



wwPDB EM Validation Summary Report ⓘ

Aug 26, 2026 – 01:32 am BST

PDB ID : 9SUM / pdb_00009sum
EMDB ID : EMD-55225
Title : CryoEM structure of Candida auris 80S ribosome in complex with Cycloheximide and Geneticin G418
Authors : Atamas, A.; Stetsenko, A.; Incarnato, D.; Macia Valero, A.; Rogachev, A.; Billerbeck, S.; Guskov, A.
Deposited on : 2025-09-29
Resolution : 1.99 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

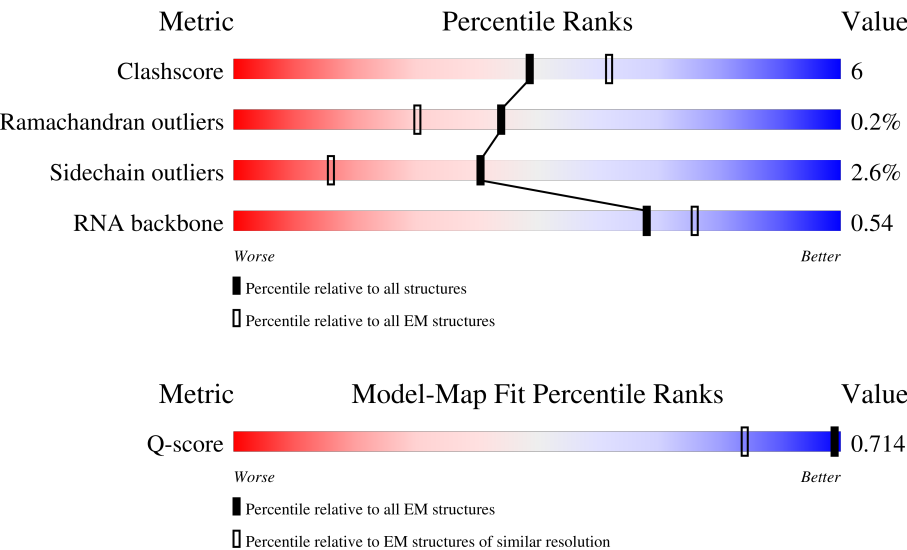
EMDB validation analysis : 0.0.1.dev133
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.50

1 Overall quality at a glance i

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

The reported resolution of this entry is 1.99 Å.

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



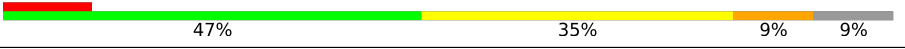
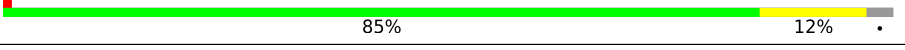
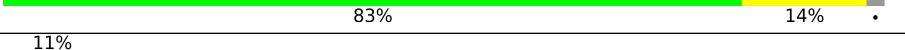
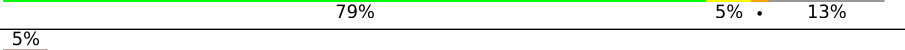
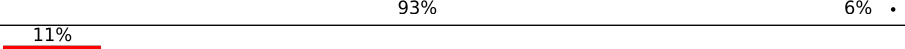
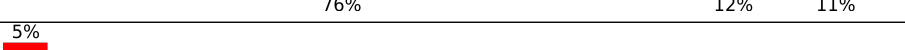
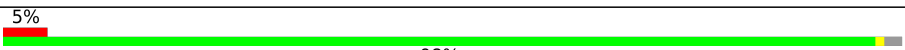
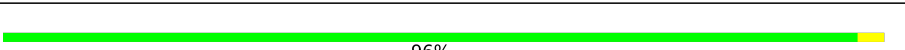
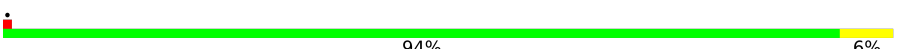
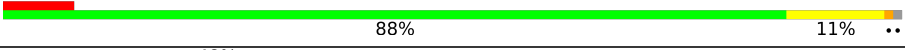
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	1416 (1.50 - 2.49)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	1	76	46% 25% 18% 54% 100%
2	2	3	100%
3	A	3283	5% 62% 25% 9% 100%

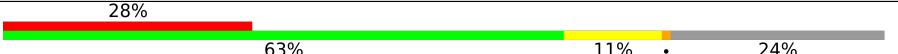
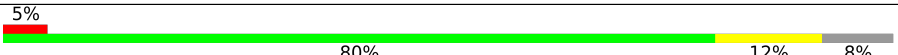
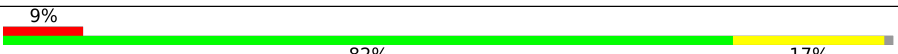
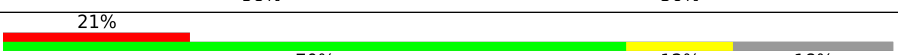
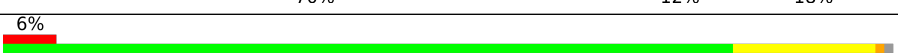
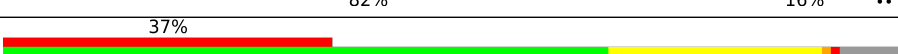
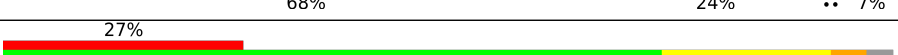
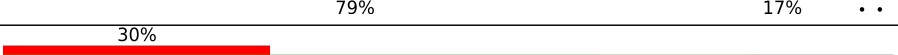
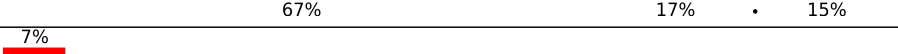
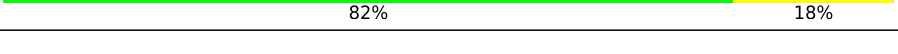
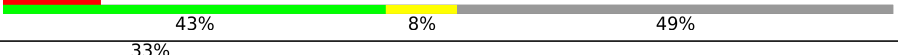
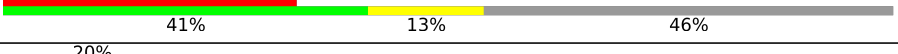
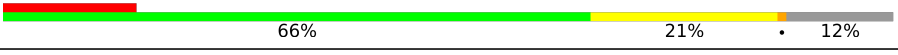
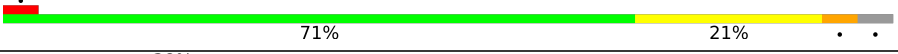
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Mol	Chain	Length	Quality of chain
4	B	122	
5	C	158	
6	CA	1775	
7	D	254	
8	E	389	
9	F	363	
10	G	298	
11	H	165	
12	I	241	
13	J	263	
14	K	191	
15	L	220	
16	M	172	
17	N	198	
18	O	131	
19	P	204	
20	Q	200	
21	R	185	
22	S	186	
23	T	208	
24	U	186	
25	V	160	
26	W	119	
27	X	137	
28	Y	156	

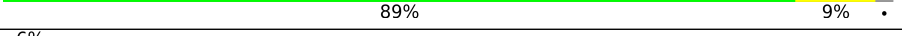
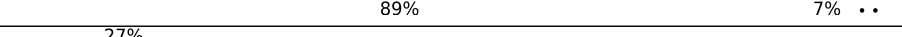
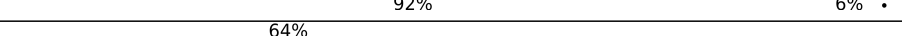
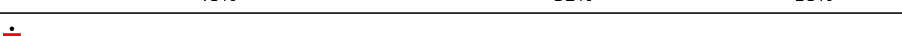
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Mol	Chain	Length	Quality of chain
29	Z	140	
30	ZA	204	
31	ZB	189	
32	ZC	123	
33	ZD	155	
34	ZE	151	
35	ZF	132	
36	ZG	141	
37	ZH	142	
38	ZI	137	
39	ZJ	145	
40	ZK	145	
41	ZL	118	
42	ZM	87	
43	ZO	130	
44	ZP	145	
45	ZQ	135	
46	ZR	130	
47	ZS	182	
48	ZT	82	
49	ZU	67	
50	ZV	56	
51	ZW	63	
52	ZY	315	
53	a	127	

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Mol	Chain	Length	Quality of chain
54	b	136	
55	c	149	
56	d	76	
57	e	105	
58	f	113	
59	g	149	
60	h	107	
61	i	115	
62	j	120	
63	k	99	
64	l	85	
65	m	78	
66	n	51	
67	o	52	
68	p	25	
69	q	106	
70	r	99	
71	s	264	
72	t	256	
73	u	249	
74	v	250	
75	w	264	
76	x	223	
77	y	236	
78	z	188	

2 Entry composition

There are 84 unique types of molecules in this entry. The entry contains 203205 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called P-site tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	1	35	Total	C	N	O	P	0	0
			748	334	137	242	35		

- Molecule 2 is a RNA chain called RNA (5'-R(P*CP*GP*A)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
2	2	3	Total	C	N	O	P	0	0
			65	29	13	20	3		

- Molecule 3 is a RNA chain called 25S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	A	2991	Total	C	N	O	P	0	0
			64000	28576	11576	20857	2991		

- Molecule 4 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	B	122	Total	C	N	O	P	0	0
			2609	1164	470	853	122		

- Molecule 5 is a RNA chain called 5.8S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	C	154	Total	C	N	O	P	0	0
			3274	1464	577	1079	154		

- Molecule 6 is a RNA chain called 18S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	CA	1621	Total	C	N	O	P	0	0
			34619	15468	6203	11327	1621		

- Molecule 7 is a protein called 60S ribosomal protein L2-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	D	247	Total	C	N	O	S	0	0
			1873	1170	377	324	2		

- Molecule 8 is a protein called Large ribosomal subunit protein uL3.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	E	387	Total	C	N	O	S	0	0
			3087	1957	579	544	7		

- Molecule 9 is a protein called 60S ribosomal protein L4-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	F	361	Total	C	N	O	S	0	0
			2786	1751	534	498	3		

- Molecule 10 is a protein called 60S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	G	291	Total	C	N	O	S	0	0
			2370	1506	411	449	4		

- Molecule 11 is a protein called 60S ribosomal protein L6.

Mol	Chain	Residues	Atoms				AltConf	Trace
11	H	143	Total	C	N	O	0	0
			1126	725	204	197		

- Molecule 12 is a protein called 60S ribosomal protein L7.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	I	237	Total	C	N	O	S	0	0
			1913	1230	345	336	2		

- Molecule 13 is a protein called 60S ribosomal protein L8.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	J	233	Total	C	N	O	S	0	0
			1847	1182	339	322	4		

- Molecule 14 is a protein called 60S ribosomal protein L9-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	K	190	Total	C	N	O	S	0	0
			1519	965	272	278	4		

- Molecule 15 is a protein called 60S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	L	206	Total	C	N	O	S	0	0
			1680	1062	320	291	7		

- Molecule 16 is a protein called 60S ribosomal protein L11-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	M	170	Total	C	N	O	S	0	0
			1364	854	261	244	5		

- Molecule 17 is a protein called 60S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	N	194	Total	C	N	O	S	0	0
			1538	962	306	269	1		

- Molecule 18 is a protein called Large ribosomal subunit protein eL14 domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	O	129	Total	C	N	O	S	0	0
			1030	657	194	178	1		

- Molecule 19 is a protein called Ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	P	203	Total	C	N	O	S	0	0
			1703	1066	356	279	2		

- Molecule 20 is a protein called 60S ribosomal protein L16-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	Q	199	Total	C	N	O	S	0	0
			1587	1020	299	266	2		

- Molecule 21 is a protein called 60S ribosomal protein L17-B.

Mol	Chain	Residues	Atoms				AltConf	Trace
21	R	172	Total	C	N	O	0	0
			1384	861	281	242		

- Molecule 22 is a protein called 60S ribosomal protein L18-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
22	S	185	Total	C	N	O	0	0
			1456	919	293	244		

- Molecule 23 is a protein called Ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	T	182	Total	C	N	O	S	0	0
			1469	908	316	241	4		

- Molecule 24 is a protein called 60S ribosomal protein L20-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	U	172	Total	C	N	O	S	0	0
			1448	941	261	242	4		

- Molecule 25 is a protein called 60S ribosomal protein L21-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	V	159	Total	C	N	O	S	0	0
			1282	816	242	221	3		

- Molecule 26 is a protein called 60S ribosomal protein L22.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	W	107	Total	C	N	O	0	0
			871	566	148	157		

- Molecule 27 is a protein called 60S ribosomal protein L23-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	X	136	Total	C	N	O	S	0	0
			1005	631	188	178	8		

- Molecule 28 is a protein called 60S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	Y	62	Total	C	N	O	S	0	0
			517	330	103	83	1		

- Molecule 29 is a protein called Large ribosomal subunit protein uL23.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	Z	117	Total	C	N	O	S	0	0
			934	594	171	169			

- Molecule 30 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	ZA	194	Total	C	N	O	S	0	0
			1545	958	309	276	2		

- Molecule 31 is a protein called 40S ribosomal protein S9-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	ZB	178	Total	C	N	O	S	0	0
			1459	921	287	249	2		

- Molecule 32 is a protein called 40S ribosomal protein S10-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	ZC	93	Total	C	N	O	S	0	0
			786	513	128	144	1		

- Molecule 33 is a protein called 40S ribosomal protein S11-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	ZD	143	Total	C	N	O	S	0	0
			1150	735	219	193	3		

- Molecule 34 is a protein called 40S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	ZE	150	Total	C	N	O	S	0	0
			1192	759	222	210	1		

- Molecule 35 is a protein called Small ribosomal subunit protein uS11.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	ZF	127	Total	C	N	O	S	0	0
			945	578	188	176	3		

- Molecule 36 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	ZG	116	Total	C	N	O	S	0	0
			904	582	161	156	5		

- Molecule 37 is a protein called Small ribosomal subunit protein uS9.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	ZH	141	Total	C	N	O	S	0	0
			1100	705	201	193	1		

- Molecule 38 is a protein called 40S ribosomal protein S17-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	ZI	128	Total	C	N	O	S	0	0
			1027	644	190	192	1		

- Molecule 39 is a protein called 40S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	ZJ	141	Total	C	N	O	S	0	0
			1162	727	228	203	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
40	ZK	141	Total	C	N	O	S	1	0
			1110	696	210	204			

- Molecule 41 is a protein called Small ribosomal subunit protein uS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	ZL	100	Total	C	N	O	S	0	0
			782	496	142	142	2		

- Molecule 42 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	ZM	87	Total	C	N	O	S	0	0
			678	415	127	134	2		

- Molecule 43 is a protein called 40S ribosomal protein S22.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	ZO	129	Total	C	N	O	S	0	0
			1032	656	190	183	3		

- Molecule 44 is a protein called 40S ribosomal protein S23.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	ZP	143	Total	C	N	O	S	0	0
			1109	698	219	190	2		

- Molecule 45 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms				AltConf	Trace
45	ZQ	130	Total	C	N	O	0	0
			1060	670	205	185		

- Molecule 46 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	ZR	66	Total	C	N	O	S	0	0
			526	338	95	92	1		

- Molecule 47 is a protein called 40S ribosomal protein S26.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	ZS	98	Total	C	N	O	S	0	0
			785	484	166	129	6		

- Molecule 48 is a protein called 40S ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	ZT	81	Total	C	N	O	S	0	0
			617	383	112	115	7		

- Molecule 49 is a protein called 40S ribosomal protein S28-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	ZU	59	Total	C	N	O	S	0	0
			458	281	89	86	2		

- Molecule 50 is a protein called Small ribosomal subunit protein uS14.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	ZV	54	Total	C	N	O	S	0	0
			449	278	93	74	4		

- Molecule 51 is a protein called Small ribosomal subunit protein eS30.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	ZW	54	Total	C	N	O	S	0	0
			432	270	87	73	2		

- Molecule 52 is a protein called Small ribosomal subunit protein RACK1.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	ZY	305	Total	C	N	O	S	0	0
			2359	1494	402	459	4		

- Molecule 53 is a protein called Ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	a	126	Total	C	N	O	S	0	0
			994	624	188	181	1		

- Molecule 54 is a protein called 60S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	b	135	Total	C	N	O	S	0	0
			1081	691	207	182	1		

- Molecule 55 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	c	148	Total	C	N	O	S	1	0
			1183	747	236	198	2		

- Molecule 56 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms				AltConf	Trace
56	d	58	Total	C	N	O	0	0
			481	292	110	79		

- Molecule 57 is a protein called 60S ribosomal protein L30.

Mol	Chain	Residues	Atoms				AltConf	Trace
57	e	99	Total	C	N	O	S	0
			744	476	125	139	4	0

- Molecule 58 is a protein called 60S ribosomal protein L31-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
58	f	107	Total	C	N	O	S	0
			877	553	171	150	3	0

- Molecule 59 is a protein called 60S ribosomal protein L32.

Mol	Chain	Residues	Atoms				AltConf	Trace
59	g	123	Total	C	N	O	S	0
			1002	629	201	170	2	0

- Molecule 60 is a protein called 60S ribosomal protein L33-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
60	h	106	Total	C	N	O	S	0
			859	544	168	146	1	0

- Molecule 61 is a protein called 60S ribosomal protein L34-B.

Mol	Chain	Residues	Atoms				AltConf	Trace
61	i	109	Total	C	N	O	S	0
			865	538	172	151	4	0

- Molecule 62 is a protein called 60S ribosomal protein L35.

Mol	Chain	Residues	Atoms				AltConf	Trace
62	j	118	Total	C	N	O	0	0
			956	603	191	162		

- Molecule 63 is a protein called 60S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	k	98	Total	C	N	O	S	0	0
			774	479	163	131	1		

- Molecule 64 is a protein called Ribosomal protein L37.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	l	83	Total	C	N	O	S	0	0
			654	396	142	109	7		

- Molecule 65 is a protein called Large ribosomal subunit protein eL38.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	m	77	Total	C	N	O		0	0
			617	396	112	109			

- Molecule 66 is a protein called Large ribosomal subunit protein eL39.

Mol	Chain	Residues	Atoms					AltConf	Trace
66	n	50	Total	C	N	O		0	0
			442	277	98	67			

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
n	50	ASN	GLY	conflict	UNP A0A1D8PDT4

- Molecule 67 is a protein called Large ribosomal subunit protein eL40.

Mol	Chain	Residues	Atoms					AltConf	Trace
67	o	51	Total	C	N	O	S	0	0
			411	255	85	66	5		

- Molecule 68 is a protein called Small ribosomal subunit protein eS32.

Mol	Chain	Residues	Atoms					AltConf	Trace
68	p	24	Total	C	N	O	S	0	0
			227	138	61	27	1		

- Molecule 69 is a protein called 60S ribosomal protein L44.

Mol	Chain	Residues	Atoms					AltConf	Trace
69	q	103	Total	C	N	O	S	0	0
			822	517	164	136	5		

- Molecule 70 is a protein called 60S ribosomal protein L43.

Mol	Chain	Residues	Atoms					AltConf	Trace
70	r	90	Total	C	N	O	S	0	0
			691	425	141	121	4		

- Molecule 71 is a protein called Small ribosomal subunit protein uS2.

Mol	Chain	Residues	Atoms					AltConf	Trace
71	s	210	Total	C	N	O	S	0	0
			1655	1059	288	305	3		

- Molecule 72 is a protein called Small ribosomal subunit protein eS1.

Mol	Chain	Residues	Atoms					AltConf	Trace
72	t	210	Total	C	N	O	S	0	0
			1685	1070	310	301	4		

- Molecule 73 is a protein called Rps21 ribosomal protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
73	u	216	Total	C	N	O	S	0	0
			1636	1048	287	296	5		

- Molecule 74 is a protein called Small ribosomal subunit protein uS3.

Mol	Chain	Residues	Atoms					AltConf	Trace
74	v	209	Total	C	N	O	S	0	0
			1619	1033	297	284	5		

- Molecule 75 is a protein called 40S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
75	w	260	Total	C	N	O	S	0	0
			2056	1303	386	361	6		

- Molecule 76 is a protein called 40S ribosomal protein uS7 (formerly S5).

Mol	Chain	Residues	Atoms					AltConf	Trace
76	x	206	Total	C	N	O	S	0	0
			1610	1008	300	298	4		

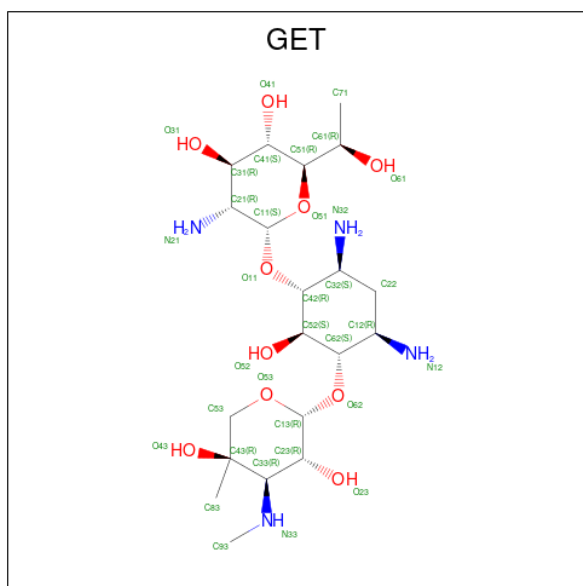
- Molecule 77 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
77	y	226	Total	C	N	O	S	0	0
			1819	1128	355	331	5		

- Molecule 78 is a protein called 40S ribosomal protein eS7 (formerly S7).

Mol	Chain	Residues	Atoms					AltConf	Trace
78	z	182	Total	C	N	O		0	0
			1466	939	264	263			

- Molecule 79 is GENETICIN (CCD ID: GET) (formula: $C_{20}H_{40}N_4O_{10}$).



Mol	Chain	Residues	Atoms					AltConf
79	A	1	Total	C	N	O		0
			34	20	4	10		
79	A	1	Total	C	N	O		0
			34	20	4	10		
79	A	1	Total	C	N	O		0
			34	20	4	10		
79	A	1	Total	C	N	O		0
			34	20	4	10		

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Mol	Chain	Residues	Atoms				AltConf
79	A	1	Total	C	N	O	0
			34	20	4	10	
79	A	1	Total	C	N	O	0
			34	20	4	10	
79	A	1	Total	C	N	O	0
			34	20	4	10	
79	A	1	Total	C	N	O	0
			34	20	4	10	
79	A	1	Total	C	N	O	0
			34	20	4	10	
79	A	1	Total	C	N	O	0
			34	20	4	10	
79	A	1	Total	C	N	O	0
			34	20	4	10	
79	A	1	Total	C	N	O	0
			34	20	4	10	
79	A	1	Total	C	N	O	0
			34	20	4	10	
79	A	1	Total	C	N	O	0
			34	20	4	10	
79	A	1	Total	C	N	O	0
			34	20	4	10	
79	A	1	Total	C	N	O	0
			34	20	4	10	
79	A	1	Total	C	N	O	0
			34	20	4	10	
79	A	1	Total	C	N	O	0
			34	20	4	10	
79	A	1	Total	C	N	O	0
			34	20	4	10	
79	A	1	Total	C	N	O	0
			34	20	4	10	
79	A	1	Total	C	N	O	0
			34	20	4	10	

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Mol	Chain	Residues	Atoms				AltConf
79	A	1	Total 34	C 20	N 4	O 10	0
79	A	1	Total 34	C 20	N 4	O 10	0
79	A	1	Total 34	C 20	N 4	O 10	0
79	A	1	Total 34	C 20	N 4	O 10	0
79	A	1	Total 34	C 20	N 4	O 10	0
79	A	1	Total 34	C 20	N 4	O 10	0
79	B	1	Total 34	C 20	N 4	O 10	0
79	C	1	Total 34	C 20	N 4	O 10	0
79	C	1	Total 34	C 20	N 4	O 10	0
79	C	1	Total 34	C 20	N 4	O 10	0
79	C	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0

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Mol	Chain	Residues	Atoms				AltConf
79	CA	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0
79	CA	1	Total 34	C 20	N 4	O 10	0
79	E	1	Total 34	C 20	N 4	O 10	0
79	T	1	Total 34	C 20	N 4	O 10	0

- Molecule 80 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

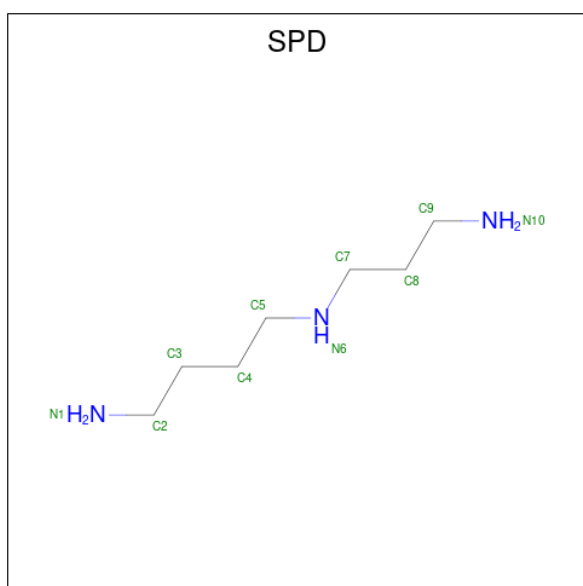
Mol	Chain	Residues	Atoms		AltConf
80	A	166	Total 166	Mg 166	0
80	B	2	Total 2	Mg 2	0
80	C	2	Total 2	Mg 2	0
80	CA	73	Total 73	Mg 73	0
80	E	1	Total 1	Mg 1	0
80	P	2	Total 2	Mg 2	0
80	R	1	Total 1	Mg 1	0
80	X	1	Total 1	Mg 1	0

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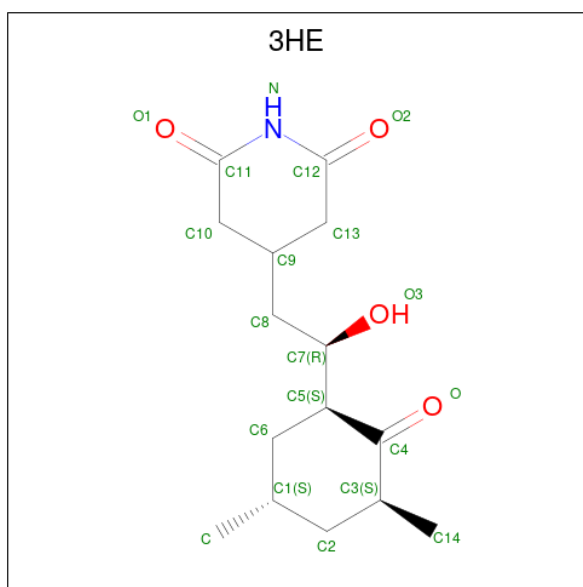
Mol	Chain	Residues	Atoms		AltConf
80	ZA	1	Total	Mg	0
			1	1	
80	ZK	1	Total	Mg	0
			1	1	
80	ZQ	1	Total	Mg	0
			1	1	
80	k	1	Total	Mg	0
			1	1	
80	x	1	Total	Mg	0
			1	1	

- Molecule 81 is SPERMIDINE (CCD ID: SPD) (formula: $C_7H_{19}N_3$).



Mol	Chain	Residues	Atoms			AltConf
81	A	1	Total	C	N	0
			10	7	3	
81	A	1	Total	C	N	0
			10	7	3	
81	CA	1	Total	C	N	0
			10	7	3	

- Molecule 82 is 4-{(2R)-2-[(1S,3S,5S)-3,5-dimethyl-2-oxocyclohexyl]-2-hydroxyethyl}piperidine-2,6-dione (CCD ID: 3HE) (formula: $C_{15}H_{23}NO_4$).



Mol	Chain	Residues	Atoms				AltConf
82	A	1	Total	C	N	O	0
			20	15	1	4	

- Molecule 83 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
83	ZS	1	Total	Zn	0
			1	1	
83	ZT	1	Total	Zn	0
			1	1	
83	ZV	1	Total	Zn	0
			1	1	
83	i	1	Total	Zn	0
			1	1	
83	l	1	Total	Zn	0
			1	1	
83	o	1	Total	Zn	0
			1	1	
83	q	1	Total	Zn	0
			1	1	
83	r	1	Total	Zn	0
			1	1	

- Molecule 84 is water.

Mol	Chain	Residues	Atoms		AltConf
84	A	5741	Total 5741	O 5741	0
84	B	58	Total 58	O 58	0
84	C	243	Total 243	O 243	0
84	CA	1595	Total 1595	O 1595	0
84	D	131	Total 131	O 131	0
84	E	153	Total 153	O 153	0
84	F	136	Total 136	O 136	0
84	G	36	Total 36	O 36	0
84	H	9	Total 9	O 9	0
84	I	70	Total 70	O 70	0
84	J	27	Total 27	O 27	0
84	K	17	Total 17	O 17	0
84	L	25	Total 25	O 25	0
84	M	1	Total 1	O 1	0
84	N	81	Total 81	O 81	0
84	O	21	Total 21	O 21	0
84	P	132	Total 132	O 132	0
84	Q	80	Total 80	O 80	0
84	R	60	Total 60	O 60	0
84	S	67	Total 67	O 67	0
84	T	47	Total 47	O 47	0
84	U	49	Total 49	O 49	0

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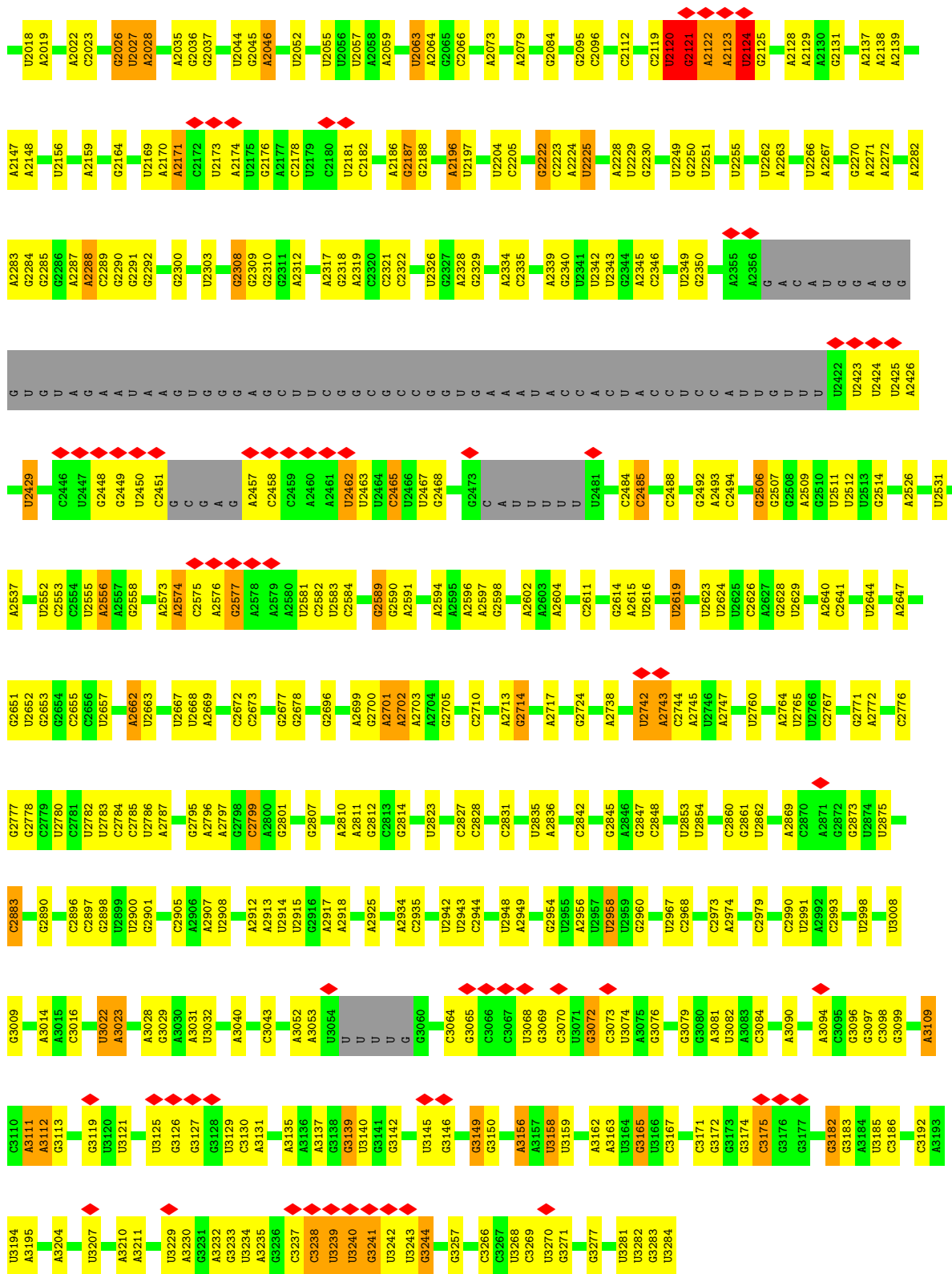
Mol	Chain	Residues	Atoms		AltConf
84	V	49	Total 49	O 49	0
84	X	43	Total 43	O 43	0
84	Y	26	Total 26	O 26	0
84	Z	30	Total 30	O 30	0
84	ZA	55	Total 55	O 55	0
84	ZB	24	Total 24	O 24	0
84	ZD	70	Total 70	O 70	0
84	ZE	33	Total 33	O 33	0
84	ZF	1	Total 1	O 1	0
84	ZM	28	Total 28	O 28	0
84	ZO	69	Total 69	O 69	0
84	ZP	43	Total 43	O 43	0
84	ZQ	11	Total 11	O 11	0
84	ZS	7	Total 7	O 7	0
84	ZT	15	Total 15	O 15	0
84	ZW	3	Total 3	O 3	0
84	a	23	Total 23	O 23	0
84	b	8	Total 8	O 8	0
84	c	81	Total 81	O 81	0
84	d	24	Total 24	O 24	0
84	e	10	Total 10	O 10	0

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Mol	Chain	Residues	Atoms		AltConf
84	f	18	Total 18	O 18	0
84	g	67	Total 67	O 67	0
84	h	49	Total 49	O 49	0
84	i	40	Total 40	O 40	0
84	j	32	Total 32	O 32	0
84	k	26	Total 26	O 26	0
84	l	47	Total 47	O 47	0
84	m	4	Total 4	O 4	0
84	n	19	Total 19	O 19	0
84	o	5	Total 5	O 5	0
84	p	2	Total 2	O 2	0
84	q	38	Total 38	O 38	0
84	r	30	Total 30	O 30	0
84	s	11	Total 11	O 11	0
84	t	1	Total 1	O 1	0
84	u	45	Total 45	O 45	0
84	w	50	Total 50	O 50	0
84	y	29	Total 29	O 29	0
84	z	14	Total 14	O 14	0

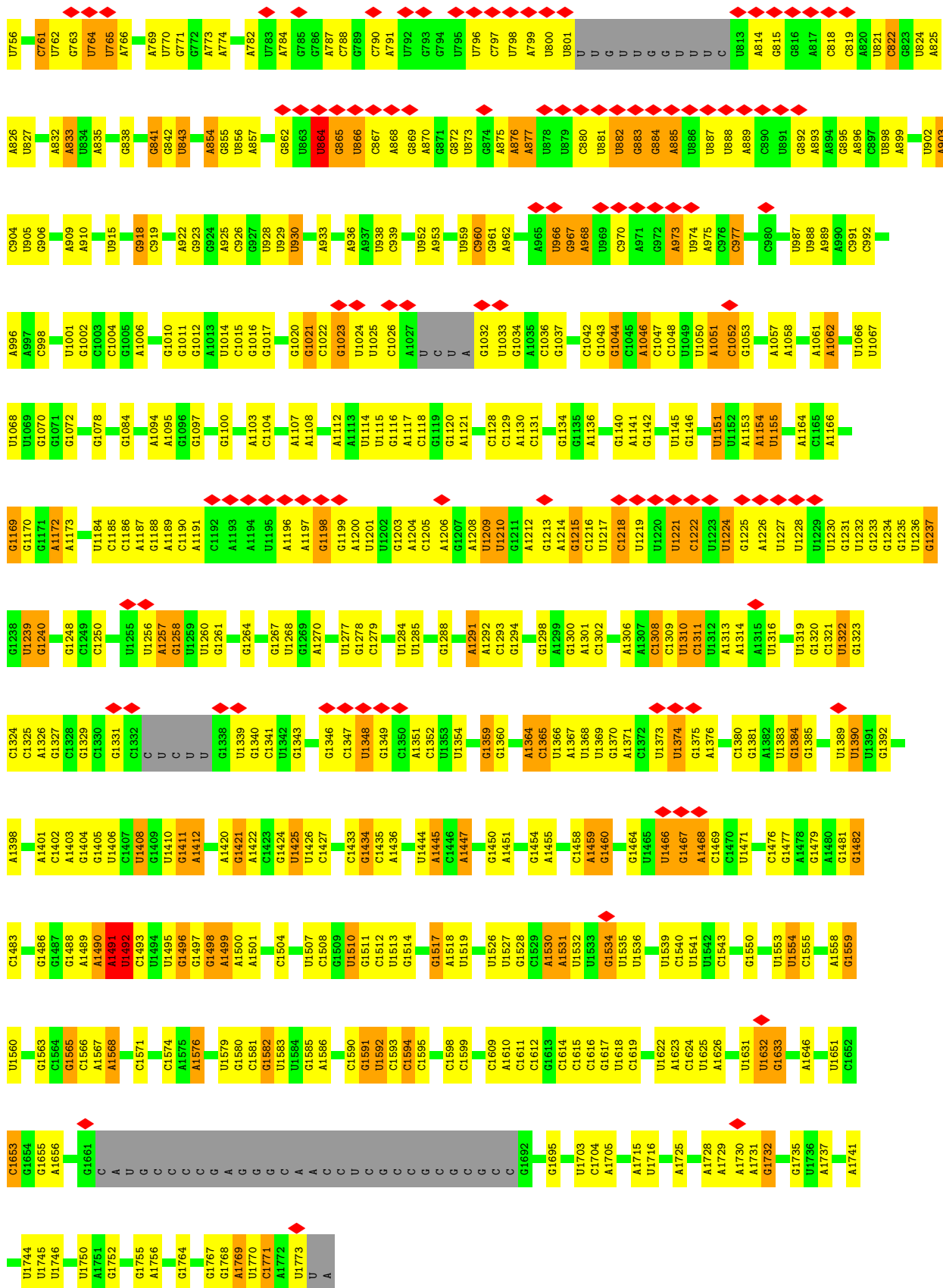




• Molecule 4: 5S rRNA

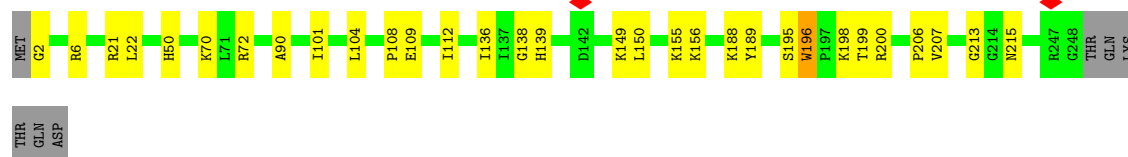
Chain B:





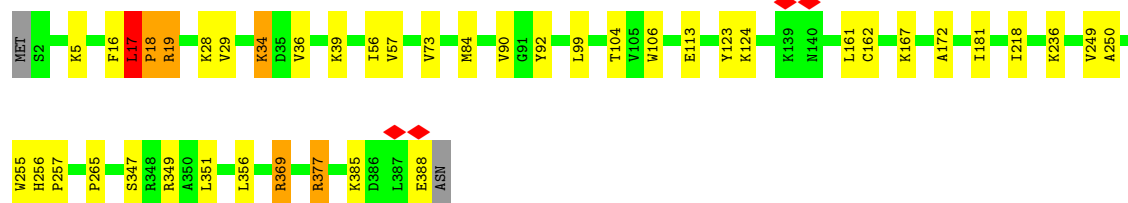
• Molecule 7: 60S ribosomal protein L2-A

