Full wwPDB EM Validation Report ⓘ

Apr 24, 2023 – 11:45 am BST

PDB ID	:	8BSJ
EMDB ID	:	EMD-16226
Title	:	Giardia Ribosome in PRE-T Classical State (C)
Authors	:	Majumdar, S.; Emmerich, A.G.; Sanyal, S.
Deposited on	:	2022-11-25
Resolution	:	6.49 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:

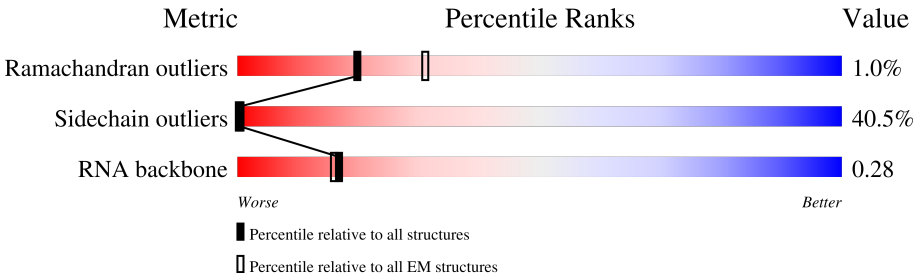
EMDB validation analysis	:	0.0.1.dev50
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.32.2

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 6.49 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)
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	LA	251	14% 73% 24%
2	LB	379	16% 68% 31%
3	LC	316	19% 69% 29%
4	LD	142	52% 46%
5	LE	121	54% 42%
6	LF	297	28% 65% 32%
7	LG	51	24% 67% 27%
8	LH	235	31% 66% 26% 8%

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Mol	Chain	Length	Quality of chain
9	LI	225	24% 55% 25% 19%
10	LJ	185	24% 64% 35%
11	LK	210	31% 64% 30% 6%
12	LL	173	34% 62% 32% 5%
13	LM	234	12% 54% 29% 17%
14	LN	131	19% 63% 33%
15	LO	204	9% 68% 30%
16	LP	197	17% 70% 26%
17	LQ	164	18% 65% 28% 7%
18	LR	179	18% 65% 35%
19	LS	196	29% 65% 30% 5%
20	LT	173	20% 68% 30%
21	LU	159	20% 63% 30% 6%
22	LV	124	33% 55% 30% 15%
23	LW	142	19% 65% 27% 7%
24	LX	189	5% 19% 13% 68%
25	LY	141	11% 52% 28% 20%
26	LZ	135	13% 70% 28%
27	La	135	40% 55% 34% 10%
28	Lb	149	12% 69% 28%
29	Lc	62	26% 55% 32% 11%
30	Ld	109	33% 55% 34% 10%
31	Le	106	16% 58% 33% 8%
32	Lf	136	19% 63% 29% 8%
33	Lg	123	15% 54% 24% 20%

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Mol	Chain	Length	Quality of chain
34	Lh	120	21% 62% 25% 13%
35	Li	124	25% 64% 31% 5%
36	Lj	90	28% 60% 33% 7%
37	Lk	89	18% 69% 26%
38	Ll	77	47% 47% 47% 6%
39	Ln	217	87% 43% 47% 8%
40	Lo	25	40% 52% 48%
41	Lp	106	14% 53% 33% 14%
42	Lq	94	28% 59% 37%
43	Ls	127	6% 21% 15% 63%
44	Lt	2697	5% 54% 41%
45	SA	245	62% 53% 25% 21%
46	SB	242	51% 55% 33% 12%
47	SC	217	65% 56% 39% 5%
48	SD	248	51% 57% 34% 8%
49	SE	268	68% 59% 37%
50	SF	190	57% 67% 27% 6%
51	SG	248	68% 48% 42% 10%
52	SH	190	83% 54% 43%
53	SI	174	51% 56% 40%
54	SJ	130	64% 58% 41%
55	SK	189	58% 57% 33% 9%
56	SL	134	57% 51% 28% 19%
57	SM	154	61% 62% 33% 5%
58	SO	143	57% 64% 34%

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Mol	Chain	Length	Quality of chain
59	SP	154	65% 69% 28%
60	SQ	145	48% 61% 23% 14%
61	SR	145	62% 47% 30% 22%
62	ST	158	65% 60% 34%
63	SU	137	72% 52% 35% 12%
64	SV	154	60% 53% 38% 8%
65	SW	139	60% 58% 40%
66	SX	126	66% 47% 38% 15%
67	SY	89	71% 61% 33%
68	Sb	132	67% 56% 35% 9%
69	Sc	88	67% 41% 41% 15%
70	Sd	109	41% 58% 31% 11%
71	Se	81	86% 69% 30%
72	Sg	64	69% 52% 42% 5%
73	Sh	51	47% 67% 27% 6%
74	Sj	69	57% 51% 46%
75	St	1454	19% 46% 53%
76	u	75	73% 28% 71%
76	v	75	83% 35% 65%
77	x	74	74% 38% 62%
78	y	11	27% 27% 64% 9%

2 Entry composition

There are 78 unique types of molecules in this entry. The entry contains 178791 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 Ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	LA	243	1823	1125	371	315	12	0	0

- Molecule 2 is a protein called Ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	LB	374	2960	1871	560	508	21	0	0

- Molecule 3 is a protein called Ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	LC	309	2412	1516	469	419	8	0	0

- Molecule 4 is a RNA chain called 5.8S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
4	LD	140	2995	1331	555	969	140	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
5	LE	116	2480	1106	452	806	116	0	0

- Molecule 6 is a protein called Ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	LF	289	2325	1471	433	413	8	0	0

- Molecule 7 is a protein called Ribosomal protein L39.

Mol	Chain	Residues	Atoms				AltConf	Trace
7	LG	50	Total	C	N	O	0	0
			439	281	94	64		

- Molecule 8 is a protein called Ribosomal protein L7.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	LH	217	Total	C	N	O	S	0	0
			1753	1112	321	315	5		

- Molecule 9 is a protein called 60S ribosomal protein L7a.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	LI	183	Total	C	N	O	S	0	0
			1468	935	268	260	5		

- Molecule 10 is a protein called Ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	LJ	184	Total	C	N	O	S	0	0
			1452	917	264	261	10		

- Molecule 11 is a protein called Ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	LK	197	Total	C	N	O	S	0	0
			1609	1011	317	273	8		

- Molecule 12 is a protein called Ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	LL	165	Total	C	N	O	S	0	0
			1325	837	247	236	5		

- Molecule 13 is a protein called 60S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	LM	195	Total	C	N	O	S	0	0
			1560	971	316	267	6		

- Molecule 14 is a protein called Ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	LN	126	Total	C	N	O	S	0	0
			993	630	181	176	6		

- Molecule 15 is a protein called Ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	LO	201	Total	C	N	O	S	0	0
			1699	1075	355	263	6		

- Molecule 16 is a protein called Ribosomal protein L13a.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	LP	189	Total	C	N	O	S	0	0
			1539	970	300	257	12		

- Molecule 17 is a protein called Ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	LQ	153	Total	C	N	O	S	0	0
			1231	778	239	210	4		

- Molecule 18 is a protein called Ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	LR	178	Total	C	N	O	S	0	0
			1402	871	279	243	9		

- Molecule 19 is a protein called Ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	LS	187	Total	C	N	O	S	0	0
			1548	953	328	262	5		

- Molecule 20 is a protein called 60S ribosomal protein L18a.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	LT	170	Total	C	N	O	S	0	0
			1423	899	272	243	9		

- Molecule 21 is a protein called Ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	LU	150	Total	C	N	O	S	0	0
			1216	757	252	201	6		

- Molecule 22 is a protein called Ribosomal L22e.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	LV	105	Total	C	N	O	S	0	0
			861	550	147	162	2		

- Molecule 23 is a protein called Ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	LW	132	Total	C	N	O	S	0	0
			1015	641	193	176	5		

- Molecule 24 is a protein called Ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	LX	60	Total	C	N	O	S	0	0
			512	323	103	79	7		

- Molecule 25 is a protein called Ribosomal protein L23A.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	LY	113	Total	C	N	O	S	0	0
			913	588	163	159	3		

- Molecule 26 is a protein called Ribosomal protein L26.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	LZ	133	Total	C	N	O	S	0	0
			1076	665	219	184	8		

- Molecule 27 is a protein called 60S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	La	121	Total	C	N	O	S	0	0
			968	614	183	166	5		

- Molecule 28 is a protein called Ribosomal protein L27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	Lb	145	Total	C	N	O	S	0	0
			1179	746	234	196	3		

- Molecule 29 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	Lc	55	Total	C	N	O	S	0	0
			456	275	103	76	2		

- Molecule 30 is a protein called Ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	Ld	98	Total	C	N	O	S	0	0
			737	463	129	141	4		

- Molecule 31 is a protein called Ribosomal protein L31B.

Mol	Chain	Residues	Atoms				AltConf	Trace
31	Le	97	Total	C	N	O	0	0
			791	503	153	135		

- Molecule 32 is a protein called Ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	Lf	125	Total	C	N	O	S	0	0
			1031	655	206	164	6		

- Molecule 33 is a protein called Ribosomal protein L35a.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	Lg	98	Total	C	N	O	S	0	0
			778	498	147	130	3		

- Molecule 34 is a protein called Ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	Lh	104	Total	C	N	O	S	0	0
			834	515	173	142	4		

- Molecule 35 is a protein called Ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	Li	118	Total	C	N	O	S	0	0
			958	606	188	159	5		

- Molecule 36 is a protein called Ribosomal protein L36-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	Lj	84	Total	C	N	O	S	0	0
			684	434	136	110	4		

- Molecule 37 is a protein called Ribosomal protein L37.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	Lk	85	Total	C	N	O	S	0	0
			689	420	148	114	7		

- Molecule 38 is a protein called Ribosomal L38e.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	Ll	72	Total	C	N	O	S	0	0
			558	353	99	102	4		

- Molecule 39 is a protein called Ribosomal protein L10a.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	Ln	200	Total	C	N	O	S	0	0
			1592	1025	278	284	5		

- Molecule 40 is a protein called 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	Lo	25	Total	C	N	O	S	0	0
			227	140	57	27	3		

- Molecule 41 is a protein called Ribosomal protein L44.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	Lp	91	Total	C	N	O	S	0	0
			748	466	154	123	5		

- Molecule 42 is a protein called Ribosomal protein L37a.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	Lq	91	Total	C	N	O	S	0	0
			708	437	144	120	7		

- Molecule 43 is a protein called Ubiquitin/Ribosomal protein L40e.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	Ls	47	Total	C	N	O	S	0	0
			388	234	83	64	7		

- Molecule 44 is a RNA chain called Large Subunit rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	Lt	2593	Total	C	N	O	P	0	0
			55643	24727	10311	18012	2593		

- Molecule 45 is a protein called 40S ribosomal protein SA.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	SA	194	Total	C	N	O	S	0	0
			1553	1001	272	272	8		

- Molecule 46 is a protein called Ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	SB	213	Total	C	N	O	S	0	0
			1640	1041	298	296	5		

- Molecule 47 is a protein called Ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	SC	206	Total	C	N	O	S	0	0
			1636	1030	302	288	16		

- Molecule 48 is a protein called 40S ribosomal protein S3a.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	SD	228	Total	C	N	O	S	0	0
			1847	1168	344	322	13		

- Molecule 49 is a protein called 40S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	SE	260	Total	C	N	O	S	0	0
			2085	1333	384	356	12		

- Molecule 50 is a protein called Ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	SF	179	Total	C	N	O	S	0	0
			1387	864	260	254	9		

- Molecule 51 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	SG	224	Total	C	N	O	S	0	0
			1768	1112	332	314	10		

- Molecule 52 is a protein called 40S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	SH	184	Total	C	N	O	S	0	0
			1481	948	258	268	7		

- Molecule 53 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	SI	167	Total	C	N	O	S	0	0
			1311	822	251	235	3		

- Molecule 54 is a protein called Ribosomal protein S15A.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	SJ	129	Total	C	N	O	S	0	0
			1031	659	192	177	3		

- Molecule 55 is a protein called Ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	SK	172	Total	C	N	O	S	0	0
			1395	871	276	242	6		

- Molecule 56 is a protein called Ribosomal protein S10B.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	SL	109	Total	C	N	O	S	0	0
			890	578	149	160	3		

- Molecule 57 is a protein called Ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	SM	147	Total	C	N	O	S	0	0
			1217	773	237	201	6		

- Molecule 58 is a protein called SSU ribosomal protein S12P.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	SO	140	Total	C	N	O	S	0	0
			1088	688	214	182	4		

- Molecule 59 is a protein called Ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	SP	150	Total	C	N	O	S	0	0
			1192	758	228	201	5		

- Molecule 60 is a protein called Ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	SQ	124	Total	C	N	O	S	0	0
			911	561	188	159	3		

- Molecule 61 is a protein called Ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	SR	113	Total	C	N	O	S	0	0
			918	584	179	147	8		

- Molecule 62 is a protein called Ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	ST	151	Total	C	N	O	S	0	0
			1180	736	229	212	3		

- Molecule 63 is a protein called Ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	SU	121	Total	C	N	O	S	0	0
			963	597	184	177	5		

- Molecule 64 is a protein called Ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	SV	142	Total	C	N	O	S	0	0
			1124	692	228	198	6		

- Molecule 65 is a protein called Ribosomal protein S19e.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	SW	138	Total	C	N	O	S	0	0
			1080	686	204	187	3		

- Molecule 66 is a protein called Ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
66	SX	107	Total	C	N	O	S	0	0
			853	539	153	156	5		

- Molecule 67 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
67	SY	85	Total	C	N	O	S	0	0
			642	397	119	120	6		

- Molecule 68 is a protein called Ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace
68	Sb	120	Total	C	N	O	S	0	0
			952	604	179	163	6		

- Molecule 69 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace
69	Sc	75	Total	C	N	O	S	0	0
			597	377	107	107	6		

- Molecule 70 is a protein called 40S ribosomal protein S26.

Mol	Chain	Residues	Atoms					AltConf	Trace
70	Sd	97	Total	C	N	O	S	0	0
			787	485	162	133	7		

- Molecule 71 is a protein called Ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace
71	Se	80	Total	C	N	O	S	0	0
			629	397	110	116	6		

- Molecule 72 is a protein called Ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
72	Sg	61	Total	C	N	O	S	0	0
			486	300	95	89	2		

- Molecule 73 is a protein called Ribosomal protein S29A.

Mol	Chain	Residues	Atoms					AltConf	Trace
73	Sh	48	Total	C	N	O	S	0	0
			401	253	78	65	5		

- Molecule 74 is a protein called 40S ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
74	Sj	67	Total	C	N	O	S	0	0
			543	341	114	87	1		

- Molecule 75 is a RNA chain called Small Subunit rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
75	St	1454	Total	C	N	O	P	0	0
			31176	13861	5772	10090	1453		

- Molecule 76 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
76	u	75	Total	C	N	O	P	0	0
			1604	717	298	515	74		
76	v	75	Total	C	N	O	P	0	0
			1604	717	298	515	74		

- Molecule 77 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
77	x	74	Total	C	N	O	P	0	0
			1582	708	291	509	74		

- Molecule 78 is a RNA chain called mRNA.

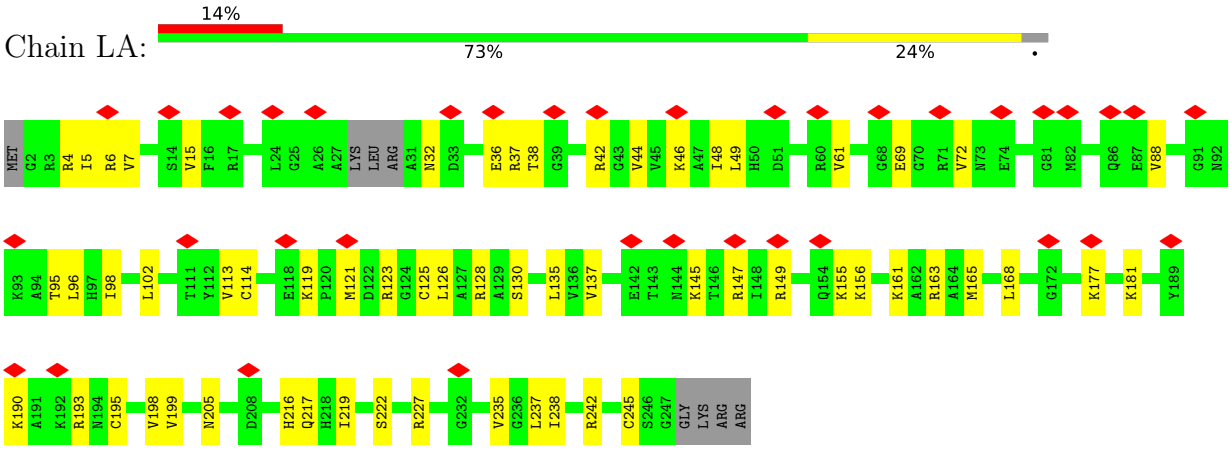
Mol	Chain	Residues	Atoms					AltConf	Trace
78	y	11	Total	C	N	O	P	0	0
			240	108	49	72	11		

3 Residue-property plots (i)

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

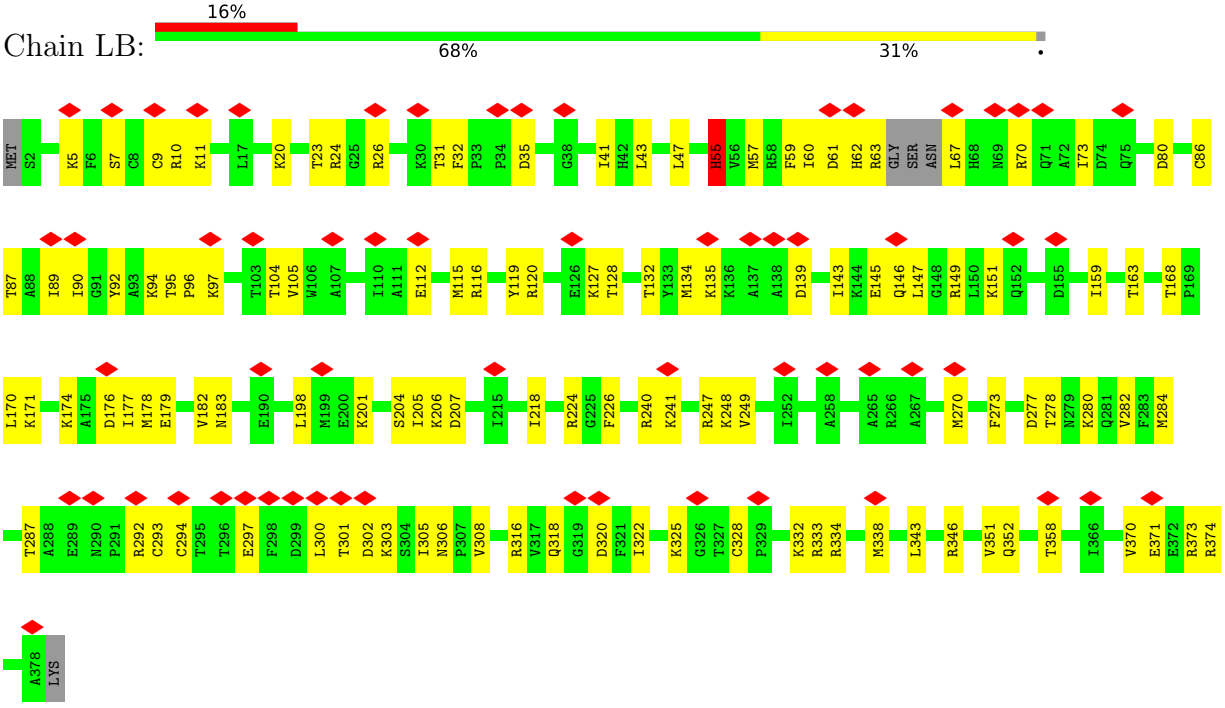
• Molecule 1: Ribosomal protein L2

Chain LA:



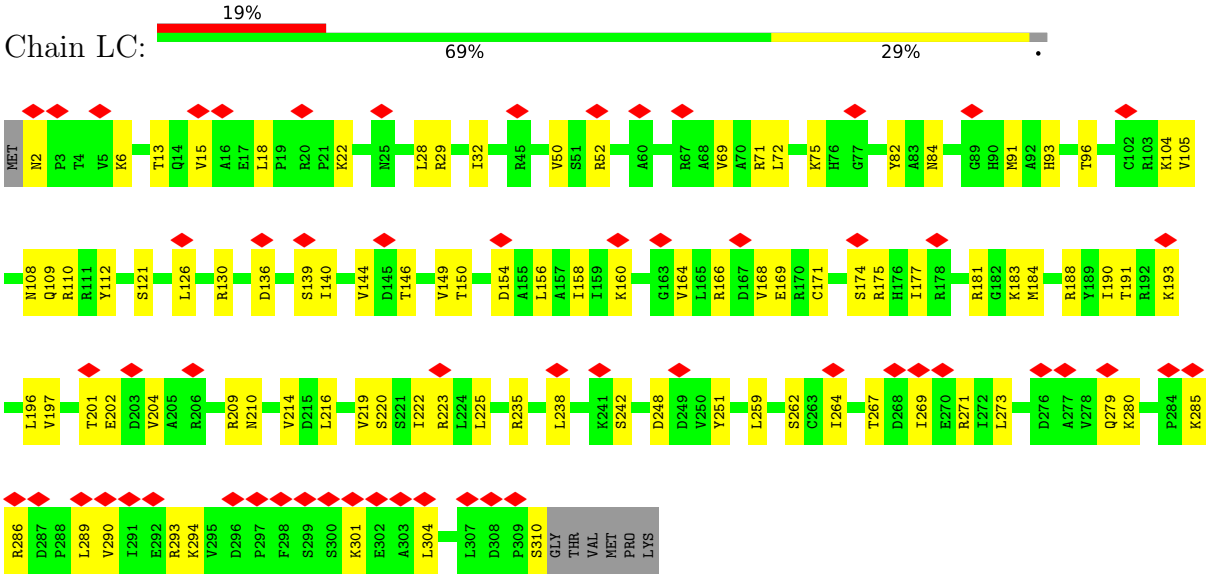
• Molecule 2: Ribosomal protein L3

Chain LB:



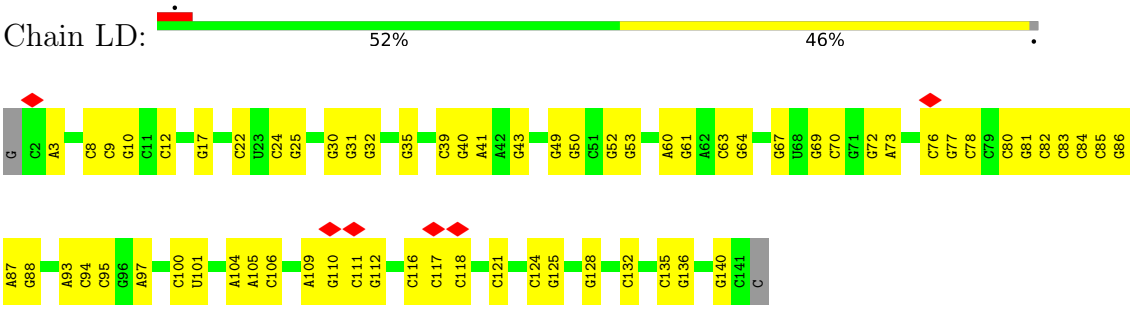
• Molecule 3: Ribosomal protein L4

Chain LC:



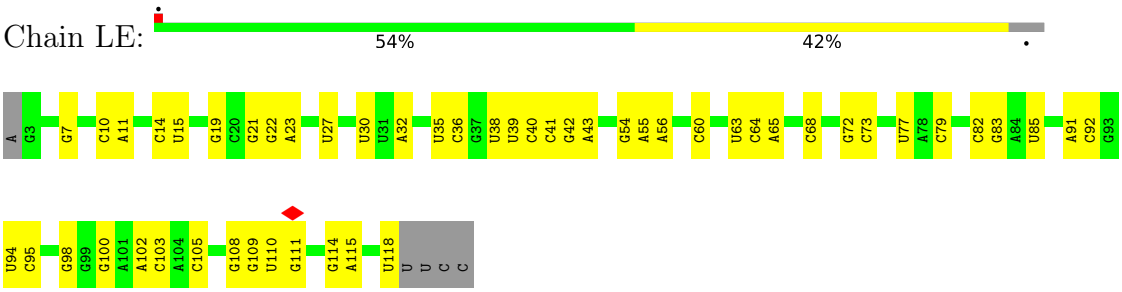
- Molecule 4: 5.8S rRNA

Chain LD:



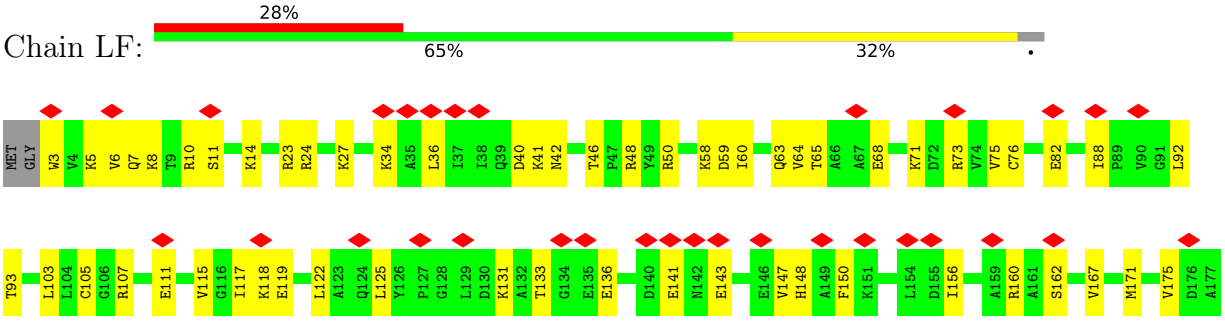
- Molecule 5: 5S rRNA

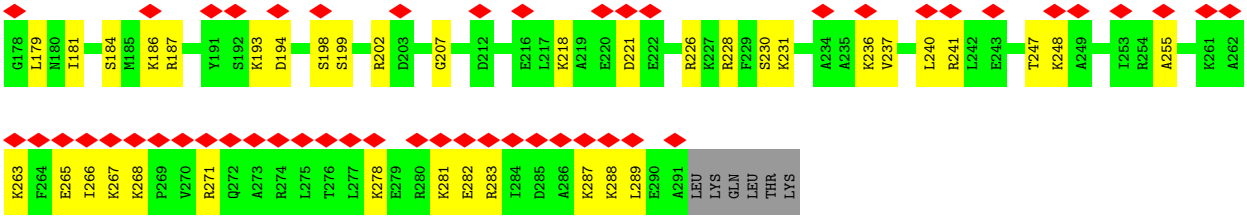
Chain LE:



- Molecule 6: Ribosomal protein L5

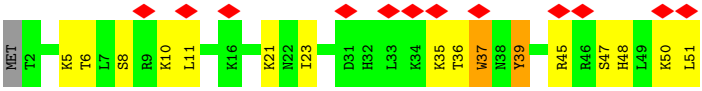
Chain LF:





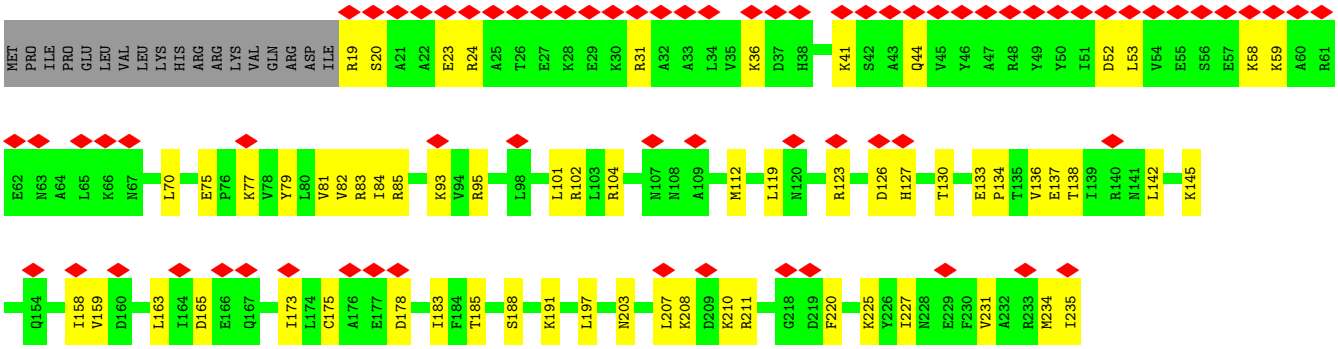
• Molecule 7: Ribosomal protein L39

Chain LG:



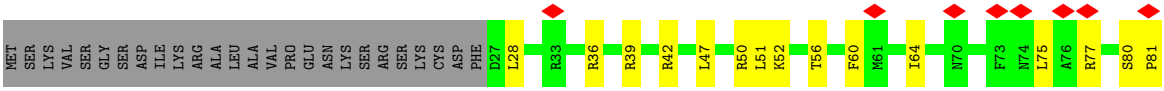
• Molecule 8: Ribosomal protein L7

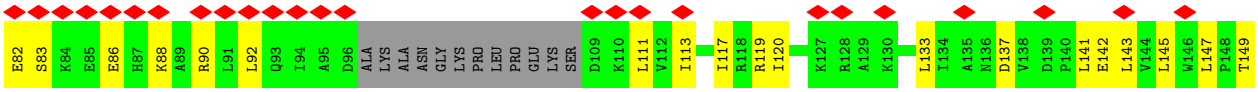
Chain LH:

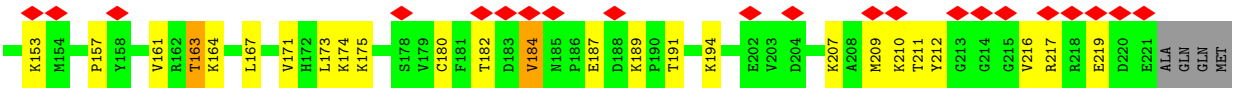


• Molecule 9: 60S ribosomal protein L7a

Chain LI:

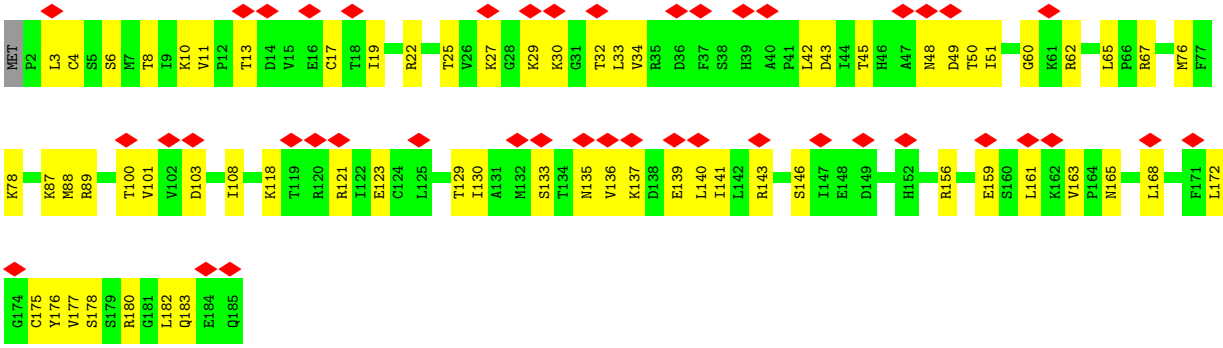




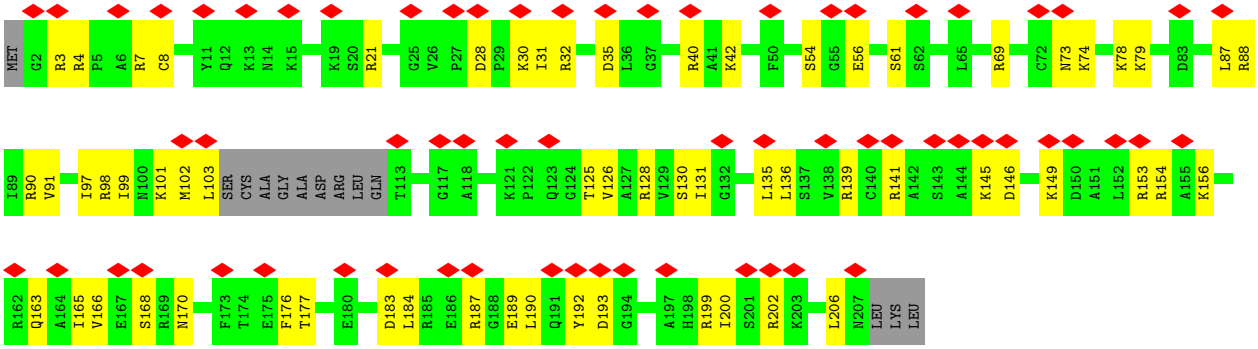


• Molecule 10: Ribosomal protein L6

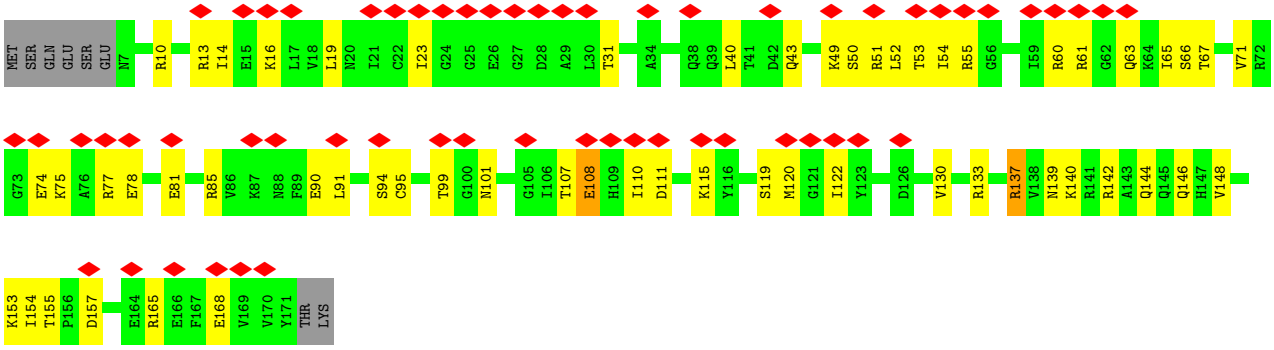
Chain LJ:



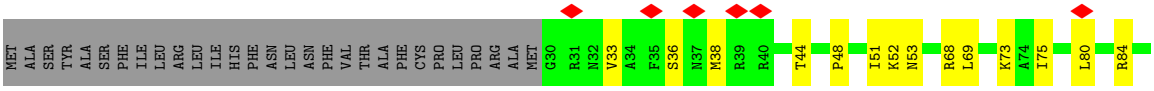
• Molecule 11: Ribosomal protein L10

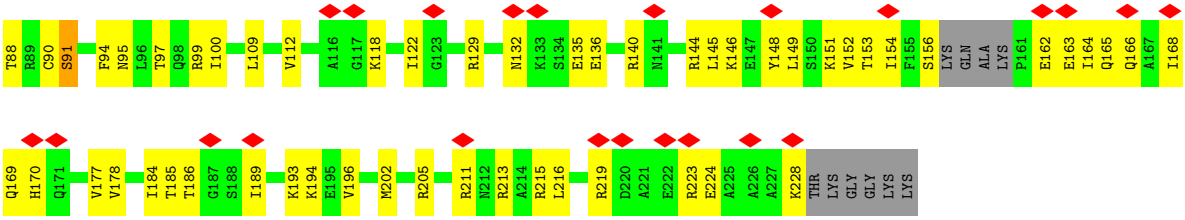


• Molecule 12: Ribosomal protein L11

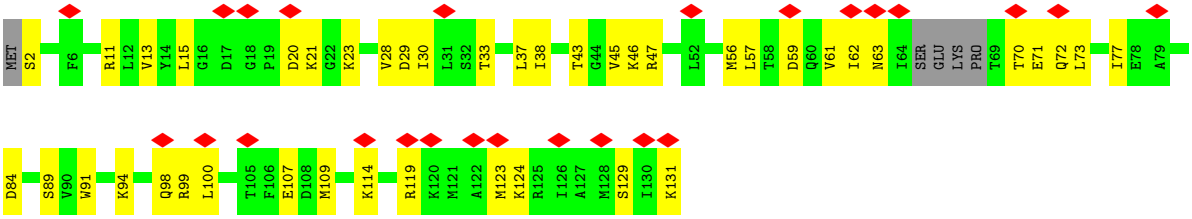


• Molecule 13: 60S ribosomal protein L13

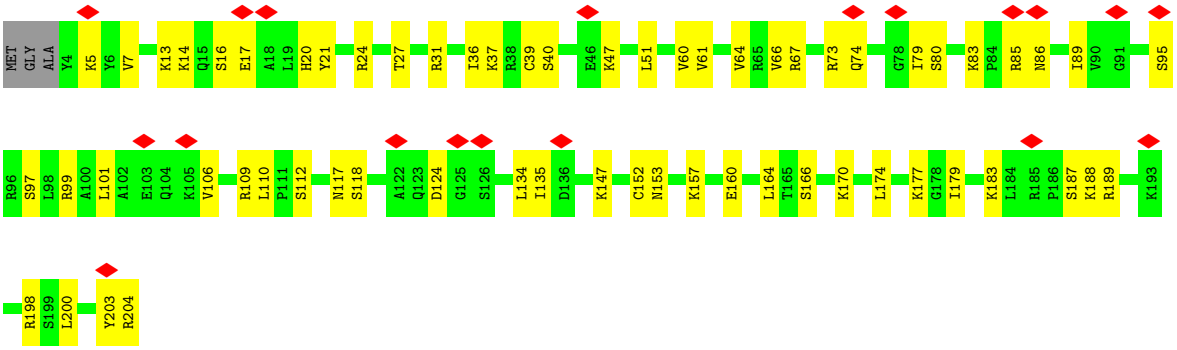




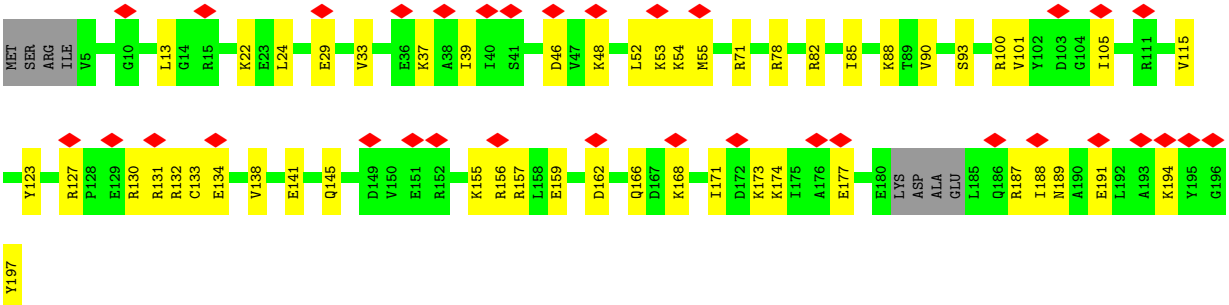
• Molecule 14: Ribosomal protein L14



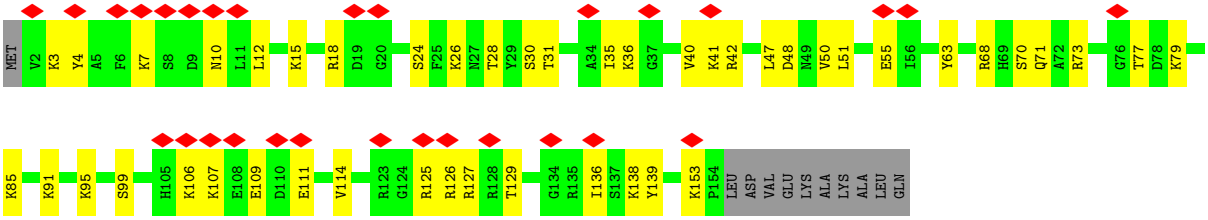
• Molecule 15: Ribosomal protein L15



• Molecule 16: Ribosomal protein L13a

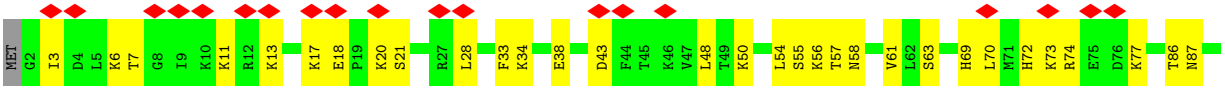


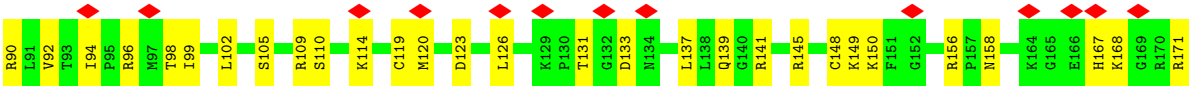
• Molecule 17: Ribosomal protein L17

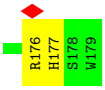


• Molecule 18: Ribosomal protein L18

Chain LR:

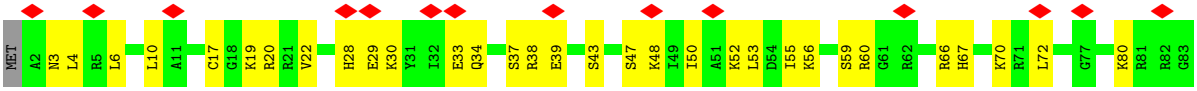


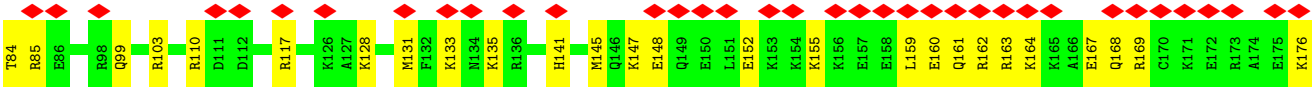


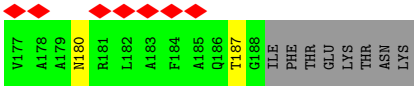


• Molecule 19: Ribosomal protein L19

Chain LS:

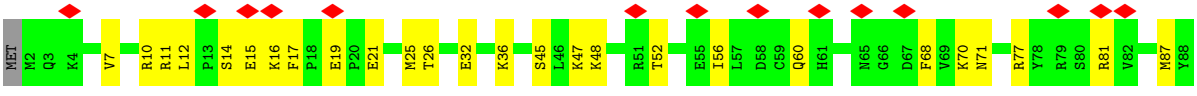






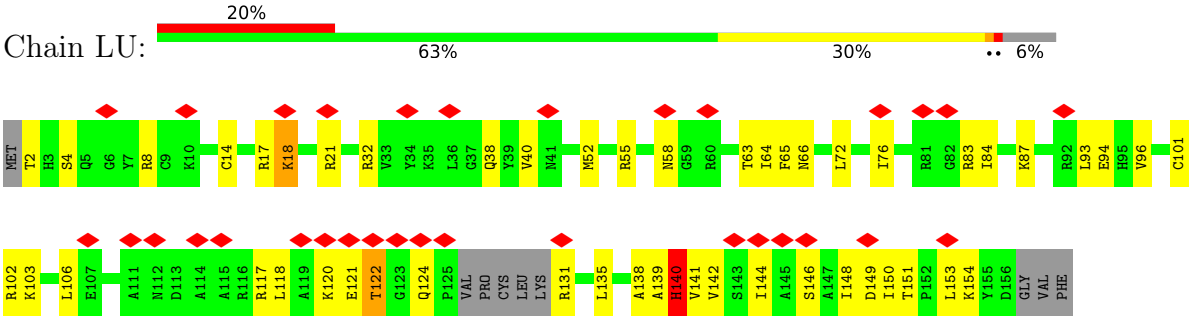
• Molecule 20: 60S ribosomal protein L18a

Chain LT:



