Full wwPDB X-ray Structure Validation Report (i)

Oct 3, 2023 – 10:03 PM EDT

PDB ID	:	6O0G
Title	:	M.tb MenD bound to Intermediate I and Inhibitor
Authors	:	Johnston, J.M.; Bashiri, G.; Bulloch, E.M.M.; Jirgis, E.M.N.; Chuang, H.; Nigon, L.V.; Baker, E.N.
Deposited on	:	2019-02-16
Resolution	:	2.40 Å(reported)

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

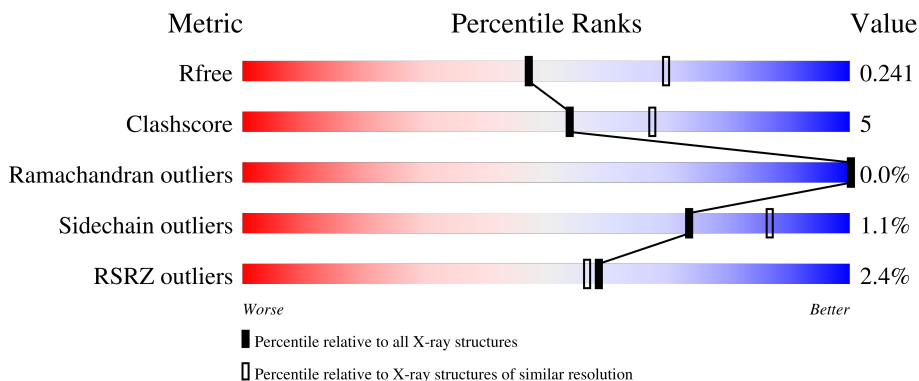|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35.1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh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

1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.40 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	Percentile Ranks	Value
Rfree		0.241
Clashscore		5
Ramachandran outliers		0.0%
Sidechain outliers		1.1%
RSRZ outliers		2.4%

Worse .... *Better*

▮ Percentile relative to all X-ray structures
▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3907 (2.40-2.40)
Clashscore	141614	4398 (2.40-2.40)
Ramachandran outliers	138981	4318 (2.40-2.40)
Sidechain outliers	138945	4319 (2.40-2.40)
RSRZ outliers	127900	3811 (2.40-2.40)

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 <=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	574	2% · 82% 11% 8%
1	B	574	2% · 81% 11% 8%
1	C	574	4% · 79% 13% 7%
1	D	574	·% · 81% 13% 6%

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
4	FMT	A	606	-	-	X	-

2 Entry composition ⓘ

There are 11 unique types of molecules in this entry. The entry contains 16144 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 2-succinyl-5-enolpyruvyl-6-hydroxy-3-cyclohexene-1-carboxylate synthase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	530	Total	C	N	O	S	0	2	0
			3872	2420	713	728	11			
1	D	538	Total	C	N	O	S	0	1	0
			3923	2449	726	738	10			
1	B	530	Total	C	N	O	S	0	1	0
			3873	2418	715	729	11			
1	C	532	Total	C	N	O	S	0	0	0
			3857	2411	708	729	9			

There are 80 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-19	MET	-	initiating methionine	UNP P9WK11
A	-18	GLY	-	expression tag	UNP P9WK11
A	-17	SER	-	expression tag	UNP P9WK11
A	-16	SER	-	expression tag	UNP P9WK11
A	-15	HIS	-	expression tag	UNP P9WK11
A	-14	HIS	-	expression tag	UNP P9WK11
A	-13	HIS	-	expression tag	UNP P9WK11
A	-12	HIS	-	expression tag	UNP P9WK11
A	-11	HIS	-	expression tag	UNP P9WK11
A	-10	HIS	-	expression tag	UNP P9WK11
A	-9	SER	-	expression tag	UNP P9WK11
A	-8	SER	-	expression tag	UNP P9WK11
A	-7	GLY	-	expression tag	UNP P9WK11
A	-6	LEU	-	expression tag	UNP P9WK11
A	-5	VAL	-	expression tag	UNP P9WK11
A	-4	PRO	-	expression tag	UNP P9WK11
A	-3	ARG	-	expression tag	UNP P9WK11
A	-2	GLY	-	expression tag	UNP P9WK11
A	-1	SER	-	expression tag	UNP P9WK11
A	0	HIS	-	expression tag	UNP P9WK11

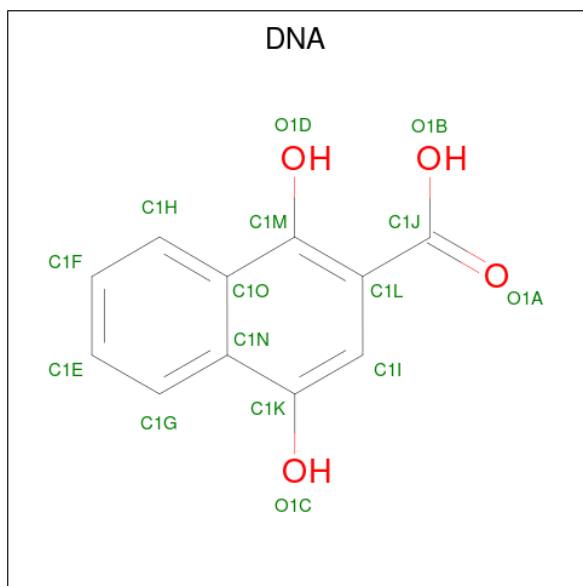*Continued on next page...*

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Chain	Residue	Modelled	Actual	Comment	Reference
D	-19	MET	-	initiating methionine	UNP P9WK11
D	-18	GLY	-	expression tag	UNP P9WK11
D	-17	SER	-	expression tag	UNP P9WK11
D	-16	SER	-	expression tag	UNP P9WK11
D	-15	HIS	-	expression tag	UNP P9WK11
D	-14	HIS	-	expression tag	UNP P9WK11
D	-13	HIS	-	expression tag	UNP P9WK11
D	-12	HIS	-	expression tag	UNP P9WK11
D	-11	HIS	-	expression tag	UNP P9WK11
D	-10	HIS	-	expression tag	UNP P9WK11
D	-9	SER	-	expression tag	UNP P9WK11
D	-8	SER	-	expression tag	UNP P9WK11
D	-7	GLY	-	expression tag	UNP P9WK11
D	-6	LEU	-	expression tag	UNP P9WK11
D	-5	VAL	-	expression tag	UNP P9WK11
D	-4	PRO	-	expression tag	UNP P9WK11
D	-3	ARG	-	expression tag	UNP P9WK11
D	-2	GLY	-	expression tag	UNP P9WK11
D	-1	SER	-	expression tag	UNP P9WK11
D	0	HIS	-	expression tag	UNP P9WK11
B	-19	MET	-	initiating methionine	UNP P9WK11
B	-18	GLY	-	expression tag	UNP P9WK11
B	-17	SER	-	expression tag	UNP P9WK11
B	-16	SER	-	expression tag	UNP P9WK11
B	-15	HIS	-	expression tag	UNP P9WK11
B	-14	HIS	-	expression tag	UNP P9WK11
B	-13	HIS	-	expression tag	UNP P9WK11
B	-12	HIS	-	expression tag	UNP P9WK11
B	-11	HIS	-	expression tag	UNP P9WK11
B	-10	HIS	-	expression tag	UNP P9WK11
B	-9	SER	-	expression tag	UNP P9WK11
B	-8	SER	-	expression tag	UNP P9WK11
B	-7	GLY	-	expression tag	UNP P9WK11
B	-6	LEU	-	expression tag	UNP P9WK11
B	-5	VAL	-	expression tag	UNP P9WK11
B	-4	PRO	-	expression tag	UNP P9WK11
B	-3	ARG	-	expression tag	UNP P9WK11
B	-2	GLY	-	expression tag	UNP P9WK11
B	-1	SER	-	expression tag	UNP P9WK11
B	0	HIS	-	expression tag	UNP P9WK11
C	-19	MET	-	initiating methionine	UNP P9WK11
C	-18	GLY	-	expression tag	UNP P9WK11

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-17	SER	-	expression tag	UNP P9WK11
C	-16	SER	-	expression tag	UNP P9WK11
C	-15	HIS	-	expression tag	UNP P9WK11
C	-14	HIS	-	expression tag	UNP P9WK11
C	-13	HIS	-	expression tag	UNP P9WK11
C	-12	HIS	-	expression tag	UNP P9WK11
C	-11	HIS	-	expression tag	UNP P9WK11
C	-10	HIS	-	expression tag	UNP P9WK11
C	-9	SER	-	expression tag	UNP P9WK11
C	-8	SER	-	expression tag	UNP P9WK11
C	-7	GLY	-	expression tag	UNP P9WK11
C	-6	LEU	-	expression tag	UNP P9WK11
C	-5	VAL	-	expression tag	UNP P9WK11
C	-4	PRO	-	expression tag	UNP P9WK11
C	-3	ARG	-	expression tag	UNP P9WK11
C	-2	GLY	-	expression tag	UNP P9WK11
C	-1	SER	-	expression tag	UNP P9WK11
C	0	HIS	-	expression tag	UNP P9WK11

- Molecule 2 is 1,4-dihydroxy-2-naphthoic acid (three-letter code: DNA) (formula: $C_{11}H_8O_4$) (labeled as "Ligand of Interest" by depositor).
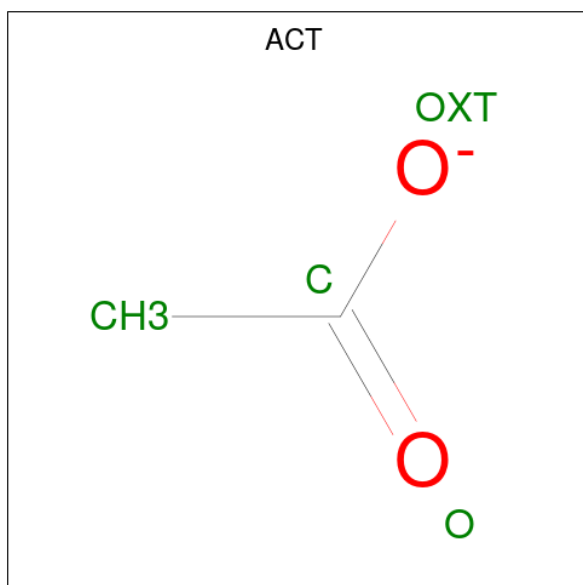
DNA

O1D
OH
O1B
OH

C1H
C1M
C1J

C1F
C1O
C1L
O
O1A

C1N

C1E
C1I

C1K
C1G
OH
O1C

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total 15	C 11	O 4	0	0
2	D	1	Total 15	C 11	O 4	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	B	1	Total 15	C 11	O 4	0	0
2	C	1	Total 15	C 11	O 4	0	0

- Molecule 3 is ACETATE ION (three-letter code: ACT) (formula: $C_2H_3O_2$).

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total 4	C 2	O 2	0	0
3	A	1	Total 4	C 2	O 2	0	0
3	A	1	Total 4	C 2	O 2	0	0
3	A	1	Total 4	C 2	O 2	0	0

- Molecule 4 is FORMIC ACID (three-letter code: FMT) (formula: CH_2O_2).

