wwPDB EM Validation Summary Report ⓘ

Apr 16, 2024 – 04:05 am BST

PDB ID	:	7OYD
EMDB ID	:	EMD-13114
Title	:	Cryo-EM structure of a rabbit 80S ribosome with zebrafish Dap1b
Authors	:	Leesch, F.; Lorenzo-Orts, L.; Grishkovskaya, I.; Kandolf, S.; Belacic, K.; Meinhart, A.; Haselbach, D.; Pauli, A.
Deposited on	:	2021-06-24
Resolution	:	2.30 Å(reported)

This is a wwPDB EM Validation Summary 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:

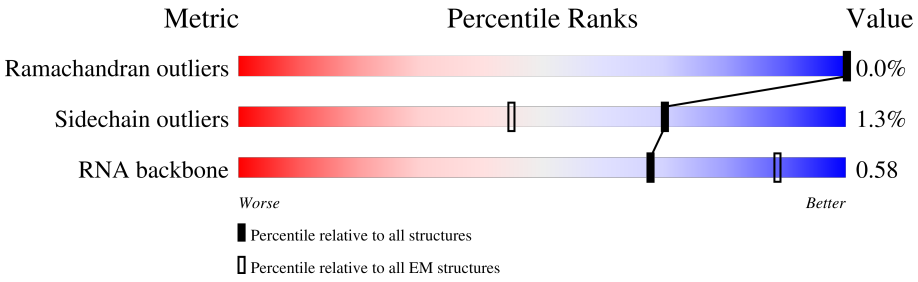
EMDB validation analysis	:	0.0.1.dev92
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	FAILED
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.30 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.



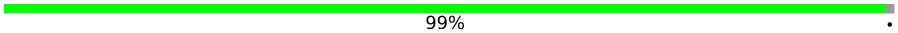
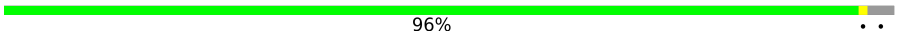
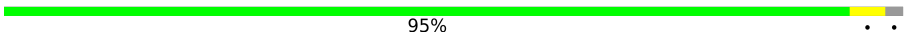
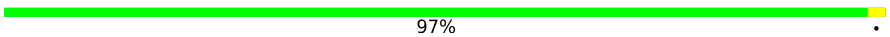
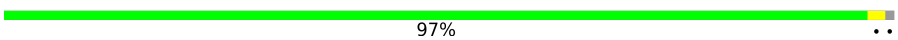
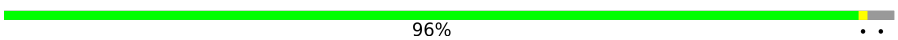
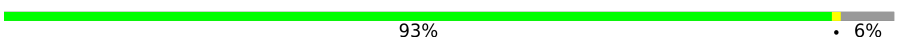
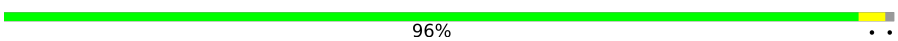
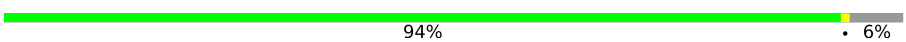
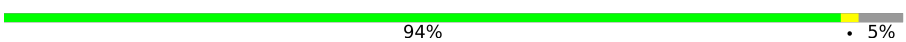
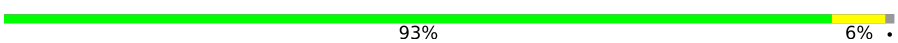
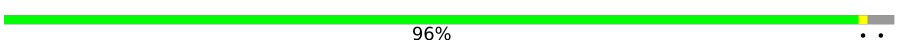
Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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%

Mol	Chain	Length	Quality of chain
1	x	217	74% · 25%
2	5	3740	74% 15% · 10%
3	8	156	83% 10% 8%
4	9	1786	67% 25% · 5%
5	A	257	95% · ·
6	AA	295	73% · 26%
7	Aa	115	87% · 12%
8	B	403	97% · ·
9	BB	264	78% · 19%

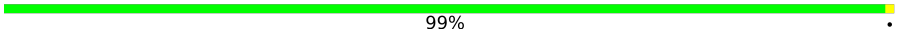
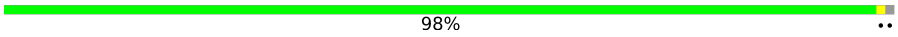
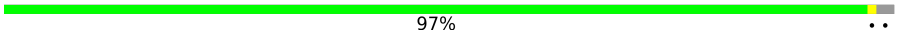
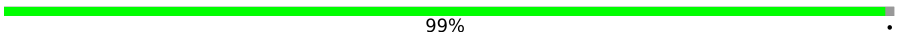
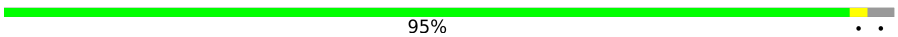
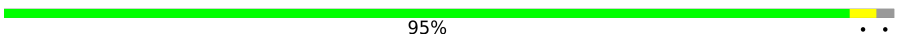
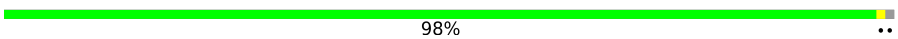
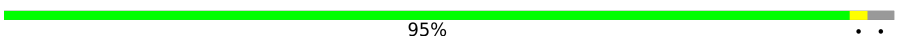
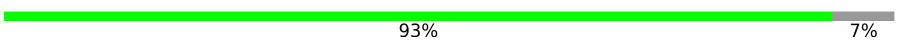
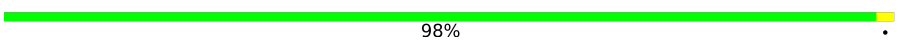
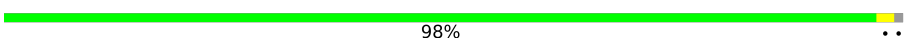
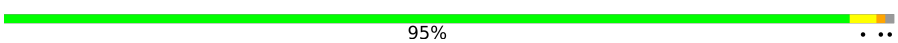
Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
10	Bb	84	
11	C	413	
12	CC	293	
13	Cc	69	
14	D	297	
15	DD	243	
16	Dd	56	
17	E	291	
18	EE	263	
19	Ee	133	
20	F	249	
21	FF	204	
22	G	266	
23	GG	249	
24	Gg	317	
25	H	192	
26	HH	432	
27	I	214	
28	II	208	
29	J	178	
30	JJ	194	
31	K	120	
32	KK	165	
33	L	211	
34	LL	158	

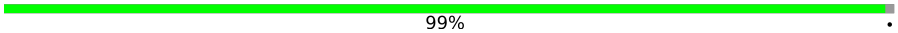
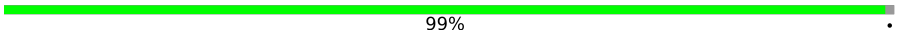
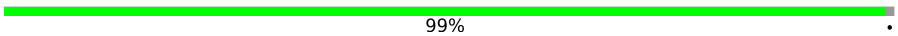
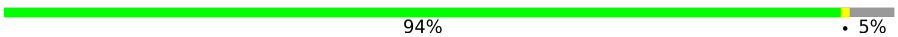
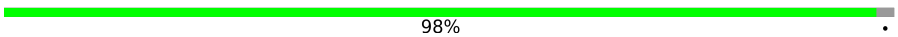
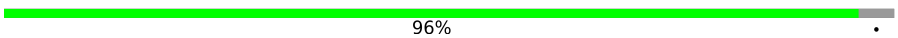
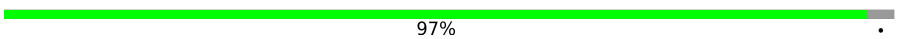
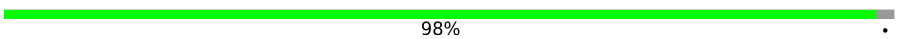
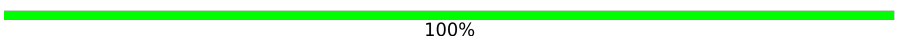
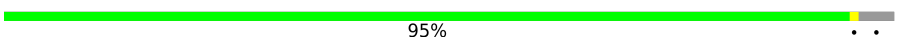
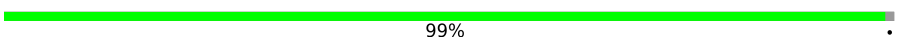
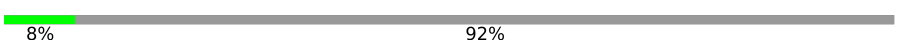
Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
35	M	218	
36	N	204	
37	NN	151	
38	O	203	
39	OO	151	
40	P	187	
41	PP	145	
42	Q	188	
43	QQ	146	
44	R	196	
45	RR	135	
46	S	224	
47	SS	152	
48	T	160	
49	TT	145	
50	U	141	
51	UU	119	
52	V	140	
53	VV	83	
54	W	157	
55	WW	130	
56	X	156	
57	XX	143	
58	Y	145	
59	YY	133	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
60	Z	136	
61	ZZ	124	
62	a	148	
63	b	245	
64	c	115	
65	d	125	
66	e	157	
67	f	110	
68	g	117	
69	h	123	
70	i	105	
71	j	97	
72	k	70	
73	l	51	
74	m	128	
75	n	25	
76	o	106	
77	p	92	
78	r	137	
79	s	318	
80	s1	109	
81	t	154	
82	v	858	
83	w	407	

2 Entry composition (i)

There are 85 unique types of molecules in this entry. The entry contains 213014 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 uL1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	x	163	1291	832	225	228	6	0	0

- Molecule 2 is a RNA chain called 28S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	5	3358	72165	32204	13226	23377	3358	0	0

- Molecule 3 is a RNA chain called 5.8S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	8	144	3072	1370	547	1011	144	0	0

- Molecule 4 is a RNA chain called 18S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
4	9	1698	36291	16217	6509	11868	1697	0	0

- Molecule 5 is a protein called 60S ribosomal protein L8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	A	247	1891	1185	388	312	6	0	0

- Molecule 6 is a protein called 40S ribosomal protein SA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	AA	217	1710	1086	300	316	8	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AA	114	THR	ALA	conflict	UNP G1TLT8

- Molecule 7 is a protein called 40S ribosomal protein S26-like.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	Aa	101	Total	C	N	O	S	0	0
			814	507	170	132	5		

- Molecule 8 is a protein called Ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	B	394	Total	C	N	O	S	0	0
			3172	2020	597	542	13		

- Molecule 9 is a protein called 40S ribosomal protein S3a.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	BB	213	Total	C	N	O	S	0	0
			1729	1098	309	308	14		

- Molecule 10 is a protein called 40S ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	Bb	83	Total	C	N	O	S	0	0
			651	408	121	115	7		

- Molecule 11 is a protein called 60S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	C	358	Total	C	N	O	S	0	0
			2856	1797	572	473	14		

- Molecule 12 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	CC	221	Total	C	N	O	S	0	0
			1716	1111	295	301	9		

- Molecule 13 is a protein called 40S ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	Cc	62	Total	C	N	O	S	0	0
			488	297	97	92	2		

- Molecule 14 is a protein called 60S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	D	289	Total	C	N	O	S	0	0
			2361	1495	431	421	14		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	1	MET	-	initiating methionine	UNP G1SYJ6

- Molecule 15 is a protein called Ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	DD	228	Total	C	N	O	S	0	0
			1768	1126	318	316	8		

- Molecule 16 is a protein called 40S ribosomal protein S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	Dd	55	Total	C	N	O	S	0	0
			459	286	94	74	5		

- Molecule 17 is a protein called 60S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	E	213	Total	C	N	O	S	0	0
			1710	1103	325	279	3		

- Molecule 18 is a protein called 40S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	EE	262	Total	C	N	O	S	0	0
			2076	1324	386	358	8		

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
EE	25	GLY	SER	conflict	UNP G1TK17

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
EE	51	ARG	LYS	conflict	UNP G1TK17
EE	78	THR	ALA	conflict	UNP G1TK17
EE	156	VAL	MET	conflict	UNP G1TK17

- Molecule 19 is a protein called 40S ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	Ee	55	Total	C	N	O	S	0	0
			443	274	97	71	1		

- Molecule 20 is a protein called 60S ribosomal protein L7.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	F	225	Total	C	N	O	S	0	0
			1875	1205	358	303	9		

- Molecule 21 is a protein called Ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	FF	185	Total	C	N	O	S	0	0
			1471	921	277	266	7		

- Molecule 22 is a protein called 60S ribosomal protein L7a.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	G	215	Total	C	N	O	S	0	0
			1747	1115	337	291	4		

- Molecule 23 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	GG	237	Total	C	N	O	S	0	0
			1923	1200	387	329	7		

- Molecule 24 is a protein called RACK1.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	Gg	313	Total	C	N	O	S	0	0
			2436	1535	424	465	12		

- Molecule 25 is a protein called 60S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	H	186	Total	C	N	O	S	0	0
			1484	933	277	268	6		

- Molecule 26 is a protein called 40S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	HH	185	Total	C	N	O	S	0	0
			1488	952	271	264	1		

- Molecule 27 is a protein called 60S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	I	202	Total	C	N	O	S	0	0
			1640	1041	317	269	13		

- Molecule 28 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	II	206	Total	C	N	O	S	0	0
			1686	1058	332	291	5		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
II	47	ARG	GLY	conflict	UNP G1TJW1

- Molecule 29 is a protein called 60S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	J	168	Total	C	N	O	S	0	0
			1344	850	251	237	6		

- Molecule 30 is a protein called 40S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	JJ	185	Total	C	N	O	S	0	0
			1525	969	306	248	2		

- Molecule 31 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	K	119	Total	C	N	O	P	0	0
			2538	1132	454	834	118		

- Molecule 32 is a protein called S10_plectin domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	KK	96	Total	C	N	O	S	0	0
			810	530	143	131	6		

- Molecule 33 is a protein called 60S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	L	205	Total	C	N	O	S	0	0
			1658	1037	346	271	4		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
L	74	ARG	HIS	conflict	UNP G1TKB3
L	190	ARG	HIS	conflict	UNP G1TKB3

- Molecule 34 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	LL	143	Total	C	N	O	S	0	0
			1175	749	222	198	6		

- Molecule 35 is a protein called 60S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	M	135	Total	C	N	O	S	0	0
			1117	715	217	178	7		

- Molecule 36 is a protein called Ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	N	203	Total	C	N	O	S	0	0
			1701	1072	359	266	4		

- Molecule 37 is a protein called 40S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	NN	149	Total	C	N	O	S	0	0
			1202	770	228	203	1		

- Molecule 38 is a protein called 60S ribosomal protein L13a.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	O	199	Total	C	N	O	S	0	0
			1630	1051	319	255	5		

- Molecule 39 is a protein called 40S ribosomal protein S14-like.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	OO	136	Total	C	N	O	S	0	0
			1016	621	199	190	6		

- Molecule 40 is a protein called 60S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	P	152	Total	C	N	O	S	0	0
			1233	772	240	212	9		

- Molecule 41 is a protein called 40S ribosomal protein uS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	PP	125	Total	C	N	O	S	0	0
			1025	652	192	174	7		

- Molecule 42 is a protein called Ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	Q	187	Total	C	N	O	S	0	0
			1515	946	315	250	4		

