:U:H2'	2:BB:100:U:C6	2.50	0.47
3:BC:107:CYS:SG	3:BC:156:VAL:HG13	2.54	0.47
6:BF:45:THR:H	6:BF:53:LYS:HD3	1.79	0.47
11:BK:4:MET:CE	11:BK:50:GLY:HA3	2.41	0.47
13:BM:17:ASP:OD1	13:BM:17:ASP:N	2.44	0.47
18:BR:73:VAL:HG22	18:BR:86:PHE:CE2	2.50	0.47
1:BA:340:U:H5"	21:BU:4:MET:H	1.80	0.47
3:BC:168:ARG:HB2	28:Bb:33:LEU:CD2	2.45	0.47
3:BC:171:LEU:HD12	28:Bb:26:ASP:HB3	1.97	0.47
4:BD:85:ILE:HG12	4:BD:183:LEU:HD13	1.97	0.47
5:BE:178:ARG:NE	5:BE:187:ARG:O	2.48	0.47
9:BI:15:ARG:HH11	9:BI:15:ARG:HG2	1.80	0.47
21:BU:33:SER:O	21:BU:37:THR:HG22	2.15	0.47
1:BA:1106:U:OP2	7:BG:59:ARG:NH2	2.32	0.47
3:BC:33:VAL:HG21	3:BC:83:CYS:SG	2.55	0.47
3:BC:39:LEU:CD2	3:BC:83:CYS:HB3	2.45	0.47
4:BD:107:ASP:CG	4:BD:148:LEU:HD21	2.40	0.47
8:BH:18:LEU:HD12	8:BH:87:ALA:HB2	1.97	0.47
11:BK:92:ASP:CG	22:BV:24:LYS:HE3	2.40	0.47
22:BV:47:ARG:NE	22:BV:58:GLN:OE1	2.44	0.47
1:BA:2260:OMG:HM23	1:BA:2260:OMG:H1'	1.58	0.46
5:BE:62:TRP:HB3	5:BE:66:ARG:HD2	1.97	0.46
6:BF:13:MET:HG2	6:BF:118:MET:HB3	1.97	0.46
7:BG:6:ALA:HB2	7:BG:54:ASP:OD1	2.16	0.46
9:BI:52:VAL:HG13	9:BI:133:ILE:CG1	2.45	0.46
10:BJ:80:ILE:HD12	10:BJ:98:LEU:HD21	1.97	0.46
28:Bb:3:LYS:HD2	28:Bb:4:LYS:H	1.79	0.46
29:Bc:42:THR:HG23	29:Bc:44:ARG:O	2.15	0.46
1:BA:447:A:N1	1:BA:454:A:O2'	2.40	0.46
1:BA:2839:G:N2	1:BA:2864:C:O2'	2.48	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:BC:163:SER:CB	28:Bb:77:THR:HG21	2.39	0.46
6:BF:92:GLY:O	6:BF:124:LEU:HB2	2.15	0.46
19:BS:40:MET:HB3	19:BS:44:GLU:HG3	1.97	0.46
5:BE:79:ARG:HD2	5:BE:80:ALA:O	2.14	0.46
5:BE:156:ILE:HD12	5:BE:165:TYR:CE1	2.50	0.46
13:BM:64:VAL:O	13:BM:131:GLU:HA	2.15	0.46
24:BX:6:ARG:NH1	24:BX:26:LEU:O	2.43	0.46
24:BX:83:ILE:HD13	24:BX:109:ILE:HD12	1.97	0.46
8:BH:22:GLU:OE2	8:BH:87:ALA:HA	2.15	0.46
15:BO:71:PRO:HD2	15:BO:125:PHE:O	2.15	0.46
23:BW:30:ARG:O	23:BW:34:LEU:HG	2.14	0.46
6:BF:9:VAL:CG2	6:BF:68:ALA:HB1	2.45	0.46
6:BF:88:PHE:CZ	6:BF:153:ILE:HG22	2.51	0.46
6:BF:110:ASP:OD2	6:BF:112:ASN:HB2	2.15	0.46
12:BL:103:LYS:CB	12:BL:120:GLU:HG3	2.45	0.46
13:BM:67:ASN:OD1	13:BM:127:HIS:HB3	2.15	0.46
1:BA:914:C:O2'	1:BA:2257:C:OP1	2.28	0.46
2:BB:56:A:H1'	6:BF:1:MET:HE1	1.98	0.46
3:BC:197:PRO:HD3	3:BC:204:GLY:HA2	1.97	0.46
4:BD:76:GLU:OE1	4:BD:287:TYR:OH	2.33	0.46
4:BD:146:TYR:HA	4:BD:161:ASP:O	2.16	0.46
5:BE:121:THR:HB	5:BE:238:THR:HG22	1.97	0.46
14:BN:46:ILE:CD1	14:BN:86:GLY:HA2	2.46	0.46
19:BS:112:ILE:HD13	19:BS:148:SER:HB3	1.97	0.46
20:BT:41:LYS:HB3	20:BT:41:LYS:HE2	1.73	0.46
1:BA:2315:U:H5	6:BF:119:ASP:HB3	1.80	0.46
1:BA:2587:G:O2'	1:BA:2590:C:OP2	2.29	0.46
13:BM:38:VAL:CG1	13:BM:64:VAL:HG11	2.43	0.46
1:BA:2495:C:O2'	9:BI:156:LYS:O	2.26	0.46
1:BA:2650:C:H5"	10:BJ:71:ARG:HD2	1.97	0.46
14:BN:84:LEU:HD13	14:BN:165:THR:HG21	1.98	0.46
24:BX:81:GLU:O	24:BX:84:ARG:HG2	2.16	0.46
26:BZ:53:LYS:O	26:BZ:57:GLU:HG3	2.15	0.46
1:BA:525:A:N1	1:BA:2636:G:O2'	2.40	0.46
2:BB:43:C:C6	6:BF:38:VAL:HG11	2.51	0.46
5:BE:74:LEU:HB2	5:BE:77:SER:OG	2.16	0.46
30:Bd:33:LYS:HB2	30:Bd:33:LYS:HE3	1.70	0.46
32:Bf:9:THR:O	32:Bf:17:HIS:HA	2.15	0.46
3:BC:168:ARG:HB2	28:Bb:33:LEU:HD22	1.98	0.46
6:BF:29:LEU:HA	6:BF:32:ILE:HG12	1.96	0.46
7:BG:23:VAL:HB	7:BG:34:GLU:OE2	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:BM:66:VAL:HG21	13:BM:106:ALA:HB2	1.98	0.46
17:BQ:25:LYS:HE2	17:BQ:61:GLU:OE2	2.16	0.46
21:BU:47:VAL:O	21:BU:48:ILE:HD13	2.16	0.46
1:BA:18:G:H5'	19:BS:4:ILE:HG23	1.98	0.45
1:BA:30:G:N3	1:BA:450:G:O2'	2.49	0.45
1:BA:2888:U:N3	1:BA:2890:C:OP1	2.48	0.45
2:BB:14:A:OP2	18:BR:20:ARG:HD3	2.16	0.45
4:BD:225:LYS:O	4:BD:229:GLN:HG2	2.16	0.45
12:BL:65:SER:OG	12:BL:101:ILE:HA	2.16	0.45
15:BO:76:GLY:O	15:BO:98:LYS:HE3	2.16	0.45
18:BR:67:GLN:HG3	18:BR:71:SER:O	2.15	0.45
20:BT:46:LYS:HE3	20:BT:67:GLU:OE2	2.15	0.45
1:BA:18:G:O2'	19:BS:118:ARG:O	2.32	0.45
1:BA:1372:G:O2'	1:BA:1374:G:N7	2.46	0.45
1:BA:1985:G:O2'	1:BA:1988:U:OP2	2.27	0.45
1:BA:2161:G:N7	1:BA:2165:G:N1	2.64	0.45
10:BJ:77:LYS:HG3	10:BJ:95:MET:HE1	1.98	0.45
12:BL:68:ASN:CG	12:BL:107:SER:HB3	2.41	0.45
15:BO:82:HIS:HD2	15:BO:84:VAL:HG23	1.80	0.45
1:BA:130:A:O2'	1:BA:1448:A:OP1	2.34	0.45
1:BA:1221:A:O4'	1:BA:2527:C:O2'	2.35	0.45
1:BA:2318:G:OP2	1:BA:2318:G:N2	2.32	0.45
3:BC:96:PRO:HG2	3:BC:99:ASN:ND2	2.31	0.45
3:BC:171:LEU:CD1	28:Bb:26:ASP:HB3	2.47	0.45
6:BF:126:ARG:NH2	6:BF:151:ASP:OD2	2.50	0.45
7:BG:12:PRO:HG2	7:BG:15:VAL:HG21	1.98	0.45
27:Ba:41:ARG:HB2	27:Ba:94:PRO:HD2	1.99	0.45
1:BA:161:A:N7	12:BL:24:GLY:HA2	2.32	0.45
1:BA:895:U:O4	12:BL:17:HIS:HB2	2.16	0.45
3:BC:93:ASN:O	3:BC:156:VAL:HA	2.17	0.45
6:BF:29:LEU:HD22	6:BF:37:VAL:HG21	1.98	0.45
7:BG:141:ASN:HB3	7:BG:144:ASP:HB2	1.98	0.45
13:BM:38:VAL:HG13	13:BM:64:VAL:CG1	2.44	0.45
20:BT:39:VAL:HG21	20:BT:64:LEU:CD2	2.47	0.45
22:BV:13:LEU:HD11	22:BV:31:MET:O	2.16	0.45
1:BA:212:G:OP2	1:BA:214:C:N4	2.39	0.45
1:BA:897:C:H41	12:BL:4:LYS:HG2	1.82	0.45
1:BA:1754:G:O2'	28:Bb:19:GLY:HA2	2.16	0.45
2:BB:55:G:N2	6:BF:1:MET:HE1	2.31	0.45
5:BE:130:ARG:HD2	5:BE:132:HIS:NE2	2.32	0.45
7:BG:9:ILE:HG21	7:BG:73:ILE:HG22	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:BK:1:MET:HE2	11:BK:36:LYS:HD2	1.99	0.45
1:BA:311:A:O2'	1:BA:313:G:N7	2.35	0.45
3:BC:100:VAL:O	3:BC:132:HIS:NE2	2.43	0.45
5:BE:6:THR:O	5:BE:13:ALA:HA	2.17	0.45
6:BF:25:ALA:O	6:BF:28:ILE:HG12	2.16	0.45
8:BH:41:ILE:HD11	8:BH:49:VAL:HG21	1.99	0.45
9:BI:35:ASP:OD2	9:BI:84:TYR:OH	2.29	0.45
9:BI:74:LEU:HD13	9:BI:83:PHE:CD2	2.50	0.45
23:BW:42:GLU:OE1	23:BW:42:GLU:N	2.49	0.45
30:Bd:20:THR:O	30:Bd:37:HIS:HE1	2.00	0.45
30:Bd:37:HIS:CD2	30:Bd:39:ARG:H	2.35	0.45
30:Bd:41:ARG:NE	30:Bd:48:LEU:HD21	2.31	0.45
3:BC:120:VAL:HG21	3:BC:127:ALA:HB2	1.99	0.45
5:BE:74:LEU:HD11	5:BE:79:ARG:NH2	2.30	0.45
7:BG:11:ILE:HD12	7:BG:17:VAL:CG1	2.46	0.45
8:BH:47:LYS:HB2	8:BH:99:ILE:O	2.17	0.45
10:BJ:61:ALA:N	10:BJ:65:GLY:HA3	2.30	0.45
13:BM:158:GLY:O	13:BM:162:ARG:HG3	2.17	0.45
27:Ba:49:PRO:HG3	27:Ba:85:ALA:HB3	1.98	0.45
1:BA:2558:G:O3'	11:BK:41:LYS:HA	2.17	0.45
23:BW:4:LEU:HD12	23:BW:4:LEU:O	2.17	0.45
1:BA:2271:C:C5	18:BR:4:SER:HB3	2.51	0.45
1:BA:2564:OMG:H2'	1:BA:2565:U:O4'	2.17	0.45
1:BA:2582:A:H62	4:BD:1:MET:HE1	1.82	0.45
1:BA:2795:U:H4'	4:BD:117:PRO:HB3	1.99	0.45
2:BB:5:U:H2'	2:BB:6:U:C6	2.51	0.45
2:BB:55:G:H21	6:BF:1:MET:HE1	1.81	0.45
2:BB:125:C:H2'	2:BB:126:U:C6	2.52	0.45
4:BD:86:ARG:NH2	4:BD:100:GLU:OE2	2.50	0.45
6:BF:13:MET:CG	6:BF:29:LEU:HD12	2.46	0.45
21:BU:60:PHE:CD2	21:BU:82:VAL:HG13	2.52	0.45
1:BA:1856:C:N4	3:BC:124:GLY:HA3	2.32	0.45
4:BD:329:TYR:CE2	22:BV:15:PRO:HG2	2.51	0.45
24:BX:6:ARG:HD2	24:BX:21:MET:CE	2.46	0.45
27:Ba:110:ILE:HG12	27:Ba:126:ILE:HB	1.98	0.45
1:BA:608:A:OP1	10:BJ:88:ARG:NH1	2.49	0.44
2:BB:116:G:H2'	2:BB:117:C:C6	2.52	0.44
6:BF:1:MET:HB2	6:BF:1:MET:HE3	1.71	0.44
7:BG:5:ILE:CD1	7:BG:55:ALA:HB3	2.42	0.44
7:BG:53:VAL:HG11	7:BG:70:ALA:HB2	1.99	0.44
11:BK:122:PRO:O	11:BK:126:THR:HG23	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:BN:152:ARG:HB3	14:BN:154:GLU:CD	2.41	0.44
15:BO:107:LEU:HD23	15:BO:107:LEU:H	1.80	0.44
27:Ba:116:LEU:CD2	27:Ba:126:ILE:HG21	2.46	0.44
1:BA:1103:G:N2	17:BQ:44:SER:HB2	2.31	0.44
1:BA:1713:A:O2'	4:BD:210:THR:O	2.33	0.44
2:BB:62:C:H2'	2:BB:63:U:C6	2.52	0.44
3:BC:233:ARG:HD3	3:BC:237:LYS:NZ	2.32	0.44
7:BG:84:PHE:CE2	7:BG:142:LYS:HB2	2.53	0.44
9:BI:48:ILE:CD1	9:BI:150:LEU:HD12	2.47	0.44
13:BM:39:THR:O	13:BM:64:VAL:HG13	2.17	0.44
20:BT:46:LYS:HG2	20:BT:67:GLU:HG3	1.99	0.44
22:BV:50:GLU:O	22:BV:56:LYS:HE2	2.17	0.44
23:BW:12:MET:HB3	23:BW:16:GLU:HB3	1.99	0.44
1:BA:152:C:OP1	13:BM:196:LYS:HE3	2.17	0.44
1:BA:937:U:O2'	24:BX:40:HIS:O	2.33	0.44
1:BA:1270:A:OP1	24:BX:113:LYS:NZ	2.35	0.44
4:BD:179:SER:HA	4:BD:182:ILE:HG12	1.98	0.44
6:BF:23:VAL:HA	6:BF:26:GLU:HG2	1.99	0.44
10:BJ:23:LYS:HD2	10:BJ:23:LYS:HA	1.67	0.44
1:BA:310:A:N3	1:BA:330:G:O2'	2.45	0.44
1:BA:702:G:O2'	15:BO:35:ILE:HD13	2.17	0.44
1:BA:1482:U:P	16:BP:42:ARG:HH22	2.41	0.44
15:BO:64:GLU:OE2	15:BO:83:PRO:HD2	2.17	0.44
19:BS:36:LYS:HG2	19:BS:48:PHE:CZ	2.52	0.44
20:BT:10:THR:H	20:BT:13:ALA:HB3	1.83	0.44
30:Bd:37:HIS:HB2	30:Bd:38:PRO:HD2	1.99	0.44
1:BA:1147:G:N1	1:BA:1148:G:O6	2.51	0.44
1:BA:1355:U:OP1	19:BS:67:GLY:HA3	2.18	0.44
1:BA:2794:C:H4'	4:BD:100:GLU:HB2	2.00	0.44
3:BC:177:TYR:O	3:BC:181:LYS:HG2	2.18	0.44
4:BD:277:GLU:OE1	4:BD:294:TYR:OH	2.28	0.44
8:BH:90:LEU:HG	8:BH:92:VAL:HG22	1.99	0.44
9:BI:30:GLN:HG2	9:BI:60:HIS:ND1	2.32	0.44
13:BM:183:LYS:HE3	13:BM:194:ARG:NH1	2.32	0.44
14:BN:141:GLU:HG2	14:BN:142:ARG:N	2.32	0.44
26:BZ:11:TYR:HE2	26:BZ:42:MET:HE2	1.83	0.44
1:BA:12:U:O2'	1:BA:604:U:OP1	2.33	0.44
1:BA:1634:C:H5	3:BC:166:VAL:HG12	1.81	0.44
1:BA:2373:A:O2'	1:BA:2374:G:OP2	2.26	0.44
2:BB:43:C:O2'	6:BF:35:GLN:NE2	2.42	0.44
2:BB:51:A:OP1	14:BN:78:ASN:HB2	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:BB:55:G:C2'	2:BB:56:A:H5'	2.48	0.44
4:BD:81:ARG:HD2	4:BD:146:TYR:OH	2.18	0.44
4:BD:215:LYS:HG2	4:BD:256:MET:HE1	2.00	0.44
7:BG:30:LYS:HE2	7:BG:30:LYS:HB2	1.86	0.44
4:BD:55:VAL:HG22	4:BD:67:GLU:OE2	2.18	0.44
9:BI:148:GLU:OE2	9:BI:152:HIS:NE2	2.51	0.44
14:BN:139:PRO:HB2	14:BN:141:GLU:CD	2.43	0.44
15:BO:99:ILE:HB	15:BO:106:CYS:SG	2.58	0.44
27:Ba:119:VAL:CG1	27:Ba:149:ILE:HD13	2.47	0.44
