



wwPDB X-ray Structure Validation Summary Report ⓘ

Dec 1, 2025 – 03:28 pm GMT

PDB ID : 2UUL / pdb_00002uul
Title : Crystal structure of C-phycocyanin from Phormidium, Lyngbya spp. (Marine) and Spirulina sp. (Fresh water) shows two different ways of energy transfer between two hexamers.
Authors : Satyanarayana, L.; Patel, A.; Mishra, S.; K Ghosh, P.; Suresh, C.G.
Deposited on : 2007-03-04
Resolution : 3.10 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.46

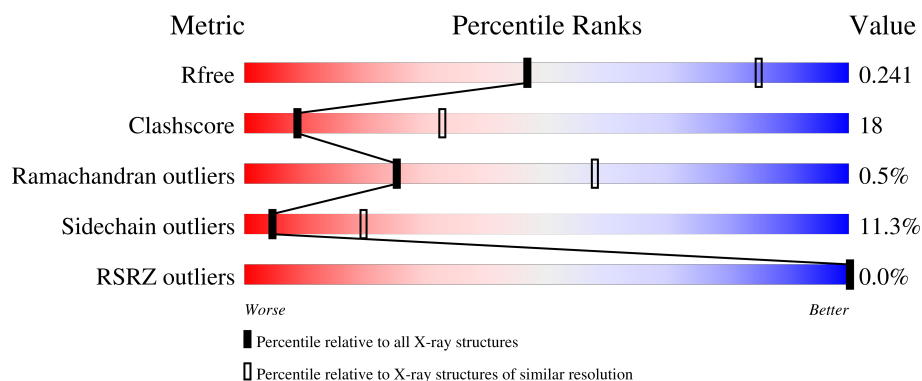
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.10 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	1351 (3.10-3.10)
Clashscore	180529	1454 (3.10-3.10)
Ramachandran outliers	177936	1391 (3.10-3.10)
Sidechain outliers	177891	1391 (3.10-3.10)
RSRZ outliers	164620	1351 (3.10-3.10)

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

Mol	Chain	Length	Quality of chain
1	A	162	72% 23% . .
1	E	162	73% 22% .
1	G	162	71% 23% . .
1	I	162	73% 22% .

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Mol	Chain	Length	Quality of chain
1	K	162	
1	M	162	
1	O	162	
1	Q	162	
1	S	162	
1	U	162	
1	W	162	
2	B	172	
2	F	172	
2	J	172	
2	L	172	
2	N	172	
2	P	172	
2	R	172	
2	T	172	
2	V	172	
2	X	172	
3	C	162	
4	D	172	
5	H	172	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
6	CYC	L	184	-	-	X	-
6	CYC	L	255	-	-	X	-
6	CYC	N	184	-	-	X	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
6	CYC	Q	184	-	-	X	-
6	CYC	T	255	-	-	X	-

2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 31131 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called C-PHYCOCYANIN ALPHA CHAIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	162	Total	C	N	O	S	0	0	0
			1210	761	204	238	7			
1	E	162	Total	C	N	O	S	0	0	0
			1210	761	204	238	7			
1	G	162	Total	C	N	O	S	0	0	0
			1210	761	204	238	7			
1	I	162	Total	C	N	O	S	0	0	0
			1210	761	204	238	7			
1	K	162	Total	C	N	O	S	0	0	0
			1210	761	204	238	7			
1	M	162	Total	C	N	O	S	0	0	0
			1210	761	204	238	7			
1	O	162	Total	C	N	O	S	0	0	0
			1210	761	204	238	7			
1	Q	162	Total	C	N	O	S	0	0	0
			1210	761	204	238	7			
1	S	162	Total	C	N	O	S	0	0	0
			1210	761	204	238	7			
1	U	162	Total	C	N	O	S	0	0	0
			1210	761	204	238	7			
1	W	162	Total	C	N	O	S	0	0	0
			1210	761	204	238	7			

- Molecule 2 is a protein called C-PHYCOCYANIN BETA CHAIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	172	Total	C	N	O	S	0	0	0
			1243	769	219	246	9			
2	F	172	Total	C	N	O	S	0	0	0
			1243	769	219	246	9			
2	J	172	Total	C	N	O	S	0	0	0
			1243	769	219	246	9			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	L	172	Total	C	N	O	S	0	0	0
			1243	769	219	246	9			
2	N	172	Total	C	N	O	S	0	0	0
			1243	769	219	246	9			
2	P	172	Total	C	N	O	S	0	0	0
			1243	769	219	246	9			
2	R	172	Total	C	N	O	S	0	0	0
			1243	769	219	246	9			
2	T	172	Total	C	N	O	S	0	0	0
			1243	769	219	246	9			
2	V	172	Total	C	N	O	S	0	0	0
			1243	769	219	246	9			
2	X	172	Total	C	N	O	S	0	0	0
			1243	769	219	246	9			

- Molecule 3 is a protein called C-PHYCOCYANIN ALPHA CHAIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	C	162	Total	C	N	O	S	0	0	0
			1213	763	204	239	7			

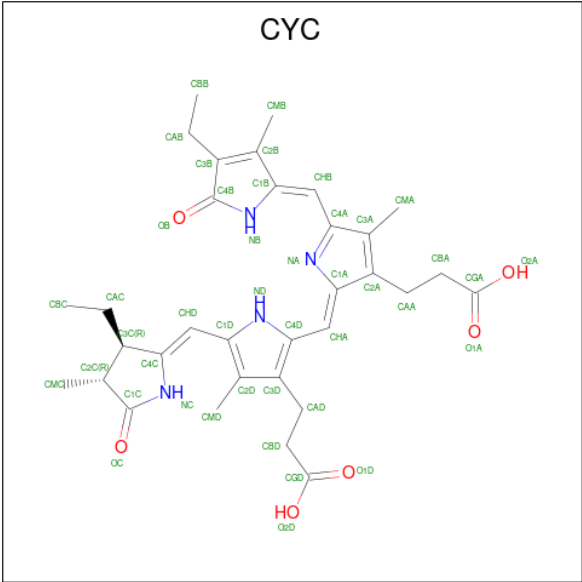
- Molecule 4 is a protein called C-PHYCOCYANIN BETA CHAIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	D	172	Total	C	N	O	S	0	0	0
			1252	775	219	249	9			

- Molecule 5 is a protein called C-PHYCOCYANIN BETA CHAIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	H	172	Total	C	N	O	S	0	0	0
			1239	764	219	247	9			

- Molecule 6 is PHYCOCYANOBILIN (CCD ID: CYC) (formula: $C_{33}H_{40}N_4O_6$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
6	A	1	Total	C	N	O	0	0
			43	33	4	6		
6	B	1	Total	C	N	O	0	0
			43	33	4	6		
6	B	1	Total	C	N	O	0	0
			43	33	4	6		
6	C	1	Total	C	N	O	0	0
			43	33	4	6		
6	D	1	Total	C	N	O	0	0
			43	33	4	6		
6	D	1	Total	C	N	O	0	0
			43	33	4	6		
6	E	1	Total	C	N	O	0	0
			43	33	4	6		
6	F	1	Total	C	N	O	0	0
			43	33	4	6		
6	F	1	Total	C	N	O	0	0
			43	33	4	6		
6	G	1	Total	C	N	O	0	0
			43	33	4	6		
6	H	1	Total	C	N	O	0	0
			43	33	4	6		
6	H	1	Total	C	N	O	0	0
			43	33	4	6		
6	I	1	Total	C	N	O	0	0
			43	33	4	6		
6	J	1	Total	C	N	O	0	0
			43	33	4	6		

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
6	J	1	Total 43	C 33	N 4	O 6	0	0
6	K	1	Total 43	C 33	N 4	O 6	0	0
6	L	1	Total 43	C 33	N 4	O 6	0	0
6	L	1	Total 43	C 33	N 4	O 6	0	0
6	M	1	Total 43	C 33	N 4	O 6	0	0
6	N	1	Total 43	C 33	N 4	O 6	0	0
6	N	1	Total 43	C 33	N 4	O 6	0	0
6	O	1	Total 43	C 33	N 4	O 6	0	0
6	P	1	Total 43	C 33	N 4	O 6	0	0
6	P	1	Total 43	C 33	N 4	O 6	0	0
6	Q	1	Total 43	C 33	N 4	O 6	0	0
6	R	1	Total 43	C 33	N 4	O 6	0	0
6	R	1	Total 43	C 33	N 4	O 6	0	0
6	S	1	Total 43	C 33	N 4	O 6	0	0
6	T	1	Total 43	C 33	N 4	O 6	0	0
6	T	1	Total 43	C 33	N 4	O 6	0	0
6	U	1	Total 43	C 33	N 4	O 6	0	0
6	V	1	Total 43	C 33	N 4	O 6	0	0
6	V	1	Total 43	C 33	N 4	O 6	0	0
6	W	1	Total 43	C 33	N 4	O 6	0	0
6	X	1	Total 43	C 33	N 4	O 6	0	0

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
6	X	1	Total	C	N	O	0	0
			43	33	4	6		

- Molecule 7 is water.

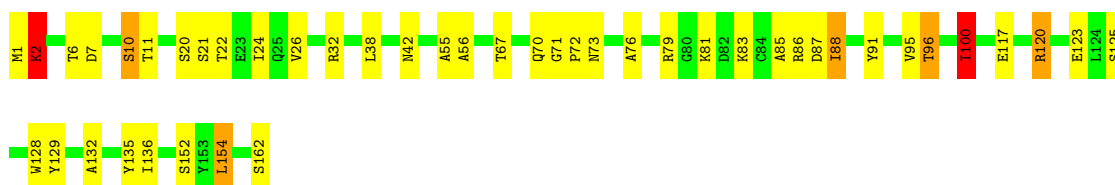
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	C	11	Total	O	0	0
			11	11		
7	D	4	Total	O	0	0
			4	4		
7	E	4	Total	O	0	0
			4	4		
7	F	15	Total	O	0	0
			15	15		
7	I	18	Total	O	0	0
			18	18		
7	J	6	Total	O	0	0
			6	6		
7	K	3	Total	O	0	0
			3	3		
7	L	10	Total	O	0	0
			10	10		
7	M	12	Total	O	0	0
			12	12		
7	N	7	Total	O	0	0
			7	7		
7	O	2	Total	O	0	0
			2	2		
7	P	15	Total	O	0	0
			15	15		
7	S	1	Total	O	0	0
			1	1		
7	T	8	Total	O	0	0
			8	8		
7	W	17	Total	O	0	0
			17	17		
7	X	6	Total	O	0	0
			6	6		

3 Residue-property plots [i](#)

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

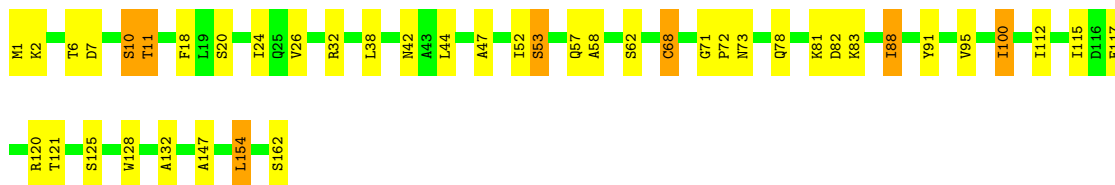
- Molecule 1: C-PHYCOCYANIN ALPHA CHAIN

Chain A: 



- Molecule 1: C-PHYCOCYANIN ALPHA CHAIN

Chain E: 



- Molecule 1: C-PHYCOCYANIN ALPHA CHAIN

Chain G: 



- Molecule 1: C-PHYCOCYANIN ALPHA CHAIN

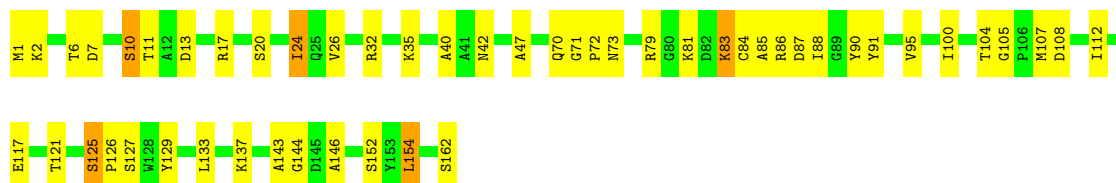
Chain I: 





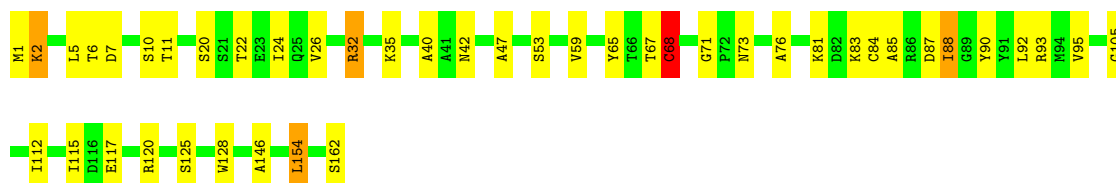
• Molecule 1: C-PHYCOCYANIN ALPHA CHAIN

Chain K: 69% 28%



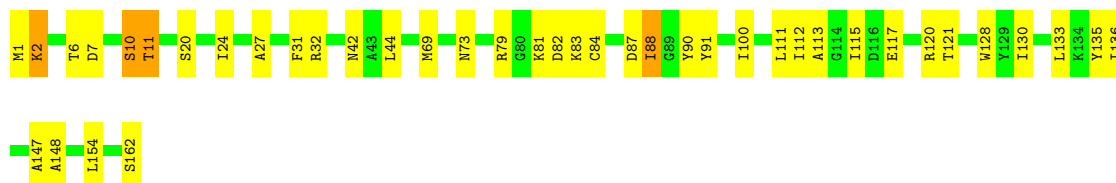
• Molecule 1: C-PHYCOCYANIN ALPHA CHAIN

Chain M: 73% 24%



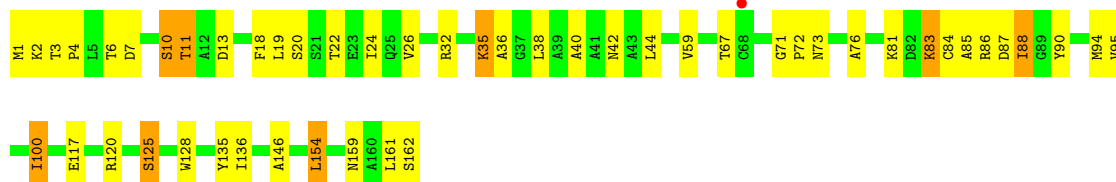
• Molecule 1: C-PHYCOCYANIN ALPHA CHAIN

Chain O: 75% 23%



• Molecule 1: C-PHYCOCYANIN ALPHA CHAIN

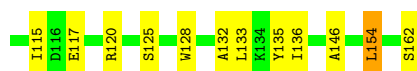
Chain Q: 69% 26% 5%



• Molecule 1: C-PHYCOCYANIN ALPHA CHAIN

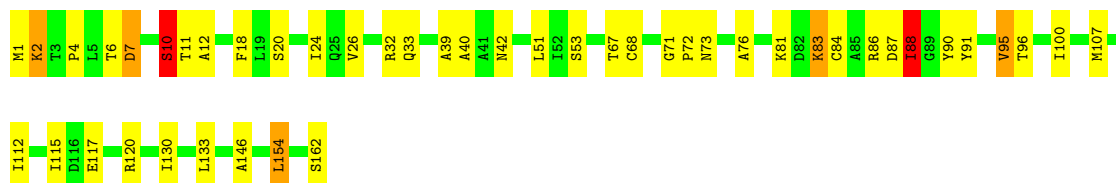
Chain S: 70% 27%





• Molecule 1: C-PHYCOCYANIN ALPHA CHAIN

Chain U: 72% 24% ..



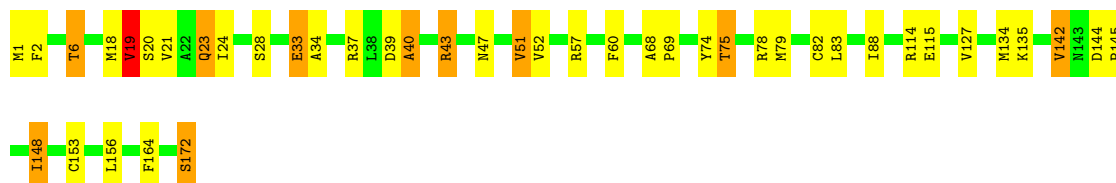
• Molecule 1: C-PHYCOCYANIN ALPHA CHAIN

Chain W: 77% 20% ..



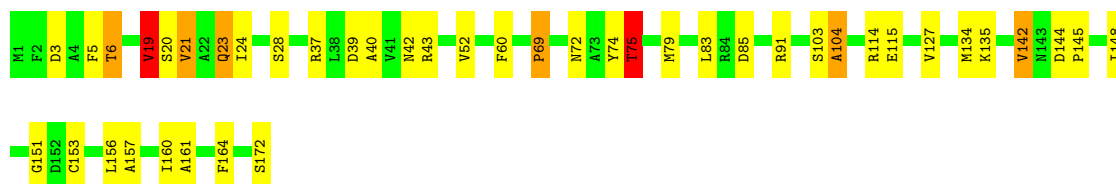
• Molecule 2: C-PHYCOCYANIN BETA CHAIN

Chain B: 75% 19% 6% .



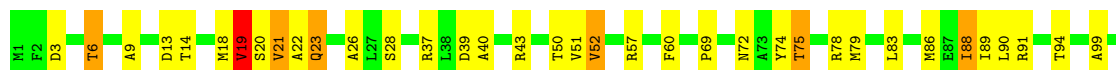
• Molecule 2: C-PHYCOCYANIN BETA CHAIN

Chain F: 75% 20% ..



• Molecule 2: C-PHYCOCYANIN BETA CHAIN

Chain J: 72% 23% 5% .





● Molecule 2: C-PHYCOCYANIN BETA CHAIN

Chain L: 76% 20% ..



● Molecule 2: C-PHYCOCYANIN BETA CHAIN

Chain N: 76% 20% ..



● Molecule 2: C-PHYCOCYANIN BETA CHAIN

Chain P: 73% 24% ..



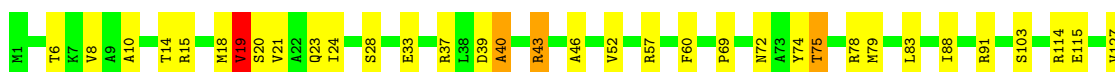
● Molecule 2: C-PHYCOCYANIN BETA CHAIN

Chain R: 67% 30% ..



● Molecule 2: C-PHYCOCYANIN BETA CHAIN

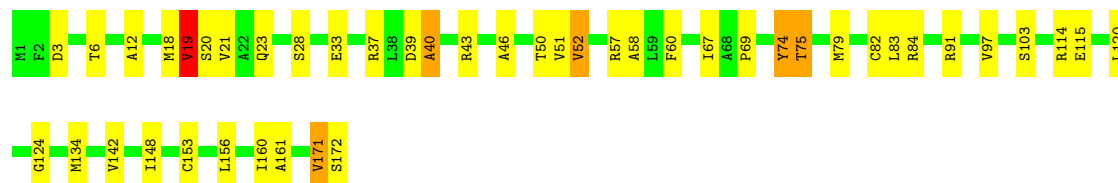
Chain T: 74% 24% ..





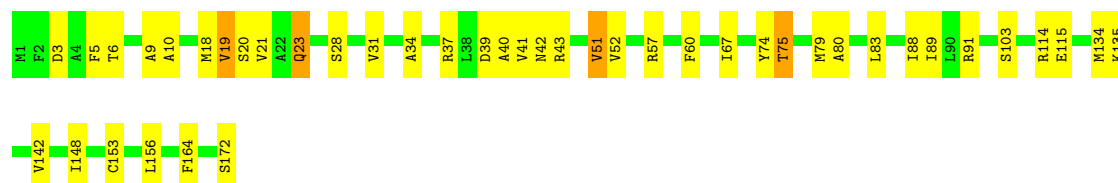
• Molecule 2: C-PHYCOCYANIN BETA CHAIN

Chain V: 74% 23% ..



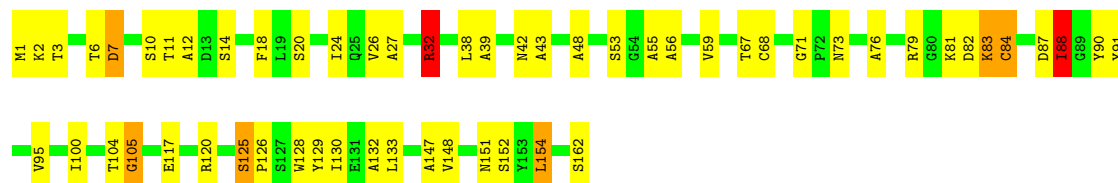
• Molecule 2: C-PHYCOCYANIN BETA CHAIN

Chain X: 75% 23% .



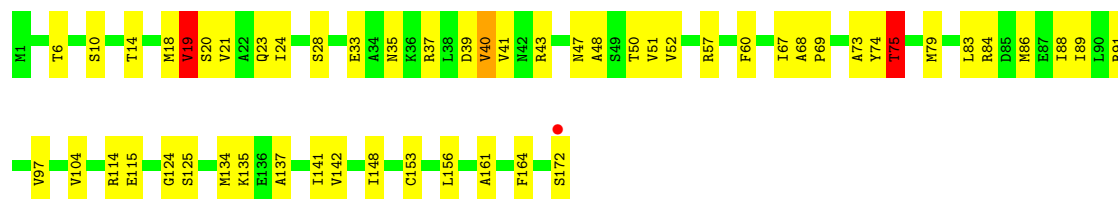
• Molecule 3: C-PHYCOCYANIN ALPHA CHAIN

Chain C: 65% 30% ..



• Molecule 4: C-PHYCOCYANIN BETA CHAIN

Chain D: 69% 30% ..



• Molecule 5: C-PHYCOCYANIN BETA CHAIN

Chain H: 76% 21% ..



V142
I148
C153
L156
I160
S172

4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	107.88Å 115.78Å 183.55Å 90.00° 90.24° 90.00°	Depositor
Resolution (Å)	25.00 – 3.10 25.00 – 3.10	Depositor EDS
% Data completeness (in resolution range)	92.5 (25.00-3.10) 92.4 (25.00-3.10)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.33 (at 3.11Å)	Xtriage
Refinement program	REFMAC 5.2.0019	Depositor
R, R_{free}	0.200 , 0.245 0.197 , 0.241	Depositor DCC
R_{free} test set	3825 reflections (4.66%)	wwPDB-VP
Wilson B-factor (Å ²)	32.3	Xtriage
Anisotropy	0.091	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 25.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.29$	Xtriage
Estimated twinning fraction	0.032 for h,-k,-l	Xtriage
F_o, F_c correlation	0.90	EDS
Total number of atoms	31131	wwPDB-VP
Average B, all atoms (Å ²)	14.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 8.89% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: CYC

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	A	1.31	3/1233 (0.2%)	1.17	3/1675 (0.2%)
1	E	1.35	4/1233 (0.3%)	1.28	8/1675 (0.5%)
1	G	1.29	4/1233 (0.3%)	1.26	6/1675 (0.4%)
1	I	1.32	1/1233 (0.1%)	1.27	6/1675 (0.4%)
1	K	1.27	2/1233 (0.2%)	1.23	2/1675 (0.1%)
1	M	1.29	3/1233 (0.2%)	1.26	5/1675 (0.3%)
1	O	1.24	1/1233 (0.1%)	1.20	3/1675 (0.2%)
1	Q	1.29	0/1233	1.23	6/1675 (0.4%)
1	S	1.36	3/1233 (0.2%)	1.29	6/1675 (0.4%)
1	U	1.25	3/1233 (0.2%)	1.27	9/1675 (0.5%)
1	W	1.31	2/1233 (0.2%)	1.26	2/1675 (0.1%)
2	B	1.24	3/1257 (0.2%)	1.23	1/1706 (0.1%)
2	F	1.32	2/1257 (0.2%)	1.28	2/1706 (0.1%)
2	J	1.30	6/1257 (0.5%)	1.27	4/1706 (0.2%)
2	L	1.33	2/1257 (0.2%)	1.26	4/1706 (0.2%)
2	N	1.30	1/1257 (0.1%)	1.25	2/1706 (0.1%)
2	P	1.23	3/1257 (0.2%)	1.29	2/1706 (0.1%)
2	R	1.36	6/1257 (0.5%)	1.30	5/1706 (0.3%)
2	T	1.31	3/1257 (0.2%)	1.28	2/1706 (0.1%)
2	V	1.29	3/1257 (0.2%)	1.28	4/1706 (0.2%)
2	X	1.24	2/1257 (0.2%)	1.23	3/1706 (0.2%)
3	C	1.35	6/1236 (0.5%)	1.28	7/1679 (0.4%)
4	D	1.25	1/1266 (0.1%)	1.24	1/1718 (0.1%)
5	H	1.31	5/1252 (0.4%)	1.27	3/1699 (0.2%)
All	All	1.30	69/29887 (0.2%)	1.26	96/40581 (0.2%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	E	0	1
1	I	0	1
1	K	0	1
1	M	0	1
1	Q	0	1
1	S	0	1
1	U	0	1
1	W	0	1
3	C	0	1
All	All	0	10

The worst 5 of 69 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	E	68	CYS	CB-SG	-8.94	1.51	1.81
2	R	19	VAL	CA-CB	8.91	1.64	1.54
2	F	19	VAL	CA-CB	8.39	1.62	1.54
1	A	42	ASN	CG-ND2	-7.91	1.16	1.33
2	J	19	VAL	CA-CB	7.53	1.62	1.54

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

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	G	42	ASN	N-CA-C	9.40	121.61	111.36
1	W	42	ASN	CB-CA-C	-8.26	97.91	110.88
1	O	42	ASN	CB-CA-C	-8.21	97.99	110.88
2	R	86	MET	N-CA-C	-8.06	102.45	111.07
2	J	86	MET	N-CA-C	-7.99	102.26	110.97

There are no chirality outliers.

5 of 10 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	71	GLY	Peptide
3	C	71	GLY	Peptide
1	E	71	GLY	Peptide
1	I	71	GLY	Peptide
1	K	71	GLY	Peptide

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	A	1210	0	1168	21	0
1	E	1210	0	1168	17	0
1	G	1210	0	1168	22	0
1	I	1210	0	1168	19	0
1	K	1210	0	1168	26	0
1	M	1210	0	1168	25	0
1	O	1210	0	1168	22	0
1	Q	1210	0	1169	36	0
1	S	1210	0	1168	26	0
1	U	1210	0	1168	20	0
1	W	1210	0	1168	22	0
2	B	1243	0	1238	51	0
2	F	1243	0	1238	44	0
2	J	1243	0	1238	40	0
2	L	1243	0	1239	50	1
2	N	1243	0	1239	45	1
2	P	1243	0	1239	50	0
2	R	1243	0	1238	51	1
2	T	1243	0	1238	49	1
2	V	1243	0	1239	42	0
2	X	1243	0	1238	37	0
3	C	1213	0	1172	33	0
4	D	1252	0	1250	57	0
5	H	1239	0	1233	34	0
6	A	43	0	36	11	0
6	B	86	0	75	32	0
6	C	43	0	35	18	0
6	D	86	0	75	33	0
6	E	43	0	36	19	0
6	F	86	0	75	31	0
6	G	43	0	35	12	0
6	H	86	0	75	24	0
6	I	43	0	36	13	0
6	J	86	0	75	33	0
6	K	43	0	36	15	0
6	L	86	0	76	43	0
6	M	43	0	37	17	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	N	86	0	76	40	0
6	O	43	0	35	18	0
6	P	86	0	76	37	0
6	Q	43	0	37	25	0
6	R	86	0	75	27	0
6	S	43	0	36	17	0
6	T	86	0	75	39	0
6	U	43	0	36	20	0
6	V	86	0	76	24	0
6	W	43	0	35	14	0
6	X	86	0	75	27	0
7	C	11	0	0	3	0
7	D	4	0	0	0	0
7	E	4	0	0	1	0
7	F	15	0	0	2	0
7	I	18	0	0	0	0
7	J	6	0	0	1	0
7	K	3	0	0	0	0
7	L	10	0	0	2	0
7	M	12	0	0	3	0
7	N	7	0	0	2	0
7	O	2	0	0	0	0
7	P	15	0	0	3	0
7	S	1	0	0	0	0
7	T	8	0	0	1	0
7	W	17	0	0	2	0
7	X	6	0	0	0	0
All	All	31131	0	30222	1118	2

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 18.

