



# wwPDB X-ray Structure Validation Summary Report ⓘ

Sep 15, 2023 – 04:01 AM EDT

PDB ID : 4V56  
Title : Crystal structure of the bacterial ribosome from Escherichia coli in complex with spectinomycin.  
Authors : Borovinskaya, M.A.; Shoji, S.; Holton, J.M.; Fredrick, K.; Cate, J.H.D.  
Deposited on : 2007-07-21  
Resolution : 3.93 Å(reported)

This is a wwPDB X-ray Structure Validation Summary Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

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>.

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

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.35.1  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.35.1

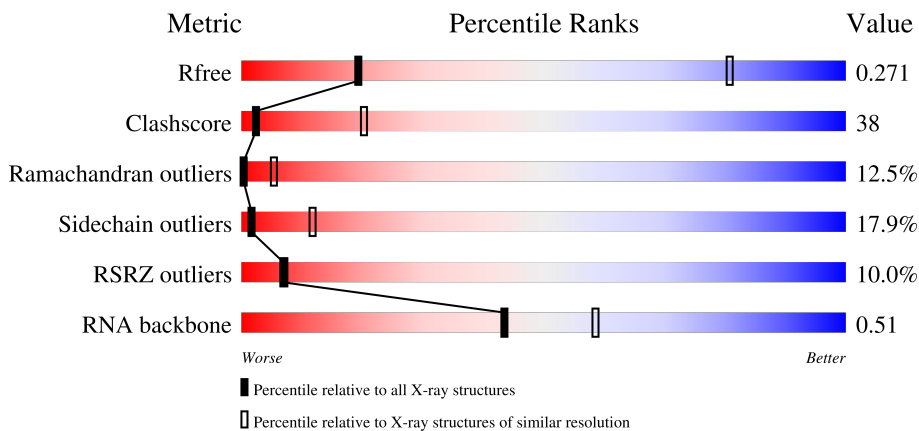
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.93 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)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	1036 (4.20-3.68)
Clashscore	141614	1009 (4.18-3.70)
Ramachandran outliers	138981	1057 (4.20-3.68)
Sidechain outliers	138945	1049 (4.20-3.68)
RSRZ outliers	127900	1007 (4.24-3.64)
RNA backbone	3102	1041 (4.84-3.00)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	AA	1542	 19% 63% 16%
1	CA	1542	 20% 63% 16%
2	AC	232	 6% 19% 46% 22% 11%
2	CC	232	 12% 22% 48% 18% 11%

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Mol	Chain	Length	Quality of chain
3	AD	205	
3	CD	205	
4	AE	166	
4	CE	166	
5	AF	135	
5	CF	135	
6	AG	178	
6	CG	178	
7	AH	129	
7	CH	129	
8	AI	129	
8	CI	129	
9	AJ	103	
9	CJ	103	
10	AK	128	
10	CK	128	
11	AL	123	
11	CL	123	
12	AM	117	
12	CM	117	
13	AP	82	
13	CP	82	
14	AQ	83	
14	CQ	83	
15	AR	74	

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Mol	Chain	Length	Quality of chain
15	CR	74	
16	AS	91	
16	CS	91	
17	AT	86	
17	CT	86	
18	AB	240	
18	CB	240	
19	AU	70	
19	CU	70	
20	AO	89	
20	CO	89	
21	AN	100	
21	CN	100	
22	BA	120	
22	DA	120	
23	BB	2904	
23	DB	2904	
24	BI	141	
24	DI	141	
25	BC	272	
25	DC	272	
26	BD	209	
26	DD	209	
27	BK	123	
27	DK	123	

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Mol	Chain	Length	Quality of chain
28	BP	114	41% 25% 48% 24% .
28	DP	114	5% 23% 51% 22% .
29	BE	201	16% 19% 63% 15% .
29	DE	201	29% 21% 60% 18% .
30	BY	58	2% 29% 50% 19% .
30	DY	58	5% 28% 50% 21% .
31	B0	56	4% 25% 50% 23% .
31	D0	56	2% 29% 48% 23%
32	B4	38	21% 21% 61% 18%
32	D4	38	16% 68% 16%
33	B1	54	7% 28% 48% 17% 7%
33	D1	54	9% 26% 50% 17% 7%
34	B3	64	2% 34% 48% 14% .
34	D3	64	34% 36% 47% 14% .
35	BV	94	15% 32% 52% 15% .
35	DV	94	22% 32% 50% 17% .
36	B2	46	11% 37% 41% 22%
36	D2	46	43% 26% 52% 22%
37	BL	144	% 26% 52% 20% ..
37	DL	144	40% 25% 55% 19% ..
38	BM	136	15% 31% 51% 15% .
38	DM	136	29% 32% 49% 15% .
39	BX	63	21% 30% 46% 22% .
39	DX	63	14% 24% 57% 17% .
40	BH	149	58% 26% 44% 26% 5%

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Mol	Chain	Length	Quality of chain
40	DH	149	17% 23% 53% 21% .
41	BJ	142	20% 24% 59% 12% 5%
41	DJ	142	7% 23% 60% 13% .
42	BN	127	13% 17% 61% 16% . 6%
42	DN	127	5% 17% 61% 15% . 6%
43	BO	117	6% 28% 53% 18% .
43	DO	117	17% 26% 55% 18% .
44	BQ	117	% 20% 62% 17% .
44	DQ	117	10% 20% 63% 16% .
45	BS	110	6% 27% 52% 20% .
45	DS	110	33% 25% 55% 20% .
46	BU	103	16% 24% 51% 20% . .
46	DU	103	24% 50% 22% . .
47	BF	178	17% 15% 54% 27% .
47	DF	178	50% 18% 52% 26% .
48	BG	176	18% 22% 55% 20% .
48	DG	176	14% 20% 56% 20% .
49	BR	103	4% 23% 54% 20% .
49	DR	103	5% 22% 58% 17% .
50	BT	100	2% 19% 47% 26% . 7%
50	DT	100	51% 20% 47% 24% . 7%
51	BZ	78	15% 19% 64% 13% . .
51	DZ	78	% 21% 62% 13% . .
52	BW	84	7% 14% 44% 30% 6% 6%
52	DW	84	11% 14% 42% 32% 6% 6%

## 2 Entry composition [i](#)

There are 56 unique types of molecules in this entry. The entry contains 284033 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called 16S rRNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
1	AA	1530	32831	14642	6024	10635	1530	0	0	0
1	CA	1530	32831	14642	6024	10635	1530	0	0	0

- Molecule 2 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	AC	206	1624	1028	305	288	3	0	0	0
2	CC	206	1624	1028	305	288	3	0	0	0

- Molecule 3 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	AD	205	1643	1026	315	298	4	0	0	0
3	CD	205	1643	1026	315	298	4	0	0	0

- Molecule 4 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	AE	150	1105	687	211	201	6	0	0	0
4	CE	150	1105	687	211	201	6	0	0	0

- Molecule 5 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	AF	100	Total	C	N	O	S	0	0	0
			817	515	148	148	6			
5	CF	100	Total	C	N	O	S	0	0	0
			817	515	148	148	6			

- Molecule 6 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
6	AG	150	Total	C	N	O	S	0	0	0
			1174	730	226	214	4			
6	CG	152	Total	C	N	O	S	0	0	0
			1196	745	230	217	4			

- Molecule 7 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
7	AH	129	Total	C	N	O	S	0	0	0
			979	616	173	184	6			
7	CH	129	Total	C	N	O	S	0	0	0
			979	616	173	184	6			

- Molecule 8 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
8	AI	127	Total	C	N	O	S	0	0	0
			1022	634	206	179	3			
8	CI	127	Total	C	N	O	S	0	0	0
			1022	634	206	179	3			

- Molecule 9 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
9	AJ	98	Total	C	N	O	S	0	0	0
			786	493	150	142	1			
9	CJ	98	Total	C	N	O	S	0	0	0
			786	493	150	142	1			

- Molecule 10 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
10	AK	117	Total	C	N	O	S	0	0	0
			877	540	174	160	3			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
10	CK	117	Total	C	N	O	S	0	0	0
			877	540	174	160	3			

- Molecule 11 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
11	AL	123	Total	C	N	O	S	0	0	0
			955	590	196	165	4			
11	CL	123	Total	C	N	O	S	0	0	0
			955	590	196	165	4			

- Molecule 12 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
12	AM	114	Total	C	N	O	S	0	0	0
			883	546	178	156	3			
12	CM	113	Total	C	N	O	S	0	0	0
			876	541	177	155	3			

- Molecule 13 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
13	AP	82	Total	C	N	O	S	0	0	0
			649	406	128	114	1			
13	CP	80	Total	C	N	O	S	0	0	0
			638	400	126	111	1			

- Molecule 14 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
14	AQ	80	Total	C	N	O	S	0	0	0
			648	411	121	113	3			
14	CQ	81	Total	C	N	O	S	0	0	0
			657	417	122	115	3			

- Molecule 15 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
15	AR	55	Total	C	N	O	0	0	0
			455	288	86	81			
15	CR	55	Total	C	N	O	0	0	0
			455	288	86	81			

- Molecule 16 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
16	AS	79	Total	C	N	O	S	0	0	0
			637	408	120	107	2			
16	CS	80	Total	C	N	O	S	0	0	0
			644	413	121	108	2			

- Molecule 17 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
17	AT	85	Total	C	N	O	S	0	0	0
			665	411	137	114	3			
17	CT	85	Total	C	N	O	S	0	0	0
			665	411	137	114	3			

- Molecule 18 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
18	AB	218	Total	C	N	O	S	0	0	0
			1704	1081	305	311	7			
18	CB	218	Total	C	N	O	S	0	0	0
			1704	1081	305	311	7			

- Molecule 19 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
19	AU	51	Total	C	N	O	S	0	0	0
			425	265	86	73	1			
19	CU	51	Total	C	N	O	S	0	0	0
			425	265	86	73	1			

- Molecule 20 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
20	AO	88	Total	C	N	O	S	0	0	0
			714	439	144	130	1			
20	CO	88	Total	C	N	O	S	0	0	0
			714	439	144	130	1			

- Molecule 21 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
21	AN	96	Total	C	N	O	S	0	0	0
			774	483	160	128	3			
21	CN	96	Total	C	N	O	S	0	0	0
			774	483	160	128	3			

- Molecule 22 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
22	BA	117	Total	C	N	O	P	0	0	0
			2507	1116	459	815	117			
22	DA	117	Total	C	N	O	P	0	0	0
			2507	1116	459	815	117			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
BA	120	U	-	insertion	GB 85674274
DA	120	U	-	insertion	GB 85674274

- Molecule 23 is a RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
23	BB	2841	Total	C	N	O	P	0	0	0
			60995	27210	11229	19715	2841			
23	DB	2841	Total	C	N	O	P	0	0	0
			60995	27210	11229	19715	2841			

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
BB	2903	U	-	insertion	GB 85674274
BB	2904	U	-	insertion	GB 85674274
DB	2903	U	-	insertion	GB 85674274
DB	2904	U	-	insertion	GB 85674274

- Molecule 24 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
24	BI	141	Total	C	N	O	S	0	0	0
			1032	651	179	196	6			
24	DI	141	Total	C	N	O	S	0	0	0
			1032	651	179	196	6			

- Molecule 25 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
25	BC	271	Total	C	N	O	S	0	0	0
			2082	1288	423	364	7			
25	DC	271	Total	C	N	O	S	0	0	0
			2082	1288	423	364	7			

- Molecule 26 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
26	BD	209	Total	C	N	O	S	0	0	0
			1565	979	288	294	4			
26	DD	209	Total	C	N	O	S	0	0	0
			1565	979	288	294	4			

- Molecule 27 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
27	BK	121	Total	C	N	O	S	0	0	0
			930	582	179	164	5			
27	DK	121	Total	C	N	O	S	0	0	0
			930	582	179	164	5			

- Molecule 28 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
28	BP	114	Total	C	N	O	S	0	0	0
			917	574	179	163	1			
28	DP	114	Total	C	N	O	S	0	0	0
			917	574	179	163	1			

- Molecule 29 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
29	BE	201	Total	C	N	O	S	0	0	0
			1552	974	283	290	5			
29	DE	201	Total	C	N	O	S	0	0	0
			1552	974	283	290	5			

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

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

- Molecule 31 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
31	B0	56	Total	C	N	O	S	0	0	0
			444	269	94	80	1			
31	D0	56	Total	C	N	O	S	0	0	0
			444	269	94	80	1			

- Molecule 32 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
32	B4	38	Total	C	N	O	S	0	0	0
			302	185	65	48	4			
32	D4	38	Total	C	N	O	S	0	0	0
			302	185	65	48	4			

- Molecule 33 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
33	B1	50	Total	C	N	O	0	0	0
			409	263	75	71			
33	D1	50	Total	C	N	O	0	0	0
			409	263	75	71			

- Molecule 34 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
34	B3	64	Total	C	N	O	S	0	0	0
			504	323	105	74	2			
34	D3	64	Total	C	N	O	S	0	0	0
			504	323	105	74	2			

- Molecule 35 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
35	BV	94	Total	C	N	O	S	0	0	0
			753	479	137	134	3			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
35	DV	94	Total	C	N	O	S	0	0	0
			753	479	137	134	3			

- Molecule 36 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
36	B2	46	Total	C	N	O	S	0	0	0
			377	228	90	57	2			
36	D2	46	Total	C	N	O	S	0	0	0
			377	228	90	57	2			

- Molecule 37 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
37	BL	143	Total	C	N	O	S	0	0	0
			1045	649	206	189	1			
37	DL	143	Total	C	N	O	S	0	0	0
			1045	649	206	189	1			

- Molecule 38 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
38	BM	136	Total	C	N	O	S	0	0	0
			1074	686	205	177	6			
38	DM	136	Total	C	N	O	S	0	0	0
			1074	686	205	177	6			

- Molecule 39 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
39	BX	63	Total	C	N	O	S	0	0	0
			509	313	99	95	2			
39	DX	63	Total	C	N	O	S	0	0	0
			509	313	99	95	2			

- Molecule 40 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
40	BH	149	Total	C	N	O	S	0	0	0
			1111	699	197	214	1			
40	DH	149	Total	C	N	O	S	0	0	0
			1111	699	197	214	1			

- Molecule 41 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
41	BJ	142	Total	C	N	O	S	0	0	0
			1129	714	212	199	4			
41	DJ	142	Total	C	N	O	S	0	0	0
			1129	714	212	199	4			

- Molecule 42 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
42	BN	120	Total	C	N	O	S	0	0	0
			960	593	196	166	5			
42	DN	120	Total	C	N	O	S	0	0	0
			960	593	196	166	5			

- Molecule 43 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
43	BO	116	Total	C	N	O	0	0	0
			892	552	178	162			
43	DO	116	Total	C	N	O	0	0	0
			892	552	178	162			

- Molecule 44 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
44	BQ	117	Total	C	N	O	0	0	0
			947	604	192	151			
44	DQ	117	Total	C	N	O	0	0	0
			947	604	192	151			

- Molecule 45 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
45	BS	110	Total	C	N	O	S	0	0	0
			857	532	166	156	3			
45	DS	110	Total	C	N	O	S	0	0	0
			857	532	166	156	3			

- Molecule 46 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
46	BU	102	Total	C	N	O	0	0	0
			779	492	146	141			
46	DU	102	Total	C	N	O	0	0	0
			779	492	146	141			

- Molecule 47 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
47	BF	178	Total	C	N	O	S	0	0	0
			1420	905	251	258	6			
47	DF	178	Total	C	N	O	S	0	0	0
			1420	905	251	258	6			

- Molecule 48 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
48	BG	176	Total	C	N	O	S	0	0	0
			1323	832	243	246	2			
48	DG	176	Total	C	N	O	S	0	0	0
			1323	832	243	246	2			

- Molecule 49 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
49	BR	103	Total	C	N	O	S	0	0	0
			816	516	153	145	2			
49	DR	103	Total	C	N	O	S	0	0	0
			816	516	153	145	2			

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
50	BT	93	Total	C	N	O	S	0	0	0
			738	466	139	131	2			
50	DT	93	Total	C	N	O	S	0	0	0
			738	466	139	131	2			

- Molecule 51 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
51	BZ	77	Total	C	N	O	S	0	0	0
			625	388	129	106	2			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
51	DZ	77	Total	C	N	O	S	0	0	0
			625	388	129	106	2			

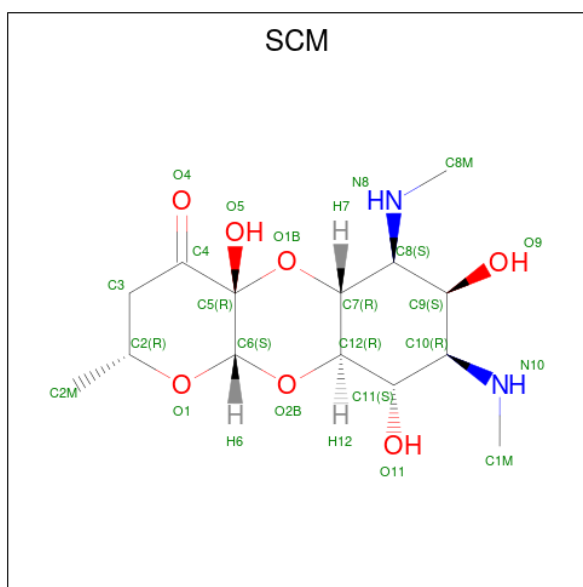
- Molecule 52 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
52	BW	79	Total	C	N	O	S	0	0	0
			596	367	120	108	1			
52	DW	79	Total	C	N	O	S	0	0	0
			596	367	120	108	1			

- Molecule 53 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
53	AA	60	Total	Mg	0	0
			60	60		
53	BB	110	Total	Mg	0	0
			110	110		
53	CA	58	Total	Mg	0	0
			58	58		
53	CE	1	Total	Mg	0	0
			1	1		
53	DB	110	Total	Mg	0	0
			110	110		
53	DN	1	Total	Mg	0	0
			1	1		

- Molecule 54 is SPECTINOMYCIN (three-letter code: SCM) (formula: C<sub>14</sub>H<sub>24</sub>N<sub>2</sub>O<sub>7</sub>).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	
54	AA	1	Total	C	N	O	0	0
			23	14	2	7		
54	CA	1	Total	C	N	O	0	0
			23	14	2	7		

- Molecule 55 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
55	B4	1	Total	Zn	0	0
			1	1		
55	D4	1	Total	Zn	0	0
			1	1		

- Molecule 56 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
56	AA	288	Total	O	0	0
			288	288		
56	AE	3	Total	O	0	0
			3	3		
56	AK	1	Total	O	0	0
			1	1		
56	AL	4	Total	O	0	0
			4	4		
56	AP	1	Total	O	0	0
			1	1		

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
56	AT	1	Total O 1 1	0	0
56	AN	2	Total O 2 2	0	0
56	BB	494	Total O 494 494	0	0
56	BC	4	Total O 4 4	0	0
56	BE	3	Total O 3 3	0	0
56	BL	4	Total O 4 4	0	0
56	BH	1	Total O 1 1	0	0
56	BT	1	Total O 1 1	0	0
56	CA	275	Total O 275 275	0	0
56	CE	4	Total O 4 4	0	0
56	CK	1	Total O 1 1	0	0
56	CL	5	Total O 5 5	0	0
56	CP	1	Total O 1 1	0	0
56	CT	2	Total O 2 2	0	0
56	CN	5	Total O 5 5	0	0
56	DB	500	Total O 500 500	0	0
56	DC	3	Total O 3 3	0	0
56	DD	1	Total O 1 1	0	0
56	DP	1	Total O 1 1	0	0
56	DE	1	Total O 1 1	0	0
56	DL	3	Total O 3 3	0	0

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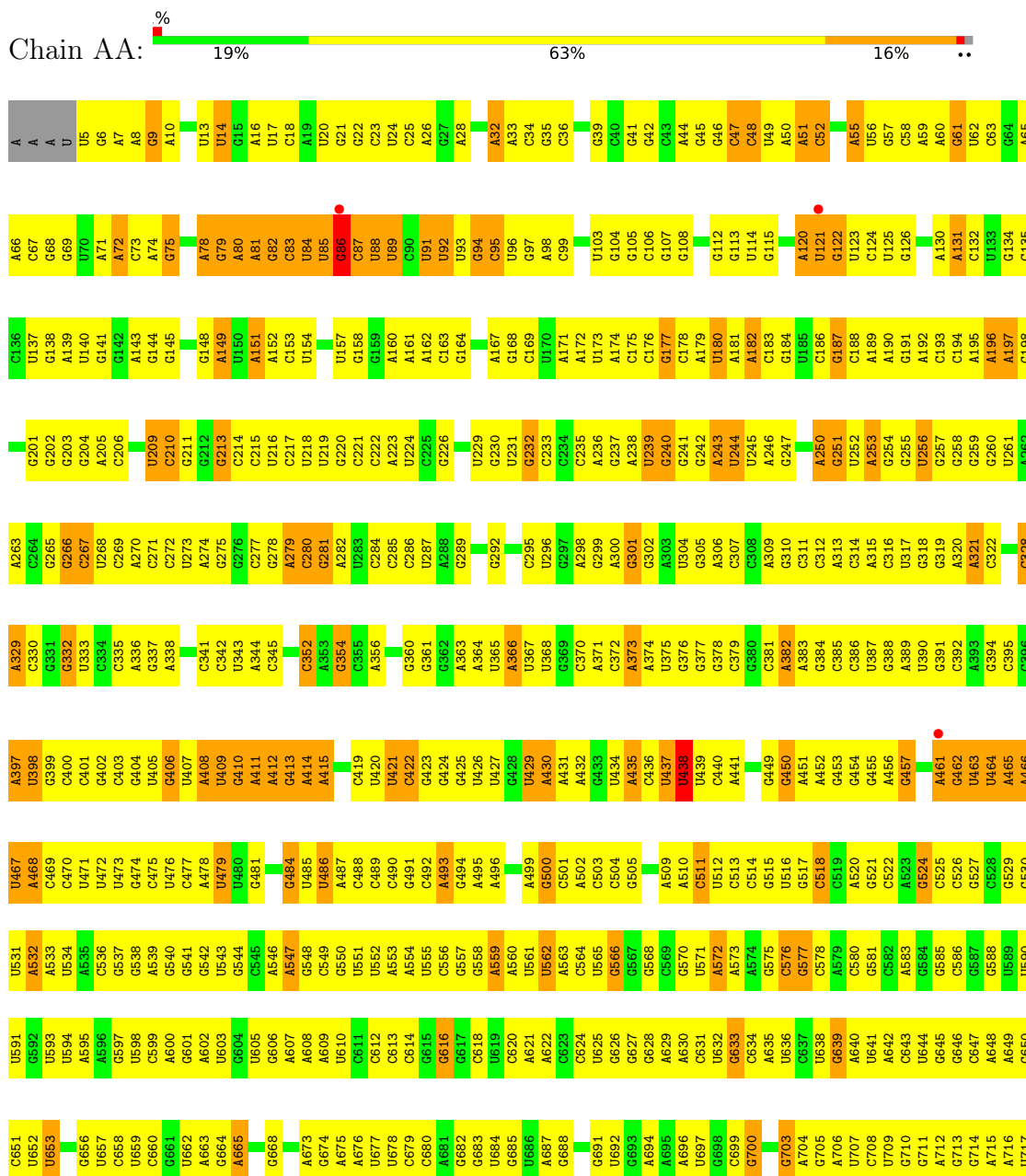
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<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>	<b>ZeroOcc</b>	<b>AltConf</b>
56	DJ	1	Total O 1 1	0	0
56	DN	2	Total O 2 2	0	0
56	DR	1	Total O 1 1	0	0

### 3 Residue-property plots

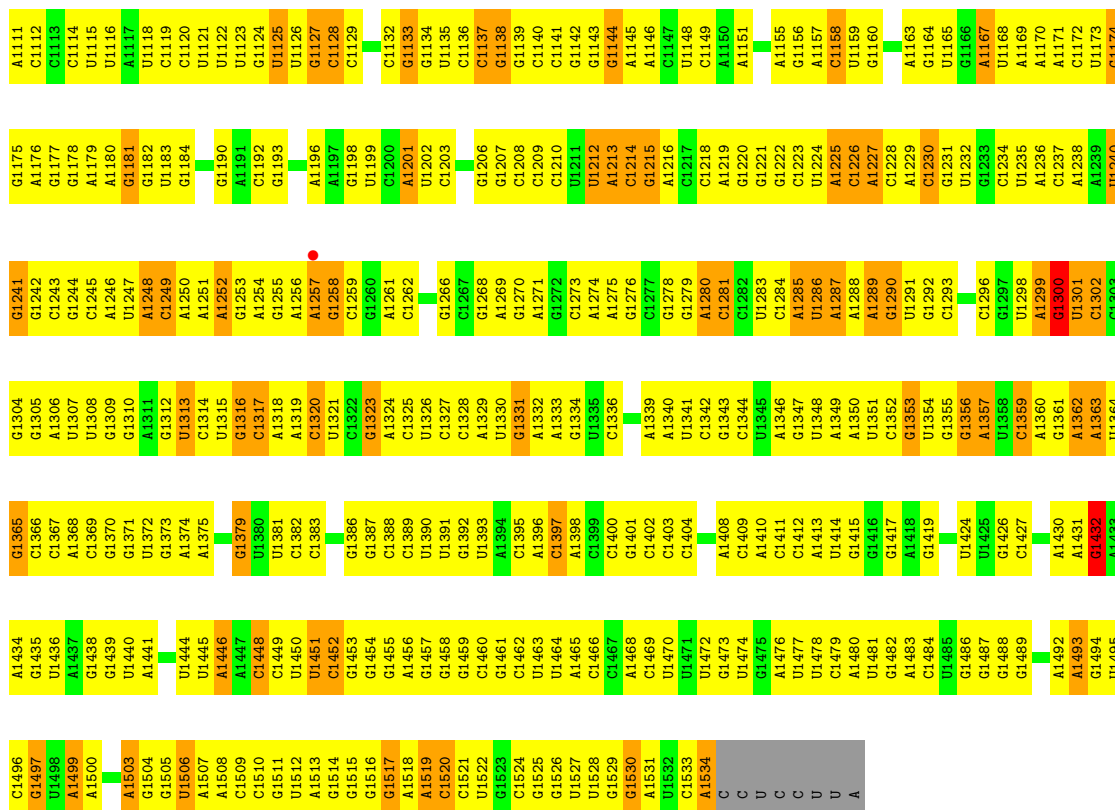
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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 dot above a residue indicates a poor fit to the electron density ( $RSRZ > 2$ ). 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: 16S rRNA

