Full wwPDB X-ray Structure Validation Report (i)

Oct 5, 2024 – 03:34 pm BST

PDB ID	:	6FLU
Title	:	Photorhabdus asymbiotica lectin (PHL) in complex with synthetic C-fucoside
Authors	:	Houser, J.; Jancarikova, G.; Wimmerova, M.
Deposited on	:	2018-01-28
Resolution	:	1.78 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 (i) 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 (i)) were used in the production of this report:

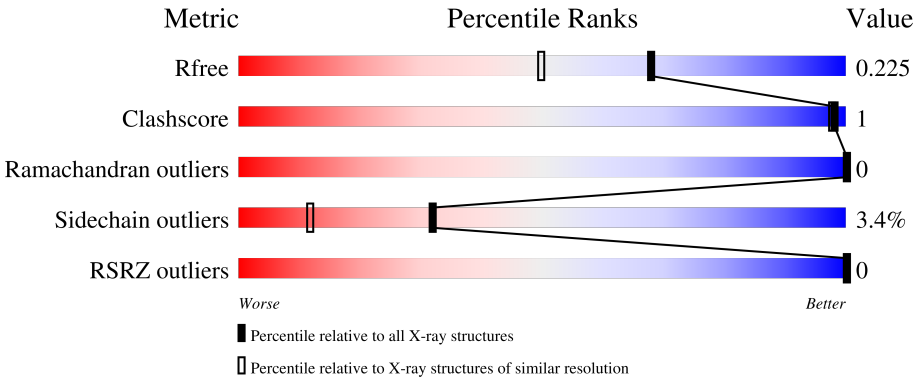
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 1.78 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	1191 (1.78-1.78)
Clashscore	180529	1282 (1.78-1.78)
Ramachandran outliers	177936	1270 (1.78-1.78)
Sidechain outliers	177891	1270 (1.78-1.78)
RSRZ outliers	164620	1191 (1.78-1.78)

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	369	90% . 6%
1	B	369	88% 5% 7%

2 Entry composition

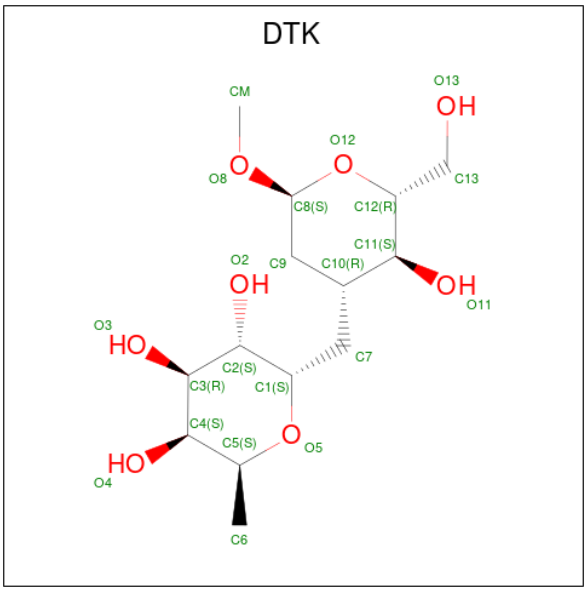
There are 5 unique types of molecules in this entry. The entry contains 6324 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Photorhabdus asymbitoca lectin PHL.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	347	Total	C	N	O	S	0	7	0
			2705	1710	480	513	2			
1	B	344	Total	C	N	O	S	0	7	0
			2694	1704	480	508	2			

- Molecule 2 is (2 {S},3 {S},4 {R},5 {S},6 {S})-2-[[(2 {R},3 {S},4 {R},6 {S})-2-(hydroxymethyl)-6-methoxy-3-oxidanyl-oxan-4-yl]methyl]-6-methyl-oxane-3,4,5-triol (three-letter code: DTK) (formula: $C_{14}H_{26}O_8$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	O		0	0
			22	14	8			
2	A	1	Total	C	O		0	0
			22	14	8			
2	A	1	Total	C	O		0	0
			22	14	8			

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total C O 22 14 8	0	0
2	A	1	Total C O 10 6 4	0	0
2	A	1	Total C O 10 6 4	0	0
2	B	1	Total C O 22 14 8	0	0
2	B	1	Total C O 22 14 8	0	0
2	B	1	Total C O 10 6 4	0	0
2	B	1	Total C O 10 6 4	0	0
2	B	1	Total C O 22 14 8	0	0
2	B	1	Total C O 22 14 8	0	0

- Molecule 3 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total Na 1 1	0	0
3	B	2	Total Na 2 2	0	0

- Molecule 4 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	4	Total Cl 4 4	0	0
4	B	2	Total Cl 2 2	0	0

- Molecule 5 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	354	Total O 354 354	0	0
5	B	346	Total O 346 346	0	0

3 Residue-property plots (i)

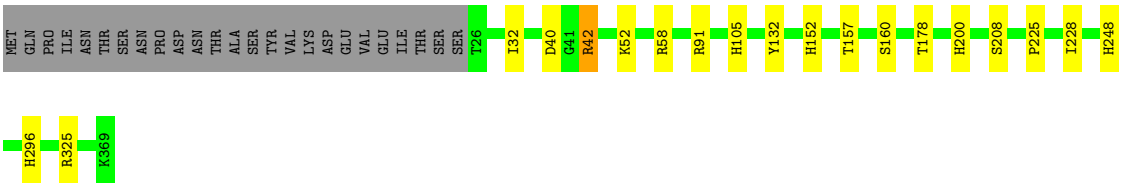
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: Photorhabdus asymbitoca lectin PHL

Chain A:

• Molecule 1: Photorhabdus asymbitoca lectin PHL

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 32 2 1	Depositor
Cell constants a, b, c, α, β, γ	81.94Å 81.94Å 224.65Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	44.93 – 1.78 44.93 – 1.78	Depositor EDS
% Data completeness (in resolution range)	99.9 (44.93-1.78) 100.0 (44.93-1.78)	Depositor EDS
R_{merge}	0.24	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.48 (at 1.77Å)	Xtriage
Refinement program	REFMAC 5.8.0189	Depositor
R, R_{free}	0.184 , 0.222 0.192 , 0.225	Depositor DCC
R_{free} test set	4169 reflections (4.92%)	wwPDB-VP
Wilson B-factor (Å^2)	11.3	Xtriage
Anisotropy	0.152	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 26.3	EDS
L-test for twinning[2]	$< \|L\| > = 0.42$, $< L^2 > = 0.24$	Xtriage
Estimated twinning fraction	0.066 for -h,-k,l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	6324	wwPDB-VP
Average B, all atoms (Å^2)	13.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.52% of the height of the origin peak. No significant pseudotranslation is detected.*

[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: CL, DTK, NA

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	0.98	2/2810 (0.1%)	0.84	1/3863 (0.0%)
1	B	0.95	1/2799 (0.0%)	0.92	8/3847 (0.2%)
All	All	0.96	3/5609 (0.1%)	0.88	9/7710 (0.1%)

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	310	TRP	CB-CG	5.95	1.60	1.50
1	B	208	SER	CB-OG	-5.72	1.34	1.42
1	A	215	GLU	CD-OE1	5.33	1.31	1.25

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	58	ARG	NE-CZ-NH1	13.23	126.91	120.30
1	B	58	ARG	NE-CZ-NH2	-11.34	114.63	120.30
1	B	42	ARG	NE-CZ-NH2	8.62	124.61	120.30
1	B	42	ARG	NE-CZ-NH1	-8.20	116.20	120.30
1	B	91	ARG	NE-CZ-NH1	6.56	123.58	120.30
1	B	325	ARG	NE-CZ-NH2	-5.93	117.33	120.30
1	B	91	ARG	NE-CZ-NH2	-5.71	117.45	120.30
1	A	195	ASP	CB-CG-OD1	5.63	123.37	118.30
1	B	325	ARG	NE-CZ-NH1	5.52	123.06	120.30

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	2705	0	2567	2	0
1	B	2694	0	2564	4	0
2	A	108	0	0	0	0
2	B	108	0	0	0	0
3	A	1	0	0	0	0
3	B	2	0	0	0	0
4	A	4	0	0	0	0
4	B	2	0	0	0	0
5	A	354	0	0	1	0
5	B	346	0	0	0	0
All	All	6324	0	5131	6	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 1.

All (6) 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:A:157[A]:THR:HG23	1:A:160:SER:HB3	1.76	0.66
1:B:157[B]:THR:HG23	1:B:160:SER:HB3	1.89	0.53
1:B:178[A]:THR:HG22	1:B:225:PRO:HG2	1.94	0.49
1:A:119:GLN:HG2	5:A:503:HOH:O	2.15	0.45
1:B:40:ASP:OD1	1:B:42:ARG:HD2	2.21	0.41

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	352/369 (95%)	341 (97%)	11 (3%)	0	100	100
1	B	349/369 (95%)	337 (97%)	12 (3%)	0	100	100
All	All	701/738 (95%)	678 (97%)	23 (3%)	0	100	100

There are no Ramachandran outliers to report.

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	287/303 (95%)	275 (96%)	12 (4%)	25	7
1	B	286/303 (94%)	278 (97%)	8 (3%)	38	18
All	All	573/606 (95%)	553 (96%)	20 (4%)	32	11

All (20) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	56	HIS
1	A	58	ARG
1	A	105	HIS
1	A	119	GLN
1	A	132	TYR
1	A	200	HIS
1	A	248	HIS
1	A	254[A]	SER
1	A	254[B]	SER
1	A	279	CYS
1	A	296	HIS
1	A	350	SER
1	B	32	ILE
1	B	52	LYS
1	B	105	HIS
1	B	132	TYR

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Mol	Chain	Res	Type
1	B	152	HIS
1	B	200	HIS
1	B	248	HIS
1	B	296	HIS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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, 9 are monoatomic - leaving 12 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	DTK	B	401	-	23,23,23	1.14	2 (8%)	30,33,33	1.48	5 (16%)
2	DTK	B	406	-	23,23,23	0.99	0	30,33,33	1.33	6 (20%)
2	DTK	B	405	-	23,23,23	1.07	1 (4%)	30,33,33	1.41	3 (10%)
2	DTK	A	406	-	10,10,23	1.04	1 (10%)	14,14,33	2.26	3 (21%)
2	DTK	A	404	-	23,23,23	0.86	0	30,33,33	1.71	5 (16%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	DTK	A	405	-	10,10,23	0.59	0	14,14,33	1.29	1 (7%)
2	DTK	B	402	-	23,23,23	1.15	2 (8%)	30,33,33	1.79	6 (20%)
2	DTK	B	404	-	10,10,23	1.17	1 (10%)	14,14,33	1.22	1 (7%)
2	DTK	A	401	-	23,23,23	0.87	1 (4%)	30,33,33	1.62	7 (23%)
2	DTK	B	403	-	10,10,23	0.99	0	14,14,33	1.69	3 (21%)
2	DTK	A	403	-	23,23,23	0.65	0	30,33,33	2.19	9 (30%)
2	DTK	A	402	-	23,23,23	1.09	1 (4%)	30,33,33	1.46	4 (13%)

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
2	DTK	B	401	-	-	4/8/44/44	0/2/2/2
2	DTK	B	406	-	-	2/8/44/44	0/2/2/2
2	DTK	B	405	-	-	6/8/44/44	0/2/2/2
2	DTK	A	406	-	-	-	0/1/1/2
2	DTK	A	404	-	-	4/8/44/44	0/2/2/2
2	DTK	A	405	-	-	-	0/1/1/2
2	DTK	B	402	-	-	6/8/44/44	0/2/2/2
2	DTK	B	404	-	-	-	0/1/1/2
2	DTK	A	401	-	-	6/8/44/44	0/2/2/2
2	DTK	B	403	-	-	-	0/1/1/2
2	DTK	A	403	-	-	1/8/44/44	0/2/2/2
2	DTK	A	402	-	-	4/8/44/44	0/2/2/2