FMT
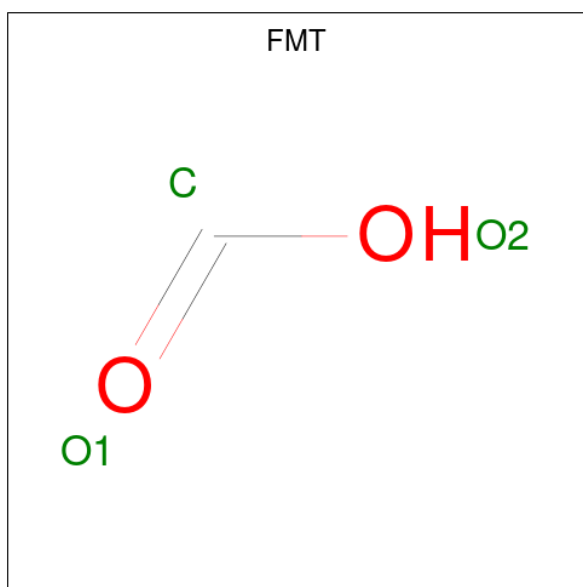
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total 3	C 1	O 2	0	0
4	A	1	Total 3	C 1	O 2	0	0
4	D	1	Total 3	C 1	O 2	0	0
4	D	1	Total 3	C 1	O 2	0	0
4	B	1	Total 3	C 1	O 2	0	0
4	B	1	Total 3	C 1	O 2	0	0
4	B	1	Total 3	C 1	O 2	0	0
4	B	1	Total 3	C 1	O 2	0	0

- Molecule 5 is 2-OXOGLUTARIC ACID (three-letter code: AKG) (formula: $C_5H_6O_5$).
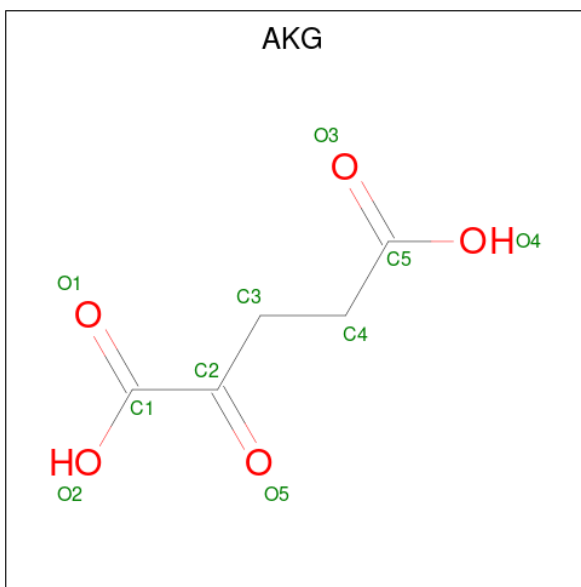
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total 10	C 5	O 5	0	0

- Molecule 6 is 4-[3-[(4-azanyl-2-methyl-pyrimidin-5-yl)methyl]-4-methyl-5-[2-[oxidanyl(phosphonooxy)phosphoryl]oxyethyl]-1,3-thiazol-3 -ium-2-yl]-4-oxidanyl-butanoic acid (three-letter code: TOG) (formula: $C_{16}H_{24}N_4O_{10}P_2S$) (labeled as "Ligand of Interest" by depositor).
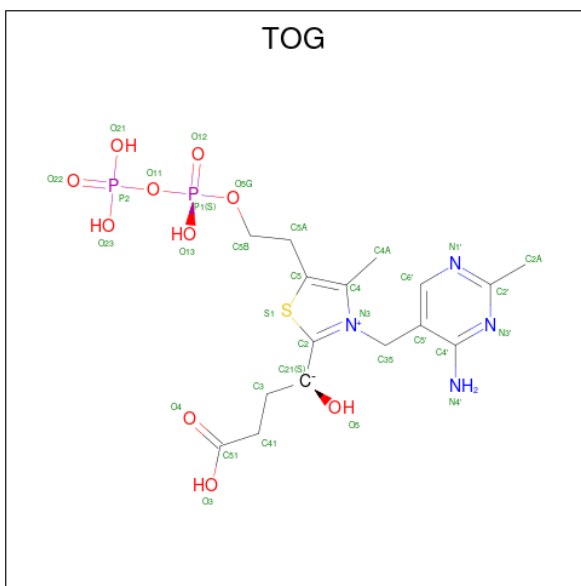
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
6	D	1	Total 33	C 16	N 4	O 10	P 2	S 1	0	0
6	C	1	Total 33	C 16	N 4	O 10	P 2	S 1	0	0

- Molecule 7 is MAGNESIUM ION (three-letter code: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	D	1	Total 1	Mg 1	0	0
7	C	1	Total 1	Mg 1	0	0

- Molecule 8 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	D	1	Total 1	Cl 1	0	0

- Molecule 9 is TRIETHYLENE GLYCOL (three-letter code: PGE) (formula: $C_6H_{14}O_4$).
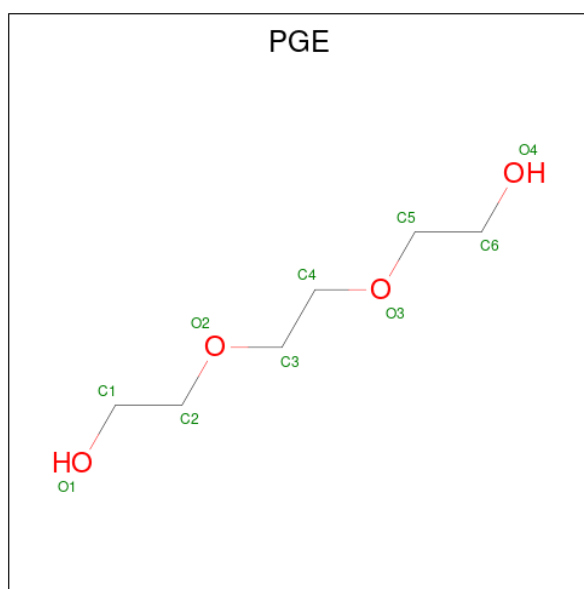
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
9	B	1	Total 10	C 6	O 4	0	0

- Molecule 10 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).

GOL
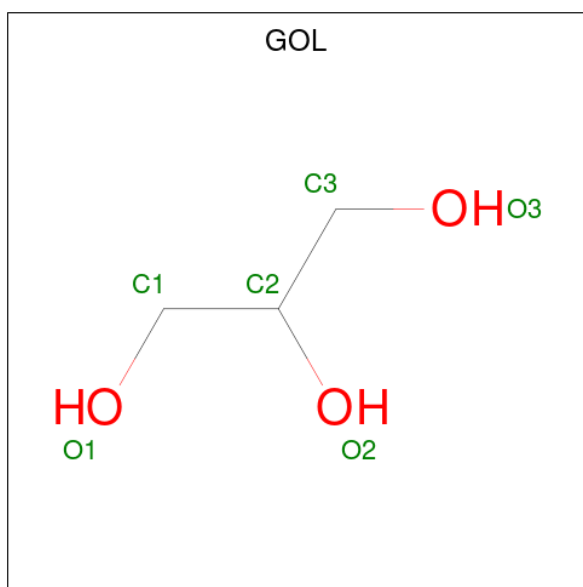
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
10	B	1	Total 6	C 3	O 3	0	0

- Molecule 11 is water.

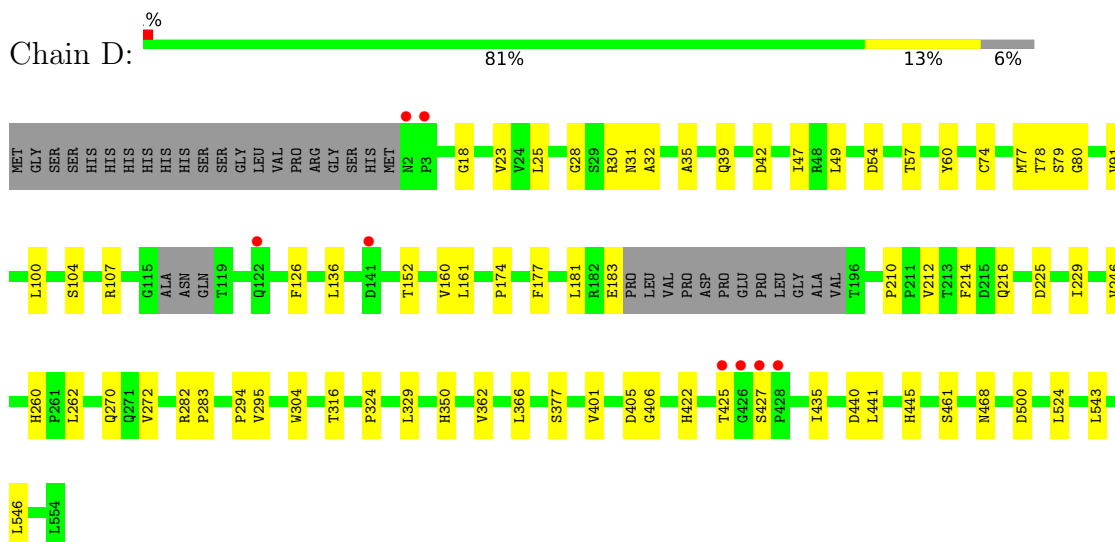| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
11	A	109	Total 109	O 109	0	0
11	D	123	Total 123	O 123	0	0
11	B	115	Total 115	O 115	0	0
11	C	77	Total 77	O 77	0	0

3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.
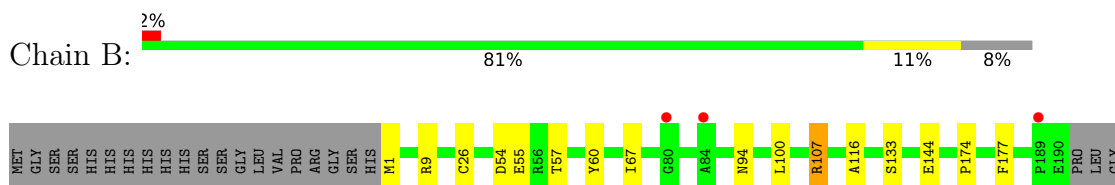
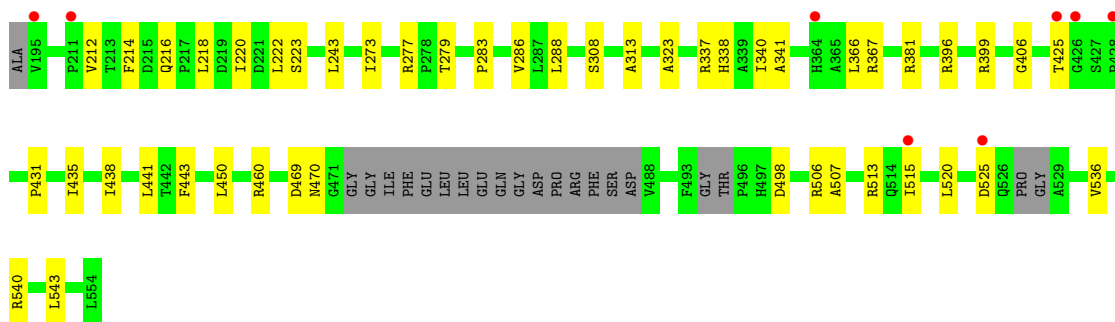- Molecule 1: 2-succinyl-5-enolpyruvyl-6-hydroxy-3-cyclohexene-1-carboxylate synthase
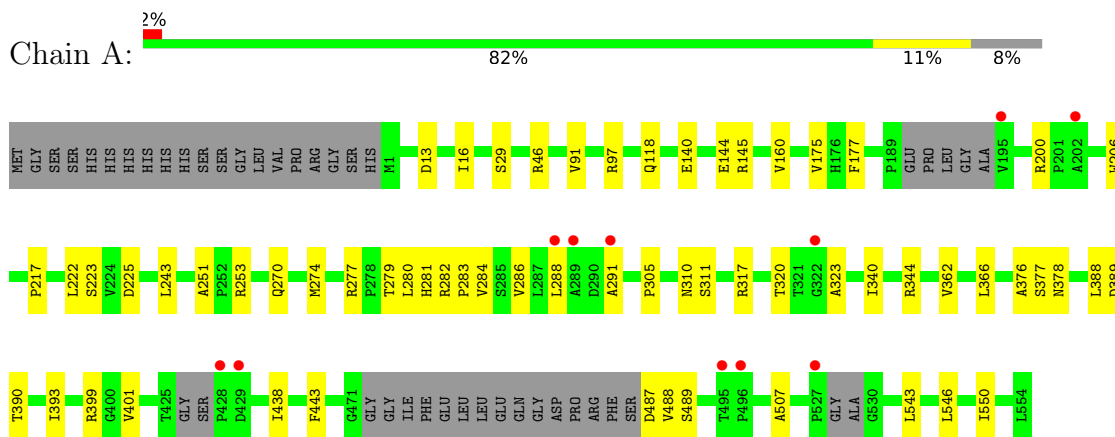
- Molecule 1: 2-succinyl-5-enolpyruvyl-6-hydroxy-3-cyclohexene-1-carboxylate synthase
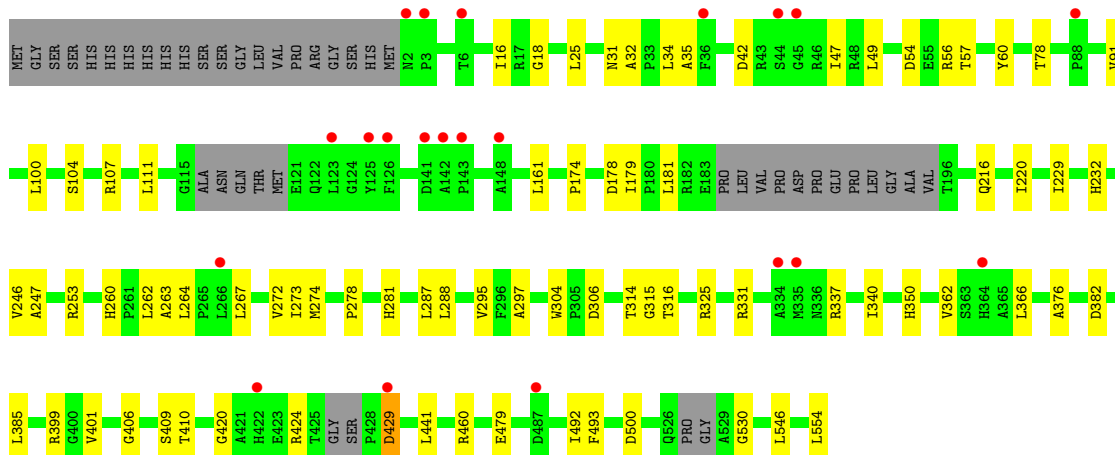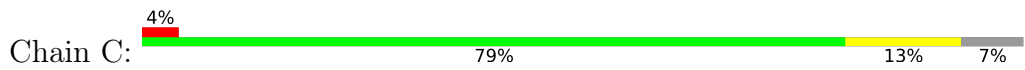