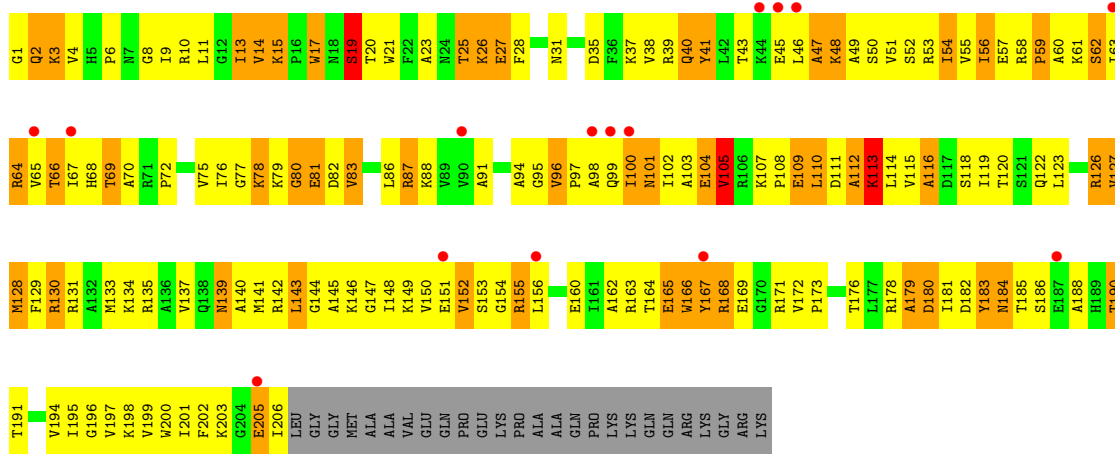
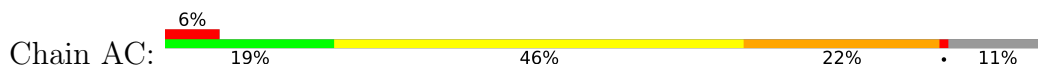




G1048	G1049	G1050	G1051	G1052	G1053	G1054	A1055	G1056	G1057	G1058	G1059	G1060	G1061	A1000	G1062	G1063	G1064	G1065	G1066	G1067	G1068	G1069	G1070	G1071	G1072	G1073	G1074	G1075	G1076	G1077	G1078	G1079	A1080	A1081	A1082	G1083	G1084	G1085	G1086	G1087	G1088	G1089	G1090	G1091	G1094	G1095	G1096	G1097	G1098	G1099	G1100	A1101	A1102	A1103	A1104	A1105	A1106	A1107	G1108	G1109	A1110																																																																																																																																																																																																																																																																																																																																																																																																	
C985	U986	G987	G988	G989	G990	G991	G992	G993	G994	G995	G996	G997	G998	G999	G1000	G1001	G1002	G1003	A1004	A1005	G1006	G1007	G1008	G1009	G1010	G1011	A1012	G1013	A1014	G1015	G1016	G1017	G1018	G1019	G1020	G1021	A1022	G1023	G1024	G1025	G1026	G1027	G1028	G1029	G1030	G1031	G1032	G1033	G1034	A1035	A1036	G1037	G1038	G1039	G1040	G1041	A1042	G1045	G1046	G1047																																																																																																																																																																																																																																																																																																																																																																																																		
G922	A923	G924	G925	G926	G927	G928	G929	G930	G931	G932	G933	G934	G935	G936	G937	G938	G939	G940	G941	G942	G943	G944	G945	G946	G947	G948	G949	G950	G951	G952	G953	G954	G955	G956	G957	G958	G959	G960	G961	G962	G963	G964	G965	G966	G967	G968	G969	G970	G971	G972	G973	G974	G975	G976	G977	G978	G979	G980	G981	G982	G983	G984																																																																																																																																																																																																																																																																																																																																																																																																
C857	G858	A859	G860	G861	G862	G863	G864	G865	G866	G867	G868	G869	G870	G871	G872	G873	G874	G875	G876	G877	G878	G879	G880	G881	G882	G883	G884	G885	G886	G887	G888	G889	G890	G891	G892	G893	G894	G895	G896	G897	G898	G899	G900	G901	G902	G903	G904	G905	G906	G907	G908	G909	G910	G911	G912	G913	G914	G915	G916	G917	G918	G919	G920	G921	G922																																																																																																																																																																																																																																																																																																																																																																																													
A792	G793	G794	G795	G796	G797	G798	A800	G801	G802	G803	G804	G805	G806	A807	G808	G809	G810	G811	G812	G813	A814	G815	G816	G817	G818	A819	G820	G821	G822	G823	G824	G825	G826	G827	G828	G829	G830	G831	G832	G833	G834	G835	G836	G837	G838	G839	G840	G841	G842	G843	G844	G845	G846	G847	G848	G849	G850	G851	G852	G853	G854	G855	G856	G857	G858	G859	G860	G861	G862	G863	G864	G865	G866	G867	G868	G869	G870	G871	G872	G873	G874	G875	G876	G877	G878	G879	G880	G881	G882	G883	G884	G885	G886	G887	G888	G889	G890	G891	G892	G893	G894	G895	G896	G897	G898	G899	G900	G901	G902	G903	G904	G905	G906	G907	G908	G909	G910	G911	G912	G913	G914	G915	G916	G917	G918	G919	G920	G921	G922	G923	G924	G925	G926	G927	G928	G929	G930	G931	G932	G933	G934	G935	G936	G937	G938	G939	G940	G941	G942	G943	G944	G945	G946	G947	G948	G949	G950	G951	G952	G953	G954	G955	G956	G957	G958	G959	G960	G961	G962	G963	G964	G965	G966	G967	G968	G969	G970	G971	G972	G973	G974	G975	G976	G977	G978	G979	G980	G981	G982	G983	G984	G985	G986	G987	G988	G989	G990	G991	G992	G993	G994	G995	G996	G997	G998	G999	G1000	G1001	G1002	G1003	G1004	G1005	G1006	G1007	G1008	G1009	G1010	G1011	G1012	G1013	G1014	G1015	G1016	G1017	G1018	G1019	G1020	G1021	G1022	G1023	G1024	G1025	G1026	G1027	G1028	G1029	G1030	G1031	G1032	G1033	G1034	G1035	G1036	G1037	G1038	G1039	G1040	G1041	A1042	G1045	G1046	G1047																																																																																																																																																																																																		
C857	G858	A859	G860	G861	G862	G863	G864	G865	G866	G867	G868	G869	G870	G871	G872	G873	G874	G875	G876	G877	G878	G879	G880	G881	G882	G883	G884	G885	G886	G887	G888	G889	G890	G891	G892	G893	G894	G895	G896	G897	G898	G899	G900	G901	G902	G903	G904	G905	G906	G907	G908	G909	G910	G911	G912	G913	G914	G915	G916	G917	G918	G919	G920	G921	G922	G923	G924	G925	G926	G927	G928	G929	G930	G931	G932	G933	G934	G935	G936	G937	G938	G939	G940	G941	G942	G943	G944	G945	G946	G947	G948	G949	G950	G951	G952	G953	G954	G955	G956	G957	G958	G959	G960	G961	G962	G963	G964	G965	G966	G967	G968	G969	G970	G971	G972	G973	G974	G975	G976	G977	G978	G979	G980	G981	G982	G983	G984	G985	G986	G987	G988	G989	G990	G991	G992	G993	G994	G995	G996	G997	G998	G999	G1000	G1001	G1002	G1003	G1004	G1005	G1006	G1007	G1008	G1009	G1010	G1011	G1012	G1013	G1014	G1015	G1016	G1017	G1018	G1019	G1020	G1021	G1022	G1023	G1024	G1025	G1026	G1027	G1028	G1029	G1030	G1031	G1032	G1033	G1034	G1035	G1036	G1037	G1038	G1039	G1040	G1041	A1042	G1045	G1046	G1047																																																																																																																																																																																																																																																																		
G724	G725	A728	G729	G730	G731	G732	G733	G734	G735	G736	G737	G738	G739	G740	G741	G742	G743	G744	G745	G746	G747	G748	G749	G750	A753	G754	G755	G756	G757	G758	G759	G760	G761	G762	G763	G764	G765	G766	G767	G768	G769	G770	G771	G772	G773	G774	G775	G776	G777	G778	G779	G780	G781	G782	G783	G784	G785	G786	G787	G788	G789	G790	G791	G792	G793	G794	G795	G796	G797	G798	G799	G800	G801	G802	G803	G804	G805	G806	G807	G808	G809	G810	G811	G812	G813	G814	G815	G816	G817	G818	G819	G820	G821	G822	G823	G824	G825	G826	G827	G828	G829	G830	G831	G832	G833	G834	G835	G836	G837	G838	G839	G840	G841	G842	G843	G844	G845	G846	G847	G848	G849	G850	G851	G852	G853	G854	G855	G856	G857	G858	G859	G860	G861	G862	G863	G864	G865	G866	G867	G868	G869	G870	G871	G872	G873	G874	G875	G876	G877	G878	G879	G880	G881	G882	G883	G884	G885	G886	G887	G888	G889	G890	G891	G892	G893	G894	G895	G896	G897	G898	G899	G900	G901	G902	G903	G904	G905	G906	G907	G908	G909	G910	G911	G912	G913	G914	G915	G916	G917	G918	G919	G920	G921	G922	G923	G924	G925	G926	G927	G928	G929	G930	G931	G932	G933	G934	G935	G936	G937	G938	G939	G940	G941	G942	G943	G944	G945	G946	G947	G948	G949	G950	G951	G952	G953	G954	G955	G956	G957	G958	G959	G960	G961	G962	G963	G964	G965	G966	G967	G968	G969	G970	G971	G972	G973	G974	G975	G976	G977	G978	G979	G980	G981	G982	G983	G984	G985	G986	G987	G988	G989	G990	G991	G992	G993	G994	G995	G996	G997	G998	G999	G1000	G1001	G1002	G1003	G1004	G1005	G1006	G1007	G1008	G1009	G1010	G1011	G1012	G1013	G1014	G1015	G1016	G1017	G1018	G1019	G1020	G1021	G1022	G1023	G1024	G1025	G1026	G1027	G1028	G1029	G1030	G1031	G1032	G1033	G1034	G1035	G1036	G1037	G1038	G1039	G1040	G1041	A1042	G1045	G1046	G1047																																																																																																																																	
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G402	C403	G404	U405	G406	U407	U408	U409	G410	G411	G412	G413	G414	G415	G416	G417	G418	G419	G420	G421	G422	G423	G424	G425	G426	G427	G428	G4																																																																																																																																																																																																																																																																																																																																																																																																																																			



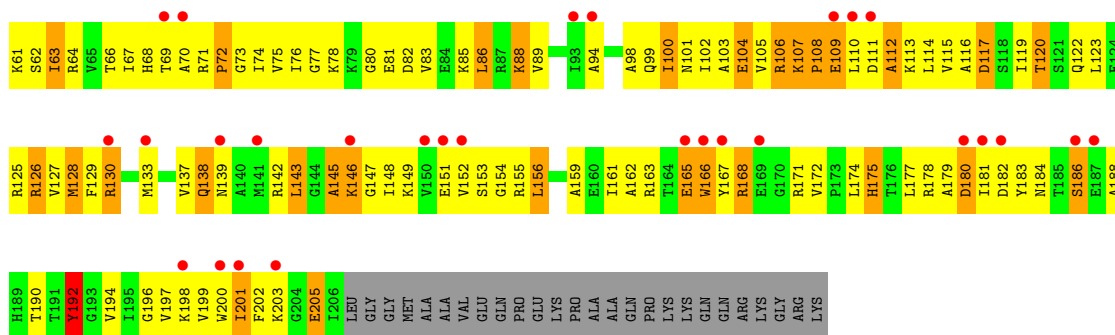
• Molecule 2: 30S ribosomal protein S3



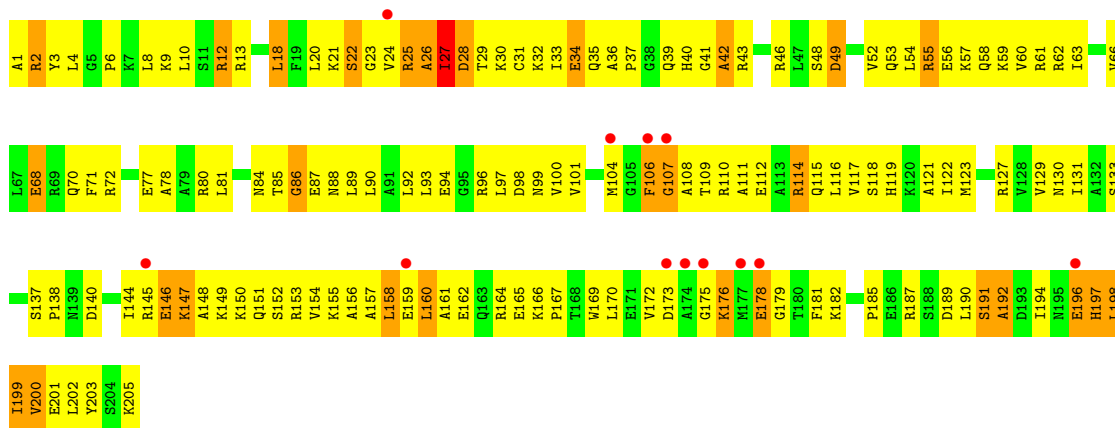
• Molecule 2: 30S ribosomal protein S3



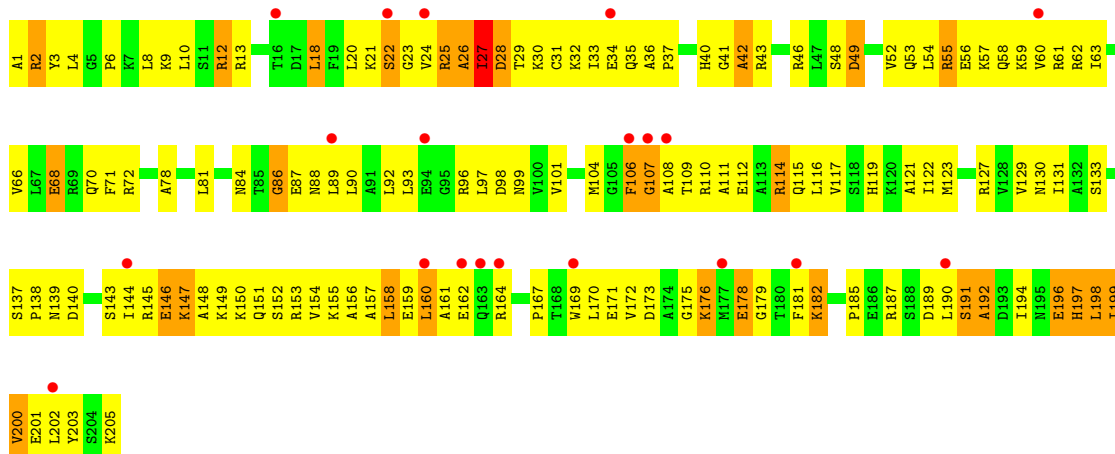




• Molecule 3: 30S ribosomal protein S4

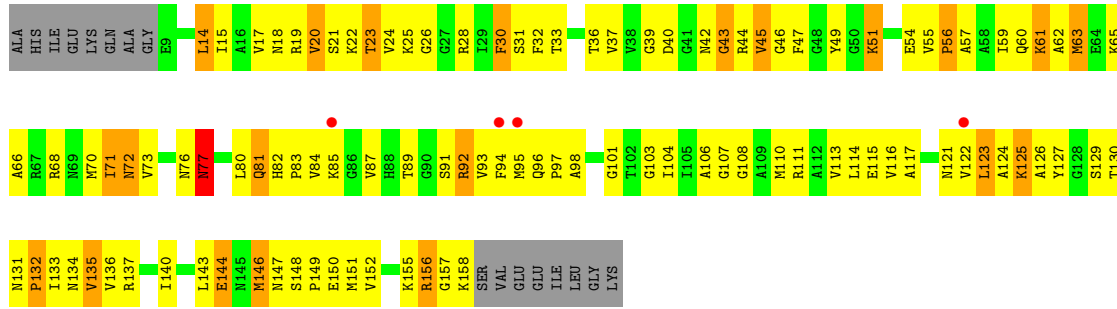


• Molecule 3: 30S ribosomal protein S4

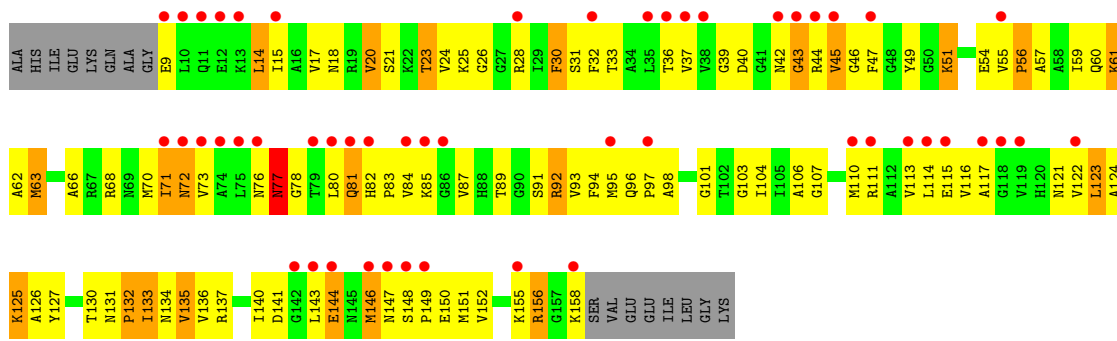


• Molecule 4: 30S ribosomal protein S5

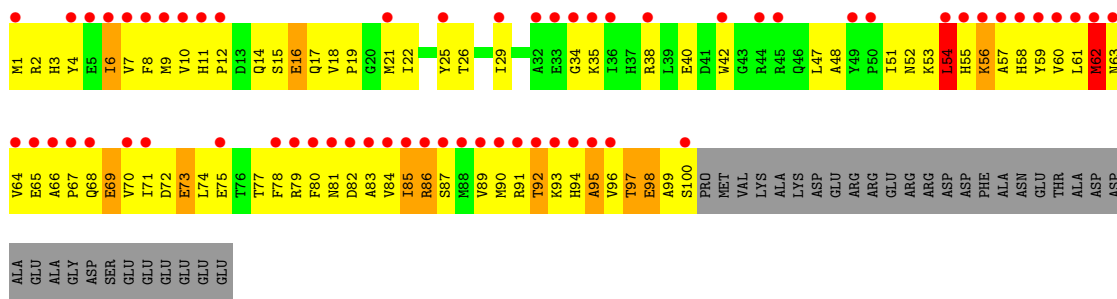
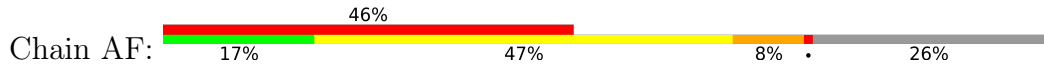




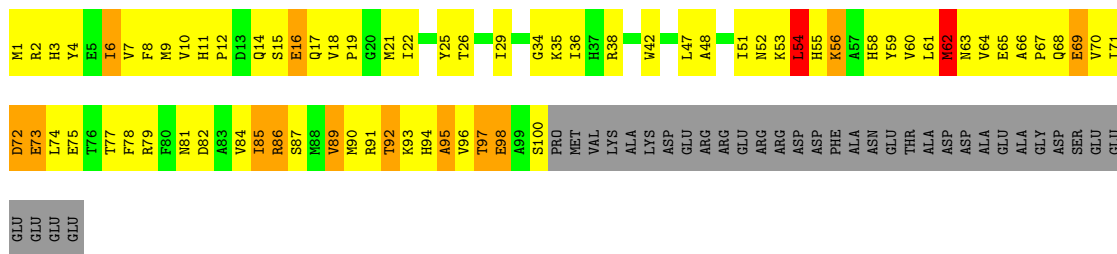
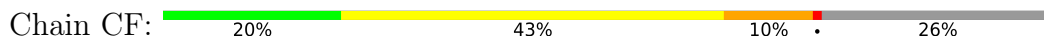
• Molecule 4: 30S ribosomal protein S5



