



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 03:27 PM UTC

PDB ID : 4FEV / pdb_00004fev
Title : Crystal structure of the aminoglycoside phosphotransferase APH(3')-Ia, with substrate kanamycin and small molecule inhibitor pyrazolopyrimidine PP1
Authors : Stogios, P.J.; Evdokimova, E.; Wawrzak, Z.; Minasov, G.; Egorova, O.; Di Leo, R.; Shakya, T.; Spanogiannopoulos, P.; Wright, G.D.; Savchenko, A.; Anderson, W.F.; Center for Structural Genomics of Infectious Diseases (CSGID)
Deposited on : 2012-05-30
Resolution : 1.89 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

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](#) ①) were used in the production of this report:

MolProbity : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Xtrriage (Phenix) : 2.0
EDS : 3.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
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) : 2.49

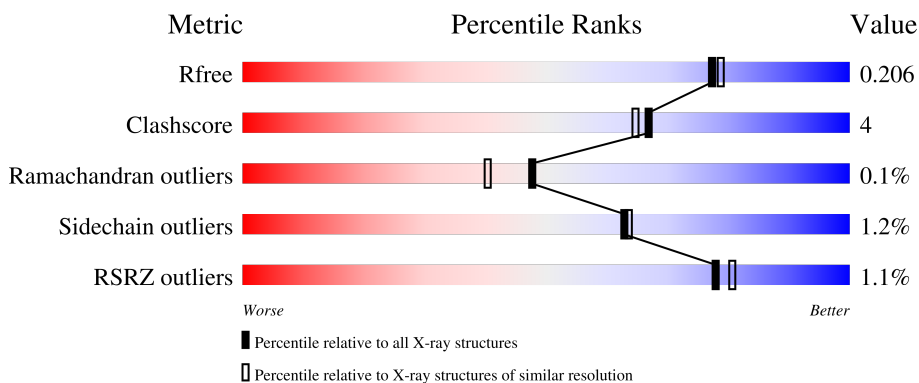
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.89 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}	180053	7789 (1.90-1.90)
Clashscore	190562	8410 (1.90-1.90)
Ramachandran outliers	187476	8333 (1.90-1.90)
Sidechain outliers	187428	8333 (1.90-1.90)
RSRZ outliers	180081	7790 (1.90-1.90)

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	272	
1	B	272	
1	C	272	
1	D	272	
1	E	272	

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Mol	Chain	Length	Quality of chain
1	F	272	 <p>A horizontal bar chart representing the quality of the chain. The bar is divided into four segments: a small red segment at the beginning labeled '2%', a large green segment labeled '85%', a small yellow segment labeled '7%', and a small grey segment at the end labeled '7%'.</p>

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 14518 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.

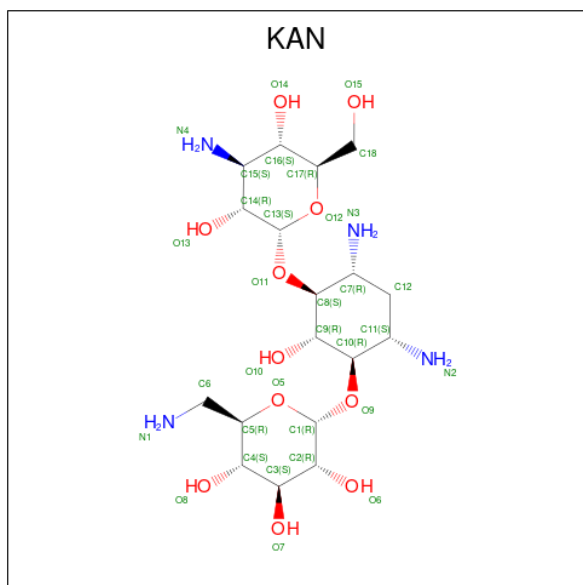
- Molecule 1 is a protein called Aminoglycoside 3'-phosphotransferase AphA1-IAB.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	263	Total 2144	C 1367	N 371	O 395	S 11	0	4	0
1	B	254	Total 2066	C 1318	N 361	O 376	S 11	0	2	0
1	C	254	Total 2070	C 1325	N 353	O 382	S 10	0	4	0
1	D	271	Total 2249	C 1430	N 393	O 414	S 12	0	9	0
1	E	268	Total 2181	C 1391	N 379	O 400	S 11	0	4	0
1	F	252	Total 2040	C 1304	N 350	O 376	S 10	0	1	0

There are 6 discrepancies between the modelled and reference sequences:

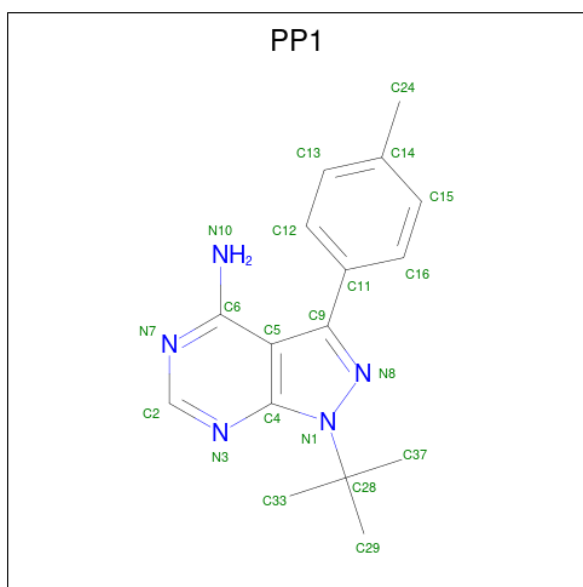
Chain	Residue	Modelled	Actual	Comment	Reference
A	0	GLY	-	expression tag	UNP B0VD92
B	0	GLY	-	expression tag	UNP B0VD92
C	0	GLY	-	expression tag	UNP B0VD92
D	0	GLY	-	expression tag	UNP B0VD92
E	0	GLY	-	expression tag	UNP B0VD92
F	0	GLY	-	expression tag	UNP B0VD92

- Molecule 2 is KANAMYCIN A (CCD ID: KAN) (formula: $C_{18}H_{36}N_4O_{11}$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
2	A	1	33	18	4	11	0	0
2	B	1	33	18	4	11	0	0
2	C	1	33	18	4	11	0	0
2	D	1	33	18	4	11	0	0
2	E	1	33	18	4	11	0	0
2	F	1	33	18	4	11	0	0

- Molecule 3 is 1-TER-BUTYL-3-P-TOLYL-1H-PYRAZOLO[3,4-D]PYRIMIDIN-4-YLAMINE (CCD ID: PP1) (formula: C₁₆H₁₉N₅).

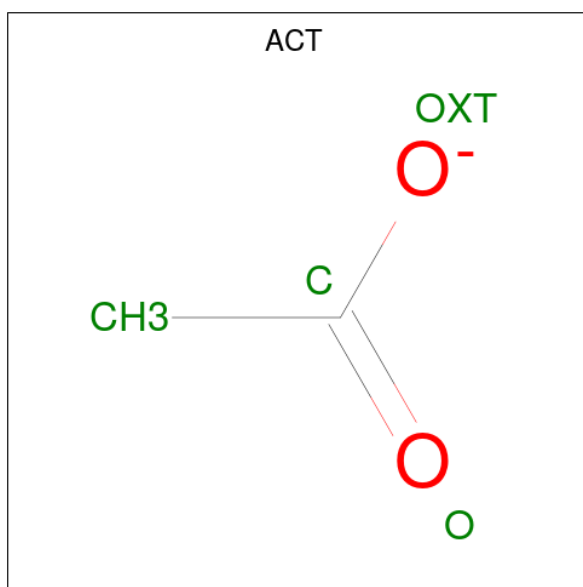


Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	1	Total	C N	0	0
			21	16 5		
3	B	1	Total	C N	0	0
			21	16 5		
3	C	1	Total	C N	0	1
			42	32 10		
3	D	1	Total	C N	0	0
			21	16 5		
3	E	1	Total	C N	0	0
			21	16 5		
3	F	1	Total	C N	0	0
			21	16 5		

- Molecule 4 is SODIUM ION (CCD ID: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	1	Total	Na	0	0
			1	1		
4	B	1	Total	Na	0	0
			1	1		
4	D	2	Total	Na	0	0
			2	2		
4	E	1	Total	Na	0	0
			1	1		
4	F	2	Total	Na	0	0
			2	2		

- Molecule 5 is ACETATE ION (CCD ID: ACT) (formula: C₂H₃O₂).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	D	1	Total	C O	0	0
			4	2 2		

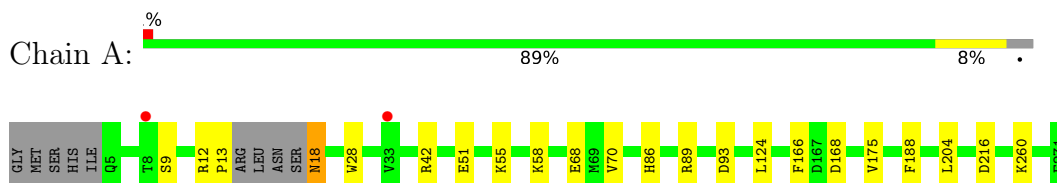
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	279	Total	O	0	1
			280	280		
6	B	178	Total	O	0	1
			179	179		
6	C	248	Total	O	0	2
			250	250		
6	D	244	Total	O	0	0
			244	244		
6	E	238	Total	O	0	1
			239	239		
6	F	217	Total	O	0	3
			220	220		

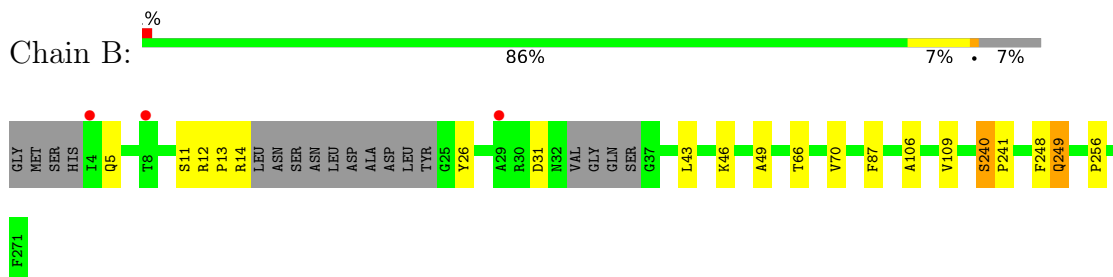
3 Residue-property plots [i](#)

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.

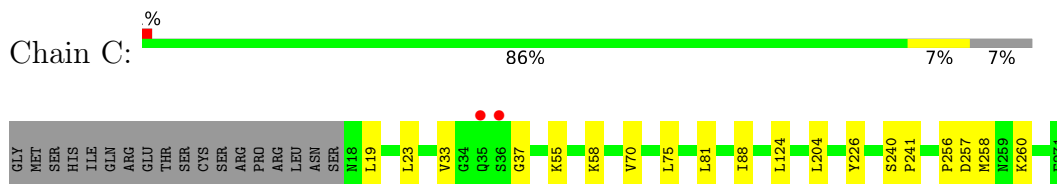
- Molecule 1: Aminoglycoside 3'-phosphotransferase AphA1-IAB



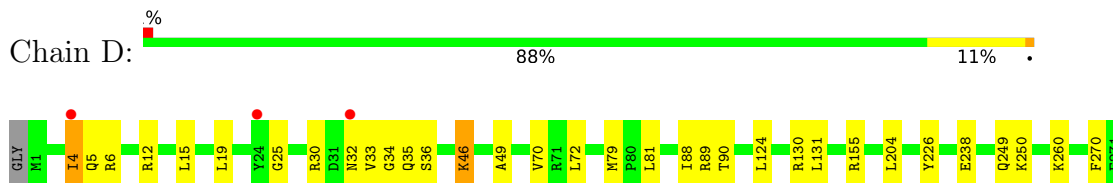
- Molecule 1: Aminoglycoside 3'-phosphotransferase AphA1-IAB



- Molecule 1: Aminoglycoside 3'-phosphotransferase AphA1-IAB

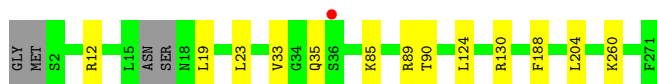


- Molecule 1: Aminoglycoside 3'-phosphotransferase AphA1-IAB

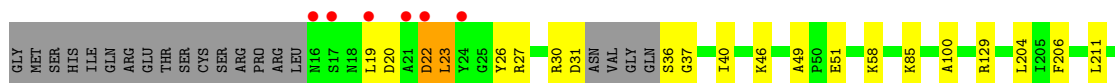
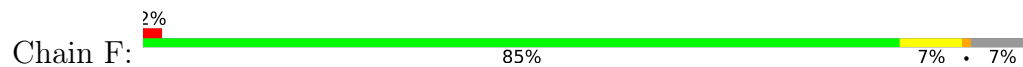


- Molecule 1: Aminoglycoside 3'-phosphotransferase AphA1-IAB





- Molecule 1: Aminoglycoside 3'-phosphotransferase AphA1-IAB



4 Data and refinement statistics i

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	57.57Å 94.22Å 96.88Å 61.12° 73.09° 87.44°	Depositor
Resolution (Å)	19.97 – 1.89 19.97 – 1.89	Depositor EDS
% Data completeness (in resolution range)	94.6 (19.97-1.89) 94.5 (19.97-1.89)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.05	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.71 (at 1.89Å)	Xtrriage
Refinement program	PHENIX (phenix.refine: 1.7.3_928)	Depositor
R, R_{free}	0.154 , 0.204 0.155 , 0.206	Depositor DCC
R_{free} test set	2035 reflections (1.54%)	wwPDB-VP
Wilson B-factor (Å ²)	24.5	Xtrriage
Anisotropy	0.406	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 44.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.51$, $\langle L^2 \rangle = 0.34$	Xtrriage
Estimated twinning fraction	0.001 for -h,-k,-h-k+l	Xtrriage
F_o, F_c correlation	0.97	EDS
Total number of atoms	14518	wwPDB-VP
Average B, all atoms (Å ²)	25.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.60% 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 [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: KAN, ACT, NA, PP1

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	0.46	0/2204	0.70	0/2989
1	B	0.41	0/2121	0.71	0/2873
1	C	0.44	0/2127	0.69	0/2888
1	D	0.42	0/2317	0.68	0/3140
1	E	0.44	0/2245	0.73	0/3044
1	F	0.44	0/2093	0.70	0/2839
All	All	0.44	0/13107	0.70	0/17773

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 [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2144	0	2084	17	0
1	B	2066	0	2015	15	0
1	C	2070	0	2008	15	0
1	D	2249	0	2196	23	0
1	E	2181	0	2129	9	0
1	F	2040	0	1973	12	0
2	A	33	0	36	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	33	0	36	0	0
2	C	33	0	36	0	0
2	D	33	0	36	0	0
2	E	33	0	36	0	0
2	F	33	0	36	0	0
3	A	21	0	19	2	0
3	B	21	0	19	2	0
3	C	42	0	38	7	0
3	D	21	0	19	2	0
3	E	21	0	19	2	0
3	F	21	0	19	2	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
4	D	2	0	0	0	0
4	E	1	0	0	0	0
4	F	2	0	0	0	0
5	D	4	0	3	0	0
6	A	280	0	0	1	0
6	B	179	0	0	2	0
6	C	250	0	0	1	0
6	D	244	0	0	2	0
6	E	239	0	0	3	0
6	F	220	0	0	1	0
All	All	14518	0	12757	95	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 4.

