Full wwPDB EM Validation Report ⓘ

Feb 13, 2024 – 11:29 AM EST

PDB ID	:	7TOS
EMDB ID	:	EMD-26037
Title	:	E. coli 70S ribosomes bound with the ALS/FTD-associated dipeptide repeat protein PR20
Authors	:	Loveland, A.B.; Svidritskiy, E.; Susorov, D.; Lee, S.; Park, A.; Zvornicanin, S.; Demo, G.; Gao, F.B.; Korostelev, A.A.
Deposited on	:	2022-01-24
Resolution	:	2.90 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

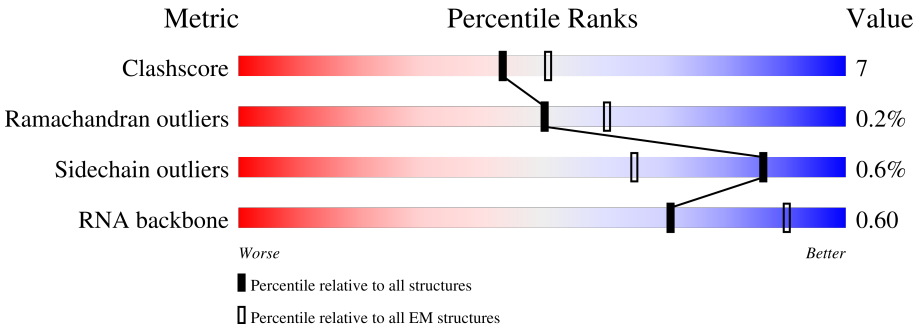
EMDB validation analysis	:	0.0.1.dev70
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance

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

The reported resolution of this entry is 2.90 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	L02	271	79% 21%
2	L03	209	91% 9%
3	L04	201	79% 21%
4	L05	177	86% 14%
5	L06	176	85% 15%
6	L09	149	64% 86% 14%
7	L10	131	52% 69% 29%

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Mol	Chain	Length	Quality of chain
8	L11	141	21% 84% 16%
9	L13	142	82% 18%
10	L14	122	83% 17%
11	L15	143	78% 22%
12	L16	136	83% 17%
13	L17	120	85% 15%
14	L18	116	85% 15%
15	L19	114	82% 18%
16	L20	117	91% 9%
17	L21	103	78% 22%
18	L22	110	84% 16%
19	L23	93	89% 11%
20	L24	102	79% 21%
21	L25	94	83% 17%
22	L27	75	92% 8%
23	L28	77	91% 9%
24	L29	63	78% 21%
25	L30	58	88% 12%
26	L31	66	5% 91% 9%
27	L32	56	89% 11%
28	L33	50	16% 78% 22%
29	L34	46	74% 26%
30	L35	64	80% 17%
31	L36	38	79% 21%
32	S02	225	79% 21%

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Mol	Chain	Length	Quality of chain
33	S03	206	80% 20%
34	S04	205	76% 24%
35	S05	157	81% 18%
36	S06	100	80% 19%
37	S07	151	81% 19%
38	S08	129	85% 15%
39	S09	127	75% 24%
40	S10	98	9% 86% 14%
41	S11	116	72% 28%
42	S12	123	79% 21%
43	S13	114	89% 11%
44	S14	100	78% 22%
45	S15	88	94% 6%
46	S16	82	73% 27%
47	S17	80	80% 20%
48	S18	65	80% 20%
49	S19	79	75% 25%
50	S20	85	86% 14%
51	S21	65	68% 29%
52	L1	223	29% 46% 14% 40%
53	16S	1539	59% 37%
54	23S	2903	60% 36%
55	5S	120	54% 42%
56	PR	40	15% 20% 62%

2 Entry composition (i)

There are 56 unique types of molecules in this entry. The entry contains 145427 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
1	L02	271	Total	C	N	O	S	0	0
			2083	1288	423	365	7		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
2	L03	209	Total	C	N	O	S	0	0
			1565	979	288	294	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
3	L04	201	Total	C	N	O	S	0	0
			1552	974	283	290	5		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
4	L05	177	Total	C	N	O	S	0	0
			1411	899	249	257	6		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
5	L06	176	Total	C	N	O	S	0	0
			1323	832	243	246	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
6	L09	149	Total	C	N	O	S	0	0
			1111	699	197	214	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
7	L10	131	Total	C	N	O	S	0	0
			989	625	175	184	5		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
8	L11	141	Total	C	N	O	S	0	0
			1032	651	179	196	6		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
9	L13	142	Total	C	N	O	S	0	0
			1129	714	212	199	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
10	L14	122	Total	C	N	O	S	0	0
			939	587	180	166	6		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
11	L15	143	Total	C	N	O	S	0	0
			1045	649	206	189	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
12	L16	136	Total	C	N	O	S	0	0
			1074	686	205	177	6		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
13	L17	120	Total	C	N	O	S	0	0
			961	593	196	167	5		

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

Mol	Chain	Residues	Atoms				AltConf	Trace
14	L18	116	Total 892	C 552	N 178	O 162	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
15	L19	114	Total 917	C 574	N 179	O 163	S 1	0	0

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

Mol	Chain	Residues	Atoms				AltConf	Trace
16	L20	117	Total 947	C 604	N 192	O 151	0	0

- Molecule 17 is a protein called Ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	L21	103	Total 816	C 516	N 153	O 145	S 2	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
18	L22	110	Total 857	C 532	N 166	O 156	S 3	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
19	L23	93	Total 739	C 466	N 139	O 132	S 2	0	0

- Molecule 20 is a protein called Ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	L24	102	Total 780	C 492	N 146	O 142	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
21	L25	94	Total	C	N	O	S	0	0
			753	479	137	134	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
22	L27	75	Total	C	N	O	S	0	0
			575	356	116	102	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
23	L28	77	Total	C	N	O	S	0	0
			625	388	129	106	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
24	L29	63	Total	C	N	O	S	0	0
			509	313	99	95	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
25	L30	58	Total	C	N	O	S	0	0
			449	281	87	79	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
26	L31	66	Total	C	N	O	S	0	0
			523	323	99	95	6		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
27	L32	56	Total	C	N	O	S	0	0
			444	269	94	80	1		

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

Mol	Chain	Residues	Atoms				AltConf	Trace
28	L33	50	Total	C	N	O	0	0
			410	263	75	72		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
29	L34	46	Total	C	N	O	S	0	0
			377	228	90	57	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
30	L35	64	Total	C	N	O	S	0	0
			504	323	105	74	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
31	L36	38	Total	C	N	O	S	0	0
			302	185	65	48	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
32	S02	225	Total	C	N	O	S	0	0
			1757	1111	315	323	8		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
33	S03	206	Total	C	N	O	S	0	0
			1625	1028	305	289	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
34	S04	205	Total	C	N	O	S	0	0
			1643	1026	315	298	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
35	S05	157	Total	C	N	O	S	0	0
			1157	719	218	214	6		

- Molecule 36 is a protein called 30S ribosomal protein S6, non-modified isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	S06	100	Total	C	N	O	S	0	0
			818	515	148	149	6		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
37	S07	151	Total	C	N	O	S	0	0
			1182	735	227	216	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
38	S08	129	Total	C	N	O	S	0	0
			979	616	173	184	6		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
39	S09	127	Total	C	N	O	S	0	0
			1022	634	206	179	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
40	S10	98	Total	C	N	O	S	0	0
			787	493	150	143	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
41	S11	116	Total	C	N	O	S	0	0
			869	534	173	159	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
42	S12	123	Total 955	C 590	N 196	O 165	S 4	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
43	S13	114	Total 884	C 546	N 178	O 157	S 3	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
44	S14	100	Total 805	C 499	N 164	O 139	S 3	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
45	S15	88	Total 714	C 439	N 144	O 130	S 1	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
46	S16	82	Total 649	C 406	N 128	O 114	S 1	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
47	S17	80	Total 649	C 411	N 121	O 114	S 3	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
48	S18	65	Total 536	C 339	N 100	O 96	S 1	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
49	S19	79	Total	C	N	O	S	0	0
			638	408	120	108	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
50	S20	85	Total	C	N	O	S	0	0
			665	411	137	114	3		

- Molecule 51 is a protein called Ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	S21	65	Total	C	N	O	S	0	0
			545	335	117	92	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
52	L1	134	Total	C	N	O	S	0	0
			1027	645	186	194	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
53	16S	1532	Total	C	N	O	P	0	0
			32870	14661	6031	10647	1531		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
54	23S	2903	Total	C	N	O	P	0	0
			62317	27801	11468	20146	2902		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
23S	747	C	U	variant	GB 1036415628

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

Mol	Chain	Residues	Atoms					AltConf	Trace
55	5S	120	Total	C	N	O	P	0	0
			2568	1145	471	833	119		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
5S	120	A	-	insertion	GB 1370526515

- Molecule 56 is a protein called PR20, ALS/FTD dipeptide repeat protein.

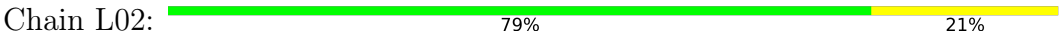
Mol	Chain	Residues	Atoms				AltConf	Trace
56	PR	15	Total	C	N	O	0	0
			133	82	36	15		

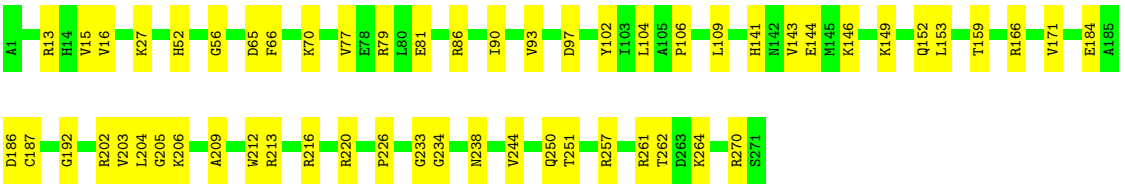
3 Residue-property plots (i)

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: 50S ribosomal protein L2

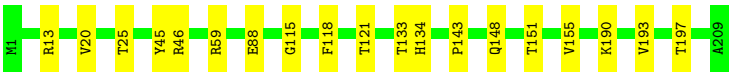
Chain L02:





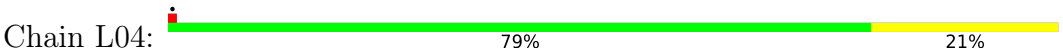
• Molecule 2: 50S ribosomal protein L3

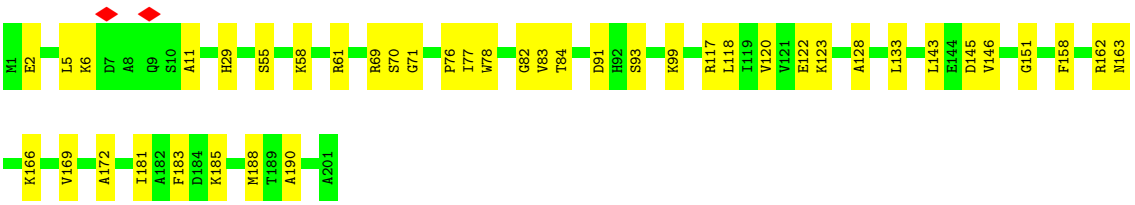
Chain L03:



• Molecule 3: 50S ribosomal protein L4

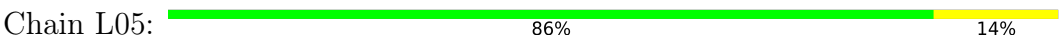
Chain L04:





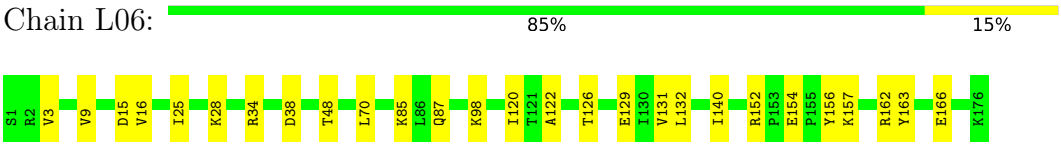
• Molecule 4: 50S ribosomal protein L5

Chain L05:



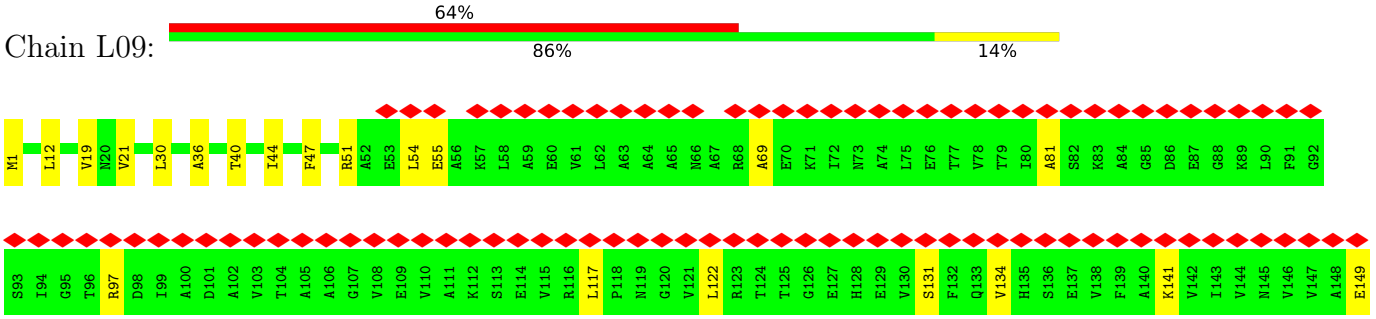
• Molecule 5: 50S ribosomal protein L6

Chain L06:



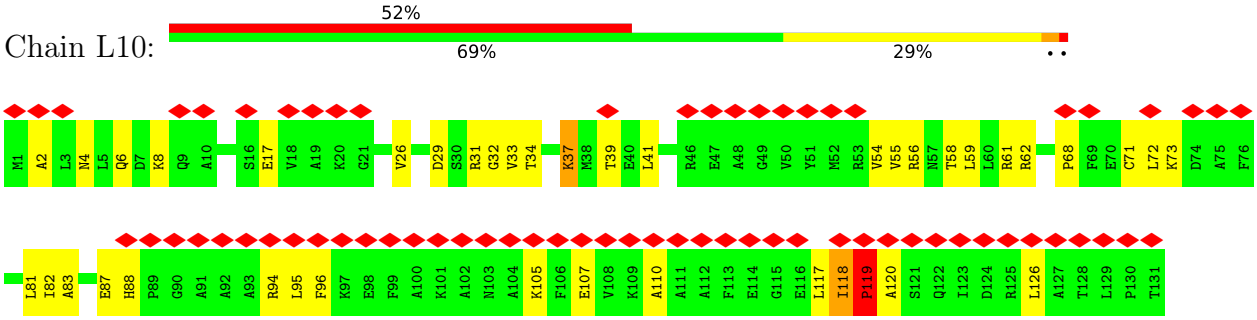
• Molecule 6: 50S ribosomal protein L9

Chain L09:



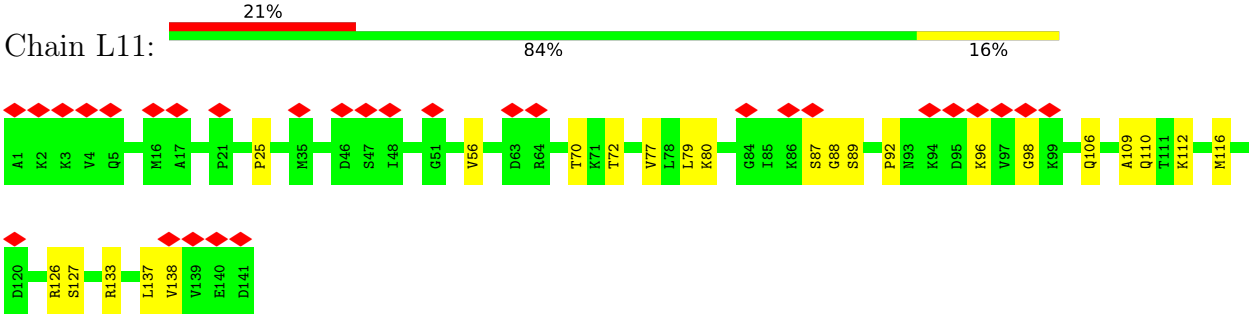
• Molecule 7: 50S ribosomal protein L10

Chain L10:



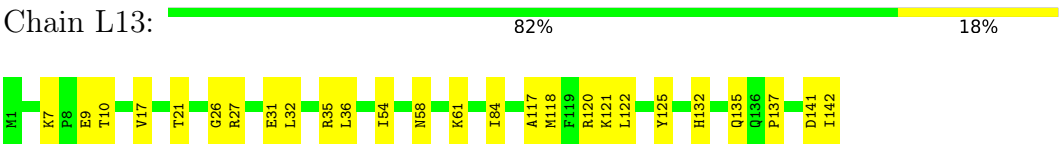
• Molecule 8: 50S ribosomal protein L11

Chain L11:



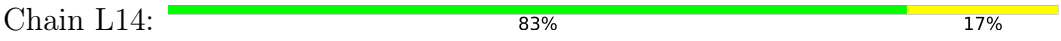
• Molecule 9: 50S ribosomal protein L13

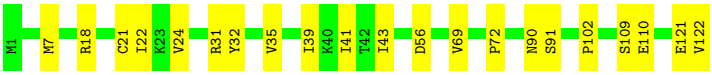
Chain L13:



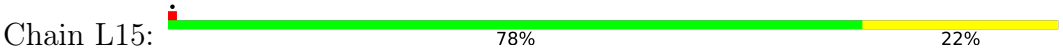
• Molecule 10: 50S ribosomal protein L14

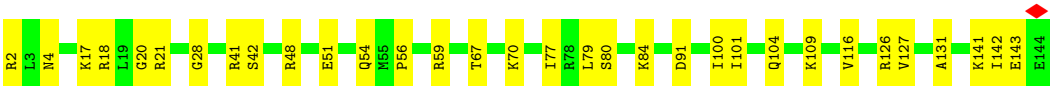
Chain L14:



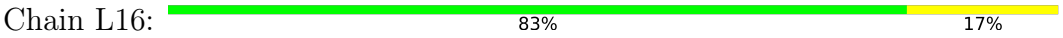


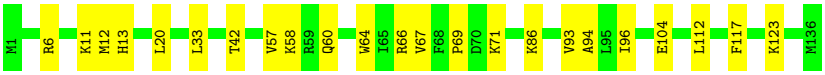
• Molecule 11: 50S ribosomal protein L15



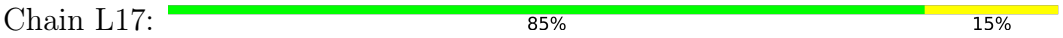


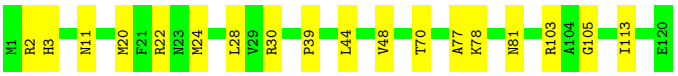
• Molecule 12: 50S ribosomal protein L16



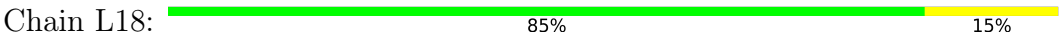


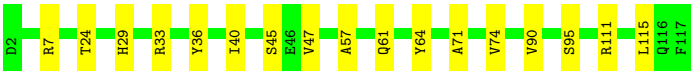
• Molecule 13: 50S ribosomal protein L17



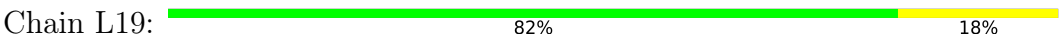


• Molecule 14: 50S ribosomal protein L18

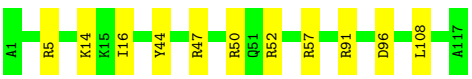




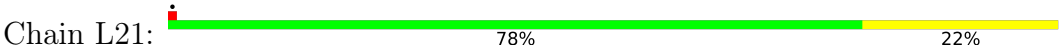
• Molecule 15: 50S ribosomal protein L19

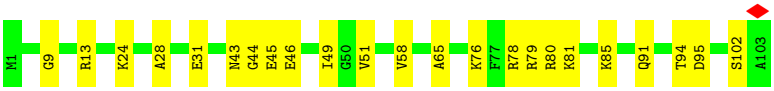


• Molecule 16: 50S ribosomal protein L20



• Molecule 17: Ribosomal protein L21



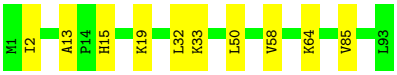


• Molecule 18: 50S ribosomal protein L22

Chain L22:

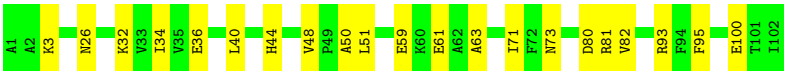
• Molecule 19: 50S ribosomal protein L23

Chain L23:



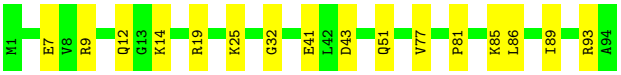
• Molecule 20: Ribosomal protein L24

Chain L24:



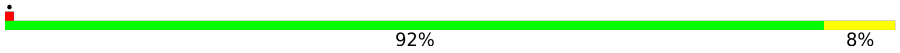
• Molecule 21: 50S ribosomal protein L25

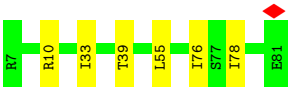
Chain L25:



• Molecule 22: 50S ribosomal protein L27

Chain L27:



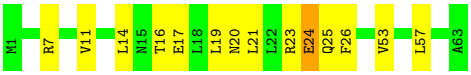


• Molecule 23: 50S ribosomal protein L28

Chain L28:

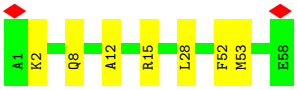
• Molecule 24: 50S ribosomal protein L29

Chain L29:



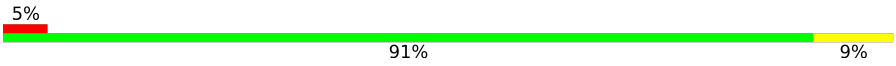
• Molecule 25: 50S ribosomal protein L30

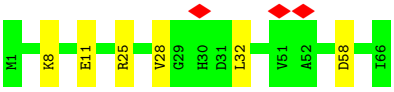
Chain L30:



• Molecule 26: 50S ribosomal protein L31

Chain L31:



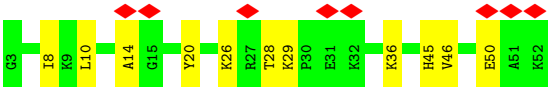


• Molecule 27: 50S ribosomal protein L32

Chain L32:

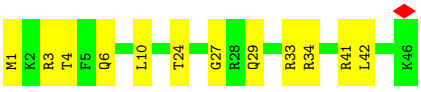
• Molecule 28: 50S ribosomal protein L33

Chain L33:



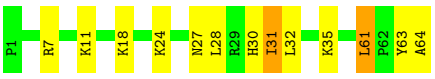
• Molecule 29: 50S ribosomal protein L34

Chain L34:



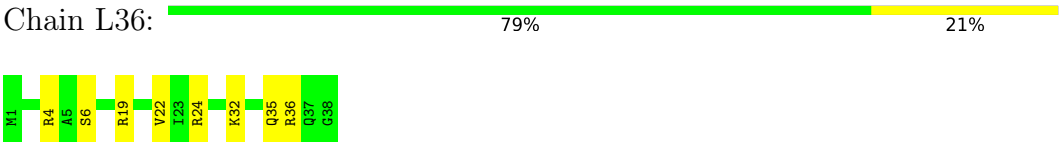
• Molecule 30: 50S ribosomal protein L35

Chain L35:



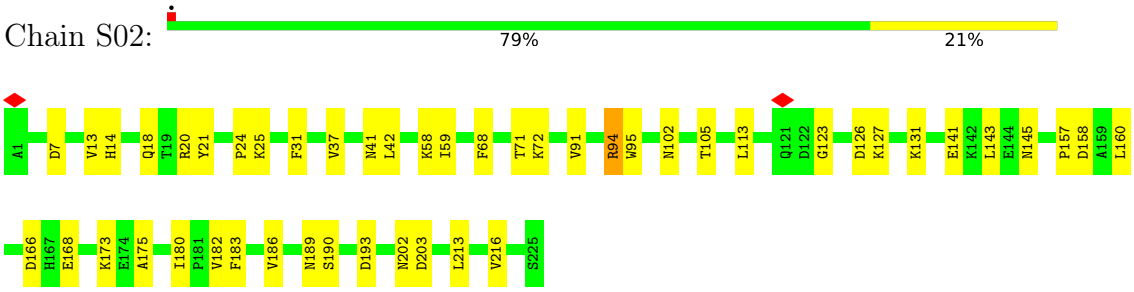
• Molecule 31: 50S ribosomal protein L36

Chain L36:



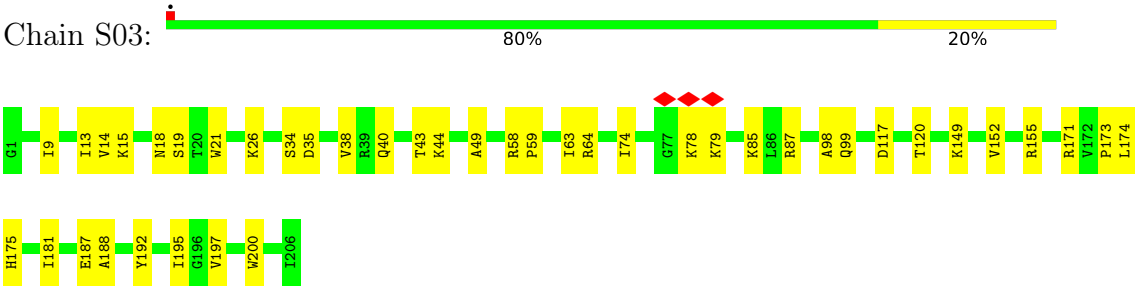
• Molecule 32: 30S ribosomal protein S2

Chain S02:



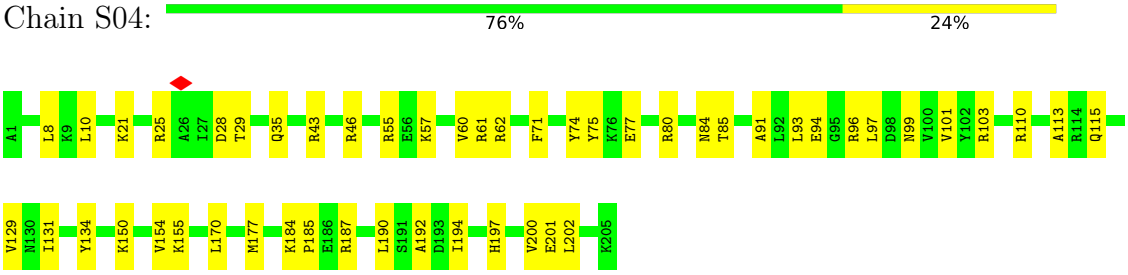
• Molecule 33: 30S ribosomal protein S3

Chain S03:



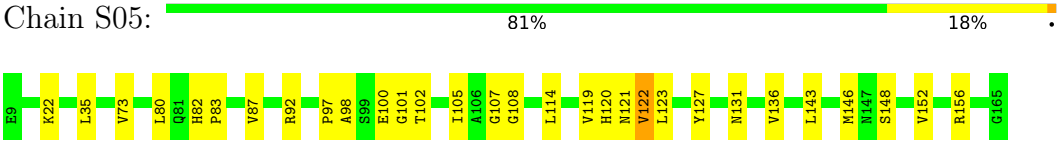
• Molecule 34: 30S ribosomal protein S4

Chain S04:



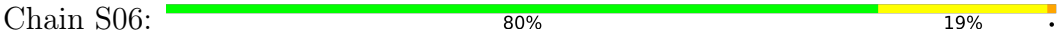
• Molecule 35: 30S ribosomal protein S5

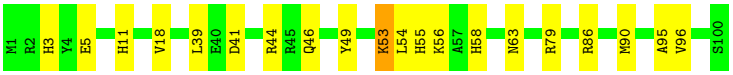
Chain S05:



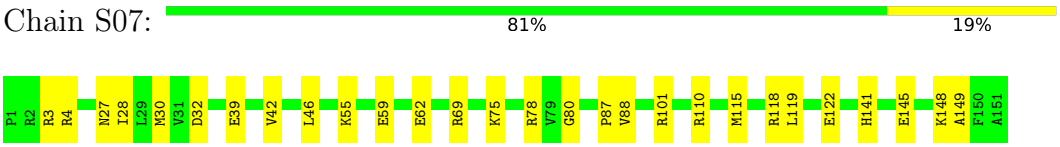
• Molecule 36: 30S ribosomal protein S6, non-modified isoform

Chain S06:

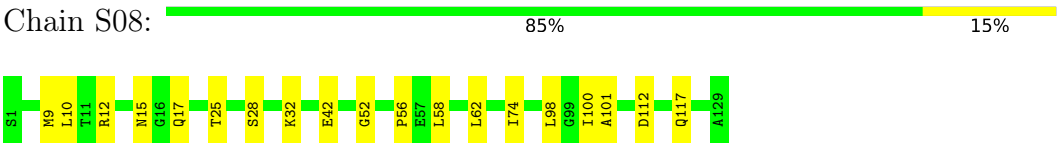




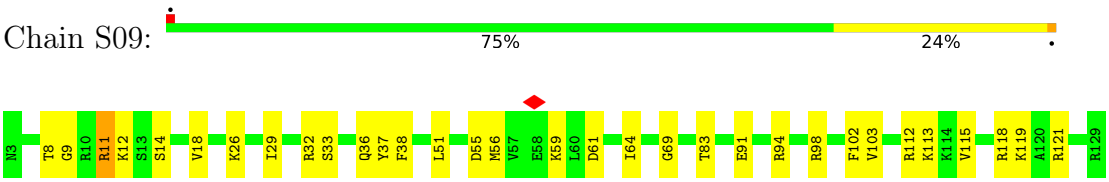
• Molecule 37: 30S ribosomal protein S7



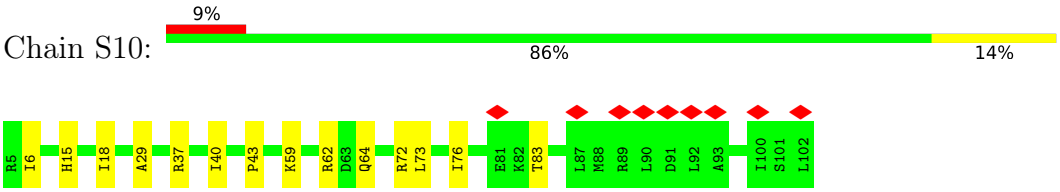
• Molecule 38: 30S ribosomal protein S8



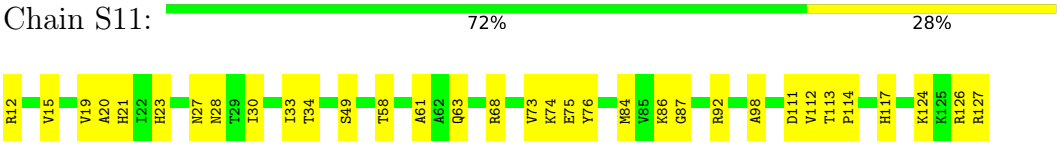
• Molecule 39: 30S ribosomal protein S9



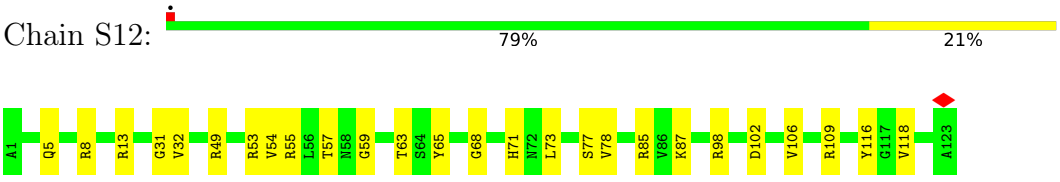
• Molecule 40: 30S ribosomal protein S10



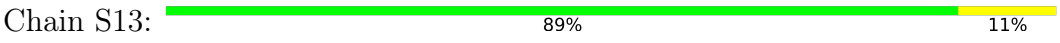
• Molecule 41: 30S ribosomal protein S11



• Molecule 42: 30S ribosomal protein S12

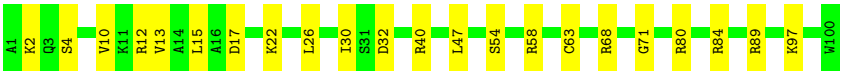


• Molecule 43: 30S ribosomal protein S13



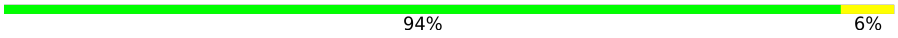
• Molecule 44: 30S ribosomal protein S14

Chain S14:



• Molecule 45: 30S ribosomal protein S15

Chain S15:



• Molecule 46: 30S ribosomal protein S16

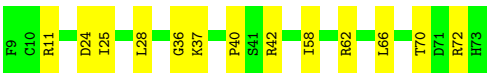
Chain S16:

• Molecule 47: 30S ribosomal protein S17

Chain S17:

• Molecule 48: 30S ribosomal protein S18

Chain S18:

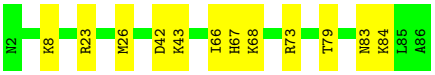


• Molecule 49: 30S ribosomal protein S19

Chain S19:

• Molecule 50: 30S ribosomal protein S20

Chain S20:

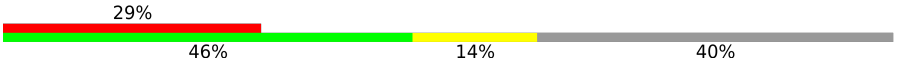


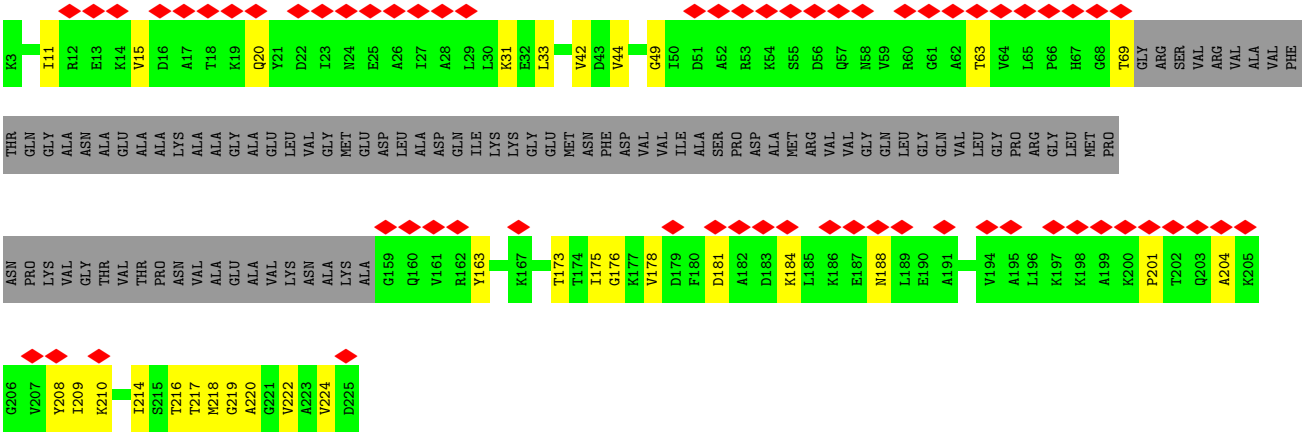
• Molecule 51: Ribosomal protein S21

Chain S21:

• Molecule 52: 50S ribosomal protein L1

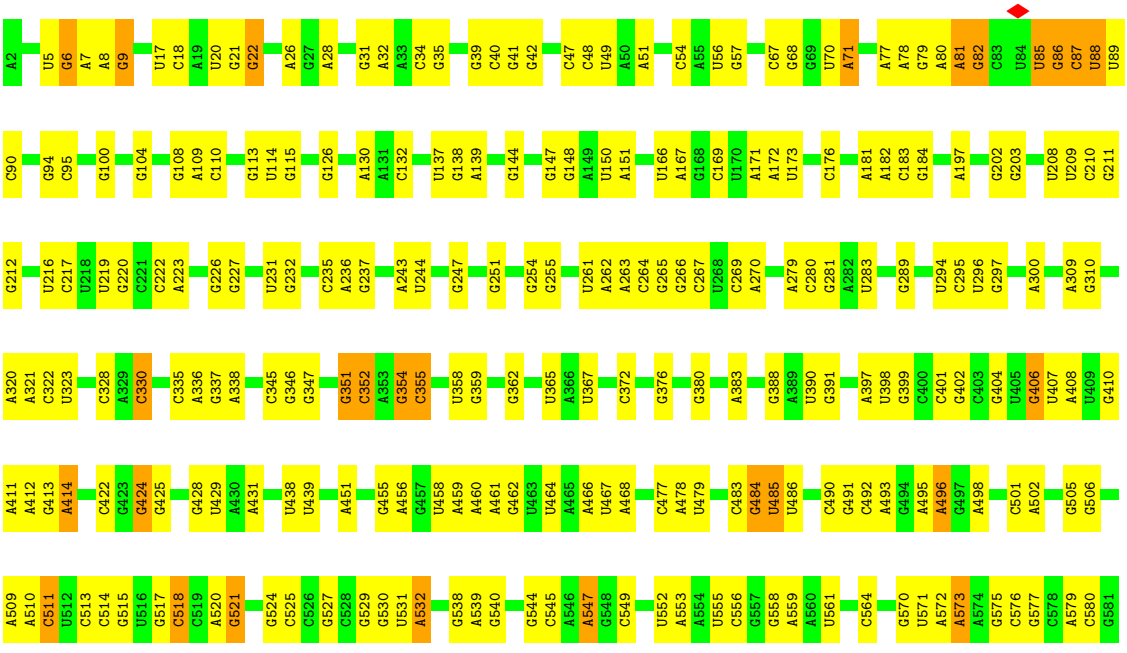
Chain L1:

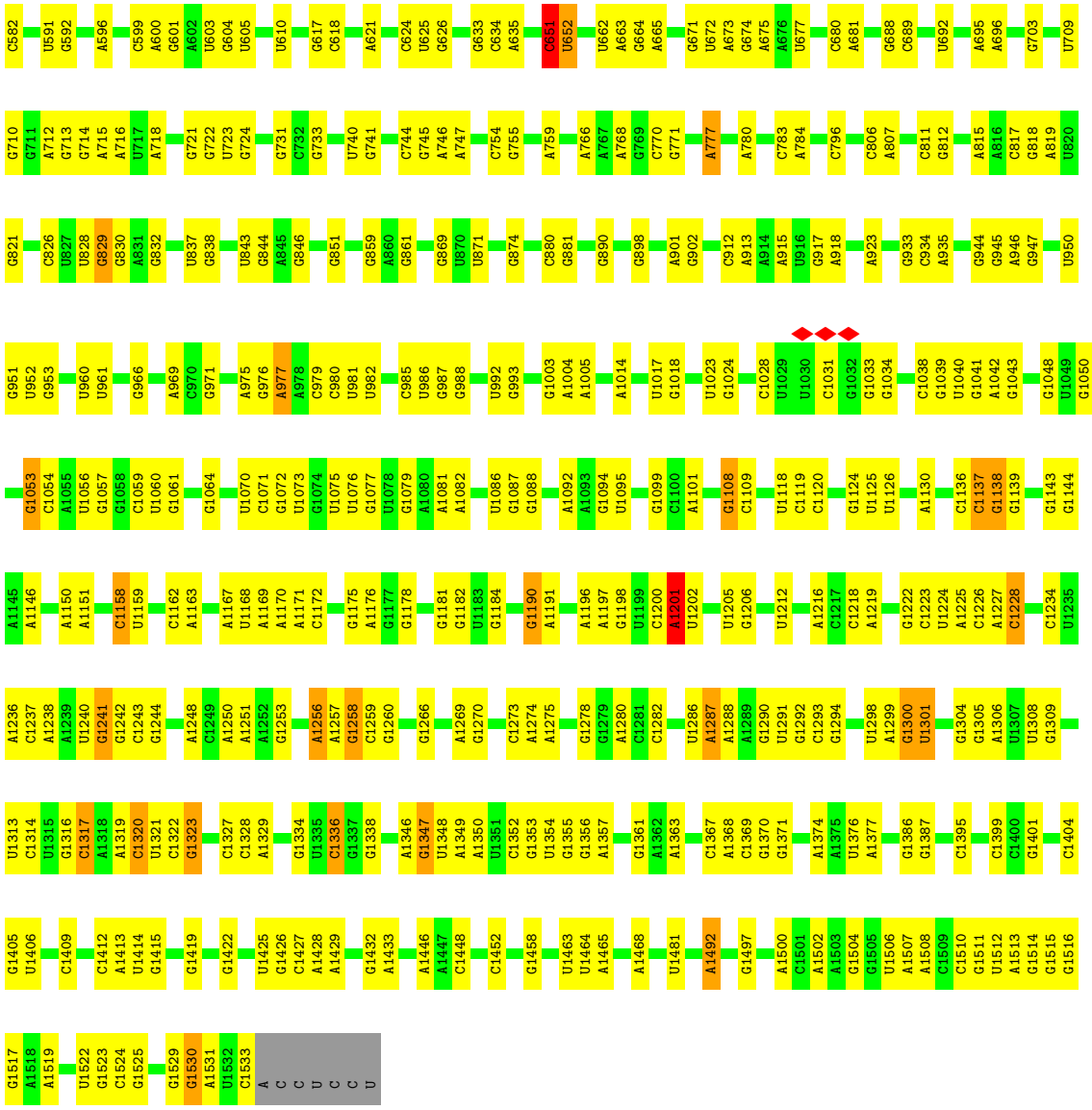




• Molecule 53: 16S ribosomal RNA

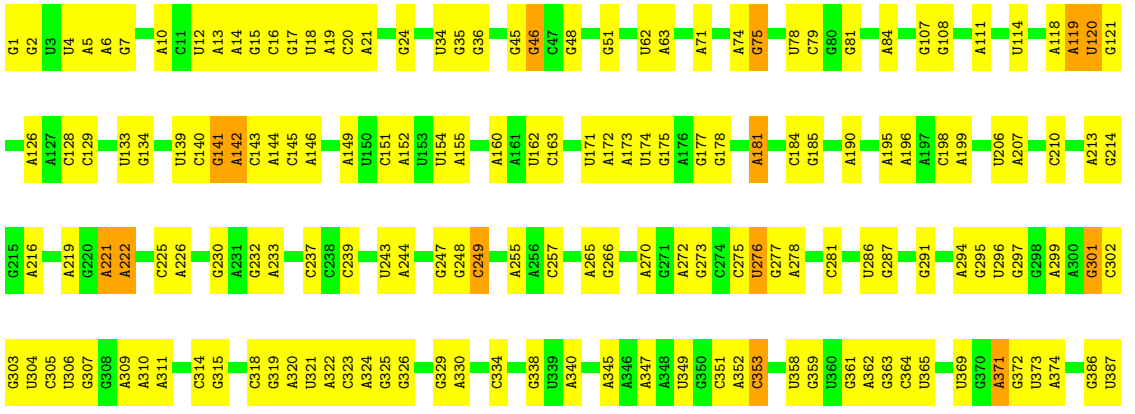
Chain 16S:

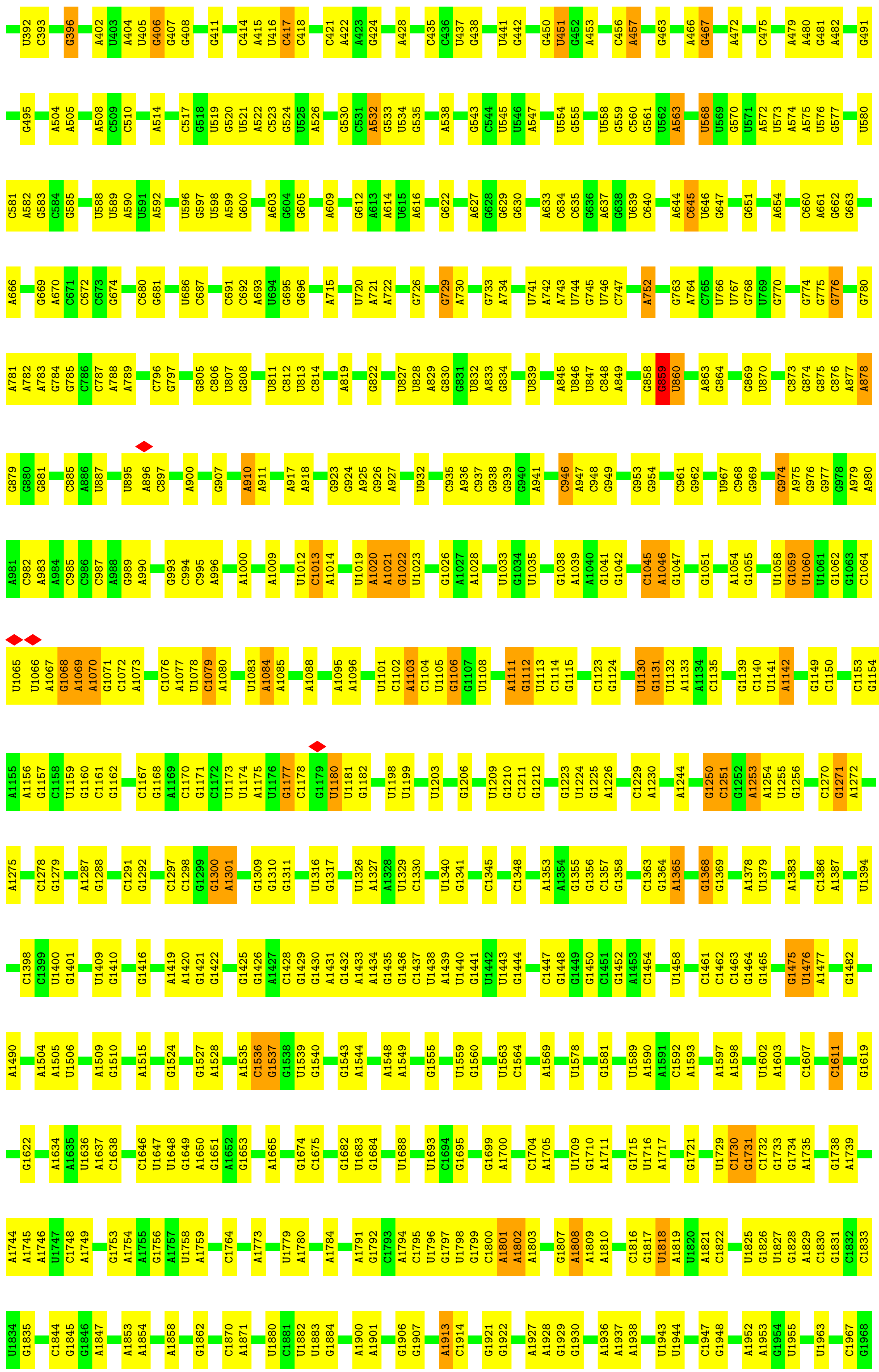




• Molecule 54: 23S ribosomal RNA

Chain 23S:




U392 C393 G396 A402 U403 A404 U405 G406 G407 G408 G411 C414 A415 U416 C417 C418 C421 A422 A423 G424 A428 C435 C436 U437 G438 U441 G442 G450 U451 G452 A453 C456 A457 G463 A466 G467 A472 C475 A479 A480 G481 A482 G491
G495 A504 A505 A508 C509 C510 A514 C517 G518 U519 G520 U521 A522 C523 G524 U525 A526 G530 C531 A532 G533 U534 G535 A538 G543 C544 U545 U546 A547 U554 G555 U558 G559 C560 G561 U562 A563 U568 U569 G570 U571 A572 U573 A574 A575 U576 G577 U580
C581 A582 G583 C584 G585 U588 U589 A590 U591 A592 U596 G597 U598 A599 G600 A603 G604 G605 A609 G612 A613 A614 U615 A616 G622 A627 G628 G629 G630 A633 C634 C635 G636 A637 G638 U639 C640 A644 C645 U646 G647 G651 A654 C660 A661 G662 G663
A666 G669 A670 C671 C672 C673 G674 C680 G681 U686 C687 C691 C692 A693 U694 G695 G696 A715 U720 A721 A722 G726 G729 A730 G733 A734 U741 A742 A743 U744 G745 U746 C747 A752 G763 A764 C765 U766 U767 G768 U769 G770 G774 G775 G776 G780
A781 A782 A783 G784 G785 C786 C787 A788 A789 C796 G797 G805 C806 U807 G808 U811 C812 U813 C814 A819 G822 U827 U828 A829 G830 G831 U832 A833 G834 U839 A845 U846 U847 C848 A849 G858 G859 U860 A863 G864 G869 U870 C873 G874 G875 C876 A877 A878
G879 G880 G881 C885 A886 U887 U895 A896 C897 A900 G907 A910 A911 A917 A918 G923 G924 A925 G926 A927 U932 C935 A936 C937 G938 G939 G940 A941 C946 A947 C948 G949 G953 G954 C961 G962 U967 C968 G969 G974 A975 G976 G977 G978 A979 A980
A981 C982 A983 A984 C985 C986 C987 A988 G989 A990 G993 C994 C995 A996 A1000 A1009 U1012 C1013 A1014 U1019 A1020 A1021 G1022 U1023 G1026 A1027 A1028 U1033 G1034 U1035 G1038 A1039 A1040 G1041 G1042 C1045 A1046 G1047 G1051 A1054 G1055 U1058 G1059 U1060 U1061 G1062 G1063 C1064
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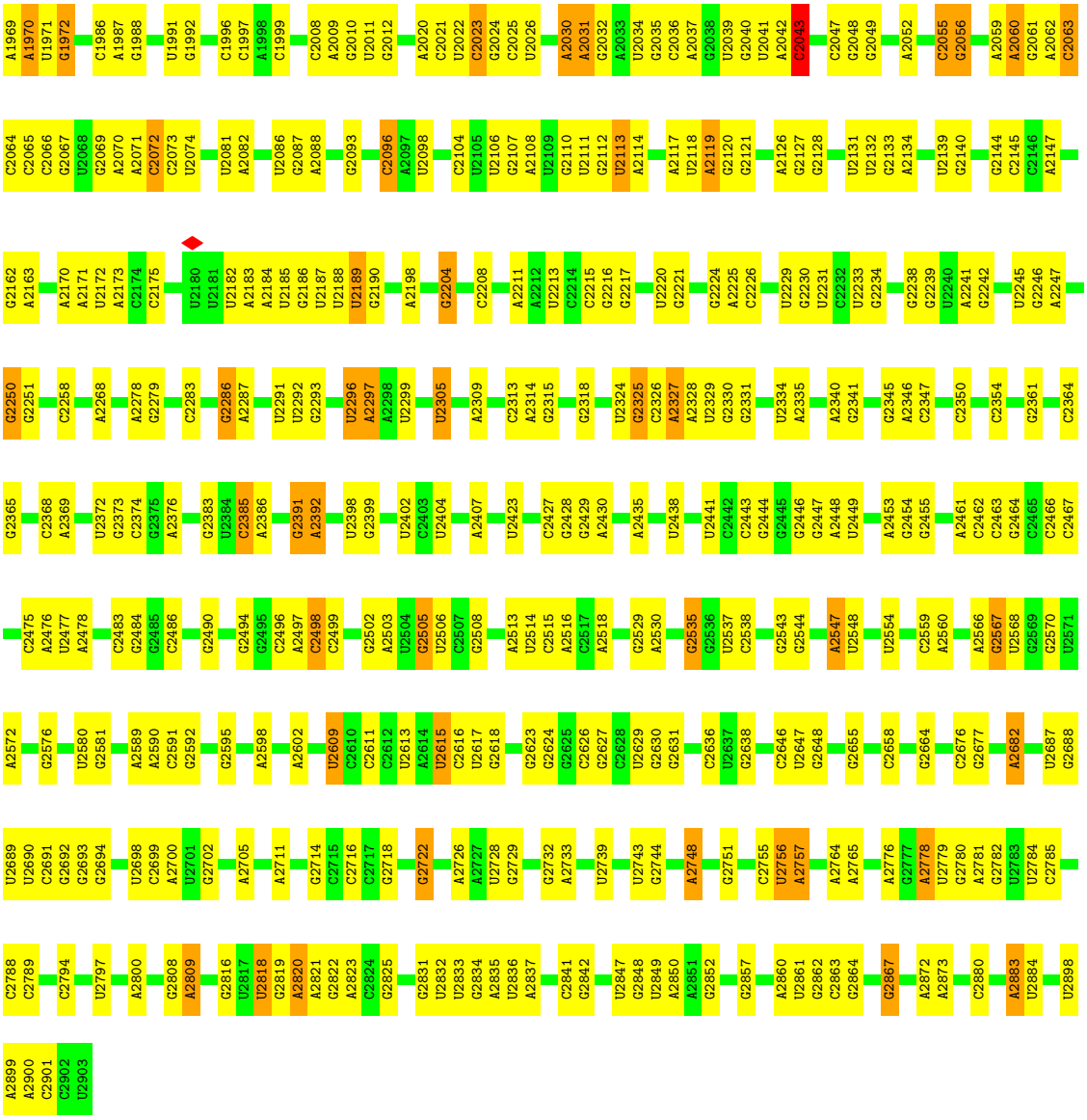
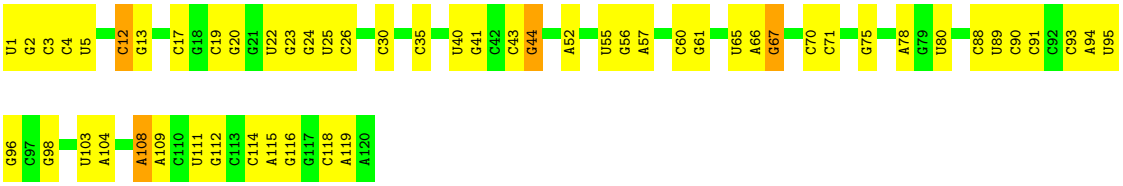
A1155 A1156 G1157 C1158 U1159 G1160 C1161 G1162 C1167 G1168 A1169 C1170 G1171 C1172 U1173 U1174 A1175 U1176 G1177 C1178 G1179 U1180 U1181 G1182 U1198 U1199 U1203 G1206 U1209 G1210 C1211 G1212 G1223 U1224 G1225 A1226 C1229 A1230 A1244 G1250 C1251 G1252 A1253 A1254 U1255 G1256 C1270 G1271 A1272
A1275 C1278 G1279 A1287 G1288 C1291 G1292 C1297 C1298 G1299 G1300 A1301 G1309 G1310 G1311 U1316 G1317 U1326 A1327 A1328 U1329 C1330 U1340 G1341 C1345 C1348 A1353 A1354 G1355 G1356 C1357 G1358 C1363 G1364 A1365 G1368 G1369 A1378 U1379 A1383 C1386 A1387 U1394
C1398 C1399 U1400 G1401 U1409 G1410 G1416 A1419 A1420 G1421 G1422 G1425 G1426 A1427 C1428 G1429 G1430 A1431 G1432 A1433 A1434 G1435 G1436 C1437 U1438 A1439 U1440 G1441 U1442 U1443 G1444 C1447 G1448 G1449 G1450 C1451 G1452 A1453 C1454 U1458 C1461 C1462 C1463 G1464 G1465 G1475 U1476 A1477 G1482
A1490 A1504 A1505 U1506 A1509 G1510 A1515 G1524 G1527 A1528 A1535 C1536 G1537 G1538 U1539 G1540 G1543 A1544 A1548 G1549 G1555 U1559 G1560 U1563 C1564 A1569 U1578 G1581 U1589 A1590 A1591 C1592 A1593 A1597 A1598 U1602 A1603 C1607 C1611 G1619
G1622 A1634 A1635 U1636 A1637 C1638 C1646 U1647 U1648 G1649 A1650 G1651 A1652 G1653 A1665 G1674 C1675 G1682 U1683 G1684 U1688 U1693 C1694 G1695 G1699 A1700 C1704 A1705 U1709 G1710 A1711 G1715 U1716 A1717 G1721 U1729 C1730 G1731 C1732 G1733 G1734 A1735 G1738 A1739
A1744 A1745 A1746 U1747 C1748 A1749 G1753 A1754 A1755 G1756 A1757 U1758 A1759 C1764 A1773 U1779 A1780 A1784 A1791 G1792 C1793 A1794 C1795 U1796 G1797 U1798 G1799 C1800 A1801 A1802 A1803 G1807 A1808 A1809 A1810 C1816 G1817 U1818 A1819 U1820 A1821 C1822 U1825 G1826 U1827 G1828 A1829 C1830 G1831 C1832 C1833
U1834 G1835 C1844 G1845 G1846 A1847 A1853 A1854 A1858 G1862 C1870 A1871 U1880 C1881 U1882 U1883 G1884 A1900 A1901 G1906 G1907 A1913 C1914 G1921 G1922 A1927 A1928 G1929 G1930 A1936 A1937 A1938 U1943 U1944 C1947 G1948 A1952 A1953 G1954 U1955 U1963 C1967 G1968



• Molecule 55: 5S ribosomal RNA

Chain 5S:



• Molecule 56: PR20, ALS/FTD dipeptide repeat protein

Chain PR:

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	49219	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/Å^2$)	35	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	26.145	Depositor
Minimum map value	-6.229	Depositor
Average map value	0.018	Depositor
Map value standard deviation	2.086	Depositor
Recommended contour level	3.0	Depositor
Map size (Å)	375.84, 375.84, 375.84	wwPDB
Map dimensions	432, 432, 432	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.87, 0.87, 0.87	Depositor

5 Model quality

5.1 Standard geometry

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	L02	0.25	0/2122	0.47	0/2852
2	L03	0.25	0/1586	0.47	0/2134
3	L04	0.25	0/1571	0.47	0/2113
4	L05	0.26	0/1435	0.48	0/1926
5	L06	0.24	0/1343	0.44	0/1816
6	L09	0.27	0/1122	0.54	1/1515 (0.1%)
7	L10	0.29	0/1002	0.64	0/1350
8	L11	0.27	0/1046	0.50	0/1410
9	L13	0.24	0/1152	0.42	0/1551
10	L14	0.25	0/948	0.50	0/1268
11	L15	0.26	0/1054	0.52	0/1403
12	L16	0.25	0/1093	0.50	0/1460
13	L17	0.24	0/974	0.46	0/1301
14	L18	0.23	0/902	0.43	0/1209
15	L19	0.24	0/929	0.48	1/1242 (0.1%)
16	L20	0.23	0/960	0.33	0/1278
17	L21	0.25	0/829	0.52	0/1107
18	L22	0.23	0/864	0.45	0/1156
19	L23	0.24	0/745	0.45	0/994
20	L24	0.25	0/788	0.49	1/1051 (0.1%)
21	L25	0.24	0/766	0.44	0/1025
22	L27	0.26	0/582	0.45	0/769
23	L28	0.23	0/635	0.42	0/848
24	L29	0.26	0/510	0.46	0/677
25	L30	0.22	0/453	0.44	0/605
26	L31	0.24	0/532	0.44	0/709
27	L32	0.22	0/450	0.45	0/599
28	L33	0.24	0/417	0.44	0/554
29	L34	0.23	0/380	0.45	0/498
30	L35	0.24	0/513	0.52	1/676 (0.1%)
31	L36	0.24	0/303	0.51	0/397
32	S02	0.26	0/1788	0.50	0/2408
33	S03	0.26	0/1652	0.50	0/2225
34	S04	0.25	0/1665	0.50	0/2227

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
35	S05	0.28	0/1170	0.56	0/1573
36	S06	0.25	0/836	0.54	0/1128
37	S07	0.25	0/1196	0.50	0/1602
38	S08	0.26	0/989	0.49	0/1326
39	S09	0.24	0/1034	0.50	0/1375
40	S10	0.24	0/797	0.54	0/1077
41	S11	0.24	0/883	0.48	0/1189
42	S12	0.25	0/969	0.52	0/1300
43	S13	0.23	0/893	0.49	0/1193
44	S14	0.24	0/817	0.45	0/1088
45	S15	0.23	0/722	0.43	0/964
46	S16	0.24	0/659	0.45	0/884
47	S17	0.27	0/658	0.56	0/881
48	S18	0.24	0/545	0.45	0/731
49	S19	0.26	0/653	0.49	0/877
50	S20	0.24	0/671	0.38	0/888
51	S21	0.38	0/551	0.72	0/728
52	L1	0.24	0/1034	0.46	0/1387
53	16S	0.21	0/36806	0.82	6/57419 (0.0%)
54	23S	0.21	0/69796	0.83	19/108888 (0.0%)
55	5S	0.23	0/2872	0.91	6/4479 (0.1%)
56	PR	0.52	0/140	0.68	0/190
All	All	0.23	0/157802	0.75	35/235520 (0.0%)

There are no bond length outliers.

All (35) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
54	23S	2043	C	C2-N1-C1'	5.90	125.29	118.80
54	23S	1020	A	P-O3'-C3'	5.90	126.78	119.70
54	23S	2063	C	N1-C2-O2	5.81	122.38	118.90
53	16S	1201	A	P-O3'-C3'	5.80	126.66	119.70
54	23S	1818	U	C2-N1-C1'	5.73	124.57	117.70
55	5S	26	C	N1-C2-O2	5.54	122.22	118.90
54	23S	62	U	C2-N1-C1'	5.47	124.27	117.70
53	16S	1158	C	C2-N1-C1'	5.37	124.70	118.80
54	23S	2096	C	C2-N1-C1'	5.33	124.66	118.80
54	23S	1180	U	C2-N1-C1'	5.32	124.09	117.70
54	23S	2286	G	P-O3'-C3'	5.27	126.03	119.70
54	23S	2063	C	C2-N1-C1'	5.25	124.57	118.80
54	23S	859	G	P-O3'-C3'	5.24	125.98	119.70
6	L09	54	LEU	CA-CB-CG	5.24	127.34	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
53	16S	431	A	N1-C6-N6	-5.23	115.46	118.60
55	5S	12	C	N1-C2-O2	5.22	122.03	118.90
54	23S	2098	U	C2-N1-C1'	5.18	123.92	117.70
55	5S	12	C	C2-N1-C1'	5.18	124.50	118.80
55	5S	17	C	C2-N1-C1'	5.17	124.49	118.80
30	L35	61	LEU	CA-CB-CG	5.17	127.19	115.30
15	L19	113	LEU	CA-CB-CG	5.17	127.18	115.30
54	23S	353	C	C2-N1-C1'	5.17	124.48	118.80
54	23S	1348	C	N1-C2-O2	5.15	121.99	118.90
53	16S	330	C	N1-C2-O2	5.14	121.98	118.90
54	23S	1818	U	N1-C2-O2	5.14	126.40	122.80
54	23S	143	C	C2-N1-C1'	5.11	124.42	118.80
53	16S	610	U	N1-C2-O2	5.08	126.35	122.80
54	23S	1475	G	P-O3'-C3'	5.08	125.79	119.70
20	L24	51	LEU	CA-CB-CG	5.07	126.95	115.30
55	5S	25	U	N1-C2-O2	5.06	126.34	122.80
54	23S	114	U	C2-N1-C1'	5.05	123.76	117.70
53	16S	651	C	P-O3'-C3'	5.04	125.75	119.70
54	23S	1398	C	C2-N1-C1'	5.03	124.33	118.80
54	23S	1159	U	N3-C2-O2	-5.02	118.69	122.20
55	5S	3	C	P-O3'-C3'	5.01	125.71	119.70

There are no chirality outliers.

There are no planarity outliers.

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	L02	2083	0	2157	43	0
2	L03	1565	0	1616	17	0
3	L04	1552	0	1619	31	0
4	L05	1411	0	1447	18	0
5	L06	1323	0	1374	16	0
6	L09	1111	0	1148	11	0
7	L10	989	0	1025	32	0
8	L11	1032	0	1088	14	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
9	L13	1129	0	1162	18	0
10	L14	939	0	1012	14	0
11	L15	1045	0	1117	25	0
12	L16	1074	0	1157	17	0
13	L17	961	0	1000	11	0
14	L18	892	0	923	10	0
15	L19	917	0	965	13	0
16	L20	947	0	1022	11	0
17	L21	816	0	839	16	0
18	L22	857	0	922	13	0
19	L23	739	0	807	9	0
20	L24	780	0	834	12	0
21	L25	753	0	780	14	0
22	L27	575	0	592	4	0
23	L28	625	0	655	5	0
24	L29	509	0	543	11	0
25	L30	449	0	491	3	0
26	L31	523	0	524	3	0
27	L32	444	0	461	4	0
28	L33	410	0	440	5	0
29	L34	377	0	418	9	0
30	L35	504	0	574	10	0
31	L36	302	0	343	6	0
32	S02	1757	0	1787	29	0
33	S03	1625	0	1699	24	0
34	S04	1643	0	1710	36	0
35	S05	1157	0	1199	35	0
36	S06	818	0	808	14	0
37	S07	1182	0	1240	18	0
38	S08	979	0	1034	13	0
39	S09	1022	0	1070	20	0
40	S10	787	0	828	11	0
41	S11	869	0	876	28	0
42	S12	955	0	1019	19	0
43	S13	884	0	944	9	0
44	S14	805	0	847	15	0
45	S15	714	0	737	5	0
46	S16	649	0	666	16	0
47	S17	649	0	691	11	0
48	S18	536	0	552	7	0
49	S19	638	0	665	14	0
50	S20	665	0	714	11	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
51	S21	545	0	579	17	0
52	L1	1027	0	1092	18	0
53	16S	32870	0	16543	390	0
54	23S	62317	0	31346	687	0
55	5S	2568	0	1303	33	0
56	PR	133	0	147	15	0
All	All	145427	0	99151	1670	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 7.