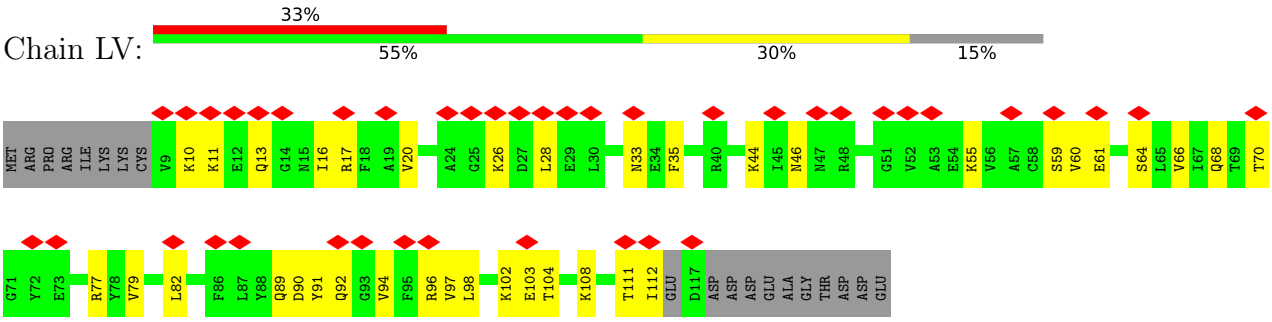
• Molecule 21: Ribosomal protein L21

Chain LU:



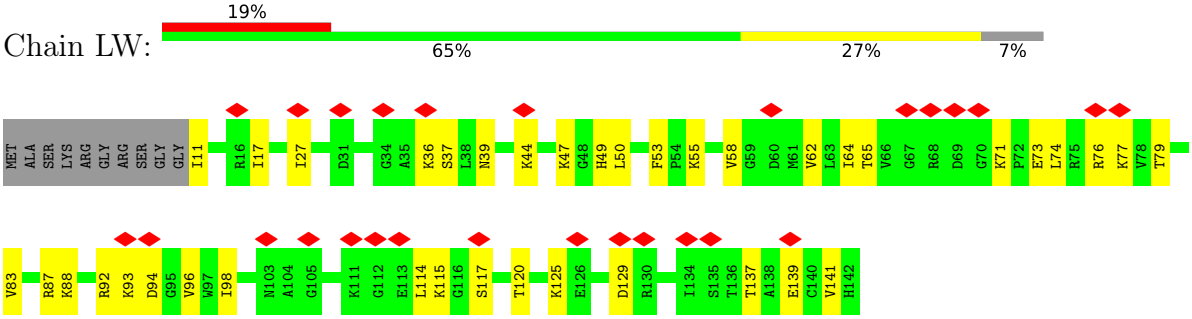
• Molecule 22: Ribosomal L22e

Chain LV:



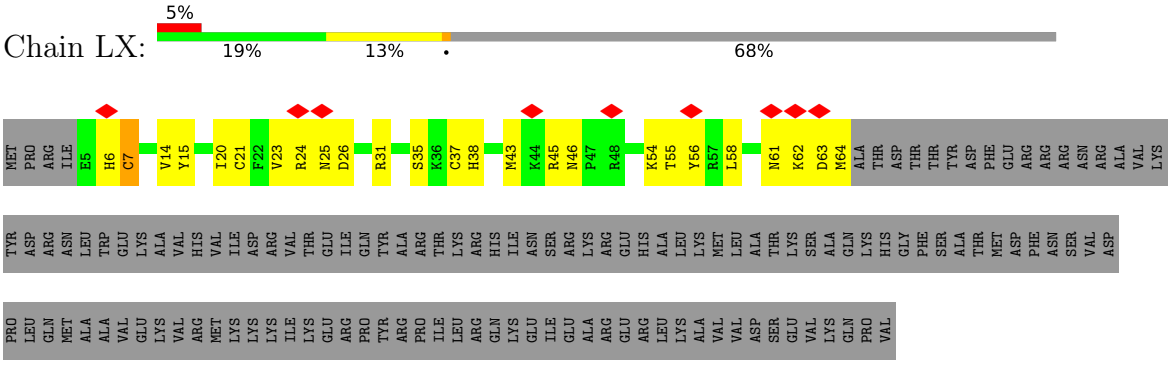
• Molecule 23: Ribosomal protein L23

Chain LW:



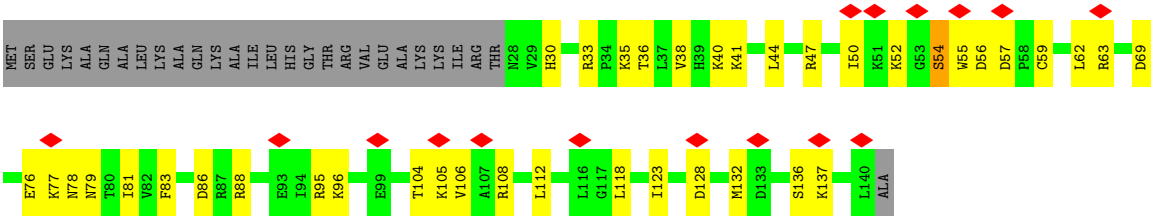
• Molecule 24: Ribosomal protein L24

Chain LX:

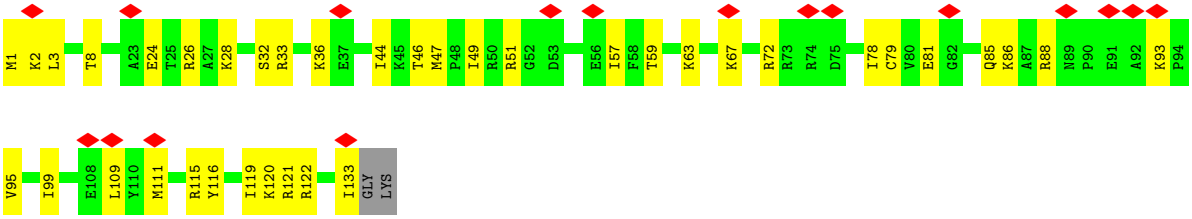


• Molecule 25: Ribosomal protein L23A

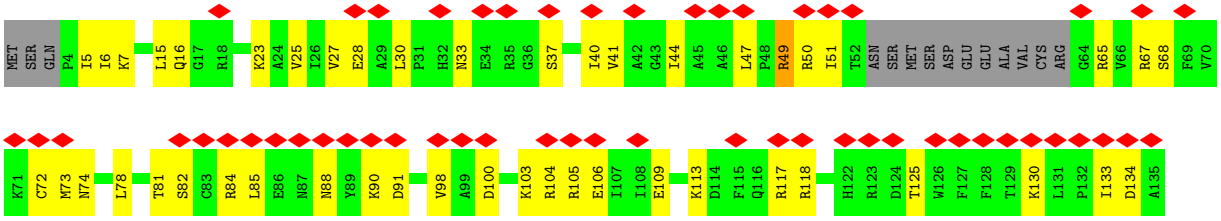
Chain LY:



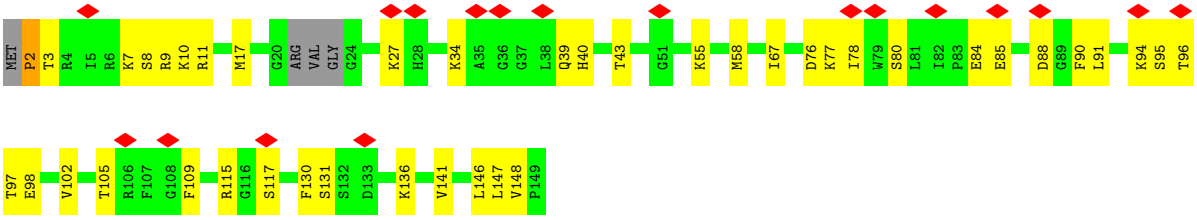
• Molecule 26: Ribosomal protein L26



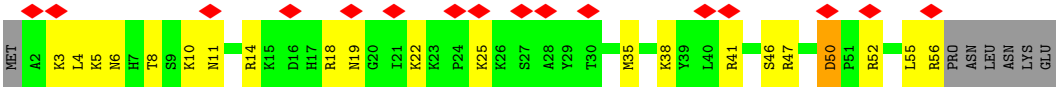
• Molecule 27: 60S ribosomal protein L27



• Molecule 28: Ribosomal protein L27a

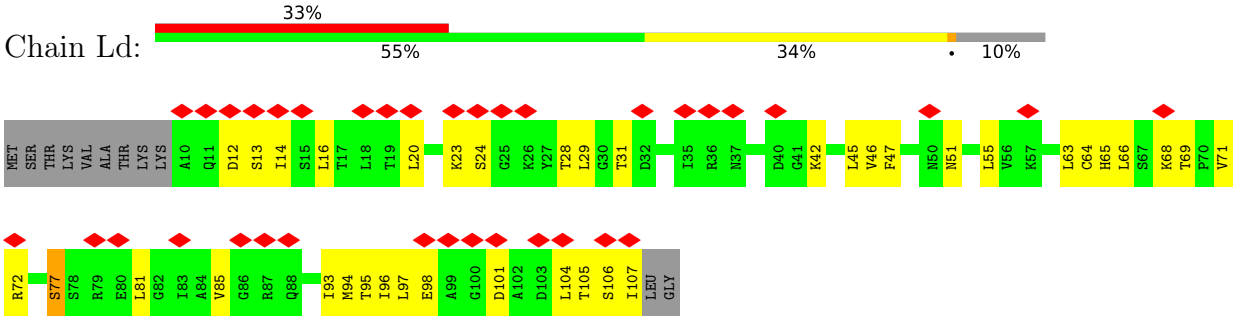


• Molecule 29: 60S ribosomal protein L29



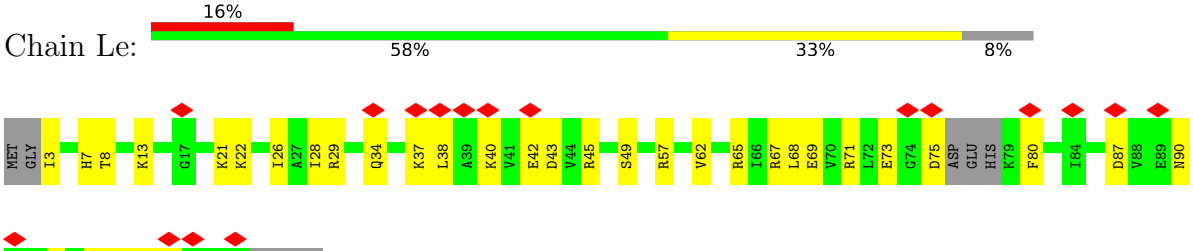
• Molecule 30: Ribosomal protein L30

Chain Ld:



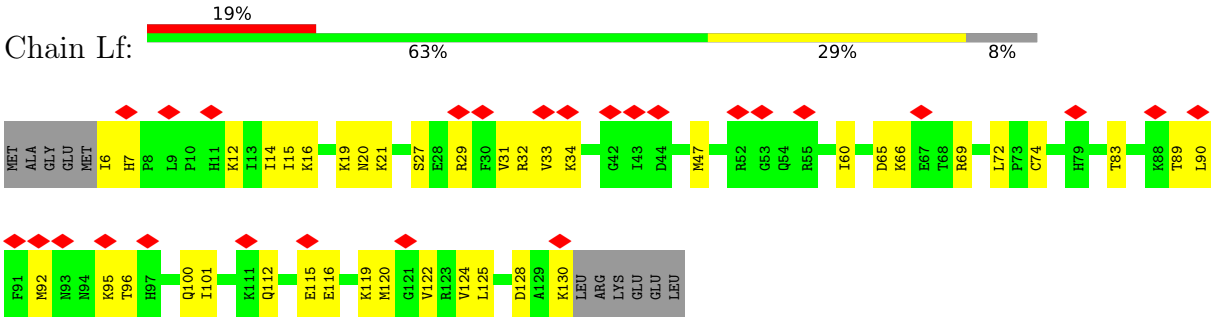
• Molecule 31: Ribosomal protein L31B

Chain Le:



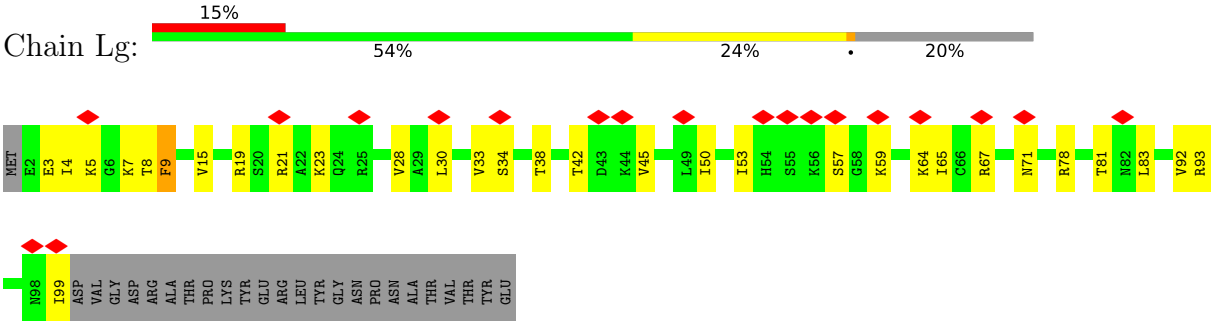
• Molecule 32: Ribosomal protein L32

Chain Lf:



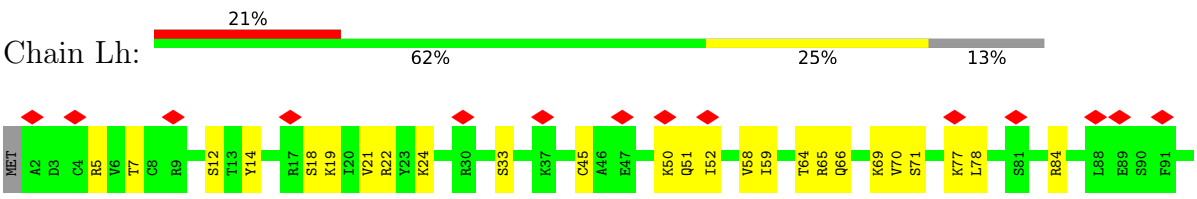
• Molecule 33: Ribosomal protein L35a

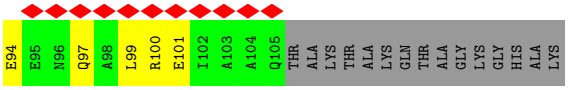
Chain Lg:



• Molecule 34: Ribosomal protein L34

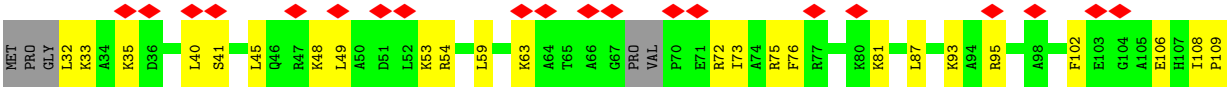
Chain Lh:

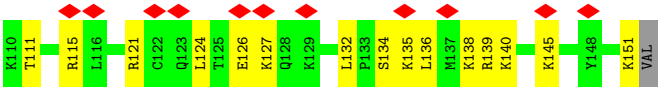




• Molecule 35: Ribosomal protein L29

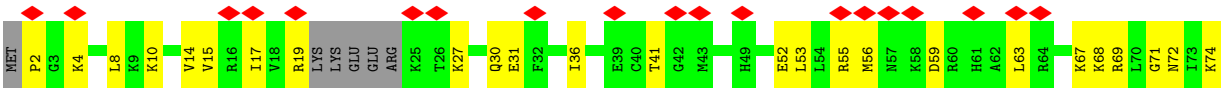
Chain Li:

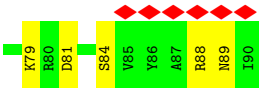




• Molecule 36: Ribosomal protein L36-1

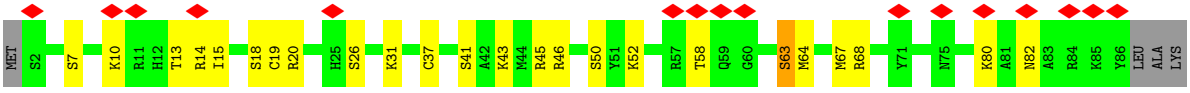
Chain Lj:





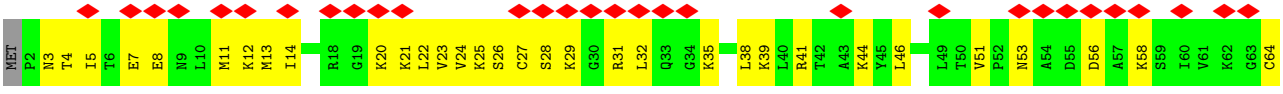
• Molecule 37: Ribosomal protein L37

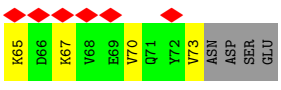
Chain Lk:



• Molecule 38: Ribosomal L38e

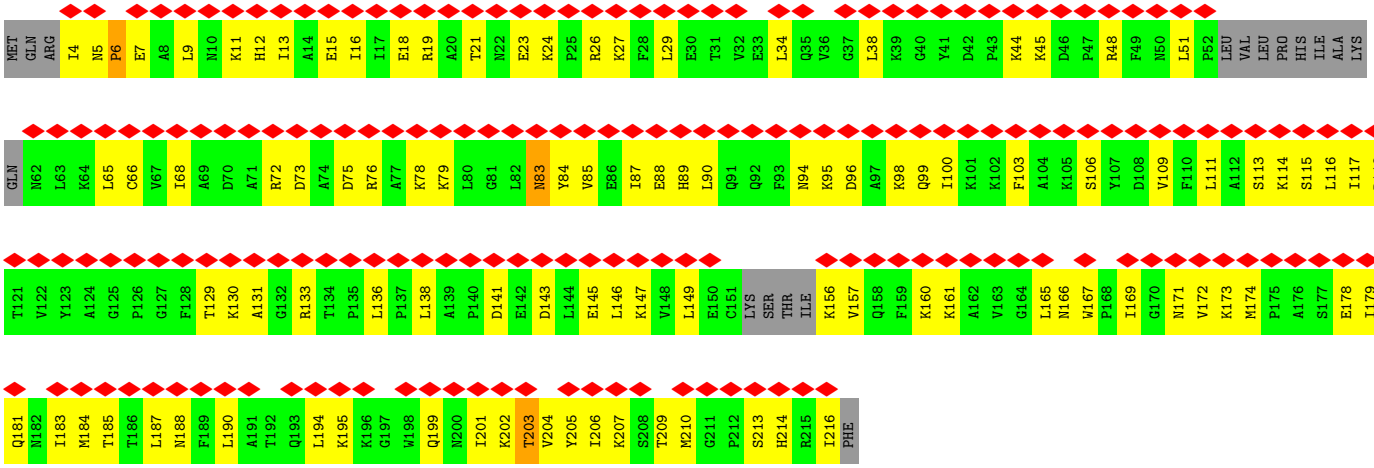
Chain Ll:



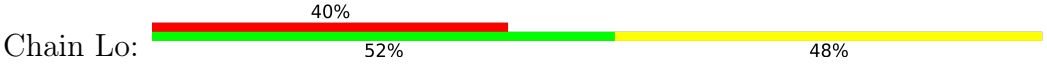


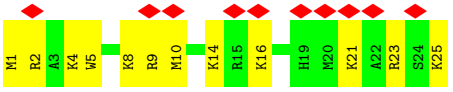
• Molecule 39: Ribosomal protein L10a

Chain Ln:

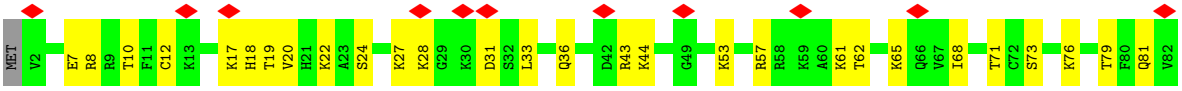


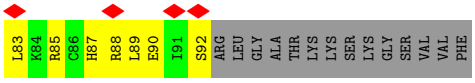
• Molecule 40: 60S ribosomal protein L41



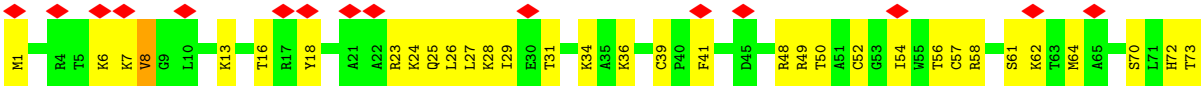


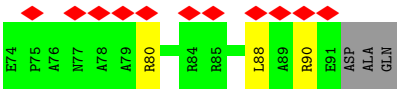
• Molecule 41: Ribosomal protein L44



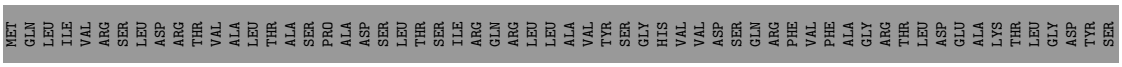


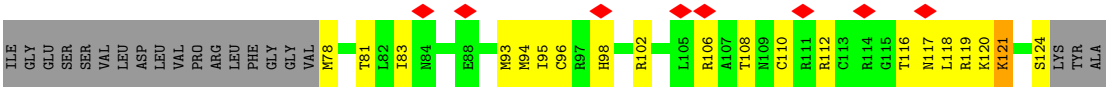
• Molecule 42: Ribosomal protein L37a



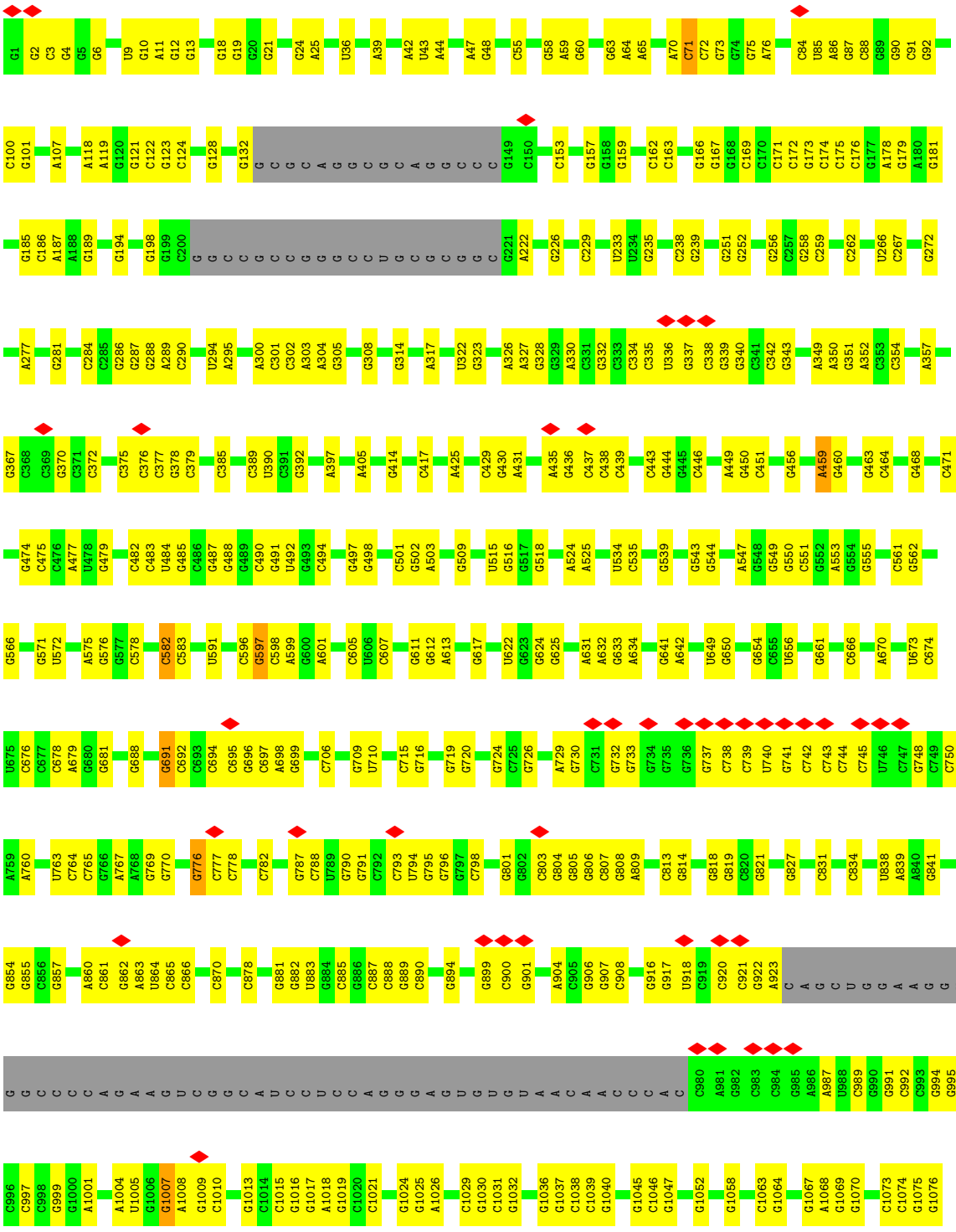


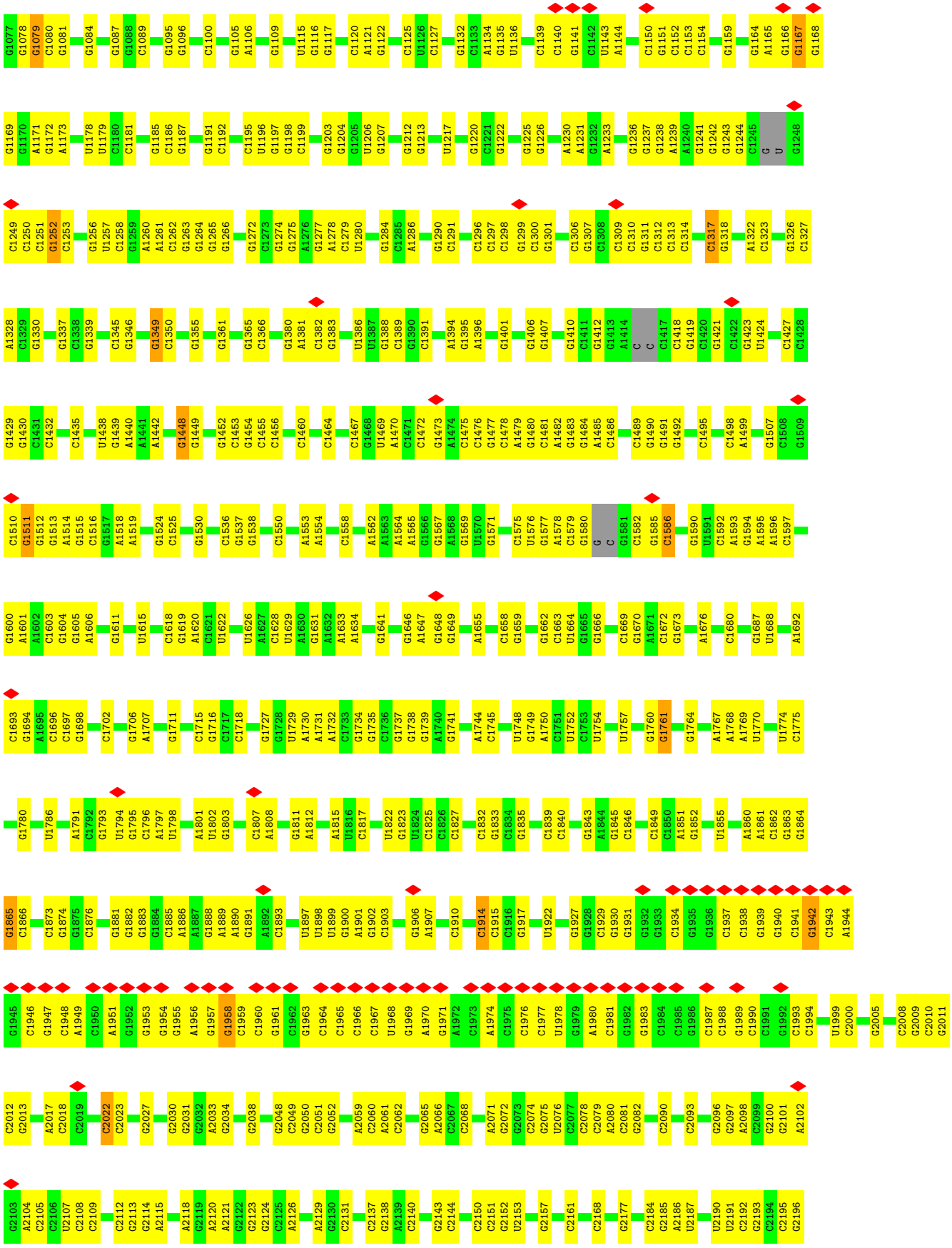
• Molecule 43: Ubiquitin/Ribosomal protein L40e

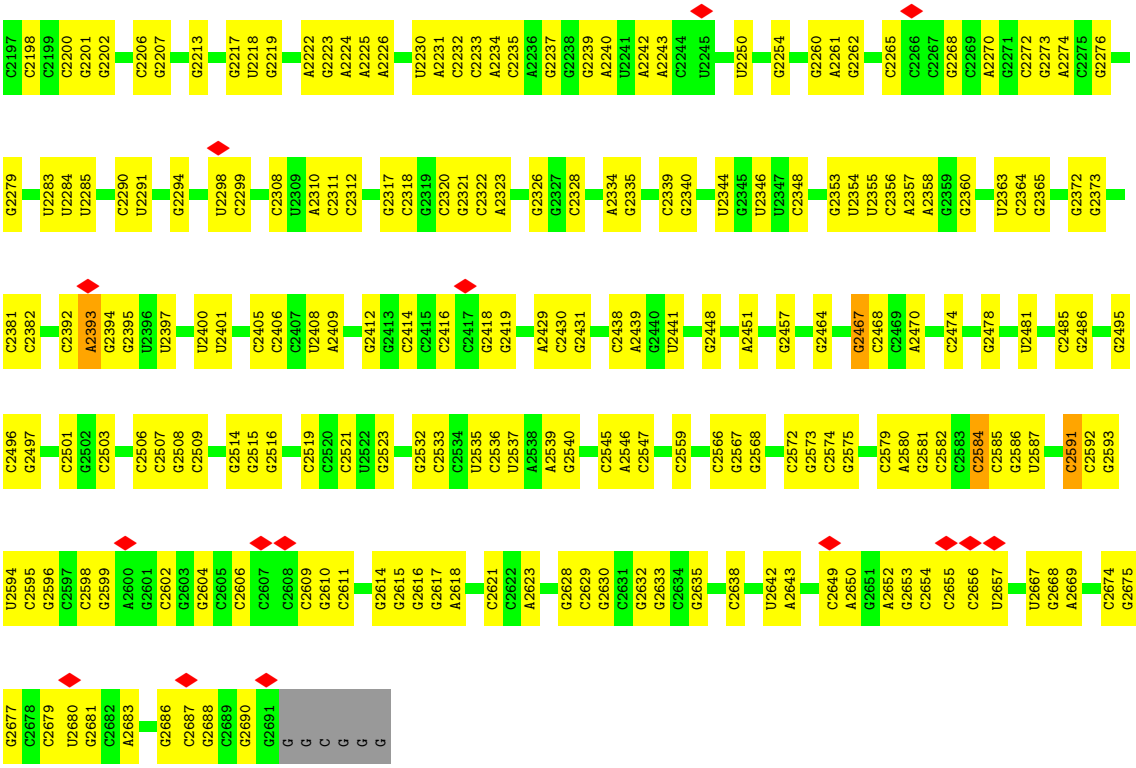




• Molecule 44: Large Subunit rRNA

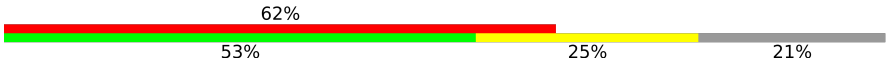


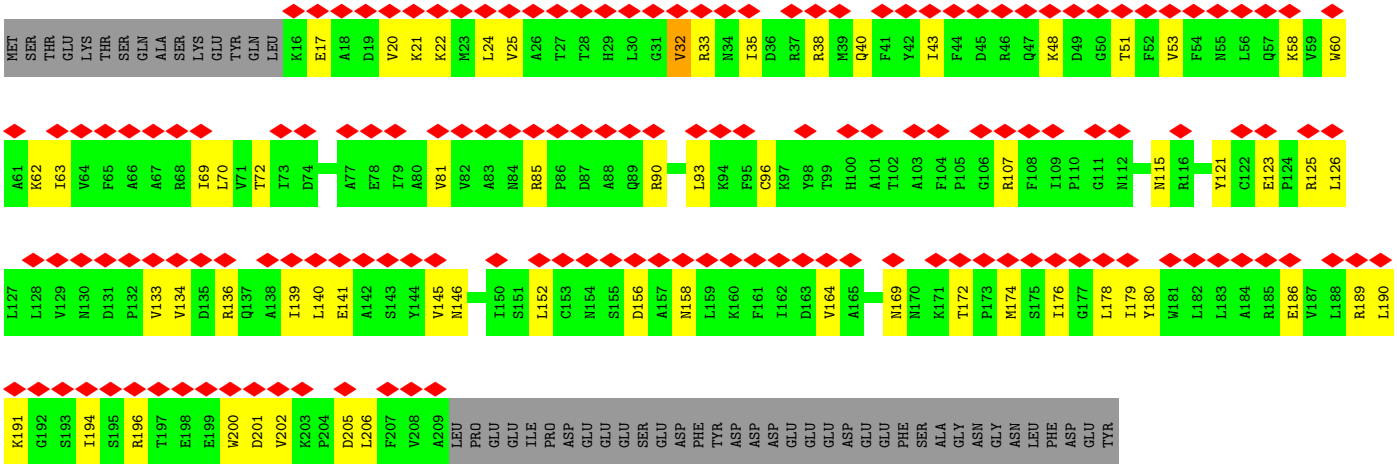




• Molecule 45: 40S ribosomal protein SA

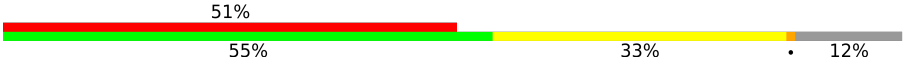
Chain SA:

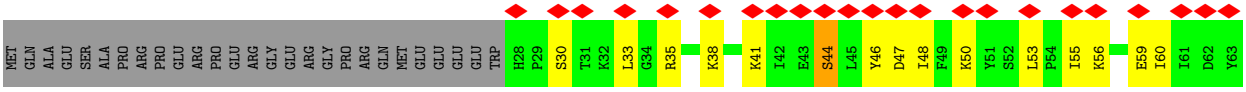


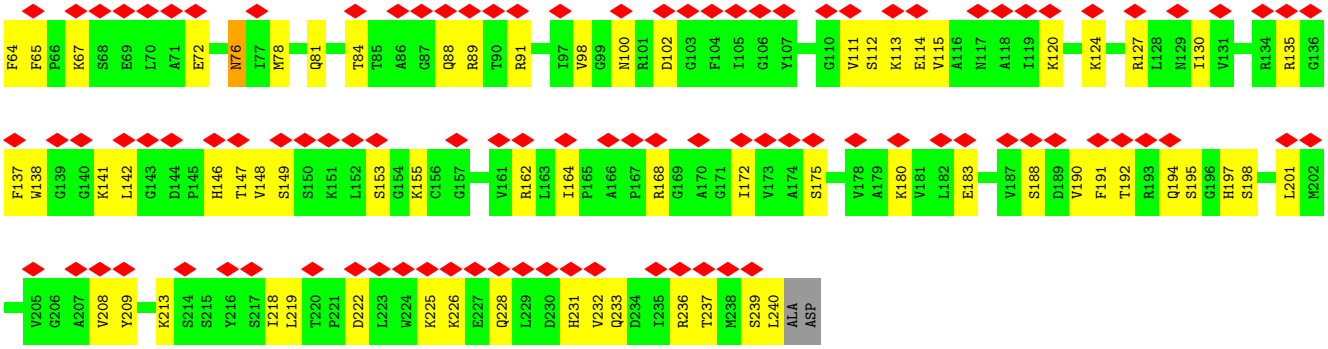


• Molecule 46: Ribosomal protein S2

Chain SB:

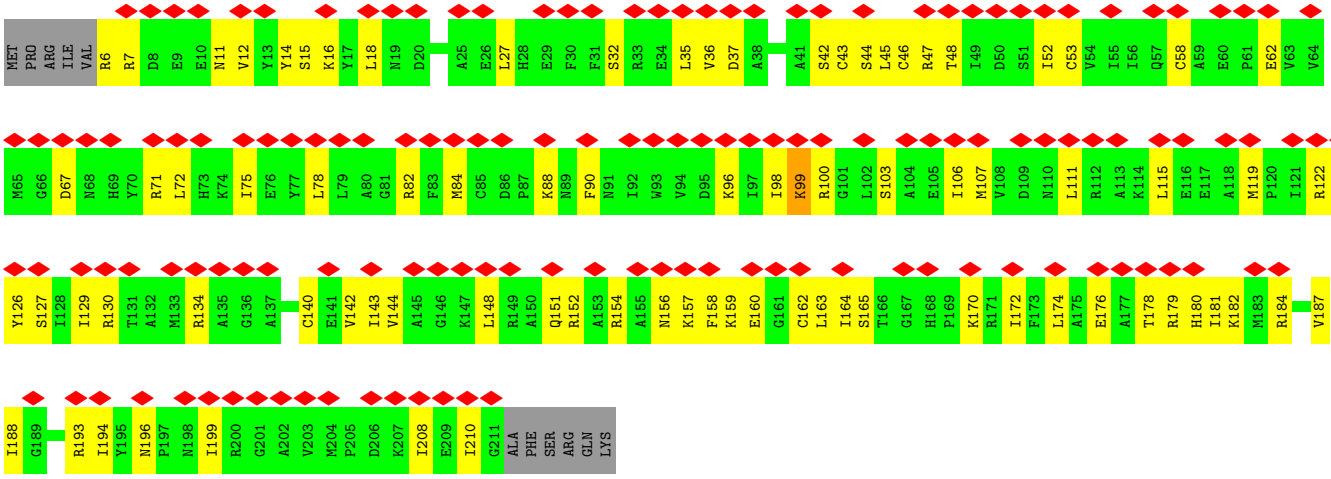






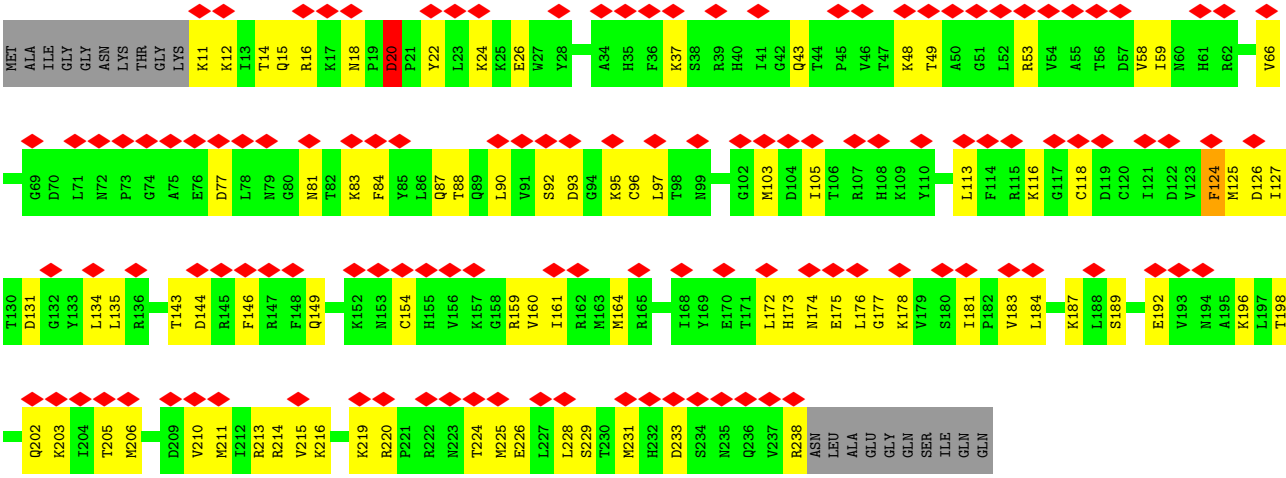
• Molecule 47: Ribosomal protein S3

Chain SC:



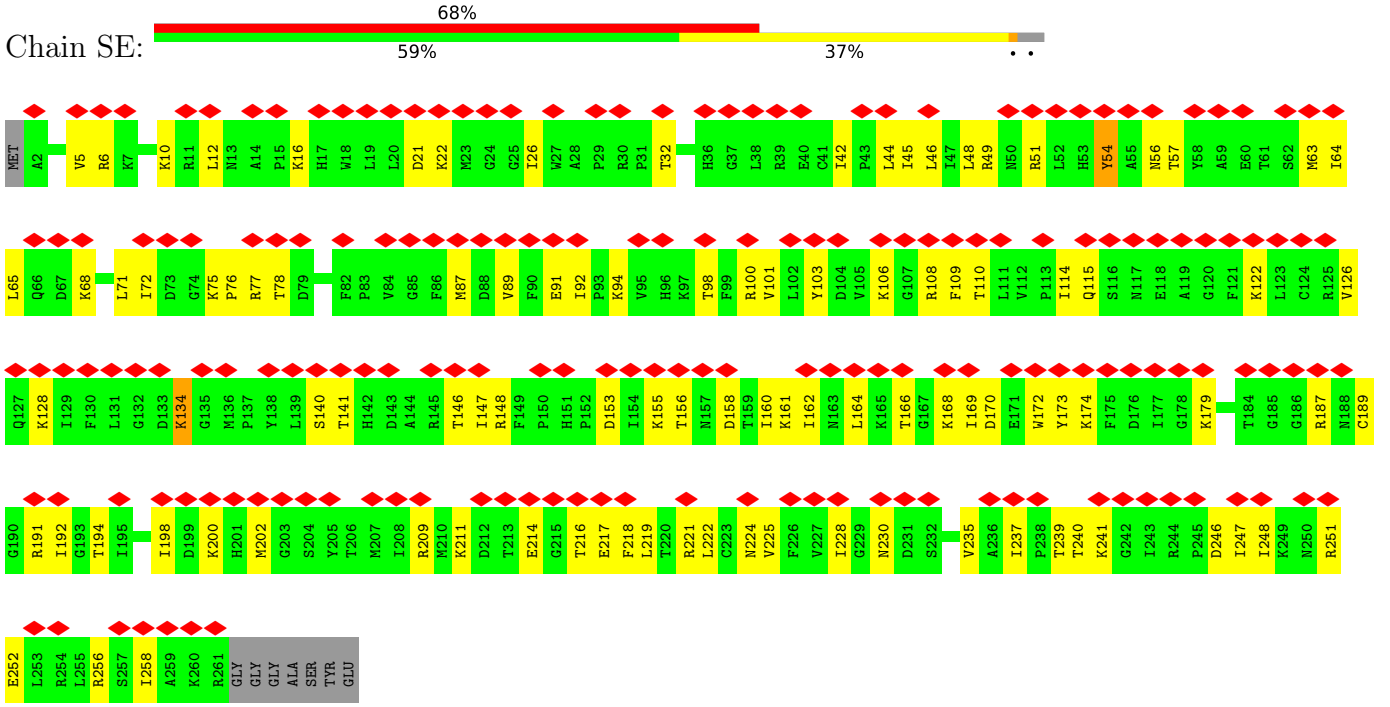
• Molecule 48: 40S ribosomal protein S3a

Chain SD:



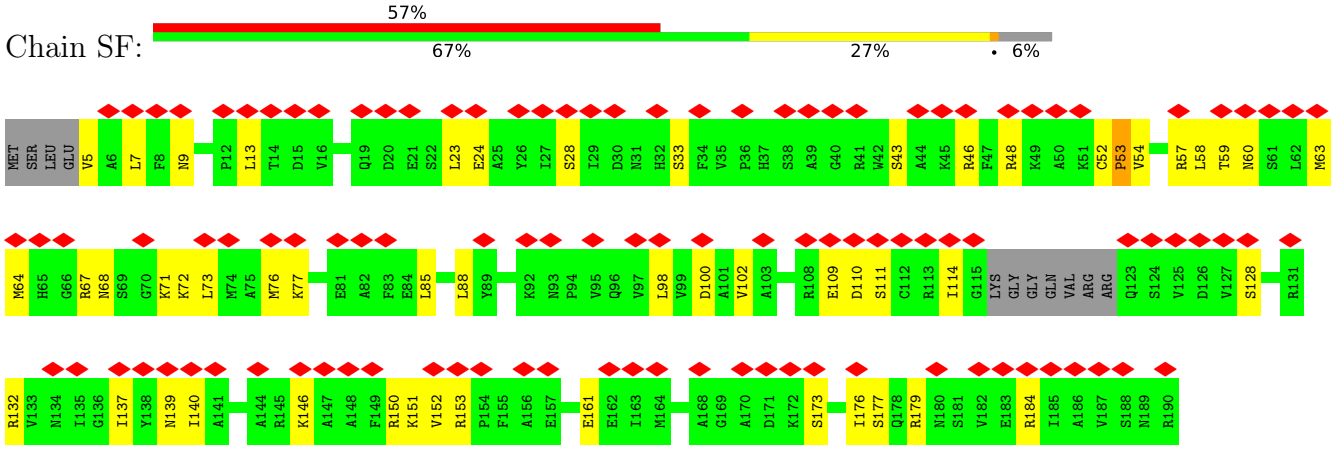
• Molecule 49: 40S ribosomal protein S4

Chain SE:



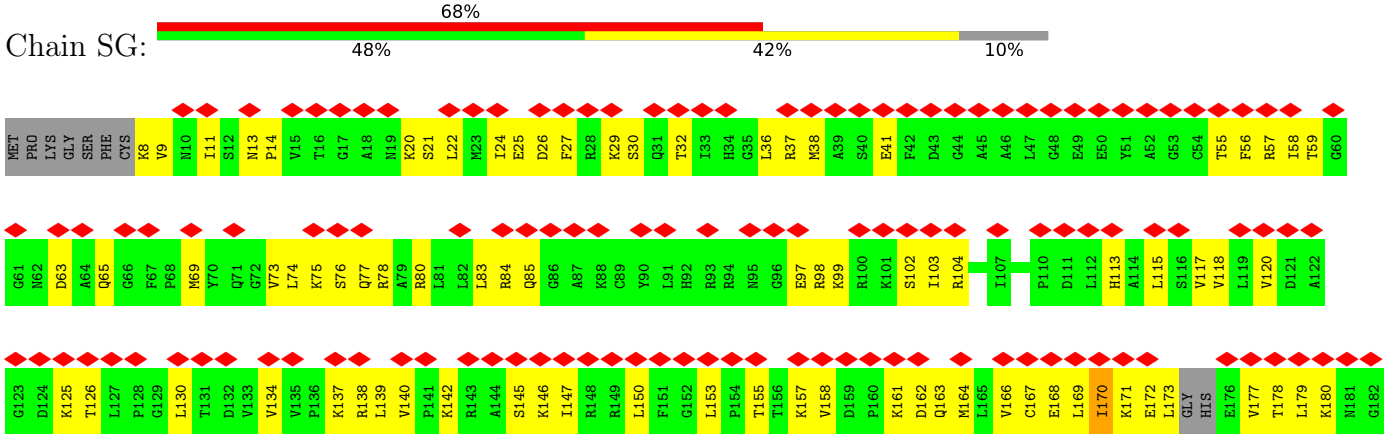
• Molecule 50: Ribosomal protein S5

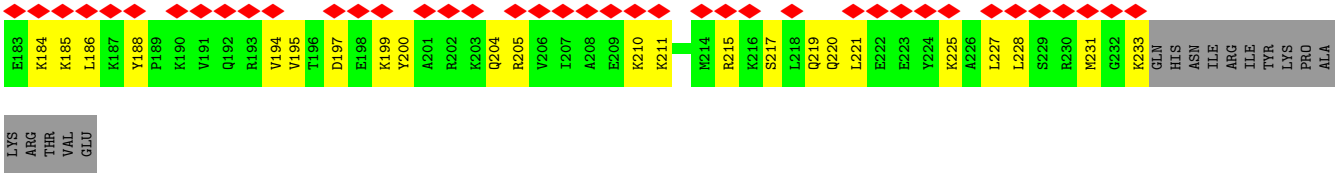
Chain SF:



• Molecule 51: 40S ribosomal protein S6

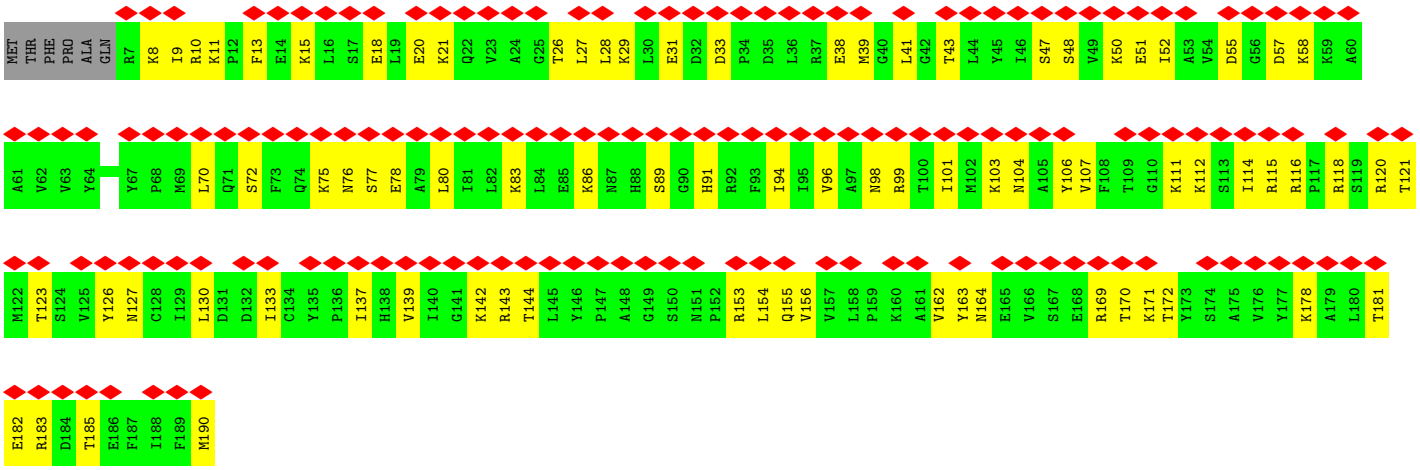
Chain SG:





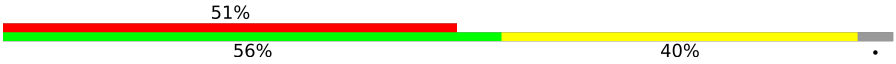
• Molecule 52: 40S ribosomal protein S7

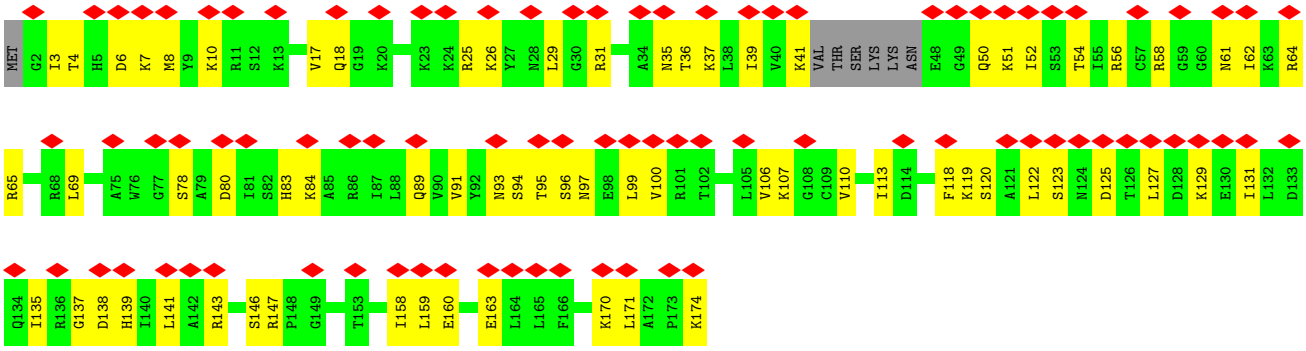
Chain SH:



• Molecule 53: 40S ribosomal protein S8

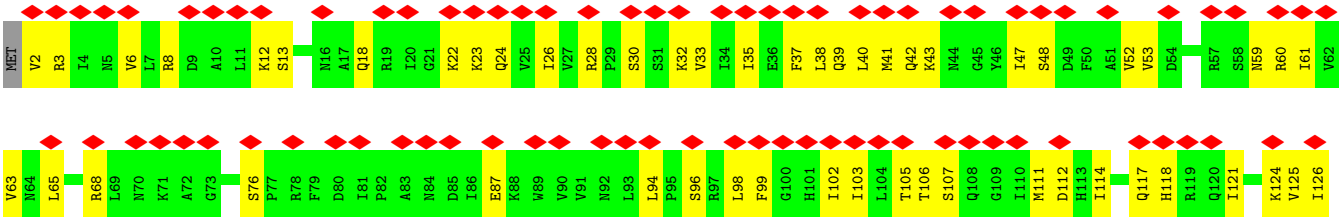
Chain SI:





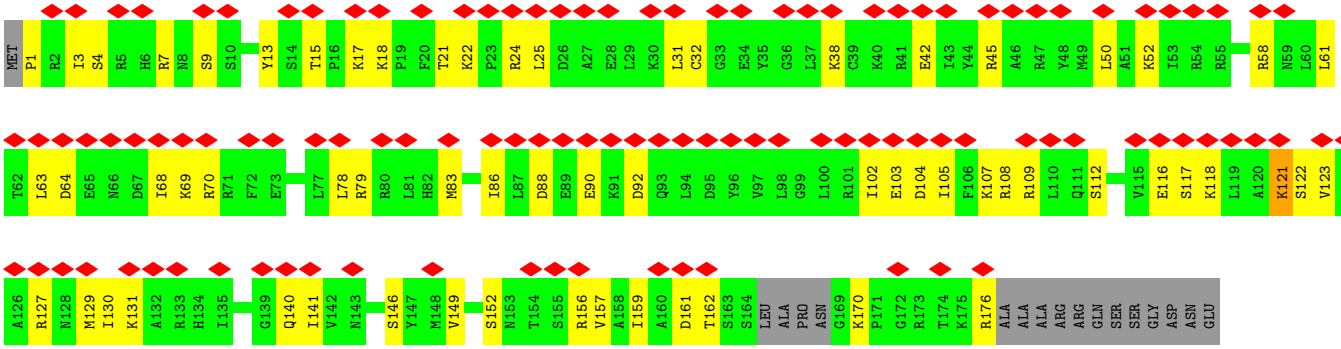
• Molecule 54: Ribosomal protein S15A

Chain SJ:



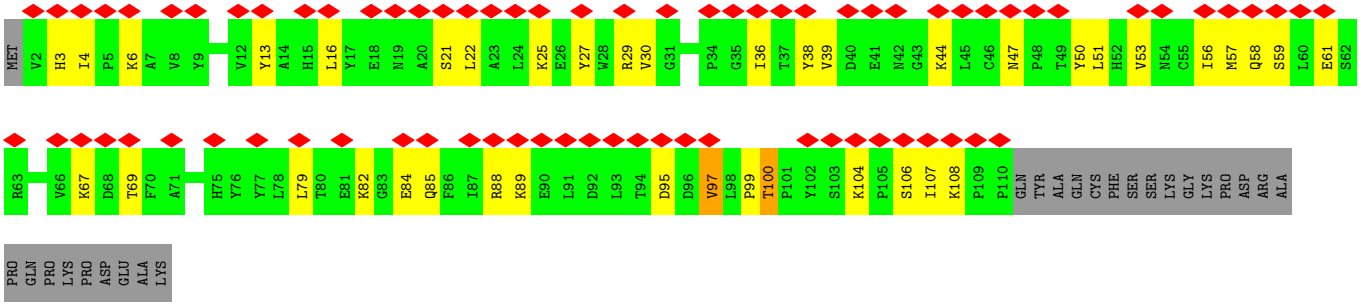
• Molecule 55: Ribosomal protein S9

Chain SK:



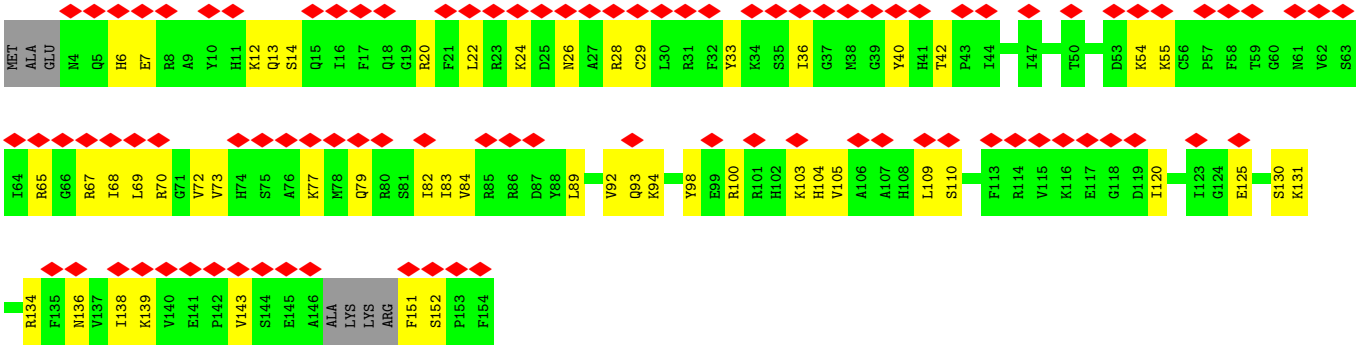
• Molecule 56: Ribosomal protein S10B

Chain SL:



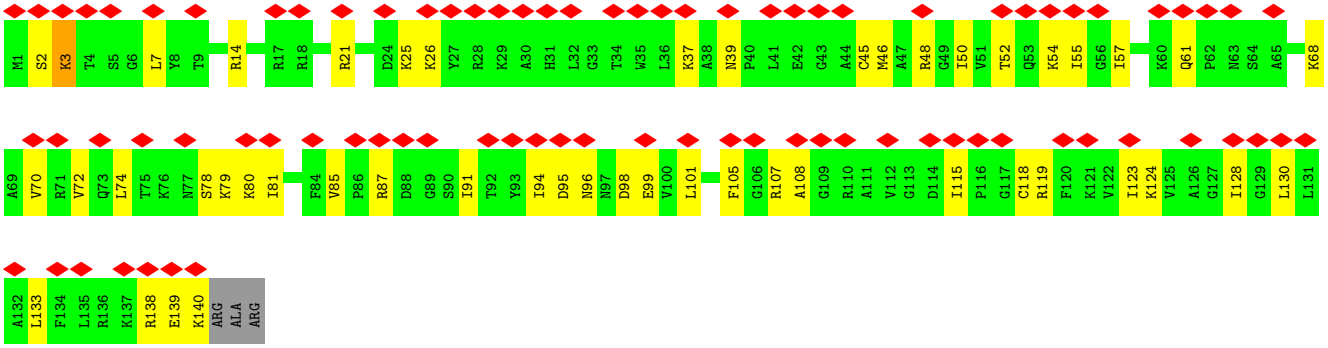
• Molecule 57: Ribosomal protein S11

Chain SM:



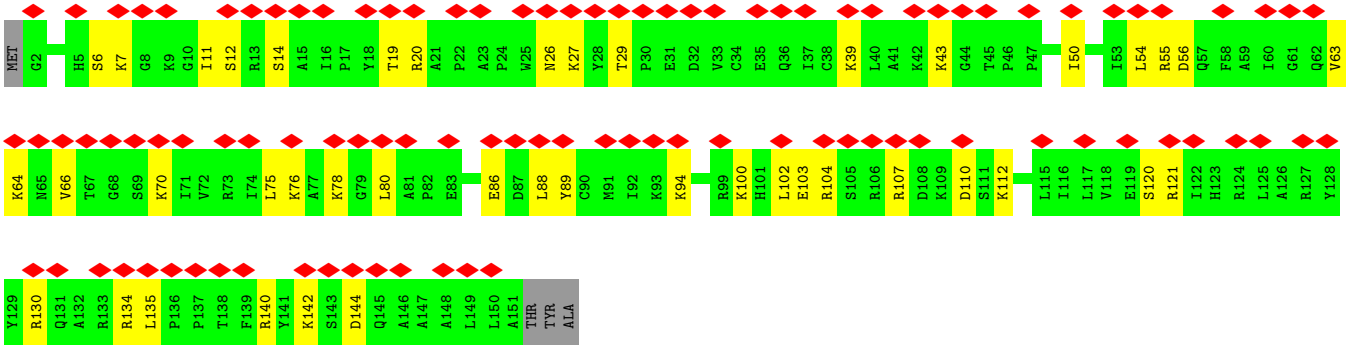
• Molecule 58: SSU ribosomal protein S12P

Chain SO:



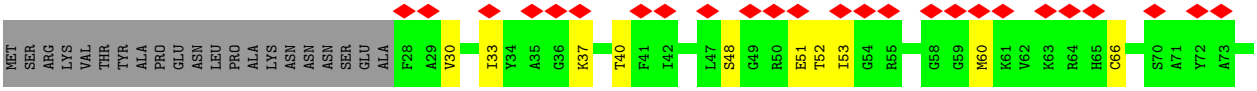
• Molecule 59: Ribosomal protein S13

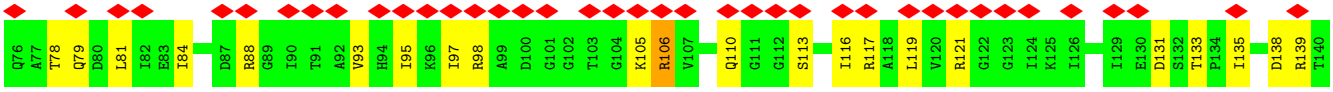
Chain SP:

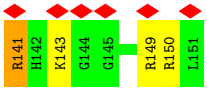


• Molecule 60: Ribosomal protein S14

Chain SQ:

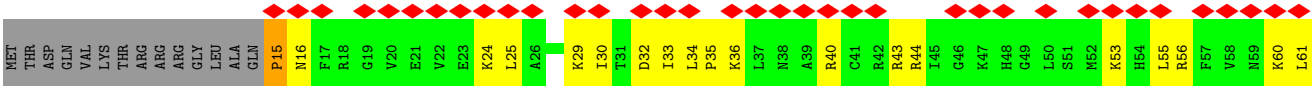


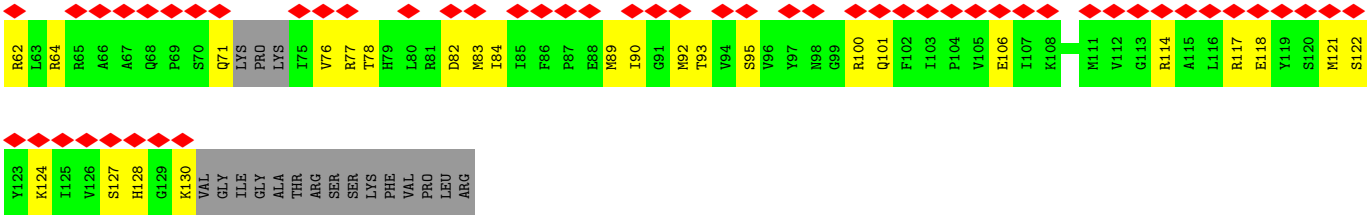




• Molecule 61: Ribosomal protein S15

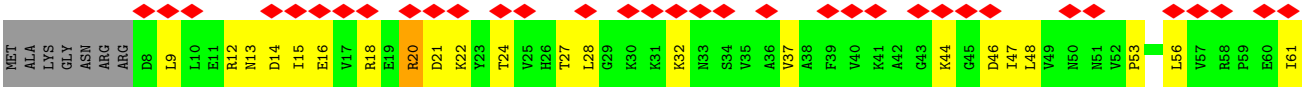
Chain SR:





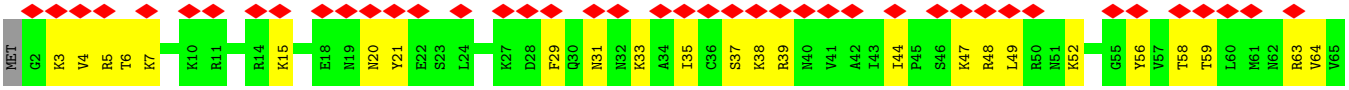
• Molecule 62: Ribosomal protein S16

Chain ST:



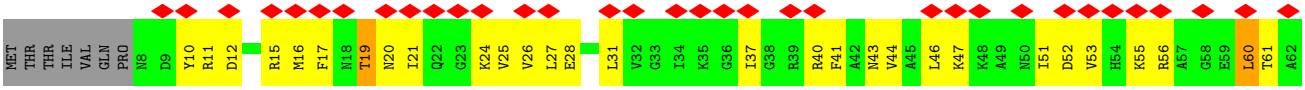
• Molecule 63: Ribosomal protein S17

Chain SU:



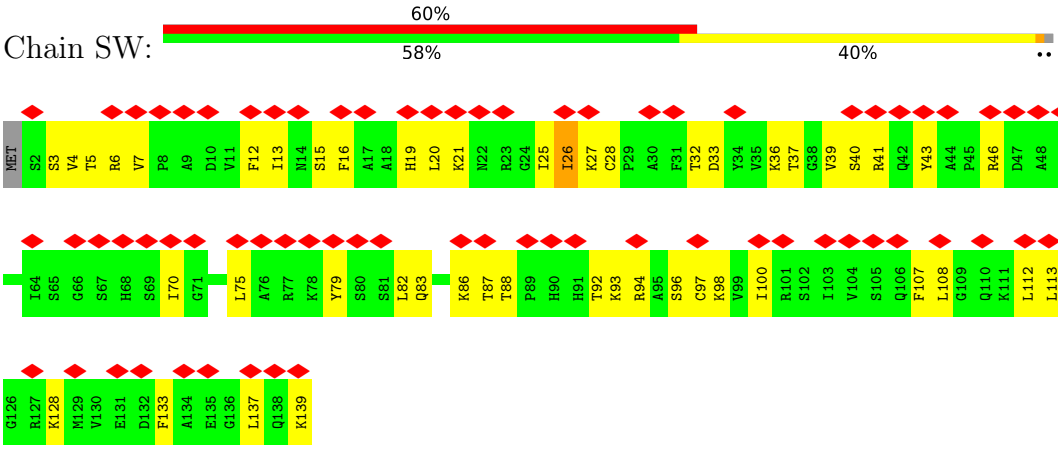
• Molecule 64: Ribosomal protein S18

Chain SV:



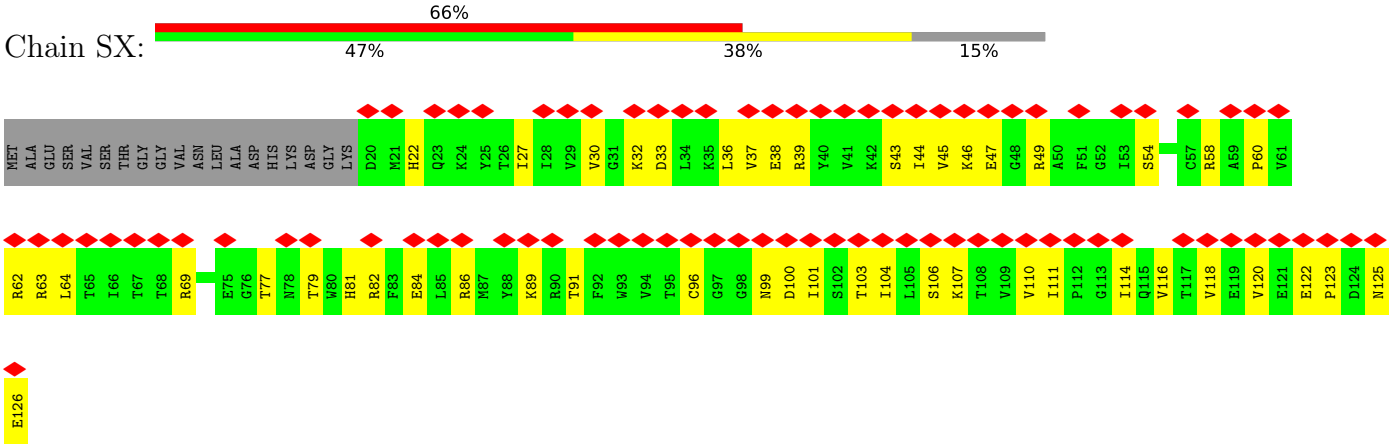
• Molecule 65: Ribosomal protein S19e

Chain SW:



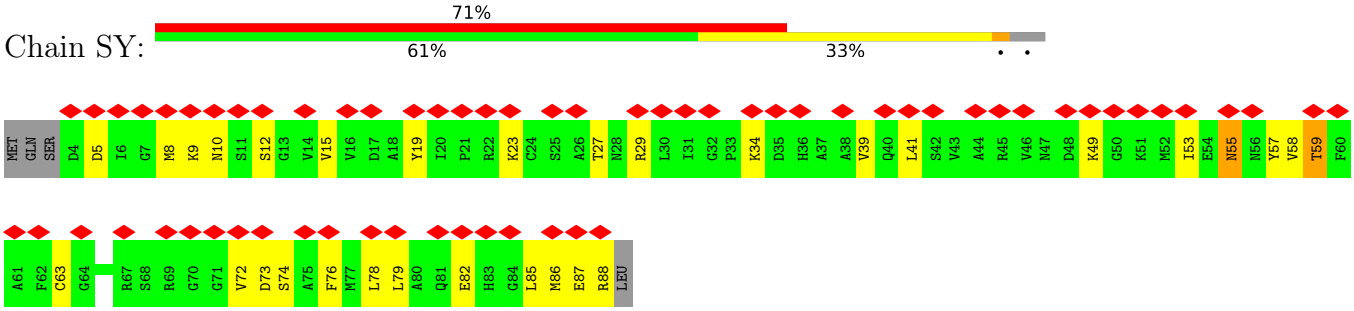
• Molecule 66: Ribosomal protein S20

Chain SX:



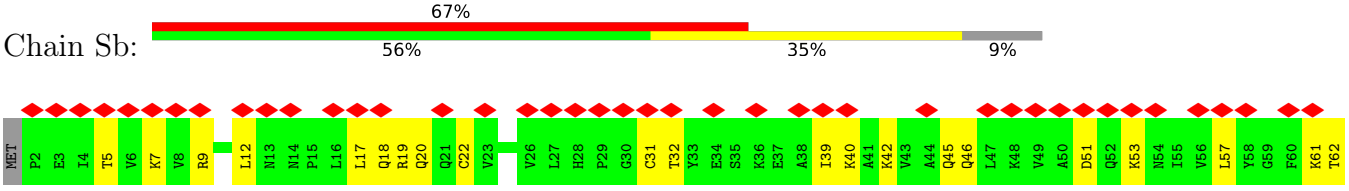
• Molecule 67: 40S ribosomal protein S21

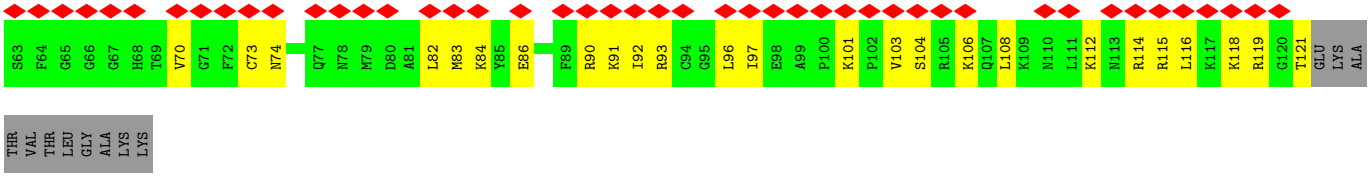
Chain SY:



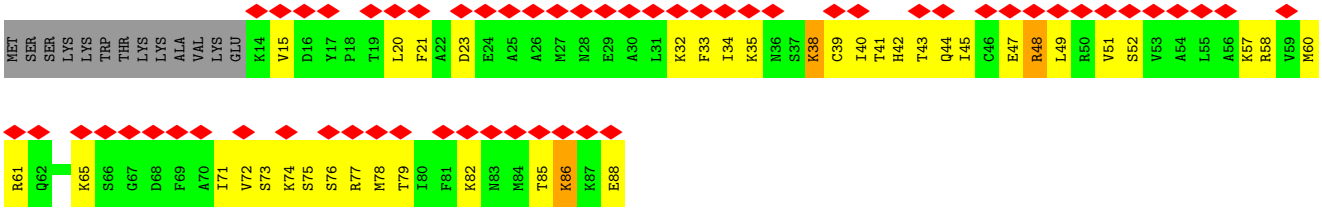
• Molecule 68: Ribosomal protein S24

Chain Sb:

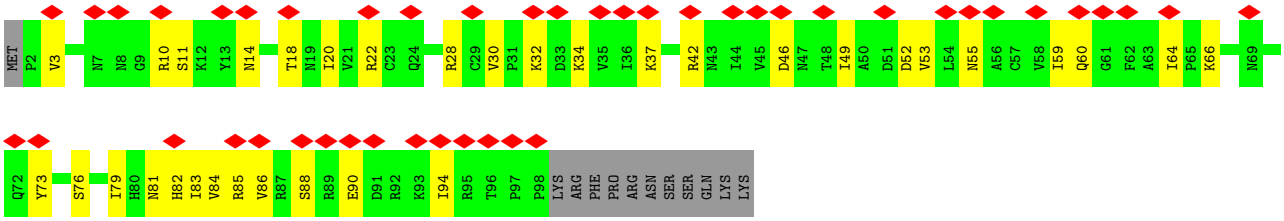




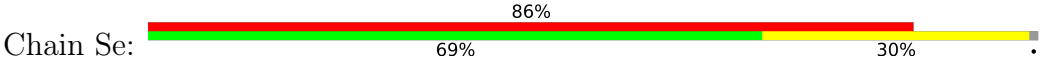
• Molecule 69: 40S ribosomal protein S25

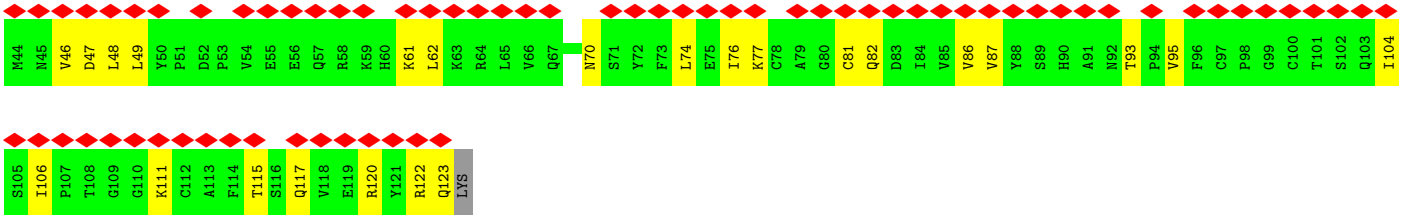


• Molecule 70: 40S ribosomal protein S26

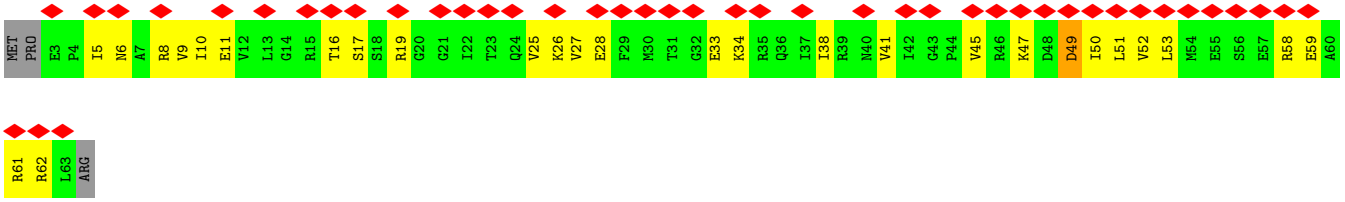


• Molecule 71: Ribosomal protein S27



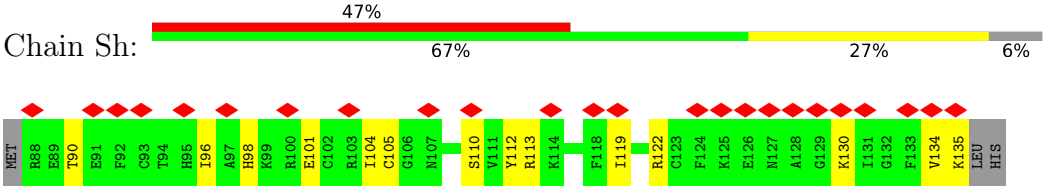


• Molecule 72: Ribosomal protein S28



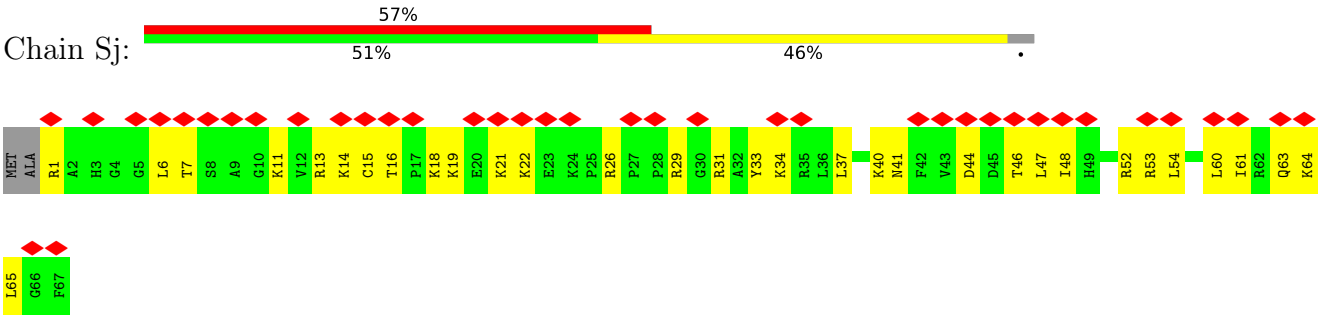
• Molecule 73: Ribosomal protein S29A

Chain Sh:



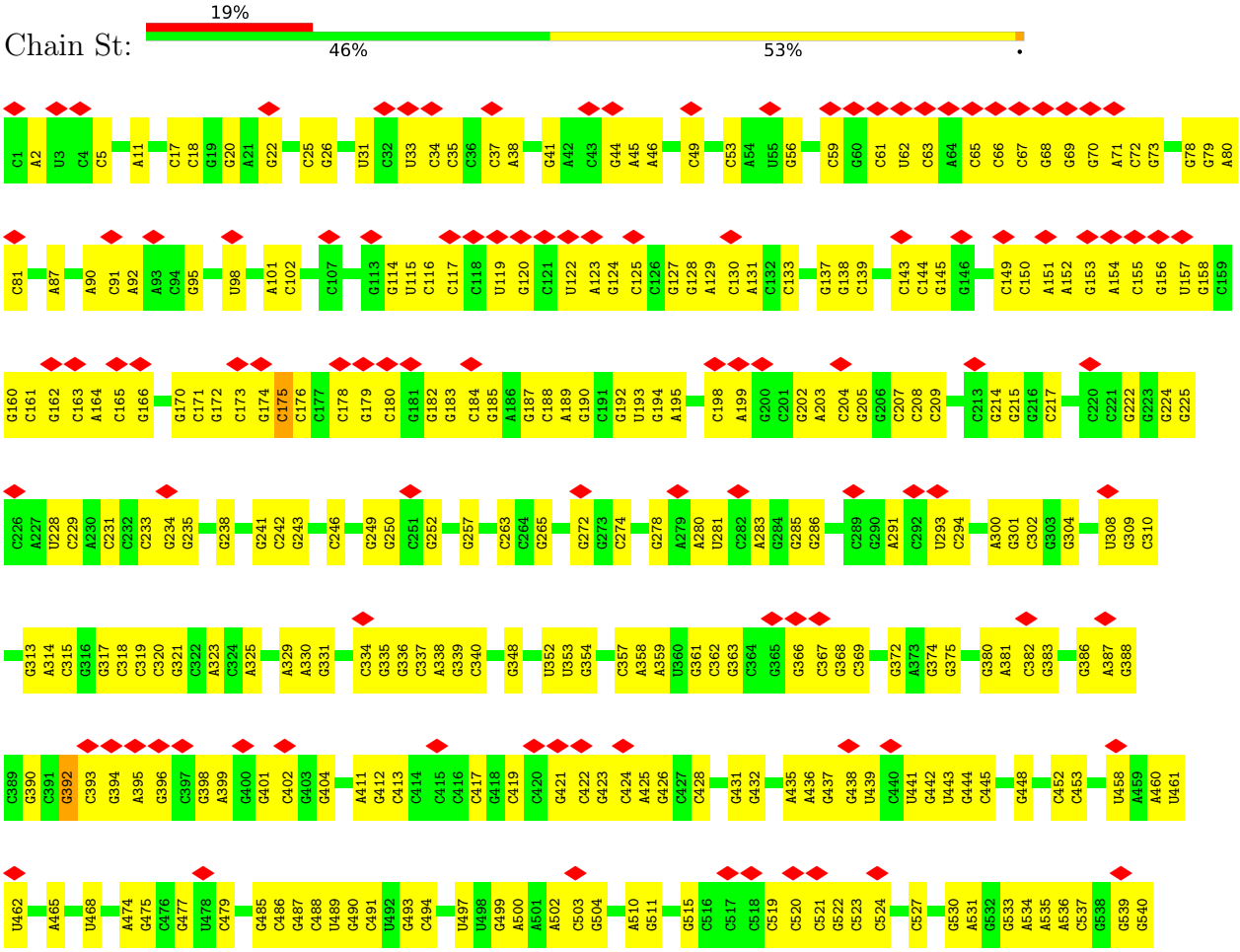
• Molecule 74: 40S ribosomal protein S30

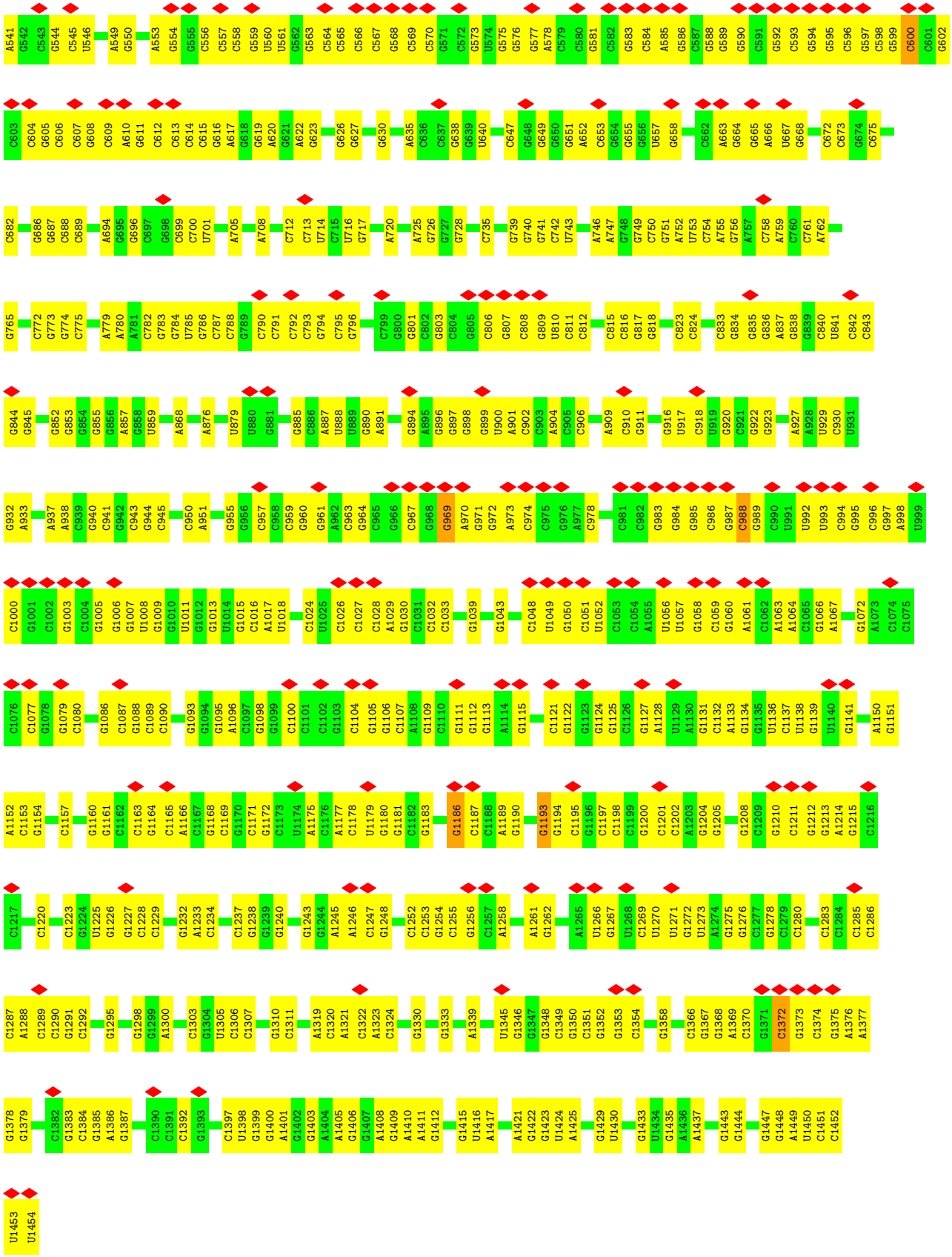
Chain Sj:



• Molecule 75: Small Subunit rRNA

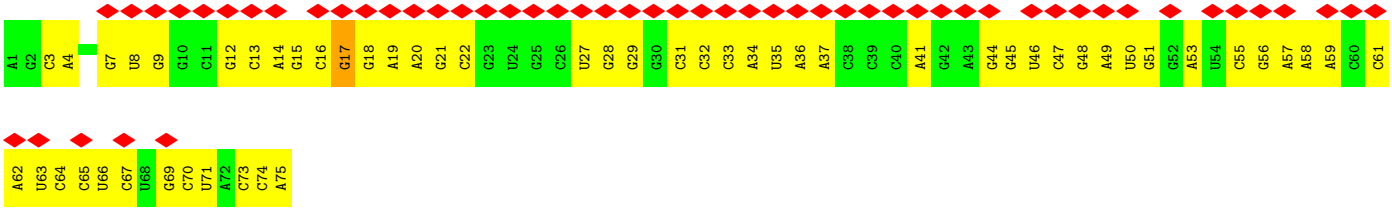
Chain St:





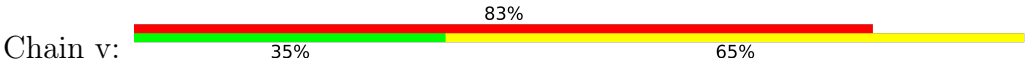
- Molecule 76: tRNA

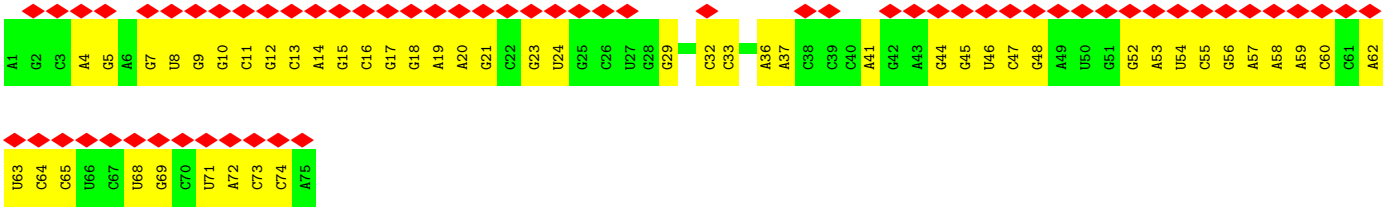
Chain u:



• Molecule 76: tRNA

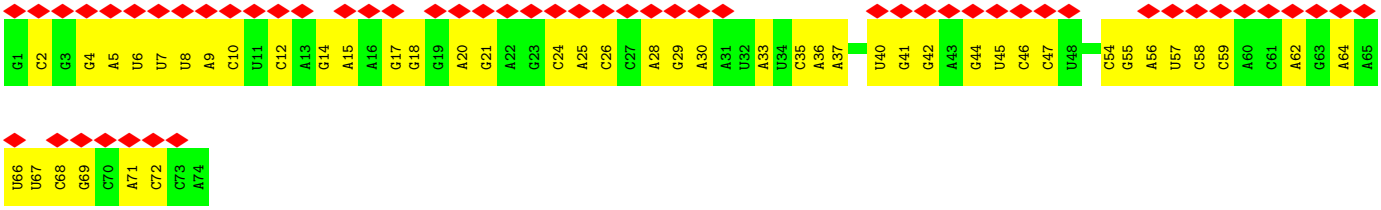
Chain v:





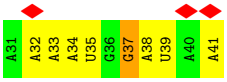
• Molecule 77: tRNA

Chain x:



• Molecule 78: mRNA

Chain y:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	4000	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 ($e^-/Å^2$)	30.0	Depositor
Minimum defocus (nm)	700	Depositor
Maximum defocus (nm)	1900	Depositor
Magnification	Not provided	
Image detector	GATAN K2 BASE (4k x 4k)	Depositor
Maximum map value	14.250	Depositor
Minimum map value	-7.956	Depositor
Average map value	0.000	Depositor
Map value standard deviation	1.000	Depositor
Recommended contour level	3.83	Depositor
Map size (Å)	410.0, 410.0, 410.0	wwPDB
Map dimensions	500, 500, 500	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.82, 0.82, 0.82	Depositor

5 Model quality

5.1 Standard geometry

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	LA	0.59	0/1855	0.85	0/2494
2	LB	0.57	0/3030	0.85	2/4091 (0.0%)
3	LC	0.59	0/2463	0.83	1/3342 (0.0%)
4	LD	0.56	0/3345	0.83	0/5217
5	LE	0.57	0/2773	0.83	0/4322
6	LF	0.57	0/2368	0.83	0/3177
7	LG	0.52	0/450	0.81	1/601 (0.2%)
8	LH	0.57	0/1783	0.82	0/2403
9	LI	0.58	0/1494	0.83	0/2019
10	LJ	0.59	0/1479	0.84	0/1997
11	LK	0.58	0/1645	0.82	0/2202
12	LL	0.58	0/1350	0.83	1/1813 (0.1%)
13	LM	0.59	0/1582	0.80	0/2118
14	LN	0.56	0/1004	0.82	0/1344
15	LO	0.58	0/1742	0.83	1/2334 (0.0%)
16	LP	0.57	0/1570	0.83	0/2105
17	LQ	0.59	0/1257	0.87	1/1681 (0.1%)
18	LR	0.60	0/1425	0.83	0/1907
19	LS	0.56	0/1564	0.78	0/2069
20	LT	0.57	0/1457	0.84	1/1957 (0.1%)
21	LU	0.55	0/1240	0.87	1/1665 (0.1%)
22	LV	0.58	0/876	0.84	0/1177
23	LW	0.59	0/1035	0.83	1/1396 (0.1%)
24	LX	0.58	0/526	0.99	2/700 (0.3%)
25	LY	0.58	0/933	0.82	0/1262
26	LZ	0.60	0/1091	0.82	0/1454
27	La	0.59	0/985	0.86	0/1328
28	Lb	0.59	0/1208	0.86	1/1615 (0.1%)
29	Lc	0.59	0/463	0.90	1/612 (0.2%)
30	Ld	0.61	0/745	0.84	1/1008 (0.1%)
31	Le	0.57	0/803	0.77	0/1077
32	Lf	0.58	0/1055	0.80	0/1407
33	Lg	0.58	0/793	0.90	1/1062 (0.1%)
34	Lh	0.59	0/849	0.87	0/1141

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
35	Li	0.55	0/968	0.79	0/1286
36	Lj	0.56	0/693	0.86	0/919
37	Lk	0.61	0/705	0.85	0/934
38	Ll	0.59	0/562	0.86	0/749
39	Ln	0.63	0/1621	0.90	0/2183
40	Lo	0.50	0/229	0.79	0/291
41	Lp	0.57	0/759	0.83	0/1004
42	Lq	0.57	0/717	0.92	0/955
43	Ls	0.58	0/392	0.93	0/522
44	Lt	0.60	0/62213	0.87	33/97094 (0.0%)
45	SA	0.59	0/1587	0.85	0/2156
46	SB	0.62	0/1671	0.85	0/2253
47	SC	0.60	0/1662	0.82	1/2231 (0.0%)
48	SD	0.58	0/1882	0.85	2/2535 (0.1%)
49	SE	0.60	0/2131	0.85	0/2874
50	SF	0.63	0/1409	0.86	0/1896
51	SG	0.61	0/1789	0.85	0/2390
52	SH	0.62	0/1508	0.82	0/2032
53	SI	0.59	0/1331	0.86	0/1784
54	SJ	0.60	0/1048	0.83	0/1412
55	SK	0.60	0/1413	0.85	1/1886 (0.1%)
56	SL	0.59	0/917	0.83	0/1250
57	SM	0.59	0/1245	0.84	1/1666 (0.1%)
58	SO	0.58	0/1103	0.78	0/1477
59	SP	0.59	0/1215	0.79	0/1632
60	SQ	0.62	0/923	0.87	0/1239
61	SR	0.61	0/934	0.88	1/1247 (0.1%)
62	ST	0.61	0/1192	0.84	0/1594
63	SU	0.62	0/973	0.84	0/1300
64	SV	0.59	0/1140	0.93	1/1529 (0.1%)
65	SW	0.61	0/1104	0.84	0/1484
66	SX	0.61	0/869	0.84	2/1173 (0.2%)
67	SY	0.64	0/650	0.91	2/872 (0.2%)
68	Sb	0.59	0/967	0.87	0/1294
69	Sc	0.59	0/603	0.86	0/802
70	Sd	0.59	0/800	0.85	0/1077
71	Se	0.63	0/643	0.82	0/871
72	Sg	0.63	0/488	0.83	1/652 (0.2%)
73	Sh	0.57	0/409	0.83	0/542
74	Sj	0.58	0/553	0.83	0/736
75	St	0.61	0/34858	0.88	11/54401 (0.0%)
76	u	0.60	0/1795	0.90	2/2798 (0.1%)
76	v	0.59	0/1795	0.83	0/2798

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
77	x	0.57	0/1771	0.80	0/2758
78	y	0.54	0/270	0.93	1/419 (0.2%)
All	All	0.60	0/191745	0.86	75/281094 (0.0%)

There are no bond length outliers.