All (95) 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)
3:D:302:PP1:H101	3:D:302:PP1:HC16	1.04	1.17
3:C:302[B]:PP1:H101	3:C:302[B]:PP1:HC16	1.04	1.17
3:E:302:PP1:H101	3:E:302:PP1:HC16	1.06	1.16
3:F:302:PP1:HC12	3:F:302:PP1:H101	1.10	1.12
3:B:302:PP1:HC12	3:B:302:PP1:H101	1.12	1.11
3:A:302:PP1:H101	3:A:302:PP1:HC12	1.13	1.09
3:C:302[A]:PP1:H101	3:C:302[A]:PP1:HC16	1.16	1.07
1:C:70:VAL:HG11	1:D:70[B]:VAL:HG21	1.38	1.05
1:A:70:VAL:HG11	1:B:70[B]:VAL:HG21	1.40	1.02
3:C:302[B]:PP1:HC16	3:C:302[B]:PP1:N10	1.85	0.91

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:302:PP1:HC16	3:D:302:PP1:N10	1.87	0.88
3:E:302:PP1:HC16	3:E:302:PP1:N10	1.88	0.88
3:F:302:PP1:HC12	3:F:302:PP1:N10	1.92	0.84
3:B:302:PP1:HC12	3:B:302:PP1:N10	1.95	0.81
3:A:302:PP1:HC12	3:A:302:PP1:N10	1.94	0.80
1:A:70:VAL:HG11	1:B:70[A]:VAL:HG11	1.64	0.80
3:C:302[A]:PP1:HC16	3:C:302[A]:PP1:N10	1.95	0.79
1:E:33:VAL:HG23	1:E:35:GLN:HG2	1.73	0.69
3:C:302[B]:PP1:HC13	1:D:5:GLN:NE2	2.08	0.69
1:C:58:LYS:NZ	6:C:541:HOH:O	2.28	0.66
1:A:168:ASP:OD2	1:D:6:ARG:NH1	2.29	0.65
1:A:18:ASN:HB3	1:A:86:HIS:CE1	2.32	0.65
1:A:124:LEU:HD22	1:A:204:LEU:HD13	1.79	0.63
1:A:18:ASN:HB3	1:A:86:HIS:HE1	1.64	0.62
3:C:302[A]:PP1:H101	3:C:302[A]:PP1:C16	2.02	0.60
1:A:12:ARG:HD3	1:A:13:PRO:HD2	1.82	0.60
1:F:219:ARG:NH1	6:F:550:HOH:O	2.30	0.59
1:A:166:PHE:HZ	1:A:175[B]:VAL:HG12	1.67	0.59
1:F:46:LYS:HG2	1:F:49:ALA:HB3	1.86	0.57
1:E:124:LEU:HD22	1:E:204:LEU:HD13	1.87	0.57
1:D:12:ARG:HH21	1:D:15:LEU:HD11	1.70	0.56
1:F:51:GLU:HG3	1:F:100:ALA:HB3	1.88	0.56
1:C:70:VAL:HG11	1:D:70[A]:VAL:HG11	1.87	0.56
1:D:30:ARG:HD2	1:D:33:VAL:HG22	1.89	0.56
1:C:55:LYS:HE3	3:C:302[A]:PP1:HC13	1.88	0.54
1:E:12:ARG:NH2	6:E:512:HOH:O	2.40	0.53
1:A:188:PHE:CD1	1:A:260:LYS:HE2	2.43	0.53
1:F:20:ASP:HA	1:F:23:LEU:HB2	1.91	0.53
1:D:249[B]:GLN:HE21	1:D:250:LYS:HE2	1.74	0.52
1:C:124:LEU:HD22	1:C:204[A]:LEU:HD13	1.92	0.52
1:E:130:ARG:NH1	6:E:599:HOH:O	2.41	0.51
1:E:188:PHE:CD1	1:E:260:LYS:HE2	2.45	0.51
1:C:33:VAL:HG12	1:D:5:GLN:HG2	1.91	0.51
1:B:249:GLN:HG2	6:B:537:HOH:O	2.10	0.50
1:D:124:LEU:HD22	1:D:204:LEU:HD13	1.94	0.50
1:F:26:TYR:CE1	1:F:46:LYS:HD3	2.46	0.49
1:E:89[A]:ARG:NH1	1:E:90:THR:O	2.44	0.49
1:C:75:LEU:HB3	1:C:81:LEU:HD11	1.93	0.48
1:D:19:LEU:HB2	1:D:88:ILE:HD11	1.95	0.48
1:C:19:LEU:HG	1:C:23:LEU:HD11	1.96	0.47
1:E:19:LEU:O	1:E:23:LEU:HG	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:33:VAL:HG23	1:E:35:GLN:CG	2.41	0.47
1:D:25:GLY:O	1:D:46:LYS:HG2	2.15	0.46
1:B:66:THR:O	1:B:70[B]:VAL:HG23	2.15	0.46
1:C:19:LEU:O	1:C:23:LEU:HG	2.15	0.46
1:C:70:VAL:CG1	1:D:70[B]:VAL:HG21	2.28	0.46
1:D:46:LYS:HB3	1:D:49:ALA:HB3	1.98	0.46
1:D:72[B]:LEU:HD12	1:D:81:LEU:HD13	1.98	0.45
1:C:19:LEU:HD22	1:C:88:ILE:HD12	1.98	0.45
1:A:175[A]:VAL:HG23	6:A:629:HOH:O	2.16	0.45
1:B:26:TYR:CD1	1:B:43:LEU:HB3	2.52	0.45
1:D:32:ASN:HB3	1:D:35:GLN:HB2	1.98	0.45
1:C:226:TYR:CD1	1:C:260:LYS:HE3	2.52	0.44
1:F:30:ARG:HA	1:F:40:ILE:O	2.17	0.44
1:F:36:SER:HA	1:F:37:GLY:HA2	1.62	0.44
1:D:33:VAL:HA	1:D:34:GLY:HA2	1.64	0.44
1:D:130[B]:ARG:NH2	6:D:616:HOH:O	2.22	0.44
1:D:89[B]:ARG:NH1	1:D:90:THR:O	2.51	0.43
1:E:85:LYS:NZ	6:E:519:HOH:O	2.44	0.43
1:D:155:ARG:HD3	1:D:270:PHE:O	2.18	0.43
1:F:129[B]:ARG:HA	1:F:129[B]:ARG:HD3	1.81	0.43
1:A:55:LYS:NZ	1:A:68:GLU:OE1	2.44	0.43
1:A:70:VAL:HG11	1:B:70[B]:VAL:CG2	2.30	0.43
1:F:206:PHE:CE1	1:F:211:LEU:HD13	2.54	0.43
1:B:248:PHE:CG	1:B:256:PRO:HG3	2.54	0.43
1:A:58:LYS:HD2	1:A:93:ASP:OD2	2.19	0.42
1:D:72[B]:LEU:HG	6:D:409:HOH:O	2.20	0.42
1:F:19:LEU:O	1:F:23:LEU:HG	2.20	0.42
1:A:28:TRP:CZ3	1:B:13:PRO:HD2	2.54	0.42
1:D:79:MET:HE2	1:D:131:LEU:HB2	2.01	0.42
1:B:240:SER:HA	1:B:241:PRO:HD3	1.93	0.42
1:A:89:ARG:HB3	1:B:87:PHE:HB3	2.02	0.42
1:B:106:ALA:HA	1:B:109:VAL:HG22	2.01	0.42
1:A:70:VAL:CG1	1:B:70[A]:VAL:HG11	2.43	0.41
1:C:256:PRO:HB2	1:C:258:MET:HE2	2.03	0.41
1:C:257:ASP:CG	1:C:260:LYS:HG3	2.44	0.41
1:A:42:ARG:NH2	1:A:51:GLU:OE2	2.41	0.41
1:B:31:ASP:N	1:B:31:ASP:OD1	2.54	0.41
1:F:204:LEU:HB3	1:F:211:LEU:HD11	2.03	0.41
1:D:226:TYR:CD1	1:D:260:LYS:HE3	2.56	0.41
1:B:5:GLN:NE2	6:B:449:HOH:O	2.53	0.41
1:D:4:ILE:O	1:D:5:GLN:HG3	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:240:SER:HA	1:C:241:PRO:HD3	1.95	0.41
1:B:46:LYS:HB3	1:B:49:ALA:HB3	2.02	0.40
1:F:58:LYS:HE2	1:F:58:LYS:HB3	1.84	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	263/272 (97%)	255 (97%)	8 (3%)	0	100	100
1	B	250/272 (92%)	246 (98%)	4 (2%)	0	100	100
1	C	256/272 (94%)	251 (98%)	4 (2%)	1 (0%)	30	22
1	D	278/272 (102%)	270 (97%)	8 (3%)	0	100	100
1	E	268/272 (98%)	261 (97%)	7 (3%)	0	100	100
1	F	249/272 (92%)	241 (97%)	7 (3%)	1 (0%)	30	22
All	All	1564/1632 (96%)	1524 (97%)	38 (2%)	2 (0%)	48	40

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	F	22	ASP
1	C	37	GLY

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	234/238 (98%)	231 (99%)	3 (1%)	61	61
1	B	225/238 (94%)	220 (98%)	5 (2%)	45	42
1	C	225/238 (94%)	225 (100%)	0	100	100
1	D	247/238 (104%)	243 (98%)	4 (2%)	55	54
1	E	239/238 (100%)	239 (100%)	0	100	100
1	F	221/238 (93%)	216 (98%)	5 (2%)	44	40
All	All	1391/1428 (97%)	1374 (99%)	17 (1%)	63	63

All (17) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	9	SER
1	A	18	ASN
1	A	216	ASP
1	B	11	SER
1	B	12	ARG
1	B	14	ARG
1	B	240	SER
1	B	249	GLN
1	D	4	ILE
1	D	36	SER
1	D	46	LYS
1	D	238	GLU
1	F	22	ASP
1	F	23	LEU
1	F	27	ARG
1	F	31	ASP
1	F	85	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	86	HIS
1	A	151	GLN
1	A	153	GLN
1	A	255	ASN
1	B	255	ASN
1	C	73	ASN

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Mol	Chain	Res	Type
1	C	138	ASN
1	C	151	GLN
1	C	259	ASN
1	D	5	GLN
1	E	18	ASN
1	E	73	ASN
1	E	255	ASN
1	F	73	ASN
1	F	153	GLN
1	F	171	ASN

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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 21 ligands modelled in this entry, 7 are monoatomic - leaving 14 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	PP1	F	302	-	23,23,23	2.11	3 (13%)	32,35,35	2.33	8 (25%)
2	KAN	C	301	-	34,35,35	0.80	1 (2%)	47,52,52	1.57	7 (14%)
2	KAN	E	301	-	34,35,35	0.83	1 (2%)	47,52,52	1.44	5 (10%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	PP1	D	302	-	23,23,23	2.15	3 (13%)	32,35,35	2.39	9 (28%)
3	PP1	C	302[A]	-	23,23,23	2.06	2 (8%)	32,35,35	2.68	12 (37%)
3	PP1	A	302	-	23,23,23	2.19	3 (13%)	32,35,35	2.31	11 (34%)
2	KAN	A	301	-	34,35,35	0.67	0	47,52,52	1.32	4 (8%)
3	PP1	C	302[B]	-	23,23,23	2.17	3 (13%)	32,35,35	2.57	11 (34%)
5	ACT	D	305	-	3,3,3	0.81	0	3,3,3	1.43	0
3	PP1	E	302	-	23,23,23	2.06	3 (13%)	32,35,35	2.39	9 (28%)
2	KAN	F	301	-	34,35,35	0.80	2 (5%)	47,52,52	1.48	6 (12%)
2	KAN	B	301	-	34,35,35	0.66	0	47,52,52	1.36	6 (12%)
2	KAN	D	301	-	34,35,35	0.83	1 (2%)	47,52,52	1.46	6 (12%)
3	PP1	B	302	-	23,23,23	2.16	3 (13%)	32,35,35	2.30	10 (31%)

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	PP1	F	302	-	-	2/10/10/10	0/3/3/3
2	KAN	C	301	-	-	2/12/72/72	0/3/3/3
2	KAN	E	301	-	-	2/12/72/72	0/3/3/3
3	PP1	D	302	-	-	3/10/10/10	0/3/3/3
3	PP1	C	302[A]	-	-	0/10/10/10	0/3/3/3
3	PP1	A	302	-	-	2/10/10/10	0/3/3/3
2	KAN	A	301	-	-	2/12/72/72	0/3/3/3
3	PP1	C	302[B]	-	-	3/10/10/10	0/3/3/3
3	PP1	E	302	-	-	2/10/10/10	0/3/3/3
2	KAN	F	301	-	-	2/12/72/72	0/3/3/3
2	KAN	B	301	-	-	2/12/72/72	0/3/3/3
2	KAN	D	301	-	-	2/12/72/72	0/3/3/3
3	PP1	B	302	-	-	3/10/10/10	0/3/3/3