All (1670) 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)
7:L10:118:ILE:HG22	7:L10:119:PRO:HD3	1.37	1.05
56:PR:24:ARG:HG2	56:PR:25:PRO:HD2	1.44	0.99
3:L04:61:ARG:HH22	56:PR:16:ARG:CZ	1.90	0.84
35:S05:98:ALA:HB3	35:S05:122:VAL:HA	1.60	0.81
41:S11:74:LYS:CA	41:S11:75:GLU:N	2.45	0.80
51:S21:33:ARG:HG3	51:S21:34:ARG:HG2	1.65	0.79
3:L04:76:PRO:HA	3:L04:82:GLY:HA2	1.68	0.76
53:16S:484:G:H4'	53:16S:485:U:H5"	1.69	0.74
3:L04:61:ARG:HH22	56:PR:16:ARG:NE	1.84	0.74
56:PR:24:ARG:CG	56:PR:25:PRO:HD2	2.16	0.74
34:S04:190:LEU:HD12	34:S04:192:ALA:H	1.54	0.73
54:23S:1059:G:H3'	54:23S:1060:U:H2'	1.72	0.72
35:S05:80:LEU:HD23	35:S05:122:VAL:HG11	1.70	0.72
3:L04:61:ARG:NH2	56:PR:16:ARG:CZ	2.52	0.72
18:L22:59:GLU:HB3	18:L22:66:ILE:HD11	1.70	0.72
7:L10:118:ILE:CG2	7:L10:119:PRO:HD3	2.16	0.71
41:S11:74:LYS:CA	41:S11:74:LYS:O	2.39	0.71
13:L17:103:ARG:HG2	13:L17:105:GLY:H	1.55	0.71
51:S21:44:ARG:HH21	53:16S:722:G:H5"	1.55	0.70
33:S03:13:ILE:HG22	33:S03:14:VAL:HG13	1.72	0.70
45:S15:71:ARG:HH22	53:16S:754:C:H5'	1.57	0.70
3:L04:118:LEU:HD11	3:L04:188:MET:HG2	1.74	0.70
49:S19:18:VAL:HG21	49:S19:43:MET:HG3	1.73	0.69
7:L10:71:CYS:HB2	7:L10:117:LEU:CD1	2.22	0.69
35:S05:100:GLU:HA	35:S05:121:ASN:HD22	1.57	0.69
41:S11:74:LYS:O	41:S11:75:GLU:N	2.26	0.69
1:L02:143:VAL:HB	1:L02:153:LEU:HB2	1.75	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:23S:1450:G:H21	54:23S:1452:G:H1	1.39	0.69
20:L24:95:PHE:HB2	20:L24:100:GLU:H	1.58	0.68
33:S03:58:ARG:HE	33:S03:63:ILE:HD13	1.58	0.68
54:23S:1900:A:H1'	54:23S:1970:A:H2'	1.74	0.68
54:23S:1779:U:OP2	54:23S:1784:A:N6	2.27	0.68
19:L23:15:HIS:H	19:L23:32:LEU:HA	1.56	0.68
50:S20:8:LYS:NZ	53:16S:104:G:N7	2.41	0.68
35:S05:100:GLU:HA	35:S05:121:ASN:ND2	2.09	0.67
1:L02:144:GLU:HB2	1:L02:187:CYS:HB3	1.77	0.67
54:23S:2514:U:H3	54:23S:2570:G:H1	1.43	0.67
18:L22:42:LYS:HB2	54:23S:2010:G:H5"	1.77	0.67
39:S09:55:ASP:HB2	39:S09:59:LYS:HE3	1.77	0.66
44:S14:47:LEU:HD13	53:16S:1317:C:H4'	1.76	0.66
55:5S:30:C:H1'	55:5S:57:A:H61	1.61	0.66
41:S11:87:GLY:H	41:S11:113:THR:HG22	1.60	0.66
54:23S:2063:C:O2'	56:PR:23:PRO:HG2	1.95	0.66
54:23S:2508:G:H1	54:23S:2580:U:H3	1.42	0.66
38:S08:42:GLU:HG2	38:S08:100:ILE:HD13	1.78	0.65
51:S21:16:ARG:HH21	51:S21:19:LYS:HE2	1.61	0.65
54:23S:839:U:H3	54:23S:939:G:H1	1.44	0.65
54:23S:1969:A:H2'	54:23S:1972:G:H21	1.61	0.65
18:L22:83:LYS:HD3	18:L22:95:ARG:HH11	1.60	0.65
8:L11:98:GLY:HA3	8:L11:137:LEU:HG	1.77	0.65
3:L04:61:ARG:NH2	56:PR:16:ARG:NH2	2.45	0.64
3:L04:146:VAL:HG12	3:L04:185:LYS:HB2	1.79	0.64
13:L17:22:ARG:HG3	13:L17:70:THR:HA	1.78	0.64
10:L14:7:MET:HG3	10:L14:18:ARG:HH21	1.62	0.64
29:L34:29:GLN:NE2	54:23S:210:C:OP1	2.27	0.64
24:L29:11:VAL:HG23	24:L29:14:LEU:HD23	1.80	0.64
54:23S:2114:A:H61	54:23S:2117:A:H62	1.43	0.64
53:16S:1347:G:N2	53:16S:1374:A:OP2	2.30	0.64
53:16S:1432:G:O2'	53:16S:1468:A:N6	2.31	0.64
53:16S:673:A:H2'	53:16S:674:G:C8	2.33	0.64
8:L11:72:THR:HG21	8:L11:112:LYS:HG2	1.78	0.64
54:23S:917:A:H5"	54:23S:2268:A:H61	1.63	0.63
54:23S:2581:G:OP2	54:23S:2581:G:N2	2.25	0.63
53:16S:1071:C:H2'	53:16S:1072:G:H8	1.63	0.63
54:23S:45:G:H5"	54:23S:46:G:H5'	1.80	0.63
20:L24:40:LEU:HD12	20:L24:59:GLU:HG3	1.80	0.63
32:S02:25:LYS:NZ	32:S02:193:ASP:OD2	2.30	0.63
42:S12:32:VAL:HA	42:S12:78:VAL:HG22	1.80	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:16S:1038:C:H2'	53:16S:1039:G:H8	1.63	0.63
46:S16:63:GLN:O	53:16S:227:G:N2	2.29	0.63
54:23S:2229:U:H2'	54:23S:2230:G:H8	1.64	0.63
37:S07:119:LEU:HA	37:S07:122:GLU:HB2	1.79	0.63
40:S10:40:ILE:HB	40:S10:73:LEU:HB2	1.80	0.63
29:L34:24:THR:HG23	29:L34:27:GLY:H	1.64	0.62
54:23S:2505:G:C6	56:PR:20:ARG:NH2	2.67	0.62
17:L21:91:GLN:NE2	54:23S:993:G:N3	2.46	0.62
39:S09:83:THR:HG21	39:S09:102:PHE:HB3	1.82	0.62
54:23S:1462:C:HO2'	54:23S:2702:G:HO2'	1.47	0.62
5:L06:154:GLU:HG2	5:L06:156:TYR:H	1.64	0.62
7:L10:33:VAL:HA	54:23S:1055:G:H4'	1.81	0.62
54:23S:962:G:H21	54:23S:2250:G:H1	1.48	0.62
15:L19:2:ASN:O	15:L19:6:GLN:NE2	2.32	0.62
36:S06:44:ARG:HG2	36:S06:56:LYS:HE2	1.81	0.62
53:16S:20:U:O2'	53:16S:573:A:N6	2.32	0.62
1:L02:152:GLN:NE2	54:23S:1801:A:OP2	2.33	0.62
32:S02:186:VAL:HG23	32:S02:190:SER:HB2	1.81	0.62
2:L03:155:VAL:HG21	54:23S:2618:G:H21	1.65	0.62
53:16S:722:G:H1	53:16S:733:G:H1	1.47	0.62
8:L11:79:LEU:HD23	8:L11:137:LEU:HD22	1.80	0.61
53:16S:82:G:N2	53:16S:88:U:O2	2.33	0.61
31:L36:4:ARG:NH1	31:L36:35:GLN:OE1	2.34	0.61
3:L04:158:PHE:HA	3:L04:169:VAL:HG21	1.82	0.61
35:S05:83:PRO:HD3	35:S05:97:PRO:HD3	1.82	0.61
54:23S:1992:G:N2	54:23S:1996:C:O2'	2.34	0.61
54:23S:1386:C:H2'	54:23S:1387:A:H8	1.65	0.61
11:L15:41:ARG:NH1	54:23S:807:U:OP2	2.33	0.61
27:L32:12:ARG:NH2	54:23S:517:C:OP1	2.33	0.61
2:L03:13:ARG:HH11	15:L19:55:HIS:HA	1.64	0.61
10:L14:121:GLU:HG2	10:L14:122:VAL:HG23	1.80	0.61
54:23S:2647:U:H2'	54:23S:2648:G:H8	1.65	0.61
54:23S:2848:G:O2'	54:23S:2867:G:N2	2.34	0.61
3:L04:163:ASN:ND2	54:23S:320:A:N3	2.49	0.61
32:S02:94:ARG:NH1	32:S02:95:TRP:O	2.33	0.61
7:L10:39:THR:HB	7:L10:105:LYS:HE2	1.83	0.61
37:S07:3:ARG:NH1	53:16S:1092:A:OP2	2.34	0.61
50:S20:79:THR:O	50:S20:83:ASN:ND2	2.34	0.61
1:L02:216:ARG:NH2	54:23S:781:A:OP1	2.34	0.60
12:L16:69:PRO:HA	12:L16:94:ALA:HB2	1.83	0.60
34:S04:84:ASN:ND2	35:S05:100:GLU:OE2	2.33	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
50:S20:73:ARG:NH2	53:16S:261:U:OP2	2.34	0.60
54:23S:2682:A:H61	54:23S:2728:U:H1'	1.66	0.60
16:L20:5:ARG:NH1	54:23S:585:G:N7	2.49	0.60
17:L21:80:ARG:NH2	54:23S:572:A:OP2	2.34	0.60
31:L36:4:ARG:HH21	54:23S:2477:U:H2'	1.66	0.60
54:23S:453:A:N3	54:23S:457:A:O2'	2.34	0.60
54:23S:1432:G:H2'	54:23S:1433:A:C8	2.36	0.60
4:L05:135:ILE:HG12	4:L05:142:TYR:HD1	1.66	0.60
14:L18:45:SER:O	55:5S:112:G:N2	2.34	0.60
27:L32:42:ILE:HG22	27:L32:48:TYR:HB2	1.84	0.60
5:L06:152:ARG:NH1	54:23S:2743:U:O2'	2.35	0.60
9:L13:32:LEU:HD22	9:L13:54:ILE:HG21	1.82	0.60
38:S08:15:ASN:ND2	53:16S:826:C:O2	2.34	0.60
44:S14:32:ASP:O	44:S14:40:ARG:NH1	2.34	0.60
3:L04:69:ARG:HD3	54:23S:674:G:H1'	1.82	0.60
35:S05:92:ARG:HB2	35:S05:127:TYR:HB2	1.82	0.60
40:S10:59:LYS:HE2	40:S10:62:ARG:HH21	1.67	0.60
4:L05:73:VAL:HG22	4:L05:75:GLY:H	1.66	0.60
4:L05:130:GLY:HA3	54:23S:2305:U:H5"	1.84	0.60
53:16S:1298:U:H4'	53:16S:1299:A:O4'	2.01	0.60
52:L1:181:ASP:HB2	52:L1:184:LYS:HD3	1.82	0.60
54:23S:2898:U:H2'	54:23S:2899:A:H8	1.66	0.60
53:16S:1200:C:H5"	53:16S:1201:A:H3'	1.83	0.59
32:S02:141:GLU:O	32:S02:145:ASN:ND2	2.36	0.59
49:S19:30:LEU:HB2	49:S19:48:ILE:HG22	1.84	0.59
53:16S:297:G:N2	53:16S:300:A:OP2	2.33	0.59
53:16S:674:G:H2'	53:16S:675:A:H8	1.67	0.59
4:L05:35:LEU:HB2	4:L05:88:VAL:HB	1.83	0.59
7:L10:117:LEU:O	7:L10:118:ILE:HB	2.01	0.59
16:L20:47:ARG:NH2	54:23S:560:C:O2'	2.36	0.59
54:23S:177:G:H3'	54:23S:178:G:H8	1.67	0.59
54:23S:576:U:H2'	54:23S:577:G:C8	2.38	0.59
6:L09:1:MET:N	6:L09:21:VAL:O	2.36	0.59
15:L19:96:LEU:HB3	15:L19:99:LEU:HD13	1.85	0.59
54:23S:1224:U:H2'	54:23S:1225:G:C4	2.38	0.59
33:S03:19:SER:OG	33:S03:21:TRP:NE1	2.36	0.59
1:L02:106:PRO:HD2	1:L02:109:LEU:HD22	1.85	0.59
54:23S:2220:U:H2'	54:23S:2221:G:H8	1.67	0.59
41:S11:111:ASP:HB2	51:S21:19:LYS:HE3	1.85	0.59
54:23S:1316:U:H2'	54:23S:1317:G:H8	1.68	0.59
43:S13:66:GLY:O	43:S13:70:ARG:NH1	2.36	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:S04:99:ASN:OD1	34:S04:110:ARG:NH1	2.35	0.58
19:L23:19:LYS:NZ	54:23S:1394:U:O2	2.35	0.58
34:S04:43:ARG:NH2	53:16S:511:C:OP1	2.36	0.58
53:16S:1301:U:H2'	53:16S:1301:U:O2	2.02	0.58
3:L04:84:THR:HG21	54:23S:672:C:H5"	1.85	0.58
11:L15:100:ILE:HG13	11:L15:101:ILE:HG23	1.86	0.58
53:16S:56:U:H2'	53:16S:57:G:H8	1.67	0.58
3:L04:162:ARG:NH1	54:23S:340:A:O2'	2.36	0.58
15:L19:108:ARG:NE	53:16S:1463:U:OP1	2.35	0.58
54:23S:1744:A:H3'	54:23S:1745:A:H8	1.68	0.58
13:L17:28:LEU:HD23	13:L17:48:VAL:HG21	1.86	0.58
47:S17:18:LYS:HG2	47:S17:49:ASN:HA	1.85	0.58
20:L24:3:LYS:O	20:L24:93:ARG:NH2	2.33	0.58
36:S06:5:GLU:HA	36:S06:63:ASN:HA	1.83	0.58
41:S11:23:HIS:HB3	41:S11:30:ILE:HB	1.86	0.58
54:23S:774:G:N2	54:23S:787:C:O2'	2.37	0.58
24:L29:19:LEU:HB3	24:L29:23:ARG:HH12	1.67	0.58
36:S06:63:ASN:ND2	36:S06:96:VAL:O	2.37	0.58
54:23S:1509:A:H2'	54:23S:1510:G:H8	1.69	0.58
1:L02:250:GLN:NE2	1:L02:251:THR:O	2.37	0.58
9:L13:7:LYS:HG2	54:23S:538:A:H4'	1.86	0.58
41:S11:127:ARG:NH1	53:16S:1522:U:OP1	2.33	0.58
53:16S:335:C:H2'	53:16S:336:A:H8	1.68	0.58
53:16S:1088:G:H21	53:16S:1167:A:H61	1.50	0.58
14:L18:29:HIS:HB3	14:L18:36:TYR:HB2	1.86	0.58
34:S04:61:ARG:NH1	53:16S:545:C:OP1	2.35	0.58
35:S05:98:ALA:CB	35:S05:122:VAL:HA	2.32	0.58
54:23S:807:U:H2'	54:23S:808:G:H8	1.68	0.58
54:23S:2113:U:O4	54:23S:2119:A:N6	2.37	0.58
36:S06:79:ARG:NH2	53:16S:671:G:O2'	2.34	0.57
53:16S:358:U:H2'	53:16S:359:G:H8	1.68	0.57
53:16S:1218:C:H2'	53:16S:1219:A:C8	2.39	0.57
3:L04:128:ALA:HB3	3:L04:133:LEU:HD21	1.85	0.57
4:L05:147:ARG:HB3	4:L05:149:ARG:HE	1.70	0.57
32:S02:102:ASN:ND2	53:16S:1073:U:O2	2.37	0.57
34:S04:197:HIS:CD2	35:S05:120:HIS:HB3	2.40	0.57
54:23S:629:G:N3	54:23S:639:U:O2'	2.36	0.57
37:S07:87:PRO:HG3	37:S07:148:LYS:HA	1.86	0.57
54:23S:1638:C:O2	54:23S:2698:U:O2'	2.21	0.57
54:23S:2291:U:O2'	54:23S:2374:C:O2	2.22	0.57
54:23S:2751:G:OP1	54:23S:2751:G:N2	2.35	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:16S:662:U:H2'	53:16S:663:A:C8	2.39	0.57
54:23S:2189:U:H2'	54:23S:2190:G:H8	1.69	0.57
12:L16:33:LEU:HD13	12:L16:117:PHE:HB3	1.87	0.57
13:L17:77:ALA:O	13:L17:81:ASN:ND2	2.37	0.57
33:S03:18:ASN:ND2	44:S14:89:ARG:O	2.34	0.57
54:23S:1936:A:H2	54:23S:1943:U:H3	1.52	0.57
16:L20:52:ARG:NH2	54:23S:994:C:OP1	2.37	0.57
18:L22:22:ASP:OD1	18:L22:25:ARG:NH1	2.38	0.57
32:S02:123:GLY:O	32:S02:127:LYS:NZ	2.36	0.57
53:16S:1003:G:H21	53:16S:1005:A:H5'	1.68	0.57
8:L11:89:SER:HB3	8:L11:92:PRO:HG3	1.86	0.57
32:S02:157:PRO:HG2	32:S02:180:ILE:HD13	1.87	0.57
54:23S:581:C:H2'	54:23S:582:A:H8	1.70	0.57
54:23S:1270:C:H5"	54:23S:1271:G:H5'	1.86	0.57
54:23S:2313:C:H2'	54:23S:2314:A:H8	1.70	0.57
54:23S:1101:U:H2'	54:23S:1102:C:H6	1.70	0.57
9:L13:35:ARG:HB2	9:L13:54:ILE:HD11	1.86	0.57
12:L16:66:ARG:NH1	12:L16:104:GLU:OE2	2.38	0.57
40:S10:29:ALA:HB1	40:S10:76:ILE:HD13	1.85	0.57
41:S11:126:ARG:NH2	53:16S:796:C:O2'	2.37	0.57
53:16S:81:A:H2'	53:16S:82:G:C8	2.40	0.57
53:16S:1088:G:N2	53:16S:1167:A:H61	2.03	0.57
6:L09:131:SER:HA	6:L09:141:LYS:HA	1.87	0.57
50:S20:73:ARG:NH1	53:16S:263:A:OP1	2.38	0.57
53:16S:1305:G:HO2'	53:16S:1306:A:H8	1.53	0.57
54:23S:119:A:H4'	54:23S:120:U:H5'	1.87	0.57
9:L13:120:ARG:NE	54:23S:2780:G:OP2	2.38	0.56
13:L17:30:ARG:O	13:L17:78:LYS:NZ	2.37	0.56
14:L18:24:THR:HG22	14:L18:90:VAL:HG23	1.87	0.56
21:L25:19:ARG:NH2	55:5S:95:U:OP2	2.38	0.56
28:L33:28:THR:HG23	28:L33:29:LYS:HG2	1.87	0.56
53:16S:664:G:H22	53:16S:741:G:H1	1.52	0.56
53:16S:1414:U:H2'	53:16S:1415:G:H8	1.68	0.56
3:L04:151:GLY:HA2	3:L04:172:ALA:HB2	1.86	0.56
9:L13:31:GLU:HG2	9:L13:142:ILE:HG12	1.86	0.56
11:L15:127:VAL:HG11	11:L15:142:ILE:HD13	1.87	0.56
12:L16:20:LEU:HD13	21:L25:81:PRO:HG2	1.85	0.56
53:16S:1241:G:H2'	53:16S:1242:G:H8	1.70	0.56
54:23S:523:C:O2	54:23S:554:U:O2'	2.23	0.56
54:23S:1953:A:O2'	54:23S:2559:C:O2	2.23	0.56
1:L02:159:THR:HG21	54:23S:1819:A:H5"	1.86	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:L23:50:LEU:HD23	24:L29:26:PHE:CZ	2.40	0.56
26:L31:28:VAL:HG11	26:L31:32:LEU:HD13	1.85	0.56
32:S02:175:ALA:HB1	32:S02:180:ILE:HB	1.86	0.56
54:23S:1528:A:OP2	54:23S:1543:G:N2	2.38	0.56
54:23S:2497:A:H1'	54:23S:2498:C:H5	1.70	0.56
12:L16:57:VAL:HG12	12:L16:112:LEU:HG	1.88	0.56
17:L21:9:GLY:HA3	54:23S:1160:G:H21	1.70	0.56
54:23S:1433:A:H2'	54:23S:1434:A:H8	1.71	0.56
11:L15:79:LEU:HB3	11:L15:116:VAL:HB	1.88	0.56
54:23S:177:G:OP2	54:23S:177:G:N2	2.26	0.56
11:L15:67:THR:HG21	54:23S:244:A:H5"	1.87	0.56
28:L33:14:ALA:HB2	28:L33:46:VAL:HG21	1.86	0.56
3:L04:117:ARG:NH2	3:L04:183:PHE:O	2.39	0.56
8:L11:127:SER:OG	54:23S:1059:G:N2	2.39	0.56
18:L22:47:VAL:HG12	18:L22:103:ILE:HG21	1.87	0.56
40:S10:76:ILE:HG12	40:S10:83:THR:HG21	1.87	0.56
53:16S:923:A:O2'	53:16S:1399:C:OP2	2.23	0.56
38:S08:28:SER:HB3	38:S08:56:PRO:HB2	1.88	0.56
54:23S:2258:C:O2'	54:23S:2427:C:OP2	2.21	0.56
41:S11:21:HIS:HA	41:S11:84:MET:HB2	1.88	0.56
41:S11:111:ASP:HB3	51:S21:3:ILE:HG23	1.87	0.56
42:S12:55:ARG:NH2	42:S12:59:GLY:O	2.39	0.55
53:16S:837:U:H2'	53:16S:838:G:H8	1.71	0.55
30:L35:61:LEU:HD13	30:L35:64:ALA:HB3	1.88	0.55
53:16S:532:A:N6	53:16S:1206:G:O2'	2.39	0.55
53:16S:1356:G:H2'	53:16S:1357:A:C8	2.41	0.55
54:23S:13:A:O2'	54:23S:15:G:N7	2.36	0.55
55:5S:114:C:H2'	55:5S:115:A:H8	1.71	0.55
3:L04:5:LEU:HD12	3:L04:120:VAL:HG13	1.88	0.55
4:L05:130:GLY:HA2	4:L05:152:ASP:HA	1.88	0.55
7:L10:55:VAL:HA	54:23S:1084:A:H4'	1.89	0.55
7:L10:68:PRO:HA	7:L10:72:LEU:HG	1.88	0.55
47:S17:56:ASP:HB3	47:S17:81:ALA:HB2	1.88	0.55
53:16S:34:C:H2'	53:16S:35:G:H8	1.71	0.55
53:16S:235:C:H2'	53:16S:236:A:H8	1.71	0.55
53:16S:811:C:O2'	53:16S:901:A:N1	2.37	0.55
53:16S:1386:G:H2'	53:16S:1387:G:H8	1.71	0.55
54:23S:2008:C:H2'	54:23S:2009:A:H8	1.70	0.55
4:L05:91:ARG:NH2	55:5S:43:C:O2	2.40	0.55
53:16S:945:G:N2	53:16S:1334:G:O2'	2.40	0.55
7:L10:2:ALA:HB3	7:L10:6:GLN:HG2	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:L35:27:ASN:HB3	30:L35:35:LYS:HE2	1.89	0.55
33:S03:26:LYS:NZ	53:16S:1256:A:O5'	2.33	0.55
35:S05:123:LEU:HD11	53:16S:6:G:H2'	1.87	0.55
39:S09:119:LYS:NZ	53:16S:1350:A:OP2	2.36	0.55
53:16S:1125:U:H2'	53:16S:1126:U:H2'	1.88	0.55
7:L10:29:ASP:HB2	7:L10:56:ARG:HH12	1.72	0.55
10:L14:24:VAL:HA	10:L14:39:ILE:HG22	1.89	0.55
53:16S:401:C:O2'	53:16S:621:A:N3	2.36	0.55
53:16S:490:C:H2'	53:16S:491:G:H8	1.71	0.55
54:23S:1:G:H2'	54:23S:2:G:H8	1.71	0.55
54:23S:463:G:N2	54:23S:466:A:OP2	2.29	0.55
54:23S:1386:C:H2'	54:23S:1387:A:C8	2.41	0.55
54:23S:1509:A:H2'	54:23S:1510:G:C8	2.41	0.55
35:S05:101:GLY:H	35:S05:121:ASN:HB3	1.72	0.55
47:S17:49:ASN:OD1	47:S17:50:ASN:N	2.37	0.55
54:23S:457:A:N7	54:23S:472:A:N6	2.55	0.55
54:23S:526:A:O2'	54:23S:2043:C:O2	2.24	0.55
54:23S:574:A:N6	54:23S:2034:U:OP1	2.37	0.55
21:L25:25:LYS:HG2	21:L25:43:ASP:HA	1.89	0.55
34:S04:115:GLN:NE2	53:16S:406:G:N3	2.54	0.55
38:S08:117:GLN:OE1	38:S08:117:GLN:N	2.39	0.55
53:16S:1137:C:H5'	53:16S:1138:G:H5'	1.89	0.55
53:16S:1266:G:N2	53:16S:1269:A:OP2	2.28	0.55
54:23S:859:G:N2	54:23S:917:A:OP2	2.40	0.55
54:23S:1421:G:H2'	54:23S:1422:G:H8	1.71	0.55
1:L02:52:HIS:HA	1:L02:216:ARG:HB2	1.89	0.55
4:L05:55:ASP:OD2	4:L05:149:ARG:NH1	2.38	0.55
53:16S:552:U:H2'	53:16S:553:A:H8	1.71	0.55
54:23S:1022:G:N2	54:23S:1023:U:O4	2.35	0.55
54:23S:1986:C:H2'	54:23S:1987:A:H8	1.72	0.55
6:L09:47:PHE:HA	6:L09:51:ARG:HB2	1.89	0.54
33:S03:59:PRO:HG3	33:S03:64:ARG:HH21	1.71	0.54
54:23S:1300:G:H4'	54:23S:1301:A:H5"	1.88	0.54
54:23S:2898:U:H2'	54:23S:2899:A:C8	2.42	0.54
7:L10:56:ARG:HE	7:L10:83:ALA:HB2	1.72	0.54
22:L27:33:ILE:HD11	22:L27:78:ILE:HD11	1.89	0.54
41:S11:15:VAL:HG12	41:S11:76:TYR:HB3	1.88	0.54
53:16S:744:C:H2'	53:16S:745:G:H8	1.72	0.54
53:16S:1081:A:H2'	53:16S:1082:A:H8	1.72	0.54
53:16S:1251:A:N3	53:16S:1369:C:O2'	2.37	0.54
54:23S:1167:C:H2'	54:23S:1168:G:H8	1.72	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:S11:87:GLY:O	41:S11:92:ARG:NH1	2.39	0.54
53:16S:362:G:N2	53:16S:365:U:OP2	2.40	0.54
54:23S:2047:C:H2'	54:23S:2048:G:H8	1.71	0.54
34:S04:101:VAL:HG13	34:S04:113:ALA:HB1	1.89	0.54
53:16S:714:G:H2'	53:16S:715:A:C8	2.42	0.54
1:L02:146:LYS:HB2	1:L02:149:LYS:HB2	1.88	0.54
3:L04:117:ARG:HH12	11:L15:2:ARG:HG2	1.72	0.54
15:L19:88:ARG:NH1	15:L19:114:ASN:OD1	2.39	0.54
53:16S:477:C:H2'	53:16S:478:A:C8	2.42	0.54
54:23S:1607:C:N4	54:23S:1622:G:OP2	2.38	0.54
1:L02:16:VAL:HB	1:L02:203:VAL:HG12	1.89	0.54
18:L22:92:ARG:HH21	56:PR:14:ARG:HE	1.55	0.54
53:16S:414:A:OP2	53:16S:428:G:N2	2.39	0.54
54:23S:514:A:N3	54:23S:581:C:O2'	2.35	0.54
54:23S:1341:G:OP2	54:23S:1394:U:O2'	2.23	0.54
1:L02:79:ARG:NH1	1:L02:81:GLU:OE2	2.41	0.54
7:L10:61:ARG:NH2	54:23S:1045:C:O2'	2.39	0.54
54:23S:807:U:O2'	54:23S:2060:A:N1	2.40	0.54
54:23S:1433:A:H2'	54:23S:1434:A:C8	2.43	0.54
2:L03:45:TYR:OH	54:23S:2636:C:O2'	2.23	0.54
2:L03:151:THR:OG1	54:23S:2032:G:N2	2.39	0.54
11:L15:17:LYS:HD3	54:23S:663:G:H5"	1.89	0.54
12:L16:64:TRP:HB2	12:L16:104:GLU:HB2	1.89	0.54
53:16S:1425:U:H2'	53:16S:1426:G:H8	1.73	0.54
54:23S:302:C:H2'	54:23S:303:G:H8	1.71	0.54
54:23S:1045:C:O4'	54:23S:1111:A:N6	2.39	0.54
54:23S:1858:A:OP2	54:23S:1884:G:N2	2.41	0.54
54:23S:2691:C:H2'	54:23S:2692:G:H8	1.72	0.54
53:16S:1323:G:H1'	53:16S:1361:G:H21	1.72	0.54
54:23S:924:G:H2'	54:23S:925:A:H8	1.73	0.54
54:23S:2692:G:H1'	54:23S:2847:U:H1'	1.90	0.54
54:23S:2822:G:O2'	54:23S:2825:G:N1	2.37	0.54
42:S12:85:ARG:HH12	42:S12:87:LYS:HD3	1.72	0.54
46:S16:31:ARG:HB2	53:16S:310:G:H5"	1.89	0.54
54:23S:878:A:H3'	54:23S:879:G:H8	1.70	0.54
10:L14:90:ASN:OD1	10:L14:91:SER:N	2.41	0.53
30:L35:28:LEU:HD12	30:L35:32:LEU:HD11	1.90	0.53
33:S03:188:ALA:HB3	33:S03:195:ILE:HB	1.88	0.53
38:S08:12:ARG:NH1	38:S08:25:THR:O	2.41	0.53
54:23S:742:A:H2'	54:23S:743:A:H8	1.73	0.53
54:23S:2743:U:OP2	54:23S:2755:C:N4	2.40	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:L13:26:GLY:HA3	54:23S:1140:C:H5'	1.90	0.53
53:16S:599:C:H2'	53:16S:600:A:H8	1.73	0.53
54:23S:1311:G:H21	54:23S:1603:A:H62	1.54	0.53
54:23S:2081:U:H2'	54:23S:2082:A:H8	1.73	0.53
10:L14:102:PRO:HB3	10:L14:121:GLU:HB3	1.90	0.53
53:16S:18:C:H1'	53:16S:1079:G:H21	1.73	0.53
54:23S:720:U:H2'	54:23S:721:A:C8	2.44	0.53
53:16S:582:C:O2	53:16S:759:A:N6	2.41	0.53
5:L06:163:TYR:HB2	5:L06:166:GLU:HB2	1.89	0.53
16:L20:57:ARG:NH1	54:23S:1154:G:OP2	2.42	0.53
34:S04:77:GLU:OE2	34:S04:80:ARG:NH1	2.39	0.53
54:23S:948:C:H2'	54:23S:949:G:H8	1.72	0.53
35:S05:73:VAL:HG21	35:S05:143:LEU:HB3	1.90	0.53
35:S05:105:ILE:HB	35:S05:123:LEU:HD23	1.90	0.53
40:S10:72:ARG:NH2	53:16S:1151:A:O2'	2.42	0.53
53:16S:766:A:OP2	53:16S:812:G:N2	2.41	0.53
53:16S:1404:C:H2'	53:16S:1405:G:C8	2.44	0.53
54:23S:2087:G:H2'	54:23S:2088:A:H8	1.73	0.53
54:23S:2127:G:H2'	54:23S:2128:G:C8	2.44	0.53
45:S15:43:ALA:O	45:S15:46:LYS:NZ	2.41	0.53
53:16S:1175:G:H2'	53:16S:1176:A:H8	1.73	0.53
4:L05:109:ARG:NH1	4:L05:135:ILE:O	2.42	0.53
30:L35:30:HIS:ND1	30:L35:31:ILE:HG23	2.23	0.53
34:S04:71:PHE:HE1	34:S04:93:LEU:HD11	1.73	0.53
44:S14:58:ARG:NH1	53:16S:979:C:O2	2.42	0.53
53:16S:674:G:H2'	53:16S:675:A:C8	2.44	0.53
53:16S:1086:U:H3	53:16S:1099:G:H22	1.57	0.53
54:23S:2372:U:H2'	54:23S:2373:G:H8	1.73	0.53
1:L02:234:GLY:HA2	1:L02:238:ASN:HB2	1.90	0.52
11:L15:79:LEU:HD21	11:L15:131:ALA:HB1	1.90	0.52
15:L19:92:ARG:HD3	54:23S:1753:G:H5"	1.91	0.52
33:S03:34:SER:OG	33:S03:58:ARG:NH2	2.34	0.52
53:16S:987:G:H2'	53:16S:988:G:H8	1.72	0.52
54:23S:81:G:O2'	54:23S:295:G:O2'	2.27	0.52
54:23S:813:U:HO2'	54:23S:1225:G:HO2'	1.58	0.52
54:23S:1858:A:N6	54:23S:1884:G:O2'	2.39	0.52
54:23S:2023:C:H2'	54:23S:2024:G:H8	1.74	0.52
54:23S:2816:G:N3	54:23S:2883:A:O2'	2.37	0.52
54:23S:1068:G:H21	54:23S:1095:A:HO2'	1.52	0.52
54:23S:213:A:H2'	54:23S:214:G:C8	2.45	0.52
54:23S:1051:G:H1	54:23S:1108:U:H3	1.57	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:23S:1173:U:HO2'	54:23S:1177:G:N2	2.07	0.52
54:23S:1309:G:HO2'	54:23S:1611:C:HO2'	1.57	0.52
12:L16:57:VAL:HG23	12:L16:58:LYS:H	1.73	0.52
30:L35:7:ARG:NH1	54:23S:243:U:OP2	2.43	0.52
33:S03:155:ARG:NH1	33:S03:192:TYR:O	2.43	0.52
39:S09:29:ILE:HG12	39:S09:64:ILE:HD11	1.90	0.52
42:S12:53:ARG:HA	42:S12:63:THR:HA	1.92	0.52
54:23S:437:U:H2'	54:23S:438:G:H8	1.75	0.52
54:23S:581:C:H2'	54:23S:582:A:C8	2.44	0.52
54:23S:742:A:H2'	54:23S:743:A:C8	2.44	0.52
54:23S:767:U:H2'	54:23S:768:G:H8	1.73	0.52
55:5S:95:U:H2'	55:5S:96:G:H8	1.74	0.52
6:L09:81:ALA:HB1	6:L09:149:GLU:HB2	1.91	0.52
11:L15:42:SER:OG	54:23S:672:C:OP2	2.25	0.52
35:S05:87:VAL:HG22	35:S05:92:ARG:HG3	1.92	0.52
36:S06:49:TYR:OH	36:S06:86:ARG:NH1	2.42	0.52
54:23S:662:G:H2'	54:23S:663:G:H8	1.74	0.52
54:23S:1105:U:H2'	54:23S:1106:G:H5"	1.90	0.52
54:23S:1429:G:H2'	54:23S:1430:G:H8	1.74	0.52
35:S05:131:ASN:ND2	53:16S:18:C:OP1	2.41	0.52
47:S17:65:PRO:O	53:16S:264:C:O2'	2.24	0.52
48:S18:36:GLY:O	48:S18:62:ARG:NH2	2.40	0.52
53:16S:1507:A:H2'	53:16S:1508:A:C8	2.45	0.52
54:23S:1019:U:OP1	54:23S:1035:U:O2'	2.25	0.52
54:23S:1173:U:O2'	54:23S:1177:G:N2	2.43	0.52
54:23S:1682:G:OP2	54:23S:1699:G:N2	2.42	0.52
54:23S:1830:C:H2'	54:23S:1831:G:H8	1.74	0.52
21:L25:9:ARG:HG2	21:L25:41:GLU:HB2	1.92	0.52
25:L30:8:GLN:HB2	25:L30:28:LEU:HD13	1.91	0.52
11:L15:141:LYS:NZ	11:L15:143:GLU:OE2	2.42	0.52
17:L21:79:ARG:NH2	54:23S:563:A:OP2	2.40	0.52
33:S03:117:ASP:HA	33:S03:120:THR:HG22	1.92	0.52
52:L1:33:LEU:HD13	52:L1:220:ALA:H	1.75	0.52
54:23S:589:U:H2'	54:23S:590:A:H8	1.73	0.52
54:23S:987:C:O2'	54:23S:1000:A:N3	2.39	0.52
54:23S:1069:A:N7	54:23S:1073:A:N6	2.58	0.52
54:23S:2616:C:H2'	54:23S:2617:U:H6	1.75	0.52
11:L15:109:LYS:HG2	11:L15:126:ARG:HB3	1.91	0.52
53:16S:673:A:H2'	53:16S:674:G:H8	1.75	0.52
46:S16:71:VAL:HA	46:S16:74:LEU:HB2	1.91	0.52
53:16S:501:C:H1'	53:16S:549:C:H1'	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:23S:151:C:H2'	54:23S:152:A:H8	1.74	0.52
54:23S:918:A:N3	55:5S:80:U:O2'	2.39	0.52
54:23S:935:C:H2'	54:23S:936:A:H8	1.75	0.52
30:L35:63:TYR:HH	54:23S:592:A:HO2'	1.56	0.51
37:S07:62:GLU:OE2	37:S07:69:ARG:NH2	2.43	0.51
49:S19:68:HIS:HB3	49:S19:72:GLU:HG3	1.92	0.51
36:S06:5:GLU:HB3	36:S06:90:MET:HB2	1.91	0.51
53:16S:634:C:H2'	53:16S:635:A:H8	1.76	0.51
53:16S:1404:C:H2'	53:16S:1405:G:H8	1.75	0.51
54:23S:239:C:O2'	54:23S:622:G:O2'	2.28	0.51
54:23S:2233:U:H2'	54:23S:2234:G:H8	1.75	0.51
8:L11:127:SER:HA	54:23S:1080:A:H1'	1.91	0.51
12:L16:12:MET:HA	54:23S:910:A:H62	1.76	0.51
15:L19:24:THR:HB	15:L19:87:ARG:HB2	1.92	0.51
19:L23:58:VAL:HG22	19:L23:85:VAL:HG13	1.93	0.51
21:L25:77:VAL:HG23	21:L25:89:ILE:HG12	1.93	0.51
30:L35:11:LYS:NZ	54:23S:249:C:O2	2.42	0.51
54:23S:577:G:O2'	54:23S:1254:A:OP1	2.27	0.51
54:23S:1636:U:H2'	54:23S:1637:A:C8	2.45	0.51
54:23S:1709:U:H2'	54:23S:1710:G:C8	2.45	0.51
54:23S:2120:G:H2'	54:23S:2121:G:C8	2.45	0.51
55:5S:65:U:H3'	55:5S:108:A:H61	1.75	0.51
1:L02:203:VAL:HG23	54:23S:1792:G:H5'	1.93	0.51
2:L03:46:ARG:NH2	2:L03:88:GLU:O	2.43	0.51
3:L04:99:LYS:NZ	54:23S:605:G:OP1	2.43	0.51
3:L04:181:ILE:HG23	11:L15:2:ARG:HG3	1.92	0.51
53:16S:806:C:H2'	53:16S:807:A:H8	1.74	0.51
53:16S:1256:A:H1'	53:16S:1258:G:C4	2.45	0.51
54:23S:181:A:H1'	54:23S:435:C:H5'	1.92	0.51
17:L21:44:GLY:O	17:L21:45:GLU:HG3	2.11	0.51
53:16S:1236:A:H4'	53:16S:1304:G:H4'	1.93	0.51
54:23S:2788:C:O2'	54:23S:2809:A:N3	2.38	0.51
55:5S:111:U:H2'	55:5S:112:G:H8	1.74	0.51
1:L02:233:GLY:HA3	54:23S:2598:A:H5"	1.93	0.51
6:L09:12:LEU:HB2	6:L09:19:VAL:HG11	1.93	0.51
9:L13:17:VAL:HG23	9:L13:137:PRO:HB2	1.93	0.51
17:L21:65:ALA:HB3	17:L21:95:ASP:HB2	1.91	0.51
53:16S:77:A:H2'	53:16S:78:A:C8	2.45	0.51
54:23S:451:U:O2	54:23S:453:A:N6	2.44	0.51
29:L34:42:LEU:HD23	54:23S:126:A:H61	1.74	0.51
53:16S:54:C:H2'	53:16S:352:C:H41	1.76	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:23S:1807:G:N2	54:23S:1810:A:OP2	2.42	0.51
54:23S:2515:C:H2'	54:23S:2516:A:H8	1.74	0.51
12:L16:58:LYS:HB2	12:L16:60:GLN:HG2	1.92	0.51
14:L18:7:ARG:NH1	14:L18:95:SER:O	2.44	0.51
35:S05:80:LEU:CD2	35:S05:122:VAL:HG11	2.40	0.51
42:S12:77:SER:HB2	42:S12:102:ASP:HB3	1.93	0.51
47:S17:8:GLN:NE2	47:S17:59:GLU:OE1	2.44	0.51
53:16S:715:A:H2'	53:16S:716:A:C8	2.46	0.51
54:23S:2506:U:OP2	54:23S:2576:G:N1	2.36	0.51
55:5S:55:U:H2'	55:5S:56:G:C8	2.46	0.51
56:PR:24:ARG:CB	56:PR:25:PRO:HD2	2.38	0.51
1:L02:141:HIS:ND1	1:L02:192:GLY:O	2.38	0.51
8:L11:56:VAL:HG23	8:L11:70:THR:HA	1.93	0.51
35:S05:22:LYS:HG3	53:16S:1081:A:H5'	1.91	0.51
35:S05:35:LEU:HD11	35:S05:136:VAL:HG21	1.93	0.51
37:S07:3:ARG:HH22	53:16S:1092:A:H5"	1.76	0.51
40:S10:64:GLN:NE2	53:16S:1368:A:OP1	2.43	0.51
50:S20:26:MET:HB3	53:16S:1458:G:H5'	1.93	0.51
51:S21:35:GLU:HG3	51:S21:37:TYR:H	1.76	0.51
53:16S:514:C:H2'	53:16S:515:G:H8	1.76	0.51
53:16S:1348:U:H2'	53:16S:1349:A:H8	1.76	0.51
54:23S:629:G:H1'	54:23S:639:U:H1'	1.92	0.51
20:L24:81:ARG:NH1	54:23S:301:G:OP2	2.44	0.51
53:16S:1291:U:H2'	53:16S:1292:G:H8	1.76	0.51
54:23S:752:A:H62	54:23S:2609:U:H3	1.58	0.51
54:23S:1927:A:H2'	54:23S:1928:A:C8	2.46	0.51
54:23S:2224:G:H4'	54:23S:2226:C:C2	2.46	0.51
2:L03:118:PHE:HZ	54:23S:2048:G:H21	1.59	0.50
3:L04:76:PRO:HA	3:L04:82:GLY:CA	2.39	0.50
7:L10:61:ARG:HG2	54:23S:1046:A:H4'	1.93	0.50
23:L28:4:CYS:HB3	23:L28:9:LYS:H	1.76	0.50
33:S03:49:ALA:HA	33:S03:74:ILE:HD11	1.92	0.50
39:S09:37:TYR:HD2	39:S09:38:PHE:HD1	1.59	0.50
46:S16:59:HIS:O	46:S16:63:GLN:NE2	2.44	0.50
52:L1:209:ILE:HG13	52:L1:210:LYS:H	1.75	0.50
53:16S:1464:U:H2'	53:16S:1465:A:H8	1.74	0.50
54:23S:1721:G:O2'	54:23S:1739:A:N6	2.44	0.50
54:23S:2245:U:H5"	54:23S:2246:G:H5'	1.93	0.50
7:L10:118:ILE:N	7:L10:119:PRO:CD	2.75	0.50
50:S20:23:ARG:NH1	53:16S:176:C:OP1	2.38	0.50
53:16S:309:A:H2'	53:16S:310:G:H8	1.76	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:16S:458:U:H2'	53:16S:459:A:H8	1.77	0.50
54:23S:612:G:N2	54:23S:614:A:O2'	2.44	0.50
54:23S:1597:A:H5"	54:23S:1598:A:H5'	1.93	0.50
54:23S:2345:G:H5'	54:23S:2347:C:H5'	1.93	0.50
15:L19:38:ARG:NH1	53:16S:346:G:OP1	2.45	0.50
21:L25:32:GLY:O	21:L25:93:ARG:NH1	2.45	0.50
36:S06:18:VAL:HG21	36:S06:58:HIS:CD2	2.47	0.50
53:16S:861:G:HO2'	53:16S:874:G:HO2'	1.59	0.50
54:23S:247:G:OP2	54:23S:249:C:N4	2.44	0.50
1:L02:204:LEU:HB2	54:23S:1791:A:H4'	1.93	0.50
2:L03:133:THR:OG1	54:23S:1675:C:O2	2.29	0.50
33:S03:171:ARG:HG2	33:S03:173:PRO:HD3	1.93	0.50
54:23S:787:C:H5"	54:23S:788:A:H5'	1.93	0.50
54:23S:2861:U:H2'	54:23S:2862:G:H8	1.76	0.50
13:L17:20:MET:O	13:L17:24:MET:N	2.29	0.50
32:S02:59:ILE:HD11	32:S02:158:ASP:HB3	1.94	0.50
37:S07:28:ILE:HG21	37:S07:101:ARG:HA	1.92	0.50
40:S10:15:HIS:HA	40:S10:18:ILE:HG22	1.94	0.50
53:16S:946:A:H2'	53:16S:947:G:C8	2.45	0.50
53:16S:1492:A:H2'	54:23S:1913:A:C2	2.46	0.50
8:L11:87:SER:OG	8:L11:88:GLY:N	2.44	0.50
34:S04:28:ASP:OD1	34:S04:29:THR:N	2.38	0.50
34:S04:201:GLU:O	53:16S:8:A:N6	2.41	0.50
41:S11:92:ARG:NH2	41:S11:111:ASP:OD1	2.39	0.50
54:23S:2139:U:H2'	54:23S:2140:G:H8	1.77	0.50
7:L10:73:LYS:NZ	7:L10:120:ALA:O	2.44	0.50
10:L14:7:MET:HB3	10:L14:18:ARG:HE	1.76	0.50
11:L15:80:SER:O	11:L15:84:LYS:NZ	2.43	0.50
39:S09:98:ARG:HG3	39:S09:103:VAL:HG21	1.94	0.50
46:S16:40:ASN:HB3	46:S16:43:ALA:HB2	1.93	0.50
53:16S:21:G:H2'	53:16S:22:G:C8	2.46	0.50
53:16S:202:G:H21	53:16S:466:A:H61	1.60	0.50
53:16S:783:C:H2'	53:16S:784:A:H8	1.77	0.50
53:16S:946:A:H2'	53:16S:947:G:H8	1.77	0.50
54:23S:832:U:H2'	54:23S:833:A:C8	2.47	0.50
8:L11:96:LYS:HD2	8:L11:138:VAL:HB	1.94	0.50
31:L36:19:ARG:HB2	31:L36:24:ARG:HD2	1.93	0.50
34:S04:129:VAL:HG12	34:S04:131:ILE:H	1.77	0.50
53:16S:132:C:H4'	53:16S:262:A:H1'	1.94	0.50
53:16S:235:C:H2'	53:16S:236:A:C8	2.47	0.50
54:23S:358:U:H2'	54:23S:359:G:H8	1.76	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:23S:1447:C:H2'	54:23S:1448:G:H8	1.75	0.50
54:23S:2328:A:H2'	54:23S:2329:U:C6	2.47	0.50
1:L02:56:GLY:HA2	1:L02:212:TRP:HA	1.92	0.50
2:L03:121:THR:HG21	2:L03:143:PRO:HB3	1.93	0.50
26:L31:11:GLU:HB2	26:L31:25:ARG:HG2	1.94	0.50
31:L36:22:VAL:HG11	31:L36:36:ARG:HE	1.77	0.50
51:S21:23:GLU:HG3	51:S21:27:VAL:HG12	1.94	0.50
54:23S:145:C:H2'	54:23S:146:A:C8	2.47	0.50
54:23S:582:A:H2'	54:23S:583:G:H8	1.77	0.50
54:23S:1170:C:H2'	54:23S:1171:G:N7	2.27	0.50
5:L06:3:VAL:HG21	54:23S:2748:A:H5'	1.93	0.49
53:16S:1200:C:O2'	53:16S:1205:U:O4	2.29	0.49