All (75) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
44	Lt	1252	G	C2'-C3'-O3'	8.39	127.96	109.50
44	Lt	691	G	C2'-C3'-O3'	8.07	127.25	109.50
57	SM	98	TYR	CB-CA-C	-8.05	94.31	110.40
29	Lc	50	ASP	CB-CA-C	7.91	126.22	110.40
44	Lt	1448	G	C2'-C3'-O3'	7.68	126.39	109.50
28	Lb	2	PRO	CA-N-CD	-7.56	100.92	111.50
44	Lt	1349	G	C2'-C3'-O3'	7.39	125.77	109.50
44	Lt	2022	C	C2'-C3'-O3'	7.39	125.77	109.50
44	Lt	776	G	C2'-C3'-O3'	7.37	125.72	109.50
48	SD	20	ASP	CB-CA-C	7.37	125.14	110.40
15	LO	21	TYR	CB-CA-C	-7.33	95.75	110.40
12	LL	137	ARG	CB-CA-C	7.21	124.83	110.40
44	Lt	1236	G	C2'-C3'-O3'	7.00	124.91	109.50
20	LT	154	HIS	CB-CA-C	6.99	124.38	110.40
44	Lt	1914	C	C2'-C3'-O3'	6.88	124.72	113.70
76	u	64	C	C2'-C3'-O3'	6.76	124.52	113.70
55	SK	13	TYR	CB-CA-C	-6.72	96.97	110.40
44	Lt	71	C	C2'-C3'-O3'	6.55	124.17	113.70
64	SV	19	THR	CB-CA-C	-6.49	94.07	111.60
67	SY	59	THR	CB-CA-C	-6.45	94.17	111.60
44	Lt	1511	G	C2'-C3'-O3'	6.44	124.00	113.70
44	Lt	1586	C	N1-C2-O2	-6.33	115.10	118.90
44	Lt	157	G	C3'-C2'-C1'	-6.31	96.45	101.50
44	Lt	2467	G	C3'-C2'-C1'	-6.27	96.48	101.50
44	Lt	2393	A	P-O3'-C3'	6.15	127.08	119.70
75	St	175	C	C2'-C3'-O3'	6.14	123.53	113.70
44	Lt	1317	C	C2'-C3'-O3'	5.95	123.22	113.70
30	Ld	51	ASN	CB-CA-C	-5.89	98.62	110.40
44	Lt	1167	G	C1'-O4'-C4'	-5.86	105.21	109.90
44	Lt	1007	G	C3'-C2'-C1'	-5.83	96.83	101.50
44	Lt	459	A	C2'-C3'-O3'	5.80	122.99	113.70
61	SR	15	PRO	CA-N-CD	-5.79	103.40	111.50
75	St	1186	G	C3'-C2'-C1'	-5.76	96.89	101.50
75	St	1193	G	C2'-C3'-O3'	5.75	122.90	113.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
21	LU	140	HIS	CB-CA-C	5.71	121.83	110.40
2	LB	92	TYR	CB-CA-C	-5.71	98.98	110.40
44	Lt	2584	C	C2'-C3'-O3'	5.71	122.84	113.70
76	u	17	G	C3'-C2'-C1'	-5.71	96.93	101.50
3	LC	251	TYR	CB-CA-C	5.68	121.76	110.40
44	Lt	776	G	P-O3'-C3'	5.62	126.44	119.70
23	LW	53	PHE	CB-CA-C	-5.60	99.20	110.40
75	St	1372	C	P-O3'-C3'	5.57	126.39	119.70
44	Lt	1277	G	C2'-C3'-O3'	5.57	122.61	113.70
17	LQ	10	ASN	CB-CA-C	5.56	121.51	110.40
75	St	988	C	O4'-C1'-N1	5.56	112.64	108.20
67	SY	55	ASN	CB-CA-C	5.53	121.46	110.40
75	St	600	C	O4'-C1'-N1	5.52	112.61	108.20
24	LX	7	CYS	CA-CB-SG	5.51	123.93	114.00
44	Lt	176	C	O4'-C1'-N1	5.51	112.61	108.20
33	Lg	9	PHE	CB-CA-C	5.38	121.17	110.40
44	Lt	1472	C	C2'-C3'-O3'	5.38	122.31	113.70
44	Lt	1448	G	C4'-C3'-C2'	-5.37	97.23	102.60
44	Lt	1958	G	C3'-C2'-C1'	-5.37	97.21	101.50
44	Lt	2591	C	C2'-C3'-O3'	5.36	122.28	113.70
66	SX	60	PRO	N-CA-C	-5.33	98.24	112.10
48	SD	124	PHE	CB-CA-C	5.29	120.97	110.40
75	St	394	G	C1'-O4'-C4'	-5.21	105.73	109.90
44	Lt	2467	G	O4'-C1'-N9	5.20	112.36	108.20
44	Lt	1942	G	C4'-C3'-C2'	-5.17	97.43	102.60
72	Sg	49	ASP	CB-CA-C	5.17	120.73	110.40
44	Lt	1761	G	C3'-C2'-C1'	-5.16	97.37	101.50
7	LG	39	TYR	CB-CA-C	5.15	120.70	110.40
24	LX	15	TYR	CB-CA-C	5.14	120.67	110.40
47	SC	99	LYS	CB-CA-C	5.13	120.67	110.40
44	Lt	1079	G	C2'-C3'-O3'	5.11	121.88	113.70
66	SX	123	PRO	N-CA-C	-5.11	98.81	112.10
75	St	392	G	C3'-C2'-C1'	5.11	105.59	101.50
44	Lt	597	G	C1'-O4'-C4'	-5.06	105.85	109.90
75	St	969	G	C4'-C3'-O3'	5.05	123.11	113.00
44	Lt	582	C	O4'-C1'-N1	5.04	112.23	108.20
75	St	1253	C	C2'-C3'-O3'	5.03	121.75	113.70
75	St	1429	G	C4'-C3'-C2'	-5.02	97.58	102.60
2	LB	55	HIS	CB-CA-C	5.02	120.44	110.40
78	y	37	G	C4'-C3'-C2'	-5.01	97.59	102.60
44	Lt	1865	G	C3'-C2'-C1'	5.00	105.50	101.50

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

Due to software issues we are unable to calculate clashes - this section is therefore empty.

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	LA	239/251 (95%)	223 (93%)	15 (6%)	1 (0%)	34 72
2	LB	370/379 (98%)	349 (94%)	18 (5%)	3 (1%)	19 60
3	LC	307/316 (97%)	294 (96%)	13 (4%)	0	100 100
6	LF	287/297 (97%)	270 (94%)	15 (5%)	2 (1%)	22 63
7	LG	48/51 (94%)	44 (92%)	3 (6%)	1 (2%)	7 36
8	LH	215/235 (92%)	206 (96%)	8 (4%)	1 (0%)	29 69
9	LI	179/225 (80%)	166 (93%)	9 (5%)	4 (2%)	6 35
10	LJ	182/185 (98%)	165 (91%)	16 (9%)	1 (0%)	29 69
11	LK	193/210 (92%)	185 (96%)	7 (4%)	1 (0%)	29 69
12	LL	163/173 (94%)	155 (95%)	7 (4%)	1 (1%)	25 66
13	LM	191/234 (82%)	182 (95%)	7 (4%)	2 (1%)	15 54
14	LN	122/131 (93%)	117 (96%)	4 (3%)	1 (1%)	19 60
15	LO	199/204 (98%)	187 (94%)	12 (6%)	0	100 100
16	LP	185/197 (94%)	173 (94%)	11 (6%)	1 (0%)	29 69
17	LQ	151/164 (92%)	144 (95%)	7 (5%)	0	100 100
18	LR	176/179 (98%)	169 (96%)	6 (3%)	1 (1%)	25 66
19	LS	185/196 (94%)	180 (97%)	5 (3%)	0	100 100
20	LT	168/173 (97%)	162 (96%)	6 (4%)	0	100 100
21	LU	146/159 (92%)	134 (92%)	6 (4%)	6 (4%)	3 23

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
22	LV	102/124 (82%)	86 (84%)	16 (16%)	0	100	100
23	LW	130/142 (92%)	126 (97%)	4 (3%)	0	100	100
24	LX	58/189 (31%)	53 (91%)	5 (9%)	0	100	100
25	LY	111/141 (79%)	105 (95%)	4 (4%)	2 (2%)	8	40
26	LZ	131/135 (97%)	128 (98%)	3 (2%)	0	100	100
27	La	117/135 (87%)	110 (94%)	5 (4%)	2 (2%)	9	42
28	Lb	141/149 (95%)	133 (94%)	8 (6%)	0	100	100
29	Lc	53/62 (86%)	49 (92%)	3 (6%)	1 (2%)	8	38
30	Ld	96/109 (88%)	92 (96%)	3 (3%)	1 (1%)	15	54
31	Le	93/106 (88%)	87 (94%)	6 (6%)	0	100	100
32	Lf	123/136 (90%)	115 (94%)	8 (6%)	0	100	100
33	Lg	96/123 (78%)	89 (93%)	7 (7%)	0	100	100
34	Lh	102/120 (85%)	92 (90%)	7 (7%)	3 (3%)	4	29
35	Li	114/124 (92%)	109 (96%)	4 (4%)	1 (1%)	17	57
36	Lj	80/90 (89%)	73 (91%)	6 (8%)	1 (1%)	12	48
37	Lk	83/89 (93%)	76 (92%)	6 (7%)	1 (1%)	13	50
38	Ll	70/77 (91%)	67 (96%)	3 (4%)	0	100	100
39	Ln	194/217 (89%)	172 (89%)	15 (8%)	7 (4%)	3	25
40	Lo	23/25 (92%)	23 (100%)	0	0	100	100
41	Lp	89/106 (84%)	86 (97%)	2 (2%)	1 (1%)	14	52
42	Lq	89/94 (95%)	82 (92%)	5 (6%)	2 (2%)	6	35
43	Ls	45/127 (35%)	39 (87%)	4 (9%)	2 (4%)	2	22
45	SA	192/245 (78%)	173 (90%)	17 (9%)	2 (1%)	15	54
46	SB	211/242 (87%)	188 (89%)	21 (10%)	2 (1%)	17	57
47	SC	204/217 (94%)	188 (92%)	14 (7%)	2 (1%)	15	54
48	SD	226/248 (91%)	210 (93%)	13 (6%)	3 (1%)	12	48
49	SE	258/268 (96%)	235 (91%)	17 (7%)	6 (2%)	6	34
50	SF	175/190 (92%)	162 (93%)	10 (6%)	3 (2%)	9	42
51	SG	220/248 (89%)	207 (94%)	10 (4%)	3 (1%)	11	46
52	SH	182/190 (96%)	162 (89%)	19 (10%)	1 (0%)	29	69
53	SI	163/174 (94%)	150 (92%)	12 (7%)	1 (1%)	25	66

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
54	SJ	127/130 (98%)	113 (89%)	13 (10%)	1 (1%)	19	60
55	SK	168/189 (89%)	157 (94%)	10 (6%)	1 (1%)	25	66
56	SL	107/134 (80%)	88 (82%)	16 (15%)	3 (3%)	5	30
57	SM	143/154 (93%)	133 (93%)	9 (6%)	1 (1%)	22	63
58	SO	138/143 (96%)	133 (96%)	3 (2%)	2 (1%)	11	46
59	SP	148/154 (96%)	143 (97%)	4 (3%)	1 (1%)	22	63
60	SQ	122/145 (84%)	108 (88%)	11 (9%)	3 (2%)	5	32
61	SR	109/145 (75%)	99 (91%)	9 (8%)	1 (1%)	17	57
62	ST	149/158 (94%)	140 (94%)	6 (4%)	3 (2%)	7	38
63	SU	119/137 (87%)	112 (94%)	5 (4%)	2 (2%)	9	42
64	SV	140/154 (91%)	119 (85%)	14 (10%)	7 (5%)	2	20
65	SW	136/139 (98%)	131 (96%)	4 (3%)	1 (1%)	22	63
66	SX	105/126 (83%)	100 (95%)	5 (5%)	0	100	100
67	SY	83/89 (93%)	80 (96%)	3 (4%)	0	100	100
68	Sb	118/132 (89%)	109 (92%)	8 (7%)	1 (1%)	19	60
69	Sc	73/88 (83%)	63 (86%)	6 (8%)	4 (6%)	2	19
70	Sd	95/109 (87%)	83 (87%)	11 (12%)	1 (1%)	14	52
71	Se	78/81 (96%)	76 (97%)	2 (3%)	0	100	100
72	Sg	59/64 (92%)	52 (88%)	7 (12%)	0	100	100
73	Sh	46/51 (90%)	43 (94%)	3 (6%)	0	100	100
74	Sj	65/69 (94%)	58 (89%)	7 (11%)	0	100	100
All	All	10005/11192 (89%)	9312 (93%)	588 (6%)	105 (1%)	20	54

All (105) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	LA	15	VAL
2	LB	5	LYS
9	LI	184	VAL
27	La	49	ARG
27	La	98	VAL
29	Lc	50	ASP
34	Lh	65	ARG
37	Lk	63	SER
39	Ln	83	ASN

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Mol	Chain	Res	Type
39	Ln	207	LYS
48	SD	20	ASP
52	SH	172	THR
59	SP	26	ASN
63	SU	99	ILE
65	SW	26	ILE
69	Sc	38	LYS
2	LB	301	THR
6	LF	207	GLY
30	Ld	77	SER
34	Lh	14	TYR
35	Li	73	ILE
39	Ln	160	LYS
46	SB	76	ASN
49	SE	77	ARG
50	SF	53	PRO
54	SJ	59	ASN
56	SL	97	VAL
56	SL	99	PRO
58	SO	108	ALA
62	ST	20	ARG
62	ST	127	TYR
64	SV	26	VAL
64	SV	44	VAL
64	SV	145	HIS
2	LB	55	HIS
7	LG	37	TRP
9	LI	81	PRO
9	LI	163	THR
10	LJ	60	GLY
25	LY	54	SER
34	Lh	7	THR
39	Ln	203	THR
41	Lp	65	LYS
42	Lq	18	TYR
48	SD	49	THR
49	SE	134	LYS
49	SE	239	THR
51	SG	162	ASP
51	SG	167	CYS
57	SM	73	VAL
58	SO	3	LYS

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Mol	Chain	Res	Type
63	SU	96	VAL
64	SV	84	MET
68	Sb	103	VAL
70	Sd	37	LYS
11	LK	4	ARG
12	LL	108	GLU
13	LM	91	SER
14	LN	63	ASN
16	LP	131	ARG
21	LU	122	THR
21	LU	135	LEU
21	LU	140	HIS
39	Ln	131	ALA
43	Ls	116	THR
49	SE	54	TYR
49	SE	216	THR
50	SF	64	MET
55	SK	121	LYS
62	ST	32	LYS
64	SV	60	LEU
64	SV	101	VAL
69	Sc	85	THR
6	LF	255	ALA
13	LM	168	ILE
18	LR	167	HIS
21	LU	18	LYS
21	LU	139	ALA
25	LY	38	VAL
39	Ln	6	PRO
43	Ls	121	LYS
45	SA	115	ASN
46	SB	44	SER
47	SC	11	ASN
50	SF	114	ILE
69	Sc	48	ARG
69	Sc	86	LYS
21	LU	138	ALA
39	Ln	84	TYR
47	SC	165	SER
60	SQ	106	ARG
60	SQ	138	ASP
60	SQ	141	ARG

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Mol	Chain	Res	Type
48	SD	177	GLY
49	SE	76	PRO
56	SL	100	THR
61	SR	76	VAL
64	SV	134	GLY
9	LI	80	SER
36	Lj	71	GLY
45	SA	32	VAL
51	SG	170	ILE
53	SI	137	GLY
8	LH	134	PRO
42	Lq	8	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	LA	185/192 (96%)	126 (68%)	59 (32%)	0	2
2	LB	309/313 (99%)	194 (63%)	115 (37%)	0	0
3	LC	257/263 (98%)	166 (65%)	91 (35%)	0	1
6	LF	235/242 (97%)	142 (60%)	93 (40%)	0	0
7	LG	47/48 (98%)	31 (66%)	16 (34%)	0	1
8	LH	186/204 (91%)	125 (67%)	61 (33%)	0	2
9	LI	163/198 (82%)	106 (65%)	57 (35%)	0	1
10	LJ	163/164 (99%)	99 (61%)	64 (39%)	0	0
11	LK	167/177 (94%)	105 (63%)	62 (37%)	0	0
12	LL	141/149 (95%)	83 (59%)	58 (41%)	0	0
13	LM	165/197 (84%)	98 (59%)	67 (41%)	0	0
14	LN	106/111 (96%)	64 (60%)	42 (40%)	0	0
15	LO	174/175 (99%)	113 (65%)	61 (35%)	0	1
16	LP	158/165 (96%)	108 (68%)	50 (32%)	0	2

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
17	LQ	130/139 (94%)	85 (65%)	45 (35%)	0	1
18	LR	154/155 (99%)	93 (60%)	61 (40%)	0	0
19	LS	158/167 (95%)	99 (63%)	59 (37%)	0	0
20	LT	151/154 (98%)	100 (66%)	51 (34%)	0	1
21	LU	125/133 (94%)	78 (62%)	47 (38%)	0	0
22	LV	93/110 (84%)	56 (60%)	37 (40%)	0	0
23	LW	108/114 (95%)	70 (65%)	38 (35%)	0	1
24	LX	58/174 (33%)	34 (59%)	24 (41%)	0	0
25	LY	102/123 (83%)	63 (62%)	39 (38%)	0	0
26	LZ	114/115 (99%)	76 (67%)	38 (33%)	0	2
27	La	106/119 (89%)	60 (57%)	46 (43%)	0	0
28	Lb	124/127 (98%)	82 (66%)	42 (34%)	0	1
29	Lc	50/57 (88%)	30 (60%)	20 (40%)	0	0
30	Ld	83/92 (90%)	46 (55%)	37 (45%)	0	0
31	Le	85/92 (92%)	50 (59%)	35 (41%)	0	0
32	Lf	111/120 (92%)	71 (64%)	40 (36%)	0	1
33	Lg	82/103 (80%)	51 (62%)	31 (38%)	0	0
34	Lh	90/100 (90%)	63 (70%)	27 (30%)	0	2
35	Li	102/107 (95%)	64 (63%)	38 (37%)	0	0
36	Lj	72/78 (92%)	43 (60%)	29 (40%)	0	0
37	Lk	71/74 (96%)	47 (66%)	24 (34%)	0	1
38	Ll	63/68 (93%)	27 (43%)	36 (57%)	0	0
39	Ln	173/189 (92%)	71 (41%)	102 (59%)	0	0
40	Lo	22/22 (100%)	10 (46%)	12 (54%)	0	0
41	Lp	81/93 (87%)	47 (58%)	34 (42%)	0	0
42	Lq	71/73 (97%)	36 (51%)	35 (49%)	0	0
43	Ls	43/110 (39%)	24 (56%)	19 (44%)	0	0
45	SA	169/217 (78%)	107 (63%)	62 (37%)	0	1
46	SB	177/201 (88%)	96 (54%)	81 (46%)	0	0
47	SC	172/182 (94%)	89 (52%)	83 (48%)	0	0
48	SD	206/220 (94%)	122 (59%)	84 (41%)	0	0

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
49	SE	228/232 (98%)	130 (57%)	98 (43%)	0	0
50	SF	148/157 (94%)	98 (66%)	50 (34%)	0	1
51	SG	192/213 (90%)	90 (47%)	102 (53%)	0	0
52	SH	165/170 (97%)	84 (51%)	81 (49%)	0	0
53	SI	141/148 (95%)	73 (52%)	68 (48%)	0	0
54	SJ	114/115 (99%)	62 (54%)	52 (46%)	0	0
55	SK	152/164 (93%)	89 (59%)	63 (41%)	0	0
56	SL	98/119 (82%)	59 (60%)	39 (40%)	0	0
57	SM	131/136 (96%)	82 (63%)	49 (37%)	0	0
58	SO	112/114 (98%)	64 (57%)	48 (43%)	0	0
59	SP	125/130 (96%)	83 (66%)	42 (34%)	0	2
60	SQ	86/113 (76%)	51 (59%)	35 (41%)	0	0
61	SR	101/128 (79%)	57 (56%)	44 (44%)	0	0
62	ST	125/130 (96%)	70 (56%)	55 (44%)	0	0
63	SU	108/123 (88%)	58 (54%)	50 (46%)	0	0
64	SV	119/131 (91%)	64 (54%)	55 (46%)	0	0
65	SW	114/115 (99%)	57 (50%)	57 (50%)	0	0
66	SX	96/110 (87%)	50 (52%)	46 (48%)	0	0
67	SY	68/72 (94%)	37 (54%)	31 (46%)	0	0
68	Sb	104/113 (92%)	59 (57%)	45 (43%)	0	0
69	Sc	67/79 (85%)	29 (43%)	38 (57%)	0	0
70	Sd	91/103 (88%)	58 (64%)	33 (36%)	0	1
71	Se	72/73 (99%)	48 (67%)	24 (33%)	0	2
72	Sg	54/57 (95%)	26 (48%)	28 (52%)	0	0
73	Sh	42/45 (93%)	28 (67%)	14 (33%)	0	2
74	Sj	57/58 (98%)	25 (44%)	32 (56%)	0	0
All	All	8712/9574 (91%)	5181 (60%)	3531 (40%)	0	0

All (3531) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	LA	4	ARG
1	LA	5	ILE

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Mol	Chain	Res	Type
1	LA	6	ARG
1	LA	7	VAL
1	LA	32	ASN
1	LA	36	GLU
1	LA	37	ARG
1	LA	38	THR
1	LA	42	ARG
1	LA	44	VAL
1	LA	46	LYS
1	LA	48	ILE
1	LA	49	LEU
1	LA	61	VAL
1	LA	69	GLU
1	LA	72	VAL
1	LA	88	VAL
1	LA	95	THR
1	LA	96	LEU
1	LA	98	ILE
1	LA	102	LEU
1	LA	113	VAL
1	LA	114	CYS
1	LA	119	LYS
1	LA	121	MET
1	LA	123	ARG
1	LA	125	CYS
1	LA	126	LEU
1	LA	128	ARG
1	LA	130	SER
1	LA	135	LEU
1	LA	137	VAL
1	LA	145	LYS
1	LA	147	ARG
1	LA	149	ARG
1	LA	155	LYS
1	LA	156	LYS
1	LA	161	LYS
1	LA	163	ARG
1	LA	165	MET
1	LA	168	LEU
1	LA	177	LYS
1	LA	181	LYS
1	LA	190	LYS

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Mol	Chain	Res	Type
1	LA	193	ARG
1	LA	195	CYS
1	LA	198	VAL
1	LA	199	VAL
1	LA	205	ASN
1	LA	216	HIS
1	LA	217	GLN
1	LA	219	ILE
1	LA	222	SER
1	LA	227	ARG
1	LA	235	VAL
1	LA	237	LEU
1	LA	238	ILE
1	LA	242	ARG
1	LA	245	CYS
2	LB	7	SER
2	LB	9	CYS
2	LB	10	ARG
2	LB	11	LYS
2	LB	20	LYS
2	LB	23	THR
2	LB	24	ARG
2	LB	26	ARG
2	LB	31	THR
2	LB	32	PHE
2	LB	35	ASP
2	LB	41	ILE
2	LB	43	LEU
2	LB	47	LEU
2	LB	55	HIS
2	LB	57	MET
2	LB	59	PHE
2	LB	60	ILE
2	LB	61	ASP
2	LB	62	HIS
2	LB	63	ARG
2	LB	67	LEU
2	LB	70	ARG
2	LB	73	ILE
2	LB	80	ASP
2	LB	86	CYS
2	LB	87	THR

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Mol	Chain	Res	Type
2	LB	89	ILE
2	LB	90	ILE
2	LB	94	LYS
2	LB	95	THR
2	LB	96	PRO
2	LB	97	LYS
2	LB	104	THR
2	LB	105	VAL
2	LB	112	GLU
2	LB	115	MET
2	LB	116	ARG
2	LB	119	TYR
2	LB	120	ARG
2	LB	127	LYS
2	LB	128	THR
2	LB	132	THR
2	LB	134	MET
2	LB	135	LYS
2	LB	139	ASP
2	LB	143	ILE
2	LB	145	GLU
2	LB	146	GLN
2	LB	147	LEU
2	LB	149	ARG
2	LB	151	LYS
2	LB	159	ILE
2	LB	163	THR
2	LB	168	THR
2	LB	170	LEU
2	LB	171	LYS
2	LB	174	LYS
2	LB	176	ASP
2	LB	177	ILE
2	LB	178	MET
2	LB	179	GLU
2	LB	182	VAL
2	LB	183	ASN
2	LB	198	LEU
2	LB	201	LYS
2	LB	204	SER
2	LB	205	ILE
2	LB	206	LYS

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Mol	Chain	Res	Type
2	LB	207	ASP
2	LB	218	ILE
2	LB	224	ARG
2	LB	226	PHE
2	LB	240	ARG
2	LB	241	LYS
2	LB	247	ARG
2	LB	248	LYS
2	LB	249	VAL
2	LB	270	MET
2	LB	273	PHE
2	LB	277	ASP
2	LB	278	THR
2	LB	280	LYS
2	LB	282	VAL
2	LB	284	MET
2	LB	287	THR
2	LB	292	ARG
2	LB	293	CYS
2	LB	294	CYS
2	LB	297	GLU
2	LB	300	LEU
2	LB	302	ASP
2	LB	303	LYS
2	LB	305	ILE
2	LB	306	ASN
2	LB	308	VAL
2	LB	316	ARG
2	LB	318	GLN
2	LB	320	ASP
2	LB	322	ILE
2	LB	325	LYS
2	LB	328	CYS
2	LB	332	LYS
2	LB	333	ARG
2	LB	334	ARG
2	LB	338	MET
2	LB	343	LEU
2	LB	346	ARG
2	LB	351	VAL
2	LB	352	GLN
2	LB	358	THR

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Mol	Chain	Res	Type
2	LB	370	VAL
2	LB	371	GLU
2	LB	373	ARG
2	LB	374	ARG
3	LC	2	ASN
3	LC	6	LYS
3	LC	13	THR
3	LC	15	VAL
3	LC	18	LEU
3	LC	22	LYS
3	LC	28	LEU
3	LC	29	ARG
3	LC	32	ILE
3	LC	50	VAL
3	LC	52	ARG
3	LC	69	VAL
3	LC	71	ARG
3	LC	72	LEU
3	LC	75	LYS
3	LC	82	TYR
3	LC	84	ASN
3	LC	91	MET
3	LC	93	HIS
3	LC	96	THR
3	LC	104	LYS
3	LC	105	VAL
3	LC	108	ASN
3	LC	109	GLN
3	LC	110	ARG
3	LC	112	TYR
3	LC	121	SER
3	LC	126	LEU
3	LC	130	ARG
3	LC	136	ASP
3	LC	139	SER
3	LC	140	ILE
3	LC	144	VAL
3	LC	146	THR
3	LC	149	VAL
3	LC	150	THR
3	LC	154	ASP
3	LC	156	LEU

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Mol	Chain	Res	Type
3	LC	158	ILE
3	LC	160	LYS
3	LC	164	VAL
3	LC	166	ARG
3	LC	168	VAL
3	LC	169	GLU
3	LC	171	CYS
3	LC	174	SER
3	LC	175	ARG
3	LC	177	ILE
3	LC	181	ARG
3	LC	183	LYS
3	LC	184	MET
3	LC	188	ARG
3	LC	190	ILE
3	LC	191	THR
3	LC	193	LYS
3	LC	196	LEU
3	LC	197	VAL
3	LC	201	THR
3	LC	202	GLU
3	LC	204	VAL
3	LC	209	ARG
3	LC	210	ASN
3	LC	214	VAL
3	LC	216	LEU
3	LC	219	VAL
3	LC	220	SER
3	LC	222	ILE
3	LC	223	ARG
3	LC	225	LEU
3	LC	235	ARG
3	LC	238	LEU
3	LC	242	SER
3	LC	248	ASP
3	LC	259	LEU
3	LC	262	SER
3	LC	264	ILE
3	LC	267	THR
3	LC	269	ILE
3	LC	271	ARG
3	LC	273	LEU

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Mol	Chain	Res	Type
3	LC	279	GLN
3	LC	280	LYS
3	LC	285	LYS
3	LC	286	ARG
3	LC	289	LEU
3	LC	290	VAL
3	LC	293	ARG
3	LC	294	LYS
3	LC	301	LYS
3	LC	304	LEU
3	LC	310	SER
6	LF	3	TRP
6	LF	5	LYS
6	LF	6	VAL
6	LF	7	GLN
6	LF	8	LYS
6	LF	10	ARG
6	LF	11	SER
6	LF	14	LYS
6	LF	23	ARG
6	LF	24	ARG
6	LF	27	LYS
6	LF	34	LYS
6	LF	36	LEU
6	LF	40	ASP
6	LF	41	LYS
6	LF	42	ASN
6	LF	46	THR
6	LF	48	ARG
6	LF	50	ARG
6	LF	58	LYS
6	LF	59	ASP
6	LF	60	ILE
6	LF	63	GLN
6	LF	64	VAL
6	LF	65	THR
6	LF	68	GLU
6	LF	71	LYS
6	LF	73	ARG
6	LF	75	VAL
6	LF	76	CYS
6	LF	82	GLU

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Mol	Chain	Res	Type
6	LF	88	ILE
6	LF	92	LEU
6	LF	93	THR
6	LF	103	LEU
6	LF	105	CYS
6	LF	107	ARG
6	LF	111	GLU
6	LF	115	VAL
6	LF	117	ILE
6	LF	118	LYS
6	LF	119	GLU
6	LF	122	LEU
6	LF	125	LEU
6	LF	131	LYS
6	LF	133	THR
6	LF	136	GLU
6	LF	141	GLU
6	LF	143	GLU
6	LF	147	VAL
6	LF	148	HIS
6	LF	150	PHE
6	LF	156	ILE
6	LF	160	ARG
6	LF	162	SER
6	LF	167	VAL
6	LF	171	MET
6	LF	175	VAL
6	LF	179	LEU
6	LF	181	ILE
6	LF	184	SER
6	LF	186	LYS
6	LF	187	ARG
6	LF	193	LYS
6	LF	194	ASP
6	LF	198	SER
6	LF	199	SER
6	LF	202	ARG
6	LF	218	LYS
6	LF	221	ASP
6	LF	226	ARG
6	LF	228	ARG
6	LF	230	SER

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Mol	Chain	Res	Type
6	LF	231	LYS
6	LF	236	LYS
6	LF	237	VAL
6	LF	240	LEU
6	LF	241	ARG
6	LF	247	THR
6	LF	248	LYS
6	LF	263	LYS
6	LF	265	GLU
6	LF	266	ILE
6	LF	267	LYS
6	LF	268	LYS
6	LF	271	ARG
6	LF	278	LYS
6	LF	281	LYS
6	LF	282	GLU
6	LF	283	ARG
6	LF	287	LYS
6	LF	288	LYS
6	LF	289	LEU
7	LG	5	LYS
7	LG	6	THR
7	LG	8	SER
7	LG	10	LYS
7	LG	11	LEU
7	LG	21	LYS
7	LG	23	ILE
7	LG	35	LYS
7	LG	36	THR
7	LG	37	TRP
7	LG	39	TYR
7	LG	45	ARG
7	LG	47	SER
7	LG	48	HIS
7	LG	50	LYS
7	LG	51	LEU
8	LH	19	ARG
8	LH	20	SER
8	LH	23	GLU
8	LH	24	ARG
8	LH	31	ARG
8	LH	36	LYS

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Mol	Chain	Res	Type
8	LH	41	LYS
8	LH	44	GLN
8	LH	52	ASP
8	LH	53	LEU
8	LH	58	LYS
8	LH	59	LYS
8	LH	70	LEU
8	LH	75	GLU
8	LH	77	LYS
8	LH	79	TYR
8	LH	81	VAL
8	LH	82	VAL
8	LH	83	ARG
8	LH	84	ILE
8	LH	85	ARG
8	LH	93	LYS
8	LH	95	ARG
8	LH	101	LEU
8	LH	102	ARG
8	LH	104	ARG
8	LH	112	MET
8	LH	119	LEU
8	LH	123	ARG
8	LH	126	ASP
8	LH	127	HIS
8	LH	130	THR
8	LH	133	GLU
8	LH	136	VAL
8	LH	137	GLU
8	LH	138	THR
8	LH	142	LEU
8	LH	145	LYS
8	LH	158	ILE
8	LH	159	VAL
8	LH	163	LEU
8	LH	165	ASP
8	LH	173	ILE
8	LH	175	CYS
8	LH	178	ASP
8	LH	183	ILE
8	LH	185	THR
8	LH	188	SER

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Mol	Chain	Res	Type
8	LH	191	LYS
8	LH	197	LEU
8	LH	203	ASN
8	LH	207	LEU
8	LH	208	LYS
8	LH	210	LYS
8	LH	211	ARG
8	LH	220	PHE
8	LH	225	LYS
8	LH	227	ILE
8	LH	231	VAL
8	LH	234	MET
8	LH	235	ILE
9	LI	28	LEU
9	LI	36	ARG
9	LI	39	ARG
9	LI	42	ARG
9	LI	47	LEU
9	LI	50	ARG
9	LI	51	LEU
9	LI	52	LYS
9	LI	56	THR
9	LI	60	PHE
9	LI	64	ILE
9	LI	75	LEU
9	LI	77	ARG
9	LI	82	GLU
9	LI	83	SER
9	LI	86	GLU
9	LI	88	LYS
9	LI	90	ARG
9	LI	92	LEU
9	LI	111	LEU
9	LI	113	ILE
9	LI	117	ILE
9	LI	119	ARG
9	LI	120	ILE
9	LI	133	LEU
9	LI	137	ASP
9	LI	141	LEU
9	LI	142	GLU
9	LI	143	LEU

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Mol	Chain	Res	Type
9	LI	145	LEU
9	LI	147	LEU
9	LI	149	THR
9	LI	153	LYS
9	LI	157	PRO
9	LI	161	VAL
9	LI	163	THR
9	LI	164	LYS
9	LI	167	LEU
9	LI	171	VAL
9	LI	173	LEU
9	LI	174	LYS
9	LI	175	LYS
9	LI	180	CYS
9	LI	182	THR
9	LI	184	VAL
9	LI	187	GLU
9	LI	189	LYS
9	LI	191	THR
9	LI	194	LYS
9	LI	207	LYS
9	LI	209	MET
9	LI	210	LYS
9	LI	211	THR
9	LI	212	TYR
9	LI	216	VAL
9	LI	217	ARG
9	LI	219	GLU
10	LJ	3	LEU
10	LJ	4	CYS
10	LJ	6	SER
10	LJ	8	THR
10	LJ	10	LYS
10	LJ	11	VAL
10	LJ	13	THR
10	LJ	17	CYS
10	LJ	19	ILE
10	LJ	22	ARG
10	LJ	25	THR
10	LJ	27	LYS
10	LJ	29	LYS
10	LJ	30	LYS

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Mol	Chain	Res	Type
10	LJ	32	THR
10	LJ	33	LEU
10	LJ	34	VAL
10	LJ	42	LEU
10	LJ	43	ASP
10	LJ	45	THR
10	LJ	48	ASN
10	LJ	49	ASP
10	LJ	50	THR
10	LJ	51	ILE
10	LJ	62	ARG
10	LJ	65	LEU
10	LJ	67	ARG
10	LJ	76	MET
10	LJ	78	LYS
10	LJ	87	LYS
10	LJ	88	MET
10	LJ	89	ARG
10	LJ	100	THR
10	LJ	101	VAL
10	LJ	103	ASP
10	LJ	108	ILE
10	LJ	118	LYS
10	LJ	121	ARG
10	LJ	123	GLU
10	LJ	129	THR
10	LJ	130	ILE
10	LJ	133	SER
10	LJ	135	ASN
10	LJ	136	VAL
10	LJ	137	LYS
10	LJ	139	GLU
10	LJ	140	LEU
10	LJ	141	ILE
10	LJ	143	ARG
10	LJ	146	SER
10	LJ	156	ARG
10	LJ	159	GLU
10	LJ	161	LEU
10	LJ	163	VAL
10	LJ	165	ASN
10	LJ	168	LEU

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Mol	Chain	Res	Type
10	LJ	172	LEU
10	LJ	175	CYS
10	LJ	176	TYR
10	LJ	177	VAL
10	LJ	178	SER
10	LJ	180	ARG
10	LJ	182	LEU
10	LJ	183	GLN
11	LK	3	ARG
11	LK	7	ARG
11	LK	8	CYS
11	LK	21	ARG
11	LK	28	ASP
11	LK	30	LYS
11	LK	31	ILE
11	LK	32	ARG
11	LK	35	ASP
11	LK	40	ARG
11	LK	42	LYS
11	LK	54	SER
11	LK	56	GLU
11	LK	61	SER
11	LK	69	ARG
11	LK	73	ASN
11	LK	74	LYS
11	LK	78	LYS
11	LK	79	LYS
11	LK	87	LEU
11	LK	88	ARG
11	LK	90	ARG
11	LK	91	VAL
11	LK	97	ILE
11	LK	98	ARG
11	LK	99	ILE
11	LK	101	LYS
11	LK	102	MET
11	LK	103	LEU
11	LK	125	THR
11	LK	126	VAL
11	LK	128	ARG
11	LK	130	SER
11	LK	131	ILE

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Mol	Chain	Res	Type
11	LK	135	LEU
11	LK	136	LEU
11	LK	139	ARG
11	LK	141	ARG
11	LK	145	LYS
11	LK	146	ASP
11	LK	149	LYS
11	LK	153	ARG
11	LK	154	ARG
11	LK	156	LYS
11	LK	163	GLN
11	LK	165	ILE
11	LK	166	VAL
11	LK	168	SER
11	LK	170	ASN
11	LK	176	PHE
11	LK	177	THR
11	LK	183	ASP
11	LK	184	LEU
11	LK	187	ARG
11	LK	189	GLU
11	LK	190	LEU
11	LK	192	TYR
11	LK	193	ASP
11	LK	199	ARG
11	LK	200	ILE
11	LK	202	ARG
11	LK	206	LEU
12	LL	10	ARG
12	LL	13	ARG
12	LL	14	ILE
12	LL	16	LYS
12	LL	19	LEU
12	LL	23	ILE
12	LL	31	THR
12	LL	40	LEU
12	LL	43	GLN
12	LL	49	LYS
12	LL	50	SER
12	LL	51	ARG
12	LL	52	LEU
12	LL	53	THR