Chain D:  85% 12%



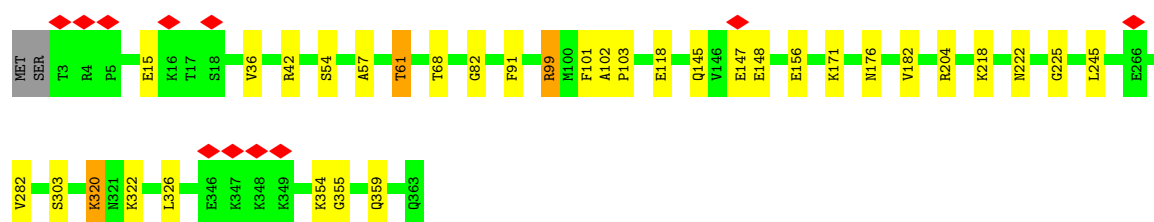
- Molecule 8: Large ribosomal subunit protein uL3

Chain E:  88% 10%



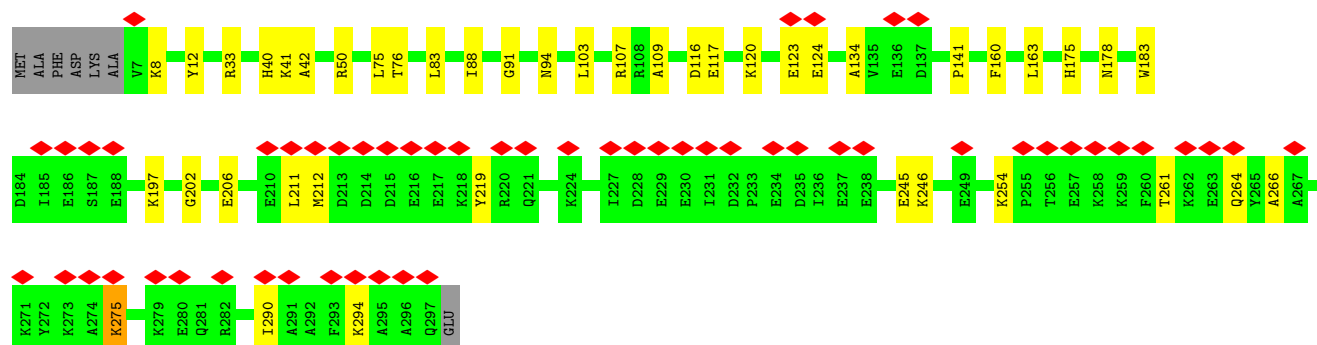
- Molecule 9: 60S ribosomal protein L4-A

Chain F:  90% 9%



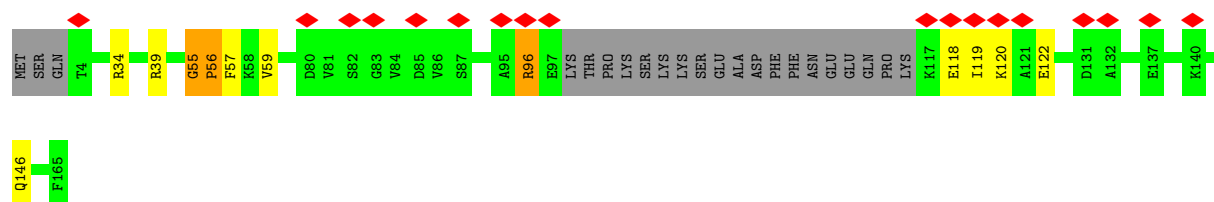
- Molecule 10: 60S ribosomal protein L5

Chain G:  19% 83% 14%

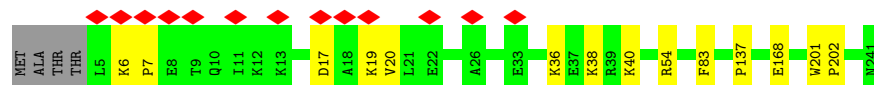
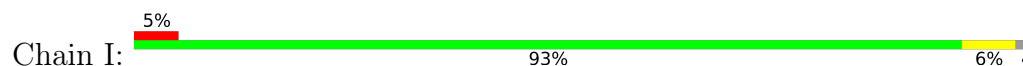


- Molecule 11: 60S ribosomal protein L6

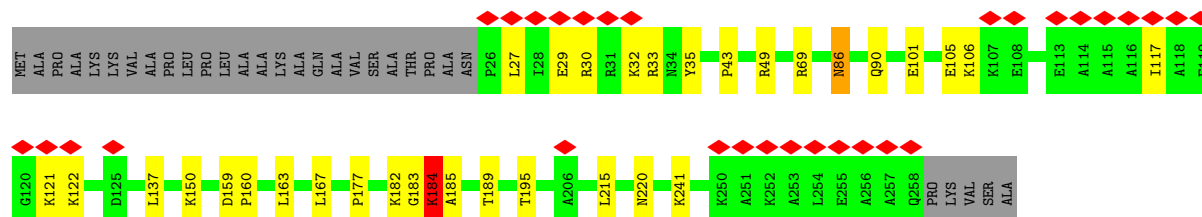
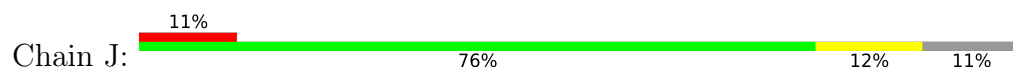
Chain H:  11% 79% 5% 13%



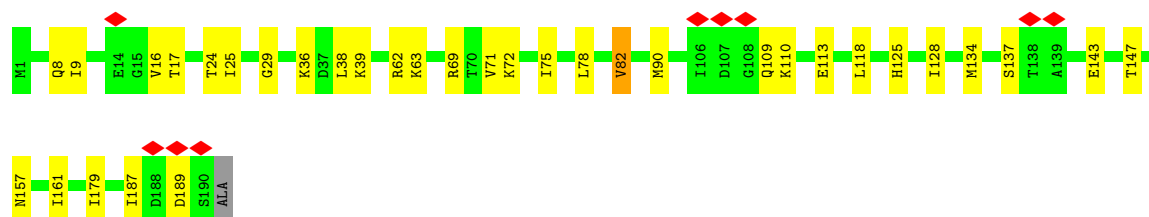
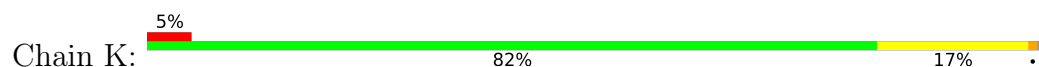
- Molecule 12: 60S ribosomal protein L7



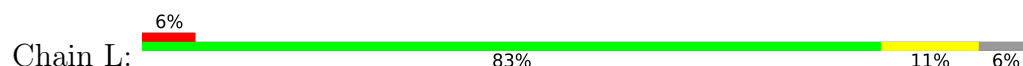
- Molecule 13: 60S ribosomal protein L8



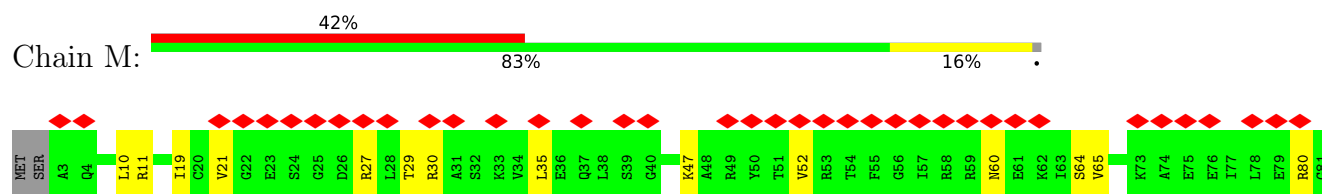
- Molecule 14: 60S ribosomal protein L9-B



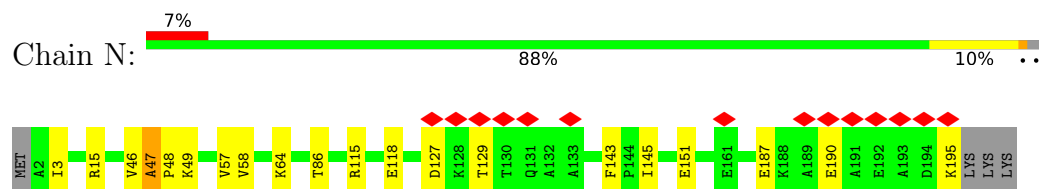
- Molecule 15: 60S ribosomal protein L10



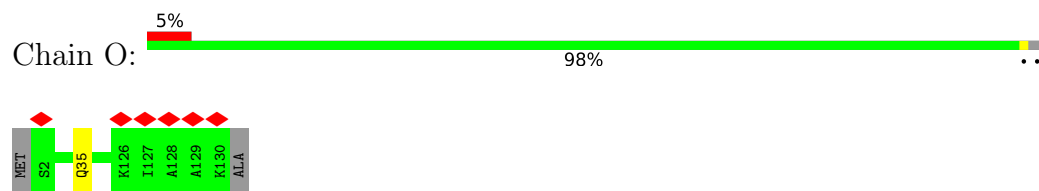
- Molecule 16: 60S ribosomal protein L11-A



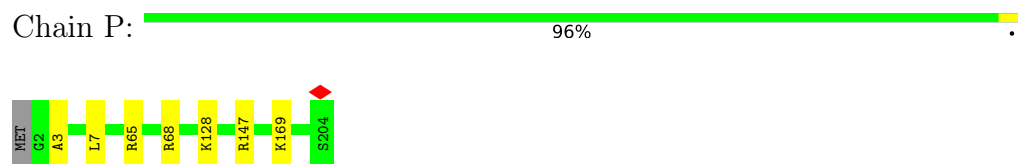
- Molecule 17: 60S ribosomal protein L13



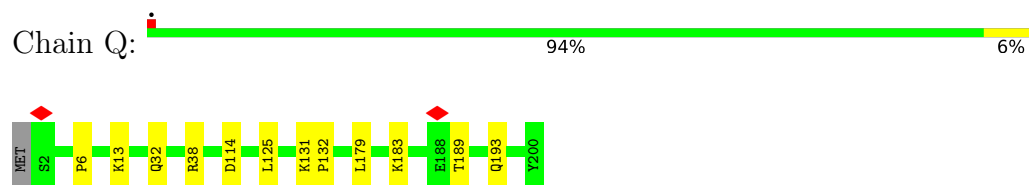
- Molecule 18: Large ribosomal subunit protein eL14 domain-containing protein



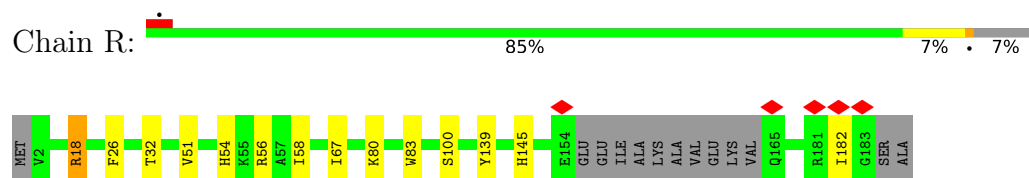
- Molecule 19: Ribosomal protein L15



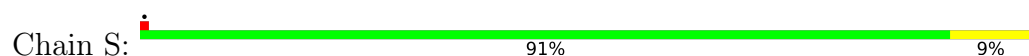
- Molecule 20: 60S ribosomal protein L16-B

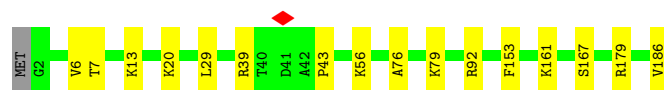


- Molecule 21: 60S ribosomal protein L17-B



- Molecule 22: 60S ribosomal protein L18-A

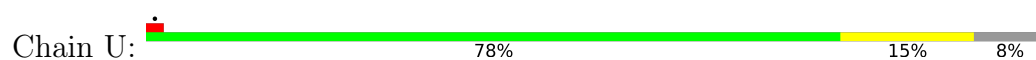




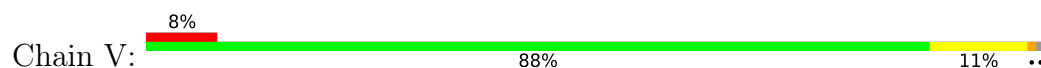
- Molecule 23: Ribosomal protein L19



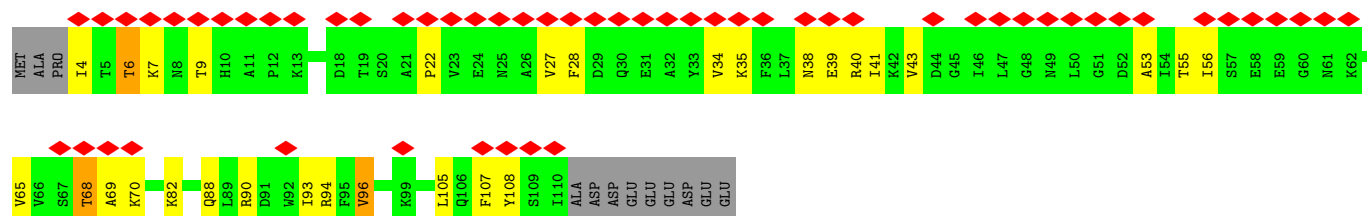
- Molecule 24: 60S ribosomal protein L20-A



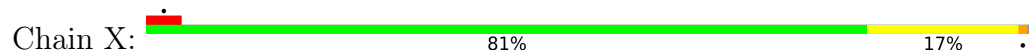
- Molecule 25: 60S ribosomal protein L21-A

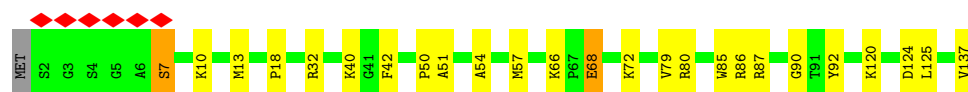


- Molecule 26: 60S ribosomal protein L22

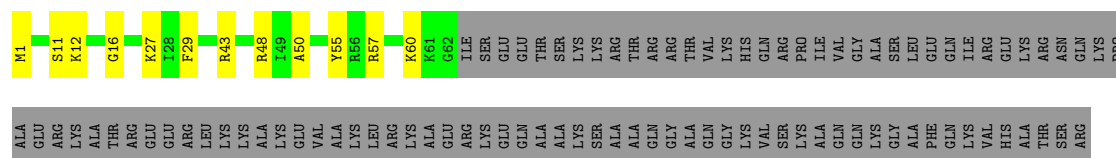


- Molecule 27: 60S ribosomal protein L23-B

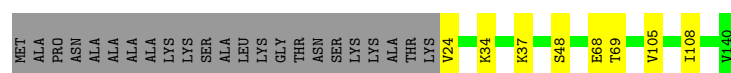
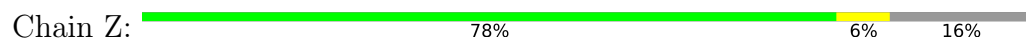




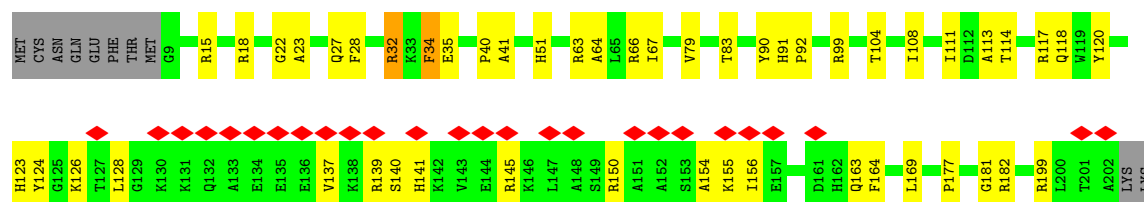
- Molecule 28: 60S ribosomal protein L24



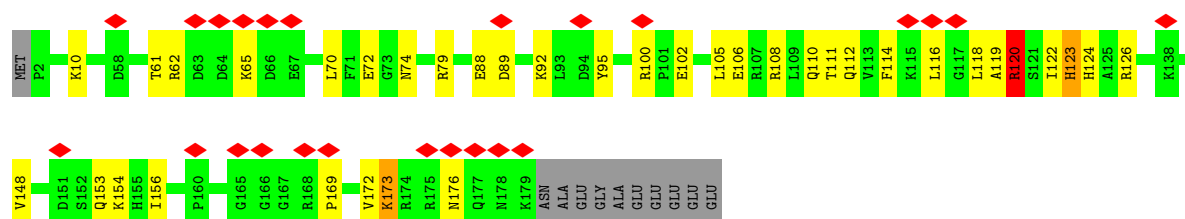
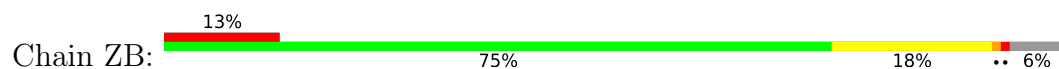
- Molecule 29: Large ribosomal subunit protein uL23



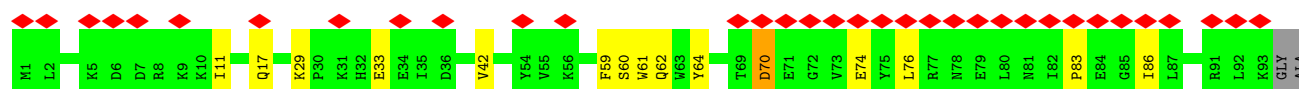
- Molecule 30: 40S ribosomal protein S8



- Molecule 31: 40S ribosomal protein S9-A



- Molecule 32: 40S ribosomal protein S10-A



PRO ALA ALA GLN ARG PRO PRO PRO ILE ARG GLY GLY PRO GLN ARG ARG PHE GLY GLY ASP ASP TYR ARG ARG ARG ALA ARG ASP

- Molecule 33: 40S ribosomal protein S11-A

Chain ZD: 

MET ALA THR GLU L5 T6 R11 A12 K24 T25 E26 G27 N28 K29 K30 K36 K43 T49 E50 M80 T83 P95 R103 P113 R116 C128 L131 S132 K133 K146 A147 LYS SER LYS GLN PHE THR LYS PHE

- Molecule 34: 40S ribosomal protein S13

Chain ZE: 

MET G2 S7 G8 K9 S14 A15 I16 F26 K27 L28 D31 G44 R55 D56 S61 Q62 A63 V66 T67 E83 D87 L88 Y89 K94 E103 R104 N105 R106 K107 D110 R114 P136 W139 A144 S147 A148 L149 V150 R151

- Molecule 35: Small ribosomal subunit protein uS11

Chain ZF: 

MET SER ALA ASP ARG S6 Q7 V8 F9 G10 V11 A12 R13 T14 Y15 A16 S17 F18 N19 D20 T21 F22 V23 H24 V25 T26 D27 L28 S29 G30 S31 T33 I34 S35 R36 V37 T38 G39 G40 M41 K42 V43 K44 A45 D46 R47 D48 E49 S50 S51 P52 Y53 A54 A55 M56 L57 A58 A59 Q60

T121 R122 R123 R130 R131 L132

- Molecule 36: 40S ribosomal protein S15

Chain ZG: 

MET ALA THR ASN ARG LYS S14 F15 K18 D21 L22 E23 Q24 L25 L26 K27 L28 D29 T30 E31 E32 L36 V41 R42 R43 G50 P53 M54 R61 L65 A66 A67 P68 A69 N70 E71 K72 R81 R82 M83 E88 E106 I107

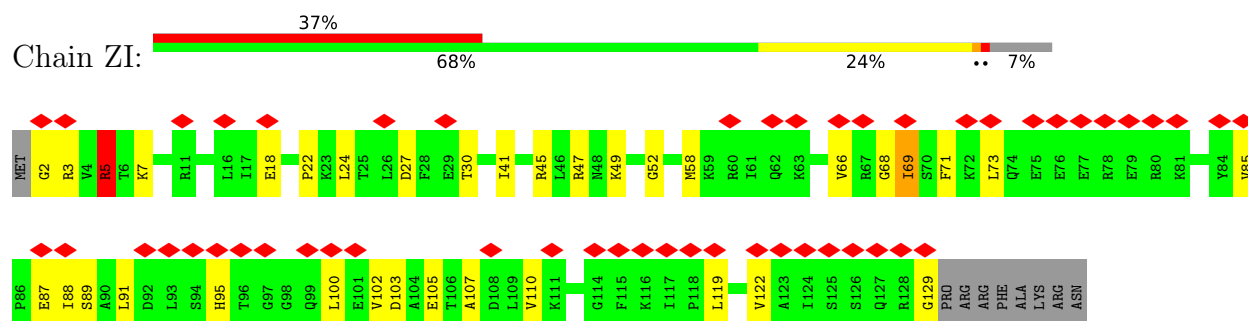
E110 M111 S120 R127 H128 G129 LYS ALA GLY ASN ALA SER SER ARG ARG PHE PHE PRO LEU ARG

- Molecule 37: Small ribosomal subunit protein uS9

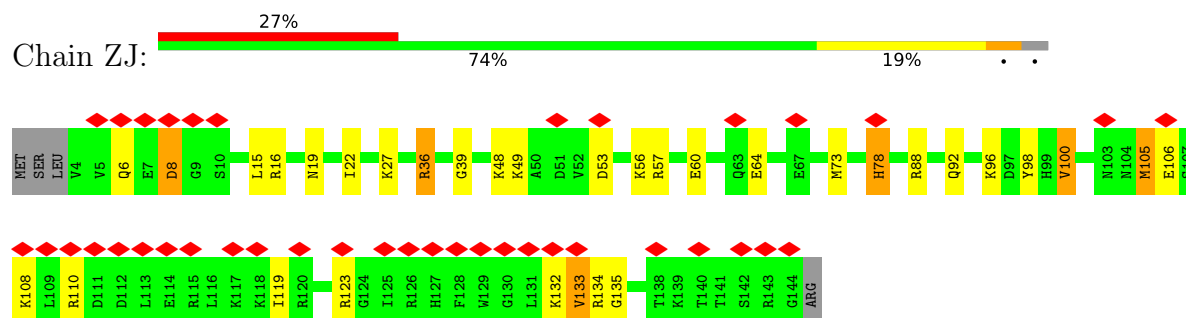
Chain ZH: 

MET S2 T3 T16 K22 K25 G26 L27 I28 K29 E39 P40 R44 P45 K46 V47 Y48 E49 D63 I64 Q82 L88 D97 E98 A99 E103 D112 K113 T114 V117 A118 R121 F128 R136 R142

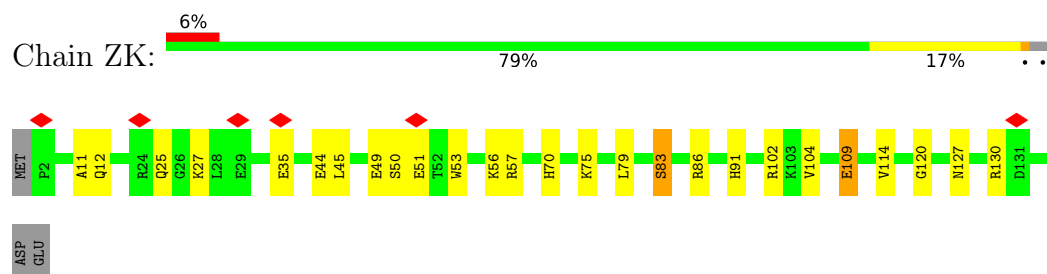
- Molecule 38: 40S ribosomal protein S17-B



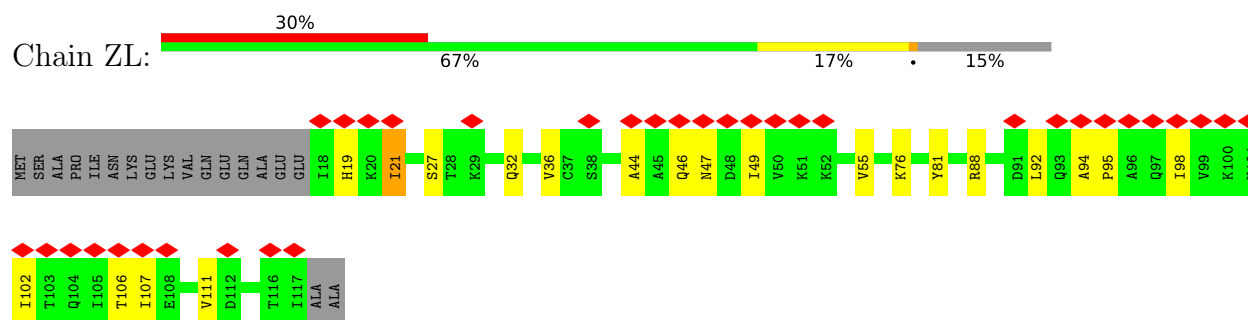
- Molecule 39: 40S ribosomal protein S18



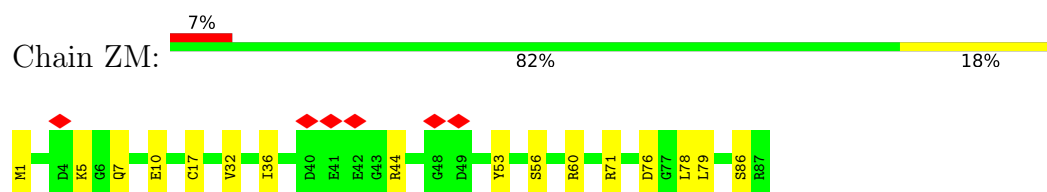
- Molecule 40: 40S ribosomal protein S19-A



- Molecule 41: Small ribosomal subunit protein uS10



- Molecule 42: 40S ribosomal protein S21



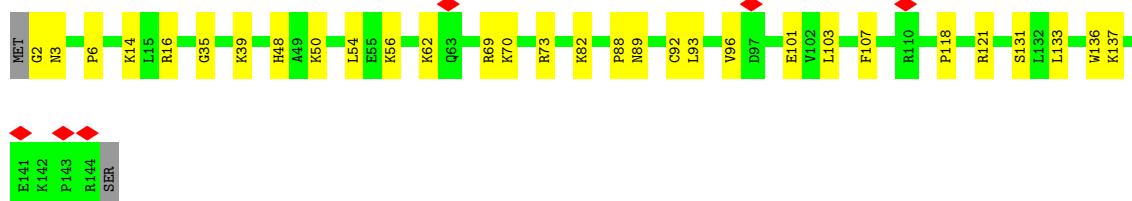
- Molecule 43: 40S ribosomal protein S22

Chain ZO:  79% 20%



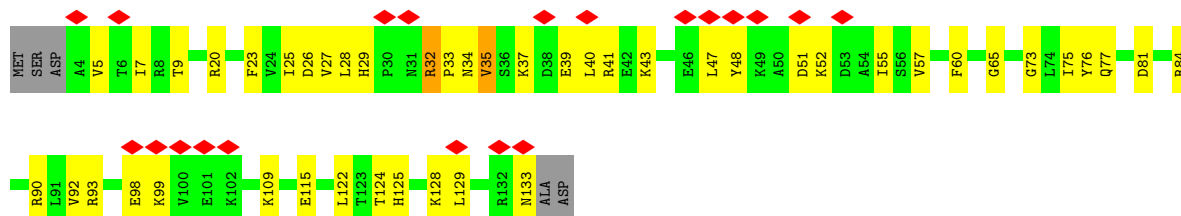
- Molecule 44: 40S ribosomal protein S23

Chain ZP:  78% 21%

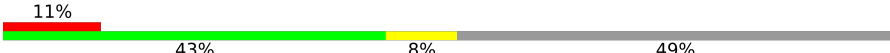


- Molecule 45: 40S ribosomal protein S24

Chain ZQ:  15% 62% 33%

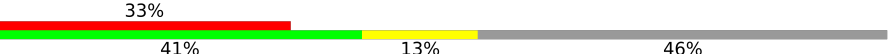


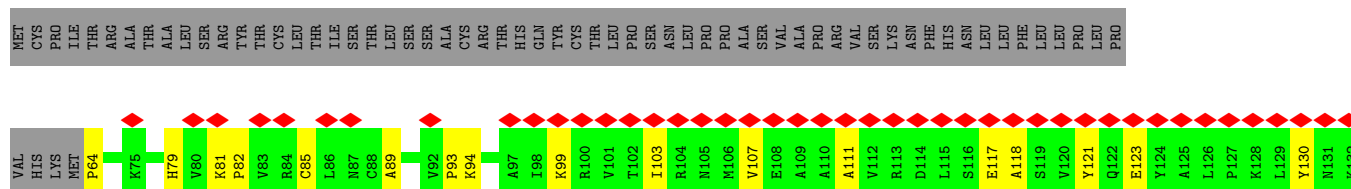
- Molecule 46: 40S ribosomal protein S25

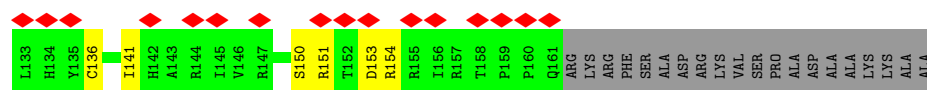
Chain ZR:  11% 43% 8% 49%



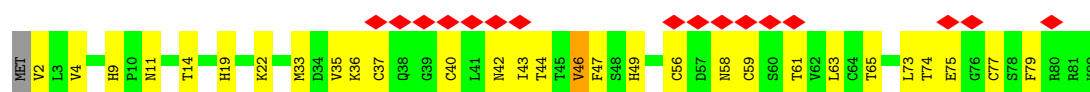
- Molecule 47: 40S ribosomal protein S26

Chain ZS:  33% 41% 13% 46%

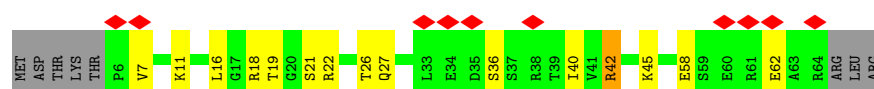




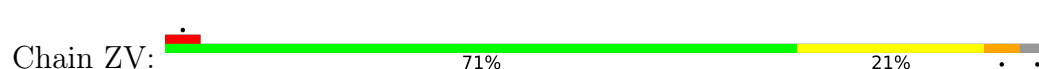
- Molecule 48: 40S ribosomal protein S27



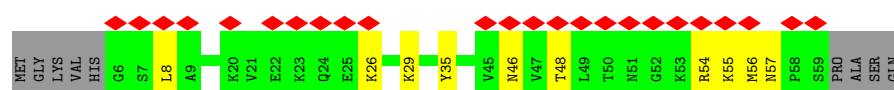
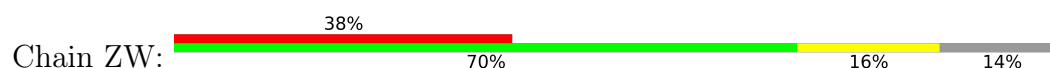
- Molecule 49: 40S ribosomal protein S28-A



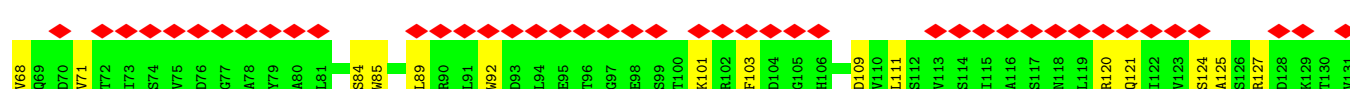
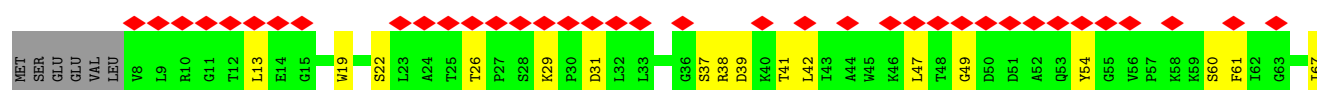
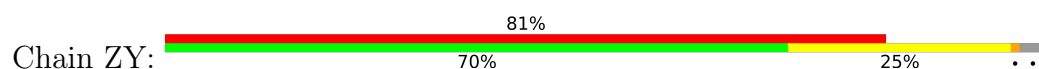
- Molecule 50: Small ribosomal subunit protein uS14

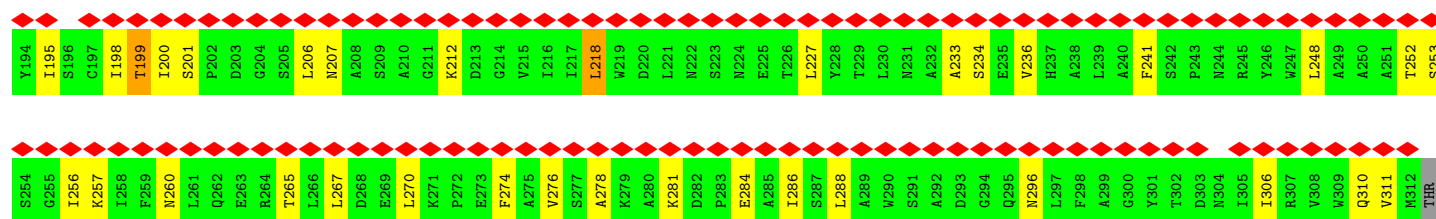


- Molecule 51: Small ribosomal subunit protein eS30



- Molecule 52: Small ribosomal subunit protein RACK1





SER
SER
ALA

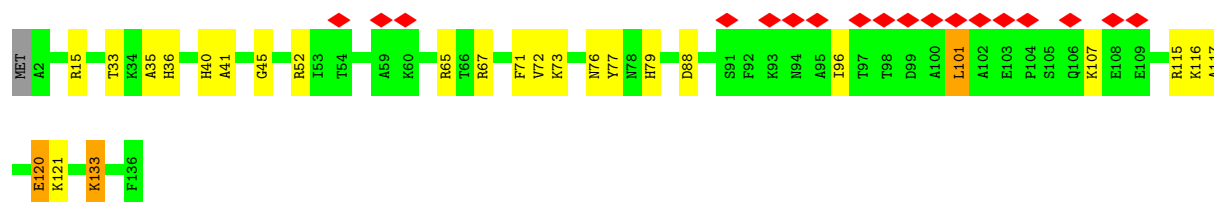
• Molecule 53: Ribosomal protein L24

Chain a: 81% 17% ..



• Molecule 54: 60S ribosomal protein L27

Chain b: 13% 80% 17% ..



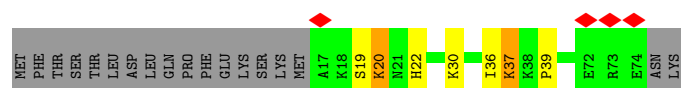
• Molecule 55: 60S ribosomal protein L28

Chain c: 87% 13% .



