Full wwPDB EM Validation Report ⓘ

Feb 5, 2024 – 02:15 PM EST

PDB ID	:	8G31
EMDB ID	:	EMD-29687
Title	:	Time-resolved cryo-EM study of the 70S recycling by the HflX:2nd Intermediate
Authors	:	Bhattacharjee, S.; Brown, P.Z.; Frank, J.
Deposited on	:	2023-02-06
Resolution	:	3.20 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:

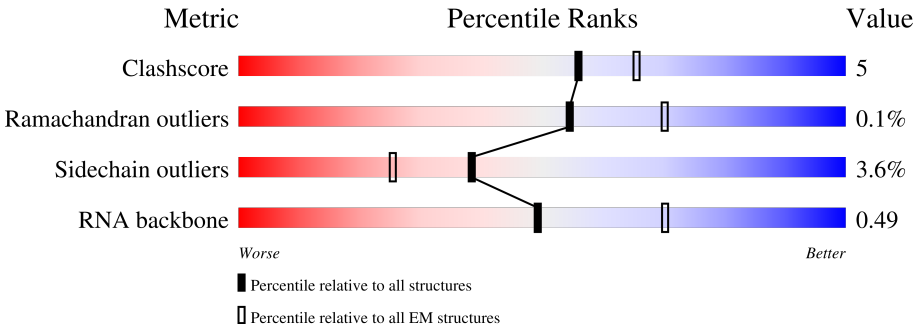
EMDB validation analysis	:	0.0.1.dev70
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 3.20 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	0	56	64% 77% 20% ·
2	1	51	100% 78% 22%
3	2	46	70% 83% 17%
4	3	64	78% 81% 17% ·
5	4	38	71% 66% 26% 8%
6	6	426	82% 80% 18% ·
7	A	117	57% 60% 28% 12%

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Mol	Chain	Length	Quality of chain
8	B	2903	56% 60% 33% 6%
9	C	272	65% 80% 20%
10	D	209	79% 90% 10%
11	E	201	79% 88% 11%
12	F	178	99% 78% 21%
13	G	176	85% 81% 18%
14	J	142	68% 75% 23%
15	K	122	71% 75% 25%
16	L	143	69% 83% 16%
17	M	136	63% 81% 19%
18	N	121	72% 76% 22%
19	O	116	78% 78% 22%
20	P	114	74% 75% 24%
21	Q	117	74% 72% 25%
22	R	103	67% 85% 15%
23	S	110	70% 68% 29%
24	T	94	79% 82% 15%
25	U	103	77% 83% 17%
26	V	94	82% 88% 11%
27	W	79	70% 65% 32%
28	X	77	60% 79% 21%
29	Y	63	65% 76% 21%
30	Z	58	78% 76% 22%
31	c	205	53% 97%
32	d	150	31% 97%

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Mol	Chain	Length	Quality of chain
33	e	100	64% 92% 8%
34	f	151	92% 97%
35	g	129	33% 99%
36	h	127	84% 98%
37	i	98	63% 98%
38	j	117	52% 94% 6%
39	k	123	48% 98%
40	l	114	88% 96%
41	m	100	67% 91% 5%
42	n	88	50% 94% 6%
43	o	82	52% 99%
44	p	80	66% 99%
45	q	55	38% 100%
46	r	79	96% 97%
47	s	85	59% 100%
48	t	51	86% 94% 6%
49	u	59	100% 92% 8%
50	v	1539	42% 69% 28%
51	w	218	78% 95% 5%
52	x	206	27% 98%

2 Entry composition

There are 52 unique types of molecules in this entry. The entry contains 144258 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 L32.

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

- Molecule 2 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
2	1	51	410	263	76	71	0	1

- Molecule 3 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	2	46	377	228	90	57	2	0	0

- Molecule 4 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	3	64	504	323	105	74	2	0	0

- Molecule 5 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	4	38	302	185	65	48	4	0	0

- Molecule 6 is a protein called GTPase HflX.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	6	426	3403	2129	624	641	9	0	0

- Molecule 7 is a RNA chain called 5S.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	A	117	Total	C	N	O	P	0	0
			2504	1116	459	813	116		

- Molecule 8 is a RNA chain called 23S.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	B	2903	Total	C	N	O	P	0	0
			62317	27801	11467	20147	2902		

- Molecule 9 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	C	272	Total	C	N	O	S	0	1
			2083	1288	424	364	7		

- Molecule 10 is a protein called 50S ribosomal protein L3.

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

- Molecule 11 is a protein called 50S ribosomal protein L4.

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

- Molecule 12 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	F	178	Total	C	N	O	S	0	0
			1420	905	251	258	6		

- Molecule 13 is a protein called 50S ribosomal protein L6.

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

- Molecule 14 is a protein called 50S ribosomal protein L13.

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

- Molecule 15 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	K	122	Total	C	N	O	S	0	1
			931	582	180	164	5		

- Molecule 16 is a protein called 50S ribosomal protein L15.

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

- Molecule 17 is a protein called 50S ribosomal protein L16.

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

- Molecule 18 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	N	121	Total	C	N	O	S	0	1
			961	593	197	166	5		

- Molecule 19 is a protein called 50S ribosomal protein L18.

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

- Molecule 20 is a protein called 50S ribosomal protein L19.

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

- Molecule 21 is a protein called 50S ribosomal protein L20.

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

- Molecule 22 is a protein called Ribosomal protein L21.

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

- Molecule 23 is a protein called 50S ribosomal protein L22.

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

- Molecule 24 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	T	94	Total 739	C 466	N 140	O 131	S 2	0	1

- Molecule 25 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
25	U	103	Total 780	C 492	N 147	O 141	0	1

- Molecule 26 is a protein called 50S ribosomal protein L25.

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

- Molecule 27 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	W	79	Total 596	C 367	N 120	O 108	S 1	0	0

- Molecule 28 is a protein called 50S ribosomal protein L28.

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

- Molecule 29 is a protein called 50S ribosomal protein L29.

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

- Molecule 30 is a protein called 50S ribosomal protein L30.

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

- Molecule 31 is a protein called 30S ribosomal protein S4.

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

- Molecule 32 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	d	150	Total	C	N	O	S	0	0
			1106	687	211	202	6		

- Molecule 33 is a protein called 30S ribosomal protein S6, non-modified isoform.

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

- Molecule 34 is a protein called 30S ribosomal protein S7.

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

- Molecule 35 is a protein called 30S ribosomal protein S8.

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

- Molecule 36 is a protein called 30S ribosomal protein S9.

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

- Molecule 37 is a protein called 30S ribosomal protein S10.

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

- Molecule 38 is a protein called 30S ribosomal protein S11.

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

- Molecule 39 is a protein called 30S ribosomal protein S12.

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

- Molecule 40 is a protein called 30S ribosomal protein S13.

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

- Molecule 41 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	m	96	Total	C	N	O	S	0	0
			774	483	160	128	3		

- Molecule 42 is a protein called 30S ribosomal protein S15.

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

- Molecule 43 is a protein called 30S ribosomal protein S16.

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

- Molecule 44 is a protein called 30S ribosomal protein S17.

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

- Molecule 45 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms				AltConf	Trace
45	q	55	Total	C	N	O	0	0
			456	288	86	82		

- Molecule 46 is a protein called 30S ribosomal protein S19.

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

- Molecule 47 is a protein called 30S ribosomal protein S20.

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

- Molecule 48 is a protein called 30S ribosomal protein S21 (Fragment).

Mol	Chain	Residues	Atoms					AltConf	Trace
48	t	51	Total	C	N	O	S	0	0
			426	265	86	74	1		

- Molecule 49 is a protein called Transcription termination/antitermination protein NusG.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	u	59	Total	C	N	O	S	0	0
			468	297	78	92	1		

- Molecule 50 is a RNA chain called 16S.

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

- Molecule 51 is a protein called 30S ribosomal protein S2.

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

- Molecule 52 is a protein called 30S ribosomal protein S3.

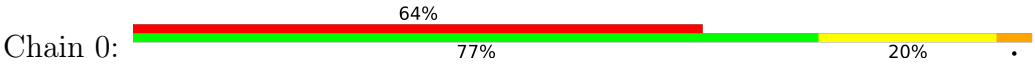
Mol	Chain	Residues	Atoms					AltConf	Trace
52	x	206	Total	C	N	O	S	0	0
			1625	1028	305	289	3		

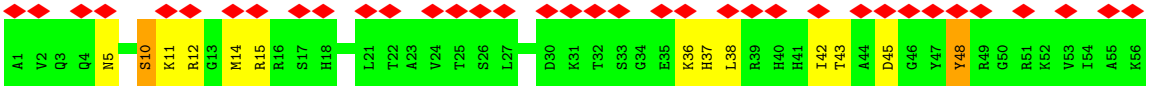
3 Residue-property plots

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

- Molecule 1: 50S ribosomal protein L32

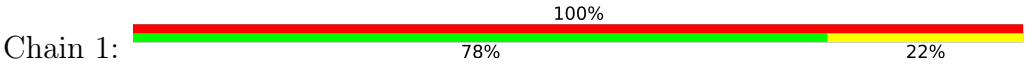
Chain 0:





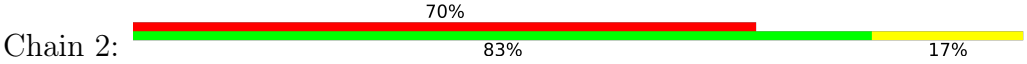
- Molecule 2: 50S ribosomal protein L33

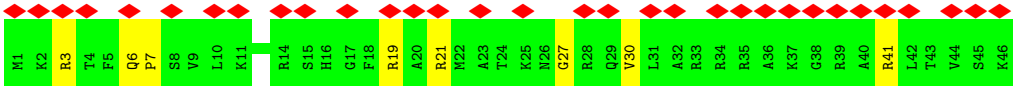
Chain 1:



- Molecule 3: 50S ribosomal protein L34

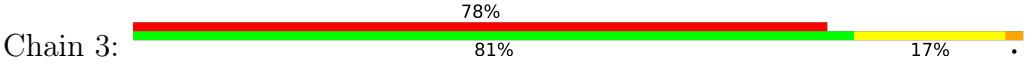
Chain 2:





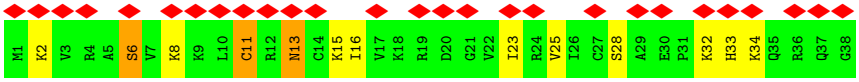
- Molecule 4: 50S ribosomal protein L35

Chain 3:



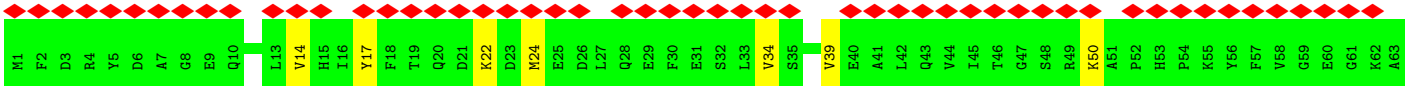
- Molecule 5: 50S ribosomal protein L36

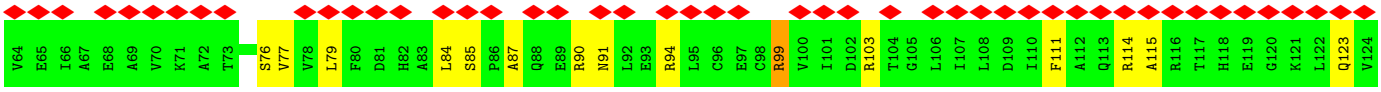
Chain 4:

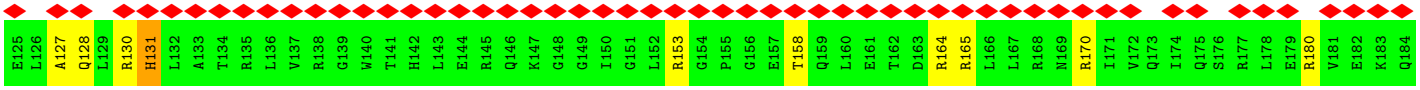


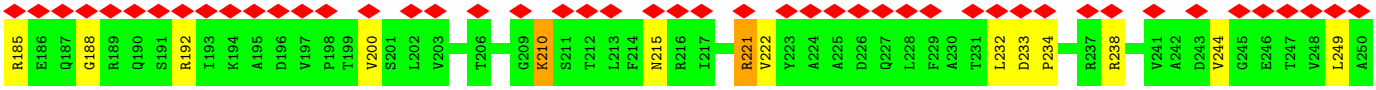
• Molecule 6: GTPase HflX

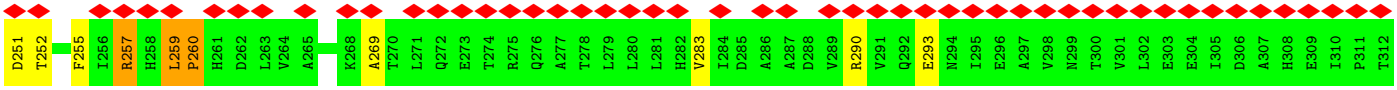
Chain 6:

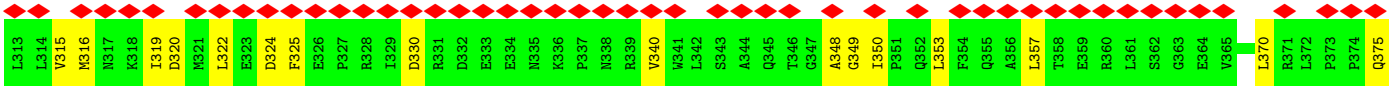


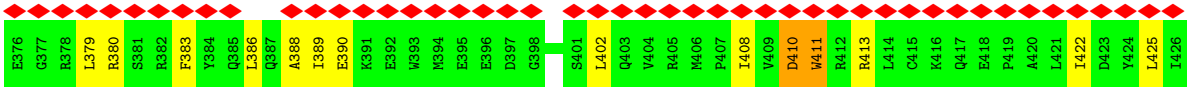






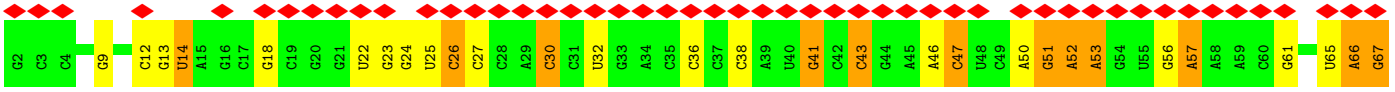


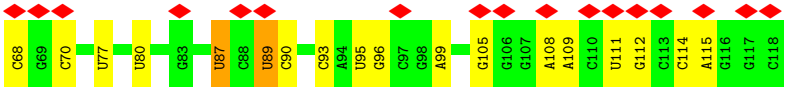




• Molecule 7: 5S

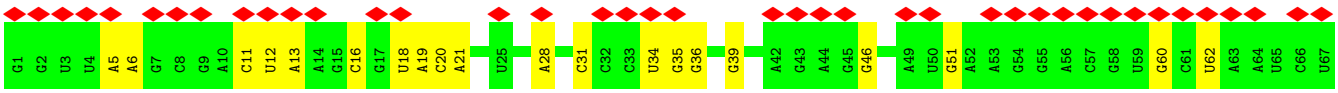
Chain A:

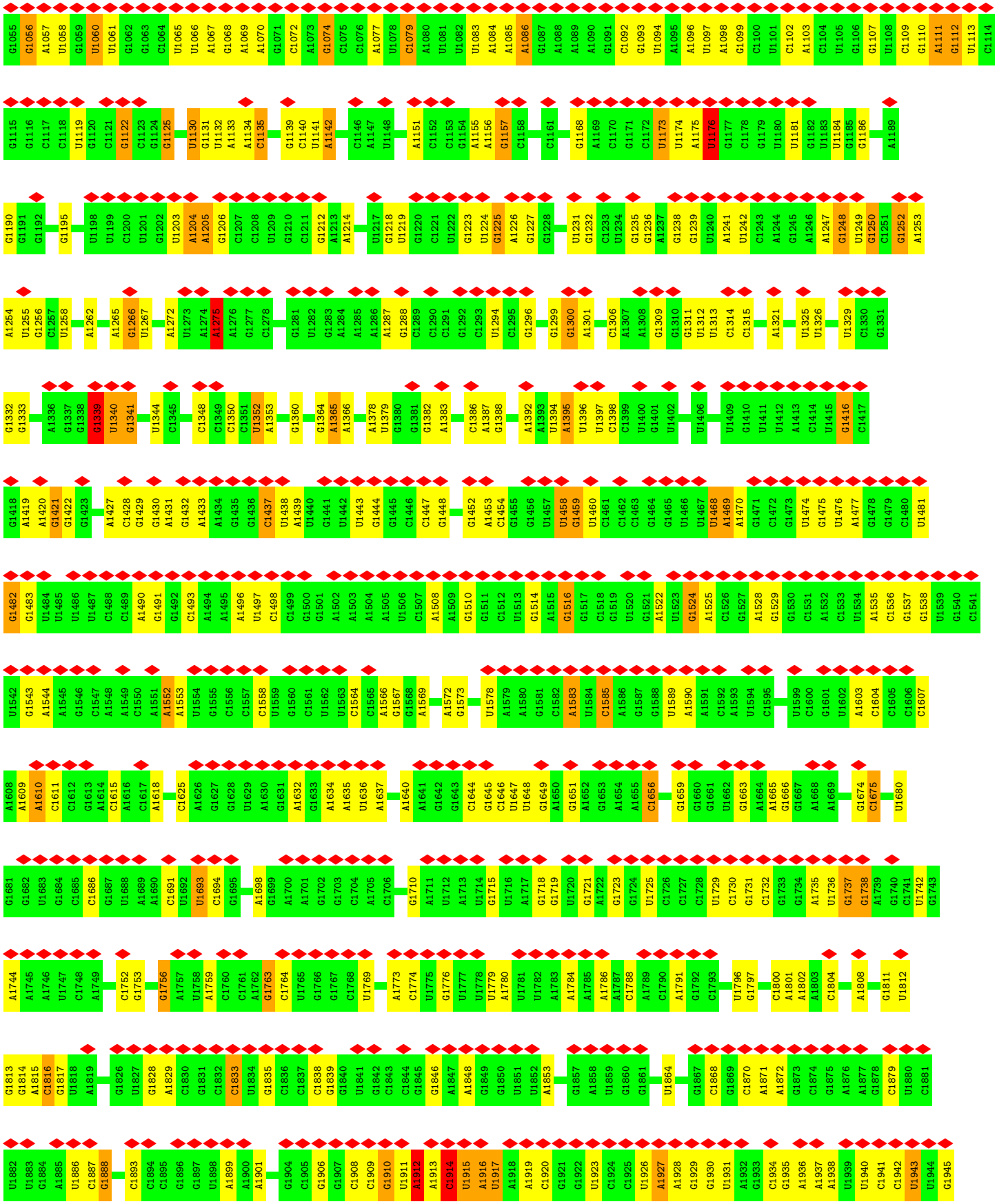


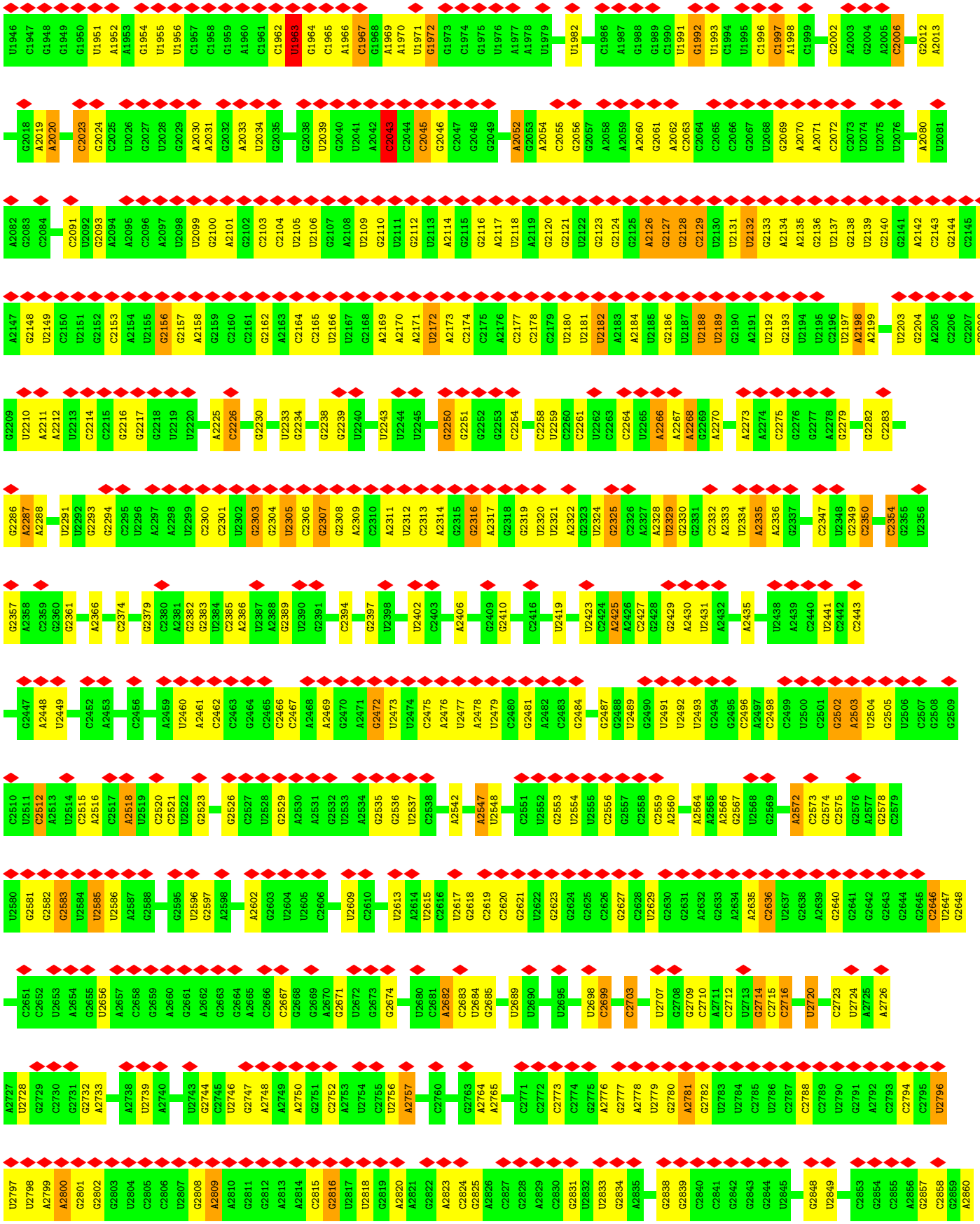


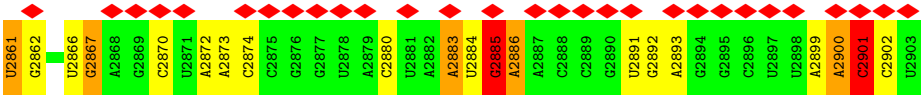
• Molecule 8: 23S

Chain B:



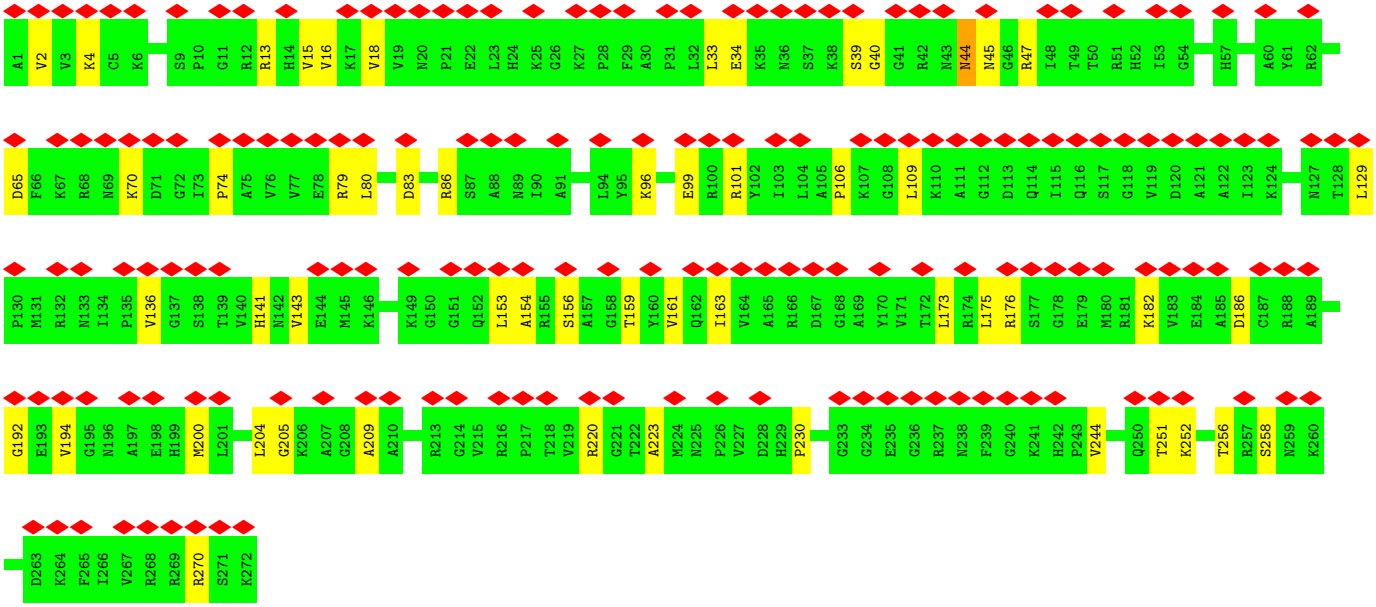






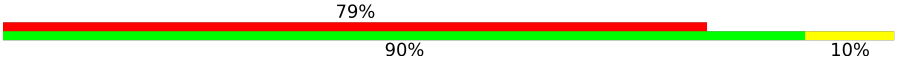
• Molecule 9: 50S ribosomal protein L2

Chain C:



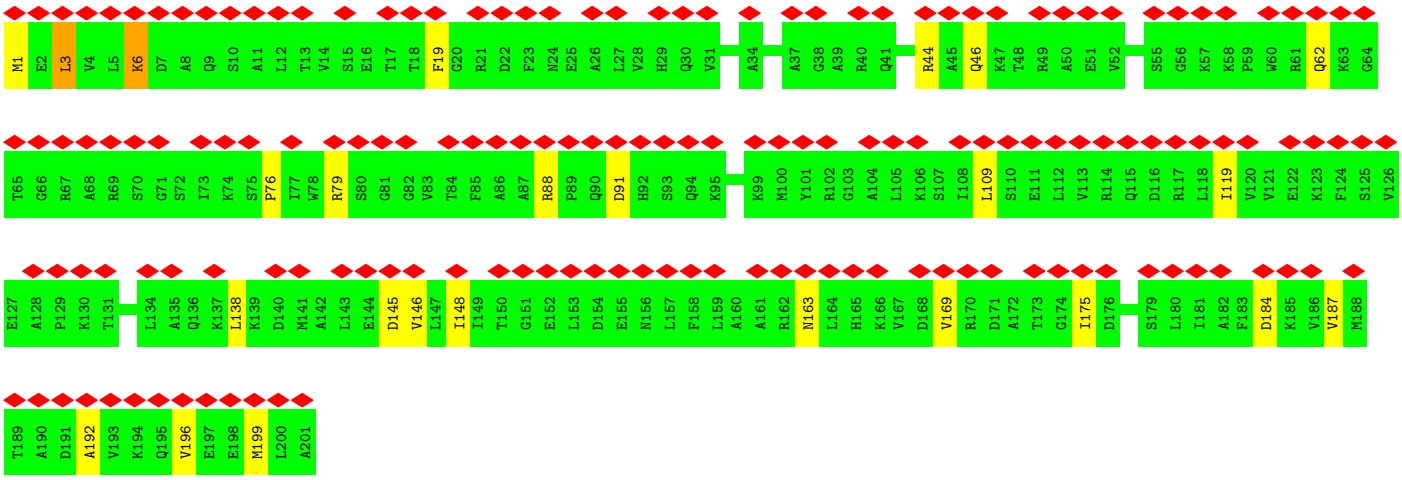
• Molecule 10: 50S ribosomal protein L3

Chain D:



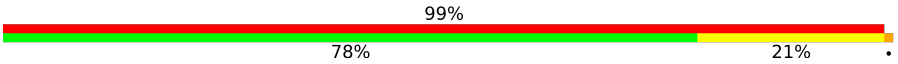
• Molecule 11: 50S ribosomal protein L4

Chain E:



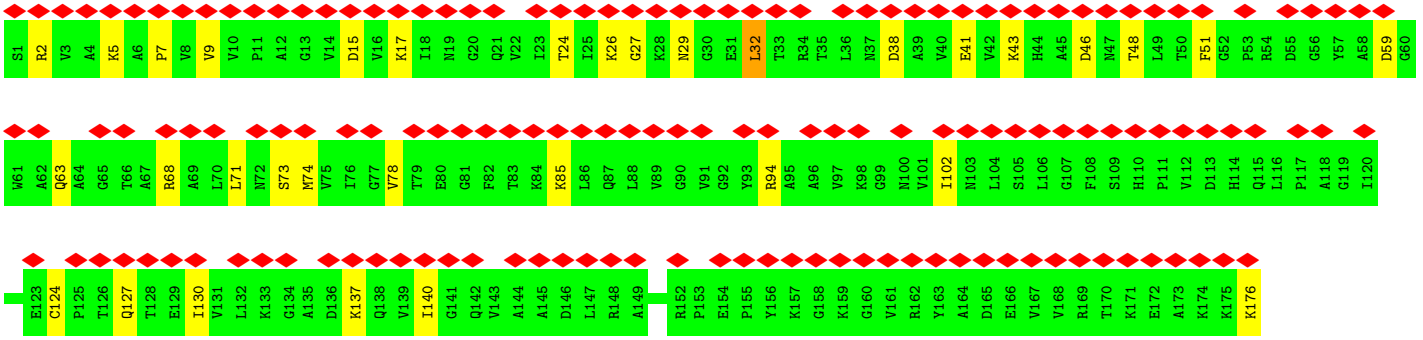
• Molecule 12: 50S ribosomal protein L5

Chain F:



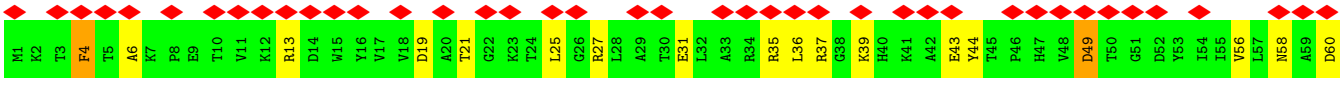
• Molecule 13: 50S ribosomal protein L6

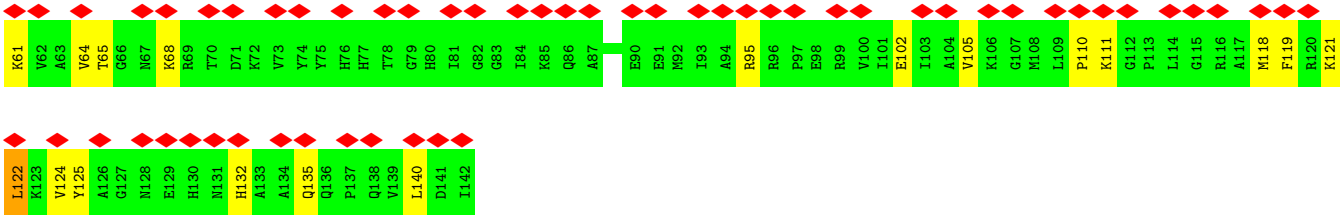
Chain G:



• Molecule 14: 50S ribosomal protein L13

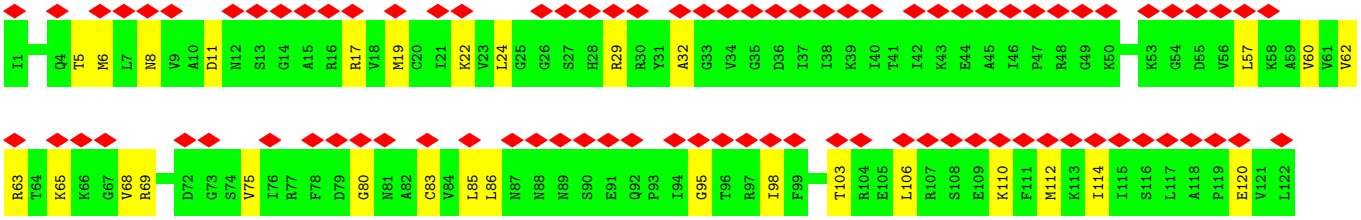
Chain J:





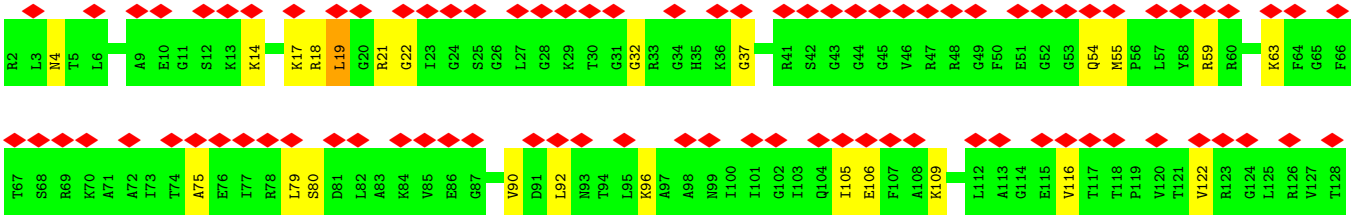
• Molecule 15: 50S ribosomal protein L14

Chain K:



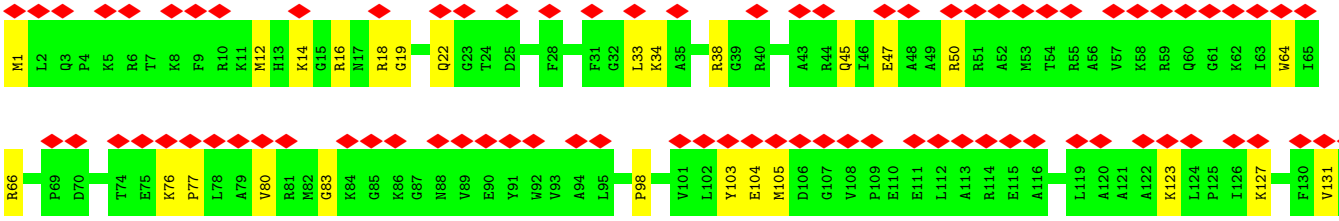
• Molecule 16: 50S ribosomal protein L15

Chain L:



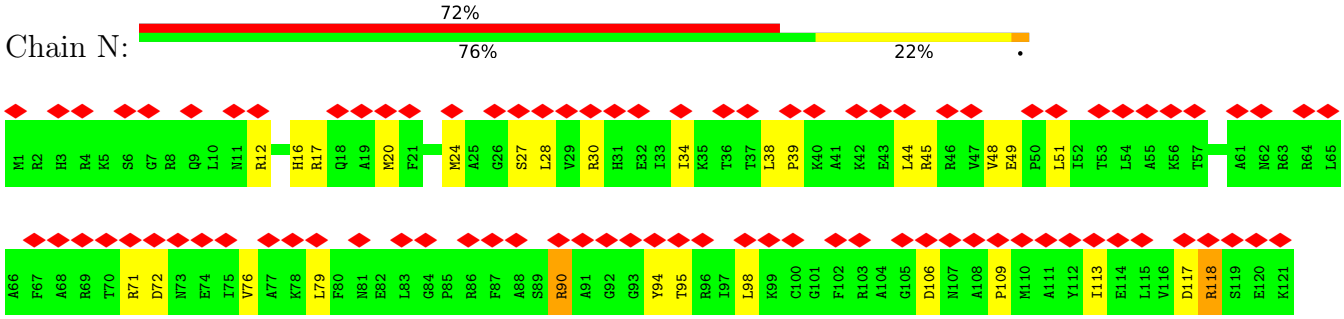
• Molecule 17: 50S ribosomal protein L16

Chain M:



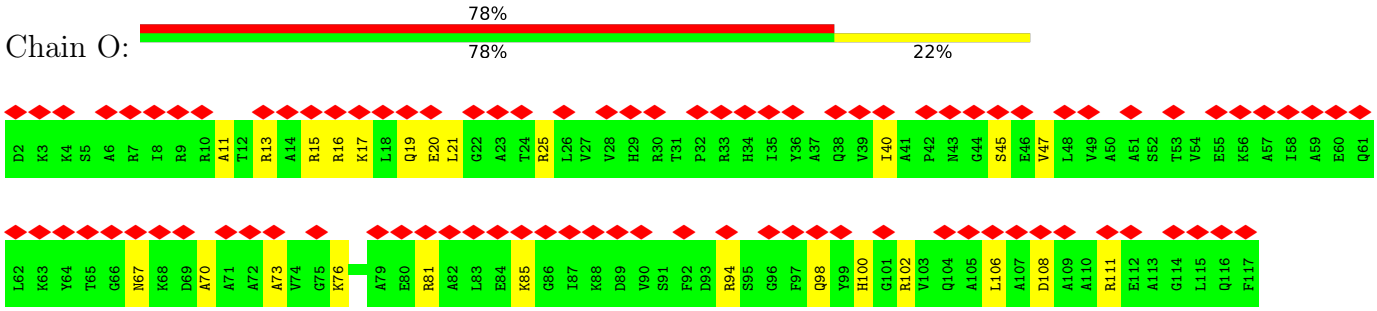
• Molecule 18: 50S ribosomal protein L17

Chain N:



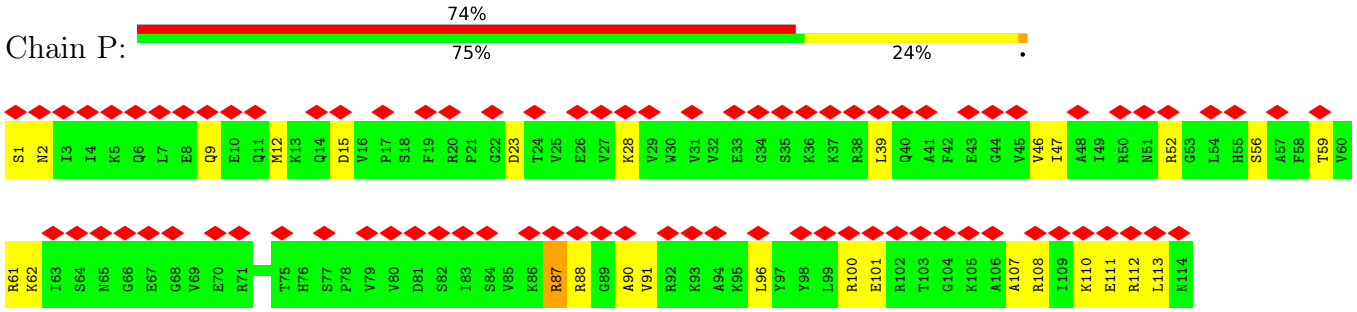
• Molecule 19: 50S ribosomal protein L18

Chain O:



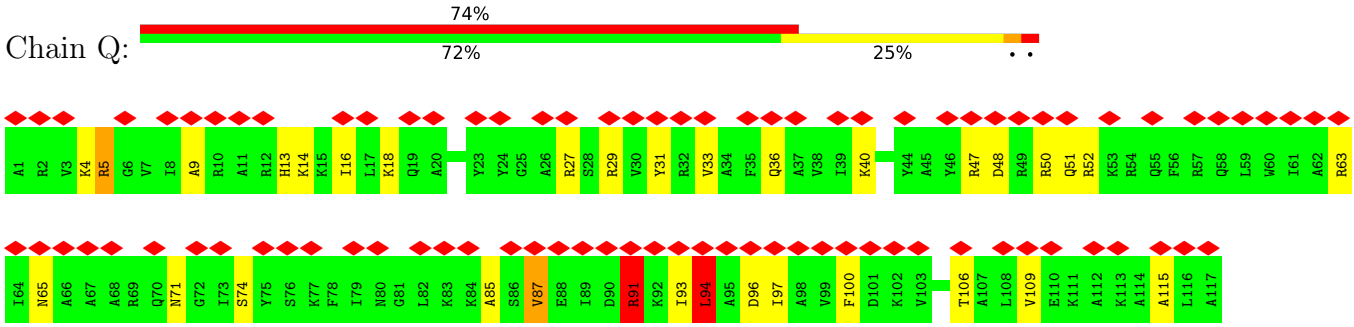
• Molecule 20: 50S ribosomal protein L19

Chain P:



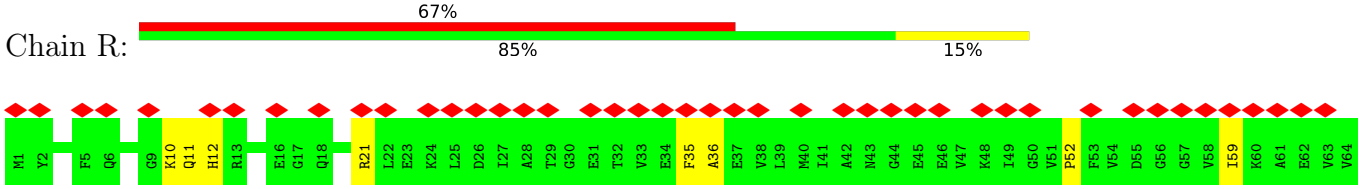
• Molecule 21: 50S ribosomal protein L20

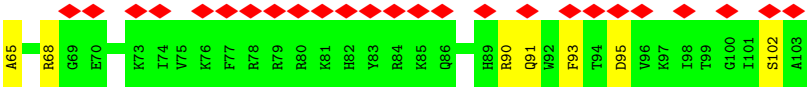
Chain Q:



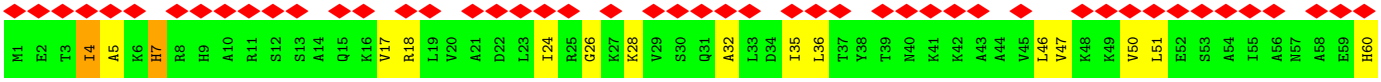
• Molecule 22: Ribosomal protein L21

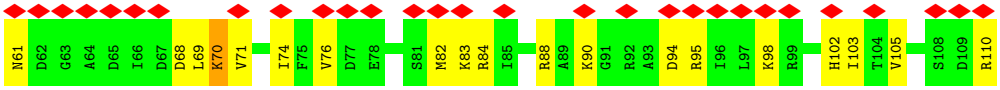
Chain R:



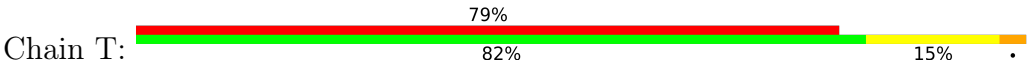


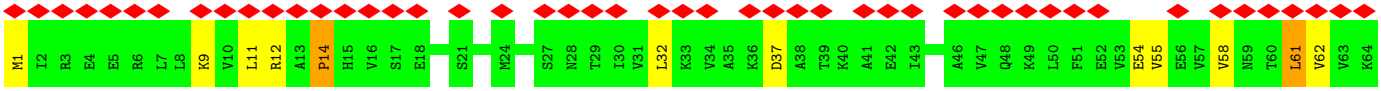
• Molecule 23: 50S ribosomal protein L22

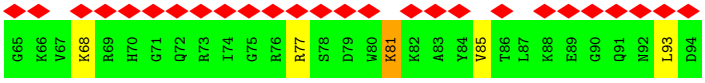




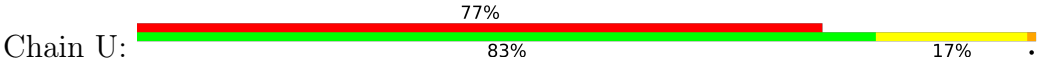
• Molecule 24: 50S ribosomal protein L23

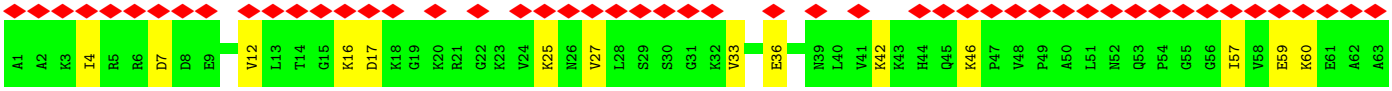


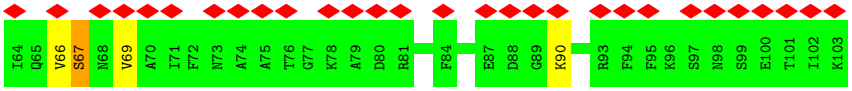




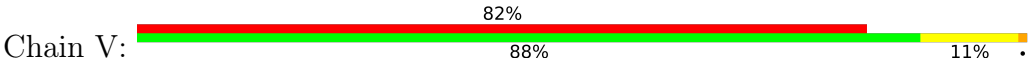
• Molecule 25: 50S ribosomal protein L24

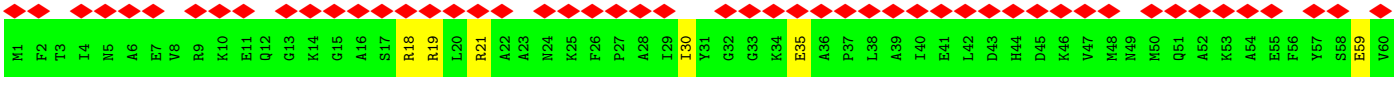


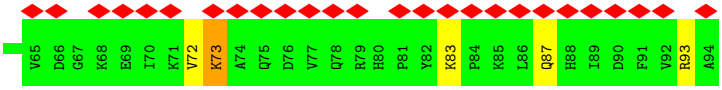




• Molecule 26: 50S ribosomal protein L25

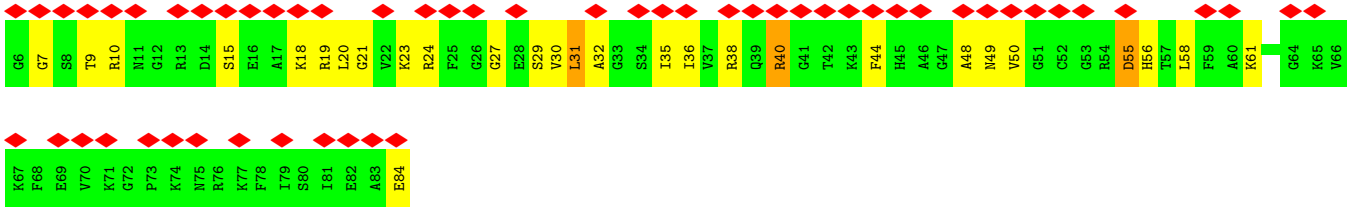






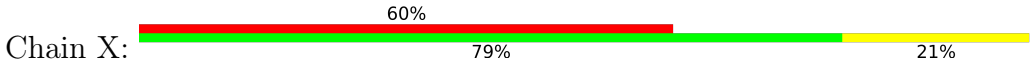
• Molecule 27: 50S ribosomal protein L27

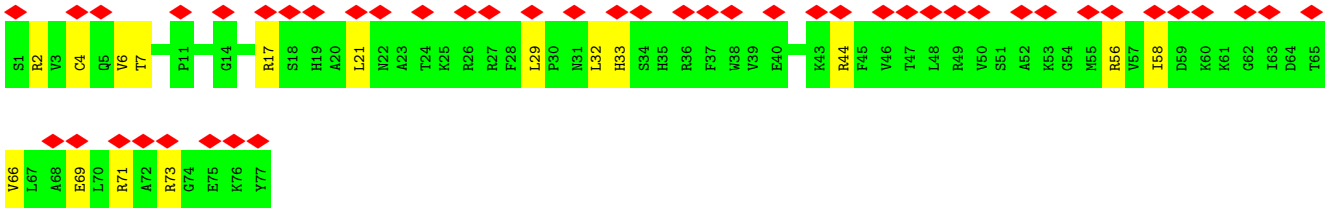
Chain W:



• Molecule 28: 50S ribosomal protein L28

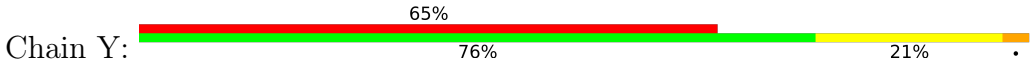
Chain X:

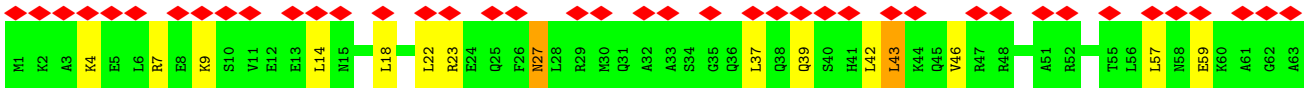




• Molecule 29: 50S ribosomal protein L29

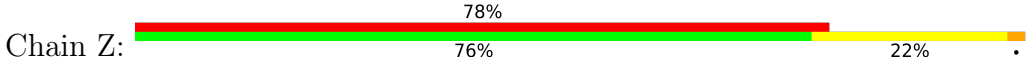
Chain Y:

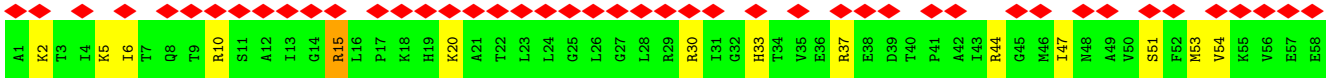




• Molecule 30: 50S ribosomal protein L30

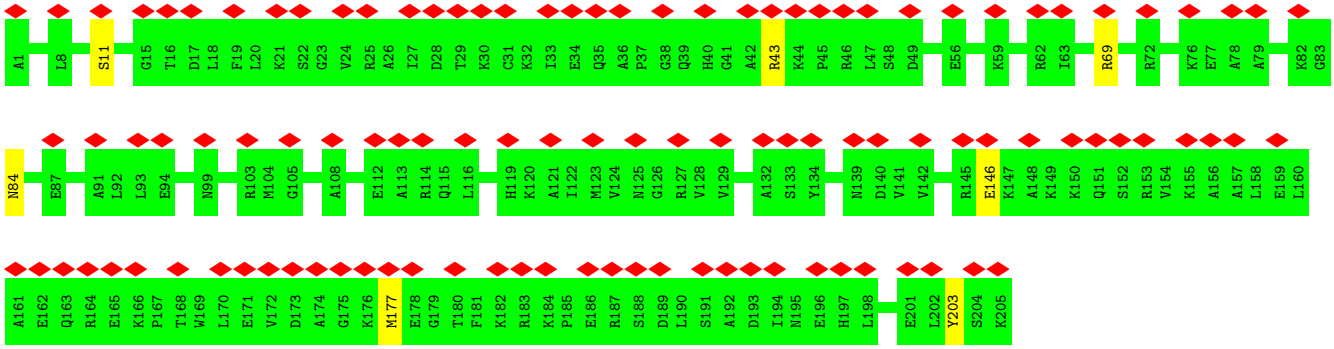
Chain Z:





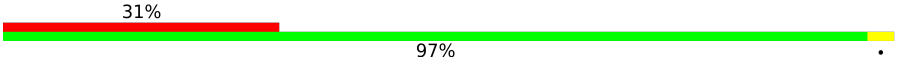
• Molecule 31: 30S ribosomal protein S4

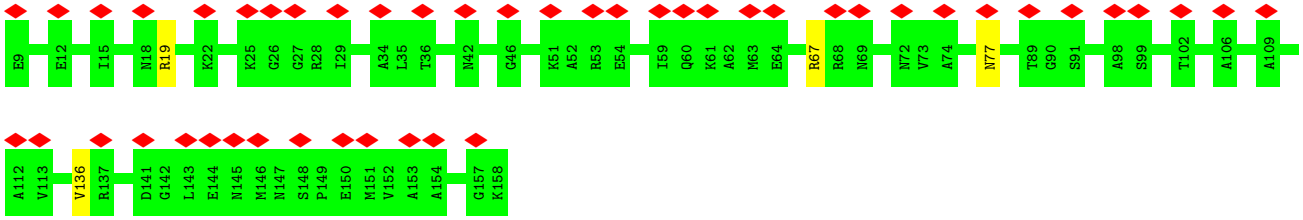
Chain c:



• Molecule 32: 30S ribosomal protein S5

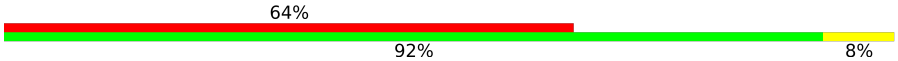
Chain d:

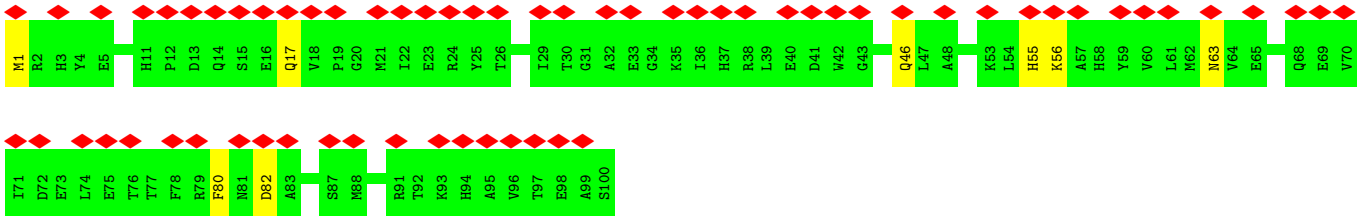




• Molecule 33: 30S ribosomal protein S6, non-modified isoform

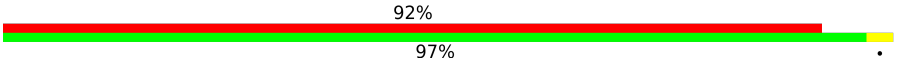
Chain e:

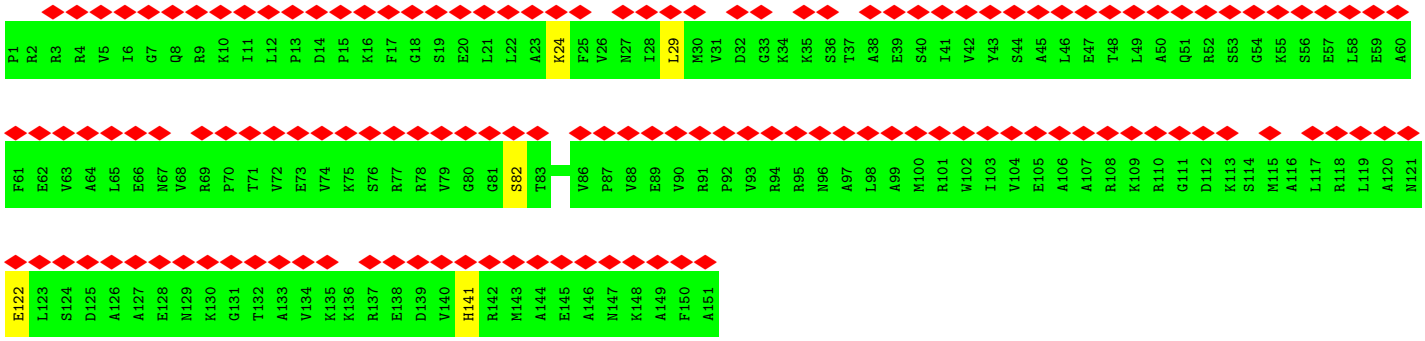




• Molecule 34: 30S ribosomal protein S7

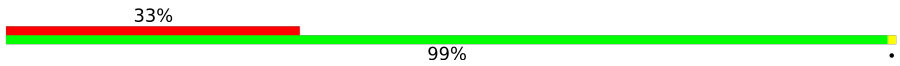
Chain f:

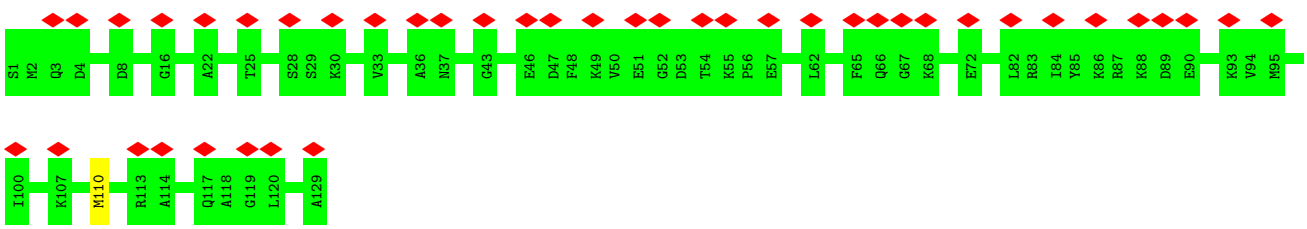




• Molecule 35: 30S ribosomal protein S8

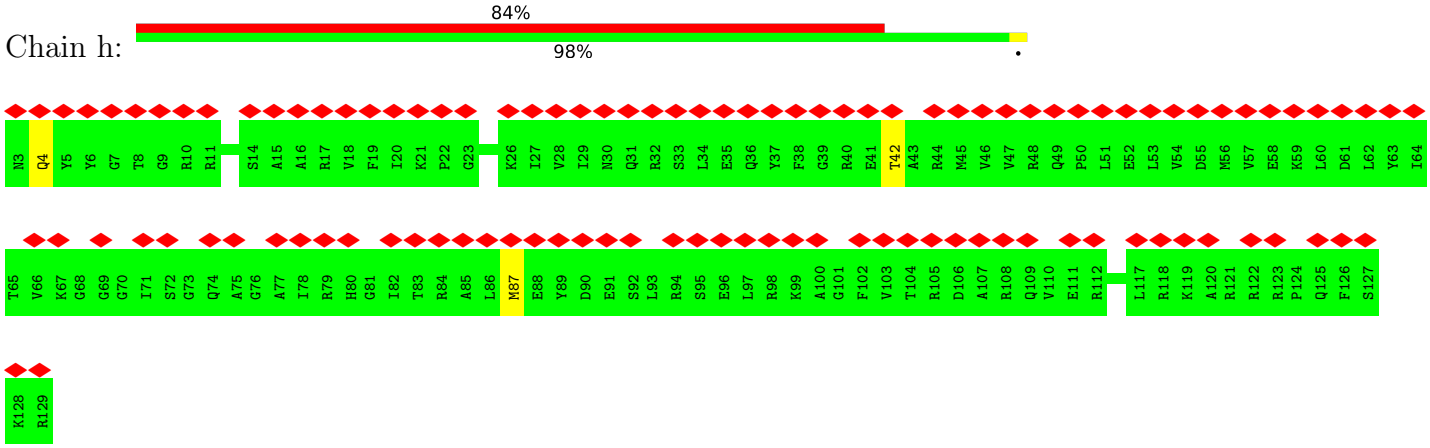
Chain g:





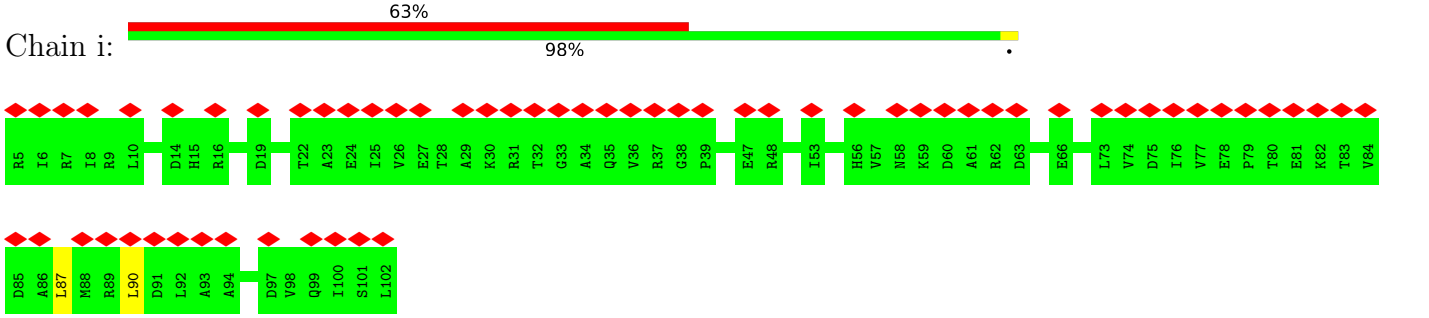
• Molecule 36: 30S ribosomal protein S9

Chain h:



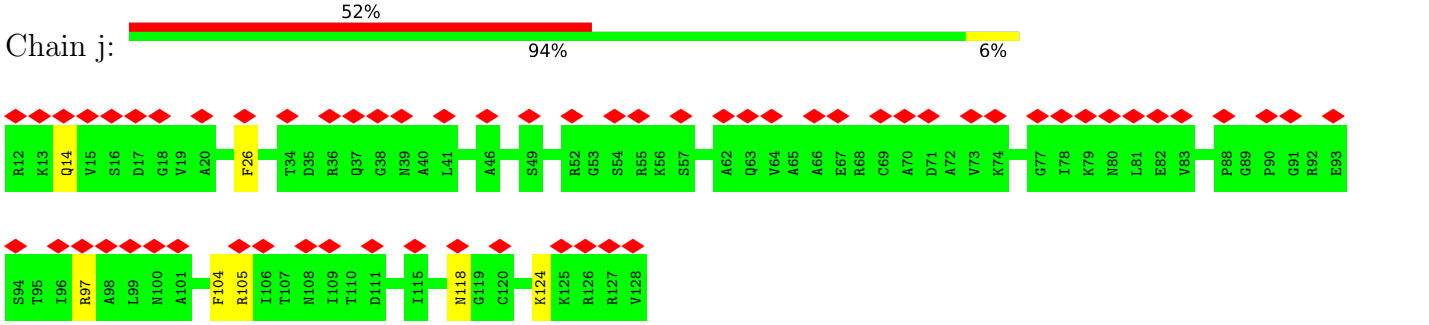
• Molecule 37: 30S ribosomal protein S10

Chain i:



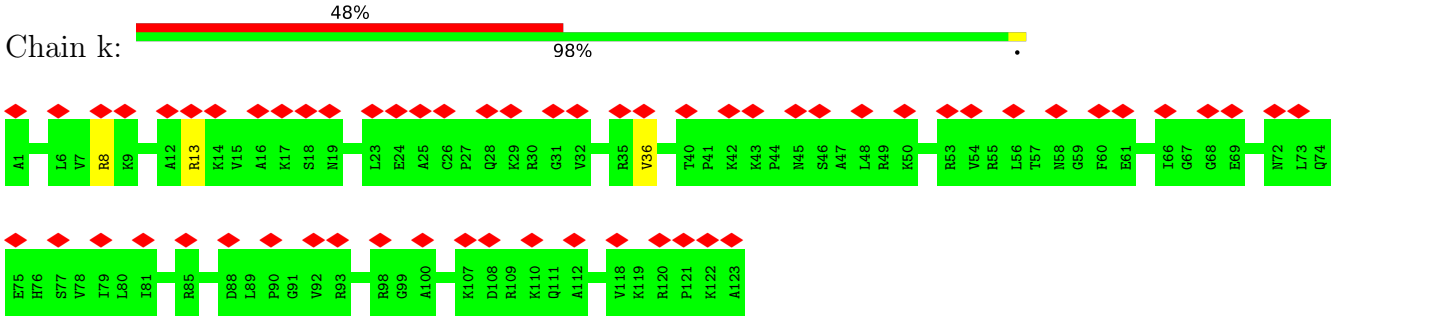
• Molecule 38: 30S ribosomal protein S11

Chain j:



• Molecule 39: 30S ribosomal protein S12

Chain k:

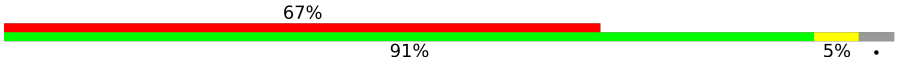


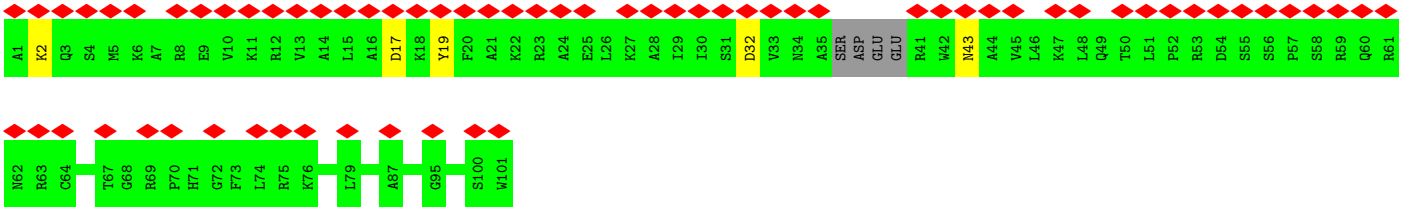
• Molecule 40: 30S ribosomal protein S13

Chain l:

• Molecule 41: 30S ribosomal protein S14

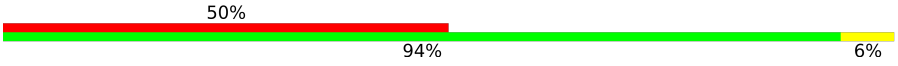
Chain m:

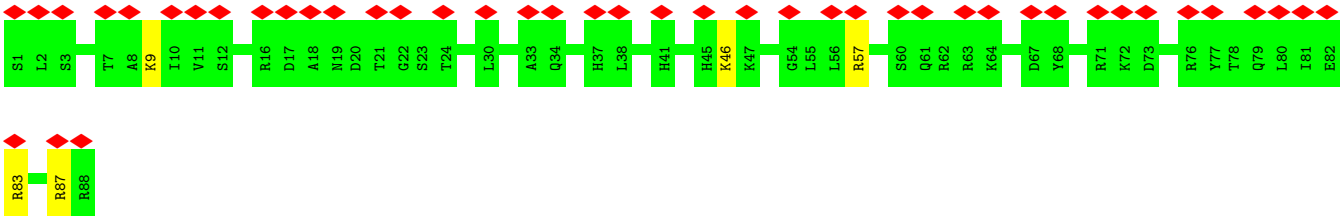




• Molecule 42: 30S ribosomal protein S15

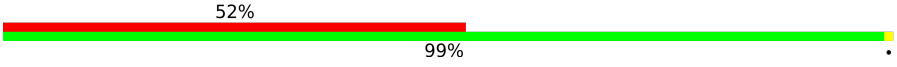
Chain n:

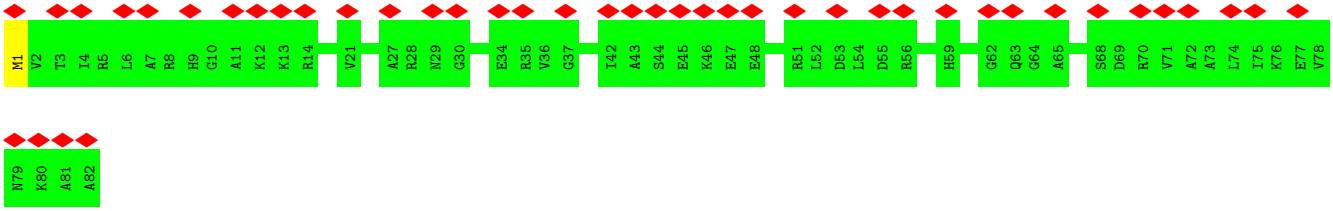




• Molecule 43: 30S ribosomal protein S16

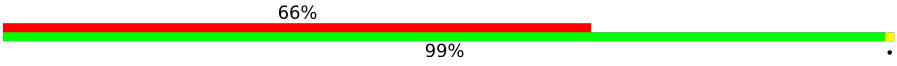
Chain o:

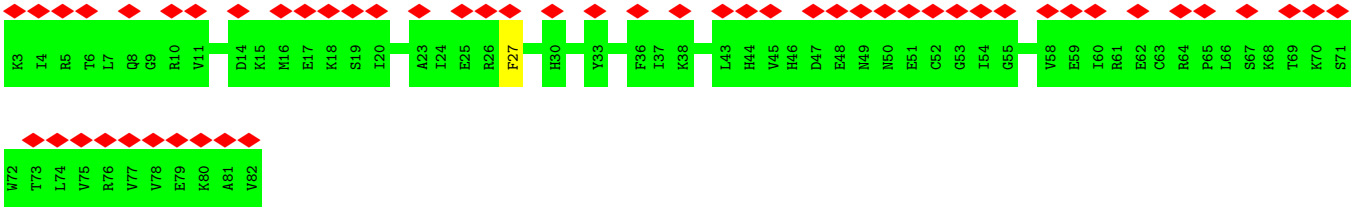




• Molecule 44: 30S ribosomal protein S17

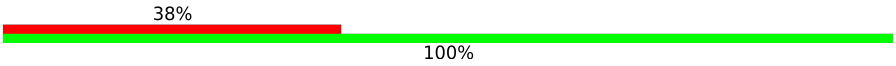
Chain p:

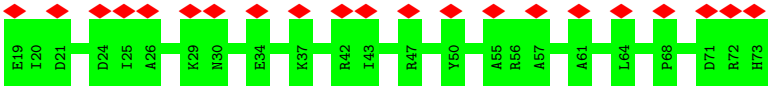




• Molecule 45: 30S ribosomal protein S18

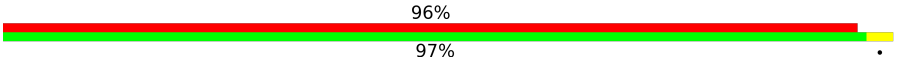
Chain q:

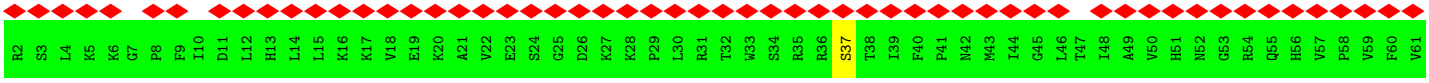


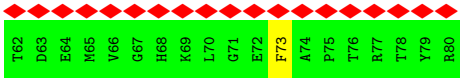


• Molecule 46: 30S ribosomal protein S19

Chain r:

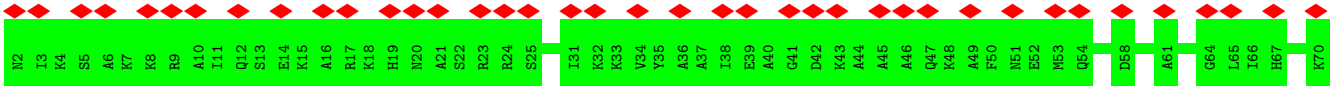


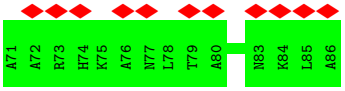




• Molecule 47: 30S ribosomal protein S20

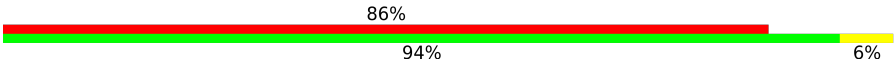
Chain s:

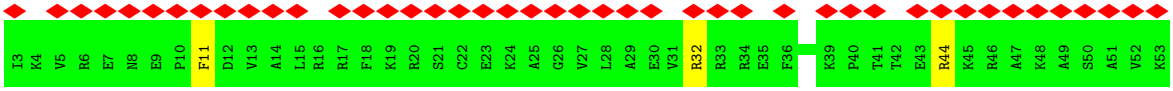




• Molecule 48: 30S ribosomal protein S21 (Fragment)

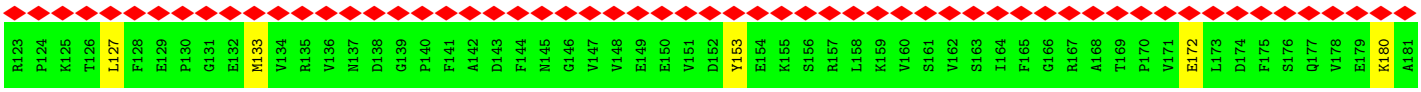
Chain t:





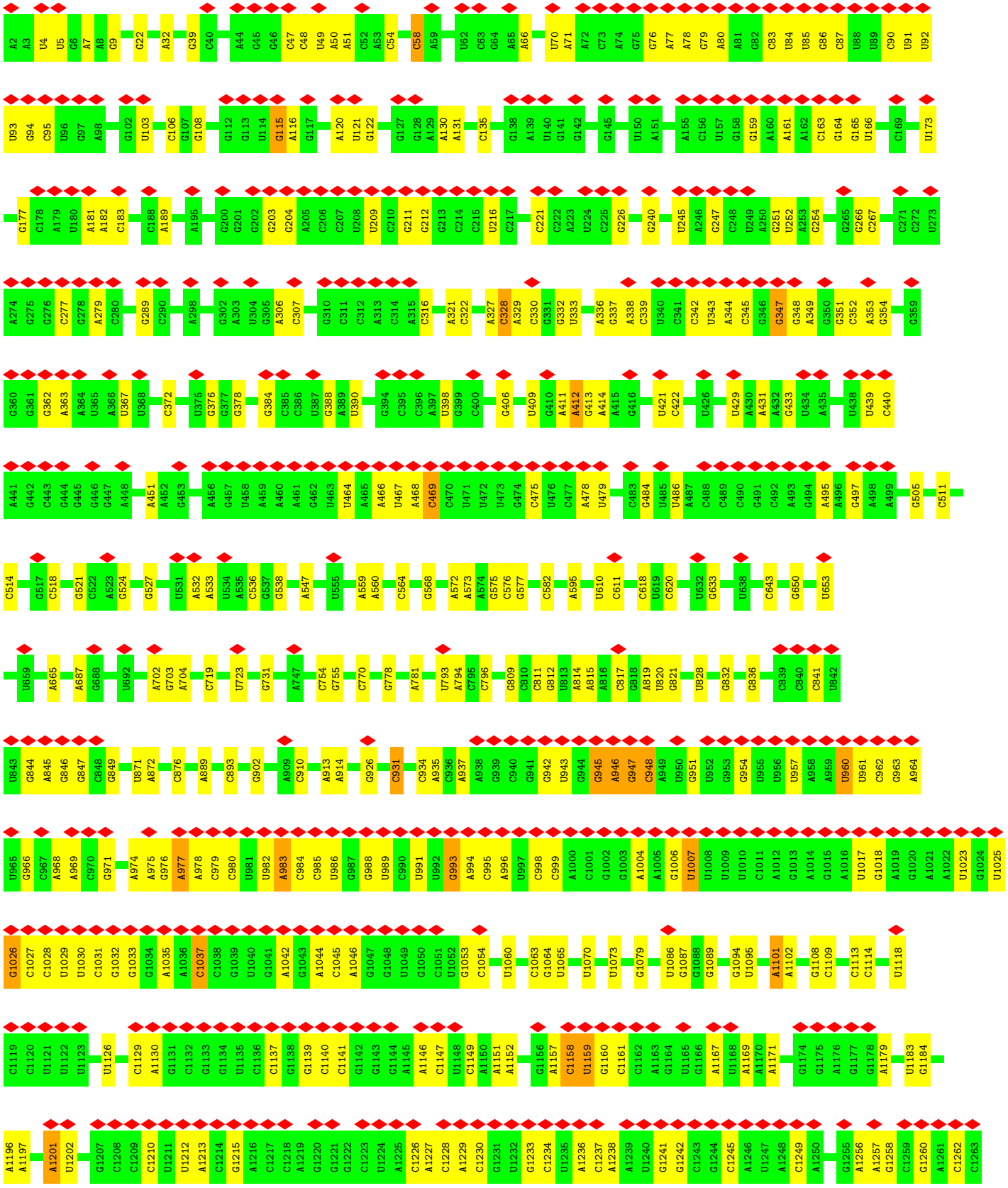
• Molecule 49: Transcription termination/antitermination protein NusG

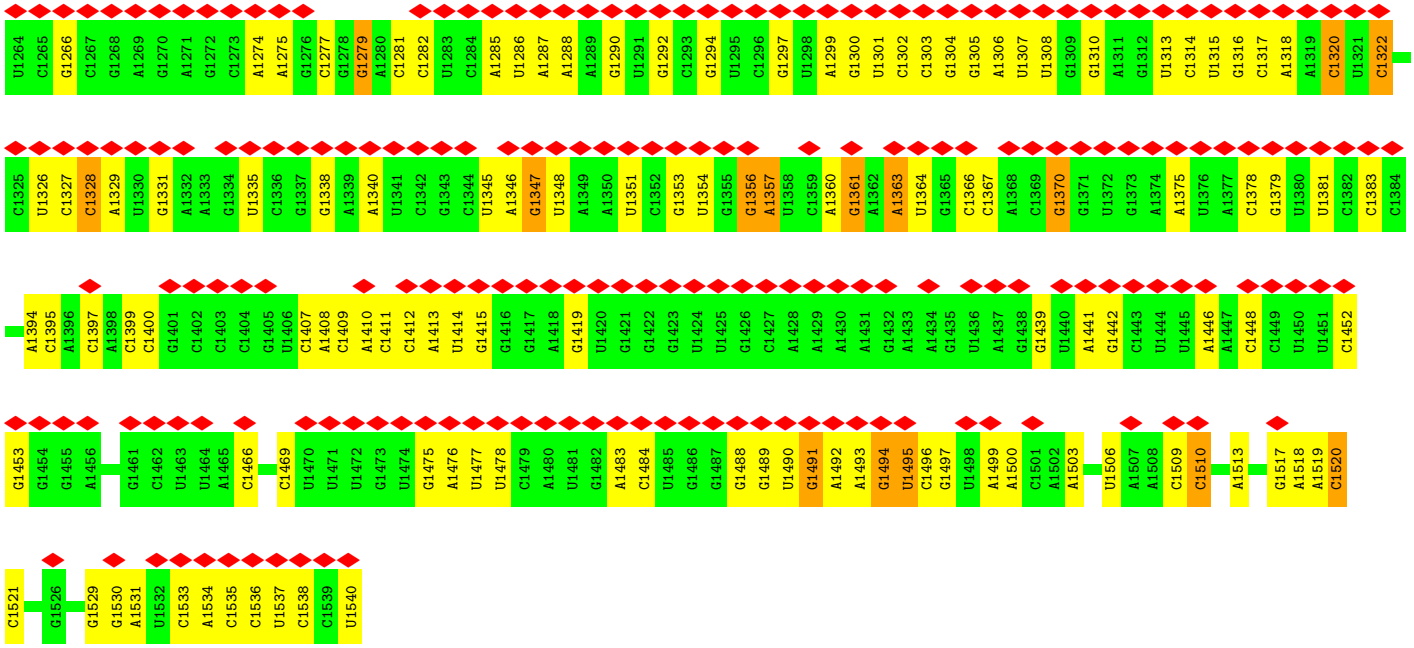
Chain u:



• Molecule 50: 16S

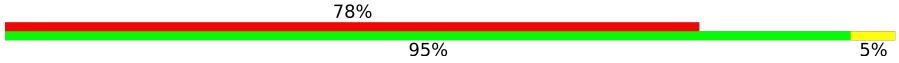
Chain v:

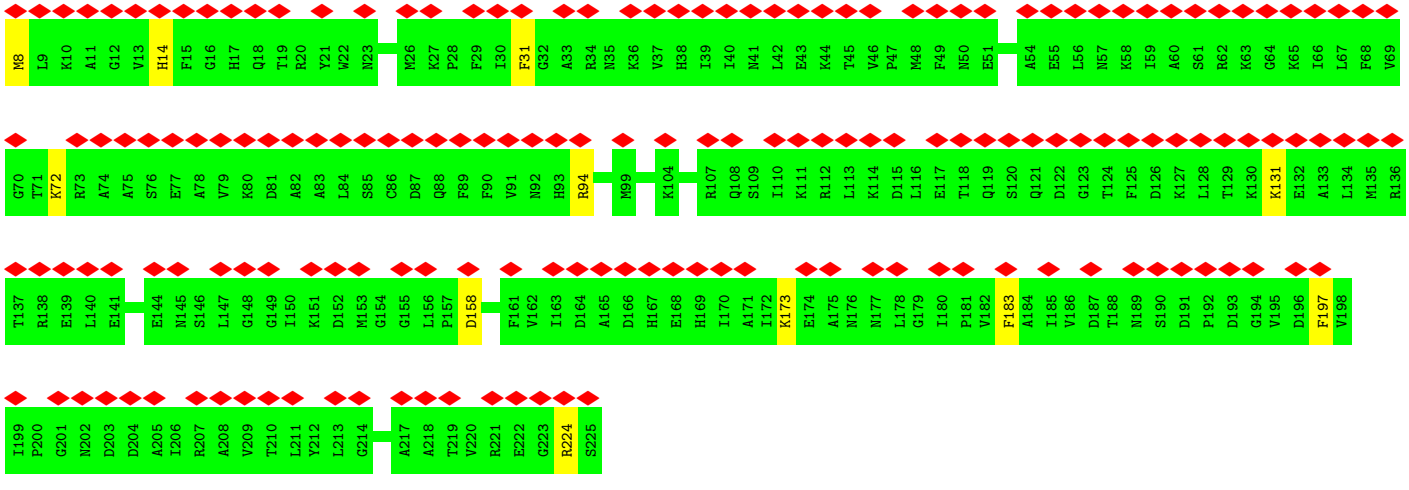

A2 A3 U4 U5 G6 A7 A8 G9 G22 A32 G39 C40 A44 G45 G46 C47 C48 U49 A50 A51 C52 A53 C54 C58 A59 U62 C63 G64 A65 A66 U70 A71 A72 C73 A74 G75 G76 A77 A78 G79 A80 A81 G82 C83 U84 U85 G86 C87 U88 U89 C90 U91 U92
U93 G94 C95 U96 G97 A98 G102 U103 C106 G107 G108 G112 G113 U114 G115 A116 G117 A120 U121 G122 G127 G128 A129 A130 A131 C135 G138 A139 U140 G141 G142 G145 U150 A151 A155 C156 U157 G158 G159 A160 A161 A162 C163 G164 G165 U166 C169 U173
G177 C178 A179 U180 A181 A182 C183 C188 A189 A195 G200 G201 G202 G203 G204 A205 C206 C207 U208 U209 C210 G211 G212 G213 C214 C215 U216 C217 C221 C222 A223 U224 C225 G226 G240 U245 A246 G247 C248 U249 A250 G251 U252 A253 G254 G265 G266 C267 C271 C272 U273
A274 G275 G276 C277 G278 A279 C280 G289 C290 A298 G302 A303 U304 G305 A306 C307 G310 C311 C312 A313 C314 A315 C316 A321 C322 A327 C328 A329 C330 G331 G332 U333 A336 G337 A338 C339 U340 C341 C342 U343 A344 C345 G346 G347 G348 A349 G350 G351 C352 A353 G354 G359
G360 G361 G362 A363 A364 U365 A366 U367 U368 C372 U375 G376 G377 G378 G384 C385 C386 U387 G388 A389 U390 G394 C395 C396 A397 U398 G399 C400 G406 U409 G410 A411 A412 G413 A414 A415 G416 U421 C422 U426 U429 A430 A431 A432 G433 U434 A435 U438 U439 C440
A441 G442 C443 G444 G445 G446 G447 A448 A451 A452 G453 A456 G457 U458 A459 A460 A461 G462 U463 U464 A465 A466 U467 A468 C469 C470 U471 U472 U473 G474 C475 U476 C477 A478 U479 C483 G484 U485 U486 A487 C488 C489 C490 G491 C492 A493 G494 A495 A496 G497 A498 A499 G505 C511
C514 G517 C518 G521 C522 A523 G524 G527 U531 A532 A533 U534 A535 C536 G537 G538 A547 U555 A559 A560 C564 G568 A572 A573 A574 G575 C576 G577 C582 A595 U610 C611 C618 U619 C620 U632 G633 U638 C643 G650 U653
U659 A665 A687 G688 U692 A702 G703 A704 C719 U723 G731 A747 C754 G755 C770 G778 A781 U793 A794 C795 C796 G809 C810 C811 G812 U813 A814 A815 A816 C817 G818 A819 U820 G821 U828 G832 G836 C839 C840 C841 U842
U843 G844 A845 G846 G847 C848 G849 U871 A872 C876 A889 C893 G902 A909 C910 A913 A914 G926 C931 C934 A935 C936 A937 A938 G939 C940 G941 G942 U943 G944 G945 A946 G947 C948 A949 U950 G951 U952 G953 G954 U955 U956 U957 A958 A959 U960 U961 C962 G963 A964
U965 G966 C967 A968 A969 C970 G971 A974 A975 G976 A977 A978 C979 C980 U981 U982 A983 C984 C985 U986 G987 G988 U989 C990 U991 U992 G993 A994 C995 A996 U997 C998 C999 A1000 C1001 G1002 G1003 A1004 A1005 G1006 U1007 U1008 U1009 U1010 C1011 A1012 G1013 A1014 G1015 A1016 U1017 G1018 A1019 G1020 A1021 A1022 U1023 G1024 U1025
G1026 C1027 C1028 U1029 U1030 C1031 G1032 G1033 G1034 A1035 A1036 C1037 C1038 G1039 U1040 G1041 A1042 G1043 A1044 C1045 A1046 G1047 G1048 U1049 G1050 C1051 U1052 G1053 C1054 U1060 C1063 G1064 U1065 U1070 U1073 G1079 U1086 G1087 G1088 G1089 G1094 U1095 A1101 A1102 G1108 C1109 C1113 C1114 U1118
C1119 C1120 U1121 U1122 U1123 U1126 C1129 A1130 G1131 C1132 G1133 C1134 U1135 C1136 C1137 G1138 G1139 C1140 C1141 G1142 G1143 G1144 A1145 A1146 C1147 U1148 C1149 A1150 A1151 A1152 G1156 A1157 C1158 U1159 G1160 C1161 C1162 A1163 G1164 U1165 G1166 A1167 U1168 A1169 A1170 A1171 G1174 G1175 A1176 G1177 G1178 A1179 U1183 G1184
A1196 A1197 A1201 U1202 G1207 C1208 C1209 C1210 U1211 U1212 A1213 C1214 G1215 A1216 C1217 C1218 A1219 G1220 G1221 G1222 C1223 U1224 A1225 C1226 A1227 C1228 A1229 C1230 G1231 U1232 G1233 C1234 U1235 A1236 C1237 A1238 A1239 U1240 G1241 G1242 C1243 G1244 C1245 A1246 U1247 A1248 C1249 A1250 G1255 A1256 A1257 G1258 C1259 G1260 A1261 C1262 C1263



• Molecule 51: 30S ribosomal protein S2

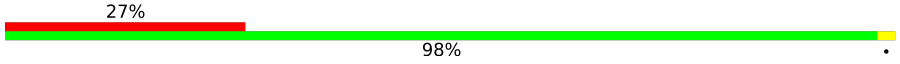
Chain w:

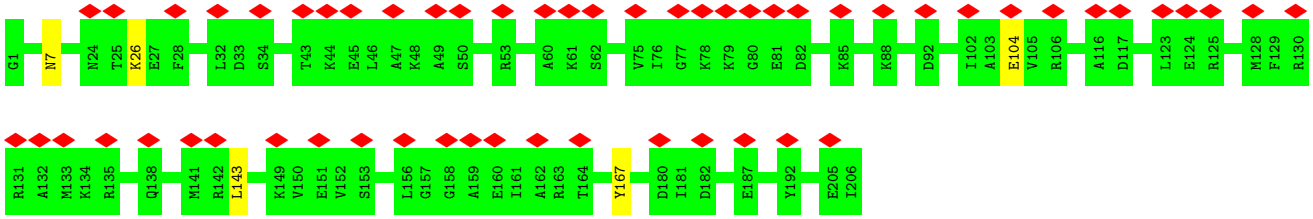




• Molecule 52: 30S ribosomal protein S3

Chain x:





4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	140682	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	58	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.382	Depositor
Minimum map value	-0.072	Depositor
Average map value	0.006	Depositor
Map value standard deviation	0.054	Depositor
Recommended contour level	0.182	Depositor
Map size (Å)	350.19998, 350.19998, 350.19998	wwPDB
Map dimensions	340, 340, 340	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.03, 1.03, 1.03	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	0	0.40	0/450	0.70	0/599
2	1	0.26	0/417	0.53	0/556
3	2	0.45	0/380	0.73	0/498
4	3	0.38	0/513	0.84	2/676 (0.3%)
5	4	0.41	0/303	0.71	0/397
6	6	0.31	0/3456	0.73	4/4675 (0.1%)
7	A	0.48	0/2800	1.10	14/4367 (0.3%)
8	B	0.65	1/69796 (0.0%)	1.07	302/108888 (0.3%)
9	C	0.37	0/2122	0.67	1/2854 (0.0%)
10	D	0.36	0/1586	0.66	0/2134
11	E	0.45	1/1571 (0.1%)	0.78	5/2113 (0.2%)
12	F	0.28	0/1444	0.61	0/1937
13	G	0.33	0/1343	0.66	2/1816 (0.1%)
14	J	0.44	0/1152	0.71	1/1551 (0.1%)
15	K	0.40	0/940	0.72	1/1260 (0.1%)
16	L	0.37	0/1054	0.77	1/1403 (0.1%)
17	M	0.37	0/1093	0.67	0/1460
18	N	0.42	0/974	0.75	1/1303 (0.1%)
19	O	0.36	0/902	0.81	2/1209 (0.2%)
20	P	0.41	0/929	0.73	1/1242 (0.1%)
21	Q	0.49	0/960	0.74	1/1278 (0.1%)
22	R	0.41	0/829	0.70	0/1107
23	S	0.42	0/864	0.78	2/1156 (0.2%)
24	T	0.40	0/745	0.77	2/996 (0.2%)
25	U	0.39	0/788	0.68	0/1053
26	V	0.34	0/766	0.69	0/1025
27	W	0.41	0/603	0.88	3/797 (0.4%)
28	X	0.39	0/635	0.73	1/848 (0.1%)
29	Y	0.37	0/510	0.89	1/677 (0.1%)
30	Z	0.33	0/453	0.66	0/605
31	c	0.40	0/1665	0.68	0/2227
32	d	0.43	0/1119	0.78	1/1504 (0.1%)
33	e	0.42	0/836	0.75	0/1128
34	f	0.49	1/1196 (0.1%)	0.70	1/1602 (0.1%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
35	g	0.43	0/989	0.64	0/1326
36	h	0.35	0/1034	0.83	2/1375 (0.1%)
37	i	0.38	0/797	0.73	1/1077 (0.1%)
38	j	0.38	0/893	0.68	0/1205
39	k	0.38	0/969	0.70	0/1300
40	l	0.36	0/893	0.77	1/1193 (0.1%)
41	m	0.44	0/785	0.82	0/1043
42	n	0.38	0/722	0.67	0/964
43	o	0.43	0/659	0.64	0/884
44	p	0.37	0/658	0.65	0/881
45	q	0.43	0/463	0.66	0/621
46	r	0.31	0/653	0.63	0/877
47	s	0.36	0/671	0.67	0/888
48	t	0.34	0/431	0.77	0/570
49	u	0.28	0/477	0.55	0/642
50	v	0.69	0/36963	1.15	217/57662 (0.4%)
51	w	0.35	0/1736	0.69	0/2338
52	x	0.42	0/1652	0.68	0/2225
All	All	0.59	3/156639 (0.0%)	1.01	570/234012 (0.2%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
6	6	0	3
21	Q	0	2
23	S	0	1
27	W	0	1
38	j	0	1
39	k	0	1
All	All	0	9

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	E	76	PRO	CG-CD	-8.84	1.21	1.50
34	f	122	GLU	CD-OE2	-8.30	1.16	1.25
8	B	2267	A	N9-C4	-5.30	1.34	1.37

All (570) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
11	E	76	PRO	N-CD-CG	-12.02	85.17	103.20
50	v	1322	C	N1-C2-O2	10.95	125.47	118.90
50	v	135	C	C6-N1-C2	-10.59	116.07	120.30
6	6	259	LEU	C-N-CD	-10.26	98.03	120.60
8	B	828	U	C2-N1-C1'	10.23	129.98	117.70
7	A	26	C	N1-C2-O2	9.97	124.88	118.90
8	B	790	U	C2-N1-C1'	9.77	129.43	117.70
11	E	91	ASP	CB-CG-OD1	9.68	127.02	118.30
8	B	1313	U	N1-C2-O2	9.60	129.52	122.80
50	v	1322	C	C2-N1-C1'	9.60	129.36	118.80
50	v	1322	C	C6-N1-C2	-9.58	116.47	120.30
50	v	1366	C	C6-N1-C2	-9.34	116.56	120.30
8	B	837	C	N1-C2-O2	9.32	124.49	118.90
50	v	1356	G	N7-C8-N9	9.31	117.76	113.10
19	O	106	LEU	CA-CB-CG	9.21	136.48	115.30
8	B	1625	C	N1-C2-O2	9.19	124.41	118.90
8	B	1914	C	P-O3'-C3'	-9.18	108.68	119.70
8	B	1313	U	C2-N1-C1'	9.17	128.70	117.70
8	B	1313	U	N3-C2-O2	-9.16	115.78	122.20
50	v	1322	C	N3-C2-O2	-9.12	115.52	121.90
7	A	26	C	C2-N1-C1'	9.07	128.78	118.80
27	W	55	ASP	CB-CG-OD1	9.05	126.44	118.30
8	B	2301	C	N3-C2-O2	-8.97	115.62	121.90
8	B	790	U	N1-C2-O2	8.88	129.02	122.80
8	B	2556	C	N1-C2-O2	8.85	124.21	118.90
29	Y	43	LEU	CA-CB-CG	8.78	135.49	115.30
8	B	1893	C	N1-C2-O2	8.72	124.14	118.90
8	B	847	U	N3-C2-O2	-8.60	116.18	122.20
4	3	45	PRO	CA-N-CD	-8.56	99.52	111.50
50	v	1356	G	C8-N9-C4	-8.53	102.99	106.40
8	B	1458	U	N1-C2-O2	8.53	128.77	122.80
50	v	1279	G	N3-C4-N9	8.53	131.12	126.00
50	v	347	G	O4'-C1'-N9	8.52	115.01	108.20
8	B	1625	C	N3-C2-O2	-8.51	115.94	121.90
8	B	828	U	N1-C2-O2	8.38	128.67	122.80
50	v	948	C	C6-N1-C2	-8.36	116.95	120.30
8	B	1893	C	N3-C2-O2	-8.32	116.08	121.90
50	v	948	C	N3-C2-O2	-8.31	116.08	121.90
8	B	2182	U	N1-C2-O2	8.31	128.61	122.80
8	B	1275	A	O4'-C1'-N9	8.29	114.83	108.20
8	B	901	C	N1-C2-O2	8.27	123.86	118.90
8	B	202	U	C2-N1-C1'	8.26	127.61	117.70
8	B	837	C	N3-C2-O2	-8.26	116.12	121.90