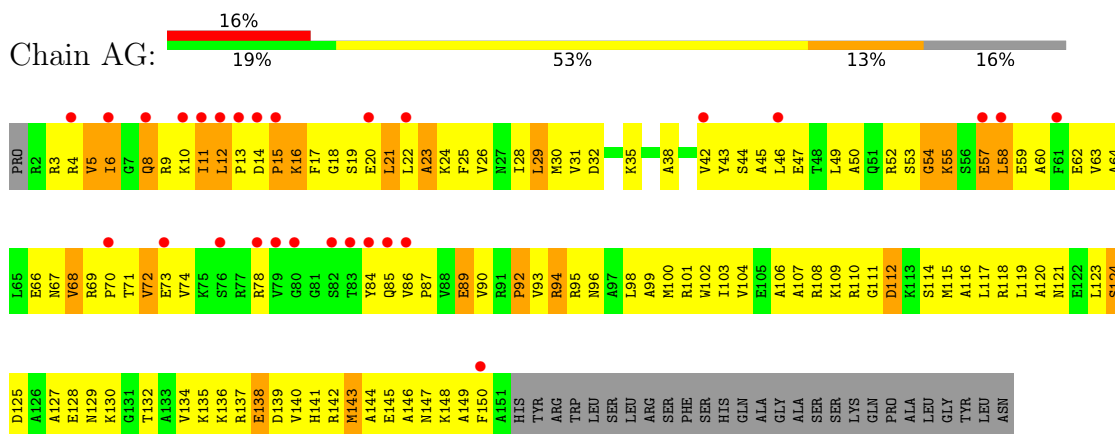
• Molecule 5: 30S ribosomal protein S6



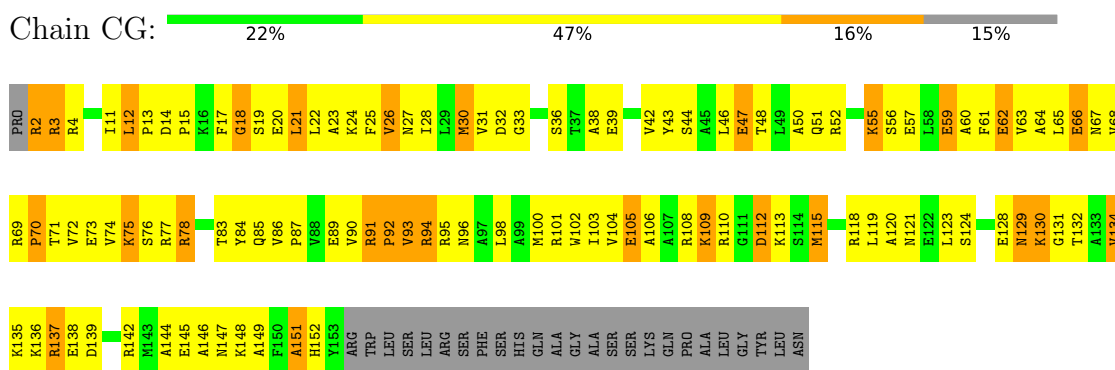
• Molecule 5: 30S ribosomal protein S6



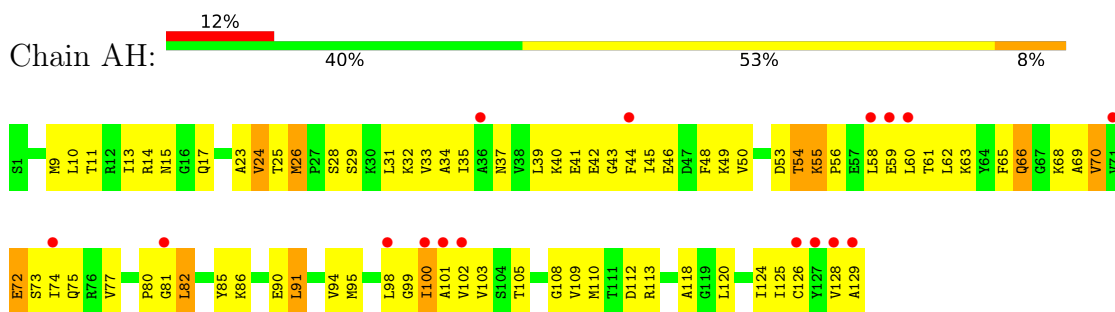
- Molecule 6: 30S ribosomal protein S7



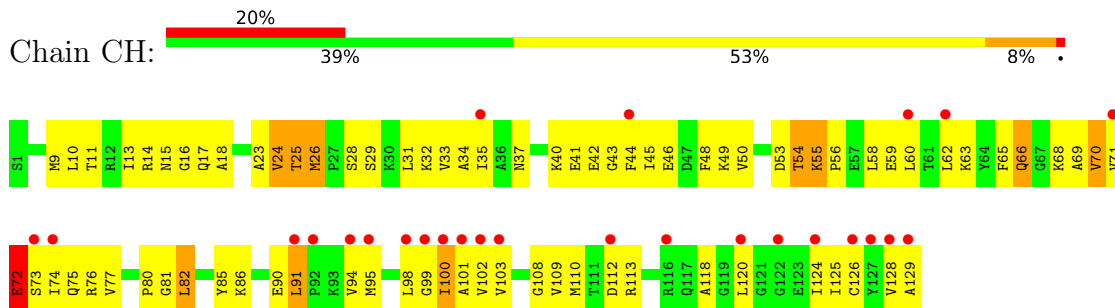
- Molecule 6: 30S ribosomal protein S7



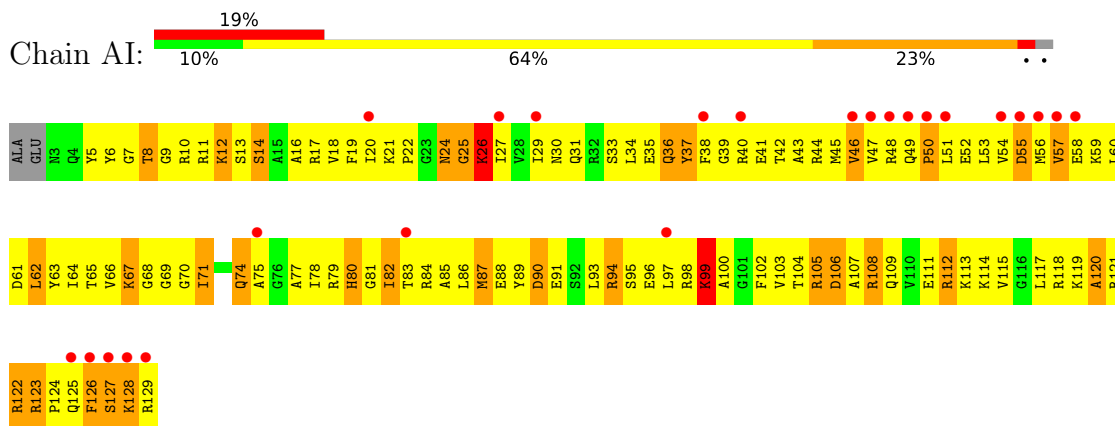
- Molecule 7: 30S ribosomal protein S8



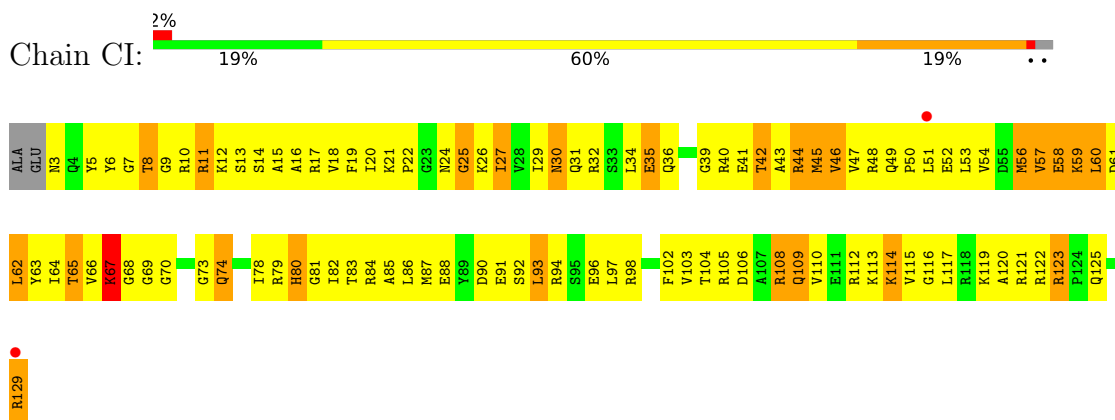
- Molecule 7: 30S ribosomal protein S8



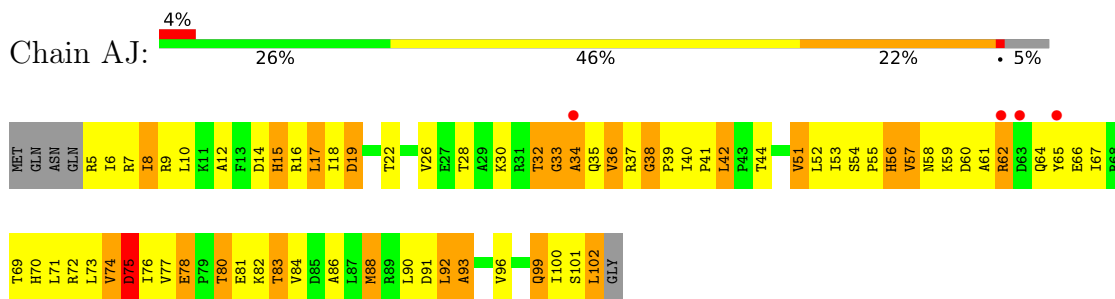
- Molecule 8: 30S ribosomal protein S9



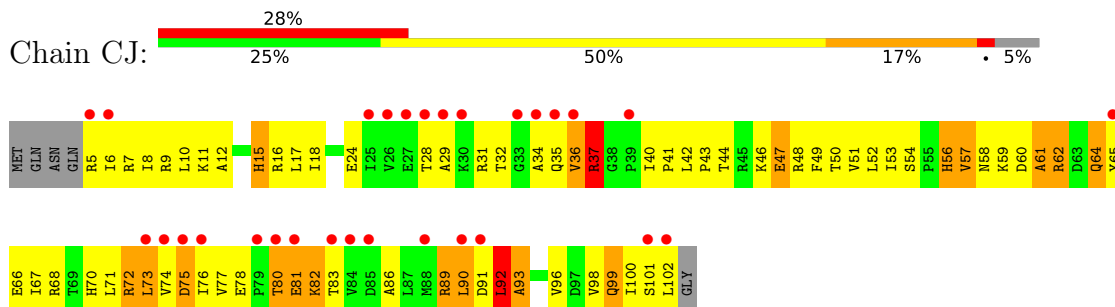
• Molecule 8: 30S ribosomal protein S9



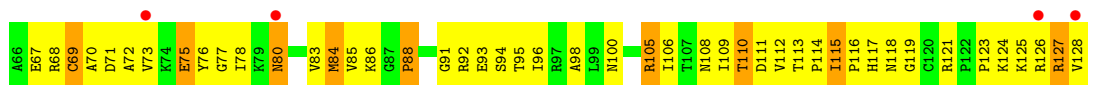
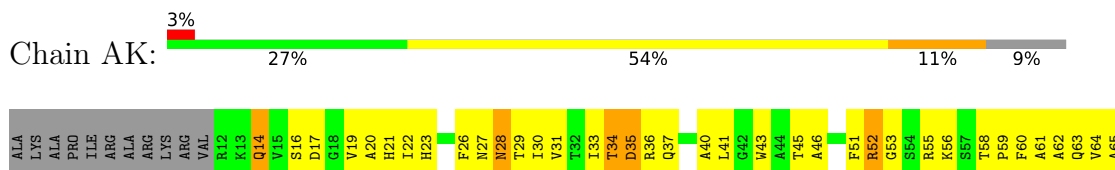
• Molecule 9: 30S ribosomal protein S10



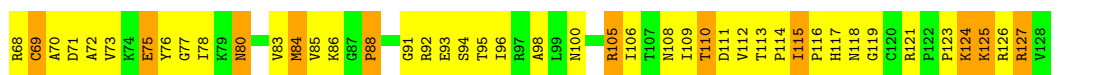
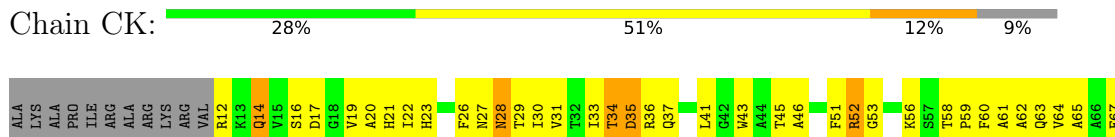
• Molecule 9: 30S ribosomal protein S10



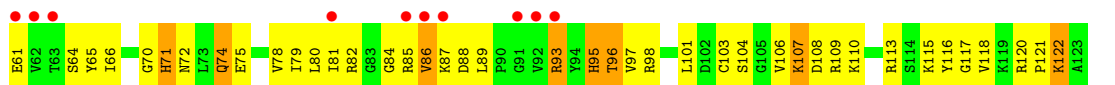
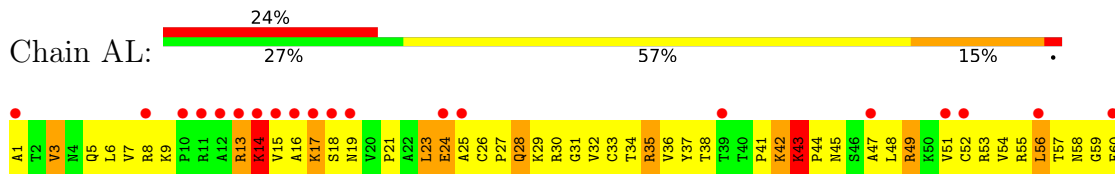
• Molecule 10: 30S ribosomal protein S11



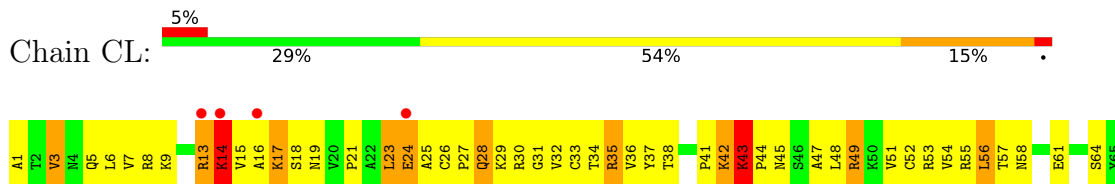
- Molecule 10: 30S ribosomal protein S11



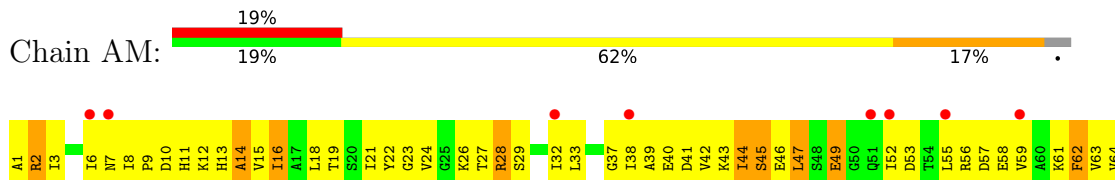
- Molecule 11: 30S ribosomal protein S12



- Molecule 11: 30S ribosomal protein S12

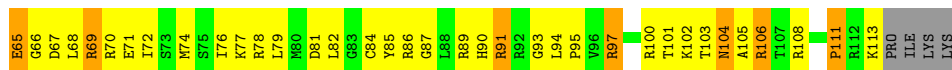


- Molecule 12: 30S ribosomal protein S13

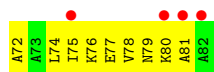




• Molecule 12: 30S ribosomal protein S13



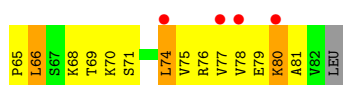
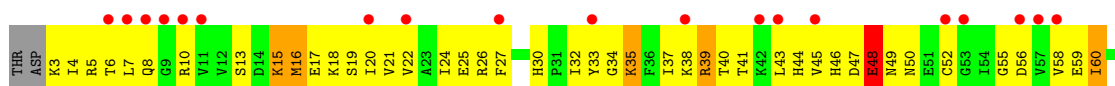
• Molecule 13: 30S ribosomal protein S16



• Molecule 13: 30S ribosomal protein S16



• Molecule 14: 30S ribosomal protein S17

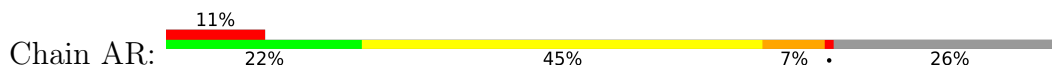


• Molecule 14: 30S ribosomal protein S17

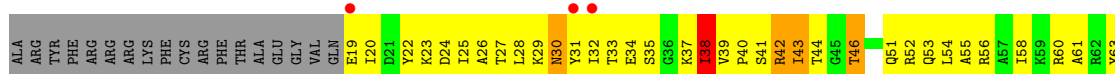
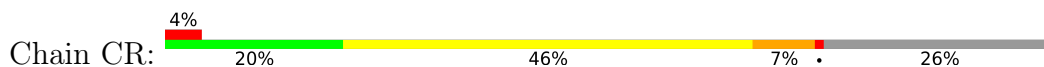




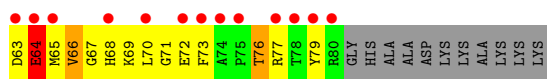
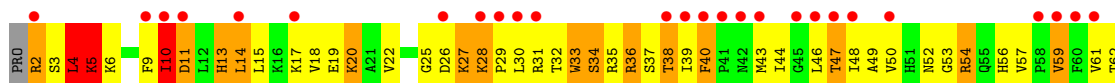
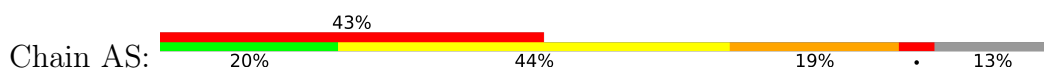
- Molecule 15: 30S ribosomal protein S18



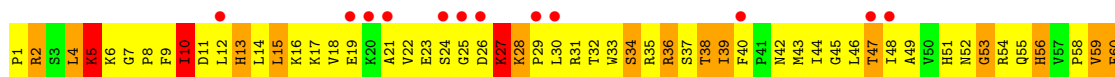
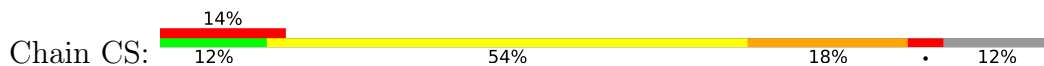
- Molecule 15: 30S ribosomal protein S18



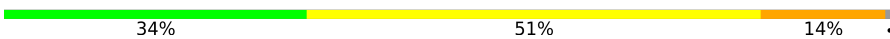
- Molecule 16: 30S ribosomal protein S19

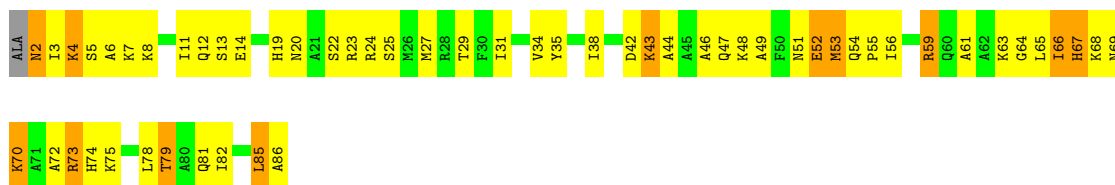


- Molecule 16: 30S ribosomal protein S19




- Molecule 17: 30S ribosomal protein S20

Chain AT: 



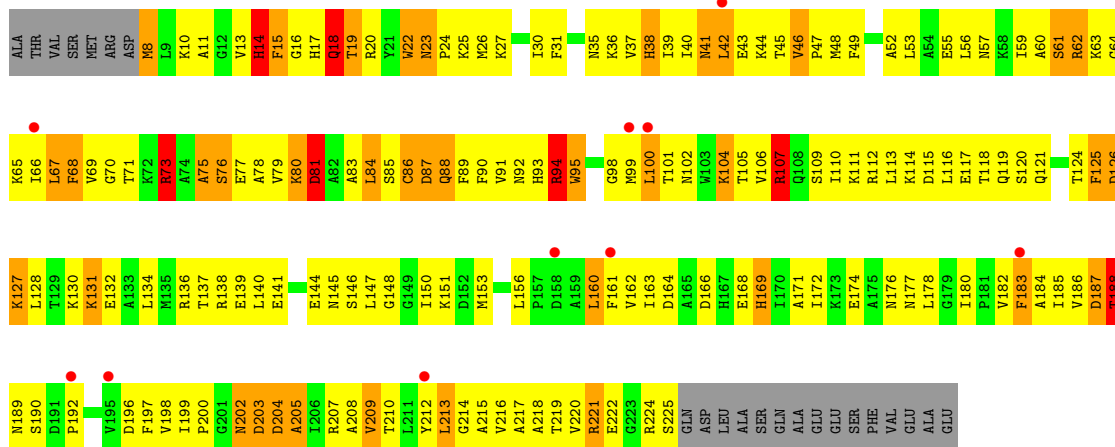
• Molecule 17: 30S ribosomal protein S20

Chain CT: 




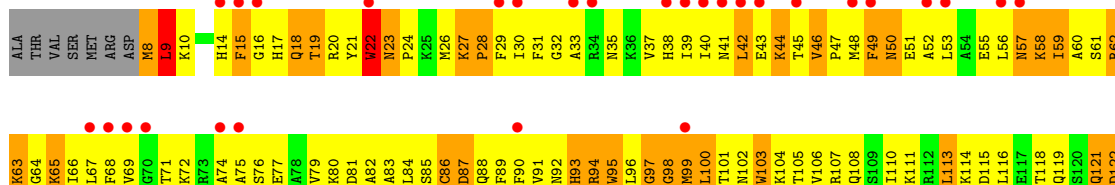
• Molecule 18: 30S ribosomal protein S2

Chain AB: 

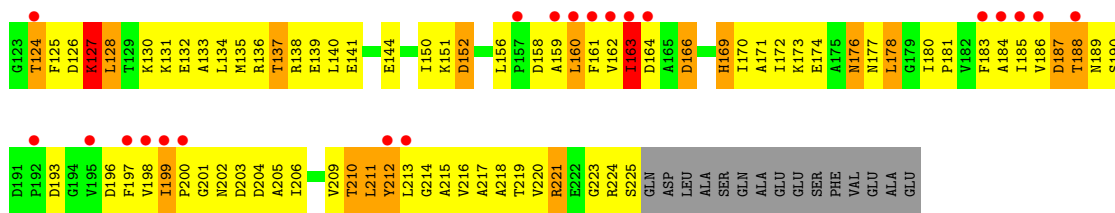


• Molecule 18: 30S ribosomal protein S2

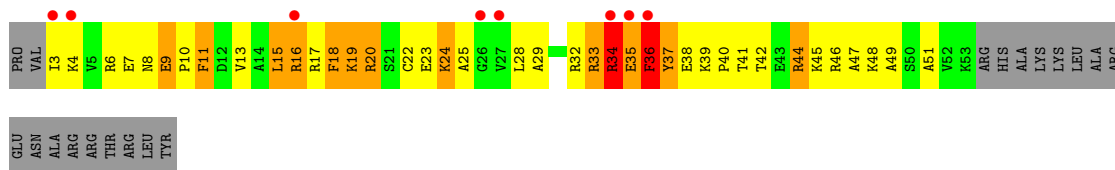
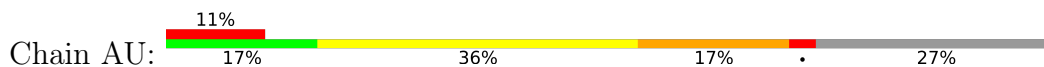
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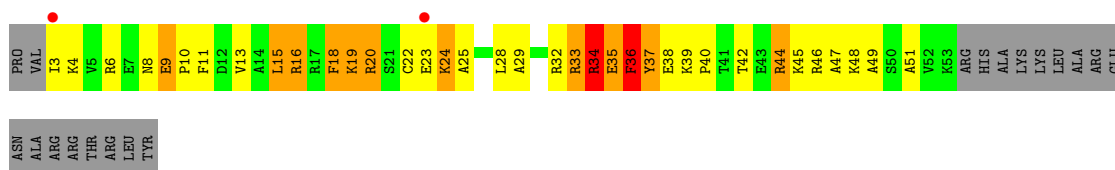
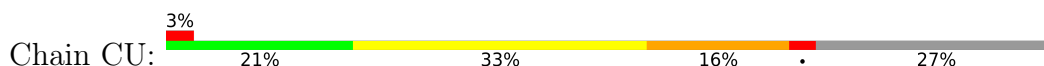




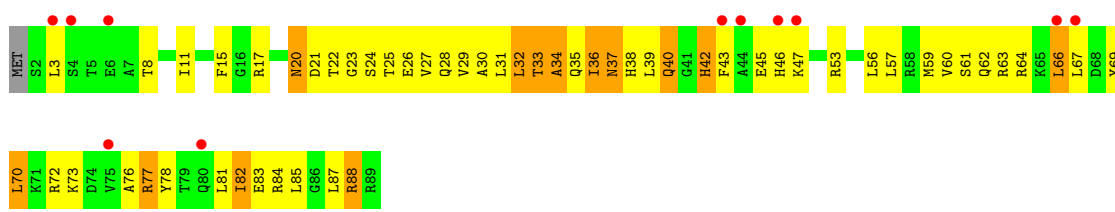
• Molecule 19: 30S ribosomal protein S21



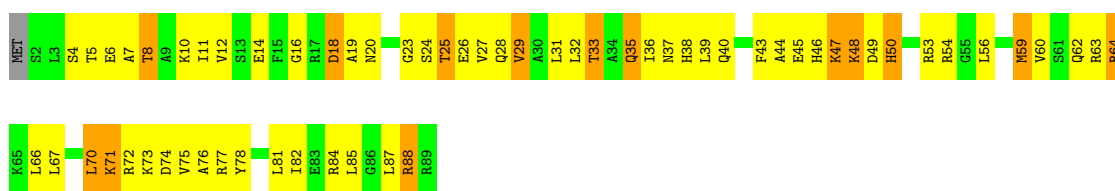
• Molecule 19: 30S ribosomal protein S21



• Molecule 20: 30S ribosomal protein S15



• Molecule 20: 30S ribosomal protein S15



• Molecule 21: 30S ribosomal protein S14



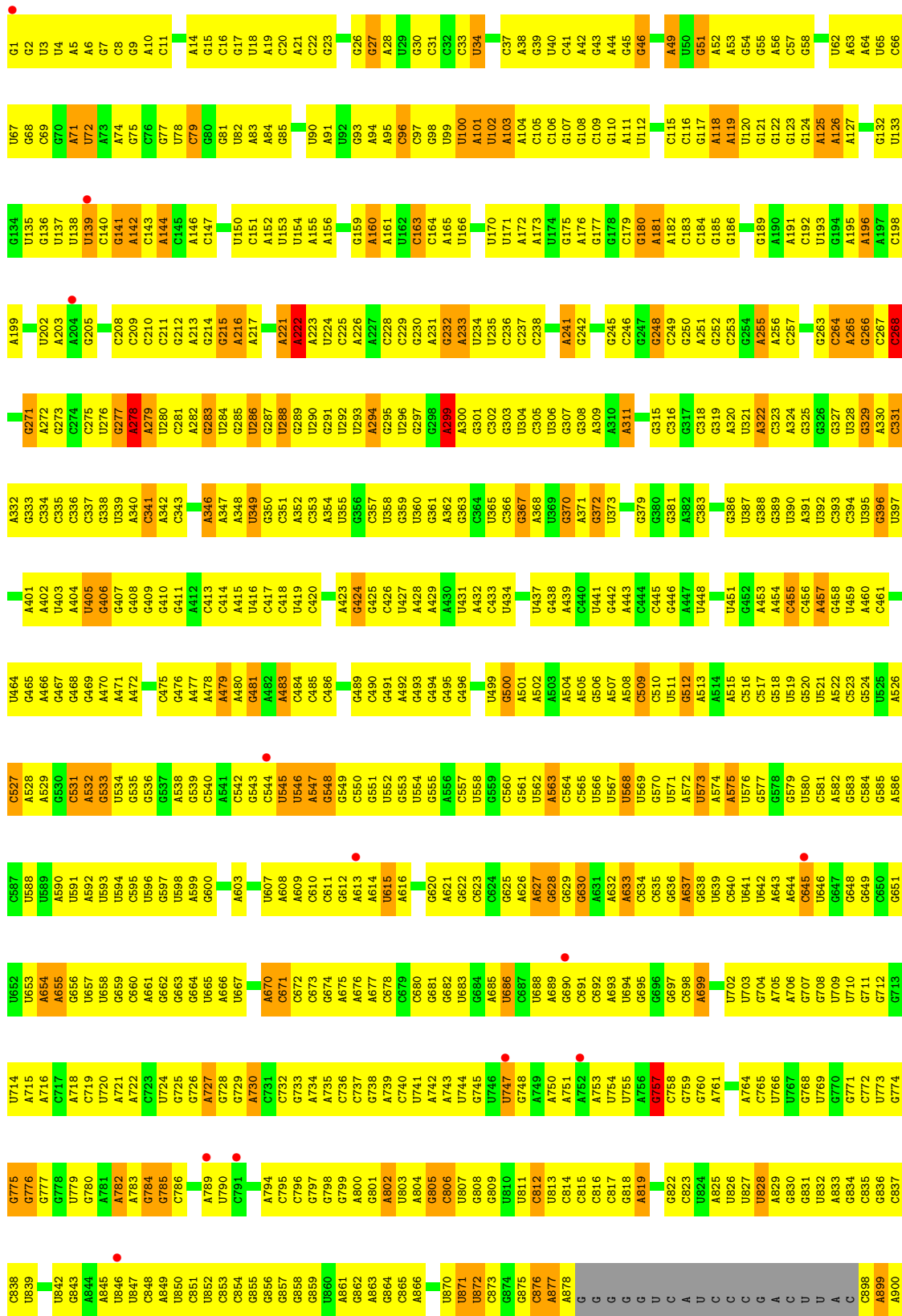








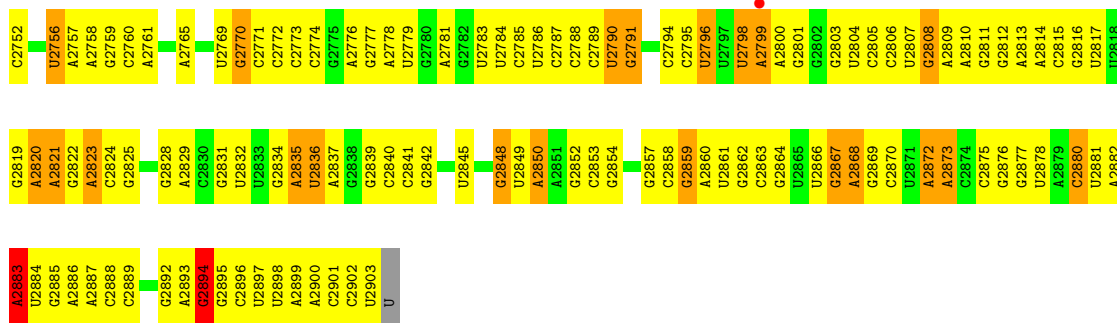
• Molecule 23: 23S rRNA



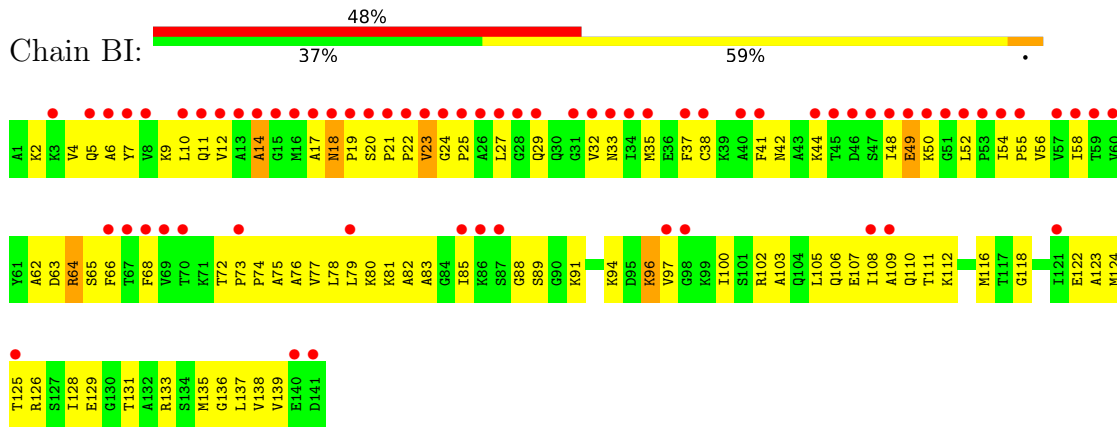
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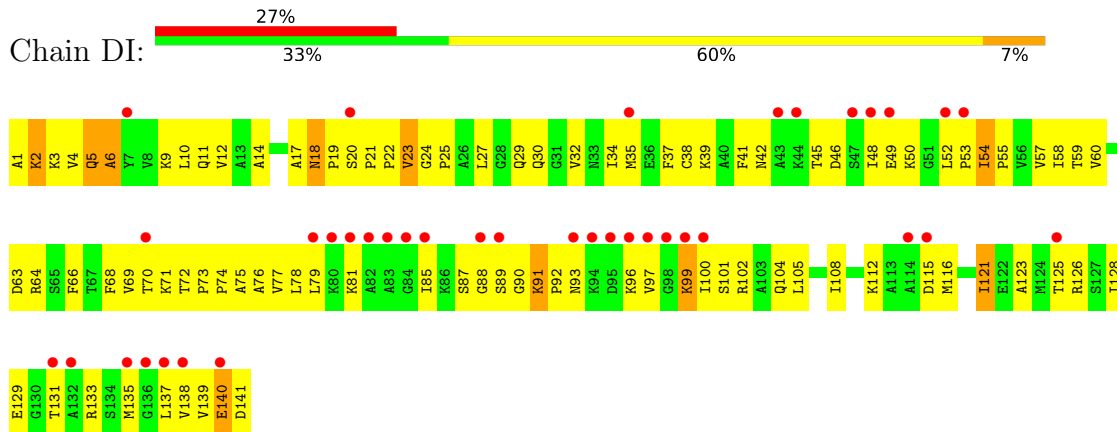