The worst 5 of 1118 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)
2:V:82:CYS:SG	6:V:184:CYC:HAC2	1.21	1.75
2:J:153:CYS:SG	6:J:255:CYC:HBC3	1.22	1.73
2:R:153:CYS:SG	6:R:255:CYC:HBC3	1.15	1.71
2:N:82:CYS:SG	6:N:184:CYC:HAC2	1.30	1.68
2:P:82:CYS:SG	6:P:184:CYC:HAC2	1.17	1.68

All (2) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:L:125:SER:OG	2:R:62:GLU:OE1[2_657]	1.92	0.28
2:N:114:ARG:NH1	2:T:15:ARG:NH2[2_547]	2.04	0.16

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	160/162 (99%)	144 (90%)	15 (9%)	1 (1%)	22	53
1	E	160/162 (99%)	150 (94%)	9 (6%)	1 (1%)	22	53
1	G	160/162 (99%)	152 (95%)	7 (4%)	1 (1%)	22	53
1	I	160/162 (99%)	150 (94%)	9 (6%)	1 (1%)	22	53
1	K	160/162 (99%)	149 (93%)	9 (6%)	2 (1%)	10	36
1	M	160/162 (99%)	150 (94%)	8 (5%)	2 (1%)	10	36
1	O	160/162 (99%)	151 (94%)	8 (5%)	1 (1%)	22	53
1	Q	160/162 (99%)	146 (91%)	13 (8%)	1 (1%)	22	53
1	S	160/162 (99%)	150 (94%)	8 (5%)	2 (1%)	10	36
1	U	160/162 (99%)	150 (94%)	9 (6%)	1 (1%)	22	53
1	W	160/162 (99%)	150 (94%)	9 (6%)	1 (1%)	22	53
2	B	170/172 (99%)	160 (94%)	10 (6%)	0	100	100
2	F	170/172 (99%)	162 (95%)	7 (4%)	1 (1%)	22	53
2	J	170/172 (99%)	162 (95%)	8 (5%)	0	100	100
2	L	170/172 (99%)	157 (92%)	13 (8%)	0	100	100
2	N	170/172 (99%)	160 (94%)	9 (5%)	1 (1%)	22	53
2	P	170/172 (99%)	161 (95%)	9 (5%)	0	100	100
2	R	170/172 (99%)	159 (94%)	10 (6%)	1 (1%)	22	53

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	T	170/172 (99%)	159 (94%)	11 (6%)	0	100	100
2	V	170/172 (99%)	159 (94%)	10 (6%)	1 (1%)	22	53
2	X	170/172 (99%)	159 (94%)	11 (6%)	0	100	100
3	C	160/162 (99%)	150 (94%)	8 (5%)	2 (1%)	10	36
4	D	170/172 (99%)	160 (94%)	9 (5%)	1 (1%)	22	53
5	H	170/172 (99%)	164 (96%)	6 (4%)	0	100	100
All	All	3960/4008 (99%)	3714 (94%)	225 (6%)	21 (0%)	25	58

5 of 21 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	2	LYS
3	C	2	LYS
1	G	2	LYS
1	M	2	LYS
1	O	2	LYS

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	119/120 (99%)	101 (85%)	18 (15%)	2	10
1	E	119/120 (99%)	102 (86%)	17 (14%)	2	11
1	G	119/120 (99%)	101 (85%)	18 (15%)	2	10
1	I	119/120 (99%)	103 (87%)	16 (13%)	3	13
1	K	119/120 (99%)	104 (87%)	15 (13%)	3	15
1	M	119/120 (99%)	104 (87%)	15 (13%)	3	15
1	O	119/120 (99%)	102 (86%)	17 (14%)	2	11
1	Q	119/120 (99%)	104 (87%)	15 (13%)	3	15
1	S	119/120 (99%)	103 (87%)	16 (13%)	3	13
1	U	119/120 (99%)	103 (87%)	16 (13%)	3	13

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	W	119/120 (99%)	104 (87%)	15 (13%)	3	15
2	B	124/124 (100%)	111 (90%)	13 (10%)	5	22
2	F	124/124 (100%)	115 (93%)	9 (7%)	11	37
2	J	124/124 (100%)	111 (90%)	13 (10%)	5	22
2	L	124/124 (100%)	113 (91%)	11 (9%)	8	29
2	N	124/124 (100%)	113 (91%)	11 (9%)	8	29
2	P	124/124 (100%)	114 (92%)	10 (8%)	9	33
2	R	124/124 (100%)	113 (91%)	11 (9%)	8	29
2	T	124/124 (100%)	113 (91%)	11 (9%)	8	29
2	V	124/124 (100%)	113 (91%)	11 (9%)	8	29
2	X	124/124 (100%)	114 (92%)	10 (8%)	9	33
3	C	121/122 (99%)	105 (87%)	16 (13%)	3	14
4	D	130/130 (100%)	115 (88%)	15 (12%)	4	19
5	H	124/124 (100%)	113 (91%)	11 (9%)	8	29
All	All	2924/2936 (100%)	2594 (89%)	330 (11%)	4	20

5 of 330 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	Q	32	ARG
1	U	83	LYS
1	Q	154	LEU
1	S	83	LYS
2	V	43	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 62 such sidechains are listed below:

Mol	Chain	Res	Type
1	M	42	ASN
1	W	42	ASN
2	P	42	ASN
2	V	47	ASN
2	X	42	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

36 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
6	CYC	J	184	2	42,46,46	3.24	15 (35%)	50,67,67	4.21	34 (68%)
6	CYC	V	184	-	42,46,46	3.26	14 (33%)	50,67,67	3.29	27 (54%)
6	CYC	H	184	5	42,46,46	3.11	18 (42%)	50,67,67	4.28	30 (60%)
6	CYC	H	255	-	42,46,46	3.24	14 (33%)	50,67,67	3.53	24 (48%)
6	CYC	W	184	1	42,46,46	3.09	14 (33%)	50,67,67	4.38	29 (58%)
6	CYC	G	184	1	42,46,46	3.12	14 (33%)	50,67,67	4.35	32 (64%)
6	CYC	O	184	1	42,46,46	3.13	13 (30%)	50,67,67	4.07	26 (52%)
6	CYC	X	255	-	42,46,46	2.86	12 (28%)	50,67,67	3.95	29 (58%)
6	CYC	S	184	1	42,46,46	3.45	14 (33%)	50,67,67	3.41	25 (50%)
6	CYC	N	184	2	42,46,46	2.91	13 (30%)	50,67,67	3.84	33 (66%)
6	CYC	M	184	1	42,46,46	2.96	15 (35%)	50,67,67	3.91	27 (54%)
6	CYC	N	255	-	42,46,46	3.41	12 (28%)	50,67,67	3.31	25 (50%)
6	CYC	L	255	-	42,46,46	3.36	14 (33%)	50,67,67	4.06	25 (50%)
6	CYC	J	255	2	42,46,46	3.20	14 (33%)	50,67,67	4.46	33 (66%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
6	CYC	R	184	2	42,46,46	3.30	17 (40%)	50,67,67	3.98	26 (52%)
6	CYC	R	255	2	42,46,46	2.88	13 (30%)	50,67,67	4.47	26 (52%)
6	CYC	V	255	-	42,46,46	3.40	11 (26%)	50,67,67	3.69	20 (40%)
6	CYC	B	184	2	42,46,46	3.07	16 (38%)	50,67,67	3.70	25 (50%)
6	CYC	I	184	1	42,46,46	2.65	16 (38%)	50,67,67	3.96	31 (62%)
6	CYC	B	255	-	42,46,46	3.62	15 (35%)	50,67,67	4.09	27 (54%)
6	CYC	C	184	3	42,46,46	3.07	13 (30%)	50,67,67	3.38	25 (50%)
6	CYC	K	184	1	42,46,46	3.08	17 (40%)	50,67,67	4.22	29 (58%)
6	CYC	D	184	4	42,46,46	3.24	13 (30%)	50,67,67	4.12	25 (50%)
6	CYC	D	255	-	42,46,46	3.23	11 (26%)	50,67,67	3.94	25 (50%)
6	CYC	U	184	1	42,46,46	3.13	16 (38%)	50,67,67	4.02	24 (48%)
6	CYC	E	184	1	42,46,46	2.97	13 (30%)	50,67,67	4.02	28 (56%)
6	CYC	L	184	2	42,46,46	3.16	13 (30%)	50,67,67	3.67	25 (50%)
6	CYC	Q	184	-	42,46,46	3.12	10 (23%)	50,67,67	3.12	23 (46%)
6	CYC	F	184	2	42,46,46	3.45	13 (30%)	50,67,67	3.65	25 (50%)
6	CYC	T	184	2	42,46,46	3.09	15 (35%)	50,67,67	4.09	30 (60%)
6	CYC	T	255	-	42,46,46	3.24	15 (35%)	50,67,67	3.85	25 (50%)
6	CYC	X	184	2	42,46,46	2.97	15 (35%)	50,67,67	4.14	26 (52%)
6	CYC	A	184	1	42,46,46	2.94	15 (35%)	50,67,67	3.79	29 (58%)
6	CYC	F	255	-	42,46,46	2.86	13 (30%)	50,67,67	4.23	25 (50%)
6	CYC	P	184	2	42,46,46	3.30	11 (26%)	50,67,67	3.79	28 (56%)
6	CYC	P	255	-	42,46,46	3.06	13 (30%)	50,67,67	4.68	30 (60%)

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
6	CYC	J	184	2	-	10/25/74/74	0/4/4/4
6	CYC	V	184	-	-	11/25/74/74	0/4/4/4
6	CYC	H	184	5	-	9/25/74/74	0/4/4/4
6	CYC	H	255	-	-	8/25/74/74	0/4/4/4
6	CYC	W	184	1	-	16/25/74/74	0/4/4/4
6	CYC	G	184	1	-	12/25/74/74	0/4/4/4
6	CYC	O	184	1	-	14/25/74/74	0/4/4/4

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	CYC	X	255	-	-	8/25/74/74	0/4/4/4
6	CYC	S	184	1	-	14/25/74/74	0/4/4/4
6	CYC	N	184	2	-	11/25/74/74	0/4/4/4
6	CYC	M	184	1	-	8/25/74/74	0/4/4/4
6	CYC	N	255	-	-	15/25/74/74	0/4/4/4
6	CYC	L	255	-	-	9/25/74/74	0/4/4/4
6	CYC	J	255	2	-	14/25/74/74	0/4/4/4
6	CYC	R	184	2	-	12/25/74/74	0/4/4/4
6	CYC	R	255	2	-	14/25/74/74	0/4/4/4
6	CYC	V	255	-	-	10/25/74/74	0/4/4/4
6	CYC	B	184	2	-	14/25/74/74	0/4/4/4
6	CYC	I	184	1	-	14/25/74/74	0/4/4/4
6	CYC	B	255	-	-	11/25/74/74	0/4/4/4
6	CYC	C	184	3	-	14/25/74/74	0/4/4/4
6	CYC	K	184	1	-	13/25/74/74	0/4/4/4
6	CYC	D	184	4	-	15/25/74/74	0/4/4/4
6	CYC	D	255	-	-	13/25/74/74	0/4/4/4
6	CYC	U	184	1	-	14/25/74/74	0/4/4/4
6	CYC	E	184	1	-	14/25/74/74	0/4/4/4
6	CYC	L	184	2	-	11/25/74/74	0/4/4/4
6	CYC	Q	184	-	-	12/25/74/74	0/4/4/4
6	CYC	F	184	2	-	12/25/74/74	0/4/4/4
6	CYC	T	184	2	-	10/25/74/74	0/4/4/4
6	CYC	T	255	-	-	11/25/74/74	0/4/4/4
6	CYC	X	184	2	-	7/25/74/74	0/4/4/4
6	CYC	A	184	1	-	15/25/74/74	0/4/4/4
6	CYC	F	255	-	-	8/25/74/74	0/4/4/4
6	CYC	P	184	2	-	13/25/74/74	0/4/4/4
6	CYC	P	255	-	-	11/25/74/74	0/4/4/4

The worst 5 of 500 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	S	184	CYC	CHA-C1A	18.03	1.50	1.35
6	N	255	CYC	CHA-C1A	17.27	1.49	1.35
6	V	255	CYC	CHA-C1A	16.57	1.49	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	L	255	CYC	CHA-C1A	16.54	1.48	1.35
6	B	255	CYC	CHA-C1A	16.45	1.48	1.35

The worst 5 of 976 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	G	184	CYC	CAA-CBA-CGA	-17.52	75.89	113.60
6	R	255	CYC	OB-C4B-C3B	-16.03	110.65	128.04
6	F	255	CYC	C3B-C4B-NB	15.70	119.47	106.78
6	V	255	CYC	C3B-C4B-NB	15.52	119.32	106.78
6	R	255	CYC	C3B-C4B-NB	15.18	119.05	106.78

There are no chirality outliers.

5 of 427 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	184	CYC	C1A-C2A-CAA-CBA
6	A	184	CYC	C3A-C2A-CAA-CBA
6	A	184	CYC	NA-C4A-CHB-C1B
6	A	184	CYC	C3A-C4A-CHB-C1B
6	A	184	CYC	C2C-C3C-CAC-CBC

There are no ring outliers.

36 monomers are involved in 589 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	J	184	CYC	13	0
6	V	184	CYC	10	0
6	H	184	CYC	11	0
6	H	255	CYC	13	0
6	W	184	CYC	14	0
6	G	184	CYC	12	0
6	O	184	CYC	18	0
6	X	255	CYC	18	0
6	S	184	CYC	17	0
6	N	184	CYC	23	0
6	M	184	CYC	17	0
6	N	255	CYC	17	0
6	L	255	CYC	22	0
6	J	255	CYC	20	0
6	R	184	CYC	13	0

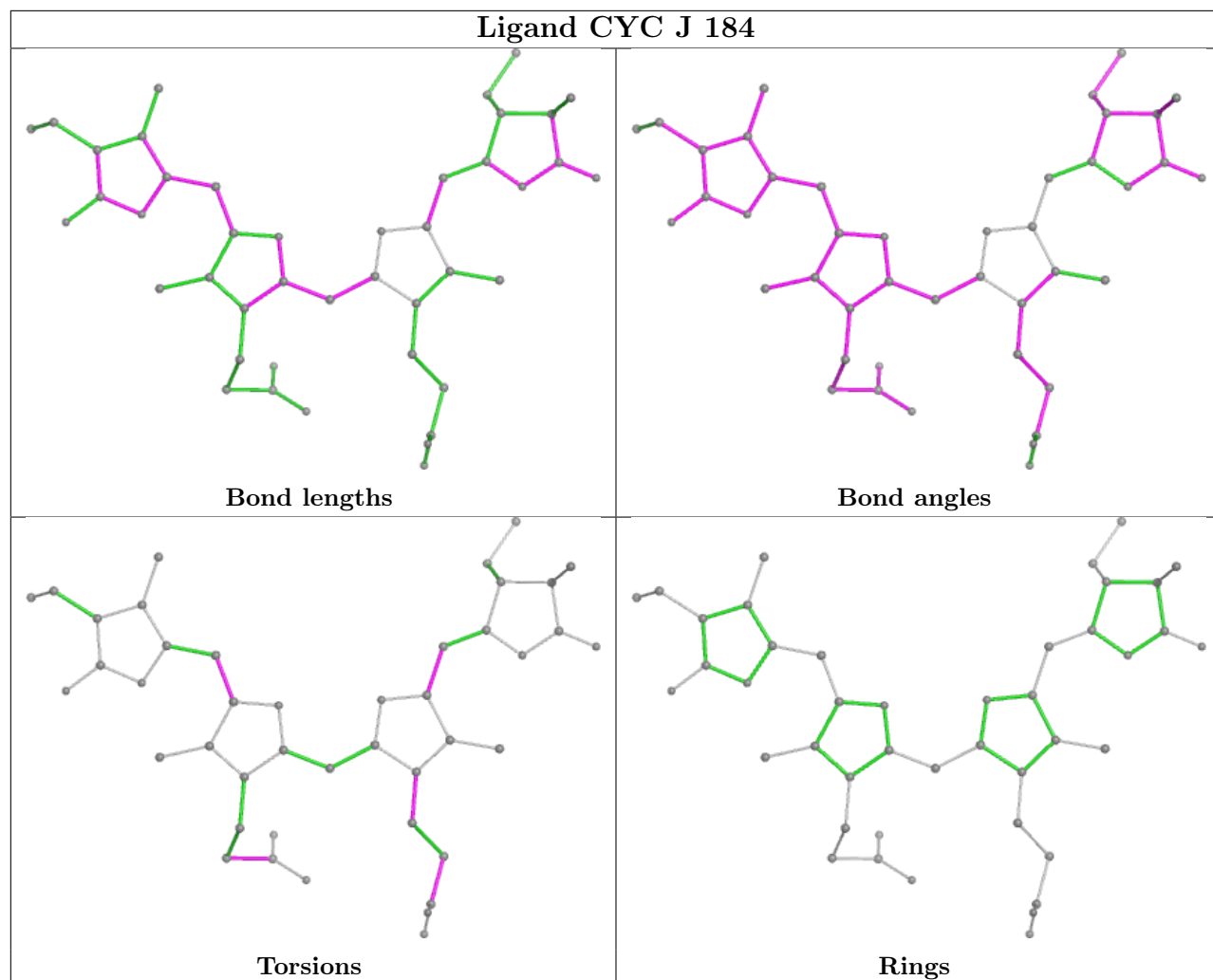
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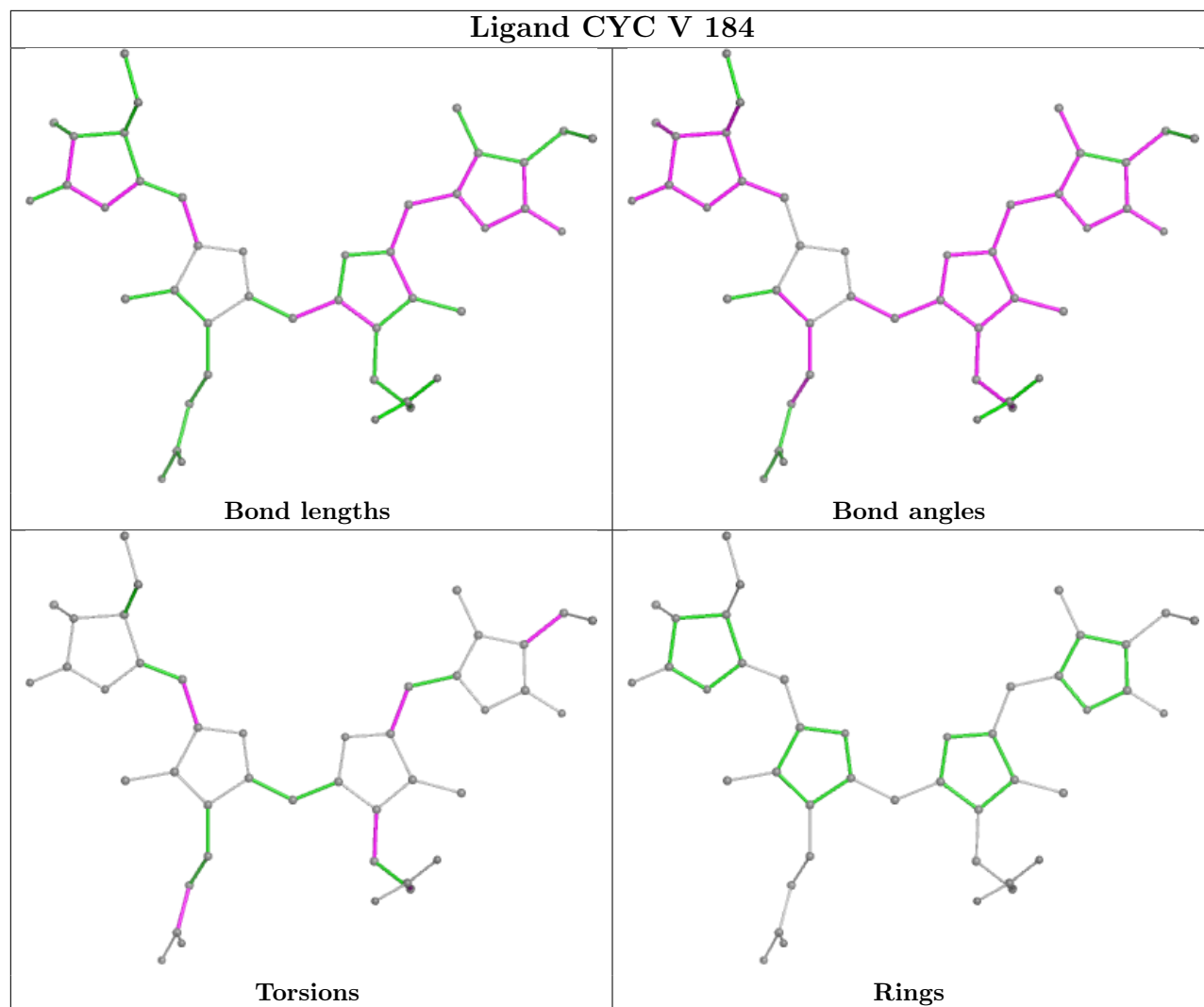
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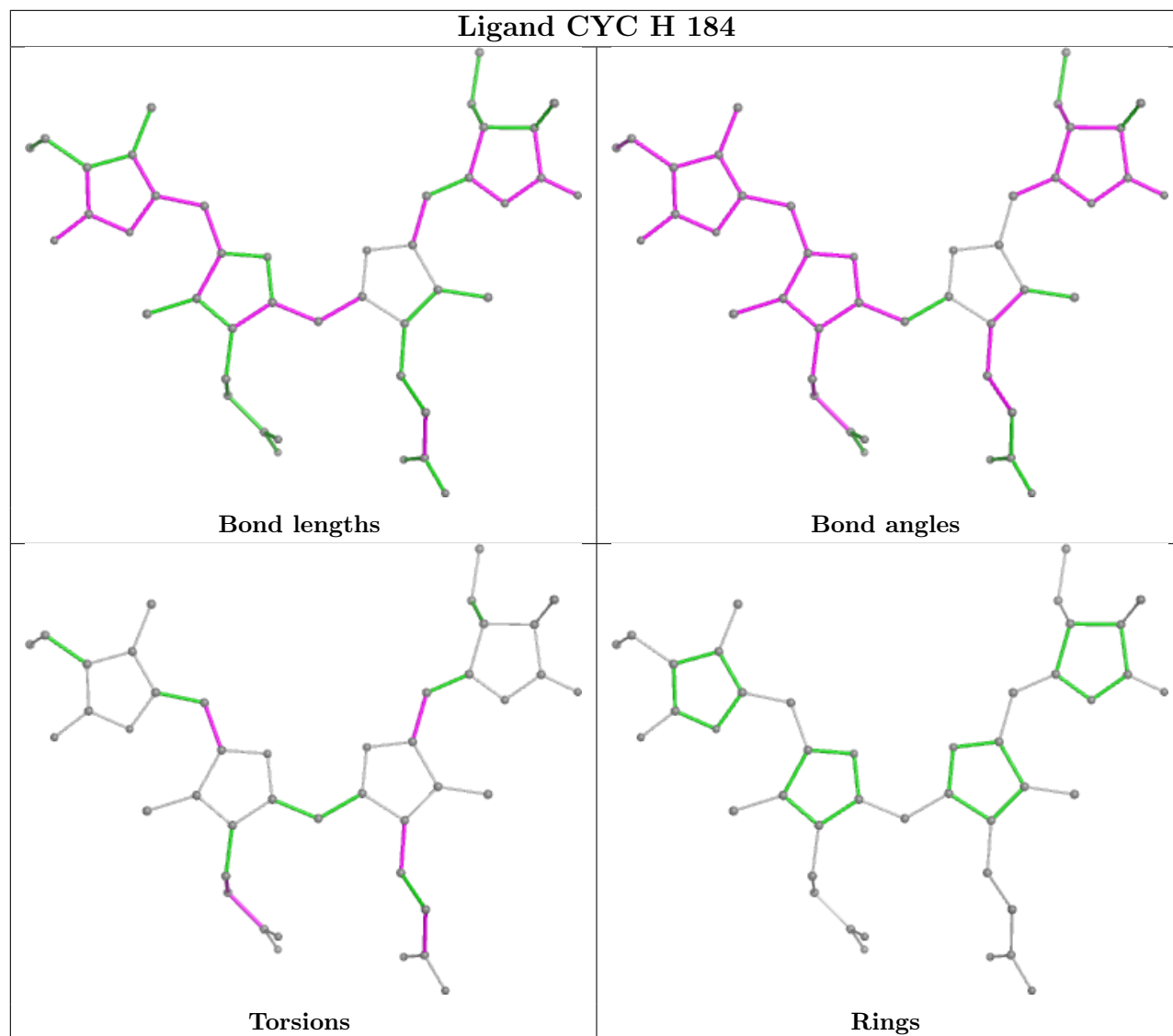
Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	R	255	CYC	14	0
6	V	255	CYC	14	0
6	B	184	CYC	16	0
6	I	184	CYC	13	0
6	B	255	CYC	16	0
6	C	184	CYC	18	0
6	K	184	CYC	15	0
6	D	184	CYC	13	0
6	D	255	CYC	20	0
6	U	184	CYC	20	0
6	E	184	CYC	19	0
6	L	184	CYC	21	0
6	Q	184	CYC	25	0
6	F	184	CYC	15	0
6	T	184	CYC	16	0
6	T	255	CYC	23	0
6	X	184	CYC	9	0
6	A	184	CYC	11	0
6	F	255	CYC	16	0
6	P	184	CYC	20	0
6	P	255	CYC	17	0

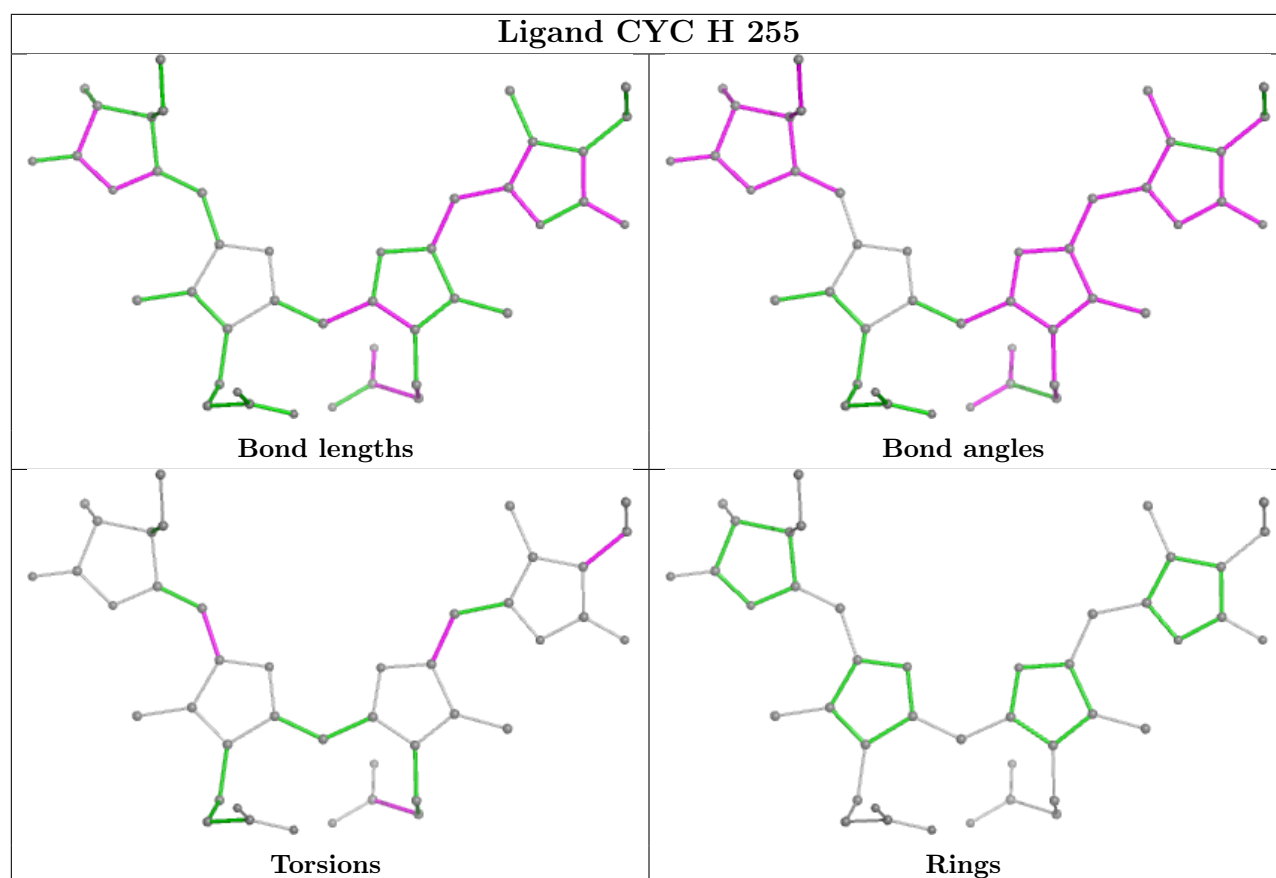
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