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	B	1458	U	N3-C2-O2	-8.26	116.42	122.20
7	A	30	C	N1-C2-O2	8.24	123.84	118.90
8	B	1915	U	O4'-C1'-N1	8.23	114.78	108.20
8	B	202	U	N3-C2-O2	-8.22	116.45	122.20
50	v	58	C	C6-N1-C2	-8.16	117.04	120.30
8	B	847	U	N1-C2-O2	8.13	128.49	122.80
8	B	2182	U	C2-N1-C1'	8.05	127.36	117.70
50	v	1279	G	C4-N9-C1'	8.01	136.91	126.50
50	v	620	C	C6-N1-C2	-7.99	117.10	120.30
50	v	1510	C	C6-N1-C2	-7.99	117.11	120.30
8	B	2254	C	N1-C2-O2	7.97	123.68	118.90
8	B	837	C	C6-N1-C2	-7.97	117.11	120.30
50	v	1490	U	N1-C2-O2	7.93	128.35	122.80
8	B	2885	G	O4'-C1'-N9	7.91	114.53	108.20
7	A	26	C	N3-C2-O2	-7.90	116.37	121.90
8	B	510	C	N1-C2-O2	7.90	123.64	118.90
50	v	307	C	N1-C2-O2	7.86	123.61	118.90
8	B	527	C	N1-C2-O2	7.83	123.59	118.90
50	v	1490	U	N3-C2-O2	-7.78	116.76	122.20
50	v	948	C	C2-N1-C1'	7.75	127.33	118.80
8	B	1912	A	P-O3'-C3'	-7.73	110.42	119.70
50	v	135	C	N3-C2-O2	-7.72	116.50	121.90
8	B	2182	U	N3-C2-O2	-7.69	116.82	122.20
8	B	1458	U	C2-N1-C1'	7.69	126.92	117.70
50	v	1356	G	C4-N9-C1'	7.68	136.48	126.50
8	B	1915	U	P-O3'-C3'	-7.66	110.51	119.70
8	B	2646	C	C6-N1-C2	-7.66	117.24	120.30
8	B	1314	C	C2-N1-C1'	7.66	127.22	118.80
8	B	1916	A	P-O3'-C3'	-7.62	110.56	119.70
50	v	328	C	N1-C2-O2	7.57	123.44	118.90
50	v	135	C	N1-C2-O2	7.52	123.41	118.90
7	A	30	C	C2-N1-C1'	7.51	127.06	118.80
50	v	58	C	C5-C6-N1	7.46	124.73	121.00
50	v	1510	C	C5-C6-N1	7.43	124.72	121.00
8	B	126	A	N7-C8-N9	7.40	117.50	113.80
8	B	2045	C	C6-N1-C2	-7.39	117.35	120.30
8	B	790	U	N3-C2-O2	-7.37	117.04	122.20
50	v	1279	G	C8-N9-C1'	-7.37	117.42	127.00
8	B	828	U	C6-N1-C1'	-7.36	110.90	121.20
8	B	1352	U	N1-C2-O2	7.35	127.95	122.80
8	B	2254	C	C6-N1-C2	-7.35	117.36	120.30
8	B	2254	C	C2-N1-C1'	7.35	126.88	118.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
50	v	1366	C	C5-C6-N1	7.35	124.67	121.00
50	v	1314	C	C6-N1-C2	-7.34	117.36	120.30
50	v	1367	C	C6-N1-C2	-7.32	117.37	120.30
8	B	202	U	N1-C2-O2	7.30	127.91	122.80
11	E	76	PRO	CA-N-CD	-7.30	101.28	111.50
8	B	2261	C	C6-N1-C2	-7.28	117.39	120.30
50	v	1315	U	C5-C6-N1	7.25	126.33	122.70
8	B	417	C	C2-N1-C1'	7.25	126.78	118.80
50	v	1279	G	C6-C5-N7	-7.24	126.06	130.40
8	B	565	C	N1-C2-O2	7.23	123.24	118.90
8	B	417	C	C6-N1-C2	-7.20	117.42	120.30
50	v	316	C	N1-C2-O2	7.18	123.21	118.90
50	v	979	C	N1-C2-O2	7.18	123.21	118.90
8	B	2710	C	C6-N1-C2	-7.16	117.44	120.30
50	v	1466	C	N1-C2-O2	7.16	123.19	118.90
50	v	811	C	N1-C2-O2	7.15	123.19	118.90
8	B	1306	C	C6-N1-C2	-7.14	117.44	120.30
27	W	31	LEU	CA-CB-CG	7.12	131.66	115.30
50	v	135	C	C5-C6-N1	7.09	124.55	121.00
50	v	1279	G	N3-C4-C5	-7.09	125.06	128.60
50	v	948	C	N1-C2-O2	7.05	123.13	118.90
8	B	2261	C	C2-N1-C1'	7.04	126.55	118.80
8	B	2301	C	C6-N1-C2	-7.03	117.49	120.30
50	v	980	C	C6-N1-C2	-7.03	117.49	120.30
8	B	2254	C	N3-C2-O2	-7.03	116.98	121.90
50	v	328	C	C2-N1-C1'	7.02	126.52	118.80
8	B	126	A	C8-N9-C4	-6.99	103.00	105.80
50	v	1495	U	C5-C6-N1	6.98	126.19	122.70
8	B	1868	C	C2-N1-C1'	6.97	126.47	118.80
50	v	1314	C	C5-C6-N1	6.94	124.47	121.00
8	B	2556	C	N3-C2-O2	-6.94	117.04	121.90
8	B	652	U	C2-N1-C1'	6.92	126.00	117.70
50	v	333	U	C2-N1-C1'	6.91	125.99	117.70
11	E	3	LEU	CA-CB-CG	6.88	131.12	115.30
50	v	1351	U	C5-C6-N1	6.87	126.14	122.70
50	v	931	C	C6-N1-C2	-6.85	117.56	120.30
8	B	1352	U	N3-C2-O2	-6.83	117.42	122.20
50	v	1322	C	C5-C6-N1	6.79	124.40	121.00
8	B	1314	C	C5-C6-N1	6.79	124.39	121.00
8	B	1135	C	N1-C2-O2	6.78	122.97	118.90
50	v	431	A	N1-C6-N6	-6.78	114.53	118.60
8	B	2646	C	C5-C6-N1	6.78	124.39	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	B	652	U	N1-C2-O2	6.77	127.54	122.80
8	B	1352	U	C2-N1-C1'	6.76	125.81	117.70
8	B	2043	C	C2-N1-C1'	6.76	126.23	118.80
50	v	412	A	O4'-C1'-N9	6.76	113.61	108.20
8	B	1005	C	C6-N1-C2	-6.75	117.60	120.30
27	W	20	LEU	CA-CB-CG	6.74	130.80	115.30
8	B	417	C	C5-C6-N1	6.69	124.35	121.00
50	v	316	C	N3-C2-O2	-6.67	117.23	121.90
50	v	1320	C	N1-C2-O2	6.66	122.90	118.90
8	B	1774	C	C6-N1-C2	-6.65	117.64	120.30
50	v	1509	C	P-O3'-C3'	6.65	127.68	119.70
8	B	790	U	C6-N1-C1'	-6.65	111.89	121.20
8	B	670	A	P-O3'-C3'	6.64	127.67	119.70
8	B	2556	C	C2-N1-C1'	6.64	126.11	118.80
8	B	2870	C	C6-N1-C2	-6.63	117.65	120.30
8	B	847	U	C2-N1-C1'	6.63	125.66	117.70
8	B	1920	C	C6-N1-C2	-6.63	117.65	120.30
8	B	1956	U	N3-C2-O2	-6.62	117.56	122.20
50	v	1466	C	N3-C2-O2	-6.62	117.26	121.90
6	6	260	PRO	CA-N-CD	-6.62	102.24	111.50
8	B	1911	U	P-O3'-C3'	-6.62	111.76	119.70
24	T	61	LEU	CA-CB-CG	6.61	130.51	115.30
8	B	1267	U	C2-N1-C1'	6.60	125.62	117.70
50	v	1469	C	N1-C2-O2	6.60	122.86	118.90
8	B	2043	C	C6-N1-C2	-6.59	117.66	120.30
50	v	1357	A	N7-C8-N9	6.59	117.09	113.80
50	v	754	C	C2-N1-C1'	6.59	126.05	118.80
50	v	1037	C	C2-N1-C1'	6.59	126.05	118.80
50	v	1210	C	C6-N1-C2	-6.58	117.67	120.30
8	B	527	C	C2-N1-C1'	6.56	126.02	118.80
50	v	796	C	C6-N1-C2	-6.55	117.68	120.30
8	B	2329	U	C5-C6-N1	6.54	125.97	122.70
8	B	981	A	N7-C8-N9	6.53	117.06	113.80
8	B	635	C	C6-N1-C2	-6.52	117.69	120.30
50	v	1320	C	N3-C2-O2	-6.52	117.34	121.90
8	B	901	C	N3-C2-O2	-6.51	117.34	121.90
50	v	1277	C	C5-C6-N1	6.51	124.25	121.00
8	B	652	U	N3-C2-O2	-6.50	117.65	122.20
50	v	1101	A	P-O3'-C3'	6.50	127.49	119.70
50	v	945	G	C4-N9-C1'	6.49	134.94	126.50
50	v	307	C	N3-C2-O2	-6.49	117.36	121.90
28	X	29	LEU	CA-CB-CG	6.48	130.20	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
50	v	1234	C	C6-N1-C2	-6.47	117.71	120.30
8	B	510	C	C2-N1-C1'	6.47	125.92	118.80
50	v	960	U	C2-N1-C1'	6.46	125.45	117.70
23	S	69	LEU	CA-CB-CG	6.45	130.13	115.30
50	v	135	C	C2-N1-C1'	6.44	125.89	118.80
16	L	19	LEU	CA-CB-CG	6.43	130.08	115.30
50	v	1233	G	N3-C2-N2	-6.42	115.41	119.90
50	v	90	C	N1-C2-O2	6.41	122.75	118.90
8	B	2723	C	C6-N1-C2	-6.40	117.74	120.30
8	B	565	C	N3-C2-O2	-6.39	117.43	121.90
50	v	1113	C	C6-N1-C2	-6.39	117.75	120.30
8	B	475	C	C5-C6-N1	6.38	124.19	121.00
8	B	243	U	N1-C2-O2	6.38	127.27	122.80
8	B	2656	U	N1-C2-O2	6.37	127.26	122.80
50	v	1313	U	C5-C6-N1	6.36	125.88	122.70
50	v	1237	C	C6-N1-C2	-6.36	117.75	120.30
7	A	26	C	C6-N1-C1'	-6.36	113.17	120.80
8	B	2683	C	N1-C2-O2	6.36	122.72	118.90
20	P	113	LEU	CA-CB-CG	6.36	129.92	115.30
50	v	1366	C	C2-N1-C1'	6.35	125.79	118.80
8	B	1474	U	N1-C2-O2	6.34	127.24	122.80
50	v	1277	C	C6-N1-C2	-6.34	117.76	120.30
8	B	1879	C	C6-N1-C2	-6.34	117.77	120.30
8	B	565	C	C6-N1-C2	-6.33	117.77	120.30
50	v	1201	A	P-O3'-C3'	6.33	127.29	119.70
50	v	979	C	C2-N1-C1'	6.33	125.76	118.80
8	B	1774	C	N1-C2-O2	6.32	122.69	118.90
8	B	1952	A	C8-N9-C4	-6.32	103.27	105.80
8	B	234	U	N3-C2-O2	-6.32	117.78	122.20
8	B	828	U	N3-C2-O2	-6.31	117.78	122.20
50	v	1234	C	N3-C2-O2	-6.31	117.48	121.90
50	v	1037	C	C6-N1-C2	-6.31	117.78	120.30
8	B	1267	U	N1-C2-O2	6.31	127.22	122.80
50	v	977	A	N7-C8-N9	6.30	116.95	113.80
8	B	850	U	N3-C2-O2	-6.30	117.79	122.20
50	v	1063	C	C6-N1-C2	-6.29	117.78	120.30
7	A	30	C	N3-C2-O2	-6.29	117.50	121.90
8	B	1675	C	N1-C2-O2	6.28	122.67	118.90
8	B	1313	U	C6-N1-C1'	-6.26	112.43	121.20
11	E	76	PRO	CA-CB-CG	-6.21	92.20	104.00
8	B	2703	C	N1-C2-O2	6.21	122.62	118.90
19	O	106	LEU	CB-CG-CD2	-6.20	100.46	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
50	v	983	A	C2-N3-C4	6.20	113.70	110.60
8	B	2636	C	C2-N1-C1'	6.20	125.61	118.80
50	v	811	C	C2-N1-C1'	6.19	125.61	118.80
8	B	1585	C	N1-C2-O2	6.16	122.60	118.90
50	v	1361	G	C8-N9-C4	-6.16	103.94	106.40
8	B	607	U	N3-C2-O2	-6.15	117.90	122.20
8	B	1956	U	N1-C2-O2	6.15	127.10	122.80
8	B	1656	C	C5-C6-N1	6.14	124.07	121.00
8	B	484	C	C6-N1-C2	-6.14	117.84	120.30
8	B	2710	C	C2-N1-C1'	6.13	125.54	118.80
50	v	575	G	C4-N9-C1'	-6.12	118.54	126.50
50	v	960	U	C5-C6-N1	6.11	125.75	122.70
8	B	1804	C	C6-N1-C2	-6.11	117.86	120.30
50	v	1234	C	N1-C2-O2	6.11	122.56	118.90
8	B	1459	G	N3-C4-C5	-6.10	125.55	128.60
8	B	2300	C	N1-C2-O2	6.10	122.56	118.90
8	B	974	G	C4-N9-C1'	6.10	134.43	126.50
8	B	981	A	C4-N9-C1'	6.08	137.25	126.30
50	v	610	U	N1-C2-O2	6.07	127.05	122.80
50	v	1328	C	C6-N1-C2	-6.07	117.87	120.30
50	v	1007	U	N3-C2-O2	-6.07	117.95	122.20
50	v	1495	U	C2-N1-C1'	6.07	124.98	117.70
50	v	115	G	P-O3'-C3'	6.06	126.97	119.70
8	B	2683	C	C6-N1-C2	-6.06	117.88	120.30
8	B	1952	A	N7-C8-N9	6.04	116.82	113.80
8	B	2636	C	C5-C6-N1	6.03	124.02	121.00
50	v	1370	G	N3-C4-C5	-6.03	125.59	128.60
50	v	945	G	N3-C4-N9	6.02	129.61	126.00
8	B	1644	C	C6-N1-C2	-6.01	117.89	120.30
8	B	1474	U	N3-C2-O2	-6.01	117.99	122.20
34	f	29	LEU	CA-CB-CG	6.01	129.13	115.30
8	B	965	C	C6-N1-C2	-6.01	117.90	120.30
8	B	2556	C	C6-N1-C2	-6.00	117.90	120.30
50	v	1029	U	C2-N1-C1'	5.99	124.89	117.70
8	B	550	C	C5-C6-N1	5.99	124.00	121.00
8	B	2321	U	N3-C2-O2	-5.97	118.02	122.20
50	v	620	C	C5-C6-N1	5.96	123.98	121.00
50	v	943	U	N3-C2-O2	-5.94	118.04	122.20
8	B	717	C	N1-C2-O2	5.93	122.46	118.90
50	v	1007	U	N1-C2-O2	5.93	126.95	122.80
8	B	2619	C	C6-N1-C2	-5.93	117.93	120.30
8	B	2656	U	N3-C2-O2	-5.92	118.05	122.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	B	669	G	C4-N9-C1'	5.90	134.17	126.50
50	v	1361	G	C4-N9-C1'	5.90	134.17	126.50
50	v	620	C	C2-N1-C1'	5.90	125.29	118.80
50	v	945	G	N3-C4-C5	-5.89	125.66	128.60
8	B	2254	C	C5-C6-N1	5.89	123.94	121.00
8	B	2006	C	C6-N1-C2	-5.88	117.95	120.30
8	B	257	C	N1-C2-O2	5.87	122.42	118.90
50	v	469	C	N1-C2-O2	5.87	122.42	118.90
50	v	221	C	C6-N1-C2	-5.86	117.95	120.30
50	v	333	U	N1-C2-O2	5.86	126.90	122.80
8	B	981	A	C8-N9-C4	-5.86	103.46	105.80
50	v	1356	G	N3-C4-C5	-5.86	125.67	128.60
8	B	2703	C	N3-C2-O2	-5.85	117.81	121.90
50	v	931	C	C5-C6-N1	5.85	123.92	121.00
8	B	323	C	C2-N1-C1'	5.84	125.22	118.80
8	B	1135	C	C2-N1-C1'	5.83	125.21	118.80
8	B	915	C	C6-N1-C2	-5.83	117.97	120.30
50	v	1322	C	C6-N1-C1'	-5.82	113.81	120.80
8	B	915	C	C2-N1-C1'	5.82	125.20	118.80
8	B	2043	C	C5-C6-N1	5.82	123.91	121.00
50	v	971	G	O4'-C1'-N9	5.81	112.85	108.20
50	v	719	C	N1-C2-O2	5.81	122.39	118.90
21	Q	94	LEU	CB-CG-CD1	5.80	120.86	111.00
50	v	979	C	N3-C2-O2	-5.80	117.84	121.90
8	B	790	U	C5-C6-N1	5.80	125.60	122.70
50	v	103	U	N3-C2-O2	-5.80	118.14	122.20
8	B	1774	C	C5-C6-N1	5.79	123.89	121.00
8	B	828	U	C5-C6-N1	5.78	125.59	122.70
50	v	1407	C	C6-N1-C2	-5.78	117.99	120.30
8	B	1920	C	N1-C2-O2	5.78	122.37	118.90
8	B	2636	C	C6-N1-C2	-5.78	117.99	120.30
8	B	2617	U	N1-C2-O2	5.76	126.83	122.80
50	v	1363	A	C8-N9-C4	-5.76	103.50	105.80
8	B	2045	C	C5-C6-N1	5.75	123.88	121.00
50	v	328	C	N3-C2-O2	-5.75	117.88	121.90
50	v	1370	G	C2-N3-C4	5.75	114.78	111.90
7	A	30	C	C6-N1-C2	-5.75	118.00	120.30
50	v	1354	U	N3-C2-O2	-5.73	118.19	122.20
8	B	634	C	C6-N1-C2	-5.73	118.01	120.30
8	B	1314	C	C6-N1-C2	-5.73	118.01	120.30
14	J	122	LEU	CA-CB-CG	5.72	128.46	115.30
50	v	620	C	N3-C2-O2	-5.72	117.90	121.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
50	v	943	U	C2-N1-C1'	5.72	124.56	117.70
8	B	234	U	N1-C2-O2	5.71	126.80	122.80
50	v	90	C	N3-C2-O2	-5.71	117.91	121.90
50	v	643	C	C6-N1-C2	-5.70	118.02	120.30
15	K	24	LEU	CB-CG-CD2	-5.70	101.31	111.00
8	B	2703	C	C6-N1-C2	-5.70	118.02	120.30
50	v	1520	C	C6-N1-C2	-5.70	118.02	120.30
8	B	1314	C	N1-C2-O2	5.70	122.32	118.90
50	v	1063	C	C5-C6-N1	5.70	123.85	121.00
50	v	942	G	C2-N3-C4	5.69	114.75	111.90
50	v	1228	C	N1-C2-O2	5.69	122.31	118.90
50	v	1520	C	C2-N1-C1'	5.69	125.06	118.80
8	B	2462	C	C6-N1-C2	-5.68	118.03	120.30
7	A	26	C	C6-N1-C2	-5.68	118.03	120.30
8	B	1135	C	N3-C2-O2	-5.67	117.93	121.90
50	v	1370	G	N3-C4-N9	5.67	129.40	126.00
50	v	1306	A	C2-N3-C4	5.67	113.44	110.60
50	v	943	U	N1-C2-O2	5.66	126.76	122.80
8	B	527	C	N3-C2-O2	-5.66	117.94	121.90
50	v	475	C	C2-N1-C1'	5.65	125.02	118.80
50	v	316	C	C6-N1-C2	-5.65	118.04	120.30
50	v	440	C	C6-N1-C2	-5.64	118.04	120.30
8	B	2321	U	N1-C2-O2	5.64	126.75	122.80
13	G	7	PRO	CA-N-CD	-5.63	103.61	111.50
50	v	307	C	C6-N1-C2	-5.63	118.05	120.30
8	B	2874	C	N1-C2-O2	5.63	122.28	118.90
8	B	1005	C	C2-N1-C1'	5.62	124.99	118.80
8	B	75	G	N3-C4-C5	-5.62	125.79	128.60
8	B	640	C	C5-C6-N1	5.62	123.81	121.00
50	v	1060	U	N1-C2-O2	5.62	126.73	122.80
8	B	1053	C	N1-C2-O2	5.61	122.26	118.90
50	v	1356	G	C6-C5-N7	-5.61	127.04	130.40
50	v	1357	A	C8-N9-C4	-5.60	103.56	105.80
50	v	58	C	C2-N1-C1'	5.60	124.96	118.80
50	v	1073	U	N3-C2-O2	-5.60	118.28	122.20
50	v	947	G	O5'-P-OP1	-5.60	100.66	105.70
8	B	2354	C	C6-N1-C2	-5.59	118.06	120.30
50	v	216	U	C2-N1-C1'	5.59	124.40	117.70
50	v	183	C	N1-C2-O2	5.58	122.25	118.90
50	v	582	C	N1-C2-O2	5.58	122.25	118.90
36	h	87	MET	CA-CB-CG	5.57	122.77	113.30
8	B	783	A	C5-N7-C8	-5.56	101.12	103.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	B	1294	U	N1-C2-O2	5.56	126.69	122.80
50	v	307	C	C2-N1-C1'	5.56	124.92	118.80
8	B	475	C	C6-N1-C2	-5.55	118.08	120.30
50	v	1026	G	C4-N9-C1'	5.54	133.70	126.50
8	B	783	A	C4-C5-N7	5.54	113.47	110.70
50	v	611	C	C6-N1-C2	-5.54	118.08	120.30
8	B	192	C	C6-N1-C2	-5.54	118.08	120.30
8	B	126	A	C5-N7-C8	-5.53	101.14	103.90
8	B	1917	U	P-O3'-C3'	-5.52	113.07	119.70
8	B	1267	U	N3-C2-O2	-5.52	118.34	122.20
40	l	55	LEU	CA-CB-CG	5.51	127.98	115.30
8	B	807	U	N1-C2-O2	5.51	126.66	122.80
8	B	527	C	C6-N1-C2	-5.51	118.10	120.30
4	3	56	LEU	CA-CB-CG	5.50	127.95	115.30
50	v	1395	C	N1-C2-O2	5.50	122.20	118.90
8	B	1868	C	N1-C2-O2	5.50	122.20	118.90
6	6	379	LEU	CA-CB-CG	5.50	127.94	115.30
50	v	1159	U	N1-C2-O2	5.49	126.64	122.80
8	B	1967	C	N1-C2-O2	5.49	122.19	118.90
50	v	575	G	O4'-C1'-N9	-5.49	103.81	108.20
8	B	1868	C	C5-C6-N1	5.49	123.74	121.00
50	v	995	C	N1-C2-O2	5.48	122.19	118.90
8	B	850	U	N1-C2-O2	5.48	126.64	122.80
8	B	1888	G	C4-N9-C1'	5.47	133.62	126.50
50	v	1469	C	N3-C2-O2	-5.47	118.07	121.90
8	B	545	U	C2-N1-C1'	5.47	124.27	117.70
8	B	1352	U	C5-C6-N1	5.47	125.44	122.70
8	B	1788	C	C6-N1-C2	-5.47	118.11	120.30
37	i	87	LEU	CA-CB-CG	5.47	127.88	115.30
50	v	977	A	C8-N9-C4	-5.47	103.61	105.80
8	B	198	C	C6-N1-C2	-5.47	118.11	120.30
50	v	1161	C	C6-N1-C2	-5.47	118.11	120.30
8	B	1474	U	C2-N1-C1'	5.46	124.25	117.70
50	v	252	U	N3-C2-O2	-5.46	118.38	122.20
8	B	2870	C	C2-N1-C1'	5.45	124.80	118.80
8	B	1691	C	C2-N1-C1'	5.45	124.80	118.80
8	B	550	C	C6-N1-C2	-5.44	118.12	120.30
50	v	342	C	C6-N1-C2	-5.43	118.13	120.30
8	B	919	U	N1-C2-O2	5.43	126.60	122.80
8	B	2129	C	N1-C2-O2	5.43	122.16	118.90
8	B	1723	G	N3-C4-C5	-5.42	125.89	128.60
50	v	1395	C	C5-C6-N1	5.42	123.71	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	B	2870	C	C5-C6-N1	5.41	123.70	121.00
8	B	1294	U	N3-C2-O2	-5.41	118.42	122.20
50	v	103	U	N1-C2-O2	5.41	126.59	122.80
50	v	811	C	N3-C2-O2	-5.41	118.11	121.90
8	B	581	C	C6-N1-C2	-5.41	118.14	120.30
8	B	1656	C	C6-N1-C2	-5.40	118.14	120.30
8	B	1920	C	C5-C6-N1	5.39	123.70	121.00
8	B	2477	U	C2-N1-C1'	5.39	124.17	117.70
8	B	1157	G	C6-C5-N7	-5.39	127.17	130.40
8	B	860	U	N1-C2-O2	5.39	126.57	122.80
8	B	364	C	N1-C2-O2	5.39	122.13	118.90
8	B	1888	G	N3-C4-C5	-5.38	125.91	128.60
50	v	514	C	C5-C6-N1	5.38	123.69	121.00
8	B	1686	C	C2-N1-C1'	5.38	124.71	118.80
8	B	1691	C	C5-C6-N1	5.37	123.68	121.00
8	B	1339	G	OP1-P-O3'	5.36	117.00	105.20
8	B	527	C	C5-C6-N1	5.36	123.68	121.00
8	B	1723	G	C4-N9-C1'	5.36	133.47	126.50
8	B	1723	G	N3-C4-N9	5.35	129.21	126.00
50	v	1414	U	N1-C2-O2	5.35	126.55	122.80
50	v	1237	C	C5-C6-N1	5.35	123.67	121.00
8	B	1398	C	C2-N1-C1'	5.34	124.68	118.80
8	B	1611	C	C5-C6-N1	5.34	123.67	121.00
23	S	46	LEU	CB-CG-CD1	5.34	120.08	111.00
8	B	2316	G	N1-C6-O6	-5.34	116.70	119.90
50	v	1313	U	C6-N1-C2	-5.34	117.80	121.00
8	B	2617	U	N3-C2-O2	-5.34	118.46	122.20
7	A	27	C	N1-C2-O2	5.34	122.10	118.90
50	v	754	C	C6-N1-C1'	-5.33	114.40	120.80
8	B	16	C	C6-N1-C2	-5.33	118.17	120.30
8	B	2683	C	C2-N1-C1'	5.33	124.66	118.80
8	B	158	U	N3-C2-O2	-5.33	118.47	122.20
50	v	1491	G	N3-C4-N9	5.33	129.20	126.00
8	B	2072	C	C5-C6-N1	5.32	123.66	121.00
50	v	946	A	C4-N9-C1'	5.32	135.87	126.30
50	v	221	C	C2-N1-C1'	5.31	124.64	118.80
8	B	754	U	N3-C2-O2	-5.30	118.49	122.20
32	d	136	VAL	C-N-CA	5.30	134.96	121.70
8	B	2261	C	N1-C2-O2	5.30	122.08	118.90
50	v	995	C	N3-C4-N4	-5.30	114.29	118.00
50	v	183	C	N3-C2-O2	-5.30	118.19	121.90
50	v	796	C	C5-C6-N1	5.30	123.65	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
50	v	1367	C	N3-C2-O2	-5.30	118.19	121.90
50	v	575	G	C8-N9-C1'	5.29	133.88	127.00
50	v	719	C	N3-C2-O2	-5.29	118.19	121.90
8	B	545	U	N1-C2-O2	5.29	126.50	122.80
8	B	986	C	C6-N1-C2	-5.29	118.18	120.30
50	v	1037	C	C5-C6-N1	5.29	123.64	121.00
8	B	2394	C	C6-N1-C2	-5.29	118.19	120.30
8	B	1267	U	C5-C6-N1	5.29	125.34	122.70
8	B	2462	C	C5-C6-N1	5.29	123.64	121.00
8	B	1176	U	C2-N1-C1'	5.28	124.04	117.70
8	B	1437	C	C2-N1-C1'	5.28	124.61	118.80
8	B	2699	C	C5-C6-N1	5.28	123.64	121.00
8	B	1585	C	N3-C2-O2	-5.28	118.21	121.90
50	v	1494	G	N3-C4-C5	-5.27	125.96	128.60
8	B	948	C	C6-N1-C2	-5.27	118.19	120.30
50	v	333	U	N3-C2-O2	-5.27	118.51	122.20
50	v	1491	G	C4-N9-C1'	5.27	133.35	126.50
8	B	669	G	C8-N9-C1'	-5.26	120.16	127.00
8	B	2072	C	C6-N1-C2	-5.26	118.19	120.30
13	G	32	LEU	CA-CB-CG	5.26	127.41	115.30
7	A	14	U	N3-C2-O2	-5.26	118.52	122.20
8	B	1774	C	N3-C2-O2	-5.26	118.22	121.90
50	v	1234	C	C2-N1-C1'	5.26	124.58	118.80
50	v	1073	U	N1-C2-O2	5.25	126.48	122.80
8	B	275	C	C6-N1-C2	-5.25	118.20	120.30
9	C	129	LEU	CA-CB-CG	5.24	127.36	115.30
8	B	75	G	C4-N9-C1'	5.24	133.31	126.50
50	v	469	C	C2-N1-C1'	5.24	124.56	118.80
8	B	683	U	C5-C6-N1	5.24	125.32	122.70
8	B	2732	G	O4'-C1'-N9	5.23	112.39	108.20
50	v	322	C	C5-C6-N1	5.23	123.61	121.00
50	v	1109	C	N1-C2-O2	5.23	122.04	118.90
8	B	366	C	C6-N1-C2	-5.23	118.21	120.30
8	B	1348	C	N1-C2-O2	5.23	122.04	118.90
50	v	1158	C	C2-N1-C1'	5.23	124.55	118.80
7	A	30	C	C5-C6-N1	5.23	123.61	121.00
8	B	274	C	N3-C2-O2	-5.22	118.24	121.90
8	B	850	U	C5-C6-N1	5.22	125.31	122.70
8	B	1049	C	C6-N1-C2	-5.22	118.21	120.30
8	B	192	C	N1-C2-O2	5.22	122.03	118.90
50	v	610	U	N3-C2-O2	-5.21	118.55	122.20
50	v	1354	U	N1-C2-O2	5.21	126.45	122.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	B	2226	C	C6-N1-C2	-5.21	118.22	120.30
8	B	1868	C	C6-N1-C2	-5.20	118.22	120.30
8	B	2716	C	C2-N1-C1'	5.20	124.52	118.80
8	B	243	U	N3-C2-O2	-5.20	118.56	122.20
8	B	510	C	C5-C6-N1	5.20	123.60	121.00
50	v	945	G	C8-N9-C1'	-5.20	120.24	127.00
8	B	671	C	C6-N1-C2	-5.20	118.22	120.30
8	B	510	C	N3-C2-O2	-5.20	118.26	121.90
8	B	731	C	C6-N1-C2	-5.19	118.22	120.30
8	B	201	C	C6-N1-C2	-5.19	118.22	120.30
8	B	1788	C	C5-C6-N1	5.19	123.60	121.00
50	v	464	U	C2-N3-C4	-5.19	123.89	127.00
50	v	1282	C	C5-C6-N1	5.19	123.59	121.00
8	B	459	U	N1-C2-O2	5.19	126.43	122.80
8	B	2615	U	C5-C6-N1	5.19	125.29	122.70
50	v	1347	G	O4'-C1'-N9	5.19	112.35	108.20
50	v	1407	C	C5-C6-N1	5.19	123.59	121.00
50	v	1029	U	N1-C2-O2	5.18	126.43	122.80
7	A	68	C	C2-N1-C1'	5.18	124.50	118.80
8	B	323	C	N1-C2-O2	5.18	122.01	118.90
8	B	2615	U	C2-N1-C1'	5.18	123.92	117.70
8	B	2259	U	N3-C2-O2	-5.18	118.58	122.20
50	v	993	G	N3-C4-C5	-5.18	126.01	128.60
8	B	650	C	C6-N1-C2	-5.17	118.23	120.30
6	6	84	LEU	CA-CB-CG	5.17	127.19	115.30
8	B	634	C	C5-C6-N1	5.17	123.58	121.00
8	B	671	C	C5-C6-N1	5.17	123.58	121.00
8	B	1675	C	N3-C2-O2	-5.17	118.28	121.90
50	v	433	G	N3-C4-C5	-5.17	126.02	128.60
8	B	143	C	C2-N1-C1'	5.17	124.48	118.80
8	B	114	U	C2-N1-C1'	5.16	123.90	117.70
8	B	192	C	C5-C6-N1	5.16	123.58	121.00
50	v	620	C	N1-C2-O2	5.16	122.00	118.90
50	v	1495	U	N3-C2-O2	-5.16	118.59	122.20
50	v	1491	G	N3-C4-C5	-5.16	126.02	128.60
8	B	202	U	C6-N1-C1'	-5.16	113.98	121.20
8	B	435	C	N1-C2-O2	5.15	121.99	118.90
50	v	610	U	C2-N1-C1'	5.15	123.89	117.70
8	B	481	G	O4'-C1'-N9	5.15	112.32	108.20
8	B	2715	C	C5-C6-N1	5.15	123.58	121.00
8	B	202	U	O4'-C1'-N1	5.15	112.32	108.20
8	B	417	C	N1-C2-O2	5.15	121.99	118.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
50	v	1262	C	N1-C2-O2	5.15	121.99	118.90
8	B	850	U	C2-N1-C1'	5.15	123.88	117.70
8	B	1691	C	C6-N1-C2	-5.15	118.24	120.30
50	v	1114	C	C6-N1-C2	-5.15	118.24	120.30
8	B	1314	C	C6-N1-C1'	-5.14	114.63	120.80
8	B	816	C	C6-N1-C2	-5.13	118.25	120.30
50	v	106	C	C6-N1-C2	-5.13	118.25	120.30
7	A	47	C	N1-C2-O2	5.13	121.98	118.90
8	B	2512	C	C6-N1-C2	-5.13	118.25	120.30
50	v	962	C	C2-N1-C1'	5.13	124.44	118.80
8	B	837	C	C2-N1-C1'	5.12	124.44	118.80
50	v	1147	C	N1-C2-O2	5.12	121.97	118.90
50	v	1361	G	N3-C4-C5	-5.12	126.04	128.60
50	v	1520	C	N1-C2-O2	5.12	121.97	118.90
8	B	198	C	C5-C6-N1	5.12	123.56	121.00
8	B	948	C	C5-C6-N1	5.11	123.55	121.00
50	v	980	C	N3-C4-C5	-5.11	119.86	121.90
8	B	754	U	N1-C2-O2	5.10	126.37	122.80
8	B	545	U	N3-C2-O2	-5.10	118.63	122.20
50	v	611	C	C2-N1-C1'	5.09	124.41	118.80
18	N	20	MET	CG-SD-CE	-5.09	92.05	100.20
8	B	2556	C	C5-C6-N1	5.09	123.55	121.00
8	B	1005	C	C5-C6-N1	5.09	123.54	121.00
8	B	2683	C	C5-C6-N1	5.08	123.54	121.00
50	v	893	C	C6-N1-C2	-5.08	118.27	120.30
8	B	607	U	N1-C2-O2	5.08	126.36	122.80
50	v	316	C	C5-C6-N1	5.08	123.54	121.00
8	B	581	C	C5-C6-N1	5.08	123.54	121.00
36	h	42	THR	C-N-CA	5.07	134.38	121.70
8	B	387	U	C2-N1-C1'	5.07	123.78	117.70
8	B	1564	C	C6-N1-C2	-5.07	118.27	120.30
8	B	1074	G	N3-C4-N9	-5.07	122.96	126.00
8	B	1585	C	C6-N1-C2	-5.06	118.28	120.30
8	B	2006	C	C5-C6-N1	5.06	123.53	121.00
50	v	536	C	C6-N1-C2	-5.06	118.28	120.30
50	v	1151	A	O4'-C1'-N9	5.06	112.24	108.20
50	v	1301	U	C5-C4-O4	-5.05	122.87	125.90
50	v	277	C	C6-N1-C2	-5.05	118.28	120.30
8	B	475	C	C2-N3-C4	5.05	122.43	119.90
50	v	1356	G	C8-N9-C1'	-5.05	120.43	127.00
8	B	1963	U	OP2-P-O3'	5.05	116.30	105.20
8	B	225	C	C6-N1-C2	-5.04	118.28	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	B	837	C	C5-C6-N1	5.04	123.52	121.00
8	B	158	U	C2-N1-C1'	5.04	123.75	117.70
50	v	165	G	N3-C4-N9	5.04	129.03	126.00
50	v	910	C	C6-N1-C2	-5.04	118.28	120.30
8	B	860	U	N3-C2-O2	-5.04	118.67	122.20
50	v	54	C	N1-C2-O2	5.03	121.92	118.90
8	B	1632	A	N7-C8-N9	5.03	116.31	113.80
50	v	409	U	N1-C2-O2	5.03	126.32	122.80
50	v	979	C	C6-N1-C2	-5.03	118.29	120.30
8	B	208	C	C6-N1-C2	-5.03	118.29	120.30
8	B	2261	C	C5-C6-N1	5.02	123.51	121.00
8	B	31	C	C5-C6-N1	5.02	123.51	121.00
8	B	557	C	C6-N1-C2	-5.02	118.29	120.30
8	B	2684	U	C5-C6-N1	5.02	125.21	122.70
50	v	1029	U	N3-C2-O2	-5.02	118.69	122.20
50	v	1161	C	C5-C6-N1	5.02	123.51	121.00
8	B	984	A	C2-N3-C4	5.01	113.11	110.60
8	B	965	C	N3-C2-O2	-5.01	118.39	121.90
24	T	61	LEU	CB-CG-CD1	-5.01	102.48	111.00
50	v	980	C	C2-N1-C1'	5.01	124.31	118.80
8	B	1893	C	C6-N1-C2	-5.01	118.30	120.30
8	B	2901	C	N1-C2-O2	5.01	121.90	118.90
8	B	717	C	N3-C2-O2	-5.00	118.40	121.90