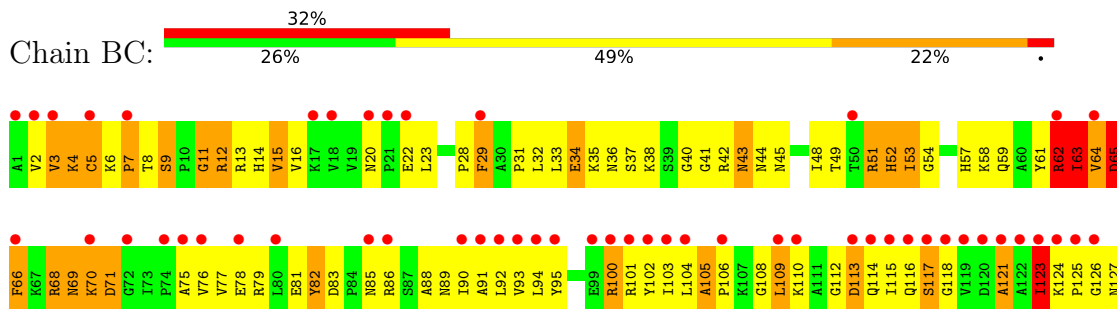
• Molecule 24: 50S ribosomal protein L11

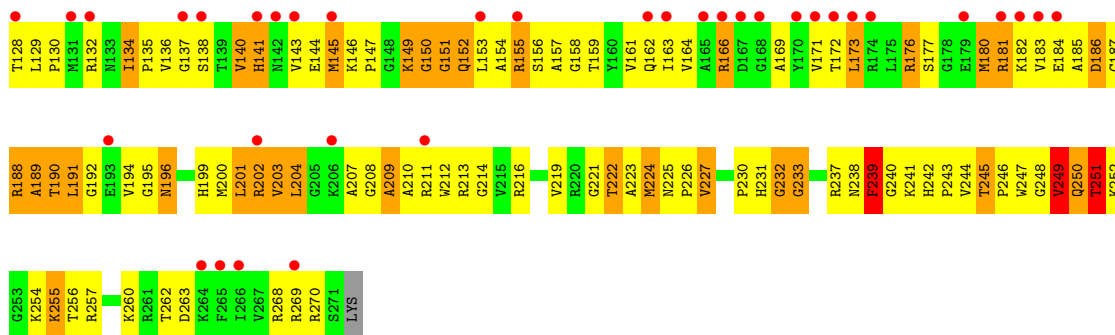


• Molecule 24: 50S ribosomal protein L11

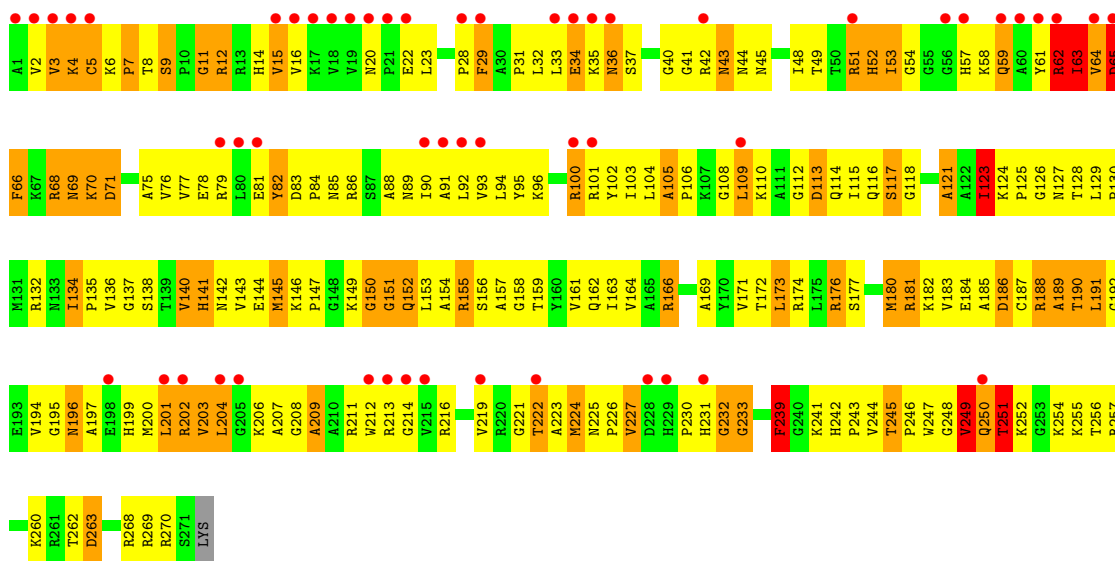


• Molecule 25: 50S ribosomal protein L2

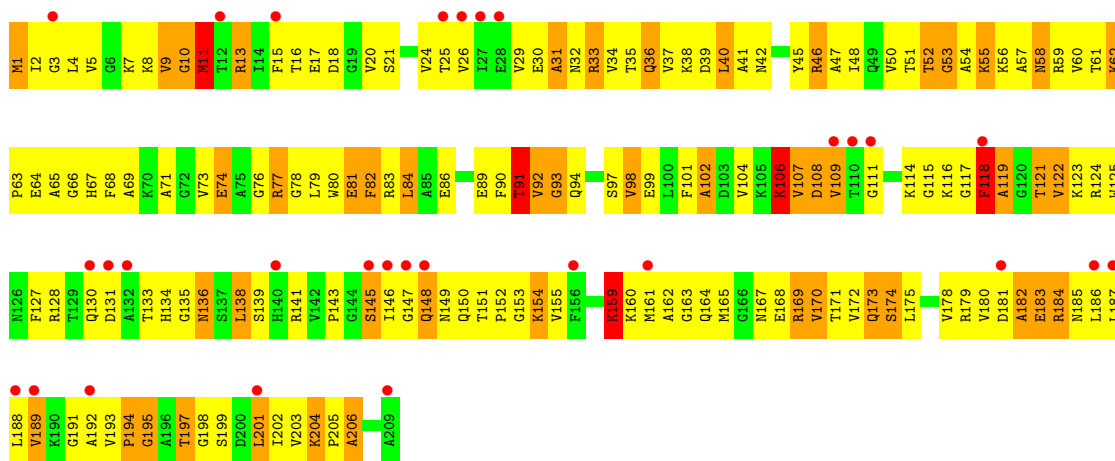
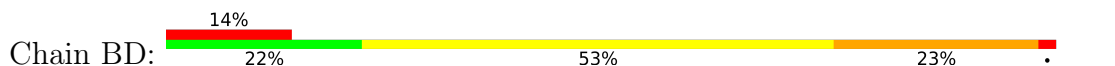




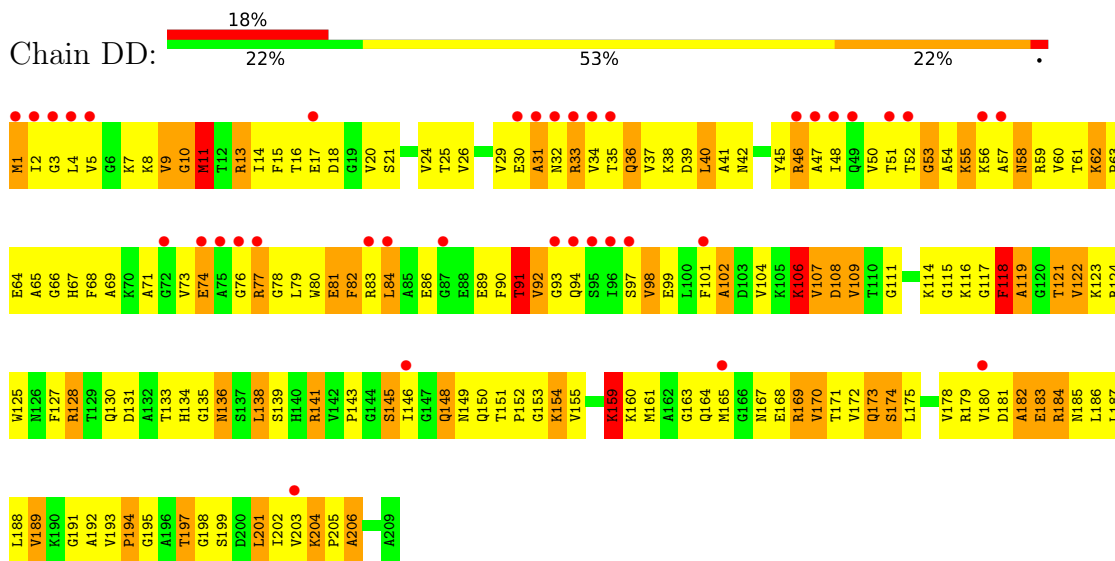
• Molecule 25: 50S ribosomal protein L2



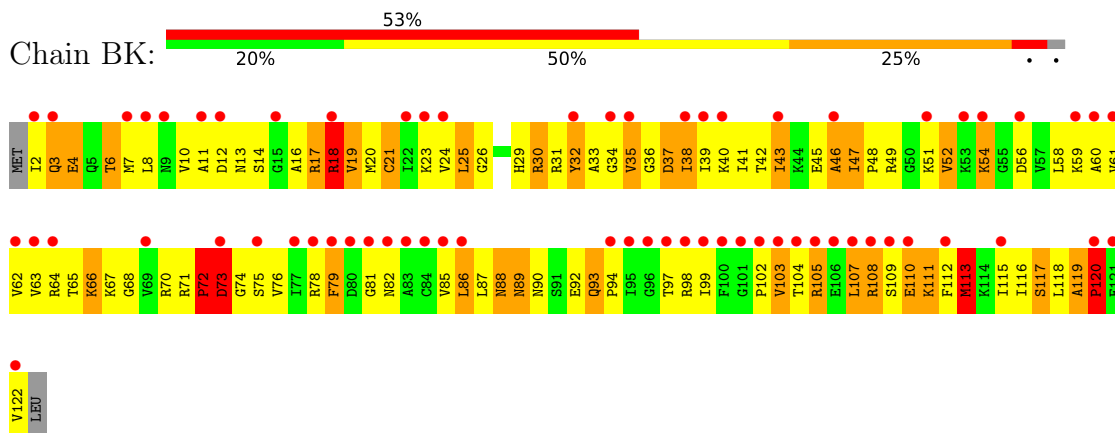
• Molecule 26: 50S ribosomal protein L3



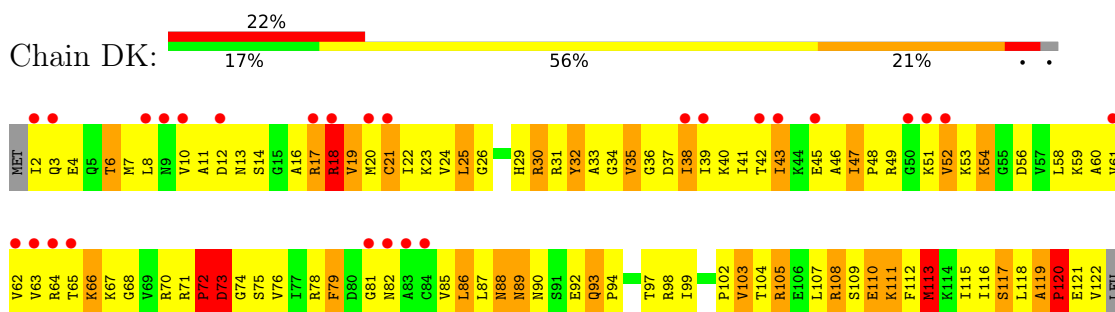
• Molecule 26: 50S ribosomal protein L3



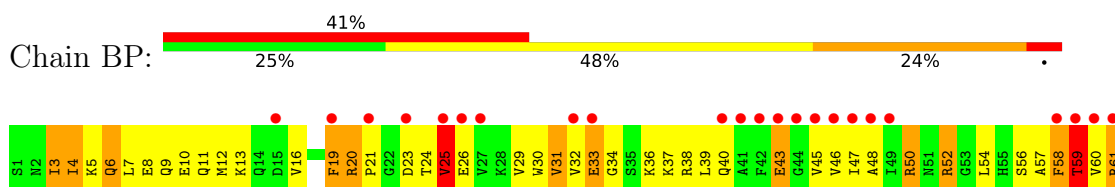
• Molecule 27: 50S ribosomal protein L14

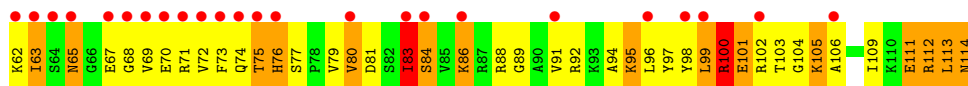


• Molecule 27: 50S ribosomal protein L14

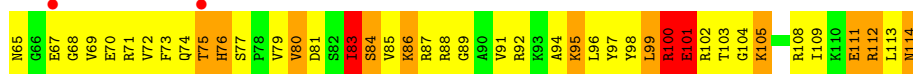


• Molecule 28: 50S ribosomal protein L19

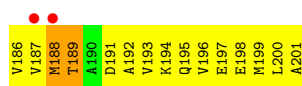
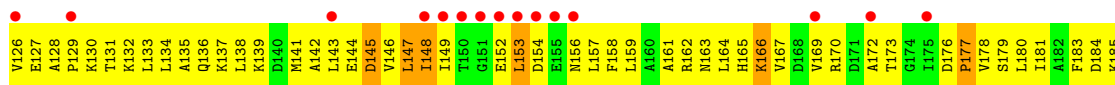
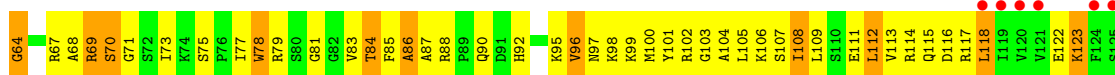
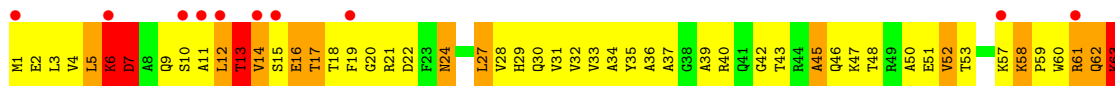




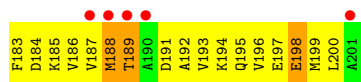
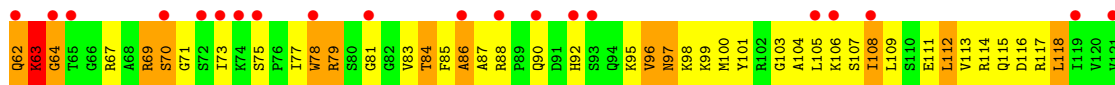
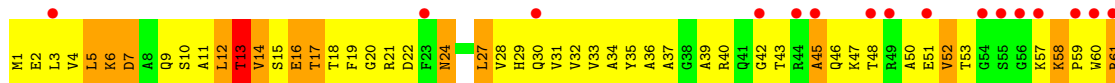
- Molecule 28: 50S ribosomal protein L19



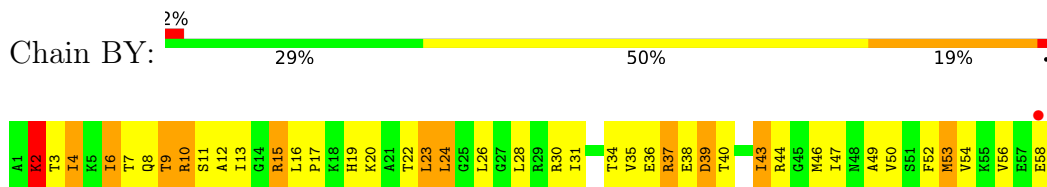
- Molecule 29: 50S ribosomal protein L4



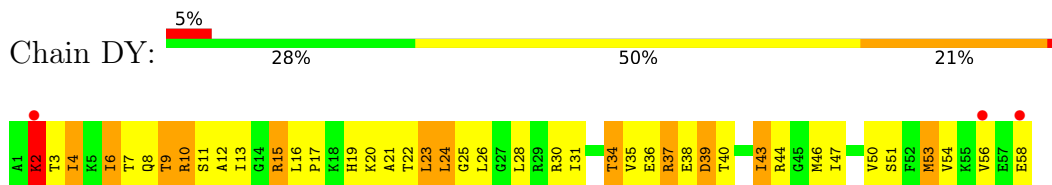
- Molecule 29: 50S ribosomal protein L4



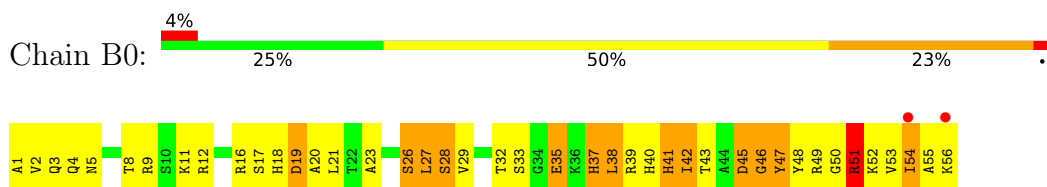
- Molecule 30: 50S ribosomal protein L30



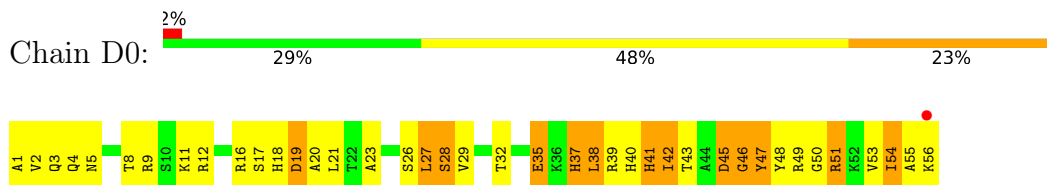
- Molecule 30: 50S ribosomal protein L30



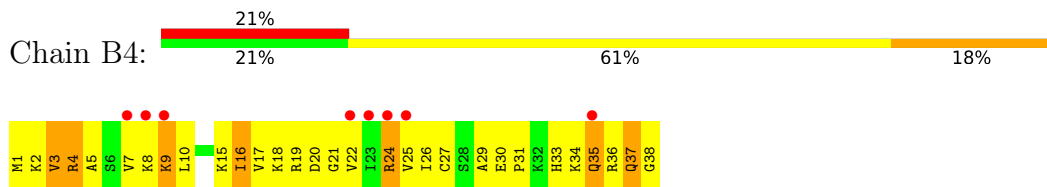
- Molecule 31: 50S ribosomal protein L32



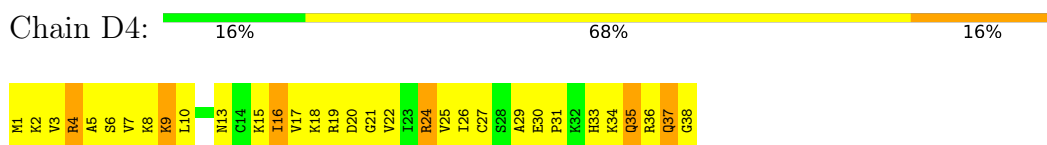
- Molecule 31: 50S ribosomal protein L32



- Molecule 32: 50S ribosomal protein L36



- Molecule 32: 50S ribosomal protein L36



- Molecule 33: 50S ribosomal protein L33

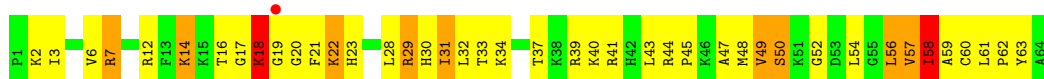




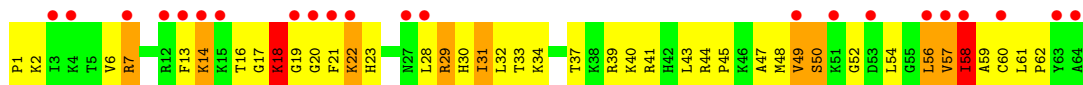
• Molecule 33: 50S ribosomal protein L33



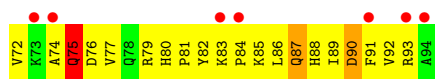
• Molecule 34: 50S ribosomal protein L35



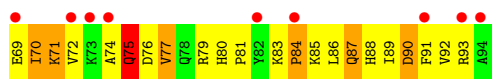
• Molecule 34: 50S ribosomal protein L35



• Molecule 35: 50S ribosomal protein L25

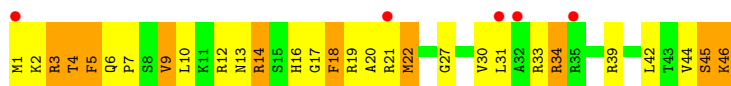


• Molecule 35: 50S ribosomal protein L25

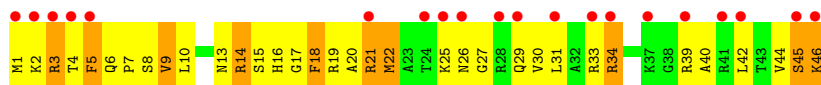
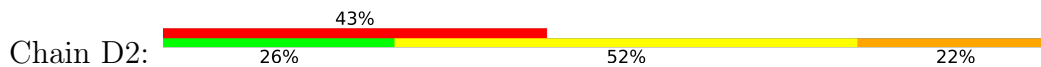


• Molecule 36: 50S ribosomal protein L34





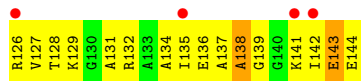
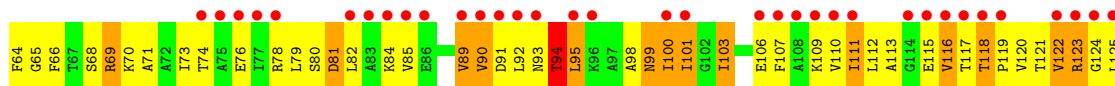
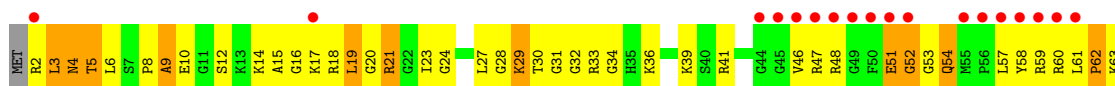
● Molecule 36: 50S ribosomal protein L34



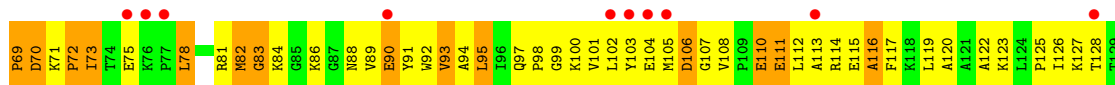
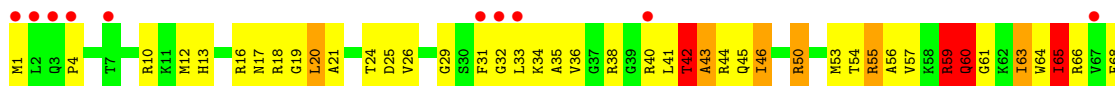
● Molecule 37: 50S ribosomal protein L15



● Molecule 37: 50S ribosomal protein L15

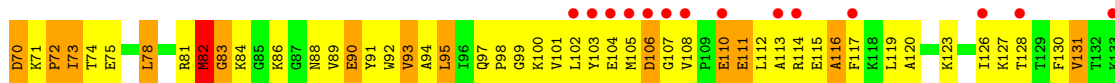
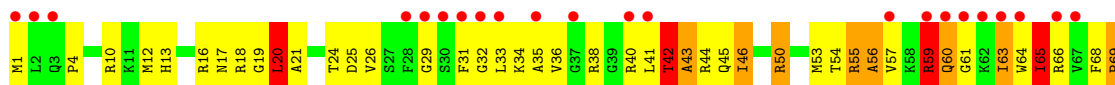


● Molecule 38: 50S ribosomal protein L16





- Molecule 38: 50S ribosomal protein L16



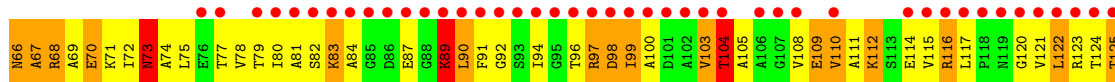
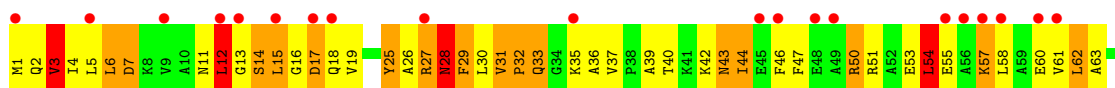
- Molecule 39: 50S ribosomal protein L29