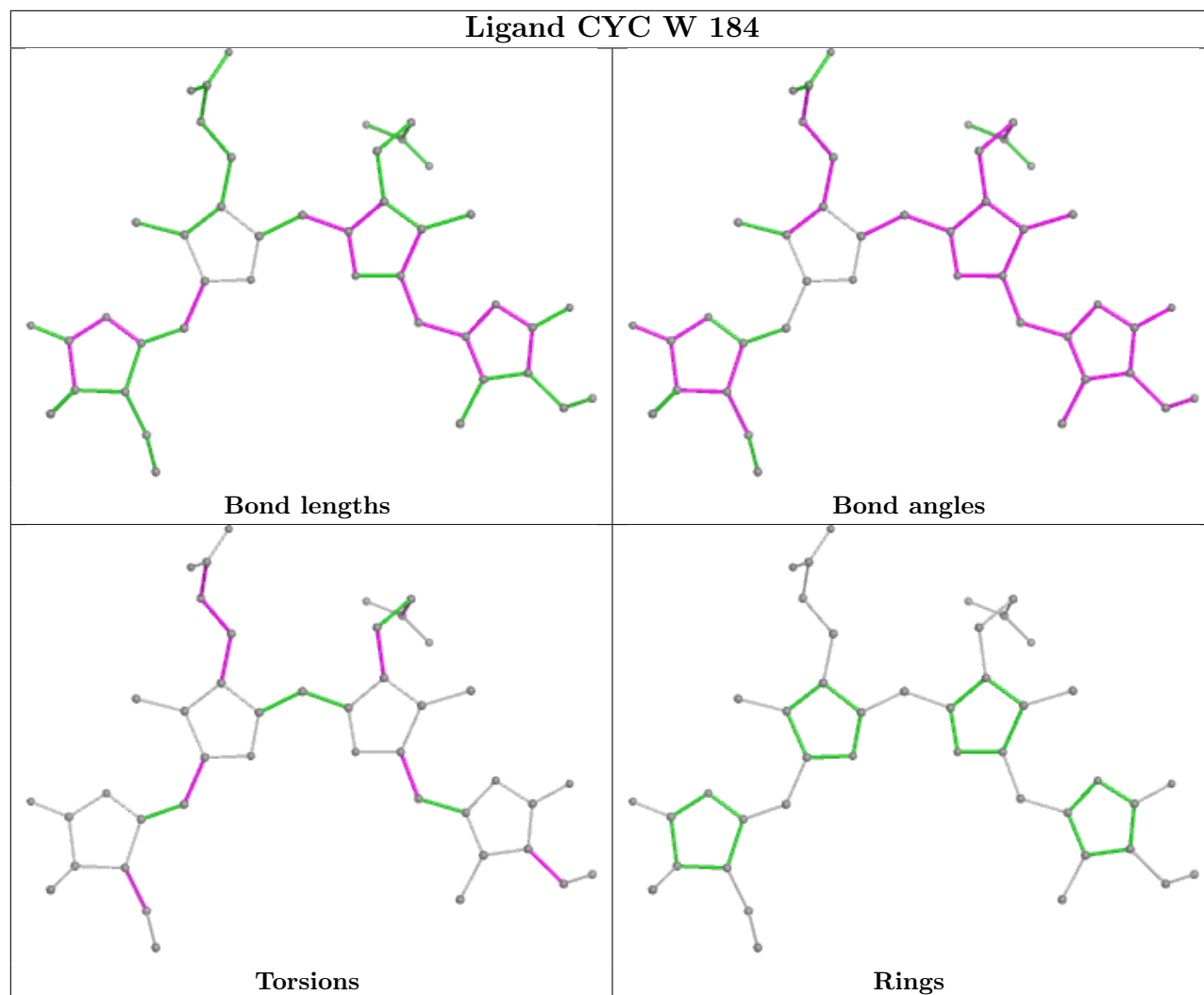
Ligand CYC J 184

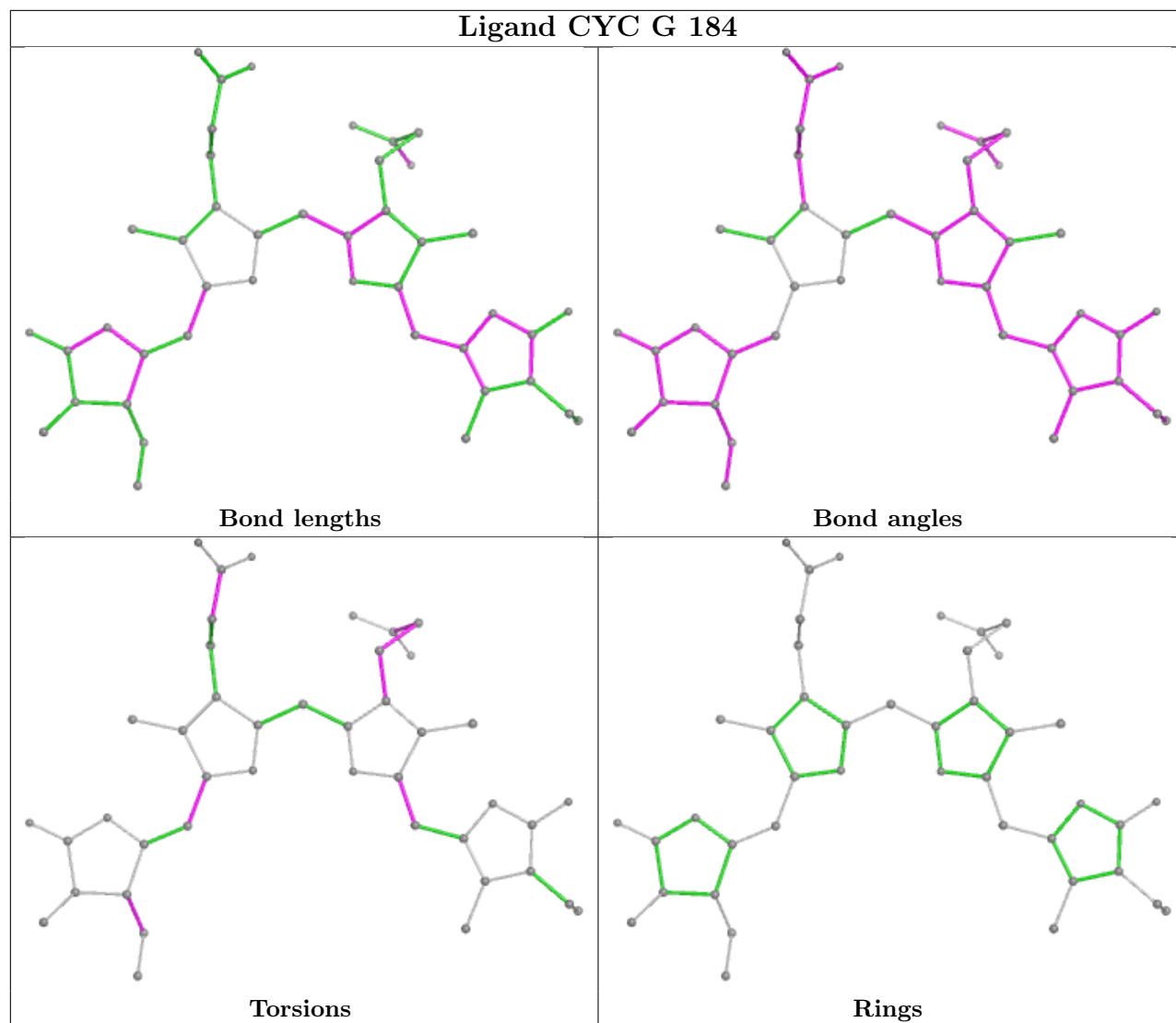


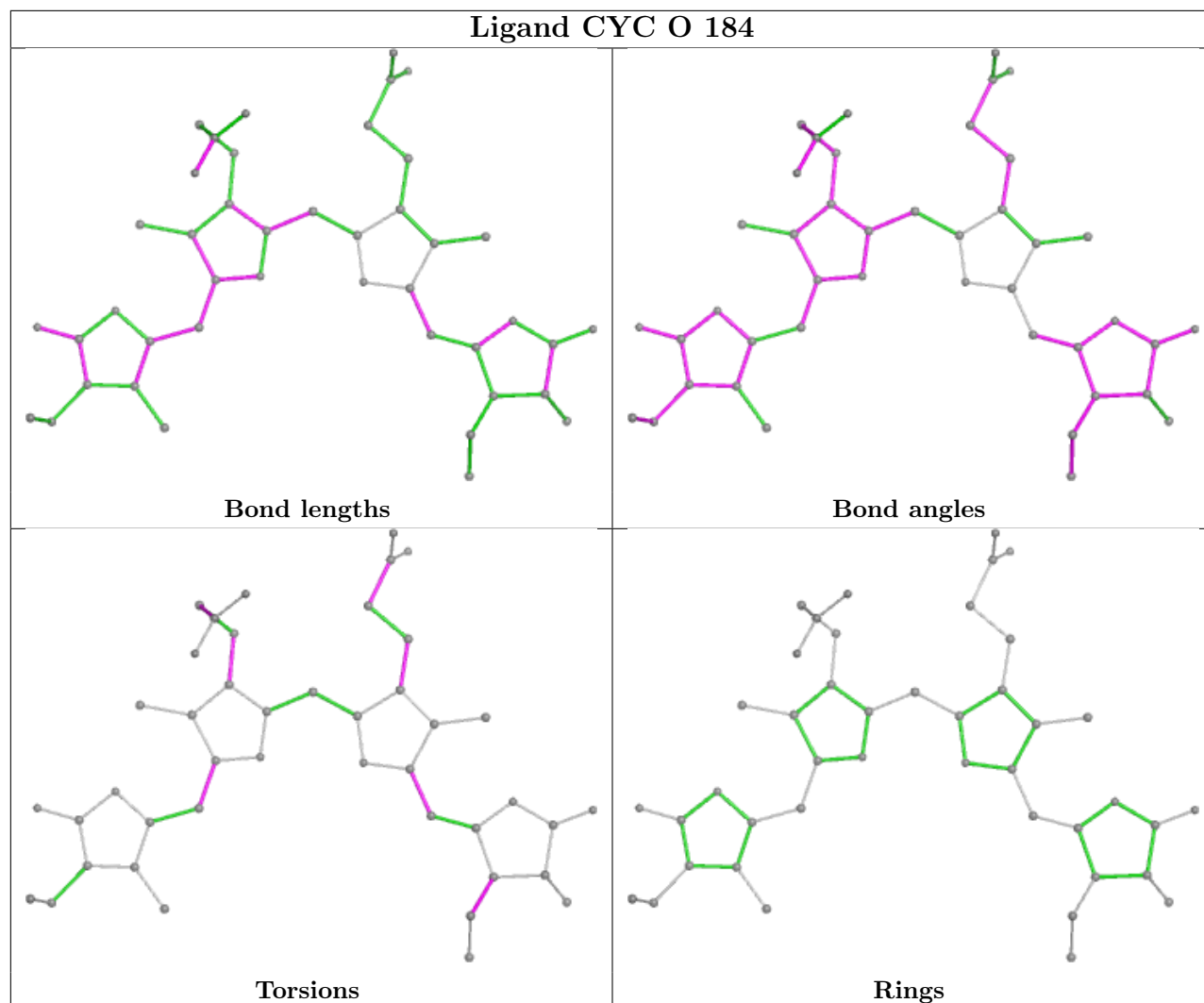


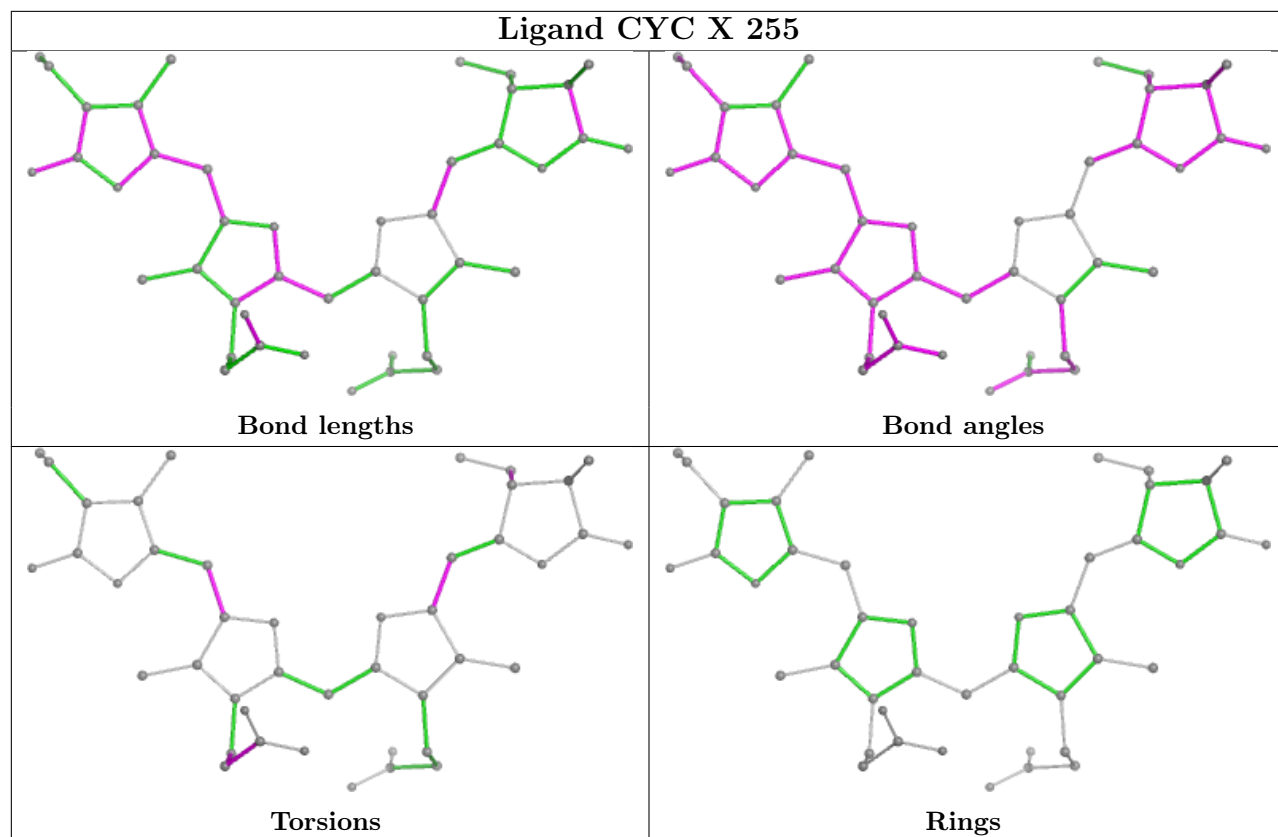




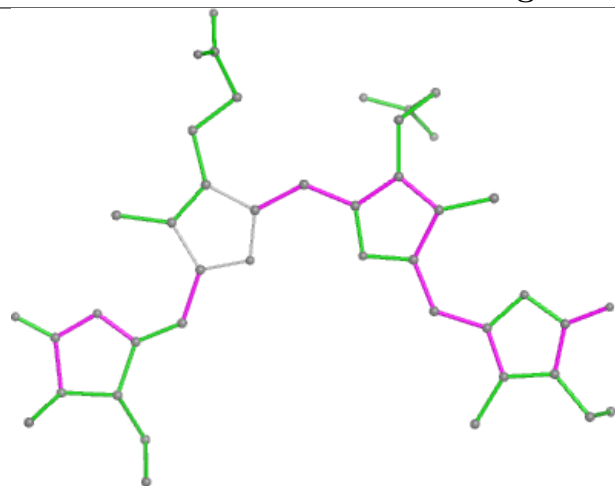




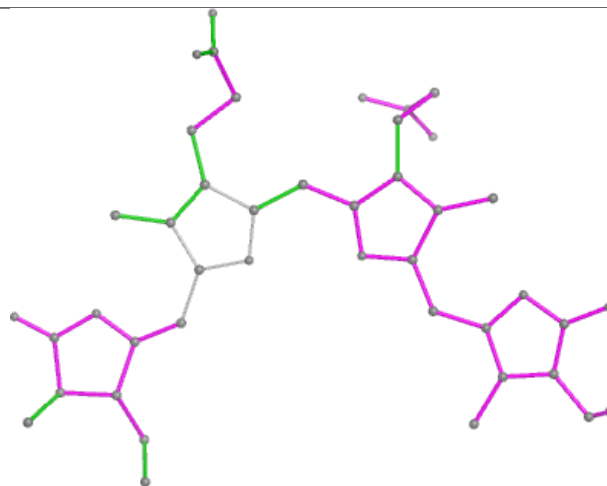




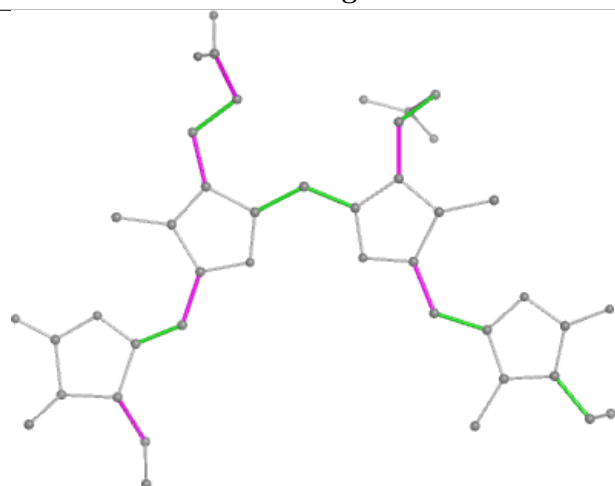
Ligand CYC S 184



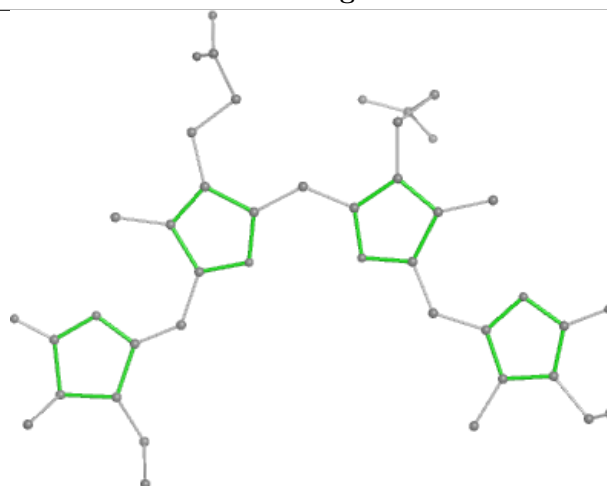
Bond lengths



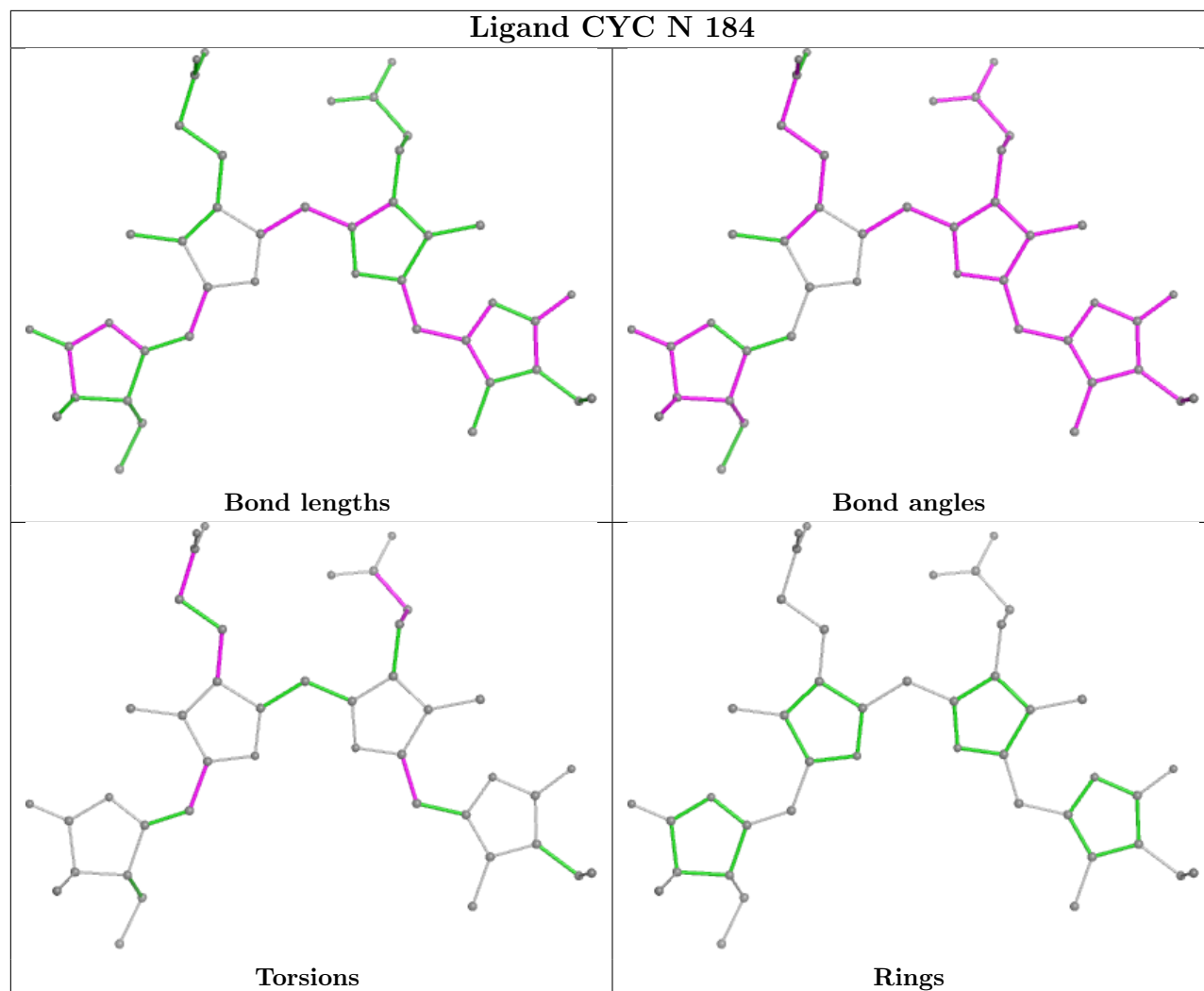
Bond angles

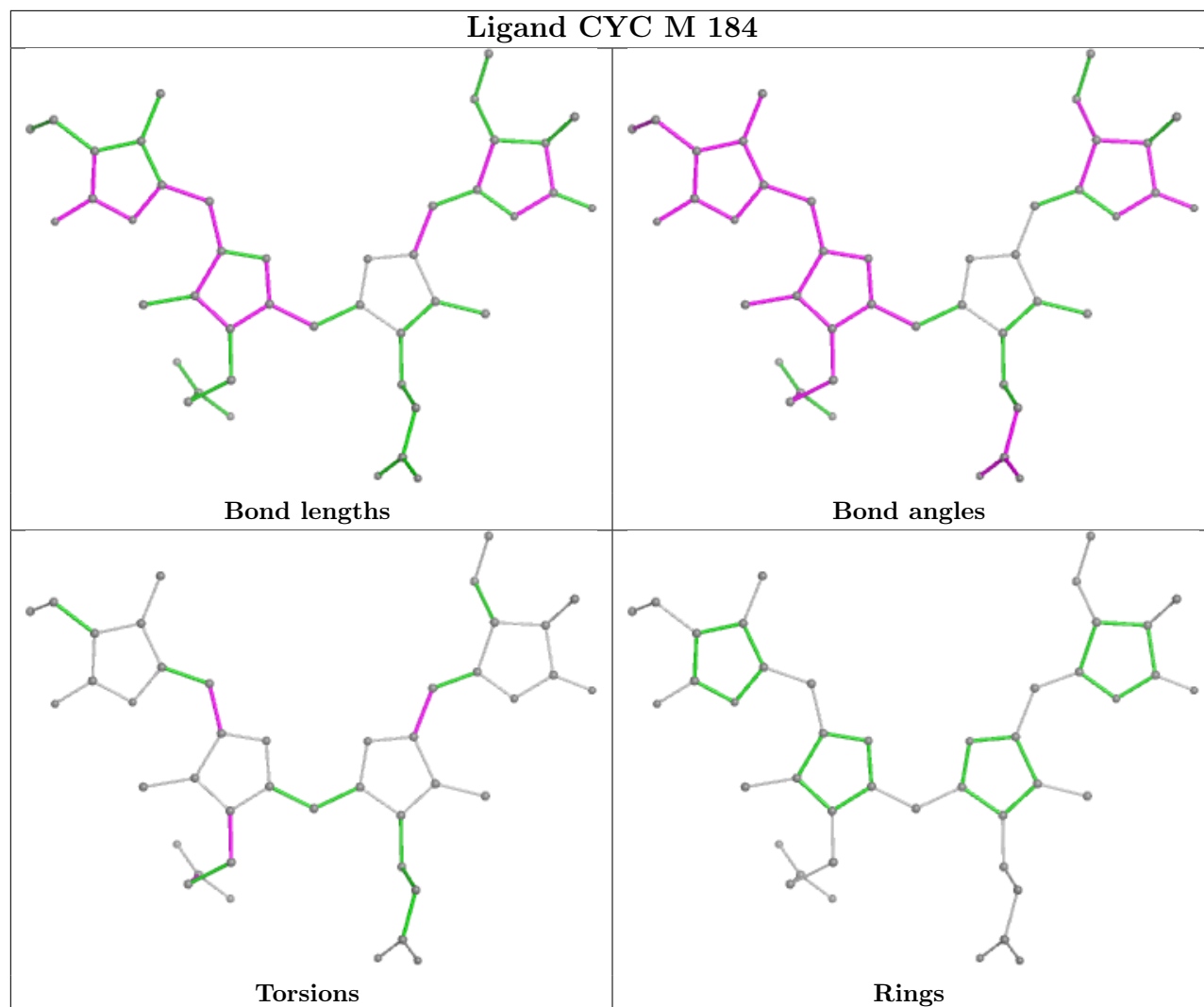


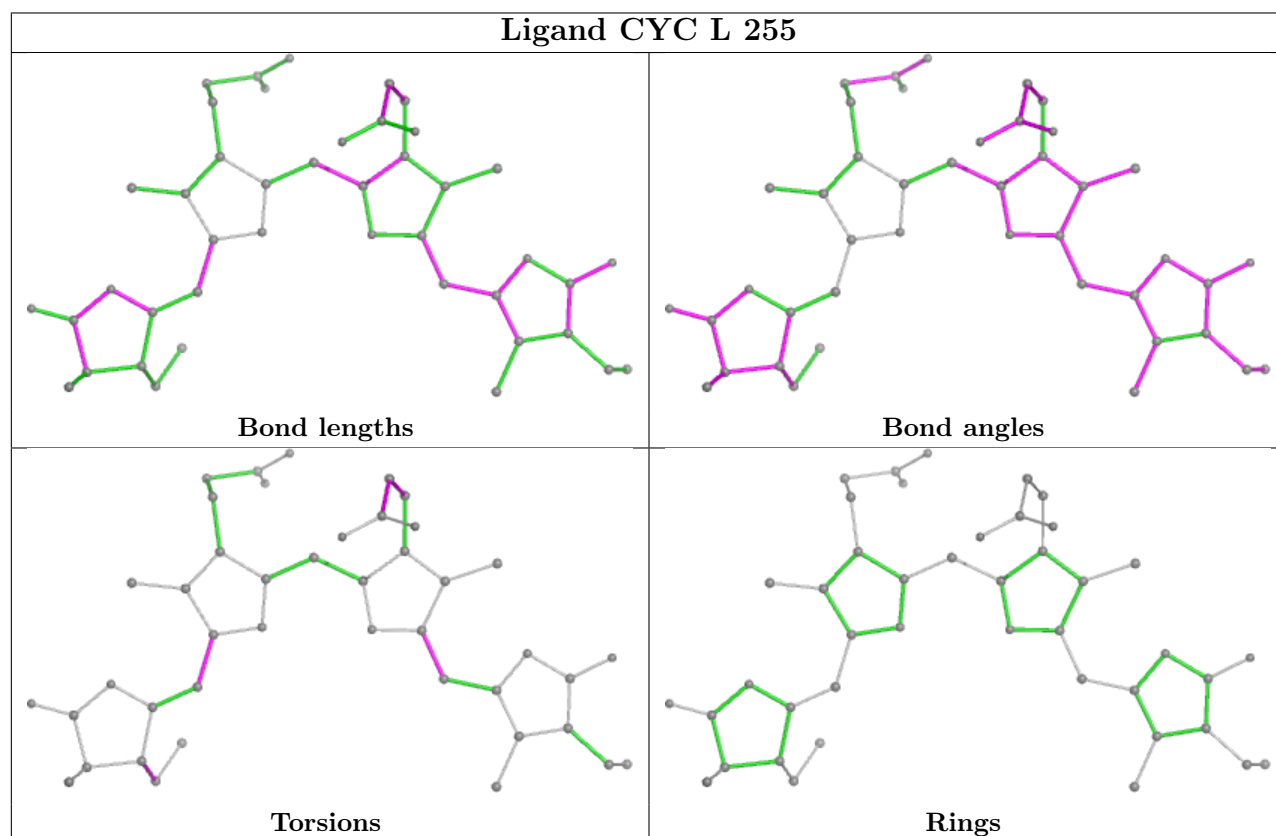
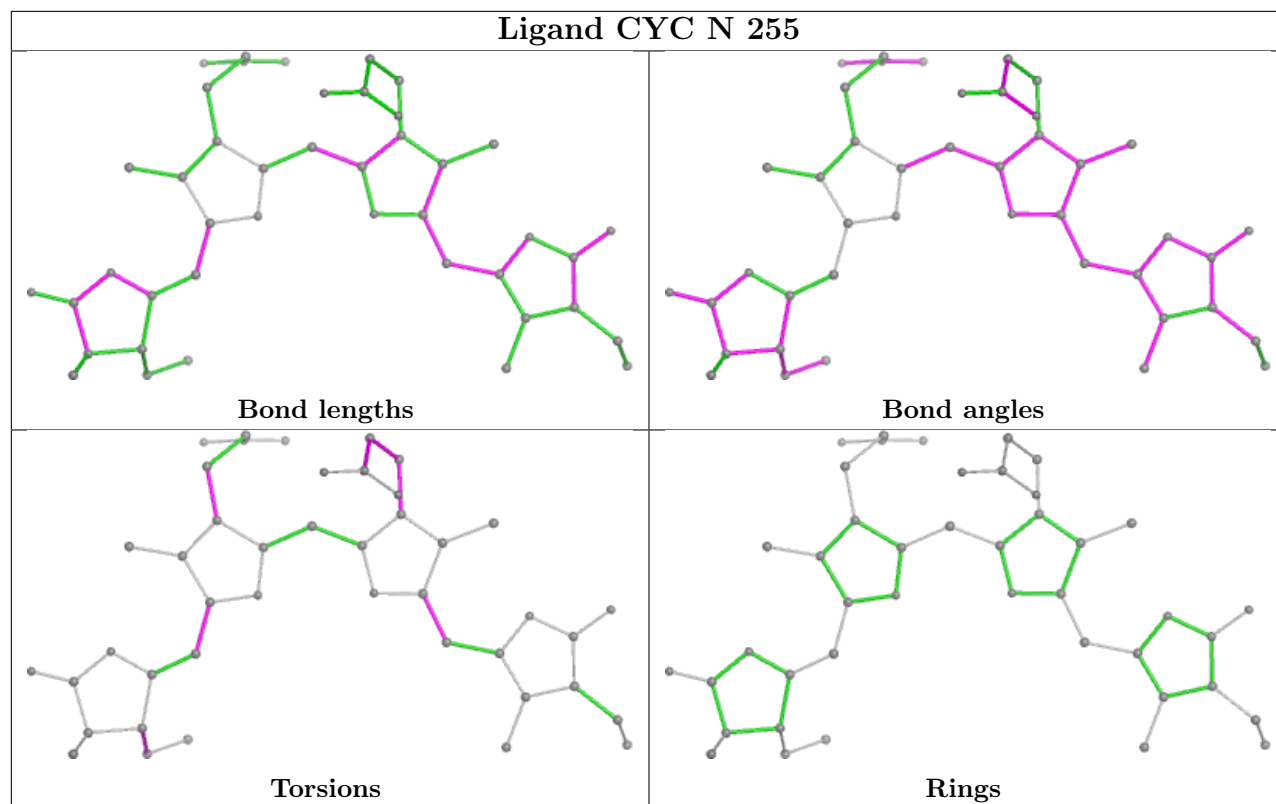
Torsions