- Molecule 1: 2-succinyl-5-enolpyruvyl-6-hydroxy-3-cyclohexene-1-carboxylate synthase

• Molecule 1: 2-succinyl-5-enolpyruvyl-6-hydroxy-3-cyclohexene-1-carboxylate synthase

Chain C:

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	100.67Å 143.45Å 172.74Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.33 – 2.40 48.39 – 2.40	Depositor EDS
% Data completeness (in resolution range)	100.0 (48.33-2.40) 100.0 (48.39-2.40)	Depositor EDS
R_{merge}	0.28	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.43 (at 2.39Å)	Xtriage
Refinement program	PHENIX 1.14_3260, REFMAC	Depositor
R, R_{free}	0.193 , 0.241 0.193 , 0.241	Depositor DCC
R_{free} test set	4852 reflections (4.94%)	wwPDB-VP
Wilson B-factor (Å^2)	41.8	Xtriage
Anisotropy	0.395	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 51.7	EDS
L-test for twinning[2]	$< |L| > = 0.48$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	16144	wwPDB-VP
Average B, all atoms (Å^2)	52.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.55% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< |L| >$, $< L^2 >$ 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: GOL, AKG, DNA, PGE, MG, CL, FMT, ACT, TOG

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	0.31	0/3958	0.49	0/5428
1	B	0.31	0/3954	0.49	0/5419
1	C	0.30	0/3935	0.50	0/5395
1	D	0.31	0/4005	0.50	0/5490
All	All	0.31	0/15852	0.49	0/21732

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	3872	0	3877	40	0
1	B	3873	0	3891	42	0
1	C	3857	0	3831	50	0
1	D	3923	0	3909	45	0
2	A	15	0	5	1	0
2	B	15	0	5	1	0
2	C	15	0	6	0	0
2	D	15	0	6	1	0
3	A	16	0	12	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	A	6	0	2	3	0
4	B	12	0	4	0	0
4	D	6	0	2	1	0
5	A	10	0	4	0	0
6	C	33	0	0	2	0
6	D	33	0	0	1	0
7	C	1	0	0	0	0
7	D	1	0	0	0	0
8	D	1	0	0	0	0
9	B	10	0	14	2	0
10	B	6	0	8	0	0
11	A	109	0	0	0	0
11	B	115	0	0	0	0
11	C	77	0	0	0	0
11	D	123	0	0	0	0
All	All	16144	0	15576	167	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 5.

All (167) 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:B:515:ILE:HD11	1:B:520:LEU:HD13	1.37	1.01
1:D:25:LEU:HD11	1:D:49:LEU:HD22	1.60	0.83
1:B:107[B]:ARG:HH12	1:B:116:ALA:HB1	1.47	0.79
1:B:94:ASN:HD21	9:B:606:PGE:H1	1.47	0.77
1:A:225:ASP:HB2	1:A:270:GLN:HG3	1.68	0.76
1:B:1:MET:SD	1:B:9:ARG:NH1	2.59	0.75
1:A:388:LEU:HD22	1:A:390:THR:HG22	1.74	0.70
1:A:118:GLN:HE22	4:A:606:FMT:H	1.58	0.69
1:D:422:HIS:O	1:D:425:THR:HG22	1.93	0.68
1:B:367:ARG:NH2	1:B:525:ASP:OD1	2.29	0.66
1:C:382:ASP:HA	1:C:385:LEU:HD12	1.77	0.66
1:D:425:THR:HG23	1:D:427:SER:H	1.61	0.64
1:C:262:LEU:HD21	1:C:385:LEU:HD23	1.80	0.64
1:A:222:LEU:HD22	1:A:243:LEU:HD11	1.79	0.64
1:A:487:ASP:OD2	1:A:489:SER:HB3	1.98	0.63
1:C:32:ALA:HB3	1:C:35:ALA:HB2	1.80	0.62
1:D:91:VAL:HG12	1:D:401:VAL:HG21	1.81	0.62
1:C:297:ALA:HB3	1:C:314:THR:HG22	1.82	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:420:GLY:O	1:C:424:ARG:HG3	2.00	0.61
1:A:97:ARG:NH1	2:A:601:DNA:O1A	2.32	0.60
1:A:13:ASP:OD1	1:A:46:ARG:NH2	2.29	0.59
1:B:515:ILE:CD1	1:B:520:LEU:HD13	2.23	0.59
1:C:42:ASP:HB2	1:C:49:LEU:HG	1.84	0.58
1:C:18:GLY:HA3	1:C:161:LEU:HD13	1.86	0.58
1:D:229:ILE:HD13	1:D:246:VAL:HB	1.86	0.58
1:A:253[B]:ARG:NH1	1:A:390:THR:OG1	2.37	0.57
1:A:91:VAL:HG12	1:A:401:VAL:HG11	1.86	0.57
1:B:438:ILE:HD11	1:B:443:PHE:HD1	1.68	0.57
1:D:79:SER:OG	1:D:80:GLY:N	2.36	0.57
1:A:282:ARG:O	1:A:286:VAL:HG23	2.04	0.57
1:A:376:ALA:O	1:A:399:ARG:NH2	2.37	0.57
1:C:260:HIS:CE1	1:C:262:LEU:HD23	2.41	0.56
1:D:23:VAL:HG22	1:D:74:CYS:HB2	1.88	0.56
1:C:91:VAL:HG12	1:C:401:VAL:HG21	1.88	0.56
1:B:54:ASP:OD1	1:C:56:ARG:NH2	2.38	0.55
1:B:520:LEU:HD22	1:B:536:VAL:HG21	1.87	0.55
1:C:216:GLN:HB2	1:C:316:THR:HG23	1.88	0.55
1:A:438:ILE:HD11	1:A:443:PHE:HD1	1.72	0.55
1:B:469:ASP:HB2	1:B:540:ARG:HD3	1.89	0.55
1:A:487:ASP:OD1	1:D:31:ASN:ND2	2.35	0.55
1:A:200:ARG:HG3	1:A:206:TRP:HA	1.89	0.54
1:B:54:ASP:HB3	1:B:57:THR:HG22	1.88	0.54
1:D:54:ASP:HB3	1:D:57:THR:HG22	1.88	0.54
1:A:118:GLN:NE2	4:A:606:FMT:H	2.21	0.54
1:B:506:ARG:HH11	1:B:506:ARG:HG3	1.73	0.53
1:C:57:THR:HG1	1:C:409:SER:HG	1.56	0.53
1:D:107:ARG:NH2	1:D:183:GLU:OE2	2.34	0.53
1:B:107[B]:ARG:NH1	1:B:116:ALA:HB1	2.21	0.53
1:C:60:TYR:CD2	1:C:406:GLY:HA3	2.43	0.52
1:C:100:LEU:O	1:C:174:PRO:HA	2.09	0.52
1:A:388:LEU:HD21	1:A:393:ILE:HD11	1.91	0.52
1:B:288:LEU:HB3	1:B:308:SER:HB2	1.91	0.52
1:C:54:ASP:HB3	1:C:57:THR:HG22	1.91	0.51
1:C:107:ARG:HH11	1:C:181:LEU:HD11	1.75	0.51
1:A:140:GLU:CD	1:A:145:ARG:HH12	2.14	0.51
1:B:222:LEU:HD22	1:B:243:LEU:HD11	1.92	0.51
1:D:212:VAL:HG21	1:B:214:PHE:HE1	1.75	0.51
1:A:277:ARG:O	1:A:279:THR:HG23	2.11	0.51
1:C:460:ARG:O	1:C:530:GLY:HA2	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:32:ALA:HB3	1:D:35:ALA:HB2	1.93	0.49
1:C:304:TRP:CG	1:C:314:THR:HG21	2.48	0.49
1:D:30:ARG:HD3	1:D:107:ARG:NH2	2.27	0.49
1:B:60:TYR:CG	1:B:406:GLY:HA3	2.47	0.49
1:D:440:ASP:HB3	1:D:468:ASN:HA	1.95	0.48
1:B:507:ALA:HA	1:C:500:ASP:HB3	1.95	0.48
1:D:260:HIS:HE1	1:D:262:LEU:HD12	1.78	0.48
1:B:283:PRO:HA	1:B:286:VAL:HG12	1.96	0.48
1:C:32:ALA:HA	1:C:78:THR:HG22	1.94	0.48
1:D:324:PRO:HG2	1:D:329:LEU:HD11	1.95	0.48
1:C:274:MET:HE2	1:C:288:LEU:HD13	1.96	0.48
1:B:218:LEU:HD11	1:B:313:ALA:HB1	1.96	0.48
1:A:251:ALA:O	1:A:253[B]:ARG:NH1	2.45	0.48
1:D:100:LEU:O	1:D:174:PRO:HA	2.13	0.48
1:D:405:ASP:HB3	1:D:445:HIS:CE1	2.49	0.48
1:A:340:ILE:O	1:A:344:ARG:HG3	2.14	0.47
1:C:104:SER:OG	1:C:178:ASP:OD1	2.32	0.47
1:D:212:VAL:HG21	1:B:214:PHE:CE1	2.49	0.47
1:C:216:GLN:HB3	1:C:315:GLY:HA2	1.95	0.47
1:A:29:SER:H	4:A:606:FMT:C	2.28	0.47
1:B:506:ARG:HG3	1:B:506:ARG:NH1	2.30	0.47
1:C:350:HIS:CE1	1:C:546:LEU:HB2	2.50	0.46
1:C:441:LEU:HB2	6:C:601:TOG:P1	2.55	0.46
1:D:30:ARG:NH1	1:D:107:ARG:HG3	2.30	0.46
1:B:337:ARG:HA	1:B:340:ILE:HD11	1.98	0.46
1:A:488:VAL:HB	1:D:39:GLN:HE21	1.81	0.46
1:B:100:LEU:O	1:B:174:PRO:HA	2.15	0.46
1:C:406:GLY:O	1:C:410:THR:OG1	2.24	0.46
1:B:94:ASN:HD21	9:B:606:PGE:C1	2.24	0.46
1:A:144:GLU:OE2	1:A:144:GLU:N	2.35	0.45
1:B:67:ILE:HD12	1:B:396:ARG:HB3	1.98	0.45
1:B:220:ILE:HG21	1:B:273:ILE:HD11	1.98	0.45
1:B:425:THR:O	1:B:425:THR:OG1	2.34	0.45
1:C:262:LEU:HB3	1:C:554:LEU:HD11	1.98	0.45
1:D:216:GLN:HB2	1:D:316:THR:HG23	1.99	0.45
1:D:282:ARG:N	1:D:283:PRO:HD2	2.31	0.45
1:D:23:VAL:HB	1:D:49:LEU:HD23	1.97	0.45
1:A:160:VAL:HG13	1:A:175:VAL:HG11	1.99	0.45
1:C:262:LEU:HD21	1:C:385:LEU:CD2	2.46	0.45
1:D:350:HIS:CE1	1:D:546:LEU:HB2	2.53	0.44
1:B:144:GLU:OE1	1:B:144:GLU:N	2.39	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:25:LEU:HD12	1:D:25:LEU:N	2.33	0.44
1:C:220:ILE:HG21	1:C:273:ILE:HD11	2.00	0.44
1:C:16:ILE:HD11	1:C:47:ILE:HB	1.99	0.44
1:A:284:VAL:O	1:A:288:LEU:HG	2.18	0.44
1:C:262:LEU:CD2	1:C:385:LEU:HD23	2.48	0.43
1:C:263:ALA:O	1:C:267:LEU:HD12	2.17	0.43
1:C:376:ALA:HB1	6:C:601:TOG:O3	2.18	0.43
1:D:136:LEU:HD23	1:D:136:LEU:HA	1.77	0.43
1:B:279:THR:OG1	1:B:399:ARG:NH2	2.51	0.43
1:C:34:LEU:HD21	1:C:179:ILE:HD13	2.00	0.43
1:A:291:ALA:O	1:A:310:ASN:ND2	2.52	0.43
1:C:232:HIS:CD2	1:C:399:ARG:HB2	2.54	0.43
1:A:388:LEU:HD23	1:A:389:ASP:C	2.38	0.43
1:A:388:LEU:HD23	1:A:389:ASP:N	2.34	0.42
1:C:554:LEU:HD23	1:C:554:LEU:HA	1.89	0.42
1:D:225:ASP:HB2	1:D:270:GLN:HG3	2.01	0.42
1:B:366:LEU:HD23	1:B:435:ILE:HD12	2.02	0.42
1:A:222:LEU:HG	1:A:320:THR:HB	2.01	0.42
1:A:546:LEU:O	1:A:550:ILE:HG13	2.19	0.42
1:C:274:MET:CE	1:C:288:LEU:HD13	2.49	0.42
1:D:270:GLN:O	1:D:294:PRO:HD2	2.20	0.42
1:C:362:VAL:O	1:C:366:LEU:HG	2.19	0.42
1:A:223:SER:HA	1:A:323:ALA:O	2.20	0.42
1:B:277:ARG:HD2	2:B:601:DNA:C1O	2.50	0.42
1:B:340:ILE:HD12	1:B:341:ALA:N	2.34	0.42
1:C:337:ARG:HA	1:C:340:ILE:HG22	2.02	0.42
1:D:272:VAL:HB	1:D:295:VAL:HG22	2.00	0.42
1:C:492:ILE:HG13	1:C:493:PHE:CD2	2.55	0.42
1:A:282:ARG:N	1:A:283:PRO:HD2	2.35	0.42
1:A:507:ALA:HA	1:D:500:ASP:HB3	2.00	0.42
1:B:223:SER:HA	1:B:323:ALA:O	2.20	0.42
1:B:470:ASN:ND2	1:B:498:ASP:OD2	2.53	0.42
1:C:229:ILE:HD11	1:C:287:LEU:HD23	2.02	0.42
1:C:429:ASP:N	1:C:429:ASP:OD1	2.53	0.42
1:C:274:MET:HE2	1:C:278:PRO:HG2	2.01	0.42
1:D:214:PHE:HD2	1:B:212:VAL:HG21	1.84	0.42
1:C:325:ARG:HE	1:C:325:ARG:HB2	1.46	0.42
1:D:77:MET:HE3	1:D:104:SER:HB3	2.01	0.41
1:A:274:MET:HE3	1:A:305:PRO:HB2	2.02	0.41
1:A:280:LEU:HD23	1:A:281:HIS:CE1	2.55	0.41
1:D:304:TRP:C	2:D:603:DNA:H1H	2.40	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:247:ALA:HB3	1:C:253:ARG:HE	1.85	0.41
1:D:77:MET:HA	4:D:604:FMT:O2	2.20	0.41
1:A:362:VAL:O	1:A:366:LEU:HG	2.20	0.41
1:A:217:PRO:HG3	1:A:317:ARG:NH1	2.35	0.41
1:B:431:PRO:HD3	1:B:460:ARG:HH21	1.85	0.41
1:A:543:LEU:HD23	1:A:543:LEU:HA	1.80	0.41
1:D:42:ASP:HA	1:D:47:ILE:O	2.20	0.41
1:B:543:LEU:HD12	1:B:543:LEU:HA	1.81	0.41
1:D:152:THR:HG23	1:C:111:LEU:HD11	2.03	0.41
1:D:18:GLY:HA3	1:D:161:LEU:HD13	2.02	0.41
1:A:16:ILE:HD13	1:A:46:ARG:HB3	2.02	0.41
1:D:441:LEU:HB2	6:D:601:TOG:P1	2.61	0.41
1:C:25:LEU:HD11	1:C:49:LEU:HD22	2.01	0.41
1:C:262:LEU:HD13	1:C:262:LEU:HA	1.87	0.41
1:B:26:CYS:SG	1:B:55:GLU:HG3	2.61	0.41
1:B:443:PHE:CZ	1:B:450:LEU:HD11	2.56	0.40
1:D:362:VAL:O	1:D:366:LEU:HG	2.21	0.40
1:B:513:ARG:HE	1:B:513:ARG:HB3	1.65	0.40
1:C:246:VAL:HG21	1:C:264:LEU:HD22	2.03	0.40
1:D:160:VAL:HG21	1:D:177:PHE:CD1	2.57	0.40
1:A:377:SER:OG	1:A:378:ASN:N	2.55	0.40
1:D:28:GLY:HA3	1:D:78:THR:HB	2.03	0.40
1:D:60:TYR:CD2	1:D:406:GLY:HA3	2.57	0.40
1:D:210:PRO:HG2	1:B:216:GLN:HG2	2.03	0.40
1:D:435:ILE:HD13	1:D:524:LEU:HD22	2.04	0.40
1:C:272:VAL:HB	1:C:295:VAL:HG22	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	522/574 (91%)	512 (98%)	10 (2%)	0	100	100
1	B	521/574 (91%)	511 (98%)	10 (2%)	0	100	100
1	C	522/574 (91%)	508 (97%)	13 (2%)	1 (0%)	47	62
1	D	533/574 (93%)	516 (97%)	17 (3%)	0	100	100
All	All	2098/2296 (91%)	2047 (98%)	50 (2%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	281	HIS