- Molecule 39: 50S ribosomal protein L29



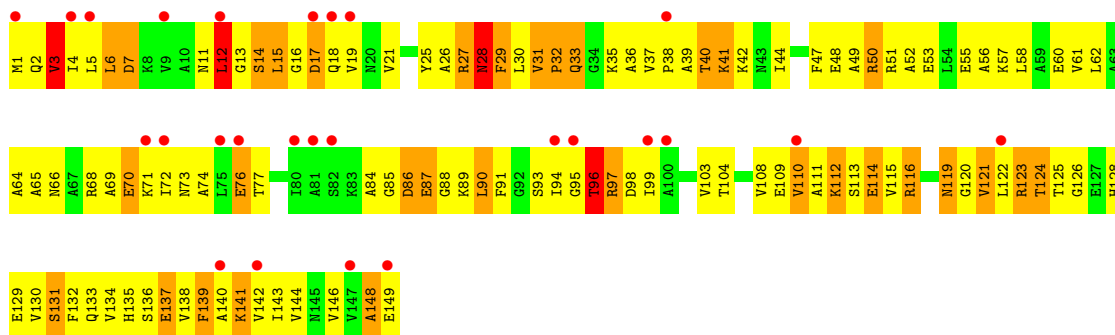
- Molecule 40: 50S ribosomal protein L9



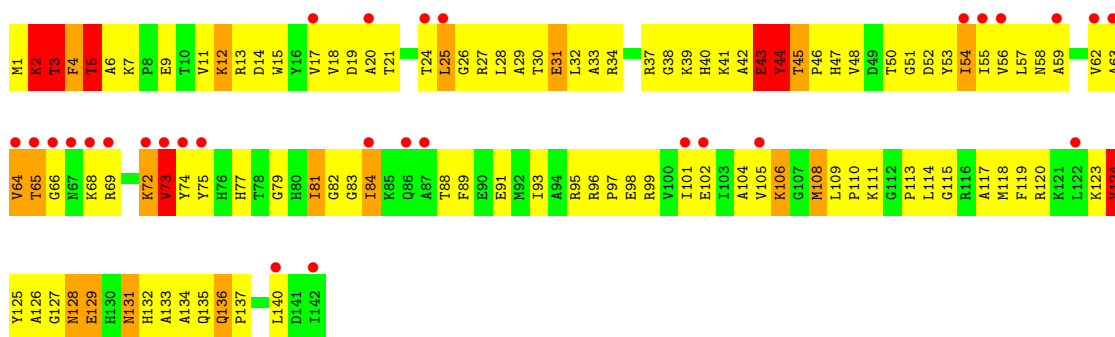
- Molecule 40: 50S ribosomal protein L9



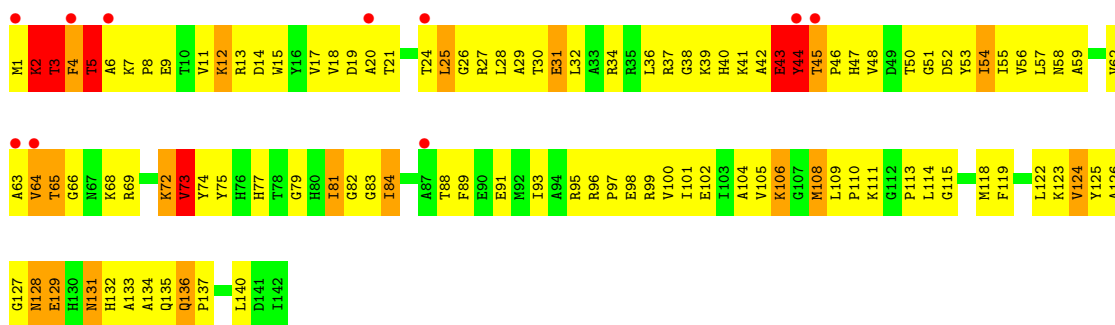




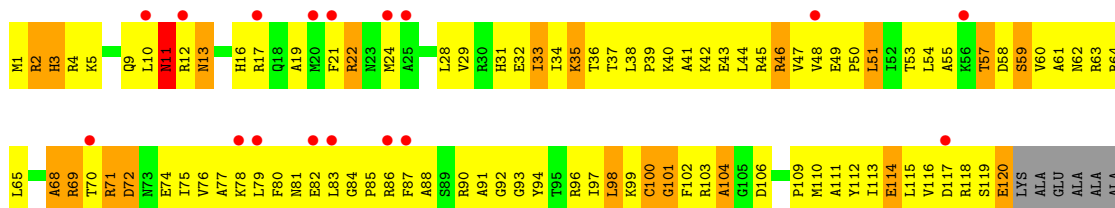
- Molecule 41: 50S ribosomal protein L13



- Molecule 41: 50S ribosomal protein L13

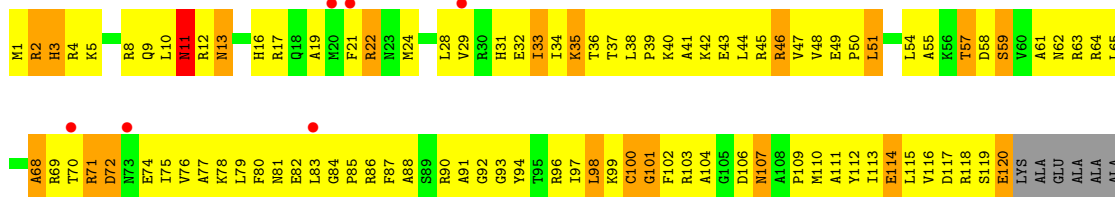


- Molecule 42: 50S ribosomal protein L17



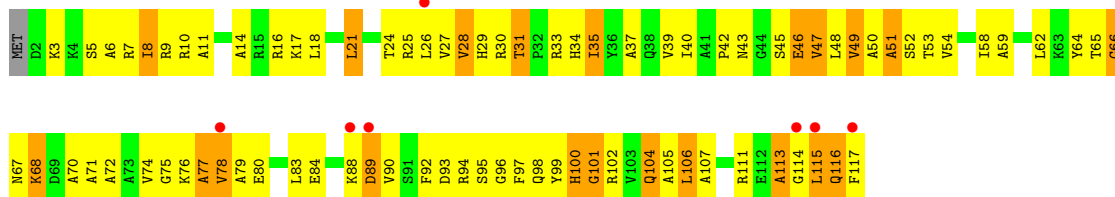
GLU

• Molecule 42: 50S ribosomal protein L17

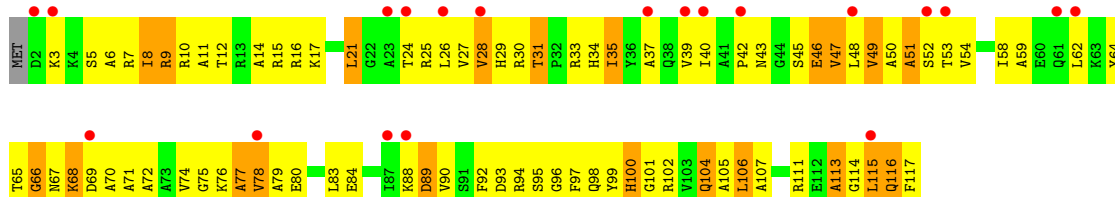
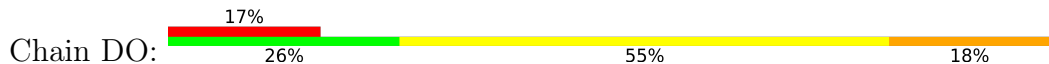


GLU

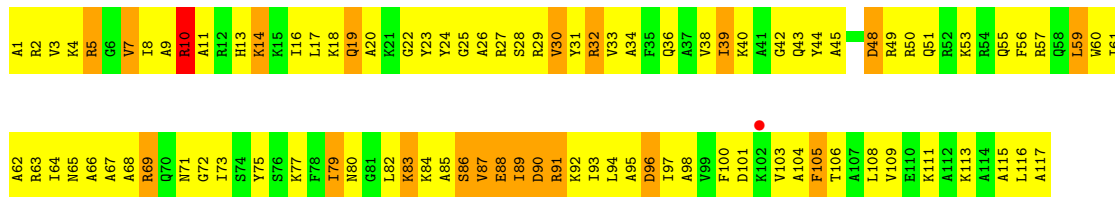
• Molecule 43: 50S ribosomal protein L18



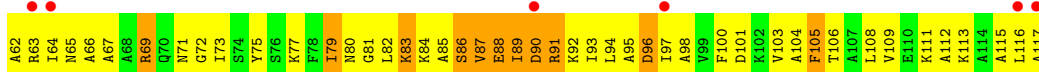
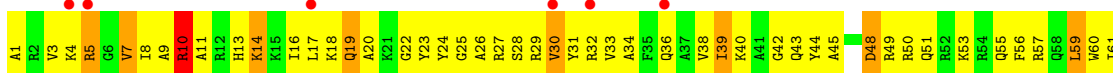
• Molecule 43: 50S ribosomal protein L18



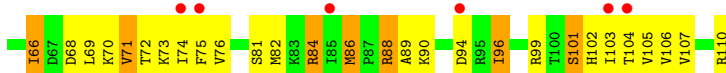
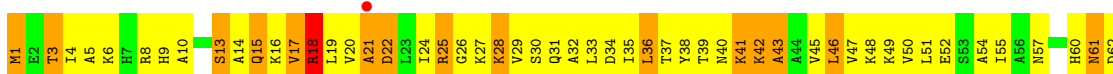
• Molecule 44: 50S ribosomal protein L20



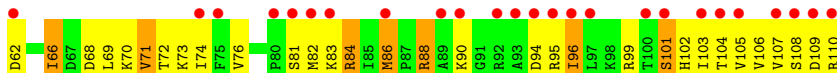
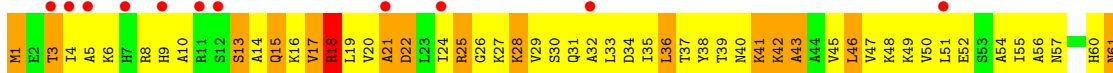
• Molecule 44: 50S ribosomal protein L20



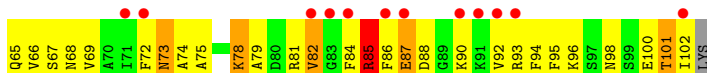
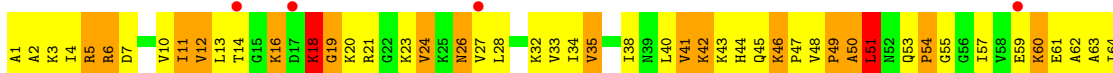
- Molecule 45: 50S ribosomal protein L22



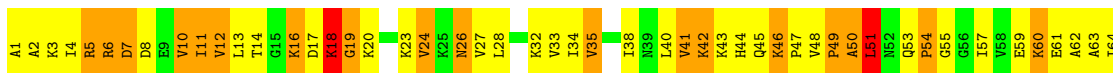
- Molecule 45: 50S ribosomal protein L22



- Molecule 46: 50S ribosomal protein L24

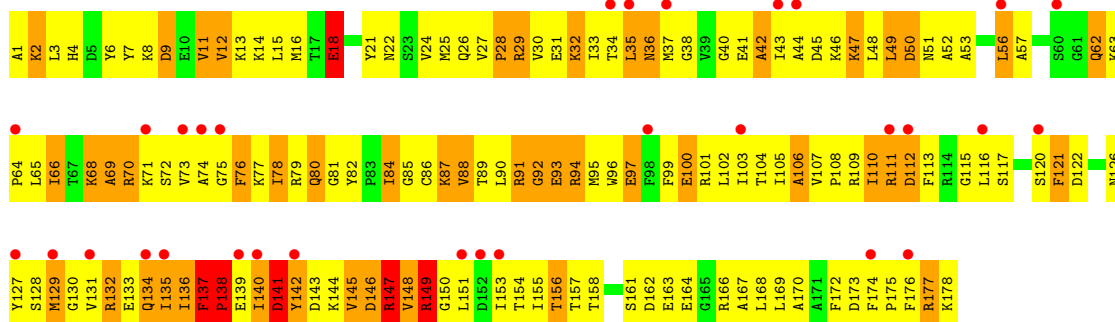
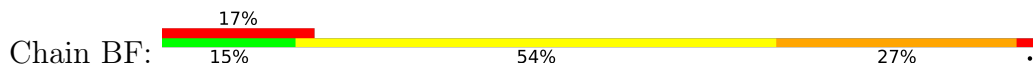


- Molecule 46: 50S ribosomal protein L24

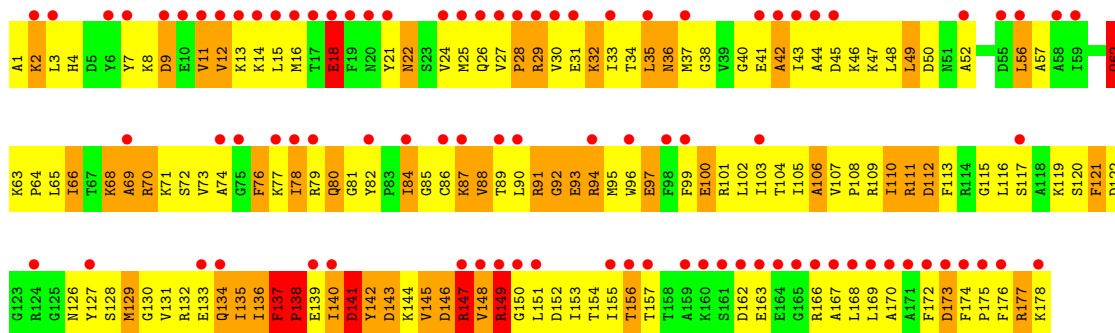
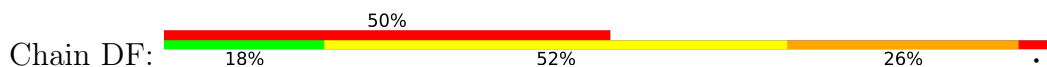




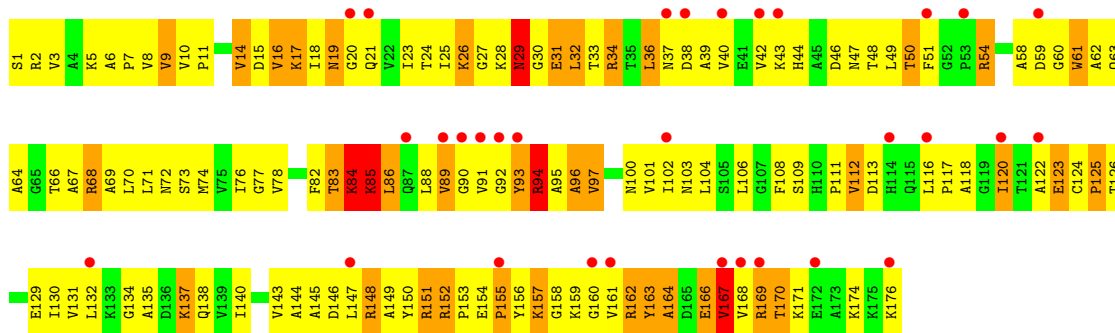
• Molecule 47: 50S ribosomal protein L5



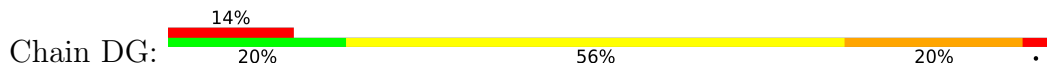
• Molecule 47: 50S ribosomal protein L5

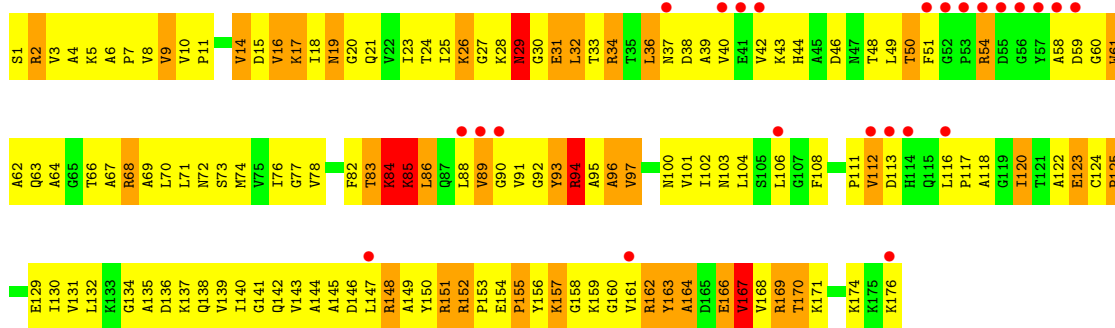


• Molecule 48: 50S ribosomal protein L6

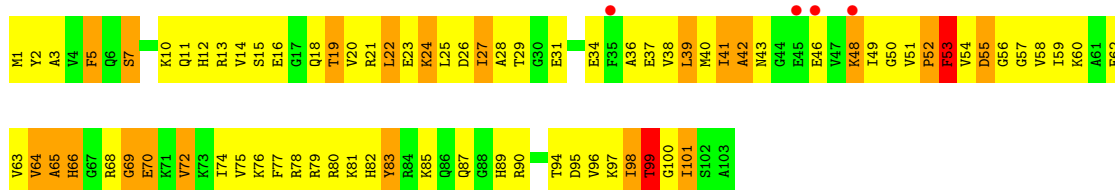


• Molecule 48: 50S ribosomal protein L6

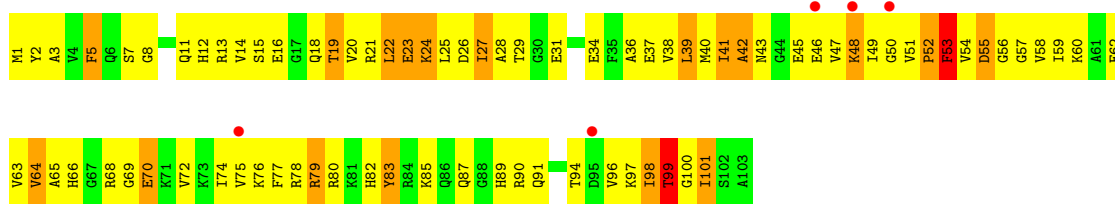




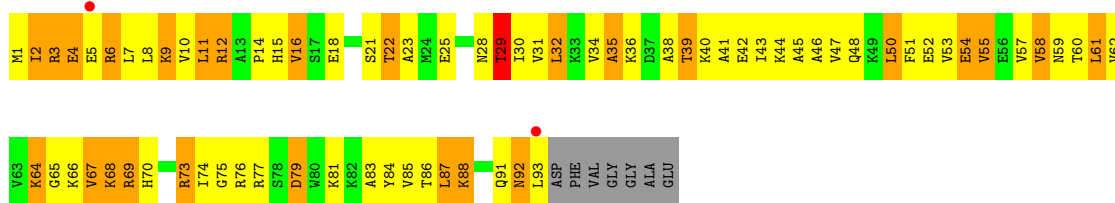
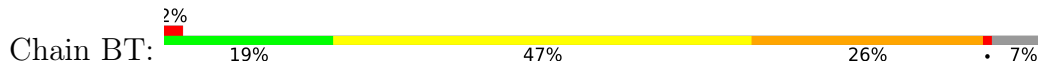
• Molecule 49: 50S ribosomal protein L21



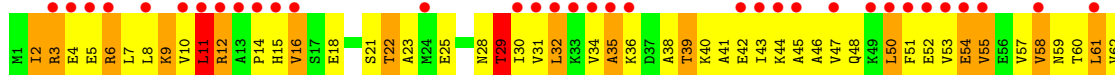
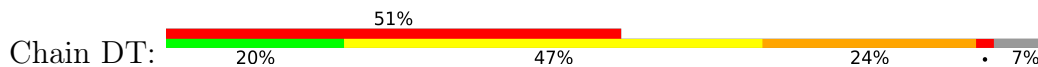
• Molecule 49: 50S ribosomal protein L21

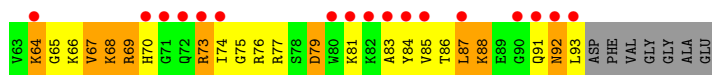


• Molecule 50: 50S ribosomal protein L23

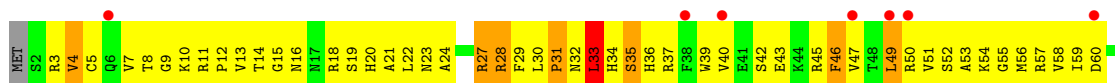


• Molecule 50: 50S ribosomal protein L23

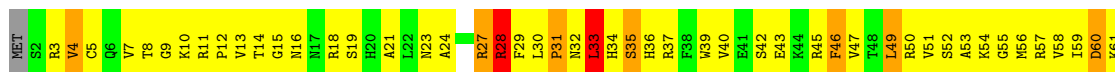




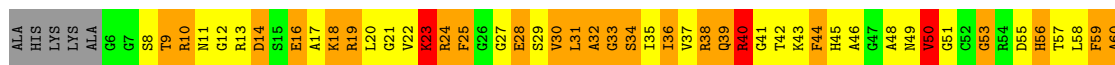
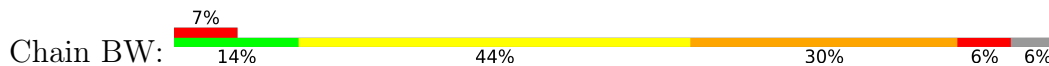
• Molecule 51: 50S ribosomal protein L28



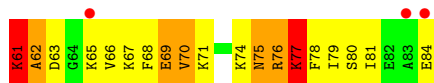
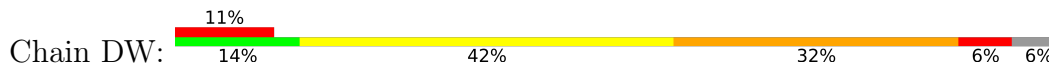
• Molecule 51: 50S ribosomal protein L28



• Molecule 52: 50S ribosomal protein L27



• Molecule 52: 50S ribosomal protein L27



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	208.85Å 379.20Å 739.28Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	70.00 – 3.93 182.94 – 3.94	Depositor EDS
% Data completeness (in resolution range)	(Not available) (70.00-3.93) 75.9 (182.94-3.94)	Depositor EDS
$R_{merge}$	0.11	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.57 (at 3.89Å)	Xtrriage
Refinement program	CNS	Depositor
R, $R_{free}$	0.258 , 0.311 0.224 , 0.271	Depositor DCC
$R_{free}$ test set	19247 reflections (4.92%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	149.7	Xtrriage
Anisotropy	0.209	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.20 , 71.8	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.48$ , $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.92	EDS
Total number of atoms	284033	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	69.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.50% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

## 5 Model quality i

### 5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: SCM, MG, ZN

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	AA	0.27	2/36762 (0.0%)	0.76	12/57350 (0.0%)
1	CA	0.31	1/36762 (0.0%)	0.77	11/57350 (0.0%)
2	AC	0.23	0/1651	0.45	0/2225
2	CC	0.23	0/1651	0.46	0/2225
3	AD	0.23	0/1665	0.44	0/2227
3	CD	0.23	0/1665	0.44	0/2227
4	AE	0.23	0/1118	0.45	0/1504
4	CE	0.23	0/1118	0.45	0/1504
5	AF	0.24	0/835	0.45	0/1128
5	CF	0.24	0/835	0.45	0/1128
6	AG	0.23	0/1187	0.45	0/1591
6	CG	0.23	0/1211	0.45	0/1624
7	AH	0.23	0/989	0.44	0/1326
7	CH	0.23	0/989	0.44	0/1326
8	AI	0.24	0/1034	0.44	0/1375
8	CI	0.24	0/1034	0.45	0/1375
9	AJ	0.22	0/796	0.48	0/1077
9	CJ	0.22	0/796	0.48	0/1077
10	AK	0.24	0/893	0.44	0/1205
10	CK	0.24	0/893	0.44	0/1205
11	AL	0.22	0/969	0.48	0/1300
11	CL	0.22	0/969	0.48	0/1300
12	AM	0.21	0/892	0.45	0/1193
12	CM	0.21	0/884	0.45	0/1181
13	AP	0.25	0/659	0.45	0/884
13	CP	0.25	0/648	0.44	0/870
14	AQ	0.23	0/657	0.46	0/881
14	CQ	0.24	0/666	0.46	0/892
15	AR	0.23	0/462	0.46	0/621
15	CR	0.23	0/462	0.46	0/621
16	AS	0.25	0/652	0.46	0/877
16	CS	0.25	0/660	0.49	0/888



Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
17	AT	0.23	0/671	0.40	0/888
17	CT	0.23	0/671	0.40	0/888
18	AB	0.25	0/1735	0.45	0/2338
18	CB	0.25	0/1735	0.45	0/2338
19	AU	0.26	0/430	0.46	0/570
19	CU	0.25	0/430	0.46	0/570
20	AO	0.22	0/722	0.45	0/964
20	CO	0.23	0/722	0.44	0/964
21	AN	0.24	0/785	0.44	0/1043
21	CN	0.24	0/785	0.46	0/1043
22	BA	0.23	0/2803	0.74	1/4371 (0.0%)
22	DA	0.24	0/2803	0.75	1/4371 (0.0%)
23	BB	0.28	5/68314 (0.0%)	0.77	33/106569 (0.0%)
23	DB	0.28	5/68314 (0.0%)	0.77	33/106569 (0.0%)
24	BI	0.24	0/1046	0.46	0/1410
24	DI	0.25	0/1046	0.47	0/1410
25	BC	0.22	0/2121	0.47	0/2852
25	DC	0.22	0/2121	0.47	0/2852
26	BD	0.24	0/1586	0.48	0/2134
26	DD	0.24	0/1586	0.48	0/2134
27	BK	0.24	0/939	0.53	0/1258
27	DK	0.24	0/939	0.53	0/1258
28	BP	0.24	0/929	0.49	0/1242
28	DP	0.24	0/929	0.49	0/1242
29	BE	0.24	0/1571	0.48	0/2113
29	DE	0.24	0/1571	0.48	0/2113
30	BY	0.24	0/453	0.49	0/605
30	DY	0.23	0/453	0.49	0/605
31	B0	0.23	0/450	0.51	0/599
31	D0	0.23	0/450	0.51	0/599
32	B4	0.22	0/303	0.49	0/397
32	D4	0.23	0/303	0.49	0/397
33	B1	0.27	0/416	0.48	0/554
33	D1	0.27	0/416	0.48	0/554
34	B3	0.24	0/513	0.46	0/676
34	D3	0.24	0/513	0.46	0/676
35	BV	0.25	0/766	0.43	0/1025
35	DV	0.25	0/766	0.43	0/1025
36	B2	0.26	0/380	0.47	0/498
36	D2	0.26	0/380	0.47	0/498
37	BL	0.24	0/1054	0.48	0/1403
37	DL	0.24	0/1054	0.48	0/1403
38	BM	0.25	0/1093	0.47	0/1460

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
38	DM	0.25	0/1093	0.47	0/1460
39	BX	0.24	0/510	0.50	0/677
39	DX	0.23	0/510	0.50	0/677
40	BH	0.25	0/1122	0.47	0/1515
40	DH	0.25	0/1122	0.47	0/1515
41	BJ	0.23	0/1152	0.47	0/1551
41	DJ	0.23	0/1152	0.47	0/1551
42	BN	0.24	0/973	0.49	0/1301
42	DN	0.24	0/973	0.49	0/1301
43	BO	0.23	0/902	0.47	0/1209
43	DO	0.23	0/902	0.47	0/1209
44	BQ	0.25	0/960	0.47	0/1278
44	DQ	0.25	0/960	0.47	0/1278
45	BS	0.22	0/864	0.50	0/1156
45	DS	0.22	0/864	0.50	0/1156
46	BU	0.25	0/787	0.45	0/1051
46	DU	0.25	0/787	0.45	0/1051
47	BF	0.26	0/1444	0.49	0/1937
47	DF	0.26	0/1444	0.49	0/1937
48	BG	0.23	0/1343	0.47	0/1816
48	DG	0.23	0/1343	0.47	0/1816
49	BR	0.26	0/829	0.48	0/1107
49	DR	0.25	0/829	0.48	0/1107
50	BT	0.23	0/744	0.51	0/994
50	DT	0.23	0/744	0.51	0/994
51	BZ	0.25	0/635	0.49	0/848
51	DZ	0.25	0/635	0.50	0/848
52	BW	0.28	0/603	0.49	0/797
52	DW	0.28	0/603	0.49	0/797
All	All	0.27	13/306360 (0.0%)	0.70	91/457969 (0.0%)

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
1	AA	0	15
1	CA	0	19
23	BB	0	37
23	DB	0	37
All	All	0	108

The worst 5 of 13 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
23	DB	1086	A	C5-C6	-16.20	1.26	1.41
23	BB	1086	A	C5-C6	-16.10	1.26	1.41
23	DB	1088	A	C6-N1	-10.51	1.28	1.35
23	BB	1088	A	C6-N1	-10.50	1.28	1.35
23	BB	1060	U	C2-N3	7.92	1.43	1.37

The worst 5 of 91 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
23	DB	2204	G	O5'-P-OP1	-30.02	74.68	110.70
23	BB	2204	G	O5'-P-OP2	-28.49	76.52	110.70
23	DB	2791	G	O5'-P-OP2	-28.43	76.59	110.70
23	BB	2791	G	O5'-P-OP1	-27.42	77.80	110.70
23	DB	2204	G	O5'-P-OP2	17.65	131.88	110.70

There are no chirality outliers.

