



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 3, 2024 – 08:53 AM EST

PDB ID : 6BO7  
Title : Crystal structure of Plasmodium vivax hypoxanthine guanine phosphoribosyl transferase in complex with [3R,4R]-4-guanin-9-yl-3-((S)-2-hydroxy-2-phosphonoethyl)oxy-1-N-(phosphonopropionyl)pyrrolidine  
Authors : Guddat, L.W.; Keough, D.T.; Rejman, D.  
Deposited on : 2017-11-18  
Resolution : 2.86 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

---

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

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.36  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36

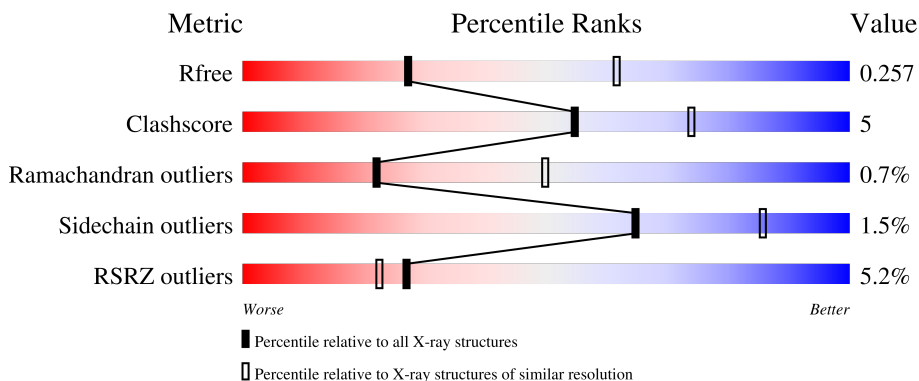
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.86 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	3168 (2.90-2.82)
Clashscore	141614	3438 (2.90-2.82)
Ramachandran outliers	138981	3348 (2.90-2.82)
Sidechain outliers	138945	3351 (2.90-2.82)
RSRZ outliers	127900	3103 (2.90-2.82)

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

Mol	Chain	Length	Quality of chain
1	A	238	
1	B	238	
1	C	238	
1	D	238	

*Continued on next page...*

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	E	238	
1	F	238	
1	G	238	
1	H	238	
1	I	238	
1	J	238	
1	K	238	
1	L	238	

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
2	MG	A	301	-	-	-	X
2	MG	G	301	-	-	-	X

## 2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 21877 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 Hypoxanthine phosphoribosyltransferase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	220	Total 1813	C 1182	N 301	O 325	S 5	0	0	0
1	B	220	Total 1813	C 1182	N 301	O 325	S 5	0	0	0
1	C	219	Total 1799	C 1173	N 296	O 325	S 5	0	0	0
1	D	218	Total 1789	C 1167	N 293	O 324	S 5	0	0	0
1	E	211	Total 1736	C 1133	N 285	O 313	S 5	0	0	0
1	F	220	Total 1809	C 1179	N 299	O 326	S 5	0	0	0
1	G	218	Total 1789	C 1167	N 293	O 324	S 5	0	0	0
1	H	218	Total 1789	C 1167	N 293	O 324	S 5	0	0	0
1	I	217	Total 1783	C 1164	N 292	O 322	S 5	0	0	0
1	J	218	Total 1789	C 1167	N 293	O 324	S 5	0	0	0
1	K	217	Total 1783	C 1164	N 292	O 322	S 5	0	0	0
1	L	216	Total 1774	C 1158	N 290	O 321	S 5	0	0	0

There are 72 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-4	HIS	-	expression tag	UNP A0A1G4HBT9
A	-3	HIS	-	expression tag	UNP A0A1G4HBT9
A	-2	HIS	-	expression tag	UNP A0A1G4HBT9
A	-1	HIS	-	expression tag	UNP A0A1G4HBT9
A	0	HIS	-	expression tag	UNP A0A1G4HBT9

*Continued on next page...*

*Continued from previous page...*

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	HIS	-	expression tag	UNP A0A1G4HBT9
B	-4	HIS	-	expression tag	UNP A0A1G4HBT9
B	-3	HIS	-	expression tag	UNP A0A1G4HBT9
B	-2	HIS	-	expression tag	UNP A0A1G4HBT9
B	-1	HIS	-	expression tag	UNP A0A1G4HBT9
B	0	HIS	-	expression tag	UNP A0A1G4HBT9
B	1	HIS	-	expression tag	UNP A0A1G4HBT9
C	-4	HIS	-	expression tag	UNP A0A1G4HBT9
C	-3	HIS	-	expression tag	UNP A0A1G4HBT9
C	-2	HIS	-	expression tag	UNP A0A1G4HBT9
C	-1	HIS	-	expression tag	UNP A0A1G4HBT9
C	0	HIS	-	expression tag	UNP A0A1G4HBT9
C	1	HIS	-	expression tag	UNP A0A1G4HBT9
D	-4	HIS	-	expression tag	UNP A0A1G4HBT9
D	-3	HIS	-	expression tag	UNP A0A1G4HBT9
D	-2	HIS	-	expression tag	UNP A0A1G4HBT9
D	-1	HIS	-	expression tag	UNP A0A1G4HBT9
D	0	HIS	-	expression tag	UNP A0A1G4HBT9
D	1	HIS	-	expression tag	UNP A0A1G4HBT9
E	-4	HIS	-	expression tag	UNP A0A1G4HBT9
E	-3	HIS	-	expression tag	UNP A0A1G4HBT9
E	-2	HIS	-	expression tag	UNP A0A1G4HBT9
E	-1	HIS	-	expression tag	UNP A0A1G4HBT9
E	0	HIS	-	expression tag	UNP A0A1G4HBT9
E	1	HIS	-	expression tag	UNP A0A1G4HBT9
F	-4	HIS	-	expression tag	UNP A0A1G4HBT9
F	-3	HIS	-	expression tag	UNP A0A1G4HBT9
F	-2	HIS	-	expression tag	UNP A0A1G4HBT9
F	-1	HIS	-	expression tag	UNP A0A1G4HBT9
F	0	HIS	-	expression tag	UNP A0A1G4HBT9
F	1	HIS	-	expression tag	UNP A0A1G4HBT9
G	-4	HIS	-	expression tag	UNP A0A1G4HBT9
G	-3	HIS	-	expression tag	UNP A0A1G4HBT9
G	-2	HIS	-	expression tag	UNP A0A1G4HBT9
G	-1	HIS	-	expression tag	UNP A0A1G4HBT9
G	0	HIS	-	expression tag	UNP A0A1G4HBT9
G	1	HIS	-	expression tag	UNP A0A1G4HBT9
H	-4	HIS	-	expression tag	UNP A0A1G4HBT9
H	-3	HIS	-	expression tag	UNP A0A1G4HBT9
H	-2	HIS	-	expression tag	UNP A0A1G4HBT9
H	-1	HIS	-	expression tag	UNP A0A1G4HBT9
H	0	HIS	-	expression tag	UNP A0A1G4HBT9

*Continued on next page...*

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
H	1	HIS	-	expression tag	UNP A0A1G4HBT9
I	-4	HIS	-	expression tag	UNP A0A1G4HBT9
I	-3	HIS	-	expression tag	UNP A0A1G4HBT9
I	-2	HIS	-	expression tag	UNP A0A1G4HBT9
I	-1	HIS	-	expression tag	UNP A0A1G4HBT9
I	0	HIS	-	expression tag	UNP A0A1G4HBT9
I	1	HIS	-	expression tag	UNP A0A1G4HBT9
J	-4	HIS	-	expression tag	UNP A0A1G4HBT9
J	-3	HIS	-	expression tag	UNP A0A1G4HBT9
J	-2	HIS	-	expression tag	UNP A0A1G4HBT9
J	-1	HIS	-	expression tag	UNP A0A1G4HBT9
J	0	HIS	-	expression tag	UNP A0A1G4HBT9
J	1	HIS	-	expression tag	UNP A0A1G4HBT9
K	-4	HIS	-	expression tag	UNP A0A1G4HBT9
K	-3	HIS	-	expression tag	UNP A0A1G4HBT9
K	-2	HIS	-	expression tag	UNP A0A1G4HBT9
K	-1	HIS	-	expression tag	UNP A0A1G4HBT9
K	0	HIS	-	expression tag	UNP A0A1G4HBT9
K	1	HIS	-	expression tag	UNP A0A1G4HBT9
L	-4	HIS	-	expression tag	UNP A0A1G4HBT9
L	-3	HIS	-	expression tag	UNP A0A1G4HBT9
L	-2	HIS	-	expression tag	UNP A0A1G4HBT9
L	-1	HIS	-	expression tag	UNP A0A1G4HBT9
L	0	HIS	-	expression tag	UNP A0A1G4HBT9
L	1	HIS	-	expression tag	UNP A0A1G4HBT9

- Molecule 2 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

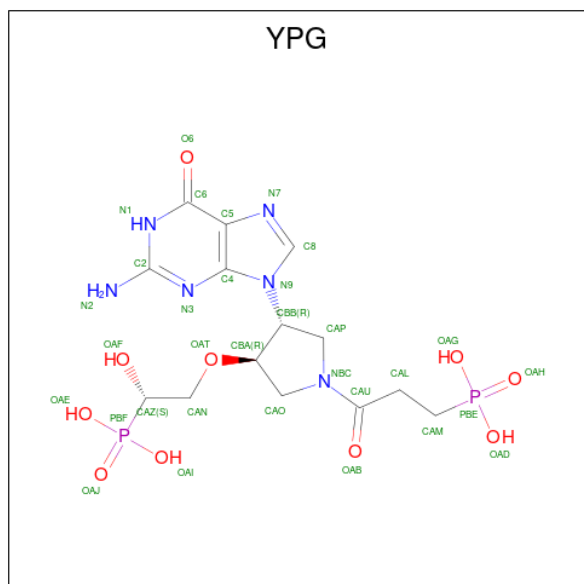
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	2	Total Mg 2 2	0	0
2	B	2	Total Mg 2 2	0	0
2	C	2	Total Mg 2 2	0	0
2	D	2	Total Mg 2 2	0	0
2	E	3	Total Mg 3 3	0	0
2	F	2	Total Mg 2 2	0	0
2	G	2	Total Mg 2 2	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	H	2	Total	Mg	0	0
			2	2		
2	I	2	Total	Mg	0	0
			2	2		
2	J	2	Total	Mg	0	0
			2	2		
2	K	3	Total	Mg	0	0
			3	3		
2	L	3	Total	Mg	0	0
			3	3		

- Molecule 3 is [3-[(3 {R},4 {R})-3-(2-azanyl-6-oxidanylidene-1 {H}-purin-9-yl)-4-[(2 {S})-2-oxidanyl-2-phosphono-ethoxy]pyrrolidin-1-yl]-3-oxidanylidene-propyl]phosphonic acid (three-letter code: YPG) (formula: C<sub>14</sub>H<sub>22</sub>N<sub>6</sub>O<sub>10</sub>P<sub>2</sub>).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
3	A	1	Total	C	N	O	P	0	0
			32	14	6	10	2		
3	B	1	Total	C	N	O	P	0	0
			32	14	6	10	2		
3	C	1	Total	C	N	O	P	0	0
			32	14	6	10	2		
3	D	1	Total	C	N	O	P	0	0
			32	14	6	10	2		
3	E	1	Total	C	N	O	P	0	0
			32	14	6	10	2		

Continued on next page...

*Continued from previous page...*

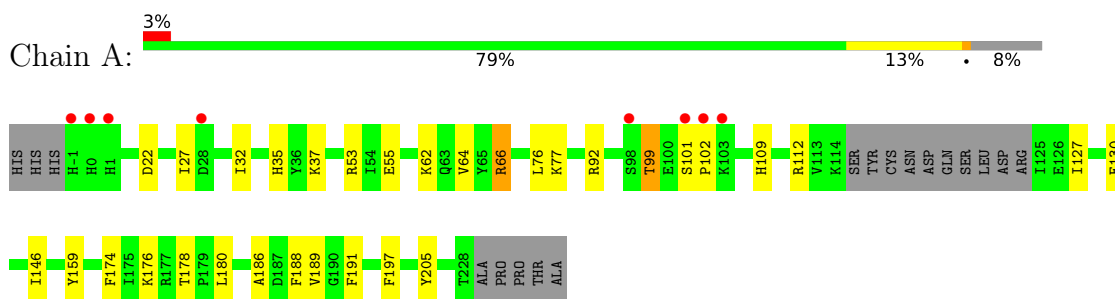
<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>					<b>ZeroOcc</b>	<b>AltConf</b>
3	F	1	Total	C	N	O	P	0	0
			32	14	6	10	2		
3	G	1	Total	C	N	O	P	0	0
			32	14	6	10	2		
3	H	1	Total	C	N	O	P	0	0
			32	14	6	10	2		
3	I	1	Total	C	N	O	P	0	0
			32	14	6	10	2		
3	J	1	Total	C	N	O	P	0	0
			32	14	6	10	2		
3	K	1	Total	C	N	O	P	0	0
			32	14	6	10	2		
3	L	1	Total	C	N	O	P	0	0
			32	14	6	10	2		



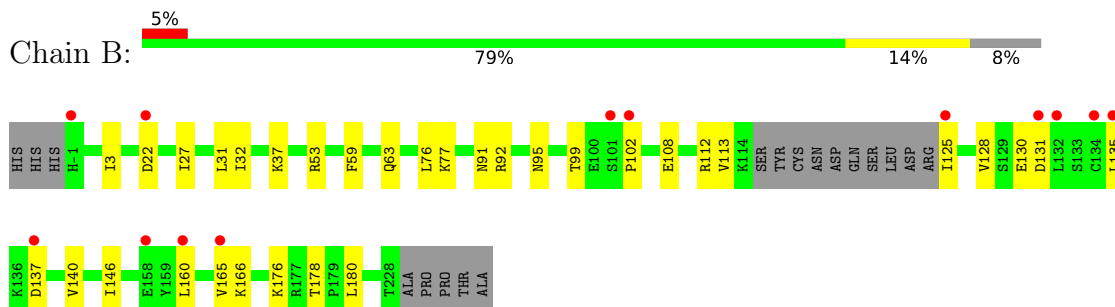
### 3 Residue-property plots [i](#)

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.

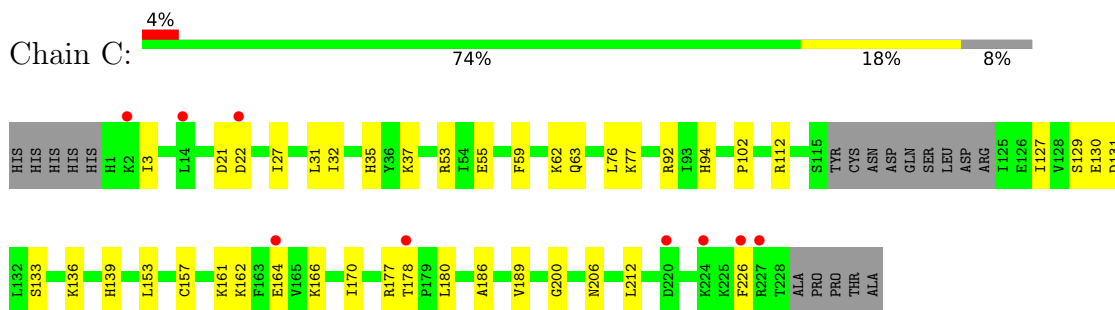
- Molecule 1: Hypoxanthine phosphoribosyltransferase



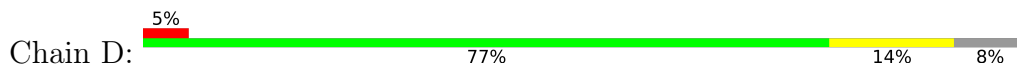
- Molecule 1: Hypoxanthine phosphoribosyltransferase

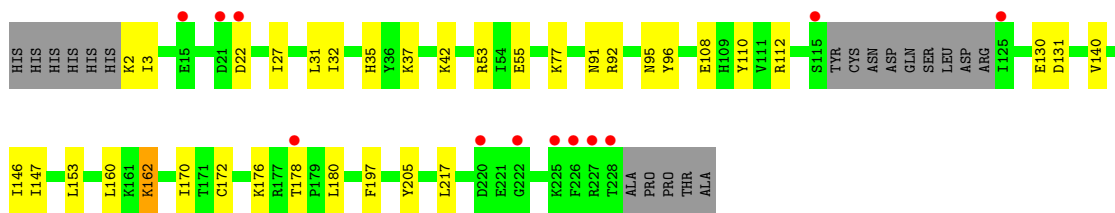


- Molecule 1: Hypoxanthine phosphoribosyltransferase

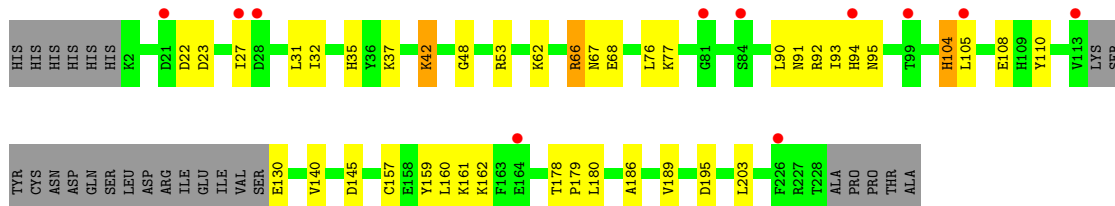


- Molecule 1: Hypoxanthine phosphoribosyltransferase

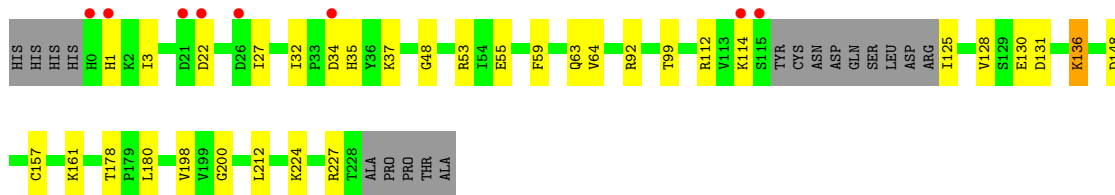
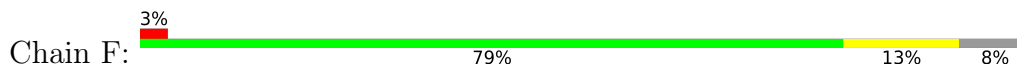