All (25) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	302	PP1	N1-N8	-7.77	1.23	1.39
3	E	302	PP1	N1-N8	-7.62	1.24	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	302[B]	PP1	N1-N8	-7.53	1.24	1.39
3	F	302	PP1	N1-N8	-7.51	1.24	1.39
3	D	302	PP1	N1-N8	-7.49	1.24	1.39
3	A	302	PP1	N1-N8	-7.48	1.24	1.39
3	C	302[A]	PP1	N1-N8	-7.24	1.24	1.39
3	A	302	PP1	C11-C9	-6.10	1.40	1.49
3	B	302	PP1	C11-C9	-5.99	1.40	1.49
3	C	302[B]	PP1	C11-C9	-5.88	1.40	1.49
3	D	302	PP1	C11-C9	-5.71	1.41	1.49
3	C	302[A]	PP1	C11-C9	-5.60	1.41	1.49
3	F	302	PP1	C11-C9	-5.55	1.41	1.49
3	E	302	PP1	C11-C9	-4.87	1.42	1.49
3	D	302	PP1	C4-N1	-2.71	1.33	1.35
3	E	302	PP1	C4-N1	-2.69	1.33	1.35
3	A	302	PP1	C4-N1	-2.58	1.33	1.35
3	C	302[B]	PP1	C4-N1	-2.49	1.33	1.35
2	C	301	KAN	O5-C1	2.45	1.48	1.41
3	F	302	PP1	C4-N1	-2.38	1.33	1.35
2	F	301	KAN	O5-C1	2.16	1.47	1.41
2	F	301	KAN	C14-C15	-2.14	1.50	1.53
2	D	301	KAN	C14-C15	-2.11	1.50	1.53
3	B	302	PP1	C4-N1	-2.06	1.33	1.35
2	E	301	KAN	O5-C1	2.04	1.47	1.41

All (104) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	302[B]	PP1	C5-C4-N3	-6.76	119.80	126.97
3	C	302[A]	PP1	C5-C4-N3	-6.43	120.15	126.97
3	B	302	PP1	C5-C4-N3	-6.41	120.16	126.97
3	F	302	PP1	C5-C4-N3	-6.11	120.48	126.97
3	D	302	PP1	C5-C4-N3	-6.09	120.51	126.97
3	E	302	PP1	C5-C4-N3	-6.08	120.51	126.97
3	A	302	PP1	C5-C4-N3	-5.85	120.77	126.97
3	E	302	PP1	C5-C9-N8	-5.42	106.47	110.19
3	C	302[A]	PP1	C5-C9-N8	-5.29	106.56	110.19
3	D	302	PP1	C5-C9-N8	-5.26	106.58	110.19
3	C	302[A]	PP1	N7-C2-N3	-5.22	120.68	128.58
3	A	302	PP1	N7-C2-N3	-5.13	120.82	128.58
3	F	302	PP1	C5-C9-N8	-5.12	106.67	110.19
3	C	302[B]	PP1	N7-C2-N3	-5.11	120.84	128.58
3	C	302[A]	PP1	C11-C9-N8	5.07	125.51	118.91

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	302	PP1	N7-C2-N3	-4.91	121.14	128.58
3	C	302[B]	PP1	C11-C9-N8	4.90	125.28	118.91
3	E	302	PP1	N7-C2-N3	-4.86	121.23	128.58
3	C	302[A]	PP1	N3-C4-N1	4.79	133.03	125.48
3	F	302	PP1	N7-C2-N3	-4.77	121.35	128.58
3	B	302	PP1	N3-C4-N1	4.71	132.91	125.48
3	B	302	PP1	N7-C2-N3	-4.67	121.51	128.58
3	E	302	PP1	N3-C4-N1	4.57	132.68	125.48
3	B	302	PP1	C5-C9-N8	-4.53	107.08	110.19
3	E	302	PP1	C11-C9-N8	4.51	124.77	118.91
3	C	302[B]	PP1	N3-C4-N1	4.45	132.50	125.48
3	D	302	PP1	N3-C4-N1	4.34	132.32	125.48
2	C	301	KAN	O5-C5-C6	4.29	114.32	106.07
3	C	302[B]	PP1	C5-C9-N8	-4.28	107.25	110.19
3	A	302	PP1	N3-C4-N1	4.28	132.23	125.48
3	F	302	PP1	N3-C4-N1	4.23	132.15	125.48
3	D	302	PP1	C11-C9-N8	4.21	124.39	118.91
3	A	302	PP1	C5-C9-N8	-4.21	107.30	110.19
3	F	302	PP1	C11-C9-N8	4.11	124.26	118.91
2	C	301	KAN	C6-C5-C4	-4.10	103.22	112.80
2	F	301	KAN	C6-C5-C4	-4.08	103.27	112.80
3	C	302[B]	PP1	C2-N3-C4	3.95	121.48	111.83
2	A	301	KAN	C6-C5-C4	-3.94	103.60	112.80
3	C	302[B]	PP1	C28-N1-N8	3.93	124.92	117.90
2	E	301	KAN	O5-C5-C6	3.86	113.48	106.07
3	C	302[A]	PP1	C2-N3-C4	3.85	121.24	111.83
2	D	301	KAN	C6-C5-C4	-3.85	103.79	112.80
2	C	301	KAN	C17-C16-C15	-3.80	106.47	110.67
2	B	301	KAN	O5-C5-C6	3.77	113.31	106.07
2	A	301	KAN	O5-C5-C6	3.74	113.26	106.07
3	A	302	PP1	C11-C9-N8	3.72	123.75	118.91
3	C	302[A]	PP1	C16-C11-C9	3.67	125.18	120.64
2	E	301	KAN	C6-C5-C4	-3.63	104.31	112.80
3	B	302	PP1	C2-N3-C4	3.58	120.58	111.83
3	E	302	PP1	C2-N3-C4	3.58	120.58	111.83
3	F	302	PP1	C2-N3-C4	3.58	120.57	111.83
3	D	302	PP1	C2-N3-C4	3.52	120.43	111.83
2	F	301	KAN	O5-C5-C6	3.49	112.78	106.07
3	A	302	PP1	C2-N3-C4	3.42	120.18	111.83
2	D	301	KAN	O11-C8-C9	3.41	115.91	107.23
2	F	301	KAN	C17-C16-C15	-3.40	106.91	110.67
3	F	302	PP1	C28-N1-N8	3.37	123.92	117.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	301	KAN	O11-C8-C9	3.27	115.54	107.23
3	C	302[A]	PP1	C5-C9-C11	-3.25	127.42	131.28
3	C	302[B]	PP1	C5-C9-C11	-3.21	127.47	131.28
2	E	301	KAN	O11-C8-C9	3.15	115.25	107.23
3	B	302	PP1	C12-C11-C9	3.07	124.43	120.64
3	B	302	PP1	C11-C9-N8	3.05	122.88	118.91
3	C	302[A]	PP1	C28-N1-N8	3.04	123.34	117.90
2	D	301	KAN	O5-C5-C6	3.03	111.89	106.07
2	D	301	KAN	C17-C16-C15	-3.02	107.33	110.67
3	A	302	PP1	C28-N1-N8	3.02	123.29	117.90
2	C	301	KAN	O11-C8-C9	3.01	114.89	107.23
3	C	302[A]	PP1	C16-C15-C14	-2.99	117.92	121.37
3	D	302	PP1	C28-N1-N8	2.96	123.19	117.90
2	B	301	KAN	O11-C8-C9	2.86	114.51	107.23
2	C	301	KAN	C13-C14-C15	2.86	114.24	110.40
2	B	301	KAN	C17-C16-C15	-2.79	107.58	110.67
2	B	301	KAN	C6-C5-C4	-2.77	106.33	112.80
3	A	302	PP1	C12-C11-C9	2.76	124.05	120.64
2	A	301	KAN	O11-C8-C9	2.75	114.22	107.23
3	C	302[A]	PP1	C12-C11-C9	-2.75	117.24	120.64
3	B	302	PP1	C16-C11-C9	-2.72	117.27	120.64
3	C	302[B]	PP1	C16-C15-C14	-2.65	118.32	121.37
2	E	301	KAN	C13-C14-C15	2.64	113.94	110.40
3	F	302	PP1	C12-C11-C9	2.61	123.86	120.64
3	D	302	PP1	C16-C11-C9	2.58	123.83	120.64
2	E	301	KAN	O12-C17-C18	2.58	112.83	106.44
2	B	301	KAN	C13-C14-C15	2.51	113.77	110.40
2	F	301	KAN	C14-C15-N4	-2.50	105.92	111.05
3	E	302	PP1	C28-N1-N8	2.50	122.37	117.90
3	B	302	PP1	C28-N1-N8	2.43	122.25	117.90
2	D	301	KAN	C13-C14-C15	2.42	113.65	110.40
2	D	301	KAN	C10-C9-C8	2.41	113.99	109.11
3	C	302[A]	PP1	C15-C16-C11	2.38	123.34	120.80
3	A	302	PP1	C2-N7-C6	2.35	122.58	118.73
3	A	302	PP1	C16-C11-C9	-2.33	117.75	120.64
3	E	302	PP1	C29-C28-N1	-2.26	105.67	108.87
3	B	302	PP1	C6-C5-C4	2.22	117.40	115.74
3	A	302	PP1	C5-C9-C11	-2.15	128.73	131.28
3	E	302	PP1	C5-C9-C11	-2.14	128.74	131.28
2	A	301	KAN	C16-C15-C14	-2.13	106.43	111.06
2	B	301	KAN	C16-C15-C14	-2.09	106.51	111.06
2	C	301	KAN	O11-C13-C14	-2.06	103.01	108.09

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	301	KAN	C10-C9-C8	2.06	113.28	109.11
3	C	302[B]	PP1	C2-N7-C6	2.05	122.09	118.73
3	C	302[B]	PP1	C4-C5-C9	-2.04	103.31	104.74
2	C	301	KAN	O13-C14-C13	-2.04	105.22	110.08
3	D	302	PP1	C2-N7-C6	2.00	122.02	118.73

There are no chirality outliers.

All (27) torsion outliers are listed below:

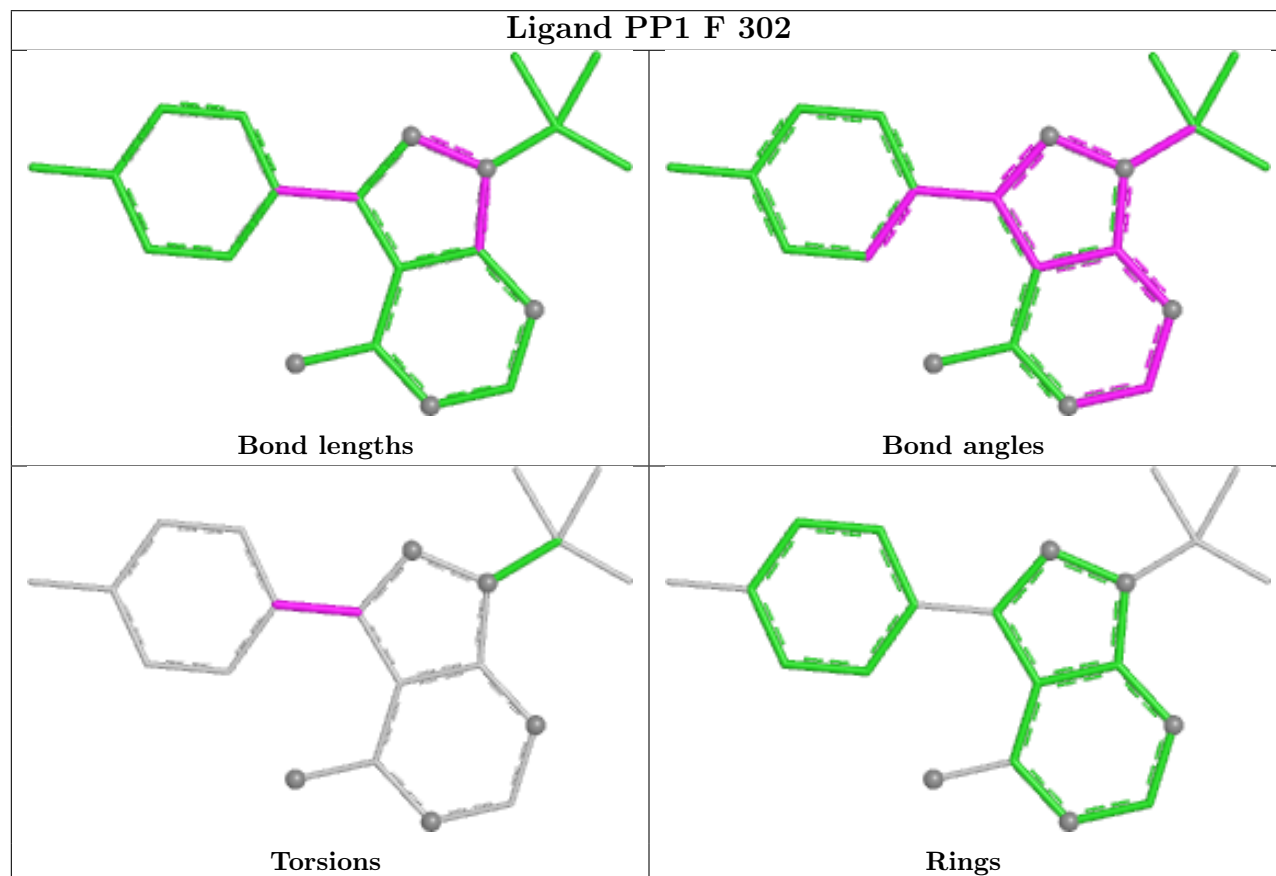
Mol	Chain	Res	Type	Atoms
3	C	302[B]	PP1	C16-C11-C9-C5
2	D	301	KAN	C9-C8-O11-C13
2	E	301	KAN	C9-C8-O11-C13
3	B	302	PP1	C12-C11-C9-C5
3	D	302	PP1	C16-C11-C9-C5
2	F	301	KAN	C9-C8-O11-C13
2	E	301	KAN	C9-C10-O9-C1
3	B	302	PP1	C16-C11-C9-C5
3	C	302[B]	PP1	C12-C11-C9-C5
3	E	302	PP1	C16-C11-C9-C5
2	C	301	KAN	C9-C8-O11-C13
2	C	301	KAN	C9-C10-O9-C1
2	B	301	KAN	C9-C8-O11-C13
2	A	301	KAN	C9-C8-O11-C13
2	A	301	KAN	C9-C10-O9-C1
2	B	301	KAN	C9-C10-O9-C1
3	A	302	PP1	C12-C11-C9-C5
3	D	302	PP1	C12-C11-C9-C5
3	F	302	PP1	C12-C11-C9-C5
2	D	301	KAN	C9-C10-O9-C1
3	E	302	PP1	C12-C11-C9-C5
3	F	302	PP1	C16-C11-C9-C5
2	F	301	KAN	C9-C10-O9-C1
3	A	302	PP1	C16-C11-C9-C5
3	B	302	PP1	C12-C11-C9-N8
3	C	302[B]	PP1	C16-C11-C9-N8
3	D	302	PP1	C16-C11-C9-N8