5 of 108 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	AA	187	G	Sidechain
1	AA	281	G	Sidechain
1	AA	437	U	Sidechain
1	AA	438	U	Sidechain
1	AA	450	G	Sidechain

## 5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	AA	32831	0	16521	1458	0
1	CA	32831	0	16521	1414	0
2	AC	1624	0	1699	205	0
2	CC	1624	0	1699	191	0
3	AD	1643	0	1710	179	0
3	CD	1643	0	1710	177	0
4	AE	1105	0	1148	129	0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	CE	1105	0	1148	121	0
5	AF	817	0	808	89	0
5	CF	817	0	808	91	0
6	AG	1174	0	1230	146	0
6	CG	1196	0	1246	133	0
7	AH	979	0	1034	89	0
7	CH	979	0	1034	91	0
8	AI	1022	0	1070	180	0
8	CI	1022	0	1070	146	0
9	AJ	786	0	828	85	0
9	CJ	786	0	828	103	0
10	AK	877	0	887	110	0
10	CK	877	0	887	100	0
11	AL	955	0	1019	96	0
11	CL	955	0	1019	97	0
12	AM	883	0	944	135	0
12	CM	876	0	937	138	0
13	AP	649	0	666	65	0
13	CP	638	0	656	66	0
14	AQ	648	0	691	63	0
14	CQ	657	0	702	62	0
15	AR	455	0	478	35	0
15	CR	455	0	478	37	0
16	AS	637	0	665	97	0
16	CS	644	0	675	115	0
17	AT	665	0	714	60	0
17	CT	665	0	714	61	0
18	AB	1704	0	1732	209	0
18	CB	1704	0	1732	229	0
19	AU	425	0	449	57	0
19	CU	425	0	449	54	0
20	AO	714	0	734	63	0
20	CO	714	0	734	62	0
21	AN	774	0	827	102	0
21	CN	774	0	827	114	0
22	BA	2507	0	1270	116	0
22	DA	2507	0	1270	111	0
23	BB	60995	0	30679	2412	0
23	DB	60995	0	30678	2455	0
24	BI	1032	0	1088	109	0
24	DI	1032	0	1088	168	0
25	BC	2082	0	2157	234	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
25	DC	2082	0	2157	239	0
26	BD	1565	0	1616	234	0
26	DD	1565	0	1616	239	0
27	BK	930	0	1000	153	0
27	DK	930	0	1000	154	0
28	BP	917	0	965	126	0
28	DP	917	0	965	132	0
29	BE	1552	0	1619	208	0
29	DE	1552	0	1619	202	0
30	BY	449	0	491	59	0
30	DY	449	0	491	53	0
31	B0	444	0	461	48	0
31	D0	444	0	461	44	0
32	B4	302	0	340	42	0
32	D4	302	0	340	43	0
33	B1	409	0	440	54	0
33	D1	409	0	440	50	0
34	B3	504	0	574	47	0
34	D3	504	0	574	52	0
35	BV	753	0	780	83	0
35	DV	753	0	780	86	0
36	B2	377	0	418	37	0
36	D2	377	0	418	43	0
37	BL	1045	0	1117	138	0
37	DL	1045	0	1117	144	0
38	BM	1074	0	1157	123	0
38	DM	1074	0	1157	119	0
39	BX	509	0	543	46	0
39	DX	509	0	543	50	0
40	BH	1111	0	1148	172	0
40	DH	1111	0	1148	147	0
41	BJ	1129	0	1162	134	0
41	DJ	1129	0	1162	141	0
42	BN	960	0	1000	137	0
42	DN	960	0	1000	133	0
43	BO	892	0	923	91	0
43	DO	892	0	923	94	0
44	BQ	947	0	1022	150	0
44	DQ	947	0	1022	143	0
45	BS	857	0	922	97	0
45	DS	857	0	922	98	0
46	BU	779	0	834	116	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
46	DU	779	0	834	114	0
47	BF	1420	0	1460	264	0
47	DF	1420	0	1460	249	0
48	BG	1323	0	1374	187	0
48	DG	1323	0	1374	178	0
49	BR	816	0	839	105	0
49	DR	816	0	839	112	0
50	BT	738	0	807	115	0
50	DT	738	0	807	110	0
51	BZ	625	0	652	75	0
51	DZ	625	0	652	71	0
52	BW	596	0	610	122	0
52	DW	596	0	610	130	0
53	AA	60	0	0	0	0
53	BB	110	0	0	0	0
53	CA	58	0	0	0	0
53	CE	1	0	0	0	0
53	DB	110	0	0	0	0
53	DN	1	0	0	0	0
54	AA	23	0	24	2	0
54	CA	23	0	24	1	0
55	B4	1	0	0	0	0
55	D4	1	0	0	0	0
56	AA	288	0	0	6	0
56	AE	3	0	0	1	0
56	AK	1	0	0	0	0
56	AL	4	0	0	0	0
56	AN	2	0	0	0	0
56	AP	1	0	0	0	0
56	AT	1	0	0	0	0
56	BB	494	0	0	4	0
56	BC	4	0	0	0	0
56	BE	3	0	0	0	0
56	BH	1	0	0	0	0
56	BL	4	0	0	0	0
56	BT	1	0	0	0	0
56	CA	275	0	0	4	0
56	CE	4	0	0	0	0
56	CK	1	0	0	0	0
56	CL	5	0	0	0	0
56	CN	5	0	0	0	0
56	CP	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
56	CT	2	0	0	0	0
56	DB	500	0	0	9	0
56	DC	3	0	0	0	0
56	DD	1	0	0	0	0
56	DE	1	0	0	0	0
56	DJ	1	0	0	0	0
56	DL	3	0	0	0	0
56	DN	2	0	0	0	0
56	DP	1	0	0	0	0
56	DR	1	0	0	0	0
All	All	284033	0	190711	17874	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 38.

The worst 5 of 17874 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:DB:1099:G:H8	24:DI:3:LYS:N	1.36	1.21
23:BB:855:G:H21	52:BW:23:LYS:HG2	1.11	1.13
23:DB:322:A:H5'	23:DB:340:A:H1'	1.32	1.12
2:AC:70:ALA:HA	2:AC:105:VAL:HG21	1.26	1.11
23:BB:1205:A:H62	29:BE:165:HIS:HB2	1.11	1.10

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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
2	AC	204/232 (88%)	112 (55%)	56 (28%)	36 (18%)	<b>0</b> <b>2</b>
2	CC	204/232 (88%)	134 (66%)	48 (24%)	22 (11%)	<b>0</b> <b>8</b>

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	AD	203/205 (99%)	133 (66%)	58 (29%)	12 (6%)	1	19
3	CD	203/205 (99%)	132 (65%)	58 (29%)	13 (6%)	1	18
4	AE	148/166 (89%)	109 (74%)	30 (20%)	9 (6%)	1	18
4	CE	148/166 (89%)	108 (73%)	31 (21%)	9 (6%)	1	18
5	AF	98/135 (73%)	62 (63%)	27 (28%)	9 (9%)	1	12
5	CF	98/135 (73%)	64 (65%)	25 (26%)	9 (9%)	1	12
6	AG	148/178 (83%)	98 (66%)	44 (30%)	6 (4%)	3	25
6	CG	150/178 (84%)	101 (67%)	36 (24%)	13 (9%)	1	12
7	AH	127/129 (98%)	86 (68%)	35 (28%)	6 (5%)	2	23
7	CH	127/129 (98%)	85 (67%)	36 (28%)	6 (5%)	2	23
8	AI	125/129 (97%)	84 (67%)	25 (20%)	16 (13%)	0	5
8	CI	125/129 (97%)	89 (71%)	30 (24%)	6 (5%)	2	23
9	AJ	96/103 (93%)	61 (64%)	18 (19%)	17 (18%)	0	2
9	CJ	96/103 (93%)	62 (65%)	21 (22%)	13 (14%)	0	4
10	AK	115/128 (90%)	85 (74%)	26 (23%)	4 (4%)	3	29
10	CK	115/128 (90%)	84 (73%)	25 (22%)	6 (5%)	2	21
11	AL	121/123 (98%)	71 (59%)	34 (28%)	16 (13%)	0	4
11	CL	121/123 (98%)	72 (60%)	33 (27%)	16 (13%)	0	4
12	AM	112/117 (96%)	69 (62%)	36 (32%)	7 (6%)	1	18
12	CM	111/117 (95%)	77 (69%)	23 (21%)	11 (10%)	0	9
13	AP	80/82 (98%)	53 (66%)	18 (22%)	9 (11%)	0	7
13	CP	78/82 (95%)	53 (68%)	19 (24%)	6 (8%)	1	15
14	AQ	78/83 (94%)	61 (78%)	14 (18%)	3 (4%)	3	27
14	CQ	79/83 (95%)	62 (78%)	15 (19%)	2 (2%)	5	35
15	AR	53/74 (72%)	33 (62%)	17 (32%)	3 (6%)	1	19
15	CR	53/74 (72%)	33 (62%)	16 (30%)	4 (8%)	1	15
16	AS	77/91 (85%)	49 (64%)	21 (27%)	7 (9%)	1	12
16	CS	78/91 (86%)	51 (65%)	20 (26%)	7 (9%)	1	12
17	AT	83/86 (96%)	62 (75%)	16 (19%)	5 (6%)	1	19
17	CT	83/86 (96%)	63 (76%)	14 (17%)	6 (7%)	1	16
18	AB	216/240 (90%)	140 (65%)	53 (24%)	23 (11%)	0	8

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
18	CB	216/240 (90%)	135 (62%)	59 (27%)	22 (10%)	0	9
19	AU	49/70 (70%)	29 (59%)	13 (26%)	7 (14%)	0	3
19	CU	49/70 (70%)	29 (59%)	15 (31%)	5 (10%)	0	9
20	AO	86/89 (97%)	55 (64%)	24 (28%)	7 (8%)	1	14
20	CO	86/89 (97%)	50 (58%)	29 (34%)	7 (8%)	1	14
21	AN	92/100 (92%)	54 (59%)	29 (32%)	9 (10%)	0	10
21	CN	92/100 (92%)	45 (49%)	31 (34%)	16 (17%)	0	2
24	BI	139/141 (99%)	118 (85%)	16 (12%)	5 (4%)	3	28
24	DI	139/141 (99%)	115 (83%)	19 (14%)	5 (4%)	3	28
25	BC	269/272 (99%)	149 (55%)	68 (25%)	52 (19%)	0	2
25	DC	269/272 (99%)	147 (55%)	70 (26%)	52 (19%)	0	2
26	BD	207/209 (99%)	113 (55%)	58 (28%)	36 (17%)	0	2
26	DD	207/209 (99%)	114 (55%)	58 (28%)	35 (17%)	0	3
27	BK	119/123 (97%)	73 (61%)	24 (20%)	22 (18%)	0	2
27	DK	119/123 (97%)	73 (61%)	25 (21%)	21 (18%)	0	2
28	BP	112/114 (98%)	67 (60%)	28 (25%)	17 (15%)	0	3
28	DP	112/114 (98%)	66 (59%)	31 (28%)	15 (13%)	0	4
29	BE	199/201 (99%)	120 (60%)	49 (25%)	30 (15%)	0	3
29	DE	199/201 (99%)	123 (62%)	47 (24%)	29 (15%)	0	3
30	BY	56/58 (97%)	36 (64%)	16 (29%)	4 (7%)	1	16
30	DY	56/58 (97%)	36 (64%)	14 (25%)	6 (11%)	0	8
31	B0	54/56 (96%)	34 (63%)	10 (18%)	10 (18%)	0	2
31	D0	54/56 (96%)	35 (65%)	9 (17%)	10 (18%)	0	2
32	B4	36/38 (95%)	19 (53%)	13 (36%)	4 (11%)	0	7
32	D4	36/38 (95%)	19 (53%)	13 (36%)	4 (11%)	0	7
33	B1	48/54 (89%)	36 (75%)	8 (17%)	4 (8%)	1	13
33	D1	48/54 (89%)	35 (73%)	9 (19%)	4 (8%)	1	13
34	B3	62/64 (97%)	34 (55%)	20 (32%)	8 (13%)	0	5
34	D3	62/64 (97%)	35 (56%)	19 (31%)	8 (13%)	0	5
35	BV	92/94 (98%)	60 (65%)	25 (27%)	7 (8%)	1	15
35	DV	92/94 (98%)	61 (66%)	24 (26%)	7 (8%)	1	15

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
36	B2	44/46 (96%)	23 (52%)	16 (36%)	5 (11%)	0	6
36	D2	44/46 (96%)	23 (52%)	12 (27%)	9 (20%)	0	2
37	BL	141/144 (98%)	76 (54%)	37 (26%)	28 (20%)	0	2
37	DL	141/144 (98%)	76 (54%)	39 (28%)	26 (18%)	0	2
38	BM	134/136 (98%)	79 (59%)	39 (29%)	16 (12%)	0	6
38	DM	134/136 (98%)	82 (61%)	35 (26%)	17 (13%)	0	5
39	BX	61/63 (97%)	35 (57%)	20 (33%)	6 (10%)	0	10
39	DX	61/63 (97%)	35 (57%)	20 (33%)	6 (10%)	0	10
40	BH	147/149 (99%)	78 (53%)	42 (29%)	27 (18%)	0	2
40	DH	147/149 (99%)	91 (62%)	30 (20%)	26 (18%)	0	2
41	BJ	140/142 (99%)	85 (61%)	37 (26%)	18 (13%)	0	5
41	DJ	140/142 (99%)	85 (61%)	36 (26%)	19 (14%)	0	4
42	BN	118/127 (93%)	73 (62%)	33 (28%)	12 (10%)	0	9
42	DN	118/127 (93%)	74 (63%)	33 (28%)	11 (9%)	0	11
43	BO	114/117 (97%)	68 (60%)	28 (25%)	18 (16%)	0	3
43	DO	114/117 (97%)	66 (58%)	30 (26%)	18 (16%)	0	3
44	BQ	115/117 (98%)	76 (66%)	29 (25%)	10 (9%)	1	12
44	DQ	115/117 (98%)	76 (66%)	30 (26%)	9 (8%)	1	15
45	BS	108/110 (98%)	59 (55%)	34 (32%)	15 (14%)	0	4
45	DS	108/110 (98%)	60 (56%)	33 (31%)	15 (14%)	0	4
46	BU	100/103 (97%)	58 (58%)	25 (25%)	17 (17%)	0	3
46	DU	100/103 (97%)	57 (57%)	24 (24%)	19 (19%)	0	2
47	BF	176/178 (99%)	91 (52%)	51 (29%)	34 (19%)	0	2
47	DF	176/178 (99%)	93 (53%)	49 (28%)	34 (19%)	0	2
48	BG	174/176 (99%)	100 (58%)	42 (24%)	32 (18%)	0	2
48	DG	174/176 (99%)	101 (58%)	42 (24%)	31 (18%)	0	2
49	BR	101/103 (98%)	57 (56%)	26 (26%)	18 (18%)	0	2
49	DR	101/103 (98%)	58 (57%)	26 (26%)	17 (17%)	0	3
50	BT	91/100 (91%)	40 (44%)	40 (44%)	11 (12%)	0	6
50	DT	91/100 (91%)	41 (45%)	39 (43%)	11 (12%)	0	6
51	BZ	75/78 (96%)	53 (71%)	16 (21%)	6 (8%)	1	14

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
51	DZ	75/78 (96%)	54 (72%)	14 (19%)	7 (9%)	0	11
52	BW	77/84 (92%)	29 (38%)	24 (31%)	24 (31%)	0	0
52	DW	77/84 (92%)	27 (35%)	26 (34%)	24 (31%)	0	0
All	All	11241/11914 (94%)	6932 (62%)	2908 (26%)	1401 (12%)	0	5

5 of 1401 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	AC	14	VAL
2	AC	19	SER
2	AC	26	LYS
2	AC	47	ALA
2	AC	54	ILE

### 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 X-ray entries followed by that with respect to entries of similar resolution.

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	
2	AC	170/189 (90%)	139 (82%)	31 (18%)	1	11
2	CC	170/189 (90%)	134 (79%)	36 (21%)	1	6
3	AD	172/172 (100%)	145 (84%)	27 (16%)	2	16
3	CD	172/172 (100%)	146 (85%)	26 (15%)	3	17
4	AE	113/125 (90%)	93 (82%)	20 (18%)	2	12
4	CE	113/125 (90%)	93 (82%)	20 (18%)	2	12
5	AF	87/116 (75%)	76 (87%)	11 (13%)	4	22
5	CF	87/116 (75%)	75 (86%)	12 (14%)	3	21
6	AG	123/146 (84%)	102 (83%)	21 (17%)	2	13
6	CG	125/146 (86%)	98 (78%)	27 (22%)	1	6
7	AH	104/104 (100%)	95 (91%)	9 (9%)	10	35
7	CH	104/104 (100%)	95 (91%)	9 (9%)	10	35
8	AI	105/106 (99%)	78 (74%)	27 (26%)	0	4

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
8	CI	105/106 (99%)	79 (75%)	26 (25%)	0	4
9	AJ	86/90 (96%)	73 (85%)	13 (15%)	3	17
9	CJ	86/90 (96%)	72 (84%)	14 (16%)	2	15
10	AK	90/98 (92%)	73 (81%)	17 (19%)	1	10
10	CK	90/98 (92%)	73 (81%)	17 (19%)	1	10
11	AL	103/103 (100%)	87 (84%)	16 (16%)	2	17
11	CL	103/103 (100%)	87 (84%)	16 (16%)	2	17
12	AM	92/95 (97%)	72 (78%)	20 (22%)	1	6
12	CM	91/95 (96%)	75 (82%)	16 (18%)	2	12
13	AP	65/65 (100%)	61 (94%)	4 (6%)	18	46
13	CP	65/65 (100%)	61 (94%)	4 (6%)	18	46
14	AQ	74/77 (96%)	63 (85%)	11 (15%)	3	18
14	CQ	75/77 (97%)	63 (84%)	12 (16%)	2	16
15	AR	48/64 (75%)	41 (85%)	7 (15%)	3	18
15	CR	48/64 (75%)	40 (83%)	8 (17%)	2	14
16	AS	70/78 (90%)	49 (70%)	21 (30%)	0	2
16	CS	71/78 (91%)	51 (72%)	20 (28%)	0	2
17	AT	65/65 (100%)	51 (78%)	14 (22%)	1	6
17	CT	65/65 (100%)	51 (78%)	14 (22%)	1	6
18	AB	180/198 (91%)	141 (78%)	39 (22%)	1	6
18	CB	180/198 (91%)	133 (74%)	47 (26%)	0	4
19	AU	44/60 (73%)	31 (70%)	13 (30%)	0	2
19	CU	44/60 (73%)	32 (73%)	12 (27%)	0	3
20	AO	76/77 (99%)	65 (86%)	11 (14%)	3	19
20	CO	76/77 (99%)	61 (80%)	15 (20%)	1	8
21	AN	79/83 (95%)	63 (80%)	16 (20%)	1	7
21	CN	79/83 (95%)	64 (81%)	15 (19%)	1	9
24	BI	109/109 (100%)	108 (99%)	1 (1%)	78	87
24	DI	109/109 (100%)	103 (94%)	6 (6%)	21	50
25	BC	216/217 (100%)	180 (83%)	36 (17%)	2	14
25	DC	216/217 (100%)	181 (84%)	35 (16%)	2	15

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
26	BD	164/164 (100%)	134 (82%)	30 (18%)	1	11
26	DD	164/164 (100%)	133 (81%)	31 (19%)	1	10
27	BK	102/104 (98%)	76 (74%)	26 (26%)	0	4
27	DK	102/104 (98%)	78 (76%)	24 (24%)	1	5
28	BP	99/99 (100%)	77 (78%)	22 (22%)	1	6
28	DP	99/99 (100%)	77 (78%)	22 (22%)	1	6
29	BE	165/165 (100%)	143 (87%)	22 (13%)	4	22
29	DE	165/165 (100%)	143 (87%)	22 (13%)	4	22
30	BY	48/48 (100%)	39 (81%)	9 (19%)	1	10
30	DY	48/48 (100%)	39 (81%)	9 (19%)	1	10
31	B0	47/47 (100%)	36 (77%)	11 (23%)	1	5
31	D0	47/47 (100%)	37 (79%)	10 (21%)	1	6
32	B4	34/34 (100%)	30 (88%)	4 (12%)	5	24
32	D4	34/34 (100%)	31 (91%)	3 (9%)	10	35
33	B1	45/48 (94%)	39 (87%)	6 (13%)	4	22
33	D1	45/48 (94%)	39 (87%)	6 (13%)	4	22
34	B3	51/51 (100%)	45 (88%)	6 (12%)	5	24
34	D3	51/51 (100%)	45 (88%)	6 (12%)	5	24
35	BV	78/78 (100%)	64 (82%)	14 (18%)	2	12
35	DV	78/78 (100%)	64 (82%)	14 (18%)	2	12
36	B2	38/38 (100%)	32 (84%)	6 (16%)	2	16
36	D2	38/38 (100%)	33 (87%)	5 (13%)	4	22
37	BL	102/103 (99%)	89 (87%)	13 (13%)	4	22
37	DL	102/103 (99%)	90 (88%)	12 (12%)	5	24
38	BM	109/109 (100%)	86 (79%)	23 (21%)	1	6
38	DM	109/109 (100%)	86 (79%)	23 (21%)	1	6
39	BX	55/55 (100%)	43 (78%)	12 (22%)	1	6
39	DX	55/55 (100%)	45 (82%)	10 (18%)	1	11
40	BH	114/114 (100%)	81 (71%)	33 (29%)	0	2
40	DH	114/114 (100%)	89 (78%)	25 (22%)	1	6
41	BJ	116/116 (100%)	95 (82%)	21 (18%)	1	11

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
41	DJ	116/116 (100%)	96 (83%)	20 (17%)	2	13
42	BN	100/103 (97%)	87 (87%)	13 (13%)	4	22
42	DN	100/103 (97%)	87 (87%)	13 (13%)	4	22
43	BO	86/87 (99%)	72 (84%)	14 (16%)	2	15
43	DO	86/87 (99%)	72 (84%)	14 (16%)	2	15
44	BQ	89/89 (100%)	74 (83%)	15 (17%)	2	14
44	DQ	89/89 (100%)	74 (83%)	15 (17%)	2	14
45	BS	93/93 (100%)	80 (86%)	13 (14%)	3	20
45	DS	93/93 (100%)	80 (86%)	13 (14%)	3	20
46	BU	83/84 (99%)	69 (83%)	14 (17%)	2	14
46	DU	83/84 (99%)	69 (83%)	14 (17%)	2	14
47	BF	149/149 (100%)	117 (78%)	32 (22%)	1	6
47	DF	149/149 (100%)	116 (78%)	33 (22%)	1	6
48	BG	137/137 (100%)	112 (82%)	25 (18%)	1	11
48	DG	137/137 (100%)	112 (82%)	25 (18%)	1	11
49	BR	84/84 (100%)	71 (84%)	13 (16%)	2	17
49	DR	84/84 (100%)	73 (87%)	11 (13%)	4	22
50	BT	80/84 (95%)	59 (74%)	21 (26%)	0	4
50	DT	80/84 (95%)	60 (75%)	20 (25%)	0	4
51	BZ	67/68 (98%)	53 (79%)	14 (21%)	1	7
51	DZ	67/68 (98%)	53 (79%)	14 (21%)	1	7
52	BW	59/62 (95%)	42 (71%)	17 (29%)	0	2
52	DW	59/62 (95%)	42 (71%)	17 (29%)	0	2
All	All	9333/9700 (96%)	7661 (82%)	1672 (18%)	2	12

5 of 1672 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
11	CL	86	VAL
18	CB	43	GLU
48	DG	86	LEU
15	CR	42	ARG
11	CL	49	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 332 such sidechains are listed below:

Mol	Chain	Res	Type
18	CB	119	GLN
39	DX	27	ASN
24	DI	33	ASN
29	DE	24	ASN
43	DO	61	GLN

### 5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	AA	1529/1542 (99%)	292 (19%)	25 (1%)
1	CA	1529/1542 (99%)	282 (18%)	21 (1%)
22	BA	116/120 (96%)	21 (18%)	1 (0%)
22	DA	116/120 (96%)	19 (16%)	1 (0%)
23	BB	2837/2904 (97%)	456 (16%)	18 (0%)
23	DB	2837/2904 (97%)	469 (16%)	20 (0%)
All	All	8964/9132 (98%)	1539 (17%)	86 (0%)

5 of 1539 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	AA	7	A
1	AA	9	G
1	AA	14	U
1	AA	32	A
1	AA	39	G

5 of 86 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	CA	1049	U
23	DB	1210	G
1	CA	1067	A
22	DA	25	U
23	DB	1847	A

## 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](#)

Of 344 ligands modelled in this entry, 342 are monoatomic - leaving 2 for Mogul analysis.