- Molecule 43 is a protein called Ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	QQ	142	Total	C	N	O	S	0	0
			1128	717	213	195	3		

- Molecule 44 is a protein called Ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	R	166	Total	C	N	O	S	0	0
			1383	859	298	217	9		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
R	38	ARG	HIS	conflict	UNP G1TYL6
R	151	ARG	HIS	conflict	UNP G1TYL6

- Molecule 45 is a protein called 40S ribosomal protein eS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	RR	132	Total	C	N	O	S	0	0
			1068	670	199	195	4		

- Molecule 46 is a protein called 60S ribosomal protein L18a.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	S	176	Total	C	N	O	S	0	0
			1456	927	282	236	11		

- Molecule 47 is a protein called 40S ribosomal protein uS13.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	SS	144	Total	C	N	O	S	0	0
			1190	746	241	202	1		

- Molecule 48 is a protein called 60S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	T	158	Total	C	N	O	S	0	0
			1292	820	251	215	6		

- Molecule 49 is a protein called 40S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	TT	141	Total	C	N	O	S	0	0
			1097	688	211	195	3		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
TT	119	GLY	TRP	conflict	UNP G1TN62

- Molecule 50 is a protein called 60S ribosomal protein L22-like.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	U	98	Total	C	N	O	S	0	0
			800	514	139	145	2		

- Molecule 51 is a protein called 40S ribosomal protein uS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	UU	100	Total	C	N	O	S	0	0
			795	498	152	141	4		

- Molecule 52 is a protein called Ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	V	130	Total	C	N	O	S	0	0
			973	615	183	170	5		

- Molecule 53 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	VV	83	Total	C	N	O	S	0	0
			636	393	117	121	5		

- Molecule 54 is a protein called Ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	W	62	Total	C	N	O	S	0	0
			519	332	101	83	3		

- Molecule 55 is a protein called Ribosomal protein S15a.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	WW	129	Total	C	N	O	S	0	0
			1034	659	193	176	6		

- Molecule 56 is a protein called 60S ribosomal protein L23a.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	X	118	Total 967	C 618	N 181	O 167	S 1	0	0

- Molecule 57 is a protein called 40S ribosomal protein S23.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	XX	141	Total 1098	C 693	N 219	O 183	S 3	0	0

- Molecule 58 is a protein called Ribosomal protein L26.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	Y	132	Total 1102	C 692	N 223	O 184	S 3	0	0

- Molecule 59 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	YY	124	Total 1011	C 640	N 198	O 168	S 5	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
60	Z	135	Total 1107	C 714	N 208	O 182	S 3	0	0

- Molecule 61 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	ZZ	75	Total 598	C 382	N 111	O 104	S 1	0	0

- Molecule 62 is a protein called 60S ribosomal protein L27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	a	147	Total 1162	C 734	N 239	O 185	S 4	0	0

- Molecule 63 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	b	98	Total	C	N	O	S	0	0
			806	498	182	123	3		

- Molecule 64 is a protein called 60S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	c	94	Total	C	N	O	S	0	0
			732	464	130	132	6		

- Molecule 65 is a protein called 60S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	d	106	Total	C	N	O	S	0	0
			879	555	170	152	2		

- Molecule 66 is a protein called 60S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
66	e	128	Total	C	N	O	S	0	0
			1053	667	216	165	5		

- Molecule 67 is a protein called 60S ribosomal protein L35a.

Mol	Chain	Residues	Atoms					AltConf	Trace
67	f	109	Total	C	N	O	S	0	0
			876	555	174	143	4		

- Molecule 68 is a protein called 60S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
68	g	111	Total	C	N	O	S	0	0
			882	552	182	142	6		

- Molecule 69 is a protein called 60S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
69	h	121	Total	C	N	O	S	0	0
			1008	637	203	167	1		

- Molecule 70 is a protein called 60S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
70	i	101	Total	C	N	O	S	0	0
			821	514	174	128	5		

- Molecule 71 is a protein called Ribosomal protein L37.

Mol	Chain	Residues	Atoms					AltConf	Trace
71	j	86	Total	C	N	O	S	0	0
			705	434	155	111	5		

- Molecule 72 is a protein called 60S ribosomal protein L38.

Mol	Chain	Residues	Atoms					AltConf	Trace
72	k	68	Total	C	N	O	S	0	0
			559	360	101	97	1		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
k	24	LYS	ASN	conflict	UNP G1U001

- Molecule 73 is a protein called 60S ribosomal protein L39-like.

Mol	Chain	Residues	Atoms					AltConf	Trace
73	l	50	Total	C	N	O	S	0	0
			447	286	96	64	1		

- Molecule 74 is a protein called Ubiquitin-60S ribosomal protein L40.

Mol	Chain	Residues	Atoms					AltConf	Trace
74	m	51	Total	C	N	O	S	0	0
			420	261	88	65	6		

- Molecule 75 is a protein called 60s ribosomal protein l41.

Mol	Chain	Residues	Atoms					AltConf	Trace
75	n	25	Total	C	N	O	S	0	0
			239	145	64	27	3		

- Molecule 76 is a protein called 60S ribosomal protein L36a-like.

Mol	Chain	Residues	Atoms					AltConf	Trace
76	o	102	Total	C	N	O	S	0	0
			834	522	171	135	6		

- Molecule 77 is a protein called 60S ribosomal protein L37a.

Mol	Chain	Residues	Atoms					AltConf	Trace
77	p	91	Total	C	N	O	S	0	0
			708	445	136	120	7		

- Molecule 78 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
78	r	123	Total	C	N	O	S	0	0
			986	611	204	166	5		

- Molecule 79 is a protein called 60S ribosomal protein L10E.

Mol	Chain	Residues	Atoms					AltConf	Trace
79	s	196	Total	C	N	O	S	0	0
			1501	953	263	276	9		

- Molecule 80 is a protein called Dap1b.

Mol	Chain	Residues	Atoms					AltConf	Trace
80	s1	18	Total	C	N	O	S	0	0
			150	96	30	23	1		

- Molecule 81 is a protein called Eukaryotic translation initiation factor 5A-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
81	t	126	Total	C	N	O	S	0	0
			961	603	168	182	8		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
t	36	SER	GLY	conflict	UNP P10160

- Molecule 82 is a protein called Elongation factor 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
82	v	726	Total	C	N	O	S	0	0
			5669	3611	972	1046	40		

- Molecule 83 is a protein called SERPINE1 mRNA binding protein 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
83	w	32	Total	C	N	O	0	0
			252	148	55	49		

- Molecule 84 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
84	5	195	Total	Mg	0
			195	195	
84	8	2	Total	Mg	0
			2	2	
84	I	1	Total	Mg	0
			1	1	
84	P	1	Total	Mg	0
			1	1	
84	g	1	Total	Mg	0
			1	1	
84	v	1	Total	Mg	0
			1	1	

- Molecule 85 is ZINC ION (three-letter code: ZN) (formula: Zn).

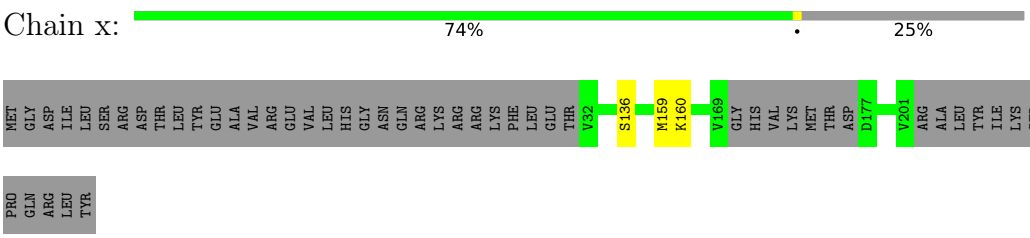
Mol	Chain	Residues	Atoms		AltConf
85	Aa	1	Total	Zn	0
			1	1	
85	KK	1	Total	Zn	0
			1	1	
85	g	1	Total	Zn	0
			1	1	
85	j	1	Total	Zn	0
			1	1	
85	m	1	Total	Zn	0
			1	1	
85	o	1	Total	Zn	0
			1	1	
85	p	1	Total	Zn	0
			1	1	

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. 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. 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.

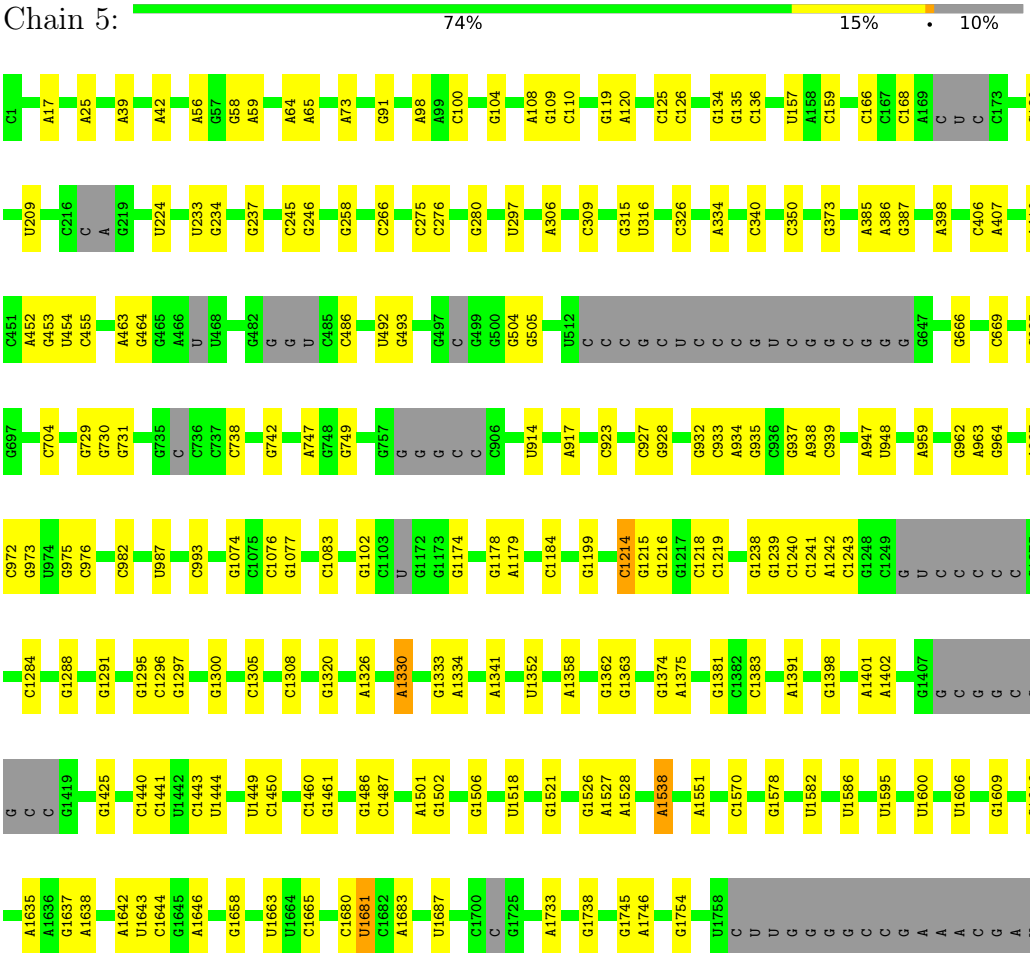
- Molecule 1: Ribosomal protein uL1

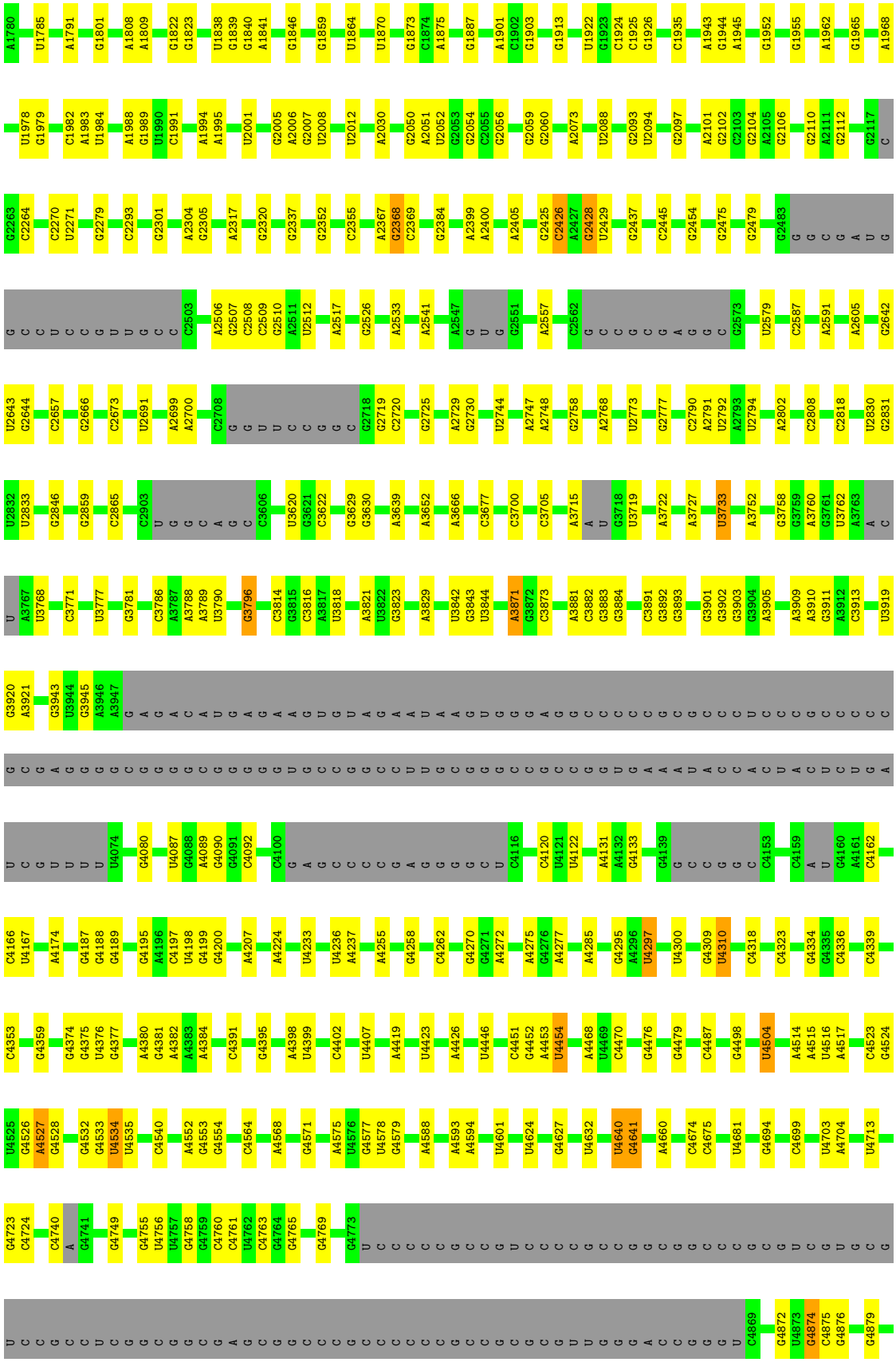
Chain x:

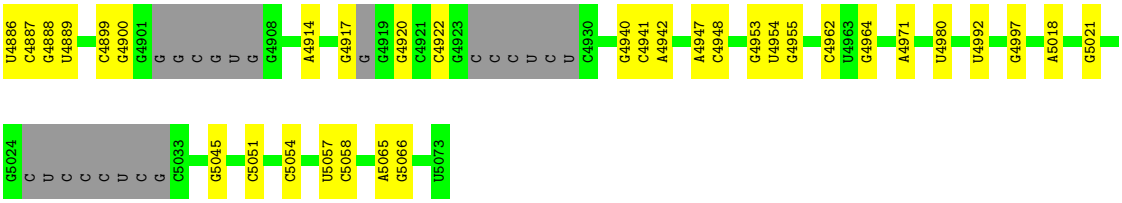


- Molecule 2: 28S rRNA

Chain 5:

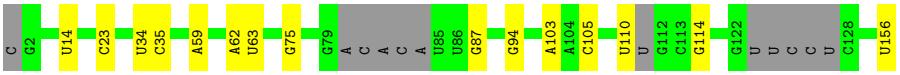






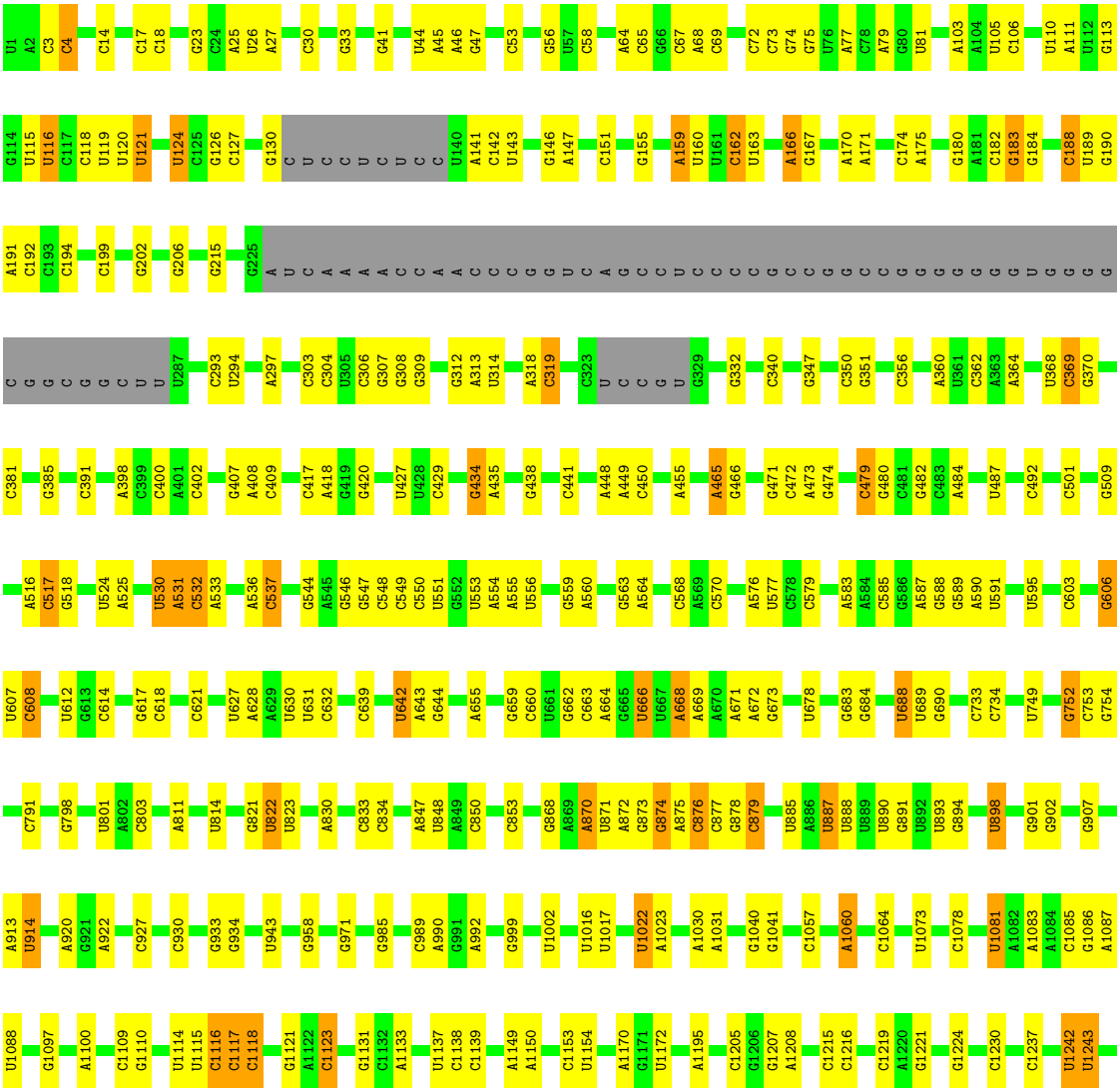
• Molecule 3: 5.8S rRNA

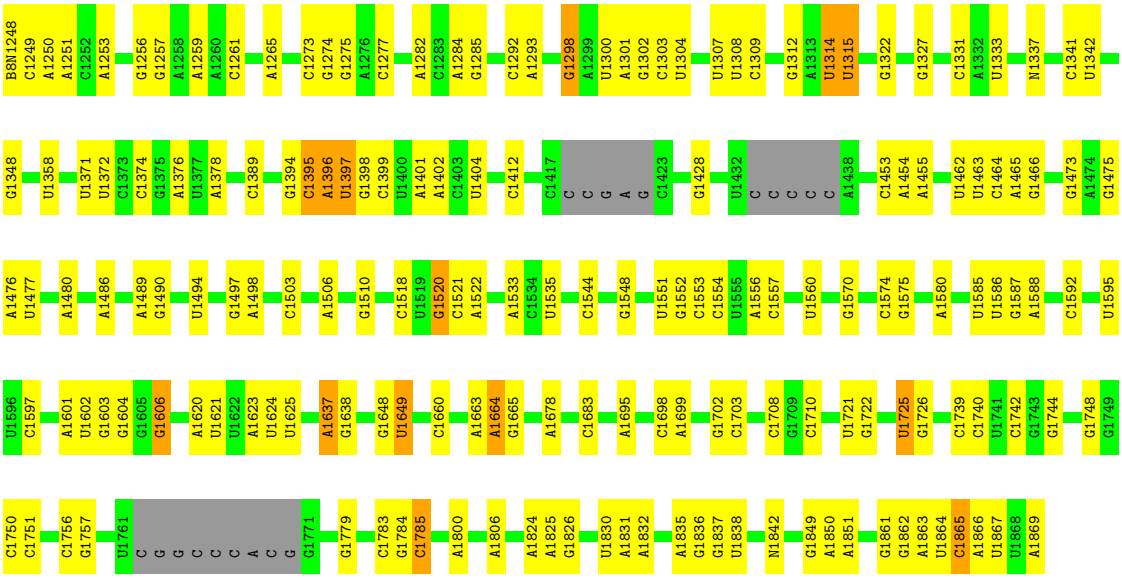
Chain 8:



• Molecule 4: 18S rRNA

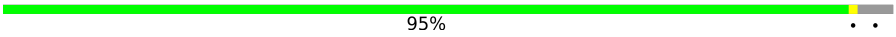
Chain 9:

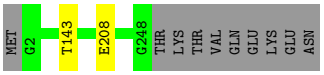




• Molecule 5: 60S ribosomal protein L8

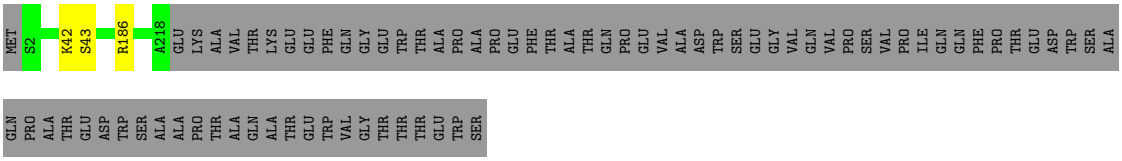
Chain A:





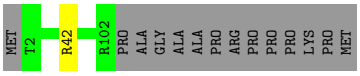
• Molecule 6: 40S ribosomal protein SA

Chain AA:



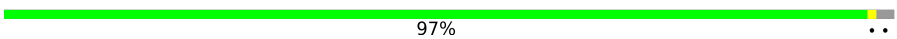
• Molecule 7: 40S ribosomal protein S26-like

Chain Aa:



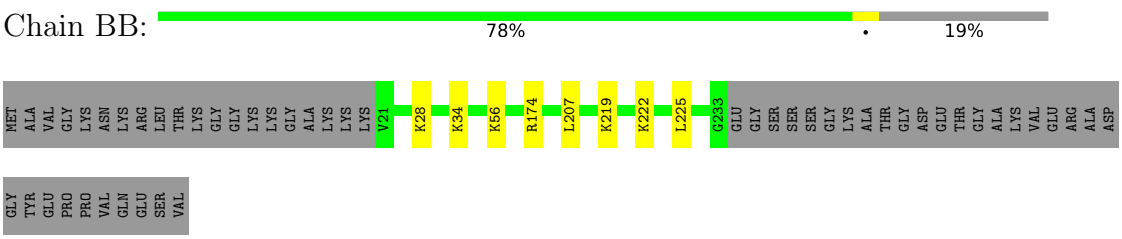
• Molecule 8: Ribosomal protein L3

Chain B:



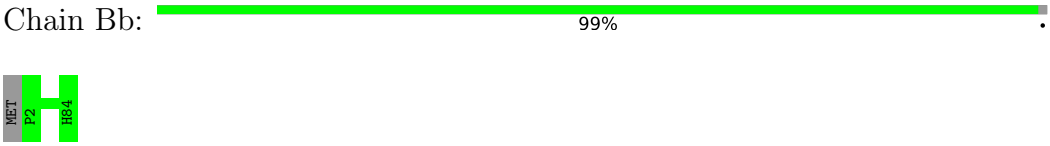
• Molecule 9: 40S ribosomal protein S3a

Chain BB:



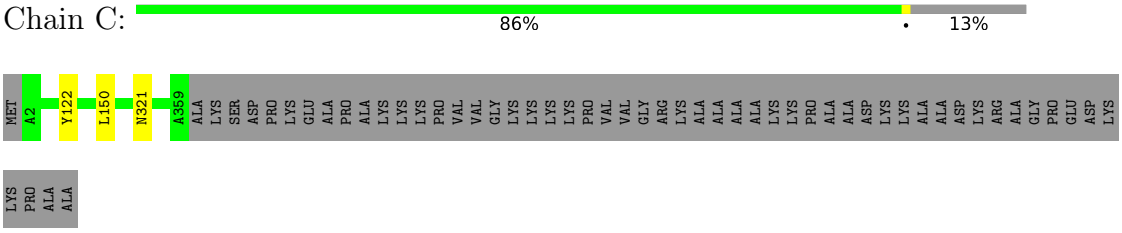
• Molecule 10: 40S ribosomal protein S27

Chain Bb:



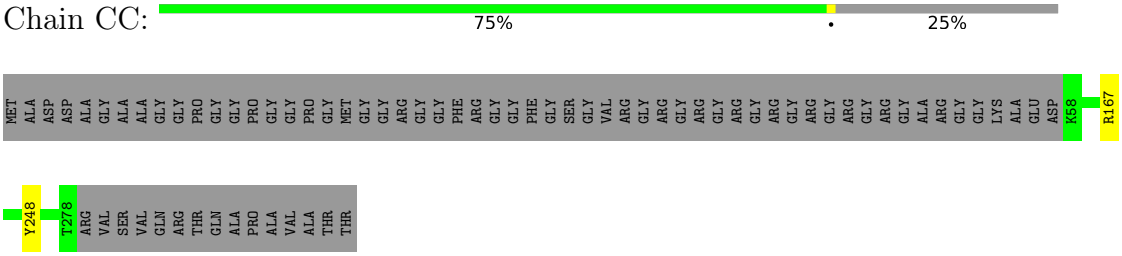
• Molecule 11: 60S ribosomal protein L4

Chain C:



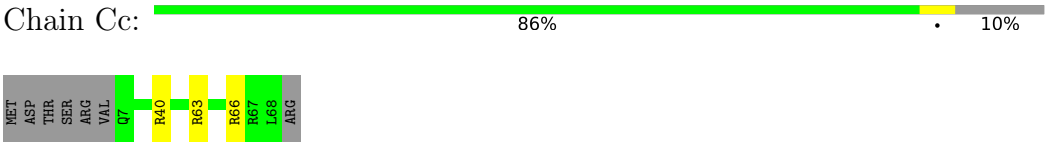
• Molecule 12: 40S ribosomal protein S2

Chain CC:



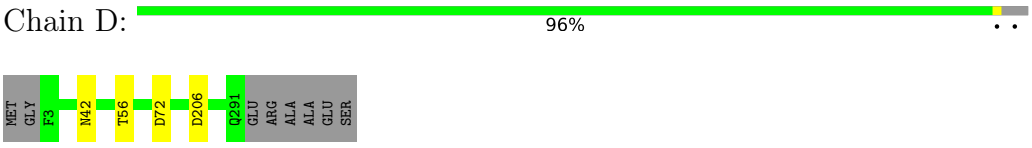
• Molecule 13: 40S ribosomal protein S28

Chain Cc:



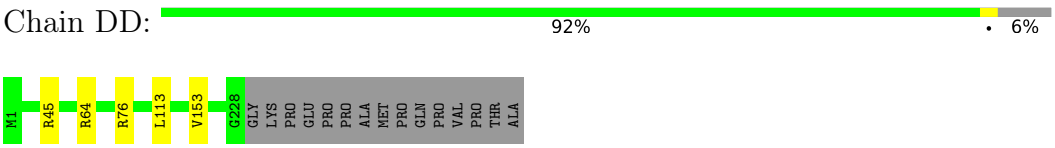
• Molecule 14: 60S ribosomal protein L5

Chain D:



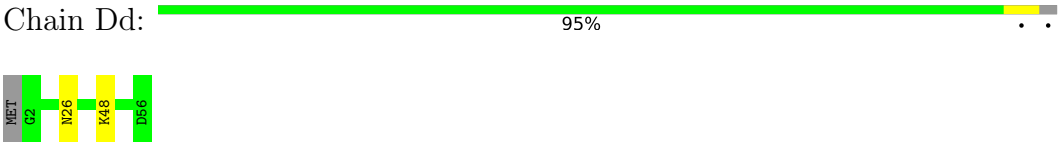
• Molecule 15: Ribosomal protein S3

Chain DD:



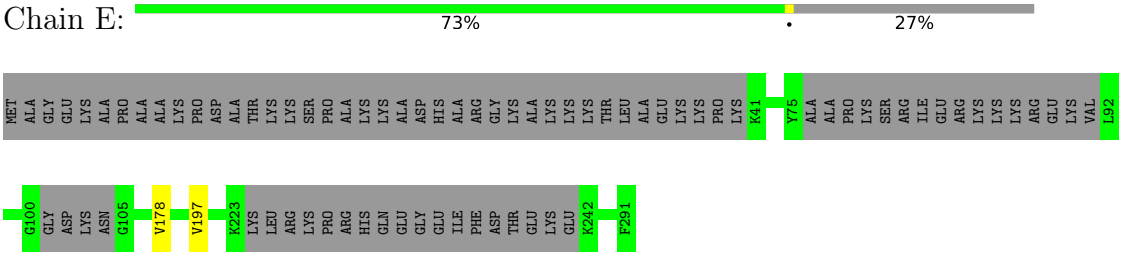
• Molecule 16: 40S ribosomal protein S29

Chain Dd:



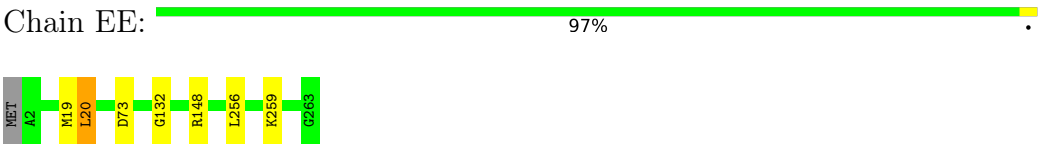
• Molecule 17: 60S ribosomal protein L6

Chain E:



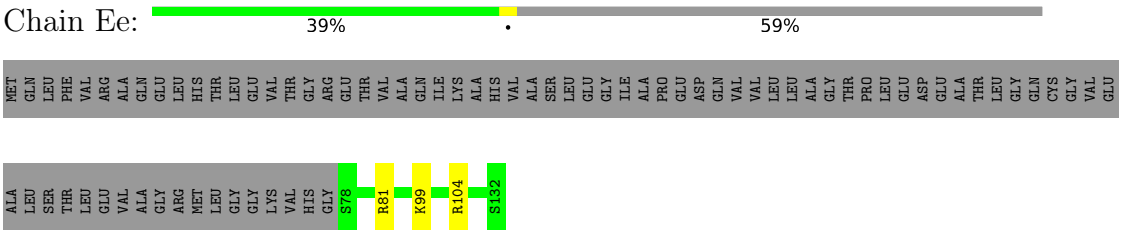
• Molecule 18: 40S ribosomal protein S4

Chain EE:



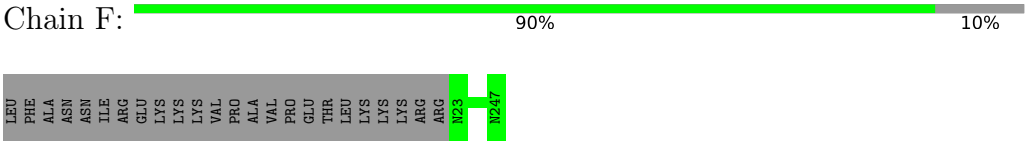
• Molecule 19: 40S ribosomal protein S30

Chain Ee:



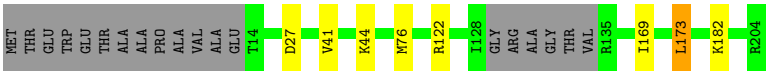
• Molecule 20: 60S ribosomal protein L7

Chain F:



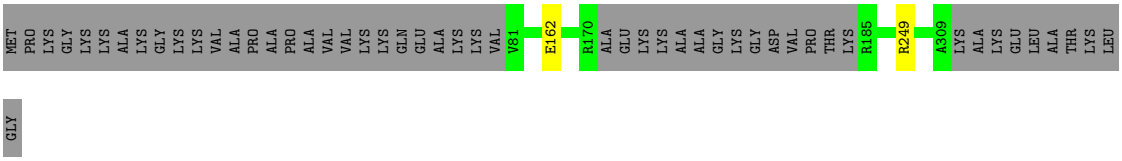
• Molecule 21: Ribosomal protein S5

Chain FF:



• Molecule 22: 60S ribosomal protein L7a

Chain G:

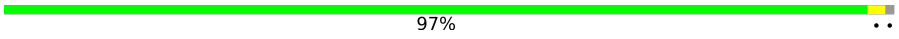


• Molecule 23: 40S ribosomal protein S6

Chain GG:

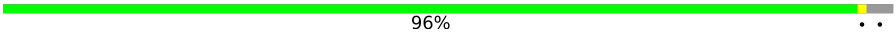
• Molecule 24: RACK1

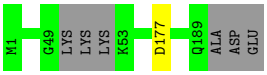
Chain Gg:



• Molecule 25: 60S ribosomal protein L9

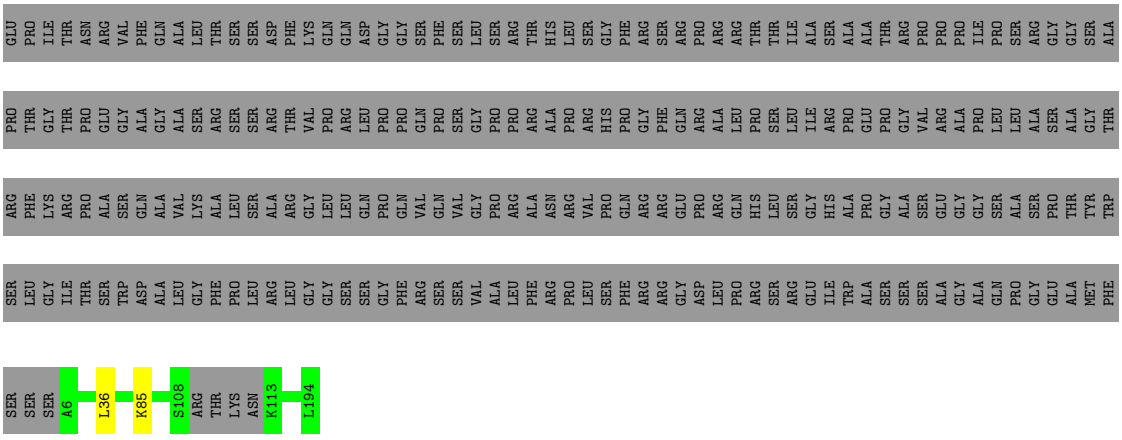
Chain H:





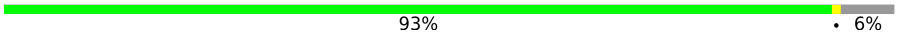
• Molecule 26: 40S ribosomal protein S7

Chain HH:



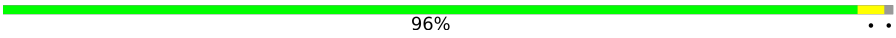
• Molecule 27: 60S ribosomal protein L10

Chain I:



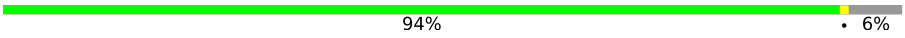
• Molecule 28: 40S ribosomal protein S8

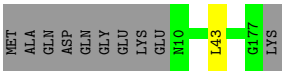
Chain II:



• Molecule 29: 60S ribosomal protein L11

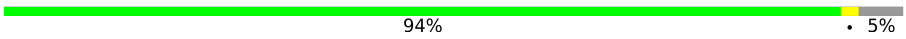
Chain J:

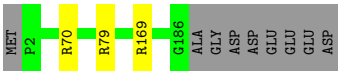




• Molecule 30: 40S ribosomal protein S9

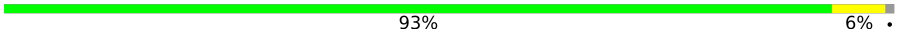
Chain JJ:

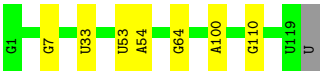




• Molecule 31: 5S rRNA

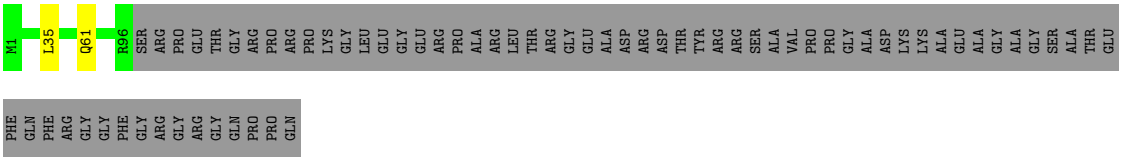
Chain K:





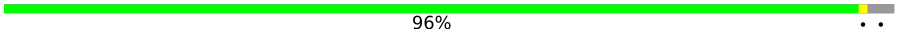
• Molecule 32: S10_plectin domain-containing protein

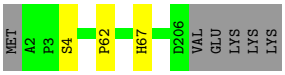
Chain KK:



• Molecule 33: 60S ribosomal protein L13

Chain L:



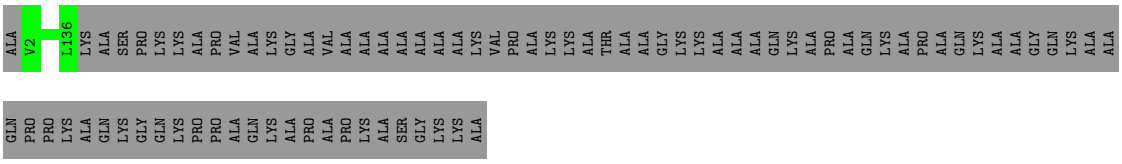


• Molecule 34: 40S ribosomal protein S11

Chain LL:

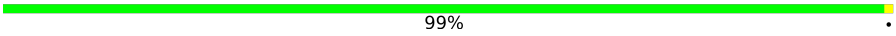
• Molecule 35: 60S ribosomal protein L14

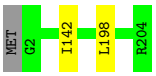
Chain M:



• Molecule 36: Ribosomal protein L15

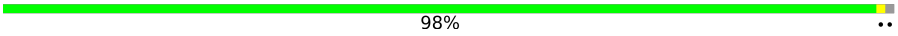
Chain N:

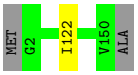




• Molecule 37: 40S ribosomal protein S13

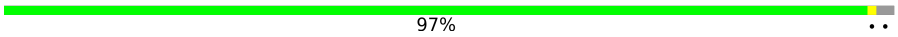
Chain NN:

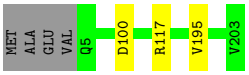




• Molecule 38: 60S ribosomal protein L13a

Chain O:



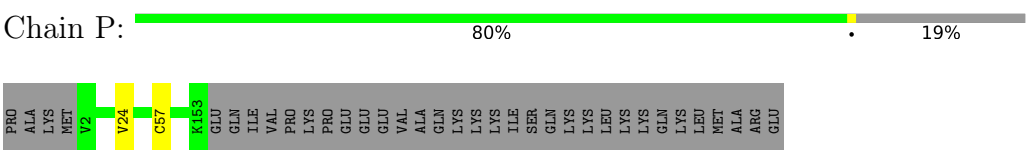


• Molecule 39: 40S ribosomal protein S14-like

Chain OO:

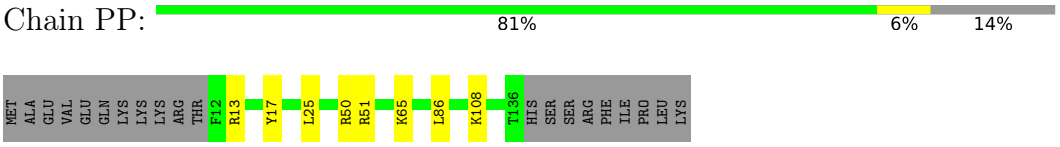
• Molecule 40: 60S ribosomal protein L17

Chain P:



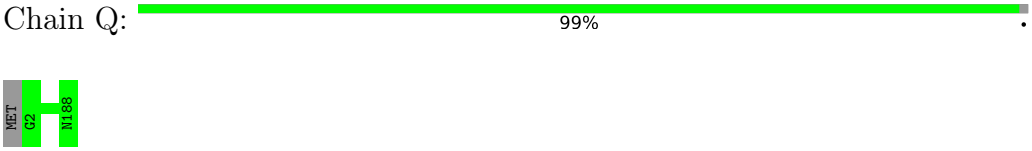
• Molecule 41: 40S ribosomal protein uS19

Chain PP:



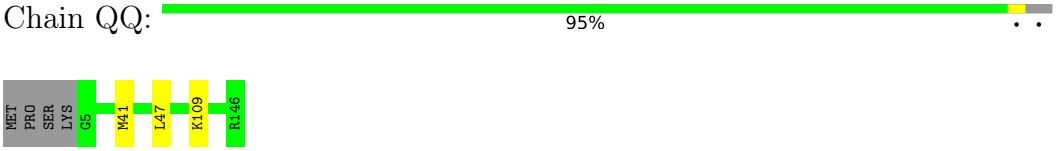
• Molecule 42: Ribosomal protein L18

Chain Q:



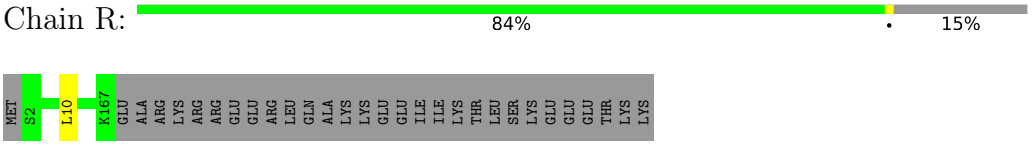
• Molecule 43: Ribosomal protein S16

Chain QQ:



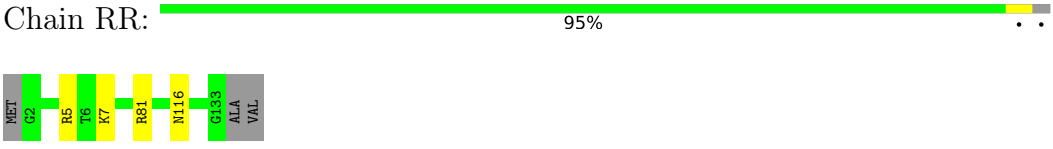
• Molecule 44: Ribosomal protein L19

Chain R:



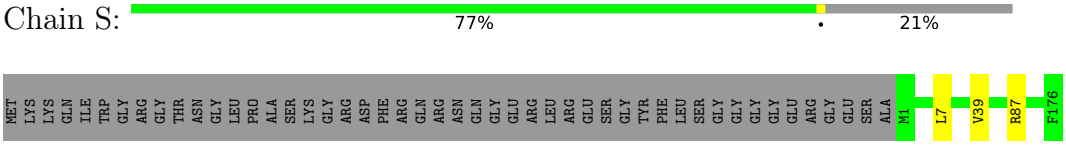
• Molecule 45: 40S ribosomal protein eS17

Chain RR:



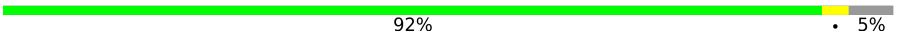
• Molecule 46: 60S ribosomal protein L18a

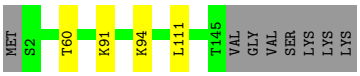
Chain S:



• Molecule 47: 40S ribosomal protein uS13

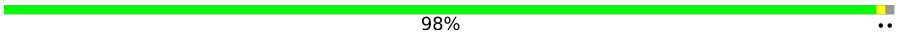
Chain SS:





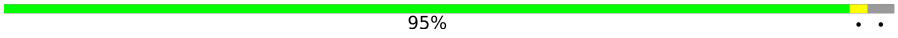
• Molecule 48: 60S ribosomal protein L21

Chain T:



• Molecule 49: 40S ribosomal protein S19

Chain TT:



• Molecule 50: 60S ribosomal protein L22-like

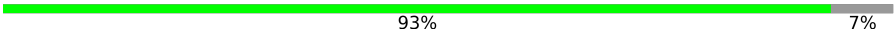
Chain U:

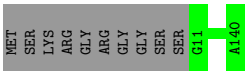
• Molecule 51: 40S ribosomal protein uS10

Chain UU:

• Molecule 52: Ribosomal protein L23

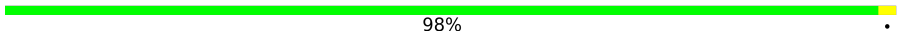
Chain V:

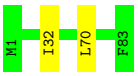




• Molecule 53: 40S ribosomal protein S21

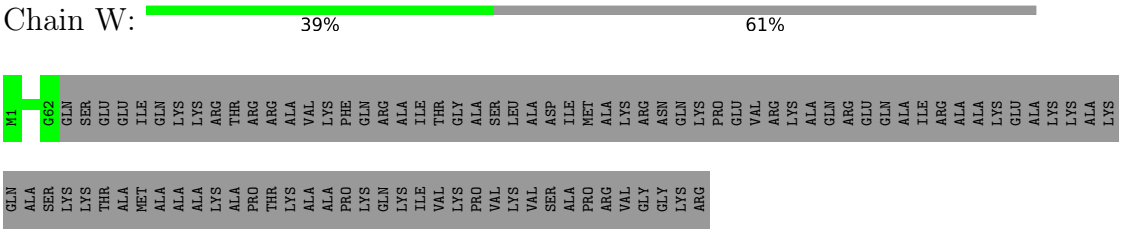
Chain VV:





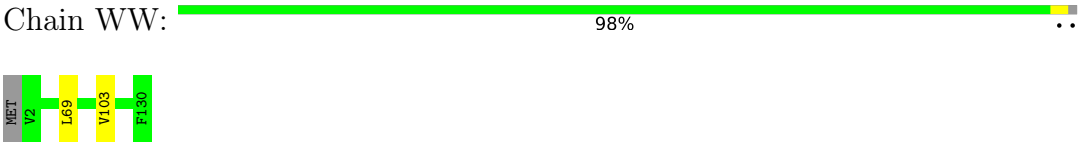
• Molecule 54: Ribosomal protein L24

Chain W:



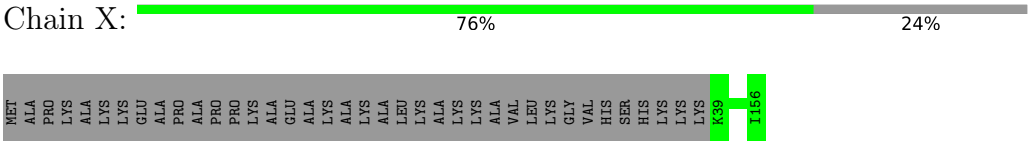
• Molecule 55: Ribosomal protein S15a

Chain WW:



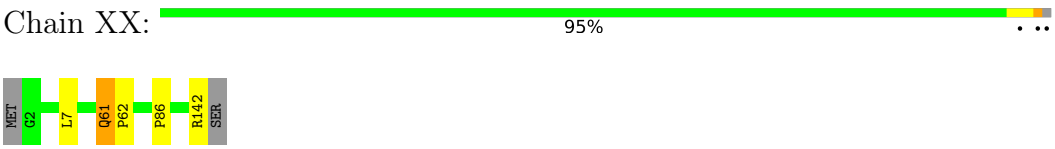
• Molecule 56: 60S ribosomal protein L23a

Chain X:



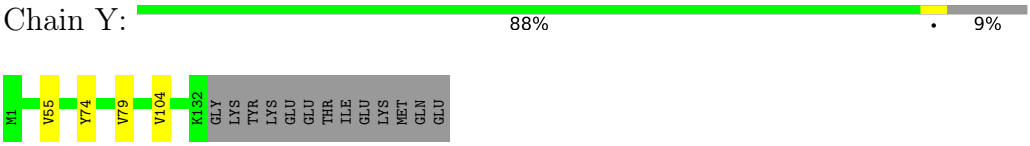
• Molecule 57: 40S ribosomal protein S23

Chain XX:



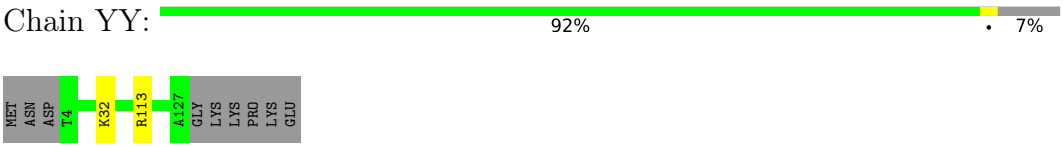
• Molecule 58: Ribosomal protein L26

Chain Y:



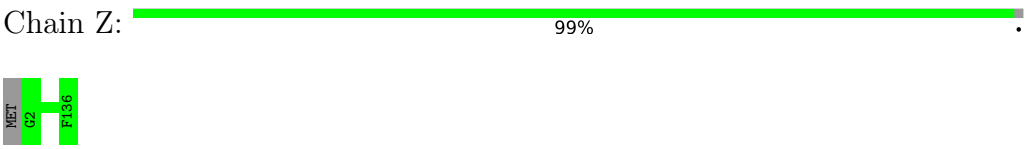
• Molecule 59: 40S ribosomal protein S24

Chain YY:



• Molecule 60: 60S ribosomal protein L27

Chain Z:

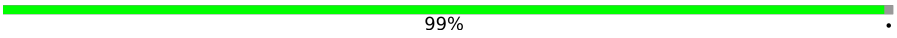


• Molecule 61: 40S ribosomal protein S25

Chain ZZ:

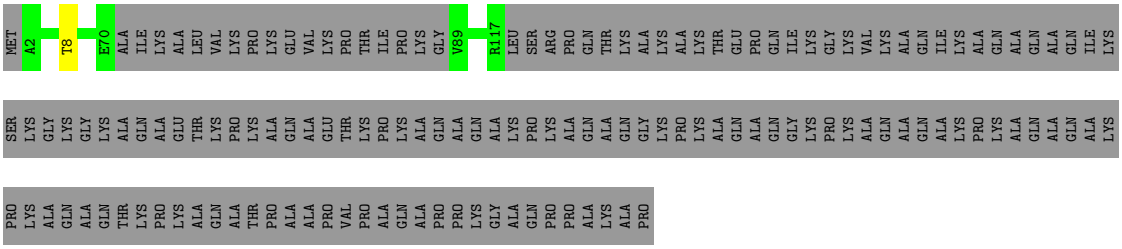
• Molecule 62: 60S ribosomal protein L27a

Chain a:



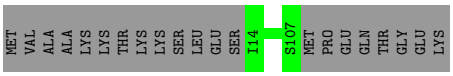
• Molecule 63: 60S ribosomal protein L29

Chain b:



• Molecule 64: 60S ribosomal protein L30

Chain c:



• Molecule 65: 60S ribosomal protein L31

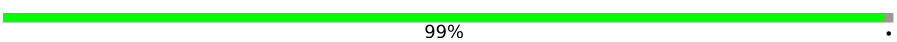
Chain d:

• Molecule 66: 60S ribosomal protein L32

Chain e:

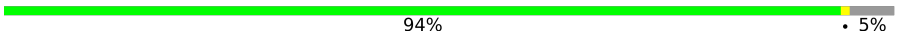
• Molecule 67: 60S ribosomal protein L35a

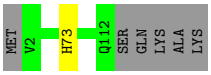
Chain f:



• Molecule 68: 60S ribosomal protein L34

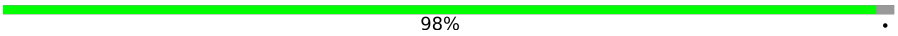
Chain g:





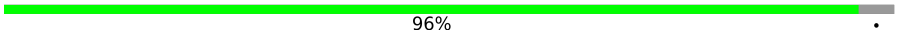
• Molecule 69: 60S ribosomal protein L35

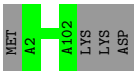
Chain h:



• Molecule 70: 60S ribosomal protein L36

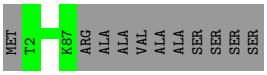
Chain i:





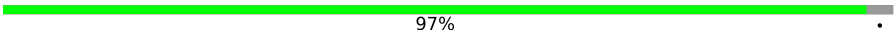
• Molecule 71: Ribosomal protein L37

Chain j:



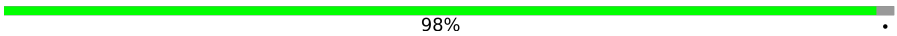
• Molecule 72: 60S ribosomal protein L38

Chain k:



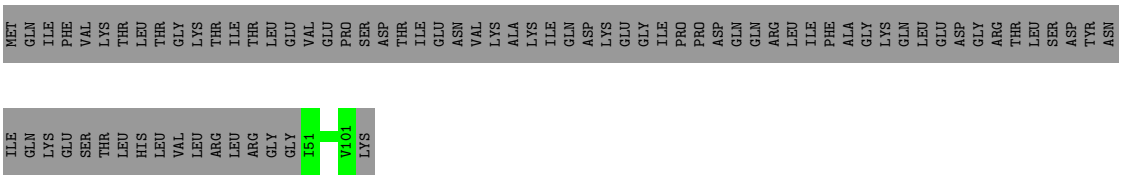
• Molecule 73: 60S ribosomal protein L39-like

Chain l:



• Molecule 74: Ubiquitin-60S ribosomal protein L40

Chain m:



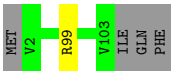
• Molecule 75: 60s ribosomal protein l41

Chain n: 100%

There are no outlier residues recorded for this chain.

• Molecule 76: 60S ribosomal protein L36a-like

Chain o: 95%



• Molecule 77: 60S ribosomal protein L37a

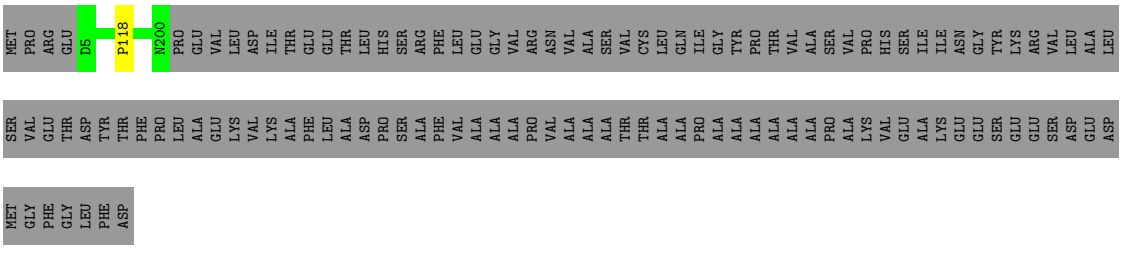
Chain p: 99%

• Molecule 78: 60S ribosomal protein L28

Chain r: 89% 10%

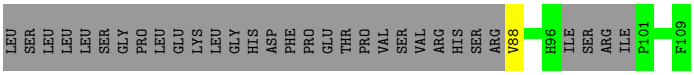
• Molecule 79: 60S ribosomal protein L10E

Chain s: 61% 38%



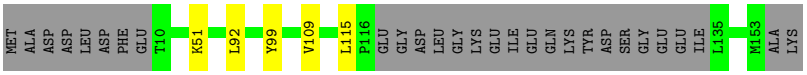
• Molecule 80: Dap1b

Chain s1: 16% 83%



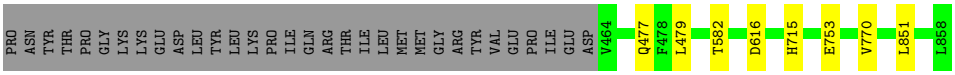
• Molecule 81: Eukaryotic translation initiation factor 5A-1

Chain t:



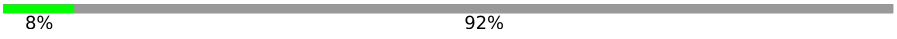
• Molecule 82: Elongation factor 2

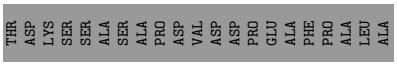
Chain v:



• Molecule 83: SERPINE1 mRNA binding protein 1

Chain w:





4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	479754	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 ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: 4AC, OMG, B8T, OMU, 2MG, 7MG, 1MA, M7A, A2M, UR3, B8W, 6MZ, P4U, ZN, DDE, B9B, MA6, E3C, E7G, PSU, B9H, BGH, B8K, B8H, 5MC, B8N, B8Q, I4U, E6G, MHG, MG, 5MU, 5CT, MLZ, P7G, OMC

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	x	0.30	0/1311	0.44	0/1762
2	5	0.22	0/78172	0.71	7/121809 (0.0%)
3	8	0.21	0/3406	0.69	0/5301
4	9	0.64	0/39723	1.15	275/61870 (0.4%)
5	A	0.25	0/1929	0.44	0/2586
6	AA	0.40	0/1747	0.63	0/2374
7	Aa	0.37	0/828	0.56	0/1109
8	B	0.24	0/3240	0.43	0/4339
9	BB	0.37	0/1756	0.72	4/2350 (0.2%)
10	Bb	0.33	0/665	0.59	0/891
11	C	0.23	0/2899	0.40	0/3895
12	CC	0.47	0/1753	0.64	0/2369
13	Cc	0.32	0/490	0.61	0/656
14	D	0.25	0/2407	0.40	0/3224
15	DD	0.39	0/1796	0.65	0/2417
16	Dd	0.41	0/470	0.61	0/623
17	E	0.24	0/1743	0.42	0/2337
18	EE	0.38	0/2118	0.70	5/2849 (0.2%)
19	Ee	0.36	0/447	0.55	0/587
20	F	0.24	0/1911	0.38	0/2549
21	FF	0.35	0/1492	0.68	2/2005 (0.1%)
22	G	0.23	0/1778	0.39	0/2397
23	GG	0.32	0/1946	0.68	3/2590 (0.1%)
24	Gg	0.32	0/2493	0.64	2/3394 (0.1%)
25	H	0.23	0/1502	0.42	0/2020
26	HH	0.37	0/1510	0.67	1/2022 (0.0%)
27	I	0.24	0/1678	0.40	0/2239
28	II	0.36	0/1715	0.65	0/2287
29	J	0.24	0/1367	0.40	0/1829
30	JJ	0.39	0/1550	0.63	0/2069