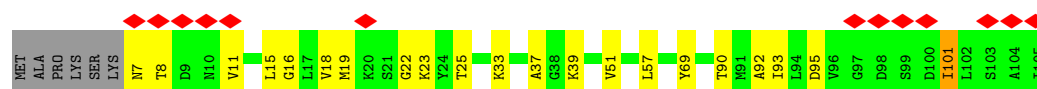
• Molecule 56: 60S ribosomal protein L29

Chain d: 5% 67% 7% 24%

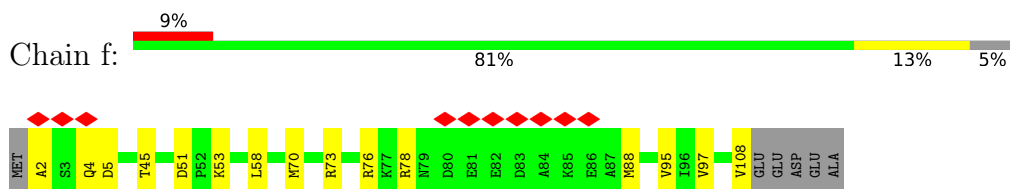


• Molecule 57: 60S ribosomal protein L30

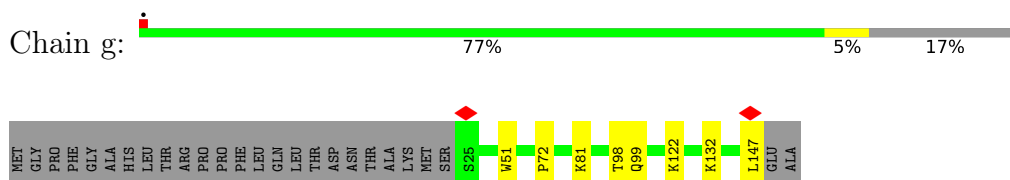
Chain e: 12% 74% 19% 6%



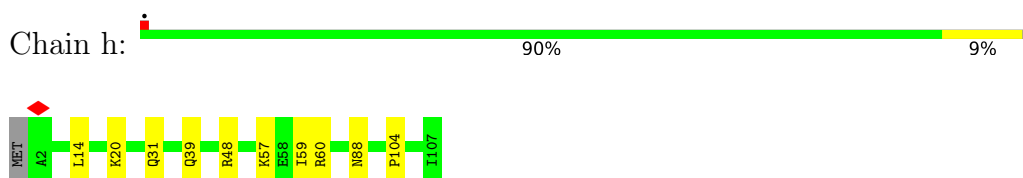
- Molecule 58: 60S ribosomal protein L31-A



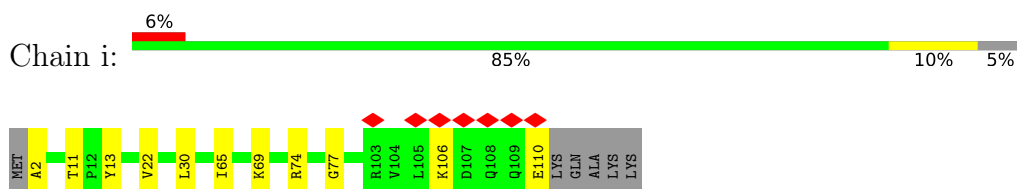
- Molecule 59: 60S ribosomal protein L32



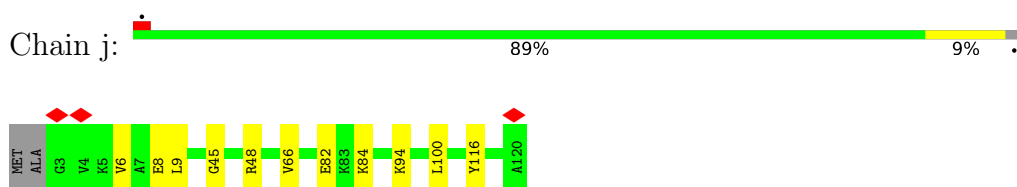
- Molecule 60: 60S ribosomal protein L33-A



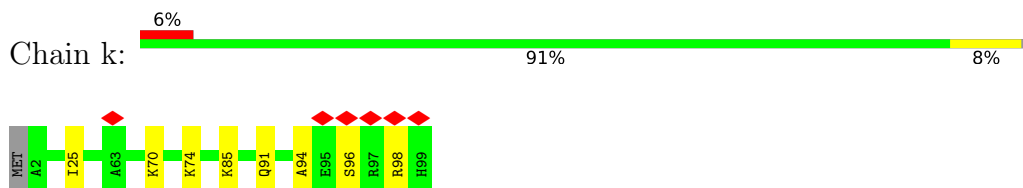
- Molecule 61: 60S ribosomal protein L34-B



- Molecule 62: 60S ribosomal protein L35

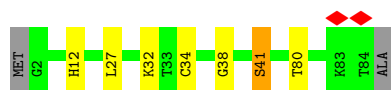


- Molecule 63: 60S ribosomal protein L36



- Molecule 64: Ribosomal protein L37

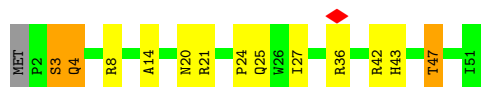




- Molecule 65: Large ribosomal subunit protein eL38



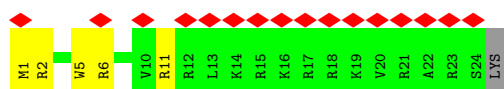
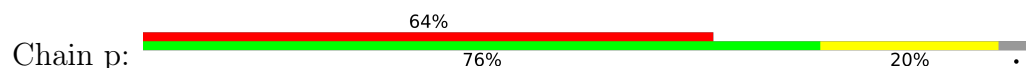
- Molecule 66: Large ribosomal subunit protein eL39



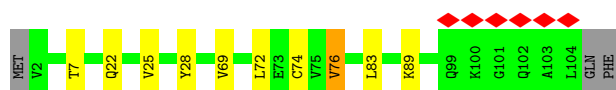
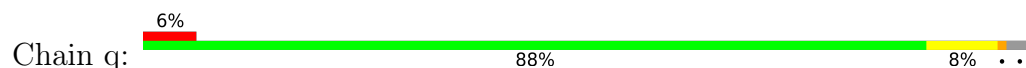
- Molecule 67: Large ribosomal subunit protein eL40



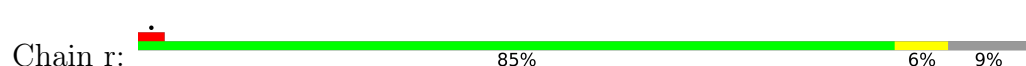
- Molecule 68: Small ribosomal subunit protein eS32



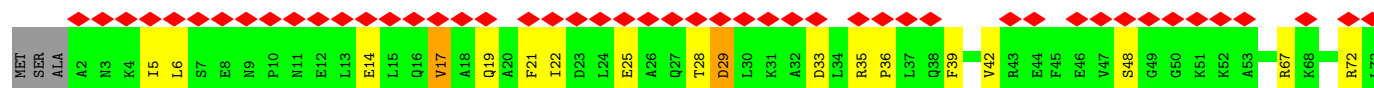
- Molecule 69: 60S ribosomal protein L44



- Molecule 70: 60S ribosomal protein L43



- Molecule 71: Small ribosomal subunit protein uS2





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	573853	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	3.971	Depositor
Minimum map value	-0.267	Depositor
Average map value	0.037	Depositor
Map value standard deviation	0.111	Depositor
Recommended contour level	0.39	Depositor
Map size (Å)	376.2, 376.2, 376.2	wwPDB
Map dimensions	450, 450, 450	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.836, 0.836, 0.836	Depositor

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: GET, SPD, ZN, 3HE, MG

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	1	0.11	0/835	0.24	0/1297
2	2	0.16	0/72	0.45	0/110
3	A	0.30	0/71627	0.46	30/111663 (0.0%)
4	B	0.23	0/2918	0.35	0/4548
5	C	0.30	0/3659	0.42	0/5698
6	CA	0.31	0/38730	0.49	48/60351 (0.1%)
7	D	0.39	0/1907	0.55	0/2560
8	E	0.40	0/3155	0.59	4/4246 (0.1%)
9	F	0.30	0/2835	0.46	2/3823 (0.1%)
10	G	0.27	0/2419	0.43	0/3253
11	H	0.43	0/1144	0.64	2/1541 (0.1%)
12	I	0.23	0/1950	0.41	0/2621
13	J	0.33	0/1879	0.57	3/2525 (0.1%)
14	K	0.19	0/1539	0.31	0/2068
15	L	0.17	0/1716	0.32	0/2303
16	M	0.16	0/1385	0.36	0/1854
17	N	0.23	0/1564	0.38	0/2104
18	O	0.18	0/1044	0.33	0/1410
19	P	0.29	0/1743	0.41	0/2340
20	Q	0.22	0/1618	0.38	0/2169
21	R	0.35	0/1410	0.49	1/1898 (0.1%)
22	S	0.20	0/1479	0.37	0/1985
23	T	0.42	0/1488	0.69	1/1981 (0.1%)
24	U	0.21	0/1483	0.38	0/1996
25	V	0.20	0/1308	0.35	0/1758
26	W	0.32	0/887	0.56	2/1194 (0.2%)
27	X	0.22	0/1022	0.42	0/1377
28	Y	0.28	0/530	0.43	0/704
29	Z	0.22	0/949	0.35	0/1283
30	ZA	0.39	0/1571	0.57	1/2103 (0.0%)
31	ZB	0.25	0/1485	0.43	1/1991 (0.1%)
32	ZC	0.13	0/805	0.23	0/1088

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	ZD	0.31	0/1174	0.41	0/1578
34	ZE	0.22	0/1215	0.35	0/1637
35	ZF	0.31	0/956	0.51	0/1284
36	ZG	0.16	0/922	0.28	0/1239
37	ZH	0.27	0/1119	0.41	0/1500
38	ZI	0.21	0/1039	0.41	0/1392
39	ZJ	0.29	0/1180	0.43	0/1580
40	ZK	0.27	0/1131	0.40	0/1522
41	ZL	0.18	0/791	0.35	0/1069
42	ZM	0.19	0/686	0.28	0/924
43	ZO	0.29	0/1049	0.43	0/1410
44	ZP	0.22	0/1127	0.38	0/1505
45	ZQ	0.30	0/1077	0.48	0/1439
46	ZR	0.17	0/534	0.32	0/717
47	ZS	0.13	0/797	0.27	0/1068
48	ZT	0.34	0/627	0.45	0/847
49	ZU	0.32	0/460	0.48	0/616
50	ZV	0.39	0/461	0.71	0/613
51	ZW	0.15	0/438	0.35	0/582
52	ZY	0.13	0/2413	0.34	0/3287
53	a	0.20	0/1005	0.36	0/1339
54	b	0.41	0/1104	0.55	0/1480
55	c	0.24	0/1212	0.39	0/1623
56	d	0.39	0/489	0.46	0/648
57	e	0.24	0/752	0.43	0/1011
58	f	0.22	0/893	0.37	0/1199
59	g	0.38	0/1019	0.52	0/1362
60	h	0.22	0/877	0.36	0/1180
61	i	0.21	0/874	0.33	0/1168
62	j	0.19	0/963	0.32	0/1284
63	k	0.20	0/780	0.37	0/1034
64	l	0.23	0/666	0.36	0/883
65	m	0.30	0/623	0.48	0/828
66	n	0.25	0/451	0.38	0/600
67	o	0.20	0/417	0.38	0/553
68	p	0.11	0/228	0.26	0/293
69	q	0.26	0/834	0.38	0/1103
70	r	0.21	0/699	0.38	0/933
71	s	0.26	0/1694	0.41	1/2311 (0.0%)
72	t	0.13	0/1709	0.35	0/2294
73	u	0.29	0/1664	0.36	0/2253
74	v	0.18	0/1642	0.32	0/2201
75	w	0.24	0/2094	0.36	0/2816

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
76	x	0.18	0/1628	0.28	0/2195
77	y	0.19	0/1845	0.31	0/2467
78	z	0.18	0/1490	0.35	0/2004
All	All	0.29	0/205004	0.45	96/300713 (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
7	D	0	1
8	E	0	3
9	F	0	1
10	G	0	2
11	H	0	2
13	J	0	1
21	R	0	1
23	T	0	8
30	ZA	0	1
31	ZB	0	1
33	ZD	0	1
35	ZF	0	2
38	ZI	0	1
39	ZJ	0	1
40	ZK	0	3
49	ZU	0	1
50	ZV	0	1
54	b	0	1
75	w	0	1
77	y	0	1
All	All	0	34

There are no bond length outliers.

The worst 5 of 96 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
6	CA	1200	A	P-O3'-C3'	-9.56	105.85	120.20
6	CA	869	G	P-O3'-C3'	-9.41	106.08	120.20
3	A	170	G	P-O3'-C3'	-9.09	106.56	120.20
3	A	2121	G	P-O3'-C3'	-8.90	106.85	120.20
3	A	2120	U	P-O3'-C3'	-8.73	107.10	120.20

There are no chirality outliers.

5 of 34 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
7	D	200	ARG	Sidechain
8	E	19	ARG	Sidechain
8	E	369	ARG	Sidechain
8	E	377	ARG	Sidechain
9	F	99	ARG	Sidechain

5.2 Too-close contacts

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	1	748	0	381	15	0
2	2	65	0	34	5	0
3	A	64000	0	32201	512	0
4	B	2609	0	1315	20	0
5	C	3274	0	1654	38	0
6	CA	34619	0	17423	469	0
7	D	1873	0	1943	20	0
8	E	3087	0	3173	27	0
9	F	2786	0	2912	23	0
10	G	2370	0	2360	27	0
11	H	1126	0	1215	8	0
12	I	1913	0	1998	6	0
13	J	1847	0	1970	20	0
14	K	1519	0	1588	19	0
15	L	1680	0	1714	19	0
16	M	1364	0	1396	16	0
17	N	1538	0	1614	12	0
18	O	1030	0	1113	1	0
19	P	1703	0	1747	7	0
20	Q	1587	0	1695	9	0
21	R	1384	0	1412	9	0
22	S	1456	0	1570	12	0
23	T	1469	0	1579	21	0
24	U	1448	0	1511	22	0
25	V	1282	0	1341	12	0
26	W	871	0	903	18	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
27	X	1005	0	1045	18	0
28	Y	517	0	535	8	0
29	Z	934	0	987	5	0
30	ZA	1545	0	1580	39	0
31	ZB	1459	0	1531	28	0
32	ZC	786	0	797	10	0
33	ZD	1150	0	1218	14	0
34	ZE	1192	0	1252	17	0
35	ZF	945	0	979	36	0
36	ZG	904	0	944	10	0
37	ZH	1100	0	1162	15	0
38	ZI	1027	0	1080	28	0
39	ZJ	1162	0	1202	26	0
40	ZK	1110	0	1120	19	0
41	ZL	782	0	854	13	0
42	ZM	678	0	671	10	0
43	ZO	1032	0	1072	19	0
44	ZP	1109	0	1173	18	0
45	ZQ	1060	0	1117	31	0
46	ZR	526	0	558	7	0
47	ZS	785	0	835	19	0
48	ZT	617	0	628	22	0
49	ZU	458	0	486	10	0
50	ZV	449	0	425	8	0
51	ZW	432	0	471	8	0
52	ZY	2359	0	2318	50	0
53	a	994	0	1075	14	0
54	b	1081	0	1134	16	0
55	c	1183	0	1211	13	0
56	d	481	0	498	7	0
57	e	744	0	784	14	0
58	f	877	0	915	11	0
59	g	1002	0	1062	1	0
60	h	859	0	889	7	0
61	i	865	0	931	8	0
62	j	956	0	1067	8	0
63	k	774	0	847	8	0
64	l	654	0	668	5	0
65	m	617	0	685	10	0
66	n	442	0	478	11	0
67	o	411	0	448	3	0
68	p	227	0	272	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
69	q	822	0	886	7	0
70	r	691	0	723	4	0
71	s	1655	0	1670	28	0
72	t	1685	0	1779	56	0
73	u	1636	0	1743	22	0
74	v	1619	0	1718	33	0
75	w	2056	0	2145	29	0
76	x	1610	0	1687	17	0
77	y	1819	0	1882	22	0
78	z	1466	0	1554	23	0
79	A	1054	0	1240	32	0
79	B	34	0	40	1	0
79	C	136	0	160	6	0
79	CA	646	0	760	25	0
79	E	34	0	40	1	0
79	T	34	0	40	5	0
80	A	166	0	0	0	0
80	B	2	0	0	0	0
80	C	2	0	0	0	0
80	CA	73	0	0	0	0
80	E	1	0	0	0	0
80	P	2	0	0	0	0
80	R	1	0	0	0	0
80	X	1	0	0	0	0
80	ZA	1	0	0	0	0
80	ZK	1	0	0	0	0
80	ZQ	1	0	0	0	0
80	k	1	0	0	0	0
80	x	1	0	0	0	0
81	A	20	0	38	1	0
81	CA	10	0	19	0	0
82	A	20	0	23	0	0
83	ZS	1	0	0	0	0
83	ZT	1	0	0	0	0
83	ZV	1	0	0	0	0
83	i	1	0	0	0	0
83	l	1	0	0	0	0
83	o	1	0	0	0	0
83	q	1	0	0	0	0
83	r	1	0	0	0	0
84	A	5741	0	0	22	0
84	B	58	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
84	C	243	0	0	3	0
84	CA	1595	0	0	18	0
84	D	131	0	0	0	0
84	E	153	0	0	1	0
84	F	136	0	0	0	0
84	G	36	0	0	0	0
84	H	9	0	0	0	0
84	I	70	0	0	0	0
84	J	27	0	0	0	0
84	K	17	0	0	0	0
84	L	25	0	0	0	0
84	M	1	0	0	0	0
84	N	81	0	0	1	0
84	O	21	0	0	0	0
84	P	132	0	0	2	0
84	Q	80	0	0	0	0
84	R	60	0	0	0	0
84	S	67	0	0	0	0
84	T	47	0	0	0	0
84	U	49	0	0	1	0
84	V	49	0	0	0	0
84	X	43	0	0	0	0
84	Y	26	0	0	0	0
84	Z	30	0	0	0	0
84	ZA	55	0	0	2	0
84	ZB	24	0	0	0	0
84	ZD	70	0	0	3	0
84	ZE	33	0	0	0	0
84	ZF	1	0	0	0	0
84	ZM	28	0	0	0	0
84	ZO	69	0	0	3	0
84	ZP	43	0	0	1	0
84	ZQ	11	0	0	0	0
84	ZS	7	0	0	1	0
84	ZT	15	0	0	0	0
84	ZW	3	0	0	0	0
84	a	23	0	0	0	0
84	b	8	0	0	0	0
84	c	81	0	0	1	0
84	d	24	0	0	1	0
84	e	10	0	0	0	0
84	f	18	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
84	g	67	0	0	0	0
84	h	49	0	0	0	0
84	i	40	0	0	0	0
84	j	32	0	0	0	0
84	k	26	0	0	0	0
84	l	47	0	0	0	0
84	m	4	0	0	0	0
84	n	19	0	0	0	0
84	o	5	0	0	0	0
84	p	2	0	0	0	0
84	q	38	0	0	0	0
84	r	30	0	0	0	0
84	s	11	0	0	0	0
84	t	1	0	0	0	0
84	u	45	0	0	3	0
84	w	50	0	0	2	0
84	y	29	0	0	1	0
84	z	14	0	0	0	0
All	All	203205	0	144913	1954	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 6.

The worst 5 of 1954 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)
6:CA:638:G:H1	6:CA:672:U:H3	0.96	0.96
3:A:2271:A:H61	3:A:2883:C:H5	1.13	0.92
3:A:3126:G:H1	3:A:3145:U:H3	1.18	0.91
6:CA:1563:G:H1	6:CA:1583:U:H3	1.19	0.90
3:A:2052:U:H3	3:A:2057:U:H5	1.22	0.87

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
7	D	245/254 (96%)	236 (96%)	8 (3%)	1 (0%)	30	27
8	E	385/389 (99%)	379 (98%)	6 (2%)	0	100	100
9	F	359/363 (99%)	353 (98%)	6 (2%)	0	100	100
10	G	289/298 (97%)	281 (97%)	8 (3%)	0	100	100
11	H	139/165 (84%)	132 (95%)	5 (4%)	2 (1%)	9	4
12	I	235/241 (98%)	229 (97%)	6 (3%)	0	100	100
13	J	231/263 (88%)	227 (98%)	3 (1%)	1 (0%)	30	27
14	K	188/191 (98%)	182 (97%)	6 (3%)	0	100	100
15	L	202/220 (92%)	201 (100%)	1 (0%)	0	100	100
16	M	168/172 (98%)	161 (96%)	7 (4%)	0	100	100
17	N	192/198 (97%)	184 (96%)	7 (4%)	1 (0%)	24	21
18	O	127/131 (97%)	126 (99%)	1 (1%)	0	100	100
19	P	201/204 (98%)	196 (98%)	5 (2%)	0	100	100
20	Q	197/200 (98%)	195 (99%)	2 (1%)	0	100	100
21	R	168/185 (91%)	165 (98%)	3 (2%)	0	100	100
22	S	183/186 (98%)	178 (97%)	5 (3%)	0	100	100
23	T	180/208 (86%)	169 (94%)	11 (6%)	0	100	100
24	U	170/186 (91%)	165 (97%)	5 (3%)	0	100	100
25	V	157/160 (98%)	155 (99%)	2 (1%)	0	100	100
26	W	105/119 (88%)	94 (90%)	11 (10%)	0	100	100
27	X	134/137 (98%)	132 (98%)	2 (2%)	0	100	100
28	Y	60/156 (38%)	59 (98%)	1 (2%)	0	100	100
29	Z	115/140 (82%)	115 (100%)	0	0	100	100
30	ZA	192/204 (94%)	184 (96%)	8 (4%)	0	100	100
31	ZB	176/189 (93%)	172 (98%)	4 (2%)	0	100	100
32	ZC	91/123 (74%)	88 (97%)	3 (3%)	0	100	100
33	ZD	141/155 (91%)	139 (99%)	2 (1%)	0	100	100
34	ZE	148/151 (98%)	142 (96%)	5 (3%)	1 (1%)	18	14
35	ZF	125/132 (95%)	114 (91%)	10 (8%)	1 (1%)	16	11
36	ZG	114/141 (81%)	111 (97%)	3 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
37	ZH	139/142 (98%)	131 (94%)	8 (6%)	0	100	100
38	ZI	126/137 (92%)	118 (94%)	7 (6%)	1 (1%)	16	11
39	ZJ	139/145 (96%)	135 (97%)	4 (3%)	0	100	100
40	ZK	140/145 (97%)	136 (97%)	4 (3%)	0	100	100
41	ZL	98/118 (83%)	89 (91%)	9 (9%)	0	100	100
42	ZM	85/87 (98%)	84 (99%)	1 (1%)	0	100	100
43	ZO	127/130 (98%)	124 (98%)	3 (2%)	0	100	100
44	ZP	141/145 (97%)	139 (99%)	2 (1%)	0	100	100
45	ZQ	128/135 (95%)	120 (94%)	6 (5%)	2 (2%)	7	3
46	ZR	64/130 (49%)	61 (95%)	3 (5%)	0	100	100
47	ZS	96/182 (53%)	94 (98%)	2 (2%)	0	100	100
48	ZT	79/82 (96%)	75 (95%)	4 (5%)	0	100	100
49	ZU	57/67 (85%)	53 (93%)	4 (7%)	0	100	100
50	ZV	52/56 (93%)	41 (79%)	10 (19%)	1 (2%)	6	3
51	ZW	52/63 (82%)	50 (96%)	2 (4%)	0	100	100
52	ZY	303/315 (96%)	278 (92%)	22 (7%)	3 (1%)	12	8
53	a	124/127 (98%)	122 (98%)	2 (2%)	0	100	100
54	b	133/136 (98%)	130 (98%)	3 (2%)	0	100	100
55	c	147/149 (99%)	139 (95%)	7 (5%)	1 (1%)	18	14
56	d	56/76 (74%)	56 (100%)	0	0	100	100
57	e	97/105 (92%)	97 (100%)	0	0	100	100
58	f	105/113 (93%)	104 (99%)	1 (1%)	0	100	100
59	g	121/149 (81%)	120 (99%)	1 (1%)	0	100	100
60	h	104/107 (97%)	102 (98%)	2 (2%)	0	100	100
61	i	107/115 (93%)	104 (97%)	3 (3%)	0	100	100
62	j	116/120 (97%)	115 (99%)	1 (1%)	0	100	100
63	k	96/99 (97%)	94 (98%)	2 (2%)	0	100	100
64	l	81/85 (95%)	79 (98%)	2 (2%)	0	100	100
65	m	75/78 (96%)	75 (100%)	0	0	100	100
66	n	48/51 (94%)	46 (96%)	2 (4%)	0	100	100
67	o	49/52 (94%)	49 (100%)	0	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
68	p	22/25 (88%)	22 (100%)	0	0	100	100
69	q	101/106 (95%)	100 (99%)	1 (1%)	0	100	100
70	r	88/99 (89%)	86 (98%)	2 (2%)	0	100	100
71	s	208/264 (79%)	200 (96%)	8 (4%)	0	100	100
72	t	208/256 (81%)	189 (91%)	19 (9%)	0	100	100
73	u	214/249 (86%)	211 (99%)	3 (1%)	0	100	100
74	v	207/250 (83%)	197 (95%)	9 (4%)	1 (0%)	24	21
75	w	258/264 (98%)	253 (98%)	5 (2%)	0	100	100
76	x	204/223 (92%)	198 (97%)	6 (3%)	0	100	100
77	y	224/236 (95%)	219 (98%)	5 (2%)	0	100	100
78	z	180/188 (96%)	172 (96%)	8 (4%)	0	100	100
All	All	10616/11662 (91%)	10271 (97%)	329 (3%)	16 (0%)	44	42

5 of 16 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
11	H	119	ILE
17	N	47	ALA
34	ZE	63	ALA
52	ZY	146	SER
52	ZY	199	THR

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
7	D	186/193 (96%)	185 (100%)	1 (0%)	81	87
8	E	328/330 (99%)	325 (99%)	3 (1%)	70	78
9	F	298/300 (99%)	294 (99%)	4 (1%)	61	68
10	G	247/252 (98%)	243 (98%)	4 (2%)	55	62
11	H	124/145 (86%)	123 (99%)	1 (1%)	73	80

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
12	I	199/202 (98%)	196 (98%)	3 (2%)	57	64
13	J	196/216 (91%)	190 (97%)	6 (3%)	35	37
14	K	168/168 (100%)	163 (97%)	5 (3%)	36	38
15	L	178/189 (94%)	177 (99%)	1 (1%)	78	85
16	M	143/145 (99%)	138 (96%)	5 (4%)	32	32
17	N	156/160 (98%)	151 (97%)	5 (3%)	34	35
18	O	110/111 (99%)	110 (100%)	0	100	100
19	P	175/176 (99%)	175 (100%)	0	100	100
20	Q	166/167 (99%)	166 (100%)	0	100	100
21	R	142/152 (93%)	140 (99%)	2 (1%)	59	66
22	S	153/154 (99%)	150 (98%)	3 (2%)	48	54
23	T	146/170 (86%)	128 (88%)	18 (12%)	4	3
24	U	154/168 (92%)	152 (99%)	2 (1%)	61	68
25	V	138/139 (99%)	134 (97%)	4 (3%)	37	40
26	W	96/106 (91%)	89 (93%)	7 (7%)	13	9
27	X	104/105 (99%)	102 (98%)	2 (2%)	50	56
28	Y	55/131 (42%)	53 (96%)	2 (4%)	31	31
29	Z	103/118 (87%)	102 (99%)	1 (1%)	68	75
30	ZA	157/167 (94%)	153 (98%)	4 (2%)	42	45
31	ZB	155/163 (95%)	148 (96%)	7 (4%)	24	23
32	ZC	87/108 (81%)	85 (98%)	2 (2%)	44	49
33	ZD	127/138 (92%)	126 (99%)	1 (1%)	73	80
34	ZE	130/131 (99%)	127 (98%)	3 (2%)	44	49
35	ZF	98/102 (96%)	89 (91%)	9 (9%)	8	5
36	ZG	97/118 (82%)	95 (98%)	2 (2%)	47	52
37	ZH	115/116 (99%)	112 (97%)	3 (3%)	40	44
38	ZI	113/121 (93%)	108 (96%)	5 (4%)	25	24
39	ZJ	125/129 (97%)	118 (94%)	7 (6%)	19	16
40	ZK	115/118 (98%)	112 (97%)	3 (3%)	40	44
41	ZL	90/104 (86%)	88 (98%)	2 (2%)	45	50
42	ZM	72/72 (100%)	72 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
43	ZO	113/114 (99%)	110 (97%)	3 (3%)	39	42
44	ZP	117/119 (98%)	113 (97%)	4 (3%)	32	33
45	ZQ	114/118 (97%)	107 (94%)	7 (6%)	17	14
46	ZR	59/107 (55%)	57 (97%)	2 (3%)	32	33
47	ZS	85/158 (54%)	83 (98%)	2 (2%)	43	47
48	ZT	72/73 (99%)	68 (94%)	4 (6%)	19	16
49	ZU	52/60 (87%)	48 (92%)	4 (8%)	12	8
50	ZV	47/48 (98%)	44 (94%)	3 (6%)	16	12
51	ZW	47/54 (87%)	46 (98%)	1 (2%)	47	52
52	ZY	258/267 (97%)	250 (97%)	8 (3%)	35	37
53	a	111/112 (99%)	108 (97%)	3 (3%)	39	42
54	b	113/114 (99%)	108 (96%)	5 (4%)	25	24
55	c	120/120 (100%)	119 (99%)	1 (1%)	73	80
56	d	48/66 (73%)	46 (96%)	2 (4%)	26	25
57	e	79/84 (94%)	78 (99%)	1 (1%)	61	68
58	f	95/100 (95%)	94 (99%)	1 (1%)	65	73
59	g	109/130 (84%)	103 (94%)	6 (6%)	19	17
60	h	92/93 (99%)	92 (100%)	0	100	100
61	i	94/99 (95%)	94 (100%)	0	100	100
62	j	101/102 (99%)	100 (99%)	1 (1%)	68	75
63	k	80/81 (99%)	79 (99%)	1 (1%)	61	68
64	l	69/70 (99%)	68 (99%)	1 (1%)	59	66
65	m	69/70 (99%)	67 (97%)	2 (3%)	37	40
66	n	47/48 (98%)	42 (89%)	5 (11%)	6	4
67	o	46/47 (98%)	46 (100%)	0	100	100
68	p	23/24 (96%)	23 (100%)	0	100	100
69	q	87/90 (97%)	86 (99%)	1 (1%)	65	73
70	r	70/76 (92%)	69 (99%)	1 (1%)	59	66
71	s	182/218 (84%)	174 (96%)	8 (4%)	25	24
72	t	185/223 (83%)	176 (95%)	9 (5%)	22	20
73	u	178/203 (88%)	175 (98%)	3 (2%)	53	60

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
74	v	165/192 (86%)	163 (99%)	2 (1%)	63	70
75	w	219/222 (99%)	214 (98%)	5 (2%)	44	49
76	x	175/192 (91%)	171 (98%)	4 (2%)	44	49
77	y	194/202 (96%)	187 (96%)	7 (4%)	31	31
78	z	163/168 (97%)	157 (96%)	6 (4%)	30	30
All	All	9124/9848 (93%)	8884 (97%)	240 (3%)	41	44

5 of 240 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
39	ZJ	8	ASP
75	w	170	SER
47	ZS	107	VAL
75	w	101	LEU
78	z	29	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 83 such sidechains are listed below:

Mol	Chain	Res	Type
48	ZT	17	GLN
66	n	11	GLN
51	ZW	51	ASN
55	c	38	GLN
71	s	168	HIS

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	1	33/76 (43%)	3 (9%)	0
2	2	2/3 (66%)	0	0
3	A	2980/3283 (90%)	369 (12%)	30 (1%)
4	B	121/122 (99%)	13 (10%)	1 (0%)
5	C	153/158 (96%)	21 (13%)	0
6	CA	1611/1775 (90%)	356 (22%)	20 (1%)
All	All	4900/5417 (90%)	762 (15%)	51 (1%)

5 of 762 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	1	22	C
1	1	24	G
1	1	42	G
3	A	14	A
3	A	15	G

5 of 51 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
3	A	3240	U
6	CA	176	C
6	CA	1467	G
3	A	3270	U
6	CA	72	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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 322 ligands modelled in this entry, 261 are monoatomic - leaving 61 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	$\# Z > 2$
79	GET	CA	1889	-	33,36,36	0.72	0	43,55,55	0.88	1 (2%)
79	GET	CA	1890	-	33,36,36	0.52	0	43,55,55	0.91	2 (4%)
79	GET	A	3476	-	33,36,36	0.84	0	43,55,55	1.11	3 (6%)
79	GET	CA	1891	-	33,36,36	0.71	0	43,55,55	1.18	4 (9%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
79	GET	A	3486	-	33,36,36	0.75	0	43,55,55	1.02	3 (6%)
79	GET	A	3498	-	33,36,36	0.78	0	43,55,55	1.15	5 (11%)
79	GET	B	203	-	33,36,36	0.76	0	43,55,55	0.91	2 (4%)
79	GET	A	3478	-	33,36,36	0.69	0	43,55,55	1.35	6 (13%)
79	GET	A	3482	-	33,36,36	0.77	0	43,55,55	0.91	1 (2%)
79	GET	A	3488	-	33,36,36	0.79	0	43,55,55	1.08	2 (4%)
79	GET	C	203	-	33,36,36	0.75	0	43,55,55	1.03	3 (6%)
79	GET	CA	1877	-	33,36,36	0.82	0	43,55,55	1.12	6 (13%)
79	GET	CA	1880	-	33,36,36	0.72	0	43,55,55	1.32	5 (11%)
79	GET	A	3477	-	33,36,36	0.46	0	43,55,55	0.81	1 (2%)
79	GET	A	3496	-	33,36,36	0.74	0	43,55,55	1.24	4 (9%)
79	GET	CA	1886	-	33,36,36	0.72	0	43,55,55	1.63	11 (25%)
79	GET	A	3473	-	33,36,36	0.76	0	43,55,55	1.11	4 (9%)
79	GET	A	3499	-	33,36,36	0.74	0	43,55,55	1.13	5 (11%)
79	GET	A	3497	-	33,36,36	0.79	0	43,55,55	0.99	2 (4%)
79	GET	CA	1882	-	33,36,36	0.72	0	43,55,55	1.54	11 (25%)
79	GET	A	3301	-	33,36,36	0.77	0	43,55,55	1.01	3 (6%)
79	GET	A	3479	-	33,36,36	0.78	0	43,55,55	0.94	2 (4%)
79	GET	C	204	-	33,36,36	0.76	0	43,55,55	0.88	2 (4%)
79	GET	A	3492	-	33,36,36	0.77	0	43,55,55	0.95	2 (4%)
79	GET	A	3483	-	33,36,36	0.75	0	43,55,55	0.99	3 (6%)
79	GET	A	3490	-	33,36,36	0.83	0	43,55,55	1.42	7 (16%)
79	GET	A	3491	-	33,36,36	0.75	0	43,55,55	1.47	9 (20%)
81	SPD	CA	1881	-	9,9,9	0.27	0	8,8,8	0.27	0
79	GET	CA	1878	-	33,36,36	0.80	0	43,55,55	1.00	3 (6%)
79	GET	CA	1879	-	33,36,36	0.75	0	43,55,55	1.14	4 (9%)
79	GET	C	205	-	33,36,36	0.77	0	43,55,55	1.11	3 (6%)
79	GET	CA	1883	-	33,36,36	0.54	0	43,55,55	1.20	7 (16%)
79	GET	CA	1885	-	33,36,36	0.74	0	43,55,55	1.06	3 (6%)
79	GET	A	3480	-	33,36,36	0.84	1 (3%)	43,55,55	1.04	4 (9%)
79	GET	E	402	-	33,36,36	0.73	0	43,55,55	1.18	3 (6%)
79	GET	A	3494	-	33,36,36	0.75	0	43,55,55	1.29	5 (11%)
79	GET	A	3484	-	33,36,36	0.82	0	43,55,55	1.11	5 (11%)
79	GET	A	3472	-	33,36,36	0.79	0	43,55,55	0.88	0
79	GET	A	3489	-	33,36,36	0.76	0	43,55,55	1.01	3 (6%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
79	GET	CA	1893	-	33,36,36	0.49	0	43,55,55	1.00	4 (9%)
79	GET	A	3487	-	33,36,36	0.76	0	43,55,55	1.04	3 (6%)
79	GET	CA	1875	-	33,36,36	0.77	0	43,55,55	1.17	4 (9%)
79	GET	CA	1876	-	33,36,36	0.74	0	43,55,55	1.19	4 (9%)
79	GET	A	3475	-	33,36,36	0.73	0	43,55,55	0.99	1 (2%)
81	SPD	A	3470	-	9,9,9	0.29	0	8,8,8	0.32	0
79	GET	A	3493	-	33,36,36	0.68	0	43,55,55	1.15	3 (6%)
81	SPD	A	3468	-	9,9,9	0.30	0	8,8,8	0.25	0
82	3HE	A	3469	-	21,21,21	0.57	0	19,30,30	0.95	0
79	GET	C	206	-	33,36,36	0.77	0	43,55,55	0.83	1 (2%)
79	GET	T	301	-	33,36,36	0.79	0	43,55,55	1.22	4 (9%)
79	GET	A	3471	-	33,36,36	0.80	0	43,55,55	1.16	5 (11%)
79	GET	CA	1884	-	33,36,36	0.75	0	43,55,55	1.09	4 (9%)
79	GET	A	3495	-	33,36,36	0.73	0	43,55,55	0.95	3 (6%)
79	GET	CA	1888	-	33,36,36	0.72	0	43,55,55	0.94	2 (4%)
79	GET	A	3485	-	33,36,36	0.79	0	43,55,55	1.20	6 (13%)
79	GET	A	3474	-	33,36,36	0.79	0	43,55,55	1.04	1 (2%)
79	GET	CA	1874	-	33,36,36	0.76	0	43,55,55	0.96	3 (6%)
79	GET	A	3500	-	33,36,36	0.75	0	43,55,55	1.03	3 (6%)
79	GET	A	3481	-	33,36,36	0.82	0	43,55,55	1.04	2 (4%)
79	GET	CA	1892	-	33,36,36	0.71	0	43,55,55	0.88	1 (2%)
79	GET	CA	1887	-	33,36,36	0.77	0	43,55,55	1.45	8 (18%)

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
79	GET	CA	1889	-	-	5/13/74/74	0/3/3/3
79	GET	CA	1890	-	-	0/13/74/74	0/3/3/3
79	GET	A	3476	-	-	1/13/74/74	0/3/3/3
79	GET	CA	1891	-	-	2/13/74/74	0/3/3/3
79	GET	A	3486	-	-	1/13/74/74	0/3/3/3
79	GET	A	3498	-	-	5/13/74/74	0/3/3/3
79	GET	B	203	-	-	3/13/74/74	0/3/3/3
79	GET	A	3478	-	-	3/13/74/74	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
79	GET	A	3482	-	-	3/13/74/74	0/3/3/3
79	GET	A	3488	-	-	3/13/74/74	0/3/3/3
79	GET	C	203	-	-	4/13/74/74	0/3/3/3
79	GET	CA	1877	-	-	2/13/74/74	0/3/3/3
79	GET	CA	1880	-	-	2/13/74/74	0/3/3/3
79	GET	A	3477	-	-	4/13/74/74	0/3/3/3
79	GET	A	3496	-	-	1/13/74/74	0/3/3/3
79	GET	CA	1886	-	-	4/13/74/74	0/3/3/3
79	GET	A	3473	-	-	1/13/74/74	0/3/3/3
79	GET	A	3499	-	-	1/13/74/74	0/3/3/3
79	GET	A	3497	-	-	4/13/74/74	0/3/3/3
79	GET	CA	1882	-	-	9/13/74/74	0/3/3/3
79	GET	A	3301	-	-	1/13/74/74	0/3/3/3
79	GET	A	3479	-	-	1/13/74/74	0/3/3/3
79	GET	C	204	-	-	1/13/74/74	0/3/3/3
79	GET	A	3492	-	-	2/13/74/74	0/3/3/3
79	GET	A	3483	-	-	1/13/74/74	0/3/3/3
79	GET	A	3490	-	-	3/13/74/74	1/3/3/3
79	GET	A	3491	-	-	5/13/74/74	0/3/3/3
81	SPD	CA	1881	-	-	0/7/7/7	-
79	GET	CA	1878	-	-	1/13/74/74	0/3/3/3
79	GET	CA	1879	-	-	3/13/74/74	0/3/3/3
79	GET	C	205	-	-	3/13/74/74	0/3/3/3
79	GET	CA	1883	-	-	7/13/74/74	0/3/3/3
79	GET	CA	1885	-	-	1/13/74/74	0/3/3/3
79	GET	A	3480	-	-	5/13/74/74	0/3/3/3
79	GET	E	402	-	-	1/13/74/74	0/3/3/3
79	GET	A	3494	-	-	3/13/74/74	0/3/3/3
79	GET	A	3484	-	-	4/13/74/74	0/3/3/3
79	GET	A	3472	-	-	2/13/74/74	0/3/3/3
79	GET	A	3489	-	-	1/13/74/74	0/3/3/3
79	GET	CA	1893	-	-	9/13/74/74	1/3/3/3
79	GET	A	3487	-	-	5/13/74/74	0/3/3/3
79	GET	CA	1875	-	-	4/13/74/74	0/3/3/3
79	GET	CA	1876	-	-	2/13/74/74	0/3/3/3
79	GET	A	3475	-	-	5/13/74/74	0/3/3/3
81	SPD	A	3470	-	-	0/7/7/7	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
79	GET	A	3493	-	-	1/13/74/74	0/3/3/3
81	SPD	A	3468	-	-	0/7/7/7	-
82	3HE	A	3469	-	-	0/8/36/36	0/2/2/2
79	GET	C	206	-	-	1/13/74/74	0/3/3/3
79	GET	T	301	-	-	5/13/74/74	0/3/3/3
79	GET	A	3471	-	-	5/13/74/74	0/3/3/3
79	GET	CA	1884	-	-	1/13/74/74	0/3/3/3
79	GET	A	3495	-	-	1/13/74/74	0/3/3/3
79	GET	CA	1888	-	-	4/13/74/74	0/3/3/3
79	GET	A	3485	-	-	1/13/74/74	0/3/3/3
79	GET	A	3474	-	-	2/13/74/74	0/3/3/3
79	GET	CA	1874	-	-	1/13/74/74	0/3/3/3
79	GET	A	3500	-	-	1/13/74/74	0/3/3/3
79	GET	A	3481	-	-	1/13/74/74	0/3/3/3
79	GET	CA	1892	-	-	4/13/74/74	0/3/3/3
79	GET	CA	1887	-	-	7/13/74/74	0/3/3/3

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
79	A	3480	GET	O53-C53	-2.34	1.40	1.43

The worst 5 of 211 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
79	CA	1886	GET	C11-O51-C51	5.99	122.71	113.06
79	CA	1887	GET	C11-O51-C51	4.84	120.86	113.06
79	A	3490	GET	O11-C42-C32	-4.81	97.71	109.18
79	CA	1882	GET	C11-O51-C51	4.62	120.50	113.06
79	A	3491	GET	C11-O51-C51	4.57	120.42	113.06

There are no chirality outliers.