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
54	SCM	AA	1661	-	23,25,25	1.66	8 (34%)	26,39,39	1.32	2 (7%)
54	SCM	CA	1659	-	23,25,25	1.61	6 (26%)	26,39,39	1.32	2 (7%)

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
54	SCM	AA	1661	-	-	2/4/57/57	0/3/3/3
54	SCM	CA	1659	-	-	2/4/57/57	0/3/3/3

The worst 5 of 14 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
54	CA	1659	SCM	C9-C8	3.10	1.59	1.53
54	AA	1661	SCM	C3-C2	3.03	1.58	1.51
54	AA	1661	SCM	C9-C8	2.91	1.58	1.53
54	CA	1659	SCM	C3-C2	2.82	1.57	1.51
54	AA	1661	SCM	C3-C4	2.56	1.54	1.50

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
54	AA	1661	SCM	C1M-N10-C10	-4.88	107.28	114.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
54	CA	1659	SCM	C1M-N10-C10	-4.55	107.76	114.38
54	CA	1659	SCM	C2M-C2-C3	-2.62	108.11	113.22
54	AA	1661	SCM	C2M-C2-C3	-2.42	108.49	113.22

There are no chirality outliers.

All (4) torsion outliers are listed below:

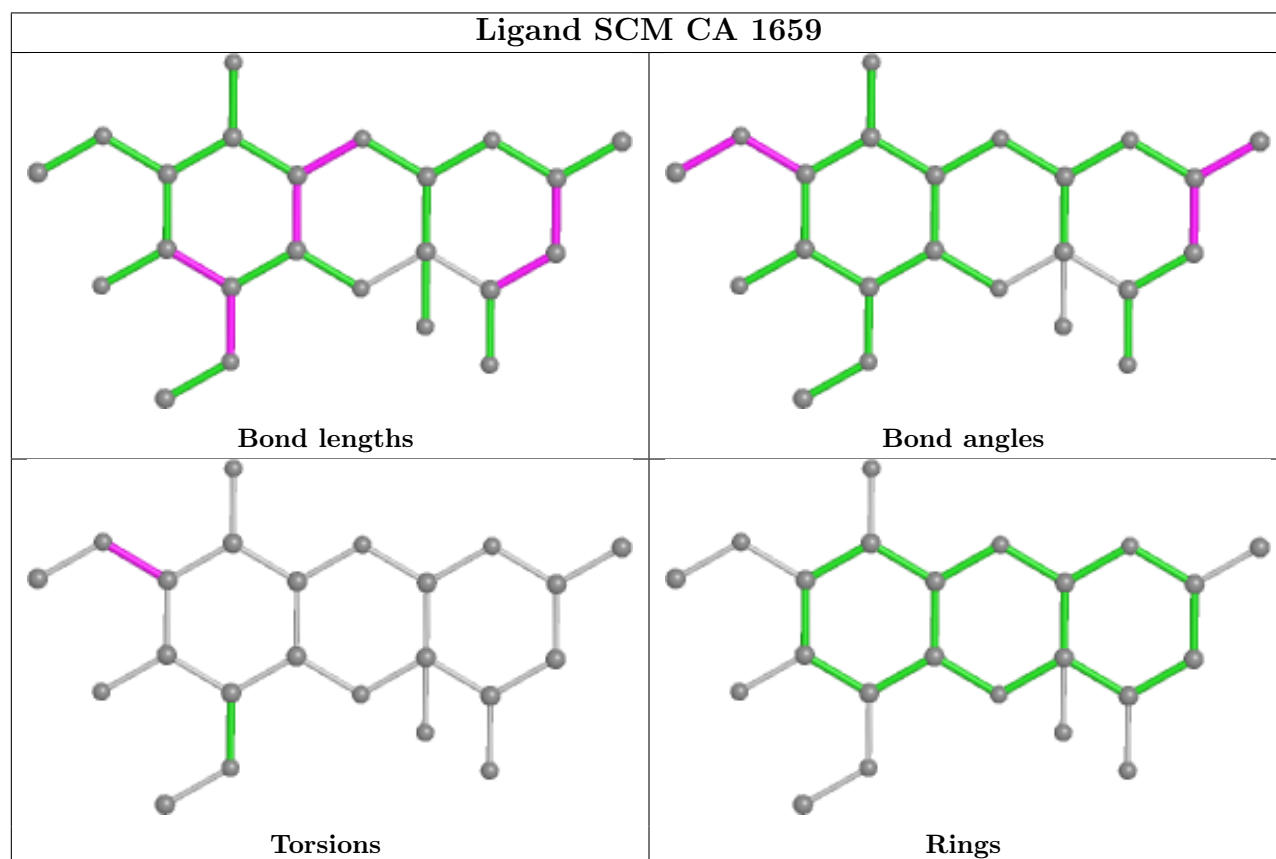
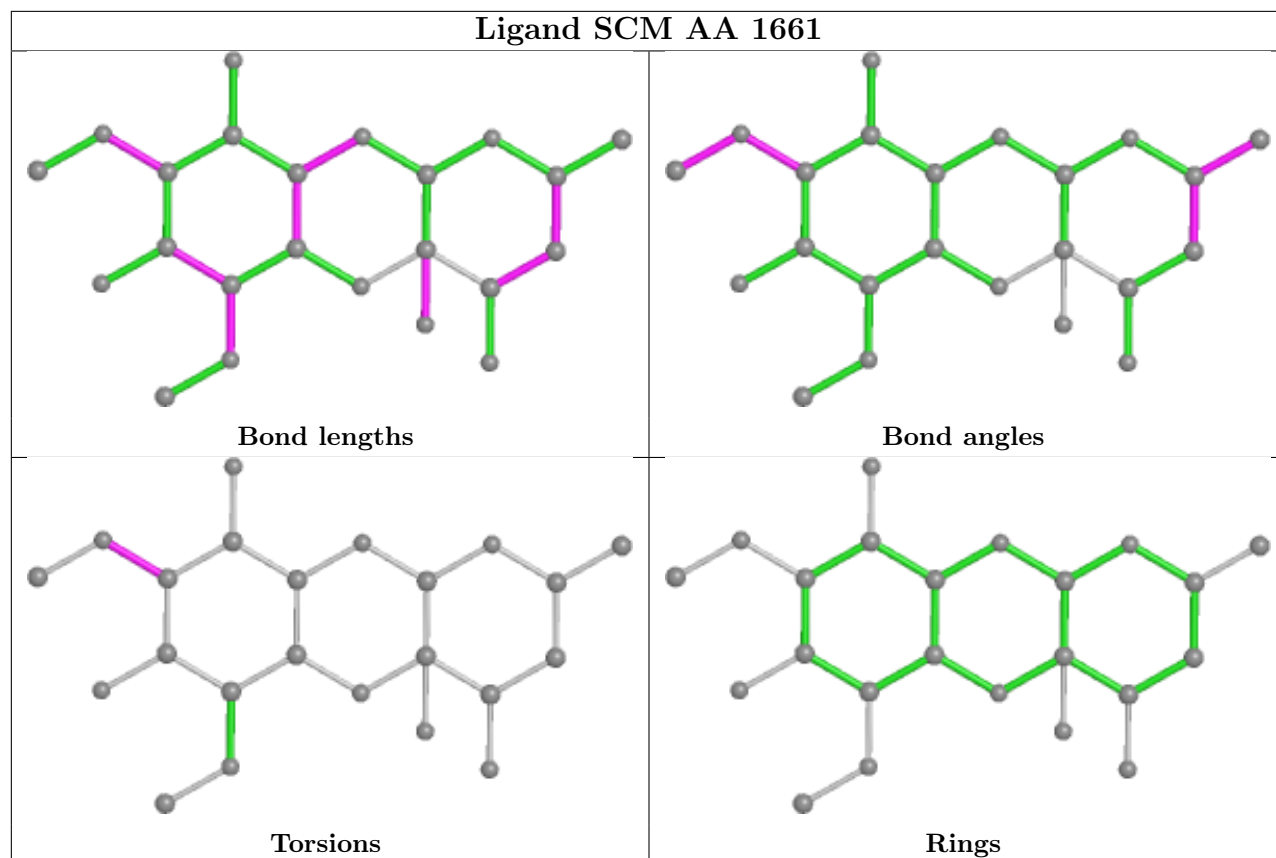
Mol	Chain	Res	Type	Atoms
54	AA	1661	SCM	C9-C10-N10-C1M
54	AA	1661	SCM	C11-C10-N10-C1M
54	CA	1659	SCM	C11-C10-N10-C1M
54	CA	1659	SCM	C9-C10-N10-C1M

There are no ring outliers.

2 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
54	AA	1661	SCM	2	0
54	CA	1659	SCM	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



## 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 Fit of model and data i

### 6.1 Protein, DNA and RNA chains i

In the following table, the column labelled '#RSRZ > 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q < 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ > 2	OWAB(Å <sup>2</sup> )	Q < 0.9
1	AA	1530/1542 (99%)	-0.77	9 (0%) 89 84	12, 77, 142, 179	0
1	CA	1530/1542 (99%)	-0.76	2 (0%) 95 94	5, 57, 124, 180	0
2	AC	206/232 (88%)	0.22	15 (7%) 15 12	5, 70, 115, 162	0
2	CC	206/232 (88%)	0.53	28 (13%) 3 3	5, 71, 111, 150	0
3	AD	205/205 (100%)	-0.05	12 (5%) 22 18	5, 79, 127, 173	0
3	CD	205/205 (100%)	0.57	20 (9%) 7 7	5, 66, 125, 166	0
4	AE	150/166 (90%)	0.06	4 (2%) 54 44	5, 68, 122, 157	0
4	CE	150/166 (90%)	1.49	51 (34%) 0 0	5, 67, 121, 180	0
5	AF	100/135 (74%)	2.52	62 (62%) 0 0	10, 81, 133, 147	0
5	CF	100/135 (74%)	-0.47	0 100 100	5, 73, 131, 172	0
6	AG	150/178 (84%)	0.74	28 (18%) 1 1	16, 89, 125, 143	0
6	CG	152/178 (85%)	-0.54	0 100 100	6, 79, 125, 172	0
7	AH	129/129 (100%)	0.37	16 (12%) 4 5	19, 77, 130, 158	0
7	CH	129/129 (100%)	0.75	26 (20%) 1 1	5, 62, 116, 158	0
8	AI	127/129 (98%)	0.76	24 (18%) 1 1	6, 83, 117, 155	0
8	CI	127/129 (98%)	0.02	2 (1%) 72 62	5, 80, 122, 157	0
9	AJ	98/103 (95%)	0.49	4 (4%) 37 30	9, 79, 126, 147	0
9	CJ	98/103 (95%)	1.28	29 (29%) 0 0	16, 82, 113, 137	0
10	AK	117/128 (91%)	0.23	4 (3%) 45 36	5, 72, 117, 155	0
10	CK	117/128 (91%)	-0.54	0 100 100	5, 67, 123, 136	0
11	AL	123/123 (100%)	1.01	30 (24%) 0 0	6, 79, 123, 158	0
11	CL	123/123 (100%)	0.26	6 (4%) 29 25	5, 54, 103, 151	0
12	AM	114/117 (97%)	0.95	22 (19%) 1 1	23, 96, 137, 169	0
12	CM	113/117 (96%)	-0.21	5 (4%) 34 29	22, 96, 142, 162	0

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
13	AP	82/82 (100%)	1.48	25 (30%) 0 0	15, 82, 130, 163	0
13	CP	80/82 (97%)	0.05	5 (6%) 20 16	5, 58, 126, 180	0
14	AQ	80/83 (96%)	1.25	23 (28%) 0 0	15, 92, 145, 154	0
14	CQ	81/83 (97%)	0.26	3 (3%) 41 33	5, 72, 119, 149	0
15	AR	55/74 (74%)	0.81	8 (14%) 2 3	5, 73, 129, 164	0
15	CR	55/74 (74%)	0.23	3 (5%) 25 22	5, 66, 127, 143	0
16	AS	79/91 (86%)	1.98	39 (49%) 0 0	52, 98, 142, 167	0
16	CS	80/91 (87%)	0.50	13 (16%) 1 2	41, 95, 133, 159	0
17	AT	85/86 (98%)	-0.68	0 100 100	19, 88, 126, 156	0
17	CT	85/86 (98%)	-0.28	1 (1%) 79 70	5, 66, 113, 154	0
18	AB	218/240 (90%)	-0.07	10 (4%) 32 27	12, 81, 120, 160	0
18	CB	218/240 (90%)	0.92	50 (22%) 0 0	5, 87, 133, 163	0
19	AU	51/70 (72%)	0.78	8 (15%) 2 2	20, 94, 139, 153	0
19	CU	51/70 (72%)	0.11	2 (3%) 39 31	57, 96, 137, 171	0
20	AO	88/89 (98%)	1.00	11 (12%) 3 5	5, 73, 118, 177	0
20	CO	88/89 (98%)	-0.48	0 100 100	5, 56, 108, 135	0
21	AN	96/100 (96%)	1.33	30 (31%) 0 0	5, 84, 128, 155	0
21	CN	96/100 (96%)	1.13	24 (25%) 0 0	5, 75, 129, 145	0
22	BA	117/120 (97%)	0.07	2 (1%) 70 60	35, 77, 125, 167	0
22	DA	117/120 (97%)	-0.56	1 (0%) 84 77	31, 87, 133, 176	0
23	BB	2841/2904 (97%)	-0.46	23 (0%) 86 79	5, 60, 136, 180	0
23	DB	2841/2904 (97%)	-0.52	23 (0%) 86 79	5, 51, 136, 180	0
24	BI	141/141 (100%)	2.65	68 (48%) 0 0	60, 135, 178, 180	0
24	DI	141/141 (100%)	1.29	38 (26%) 0 0	66, 135, 180, 180	0
25	BC	271/272 (99%)	1.41	88 (32%) 0 0	5, 61, 109, 132	0
25	DC	271/272 (99%)	0.80	54 (19%) 1 1	5, 45, 99, 144	0
26	BD	209/209 (100%)	0.49	29 (13%) 2 3	5, 71, 118, 148	0
26	DD	209/209 (100%)	0.91	38 (18%) 1 2	5, 60, 110, 168	0
27	BK	121/123 (98%)	2.08	65 (53%) 0 0	5, 75, 125, 159	0
27	DK	121/123 (98%)	1.05	27 (22%) 0 1	5, 45, 112, 150	0
28	BP	114/114 (100%)	1.54	47 (41%) 0 0	7, 82, 125, 155	0

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
28	DP	114/114 (100%)	0.40	6 (5%) 26 23	5, 64, 118, 139	0
29	BE	201/201 (100%)	0.81	33 (16%) 1 2	5, 65, 128, 164	0
29	DE	201/201 (100%)	1.23	58 (28%) 0 0	5, 73, 123, 160	0
30	BY	58/58 (100%)	-0.26	1 (1%) 70 60	5, 75, 129, 160	0
30	DY	58/58 (100%)	-0.23	3 (5%) 27 24	5, 72, 116, 147	0
31	B0	56/56 (100%)	0.04	2 (3%) 42 34	5, 78, 118, 147	0
31	D0	56/56 (100%)	0.18	1 (1%) 68 60	5, 62, 129, 153	0
32	B4	38/38 (100%)	0.95	8 (21%) 1 1	27, 81, 131, 145	0
32	D4	38/38 (100%)	-0.34	0 100 100	5, 67, 106, 117	0
33	B1	50/54 (92%)	0.62	4 (8%) 12 11	17, 70, 120, 134	0
33	D1	50/54 (92%)	0.34	5 (10%) 7 7	17, 73, 116, 137	0
34	B3	64/64 (100%)	-0.23	1 (1%) 72 62	5, 68, 103, 129	0
34	D3	64/64 (100%)	1.36	22 (34%) 0 0	5, 55, 86, 122	0
35	BV	94/94 (100%)	0.64	14 (14%) 2 3	5, 81, 126, 152	0
35	DV	94/94 (100%)	0.94	21 (22%) 0 1	5, 88, 120, 160	0
36	B2	46/46 (100%)	0.77	5 (10%) 5 5	5, 53, 104, 141	0
36	D2	46/46 (100%)	1.64	20 (43%) 0 0	9, 48, 110, 141	0
37	BL	143/144 (99%)	-0.16	2 (1%) 75 66	5, 67, 121, 145	0
37	DL	143/144 (99%)	1.63	57 (39%) 0 0	5, 63, 111, 145	0
38	BM	136/136 (100%)	0.91	21 (15%) 2 2	7, 68, 121, 179	0
38	DM	136/136 (100%)	1.31	39 (28%) 0 0	5, 65, 117, 144	0
39	BX	63/63 (100%)	1.00	13 (20%) 1 1	16, 79, 128, 159	0
39	DX	63/63 (100%)	1.09	9 (14%) 2 3	16, 91, 144, 169	0
40	BH	149/149 (100%)	3.05	87 (58%) 0 0	7, 104, 149, 180	0
40	DH	149/149 (100%)	0.85	26 (17%) 1 2	5, 91, 131, 162	0
41	BJ	142/142 (100%)	0.94	29 (20%) 1 1	5, 77, 118, 140	0
41	DJ	142/142 (100%)	0.27	10 (7%) 16 13	5, 70, 119, 173	0
42	BN	120/127 (94%)	0.84	17 (14%) 2 3	5, 69, 111, 154	0
42	DN	120/127 (94%)	0.02	6 (5%) 28 25	5, 51, 94, 163	0
43	BO	116/117 (99%)	-0.08	7 (6%) 21 17	6, 80, 109, 172	0
43	DO	116/117 (99%)	0.90	20 (17%) 1 2	5, 83, 136, 158	0

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
44	BQ	117/117 (100%)	-0.62	1 (0%) 84 77	5, 62, 115, 144	0
44	DQ	117/117 (100%)	0.46	12 (10%) 6 6	5, 60, 111, 154	0
45	BS	110/110 (100%)	0.39	7 (6%) 19 15	5, 62, 121, 148	0
45	DS	110/110 (100%)	1.42	36 (32%) 0 0	5, 64, 127, 156	0
46	BU	102/103 (99%)	0.84	16 (15%) 2 2	12, 80, 125, 157	0
46	DU	102/103 (99%)	-0.41	0 100 100	8, 94, 127, 149	0
47	BF	178/178 (100%)	0.73	31 (17%) 1 2	29, 100, 146, 180	0
47	DF	178/178 (100%)	2.23	89 (50%) 0 0	12, 93, 142, 163	0
48	BG	176/176 (100%)	0.76	31 (17%) 1 2	18, 94, 133, 171	0
48	DG	176/176 (100%)	0.40	24 (13%) 3 3	8, 90, 136, 166	0
49	BR	103/103 (100%)	-0.03	4 (3%) 39 31	5, 83, 123, 133	0
49	DR	103/103 (100%)	0.13	5 (4%) 29 25	10, 76, 135, 149	0
50	BT	93/100 (93%)	-0.07	2 (2%) 62 52	8, 83, 130, 165	0
50	DT	93/100 (93%)	2.27	51 (54%) 0 0	5, 84, 144, 172	0
51	BZ	77/78 (98%)	0.57	12 (15%) 2 2	5, 63, 120, 142	0
51	DZ	77/78 (98%)	0.01	1 (1%) 77 68	5, 56, 106, 120	0
52	BW	79/84 (94%)	0.45	6 (7%) 13 12	5, 75, 124, 180	0
52	DW	79/84 (94%)	0.69	9 (11%) 5 5	5, 71, 121, 166	0
All	All	20417/21046 (97%)	0.14	2041 (9%) 7 7	5, 70, 134, 180	0

The worst 5 of 2041 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
24	BI	17	ALA	14.4
23	BB	546	U	12.7
24	BI	18	ASN	12.4
40	BH	124	THR	12.3
24	BI	51	GLY	12.2