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Mol	Chain	Res	Type
12	LL	54	ILE
12	LL	55	ARG
12	LL	60	ARG
12	LL	61	ARG
12	LL	63	GLN
12	LL	65	ILE
12	LL	66	SER
12	LL	67	THR
12	LL	71	VAL
12	LL	74	GLU
12	LL	75	LYS
12	LL	77	ARG
12	LL	78	GLU
12	LL	81	GLU
12	LL	85	ARG
12	LL	90	GLU
12	LL	91	LEU
12	LL	94	SER
12	LL	95	CYS
12	LL	99	THR
12	LL	101	ASN
12	LL	107	THR
12	LL	108	GLU
12	LL	110	ILE
12	LL	111	ASP
12	LL	115	LYS
12	LL	119	SER
12	LL	120	MET
12	LL	122	ILE
12	LL	130	VAL
12	LL	133	ARG
12	LL	137	ARG
12	LL	139	ASN
12	LL	140	LYS
12	LL	142	ARG
12	LL	144	GLN
12	LL	146	GLN
12	LL	148	VAL
12	LL	153	LYS
12	LL	154	ILE
12	LL	155	THR
12	LL	157	ASP

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Mol	Chain	Res	Type
12	LL	165	ARG
12	LL	168	GLU
13	LM	33	VAL
13	LM	36	SER
13	LM	38	MET
13	LM	44	THR
13	LM	48	PRO
13	LM	51	ILE
13	LM	52	LYS
13	LM	53	ASN
13	LM	68	ARG
13	LM	69	LEU
13	LM	73	LYS
13	LM	75	ILE
13	LM	80	LEU
13	LM	84	ARG
13	LM	88	THR
13	LM	90	CYS
13	LM	91	SER
13	LM	94	PHE
13	LM	95	ASN
13	LM	97	THR
13	LM	99	ARG
13	LM	100	ILE
13	LM	109	LEU
13	LM	112	VAL
13	LM	118	LYS
13	LM	122	ILE
13	LM	129	ARG
13	LM	132	ASN
13	LM	135	GLU
13	LM	136	GLU
13	LM	140	ARG
13	LM	144	ARG
13	LM	145	LEU
13	LM	146	LYS
13	LM	148	TYR
13	LM	149	LEU
13	LM	151	LYS
13	LM	152	VAL
13	LM	153	THR
13	LM	154	ILE

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Mol	Chain	Res	Type
13	LM	156	SER
13	LM	162	GLU
13	LM	163	GLU
13	LM	164	ILE
13	LM	165	GLN
13	LM	166	GLN
13	LM	169	GLN
13	LM	170	HIS
13	LM	177	VAL
13	LM	178	VAL
13	LM	184	ILE
13	LM	185	THR
13	LM	186	THR
13	LM	189	ILE
13	LM	193	LYS
13	LM	194	LYS
13	LM	196	VAL
13	LM	202	MET
13	LM	205	ARG
13	LM	211	ARG
13	LM	213	ARG
13	LM	215	ARG
13	LM	216	LEU
13	LM	219	ARG
13	LM	223	ARG
13	LM	224	GLU
13	LM	228	LYS
14	LN	2	SER
14	LN	11	ARG
14	LN	13	VAL
14	LN	15	LEU
14	LN	20	ASP
14	LN	21	LYS
14	LN	23	LYS
14	LN	28	VAL
14	LN	29	ASP
14	LN	30	ILE
14	LN	33	THR
14	LN	37	LEU
14	LN	38	ILE
14	LN	43	THR
14	LN	45	VAL

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Mol	Chain	Res	Type
14	LN	46	LYS
14	LN	47	ARG
14	LN	56	MET
14	LN	57	LEU
14	LN	59	ASP
14	LN	61	VAL
14	LN	62	ILE
14	LN	70	THR
14	LN	71	GLU
14	LN	72	GLN
14	LN	73	LEU
14	LN	77	ILE
14	LN	84	ASP
14	LN	89	SER
14	LN	91	TRP
14	LN	94	LYS
14	LN	98	GLN
14	LN	99	ARG
14	LN	100	LEU
14	LN	107	GLU
14	LN	109	MET
14	LN	114	LYS
14	LN	119	ARG
14	LN	123	MET
14	LN	124	LYS
14	LN	129	SER
14	LN	131	LYS
15	LO	5	LYS
15	LO	7	VAL
15	LO	13	LYS
15	LO	14	LYS
15	LO	16	SER
15	LO	17	GLU
15	LO	20	HIS
15	LO	24	ARG
15	LO	27	THR
15	LO	31	ARG
15	LO	36	ILE
15	LO	37	LYS
15	LO	39	CYS
15	LO	40	SER
15	LO	47	LYS

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Mol	Chain	Res	Type
15	LO	51	LEU
15	LO	60	VAL
15	LO	61	VAL
15	LO	64	VAL
15	LO	66	VAL
15	LO	67	ARG
15	LO	73	ARG
15	LO	74	GLN
15	LO	79	ILE
15	LO	80	SER
15	LO	83	LYS
15	LO	85	ARG
15	LO	86	ASN
15	LO	89	ILE
15	LO	95	SER
15	LO	97	SER
15	LO	99	ARG
15	LO	101	LEU
15	LO	106	VAL
15	LO	109	ARG
15	LO	110	LEU
15	LO	112	SER
15	LO	117	ASN
15	LO	118	SER
15	LO	124	ASP
15	LO	134	LEU
15	LO	135	ILE
15	LO	147	LYS
15	LO	152	CYS
15	LO	153	ASN
15	LO	157	LYS
15	LO	160	GLU
15	LO	164	LEU
15	LO	166	SER
15	LO	170	LYS
15	LO	174	LEU
15	LO	177	LYS
15	LO	179	ILE
15	LO	183	LYS
15	LO	187	SER
15	LO	188	LYS
15	LO	189	ARG

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Mol	Chain	Res	Type
15	LO	198	ARG
15	LO	200	LEU
15	LO	203	TYR
15	LO	204	ARG
16	LP	13	LEU
16	LP	22	LYS
16	LP	24	LEU
16	LP	29	GLU
16	LP	33	VAL
16	LP	37	LYS
16	LP	39	ILE
16	LP	46	ASP
16	LP	48	LYS
16	LP	52	LEU
16	LP	53	LYS
16	LP	54	LYS
16	LP	55	MET
16	LP	71	ARG
16	LP	78	ARG
16	LP	82	ARG
16	LP	85	ILE
16	LP	88	LYS
16	LP	90	VAL
16	LP	93	SER
16	LP	100	ARG
16	LP	101	VAL
16	LP	105	ILE
16	LP	115	VAL
16	LP	123	TYR
16	LP	127	ARG
16	LP	130	ARG
16	LP	132	ARG
16	LP	133	CYS
16	LP	134	GLU
16	LP	138	VAL
16	LP	141	GLU
16	LP	145	GLN
16	LP	155	LYS
16	LP	156	ARG
16	LP	157	ARG
16	LP	159	GLU
16	LP	162	ASP

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Mol	Chain	Res	Type
16	LP	166	GLN
16	LP	168	LYS
16	LP	171	ILE
16	LP	173	LYS
16	LP	174	LYS
16	LP	177	GLU
16	LP	187	ARG
16	LP	188	ILE
16	LP	189	ASN
16	LP	191	GLU
16	LP	194	LYS
16	LP	197	TYR
17	LQ	3	LYS
17	LQ	4	TYR
17	LQ	7	LYS
17	LQ	12	LEU
17	LQ	15	LYS
17	LQ	18	ARG
17	LQ	24	SER
17	LQ	26	LYS
17	LQ	28	THR
17	LQ	30	SER
17	LQ	31	THR
17	LQ	35	ILE
17	LQ	36	LYS
17	LQ	40	VAL
17	LQ	41	LYS
17	LQ	42	ARG
17	LQ	47	LEU
17	LQ	48	ASP
17	LQ	50	VAL
17	LQ	51	LEU
17	LQ	55	GLU
17	LQ	63	TYR
17	LQ	68	ARG
17	LQ	70	SER
17	LQ	71	GLN
17	LQ	73	ARG
17	LQ	77	THR
17	LQ	79	LYS
17	LQ	85	LYS
17	LQ	91	LYS

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Mol	Chain	Res	Type
17	LQ	95	LYS
17	LQ	99	SER
17	LQ	106	LYS
17	LQ	107	LYS
17	LQ	109	GLU
17	LQ	111	GLU
17	LQ	114	VAL
17	LQ	125	ARG
17	LQ	126	ARG
17	LQ	127	ARG
17	LQ	129	THR
17	LQ	136	ILE
17	LQ	138	LYS
17	LQ	139	TYR
17	LQ	153	LYS
18	LR	3	ILE
18	LR	6	LYS
18	LR	7	THR
18	LR	11	LYS
18	LR	13	LYS
18	LR	17	LYS
18	LR	18	GLU
18	LR	20	LYS
18	LR	21	SER
18	LR	28	LEU
18	LR	33	PHE
18	LR	34	LYS
18	LR	38	GLU
18	LR	43	ASP
18	LR	48	LEU
18	LR	50	LYS
18	LR	54	LEU
18	LR	55	SER
18	LR	56	LYS
18	LR	57	THR
18	LR	58	ASN
18	LR	61	VAL
18	LR	63	SER
18	LR	69	HIS
18	LR	70	LEU
18	LR	72	HIS
18	LR	73	LYS

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Mol	Chain	Res	Type
18	LR	74	ARG
18	LR	77	LYS
18	LR	86	THR
18	LR	87	ASN
18	LR	90	ARG
18	LR	92	VAL
18	LR	94	ILE
18	LR	96	ARG
18	LR	98	THR
18	LR	99	ILE
18	LR	102	LEU
18	LR	105	SER
18	LR	109	ARG
18	LR	110	SER
18	LR	114	LYS
18	LR	119	CYS
18	LR	120	MET
18	LR	123	ASP
18	LR	126	LEU
18	LR	131	THR
18	LR	133	ASP
18	LR	137	LEU
18	LR	139	GLN
18	LR	141	ARG
18	LR	145	ARG
18	LR	148	CYS
18	LR	149	LYS
18	LR	150	LYS
18	LR	156	ARG
18	LR	158	ASN
18	LR	168	LYS
18	LR	171	ARG
18	LR	176	ARG
18	LR	177	HIS
19	LS	3	ASN
19	LS	4	LEU
19	LS	6	LEU
19	LS	10	LEU
19	LS	17	CYS
19	LS	19	LYS
19	LS	20	ARG
19	LS	22	VAL

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Mol	Chain	Res	Type
19	LS	28	HIS
19	LS	29	GLU
19	LS	30	LYS
19	LS	33	GLU
19	LS	34	GLN
19	LS	37	SER
19	LS	38	ARG
19	LS	39	GLU
19	LS	43	SER
19	LS	47	SER
19	LS	48	LYS
19	LS	50	ILE
19	LS	52	LYS
19	LS	53	LEU
19	LS	55	ILE
19	LS	56	LYS
19	LS	59	SER
19	LS	60	ARG
19	LS	66	ARG
19	LS	67	HIS
19	LS	70	LYS
19	LS	72	LEU
19	LS	80	LYS
19	LS	84	THR
19	LS	85	ARG
19	LS	99	GLN
19	LS	103	ARG
19	LS	110	ARG
19	LS	117	ARG
19	LS	128	LYS
19	LS	131	MET
19	LS	133	LYS
19	LS	135	LYS
19	LS	141	HIS
19	LS	145	MET
19	LS	147	LYS
19	LS	148	GLU
19	LS	152	GLU
19	LS	155	LYS
19	LS	159	LEU
19	LS	160	GLU
19	LS	161	GLN

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Mol	Chain	Res	Type
19	LS	162	ARG
19	LS	163	ARG
19	LS	164	LYS
19	LS	167	GLU
19	LS	168	GLN
19	LS	169	ARG
19	LS	176	LYS
19	LS	180	ASN
19	LS	187	THR
20	LT	7	VAL
20	LT	10	ARG
20	LT	11	ARG
20	LT	12	LEU
20	LT	14	SER
20	LT	15	GLU
20	LT	16	LYS
20	LT	17	PHE
20	LT	19	GLU
20	LT	21	GLU
20	LT	25	MET
20	LT	26	THR
20	LT	32	GLU
20	LT	36	LYS
20	LT	45	SER
20	LT	47	LYS
20	LT	48	LYS
20	LT	52	THR
20	LT	56	ILE
20	LT	60	GLN
20	LT	68	PHE
20	LT	70	LYS
20	LT	71	ASN
20	LT	77	ARG
20	LT	81	ARG
20	LT	87	MET
20	LT	89	ARG
20	LT	94	THR
20	LT	95	THR
20	LT	101	ASP
20	LT	103	VAL
20	LT	104	TYR
20	LT	110	GLN

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Mol	Chain	Res	Type
20	LT	114	ARG
20	LT	120	ILE
20	LT	124	LYS
20	LT	126	VAL
20	LT	130	ASP
20	LT	132	ARG
20	LT	134	GLU
20	LT	138	MET
20	LT	141	GLN
20	LT	142	LYS
20	LT	145	ARG
20	LT	148	HIS
20	LT	153	VAL
20	LT	157	ARG
20	LT	160	ARG
20	LT	161	THR
20	LT	163	ARG
20	LT	167	ARG
21	LU	2	THR
21	LU	4	SER
21	LU	8	ARG
21	LU	14	CYS
21	LU	17	ARG
21	LU	18	LYS
21	LU	21	ARG
21	LU	32	ARG
21	LU	38	GLN
21	LU	40	VAL
21	LU	52	MET
21	LU	55	ARG
21	LU	58	ASN
21	LU	63	THR
21	LU	64	ILE
21	LU	65	PHE
21	LU	66	ASN
21	LU	72	LEU
21	LU	76	ILE
21	LU	83	ARG
21	LU	84	ILE
21	LU	87	LYS
21	LU	93	LEU
21	LU	94	GLU

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Mol	Chain	Res	Type
21	LU	96	VAL
21	LU	101	CYS
21	LU	102	ARG
21	LU	103	LYS
21	LU	106	LEU
21	LU	117	ARG
21	LU	118	LEU
21	LU	120	LYS
21	LU	121	GLU
21	LU	122	THR
21	LU	124	GLN
21	LU	131	ARG
21	LU	140	HIS
21	LU	141	VAL
21	LU	142	VAL
21	LU	144	ILE
21	LU	146	SER
21	LU	148	ILE
21	LU	149	ASP
21	LU	150	ILE
21	LU	151	THR
21	LU	153	LEU
21	LU	154	LYS
22	LV	10	LYS
22	LV	11	LYS
22	LV	13	GLN
22	LV	16	ILE
22	LV	17	ARG
22	LV	20	VAL
22	LV	26	LYS
22	LV	28	LEU
22	LV	33	ASN
22	LV	35	PHE
22	LV	44	LYS
22	LV	46	ASN
22	LV	55	LYS
22	LV	59	SER
22	LV	60	VAL
22	LV	61	GLU
22	LV	64	SER
22	LV	66	VAL
22	LV	68	GLN

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Mol	Chain	Res	Type
22	LV	70	THR
22	LV	77	ARG
22	LV	79	VAL
22	LV	82	LEU
22	LV	89	GLN
22	LV	90	ASP
22	LV	91	TYR
22	LV	92	GLN
22	LV	94	VAL
22	LV	96	ARG
22	LV	97	VAL
22	LV	98	LEU
22	LV	102	LYS
22	LV	103	GLU
22	LV	104	THR
22	LV	108	LYS
22	LV	111	THR
22	LV	112	ILE
23	LW	11	ILE
23	LW	17	ILE
23	LW	27	ILE
23	LW	36	LYS
23	LW	37	SER
23	LW	39	ASN
23	LW	44	LYS
23	LW	47	LYS
23	LW	49	HIS
23	LW	50	LEU
23	LW	55	LYS
23	LW	58	VAL
23	LW	62	VAL
23	LW	64	ILE
23	LW	65	THR
23	LW	71	LYS
23	LW	73	GLU
23	LW	74	LEU
23	LW	76	ARG
23	LW	77	LYS
23	LW	79	THR
23	LW	83	VAL
23	LW	87	ARG
23	LW	88	LYS

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Mol	Chain	Res	Type
23	LW	92	ARG
23	LW	93	LYS
23	LW	94	ASP
23	LW	96	VAL
23	LW	98	ILE
23	LW	114	LEU
23	LW	115	LYS
23	LW	117	SER
23	LW	120	THR
23	LW	125	LYS
23	LW	129	ASP
23	LW	137	THR
23	LW	139	GLU
23	LW	141	VAL
24	LX	6	HIS
24	LX	7	CYS
24	LX	14	VAL
24	LX	20	ILE
24	LX	21	CYS
24	LX	23	VAL
24	LX	24	ARG
24	LX	25	ASN
24	LX	26	ASP
24	LX	31	ARG
24	LX	35	SER
24	LX	37	CYS
24	LX	38	HIS
24	LX	43	MET
24	LX	45	ARG
24	LX	46	ASN
24	LX	54	LYS
24	LX	55	THR
24	LX	56	TYR
24	LX	58	LEU
24	LX	61	ASN
24	LX	62	LYS
24	LX	63	ASP
24	LX	64	MET
25	LY	30	HIS
25	LY	33	ARG
25	LY	35	LYS
25	LY	36	THR

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Mol	Chain	Res	Type
25	LY	40	LYS
25	LY	41	LYS
25	LY	44	LEU
25	LY	47	ARG
25	LY	50	ILE
25	LY	52	LYS
25	LY	54	SER
25	LY	55	TRP
25	LY	56	ASP
25	LY	57	ASP
25	LY	59	CYS
25	LY	62	LEU
25	LY	63	ARG
25	LY	69	ASP
25	LY	76	GLU
25	LY	77	LYS
25	LY	78	ASN
25	LY	79	ASN
25	LY	81	ILE
25	LY	83	PHE
25	LY	86	ASP
25	LY	88	ARG
25	LY	95	ARG
25	LY	96	LYS
25	LY	104	THR
25	LY	105	LYS
25	LY	106	VAL
25	LY	108	ARG
25	LY	112	LEU
25	LY	118	LEU
25	LY	123	ILE
25	LY	128	ASP
25	LY	132	MET
25	LY	136	SER
25	LY	137	LYS
26	LZ	1	MET
26	LZ	2	LYS
26	LZ	3	LEU
26	LZ	8	THR
26	LZ	24	GLU
26	LZ	26	ARG
26	LZ	28	LYS

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Mol	Chain	Res	Type
26	LZ	32	SER
26	LZ	33	ARG
26	LZ	36	LYS
26	LZ	44	ILE
26	LZ	46	THR
26	LZ	47	MET
26	LZ	49	ILE
26	LZ	51	ARG
26	LZ	57	ILE
26	LZ	59	THR
26	LZ	63	LYS
26	LZ	67	LYS
26	LZ	72	ARG
26	LZ	78	ILE
26	LZ	79	CYS
26	LZ	81	GLU
26	LZ	85	GLN
26	LZ	86	LYS
26	LZ	88	ARG
26	LZ	93	LYS
26	LZ	95	VAL
26	LZ	99	ILE
26	LZ	109	LEU
26	LZ	111	MET
26	LZ	115	ARG
26	LZ	116	TYR
26	LZ	119	ILE
26	LZ	120	LYS
26	LZ	121	ARG
26	LZ	122	ARG
26	LZ	133	ILE
27	La	5	ILE
27	La	6	ILE
27	La	7	LYS
27	La	15	LEU
27	La	16	GLN
27	La	23	LYS
27	La	25	VAL
27	La	27	VAL
27	La	28	GLU
27	La	30	LEU
27	La	33	ASN

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Mol	Chain	Res	Type
27	La	37	SER
27	La	40	ILE
27	La	41	VAL
27	La	44	ILE
27	La	47	LEU
27	La	49	ARG
27	La	50	ARG
27	La	51	ILE
27	La	65	ARG
27	La	67	ARG
27	La	68	SER
27	La	72	CYS
27	La	73	MET
27	La	74	ASN
27	La	78	LEU
27	La	81	THR
27	La	82	SER
27	La	84	ARG
27	La	85	LEU
27	La	88	ASN
27	La	90	LYS
27	La	91	ASP
27	La	100	ASP
27	La	103	LYS
27	La	104	ARG
27	La	105	ARG
27	La	106	GLU
27	La	109	GLU
27	La	113	LYS
27	La	117	ARG
27	La	118	ARG
27	La	125	THR
27	La	130	LYS
27	La	133	ILE
27	La	134	ASP
28	Lb	2	PRO
28	Lb	3	THR
28	Lb	7	LYS
28	Lb	8	SER
28	Lb	9	ARG
28	Lb	10	LYS
28	Lb	11	ARG

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Mol	Chain	Res	Type
28	Lb	17	MET
28	Lb	27	LYS
28	Lb	34	LYS
28	Lb	39	GLN
28	Lb	40	HIS
28	Lb	43	THR
28	Lb	55	LYS
28	Lb	58	MET
28	Lb	67	ILE
28	Lb	76	ASP
28	Lb	77	LYS
28	Lb	78	ILE
28	Lb	80	SER
28	Lb	84	GLU
28	Lb	85	GLU
28	Lb	88	ASP
28	Lb	90	PHE
28	Lb	91	LEU
28	Lb	94	LYS
28	Lb	95	SER
28	Lb	96	THR
28	Lb	97	THR
28	Lb	98	GLU
28	Lb	102	VAL
28	Lb	105	THR
28	Lb	109	PHE
28	Lb	115	ARG
28	Lb	117	SER
28	Lb	130	PHE
28	Lb	131	SER
28	Lb	136	LYS
28	Lb	141	VAL
28	Lb	146	LEU
28	Lb	147	LEU
28	Lb	148	VAL
29	Lc	3	LYS
29	Lc	4	LEU
29	Lc	5	LYS
29	Lc	6	ASN
29	Lc	8	THR
29	Lc	10	LYS
29	Lc	11	ASN

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Mol	Chain	Res	Type
29	Lc	14	ARG
29	Lc	18	ARG
29	Lc	19	ASN
29	Lc	22	LYS
29	Lc	25	LYS
29	Lc	35	MET
29	Lc	38	LYS
29	Lc	41	ARG
29	Lc	46	SER
29	Lc	47	ARG
29	Lc	52	ARG
29	Lc	55	LEU
29	Lc	56	ARG
30	Ld	12	ASP
30	Ld	13	SER
30	Ld	14	ILE
30	Ld	16	LEU
30	Ld	20	LEU
30	Ld	23	LYS
30	Ld	24	SER
30	Ld	28	THR
30	Ld	29	LEU
30	Ld	31	THR
30	Ld	42	LYS
30	Ld	45	LEU
30	Ld	46	VAL
30	Ld	47	PHE
30	Ld	55	LEU
30	Ld	63	LEU
30	Ld	64	CYS
30	Ld	65	HIS
30	Ld	66	LEU
30	Ld	68	LYS
30	Ld	69	THR
30	Ld	71	VAL
30	Ld	72	ARG
30	Ld	77	SER
30	Ld	81	LEU
30	Ld	85	VAL
30	Ld	93	ILE
30	Ld	94	MET
30	Ld	95	THR

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Mol	Chain	Res	Type
30	Ld	96	ILE
30	Ld	97	LEU
30	Ld	98	GLU
30	Ld	101	ASP
30	Ld	104	LEU
30	Ld	105	THR
30	Ld	106	SER
30	Ld	107	ILE
31	Le	3	ILE
31	Le	7	HIS
31	Le	8	THR
31	Le	13	LYS
31	Le	21	LYS
31	Le	22	LYS
31	Le	26	ILE
31	Le	28	ILE
31	Le	29	ARG
31	Le	34	GLN
31	Le	37	LYS
31	Le	38	LEU
31	Le	40	LYS
31	Le	42	GLU
31	Le	43	ASP
31	Le	45	ARG
31	Le	49	SER
31	Le	57	ARG
31	Le	62	VAL
31	Le	65	ARG
31	Le	67	ARG
31	Le	68	LEU
31	Le	69	GLU
31	Le	71	ARG
31	Le	73	GLU
31	Le	75	ASP
31	Le	80	PHE
31	Le	87	ASP
31	Le	90	ASN
31	Le	93	HIS
31	Le	95	THR
31	Le	96	THR
31	Le	97	GLU
31	Le	98	LYS

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Mol	Chain	Res	Type
31	Le	99	LYS
32	Lf	6	ILE
32	Lf	7	HIS
32	Lf	12	LYS
32	Lf	14	ILE
32	Lf	15	ILE
32	Lf	16	LYS
32	Lf	19	LYS
32	Lf	20	ASN
32	Lf	21	LYS
32	Lf	27	SER
32	Lf	29	ARG
32	Lf	31	VAL
32	Lf	32	ARG
32	Lf	33	VAL
32	Lf	34	LYS
32	Lf	47	MET
32	Lf	60	ILE
32	Lf	65	ASP
32	Lf	66	LYS
32	Lf	69	ARG
32	Lf	72	LEU
32	Lf	74	CYS
32	Lf	83	THR
32	Lf	89	THR
32	Lf	90	LEU
32	Lf	92	MET
32	Lf	95	LYS
32	Lf	96	THR
32	Lf	100	GLN
32	Lf	101	ILE
32	Lf	112	GLN
32	Lf	115	GLU
32	Lf	116	GLU
32	Lf	119	LYS
32	Lf	120	MET
32	Lf	122	VAL
32	Lf	124	VAL
32	Lf	125	LEU
32	Lf	128	ASP
32	Lf	130	LYS
33	Lg	3	GLU

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Mol	Chain	Res	Type
33	Lg	4	ILE
33	Lg	5	LYS
33	Lg	7	LYS
33	Lg	8	THR
33	Lg	9	PHE
33	Lg	15	VAL
33	Lg	19	ARG
33	Lg	21	ARG
33	Lg	23	LYS
33	Lg	28	VAL
33	Lg	30	LEU
33	Lg	33	VAL
33	Lg	34	SER
33	Lg	38	THR
33	Lg	42	THR
33	Lg	45	VAL
33	Lg	50	ILE
33	Lg	53	ILE
33	Lg	57	SER
33	Lg	59	LYS
33	Lg	64	LYS
33	Lg	65	ILE
33	Lg	67	ARG
33	Lg	71	ASN
33	Lg	78	ARG
33	Lg	81	THR
33	Lg	83	LEU
33	Lg	92	VAL
33	Lg	93	ARG
33	Lg	99	ILE
34	Lh	5	ARG
34	Lh	12	SER
34	Lh	18	SER
34	Lh	19	LYS
34	Lh	21	VAL
34	Lh	22	ARG
34	Lh	24	LYS
34	Lh	33	SER
34	Lh	45	CYS
34	Lh	50	LYS
34	Lh	51	GLN
34	Lh	52	ILE

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Mol	Chain	Res	Type
34	Lh	58	VAL
34	Lh	59	ILE
34	Lh	64	THR
34	Lh	66	GLN
34	Lh	69	LYS
34	Lh	70	VAL
34	Lh	71	SER
34	Lh	77	LYS
34	Lh	78	LEU
34	Lh	84	ARG
34	Lh	94	GLU
34	Lh	97	GLN
34	Lh	99	LEU
34	Lh	100	ARG
34	Lh	101	GLU
35	Li	32	LEU
35	Li	33	LYS
35	Li	35	LYS
35	Li	40	LEU
35	Li	41	SER
35	Li	45	LEU
35	Li	48	LYS
35	Li	49	LEU
35	Li	53	LYS
35	Li	54	ARG
35	Li	59	LEU
35	Li	63	LYS
35	Li	72	ARG
35	Li	75	ARG
35	Li	76	PHE
35	Li	81	LYS
35	Li	87	LEU
35	Li	93	LYS
35	Li	95	ARG
35	Li	102	PHE
35	Li	106	GLU
35	Li	108	ILE
35	Li	109	PRO
35	Li	111	THR
35	Li	115	ARG
35	Li	121	ARG
35	Li	124	LEU

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Mol	Chain	Res	Type
35	Li	126	GLU
35	Li	127	LYS
35	Li	132	LEU
35	Li	134	SER
35	Li	135	LYS
35	Li	136	LEU
35	Li	138	LYS
35	Li	139	ARG
35	Li	140	LYS
35	Li	145	LYS
35	Li	151	LYS
36	Lj	2	PRO
36	Lj	4	LYS
36	Lj	8	LEU
36	Lj	10	LYS
36	Lj	14	VAL
36	Lj	15	VAL
36	Lj	17	ILE
36	Lj	19	ARG
36	Lj	27	LYS
36	Lj	30	GLN
36	Lj	31	GLU
36	Lj	36	ILE
36	Lj	41	THR
36	Lj	52	GLU
36	Lj	53	LEU
36	Lj	55	ARG
36	Lj	56	MET
36	Lj	59	ASP
36	Lj	63	LEU
36	Lj	67	LYS
36	Lj	68	LYS
36	Lj	69	ARG
36	Lj	72	ASN
36	Lj	74	LYS
36	Lj	79	LYS
36	Lj	81	ASP
36	Lj	84	SER
36	Lj	88	ARG
36	Lj	89	ASN
37	Lk	7	SER
37	Lk	10	LYS

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Mol	Chain	Res	Type
37	Lk	13	THR
37	Lk	14	ARG
37	Lk	15	ILE
37	Lk	18	SER
37	Lk	19	CYS
37	Lk	20	ARG
37	Lk	26	SER
37	Lk	31	LYS
37	Lk	37	CYS
37	Lk	41	SER
37	Lk	43	LYS
37	Lk	45	ARG
37	Lk	46	ARG
37	Lk	50	SER
37	Lk	52	LYS
37	Lk	58	THR
37	Lk	63	SER
37	Lk	64	MET
37	Lk	67	MET
37	Lk	68	ARG
37	Lk	80	LYS
37	Lk	82	ASN
38	Ll	3	ASN
38	Ll	4	THR
38	Ll	5	ILE
38	Ll	7	GLU
38	Ll	8	GLU
38	Ll	11	MET
38	Ll	12	LYS
38	Ll	13	MET
38	Ll	14	ILE
38	Ll	20	LYS
38	Ll	21	LYS
38	Ll	22	LEU
38	Ll	23	VAL
38	Ll	24	VAL
38	Ll	25	LYS
38	Ll	26	SER
38	Ll	27	CYS
38	Ll	28	SER
38	Ll	29	LYS
38	Ll	31	ARG

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Mol	Chain	Res	Type
38	Ll	32	LEU
38	Ll	35	LYS
38	Ll	38	LEU
38	Ll	39	LYS
38	Ll	41	ARG
38	Ll	44	LYS
38	Ll	46	LEU
38	Ll	51	VAL
38	Ll	53	ASN
38	Ll	56	ASP
38	Ll	58	LYS
38	Ll	64	CYS
38	Ll	65	LYS
38	Ll	67	LYS
38	Ll	70	VAL
38	Ll	73	VAL
39	Ln	4	ILE
39	Ln	5	ASN
39	Ln	6	PRO
39	Ln	7	GLU
39	Ln	9	LEU
39	Ln	11	LYS
39	Ln	12	HIS
39	Ln	13	ILE
39	Ln	15	GLU
39	Ln	16	ILE
39	Ln	18	GLU
39	Ln	19	ARG
39	Ln	21	THR
39	Ln	23	GLU
39	Ln	24	LYS
39	Ln	26	ARG
39	Ln	27	LYS
39	Ln	29	LEU
39	Ln	34	LEU
39	Ln	38	LEU
39	Ln	44	LYS
39	Ln	45	LYS
39	Ln	48	ARG
39	Ln	51	LEU
39	Ln	65	LEU
39	Ln	66	CYS

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Mol	Chain	Res	Type
39	Ln	68	ILE
39	Ln	72	ARG
39	Ln	73	ASP
39	Ln	75	ASP
39	Ln	76	ARG
39	Ln	78	LYS
39	Ln	79	LYS
39	Ln	83	ASN
39	Ln	85	VAL
39	Ln	87	ILE
39	Ln	88	GLU
39	Ln	89	HIS
39	Ln	90	LEU
39	Ln	94	ASN
39	Ln	95	LYS
39	Ln	96	ASP
39	Ln	98	LYS
39	Ln	99	GLN
39	Ln	100	ILE
39	Ln	103	PHE
39	Ln	106	SER
39	Ln	109	VAL
39	Ln	111	LEU
39	Ln	113	SER
39	Ln	114	LYS
39	Ln	115	SER
39	Ln	116	LEU
39	Ln	117	ILE
39	Ln	118	ARG
39	Ln	119	GLN
39	Ln	120	ILE
39	Ln	129	THR
39	Ln	130	LYS
39	Ln	133	ARG
39	Ln	136	LEU
39	Ln	138	LEU
39	Ln	141	ASP
39	Ln	143	ASP
39	Ln	145	GLU
39	Ln	146	LEU
39	Ln	147	LYS
39	Ln	149	LEU

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Mol	Chain	Res	Type
39	Ln	156	LYS
39	Ln	157	VAL
39	Ln	161	LYS
39	Ln	165	LEU
39	Ln	166	ASN
39	Ln	167	TRP
39	Ln	169	ILE
39	Ln	171	ASN
39	Ln	172	VAL
39	Ln	173	LYS
39	Ln	174	MET
39	Ln	178	GLU
39	Ln	179	ILE
39	Ln	181	GLN
39	Ln	183	ILE
39	Ln	184	MET
39	Ln	185	THR
39	Ln	187	LEU
39	Ln	188	ASN
39	Ln	190	LEU
39	Ln	194	LEU
39	Ln	195	LYS
39	Ln	199	GLN
39	Ln	201	ILE
39	Ln	202	LYS
39	Ln	203	THR
39	Ln	204	VAL
39	Ln	205	TYR
39	Ln	206	ILE
39	Ln	209	THR
39	Ln	210	MET
39	Ln	213	SER
39	Ln	214	HIS
39	Ln	216	ILE
40	Lo	1	MET
40	Lo	2	ARG
40	Lo	4	LYS
40	Lo	5	TRP
40	Lo	8	LYS
40	Lo	9	ARG
40	Lo	10	MET
40	Lo	14	LYS

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Mol	Chain	Res	Type
40	Lo	16	LYS
40	Lo	21	LYS
40	Lo	23	ARG
40	Lo	25	LYS
41	Lp	7	GLU
41	Lp	8	ARG
41	Lp	10	THR
41	Lp	12	CYS
41	Lp	17	LYS
41	Lp	18	HIS
41	Lp	19	THR
41	Lp	20	VAL
41	Lp	22	LYS
41	Lp	24	SER
41	Lp	27	LYS
41	Lp	28	LYS
41	Lp	31	ASP
41	Lp	33	LEU
41	Lp	36	GLN
41	Lp	43	ARG
41	Lp	44	LYS
41	Lp	53	LYS
41	Lp	57	ARG
41	Lp	61	LYS
41	Lp	62	THR
41	Lp	68	ILE
41	Lp	71	THR
41	Lp	73	SER
41	Lp	76	LYS
41	Lp	79	THR
41	Lp	81	GLN
41	Lp	83	LEU
41	Lp	85	ARG
41	Lp	87	HIS
41	Lp	88	ARG
41	Lp	89	LEU
41	Lp	90	GLU
41	Lp	92	SER
42	Lq	1	MET
42	Lq	6	LYS
42	Lq	7	LYS
42	Lq	8	VAL

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Mol	Chain	Res	Type
42	Lq	13	LYS
42	Lq	16	THR
42	Lq	23	ARG
42	Lq	24	LYS
42	Lq	25	GLN
42	Lq	26	LEU
42	Lq	27	LEU
42	Lq	28	LYS
42	Lq	29	ILE
42	Lq	31	THR
42	Lq	34	LYS
42	Lq	36	LYS
42	Lq	39	CYS
42	Lq	41	PHE
42	Lq	48	ARG
42	Lq	49	ARG
42	Lq	50	THR
42	Lq	52	CYS
42	Lq	54	ILE
42	Lq	56	THR
42	Lq	57	CYS
42	Lq	58	ARG
42	Lq	61	SER
42	Lq	62	LYS
42	Lq	64	MET
42	Lq	70	SER
42	Lq	72	HIS
42	Lq	73	THR
42	Lq	80	ARG
42	Lq	88	LEU
42	Lq	90	ARG
43	Ls	78	MET
43	Ls	81	THR
43	Ls	83	ILE
43	Ls	93	MET
43	Ls	94	MET
43	Ls	95	ILE
43	Ls	96	CYS
43	Ls	98	HIS
43	Ls	102	ARG
43	Ls	106	ARG
43	Ls	108	THR

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Mol	Chain	Res	Type
43	Ls	110	CYS
43	Ls	112	ARG
43	Ls	117	ASN
43	Ls	118	LEU
43	Ls	119	ARG
43	Ls	120	LYS
43	Ls	121	LYS
43	Ls	124	SER
45	SA	17	GLU
45	SA	20	VAL
45	SA	21	LYS
45	SA	22	LYS
45	SA	24	LEU
45	SA	25	VAL
45	SA	32	VAL
45	SA	33	ARG
45	SA	35	ILE
45	SA	38	ARG
45	SA	40	GLN
45	SA	43	ILE
45	SA	48	LYS
45	SA	51	THR
45	SA	53	VAL
45	SA	58	LYS
45	SA	60	TRP
45	SA	62	LYS
45	SA	63	ILE
45	SA	69	ILE
45	SA	70	LEU
45	SA	72	THR
45	SA	81	VAL
45	SA	85	ARG
45	SA	90	ARG
45	SA	93	LEU
45	SA	96	CYS
45	SA	107	ARG
45	SA	121	TYR
45	SA	123	GLU
45	SA	125	ARG
45	SA	126	LEU
45	SA	133	VAL
45	SA	134	VAL

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Mol	Chain	Res	Type
45	SA	136	ARG
45	SA	139	ILE
45	SA	140	LEU
45	SA	141	GLU
45	SA	145	VAL
45	SA	146	ASN
45	SA	152	LEU
45	SA	156	ASP
45	SA	158	ASN
45	SA	164	VAL
45	SA	169	ASN
45	SA	172	THR
45	SA	174	MET
45	SA	176	ILE
45	SA	178	LEU
45	SA	179	ILE
45	SA	180	TYR
45	SA	186	GLU
45	SA	189	ARG
45	SA	190	LEU
45	SA	191	LYS
45	SA	194	ILE
45	SA	196	ARG
45	SA	200	TRP
45	SA	201	ASP
45	SA	202	VAL
45	SA	205	ASP
45	SA	206	LEU
46	SB	30	SER
46	SB	33	LEU
46	SB	35	ARG
46	SB	38	LYS
46	SB	41	LYS
46	SB	44	SER
46	SB	46	TYR
46	SB	47	ASP
46	SB	48	ILE
46	SB	50	LYS
46	SB	53	LEU
46	SB	55	ILE
46	SB	56	LYS
46	SB	59	GLU

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Mol	Chain	Res	Type
46	SB	60	ILE
46	SB	64	PHE
46	SB	65	PHE
46	SB	67	LYS
46	SB	72	GLU
46	SB	76	ASN
46	SB	78	MET
46	SB	81	GLN
46	SB	84	THR
46	SB	88	GLN
46	SB	89	ARG
46	SB	91	ARG
46	SB	98	VAL
46	SB	100	ASN
46	SB	102	ASP
46	SB	111	VAL
46	SB	112	SER
46	SB	113	LYS
46	SB	114	GLU
46	SB	115	VAL
46	SB	120	LYS
46	SB	124	LYS
46	SB	127	ARG
46	SB	130	ILE
46	SB	135	ARG
46	SB	137	PHE
46	SB	138	TRP
46	SB	141	LYS
46	SB	142	LEU
46	SB	146	HIS
46	SB	147	THR
46	SB	148	VAL
46	SB	149	SER
46	SB	153	SER
46	SB	155	LYS
46	SB	162	ARG
46	SB	164	ILE
46	SB	168	ARG
46	SB	172	ILE
46	SB	175	SER
46	SB	180	LYS
46	SB	183	GLU

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Mol	Chain	Res	Type
46	SB	188	SER
46	SB	190	VAL
46	SB	191	PHE
46	SB	192	THR
46	SB	194	GLN
46	SB	195	SER
46	SB	197	HIS
46	SB	198	SER
46	SB	201	LEU
46	SB	208	VAL
46	SB	209	TYR
46	SB	213	LYS
46	SB	218	ILE
46	SB	219	LEU
46	SB	222	ASP
46	SB	225	LYS
46	SB	226	LYS
46	SB	228	GLN
46	SB	231	HIS
46	SB	232	VAL
46	SB	233	GLN
46	SB	236	ARG
46	SB	237	THR
46	SB	239	SER
46	SB	240	LEU
47	SC	6	ARG
47	SC	7	ARG
47	SC	12	VAL
47	SC	14	TYR
47	SC	15	SER
47	SC	16	LYS
47	SC	18	LEU
47	SC	27	LEU
47	SC	32	SER
47	SC	35	LEU
47	SC	36	VAL
47	SC	37	ASP
47	SC	42	SER
47	SC	43	CYS
47	SC	44	SER
47	SC	45	LEU
47	SC	46	CYS

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Mol	Chain	Res	Type
47	SC	47	ARG
47	SC	48	THR
47	SC	52	ILE
47	SC	53	CYS
47	SC	58	CYS
47	SC	62	GLU
47	SC	67	ASP
47	SC	71	ARG
47	SC	72	LEU
47	SC	75	ILE
47	SC	78	LEU
47	SC	82	ARG
47	SC	84	MET
47	SC	88	LYS
47	SC	90	PHE
47	SC	96	LYS
47	SC	98	ILE
47	SC	99	LYS
47	SC	100	ARG
47	SC	103	SER
47	SC	106	ILE
47	SC	107	MET
47	SC	111	LEU
47	SC	115	LEU
47	SC	119	MET
47	SC	122	ARG
47	SC	123	ARG
47	SC	126	TYR
47	SC	127	SER
47	SC	129	ILE
47	SC	130	ARG
47	SC	134	ARG
47	SC	140	CYS
47	SC	142	VAL
47	SC	143	ILE
47	SC	144	VAL
47	SC	148	LEU
47	SC	151	GLN
47	SC	152	ARG
47	SC	154	ARG
47	SC	156	ASN
47	SC	157	LYS

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Mol	Chain	Res	Type
47	SC	158	PHE
47	SC	159	LYS
47	SC	160	GLU
47	SC	162	CYS
47	SC	163	LEU
47	SC	164	ILE
47	SC	170	LYS
47	SC	172	ILE
47	SC	174	LEU
47	SC	176	GLU
47	SC	178	THR
47	SC	179	ARG
47	SC	180	HIS
47	SC	181	ILE
47	SC	182	LYS
47	SC	184	ARG
47	SC	187	VAL
47	SC	188	ILE
47	SC	193	ARG
47	SC	194	ILE
47	SC	196	ASN
47	SC	199	ILE
47	SC	208	ILE
47	SC	210	ILE
48	SD	11	LYS
48	SD	12	LYS
48	SD	14	THR
48	SD	15	GLN
48	SD	16	ARG
48	SD	18	ASN
48	SD	20	ASP
48	SD	22	TYR
48	SD	24	LYS
48	SD	26	GLU
48	SD	37	LYS
48	SD	43	GLN
48	SD	48	LYS
48	SD	53	ARG
48	SD	58	VAL
48	SD	59	ILE
48	SD	66	VAL
48	SD	77	ASP

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Mol	Chain	Res	Type
48	SD	81	ASN
48	SD	83	LYS
48	SD	84	PHE
48	SD	87	GLN
48	SD	88	THR
48	SD	90	LEU
48	SD	92	SER
48	SD	93	ASP
48	SD	95	LYS
48	SD	96	CYS
48	SD	97	LEU
48	SD	103	MET
48	SD	105	ILE
48	SD	113	LEU
48	SD	116	LYS
48	SD	118	CYS
48	SD	124	PHE
48	SD	125	MET
48	SD	126	ASP
48	SD	127	ILE
48	SD	131	ASP
48	SD	134	LEU
48	SD	135	LEU
48	SD	143	THR
48	SD	144	ASP
48	SD	146	PHE
48	SD	149	GLN
48	SD	154	CYS
48	SD	159	ARG
48	SD	160	VAL
48	SD	161	ILE
48	SD	164	MET
48	SD	172	LEU
48	SD	173	HIS
48	SD	174	ASN
48	SD	175	GLU
48	SD	176	LEU
48	SD	178	LYS
48	SD	181	ILE
48	SD	183	VAL
48	SD	184	LEU
48	SD	187	LYS

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Mol	Chain	Res	Type
48	SD	189	SER
48	SD	192	GLU
48	SD	196	LYS
48	SD	198	THR
48	SD	202	GLN
48	SD	203	LYS
48	SD	205	THR
48	SD	206	MET
48	SD	210	VAL
48	SD	211	MET
48	SD	213	ARG
48	SD	214	ARG
48	SD	215	VAL
48	SD	216	LYS
48	SD	219	LYS
48	SD	220	ARG
48	SD	224	THR
48	SD	225	MET
48	SD	226	GLU
48	SD	228	LEU
48	SD	229	SER
48	SD	231	MET
48	SD	233	ASP
48	SD	238	ARG
49	SE	5	VAL
49	SE	6	ARG
49	SE	10	LYS
49	SE	12	LEU
49	SE	16	LYS
49	SE	21	ASP
49	SE	22	LYS
49	SE	26	ILE
49	SE	32	THR
49	SE	42	ILE
49	SE	44	LEU
49	SE	45	ILE
49	SE	46	LEU
49	SE	48	LEU
49	SE	49	ARG
49	SE	51	ARG
49	SE	54	TYR
49	SE	56	ASN