5 of 163 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
79	A	3301	GET	C23-C33-N33-C93
79	A	3471	GET	C41-C51-C61-O61
79	A	3471	GET	C41-C51-C61-C71
79	A	3471	GET	C23-C33-N33-C93
79	A	3472	GET	C23-C33-N33-C93

All (2) ring outliers are listed below:

Mol	Chain	Res	Type	Atoms
79	CA	1893	GET	C11-C21-C31-C41-C51-O51
79	A	3490	GET	C11-C21-C31-C41-C51-O51

42 monomers are involved in 71 short contacts:

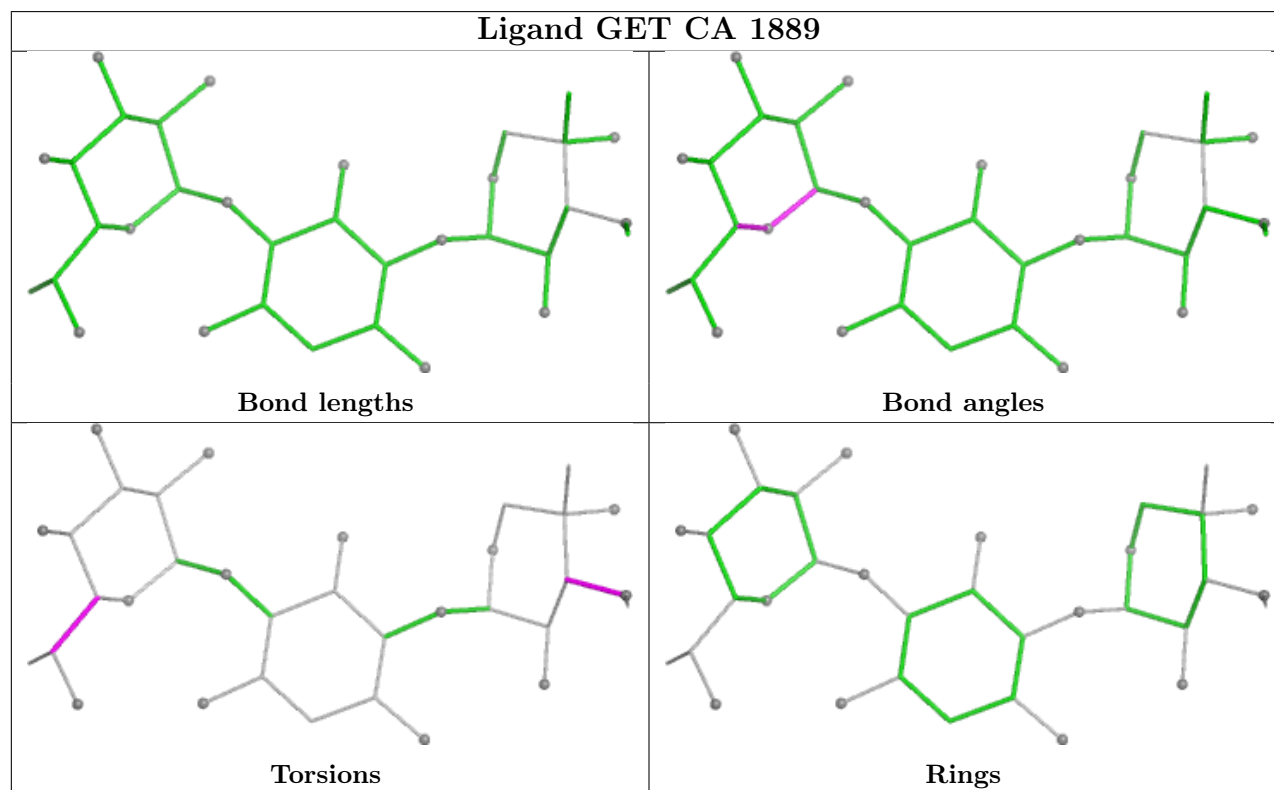
Mol	Chain	Res	Type	Clashes	Symm-Clashes
79	CA	1889	GET	1	0
79	CA	1891	GET	1	0
79	A	3486	GET	3	0
79	A	3498	GET	1	0
79	B	203	GET	1	0
79	A	3478	GET	2	0
79	A	3482	GET	2	0
79	A	3488	GET	1	0
79	CA	1880	GET	1	0
79	A	3496	GET	1	0
79	CA	1886	GET	1	0
79	A	3473	GET	1	0
79	A	3497	GET	1	0
79	CA	1882	GET	4	0
79	A	3479	GET	1	0
79	C	204	GET	3	0
79	A	3492	GET	1	0
79	A	3490	GET	1	0
79	A	3491	GET	1	0
79	CA	1878	GET	2	0
79	CA	1879	GET	1	0
79	C	205	GET	2	0
79	CA	1883	GET	2	0
79	A	3480	GET	5	0
79	E	402	GET	1	0
79	A	3484	GET	2	0
79	A	3489	GET	1	0
79	CA	1893	GET	3	0
79	CA	1875	GET	2	0
79	CA	1876	GET	2	0
79	A	3475	GET	1	0
81	A	3470	SPD	1	0
79	A	3493	GET	3	0
79	C	206	GET	1	0
79	T	301	GET	5	0
79	A	3471	GET	1	0

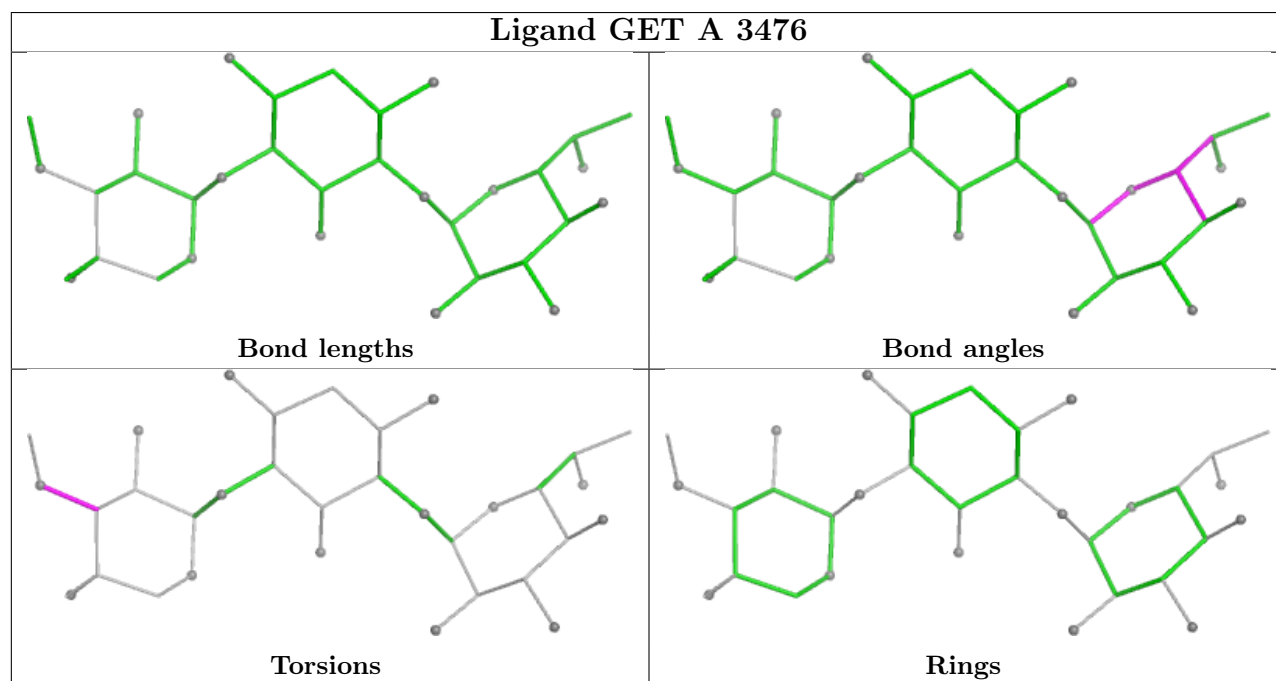
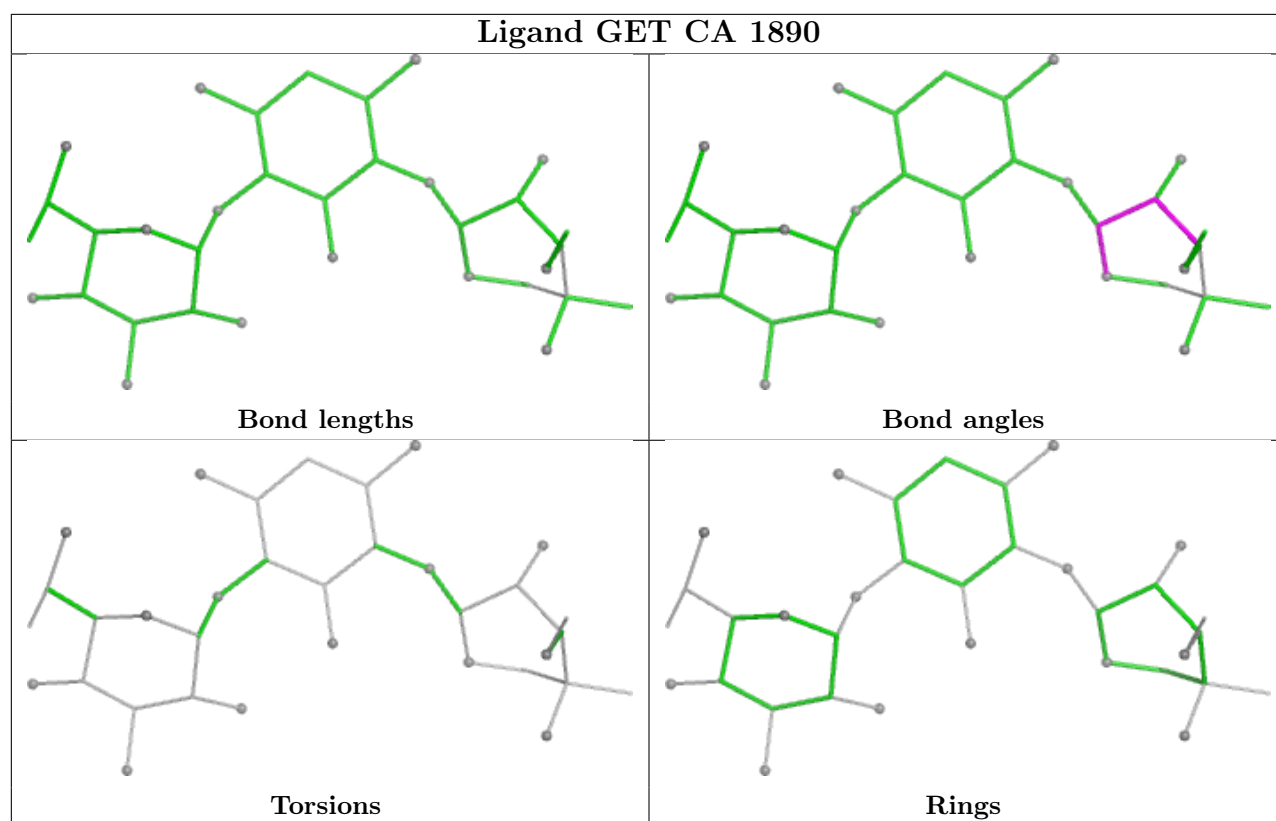
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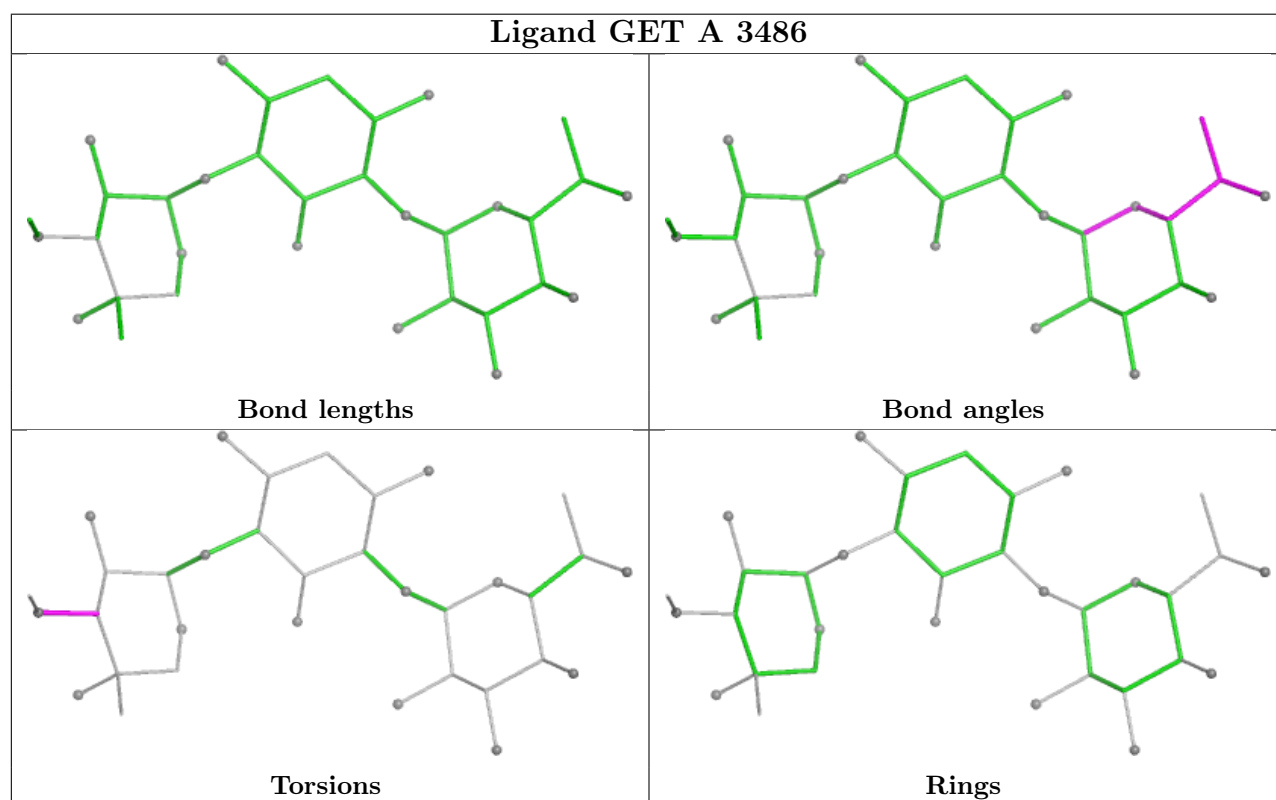
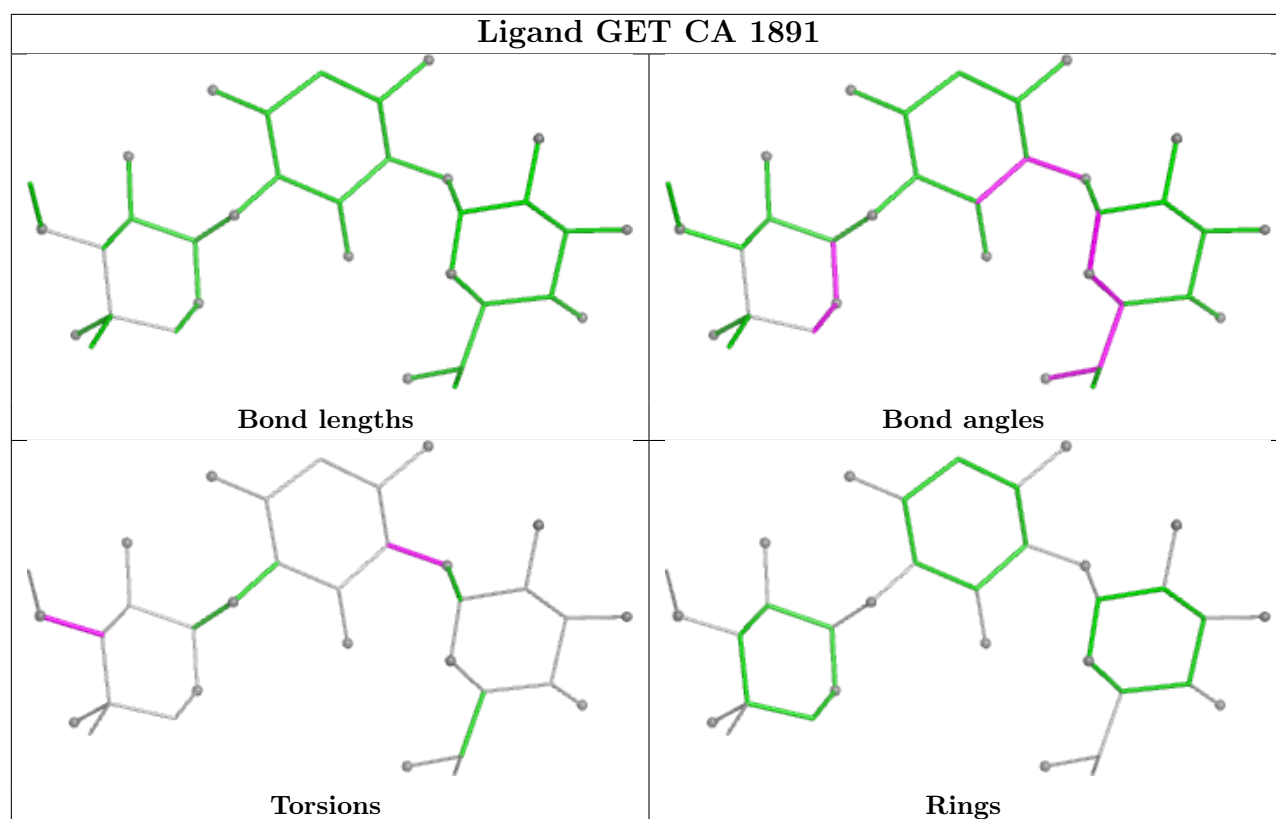
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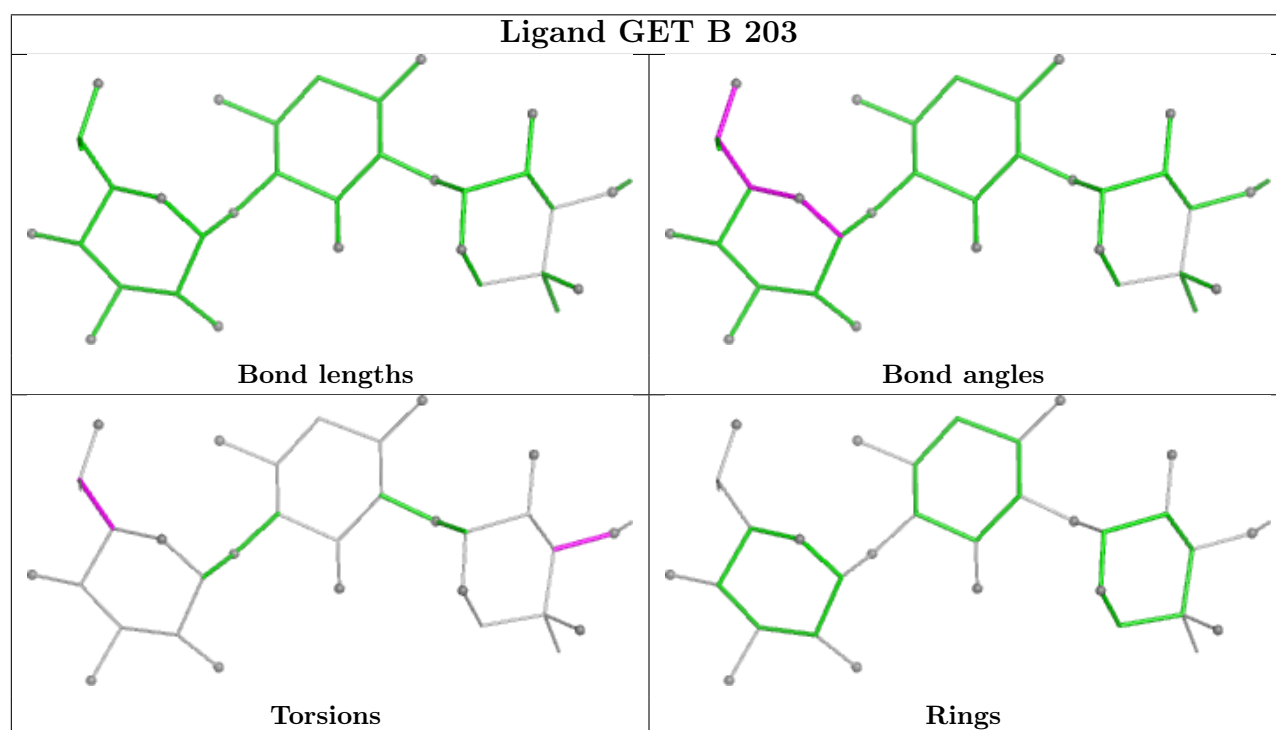
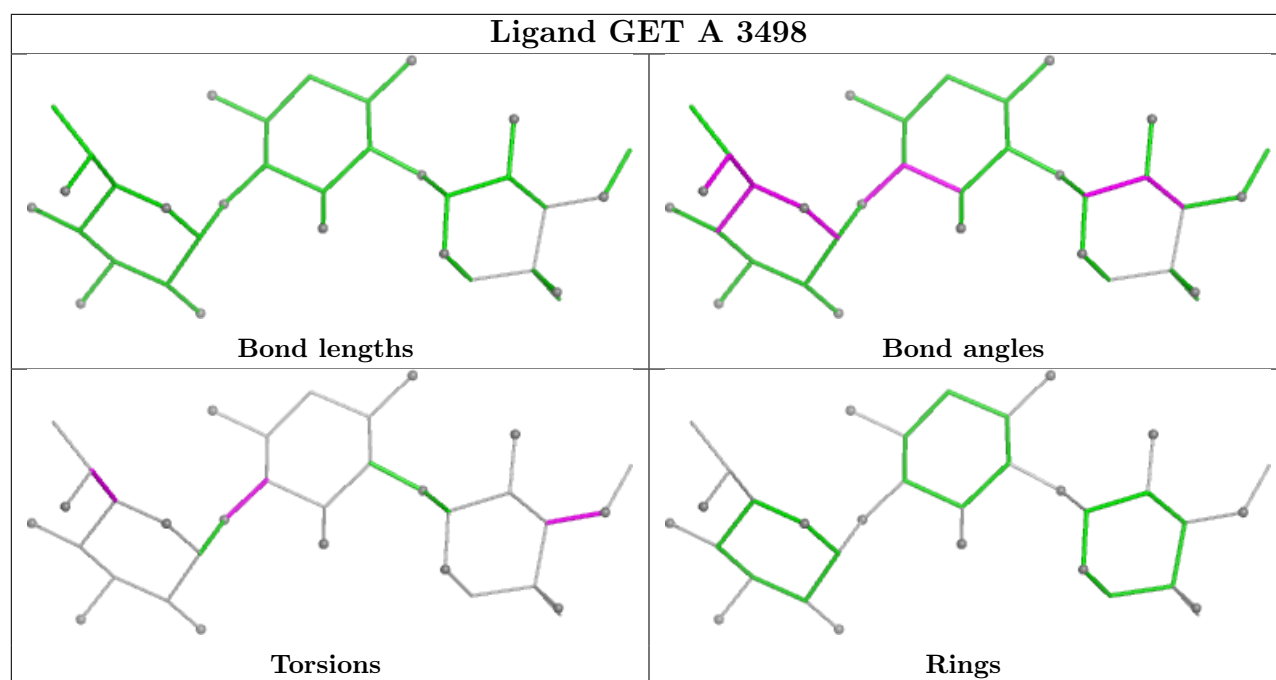
Mol	Chain	Res	Type	Clashes	Symm-Clashes
79	CA	1884	GET	1	0
79	A	3495	GET	1	0
79	CA	1888	GET	1	0
79	A	3481	GET	2	0
79	CA	1892	GET	2	0
79	CA	1887	GET	1	0

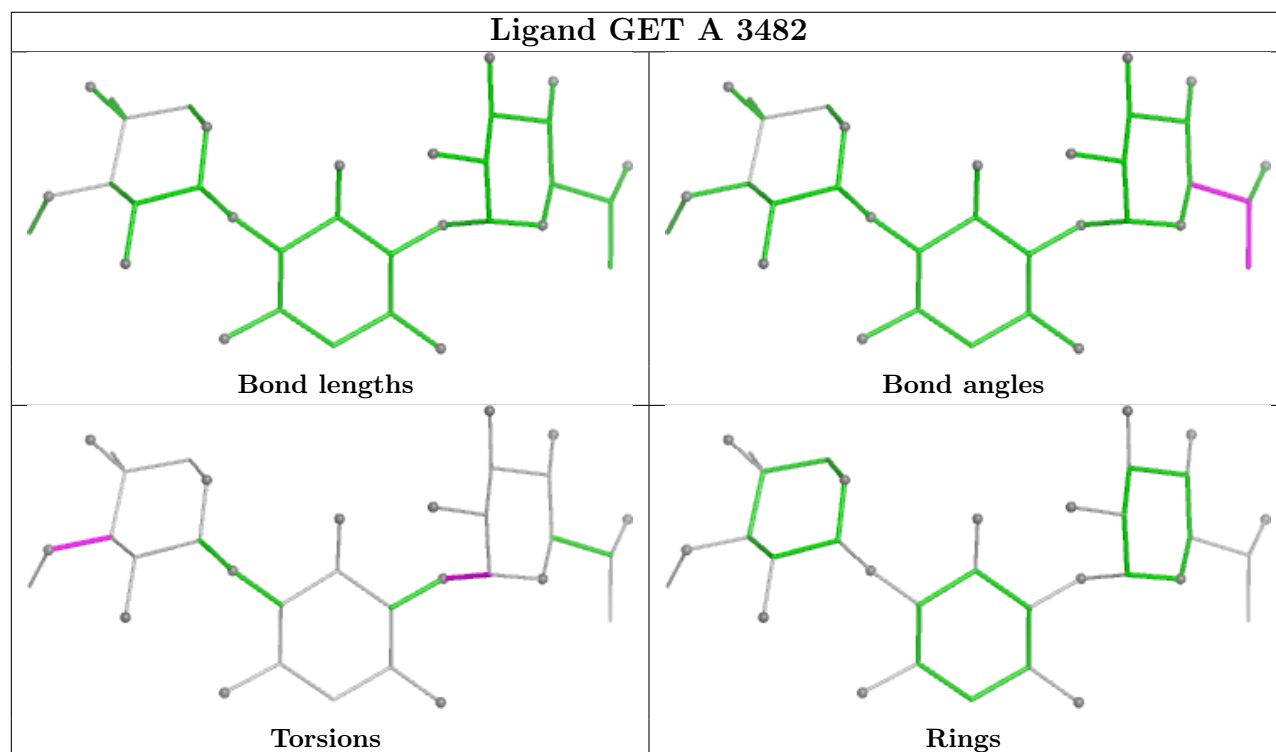
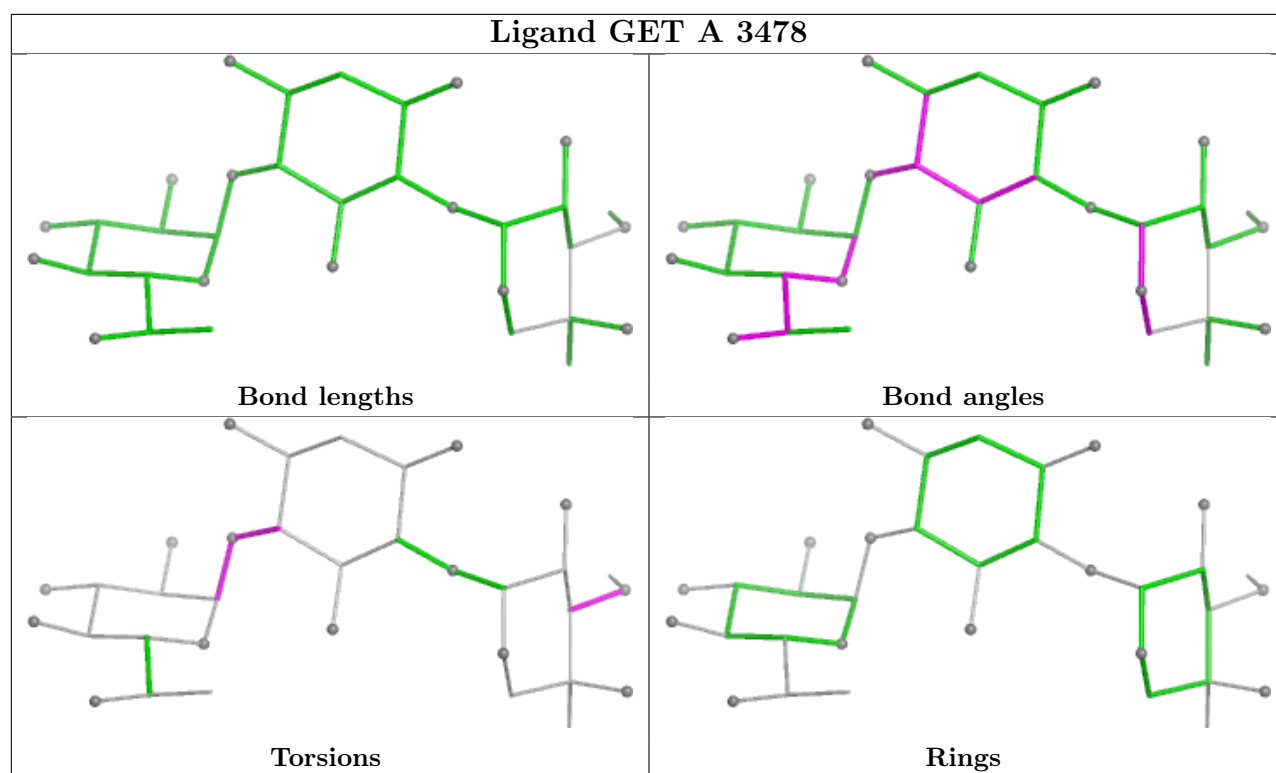
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

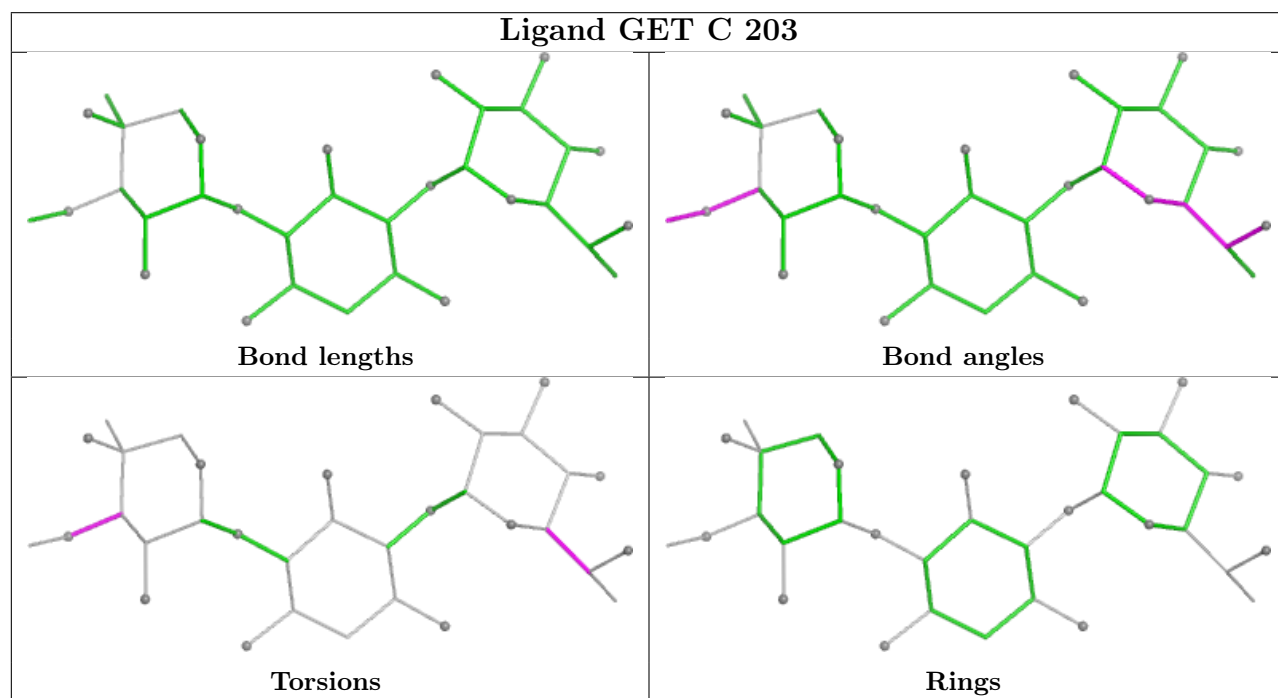
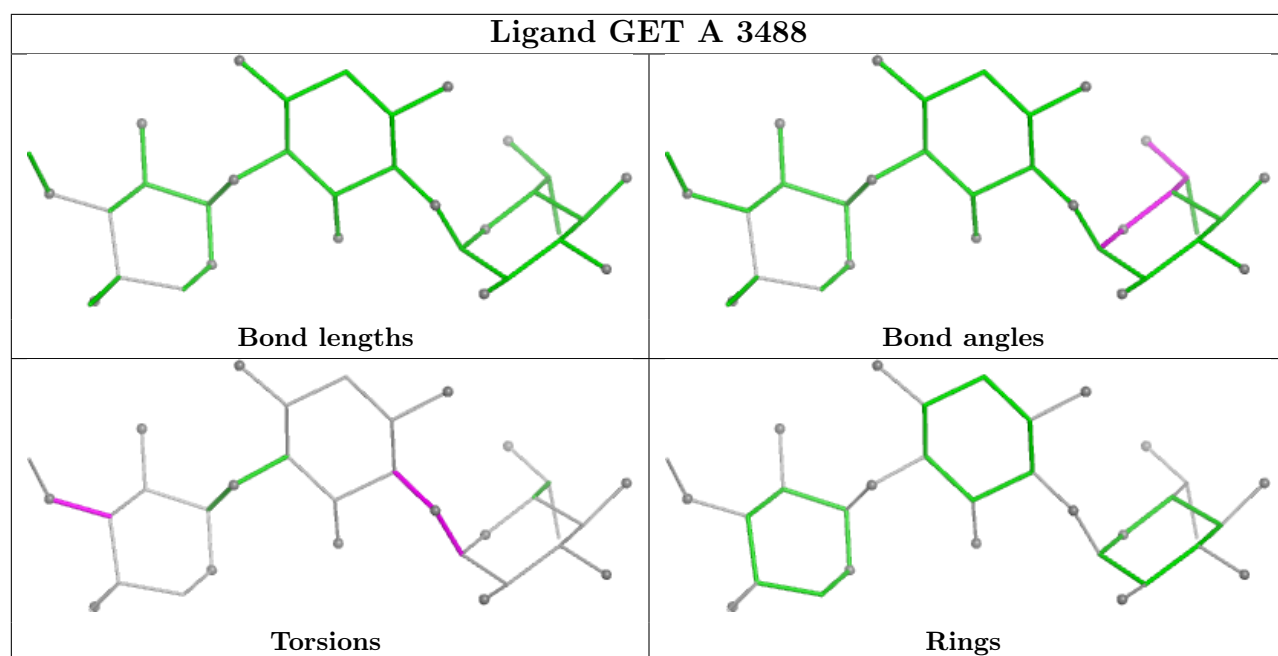


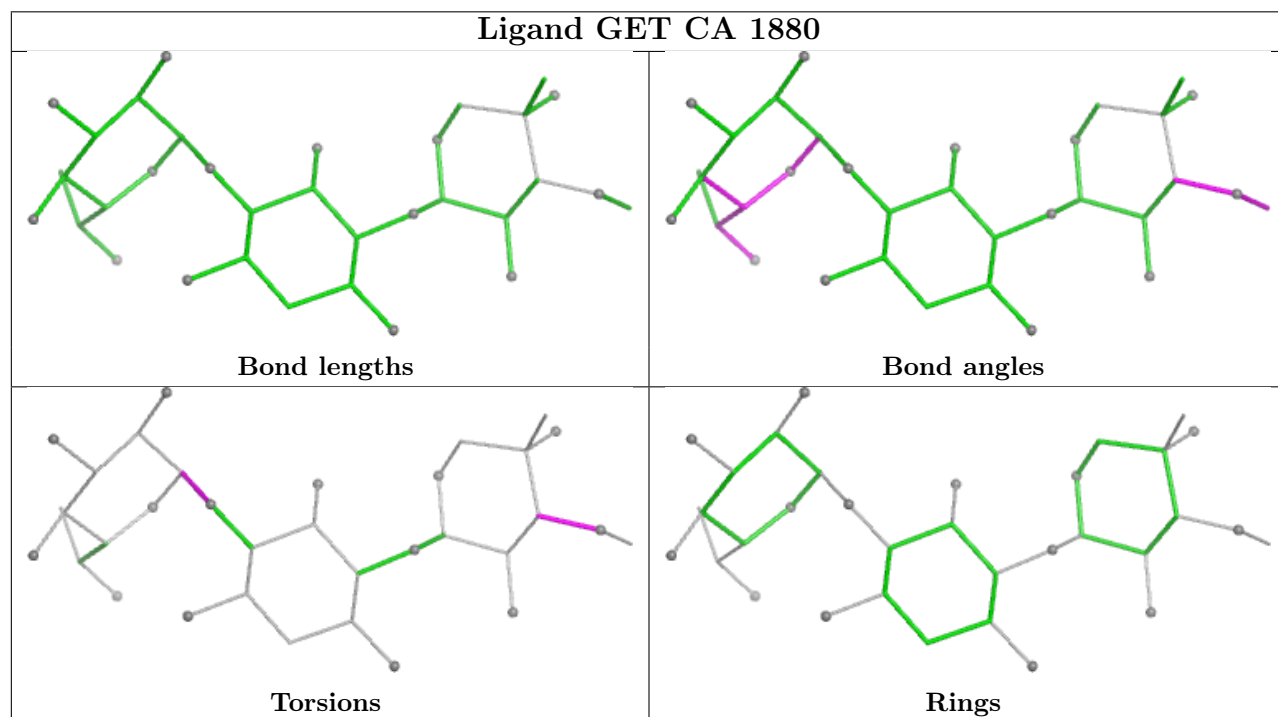
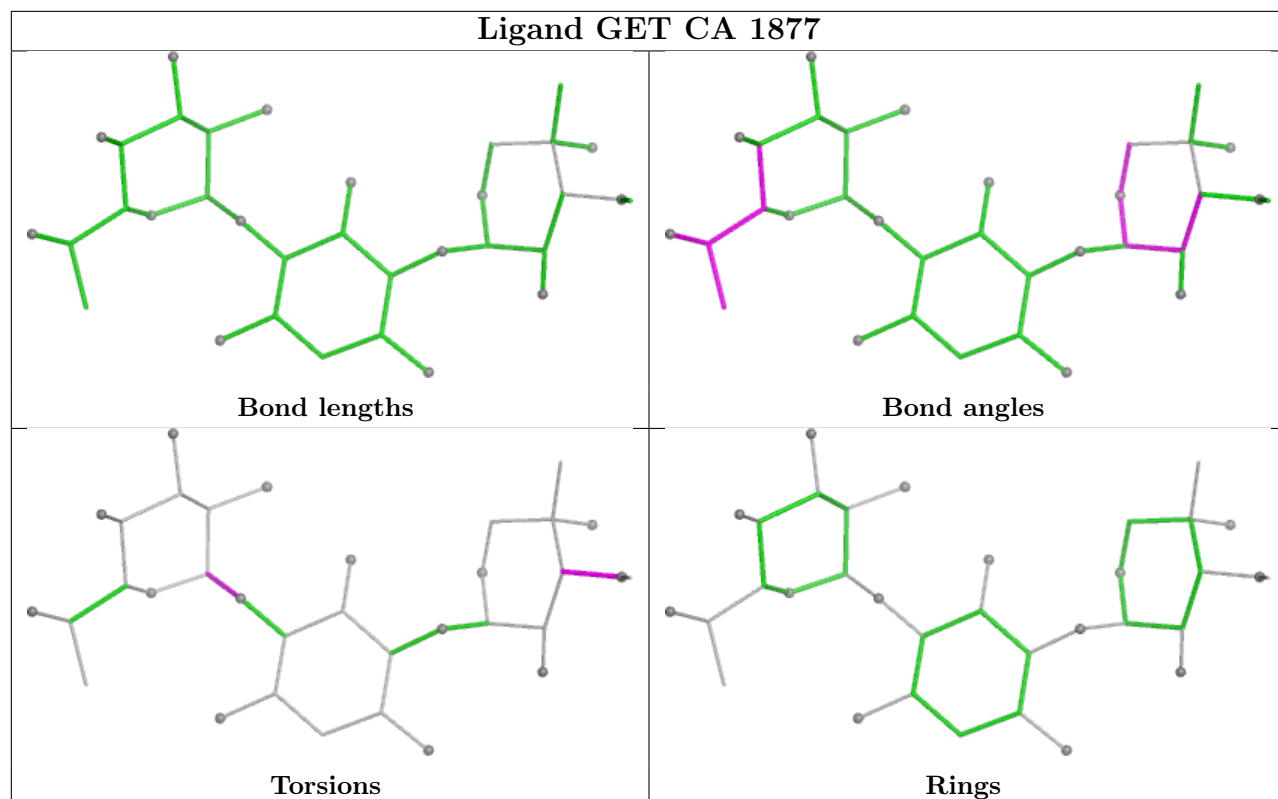