1:BA:1856:C:H5	3:BC:164:GLY:H	1.65	0.44
2:BB:30:U:H2'	2:BB:31:C:H6	1.80	0.44
2:BB:51:A:OP2	14:BN:78:ASN:HA	2.18	0.44
5:BE:22:VAL:HG11	5:BE:248:LEU:CD2	2.47	0.44
13:BM:3:LYS:HD2	13:BM:7:GLY:HA3	1.99	0.44
19:BS:29:LYS:HB3	19:BS:81:PRO:HB3	1.99	0.44
7:BG:69:PHE:O	7:BG:73:ILE:HG12	2.18	0.44
7:BG:151:ASN:O	7:BG:155:LYS:HG2	2.18	0.44
22:BV:58:GLN:HA	22:BV:61:LYS:CD	2.48	0.44
26:BZ:13:ILE:HG12	26:BZ:37:PHE:CD1	2.53	0.44
1:BA:897:C:N4	12:BL:4:LYS:HG2	2.32	0.43
1:BA:1234:C:C6	10:BJ:125:SER:HB3	2.53	0.43
1:BA:1296:G:O6	5:BE:176:HIS:NE2	2.50	0.43
1:BA:2680:C:C4'	7:BG:116:LYS:HD2	2.47	0.43
1:BA:2872:G:H4'	4:BD:288:GLY:HA2	2.00	0.43
13:BM:171:GLY:O	13:BM:196:LYS:HD2	2.18	0.43
18:BR:19:VAL:O	18:BR:22:ARG:NH1	2.51	0.43
25:BY:47:PRO:O	25:BY:51:LYS:HD3	2.17	0.43
1:BA:837:A:OP2	29:Bc:4:GLY:HA3	2.17	0.43
2:BB:25:G:H5'	2:BB:26:C:H5	1.83	0.43
4:BD:204:ILE:HA	4:BD:259:HIS:O	2.18	0.43
6:BF:22:LEU:HD22	6:BF:39:ARG:NH2	2.33	0.43
6:BF:81:LYS:O	6:BF:162:VAL:HG13	2.17	0.43
7:BG:8:THR:HG23	7:BG:50:GLU:CG	2.48	0.43
12:BL:97:GLU:OE2	12:BL:139:ALA:HB2	2.18	0.43
14:BN:148:ILE:HD12	14:BN:156:SER:CA	2.44	0.43
19:BS:27:PRO:O	19:BS:116:ILE:HD13	2.17	0.43
22:BV:1:MET:HE3	22:BV:1:MET:HB2	1.92	0.43
27:Ba:54:THR:HB	27:Ba:76:GLN:OE1	2.18	0.43
1:BA:197:G:H22	1:BA:421:C:H5'	1.83	0.43
1:BA:1000:C:H4'	14:BN:5:PRO:HB2	1.99	0.43
1:BA:1852:A:N7	3:BC:21:SER:HB3	2.34	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:BA:2344:U:O4	14:BN:17:GLY:HA2	2.18	0.43
1:BA:2377:G:O2'	1:BA:2378:A:OP2	2.25	0.43
2:BB:90:G:N2	2:BB:98:C:H1'	2.33	0.43
3:BC:5:LEU:HD21	3:BC:201:PRO:HD3	2.00	0.43
5:BE:6:THR:HB	5:BE:242:GLU:OE2	2.18	0.43
11:BK:32:ILE:HD11	11:BK:56:SER:HB2	1.99	0.43
19:BS:42:ALA:HB1	19:BS:96:GLU:OE2	2.18	0.43
27:Ba:116:LEU:HD21	27:Ba:126:ILE:CD1	2.44	0.43
1:BA:514:A:H5"	27:Ba:60:LYS:HE3	2.00	0.43
1:BA:572:G:N2	1:BA:575:A:OP2	2.42	0.43
1:BA:866:A:OP2	3:BC:186:LYS:NZ	2.42	0.43
1:BA:1239:C:O2'	17:BQ:43:GLY:O	2.28	0.43
1:BA:2633:G:O2'	1:BA:2816:G:N7	2.48	0.43
1:BA:2822:U:OP1	4:BD:158:LYS:NZ	2.47	0.43
2:BB:95:A:O2'	9:BI:11:ASN:HB3	2.19	0.43
4:BD:52:VAL:HG21	4:BD:327:ILE:HD12	2.00	0.43
14:BN:6:ARG:O	14:BN:6:ARG:HG2	2.18	0.43
16:BP:114:ALA:HB1	16:BP:148:LEU:HD22	2.00	0.43
24:BX:4:VAL:O	24:BX:32:CYS:HA	2.19	0.43
25:BY:51:LYS:N	25:BY:51:LYS:HD2	2.34	0.43
1:BA:1085:U:O2	24:BX:120:PRO:HG2	2.18	0.43
1:BA:1176:C:O2'	1:BA:1177:A:OP1	2.34	0.43
1:BA:1398:G:N7	30:Bd:2:SER:HB3	2.33	0.43
6:BF:160:TYR:CB	6:BF:162:VAL:HG23	2.47	0.43
7:BG:153:GLU:OE1	7:BG:172:ILE:HG13	2.18	0.43
4:BD:76:GLU:CG	4:BD:290:VAL:HG13	2.49	0.43
5:BE:9:LEU:HG	5:BE:145:ASP:OD1	2.18	0.43
9:BI:20:ARG:HA	9:BI:23:MET:CG	2.47	0.43
12:BL:88:LYS:HB2	12:BL:93:HIS:CE1	2.53	0.43
14:BN:138:PRO:HG2	14:BN:143:ILE:CG1	2.48	0.43
32:Bf:62:THR:CG2	32:Bf:86:LYS:HE3	2.49	0.43
1:BA:2389:A:H2'	1:BA:2390:A:O4'	2.19	0.43
4:BD:17:ARG:HB2	4:BD:216:ARG:NH2	2.33	0.43
6:BF:13:MET:HG2	6:BF:118:MET:CB	2.49	0.43
6:BF:67:LYS:O	6:BF:70:GLU:HG2	2.18	0.43
9:BI:87:LEU:HD13	9:BI:134:PHE:CE1	2.54	0.43
15:BO:47:SER:HA	15:BO:50:TYR:CD1	2.53	0.43
26:BZ:78:PHE:HB2	26:BZ:80:ASP:OD1	2.19	0.43
3:BC:170:TRP:HZ3	3:BC:175:LYS:HG3	1.84	0.43
6:BF:136:ILE:HG13	14:BN:107:LEU:HB2	2.01	0.43
7:BG:142:LYS:HE3	7:BG:176:ALA:OXT	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:BP:43:GLY:O	16:BP:47:GLU:HG2	2.18	0.43
24:BX:98:ALA:HA	24:BX:103:LYS:HZ2	1.83	0.43
25:BY:14:LYS:HE3	25:BY:92:SER:OG	2.19	0.43
27:Ba:120:ASP:HA	27:Ba:121:PRO:HD3	1.88	0.43
31:Be:14:LYS:HE3	31:Be:23:ARG:HH11	1.83	0.43
1:BA:2836:G:H4'	4:BD:337:GLY:HA2	2.01	0.43
5:BE:28:ARG:HG3	5:BE:112:TYR:CE2	2.38	0.43
5:BE:206:LEU:HD23	5:BE:217:VAL:HG22	2.01	0.43
6:BF:88:PHE:CG	6:BF:94:VAL:HG12	2.54	0.43
15:BO:8:LYS:HD3	15:BO:44:GLU:HB3	2.01	0.43
20:BT:39:VAL:HG21	20:BT:64:LEU:HD22	2.01	0.43
25:BY:69:VAL:HG21	28:Bb:47:ALA:O	2.18	0.43
1:BA:1841:C:O3'	3:BC:8:GLN:HG2	2.19	0.43
4:BD:33:ALA:HA	4:BD:168:SER:OG	2.19	0.43
12:BL:102:GLU:O	12:BL:120:GLU:HG2	2.19	0.43
13:BM:3:LYS:HE3	13:BM:8:TYR:CE2	2.53	0.43
15:BO:39:ILE:HD12	15:BO:69:LEU:HD22	2.00	0.43
19:BS:63:LYS:O	19:BS:63:LYS:HG3	2.18	0.43
20:BT:43:TYR:CD2	20:BT:75:ILE:HD13	2.54	0.43
27:Ba:113:ILE:HD11	27:Ba:143:LYS:HD3	2.01	0.43
29:Bc:27:PHE:HA	29:Bc:34:CYS:HA	1.99	0.43
1:BA:874:A:C4	29:Bc:8:MET:HE1	2.54	0.42
1:BA:2272:C:OP2	18:BR:4:SER:OG	2.31	0.42
2:BB:96:G:H2'	2:BB:97:C:O4'	2.19	0.42
4:BD:270:LYS:HE3	4:BD:294:TYR:OH	2.19	0.42
7:BG:86:CYS:HB3	7:BG:137:ILE:HB	2.01	0.42
14:BN:139:PRO:HD2	14:BN:142:ARG:HD3	2.01	0.42
19:BS:48:PHE:O	19:BS:52:VAL:HG23	2.19	0.42
21:BU:86:LYS:O	21:BU:89:GLY:N	2.48	0.42
24:BX:30:ASN:O	24:BX:118:LEU:HB2	2.19	0.42
32:Bf:62:THR:HG22	32:Bf:86:LYS:HD3	1.99	0.42
32:Bf:68:ARG:HG2	32:Bf:77:ALA:HB1	2.00	0.42
1:BA:1827:A:O3'	3:BC:170:TRP:HB2	2.19	0.42
1:BA:2098:A:N1	1:BA:2252:U:H5	2.16	0.42
5:BE:147:GLU:OE2	5:BE:200:GLY:N	2.35	0.42
6:BF:44:ARG:O	6:BF:46:LEU:HG	2.19	0.42
8:BH:55:ILE:HG21	8:BH:60:ILE:HB	2.00	0.42
9:BI:85:MET:HE2	9:BI:134:PHE:CD1	2.54	0.42
13:BM:87:MET:HE3	13:BM:87:MET:HA	2.00	0.42
22:BV:6:CYS:HB2	22:BV:32:CYS:HB3	2.00	0.42
28:Bb:82:THR:O	28:Bb:85:ARG:HG2	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:BF:101:HIS:HB2	6:BF:107:MET:HE1	2.00	0.42
7:BG:111:PHE:O	7:BG:114:GLU:HG3	2.20	0.42
12:BL:97:GLU:OE1	12:BL:97:GLU:N	2.50	0.42
22:BV:25:ASP:OD2	22:BV:27:SER:OG	2.36	0.42
24:BX:38:ASN:HB2	24:BX:39:PRO:HD2	2.02	0.42
1:BA:1679:G:O3'	1:BA:1680:C:H4'	2.19	0.42
5:BE:143:VAL:HG13	5:BE:145:ASP:OD1	2.19	0.42
5:BE:178:ARG:O	5:BE:183:LYS:HD3	2.19	0.42
7:BG:42:ILE:HD12	7:BG:66:VAL:CG1	2.49	0.42
11:BK:4:MET:HE1	11:BK:50:GLY:CA	2.43	0.42
14:BN:148:ILE:HG22	14:BN:155:SER:HB3	2.02	0.42
15:BO:70:ILE:HD12	15:BO:74:VAL:CG2	2.49	0.42
16:BP:89:THR:HG23	16:BP:89:THR:O	2.19	0.42
19:BS:100:GLU:HG3	19:BS:106:PRO:HG2	2.01	0.42
1:BA:109:G:OP2	1:BA:111:A:O2'	2.28	0.42
1:BA:1451:G:O2'	1:BA:1845:A:N3	2.43	0.42
1:BA:2030:G:H4'	19:BS:55:MET:HE1	2.01	0.42
3:BC:170:TRP:CH2	3:BC:179:LYS:HD3	2.54	0.42
3:BC:170:TRP:CE3	3:BC:175:LYS:HG3	2.55	0.42
6:BF:11:VAL:O	6:BF:60:LYS:HA	2.19	0.42
7:BG:77:VAL:HA	7:BG:80:VAL:HG22	2.01	0.42
17:BQ:10:LYS:CG	17:BQ:23:THR:HG23	2.49	0.42
1:BA:451:C:H4'	5:BE:50:ARG:HD3	2.01	0.42
1:BA:1224:U:C4	10:BJ:61:ALA:HB2	2.55	0.42
1:BA:1699:A:H5'	16:BP:55:VAL:HG13	2.02	0.42
1:BA:1713:A:H2	4:BD:253:MET:HE1	1.85	0.42
1:BA:2321:A:C5'	6:BF:44:ARG:HH22	2.33	0.42
2:BB:109:C:H2'	2:BB:110:U:H5'	2.00	0.42
4:BD:12:LEU:HD11	4:BD:249:ARG:HB3	2.01	0.42
4:BD:80:ILE:CD1	4:BD:145:ILE:HD12	2.41	0.42
4:BD:220:GLN:HE21	4:BD:223:LYS:HG2	1.84	0.42
5:BE:130:ARG:O	5:BE:130:ARG:HD3	2.19	0.42
6:BF:83:LEU:O	6:BF:164:VAL:HG13	2.19	0.42
14:BN:160:GLU:HG2	14:BN:161:GLN:N	2.34	0.42
15:BO:39:ILE:CD1	15:BO:69:LEU:HD22	2.50	0.42
20:BT:25:ILE:HD13	20:BT:61:LYS:HG2	2.01	0.42
21:BU:103:ILE:HG21	21:BU:106:LEU:HD23	2.01	0.42
1:BA:161:A:O2'	1:BA:890:G:O6	2.38	0.42
20:BT:43:TYR:CZ	20:BT:79:ILE:HD11	2.55	0.42
1:BA:30:G:O6	21:BU:10:ARG:NH1	2.44	0.42
1:BA:1489:C:OP1	20:BT:51:ARG:NE	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:BA:1862:C:OP1	3:BC:192:ALA:HB3	2.20	0.42
2:BB:87:A:N1	2:BB:99:U:H5	2.18	0.42
7:BG:42:ILE:HD13	7:BG:55:ALA:HB2	2.00	0.42
21:BU:20:PRO:O	21:BU:24:ARG:HG3	2.19	0.42
21:BU:97:ASN:OD1	21:BU:99:SER:OG	2.30	0.42
27:Ba:121:PRO:HG3	27:Ba:149:ILE:HG12	2.02	0.42
29:Bc:28:ASN:N	29:Bc:33:GLN:O	2.50	0.42
1:BA:391:A:O2'	1:BA:411:G:N3	2.48	0.42
1:BA:2157:G:O2'	1:BA:2169:G:OP2	2.38	0.42
1:BA:2614:G:H2'	1:BA:2615:G7M:O4'	2.20	0.42
3:BC:24:TYR:CD1	3:BC:51:ALA:HB2	2.54	0.42
3:BC:24:TYR:HA	3:BC:50:PRO:HG2	2.02	0.42
3:BC:24:TYR:CG	3:BC:51:ALA:HB2	2.55	0.42
3:BC:72:SER:O	3:BC:75:ILE:HG22	2.20	0.42
3:BC:176:LYS:O	3:BC:180:MET:HG2	2.20	0.42
16:BP:77:GLY:O	16:BP:81:ARG:HG3	2.20	0.42
19:BS:105:GLU:O	19:BS:109:MET:HG3	2.19	0.42
24:BX:28:LYS:HD2	24:BX:31:HIS:CE1	2.55	0.42
27:Ba:137:LYS:O	27:Ba:141:LEU:HG	2.19	0.42
1:BA:1224:U:HO2'	1:BA:1225:G:P	2.40	0.42
4:BD:91:ASP:OD1	4:BD:93:THR:OG1	2.35	0.42
8:BH:49:VAL:O	8:BH:75:TYR:HA	2.20	0.42
8:BH:107:GLU:OE1	8:BH:107:GLU:N	2.38	0.42
11:BK:73:VAL:HA	11:BK:95:MET:HG2	2.02	0.42
16:BP:56:LYS:HG3	16:BP:56:LYS:O	2.20	0.42
19:BS:110:TYR:CD2	19:BS:151:ARG:HD2	2.54	0.42
23:BW:47:ILE:HG22	23:BW:51:ARG:NH1	2.35	0.42
25:BY:11:SER:CA	25:BY:14:LYS:HG2	2.41	0.42
27:Ba:101:HIS:CD2	27:Ba:102:PRO:HD2	2.54	0.42
1:BA:619:U:O2'	1:BA:1071:A:N1	2.49	0.41
1:BA:2374:G:H2'	1:BA:2375:U:C4'	2.50	0.41
7:BG:100:LYS:O	7:BG:106:LEU:HD12	2.19	0.41
7:BG:137:ILE:CG2	7:BG:145:VAL:HG23	2.42	0.41
11:BK:49:ILE:CD1	11:BK:76:GLN:HG2	2.49	0.41
16:BP:85:LYS:HD2	16:BP:85:LYS:O	2.19	0.41
22:BV:23:LYS:HG3	22:BV:29:TYR:HE2	1.85	0.41
23:BW:3:ILE:HD12	23:BW:3:ILE:H	1.84	0.41
28:Bb:6:THR:HG23	28:Bb:9:GLY:N	2.35	0.41
32:Bf:4:PRO:HA	32:Bf:91:LYS:HB3	2.02	0.41
1:BA:837:A:O2'	29:Bc:2:SER:HB2	2.20	0.41
4:BD:81:ARG:NH1	4:BD:184:GLY:O	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:BE:162:ALA:CB	5:BE:164:LEU:HD13	2.50	0.41
7:BG:33:VAL:HG23	7:BG:80:VAL:HG12	2.02	0.41
12:BL:80:VAL:HA	12:BL:85:ALA:O	2.21	0.41
15:BO:35:ILE:CD1	15:BO:124:ILE:HD11	2.49	0.41
16:BP:9:LYS:HG3	16:BP:13:LYS:HE2	2.02	0.41
18:BR:54:ASN:HD22	18:BR:56:LYS:HD2	1.84	0.41