54:23S:171:U:H2'	54:23S:172:A:H8	1.76	0.49
54:23S:1796:U:H2'	54:23S:1797:G:C8	2.47	0.49
54:23S:2398:U:H2'	54:23S:2399:G:H8	1.75	0.49
53:16S:1320:C:H2'	53:16S:1321:U:C6	2.47	0.49
54:23S:2117:A:H61	54:23S:2170:A:H61	1.58	0.49
54:23S:2229:U:H2'	54:23S:2230:G:C8	2.46	0.49
35:S05:107:GLY:HA3	53:16S:9:G:H5'	1.94	0.49
53:16S:407:U:H2'	53:16S:408:A:H8	1.76	0.49
53:16S:1088:G:H21	53:16S:1167:A:N6	2.10	0.49
54:23S:1054:A:H2'	54:23S:1055:G:H8	1.75	0.49
54:23S:1539:U:H2'	54:23S:1540:G:H8	1.78	0.49
1:L02:216:ARG:NH1	54:23S:691:C:OP1	2.45	0.49
2:L03:197:THR:O	54:23S:2820:A:N6	2.45	0.49
6:L09:117:LEU:HD21	6:L09:122:LEU:HD13	1.93	0.49
14:L18:57:ALA:O	14:L18:61:GLN:NE2	2.45	0.49
18:L22:25:ARG:NH2	18:L22:74:ILE:O	2.43	0.49
19:L23:13:ALA:HB3	19:L23:33:LYS:HD3	1.93	0.49
50:S20:42:ASP:OD1	50:S20:42:ASP:N	2.44	0.49
52:L1:31:LYS:NZ	52:L1:178:VAL:O	2.33	0.49
53:16S:80:A:H2'	53:16S:81:A:C8	2.47	0.49
54:23S:407:G:H2'	54:23S:408:G:H8	1.77	0.49
54:23S:1431:A:H2'	54:23S:1432:G:C8	2.47	0.49
54:23S:2144:G:H1'	54:23S:2147:A:H61	1.77	0.49
18:L22:92:ARG:NH2	56:PR:14:ARG:HE	2.11	0.49
46:S16:10:GLY:HA2	53:16S:624:C:H4'	1.94	0.49
51:S21:16:ARG:NH2	51:S21:19:LYS:HE2	2.28	0.49
53:16S:501:C:H2'	53:16S:502:A:C8	2.47	0.49
54:23S:195:A:H61	54:23S:198:C:H3'	1.77	0.49
54:23S:1130:U:O2'	54:23S:1131:G:OP1	2.28	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:S07:141:HIS:O	37:S07:145:GLU:N	2.41	0.49
46:S16:70:ARG:NH1	53:16S:451:A:OP2	2.45	0.49
52:L1:11:ILE:HG22	52:L1:220:ALA:HB2	1.94	0.49
53:16S:28:A:O2'	53:16S:296:U:OP1	2.26	0.49
53:16S:208:U:HO2'	53:16S:211:G:H1	1.59	0.49
53:16S:1118:U:H2'	53:16S:1119:C:H6	1.76	0.49
53:16S:1376:U:H2'	53:16S:1377:A:H8	1.78	0.49
54:23S:296:U:H2'	54:23S:297:G:H8	1.77	0.49
54:23S:968:C:H2'	54:23S:969:G:C8	2.47	0.49
9:L13:9:GLU:HG2	9:L13:10:THR:HG23	1.95	0.49
24:L29:11:VAL:HA	24:L29:14:LEU:HB3	1.94	0.49
32:S02:18:GLN:HA	32:S02:37:VAL:HA	1.95	0.49
32:S02:166:ASP:OD1	32:S02:189:ASN:ND2	2.45	0.49
41:S11:58:THR:HG23	41:S11:61:ALA:H	1.77	0.49
53:16S:745:G:OP1	53:16S:851:G:O2'	2.31	0.49
53:16S:944:G:N1	53:16S:1338:G:OP2	2.37	0.49
53:16S:1500:A:H5"	53:16S:1508:A:H5"	1.94	0.49
54:23S:1796:U:H2'	54:23S:1797:G:H8	1.78	0.49
1:L02:220:ARG:HD2	54:23S:1827:U:OP2	2.12	0.49
7:L10:31:ARG:NH2	54:23S:1054:A:O5'	2.45	0.49
11:L15:104:GLN:NE2	54:23S:257:C:O2	2.46	0.49
33:S03:175:HIS:ND1	53:16S:1109:C:OP2	2.46	0.49
34:S04:197:HIS:HD2	35:S05:120:HIS:HB3	1.76	0.49
46:S16:5:ARG:NH2	46:S16:23:ASP:O	2.45	0.49
52:L1:11:ILE:HG23	52:L1:33:LEU:HD22	1.95	0.49
53:16S:1056:U:H2'	53:16S:1057:G:H8	1.77	0.49
54:23S:1038:G:H2'	54:23S:1039:A:C8	2.47	0.49
54:23S:1316:U:H2'	54:23S:1317:G:C8	2.47	0.49
1:L02:204:LEU:HD12	54:23S:1791:A:H5"	1.93	0.49
10:L14:43:ILE:HD12	10:L14:56:ASP:HB2	1.94	0.49
13:L17:44:LEU:HD23	13:L17:113:ILE:HD13	1.95	0.49
29:L34:1:MET:N	54:23S:1619:G:O2'	2.45	0.49
32:S02:13:VAL:HA	32:S02:202:ASN:HB3	1.95	0.49
39:S09:91:GLU:HA	39:S09:94:ARG:HB2	1.95	0.49
41:S11:117:HIS:HB2	53:16S:674:G:H21	1.77	0.49
49:S19:49:ALA:HB1	49:S19:56:HIS:HB3	1.95	0.49
53:16S:335:C:H2'	53:16S:336:A:C8	2.47	0.49
54:23S:1251:C:O2'	54:23S:1253:A:OP2	2.31	0.49
54:23S:1278:C:H2'	54:23S:1279:G:H8	1.77	0.49
54:23S:2691:C:H2'	54:23S:2692:G:C8	2.48	0.49
8:L11:25:PRO:HD2	54:23S:1095:A:H61	1.78	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:L16:11:LYS:HD3	12:L16:86:LYS:HG2	1.95	0.49
15:L19:29:VAL:HG12	15:L19:80:VAL:HG12	1.95	0.49
32:S02:31:PHE:HB2	32:S02:41:ASN:HA	1.94	0.49
32:S02:105:THR:HG21	53:16S:1072:G:H21	1.78	0.49
34:S04:187:ARG:HH12	34:S04:192:ALA:HA	1.78	0.49
52:L1:49:GLY:N	52:L1:208:TYR:O	2.44	0.49
53:16S:254:G:H2'	53:16S:255:G:H8	1.77	0.49
54:23S:693:A:O2'	54:23S:1353:A:N3	2.39	0.49
54:23S:1476:U:H2'	54:23S:1477:A:H8	1.77	0.49
54:23S:2086:U:H2'	54:23S:2087:G:C8	2.48	0.49
33:S03:35:ASP:HA	33:S03:38:VAL:HG12	1.95	0.48
42:S12:32:VAL:HG12	42:S12:55:ARG:HB3	1.95	0.48
54:23S:806:C:O2	54:23S:2444:G:O2'	2.29	0.48
54:23S:2047:C:O2'	54:23S:2823:A:N1	2.43	0.48
14:L18:40:ILE:HG12	14:L18:47:VAL:HG12	1.94	0.48
18:L22:78:GLU:O	54:23S:24:G:O2'	2.28	0.48
42:S12:31:GLY:HA3	42:S12:54:VAL:HG13	1.95	0.48
54:23S:16:C:H2'	54:23S:17:G:H8	1.78	0.48
54:23S:2035:G:H5"	54:23S:2036:C:H5	1.77	0.48
24:L29:21:LEU:HD23	24:L29:25:GLN:HG2	1.94	0.48
53:16S:151:A:OP2	53:16S:169:C:N4	2.46	0.48
53:16S:1095:U:OP1	53:16S:1108:G:N2	2.42	0.48
54:23S:302:C:H2'	54:23S:303:G:C8	2.48	0.48
54:23S:596:U:H2'	54:23S:597:G:H8	1.78	0.48
54:23S:1825:U:H2'	54:23S:1826:G:C8	2.48	0.48
54:23S:2398:U:H2'	54:23S:2399:G:C8	2.48	0.48
54:23S:2857:G:N2	54:23S:2860:A:OP2	2.33	0.48
1:L02:257:ARG:NH2	1:L02:262:THR:OG1	2.44	0.48
2:L03:59:ARG:NH1	54:23S:2831:G:N7	2.61	0.48
5:L06:85:LYS:HG3	5:L06:131:VAL:HG12	1.95	0.48
35:S05:108:GLY:H	53:16S:9:G:H4'	1.79	0.48
35:S05:152:VAL:HG21	38:S08:98:LEU:HD13	1.95	0.48
39:S09:11:ARG:HH11	39:S09:12:LYS:HB2	1.78	0.48
44:S14:12:ARG:NH2	53:16S:980:C:O3'	2.47	0.48
53:16S:460:A:H2'	53:16S:461:A:H8	1.77	0.48
54:23S:1310:G:H1'	54:23S:1611:C:H5"	1.95	0.48
34:S04:10:LEU:HD13	34:S04:62:ARG:HD2	1.94	0.48
34:S04:155:LYS:NZ	34:S04:177:MET:SD	2.82	0.48
54:23S:2705:A:O2'	54:23S:2852:G:OP1	2.24	0.48
33:S03:87:ARG:CZ	33:S03:98:ALA:H	2.27	0.48
35:S05:105:ILE:CB	35:S05:123:LEU:HD23	2.44	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:S06:46:GLN:HE22	36:S06:55:HIS:CD2	2.31	0.48
53:16S:390:U:H2'	53:16S:391:G:C8	2.49	0.48
53:16S:501:C:H2'	53:16S:502:A:H8	1.79	0.48
53:16S:1355:G:H2'	53:16S:1356:G:H8	1.78	0.48
54:23S:1079:C:H2'	54:23S:1080:A:C8	2.48	0.48
54:23S:1808:A:H3'	54:23S:1809:A:C8	2.48	0.48
54:23S:2215:C:H2'	54:23S:2216:G:H8	1.77	0.48
2:L03:190:LYS:HE2	54:23S:2729:G:H5'	1.95	0.48
21:L25:51:GLN:HG2	21:L25:86:LEU:HD11	1.96	0.48
23:L28:49:ARG:NH1	54:23S:1364:G:OP2	2.33	0.48
53:16S:82:G:H1	53:16S:87:C:N4	2.11	0.48
53:16S:390:U:H2'	53:16S:391:G:H8	1.78	0.48
54:23S:172:A:H2'	54:23S:173:A:H8	1.78	0.48
54:23S:270:A:N1	54:23S:369:U:O2'	2.41	0.48
54:23S:979:A:H2'	54:23S:982:C:H42	1.79	0.48
54:23S:1076:C:H2'	54:23S:1077:A:C8	2.49	0.48
5:L06:157:LYS:HE2	54:23S:2658:C:H5"	1.96	0.48
20:L24:32:LYS:HB3	20:L24:63:ALA:HB1	1.95	0.48
53:16S:407:U:H2'	53:16S:408:A:C8	2.48	0.48
53:16S:1150:A:H2'	53:16S:1151:A:C8	2.48	0.48
54:23S:1355:G:H2'	54:23S:1356:G:H8	1.79	0.48
54:23S:1363:C:O2'	54:23S:1809:A:N3	2.37	0.48
29:L34:3:ARG:O	29:L34:6:GLN:NE2	2.42	0.48
31:L36:32:LYS:HE2	54:23S:2478:A:H5'	1.95	0.48
53:16S:26:A:H61	53:16S:558:G:H1'	1.79	0.48
53:16S:41:G:H2'	53:16S:42:G:H8	1.79	0.48
53:16S:1308:U:H2'	53:16S:1309:G:H8	1.78	0.48
54:23S:441:U:H2'	54:23S:442:G:C8	2.49	0.48
54:23S:833:A:H2'	54:23S:834:G:C8	2.48	0.48
54:23S:953:G:H2'	54:23S:954:G:H8	1.79	0.48
54:23S:1123:C:H2'	54:23S:1124:G:C8	2.48	0.48
54:23S:1291:C:H2'	54:23S:1292:G:H8	1.79	0.48
54:23S:1709:U:H2'	54:23S:1710:G:H8	1.78	0.48
54:23S:2055:C:N4	54:23S:2499:C:O2'	2.47	0.48
17:L21:28:ALA:HB3	17:L21:31:GLU:HG2	1.95	0.48
23:L28:2:ARG:NH1	54:23S:1365:A:OP1	2.43	0.48
23:L28:25:LYS:NZ	54:23S:190:A:OP2	2.38	0.48
36:S06:11:HIS:CD2	36:S06:53:LYS:HE2	2.49	0.48
52:L1:42:VAL:HG22	52:L1:216:THR:HG22	1.95	0.48
53:16S:34:C:H2'	53:16S:35:G:C8	2.49	0.48
53:16S:352:C:O2	53:16S:355:C:N4	2.46	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:16S:380:G:N2	53:16S:383:A:OP2	2.38	0.48
53:16S:672:U:H2'	53:16S:673:A:H8	1.78	0.48
54:23S:1734:G:H2'	54:23S:1735:A:H8	1.79	0.48
54:23S:2314:A:H2'	54:23S:2315:G:H8	1.79	0.48
54:23S:2776:A:O2'	54:23S:2782:G:N7	2.34	0.48
1:L02:184:GLU:HG3	1:L02:186:ASP:H	1.79	0.47
5:L06:16:VAL:HG22	5:L06:25:ILE:HG12	1.95	0.47
9:L13:84:ILE:HB	54:23S:1131:G:H5'	1.96	0.47
44:S14:15:LEU:HB3	44:S14:54:SER:HB3	1.96	0.47
54:23S:373:U:H2'	54:23S:374:A:H8	1.79	0.47
54:23S:1827:U:O2'	54:23S:1828:G:H5'	2.14	0.47
13:L17:39:PRO:HG2	54:23S:1651:G:H4'	1.96	0.47
52:L1:15:VAL:HG11	52:L1:222:VAL:HG22	1.96	0.47
53:16S:398:U:H2'	53:16S:399:G:H8	1.79	0.47
53:16S:677:U:O2	53:16S:777:A:O2'	2.28	0.47
53:16S:1250:A:H2'	53:16S:1251:A:C8	2.49	0.47
54:23S:48:G:N2	54:23S:177:G:OP2	2.47	0.47
54:23S:414:C:H2'	54:23S:415:A:H8	1.79	0.47
54:23S:1028:A:N3	54:23S:2486:C:O2'	2.43	0.47
54:23S:1123:C:H2'	54:23S:1124:G:H8	1.79	0.47
54:23S:1368:G:H2'	54:23S:1369:G:H8	1.78	0.47
54:23S:1802:A:H2'	54:23S:1803:A:C8	2.49	0.47
37:S07:4:ARG:HH12	53:16S:933:G:P	2.37	0.47
41:S11:73:VAL:HA	41:S11:76:TYR:HD2	1.79	0.47
46:S16:4:ILE:HG12	46:S16:21:VAL:HG22	1.97	0.47
53:16S:56:U:H2'	53:16S:57:G:C8	2.49	0.47
53:16S:695:A:H2'	53:16S:696:A:C8	2.50	0.47
54:23S:475:C:O2	54:23S:479:A:N6	2.47	0.47
54:23S:776:G:H1	54:23S:2072:C:H5'	1.78	0.47
54:23S:1733:G:H2'	54:23S:1734:G:H8	1.79	0.47
54:23S:2070:A:H2'	54:23S:2071:A:O4'	2.13	0.47
54:23S:2087:G:H2'	54:23S:2088:A:C8	2.49	0.47
54:23S:2699:C:H2'	54:23S:2700:A:H8	1.79	0.47
51:S21:23:GLU:O	51:S21:24:LYS:HG3	2.15	0.47
52:L1:163:TYR:HB3	52:L1:173:THR:HB	1.97	0.47
53:16S:147:G:H2'	53:16S:148:G:C8	2.49	0.47
53:16S:483:C:H2'	53:16S:484:G:C8	2.49	0.47
54:23S:2246:G:H2'	54:23S:2247:A:H8	1.78	0.47
54:23S:2863:C:H2'	54:23S:2864:G:H8	1.79	0.47
55:5S:114:C:H2'	55:5S:115:A:C8	2.49	0.47
36:S06:53:LYS:HD2	36:S06:54:LEU:N	2.29	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:S07:149:ALA:HB1	41:S11:58:THR:HG21	1.97	0.47
46:S16:18:GLN:HA	46:S16:38:PHE:HA	1.96	0.47
53:16S:54:C:OP1	53:16S:351:G:N2	2.36	0.47
54:23S:1431:A:H2'	54:23S:1432:G:H8	1.77	0.47
54:23S:2345:G:H4'	54:23S:2346:A:H3'	1.96	0.47
34:S04:97:LEU:HB2	34:S04:134:TYR:HB3	1.96	0.47
35:S05:105:ILE:HG13	35:S05:123:LEU:HD23	1.95	0.47
35:S05:121:ASN:O	35:S05:122:VAL:O	2.33	0.47
41:S11:63:GLN:HG3	41:S11:98:ALA:HB2	1.96	0.47
54:23S:2031:A:N3	54:23S:2455:G:O2'	2.40	0.47
54:23S:2391:G:O2'	54:23S:2392:A:O5'	2.29	0.47
54:23S:2438:U:H5"	56:PR:24:ARG:NH2	2.29	0.47
5:L06:9:VAL:HG23	5:L06:48:THR:HG22	1.97	0.47
6:L09:12:LEU:HD13	6:L09:19:VAL:HG11	1.95	0.47
19:L23:19:LYS:NZ	54:23S:1340:U:OP1	2.46	0.47
20:L24:48:VAL:HG22	20:L24:50:ALA:H	1.80	0.47
21:L25:14:LYS:NZ	55:5S:78:A:OP2	2.47	0.47
28:L33:10:LEU:N	28:L33:20:TYR:O	2.47	0.47
33:S03:149:LYS:HB3	33:S03:200:TRP:HB2	1.97	0.47
38:S08:28:SER:HB2	38:S08:58:LEU:HB2	1.95	0.47
39:S09:51:LEU:HB3	39:S09:56:MET:HB2	1.96	0.47
53:16S:231:U:H2'	53:16S:232:G:H8	1.79	0.47
53:16S:1524:C:H2'	53:16S:1525:G:C8	2.50	0.47
54:23S:554:U:H2'	54:23S:555:G:O4'	2.15	0.47
54:23S:877:A:O2'	54:23S:900:A:N6	2.47	0.47
54:23S:1589:U:H2'	54:23S:1590:A:H8	1.79	0.47
54:23S:2699:C:H2'	54:23S:2700:A:C8	2.49	0.47
42:S12:5:GLN:HG2	42:S12:8:ARG:HH21	1.80	0.47
51:S21:65:ARG:NH1	53:16S:1087:G:O2'	2.43	0.47
53:16S:138:G:H2'	53:16S:139:A:H8	1.80	0.47
53:16S:591:U:H2'	53:16S:592:G:H8	1.80	0.47
53:16S:1354:U:H2'	53:16S:1355:G:H8	1.80	0.47
54:23S:741:U:H2'	54:23S:742:A:C8	2.49	0.47
54:23S:1161:C:H2'	54:23S:1162:G:H8	1.78	0.47
55:5S:40:U:N3	55:5S:44:G:OP2	2.47	0.47
55:5S:60:C:H2'	55:5S:61:G:H8	1.80	0.47
53:16S:520:A:H61	53:16S:529:G:H1'	1.79	0.47
53:16S:672:U:H2'	53:16S:673:A:C8	2.50	0.47
54:23S:534:U:H2'	54:23S:535:G:H8	1.79	0.47
54:23S:1105:U:C2'	54:23S:1106:G:H5"	2.45	0.47
54:23S:1435:G:H2'	54:23S:1436:G:C8	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:23S:1802:A:H2'	54:23S:1803:A:H8	1.80	0.47
3:L04:29:HIS:NE2	54:23S:1244:A:O2'	2.41	0.47
7:L10:4:ASN:OD1	7:L10:8:LYS:NZ	2.47	0.47
32:S02:20:ARG:NH2	32:S02:21:TYR:OH	2.48	0.47
37:S07:110:ARG:NH2	37:S07:122:GLU:OE2	2.47	0.47
44:S14:71:GLY:O	44:S14:80:ARG:N	2.48	0.47
48:S18:24:ASP:OD1	48:S18:24:ASP:N	2.48	0.47
53:16S:477:C:H2'	53:16S:478:A:H8	1.80	0.47
53:16S:745:G:H2'	53:16S:746:A:H8	1.79	0.47
53:16S:1042:A:H2'	53:16S:1043:G:C8	2.50	0.47
54:23S:358:U:H2'	54:23S:359:G:C8	2.49	0.47
54:23S:696:G:H1	54:23S:766:U:H3	1.63	0.47
54:23S:1068:G:H2'	54:23S:1069:A:O4'	2.15	0.47
54:23S:1103:A:N3	54:23S:1103:A:H2'	2.29	0.47
3:L04:77:ILE:HG13	3:L04:78:TRP:HD1	1.80	0.46
22:L27:39:THR:H	54:23S:2331:G:H4'	1.80	0.46
53:16S:202:G:H2'	53:16S:203:G:C8	2.50	0.46
53:16S:1017:U:H2'	53:16S:1018:G:H8	1.80	0.46
54:23S:599:A:H2'	54:23S:600:G:H8	1.79	0.46
54:23S:948:C:H2'	54:23S:949:G:C8	2.49	0.46
54:23S:2627:G:O2'	54:23S:2781:A:N1	2.41	0.46
9:L13:135:GLN:NE2	54:23S:6:A:N3	2.58	0.46
34:S04:103:ARG:HB3	34:S04:170:LEU:HD21	1.96	0.46
35:S05:105:ILE:CG1	35:S05:123:LEU:HD23	2.45	0.46
54:23S:362:A:H3'	54:23S:363:G:H8	1.80	0.46
54:23S:1013:C:H2'	54:23S:1014:A:H8	1.80	0.46
54:23S:2182:U:H2'	54:23S:2183:A:C8	2.50	0.46
7:L10:29:ASP:HB3	7:L10:32:GLY:HA3	1.97	0.46
11:L15:4:ASN:ND2	54:23S:1203:U:O2'	2.45	0.46
18:L22:24:ILE:HD13	18:L22:36:LEU:HD11	1.98	0.46
35:S05:100:GLU:CA	35:S05:121:ASN:HD22	2.26	0.46
53:16S:634:C:H2'	53:16S:635:A:C8	2.51	0.46
53:16S:977:A:N6	53:16S:1224:U:O4'	2.48	0.46
54:23S:937:C:H2'	54:23S:938:G:C8	2.50	0.46
54:23S:974:G:H1'	54:23S:975:A:C8	2.50	0.46
54:23S:1070:A:N7	54:23S:1096:A:O2'	2.49	0.46
54:23S:2250:G:O2'	54:23S:2496:C:OP1	2.22	0.46
54:23S:2693:G:H2'	54:23S:2694:G:H8	1.81	0.46
6:L09:30:LEU:HB3	6:L09:36:ALA:HB3	1.98	0.46
39:S09:112:ARG:NH2	40:S10:64:GLN:OE1	2.48	0.46
53:16S:517:G:N2	53:16S:530:G:OP1	2.48	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:16S:1513:A:H2'	53:16S:1514:G:C8	2.51	0.46
54:23S:1447:C:H2'	54:23S:1448:G:C8	2.51	0.46
54:23S:2120:G:H2'	54:23S:2121:G:H8	1.80	0.46
55:5S:93:C:H2'	55:5S:94:A:H8	1.81	0.46
12:L16:13:HIS:O	12:L16:71:LYS:NZ	2.48	0.46
13:L17:11:ASN:N	54:23S:1653:G:O6	2.46	0.46
16:L20:50:ARG:NH2	54:23S:993:G:OP2	2.48	0.46
39:S09:32:ARG:HH12	53:16S:1248:A:H4'	1.79	0.46
54:23S:145:C:H2'	54:23S:146:A:H8	1.80	0.46
54:23S:414:C:H2'	54:23S:415:A:C8	2.51	0.46
54:23S:876:C:H2'	54:23S:877:A:O4'	2.15	0.46
54:23S:2039:U:H2'	54:23S:2040:G:C8	2.50	0.46
54:23S:2836:U:H2'	54:23S:2837:A:C8	2.50	0.46
1:L02:149:LYS:HD3	54:23S:2204:G:H4'	1.98	0.46
3:L04:55:SER:OG	54:23S:797:G:OP1	2.26	0.46
7:L10:58:THR:HG21	7:L10:82:ILE:H	1.80	0.46
16:L20:108:LEU:HD23	17:L21:49:ILE:HD13	1.98	0.46
30:L35:31:ILE:HD13	54:23S:2391:G:H5'	1.97	0.46
32:S02:213:LEU:HA	32:S02:216:VAL:HG12	1.97	0.46
41:S11:86:LYS:HB2	41:S11:112:VAL:HG23	1.96	0.46
44:S14:2:LYS:HD3	53:16S:1048:G:H5"	1.97	0.46
49:S19:77:ARG:HD3	53:16S:1222:G:H5"	1.98	0.46
53:16S:85:U:H5"	53:16S:86:G:H5'	1.97	0.46
53:16S:1040:U:H2'	53:16S:1041:G:H8	1.80	0.46
54:23S:1730:C:O2	54:23S:1731:G:N1	2.48	0.46
54:23S:2329:U:H2'	54:23S:2330:G:C8	2.51	0.46
54:23S:2841:C:H2'	54:23S:2842:G:C8	2.50	0.46
54:23S:2899:A:H2'	54:23S:2900:A:C8	2.51	0.46
1:L02:244:VAL:HG12	1:L02:250:GLN:HA	1.96	0.46
17:L21:43:ASN:HB2	17:L21:46:GLU:HB3	1.97	0.46
46:S16:28:ARG:NH2	53:16S:390:U:O2'	2.48	0.46
54:23S:18:U:H2'	54:23S:19:A:H8	1.81	0.46
54:23S:1443:U:H2'	54:23S:1444:G:H8	1.80	0.46
54:23S:2187:U:H2'	54:23S:2188:U:C6	2.50	0.46
1:L02:70:LYS:NZ	1:L02:97:ASP:OD2	2.49	0.46
10:L14:32:TYR:OH	54:23S:1996:C:N4	2.45	0.46
21:L25:19:ARG:NE	55:5S:94:A:OP1	2.43	0.46
29:L34:10:LEU:HD23	54:23S:770:G:H5"	1.97	0.46
42:S12:109:ARG:HB2	42:S12:118:VAL:HG21	1.98	0.46
48:S18:40:PRO:HB2	48:S18:42:ARG:HG2	1.97	0.46
53:16S:1162:C:H2'	53:16S:1163:A:H8	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:16S:1250:A:H2	53:16S:1370:G:H1'	1.80	0.46
54:23S:1716:U:H2'	54:23S:1717:A:H8	1.80	0.46
54:23S:2183:A:H2'	54:23S:2184:A:C8	2.51	0.46
54:23S:2899:A:H2'	54:23S:2900:A:H8	1.81	0.46
55:5S:103:U:H2'	55:5S:104:A:H8	1.81	0.46
7:L10:81:LEU:H	7:L10:81:LEU:HD12	1.79	0.46
11:L15:51:GLU:OE1	11:L15:54:GLN:NE2	2.49	0.46
33:S03:64:ARG:HG2	33:S03:99:GLN:HB3	1.97	0.46
33:S03:152:VAL:HG12	33:S03:197:VAL:HG22	1.97	0.46
35:S05:101:GLY:H	35:S05:121:ASN:HD22	1.63	0.46
53:16S:5:U:H4'	53:16S:6:G:C4	2.51	0.46
53:16S:770:C:H2'	53:16S:771:G:H8	1.79	0.46
53:16S:1409:C:H4'	54:23S:1914:C:H41	1.81	0.46
53:16S:1512:U:H2'	53:16S:1513:A:C8	2.51	0.46
54:23S:1054:A:H2'	54:23S:1055:G:C8	2.51	0.46
54:23S:2106:U:H2'	54:23S:2107:G:C8	2.51	0.46
54:23S:2233:U:H2'	54:23S:2234:G:C8	2.51	0.46
1:L02:86:ARG:NH2	54:23S:1817:G:OP1	2.49	0.46
20:L24:71:ILE:HD11	20:L24:82:VAL:HB	1.97	0.46
34:S04:91:ALA:HB1	34:S04:184:LYS:HD2	1.98	0.46
35:S05:114:LEU:O	35:S05:119:VAL:HG22	2.16	0.46
37:S07:78:ARG:NH2	37:S07:80:GLY:O	2.26	0.46
39:S09:14:SER:HB2	39:S09:69:GLY:HA3	1.98	0.46
46:S16:5:ARG:HB2	53:16S:376:G:H5"	1.97	0.46
53:16S:1287:A:H2'	53:16S:1288:A:C8	2.50	0.46
54:23S:633:A:O2'	54:23S:2404:U:OP1	2.33	0.46
54:23S:1084:A:H2'	54:23S:1105:U:O2'	2.16	0.46
54:23S:1288:G:OP2	54:23S:1288:G:N2	2.32	0.46
54:23S:1432:G:H2'	54:23S:1433:A:H8	1.76	0.46
54:23S:1999:C:O2	54:23S:2687:U:O2'	2.29	0.46
54:23S:2185:U:H2'	54:23S:2186:G:H8	1.80	0.46
54:23S:2216:G:H2'	54:23S:2217:G:H8	1.81	0.46
54:23S:2623:G:H2'	54:23S:2624:G:H8	1.81	0.46
54:23S:2818:U:H2'	54:23S:2819:G:C8	2.51	0.46
54:23S:2832:U:H1'	54:23S:2834:G:C2	2.51	0.46
54:23S:2863:C:H2'	54:23S:2864:G:C8	2.51	0.46
1:L02:81:GLU:HB2	1:L02:90:ILE:HG13	1.99	0.45
37:S07:55:LYS:HB3	37:S07:59:GLU:HG3	1.99	0.45
38:S08:9:MET:HE1	38:S08:32:LYS:HA	1.97	0.45
51:S21:22:CYS:SG	51:S21:23:GLU:N	2.87	0.45
52:L1:63:THR:HG22	52:L1:163:TYR:HE1	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:23S:174:U:H2'	54:23S:175:G:H8	1.81	0.45
54:23S:371:A:N6	54:23S:402:A:OP2	2.49	0.45
54:23S:475:C:H4'	54:23S:510:C:H5'	1.97	0.45
54:23S:720:U:H2'	54:23S:721:A:H8	1.81	0.45
54:23S:829:A:N7	54:23S:2247:A:O2'	2.41	0.45
54:23S:1101:U:H2'	54:23S:1102:C:C6	2.50	0.45
54:23S:1229:C:H2'	54:23S:1230:A:C8	2.51	0.45
54:23S:2446:G:N2	54:23S:2449:U:O2	2.48	0.45
54:23S:2698:U:H2'	54:23S:2699:C:C6	2.50	0.45
2:L03:115:GLY:N	54:23S:2821:A:OP2	2.50	0.45
3:L04:91:ASP:OD2	3:L04:93:SER:OG	2.30	0.45
7:L10:96:PHE:HE2	7:L10:126:LEU:H	1.63	0.45
33:S03:9:ILE:HD13	44:S14:97:LYS:HD3	1.98	0.45
35:S05:82:HIS:NE2	35:S05:146:MET:HG3	2.31	0.45
54:23S:721:A:H2'	54:23S:722:A:H8	1.79	0.45
54:23S:1149:G:H2'	54:23S:1150:C:C6	2.50	0.45
54:23S:2246:G:H2'	54:23S:2247:A:C8	2.50	0.45
23:L28:36:ARG:HA	23:L28:47:THR:HA	1.98	0.45
49:S19:8:PRO:HB2	49:S19:40:PHE:HE1	1.82	0.45
54:23S:296:U:H2'	54:23S:297:G:C8	2.51	0.45
54:23S:639:U:H2'	54:23S:640:C:H6	1.81	0.45
54:23S:2036:C:H2'	54:23S:2037:A:C8	2.51	0.45
54:23S:2126:A:N6	54:23S:2163:A:O2'	2.48	0.45
55:5S:1:U:H2'	55:5S:2:G:C8	2.51	0.45
25:L30:15:ARG:HE	25:L30:52:PHE:HE2	1.65	0.45
39:S09:33:SER:HB3	39:S09:36:GLN:HG2	1.97	0.45
50:S20:66:ILE:HG22	50:S20:68:LYS:H	1.80	0.45
53:16S:829:G:H2'	53:16S:830:G:H8	1.82	0.45
53:16S:1300:G:C2'	53:16S:1301:U:OP2	2.64	0.45
54:23S:1278:C:H2'	54:23S:1279:G:C8	2.52	0.45
54:23S:2567:G:H2'	54:23S:2568:U:C6	2.51	0.45
5:L06:126:THR:HB	5:L06:129:GLU:HB3	1.99	0.45
52:L1:175:ILE:HB	52:L1:188:ASN:HB3	1.99	0.45
53:16S:222:C:H2'	53:16S:223:A:H8	1.81	0.45
53:16S:518:C:H5'	53:16S:530:G:H5'	1.99	0.45
54:23S:406:G:H2'	54:23S:407:G:H8	1.81	0.45
54:23S:576:U:H2'	54:23S:577:G:H8	1.81	0.45
55:5S:19:C:H2'	55:5S:20:G:H8	1.82	0.45
11:L15:18:ARG:NH1	54:23S:1250:G:N7	2.54	0.45
47:S17:72:TRP:NE1	53:16S:235:C:O2'	2.46	0.45
53:16S:987:G:H2'	53:16S:988:G:C8	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:16S:1005:A:OP2	53:16S:1024:G:N2	2.33	0.45
53:16S:1405:G:H2'	53:16S:1406:U:H6	1.81	0.45
54:23S:406:G:H2'	54:23S:407:G:C8	2.52	0.45
54:23S:721:A:H2'	54:23S:722:A:C8	2.52	0.45
54:23S:776:G:H1	54:23S:2072:C:C5'	2.29	0.45
54:23S:926:G:H2'	54:23S:927:A:C8	2.52	0.45
4:L05:28:PRO:HB2	4:L05:168:LEU:HD22	1.99	0.45
6:L09:51:ARG:HA	6:L09:55:GLU:HG3	1.98	0.45
16:L20:44:TYR:HH	54:23S:561:G:HO2'	1.63	0.45
24:L29:19:LEU:HB3	24:L29:23:ARG:NH1	2.30	0.45
38:S08:10:LEU:HG	38:S08:74:ILE:HG12	1.98	0.45
39:S09:115:VAL:HG13	40:S10:62:ARG:HH11	1.82	0.45
42:S12:98:ARG:HB2	42:S12:116:TYR:HA	1.99	0.45
43:S13:24:VAL:HA	53:16S:1329:A:H5"	1.99	0.45
53:16S:829:G:H2'	53:16S:830:G:C8	2.51	0.45
53:16S:1412:C:H2'	53:16S:1413:A:C8	2.52	0.45
54:23S:523:C:H2'	54:23S:524:G:C8	2.51	0.45
54:23S:780:G:O2'	54:23S:783:A:N6	2.49	0.45
54:23S:1059:G:H5'	54:23S:1060:U:OP2	2.17	0.45
54:23S:1161:C:H2'	54:23S:1162:G:C8	2.52	0.45
54:23S:1434:A:H2'	54:23S:1435:G:C8	2.51	0.45
54:23S:1463:C:H2'	54:23S:1464:G:H8	1.80	0.45
54:23S:2036:C:H2'	54:23S:2037:A:H8	1.81	0.45
45:S15:71:ARG:NH2	53:16S:754:C:H5'	2.28	0.45
53:16S:492:C:H2'	53:16S:493:A:C8	2.52	0.45
53:16S:1071:C:H2'	53:16S:1072:G:C8	2.48	0.45
53:16S:1124:G:H1'	53:16S:1125:U:H5	1.82	0.45
54:23S:222:A:H61	54:23S:232:G:H1'	1.82	0.45
54:23S:596:U:H2'	54:23S:597:G:C8	2.52	0.45
54:23S:1710:G:H2'	54:23S:1711:A:C8	2.52	0.45
54:23S:2313:C:H2'	54:23S:2314:A:C8	2.50	0.45
55:5S:1:U:H2'	55:5S:2:G:H8	1.81	0.45
12:L16:123:LYS:NZ	54:23S:2467:C:O2	2.41	0.45
28:L33:36:LYS:HD3	28:L33:45:HIS:HB3	1.99	0.45
32:S02:71:THR:OG1	32:S02:168:GLU:OE2	2.34	0.45
43:S13:106:ARG:NH1	53:16S:1228:C:OP1	2.48	0.45
53:16S:21:G:H1'	53:16S:915:A:H61	1.82	0.45
53:16S:243:A:H4'	53:16S:244:U:H3'	1.99	0.45
53:16S:294:U:H2'	53:16S:295:C:C6	2.52	0.45
53:16S:337:G:H2'	53:16S:338:A:H8	1.80	0.45
53:16S:538:G:H2'	53:16S:539:A:H8	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:16S:1175:G:H2'	53:16S:1176:A:C8	2.52	0.45
53:16S:1270:G:HO2'	53:16S:1313:U:HO2'	1.65	0.45
53:16S:1355:G:H2'	53:16S:1356:G:C8	2.51	0.45
54:23S:141:G:H5"	54:23S:142:A:C8	2.52	0.45
54:23S:680:C:H2'	54:23S:681:G:C8	2.52	0.45
54:23S:962:G:O2'	54:23S:2250:G:N2	2.50	0.45
54:23S:974:G:O2'	54:23S:989:G:N2	2.50	0.45
54:23S:1563:U:H2'	54:23S:1564:C:C6	2.52	0.45
1:L02:13:ARG:NH1	54:23S:1693:U:O2'	2.48	0.45
9:L13:125:TYR:OH	9:L13:132:HIS:NE2	2.38	0.45
17:L21:51:VAL:O	17:L21:51:VAL:HG23	2.16	0.45
27:L32:4:GLN:OE1	54:23S:2056:G:O2'	2.35	0.45
34:S04:154:VAL:HG13	34:S04:155:LYS:HD2	1.99	0.45
54:23S:272:A:H2'	54:23S:273:G:H8	1.82	0.45
54:23S:318:C:H2'	54:23S:319:G:H8	1.81	0.45
54:23S:570:G:H2'	54:23S:2030:A:N7	2.32	0.45
54:23S:832:U:H2'	54:23S:833:A:H8	1.81	0.45
54:23S:1463:C:H2'	54:23S:1464:G:C8	2.51	0.45
54:23S:2059:A:H1'	56:PR:17:PRO:HD2	1.99	0.45
54:23S:2530:A:OP2	54:23S:2535:G:N2	2.50	0.45
54:23S:2788:C:H2'	54:23S:2789:C:C6	2.51	0.45
5:L06:120:ILE:HD12	5:L06:140:ILE:HG22	1.98	0.44
9:L13:118:MET:HA	9:L13:121:LYS:HE2	1.99	0.44
12:L16:42:THR:HG22	12:L16:93:VAL:HG12	1.98	0.44
18:L22:67:ASP:OD2	18:L22:67:ASP:N	2.50	0.44
20:L24:44:HIS:HB2	54:23S:482:A:H4'	1.99	0.44
28:L33:8:ILE:HD12	28:L33:50:GLU:HG3	1.99	0.44
32:S02:72:LYS:NZ	32:S02:203:ASP:O	2.35	0.44
52:L1:20:GLN:NE2	52:L1:224:VAL:O	2.38	0.44
53:16S:740:U:H2'	53:16S:741:G:H8	1.82	0.44
53:16S:859:G:OP2	53:16S:869:G:N1	2.37	0.44
54:23S:291:G:H1	54:23S:349:U:H3	1.63	0.44
54:23S:532:A:H4'	54:23S:533:G:C8	2.52	0.44
54:23S:2025:C:H2'	54:23S:2026:U:C6	2.52	0.44
54:23S:2215:C:H2'	54:23S:2216:G:C8	2.51	0.44
54:23S:2443:C:H2'	54:23S:2444:G:C8	2.52	0.44
8:L11:116:MET:SD	54:23S:1058:U:O2'	2.68	0.44
9:L13:27:ARG:HH22	54:23S:1142:A:H4'	1.81	0.44
52:L1:69:THR:HA	52:L1:176:GLY:HA2	2.00	0.44
53:16S:261:U:N3	53:16S:264:C:OP2	2.33	0.44
53:16S:1118:U:H2'	53:16S:1119:C:C6	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:23S:18:U:H2'	54:23S:19:A:C8	2.52	0.44
54:23S:351:C:H2'	54:23S:352:A:H8	1.81	0.44
54:23S:859:G:H1'	54:23S:860:U:H5	1.83	0.44
54:23S:923:G:H2'	54:23S:924:G:H8	1.82	0.44
7:L10:37:LYS:HA	7:L10:41:LEU:HG	1.99	0.44
53:16S:109:A:H5'	53:16S:110:C:H5	1.82	0.44
54:23S:36:G:N3	54:23S:450:G:O2'	2.50	0.44
54:23S:75:G:H22	54:23S:111:A:H2	1.65	0.44
54:23S:318:C:H2'	54:23S:319:G:C8	2.52	0.44
54:23S:364:C:H2'	54:23S:365:U:C6	2.52	0.44
54:23S:1326:U:H2'	54:23S:1327:A:C8	2.52	0.44
54:23S:1853:A:H2'	54:23S:1854:A:C8	2.52	0.44
1:L02:27:LYS:NZ	54:23S:1428:C:OP2	2.38	0.44
1:L02:261:ARG:O	1:L02:264:LYS:NZ	2.51	0.44
53:16S:459:A:H2'	53:16S:460:A:H8	1.83	0.44
53:16S:768:A:N3	53:16S:1512:U:O2'	2.50	0.44
54:23S:873:C:H2'	54:23S:874:G:C8	2.52	0.44
54:23S:1592:C:H2'	54:23S:1593:A:C8	2.52	0.44
4:L05:135:ILE:HG12	4:L05:142:TYR:CD1	2.50	0.44
11:L15:91:ASP:N	11:L15:91:ASP:OD1	2.51	0.44
15:L19:20:ARG:NH2	54:23S:2849:U:O4	2.41	0.44
19:L23:2:ILE:HD11	54:23S:144:A:H4'	1.99	0.44
19:L23:64:LYS:NZ	54:23S:1602:U:OP2	2.46	0.44
46:S16:73:ALA:O	46:S16:77:GLU:N	2.50	0.44
47:S17:31:PRO:HB2	47:S17:32:ILE:HD12	1.99	0.44
53:16S:17:U:H2'	53:16S:18:C:C6	2.53	0.44
53:16S:41:G:H2'	53:16S:42:G:C8	2.52	0.44
53:16S:579:A:H2'	53:16S:580:C:C6	2.52	0.44
53:16S:1053:G:H4'	53:16S:1054:C:H3'	1.98	0.44
54:23S:314:C:H2'	54:23S:315:G:C8	2.53	0.44
54:23S:534:U:H2'	54:23S:535:G:C8	2.53	0.44
54:23S:1536:C:H4'	54:23S:1537:G:C2	2.52	0.44
1:L02:15:VAL:HG22	1:L02:205:GLY:HA3	1.99	0.44
37:S07:39:GLU:HA	37:S07:42:VAL:HG22	2.00	0.44
53:16S:680:C:H2'	53:16S:681:A:H8	1.82	0.44
54:23S:634:C:H2'	54:23S:635:C:H6	1.83	0.44
54:23S:1827:U:H2'	54:23S:1828:G:O4'	2.18	0.44
54:23S:1987:A:H2'	54:23S:1988:G:H8	1.83	0.44
54:23S:2385:C:H2'	54:23S:2386:A:C8	2.52	0.44
55:5S:5:U:OP1	55:5S:61:G:O2'	2.24	0.44
55:5S:115:A:H2'	55:5S:116:G:H8	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:L25:7:GLU:O	21:L25:41:GLU:N	2.46	0.44
32:S02:131:LYS:HB3	32:S02:131:LYS:HE2	1.80	0.44
42:S12:13:ARG:NH2	53:16S:556:C:OP1	2.50	0.44
53:16S:322:C:H2'	53:16S:323:U:C6	2.52	0.44
53:16S:625:U:H2'	53:16S:626:G:H8	1.82	0.44
53:16S:1427:C:H2'	53:16S:1428:A:H8	1.82	0.44
54:23S:151:C:H2'	54:23S:152:A:C8	2.52	0.44
54:23S:521:U:H2'	54:23S:522:A:H8	1.83	0.44
54:23S:582:A:H2'	54:23S:583:G:C8	2.53	0.44
54:23S:1649:G:H2'	54:23S:1650:A:H8	1.83	0.44
54:23S:2505:G:N1	56:PR:20:ARG:NH2	2.64	0.44
7:L10:17:GLU:HB2	7:L10:88:HIS:CE1	2.52	0.44
12:L16:6:ARG:NH1	54:23S:870:U:OP1	2.50	0.44
13:L17:103:ARG:HD3	54:23S:1287:A:H8	1.81	0.44
32:S02:160:LEU:O	32:S02:183:PHE:N	2.51	0.44
51:S21:52:VAL:O	51:S21:56:ALA:N	2.49	0.44
52:L1:217:THR:HG22	52:L1:218:MET:HE2	1.99	0.44
53:16S:1270:G:O2'	53:16S:1313:U:O2'	2.32	0.44
54:23S:133:U:H2'	54:23S:134:G:H8	1.83	0.44
54:23S:174:U:H2'	54:23S:175:G:C8	2.52	0.44
54:23S:630:G:N2	54:23S:633:A:OP2	2.39	0.44
54:23S:645:C:H2'	54:23S:647:G:C8	2.53	0.44
54:23S:848:C:H2'	54:23S:849:A:H8	1.83	0.44
54:23S:1862:G:H1	54:23S:1880:U:H3	1.65	0.44
54:23S:2183:A:H2'	54:23S:2184:A:H8	1.83	0.44
7:L10:54:VAL:HG13	54:23S:1084:A:H5"	2.00	0.44
13:L17:3:HIS:O	54:23S:2722:G:O2'	2.29	0.44
16:L20:91:ARG:NH2	54:23S:1153:C:OP1	2.37	0.44
51:S21:13:VAL:HG13	51:S21:15:LEU:HG	2.00	0.44
53:16S:424:G:H2'	53:16S:425:G:H8	1.83	0.44
53:16S:490:C:H2'	53:16S:491:G:C8	2.53	0.44
54:23S:20:C:H2'	54:23S:21:A:H8	1.83	0.44
54:23S:265:A:O2'	54:23S:428:A:N6	2.49	0.44
54:23S:925:A:H2'	54:23S:926:G:H8	1.83	0.44
54:23S:2139:U:H2'	54:23S:2140:G:C8	2.53	0.44
54:23S:2241:A:H2'	54:23S:2242:G:C8	2.53	0.44
54:23S:2292:U:H2'	54:23S:2293:G:C8	2.52	0.44
54:23S:2626:C:H2'	54:23S:2627:G:C8	2.53	0.44
55:5S:19:C:H2'	55:5S:20:G:C8	2.53	0.44
34:S04:60:VAL:HB	34:S04:194:ILE:HD11	2.00	0.43
37:S07:115:MET:HA	37:S07:118:ARG:HD2	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:S10:43:PRO:HB3	53:16S:1150:A:H4'	2.00	0.43
44:S14:17:ASP:O	44:S14:22:LYS:NZ	2.37	0.43
48:S18:25:ILE:HG21	48:S18:66:LEU:HB3	1.99	0.43
53:16S:600:A:H2'	53:16S:601:G:H8	1.83	0.43
53:16S:1060:U:H2'	53:16S:1061:G:H8	1.82	0.43
53:16S:1064:G:O2'	53:16S:1190:G:N2	2.51	0.43
53:16S:1316:G:N1	53:16S:1319:A:OP2	2.48	0.43
53:16S:1432:G:N2	53:16S:1468:A:OP2	2.51	0.43
53:16S:1513:A:H2'	53:16S:1514:G:H8	1.82	0.43
54:23S:680:C:H2'	54:23S:681:G:H8	1.83	0.43
54:23S:1539:U:H2'	54:23S:1540:G:C8	2.52	0.43
54:23S:1592:C:H2'	54:23S:1593:A:H8	1.83	0.43
54:23S:1704:C:H2'	54:23S:1705:A:C8	2.53	0.43
54:23S:1882:U:H2'	54:23S:1883:U:C6	2.53	0.43
54:23S:2687:U:H2'	54:23S:2688:G:O4'	2.18	0.43
3:L04:162:ARG:NH1	54:23S:321:U:O3'	2.49	0.43
9:L13:141:ASP:OD2	9:L13:141:ASP:N	2.46	0.43