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	404/445 (91%)	402 (100%)	2 (0%)	88	95
1	B	405/445 (91%)	398 (98%)	7 (2%)	60	78
1	C	397/445 (89%)	392 (99%)	5 (1%)	69	84
1	D	405/445 (91%)	400 (99%)	5 (1%)	71	85
All	All	1611/1780 (90%)	1592 (99%)	19 (1%)	73	85

All (19) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	177	PHE
1	A	311	SER
1	D	126	PHE
1	D	181	LEU
1	D	377	SER
1	D	461	SER
1	D	543	LEU
1	B	107[A]	ARG
1	B	107[B]	ARG
1	B	133	SER

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Mol	Chain	Res	Type
1	B	177	PHE
1	B	338	HIS
1	B	381	ARG
1	B	441	LEU
1	C	31	ASN
1	C	306	ASP
1	C	331	ARG
1	C	429	ASP
1	C	479	GLU

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	118	GLN
1	D	422	HIS
1	C	547	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 24 ligands modelled in this entry, 3 are monoatomic - leaving 21 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	ACT	A	604	-	3,3,3	0.77	0	3,3,3	0.75	0
3	ACT	A	605	-	3,3,3	0.71	0	3,3,3	1.08	0
4	FMT	B	605	-	2,2,2	0.80	0	1,1,1	0.28	0
3	ACT	A	602	-	3,3,3	0.78	0	3,3,3	0.73	0
6	TOG	C	601	7	29,34,34	1.38	3 (10%)	35,50,50	1.79	8 (22%)
4	FMT	A	606	-	2,2,2	0.73	0	1,1,1	0.16	0
4	FMT	B	602	-	2,2,2	0.74	0	1,1,1	0.41	0
9	PGE	B	606	-	9,9,9	0.15	0	8,8,8	0.17	0
4	FMT	D	605	-	2,2,2	0.68	0	1,1,1	0.28	0
4	FMT	D	604	-	2,2,2	0.70	0	1,1,1	0.23	0
2	DNA	B	601	-	16,16,16	2.34	4 (25%)	22,23,23	1.05	1 (4%)
4	FMT	A	607	-	2,2,2	0.62	0	1,1,1	0.13	0
2	DNA	D	603	-	16,16,16	2.26	4 (25%)	22,23,23	1.32	2 (9%)
2	DNA	C	603	-	16,16,16	2.34	4 (25%)	22,23,23	1.09	1 (4%)
4	FMT	B	603	-	2,2,2	0.68	0	1,1,1	0.22	0
5	AKG	A	608	-	9,9,9	2.12	1 (11%)	11,11,11	1.50	2 (18%)
6	TOG	D	601	7	29,34,34	1.23	2 (6%)	35,50,50	1.66	9 (25%)
10	GOL	B	607	-	5,5,5	0.33	0	5,5,5	0.44	0
2	DNA	A	601	-	16,16,16	2.27	4 (25%)	22,23,23	1.33	2 (9%)
4	FMT	B	604	-	2,2,2	0.65	0	1,1,1	0.17	0
3	ACT	A	603	-	3,3,3	0.74	0	3,3,3	0.82	0

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
9	PGE	B	606	-	-	3/7/7/7	-
5	AKG	A	608	-	-	6/9/9/9	-
6	TOG	D	601	7	-	7/21/26/26	0/2/2/2
10	GOL	B	607	-	-	2/4/4/4	-
2	DNA	A	601	-	-	0/4/4/4	0/2/2/2
2	DNA	B	601	-	-	0/4/4/4	0/2/2/2
6	TOG	C	601	7	-	6/21/26/26	0/2/2/2
2	DNA	D	603	-	-	0/4/4/4	0/2/2/2
2	DNA	C	603	-	-	0/4/4/4	0/2/2/2

All (22) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	601	DNA	C1L-C1M	7.11	1.49	1.39
2	C	603	DNA	C1L-C1M	6.81	1.48	1.39
2	A	601	DNA	C1L-C1M	6.75	1.48	1.39
2	D	603	DNA	C1L-C1M	6.20	1.48	1.39
5	A	608	AKG	C2-C1	-5.68	1.46	1.53
6	C	601	TOG	O5-C21	-4.12	1.33	1.42
6	D	601	TOG	O5-C21	-3.90	1.34	1.42
6	C	601	TOG	C5'-C4'	3.76	1.49	1.42
2	D	603	DNA	C1K-C1N	3.60	1.49	1.42
2	C	603	DNA	C1K-C1N	3.54	1.49	1.42
6	D	601	TOG	C5'-C4'	3.52	1.48	1.42
6	C	601	TOG	C5-S1	-3.42	1.67	1.74
2	A	601	DNA	C1K-C1N	3.27	1.48	1.42
2	B	601	DNA	C1K-C1N	3.01	1.48	1.42
2	C	603	DNA	C1M-C1O	2.99	1.49	1.43
2	D	603	DNA	C1O-C1N	2.91	1.48	1.43
2	B	601	DNA	C1O-C1N	2.80	1.48	1.43
2	A	601	DNA	C1O-C1N	2.76	1.48	1.43
2	B	601	DNA	C1M-C1O	2.62	1.48	1.43
2	D	603	DNA	C1M-C1O	2.61	1.48	1.43
2	A	601	DNA	C1M-C1O	2.54	1.48	1.43
2	C	603	DNA	C1O-C1N	2.42	1.47	1.43

All (25) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	C	601	TOG	C6'-N1'-C2'	4.29	123.27	115.96
6	D	601	TOG	C6'-N1'-C2'	4.24	123.17	115.96
6	C	601	TOG	C5A-C5-C4	4.18	130.79	127.43
6	C	601	TOG	C4A-C4-N3	3.69	127.34	122.69
6	C	601	TOG	C5'-C6'-N1'	-3.05	118.74	123.82
6	D	601	TOG	C5'-C6'-N1'	-2.99	118.84	123.82
6	D	601	TOG	C5A-C5-C4	2.83	129.71	127.43
5	A	608	AKG	O1-C1-C2	-2.81	117.97	121.72
6	D	601	TOG	C4A-C4-N3	2.66	126.04	122.69
2	D	603	DNA	O1D-C1M-C1L	-2.55	119.31	122.39
6	D	601	TOG	N1'-C2'-N3'	-2.42	121.38	125.54
6	C	601	TOG	N1'-C2'-N3'	-2.36	121.48	125.54
6	C	601	TOG	O5-C21-C3	2.31	118.47	109.55
6	D	601	TOG	C2A-C2'-N1'	2.30	119.67	117.14
5	A	608	AKG	C3-C2-C1	2.20	120.06	115.97
6	D	601	TOG	N4'-C4'-N3'	2.20	120.14	117.03
6	C	601	TOG	C4A-C4-C5	-2.14	122.92	127.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	D	601	TOG	P1-O11-P2	-2.10	125.62	132.83
2	A	601	DNA	C1F-C1H-C1O	-2.09	117.99	120.89
2	C	603	DNA	O1D-C1M-C1L	-2.05	119.91	122.39
2	A	601	DNA	O1D-C1M-C1L	-2.04	119.92	122.39
6	D	601	TOG	C4A-C4-C5	-2.03	123.15	127.60
6	C	601	TOG	C5'-C35-N3	-2.03	109.90	113.26
2	D	603	DNA	C1M-C1L-C1J	-2.01	117.70	119.89
2	B	601	DNA	C1E-C1G-C1N	-2.01	118.11	120.89

There are no chirality outliers.