## 6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

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

### 6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

### 6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
53	MG	AA	1608	1/1	0.56	0.13	123,123,123,123	0
53	MG	BB	3042	1/1	0.60	0.23	92,92,92,92	0
53	MG	BB	3097	1/1	0.60	0.07	113,113,113,113	0
53	MG	AA	1622	1/1	0.70	0.34	130,130,130,130	0
53	MG	AA	1624	1/1	0.70	0.24	83,83,83,83	0
53	MG	AA	1635	1/1	0.77	0.15	80,80,80,80	0
53	MG	DB	3052	1/1	0.77	0.29	105,105,105,105	0
53	MG	DB	3058	1/1	0.77	0.09	139,139,139,139	0
53	MG	AA	1620	1/1	0.79	0.06	60,60,60,60	0
53	MG	BB	3033	1/1	0.79	0.34	102,102,102,102	0
53	MG	DB	3094	1/1	0.79	0.14	100,100,100,100	0
53	MG	DB	3059	1/1	0.81	0.11	99,99,99,99	0
53	MG	AA	1625	1/1	0.82	0.39	79,79,79,79	1
53	MG	CA	1646	1/1	0.82	0.11	139,139,139,139	0
53	MG	AA	1623	1/1	0.83	0.37	33,33,33,33	1
53	MG	CA	1650	1/1	0.83	0.10	105,105,105,105	0
53	MG	CA	1612	1/1	0.84	0.28	93,93,93,93	0
53	MG	CA	1618	1/1	0.84	0.13	73,73,73,73	0
53	MG	BB	3049	1/1	0.84	0.19	67,67,67,67	0
53	MG	AA	1614	1/1	0.84	0.18	119,119,119,119	0
53	MG	CA	1640	1/1	0.85	0.11	62,62,62,62	0
53	MG	AA	1646	1/1	0.85	0.10	84,84,84,84	0
53	MG	AA	1647	1/1	0.85	0.81	113,113,113,113	0
53	MG	CA	1651	1/1	0.85	0.08	101,101,101,101	0
53	MG	AA	1652	1/1	0.86	0.08	84,84,84,84	0
53	MG	DB	3029	1/1	0.86	0.70	87,87,87,87	0
53	MG	CA	1644	1/1	0.86	0.14	57,57,57,57	0
53	MG	BB	3037	1/1	0.87	0.13	45,45,45,45	0
53	MG	AA	1626	1/1	0.88	0.20	36,36,36,36	1
53	MG	CA	1613	1/1	0.88	0.49	126,126,126,126	0
53	MG	DB	3013	1/1	0.88	0.08	52,52,52,52	0
53	MG	BB	3080	1/1	0.88	0.15	53,53,53,53	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
53	MG	DB	3045	1/1	0.88	0.11	110,110,110,110	0
53	MG	BB	3093	1/1	0.88	0.11	108,108,108,108	0
53	MG	BB	3035	1/1	0.88	0.07	13,13,13,13	0
53	MG	CA	1606	1/1	0.88	0.14	106,106,106,106	0
53	MG	CA	1648	1/1	0.88	0.07	104,104,104,104	0
53	MG	AA	1617	1/1	0.89	0.09	112,112,112,112	0
53	MG	AA	1606	1/1	0.89	0.07	82,82,82,82	0
53	MG	AA	1637	1/1	0.89	0.32	99,99,99,99	0
53	MG	AA	1655	1/1	0.89	0.14	88,88,88,88	0
53	MG	DB	3066	1/1	0.89	0.33	65,65,65,65	0
53	MG	BB	3009	1/1	0.89	0.10	98,98,98,98	0
53	MG	DB	3032	1/1	0.90	0.16	73,73,73,73	0
53	MG	CA	1616	1/1	0.90	0.33	58,58,58,58	1
53	MG	CA	1649	1/1	0.90	0.27	123,123,123,123	0
53	MG	AA	1642	1/1	0.90	0.14	49,49,49,49	0
53	MG	BB	3068	1/1	0.90	0.19	13,13,13,13	0
53	MG	DB	3063	1/1	0.90	0.17	72,72,72,72	0
53	MG	BB	3010	1/1	0.90	0.16	53,53,53,53	0
53	MG	AA	1649	1/1	0.90	0.04	89,89,89,89	0
53	MG	BB	3051	1/1	0.91	0.12	107,107,107,107	0
53	MG	CA	1608	1/1	0.91	0.05	76,76,76,76	0
53	MG	DB	3034	1/1	0.91	0.08	57,57,57,57	0
53	MG	AA	1627	1/1	0.91	0.07	63,63,63,63	0
53	MG	AA	1657	1/1	0.91	0.34	91,91,91,91	0
53	MG	BB	3046	1/1	0.91	0.10	89,89,89,89	0
53	MG	AA	1612	1/1	0.91	0.08	61,61,61,61	0
53	MG	CA	1629	1/1	0.91	0.17	67,67,67,67	0
53	MG	CA	1654	1/1	0.91	0.22	105,105,105,105	0
53	MG	CA	1634	1/1	0.91	0.11	74,74,74,74	0
54	SCM	CA	1659	23/23	0.91	0.16	18,18,18,18	0
53	MG	CE	201	1/1	0.92	0.08	109,109,109,109	0
53	MG	CA	1627	1/1	0.92	0.07	27,27,27,27	0
53	MG	CA	1628	1/1	0.92	0.11	52,52,52,52	0
53	MG	BB	3081	1/1	0.92	0.10	30,30,30,30	0
53	MG	BB	3001	1/1	0.92	0.19	5,5,5,5	0
53	MG	DB	3035	1/1	0.92	0.22	79,79,79,79	0
53	MG	BB	3004	1/1	0.92	0.05	80,80,80,80	0
53	MG	DB	3050	1/1	0.92	0.11	80,80,80,80	0
53	MG	BB	3043	1/1	0.92	0.12	107,107,107,107	0
53	MG	AA	1605	1/1	0.92	0.10	50,50,50,50	0
53	MG	CA	1609	1/1	0.92	0.10	85,85,85,85	0
53	MG	AA	1633	1/1	0.92	0.05	65,65,65,65	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
53	MG	BB	3014	1/1	0.92	0.07	37,37,37,37	0
53	MG	AA	1656	1/1	0.92	0.14	87,87,87,87	0
53	MG	DB	3104	1/1	0.92	0.12	29,29,29,29	0
53	MG	DN	201	1/1	0.92	0.51	145,145,145,145	0
53	MG	AA	1650	1/1	0.92	0.08	94,94,94,94	0
53	MG	DB	3064	1/1	0.93	0.39	49,49,49,49	0
53	MG	BB	3108	1/1	0.93	0.06	10,10,10,10	0
53	MG	CA	1617	1/1	0.93	0.18	88,88,88,88	0
53	MG	CA	1632	1/1	0.93	0.24	76,76,76,76	0
53	MG	DB	3005	1/1	0.93	0.17	25,25,25,25	0
53	MG	CA	1645	1/1	0.93	0.10	55,55,55,55	0
55	ZN	D4	101	1/1	0.93	0.05	62,62,62,62	0
53	MG	BB	3064	1/1	0.94	0.19	78,78,78,78	0
53	MG	AA	1621	1/1	0.94	0.17	36,36,36,36	0
53	MG	BB	3071	1/1	0.94	0.18	68,68,68,68	0
53	MG	BB	3079	1/1	0.94	0.07	38,38,38,38	0
53	MG	AA	1628	1/1	0.94	0.18	70,70,70,70	0
53	MG	BB	3005	1/1	0.94	0.11	5,5,5,5	0
53	MG	CA	1625	1/1	0.94	0.05	70,70,70,70	0
53	MG	BB	3008	1/1	0.94	0.12	82,82,82,82	0
53	MG	AA	1602	1/1	0.94	0.12	85,85,85,85	0
53	MG	AA	1645	1/1	0.94	0.20	70,70,70,70	0
53	MG	AA	1658	1/1	0.94	0.04	120,120,120,120	0
53	MG	DB	3067	1/1	0.94	0.06	5,5,5,5	0
53	MG	DB	3071	1/1	0.94	0.17	57,57,57,57	0
53	MG	DB	3091	1/1	0.94	0.11	90,90,90,90	0
53	MG	BB	3020	1/1	0.94	0.31	6,6,6,6	0
53	MG	DB	3016	1/1	0.94	0.08	5,5,5,5	0
53	MG	DB	3109	1/1	0.94	0.04	9,9,9,9	0
53	MG	DB	3022	1/1	0.94	0.06	11,11,11,11	0
53	MG	DB	3028	1/1	0.94	0.18	70,70,70,70	0
55	ZN	B4	101	1/1	0.94	0.07	67,67,67,67	0
53	MG	CA	1637	1/1	0.94	0.17	98,98,98,98	0
53	MG	BB	3003	1/1	0.95	0.06	53,53,53,53	0
53	MG	CA	1615	1/1	0.95	0.06	13,13,13,13	0
53	MG	DB	3051	1/1	0.95	0.11	75,75,75,75	0
53	MG	BB	3090	1/1	0.95	0.10	88,88,88,88	0
53	MG	DB	3053	1/1	0.95	0.07	65,65,65,65	0
53	MG	BB	3092	1/1	0.95	0.09	46,46,46,46	0
53	MG	BB	3015	1/1	0.95	0.10	25,25,25,25	0
53	MG	DB	3060	1/1	0.95	0.12	83,83,83,83	0
53	MG	AA	1654	1/1	0.95	0.07	67,67,67,67	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
53	MG	BB	3099	1/1	0.95	0.06	41,41,41,41	0
53	MG	DB	3065	1/1	0.95	0.07	128,128,128,128	0
53	MG	DB	3003	1/1	0.95	0.05	30,30,30,30	0
53	MG	BB	3104	1/1	0.95	0.17	26,26,26,26	0
53	MG	BB	3069	1/1	0.95	0.07	5,5,5,5	0
53	MG	CA	1631	1/1	0.95	0.04	41,41,41,41	0
53	MG	DB	3018	1/1	0.95	0.09	7,7,7,7	0
53	MG	DB	3096	1/1	0.95	0.11	26,26,26,26	0
53	MG	CA	1604	1/1	0.95	0.10	20,20,20,20	0
53	MG	DB	3108	1/1	0.95	0.10	43,43,43,43	0
53	MG	CA	1605	1/1	0.95	0.05	12,12,12,12	0
53	MG	DB	3110	1/1	0.95	0.12	84,84,84,84	0
53	MG	BB	3023	1/1	0.95	0.10	5,5,5,5	0
53	MG	BB	3078	1/1	0.95	0.19	27,27,27,27	0
53	MG	BB	3025	1/1	0.95	0.15	30,30,30,30	0
53	MG	AA	1618	1/1	0.95	0.08	38,38,38,38	0
53	MG	BB	3052	1/1	0.96	0.10	71,71,71,71	0
53	MG	DB	3041	1/1	0.96	0.08	40,40,40,40	0
53	MG	BB	3054	1/1	0.96	0.13	49,49,49,49	0
53	MG	BB	3110	1/1	0.96	0.13	80,80,80,80	0
53	MG	CA	1641	1/1	0.96	0.10	42,42,42,42	0
53	MG	BB	3057	1/1	0.96	0.16	53,53,53,53	0
53	MG	AA	1615	1/1	0.96	0.35	96,96,96,96	0
53	MG	DB	3055	1/1	0.96	0.16	44,44,44,44	0
53	MG	BB	3032	1/1	0.96	0.07	22,22,22,22	0
53	MG	AA	1603	1/1	0.96	0.10	57,57,57,57	0
53	MG	BB	3070	1/1	0.96	0.05	74,74,74,74	0
53	MG	BB	3034	1/1	0.96	0.12	86,86,86,86	0
53	MG	BB	3076	1/1	0.96	0.12	35,35,35,35	0
53	MG	AA	1613	1/1	0.96	0.04	58,58,58,58	0
53	MG	CA	1658	1/1	0.96	0.08	37,37,37,37	0
53	MG	BB	3036	1/1	0.96	0.20	51,51,51,51	0
53	MG	DB	3001	1/1	0.96	0.06	5,5,5,5	0
53	MG	DB	3089	1/1	0.96	0.13	79,79,79,79	0
53	MG	AA	1601	1/1	0.96	0.09	36,36,36,36	0
53	MG	BB	3038	1/1	0.96	0.08	92,92,92,92	0
53	MG	CA	1623	1/1	0.96	0.10	11,11,11,11	0
53	MG	DB	3100	1/1	0.96	0.17	19,19,19,19	0
53	MG	DB	3103	1/1	0.96	0.06	36,36,36,36	0
53	MG	BB	3088	1/1	0.96	0.06	11,11,11,11	0
53	MG	BB	3017	1/1	0.96	0.13	50,50,50,50	0
53	MG	BB	3006	1/1	0.96	0.15	61,61,61,61	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
53	MG	DB	3027	1/1	0.96	0.07	13,13,13,13	0
53	MG	BB	3021	1/1	0.96	0.13	52,52,52,52	0
53	MG	AA	1632	1/1	0.96	0.21	96,96,96,96	0
53	MG	BB	3024	1/1	0.96	0.09	55,55,55,55	0
53	MG	CA	1633	1/1	0.96	0.06	23,23,23,23	0
53	MG	BB	3067	1/1	0.97	0.17	63,63,63,63	0
53	MG	CA	1638	1/1	0.97	0.10	86,86,86,86	0
53	MG	AA	1638	1/1	0.97	0.07	51,51,51,51	0
53	MG	AA	1619	1/1	0.97	0.04	111,111,111,111	0
53	MG	AA	1651	1/1	0.97	0.06	35,35,35,35	0
53	MG	BB	3039	1/1	0.97	0.15	41,41,41,41	0
53	MG	BB	3075	1/1	0.97	0.09	40,40,40,40	0
53	MG	CA	1647	1/1	0.97	0.06	75,75,75,75	0
53	MG	DB	3054	1/1	0.97	0.15	21,21,21,21	0
53	MG	CA	1607	1/1	0.97	0.06	5,5,5,5	0
53	MG	DB	3057	1/1	0.97	0.05	48,48,48,48	0
53	MG	AA	1659	1/1	0.97	0.39	108,108,108,108	0
53	MG	AA	1660	1/1	0.97	0.03	56,56,56,56	0
53	MG	BB	3027	1/1	0.97	0.06	50,50,50,50	0
53	MG	CA	1652	1/1	0.97	0.07	49,49,49,49	0
53	MG	CA	1653	1/1	0.97	0.07	48,48,48,48	0
53	MG	BB	3030	1/1	0.97	0.07	51,51,51,51	0
53	MG	BB	3031	1/1	0.97	0.18	60,60,60,60	0
53	MG	BB	3082	1/1	0.97	0.15	18,18,18,18	0
53	MG	DB	3069	1/1	0.97	0.23	64,64,64,64	0
53	MG	BB	3084	1/1	0.97	0.06	32,32,32,32	0
53	MG	DB	3078	1/1	0.97	0.04	25,25,25,25	0
53	MG	DB	3079	1/1	0.97	0.06	7,7,7,7	0
53	MG	DB	3082	1/1	0.97	0.11	83,83,83,83	0
53	MG	BB	3013	1/1	0.97	0.09	45,45,45,45	0
53	MG	BB	3053	1/1	0.97	0.10	60,60,60,60	0
53	MG	DB	3007	1/1	0.97	0.12	62,62,62,62	0
53	MG	DB	3010	1/1	0.97	0.14	5,5,5,5	0
53	MG	AA	1616	1/1	0.97	0.09	5,5,5,5	0
53	MG	AA	1629	1/1	0.97	0.06	12,12,12,12	0
53	MG	BB	3095	1/1	0.97	0.07	62,62,62,62	0
53	MG	DB	3106	1/1	0.97	0.05	61,61,61,61	0
53	MG	BB	3096	1/1	0.97	0.07	58,58,58,58	0
53	MG	AA	1631	1/1	0.97	0.12	5,5,5,5	0
53	MG	BB	3065	1/1	0.97	0.06	32,32,32,32	0
53	MG	BB	3100	1/1	0.97	0.20	116,116,116,116	0
54	SCM	AA	1661	23/23	0.97	0.10	13,13,13,13	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
53	MG	DB	3030	1/1	0.97	0.19	47,47,47,47	0
53	MG	DB	3031	1/1	0.97	0.09	46,46,46,46	0
53	MG	BB	3102	1/1	0.97	0.12	43,43,43,43	0
53	MG	BB	3044	1/1	0.98	0.09	45,45,45,45	0
53	MG	DB	3017	1/1	0.98	0.23	5,5,5,5	0
53	MG	CA	1614	1/1	0.98	0.15	83,83,83,83	0
53	MG	DB	3019	1/1	0.98	0.06	5,5,5,5	0
53	MG	DB	3020	1/1	0.98	0.09	5,5,5,5	0
53	MG	BB	3045	1/1	0.98	0.14	72,72,72,72	0
53	MG	DB	3024	1/1	0.98	0.05	40,40,40,40	0
53	MG	AA	1643	1/1	0.98	0.09	40,40,40,40	0
53	MG	BB	3047	1/1	0.98	0.11	104,104,104,104	0
53	MG	BB	3048	1/1	0.98	0.04	12,12,12,12	0
53	MG	CA	1619	1/1	0.98	0.09	36,36,36,36	0
53	MG	CA	1621	1/1	0.98	0.16	80,80,80,80	0
53	MG	BB	3026	1/1	0.98	0.10	65,65,65,65	0
53	MG	DB	3033	1/1	0.98	0.04	11,11,11,11	0
53	MG	BB	3086	1/1	0.98	0.10	5,5,5,5	0
53	MG	CA	1626	1/1	0.98	0.08	8,8,8,8	0
53	MG	DB	3036	1/1	0.98	0.04	87,87,87,87	0
53	MG	DB	3039	1/1	0.98	0.08	62,62,62,62	0
53	MG	BB	3087	1/1	0.98	0.25	80,80,80,80	0
53	MG	DB	3043	1/1	0.98	0.06	7,7,7,7	0
53	MG	DB	3044	1/1	0.98	0.05	18,18,18,18	0
53	MG	BB	3050	1/1	0.98	0.12	53,53,53,53	0
53	MG	DB	3046	1/1	0.98	0.04	23,23,23,23	0
53	MG	DB	3047	1/1	0.98	0.15	43,43,43,43	0
53	MG	DB	3048	1/1	0.98	0.11	38,38,38,38	0
53	MG	BB	3089	1/1	0.98	0.12	72,72,72,72	0
53	MG	AA	1644	1/1	0.98	0.05	75,75,75,75	0
53	MG	BB	3091	1/1	0.98	0.10	5,5,5,5	0
53	MG	BB	3011	1/1	0.98	0.15	5,5,5,5	0
53	MG	AA	1653	1/1	0.98	0.09	21,21,21,21	0
53	MG	CA	1635	1/1	0.98	0.06	30,30,30,30	0
53	MG	DB	3056	1/1	0.98	0.06	5,5,5,5	0
53	MG	BB	3094	1/1	0.98	0.06	36,36,36,36	0
53	MG	BB	3002	1/1	0.98	0.06	23,23,23,23	0
53	MG	CA	1639	1/1	0.98	0.05	35,35,35,35	0
53	MG	BB	3056	1/1	0.98	0.03	5,5,5,5	0
53	MG	DB	3061	1/1	0.98	0.04	66,66,66,66	0
53	MG	DB	3062	1/1	0.98	0.23	58,58,58,58	0
53	MG	AA	1609	1/1	0.98	0.06	40,40,40,40	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
53	MG	CA	1643	1/1	0.98	0.06	36,36,36,36	0
53	MG	BB	3098	1/1	0.98	0.15	14,14,14,14	0
53	MG	BB	3061	1/1	0.98	0.08	24,24,24,24	0
53	MG	BB	3062	1/1	0.98	0.08	7,7,7,7	0
53	MG	AA	1630	1/1	0.98	0.04	88,88,88,88	0
53	MG	DB	3070	1/1	0.98	0.06	33,33,33,33	0
53	MG	BB	3103	1/1	0.98	0.08	11,11,11,11	0
53	MG	DB	3072	1/1	0.98	0.07	20,20,20,20	0
53	MG	DB	3074	1/1	0.98	0.07	26,26,26,26	0
53	MG	DB	3075	1/1	0.98	0.11	44,44,44,44	0
53	MG	DB	3077	1/1	0.98	0.13	45,45,45,45	0
53	MG	BB	3018	1/1	0.98	0.12	39,39,39,39	0
53	MG	BB	3106	1/1	0.98	0.12	10,10,10,10	0
53	MG	BB	3019	1/1	0.98	0.12	21,21,21,21	0
53	MG	DB	3083	1/1	0.98	0.08	27,27,27,27	0
53	MG	DB	3085	1/1	0.98	0.05	38,38,38,38	0
53	MG	DB	3086	1/1	0.98	0.12	18,18,18,18	0
53	MG	DB	3087	1/1	0.98	0.08	5,5,5,5	0
53	MG	DB	3088	1/1	0.98	0.17	87,87,87,87	0
53	MG	BB	3109	1/1	0.98	0.10	11,11,11,11	0
53	MG	DB	3090	1/1	0.98	0.09	14,14,14,14	0
53	MG	AA	1639	1/1	0.98	0.04	93,93,93,93	0
53	MG	DB	3092	1/1	0.98	0.15	10,10,10,10	0
53	MG	DB	3093	1/1	0.98	0.05	59,59,59,59	0
53	MG	CA	1601	1/1	0.98	0.06	5,5,5,5	0
53	MG	DB	3095	1/1	0.98	0.15	92,92,92,92	0
53	MG	AA	1640	1/1	0.98	0.15	46,46,46,46	0
53	MG	DB	3098	1/1	0.98	0.10	5,5,5,5	0
53	MG	DB	3099	1/1	0.98	0.13	58,58,58,58	0
53	MG	BB	3022	1/1	0.98	0.12	32,32,32,32	0
53	MG	BB	3040	1/1	0.98	0.08	12,12,12,12	0
53	MG	DB	3002	1/1	0.98	0.05	11,11,11,11	0
53	MG	BB	3074	1/1	0.98	0.06	10,10,10,10	0
53	MG	DB	3107	1/1	0.98	0.04	5,5,5,5	0
53	MG	DB	3004	1/1	0.98	0.08	8,8,8,8	0
53	MG	BB	3007	1/1	0.98	0.14	68,68,68,68	0
53	MG	DB	3006	1/1	0.98	0.11	10,10,10,10	0
53	MG	AA	1636	1/1	0.98	0.04	64,64,64,64	0
53	MG	DB	3008	1/1	0.98	0.06	13,13,13,13	0
53	MG	DB	3009	1/1	0.98	0.07	9,9,9,9	0
53	MG	CA	1610	1/1	0.98	0.14	5,5,5,5	0
53	MG	BB	3077	1/1	0.98	0.11	53,53,53,53	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
53	MG	DB	3012	1/1	0.99	0.12	9,9,9,9	0
53	MG	CA	1603	1/1	0.99	0.03	56,56,56,56	0
53	MG	DB	3015	1/1	0.99	0.06	42,42,42,42	0
53	MG	BB	3016	1/1	0.99	0.04	55,55,55,55	0
53	MG	BB	3066	1/1	0.99	0.04	5,5,5,5	0
53	MG	AA	1641	1/1	0.99	0.02	32,32,32,32	0
53	MG	AA	1648	1/1	0.99	0.06	6,6,6,6	0
53	MG	BB	3028	1/1	0.99	0.24	9,9,9,9	0
53	MG	DB	3068	1/1	0.99	0.15	5,5,5,5	0
53	MG	DB	3021	1/1	0.99	0.04	16,16,16,16	0
53	MG	BB	3029	1/1	0.99	0.05	5,5,5,5	0
53	MG	DB	3023	1/1	0.99	0.04	69,69,69,69	0
53	MG	CA	1642	1/1	0.99	0.07	79,79,79,79	0
53	MG	DB	3073	1/1	0.99	0.07	50,50,50,50	0
53	MG	DB	3025	1/1	0.99	0.07	44,44,44,44	0
53	MG	DB	3026	1/1	0.99	0.23	45,45,45,45	0
53	MG	DB	3076	1/1	0.99	0.10	33,33,33,33	0
53	MG	BB	3041	1/1	0.99	0.09	5,5,5,5	0
53	MG	CA	1611	1/1	0.99	0.07	28,28,28,28	0
53	MG	BB	3072	1/1	0.99	0.10	35,35,35,35	0
53	MG	DB	3080	1/1	0.99	0.10	62,62,62,62	0
53	MG	DB	3081	1/1	0.99	0.06	41,41,41,41	0
53	MG	BB	3073	1/1	0.99	0.10	44,44,44,44	0
53	MG	AA	1611	1/1	0.99	0.05	43,43,43,43	0
53	MG	DB	3084	1/1	0.99	0.09	29,29,29,29	0
53	MG	BB	3055	1/1	0.99	0.12	6,6,6,6	0
53	MG	AA	1604	1/1	0.99	0.09	38,38,38,38	0
53	MG	BB	3012	1/1	0.99	0.06	67,67,67,67	0
53	MG	BB	3058	1/1	0.99	0.06	15,15,15,15	0
53	MG	BB	3059	1/1	0.99	0.13	10,10,10,10	0
53	MG	DB	3037	1/1	0.99	0.16	8,8,8,8	0
53	MG	DB	3038	1/1	0.99	0.07	5,5,5,5	0
53	MG	CA	1620	1/1	0.99	0.10	72,72,72,72	0
53	MG	DB	3040	1/1	0.99	0.05	5,5,5,5	0
53	MG	BB	3060	1/1	0.99	0.17	30,30,30,30	0
53	MG	DB	3042	1/1	0.99	0.04	37,37,37,37	0
53	MG	CA	1655	1/1	0.99	0.03	32,32,32,32	0
53	MG	DB	3097	1/1	0.99	0.17	41,41,41,41	0
53	MG	CA	1656	1/1	0.99	0.14	38,38,38,38	0
53	MG	CA	1657	1/1	0.99	0.05	73,73,73,73	0
53	MG	CA	1622	1/1	0.99	0.17	5,5,5,5	0
53	MG	DB	3101	1/1	0.99	0.10	26,26,26,26	0

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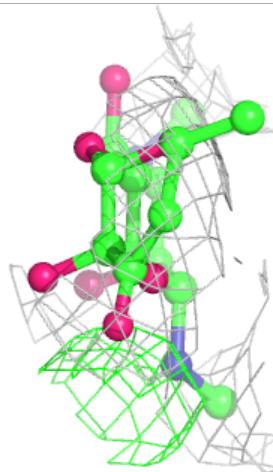
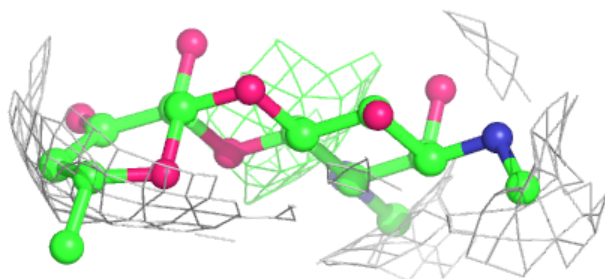
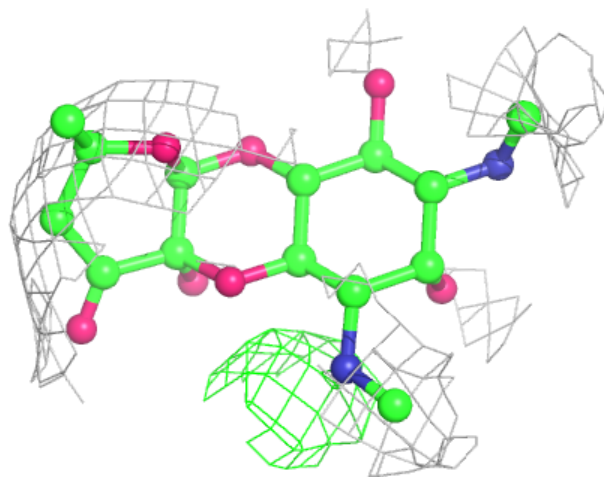
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
53	MG	DB	3102	1/1	0.99	0.23	28,28,28,28	0
53	MG	AA	1607	1/1	0.99	0.09	57,57,57,57	0
53	MG	CA	1624	1/1	0.99	0.07	38,38,38,38	0
53	MG	DB	3105	1/1	0.99	0.04	40,40,40,40	0
53	MG	BB	3105	1/1	0.99	0.18	5,5,5,5	0
53	MG	AA	1634	1/1	0.99	0.03	72,72,72,72	0
53	MG	BB	3107	1/1	0.99	0.21	46,46,46,46	0
53	MG	BB	3083	1/1	0.99	0.14	30,30,30,30	0
53	MG	BB	3063	1/1	0.99	0.05	33,33,33,33	0
53	MG	CA	1630	1/1	0.99	0.10	37,37,37,37	0
53	MG	BB	3085	1/1	0.99	0.07	34,34,34,34	0
53	MG	AA	1610	1/1	0.99	0.06	78,78,78,78	0
53	MG	CA	1602	1/1	0.99	0.12	5,5,5,5	0
53	MG	DB	3011	1/1	0.99	0.10	5,5,5,5	0
53	MG	BB	3101	1/1	1.00	0.05	19,19,19,19	0
53	MG	DB	3049	1/1	1.00	0.14	42,42,42,42	0
53	MG	CA	1636	1/1	1.00	0.04	5,5,5,5	0
53	MG	DB	3014	1/1	1.00	0.05	21,21,21,21	0

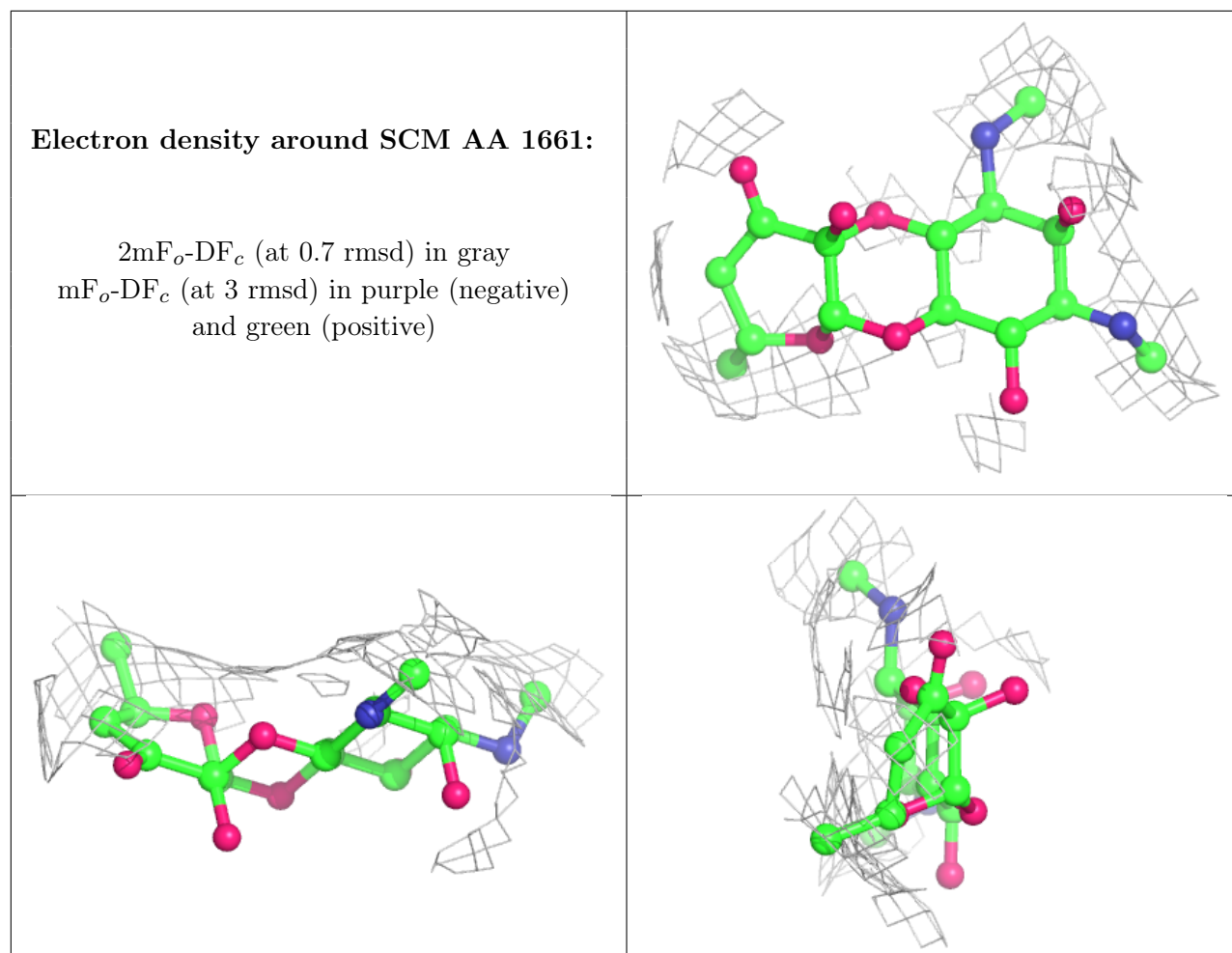
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.



**Electron density around SCM CA 1659:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





## 6.5 Other polymers [\(i\)](#)

There are no such residues in this entry.