11:L15:70:LYS:HD2	54:23S:633:A:H5"	2.00	0.43
19:L23:13:ALA:O	19:L23:33:LYS:N	2.47	0.43
20:L24:95:PHE:HD2	20:L24:100:GLU:HB2	1.83	0.43
24:L29:23:ARG:HB3	24:L29:24:GLU:H	1.59	0.43
34:S04:187:ARG:NH2	34:S04:194:ILE:O	2.52	0.43
37:S07:75:LYS:HE3	37:S07:88:VAL:HG11	2.01	0.43
39:S09:113:LYS:HZ1	53:16S:1367:C:P	2.41	0.43
53:16S:216:U:H4'	53:16S:464:U:H4'	1.99	0.43
53:16S:397:A:N7	53:16S:547:A:O2'	2.47	0.43
53:16S:714:G:H1'	53:16S:777:A:C8	2.54	0.43
53:16S:950:U:H2'	53:16S:951:G:H8	1.82	0.43
53:16S:952:U:H2'	53:16S:953:G:H8	1.83	0.43
54:23S:160:A:N3	54:23S:2208:C:O2'	2.46	0.43
54:23S:598:U:H2'	54:23S:599:A:H8	1.83	0.43
54:23S:967:U:H2'	54:23S:968:C:C6	2.53	0.43
54:23S:2291:U:H2'	54:23S:2292:U:C6	2.53	0.43
2:L03:25:THR:HG21	2:L03:193:VAL:HG22	2.00	0.43
12:L16:123:LYS:NZ	54:23S:2483:C:N3	2.59	0.43
41:S11:28:ASN:ND2	53:16S:689:C:OP1	2.49	0.43
43:S13:113:LYS:HG3	43:S13:114:PRO:HD3	2.00	0.43
53:16S:1144:G:N2	53:16S:1146:A:H62	2.16	0.43
53:16S:1293:C:H2'	53:16S:1294:G:C8	2.53	0.43
54:23S:396:G:N2	54:23S:2231:U:O2'	2.41	0.43
54:23S:1443:U:H2'	54:23S:1444:G:C8	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:L34:3:ARG:HE	29:L34:4:THR:H	1.65	0.43
33:S03:63:ILE:O	33:S03:98:ALA:HA	2.18	0.43
34:S04:85:THR:HB	35:S05:102:THR:HG21	2.00	0.43
41:S11:20:ALA:HA	41:S11:33:ILE:HA	2.00	0.43
43:S13:82:LEU:HD21	49:S19:65:MET:HG2	2.00	0.43
46:S16:17:TYR:O	46:S16:39:PHE:N	2.49	0.43
53:16S:1354:U:H2'	53:16S:1355:G:C8	2.54	0.43
54:23S:523:C:H2'	54:23S:524:G:H8	1.84	0.43
54:23S:796:C:H2'	54:23S:797:G:C8	2.53	0.43
54:23S:968:C:H2'	54:23S:969:G:H8	1.83	0.43
54:23S:1112:G:H2'	54:23S:1113:U:C6	2.53	0.43
32:S02:113:LEU:HD13	32:S02:143:LEU:HB3	2.01	0.43
53:16S:712:A:H2'	53:16S:713:G:C8	2.54	0.43
53:16S:1003:G:N2	53:16S:1005:A:H5'	2.34	0.43
54:23S:1019:U:H3	54:23S:1142:A:H62	1.66	0.43
54:23S:1425:G:H2'	54:23S:1426:G:C8	2.53	0.43
54:23S:1434:A:H2'	54:23S:1435:G:H8	1.82	0.43
54:23S:1440:U:H2'	54:23S:1441:G:H8	1.83	0.43
55:5S:22:U:H2'	55:5S:23:G:C8	2.54	0.43
55:5S:66:A:H4'	55:5S:67:G:C8	2.53	0.43
4:L05:32:LYS:HD3	4:L05:91:ARG:HH11	1.84	0.43
17:L21:78:ARG:NH1	54:23S:990:A:N1	2.62	0.43
36:S06:44:ARG:HA	36:S06:58:HIS:HA	1.99	0.43
42:S12:68:GLY:HA3	42:S12:106:VAL:HG21	2.00	0.43
43:S13:78:ARG:O	43:S13:82:LEU:HB2	2.18	0.43
54:23S:275:C:H2'	54:23S:276:U:H4'	1.99	0.43
54:23S:1102:C:H2'	54:23S:1103:A:C8	2.53	0.43
54:23S:1409:U:H2'	54:23S:1410:G:H8	1.84	0.43
54:23S:1464:G:H2'	54:23S:1465:G:C8	2.54	0.43
54:23S:2324:U:H5"	54:23S:2325:G:H5"	2.01	0.43
54:23S:2327:A:H2'	54:23S:2328:A:C8	2.53	0.43
54:23S:2340:A:H2'	54:23S:2341:G:H8	1.83	0.43
54:23S:2364:C:H2'	54:23S:2365:G:O4'	2.18	0.43
54:23S:2698:U:H2'	54:23S:2699:C:H6	1.84	0.43
55:5S:115:A:H2'	55:5S:116:G:C8	2.54	0.43
3:L04:122:GLU:HA	3:L04:190:ALA:HB2	1.99	0.43
16:L20:96:ASP:OD2	17:L21:13:ARG:NE	2.51	0.43
32:S02:126:ASP:OD2	32:S02:126:ASP:N	2.52	0.43
53:16S:320:A:H2'	53:16S:321:A:C8	2.54	0.43
54:23S:299:A:N1	54:23S:322:A:O2'	2.44	0.43
54:23S:813:U:O2'	54:23S:1225:G:O2'	2.26	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:23S:937:C:H2'	54:23S:938:G:H8	1.83	0.43
54:23S:1438:U:H2'	54:23S:1439:A:H8	1.84	0.43
54:23S:2508:G:O6	54:23S:2580:U:O4	2.37	0.43
54:23S:2630:G:H2'	54:23S:2631:G:H8	1.83	0.43
55:5S:95:U:H2'	55:5S:96:G:C8	2.52	0.43
15:L19:90:ALA:HB2	15:L19:112:ARG:HA	2.00	0.43
17:L21:76:LYS:HB2	17:L21:85:LYS:HB3	2.00	0.43
21:L25:86:LEU:HD13	21:L25:89:ILE:HD11	1.99	0.43
34:S04:57:LYS:HD3	34:S04:202:LEU:HD23	2.01	0.43
35:S05:156:ARG:HH11	38:S08:42:GLU:HG3	1.84	0.43
39:S09:121:ARG:HG3	53:16S:1348:U:H4'	2.01	0.43
43:S13:65:GLU:HG3	43:S13:69:ARG:HE	1.84	0.43
53:16S:89:U:H2'	53:16S:90:C:O4'	2.18	0.43
53:16S:113:G:H1'	53:16S:354:G:H5'	2.00	0.43
53:16S:355:C:H1'	53:16S:388:G:H1'	1.99	0.43
53:16S:917:G:H2'	53:16S:918:A:C8	2.53	0.43
53:16S:1119:C:H2'	53:16S:1120:C:H6	1.84	0.43
53:16S:1293:C:H2'	53:16S:1294:G:H8	1.83	0.43
54:23S:304:U:H2'	54:23S:305:C:C6	2.53	0.43
54:23S:1688:U:O2'	54:23S:1700:A:N7	2.43	0.43
54:23S:2086:U:H2'	54:23S:2087:G:H8	1.84	0.43
3:L04:145:ASP:HA	3:L04:166:LYS:HB3	2.00	0.43
11:L15:109:LYS:HZ2	11:L15:126:ARG:HG2	1.84	0.43
37:S07:46:LEU:HD12	37:S07:46:LEU:HA	1.90	0.43
38:S08:17:GLN:HE22	38:S08:62:LEU:HB3	1.84	0.43
49:S19:40:PHE:H	49:S19:43:MET:HE2	1.84	0.43
52:L1:44:VAL:HG22	52:L1:214:ILE:HG22	2.00	0.43
53:16S:514:C:H2'	53:16S:515:G:C8	2.54	0.43
53:16S:977:A:O2'	53:16S:979:C:OP2	2.31	0.43
53:16S:1095:U:OP2	53:16S:1108:G:N1	2.52	0.43
54:23S:237:C:O2	54:23S:609:A:O2'	2.36	0.43
54:23S:807:U:H2'	54:23S:808:G:C8	2.50	0.43
54:23S:1114:C:H2'	54:23S:1115:G:C8	2.54	0.43
54:23S:1462:C:H2'	54:23S:1463:C:H6	1.84	0.43
54:23S:1548:A:H2'	54:23S:1549:A:C8	2.54	0.43
3:L04:58:LYS:NZ	3:L04:70:SER:O	2.40	0.43
11:L15:77:ILE:N	11:L15:109:LYS:O	2.41	0.43
14:L18:111:ARG:NH1	54:23S:2376:A:N3	2.67	0.43
17:L21:58:VAL:H	17:L21:102:SER:HG	1.66	0.43
24:L29:19:LEU:HD23	24:L29:19:LEU:HA	1.80	0.43
33:S03:40:GLN:O	33:S03:43:THR:OG1	2.34	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:S04:150:LYS:HA	34:S04:155:LYS:HD3	2.00	0.43
53:16S:181:A:H2'	53:16S:182:A:C8	2.54	0.43
53:16S:254:G:H2'	53:16S:255:G:C8	2.54	0.43
53:16S:460:A:H2'	53:16S:461:A:C8	2.53	0.43
53:16S:651:C:O2'	53:16S:652:U:OP1	2.34	0.43
54:23S:306:U:H2'	54:23S:307:G:O4'	2.19	0.43
54:23S:479:A:H4'	54:23S:480:A:H5'	2.01	0.43
54:23S:1297:C:H2'	54:23S:1298:C:H6	1.84	0.43
54:23S:1429:G:H2'	54:23S:1430:G:C8	2.52	0.43
54:23S:2368:C:H2'	54:23S:2369:A:H8	1.83	0.43
9:L13:117:ALA:HA	9:L13:120:ARG:HH21	1.83	0.42
10:L14:31:ARG:NH1	54:23S:1996:C:OP1	2.52	0.42
33:S03:187:GLU:OE1	53:16S:1057:G:O2'	2.34	0.42
44:S14:84:ARG:NH2	53:16S:1059:C:O2'	2.52	0.42
49:S19:10:ILE:HG13	49:S19:37:SER:HB2	2.01	0.42
53:16S:126:G:OP1	53:16S:605:U:O2'	2.24	0.42
53:16S:496:A:H61	53:16S:498:A:H62	1.66	0.42
53:16S:555:U:H2'	53:16S:556:C:C6	2.54	0.42
53:16S:662:U:H2'	53:16S:663:A:H8	1.84	0.42
54:23S:4:U:H2'	54:23S:5:A:H8	1.84	0.42
54:23S:184:C:H2'	54:23S:185:G:H8	1.83	0.42
54:23S:1527:G:N1	54:23S:1544:A:OP2	2.47	0.42
54:23S:1716:U:H2'	54:23S:1717:A:C8	2.54	0.42
54:23S:2314:A:H2'	54:23S:2315:G:C8	2.53	0.42
54:23S:2841:C:H2'	54:23S:2842:G:H8	1.82	0.42
1:L02:77:VAL:HG22	1:L02:93:VAL:HG12	2.01	0.42
9:L13:21:THR:HA	9:L13:61:LYS:HB3	2.00	0.42
16:L20:14:LYS:HB3	16:L20:14:LYS:HE2	1.85	0.42
34:S04:43:ARG:NH2	53:16S:511:C:H4'	2.34	0.42
34:S04:55:ARG:NH2	53:16S:544:G:OP1	2.46	0.42
38:S08:52:GLY:HA3	38:S08:56:PRO:HA	2.01	0.42
48:S18:37:LYS:HG2	53:16S:718:A:H2	1.84	0.42
49:S19:28:LYS:HD3	49:S19:28:LYS:H	1.84	0.42
53:16S:114:U:H2'	53:16S:115:G:C8	2.55	0.42
53:16S:709:U:H2'	53:16S:710:G:H8	1.84	0.42
53:16S:1014:A:N3	53:16S:1219:A:H1'	2.34	0.42
53:16S:1376:U:H2'	53:16S:1377:A:C8	2.54	0.42
54:23S:206:U:H2'	54:23S:207:A:H8	1.84	0.42
54:23S:286:U:H2'	54:23S:287:G:H8	1.84	0.42
9:L13:36:LEU:HD11	9:L13:122:LEU:HB2	2.01	0.42
24:L29:16:THR:O	24:L29:20:ASN:N	2.50	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:S12:8:ARG:NH2	53:16S:881:G:OP2	2.51	0.42
47:S17:11:VAL:HG22	47:S17:22:VAL:HG22	2.01	0.42
53:16S:219:U:H2'	53:16S:220:G:H8	1.84	0.42
54:23S:325:G:H2'	54:23S:326:G:H8	1.84	0.42
54:23S:612:G:N2	54:23S:614:A:HO2'	2.17	0.42
54:23S:746:U:O2'	54:23S:2611:C:O2'	2.28	0.42
54:23S:873:C:H2'	54:23S:874:G:H8	1.84	0.42
54:23S:2372:U:H2'	54:23S:2373:G:C8	2.53	0.42
55:5S:103:U:H2'	55:5S:104:A:C8	2.54	0.42
7:L10:59:LEU:HB3	7:L10:62:ARG:HB3	2.01	0.42
22:L27:55:LEU:HD12	22:L27:76:ILE:HD12	2.01	0.42
48:S18:70:THR:HG23	48:S18:72:ARG:H	1.85	0.42
53:16S:709:U:H2'	53:16S:710:G:C8	2.55	0.42
54:23S:417:C:H2'	54:23S:418:C:C6	2.55	0.42
54:23S:519:U:H2'	54:23S:520:G:C8	2.53	0.42
54:23S:744:U:H2'	54:23S:745:G:O4'	2.20	0.42
54:23S:1209:U:H2'	54:23S:1210:G:H21	1.85	0.42
1:L02:257:ARG:NH1	54:23S:1799:G:OP1	2.52	0.42
6:L09:69:ALA:HB3	6:L09:134:VAL:HG21	2.00	0.42
8:L11:77:VAL:HA	8:L11:80:LYS:HD3	2.01	0.42
36:S06:3:HIS:HB3	36:S06:95:ALA:HB2	2.01	0.42
47:S17:38:LYS:HE3	47:S17:38:LYS:HB3	1.95	0.42
53:16S:20:U:H2'	53:16S:21:G:O4'	2.19	0.42
53:16S:680:C:H2'	53:16S:681:A:C8	2.55	0.42
53:16S:746:A:H2'	53:16S:747:A:C8	2.55	0.42
53:16S:1237:C:H3'	53:16S:1336:C:H41	1.84	0.42
53:16S:1492:A:C2	54:23S:1913:A:H2'	2.54	0.42
53:16S:1515:G:H2'	53:16S:1516:G:C8	2.54	0.42
54:23S:121:G:H4'	54:23S:149:A:H5'	2.01	0.42
54:23S:863:A:H2'	54:23S:864:G:C8	2.55	0.42
54:23S:1548:A:H2'	54:23S:1549:A:H8	1.84	0.42
54:23S:2591:C:H2'	54:23S:2592:G:H8	1.84	0.42
53:16S:455:G:H2'	53:16S:456:A:H8	1.83	0.42
53:16S:1040:U:H2'	53:16S:1041:G:C8	2.53	0.42
54:23S:580:U:H2'	54:23S:581:C:C6	2.54	0.42
54:23S:644:A:H2'	54:23S:645:C:O4'	2.20	0.42
54:23S:813:U:H2'	54:23S:814:C:H6	1.85	0.42
54:23S:1041:G:H2'	54:23S:1042:G:H8	1.85	0.42
54:23S:1754:A:N1	54:23S:2716:C:O2'	2.49	0.42
54:23S:2064:C:H2'	54:23S:2065:C:H6	1.84	0.42
1:L02:202:ARG:HH11	1:L02:213:ARG:HH22	1.68	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:L10:26:VAL:HG13	7:L10:82:ILE:HG23	2.02	0.42
7:L10:87:GLU:CD	7:L10:95:LEU:HB2	2.39	0.42
32:S02:68:PHE:O	32:S02:91:VAL:N	2.50	0.42
53:16S:216:U:H2'	53:16S:217:C:C6	2.55	0.42
53:16S:222:C:H2'	53:16S:223:A:C8	2.55	0.42
53:16S:1023:U:H2'	53:16S:1024:G:C8	2.55	0.42
53:16S:1171:A:H2'	53:16S:1172:C:H6	1.84	0.42
53:16S:1530:G:H2'	53:16S:1531:A:H8	1.85	0.42
54:23S:272:A:H2'	54:23S:273:G:C8	2.55	0.42
54:23S:863:A:H2'	54:23S:864:G:H8	1.85	0.42
54:23S:1357:C:H2'	54:23S:1358:G:O4'	2.20	0.42
54:23S:1440:U:H2'	54:23S:1441:G:C8	2.54	0.42
54:23S:2291:U:H1'	54:23S:2374:C:H1'	2.01	0.42
54:23S:2591:C:H2'	54:23S:2592:G:C8	2.55	0.42
54:23S:2756:U:H1'	54:23S:2757:A:H5"	2.02	0.42
33:S03:174:LEU:HD23	33:S03:181:ILE:HD13	2.02	0.42
34:S04:200:VAL:HG21	35:S05:102:THR:HG22	2.02	0.42
37:S07:27:ASN:ND2	37:S07:30:MET:SD	2.90	0.42
50:S20:67:HIS:HE1	53:16S:132:C:H4'	1.84	0.42
53:16S:1017:U:H2'	53:16S:1018:G:C8	2.54	0.42
53:16S:1507:A:H2'	53:16S:1508:A:H8	1.83	0.42
54:23S:107:G:H2'	54:23S:108:G:H8	1.85	0.42
54:23S:416:U:H2'	54:23S:417:C:C6	2.55	0.42
54:23S:639:U:H2'	54:23S:640:C:C6	2.55	0.42
54:23S:692:C:H2'	54:23S:693:A:H8	1.85	0.42
54:23S:910:A:H2'	54:23S:911:A:C8	2.54	0.42
54:23S:946:C:H2'	54:23S:947:A:C8	2.54	0.42
54:23S:2328:A:H2'	54:23S:2329:U:H6	1.85	0.42
54:23S:2463:C:H2'	54:23S:2464:G:H8	1.85	0.42
1:L02:66:PHE:HZ	1:L02:86:ARG:HE	1.68	0.42
4:L05:135:ILE:HG22	43:S13:2:ARG:HH21	1.85	0.42
6:L09:40:THR:O	6:L09:44:ILE:HG13	2.20	0.42
7:L10:119:PRO:CD	7:L10:120:ALA:H	2.31	0.42
34:S04:25:ARG:NH2	53:16S:410:G:OP1	2.53	0.42
41:S11:19:VAL:O	41:S11:34:THR:N	2.46	0.42
54:23S:729:G:O2'	54:23S:763:G:H4'	2.19	0.42
54:23S:741:U:H2'	54:23S:742:A:H8	1.84	0.42
54:23S:875:G:H2'	54:23S:876:C:C6	2.55	0.42
54:23S:1683:U:H2'	54:23S:1684:G:H8	1.83	0.42
54:23S:2676:C:H2'	54:23S:2677:G:H8	1.84	0.42
54:23S:2836:U:H2'	54:23S:2837:A:H8	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:L06:34:ARG:HE	5:L06:70:LEU:HD13	1.85	0.42
5:L06:87:GLN:N	5:L06:162:ARG:O	2.52	0.42
11:L15:20:GLY:HA2	11:L15:28:GLY:HA2	2.00	0.42
32:S02:24:PRO:HB3	53:16S:828:U:H2'	2.01	0.42
52:L1:201:PRO:HB2	52:L1:204:ALA:HB2	2.01	0.42
53:16S:137:U:H2'	53:16S:138:G:H8	1.84	0.42
53:16S:321:A:H2'	53:16S:322:C:C6	2.55	0.42
53:16S:321:A:H2'	53:16S:322:C:H6	1.83	0.42
53:16S:505:G:H2'	53:16S:506:G:C8	2.54	0.42
53:16S:898:G:N2	53:16S:901:A:OP2	2.51	0.42
53:16S:1321:U:OP2	53:16S:1322:C:O2'	2.37	0.42
54:23S:1464:G:H2'	54:23S:1465:G:H8	1.85	0.42
1:L02:206:LYS:HG3	1:L02:209:ALA:H	1.85	0.41
1:L02:226:PRO:HD3	1:L02:233:GLY:H	1.85	0.41
10:L14:109:SER:O	10:L14:110:GLU:HG3	2.20	0.41
20:L24:36:GLU:HA	20:L24:61:GLU:HG2	2.02	0.41
33:S03:14:VAL:HG23	33:S03:15:LYS:HG2	2.01	0.41
39:S09:26:LYS:HB3	39:S09:61:ASP:HB2	2.02	0.41
41:S11:27:ASN:ND2	53:16S:692:U:OP2	2.44	0.41
42:S12:49:ARG:HB3	42:S12:65:TYR:HE1	1.85	0.41
44:S14:26:LEU:HD12	44:S14:30:ILE:HD12	2.02	0.41
53:16S:459:A:H2'	53:16S:460:A:C8	2.55	0.41
54:23S:6:A:H2'	54:23S:7:G:C8	2.55	0.41
54:23S:133:U:H2'	54:23S:134:G:C8	2.55	0.41
54:23S:154:U:H2'	54:23S:155:A:H8	1.85	0.41
54:23S:1462:C:H2'	54:23S:1463:C:C6	2.55	0.41
54:23S:2595:G:N2	54:23S:2598:A:OP2	2.30	0.41
14:L18:71:ALA:HA	14:L18:74:VAL:HG12	2.02	0.41
30:L35:24:LYS:NZ	30:L35:28:LEU:HD23	2.35	0.41
35:S05:101:GLY:N	35:S05:121:ASN:HD22	2.18	0.41
46:S16:14:ARG:NH1	53:16S:618:C:O2'	2.54	0.41
49:S19:44:ILE:HA	49:S19:61:VAL:HG13	2.03	0.41
53:16S:309:A:H2'	53:16S:310:G:C8	2.54	0.41
53:16S:591:U:H2'	53:16S:592:G:C8	2.53	0.41
53:16S:600:A:H2'	53:16S:601:G:C8	2.55	0.41
53:16S:714:G:H2'	53:16S:715:A:H8	1.84	0.41
53:16S:1143:G:H2'	53:16S:1144:G:H8	1.85	0.41
53:16S:1352:C:H2'	53:16S:1353:G:C8	2.55	0.41
54:23S:733:G:N2	54:23S:734:A:N7	2.68	0.41
54:23S:1844:C:H2'	54:23S:1845:G:H8	1.85	0.41
54:23S:2104:C:N4	54:23S:2186:G:O6	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:23S:2589:A:H2'	54:23S:2590:A:H8	1.84	0.41
54:23S:2647:U:H2'	54:23S:2648:G:C8	2.52	0.41
54:23S:2861:U:H2'	54:23S:2862:G:C8	2.55	0.41
8:L11:106:GLN:HA	8:L11:109:ALA:HB3	2.01	0.41
8:L11:126:ARG:H	8:L11:126:ARG:HG2	1.57	0.41
10:L14:21:CYS:HA	10:L14:41:ILE:HG22	2.01	0.41
17:L21:81:LYS:NZ	54:23S:568:U:O4	2.53	0.41
36:S06:41:ASP:OD1	36:S06:58:HIS:NE2	2.47	0.41
53:16S:67:C:H2'	53:16S:68:G:C8	2.55	0.41
53:16S:455:G:H2'	53:16S:456:A:C8	2.55	0.41
53:16S:461:A:H2'	53:16S:462:G:H8	1.85	0.41
53:16S:1223:C:H5"	53:16S:1224:U:H5"	2.02	0.41
53:16S:1510:C:H2'	53:16S:1511:G:C8	2.54	0.41
53:16S:1524:C:H2'	53:16S:1525:G:H8	1.83	0.41
54:23S:1759:A:H1'	54:23S:2711:A:C2	2.55	0.41
54:23S:2041:U:H2'	54:23S:2042:A:C8	2.56	0.41
1:L02:65:ASP:N	1:L02:102:TYR:O	2.40	0.41
3:L04:143:LEU:HD13	3:L04:146:VAL:HG11	2.01	0.41
4:L05:92:GLY:O	4:L05:95:MET:HG2	2.20	0.41
5:L06:38:ASP:OD1	5:L06:38:ASP:N	2.52	0.41
5:L06:122:ALA:HA	5:L06:132:LEU:HA	2.01	0.41
11:L15:48:ARG:HD3	54:23S:666:A:H4'	2.01	0.41
21:L25:12:GLN:NE2	55:5S:75:G:OP1	2.51	0.41
34:S04:74:TYR:OH	34:S04:96:ARG:NH1	2.50	0.41
44:S14:10:VAL:HA	44:S14:13:VAL:HG12	2.02	0.41
53:16S:171:A:H2'	53:16S:172:A:C8	2.56	0.41
54:23S:20:C:H2'	54:23S:21:A:C8	2.56	0.41
54:23S:225:C:H2'	54:23S:226:A:O4'	2.20	0.41
54:23S:345:A:N3	54:23S:347:A:N6	2.68	0.41
54:23S:1223:G:N2	54:23S:1226:A:OP2	2.40	0.41
54:23S:1710:G:H2'	54:23S:1711:A:H8	1.85	0.41
54:23S:2064:C:O2'	54:23S:2251:G:N2	2.54	0.41
54:23S:2453:A:H2'	54:23S:2454:G:H8	1.84	0.41
3:L04:2:GLU:OE1	3:L04:11:ALA:HB1	2.20	0.41
18:L22:61:ASN:OD1	54:23S:495:G:N2	2.49	0.41
32:S02:7:ASP:OD2	32:S02:7:ASP:N	2.53	0.41
38:S08:101:ALA:N	38:S08:112:ASP:OD1	2.47	0.41
42:S12:57:THR:HG21	53:16S:362:G:H5"	2.01	0.41
51:S21:34:ARG:HD2	51:S21:36:PHE:CE2	2.55	0.41
53:16S:86:G:H4'	53:16S:87:C:C5	2.55	0.41
53:16S:236:A:H2'	53:16S:237:G:C8	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:16S:269:C:H2'	53:16S:270:A:H8	1.85	0.41
53:16S:1218:C:H2'	53:16S:1219:A:H8	1.84	0.41
53:16S:1401:G:O6	53:16S:1504:G:N2	2.54	0.41
53:16S:1522:U:H2'	53:16S:1523:G:H8	1.86	0.41
54:23S:881:G:O6	54:23S:895:U:O2	2.37	0.41
54:23S:1021:A:H61	54:23S:1142:A:H61	1.68	0.41
54:23S:1438:U:H2'	54:23S:1439:A:C8	2.55	0.41
54:23S:2543:G:H2'	54:23S:2544:G:C8	2.55	0.41
7:L10:118:ILE:CG2	7:L10:119:PRO:CD	2.93	0.41
16:L20:16:ILE:HD13	16:L20:16:ILE:HA	1.93	0.41
21:L25:85:LYS:HE2	21:L25:85:LYS:HB3	1.91	0.41
24:L29:53:VAL:O	24:L29:57:LEU:N	2.49	0.41
29:L34:33:ARG:NE	54:23S:467:G:OP1	2.45	0.41
29:L34:34:ARG:NH2	29:L34:41:ARG:O	2.46	0.41
34:S04:75:TYR:HE1	34:S04:200:VAL:HG13	1.85	0.41
39:S09:8:THR:OG1	39:S09:9:GLY:N	2.53	0.41
47:S17:60:ILE:HG22	47:S17:72:TRP:HE3	1.84	0.41
53:16S:603:U:H2'	53:16S:604:G:H8	1.85	0.41
53:16S:1273:C:H2'	53:16S:1274:A:O4'	2.21	0.41
54:23S:128:C:H2'	54:23S:129:C:C6	2.56	0.41
54:23S:1198:U:H2'	54:23S:1199:U:C6	2.55	0.41
54:23S:1704:C:H2'	54:23S:1705:A:H8	1.85	0.41
54:23S:1921:G:H2'	54:23S:1922:G:H8	1.85	0.41
54:23S:2081:U:H2'	54:23S:2082:A:C8	2.54	0.41
12:L16:12:MET:SD	12:L16:71:LYS:HG3	2.59	0.41
22:L27:10:ARG:NH2	54:23S:2279:G:N7	2.52	0.41
30:L35:18:LYS:HG2	54:23S:651:G:H5'	2.02	0.41
31:L36:6:SER:HB3	54:23S:2466:C:H5"	2.01	0.41
41:S11:49:SER:OG	41:S11:68:ARG:NH1	2.52	0.41
45:S15:71:ARG:NH2	53:16S:754:C:OP1	2.53	0.41
49:S19:4:LEU:HD12	49:S19:4:LEU:HA	1.92	0.41
53:16S:539:A:H2'	53:16S:540:G:C8	2.55	0.41
53:16S:1356:G:H2'	53:16S:1357:A:H8	1.85	0.41
54:23S:307:G:N2	54:23S:309:A:H3'	2.35	0.41
54:23S:767:U:H2'	54:23S:768:G:C8	2.55	0.41
54:23S:1809:A:H2'	54:23S:1810:A:C8	2.55	0.41
54:23S:2292:U:H2'	54:23S:2293:G:H8	1.86	0.41
54:23S:2299:U:O4	54:23S:2318:G:N2	2.53	0.41
54:23S:2638:G:H1'	54:23S:2778:A:H61	1.86	0.41
1:L02:270:ARG:NH2	54:23S:1798:U:OP2	2.54	0.41
4:L05:87:LYS:NZ	54:23S:2314:A:OP1	2.45	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:L24:26:ASN:HD21	20:L24:34:ILE:HD12	1.85	0.41
21:L25:14:LYS:HB2	55:5S:98:G:H1	1.86	0.41
26:L31:58:ASP:OD1	26:L31:58:ASP:N	2.54	0.41
27:L32:30:ASP:HB3	27:L32:34:GLY:H	1.86	0.41
32:S02:143:LEU:HD23	32:S02:143:LEU:HA	1.88	0.41
39:S09:118:ARG:NH2	53:16S:1234:C:OP1	2.51	0.41
44:S14:4:SER:OG	53:16S:1216:A:H5"	2.21	0.41
44:S14:63:CYS:HB3	44:S14:68:ARG:H	1.86	0.41
50:S20:84:LYS:HE3	50:S20:84:LYS:HB3	1.95	0.41
53:16S:78:A:H2'	53:16S:79:G:O4'	2.20	0.41
53:16S:912:C:H2'	53:16S:913:A:C8	2.55	0.41
53:16S:950:U:H2'	53:16S:951:G:C8	2.55	0.41
53:16S:1258:G:H2'	53:16S:1259:C:C6	2.56	0.41
53:16S:1463:U:H2'	53:16S:1464:U:C6	2.56	0.41
54:23S:806:C:H2'	54:23S:807:U:C6	2.55	0.41
54:23S:1141:U:O2	54:23S:1142:A:N6	2.54	0.41
54:23S:1505:A:H2'	54:23S:1506:U:C6	2.56	0.41
54:23S:2547:A:H2'	54:23S:2548:U:C6	2.56	0.41
1:L02:81:GLU:HG3	1:L02:102:TYR:HE1	1.85	0.41
2:L03:20:VAL:HG23	10:L14:72:PRO:HB2	2.03	0.41
3:L04:58:LYS:HG3	3:L04:71:GLY:HA2	2.02	0.41
4:L05:21:TYR:CD2	4:L05:27:VAL:HG12	2.56	0.41
4:L05:131:VAL:HG21	4:L05:136:ILE:HD13	2.02	0.41
7:L10:34:THR:HB	7:L10:37:LYS:HE3	2.03	0.41
7:L10:107:GLU:HG2	7:L10:110:ALA:HB2	2.03	0.41
10:L14:35:VAL:HG21	10:L14:69:VAL:HB	2.03	0.41
17:L21:24:LYS:HA	17:L21:94:THR:OG1	2.21	0.41
20:L24:73:ASN:HB2	20:L24:80:ASP:HB2	2.03	0.41
34:S04:94:GLU:HB3	34:S04:185:PRO:HG2	2.02	0.41
40:S10:6:ILE:HB	40:S10:76:ILE:HG23	2.02	0.41
41:S11:127:ARG:HA	51:S21:34:ARG:HH21	1.86	0.41
42:S12:5:GLN:HE21	53:16S:880:C:H3'	1.85	0.41
46:S16:46:LYS:HD3	53:16S:617:G:H5'	2.03	0.41
53:16S:40:C:H2'	53:16S:41:G:H8	1.85	0.41
53:16S:335:C:O2'	53:16S:1433:A:N3	2.42	0.41
53:16S:404:G:O2'	53:16S:498:A:N1	2.48	0.41
53:16S:513:C:H2'	53:16S:514:C:C6	2.55	0.41
53:16S:570:G:H2'	53:16S:571:U:C6	2.55	0.41
53:16S:1162:C:H2'	53:16S:1163:A:C8	2.55	0.41
54:23S:226:A:H1'	54:23S:230:G:N2	2.35	0.41
54:23S:974:G:H1'	54:23S:975:A:H8	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:23S:1400:U:H2'	54:23S:1401:G:C8	2.55	0.41
54:23S:1683:U:H2'	54:23S:1684:G:C8	2.56	0.41
54:23S:1745:A:H2'	54:23S:1746:A:H8	1.86	0.41
54:23S:1947:C:H2'	54:23S:1948:G:H8	1.85	0.41
54:23S:2011:U:H2'	54:23S:2012:G:O4'	2.21	0.41
54:23S:2623:G:H2'	54:23S:2624:G:C8	2.55	0.41
55:5S:118:C:H2'	55:5S:119:A:C8	2.56	0.41
56:PR:22:ARG:H	56:PR:22:ARG:HG2	1.60	0.41
2:L03:148:GLN:O	54:23S:2052:A:H4'	2.21	0.41
10:L14:22:ILE:HB	54:23S:1952:A:C6	2.56	0.41
34:S04:61:ARG:HH12	53:16S:545:C:P	2.44	0.41
41:S11:124:LYS:HD3	53:16S:780:A:H5"	2.03	0.41
41:S11:126:ARG:O	51:S21:33:ARG:NH1	2.51	0.41
42:S12:57:THR:OG1	53:16S:362:G:OP1	2.30	0.41
48:S18:28:LEU:HD23	48:S18:58:ILE:HD13	2.03	0.41
50:S20:43:LYS:HE2	50:S20:43:LYS:HB3	1.96	0.41
53:16S:166:U:H2'	53:16S:167:A:C8	2.56	0.41
53:16S:1048:G:H2'	53:16S:1050:G:H8	1.85	0.41
53:16S:1178:G:N2	53:16S:1181:G:OP2	2.47	0.41
54:23S:1102:C:H2'	54:23S:1103:A:H8	1.85	0.41
54:23S:1131:G:C8	54:23S:2025:C:H4'	2.56	0.41
54:23S:1254:A:H5"	54:23S:1255:U:H5"	2.03	0.41
54:23S:1326:U:H2'	54:23S:1327:A:H8	1.86	0.41
54:23S:1363:C:H2'	54:23S:1364:G:H8	1.85	0.41
54:23S:1748:C:H2'	54:23S:1749:A:C8	2.56	0.41
54:23S:1794:A:H2'	54:23S:1795:C:C6	2.55	0.41
2:L03:133:THR:OG1	2:L03:134:HIS:N	2.55	0.40
9:L13:58:ASN:HB3	9:L13:61:LYS:HB2	2.01	0.40
11:L15:56:PRO:HD2	11:L15:59:ARG:HB2	2.03	0.40
35:S05:148:SER:O	35:S05:152:VAL:HG23	2.21	0.40
53:16S:70:U:H4'	53:16S:71:A:C8	2.56	0.40
53:16S:150:U:H2'	53:16S:151:A:H8	1.85	0.40
53:16S:358:U:H2'	53:16S:359:G:C8	2.53	0.40
53:16S:1169:A:H2'	53:16S:1170:A:C8	2.56	0.40
53:16S:1241:G:H2'	53:16S:1242:G:C8	2.53	0.40
54:23S:598:U:H2'	54:23S:599:A:C8	2.57	0.40
54:23S:644:A:C2	54:23S:2369:A:H1'	2.55	0.40
54:23S:660:C:H2'	54:23S:661:A:C8	2.56	0.40
54:23S:975:A:H1'	54:23S:990:A:C6	2.56	0.40
54:23S:1181:U:H2'	54:23S:1182:G:C8	2.57	0.40
54:23S:2559:C:H2'	54:23S:2560:A:H8	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:23S:2615:U:H2'	54:23S:2616:C:C6	2.57	0.40
54:23S:2630:G:H2'	54:23S:2631:G:C8	2.56	0.40
55:5S:30:C:O2'	55:5S:57:A:N1	2.53	0.40
1:L02:166:ARG:HG3	1:L02:171:VAL:HG22	2.04	0.40
4:L05:56:LEU:HD13	4:L05:88:VAL:HG23	2.02	0.40
14:L18:33:ARG:HG3	14:L18:64:TYR:CE1	2.56	0.40
32:S02:160:LEU:HB3	32:S02:182:VAL:HG12	2.02	0.40
42:S12:49:ARG:NH1	53:16S:521:G:N7	2.69	0.40
42:S12:71:HIS:HB2	42:S12:73:LEU:HD13	2.03	0.40
43:S13:2:ARG:HG3	43:S13:8:ILE:HD11	2.04	0.40
47:S17:80:LYS:HE2	47:S17:80:LYS:HB2	1.95	0.40
53:16S:49:U:H3	53:16S:362:G:H1'	1.87	0.40
53:16S:1243:C:H2'	53:16S:1244:G:H8	1.86	0.40
53:16S:1370:G:H2'	53:16S:1371:G:H8	1.86	0.40
5:L06:15:ASP:OD1	5:L06:15:ASP:N	2.54	0.40
7:L10:119:PRO:CD	7:L10:120:ALA:N	2.84	0.40
18:L22:20:VAL:HG11	18:L22:44:ALA:HA	2.04	0.40
32:S02:173:LYS:NZ	53:16S:1075:U:O3'	2.43	0.40
34:S04:21:LYS:HE2	34:S04:21:LYS:HB2	1.94	0.40
39:S09:18:VAL:HG12	39:S09:64:ILE:HB	2.03	0.40
45:S15:13:GLU:HG2	45:S15:83:ARG:HH21	1.86	0.40
49:S19:44:ILE:HD13	49:S19:63:ASP:HA	2.03	0.40
53:16S:524:G:H2'	53:16S:525:C:C6	2.57	0.40
53:16S:1327:C:H2'	53:16S:1328:C:H6	1.87	0.40
53:16S:1510:C:H2'	53:16S:1511:G:H8	1.86	0.40
54:23S:78:U:H2'	54:23S:79:C:C6	2.57	0.40
54:23S:172:A:H2'	54:23S:173:A:C8	2.55	0.40
54:23S:221:A:H1'	54:23S:233:A:H1'	2.04	0.40
54:23S:277:G:H4'	54:23S:278:A:C5	2.56	0.40
54:23S:558:U:H2'	54:23S:559:G:C8	2.57	0.40
54:23S:935:C:H2'	54:23S:936:A:C8	2.54	0.40
54:23S:976:G:H2'	54:23S:977:G:H8	1.86	0.40
54:23S:1435:G:H2'	54:23S:1436:G:H8	1.86	0.40
54:23S:1733:G:H2'	54:23S:1734:G:C8	2.57	0.40
54:23S:1821:A:H2'	54:23S:1822:C:C6	2.57	0.40
54:23S:2073:C:O2'	54:23S:2074:U:H5'	2.22	0.40
54:23S:2655:G:O2'	54:23S:2664:G:O6	2.36	0.40
54:23S:2808:G:O2'	54:23S:2809:A:N7	2.51	0.40
54:23S:2818:U:H2'	54:23S:2819:G:H8	1.86	0.40
1:L02:104:LEU:HD23	1:L02:104:LEU:HA	1.94	0.40
5:L06:98:LYS:HE2	5:L06:98:LYS:HB2	1.95	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:L15:21:ARG:HD3	11:L15:21:ARG:HA	1.92	0.40
12:L16:67:VAL:HG11	12:L16:96:ILE:HD11	2.02	0.40
15:L19:13:LYS:HE2	15:L19:13:LYS:HB3	1.91	0.40
25:L30:12:ALA:HB2	25:L30:53:MET:HE1	2.03	0.40
32:S02:14:HIS:HB3	32:S02:42:LEU:HD21	2.03	0.40
34:S04:8:LEU:HD12	34:S04:8:LEU:HA	1.98	0.40
41:S11:86:LYS:HZ2	41:S11:114:PRO:HD3	1.86	0.40
49:S19:36:ARG:HB3	53:16S:1320:C:H41	1.86	0.40
51:S21:6:ARG:HG3	51:S21:8:ASN:HA	2.03	0.40
52:L1:219:GLY:O	54:23S:2175:C:O2'	2.35	0.40
53:16S:108:G:H5"	53:16S:110:C:C5	2.56	0.40
53:16S:202:G:H2'	53:16S:203:G:H8	1.86	0.40
53:16S:401:C:H2'	53:16S:402:G:C8	2.57	0.40
53:16S:1076:U:H2'	53:16S:1077:G:C8	2.56	0.40
53:16S:1305:G:O2'	53:16S:1306:A:O4'	2.39	0.40
54:23S:946:C:H2'	54:23S:947:A:H8	1.85	0.40
54:23S:1167:C:H2'	54:23S:1168:G:C8	2.54	0.40
54:23S:2537:U:H2'	54:23S:2538:C:H6	1.86	0.40
54:23S:2676:C:H2'	54:23S:2677:G:C8	2.57	0.40
54:23S:2784:U:H2'	54:23S:2785:C:H6	1.87	0.40
1:L02:152:GLN:HB3	54:23S:1818:U:H3	1.86	0.40
2:L03:155:VAL:O	54:23S:2618:G:O2'	2.33	0.40
14:L18:115:LEU:HD12	14:L18:115:LEU:HA	1.89	0.40
15:L19:31:VAL:HG13	15:L19:38:ARG:HB3	2.02	0.40
24:L29:17:GLU:HA	24:L29:20:ASN:HB2	2.03	0.40
36:S06:39:LEU:HD23	36:S06:39:LEU:HA	1.93	0.40
37:S07:32:ASP:OD1	53:16S:1350:A:O2'	2.39	0.40
53:16S:264:C:H2'	53:16S:265:G:O4'	2.21	0.40
53:16S:337:G:H2'	53:16S:338:A:C8	2.56	0.40
53:16S:981:U:H2'	53:16S:982:U:C5	2.56	0.40
53:16S:985:C:H2'	53:16S:986:U:C6	2.56	0.40
53:16S:1313:U:H2'	53:16S:1314:C:C6	2.57	0.40
54:23S:171:U:H2'	54:23S:172:A:C8	2.56	0.40
54:23S:392:U:H2'	54:23S:393:C:C6	2.57	0.40
54:23S:519:U:H2'	54:23S:520:G:H8	1.87	0.40
54:23S:924:G:H2'	54:23S:925:A:C8	2.53	0.40
54:23S:926:G:H2'	54:23S:927:A:H8	1.85	0.40
54:23S:1291:C:H2'	54:23S:1292:G:C8	2.56	0.40
54:23S:1649:G:H2'	54:23S:1650:A:C8	2.56	0.40
54:23S:1794:A:H2'	54:23S:1795:C:H6	1.87	0.40
54:23S:2066:C:H2'	54:23S:2067:G:C8	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
54:23S:2296:U:O2'	54:23S:2297:A:O5'	2.34	0.40
54:23S:2461:A:H2'	54:23S:2462:C:C6	2.57	0.40
55:5S:70:C:H2'	55:5S:71:C:H6	1.87	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	L02	269/271 (99%)	258 (96%)	11 (4%)	0	100 100
2	L03	207/209 (99%)	197 (95%)	10 (5%)	0	100 100
3	L04	199/201 (99%)	190 (96%)	8 (4%)	1 (0%)	29 61
4	L05	175/177 (99%)	169 (97%)	6 (3%)	0	100 100
5	L06	174/176 (99%)	166 (95%)	8 (5%)	0	100 100
6	L09	147/149 (99%)	135 (92%)	12 (8%)	0	100 100
7	L10	129/131 (98%)	103 (80%)	24 (19%)	2 (2%)	9 32
8	L11	139/141 (99%)	120 (86%)	19 (14%)	0	100 100
9	L13	140/142 (99%)	138 (99%)	2 (1%)	0	100 100
10	L14	120/122 (98%)	117 (98%)	3 (2%)	0	100 100
11	L15	141/143 (99%)	129 (92%)	12 (8%)	0	100 100
12	L16	134/136 (98%)	129 (96%)	5 (4%)	0	100 100
13	L17	118/120 (98%)	109 (92%)	9 (8%)	0	100 100
14	L18	114/116 (98%)	111 (97%)	3 (3%)	0	100 100
15	L19	112/114 (98%)	106 (95%)	6 (5%)	0	100 100
16	L20	115/117 (98%)	115 (100%)	0	0	100 100
17	L21	101/103 (98%)	96 (95%)	5 (5%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
18	L22	108/110 (98%)	104 (96%)	4 (4%)	0	100	100
19	L23	91/93 (98%)	86 (94%)	5 (6%)	0	100	100
20	L24	100/102 (98%)	90 (90%)	10 (10%)	0	100	100
21	L25	92/94 (98%)	92 (100%)	0	0	100	100
22	L27	73/75 (97%)	70 (96%)	3 (4%)	0	100	100
23	L28	75/77 (97%)	73 (97%)	2 (3%)	0	100	100
24	L29	61/63 (97%)	59 (97%)	1 (2%)	1 (2%)	9	32
25	L30	56/58 (97%)	55 (98%)	1 (2%)	0	100	100
26	L31	64/66 (97%)	61 (95%)	3 (5%)	0	100	100
27	L32	54/56 (96%)	52 (96%)	2 (4%)	0	100	100
28	L33	48/50 (96%)	44 (92%)	4 (8%)	0	100	100
29	L34	44/46 (96%)	43 (98%)	1 (2%)	0	100	100
30	L35	62/64 (97%)	58 (94%)	3 (5%)	1 (2%)	9	32
31	L36	36/38 (95%)	34 (94%)	2 (6%)	0	100	100
32	S02	223/225 (99%)	212 (95%)	11 (5%)	0	100	100
33	S03	204/206 (99%)	197 (97%)	7 (3%)	0	100	100
34	S04	203/205 (99%)	182 (90%)	21 (10%)	0	100	100
35	S05	155/157 (99%)	138 (89%)	16 (10%)	1 (1%)	25	58
36	S06	98/100 (98%)	81 (83%)	17 (17%)	0	100	100
37	S07	149/151 (99%)	140 (94%)	9 (6%)	0	100	100
38	S08	127/129 (98%)	125 (98%)	2 (2%)	0	100	100
39	S09	125/127 (98%)	107 (86%)	18 (14%)	0	100	100
40	S10	96/98 (98%)	79 (82%)	17 (18%)	0	100	100
41	S11	112/116 (97%)	100 (89%)	12 (11%)	0	100	100
42	S12	121/123 (98%)	107 (88%)	14 (12%)	0	100	100
43	S13	112/114 (98%)	102 (91%)	10 (9%)	0	100	100
44	S14	98/100 (98%)	87 (89%)	11 (11%)	0	100	100
45	S15	86/88 (98%)	80 (93%)	6 (7%)	0	100	100
46	S16	80/82 (98%)	73 (91%)	7 (9%)	0	100	100
47	S17	78/80 (98%)	71 (91%)	7 (9%)	0	100	100
48	S18	63/65 (97%)	59 (94%)	4 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
49	S19	77/79 (98%)	70 (91%)	7 (9%)	0	100 100
50	S20	83/85 (98%)	81 (98%)	2 (2%)	0	100 100
51	S21	63/65 (97%)	46 (73%)	15 (24%)	2 (3%)	4 16
52	L1	130/223 (58%)	122 (94%)	8 (6%)	0	100 100
56	PR	13/40 (32%)	10 (77%)	1 (8%)	2 (15%)	0 0
All	All	5994/6218 (96%)	5578 (93%)	406 (7%)	10 (0%)	50 78