All (24) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	608	AKG	O2-C1-C2-C3
5	A	608	AKG	C2-C3-C4-C5
6	D	601	TOG	P1-O11-P2-O21
6	D	601	TOG	C2-C21-C3-C41
6	D	601	TOG	O5-C21-C3-C41
6	C	601	TOG	P1-O11-P2-O21
6	C	601	TOG	C2-C21-C3-C41
10	B	607	GOL	C1-C2-C3-O3
10	B	607	GOL	O2-C2-C3-O3
9	B	606	PGE	C1-C2-O2-C3
6	C	601	TOG	O5-C21-C3-C41
5	A	608	AKG	O1-C1-C2-O5
5	A	608	AKG	O1-C1-C2-C3
9	B	606	PGE	O1-C1-C2-O2
6	C	601	TOG	C3-C41-C51-O4
6	C	601	TOG	C3-C41-C51-O3
6	D	601	TOG	P1-O11-P2-O22
5	A	608	AKG	C3-C4-C5-O3
6	D	601	TOG	P1-O11-P2-O23
6	C	601	TOG	P1-O11-P2-O23
5	A	608	AKG	C3-C4-C5-O4
9	B	606	PGE	O2-C3-C4-O3
6	D	601	TOG	C3-C41-C51-O3
6	D	601	TOG	C3-C41-C51-O4

There are no ring outliers.

8 monomers are involved in 12 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	C	601	TOG	2	0
4	A	606	FMT	3	0
9	B	606	PGE	2	0
4	D	604	FMT	1	0
2	B	601	DNA	1	0
2	D	603	DNA	1	0
6	D	601	TOG	1	0
2	A	601	DNA	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 then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