All (9) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	401	DTK	C10-C11	3.27	1.57	1.53
2	A	402	DTK	C7-C1	2.89	1.57	1.52
2	B	402	DTK	C7-C1	2.75	1.57	1.52
2	B	402	DTK	O8-C8	2.48	1.46	1.40
2	B	404	DTK	O5-C1	2.41	1.47	1.43
2	B	405	DTK	C7-C10	2.11	1.57	1.53
2	A	401	DTK	C9-C8	2.06	1.55	1.51
2	A	406	DTK	O4-C4	2.04	1.47	1.43
2	B	401	DTK	O11-C11	-2.00	1.38	1.43

All (53) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	403	DTK	C8-O12-C12	5.80	122.03	113.03
2	A	406	DTK	O4-C4-C5	5.23	121.26	109.67
2	A	406	DTK	O5-C1-C2	-4.93	103.16	110.77
2	B	402	DTK	O8-C8-C9	4.79	114.62	108.47
2	A	403	DTK	C7-C10-C11	-4.52	106.88	113.32
2	A	403	DTK	C7-C1-C2	-4.45	106.14	113.47
2	A	402	DTK	O12-C8-C9	-4.29	104.40	110.87
2	A	404	DTK	O12-C8-C9	4.15	117.12	110.87
2	A	404	DTK	O8-C8-C9	4.01	113.61	108.47
2	A	402	DTK	C7-C1-C2	3.99	120.03	113.47
2	B	402	DTK	C7-C1-C2	3.97	120.00	113.47
2	B	401	DTK	C7-C1-C2	3.72	119.59	113.47
2	A	401	DTK	CM-O8-C8	3.63	121.36	113.94
2	A	401	DTK	O8-C8-C9	3.54	113.01	108.47
2	B	402	DTK	CM-O8-C8	3.53	121.15	113.94
2	B	403	DTK	O3-C3-C2	3.49	116.67	109.99
2	A	404	DTK	C8-C9-C10	3.37	118.37	111.27
2	B	405	DTK	C7-C1-C2	3.34	118.96	113.47
2	B	406	DTK	O12-C12-C13	3.28	114.59	106.44
2	A	401	DTK	O12-C8-C9	-3.27	105.93	110.87
2	B	401	DTK	O12-C12-C11	-3.20	103.89	109.69
2	B	401	DTK	O8-C8-C9	-3.18	104.39	108.47
2	B	405	DTK	O12-C12-C13	3.13	114.22	106.44
2	A	404	DTK	C1-O5-C5	3.12	119.25	113.06
2	B	401	DTK	O12-C12-C13	3.00	113.90	106.44
2	A	405	DTK	O5-C1-C2	-2.86	106.36	110.77
2	B	403	DTK	O5-C1-C2	-2.82	106.42	110.77
2	A	403	DTK	O12-C12-C11	2.81	114.80	109.69
2	A	401	DTK	C8-O12-C12	2.79	117.36	113.03
2	A	403	DTK	C1-O5-C5	2.78	118.57	113.06
2	B	403	DTK	O4-C4-C3	-2.73	104.03	110.35
2	B	405	DTK	C3-C2-C1	2.61	114.90	110.24
2	B	406	DTK	O4-C4-C5	2.53	115.27	109.67
2	B	402	DTK	C6-C5-C4	2.48	117.66	113.07
2	A	404	DTK	C9-C10-C11	-2.44	107.36	110.17
2	B	404	DTK	O5-C1-C2	-2.44	107.01	110.77
2	B	402	DTK	C9-C10-C11	-2.44	107.36	110.17
2	A	403	DTK	O5-C1-C2	2.42	114.09	109.69
2	A	401	DTK	O4-C4-C3	-2.42	104.76	110.35
2	A	402	DTK	CM-O8-C8	2.32	118.69	113.94
2	A	406	DTK	O3-C3-C2	2.27	114.34	109.99
2	B	406	DTK	C6-C5-C4	2.27	117.26	113.07

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	403	DTK	O12-C8-C9	2.26	114.28	110.87
2	A	401	DTK	O4-C4-C5	2.22	114.58	109.67
2	B	406	DTK	C1-O5-C5	2.21	117.44	113.06
2	B	402	DTK	O11-C11-C10	2.20	113.80	110.08
2	A	403	DTK	O5-C1-C7	2.19	115.05	108.99
2	A	403	DTK	C13-C12-C11	-2.12	108.04	113.00
2	A	401	DTK	C7-C1-C2	2.10	116.93	113.47
2	B	406	DTK	C9-C10-C11	2.05	112.52	110.17
2	B	401	DTK	CM-O8-C8	2.03	118.10	113.94
2	B	406	DTK	O8-C8-C9	2.01	111.05	108.47
2	A	402	DTK	C4-C3-C2	-2.00	107.33	110.82

There are no chirality outliers.

All (33) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	402	DTK	O12-C8-O8-CM
2	B	402	DTK	C9-C8-O8-CM
2	B	405	DTK	C2-C1-C7-C10
2	B	406	DTK	C2-C1-C7-C10
2	B	406	DTK	O5-C1-C7-C10
2	A	401	DTK	C11-C12-C13-O13
2	B	405	DTK	O12-C12-C13-O13
2	A	401	DTK	O12-C12-C13-O13
2	B	402	DTK	O5-C1-C7-C10
2	B	405	DTK	O5-C1-C7-C10
2	A	403	DTK	C11-C12-C13-O13
2	B	405	DTK	C11-C12-C13-O13
2	A	401	DTK	C2-C1-C7-C10
2	B	401	DTK	C2-C1-C7-C10
2	B	402	DTK	C2-C1-C7-C10
2	A	401	DTK	O5-C1-C7-C10
2	A	402	DTK	O5-C1-C7-C10
2	A	404	DTK	O5-C1-C7-C10
2	B	401	DTK	O5-C1-C7-C10
2	A	402	DTK	C11-C10-C7-C1
2	A	402	DTK	C9-C10-C7-C1
2	B	401	DTK	C11-C10-C7-C1
2	B	401	DTK	C9-C10-C7-C1
2	B	402	DTK	C11-C10-C7-C1
2	B	402	DTK	C9-C10-C7-C1
2	B	405	DTK	C11-C10-C7-C1

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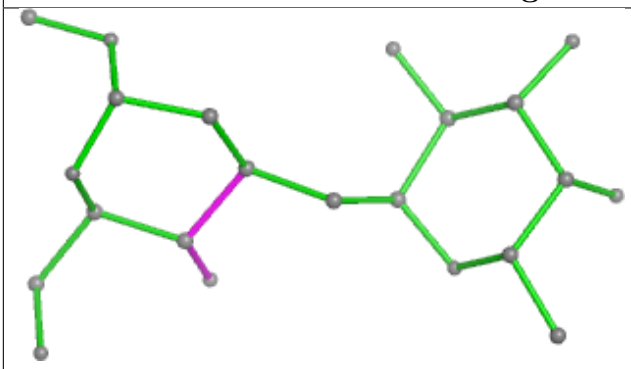
Mol	Chain	Res	Type	Atoms
2	B	405	DTK	C9-C10-C7-C1
2	A	401	DTK	O12-C8-O8-CM
2	A	402	DTK	C2-C1-C7-C10
2	A	404	DTK	C2-C1-C7-C10
2	A	401	DTK	C11-C10-C7-C1
2	A	404	DTK	C11-C10-C7-C1
2	A	404	DTK	C9-C10-C7-C1

There are no ring outliers.

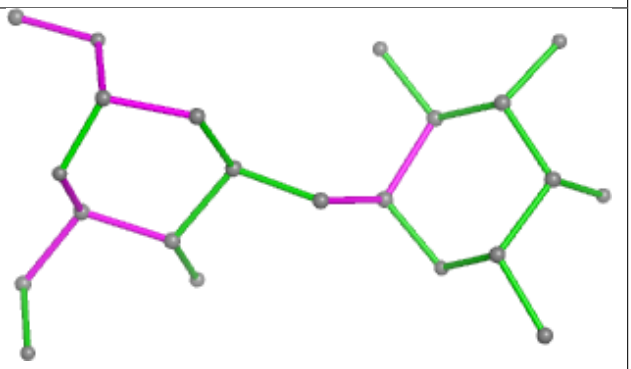
No monomer is involved in short contacts.

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.