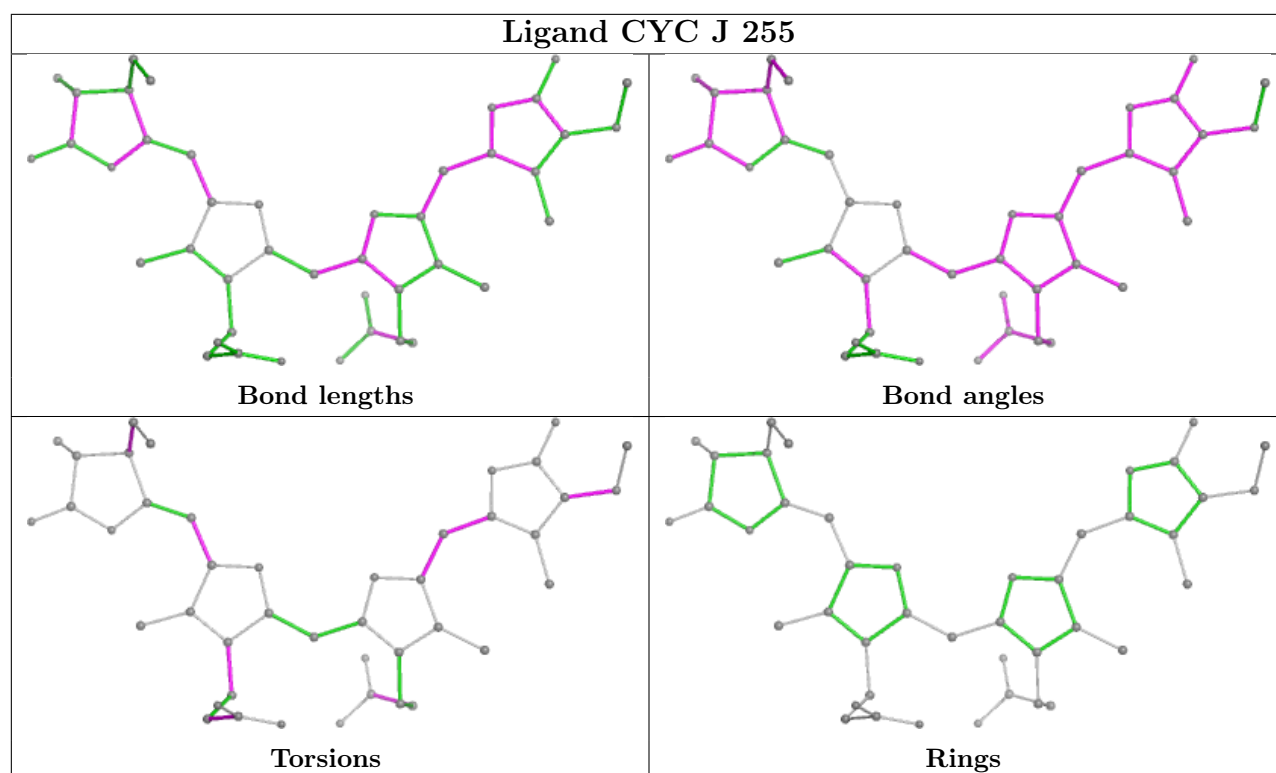


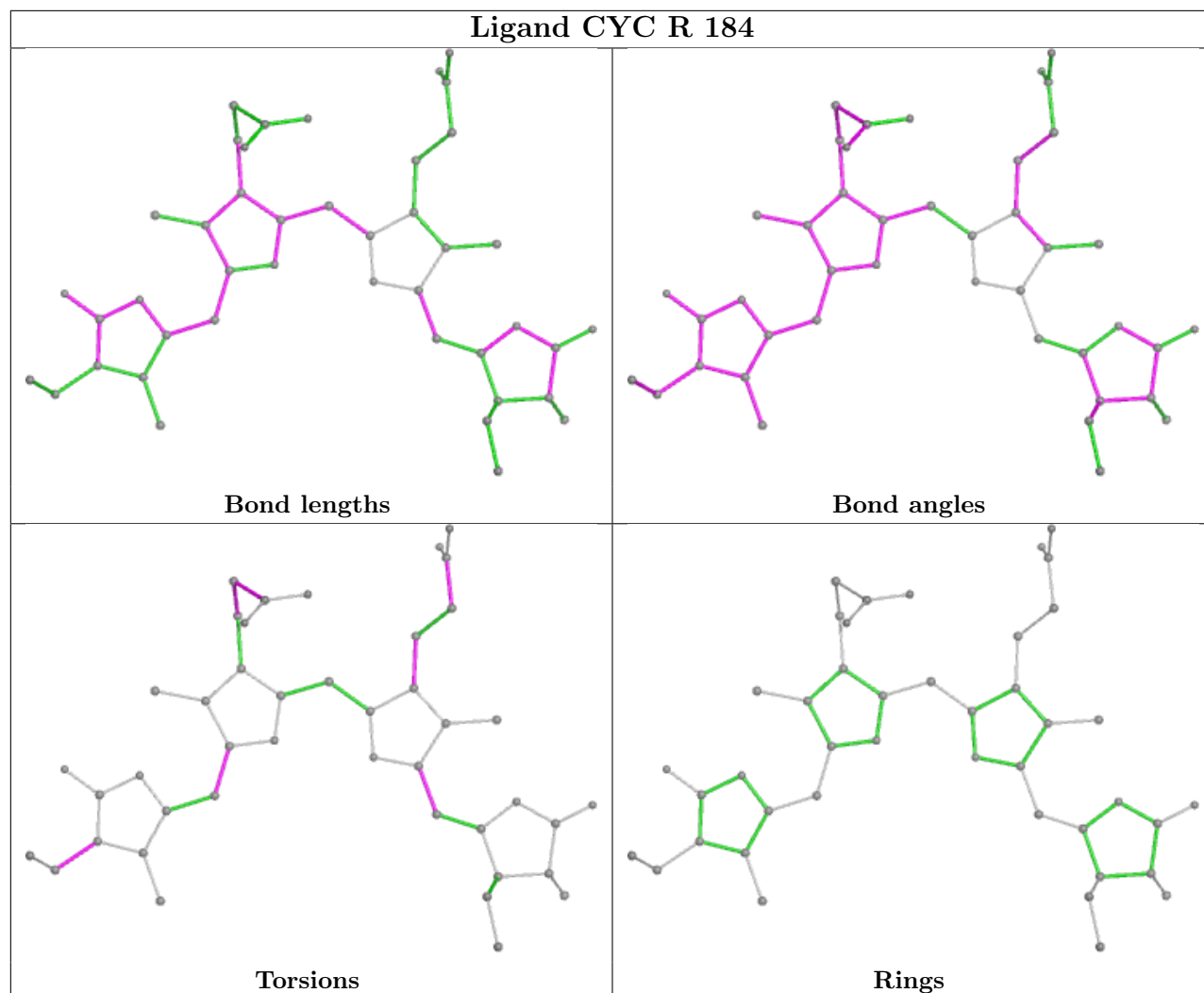
Rings

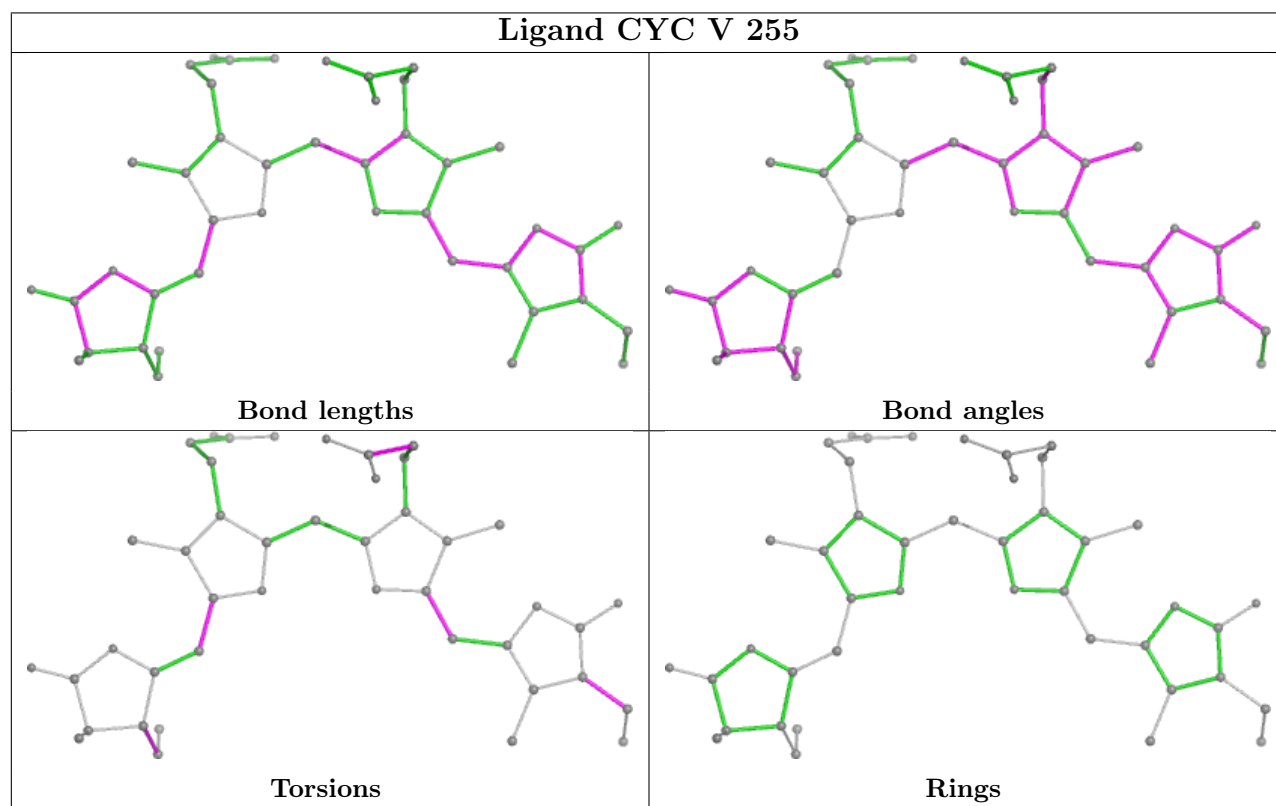
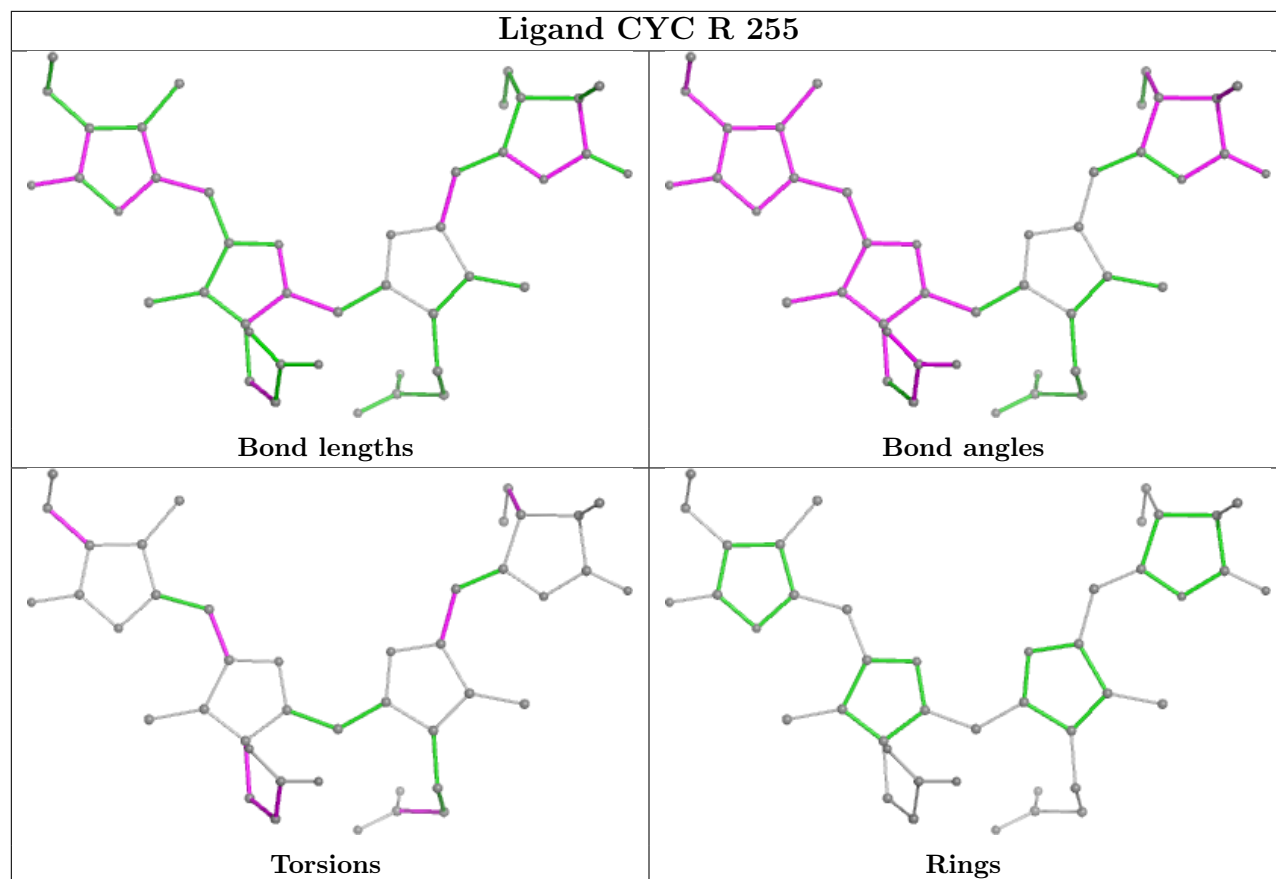