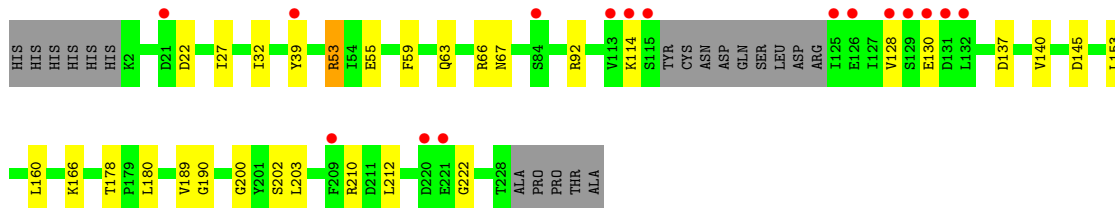
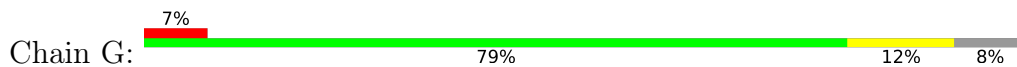
● Molecule 1: Hypoxanthine phosphoribosyltransferase



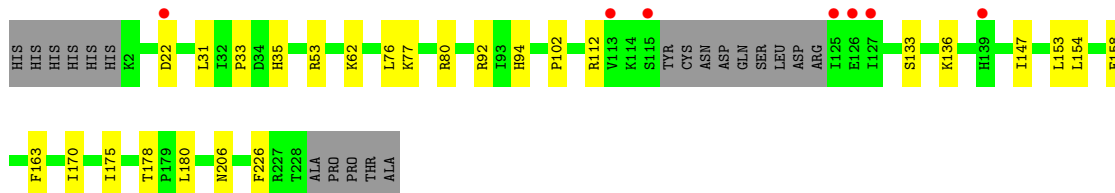
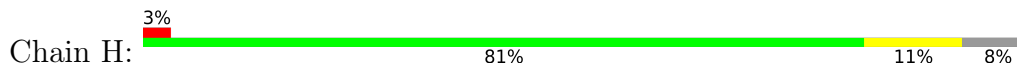
● Molecule 1: Hypoxanthine phosphoribosyltransferase




● Molecule 1: Hypoxanthine phosphoribosyltransferase

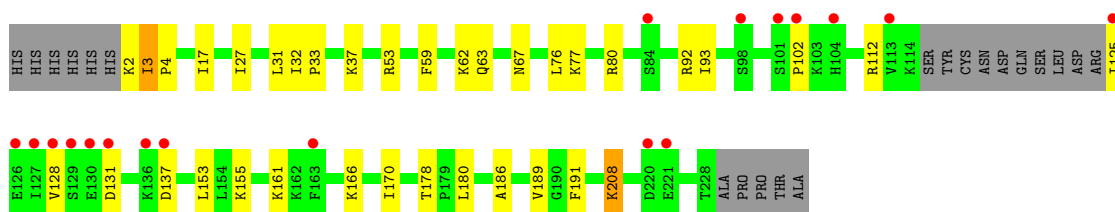


● Molecule 1: Hypoxanthine phosphoribosyltransferase




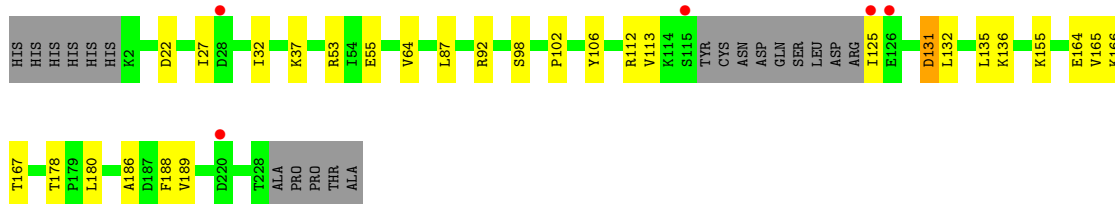
- Molecule 1: Hypoxanthine phosphoribosyltransferase

Chain I: 



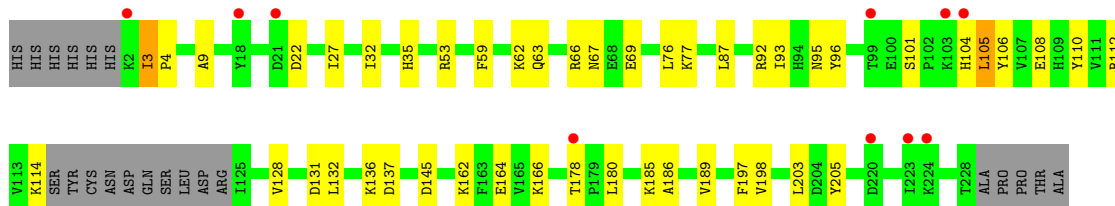
- Molecule 1: Hypoxanthine phosphoribosyltransferase

Chain J: 




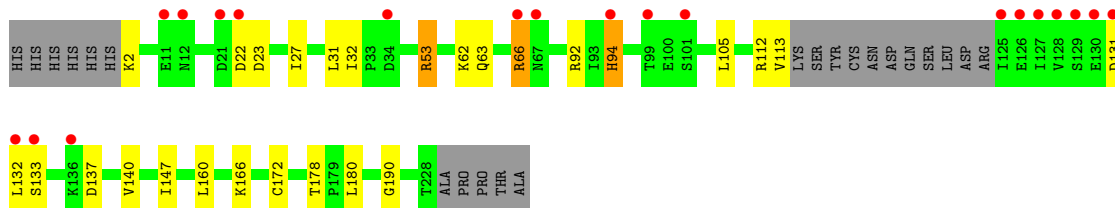
- Molecule 1: Hypoxanthine phosphoribosyltransferase

Chain K: 



- Molecule 1: Hypoxanthine phosphoribosyltransferase

Chain L: 



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 2 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	55.78Å 219.85Å 254.14Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	39.17 – 2.86 39.32 – 2.86	Depositor EDS
% Data completeness (in resolution range)	99.2 (39.17-2.86) 99.3 (39.32-2.86)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	3.17 (at 2.86Å)	Xtrriage
Refinement program	PHENIX 1.9_1692	Depositor
R, $R_{free}$	0.230 , 0.256 0.232 , 0.257	Depositor DCC
$R_{free}$ test set	2000 reflections (2.72%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	58.0	Xtrriage
Anisotropy	0.538	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.30 , 32.1	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.92	EDS
Total number of atoms	21877	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	63.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.28% of the height of the origin peak. No significant pseudotranslation is detected.*

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

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

## 5 Model quality

### 5.1 Standard geometry

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

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	0.27	0/1857	0.46	0/2507
1	B	0.26	0/1857	0.45	0/2507
1	C	0.26	0/1841	0.45	0/2485
1	D	0.27	0/1830	0.47	0/2470
1	E	0.29	0/1777	0.49	0/2399
1	F	0.27	0/1852	0.45	0/2500
1	G	0.27	0/1830	0.47	0/2470
1	H	0.26	0/1830	0.46	0/2470
1	I	0.27	0/1824	0.47	0/2462
1	J	0.26	0/1830	0.45	0/2470
1	K	0.25	0/1824	0.45	0/2462
1	L	0.28	0/1815	0.48	0/2451
All	All	0.27	0/21967	0.46	0/29653

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

### 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	1813	0	1826	20	0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	1813	0	1826	20	0
1	C	1799	0	1817	26	0
1	D	1789	0	1807	24	0
1	E	1736	0	1747	32	1
1	F	1809	0	1824	19	0
1	G	1789	0	1807	18	0
1	H	1789	0	1807	19	0
1	I	1783	0	1802	24	1
1	J	1789	0	1807	17	0
1	K	1783	0	1802	25	0
1	L	1774	0	1789	17	0
2	A	2	0	0	0	0
2	B	2	0	0	0	0
2	C	2	0	0	0	0
2	D	2	0	0	0	0
2	E	3	0	0	0	0
2	F	2	0	0	0	0
2	G	2	0	0	0	0
2	H	2	0	0	0	0
2	I	2	0	0	0	0
2	J	2	0	0	0	0
2	K	3	0	0	0	0
2	L	3	0	0	0	0
3	A	32	0	0	0	0
3	B	32	0	0	0	0
3	C	32	0	0	1	0
3	D	32	0	0	1	0
3	E	32	0	0	0	0
3	F	32	0	0	2	0
3	G	32	0	0	0	0
3	H	32	0	0	0	0
3	I	32	0	0	0	0
3	J	32	0	0	0	0
3	K	32	0	0	1	0
3	L	32	0	0	0	0
All	All	21877	0	21661	227	1

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 5.

All (227) 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)
1:E:66:ARG:HG3	1:E:67:ASN:H	1.29	0.97
1:B:112:ARG:NH1	1:B:113:VAL:O	2.13	0.81
1:E:35:HIS:HB2	1:I:102:PRO:HD3	1.61	0.81
1:E:66:ARG:HG3	1:E:67:ASN:N	1.97	0.80
1:E:108:GLU:OE2	1:I:80:ARG:NH1	2.15	0.79
1:E:66:ARG:CG	1:E:67:ASN:H	2.00	0.73
1:E:90:LEU:O	1:E:94:HIS:ND1	2.23	0.72
1:K:112:ARG:HB3	1:K:128:VAL:HB	1.72	0.72
1:H:80:ARG:NH1	1:K:108:GLU:OE2	2.23	0.72
1:B:92:ARG:HD2	1:C:92:ARG:HD2	1.73	0.71
1:G:92:ARG:HD2	1:K:92:ARG:HD2	1.73	0.69
1:J:112:ARG:NH1	1:J:113:VAL:O	2.26	0.69
1:C:127:ILE:HG12	1:E:179:PRO:HB2	1.74	0.69
1:F:178:THR:HG22	1:F:180:LEU:H	1.59	0.68
1:D:140:VAL:HG11	1:D:160:LEU:HD21	1.76	0.67
1:I:137:ASP:HA	1:I:166:LYS:HG3	1.77	0.66
1:D:91:ASN:O	1:D:95:ASN:ND2	2.29	0.66
1:B:112:ARG:HB3	1:B:128:VAL:HB	1.78	0.66
1:G:178:THR:HG22	1:G:180:LEU:H	1.61	0.65
1:F:92:ARG:HD2	1:I:92:ARG:HD2	1.79	0.65
1:J:27:ILE:HG23	1:J:32:ILE:HD12	1.79	0.65
1:H:80:ARG:HD3	1:K:110:TYR:OH	1.97	0.64
1:L:63:GLN:OE1	1:L:66:ARG:NH1	2.30	0.64
1:L:131:ASP:O	1:L:133:SER:N	2.31	0.64
1:E:140:VAL:HG11	1:E:160:LEU:HD21	1.79	0.64
1:E:110:TYR:OH	1:I:80:ARG:HD3	1.99	0.63
1:I:178:THR:HG22	1:I:180:LEU:H	1.63	0.62
1:K:3:ILE:HG12	1:K:4:PRO:HD2	1.81	0.62
1:E:178:THR:HG22	1:E:180:LEU:H	1.65	0.62
1:G:55:GLU:OE2	1:K:96:TYR:OH	2.17	0.61
1:C:178:THR:HG22	1:C:180:LEU:H	1.66	0.61
1:L:178:THR:HG22	1:L:180:LEU:H	1.65	0.61
1:C:129:SER:OG	1:C:130:GLU:N	2.33	0.60
1:F:27:ILE:HG23	1:F:32:ILE:HD12	1.82	0.60
1:A:109:HIS:ND1	1:A:130:GLU:OE2	2.32	0.59
1:J:178:THR:HG22	1:J:180:LEU:H	1.68	0.59
1:B:137:ASP:HA	1:B:166:LYS:HG3	1.85	0.59
1:B:178:THR:HG22	1:B:180:LEU:H	1.68	0.59
1:D:27:ILE:HG23	1:D:32:ILE:HD12	1.86	0.58
1:A:178:THR:HG22	1:A:180:LEU:H	1.67	0.58
1:G:140:VAL:HG11	1:G:160:LEU:HD21	1.86	0.58
1:A:102:PRO:HD3	1:C:35:HIS:HB2	1.85	0.57

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:27:ILE:HG23	1:K:32:ILE:HD12	1.85	0.57
1:G:27:ILE:HG23	1:G:32:ILE:HD12	1.87	0.57
1:K:178:THR:HG22	1:K:180:LEU:H	1.69	0.56
1:J:125:ILE:HD11	1:J:155:LYS:HD3	1.87	0.56
1:G:137:ASP:HA	1:G:166:LYS:HG3	1.87	0.56
1:D:2:LYS:HG2	1:D:3:ILE:H	1.71	0.56
1:A:66:ARG:NH1	1:A:99:THR:O	2.35	0.55
1:C:55:GLU:HG2	1:D:31:LEU:HD12	1.87	0.55
1:D:130:GLU:CD	1:D:131:ASP:H	2.09	0.55
1:L:27:ILE:HG23	1:L:32:ILE:HD12	1.89	0.55
1:H:136:LYS:HG2	1:H:163:PHE:O	2.07	0.55
1:E:27:ILE:HG23	1:E:32:ILE:HD12	1.88	0.55
1:F:114:LYS:O	1:F:125:ILE:HA	2.07	0.55
1:D:178:THR:HG22	1:D:180:LEU:H	1.71	0.55
1:I:27:ILE:HG22	1:I:37:LYS:NZ	2.22	0.55
1:I:112:ARG:HB3	1:I:128:VAL:HB	1.89	0.55
1:B:91:ASN:O	1:B:95:ASN:ND2	2.39	0.55
1:E:159:TYR:O	1:E:162:LYS:HG2	2.08	0.54
1:F:112:ARG:HB3	1:F:128:VAL:HB	1.89	0.54
1:B:27:ILE:HG23	1:B:32:ILE:HD12	1.89	0.54
1:E:66:ARG:HG2	1:E:68:GLU:OE1	2.08	0.53
1:H:102:PRO:HD3	1:K:35:HIS:HB2	1.89	0.53
1:E:130:GLU:OE1	1:E:159:TYR:OH	2.26	0.53
1:I:27:ILE:HG23	1:I:32:ILE:HD12	1.91	0.53
1:I:31:LEU:HD12	1:J:55:GLU:HG2	1.91	0.52
1:C:59:PHE:O	1:C:63:GLN:HG2	2.09	0.52
1:D:42:LYS:HE2	1:D:217:LEU:HD22	1.90	0.52
1:B:130:GLU:HG3	1:B:131:ASP:H	1.73	0.52
1:E:62:LYS:HG2	1:E:93:ILE:HG21	1.92	0.52
1:H:178:THR:HG22	1:H:180:LEU:H	1.75	0.52
1:C:153:LEU:HD21	1:C:170:ILE:HG21	1.92	0.51
1:G:53:ARG:HH21	1:G:190:GLY:HA2	1.75	0.51
1:G:130:GLU:OE2	1:L:112:ARG:HG2	2.11	0.51
1:J:131:ASP:CG	1:J:132:LEU:H	2.14	0.50
1:G:53:ARG:NH2	1:G:189:VAL:O	2.44	0.50
1:G:59:PHE:O	1:G:63:GLN:HG2	2.12	0.50
1:G:202:SER:O	1:G:210:ARG:NH1	2.45	0.50
1:E:91:ASN:O	1:E:95:ASN:ND2	2.38	0.50
1:E:66:ARG:CG	1:E:67:ASN:N	2.68	0.50
1:G:55:GLU:HG2	1:H:31:LEU:HD12	1.94	0.50
1:H:147:ILE:HB	1:H:175:ILE:HG22	1.92	0.50

*Continued on next page...*



*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:206:ASN:ND2	1:H:226:PHE:O	2.35	0.49
1:F:130:GLU:CD	1:F:131:ASP:H	2.16	0.49
1:H:154:LEU:O	1:H:158:GLU:HG2	2.12	0.49
1:J:125:ILE:HG12	1:J:155:LYS:HB3	1.95	0.49
1:B:59:PHE:O	1:B:63:GLN:HG2	2.12	0.49
1:E:31:LEU:HD12	1:F:55:GLU:HG2	1.93	0.49
1:B:102:PRO:HD3	1:D:35:HIS:HB2	1.95	0.49
1:F:1:HIS:HB2	1:F:64:VAL:HG12	1.95	0.49
1:A:77:LYS:HE3	1:A:112:ARG:NH1	2.28	0.49
1:A:27:ILE:HG23	1:A:32:ILE:HD12	1.94	0.49
1:E:92:ARG:HD3	1:J:92:ARG:HD2	1.95	0.48
1:E:157:CYS:O	1:E:161:LYS:HG3	2.13	0.48
1:D:197:PHE:HE2	1:D:205:TYR:HB2	1.78	0.48
1:H:92:ARG:HD3	1:L:92:ARG:HD2	1.96	0.48
1:D:153:LEU:HD21	1:D:170:ILE:HG21	1.96	0.48
1:G:39:TYR:HD1	1:G:222:GLY:HA2	1.78	0.48
1:I:125:ILE:HD11	1:I:155:LYS:HD3	1.95	0.48
1:F:224:LYS:HA	1:F:227:ARG:NH2	2.29	0.47
1:K:69:GLU:HA	1:K:105:LEU:O	2.14	0.47
1:B:76:LEU:HA	1:B:77:LYS:HA	1.66	0.47
1:C:27:ILE:HG23	1:C:32:ILE:HD12	1.97	0.47
1:K:137:ASP:HA	1:K:166:LYS:HG3	1.97	0.47
1:A:35:HIS:HB2	1:C:102:PRO:HD3	1.96	0.47
1:A:64:VAL:HG21	1:A:188:PHE:HZ	1.80	0.47
1:C:21:ASP:OD1	1:C:177:ARG:NH2	2.47	0.47
1:D:2:LYS:HG2	1:D:3:ILE:N	2.30	0.47
1:H:133:SER:O	1:H:136:LYS:HG3	2.15	0.47
1:E:23:ASP:O	1:E:42:LYS:NZ	2.44	0.47
1:F:198:VAL:O	3:F:303:YPG:N2	2.48	0.47
1:K:62:LYS:HG2	1:K:93:ILE:HG21	1.96	0.47
1:E:76:LEU:HA	1:E:77:LYS:HA	1.71	0.47
1:K:59:PHE:O	1:K:63:GLN:HG2	2.14	0.47
1:L:140:VAL:HG11	1:L:160:LEU:HD21	1.97	0.47
1:K:186:ALA:HB3	1:K:189:VAL:HG22	1.96	0.47
1:K:197:PHE:HE2	1:K:205:TYR:HB2	1.79	0.47
1:H:62:LYS:HZ2	1:H:94:HIS:CD2	2.32	0.46
1:L:137:ASP:HA	1:L:166:LYS:HG3	1.97	0.46
1:A:92:ARG:HD3	1:D:92:ARG:HD2	1.96	0.46
1:C:186:ALA:HB3	1:C:189:VAL:HG22	1.96	0.46
1:E:66:ARG:HG2	1:E:68:GLU:CD	2.35	0.46
1:H:153:LEU:HD21	1:H:170:ILE:HG21	1.96	0.46