19:BS:96:GLU:O	19:BS:100:GLU:HG3	2.21	0.41
20:BT:34:GLN:HA	20:BT:37:GLU:OE2	2.20	0.41
32:Bf:1:MET:N	32:Bf:87:LYS:O	2.53	0.41
1:BA:51:G:OP2	30:Bd:14:LYS:HD2	2.20	0.41
1:BA:791:C:O2'	1:BA:1581:U:OP1	2.30	0.41
1:BA:2030:G:H5'	19:BS:55:MET:HE1	2.02	0.41
4:BD:41:SER:HA	4:BD:311:LEU:O	2.19	0.41
7:BG:33:VAL:CG1	7:BG:76:LEU:HD22	2.51	0.41
13:BM:174:MET:HE1	13:BM:187:SER:HA	2.02	0.41
27:Ba:28:LEU:HD21	27:Ba:104:GLY:HA3	2.02	0.41
31:Be:19:LYS:HG2	31:Be:36:TYR:CE2	2.55	0.41
1:BA:1923:C:O4'	3:BC:213:PRO:HA	2.20	0.41
1:BA:2419:C:H4'	12:BL:60:VAL:HG13	2.02	0.41
6:BF:82:THR:HG22	6:BF:163:GLU:OE2	2.20	0.41
7:BG:107:ILE:HD12	7:BG:119:PHE:HE1	1.84	0.41
12:BL:103:LYS:HB2	12:BL:120:GLU:HG3	2.02	0.41
22:BV:4:ARG:HG2	22:BV:30:PHE:CZ	2.56	0.41
27:Ba:109:LEU:HA	27:Ba:127:ARG:O	2.21	0.41
1:BA:1727:A:O2'	1:BA:1733:G:N7	2.49	0.41
2:BB:5:U:O2'	2:BB:6:U:H5'	2.20	0.41
2:BB:84:U:H2'	2:BB:85:G:C8	2.56	0.41
6:BF:45:THR:CB	6:BF:52:LYS:HA	2.51	0.41
10:BJ:85:PRO:O	10:BJ:91:GLY:HA3	2.21	0.41
11:BK:70:LEU:HD11	11:BK:100:GLU:CD	2.45	0.41
12:BL:123:ALA:O	12:BL:126:ARG:HB2	2.20	0.41
14:BN:36:VAL:HG21	14:BN:49:ILE:HD12	2.02	0.41
14:BN:158:LEU:HD22	14:BN:161:GLN:HE21	1.84	0.41
15:BO:95:ALA:O	15:BO:99:ILE:HG13	2.20	0.41
17:BQ:26:ILE:CG2	17:BQ:37:LYS:HD2	2.49	0.41
24:BX:69:ARG:HG3	24:BX:118:LEU:HD23	2.02	0.41
25:BY:9:ASP:N	25:BY:9:ASP:OD1	2.53	0.41
27:Ba:49:PRO:HG2	27:Ba:51:PHE:CE1	2.56	0.41
28:Bb:1:MET:SD	28:Bb:1:MET:N	2.91	0.41
30:Bd:44:ARG:O	30:Bd:44:ARG:HG2	2.19	0.41
1:BA:1753:C:H3'	28:Bb:11:ILE:HB	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:BB:51:A:H5”	14:BN:147:HIS:CE1	2.55	0.41
3:BC:101:PRO:HD2	3:BC:104:PHE:CD2	2.55	0.41
9:BI:44:PHE:CB	9:BI:137:ALA:HB1	2.50	0.41
11:BK:105:LYS:HA	11:BK:105:LYS:HD3	1.86	0.41
13:BM:25:ARG:O	13:BM:29:LEU:HG	2.20	0.41
14:BN:12:ARG:O	14:BN:16:GLU:HG3	2.21	0.41
16:BP:1:MET:O	16:BP:1:MET:HG3	2.20	0.41
19:BS:15:THR:CG2	19:BS:146:ILE:HG23	2.51	0.41
1:BA:1293:U:OP1	5:BE:130:ARG:NH1	2.54	0.41
1:BA:1315:A:OP2	27:Ba:65:ASN:ND2	2.52	0.41
1:BA:2304:A:OP1	6:BF:135:ARG:NH1	2.54	0.41
5:BE:30:ASP:OD1	5:BE:30:ASP:N	2.51	0.41
8:BH:67:LEU:O	8:BH:71:LYS:HG2	2.20	0.41
14:BN:66:GLU:OE1	14:BN:92:LYS:NZ	2.47	0.41
24:BX:3:ALA:HB2	24:BX:57:ILE:HB	2.03	0.41
1:BA:2251:G7M:O5’	13:BM:81:GLY:HA2	2.21	0.41
2:BB:99:U:H2’	2:BB:100:U:H6	1.84	0.41
3:BC:40:ARG:NH2	3:BC:80:ILE:HG21	2.36	0.41
4:BD:6:ARG:HD2	4:BD:7:PRO:HD2	2.02	0.41
4:BD:289:LEU:HD11	4:BD:291:ARG:CZ	2.50	0.41
5:BE:140:ILE:CD1	5:BE:164:LEU:HD11	2.48	0.41
6:BF:108:ARG:HD3	6:BF:109:TYR:H	1.86	0.41
8:BH:8:ASP:OD1	8:BH:8:ASP:N	2.54	0.41
10:BJ:81:ARG:HD3	10:BJ:86:TYR:CE2	2.56	0.41
11:BK:49:ILE:HG23	11:BK:117:VAL:HG13	2.02	0.41
18:BR:12:ARG:O	18:BR:16:GLN:HB2	2.19	0.41
23:BW:10:ARG:NH1	23:BW:60:ILE:HD12	2.36	0.41
29:Bc:55:LYS:HD2	29:Bc:55:LYS:HA	1.86	0.41
1:BA:183:A:OP1	13:BM:162:ARG:NH2	2.54	0.41
1:BA:1725:G:OP1	11:BK:77:LYS:HE2	2.21	0.41
1:BA:2052:A:N3	1:BA:2466:A:O2’	2.31	0.41
4:BD:38:LYS:HA	4:BD:178:TYR:CZ	2.56	0.41
7:BG:85:GLU:HA	7:BG:137:ILE:O	2.21	0.41
8:BH:21:LEU:HD23	8:BH:87:ALA:HB3	2.02	0.41
9:BI:9:TYR:OH	9:BI:97:GLU:HB2	2.21	0.41
11:BK:123:LYS:HE2	11:BK:123:LYS:HA	2.03	0.41
12:BL:4:LYS:HB2	12:BL:4:LYS:HE3	1.91	0.41
14:BN:133:SER:O	14:BN:136:VAL:HG22	2.21	0.41
18:BR:7:GLU:HG3	18:BR:54:ASN:OD1	2.21	0.41
25:BY:22:ILE:HD11	25:BY:31:ALA:CB	2.47	0.41
30:Bd:37:HIS:CD2	30:Bd:39:ARG:HB2	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:Bf:62:THR:HG22	32:Bf:86:LYS:CD	2.51	0.41
1:BA:28:C:H4'	21:BU:14:LYS:HB2	2.03	0.41
1:BA:64:A:O2'	20:BT:1:MET:HE2	2.21	0.41
4:BD:146:TYR:HB3	4:BD:162:ILE:HG12	2.02	0.41
5:BE:50:ARG:HH22	5:BE:56:GLU:CD	2.28	0.41
9:BI:64:GLU:O	9:BI:68:ILE:HG12	2.21	0.41
10:BJ:70:LYS:HB3	10:BJ:141:SER:HB2	2.02	0.41
17:BQ:8:ILE:HD11	17:BQ:61:GLU:OE2	2.21	0.41
17:BQ:9:VAL:HG22	17:BQ:58:VAL:HG13	2.03	0.41
1:BA:560:A:O2'	24:BX:77:ARG:NH2	2.46	0.40
6:BF:46:LEU:O	6:BF:50:SER:N	2.51	0.40
8:BH:25:ARG:HD3	8:BH:88:SER:C	2.46	0.40
12:BL:73:ASP:OD2	12:BL:111:THR:N	2.49	0.40
13:BM:26:TRP:HE3	13:BM:27:GLU:HG3	1.86	0.40
14:BN:79:THR:HG23	14:BN:118:ALA:HB2	2.03	0.40
15:BO:62:THR:HG22	15:BO:68:LEU:HD11	2.01	0.40
16:BP:8:ARG:HG2	16:BP:19:LEU:CD1	2.51	0.40
16:BP:51:LYS:HB3	16:BP:51:LYS:HE2	1.80	0.40
16:BP:125:ARG:HD3	16:BP:125:ARG:HA	1.80	0.40
21:BU:83:ILE:HD12	21:BU:91:GLU:HB3	2.02	0.40
31:Be:19:LYS:HG3	31:Be:36:TYR:CD1	2.56	0.40
1:BA:2252:U:H2'	1:BA:2253:U:C6	2.57	0.40
1:BA:2665:U:OP2	1:BA:2666:A:O2'	2.22	0.40
5:BE:91:ARG:CG	5:BE:94:PRO:HB3	2.49	0.40
6:BF:87:GLN:NE2	6:BF:96:PHE:HB3	2.36	0.40
24:BX:66:LEU:HD23	24:BX:116:PHE:HE2	1.85	0.40
25:BY:11:SER:O	25:BY:14:LYS:HG2	2.22	0.40
27:Ba:75:LYS:HD2	27:Ba:80:TYR:CE2	2.57	0.40
27:Ba:119:VAL:HG13	27:Ba:149:ILE:HD13	2.03	0.40
32:Bf:87:LYS:HE2	32:Bf:89:GLU:CG	2.50	0.40
1:BA:693:A:H61	12:BL:71:GLU:HG2	1.86	0.40
1:BA:2373:A:OP1	1:BA:2373:A:H3'	2.21	0.40
1:BA:2419:C:O2'	12:BL:59:GLU:OE1	2.34	0.40
2:BB:24:G:H2'	2:BB:25:G:C8	2.56	0.40
3:BC:49:ASP:HB2	3:BC:56:ILE:HG23	2.02	0.40
3:BC:215:THR:HG22	3:BC:228:LEU:HB2	2.04	0.40
5:BE:121:THR:HB	5:BE:238:THR:CG2	2.51	0.40
7:BG:99:VAL:HA	7:BG:107:ILE:O	2.21	0.40
14:BN:84:LEU:HD13	14:BN:165:THR:CG2	2.51	0.40
24:BX:71:ARG:O	24:BX:112:LEU:HD12	2.21	0.40
1:BA:826:U:H3'	1:BA:827:U:H4'	2.01	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:BA:859:C:O2'	1:BA:860:G:O5'	2.35	0.40
1:BA:2070:G:H2'	1:BA:2071:G:C8	2.57	0.40
4:BD:46:LYS:HD3	4:BD:304:PRO:O	2.22	0.40
6:BF:93:ASN:OD1	6:BF:123:VAL:HG23	2.21	0.40
6:BF:95:SER:HA	6:BF:120:VAL:O	2.22	0.40
9:BI:53:GLU:OE2	9:BI:160:PRO:HB2	2.21	0.40
16:BP:82:LYS:HE2	16:BP:82:LYS:HB2	1.89	0.40
25:BY:23:VAL:CG1	25:BY:81:ILE:HD13	2.51	0.40
1:BA:1507:U:N3	1:BA:1508:A:N7	2.70	0.40
1:BA:2654:U:H3	1:BA:2780:A:H62	1.69	0.40
1:BA:2757:A:O2'	7:BG:64:ALA:HA	2.21	0.40
2:BB:83:C:H2'	2:BB:84:U:O4'	2.22	0.40
4:BD:215:LYS:HG2	4:BD:256:MET:SD	2.61	0.40
7:BG:108:ILE:HD13	7:BG:156:THR:CG2	2.51	0.40
8:BH:37:ALA:O	8:BH:41:ILE:HG13	2.21	0.40
17:BQ:8:ILE:HD11	17:BQ:61:GLU:CD	2.46	0.40
18:BR:51:GLY:HA3	18:BR:88:LEU:HG	2.02	0.40
19:BS:136:LYS:HG3	19:BS:136:LYS:O	2.22	0.40
21:BU:61:LYS:HE2	21:BU:61:LYS:HB2	1.86	0.40
26:BZ:21:VAL:HG12	26:BZ:25:LYS:HB2	2.04	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	BC	236/238 (99%)	230 (98%)	6 (2%)	0	100	100
4	BD	335/337 (99%)	327 (98%)	8 (2%)	0	100	100
5	BE	250/253 (99%)	244 (98%)	6 (2%)	0	100	100
6	BF	163/165 (99%)	154 (94%)	9 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
7	BG	174/176 (99%)	167 (96%)	7 (4%)	0	100	100
8	BH	113/120 (94%)	111 (98%)	2 (2%)	0	100	100
9	BI	155/173 (90%)	150 (97%)	5 (3%)	0	100	100
10	BJ	136/143 (95%)	134 (98%)	2 (2%)	0	100	100
11	BK	130/132 (98%)	127 (98%)	3 (2%)	0	100	100
12	BL	138/140 (99%)	132 (96%)	6 (4%)	0	100	100
13	BM	194/196 (99%)	190 (98%)	4 (2%)	0	100	100
14	BN	172/174 (99%)	168 (98%)	4 (2%)	0	100	100
15	BO	124/126 (98%)	123 (99%)	1 (1%)	0	100	100
16	BP	149/151 (99%)	144 (97%)	5 (3%)	0	100	100
17	BQ	55/61 (90%)	55 (100%)	0	0	100	100
18	BR	94/97 (97%)	90 (96%)	4 (4%)	0	100	100
19	BS	149/151 (99%)	144 (97%)	5 (3%)	0	100	100
20	BT	80/82 (98%)	78 (98%)	2 (2%)	0	100	100
21	BU	117/119 (98%)	116 (99%)	1 (1%)	0	100	100
22	BV	60/62 (97%)	59 (98%)	1 (2%)	0	100	100
23	BW	65/67 (97%)	63 (97%)	2 (3%)	0	100	100
24	BX	151/153 (99%)	148 (98%)	3 (2%)	0	100	100
25	BY	90/99 (91%)	86 (96%)	4 (4%)	0	100	100
26	BZ	84/89 (94%)	83 (99%)	1 (1%)	0	100	100
27	Ba	130/161 (81%)	129 (99%)	1 (1%)	0	100	100
28	Bb	92/94 (98%)	82 (89%)	10 (11%)	0	100	100
29	Bc	54/56 (96%)	50 (93%)	4 (7%)	0	100	100
30	Bd	49/51 (96%)	44 (90%)	5 (10%)	0	100	100
31	Be	42/52 (81%)	41 (98%)	1 (2%)	0	100	100
32	Bf	90/92 (98%)	90 (100%)	0	0	100	100
All	All	3871/4010 (96%)	3759 (97%)	112 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	BC	188/188 (100%)	188 (100%)	0	100	100
4	BD	277/277 (100%)	277 (100%)	0	100	100
5	BE	197/198 (100%)	197 (100%)	0	100	100
6	BF	140/140 (100%)	140 (100%)	0	100	100
7	BG	148/148 (100%)	148 (100%)	0	100	100
8	BH	88/91 (97%)	88 (100%)	0	100	100
9	BI	132/141 (94%)	132 (100%)	0	100	100
10	BJ	114/119 (96%)	114 (100%)	0	100	100
11	BK	109/109 (100%)	109 (100%)	0	100	100
12	BL	108/108 (100%)	108 (100%)	0	100	100
13	BM	166/166 (100%)	166 (100%)	0	100	100
14	BN	143/143 (100%)	143 (100%)	0	100	100
15	BO	104/104 (100%)	104 (100%)	0	100	100
16	BP	123/123 (100%)	123 (100%)	0	100	100
17	BQ	50/54 (93%)	50 (100%)	0	100	100
18	BR	85/86 (99%)	85 (100%)	0	100	100
19	BS	124/124 (100%)	124 (100%)	0	100	100
20	BT	73/73 (100%)	73 (100%)	0	100	100
21	BU	100/100 (100%)	100 (100%)	0	100	100
22	BV	54/54 (100%)	54 (100%)	0	100	100
23	BW	57/57 (100%)	57 (100%)	0	100	100
24	BX	134/134 (100%)	134 (100%)	0	100	100
25	BY	71/78 (91%)	71 (100%)	0	100	100
26	BZ	76/78 (97%)	76 (100%)	0	100	100
27	Ba	109/135 (81%)	109 (100%)	0	100	100
28	Bb	76/76 (100%)	76 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
29	Bc	49/49 (100%)	49 (100%)	0	100	100
30	Bd	48/48 (100%)	48 (100%)	0	100	100
31	Be	37/43 (86%)	37 (100%)	0	100	100
32	Bf	82/82 (100%)	82 (100%)	0	100	100
All	All	3262/3326 (98%)	3262 (100%)	0	100	100