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
31	K	0.19	0/2836	0.68	0/4421
32	KK	0.39	0/834	0.65	1/1125 (0.1%)
33	L	0.23	0/1689	0.41	0/2261
34	LL	0.44	0/1195	0.60	0/1597
35	M	0.24	0/1138	0.38	0/1521
36	N	0.30	0/1746	0.44	0/2338
37	NN	0.36	0/1226	0.58	0/1649
38	O	0.24	0/1662	0.38	0/2222
39	OO	0.33	0/1029	0.63	0/1380
40	P	0.23	0/1259	0.40	0/1688
41	PP	0.34	0/1045	0.66	2/1396 (0.1%)
42	Q	0.24	0/1539	0.42	0/2054
43	QQ	0.33	0/1146	0.66	1/1534 (0.1%)
44	R	0.22	0/1399	0.37	0/1851
45	RR	0.33	0/1082	0.62	0/1452
46	S	0.25	0/1495	0.42	0/2005
47	SS	0.32	0/1208	0.67	0/1618
48	T	0.24	0/1320	0.40	0/1763
49	TT	0.30	0/1115	0.59	0/1493
50	U	0.24	0/814	0.40	0/1092
51	UU	0.33	0/805	0.61	0/1081
52	V	0.25	0/987	0.42	0/1324
53	VV	0.41	0/643	0.61	0/860
54	W	0.25	0/532	0.40	0/708
55	WW	0.48	0/1051	0.69	1/1406 (0.1%)
56	X	0.23	0/984	0.40	0/1323
57	XX	0.46	0/1116	0.64	1/1490 (0.1%)
58	Y	0.23	0/1119	0.40	0/1488
59	YY	0.33	0/1028	0.56	0/1366
60	Z	0.25	0/1130	0.40	0/1507
61	ZZ	0.31	0/604	0.69	0/810
62	a	0.24	0/1191	0.43	0/1590
63	b	0.23	0/819	0.35	0/1081
64	c	0.24	0/742	0.39	0/995
65	d	0.23	0/894	0.41	0/1204
66	e	0.23	0/1071	0.40	0/1429
67	f	0.25	0/895	0.45	0/1198
68	g	0.24	0/892	0.41	0/1189
69	h	0.22	0/1016	0.38	0/1341
70	i	0.23	0/832	0.37	0/1101
71	j	0.24	0/720	0.44	0/952
72	k	0.24	0/565	0.39	0/750
73	l	0.21	0/459	0.41	0/608

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
74	m	0.23	0/415	0.41	0/550
75	n	0.20	0/240	0.32	0/305
76	o	0.28	0/847	0.44	0/1117
77	p	0.23	0/718	0.42	0/953
78	r	0.23	0/1002	0.41	0/1344
79	s	0.24	0/1523	0.42	0/2055
80	s1	0.21	0/154	0.37	0/205
81	t	0.34	0/958	0.60	0/1288
82	v	0.24	0/5758	0.41	0/7779
83	w	0.23	0/257	0.43	0/339
All	All	0.36	0/224586	0.75	305/327945 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
6	AA	0	2
15	DD	0	1
18	EE	0	1
21	FF	0	1
24	Gg	0	1
28	II	0	1
41	PP	0	1
47	SS	0	1
51	UU	0	1
53	VV	0	1
57	XX	0	1
All	All	0	12

There are no bond length outliers.

The worst 5 of 305 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	9	1116	C	N1-C2-O2	12.77	126.56	118.90
4	9	1116	C	C2-N1-C1'	11.82	131.81	118.80
4	9	501	C	N1-C2-O2	11.01	125.50	118.90
4	9	501	C	C2-N1-C1'	10.28	130.11	118.80
4	9	1116	C	N3-C2-O2	-10.12	114.81	121.90

There are no chirality outliers.

5 of 12 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
6	AA	42	LYS	Peptide
6	AA	43	SER	Peptide
15	DD	153	VAL	Peptide
18	EE	132	GLY	Peptide
21	FF	41	VAL	Peptide

5.2 Too-close contacts (i)

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

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	x	159/217 (73%)	151 (95%)	8 (5%)	0	100	100
5	A	245/257 (95%)	233 (95%)	12 (5%)	0	100	100
6	AA	215/295 (73%)	206 (96%)	9 (4%)	0	100	100
7	Aa	99/115 (86%)	89 (90%)	10 (10%)	0	100	100
8	B	392/403 (97%)	382 (97%)	10 (3%)	0	100	100
9	BB	211/264 (80%)	203 (96%)	8 (4%)	0	100	100
10	Bb	81/84 (96%)	78 (96%)	3 (4%)	0	100	100
11	C	355/413 (86%)	344 (97%)	11 (3%)	0	100	100
12	CC	219/293 (75%)	205 (94%)	14 (6%)	0	100	100
13	Cc	60/69 (87%)	57 (95%)	3 (5%)	0	100	100
14	D	287/297 (97%)	281 (98%)	6 (2%)	0	100	100
15	DD	226/243 (93%)	216 (96%)	10 (4%)	0	100	100
16	Dd	53/56 (95%)	48 (91%)	5 (9%)	0	100	100
17	E	205/291 (70%)	197 (96%)	8 (4%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
18	EE	260/263 (99%)	244 (94%)	16 (6%)	0	100	100
19	Ee	53/133 (40%)	50 (94%)	3 (6%)	0	100	100
20	F	223/249 (90%)	216 (97%)	7 (3%)	0	100	100
21	FF	181/204 (89%)	162 (90%)	19 (10%)	0	100	100
22	G	211/266 (79%)	208 (99%)	3 (1%)	0	100	100
23	GG	235/249 (94%)	224 (95%)	11 (5%)	0	100	100
24	Gg	311/317 (98%)	281 (90%)	30 (10%)	0	100	100
25	H	182/192 (95%)	179 (98%)	3 (2%)	0	100	100
26	HH	181/432 (42%)	173 (96%)	8 (4%)	0	100	100
27	I	198/214 (92%)	192 (97%)	6 (3%)	0	100	100
28	II	204/208 (98%)	185 (91%)	19 (9%)	0	100	100
29	J	166/178 (93%)	165 (99%)	1 (1%)	0	100	100
30	JJ	183/194 (94%)	180 (98%)	3 (2%)	0	100	100
32	KK	94/165 (57%)	86 (92%)	8 (8%)	0	100	100
33	L	203/211 (96%)	198 (98%)	4 (2%)	1 (0%)	29	35
34	LL	139/158 (88%)	131 (94%)	8 (6%)	0	100	100
35	M	133/218 (61%)	130 (98%)	3 (2%)	0	100	100
36	N	201/204 (98%)	195 (97%)	6 (3%)	0	100	100
37	NN	147/151 (97%)	138 (94%)	9 (6%)	0	100	100
38	O	197/203 (97%)	193 (98%)	4 (2%)	0	100	100
39	OO	134/151 (89%)	123 (92%)	11 (8%)	0	100	100
40	P	150/187 (80%)	147 (98%)	3 (2%)	0	100	100
41	PP	123/145 (85%)	118 (96%)	5 (4%)	0	100	100
42	Q	185/188 (98%)	177 (96%)	8 (4%)	0	100	100
43	QQ	140/146 (96%)	132 (94%)	8 (6%)	0	100	100
44	R	164/196 (84%)	162 (99%)	2 (1%)	0	100	100
45	RR	130/135 (96%)	121 (93%)	9 (7%)	0	100	100
46	S	174/224 (78%)	168 (97%)	6 (3%)	0	100	100
47	SS	142/152 (93%)	135 (95%)	7 (5%)	0	100	100
48	T	156/160 (98%)	151 (97%)	5 (3%)	0	100	100
49	TT	139/145 (96%)	133 (96%)	6 (4%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
50	U	96/141 (68%)	93 (97%)	3 (3%)	0	100	100
51	UU	98/119 (82%)	94 (96%)	4 (4%)	0	100	100
52	V	128/140 (91%)	127 (99%)	1 (1%)	0	100	100
53	VV	81/83 (98%)	76 (94%)	5 (6%)	0	100	100
54	W	60/157 (38%)	59 (98%)	1 (2%)	0	100	100
55	WW	127/130 (98%)	118 (93%)	9 (7%)	0	100	100
56	X	116/156 (74%)	115 (99%)	1 (1%)	0	100	100
57	XX	139/143 (97%)	132 (95%)	4 (3%)	3 (2%)	6	5
58	Y	130/145 (90%)	128 (98%)	2 (2%)	0	100	100
59	YY	122/133 (92%)	120 (98%)	2 (2%)	0	100	100
60	Z	133/136 (98%)	125 (94%)	8 (6%)	0	100	100
61	ZZ	73/124 (59%)	70 (96%)	3 (4%)	0	100	100
62	a	145/148 (98%)	137 (94%)	8 (6%)	0	100	100
63	b	94/245 (38%)	92 (98%)	2 (2%)	0	100	100
64	c	92/115 (80%)	91 (99%)	1 (1%)	0	100	100
65	d	104/125 (83%)	101 (97%)	3 (3%)	0	100	100
66	e	126/157 (80%)	122 (97%)	4 (3%)	0	100	100
67	f	107/110 (97%)	106 (99%)	1 (1%)	0	100	100
68	g	109/117 (93%)	107 (98%)	2 (2%)	0	100	100
69	h	119/123 (97%)	119 (100%)	0	0	100	100
70	i	99/105 (94%)	98 (99%)	1 (1%)	0	100	100
71	j	84/97 (87%)	83 (99%)	1 (1%)	0	100	100
72	k	66/70 (94%)	66 (100%)	0	0	100	100
73	l	48/51 (94%)	44 (92%)	4 (8%)	0	100	100
74	m	48/128 (38%)	47 (98%)	1 (2%)	0	100	100
75	n	23/25 (92%)	23 (100%)	0	0	100	100
76	o	100/106 (94%)	98 (98%)	2 (2%)	0	100	100
77	p	89/92 (97%)	87 (98%)	2 (2%)	0	100	100
78	r	121/137 (88%)	118 (98%)	3 (2%)	0	100	100
79	s	194/318 (61%)	185 (95%)	8 (4%)	1 (0%)	29	35
80	s1	14/109 (13%)	13 (93%)	1 (7%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
81	t	121/154 (79%)	117 (97%)	4 (3%)	0	100	100
82	v	711/858 (83%)	684 (96%)	27 (4%)	0	100	100
83	w	30/407 (7%)	28 (93%)	2 (7%)	0	100	100
All	All	12093/14939 (81%)	11610 (96%)	478 (4%)	5 (0%)	100	100

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
57	XX	62	PRO
57	XX	61	GLN
57	XX	86	PRO
79	s	118	PRO
33	L	62	PRO

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	x	146/195 (75%)	143 (98%)	3 (2%)	53	70
5	A	189/199 (95%)	187 (99%)	2 (1%)	73	86
6	AA	180/245 (74%)	179 (99%)	1 (1%)	86	94
7	Aa	88/98 (90%)	87 (99%)	1 (1%)	73	86
8	B	342/348 (98%)	338 (99%)	4 (1%)	71	84
9	BB	194/231 (84%)	190 (98%)	4 (2%)	53	70
10	Bb	75/76 (99%)	75 (100%)	0	100	100
11	C	298/336 (89%)	295 (99%)	3 (1%)	76	87
12	CC	187/224 (84%)	185 (99%)	2 (1%)	73	86
13	Cc	55/62 (89%)	52 (94%)	3 (6%)	21	30
14	D	245/250 (98%)	241 (98%)	4 (2%)	62	78
15	DD	190/202 (94%)	186 (98%)	4 (2%)	53	70

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
16	Dd	48/49 (98%)	46 (96%)	2 (4%)	30 42
17	E	189/251 (75%)	187 (99%)	2 (1%)	73 86
18	EE	224/225 (100%)	221 (99%)	3 (1%)	69 82
19	Ee	46/106 (43%)	43 (94%)	3 (6%)	17 23
20	F	196/218 (90%)	196 (100%)	0	100 100
21	FF	158/170 (93%)	152 (96%)	6 (4%)	33 47
22	G	188/224 (84%)	186 (99%)	2 (1%)	73 86
23	GG	207/218 (95%)	199 (96%)	8 (4%)	32 46
24	Gg	272/275 (99%)	268 (98%)	4 (2%)	65 79
25	H	166/171 (97%)	165 (99%)	1 (1%)	86 94
26	HH	165/360 (46%)	164 (99%)	1 (1%)	86 94
27	I	172/181 (95%)	169 (98%)	3 (2%)	60 76
28	II	178/180 (99%)	173 (97%)	5 (3%)	43 60
29	J	141/149 (95%)	140 (99%)	1 (1%)	84 92
30	JJ	161/168 (96%)	158 (98%)	3 (2%)	57 73
32	KK	87/136 (64%)	86 (99%)	1 (1%)	73 86
33	L	170/176 (97%)	168 (99%)	2 (1%)	71 84
34	LL	130/142 (92%)	128 (98%)	2 (2%)	65 79
35	M	115/160 (72%)	115 (100%)	0	100 100
36	N	171/172 (99%)	169 (99%)	2 (1%)	71 84
37	NN	130/131 (99%)	129 (99%)	1 (1%)	81 91
38	O	171/174 (98%)	168 (98%)	3 (2%)	59 75
39	OO	106/119 (89%)	105 (99%)	1 (1%)	78 89
40	P	133/165 (81%)	131 (98%)	2 (2%)	65 79
41	PP	111/130 (85%)	106 (96%)	5 (4%)	27 39
42	Q	164/165 (99%)	164 (100%)	0	100 100
43	QQ	117/121 (97%)	115 (98%)	2 (2%)	60 76
44	R	147/175 (84%)	146 (99%)	1 (1%)	84 92
45	RR	119/121 (98%)	115 (97%)	4 (3%)	37 51
46	S	156/192 (81%)	153 (98%)	3 (2%)	57 73
47	SS	125/132 (95%)	122 (98%)	3 (2%)	49 66

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
48	T	139/140 (99%)	137 (99%)	2 (1%)	67 81
49	TT	111/115 (96%)	108 (97%)	3 (3%)	44 61
50	U	88/127 (69%)	88 (100%)	0	100 100
51	UU	92/107 (86%)	92 (100%)	0	100 100
52	V	100/107 (94%)	100 (100%)	0	100 100
53	VV	67/67 (100%)	66 (98%)	1 (2%)	65 79
54	W	54/126 (43%)	54 (100%)	0	100 100
55	WW	112/113 (99%)	111 (99%)	1 (1%)	78 89
56	X	106/133 (80%)	106 (100%)	0	100 100
57	XX	113/115 (98%)	112 (99%)	1 (1%)	78 89
58	Y	123/135 (91%)	119 (97%)	4 (3%)	38 53
59	YY	107/115 (93%)	105 (98%)	2 (2%)	57 73
60	Z	117/118 (99%)	117 (100%)	0	100 100
61	ZZ	66/102 (65%)	66 (100%)	0	100 100
62	a	119/120 (99%)	119 (100%)	0	100 100
63	b	80/184 (44%)	79 (99%)	1 (1%)	69 82
64	c	80/98 (82%)	80 (100%)	0	100 100
65	d	97/110 (88%)	97 (100%)	0	100 100
66	e	114/141 (81%)	114 (100%)	0	100 100
67	f	88/89 (99%)	88 (100%)	0	100 100
68	g	95/100 (95%)	94 (99%)	1 (1%)	73 86
69	h	109/110 (99%)	109 (100%)	0	100 100
70	i	85/89 (96%)	85 (100%)	0	100 100
71	j	73/80 (91%)	73 (100%)	0	100 100
72	k	63/65 (97%)	63 (100%)	0	100 100
73	l	47/48 (98%)	47 (100%)	0	100 100
74	m	46/115 (40%)	46 (100%)	0	100 100
75	n	24/24 (100%)	24 (100%)	0	100 100
76	o	90/94 (96%)	89 (99%)	1 (1%)	73 86
77	p	74/75 (99%)	74 (100%)	0	100 100
78	r	107/121 (88%)	106 (99%)	1 (1%)	78 89