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:76:LEU:HA	1:A:77:LYS:HA	1.67	0.46
1:J:166:LYS:HG2	1:J:167:THR:HG23	1.98	0.46
1:C:136:LYS:NZ	1:C:164:GLU:OE1	2.42	0.46
1:E:145:ASP:HB2	1:E:203:LEU:HD11	1.97	0.46
1:B:146:ILE:HD11	1:B:176:LYS:HD2	1.97	0.46
1:J:87:LEU:HD22	1:J:106:TYR:CE1	2.50	0.46
1:G:130:GLU:CD	1:L:112:ARG:HG2	2.36	0.46
1:F:157:CYS:O	1:F:161:LYS:HG3	2.15	0.45
1:K:87:LEU:HD22	1:K:106:TYR:CE1	2.52	0.45
1:A:55:GLU:HG2	1:B:31:LEU:HD12	1.99	0.45
1:D:162:LYS:N	1:D:162:LYS:HD2	2.30	0.45
1:F:35:HIS:HB2	1:J:102:PRO:HD3	1.98	0.45
1:C:31:LEU:HD12	1:D:55:GLU:HG2	1.99	0.45
1:C:157:CYS:O	1:C:161:LYS:HG3	2.16	0.45
1:K:104:HIS:HD2	1:K:106:TYR:O	2.00	0.45
1:K:131:ASP:OD1	1:K:132:LEU:N	2.50	0.44
1:A:55:GLU:OE2	1:D:96:TYR:OH	2.34	0.44
1:B:108:GLU:HG3	1:D:77:LYS:HD3	1.98	0.44
1:C:32:ILE:O	1:C:37:LYS:HE3	2.17	0.44
1:H:76:LEU:HA	1:H:77:LYS:HA	1.66	0.44
1:E:95:ASN:OD1	1:I:33:PRO:HG3	2.18	0.44
1:G:145:ASP:HB2	1:G:203:LEU:HD11	1.99	0.44
1:G:153:LEU:HD12	1:G:153:LEU:HA	1.88	0.44
1:G:200:GLY:HA2	1:G:212:LEU:HB3	2.00	0.44
1:I:186:ALA:HB3	1:I:189:VAL:HG22	1.98	0.44
1:A:127:ILE:HG13	1:A:159:TYR:CE2	2.53	0.44
1:C:76:LEU:HA	1:C:77:LYS:HA	1.72	0.44
1:K:66:ARG:HB3	1:K:67:ASN:H	1.58	0.44
1:K:76:LEU:HA	1:K:77:LYS:HA	1.69	0.44
1:K:145:ASP:HB2	1:K:203:LEU:HD11	1.99	0.44
1:L:131:ASP:C	1:L:133:SER:H	2.21	0.44
1:I:2:LYS:HB3	1:I:3:ILE:H	1.49	0.44
1:I:3:ILE:HA	1:I:4:PRO:HD3	1.80	0.43
1:I:125:ILE:HG12	1:I:155:LYS:HB3	1.99	0.43
1:A:27:ILE:HG21	1:A:37:LYS:HG3	2.00	0.43
1:J:135:LEU:O	1:J:165:VAL:HG12	2.18	0.43
1:C:131:ASP:OD1	1:C:133:SER:HB3	2.17	0.43
1:B:140:VAL:HG11	1:B:160:LEU:HD21	1.99	0.43
1:J:27:ILE:HG21	1:J:37:LYS:HG3	2.01	0.43
1:C:162:LYS:NZ	1:E:195:ASP:OD2	2.48	0.43
1:E:186:ALA:HB3	1:E:189:VAL:HG22	2.00	0.43

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:186:ALA:HB3	1:J:189:VAL:HG22	2.00	0.43
1:A:146:ILE:HD11	1:A:176:LYS:HD2	2.01	0.43
1:C:62:LYS:HA	1:C:62:LYS:HD2	1.80	0.43
1:B:27:ILE:HG21	1:B:37:LYS:HG3	2.01	0.43
1:F:59:PHE:O	1:F:63:GLN:HG2	2.19	0.43
1:I:59:PHE:O	1:I:63:GLN:HG2	2.18	0.43
1:E:104:HIS:O	1:E:105:LEU:HD23	2.19	0.43
1:L:53:ARG:HH21	1:L:190:GLY:HA2	1.83	0.43
1:L:62:LYS:HE3	1:L:94:HIS:HE1	1.83	0.43
1:B:135:LEU:O	1:B:165:VAL:HG12	2.19	0.42
1:F:32:ILE:O	1:F:37:LYS:HE3	2.19	0.42
1:A:186:ALA:HB3	1:A:189:VAL:HG22	2.01	0.42
1:D:32:ILE:O	1:D:37:LYS:HE3	2.19	0.42
1:C:139:HIS:CE1	1:C:166:LYS:HD3	2.54	0.42
1:D:147:ILE:HG13	1:D:172:CYS:SG	2.60	0.42
1:E:27:ILE:HG21	1:E:37:LYS:HG3	2.01	0.42
1:C:206:ASN:ND2	1:C:226:PHE:O	2.35	0.42
1:I:62:LYS:HG2	1:I:93:ILE:HG21	2.01	0.42
1:I:153:LEU:HD21	1:I:170:ILE:HG21	2.01	0.42
1:H:77:LYS:HE3	1:H:112:ARG:NH1	2.35	0.42
1:L:147:ILE:HG13	1:L:172:CYS:SG	2.60	0.42
1:B:31:LEU:HA	1:B:31:LEU:HD23	1.87	0.42
1:C:31:LEU:HD23	1:C:31:LEU:HA	1.91	0.42
1:L:31:LEU:HD23	1:L:31:LEU:HA	1.88	0.42
1:C:62:LYS:HZ2	1:C:94:HIS:CD2	2.38	0.42
1:C:112:ARG:HH12	3:C:303:YPG:PBE	2.42	0.42
1:D:2:LYS:CG	1:D:3:ILE:H	2.29	0.42
1:K:136:LYS:NZ	1:K:164:GLU:OE1	2.43	0.42
1:F:34:ASP:OD2	1:J:98:SER:HA	2.20	0.41
1:H:62:LYS:HA	1:H:62:LYS:HD2	1.85	0.41
1:I:153:LEU:HD12	1:I:153:LEU:HA	1.88	0.41
1:K:9:ALA:O	1:K:185:LYS:HD2	2.20	0.41
1:B:37:LYS:HE3	1:B:37:LYS:HB2	1.80	0.41
1:H:31:LEU:HD23	1:H:31:LEU:HA	1.94	0.41
1:C:200:GLY:HA2	1:C:212:LEU:HB3	2.02	0.41
1:D:146:ILE:HD11	1:D:176:LYS:HD2	2.02	0.41
1:F:136:LYS:HE3	1:F:136:LYS:HB2	1.68	0.41
1:F:200:GLY:HA2	1:F:212:LEU:HB3	2.02	0.41
1:I:76:LEU:HA	1:I:77:LYS:HA	1.68	0.41
1:F:148:ASP:HB3	3:F:303:YPG:OAE	2.20	0.41
1:J:136:LYS:NZ	1:J:164:GLU:OE1	2.40	0.41

*Continued on next page...*

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:33:PRO:HB3	1:H:35:HIS:CE1	2.55	0.41
1:I:17:ILE:HD12	1:I:191:PHE:CE2	2.56	0.41
1:A:197:PHE:HE2	1:A:205:TYR:HB2	1.86	0.41
1:A:174:PHE:HD1	1:A:191:PHE:HB2	1.86	0.41
1:E:37:LYS:HB2	1:E:37:LYS:HE3	1.87	0.41
1:J:64:VAL:HG21	1:J:188:PHE:HZ	1.85	0.41
1:L:94:HIS:NE2	1:L:105:LEU:HG	2.36	0.41
1:L:2:LYS:HE2	1:L:2:LYS:HB2	1.91	0.40
1:A:62:LYS:HA	1:A:62:LYS:HD2	1.94	0.40
1:D:108:GLU:OE1	1:D:110:TYR:OH	2.28	0.40
1:L:94:HIS:CD2	1:L:105:LEU:HG	2.56	0.40
1:A:77:LYS:HE3	1:A:112:ARG:HH12	1.86	0.40
1:G:66:ARG:O	1:G:67:ASN:HB2	2.21	0.40
1:D:112:ARG:HH12	3:D:303:YPG:PBE	2.45	0.40
1:D:153:LEU:HD12	1:D:153:LEU:HA	1.82	0.40
1:E:104:HIS:CD2	1:I:208:LYS:HD2	2.56	0.40
1:H:35:HIS:HB3	1:K:101:SER:O	2.22	0.40
1:B:113:VAL:CG1	1:B:125:ILE:HD11	2.51	0.40
1:E:48:GLY:HA3	1:F:48:GLY:HA3	2.03	0.40
1:I:27:ILE:HG22	1:I:37:LYS:HZ2	1.86	0.40
1:K:198:VAL:O	3:K:304:YPG:N2	2.55	0.40

All (1) 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)
1:E:68:GLU:OE2	1:I:67:ASN:ND2[1_455]	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	216/238 (91%)	201 (93%)	13 (6%)	2 (1%)	17	43
1	B	216/238 (91%)	203 (94%)	12 (6%)	1 (0%)	29	57
1	C	215/238 (90%)	205 (95%)	9 (4%)	1 (0%)	29	57
1	D	214/238 (90%)	203 (95%)	10 (5%)	1 (0%)	29	57
1	E	207/238 (87%)	198 (96%)	6 (3%)	3 (1%)	11	31
1	F	216/238 (91%)	207 (96%)	8 (4%)	1 (0%)	29	57
1	G	214/238 (90%)	204 (95%)	9 (4%)	1 (0%)	29	57
1	H	214/238 (90%)	206 (96%)	7 (3%)	1 (0%)	29	57
1	I	213/238 (90%)	201 (94%)	11 (5%)	1 (0%)	29	57
1	J	214/238 (90%)	203 (95%)	9 (4%)	2 (1%)	17	43
1	K	213/238 (90%)	203 (95%)	9 (4%)	1 (0%)	29	57
1	L	212/238 (89%)	202 (95%)	7 (3%)	3 (1%)	11	31
All	All	2564/2856 (90%)	2436 (95%)	110 (4%)	18 (1%)	22	50

All (18) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	E	66	ARG
1	J	131	ASP
1	L	132	LEU
1	A	22	ASP
1	D	22	ASP
1	E	104	HIS
1	F	22	ASP
1	I	131	ASP
1	B	22	ASP
1	C	22	ASP
1	E	22	ASP
1	G	22	ASP
1	H	22	ASP
1	J	22	ASP
1	K	22	ASP
1	L	22	ASP
1	L	66	ARG
1	A	99	THR

### 5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	202/218 (93%)	199 (98%)	3 (2%)	65	86
1	B	202/218 (93%)	199 (98%)	3 (2%)	65	86
1	C	201/218 (92%)	199 (99%)	2 (1%)	76	91
1	D	200/218 (92%)	198 (99%)	2 (1%)	76	91
1	E	193/218 (88%)	191 (99%)	2 (1%)	76	91
1	F	202/218 (93%)	198 (98%)	4 (2%)	55	80
1	G	200/218 (92%)	197 (98%)	3 (2%)	65	86
1	H	200/218 (92%)	199 (100%)	1 (0%)	88	96
1	I	199/218 (91%)	195 (98%)	4 (2%)	55	80
1	J	200/218 (92%)	199 (100%)	1 (0%)	88	96
1	K	199/218 (91%)	193 (97%)	6 (3%)	41	72
1	L	198/218 (91%)	194 (98%)	4 (2%)	55	80
All	All	2396/2616 (92%)	2361 (98%)	35 (2%)	65	86

All (35) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	53	ARG
1	A	66	ARG
1	A	101	SER
1	B	3	ILE
1	B	53	ARG
1	B	99	THR
1	C	3	ILE
1	C	53	ARG
1	D	53	ARG
1	D	162	LYS
1	E	42	LYS
1	E	53	ARG
1	F	3	ILE
1	F	53	ARG

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
1	F	99	THR
1	F	136	LYS
1	G	53	ARG
1	G	114	LYS
1	G	128	VAL
1	H	53	ARG
1	I	3	ILE
1	I	53	ARG
1	I	161	LYS
1	I	208	LYS
1	J	53	ARG
1	K	3	ILE
1	K	53	ARG
1	K	95	ASN
1	K	105	LEU
1	K	114	LYS
1	K	162	LYS
1	L	23	ASP
1	L	53	ARG
1	L	94	HIS
1	L	113	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	95	ASN
1	B	63	GLN
1	K	94	HIS

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry

Of 39 ligands modelled in this entry, 27 are monoatomic - leaving 12 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
3	YPG	J	303	2	28,34,34	3.88	12 (42%)	33,52,52	1.40	3 (9%)
3	YPG	C	303	2	28,34,34	3.87	11 (39%)	33,52,52	1.37	3 (9%)
3	YPG	A	303	2	28,34,34	3.86	11 (39%)	33,52,52	1.32	3 (9%)
3	YPG	B	303	2	28,34,34	3.82	10 (35%)	33,52,52	1.38	3 (9%)
3	YPG	F	303	2	28,34,34	3.86	11 (39%)	33,52,52	1.33	3 (9%)
3	YPG	I	303	2	28,34,34	3.88	12 (42%)	33,52,52	1.33	3 (9%)
3	YPG	L	304	2	28,34,34	3.89	11 (39%)	33,52,52	1.38	4 (12%)
3	YPG	D	303	2	28,34,34	3.83	13 (46%)	33,52,52	1.41	3 (9%)
3	YPG	K	304	2	28,34,34	3.85	11 (39%)	33,52,52	1.38	4 (12%)
3	YPG	H	303	2	28,34,34	3.89	11 (39%)	33,52,52	1.39	3 (9%)
3	YPG	G	303	2	28,34,34	3.91	12 (42%)	33,52,52	1.50	5 (15%)
3	YPG	E	304	2	28,34,34	3.84	11 (39%)	33,52,52	1.35	3 (9%)

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
3	YPG	J	303	2	-	4/17/37/37	0/3/3/3
3	YPG	C	303	2	-	3/17/37/37	0/3/3/3
3	YPG	A	303	2	-	3/17/37/37	0/3/3/3
3	YPG	B	303	2	-	3/17/37/37	0/3/3/3
3	YPG	F	303	2	-	5/17/37/37	0/3/3/3
3	YPG	I	303	2	-	3/17/37/37	0/3/3/3
3	YPG	L	304	2	-	3/17/37/37	0/3/3/3
3	YPG	D	303	2	-	3/17/37/37	0/3/3/3

*Continued on next page...*



Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	YPG	K	304	2	-	3/17/37/37	0/3/3/3
3	YPG	H	303	2	-	3/17/37/37	0/3/3/3
3	YPG	G	303	2	-	3/17/37/37	0/3/3/3
3	YPG	E	304	2	-	3/17/37/37	0/3/3/3

All (136) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	303	YPG	CAO-CBA	-8.78	1.32	1.52
3	I	303	YPG	CAO-CBA	-8.71	1.32	1.52
3	L	304	YPG	CAO-CBA	-8.71	1.32	1.52
3	F	303	YPG	CAO-CBA	-8.62	1.33	1.52
3	A	303	YPG	CAO-CBA	-8.61	1.33	1.52
3	E	304	YPG	CAO-CBA	-8.61	1.33	1.52
3	G	303	YPG	PBE-CAM	8.61	1.87	1.78
3	H	303	YPG	CAO-CBA	-8.61	1.33	1.52
3	J	303	YPG	CAO-CBA	-8.60	1.33	1.52
3	D	303	YPG	CAO-CBA	-8.59	1.33	1.52
3	K	304	YPG	CAO-CBA	-8.55	1.33	1.52
3	B	303	YPG	CAO-CBA	-8.53	1.33	1.52
3	G	303	YPG	CAO-CBA	-8.51	1.33	1.52
3	C	303	YPG	O6-C6	8.49	1.40	1.23
3	H	303	YPG	O6-C6	8.46	1.40	1.23
3	F	303	YPG	O6-C6	8.46	1.40	1.23
3	L	304	YPG	O6-C6	8.44	1.40	1.23
3	A	303	YPG	O6-C6	8.42	1.40	1.23
3	J	303	YPG	O6-C6	8.41	1.40	1.23
3	D	303	YPG	O6-C6	8.36	1.40	1.23
3	E	304	YPG	O6-C6	8.35	1.40	1.23
3	K	304	YPG	O6-C6	8.35	1.40	1.23
3	B	303	YPG	O6-C6	8.33	1.40	1.23
3	G	303	YPG	O6-C6	8.32	1.40	1.23
3	I	303	YPG	O6-C6	8.31	1.40	1.23
3	L	304	YPG	PBE-CAM	8.22	1.87	1.78
3	H	303	YPG	PBE-CAM	8.20	1.87	1.78
3	I	303	YPG	PBE-CAM	8.04	1.87	1.78
3	J	303	YPG	PBE-CAM	7.99	1.86	1.78
3	E	304	YPG	PBE-CAM	7.86	1.86	1.78
3	K	304	YPG	PBE-CAM	7.82	1.86	1.78
3	C	303	YPG	PBE-CAM	7.80	1.86	1.78
3	A	303	YPG	PBE-CAM	7.77	1.86	1.78

Continued on next page...