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

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (19) such sidechains are listed below:

Mol	Chain	Res	Type
3	BC	99	ASN
3	BC	196	ASN
4	BD	128	ASN
4	BD	220	GLN
5	BE	224	ASN
6	BF	35	GLN
7	BG	98	GLN
8	BH	45	ASN
11	BK	7	ASN
11	BK	78	GLN
14	BN	108	GLN
14	BN	161	GLN
16	BP	78	HIS
19	BS	24	HIS
19	BS	65	HIS
19	BS	123	HIS
24	BX	150	HIS
30	Bd	16	HIS
30	Bd	37	HIS

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	BA	2881/2899 (99%)	465 (16%)	11 (0%)
2	BB	127/129 (98%)	16 (12%)	0
All	All	3008/3028 (99%)	481 (15%)	11 (0%)

All (481) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	BA	7	U
1	BA	39	C
1	BA	56	A
1	BA	64	A
1	BA	67	A
1	BA	68	G
1	BA	84	U
1	BA	85	G
1	BA	110	A
1	BA	111	A
1	BA	112	U
1	BA	116	A
1	BA	117	C
1	BA	118	C
1	BA	119	U
1	BA	124	G
1	BA	126	A
1	BA	127	G
1	BA	128	U
1	BA	135	U
1	BA	136	C
1	BA	146	A
1	BA	161	A
1	BA	181	A
1	BA	186	A
1	BA	187	A
1	BA	193	U
1	BA	194	U
1	BA	198	A
1	BA	213	G
1	BA	231	G
1	BA	232	U
1	BA	243	U
1	BA	248	U
1	BA	250	G
1	BA	266	G
1	BA	267	U
1	BA	268	A
1	BA	278	A
1	BA	287	G
1	BA	293	A
1	BA	295	A
1	BA	302	U

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Mol	Chain	Res	Type
1	BA	303	U
1	BA	312	C
1	BA	322	U
1	BA	326	G
1	BA	330	G
1	BA	331	A
1	BA	332	C
1	BA	339	U
1	BA	344	U
1	BA	368	U
1	BA	369	C
1	BA	374	A
1	BA	375	G
1	BA	390	U
1	BA	391	A
1	BA	396	G
1	BA	412	C
1	BA	421	C
1	BA	429	A
1	BA	443	A
1	BA	451	C
1	BA	455	A
1	BA	456	U
1	BA	457	A
1	BA	458	G
1	BA	467	C
1	BA	481	G
1	BA	498	G
1	BA	503	A
1	BA	504	A
1	BA	506	U
1	BA	530	A
1	BA	531	C
1	BA	532	G
1	BA	546	G
1	BA	549	U
1	BA	582	A
1	BA	598	C
1	BA	613	A
1	BA	618	U
1	BA	623	G
1	BA	624	A