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Mol	Chain	Res	Type
49	SE	57	THR
49	SE	63	MET
49	SE	64	ILE
49	SE	65	LEU
49	SE	68	LYS
49	SE	71	LEU
49	SE	72	ILE
49	SE	75	LYS
49	SE	78	THR
49	SE	87	MET
49	SE	89	VAL
49	SE	91	GLU
49	SE	92	ILE
49	SE	94	LYS
49	SE	98	THR
49	SE	100	ARG
49	SE	101	VAL
49	SE	103	TYR
49	SE	106	LYS
49	SE	108	ARG
49	SE	109	PHE
49	SE	110	THR
49	SE	114	ILE
49	SE	115	GLN
49	SE	122	LYS
49	SE	126	VAL
49	SE	128	LYS
49	SE	134	LYS
49	SE	140	SER
49	SE	141	THR
49	SE	146	THR
49	SE	147	ILE
49	SE	148	ARG
49	SE	153	ASP
49	SE	155	LYS
49	SE	156	THR
49	SE	158	ASP
49	SE	160	ILE
49	SE	161	LYS
49	SE	162	ILE
49	SE	164	LEU
49	SE	166	THR

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Mol	Chain	Res	Type
49	SE	168	LYS
49	SE	169	ILE
49	SE	170	ASP
49	SE	172	TRP
49	SE	173	TYR
49	SE	174	LYS
49	SE	179	LYS
49	SE	187	ARG
49	SE	189	CYS
49	SE	191	ARG
49	SE	192	ILE
49	SE	194	THR
49	SE	198	ILE
49	SE	200	LYS
49	SE	202	MET
49	SE	209	ARG
49	SE	211	LYS
49	SE	214	GLU
49	SE	217	GLU
49	SE	218	PHE
49	SE	219	LEU
49	SE	221	ARG
49	SE	222	LEU
49	SE	224	ASN
49	SE	225	VAL
49	SE	228	ILE
49	SE	230	ASN
49	SE	235	VAL
49	SE	237	ILE
49	SE	240	THR
49	SE	241	LYS
49	SE	246	ASP
49	SE	247	ILE
49	SE	248	ILE
49	SE	251	ARG
49	SE	252	GLU
49	SE	256	ARG
49	SE	258	ILE
50	SF	5	VAL
50	SF	7	LEU
50	SF	9	ASN
50	SF	13	LEU

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Mol	Chain	Res	Type
50	SF	23	LEU
50	SF	24	GLU
50	SF	28	SER
50	SF	33	SER
50	SF	43	SER
50	SF	46	ARG
50	SF	48	ARG
50	SF	52	CYS
50	SF	53	PRO
50	SF	54	VAL
50	SF	57	ARG
50	SF	58	LEU
50	SF	59	THR
50	SF	60	ASN
50	SF	63	MET
50	SF	67	ARG
50	SF	68	ASN
50	SF	71	LYS
50	SF	72	LYS
50	SF	73	LEU
50	SF	76	MET
50	SF	77	LYS
50	SF	85	LEU
50	SF	88	LEU
50	SF	98	LEU
50	SF	100	ASP
50	SF	102	VAL
50	SF	109	GLU
50	SF	110	ASP
50	SF	111	SER
50	SF	128	SER
50	SF	132	ARG
50	SF	137	ILE
50	SF	139	ASN
50	SF	140	ILE
50	SF	146	LYS
50	SF	150	ARG
50	SF	151	LYS
50	SF	152	VAL
50	SF	153	ARG
50	SF	161	GLU
50	SF	173	SER

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Mol	Chain	Res	Type
50	SF	176	ILE
50	SF	177	SER
50	SF	179	ARG
50	SF	184	ARG
51	SG	8	LYS
51	SG	9	VAL
51	SG	11	ILE
51	SG	13	ASN
51	SG	14	PRO
51	SG	20	LYS
51	SG	21	SER
51	SG	22	LEU
51	SG	24	ILE
51	SG	25	GLU
51	SG	26	ASP
51	SG	27	PHE
51	SG	29	LYS
51	SG	30	SER
51	SG	32	THR
51	SG	36	LEU
51	SG	37	ARG
51	SG	38	MET
51	SG	41	GLU
51	SG	55	THR
51	SG	56	PHE
51	SG	57	ARG
51	SG	58	ILE
51	SG	59	THR
51	SG	63	ASP
51	SG	65	GLN
51	SG	69	MET
51	SG	73	VAL
51	SG	74	LEU
51	SG	75	LYS
51	SG	76	SER
51	SG	77	GLN
51	SG	78	ARG
51	SG	80	ARG
51	SG	83	LEU
51	SG	84	ARG
51	SG	85	GLN
51	SG	97	GLU

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Mol	Chain	Res	Type
51	SG	98	ARG
51	SG	99	LYS
51	SG	102	SER
51	SG	103	ILE
51	SG	104	ARG
51	SG	113	HIS
51	SG	115	LEU
51	SG	117	VAL
51	SG	118	VAL
51	SG	120	VAL
51	SG	125	LYS
51	SG	126	THR
51	SG	130	LEU
51	SG	134	VAL
51	SG	137	LYS
51	SG	138	ARG
51	SG	139	LEU
51	SG	140	VAL
51	SG	142	LYS
51	SG	145	SER
51	SG	146	LYS
51	SG	147	ILE
51	SG	150	LEU
51	SG	153	LEU
51	SG	155	THR
51	SG	157	LYS
51	SG	158	VAL
51	SG	161	LYS
51	SG	163	GLN
51	SG	164	MET
51	SG	166	VAL
51	SG	168	GLU
51	SG	169	LEU
51	SG	170	ILE
51	SG	171	LYS
51	SG	172	GLU
51	SG	173	LEU
51	SG	177	VAL
51	SG	178	THR
51	SG	179	LEU
51	SG	180	LYS
51	SG	184	LYS

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Mol	Chain	Res	Type
51	SG	185	LYS
51	SG	186	LEU
51	SG	188	TYR
51	SG	194	VAL
51	SG	195	VAL
51	SG	197	ASP
51	SG	199	LYS
51	SG	200	TYR
51	SG	204	GLN
51	SG	205	ARG
51	SG	210	LYS
51	SG	211	LYS
51	SG	215	ARG
51	SG	217	SER
51	SG	219	GLN
51	SG	220	GLN
51	SG	221	LEU
51	SG	225	LYS
51	SG	227	LEU
51	SG	228	LEU
51	SG	231	MET
51	SG	233	LYS
52	SH	8	LYS
52	SH	9	ILE
52	SH	10	ARG
52	SH	11	LYS
52	SH	13	PHE
52	SH	15	LYS
52	SH	18	GLU
52	SH	20	GLU
52	SH	21	LYS
52	SH	26	THR
52	SH	27	LEU
52	SH	28	LEU
52	SH	29	LYS
52	SH	31	GLU
52	SH	33	ASP
52	SH	38	GLU
52	SH	39	MET
52	SH	41	LEU
52	SH	43	THR
52	SH	47	SER

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Mol	Chain	Res	Type
52	SH	48	SER
52	SH	50	LYS
52	SH	51	GLU
52	SH	52	ILE
52	SH	55	ASP
52	SH	57	ASP
52	SH	58	LYS
52	SH	70	LEU
52	SH	72	SER
52	SH	75	LYS
52	SH	76	ASN
52	SH	77	SER
52	SH	78	GLU
52	SH	80	LEU
52	SH	83	LYS
52	SH	86	LYS
52	SH	89	SER
52	SH	91	HIS
52	SH	94	ILE
52	SH	96	VAL
52	SH	98	ASN
52	SH	99	ARG
52	SH	101	ILE
52	SH	103	LYS
52	SH	104	ASN
52	SH	106	TYR
52	SH	107	VAL
52	SH	111	LYS
52	SH	112	LYS
52	SH	114	ILE
52	SH	115	ARG
52	SH	116	ARG
52	SH	118	ARG
52	SH	120	ARG
52	SH	121	THR
52	SH	123	THR
52	SH	126	TYR
52	SH	127	ASN
52	SH	130	LEU
52	SH	133	ILE
52	SH	137	ILE
52	SH	139	VAL

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Mol	Chain	Res	Type
52	SH	142	LYS
52	SH	143	ARG
52	SH	144	THR
52	SH	153	ARG
52	SH	154	LEU
52	SH	155	GLN
52	SH	156	VAL
52	SH	162	VAL
52	SH	163	TYR
52	SH	164	ASN
52	SH	169	ARG
52	SH	170	THR
52	SH	171	LYS
52	SH	178	LYS
52	SH	181	THR
52	SH	182	GLU
52	SH	183	ARG
52	SH	185	THR
52	SH	190	MET
53	SI	3	ILE
53	SI	4	THR
53	SI	6	ASP
53	SI	7	LYS
53	SI	8	MET
53	SI	10	LYS
53	SI	17	VAL
53	SI	18	GLN
53	SI	25	ARG
53	SI	26	LYS
53	SI	29	LEU
53	SI	31	ARG
53	SI	35	ASN
53	SI	36	THR
53	SI	37	LYS
53	SI	39	ILE
53	SI	41	LYS
53	SI	50	GLN
53	SI	51	LYS
53	SI	52	ILE
53	SI	54	THR
53	SI	56	ARG
53	SI	58	ARG

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Mol	Chain	Res	Type
53	SI	61	ASN
53	SI	62	ILE
53	SI	64	ARG
53	SI	65	ARG
53	SI	69	LEU
53	SI	78	SER
53	SI	80	ASP
53	SI	83	HIS
53	SI	84	LYS
53	SI	89	GLN
53	SI	91	VAL
53	SI	93	ASN
53	SI	94	SER
53	SI	95	THR
53	SI	96	SER
53	SI	97	ASN
53	SI	99	LEU
53	SI	100	VAL
53	SI	106	VAL
53	SI	107	LYS
53	SI	110	VAL
53	SI	113	ILE
53	SI	118	PHE
53	SI	119	LYS
53	SI	120	SER
53	SI	122	LEU
53	SI	123	SER
53	SI	125	ASP
53	SI	127	LEU
53	SI	129	LYS
53	SI	131	ILE
53	SI	135	ILE
53	SI	138	ASP
53	SI	139	HIS
53	SI	141	LEU
53	SI	143	ARG
53	SI	146	SER
53	SI	147	ARG
53	SI	158	ILE
53	SI	159	LEU
53	SI	160	GLU
53	SI	163	GLU

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Mol	Chain	Res	Type
53	SI	170	LYS
53	SI	171	LEU
53	SI	174	LYS
54	SJ	2	VAL
54	SJ	3	ARG
54	SJ	6	VAL
54	SJ	8	ARG
54	SJ	12	LYS
54	SJ	13	SER
54	SJ	18	GLN
54	SJ	22	LYS
54	SJ	23	LYS
54	SJ	24	GLN
54	SJ	26	ILE
54	SJ	28	ARG
54	SJ	30	SER
54	SJ	32	LYS
54	SJ	33	VAL
54	SJ	35	ILE
54	SJ	37	PHE
54	SJ	38	LEU
54	SJ	39	GLN
54	SJ	40	LEU
54	SJ	41	MET
54	SJ	42	GLN
54	SJ	43	LYS
54	SJ	47	ILE
54	SJ	48	SER
54	SJ	52	VAL
54	SJ	53	VAL
54	SJ	60	ARG
54	SJ	61	ILE
54	SJ	63	VAL
54	SJ	65	LEU
54	SJ	68	ARG
54	SJ	76	SER
54	SJ	87	GLU
54	SJ	94	LEU
54	SJ	96	SER
54	SJ	98	LEU
54	SJ	99	PHE
54	SJ	102	ILE

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Mol	Chain	Res	Type
54	SJ	103	ILE
54	SJ	105	THR
54	SJ	106	THR
54	SJ	107	SER
54	SJ	111	MET
54	SJ	112	ASP
54	SJ	114	ILE
54	SJ	117	GLN
54	SJ	118	HIS
54	SJ	121	ILE
54	SJ	124	LYS
54	SJ	125	VAL
54	SJ	126	ILE
55	SK	1	PRO
55	SK	3	ILE
55	SK	4	SER
55	SK	7	ARG
55	SK	9	SER
55	SK	15	THR
55	SK	17	LYS
55	SK	18	LYS
55	SK	21	THR
55	SK	22	LYS
55	SK	24	ARG
55	SK	25	LEU
55	SK	31	LEU
55	SK	32	CYS
55	SK	38	LYS
55	SK	42	GLU
55	SK	45	ARG
55	SK	50	LEU
55	SK	52	LYS
55	SK	58	ARG
55	SK	61	LEU
55	SK	63	LEU
55	SK	64	ASP
55	SK	68	ILE
55	SK	69	LYS
55	SK	70	ARG
55	SK	78	LEU
55	SK	79	ARG
55	SK	83	MET

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Mol	Chain	Res	Type
55	SK	86	ILE
55	SK	88	ASP
55	SK	90	GLU
55	SK	92	ASP
55	SK	102	ILE
55	SK	103	GLU
55	SK	104	ASP
55	SK	105	ILE
55	SK	107	LYS
55	SK	108	ARG
55	SK	109	ARG
55	SK	112	SER
55	SK	116	GLU
55	SK	117	SER
55	SK	118	LYS
55	SK	121	LYS
55	SK	122	SER
55	SK	123	VAL
55	SK	127	ARG
55	SK	129	MET
55	SK	130	ILE
55	SK	131	LYS
55	SK	140	GLN
55	SK	141	ILE
55	SK	146	SER
55	SK	149	VAL
55	SK	152	SER
55	SK	156	ARG
55	SK	157	VAL
55	SK	159	ILE
55	SK	161	ASP
55	SK	162	THR
55	SK	170	LYS
55	SK	176	ARG
56	SL	3	HIS
56	SL	4	ILE
56	SL	6	LYS
56	SL	13	TYR
56	SL	16	LEU
56	SL	21	SER
56	SL	22	LEU
56	SL	25	LYS

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Mol	Chain	Res	Type
56	SL	27	TYR
56	SL	29	ARG
56	SL	30	VAL
56	SL	36	ILE
56	SL	38	TYR
56	SL	39	VAL
56	SL	44	LYS
56	SL	47	ASN
56	SL	50	TYR
56	SL	51	LEU
56	SL	53	VAL
56	SL	56	ILE
56	SL	57	MET
56	SL	58	GLN
56	SL	59	SER
56	SL	61	GLU
56	SL	67	LYS
56	SL	69	THR
56	SL	79	LEU
56	SL	82	LYS
56	SL	84	GLU
56	SL	85	GLN
56	SL	88	ARG
56	SL	89	LYS
56	SL	95	ASP
56	SL	97	VAL
56	SL	100	THR
56	SL	104	LYS
56	SL	106	SER
56	SL	107	ILE
56	SL	108	LYS
57	SM	6	HIS
57	SM	7	GLU
57	SM	12	LYS
57	SM	13	GLN
57	SM	14	SER
57	SM	20	ARG
57	SM	22	LEU
57	SM	24	LYS
57	SM	26	ASN
57	SM	28	ARG
57	SM	29	CYS

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Mol	Chain	Res	Type
57	SM	33	TYR
57	SM	36	ILE
57	SM	40	TYR
57	SM	42	THR
57	SM	54	LYS
57	SM	55	LYS
57	SM	65	ARG
57	SM	67	ARG
57	SM	68	ILE
57	SM	69	LEU
57	SM	70	ARG
57	SM	72	VAL
57	SM	77	LYS
57	SM	79	GLN
57	SM	82	ILE
57	SM	83	ILE
57	SM	84	VAL
57	SM	89	LEU
57	SM	92	VAL
57	SM	93	GLN
57	SM	94	LYS
57	SM	100	ARG
57	SM	103	LYS
57	SM	104	HIS
57	SM	105	VAL
57	SM	109	LEU
57	SM	110	SER
57	SM	120	ILE
57	SM	125	GLU
57	SM	130	SER
57	SM	131	LYS
57	SM	134	ARG
57	SM	136	ASN
57	SM	138	ILE
57	SM	139	LYS
57	SM	143	VAL
57	SM	151	PHE
57	SM	152	SER
58	SO	2	SER
58	SO	3	LYS
58	SO	7	LEU
58	SO	14	ARG

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Mol	Chain	Res	Type
58	SO	21	ARG
58	SO	25	LYS
58	SO	26	LYS
58	SO	37	LYS
58	SO	39	ASN
58	SO	45	CYS
58	SO	46	MET
58	SO	48	ARG
58	SO	50	ILE
58	SO	52	THR
58	SO	54	LYS
58	SO	55	ILE
58	SO	57	ILE
58	SO	61	GLN
58	SO	68	LYS
58	SO	70	VAL
58	SO	72	VAL
58	SO	74	LEU
58	SO	78	SER
58	SO	79	LYS
58	SO	80	LYS
58	SO	81	ILE
58	SO	85	VAL
58	SO	87	ARG
58	SO	91	ILE
58	SO	94	ILE
58	SO	95	ASP
58	SO	96	ASN
58	SO	98	ASP
58	SO	99	GLU
58	SO	101	LEU
58	SO	105	PHE
58	SO	107	ARG
58	SO	115	ILE
58	SO	118	CYS
58	SO	119	ARG
58	SO	123	ILE
58	SO	124	LYS
58	SO	128	ILE
58	SO	130	LEU
58	SO	133	LEU
58	SO	138	ARG

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Mol	Chain	Res	Type
58	SO	139	GLU
58	SO	140	LYS
59	SP	6	SER
59	SP	7	LYS
59	SP	11	ILE
59	SP	12	SER
59	SP	14	SER
59	SP	19	THR
59	SP	20	ARG
59	SP	27	LYS
59	SP	29	THR
59	SP	39	LYS
59	SP	43	LYS
59	SP	50	ILE
59	SP	54	LEU
59	SP	55	ARG
59	SP	56	ASP
59	SP	63	VAL
59	SP	64	LYS
59	SP	66	VAL
59	SP	70	LYS
59	SP	75	LEU
59	SP	76	LYS
59	SP	78	LYS
59	SP	80	LEU
59	SP	86	GLU
59	SP	88	LEU
59	SP	89	TYR
59	SP	94	LYS
59	SP	100	LYS
59	SP	102	LEU
59	SP	103	GLU
59	SP	104	ARG
59	SP	107	ARG
59	SP	110	ASP
59	SP	112	LYS
59	SP	120	SER
59	SP	121	ARG
59	SP	130	ARG
59	SP	134	ARG
59	SP	135	LEU
59	SP	140	ARG

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Mol	Chain	Res	Type
59	SP	142	LYS
59	SP	144	ASP
60	SQ	30	VAL
60	SQ	33	ILE
60	SQ	37	LYS
60	SQ	40	THR
60	SQ	48	SER
60	SQ	51	GLU
60	SQ	52	THR
60	SQ	53	ILE
60	SQ	60	MET
60	SQ	66	CYS
60	SQ	78	THR
60	SQ	79	GLN
60	SQ	81	LEU
60	SQ	84	ILE
60	SQ	88	ARG
60	SQ	93	VAL
60	SQ	95	ILE
60	SQ	97	ILE
60	SQ	98	ARG
60	SQ	105	LYS
60	SQ	106	ARG
60	SQ	110	GLN
60	SQ	113	SER
60	SQ	116	ILE
60	SQ	117	ARG
60	SQ	119	LEU
60	SQ	121	ARG
60	SQ	131	ASP
60	SQ	133	THR
60	SQ	135	ILE
60	SQ	139	ARG
60	SQ	141	ARG
60	SQ	143	LYS
60	SQ	149	ARG
60	SQ	150	ARG
61	SR	15	PRO
61	SR	16	ASN
61	SR	24	LYS
61	SR	25	LEU
61	SR	29	LYS

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Mol	Chain	Res	Type
61	SR	30	ILE
61	SR	32	ASP
61	SR	33	ILE
61	SR	34	LEU
61	SR	35	PRO
61	SR	36	LYS
61	SR	40	ARG
61	SR	43	ARG
61	SR	44	ARG
61	SR	53	LYS
61	SR	55	LEU
61	SR	56	ARG
61	SR	60	LYS
61	SR	61	LEU
61	SR	62	ARG
61	SR	64	ARG
61	SR	71	GLN
61	SR	77	ARG
61	SR	78	THR
61	SR	82	ASP
61	SR	83	MET
61	SR	84	ILE
61	SR	89	MET
61	SR	90	ILE
61	SR	92	MET
61	SR	93	THR
61	SR	95	SER
61	SR	100	ARG
61	SR	101	GLN
61	SR	106	GLU
61	SR	114	ARG
61	SR	117	ARG
61	SR	118	GLU
61	SR	121	MET
61	SR	122	SER
61	SR	124	LYS
61	SR	127	SER
61	SR	128	HIS
61	SR	130	LYS
62	ST	9	LEU
62	ST	12	ARG
62	ST	13	ASN

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Mol	Chain	Res	Type
62	ST	14	ASP
62	ST	15	ILE
62	ST	16	GLU
62	ST	18	ARG
62	ST	20	ARG
62	ST	21	ASP
62	ST	22	LYS
62	ST	24	THR
62	ST	27	THR
62	ST	28	LEU
62	ST	37	VAL
62	ST	44	LYS
62	ST	46	ASP
62	ST	47	ILE
62	ST	48	LEU
62	ST	53	PRO
62	ST	56	LEU
62	ST	61	ILE
62	ST	62	LEU
62	ST	66	VAL
62	ST	67	SER
62	ST	70	ILE
62	ST	71	MET
62	ST	77	LEU
62	ST	79	LYS
62	ST	81	LEU
62	ST	82	ASP
62	ST	83	MET
62	ST	85	ILE
62	ST	86	LYS
62	ST	87	VAL
62	ST	92	HIS
62	ST	93	VAL
62	ST	96	ILE
62	ST	101	GLN
62	ST	108	LEU
62	ST	111	VAL
62	ST	112	LYS
62	ST	117	ARG
62	ST	119	GLU
62	ST	121	ARG
62	ST	127	TYR

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Mol	Chain	Res	Type
62	ST	128	ASP
62	ST	129	ARG
62	ST	135	ASP
62	ST	137	ARG
62	ST	138	ARG
62	ST	139	CYS
62	ST	143	LYS
62	ST	152	ARG
62	ST	153	ARG
62	ST	158	ARG
63	SU	3	LYS
63	SU	4	VAL
63	SU	5	ARG
63	SU	6	THR
63	SU	7	LYS
63	SU	15	LYS
63	SU	20	ASN
63	SU	21	TYR
63	SU	29	PHE
63	SU	31	ASN
63	SU	33	LYS
63	SU	35	ILE
63	SU	37	SER
63	SU	38	LYS
63	SU	39	ARG
63	SU	44	ILE
63	SU	47	LYS
63	SU	48	ARG
63	SU	49	LEU
63	SU	52	LYS
63	SU	56	TYR
63	SU	58	THR
63	SU	59	THR
63	SU	63	ARG
63	SU	64	VAL
63	SU	66	LYS
63	SU	69	VAL
63	SU	70	HIS
63	SU	72	ILE
63	SU	76	LEU
63	SU	80	GLU
63	SU	82	GLU

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Mol	Chain	Res	Type
63	SU	83	ARG
63	SU	90	LYS
63	SU	91	LYS
63	SU	93	GLU
63	SU	95	ASP
63	SU	96	VAL
63	SU	97	GLU
63	SU	99	ILE
63	SU	100	THR
63	SU	102	SER
63	SU	108	MET
63	SU	109	ILE
63	SU	112	ILE
63	SU	114	PHE
63	SU	115	LYS
63	SU	118	SER
63	SU	120	SER
63	SU	122	LYS
64	SV	10	TYR
64	SV	11	ARG
64	SV	12	ASP
64	SV	15	ARG
64	SV	16	MET
64	SV	17	PHE
64	SV	19	THR
64	SV	20	ASN
64	SV	21	ILE
64	SV	24	LYS
64	SV	25	VAL
64	SV	27	LEU
64	SV	28	GLU
64	SV	31	LEU
64	SV	37	ILE
64	SV	40	ARG
64	SV	41	PHE
64	SV	43	ASN
64	SV	46	LEU
64	SV	47	LYS
64	SV	51	ILE
64	SV	52	ASP
64	SV	53	VAL
64	SV	55	LYS

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Mol	Chain	Res	Type
64	SV	56	ARG
64	SV	60	LEU
64	SV	61	THR
64	SV	64	GLU
64	SV	68	LEU
64	SV	69	MET
64	SV	71	VAL
64	SV	72	LEU
64	SV	80	ILE
64	SV	91	PHE
64	SV	92	GLU
64	SV	96	ASP
64	SV	97	MET
64	SV	99	ILE
64	SV	100	LEU
64	SV	102	ASN
64	SV	103	THR
64	SV	104	ILE
64	SV	109	ARG
64	SV	111	ASP
64	SV	115	LEU
64	SV	116	ARG
64	SV	119	ARG
64	SV	120	CYS
64	SV	121	GLU
64	SV	133	ARG
64	SV	138	LYS
64	SV	142	ARG
64	SV	146	VAL
64	SV	147	VAL
64	SV	149	VAL
65	SW	3	SER
65	SW	4	VAL
65	SW	5	THR
65	SW	6	ARG
65	SW	7	VAL
65	SW	12	PHE
65	SW	13	ILE
65	SW	15	SER
65	SW	16	PHE
65	SW	19	HIS
65	SW	20	LEU

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Mol	Chain	Res	Type
65	SW	21	LYS
65	SW	25	ILE
65	SW	26	ILE
65	SW	27	LYS
65	SW	28	CYS
65	SW	32	THR
65	SW	33	ASP
65	SW	36	LYS
65	SW	37	THR
65	SW	39	VAL
65	SW	40	SER
65	SW	41	ARG
65	SW	43	TYR
65	SW	46	ARG
65	SW	53	ILE
65	SW	58	VAL
65	SW	59	ILE
65	SW	60	ARG
65	SW	70	ILE
65	SW	75	LEU
65	SW	79	TYR
65	SW	82	LEU
65	SW	83	GLN
65	SW	86	LYS
65	SW	87	THR
65	SW	88	THR
65	SW	92	THR
65	SW	93	LYS
65	SW	94	ARG
65	SW	96	SER
65	SW	97	CYS
65	SW	98	LYS
65	SW	100	ILE
65	SW	107	PHE
65	SW	108	LEU
65	SW	112	LEU
65	SW	113	LEU
65	SW	117	GLU
65	SW	118	ARG
65	SW	120	ARG
65	SW	122	ILE
65	SW	123	SER

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Mol	Chain	Res	Type
65	SW	128	LYS
65	SW	133	PHE
65	SW	137	LEU
65	SW	139	LYS
66	SX	22	HIS
66	SX	27	ILE
66	SX	30	VAL
66	SX	32	LYS
66	SX	33	ASP
66	SX	36	LEU
66	SX	37	VAL
66	SX	38	GLU
66	SX	39	ARG
66	SX	43	SER
66	SX	44	ILE
66	SX	45	VAL
66	SX	46	LYS
66	SX	47	GLU
66	SX	49	ARG
66	SX	54	SER
66	SX	58	ARG
66	SX	62	ARG
66	SX	63	ARG
66	SX	64	LEU
66	SX	69	ARG
66	SX	77	THR
66	SX	79	THR
66	SX	81	HIS
66	SX	82	ARG
66	SX	84	GLU
66	SX	86	ARG
66	SX	89	LYS
66	SX	91	THR
66	SX	96	CYS
66	SX	99	ASN
66	SX	100	ASP
66	SX	101	ILE
66	SX	103	THR
66	SX	104	ILE
66	SX	106	SER
66	SX	107	LYS
66	SX	110	VAL

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Mol	Chain	Res	Type
66	SX	111	ILE
66	SX	114	ILE
66	SX	116	VAL
66	SX	118	VAL
66	SX	120	VAL
66	SX	122	GLU
66	SX	125	ASN
66	SX	126	GLU
67	SY	5	ASP
67	SY	8	MET
67	SY	9	LYS
67	SY	10	ASN
67	SY	12	SER
67	SY	15	VAL
67	SY	19	TYR
67	SY	23	LYS
67	SY	27	THR
67	SY	29	ARG
67	SY	34	LYS
67	SY	39	VAL
67	SY	41	LEU
67	SY	49	LYS
67	SY	53	ILE
67	SY	55	ASN
67	SY	57	TYR
67	SY	58	VAL
67	SY	59	THR
67	SY	63	CYS
67	SY	72	VAL
67	SY	73	ASP
67	SY	74	SER
67	SY	76	PHE
67	SY	78	LEU
67	SY	79	LEU
67	SY	82	GLU
67	SY	85	LEU
67	SY	86	MET
67	SY	87	GLU
67	SY	88	ARG
68	Sb	5	THR
68	Sb	7	LYS
68	Sb	9	ARG

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Mol	Chain	Res	Type
68	Sb	12	LEU
68	Sb	17	LEU
68	Sb	18	GLN
68	Sb	19	ARG
68	Sb	20	GLN
68	Sb	22	CYS
68	Sb	31	CYS
68	Sb	32	THR
68	Sb	39	ILE
68	Sb	40	LYS
68	Sb	42	LYS
68	Sb	45	GLN
68	Sb	46	GLN
68	Sb	51	ASP
68	Sb	53	LYS
68	Sb	57	LEU
68	Sb	61	LYS
68	Sb	62	THR
68	Sb	70	VAL
68	Sb	73	CYS
68	Sb	74	ASN
68	Sb	82	LEU
68	Sb	83	MET
68	Sb	84	LYS
68	Sb	86	GLU
68	Sb	90	ARG
68	Sb	91	LYS
68	Sb	92	ILE
68	Sb	93	ARG
68	Sb	96	LEU
68	Sb	97	ILE
68	Sb	101	LYS
68	Sb	104	SER
68	Sb	106	LYS
68	Sb	108	LEU
68	Sb	112	LYS
68	Sb	114	ARG
68	Sb	115	ARG
68	Sb	116	LEU
68	Sb	118	LYS
68	Sb	119	ARG
68	Sb	121	THR

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Mol	Chain	Res	Type
69	Sc	15	VAL
69	Sc	20	LEU
69	Sc	21	PHE
69	Sc	23	ASP
69	Sc	32	LYS
69	Sc	33	PHE
69	Sc	34	ILE
69	Sc	35	LYS
69	Sc	38	LYS
69	Sc	39	CYS
69	Sc	40	ILE
69	Sc	41	THR
69	Sc	42	HIS
69	Sc	43	THR
69	Sc	44	GLN
69	Sc	45	ILE
69	Sc	47	GLU
69	Sc	48	ARG
69	Sc	49	LEU
69	Sc	51	VAL
69	Sc	52	SER
69	Sc	57	LYS
69	Sc	58	ARG
69	Sc	60	MET
69	Sc	61	ARG
69	Sc	65	LYS
69	Sc	71	ILE
69	Sc	72	VAL
69	Sc	73	SER
69	Sc	74	LYS
69	Sc	75	SER
69	Sc	76	SER
69	Sc	77	ARG
69	Sc	78	MET
69	Sc	79	THR
69	Sc	82	LYS
69	Sc	86	LYS
69	Sc	88	GLU
70	Sd	3	VAL
70	Sd	10	ARG
70	Sd	11	SER
70	Sd	14	ASN

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Mol	Chain	Res	Type
70	Sd	18	THR
70	Sd	20	ILE
70	Sd	22	ARG
70	Sd	28	ARG
70	Sd	30	VAL
70	Sd	32	LYS
70	Sd	34	LYS
70	Sd	42	ARG
70	Sd	46	ASP
70	Sd	49	ILE
70	Sd	52	ASP
70	Sd	53	VAL
70	Sd	55	ASN
70	Sd	59	ILE
70	Sd	60	GLN
70	Sd	64	ILE
70	Sd	66	LYS
70	Sd	73	TYR
70	Sd	76	SER
70	Sd	79	ILE
70	Sd	81	ASN
70	Sd	82	HIS
70	Sd	83	ILE
70	Sd	84	VAL
70	Sd	85	ARG
70	Sd	86	VAL
70	Sd	88	SER
70	Sd	90	GLU
70	Sd	94	ILE
71	Se	46	VAL
71	Se	47	ASP
71	Se	48	LEU
71	Se	49	LEU
71	Se	61	LYS
71	Se	62	LEU
71	Se	70	ASN
71	Se	74	LEU
71	Se	76	ILE
71	Se	77	LYS
71	Se	81	CYS
71	Se	82	GLN
71	Se	86	VAL

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Mol	Chain	Res	Type
71	Se	87	VAL
71	Se	93	THR
71	Se	95	VAL
71	Se	104	ILE
71	Se	106	ILE
71	Se	111	LYS
71	Se	115	THR
71	Se	117	GLN
71	Se	120	ARG
71	Se	122	ARG
71	Se	123	GLN
72	Sg	5	ILE
72	Sg	6	ASN
72	Sg	8	ARG
72	Sg	9	VAL
72	Sg	10	ILE
72	Sg	11	GLU
72	Sg	16	THR
72	Sg	17	SER
72	Sg	19	ARG
72	Sg	25	VAL
72	Sg	26	LYS
72	Sg	27	VAL
72	Sg	28	GLU
72	Sg	33	GLU
72	Sg	34	LYS
72	Sg	38	ILE
72	Sg	41	VAL
72	Sg	45	VAL
72	Sg	47	LYS
72	Sg	49	ASP
72	Sg	50	ILE
72	Sg	51	LEU
72	Sg	52	VAL
72	Sg	53	LEU
72	Sg	58	ARG
72	Sg	59	GLU
72	Sg	61	ARG
72	Sg	62	ARG
73	Sh	90	THR
73	Sh	96	ILE
73	Sh	98	HIS

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Mol	Chain	Res	Type
73	Sh	101	GLU
73	Sh	104	ILE
73	Sh	105	CYS
73	Sh	110	SER
73	Sh	112	TYR
73	Sh	113	ARG
73	Sh	119	ILE
73	Sh	122	ARG
73	Sh	130	LYS
73	Sh	134	VAL
73	Sh	135	LYS
74	Sj	1	ARG
74	Sj	6	LEU
74	Sj	7	THR
74	Sj	11	LYS
74	Sj	13	ARG
74	Sj	14	LYS
74	Sj	15	CYS
74	Sj	16	THR
74	Sj	18	LYS
74	Sj	19	LYS
74	Sj	21	LYS
74	Sj	22	LYS
74	Sj	26	ARG
74	Sj	29	ARG
74	Sj	31	ARG
74	Sj	33	TYR
74	Sj	34	LYS
74	Sj	37	LEU
74	Sj	40	LYS
74	Sj	41	ASN
74	Sj	44	ASP
74	Sj	46	THR
74	Sj	47	LEU
74	Sj	48	ILE
74	Sj	52	ARG
74	Sj	53	ARG
74	Sj	54	LEU
74	Sj	60	LEU
74	Sj	61	ILE
74	Sj	63	GLN
74	Sj	64	LYS

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Mol	Chain	Res	Type
74	Sj	65	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (111) such sidechains are listed below:

Mol	Chain	Res	Type
1	LA	65	ASN
1	LA	233	GLN
2	LB	68	HIS
2	LB	69	ASN
2	LB	162	HIS
2	LB	172	GLN
2	LB	306	ASN
2	LB	318	GLN
2	LB	347	ASN
3	LC	106	ASN
3	LC	109	GLN
3	LC	200	ASN
3	LC	210	ASN
6	LF	7	GLN
6	LF	81	HIS
6	LF	180	ASN
7	LG	38	ASN
8	LH	44	GLN
8	LH	171	HIS
9	LI	41	GLN
9	LI	87	HIS
10	LJ	112	ASN
10	LJ	165	ASN
10	LJ	183	GLN
10	LJ	185	GLN
11	LK	73	ASN
11	LK	95	HIS
11	LK	163	GLN
11	LK	191	GLN
12	LL	101	ASN
14	LN	98	GLN
16	LP	11	HIS
16	LP	170	GLN
17	LQ	53	HIS
17	LQ	69	HIS
17	LQ	71	GLN
19	LS	34	GLN

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Mol	Chain	Res	Type
19	LS	75	HIS
20	LT	61	HIS
20	LT	71	ASN
20	LT	86	ASN
21	LU	49	HIS
21	LU	90	ASN
23	LW	13	ASN
24	LX	38	HIS
26	LZ	85	GLN
27	La	16	GLN
27	La	74	ASN
27	La	76	ASN
28	Lb	62	HIS
29	Lc	11	ASN
29	Lc	53	GLN
30	Ld	51	ASN
30	Ld	65	HIS
32	Lf	50	GLN
34	Lh	105	GLN
37	Lk	12	HIS
37	Lk	28	HIS
38	Ll	3	ASN
39	Ln	83	ASN
39	Ln	119	GLN
39	Ln	214	HIS
42	Lq	33	GLN
43	Ls	84	ASN
43	Ls	92	ASN
45	SA	40	GLN
45	SA	89	GLN
45	SA	146	ASN
45	SA	158	ASN
45	SA	169	ASN
45	SA	170	ASN
46	SB	76	ASN
46	SB	210	ASN
47	SC	110	ASN
48	SD	15	GLN
49	SE	17	HIS
49	SE	56	ASN
50	SF	32	HIS
50	SF	60	ASN

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Mol	Chain	Res	Type
50	SF	87	ASN
50	SF	123	GLN
51	SG	13	ASN
51	SG	62	ASN
51	SG	113	HIS
53	SI	112	GLN
54	SJ	18	GLN
54	SJ	64	ASN
54	SJ	113	HIS
55	SK	8	ASN
55	SK	124	HIS
55	SK	143	ASN
57	SM	102	HIS
58	SO	39	ASN
58	SO	63	ASN
59	SP	101	HIS
60	SQ	38	ASN
62	ST	84	ASN
62	ST	101	GLN
63	SU	19	ASN
63	SU	20	ASN
63	SU	62	ASN
63	SU	77	GLN
64	SV	43	ASN
66	SX	115	GLN
68	Sb	28	HIS
68	Sb	46	GLN
68	Sb	74	ASN
68	Sb	110	ASN
70	Sd	14	ASN
71	Se	92	ASN
72	Sg	24	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
4	LD	139/142 (97%)	64 (46%)	5 (3%)
44	Lt	2587/2697 (95%)	1139 (44%)	0
5	LE	115/121 (95%)	50 (43%)	4 (3%)
75	St	1453/1454 (99%)	780 (53%)	0
76	u	74/75 (98%)	53 (71%)	0

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Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
76	v	74/75 (98%)	49 (66%)	0
77	x	73/74 (98%)	46 (63%)	0
78	y	10/11 (90%)	8 (80%)	0
All	All	4525/4649 (97%)	2189 (48%)	9 (0%)

All (2189) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
4	LD	3	A
4	LD	8	C
4	LD	9	C
4	LD	10	G
4	LD	12	C
4	LD	17	G
4	LD	22	C
4	LD	24	C
4	LD	25	G
4	LD	30	G
4	LD	31	G
4	LD	32	G
4	LD	35	G
4	LD	39	C
4	LD	40	G
4	LD	41	A
4	LD	43	G
4	LD	50	G
4	LD	52	G
4	LD	53	G
4	LD	60	A
4	LD	61	G
4	LD	63	C
4	LD	64	G
4	LD	67	G
4	LD	69	G
4	LD	70	C
4	LD	72	G
4	LD	73	A
4	LD	76	C
4	LD	77	G
4	LD	78	C
4	LD	80	C
4	LD	81	G

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Mol	Chain	Res	Type
4	LD	82	C
4	LD	83	C
4	LD	84	C
4	LD	85	C
4	LD	86	G
4	LD	87	A
4	LD	88	G
4	LD	93	A
4	LD	94	C
4	LD	95	C
4	LD	97	A
4	LD	100	C
4	LD	101	U
4	LD	104	A
4	LD	105	A
4	LD	106	C
4	LD	109	A
4	LD	110	G
4	LD	111	C
4	LD	112	G
4	LD	116	C
4	LD	118	C
4	LD	121	C
4	LD	124	C
4	LD	125	G
4	LD	128	G
4	LD	132	C
4	LD	135	C
4	LD	136	G
4	LD	140	G
5	LE	7	G
5	LE	10	C
5	LE	11	A
5	LE	14	C
5	LE	15	U
5	LE	19	G
5	LE	21	G
5	LE	22	G
5	LE	23	A
5	LE	27	U
5	LE	30	U
5	LE	32	A

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Mol	Chain	Res	Type
5	LE	35	U
5	LE	36	C
5	LE	38	U
5	LE	39	U
5	LE	40	C
5	LE	41	C
5	LE	42	G
5	LE	43	A
5	LE	54	G
5	LE	55	A
5	LE	56	A
5	LE	60	C
5	LE	63	U
5	LE	64	C
5	LE	65	A
5	LE	68	C
5	LE	72	G
5	LE	73	C
5	LE	77	U
5	LE	79	C
5	LE	82	C
5	LE	83	G
5	LE	91	A
5	LE	92	C
5	LE	94	U
5	LE	95	C
5	LE	98	G
5	LE	100	G
5	LE	102	A
5	LE	103	C
5	LE	105	C
5	LE	108	G
5	LE	109	G
5	LE	110	U
5	LE	111	G
5	LE	114	G
5	LE	115	A
5	LE	118	U
44	Lt	2	G
44	Lt	3	C
44	Lt	4	G
44	Lt	6	G

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Mol	Chain	Res	Type
44	Lt	9	U
44	Lt	10	G
44	Lt	11	A
44	Lt	12	G
44	Lt	13	G
44	Lt	18	G
44	Lt	19	G
44	Lt	21	G
44	Lt	24	G
44	Lt	25	A
44	Lt	36	U
44	Lt	39	A
44	Lt	42	A
44	Lt	43	U
44	Lt	44	A
44	Lt	47	A
44	Lt	48	G
44	Lt	55	C
44	Lt	58	G
44	Lt	59	A
44	Lt	60	G
44	Lt	63	G
44	Lt	64	A
44	Lt	65	A
44	Lt	70	A
44	Lt	71	C
44	Lt	72	C
44	Lt	73	G
44	Lt	75	G
44	Lt	76	A
44	Lt	84	C
44	Lt	85	U
44	Lt	86	A
44	Lt	87	G
44	Lt	88	C
44	Lt	90	G
44	Lt	91	C
44	Lt	92	G
44	Lt	100	C
44	Lt	101	G
44	Lt	107	A
44	Lt	118	A

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Mol	Chain	Res	Type
44	Lt	119	A
44	Lt	121	G
44	Lt	122	C
44	Lt	123	G
44	Lt	124	C
44	Lt	128	G
44	Lt	132	G
44	Lt	153	C
44	Lt	159	G
44	Lt	162	C
44	Lt	163	C
44	Lt	166	G
44	Lt	167	G
44	Lt	169	C
44	Lt	171	C
44	Lt	172	C
44	Lt	173	G
44	Lt	174	C
44	Lt	175	C
44	Lt	178	A
44	Lt	179	G
44	Lt	181	G
44	Lt	185	G
44	Lt	186	C
44	Lt	187	A
44	Lt	189	G
44	Lt	194	G
44	Lt	198	G
44	Lt	222	A
44	Lt	226	G
44	Lt	229	C
44	Lt	233	U
44	Lt	235	G
44	Lt	238	C
44	Lt	239	G
44	Lt	251	G
44	Lt	252	G
44	Lt	256	G
44	Lt	258	G
44	Lt	259	C
44	Lt	262	C
44	Lt	266	U

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Mol	Chain	Res	Type
44	Lt	267	C
44	Lt	272	G
44	Lt	277	A
44	Lt	281	G
44	Lt	284	C
44	Lt	286	G
44	Lt	287	G
44	Lt	288	G
44	Lt	289	A
44	Lt	290	C
44	Lt	294	U
44	Lt	295	A
44	Lt	300	A
44	Lt	301	C
44	Lt	302	C
44	Lt	303	A
44	Lt	304	A
44	Lt	305	G
44	Lt	308	G
44	Lt	314	G
44	Lt	317	A
44	Lt	322	U
44	Lt	323	G
44	Lt	326	A
44	Lt	327	A
44	Lt	328	G
44	Lt	330	A
44	Lt	332	G
44	Lt	334	C
44	Lt	335	C
44	Lt	336	U
44	Lt	337	G
44	Lt	338	C
44	Lt	339	G
44	Lt	340	G
44	Lt	342	C
44	Lt	343	G
44	Lt	349	A
44	Lt	350	A
44	Lt	351	G
44	Lt	352	A
44	Lt	354	C