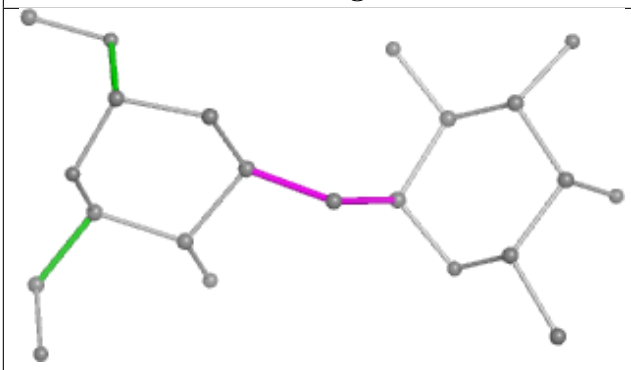
Ligand DTK B 401



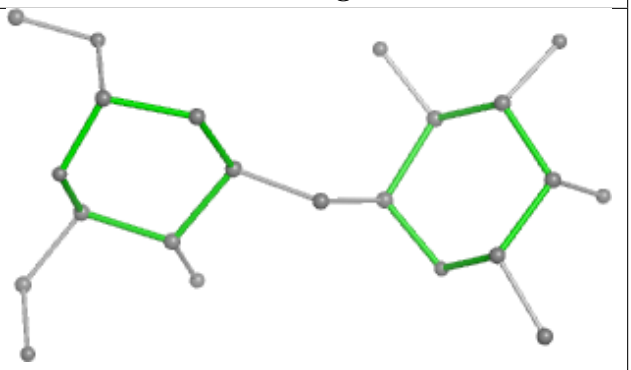
Bond lengths



Bond angles

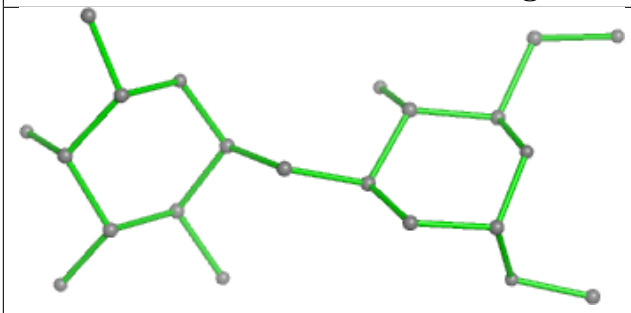


Torsions

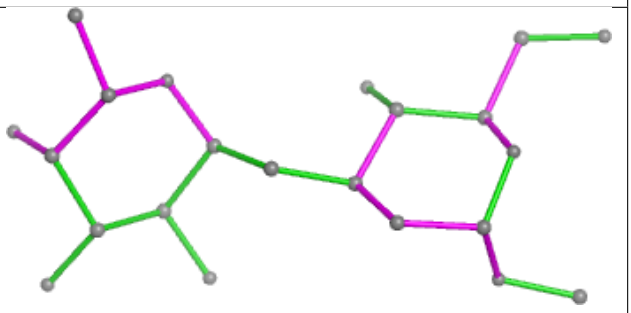


Rings

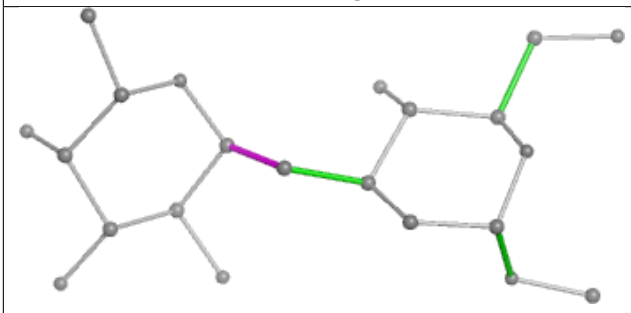
Ligand DTK B 406



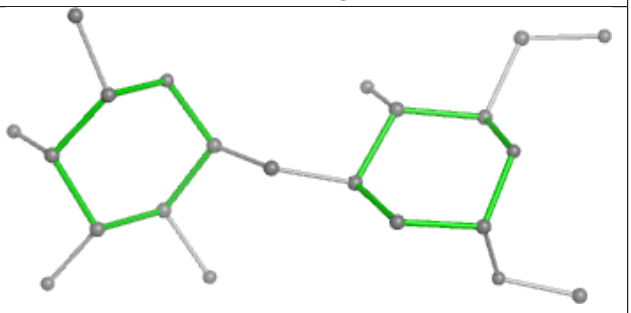
Bond lengths



Bond angles

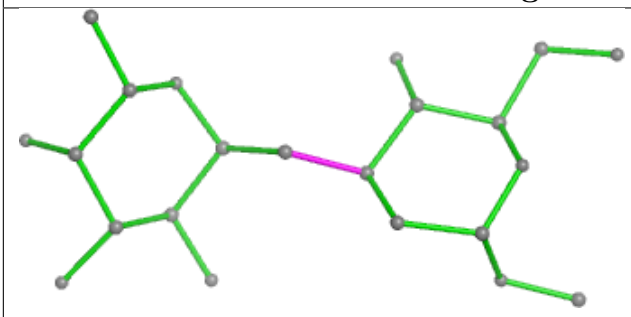


Torsions

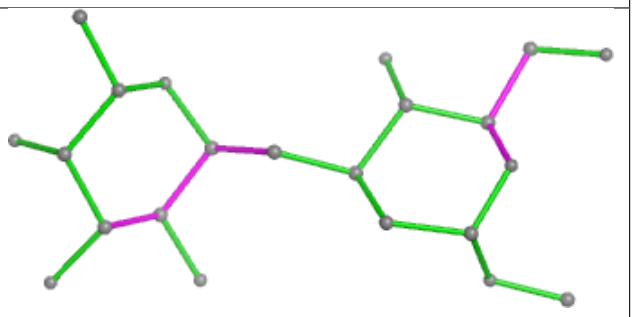


Rings

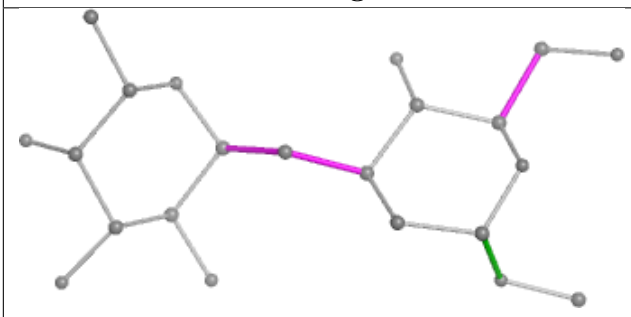
Ligand DTK B 405



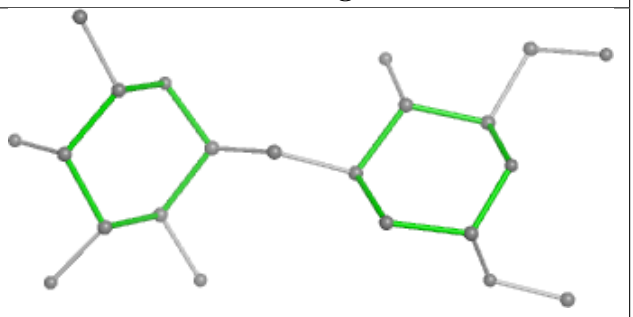
Bond lengths



Bond angles

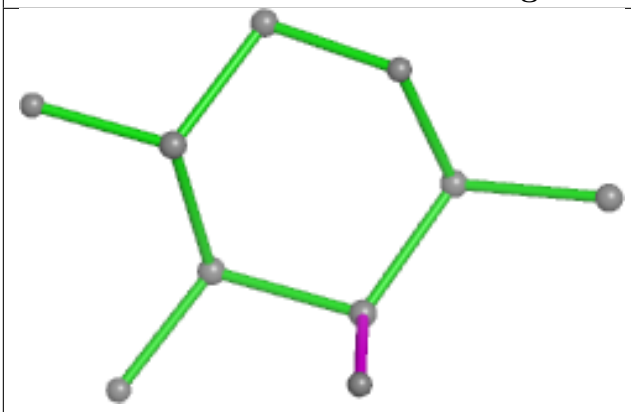


Torsions

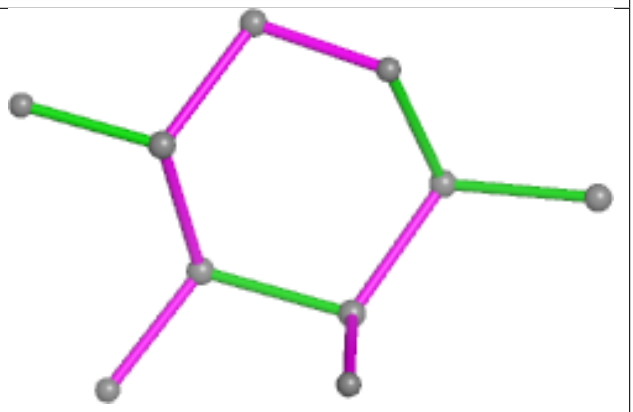


Rings

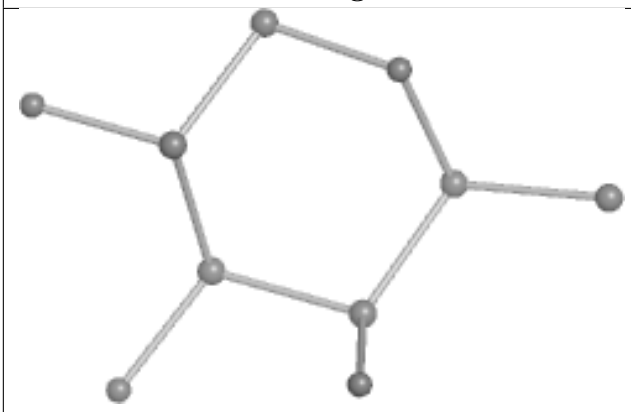
Ligand DTK A 406



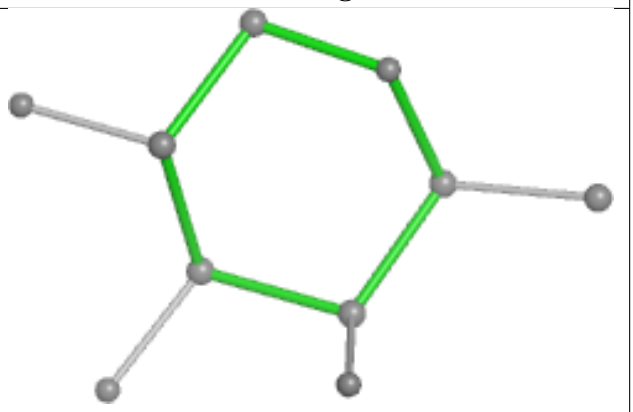
Bond lengths



Bond angles

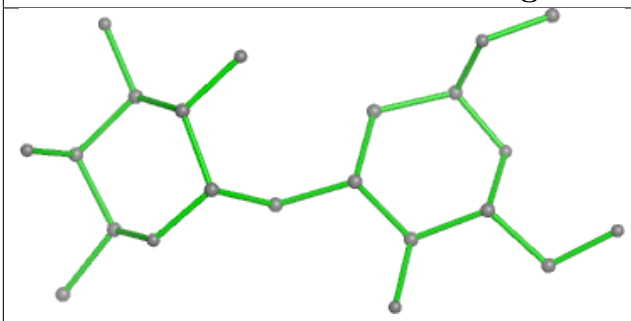


Torsions

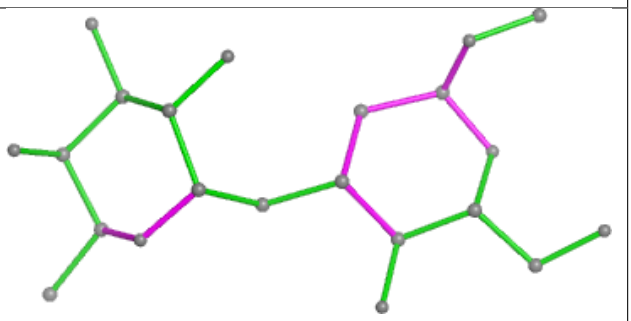


Rings

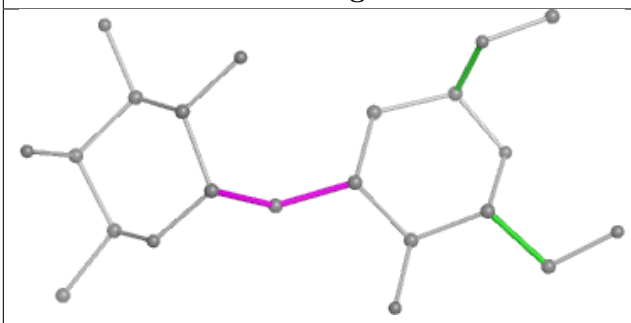