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
7	L10	118	ILE
35	S05	122	VAL
24	L29	24	GLU
56	PR	13	PRO
7	L10	119	PRO
3	L04	83	VAL
30	L35	31	ILE
51	S21	8	ASN
51	S21	24	LYS
56	PR	16	ARG

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	L02	216/216 (100%)	216 (100%)	0	100 100
2	L03	164/164 (100%)	164 (100%)	0	100 100
3	L04	165/165 (100%)	163 (99%)	2 (1%)	71 91
4	L05	148/148 (100%)	148 (100%)	0	100 100
5	L06	137/137 (100%)	136 (99%)	1 (1%)	84 95
6	L09	114/114 (100%)	113 (99%)	1 (1%)	78 93
7	L10	100/100 (100%)	97 (97%)	3 (3%)	41 75

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
8	L11	109/109 (100%)	107 (98%)	2 (2%)	59 85
9	L13	116/116 (100%)	116 (100%)	0	100 100
10	L14	103/103 (100%)	103 (100%)	0	100 100
11	L15	102/102 (100%)	102 (100%)	0	100 100
12	L16	109/109 (100%)	109 (100%)	0	100 100
13	L17	100/100 (100%)	99 (99%)	1 (1%)	76 92
14	L18	86/86 (100%)	86 (100%)	0	100 100
15	L19	99/99 (100%)	99 (100%)	0	100 100
16	L20	89/89 (100%)	89 (100%)	0	100 100
17	L21	84/84 (100%)	84 (100%)	0	100 100
18	L22	93/93 (100%)	93 (100%)	0	100 100
19	L23	80/80 (100%)	80 (100%)	0	100 100
20	L24	83/83 (100%)	83 (100%)	0	100 100
21	L25	78/78 (100%)	78 (100%)	0	100 100
22	L27	57/57 (100%)	57 (100%)	0	100 100
23	L28	67/67 (100%)	67 (100%)	0	100 100
24	L29	55/55 (100%)	54 (98%)	1 (2%)	59 85
25	L30	48/48 (100%)	47 (98%)	1 (2%)	53 81
26	L31	59/59 (100%)	58 (98%)	1 (2%)	60 86
27	L32	47/47 (100%)	47 (100%)	0	100 100
28	L33	45/45 (100%)	44 (98%)	1 (2%)	52 81
29	L34	38/38 (100%)	38 (100%)	0	100 100
30	L35	51/51 (100%)	51 (100%)	0	100 100
31	L36	34/34 (100%)	34 (100%)	0	100 100
32	S02	186/186 (100%)	184 (99%)	2 (1%)	73 92
33	S03	170/170 (100%)	166 (98%)	4 (2%)	49 79
34	S04	172/172 (100%)	170 (99%)	2 (1%)	71 91
35	S05	119/119 (100%)	119 (100%)	0	100 100
36	S06	87/87 (100%)	86 (99%)	1 (1%)	73 92
37	S07	124/124 (100%)	124 (100%)	0	100 100
38	S08	104/104 (100%)	104 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
39	S09	105/105 (100%)	104 (99%)	1 (1%)	76 92
40	S10	86/86 (100%)	85 (99%)	1 (1%)	71 91
41	S11	89/89 (100%)	88 (99%)	1 (1%)	73 92
42	S12	103/103 (100%)	103 (100%)	0	100 100
43	S13	92/92 (100%)	92 (100%)	0	100 100
44	S14	83/83 (100%)	83 (100%)	0	100 100
45	S15	76/76 (100%)	76 (100%)	0	100 100
46	S16	65/65 (100%)	65 (100%)	0	100 100
47	S17	74/74 (100%)	74 (100%)	0	100 100
48	S18	56/56 (100%)	55 (98%)	1 (2%)	59 85
49	S19	70/70 (100%)	70 (100%)	0	100 100
50	S20	65/65 (100%)	65 (100%)	0	100 100
51	S21	55/55 (100%)	53 (96%)	2 (4%)	35 69
52	L1	110/174 (63%)	110 (100%)	0	100 100
56	PR	15/40 (38%)	15 (100%)	0	100 100
All	All	4982/5071 (98%)	4953 (99%)	29 (1%)	86 96