Ligand TOG C 601

Bond lengths

Bond angles

Torsions

Rings

Ligand DNA B 601

Bond lengths

Bond angles

Torsions

Rings

Ligand DNA D 603

Bond lengths

Bond angles

Torsions

Rings

Ligand DNA C 603

Bond lengths

Bond angles

Torsions

Rings

Ligand TOG D 601

Bond lengths

Bond angles

Torsions

Rings

Ligand DNA A 601

Bond lengths

Bond angles

Torsions

Rings
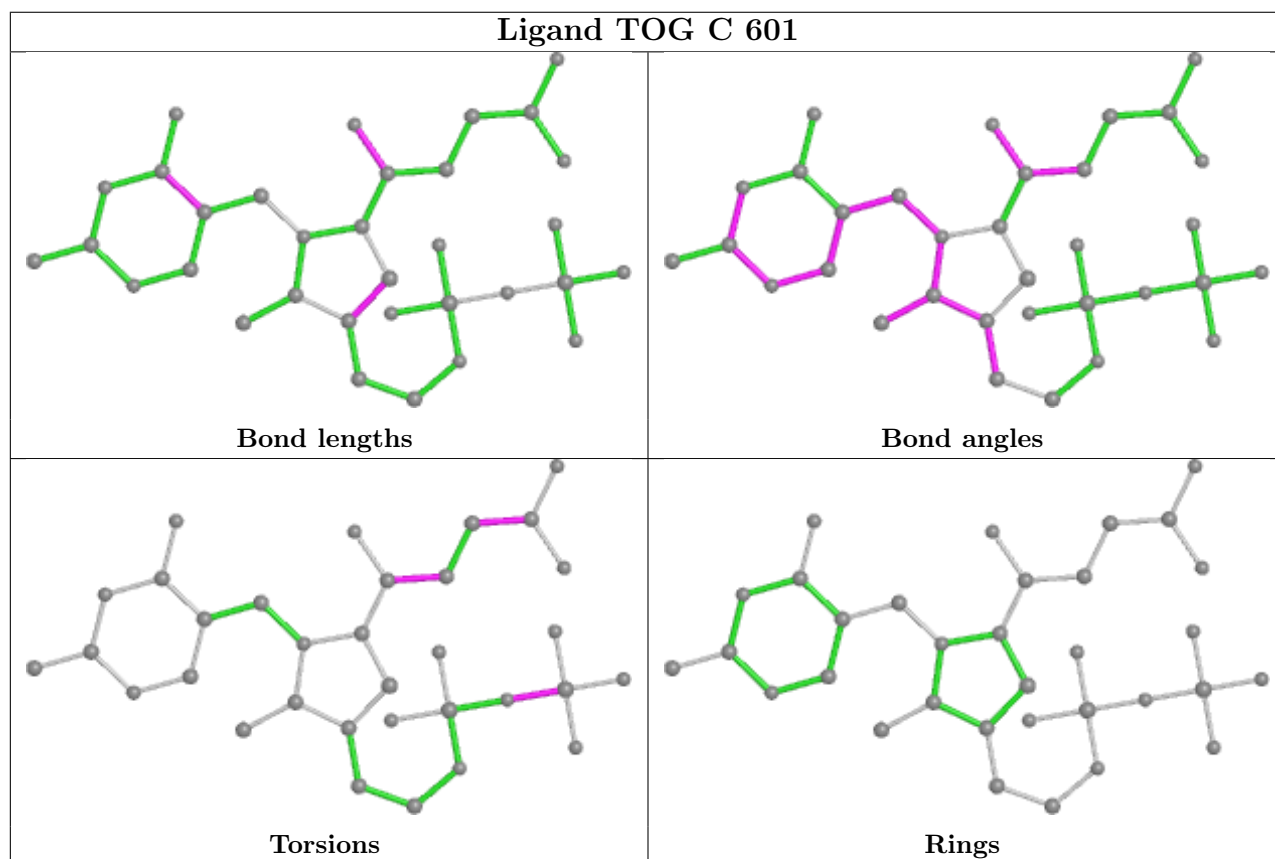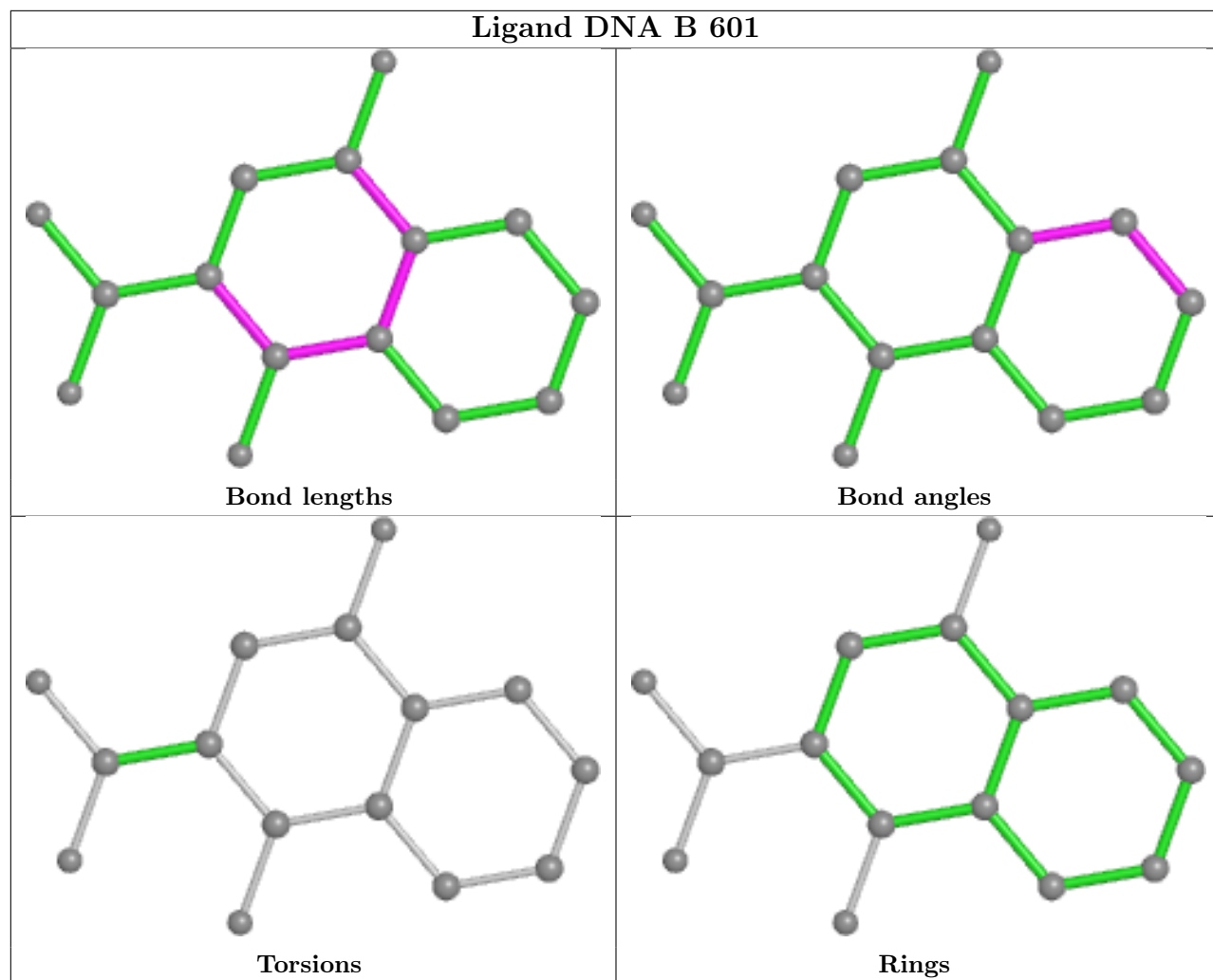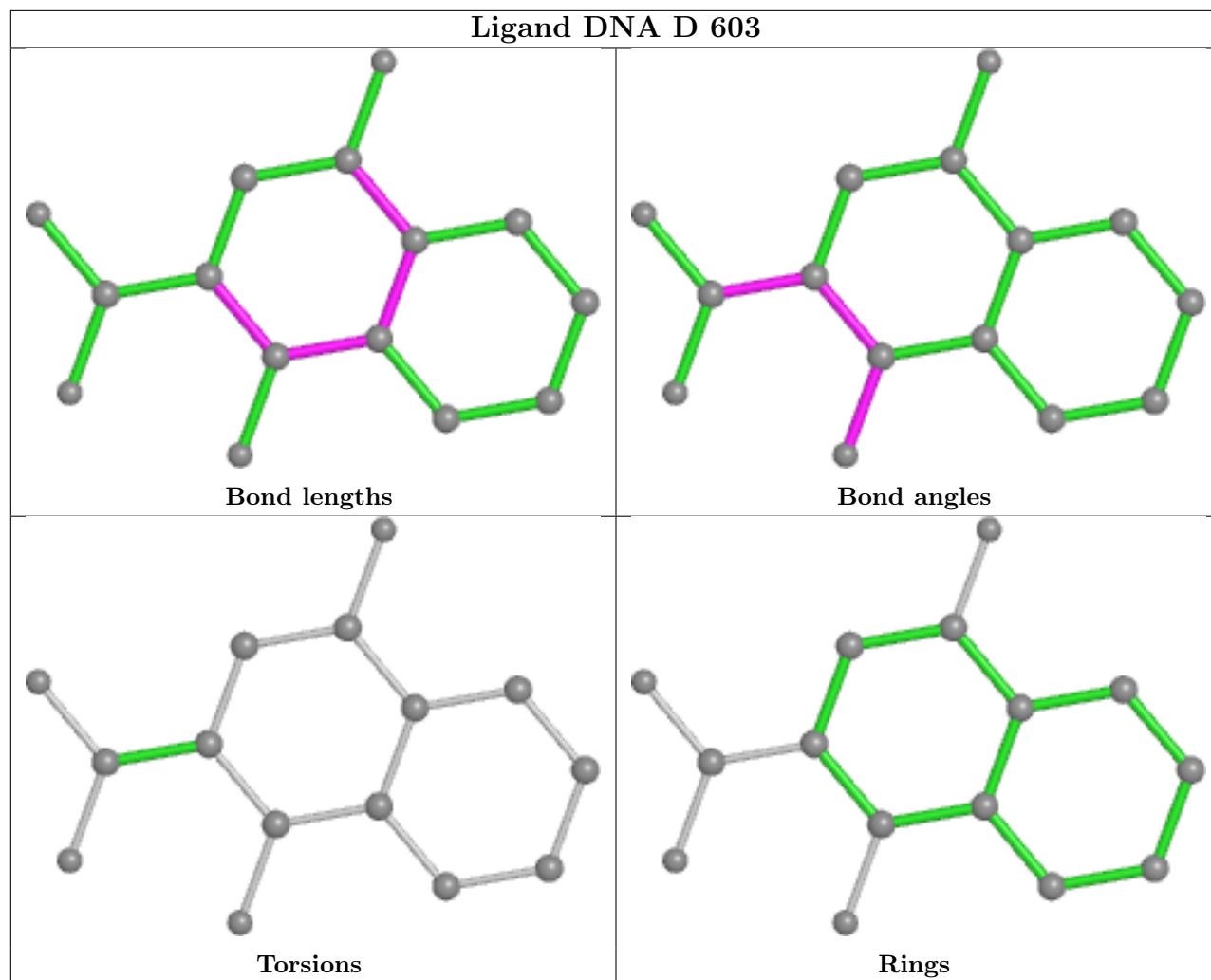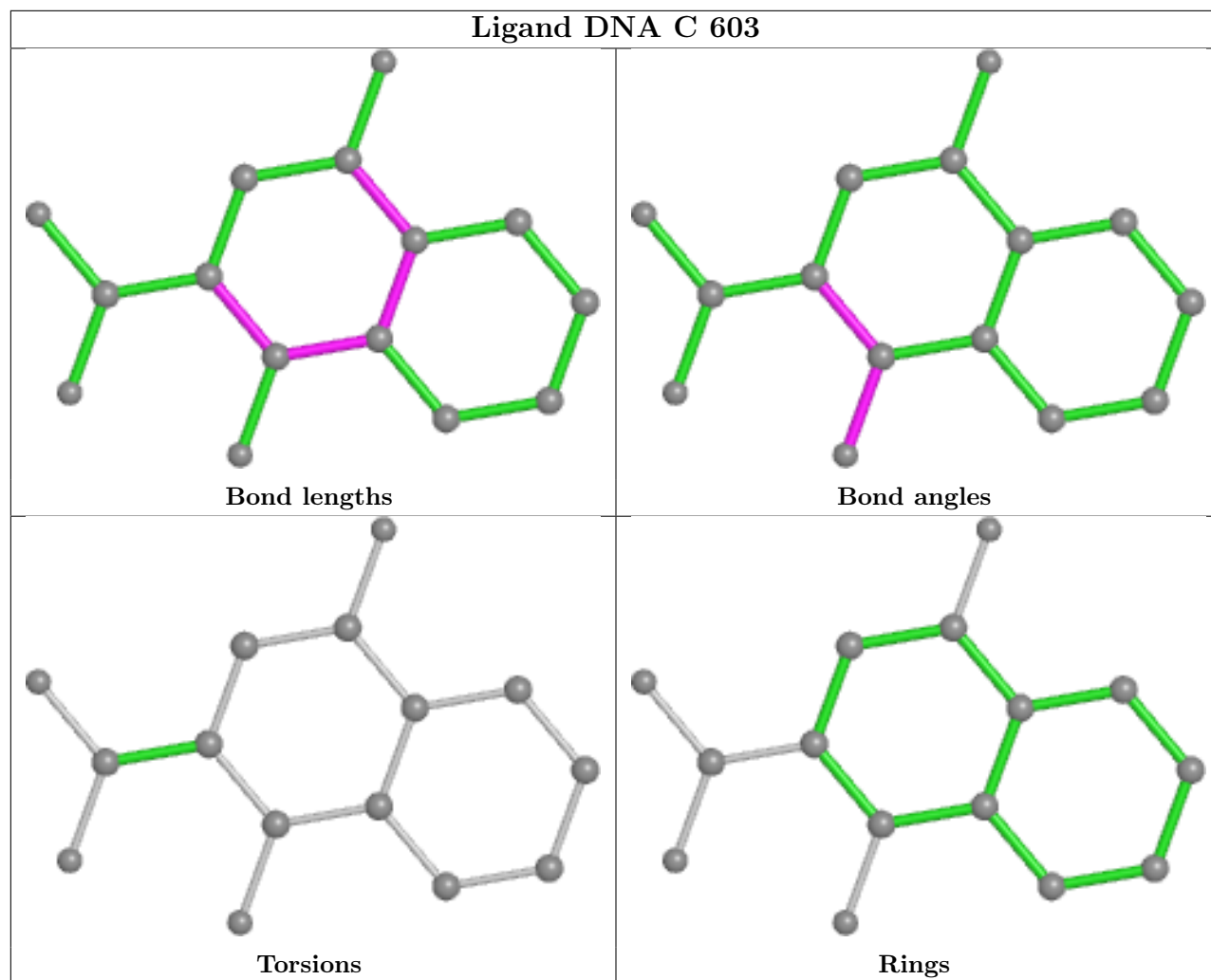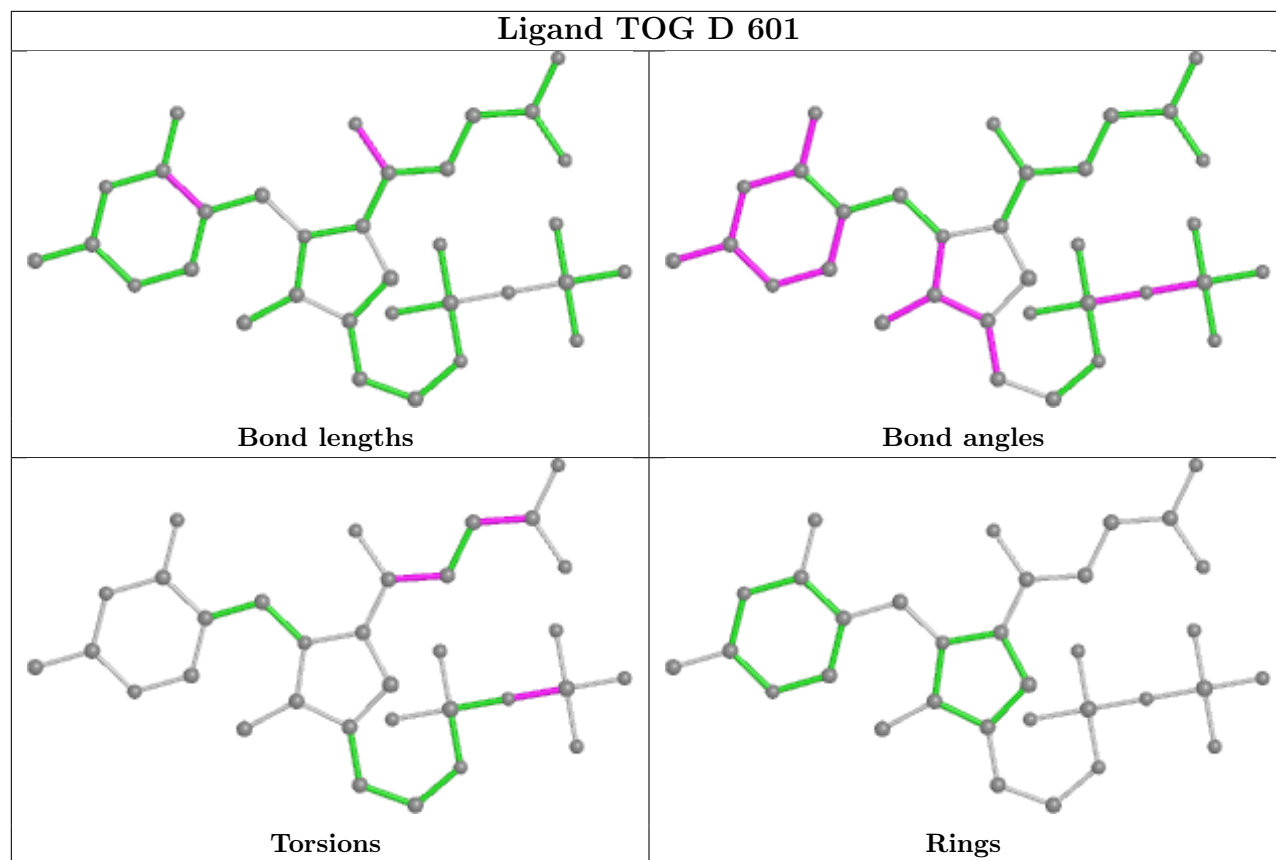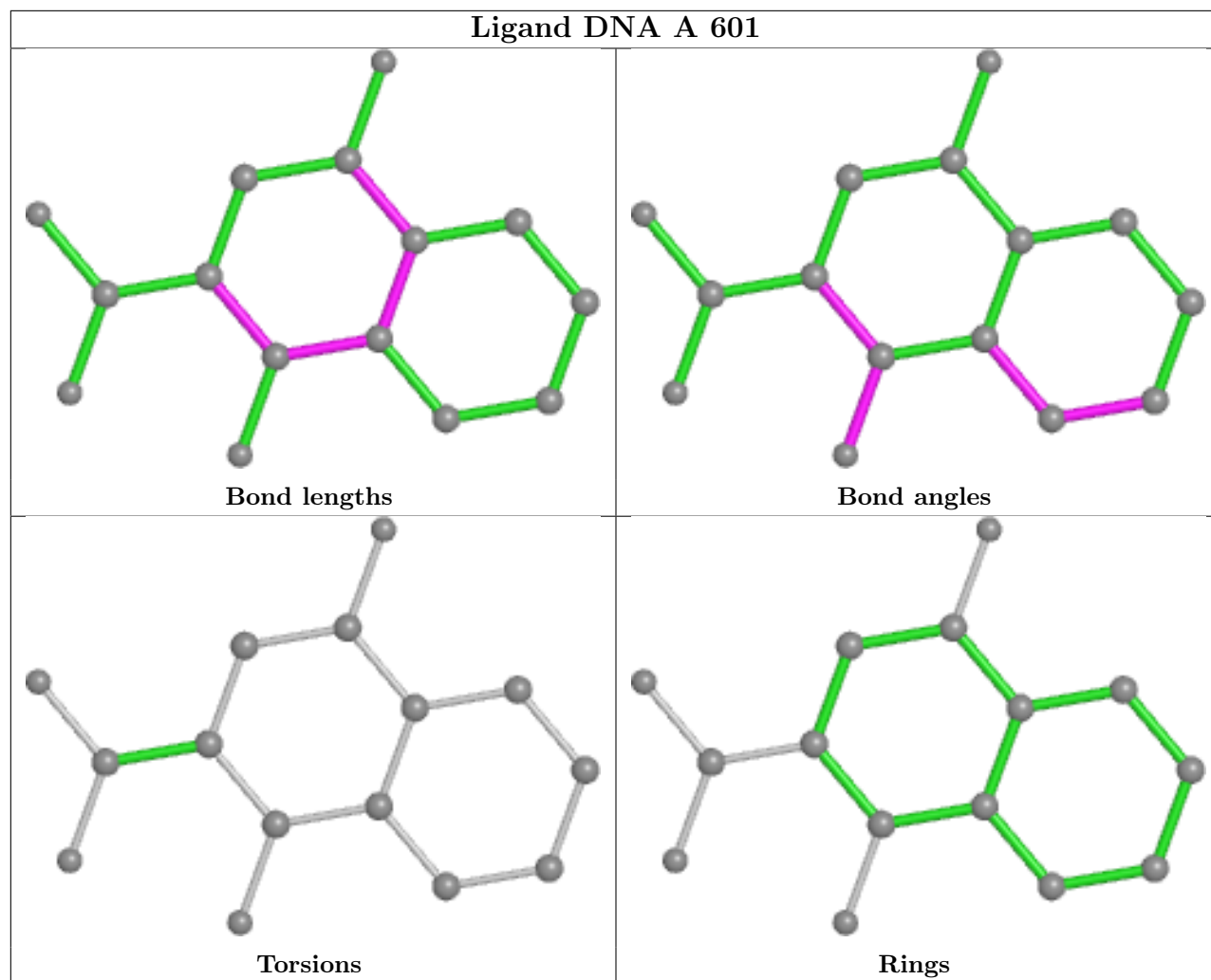
5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

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	530/574 (92%)	0.05	11 (2%)	63	61	30, 48, 78, 104	0
1	B	530/574 (92%)	-0.05	11 (2%)	63	61	31, 48, 78, 107	0
1	C	532/574 (92%)	0.19	21 (3%)	39	38	33, 55, 79, 99	0
1	D	538/574 (93%)	-0.10	8 (1%)	73	72	32, 49, 76, 104	0
All	All	2130/2296 (92%)	0.02	51 (2%)	59	57	30, 50, 78, 107	0

All (51) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	291	ALA	8.2
1	B	426	GLY	4.9
1	D	3	PRO	4.0
1	B	195	VAL	3.9
1	A	527	PRO	3.8
1	B	425	THR	3.7
1	A	288	LEU	3.4
1	D	428	PRO	3.4
1	A	289	ALA	3.2
1	D	425	THR	3.2
1	A	495	THR	3.1
1	A	322	GLY	3.0
1	C	422	HIS	2.9
1	B	189	PRO	2.9
1	D	122	GLN	2.9
1	C	334	ALA	2.9
1	A	496	PRO	2.8
1	C	266	LEU	2.8
1	C	487	ASP	2.8
1	C	6	THR	2.7
1	C	125	TYR	2.7