Ligand DTK A 404



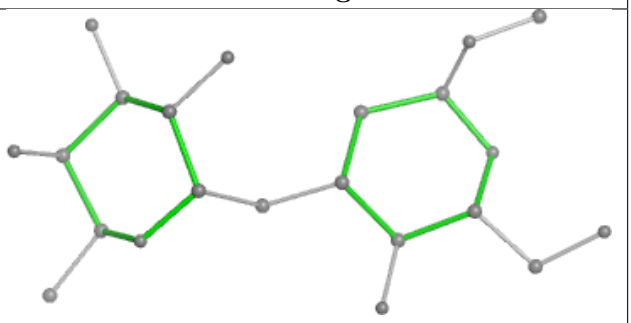
Bond lengths



Bond angles

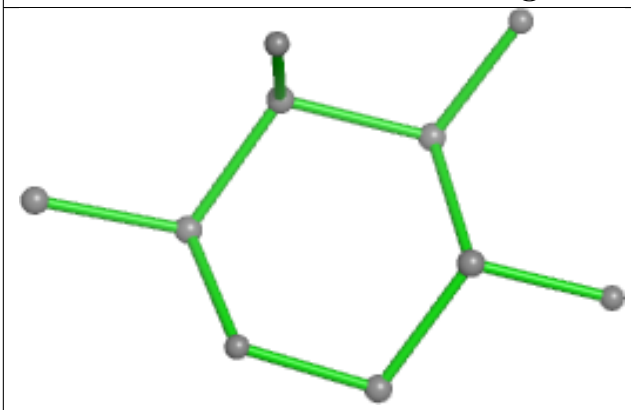


Torsions

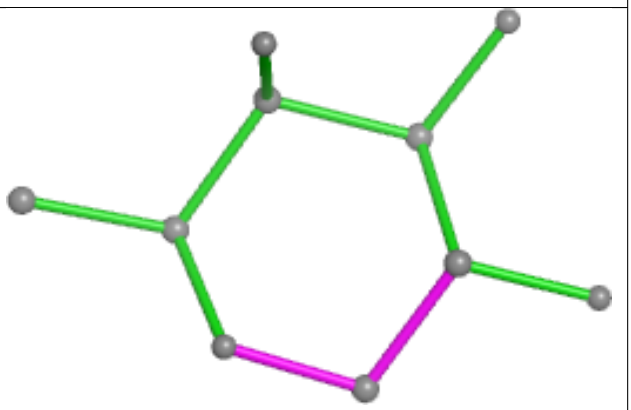


Rings

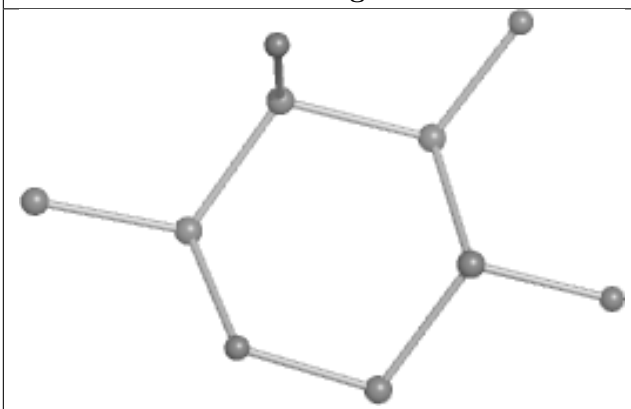
Ligand DTK A 405



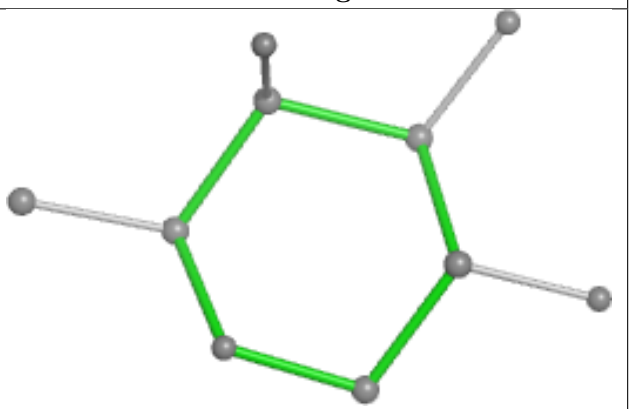
Bond lengths



Bond angles

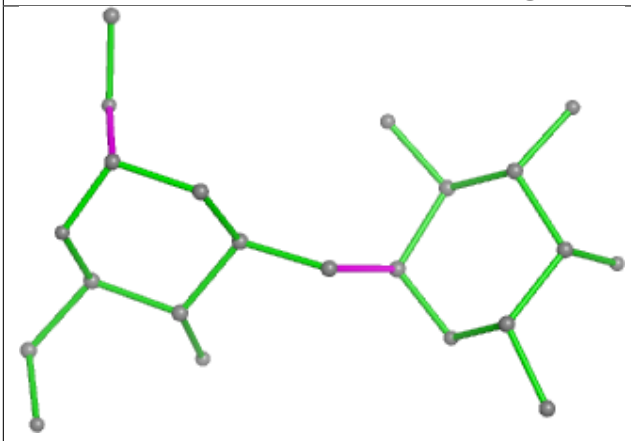


Torsions

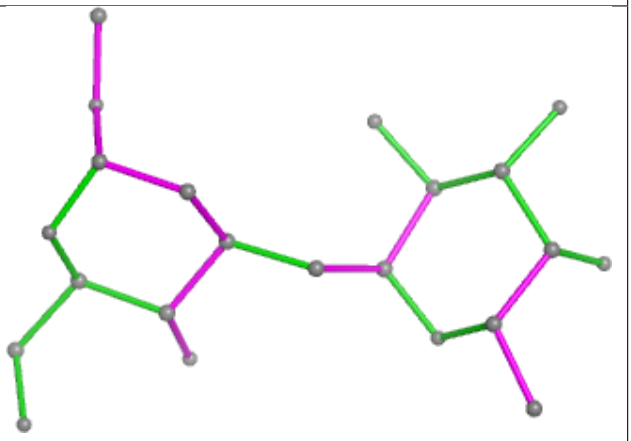


Rings

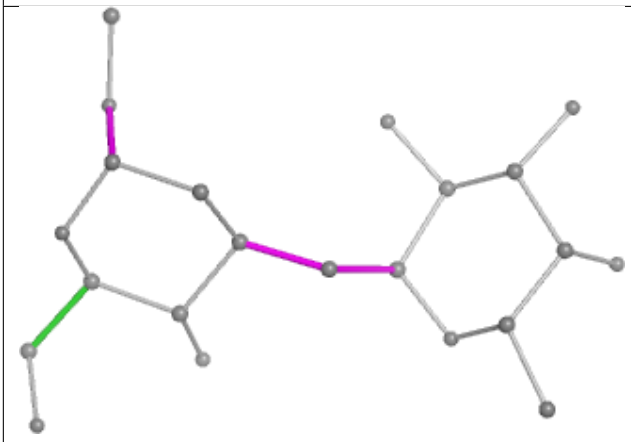
Ligand DTK B 402



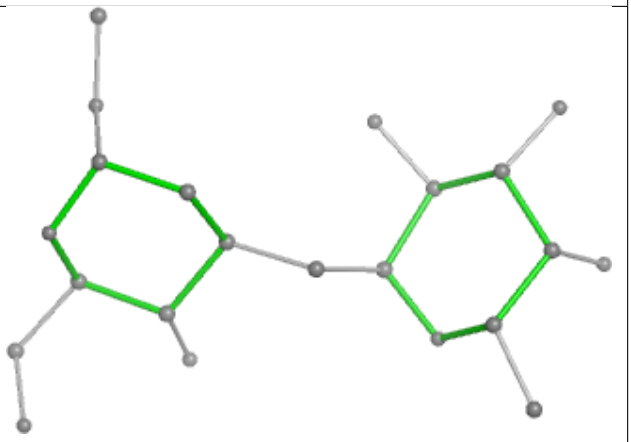
Bond lengths



Bond angles

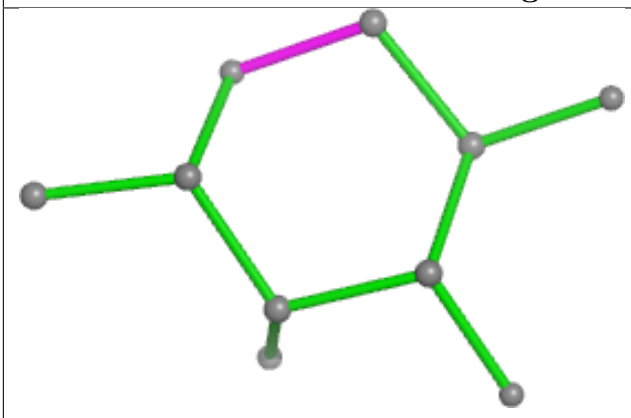


Torsions

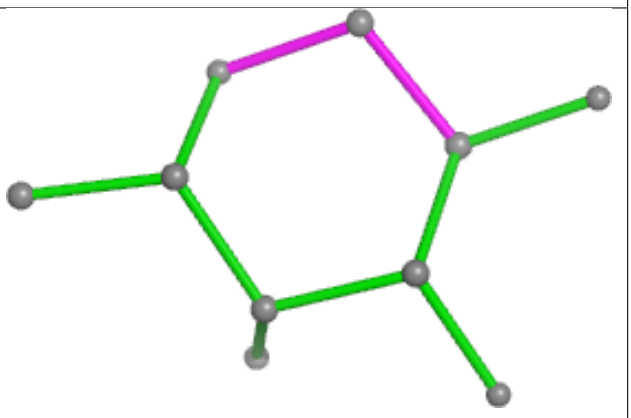


Rings

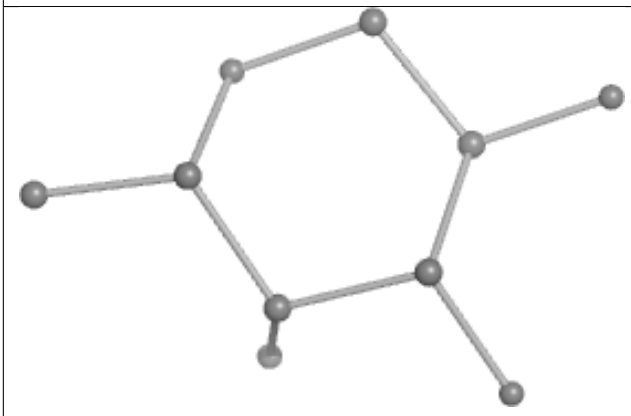
Ligand DTK B 404



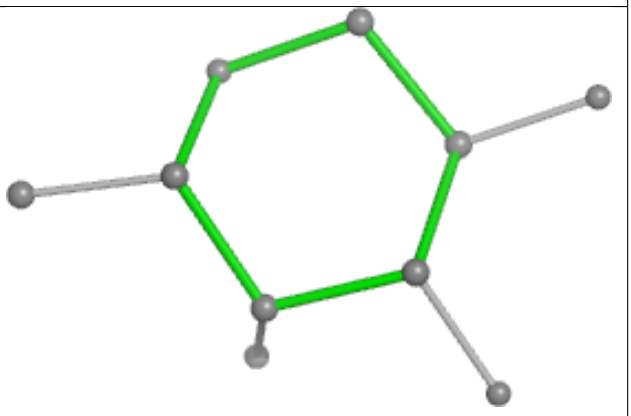
Bond lengths



Bond angles

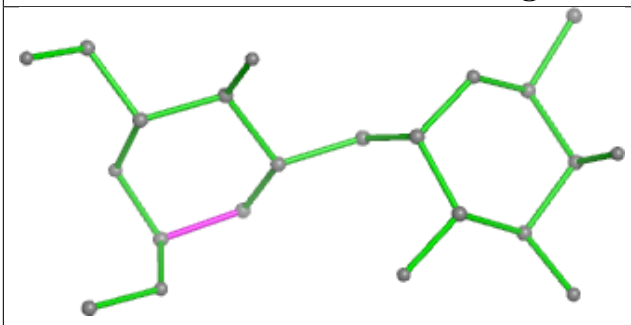


Torsions

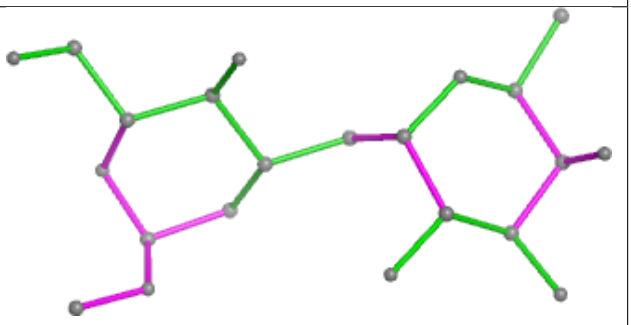


Rings

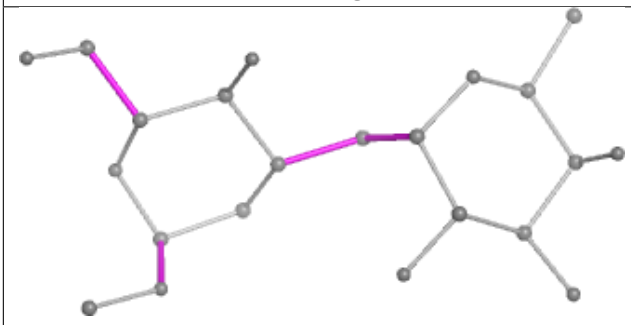