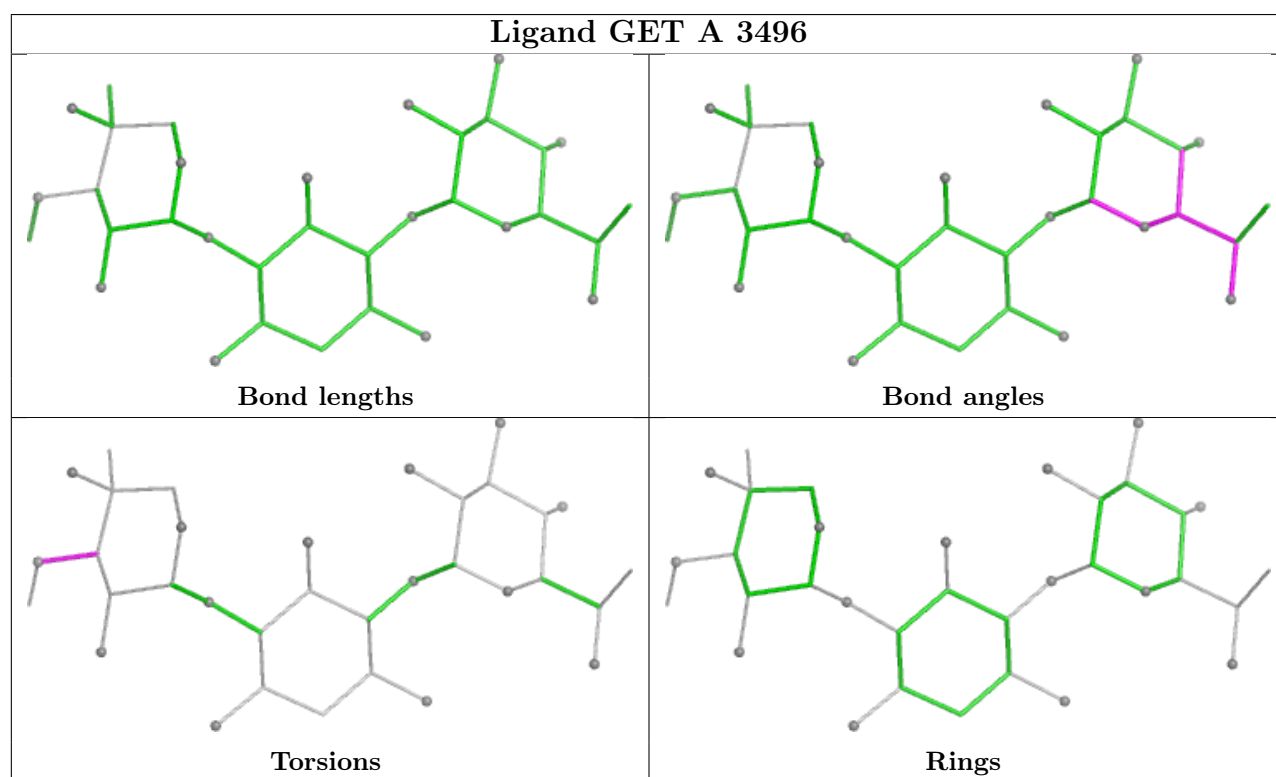
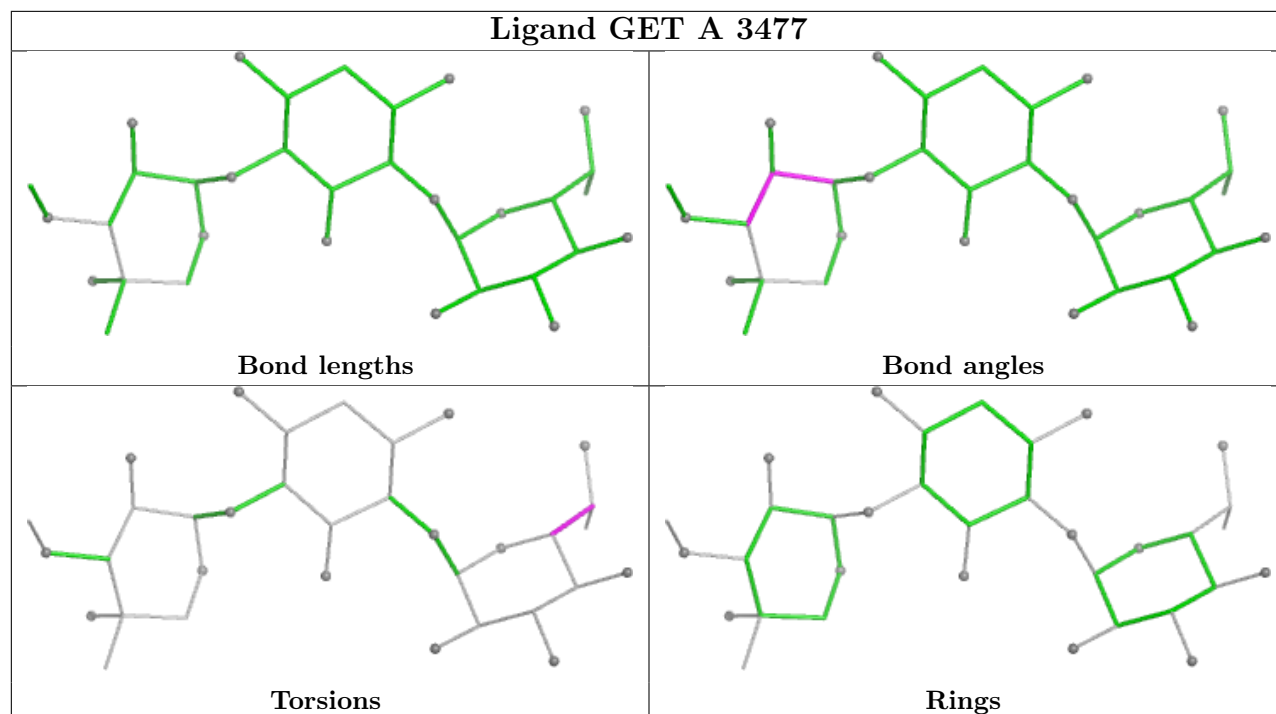


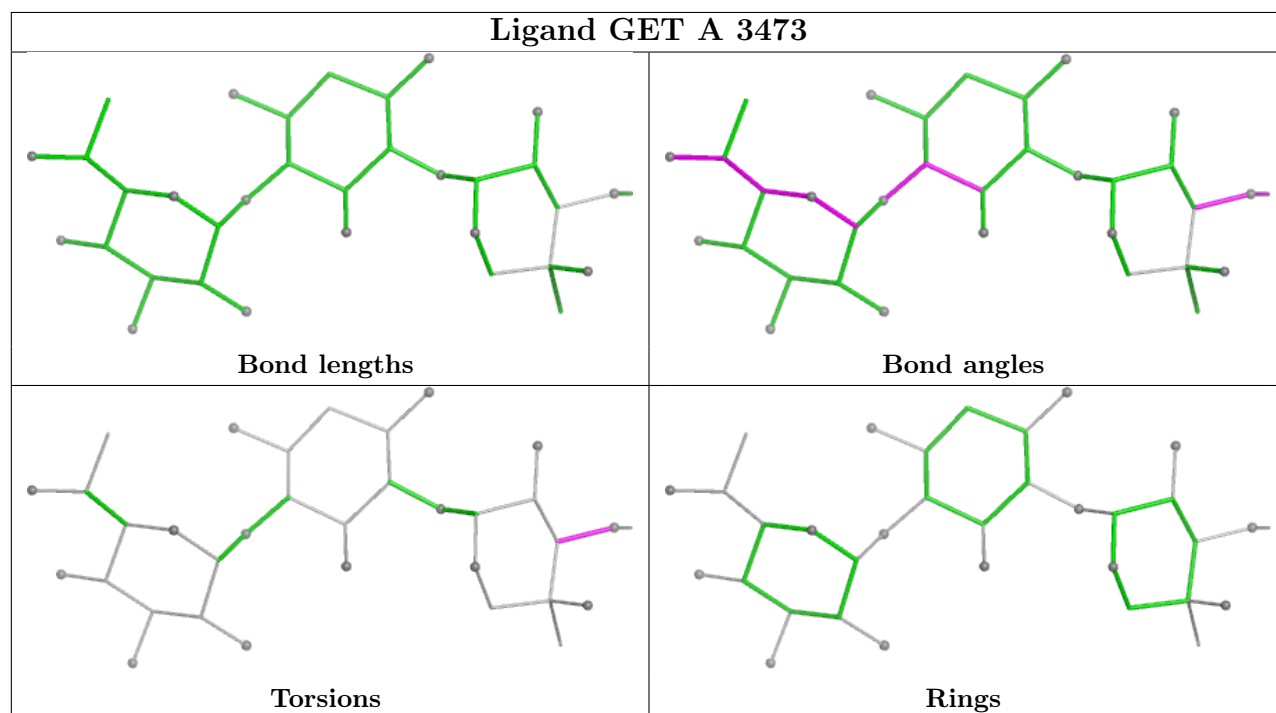
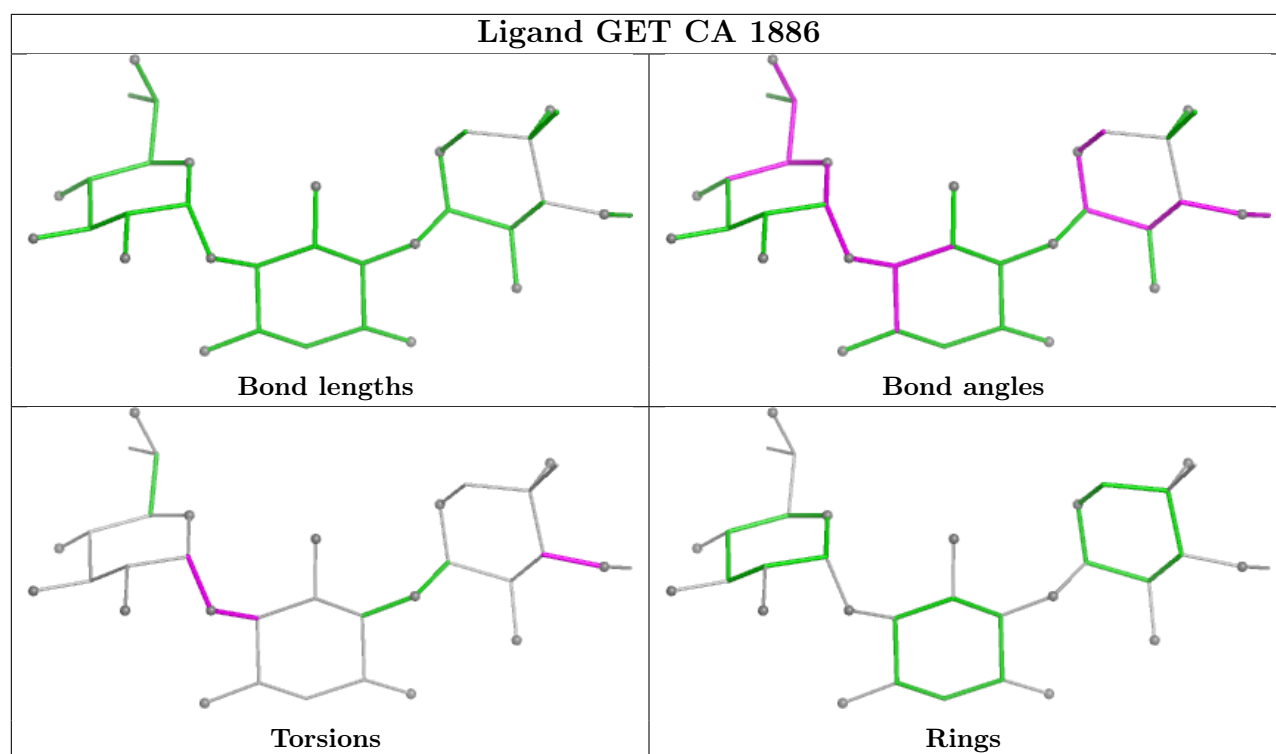


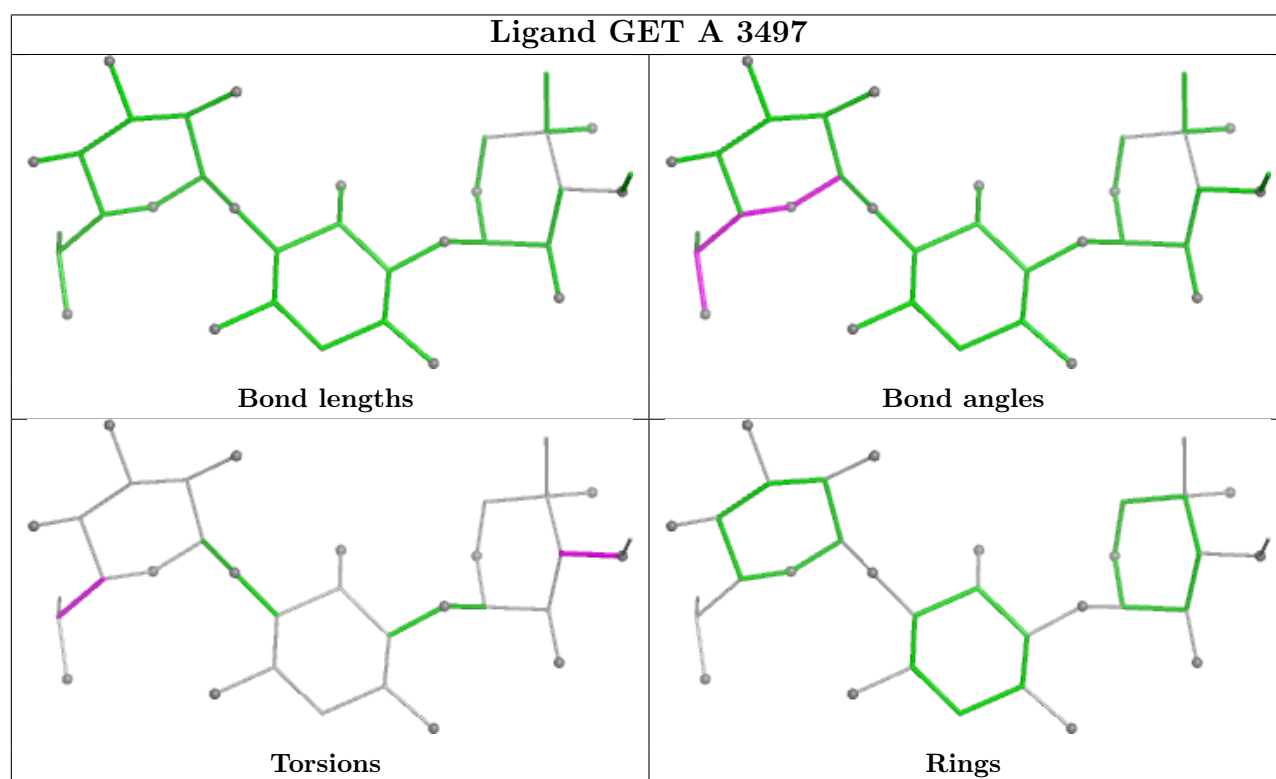
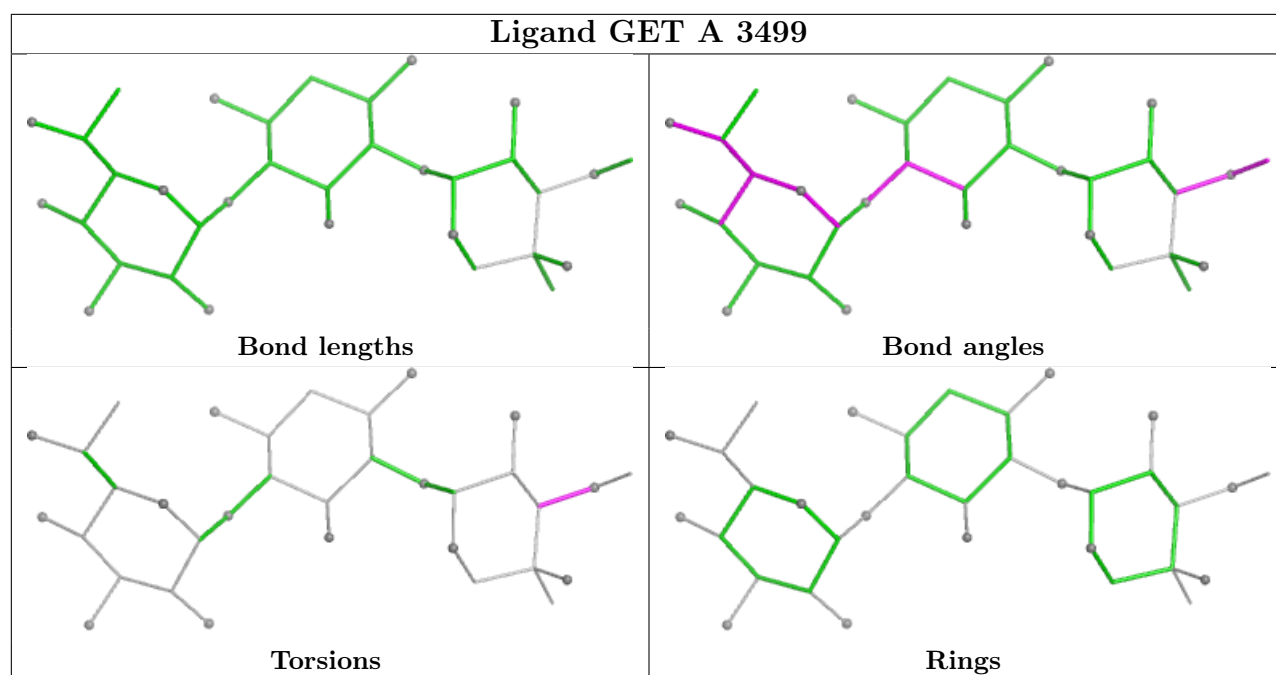


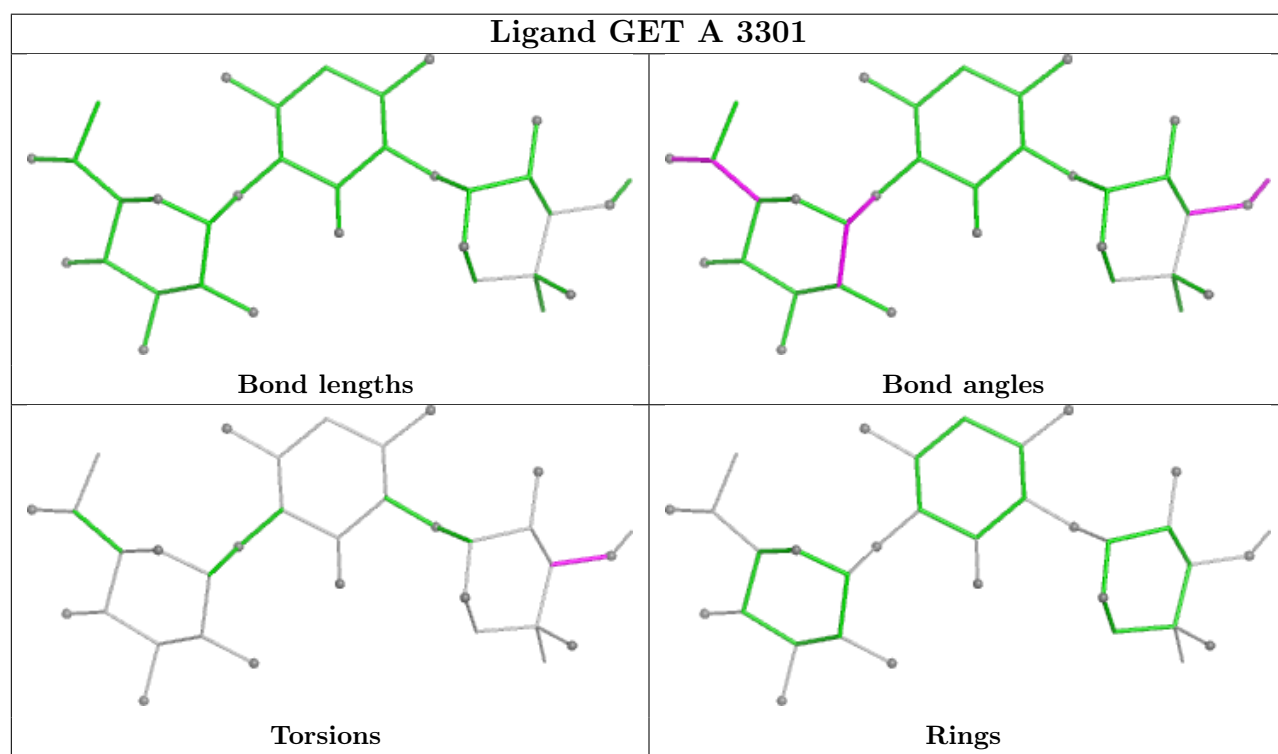
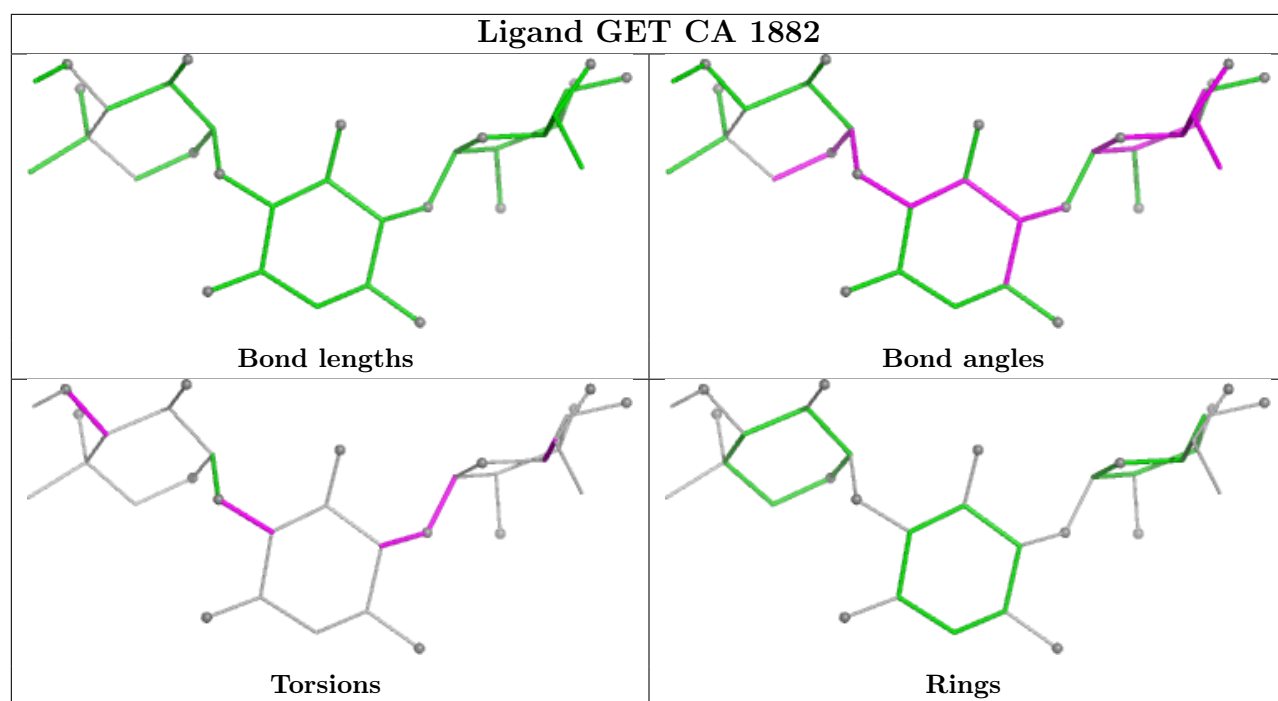


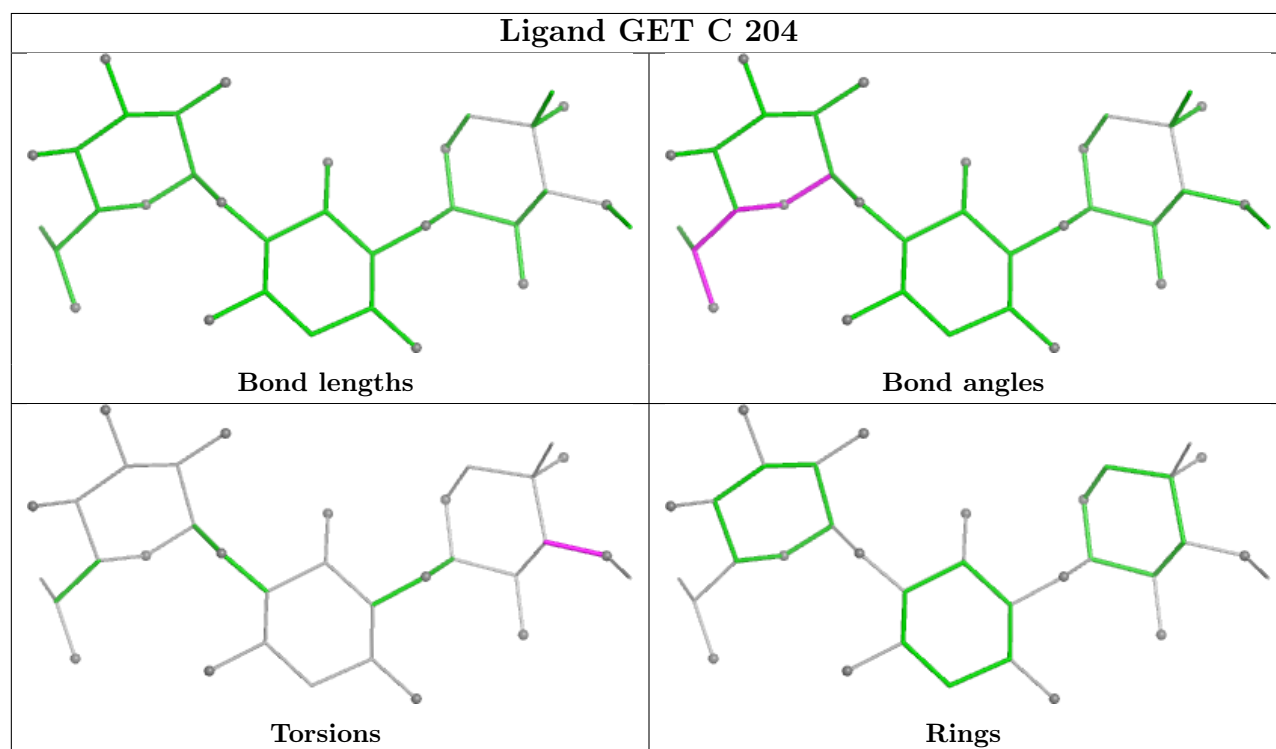
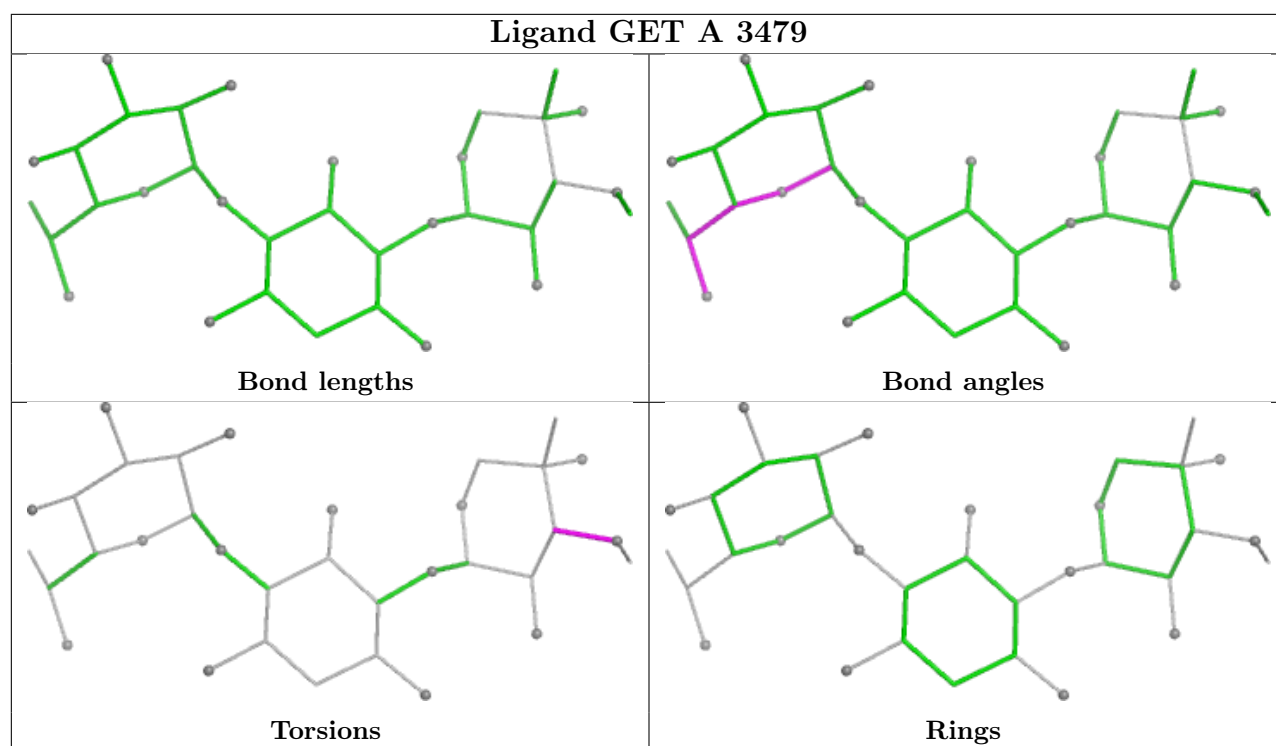


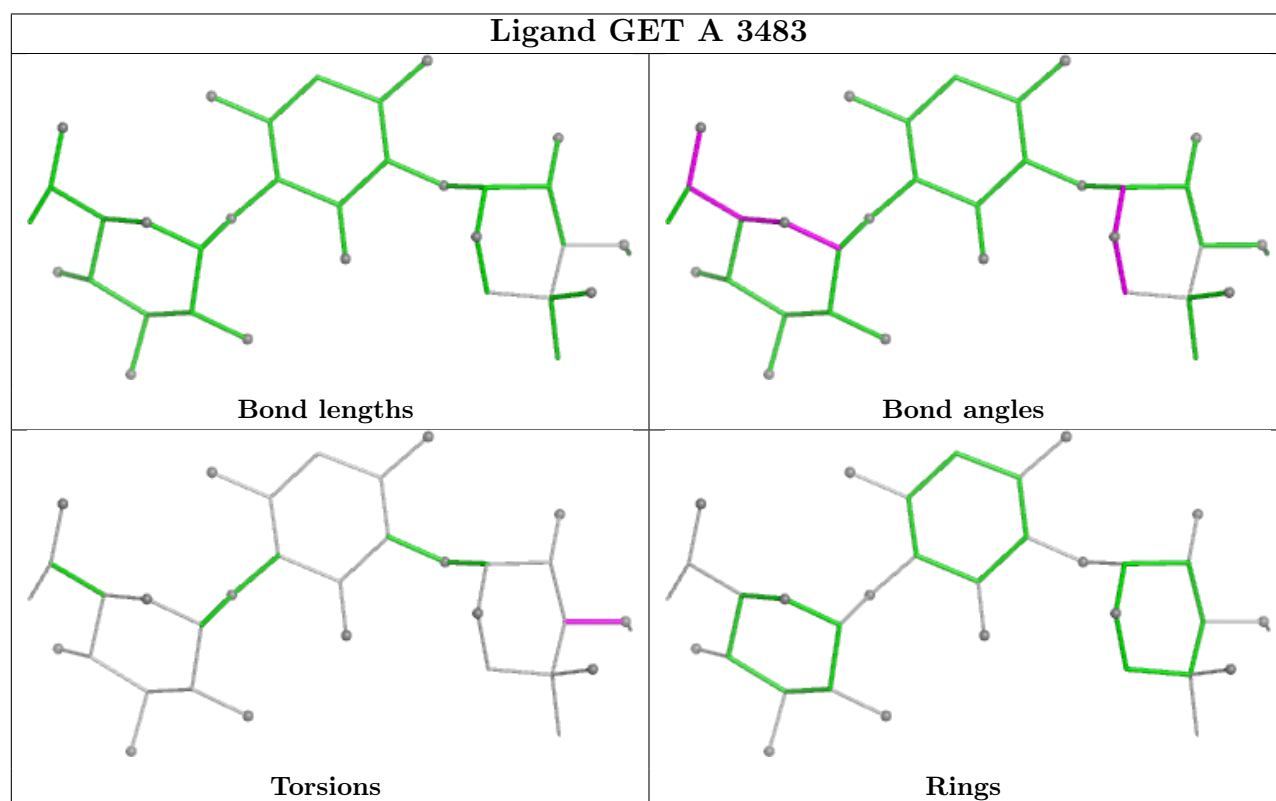
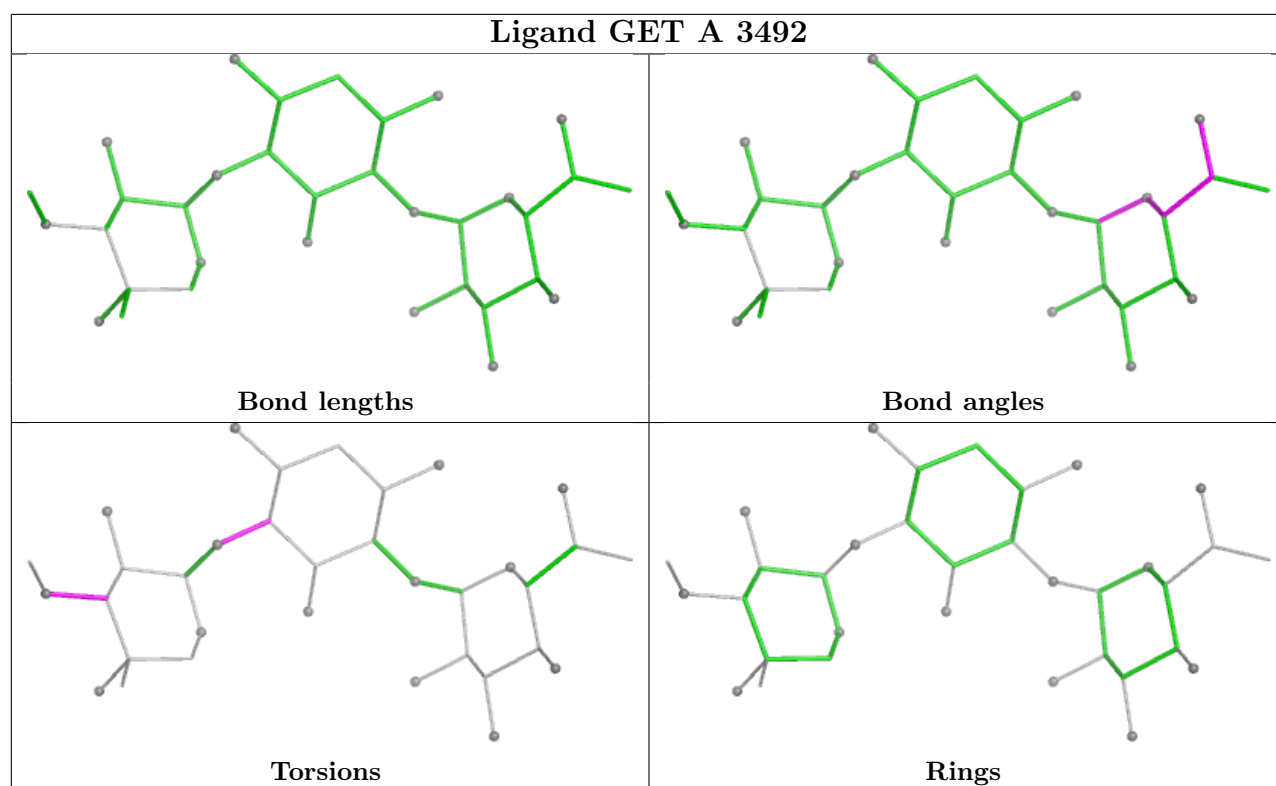


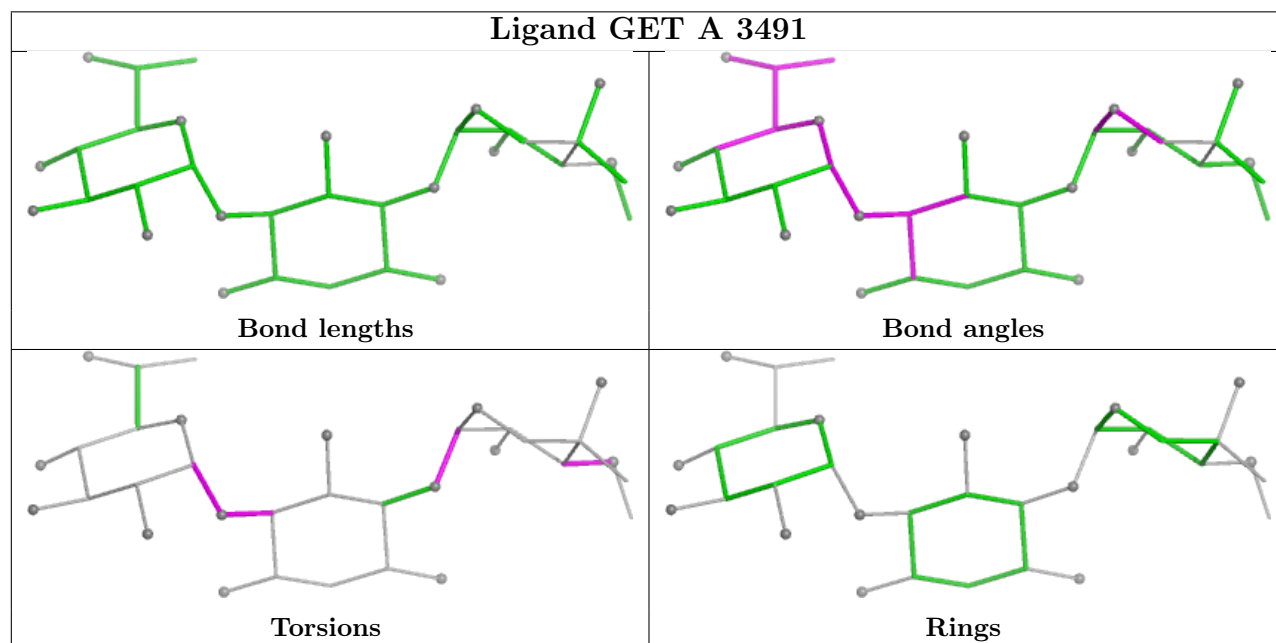
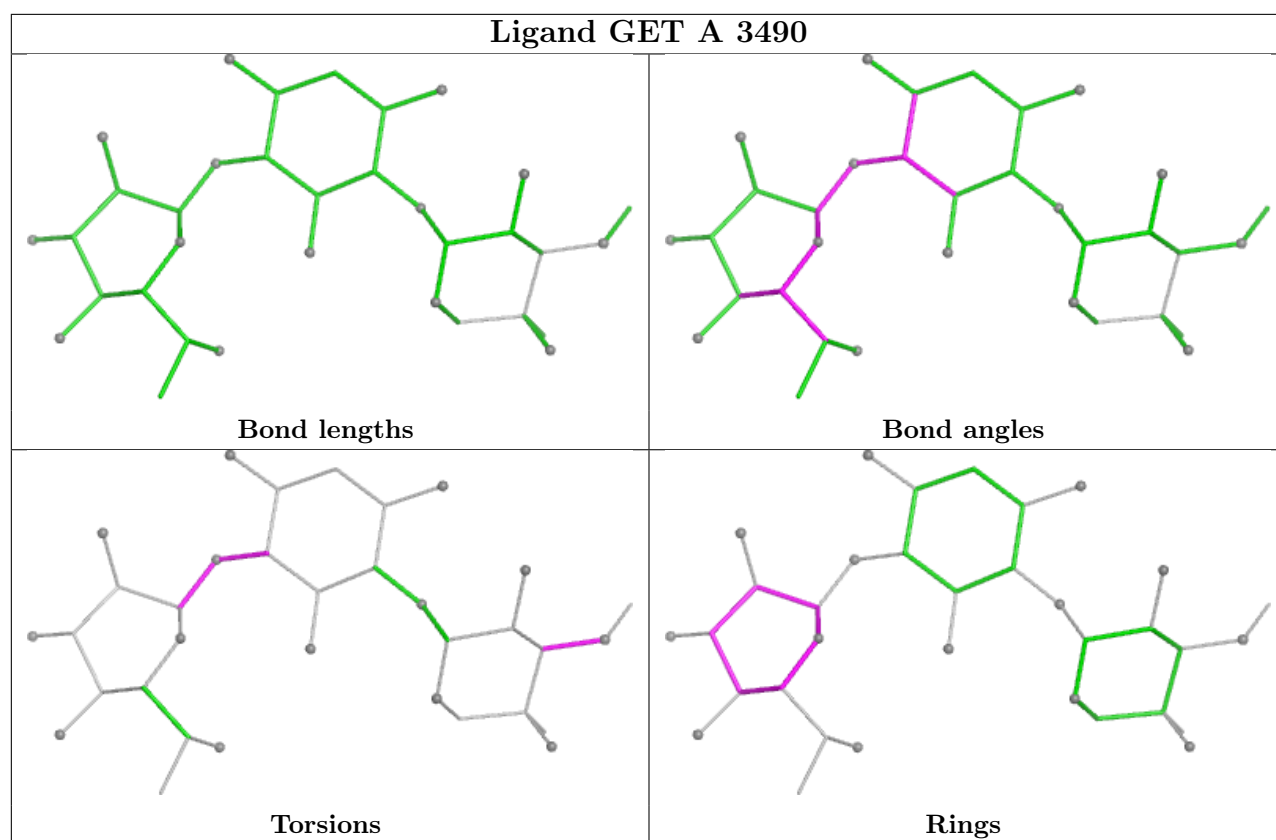