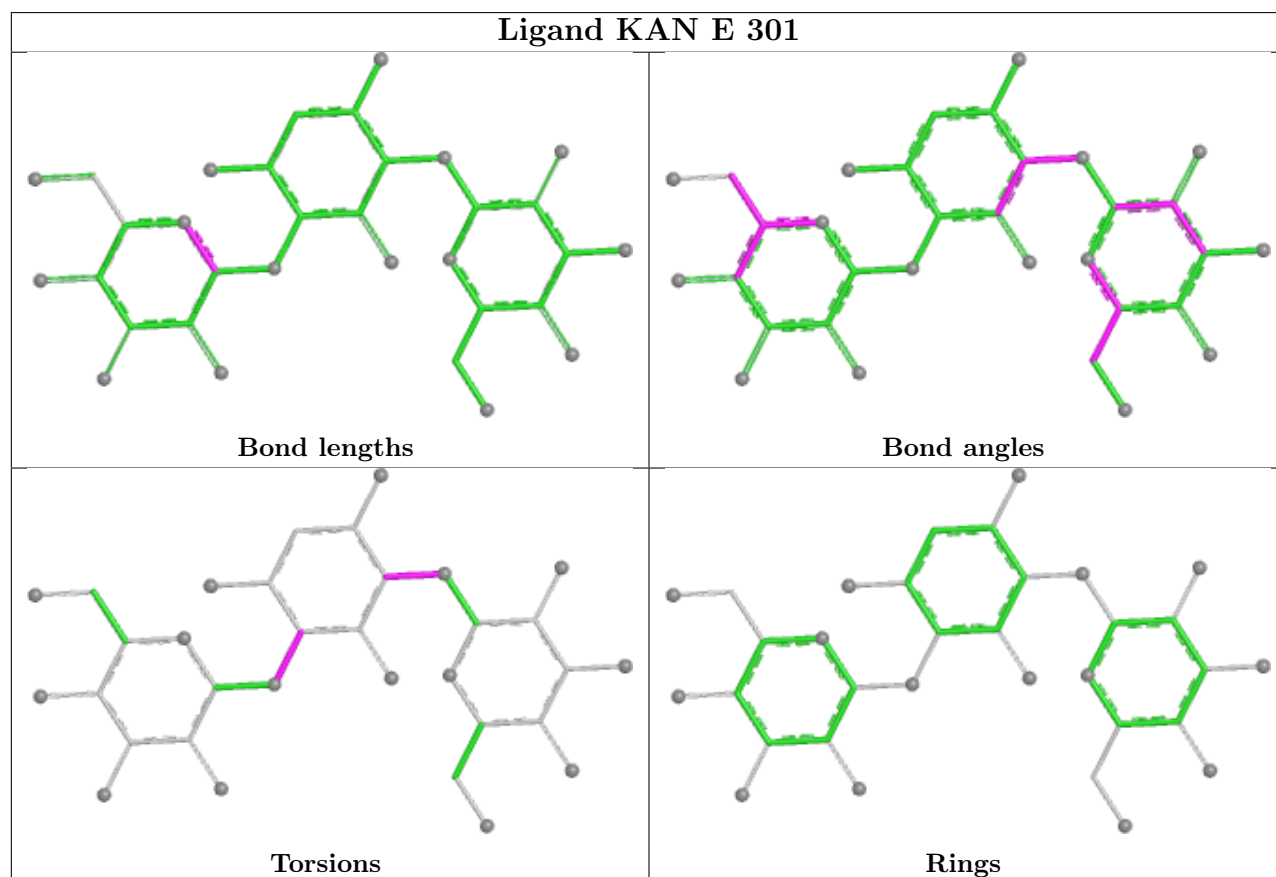
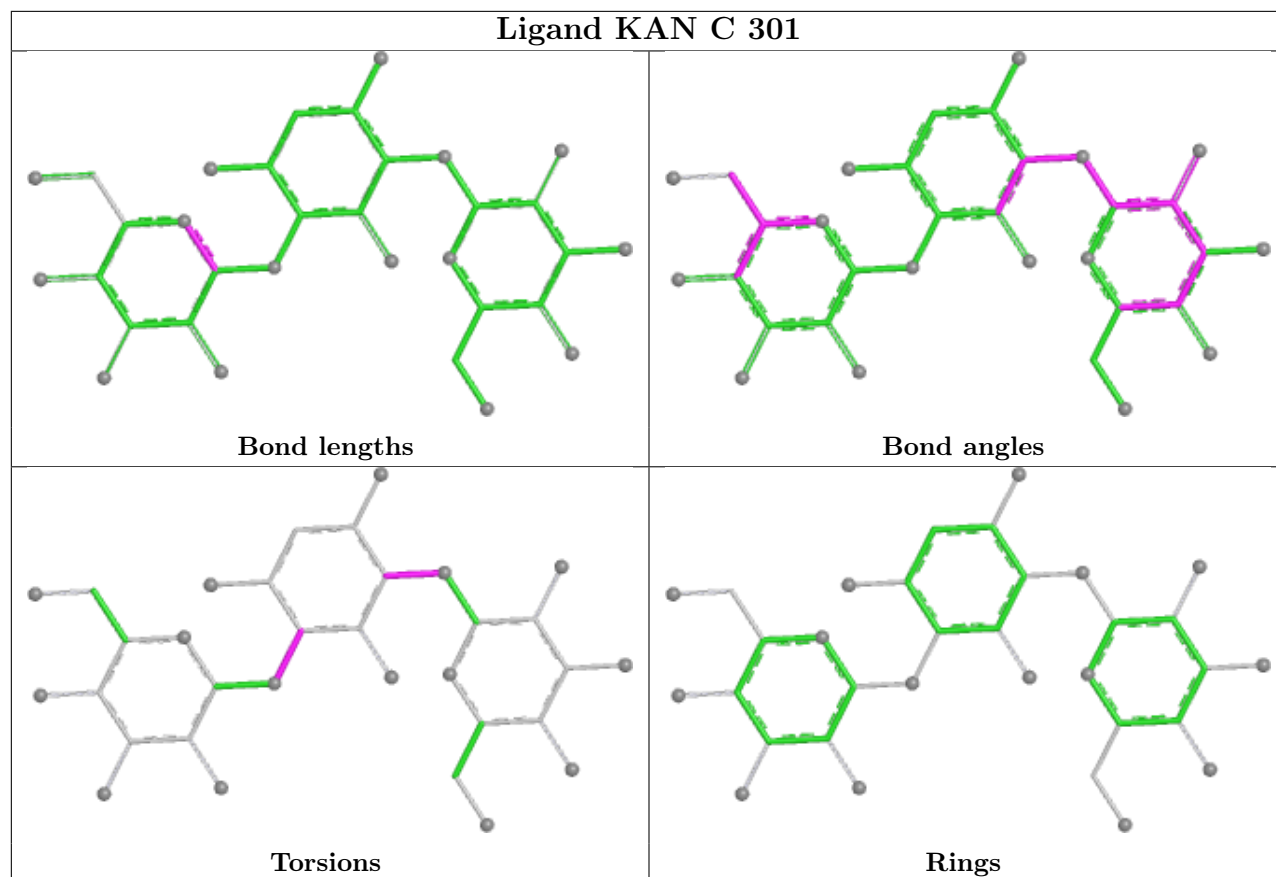
There are no ring outliers.

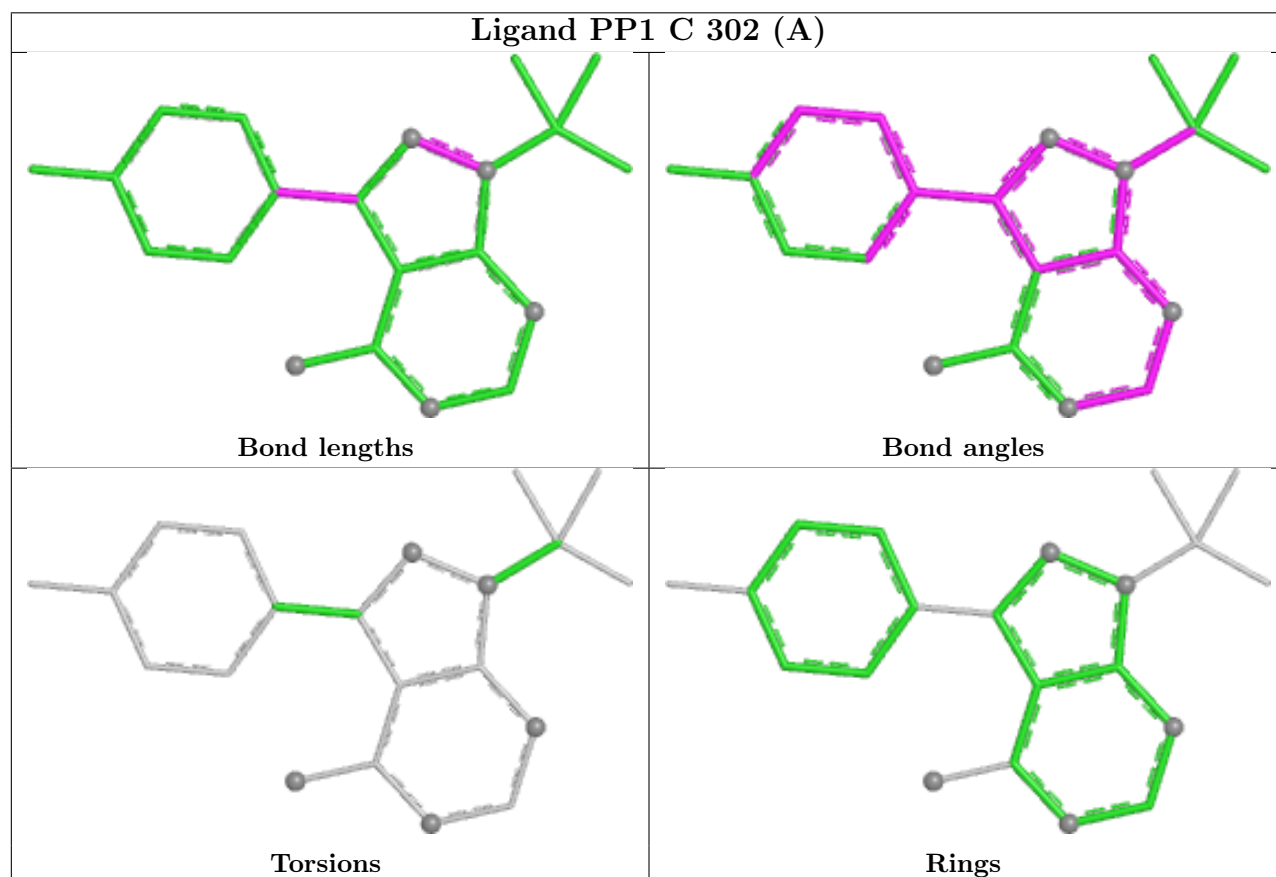
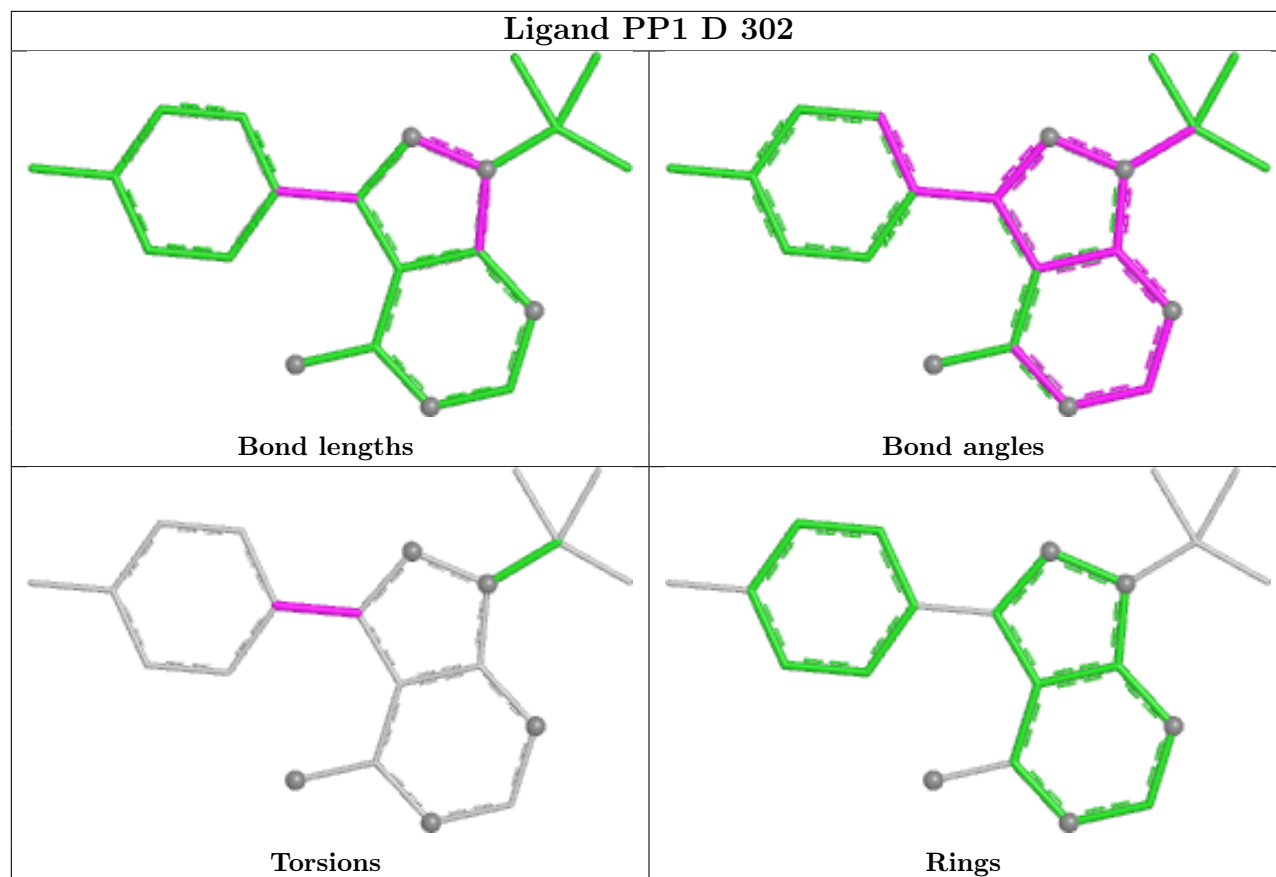
7 monomers are involved in 17 short contacts:

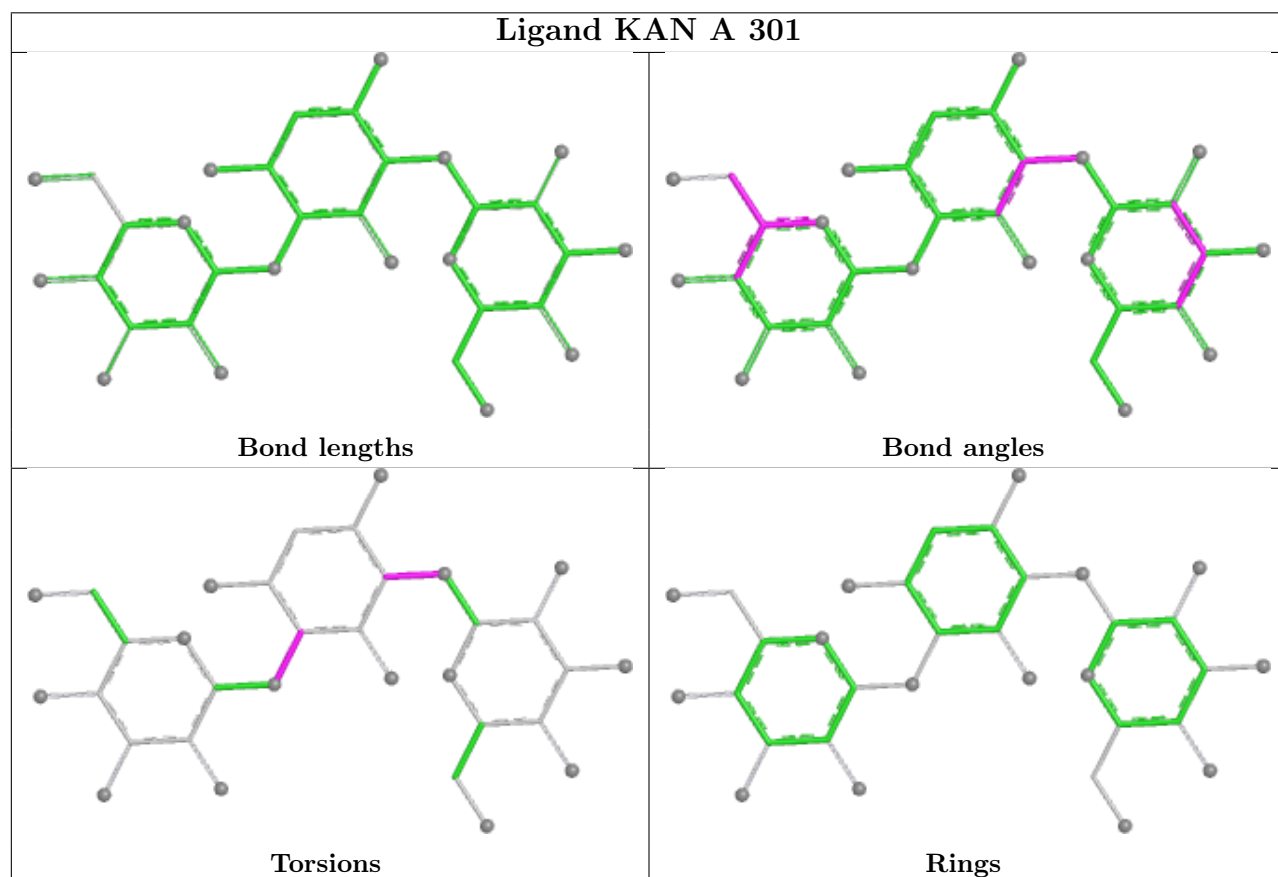
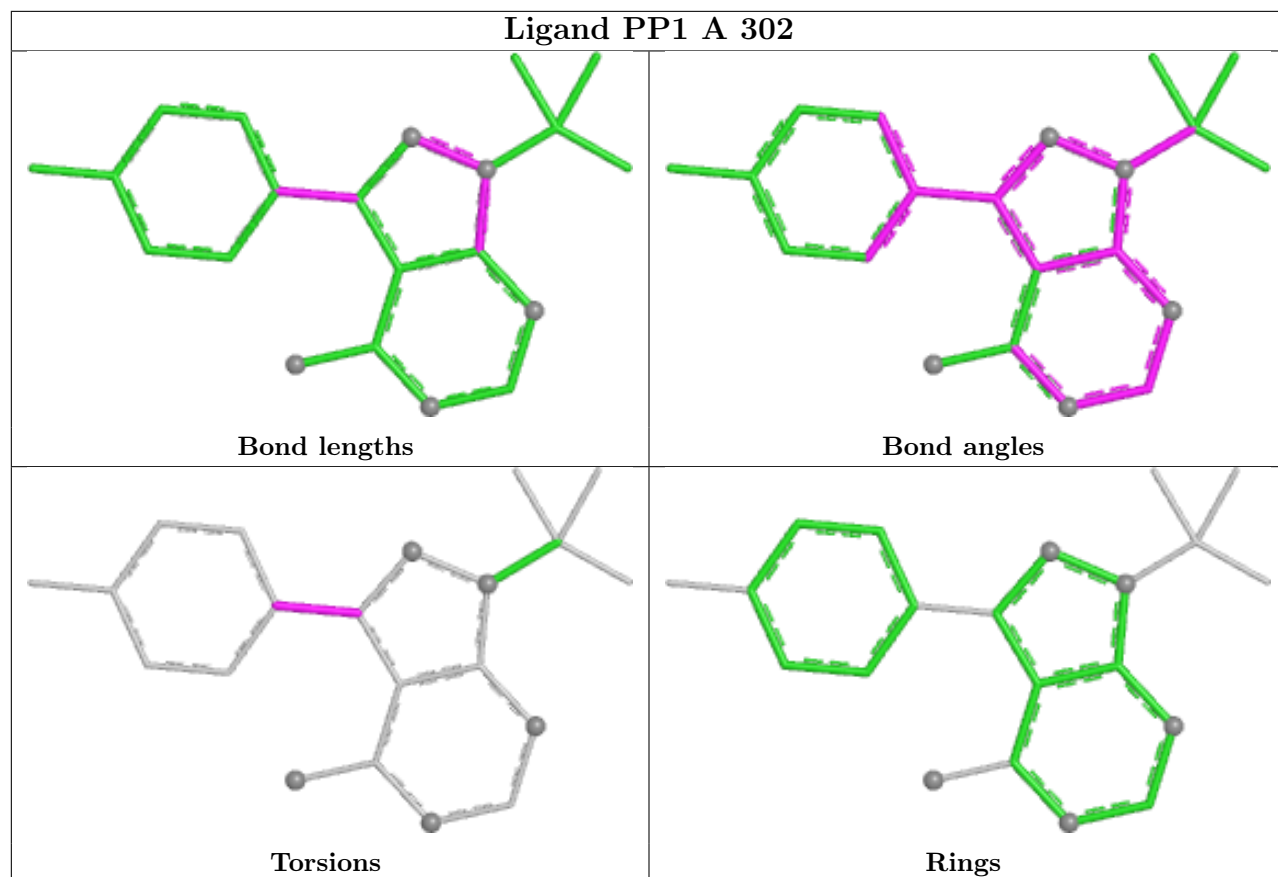
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	F	302	PP1	2	0
3	D	302	PP1	2	0
3	C	302[A]	PP1	4	0
3	A	302	PP1	2	0
3	C	302[B]	PP1	3	0
3	E	302	PP1	2	0
3	B	302	PP1	2	0

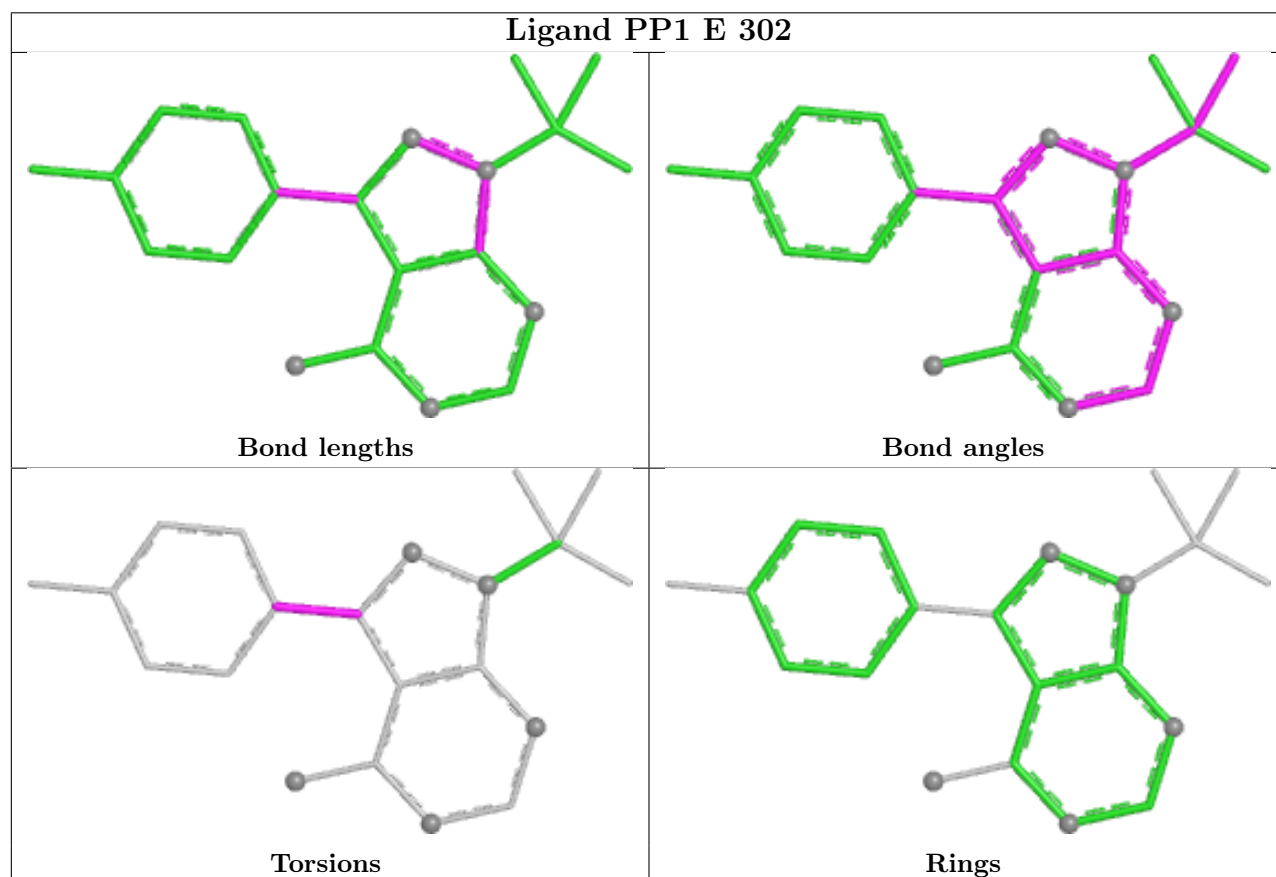
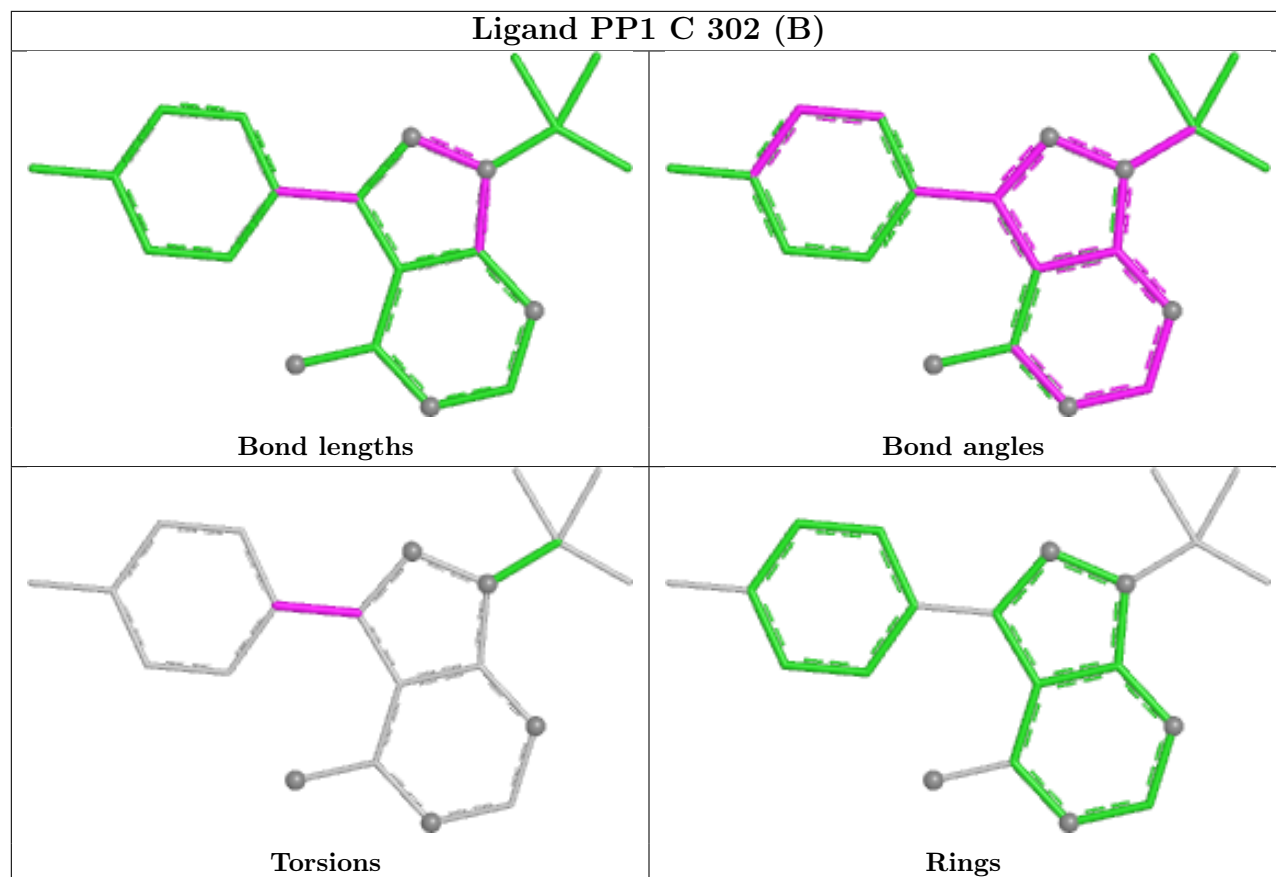
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