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Mol	Chain	Res	Type
1	BA	625	A
1	BA	653	A
1	BA	654	U
1	BA	655	G
1	BA	664	U
1	BA	665	U
1	BA	666	U
1	BA	667	A
1	BA	674	C
1	BA	688	G
1	BA	693	A
1	BA	694	U
1	BA	695	G
1	BA	706	U
1	BA	708	U
1	BA	726	A
1	BA	727	C
1	BA	736	G
1	BA	745	G
1	BA	751	C
1	BA	752	G
1	BA	753	A
1	BA	758	A
1	BA	769	U
1	BA	801	G
1	BA	813	A
1	BA	817	U
1	BA	818	A
1	BA	819	A
1	BA	827	U
1	BA	832	U
1	BA	838	U
1	BA	849	A
1	BA	850	C
1	BA	867	A
1	BA	869	U
1	BA	870	G
1	BA	890	G
1	BA	897	C
1	BA	912	C
1	BA	913	G
1	BA	935	C

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Mol	Chain	Res	Type
1	BA	944	A
1	BA	946	U
1	BA	952	A
1	BA	955	G
1	BA	959	G
1	BA	964	U
1	BA	965	U
1	BA	966	C
1	BA	970	G
1	BA	971	G
1	BA	979	C
1	BA	981	C
1	BA	983	C
1	BA	984	G
1	BA	989	C
1	BA	993	U
1	BA	994	C
1	BA	997	A
1	BA	1000	C
1	BA	1030	G
1	BA	1034	G
1	BA	1041	U
1	BA	1042	G
1	BA	1049	G
1	BA	1062	A
1	BA	1067	A
1	BA	1077	G
1	BA	1078	C
1	BA	1090	G
1	BA	1098	G
1	BA	1099	U
1	BA	1100	G
1	BA	1109	G
1	BA	1113	U
1	BA	1117	A
1	BA	1118	C
1	BA	1119	U
1	BA	1120	A
1	BA	1139	A
1	BA	1140	G
1	BA	1141	A
1	BA	1150	A

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Mol	Chain	Res	Type
1	BA	1151	G
1	BA	1152	G
1	BA	1153	U
1	BA	1154	U
1	BA	1156	G
1	BA	1160	A
1	BA	1161	G
1	BA	1163	A
1	BA	1164	G
1	BA	1166	A
1	BA	1168	C
1	BA	1170	A
1	BA	1171	C
1	BA	1172	C
1	BA	1174	U
1	BA	1175	U
1	BA	1180	G
1	BA	1181	A
1	BA	1182	G
1	BA	1188	A
1	BA	1189	A
1	BA	1193	C
1	BA	1196	A
1	BA	1197	C
1	BA	1198	C
1	BA	1202	C
1	BA	1203	G
1	BA	1205	G
1	BA	1225	G
1	BA	1227	C
1	BA	1231	G
1	BA	1235	A
1	BA	1267	G
1	BA	1273	C
1	BA	1277	U
1	BA	1315	A
1	BA	1326	C
1	BA	1328	G
1	BA	1337	C
1	BA	1341	A
1	BA	1344	C
1	BA	1360	G

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Mol	Chain	Res	Type
1	BA	1362	A
1	BA	1365	G
1	BA	1378	C
1	BA	1389	A
1	BA	1390	A
1	BA	1391	G
1	BA	1395	C
1	BA	1410	A
1	BA	1434	C
1	BA	1435	G
1	BA	1456	U
1	BA	1464	G
1	BA	1470	A
1	BA	1484	A
1	BA	1486	A
1	BA	1487	U
1	BA	1506	U
1	BA	1507	U
1	BA	1508	A
1	BA	1509	G
1	BA	1515	C
1	BA	1541	G
1	BA	1551	C
1	BA	1568	U
1	BA	1570	G
1	BA	1571	A
1	BA	1574	G
1	BA	1577	G
1	BA	1597	A
1	BA	1598	A
1	BA	1599	U
1	BA	1606	U
1	BA	1607	G
1	BA	1612	A
1	BA	1613	A
1	BA	1616	C
1	BA	1622	C
1	BA	1638	A
1	BA	1667	A
1	BA	1675	A
1	BA	1679	G
1	BA	1680	C

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Mol	Chain	Res	Type
1	BA	1681	C
1	BA	1698	A
1	BA	1704	U
1	BA	1707	C
1	BA	1712	U
1	BA	1713	A
1	BA	1733	G
1	BA	1755	G
1	BA	1799	G
1	BA	1800	G
1	BA	1809	A
1	BA	1818	U
1	BA	1820	C
1	BA	1822	A
1	BA	1836	C
1	BA	1847	G
1	BA	1856	C
1	BA	1857	A
1	BA	1883	U
1	BA	1884	A
1	BA	1899	U
1	BA	1924	A
1	BA	1928	G
1	BA	1929	G
1	BA	1932	U
1	BA	1933	A
1	BA	1940	A
1	BA	1941	C
1	BA	1944	U
1	BA	1945	C
1	BA	1946	U
1	BA	1947	U
1	BA	1948	A
1	BA	1951	G
1	BA	1954	G
1	BA	1958	A
1	BA	1959	G
1	BA	1961	A
1	BA	1984	U
1	BA	1985	G
1	BA	1988	U
1	BA	1991	A

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Mol	Chain	Res	Type
1	BA	1992	U
1	BA	1993	G
1	BA	2003	G
1	BA	2012	U
1	BA	2014	U
1	BA	2044	U
1	BA	2052	A
1	BA	2053	C
1	BA	2054	A
1	BA	2076	A
1	BA	2081	A
1	BA	2082	G
1	BA	2083	A
1	BA	2089	U
1	BA	2090	G
1	BA	2101	G
1	BA	2114	G
1	BA	2118	U
1	BA	2120	U
1	BA	2122	G
1	BA	2126	U
1	BA	2127	G
1	BA	2129	A
1	BA	2132	U
1	BA	2133	A
1	BA	2134	C
1	BA	2135	A
1	BA	2136	G
1	BA	2137	U
1	BA	2140	A
1	BA	2142	G
1	BA	2144	A
1	BA	2146	G
1	BA	2147	A
1	BA	2148	G
1	BA	2153	C
1	BA	2154	G
1	BA	2155	A
1	BA	2159	G
1	BA	2160	G
1	BA	2161	G
1	BA	2162	U

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Mol	Chain	Res	Type
1	BA	2164	C
1	BA	2167	C
1	BA	2168	A
1	BA	2169	G
1	BA	2170	C
1	BA	2172	U
1	BA	2173	U
1	BA	2174	C
1	BA	2175	G
1	BA	2179	A
1	BA	2180	G
1	BA	2181	C
1	BA	2182	C
1	BA	2183	G
1	BA	2186	C
1	BA	2187	U
1	BA	2188	U
1	BA	2190	G
1	BA	2192	A
1	BA	2194	A
1	BA	2195	C
1	BA	2196	U
1	BA	2198	C
1	BA	2199	C
1	BA	2201	U
1	BA	2202	U
1	BA	2203	C
1	BA	2205	G
1	BA	2206	G
1	BA	2219	A
1	BA	2229	A
1	BA	2234	A
1	BA	2235	C
1	BA	2244	G
1	BA	2247	G
1	BA	2248	G
1	BA	2250	A
1	BA	2251	G7M
1	BA	2259	G
1	BA	2260	OMG
1	BA	2267	A
1	BA	2289	G

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Mol	Chain	Res	Type
1	BA	2292	G
1	BA	2293	C
1	BA	2297	A
1	BA	2315	U
1	BA	2316	C
1	BA	2319	A
1	BA	2320	A
1	BA	2330	A
1	BA	2332	A
1	BA	2345	A
1	BA	2357	C
1	BA	2365	A
1	BA	2366	G
1	BA	2368	A
1	BA	2370	A
1	BA	2371	G
1	BA	2373	A
1	BA	2374	G
1	BA	2375	U
1	BA	2376	G
1	BA	2377	G
1	BA	2378	A
1	BA	2396	G
1	BA	2420	U
1	BA	2438	G
1	BA	2443	A
1	BA	2444	A
1	BA	2446	A
1	BA	2452	C
1	BA	2459	A
1	BA	2464	U
1	BA	2479	A
1	BA	2485	A
1	BA	2487	A
1	BA	2489	A
1	BA	2509	C
1	BA	2513	G
1	BA	2517	U
1	BA	2529	A
1	BA	2540	G
1	BA	2565	U
1	BA	2577	A

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Mol	Chain	Res	Type
1	BA	2578	G
1	BA	2584	C
1	BA	2589	G
1	BA	2593	G
1	BA	2610	G
1	BA	2613	A
1	BA	2614	G
1	BA	2620	U
1	BA	2621	U
1	BA	2632	A
1	BA	2636	G
1	BA	2641	C
1	BA	2642	G
1	BA	2651	G
1	BA	2656	A
1	BA	2657	G
1	BA	2677	A
1	BA	2701	U
1	BA	2702	A
1	BA	2724	G
1	BA	2736	C
1	BA	2742	C
1	BA	2743	A
1	BA	2757	A
1	BA	2773	A
1	BA	2774	A
1	BA	2785	A
1	BA	2786	A
1	BA	2787	A
1	BA	2799	U
1	BA	2811	U
1	BA	2850	G
1	BA	2853	A
1	BA	2864	C
1	BA	2870	G
1	BA	2877	C
1	BA	2883	A
1	BA	2889	U
1	BA	2890	C
1	BA	2892	U
1	BA	2893	U
1	BA	2894	U

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Mol	Chain	Res	Type
1	BA	2895	C
1	BA	2897	C
2	BB	10	G
2	BB	25	G
2	BB	26	C
2	BB	36	A
2	BB	42	C
2	BB	46	A
2	BB	57	U
2	BB	58	A
2	BB	69	C
2	BB	80	G
2	BB	98	C
2	BB	110	U
2	BB	115	C
2	BB	116	G
2	BB	125	C
2	BB	128	A

All (11) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	BA	817	U
1	BA	826	U
1	BA	869	U
1	BA	1117	A
1	BA	1160	A
1	BA	1224	U
1	BA	1712	U
1	BA	1856	C
1	BA	1984	U
1	BA	2172	U
1	BA	2463	U

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

5 non-standard protein/DNA/RNA residues are modelled in this entry.

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

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
1	OMG	BA	2564	1	19,26,27	1.20	3 (15%)	21,38,41	1.41	3 (14%)
1	G7M	BA	2251	1	20,26,27	2.37	4 (20%)	16,39,42	0.72	0
1	G7M	BA	2615	1	20,26,27	2.37	4 (20%)	16,39,42	0.89	0
1	OMG	BA	2260	1,34	19,26,27	1.09	2 (10%)	21,38,41	1.48	3 (14%)
1	OMU	BA	2563	1	19,22,23	0.55	0	25,31,34	1.36	6 (24%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	OMG	BA	2564	1	-	0/5/27/28	0/3/3/3
1	G7M	BA	2251	1	-	1/3/25/26	0/3/3/3
1	G7M	BA	2615	1	-	0/3/25/26	0/3/3/3
1	OMG	BA	2260	1,34	-	3/5/27/28	0/3/3/3
1	OMU	BA	2563	1	-	0/9/27/28	0/2/2/2

All (13) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	BA	2615	G7M	O6-C6	8.19	1.42	1.23
1	BA	2251	G7M	O6-C6	7.85	1.41	1.23
1	BA	2615	G7M	C2-N2	4.83	1.45	1.34
1	BA	2251	G7M	C2-N2	4.77	1.45	1.34
1	BA	2251	G7M	C6-N1	-3.57	1.32	1.37
1	BA	2564	OMG	C2-N2	3.10	1.41	1.34
1	BA	2615	G7M	C6-N1	-3.10	1.33	1.37
1	BA	2564	OMG	C5-C6	-3.02	1.41	1.47
1	BA	2260	OMG	C5-C6	-2.99	1.41	1.47
1	BA	2260	OMG	C2-N2	2.69	1.40	1.34
1	BA	2251	G7M	C5-C6	-2.43	1.39	1.45
1	BA	2564	OMG	C6-N1	2.29	1.41	1.37
1	BA	2615	G7M	C5-C6	-2.02	1.40	1.45

All (12) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	BA	2260	OMG	O6-C6-C5	3.97	132.19	124.32
1	BA	2564	OMG	O6-C6-C5	3.78	131.81	124.32
1	BA	2260	OMG	O6-C6-N1	-3.58	116.38	120.62
1	BA	2564	OMG	O6-C6-N1	-3.39	116.59	120.62
1	BA	2563	OMU	C4-N3-C2	-2.76	123.19	126.61
1	BA	2563	OMU	O4-C4-N3	-2.70	115.36	119.27
1	BA	2563	OMU	CM2-O2'-C2'	-2.56	107.89	114.47
1	BA	2260	OMG	N1-C2-N3	2.47	127.84	123.32
1	BA	2564	OMG	N1-C2-N3	2.35	127.62	123.32
1	BA	2563	OMU	C6-C5-C4	2.16	122.29	119.53
1	BA	2563	OMU	N3-C2-N1	2.08	117.60	114.89
1	BA	2563	OMU	O4-C4-C5	2.05	128.70	125.16

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	BA	2260	OMG	O4'-C4'-C5'-O5'
1	BA	2260	OMG	C1'-C2'-O2'-CM2
1	BA	2260	OMG	C3'-C4'-C5'-O5'
1	BA	2251	G7M	C4'-C5'-O5'-P

There are no ring outliers.

4 monomers are involved in 12 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	BA	2564	OMG	1	0
1	BA	2251	G7M	8	0
1	BA	2615	G7M	2	0
1	BA	2260	OMG	1	0

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 59 ligands modelled in this entry, 59 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 (i)

There are no chain breaks in this entry.