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Mol	Chain	Res	Type
44	Lt	357	A
44	Lt	367	G
44	Lt	370	G
44	Lt	372	C
44	Lt	375	C
44	Lt	376	C
44	Lt	377	C
44	Lt	378	G
44	Lt	379	C
44	Lt	385	C
44	Lt	389	C
44	Lt	390	U
44	Lt	392	G
44	Lt	397	A
44	Lt	405	A
44	Lt	414	G
44	Lt	417	C
44	Lt	425	A
44	Lt	429	C
44	Lt	430	G
44	Lt	431	A
44	Lt	435	A
44	Lt	436	G
44	Lt	437	C
44	Lt	438	C
44	Lt	439	C
44	Lt	443	C
44	Lt	444	G
44	Lt	446	C
44	Lt	449	A
44	Lt	450	G
44	Lt	451	C
44	Lt	456	G
44	Lt	459	A
44	Lt	460	G
44	Lt	463	G
44	Lt	464	C
44	Lt	468	G
44	Lt	471	C
44	Lt	474	G
44	Lt	475	C
44	Lt	477	A

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Mol	Chain	Res	Type
44	Lt	479	G
44	Lt	482	C
44	Lt	483	C
44	Lt	484	U
44	Lt	485	G
44	Lt	487	G
44	Lt	488	G
44	Lt	490	C
44	Lt	491	G
44	Lt	492	U
44	Lt	494	C
44	Lt	497	G
44	Lt	498	G
44	Lt	501	C
44	Lt	502	G
44	Lt	503	A
44	Lt	509	G
44	Lt	515	U
44	Lt	516	G
44	Lt	518	G
44	Lt	524	A
44	Lt	525	A
44	Lt	534	U
44	Lt	535	C
44	Lt	539	G
44	Lt	543	G
44	Lt	544	G
44	Lt	547	A
44	Lt	549	G
44	Lt	550	G
44	Lt	551	C
44	Lt	553	A
44	Lt	555	G
44	Lt	561	C
44	Lt	562	G
44	Lt	566	G
44	Lt	571	G
44	Lt	572	U
44	Lt	575	A
44	Lt	576	G
44	Lt	578	C
44	Lt	582	C

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Mol	Chain	Res	Type
44	Lt	583	C
44	Lt	591	U
44	Lt	596	C
44	Lt	597	G
44	Lt	598	C
44	Lt	599	A
44	Lt	601	A
44	Lt	605	C
44	Lt	607	C
44	Lt	611	G
44	Lt	612	G
44	Lt	613	A
44	Lt	617	G
44	Lt	622	U
44	Lt	624	G
44	Lt	625	G
44	Lt	631	A
44	Lt	632	A
44	Lt	633	G
44	Lt	634	A
44	Lt	641	G
44	Lt	642	A
44	Lt	649	U
44	Lt	650	G
44	Lt	654	G
44	Lt	656	U
44	Lt	661	G
44	Lt	666	C
44	Lt	670	A
44	Lt	673	U
44	Lt	674	C
44	Lt	676	C
44	Lt	678	C
44	Lt	679	A
44	Lt	681	G
44	Lt	688	G
44	Lt	691	G
44	Lt	692	C
44	Lt	694	C
44	Lt	695	C
44	Lt	696	G
44	Lt	697	C

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Mol	Chain	Res	Type
44	Lt	698	A
44	Lt	699	G
44	Lt	706	C
44	Lt	709	G
44	Lt	710	U
44	Lt	715	C
44	Lt	716	G
44	Lt	719	G
44	Lt	720	G
44	Lt	724	G
44	Lt	726	G
44	Lt	729	A
44	Lt	730	G
44	Lt	732	G
44	Lt	733	G
44	Lt	737	G
44	Lt	738	C
44	Lt	739	C
44	Lt	740	U
44	Lt	741	G
44	Lt	742	C
44	Lt	743	C
44	Lt	744	C
44	Lt	745	C
44	Lt	748	G
44	Lt	750	C
44	Lt	757	C
44	Lt	758	C
44	Lt	760	A
44	Lt	763	U
44	Lt	764	C
44	Lt	765	C
44	Lt	767	A
44	Lt	769	G
44	Lt	770	G
44	Lt	776	G
44	Lt	777	C
44	Lt	778	C
44	Lt	782	C
44	Lt	787	G
44	Lt	788	C
44	Lt	790	G

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Mol	Chain	Res	Type
44	Lt	791	G
44	Lt	793	C
44	Lt	794	U
44	Lt	795	G
44	Lt	796	G
44	Lt	798	C
44	Lt	801	G
44	Lt	803	C
44	Lt	804	G
44	Lt	805	G
44	Lt	806	G
44	Lt	807	C
44	Lt	808	G
44	Lt	809	A
44	Lt	813	C
44	Lt	814	G
44	Lt	818	G
44	Lt	819	G
44	Lt	821	G
44	Lt	827	G
44	Lt	831	C
44	Lt	834	C
44	Lt	838	U
44	Lt	839	A
44	Lt	841	G
44	Lt	854	G
44	Lt	855	G
44	Lt	857	G
44	Lt	860	A
44	Lt	861	C
44	Lt	862	G
44	Lt	863	A
44	Lt	864	U
44	Lt	865	C
44	Lt	866	C
44	Lt	870	C
44	Lt	878	C
44	Lt	881	G
44	Lt	882	G
44	Lt	883	U
44	Lt	885	C
44	Lt	887	C

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Mol	Chain	Res	Type
44	Lt	888	C
44	Lt	889	G
44	Lt	890	C
44	Lt	894	G
44	Lt	899	G
44	Lt	900	C
44	Lt	901	G
44	Lt	904	A
44	Lt	906	G
44	Lt	907	G
44	Lt	908	C
44	Lt	916	G
44	Lt	917	G
44	Lt	918	U
44	Lt	920	C
44	Lt	921	C
44	Lt	922	G
44	Lt	923	A
44	Lt	987	A
44	Lt	989	C
44	Lt	991	G
44	Lt	992	C
44	Lt	994	G
44	Lt	995	G
44	Lt	997	C
44	Lt	999	G
44	Lt	1001	A
44	Lt	1004	A
44	Lt	1005	U
44	Lt	1007	G
44	Lt	1008	A
44	Lt	1009	G
44	Lt	1010	C
44	Lt	1013	G
44	Lt	1015	C
44	Lt	1016	G
44	Lt	1017	G
44	Lt	1018	A
44	Lt	1019	G
44	Lt	1021	C
44	Lt	1024	G
44	Lt	1025	G

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Mol	Chain	Res	Type
44	Lt	1026	A
44	Lt	1029	C
44	Lt	1030	G
44	Lt	1031	C
44	Lt	1032	G
44	Lt	1036	G
44	Lt	1037	G
44	Lt	1038	C
44	Lt	1039	C
44	Lt	1040	G
44	Lt	1045	G
44	Lt	1046	C
44	Lt	1047	G
44	Lt	1052	G
44	Lt	1058	G
44	Lt	1063	C
44	Lt	1064	G
44	Lt	1067	G
44	Lt	1068	A
44	Lt	1069	G
44	Lt	1070	G
44	Lt	1073	C
44	Lt	1074	C
44	Lt	1075	G
44	Lt	1076	G
44	Lt	1078	G
44	Lt	1079	G
44	Lt	1080	C
44	Lt	1081	G
44	Lt	1084	G
44	Lt	1087	G
44	Lt	1089	C
44	Lt	1095	G
44	Lt	1096	G
44	Lt	1100	C
44	Lt	1105	G
44	Lt	1106	A
44	Lt	1109	G
44	Lt	1115	U
44	Lt	1116	G
44	Lt	1117	G
44	Lt	1120	C

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Mol	Chain	Res	Type
44	Lt	1121	A
44	Lt	1122	G
44	Lt	1125	C
44	Lt	1127	C
44	Lt	1132	G
44	Lt	1134	A
44	Lt	1135	G
44	Lt	1136	U
44	Lt	1139	C
44	Lt	1140	C
44	Lt	1141	G
44	Lt	1143	U
44	Lt	1144	A
44	Lt	1150	C
44	Lt	1151	G
44	Lt	1152	C
44	Lt	1153	C
44	Lt	1154	C
44	Lt	1159	G
44	Lt	1164	G
44	Lt	1165	A
44	Lt	1166	G
44	Lt	1167	G
44	Lt	1168	G
44	Lt	1169	G
44	Lt	1171	A
44	Lt	1172	G
44	Lt	1173	A
44	Lt	1178	U
44	Lt	1179	U
44	Lt	1181	C
44	Lt	1185	G
44	Lt	1186	C
44	Lt	1187	G
44	Lt	1191	G
44	Lt	1192	C
44	Lt	1195	C
44	Lt	1196	U
44	Lt	1197	G
44	Lt	1198	G
44	Lt	1199	C
44	Lt	1203	G

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Mol	Chain	Res	Type
44	Lt	1204	G
44	Lt	1206	U
44	Lt	1207	G
44	Lt	1212	G
44	Lt	1213	G
44	Lt	1217	U
44	Lt	1220	G
44	Lt	1222	G
44	Lt	1225	G
44	Lt	1226	G
44	Lt	1230	A
44	Lt	1231	A
44	Lt	1233	A
44	Lt	1237	G
44	Lt	1238	G
44	Lt	1239	A
44	Lt	1241	G
44	Lt	1242	G
44	Lt	1243	G
44	Lt	1244	G
44	Lt	1249	C
44	Lt	1250	C
44	Lt	1251	C
44	Lt	1252	G
44	Lt	1253	C
44	Lt	1256	G
44	Lt	1257	U
44	Lt	1258	C
44	Lt	1260	A
44	Lt	1261	A
44	Lt	1262	C
44	Lt	1263	G
44	Lt	1264	G
44	Lt	1265	G
44	Lt	1266	G
44	Lt	1272	G
44	Lt	1274	G
44	Lt	1275	G
44	Lt	1278	A
44	Lt	1279	C
44	Lt	1280	U
44	Lt	1284	G

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Mol	Chain	Res	Type
44	Lt	1286	A
44	Lt	1290	G
44	Lt	1291	C
44	Lt	1296	C
44	Lt	1297	C
44	Lt	1298	C
44	Lt	1299	G
44	Lt	1300	C
44	Lt	1301	G
44	Lt	1306	C
44	Lt	1307	G
44	Lt	1309	C
44	Lt	1310	C
44	Lt	1311	G
44	Lt	1312	C
44	Lt	1313	C
44	Lt	1314	C
44	Lt	1317	C
44	Lt	1318	G
44	Lt	1322	A
44	Lt	1323	C
44	Lt	1326	G
44	Lt	1327	C
44	Lt	1328	A
44	Lt	1330	G
44	Lt	1337	G
44	Lt	1339	G
44	Lt	1345	C
44	Lt	1346	G
44	Lt	1349	G
44	Lt	1350	C
44	Lt	1355	G
44	Lt	1361	G
44	Lt	1365	G
44	Lt	1366	C
44	Lt	1380	G
44	Lt	1381	A
44	Lt	1382	C
44	Lt	1383	G
44	Lt	1386	U
44	Lt	1388	G
44	Lt	1389	C

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Mol	Chain	Res	Type
44	Lt	1391	C
44	Lt	1394	A
44	Lt	1395	G
44	Lt	1396	A
44	Lt	1401	G
44	Lt	1406	G
44	Lt	1407	G
44	Lt	1410	G
44	Lt	1412	G
44	Lt	1418	C
44	Lt	1419	G
44	Lt	1421	G
44	Lt	1423	G
44	Lt	1424	U
44	Lt	1427	C
44	Lt	1429	G
44	Lt	1430	G
44	Lt	1432	C
44	Lt	1435	C
44	Lt	1438	U
44	Lt	1439	G
44	Lt	1440	A
44	Lt	1442	A
44	Lt	1448	G
44	Lt	1449	G
44	Lt	1452	G
44	Lt	1453	C
44	Lt	1454	G
44	Lt	1455	C
44	Lt	1456	C
44	Lt	1460	C
44	Lt	1464	C
44	Lt	1467	C
44	Lt	1469	U
44	Lt	1470	A
44	Lt	1473	G
44	Lt	1475	C
44	Lt	1476	C
44	Lt	1477	G
44	Lt	1478	C
44	Lt	1479	A
44	Lt	1480	G

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Mol	Chain	Res	Type
44	Lt	1481	C
44	Lt	1482	A
44	Lt	1483	G
44	Lt	1484	G
44	Lt	1485	A
44	Lt	1486	C
44	Lt	1489	C
44	Lt	1490	G
44	Lt	1491	G
44	Lt	1492	G
44	Lt	1495	C
44	Lt	1498	C
44	Lt	1499	A
44	Lt	1507	G
44	Lt	1510	C
44	Lt	1511	G
44	Lt	1512	G
44	Lt	1513	G
44	Lt	1514	A
44	Lt	1515	G
44	Lt	1516	C
44	Lt	1518	A
44	Lt	1519	A
44	Lt	1524	G
44	Lt	1525	C
44	Lt	1530	G
44	Lt	1536	C
44	Lt	1537	G
44	Lt	1538	G
44	Lt	1550	C
44	Lt	1553	A
44	Lt	1554	A
44	Lt	1558	C
44	Lt	1562	A
44	Lt	1564	A
44	Lt	1565	A
44	Lt	1567	G
44	Lt	1569	G
44	Lt	1571	G
44	Lt	1575	C
44	Lt	1576	U
44	Lt	1577	G

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Mol	Chain	Res	Type
44	Lt	1578	A
44	Lt	1579	C
44	Lt	1580	G
44	Lt	1582	C
44	Lt	1585	G
44	Lt	1586	C
44	Lt	1590	G
44	Lt	1592	C
44	Lt	1593	A
44	Lt	1594	G
44	Lt	1595	A
44	Lt	1596	A
44	Lt	1597	C
44	Lt	1600	G
44	Lt	1601	A
44	Lt	1603	C
44	Lt	1604	G
44	Lt	1605	G
44	Lt	1606	A
44	Lt	1611	G
44	Lt	1615	U
44	Lt	1618	C
44	Lt	1619	G
44	Lt	1620	A
44	Lt	1622	U
44	Lt	1626	U
44	Lt	1628	C
44	Lt	1629	U
44	Lt	1631	G
44	Lt	1633	A
44	Lt	1634	A
44	Lt	1641	G
44	Lt	1646	G
44	Lt	1647	A
44	Lt	1648	G
44	Lt	1649	G
44	Lt	1655	A
44	Lt	1658	C
44	Lt	1659	G
44	Lt	1662	G
44	Lt	1663	C
44	Lt	1664	U

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Mol	Chain	Res	Type
44	Lt	1666	G
44	Lt	1669	C
44	Lt	1670	G
44	Lt	1672	C
44	Lt	1673	G
44	Lt	1676	A
44	Lt	1680	C
44	Lt	1687	G
44	Lt	1688	U
44	Lt	1692	A
44	Lt	1693	C
44	Lt	1694	G
44	Lt	1696	C
44	Lt	1697	C
44	Lt	1698	G
44	Lt	1702	C
44	Lt	1706	G
44	Lt	1707	A
44	Lt	1711	G
44	Lt	1715	C
44	Lt	1716	G
44	Lt	1718	C
44	Lt	1727	G
44	Lt	1729	U
44	Lt	1730	A
44	Lt	1731	A
44	Lt	1732	A
44	Lt	1734	G
44	Lt	1735	G
44	Lt	1737	G
44	Lt	1738	G
44	Lt	1739	G
44	Lt	1741	G
44	Lt	1744	A
44	Lt	1745	C
44	Lt	1748	U
44	Lt	1749	G
44	Lt	1750	A
44	Lt	1752	U
44	Lt	1754	U
44	Lt	1757	U
44	Lt	1760	G

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Mol	Chain	Res	Type
44	Lt	1761	G
44	Lt	1764	G
44	Lt	1767	A
44	Lt	1768	A
44	Lt	1769	A
44	Lt	1770	U
44	Lt	1774	U
44	Lt	1775	C
44	Lt	1780	G
44	Lt	1786	U
44	Lt	1791	A
44	Lt	1793	G
44	Lt	1794	U
44	Lt	1795	G
44	Lt	1796	C
44	Lt	1797	A
44	Lt	1798	U
44	Lt	1801	A
44	Lt	1802	U
44	Lt	1803	G
44	Lt	1807	C
44	Lt	1808	A
44	Lt	1811	G
44	Lt	1812	A
44	Lt	1815	A
44	Lt	1817	C
44	Lt	1822	U
44	Lt	1823	G
44	Lt	1825	C
44	Lt	1827	C
44	Lt	1832	C
44	Lt	1833	G
44	Lt	1835	G
44	Lt	1839	C
44	Lt	1840	C
44	Lt	1843	G
44	Lt	1845	G
44	Lt	1846	C
44	Lt	1849	C
44	Lt	1851	A
44	Lt	1852	G
44	Lt	1855	U

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Mol	Chain	Res	Type
44	Lt	1860	A
44	Lt	1861	A
44	Lt	1862	C
44	Lt	1863	G
44	Lt	1864	G
44	Lt	1865	G
44	Lt	1866	C
44	Lt	1873	C
44	Lt	1874	G
44	Lt	1876	C
44	Lt	1881	G
44	Lt	1882	G
44	Lt	1883	G
44	Lt	1885	C
44	Lt	1886	A
44	Lt	1888	G
44	Lt	1889	A
44	Lt	1890	A
44	Lt	1891	G
44	Lt	1893	C
44	Lt	1897	U
44	Lt	1898	U
44	Lt	1899	U
44	Lt	1900	G
44	Lt	1901	A
44	Lt	1902	G
44	Lt	1903	C
44	Lt	1906	G
44	Lt	1907	A
44	Lt	1910	C
44	Lt	1914	C
44	Lt	1915	C
44	Lt	1917	G
44	Lt	1922	U
44	Lt	1927	G
44	Lt	1929	C
44	Lt	1930	G
44	Lt	1931	G
44	Lt	1934	C
44	Lt	1937	C
44	Lt	1938	C
44	Lt	1939	G

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Mol	Chain	Res	Type
44	Lt	1940	G
44	Lt	1941	C
44	Lt	1942	G
44	Lt	1943	C
44	Lt	1944	A
44	Lt	1946	C
44	Lt	1947	G
44	Lt	1948	C
44	Lt	1949	A
44	Lt	1951	A
44	Lt	1953	G
44	Lt	1954	G
44	Lt	1955	G
44	Lt	1956	A
44	Lt	1957	G
44	Lt	1958	G
44	Lt	1959	C
44	Lt	1960	C
44	Lt	1961	G
44	Lt	1963	G
44	Lt	1964	C
44	Lt	1965	C
44	Lt	1966	C
44	Lt	1967	C
44	Lt	1968	U
44	Lt	1969	G
44	Lt	1970	A
44	Lt	1971	G
44	Lt	1974	A
44	Lt	1976	C
44	Lt	1977	C
44	Lt	1978	U
44	Lt	1980	A
44	Lt	1981	C
44	Lt	1983	G
44	Lt	1987	C
44	Lt	1988	C
44	Lt	1989	G
44	Lt	1990	C
44	Lt	1993	C
44	Lt	1994	C
44	Lt	1999	U

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Mol	Chain	Res	Type
44	Lt	2000	C
44	Lt	2005	G
44	Lt	2008	C
44	Lt	2009	G
44	Lt	2010	C
44	Lt	2011	G
44	Lt	2012	C
44	Lt	2013	G
44	Lt	2017	A
44	Lt	2018	C
44	Lt	2022	C
44	Lt	2023	C
44	Lt	2027	G
44	Lt	2030	G
44	Lt	2031	G
44	Lt	2033	A
44	Lt	2034	G
44	Lt	2038	G
44	Lt	2048	G
44	Lt	2049	C
44	Lt	2050	G
44	Lt	2051	C
44	Lt	2052	G
44	Lt	2059	A
44	Lt	2060	C
44	Lt	2061	A
44	Lt	2062	C
44	Lt	2065	G
44	Lt	2066	A
44	Lt	2068	C
44	Lt	2071	A
44	Lt	2072	G
44	Lt	2074	C
44	Lt	2075	G
44	Lt	2076	U
44	Lt	2078	C
44	Lt	2079	C
44	Lt	2080	A
44	Lt	2081	C
44	Lt	2082	G
44	Lt	2090	C
44	Lt	2093	C

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Mol	Chain	Res	Type
44	Lt	2096	G
44	Lt	2097	G
44	Lt	2098	A
44	Lt	2100	G
44	Lt	2101	G
44	Lt	2102	A
44	Lt	2104	A
44	Lt	2105	C
44	Lt	2107	U
44	Lt	2108	C
44	Lt	2109	C
44	Lt	2112	C
44	Lt	2113	G
44	Lt	2114	G
44	Lt	2115	A
44	Lt	2118	A
44	Lt	2120	A
44	Lt	2121	A
44	Lt	2123	G
44	Lt	2124	G
44	Lt	2126	A
44	Lt	2129	A
44	Lt	2131	C
44	Lt	2137	C
44	Lt	2138	G
44	Lt	2140	C
44	Lt	2143	G
44	Lt	2144	C
44	Lt	2150	C
44	Lt	2151	C
44	Lt	2152	G
44	Lt	2153	U
44	Lt	2157	G
44	Lt	2161	C
44	Lt	2168	C
44	Lt	2177	G
44	Lt	2184	C
44	Lt	2185	G
44	Lt	2186	A
44	Lt	2187	U
44	Lt	2190	U
44	Lt	2191	U

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Mol	Chain	Res	Type
44	Lt	2192	C
44	Lt	2193	G
44	Lt	2195	C
44	Lt	2196	G
44	Lt	2198	C
44	Lt	2200	C
44	Lt	2201	G
44	Lt	2202	G
44	Lt	2206	C
44	Lt	2207	G
44	Lt	2213	G
44	Lt	2217	G
44	Lt	2218	U
44	Lt	2219	G
44	Lt	2222	A
44	Lt	2223	G
44	Lt	2224	A
44	Lt	2225	A
44	Lt	2226	A
44	Lt	2230	U
44	Lt	2231	A
44	Lt	2232	C
44	Lt	2233	C
44	Lt	2234	A
44	Lt	2235	C
44	Lt	2237	G
44	Lt	2239	G
44	Lt	2240	A
44	Lt	2242	A
44	Lt	2243	A
44	Lt	2250	U
44	Lt	2254	G
44	Lt	2260	G
44	Lt	2261	A
44	Lt	2262	G
44	Lt	2265	C
44	Lt	2268	G
44	Lt	2270	A
44	Lt	2272	C
44	Lt	2273	G
44	Lt	2274	A
44	Lt	2276	G

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Mol	Chain	Res	Type
44	Lt	2279	G
44	Lt	2283	U
44	Lt	2284	U
44	Lt	2285	U
44	Lt	2290	C
44	Lt	2291	U
44	Lt	2294	G
44	Lt	2298	U
44	Lt	2299	C
44	Lt	2308	C
44	Lt	2310	A
44	Lt	2311	C
44	Lt	2312	C
44	Lt	2317	G
44	Lt	2318	C
44	Lt	2320	C
44	Lt	2321	G
44	Lt	2322	C
44	Lt	2323	A
44	Lt	2326	G
44	Lt	2328	C
44	Lt	2334	A
44	Lt	2335	G
44	Lt	2339	C
44	Lt	2340	G
44	Lt	2344	U
44	Lt	2346	U
44	Lt	2348	C
44	Lt	2353	G
44	Lt	2354	U
44	Lt	2355	U
44	Lt	2356	C
44	Lt	2357	A
44	Lt	2358	A
44	Lt	2360	G
44	Lt	2363	U
44	Lt	2364	C
44	Lt	2365	G
44	Lt	2372	G
44	Lt	2373	G
44	Lt	2381	C
44	Lt	2382	C

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Mol	Chain	Res	Type
44	Lt	2392	C
44	Lt	2393	A
44	Lt	2394	G
44	Lt	2395	G
44	Lt	2397	U
44	Lt	2400	U
44	Lt	2401	U
44	Lt	2405	C
44	Lt	2406	C
44	Lt	2408	U
44	Lt	2409	A
44	Lt	2412	G
44	Lt	2414	C
44	Lt	2416	C
44	Lt	2418	G
44	Lt	2419	G
44	Lt	2429	A
44	Lt	2430	C
44	Lt	2431	G
44	Lt	2438	C
44	Lt	2439	A
44	Lt	2441	U
44	Lt	2448	G
44	Lt	2451	A
44	Lt	2457	G
44	Lt	2464	G
44	Lt	2467	G
44	Lt	2468	C
44	Lt	2470	A
44	Lt	2474	C
44	Lt	2478	G
44	Lt	2481	U
44	Lt	2485	C
44	Lt	2486	G
44	Lt	2495	G
44	Lt	2496	C
44	Lt	2497	G
44	Lt	2501	C
44	Lt	2503	C
44	Lt	2506	C
44	Lt	2507	C
44	Lt	2508	G

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Mol	Chain	Res	Type
44	Lt	2509	C
44	Lt	2514	G
44	Lt	2515	G
44	Lt	2516	G
44	Lt	2519	C
44	Lt	2521	C
44	Lt	2523	G
44	Lt	2532	G
44	Lt	2533	C
44	Lt	2535	U
44	Lt	2536	C
44	Lt	2537	U
44	Lt	2539	A
44	Lt	2540	G
44	Lt	2545	C
44	Lt	2546	A
44	Lt	2547	C
44	Lt	2559	C
44	Lt	2566	C
44	Lt	2567	G
44	Lt	2568	G
44	Lt	2572	C
44	Lt	2573	G
44	Lt	2574	C
44	Lt	2575	G
44	Lt	2579	C
44	Lt	2580	A
44	Lt	2581	G
44	Lt	2582	C
44	Lt	2584	C
44	Lt	2585	C
44	Lt	2586	G
44	Lt	2587	U
44	Lt	2591	C
44	Lt	2592	C
44	Lt	2593	G
44	Lt	2594	U
44	Lt	2595	C
44	Lt	2596	G
44	Lt	2598	C
44	Lt	2599	G
44	Lt	2602	C

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Mol	Chain	Res	Type
44	Lt	2604	G
44	Lt	2606	C
44	Lt	2609	C
44	Lt	2610	G
44	Lt	2611	C
44	Lt	2614	G
44	Lt	2615	G
44	Lt	2616	G
44	Lt	2617	G
44	Lt	2618	A
44	Lt	2621	C
44	Lt	2623	A
44	Lt	2628	G
44	Lt	2629	C
44	Lt	2630	G
44	Lt	2632	G
44	Lt	2633	G
44	Lt	2635	G
44	Lt	2638	C
44	Lt	2642	U
44	Lt	2643	A
44	Lt	2649	C
44	Lt	2650	A
44	Lt	2652	A
44	Lt	2653	G
44	Lt	2654	C
44	Lt	2655	C
44	Lt	2656	C
44	Lt	2657	U
44	Lt	2667	U
44	Lt	2668	G
44	Lt	2669	A
44	Lt	2674	C
44	Lt	2675	G
44	Lt	2677	G
44	Lt	2679	C
44	Lt	2680	U
44	Lt	2681	G
44	Lt	2683	A
44	Lt	2686	G
44	Lt	2687	C
44	Lt	2688	G

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Mol	Chain	Res	Type
44	Lt	2690	G
75	St	2	A
75	St	5	C
75	St	11	A
75	St	17	C
75	St	18	C
75	St	20	G
75	St	22	G
75	St	25	C
75	St	26	G
75	St	31	U
75	St	33	U
75	St	34	C
75	St	35	C
75	St	37	C
75	St	38	A
75	St	41	G
75	St	44	G
75	St	45	A
75	St	46	A
75	St	49	C
75	St	53	C
75	St	56	G
75	St	59	C
75	St	61	C
75	St	62	U
75	St	63	C
75	St	65	C
75	St	66	C
75	St	67	C
75	St	68	G
75	St	69	G
75	St	70	G
75	St	71	A
75	St	72	C
75	St	73	G
75	St	78	G
75	St	79	G
75	St	80	A
75	St	81	C
75	St	87	A
75	St	90	A

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Mol	Chain	Res	Type
75	St	91	C
75	St	92	A
75	St	95	G
75	St	98	U
75	St	101	A
75	St	102	C
75	St	114	G
75	St	115	U
75	St	116	C
75	St	117	C
75	St	119	U
75	St	120	G
75	St	122	U
75	St	123	A
75	St	124	G
75	St	125	C
75	St	127	G
75	St	128	G
75	St	129	A
75	St	130	C
75	St	131	A
75	St	133	C
75	St	137	G
75	St	138	G
75	St	139	C
75	St	143	C
75	St	144	C
75	St	145	G
75	St	149	C
75	St	150	C
75	St	151	A
75	St	152	A
75	St	153	G
75	St	154	A
75	St	155	C
75	St	156	G
75	St	157	U
75	St	158	G
75	St	160	G
75	St	161	C
75	St	162	G
75	St	163	C

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Mol	Chain	Res	Type
75	St	164	A
75	St	165	C
75	St	166	G
75	St	170	G
75	St	171	C
75	St	172	G
75	St	173	C
75	St	174	G
75	St	175	C
75	St	176	C
75	St	178	C
75	St	179	G
75	St	180	C
75	St	182	G
75	St	183	G
75	St	184	C
75	St	185	G
75	St	187	G
75	St	188	C
75	St	189	A
75	St	190	G
75	St	192	G
75	St	193	U
75	St	194	G
75	St	195	A
75	St	198	C
75	St	199	A
75	St	202	G
75	St	203	A
75	St	204	C
75	St	205	G
75	St	207	C
75	St	208	C
75	St	209	C
75	St	214	G
75	St	215	G
75	St	217	C
75	St	222	G
75	St	224	G
75	St	225	G
75	St	228	U
75	St	229	C

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Mol	Chain	Res	Type
75	St	231	C
75	St	233	C
75	St	234	G
75	St	235	G
75	St	238	G
75	St	241	G
75	St	242	C
75	St	243	G
75	St	246	C
75	St	249	G
75	St	250	G
75	St	252	G
75	St	257	G
75	St	263	C
75	St	265	G
75	St	272	G
75	St	274	C
75	St	278	G
75	St	280	A
75	St	281	U
75	St	283	A
75	St	285	G
75	St	286	G
75	St	291	A
75	St	293	U
75	St	294	C
75	St	300	A
75	St	301	G
75	St	302	C
75	St	304	G
75	St	308	U
75	St	309	G
75	St	310	C
75	St	313	G
75	St	314	A
75	St	315	C
75	St	317	G
75	St	318	C
75	St	319	C
75	St	320	C
75	St	321	G
75	St	323	A

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Mol	Chain	Res	Type
75	St	325	A
75	St	329	A
75	St	330	A
75	St	331	G
75	St	334	C
75	St	335	G
75	St	336	G
75	St	337	C
75	St	338	A
75	St	339	G
75	St	340	C
75	St	348	G
75	St	352	U
75	St	353	U
75	St	354	G
75	St	357	C
75	St	358	A
75	St	359	A
75	St	361	G
75	St	362	C
75	St	363	G
75	St	366	G
75	St	367	C
75	St	368	G
75	St	369	C
75	St	372	G
75	St	374	G
75	St	375	G
75	St	380	G
75	St	381	A
75	St	382	C
75	St	383	G
75	St	386	G
75	St	387	A
75	St	388	G
75	St	390	G
75	St	392	G
75	St	393	C
75	St	395	A
75	St	396	G
75	St	398	G
75	St	399	A

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Mol	Chain	Res	Type
75	St	401	G
75	St	402	C
75	St	404	G
75	St	411	A
75	St	412	G
75	St	413	C
75	St	417	C
75	St	419	C
75	St	421	G
75	St	422	C
75	St	423	G
75	St	424	C
75	St	425	A
75	St	426	G
75	St	428	C
75	St	431	G
75	St	432	G
75	St	435	A
75	St	436	A
75	St	437	G
75	St	438	G
75	St	439	U
75	St	441	U
75	St	442	G
75	St	443	U
75	St	444	G
75	St	445	C
75	St	448	G
75	St	452	C
75	St	453	C
75	St	458	U
75	St	460	A
75	St	461	U
75	St	462	U
75	St	465	A
75	St	468	U
75	St	474	A
75	St	475	G
75	St	477	G
75	St	479	C
75	St	485	G
75	St	486	C

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Mol	Chain	Res	Type
75	St	487	G
75	St	488	C
75	St	489	U
75	St	490	G
75	St	491	C
75	St	493	G
75	St	494	C
75	St	497	U
75	St	499	G
75	St	500	A
75	St	502	A
75	St	503	C
75	St	504	G
75	St	510	A
75	St	511	G
75	St	515	G
75	St	519	C
75	St	520	C
75	St	521	C
75	St	522	G
75	St	523	C
75	St	524	C
75	St	527	C
75	St	530	G
75	St	531	A
75	St	533	G
75	St	534	A
75	St	535	A
75	St	536	A
75	St	537	C
75	St	539	G
75	St	540	G
75	St	541	A
75	St	544	G
75	St	545	C
75	St	546	U
75	St	549	A
75	St	550	G
75	St	553	A
75	St	554	G
75	St	556	C
75	St	557	C

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Mol	Chain	Res	Type
75	St	558	C
75	St	559	G
75	St	560	U
75	St	561	U
75	St	563	G
75	St	564	C
75	St	565	C
75	St	566	C
75	St	567	C
75	St	568	G
75	St	569	C
75	St	570	C
75	St	573	G
75	St	575	G
75	St	576	G
75	St	577	G
75	St	578	A
75	St	581	G
75	St	583	G
75	St	584	C
75	St	585	A
75	St	586	G
75	St	588	G
75	St	589	G
75	St	590	G
75	St	592	G
75	St	593	C
75	St	594	G
75	St	595	G
75	St	596	C
75	St	597	G
75	St	598	C
75	St	599	G
75	St	600	C
75	St	602	G
75	St	604	C
75	St	605	G
75	St	606	C
75	St	607	C
75	St	608	G
75	St	609	C
75	St	610	A

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Mol	Chain	Res	Type
75	St	611	G
75	St	612	C
75	St	613	C
75	St	614	C
75	St	615	C
75	St	616	G
75	St	617	A
75	St	619	G
75	St	620	A
75	St	622	A
75	St	623	G
75	St	626	G
75	St	627	G
75	St	630	G
75	St	635	A
75	St	638	G
75	St	640	U
75	St	647	C
75	St	649	G
75	St	651	G
75	St	652	A
75	St	653	C
75	St	655	G
75	St	657	U
75	St	658	G
75	St	663	A
75	St	664	G
75	St	665	G
75	St	666	A
75	St	667	U
75	St	668	G
75	St	672	C
75	St	673	C
75	St	675	C
75	St	682	C
75	St	686	G
75	St	687	G
75	St	688	C
75	St	689	C
75	St	694	A
75	St	696	G
75	St	699	C

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Mol	Chain	Res	Type
75	St	700	C
75	St	701	U
75	St	705	A
75	St	708	A
75	St	712	C
75	St	713	C
75	St	714	U
75	St	716	U
75	St	717	G
75	St	720	A
75	St	725	A
75	St	726	G
75	St	728	G
75	St	735	C
75	St	739	G
75	St	740	G
75	St	741	G
75	St	742	C
75	St	743	U
75	St	746	A
75	St	747	A
75	St	749	G
75	St	750	C
75	St	751	G
75	St	752	A
75	St	753	U
75	St	754	C
75	St	755	A
75	St	756	G
75	St	758	C
75	St	759	A
75	St	761	C
75	St	762	A
75	St	765	G
75	St	772	C
75	St	773	G
75	St	774	G
75	St	775	C
75	St	779	A
75	St	780	A
75	St	782	C
75	St	783	G

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Mol	Chain	Res	Type
75	St	784	G
75	St	785	U
75	St	786	G
75	St	787	C
75	St	788	C
75	St	790	C
75	St	791	C
75	St	792	C
75	St	793	C
75	St	794	G
75	St	795	C
75	St	796	G
75	St	801	G
75	St	803	G
75	St	806	C
75	St	807	G
75	St	808	C
75	St	809	G
75	St	810	U
75	St	811	C
75	St	812	C
75	St	815	C
75	St	816	C
75	St	817	G
75	St	818	G
75	St	823	C
75	St	824	C
75	St	833	C
75	St	834	G
75	St	835	G
75	St	836	G
75	St	837	A
75	St	838	G
75	St	840	C
75	St	841	U
75	St	842	C
75	St	843	C
75	St	844	G
75	St	845	G
75	St	852	G
75	St	853	G
75	St	855	G

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Mol	Chain	Res	Type
75	St	857	A
75	St	859	U
75	St	868	A
75	St	876	A
75	St	879	U
75	St	885	G
75	St	887	A
75	St	888	U
75	St	890	G
75	St	891	A
75	St	894	G
75	St	896	G
75	St	897	G
75	St	898	G
75	St	899	G
75	St	900	U
75	St	901	A
75	St	902	C
75	St	904	A
75	St	906	C
75	St	909	A
75	St	910	C
75	St	911	G
75	St	916	G
75	St	917	U
75	St	918	C
75	St	920	G
75	St	922	G
75	St	923	G
75	St	927	A
75	St	929	U
75	St	930	C
75	St	932	G
75	St	933	A
75	St	937	A
75	St	938	A
75	St	940	G
75	St	941	C
75	St	943	C
75	St	944	G
75	St	945	C
75	St	950	C

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Mol	Chain	Res	Type
75	St	951	A
75	St	955	G
75	St	957	C
75	St	959	C
75	St	960	G
75	St	961	G
75	St	963	C
75	St	964	G
75	St	967	C
75	St	969	G
75	St	970	A
75	St	971	G
75	St	972	G
75	St	973	A
75	St	974	C
75	St	978	C
75	St	983	G
75	St	984	G
75	St	985	G
75	St	986	C
75	St	987	G
75	St	988	C
75	St	989	G
75	St	992	U
75	St	993	U
75	St	994	C
75	St	995	G
75	St	996	C
75	St	997	G
75	St	998	A
75	St	1000	C
75	St	1003	G
75	St	1005	G
75	St	1006	G
75	St	1007	G
75	St	1008	U
75	St	1009	G
75	St	1011	U
75	St	1013	G
75	St	1015	G
75	St	1016	C
75	St	1017	A

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Mol	Chain	Res	Type
75	St	1018	U
75	St	1024	C
75	St	1026	C
75	St	1027	C
75	St	1028	C
75	St	1029	A
75	St	1030	G
75	St	1032	C
75	St	1033	C
75	St	1039	G
75	St	1043	G
75	St	1048	C
75	St	1049	U
75	St	1050	G
75	St	1051	C
75	St	1052	U
75	St	1056	U
75	St	1057	U
75	St	1058	G
75	St	1059	C
75	St	1060	G
75	St	1061	A
75	St	1063	A
75	St	1064	A
75	St	1066	G
75	St	1067	A
75	St	1072	G
75	St	1077	C
75	St	1079	G
75	St	1080	C
75	St	1086	G
75	St	1087	C
75	St	1088	G
75	St	1089	C
75	St	1090	C
75	St	1093	G
75	St	1095	G
75	St	1096	A
75	St	1098	G
75	St	1100	C
75	St	1104	C
75	St	1105	G

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Mol	Chain	Res	Type
75	St	1106	G
75	St	1107	C
75	St	1109	G
75	St	1111	G
75	St	1112	G
75	St	1113	G
75	St	1115	G
75	St	1121	C
75	St	1122	G
75	St	1124	G
75	St	1125	G
75	St	1127	G
75	St	1128	A
75	St	1131	G
75	St	1132	C
75	St	1133	A
75	St	1134	G
75	St	1136	U
75	St	1137	C
75	St	1138	U
75	St	1139	G
75	St	1141	G
75	St	1150	A
75	St	1151	G
75	St	1152	A
75	St	1153	C
75	St	1154	G
75	St	1157	C
75	St	1160	G
75	St	1161	G
75	St	1163	C
75	St	1164	G
75	St	1165	C
75	St	1166	A
75	St	1168	G
75	St	1169	C
75	St	1171	C
75	St	1172	G
75	St	1175	A
75	St	1177	A
75	St	1178	C
75	St	1179	U

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Mol	Chain	Res	Type
75	St	1180	G
75	St	1181	G
75	St	1183	G
75	St	1186	G
75	St	1187	C
75	St	1189	A
75	St	1190	G
75	St	1193	G
75	St	1194	G
75	St	1195	C
75	St	1197	C
75	St	1198	C
75	St	1200	G
75	St	1201	C
75	St	1202	C
75	St	1204	G
75	St	1205	G
75	St	1208	G
75	St	1210	G
75	St	1211	C
75	St	1212	G
75	St	1213	G
75	St	1214	A
75	St	1215	G
75	St	1220	C
75	St	1223	C
75	St	1225	U
75	St	1226	G
75	St	1227	G
75	St	1228	C
75	St	1229	C
75	St	1232	G
75	St	1233	A
75	St	1234	C
75	St	1237	C
75	St	1238	G
75	St	1240	G
75	St	1243	G
75	St	1245	A
75	St	1246	A
75	St	1247	C
75	St	1248	G

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Mol	Chain	Res	Type
75	St	1252	C
75	St	1254	G
75	St	1255	C
75	St	1256	G
75	St	1258	A
75	St	1261	A
75	St	1262	G
75	St	1266	U
75	St	1267	G
75	St	1269	C
75	St	1270	U
75	St	1271	U
75	St	1272	G
75	St	1273	U
75	St	1275	G
75	St	1276	G
75	St	1278	G
75	St	1280	C
75	St	1283	C
75	St	1285	C
75	St	1286	C
75	St	1287	C
75	St	1288	A
75	St	1289	C
75	St	1290	C
75	St	1291	G
75	St	1292	C
75	St	1295	G
75	St	1298	G
75	St	1300	A
75	St	1303	C
75	St	1305	U
75	St	1306	C
75	St	1307	C
75	St	1310	G
75	St	1311	C
75	St	1319	A
75	St	1320	C
75	St	1321	A
75	St	1322	C
75	St	1323	A
75	St	1324	C

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Mol	Chain	Res	Type
75	St	1330	G
75	St	1333	G
75	St	1339	A
75	St	1345	U
75	St	1346	G
75	St	1348	G
75	St	1349	C
75	St	1350	G
75	St	1351	C
75	St	1352	G
75	St	1353	G
75	St	1354	C
75	St	1358	G
75	St	1366	C
75	St	1367	G
75	St	1368	G
75	St	1369	A
75	St	1370	C
75	St	1372	C
75	St	1373	G
75	St	1374	C
75	St	1375	G
75	St	1376	A
75	St	1377	A
75	St	1378	G
75	St	1379	G
75	St	1383	G
75	St	1384	C
75	St	1385	G
75	St	1386	A
75	St	1387	G
75	St	1392	C
75	St	1397	C
75	St	1398	U
75	St	1399	G
75	St	1400	G
75	St	1401	A
75	St	1403	G
75	St	1405	A
75	St	1406	G
75	St	1408	A
75	St	1409	G

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Mol	Chain	Res	Type
75	St	1410	A
75	St	1411	A
75	St	1412	G
75	St	1415	G
75	St	1416	U
75	St	1417	A
75	St	1421	A
75	St	1422	G
75	St	1423	G
75	St	1424	U
75	St	1425	A
75	St	1430	U
75	St	1433	G
75	St	1435	G
75	St	1437	A
75	St	1443	G
75	St	1444	G
75	St	1447	G
75	St	1448	G
75	St	1449	A
75	St	1450	U
75	St	1451	C
75	St	1452	C
75	St	1453	U
75	St	1454	U
76	u	3	C
76	u	4	A
76	u	7	G
76	u	8	U
76	u	9	G
76	u	12	G
76	u	13	C
76	u	14	A
76	u	15	G
76	u	16	C
76	u	17	G
76	u	18	G
76	u	19	A
76	u	20	A
76	u	21	G
76	u	22	C
76	u	27	U

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Mol	Chain	Res	Type
76	u	28	G
76	u	29	G
76	u	31	C
76	u	32	C
76	u	33	C
76	u	34	A
76	u	35	U
76	u	36	A
76	u	37	A
76	u	41	A
76	u	44	G
76	u	45	G
76	u	46	U
76	u	47	C
76	u	48	G
76	u	49	A
76	u	50	U
76	u	51	G
76	u	53	A
76	u	55	C
76	u	56	G
76	u	57	A
76	u	58	A
76	u	59	A
76	u	61	C
76	u	62	A
76	u	63	U
76	u	65	C
76	u	66	U
76	u	67	C
76	u	69	G
76	u	70	C
76	u	71	U
76	u	73	C
76	u	74	C
76	u	75	A
76	v	4	A
76	v	5	G
76	v	7	G
76	v	8	U
76	v	9	G
76	v	10	G

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Mol	Chain	Res	Type
76	v	11	C
76	v	12	G
76	v	13	C
76	v	14	A
76	v	15	G
76	v	16	C
76	v	17	G
76	v	18	G
76	v	19	A
76	v	20	A
76	v	21	G
76	v	23	G
76	v	24	U
76	v	29	G
76	v	32	C
76	v	33	C
76	v	36	A
76	v	37	A
76	v	41	A
76	v	44	G
76	v	45	G
76	v	46	U
76	v	47	C
76	v	48	G
76	v	52	G
76	v	53	A
76	v	54	U
76	v	55	C
76	v	56	G
76	v	57	A
76	v	58	A
76	v	59	A
76	v	60	C
76	v	62	A
76	v	63	U
76	v	64	C
76	v	65	C
76	v	68	U
76	v	69	G
76	v	71	U
76	v	72	A
76	v	73	C

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Mol	Chain	Res	Type
76	v	74	C
77	x	2	C
77	x	4	G
77	x	5	A
77	x	6	U
77	x	7	U
77	x	8	U
77	x	9	A
77	x	10	C
77	x	12	C
77	x	14	G
77	x	15	A
77	x	17	G
77	x	18	G
77	x	20	A
77	x	21	G
77	x	24	C
77	x	25	A
77	x	26	C
77	x	28	A
77	x	29	G
77	x	30	A
77	x	33	A
77	x	35	C
77	x	36	A
77	x	37	A
77	x	40	U
77	x	41	G
77	x	42	G
77	x	44	G
77	x	45	U
77	x	46	C
77	x	47	C
77	x	54	C
77	x	55	G
77	x	56	A
77	x	57	U
77	x	58	C
77	x	59	C
77	x	62	A
77	x	64	A
77	x	66	U

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Mol	Chain	Res	Type
77	x	67	U
77	x	68	C
77	x	69	G
77	x	71	A
77	x	72	C
78	y	32	A
78	y	33	A
78	y	34	A
78	y	35	U
78	y	37	G
78	y	38	A
78	y	39	U
78	y	41	A

All (9) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
4	LD	40	G
4	LD	49	G
4	LD	72	G
4	LD	87	A
4	LD	117	C
5	LE	38	U
5	LE	85	U
5	LE	110	U
5	LE	114	G

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.