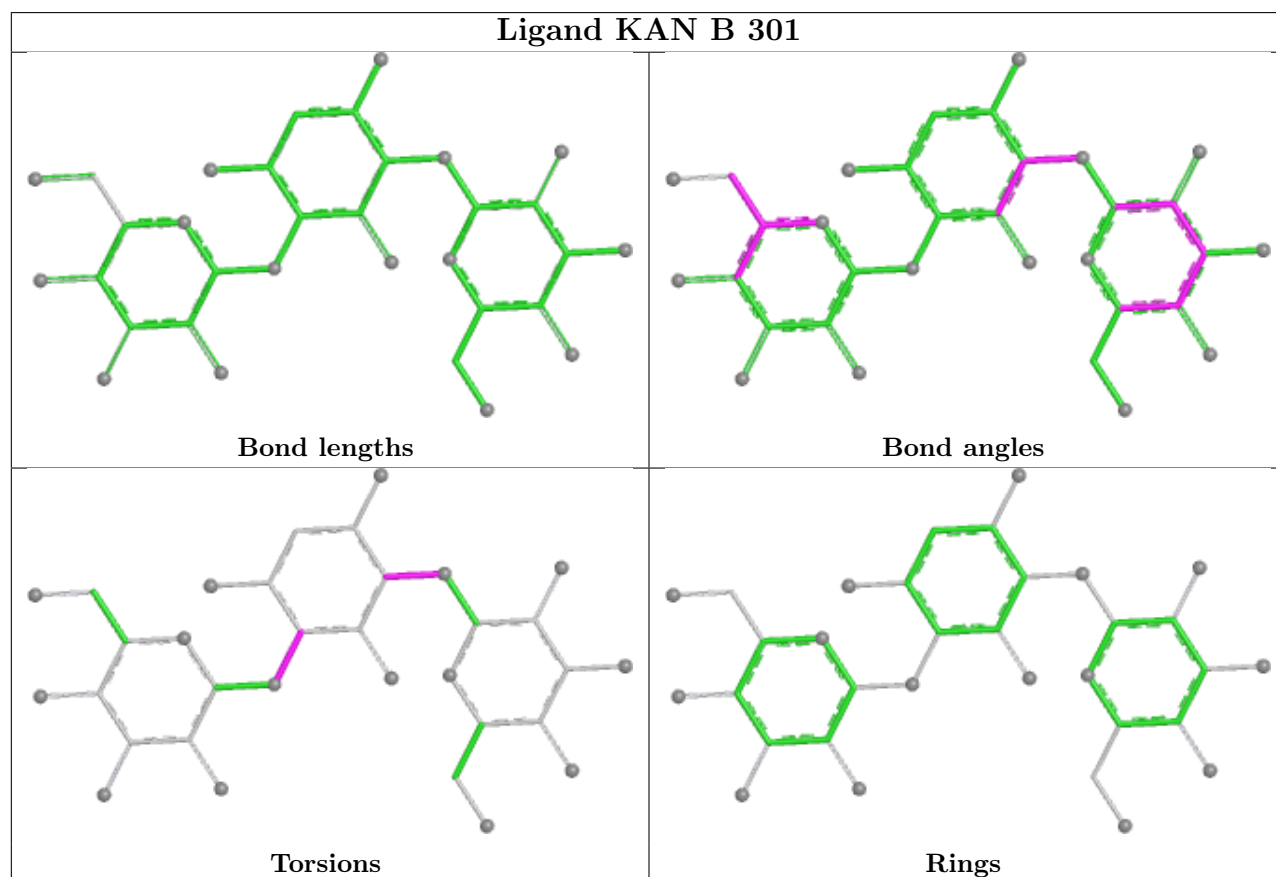
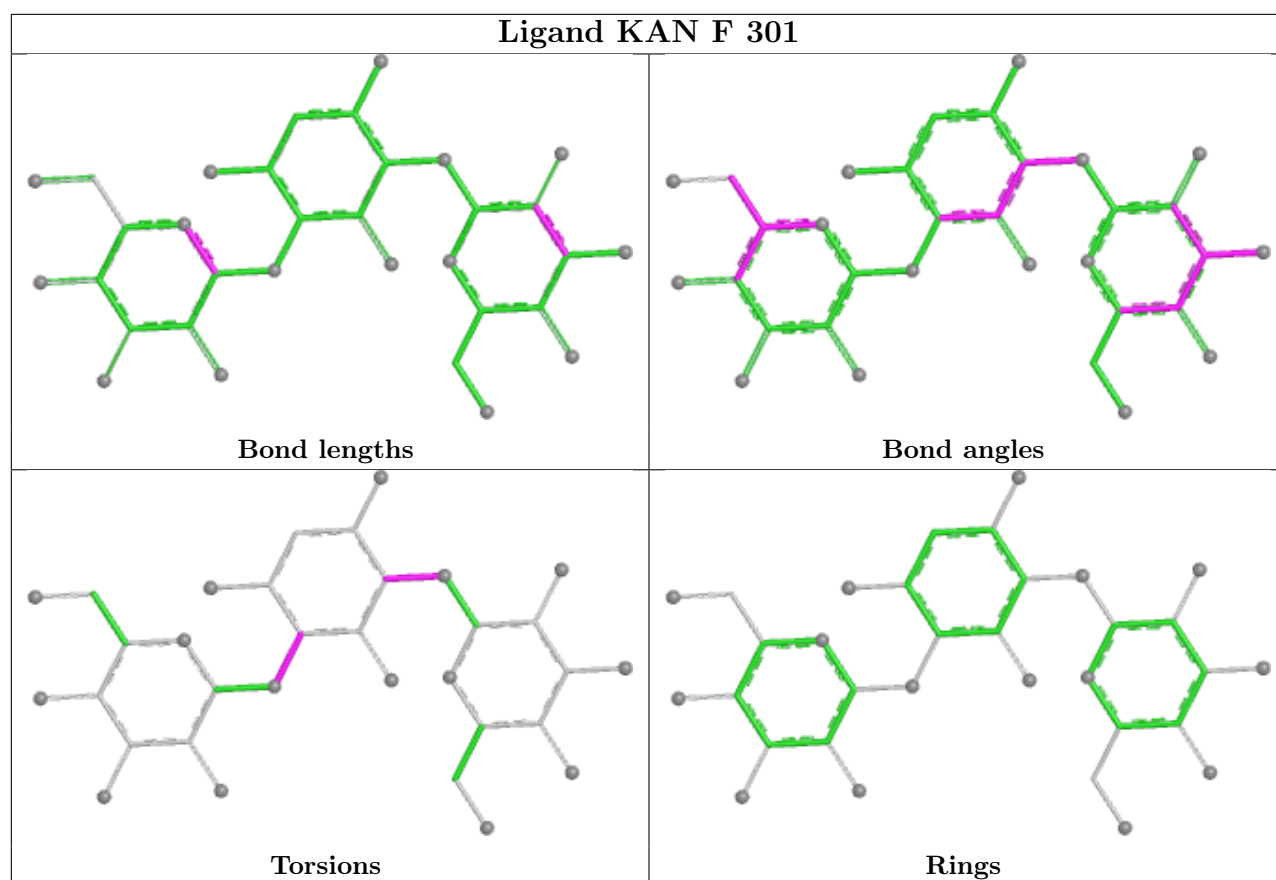


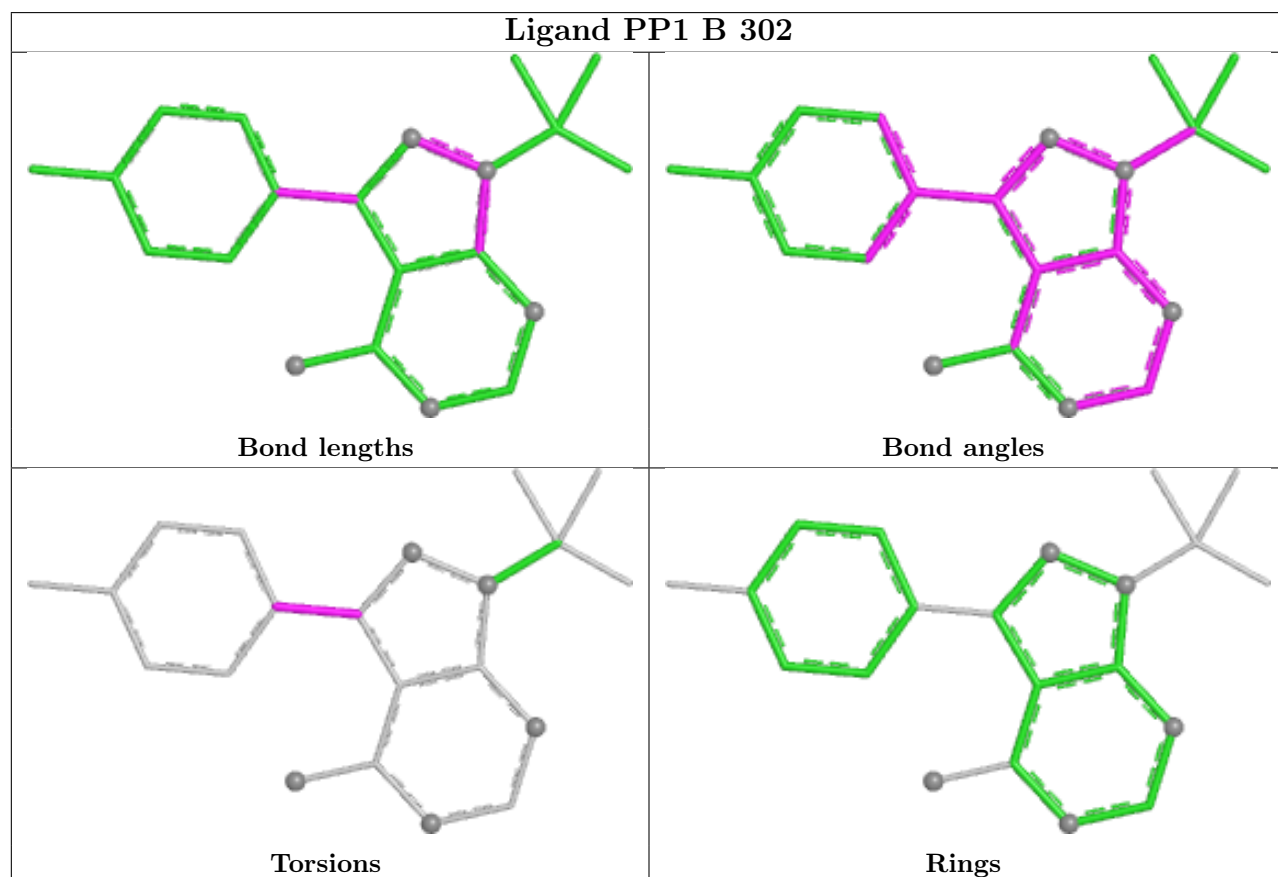
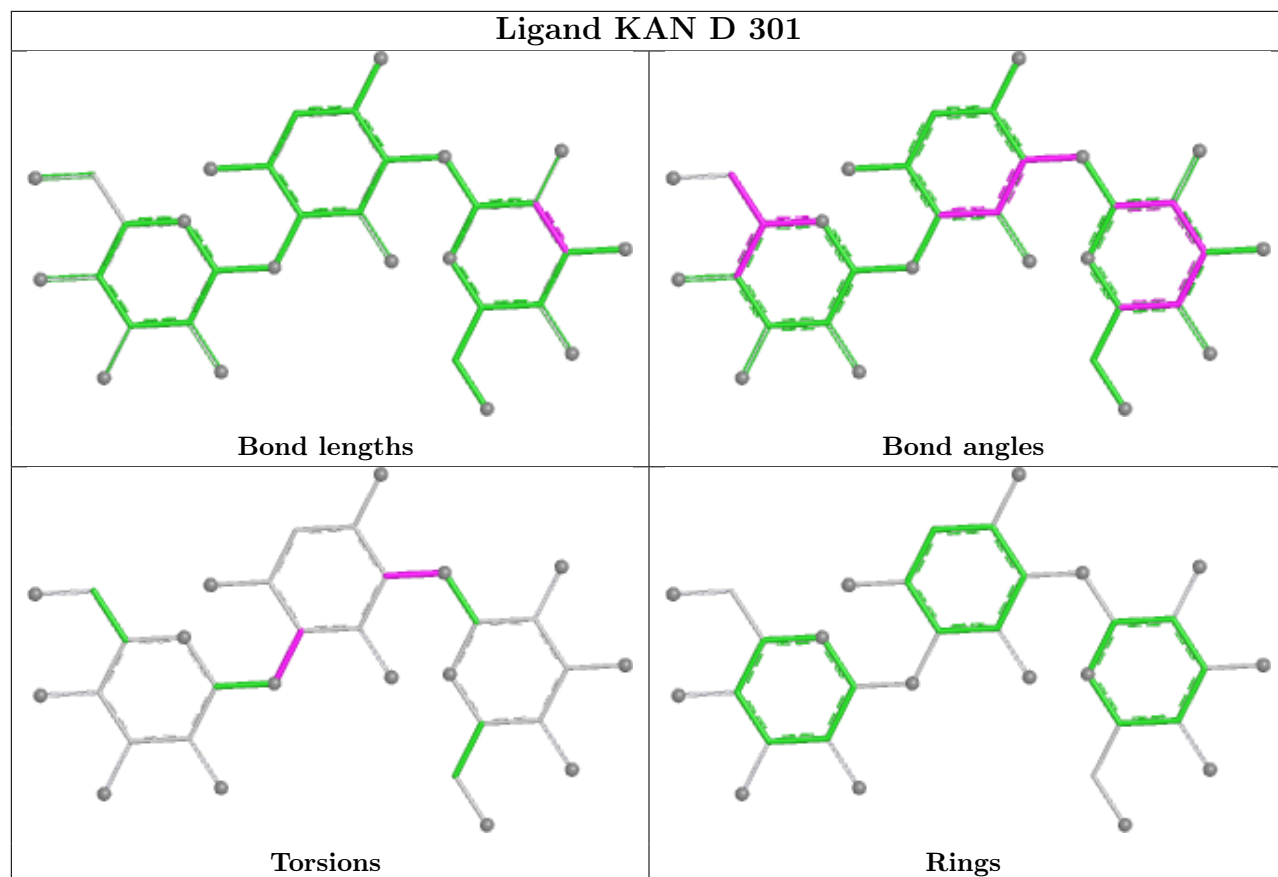