There are no chirality outliers.

All (9) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
6	6	257	ARG	Peptide
6	6	259	LEU	Peptide
6	6	260	PRO	Peptide
21	Q	91	ARG	Sidechain
21	Q	94	LEU	Peptide
23	S	4	ILE	Peptide
27	W	40	ARG	Sidechain
38	j	118	ASN	Peptide
39	k	36	VAL	Peptide

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	0	444	0	461	11	0
2	1	410	0	440	6	0
3	2	377	0	418	5	0
4	3	504	0	574	8	0
5	4	302	0	343	10	0
6	6	3403	0	3434	49	0
7	A	2504	0	1271	23	0
8	B	62317	0	31345	368	0
9	C	2083	0	2157	36	0
10	D	1565	0	1616	16	0
11	E	1552	0	1619	15	0
12	F	1420	0	1460	23	0
13	G	1323	0	1374	16	0
14	J	1129	0	1162	26	0
15	K	931	0	1003	19	0
16	L	1045	0	1117	19	0
17	M	1074	0	1157	19	0
18	N	961	0	1000	20	0
19	O	892	0	923	15	0
20	P	917	0	964	15	0
21	Q	947	0	1022	27	0
22	R	816	0	839	10	0
23	S	857	0	922	18	0
24	T	739	0	807	10	0
25	U	780	0	834	11	0
26	V	753	0	780	10	0
27	W	596	0	610	17	0
28	X	625	0	655	11	0
29	Y	509	0	543	8	0
30	Z	449	0	491	11	0
31	c	1643	0	1710	0	0
32	d	1106	0	1148	0	0
33	e	818	0	808	0	0
34	f	1182	0	1240	0	0
35	g	979	0	1034	0	0
36	h	1022	0	1070	0	0
37	i	787	0	828	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
38	j	877	0	887	0	0
39	k	955	0	1019	0	0
40	l	884	0	944	0	0
41	m	774	0	827	0	0
42	n	714	0	737	0	0
43	o	649	0	666	0	0
44	p	649	0	691	0	0
45	q	456	0	478	0	0
46	r	638	0	665	0	0
47	s	665	0	714	0	0
48	t	426	0	449	0	0
49	u	468	0	458	0	0
50	v	33012	0	16618	0	0
51	w	1705	0	1732	0	0
52	x	1625	0	1699	0	0
All	All	144258	0	97763	719	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 5.