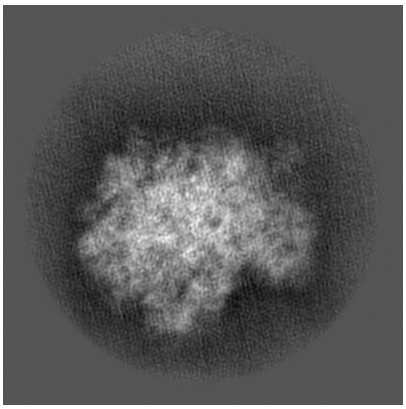
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-16226. These allow visual inspection of the internal detail of the map and identification of artifacts.

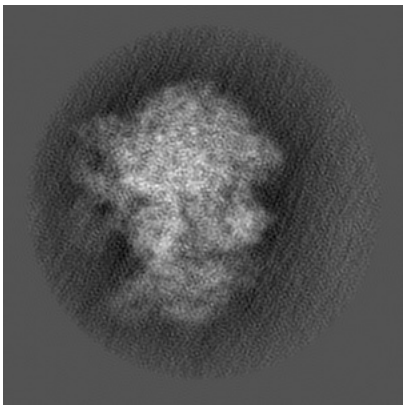
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

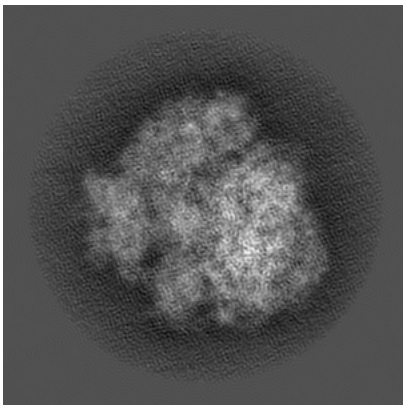
6.1.1 Primary map



X

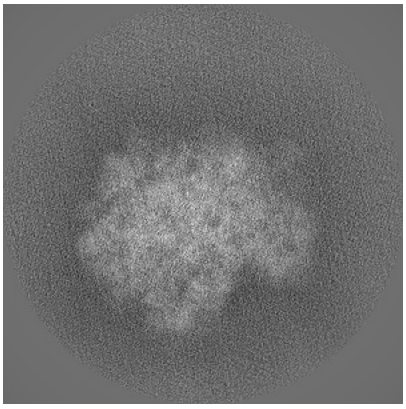


Y

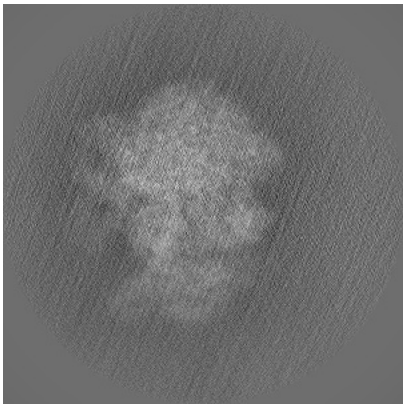


Z

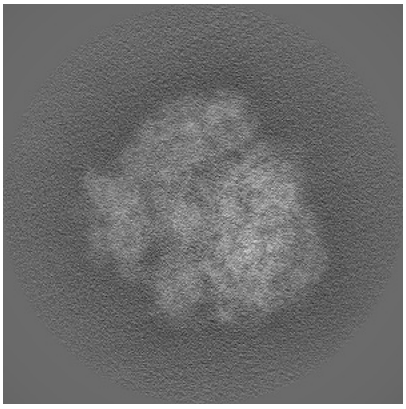
6.1.2 Raw map



X



Y

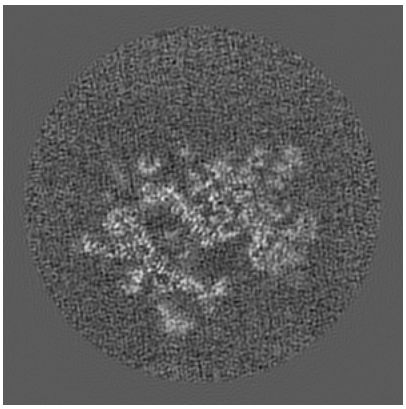


Z

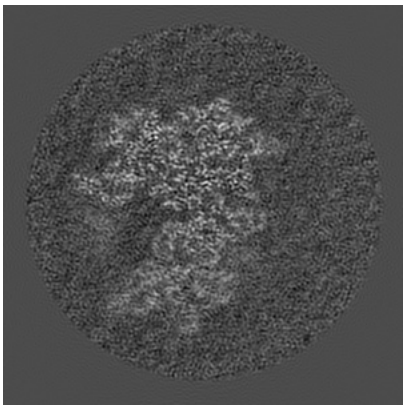
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

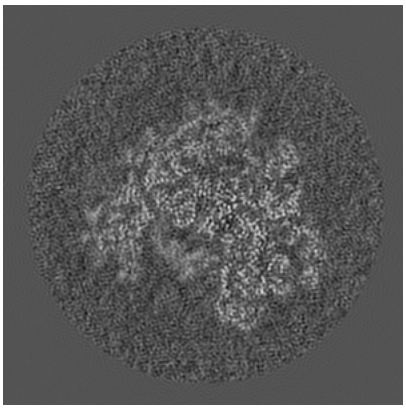
6.2.1 Primary map



X Index: 250

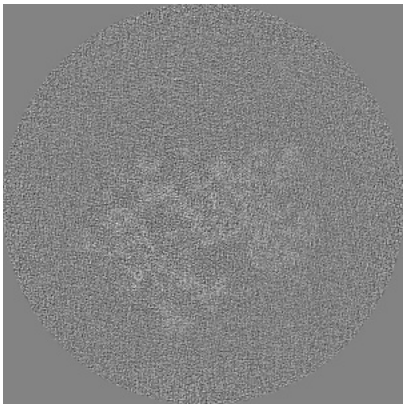


Y Index: 250

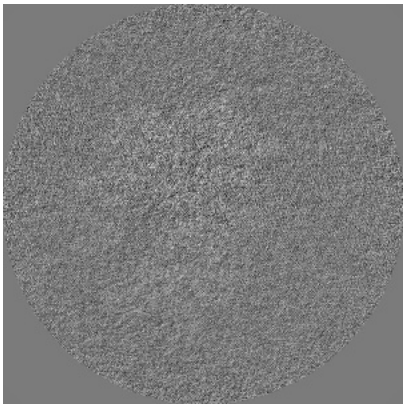


Z Index: 250

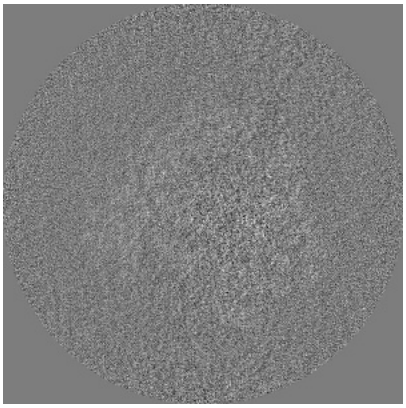
6.2.2 Raw map



X Index: 250



Y Index: 250

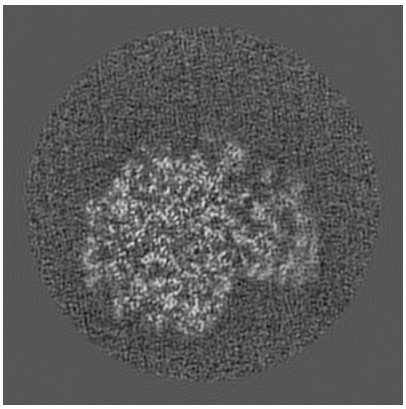


Z Index: 250

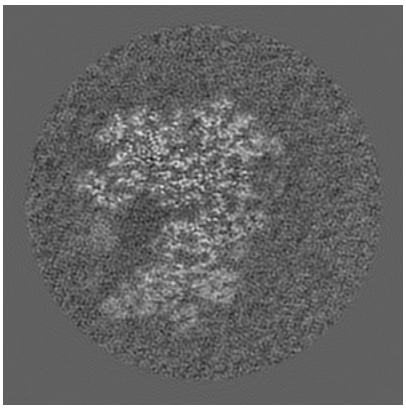
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

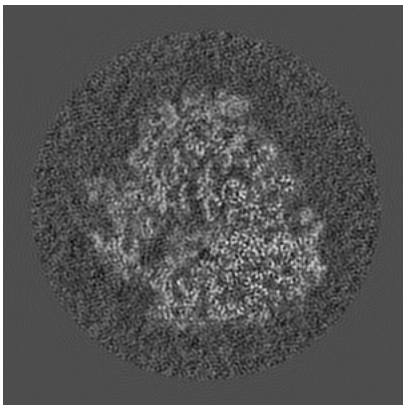
6.3.1 Primary map



X Index: 277

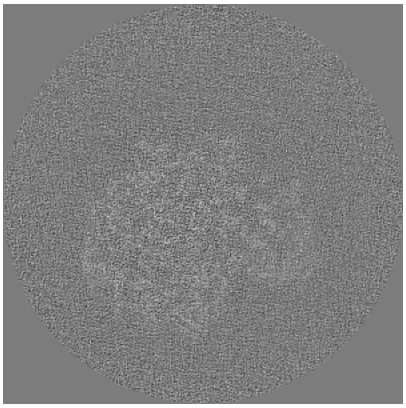


Y Index: 253

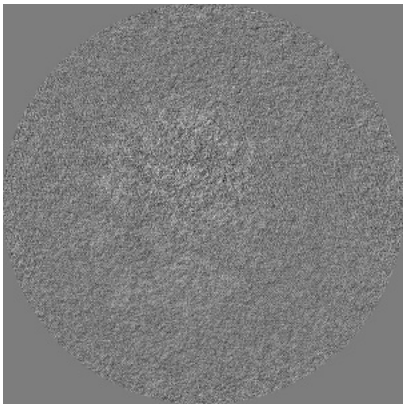


Z Index: 208

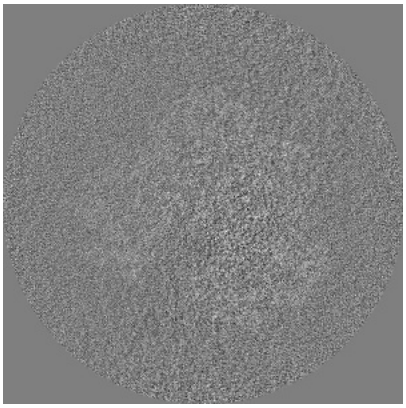
6.3.2 Raw map



X Index: 281



Y Index: 243

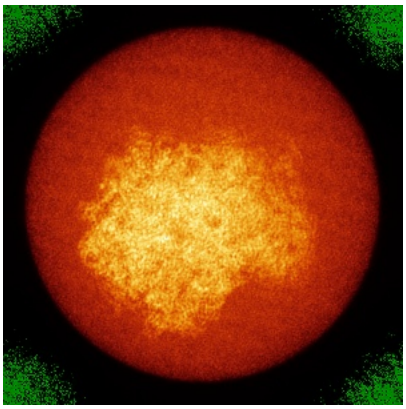


Z Index: 233

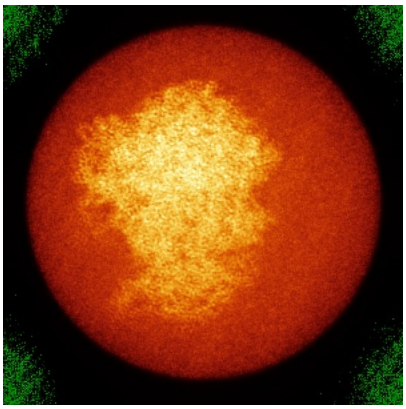
The images above show the largest variance slices of the map in three orthogonal directions.

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

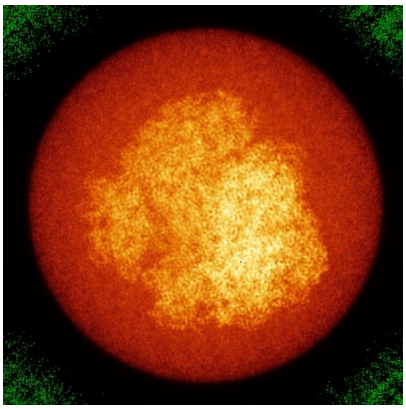
6.4.1 Primary map



X

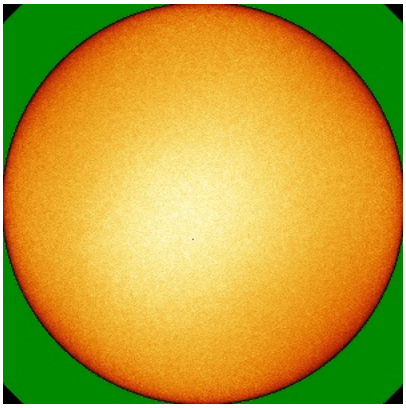


Y

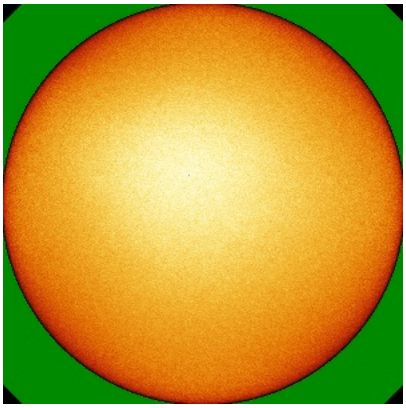


Z

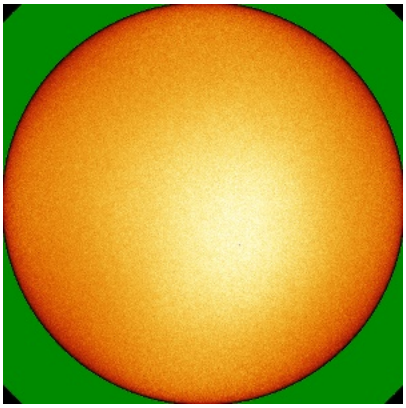
6.4.2 Raw map



X



Y



Z

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

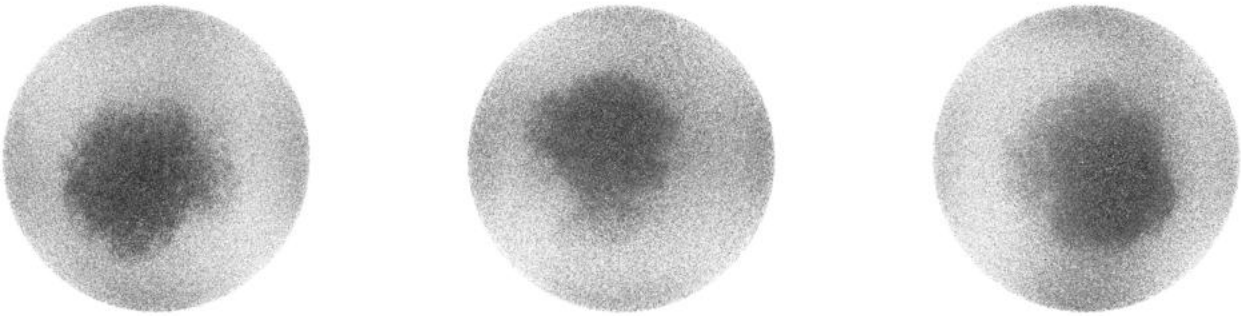
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 3.83. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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

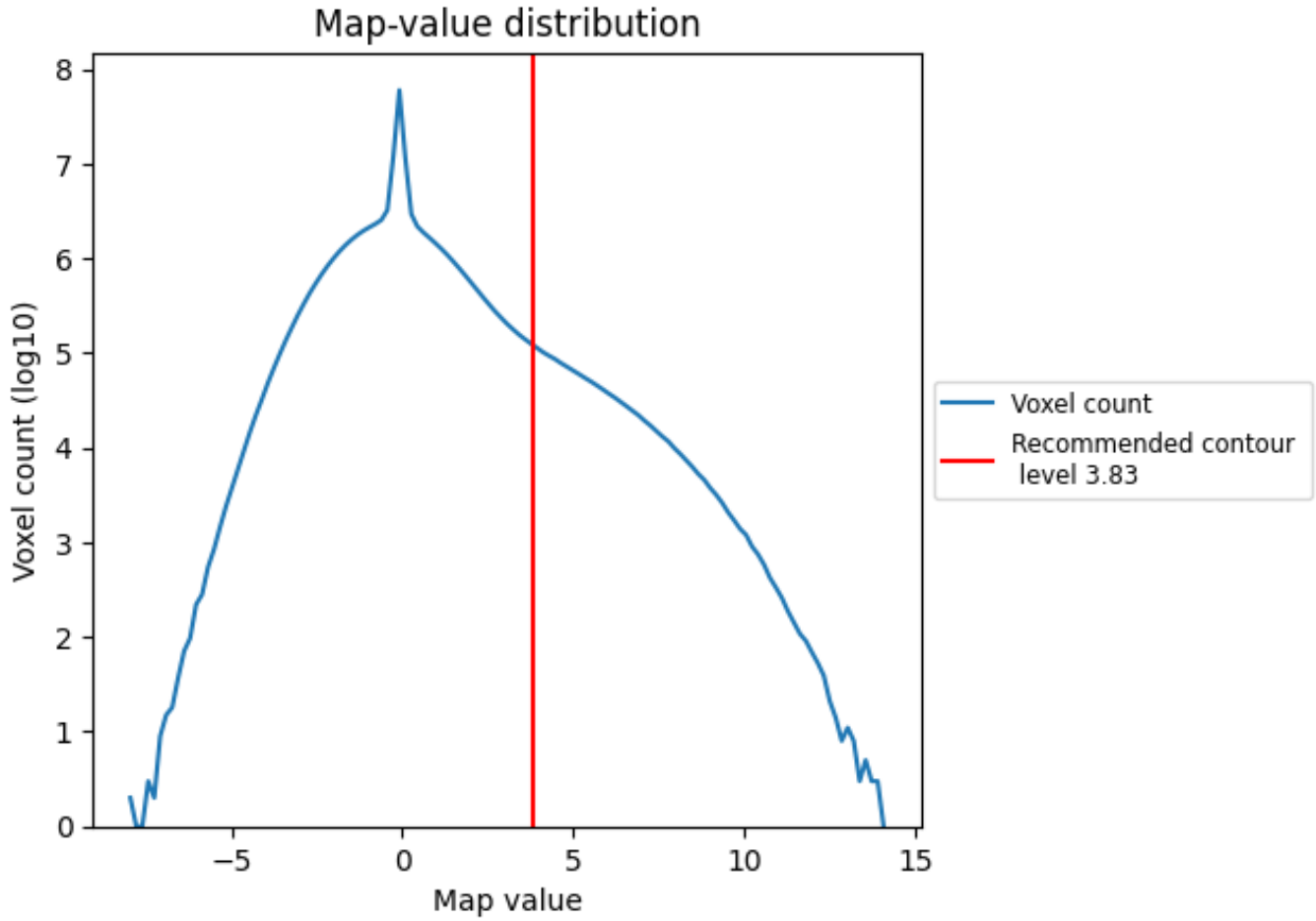
6.6 Mask visualisation (i)

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

7 Map analysis

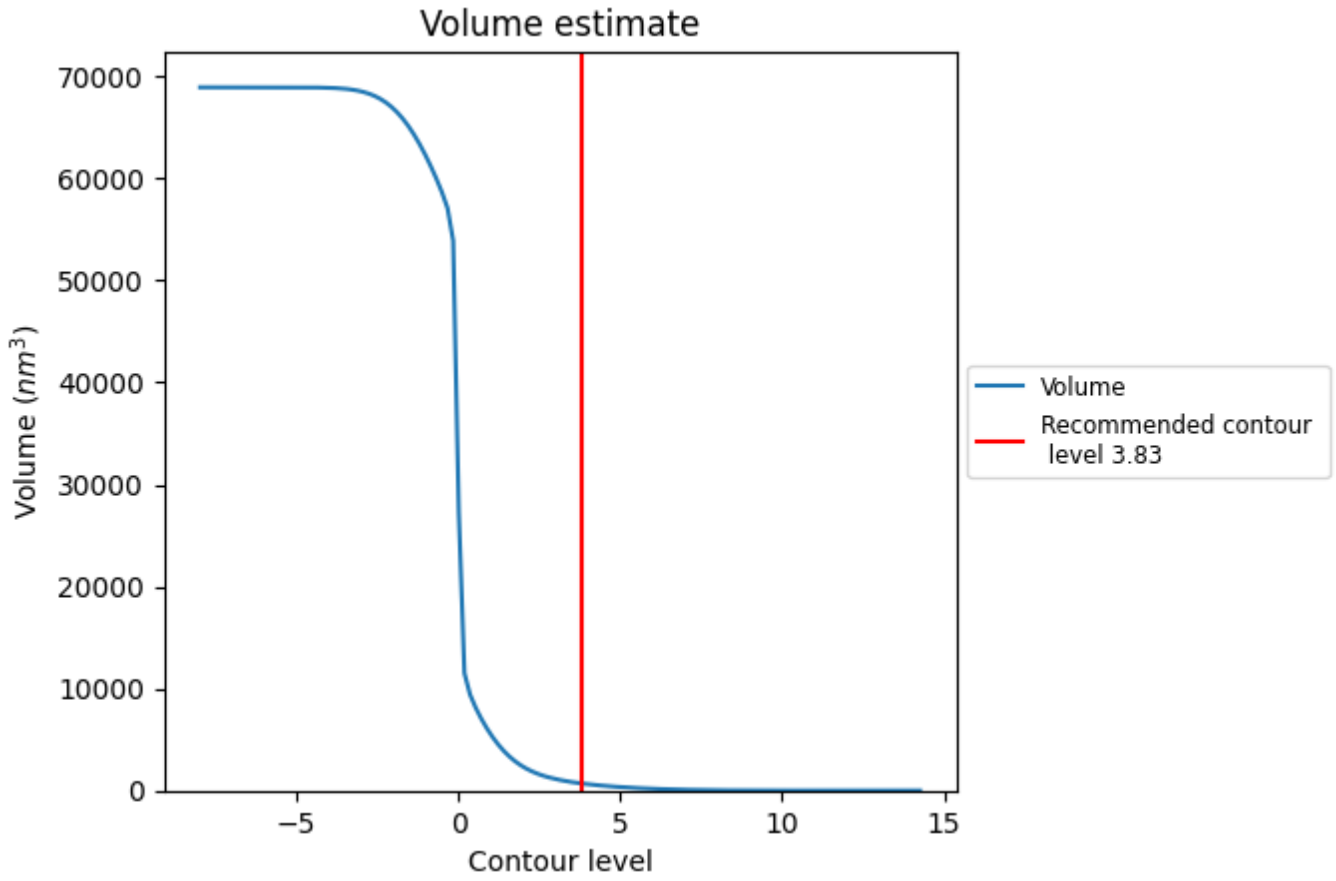
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

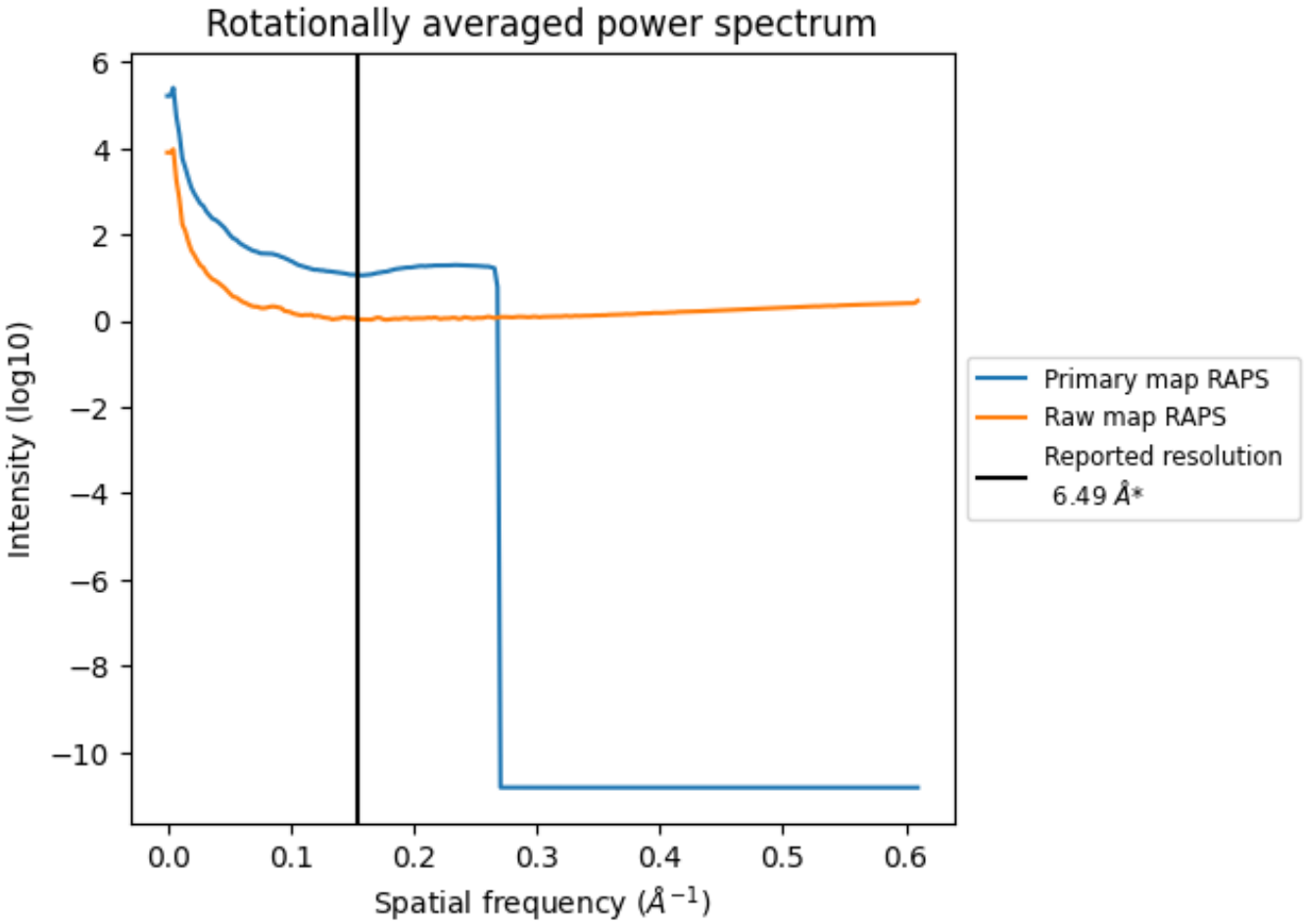
7.2 Volume estimate



The volume at the recommended contour level is 689 nm^3; this corresponds to an approximate mass of 623 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)

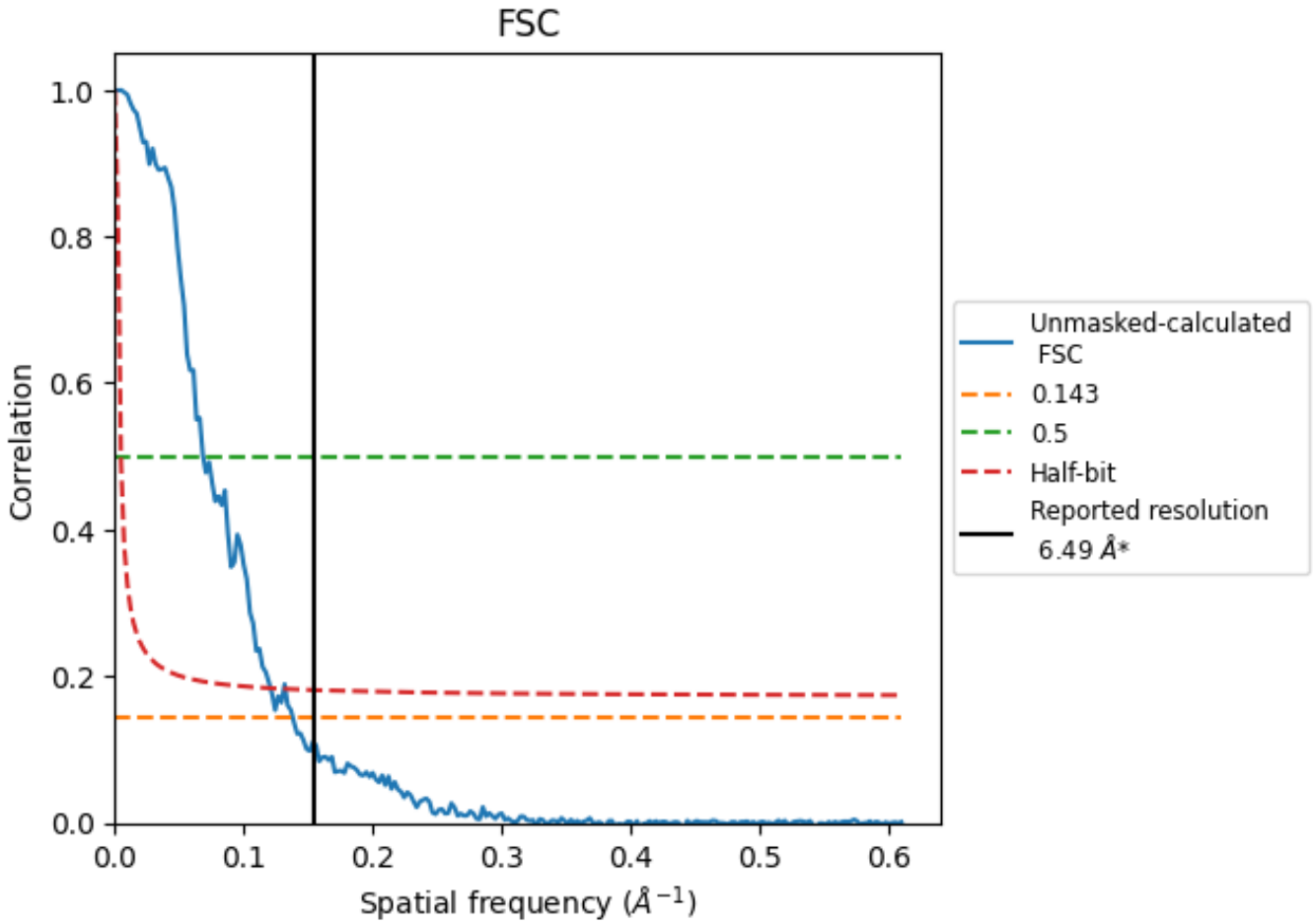


*Reported resolution corresponds to spatial frequency of 0.154 Å^{-1}

8 Fourier-Shell correlation

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

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.154 Å^{-1}

8.2 Resolution estimates (i)

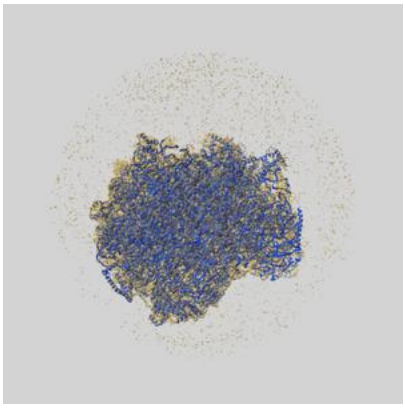
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	6.49	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	7.24	14.60	8.28

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 7.24 differs from the reported value 6.49 by more than 10 %

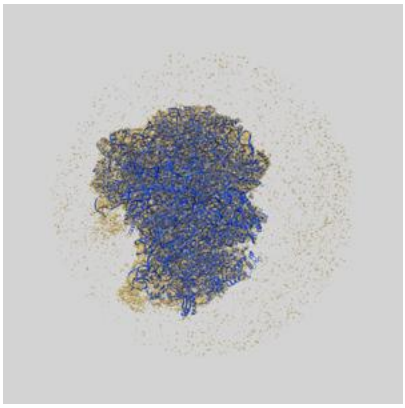
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-16226 and PDB model 8BSJ. Per-residue inclusion information can be found in section 3 on page 18.

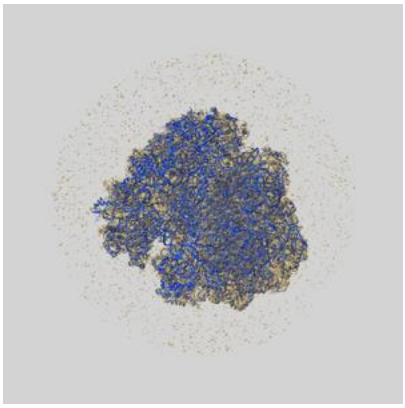
9.1 Map-model overlay



X



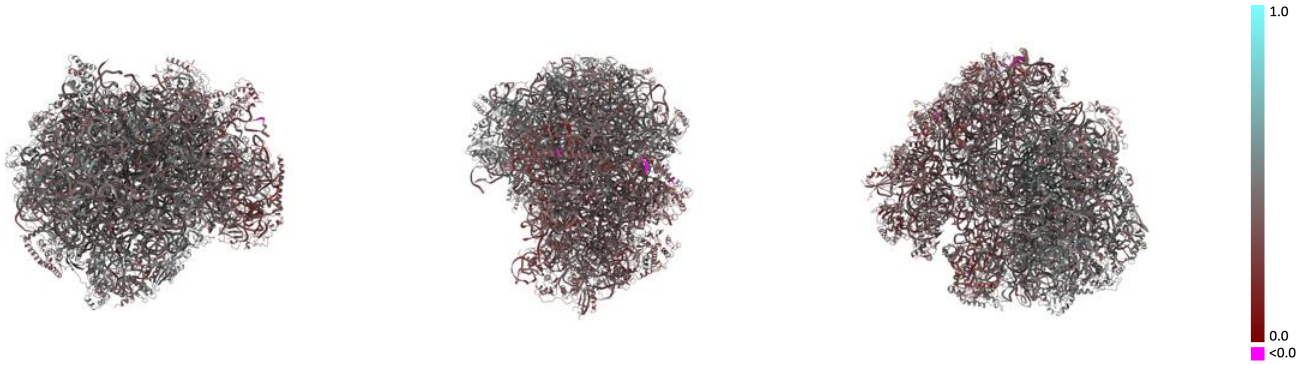
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 3.83 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

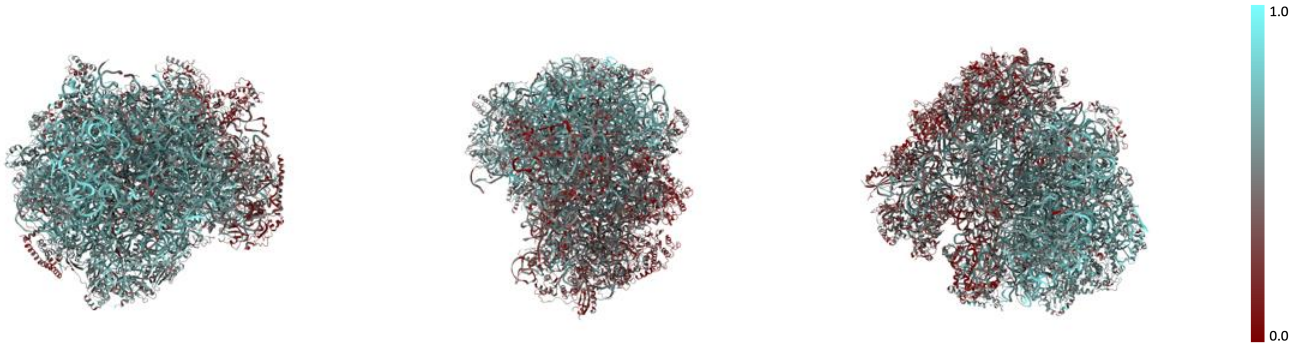
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

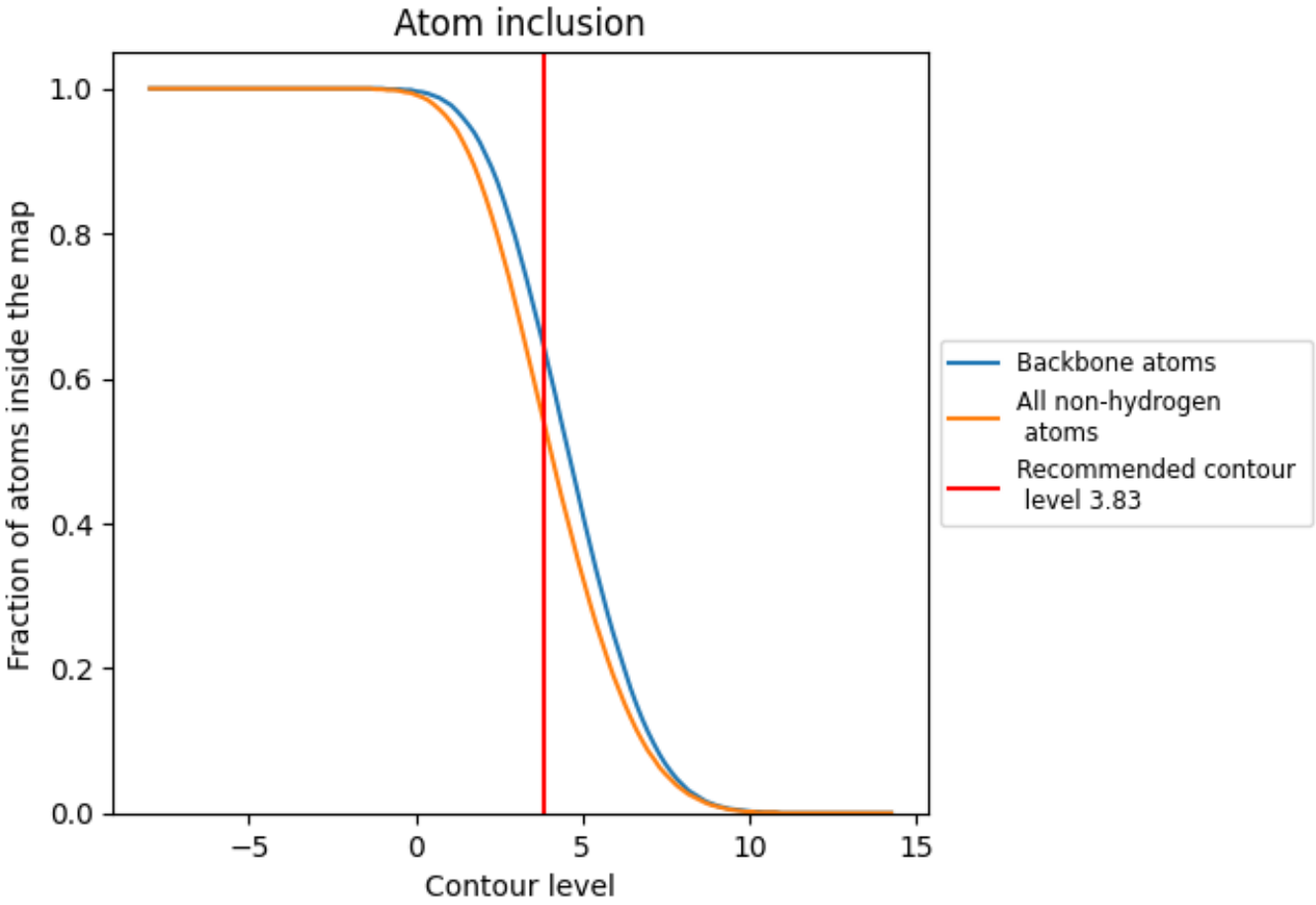
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (3.83).

9.4 Atom inclusion (i)



At the recommended contour level, 65% of all backbone atoms, 54% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (3.83) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.5420	0.4110
LA	0.5730	0.4930
LB	0.5620	0.4800
LC	0.5610	0.4650
LD	0.7260	0.4240
LE	0.7230	0.4220
LF	0.5070	0.4570
LG	0.5530	0.4690
LH	0.4790	0.4460
LI	0.5130	0.4590
LJ	0.5290	0.4700
LK	0.4930	0.4560
LL	0.4870	0.4350
LM	0.5760	0.4730
LN	0.5390	0.4540
LO	0.6270	0.4890
LP	0.5420	0.4600
LQ	0.5760	0.4840
LR	0.5600	0.4800
LS	0.4890	0.4440
LT	0.5580	0.4710
LU	0.5350	0.4690
LV	0.4500	0.4060
LW	0.5470	0.4750
LX	0.5820	0.4640
LY	0.5730	0.4740
LZ	0.6030	0.4720
La	0.4130	0.4140
Lb	0.5960	0.4850
Lc	0.5430	0.4690
Ld	0.4660	0.4390
Le	0.5560	0.4780
Lf	0.5560	0.4700
Lg	0.5710	0.4710
Lh	0.5070	0.4700

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Chain	Atom inclusion	Q-score
Li	0.5330	0.4500
Lj	0.5040	0.4610
Lk	0.5870	0.4800
Ll	0.3930	0.3960
Ln	0.1170	0.2900
Lo	0.4620	0.4630
Lp	0.5660	0.4800
Lq	0.5040	0.4620
Ls	0.5570	0.4540
Lt	0.6930	0.4240
SA	0.2680	0.3480
SB	0.3610	0.3900
SC	0.3250	0.3900
SD	0.3860	0.4040
SE	0.3040	0.3750
SF	0.3320	0.3960
SG	0.2540	0.3630
SH	0.1900	0.3450
SI	0.3820	0.4260
SJ	0.3560	0.4050
SK	0.3600	0.3740
SL	0.3000	0.3410
SM	0.3290	0.4300
SO	0.3600	0.4360
SP	0.3350	0.3910
SQ	0.3910	0.4280
SR	0.2680	0.3640
ST	0.3340	0.3740
SU	0.1770	0.3350
SV	0.3250	0.3670
SW	0.3540	0.3710
SX	0.2590	0.3550
SY	0.2870	0.3830
Sb	0.2860	0.3570
Sc	0.2730	0.3660
Sd	0.4070	0.4350
Se	0.1880	0.3510
Sg	0.2740	0.4070
Sh	0.4140	0.4050
Sj	0.3290	0.3860
St	0.5470	0.3630
u	0.2660	0.2870

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Chain	Atom inclusion	Q-score
v	0.2790	0.3040
x	0.2890	0.2980
y	0.4790	0.3830