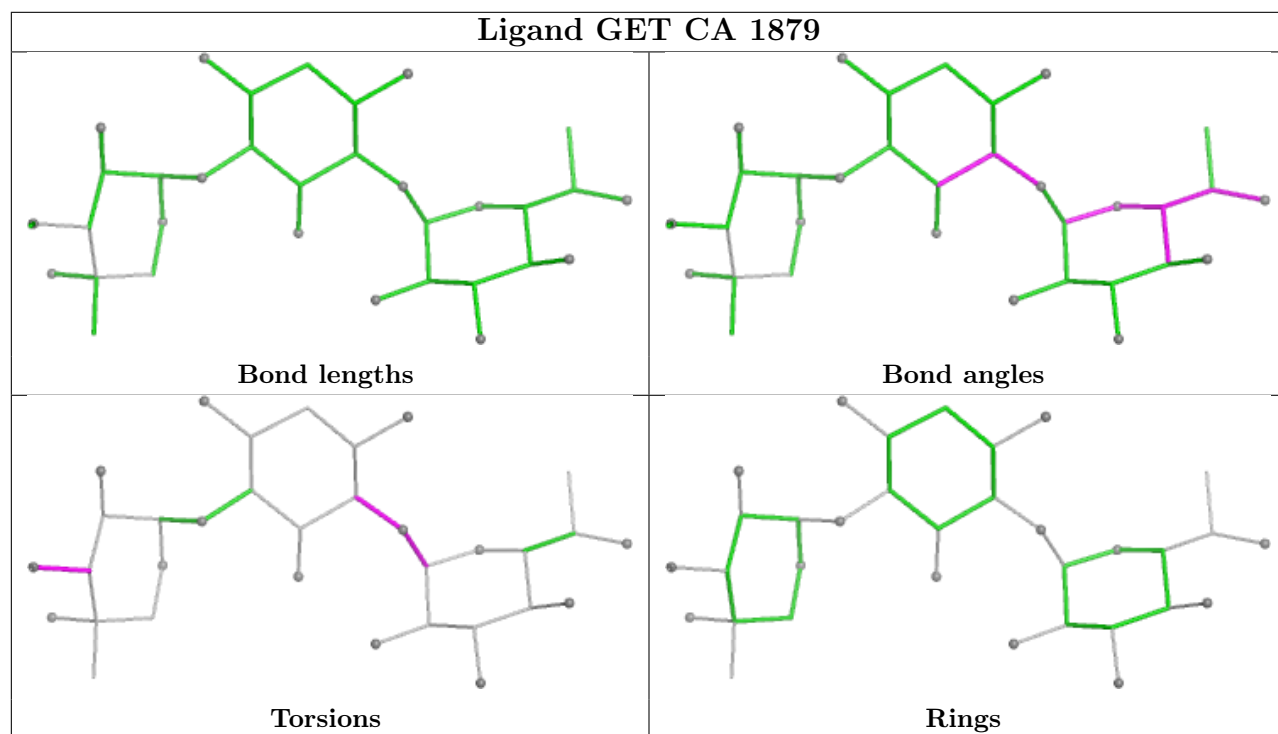
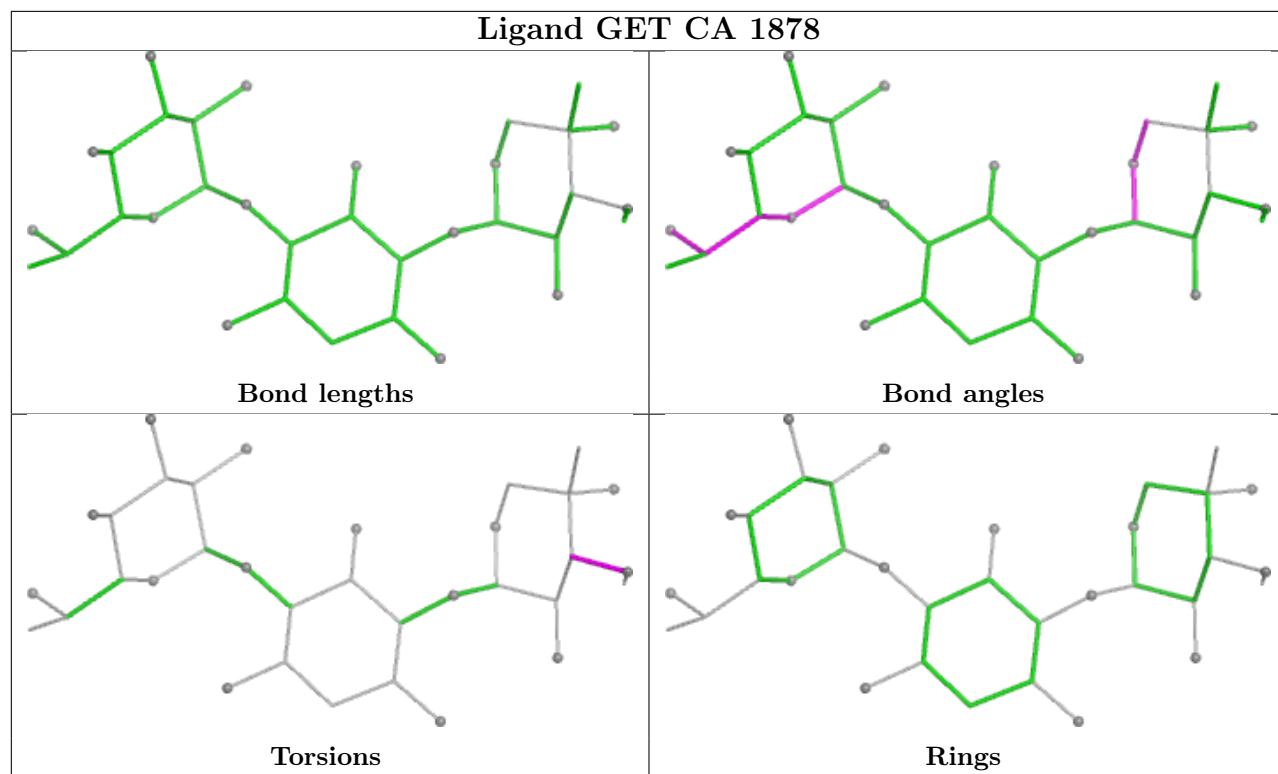


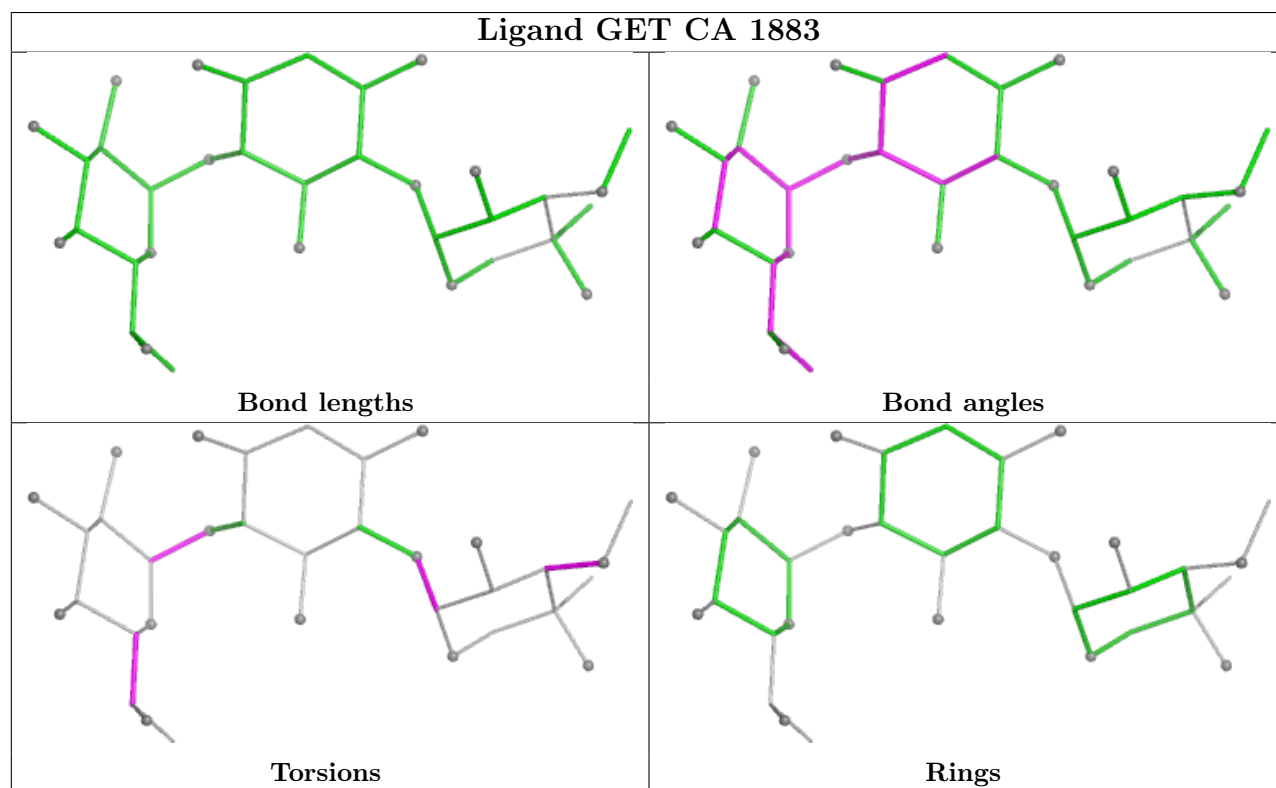
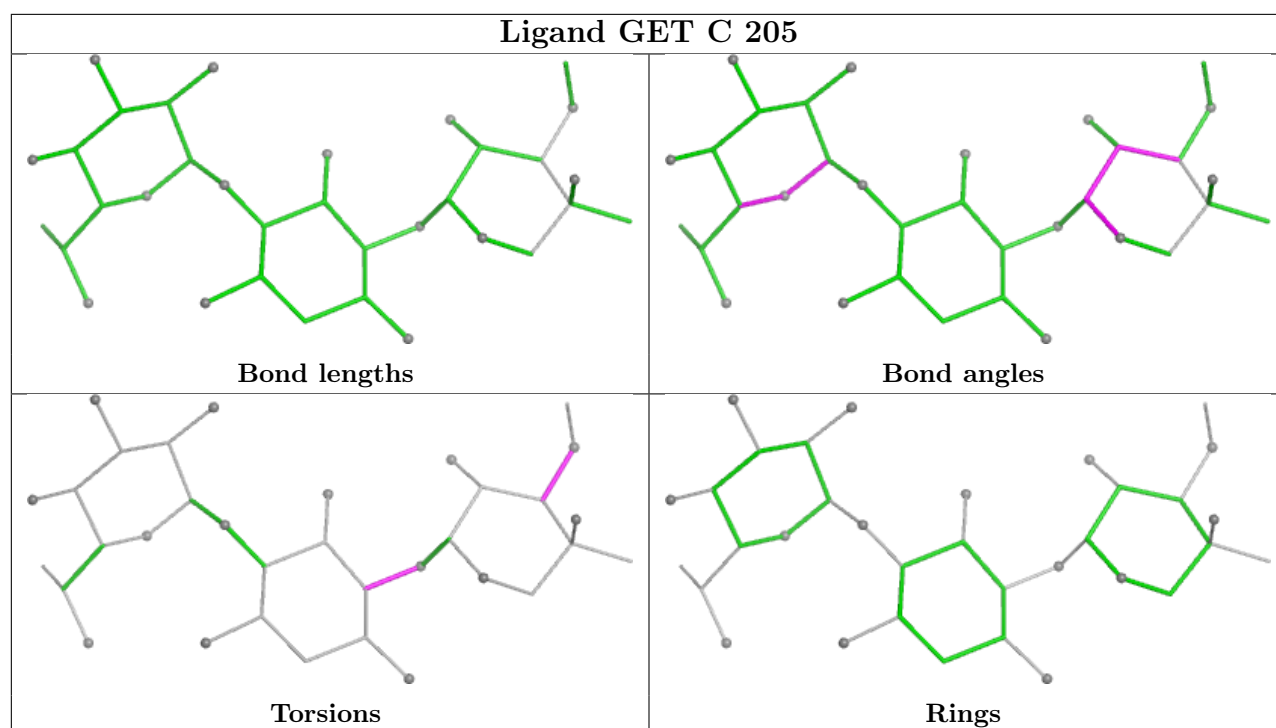


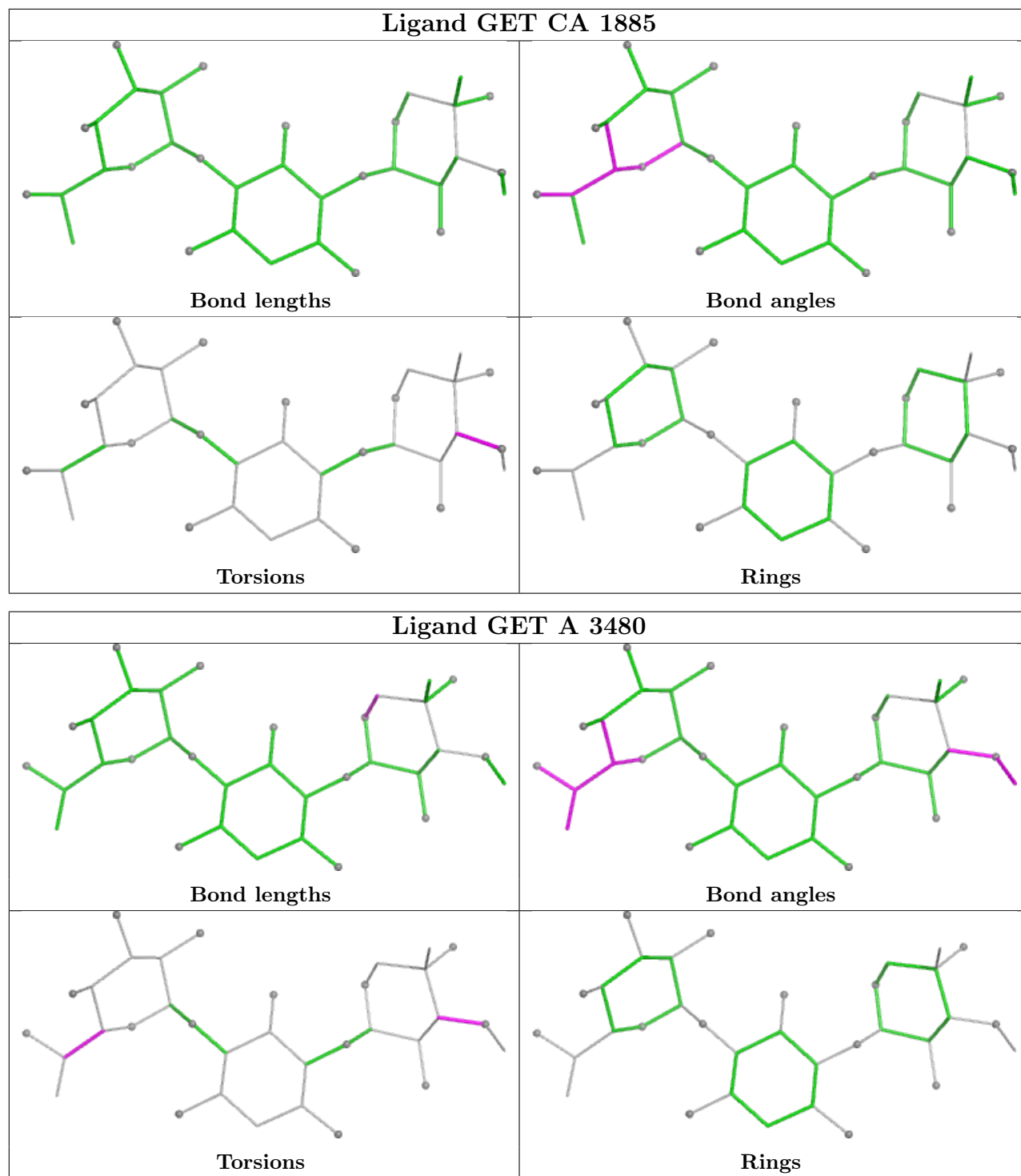


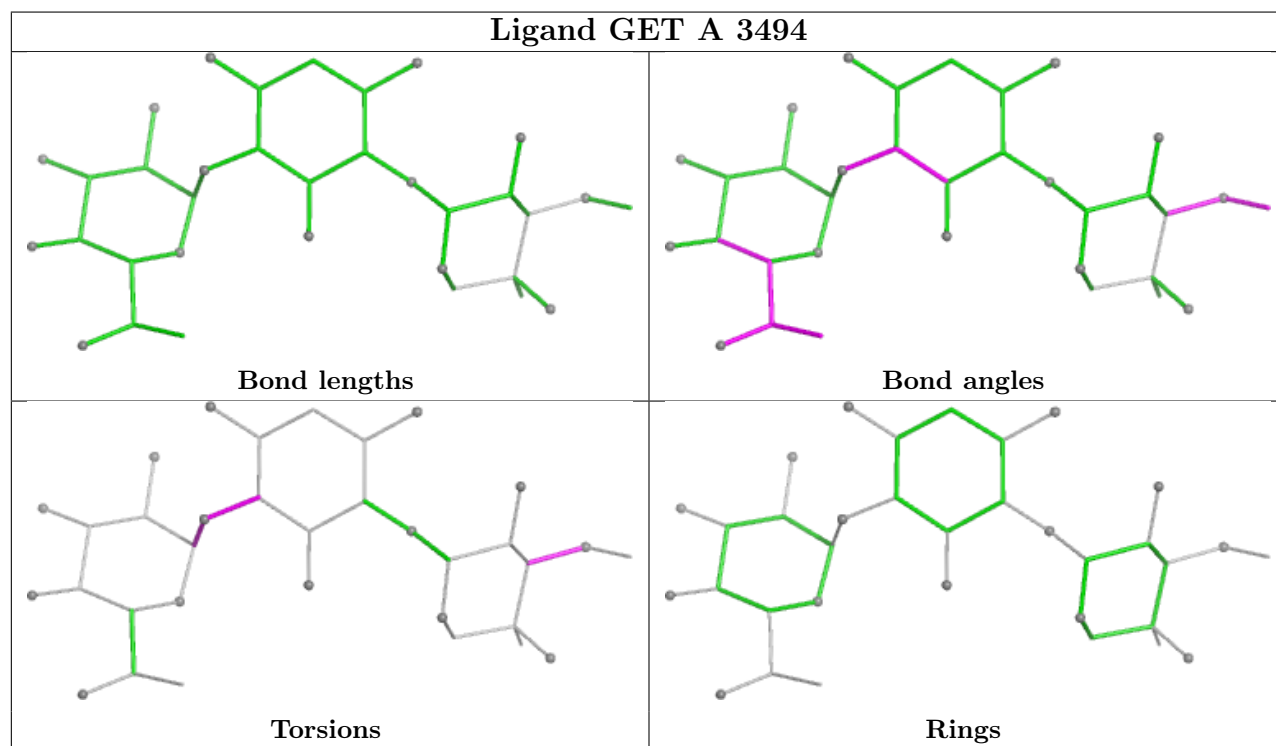
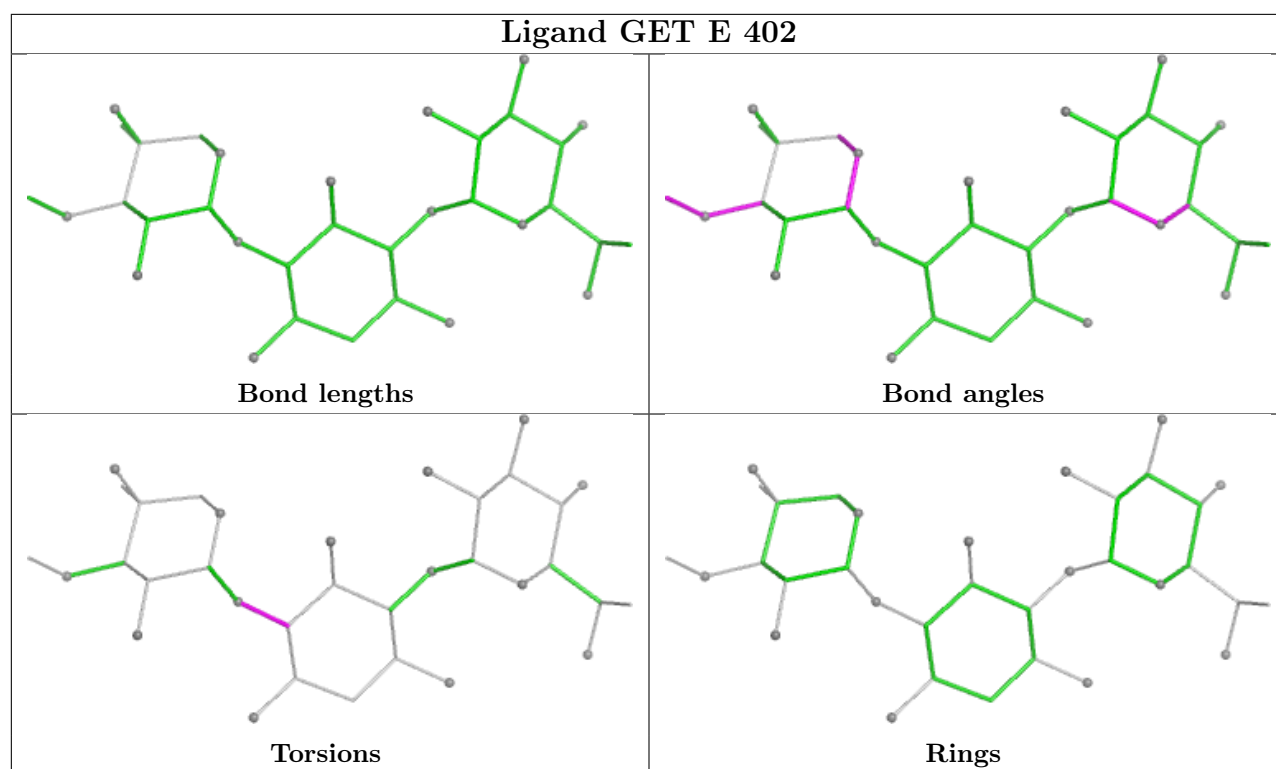


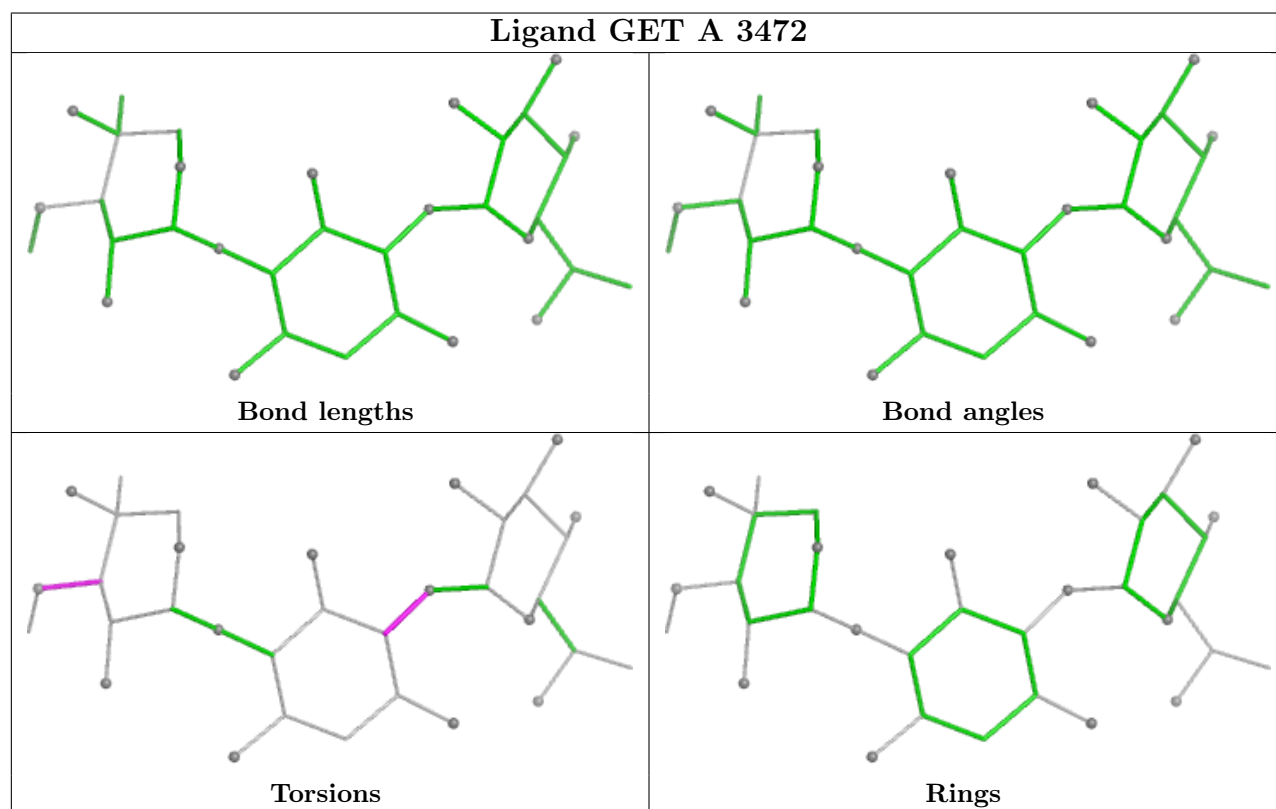
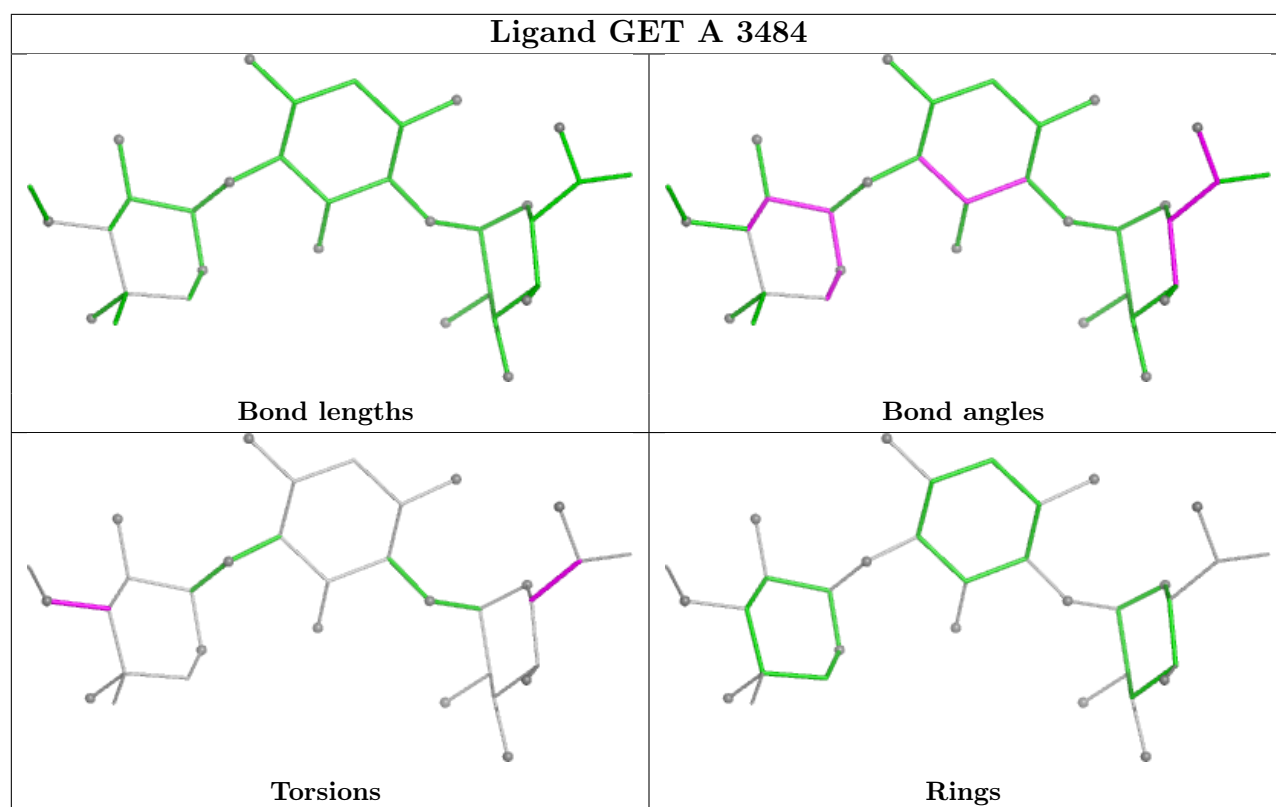


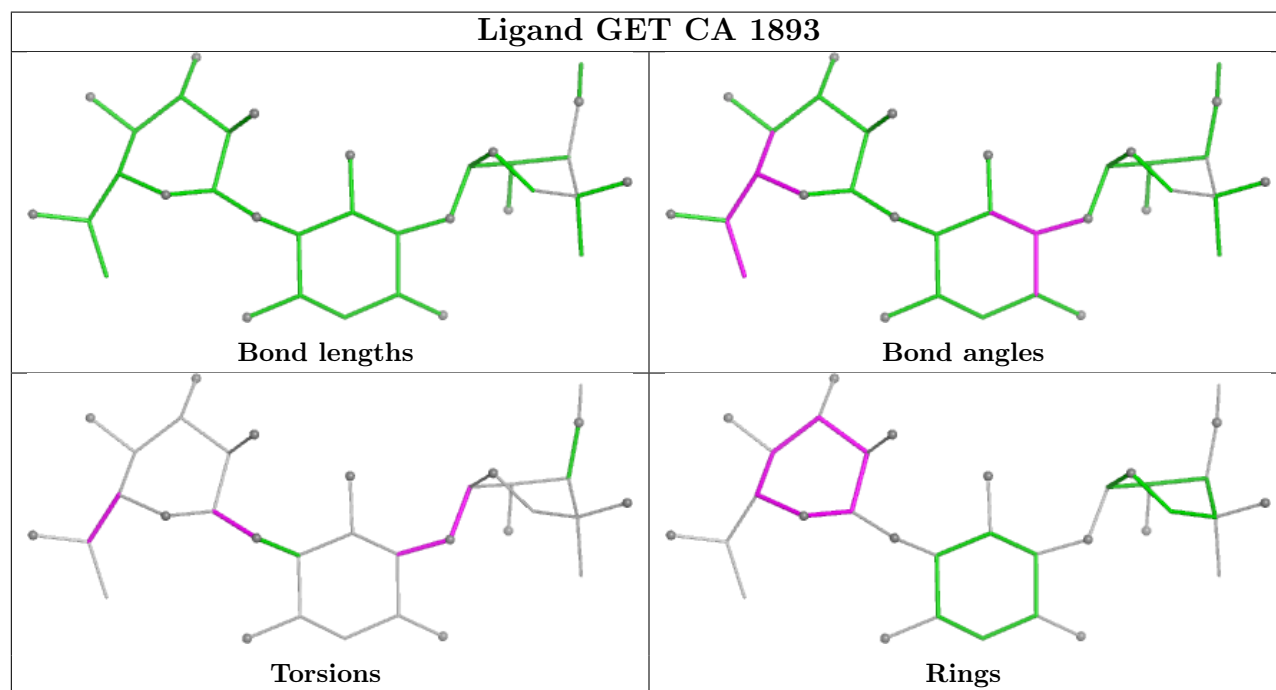
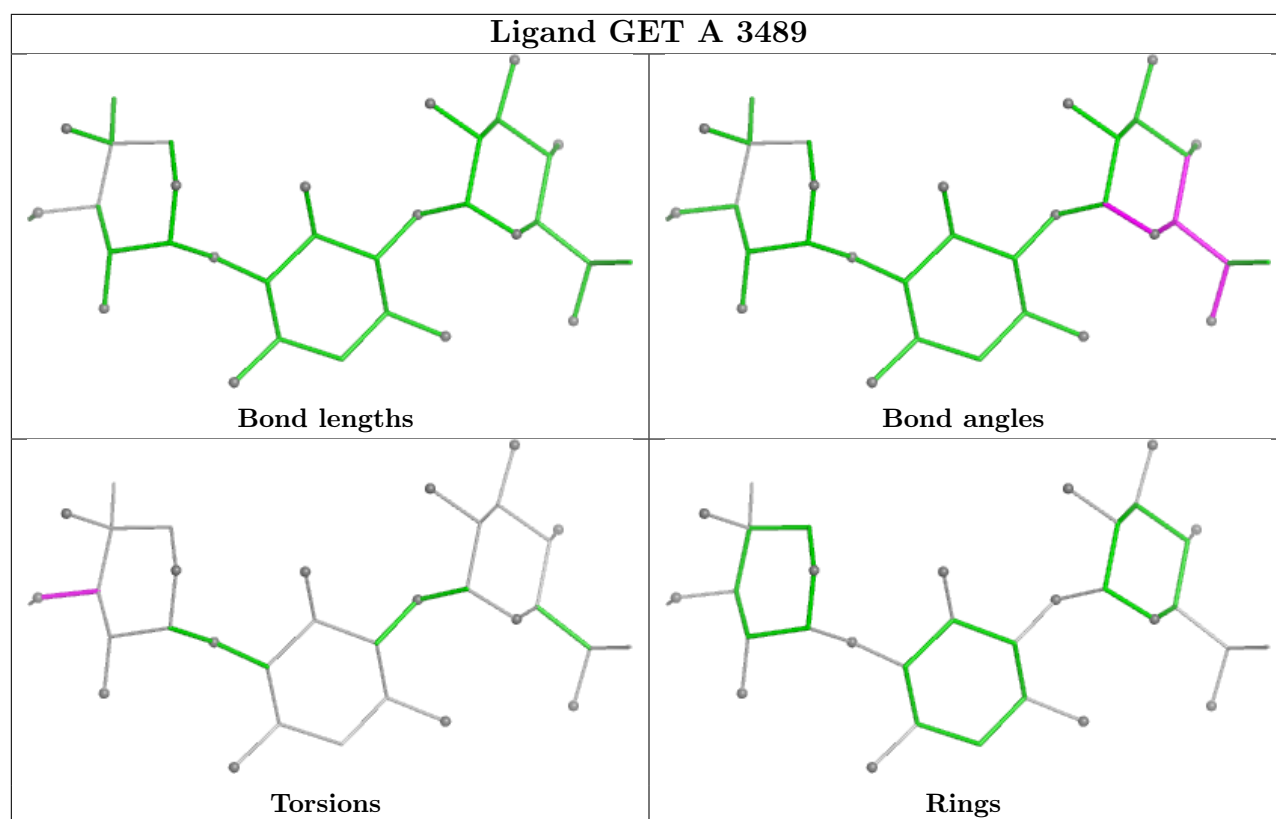