Ligand DTK A 401



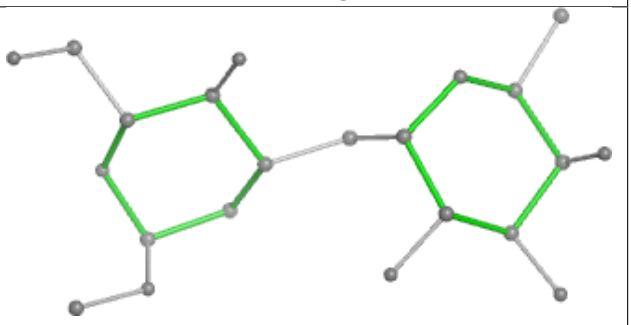
Bond lengths



Bond angles

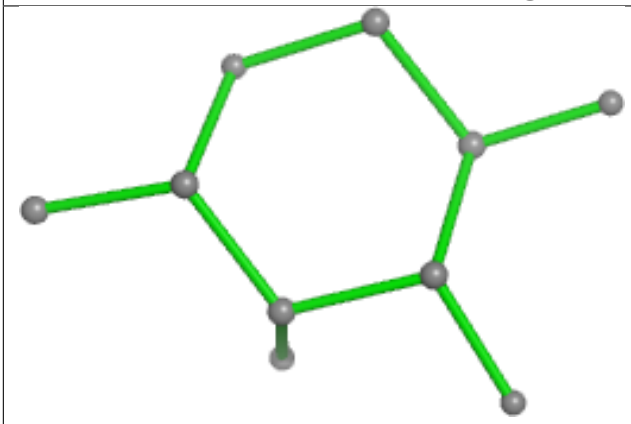


Torsions

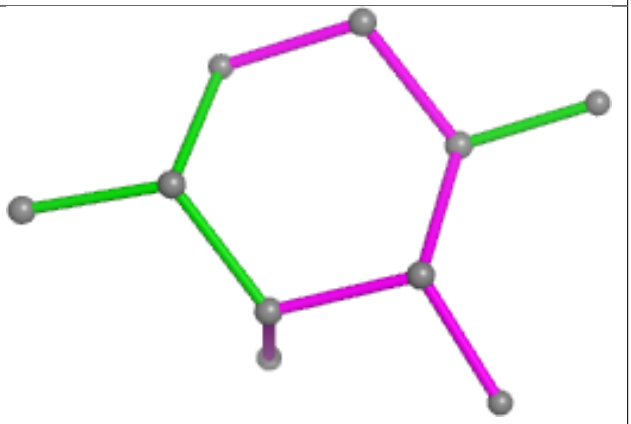


Rings

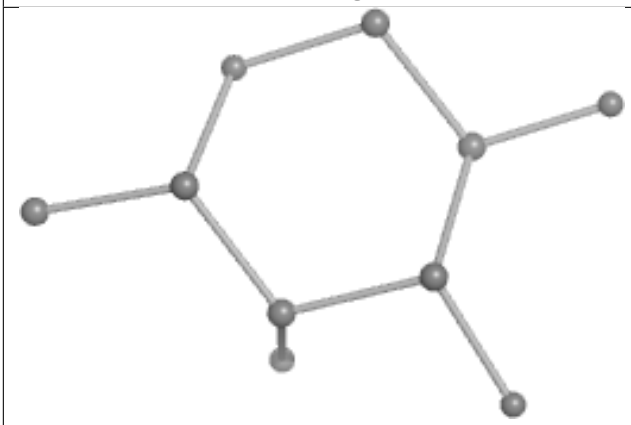
Ligand DTK B 403



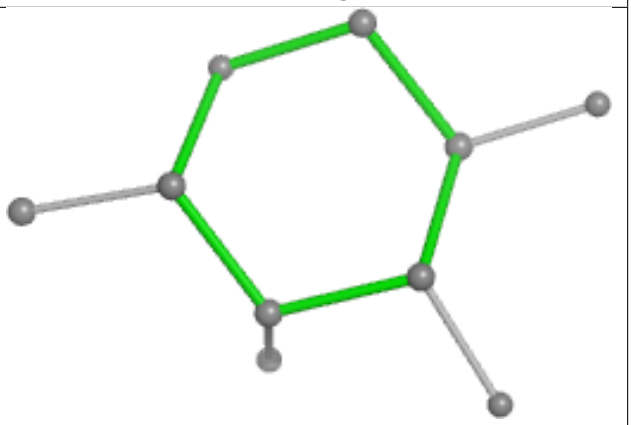
Bond lengths



Bond angles

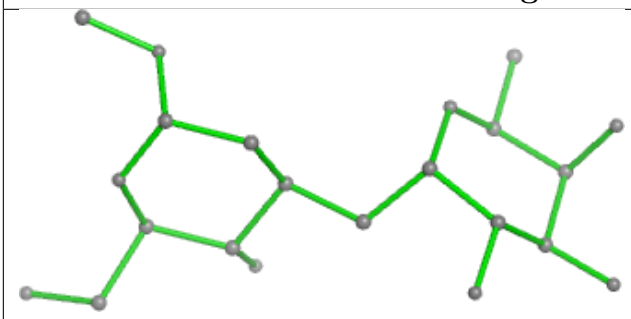


Torsions

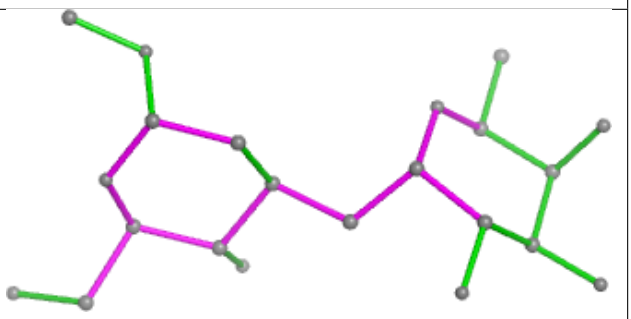


Rings

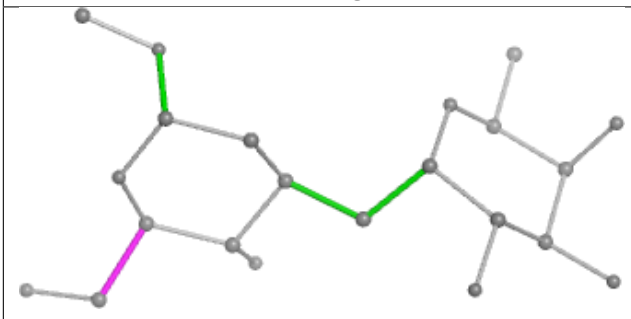
Ligand DTK A 403



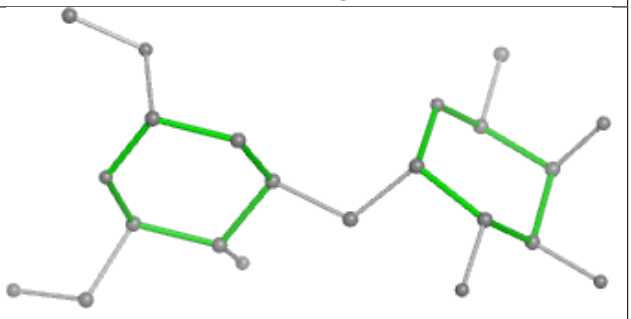
Bond lengths



Bond angles

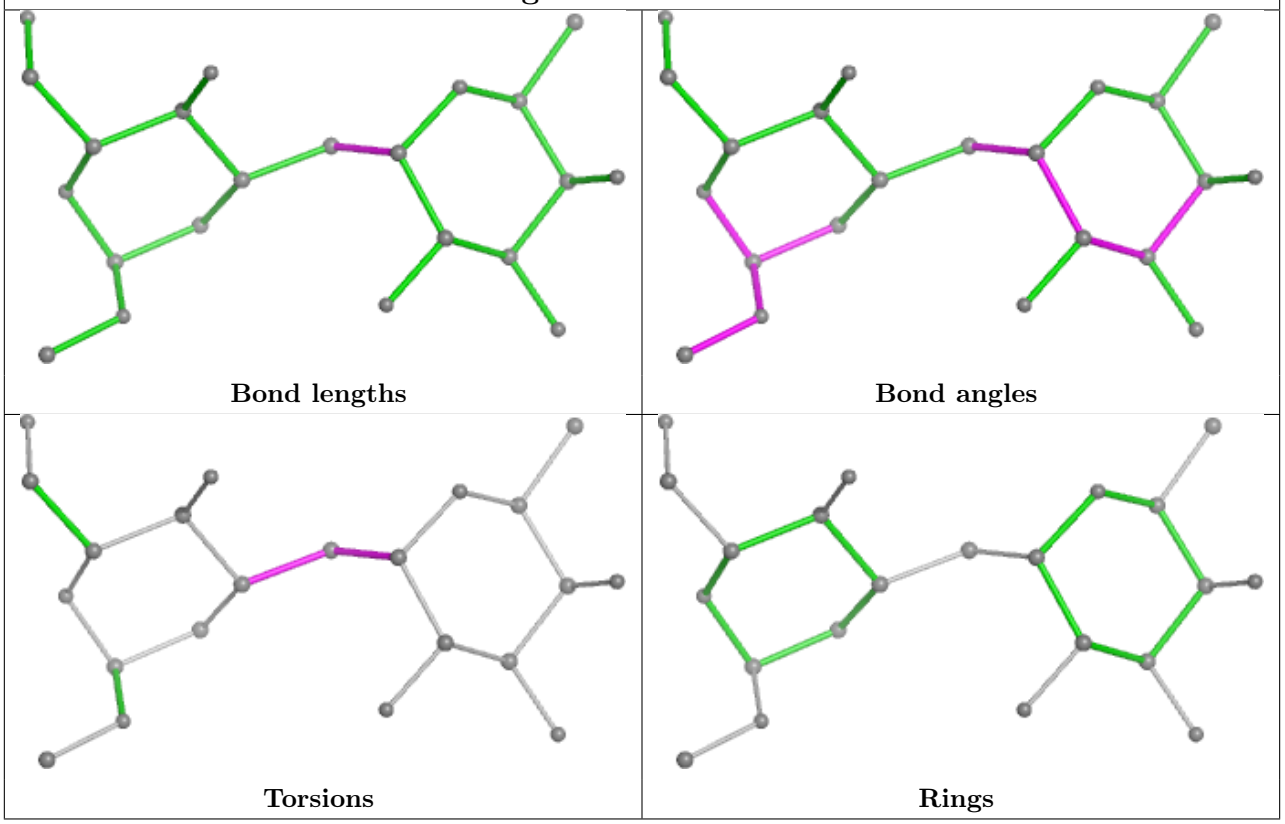


Torsions



Rings

Ligand DTK A 402



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, 95^{th} 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	347/369 (94%)	-1.53	0	100	100	4, 10, 17, 45	10 (2%)
1	B	344/369 (93%)	-1.50	0	100	100	4, 12, 17, 25	9 (2%)
All	All	691/738 (93%)	-1.52	0	100	100	4, 11, 18, 45	19 (2%)

There are no RSRZ outliers to report.