*Continued from previous page...*

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	303	YPG	PBE-CAM	7.76	1.86	1.78
3	F	303	YPG	PBE-CAM	7.71	1.86	1.78
3	D	303	YPG	PBE-CAM	7.60	1.86	1.78
3	G	303	YPG	CAP-NBC	-7.37	1.31	1.46
3	L	304	YPG	CAP-NBC	-7.33	1.31	1.46
3	C	303	YPG	CAP-NBC	-7.29	1.31	1.46
3	D	303	YPG	CAP-NBC	-7.28	1.31	1.46
3	K	304	YPG	CAP-NBC	-7.23	1.31	1.46
3	A	303	YPG	CAP-NBC	-7.22	1.31	1.46
3	I	303	YPG	CAP-NBC	-7.18	1.31	1.46
3	E	304	YPG	CAP-NBC	-7.16	1.31	1.46
3	H	303	YPG	CAO-NBC	7.16	1.61	1.46
3	J	303	YPG	CAO-NBC	7.15	1.61	1.46
3	K	304	YPG	CAO-NBC	7.14	1.61	1.46
3	J	303	YPG	CAP-NBC	-7.13	1.31	1.46
3	B	303	YPG	CAP-NBC	-7.13	1.31	1.46
3	F	303	YPG	CAO-NBC	7.11	1.61	1.46
3	H	303	YPG	CAP-NBC	-7.09	1.31	1.46
3	G	303	YPG	CAO-NBC	7.07	1.61	1.46
3	F	303	YPG	CAP-NBC	-7.06	1.31	1.46
3	D	303	YPG	CAO-NBC	7.05	1.61	1.46
3	A	303	YPG	CAO-NBC	7.04	1.61	1.46
3	E	304	YPG	CAO-NBC	7.04	1.61	1.46
3	I	303	YPG	CAO-NBC	7.02	1.61	1.46
3	C	303	YPG	CAO-NBC	7.01	1.61	1.46
3	L	304	YPG	CAO-NBC	7.01	1.61	1.46
3	B	303	YPG	CAO-NBC	7.01	1.61	1.46
3	J	303	YPG	CAU-NBC	5.32	1.45	1.35
3	H	303	YPG	CAU-NBC	5.29	1.45	1.35
3	I	303	YPG	CAU-NBC	5.16	1.45	1.35
3	F	303	YPG	CAU-NBC	5.16	1.45	1.35
3	K	304	YPG	CAU-NBC	5.12	1.45	1.35
3	E	304	YPG	CAU-NBC	5.10	1.45	1.35
3	A	303	YPG	CAU-NBC	5.06	1.45	1.35
3	C	303	YPG	CAU-NBC	5.03	1.45	1.35
3	B	303	YPG	CAU-NBC	5.00	1.45	1.35
3	D	303	YPG	CAU-NBC	4.96	1.45	1.35
3	J	303	YPG	C2-N2	4.88	1.45	1.34
3	F	303	YPG	C2-N2	4.86	1.45	1.34
3	A	303	YPG	C2-N2	4.82	1.45	1.34
3	I	303	YPG	C2-N2	4.81	1.45	1.34
3	L	304	YPG	CAU-NBC	4.80	1.45	1.35

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	G	303	YPG	C2-N2	4.79	1.45	1.34
3	H	303	YPG	C2-N2	4.79	1.45	1.34
3	C	303	YPG	C2-N2	4.78	1.45	1.34
3	D	303	YPG	C2-N2	4.77	1.45	1.34
3	L	304	YPG	C2-N2	4.77	1.45	1.34
3	E	304	YPG	C2-N2	4.76	1.45	1.34
3	B	303	YPG	C2-N2	4.73	1.45	1.34
3	K	304	YPG	C2-N2	4.70	1.45	1.34
3	G	303	YPG	CAU-NBC	4.66	1.44	1.35
3	I	303	YPG	C6-N1	-3.49	1.32	1.37
3	L	304	YPG	C6-N1	-3.48	1.32	1.37
3	B	303	YPG	C6-N1	-3.48	1.32	1.37
3	A	303	YPG	C6-N1	-3.47	1.32	1.37
3	G	303	YPG	C6-N1	-3.42	1.32	1.37
3	D	303	YPG	C6-N1	-3.38	1.32	1.37
3	J	303	YPG	C6-N1	-3.37	1.32	1.37
3	F	303	YPG	C6-N1	-3.35	1.32	1.37
3	C	303	YPG	C6-N1	-3.29	1.33	1.37
3	K	304	YPG	C6-N1	-3.28	1.33	1.37
3	G	303	YPG	C5-C6	-3.26	1.40	1.47
3	H	303	YPG	C6-N1	-3.25	1.33	1.37
3	E	304	YPG	C6-N1	-3.24	1.33	1.37
3	I	303	YPG	C5-C6	-3.18	1.41	1.47
3	A	303	YPG	C5-C6	-3.12	1.41	1.47
3	F	303	YPG	C5-C6	-3.11	1.41	1.47
3	L	304	YPG	C5-C6	-3.11	1.41	1.47
3	E	304	YPG	C5-C6	-3.09	1.41	1.47
3	B	303	YPG	C5-C6	-3.06	1.41	1.47
3	D	303	YPG	C5-C6	-3.04	1.41	1.47
3	K	304	YPG	C5-C6	-3.02	1.41	1.47
3	C	303	YPG	C5-C6	-3.00	1.41	1.47
3	J	303	YPG	C5-C6	-3.00	1.41	1.47
3	H	303	YPG	C5-C6	-2.99	1.41	1.47
3	F	303	YPG	PBF-OAE	-2.30	1.51	1.54
3	D	303	YPG	PBF-OAI	-2.27	1.51	1.54
3	G	303	YPG	PBF-OAI	-2.23	1.51	1.54
3	J	303	YPG	PBF-OAI	-2.22	1.51	1.54
3	H	303	YPG	PBF-OAI	-2.21	1.51	1.54
3	C	303	YPG	PBF-OAE	-2.20	1.51	1.54
3	A	303	YPG	PBF-OAI	-2.20	1.51	1.54
3	C	303	YPG	PBF-OAI	-2.18	1.51	1.54
3	F	303	YPG	PBF-OAI	-2.18	1.51	1.54

*Continued on next page...*

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	K	304	YPG	PBF-OAE	-2.17	1.51	1.54
3	K	304	YPG	PBF-OAI	-2.15	1.51	1.54
3	I	303	YPG	PBF-OAI	-2.15	1.51	1.54
3	A	303	YPG	PBF-OAE	-2.13	1.51	1.54
3	I	303	YPG	PBF-OAE	-2.13	1.51	1.54
3	B	303	YPG	PBF-OAI	-2.12	1.51	1.54
3	H	303	YPG	PBF-OAE	-2.11	1.51	1.54
3	D	303	YPG	PBF-OAE	-2.10	1.51	1.54
3	G	303	YPG	PBF-OAE	-2.09	1.51	1.54
3	L	304	YPG	PBF-OAI	-2.08	1.51	1.54
3	J	303	YPG	PBF-OAE	-2.07	1.51	1.54
3	G	303	YPG	OAT-CAN	-2.07	1.40	1.43
3	E	304	YPG	PBF-OAI	-2.06	1.51	1.54
3	D	303	YPG	OAT-CAN	-2.04	1.40	1.43
3	J	303	YPG	OAT-CAN	-2.03	1.40	1.43
3	E	304	YPG	OAT-CAN	-2.02	1.40	1.43
3	L	304	YPG	OAT-CAN	-2.01	1.40	1.43
3	D	303	YPG	C2-N1	-2.00	1.32	1.37
3	I	303	YPG	C2-N1	-2.00	1.32	1.37

All (40) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	J	303	YPG	CAP-NBC-CAO	-3.63	105.67	112.81
3	H	303	YPG	CAP-NBC-CAO	-3.54	105.84	112.81
3	G	303	YPG	CAP-NBC-CAO	-3.32	106.27	112.81
3	B	303	YPG	CAP-NBC-CAO	-3.32	106.27	112.81
3	I	303	YPG	CAP-NBC-CAO	-3.30	106.31	112.81
3	F	303	YPG	CAP-NBC-CAO	-3.30	106.31	112.81
3	L	304	YPG	CAP-NBC-CAO	-3.22	106.47	112.81
3	E	304	YPG	CAP-NBC-CAO	-3.20	106.50	112.81
3	A	303	YPG	CAP-NBC-CAO	-3.18	106.54	112.81
3	C	303	YPG	CAP-NBC-CAO	-3.17	106.56	112.81
3	D	303	YPG	CAP-NBC-CAO	-3.08	106.74	112.81
3	K	304	YPG	CAP-NBC-CAO	-3.08	106.75	112.81
3	D	303	YPG	C8-N7-C5	2.92	108.55	102.99
3	B	303	YPG	C8-N7-C5	2.86	108.44	102.99
3	H	303	YPG	C8-N7-C5	2.83	108.38	102.99
3	J	303	YPG	C8-N7-C5	2.81	108.35	102.99
3	K	304	YPG	C8-N7-C5	2.80	108.33	102.99
3	L	304	YPG	C8-N7-C5	2.80	108.31	102.99
3	F	303	YPG	C8-N7-C5	2.79	108.30	102.99

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	303	YPG	C8-N7-C5	2.79	108.30	102.99
3	E	304	YPG	C8-N7-C5	2.73	108.19	102.99
3	I	303	YPG	C5-C6-N1	2.72	118.76	113.95
3	D	303	YPG	C5-C6-N1	2.72	118.75	113.95
3	G	303	YPG	C5-C6-N1	2.71	118.75	113.95
3	C	303	YPG	C5-C6-N1	2.67	118.66	113.95
3	A	303	YPG	C8-N7-C5	2.67	108.07	102.99
3	G	303	YPG	C8-N7-C5	2.67	108.07	102.99
3	J	303	YPG	C5-C6-N1	2.64	118.62	113.95
3	L	304	YPG	C5-C6-N1	2.64	118.61	113.95
3	K	304	YPG	C5-C6-N1	2.62	118.57	113.95
3	H	303	YPG	C5-C6-N1	2.62	118.57	113.95
3	B	303	YPG	C5-C6-N1	2.59	118.52	113.95
3	F	303	YPG	C5-C6-N1	2.58	118.52	113.95
3	E	304	YPG	C5-C6-N1	2.58	118.51	113.95
3	I	303	YPG	C8-N7-C5	2.56	107.88	102.99
3	A	303	YPG	C5-C6-N1	2.53	118.42	113.95
3	G	303	YPG	OAD-PBE-OAH	-2.45	105.92	112.39
3	G	303	YPG	PBF-CAZ-CAN	-2.10	108.03	111.51
3	L	304	YPG	PBF-CAZ-CAN	-2.08	108.06	111.51
3	K	304	YPG	CAL-CAU-NBC	2.04	121.19	118.01

There are no chirality outliers.

All (39) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	303	YPG	CBB-CBA-OAT-CAN
3	A	303	YPG	CAU-CAL-CAM-PBE
3	B	303	YPG	CBB-CBA-OAT-CAN
3	B	303	YPG	CAU-CAL-CAM-PBE
3	C	303	YPG	CBB-CBA-OAT-CAN
3	C	303	YPG	CAU-CAL-CAM-PBE
3	D	303	YPG	CBB-CBA-OAT-CAN
3	D	303	YPG	CAU-CAL-CAM-PBE
3	E	304	YPG	CBB-CBA-OAT-CAN
3	E	304	YPG	CAU-CAL-CAM-PBE
3	F	303	YPG	OAF-CAZ-PBF-OAI
3	F	303	YPG	OAF-CAZ-PBF-OAE
3	F	303	YPG	CBB-CBA-OAT-CAN
3	G	303	YPG	CBB-CBA-OAT-CAN
3	G	303	YPG	CAU-CAL-CAM-PBE
3	H	303	YPG	CBB-CBA-OAT-CAN

Continued on next page...

*Continued from previous page...*

Mol	Chain	Res	Type	Atoms
3	H	303	YPG	CAU-CAL-CAM-PBE
3	I	303	YPG	CBB-CBA-OAT-CAN
3	I	303	YPG	CAU-CAL-CAM-PBE
3	J	303	YPG	CBB-CBA-OAT-CAN
3	J	303	YPG	CAU-CAL-CAM-PBE
3	K	304	YPG	CBB-CBA-OAT-CAN
3	K	304	YPG	CAU-CAL-CAM-PBE
3	L	304	YPG	CBB-CBA-OAT-CAN
3	L	304	YPG	CAU-CAL-CAM-PBE
3	A	303	YPG	CAO-CBA-OAT-CAN
3	B	303	YPG	CAO-CBA-OAT-CAN
3	C	303	YPG	CAO-CBA-OAT-CAN
3	D	303	YPG	CAO-CBA-OAT-CAN
3	E	304	YPG	CAO-CBA-OAT-CAN
3	F	303	YPG	CAO-CBA-OAT-CAN
3	G	303	YPG	CAO-CBA-OAT-CAN
3	H	303	YPG	CAO-CBA-OAT-CAN
3	I	303	YPG	CAO-CBA-OAT-CAN
3	J	303	YPG	CAO-CBA-OAT-CAN
3	K	304	YPG	CAO-CBA-OAT-CAN
3	L	304	YPG	CAO-CBA-OAT-CAN
3	F	303	YPG	CAU-CAL-CAM-PBE
3	J	303	YPG	OAT-CAN-CAZ-OAF

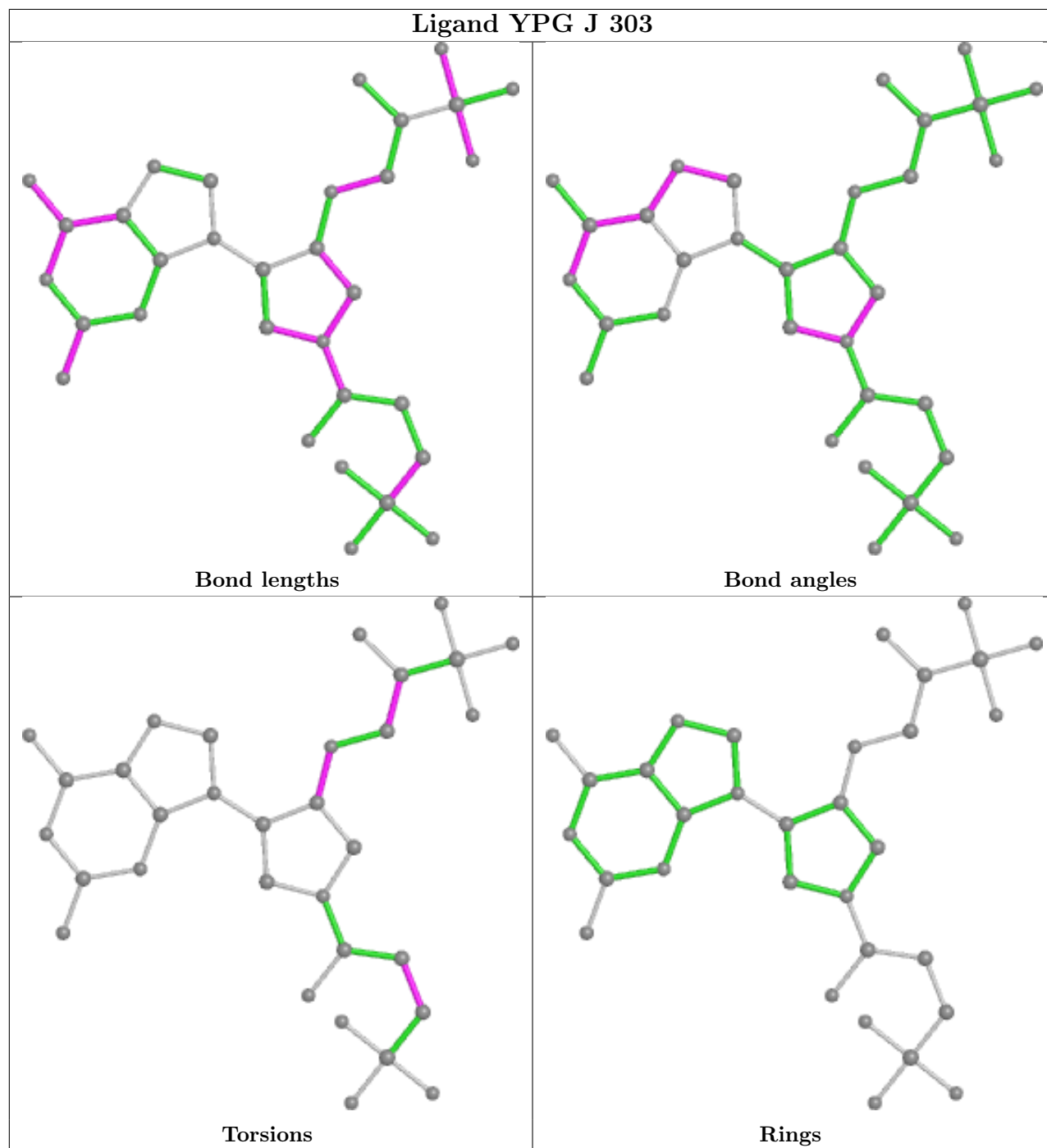
There are no ring outliers.

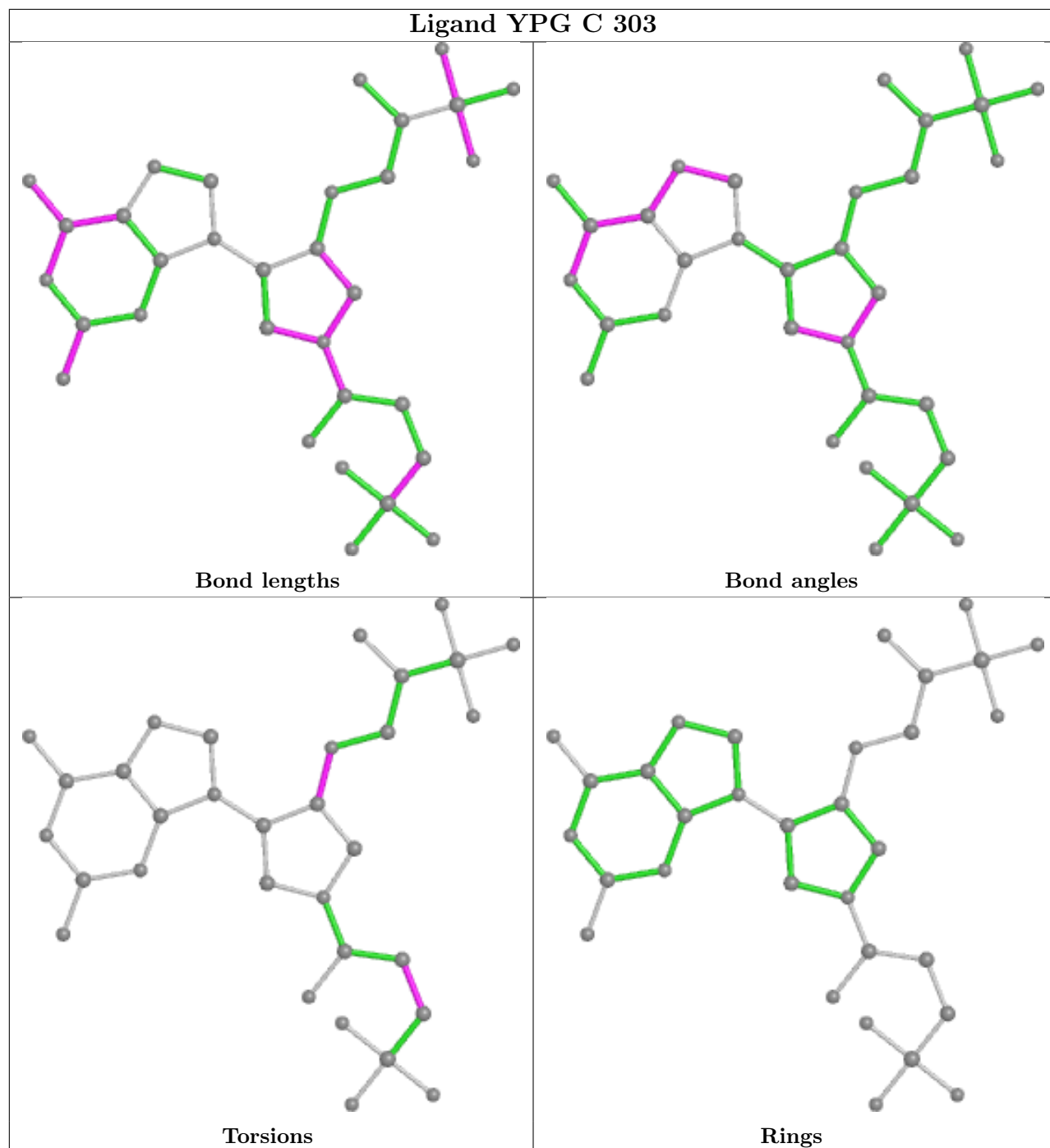
4 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	C	303	YPG	1	0
3	F	303	YPG	2	0
3	D	303	YPG	1	0
3	K	304	YPG	1	0