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
79	s	163/258 (63%)	163 (100%)	0	100 100
80	s1	18/97 (19%)	17 (94%)	1 (6%)	21 29
81	t	105/128 (82%)	101 (96%)	4 (4%)	33 47
82	v	619/729 (85%)	610 (98%)	9 (2%)	65 79
83	w	26/327 (8%)	26 (100%)	0	100 100
All	All	10569/12644 (84%)	10430 (99%)	139 (1%)	70 82

5 of 139 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
58	Y	55	VAL
59	YY	32	LYS
82	v	4	PHE
22	G	249	ARG
22	G	162	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 119 such sidechains are listed below:

Mol	Chain	Res	Type
38	O	180	GLN
79	s	39	GLN
50	U	44	GLN
78	r	95	HIS
83	w	206	HIS

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
2	5	3290/3740 (87%)	480 (14%)	38 (1%)
3	8	140/156 (89%)	14 (10%)	0
31	K	118/120 (98%)	7 (5%)	0
4	9	1670/1786 (93%)	387 (23%)	18 (1%)
All	All	5218/5802 (89%)	888 (17%)	56 (1%)

5 of 888 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	5	17	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	5	25	A
2	5	39	A
2	5	42	A
2	5	56	A

5 of 56 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
2	5	2506	A
4	9	1664	A
2	5	4888	G
4	9	1637	A
4	9	1137	U

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

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

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
4	6MZ	9	1832	4	18,25,26	2.24	3 (16%)	16,36,39	1.53	1 (6%)
4	A2M	9	27	4	18,25,26	4.68	9 (50%)	18,36,39	2.69	4 (22%)
2	OMC	5	3705	2,84	19,22,23	3.31	8 (42%)	26,31,34	0.75	0
4	M7A	9	1806	4	20,25,26	2.04	3 (15%)	28,37,40	3.72	8 (28%)
2	OMG	5	1887	2	18,26,27	2.58	8 (44%)	19,38,41	1.54	4 (21%)
2	A2M	5	4575	2	18,25,26	4.50	7 (38%)	18,36,39	2.83	3 (16%)
4	B8Q	9	1219	4	17,22,23	2.92	4 (23%)	22,32,35	2.34	7 (31%)
4	E3C	9	568	4	18,23,24	3.37	6 (33%)	21,33,36	2.23	5 (23%)
2	PSU	5	4535	2	18,21,22	4.93	7 (38%)	22,30,33	1.81	5 (22%)
4	4AC	9	1842	4	21,24,25	3.13	10 (47%)	29,34,37	1.18	4 (13%)
2	5MC	5	3786	2	18,22,23	3.91	7 (38%)	26,32,35	1.03	2 (7%)
2	A2M	5	3829	2	18,25,26	4.49	7 (38%)	18,36,39	2.79	3 (16%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
4	OMC	9	1710	4	19,22,23	2.94	7 (36%)	26,31,34	0.92	1 (3%)
2	A2M	5	2367	2,84	18,25,26	4.49	7 (38%)	18,36,39	2.86	3 (16%)
2	OMG	5	4374	2	18,26,27	2.58	8 (44%)	19,38,41	1.50	4 (21%)
2	5MC	5	4451	2	18,22,23	3.93	7 (38%)	26,32,35	1.05	1 (3%)
2	OMG	5	4200	2	18,26,27	2.58	8 (44%)	19,38,41	1.51	4 (21%)
2	OMG	5	2054	2	18,26,27	2.56	8 (44%)	19,38,41	1.54	4 (21%)
2	A2M	5	1330	2	18,25,26	4.44	7 (38%)	18,36,39	2.80	3 (16%)
2	A2M	5	3789	2	18,25,26	4.36	8 (44%)	18,36,39	2.83	3 (16%)
2	A2M	5	3727	2,70	18,25,26	4.51	7 (38%)	18,36,39	2.84	3 (16%)
2	B8Q	5	1460	2	17,22,23	2.93	5 (29%)	22,32,35	2.08	4 (18%)
2	2MG	5	1521	2	18,26,27	2.76	7 (38%)	16,38,41	1.48	4 (25%)
2	A2M	5	3871	2	18,25,26	4.46	7 (38%)	18,36,39	2.78	3 (16%)
2	B8H	5	4300	2	19,22,23	6.53	6 (31%)	22,32,35	2.34	5 (22%)
2	OMU	5	4310	2	19,22,23	3.03	8 (42%)	26,31,34	1.71	5 (19%)
2	PSU	5	2512	2	18,21,22	4.95	7 (38%)	22,30,33	1.88	5 (22%)
2	OMG	5	1320	2	18,26,27	2.60	8 (44%)	19,38,41	1.58	5 (26%)
2	B9H	5	2790	2	20,25,26	2.95	5 (25%)	22,35,38	1.47	3 (13%)
4	OMC	9	174	4	19,22,23	2.95	7 (36%)	26,31,34	0.81	1 (3%)
2	E6G	5	4359	2	20,27,28	2.04	3 (15%)	22,39,42	2.16	7 (31%)
2	PSU	5	4640	2,65	18,21,22	4.96	7 (38%)	22,30,33	1.89	5 (22%)
2	1MA	5	1326	2,84	16,25,26	4.04	4 (25%)	18,37,40	1.77	3 (16%)
2	PSU	5	4407	2	18,21,22	4.92	7 (38%)	22,30,33	1.76	5 (22%)
4	PSU	9	1081	4	18,21,22	1.06	1 (5%)	22,30,33	1.77	5 (22%)
2	OMG	5	2777	2	18,26,27	2.60	8 (44%)	19,38,41	1.57	4 (21%)
2	PSU	5	4504	2	18,21,22	4.95	7 (38%)	22,30,33	1.88	5 (22%)
4	B8N	9	1248	4	24,29,30	2.79	6 (25%)	29,42,45	1.75	5 (17%)
2	PSU	5	4297	2	18,21,22	4.91	7 (38%)	22,30,33	1.86	5 (22%)
4	PSU	9	822	4	18,21,22	1.03	2 (11%)	22,30,33	1.93	5 (22%)
2	PSU	5	3768	2	18,21,22	4.97	7 (38%)	22,30,33	1.71	6 (27%)
4	OMG	9	683	4	18,26,27	2.48	8 (44%)	19,38,41	1.55	4 (21%)
2	PSU	5	4446	2	18,21,22	4.95	7 (38%)	22,30,33	1.86	5 (22%)
2	5MC	5	4339	2	18,22,23	3.92	7 (38%)	26,32,35	1.04	2 (7%)
2	B8W	5	2384	2	18,26,27	2.03	2 (11%)	21,38,41	2.23	5 (23%)
2	OMG	5	1629	2	18,26,27	2.59	8 (44%)	19,38,41	1.50	4 (21%)
2	PSU	5	1586	2	18,21,22	4.95	7 (38%)	22,30,33	1.85	5 (22%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	OMC	5	2865	2	19,22,23	3.33	8 (42%)	26,31,34	0.69	0
2	OMG	5	4498	2	18,26,27	2.57	8 (44%)	19,38,41	1.51	4 (21%)
2	OMC	5	4540	2	19,22,23	3.34	8 (42%)	26,31,34	0.74	0
2	UR3	5	4534	2	19,22,23	3.20	7 (36%)	26,32,35	1.31	3 (11%)
2	E7G	5	1801	2	24,27,28	3.87	11 (45%)	30,40,43	2.22	10 (33%)
2	OMG	5	4641	2	18,26,27	2.57	8 (44%)	19,38,41	1.55	4 (21%)
4	5MC	9	1374	4	18,22,23	3.69	7 (38%)	26,32,35	1.34	4 (15%)
2	PSU	5	1687	2	18,21,22	4.91	7 (38%)	22,30,33	1.84	5 (22%)
2	B8W	5	4533	2,84	18,26,27	2.00	2 (11%)	21,38,41	2.55	7 (33%)
2	OMG	5	3796	2	18,26,27	2.57	8 (44%)	19,38,41	1.51	4 (21%)
2	PSU	5	4632	2	18,21,22	4.90	7 (38%)	22,30,33	1.93	5 (22%)
4	OMC	9	1703	4	19,22,23	2.94	7 (36%)	26,31,34	0.83	1 (3%)
4	PSU	9	1243	4	18,21,22	1.06	1 (5%)	22,30,33	1.83	4 (18%)
2	P7G	5	1913	2	24,28,29	4.23	11 (45%)	27,41,44	1.56	3 (11%)
2	B9B	5	237	2	21,28,29	1.99	3 (14%)	23,40,43	1.91	5 (21%)
4	PSU	9	612	4	18,21,22	0.99	1 (5%)	22,30,33	1.74	4 (18%)
2	2MG	5	729	2	18,26,27	2.75	6 (33%)	16,38,41	1.36	3 (18%)
2	B8W	5	4476	2	18,26,27	2.03	2 (11%)	21,38,41	2.78	8 (38%)
2	OMG	5	4627	2	18,26,27	2.58	8 (44%)	19,38,41	1.56	4 (21%)
2	B8K	5	4694	2	24,28,29	3.38	11 (45%)	30,42,45	2.33	11 (36%)
4	UR3	9	1830	4	19,22,23	2.69	6 (31%)	26,32,35	1.57	4 (15%)
4	MA6	9	1850	4	18,26,27	1.02	1 (5%)	19,38,41	2.74	2 (10%)
4	OMU	9	116	4	19,22,23	2.88	7 (36%)	26,31,34	1.75	5 (19%)
4	MA6	9	1851	4	18,26,27	0.98	1 (5%)	19,38,41	2.62	2 (10%)
4	PSU	9	119	4	18,21,22	0.94	1 (5%)	22,30,33	1.60	5 (22%)
2	UR3	5	4601	2	19,22,23	3.21	7 (36%)	26,32,35	1.29	2 (7%)
4	A2M	9	668	4	18,25,26	4.68	8 (44%)	18,36,39	2.70	5 (27%)
2	5MU	5	4087	2	19,22,23	4.98	7 (36%)	28,32,35	3.62	9 (32%)
2	A2M	5	1538	2,84	18,25,26	4.49	7 (38%)	18,36,39	2.89	3 (16%)
2	B8T	5	4487	2	19,22,23	3.25	8 (42%)	26,31,34	0.85	1 (3%)
2	A2M	5	2405	2,84	18,25,26	4.48	7 (38%)	18,36,39	2.84	3 (16%)
4	A2M	9	1031	4	18,25,26	4.75	8 (44%)	18,36,39	2.78	4 (22%)
2	OMC	5	3913	2	19,22,23	3.34	8 (42%)	26,31,34	0.71	0
4	A2M	9	1678	4	18,25,26	4.81	9 (50%)	18,36,39	2.59	3 (16%)
2	OMG	5	1526	2	18,26,27	2.58	8 (44%)	19,38,41	1.51	4 (21%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	PSU	5	3733	2	18,21,22	4.95	7 (38%)	22,30,33	1.82	5 (22%)
2	OMC	5	2808	2	19,22,23	3.33	8 (42%)	26,31,34	0.71	0
2	6MZ	5	4224	2	18,25,26	2.19	3 (16%)	16,36,39	2.05	4 (25%)
4	4AC	9	1337	4	21,24,25	3.19	9 (42%)	29,34,37	1.23	3 (10%)
2	P7G	5	3884	2	24,28,29	4.14	11 (45%)	27,41,44	1.60	3 (11%)
2	2MG	5	4876	2	18,26,27	2.72	7 (38%)	16,38,41	1.55	4 (25%)
2	A2M	5	3722	2	18,25,26	4.49	7 (38%)	18,36,39	2.85	3 (16%)
2	A2M	5	1875	2,84	18,25,26	4.51	7 (38%)	18,36,39	2.87	3 (16%)
2	B8K	5	3901	2	24,28,29	3.30	11 (45%)	30,42,45	2.28	11 (36%)
2	PSU	5	1681	2	18,21,22	4.95	8 (44%)	22,30,33	1.88	5 (22%)
2	PSU	5	3719	2	18,21,22	4.94	7 (38%)	22,30,33	1.86	5 (22%)
82	DDE	v	715	82	14,20,21	1.02	1 (7%)	14,28,30	1.09	1 (7%)
2	OMG	5	373	2	18,26,27	2.55	8 (44%)	19,38,41	1.56	4 (21%)
2	7MG	5	1609	2	22,26,27	3.92	10 (45%)	29,39,42	2.03	9 (31%)
4	PSU	9	823	4	18,21,22	1.09	1 (5%)	22,30,33	1.83	4 (18%)
2	1MA	5	4419	2	16,25,26	4.01	4 (25%)	18,37,40	1.71	3 (16%)
2	7MG	5	2526	2	22,26,27	3.92	10 (45%)	29,39,42	2.04	9 (31%)
2	B8H	5	1864	2	19,22,23	6.50	6 (31%)	22,32,35	2.35	5 (22%)
4	A2M	9	159	4	18,25,26	4.83	9 (50%)	18,36,39	2.75	4 (22%)
4	A2M	9	484	4	18,25,26	4.71	9 (50%)	18,36,39	2.71	3 (16%)
2	A2M	5	398	2	18,25,26	4.49	7 (38%)	18,36,39	2.86	3 (16%)
2	MHG	5	4375	2	29,32,33	3.95	11 (37%)	34,46,49	2.29	10 (29%)
2	M7A	5	4568	2	20,25,26	2.02	3 (15%)	28,37,40	3.67	8 (28%)
2	OMC	5	2369	2	19,22,23	3.34	8 (42%)	26,31,34	0.75	0
11	MLZ	C	333	11	8,9,10	0.77	0	4,9,11	0.67	0
4	OMU	9	121	4	19,22,23	2.96	8 (42%)	26,31,34	1.77	5 (19%)
2	OMG	5	4874	2	18,26,27	2.59	8 (44%)	19,38,41	1.53	4 (21%)
2	P4U	5	1352	2	21,24,25	4.09	7 (33%)	27,33,36	0.98	1 (3%)
2	OMC	5	2426	2,40,84	19,22,23	3.35	8 (42%)	26,31,34	0.76	0
2	7MG	5	4554	2	22,26,27	3.95	10 (45%)	29,39,42	1.99	9 (31%)
74	MLZ	m	72	74	8,9,10	0.76	0	4,9,11	0.64	0
4	5MU	9	814	4	19,22,23	4.87	7 (36%)	28,32,35	3.59	12 (42%)
4	OMG	9	509	4	18,26,27	2.46	8 (44%)	19,38,41	1.46	4 (21%)
2	B8T	5	4675	2	19,22,23	3.25	8 (42%)	26,31,34	0.91	1 (3%)
2	OMC	5	3891	2	19,22,23	3.34	8 (42%)	26,31,34	0.72	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
81	5CT	t	51	81	13,14,15	0.66	0	9,15,17	1.20	1 (11%)
2	OMC	5	3873	2	19,22,23	3.34	8 (42%)	26,31,34	0.74	0
2	BGH	5	3903	2,84	25,29,30	4.62	18 (72%)	31,43,46	2.35	12 (38%)
2	OMU	5	4624	2,52	19,22,23	3.00	8 (42%)	26,31,34	1.69	5 (19%)
4	A2M	9	166	4	18,25,26	4.79	9 (50%)	18,36,39	2.78	4 (22%)
2	B8W	5	4133	2	18,26,27	2.06	2 (11%)	21,38,41	2.34	6 (28%)
4	OMC	9	517	4	19,22,23	2.84	7 (36%)	26,31,34	0.64	0
2	B8W	5	4189	2	18,26,27	2.04	2 (11%)	21,38,41	2.43	6 (28%)
2	OMG	5	2428	2	18,26,27	2.58	8 (44%)	19,38,41	1.48	4 (21%)
2	PSU	5	4454	2,84	18,21,22	4.95	7 (38%)	22,30,33	1.84	5 (22%)
2	B9B	5	2758	2,84	21,28,29	1.98	3 (14%)	23,40,43	1.87	4 (17%)
2	I4U	5	4198	2	21,24,25	3.61	8 (38%)	27,34,37	1.00	1 (3%)
4	OMG	9	644	4	18,26,27	2.47	8 (44%)	19,38,41	1.52	4 (21%)
3	OMU	8	14	2,3	19,22,23	3.00	8 (42%)	26,31,34	1.69	4 (15%)
2	B9B	5	1578	2	21,28,29	1.98	3 (14%)	23,40,43	1.85	5 (21%)
2	UR3	5	1870	2	19,22,23	3.20	7 (36%)	26,32,35	1.27	3 (11%)
2	A2M	5	4527	2,84	18,25,26	4.50	7 (38%)	18,36,39	2.81	3 (16%)
2	E7G	5	2301	2	24,27,28	3.86	11 (45%)	30,40,43	2.24	10 (33%)
2	I4U	5	1663	2	21,24,25	3.63	9 (42%)	27,34,37	0.95	1 (3%)
2	OMG	5	2368	2	18,26,27	2.57	8 (44%)	19,38,41	1.55	4 (21%)
2	A2M	5	1528	2	18,25,26	4.47	7 (38%)	18,36,39	2.87	3 (16%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	6MZ	9	1832	4	-	2/5/27/28	0/3/3/3
4	A2M	9	27	4	-	0/5/27/28	0/3/3/3
2	OMC	5	3705	2,84	-	4/9/27/28	0/2/2/2
4	M7A	9	1806	4	-	0/7/37/38	0/3/3/3
2	OMG	5	1887	2	-	0/5/27/28	0/3/3/3
2	A2M	5	4575	2	-	0/5/27/28	0/3/3/3
4	B8Q	9	1219	4	-	0/7/42/43	0/2/2/2
4	E3C	9	568	4	-	4/9/44/45	0/2/2/2
2	PSU	5	4535	2	-	2/7/25/26	0/2/2/2