All (719) 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)
8:B:1311:G:N2	8:B:1603:A:H62	1.59	1.00
8:B:1168:G:H1	8:B:1181:U:H3	1.07	0.94
8:B:1311:G:H21	8:B:1603:A:H62	0.91	0.89
7:A:22:U:H3	7:A:61:G:H1	1.17	0.87
8:B:1311:G:H21	8:B:1603:A:N6	1.71	0.86
8:B:107:G:H21	8:B:346:A:N6	1.74	0.85
6:6:215:ASN:HD22	6:6:222:VAL:H	1.27	0.83
8:B:1468:U:H3	8:B:1524:G:H1	1.25	0.80
8:B:707:G:H1	8:B:724:U:H3	1.30	0.77
8:B:1912:A:H2	8:B:1917:U:H3	1.34	0.74
8:B:2781:A:H5'	8:B:2782:G:H5'	1.72	0.72
8:B:1250:G:N7	16:L:18:ARG:NH2	2.39	0.70
8:B:1340:U:H5'	24:T:61:LEU:HD11	1.73	0.70
30:Z:47:ILE:O	30:Z:51:SER:HB3	1.92	0.70
21:Q:91:ARG:HB2	21:Q:93:ILE:H	1.58	0.67
14:J:31:GLU:OE2	14:J:35:ARG:NH1	2.28	0.66
27:W:49:ASN:HB2	27:W:61:LYS:HG2	1.78	0.66
8:B:1275:A:OP2	8:B:1646:C:N4	2.29	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:3:5:THR:HG22	4:3:62:PRO:HD2	1.78	0.66
8:B:107:G:N2	8:B:346:A:N6	2.44	0.65
24:T:68:LYS:HE3	24:T:77:ARG:HH21	1.62	0.65
27:W:19:ARG:NH1	27:W:21:GLY:O	2.29	0.65
8:B:2294:G:OP1	19:O:94:ARG:NH2	2.29	0.65
8:B:2489:U:H1'	8:B:2518:A:H61	1.62	0.65
5:4:6:SER:HB3	8:B:2466:C:H5"	1.78	0.65
8:B:899:A:H5'	8:B:901:C:H41	1.62	0.65
1:0:5:ASN:ND2	8:B:2020:A:N7	2.45	0.64
7:A:77:U:OP1	26:V:21:ARG:NH2	2.30	0.64
23:S:18:ARG:HG3	23:S:76:VAL:HB	1.80	0.64
8:B:1998:A:OP2	10:D:141:ARG:NH2	2.31	0.63
8:B:1437:C:HO2'	8:B:1516:G:HO2'	1.43	0.63
6:6:111:PHE:O	6:6:115:ALA:HB2	1.99	0.63
8:B:706:A:H62	8:B:725:G:H21	1.47	0.63
8:B:2707:U:O2	18:N:71:ARG:NH2	2.31	0.63
6:6:315:VAL:HA	6:6:340:VAL:HG21	1.81	0.62
17:M:33:LEU:HD23	17:M:103:TYR:HB2	1.81	0.62
8:B:1604:C:O2'	8:B:1610:A:N6	2.32	0.62
27:W:29:SER:OG	27:W:30:VAL:N	2.32	0.62
4:3:7:ARG:NH1	8:B:245:G:N7	2.47	0.61
6:6:389:ILE:HG23	6:6:390:GLU:HG3	1.82	0.61
5:4:8:LYS:NZ	8:B:2467:C:OP1	2.33	0.61
8:B:2773:C:H5'	10:D:169:ARG:HB2	1.83	0.61
23:S:82:MET:HG3	23:S:98:LYS:HB2	1.82	0.61
10:D:13:ARG:NH1	10:D:14:ILE:O	2.34	0.61
8:B:2747:G:H21	8:B:2757:A:H62	1.48	0.61
16:L:75:ALA:HB2	16:L:105:ILE:HD13	1.82	0.61
6:6:383:PHE:HA	6:6:386:LEU:HD12	1.83	0.61
8:B:1250:G:OP2	16:L:21:ARG:NH1	2.32	0.61
8:B:864:G:OP2	17:M:22:GLN:NE2	2.28	0.60
21:Q:48:ASP:HA	21:Q:51:GLN:HB2	1.83	0.60
27:W:35:ILE:HG12	27:W:36:ILE:HG13	1.83	0.60
25:U:4:ILE:HD11	25:U:66:VAL:HG13	1.83	0.60
8:B:320:A:N3	11:E:163:ASN:ND2	2.49	0.60
9:C:200:MET:SD	9:C:200:MET:N	2.75	0.59
8:B:1817:G:OP1	9:C:86:ARG:NH2	2.35	0.59
17:M:64:TRP:HB2	17:M:104:GLU:HB2	1.84	0.59
6:6:322:LEU:HG	6:6:324:ASP:HB3	1.85	0.59
28:X:4:CYS:HA	28:X:32:LEU:HD21	1.85	0.59
15:K:8:ASN:OD1	15:K:17:ARG:NH1	2.36	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:A:30:C:H1'	7:A:57:A:H61	1.67	0.58
8:B:848:C:H2'	8:B:849:A:H8	1.68	0.58
8:B:2467:C:O2	17:M:123:LYS:NZ	2.33	0.58
8:B:514:A:N3	8:B:581:C:O2'	2.35	0.58
8:B:1365:A:OP2	28:X:2:ARG:NH1	2.36	0.58
8:B:1656:C:OP1	10:D:141:ARG:NH1	2.35	0.58
23:S:7:HIS:N	23:S:103:ILE:O	2.35	0.58
5:4:16:ILE:HG22	5:4:25:VAL:HG12	1.86	0.58
1:0:10:SER:O	1:0:14:MET:HB2	2.04	0.58
8:B:1047:G:H21	8:B:1111:A:H62	1.51	0.58
8:B:1997:C:OP1	10:D:128:ARG:NH1	2.32	0.58
14:J:13:ARG:NH1	14:J:49:ASP:O	2.36	0.57
5:4:2:LYS:NZ	5:4:32:LYS:O	2.38	0.57
8:B:750:A:OP1	8:B:1615:C:N4	2.37	0.57
18:N:27:SER:HB2	18:N:34:ILE:HD11	1.87	0.57
8:B:526:A:O2'	8:B:2043:C:O2	2.21	0.57
8:B:1248:G:OP2	11:E:44:ARG:NH2	2.37	0.57
8:B:1665:A:H5"	15:K:65:LYS:HB3	1.85	0.57
6:6:410:ASP:HA	6:6:413:ARG:HB2	1.85	0.57
8:B:2305:U:O2	8:B:2307:G:N2	2.38	0.57
19:O:67:ASN:H	19:O:70:ALA:HB3	1.69	0.57
8:B:2548:U:O2	15:K:22:LYS:NZ	2.37	0.57
15:K:11:ASP:HB2	15:K:95:GLY:HA3	1.86	0.57
8:B:160:A:N3	8:B:2208:C:O2'	2.37	0.57
8:B:2627:G:N2	8:B:2777:G:OP2	2.38	0.57
9:C:106:PRO:HA	9:C:194:VAL:HA	1.85	0.57
8:B:629:G:N3	8:B:639:U:O2'	2.38	0.57
8:B:698:C:O2'	8:B:734:A:N6	2.35	0.57
25:U:42:LYS:HB2	25:U:57:ILE:HG22	1.87	0.57
26:V:21:ARG:NH1	26:V:87:GLN:O	2.38	0.57
30:Z:53:MET:HG3	30:Z:54:VAL:HG13	1.87	0.57
8:B:2526:G:H1	8:B:2537:U:H3	1.53	0.56
1:0:12:ARG:NH1	8:B:517:C:OP1	2.33	0.56
8:B:1718:G:H1	8:B:1742:U:H3	1.53	0.56
8:B:1926:U:H2'	8:B:1927:A:H3'	1.87	0.56
24:T:14:PRO:HA	24:T:32:LEU:HD23	1.87	0.56
8:B:239:C:HO2'	8:B:622:G:HO2'	1.47	0.56
8:B:2618:G:H21	10:D:155:VAL:HG21	1.70	0.56
6:6:244:VAL:HG21	6:6:357:LEU:HB3	1.88	0.56
8:B:1666:G:H4'	15:K:5:THR:HG23	1.86	0.56
2:1:5:ARG:HH12	2:1:25:ASN:HB3	1.70	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:2585:U:H4'	8:B:2586:U:H5'	1.87	0.56
8:B:1030:C:OP2	17:M:127:LYS:NZ	2.39	0.56
8:B:81:G:O2'	8:B:295:G:O2'	2.24	0.56
18:N:49:GLU:OE1	18:N:95:THR:OG1	2.24	0.56
14:J:56:VAL:HB	14:J:124:VAL:HG13	1.88	0.56
8:B:1203:U:O2	16:L:4:ASN:ND2	2.40	0.55
9:C:83:ASP:OD2	9:C:86:ARG:NH1	2.38	0.55
8:B:987:C:O2'	8:B:1000:A:N3	2.36	0.55
8:B:2640:G:OP1	14:J:95:ARG:NH2	2.40	0.55
9:C:15:VAL:HG22	9:C:205:GLY:HA3	1.89	0.55
8:B:2258:C:O2'	8:B:2427:C:OP2	2.22	0.55
6:6:153:ARG:NH2	8:B:2583:G:O2'	2.40	0.55
13:G:137:LYS:HA	13:G:140:ILE:HG22	1.89	0.55
15:K:60:VAL:HG12	15:K:86:LEU:HD11	1.89	0.55
29:Y:9:LYS:NZ	29:Y:59:GLU:OE2	2.40	0.55
8:B:1056:G:O2'	8:B:1086:A:N7	2.38	0.55
6:6:14:VAL:HB	6:6:77:VAL:HB	1.88	0.55
6:6:123:GLN:HG3	6:6:269:ALA:HB2	1.89	0.55
7:A:93:C:OP2	26:V:18:ARG:NH1	2.40	0.55
14:J:110:PRO:HB2	14:J:111:LYS:HG3	1.87	0.55
6:6:34:VAL:HG13	6:6:39:VAL:HB	1.89	0.54
8:B:2838:G:O2'	18:N:45:ARG:NH1	2.40	0.54
1:0:15:ARG:NH1	8:B:1266:G:OP1	2.37	0.54
12:F:125:GLY:HA2	12:F:158:THR:HA	1.88	0.54
1:0:14:MET:HG2	8:B:2045:C:H4'	1.90	0.54
8:B:6:A:N3	14:J:135:GLN:NE2	2.54	0.54
8:B:309:A:H4'	25:U:16:LYS:H	1.71	0.54
8:B:323:C:O2'	8:B:1205:A:N6	2.41	0.54
8:B:2674:G:H4'	15:K:29:ARG:HG3	1.88	0.54
14:J:39:LYS:HA	14:J:43:GLU:HB2	1.89	0.54
24:T:9:LYS:O	24:T:12:ARG:NH1	2.40	0.54
4:3:41:ARG:NH2	8:B:2349:G:OP2	2.35	0.54
8:B:471:A:OP1	11:E:79:ARG:NH2	2.40	0.54
14:J:49:ASP:OD1	14:J:49:ASP:N	2.37	0.54
20:P:1:SER:OG	20:P:2:ASN:N	2.35	0.54
8:B:2682:A:H61	8:B:2728:U:H1'	1.73	0.54
13:G:15:ASP:HB3	13:G:26:LYS:HB3	1.90	0.54
8:B:704:G:O2'	8:B:727:A:N6	2.40	0.54
8:B:2250:G:O2'	8:B:2496:C:OP1	2.24	0.54
6:6:210:LYS:HB2	6:6:251:ASP:HB3	1.88	0.54
8:B:994:C:OP1	21:Q:52:ARG:NH1	2.41	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:1119:U:OP1	26:V:83:LYS:NZ	2.41	0.54
8:B:674:G:O2'	11:E:62:GLN:NE2	2.41	0.54
7:A:95:U:OP2	26:V:19:ARG:NH2	2.41	0.53
8:B:1141:U:OP2	14:J:65:THR:OG1	2.25	0.53
27:W:50:VAL:O	27:W:61:LYS:NZ	2.37	0.53
8:B:1299:G:H5"	8:B:1300:G:H5'	1.91	0.53
28:X:32:LEU:O	28:X:33:HIS:ND1	2.42	0.53
8:B:862:G:OP2	17:M:18:ARG:NH1	2.42	0.53
8:B:906:U:O2'	17:M:66:ARG:NH1	2.41	0.53
21:Q:71:ASN:HD21	21:Q:106:THR:HG22	1.72	0.53
7:A:51:G:OP2	19:O:67:ASN:ND2	2.41	0.53
8:B:910:A:N3	8:B:2264:C:O2'	2.41	0.53
12:F:74:ALA:O	12:F:79:ARG:NH1	2.42	0.53
8:B:151:C:H2'	8:B:152:A:H8	1.74	0.53
8:B:636:G:N7	16:L:109:LYS:NZ	2.56	0.53
8:B:863:A:H5"	17:M:22:GLN:HE22	1.74	0.53
8:B:953:G:H5"	17:M:16:ARG:HE	1.74	0.53
8:B:1693:U:O2'	9:C:13:ARG:NH1	2.41	0.53
8:B:2502:G:H5"	8:B:2503:A:H5"	1.91	0.53
4:3:7:ARG:NH2	8:B:243:U:OP2	2.42	0.53
8:B:1753:G:N2	8:B:1756:G:OP2	2.33	0.53
8:B:2796:U:O2'	8:B:2800:A:N6	2.42	0.53
14:J:25:LEU:HD22	14:J:64:VAL:HG22	1.90	0.53
8:B:1438:U:OP2	8:B:1552:A:N6	2.42	0.53
8:B:2282:G:O2'	8:B:2425:A:N6	2.41	0.53
18:N:106:ASP:N	18:N:106:ASP:OD1	2.41	0.52
21:Q:71:ASN:HB3	21:Q:109:VAL:HG11	1.90	0.52
8:B:1315:C:O2'	8:B:1392:A:N3	2.39	0.52
8:B:707:G:N2	8:B:709:U:OP1	2.41	0.52
8:B:558:U:H5"	14:J:111:LYS:HD3	1.92	0.52
8:B:1250:G:H5"	21:Q:5:ARG:HD2	1.91	0.52
8:B:2002:G:OP1	18:N:17:ARG:NH2	2.41	0.52
6:6:257:ARG:NH2	6:6:290:ARG:O	2.42	0.52
7:A:43:C:O2'	12:F:90:LEU:O	2.27	0.52
8:B:1219:U:OP2	21:Q:18:LYS:NZ	2.39	0.52
8:B:2023:C:H2'	8:B:2024:G:H8	1.75	0.52
8:B:2521:C:O2'	8:B:2564:A:N3	2.35	0.52
2:1:28:THR:HG23	2:1:29:LYS:HG3	1.91	0.52
17:M:38:ARG:HD3	17:M:98:PRO:HD3	1.92	0.52
30:Z:10:ARG:HG3	30:Z:53:MET:HA	1.91	0.52
8:B:1060:U:OP1	8:B:1079:C:N4	2.43	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:876:C:N4	8:B:897:C:OP1	2.42	0.52
8:B:1528:A:N6	8:B:1543:G:O2'	2.42	0.52
14:J:118:MET:HA	14:J:121:LYS:HD2	1.92	0.52
1:0:37:HIS:ND1	1:0:38:LEU:O	2.43	0.52
16:L:96:LYS:NZ	16:L:105:ILE:O	2.33	0.52
6:6:158:THR:OG1	6:6:164:ARG:NH2	2.43	0.52
8:B:186:G:H2'	8:B:187:G:H8	1.76	0.52
8:B:1252:G:H22	21:Q:36:GLN:HE21	1.56	0.52
12:F:124:ARG:NH2	12:F:126:ASN:O	2.42	0.52
6:6:188:GLY:HA3	6:6:192:ARG:HH21	1.75	0.51
8:B:290:U:H3	8:B:350:G:H1	1.56	0.51
8:B:647:G:N2	8:B:2350:C:O2'	2.41	0.51
11:E:46:GLN:O	11:E:88:ARG:NH2	2.43	0.51
8:B:910:A:H62	17:M:12:MET:HA	1.74	0.51
23:S:28:LYS:HD2	23:S:70:LYS:HG3	1.92	0.51
16:L:90:VAL:HG22	16:L:122:VAL:HA	1.93	0.51
30:Z:15:ARG:O	30:Z:20:LYS:NZ	2.39	0.51
3:2:3:ARG:O	3:2:6:GLN:NE2	2.44	0.51
6:6:388:ALA:HB2	6:6:402:LEU:HA	1.92	0.51
12:F:101:ARG:HA	12:F:104:THR:HG22	1.91	0.51
8:B:956:G:N7	17:M:14:LYS:NZ	2.58	0.51
8:B:1490:A:H62	9:C:96:LYS:HD2	1.76	0.51
8:B:1992:G:N2	8:B:1996:C:O2'	2.43	0.51
6:6:87:ALA:HB1	6:6:90:ARG:HH21	1.74	0.51
8:B:928:A:O2'	30:Z:37:ARG:NH2	2.44	0.51
9:C:106:PRO:HD2	9:C:109:LEU:HD22	1.92	0.51
8:B:523:C:O2	8:B:554:U:O2'	2.28	0.51
8:B:1715:G:N2	8:B:1744:A:OP2	2.43	0.51
12:F:126:ASN:N	12:F:126:ASN:ND2	2.58	0.51
8:B:1184:U:OP2	30:Z:30:ARG:NH2	2.38	0.51
8:B:1339:G:H21	8:B:1603:A:H1'	1.75	0.51
8:B:2861:U:H2'	8:B:2862:G:H8	1.76	0.51
12:F:143:ASP:OD1	12:F:143:ASP:N	2.42	0.51
13:G:59:ASP:OD2	13:G:63:GLN:NE2	2.43	0.51
8:B:2799:A:H3'	8:B:2800:A:H4'	1.92	0.51
27:W:32:ALA:HB1	27:W:35:ILE:HB	1.92	0.51
8:B:2824:C:OP2	8:B:2825:G:N2	2.44	0.50
18:N:30:ARG:NH2	18:N:72:ASP:OD2	2.44	0.50
27:W:48:ALA:HB1	27:W:61:LYS:HB2	1.93	0.50
8:B:399:U:OP2	28:X:56:ARG:NH1	2.45	0.50
14:J:58:ASN:HB3	14:J:61:LYS:HB2	1.92	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:778:G:H5”	9:C:47:ARG:HD3	1.94	0.50
8:B:2746:U:O3’	13:G:137:LYS:NZ	2.45	0.50
24:T:58:VAL:HG13	24:T:85:VAL:HG12	1.93	0.50
11:E:119:ILE:HB	11:E:187:VAL:HG22	1.93	0.50
11:E:138:LEU:HD11	11:E:146:VAL:HG11	1.94	0.50
12:F:93:GLU:HA	12:F:96:TRP:HD1	1.77	0.50
17:M:76:LYS:NZ	17:M:83:GLY:O	2.44	0.50
29:Y:23:ARG:O	29:Y:27:ASN:ND2	2.38	0.50
6:6:370:LEU:HD21	6:6:422:ILE:HD13	1.94	0.50
7:A:50:A:OP2	19:O:102:ARG:NH1	2.44	0.50
8:B:1429:G:H2’	8:B:1430:G:H8	1.75	0.50
9:C:136:VAL:HG13	9:C:163:ILE:HG22	1.93	0.50
8:B:563:A:OP1	21:Q:40:LYS:NZ	2.44	0.50
13:G:27:GLY:HA3	13:G:78:VAL:HB	1.93	0.50
19:O:16:ARG:HA	19:O:19:GLN:HG2	1.94	0.50
23:S:60:HIS:O	23:S:61:ASN:ND2	2.44	0.50
8:B:2286:G:N3	8:B:2287:A:N6	2.60	0.50
8:B:2559:C:H2’	8:B:2560:A:H8	1.76	0.50
23:S:68:ASP:N	23:S:68:ASP:OD1	2.44	0.50
8:B:119:A:H4’	8:B:120:U:H5’	1.93	0.50
15:K:69:ARG:HG2	15:K:75:VAL:HG22	1.92	0.50
23:S:36:LEU:HD21	23:S:47:VAL:HG23	1.94	0.50
8:B:18:U:OP1	21:Q:29:ARG:NH1	2.40	0.50
8:B:1447:C:O2’	8:B:1544:A:N3	2.41	0.50
8:B:1725:U:O4	8:B:1737:G:N2	2.45	0.50
13:G:124:CYS:HB3	13:G:130:ILE:HG22	1.93	0.50
6:6:200:VAL:HG22	6:6:249:LEU:HD22	1.94	0.49
8:B:574:A:N6	8:B:2034:U:OP1	2.45	0.49
13:G:38:ASP:OD1	13:G:38:ASP:N	2.43	0.49
1:0:42:ILE:HD11	18:N:98:LEU:HB3	1.94	0.49
7:A:18:G:H1	7:A:65:U:H3	1.60	0.49
8:B:993:G:OP2	21:Q:50:ARG:NH2	2.42	0.49
8:B:1140:C:OP2	14:J:68:LYS:NZ	2.33	0.49
8:B:2101:A:N6	8:B:2188:U:O4	2.45	0.49
14:J:37:ARG:HD3	14:J:110:PRO:HG3	1.93	0.49
5:4:16:ILE:HD12	5:4:23:ILE:HD11	1.95	0.49
8:B:1142:A:H4’	14:J:27:ARG:HH22	1.76	0.49
8:B:1432:G:H2’	8:B:1433:A:C8	2.46	0.49
8:B:1680:U:O2	8:B:1763:G:O2’	2.24	0.49
28:X:69:GLU:OE2	28:X:73:ARG:NH2	2.39	0.49
6:6:180:ARG:NH1	8:B:2536:G:O2’	2.45	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:1032:A:H2	8:B:1122:G:H1	1.61	0.49
28:X:6:VAL:HG23	28:X:7:THR:HG23	1.94	0.49
8:B:877:A:N1	8:B:893:C:N4	2.60	0.49
14:J:105:VAL:HG11	14:J:122:LEU:HD13	1.94	0.49
17:M:34:LYS:NZ	17:M:131:VAL:O	2.46	0.49
21:Q:96:ASP:O	21:Q:100:PHE:HB2	2.12	0.49
20:P:15:ASP:OD1	20:P:15:ASP:N	2.44	0.49
6:6:408:ILE:HA	6:6:411:TRP:HB2	1.94	0.49
8:B:1048:A:O2'	8:B:1112:G:N2	2.46	0.49
8:B:2515:C:H2'	8:B:2516:A:H8	1.77	0.49
8:B:2857:G:N2	8:B:2860:A:OP2	2.37	0.49
16:L:55:MET:SD	16:L:59:ARG:NH2	2.86	0.49
20:P:47:ILE:HG23	20:P:96:LEU:H	1.77	0.49
5:4:25:VAL:HG23	5:4:34:LYS:HA	1.95	0.49
8:B:793:A:OP2	8:B:2071:A:O2'	2.29	0.49
8:B:2006:C:O2'	8:B:2823:A:N3	2.44	0.49
8:B:2091:C:H1'	28:X:33:HIS:CD2	2.48	0.48
15:K:62:VAL:HG12	15:K:63:ARG:HG3	1.94	0.48
8:B:675:A:N3	8:B:2443:C:O2'	2.44	0.48
8:B:1759:A:HO2'	8:B:2714:G:HO2'	1.55	0.48
12:F:90:LEU:HD12	12:F:94:ARG:HB2	1.95	0.48
8:B:307:G:N1	8:B:310:A:OP2	2.42	0.48
8:B:857:G:O2'	27:W:18:LYS:NZ	2.35	0.48
8:B:1021:A:H2'	8:B:1022:G:H4'	1.94	0.48
27:W:27:GLY:HA3	27:W:31:LEU:HD11	1.96	0.48
6:6:22:LYS:HG2	6:6:290:ARG:HH11	1.78	0.48
8:B:767:U:H2'	8:B:768:G:H8	1.77	0.48
18:N:38:LEU:HD12	18:N:109:PRO:HB2	1.94	0.48
2:1:9:LYS:NZ	8:B:2419:U:O2'	2.35	0.48
8:B:1011:G:OP1	21:Q:74:SER:OG	2.31	0.48
8:B:1022:G:N2	8:B:1023:U:O4	2.42	0.48
10:D:100:LEU:HG	10:D:101:PHE:HD1	1.78	0.48
19:O:108:ASP:HA	19:O:111:ARG:HB2	1.94	0.48
7:A:47:C:O2'	19:O:98:GLN:OE1	2.32	0.48
8:B:882:G:N2	8:B:883:G:O6	2.47	0.48
8:B:2575:C:H5'	10:D:149:ASN:HB2	1.96	0.48
12:F:116:LEU:HG	12:F:172:PHE:HA	1.95	0.48
8:B:2197:U:H1'	8:B:2198:A:H8	1.78	0.48
14:J:35:ARG:HH21	14:J:140:LEU:HD11	1.79	0.48
6:6:316:MET:HG3	6:6:340:VAL:HB	1.96	0.48
8:B:373:U:H2'	8:B:374:A:H8	1.79	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:1341:G:OP2	8:B:1394:U:O2'	2.27	0.48
11:E:148:ILE:HB	11:E:169:VAL:HG22	1.94	0.48
6:6:128:GLN:O	6:6:131:HIS:ND1	2.44	0.48
8:B:500:G:N1	8:B:503:A:OP2	2.33	0.48
14:J:6:ALA:HB2	14:J:44:TYR:HB3	1.95	0.48
8:B:1853:A:N3	8:B:2233:U:O2'	2.43	0.48
9:C:65:ASP:OD2	9:C:101:ARG:NH2	2.35	0.48
27:W:36:ILE:HG23	27:W:38:ARG:NH2	2.29	0.48
8:B:619:G:OP2	8:B:620:G:N2	2.47	0.47
8:B:691:C:O2'	9:C:40:GLY:O	2.29	0.47
8:B:2217:G:O2'	28:X:44:ARG:NH2	2.47	0.47
9:C:4:LYS:HG3	9:C:16:VAL:HG22	1.95	0.47
13:G:17:LYS:HG3	13:G:24:THR:HB	1.96	0.47
21:Q:9:ALA:O	21:Q:13:HIS:ND1	2.47	0.47
6:6:170:ARG:NH2	8:B:2461:A:O3'	2.47	0.47
8:B:962:G:H21	8:B:2250:G:H1	1.62	0.47
8:B:1386:C:H2'	8:B:1387:A:C8	2.49	0.47
21:Q:87:VAL:HG23	22:R:52:PRO:HG3	1.96	0.47
22:R:21:ARG:HG2	22:R:93:PHE:HD2	1.78	0.47
7:A:32:U:O2	7:A:52:A:N6	2.43	0.47
8:B:447:A:OP1	21:Q:4:LYS:NZ	2.45	0.47
8:B:693:A:O2'	8:B:1353:A:N3	2.42	0.47
8:B:1943:U:O4	8:B:1963:U:O2'	2.31	0.47
8:B:2885:G:O2'	8:B:2886:A:O4'	2.33	0.47
17:M:77:PRO:HD2	17:M:80:VAL:HG11	1.96	0.47
12:F:48:LEU:HG	12:F:49:LEU:HD12	1.94	0.47
12:F:101:ARG:HD2	12:F:136:ILE:HD12	1.96	0.47
14:J:36:LEU:HD21	14:J:122:LEU:HB2	1.95	0.47
22:R:65:ALA:HB3	22:R:95:ASP:HB2	1.96	0.47
7:A:14:U:OP2	7:A:70:C:O2'	2.31	0.47
8:B:994:C:O2'	8:B:996:A:OP1	2.27	0.47
2:1:14:ALA:HB2	2:1:46:VAL:HG11	1.96	0.47
6:6:85:SER:OG	8:B:1943:U:O2	2.26	0.47
8:B:445:C:O2'	8:B:449:A:N3	2.42	0.47
8:B:2100:G:O6	8:B:2189:U:O2	2.33	0.47
6:6:76:SER:N	6:6:99:ARG:O	2.48	0.47
8:B:993:G:H21	22:R:91:GLN:HE22	1.63	0.47
8:B:2724:U:OP1	10:D:123:LYS:NZ	2.43	0.47
11:E:196:VAL:HA	11:E:199:MET:HG2	1.95	0.47
18:N:24:MET:HB3	18:N:44:LEU:HD13	1.97	0.47
8:B:581:C:H2'	8:B:582:A:C8	2.50	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:1204:A:H4'	8:B:1205:A:H5'	1.97	0.47
8:B:2512:C:O2	10:D:145:SER:OG	2.33	0.47
8:B:2747:G:N2	8:B:2757:A:H62	2.12	0.47
5:4:13:ASN:OD1	5:4:28:SER:OG	2.31	0.47
8:B:196:A:H61	8:B:831:G:H21	1.63	0.47
13:G:29:ASN:HB2	13:G:78:VAL:HA	1.97	0.47
18:N:117:ASP:O	18:N:118:ARG:NH1	2.47	0.47
23:S:24:ILE:HD11	23:S:51:LEU:HD13	1.96	0.47
6:6:410:ASP:OD1	6:6:413:ARG:NH1	2.47	0.46
7:A:43:C:OP1	12:F:62:GLN:NE2	2.44	0.46
8:B:1190:G:H5"	16:L:32:GLY:HA2	1.96	0.46
8:B:1812:U:H2'	8:B:1813:G:H8	1.80	0.46
9:C:204:LEU:HD12	9:C:209:ALA:HB1	1.97	0.46
20:P:61:ARG:HD2	20:P:100:ARG:HB2	1.97	0.46
6:6:348:ALA:HA	6:6:349:GLY:HA2	1.67	0.46
8:B:2397:G:O6	8:B:2419:U:O2	2.32	0.46
14:J:102:GLU:HB3	14:J:119:PHE:HZ	1.79	0.46
28:X:17:ARG:HD2	28:X:21:LEU:HD23	1.97	0.46
8:B:599:A:H2'	8:B:600:G:H8	1.79	0.46
8:B:1935:G:H2'	8:B:1962:C:H42	1.81	0.46
13:G:102:ILE:HD11	13:G:130:ILE:HG21	1.98	0.46
25:U:33:VAL:HG13	25:U:66:VAL:HG22	1.97	0.46
8:B:774:G:H5"	9:C:47:ARG:HH12	1.80	0.46
8:B:1214:A:H4'	8:B:1239:G:H4'	1.98	0.46
8:B:2127:G:H2'	8:B:2128:G:H2'	1.97	0.46
27:W:40:ARG:HD3	27:W:56:HIS:CE1	2.51	0.46
8:B:706:A:H62	8:B:725:G:N2	2.11	0.46
8:B:1026:G:H2'	8:B:1027:A:C8	2.49	0.46
20:P:88:ARG:HE	20:P:111:GLU:HA	1.81	0.46
8:B:1482:G:H2'	8:B:1483:G:H8	1.79	0.46
8:B:2460:U:O2	8:B:2493:U:N3	2.49	0.46
1:0:15:ARG:HG3	8:B:2046:G:H5'	1.96	0.46
8:B:184:C:O2'	8:B:217:A:N3	2.39	0.46
8:B:1791:A:N6	8:B:1828:G:O2'	2.43	0.46
9:C:230:PRO:HB2	9:C:244:VAL:HG21	1.97	0.46
21:Q:91:ARG:HD2	22:R:11:GLN:HG2	1.97	0.46
7:A:41:G:H5'	12:F:65:LEU:HD13	1.97	0.46
8:B:2216:G:H2'	8:B:2217:G:H8	1.81	0.46
29:Y:42:LEU:HD23	29:Y:42:LEU:HA	1.83	0.46
8:B:1864:U:OP1	8:B:2410:G:O2'	2.26	0.46
11:E:19:PHE:HE1	11:E:109:LEU:HD13	1.81	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:E:175:ILE:HD12	11:E:175:ILE:HA	1.82	0.46
20:P:47:ILE:N	20:P:59:THR:O	2.41	0.46
26:V:30:ILE:HD12	26:V:72:VAL:HG11	1.98	0.46
6:6:50:LYS:HD2	6:6:50:LYS:HA	1.77	0.45
6:6:283:VAL:HG13	6:6:315:VAL:HG12	1.98	0.45
7:A:80:U:O2'	8:B:918:A:N3	2.44	0.45
8:B:18:U:H2'	8:B:19:A:C8	2.51	0.45
10:D:108:ASP:OD2	10:D:204:LYS:NZ	2.47	0.45
15:K:29:ARG:HD3	15:K:32:ALA:HB2	1.97	0.45
25:U:12:VAL:HA	25:U:69:VAL:HA	1.98	0.45
8:B:811:U:H3'	16:L:22:GLY:HA2	1.98	0.45
9:C:2:VAL:HG22	9:C:18:VAL:HG22	1.96	0.45
6:6:234:PRO:HG3	6:6:252:THR:HA	1.97	0.45
8:B:953:G:H2'	8:B:954:G:H8	1.82	0.45
8:B:2266:A:N6	8:B:2273:A:OP2	2.49	0.45
9:C:70:LYS:HE2	9:C:99:GLU:HG3	1.97	0.45
18:N:12:ARG:HD3	18:N:16:HIS:CE1	2.51	0.45
29:Y:18:LEU:O	29:Y:22:LEU:HB3	2.15	0.45
1:0:5:ASN:ND2	8:B:2020:A:H62	2.14	0.45
13:G:51:PHE:CE1	13:G:71:LEU:HD22	2.52	0.45
18:N:44:LEU:HD23	18:N:113:ILE:HG21	1.99	0.45
8:B:582:A:H2'	8:B:583:G:C8	2.52	0.45
8:B:880:G:H2'	8:B:881:G:H8	1.82	0.45
9:C:141:HIS:ND1	9:C:192:GLY:O	2.42	0.45
4:3:2:LYS:HG2	8:B:592:A:H4'	1.99	0.45
7:A:87:U:O2'	7:A:89:U:OP1	2.29	0.45
8:B:444:C:OP2	11:E:44:ARG:NH1	2.49	0.45
8:B:1028:A:H2'	8:B:1029:A:C8	2.52	0.45
21:Q:94:LEU:HB3	21:Q:97:ILE:HG12	1.98	0.45
27:W:7:GLY:O	27:W:10:ARG:NH1	2.49	0.45
1:0:37:HIS:HB3	1:0:43:THR:HA	1.99	0.45
6:6:158:THR:HG1	6:6:164:ARG:HH21	1.65	0.45
8:B:825:A:O2'	16:L:54:GLN:OE1	2.23	0.45
8:B:1032:A:N1	8:B:1122:G:O6	2.50	0.45
8:B:1296:G:OP1	8:B:2709:G:O2'	2.23	0.45
8:B:1636:U:H2'	8:B:1637:A:C8	2.52	0.45
8:B:1942:C:OP2	8:B:1943:U:O2'	2.31	0.45
15:K:120:GLU:OE2	20:P:62:LYS:NZ	2.45	0.45
6:6:24:MET:SD	6:6:24:MET:N	2.90	0.45
8:B:1254:A:H5"	8:B:1255:U:H5"	1.99	0.45
8:B:2328:A:H2'	8:B:2329:U:C6	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:E:145:ASP:HB3	11:E:184:ASP:HB2	1.99	0.45
8:B:547:A:OP2	8:B:548:G:N2	2.49	0.45
8:B:788:A:OP1	8:B:791:C:N4	2.44	0.45
8:B:2627:G:O2'	8:B:2781:A:N1	2.40	0.45
25:U:25:LYS:HD2	25:U:36:GLU:HB3	1.98	0.45
28:X:17:ARG:HA	28:X:17:ARG:HD3	1.85	0.45
8:B:663:G:H5"	16:L:17:LYS:HG3	1.99	0.45
8:B:1447:C:H2'	8:B:1448:G:C8	2.52	0.45
9:C:159:THR:HG22	9:C:176:ARG:HG2	1.99	0.45
8:B:743:A:O2'	8:B:1659:G:OP1	2.32	0.44
8:B:1028:A:H61	8:B:1125:G:H2'	1.82	0.44
9:C:74:PRO:HG2	9:C:96:LYS:HE2	1.98	0.44
17:M:14:LYS:HB3	17:M:14:LYS:HE2	1.75	0.44
8:B:172:A:H2'	8:B:173:A:H8	1.82	0.44
8:B:377:G:H1	8:B:397:U:H3	1.66	0.44
8:B:917:A:H5"	8:B:2268:A:H61	1.82	0.44
8:B:2275:C:H5'	27:W:9:THR:HG21	1.98	0.44
8:B:2788:C:O2'	8:B:2809:A:N3	2.46	0.44
12:F:63:LYS:HB2	12:F:63:LYS:HE2	1.81	0.44
14:J:125:TYR:HH	14:J:132:HIS:HE2	1.54	0.44
24:T:1:MET:SD	24:T:1:MET:N	2.86	0.44
24:T:62:VAL:HG12	24:T:81:LYS:HE2	1.98	0.44
27:W:18:LYS:HD2	27:W:18:LYS:HA	1.79	0.44
8:B:2197:U:H1'	8:B:2198:A:C8	2.52	0.44
20:P:110:LYS:NZ	20:P:112:ARG:O	2.45	0.44
3:2:3:ARG:HD3	3:2:3:ARG:HA	1.74	0.44
8:B:328:U:O2'	25:U:67:SER:OG	2.36	0.44
8:B:1249:U:H2'	16:L:18:ARG:HH12	1.81	0.44
20:P:91:VAL:HG21	20:P:96:LEU:HD11	1.99	0.44
7:A:111:U:H2'	7:A:112:G:H8	1.83	0.44
8:B:1288:G:OP2	8:B:1288:G:N2	2.44	0.44
8:B:2698:U:H2'	8:B:2699:C:C6	2.53	0.44
8:B:2815:C:H2'	8:B:2816:G:H8	1.83	0.44
13:G:94:ARG:HA	13:G:127:GLN:HG3	1.99	0.44
8:B:581:C:H2'	8:B:582:A:H8	1.82	0.44
8:B:1969:A:H2'	8:B:1972:G:H21	1.82	0.44
17:M:19:GLY:O	17:M:38:ARG:NH2	2.51	0.44
20:P:9:GLN:HA	20:P:12:MET:HG2	1.99	0.44
22:R:35:PHE:HB2	22:R:59:ILE:HB	1.99	0.44
26:V:72:VAL:HG12	26:V:93:ARG:HA	2.00	0.44
5:4:6:SER:OG	5:4:6:SER:O	2.35	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:523:C:H2'	8:B:524:G:C8	2.53	0.44
8:B:578:G:OP1	8:B:1255:U:O2'	2.30	0.44
8:B:762:U:N3	8:B:1431:A:OP1	2.41	0.44
8:B:2019:A:H4'	21:Q:33:VAL:HG21	2.00	0.44
8:B:2335:A:OP1	19:O:13:ARG:NE	2.51	0.44
8:B:2831:G:N7	10:D:59:ARG:NH2	2.63	0.44
19:O:73:ALA:HA	19:O:76:LYS:HG2	1.99	0.44
20:P:90:ALA:HB3	20:P:108:ARG:HG3	1.99	0.44
8:B:600:G:N2	8:B:605:G:O3'	2.50	0.44
8:B:877:A:N6	8:B:883:G:O6	2.50	0.44
9:C:251:THR:OG1	9:C:252:LYS:N	2.50	0.44
25:U:27:VAL:HA	25:U:33:VAL:HG12	2.00	0.44
30:Z:5:LYS:HB2	30:Z:5:LYS:HE2	1.60	0.44
8:B:1475:G:O2'	8:B:1514:G:O6	2.35	0.44
8:B:561:G:H4'	21:Q:47:ARG:HH22	1.83	0.43
8:B:582:A:H2'	8:B:583:G:H8	1.82	0.43
8:B:1710:G:O2'	8:B:2858:C:N3	2.48	0.43
13:G:32:LEU:HD11	13:G:74:MET:HB2	1.99	0.43
25:U:17:ASP:OD1	25:U:17:ASP:N	2.50	0.43
26:V:35:GLU:OE1	26:V:93:ARG:NH2	2.50	0.43
30:Z:30:ARG:HG2	30:Z:33:HIS:HB2	2.00	0.43
8:B:832:U:H2'	8:B:833:A:C8	2.53	0.43
8:B:2329:U:H2'	8:B:2330:G:C8	2.53	0.43
6:6:215:ASN:ND2	6:6:221:ARG:HG2	2.34	0.43
8:B:2816:G:N3	8:B:2883:A:O2'	2.44	0.43
9:C:143:VAL:HG13	9:C:153:LEU:HD12	2.00	0.43
9:C:156:SER:O	9:C:159:THR:OG1	2.34	0.43
11:E:192:ALA:O	11:E:196:VAL:HG12	2.17	0.43
15:K:62:VAL:HA	15:K:106:LEU:HD11	2.00	0.43
19:O:17:LYS:HD2	19:O:21:LEU:HD21	2.00	0.43
21:Q:16:ILE:HG21	21:Q:31:TYR:HE1	1.83	0.43
22:R:21:ARG:HG2	22:R:93:PHE:CD2	2.53	0.43
27:W:24:ARG:NH1	27:W:84:GLU:OE2	2.51	0.43
8:B:783:A:H2'	8:B:784:G:H4'	1.99	0.43
8:B:833:A:H2'	8:B:834:G:C8	2.53	0.43
8:B:968:C:H2'	8:B:969:G:C8	2.54	0.43
8:B:1231:U:H2'	8:B:1232:G:H8	1.83	0.43
8:B:1927:A:H2'	8:B:1928:A:C8	2.54	0.43
8:B:1935:G:N2	8:B:1962:C:O2'	2.52	0.43
16:L:92:LEU:HD21	16:L:106:GLU:HA	2.01	0.43
8:B:1589:U:H2'	8:B:1590:A:C8	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:1833:C:O2'	8:B:1969:A:N1	2.45	0.43
8:B:2335:A:P	19:O:13:ARG:HE	2.42	0.43
8:B:2523:G:O2'	8:B:2764:A:O2'	2.29	0.43
12:F:66:ILE:HG12	12:F:83:PRO:HB3	2.01	0.43
16:L:14:LYS:HE2	16:L:14:LYS:HB2	1.78	0.43
24:T:11:LEU:HD22	24:T:32:LEU:HD13	2.00	0.43
3:2:19:ARG:HE	3:2:19:ARG:HB3	1.58	0.43
8:B:523:C:H2'	8:B:524:G:H8	1.83	0.43
8:B:2013:A:H2	23:S:88:ARG:HH22	1.67	0.43
15:K:68:VAL:HG11	15:K:103:THR:HG21	2.00	0.43
8:B:1752:C:H2'	8:B:1753:G:C8	2.54	0.43
8:B:1796:U:H2'	8:B:1797:G:H8	1.84	0.43
20:P:23:ASP:O	20:P:46:VAL:HG12	2.19	0.43
21:Q:91:ARG:HH12	22:R:10:LYS:HA	1.84	0.43
23:S:84:ARG:HD3	23:S:98:LYS:HG3	1.99	0.43
8:B:895:U:O4	8:B:897:C:N4	2.52	0.43
8:B:2386:A:H4'	27:W:55:ASP:HA	2.00	0.43
9:C:44:ASN:C	9:C:44:ASN:HD22	2.21	0.43
30:Z:6:ILE:HD11	30:Z:47:ILE:HD11	2.01	0.43
3:2:7:PRO:HB2	8:B:1309:G:H4'	2.01	0.43
6:6:91:ASN:HA	6:6:94:ARG:HG2	1.99	0.43
7:A:89:U:O2	8:B:958:U:O2'	2.30	0.43
8:B:1395:A:O2'	8:B:1397:U:OP2	2.37	0.43
8:B:2900:A:H8	8:B:2901:C:H5	1.66	0.43
9:C:256:THR:O	9:C:256:THR:OG1	2.36	0.43
7:A:65:U:H3'	7:A:108:A:H61	1.84	0.43
8:B:18:U:H2'	8:B:19:A:H8	1.84	0.43
8:B:1429:G:H2'	8:B:1430:G:C8	2.52	0.43
8:B:1496:A:H2'	8:B:1498:C:C5	2.54	0.43
15:K:98:ILE:HD12	15:K:114:ILE:HG23	2.01	0.43
8:B:863:A:H2'	8:B:864:G:H8	1.84	0.42
8:B:1225:G:H2'	8:B:1226:A:C8	2.53	0.42
8:B:1421:G:H2'	8:B:1422:G:H8	1.85	0.42
8:B:2861:U:H2'	8:B:2862:G:C8	2.54	0.42
9:C:154:ALA:HB2	9:C:161:VAL:HG13	2.01	0.42
18:N:24:MET:HG2	18:N:44:LEU:HD22	2.00	0.42
23:S:47:VAL:HA	23:S:50:VAL:HG12	2.00	0.42
23:S:83:LYS:HB3	23:S:95:ARG:HD3	2.01	0.42
15:K:57:LEU:HD11	15:K:85:LEU:HD23	2.00	0.42
15:K:65:LYS:HG3	15:K:80:GLY:H	1.84	0.42
29:Y:39:GLN:HA	29:Y:42:LEU:HB2	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:309:A:N3	8:B:329:G:O2'	2.48	0.42
8:B:2134:A:OP1	8:B:2156:G:N1	2.50	0.42
8:B:579:G:O2'	8:B:2019:A:OP1	2.38	0.42
8:B:635:C:O2'	8:B:639:U:OP1	2.30	0.42
12:F:132:ARG:HG3	12:F:150:GLY:HA2	2.02	0.42
16:L:21:ARG:HD3	16:L:21:ARG:HA	1.88	0.42
22:R:68:ARG:HB2	22:R:90:ARG:HH21	1.85	0.42
8:B:212:G:H2'	8:B:213:A:C8	2.55	0.42
9:C:220:ARG:HH21	9:C:223:ALA:HB2	1.85	0.42
12:F:98:PHE:HD1	12:F:101:ARG:HH21	1.65	0.42
23:S:74:ILE:HB	23:S:105:VAL:HG23	2.02	0.42
5:4:15:LYS:HB3	5:4:15:LYS:HE2	1.82	0.42
6:6:76:SER:OG	6:6:77:VAL:N	2.53	0.42
8:B:1572:A:H2'	8:B:1573:G:H8	1.83	0.42
8:B:2848:G:O2'	8:B:2867:G:N2	2.42	0.42
11:E:6:LYS:HE3	11:E:6:LYS:HB3	1.76	0.42
8:B:1469:A:H2'	8:B:1470:A:H8	1.83	0.42
8:B:1816:C:N4	9:C:34:GLU:OE1	2.48	0.42
8:B:1914:C:H6	8:B:1914:C:H2'	1.65	0.42
8:B:2332:C:O3'	8:B:2335:A:O2'	2.37	0.42
9:C:141:HIS:CD2	9:C:194:VAL:HB	2.54	0.42
9:C:173:LEU:HD23	9:C:173:LEU:HA	1.87	0.42
12:F:25:MET:SD	12:F:25:MET:N	2.87	0.42
12:F:119:LYS:HD2	12:F:119:LYS:HA	1.89	0.42
13:G:9:VAL:HA	13:G:48:THR:HG22	2.02	0.42
30:Z:2:LYS:HE2	30:Z:2:LYS:HB3	1.87	0.42
8:B:172:A:H2'	8:B:173:A:C8	2.55	0.42
8:B:791:C:O2	8:B:793:A:O2'	2.38	0.42
8:B:848:C:H2'	8:B:849:A:C8	2.52	0.42
8:B:1130:U:N3	10:D:151:THR:O	2.52	0.42
8:B:2132:U:OP2	8:B:2174:C:O2'	2.36	0.42
9:C:258:SER:O	9:C:258:SER:OG	2.33	0.42
15:K:22:LYS:HA	15:K:22:LYS:HD3	1.77	0.42
19:O:11:ALA:O	19:O:15:ARG:HG2	2.20	0.42
4:3:15:LYS:HD3	4:3:21:PHE:CE1	2.55	0.42
6:6:22:LYS:NZ	6:6:293:GLU:OE2	2.48	0.42
7:A:114:C:H2'	7:A:115:A:H8	1.84	0.42
8:B:483:A:OP1	25:U:46:LYS:NZ	2.40	0.42
8:B:605:G:N3	8:B:657:U:O2'	2.50	0.42
8:B:1000:A:H2'	8:B:1001:A:C8	2.54	0.42
8:B:1223:G:OP1	22:R:68:ARG:NH1	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:2126:A:N6	8:B:2172:U:OP1	2.53	0.42
13:G:2:ARG:HA	13:G:5:LYS:HG3	2.02	0.42
13:G:73:SER:HB2	13:G:137:LYS:HD3	2.02	0.42
1:0:48:TYR:HD1	1:0:48:TYR:HA	1.74	0.42
8:B:358:U:H2'	8:B:359:G:C8	2.55	0.42
8:B:404:A:N6	8:B:421:C:O2'	2.51	0.42
8:B:956:G:N2	8:B:960:A:OP2	2.49	0.42
8:B:1443:U:H2'	8:B:1444:G:H8	1.85	0.42
8:B:2052:A:O2'	10:D:149:ASN:O	2.34	0.42
8:B:2216:G:H2'	8:B:2217:G:C8	2.55	0.42
8:B:2233:U:H2'	8:B:2234:G:H8	1.85	0.42
8:B:2293:G:H5"	19:O:94:ARG:HH12	1.85	0.42
9:C:182:LYS:HB3	9:C:182:LYS:HE2	3.59	0.42
12:F:68:LYS:HA	12:F:83:PRO:HA	2.02	0.42
14:J:60:ASP:OD1	14:J:60:ASP:N	2.53	0.42
18:N:51:LEU:HB3	18:N:79:LEU:HD21	2.02	0.42
24:T:55:VAL:HG21	24:T:85:VAL:HB	2.01	0.42
8:B:226:A:N1	8:B:418:C:O2'	2.47	0.41
8:B:1266:G:O2'	8:B:2012:G:O6	2.26	0.41
8:B:2233:U:H2'	8:B:2234:G:C8	2.55	0.41
14:J:140:LEU:HD12	14:J:140:LEU:HA	1.89	0.41
28:X:58:ILE:HD13	28:X:66:VAL:HG11	2.02	0.41
8:B:863:A:H2'	8:B:864:G:C8	2.56	0.41
8:B:2303:G:H2'	8:B:2304:G:H8	1.85	0.41
8:B:2366:A:H4'	27:W:61:LYS:HE3	2.01	0.41
26:V:59:GLU:H	26:V:59:GLU:HG3	1.71	0.41
6:6:350:ILE:HD12	6:6:353:LEU:HD11	2.00	0.41
8:B:1438:U:H2'	8:B:1439:A:H8	1.85	0.41
8:B:1469:A:H2'	8:B:1470:A:C8	2.54	0.41
8:B:2892:G:H5"	8:B:2893:A:H5'	2.01	0.41
18:N:28:LEU:HD23	18:N:48:VAL:HG11	2.02	0.41
19:O:40:ILE:HG12	19:O:47:VAL:HG12	2.02	0.41
4:3:11:LYS:HB3	16:L:63:LYS:HG2	2.02	0.41
8:B:20:C:H2'	8:B:21:A:C8	2.56	0.41
8:B:605:G:H1'	8:B:657:U:H1'	2.02	0.41
8:B:1387:A:H2'	8:B:1388:G:C8	2.54	0.41
8:B:1645:G:H5"	8:B:1646:C:H5'	2.00	0.41
8:B:2635:A:O2'	10:D:49:GLN:OE1	2.39	0.41
8:B:2720:U:H5"	20:P:52:ARG:HH21	1.85	0.41
12:F:20:ASN:OD1	12:F:20:ASN:N	2.53	0.41
23:S:4:ILE:HG13	23:S:5:ALA:H	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:6:114:ARG:HB3	6:6:232:LEU:HD21	2.02	0.41
8:B:219:A:N3	8:B:234:U:O2'	2.39	0.41
8:B:414:C:H2'	8:B:415:A:C8	2.55	0.41
8:B:511:U:H4'	8:B:1235:G:H4'	2.02	0.41
8:B:1718:G:H2'	8:B:1719:G:H8	1.85	0.41
8:B:1909:C:H2'	8:B:1910:G:C8	2.55	0.41
8:B:2291:U:O2'	8:B:2374:C:O2	2.37	0.41
8:B:2504:U:O2'	8:B:2572:A:N1	2.46	0.41
29:Y:14:LEU:HA	29:Y:57:LEU:HD11	2.02	0.41
6:6:79:LEU:HD23	6:6:103:ARG:HD2	2.03	0.41
8:B:1021:A:H62	8:B:1141:U:H3	1.67	0.41
8:B:1721:G:O2'	8:B:1738:G:N2	2.53	0.41
8:B:2839:G:H4'	18:N:49:GLU:HG3	2.02	0.41
10:D:16:THR:HG21	10:D:196:ALA:HA	2.02	0.41
14:J:4:PHE:HD1	21:Q:63:ARG:HH22	1.68	0.41
17:M:47:GLU:OE2	17:M:50:ARG:NH2	2.41	0.41
23:S:32:ALA:HA	23:S:35:ILE:HG22	2.03	0.41
6:6:330:ASP:OD1	6:6:330:ASP:N	2.52	0.41
8:B:751:A:H5'	23:S:90:LYS:HA	2.03	0.41
8:B:782:A:O2'	9:C:223:ALA:O	2.36	0.41
8:B:831:G:H5"	16:L:37:GLY:HA2	2.03	0.41
8:B:1049:C:HO2'	8:B:1113:U:HO2'	1.68	0.41
8:B:1524:G:H2'	8:B:1525:A:H8	1.85	0.41
8:B:2647:U:H2'	8:B:2648:G:H8	1.85	0.41
16:L:79:LEU:HB3	16:L:116:VAL:HB	2.02	0.41
20:P:28:LYS:HB3	20:P:39:LEU:HD12	2.02	0.41
4:3:7:ARG:HD3	4:3:7:ARG:HA	1.82	0.41
6:6:316:MET:HG3	6:6:316:MET:H	1.68	0.41
7:A:52:A:H2'	7:A:53:A:H8	1.86	0.41
23:S:26:GLY:H	23:S:71:VAL:HG23	1.86	0.41
5:4:11:CYS:HB3	5:4:33:HIS:CE1	2.55	0.41
8:B:5:A:H2'	8:B:6:A:H8	1.86	0.41
8:B:116:C:HO2'	8:B:126:A:H8	1.65	0.41
8:B:1332:G:N7	8:B:1609:A:O2'	2.46	0.41
8:B:1416:G:O6	8:B:1583:A:N6	2.54	0.41
8:B:1468:U:O2	8:B:1524:G:N2	2.45	0.41
8:B:2324:U:H5"	8:B:2325:G:H5"	2.02	0.41
8:B:2559:C:H2'	8:B:2560:A:C8	2.55	0.41
9:C:153:LEU:HD13	9:C:175:LEU:HD21	2.03	0.41
21:Q:93:ILE:HG22	21:Q:94:LEU:HD12	2.03	0.41
3:2:27:GLY:HA2	3:2:30:VAL:HG12	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:695:G:H1	8:B:767:U:H3	1.67	0.41
8:B:974:G:O2'	8:B:989:G:N2	2.54	0.41
8:B:1481:U:O2	8:B:1510:G:O6	2.38	0.41
8:B:1651:G:H4'	18:N:39:PRO:HG2	2.03	0.41
8:B:2472:G:N2	8:B:2479:U:O4	2.54	0.41
15:K:110:LYS:HE2	15:K:110:LYS:HB2	1.94	0.41
18:N:72:ASP:O	18:N:76:VAL:HG23	2.21	0.41
29:Y:43:LEU:HA	29:Y:46:VAL:HG22	2.03	0.41
6:6:408:ILE:H	6:6:408:ILE:HG12	1.58	0.40
7:A:95:U:H2'	7:A:96:G:C8	2.56	0.40
8:B:28:A:H61	8:B:512:G:H1'	1.86	0.40
8:B:2070:A:H2'	8:B:2071:A:C8	2.56	0.40
8:B:2799:A:N6	8:B:2801:G:OP1	2.53	0.40
17:M:45:GLN:H	17:M:45:GLN:HG2	1.70	0.40
26:V:73:LYS:HA	26:V:73:LYS:HD3	1.83	0.40
6:6:233:ASP:HA	6:6:234:PRO:HD3	1.89	0.40
6:6:319:ILE:HD12	6:6:319:ILE:HA	1.90	0.40
7:A:66:A:H4'	7:A:67:G:C8	2.56	0.40
8:B:813:U:H2'	8:B:814:C:C6	2.57	0.40
8:B:1011:G:OP2	21:Q:65:ASN:ND2	2.53	0.40
8:B:1447:C:H2'	8:B:1448:G:H8	1.85	0.40
8:B:2547:A:H2'	8:B:2548:U:C6	2.56	0.40
24:T:93:LEU:HD23	24:T:93:LEU:HA	1.94	0.40
2:1:32:LYS:NZ	2:1:51:ALA:O	2.45	0.40
6:6:375:GLN:H	6:6:380:ARG:HH12	1.69	0.40
8:B:878:A:N6	8:B:900:A:OP2	2.48	0.40
8:B:996:A:H4'	21:Q:91:ARG:CZ	2.51	0.40
8:B:2329:U:H2'	8:B:2330:G:H8	1.85	0.40
14:J:19:ASP:OD1	14:J:21:THR:OG1	2.31	0.40
15:K:6:MET:SD	15:K:19:MET:HB2	2.62	0.40
19:O:81:ARG:HA	19:O:81:ARG:HD3	1.85	0.40
20:P:87:ARG:NH2	20:P:107:ALA:O	2.46	0.40
21:Q:85:ALA:HB2	21:Q:115:ALA:HB2	2.03	0.40
6:6:127:ALA:HA	6:6:130:ARG:HG2	2.03	0.40
8:B:645:C:H4'	8:B:646:U:H5	1.86	0.40
8:B:1173:U:O2'	8:B:1176:U:O2	2.31	0.40
9:C:33:LEU:HD23	9:C:33:LEU:HA	1.91	0.40
12:F:47:LYS:HE2	12:F:145:VAL:HG23	2.04	0.40
25:U:42:LYS:HB3	25:U:59:GLU:HG3	2.04	0.40
29:Y:4:LYS:O	29:Y:7:ARG:NH1	2.50	0.40
2:1:39:ASP:HB3	2:1:42:VAL:HG22	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:5:A:H2'	8:B:6:A:C8	2.56	0.40
18:N:90:ARG:HB3	18:N:94:TYR:HE1	1.86	0.40
23:S:17:VAL:HB	23:S:76:VAL:HG11	2.03	0.40
30:Z:44:ARG:HA	30:Z:44:ARG:HD2	1.84	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	0	54/56 (96%)	48 (89%)	6 (11%)	0	100	100
2	1	49/51 (96%)	49 (100%)	0	0	100	100
3	2	44/46 (96%)	44 (100%)	0	0	100	100
4	3	62/64 (97%)	58 (94%)	4 (6%)	0	100	100
5	4	36/38 (95%)	32 (89%)	4 (11%)	0	100	100
6	6	424/426 (100%)	382 (90%)	42 (10%)	0	100	100
9	C	270/272 (99%)	260 (96%)	10 (4%)	0	100	100
10	D	207/209 (99%)	176 (85%)	31 (15%)	0	100	100
11	E	199/201 (99%)	188 (94%)	11 (6%)	0	100	100
12	F	176/178 (99%)	162 (92%)	14 (8%)	0	100	100
13	G	174/176 (99%)	166 (95%)	8 (5%)	0	100	100
14	J	140/142 (99%)	128 (91%)	12 (9%)	0	100	100
15	K	120/122 (98%)	110 (92%)	10 (8%)	0	100	100
16	L	141/143 (99%)	136 (96%)	5 (4%)	0	100	100
17	M	134/136 (98%)	128 (96%)	6 (4%)	0	100	100
18	N	119/121 (98%)	110 (92%)	9 (8%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
19	O	114/116 (98%)	112 (98%)	2 (2%)	0	100	100
20	P	112/114 (98%)	101 (90%)	11 (10%)	0	100	100
21	Q	115/117 (98%)	110 (96%)	4 (4%)	1 (1%)	17	56
22	R	101/103 (98%)	94 (93%)	6 (6%)	1 (1%)	15	54
23	S	108/110 (98%)	99 (92%)	9 (8%)	0	100	100
24	T	92/94 (98%)	84 (91%)	7 (8%)	1 (1%)	14	51
25	U	101/103 (98%)	90 (89%)	11 (11%)	0	100	100
26	V	92/94 (98%)	89 (97%)	3 (3%)	0	100	100
27	W	77/79 (98%)	65 (84%)	12 (16%)	0	100	100
28	X	75/77 (97%)	73 (97%)	2 (3%)	0	100	100
29	Y	61/63 (97%)	57 (93%)	4 (7%)	0	100	100
30	Z	56/58 (97%)	54 (96%)	2 (4%)	0	100	100
31	c	203/205 (99%)	192 (95%)	11 (5%)	0	100	100
32	d	148/150 (99%)	136 (92%)	12 (8%)	0	100	100
33	e	98/100 (98%)	91 (93%)	7 (7%)	0	100	100
34	f	149/151 (99%)	144 (97%)	5 (3%)	0	100	100
35	g	127/129 (98%)	126 (99%)	1 (1%)	0	100	100
36	h	125/127 (98%)	116 (93%)	9 (7%)	0	100	100
37	i	96/98 (98%)	91 (95%)	5 (5%)	0	100	100
38	j	115/117 (98%)	111 (96%)	4 (4%)	0	100	100
39	k	121/123 (98%)	113 (93%)	8 (7%)	0	100	100
40	l	112/114 (98%)	107 (96%)	5 (4%)	0	100	100
41	m	92/100 (92%)	89 (97%)	3 (3%)	0	100	100
42	n	86/88 (98%)	84 (98%)	2 (2%)	0	100	100
43	o	80/82 (98%)	78 (98%)	2 (2%)	0	100	100
44	p	78/80 (98%)	72 (92%)	6 (8%)	0	100	100
45	q	53/55 (96%)	53 (100%)	0	0	100	100
46	r	77/79 (98%)	72 (94%)	5 (6%)	0	100	100
47	s	83/85 (98%)	81 (98%)	2 (2%)	0	100	100
48	t	49/51 (96%)	45 (92%)	4 (8%)	0	100	100
49	u	57/59 (97%)	56 (98%)	1 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
51	w	216/218 (99%)	202 (94%)	14 (6%)	0	100 100
52	x	204/206 (99%)	196 (96%)	8 (4%)	0	100 100
All	All	5822/5926 (98%)	5460 (94%)	359 (6%)	3 (0%)	54 83