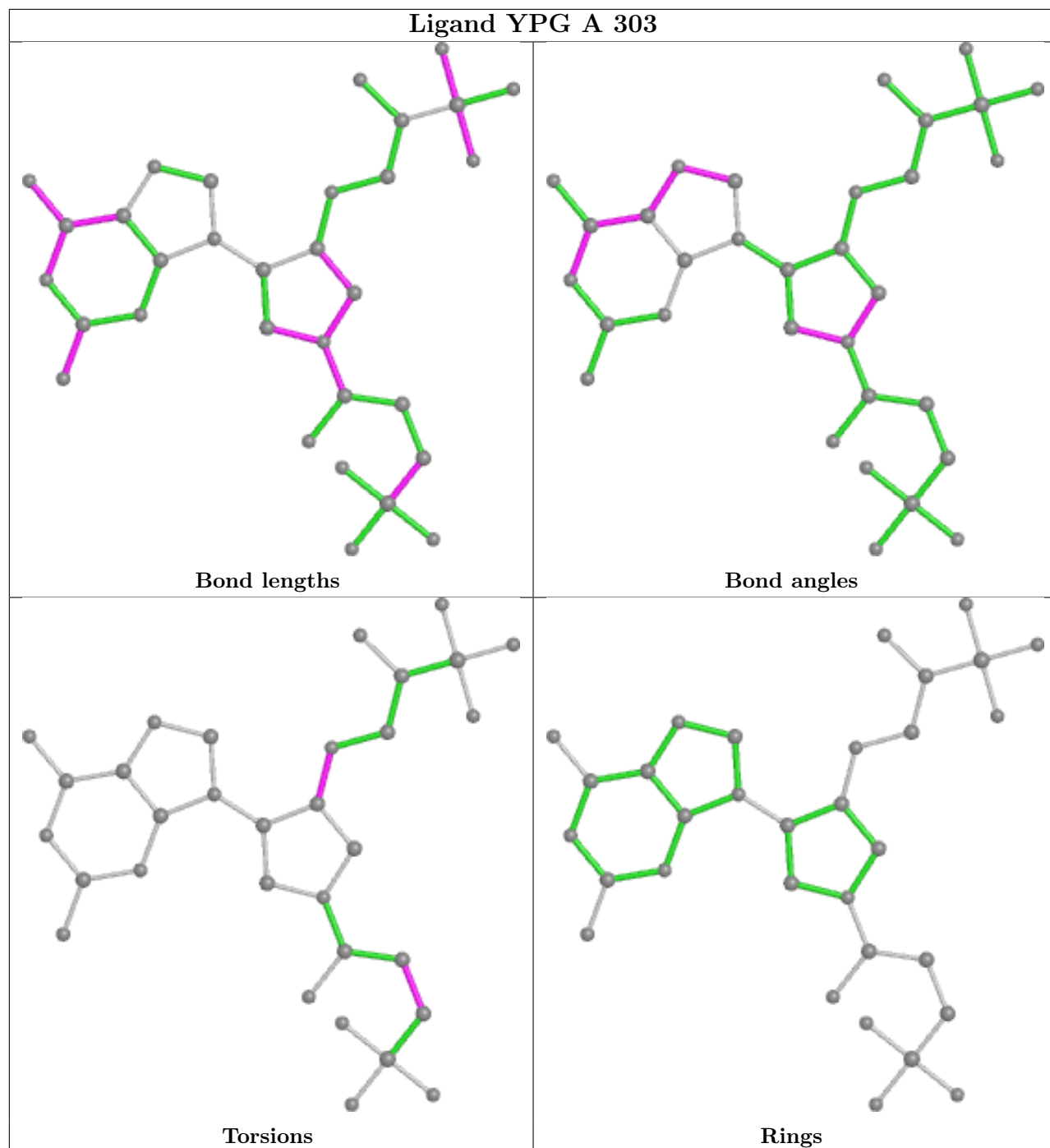
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and

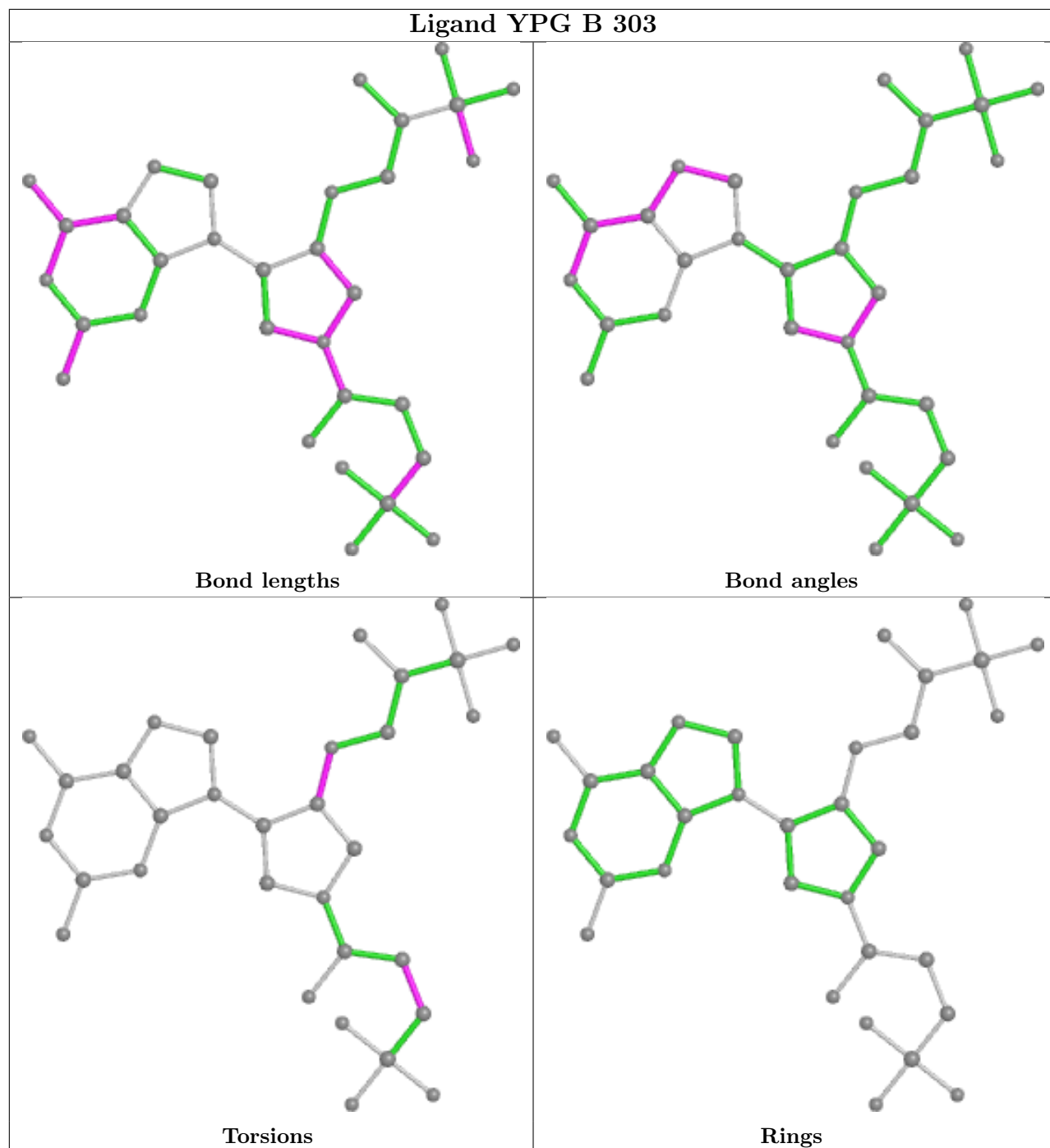
any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