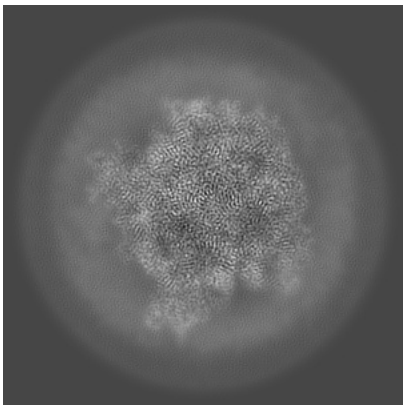
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-49757. These allow visual inspection of the internal detail of the map and identification of artifacts.

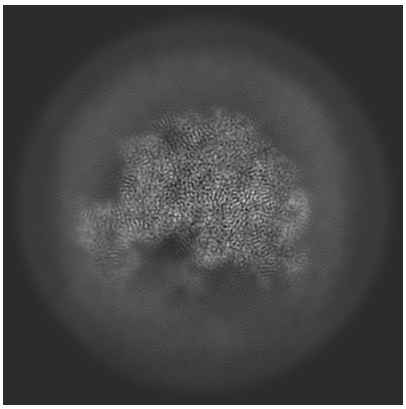
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

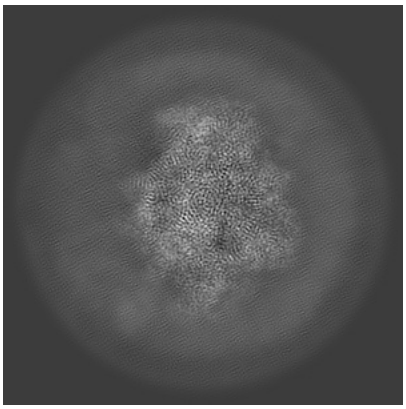
6.1.1 Primary map



X

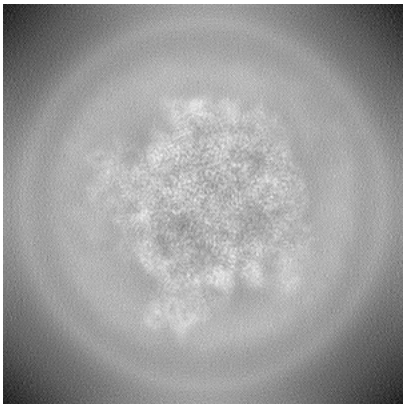


Y

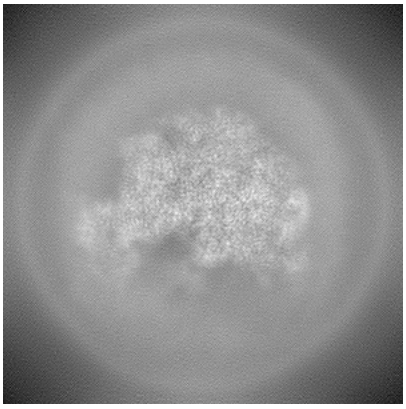


Z

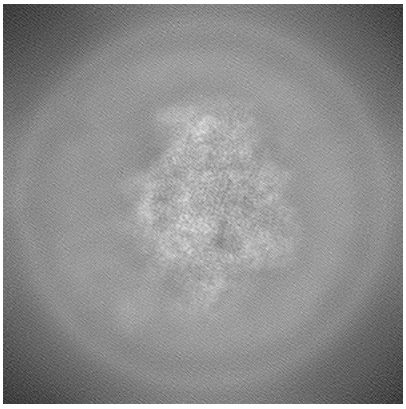
6.1.2 Raw map



X



Y

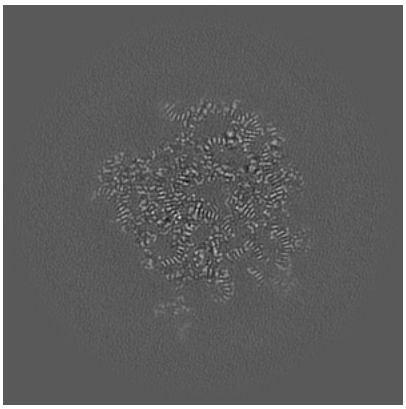


Z

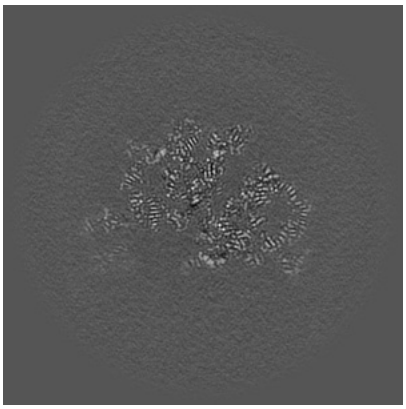
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

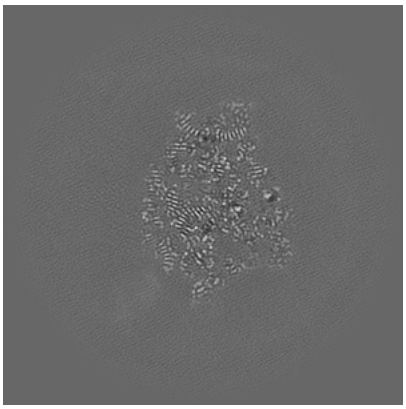
6.2.1 Primary map



X Index: 240

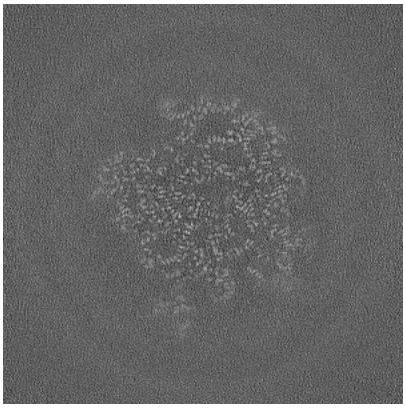


Y Index: 240



Z Index: 240

6.2.2 Raw map



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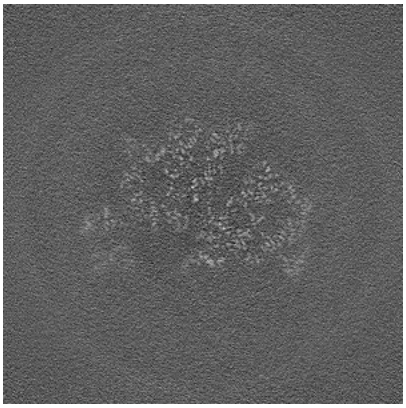
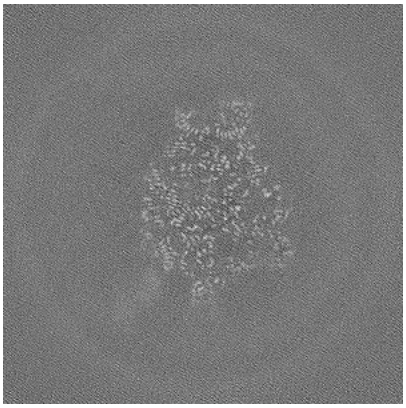


Y Index: 240

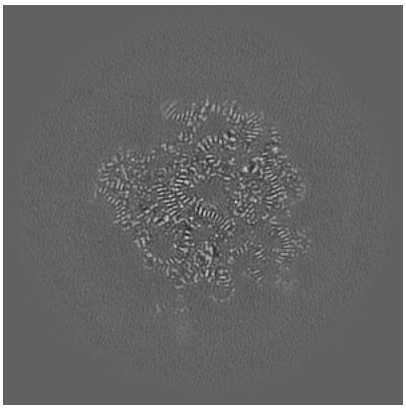


Z Index: 240

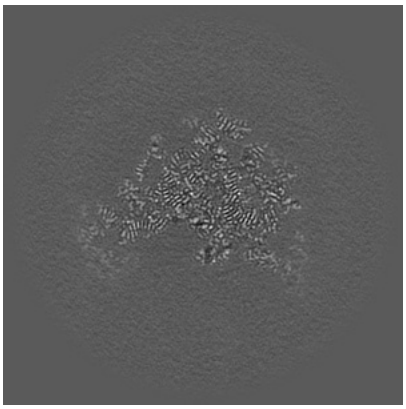
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

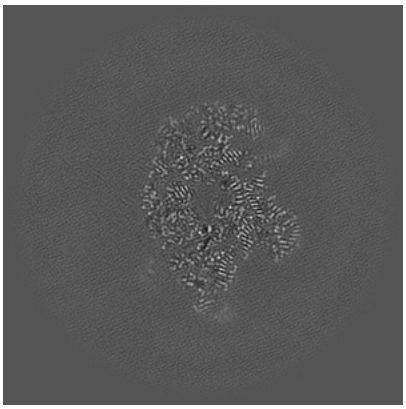
6.3.1 Primary map



X Index: 242

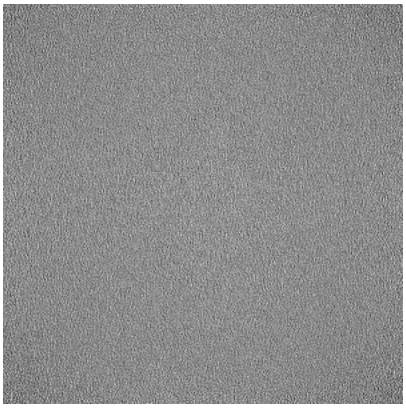


Y Index: 223

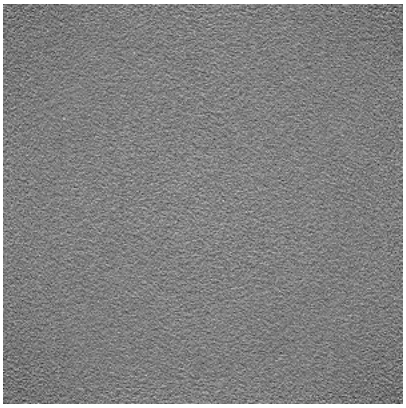


Z Index: 256

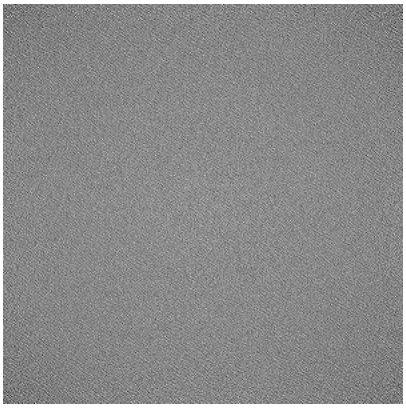
6.3.2 Raw map



X Index: 0



Y Index: 0

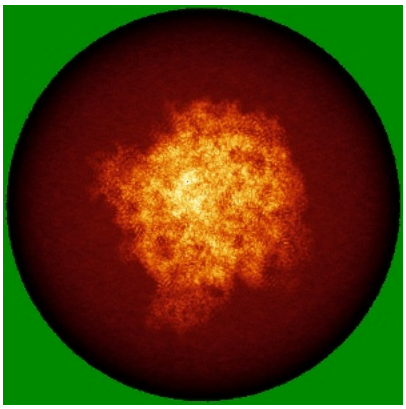


Z Index: 0

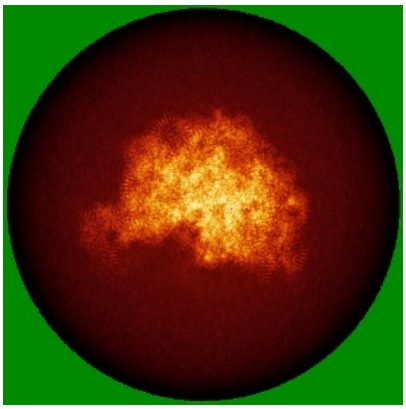
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

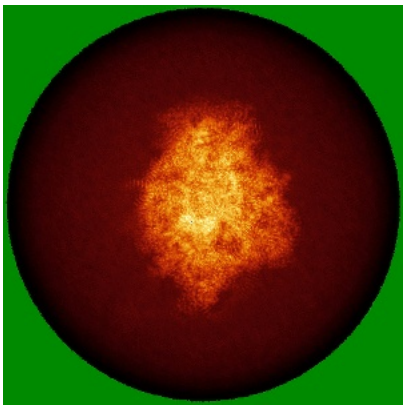
6.4.1 Primary map



X

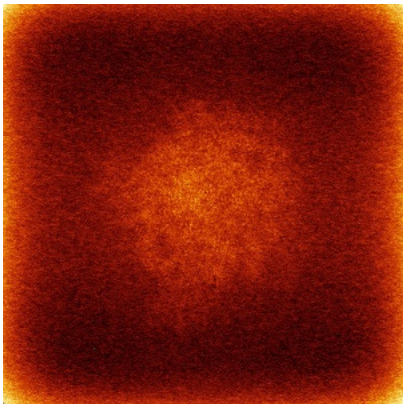


Y

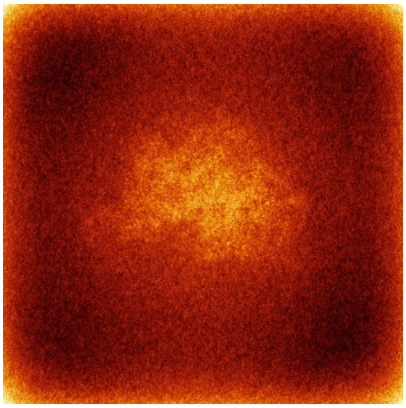


Z

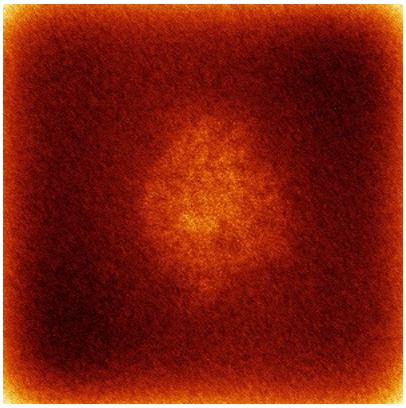
6.4.2 Raw map



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.