All (29) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	L04	6	LYS
3	L04	123	LYS
5	L06	28	LYS
6	L09	97	ARG
7	L10	37	LYS
7	L10	94	ARG
7	L10	119	PRO
8	L11	110	GLN
8	L11	133	ARG
13	L17	2	ARG
24	L29	7	ARG
25	L30	2	LYS
26	L31	8	LYS
28	L33	26	LYS
32	S02	58	LYS
32	S02	94	ARG
33	S03	44	LYS

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Mol	Chain	Res	Type
33	S03	78	LYS
33	S03	79	LYS
33	S03	85	LYS
34	S04	35	GLN
34	S04	46	ARG
36	S06	53	LYS
39	S09	11	ARG
40	S10	37	ARG
41	S11	12	ARG
48	S18	11	ARG
51	S21	24	LYS
51	S21	61	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
53	16S	1531/1539 (99%)	192 (12%)	6 (0%)
54	23S	2902/2903 (99%)	394 (13%)	11 (0%)
55	5S	119/120 (99%)	14 (11%)	1 (0%)
All	All	4552/4562 (99%)	600 (13%)	18 (0%)

All (600) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
53	16S	6	G
53	16S	7	A
53	16S	9	G
53	16S	22	G
53	16S	31	G
53	16S	32	A
53	16S	39	G
53	16S	47	C
53	16S	48	C
53	16S	51	A
53	16S	71	A
53	16S	81	A
53	16S	82	G
53	16S	85	U

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Mol	Chain	Res	Type
53	16S	86	G
53	16S	87	C
53	16S	88	U
53	16S	94	G
53	16S	95	C
53	16S	100	G
53	16S	130	A
53	16S	144	G
53	16S	173	U
53	16S	183	C
53	16S	184	G
53	16S	197	A
53	16S	209	U
53	16S	210	C
53	16S	212	G
53	16S	226	G
53	16S	247	G
53	16S	251	G
53	16S	266	G
53	16S	267	C
53	16S	279	A
53	16S	280	C
53	16S	281	G
53	16S	283	U
53	16S	289	G
53	16S	328	C
53	16S	330	C
53	16S	345	C
53	16S	347	G
53	16S	351	G
53	16S	352	C
53	16S	354	G
53	16S	355	C
53	16S	367	U
53	16S	372	C
53	16S	406	G
53	16S	411	A
53	16S	412	A
53	16S	413	G
53	16S	414	A
53	16S	422	C
53	16S	424	G

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Mol	Chain	Res	Type
53	16S	429	U
53	16S	439	U
53	16S	467	U
53	16S	468	A
53	16S	479	U
53	16S	484	G
53	16S	485	U
53	16S	486	U
53	16S	495	A
53	16S	496	A
53	16S	509	A
53	16S	510	A
53	16S	511	C
53	16S	518	C
53	16S	521	G
53	16S	527	G
53	16S	531	U
53	16S	532	A
53	16S	547	A
53	16S	559	A
53	16S	561	U
53	16S	564	C
53	16S	572	A
53	16S	573	A
53	16S	575	G
53	16S	576	C
53	16S	577	G
53	16S	596	A
53	16S	633	G
53	16S	652	U
53	16S	665	A
53	16S	688	G
53	16S	703	G
53	16S	721	G
53	16S	723	U
53	16S	724	G
53	16S	731	G
53	16S	755	G
53	16S	777	A
53	16S	815	A
53	16S	817	C
53	16S	818	G

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Mol	Chain	Res	Type
53	16S	819	A
53	16S	821	G
53	16S	829	G
53	16S	832	G
53	16S	843	U
53	16S	844	G
53	16S	846	G
53	16S	871	U
53	16S	890	G
53	16S	902	G
53	16S	934	C
53	16S	935	A
53	16S	960	U
53	16S	961	U
53	16S	966	G
53	16S	969	A
53	16S	971	G
53	16S	975	A
53	16S	976	G
53	16S	977	A
53	16S	992	U
53	16S	993	G
53	16S	1004	A
53	16S	1028	C
53	16S	1031	C
53	16S	1033	G
53	16S	1034	G
53	16S	1053	G
53	16S	1070	U
53	16S	1094	G
53	16S	1101	A
53	16S	1108	G
53	16S	1130	A
53	16S	1136	C
53	16S	1137	C
53	16S	1138	G
53	16S	1139	G
53	16S	1158	C
53	16S	1159	U
53	16S	1168	U
53	16S	1182	G
53	16S	1184	G

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Mol	Chain	Res	Type
53	16S	1191	A
53	16S	1196	A
53	16S	1197	A
53	16S	1198	G
53	16S	1201	A
53	16S	1202	U
53	16S	1212	U
53	16S	1225	A
53	16S	1226	C
53	16S	1227	A
53	16S	1228	C
53	16S	1238	A
53	16S	1240	U
53	16S	1241	G
53	16S	1253	G
53	16S	1256	A
53	16S	1257	A
53	16S	1258	G
53	16S	1260	G
53	16S	1275	A
53	16S	1278	G
53	16S	1280	A
53	16S	1282	C
53	16S	1286	U
53	16S	1287	A
53	16S	1290	G
53	16S	1300	G
53	16S	1301	U
53	16S	1317	C
53	16S	1320	C
53	16S	1323	G
53	16S	1336	C
53	16S	1346	A
53	16S	1347	G
53	16S	1363	A
53	16S	1395	C
53	16S	1419	G
53	16S	1422	G
53	16S	1429	A
53	16S	1446	A
53	16S	1448	C
53	16S	1452	C

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Mol	Chain	Res	Type
53	16S	1481	U
53	16S	1492	A
53	16S	1497	G
53	16S	1502	A
53	16S	1506	U
53	16S	1517	G
53	16S	1519	A
53	16S	1529	G
53	16S	1530	G
53	16S	1533	C
54	23S	10	A
54	23S	12	U
54	23S	14	A
54	23S	34	U
54	23S	35	G
54	23S	46	G
54	23S	51	G
54	23S	63	A
54	23S	71	A
54	23S	74	A
54	23S	75	G
54	23S	84	A
54	23S	118	A
54	23S	119	A
54	23S	120	U
54	23S	139	U
54	23S	140	C
54	23S	141	G
54	23S	142	A
54	23S	162	U
54	23S	163	C
54	23S	181	A
54	23S	196	A
54	23S	199	A
54	23S	216	A
54	23S	219	A
54	23S	221	A
54	23S	222	A
54	23S	248	G
54	23S	249	C
54	23S	255	A
54	23S	266	G

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Mol	Chain	Res	Type
54	23S	276	U
54	23S	281	C
54	23S	294	A
54	23S	301	G
54	23S	310	A
54	23S	311	A
54	23S	323	C
54	23S	324	A
54	23S	329	G
54	23S	330	A
54	23S	334	C
54	23S	338	G
54	23S	353	C
54	23S	361	G
54	23S	371	A
54	23S	372	G
54	23S	386	G
54	23S	387	U
54	23S	396	G
54	23S	404	A
54	23S	405	U
54	23S	406	G
54	23S	411	G
54	23S	417	C
54	23S	422	A
54	23S	424	G
54	23S	451	U
54	23S	456	C
54	23S	457	A
54	23S	467	G
54	23S	481	G
54	23S	491	G
54	23S	504	A
54	23S	505	A
54	23S	508	A
54	23S	530	G
54	23S	532	A
54	23S	543	G
54	23S	545	U
54	23S	547	A
54	23S	563	A
54	23S	568	U

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Mol	Chain	Res	Type
54	23S	573	U
54	23S	575	A
54	23S	588	U
54	23S	603	A
54	23S	616	A
54	23S	627	A
54	23S	637	A
54	23S	645	C
54	23S	646	U
54	23S	654	A
54	23S	669	G
54	23S	670	A
54	23S	686	U
54	23S	687	C
54	23S	695	G
54	23S	715	A
54	23S	726	G
54	23S	729	G
54	23S	730	A
54	23S	747	C
54	23S	752	A
54	23S	764	A
54	23S	775	G
54	23S	776	G
54	23S	782	A
54	23S	784	G
54	23S	785	G
54	23S	789	A
54	23S	805	G
54	23S	811	U
54	23S	812	C
54	23S	819	A
54	23S	822	G
54	23S	827	U
54	23S	828	U
54	23S	830	G
54	23S	845	A
54	23S	846	U
54	23S	847	U
54	23S	858	G
54	23S	860	U
54	23S	869	G

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Mol	Chain	Res	Type
54	23S	878	A
54	23S	885	C
54	23S	887	U
54	23S	896	A
54	23S	897	C
54	23S	907	G
54	23S	910	A
54	23S	932	U
54	23S	941	A
54	23S	946	C
54	23S	961	C
54	23S	974	G
54	23S	980	A
54	23S	983	A
54	23S	985	C
54	23S	995	C
54	23S	996	A
54	23S	1009	A
54	23S	1012	U
54	23S	1013	C
54	23S	1021	A
54	23S	1022	G
54	23S	1026	G
54	23S	1033	U
54	23S	1045	C
54	23S	1046	A
54	23S	1047	G
54	23S	1059	G
54	23S	1060	U
54	23S	1062	G
54	23S	1064	C
54	23S	1065	U
54	23S	1066	U
54	23S	1067	A
54	23S	1068	G
54	23S	1069	A
54	23S	1070	A
54	23S	1071	G
54	23S	1072	C
54	23S	1078	U
54	23S	1079	C
54	23S	1083	U

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Mol	Chain	Res	Type
54	23S	1084	A
54	23S	1085	A
54	23S	1088	A
54	23S	1103	A
54	23S	1104	C
54	23S	1106	G
54	23S	1111	A
54	23S	1112	G
54	23S	1131	G
54	23S	1132	U
54	23S	1133	A
54	23S	1135	C
54	23S	1139	G
54	23S	1142	A
54	23S	1156	A
54	23S	1157	G
54	23S	1174	U
54	23S	1175	A
54	23S	1177	G
54	23S	1178	C
54	23S	1180	U
54	23S	1206	G
54	23S	1211	C
54	23S	1212	G
54	23S	1250	G
54	23S	1251	C
54	23S	1253	A
54	23S	1256	G
54	23S	1271	G
54	23S	1272	A
54	23S	1275	A
54	23S	1300	G
54	23S	1301	A
54	23S	1329	U
54	23S	1330	C
54	23S	1345	C
54	23S	1365	A
54	23S	1368	G
54	23S	1378	A
54	23S	1379	U
54	23S	1383	A
54	23S	1416	G

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Mol	Chain	Res	Type
54	23S	1419	A
54	23S	1420	A
54	23S	1437	C
54	23S	1454	C
54	23S	1458	U
54	23S	1461	C
54	23S	1476	U
54	23S	1482	G
54	23S	1490	A
54	23S	1504	A
54	23S	1515	A
54	23S	1524	G
54	23S	1535	A
54	23S	1536	C
54	23S	1537	G
54	23S	1555	G
54	23S	1559	U
54	23S	1560	G
54	23S	1569	A
54	23S	1578	U
54	23S	1581	G
54	23S	1611	C
54	23S	1634	A
54	23S	1646	C
54	23S	1647	U
54	23S	1648	U
54	23S	1665	A
54	23S	1674	G
54	23S	1695	G
54	23S	1715	G
54	23S	1729	U
54	23S	1730	C
54	23S	1731	G
54	23S	1732	C
54	23S	1738	G
54	23S	1756	G
54	23S	1758	U
54	23S	1764	C
54	23S	1773	A
54	23S	1780	A
54	23S	1800	C
54	23S	1801	A

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Mol	Chain	Res	Type
54	23S	1802	A
54	23S	1808	A
54	23S	1816	C
54	23S	1829	A
54	23S	1833	C
54	23S	1835	G
54	23S	1847	A
54	23S	1870	C
54	23S	1871	A
54	23S	1901	A
54	23S	1906	G
54	23S	1907	G
54	23S	1913	A
54	23S	1929	G
54	23S	1930	G
54	23S	1937	A
54	23S	1938	A
54	23S	1944	U
54	23S	1955	U
54	23S	1963	U
54	23S	1967	C
54	23S	1970	A
54	23S	1971	U
54	23S	1972	G
54	23S	1991	U
54	23S	1997	C
54	23S	2020	A
54	23S	2021	C
54	23S	2022	U
54	23S	2023	C
54	23S	2030	A
54	23S	2031	A
54	23S	2043	C
54	23S	2049	G
54	23S	2055	C
54	23S	2056	G
54	23S	2060	A
54	23S	2061	G
54	23S	2062	A
54	23S	2069	G
54	23S	2072	C
54	23S	2093	G

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Mol	Chain	Res	Type
54	23S	2096	C
54	23S	2108	A
54	23S	2110	G
54	23S	2111	U
54	23S	2112	G
54	23S	2113	U
54	23S	2118	U
54	23S	2119	A
54	23S	2131	U
54	23S	2132	U
54	23S	2133	G
54	23S	2134	A
54	23S	2145	C
54	23S	2162	G
54	23S	2171	A
54	23S	2172	U
54	23S	2173	A
54	23S	2189	U
54	23S	2198	A
54	23S	2204	G
54	23S	2211	A
54	23S	2213	U
54	23S	2225	A
54	23S	2238	G
54	23S	2239	G
54	23S	2250	G
54	23S	2278	A
54	23S	2283	C
54	23S	2286	G
54	23S	2287	A
54	23S	2297	A
54	23S	2305	U
54	23S	2309	A
54	23S	2325	G
54	23S	2327	A
54	23S	2334	U
54	23S	2335	A
54	23S	2350	C
54	23S	2354	C
54	23S	2361	G
54	23S	2383	G
54	23S	2385	C

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Mol	Chain	Res	Type
54	23S	2392	A
54	23S	2402	U
54	23S	2407	A
54	23S	2423	U
54	23S	2428	G
54	23S	2429	G
54	23S	2430	A
54	23S	2435	A
54	23S	2441	U
54	23S	2447	G
54	23S	2448	A
54	23S	2475	C
54	23S	2476	A
54	23S	2484	G
54	23S	2490	G
54	23S	2494	G
54	23S	2498	C
54	23S	2502	G
54	23S	2503	A
54	23S	2505	G
54	23S	2513	A
54	23S	2518	A
54	23S	2529	G
54	23S	2535	G
54	23S	2547	A
54	23S	2554	U
54	23S	2566	A
54	23S	2567	G
54	23S	2572	A
54	23S	2602	A
54	23S	2609	U
54	23S	2613	U
54	23S	2615	U
54	23S	2629	U
54	23S	2646	C
54	23S	2682	A
54	23S	2689	U
54	23S	2690	U
54	23S	2714	G
54	23S	2718	G
54	23S	2722	G
54	23S	2726	A

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Mol	Chain	Res	Type
54	23S	2732	G
54	23S	2733	A
54	23S	2739	U
54	23S	2744	G
54	23S	2748	A
54	23S	2757	A
54	23S	2764	A
54	23S	2765	A
54	23S	2778	A
54	23S	2779	U
54	23S	2794	C
54	23S	2797	U
54	23S	2800	A
54	23S	2809	A
54	23S	2818	U
54	23S	2820	A
54	23S	2833	U
54	23S	2835	A
54	23S	2850	A
54	23S	2867	G
54	23S	2872	A
54	23S	2873	A
54	23S	2880	C
54	23S	2883	A
54	23S	2884	U
54	23S	2901	C
55	5S	4	C
55	5S	12	C
55	5S	13	G
55	5S	24	G
55	5S	35	C
55	5S	41	G
55	5S	44	G
55	5S	52	A
55	5S	67	G
55	5S	89	U
55	5S	90	C
55	5S	91	C
55	5S	108	A
55	5S	109	A

All (18) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
53	16S	280	C
53	16S	438	U
53	16S	651	C
53	16S	1190	G
53	16S	1201	A
53	16S	1300	G
54	23S	421	C
54	23S	859	G
54	23S	1020	A
54	23S	1130	U
54	23S	1475	G
54	23S	1730	C
54	23S	2286	G
54	23S	2296	U
54	23S	2326	C
54	23S	2391	G
54	23S	2756	U
55	5S	88	C

5.4 Non-standard residues in protein, DNA, RNA chains

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

5.5 Carbohydrates

There are no monosaccharides in this entry.

5.6 Ligand geometry

There are no ligands in this entry.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

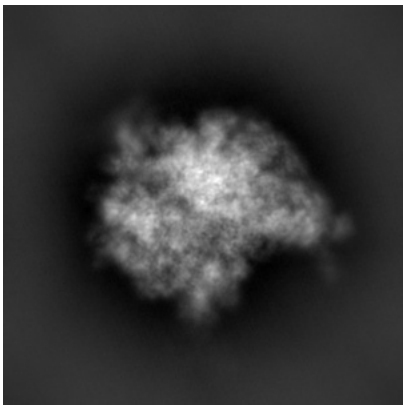
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-26037. These allow visual inspection of the internal detail of the map and identification of artifacts.