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
22	R	36	ALA
24	T	14	PRO
21	Q	87	VAL

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	0	47/47 (100%)	42 (89%)	5 (11%)	6 27
2	1	45/46 (98%)	45 (100%)	0	100 100
3	2	38/38 (100%)	36 (95%)	2 (5%)	22 58
4	3	51/51 (100%)	48 (94%)	3 (6%)	19 54
5	4	34/34 (100%)	31 (91%)	3 (9%)	10 36
6	6	364/364 (100%)	350 (96%)	14 (4%)	33 67
9	C	216/217 (100%)	209 (97%)	7 (3%)	39 71
10	D	164/164 (100%)	160 (98%)	4 (2%)	49 77
11	E	165/165 (100%)	162 (98%)	3 (2%)	59 82
12	F	149/149 (100%)	139 (93%)	10 (7%)	16 50
13	G	137/137 (100%)	131 (96%)	6 (4%)	28 64
14	J	116/116 (100%)	114 (98%)	2 (2%)	60 83
15	K	102/103 (99%)	100 (98%)	2 (2%)	55 80
16	L	102/102 (100%)	100 (98%)	2 (2%)	55 80
17	M	109/109 (100%)	107 (98%)	2 (2%)	59 82

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
18	N	100/101 (99%)	98 (98%)	2 (2%)	55 80
19	O	86/86 (100%)	81 (94%)	5 (6%)	20 55
20	P	99/99 (100%)	96 (97%)	3 (3%)	41 73
21	Q	89/89 (100%)	85 (96%)	4 (4%)	27 63
22	R	84/84 (100%)	82 (98%)	2 (2%)	49 77
23	S	93/93 (100%)	88 (95%)	5 (5%)	22 58
24	T	80/81 (99%)	77 (96%)	3 (4%)	33 67
25	U	83/84 (99%)	79 (95%)	4 (5%)	25 61
26	V	78/78 (100%)	77 (99%)	1 (1%)	69 87
27	W	59/59 (100%)	55 (93%)	4 (7%)	16 49
28	X	67/67 (100%)	66 (98%)	1 (2%)	65 85
29	Y	55/55 (100%)	53 (96%)	2 (4%)	35 69
30	Z	48/48 (100%)	47 (98%)	1 (2%)	53 79
31	c	172/172 (100%)	165 (96%)	7 (4%)	30 66
32	d	113/113 (100%)	110 (97%)	3 (3%)	44 75
33	e	87/87 (100%)	79 (91%)	8 (9%)	9 33
34	f	124/124 (100%)	121 (98%)	3 (2%)	49 77
35	g	104/104 (100%)	103 (99%)	1 (1%)	76 90
36	h	105/105 (100%)	104 (99%)	1 (1%)	76 90
37	i	86/86 (100%)	85 (99%)	1 (1%)	71 88
38	j	90/90 (100%)	84 (93%)	6 (7%)	16 50
39	k	103/103 (100%)	101 (98%)	2 (2%)	57 81
40	l	92/92 (100%)	88 (96%)	4 (4%)	29 64
41	m	79/83 (95%)	74 (94%)	5 (6%)	18 52
42	n	76/76 (100%)	71 (93%)	5 (7%)	16 51
43	o	65/65 (100%)	64 (98%)	1 (2%)	65 85
44	p	74/74 (100%)	73 (99%)	1 (1%)	67 86
45	q	48/48 (100%)	48 (100%)	0	100 100
46	r	70/70 (100%)	68 (97%)	2 (3%)	42 74
47	s	65/65 (100%)	65 (100%)	0	100 100
48	t	44/44 (100%)	41 (93%)	3 (7%)	16 49

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
49	u	52/52 (100%)	47 (90%)	5 (10%)	8 32
51	w	180/180 (100%)	169 (94%)	11 (6%)	18 54
52	x	170/170 (100%)	165 (97%)	5 (3%)	42 74
All	All	4859/4869 (100%)	4683 (96%)	176 (4%)	38 69

All (176) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	0	10	SER
1	0	11	LYS
1	0	36	LYS
1	0	45	ASP
1	0	48	TYR
3	2	21	ARG
3	2	41	ARG
4	3	1	PRO
4	3	15	LYS
4	3	51	LYS
5	4	6	SER
5	4	11	CYS
5	4	13	ASN
6	6	17	TYR
6	6	99	ARG
6	6	131	HIS
6	6	165	ARG
6	6	185	ARG
6	6	210	LYS
6	6	221	ARG
6	6	238	ARG
6	6	255	PHE
6	6	320	ASP
6	6	325	PHE
6	6	410	ASP
6	6	411	TRP
6	6	425	LEU
9	C	39	SER
9	C	44	ASN
9	C	45	ASN
9	C	79	ARG
9	C	80	LEU
9	C	186	ASP

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Mol	Chain	Res	Type
9	C	270	ARG
10	D	15	PHE
10	D	58	ASN
10	D	105	LYS
10	D	128	ARG
11	E	1	MET
11	E	3	LEU
11	E	6	LYS
12	F	5	ASP
12	F	9	ASP
12	F	13	LYS
12	F	63	LYS
12	F	97	GLU
12	F	126	ASN
12	F	137	PHE
12	F	146	ASP
12	F	151	LEU
12	F	174	PHE
13	G	41	GLU
13	G	43	LYS
13	G	46	ASP
13	G	68	ARG
13	G	85	LYS
13	G	176	LYS
14	J	4	PHE
14	J	49	ASP
15	K	83	CYS
15	K	112	MET
16	L	19	LEU
16	L	80	SER
17	M	1	MET
17	M	105	MET
18	N	90	ARG
18	N	118	ARG
19	O	20	GLU
19	O	25	ARG
19	O	45	SER
19	O	85	LYS
19	O	100	HIS
20	P	56	SER
20	P	87	ARG
20	P	101	GLU

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Mol	Chain	Res	Type
21	Q	5	ARG
21	Q	14	LYS
21	Q	27	ARG
21	Q	91	ARG
22	R	12	HIS
22	R	102	SER
23	S	7	HIS
23	S	70	LYS
23	S	94	ASP
23	S	102	HIS
23	S	110	ARG
24	T	37	ASP
24	T	54	GLU
24	T	81	LYS
25	U	7	ASP
25	U	60	LYS
25	U	67	SER
25	U	90	LYS
26	V	73	LYS
27	W	15	SER
27	W	23	LYS
27	W	44	PHE
27	W	58	LEU
28	X	71	ARG
29	Y	27	ASN
29	Y	37	LEU
30	Z	15	ARG
31	c	11	SER
31	c	43	ARG
31	c	69	ARG
31	c	84	ASN
31	c	146	GLU
31	c	177	MET
31	c	203	TYR
32	d	19	ARG
32	d	67	ARG
32	d	77	ASN
33	e	1	MET
33	e	17	GLN
33	e	46	GLN
33	e	55	HIS
33	e	56	LYS

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Mol	Chain	Res	Type
33	e	63	ASN
33	e	80	PHE
33	e	82	ASP
34	f	24	LYS
34	f	82	SER
34	f	141	HIS
35	g	110	MET
36	h	4	GLN
37	i	90	LEU
38	j	14	GLN
38	j	26	PHE
38	j	97	ARG
38	j	104	PHE
38	j	105	ARG
38	j	124	LYS
39	k	8	ARG
39	k	13	ARG
40	l	43	LYS
40	l	62	PHE
40	l	85	TYR
40	l	86	ARG
41	m	2	LYS
41	m	17	ASP
41	m	19	TYR
41	m	32	ASP
41	m	43	ASN
42	n	9	LYS
42	n	46	LYS
42	n	57	ARG
42	n	83	ARG
42	n	87	ARG
43	o	1	MET
44	p	27	PHE
46	r	37	SER
46	r	73	PHE
48	t	11	PHE
48	t	32	ARG
48	t	44	ARG
49	u	127	LEU
49	u	133	MET
49	u	153	TYR
49	u	172	GLU

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Mol	Chain	Res	Type
49	u	180	LYS
51	w	8	MET
51	w	14	HIS
51	w	31	PHE
51	w	72	LYS
51	w	94	ARG
51	w	131	LYS
51	w	158	ASP
51	w	173	LYS
51	w	183	PHE
51	w	197	PHE
51	w	224	ARG
52	x	7	ASN
52	x	26	LYS
52	x	104	GLU
52	x	143	LEU
52	x	167	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
1	0	5	ASN
6	6	215	ASN
12	F	126	ASN
26	V	80	HIS
33	e	58	HIS
36	h	74	GLN
37	i	58	ASN
46	r	42	ASN
47	s	60	GLN
51	w	189	ASN
51	w	202	ASN

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
50	v	1538/1539 (99%)	395 (25%)	0
7	A	116/117 (99%)	25 (21%)	0
8	B	2902/2903 (99%)	697 (24%)	9 (0%)
All	All	4556/4559 (99%)	1117 (24%)	9 (0%)

All (1117) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
7	A	9	G
7	A	12	C
7	A	13	G
7	A	23	G
7	A	24	G
7	A	25	U
7	A	26	C
7	A	36	C
7	A	38	C
7	A	41	G
7	A	43	C
7	A	46	A
7	A	51	G
7	A	52	A
7	A	53	A
7	A	56	G
7	A	57	A
7	A	66	A
7	A	67	G
7	A	87	U
7	A	89	U
7	A	90	C
7	A	99	A
7	A	105	G
7	A	109	A
8	B	11	C
8	B	12	U
8	B	13	A
8	B	34	U
8	B	35	G
8	B	36	G
8	B	39	G
8	B	46	G
8	B	51	G
8	B	60	G
8	B	62	U
8	B	71	A
8	B	74	A
8	B	75	G
8	B	84	A
8	B	88	G
8	B	91	A

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Mol	Chain	Res	Type
8	B	92	U
8	B	100	U
8	B	101	A
8	B	102	U
8	B	103	A
8	B	118	A
8	B	119	A
8	B	120	U
8	B	125	A
8	B	131	A
8	B	135	U
8	B	138	U
8	B	139	U
8	B	140	C
8	B	142	A
8	B	160	A
8	B	163	C
8	B	196	A
8	B	197	A
8	B	199	A
8	B	216	A
8	B	222	A
8	B	241	A
8	B	248	G
8	B	252	G
8	B	255	A
8	B	263	G
8	B	265	A
8	B	266	G
8	B	267	C
8	B	271	G
8	B	276	U
8	B	277	G
8	B	278	A
8	B	291	G
8	B	294	A
8	B	311	A
8	B	324	A
8	B	329	G
8	B	330	A
8	B	337	C
8	B	338	G

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Mol	Chain	Res	Type
8	B	345	A
8	B	346	A
8	B	347	A
8	B	351	C
8	B	353	C
8	B	355	U
8	B	363	G
8	B	364	C
8	B	367	G
8	B	368	A
8	B	369	U
8	B	370	G
8	B	371	A
8	B	372	G
8	B	380	G
8	B	383	C
8	B	386	G
8	B	396	G
8	B	401	A
8	B	404	A
8	B	405	U
8	B	406	G
8	B	411	G
8	B	412	A
8	B	424	G
8	B	429	A
8	B	435	C
8	B	447	A
8	B	448	U
8	B	467	G
8	B	481	G
8	B	490	C
8	B	491	G
8	B	503	A
8	B	505	A
8	B	506	G
8	B	509	C
8	B	512	G
8	B	518	G
8	B	520	G
8	B	529	A
8	B	531	C

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Mol	Chain	Res	Type
8	B	532	A
8	B	543	G
8	B	544	C
8	B	545	U
8	B	546	U
8	B	547	A
8	B	548	G
8	B	549	G
8	B	550	C
8	B	563	A
8	B	568	U
8	B	573	U
8	B	575	A
8	B	587	C
8	B	603	A
8	B	615	U
8	B	620	G
8	B	621	A
8	B	634	C
8	B	637	A
8	B	643	A
8	B	645	C
8	B	646	U
8	B	651	G
8	B	652	U
8	B	653	U
8	B	654	A
8	B	655	A
8	B	668	A
8	B	669	G
8	B	670	A
8	B	671	C
8	B	686	U
8	B	699	A
8	B	704	G
8	B	708	G
8	B	709	U
8	B	710	U
8	B	712	G
8	B	715	A
8	B	717	C
8	B	719	C

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Mol	Chain	Res	Type
8	B	721	A
8	B	722	A
8	B	723	C
8	B	724	U
8	B	726	G
8	B	730	A
8	B	738	G
8	B	748	G
8	B	752	A
8	B	754	U
8	B	757	G
8	B	764	A
8	B	765	C
8	B	775	G
8	B	776	G
8	B	782	A
8	B	783	A
8	B	784	G
8	B	785	G
8	B	789	A
8	B	793	A
8	B	794	A
8	B	800	A
8	B	805	G
8	B	807	U
8	B	812	C
8	B	819	A
8	B	827	U
8	B	831	G
8	B	845	A
8	B	846	U
8	B	847	U
8	B	857	G
8	B	859	G
8	B	869	G
8	B	876	C
8	B	877	A
8	B	878	A
8	B	879	G
8	B	882	G
8	B	883	G
8	B	884	U

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Mol	Chain	Res	Type
8	B	885	C
8	B	886	A
8	B	887	U
8	B	888	C
8	B	889	C
8	B	890	C
8	B	891	G
8	B	893	C
8	B	894	U
8	B	897	C
8	B	898	C
8	B	899	A
8	B	901	C
8	B	907	G
8	B	910	A
8	B	914	G
8	B	919	U
8	B	932	U
8	B	934	U
8	B	941	A
8	B	945	A
8	B	946	C
8	B	958	U
8	B	961	C
8	B	973	A
8	B	974	G
8	B	985	C
8	B	989	G
8	B	996	A
8	B	999	U
8	B	1003	G
8	B	1005	C
8	B	1009	A
8	B	1012	U
8	B	1013	C
8	B	1022	G
8	B	1023	U
8	B	1033	U
8	B	1040	A
8	B	1046	A
8	B	1047	G
8	B	1048	A

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Mol	Chain	Res	Type
8	B	1050	A
8	B	1051	G
8	B	1056	G
8	B	1057	A
8	B	1058	U
8	B	1060	U
8	B	1061	U
8	B	1065	U
8	B	1066	U
8	B	1067	A
8	B	1068	G
8	B	1069	A
8	B	1070	A
8	B	1072	C
8	B	1074	G
8	B	1077	A
8	B	1079	C
8	B	1083	U
8	B	1084	A
8	B	1085	A
8	B	1086	A
8	B	1092	C
8	B	1093	G
8	B	1094	U
8	B	1096	A
8	B	1097	U
8	B	1098	A
8	B	1099	G
8	B	1102	C
8	B	1103	A
8	B	1107	G
8	B	1109	C
8	B	1110	G
8	B	1111	A
8	B	1112	G
8	B	1122	G
8	B	1125	G
8	B	1130	U
8	B	1131	G
8	B	1132	U
8	B	1133	A
8	B	1134	A

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Mol	Chain	Res	Type
8	B	1135	C
8	B	1139	G
8	B	1142	A
8	B	1151	A
8	B	1155	A
8	B	1156	A
8	B	1157	G
8	B	1173	U
8	B	1174	U
8	B	1175	A
8	B	1176	U
8	B	1186	G
8	B	1195	G
8	B	1204	A
8	B	1205	A
8	B	1206	G
8	B	1212	G
8	B	1218	G
8	B	1225	G
8	B	1227	G
8	B	1236	G
8	B	1238	G
8	B	1241	A
8	B	1242	U
8	B	1247	A
8	B	1248	G
8	B	1250	G
8	B	1252	G
8	B	1253	A
8	B	1256	G
8	B	1258	U
8	B	1262	A
8	B	1265	A
8	B	1266	G
8	B	1272	A
8	B	1275	A
8	B	1287	A
8	B	1300	G
8	B	1301	A
8	B	1312	U
8	B	1321	A
8	B	1325	U

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Mol	Chain	Res	Type
8	B	1326	U
8	B	1329	U
8	B	1333	G
8	B	1340	U
8	B	1341	G
8	B	1344	U
8	B	1350	C
8	B	1352	U
8	B	1360	G
8	B	1365	A
8	B	1366	A
8	B	1378	A
8	B	1379	U
8	B	1382	G
8	B	1383	A
8	B	1395	A
8	B	1396	U
8	B	1416	G
8	B	1419	A
8	B	1420	A
8	B	1421	G
8	B	1427	A
8	B	1428	C
8	B	1452	G
8	B	1453	A
8	B	1454	C
8	B	1458	U
8	B	1459	G
8	B	1460	U
8	B	1468	U
8	B	1469	A
8	B	1476	U
8	B	1477	A
8	B	1482	G
8	B	1491	G
8	B	1493	C
8	B	1497	U
8	B	1508	A
8	B	1516	G
8	B	1522	A
8	B	1524	G
8	B	1529	G

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Mol	Chain	Res	Type
8	B	1535	A
8	B	1536	C
8	B	1537	G
8	B	1538	G
8	B	1552	A
8	B	1553	A
8	B	1558	C
8	B	1566	A
8	B	1567	G
8	B	1569	A
8	B	1578	U
8	B	1583	A
8	B	1585	C
8	B	1607	C
8	B	1610	A
8	B	1618	A
8	B	1634	A
8	B	1635	A
8	B	1640	A
8	B	1647	U
8	B	1648	U
8	B	1649	G
8	B	1663	G
8	B	1674	G
8	B	1675	C
8	B	1693	U
8	B	1694	C
8	B	1698	A
8	B	1729	U
8	B	1730	C
8	B	1731	G
8	B	1732	C
8	B	1735	A
8	B	1736	U
8	B	1737	G
8	B	1738	G
8	B	1756	G
8	B	1763	G
8	B	1764	C
8	B	1769	U
8	B	1773	A
8	B	1776	G

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Mol	Chain	Res	Type
8	B	1779	U
8	B	1780	A
8	B	1784	A
8	B	1786	A
8	B	1800	C
8	B	1801	A
8	B	1802	A
8	B	1808	A
8	B	1811	G
8	B	1814	G
8	B	1815	A
8	B	1816	C
8	B	1829	A
8	B	1833	C
8	B	1835	G
8	B	1838	C
8	B	1839	G
8	B	1846	G
8	B	1848	A
8	B	1870	C
8	B	1871	A
8	B	1872	A
8	B	1886	U
8	B	1887	C
8	B	1888	G
8	B	1899	A
8	B	1901	A
8	B	1906	G
8	B	1908	C
8	B	1910	G
8	B	1913	A
8	B	1914	C
8	B	1915	U
8	B	1916	A
8	B	1919	A
8	B	1923	U
8	B	1927	A
8	B	1929	G
8	B	1930	G
8	B	1931	U
8	B	1934	C
8	B	1936	A

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Mol	Chain	Res	Type
8	B	1937	A
8	B	1938	A
8	B	1940	U
8	B	1941	C
8	B	1943	U
8	B	1945	G
8	B	1951	U
8	B	1954	G
8	B	1955	U
8	B	1963	U
8	B	1964	G
8	B	1965	C
8	B	1966	A
8	B	1967	C
8	B	1970	A
8	B	1971	U
8	B	1972	G
8	B	1982	U
8	B	1991	U
8	B	1992	G
8	B	1993	U
8	B	1997	C
8	B	2020	A
8	B	2023	C
8	B	2030	A
8	B	2031	A
8	B	2033	A
8	B	2039	U
8	B	2043	C
8	B	2052	A
8	B	2054	A
8	B	2055	C
8	B	2056	G
8	B	2060	A
8	B	2061	G
8	B	2062	A
8	B	2063	C
8	B	2069	G
8	B	2080	A
8	B	2093	G
8	B	2099	U
8	B	2103	C

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Mol	Chain	Res	Type
8	B	2104	C
8	B	2105	U
8	B	2106	U
8	B	2109	U
8	B	2110	G
8	B	2112	G
8	B	2114	A
8	B	2116	G
8	B	2117	A
8	B	2118	U
8	B	2120	G
8	B	2121	G
8	B	2123	G
8	B	2124	G
8	B	2126	A
8	B	2127	G
8	B	2128	G
8	B	2129	C
8	B	2131	U
8	B	2132	U
8	B	2133	G
8	B	2135	A
8	B	2136	G
8	B	2137	U
8	B	2138	G
8	B	2139	U
8	B	2140	G
8	B	2142	A
8	B	2143	C
8	B	2144	G
8	B	2146	C
8	B	2148	G
8	B	2149	U
8	B	2153	C
8	B	2156	G
8	B	2157	G
8	B	2158	A
8	B	2162	G
8	B	2164	C
8	B	2165	C
8	B	2166	U
8	B	2169	A

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Mol	Chain	Res	Type
8	B	2170	A
8	B	2171	A
8	B	2172	U
8	B	2173	A
8	B	2177	C
8	B	2178	C
8	B	2180	U
8	B	2181	U
8	B	2182	U
8	B	2184	A
8	B	2186	G
8	B	2188	U
8	B	2189	U
8	B	2192	U
8	B	2193	G
8	B	2198	A
8	B	2199	A
8	B	2203	U
8	B	2204	G
8	B	2210	U
8	B	2211	A
8	B	2212	A
8	B	2214	C
8	B	2225	A
8	B	2226	C
8	B	2230	G
8	B	2238	G
8	B	2239	G
8	B	2243	U
8	B	2250	G
8	B	2251	G
8	B	2266	A
8	B	2268	A
8	B	2270	A
8	B	2279	G
8	B	2283	C
8	B	2287	A
8	B	2288	A
8	B	2303	G
8	B	2305	U
8	B	2306	C
8	B	2307	G

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Mol	Chain	Res	Type
8	B	2308	G
8	B	2309	A
8	B	2311	A
8	B	2312	U
8	B	2313	C
8	B	2314	A
8	B	2316	G
8	B	2317	A
8	B	2319	G
8	B	2320	U
8	B	2322	A
8	B	2325	G
8	B	2333	A
8	B	2334	U
8	B	2335	A
8	B	2336	A
8	B	2347	C
8	B	2350	C
8	B	2354	C
8	B	2357	G
8	B	2361	G
8	B	2379	G
8	B	2382	G
8	B	2383	G
8	B	2385	C
8	B	2389	G
8	B	2402	U
8	B	2406	A
8	B	2423	U
8	B	2425	A
8	B	2429	G
8	B	2430	A
8	B	2431	U
8	B	2435	A
8	B	2441	U
8	B	2448	A
8	B	2449	U
8	B	2469	A
8	B	2472	G
8	B	2473	U
8	B	2475	C
8	B	2476	A

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Mol	Chain	Res	Type
8	B	2478	A
8	B	2481	G
8	B	2484	G
8	B	2487	G
8	B	2491	U
8	B	2492	U
8	B	2498	C
8	B	2502	G
8	B	2503	A
8	B	2505	G
8	B	2518	A
8	B	2520	C
8	B	2529	G
8	B	2535	G
8	B	2542	A
8	B	2547	A
8	B	2553	G
8	B	2554	U
8	B	2566	A
8	B	2567	G
8	B	2572	A
8	B	2573	C
8	B	2574	G
8	B	2578	G
8	B	2581	G
8	B	2582	G
8	B	2583	G
8	B	2585	U
8	B	2596	U
8	B	2597	G
8	B	2602	A
8	B	2609	U
8	B	2613	U
8	B	2620	C
8	B	2621	G
8	B	2623	G
8	B	2629	U
8	B	2636	C
8	B	2646	C
8	B	2667	C
8	B	2671	G
8	B	2682	A

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Mol	Chain	Res	Type
8	B	2685	G
8	B	2689	U
8	B	2703	C
8	B	2712	C
8	B	2714	G
8	B	2716	C
8	B	2720	U
8	B	2726	A
8	B	2733	A
8	B	2739	U
8	B	2744	G
8	B	2748	A
8	B	2750	A
8	B	2752	C
8	B	2757	A
8	B	2765	A
8	B	2776	A
8	B	2778	A
8	B	2779	U
8	B	2780	G
8	B	2781	A
8	B	2794	C
8	B	2796	U
8	B	2797	U
8	B	2798	U
8	B	2800	A
8	B	2802	G
8	B	2808	G
8	B	2809	A
8	B	2816	G
8	B	2818	U
8	B	2820	A
8	B	2833	U
8	B	2834	G
8	B	2849	U
8	B	2861	U
8	B	2866	U
8	B	2867	G
8	B	2872	A
8	B	2873	A
8	B	2880	C
8	B	2883	A

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Mol	Chain	Res	Type
8	B	2884	U
8	B	2885	G
8	B	2886	A
8	B	2891	U
8	B	2899	A
8	B	2900	A
8	B	2901	C
8	B	2902	C
50	v	4	U
50	v	5	U
50	v	7	A
50	v	9	G
50	v	22	G
50	v	32	A
50	v	39	G
50	v	47	C
50	v	48	C
50	v	49	U
50	v	50	A
50	v	51	A
50	v	58	C
50	v	66	A
50	v	70	U
50	v	71	A
50	v	76	G
50	v	77	A
50	v	78	A
50	v	79	G
50	v	80	A
50	v	83	C
50	v	84	U
50	v	85	U
50	v	86	G
50	v	87	C
50	v	91	U
50	v	92	U
50	v	93	U
50	v	94	G
50	v	95	C
50	v	108	G
50	v	115	G
50	v	116	A

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Mol	Chain	Res	Type
50	v	120	A
50	v	121	U
50	v	122	G
50	v	130	A
50	v	131	A
50	v	159	G
50	v	161	A
50	v	163	C
50	v	164	G
50	v	166	U
50	v	173	U
50	v	177	G
50	v	181	A
50	v	182	A
50	v	189	A
50	v	203	G
50	v	204	G
50	v	209	U
50	v	211	G
50	v	212	G
50	v	226	G
50	v	240	G
50	v	245	U
50	v	247	G
50	v	251	G
50	v	254	G
50	v	266	G
50	v	267	C
50	v	279	A
50	v	289	G
50	v	306	A
50	v	321	A
50	v	327	A
50	v	328	C
50	v	329	A
50	v	330	C
50	v	332	G
50	v	336	A
50	v	337	G
50	v	338	A
50	v	339	C
50	v	343	U

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Mol	Chain	Res	Type
50	v	344	A
50	v	345	C
50	v	347	G
50	v	348	G
50	v	349	A
50	v	351	G
50	v	352	C
50	v	353	A
50	v	354	G
50	v	362	G
50	v	363	A
50	v	367	U
50	v	372	C
50	v	376	G
50	v	378	G
50	v	384	G
50	v	388	G
50	v	390	U
50	v	398	U
50	v	406	G
50	v	411	A
50	v	412	A
50	v	413	G
50	v	414	A
50	v	421	U
50	v	422	C
50	v	429	U
50	v	439	U
50	v	451	A
50	v	466	A
50	v	467	U
50	v	468	A
50	v	469	C
50	v	478	A
50	v	479	U
50	v	484	G
50	v	486	U
50	v	495	A
50	v	497	G
50	v	505	G
50	v	511	C
50	v	518	C

Continued on next page...