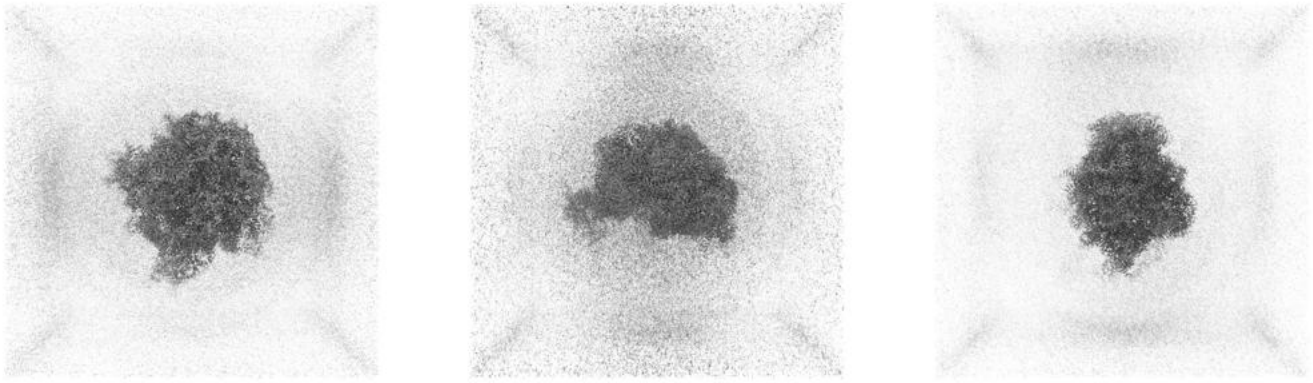
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.066. 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.

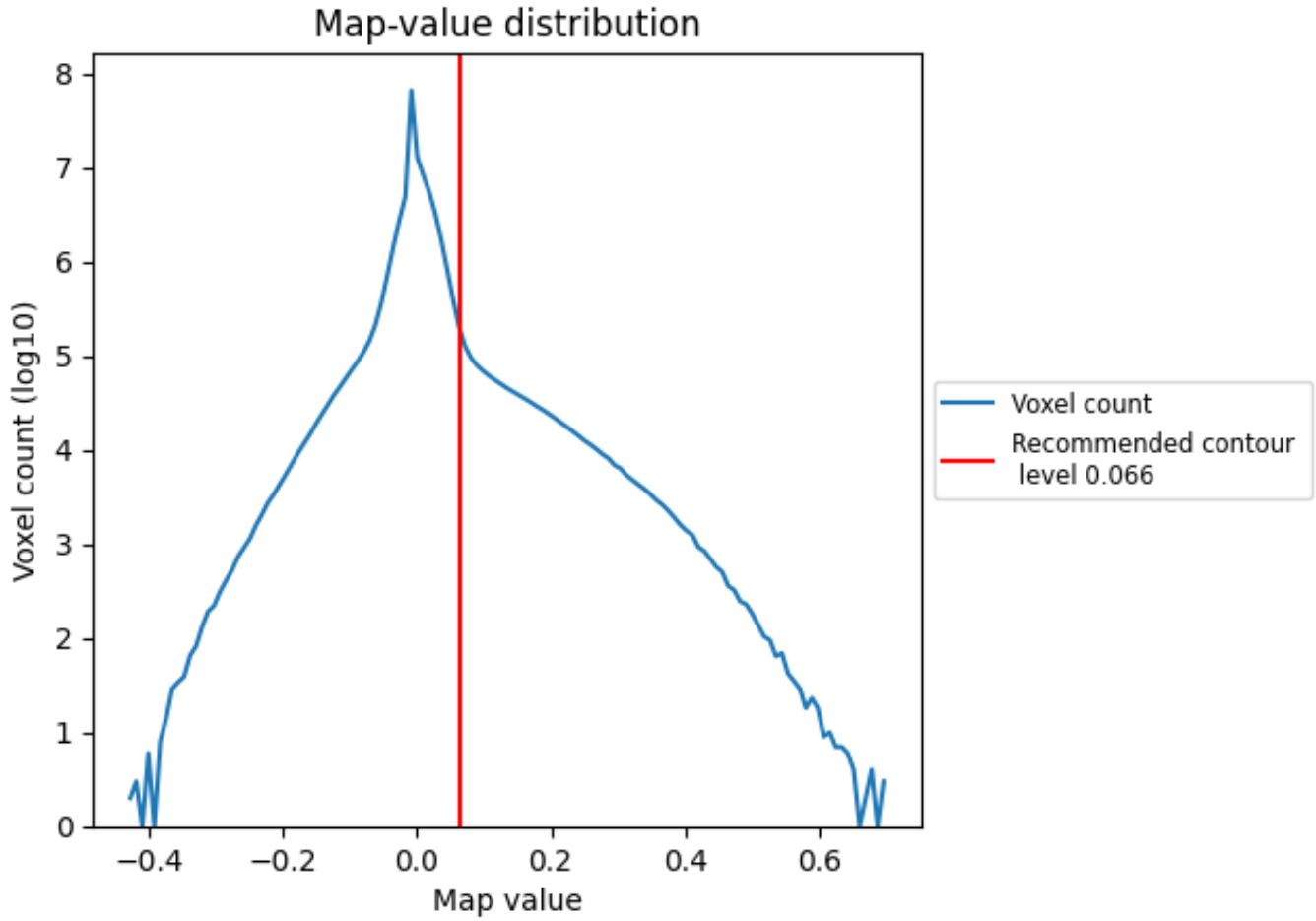
6.6 Mask visualisation (i)

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

7 Map analysis

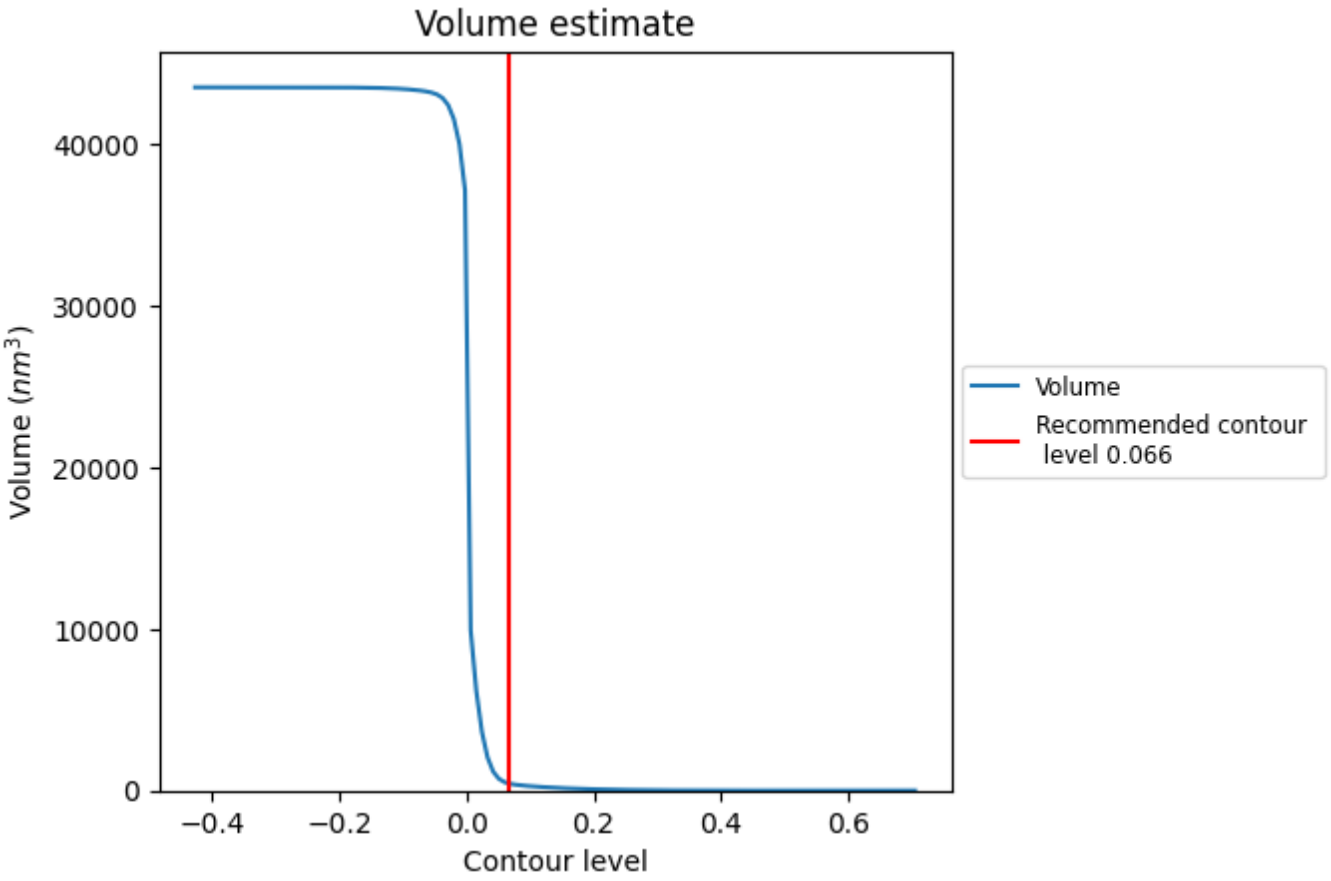
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

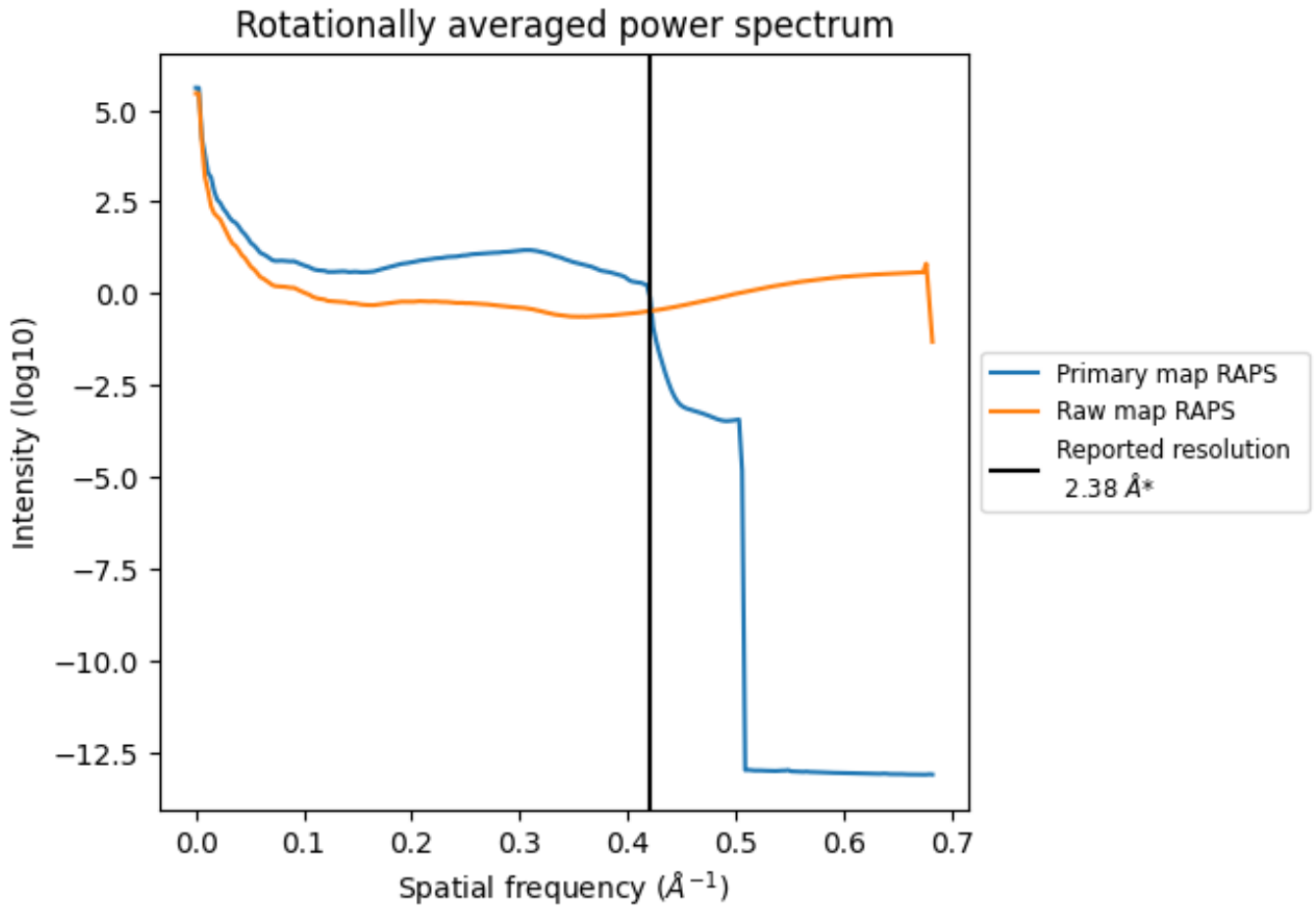
7.2 Volume estimate



The volume at the recommended contour level is 449 nm^3; this corresponds to an approximate mass of 406 kDa.