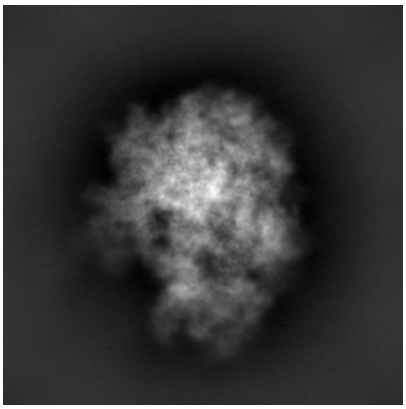
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

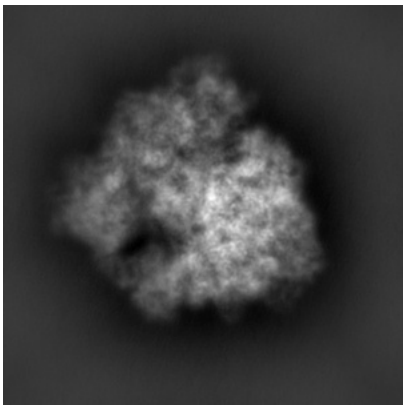
6.1.1 Primary map



X

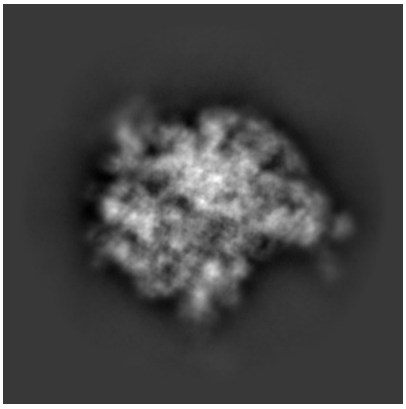


Y

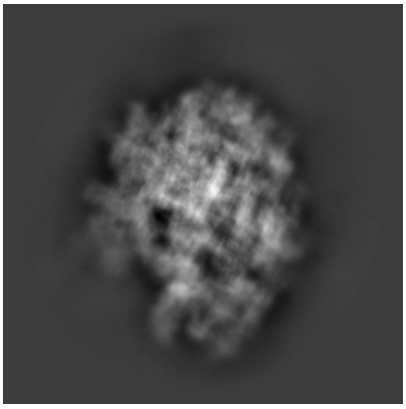


Z

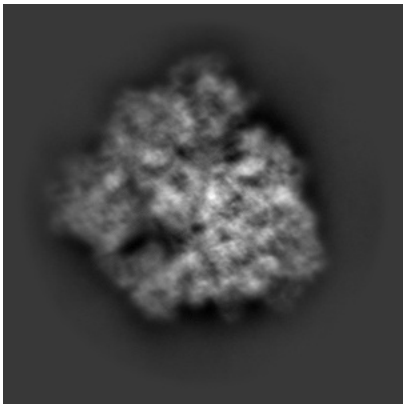
6.1.2 Raw map



X



Y

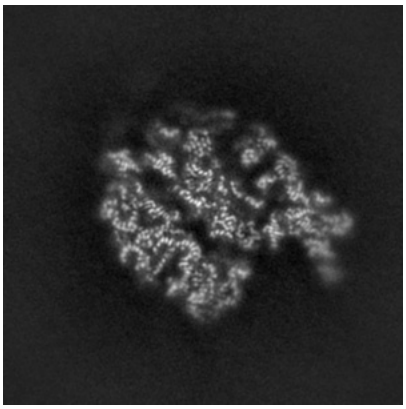


Z

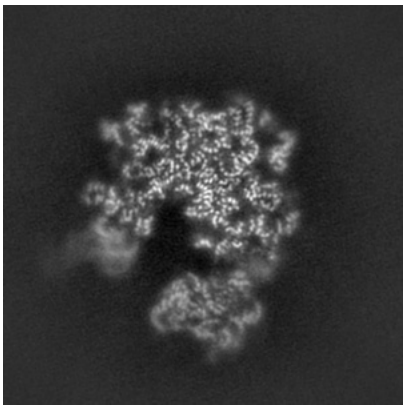
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

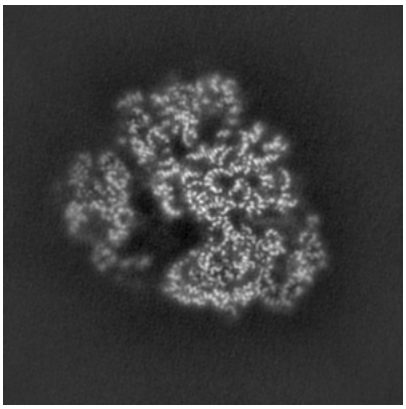
6.2.1 Primary map



X Index: 216

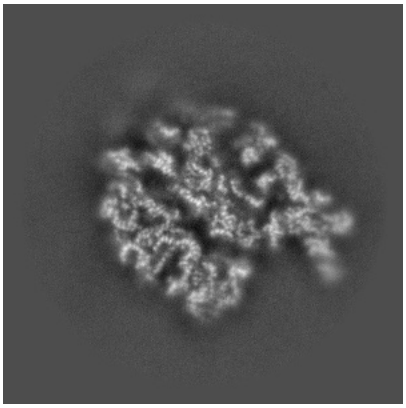


Y Index: 216

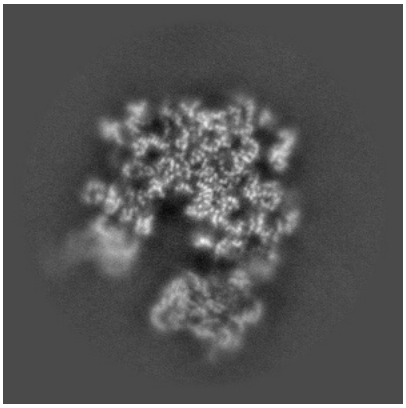


Z Index: 216

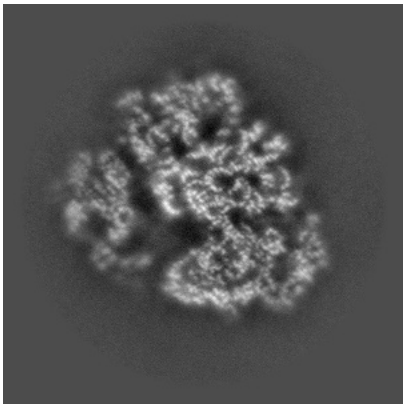
6.2.2 Raw map



X Index: 216



Y Index: 216

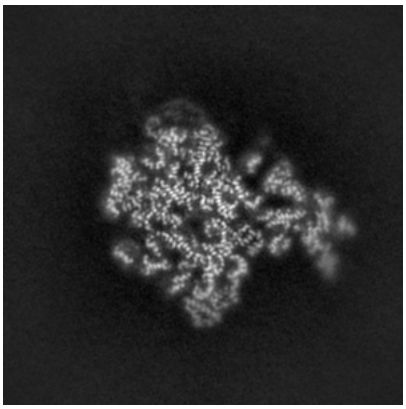


Z Index: 216

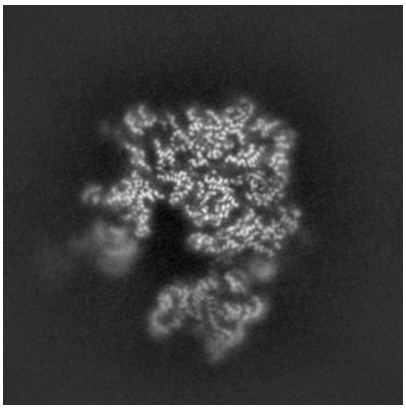
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

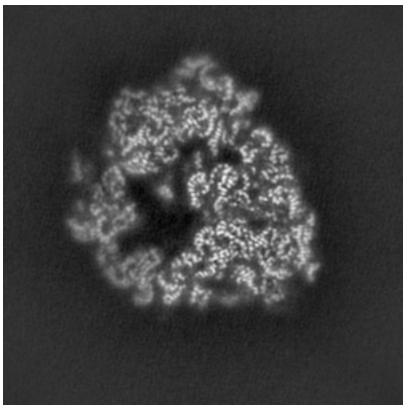
6.3.1 Primary map



X Index: 225

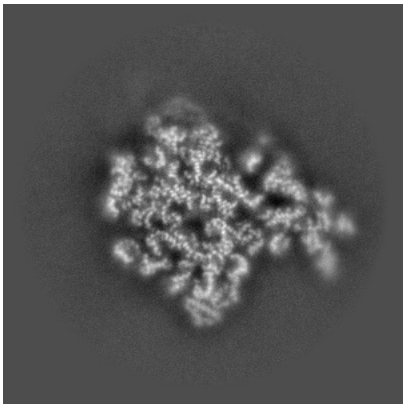


Y Index: 223

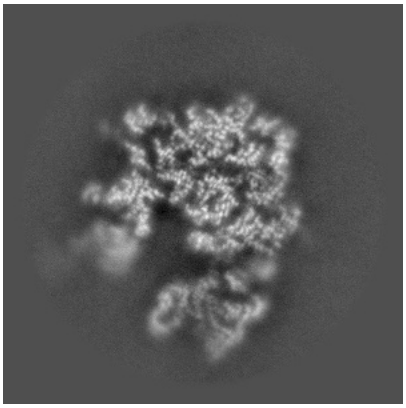


Z Index: 202

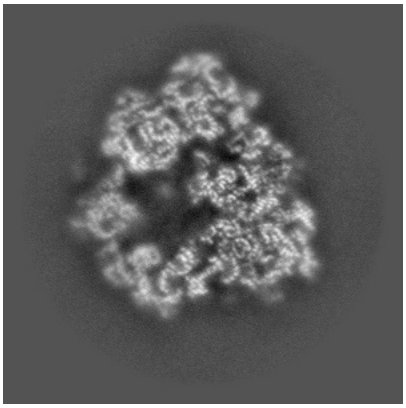
6.3.2 Raw map



X Index: 224



Y Index: 223

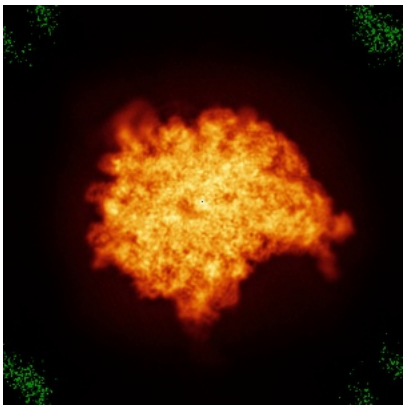


Z Index: 196

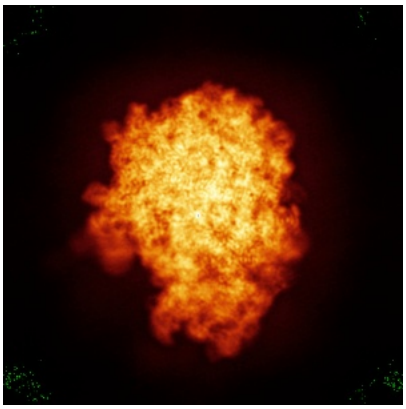
The images above show the largest variance slices of the map in three orthogonal directions.

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

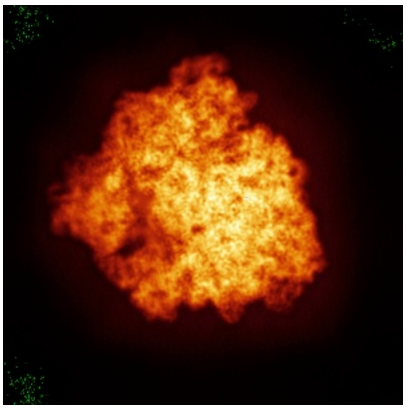
6.4.1 Primary map



X

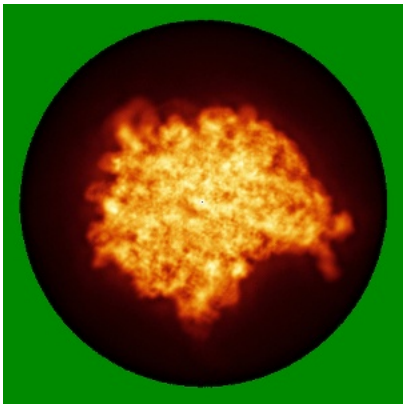


Y

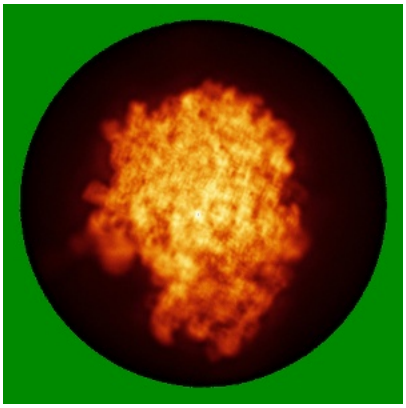


Z

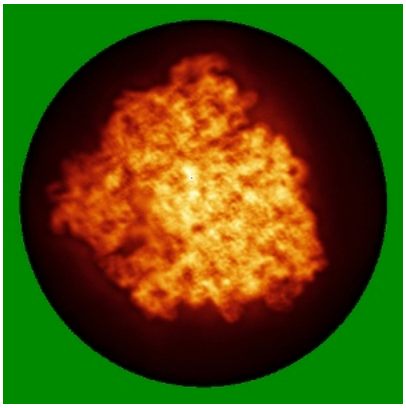
6.4.2 Raw map



X



Y

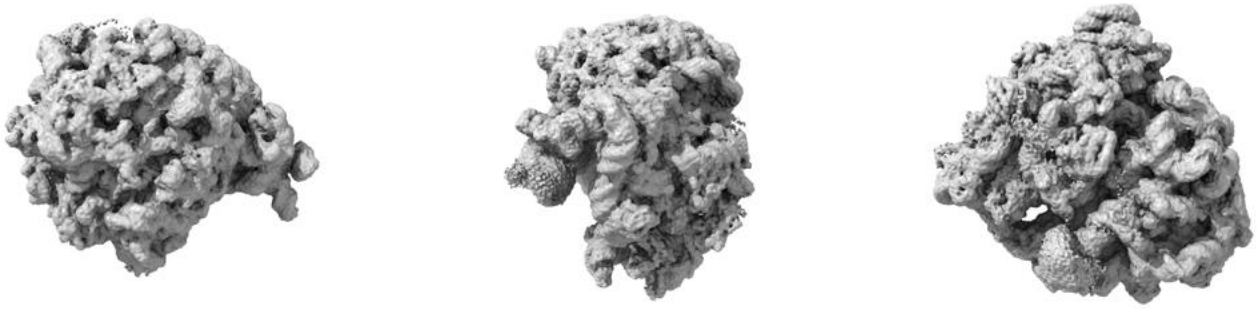


Z

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 3.0. 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.

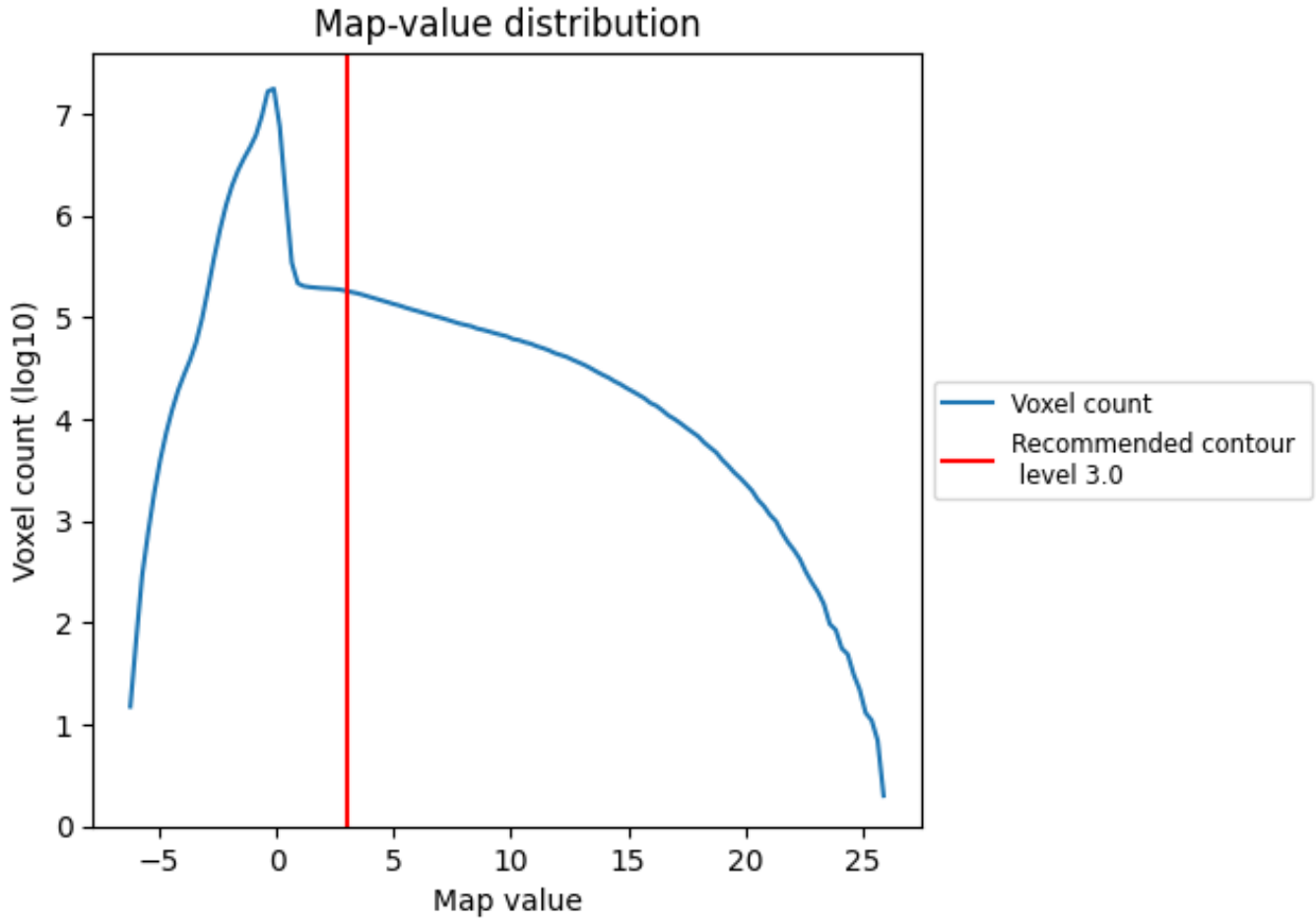
6.6 Mask visualisation (i)

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

7 Map analysis

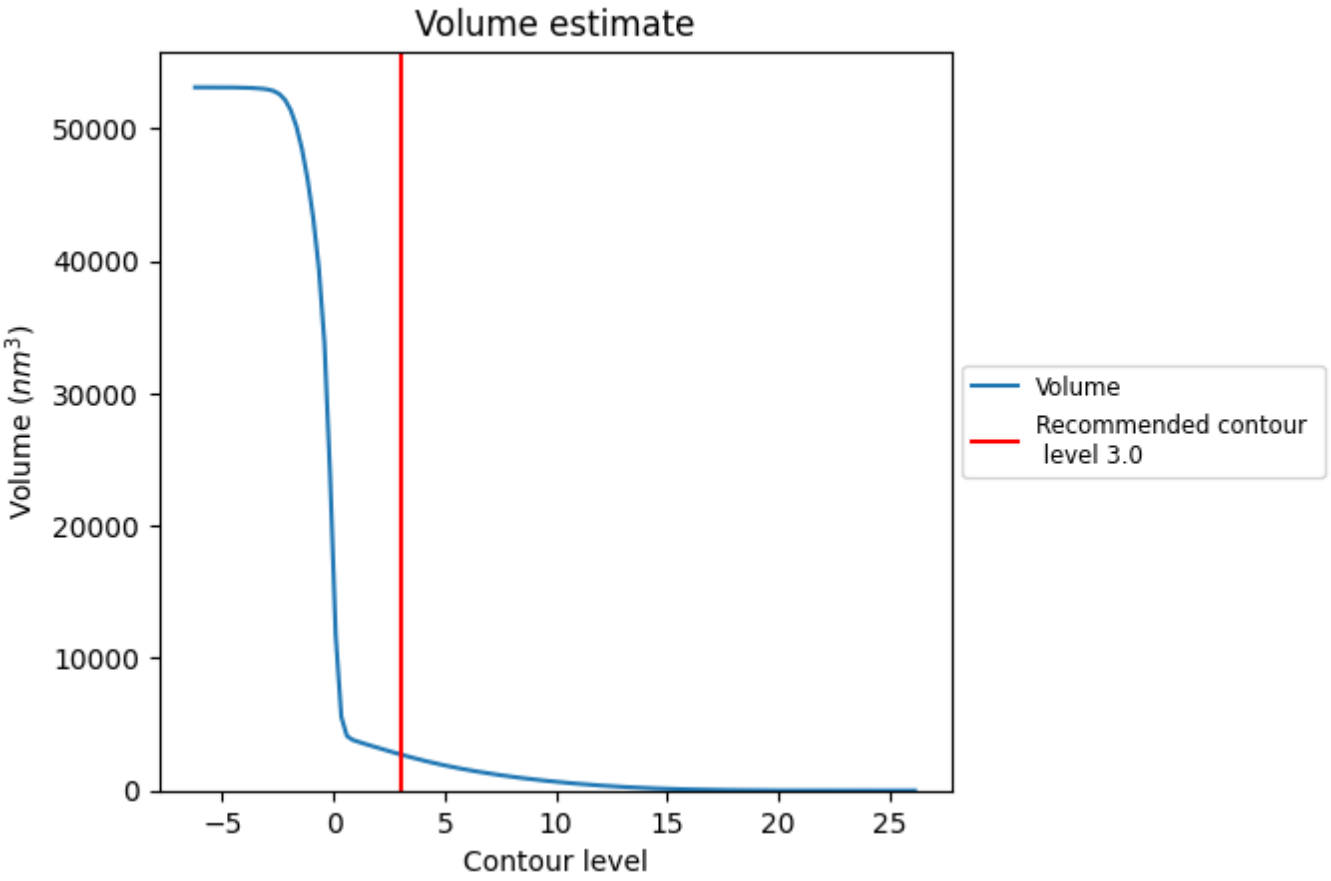
This section contains the results of statistical analysis of the map.

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.

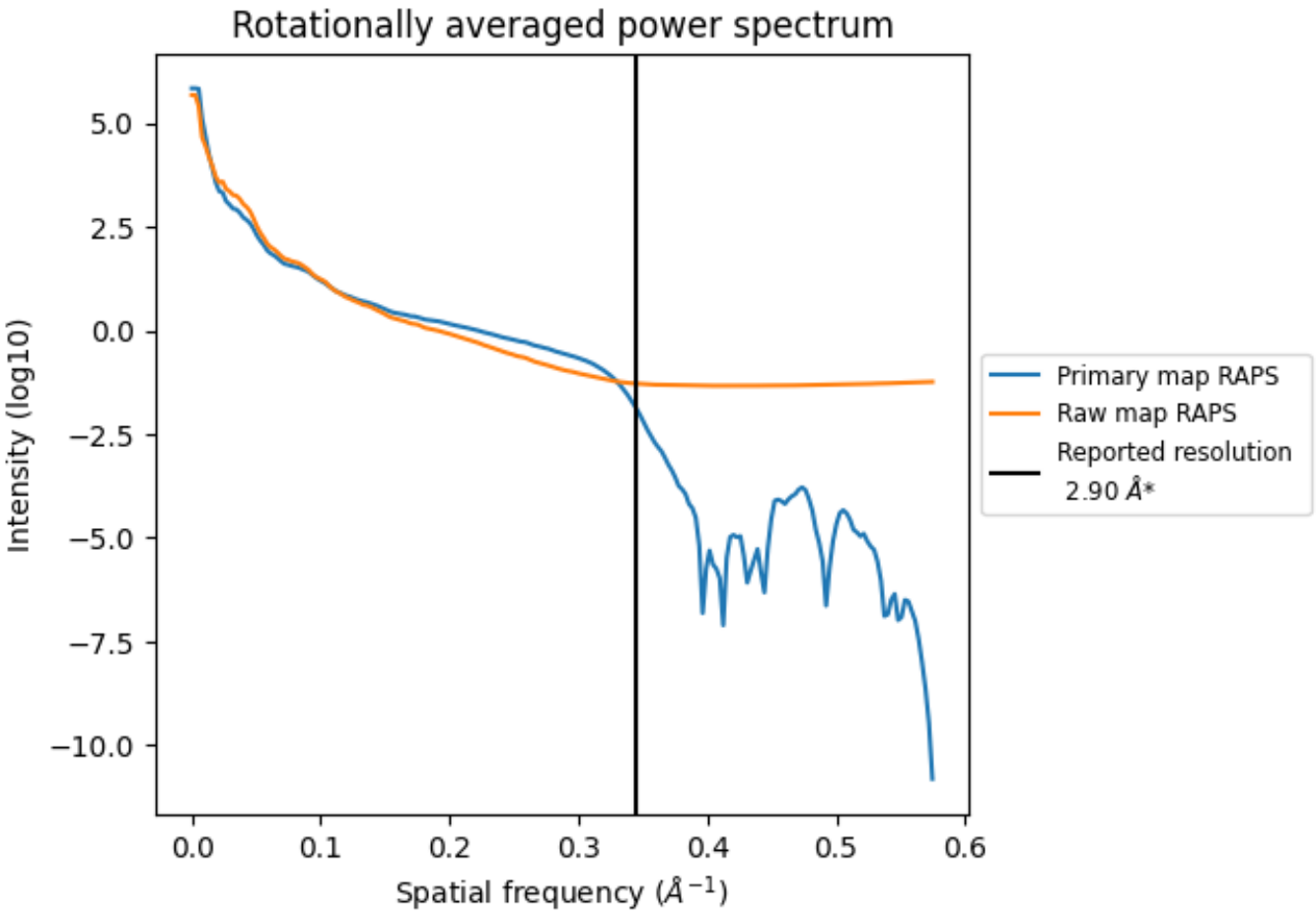
7.2 Volume estimate



The volume at the recommended contour level is 2732 nm^3; this corresponds to an approximate mass of 2468 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)

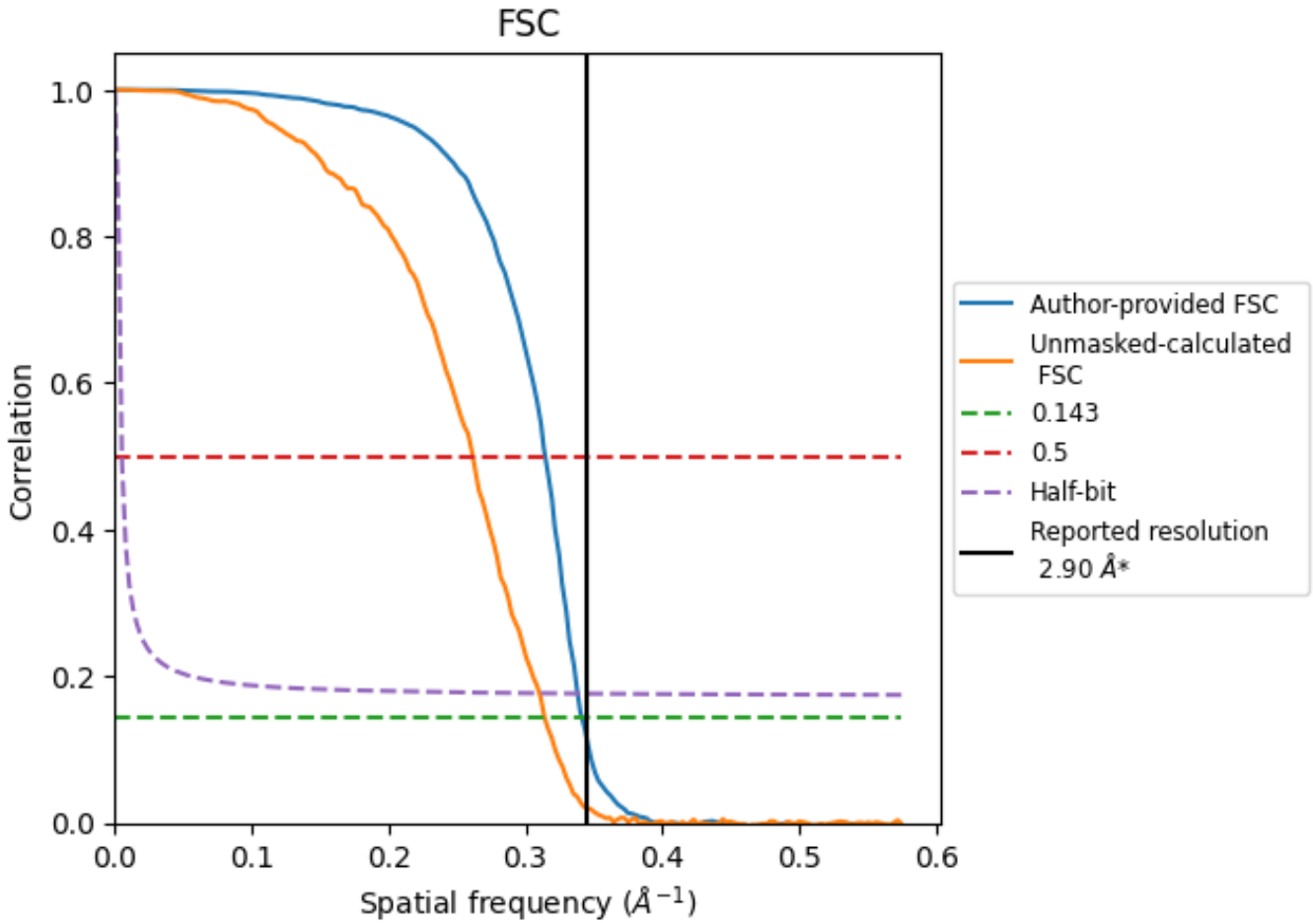


*Reported resolution corresponds to spatial frequency of 0.345 Å^{-1}

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 0.345 Å^{-1}

8.2 Resolution estimates (i)

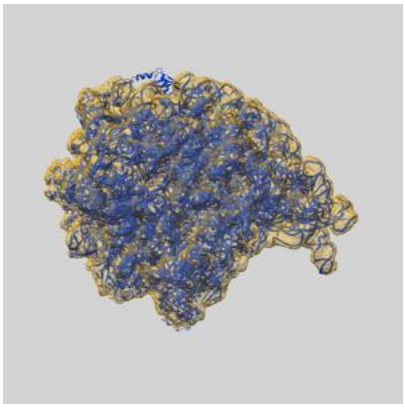
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.90	-	-
Author-provided FSC curve	2.93	3.18	2.96
Unmasked-calculated*	3.18	3.82	3.22

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

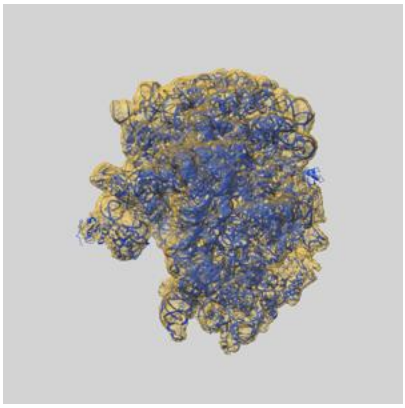
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-26037 and PDB model 7TOS. Per-residue inclusion information can be found in section 3 on page 14.

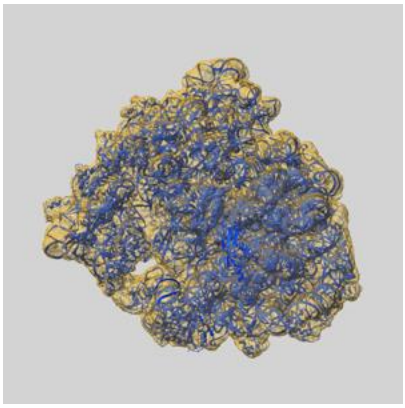
9.1 Map-model overlay



X



Y



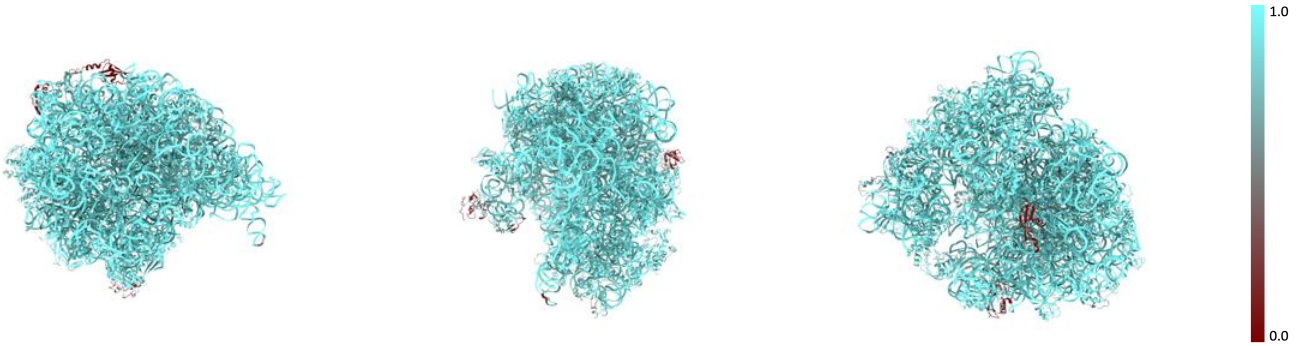
Z

The images above show the 3D surface view of the map at the recommended contour level 3.0 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

This section was not generated.

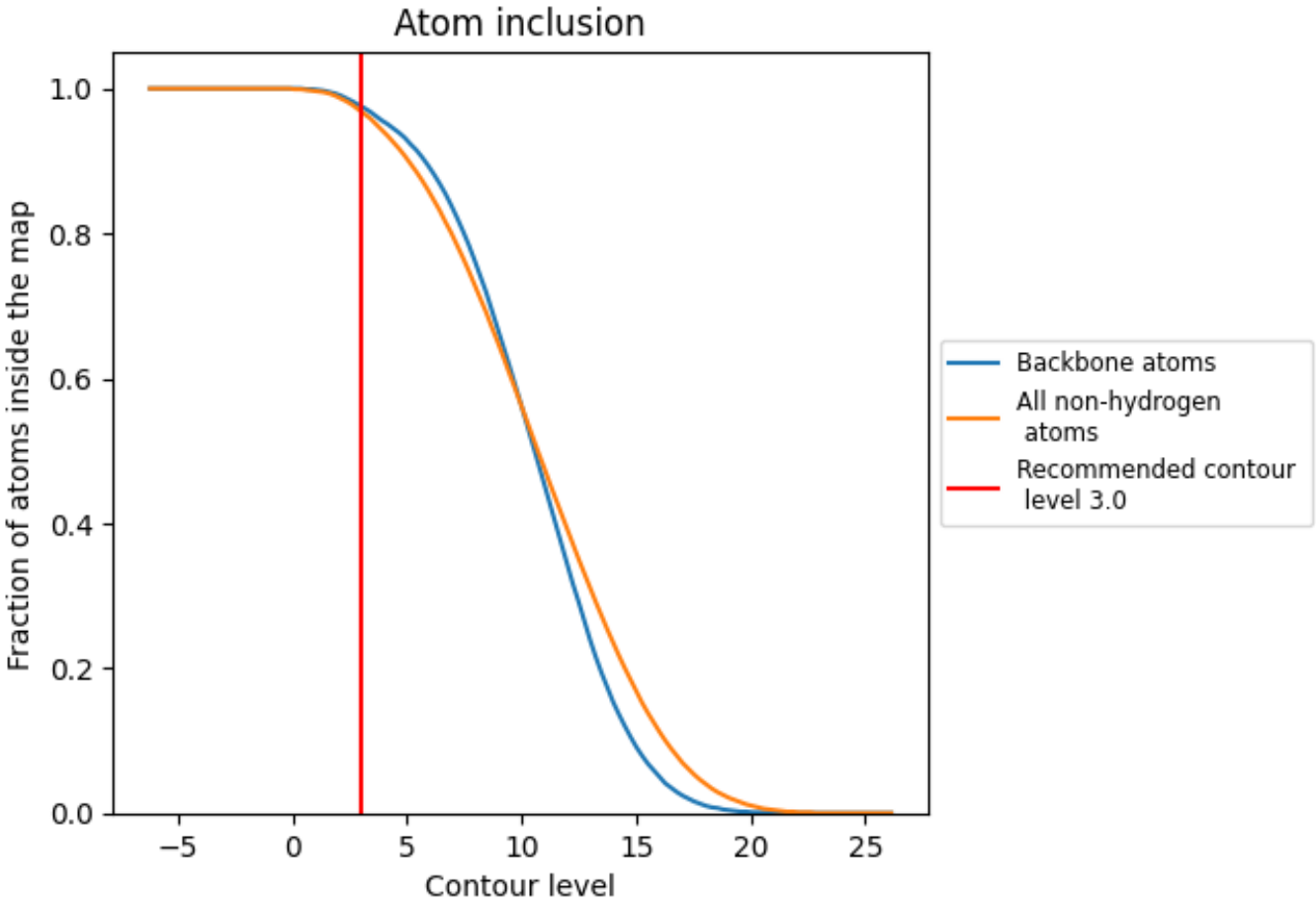
9.3 Atom inclusion mapped to coordinate model



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 (3.0).

9.4 Atom inclusion (i)



At the recommended contour level, 98% of all backbone atoms, 97% 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 (3.0) and Q-score for the entire model and for each chain.

Chain	Atom inclusion
All	0.9680
16S	0.9930
23S	0.9940
5S	0.9970
L02	0.9900
L03	0.9820
L04	0.9340
L05	0.9710
L06	0.9700
L09	0.3800
L1	0.4910
L10	0.4360
L11	0.7170
L13	0.9740
L14	0.9660
L15	0.9620
L16	0.9650
L17	0.9940
L18	0.9750
L19	0.9730
L20	0.9860
L21	0.9420
L22	0.9550
L23	0.9710
L24	0.9490
L25	0.9470
L27	0.9700
L28	0.9880
L29	0.9620
L30	0.9570
L31	0.9080
L32	0.9670
L33	0.7260
L34	0.9780
L35	0.9940

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Chain	Atom inclusion
L36	1.0000
PR	0.9500
S02	0.9080
S03	0.8900
S04	0.9420
S05	0.9570
S06	0.9500
S07	0.9590
S08	0.9670
S09	0.9530
S10	0.8150
S11	0.9910
S12	0.9510
S13	0.9590
S14	0.9430
S15	0.9830
S16	0.9510
S17	0.9720
S18	0.9940
S19	0.9520
S20	0.9750
S21	0.9050