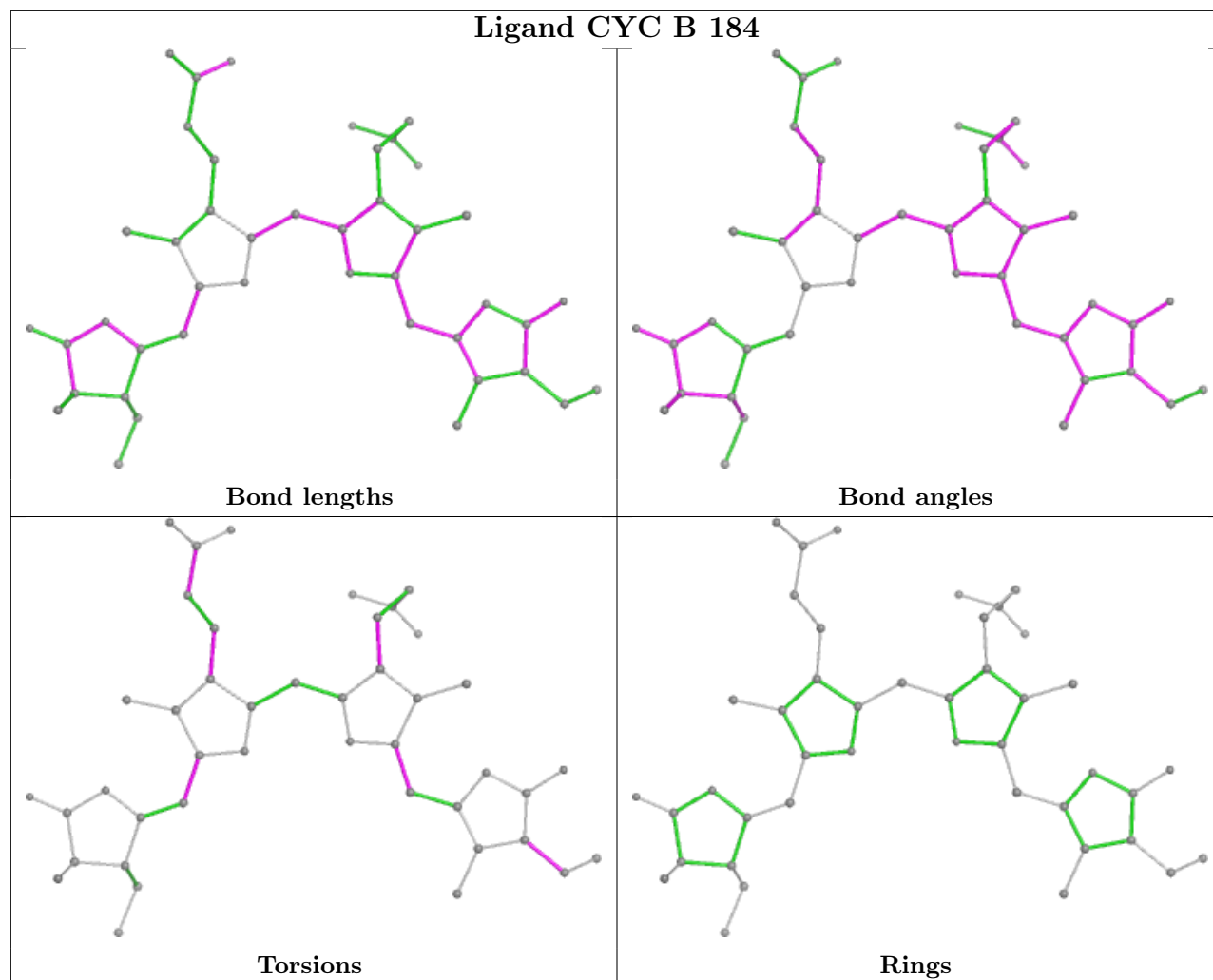




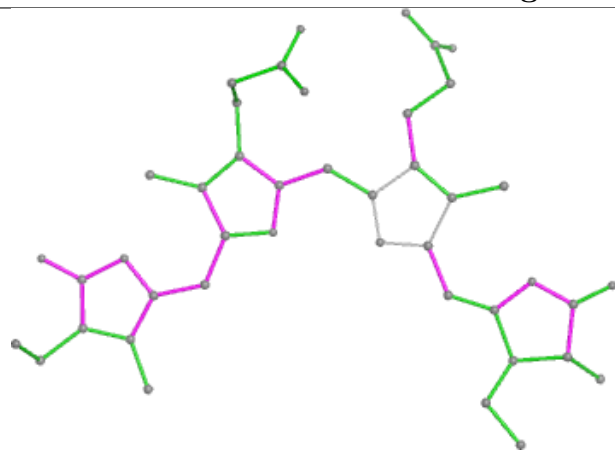




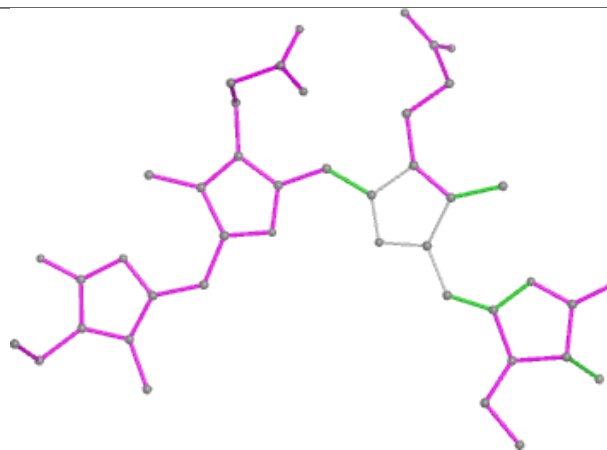




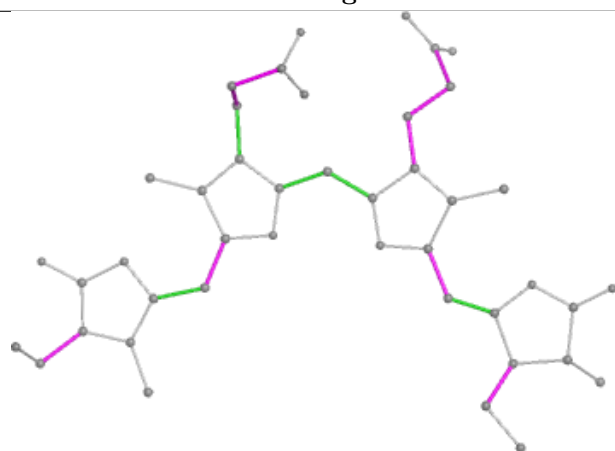
Ligand CYC I 184



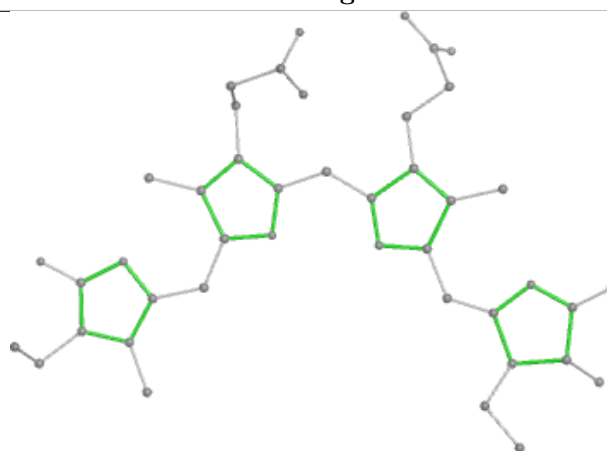
Bond lengths



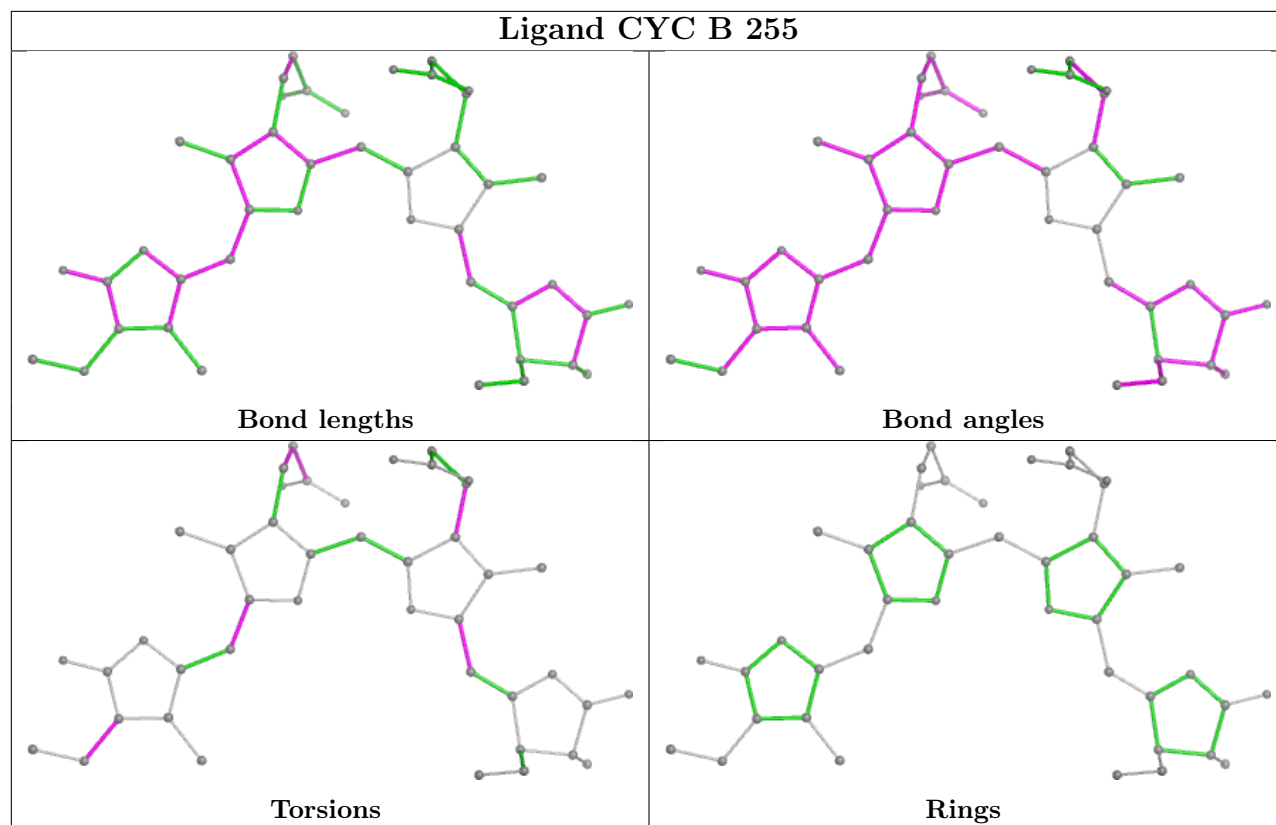
Bond angles

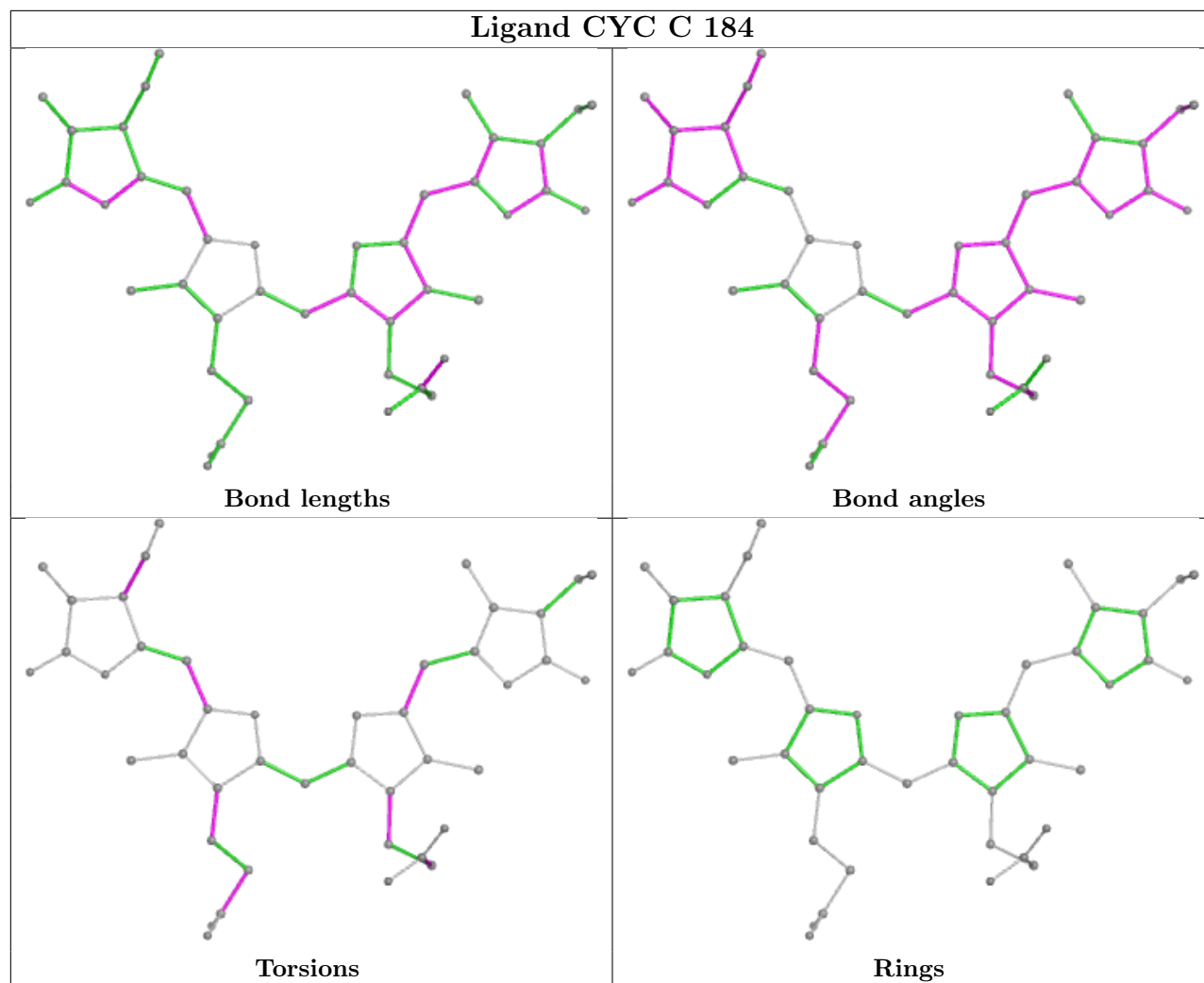


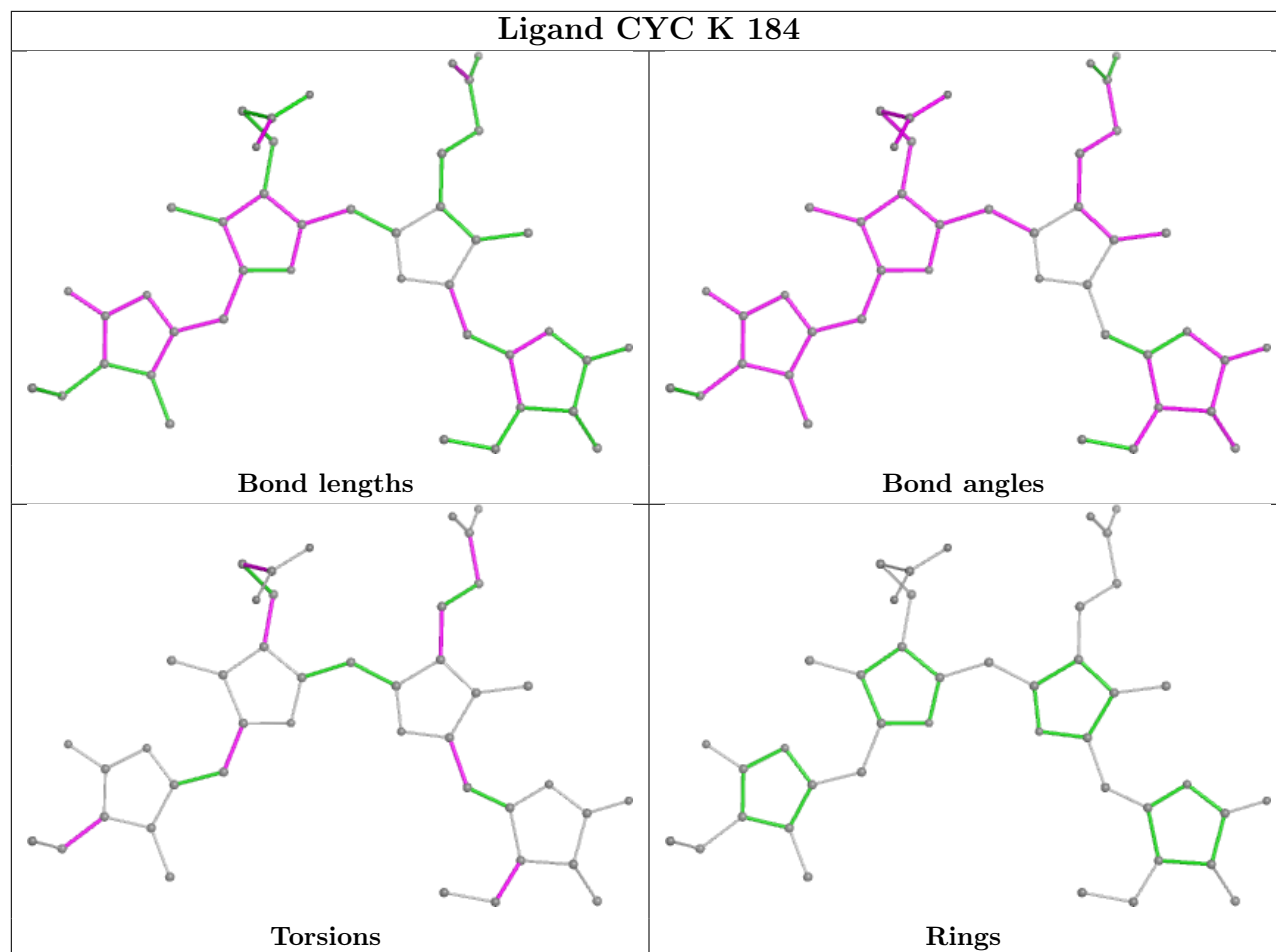
Torsions

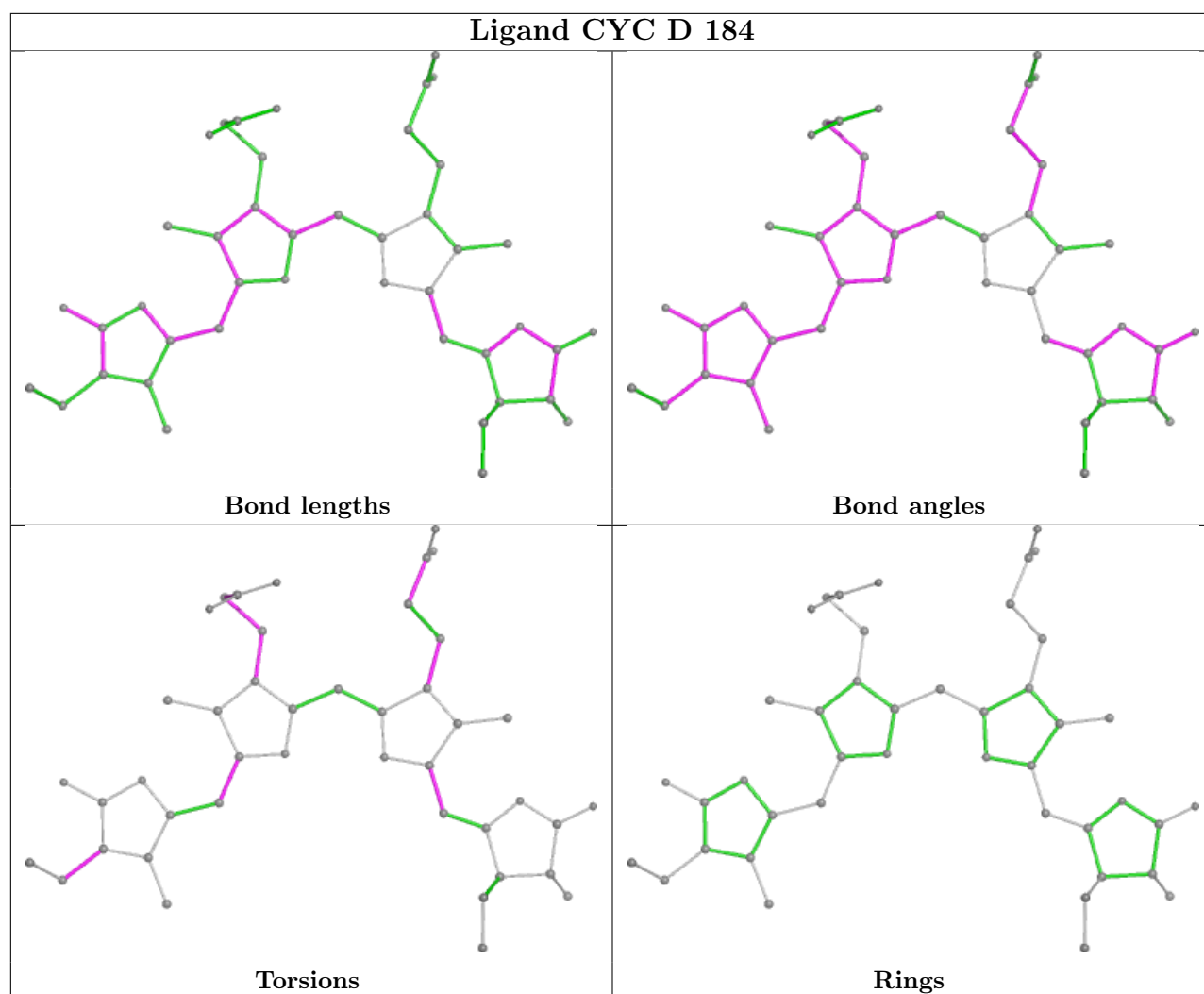


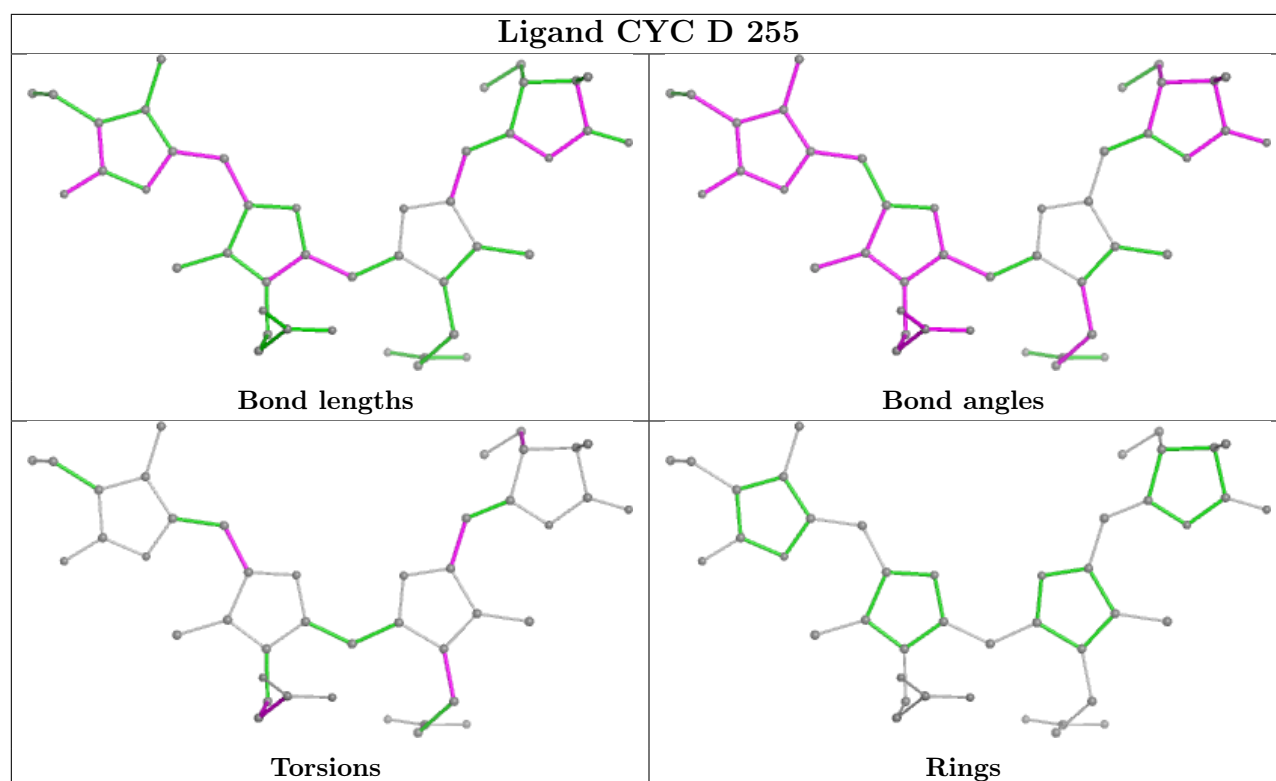
Rings

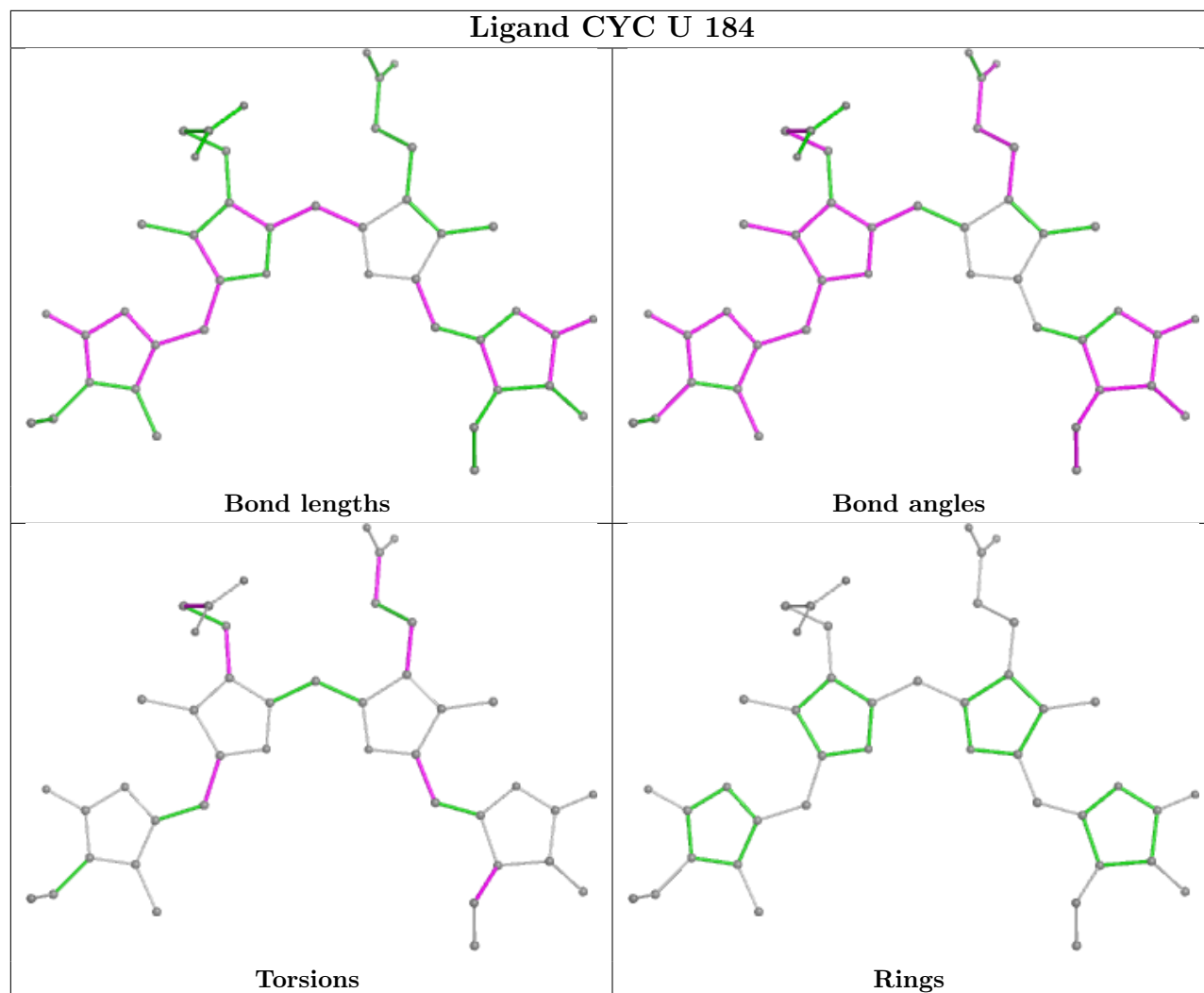


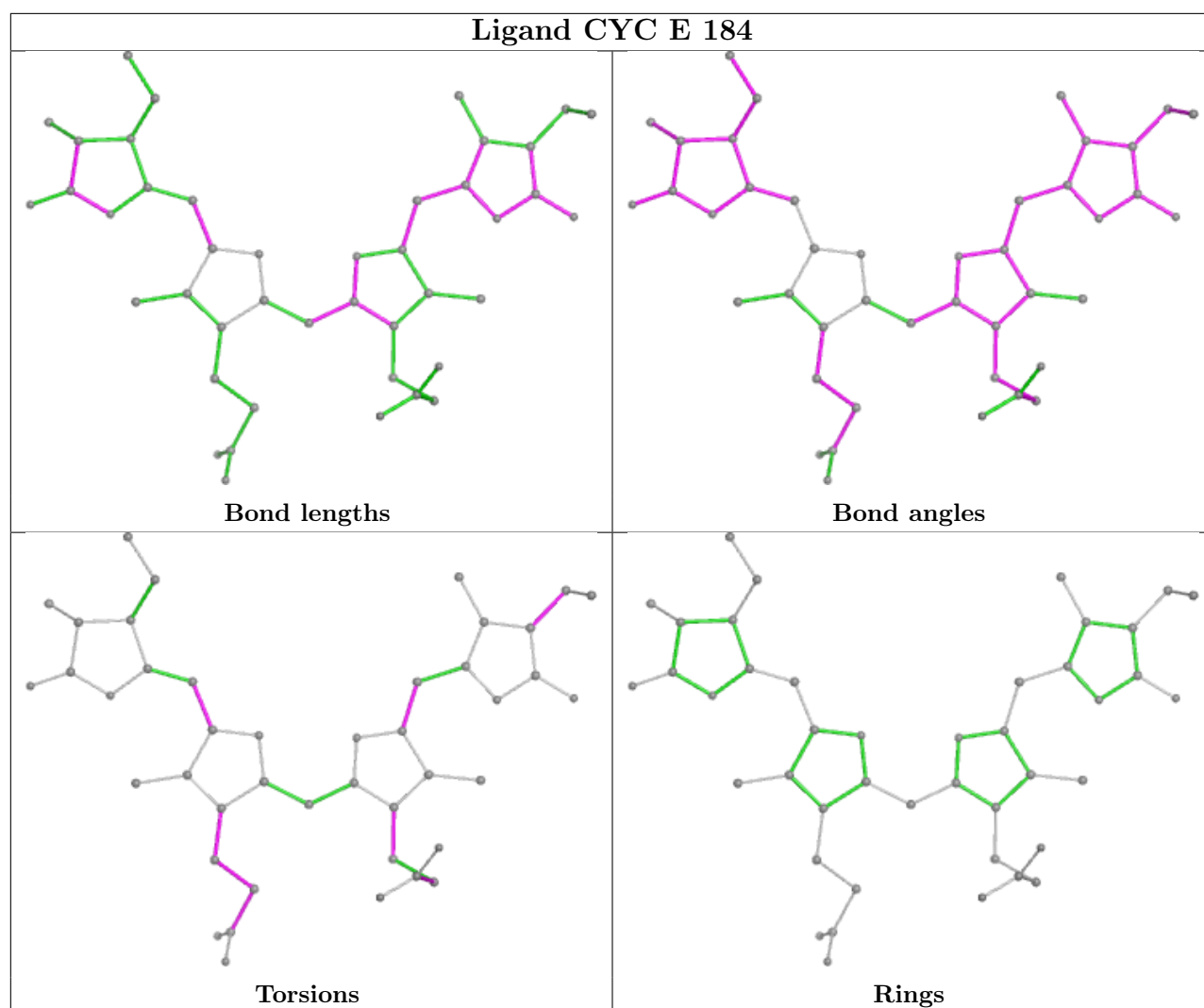




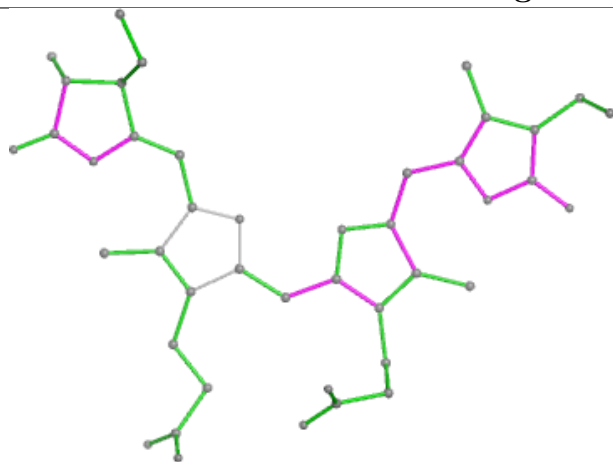




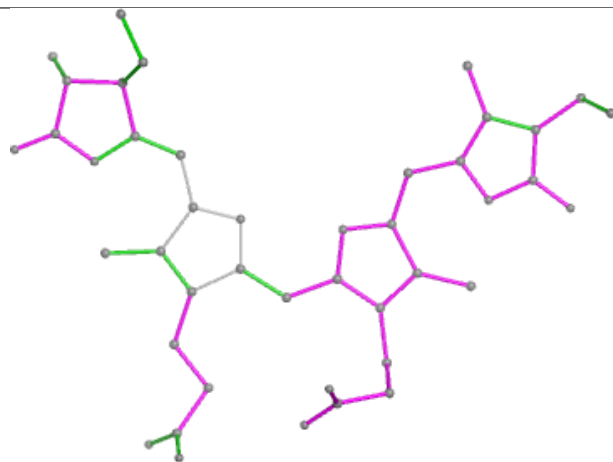




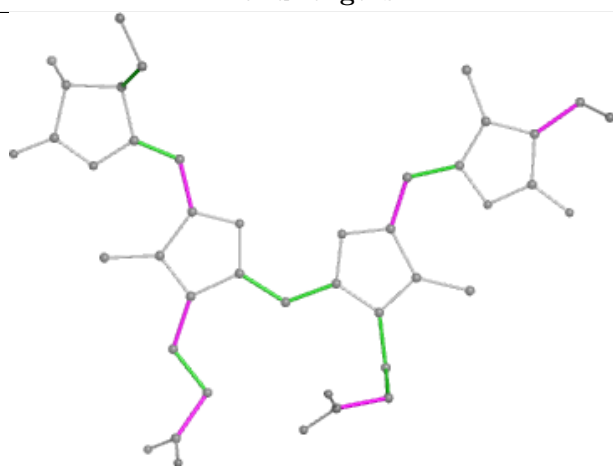
Ligand CYC L 184



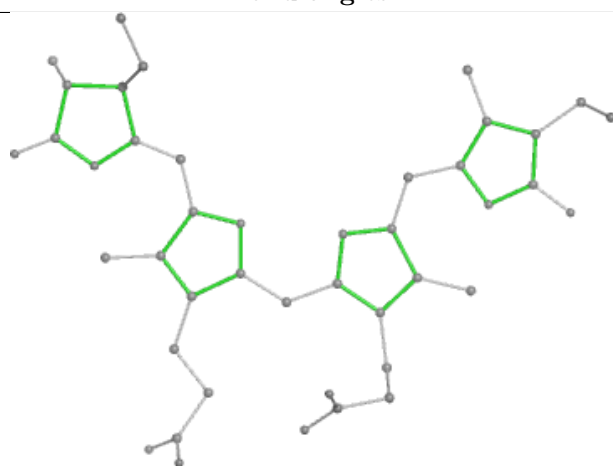
Bond lengths



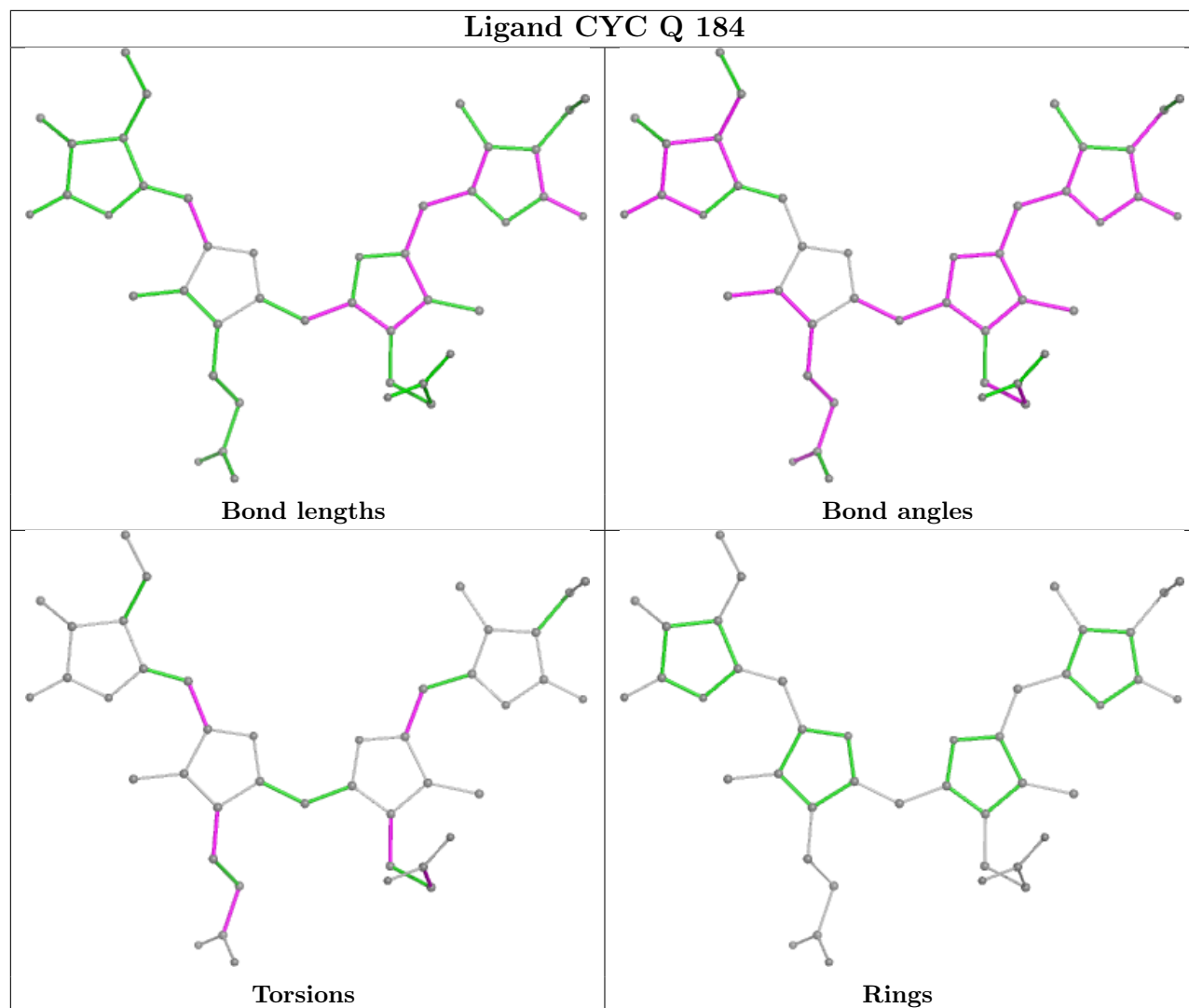
Bond angles



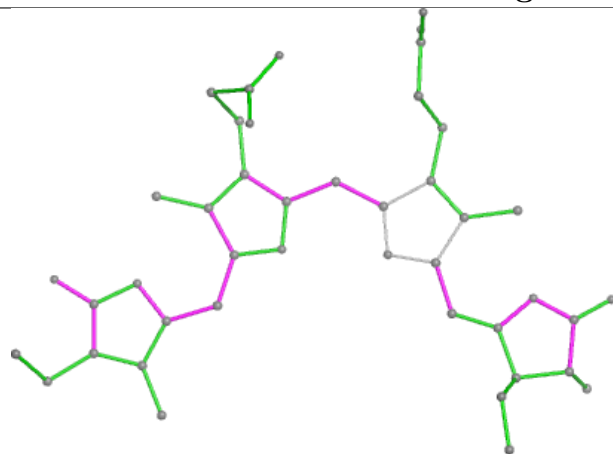
Torsions



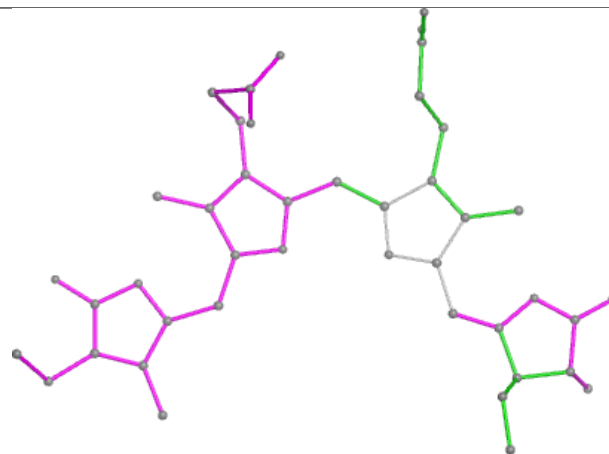
Rings



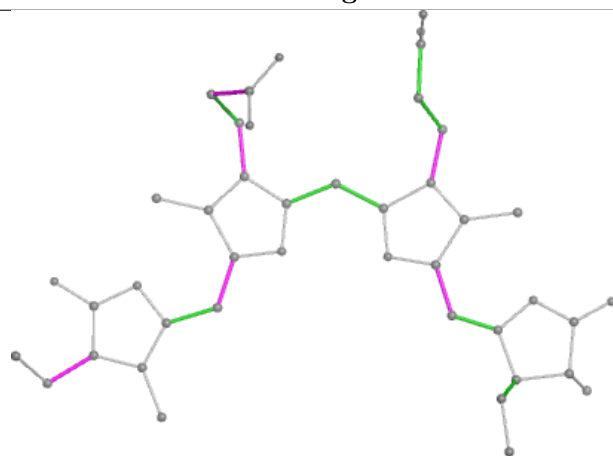
Ligand CYC F 184



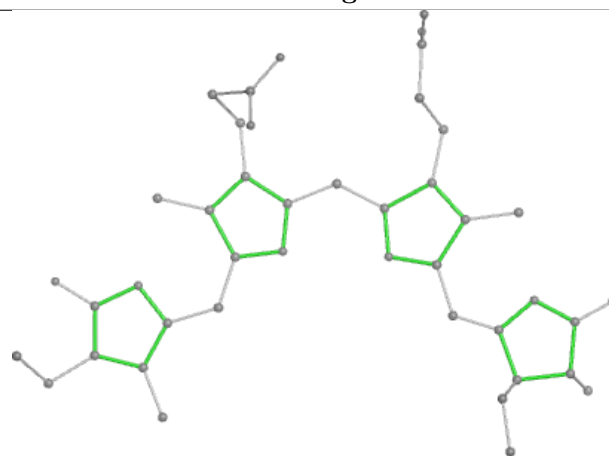
Bond lengths



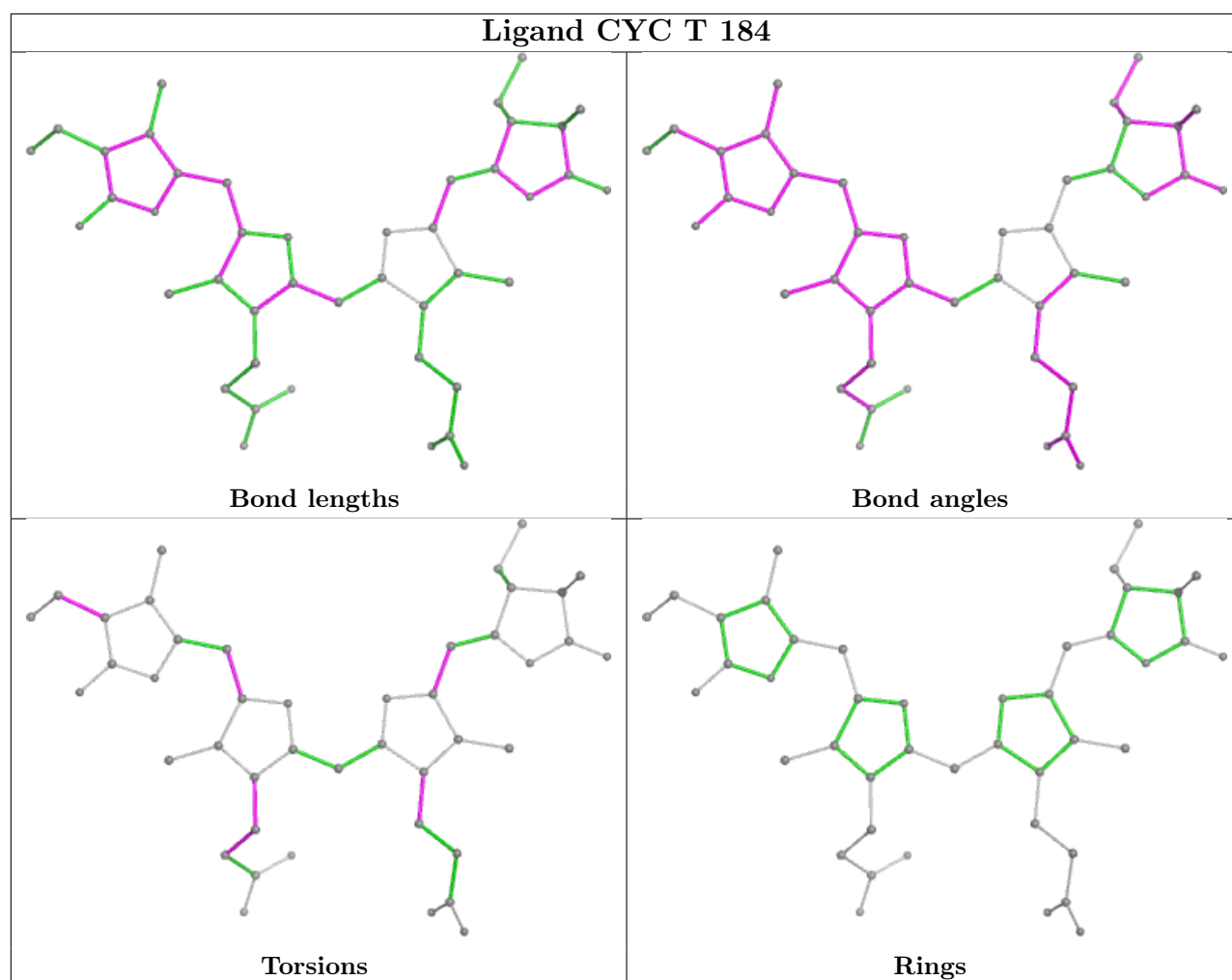
Bond angles

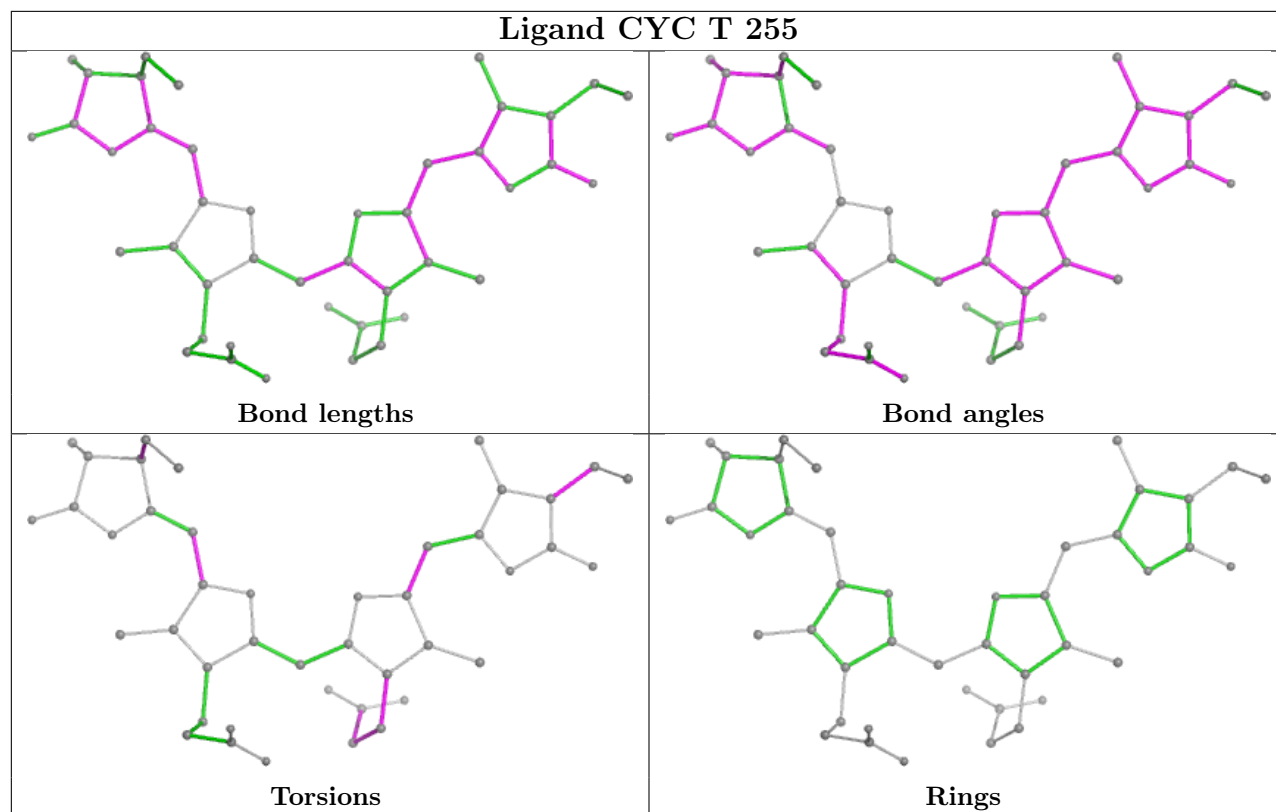


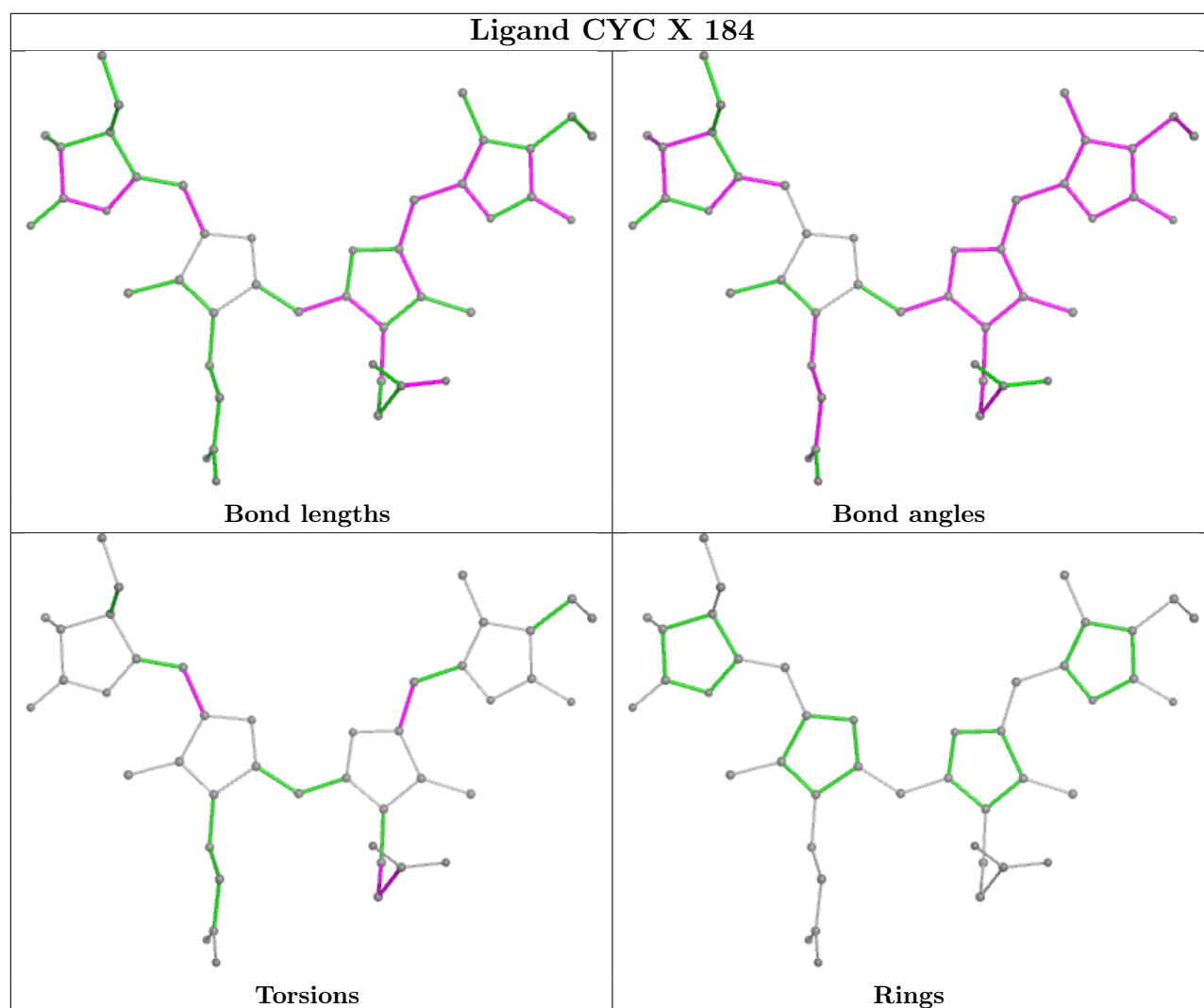
Torsions

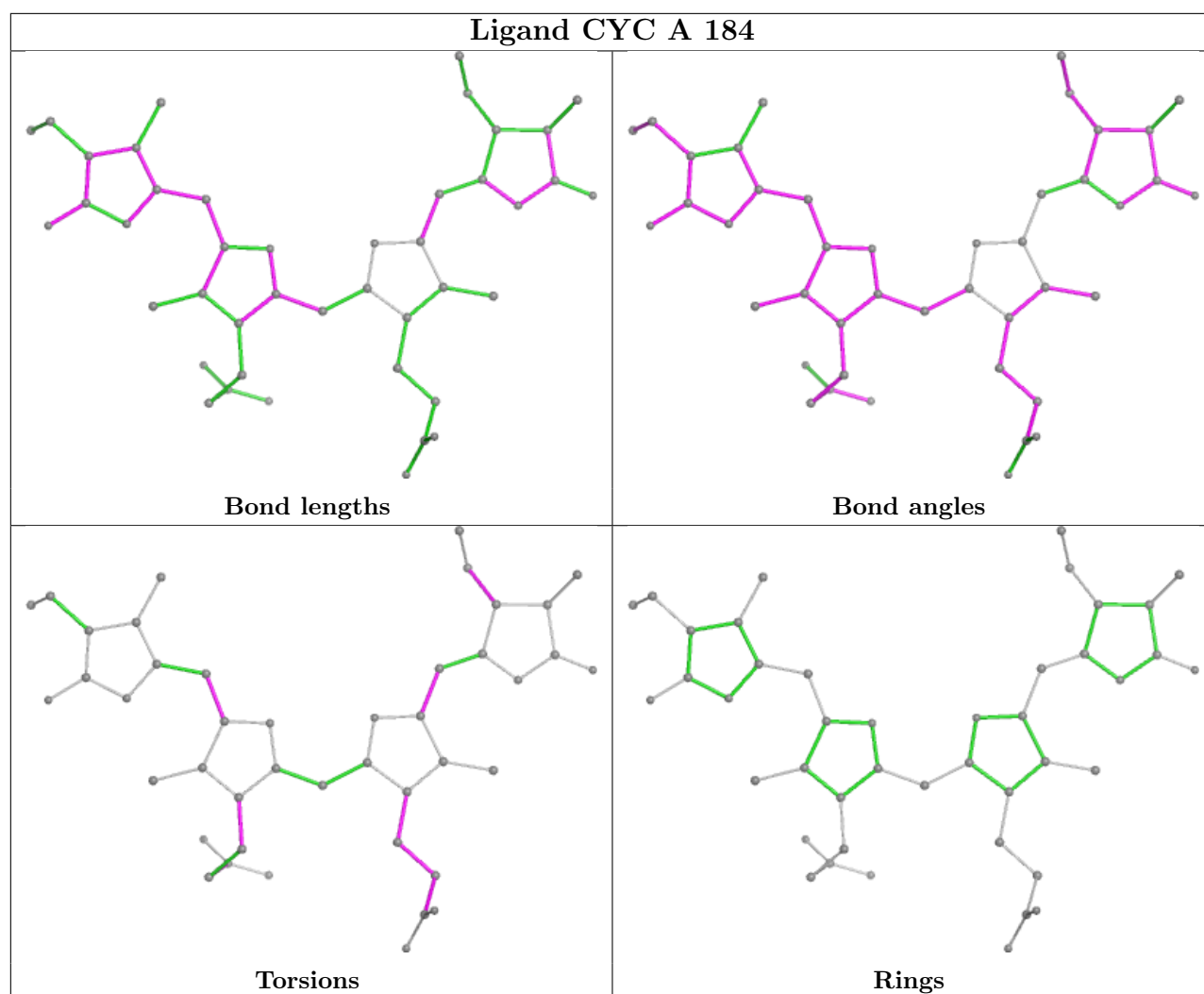


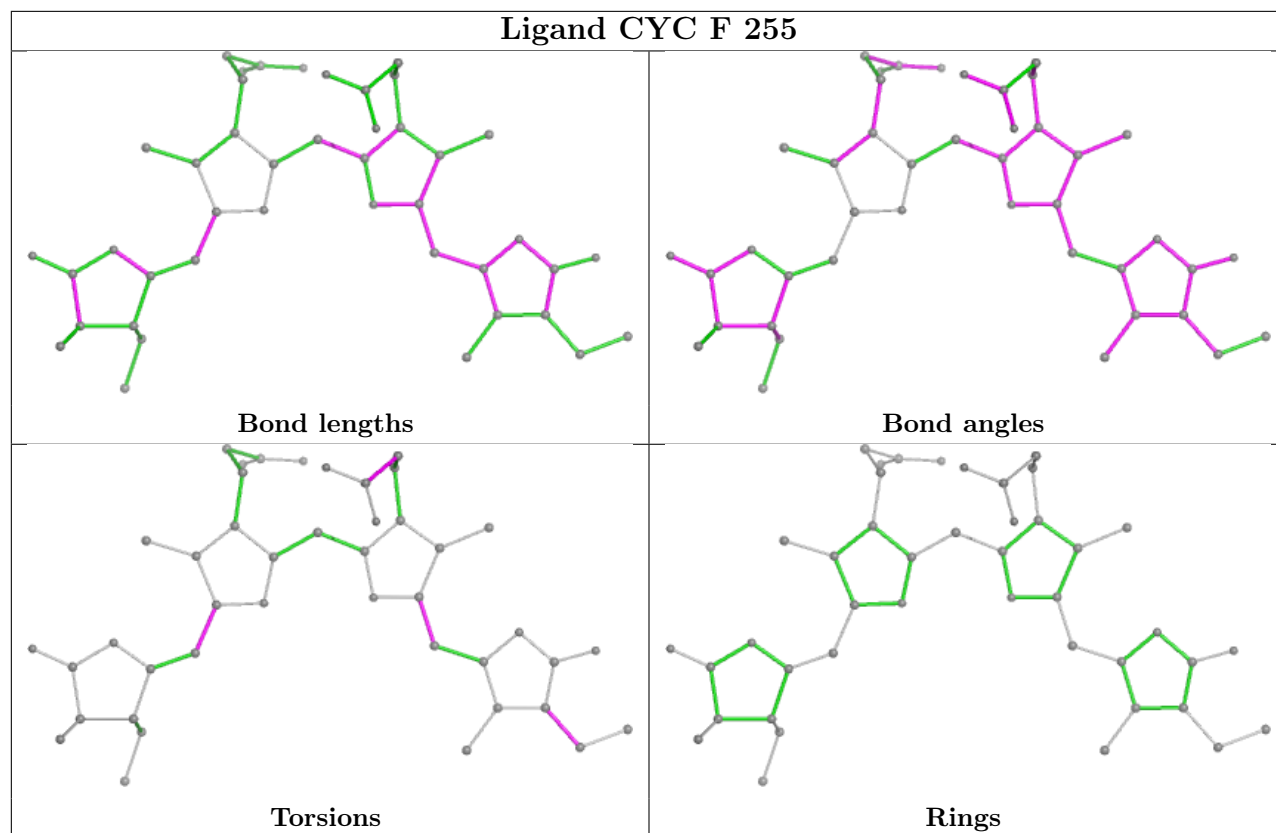
Rings

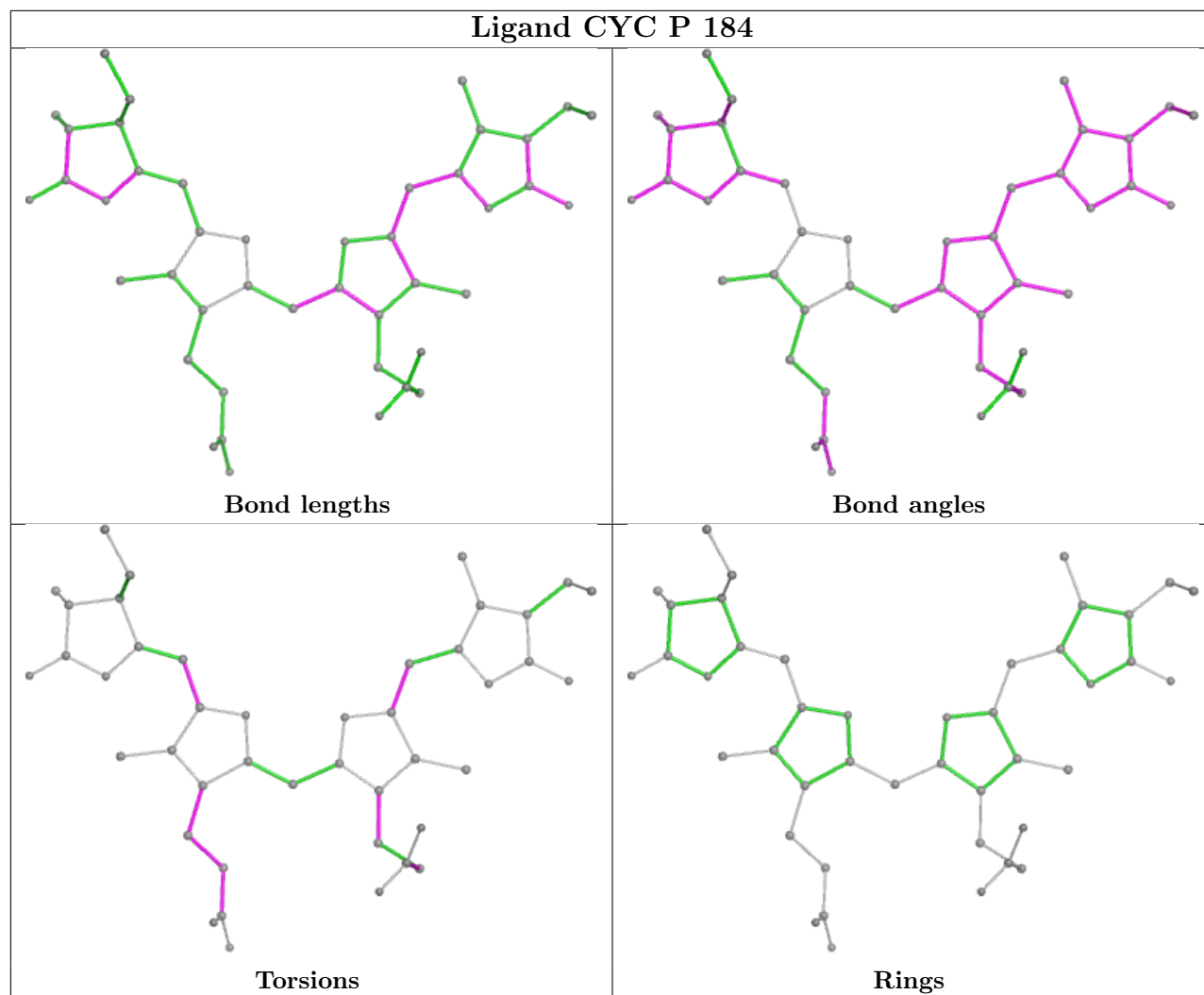


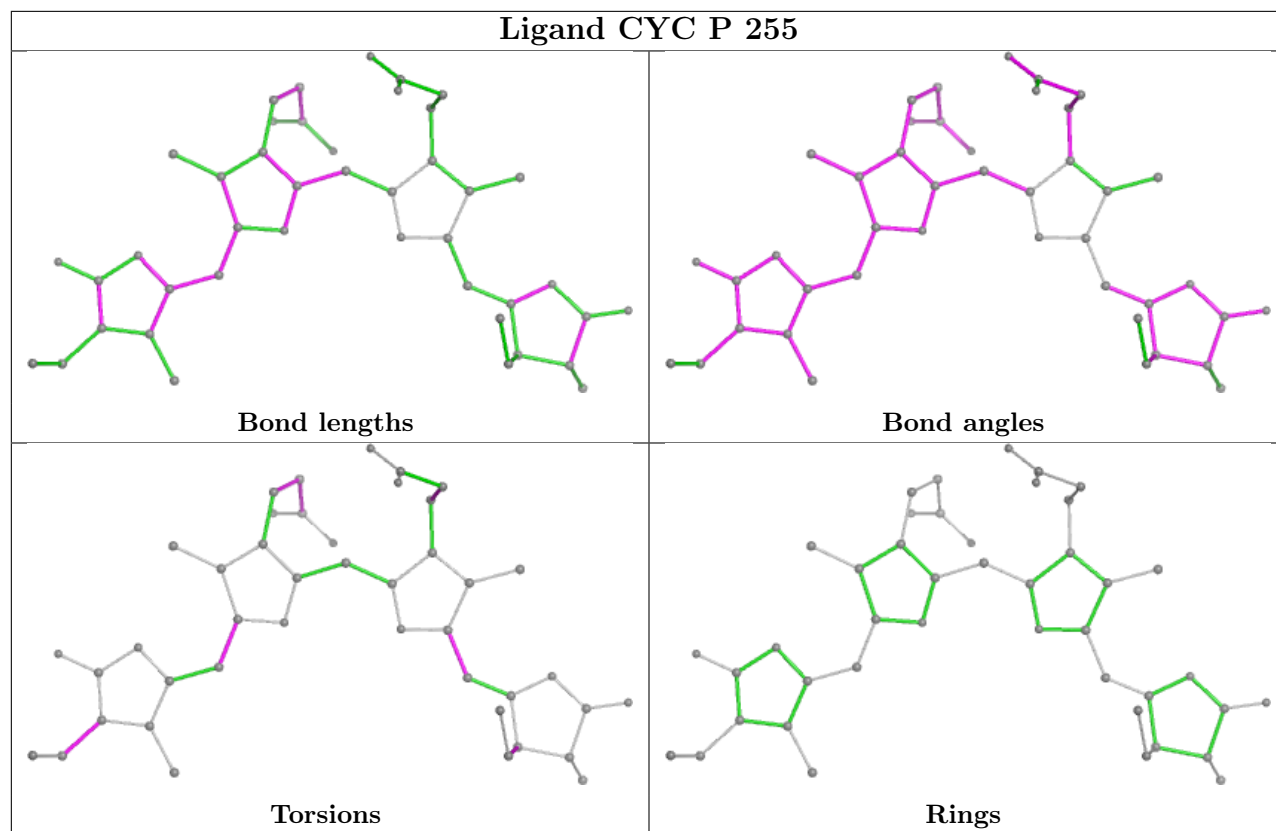












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ > 2			OWAB(Å ²)	Q < 0.9
1	A	162/162 (100%)	-0.63	0	100	100	3, 12, 21, 29	0
1	E	162/162 (100%)	-0.50	0	100	100	3, 12, 21, 29	0
1	G	162/162 (100%)	-0.63	0	100	100	3, 12, 22, 29	0
1	I	162/162 (100%)	-0.57	0	100	100	3, 12, 21, 29	0
1	K	162/162 (100%)	-0.58	0	100	100	3, 12, 22, 29	0
1	M	162/162 (100%)	-0.60	0	100	100	3, 12, 22, 29	0
1	O	162/162 (100%)	-0.60	0	100	100	3, 12, 21, 29	0
1	Q	162/162 (100%)	-0.51	1 (0%)	85	72	3, 12, 22, 29	0
1	S	162/162 (100%)	-0.43	0	100	100	3, 12, 22, 29	0
1	U	162/162 (100%)	-0.61	0	100	100	3, 12, 22, 29	0
1	W	162/162 (100%)	-0.63	0	100	100	3, 12, 21, 29	0
2	B	172/172 (100%)	-0.49	0	100	100	3, 15, 24, 33	0
2	F	172/172 (100%)	-0.49	0	100	100	3, 15, 24, 33	0
2	J	172/172 (100%)	-0.57	0	100	100	3, 15, 24, 33	0
2	L	172/172 (100%)	-0.53	0	100	100	3, 15, 24, 33	0
2	N	172/172 (100%)	-0.52	0	100	100	3, 15, 24, 33	0
2	P	172/172 (100%)	-0.55	0	100	100	3, 15, 24, 33	0
2	R	172/172 (100%)	-0.44	0	100	100	3, 15, 24, 33	0
2	T	172/172 (100%)	-0.54	0	100	100	3, 15, 24, 33	0
2	V	172/172 (100%)	-0.45	0	100	100	3, 15, 24, 33	0
2	X	172/172 (100%)	-0.59	0	100	100	3, 15, 24, 33	0
3	C	162/162 (100%)	-0.65	0	100	100	3, 12, 22, 29	0
4	D	172/172 (100%)	-0.52	1 (0%)	85	72	3, 15, 24, 33	0
5	H	172/172 (100%)	-0.57	0	100	100	3, 15, 24, 33	0