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, 95^{th} 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
2	DTK	A	406	10/22	0.98	0.04	17,21,23,24	0
2	DTK	A	403	22/22	0.99	0.04	21,32,46,57	0
2	DTK	A	405	10/22	0.99	0.03	14,15,16,16	0
2	DTK	A	401	22/22	0.99	0.03	14,20,28,30	0
2	DTK	B	401	22/22	0.99	0.03	14,19,26,29	0
2	DTK	B	402	22/22	0.99	0.03	15,24,34,37	0
2	DTK	B	403	10/22	0.99	0.04	25,28,28,30	0

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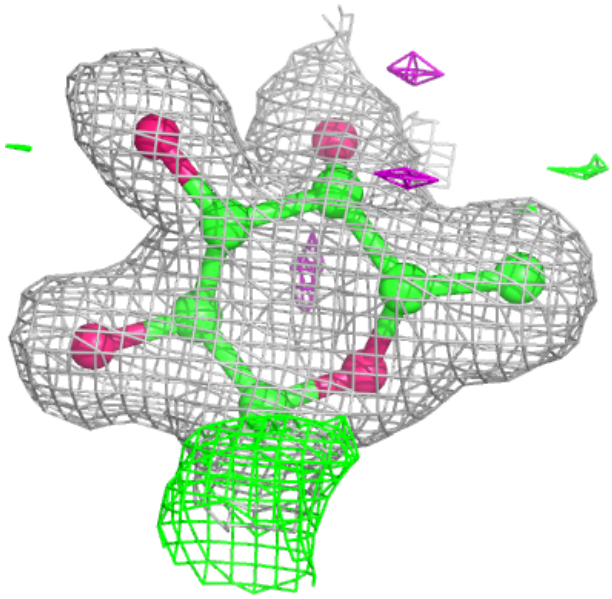
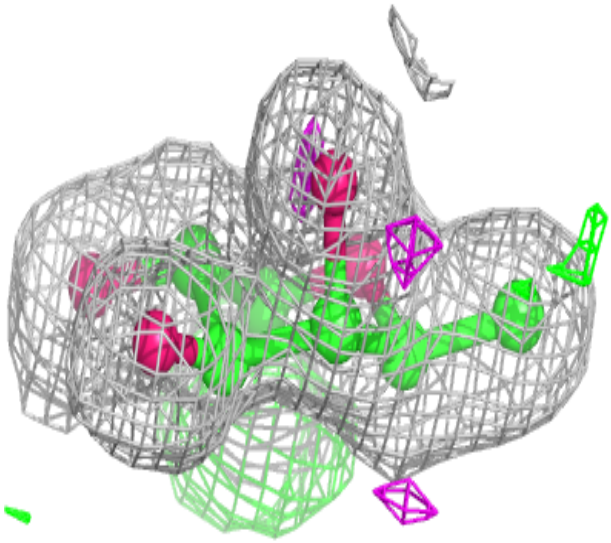
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	DTK	B	404	10/22	0.99	0.02	17,18,20,23	0
2	DTK	B	405	22/22	0.99	0.04	16,30,49,55	0
2	DTK	B	406	22/22	0.99	0.04	20,33,47,55	0
3	NA	A	407	1/1	0.99	0.05	32,32,32,32	0
2	DTK	A	404	22/22	1.00	0.02	9,12,15,16	22
2	DTK	A	402	22/22	1.00	0.02	12,17,23,28	0
3	NA	B	407	1/1	1.00	0.02	17,17,17,17	0
3	NA	B	408	1/1	1.00	0.03	22,22,22,22	0
4	CL	A	408	1/1	1.00	0.01	14,14,14,14	1
4	CL	A	409	1/1	1.00	0.02	15,15,15,15	0
4	CL	A	410	1/1	1.00	0.06	30,30,30,30	0
4	CL	A	411	1/1	1.00	0.02	20,20,20,20	0
4	CL	B	409	1/1	1.00	0.03	22,22,22,22	0
4	CL	B	410	1/1	1.00	0.05	36,36,36,36	0

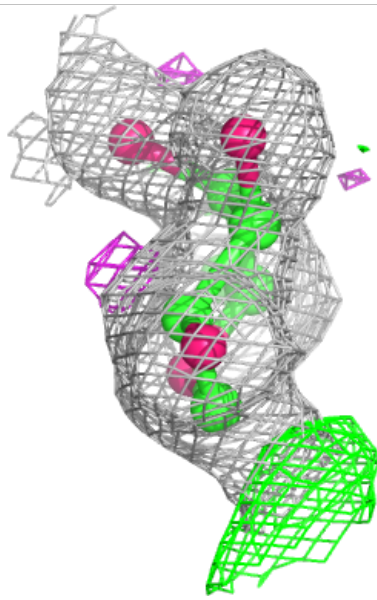
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around DTK A 406:

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

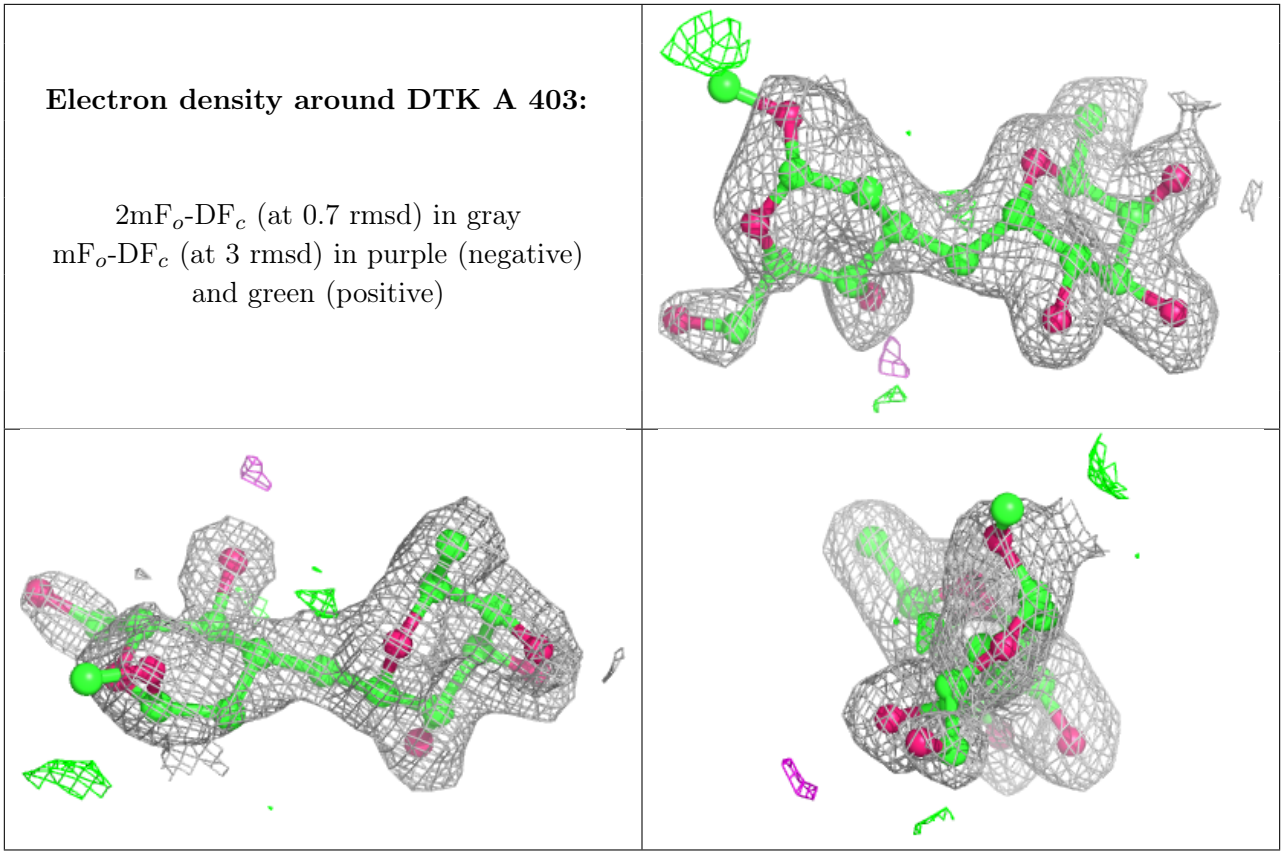






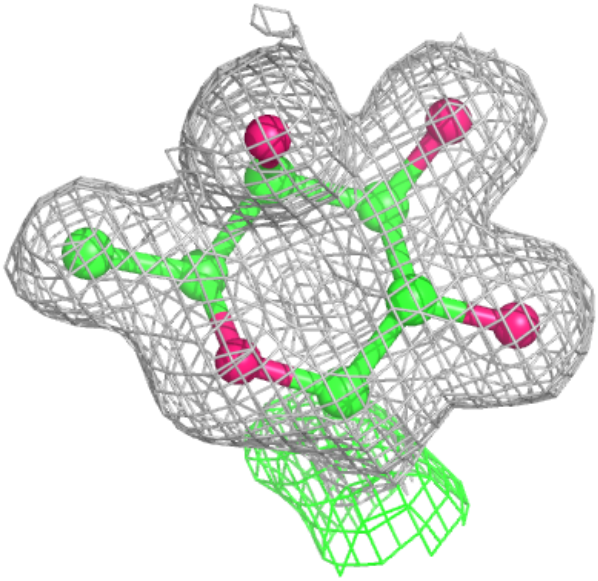
Electron density around DTK A 403:

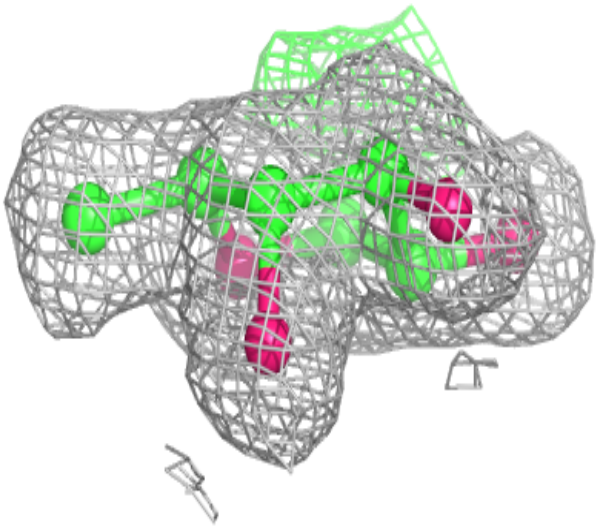
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

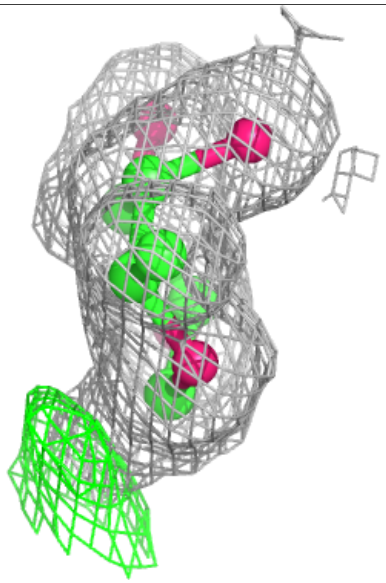


Electron density around DTK A 405:

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

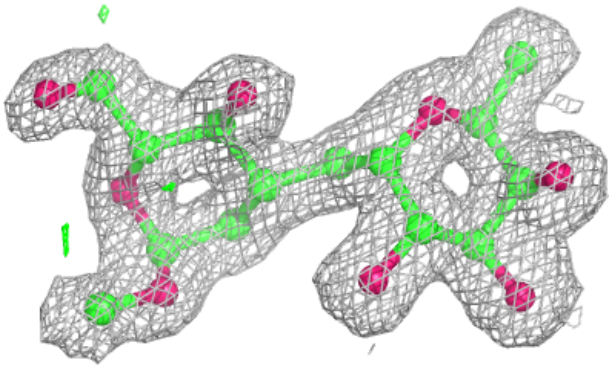


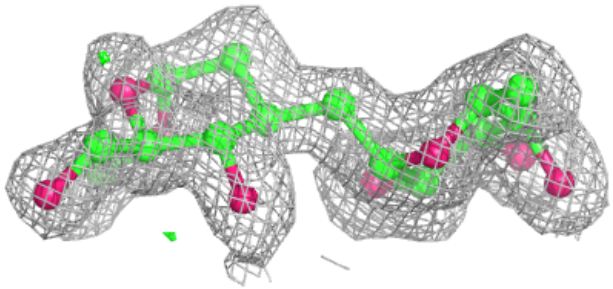


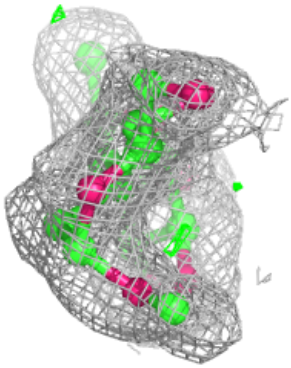


Electron density around DTK A 401:

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

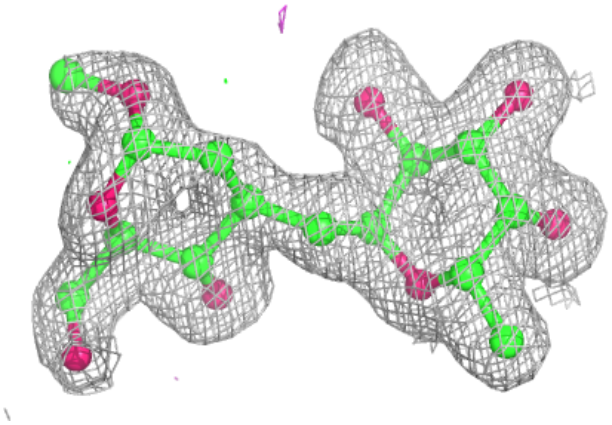


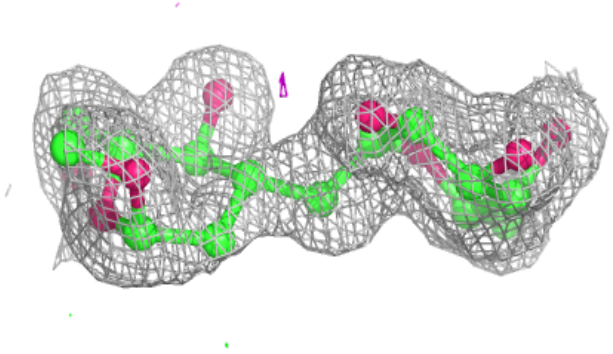


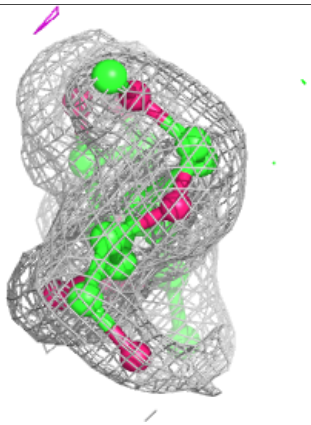


Electron density around DTK B 401:

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

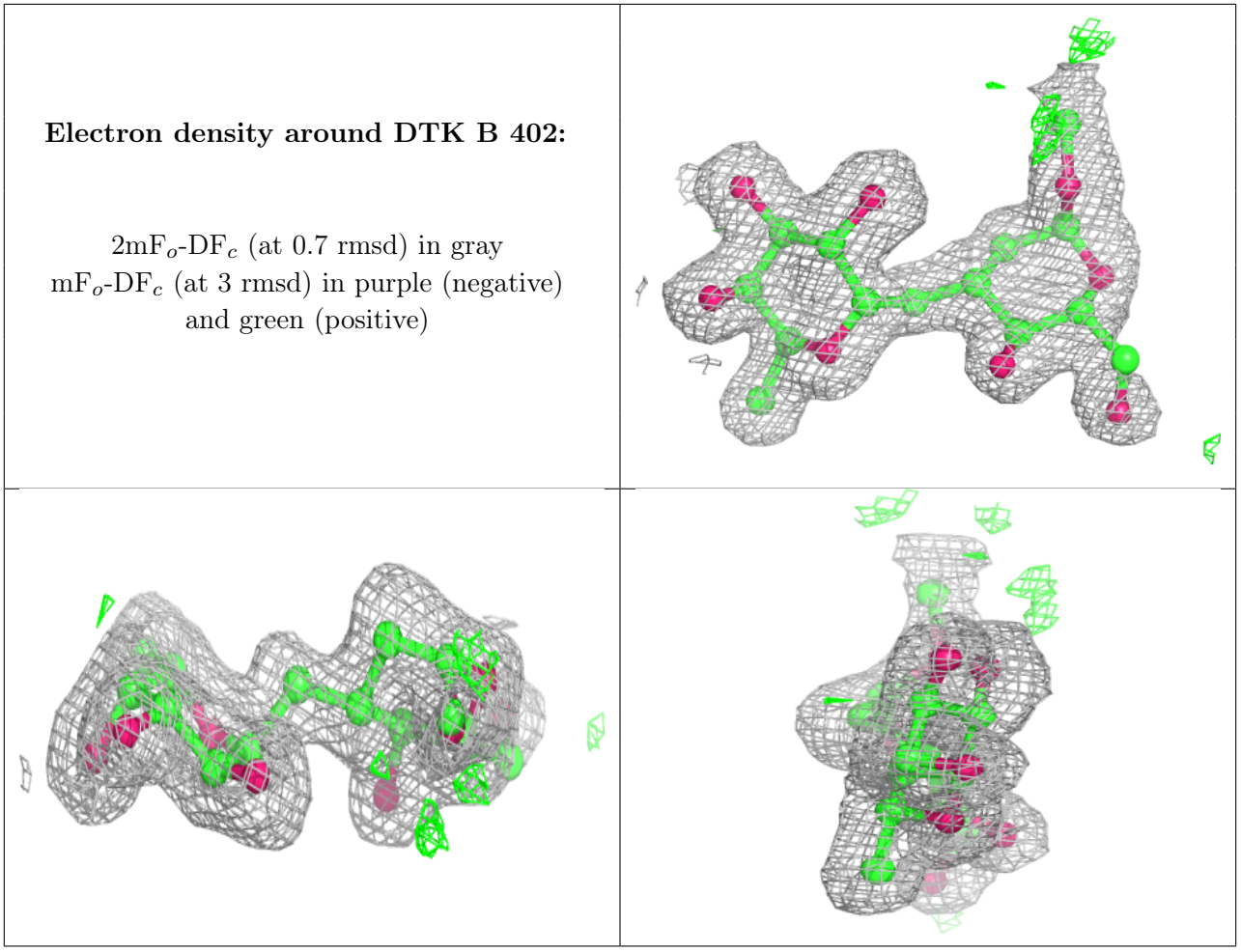






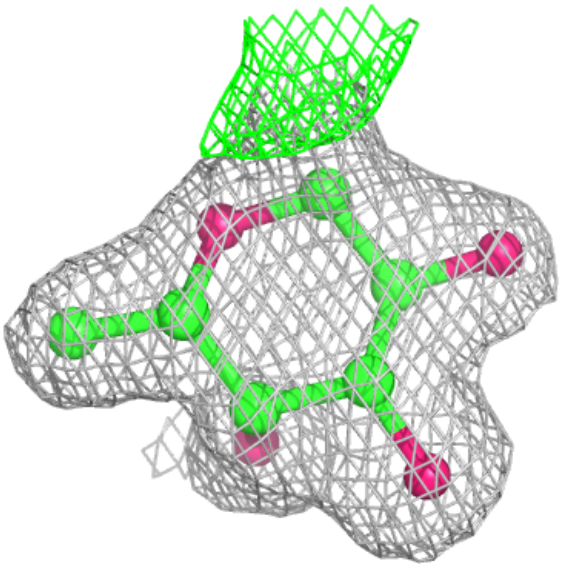
Electron density around DTK B 402:

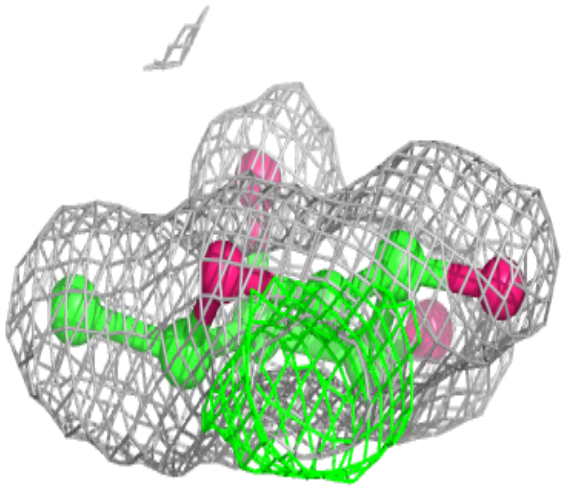
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

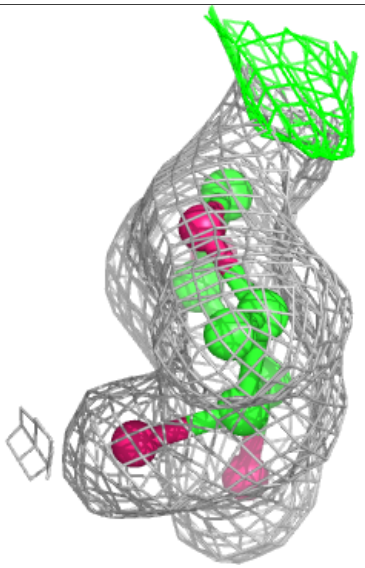


Electron density around DTK B 403:

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

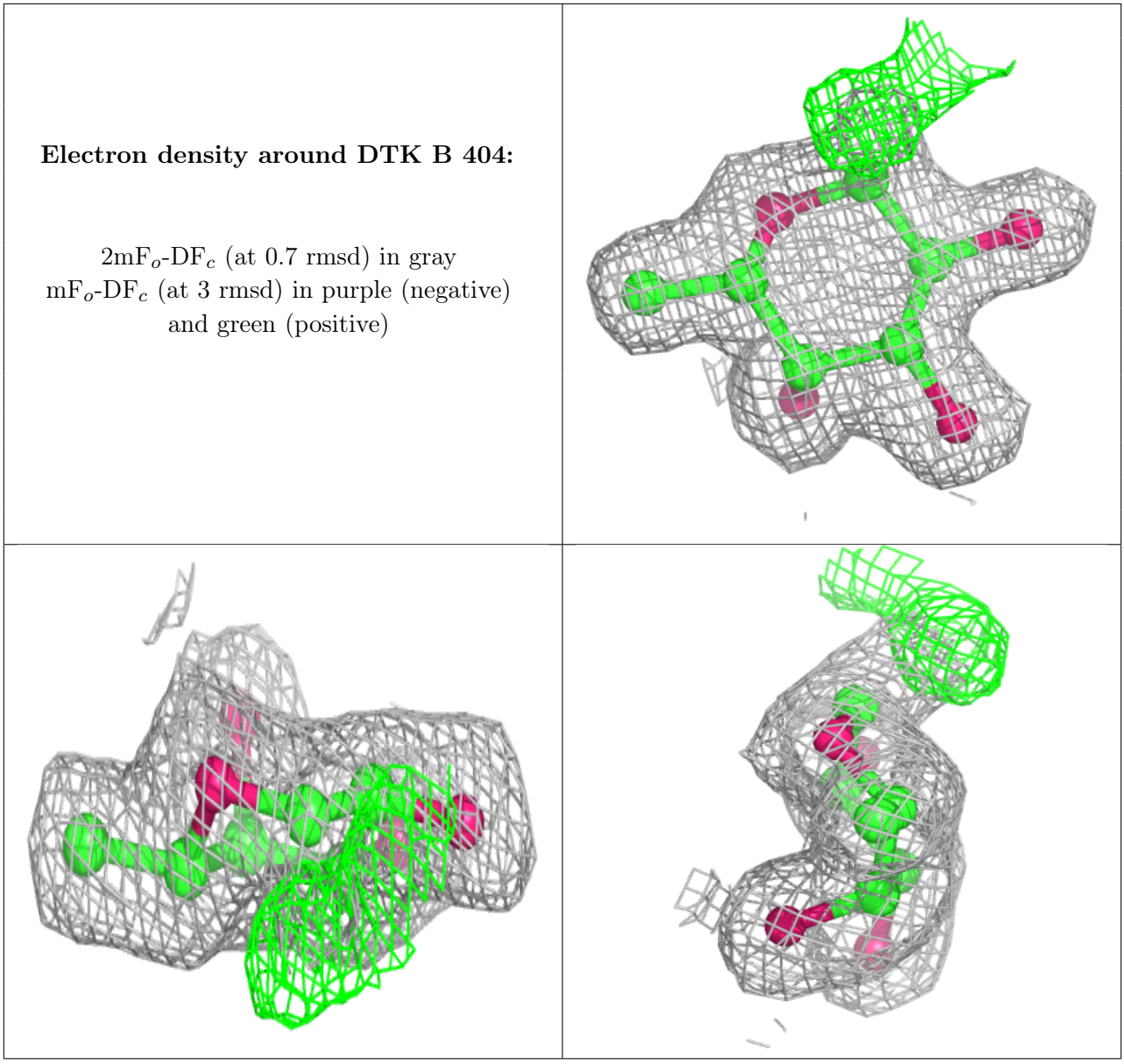






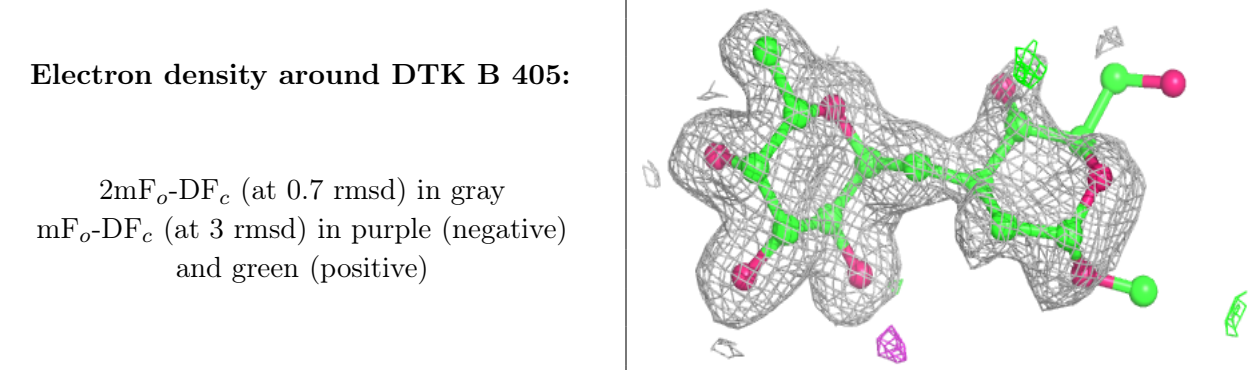
Electron density around DTK B 404:

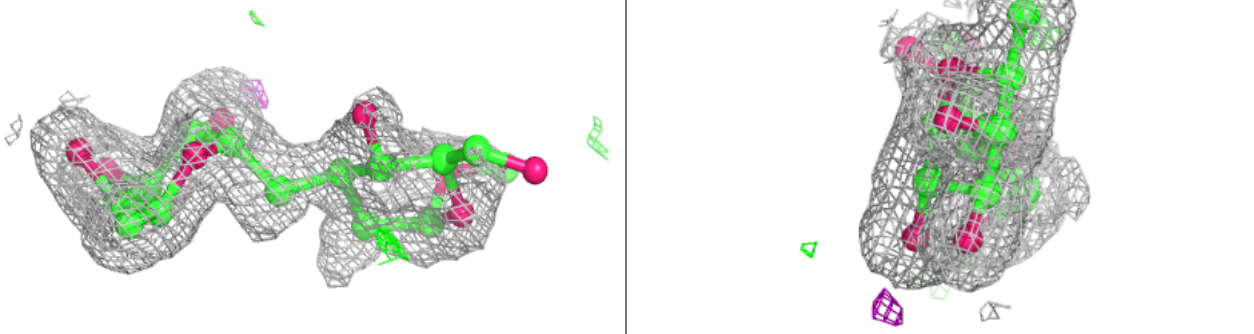
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



Electron density around DTK B 405:

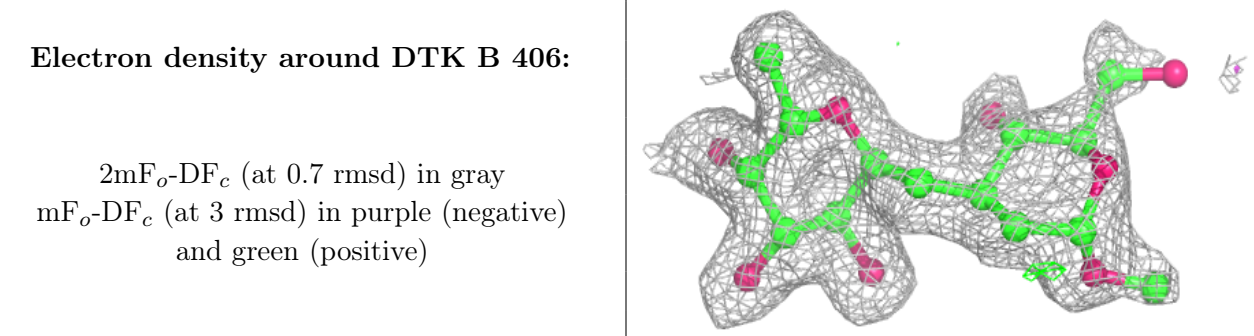
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

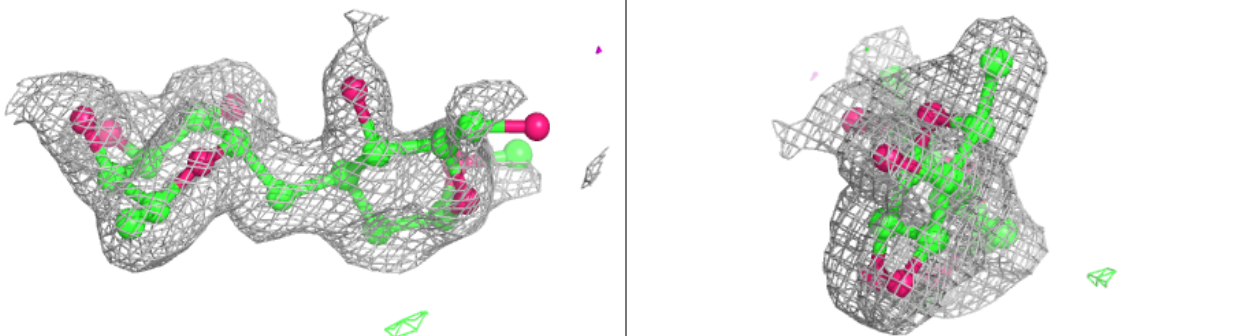




Electron density around DTK B 406:

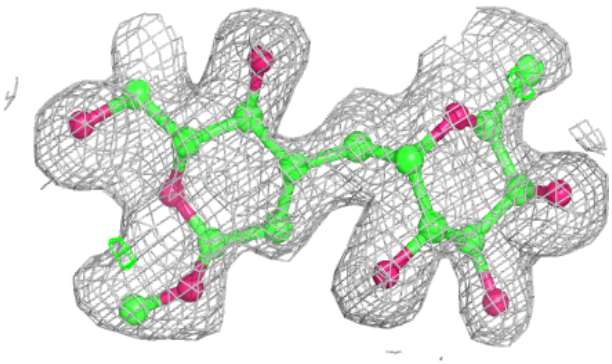
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

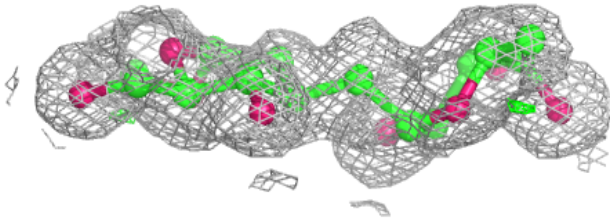


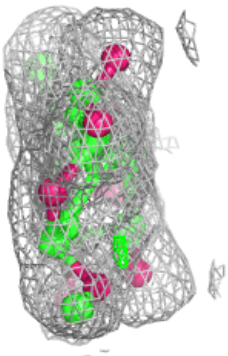


Electron density around DTK A 404:

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

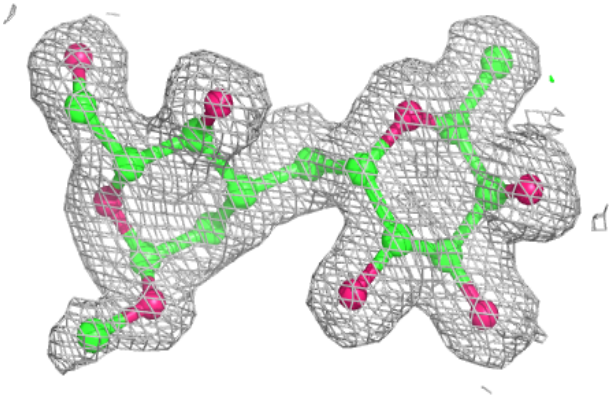


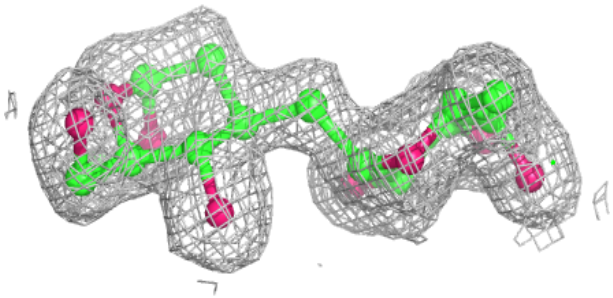


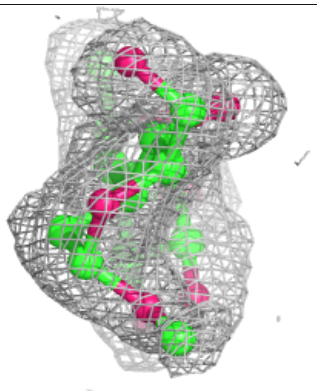


Electron density around DTK A 402:

$2mF_o$-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.