5.7 Other polymers [i](#)

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

6.1 Protein, DNA and RNA chains

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	263/272 (96%)	-0.56	2 (0%) 82 85	4, 16, 59, 101	4 (1%)
1	B	254/272 (93%)	-0.35	3 (1%) 76 79	9, 27, 71, 84	2 (0%)
1	C	254/272 (93%)	-0.65	2 (0%) 82 85	7, 16, 43, 80	4 (1%)
1	D	271/272 (99%)	-0.53	3 (1%) 78 80	7, 19, 68, 79	9 (3%)
1	E	268/272 (98%)	-0.58	1 (0%) 88 90	6, 19, 45, 86	4 (1%)
1	F	252/272 (92%)	-0.43	6 (2%) 59 63	6, 19, 81, 107	1 (0%)
All	All	1562/1632 (95%)	-0.52	17 (1%) 78 80	4, 19, 66, 107	24 (1%)

All (17) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	21	ALA	4.4
1	C	36	SER	3.6
1	F	24	TYR	3.1
1	B	29	ALA	3.1
1	B	4	ILE	3.0
1	E	36	SER	3.0
1	D	32	ASN	2.9
1	F	19	LEU	2.8
1	B	8	THR	2.6
1	F	22	ASP	2.4
1	A	8	THR	2.3
1	D	4	ILE	2.2
1	F	16	ASN	2.2
1	C	35	GLN	2.1
1	D	24	TYR	2.1
1	F	17	SER	2.0
1	A	33	VAL	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](#)

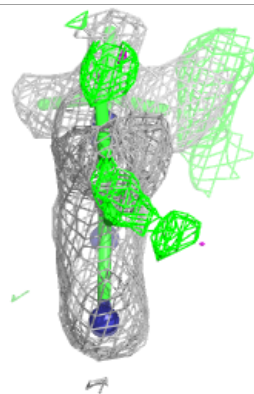
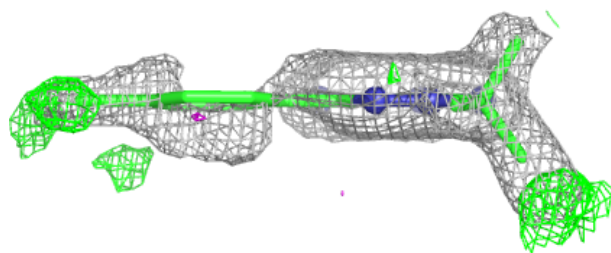
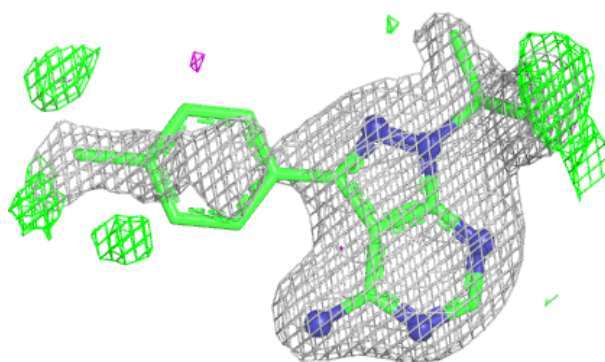
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
5	ACT	D	305	4/4	0.78	0.11	34,43,46,119	0
4	NA	D	304	1/1	0.84	0.09	32,32,32,32	1
3	PP1	F	302	21/21	0.85	0.12	19,34,71,78	21
4	NA	B	303	1/1	0.86	0.14	37,37,37,37	0
4	NA	A	303	1/1	0.91	0.10	30,30,30,30	1
4	NA	E	303	1/1	0.92	0.07	25,25,25,25	1
4	NA	F	304	1/1	0.93	0.05	32,32,32,32	0
3	PP1	B	302	21/21	0.93	0.08	18,31,70,131	21
3	PP1	C	302[A]	21/21	0.94	0.08	0,8,43,66	21
3	PP1	C	302[B]	21/21	0.94	0.08	0,10,47,60	21
3	PP1	D	302	21/21	0.94	0.10	5,16,79,86	21
2	KAN	B	301	33/33	0.94	0.06	15,22,26,28	0
2	KAN	A	301	33/33	0.94	0.06	6,17,23,27	0
2	KAN	E	301	33/33	0.96	0.04	14,22,26,27	0
4	NA	D	303	1/1	0.96	0.05	19,19,19,19	1
2	KAN	F	301	33/33	0.96	0.05	6,10,20,20	0
3	PP1	E	302	21/21	0.96	0.07	8,12,62,113	0
2	KAN	C	301	33/33	0.96	0.05	9,19,26,29	0
2	KAN	D	301	33/33	0.96	0.04	6,9,19,22	0
3	PP1	A	302	21/21	0.97	0.07	6,16,68,75	0
4	NA	F	303	1/1	0.99	0.10	13,13,13,13	1

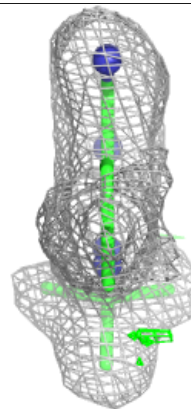
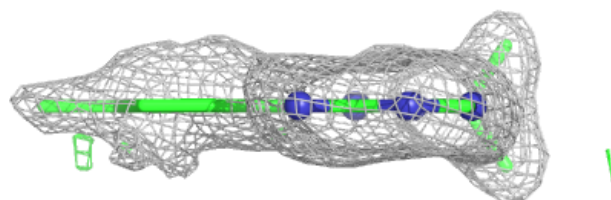
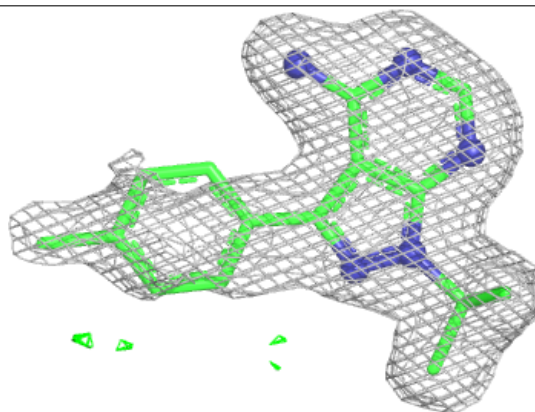
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around PP1 F 302:

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

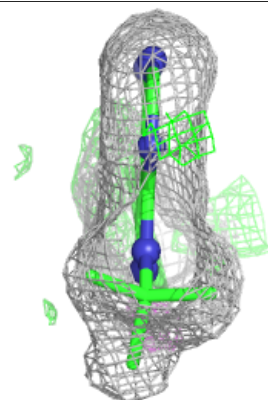
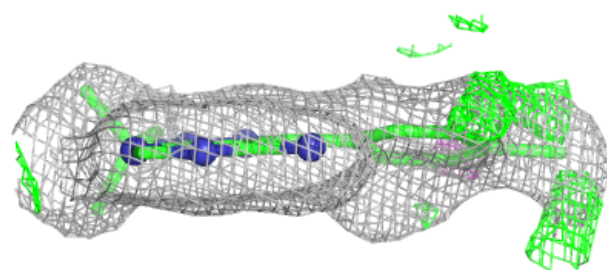
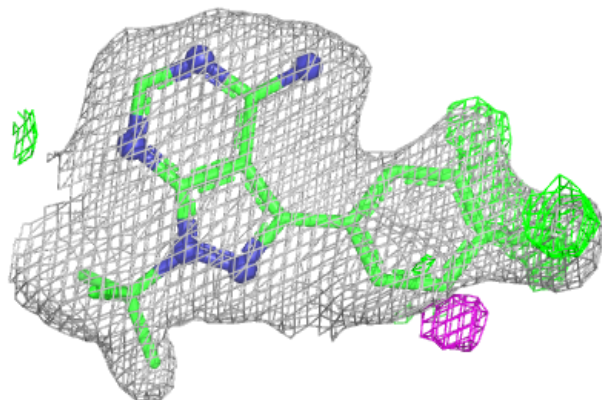
**Electron density around PP1 B 302:**

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

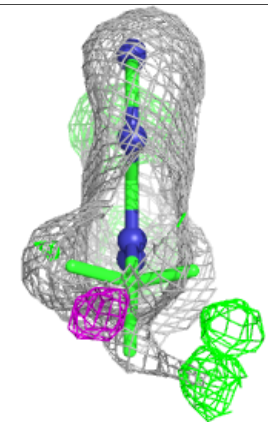
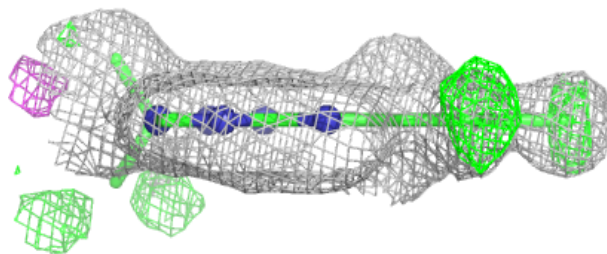
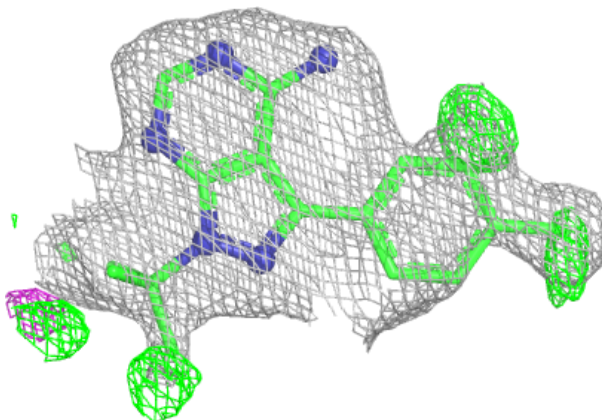


Electron density around PP1 C 302 (A):

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

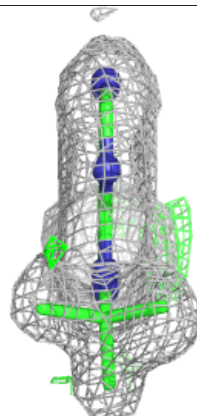
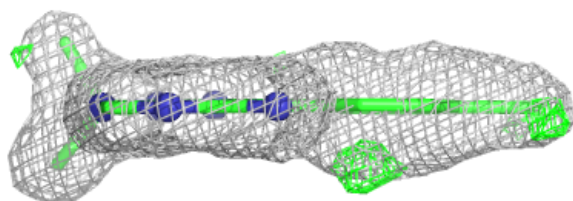
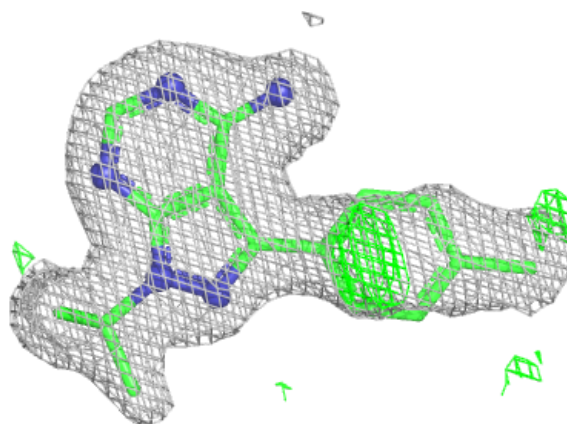
**Electron density around PP1 C 302 (B):**

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

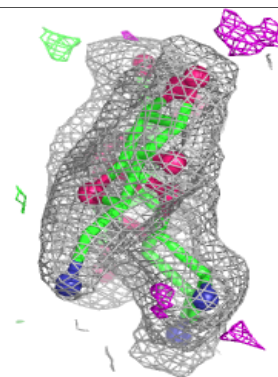
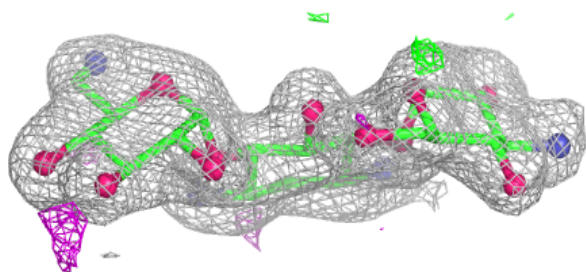
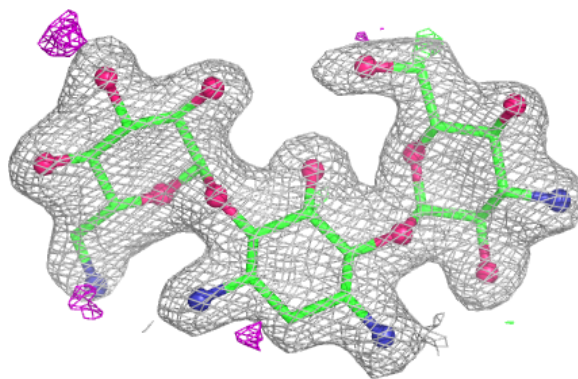


Electron density around PP1 D 302:

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

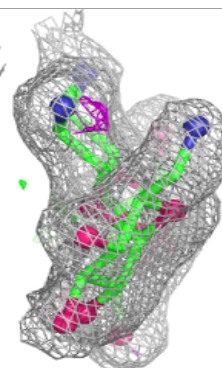
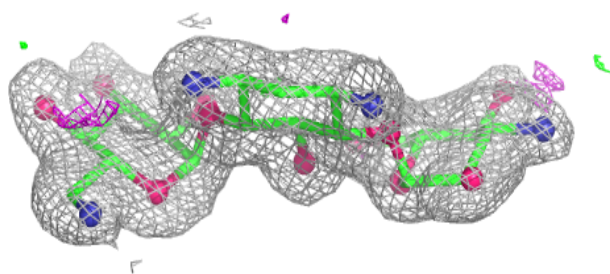
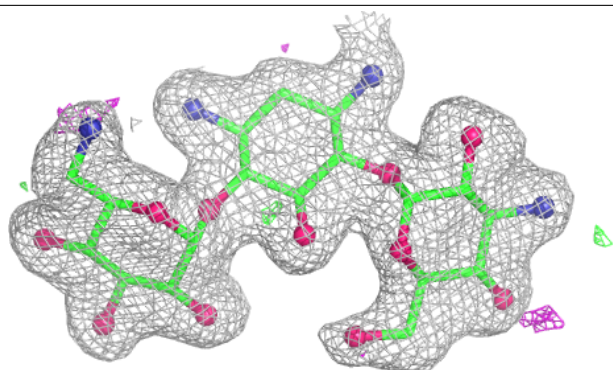
**Electron density around KAN B 301:**