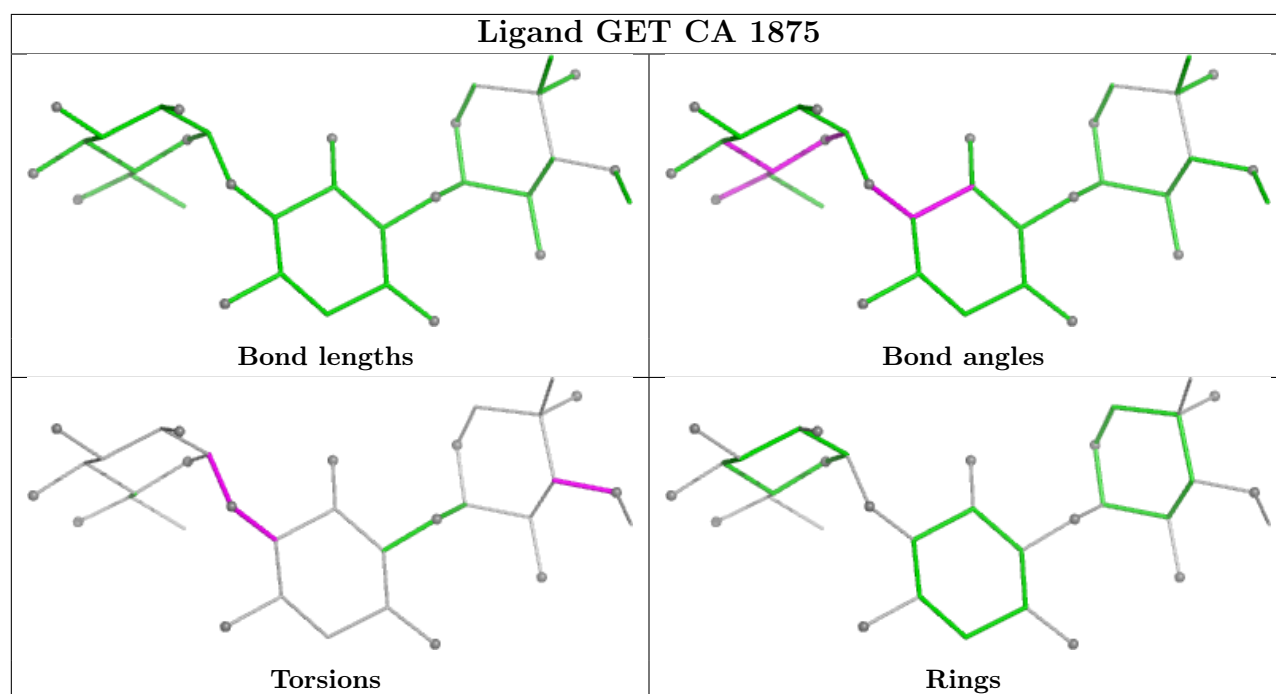
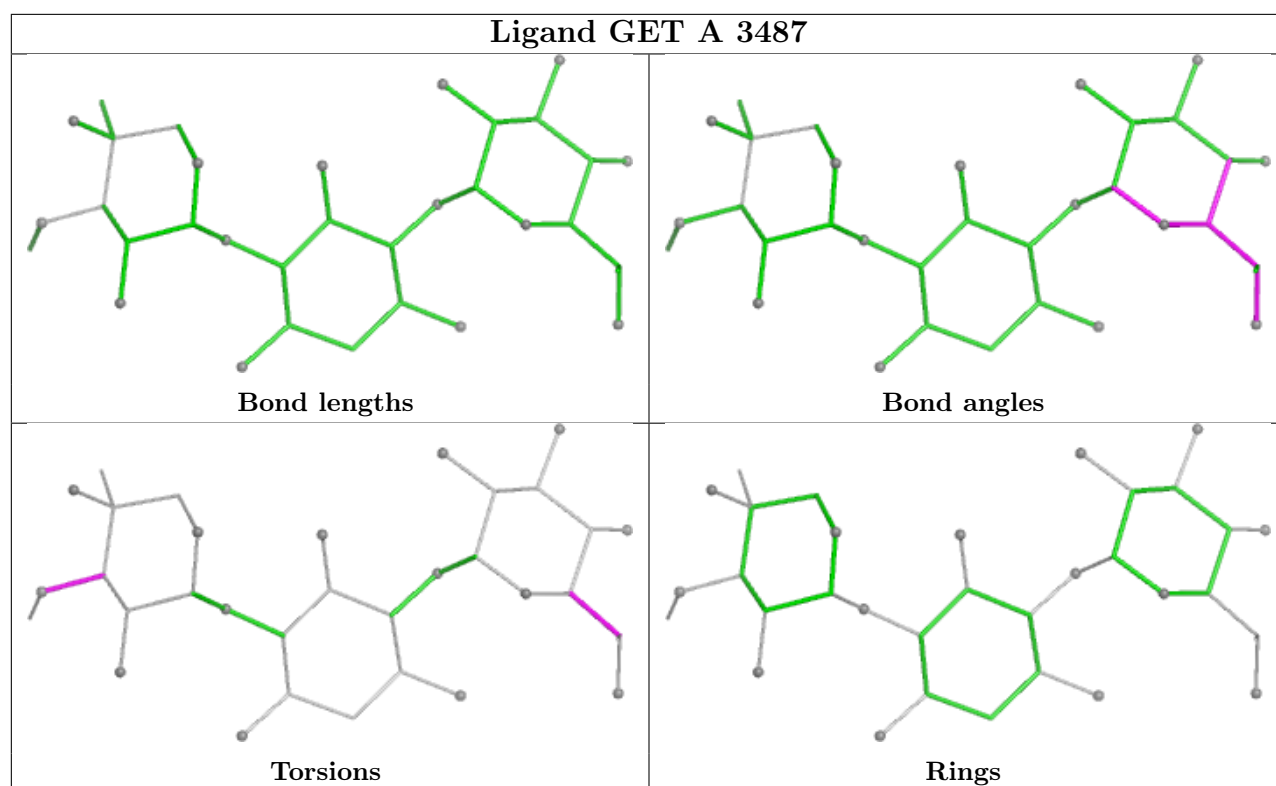


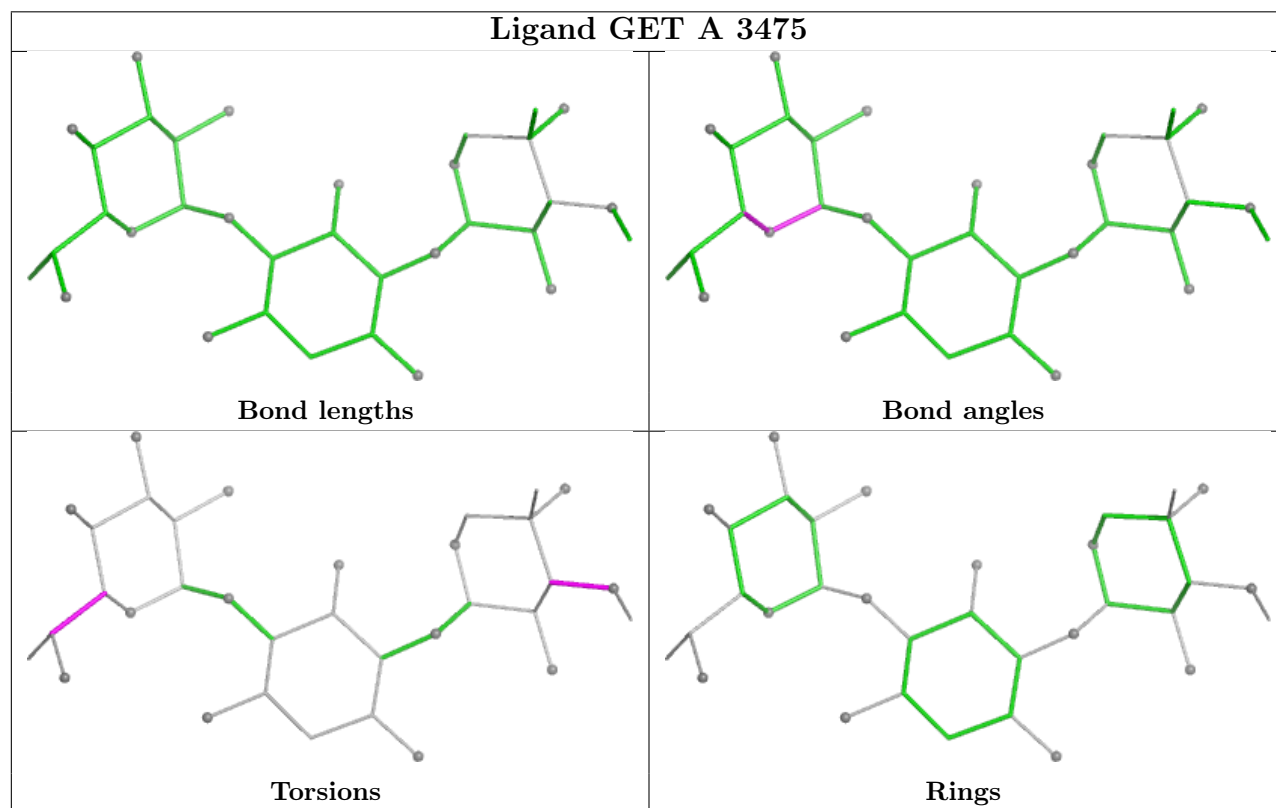
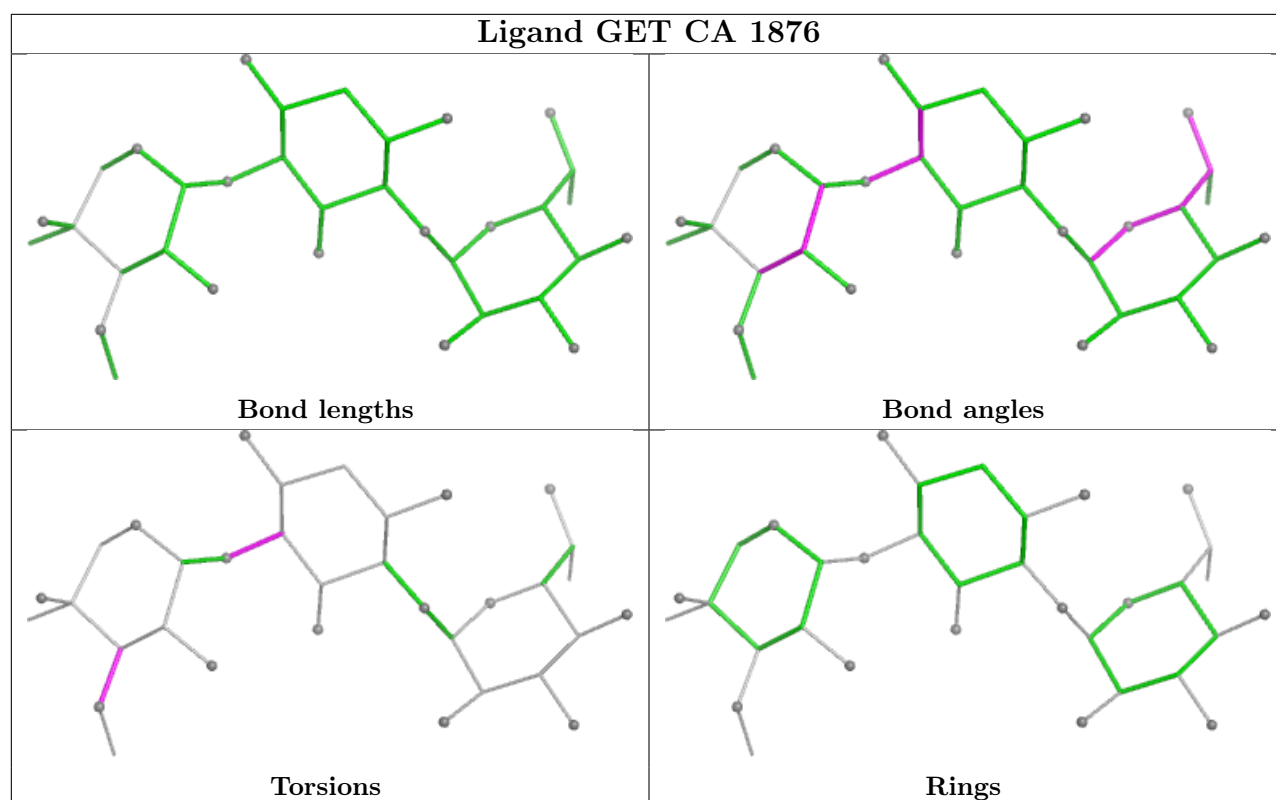




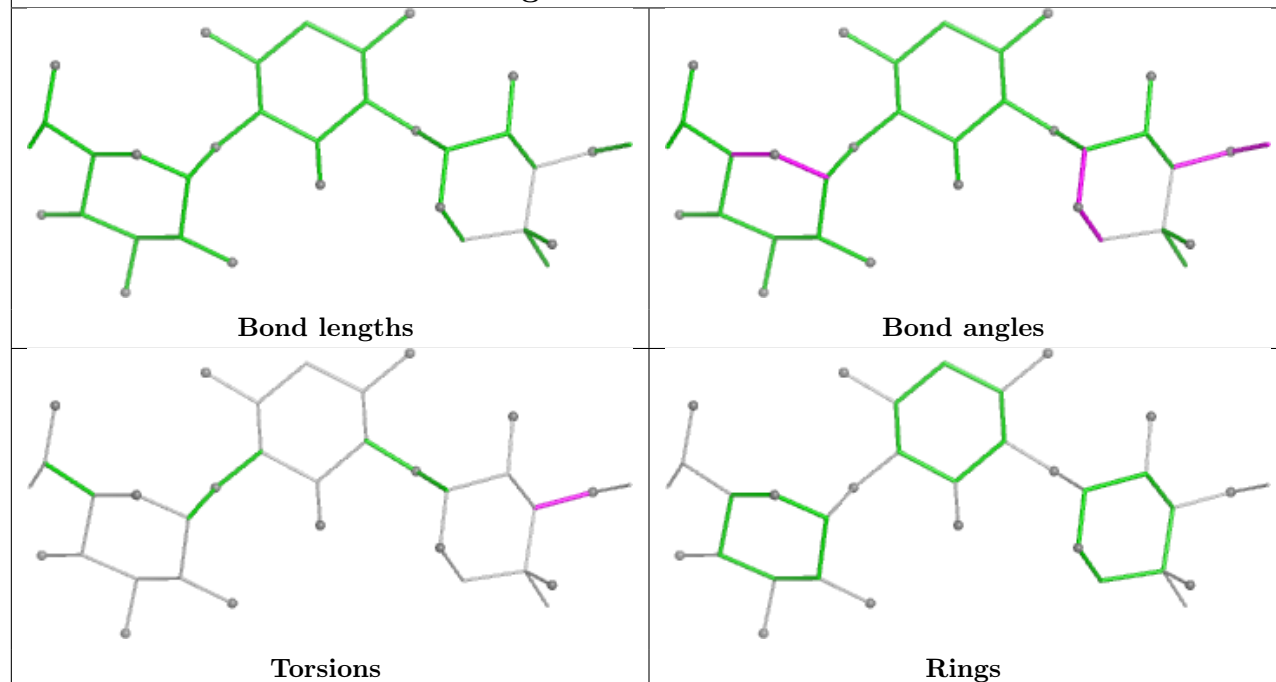




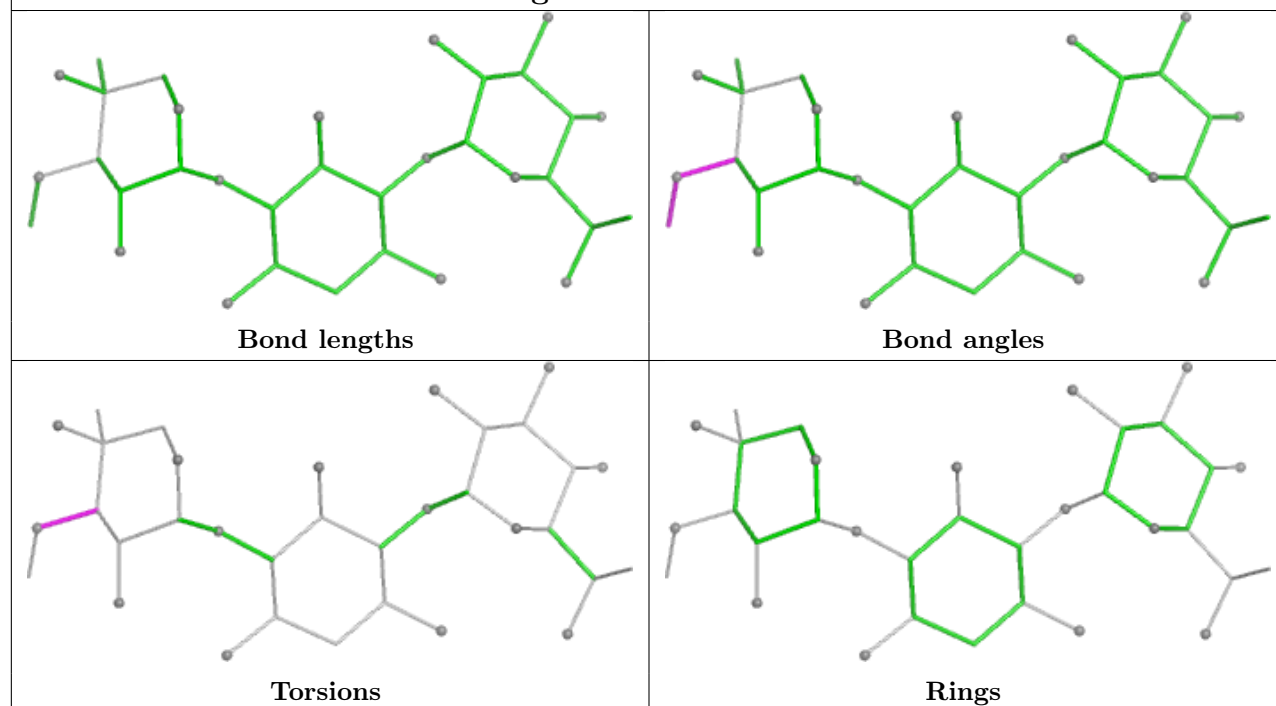


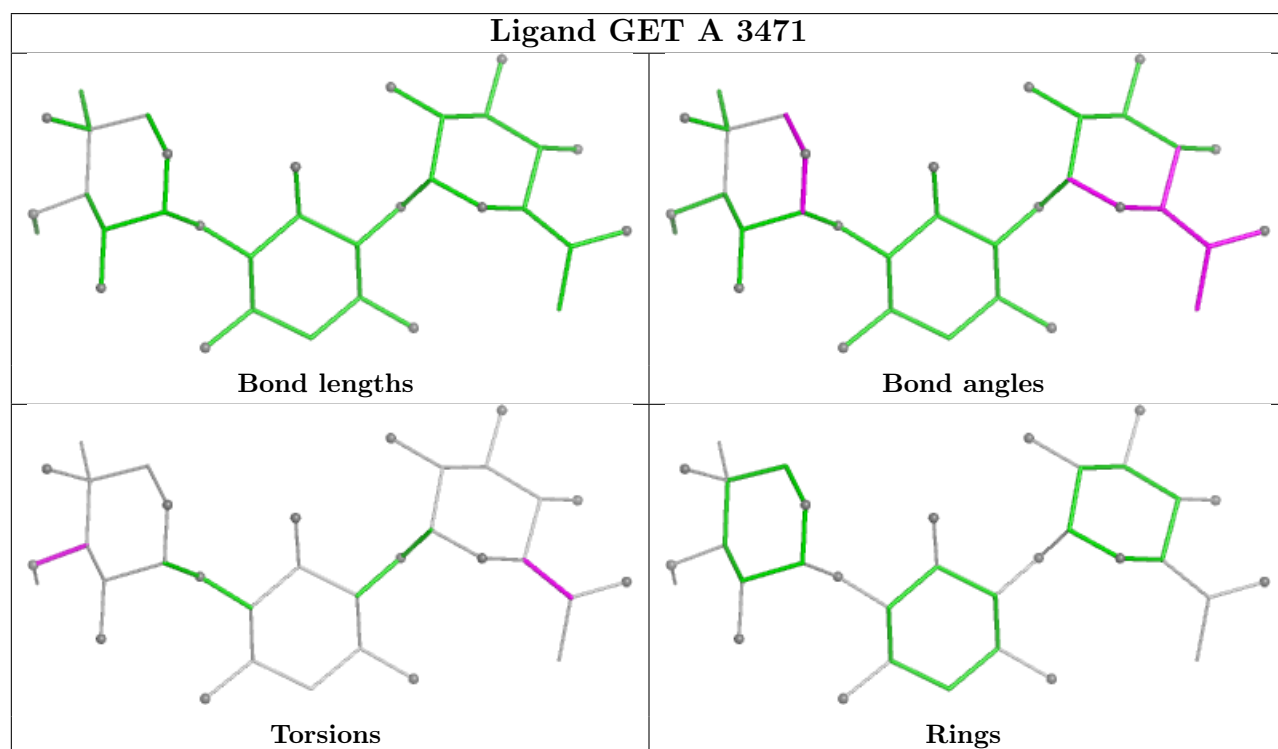
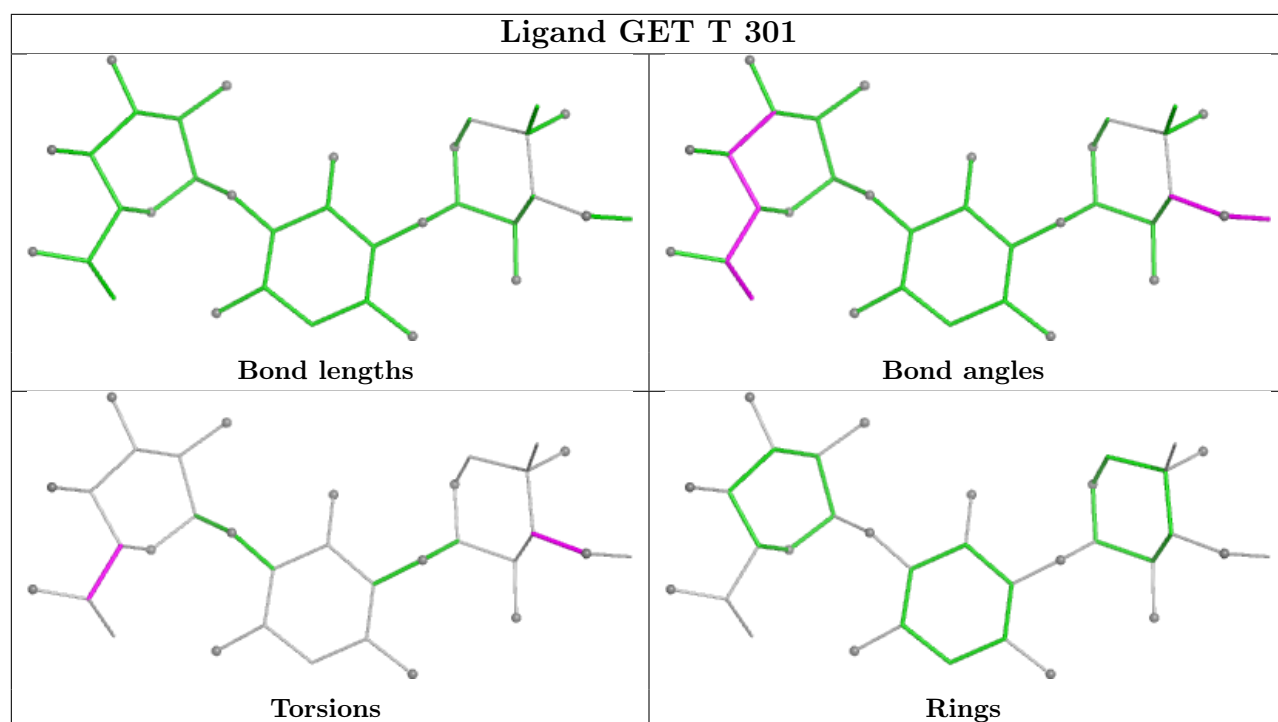


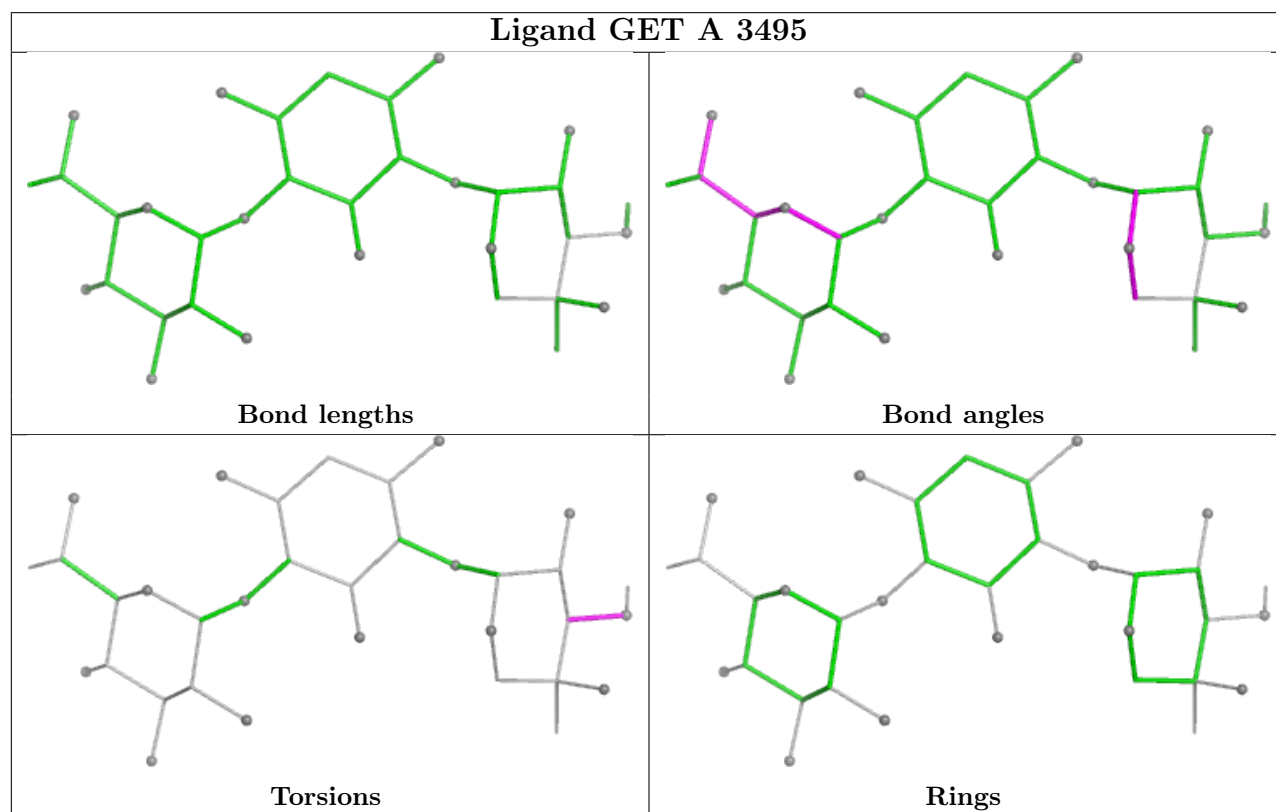
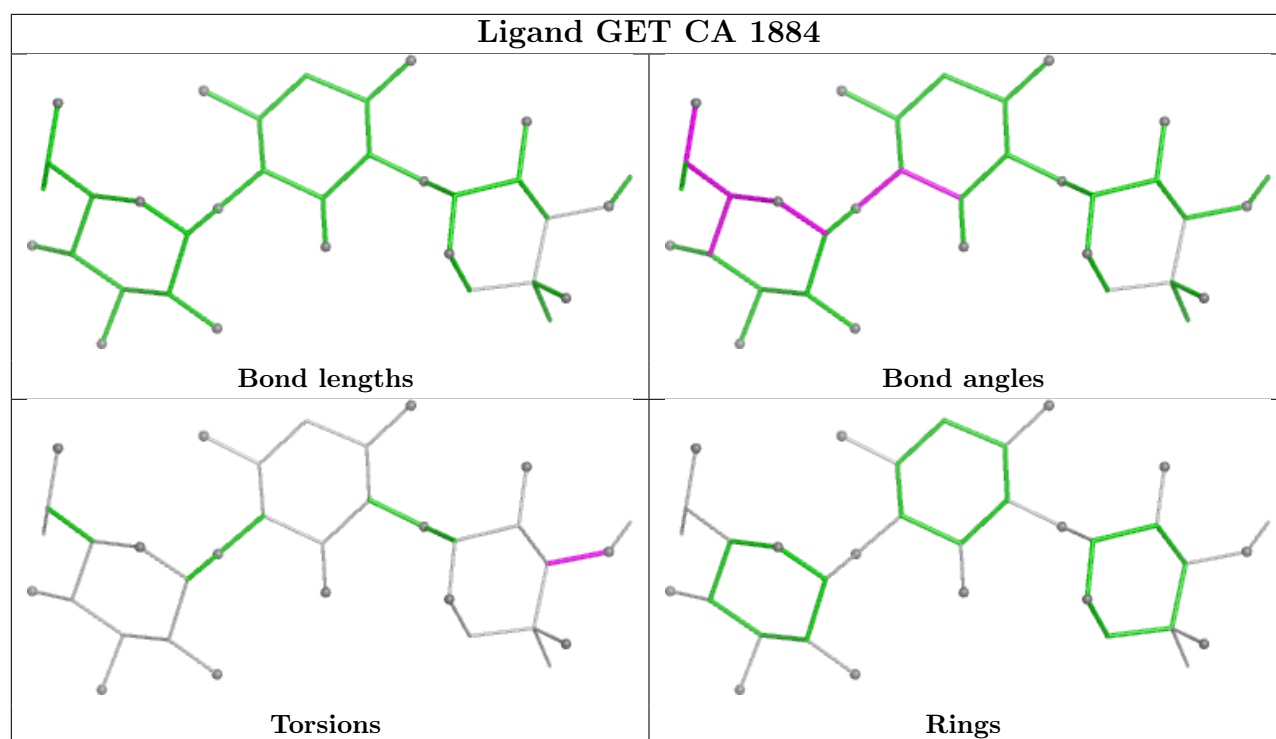
Ligand GET A 3493

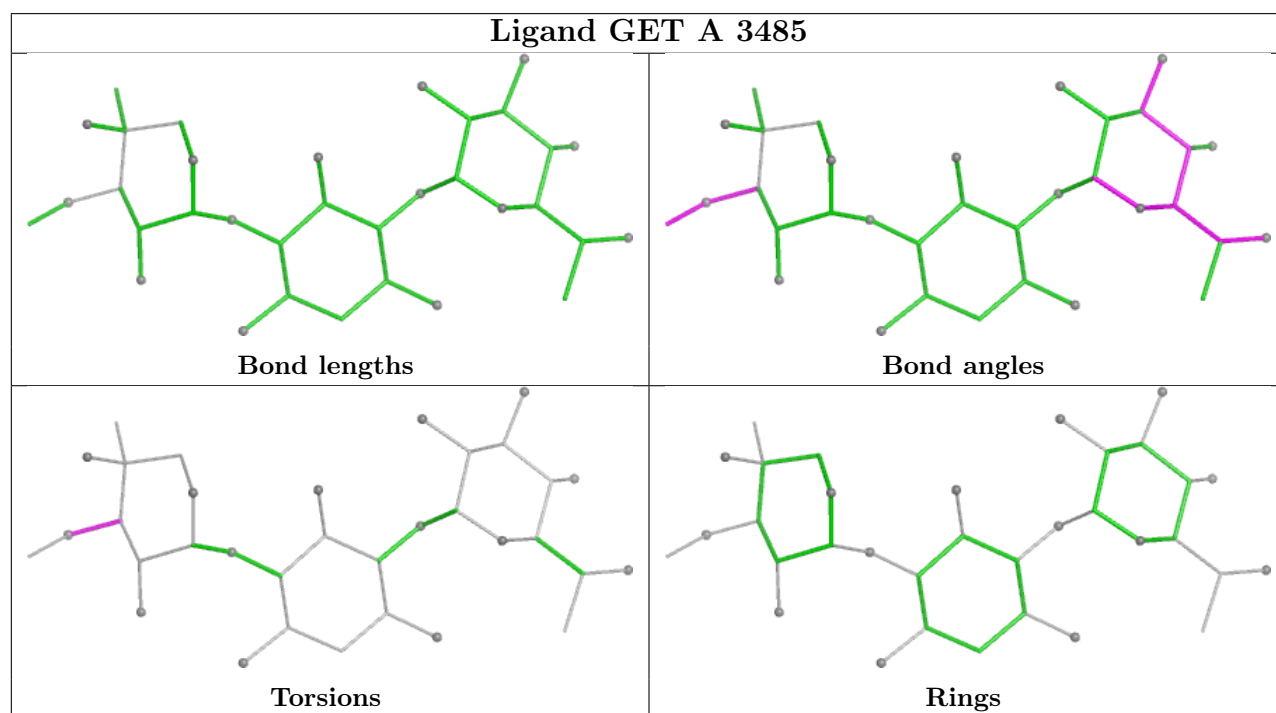
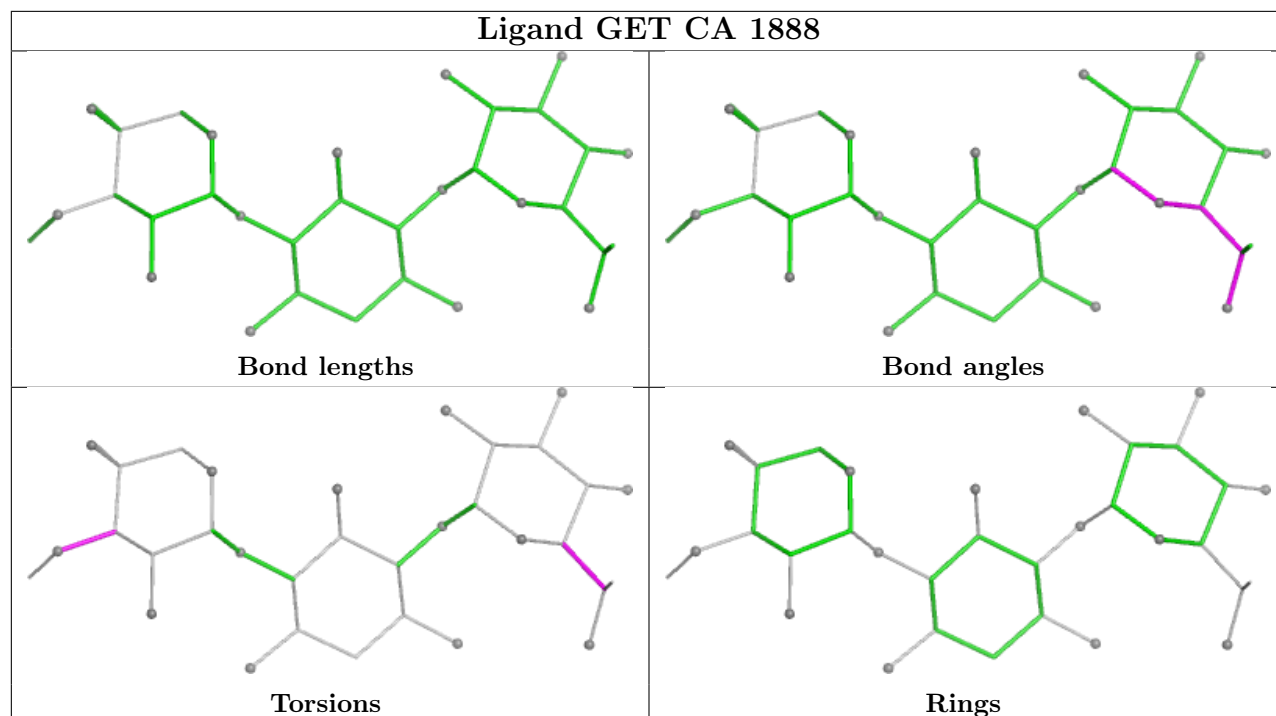


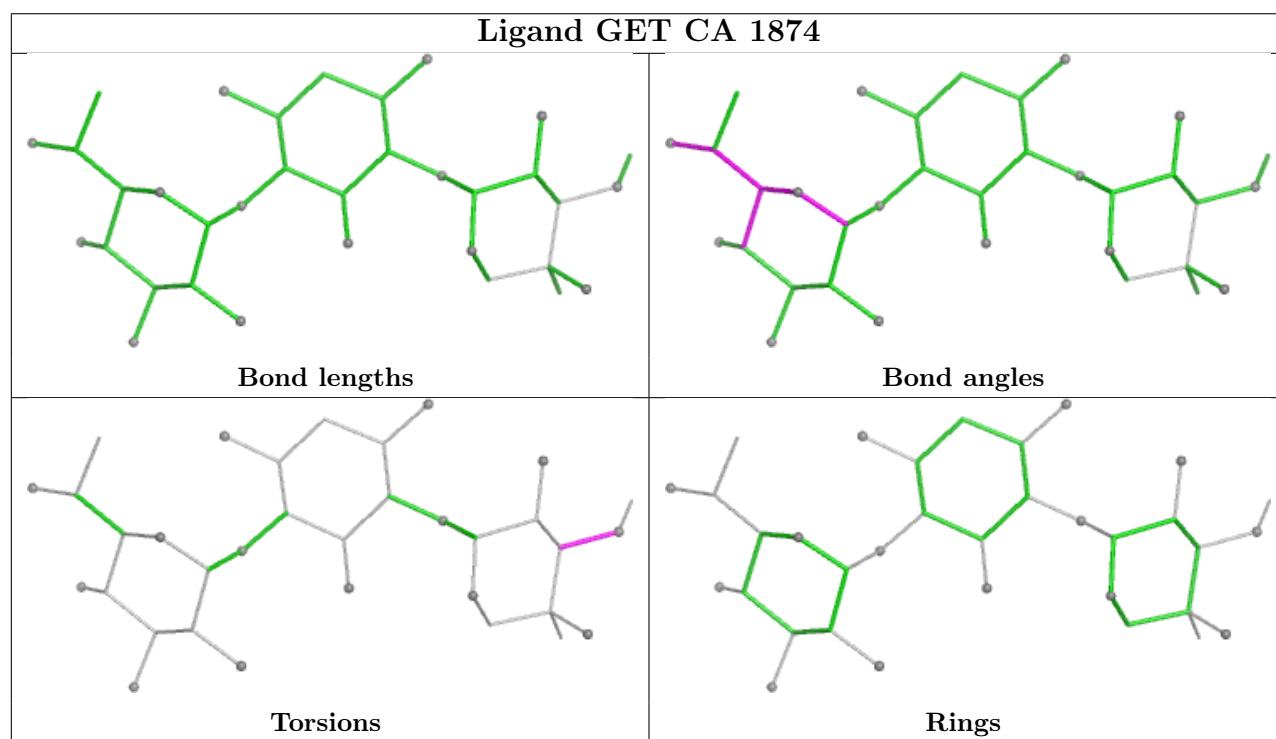
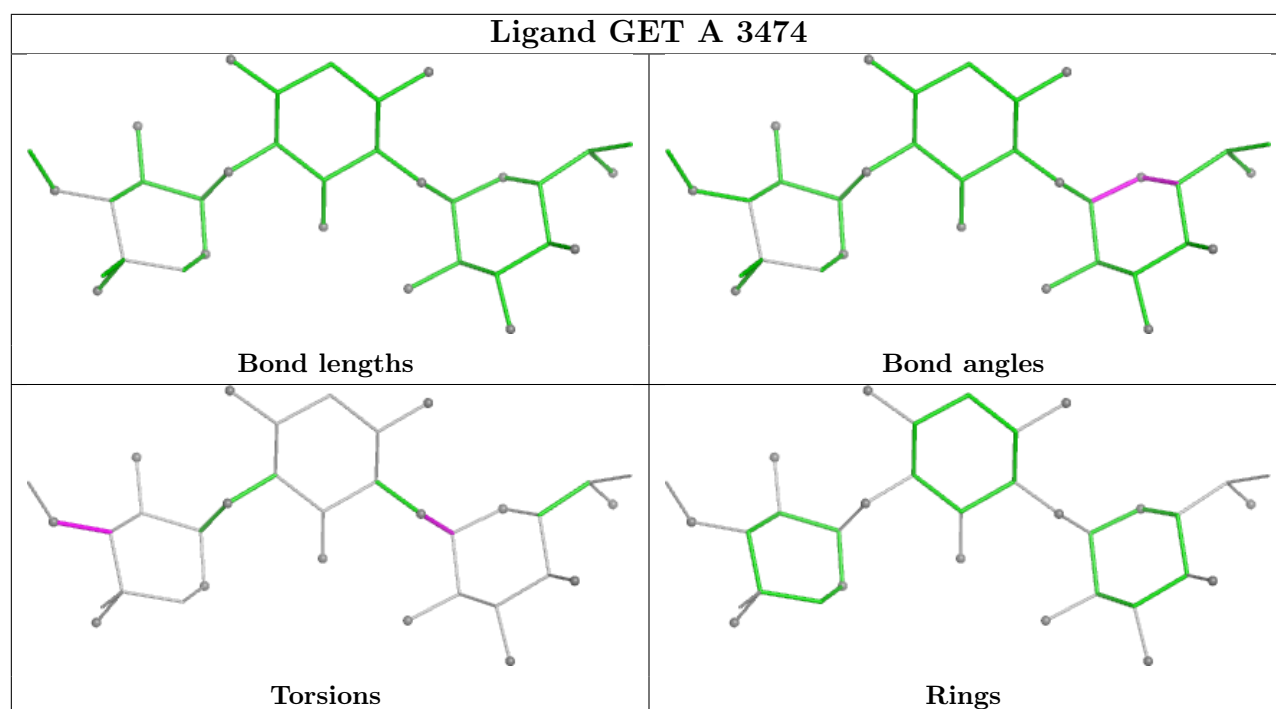
Ligand GET C 206