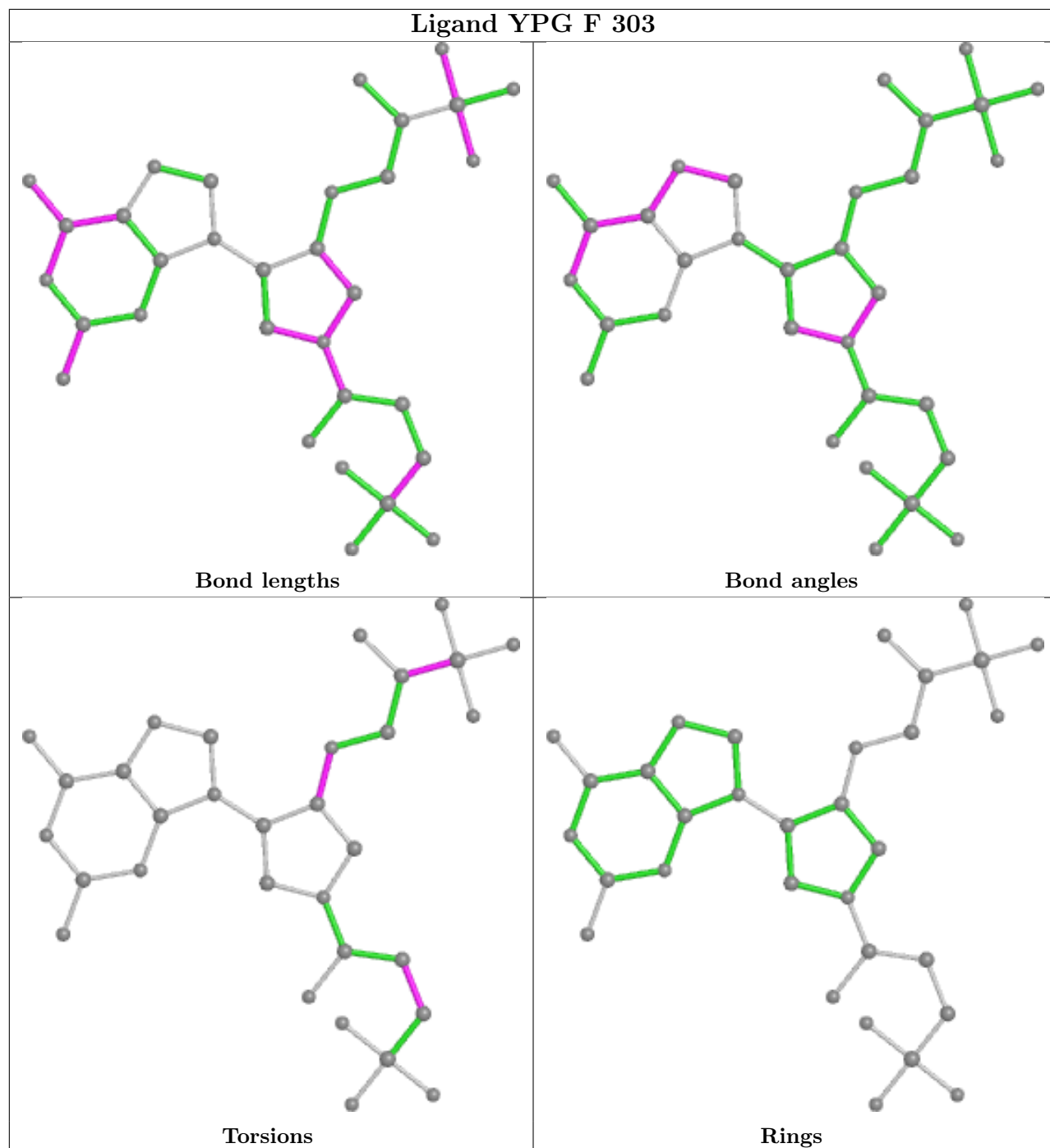


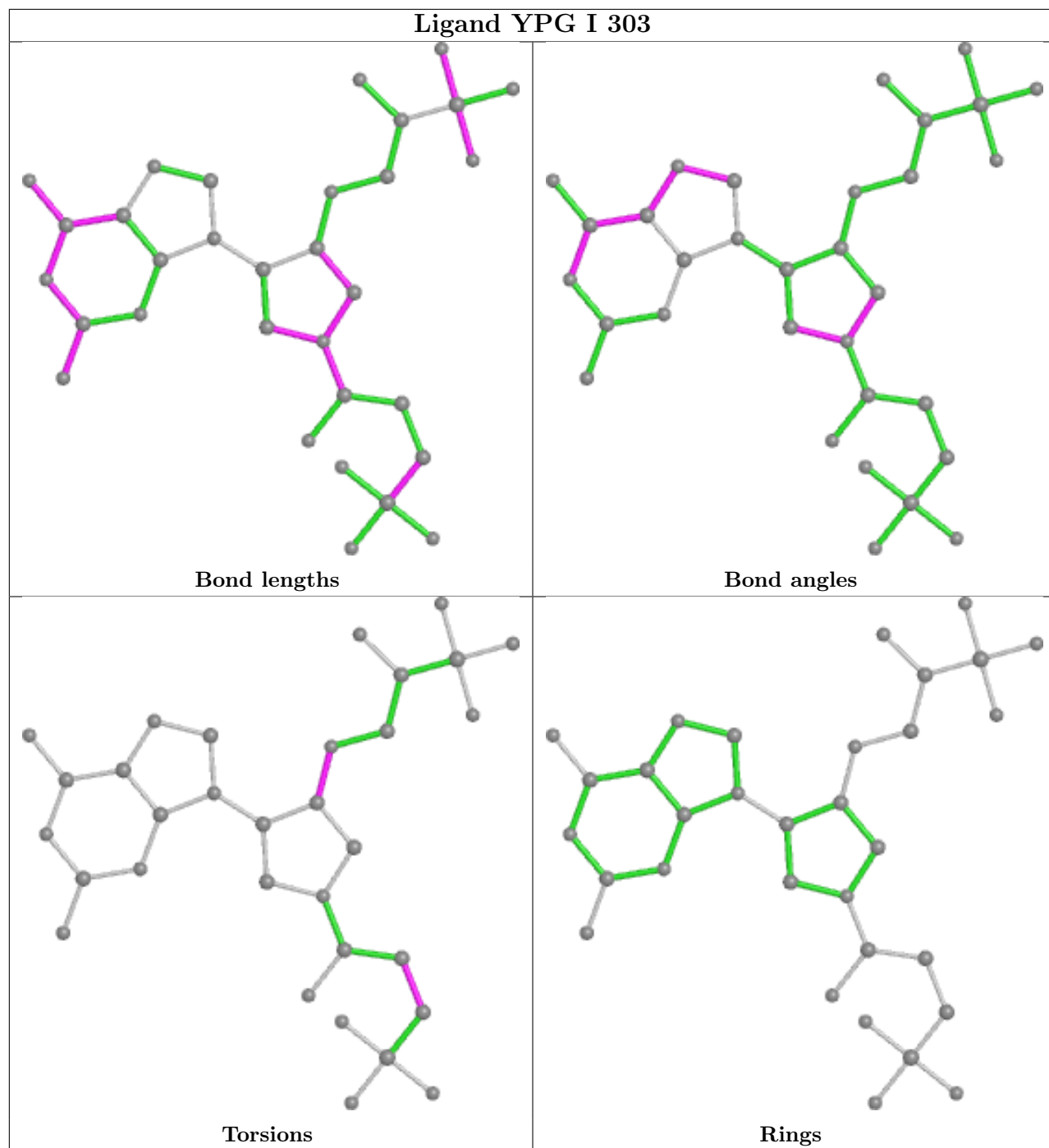


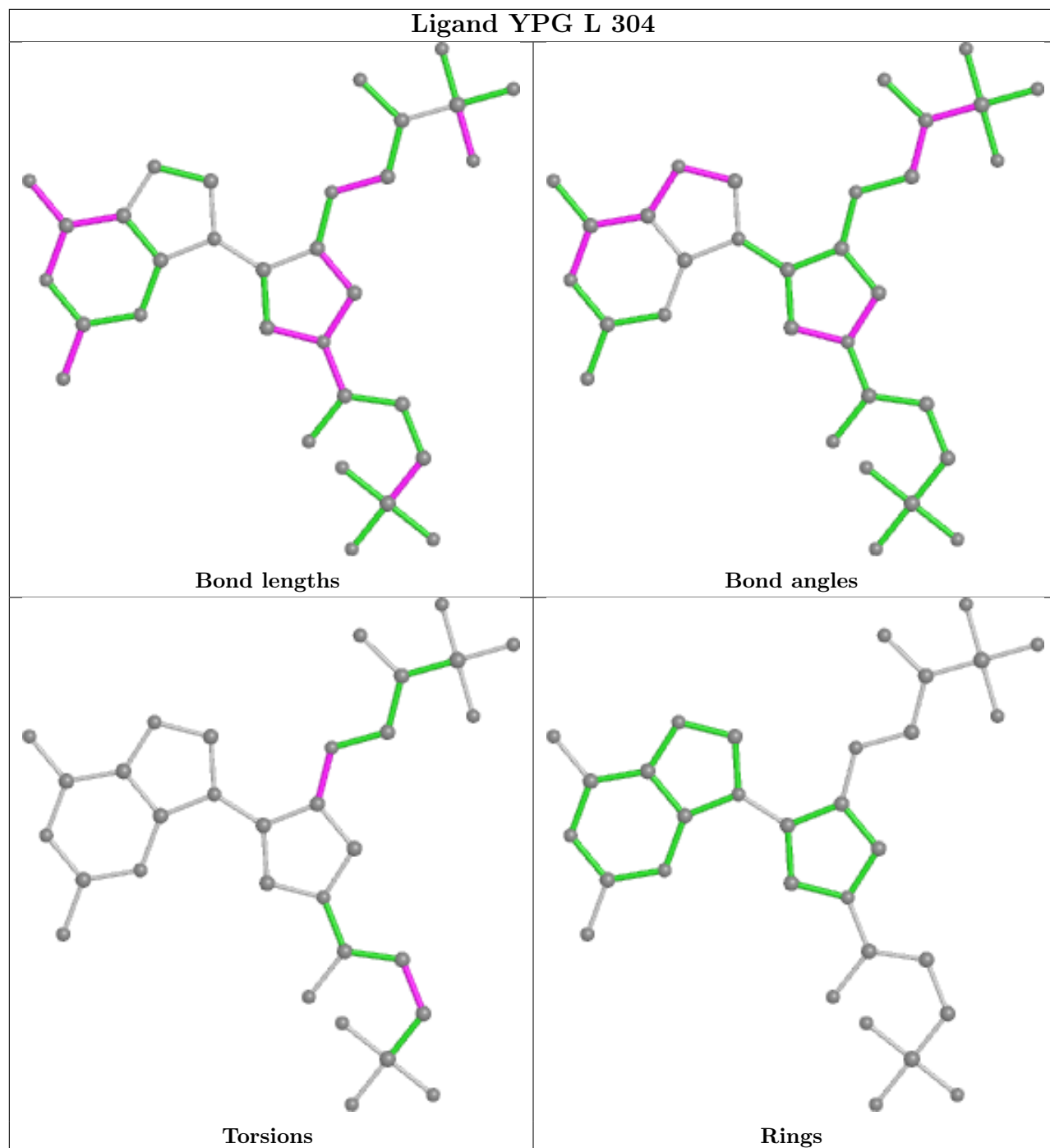


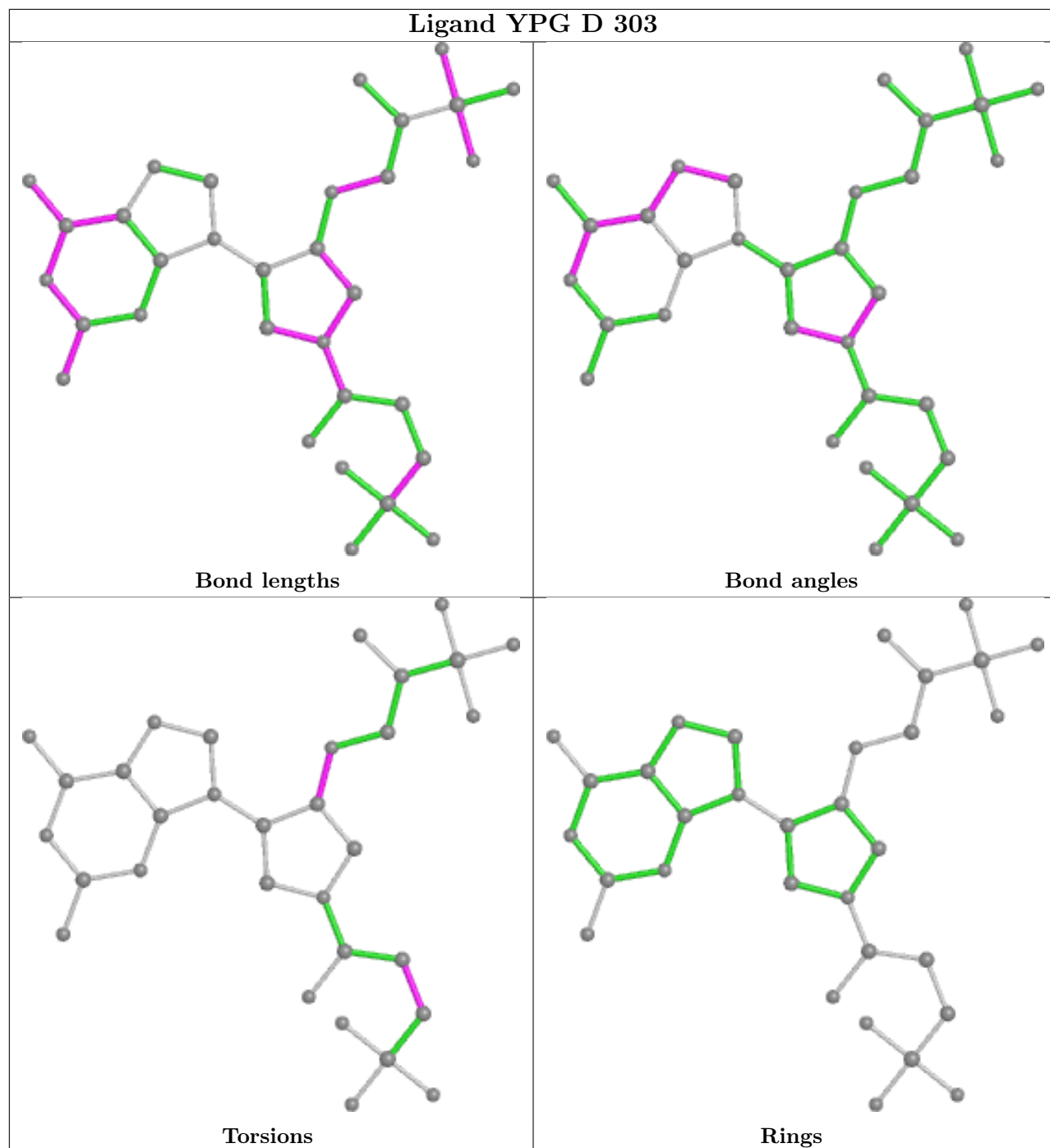


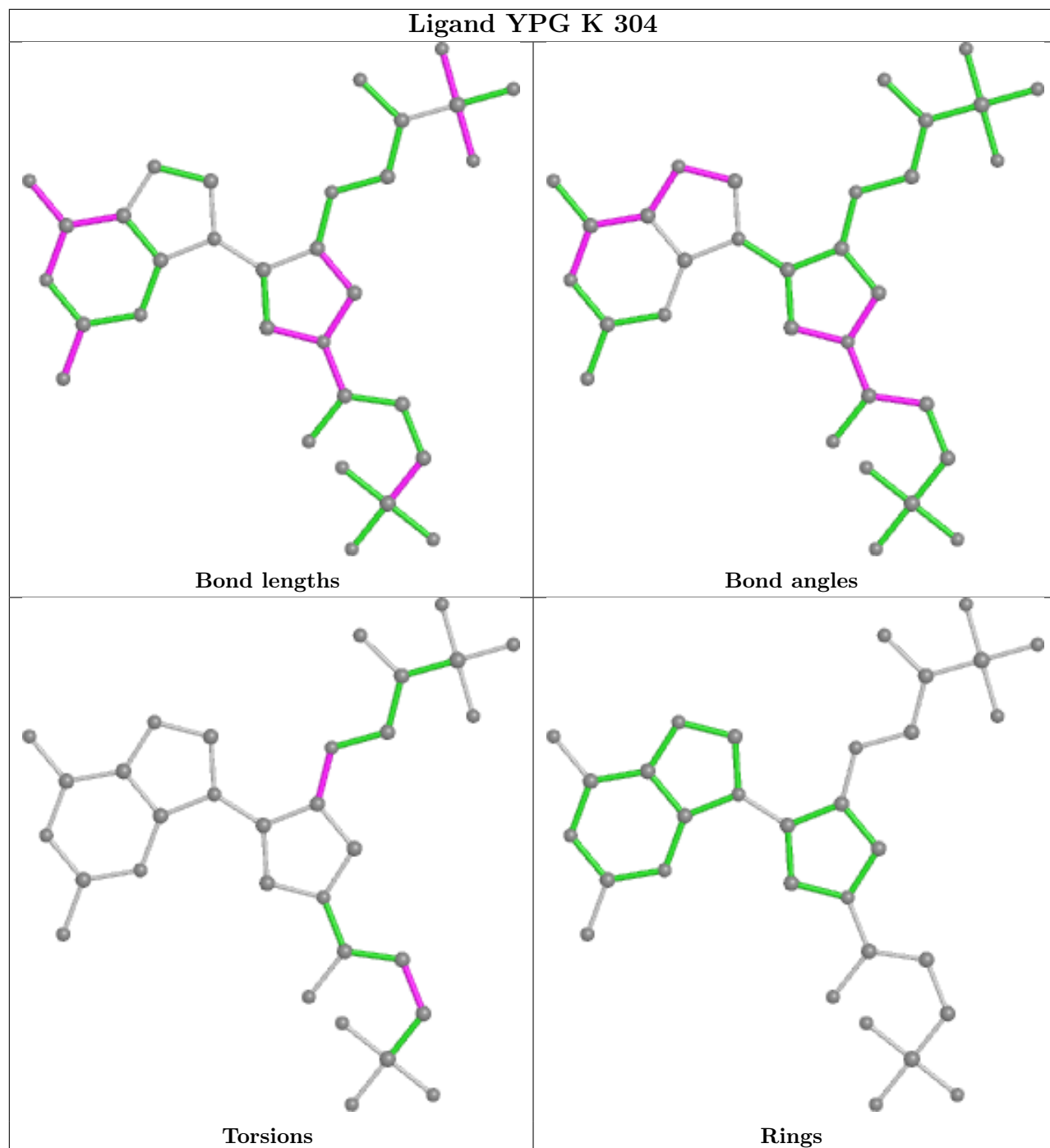


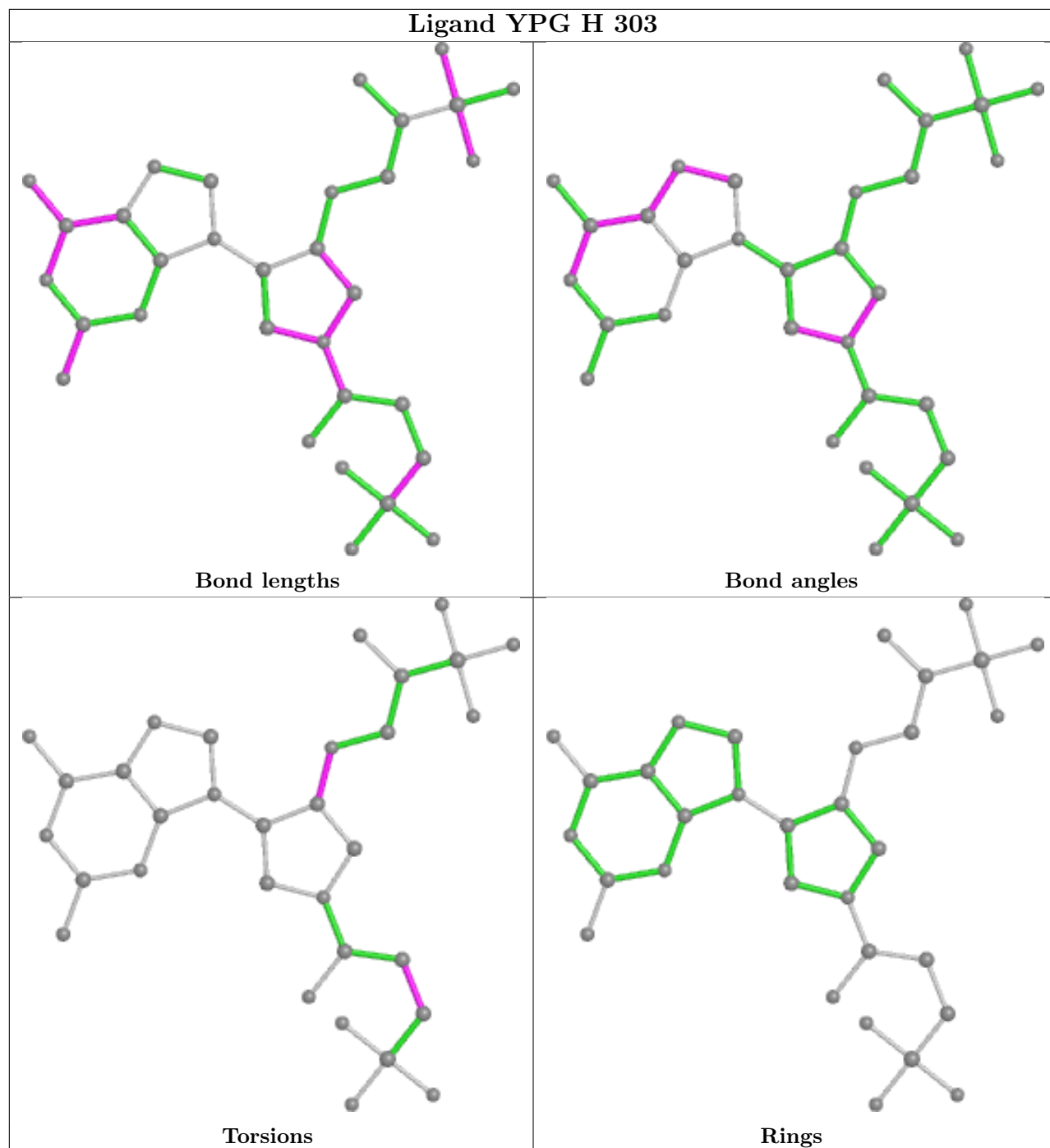




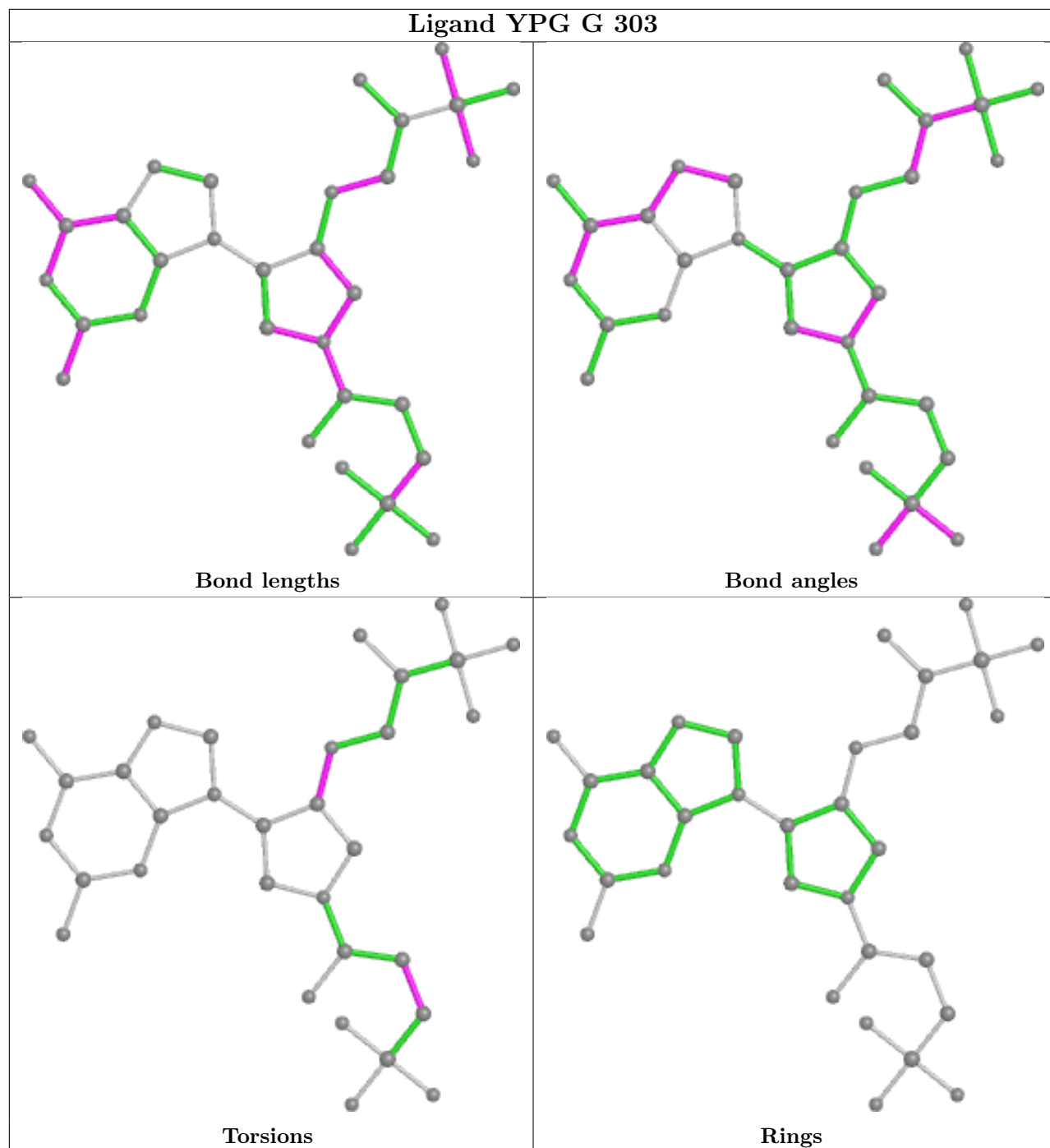


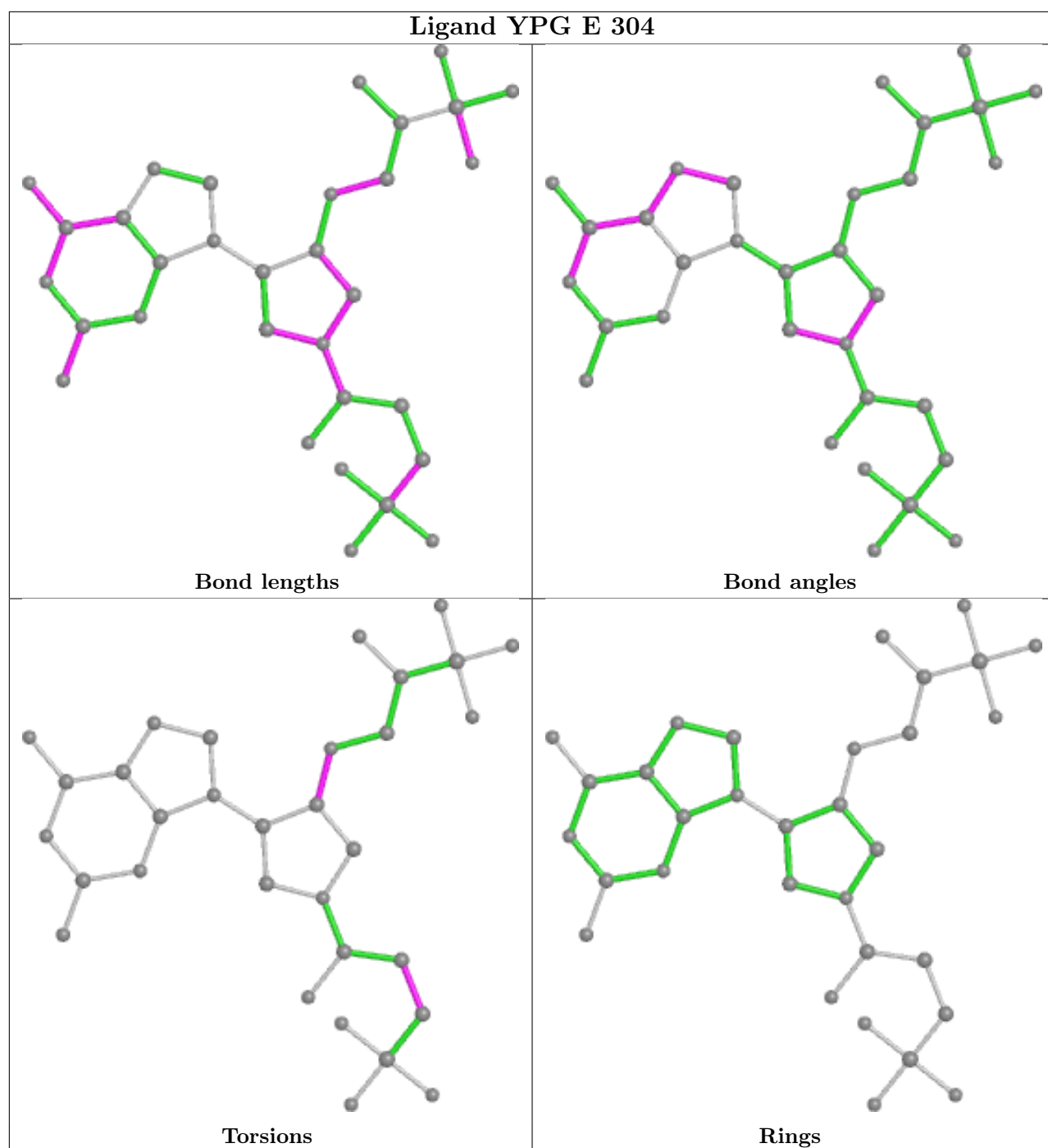












## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

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

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

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
1	A	220/238 (92%)	0.21	8 (3%) 42 37	26, 51, 118, 154	0
1	B	220/238 (92%)	0.27	13 (5%) 22 17	26, 53, 120, 169	0
1	C	219/238 (92%)	0.35	9 (4%) 37 31	33, 61, 110, 137	0
1	D	218/238 (91%)	0.29	12 (5%) 25 20	31, 54, 103, 135	0
1	E	211/238 (88%)	0.42	11 (5%) 27 22	30, 57, 116, 165	0
1	F	220/238 (92%)	0.27	8 (3%) 42 37	24, 57, 103, 134	0
1	G	218/238 (91%)	0.58	16 (7%) 15 11	28, 55, 113, 194	0
1	H	218/238 (91%)	0.27	7 (3%) 47 42	33, 66, 109, 160	0
1	I	217/238 (91%)	0.39	18 (8%) 11 8	29, 54, 102, 175	0
1	J	218/238 (91%)	0.19	5 (2%) 60 57	33, 59, 112, 153	0
1	K	217/238 (91%)	0.30	10 (4%) 32 27	32, 68, 115, 182	0
1	L	216/238 (90%)	0.54	20 (9%) 8 5	30, 58, 127, 172	0
All	All	2612/2856 (91%)	0.34	137 (5%) 27 22	24, 58, 112, 194	0