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	4AC	9	1842	4	-	0/11/29/30	0/2/2/2
2	5MC	5	3786	2	-	0/7/25/26	0/2/2/2
2	A2M	5	3829	2	-	0/5/27/28	0/3/3/3
4	OMC	9	1710	4	-	0/9/27/28	0/2/2/2
2	A2M	5	2367	2,84	-	1/5/27/28	0/3/3/3
2	OMG	5	4374	2	-	0/5/27/28	0/3/3/3
2	5MC	5	4451	2	-	4/7/25/26	0/2/2/2
2	OMG	5	4200	2	-	0/5/27/28	0/3/3/3
2	OMG	5	2054	2	-	0/5/27/28	0/3/3/3
2	A2M	5	1330	2	-	1/5/27/28	0/3/3/3
2	A2M	5	3789	2	-	2/5/27/28	0/3/3/3
2	A2M	5	3727	2,70	-	1/5/27/28	0/3/3/3
2	B8Q	5	1460	2	-	0/7/42/43	0/2/2/2
2	2MG	5	1521	2	-	0/5/27/28	0/3/3/3
2	A2M	5	3871	2	-	3/5/27/28	0/3/3/3
2	B8H	5	4300	2	-	0/7/25/26	0/2/2/2
2	OMU	5	4310	2	-	0/9/27/28	0/2/2/2
2	PSU	5	2512	2	-	0/7/25/26	0/2/2/2
2	OMG	5	1320	2	-	0/5/27/28	0/3/3/3
2	B9H	5	2790	2	-	1/12/47/48	0/2/2/2
4	OMC	9	174	4	-	0/9/27/28	0/2/2/2
2	E6G	5	4359	2	-	2/6/28/29	0/3/3/3
2	PSU	5	4640	2,65	-	3/7/25/26	0/2/2/2
2	1MA	5	1326	2,84	-	0/3/25/26	0/3/3/3
2	PSU	5	4407	2	-	2/7/25/26	0/2/2/2
4	PSU	9	1081	4	-	3/7/25/26	0/2/2/2
2	OMG	5	2777	2	-	1/5/27/28	0/3/3/3
2	PSU	5	4504	2	-	3/7/25/26	0/2/2/2
4	B8N	9	1248	4	-	3/16/34/35	0/2/2/2
2	PSU	5	4297	2	-	2/7/25/26	0/2/2/2
4	PSU	9	822	4	-	2/7/25/26	0/2/2/2
2	PSU	5	3768	2	-	4/7/25/26	0/2/2/2
4	OMG	9	683	4	-	2/5/27/28	0/3/3/3
2	PSU	5	4446	2	-	0/7/25/26	0/2/2/2
2	5MC	5	4339	2	-	0/7/25/26	0/2/2/2
2	B8W	5	2384	2	-	4/5/27/28	0/3/3/3
2	OMG	5	1629	2	-	0/5/27/28	0/3/3/3
2	PSU	5	1586	2	-	0/7/25/26	0/2/2/2
2	OMC	5	2865	2	-	0/9/27/28	0/2/2/2

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	OMG	5	4498	2	-	0/5/27/28	0/3/3/3
2	OMC	5	4540	2	-	0/9/27/28	0/2/2/2
2	UR3	5	4534	2	-	2/7/25/26	0/2/2/2
2	E7G	5	1801	2	-	2/9/39/40	0/3/3/3
2	OMG	5	4641	2	-	3/5/27/28	0/3/3/3
4	5MC	9	1374	4	-	0/7/25/26	0/2/2/2
2	PSU	5	1687	2	-	0/7/25/26	0/2/2/2
2	B8W	5	4533	2,84	-	2/5/27/28	0/3/3/3
2	OMG	5	3796	2	-	2/5/27/28	0/3/3/3
2	PSU	5	4632	2	-	0/7/25/26	0/2/2/2
4	OMC	9	1703	4	-	2/9/27/28	0/2/2/2
4	PSU	9	1243	4	-	2/7/25/26	0/2/2/2
2	P7G	5	1913	2	-	2/10/40/41	0/3/3/3
2	B9B	5	237	2	-	2/7/29/30	0/3/3/3
4	PSU	9	612	4	-	0/7/25/26	0/2/2/2
2	2MG	5	729	2	-	1/5/27/28	0/3/3/3
2	B8W	5	4476	2	-	2/5/27/28	0/3/3/3
2	OMG	5	4627	2	-	0/5/27/28	0/3/3/3
2	B8K	5	4694	2	-	0/11/41/42	0/3/3/3
4	UR3	9	1830	4	-	4/7/25/26	0/2/2/2
4	MA6	9	1850	4	-	1/7/29/30	0/3/3/3
4	OMU	9	116	4	-	3/9/27/28	0/2/2/2
4	MA6	9	1851	4	-	3/7/29/30	0/3/3/3
4	PSU	9	119	4	-	2/7/25/26	0/2/2/2
2	UR3	5	4601	2	-	0/7/25/26	0/2/2/2
4	A2M	9	668	4	-	4/5/27/28	0/3/3/3
2	5MU	5	4087	2	-	0/7/25/26	0/2/2/2
2	A2M	5	1538	2,84	-	2/5/27/28	0/3/3/3
2	B8T	5	4487	2	-	0/7/27/28	0/2/2/2
2	A2M	5	2405	2,84	-	2/5/27/28	0/3/3/3
4	A2M	9	1031	4	-	0/5/27/28	0/3/3/3
2	OMC	5	3913	2	-	0/9/27/28	0/2/2/2
4	A2M	9	1678	4	-	0/5/27/28	0/3/3/3
2	OMG	5	1526	2	-	0/5/27/28	0/3/3/3
2	PSU	5	3733	2	-	2/7/25/26	0/2/2/2
2	OMC	5	2808	2	-	0/9/27/28	0/2/2/2
2	6MZ	5	4224	2	-	0/5/27/28	0/3/3/3
4	4AC	9	1337	4	-	0/11/29/30	0/2/2/2

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	P7G	5	3884	2	-	2/10/40/41	0/3/3/3
2	2MG	5	4876	2	-	0/5/27/28	0/3/3/3
2	A2M	5	3722	2	-	0/5/27/28	0/3/3/3
2	A2M	5	1875	2,84	-	0/5/27/28	0/3/3/3
2	B8K	5	3901	2	-	3/11/41/42	0/3/3/3
2	PSU	5	1681	2	-	2/7/25/26	0/2/2/2
2	PSU	5	3719	2	-	0/7/25/26	0/2/2/2
82	DDE	v	715	82	-	16/20/21/23	0/1/1/1
2	OMG	5	373	2	-	1/5/27/28	0/3/3/3
2	7MG	5	1609	2	-	0/7/37/38	0/3/3/3
4	PSU	9	823	4	-	0/7/25/26	0/2/2/2
2	1MA	5	4419	2	-	2/3/25/26	0/3/3/3
2	7MG	5	2526	2	-	0/7/37/38	0/3/3/3
2	B8H	5	1864	2	-	0/7/25/26	0/2/2/2
4	A2M	9	159	4	-	3/5/27/28	0/3/3/3
4	A2M	9	484	4	-	0/5/27/28	0/3/3/3
2	A2M	5	398	2	-	2/5/27/28	0/3/3/3
2	MHG	5	4375	2	-	7/16/46/47	0/3/3/3
2	M7A	5	4568	2	-	0/7/37/38	0/3/3/3
2	OMC	5	2369	2	-	0/9/27/28	0/2/2/2
11	MLZ	C	333	11	-	0/7/8/10	-
4	OMU	9	121	4	-	2/9/27/28	0/2/2/2
2	OMG	5	4874	2	-	4/5/27/28	0/3/3/3
2	P4U	5	1352	2	-	3/10/29/30	0/2/2/2
2	OMC	5	2426	2,40,84	-	1/9/27/28	0/2/2/2
2	7MG	5	4554	2	-	0/7/37/38	0/3/3/3
74	MLZ	m	72	74	-	0/7/8/10	-
4	5MU	9	814	4	-	0/7/25/26	0/2/2/2
4	OMG	9	509	4	-	0/5/27/28	0/3/3/3
2	B8T	5	4675	2	-	1/7/27/28	0/2/2/2
2	OMC	5	3891	2	-	0/9/27/28	0/2/2/2
81	5CT	t	51	81	-	5/13/14/16	-
2	OMC	5	3873	2	-	0/9/27/28	0/2/2/2
2	BGH	5	3903	2,84	-	2/13/43/44	0/3/3/3
2	OMU	5	4624	2,52	-	1/9/27/28	0/2/2/2
4	A2M	9	166	4	-	2/5/27/28	0/3/3/3
2	B8W	5	4133	2	-	2/5/27/28	0/3/3/3
4	OMC	9	517	4	-	2/9/27/28	0/2/2/2

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	B8W	5	4189	2	-	2/5/27/28	0/3/3/3
2	OMG	5	2428	2	-	2/5/27/28	0/3/3/3
2	PSU	5	4454	2,84	-	3/7/25/26	0/2/2/2
2	B9B	5	2758	2,84	-	2/7/29/30	0/3/3/3
2	I4U	5	4198	2	-	2/9/29/30	0/2/2/2
4	OMG	9	644	4	-	1/5/27/28	0/3/3/3
3	OMU	8	14	2,3	-	1/9/27/28	0/2/2/2
2	B9B	5	1578	2	-	2/7/29/30	0/3/3/3
2	UR3	5	1870	2	-	0/7/25/26	0/2/2/2
2	A2M	5	4527	2,84	-	3/5/27/28	0/3/3/3
2	E7G	5	2301	2	-	1/9/39/40	0/3/3/3
2	I4U	5	1663	2	-	1/9/29/30	0/2/2/2
2	OMG	5	2368	2	-	2/5/27/28	0/3/3/3
2	A2M	5	1528	2	-	1/5/27/28	0/3/3/3

The worst 5 of 920 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	9	166	A2M	O4'-C1'	16.42	1.64	1.41
4	9	159	A2M	O4'-C1'	16.40	1.64	1.41
4	9	1678	A2M	O4'-C1'	16.34	1.63	1.41
2	5	1875	A2M	O4'-C1'	16.24	1.63	1.41
2	5	4527	A2M	O4'-C1'	16.22	1.63	1.41

The worst 5 of 558 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	9	1806	M7A	C5-C6-N6	12.77	145.55	123.74
2	5	4568	M7A	C5-C6-N6	12.30	144.75	123.74
2	5	4087	5MU	C5-C4-N3	12.06	125.61	115.31
4	9	814	5MU	C5-C4-N3	11.64	125.25	115.31
4	9	1806	M7A	N6-C6-N1	-10.95	94.37	118.35

There are no chirality outliers.

5 of 187 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	8	14	OMU	C1'-C2'-O2'-CM2
81	t	51	5CT	NZ-C1-C2-C3
2	5	237	B9B	C5-C6-O6-C61

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
2	5	237	B9B	N1-C6-O6-C61
2	5	1352	P4U	N3-C4-O4-C41

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 208 ligands modelled in this entry, 208 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
4	9	12
2	5	11

The worst 5 of 23 chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	5	1223:G	O3'	1237:G	P	24.58

Continued on next page...

Continued from previous page...

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	9	834:C	O3'	841:G	P	17.65
1	9	697:G	O3'	729:C	P	17.13
1	9	756:C	O3'	788:G	P	17.02
1	5	994:U	O3'	1068:G	P	16.68

6 Map visualisation

This section contains visualisations of the EMDB entry EMD-13114. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1 Orthogonal projections

This section was not generated.

6.2 Central slices

This section was not generated.

6.3 Largest variance slices

This section was not generated.

6.4 Orthogonal standard-deviation projections (False-color)

This section was not generated.

6.5 Orthogonal surface views

This section was not generated.

6.6 Mask visualisation

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

This section was not generated.

7.2 Volume estimate versus contour level

This section was not generated.

7.3 Rotationally averaged power spectrum

This section was not generated. The rotationally averaged power spectrum had issues being displayed.

8 Fourier-Shell correlation (i)

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

9 Map-model fit

This section was not generated.