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Mol	Chain	Res	Type	RSRZ
1	D	426	GLY	2.7
1	B	428	PRO	2.6
1	A	195	VAL	2.6
1	C	148	ALA	2.6
1	B	84	ALA	2.6
1	C	141	ASP	2.6
1	C	126	PHE	2.5
1	C	123	LEU	2.5
1	D	2	ASN	2.5
1	C	142	ALA	2.4
1	C	3	PRO	2.3
1	C	44	SER	2.3
1	C	45	GLY	2.3
1	C	429	ASP	2.3
1	C	88	PRO	2.2
1	C	335	MET	2.2
1	D	141	ASP	2.2
1	C	36	PHE	2.2
1	A	428	PRO	2.2
1	C	2	ASN	2.2
1	B	80	GLY	2.2
1	B	525	ASP	2.1
1	A	429	ASP	2.1
1	B	515	ILE	2.1
1	B	364	HIS	2.1
1	B	211	PRO	2.1
1	C	143	PRO	2.0
1	D	427	SER	2.0
1	A	202	ALA	2.0
1	C	364	HIS	2.0

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

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

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4   Ligands ⓘ

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
5	AKG	A	608	10/10	0.75	0.25	82,85,87,87	0
3	ACT	A	602	4/4	0.84	0.16	74,75,76,76	0
4	FMT	B	604	3/3	0.85	0.53	69,69,70,70	0
4	FMT	A	607	3/3	0.88	0.57	52,52,57,59	0
9	PGE	B	606	10/10	0.88	0.22	67,72,75,75	0
3	ACT	A	604	4/4	0.90	0.17	58,62,63,63	0
4	FMT	B	603	3/3	0.92	0.26	67,67,68,68	0
10	GOL	B	607	6/6	0.92	0.17	60,61,62,62	0
4	FMT	D	605	3/3	0.93	0.18	60,60,61,61	0
7	MG	C	602	1/1	0.93	0.11	33,33,33,33	0
4	FMT	A	606	3/3	0.94	0.11	49,49,49,50	0
4	FMT	B	602	3/3	0.94	0.19	48,48,48,52	0
3	ACT	A	605	4/4	0.95	0.21	45,46,46,49	0
4	FMT	D	604	3/3	0.95	0.20	67,67,67,67	0
3	ACT	A	603	4/4	0.95	0.13	53,53,54,55	0
4	FMT	B	605	3/3	0.95	0.21	52,52,52,53	0
7	MG	D	602	1/1	0.96	0.06	33,33,33,33	0
2	DNA	C	603	15/15	0.96	0.19	32,35,40,44	0
2	DNA	B	601	15/15	0.97	0.12	38,42,47,47	0
2	DNA	A	601	15/15	0.97	0.15	42,44,47,49	0
2	DNA	D	603	15/15	0.97	0.14	34,35,37,38	0
6	TOG	C	601	33/33	0.97	0.16	37,45,55,60	0
6	TOG	D	601	33/33	0.98	0.15	36,41,52,57	0
8	CL	D	606	1/1	0.98	0.09	57,57,57,57	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 MG C 602:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
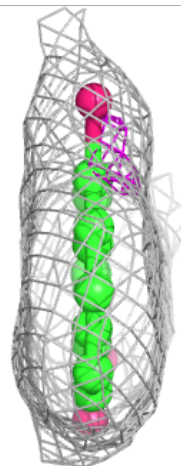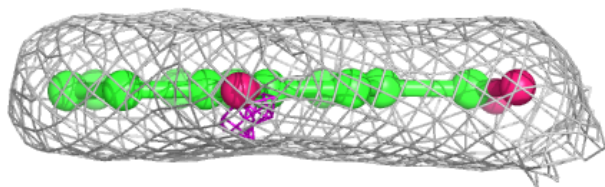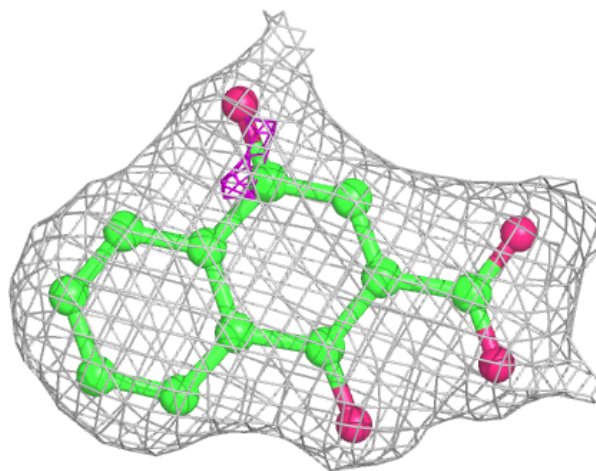and green (positive)
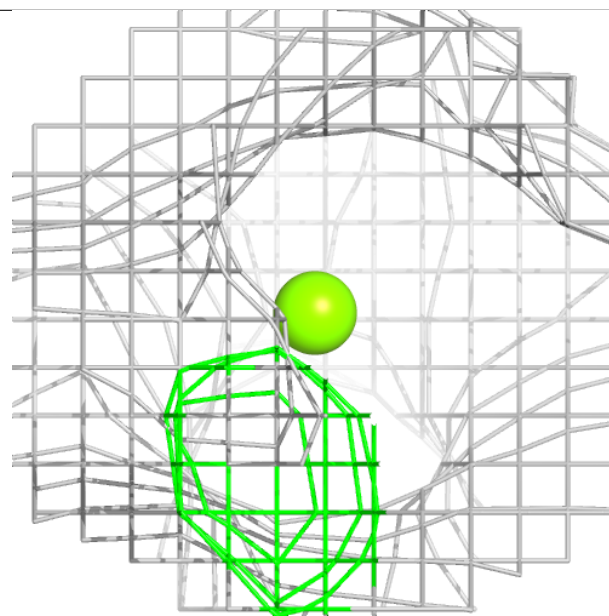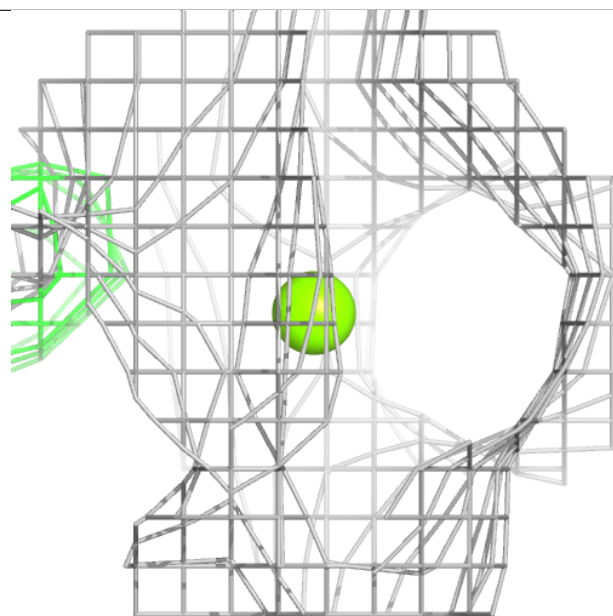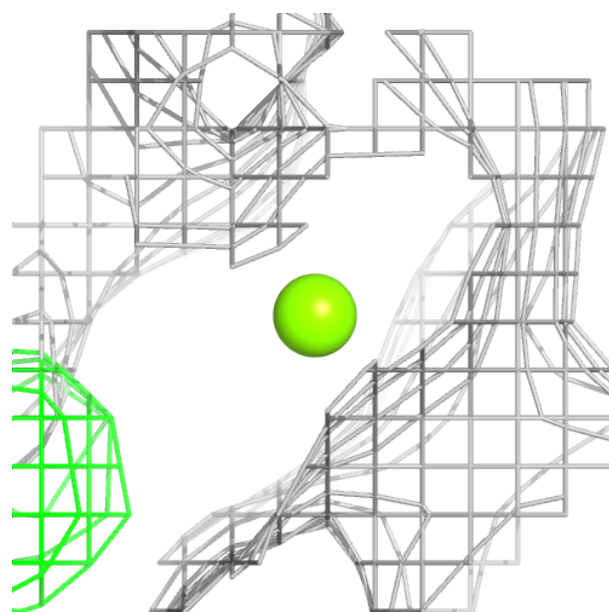
Electron density around MG D 602:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
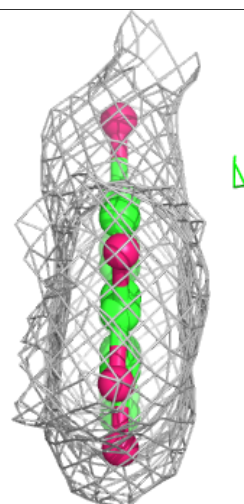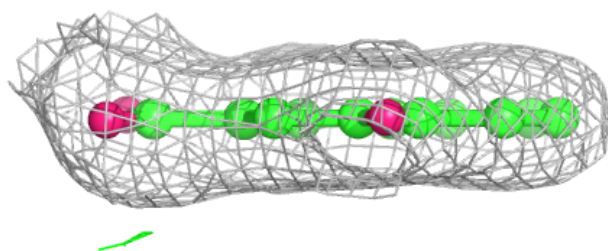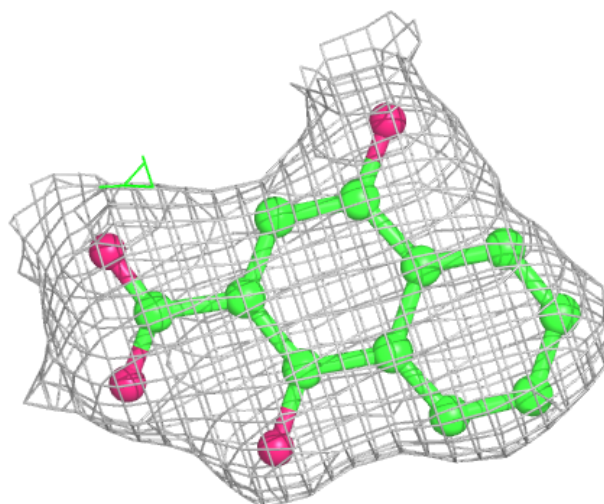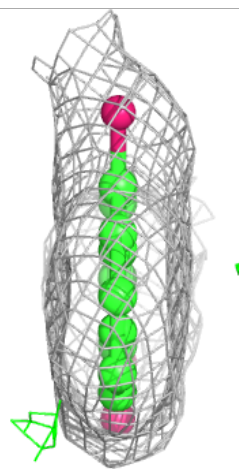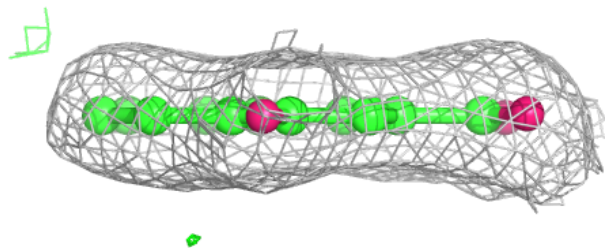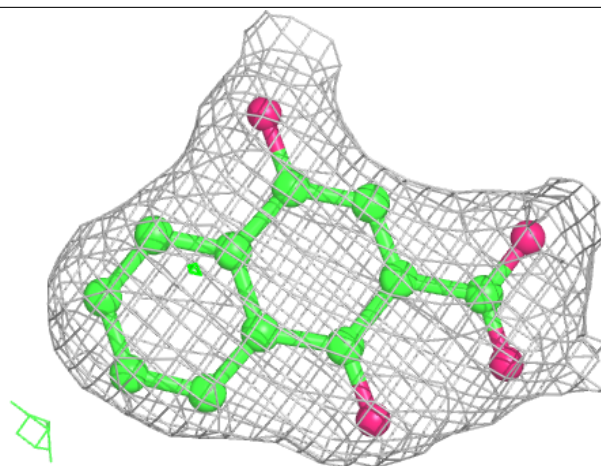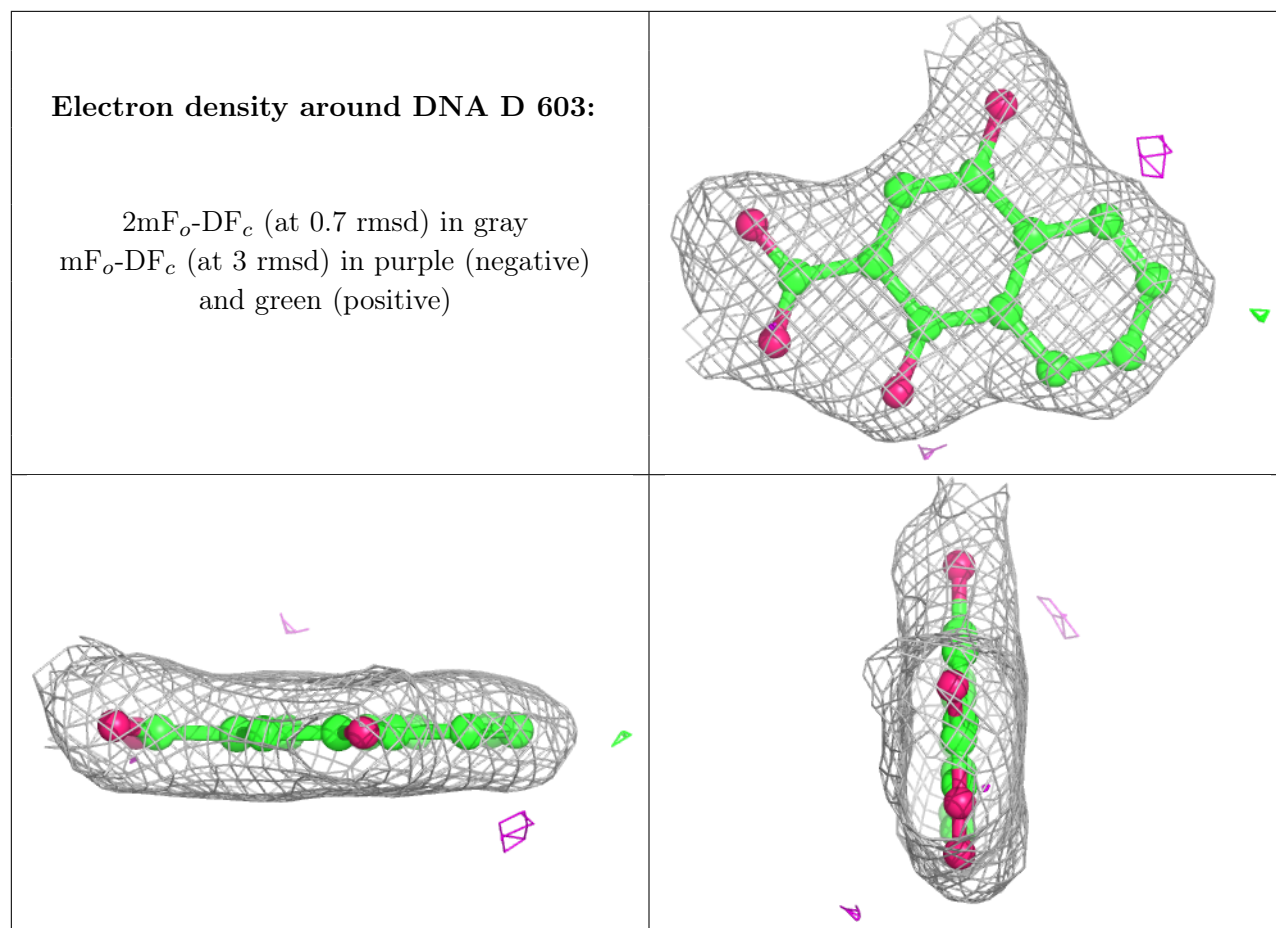mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
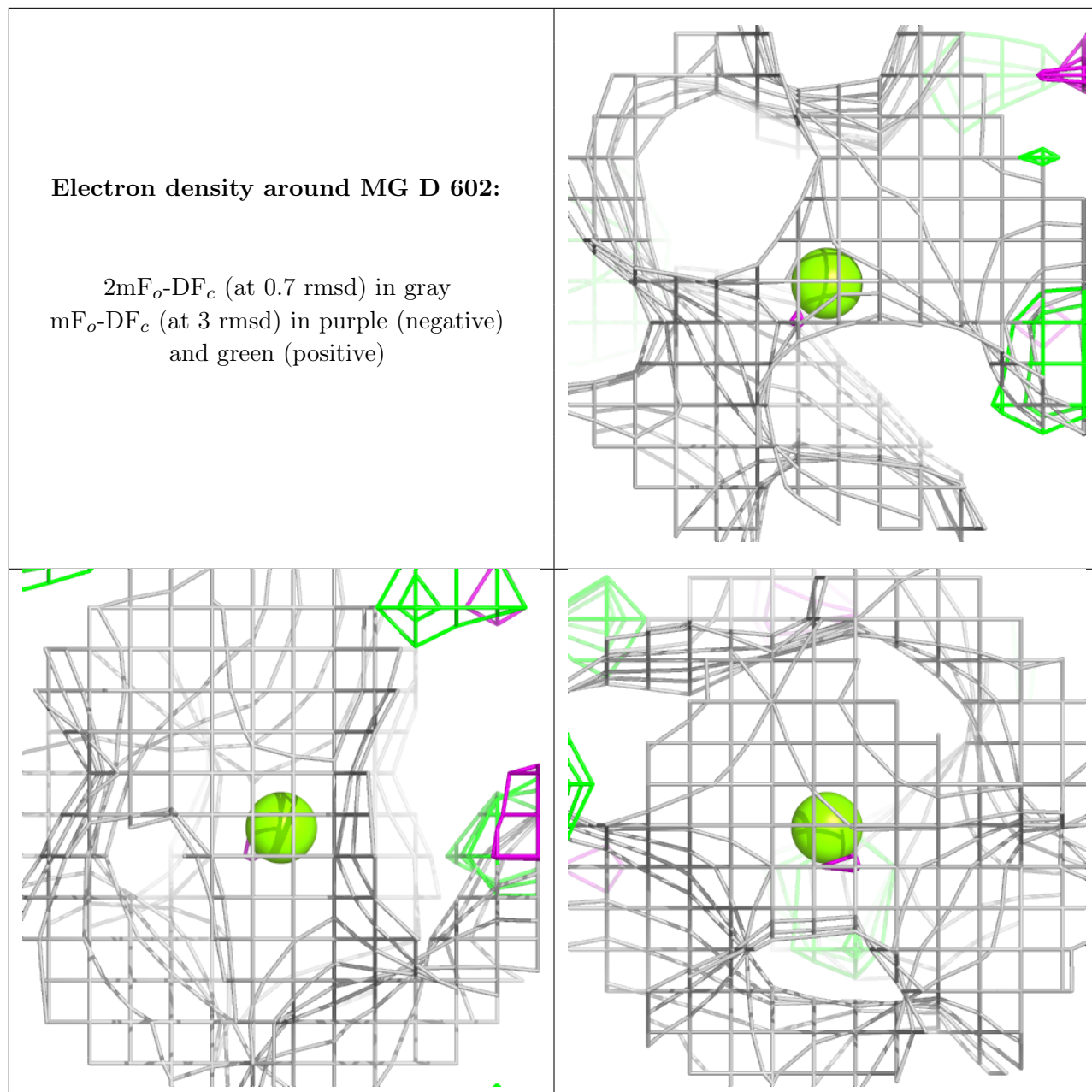
Electron density around DNA C 603:

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

Electron density around DNA B 601:

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

Electron density around DNA A 601:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
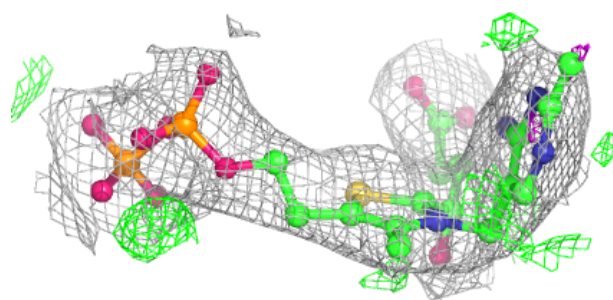and green (positive)

Electron density around DNA D 603:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
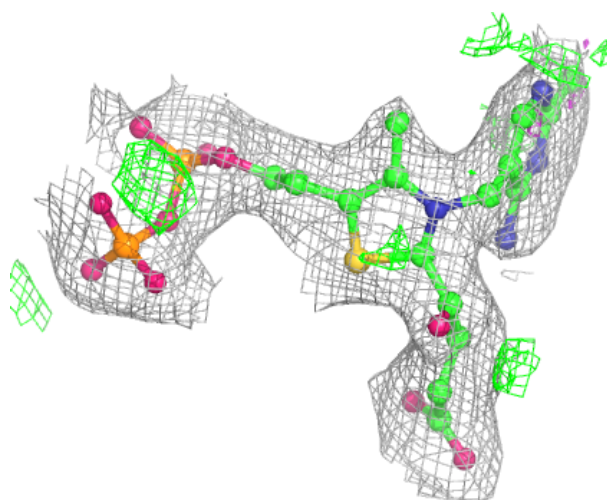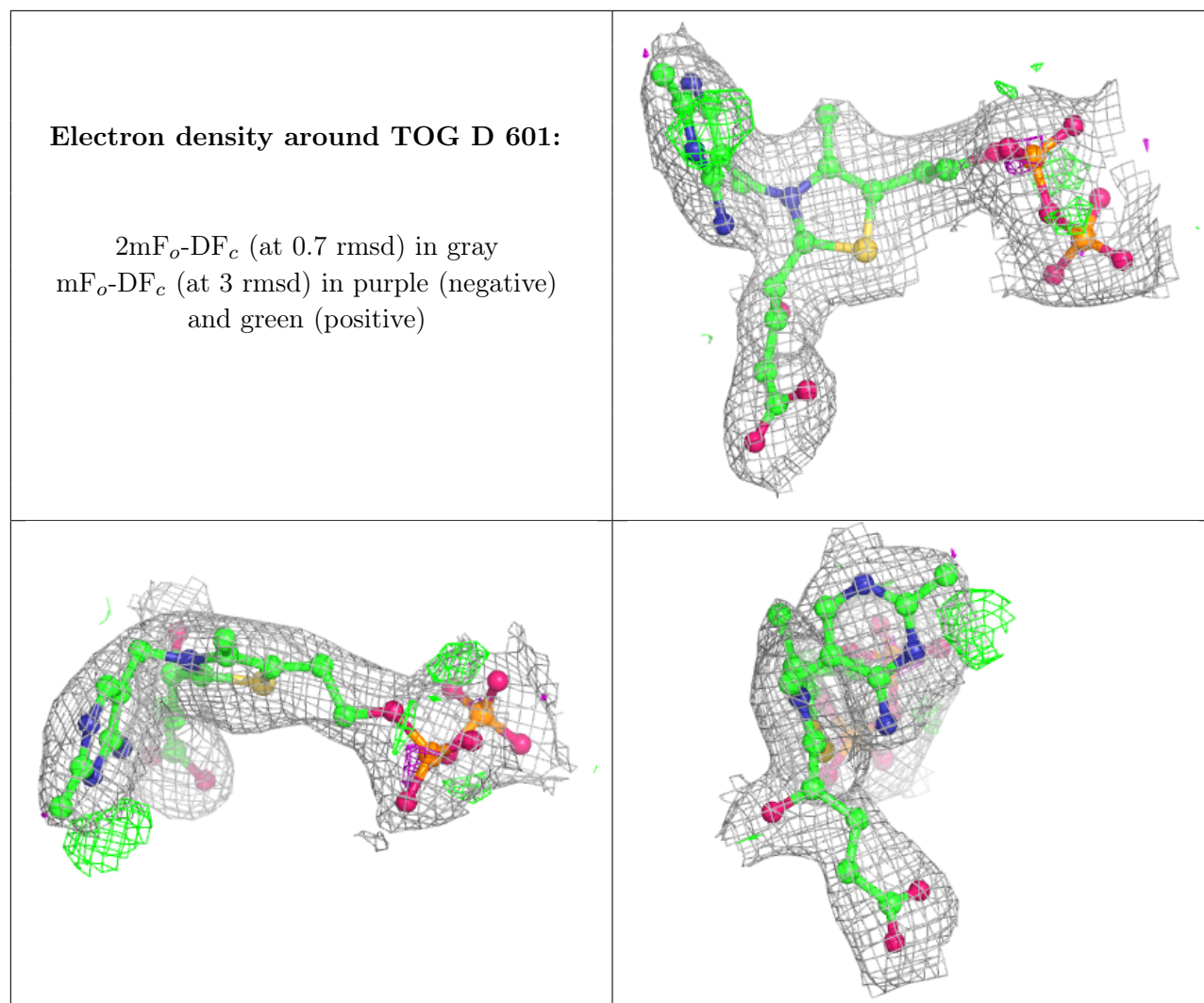
Electron density around TOG C 601:

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

Electron density around TOG D 601:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
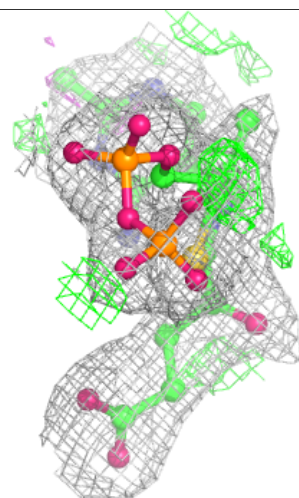
6.5   Other polymers (i)

There are no such residues in this entry.