All (137) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	125	ILE	15.1
1	G	115	SER	11.1
1	H	115	SER	9.4
1	G	113	VAL	7.0
1	G	131	ASP	6.7
1	L	125	ILE	6.4
1	I	125	ILE	6.3
1	G	114	LYS	6.2
1	K	104	HIS	6.0
1	J	125	ILE	5.7
1	I	130	GLU	5.5

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	A	102	PRO	5.5
1	G	126	GLU	5.4
1	L	126	GLU	4.9
1	F	115	SER	4.9
1	J	126	GLU	4.7
1	L	129	SER	4.7
1	D	125	ILE	4.5
1	F	0	HIS	4.5
1	J	115	SER	4.3
1	H	125	ILE	4.3
1	B	160	LEU	4.2
1	B	132	LEU	4.1
1	G	130	GLU	4.1
1	L	127	ILE	4.0
1	A	101	SER	4.0
1	I	137	ASP	3.9
1	L	128	VAL	3.9
1	K	178	THR	3.7
1	L	67	ASN	3.7
1	I	113	VAL	3.6
1	I	126	GLU	3.5
1	L	66	ARG	3.5
1	A	103	LYS	3.5
1	D	21	ASP	3.5
1	A	98	SER	3.4
1	G	129	SER	3.4
1	A	1	HIS	3.4
1	L	131	ASP	3.4
1	B	134	CYS	3.3
1	G	128	VAL	3.3
1	I	128	VAL	3.3
1	I	131	ASP	3.3
1	A	-1	HIS	3.3
1	H	22	ASP	3.3
1	D	227	ARG	3.3
1	B	22	ASP	3.3
1	E	113	VAL	3.3
1	H	127	ILE	3.3
1	H	126	GLU	3.2
1	B	125	ILE	3.2
1	I	129	SER	3.2
1	I	127	ILE	3.2

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	B	-1	HIS	3.1
1	B	131	ASP	3.1
1	L	21	ASP	3.0
1	L	132	LEU	3.0
1	F	1	HIS	3.0
1	A	28	ASP	2.9
1	D	22	ASP	2.9
1	I	102	PRO	2.9
1	K	223	ILE	2.9
1	I	84	SER	2.8
1	C	220	ASP	2.8
1	H	113	VAL	2.8
1	L	94	HIS	2.7
1	C	2	LYS	2.7
1	F	22	ASP	2.7
1	D	178	THR	2.7
1	B	135	LEU	2.6
1	K	103	LYS	2.6
1	C	22	ASP	2.6
1	C	226	PHE	2.6
1	G	220	ASP	2.5
1	E	28	ASP	2.5
1	G	221	GLU	2.5
1	E	94	HIS	2.5
1	L	22	ASP	2.5
1	K	99	THR	2.5
1	B	165	VAL	2.4
1	G	209	PHE	2.4
1	D	115	SER	2.4
1	J	28	ASP	2.4
1	E	105	LEU	2.4
1	D	220	ASP	2.4
1	D	222	GLY	2.4
1	D	226	PHE	2.4
1	B	158	GLU	2.4
1	K	21	ASP	2.4
1	L	11	GLU	2.4
1	J	220	ASP	2.4
1	E	226	PHE	2.3
1	E	27	ILE	2.3
1	L	133	SER	2.3
1	L	130	GLU	2.3

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	RSRZ
1	E	84	SER	2.3
1	B	102	PRO	2.3
1	C	178	THR	2.3
1	I	98	SER	2.3
1	E	21	ASP	2.3
1	K	2	LYS	2.3
1	C	164	GLU	2.3
1	F	26	ASP	2.3
1	L	99	THR	2.3
1	D	225	LYS	2.2
1	I	101	SER	2.2
1	L	34	ASP	2.2
1	G	84	SER	2.2
1	C	227	ARG	2.2
1	I	220	ASP	2.2
1	B	101	SER	2.2
1	L	101	SER	2.2
1	E	99	THR	2.2
1	K	224	LYS	2.2
1	D	15	GLU	2.1
1	C	14	LEU	2.1
1	L	136	LYS	2.1
1	A	0	HIS	2.1
1	H	139	HIS	2.1
1	G	132	LEU	2.1
1	I	136	LYS	2.1
1	D	228	THR	2.1
1	E	164	GLU	2.1
1	G	21	ASP	2.1
1	G	39	TYR	2.1
1	L	12	ASN	2.1
1	C	224	LYS	2.0
1	I	221	GLU	2.0
1	I	163	PHE	2.0
1	F	21	ASP	2.0
1	I	104	HIS	2.0
1	B	137	ASP	2.0
1	E	81	GLY	2.0
1	F	34	ASP	2.0
1	K	220	ASP	2.0
1	K	18	TYR	2.0
1	F	114	LYS	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 monosaccharides in this entry.

## 6.4 Ligands [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
2	MG	E	303	1/1	0.64	0.10	74,74,74,74	0
2	MG	C	302	1/1	0.66	0.27	60,60,60,60	0
2	MG	G	301	1/1	0.73	0.45	59,59,59,59	0
2	MG	G	302	1/1	0.75	0.11	61,61,61,61	0
2	MG	A	301	1/1	0.78	0.45	59,59,59,59	0
2	MG	L	303	1/1	0.78	0.14	64,64,64,64	0
2	MG	F	302	1/1	0.80	0.15	77,77,77,77	0
2	MG	D	302	1/1	0.81	0.16	52,52,52,52	0
2	MG	H	302	1/1	0.82	0.24	62,62,62,62	0
2	MG	A	302	1/1	0.82	0.23	65,65,65,65	0
2	MG	J	301	1/1	0.83	0.41	47,47,47,47	0
2	MG	K	303	1/1	0.84	0.10	64,64,64,64	0
2	MG	E	301	1/1	0.84	0.45	55,55,55,55	0
2	MG	K	302	1/1	0.85	0.08	56,56,56,56	0
2	MG	B	301	1/1	0.85	0.46	65,65,65,65	0
2	MG	J	302	1/1	0.85	0.16	59,59,59,59	0
2	MG	L	302	1/1	0.86	0.41	59,59,59,59	0
2	MG	K	301	1/1	0.86	0.32	60,60,60,60	0
2	MG	I	301	1/1	0.91	0.41	38,38,38,38	0
2	MG	B	302	1/1	0.91	0.19	51,51,51,51	0
3	YPG	C	303	32/32	0.92	0.17	48,53,59,62	0
3	YPG	D	303	32/32	0.92	0.16	44,52,59,67	0
2	MG	D	301	1/1	0.93	0.55	62,62,62,62	0
2	MG	L	301	1/1	0.93	0.39	45,45,45,45	0
2	MG	H	301	1/1	0.93	0.51	57,57,57,57	0
3	YPG	E	304	32/32	0.93	0.15	38,48,56,58	0
3	YPG	H	303	32/32	0.93	0.14	52,62,74,78	0

*Continued on next page...*

*Continued from previous page...*

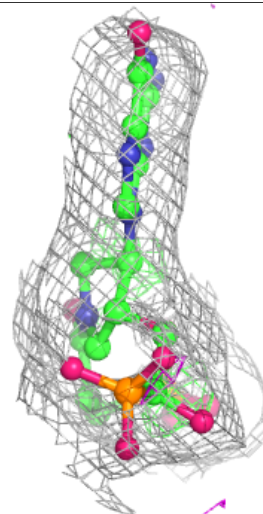
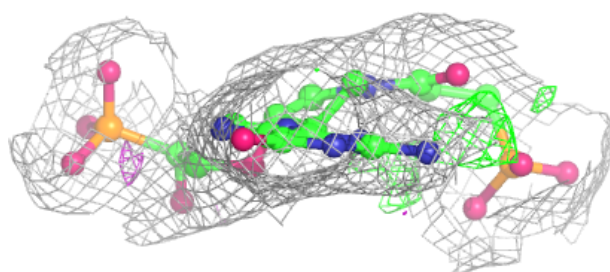
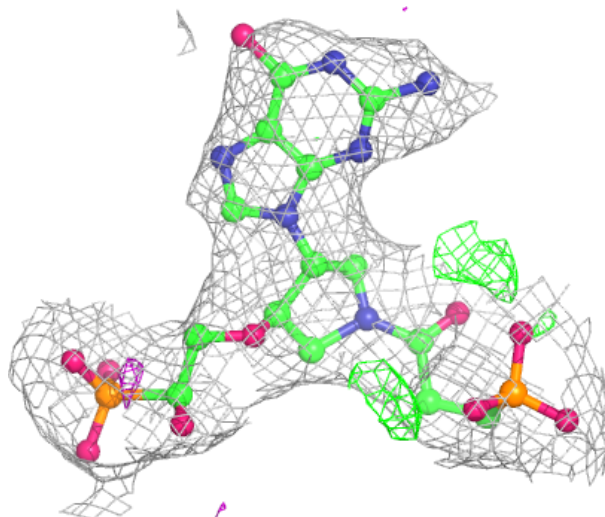
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
3	YPG	J	303	32/32	0.93	0.16	55,63,71,73	0
3	YPG	L	304	32/32	0.93	0.16	34,41,50,51	0
3	YPG	G	303	32/32	0.94	0.14	46,49,55,56	0
3	YPG	B	303	32/32	0.94	0.13	36,44,50,55	0
2	MG	F	301	1/1	0.94	0.45	57,57,57,57	0
3	YPG	K	304	32/32	0.94	0.12	57,64,75,78	0
3	YPG	F	303	32/32	0.94	0.14	50,58,76,76	0
3	YPG	A	303	32/32	0.95	0.15	37,47,53,56	0
2	MG	C	301	1/1	0.95	0.66	61,61,61,61	0
3	YPG	I	303	32/32	0.95	0.14	36,39,46,48	0
2	MG	E	302	1/1	0.96	0.27	48,48,48,48	0
2	MG	I	302	1/1	0.96	0.27	50,50,50,50	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.



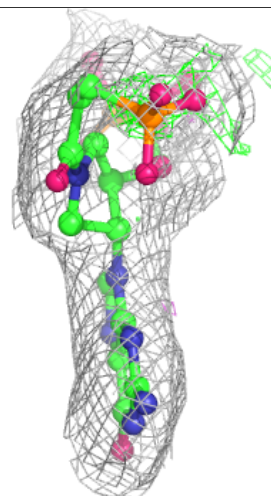
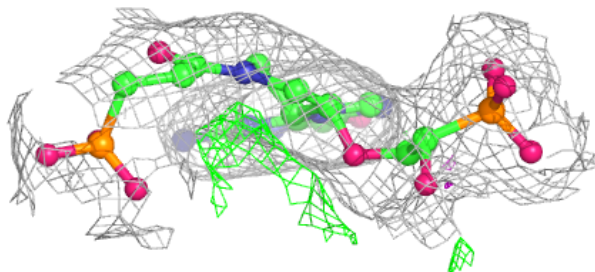
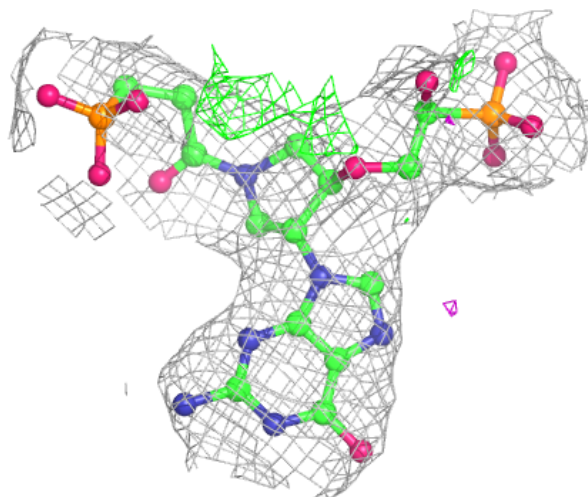
**Electron density around YPG C 303:**

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



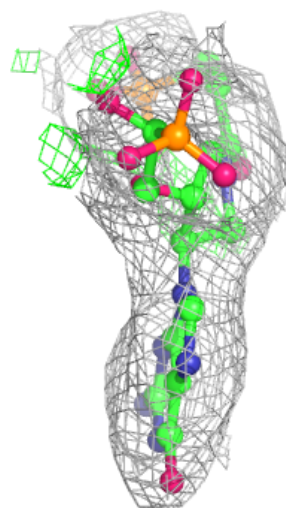
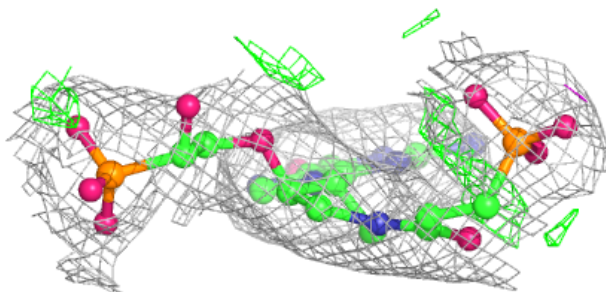
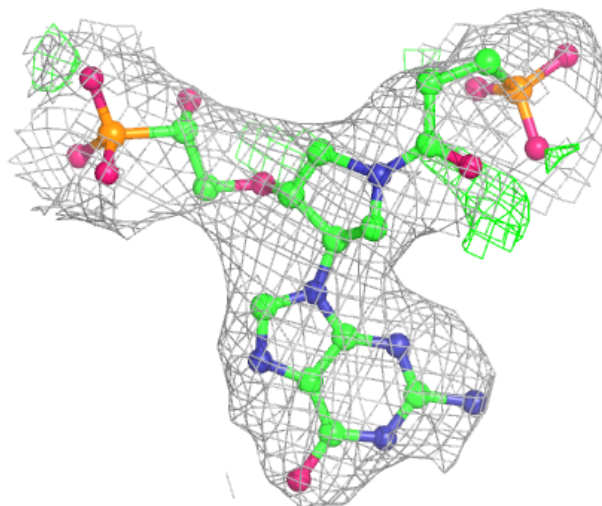
**Electron density around YPG D 303:**

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



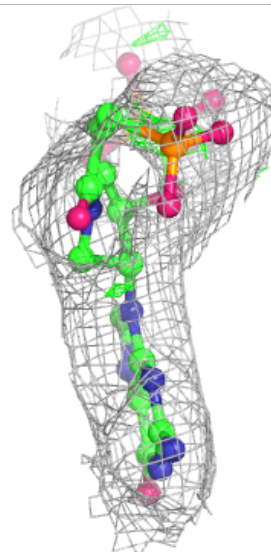
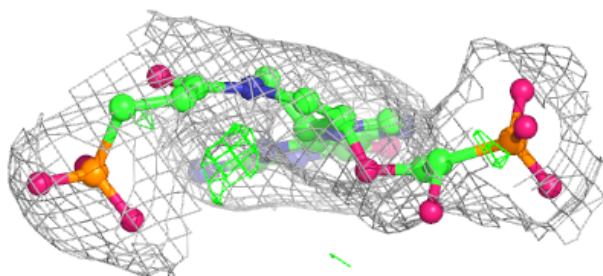
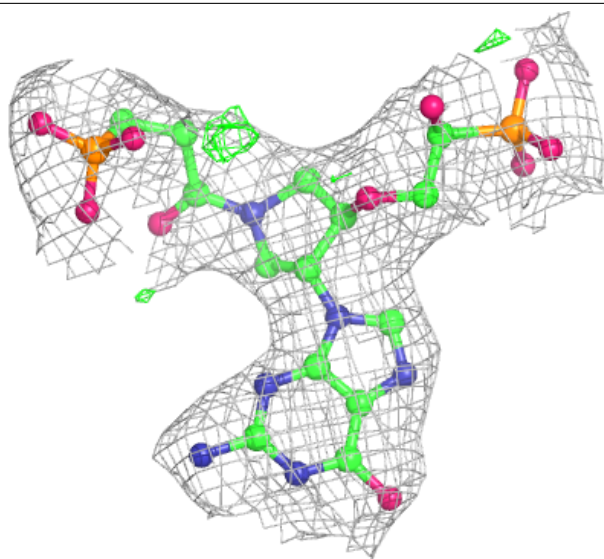
**Electron density around YPG E 304:**