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

7.3 Rotationally averaged power spectrum (i)

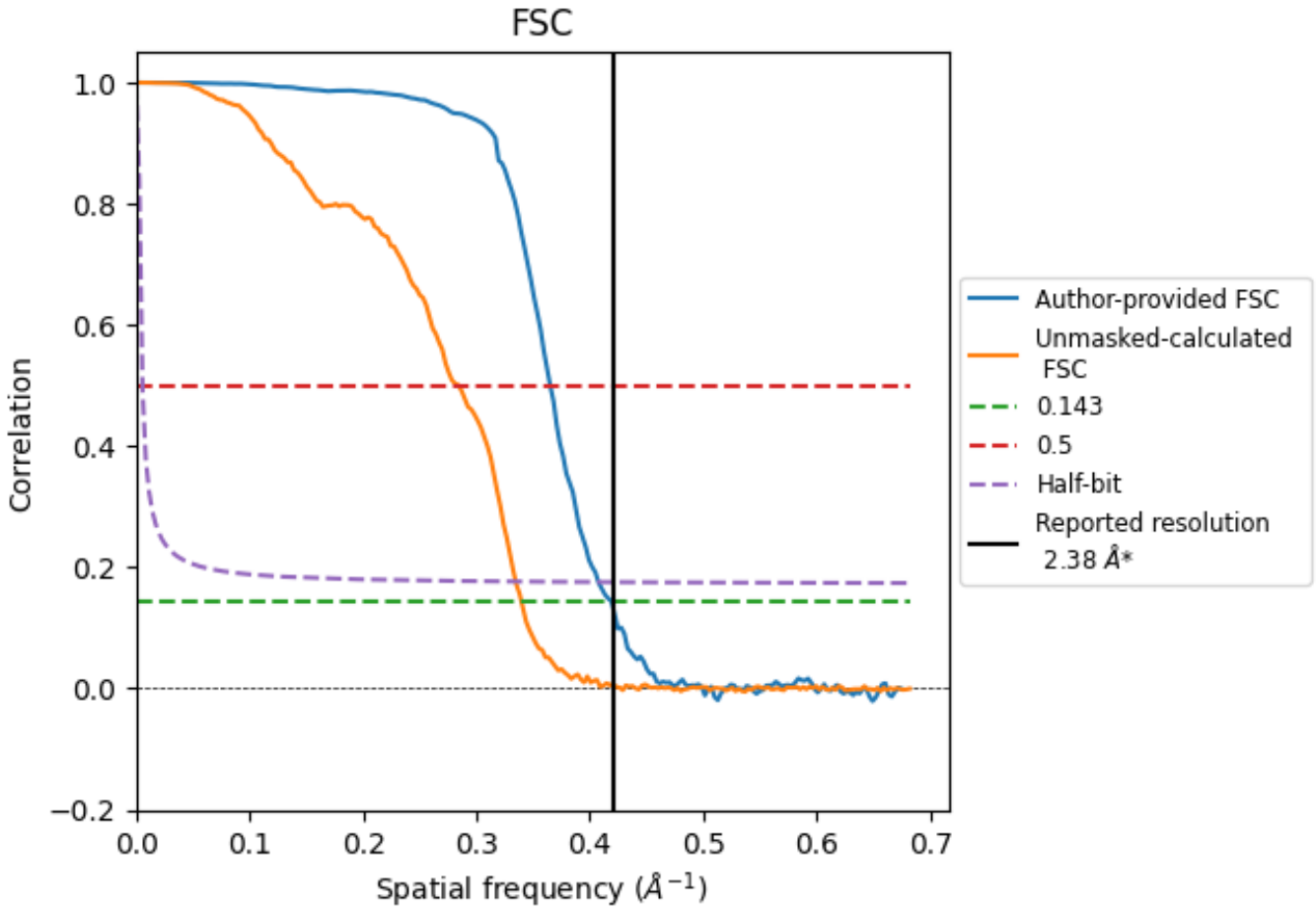


*Reported resolution corresponds to spatial frequency of 0.420 $Å^{-1}$

8 Fourier-Shell correlation

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



*Reported resolution corresponds to spatial frequency of 0.420 Å^{-1}

8.2 Resolution estimates (i)

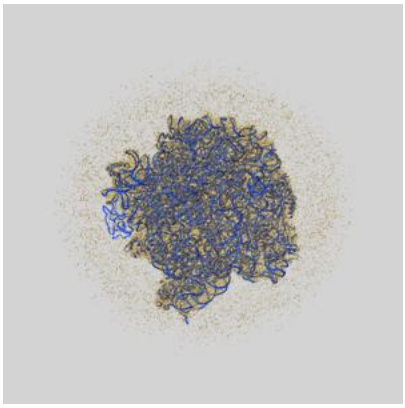
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.38	-	-
Author-provided FSC curve	2.38	2.74	2.45
Unmasked-calculated*	2.94	3.51	2.99

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 2.94 differs from the reported value 2.38 by more than 10 %

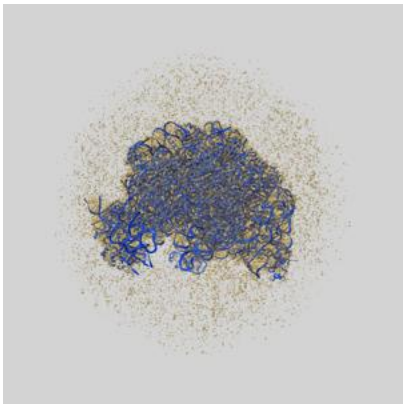
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-49757 and PDB model 9NTA. Per-residue inclusion information can be found in section 3 on page 10.

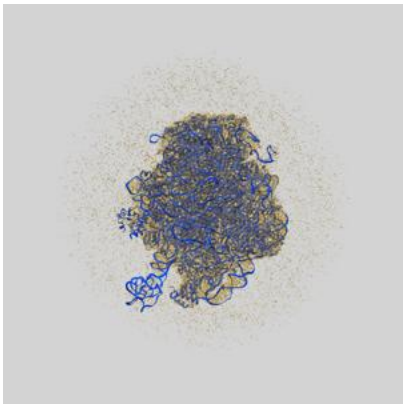
9.1 Map-model overlay



X



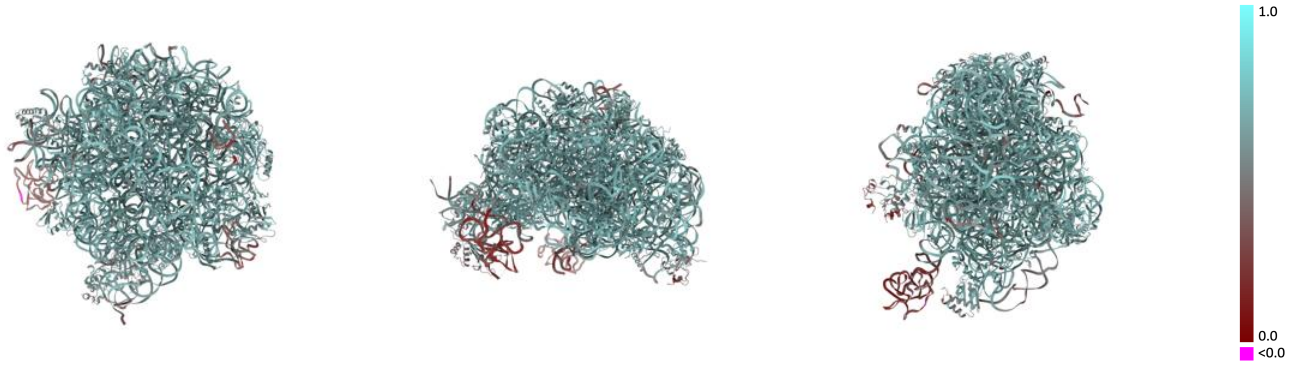
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.066 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.

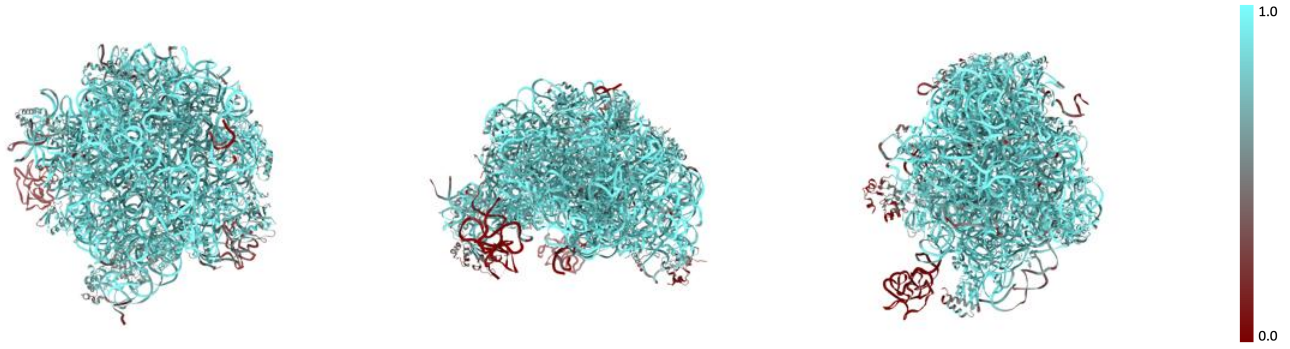
9.2 Q-score mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according 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.

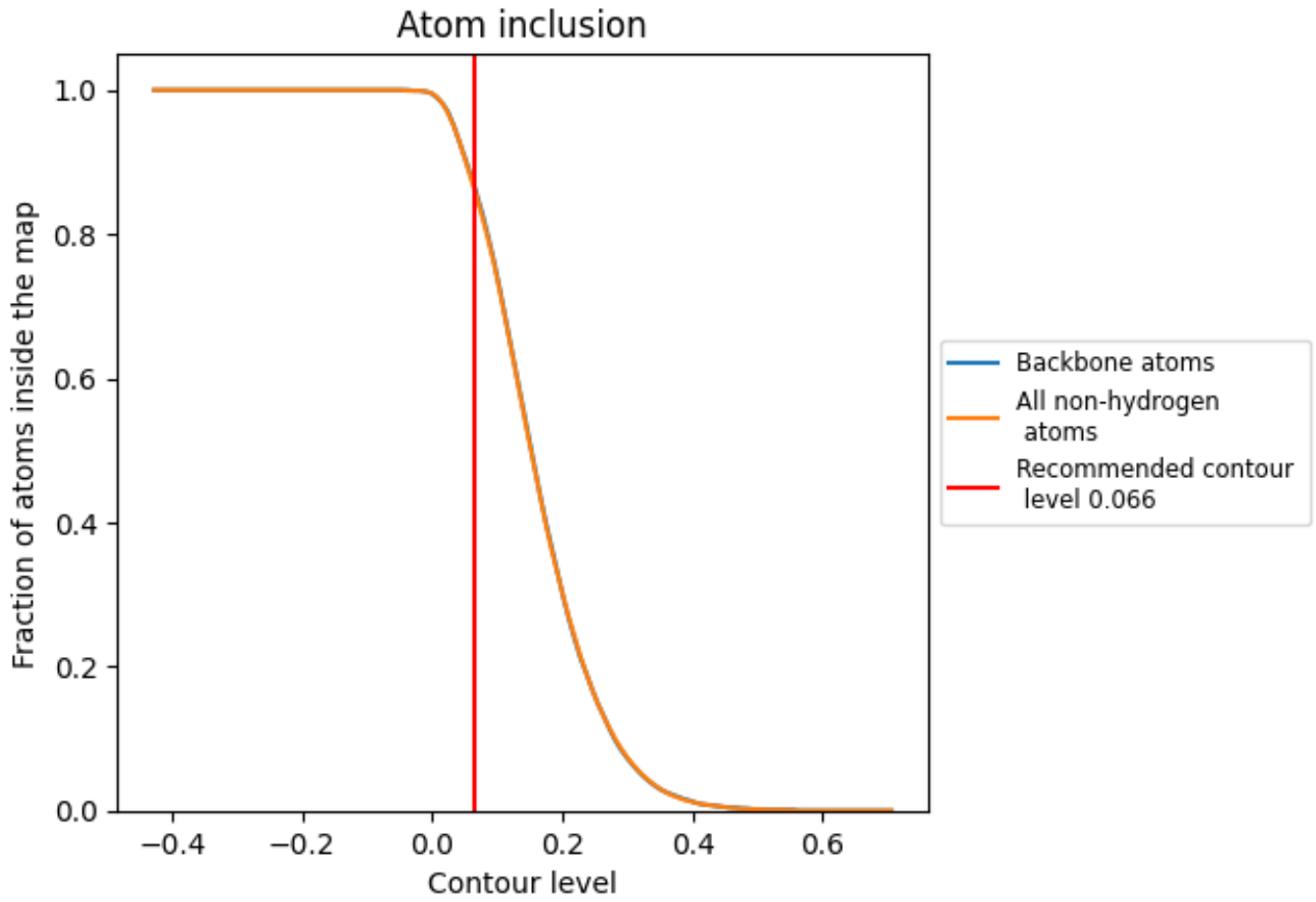
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

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 (0.066).

9.4 Atom inclusion (i)



At the recommended contour level, 86% of all backbone atoms, 86% 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 (0.066) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8600	0.6330
BA	0.8790	0.6320
BB	0.8610	0.6110
BC	0.9060	0.6700
BD	0.8970	0.6630
BE	0.8890	0.6640
BF	0.4430	0.4660
BG	0.7210	0.6030
BH	0.7040	0.5840
BI	0.8590	0.6510
BJ	0.8980	0.6650
BK	0.8630	0.6600
BL	0.8420	0.6470
BM	0.9360	0.6810
BN	0.7660	0.5900
BO	0.8710	0.6520
BP	0.8440	0.6360
BQ	0.7530	0.6220
BR	0.9220	0.6720
BS	0.8710	0.6560
BT	0.8570	0.6560
BU	0.8600	0.6380
BV	0.7930	0.6380
BW	0.7340	0.6020
BX	0.8720	0.6590
BY	0.3280	0.4350
BZ	0.8550	0.6490
Ba	0.8820	0.6590
Bb	0.7590	0.6070
Bc	0.9440	0.6810
Bd	0.8930	0.6560
Be	0.7670	0.6360
Bf	0.8790	0.6580