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Mol	Chain	Res	Type
50	v	521	G
50	v	524	G
50	v	527	G
50	v	532	A
50	v	533	A
50	v	538	G
50	v	547	A
50	v	559	A
50	v	560	A
50	v	564	C
50	v	568	G
50	v	572	A
50	v	573	A
50	v	576	C
50	v	577	G
50	v	595	A
50	v	618	C
50	v	633	G
50	v	650	G
50	v	653	U
50	v	665	A
50	v	687	A
50	v	702	A
50	v	703	G
50	v	704	A
50	v	723	U
50	v	731	G
50	v	755	G
50	v	770	C
50	v	778	G
50	v	781	A
50	v	793	U
50	v	794	A
50	v	809	G
50	v	812	G
50	v	814	A
50	v	815	A
50	v	817	C
50	v	819	A
50	v	820	U
50	v	821	G
50	v	828	U

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Mol	Chain	Res	Type
50	v	832	G
50	v	836	G
50	v	841	C
50	v	844	G
50	v	845	A
50	v	846	G
50	v	847	G
50	v	849	G
50	v	871	U
50	v	872	A
50	v	876	C
50	v	889	A
50	v	902	G
50	v	913	A
50	v	914	A
50	v	926	G
50	v	931	C
50	v	934	C
50	v	935	A
50	v	937	A
50	v	945	G
50	v	946	A
50	v	947	G
50	v	948	C
50	v	951	G
50	v	954	G
50	v	957	U
50	v	960	U
50	v	961	U
50	v	963	G
50	v	964	A
50	v	966	G
50	v	968	A
50	v	969	A
50	v	974	A
50	v	975	A
50	v	976	G
50	v	977	A
50	v	978	A
50	v	982	U
50	v	983	A
50	v	984	C

Continued on next page...

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Mol	Chain	Res	Type
50	v	985	C
50	v	986	U
50	v	988	G
50	v	989	U
50	v	991	U
50	v	993	G
50	v	994	A
50	v	996	A
50	v	998	C
50	v	999	C
50	v	1004	A
50	v	1006	G
50	v	1007	U
50	v	1017	U
50	v	1018	G
50	v	1023	U
50	v	1025	U
50	v	1026	G
50	v	1027	C
50	v	1028	C
50	v	1030	U
50	v	1031	C
50	v	1032	G
50	v	1033	G
50	v	1035	A
50	v	1037	C
50	v	1042	A
50	v	1044	A
50	v	1045	C
50	v	1046	A
50	v	1053	G
50	v	1054	C
50	v	1064	G
50	v	1065	U
50	v	1070	U
50	v	1079	G
50	v	1086	U
50	v	1087	G
50	v	1089	G
50	v	1094	G
50	v	1095	U
50	v	1101	A

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Mol	Chain	Res	Type
50	v	1102	A
50	v	1108	G
50	v	1118	U
50	v	1126	U
50	v	1129	C
50	v	1130	A
50	v	1137	C
50	v	1139	G
50	v	1140	C
50	v	1141	C
50	v	1146	A
50	v	1149	C
50	v	1152	A
50	v	1157	A
50	v	1158	C
50	v	1159	U
50	v	1160	G
50	v	1167	A
50	v	1169	A
50	v	1171	A
50	v	1179	A
50	v	1183	U
50	v	1184	G
50	v	1196	A
50	v	1197	A
50	v	1201	A
50	v	1202	U
50	v	1212	U
50	v	1213	A
50	v	1215	G
50	v	1226	C
50	v	1227	A
50	v	1229	A
50	v	1230	C
50	v	1236	A
50	v	1238	A
50	v	1241	G
50	v	1242	G
50	v	1245	C
50	v	1249	C
50	v	1256	A
50	v	1257	A

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Mol	Chain	Res	Type
50	v	1258	G
50	v	1260	G
50	v	1266	G
50	v	1274	A
50	v	1275	A
50	v	1279	G
50	v	1281	C
50	v	1285	A
50	v	1286	U
50	v	1287	A
50	v	1288	A
50	v	1290	G
50	v	1292	G
50	v	1294	G
50	v	1297	G
50	v	1299	A
50	v	1300	G
50	v	1302	C
50	v	1303	C
50	v	1304	G
50	v	1305	G
50	v	1307	U
50	v	1308	U
50	v	1310	G
50	v	1316	G
50	v	1317	C
50	v	1318	A
50	v	1320	C
50	v	1322	C
50	v	1326	U
50	v	1327	C
50	v	1328	C
50	v	1329	A
50	v	1331	G
50	v	1335	U
50	v	1338	G
50	v	1340	A
50	v	1345	U
50	v	1346	A
50	v	1347	G
50	v	1348	U
50	v	1353	G

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Mol	Chain	Res	Type
50	v	1356	G
50	v	1357	A
50	v	1360	A
50	v	1361	G
50	v	1363	A
50	v	1364	U
50	v	1370	G
50	v	1375	A
50	v	1378	C
50	v	1379	G
50	v	1381	U
50	v	1383	C
50	v	1394	A
50	v	1397	C
50	v	1399	C
50	v	1400	C
50	v	1408	A
50	v	1409	C
50	v	1410	A
50	v	1411	C
50	v	1412	C
50	v	1413	A
50	v	1415	G
50	v	1419	G
50	v	1439	G
50	v	1441	A
50	v	1442	G
50	v	1446	A
50	v	1448	C
50	v	1452	C
50	v	1453	G
50	v	1475	G
50	v	1476	A
50	v	1477	U
50	v	1478	U
50	v	1483	A
50	v	1484	C
50	v	1488	G
50	v	1489	G
50	v	1491	G
50	v	1492	A
50	v	1493	A

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Mol	Chain	Res	Type
50	v	1494	G
50	v	1495	U
50	v	1496	C
50	v	1497	G
50	v	1499	A
50	v	1500	A
50	v	1503	A
50	v	1506	U
50	v	1510	C
50	v	1513	A
50	v	1517	G
50	v	1518	A
50	v	1519	A
50	v	1520	C
50	v	1521	C
50	v	1529	G
50	v	1530	G
50	v	1531	A
50	v	1533	C
50	v	1534	A
50	v	1535	C
50	v	1536	C
50	v	1537	U
50	v	1538	C
50	v	1540	U

All (9) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
8	B	670	A
8	B	984	A
8	B	1224	U
8	B	1339	G
8	B	1364	G
8	B	1912	A
8	B	1913	A
8	B	1963	U
8	B	2756	U

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

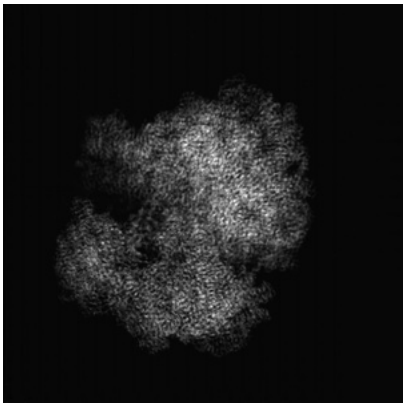
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-29687. These allow visual inspection of the internal detail of the map and identification of artifacts.

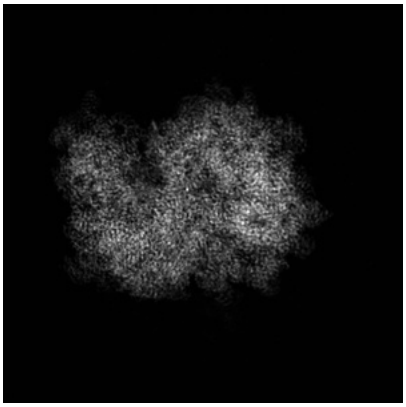
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

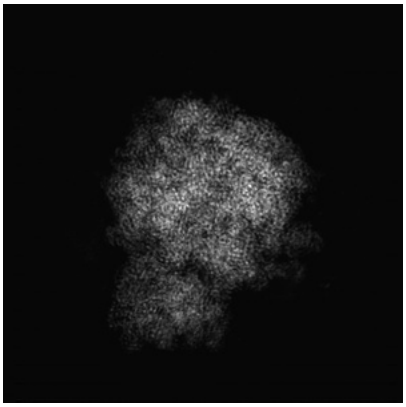
6.1.1 Primary map



X



Y



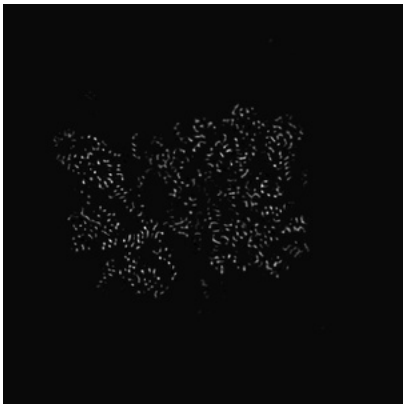
Z

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

6.2 Central slices

6.2.1 Primary map

X Index: 170



Y Index: 170

Z Index: 170

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: 146

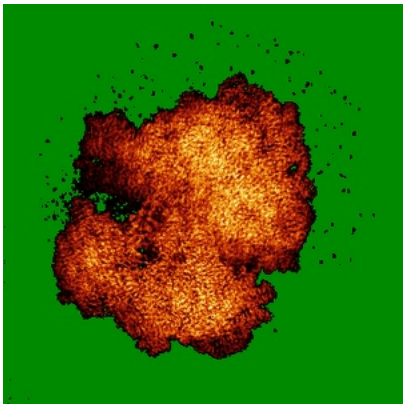
Y Index: 178

Z Index: 220

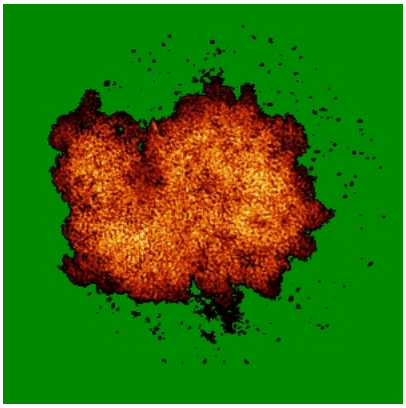
The images above show the largest variance slices of the map in three orthogonal directions.

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

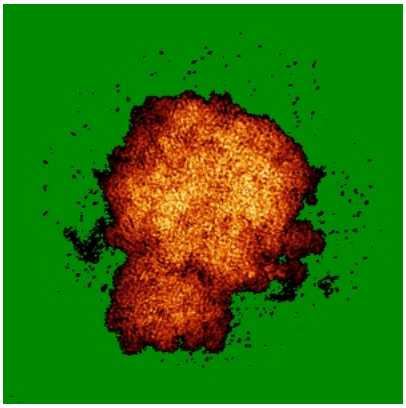
6.4.1 Primary map



X



Y

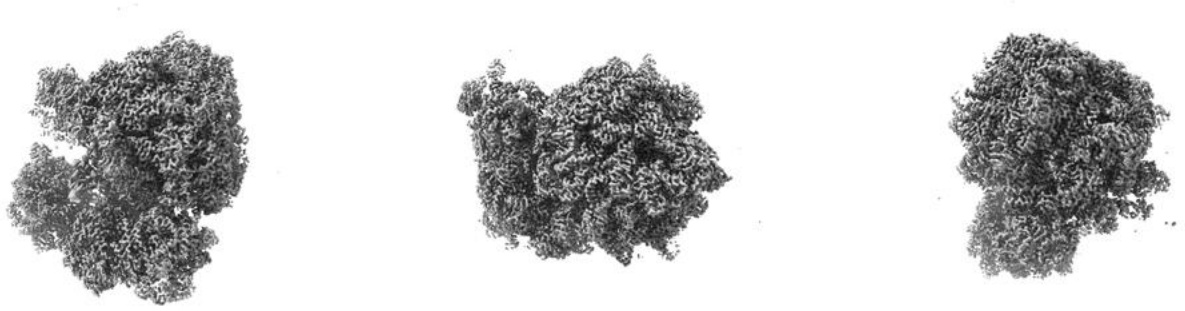


Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.182. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

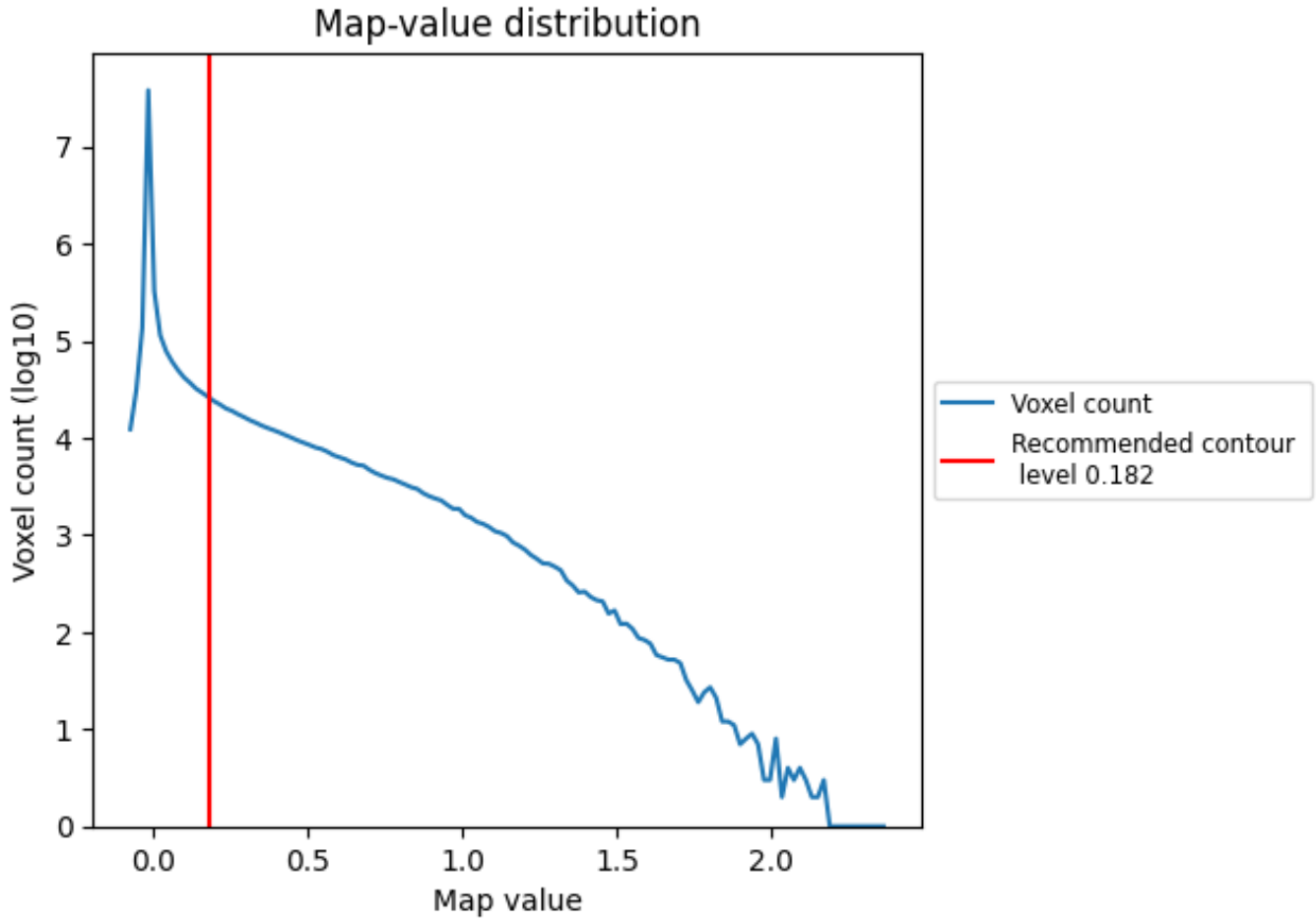
6.6 Mask visualisation (i)

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

7 Map analysis

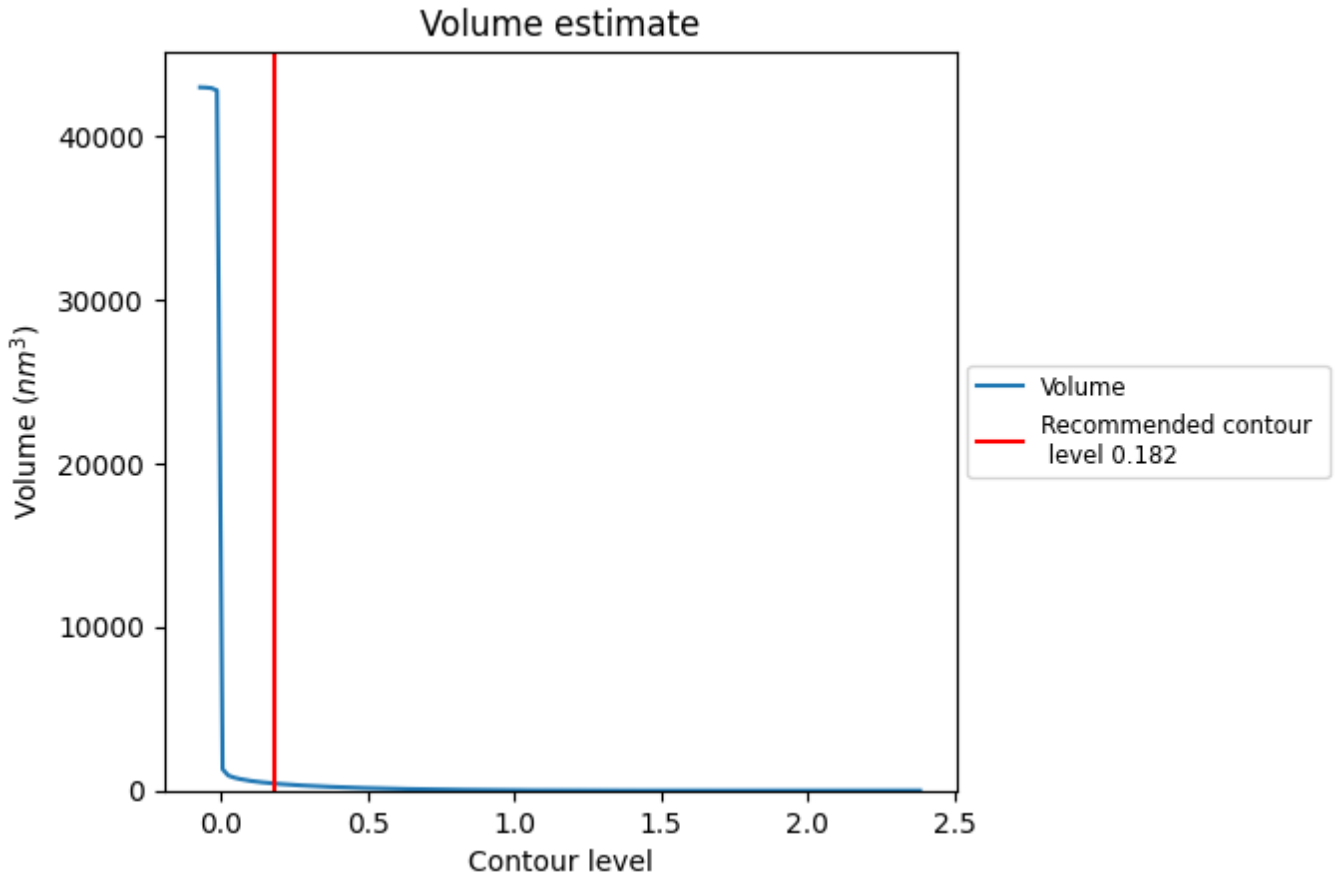
This section contains the results of statistical analysis of the map.

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.

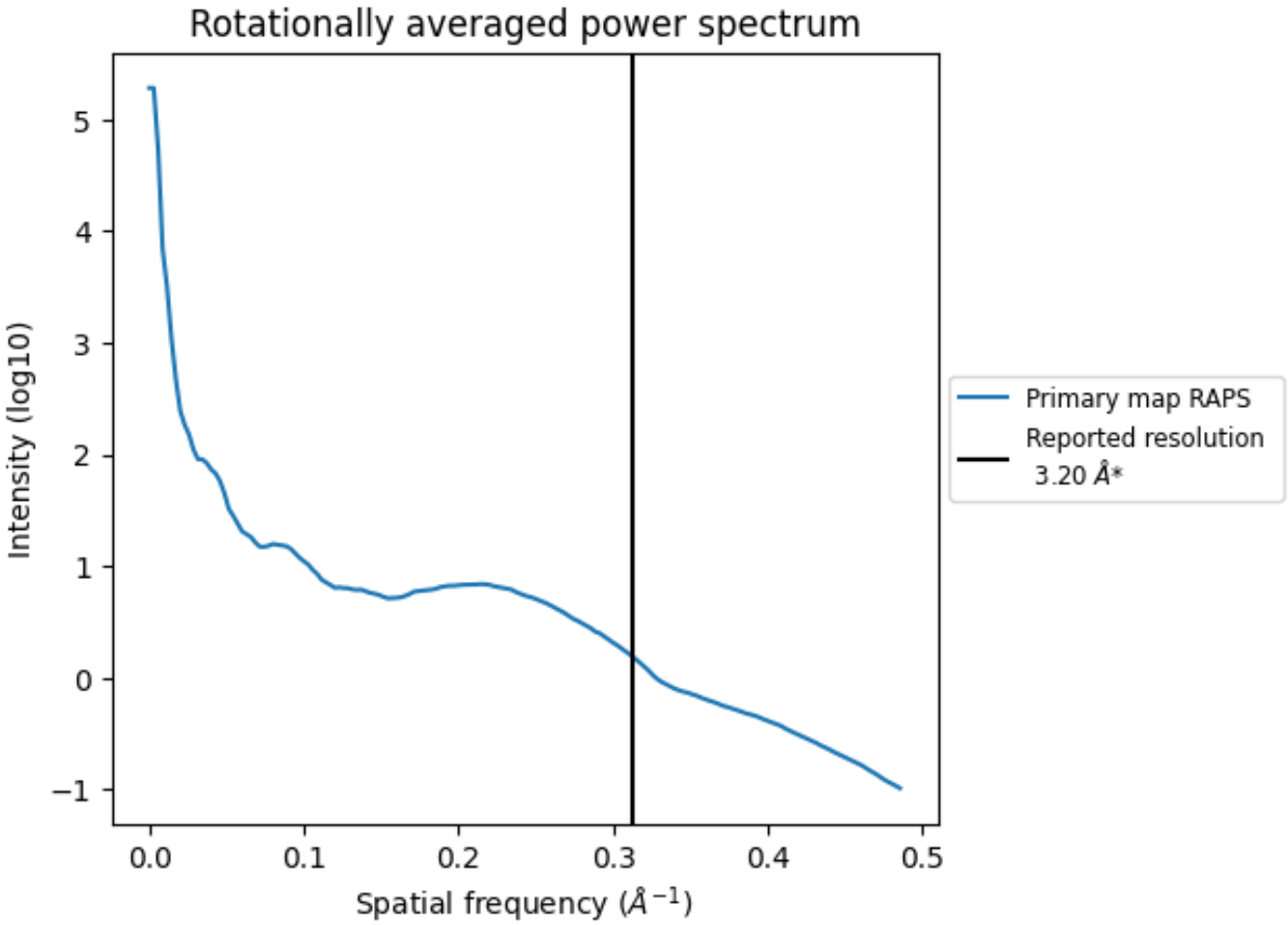
7.2 Volume estimate



The volume at the recommended contour level is 430 nm^3; this corresponds to an approximate mass of 389 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 0.312 $Å^{-1}$

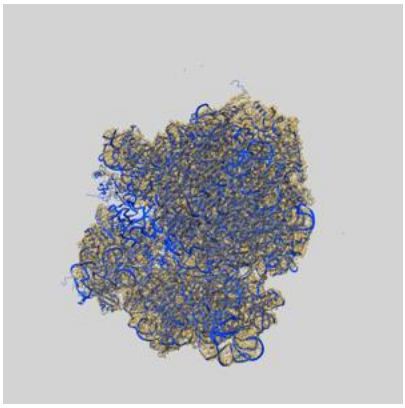
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

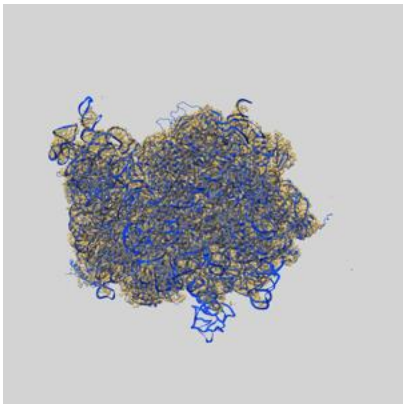
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-29687 and PDB model 8G31. Per-residue inclusion information can be found in section 3 on page 13.

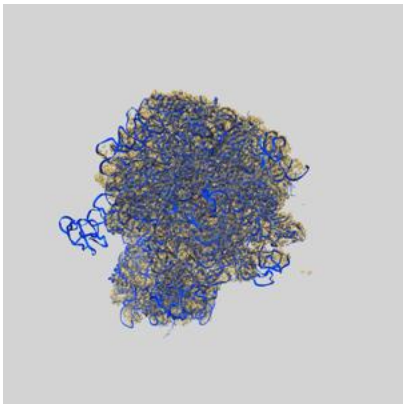
9.1 Map-model overlay



X



Y



Z

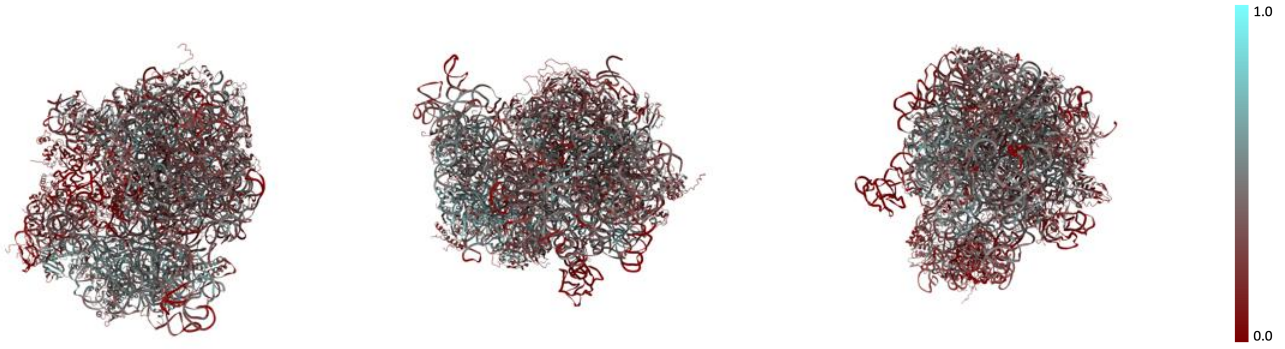
The images above show the 3D surface view of the map at the recommended contour level 0.182 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model

X Y Z

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

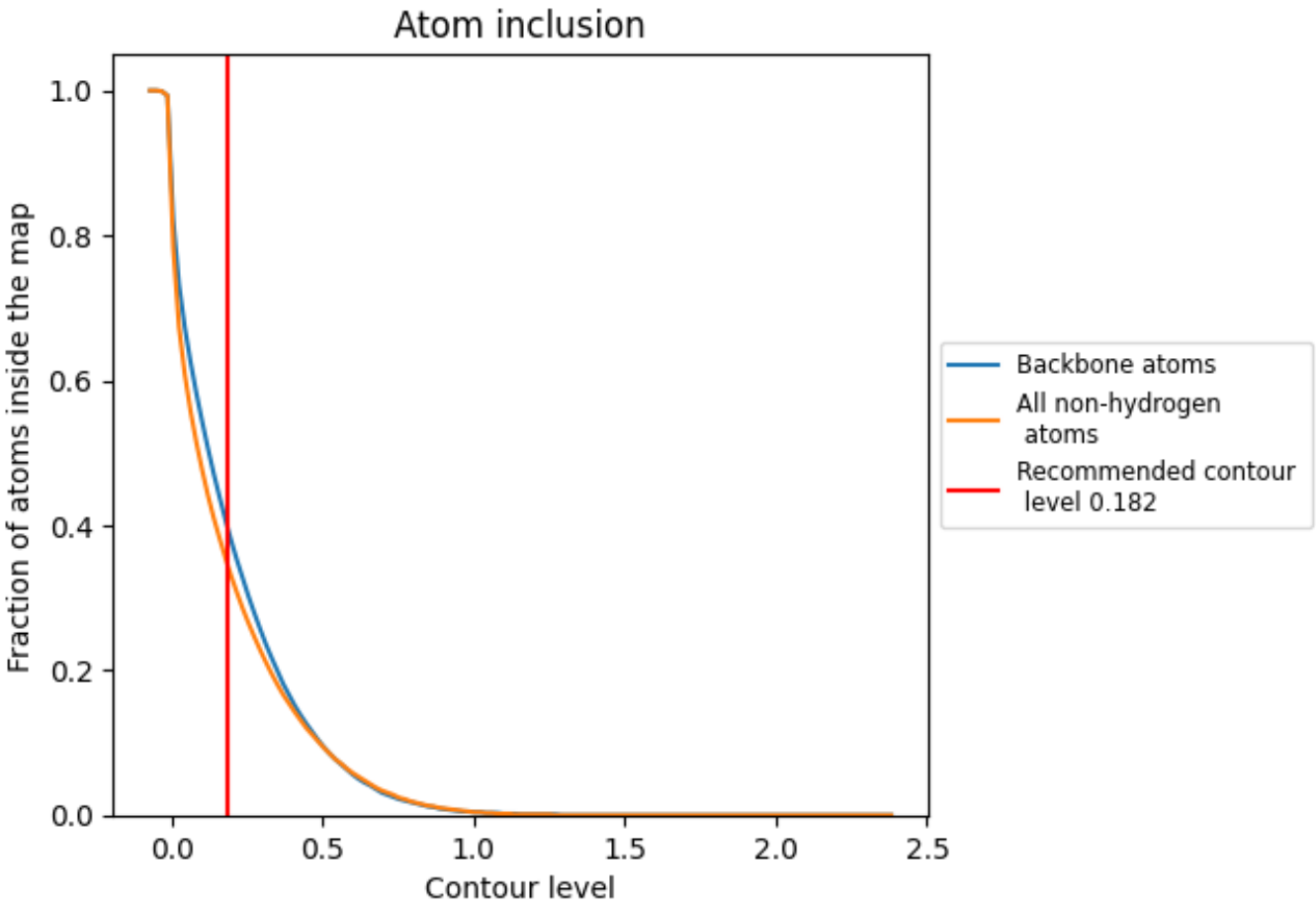
9.3 Atom inclusion mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.182).

9.4 Atom inclusion (i)



At the recommended contour level, 40% of all backbone atoms, 35% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.182) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.3490	0.0980
0	0.2970	0.0420
1	0.0000	0.0150
2	0.3520	0.0850
3	0.2730	0.1190
4	0.3150	0.0840
6	0.1530	-0.0030
A	0.3450	0.1450
B	0.3580	0.0820
C	0.3310	0.1350
D	0.2210	0.0170
E	0.2520	0.0290
F	0.0330	-0.0000
G	0.1770	0.0520
J	0.3320	0.0540
K	0.2830	0.0750
L	0.3150	0.0850
M	0.3020	0.0900
N	0.3240	0.0410
O	0.2580	0.1250
P	0.2610	0.0690
Q	0.3210	0.0190
R	0.3060	0.0510
S	0.3280	0.0500
T	0.2560	0.0040
U	0.2600	0.0480
V	0.2720	0.0890
W	0.3090	0.0770
X	0.3860	0.1240
Y	0.2860	0.0440
Z	0.2400	0.0260
c	0.4040	0.1730
d	0.5100	0.2370
e	0.3380	0.1270
f	0.1380	-0.0360

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Chain	Atom inclusion	Q-score
g	0.5040	0.2280
h	0.2120	-0.0100
i	0.3190	0.1370
j	0.3990	0.1690
k	0.4040	0.1750
l	0.1750	-0.0220
m	0.2870	0.0600
n	0.4270	0.1940
o	0.4150	0.1540
p	0.3180	0.1330
q	0.4760	0.1870
r	0.1110	-0.0630
s	0.3860	0.1080
t	0.1600	0.0880
u	0.0000	-0.0130
v	0.4180	0.1430
w	0.2360	0.1070
x	0.5220	0.3140