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



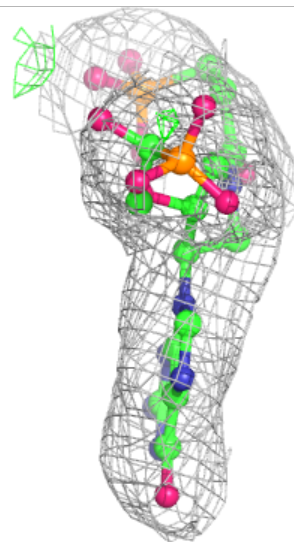
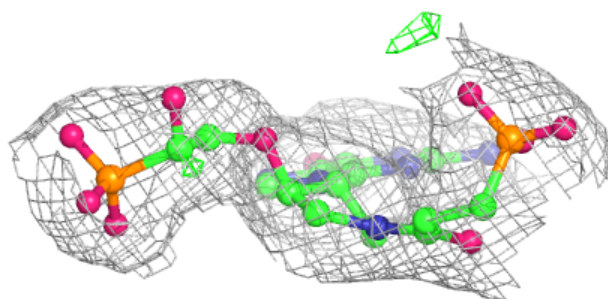
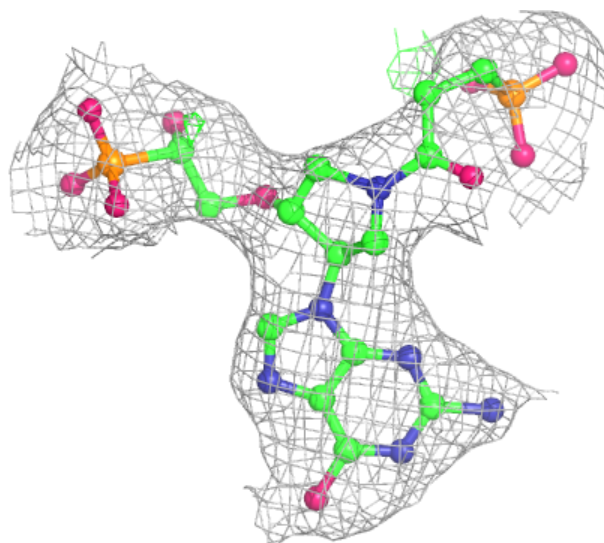
**Electron density around YPG H 303:**

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



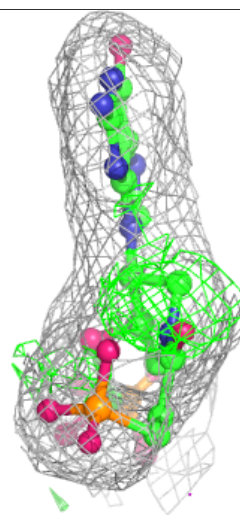
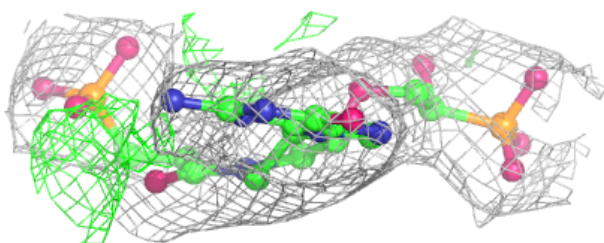
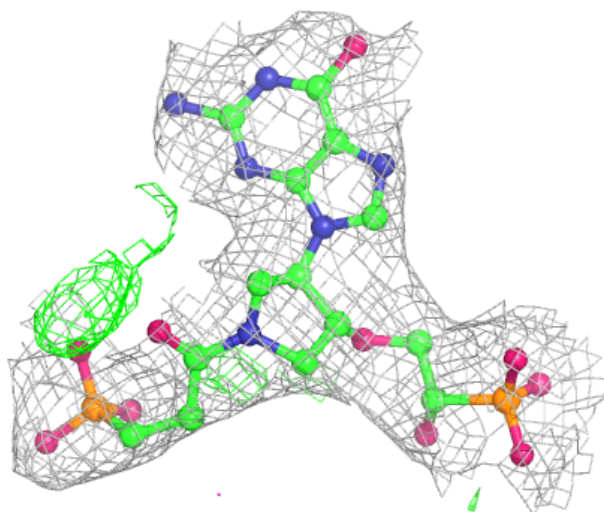
**Electron density around YPG J 303:**

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



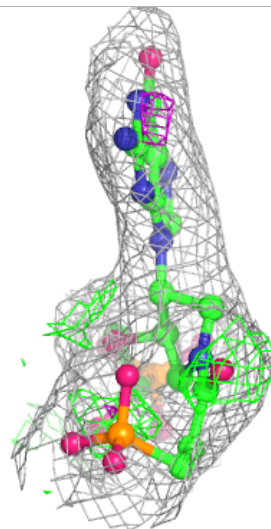
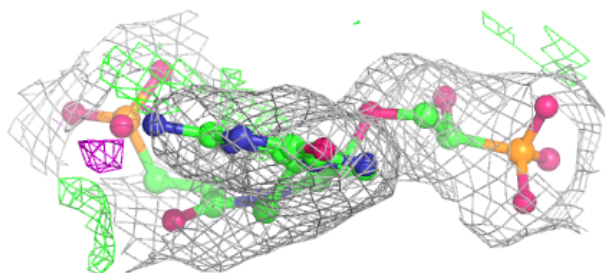
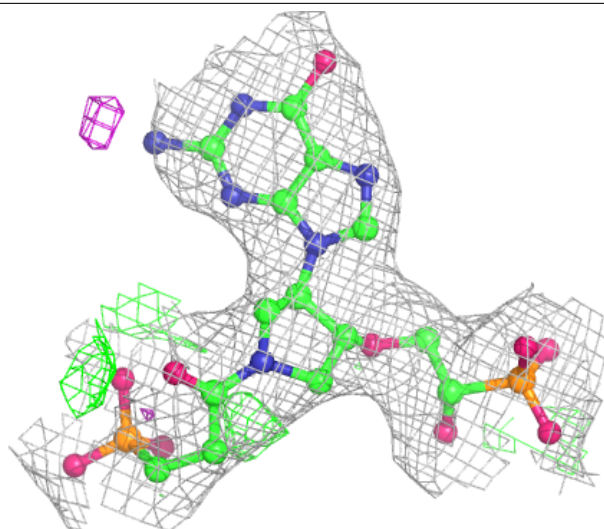
**Electron density around YPG L 304:**

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



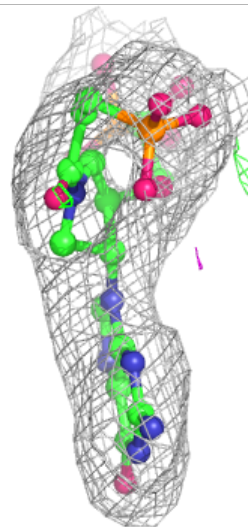
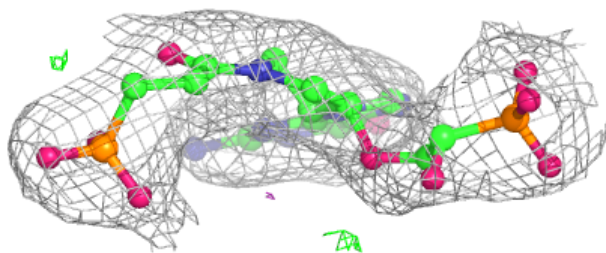
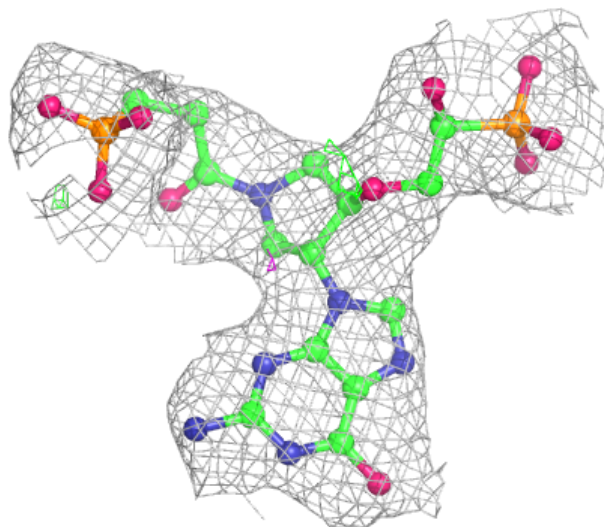
**Electron density around YPG G 303:**

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



**Electron density around YPG B 303:**

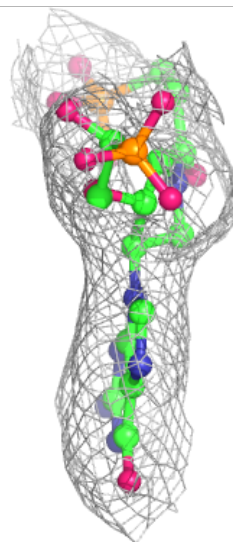
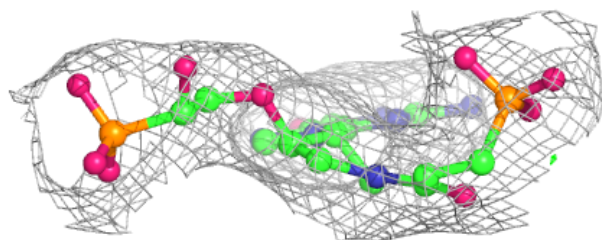
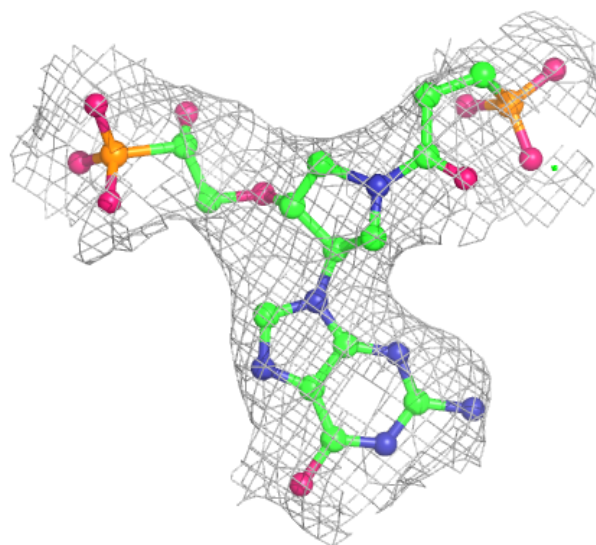
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





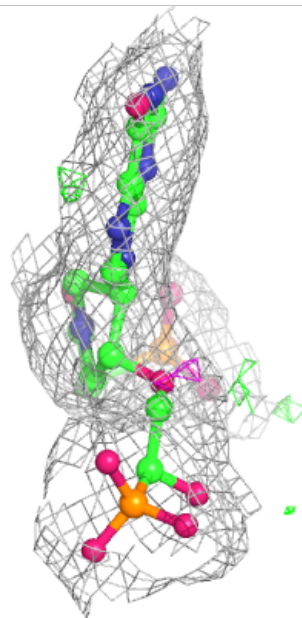
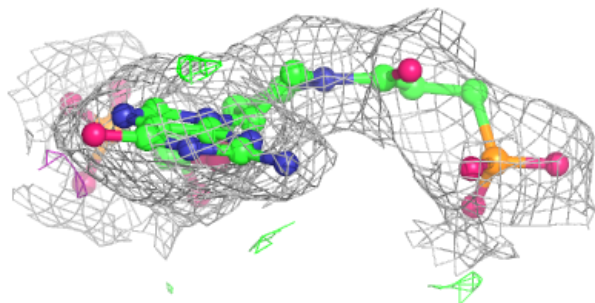
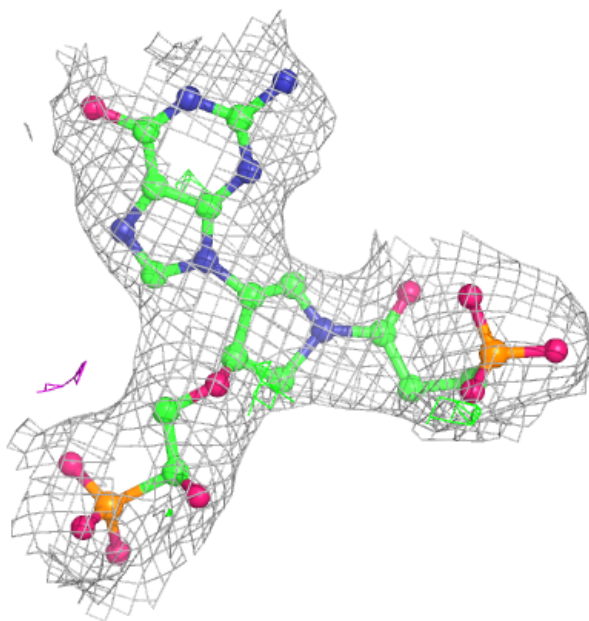
**Electron density around YPG K 304:**

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



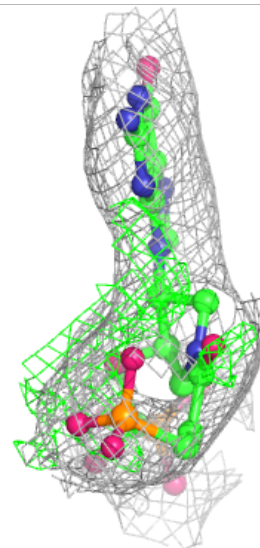
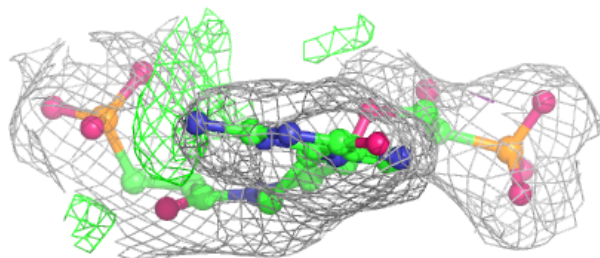
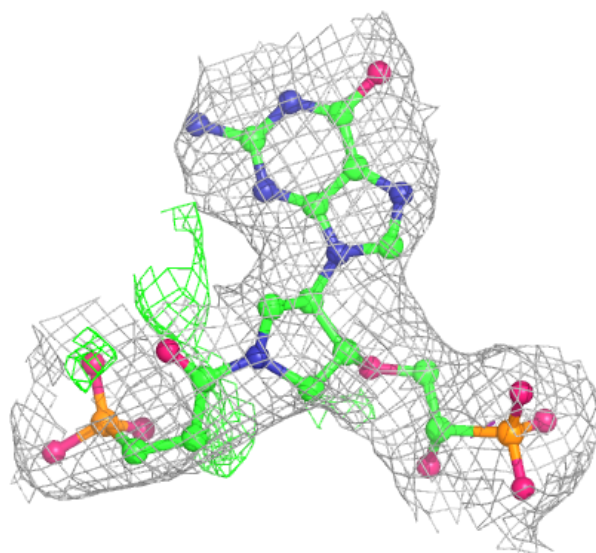
**Electron density around YPG F 303:**

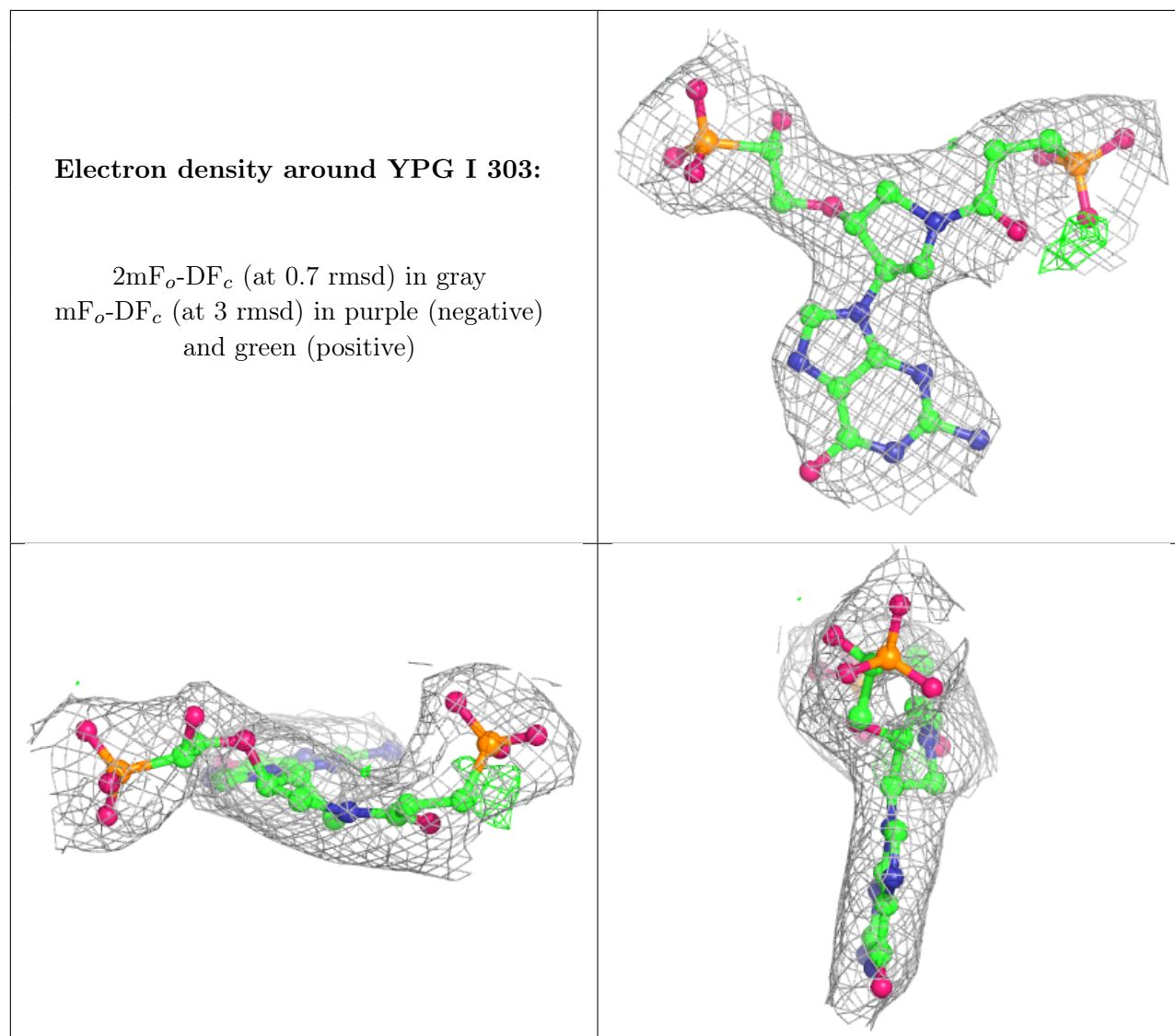
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



**Electron density around YPG A 303:**

$2mF_o-DF_c$  (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.