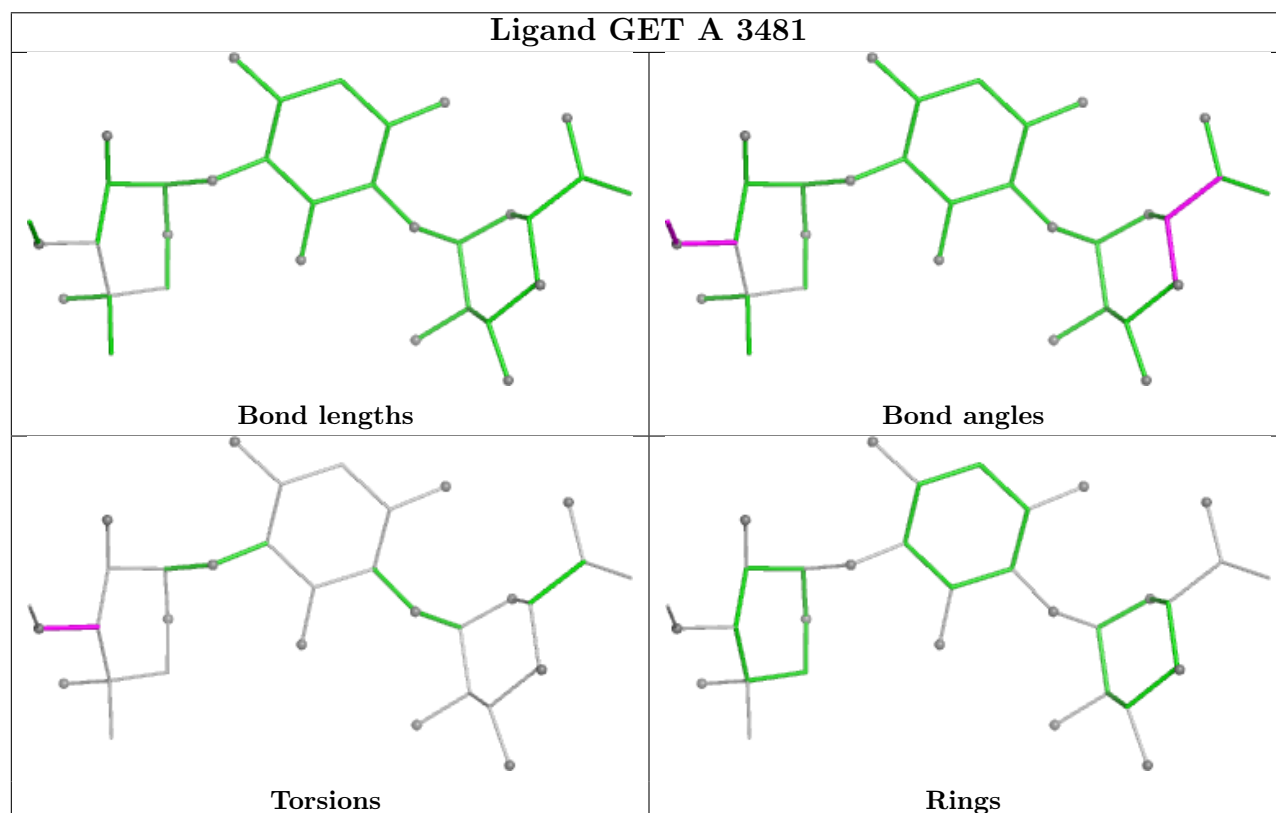
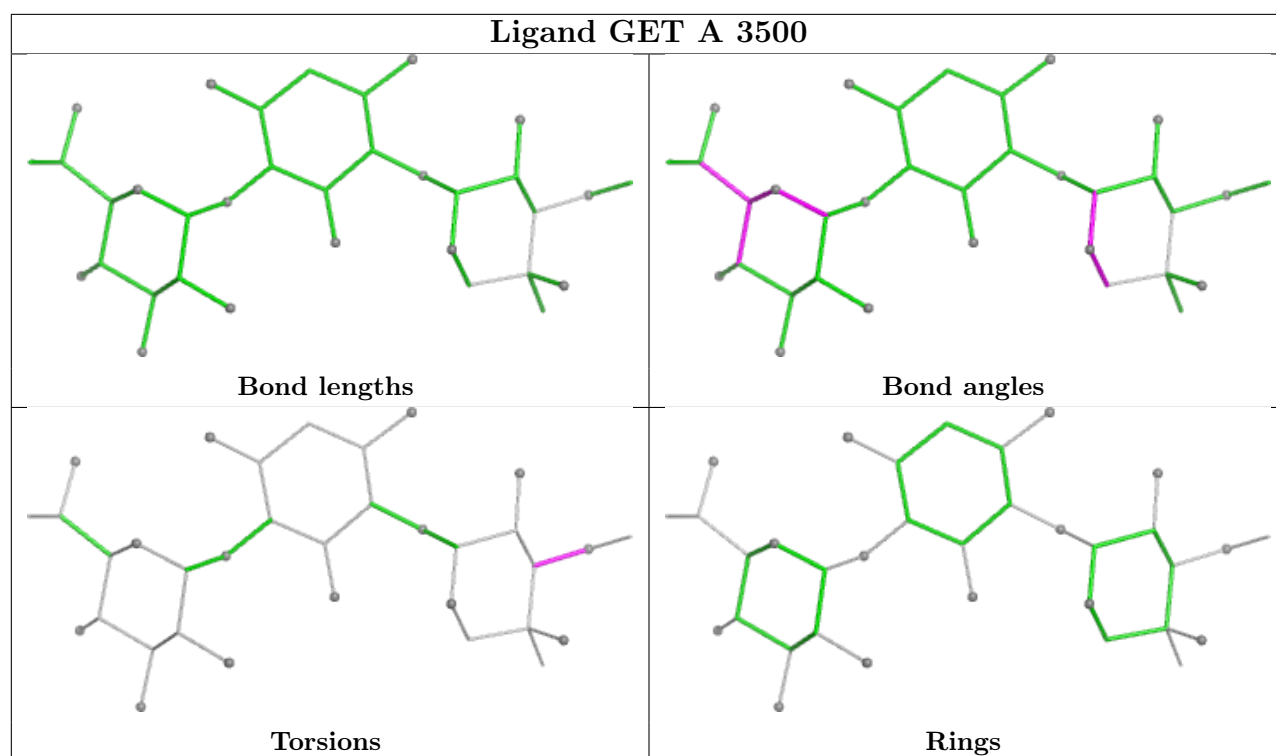


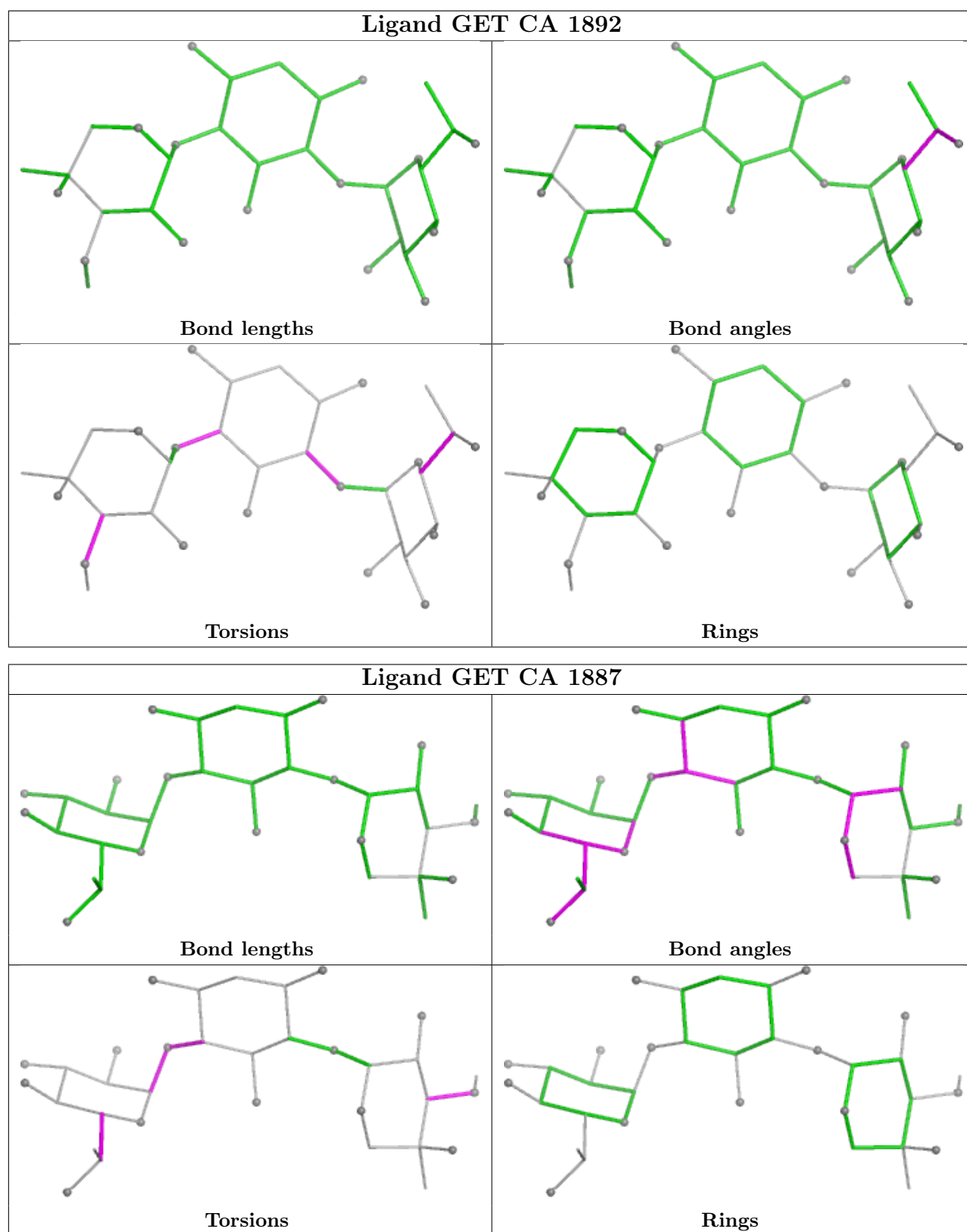












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

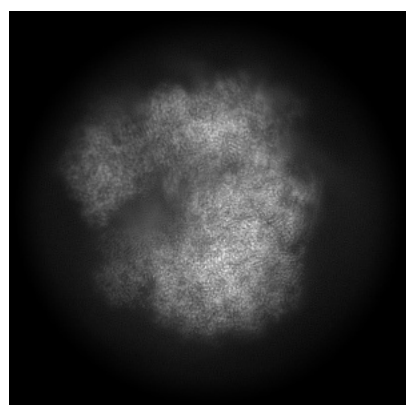
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-55225. These allow visual inspection of the internal detail of the map and identification of artifacts.

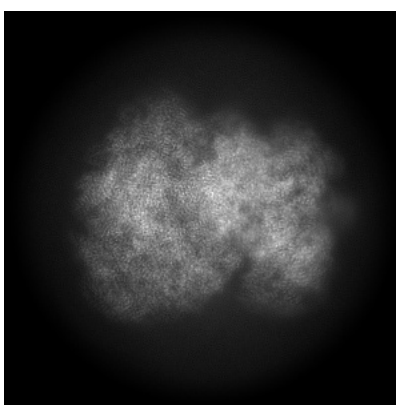
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

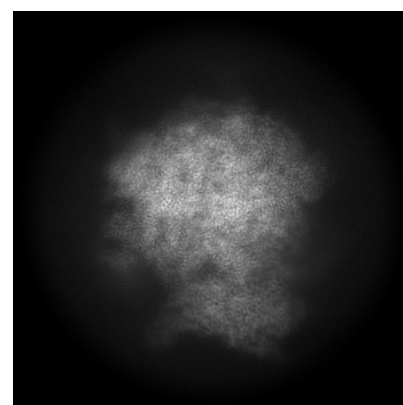
6.1.1 Primary map



X



Y

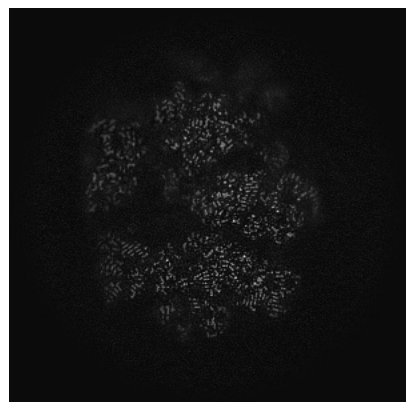


Z

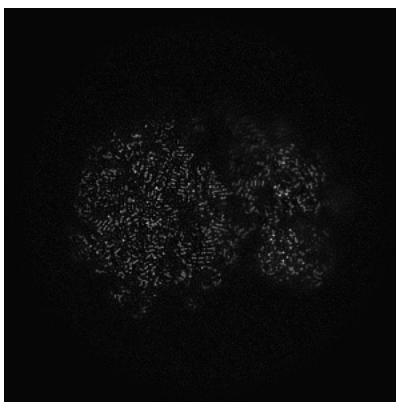
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

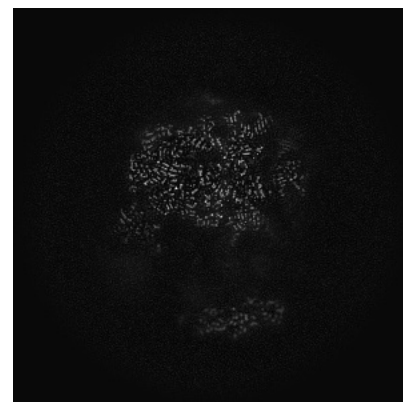
6.2.1 Primary map



X Index: 225



Y Index: 225

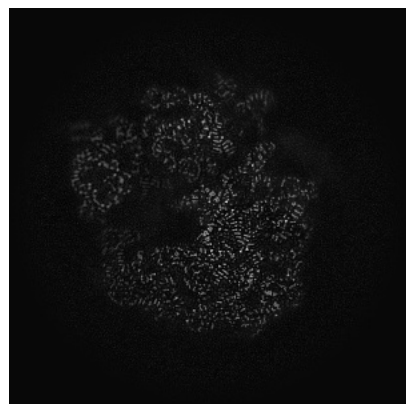


Z Index: 225

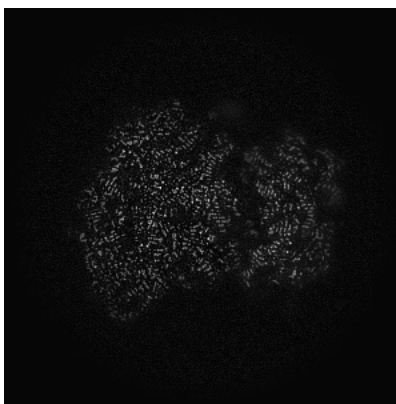
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

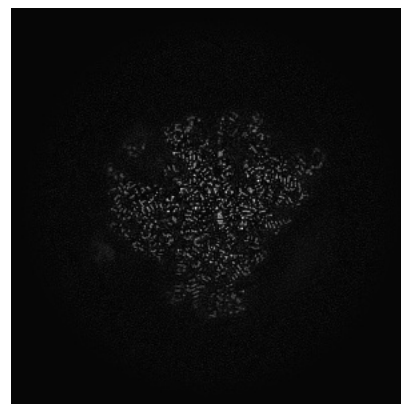
6.3.1 Primary map



X Index: 248



Y Index: 237

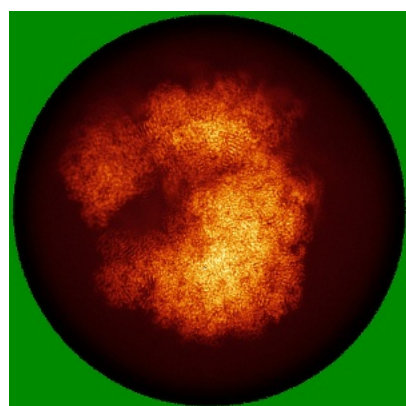


Z Index: 161

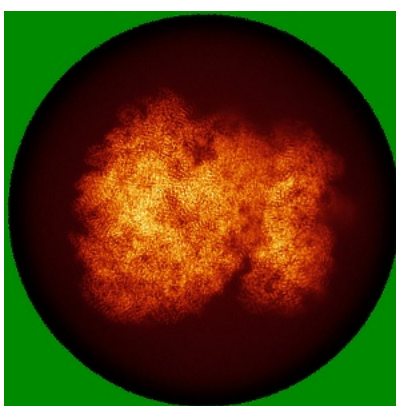
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

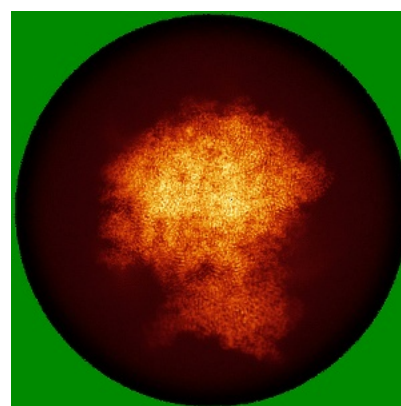
6.4.1 Primary map



X



Y

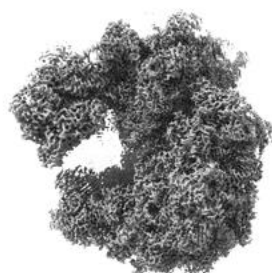


Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.39. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

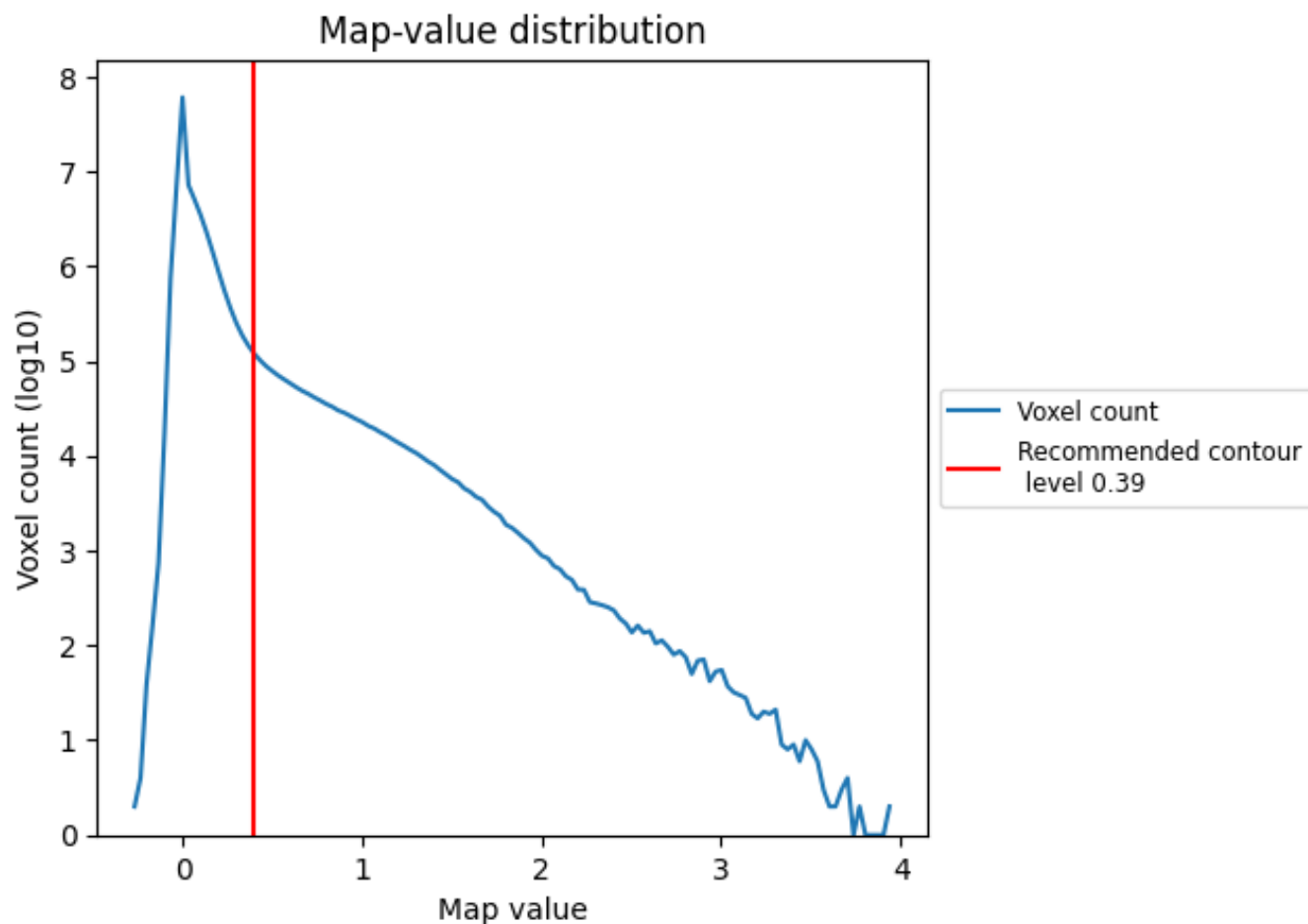
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

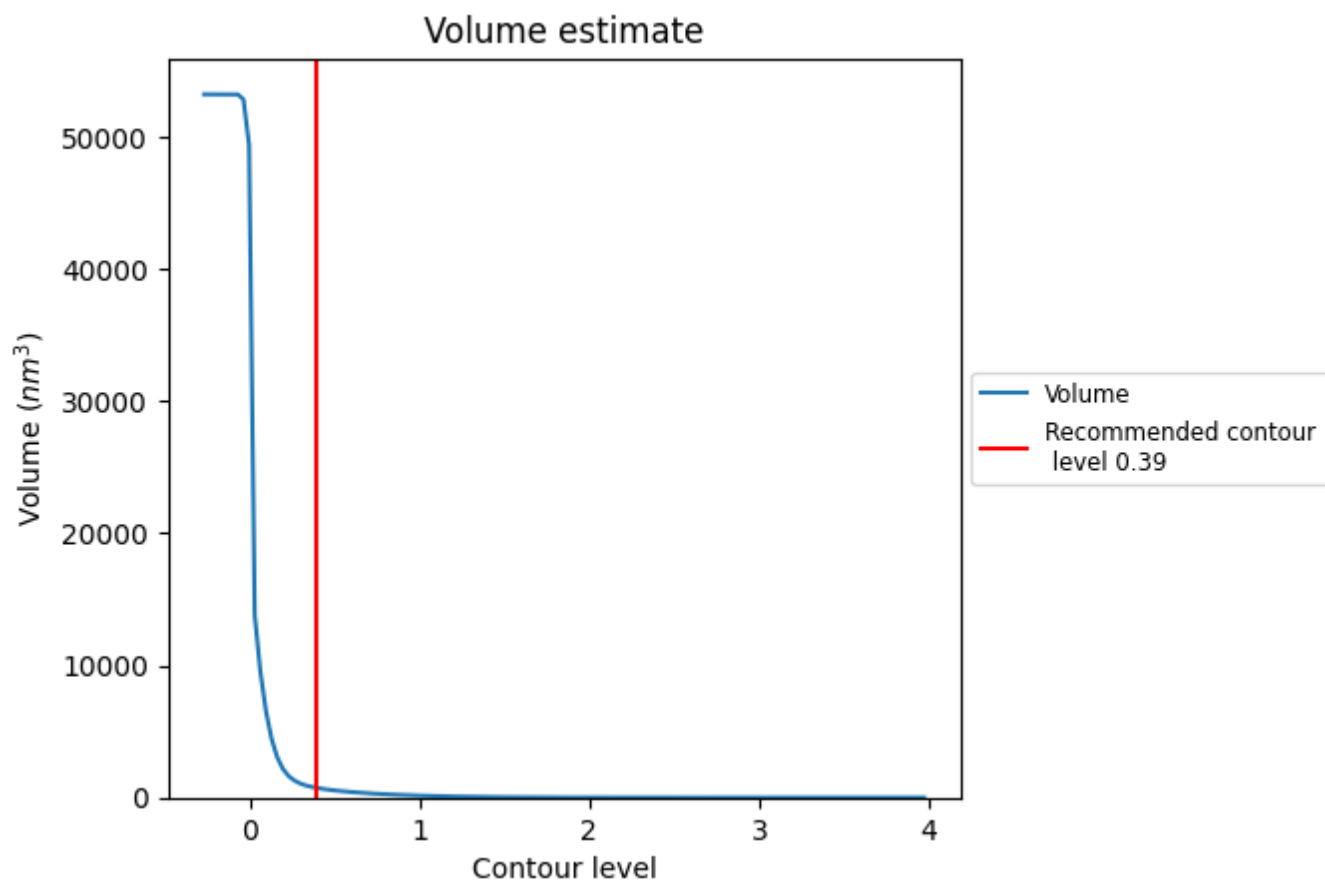
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

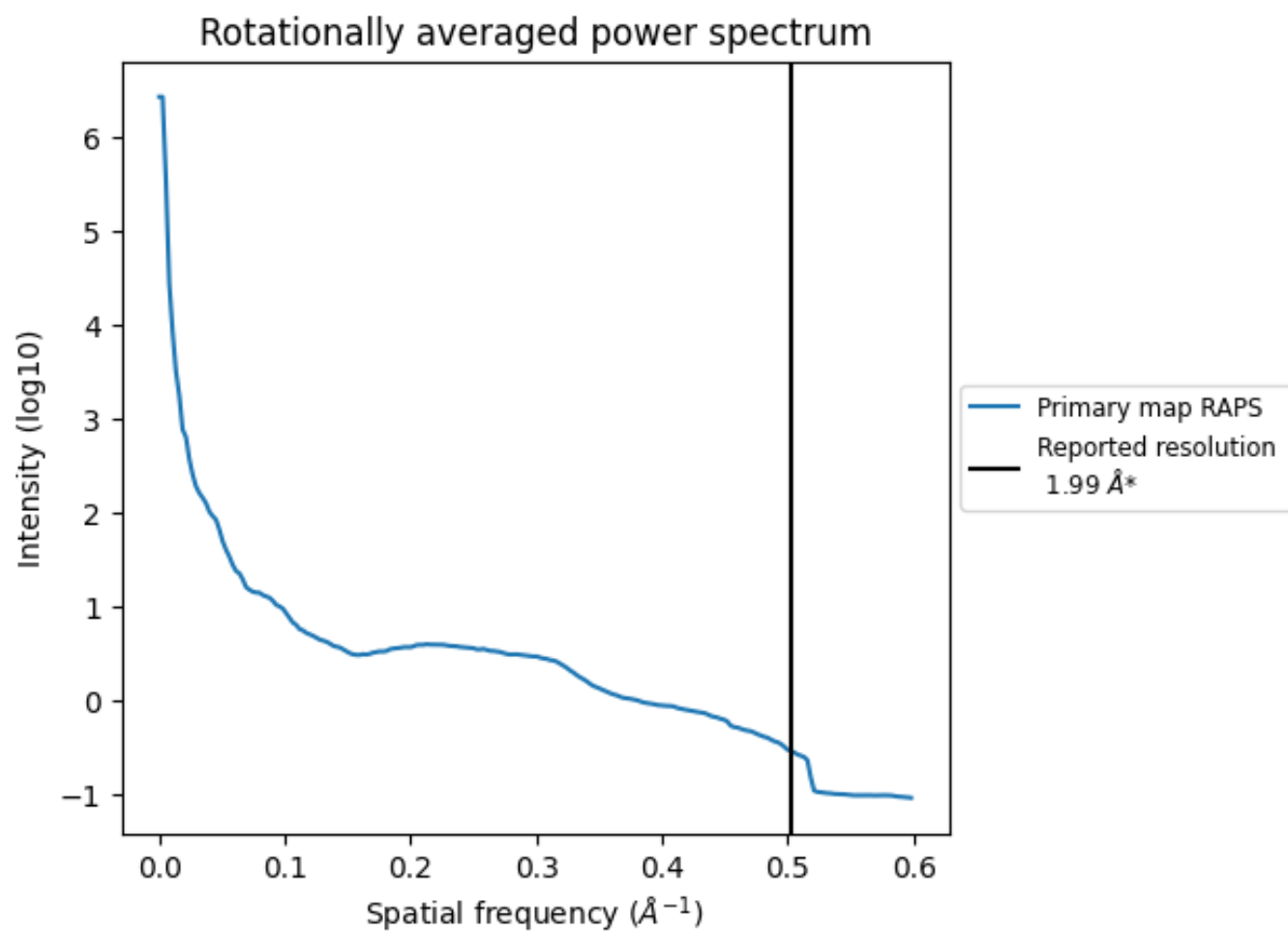
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 745 nm³; this corresponds to an approximate mass of 673 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum ⓘ



*Reported resolution corresponds to spatial frequency of 0.503 Å⁻¹

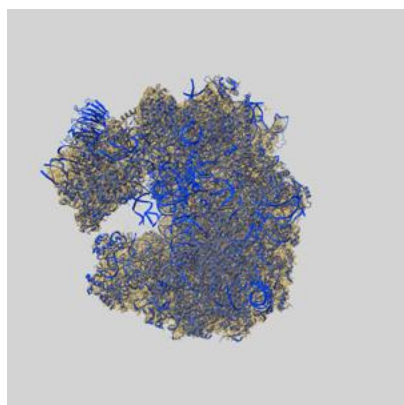
8 Fourier-Shell correlation

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

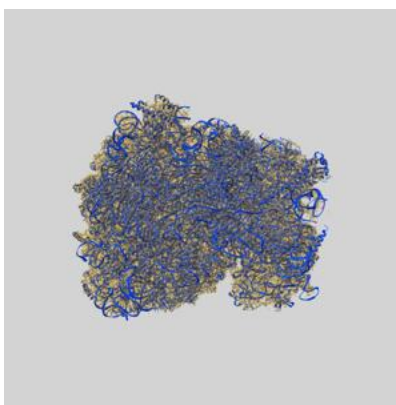
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-55225 and PDB model 9SUM. Per-residue inclusion information can be found in [section 3](#) on [page 26](#).

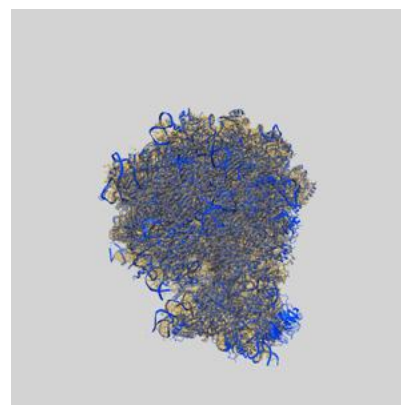
9.1 Map-model overlay [i](#)



X



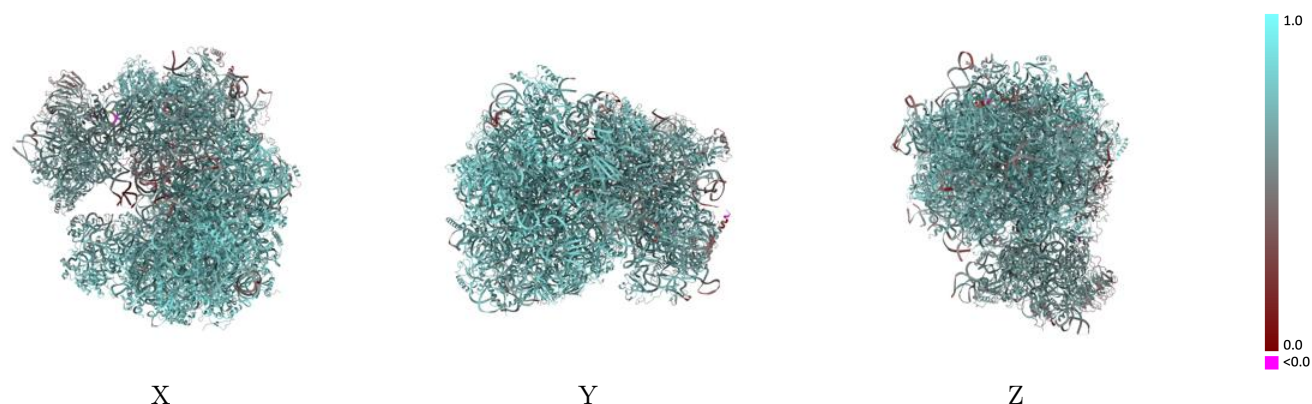
Y



Z

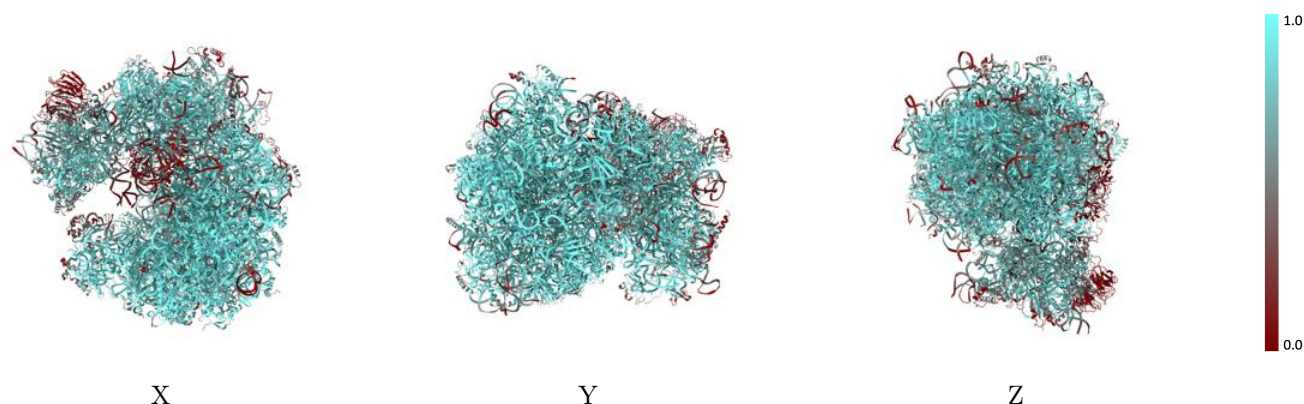
The images above show the 3D surface view of the map at the recommended contour level 0.39 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



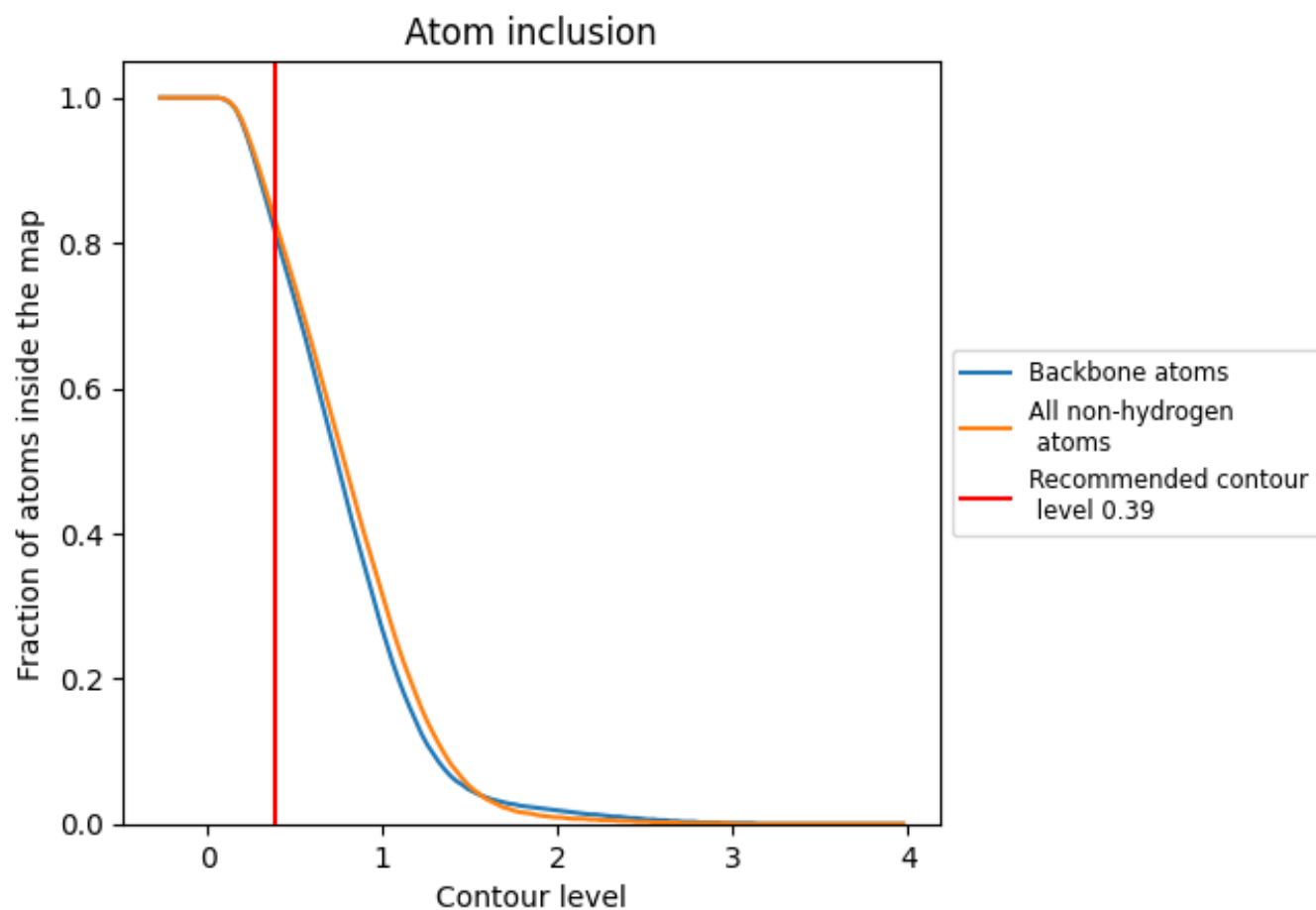
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.39).

9.4 Atom inclusion [i](#)



At the recommended contour level, 81% of all backbone atoms, 83% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.39) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8290	 0.7140
1	 0.0840	 0.3820
2	 0.2000	 0.5380
A	 0.9170	 0.7510
B	 0.8890	 0.7210
C	 0.9300	 0.7570
CA	 0.8190	 0.6410
D	 0.9640	 0.8190
E	 0.9400	 0.8030
F	 0.9250	 0.8020
G	 0.7420	 0.7300
H	 0.8160	 0.7590
I	 0.8920	 0.7930
J	 0.8090	 0.7540
K	 0.8690	 0.7660
L	 0.8300	 0.7590
M	 0.4980	 0.6450
N	 0.8800	 0.7780
O	 0.8970	 0.7850
P	 0.9900	 0.8300
Q	 0.9360	 0.8080
R	 0.9330	 0.8020
S	 0.9650	 0.8140
T	 0.8310	 0.7310
U	 0.9210	 0.7900
V	 0.8740	 0.7800
W	 0.4540	 0.5990
X	 0.9340	 0.7980
Y	 0.9420	 0.7980
Z	 0.9370	 0.7970
ZA	 0.8180	 0.6920
ZB	 0.7070	 0.6660
ZC	 0.4860	 0.5890
ZD	 0.8850	 0.7390
ZE	 0.8250	 0.6970



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Chain	Atom inclusion	Q-score
ZF	 0.1750	 0.5160
ZG	 0.5900	 0.6020
ZH	 0.6810	 0.6330
ZI	 0.4740	 0.5670
ZJ	 0.5840	 0.6060
ZK	 0.7120	 0.6270
ZL	 0.4860	 0.5530
ZM	 0.8480	 0.7170
ZO	 0.9620	 0.7560
ZP	 0.8370	 0.7190
ZQ	 0.7100	 0.6650
ZR	 0.5930	 0.6060
ZS	 0.3260	 0.6130
ZT	 0.7190	 0.6650
ZU	 0.5610	 0.5970
ZV	 0.7900	 0.6370
ZW	 0.5070	 0.6100
ZY	 0.1630	 0.5100
a	 0.8820	 0.7780
b	 0.7810	 0.7370
c	 0.9580	 0.8180
d	 0.9030	 0.7870
e	 0.7980	 0.7440
f	 0.8580	 0.7690
g	 0.9410	 0.8130
h	 0.9650	 0.8200
i	 0.9110	 0.7870
j	 0.8780	 0.7820
k	 0.8400	 0.7590
l	 0.9710	 0.8200
m	 0.6520	 0.7030
n	 0.8930	 0.7720
o	 0.8670	 0.7760
p	 0.3840	 0.6770
q	 0.8670	 0.7820
r	 0.9080	 0.7900
s	 0.8410	 0.6940
t	 0.2020	 0.5030
u	 0.8880	 0.7200
v	 0.5470	 0.5880
w	 0.8130	 0.7000
x	 0.6670	 0.6140

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Chain	Atom inclusion	Q-score
y	 0.7180	 0.6560
z	 0.5670	 0.6120