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

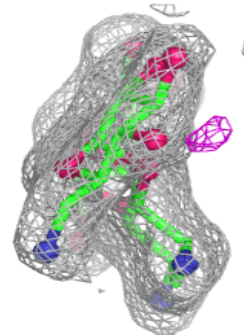
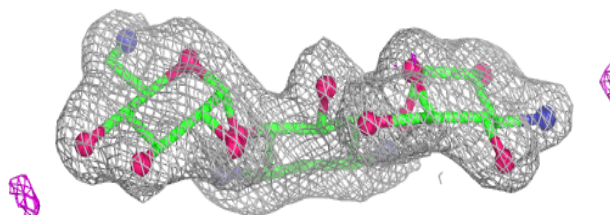
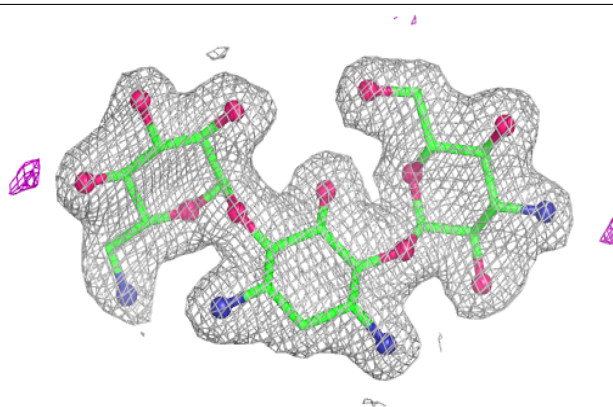


Electron density around KAN A 301:

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

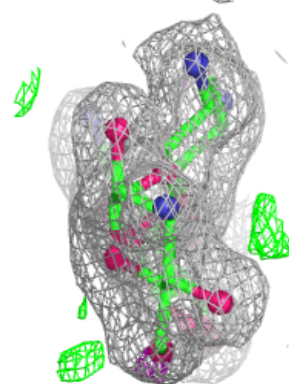
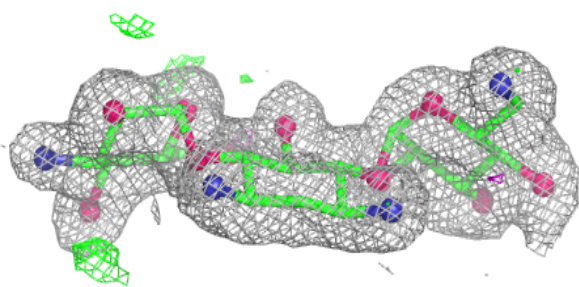
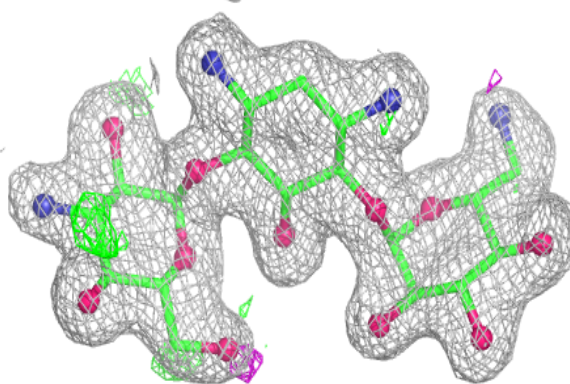
**Electron density around KAN E 301:**

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

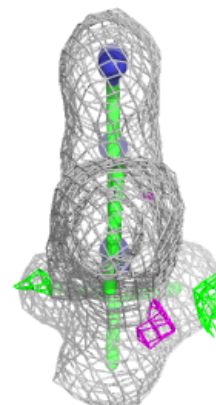
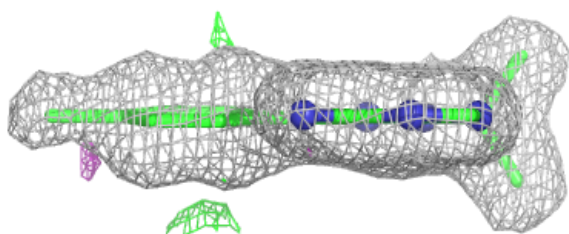
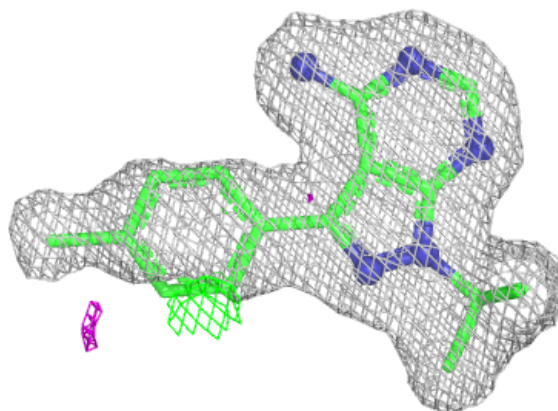


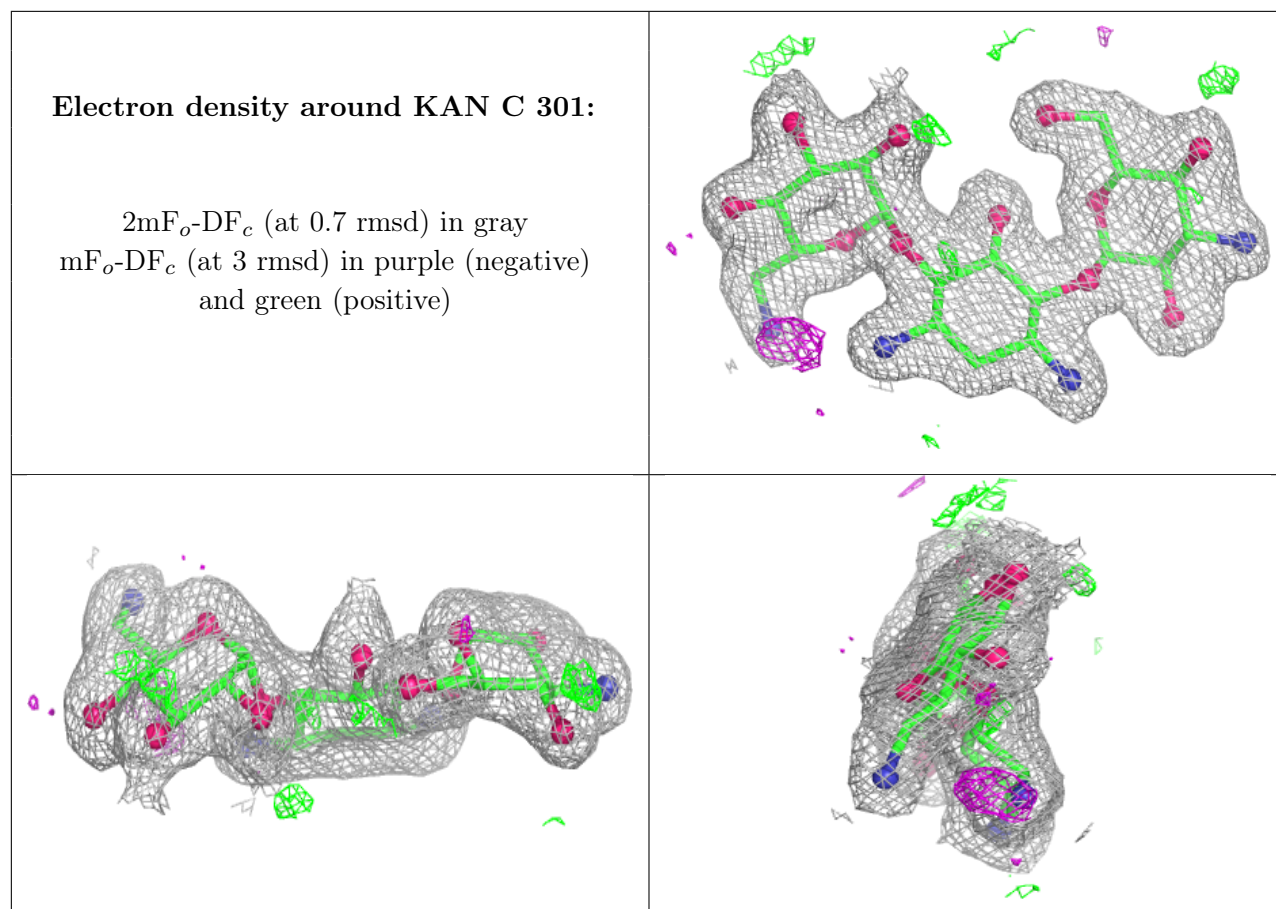
Electron density around KAN F 301:

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

**Electron density around PP1 E 302:**

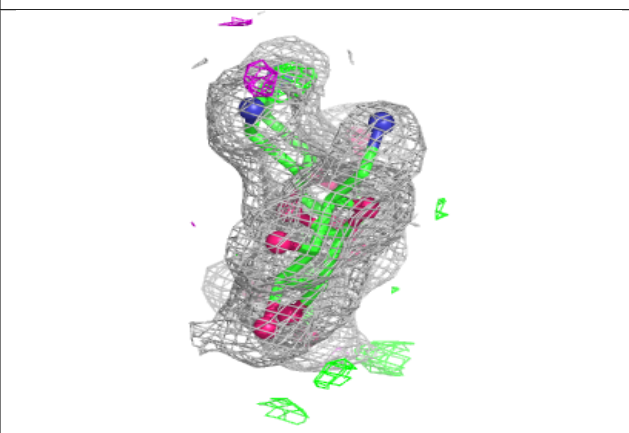
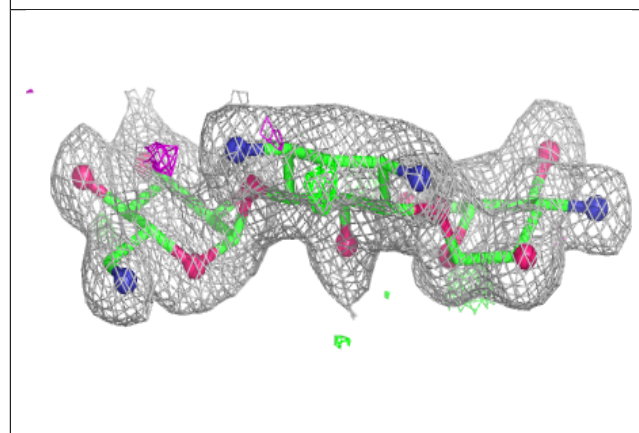
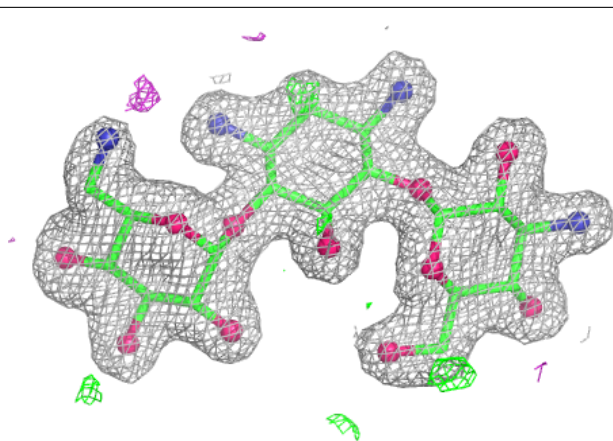
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



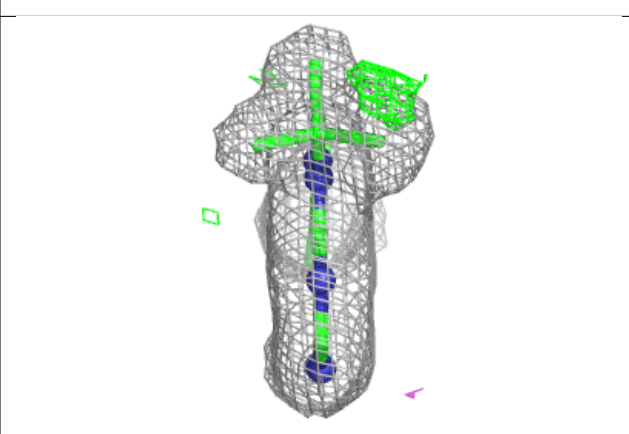
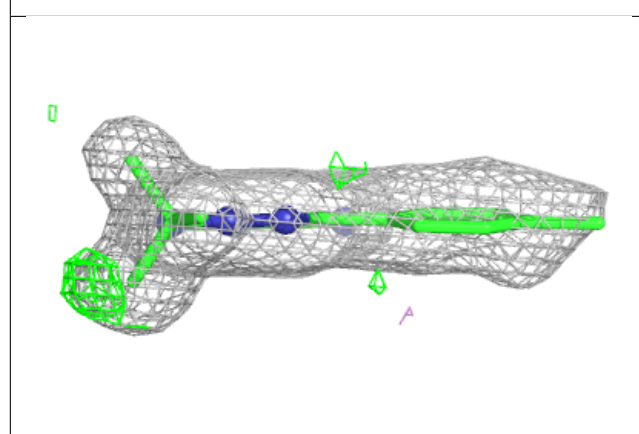
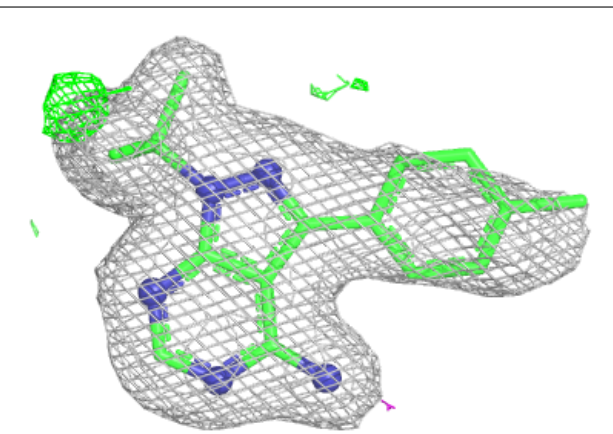


Electron density around KAN D 301:

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

**Electron density around PP1 A 302:**

$2mF_o-DF_c$ (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.