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
All	All	4008/4008 (100%)	-0.55	2 (0%) 100 100	3, 14, 24, 33	0

All (2) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
4	D	172	SER	2.7
1	Q	68	CYS	2.0

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

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
6	CYC	V	184	43/43	0.84	0.16	44,49,54,58	0
6	CYC	X	184	43/43	0.84	0.14	5,15,27,30	0
6	CYC	B	184	43/43	0.86	0.14	18,24,29,35	0
6	CYC	V	255	43/43	0.86	0.15	22,33,34,37	0
6	CYC	F	184	43/43	0.86	0.15	16,25,29,32	0
6	CYC	N	255	43/43	0.87	0.14	32,38,40,42	0
6	CYC	H	184	43/43	0.87	0.13	13,19,31,38	0
6	CYC	J	255	43/43	0.87	0.15	11,23,24,26	0
6	CYC	L	184	43/43	0.87	0.13	12,20,27,36	0
6	CYC	P	255	43/43	0.88	0.15	20,29,29,30	0
6	CYC	N	184	43/43	0.88	0.13	24,29,32,34	0
6	CYC	F	255	43/43	0.88	0.15	7,17,21,22	0
6	CYC	P	184	43/43	0.88	0.14	25,31,38,41	0
6	CYC	D	184	43/43	0.89	0.13	19,28,29,33	0
6	CYC	T	184	43/43	0.89	0.13	16,23,27,30	0

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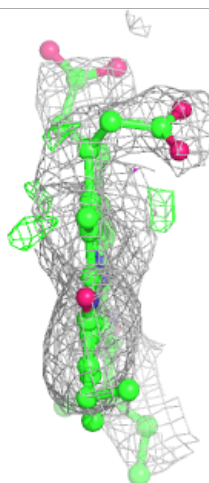
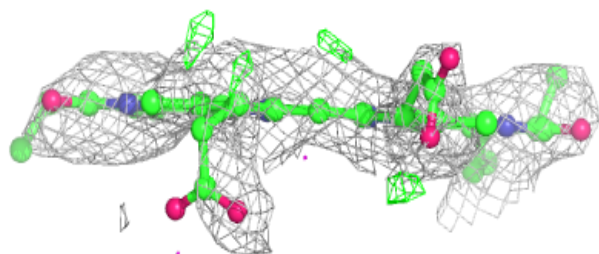
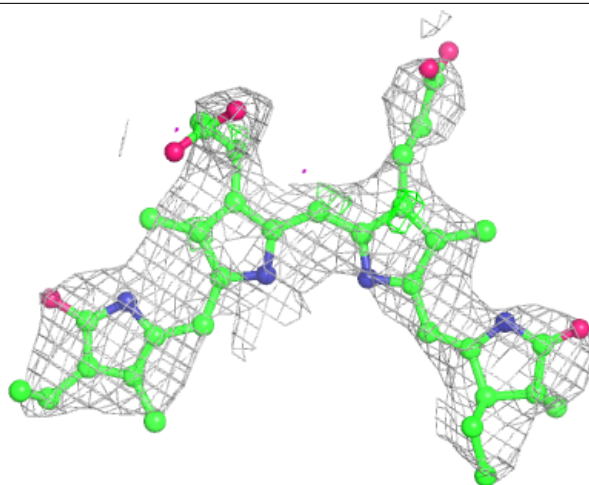
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
6	CYC	T	255	43/43	0.89	0.13	19,26,27,27	0
6	CYC	D	255	43/43	0.89	0.13	27,31,33,35	0
6	CYC	I	184	43/43	0.89	0.12	13,15,19,27	0
6	CYC	B	255	43/43	0.89	0.14	26,33,33,34	0
6	CYC	M	184	43/43	0.90	0.12	22,25,27,30	0
6	CYC	H	255	43/43	0.90	0.13	6,23,24,26	0
6	CYC	R	184	43/43	0.90	0.12	5,18,23,27	0
6	CYC	J	184	43/43	0.90	0.13	15,20,30,32	0
6	CYC	R	255	43/43	0.91	0.12	6,13,15,18	0
6	CYC	S	184	43/43	0.91	0.11	22,25,25,26	0
6	CYC	O	184	43/43	0.91	0.12	5,12,13,15	0
6	CYC	A	184	43/43	0.91	0.12	9,16,17,18	0
6	CYC	E	184	43/43	0.91	0.12	9,13,17,23	0
6	CYC	Q	184	43/43	0.91	0.12	18,22,23,23	0
6	CYC	L	255	43/43	0.91	0.12	7,22,23,24	0
6	CYC	X	255	43/43	0.91	0.13	11,27,28,28	0
6	CYC	G	184	43/43	0.92	0.12	6,13,14,16	0
6	CYC	W	184	43/43	0.92	0.12	11,18,18,19	0
6	CYC	C	184	43/43	0.92	0.12	14,17,21,22	0
6	CYC	K	184	43/43	0.92	0.11	9,16,17,19	0
6	CYC	U	184	43/43	0.93	0.11	2,11,12,13	0

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

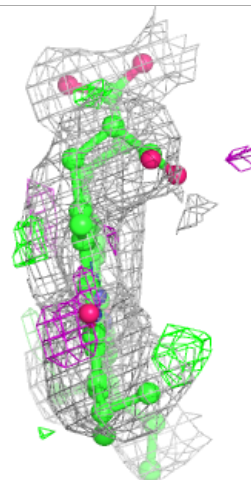
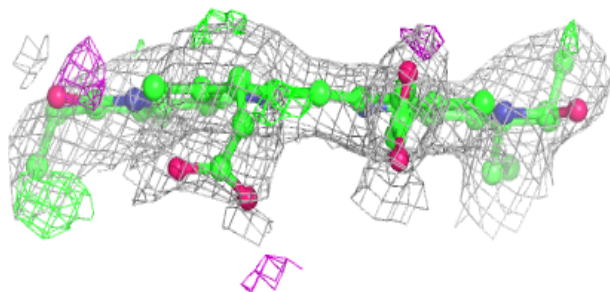
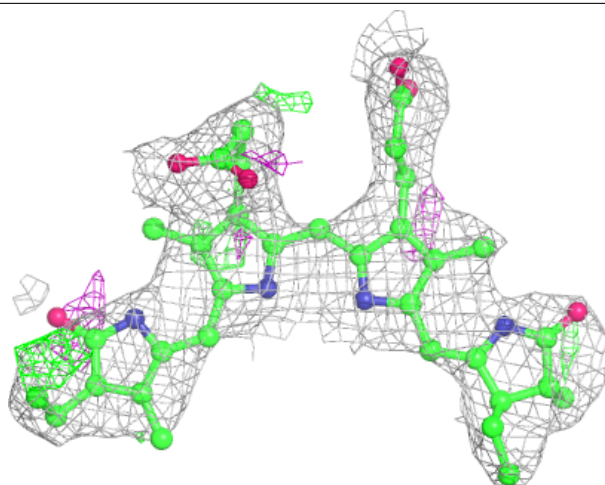
Electron density around CYC V 184:

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



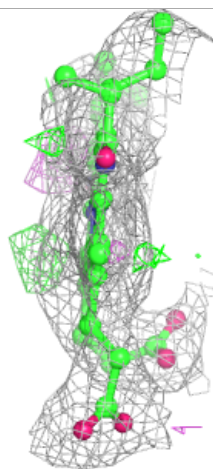
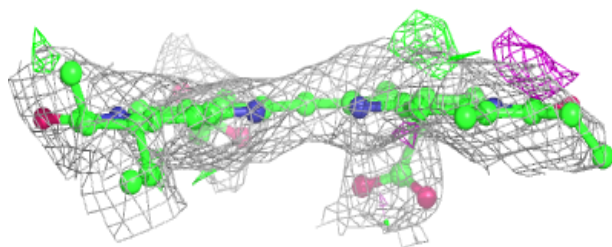
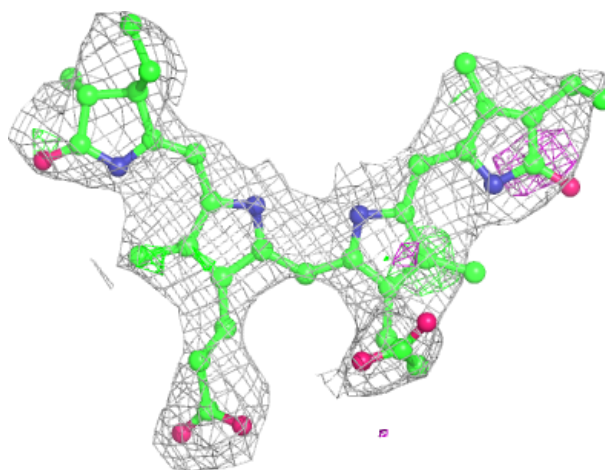
Electron density around CYC X 184:

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



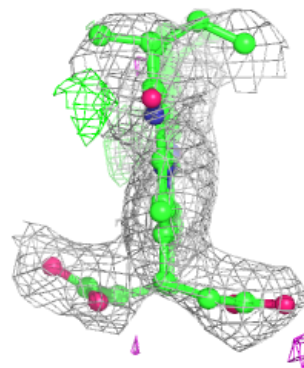
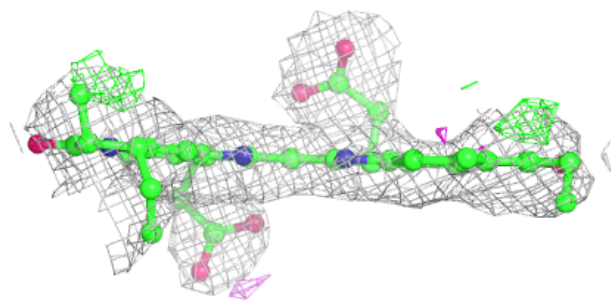
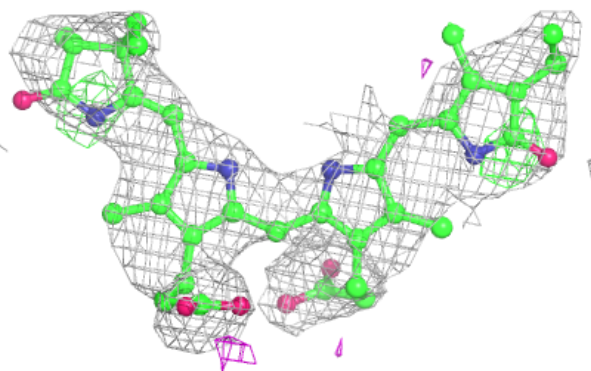
Electron density around CYC B 184:

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



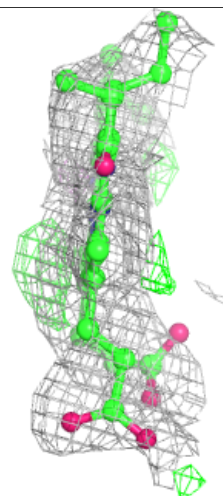
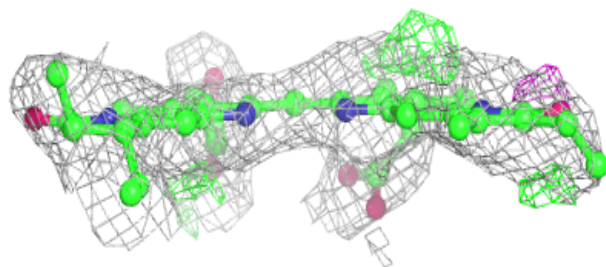
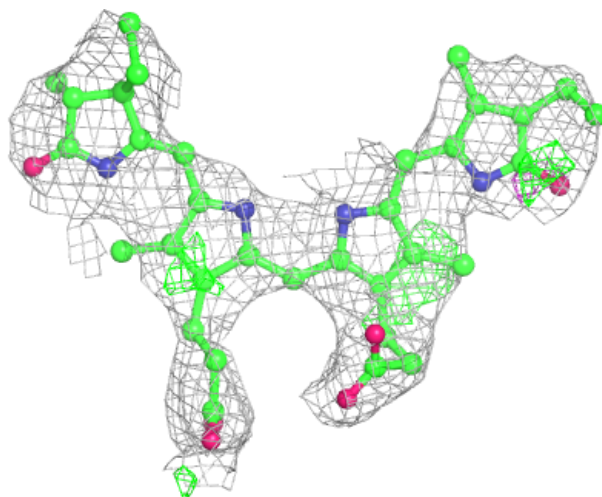
Electron density around CYC V 255:

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



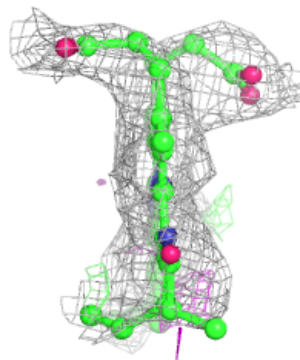
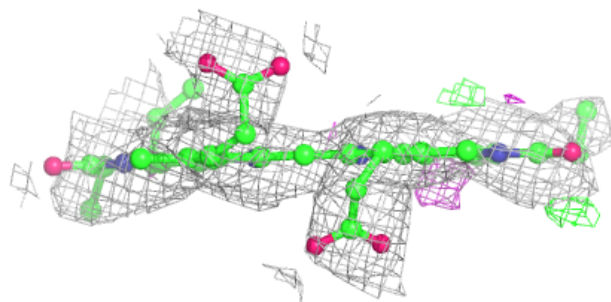
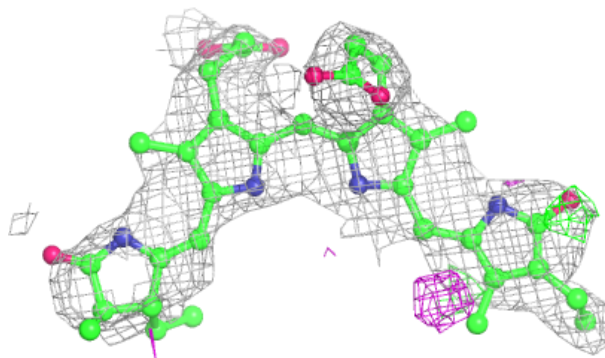
Electron density around CYC F 184:

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



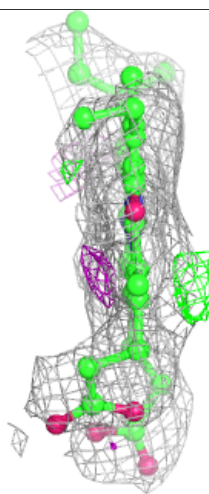
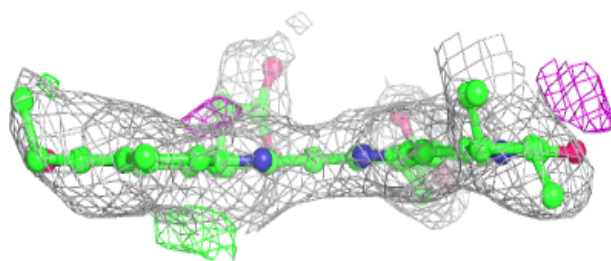
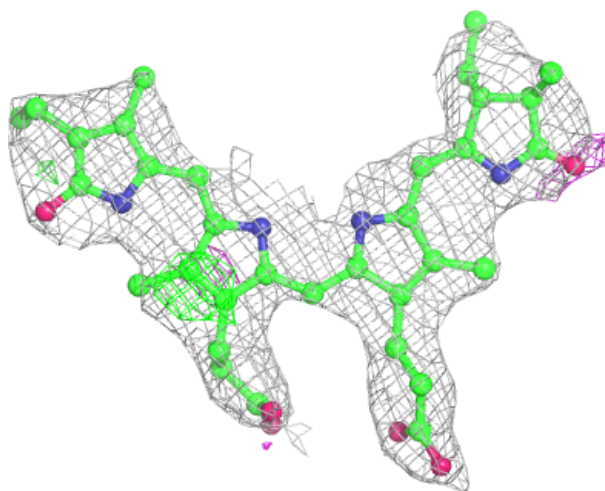
Electron density around CYC N 255:

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



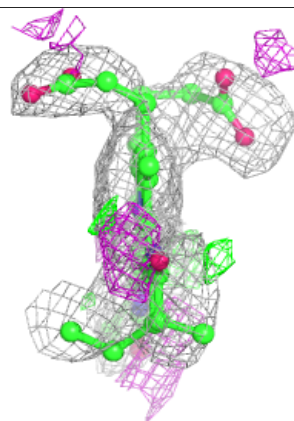
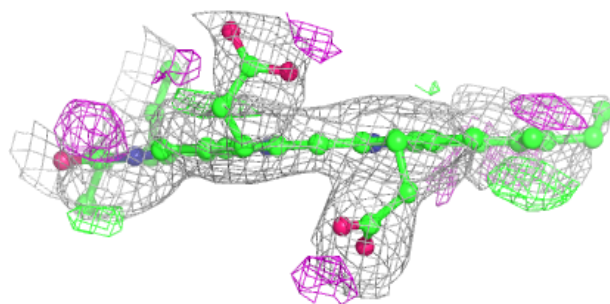
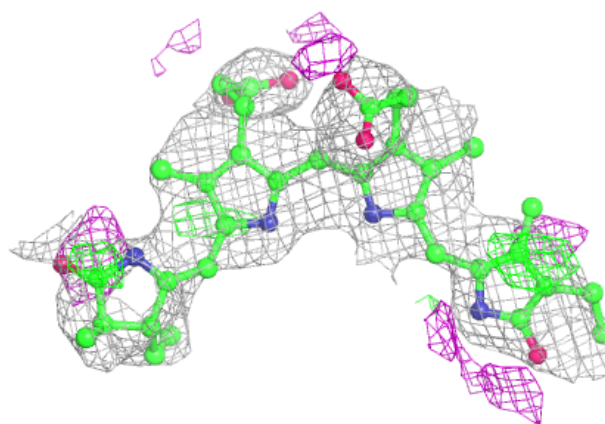
Electron density around CYC H 184:

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



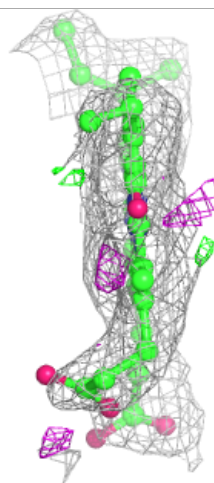
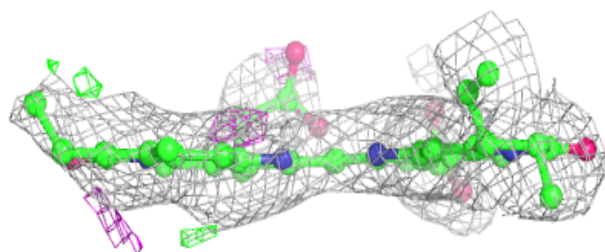
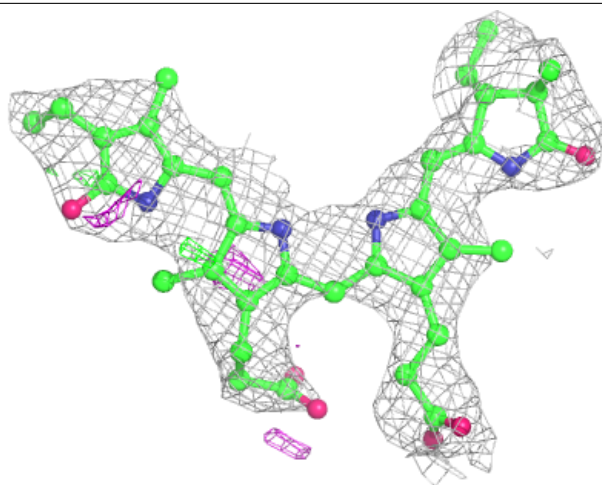
Electron density around CYC J 255:

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



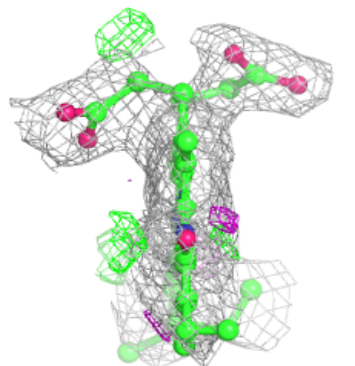
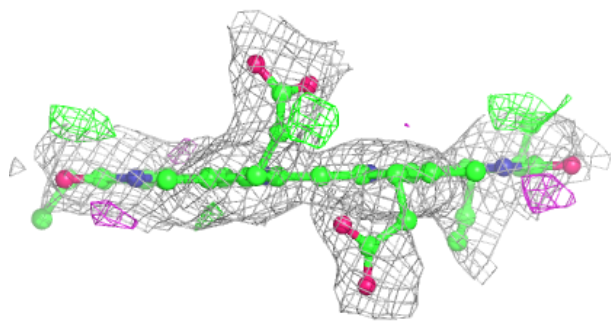
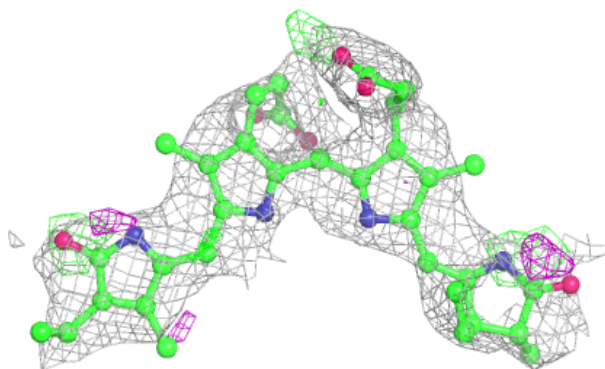
Electron density around CYC L 184:

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



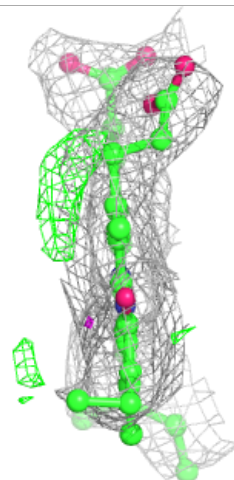
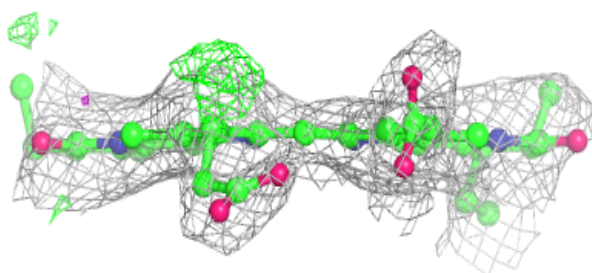
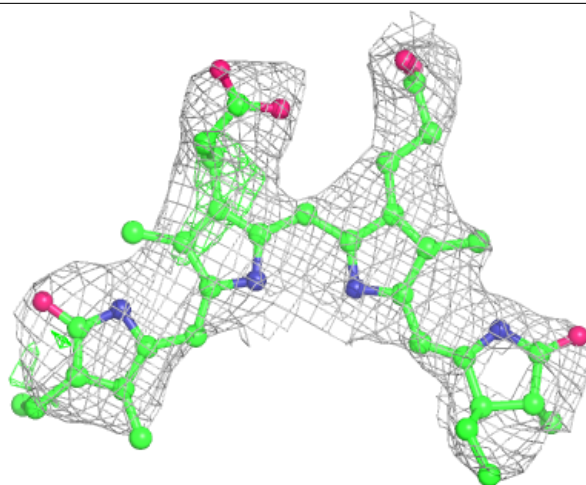
Electron density around CYC P 255:

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



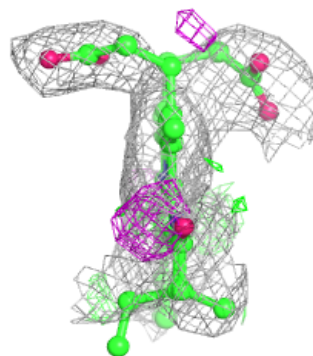
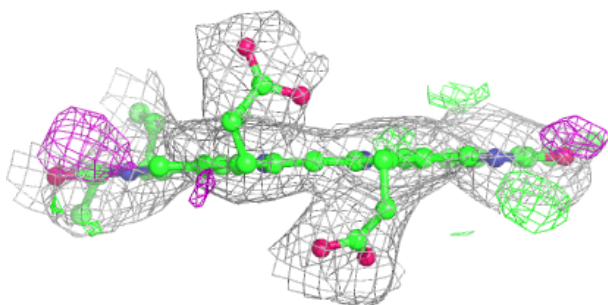
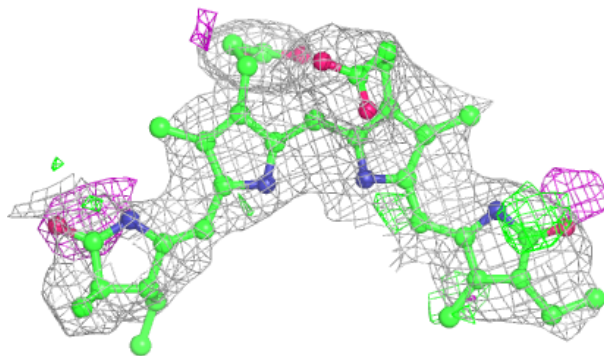
Electron density around CYC N 184:

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

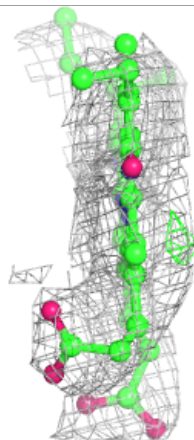
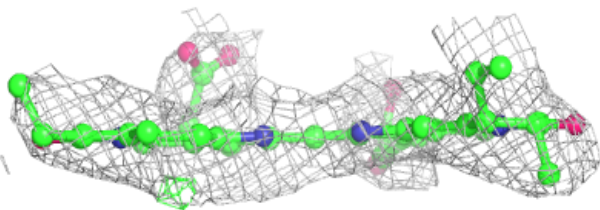
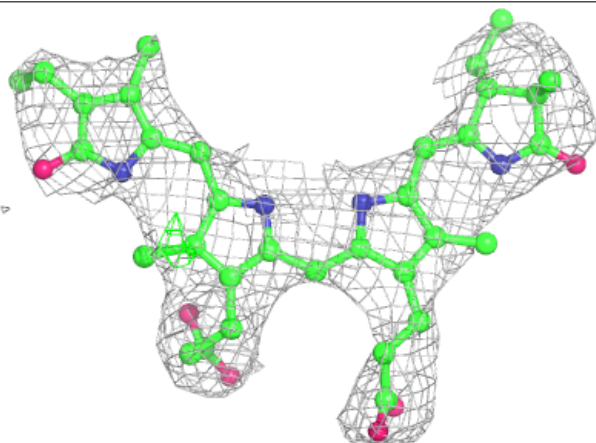


Electron density around CYC F 255:

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

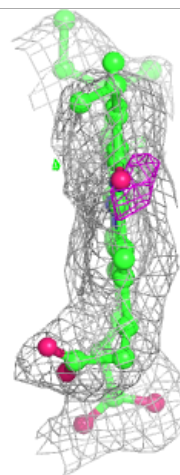
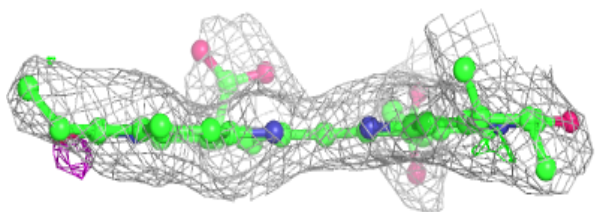
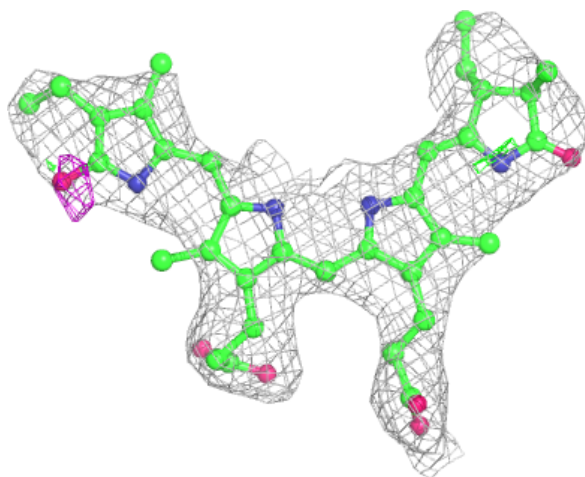
**Electron density around CYC P 184:**

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



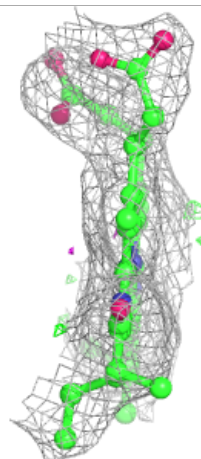
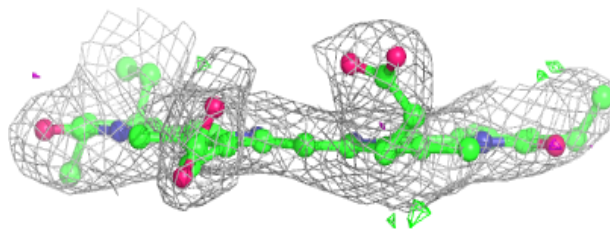
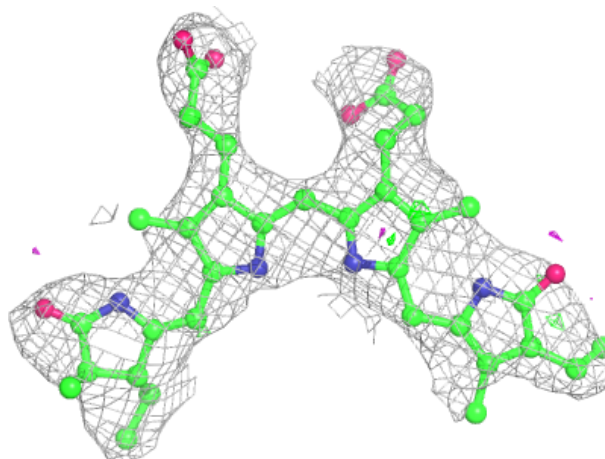
Electron density around CYC D 184:

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



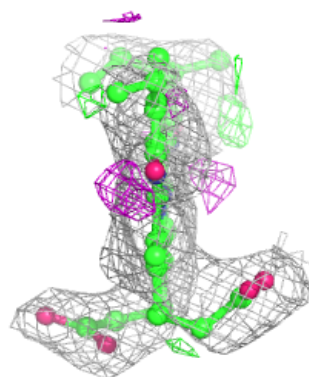
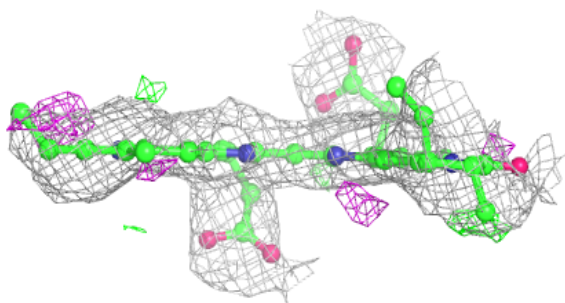
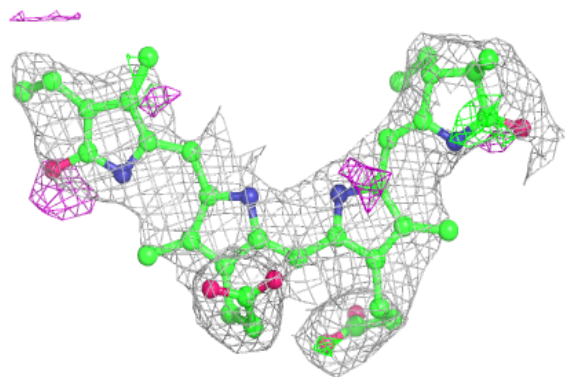
Electron density around CYC T 184:

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

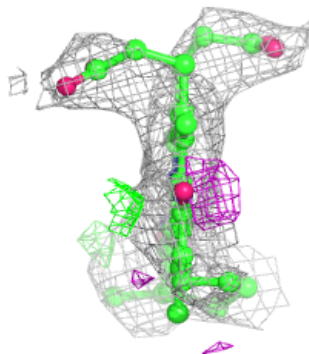
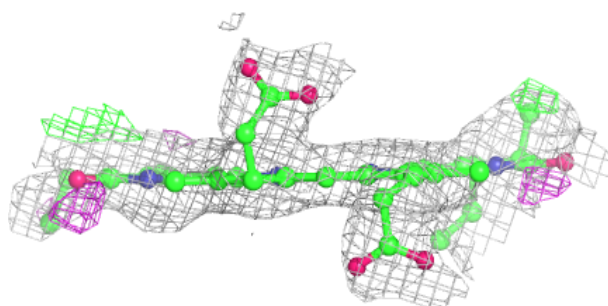
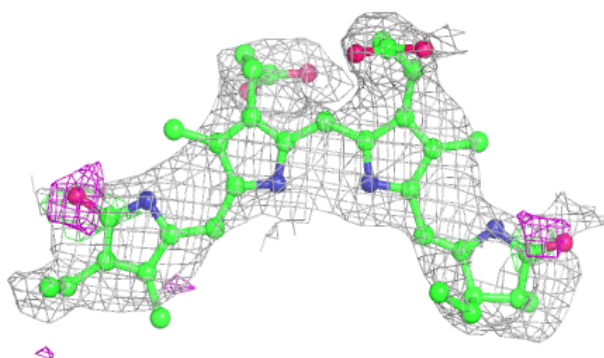


Electron density around CYC T 255:

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

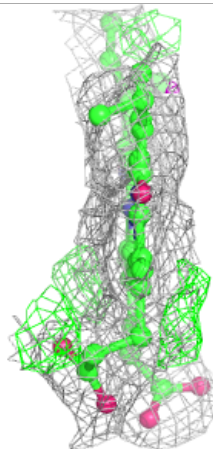
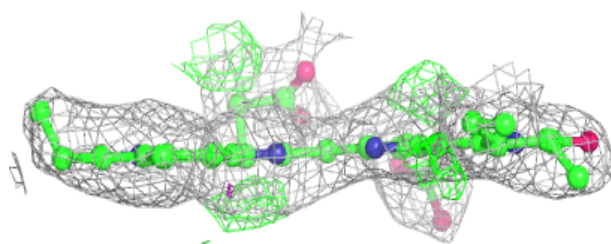
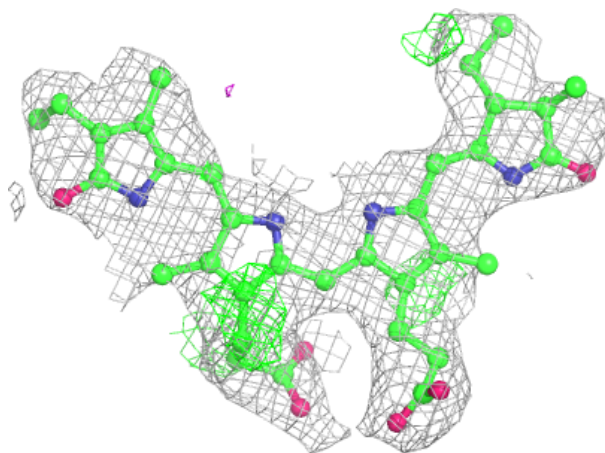
**Electron density around CYC D 255:**

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



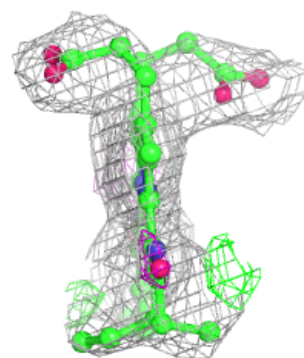
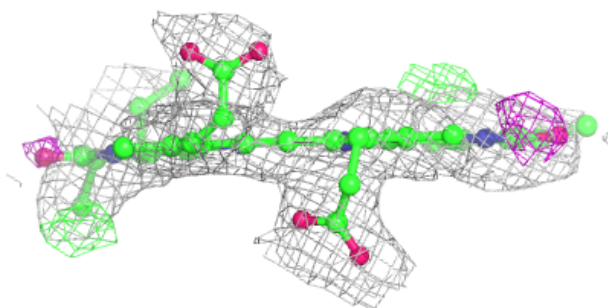
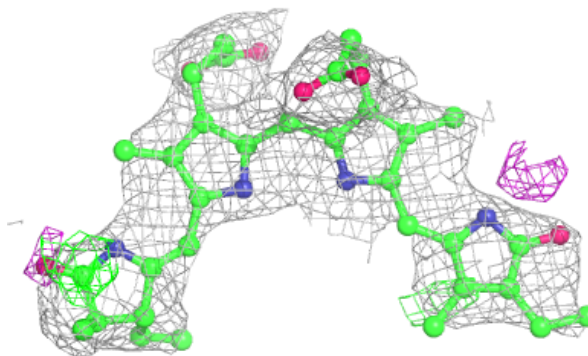
Electron density around CYC I 184:

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



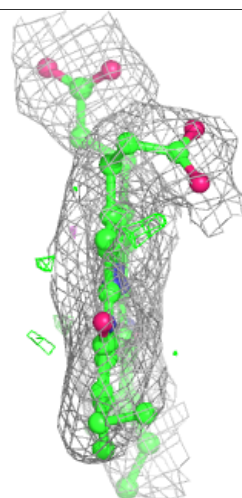
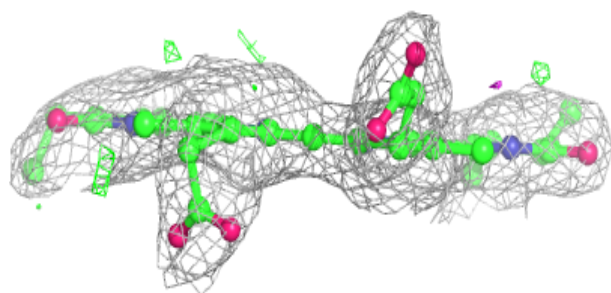
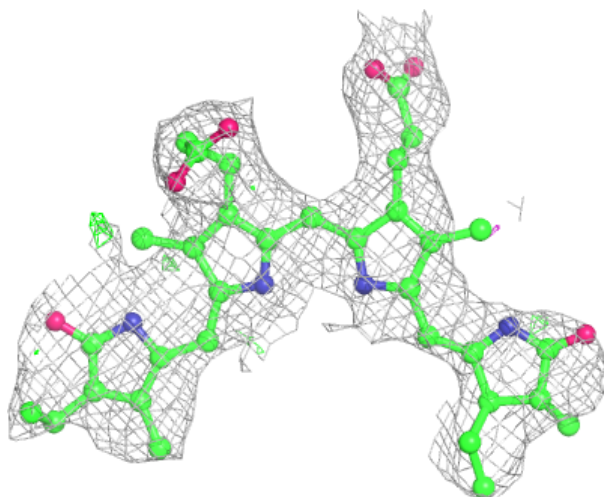
Electron density around CYC B 255:

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



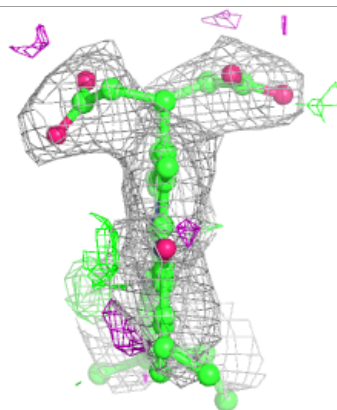
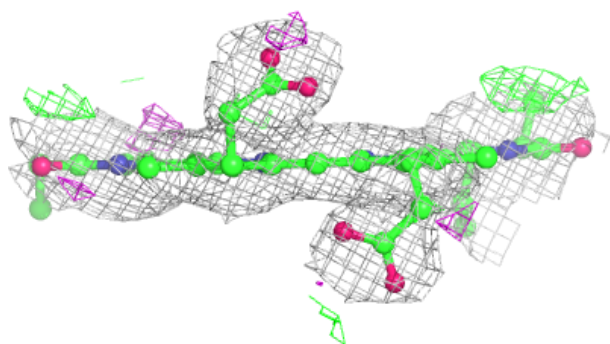
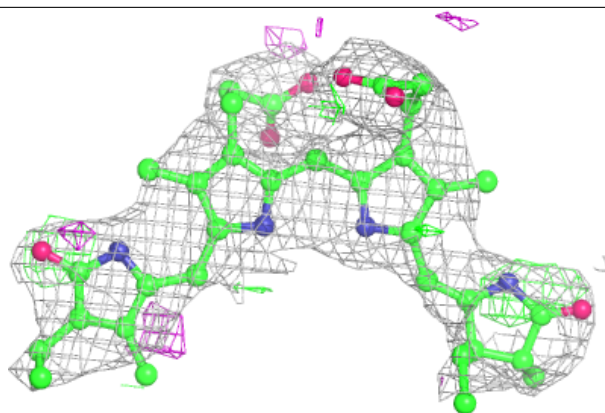
Electron density around CYC M 184:

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



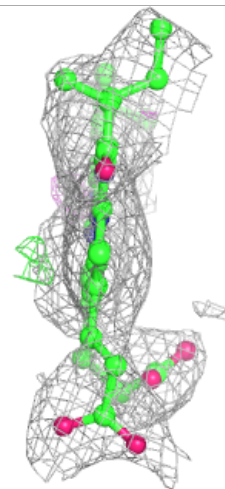
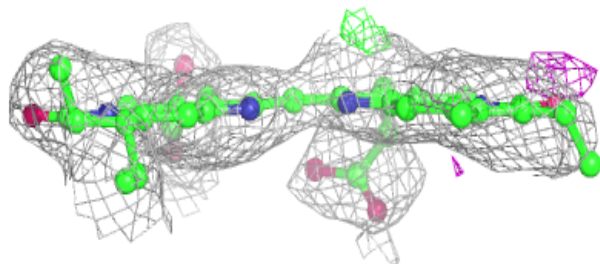
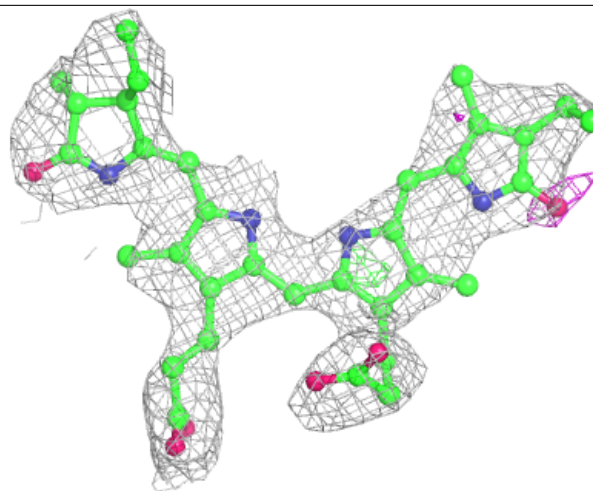
Electron density around CYC H 255:

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



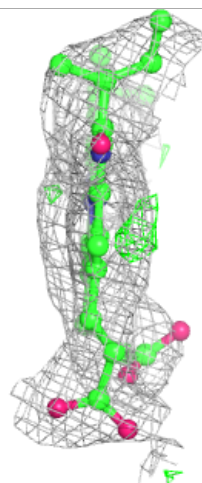
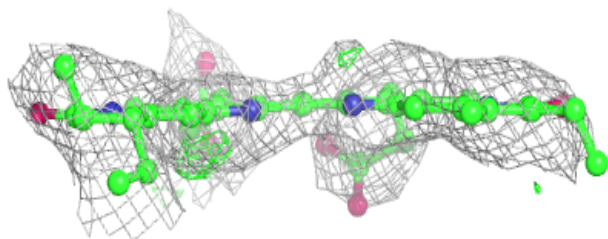
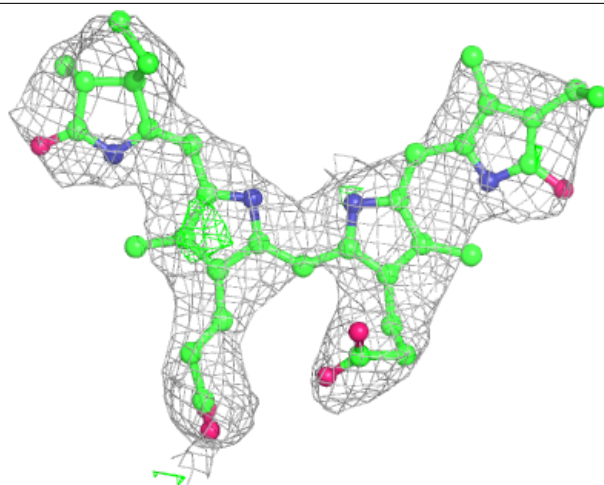
Electron density around CYC R 184:

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



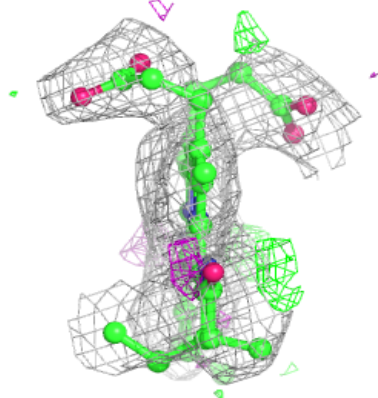
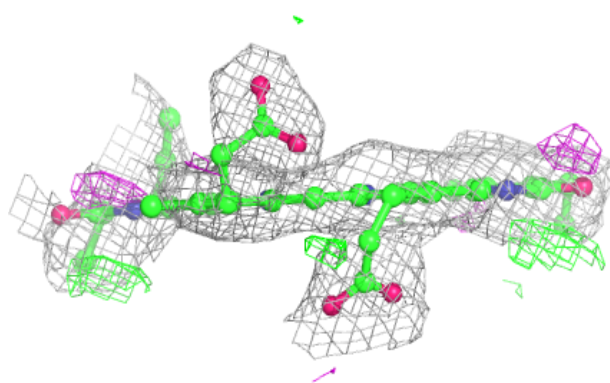
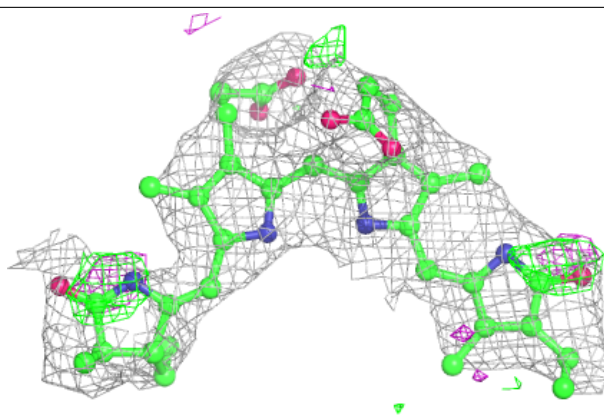
Electron density around CYC J 184:

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



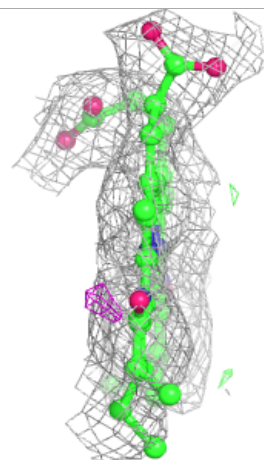
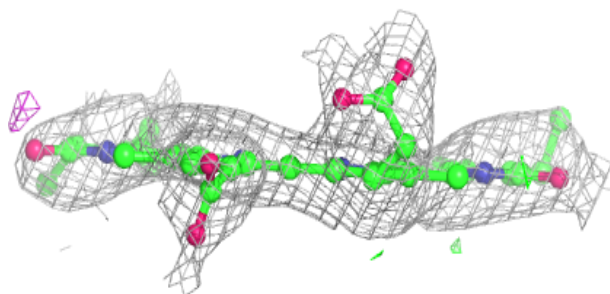
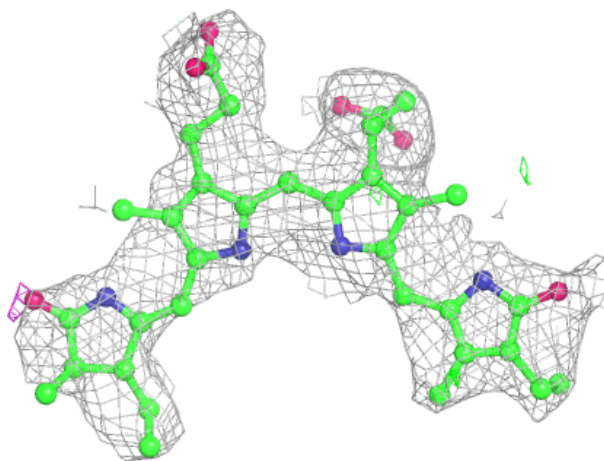
Electron density around CYC R 255:

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



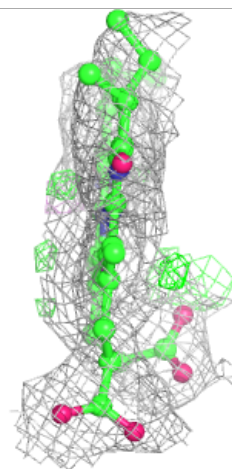
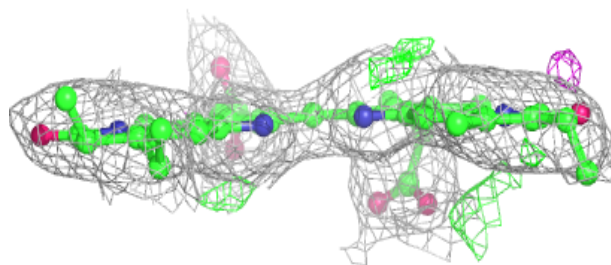
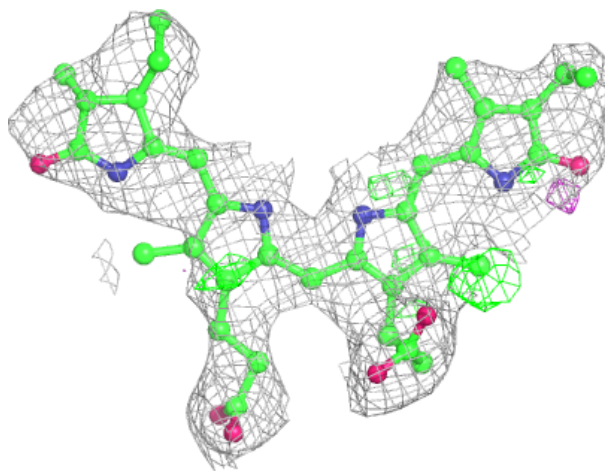
Electron density around CYC S 184:

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



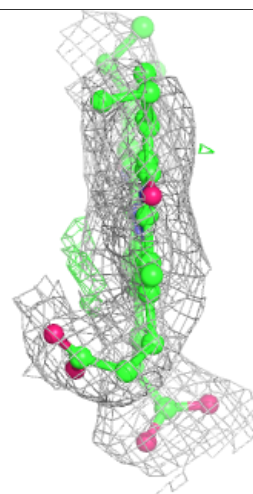
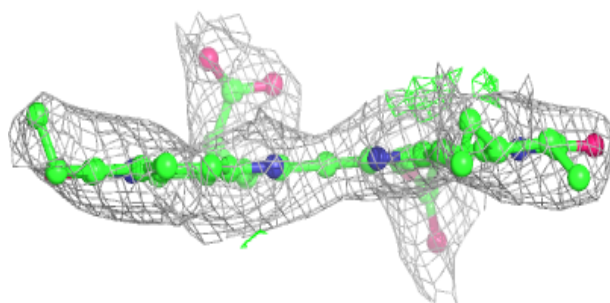
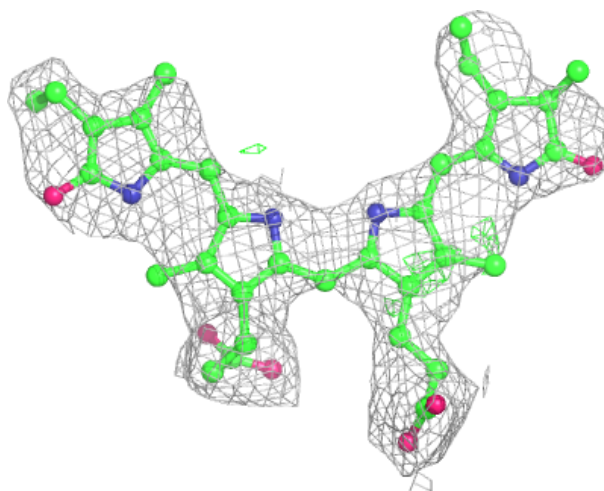
Electron density around CYC O 184:

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



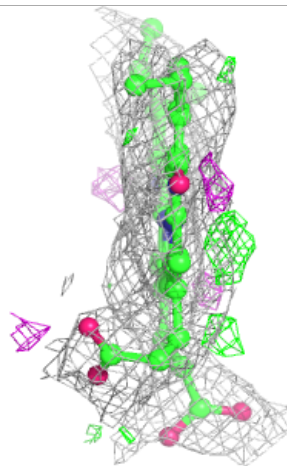
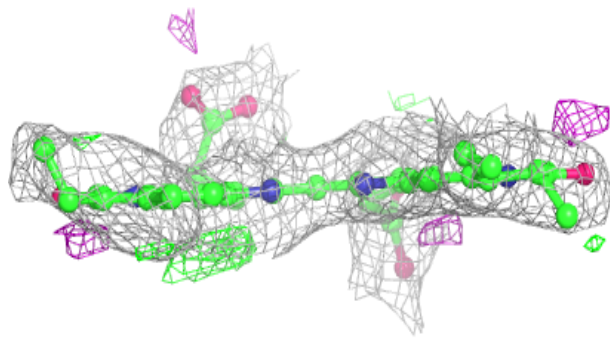
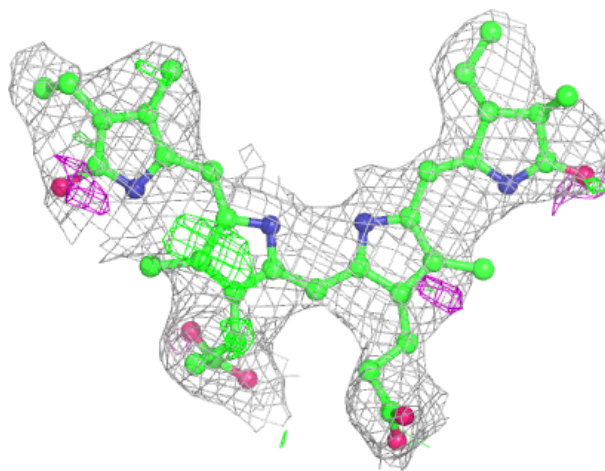
Electron density around CYC A 184:

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



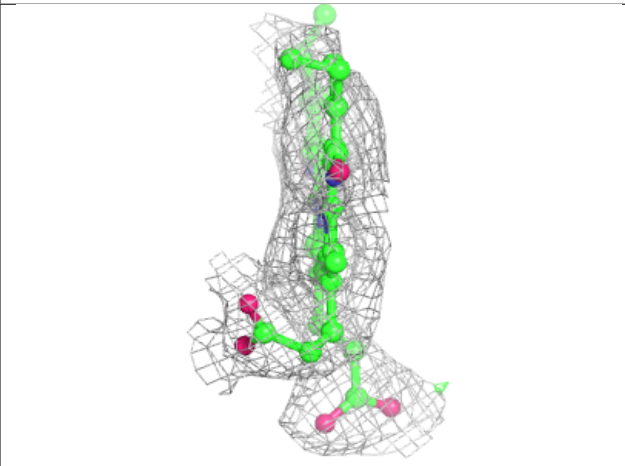
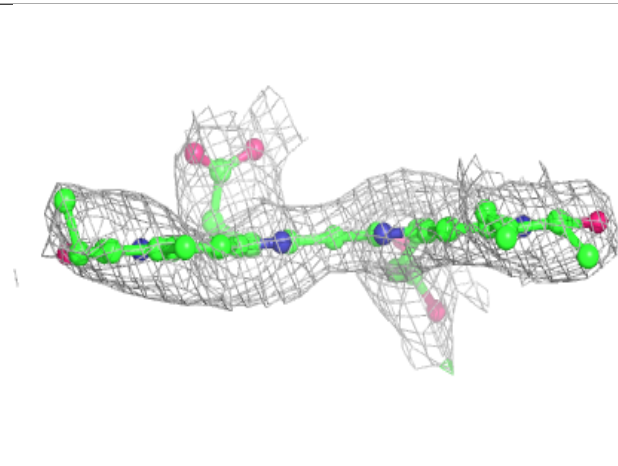
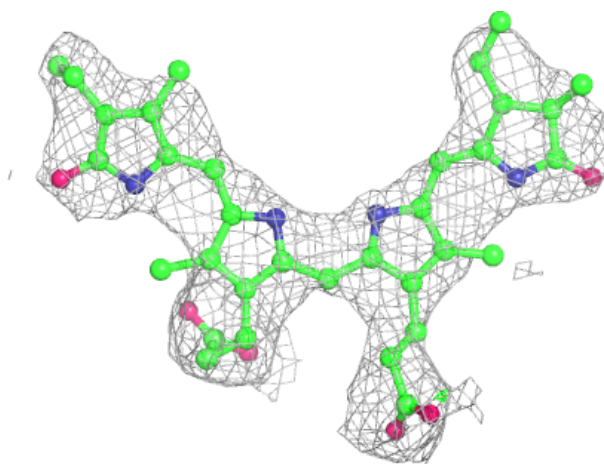
Electron density around CYC E 184:

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



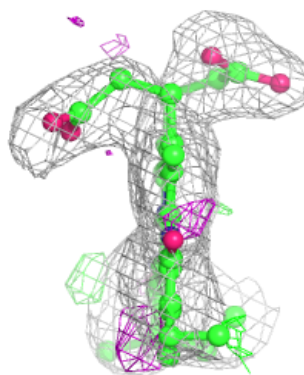
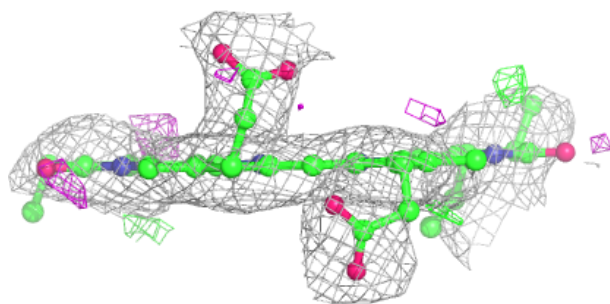
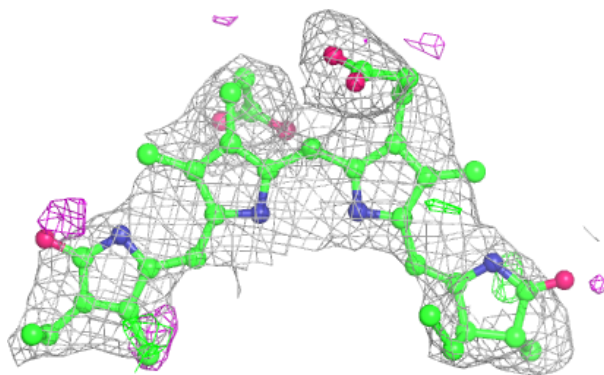
Electron density around CYC Q 184:

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

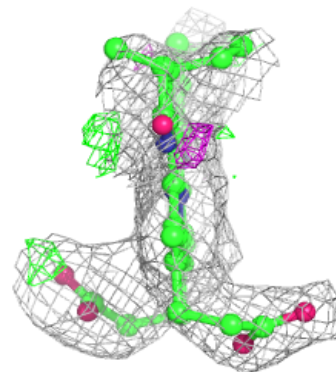
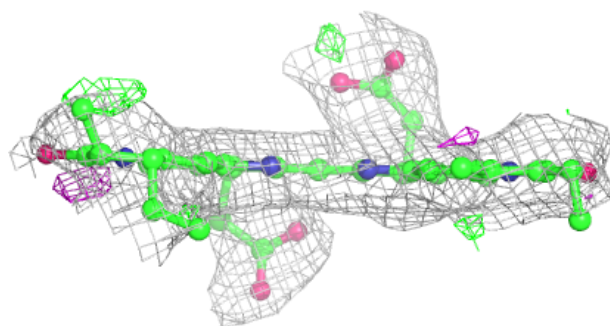
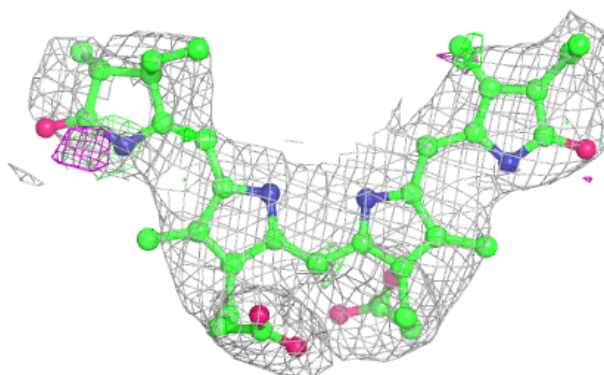


Electron density around CYC L 255:

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

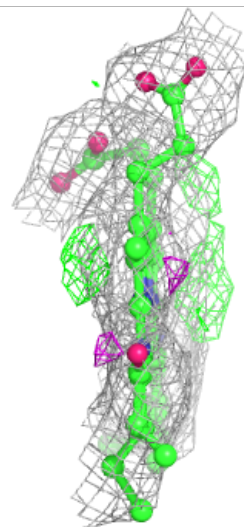
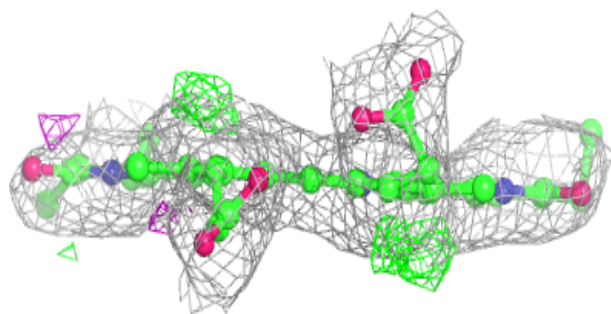
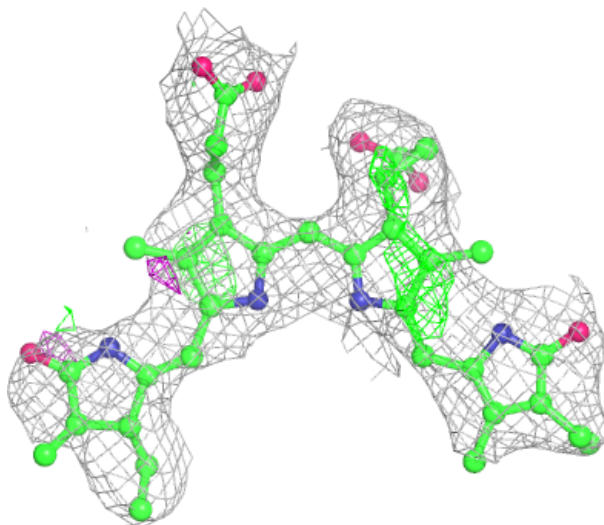
**Electron density around CYC X 255:**

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



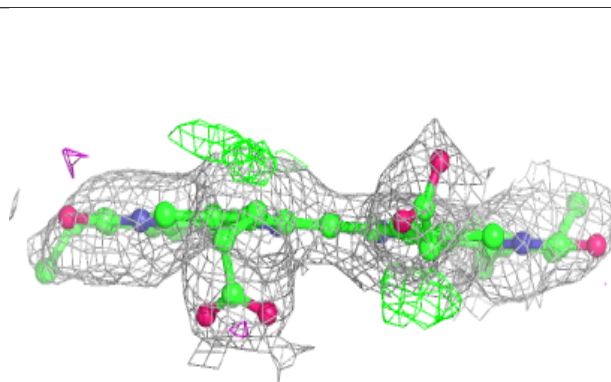
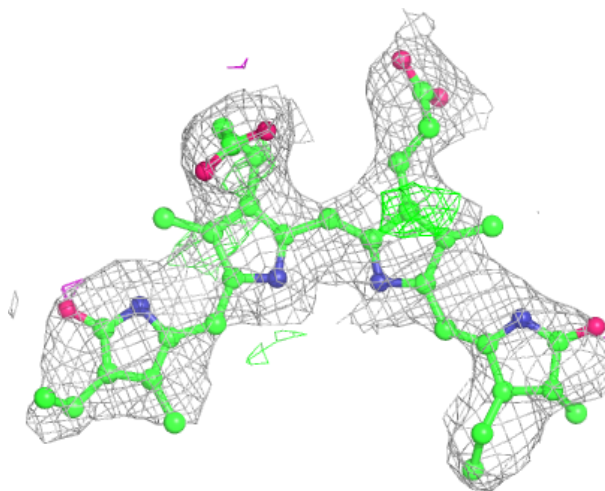
Electron density around CYC G 184:

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



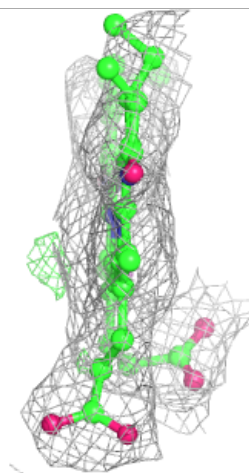
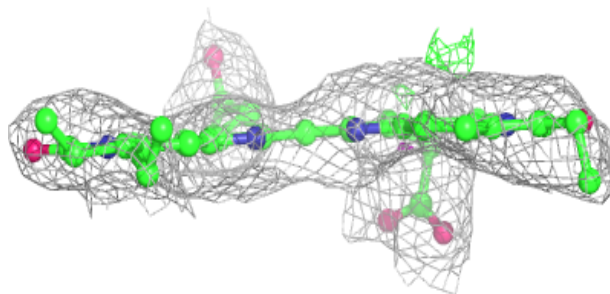
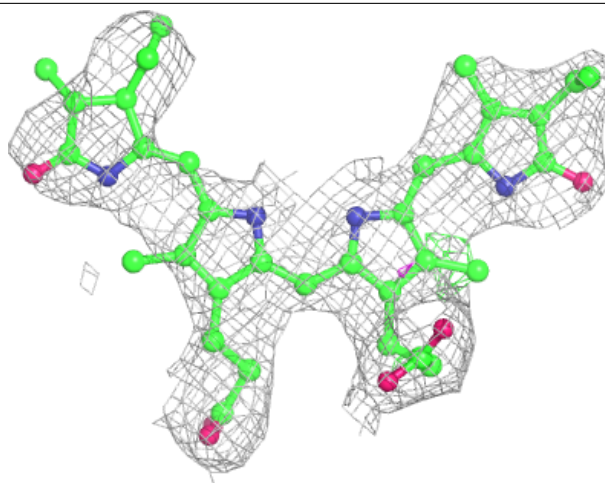
Electron density around CYC W 184:

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



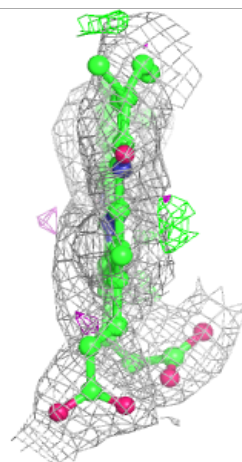
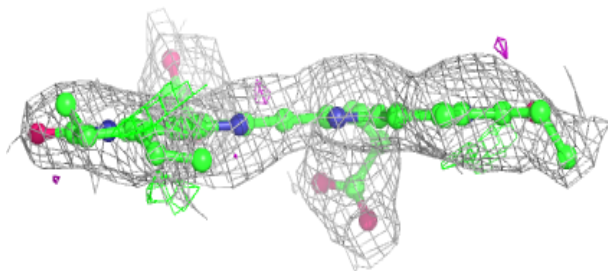
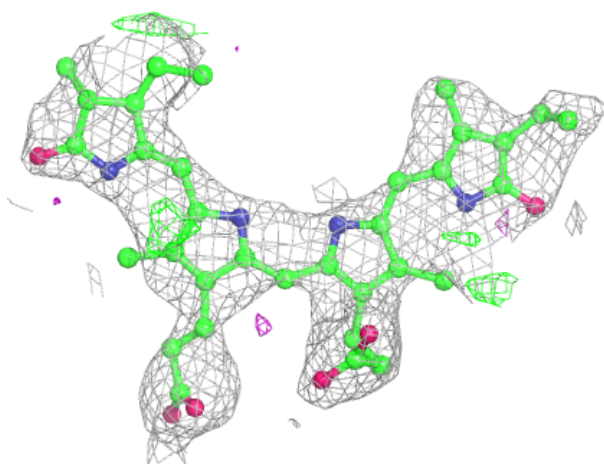
Electron density around CYC C 184:

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



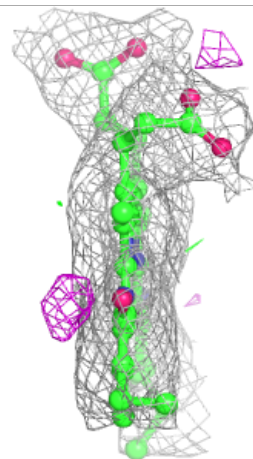
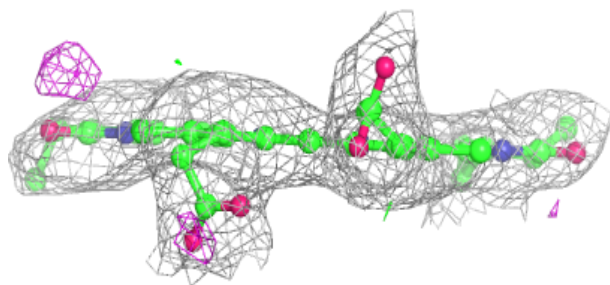
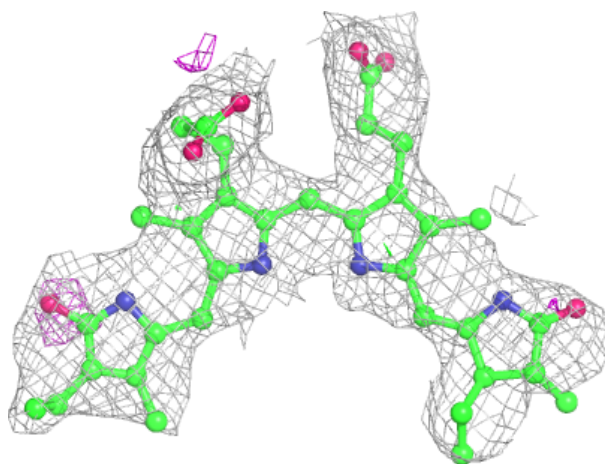
Electron density around CYC K 184:

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



Electron density around CYC U 184:

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



6.5 Other polymers [i](#)

There are no such residues in this entry.